

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: FC9604

Sampling Date: 09/12/23



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: 1162



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 unless noted in the narrative, comments or footnotes.

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: FC9604-1: AF-RHP01-WGN01LF-2309	7
4.2: FC9604-2: AF-RHP01-EB01LF-2309	10
4.3: FC9604-3: AF-RHP01-EB02LF-2309	13
4.4: FC9604-4: AF-RHMW01R-WGN01LF-2309	16
4.5: FC9604-5: AF-RHMW01R-EB01LF-2309	19
4.6: FC9604-6: AF-RHMW01R-EB02LF-2309	22
4.7: FC9604-7: AF-RHMW01R-EB03LF-2309	25
Section 5: Misc. Forms	28
5.1: Chain of Custody	29
5.2: QC Evaluation: DOD QSM5.x Limits	32
Section 6: MS Semi-volatiles - QC Data Summaries	33
6.1: Method Blank Summary	34
6.2: Blank Spike Summary	44
6.3: Matrix Spike Summary	52
6.4: Duplicate Summary	54
6.5: Injection Standard Area Summaries	56
6.6: TDCA Retention Time Checks	62
6.7: Ion Ratio Summaries	70
6.8: Isotope Dilution Standard Recovery Summaries	72
6.9: Initial and Continuing Calibration Summaries	75
6.10: Run Sequence Reports	103
Section 7: MS Semi-volatiles - Raw Data	111
7.1: Samples	112
7.2: Method Blanks	194
7.3: Blank Spikes	250
7.4: Matrix Spikes	338
7.5: Duplicates	360
7.6: Retention Time Markers	374
7.7: Initial and Continuing Calibrations	452
7.8: Instrument Run Logs	1050
7.9: Standard Prep Logs	1060
7.10: Sample Prep Logs	1161



Sample Summary

AECOM, INC.

Job No: FC9604

**N6274223F0104 RH Fire Suppression System
Project No: 60697810**

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC9604-1	09/12/23	14:30	AYMD09/14/23	AQ	Ground Water	AF-RHP01-WGN01LF-2309
FC9604-2	09/12/23	10:15	AYMD09/14/23	AQ	Equipment Blank	AF-RHP01-EB01LF-2309
FC9604-3	09/12/23	10:30	AYMD09/14/23	AQ	Equipment Blank	AF-RHP01-EB02LF-2309
FC9604-4	09/12/23	14:15	JVCW 09/14/23	AQ	Ground Water	AF-RHMW01R-WGN01LF-2309
FC9604-5	09/12/23	11:45	JVCW 09/14/23	AQ	Equipment Blank	AF-RHMW01R-EB01LF-2309
FC9604-6	09/12/23	11:50	JVCW 09/14/23	AQ	Equipment Blank	AF-RHMW01R-EB02LF-2309
FC9604-7	09/12/23	16:20	JVCW 09/14/23	AQ	Equipment Blank	AF-RHMW01R-EB03LF-2309

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC9604

Site: N6274223F0104 RH Fire Suppression System

Report Date: 9/27/2023 9:17:17 AM

On 09/14/2023, 2 Samples and 5 Equipment Blanks 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 FC9604 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: OP99077

Sample(s) FC9640-1MS, FC9640-2DUP were used as the QC samples indicated.

Matrix: AQ

Batch ID: OP99174

OP99174-BS: Insufficient sample for MS/MSD.

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: FC9604
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 09/12/23



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

FC9604-1 AF-RHP01-WGN01LF-2309

Perfluorobutanoic acid	13.7 J	15	3.8	ng/l	EPA DRAFT 1633
Perfluoropentanoic acid	9.5	7.5	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	4.4	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	3.9	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	3.9	3.8	0.94	ng/l	EPA DRAFT 1633
Perfluorononanoic acid	1.1 J	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluorobutanesulfonic acid	1.7 J	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanesulfonic acid	4.9	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluorooctanesulfonic acid	13.2	3.8	1.9	ng/l	EPA DRAFT 1633

FC9604-2 AF-RHP01-EB01LF-2309

No hits reported in this sample.

FC9604-3 AF-RHP01-EB02LF-2309

No hits reported in this sample.

FC9604-4 AF-RHMW01R-WGN01LF-2309

Perfluoropentanoic acid	2.4 J	7.4	1.9	ng/l	EPA DRAFT 1633
-------------------------	-------	-----	-----	------	----------------

FC9604-5 AF-RHMW01R-EB01LF-2309

No hits reported in this sample.

FC9604-6 AF-RHMW01R-EB02LF-2309

No hits reported in this sample.

FC9604-7 AF-RHMW01R-EB03LF-2309

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-RHP01-WGN01LF-2309		
Lab Sample ID:	FC9604-1	Date Sampled:	09/12/23
Matrix:	AQ - Ground Water	Date Received:	09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q24827.D	1	09/22/23 00:25	MV	09/19/23 10:30	OP99077	S6Q355
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	13.7	15	3.8	1.8	ng/l	J
2706-90-3	Perfluoropentanoic acid	9.5	7.5	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	4.4	3.8	1.9	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	3.9	3.8	1.9	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	3.9	3.8	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.1	3.8	1.9	0.58	ng/l	J
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.7	3.8	1.9	0.47	ng/l	J
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	4.9	3.8	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	13.2	3.8	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	3.8	1.9	0.63	ng/l	
31506-32-8	MeFOSA	3.8 U	7.5	3.8	0.94	ng/l	
4151-50-2	EtFOSA	3.8 U	7.5	3.8	0.94	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHP01-WGN01LF-2309		
Lab Sample ID:	FC9604-1	Date Sampled:	09/12/23
Matrix:	AQ - Ground Water	Date Received:	09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	38	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.94	ng/l	
919005-14-4	ADONA	3.8 U	7.5	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.5	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	7.5	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.5	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.5	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.5	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.5	1.9	0.74	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	19	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	94	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	94	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	98%		20-150%
	13C5-PFPeA	103%		20-150%
	13C5-PFHxA	106%		20-150%
	13C4-PFHpA	104%		20-150%
	13C8-PFOA	106%		20-150%
	13C9-PFNA	103%		20-150%
	13C6-PFDA	104%		20-150%
	13C7-PFUnDA	102%		20-150%
	13C2-PFDoDA	85%		20-150%
	13C2-PFTeDA	80%		20-150%
	13C3-PFBS	101%		20-150%
	13C3-PFHxS	101%		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-RHP01-WGN01LF-2309	
Lab Sample ID:	FC9604-1	Date Sampled: 09/12/23
Matrix:	AQ - Ground Water	Date Received: 09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	96%		20-150%
	13C8-FOSA	77%		20-150%
	d3-MeFOSA	75%		20-150%
	d5-EtFOSA	86%		20-150%
	d3-MeFOSAA	87%		20-150%
	d5-EtFOSAA	82%		20-150%
	d7-MeFOSE	76%		20-150%
	d9-EtFOSE	80%		20-150%
	13C2-4:2FTS	99%		20-180%
	13C2-6:2FTS	103%		20-180%
	13C2-8:2FTS	97%		20-180%
	13C3-HFPO-DA	104%		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

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHP01-EB01LF-2309		
Lab Sample ID:	FC9604-2	Date Sampled:	09/12/23
Matrix:	AQ - Equipment Blank	Date Received:	09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q25053.D	1	09/25/23 22:50	MV	09/25/23 09:45	OP99174	S6Q357
Run #2							

Run #	Initial Volume	Final Volume
Run #1	520 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.8 U	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.7	1.9	0.90	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
335-67-1	Perfluorooctanoic acid	0.96 U	3.8	0.96	0.48	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.59	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.81	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.8	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	3.8	1.9	0.67	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.52	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.55	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	1.9	0.62	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.8	3.8	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.1	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.7 U	19	7.7	4.0	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	3.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	3.8 U	7.7	3.8	0.96	ng/l	
4151-50-2	EtFOSA	3.8 U	7.7	3.8	0.96	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-RHP01-EB01LF-2309		Date Sampled:	09/12/23
Lab Sample ID:	FC9604-2		Date Received:	09/14/23
Matrix:	AQ - Equipment Blank		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

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

PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.8 U	4.8	3.8	0.96	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.8	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	38	19	4.2	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.1	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.96	ng/l	
919005-14-4	ADONA	3.8 U	7.7	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.7	1.9	0.96	ng/l	
863090-89-5	PFMBA	3.8 U	7.7	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.7	3.8	1.2	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.7	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.7	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.7	1.9	0.75	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.6 U	19	9.6	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	96	19	8.4	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	96	19	7.5	ng/l	

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

	13C4-PFBA	101%		20-150%
	13C5-PFPeA	104%		20-150%
	13C5-PFHxA	106%		20-150%
	13C4-PFHpA	104%		20-150%
	13C8-PFOA	96%		20-150%
	13C9-PFNA	91%		20-150%
	13C6-PFDA	106%		20-150%
	13C7-PFUnDA	100%		20-150%
	13C2-PFDoDA	84%		20-150%
	13C2-PFTeDA	79%		20-150%
	13C3-PFBS	104%		20-150%
	13C3-PFHxS	100%		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-RHP01-EB01LF-2309		Date Sampled:	09/12/23
Lab Sample ID:	FC9604-2		Date Received:	09/14/23
Matrix:	AQ - Equipment Blank		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	103%		20-150%
	13C8-FOSA	84%		20-150%
	d3-MeFOSA	81%		20-150%
	d5-EtFOSA	84%		20-150%
	d3-MeFOSAA	96%		20-150%
	d5-EtFOSAA	87%		20-150%
	d7-MeFOSE	82%		20-150%
	d9-EtFOSE	80%		20-150%
	13C2-4:2FTS	119%		20-180%
	13C2-6:2FTS	106%		20-180%
	13C2-8:2FTS	109%		20-180%
	13C3-HFPO-DA	93%		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

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHP01-EB02LF-2309		
Lab Sample ID:	FC9604-3	Date Sampled:	09/12/23
Matrix:	AQ - Equipment Blank	Date Received:	09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q25054.D	1	09/25/23 23:04	MV	09/25/23 09:45	OP99174	S6Q357
Run #2							

Run #	Initial Volume	Final Volume
Run #1	490 ml	5.0 ml
Run #2		

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

PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	4.1 U	16	4.1	1.9	ng/l	
2706-90-3	Perfluoropentanoic acid	2.0 U	8.2	2.0	0.96	ng/l	
307-24-4	Perfluorohexanoic acid	2.0 U	4.1	2.0	0.51	ng/l	
375-85-9	Perfluoroheptanoic acid	2.0 U	4.1	2.0	0.51	ng/l	
335-67-1	Perfluorooctanoic acid	1.0 U	4.1	1.0	0.51	ng/l	
375-95-1	Perfluorononanoic acid	2.0 U	4.1	2.0	0.62	ng/l	
335-76-2	Perfluorodecanoic acid	2.0 U	4.1	2.0	0.51	ng/l	
2058-94-8	Perfluoroundecanoic acid	2.0 U	4.1	2.0	0.61	ng/l	
307-55-1	Perfluorododecanoic acid	2.0 U	4.1	2.0	0.61	ng/l	
72629-94-8	Perfluorotridecanoic acid	2.0 U	4.1	2.0	0.86	ng/l	
376-06-7	Perfluorotetradecanoic acid	2.0 U	4.1	2.0	0.51	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	2.0 U	4.1	2.0	0.51	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	4.1 U	5.1	4.1	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	2.0 U	4.1	2.0	0.71	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	2.0 U	4.1	2.0	0.51	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	2.0 U	4.1	2.0	0.55	ng/l	
68259-12-1	Perfluorononanesulfonic acid	2.0 U	4.1	2.0	0.58	ng/l	
335-77-3	Perfluorodecanesulfonic acid	2.0 U	4.1	2.0	0.65	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	4.1 U	5.1	4.1	1.2	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	8.2 U	20	8.2	3.3	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	8.2 U	20	8.2	3.5	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	8.2 U	20	8.2	4.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	2.0 U	4.1	2.0	0.68	ng/l	
31506-32-8	MeFOSA	4.1 U	8.2	4.1	1.0	ng/l	
4151-50-2	EtFOSA	4.1 U	8.2	4.1	1.0	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-RHP01-EB02LF-2309		Date Sampled:	09/12/23
Lab Sample ID:	FC9604-3		Date Received:	09/14/23
Matrix:	AQ - Equipment Blank		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

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

PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	4.1 U	5.1	4.1	1.0	ng/l	
2991-50-6	EtFOSAA	4.1 U	5.1	4.1	1.4	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	20 U	41	20	4.5	ng/l	
1691-99-2	EtFOSE	20 U	41	20	7.6	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	2.0 U	4.1	2.0	1.0	ng/l	
919005-14-4	ADONA	4.1 U	8.2	4.1	1.9	ng/l	
377-73-1	PFMPA	2.0 U	8.2	2.0	1.0	ng/l	
863090-89-5	PFMBA	4.1 U	8.2	4.1	1.2	ng/l	
151772-58-6	NFDHA	4.1 U	8.2	4.1	1.2	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	4.1 U	8.2	4.1	1.4	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	4.1 U	8.2	4.1	1.8	ng/l	
113507-82-7	PFEESA	2.0 U	8.2	2.0	0.80	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	10 U	20	10	4.6	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	20 U	100	20	8.9	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	20 U	100	20	8.0	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	95%		20-150%
	13C5-PFPeA	101%		20-150%
	13C5-PFHxA	102%		20-150%
	13C4-PFHpA	101%		20-150%
	13C8-PFOA	98%		20-150%
	13C9-PFNA	95%		20-150%
	13C6-PFDA	102%		20-150%
	13C7-PFUnDA	97%		20-150%
	13C2-PFDoDA	88%		20-150%
	13C2-PFTeDA	77%		20-150%
	13C3-PFBS	99%		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-RHP01-EB02LF-2309	
Lab Sample ID:	FC9604-3	Date Sampled: 09/12/23
Matrix:	AQ - Equipment Blank	Date Received: 09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	104%		20-150%
	13C8-FOSA	84%		20-150%
	d3-MeFOSA	88%		20-150%
	d5-EtFOSA	92%		20-150%
	d3-MeFOSAA	103%		20-150%
	d5-EtFOSAA	101%		20-150%
	d7-MeFOSE	84%		20-150%
	d9-EtFOSE	84%		20-150%
	13C2-4:2FTS	109%		20-180%
	13C2-6:2FTS	102%		20-180%
	13C2-8:2FTS	106%		20-180%
	13C3-HFPO-DA	93%		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

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW01R-WGN01LF-2309		
Lab Sample ID:	FC9604-4	Date Sampled:	09/12/23
Matrix:	AQ - Ground Water	Date Received:	09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q24830.D	1	09/22/23 01:08	MV	09/19/23 10:30	OP99077	S6Q355
Run #2							

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

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	2.4	7.4	1.9	0.87	ng/l	J
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 aci	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	7.4	3.7	0.93	ng/l	
4151-50-2	EtFOSA	3.7 U	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-RHMW01R-WGN01LF-2309		
Lab Sample ID:	FC9604-4	Date Sampled:	09/12/23
Matrix:	AQ - Ground Water	Date Received:	09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.7 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	37	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U	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	103%		20-150%
	13C5-PFPeA	105%		20-150%
	13C5-PFHxA	110%		20-150%
	13C4-PFHpA	106%		20-150%
	13C8-PFOA	98%		20-150%
	13C9-PFNA	99%		20-150%
	13C6-PFDA	94%		20-150%
	13C7-PFUnDA	98%		20-150%
	13C2-PFDoDA	79%		20-150%
	13C2-PFTeDA	72%		20-150%
	13C3-PFBS	106%		20-150%
	13C3-PFHxS	104%		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

4.4
 4

Report of Analysis

Client Sample ID:	AF-RHMW01R-WGN01LF-2309	
Lab Sample ID:	FC9604-4	Date Sampled: 09/12/23
Matrix:	AQ - Ground Water	Date Received: 09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	95%		20-150%
	13C8-FOSA	84%		20-150%
	d3-MeFOSA	74%		20-150%
	d5-EtFOSA	74%		20-150%
	d3-MeFOSAA	89%		20-150%
	d5-EtFOSAA	83%		20-150%
	d7-MeFOSE	75%		20-150%
	d9-EtFOSE	79%		20-150%
	13C2-4:2FTS	99%		20-180%
	13C2-6:2FTS	108%		20-180%
	13C2-8:2FTS	107%		20-180%
	13C3-HFPO-DA	105%		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

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW01R-EB01LF-2309		
Lab Sample ID:	FC9604-5	Date Sampled:	09/12/23
Matrix:	AQ - Equipment Blank	Date Received:	09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q24831.D	1	09/22/23 01:22	MV	09/19/23 10:30	OP99077	S6Q355
Run #2							

Run #	Initial Volume	Final Volume
Run #1	520 ml	5.0 ml
Run #2		

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

PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	3.8 U	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.7	1.9	0.90	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
335-67-1	Perfluorooctanoic acid	0.96 U	3.8	0.96	0.48	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.59	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.81	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.8	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	3.8	1.9	0.67	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.52	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.55	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	1.9	0.62	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.8	3.8	1.1	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.1	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.7 U	19	7.7	4.0	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	3.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	3.8 U	7.7	3.8	0.96	ng/l	
4151-50-2	EtFOSA	3.8 U	7.7	3.8	0.96	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-RHMW01R-EB01LF-2309	
Lab Sample ID:	FC9604-5	Date Sampled: 09/12/23
Matrix:	AQ - Equipment Blank	Date Received: 09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

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

PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.8 U	4.8	3.8	0.96	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.8	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	38	19	4.2	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.1	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.96	ng/l	
919005-14-4	ADONA	3.8 U	7.7	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.7	1.9	0.96	ng/l	
863090-89-5	PFMBA	3.8 U	7.7	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.7	3.8	1.2	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.7	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.7	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.7	1.9	0.75	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.6 U	19	9.6	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	96	19	8.4	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	96	19	7.5	ng/l	

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

	13C4-PFBA	103%		20-150%
	13C5-PFPeA	98%		20-150%
	13C5-PFHxA	96%		20-150%
	13C4-PFHpA	102%		20-150%
	13C8-PFOA	99%		20-150%
	13C9-PFNA	99%		20-150%
	13C6-PFDA	99%		20-150%
	13C7-PFUnDA	112%		20-150%
	13C2-PFDoDA	106%		20-150%
	13C2-PFTeDA	83%		20-150%
	13C3-PFBS	105%		20-150%
	13C3-PFHxS	102%		20-150%

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

Report of Analysis

Client Sample ID:	AF-RHMW01R-EB01LF-2309		
Lab Sample ID:	FC9604-5	Date Sampled:	09/12/23
Matrix:	AQ - Equipment Blank	Date Received:	09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	93%		20-150%
	13C8-FOSA	76%		20-150%
	d3-MeFOSA	76%		20-150%
	d5-EtFOSA	86%		20-150%
	d3-MeFOSAA	93%		20-150%
	d5-EtFOSAA	92%		20-150%
	d7-MeFOSE	76%		20-150%
	d9-EtFOSE	80%		20-150%
	13C2-4:2FTS	112%		20-180%
	13C2-6:2FTS	116%		20-180%
	13C2-8:2FTS	103%		20-180%
	13C3-HFPO-DA	95%		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

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW01R-EB02LF-2309		
Lab Sample ID:	FC9604-6	Date Sampled:	09/12/23
Matrix:	AQ - Equipment Blank	Date Received:	09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q25055.D	1	09/25/23 23:19	MV	09/25/23 09:45	OP99174	S6Q357
Run #2							

Run #	Initial Volume	Final Volume
Run #1	520 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.8 U	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.7	1.9	0.90	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
335-67-1	Perfluorooctanoic acid	0.96 U	3.8	0.96	0.48	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.59	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.81	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.8	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	3.8	1.9	0.67	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.52	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.55	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	1.9	0.62	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.8	3.8	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.1	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.7 U	19	7.7	4.0	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	3.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	3.8 U	7.7	3.8	0.96	ng/l	
4151-50-2	EtFOSA	3.8 U	7.7	3.8	0.96	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-RHMW01R-EB02LF-2309		
Lab Sample ID:	FC9604-6	Date Sampled:	09/12/23
Matrix:	AQ - Equipment Blank	Date Received:	09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.8 U	4.8	3.8	0.96	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.8	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	38	19	4.2	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.1	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.96	ng/l	
919005-14-4	ADONA	3.8 U	7.7	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.7	1.9	0.96	ng/l	
863090-89-5	PFMBA	3.8 U	7.7	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.7	3.8	1.2	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.7	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.7	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.7	1.9	0.75	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.6 U	19	9.6	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	96	19	8.4	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	96	19	7.5	ng/l	

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

	13C4-PFBA	87%		20-150%
	13C5-PFPeA	91%		20-150%
	13C5-PFHxA	89%		20-150%
	13C4-PFHpA	90%		20-150%
	13C8-PFOA	83%		20-150%
	13C9-PFNA	93%		20-150%
	13C6-PFDA	92%		20-150%
	13C7-PFUnDA	84%		20-150%
	13C2-PFDoDA	80%		20-150%
	13C2-PFTeDA	67%		20-150%
	13C3-PFBS	89%		20-150%
	13C3-PFHxS	86%		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-RHMW01R-EB02LF-2309	
Lab Sample ID:	FC9604-6	Date Sampled: 09/12/23
Matrix:	AQ - Equipment Blank	Date Received: 09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	86%		20-150%
	13C8-FOSA	72%		20-150%
	d3-MeFOSA	70%		20-150%
	d5-EtFOSA	70%		20-150%
	d3-MeFOSAA	87%		20-150%
	d5-EtFOSAA	81%		20-150%
	d7-MeFOSE	70%		20-150%
	d9-EtFOSE	68%		20-150%
	13C2-4:2FTS	91%		20-180%
	13C2-6:2FTS	90%		20-180%
	13C2-8:2FTS	90%		20-180%
	13C3-HFPO-DA	83%		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

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW01R-EB03LF-2309		
Lab Sample ID:	FC9604-7	Date Sampled:	09/12/23
Matrix:	AQ - Equipment Blank	Date Received:	09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q24833.D	1	09/22/23 01:51	MV	09/19/23 10:30	OP99077	S6Q355
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.8 U	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.5	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	3.8	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	3.8	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	3.8	1.9	0.63	ng/l	
31506-32-8	MeFOSA	3.8 U	7.5	3.8	0.94	ng/l	
4151-50-2	EtFOSA	3.8 U	7.5	3.8	0.94	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW01R-EB03LF-2309		
Lab Sample ID:	FC9604-7	Date Sampled:	09/12/23
Matrix:	AQ - Equipment Blank	Date Received:	09/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	38	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.94	ng/l	
919005-14-4	ADONA	3.8 U	7.5	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.5	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	7.5	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.5	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.5	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.5	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.5	1.9	0.74	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	19	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	94	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	94	19	7.4	ng/l	

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

	13C4-PFBA	103%		20-150%
	13C5-PFPeA	110%		20-150%
	13C5-PFHxA	104%		20-150%
	13C4-PFHpA	106%		20-150%
	13C8-PFOA	99%		20-150%
	13C9-PFNA	95%		20-150%
	13C6-PFDA	97%		20-150%
	13C7-PFUnDA	105%		20-150%
	13C2-PFDoDA	98%		20-150%
	13C2-PFTeDA	80%		20-150%
	13C3-PFBS	96%		20-150%
	13C3-PFHxS	101%		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-RHMW01R-EB03LF-2309		Date Sampled:	09/12/23
Lab Sample ID:	FC9604-7		Date Received:	09/14/23
Matrix:	AQ - Equipment Blank		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	89%		20-150%
	d3-MeFOSA	87%		20-150%
	d5-EtFOSA	96%		20-150%
	d3-MeFOSAA	110%		20-150%
	d5-EtFOSAA	97%		20-150%
	d7-MeFOSE	90%		20-150%
	d9-EtFOSE	96%		20-150%
	13C2-4:2FTS	106%		20-180%
	13C2-6:2FTS	108%		20-180%
	13C2-8:2FTS	103%		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 North America Inc - Orlando

Chain of Custody

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

FC9604

2309AFSG21

SGS - ORLANDO JOB #:

PAGE 1 OF 1

Client / Reporting Information			Project Information			SGS - ORLANDO Quote #		SKIFF #																																					
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System			PFAS EPA Draft 1633		<table border="1"> <tr><th colspan="2">Analytical Information</th><th>Matrix Codes</th></tr> <tr><td></td><td></td><td>DW - Drinking Water</td></tr> <tr><td></td><td></td><td>GW - Ground Water</td></tr> <tr><td></td><td></td><td>WW - Water</td></tr> <tr><td></td><td></td><td>SW - Surface Water</td></tr> <tr><td></td><td></td><td>SO - Soil</td></tr> <tr><td></td><td></td><td>SL - Sludge</td></tr> <tr><td></td><td></td><td>OI - Oil</td></tr> <tr><td></td><td></td><td>LIQ - Other Liquid</td></tr> <tr><td></td><td></td><td>AIR - Air</td></tr> <tr><td></td><td></td><td>SOL - Other Solid</td></tr> <tr><td></td><td></td><td>WP - Wipe</td></tr> </table>		Analytical Information		Matrix Codes			DW - Drinking Water			GW - Ground Water			WW - Water			SW - Surface Water			SO - Soil			SL - Sludge			OI - Oil			LIQ - Other Liquid			AIR - Air			SOL - Other Solid			WP - Wipe
Analytical Information		Matrix Codes																																											
		DW - Drinking Water																																											
		GW - Ground Water																																											
		WW - Water																																											
		SW - Surface Water																																											
		SO - Soil																																											
		SL - Sludge																																											
		OI - Oil																																											
		LIQ - Other Liquid																																											
		AIR - Air																																											
		SOL - Other Solid																																											
		WP - Wipe																																											
Address: 1001 Bishop St. ste 1600			Street																																										
City: Honolulu State: HI Zip: 96813			City Honolulu State Hawaii																																										
Project Contact: Katie Abbott Email: katie.abbott@aecom.com			Project # 23F0104 - 60697810																																										
Project Manager: Watson Tanji Email: watson.tanji@aecom.com			Fax #																																										
Phone #: 303-796-4624 / 808-954-4512			Client Purchase Order # 151253																																										
Sampler(s) Name(s) (Printed) Sampler 1: <i>Andy Young</i> Sampler 2: <i>Miranda DeGarmo</i>																																													
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION											LAB USE ONLY																													
		DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	PCJ	INH	HN03	HE04	NAOH-ZNAC	DI WATER	MECH																														
1	AF-RHP01-WGN01LF-2309	9/12/23	1430	<i>AS, MD</i>	GW	3		X									X																												
2	AF-RHP01-EB01LF-2309	↓	1015	<i>AS, MD</i>	GW	3		X									X																												
3	AF-RHP01-EB02LF-2309	↓	1050	<i>AS, MD</i>	GW	3		X									X																												
<i>SP</i>																																													
<i>AS, MD</i> 9/12/23						INITIAL ASSESSMENT						LABEL VERIFICATION																																	
Turnaround Time (Business days)			Data Deliverable Information						Comments / Remarks																																				
10 Day (Business) Approved By: / Date: _____ 7 Day _____ <input type="checkbox"/> 5 Day _____ 3 Day RUSH _____ 2 Day RUSH _____ 1 Day RUSH _____ Other _____			<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S						EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW <i>united AWB: 016-22612903</i>																																				
Rush T/A Data Available VIA Email or Lblink																																													
Sample Custody must be documented below each time samples change possession, including courier delivery.																																													
Relinquished by Sampler/Affiliation 1 <i>Andy Young / AECOM</i>		Date Time: /SSD <i>9/12/23/SSD</i>		Received By/Affiliation 2 <i>Alex Edmunds / AECOM</i>				Relinquished By/Affiliation 3 <i>Alex Edmunds / AECOM</i>		Date Time: /SSD <i>9/12/23/SSD</i>		Received By/Affiliation 4 <i>UC</i>																																	
Relinquished by/Affiliation 5 <i>UC</i>		Date Time: /SSD		Received By/Affiliation 6 <i>SP</i>				Relinquished By/Affiliation 7 <i>SP</i>		Date Time: /SSD		Received By/Affiliation 8																																	

PFAS_COCS_ALL_09112023.xls Rev 031318

FC9604: Chain of Custody

Page 1 of 3



5.1
5



SGS North America Inc - Orlando
Chain of Custody

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

FC 9604

2309AFSG14

SGS - ORLANDO JOB #:

PAGE 1 OF 1

Client / Reporting Information		Project Information		Analytical Information												Matrix Codes		
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">PFAS EPA Draft 1633</div> <div style="text-align: center;"> 09/12/23 </div> <div style="font-size: small;"> DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe </div> </div>												LAB USE ONLY		
Address: 1001 Bishop St. ste 1600		Street																
City: Honolulu State: HI Zip: 96813		City Honolulu State Hawaii																
Project Contact: Katie Abbott Email: katie.abbott@aecom.com Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Project # 23F0104 - 60697810																
Phone #: 303-796-4624 / 808-954-4512		Fax #																
Sampler(s) Name(s) (Printed) Sampler 1: JV Sampler 2: CW		Client Purchase Order # 151253																
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION												PFAS EPA Draft 1633	LAB USE ONLY
		DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NacOH	HNO3	H2SO4	NACOH-ZNAC	DI WATER	MECH			
4	AF-RHmw01R-WGN01LF-2309	9/12/23	1415	JV CW	GW	3		X									X	
5	AF-RHmw01R-EB01LF-2309	9/12/23	1145	JV CW	GW	3		X									X	
6	AF-RHmw01R-EB02LF-2309	9/12/23	1150	JV CW	GW	3		X									X	
7	AF-RHmw01R-EB03LF-2309	9/12/23	1620	JV CW	GW	3		X									X	
Turnaround Time (Business days)		Data Deliverable Information		Comments / Remarks														
10 Day (Business) Approved By: / Date: 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S		EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWB: 016-22612903														
Rush T/A Data Available VIA Email or Lablink														Sample Custody must be documented below each time samples change possession, including courier delivery.				
Relinquished by Sampler/Affiliation		Date Time:		Received By/Affiliation		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation						
1 Javelyn V6 / AECOM		9/12/23 7:02		2 Alex Edmark AECOM		9/12/23		3 Alex Edmark AECOM		9/12/23		4 UC						
5 Relinquished by/Affiliation UC		Date Time:		6 Alex Edmark AECOM 09/14/23 045		Date Time:		7		Date Time:		8						

PFAS_COCs_ALL_09112023.xls Rev 031318

FC9604: Chain of Custody

Page 2 of 3



5.1 5

QC Evaluation: DOD QSM5.x Limits

Job Number: FC9604
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 09/12/23

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 FC9604

5.2
5

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Instrument Blank

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q355-IBLK	6Q24819.D	1	09/21/23	MV	n/a	n/a	S6Q355

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-1, FC9604-4, FC9604-5, FC9604-7

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: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q355-IBLK	6Q24819.D	1	09/21/23	MV	n/a	n/a	S6Q355

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-1, FC9604-4, FC9604-5, FC9604-7

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	101% 20-150%
	13C5-PFPeA	97% 20-150%
	13C5-PFHxA	95% 20-150%
	13C4-PFHpA	98% 20-150%
	13C8-PFOA	108% 20-150%
	13C9-PFNA	113% 20-150%
	13C6-PFDA	104% 20-150%
	13C7-PFUnDA	109% 20-150%
	13C2-PFDoDA	102% 20-150%
	13C2-PFTeDA	99% 20-150%
	13C3-PFBS	104% 20-150%
	13C3-PFHxS	103% 20-150%
	13C8-PFOS	110% 20-150%
	13C8-FOSA	103% 20-150%
	d3-MeFOSAA	103% 20-150%
	d5-EtFOSAA	98% 20-150%
	13C2-4:2FTS	106% 20-180%
	13C2-6:2FTS	113% 20-180%
	13C2-8:2FTS	107% 20-180%

6.1.1
6

Instrument Blank

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q357-IBLK	6Q25047.D	1	09/25/23	MV	n/a	n/a	S6Q357

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-2, FC9604-3, FC9604-6

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: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q357-IBLK	6Q25047.D	1	09/25/23	MV	n/a	n/a	S6Q357

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-2, FC9604-3, FC9604-6

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	101% 20-150%
	13C5-PFHxA	102% 20-150%
	13C4-PFHpA	103% 20-150%
	13C8-PFOA	98% 20-150%
	13C9-PFNA	97% 20-150%
	13C6-PFDA	104% 20-150%
	13C7-PFUnDA	106% 20-150%
	13C2-PFDoDA	98% 20-150%
	13C2-PFTeDA	94% 20-150%
	13C3-PFBS	100% 20-150%
	13C3-PFHxS	96% 20-150%
	13C8-PFOS	104% 20-150%
	13C8-FOSA	99% 20-150%
	d3-MeFOSA	96% 20-150%
	d5-EtFOSA	95% 20-150%
	d3-MeFOSAA	101% 20-150%
	d5-EtFOSAA	97% 20-150%
	d7-MeFOSE	90% 20-150%
	d9-EtFOSE	90% 20-150%
	13C2-4:2FTS	107% 20-180%
	13C2-6:2FTS	102% 20-180%
	13C2-8:2FTS	97% 20-180%
	13C3-HFPO-DA	95% 20-150%

Method Blank Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99077-MB	6Q24826.D	1	09/22/23	MV	09/19/23	OP99077	S6Q355

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-1, FC9604-4, FC9604-5, FC9604-7

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: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99077-MB	6Q24826.D	1	09/22/23	MV	09/19/23	OP99077	S6Q355

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-1, FC9604-4, FC9604-5, FC9604-7

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	112% 20-150%
	13C5-PFPeA	113% 20-150%
	13C5-PFHxA	118% 20-150%
	13C4-PFHpA	110% 20-150%
	13C8-PFOA	109% 20-150%
	13C9-PFNA	103% 20-150%
	13C6-PFDA	114% 20-150%
	13C7-PFUnDA	113% 20-150%
	13C2-PFDoDA	108% 20-150%
	13C2-PFTeDA	95% 20-150%
	13C3-PFBS	111% 20-150%
	13C3-PFHxS	111% 20-150%
	13C8-PFOS	119% 20-150%
	13C8-FOSA	70% 20-150%
	d3-MeFOSA	79% 20-150%
	d5-EtFOSA	88% 20-150%
	d3-MeFOSAA	118% 20-150%
	d5-EtFOSAA	111% 20-150%
	d7-MeFOSE	73% 20-150%
	d9-EtFOSE	85% 20-150%
	13C2-4:2FTS	120% 20-180%
	13C2-6:2FTS	125% 20-180%
	13C2-8:2FTS	117% 20-180%
	13C3-HFPO-DA	120% 20-150%

6.1.3
6

Method Blank Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99174-MB	6Q25052.D	1	09/25/23	MV	09/25/23	OP99174	S6Q357

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-2, FC9604-3, FC9604-6

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: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99174-MB	6Q25052.D	1	09/25/23	MV	09/25/23	OP99174	S6Q357

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-2, FC9604-3, FC9604-6

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	103% 20-150%
	13C5-PFHxA	103% 20-150%
	13C4-PFHpA	103% 20-150%
	13C8-PFOA	100% 20-150%
	13C9-PFNA	107% 20-150%
	13C6-PFDA	109% 20-150%
	13C7-PFUnDA	102% 20-150%
	13C2-PFDoDA	95% 20-150%
	13C2-PFTeDA	80% 20-150%
	13C3-PFBS	104% 20-150%
	13C3-PFHxS	102% 20-150%
	13C8-PFOS	108% 20-150%
	13C8-FOSA	78% 20-150%
	d3-MeFOSA	80% 20-150%
	d5-EtFOSA	88% 20-150%
	d3-MeFOSAA	96% 20-150%
	d5-EtFOSAA	105% 20-150%
	d7-MeFOSE	76% 20-150%
	d9-EtFOSE	83% 20-150%
	13C2-4:2FTS	113% 20-180%
	13C2-6:2FTS	105% 20-180%
	13C2-8:2FTS	101% 20-180%
	13C3-HFPO-DA	94% 20-150%

6.1.4
6

Continuing Calibration Blank

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q355-ICCB	6Q24835.D	1	09/22/23	MV	n/a	n/a	S6Q355

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP99077-DUP, OP99077-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: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q355-ICCB	6Q24835.D	1	09/22/23	MV	n/a	n/a	S6Q355

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP99077-DUP, OP99077-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	102% 20-150%
	13C5-PFPeA	100% 20-150%
	13C5-PFHxA	97% 20-150%
	13C4-PFHpA	106% 20-150%
	13C8-PFOA	98% 20-150%
	13C9-PFNA	102% 20-150%
	13C6-PFDA	108% 20-150%
	13C7-PFUnDA	111% 20-150%
	13C2-PFDoDA	97% 20-150%
	13C2-PFTeDA	105% 20-150%
	13C3-PFBS	101% 20-150%
	13C3-PFHxS	103% 20-150%
	13C8-PFOS	108% 20-150%
	13C8-FOSA	100% 20-150%
	d3-MeFOSAA	101% 20-150%
	d5-EtFOSAA	101% 20-150%
	13C2-4:2FTS	106% 20-180%
	13C2-6:2FTS	107% 20-180%
	13C2-8:2FTS	112% 20-180%

6.1.5

6

Blank Spike Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99077-LLBS	6Q24825.D	1	09/21/23	MV	09/19/23	OP99077	S6Q355

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-1, FC9604-4, FC9604-5, FC9604-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0312	104	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0156	104	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0074	99	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0081	108	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0083	111	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0074	99	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0084	112	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0079	105	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0072	96	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0073	97	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0075	100	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0071	107	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0071	101	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0065	95	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0077	108	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0076	109	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0079	109	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0072	99	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0070	96	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0308	110	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0299	105	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0280	97	40-150
754-91-6	PFOSA	0.0075	0.0081	108	40-150
31506-32-8	MeFOSA	0.015	0.0157	105	40-150
4151-50-2	EtFOSA	0.015	0.0151	101	40-150
2355-31-9	MeFOSAA	0.0075	0.0081	108	40-150
2991-50-6	EtFOSAA	0.0075	0.0086	115	40-150
24448-09-7	MeFOSE	0.0375	0.0379	101	40-150
1691-99-2	EtFOSE	0.0375	0.0384	102	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0155	103	40-150
919005-14-4	ADONA	0.0142	0.0157	111	40-150
377-73-1	PFMPA	0.015	0.0156	104	40-150
863090-89-5	PFMBA	0.015	0.0156	104	40-150
151772-58-6	NFDHA	0.015	0.0151	101	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0146	104	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0140	99	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99077-LLBS	6Q24825.D	1	09/21/23	MV	09/19/23	OP99077	S6Q355

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-1, FC9604-4, FC9604-5, FC9604-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0140	105	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0289	77	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.181	97	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.196	105	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	112%	20-150%
	13C5-PFPeA	111%	20-150%
	13C5-PFHxA	112%	20-150%
	13C4-PFHpA	108%	20-150%
	13C8-PFOA	107%	20-150%
	13C9-PFNA	103%	20-150%
	13C6-PFDA	108%	20-150%
	13C7-PFUnDA	115%	20-150%
	13C2-PFDoDA	112%	20-150%
	13C2-PFTeDA	107%	20-150%
	13C3-PFBS	113%	20-150%
	13C3-PFHxS	118%	20-150%
	13C8-PFOS	112%	20-150%
	13C8-FOSA	81%	20-150%
	d3-MeFOSA	84%	20-150%
	d5-EtFOSA	91%	20-150%
	d3-MeFOSAA	112%	20-150%
	d5-EtFOSAA	108%	20-150%
	d7-MeFOSE	83%	20-150%
	d9-EtFOSE	91%	20-150%
	13C2-4:2FTS	118%	20-180%
	13C2-6:2FTS	123%	20-180%
	13C2-8:2FTS	121%	20-180%
	13C3-HFPO-DA	108%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99174-LLBS	6Q25051.D	1	09/25/23	MV	09/25/23	OP99174	S6Q357

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-2, FC9604-3, FC9604-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0286	95	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0139	93	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0067	89	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0068	91	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0069	92	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0064	85	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0065	87	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0072	96	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0074	99	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0063	84	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0074	99	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0061	92	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0065	92	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0068	99	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0065	91	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0062	89	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0069	96	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0060	83	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0055	76	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0272	97	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0308	108	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0279	97	40-150
754-91-6	PFOSA	0.0075	0.0080	107	40-150
31506-32-8	MeFOSA	0.015	0.0141	94	40-150
4151-50-2	EtFOSA	0.015	0.0133	89	40-150
2355-31-9	MeFOSAA	0.0075	0.0067	89	40-150
2991-50-6	EtFOSAA	0.0075	0.0065	87	40-150
24448-09-7	MeFOSE	0.0375	0.0328	87	40-150
1691-99-2	EtFOSE	0.0375	0.0328	87	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0133	89	40-150
919005-14-4	ADONA	0.0142	0.0144	102	40-150
377-73-1	PFMPA	0.015	0.0133	89	40-150
863090-89-5	PFMBA	0.015	0.0136	91	40-150
151772-58-6	NFDHA	0.015	0.0138	92	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0142	101	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0132	93	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99174-LLBS	6Q25051.D	1	09/25/23	MV	09/25/23	OP99174	S6Q357

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-2, FC9604-3, FC9604-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0117	88	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0295	79	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.163	87	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.177	94	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	105%	20-150%
	13C5-PFPeA	106%	20-150%
	13C5-PFHxA	108%	20-150%
	13C4-PFHpA	106%	20-150%
	13C8-PFOA	108%	20-150%
	13C9-PFNA	113%	20-150%
	13C6-PFDA	105%	20-150%
	13C7-PFUnDA	96%	20-150%
	13C2-PFDoDA	95%	20-150%
	13C2-PFTeDA	78%	20-150%
	13C3-PFBS	111%	20-150%
	13C3-PFHxS	105%	20-150%
	13C8-PFOS	107%	20-150%
	13C8-FOSA	75%	20-150%
	d3-MeFOSA	74%	20-150%
	d5-EtFOSA	75%	20-150%
	d3-MeFOSAA	107%	20-150%
	d5-EtFOSAA	106%	20-150%
	d7-MeFOSE	70%	20-150%
	d9-EtFOSE	76%	20-150%
	13C2-4:2FTS	117%	20-180%
	13C2-6:2FTS	104%	20-180%
	13C2-8:2FTS	106%	20-180%
	13C3-HFPO-DA	100%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99077-BS	6Q24824.D	1	09/21/23	MV	09/19/23	OP99077	S6Q355

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-1, FC9604-4, FC9604-5, FC9604-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0976	98	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0495	99	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0239	96	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0241	96	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0234	94	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0252	101	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0240	96	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0231	92	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0231	92	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0210	84	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0236	94	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0219	99	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0232	99	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0224	98	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0215	90	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0214	92	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0235	98	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0225	93	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0220	91	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0930	99	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0919	97	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0914	95	40-150
754-91-6	PFOSA	0.025	0.0249	100	40-150
31506-32-8	MeFOSA	0.05	0.0490	98	40-150
4151-50-2	EtFOSA	0.05	0.0453	91	40-150
2355-31-9	MeFOSAA	0.025	0.0251	100	40-150
2991-50-6	EtFOSAA	0.025	0.0274	110	40-150
24448-09-7	MeFOSE	0.125	0.119	95	40-150
1691-99-2	EtFOSE	0.125	0.113	90	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0492	98	40-150
919005-14-4	ADONA	0.0473	0.0453	96	40-150
377-73-1	PFMPA	0.05	0.0484	97	40-150
863090-89-5	PFMBA	0.05	0.0499	100	40-150
151772-58-6	NFDHA	0.05	0.0486	97	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0438	94	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0453	96	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99077-BS	6Q24824.D	1	09/21/23	MV	09/19/23	OP99077	S6Q355

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-1, FC9604-4, FC9604-5, FC9604-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0439	99	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.107	86	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.601	96	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.603	96	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	86%	20-150%
	13C5-PFPeA	109%	20-150%
	13C5-PFHxA	110%	20-150%
	13C4-PFHpA	109%	20-150%
	13C8-PFOA	110%	20-150%
	13C9-PFNA	114%	20-150%
	13C6-PFDA	106%	20-150%
	13C7-PFUnDA	113%	20-150%
	13C2-PFDoDA	109%	20-150%
	13C2-PFTeDA	98%	20-150%
	13C3-PFBS	105%	20-150%
	13C3-PFHxS	108%	20-150%
	13C8-PFOS	122%	20-150%
	13C8-FOSA	90%	20-150%
	d3-MeFOSA	91%	20-150%
	d5-EtFOSA	98%	20-150%
	d3-MeFOSAA	115%	20-150%
	d5-EtFOSAA	111%	20-150%
	d7-MeFOSE	81%	20-150%
	d9-EtFOSE	91%	20-150%
	13C2-4:2FTS	111%	20-180%
	13C2-6:2FTS	116%	20-180%
	13C2-8:2FTS	113%	20-180%
	13C3-HFPO-DA	113%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99174-BS ^a	6Q25050.D	1	09/25/23	MV	09/25/23	OP99174	S6Q357

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-2, FC9604-3, FC9604-6

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	0.0479	96	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0236	94	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0230	92	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0255	102	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0236	94	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0218	87	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0239	96	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0268	107	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0250	100	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0258	103	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0216	97	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0245	104	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0237	104	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0210	88	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0209	90	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0198	82	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0210	87	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0205	85	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0949	101	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.110	116	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0993	103	40-150
754-91-6	PFOSA	0.025	0.0251	100	40-150
31506-32-8	MeFOSA	0.05	0.0508	102	40-150
4151-50-2	EtFOSA	0.05	0.0475	95	40-150
2355-31-9	MeFOSAA	0.025	0.0255	102	40-150
2991-50-6	EtFOSAA	0.025	0.0242	97	40-150
24448-09-7	MeFOSE	0.125	0.110	88	40-150
1691-99-2	EtFOSE	0.125	0.123	98	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0453	91	40-150
919005-14-4	ADONA	0.0473	0.0501	106	40-150
377-73-1	PFMPA	0.05	0.0299	60	40-150
863090-89-5	PFMBA	0.05	0.0468	94	40-150
151772-58-6	NFDHA	0.05	0.0474	95	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0498	107	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0460	97	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99174-BS ^a	6Q25050.D	1	09/25/23	MV	09/25/23	OP99174	S6Q357

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-2, FC9604-3, FC9604-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0411	92	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.153	122	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.585	94	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.605	97	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	39%	20-150%
	13C5-PFPeA	105%	20-150%
	13C5-PFHxA	107%	20-150%
	13C4-PFHpA	108%	20-150%
	13C8-PFOA	95%	20-150%
	13C9-PFNA	105%	20-150%
	13C6-PFDA	119%	20-150%
	13C7-PFUnDA	109%	20-150%
	13C2-PFDoDA	102%	20-150%
	13C2-PFTeDA	87%	20-150%
	13C3-PFBS	107%	20-150%
	13C3-PFHxS	102%	20-150%
	13C8-PFOS	115%	20-150%
	13C8-FOSA	83%	20-150%
	d3-MeFOSA	86%	20-150%
	d5-EtFOSA	88%	20-150%
	d3-MeFOSAA	102%	20-150%
	d5-EtFOSAA	107%	20-150%
	d7-MeFOSE	82%	20-150%
	d9-EtFOSE	83%	20-150%
	13C2-4:2FTS	118%	20-180%
	13C2-6:2FTS	102%	20-180%
	13C2-8:2FTS	102%	20-180%
	13C3-HFPO-DA	97%	20-150%

(a) Insufficient sample for MS/MSD.

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99077-MS	6Q24837.D	1	09/22/23	MV	09/19/23	OP99077	S6Q355
FC9640-1	6Q24836.D	1	09/22/23	MV	09/19/23	OP99077	S6Q355

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-1, FC9604-4, FC9604-5, FC9604-7

CAS No.	Compound	FC9640-1 ug/l	Spike Q	MS ug/l	MS %	Limits	
375-22-4	Perfluorobutanoic acid	0.0142		0.0943	0.116	108	40-150
2706-90-3	Perfluoropentanoic acid	0.0123		0.0472	0.0649	112	40-150
307-24-4	Perfluorohexanoic acid	0.0063		0.0236	0.0305	103	40-150
375-85-9	Perfluoroheptanoic acid	0.0050		0.0236	0.0307	109	40-150
335-67-1	Perfluorooctanoic acid	0.0058		0.0236	0.0311	107	40-150
375-95-1	Perfluorononanoic acid	0.0016	J	0.0236	0.0262	104	40-150
335-76-2	Perfluorodecanoic acid	0.0035	U	0.0236	0.0246	104	40-150
2058-94-8	Perfluoroundecanoic acid	0.0035	U	0.0236	0.0226	96	40-150
307-55-1	Perfluorododecanoic acid	0.0035	U	0.0236	0.0247	105	40-150
72629-94-8	Perfluorotridecanoic acid	0.0035	U	0.0236	0.0230	98	40-150
376-06-7	Perfluorotetradecanoic acid	0.0035	U	0.0236	0.0264	112	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0043		0.0209	0.0265	106	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0044	U	0.0222	0.0242	109	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0050		0.0216	0.0266	100	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00046	J	0.0225	0.0253	111	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0160		0.0219	0.0407	113	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0035	U	0.0227	0.0237	104	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0035	U	0.0228	0.0213	94	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0044	U	0.0229	0.0211	92	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.018	U	0.0884	0.0970	110	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.018	U	0.0896	0.0918	102	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.018	U	0.0906	0.104	115	40-150
754-91-6	PFOSA	0.0035	U	0.0236	0.0254	108	40-150
31506-32-8	MeFOSA	0.0070	U	0.0472	0.0515	109	40-150
4151-50-2	EtFOSA	0.0070	U	0.0472	0.0478	101	40-150
2355-31-9	MeFOSAA	0.0044	U	0.0236	0.0242	103	40-150
2991-50-6	EtFOSAA	0.0044	U	0.0236	0.0285	121	40-150
24448-09-7	MeFOSE	0.035	U	0.118	0.129	109	40-150
1691-99-2	EtFOSE	0.035	U	0.118	0.124	105	40-150
13252-13-6	HFPO-DA (GenX)	0.0035	U	0.0472	0.0483	102	40-150
919005-14-4	ADONA	0.0070	U	0.0446	0.0479	107	40-150
377-73-1	PFMPA	0.0070	U	0.0472	0.0519	110	40-150
863090-89-5	PFMBA	0.0070	U	0.0472	0.0531	113	40-150
151772-58-6	NFDHA	0.0070	U	0.0472	0.0485	103	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0070	U	0.0441	0.0457	104	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0070	U	0.0446	0.0404	91	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99077-MS	6Q24837.D	1	09/22/23	MV	09/19/23	OP99077	S6Q355
FC9640-1	6Q24836.D	1	09/22/23	MV	09/19/23	OP99077	S6Q355

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-1, FC9604-4, FC9604-5, FC9604-7

CAS No.	Compound	FC9640-1 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0070 U	0.042	0.0429	102	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.018 U	0.118	0.0955	81	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.088 U	0.59	0.599	102	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.088 U	0.59	0.633	107	40-150

CAS No.	ID Standard Recoveries	MS	FC9640-1	Limits
	13C4-PFBA	97%	104%	20-150%
	13C5-PFPeA	100%	109%	20-150%
	13C5-PFHxA	106%	111%	20-150%
	13C4-PFHpA	103%	115%	20-150%
	13C8-PFOA	94%	106%	20-150%
	13C9-PFNA	97%	106%	20-150%
	13C6-PFDA	105%	114%	20-150%
	13C7-PFUnDA	99%	110%	20-150%
	13C2-PFDoDA	92%	104%	20-150%
	13C2-PFTeDA	83%	91%	20-150%
	13C3-PFBS	105%	108%	20-150%
	13C3-PFHxS	103%	109%	20-150%
	13C8-PFOS	90%	106%	20-150%
	13C8-FOSA	74%	85%	20-150%
	d3-MeFOSA	77%	86%	20-150%
	d5-EtFOSA	84%	88%	20-150%
	d3-MeFOSAA	92%	105%	20-150%
	d5-EtFOSAA	83%	90%	20-150%
	d7-MeFOSE	74%	83%	20-150%
	d9-EtFOSE	80%	88%	20-150%
	13C2-4:2FTS	96%	104%	20-180%
	13C2-6:2FTS	102%	114%	20-180%
	13C2-8:2FTS	97%	99%	20-180%
	13C3-HFPO-DA	108%	114%	20-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99077-DUP	6Q24839.D	1	09/22/23	MV	09/19/23	OP99077	S6Q355
FC9640-2	6Q24838.D	1	09/22/23	MV	09/19/23	OP99077	S6Q355

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-1, FC9604-4, FC9604-5, FC9604-7

CAS No.	Compound	FC9640-2		DUP		Q	RPD	Limits
		ug/l	Q	ug/l	Q			
375-22-4	Perfluorobutanoic acid	0.0129	J	0.0144	J	11	30	
2706-90-3	Perfluoropentanoic acid	0.0112		0.0124		10	30	
307-24-4	Perfluorohexanoic acid	0.0058		0.0065		11	30	
375-85-9	Perfluoroheptanoic acid	0.0052		0.0055		6	30	
335-67-1	Perfluorooctanoic acid	0.0052		0.0057		9	30	
375-95-1	Perfluorononanoic acid	0.0013	J	0.0013	J	0	30	
335-76-2	Perfluorodecanoic acid	0.0036	U	ND		nc	30	
2058-94-8	Perfluoroundecanoic acid	0.0036	U	ND		nc	30	
307-55-1	Perfluorododecanoic acid	0.0036	U	ND		nc	30	
72629-94-8	Perfluorotridecanoic acid	0.0036	U	ND		nc	30	
376-06-7	Perfluorotetradecanoic acid	0.0036	U	ND		nc	30	
375-73-5	Perfluorobutanesulfonic acid	0.0036		0.0040		11	30	
2706-91-4	Perfluoropentanesulfonic acid	0.0045	U	ND		nc	30	
355-46-4	Perfluorohexanesulfonic acid	0.0045		0.0054		18	30	
375-92-8	Perfluoroheptanesulfonic acid	0.0036	U	ND		nc	30	
1763-23-1	Perfluorooctanesulfonic acid	0.0114		0.0149		27	30	
68259-12-1	Perfluorononanesulfonic acid	0.0036	U	ND		nc	30	
335-77-3	Perfluorodecanesulfonic acid	0.0036	U	ND		nc	30	
79780-39-5	Perfluorododecanesulfonic aci	0.0045	U	ND		nc	30	
757124-72-44:2	Fluorotelomer sulfonate	0.018	U	ND		nc	30	
27619-97-2	6:2 Fluorotelomer sulfonate	0.018	U	ND		nc	30	
39108-34-4	8:2 Fluorotelomer sulfonate	0.018	U	ND		nc	30	
754-91-6	PFOSA	0.0036	U	ND		nc	30	
31506-32-8	MeFOSA	0.0073	U	ND		nc	30	
4151-50-2	EtFOSA	0.0073	U	ND		nc	30	
2355-31-9	MeFOSAA	0.0045	U	ND		nc	30	
2991-50-6	EtFOSAA	0.0045	U	ND		nc	30	
24448-09-7	MeFOSE	0.036	U	ND		nc	30	
1691-99-2	EtFOSE	0.036	U	ND		nc	30	
13252-13-6	HFPO-DA (GenX)	0.0036	U	ND		nc	30	
919005-14-4	ADONA	0.0073	U	ND		nc	30	
377-73-1	PFMPA	0.0073	U	ND		nc	30	
863090-89-5	PFMBA	0.0073	U	ND		nc	30	
151772-58-6	NFDHA	0.0073	U	ND		nc	30	
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0073	U	ND		nc	30	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0073	U	ND		nc	30	

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99077-DUP	6Q24839.D	1	09/22/23	MV	09/19/23	OP99077	S6Q355
FC9640-2	6Q24838.D	1	09/22/23	MV	09/19/23	OP99077	S6Q355

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9604-1, FC9604-4, FC9604-5, FC9604-7

CAS No.	Compound	FC9640-2 ug/l	DUP Q ug/l	Q	RPD	Limits
113507-82-7	PFEESA	0.0073 U	ND		nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.018 U	ND		nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.091 U	ND		nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.091 U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC9640-2	Limits
	13C4-PFBA	104%	109%	20-150%
	13C5-PFPeA	102%	113%	20-150%
	13C5-PFHxA	105%	115%	20-150%
	13C4-PFHpA	106%	111%	20-150%
	13C8-PFOA	101%	109%	20-150%
	13C9-PFNA	100%	103%	20-150%
	13C6-PFDA	101%	111%	20-150%
	13C7-PFUnDA	94%	109%	20-150%
	13C2-PFDoDA	89%	102%	20-150%
	13C2-PFTeDA	76%	97%	20-150%
	13C3-PFBS	110%	115%	20-150%
	13C3-PFHxS	108%	111%	20-150%
	13C8-PFOS	105%	113%	20-150%
	13C8-FOSA	83%	86%	20-150%
	d3-MeFOSA	81%	87%	20-150%
	d5-EtFOSA	86%	94%	20-150%
	d3-MeFOSAA	100%	101%	20-150%
	d5-EtFOSAA	99%	95%	20-150%
	d7-MeFOSE	80%	86%	20-150%
	d9-EtFOSE	84%	94%	20-150%
	13C2-4:2FTS	103%	112%	20-180%
	13C2-6:2FTS	106%	118%	20-180%
	13C2-8:2FTS	95%	101%	20-180%
	13C3-HFPO-DA	105%	117%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q355-CC355	Injection Date:	09/21/23
Lab File ID:	6Q24822.D	Injection Time:	23:13
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	130326	3.00	91295	5.64	142329	7.20	58075	7.72	44799	8.20
Check Std ^c	135787	3.00	89163	5.64	144416	7.20	61200	7.73	46444	8.20
Upper Limit ^d	260652	3.40	182590	6.04	284658	7.60	116150	8.13	89598	8.60
Lower Limit ^e	52130	2.60	36518	5.24	56932	6.80	23230	7.33	17920	7.80

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
OP99077-BS	98266	3.01	68243	5.64	104087	7.20	42255	7.73	34042	8.21	1
OP99077-LLBS	100719	3.01	68883	5.64	105761	7.20	46086	7.72	31531	8.20	1
OP99077-MB	96592	3.01	64196	5.64	106145	7.20	43201	7.72	32423	8.20	1
FC9604-1	100906	3.01	66795	5.64	108070	7.20	44566	7.73	32402	8.20	1
FC9604-4	95438	3.01	66596	5.64	112536	7.20	45732	7.72	33796	8.20	1
FC9604-5	100581	3.01	70578	5.64	109309	7.20	44800	7.73	32327	8.20	1
FC9604-7	106044	3.01	69447	5.64	113783	7.20	45882	7.73	34974	8.20	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: S6Q355-ICC355 6Q24814.D 09/21/23 21:18. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1
6

Injection Standard Area Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q355-CC355	Injection Date:	09/21/23
Lab File ID:	6Q24822.D	Injection Time:	23:13
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	15707	7.30	26262	8.35
Check Std ^c	16371	7.31	25674	8.36
Upper Limit ^d	31414	7.71	52524	8.76
Lower Limit ^e	6283	6.91	10505	7.96

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
OP99077-BS	11990	7.31	18065	8.36	1
OP99077-LLBS	11519	7.31	19470	8.35	1
OP99077-MB	11249	7.31	17795	8.35	1
FC9604-1	11838	7.31	20454	8.35	1
FC9604-4	11501	7.31	20245	8.35	1
FC9604-5	11564	7.31	21522	8.35	1
FC9604-7	12586	7.31	19091	8.35	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q355-ICC355 6Q24814.D 09/21/23 21:18. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1
6

Injection Standard Area Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q355-CC355	Injection Date:	09/22/23
Lab File ID:	6Q24834.D	Injection Time:	02:05
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	130326	3.00	91295	5.64	142329	7.20	58075	7.72	44799	8.20
Check Std ^c	137655	3.00	96701	5.64	145099	7.20	60724	7.72	47378	8.20
Upper Limit ^d	260652	3.40	182590	6.04	284658	7.60	116150	8.12	89598	8.60
Lower Limit ^e	52130	2.60	36518	5.24	56932	6.80	23230	7.32	17920	7.80

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
S6Q355-ICCB	121471	2.99	84617	5.64	138546	7.20	55608	7.72	40552	8.20	1
S6Q355-ICCB	121471	2.99	84617	5.64	138546	7.20	55608	7.72	40552	8.20	1
FC9640-1	101401	3.01	67687	5.64	111075	7.20	44665	7.72	32641	8.20	1
OP99077-MS	102193	3.01	67107	5.64	113559	7.20	44198	7.72	34562	8.20	1
FC9640-2	102318	3.01	68825	5.64	113084	7.20	47399	7.72	33969	8.20	1
OP99077-DUP	98032	3.01	67617	5.64	109286	7.20	45173	7.73	33146	8.20	1
ZZZZZZ	105326	3.01	70605	5.64	117366	7.20	47459	7.73	36030	8.20	1
ZZZZZZ	105123	3.01	73338	5.64	112501	7.20	45594	7.73	34659	8.20	1
ZZZZZZ	99664	3.01	68439	5.64	103896	7.20	43273	7.72	34236	8.20	1
OP99032-MS	104244	3.01	69148	5.64	115628	7.20	48835	7.72	42465	8.20	1
OP99032-MSD	103134	3.01	71971	5.64	115208	7.20	49666	7.72	43631	8.19	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: S6Q355-ICC355 6Q24814.D 09/21/23 21:18. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.2
6

Injection Standard Area Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q355-CC355	Injection Date:	09/22/23
Lab File ID:	6Q24834.D	Injection Time:	02:05
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	15707	7.30	26262	8.35
Check Std ^c	16148	7.31	27416	8.36
Upper Limit ^d	31414	7.71	52524	8.76
Lower Limit ^e	6283	6.91	10505	7.96

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q355-ICCB	14440	7.30	24850	8.35	1
S6Q355-ICCB	14440	7.30	24850	8.35	1
FC9640-1	11729	7.31	19640	8.35	1
OP99077-MS	11570	7.31	20946	8.35	1
FC9640-2	12145	7.30	20276	8.35	1
OP99077-DUP	11283	7.31	19205	8.35	1
ZZZZZZ	12173	7.31	20583	8.36	1
ZZZZZZ	12116	7.31	20155	8.35	1
ZZZZZZ	11722	7.31	19955	8.35	1
OP99032-MS	12383	7.30	22201	8.35	1
OP99032-MSD	11590	7.30	19964	8.35	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q355-ICC355 6Q24814.D 09/21/23 21:18. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.2
6

Injection Standard Area Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q357-CC356	Injection Date:	09/25/23
Lab File ID:	6Q25048.D	Injection Time:	21:38
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	73551	2.98	61266	5.63	96461	7.20	34740	7.72	32415	8.20
Check Std ^c	74846	2.96	60910	5.63	99351	7.19	35641	7.71	32717	8.19
Upper Limit ^d	147102	3.36	122532	6.03	192922	7.59	69480	8.11	64830	8.59
Lower Limit ^e	29420	2.56	24506	5.23	38584	6.79	13896	7.31	12966	7.79

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
OP99174-BS ^f	77833	3.00	62438	5.63	103677	7.19	35374	7.71	31191	8.19	1
OP99174-LLBS	77364	3.00	63707	5.63	101644	7.19	35168	7.71	35612	8.19	1
OP99174-MB	81276	3.00	65941	5.63	107876	7.19	37305	7.72	34397	8.19	1
FC9604-2	80495	3.00	66380	5.63	108629	7.20	39971	7.72	34874	8.19	1
FC9604-3	77408	3.00	61163	5.63	99183	7.19	36907	7.72	32717	8.19	1
FC9604-6	81639	3.00	65810	5.63	109406	7.19	36739	7.71	34257	8.19	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: S6Q356-ICC356 6Q24922.D 09/24/23 15:42. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.
- (f) Insufficient sample for MS/MSD.

6.5.3
6

Injection Standard Area Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q357-CC356	Injection Date:	09/25/23
Lab File ID:	6Q25048.D	Injection Time:	21:38
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	10589	7.30	14551	8.35
Check Std ^c	10423	7.29	13649	8.35
Upper Limit ^d	21178	7.69	29102	8.75
Lower Limit ^e	4236	6.89	5820	7.95

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
OP99174-BS ^f	10246	7.30	14258	8.34	1
OP99174-LLBS	10467	7.30	14862	8.34	1
OP99174-MB	11049	7.30	14891	8.34	1
FC9604-2	10707	7.30	15208	8.34	1
FC9604-3	10179	7.30	14191	8.34	1
FC9604-6	11147	7.30	15411	8.35	1

IS 6 = 18O2-PFHXS

IS 7 = 13C4-PFOS

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q356-ICC356 6Q24922.D 09/24/23 15:42. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.
- (f) Insufficient sample for MS/MSD.

6.5.3
6

TDCA Retention Time Check

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q355-RT	Injection Date:	09/21/23
Lab File ID:	6Q24808.D	Injection Time:	19:52
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.350	--	--
TDCA	6.923	1.427	1.000
TCDCA	6.774	1.576	1.000
TUDCA	5.947	2.403	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
S6Q355-IC355	6Q24810.D	09/21/23	20:21	00:29	Mass Calibration Verification
S6Q355-IC355	6Q24811.D	09/21/23	20:35	00:43	Initial cal 1
S6Q355-IC355	6Q24812.D	09/21/23	20:50	00:58	Initial cal 2
S6Q355-IC355	6Q24813.D	09/21/23	21:04	01:12	Initial cal 3
S6Q355-ICC355	6Q24814.D	09/21/23	21:18	01:26	Initial cal 4
S6Q355-IC355	6Q24815.D	09/21/23	21:33	01:41	Initial cal 5
S6Q355-IC355	6Q24816.D	09/21/23	21:47	01:55	Initial cal 6
S6Q355-IC355	6Q24817.D	09/21/23	22:01	02:09	Initial cal 7
S6Q355-IC355	6Q24818.D	09/21/23	22:16	02:24	Initial cal 8
S6Q355-IBLK	6Q24819.D	09/21/23	22:30	02:38	Instrument Blank
S6Q355-IBLK	6Q24819.D	09/21/23	22:30	02:38	Instrument Blank
S6Q355-ICV355	6Q24820.D	09/21/23	22:44	02:52	Initial cal verification 4
S6Q355-ICV355	6Q24821.D	09/21/23	22:59	03:07	Initial cal verification 20
S6Q355-CC355	6Q24822.D	09/21/23	23:13	03:21	Continuing cal 4
S6Q355-CC355	6Q24823.D	09/21/23	23:27	03:35	Continuing cal 1.0LL
OP99077-BS	6Q24824.D	09/21/23	23:42	03:50	Blank Spike
OP99077-LLBS	6Q24825.D	09/21/23	23:56	04:04	Blank Spike
OP99077-MB	6Q24826.D	09/22/23	00:10	04:18	Method Blank
FC9604-1	6Q24827.D	09/22/23	00:25	04:33	AF-RHP01-WGN01LF-2309
FC9604-4	6Q24830.D	09/22/23	01:08	05:16	AF-RHMW01R-WGN01LF-2309
FC9604-5	6Q24831.D	09/22/23	01:22	05:30	AF-RHMW01R-EB01LF-2309
FC9604-7	6Q24833.D	09/22/23	01:51	05:59	AF-RHMW01R-EB03LF-2309
S6Q355-CC355	6Q24834.D	09/22/23	02:05	06:13	Continuing cal 4
S6Q355-ICCB	6Q24835.D	09/22/23	02:19	06:27	Continuing Calibration Blank
S6Q355-ICCB	6Q24835.D	09/22/23	02:19	06:27	Continuing Calibration Blank
FC9640-1	6Q24836.D	09/22/23	02:34	06:42	(used for QC only; not part of job FC9604)
OP99077-MS	6Q24837.D	09/22/23	02:48	06:56	Matrix Spike
FC9640-2	6Q24838.D	09/22/23	03:02	07:10	(used for QC only; not part of job FC9604)
OP99077-DUP	6Q24839.D	09/22/23	03:17	07:25	Duplicate
ZZZZZ	6Q24840.D	09/22/23	03:31	07:39	(unrelated sample)
ZZZZZ	6Q24841.D	09/22/23	03:45	07:53	(unrelated sample)
ZZZZZ	6Q24842.D	09/22/23	04:00	08:08	(unrelated sample)
OP99032-MS	6Q24843.D	09/22/23	04:14	08:22	Matrix Spike
OP99032-MSD	6Q24844.D	09/22/23	04:28	08:36	Matrix Spike Duplicate

TDCA Retention Time Check

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q355-RT	Injection Date:	09/21/23
Lab File ID:	6Q24808.D	Injection Time:	19:52
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q355-CC355	6Q24845.D	09/22/23	04:43	08:51	Continuing cal 4
S6Q355-ICCB	6Q24846.D	09/22/23	04:57	09:05	Continuing Calibration Blank
S6Q355-ICCB	6Q24846.D	09/22/23	04:57	09:05	Continuing Calibration Blank
OP99058-BS	6Q24847.D	09/22/23	05:11	09:19	Blank Spike
OP99058-LLBS	6Q24848.D	09/22/23	05:26	09:34	Blank Spike
OP99058-MB	6Q24849.D	09/22/23	05:40	09:48	Method Blank
FC9419-1	6Q24850.D	09/22/23	05:54	10:02	(used for QC only; not part of job FC9604)
OP99058-MS	6Q24851.D	09/22/23	06:08	10:16	Matrix Spike
OP99058-MSD	6Q24852.D	09/22/23	06:23	10:31	Matrix Spike Duplicate
ZZZZZZ	6Q24853.D	09/22/23	06:37	10:45	(unrelated sample)
ZZZZZZ	6Q24854.D	09/22/23	06:51	10:59	(unrelated sample)
ZZZZZZ	6Q24855.D	09/22/23	07:06	11:14	(unrelated sample)
ZZZZZZ	6Q24856.D	09/22/23	07:20	11:28	(unrelated sample)
S6Q355-CC355	6Q24857.D	09/22/23	07:34	11:42	Continuing cal 4
S6Q355-ICCB	6Q24858.D	09/22/23	07:49	11:57	Continuing Calibration Blank
S6Q355-ICCB	6Q24858.D	09/22/23	07:49	11:57	Continuing Calibration Blank
ZZZZZZ	6Q24859.D	09/22/23	08:03	12:11	(unrelated sample)
ZZZZZZ	6Q24860.D	09/22/23	08:17	12:25	(unrelated sample)
ZZZZZZ	6Q24861.D	09/22/23	08:32	12:40	(unrelated sample)
ZZZZZZ	6Q24862.D	09/22/23	08:46	12:54	(unrelated sample)
ZZZZZZ	6Q24863.D	09/22/23	09:00	13:08	(unrelated sample)
ZZZZZZ	6Q24864.D	09/22/23	09:15	13:23	(unrelated sample)
ZZZZZZ	6Q24865.D	09/22/23	09:29	13:37	(unrelated sample)
ZZZZZZ	6Q24866.D	09/22/23	09:43	13:51	(unrelated sample)
ZZZZZZ	6Q24867.D	09/22/23	09:58	14:06	(unrelated sample)
ZZZZZZ	6Q24868.D	09/22/23	10:12	14:20	(unrelated sample)
S6Q355-CC355	6Q24869.D	09/22/23	10:26	14:34	Continuing cal 4
S6Q355-ICCB	6Q24870.D	09/22/23	10:41	14:49	Continuing Calibration Blank
S6Q355-ICCB	6Q24870.D	09/22/23	10:41	14:49	Continuing Calibration Blank
ZZZZZZ	6Q24871.D	09/22/23	10:55	15:03	(unrelated sample)
ZZZZZZ	6Q24873.D	09/22/23	11:24	15:32	(unrelated sample)
ZZZZZZ	6Q24874.D	09/22/23	11:38	15:46	(unrelated sample)
ZZZZZZ	6Q24875.D	09/22/23	11:52	16:00	(unrelated sample)
ZZZZZZ	6Q24876.D	09/22/23	12:07	16:15	(unrelated sample)
ZZZZZZ	6Q24877.D	09/22/23	12:21	16:29	(unrelated sample)
ZZZZZZ	6Q24878.D	09/22/23	12:35	16:43	(unrelated sample)
OP99081-MB	6Q24879.D	09/22/23	12:50	16:58	Method Blank
S6Q355-CC355	6Q24880.D	09/22/23	13:04	17:12	Continuing cal 4
S6Q355-ICCB	6Q24881.D	09/22/23	13:18	17:26	Continuing Calibration Blank
S6Q355-ICCB	6Q24881.D	09/22/23	13:18	17:26	Continuing Calibration Blank
OP99102-BS	6Q24882.D	09/22/23	13:33	17:41	Blank Spike
OP99102-LLBS	6Q24883.D	09/22/23	13:47	17:55	Blank Spike
OP99102-MB	6Q24884.D	09/22/23	14:01	18:09	Method Blank
ZZZZZZ	6Q24885.D	09/22/23	14:16	18:24	(unrelated sample)

6.6.1

6

TDCA Retention Time Check

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q355-RT	Injection Date:	09/21/23
Lab File ID:	6Q24808.D	Injection Time:	19:52
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q24886.D	09/22/23	14:30	18:38	(unrelated sample)
ZZZZZZ	6Q24887.D	09/22/23	14:44	18:52	(unrelated sample)
ZZZZZZ	6Q24888.D	09/22/23	14:58	19:06	(unrelated sample)
FC9580-2	6Q24889.D	09/22/23	15:13	19:21	(used for QC only; not part of job FC9604)
OP99102-MS	6Q24890.D	09/22/23	15:27	19:35	Matrix Spike
ZZZZZZ	6Q24891.D	09/22/23	15:41	19:49	(unrelated sample)
S6Q355-CC355	6Q24892.D	09/22/23	15:56	20:04	Continuing cal 4
S6Q355-ICCB	6Q24893.D	09/22/23	16:10	20:18	Continuing Calibration Blank
FC9580-3	6Q24894.D	09/22/23	16:24	20:32	(used for QC only; not part of job FC9604)
OP99102-DUP	6Q24895.D	09/22/23	16:39	20:47	Duplicate
ZZZZZZ	6Q24897.D	09/22/23	17:07	21:15	(unrelated sample)
ZZZZZZ	6Q24899.D	09/22/23	17:36	21:44	(unrelated sample)
ZZZZZZ	6Q24900.D	09/22/23	17:50	21:58	(unrelated sample)
ZZZZZZ	6Q24901.D	09/22/23	18:05	22:13	(unrelated sample)
ZZZZZZ	6Q24902.D	09/22/23	18:19	22:27	(unrelated sample)
ZZZZZZ	6Q24903.D	09/22/23	18:33	22:41	(unrelated sample)
S6Q355-ECC355	6Q24904.D	09/22/23	18:48	22:56	Ending cal 4
S6Q355-ICCB	6Q24905.D	09/22/23	19:02	23:10	Continuing Calibration Blank

6.6.1
6

TDCA Retention Time Check

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q356-RT	Injection Date:	09/24/23
Lab File ID:	6Q24916.D	Injection Time:	14:17
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.350	--	--
TDCA	6.923	1.427	1.000
TCDCA	6.774	1.576	1.000
TUDCA	5.947	2.403	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
S6Q356-IC356	6Q24918.D	09/24/23	14:45	00:28	Mass Calibration Verification
S6Q356-IC356	6Q24919.D	09/24/23	15:00	00:43	Initial cal 1
S6Q356-IC356	6Q24920.D	09/24/23	15:14	00:57	Initial cal 2
S6Q356-IC356	6Q24921.D	09/24/23	15:28	01:11	Initial cal 3
S6Q356-ICC356	6Q24922.D	09/24/23	15:42	01:25	Initial cal 4
S6Q356-IC356	6Q24923.D	09/24/23	15:57	01:40	Initial cal 5
S6Q356-IC356	6Q24924.D	09/24/23	16:11	01:54	Initial cal 6
S6Q356-IC356	6Q24925.D	09/24/23	16:26	02:09	Initial cal 7
S6Q356-IC356	6Q24926.D	09/24/23	16:40	02:23	Initial cal 8
S6Q356-IBLK	6Q24927.D	09/24/23	16:54	02:37	Instrument Blank
S6Q356-IBLK	6Q24927.D	09/24/23	16:54	02:37	Instrument Blank
S6Q356-ICV356	6Q24928.D	09/24/23	17:09	02:52	Initial cal verification 4
S6Q356-ICV356	6Q24929.D	09/24/23	17:23	03:06	Initial cal verification 20
S6Q356-CC356	6Q24930.D	09/24/23	17:37	03:20	Continuing cal 4
S6Q356-CC356	6Q24931.D	09/24/23	17:51	03:34	Continuing cal 1.0LL
ZZZZZZ	6Q24932.D	09/24/23	18:06	03:49	(unrelated sample)
ZZZZZZ	6Q24933.D	09/24/23	18:20	04:03	(unrelated sample)
ZZZZZZ	6Q24934.D	09/24/23	18:34	04:17	(unrelated sample)
ZZZZZZ	6Q24935.D	09/24/23	18:49	04:32	(unrelated sample)
FC9580-3	6Q24936.D	09/24/23	19:03	04:46	(used for QC only; not part of job FC9604)
OP99102-DUP	6Q24937.D	09/24/23	19:17	05:00	Duplicate
S6Q356-CC356	6Q24938.D	09/24/23	19:32	05:15	Continuing cal 4
S6Q356-ICCB	6Q24939.D	09/24/23	19:46	05:29	Continuing Calibration Blank
S6Q356-ICCB	6Q24939.D	09/24/23	19:46	05:29	Continuing Calibration Blank
OP99134-BS	6Q24940.D	09/24/23	20:00	05:43	Blank Spike
OP99134-LLBS	6Q24941.D	09/24/23	20:15	05:58	Blank Spike
OP99134-MB	6Q24942.D	09/24/23	20:29	06:12	Method Blank
ZZZZZZ	6Q24949.D	09/24/23	22:09	07:52	(unrelated sample)
S6Q356-CC356	6Q24950.D	09/24/23	22:24	08:07	Continuing cal 4
S6Q356-ICCB	6Q24951.D	09/24/23	22:38	08:21	Continuing Calibration Blank
S6Q356-ICCB	6Q24951.D	09/24/23	22:38	08:21	Continuing Calibration Blank
OP99155-BS	6Q24952.D	09/24/23	22:52	08:35	Blank Spike
OP99155-LLBS	6Q24953.D	09/24/23	23:06	08:49	Blank Spike
OP99155-MB	6Q24954.D	09/24/23	23:21	09:04	Method Blank

TDCA Retention Time Check

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q356-RT	Injection Date:	09/24/23
Lab File ID:	6Q24916.D	Injection Time:	14:17
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q24955.D	09/24/23	23:35	09:18	(unrelated sample)
ZZZZZZ	6Q24956.D	09/24/23	23:49	09:32	(unrelated sample)
ZZZZZZ	6Q24957.D	09/25/23	00:04	09:47	(unrelated sample)
ZZZZZZ	6Q24958.D	09/25/23	00:18	10:01	(unrelated sample)
ZZZZZZ	6Q24959.D	09/25/23	00:32	10:15	(unrelated sample)
ZZZZZZ	6Q24960.D	09/25/23	00:47	10:30	(unrelated sample)
S6Q356-CC356	6Q24961.D	09/25/23	01:01	10:44	Continuing cal 4
S6Q356-ICCB	6Q24962.D	09/25/23	01:15	10:58	Continuing Calibration Blank
ZZZZZZ	6Q24963.D	09/25/23	01:30	11:13	(unrelated sample)
ZZZZZZ	6Q24964.D	09/25/23	01:44	11:27	(unrelated sample)
ZZZZZZ	6Q24965.D	09/25/23	01:58	11:41	(unrelated sample)
ZZZZZZ	6Q24967.D	09/25/23	02:27	12:10	(unrelated sample)
ZZZZZZ	6Q24968.D	09/25/23	02:41	12:24	(unrelated sample)
S6Q356-CC356	6Q24969.D	09/25/23	02:56	12:39	Continuing cal 4
S6Q356-ICCB	6Q24970.D	09/25/23	03:10	12:53	Continuing Calibration Blank
OP99128-BS	6Q24971.D	09/25/23	03:24	13:07	Blank Spike
OP99128-LLBS	6Q24972.D	09/25/23	03:38	13:21	Blank Spike
OP99128-MB	6Q24973.D	09/25/23	03:53	13:36	Method Blank
ZZZZZZ	6Q24974.D	09/25/23	04:07	13:50	(unrelated sample)
FC9720-1	6Q24975.D	09/25/23	04:21	14:04	(used for QC only; not part of job FC9604)
OP99128-MS	6Q24976.D	09/25/23	04:36	14:19	Matrix Spike
FC9720-2	6Q24977.D	09/25/23	04:50	14:33	(used for QC only; not part of job FC9604)
OP99128-DUP	6Q24978.D	09/25/23	05:04	14:47	Duplicate
S6Q356-CC356	6Q24979.D	09/25/23	05:19	15:02	Continuing cal 4
S6Q356-ICCB	6Q24980.D	09/25/23	05:33	15:16	Continuing Calibration Blank
OP99106-BS	6Q24981.D	09/25/23	05:47	15:30	Blank Spike
OP99106-LLBS	6Q24982.D	09/25/23	06:02	15:45	Blank Spike
OP99106-MB	6Q24983.D	09/25/23	06:16	15:59	Method Blank
ZZZZZZ	6Q24984.D	09/25/23	06:30	16:13	(unrelated sample)
ZZZZZZ	6Q24985.D	09/25/23	06:45	16:28	(unrelated sample)
ZZZZZZ	6Q24986.D	09/25/23	06:59	16:42	(unrelated sample)
ZZZZZZ	6Q24988.D	09/25/23	07:28	17:11	(unrelated sample)
ZZZZZZ	6Q24989.D	09/25/23	07:42	17:25	(unrelated sample)
S6Q356-CC356	6Q24990.D	09/25/23	07:56	17:39	Continuing cal 4
S6Q356-ICCB	6Q24991.D	09/25/23	08:11	17:54	Continuing Calibration Blank
ZZZZZZ	6Q24992.D	09/25/23	08:25	18:08	(unrelated sample)
ZZZZZZ	6Q24993.D	09/25/23	08:39	18:22	(unrelated sample)
ZZZZZZ	6Q24994.D	09/25/23	08:54	18:37	(unrelated sample)
ZZZZZZ	6Q24995.D	09/25/23	09:08	18:51	(unrelated sample)
FC9639-5	6Q24996.D	09/25/23	09:22	19:05	(used for QC only; not part of job FC9604)
FC9639-5	6Q24997.D	09/25/23	09:37	19:20	(used for QC only; not part of job FC9604)
OP99106-MS	6Q24998.D	09/25/23	09:51	19:34	Matrix Spike
OP99106-MSD	6Q24999.D	09/25/23	10:05	19:48	Matrix Spike Duplicate
ZZZZZZ	6Q25000.D	09/25/23	10:19	20:02	(unrelated sample)

TDCA Retention Time Check

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q356-RT	Injection Date:	09/24/23
Lab File ID:	6Q24916.D	Injection Time:	14:17
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q25001.D	09/25/23	10:34	20:17	(unrelated sample)
S6Q356-CC356	6Q25002.D	09/25/23	10:48	20:31	Continuing cal 4
S6Q356-ICCB	6Q25003.D	09/25/23	11:02	20:45	Continuing Calibration Blank
S6Q356-ICCB	6Q25003.D	09/25/23	11:02	20:45	Continuing Calibration Blank
OP99084-BS	6Q25004.D	09/25/23	11:17	21:00	Blank Spike
OP99084-LLBS	6Q25005.D	09/25/23	11:31	21:14	Blank Spike
OP99084-MB	6Q25006.D	09/25/23	11:45	21:28	Method Blank
ZZZZZZ	6Q25007.D	09/25/23	12:00	21:43	(unrelated sample)
ZZZZZZ	6Q25008.D	09/25/23	12:14	21:57	(unrelated sample)
ZZZZZZ	6Q25009.D	09/25/23	12:28	22:11	(unrelated sample)
FC9462-4	6Q25010.D	09/25/23	12:43	22:26	(used for QC only; not part of job FC9604)
OP99084-MS	6Q25011.D	09/25/23	12:57	22:40	Matrix Spike
OP99084-MSD	6Q25012.D	09/25/23	13:11	22:54	Matrix Spike Duplicate
ZZZZZZ	6Q25013.D	09/25/23	13:26	23:09	(unrelated sample)
S6Q356-CC356	6Q25014.D	09/25/23	13:40	23:23	Continuing cal 4
S6Q356-ICCB	6Q25015.D	09/25/23	13:54	23:37	Continuing Calibration Blank
S6Q356-ICCB	6Q25015.D	09/25/23	13:54	23:37	Continuing Calibration Blank

6.6.2
6

TDCA Retention Time Check

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q357-RT	Injection Date:	09/25/23
Lab File ID:	6Q25044.D	Injection Time:	20:41
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.337	--	--
TDCA	6.910	1.427	1.000
TCDCA	6.762	1.575	1.000
TUDCA	5.935	2.402	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
S6Q357-IBLK	6Q25047.D	09/25/23	21:24	00:43	Instrument Blank
S6Q357-IBLK	6Q25047.D	09/25/23	21:24	00:43	Instrument Blank
S6Q357-CC356	6Q25048.D	09/25/23	21:38	00:57	Continuing cal 4
S6Q357-CC356	6Q25049.D	09/25/23	21:53	01:12	Continuing cal 1.0LL
OP99174-BS	6Q25050.D	09/25/23	22:07	01:26	Blank Spike
OP99174-LLBS	6Q25051.D	09/25/23	22:21	01:40	Blank Spike
OP99174-MB	6Q25052.D	09/25/23	22:36	01:55	Method Blank
FC9604-2	6Q25053.D	09/25/23	22:50	02:09	AF-RHP01-EB01LF-2309
FC9604-3	6Q25054.D	09/25/23	23:04	02:23	AF-RHP01-EB02LF-2309
FC9604-6	6Q25055.D	09/25/23	23:19	02:38	AF-RHMW01R-EB02LF-2309
S6Q357-CC356	6Q25056.D	09/25/23	23:33	02:52	Continuing cal 4
S6Q357-ICCB	6Q25057.D	09/25/23	23:47	03:06	Continuing Calibration Blank
S6Q357-ICCB	6Q25057.D	09/25/23	23:47	03:06	Continuing Calibration Blank
OP99135-BS	6Q25058.D	09/26/23	00:02	03:21	Blank Spike
OP99135-LLBS	6Q25059.D	09/26/23	00:16	03:35	Blank Spike
OP99135-MB	6Q25060.D	09/26/23	00:30	03:49	Method Blank
FC9414-1	6Q25061.D	09/26/23	00:45	04:04	(used for QC only; not part of job FC9604)
ZZZZZZ	6Q25064.D	09/26/23	01:28	04:47	(unrelated sample)
ZZZZZZ	6Q25066.D	09/26/23	01:56	05:15	(unrelated sample)
ZZZZZZ	6Q25067.D	09/26/23	02:11	05:30	(unrelated sample)
S6Q357-CC356	6Q25068.D	09/26/23	02:25	05:44	Continuing cal 4
S6Q357-ICCB	6Q25069.D	09/26/23	02:39	05:58	Continuing Calibration Blank
S6Q357-ICCB	6Q25069.D	09/26/23	02:39	05:58	Continuing Calibration Blank
ZZZZZZ	6Q25070.D	09/26/23	02:54	06:13	(unrelated sample)
ZZZZZZ	6Q25071.D	09/26/23	03:08	06:27	(unrelated sample)
ZZZZZZ	6Q25072.D	09/26/23	03:22	06:41	(unrelated sample)
ZZZZZZ	6Q25073.D	09/26/23	03:37	06:56	(unrelated sample)
ZZZZZZ	6Q25074.D	09/26/23	03:51	07:10	(unrelated sample)
S6Q357-CC356	6Q25075.D	09/26/23	04:05	07:24	Continuing cal 4
S6Q357-ICCB	6Q25076.D	09/26/23	04:20	07:39	Continuing Calibration Blank
S6Q357-ICCB	6Q25076.D	09/26/23	04:20	07:39	Continuing Calibration Blank
OP99100-BS	6Q25077.D	09/26/23	04:34	07:53	Blank Spike
OP99100-LLBS	6Q25078.D	09/26/23	04:48	08:07	Blank Spike
OP99100-MB	6Q25079.D	09/26/23	05:02	08:21	Method Blank

TDCA Retention Time Check

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q357-RT	Injection Date:	09/25/23
Lab File ID:	6Q25044.D	Injection Time:	20:41
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q25080.D	09/26/23	05:17	08:36	(unrelated sample)
ZZZZZZ	6Q25081.D	09/26/23	05:31	08:50	(unrelated sample)
ZZZZZZ	6Q25082.D	09/26/23	05:45	09:04	(unrelated sample)
ZZZZZZ	6Q25083.D	09/26/23	06:00	09:19	(unrelated sample)
ZZZZZZ	6Q25084.D	09/26/23	06:14	09:33	(unrelated sample)
ZZZZZZ	6Q25085.D	09/26/23	06:28	09:47	(unrelated sample)
S6Q357-CC356	6Q25086.D	09/26/23	06:43	10:02	Continuing cal 4
S6Q357-ICCB	6Q25087.D	09/26/23	06:57	10:16	Continuing Calibration Blank
FC9469-7	6Q25088.D	09/26/23	07:11	10:30	(used for QC only; not part of job FC9604)
OP99100-MS	6Q25089.D	09/26/23	07:26	10:45	Matrix Spike
OP99100-MSD	6Q25090.D	09/26/23	07:40	10:59	Matrix Spike Duplicate
ZZZZZZ	6Q25091.D	09/26/23	07:54	11:13	(unrelated sample)
ZZZZZZ	6Q25092.D	09/26/23	08:09	11:28	(unrelated sample)
ZZZZZZ	6Q25093.D	09/26/23	08:23	11:42	(unrelated sample)
ZZZZZZ	6Q25094.D	09/26/23	08:37	11:56	(unrelated sample)
ZZZZZZ	6Q25095.D	09/26/23	08:52	12:11	(unrelated sample)
ZZZZZZ	6Q25096.D	09/26/23	09:06	12:25	(unrelated sample)
ZZZZZZ	6Q25097.D	09/26/23	09:20	12:39	(unrelated sample)
S6Q357-CC356	6Q25098.D	09/26/23	09:35	12:54	Continuing cal 4
S6Q357-ICCB	6Q25099.D	09/26/23	09:49	13:08	Continuing Calibration Blank
S6Q357-ICCB	6Q25099.D	09/26/23	09:49	13:08	Continuing Calibration Blank
ZZZZZZ	6Q25100.D	09/26/23	10:03	13:22	(unrelated sample)
ZZZZZZ	6Q25101.D	09/26/23	10:18	13:37	(unrelated sample)
ZZZZZZ	6Q25102.D	09/26/23	10:32	13:51	(unrelated sample)
ZZZZZZ	6Q25103.D	09/26/23	10:46	14:05	(unrelated sample)
ZZZZZZ	6Q25104.D	09/26/23	11:01	14:20	(unrelated sample)
ZZZZZZ	6Q25105.D	09/26/23	11:15	14:34	(unrelated sample)
ZZZZZZ	6Q25106.D	09/26/23	11:37	14:56	(unrelated sample)
FC9414-1	6Q25107.D	09/26/23	11:51	15:10	(used for QC only; not part of job FC9604)
OP99135-MS	6Q25108.D	09/26/23	12:06	15:25	Matrix Spike
OP99135-MSD	6Q25109.D	09/26/23	12:20	15:39	Matrix Spike Duplicate
S6Q357-CC356	6Q25110.D	09/26/23	12:34	15:53	Continuing cal 4
S6Q357-ICCB	6Q25111.D	09/26/23	12:49	16:08	Continuing Calibration Blank
S6Q357-ICCB	6Q25111.D	09/26/23	12:49	16:08	Continuing Calibration Blank
ZZZZZZ	6Q25113.D	09/26/23	13:17	16:36	(unrelated sample)
ZZZZZZ	6Q25115.D	09/26/23	13:55	17:14	(unrelated sample)
S6Q357-ECC356	6Q25116.D	09/26/23	14:09	17:28	Ending cal 4
S6Q357-ICCB	6Q25117.D	09/26/23	14:23	17:42	Continuing Calibration Blank
S6Q357-ICCB	6Q25117.D	09/26/23	14:23	17:42	Continuing Calibration Blank

6.6.3

6

Ion Ratio Summary

Job Number: FC9604
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q355 Method: EPA DRAFT 1633

Lab Sample ID	Lab File ID	Ion Ratios (Set 1)		PFHxA	PFHpA	PFOA	PFNA	PFBS
		PFBA	PFPeA					
S6Q355-ICC355	6Q24814.D	0	0	4.7	16.1	17.4	24	36.4
FC9604-1	6Q24827.D	0	0	4.6	14.1	21.9	22.5	39.1
FC9604-4	6Q24830.D		0					
FC9604-5	6Q24831.D							
FC9604-7	6Q24833.D							

6.7.1

6

Ion Ratio Summary

Job Number: FC9604
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q355	Method: EPA DRAFT 1633
----------------	------------------------

Lab Sample ID	Lab File ID	Ion Ratios (Set 2)	
		PFHxS	PFOS
S6Q355-ICC355	6Q24814.D	47.6	51.9
FC9604-1	6Q24827.D	49.5	40.4
FC9604-4	6Q24830.D		
FC9604-5	6Q24831.D		
FC9604-7	6Q24833.D		

6.7.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC9604
 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
FC9604-1	6Q24827.D	98	103	106	104	106	103	104	102
FC9604-2	6Q25053.D	101	104	106	104	96	91	106	100
FC9604-3	6Q25054.D	95	101	102	101	98	95	102	97
FC9604-4	6Q24830.D	103	105	110	106	98	99	94	98
FC9604-5	6Q24831.D	103	98	96	102	99	99	99	112
FC9604-6	6Q25055.D	87	91	89	90	83	93	92	84
FC9604-7	6Q24833.D	103	110	104	106	99	95	97	105
OP99077-BS	6Q24824.D	86	109	110	109	110	114	106	113
OP99077-DUP	6Q24839.D	104	102	105	106	101	100	101	94
OP99077-LLBS	6Q24825.D	112	111	112	108	107	103	108	115
OP99077-MB	6Q24826.D	112	113	118	110	109	103	114	113
OP99077-MS	6Q24837.D	97	100	106	103	94	97	105	99
OP99174-BS	6Q25050.D	39	105	107	108	95	105	119	109
OP99174-LLBS	6Q25051.D	105	106	108	106	108	113	105	96
OP99174-MB	6Q25052.D	99	103	103	103	100	107	109	102
S6Q355-IBLK	6Q24819.D	101	97	95	98	108	113	104	109
S6Q357-IBLK	6Q25047.D	99	101	102	103	98	97	104	106
S6Q355-ICCB	6Q24835.D	102	100	97	106	98	102	108	111

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%

Isotope Dilution Standard Recovery Summary

Job Number: FC9604
 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
FC9604-1	6Q24827.D	85	80	101	101	96	77	75	86
FC9604-2	6Q25053.D	84	79	104	100	103	84	81	84
FC9604-3	6Q25054.D	88	77	99	106	104	84	88	92
FC9604-4	6Q24830.D	79	72	106	104	95	84	74	74
FC9604-5	6Q24831.D	106	83	105	102	93	76	76	86
FC9604-6	6Q25055.D	80	67	89	86	86	72	70	70
FC9604-7	6Q24833.D	98	80	96	101	119	89	87	96
OP99077-BS	6Q24824.D	109	98	105	108	122	90	91	98
OP99077-DUP	6Q24839.D	89	76	110	108	105	83	81	86
OP99077-LLBS	6Q24825.D	112	107	113	118	112	81	84	91
OP99077-MB	6Q24826.D	108	95	111	111	119	70	79	88
OP99077-MS	6Q24837.D	92	83	105	103	90	74	77	84
OP99174-BS	6Q25050.D	102	87	107	102	115	83	86	88
OP99174-LLBS	6Q25051.D	95	78	111	105	107	75	74	75
OP99174-MB	6Q25052.D	95	80	104	102	108	78	80	88
S6Q355-IBLK	6Q24819.D	102	99	104	103	110	103		
S6Q357-IBLK	6Q25047.D	98	94	100	96	104	99	96	95
S6Q355-ICCB	6Q24835.D	97	105	101	103	108	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%

6.8.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC9604
 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
FC9604-1	6Q24827.D	87	82	76	80	99	103	97	104
FC9604-2	6Q25053.D	96	87	82	80	119	106	109	93
FC9604-3	6Q25054.D	103	101	84	84	109	102	106	93
FC9604-4	6Q24830.D	89	83	75	79	99	108	107	105
FC9604-5	6Q24831.D	93	92	76	80	112	116	103	95
FC9604-6	6Q25055.D	87	81	70	68	91	90	90	83
FC9604-7	6Q24833.D	110	97	90	96	106	108	103	102
OP99077-BS	6Q24824.D	115	111	81	91	111	116	113	113
OP99077-DUP	6Q24839.D	100	99	80	84	103	106	95	105
OP99077-LLBS	6Q24825.D	112	108	83	91	118	123	121	108
OP99077-MB	6Q24826.D	118	111	73	85	120	125	117	120
OP99077-MS	6Q24837.D	92	83	74	80	96	102	97	108
OP99174-BS	6Q25050.D	102	107	82	83	118	102	102	97
OP99174-LLBS	6Q25051.D	107	106	70	76	117	104	106	100
OP99174-MB	6Q25052.D	96	105	76	83	113	105	101	94
S6Q355-IBLK	6Q24819.D	103	98			106	113	107	
S6Q357-IBLK	6Q25047.D	101	97	90	90	107	102	97	95
S6Q355-ICCB	6Q24835.D	101	101			106	107	112	

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%

Initial Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q355-ICC355
 Lab FileID: 6Q24814.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods												
Method File	1633_092123_S6Q355.quantmethod.xml												
Batch Name	D:\MassHunter\Data\092123_1633_S6Q355\QuantResults\6q355.batch.bin												
Last Calib Update	9/22/2023 10:19:15 AM												
Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time	1	2	3	4	5	6	7	8	Avg RF	%RSD
1	D:\MassHunter\Data\092123_1633_S6Q355\6Q24811.d	9/21/2023 8:35:51 PM	9/22/2023 10:19:15 AM										
2	D:\MassHunter\Data\092123_1633_S6Q355\6Q24812.d	9/21/2023 8:50:13 PM	9/22/2023 10:19:15 AM										
3	D:\MassHunter\Data\092123_1633_S6Q355\6Q24813.d	9/21/2023 9:04:32 PM	9/22/2023 10:19:15 AM										
4	D:\MassHunter\Data\092123_1633_S6Q355\6Q24814.d	9/21/2023 9:18:55 PM	9/22/2023 10:19:15 AM										
5	D:\MassHunter\Data\092123_1633_S6Q355\6Q24815.d	9/21/2023 9:33:15 PM	9/22/2023 10:19:15 AM										
6	D:\MassHunter\Data\092123_1633_S6Q355\6Q24816.d	9/21/2023 9:47:34 PM	9/22/2023 10:19:15 AM										
7	D:\MassHunter\Data\092123_1633_S6Q355\6Q24817.d	9/21/2023 10:01:55 PM	9/22/2023 10:19:15 AM										
8	D:\MassHunter\Data\092123_1633_S6Q355\6Q24818.d	9/21/2023 10:16:15 PM	9/22/2023 10:19:15 AM										
Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD		
I M4-PFBA													
T PFBA	Avg RF	0.3009	0.3043	0.2928	0.2709	0.3120	0.3272	0.3322	0.3251	0.3082	6.640		
T 3:3FTCA	Avg RF	0.0487	0.0515	0.0492	0.0479	0.0526	0.0562	0.0601	0.0639	0.0538	10.802		
I M5-PFPeA													
T PFMPA	Avg RF	1.2334	1.2662	1.2213	1.1533	1.3167	1.3663	1.3840	1.3854	1.2908	6.656		
T PFPeA	Avg RF	2.4573	2.4555	2.3853	2.1469	2.5097	2.5728	2.6188	2.5553	2.4627	6.005		
T PFMBA	Avg RF	1.6514	1.6925	1.6730	1.5608	1.8052	1.8638	1.8681	1.8339	1.7436	6.554		
I M5-PFHxA													
T NFDHA	Avg RF	0.1063	0.1072	0.1012	0.0880	0.1032	0.1113	0.1079	0.0974	0.1028	7.174		
T PFHxA	Avg RF	0.8932	0.8459	0.8564	0.7182	0.8942	0.9253	0.9013	0.9190	0.8692	7.701		
T PFEEA	Avg RF	1.0946	1.1043	1.1453	0.9975	1.1908	1.1893	1.2376	1.1915	1.1439	6.670		
T 5:3FTCA	Avg RF	0.1479	0.1454	0.1477	0.1350	0.1573	0.1660	0.1637	0.1570	0.1525	6.799		
T 7:3FTCA	Avg RF	0.0837	0.0828	0.0882	0.0800	0.0924	0.0931	0.0960	0.0955	0.0890	6.951		
I M4-PFHpA													
T PFHpA	Avg RF	1.2297	1.2768	1.1503	1.0680	1.3094	1.3562	1.4425	1.3373	1.2713	9.405		
I M8-PFOA													
T PFOA	Avg RF	1.2717	1.2360	0.9669	1.0312	1.1524	1.1937	1.2028	1.1673	1.1527	8.967		
I M9-PFNA													
T PFNA	Avg RF	0.7330	0.8142	0.7886	0.7234	0.8253	0.8122	0.9143	0.8146	0.8032	7.391		
I M6-PFDA													
T PFDA	Avg RF	1.0931	0.9989	1.0625	1.0460	1.1553	1.2058	1.2010	1.1694	1.1165	6.912		
I M7-PFUnDA													
T PFUnDA	Avg RF	0.6410	0.7308	0.6662	0.6730	0.8066	0.7084	0.8062	0.7743	0.7258	8.902		
I M2-PFDODA													

Generated at 10:19 AM on 9/22/2023

Page 1 of 3

Initial Calibration Summary

Job Number: FC9604
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q355-ICC355
 Lab FileID: 6Q24814.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.8548	0.8506	0.9235	0.8043	0.9128	0.9994	1.0638	0.8759	0.9106	9.348
T PFTfDA	Avg RF	0.9393	0.9547	0.9654	0.8737	1.0072	1.0437	1.0203	0.9568	0.9701	5.508
I M2-PFTeDA	Avg RF	1.7483	1.6737	1.6662	1.4258	1.6279	1.8070	1.8017	1.6273	1.6722	7.341
T PFTeDA	Avg RF										
I M8-FOSA	Avg RF	0.8878	0.8577	0.8334	0.7573	0.8713	0.8673	0.9521	0.8730	0.8625	6.325
T FOSA	Avg RF										
I M3-PFBS	Avg RF	1.2192	1.1692	1.1358	1.0324	1.1726	1.2643	1.2537	1.2214	1.1836	6.355
T PFBS	Avg RF										
I M3-PFHxS	Avg RF	1.3815	1.3412	1.2916	1.2229	1.3366	1.3785	1.3964	1.3954	1.3430	4.489
T PFPeS	Avg RF	1.6878	1.7256	1.4779	1.4904	1.5740	1.6243	1.6946	1.6517	1.6158	5.792
T PFHxS	Avg RF										
I M8-PFOS	Avg RF	1.1616	1.1596	1.1661	1.1953	1.1815	1.3267	1.2715	1.3286	1.2239	6.002
T PFHpS	Avg RF	1.6203	1.4613	1.1994	1.2736	1.3817	1.5048	1.3713	1.4939	1.4133	9.571
T PFOS	Avg RF	1.1232	1.1762	1.1749	1.0839	1.2045	1.3116	1.3199	1.3240	1.2148	7.688
T PFNS	Avg RF	0.7311	0.7406	0.7073	0.6926	0.7310	0.7834	0.7063	0.7732	0.7332	4.384
T PFDS	Avg RF	0.3479	0.3766	0.3476	0.3255	0.3653	0.3693	0.3805	0.3706	0.3604	5.151
T PFDoDS	Avg RF										
I M2-4:2FTS	Avg RF	8.1423	7.5621	8.3358	7.0752	8.3866	8.6914	8.9874	7.6092	8.0987	7.889
T 4:2FTS	Avg RF										
I M2-6:2FTS	Avg RF	5.1039	4.6828	4.5963	4.3648	4.5111	4.6491	4.7300	4.3468	4.6231	5.191
T 6:2FTS	Avg RF										
I M2-8:2FTS	Avg RF	3.4930	3.1794	2.9027	3.1848	3.4415	3.3773	3.0773	2.7452	3.1751	8.261
T 8:2FTS	Avg RF										
I M3-MeFOSAA	Avg RF	1.1051	1.0926	1.1191	0.9893	1.1515	1.1265	1.2568	1.2343	1.1344	7.391
T MeFOSAA	Avg RF										
I M3-HFO-DA	Avg RF	0.9903	0.9888	0.9092	0.8316	0.9819	0.9386	0.9802	0.9730	0.9492	5.822
T HFPO-DA	Avg RF	14.81	15.05	14.63	13.18	14.86	15.00	15.83	14.74	14.76	4.988
T ADONA	Avg RF	6.0841	5.7177	5.8576	5.1924	6.3230	5.5832	5.8124	5.2553	5.7282	6.717
T 9Cl-PF3ONS	Avg RF	3.2458	3.2998	3.0855	2.9955	3.5001	3.3542	3.2821	3.2014	3.2455	4.815
T 11Cl-PF3OUds	Avg RF										
I M5-EFOSAA	Avg RF	0.7541	0.6691	0.7202	0.6730	0.7787	0.8748	0.7829	0.7952	0.7560	9.028
T EFOSAA	Avg RF										
I M7-MeFOSE	Avg RF	0.9993	1.0509	1.0489	0.9190	1.1209	1.1186	1.1848	1.1434	1.0732	8.034
T MeFOSE	Avg RF										
I M9-EFOSE	Avg RF	1.1238	1.0953	1.1155	1.0976	1.1986	1.2615	1.2404	1.2418	1.1718	6.052
T EFOSE	Avg RF										

Generated at 10:19 AM on 9/22/2023

Page 2 of 3

Initial Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q355-ICC355
 Lab FileID: 6Q24814.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA	Avg RF	1.2841	1.2520	1.2686	1.2123	1.3007	1.3985	1.4505	1.3429	1.3137	6.030
T EFOSA						ISTD					
I M3-MeFOSA	Avg RF	1.0631	1.1865	1.1387	1.0337	1.1366	1.2134	1.1759	1.0527	1.1251	6.001
T MeFOSA						ISTD					
I 13C4-PFOS						ISTD					
S d3-MeFOSAA	Avg RF	0.7088	0.7373	0.6552	0.6691	0.6875	0.7141	0.6463	0.6427	0.6826	5.114
S 13C8-PFOS	Avg RF	0.7415	0.7182	0.7218	0.7000	0.7430	0.7442	0.7438	0.7190	0.7364	3.154
S d5-EFOSAA	Avg RF	0.5667	0.6128	0.5687	0.5787	0.5866	0.5704	0.5833	0.5984	0.5832	2.740
S 13C8-FOSA	Avg RF	1.5800	1.7241	1.6009	1.6434	1.6355	1.6749	1.5520	1.7229	1.6417	3.855
S d7-MeFOSE	Avg RF	0.5347	0.5544	0.5078	0.5444	0.5210	0.5542	0.5183	0.5331	0.5335	3.196
S d3-MeFOSA	Avg RF	0.5887	0.5979	0.5347	0.5727	0.5861	0.5896	0.6017	0.6839	0.5944	7.035
S d9-EFOSE	Avg RF	0.6890	0.7529	0.6709	0.6792	0.7199	0.7083	0.6903	0.6910	0.7002	3.756
S d5-EFOSA	Avg RF	0.5440	0.5770	0.5229	0.5472	0.5514	0.5691	0.5318	0.5846	0.5535	3.926
I 13C3-PFBA						ISTD					
S 13C4-PFBA	Avg RF	1.2217	1.2132	1.2224	1.2227	1.2272	1.2186	1.2114	1.2189	1.2195	0.426
I 1802-PFHxS						ISTD					
S 13C2-4:2FTS	Avg RF	0.1382	0.1492	0.1295	0.1408	0.1357	0.1261	0.1140	0.1101	0.1304	10.244
S 13C3-PBBS	Avg RF	2.3742	2.4992	2.4313	2.5811	2.4380	2.4548	2.3998	2.1952	2.4217	4.602
S 13C2-6:2FTS	Avg RF	0.1907	0.2058	0.1850	0.1886	0.1957	0.1872	0.1658	0.1527	0.1839	9.197
S 13C3-PFHxS	Avg RF	1.3727	1.3316	1.3530	1.3199	1.3791	1.4191	1.3694	1.2864	1.3539	3.017
S 13C2-8:2FTS	Avg RF	0.1935	0.2065	0.1940	0.1915	0.1793	0.1826	0.1861	0.1685	0.1878	6.066
I 13C4-PFOA						ISTD					
S 13C8-PFOA	Avg RF	0.8708	0.8975	0.9685	0.9060	0.9570	0.8802	0.8897	0.8917	0.9077	3.934
I 13C2-PFDA						ISTD					
S 13C6-PFDA	Avg RF	1.2225	1.1716	1.1284	1.1219	1.0741	1.1791	1.0773	1.1275	1.1378	4.480
S 13C7-PFUnDA	Avg RF	1.4558	1.3368	1.4142	1.3840	1.2240	1.4547	1.2914	1.1977	1.3448	7.430
S 13C2-PFDODA	Avg RF	1.2991	1.2847	1.2469	1.2673	1.2158	1.3041	1.2538	1.2591	1.2664	2.308
S 13C2-PFTeDA	Avg RF	0.5092	0.5006	0.4768	0.5193	0.4998	0.5226	0.4941	0.5251	0.5059	3.253
I 13C5-PFNA						ISTD					
S 13C9-PFNA	Avg RF	0.9668	0.8536	0.8971	0.9721	0.8431	0.9298	0.8953	0.8941	0.9065	5.217
I 13C2-PFHxA						ISTD					
S 13C5-PPFA	Avg RF	0.2983	0.2877	0.2878	0.2896	0.2758	0.2909	0.2824	0.2607	0.2842	4.050
S 13C5-PFHxA	Avg RF	1.3115	1.3330	1.3067	1.3707	1.2765	1.3360	1.3336	1.2659	1.3168	2.593
S 13C3-HPOD-A	Avg RF	0.1810	0.1828	0.1848	0.1889	0.1791	0.1977	0.1900	0.1787	0.1854	3.512
S 13C4-PFHxA	Avg RF	1.1043	1.0754	1.1216	1.0960	1.0440	1.0992	1.0240	1.0284	1.0741	3.482

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

Initial Calibration Verification

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q355-ICV355
 Lab FileID: 6Q24820.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092123_1633_S6Q355\s6q355.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092123_1633_S6Q355\6Q24811.d
 2:D:\MassHunter\Data\092123_1633_S6Q355\6Q24812.d
 3:D:\MassHunter\Data\092123_1633_S6Q355\6Q24813.d
 4:D:\MassHunter\Data\092123_1633_S6Q355\6Q24814.d
 5:D:\MassHunter\Data\092123_1633_S6Q355\6Q24815.d
 6:D:\MassHunter\Data\092123_1633_S6Q355\6Q24816.d
 7:D:\MassHunter\Data\092123_1633_S6Q355\6Q24817.d
 8:D:\MassHunter\Data\092123_1633_S6Q355\6Q24818.d

Data File: 6Q24820
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.398	8.0	108.0
13C2-6:2FTS	5.000	5.295	5.9	105.9
13C2-8:2FTS	5.000	5.012	0.2	100.2
13C2-PFDoDA	1.250	1.251	0.1	100.1
13C2-PFTeDA	1.250	1.162	-7.0	93.0
13C3-PFBS	2.500	2.468	-1.3	98.7
13C3-PFHxS	2.500	2.532	1.3	101.3
13C4-PFBA	10.000	10.063	0.6	100.6
13C4-PFHpA	2.500	2.602	4.1	104.1
13C5-PFHxA	2.500	2.603	4.1	104.1
13C5-PFPeA	5.000	5.290	5.8	105.8
13C6-PFDA	1.250	1.288	3.1	103.1
13C7-PFUnDA	1.250	1.347	7.8	107.8
13C8-FOSA	2.500	2.417	-3.3	96.7
13C8-PFOA	2.500	2.366	-5.4	94.6
13C8-PFOS	2.500	2.651	6.0	106.0
13C9-PFNA	1.250	1.343	7.5	107.5
4:2FTS	9.375	8.099	-13.6	86.4
6:2FTS	9.500	8.309	-12.5	87.5
8:2FTS	9.600	8.981	-6.4	93.6
d3-MeFOSAA	5.000	5.001	0.0	100.0
EtFOSAA	2.500	2.405	-3.8	96.2
FOSA	2.500	2.203	-11.9	88.1
MeFOSAA	2.500	2.114	-15.4	84.6
PFBA	10.000	8.835	-11.6	88.4
PFBS	2.218	1.955	-11.9	88.1
PFDA	2.500	2.177	-12.9	87.1
PFDoDA	2.500	2.085	-16.6	83.4
PFDS	2.413	1.936	-19.8	80.2
PFHpA	2.500	2.284	-8.7	91.3
PFHpS	2.383	2.044	-14.2	85.8
PFHxA	2.500	2.167	-13.3	86.7
PFHxS	2.285	1.944	-14.9	85.1
PFNA	2.500	2.054	-17.8	82.2
PFNS	2.405	2.044	-15.0	85.0
PFOA	2.500	2.363	-5.5	94.5
PFOS	2.320	1.809	-22.0	78.0

Initial Calibration Verification

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q355-ICV355
 Lab FileID: 6Q24820.D

PFPeA	5.000	4.413	-11.7	88.3
PFPeS	2.353	2.141	-9.0	91.0
PFTeDA	2.500	2.292	-8.3	91.7
PFTrDA	2.500	2.110	-15.6	84.4
PFUnDA	2.500	2.099	-16.0	84.0
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	4.575	-3.2	96.8
13C3-HFPO-DA	10.000	10.543	5.4	105.4
9C1-PF3ONS	4.675	4.469	-4.4	95.6
ADONA	4.725	4.201	-11.1	88.9
HFPO-DA	5.000	4.460	-10.8	89.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	10.731	-14.0	86.0
5:3FTCA	62.400	59.029	-5.4	94.6
7:3FTCA	62.400	55.752	-10.7	89.3
d3-MeFOSA	2.500	2.243	-10.3	89.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.671	-6.6	93.4
EtFOSE	12.500	10.583	-15.3	84.7
MeFOSA	5.000	4.692	-6.2	93.8
MeFOSE	12.500	11.662	-6.7	93.3
PFDoDS	2.425	2.029	-16.3	83.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.873	-2.5	97.5
d7-MeFOSE	25.000	23.259	-7.0	93.0
d9-EtFOSE	25.000	25.473	1.9	101.9
d5-EtFOSA	2.500	2.419	-3.2	96.8
NFDHA	5.000	4.397	-12.1	87.9
PFMBA	5.000	4.517	-9.7	90.3
PFMPA	5.000	4.531	-9.4	90.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.198	-5.7	94.3

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q355-ICV355
 Lab FileID: 6Q24821.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092123_1633_S6Q355\s6q355.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092123_1633_S6Q355\6Q24811.d
 2:D:\MassHunter\Data\092123_1633_S6Q355\6Q24812.d
 3:D:\MassHunter\Data\092123_1633_S6Q355\6Q24813.d
 4:D:\MassHunter\Data\092123_1633_S6Q355\6Q24814.d
 5:D:\MassHunter\Data\092123_1633_S6Q355\6Q24815.d
 6:D:\MassHunter\Data\092123_1633_S6Q355\6Q24816.d
 7:D:\MassHunter\Data\092123_1633_S6Q355\6Q24817.d
 8:D:\MassHunter\Data\092123_1633_S6Q355\6Q24818.d

Data File: 6Q24821
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.302	6.0	106.0
13C2-6:2FTS	5.000	5.324	6.5	106.5
13C2-8:2FTS	5.000	5.224	4.5	104.5
13C2-PFDoDA	1.250	1.328	6.3	106.3
13C2-PFTeDA	1.250	1.231	-1.5	98.5
13C3-PFBS	2.500	2.545	1.8	101.8
13C3-PFHxS	2.500	2.534	1.4	101.4
13C4-PFBA	10.000	9.927	-0.7	99.3
13C4-PFHpA	2.500	2.548	1.9	101.9
13C5-PFHxA	2.500	2.523	0.9	100.9
13C5-PFPeA	5.000	5.057	1.1	101.1
13C6-PFDA	1.250	1.282	2.6	102.6
13C7-PFUnDA	1.250	1.369	9.5	109.5
13C8-FOSA	2.500	2.342	-6.3	93.7
13C8-PFOA	2.500	2.554	2.2	102.2
13C8-PFOS	2.500	2.375	-5.0	95.0
13C9-PFNA	1.250	1.256	0.5	100.5
4:2FTS	20.000	23.355	16.8	116.8
6:2FTS	20.000	22.613	13.1	113.1
8:2FTS	20.000	22.232	11.2	111.2
d3-MeFOSAA	5.000	4.639	-7.2	92.8
EtFOSAA	20.000	22.904	14.5	114.5
FOSA	20.000	21.740	8.7	108.7
MeFOSAA	20.000	22.658	13.3	113.3
PFBA	20.000	20.853	4.3	104.3
PFBS	20.000	21.665	8.3	108.3
PFDA	20.000	21.381	6.9	106.9
PFDoDA	20.000	17.786	-11.1	88.9
PFDS	20.000	21.965	9.8	109.8
PFHpA	20.000	21.445	7.2	107.2
PFHpS	20.000	22.193	11.0	111.0
PFHxA	20.000	22.779	13.9	113.9
PFHxS	20.000	22.080	10.4	110.4
PFNA	20.000	23.481	17.4	117.4
PFNS	20.000	22.278	11.4	111.4
PFOA	20.000	19.982	-0.1	99.9
PFOS	20.000	21.287	6.4	106.4

Initial Calibration Verification

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q355-ICV355
 Lab FileID: 6Q24821.D

PFPeA	20.000	21.930	9.6	109.6
PFPeS	20.000	21.301	6.5	106.5
PFTeDA	20.000	22.272	11.4	111.4
PFTTrDA	20.000	17.738	-11.3	88.7
PFUnDA	20.000	19.072	-4.6	95.4
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	20.000	22.444	12.2	112.2
13C3-HFPO-DA	10.000	10.135	1.3	101.3
9C1-PF3ONS	20.000	20.981	4.9	104.9
ADONA	20.000	19.919	-0.4	99.6
HFPO-DA	20.000	20.697	3.5	103.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	19.772	-1.1	98.9
5:3FTCA	20.000	22.251	11.3	111.3
7:3FTCA	20.000	20.617	3.1	103.1
d3-MeFOSA	2.500	2.537	1.5	101.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	19.069	-4.7	95.3
EtFOSE	100.000	108.087	8.1	108.1
MeFOSA	20.000	18.228	-8.9	91.1
MeFOSE	100.000	107.910	7.9	107.9
PFDoDS	20.000	20.957	4.8	104.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.795	-4.1	95.9
d7-MeFOSE	25.000	25.497	2.0	102.0
d9-EtFOSE	25.000	25.202	0.8	100.8
d5-EtFOSA	2.500	2.479	-0.8	99.2
NFDHA	20.000	21.251	6.3	106.3
PFMBA	20.000	21.395	7.0	107.0
PFMPA	20.000	21.529	7.6	107.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	18.628	-6.9	93.1

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q355-CC355
 Lab FileID: 6Q24822.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092123_1633_S6Q355\s6q355.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092123_1633_S6Q355\6Q24811.d
 2:D:\MassHunter\Data\092123_1633_S6Q355\6Q24812.d
 3:D:\MassHunter\Data\092123_1633_S6Q355\6Q24813.d
 4:D:\MassHunter\Data\092123_1633_S6Q355\6Q24814.d
 5:D:\MassHunter\Data\092123_1633_S6Q355\6Q24815.d
 6:D:\MassHunter\Data\092123_1633_S6Q355\6Q24816.d
 7:D:\MassHunter\Data\092123_1633_S6Q355\6Q24817.d
 8:D:\MassHunter\Data\092123_1633_S6Q355\6Q24818.d

Data File: 6Q24822
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.329	6.6	106.6
13C2-6:2FTS	5.000	5.276	5.5	105.5
13C2-8:2FTS	5.000	5.103	2.1	102.1
13C2-PFDoDA	1.250	1.251	0.0	100.0
13C2-PFTeDA	1.250	1.148	-8.1	91.9
13C3-PFBS	2.500	2.407	-3.7	96.3
13C3-PFHxS	2.500	2.592	3.7	103.7
13C4-PFBA	10.000	10.149	1.5	101.5
13C4-PFHpA	2.500	2.517	0.7	100.7
13C5-PFHxA	2.500	2.483	-0.7	99.3
13C5-PFPeA	5.000	5.355	7.1	107.1
13C6-PFDA	1.250	1.140	-8.8	91.2
13C7-PFUnDA	1.250	1.331	6.5	106.5
13C8-FOSA	2.500	2.593	3.7	103.7
13C8-PFOA	2.500	2.595	3.8	103.8
13C8-PFOS	2.500	2.743	9.7	109.7
13C9-PFNA	1.250	1.203	-3.8	96.2
4:2FTS	9.375	8.004	-14.6	85.4
6:2FTS	9.500	8.389	-11.7	88.3
8:2FTS	9.600	9.172	-4.5	95.5
d3-MeFOSAA	5.000	5.100	2.0	102.0
EtFOSAA	2.500	2.017	-19.3	80.7
FOSA	2.500	2.274	-9.0	91.0
MeFOSAA	2.500	2.391	-4.4	95.6
PFBA	10.000	8.901	-11.0	89.0
PFBS	2.218	2.021	-8.9	91.1
PFDA	2.500	2.452	-1.9	98.1
PFDoDA	2.500	2.237	-10.5	89.5
PFDS	2.413	1.928	-20.1	79.9
PFHpA	2.500	2.351	-6.0	94.0
PFHpS	2.383	2.023	-15.1	84.9
PFHxA	2.500	2.258	-9.7	90.3
PFHxS	2.285	1.855	-18.8	81.2
PFNA	2.500	2.223	-11.1	88.9
PFNS	2.405	2.083	-13.4	86.6
PFOA	2.500	2.302	-7.9	92.1
PFOS	2.320	1.991	-14.2	85.8

Continuing Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q355-CC355
 Lab FileID: 6Q24822.D

PFPeA	5.000	4.326	-13.5	86.5
PFPeS	2.353	1.949	-17.2	82.8
PFTeDA	2.500	2.442	-2.3	97.7
PFTTrDA	2.500	2.196	-12.2	87.8
PFUnDA	2.500	2.032	-18.7	81.3
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	4.178	-11.6	88.4
13C3-HFPO-DA	10.000	11.020	10.2	110.2
9C1-PF3ONS	4.675	4.177	-10.7	89.3
ADONA	4.725	4.101	-13.2	86.8
HFPO-DA	5.000	4.111	-17.8	82.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.027	-11.6	88.4
5:3FTCA	62.400	60.940	-2.3	97.7
7:3FTCA	62.400	59.323	-4.9	95.1
d3-MeFOSA	2.500	2.558	2.3	102.3
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.780	-4.4	95.6
EtFOSE	12.500	11.235	-10.1	89.9
MeFOSA	5.000	4.645	-7.1	92.9
MeFOSE	12.500	11.366	-9.1	90.9
PFDoDS	2.425	2.037	-16.0	84.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.729	14.6	114.6
d7-MeFOSE	25.000	26.416	5.7	105.7
d9-EtFOSE	25.000	26.380	5.5	105.5
d5-EtFOSA	2.500	2.514	0.6	100.6
NFDHA	5.000	4.810	-3.8	96.2
PFMBA	5.000	4.448	-11.0	89.0
PFMPA	5.000	4.460	-10.8	89.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.317	-3.0	97.0

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q355-CC355
 Lab FileID: 6Q24823.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092123_1633_S6Q355\s6q355.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092123_1633_S6Q355\6Q24811.d
 2:D:\MassHunter\Data\092123_1633_S6Q355\6Q24812.d
 3:D:\MassHunter\Data\092123_1633_S6Q355\6Q24813.d
 4:D:\MassHunter\Data\092123_1633_S6Q355\6Q24814.d
 5:D:\MassHunter\Data\092123_1633_S6Q355\6Q24815.d
 6:D:\MassHunter\Data\092123_1633_S6Q355\6Q24816.d
 7:D:\MassHunter\Data\092123_1633_S6Q355\6Q24817.d
 8:D:\MassHunter\Data\092123_1633_S6Q355\6Q24818.d

Data File: 6Q24823
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.606	12.1	112.1
13C2-6:2FTS	5.000	5.867	17.3	117.3
13C2-8:2FTS	5.000	4.904	-1.9	98.1
13C2-PFDoDA	1.250	1.218	-2.5	97.5
13C2-PFTeDA	1.250	1.220	-2.4	97.6
13C3-PFBS	2.500	2.457	-1.7	98.3
13C3-PFHxS	2.500	2.618	4.7	104.7
13C4-PFBA	10.000	10.110	1.1	101.1
13C4-PFHpA	2.500	2.626	5.0	105.0
13C5-PFHxA	2.500	2.594	3.7	103.7
13C5-PFPeA	5.000	5.296	5.9	105.9
13C6-PFDA	1.250	1.216	-2.7	97.3
13C7-PFUnDA	1.250	1.228	-1.8	98.2
13C8-FOSA	2.500	2.739	9.5	109.5
13C8-PFOA	2.500	2.510	0.4	100.4
13C8-PFOS	2.500	2.810	12.4	112.4
13C9-PFNA	1.250	1.333	6.7	106.7
4:2FTS	0.750	0.717	-4.4	95.6
6:2FTS	0.760	0.737	-3.1	96.9
8:2FTS	0.768	0.803	4.6	104.6
d3-MeFOSAA	5.000	5.623	12.5	112.5
EtFOSAA	0.200	0.210	4.8	104.8
FOSA	0.200	0.180	-9.9	90.1
MeFOSAA	0.200	0.207	3.6	103.6
PFBA	0.800	0.793	-0.8	99.2
PFBS	0.177	0.202	14.1	114.1
PFDA	0.200	0.189	-5.3	94.7
PFDoDA	0.200	0.193	-3.4	96.6
PFDS	0.193	0.197	1.9	101.9
PFHpA	0.200	0.188	-6.0	94.0
PFHpS	0.191	0.178	-6.8	93.2
PFHxA	0.200	0.199	-0.3	99.7
PFHxS	0.183	0.203	11.2	111.2
PFNA	0.200	0.186	-6.9	93.1
PFNS	0.192	0.173	-9.7	90.3
PFOA	0.200	0.229	14.4	114.4
PFOS	0.186	0.180	-3.0	97.0

Continuing Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q355-CC355
 Lab FileID: 6Q24823.D

PFPeA	0.400	0.392	-2.1	97.9
PFPeS	0.188	0.199	6.1	106.1
PFTeDA	0.200	0.183	-8.6	91.4
PFTTrDA	0.200	0.181	-9.6	90.4
PFUnDA	0.200	0.202	1.1	101.1
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	0.350	-7.5	92.5
13C3-HFPO-DA	10.000	10.880	8.8	108.8
9C1-PF3ONS	0.374	0.355	-5.0	95.0
ADONA	0.378	0.347	-8.1	91.9
HFPO-DA	0.400	0.379	-5.2	94.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.924	-7.4	92.6
5:3FTCA	4.992	4.606	-7.7	92.3
7:3FTCA	4.992	4.638	-7.1	92.9
d3-MeFOSA	2.500	2.436	-2.6	97.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.401	0.2	100.2
EtFOSE	1.000	0.988	-1.2	98.8
MeFOSA	0.400	0.416	4.1	104.1
MeFOSE	1.000	0.960	-4.0	96.0
PFDoDS	0.194	0.175	-9.9	90.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.547	10.9	110.9
d7-MeFOSE	25.000	25.725	2.9	102.9
d9-EtFOSE	25.000	26.669	6.7	106.7
d5-EtFOSA	2.500	2.662	6.5	106.5
NFDHA	0.400	0.387	-3.3	96.7
PFMBA	0.400	0.386	-3.5	96.5
PFMPA	0.400	0.374	-6.5	93.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.339	-4.8	95.2

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q355-CC355
 Lab FileID: 6Q24834.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092123_1633_S6Q355\s6q355.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092123_1633_S6Q355\6Q24811.d
 2:D:\MassHunter\Data\092123_1633_S6Q355\6Q24812.d
 3:D:\MassHunter\Data\092123_1633_S6Q355\6Q24813.d
 4:D:\MassHunter\Data\092123_1633_S6Q355\6Q24814.d
 5:D:\MassHunter\Data\092123_1633_S6Q355\6Q24815.d
 6:D:\MassHunter\Data\092123_1633_S6Q355\6Q24816.d
 7:D:\MassHunter\Data\092123_1633_S6Q355\6Q24817.d
 8:D:\MassHunter\Data\092123_1633_S6Q355\6Q24818.d

Data File: 6Q24834
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.073	1.5	101.5
13C2-6:2FTS	5.000	5.085	1.7	101.7
13C2-8:2FTS	5.000	5.068	1.4	101.4
13C2-PFDoDA	1.250	1.201	-3.9	96.1
13C2-PFTeDA	1.250	1.127	-9.8	90.2
13C3-PFBS	2.500	2.446	-2.2	97.8
13C3-PFHxS	2.500	2.498	-0.1	99.9
13C4-PFBA	10.000	10.052	0.5	100.5
13C4-PFHpA	2.500	2.382	-4.7	95.3
13C5-PFHxA	2.500	2.410	-3.6	96.4
13C5-PFPeA	5.000	4.955	-0.9	99.1
13C6-PFDA	1.250	1.169	-6.5	93.5
13C7-PFUnDA	1.250	1.228	-1.8	98.2
13C8-FOSA	2.500	2.470	-1.2	98.8
13C8-PFOA	2.500	2.536	1.5	101.5
13C8-PFOS	2.500	2.463	-1.5	98.5
13C9-PFNA	1.250	1.259	0.8	100.8
4:2FTS	9.375	8.780	-6.3	93.7
6:2FTS	9.500	8.534	-10.2	89.8
8:2FTS	9.600	8.777	-8.6	91.4
d3-MeFOSAA	5.000	5.071	1.4	101.4
EtFOSAA	2.500	2.208	-11.7	88.3
FOSA	2.500	2.131	-14.8	85.2
MeFOSAA	2.500	2.110	-15.6	84.4
PFBA	10.000	8.922	-10.8	89.2
PFBS	2.218	1.976	-10.9	89.1
PFDA	2.500	2.335	-6.6	93.4
PFDoDA	2.500	2.295	-8.2	91.8
PFDS	2.413	2.037	-15.6	84.4
PFHpA	2.500	2.283	-8.7	91.3
PFHpS	2.383	2.037	-14.5	85.5
PFHxA	2.500	2.264	-9.4	90.6
PFHxS	2.285	1.938	-15.2	84.8
PFNA	2.500	2.190	-12.4	87.6
PFNS	2.405	2.232	-7.2	92.8
PFOA	2.500	2.257	-9.7	90.3
PFOS	2.320	1.903	-18.0	82.0

Continuing Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q355-CC355
 Lab FileID: 6Q24834.D

PFPeA	5.000	4.302	-14.0	86.0
PFPeS	2.353	2.078	-11.7	88.3
PFTeDA	2.500	2.379	-4.9	95.1
PFTTrDA	2.500	2.292	-8.3	91.7
PFUnDA	2.500	2.119	-15.3	84.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.195	-11.2	88.8
13C3-HFPO-DA	10.000	9.820	-1.8	98.2
9C1-PF3ONS	4.675	4.183	-10.5	89.5
ADONA	4.725	4.148	-12.2	87.8
HFPO-DA	5.000	4.579	-8.4	91.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.023	-11.7	88.3
5:3FTCA	62.400	59.279	-5.0	95.0
7:3FTCA	62.400	58.159	-6.8	93.2
d3-MeFOSA	2.500	2.273	-9.1	90.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.509	-9.8	90.2
EtFOSE	12.500	11.198	-10.4	89.6
MeFOSA	5.000	4.928	-1.4	98.6
MeFOSE	12.500	11.403	-8.8	91.2
PFDoDS	2.425	2.168	-10.6	89.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.178	3.6	103.6
d7-MeFOSE	25.000	23.384	-6.5	93.5
d9-EtFOSE	25.000	24.326	-2.7	97.3
d5-EtFOSA	2.500	2.430	-2.8	97.2
NFDHA	5.000	4.569	-8.6	91.4
PFMBA	5.000	4.425	-11.5	88.5
PFMPA	5.000	4.421	-11.6	88.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.025	-9.5	90.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q355-CC355
 Lab FileID: 6Q24845.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092123_1633_S6Q355\s6q355.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092123_1633_S6Q355\6Q24811.d
 2:D:\MassHunter\Data\092123_1633_S6Q355\6Q24812.d
 3:D:\MassHunter\Data\092123_1633_S6Q355\6Q24813.d
 4:D:\MassHunter\Data\092123_1633_S6Q355\6Q24814.d
 5:D:\MassHunter\Data\092123_1633_S6Q355\6Q24815.d
 6:D:\MassHunter\Data\092123_1633_S6Q355\6Q24816.d
 7:D:\MassHunter\Data\092123_1633_S6Q355\6Q24817.d
 8:D:\MassHunter\Data\092123_1633_S6Q355\6Q24818.d

Data File: 6Q24845
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.167	3.3	103.3
13C2-6:2FTS	5.000	5.276	5.5	105.5
13C2-8:2FTS	5.000	4.791	-4.2	95.8
13C2-PFDoDA	1.250	1.385	10.8	110.8
13C2-PFTeDA	1.250	1.443	15.5	115.5
13C3-PFBS	2.500	2.457	-1.7	98.3
13C3-PFHxS	2.500	2.345	-6.2	93.8
13C4-PFBA	10.000	10.122	1.2	101.2
13C4-PFHpA	2.500	2.599	4.0	104.0
13C5-PFHxA	2.500	2.698	7.9	107.9
13C5-PFPeA	5.000	5.127	2.5	102.5
13C6-PFDA	1.250	1.257	0.6	100.6
13C7-PFUnDA	1.250	1.244	-0.5	99.5
13C8-FOSA	2.500	2.692	7.7	107.7
13C8-PFOA	2.500	2.395	-4.2	95.8
13C8-PFOS	2.500	2.544	1.8	101.8
13C9-PFNA	1.250	1.294	3.5	103.5
4:2FTS	9.375	8.478	-9.6	90.4
6:2FTS	9.500	8.185	-13.8	86.2
8:2FTS	9.600	9.037	-5.9	94.1
d3-MeFOSAA	5.000	5.741	14.8	114.8
EtFOSAA	2.500	2.308	-7.7	92.3
FOSA	2.500	2.167	-13.3	86.7
MeFOSAA	2.500	2.054	-17.8	82.2
PFBA	10.000	9.056	-9.4	90.6
PFBS	2.218	1.918	-13.5	86.5
PFDA	2.500	1.950	-22.0	78.0
PFDoDA	2.500	2.030	-18.8	81.2
PFDS	2.413	2.028	-16.0	84.0
PFHpA	2.500	2.118	-15.3	84.7
PFHpS	2.383	2.052	-13.9	86.1
PFHxA	2.500	2.073	-17.1	82.9
PFHxS	2.285	2.001	-12.4	87.6
PFNA	2.500	2.138	-14.5	85.5
PFNS	2.405	2.043	-15.1	84.9
PFOA	2.500	2.125	-15.0	85.0
PFOS	2.320	1.900	-18.1	81.9

Continuing Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q355-CC355
 Lab FileID: 6Q24845.D

PFPeA	5.000	4.372	-12.6	87.4
PFPeS	2.353	2.186	-7.1	92.9
PFTeDA	2.500	2.176	-13.0	87.0
PFTrDA	2.500	2.094	-16.2	83.8
PFUnDA	2.500	2.313	-7.5	92.5
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	4.330	-8.4	91.6
13C3-HFPO-DA	10.000	10.089	0.9	100.9
9C1-PF3ONS	4.675	4.433	-5.2	94.8
ADONA	4.725	4.579	-3.1	96.9
HFPO-DA	5.000	4.792	-4.2	95.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.053	-11.4	88.6
5:3FTCA	62.400	58.812	-5.8	94.2
7:3FTCA	62.400	60.842	-2.5	97.5
d3-MeFOSA	2.500	2.309	-7.6	92.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.589	-8.2	91.8
EtFOSE	12.500	11.535	-7.7	92.3
MeFOSA	5.000	4.894	-2.1	97.9
MeFOSE	12.500	11.183	-10.5	89.5
PFDoDS	2.425	2.177	-10.2	89.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.310	6.2	106.2
d7-MeFOSE	25.000	24.306	-2.8	97.2
d9-EtFOSE	25.000	24.448	-2.2	97.8
d5-EtFOSA	2.500	2.367	-5.3	94.7
NFDHA	5.000	4.194	-16.1	83.9
PFMBA	5.000	4.540	-9.2	90.8
PFMPA	5.000	4.494	-10.1	89.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	3.759	-15.5	84.5

CC Criteria: +/- 30%

Initial Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-ICC356
 Lab FileID: 6Q24922.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods											
Method File	1633_092423_S6Q356.quantmethod.xml											
Batch Name	D:\MassHunter\Data\092423_1633_S6Q356\QuantResults\6q356.batch.bin											
Last Calib Update	9/25/2023 10:49:48 AM											
Level Name	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
1	D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d											
2	D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d											
3	D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d											
4	D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d											
5	D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d											
6	D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d											
7	D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d											
8	D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d											
Compound		Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M4-PFBA		Avg RF	0.3272	0.3715	0.3485	0.3663	0.3414	0.3706	0.3672	0.3633	0.3570	4.532
T PFBA		Avg RF	0.0540	0.0595	0.0549	0.0571	0.0545	0.0590	0.0598	0.0650	0.0580	6.328
T 3:3FTCA												
I M5-PFPeA		Avg RF	0.5370	0.6337	0.5813	0.6098	0.5799	0.6199	0.6247	0.6185	0.6006	5.375
T PFMPA		Avg RF	0.9124	1.0605	0.9685	1.0309	0.9732	1.0503	1.0372	1.0189	1.0065	5.029
T PFPeA		Avg RF	0.7414	0.8554	0.7814	0.8222	0.7815	0.8361	0.8334	0.8189	0.8088	4.637
T PFMBA												
I M5-PFHxA		Avg RF	0.1250	0.1288	0.1092	0.1164	0.1078	0.1162	0.1128	0.1059	0.1153	7.075
T NFDHA		Avg RF	0.8264	0.9601	0.8713	0.9322	0.8552	0.9088	0.9136	0.9121	0.8975	4.848
T PFHxA		Avg RF	1.0681	1.1730	1.0887	1.1475	1.0711	1.1241	1.1366	1.1180	1.1159	3.351
T PFEEA		Avg RF	0.1625	0.1852	0.1604	0.1734	0.1635	0.1648	0.1680	0.1718	0.1687	4.768
T 5:3FTCA		Avg RF	0.0854	0.1036	0.0906	0.1014	0.0951	0.0933	0.0969	0.0982	0.0956	6.126
T 7:3FTCA												
I M4-PFHpA		Avg RF	1.2809	1.4291	1.2550	1.3741	1.2600	1.4316	1.3783	1.4380	1.3559	5.824
T PFHpA												
I M8-PFOA		Avg RF	1.0089	1.1114	0.9932	1.1078	1.0239	1.1360	1.1407	1.0626	1.0731	5.484
T PFOA												
I M9-PFNA		Avg RF	0.7434	0.8590	0.7442	0.9368	0.7788	0.8379	0.8085	0.7626	0.8089	8.258
T PFNA												
I M6-PFDA		Avg RF	0.9201	1.0148	0.9586	0.9176	0.9580	1.0209	0.9952	1.1059	0.9864	6.304
T PFDA												
I M7-PFUnDA		Avg RF	0.7382	0.8806	0.7836	0.8306	0.8092	0.8766	0.8408	0.8629	0.8278	5.936
T PFUnDA												
I M2-PFDaDA												

Generated at 10:50 AM on 9/25/2023

Page 1 of 3

Initial Calibration Summary

Job Number: FC9604
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-ICC356
 Lab FileID: 6Q24922.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.8902	0.9085	0.8915	0.9600	0.8618	0.9502	0.9747	0.8579	0.9106	5.011
T PFTIDA	Avg RF	0.7388	0.8323	0.8101	0.8980	0.7353	0.7886	0.8335	0.7444	0.7976	7.181
I M2-PFTeDA	Avg RF	1.3642	1.5308	1.4732	1.5966	1.4520	1.4936	1.4319	1.4780	1.4775	4.637
T PFTeDA	Avg RF					ISTD					
I M8-FOSA	Avg RF	0.8873	0.9693	0.9992	0.9408	0.9192	0.9648	0.9580	0.9649	0.9505	3.614
T FOSA	Avg RF					ISTD					
I M3-PFBS	Avg RF	0.7654	0.8796	0.8047	0.8259	0.7594	0.8238	0.8307	0.8340	0.8154	4.780
T PFBS	Avg RF					ISTD					
I M3-PFHxS	Avg RF	1.2494	1.4296	1.3610	1.4382	1.2278	1.3473	1.3927	1.3984	1.3555	5.796
T PFPeS	Avg RF	0.8654	0.9973	0.9817	1.0277	0.9175	0.9919	0.9475	1.0539	0.9729	6.248
T PFHxS	Avg RF					ISTD					
I M8-PFOS	Avg RF	0.9411	1.1215	1.0723	1.2317	1.0944	1.1648	1.1403	1.0535	1.1024	7.801
T PFHpS	Avg RF	1.0442	1.1216	1.0063	1.1150	1.0752	1.1011	1.0580	1.1052	1.0783	3.715
T PFOs	Avg RF	0.8257	0.8788	0.8666	0.9051	0.8523	0.8839	0.8922	0.8586	0.8704	2.884
T PFNS	Avg RF	0.5453	0.6238	0.5765	0.6455	0.6094	0.6225	0.6070	0.6048	0.6043	5.118
T PFDs	Avg RF	0.3587	0.3719	0.3245	0.3897	0.3717	0.3689	0.3572	0.3429	0.3607	5.546
T PFDods	Avg RF					ISTD					
I M2-4:2FTS	Avg RF	7.0568	8.6624	7.9696	8.5609	7.9274	8.4746	8.4133	8.3914	8.1820	6.423
T 4:2FTS	Avg RF					ISTD					
I M2-6:2FTS	Avg RF	4.2187	4.7054	4.0871	4.0979	4.2274	4.5866	4.3293	4.2151	4.3084	5.205
T 6:2FTS	Avg RF					ISTD					
I M2-8:2FTS	Avg RF	2.7361	3.3709	3.0574	3.3526	3.3476	3.1565	3.3525	3.1265	3.1875	6.905
T 8:2FTS	Avg RF					ISTD					
I M3-MeFOSAA	Avg RF	0.8593	0.9778	0.8397	0.8873	0.8110	0.8816	0.8682	0.8764	0.8752	5.530
T MeFOSAA	Avg RF					ISTD					
I M3-HFO-DA	Avg RF	0.9834	1.0334	0.9844	0.9794	0.9049	0.9620	0.9989	1.0267	0.9841	4.074
T HFO-DA	Avg RF	10.92	13.18	12.25	12.13	11.64	12.52	12.61	13.08	12.29	6.068
T ADONA	Avg RF	3.9099	4.4764	4.7185	4.8111	4.1954	4.6166	4.3753	4.4122	4.4394	6.559
T 9CH-PF3ONS	Avg RF	2.4316	2.8131	2.7129	2.6265	2.4811	2.5509	2.6868	2.6267	2.6162	4.791
T 11CH-PF3OUds	Avg RF					ISTD					
I M5-EFOSAA	Avg RF	0.7816	0.9706	0.7830	0.8409	0.7777	0.8199	0.8801	0.8052	0.8324	7.912
T EFOSAA	Avg RF					ISTD					
I M7-MeFOSE	Avg RF	0.9697	1.1539	1.0685	1.0985	1.0787	1.2434	1.1181	1.1315	1.1078	7.051
T MeFOSE	Avg RF					ISTD					
I M9-EFOSE	Avg RF	0.9472	1.0311	0.9893	1.0465	0.9422	1.0285	1.0236	1.0220	1.0038	3.969
T EFOSE	Avg RF					ISTD					

Page 2 of 3

Generated at 10:50 AM on 9/25/2023

Initial Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-ICC356
 Lab FileID: 6Q24922.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA		1.0971	1.3210	1.2329	1.2697	1.1595	1.2987	1.2422	1.3167	1.2422	6.360
T EFOSA						ISTD					
I M3-MeFOSA		1.0922	1.2002	1.1756	1.1011	1.0905	1.1525	1.1290	1.0599	1.1251	4.256
T MeFOSA						ISTD					
I 13C4-PFOS		1.2218	1.1695	1.1747	1.1904	1.2597	1.1981	1.1560	1.1070	1.1846	3.830
S d3-MeFOSAA		1.0796	1.1131	1.0891	1.0836	1.0448	1.0819	1.0546	1.0896	1.0795	1.971
S 13C8-PFOS		0.9555	0.8792	0.9095	0.9362	0.9443	0.9485	0.8569	0.9339	0.9205	3.868
S d5-EFOSAA		2.1197	2.1317	2.0163	2.1684	2.0979	2.1617	2.0814	2.1358	2.1141	2.325
S 13C8-FOSA		0.7836	0.7366	0.7707	0.7723	0.7420	0.7227	0.7200	0.7517	0.7500	3.165
S d7-MeFOSE		0.6375	0.6113	0.5935	0.6570	0.6174	0.6329	0.6366	0.7007	0.6359	5.114
S d3-MeFOSA		0.9413	0.9109	0.9073	0.9311	0.9268	0.9136	0.8715	0.8975	0.9125	2.385
S d9-EFOSE		0.6993	0.6832	0.6607	0.6664	0.6644	0.6755	0.6470	0.6542	0.6688	2.503
S d5-EFOSA						ISTD					
I 13C3-PFBA		1.2187	1.2162	1.2082	1.2226	1.2101	1.2053	1.1994	1.1861	1.2083	0.969
S 13C4-PFBA						ISTD					
I 18O2-PFHKS		0.1417	0.1322	0.1373	0.1393	0.1339	0.1236	0.1129	0.1019	0.1279	10.994
S 13C2-4:2FTS		2.6558	2.6302	2.6973	2.7107	2.7607	2.6796	2.4505	2.4353	2.6275	4.579
S 13C3-PFBS		0.2062	0.2141	0.2197	0.2371	0.2106	0.1915	0.1813	0.1657	0.2033	11.201
S 13C2-6:2FTS		1.6118	1.5516	1.5187	1.6364	1.6593	1.6186	1.5663	1.4940	1.5821	3.708
S 13C3-PFHKS		0.2051	0.1978	0.1976	0.2136	0.1937	0.1916	0.1756	0.1722	0.1934	7.188
S 13C2-8:2FTS						ISTD					
I 13C4-PFOA		0.8712	0.8301	0.9085	0.8382	0.9114	0.8182	0.8398	0.9148	0.8665	4.637
S 13C8-PFOA						ISTD					
I 13C2-PFDA		1.0639	1.0372	1.0764	1.1563	1.0199	1.0863	0.9436	1.0186	1.0503	5.900
S 13C6-PFDA		1.1963	1.2043	1.2375	1.2444	1.1902	1.1923	1.0584	1.0776	1.1751	5.900
S 13C7-PFUnDA		1.1589	1.1926	1.1759	1.2261	1.2191	1.2576	1.0496	1.2861	1.1957	6.045
S 13C2-PFDODA		0.5022	0.5023	0.4985	0.5167	0.4893	0.5337	0.4680	0.5411	0.5065	4.672
S 13C2-PFTeDA						ISTD					
I 13C5-PFNA		1.0108	1.0448	0.9990	0.9382	1.0091	0.9850	1.0254	1.0271	1.0049	3.241
S 13C9-PFNA						ISTD					
I 13C2-PFHXA		0.5910	0.6068	0.5879	0.6093	0.6002	0.6010	0.5765	0.5625	0.5919	2.705
S 13C5-PPFA		1.0303	1.0455	1.0516	1.0857	1.0695	1.0784	1.0345	1.0106	1.0508	2.455
S 13C5-PFHXA		0.1824	0.1917	0.1814	0.1950	0.1951	0.1947	0.1856	0.1814	0.1884	3.348
S 13C3-HFPO-DA		0.9919	1.0525	1.0423	1.0527	1.0218	1.0215	1.0034	0.9762	1.0203	2.775
S 13C4-PFHpA						ISTD					

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

Initial Calibration Verification

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-ICV356
 Lab FileID: 6Q24928.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092423_1633_S6Q356\s6q356.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d
 2:D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d
 3:D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d
 4:D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d
 5:D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d
 6:D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d
 7:D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d
 8:D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d

Data File: 6Q24928
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.138	2.8	102.8
13C2-6:2FTS	5.000	5.251	5.0	105.0
13C2-8:2FTS	5.000	4.926	-1.5	98.5
13C2-PFDoDA	1.250	1.297	3.7	103.7
13C2-PFTeDA	1.250	1.244	-0.5	99.5
13C3-PFBS	2.500	2.484	-0.6	99.4
13C3-PFHxS	2.500	2.567	2.7	102.7
13C4-PFBA	10.000	10.062	0.6	100.6
13C4-PFHpA	2.500	2.513	0.5	100.5
13C5-PFHxA	2.500	2.418	-3.3	96.7
13C5-PFPeA	5.000	4.801	-4.0	96.0
13C6-PFDA	1.250	1.268	1.4	101.4
13C7-PFUnDA	1.250	1.244	-0.4	99.6
13C8-FOSA	2.500	2.455	-1.8	98.2
13C8-PFOA	2.500	2.403	-3.9	96.1
13C8-PFOS	2.500	2.440	-2.4	97.6
13C9-PFNA	1.250	1.243	-0.6	99.4
4:2FTS	9.375	9.815	4.7	104.7
6:2FTS	9.500	9.775	2.9	102.9
8:2FTS	9.600	10.419	8.5	108.5
d3-MeFOSAA	5.000	4.921	-1.6	98.4
EtFOSAA	2.500	2.499	0.0	100.0
FOSA	2.500	2.442	-2.3	97.7
MeFOSAA	2.500	2.596	3.8	103.8
PFBA	10.000	10.100	1.0	101.0
PFBS	2.218	2.339	5.4	105.4
PFDA	2.500	2.555	2.2	102.2
PFDoDA	2.500	2.673	6.9	106.9
PFDS	2.413	2.517	4.3	104.3
PFHpA	2.500	2.357	-5.7	94.3
PFHpS	2.383	2.417	1.4	101.4
PFHxA	2.500	2.497	-0.1	99.9
PFHxS	2.285	2.275	-0.4	99.6
PFNA	2.500	2.422	-3.1	96.9
PFNS	2.405	2.460	2.3	102.3
PFOA	2.500	2.339	-6.4	93.6
PFOS	2.320	2.386	2.8	102.8

Initial Calibration Verification

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-ICV356
 Lab FileID: 6Q24928.D

PFPeA	5.000	5.141	2.8	102.8
PFPeS	2.353	2.333	-0.9	99.1
PFTeDA	2.500	2.580	3.2	103.2
PFTTrDA	2.500	2.680	7.2	107.2
PFUnDA	2.500	2.727	9.1	109.1
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	4.725	4.988	5.6	105.6
13C3-HFPO-DA	10.000	9.330	-6.7	93.3
9C1-PF3ONS	4.675	5.185	10.9	110.9
ADONA	4.725	5.086	7.6	107.6
HFPO-DA	5.000	5.256	5.1	105.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.142	-2.7	97.3
5:3FTCA	62.400	63.338	1.5	101.5
7:3FTCA	62.400	62.121	-0.4	99.6
d3-MeFOSA	2.500	2.427	-2.9	97.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.217	4.3	104.3
EtFOSE	12.500	12.292	-1.7	98.3
MeFOSA	5.000	5.026	0.5	100.5
MeFOSE	12.500	13.444	7.6	107.6
PFDODS	2.425	2.578	6.3	106.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.612	-7.8	92.2
d7-MeFOSE	25.000	22.962	-8.2	91.8
d9-EtFOSE	25.000	24.476	-2.1	97.9
d5-EtFOSA	2.500	2.377	-4.9	95.1
NFDHA	5.000	5.042	0.8	100.8
PFMBA	5.000	5.088	1.8	101.8
PFMPA	5.000	5.070	1.4	101.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.376	-1.7	98.3

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-ICV356
 Lab FileID: 6Q24929.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092423_1633_S6Q356\s6q356.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d
 2:D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d
 3:D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d
 4:D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d
 5:D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d
 6:D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d
 7:D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d
 8:D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d

Data File: 6Q24929
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.145	2.9	102.9
13C2-6:2FTS	5.000	5.175	3.5	103.5
13C2-8:2FTS	5.000	5.160	3.2	103.2
13C2-PFDoDA	1.250	1.150	-8.0	92.0
13C2-PFTeDA	1.250	1.218	-2.5	97.5
13C3-PFBS	2.500	2.457	-1.7	98.3
13C3-PFHxS	2.500	2.545	1.8	101.8
13C4-PFBA	10.000	9.907	-0.9	99.1
13C4-PFHpA	2.500	2.519	0.8	100.8
13C5-PFHxA	2.500	2.574	3.0	103.0
13C5-PFPeA	5.000	5.135	2.7	102.7
13C6-PFDA	1.250	1.211	-3.2	96.8
13C7-PFUnDA	1.250	1.199	-4.0	96.0
13C8-FOSA	2.500	2.458	-1.7	98.3
13C8-PFOA	2.500	2.438	-2.5	97.5
13C8-PFOS	2.500	2.548	1.9	101.9
13C9-PFNA	1.250	1.270	1.6	101.6
4:2FTS	20.000	20.194	1.0	101.0
6:2FTS	20.000	20.732	3.7	103.7
8:2FTS	20.000	19.203	-4.0	96.0
d3-MeFOSAA	5.000	5.033	0.7	100.7
EtFOSAA	20.000	17.681	-11.6	88.4
FOSA	20.000	18.865	-5.7	94.3
MeFOSAA	20.000	19.413	-2.9	97.1
PFBA	20.000	18.526	-7.4	92.6
PFBS	20.000	19.301	-3.5	96.5
PFDA	20.000	17.751	-11.2	88.8
PFDoDA	20.000	18.368	-8.2	91.8
PFDS	20.000	19.838	-0.8	99.2
PFHpA	20.000	19.494	-2.5	97.5
PFHpS	20.000	18.864	-5.7	94.3
PFHxA	20.000	19.179	-4.1	95.9
PFHxS	20.000	18.927	-5.4	94.6
PFNA	20.000	19.918	-0.4	99.6
PFNS	20.000	19.007	-5.0	95.0
PFOA	20.000	18.902	-5.5	94.5
PFOS	20.000	18.463	-7.7	92.3

Initial Calibration Verification

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-ICV356
 Lab FileID: 6Q24929.D

PFPeA	20.000	19.627	-1.9	98.1
PFPeS	20.000	19.016	-4.9	95.1
PFTeDA	20.000	18.752	-6.2	93.8
PFTrDA	20.000	17.623	-11.9	88.1
PFUnDA	20.000	19.118	-4.4	95.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	20.171	0.9	100.9
13C3-HFPO-DA	10.000	10.186	1.9	101.9
9C1-PF3ONS	20.000	19.913	-0.4	99.6
ADONA	20.000	17.373	-13.1	86.9
HFPO-DA	20.000	17.459	-12.7	87.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	18.211	-8.9	91.1
5:3FTCA	20.000	19.423	-2.9	97.1
7:3FTCA	20.000	18.138	-9.3	90.7
d3-MeFOSA	2.500	2.587	3.5	103.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	16.908	-15.5	84.5
EtFOSE	100.000	104.111	4.1	104.1
MeFOSA	20.000	16.989	-15.1	84.9
MeFOSE	100.000	99.270	-0.7	99.3
PFDoDS	20.000	18.200	-9.0	91.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.179	3.6	103.6
d7-MeFOSE	25.000	25.040	0.2	100.2
d9-EtFOSE	25.000	24.766	-0.9	99.1
d5-EtFOSA	2.500	2.513	0.5	100.5
NFDHA	20.000	18.623	-6.9	93.1
PFMBA	20.000	18.091	-9.5	90.5
PFMPA	20.000	18.181	-9.1	90.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	16.895	-15.5	84.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q357-CC356
 Lab FileID: 6Q25048.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092423_1633_S6Q356\s6q357.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d
 2:D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d
 3:D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d
 4:D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d
 5:D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d
 6:D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d
 7:D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d
 8:D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d

Data File: 6Q25048
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.228	4.6	104.6
13C2-6:2FTS	5.000	4.895	-2.1	97.9
13C2-8:2FTS	5.000	4.937	-1.3	98.7
13C2-PFDoDA	1.250	1.233	-1.3	98.7
13C2-PFTeDA	1.250	1.161	-7.1	92.9
13C3-PFBS	2.500	2.539	1.6	101.6
13C3-PFHxS	2.500	2.539	1.6	101.6
13C4-PFBA	10.000	9.892	-1.1	98.9
13C4-PFHpA	2.500	2.568	2.7	102.7
13C5-PFHxA	2.500	2.551	2.1	102.1
13C5-PFPeA	5.000	5.236	4.7	104.7
13C6-PFDA	1.250	1.239	-0.9	99.1
13C7-PFUnDA	1.250	1.238	-1.0	99.0
13C8-FOSA	2.500	2.582	3.3	103.3
13C8-PFOA	2.500	2.516	0.6	100.6
13C8-PFOS	2.500	2.739	9.6	109.6
13C9-PFNA	1.250	1.172	-6.3	93.7
4:2FTS	9.375	10.295	9.8	109.8
6:2FTS	9.500	10.665	12.3	112.3
8:2FTS	9.600	10.594	10.4	110.4
d3-MeFOSAA	5.000	5.422	8.4	108.4
EtFOSAA	2.500	2.524	1.0	101.0
FOSA	2.500	2.597	3.9	103.9
MeFOSAA	2.500	2.683	7.3	107.3
PFBA	10.000	10.491	4.9	104.9
PFBS	2.218	2.072	-6.6	93.4
PFDA	2.500	2.702	8.1	108.1
PFDoDA	2.500	2.791	11.6	111.6
PFDS	2.413	2.443	1.2	101.2
PFHpA	2.500	2.571	2.8	102.8
PFHpS	2.383	2.440	2.4	102.4
PFHxA	2.500	2.660	6.4	106.4
PFHxS	2.285	2.368	3.6	103.6
PFNA	2.500	2.678	7.1	107.1
PFNS	2.405	2.462	2.4	102.4
PFOA	2.500	2.467	-1.3	98.7
PFOS	2.320	2.286	-1.5	98.5

Continuing Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q357-CC356
 Lab FileID: 6Q25048.D

PFPeA	5.000	4.993	-0.1	99.9
PFPeS	2.353	2.380	1.2	101.2
PFTeDA	2.500	2.876	15.0	115.0
PFTTrDA	2.500	2.592	3.7	103.7
PFUnDA	2.500	2.565	2.6	102.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.443	15.2	115.2
13C3-HFPO-DA	10.000	9.472	-5.3	94.7
9C1-PF3ONS	4.675	5.378	15.0	115.0
ADONA	4.725	5.620	18.9	118.9
HFPO-DA	5.000	4.861	-2.8	97.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.340	-1.1	98.9
5:3FTCA	62.400	62.824	0.7	100.7
7:3FTCA	62.400	64.922	4.0	104.0
d3-MeFOSA	2.500	2.614	4.6	104.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.208	4.2	104.2
EtFOSE	12.500	13.139	5.1	105.1
MeFOSA	5.000	5.211	4.2	104.2
MeFOSE	12.500	12.635	1.1	101.1
PFDODS	2.425	2.409	-0.7	99.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.591	11.8	111.8
d7-MeFOSE	25.000	25.547	2.2	102.2
d9-EtFOSE	25.000	24.720	-1.1	98.9
d5-EtFOSA	2.500	2.624	5.0	105.0
NFDHA	5.000	5.010	0.2	100.2
PFMBA	5.000	4.828	-3.4	96.6
PFMPA	5.000	4.819	-3.6	96.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.558	2.4	102.4

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q357-CC356
 Lab FileID: 6Q25049.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092423_1633_S6Q356\s6q357.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d
 2:D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d
 3:D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d
 4:D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d
 5:D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d
 6:D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d
 7:D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d
 8:D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d

Data File: 6Q25049
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.478	9.6	109.6
13C2-6:2FTS	5.000	5.289	5.8	105.8
13C2-8:2FTS	5.000	5.611	12.2	112.2
13C2-PFDoDA	1.250	1.208	-3.4	96.6
13C2-PFTeDA	1.250	1.251	0.0	100.0
13C3-PFBS	2.500	2.494	-0.2	99.8
13C3-PFHxS	2.500	2.432	-2.7	97.3
13C4-PFBA	10.000	9.938	-0.6	99.4
13C4-PFHpA	2.500	2.513	0.5	100.5
13C5-PFHxA	2.500	2.465	-1.4	98.6
13C5-PFPeA	5.000	4.956	-0.9	99.1
13C6-PFDA	1.250	1.271	1.7	101.7
13C7-PFUnDA	1.250	1.348	7.8	107.8
13C8-FOSA	2.500	2.571	2.9	102.9
13C8-PFOA	2.500	2.544	1.8	101.8
13C8-PFOS	2.500	2.552	2.1	102.1
13C9-PFNA	1.250	1.195	-4.4	95.6
4:2FTS	0.750	0.699	-6.8	93.2
6:2FTS	0.760	0.743	-2.2	97.8
8:2FTS	0.768	0.769	0.1	100.1
d3-MeFOSAA	5.000	4.841	-3.2	96.8
EtFOSAA	0.200	0.242	20.9	120.9
FOSA	0.200	0.175	-12.5	87.5
MeFOSAA	0.200	0.175	-12.5	87.5
PFBA	0.800	0.730	-8.8	91.2
PFBS	0.177	0.159	-10.4	89.6
PFDA	0.200	0.205	2.7	102.7
PFDoDA	0.200	0.208	3.8	103.8
PFDS	0.193	0.178	-8.0	92.0
PFHpA	0.200	0.182	-9.2	90.8
PFHpS	0.191	0.158	-17.4	82.6
PFHxA	0.200	0.192	-4.0	96.0
PFHxS	0.183	0.192	4.9	104.9
PFNA	0.200	0.180	-10.1	89.9
PFNS	0.192	0.165	-14.3	85.7
PFOA	0.200	0.195	-2.7	97.3
PFOS	0.186	0.172	-7.4	92.6

Continuing Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q357-CC356
 Lab FileID: 6Q25049.D

PFPeA	0.400	0.367	-8.2	91.8
PFPeS	0.188	0.195	3.7	103.7
PFTeDA	0.200	0.209	4.5	104.5
PFTTrDA	0.200	0.211	5.4	105.4
PFUnDA	0.200	0.179	-10.5	89.5
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	0.378	0.380	0.5	100.5
13C3-HFPO-DA	10.000	9.115	-8.9	91.1
9C1-PF3ONS	0.374	0.372	-0.5	99.5
ADONA	0.378	0.353	-6.7	93.3
HFPO-DA	0.400	0.379	-5.1	94.9
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.882	-11.7	88.3
5:3FTCA	4.992	4.564	-8.6	91.4
7:3FTCA	4.992	4.674	-6.4	93.6
d3-MeFOSA	2.500	2.436	-2.6	97.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.368	-8.0	92.0
EtFOSE	1.000	0.869	-13.1	86.9
MeFOSA	0.400	0.358	-10.6	89.4
MeFOSE	1.000	0.908	-9.2	90.8
PFDoDS	0.194	0.170	-12.5	87.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.080	1.6	101.6
d7-MeFOSE	25.000	23.241	-7.0	93.0
d9-EtFOSE	25.000	23.364	-6.5	93.5
d5-EtFOSA	2.500	2.470	-1.2	98.8
NFDHA	0.400	0.355	-11.3	88.7
PFMBA	0.400	0.348	-12.9	87.1
PFMPA	0.400	0.342	-14.6	85.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.334	-6.3	93.7

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q357-CC356
 Lab FileID: 6Q25056.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092423_1633_S6Q356\s6q357.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d
 2:D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d
 3:D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d
 4:D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d
 5:D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d
 6:D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d
 7:D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d
 8:D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d

Data File: 6Q25056
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.710	14.2	114.2
13C2-6:2FTS	5.000	5.455	9.1	109.1
13C2-8:2FTS	5.000	5.641	12.8	112.8
13C2-PFDoDA	1.250	1.203	-3.8	96.2
13C2-PFTeDA	1.250	1.227	-1.8	98.2
13C3-PFBS	2.500	2.591	3.6	103.6
13C3-PFHxS	2.500	2.562	2.5	102.5
13C4-PFBA	10.000	9.875	-1.2	98.8
13C4-PFHpA	2.500	2.686	7.4	107.4
13C5-PFHxA	2.500	2.541	1.7	101.7
13C5-PFPeA	5.000	5.239	4.8	104.8
13C6-PFDA	1.250	1.295	3.6	103.6
13C7-PFUnDA	1.250	1.299	3.9	103.9
13C8-FOSA	2.500	2.222	-11.1	88.9
13C8-PFOA	2.500	2.386	-4.6	95.4
13C8-PFOS	2.500	2.284	-8.7	91.3
13C9-PFNA	1.250	1.188	-5.0	95.0
4:2FTS	9.375	9.983	6.5	106.5
6:2FTS	9.500	10.046	5.7	105.7
8:2FTS	9.600	10.105	5.3	105.3
d3-MeFOSAA	5.000	4.764	-4.7	95.3
EtFOSAA	2.500	2.505	0.2	100.2
FOSA	2.500	2.594	3.8	103.8
MeFOSAA	2.500	2.525	1.0	101.0
PFBA	10.000	10.474	4.7	104.7
PFBS	2.218	2.276	2.6	102.6
PFDA	2.500	2.354	-5.8	94.2
PFDoDA	2.500	2.772	10.9	110.9
PFDS	2.413	2.588	7.2	107.2
PFHpA	2.500	2.577	3.1	103.1
PFHpS	2.383	2.355	-1.2	98.8
PFHxA	2.500	2.657	6.3	106.3
PFHxS	2.285	2.445	7.0	107.0
PFNA	2.500	2.500	0.0	100.0
PFNS	2.405	2.344	-2.5	97.5
PFOA	2.500	2.598	3.9	103.9
PFOS	2.320	2.512	8.3	108.3

Continuing Calibration Summary

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q357-CC356
 Lab FileID: 6Q25056.D

PFPeA	5.000	5.068	1.4	101.4
PFPeS	2.353	2.414	2.6	102.6
PFTeDA	2.500	2.596	3.9	103.9
PFTTrDA	2.500	2.828	13.1	113.1
PFUnDA	2.500	2.504	0.1	100.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.108	8.1	108.1
13C3-HFPO-DA	10.000	10.136	1.4	101.4
9C1-PF3ONS	4.675	5.101	9.1	109.1
ADONA	4.725	5.230	10.7	110.7
HFPO-DA	5.000	4.835	-3.3	96.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.431	-0.4	99.6
5:3FTCA	62.400	63.762	2.2	102.2
7:3FTCA	62.400	68.010	9.0	109.0
d3-MeFOSA	2.500	2.273	-9.1	90.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.003	0.1	100.1
EtFOSE	12.500	12.525	0.2	100.2
MeFOSA	5.000	5.101	2.0	102.0
MeFOSE	12.500	13.167	5.3	105.3
PFDoDS	2.425	2.513	3.6	103.6
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.778	-4.4	95.6
d7-MeFOSE	25.000	20.589	-17.6	82.4
d9-EtFOSE	25.000	21.544	-13.8	86.2
d5-EtFOSA	2.500	2.238	-10.5	89.5
NFDHA	5.000	5.173	3.5	103.5
PFMBA	5.000	4.925	-1.5	98.5
PFMPA	5.000	4.909	-1.8	98.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.472	0.5	100.5

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q355	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q355-RT	6Q24808.D	09/21/23 19:52	n/a	Retention Time Marker
S6Q355-RT	6Q24809.D	09/21/23 20:07	n/a	Retention Time Marker
S6Q355-IC355	6Q24810.D	09/21/23 20:21	n/a	Mass Calibration Verification
S6Q355-IC355	6Q24811.D	09/21/23 20:35	n/a	Initial cal 1
S6Q355-IC355	6Q24812.D	09/21/23 20:50	n/a	Initial cal 2
S6Q355-IC355	6Q24813.D	09/21/23 21:04	n/a	Initial cal 3
S6Q355-ICC355	6Q24814.D	09/21/23 21:18	n/a	Initial cal 4
S6Q355-IC355	6Q24815.D	09/21/23 21:33	n/a	Initial cal 5
S6Q355-IC355	6Q24816.D	09/21/23 21:47	n/a	Initial cal 6
S6Q355-IC355	6Q24817.D	09/21/23 22:01	n/a	Initial cal 7
S6Q355-IC355	6Q24818.D	09/21/23 22:16	n/a	Initial cal 8
S6Q355-IBLK	6Q24819.D	09/21/23 22:30	n/a	Instrument Blank
S6Q355-IBLK	6Q24819.D	09/21/23 22:30	n/a	Instrument Blank
S6Q355-ICV355	6Q24820.D	09/21/23 22:44	n/a	Initial cal verification 4
S6Q355-ICV355	6Q24821.D	09/21/23 22:59	n/a	Initial cal verification 20
S6Q355-CC355	6Q24822.D	09/21/23 23:13	n/a	Continuing cal 4
S6Q355-CC355	6Q24823.D	09/21/23 23:27	n/a	Continuing cal 1.0LL
OP99077-BS	6Q24824.D	09/21/23 23:42	OP99077	Blank Spike
OP99077-LLBS	6Q24825.D	09/21/23 23:56	OP99077	Blank Spike
OP99077-MB	6Q24826.D	09/22/23 00:10	OP99077	Method Blank
FC9604-1	6Q24827.D	09/22/23 00:25	OP99077	AF-RHP01-WGN01LF-2309
FC9604-4	6Q24830.D	09/22/23 01:08	OP99077	AF-RHMW01R-WGN01LF-2309
FC9604-5	6Q24831.D	09/22/23 01:22	OP99077	AF-RHMW01R-EB01LF-2309
FC9604-7	6Q24833.D	09/22/23 01:51	OP99077	AF-RHMW01R-EB03LF-2309
S6Q355-CC355	6Q24834.D	09/22/23 02:05	n/a	Continuing cal 4
S6Q355-ICCB	6Q24835.D	09/22/23 02:19	n/a	Continuing Calibration Blank
S6Q355-ICCB	6Q24835.D	09/22/23 02:19	n/a	Continuing Calibration Blank
FC9640-1	6Q24836.D	09/22/23 02:34	OP99077	(used for QC only; not part of job FC9604)
OP99077-MS	6Q24837.D	09/22/23 02:48	OP99077	Matrix Spike
FC9640-2	6Q24838.D	09/22/23 03:02	OP99077	(used for QC only; not part of job FC9604)
OP99077-DUP	6Q24839.D	09/22/23 03:17	OP99077	Duplicate
ZZZZZZ	6Q24840.D	09/22/23 03:31	OP99077	(unrelated sample)
ZZZZZZ	6Q24841.D	09/22/23 03:45	OP99077	(unrelated sample)
ZZZZZZ	6Q24842.D	09/22/23 04:00	OP99077	(unrelated sample)
OP99032-MS	6Q24843.D	09/22/23 04:14	OP99032	Matrix Spike
OP99032-MSD	6Q24844.D	09/22/23 04:28	OP99032	Matrix Spike Duplicate
S6Q355-CC355	6Q24845.D	09/22/23 04:43	n/a	Continuing cal 4
S6Q355-ICCB	6Q24846.D	09/22/23 04:57	n/a	Continuing Calibration Blank
S6Q355-ICCB	6Q24846.D	09/22/23 04:57	n/a	Continuing Calibration Blank
OP99058-BS	6Q24847.D	09/22/23 05:11	OP99058	Blank Spike
OP99058-LLBS	6Q24848.D	09/22/23 05:26	OP99058	Blank Spike
OP99058-MB	6Q24849.D	09/22/23 05:40	OP99058	Method Blank
FC9419-1	6Q24850.D	09/22/23 05:54	OP99058	(used for QC only; not part of job FC9604)
OP99058-MS	6Q24851.D	09/22/23 06:08	OP99058	Matrix Spike
OP99058-MSD	6Q24852.D	09/22/23 06:23	OP99058	Matrix Spike Duplicate
ZZZZZZ	6Q24853.D	09/22/23 06:37	OP99058	(unrelated sample)

Run Sequence Report

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q355	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
----------------	------------------------	-----------------------

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q24854.D	09/22/23 06:51	OP99058	(unrelated sample)
ZZZZZZ	6Q24855.D	09/22/23 07:06	OP99058	(unrelated sample)
ZZZZZZ	6Q24856.D	09/22/23 07:20	OP99058	(unrelated sample)
S6Q355-CC355	6Q24857.D	09/22/23 07:34	n/a	Continuing cal 4
S6Q355-ICCB	6Q24858.D	09/22/23 07:49	n/a	Continuing Calibration Blank
S6Q355-ICCB	6Q24858.D	09/22/23 07:49	n/a	Continuing Calibration Blank
ZZZZZZ	6Q24859.D	09/22/23 08:03	OP99058	(unrelated sample)
ZZZZZZ	6Q24860.D	09/22/23 08:17	OP99058	(unrelated sample)
ZZZZZZ	6Q24861.D	09/22/23 08:32	OP99058	(unrelated sample)
ZZZZZZ	6Q24862.D	09/22/23 08:46	OP99058	(unrelated sample)
ZZZZZZ	6Q24863.D	09/22/23 09:00	OP99058	(unrelated sample)
ZZZZZZ	6Q24864.D	09/22/23 09:15	OP99058	(unrelated sample)
ZZZZZZ	6Q24865.D	09/22/23 09:29	OP99058	(unrelated sample)
ZZZZZZ	6Q24866.D	09/22/23 09:43	OP99058	(unrelated sample)
ZZZZZZ	6Q24867.D	09/22/23 09:58	OP99058	(unrelated sample)
ZZZZZZ	6Q24868.D	09/22/23 10:12	OP99058	(unrelated sample)
S6Q355-CC355	6Q24869.D	09/22/23 10:26	n/a	Continuing cal 4
S6Q355-ICCB	6Q24870.D	09/22/23 10:41	n/a	Continuing Calibration Blank
S6Q355-ICCB	6Q24870.D	09/22/23 10:41	n/a	Continuing Calibration Blank
ZZZZZZ	6Q24871.D	09/22/23 10:55	OP99058	(unrelated sample)
ZZZZZZ	6Q24873.D	09/22/23 11:24	OP99058	(unrelated sample)
ZZZZZZ	6Q24874.D	09/22/23 11:38	OP99058	(unrelated sample)
ZZZZZZ	6Q24875.D	09/22/23 11:52	OP99058	(unrelated sample)
ZZZZZZ	6Q24876.D	09/22/23 12:07	OP99058	(unrelated sample)
ZZZZZZ	6Q24877.D	09/22/23 12:21	OP99058	(unrelated sample)
ZZZZZZ	6Q24878.D	09/22/23 12:35	OP99058	(unrelated sample)
OP99081-MB	6Q24879.D	09/22/23 12:50	OP99081	Method Blank
S6Q355-CC355	6Q24880.D	09/22/23 13:04	n/a	Continuing cal 4
S6Q355-ICCB	6Q24881.D	09/22/23 13:18	n/a	Continuing Calibration Blank
S6Q355-ICCB	6Q24881.D	09/22/23 13:18	n/a	Continuing Calibration Blank
OP99102-BS	6Q24882.D	09/22/23 13:33	OP99102	Blank Spike
OP99102-LLBS	6Q24883.D	09/22/23 13:47	OP99102	Blank Spike
OP99102-MB	6Q24884.D	09/22/23 14:01	OP99102	Method Blank
ZZZZZZ	6Q24885.D	09/22/23 14:16	OP99102	(unrelated sample)
ZZZZZZ	6Q24886.D	09/22/23 14:30	OP99102	(unrelated sample)
ZZZZZZ	6Q24887.D	09/22/23 14:44	OP99102	(unrelated sample)
ZZZZZZ	6Q24888.D	09/22/23 14:58	OP99102	(unrelated sample)
FC9580-2	6Q24889.D	09/22/23 15:13	OP99102	(used for QC only; not part of job FC9604)
OP99102-MS	6Q24890.D	09/22/23 15:27	OP99102	Matrix Spike
ZZZZZZ	6Q24891.D	09/22/23 15:41	OP99102	(unrelated sample)
S6Q355-CC355	6Q24892.D	09/22/23 15:56	n/a	Continuing cal 4
S6Q355-ICCB	6Q24893.D	09/22/23 16:10	n/a	Continuing Calibration Blank
FC9580-3	6Q24894.D	09/22/23 16:24	OP99102	(used for QC only; not part of job FC9604)
OP99102-DUP	6Q24895.D	09/22/23 16:39	OP99102	Duplicate
ZZZZZZ	6Q24897.D	09/22/23 17:07	OP99102	(unrelated sample)
ZZZZZZ	6Q24899.D	09/22/23 17:36	OP99102	(unrelated sample)

6-10-1

6

Run Sequence Report

Job Number: FC9604
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q355	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
----------------	------------------------	-----------------------

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q24900.D	09/22/23 17:50	OP99102	(unrelated sample)
ZZZZZZ	6Q24901.D	09/22/23 18:05	OP99102	(unrelated sample)
ZZZZZZ	6Q24902.D	09/22/23 18:19	OP99102	(unrelated sample)
ZZZZZZ	6Q24903.D	09/22/23 18:33	OP99102	(unrelated sample)
S6Q355-ECC355	6Q24904.D	09/22/23 18:48	n/a	Ending cal 4
S6Q355-ICCB	6Q24905.D	09/22/23 19:02	n/a	Continuing Calibration Blank

6.10.1
6

Run Sequence Report

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q356	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q356-RT	6Q24916.D	09/24/23 14:17	n/a	Retention Time Marker
S6Q356-RT	6Q24917.D	09/24/23 14:31	n/a	Retention Time Marker
S6Q356-IC356	6Q24918.D	09/24/23 14:45	n/a	Mass Calibration Verification
S6Q356-IC356	6Q24919.D	09/24/23 15:00	n/a	Initial cal 1
S6Q356-IC356	6Q24920.D	09/24/23 15:14	n/a	Initial cal 2
S6Q356-IC356	6Q24921.D	09/24/23 15:28	n/a	Initial cal 3
S6Q356-ICC356	6Q24922.D	09/24/23 15:42	n/a	Initial cal 4
S6Q356-IC356	6Q24923.D	09/24/23 15:57	n/a	Initial cal 5
S6Q356-IC356	6Q24924.D	09/24/23 16:11	n/a	Initial cal 6
S6Q356-IC356	6Q24925.D	09/24/23 16:26	n/a	Initial cal 7
S6Q356-IC356	6Q24926.D	09/24/23 16:40	n/a	Initial cal 8
S6Q356-IBLK	6Q24927.D	09/24/23 16:54	n/a	Instrument Blank
S6Q356-IBLK	6Q24927.D	09/24/23 16:54	n/a	Instrument Blank
S6Q356-ICV356	6Q24928.D	09/24/23 17:09	n/a	Initial cal verification 4
S6Q356-ICV356	6Q24929.D	09/24/23 17:23	n/a	Initial cal verification 20
S6Q356-CC356	6Q24930.D	09/24/23 17:37	n/a	Continuing cal 4
S6Q356-CC356	6Q24931.D	09/24/23 17:51	n/a	Continuing cal 1.0LL
ZZZZZZ	6Q24932.D	09/24/23 18:06	OP99102	(unrelated sample)
ZZZZZZ	6Q24933.D	09/24/23 18:20	OP99102	(unrelated sample)
ZZZZZZ	6Q24934.D	09/24/23 18:34	OP99102	(unrelated sample)
ZZZZZZ	6Q24935.D	09/24/23 18:49	OP99102	(unrelated sample)
FC9580-3	6Q24936.D	09/24/23 19:03	OP99102	(used for QC only; not part of job FC9604)
OP99102-DUP	6Q24937.D	09/24/23 19:17	OP99102	Duplicate
S6Q356-CC356	6Q24938.D	09/24/23 19:32	n/a	Continuing cal 4
S6Q356-ICCB	6Q24939.D	09/24/23 19:46	n/a	Continuing Calibration Blank
S6Q356-ICCB	6Q24939.D	09/24/23 19:46	n/a	Continuing Calibration Blank
OP99134-BS	6Q24940.D	09/24/23 20:00	OP99134	Blank Spike
OP99134-LLBS	6Q24941.D	09/24/23 20:15	OP99134	Blank Spike
OP99134-MB	6Q24942.D	09/24/23 20:29	OP99134	Method Blank
ZZZZZZ	6Q24949.D	09/24/23 22:09	OP99134	(unrelated sample)
S6Q356-CC356	6Q24950.D	09/24/23 22:24	n/a	Continuing cal 4
S6Q356-ICCB	6Q24951.D	09/24/23 22:38	n/a	Continuing Calibration Blank
S6Q356-ICCB	6Q24951.D	09/24/23 22:38	n/a	Continuing Calibration Blank
OP99155-BS	6Q24952.D	09/24/23 22:52	OP99155	Blank Spike
OP99155-LLBS	6Q24953.D	09/24/23 23:06	OP99155	Blank Spike
OP99155-MB	6Q24954.D	09/24/23 23:21	OP99155	Method Blank
ZZZZZZ	6Q24955.D	09/24/23 23:35	OP99155	(unrelated sample)
ZZZZZZ	6Q24956.D	09/24/23 23:49	OP99155	(unrelated sample)
ZZZZZZ	6Q24957.D	09/25/23 00:04	OP99155	(unrelated sample)
ZZZZZZ	6Q24958.D	09/25/23 00:18	OP99155	(unrelated sample)
ZZZZZZ	6Q24959.D	09/25/23 00:32	OP99155	(unrelated sample)
ZZZZZZ	6Q24960.D	09/25/23 00:47	OP99155	(unrelated sample)
S6Q356-CC356	6Q24961.D	09/25/23 01:01	n/a	Continuing cal 4
S6Q356-ICCB	6Q24962.D	09/25/23 01:15	n/a	Continuing Calibration Blank
ZZZZZZ	6Q24963.D	09/25/23 01:30	OP99155	(unrelated sample)
ZZZZZZ	6Q24964.D	09/25/23 01:44	OP99155	(unrelated sample)

Run Sequence Report

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q356	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
----------------	------------------------	-----------------------

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q24965.D	09/25/23 01:58	OP99155	(unrelated sample)
ZZZZZZ	6Q24967.D	09/25/23 02:27	OP99155	(unrelated sample)
ZZZZZZ	6Q24968.D	09/25/23 02:41	OP99155	(unrelated sample)
S6Q356-CC356	6Q24969.D	09/25/23 02:56	n/a	Continuing cal 4
S6Q356-ICCB	6Q24970.D	09/25/23 03:10	n/a	Continuing Calibration Blank
OP99128-BS	6Q24971.D	09/25/23 03:24	OP99128	Blank Spike
OP99128-LLBS	6Q24972.D	09/25/23 03:38	OP99128	Blank Spike
OP99128-MB	6Q24973.D	09/25/23 03:53	OP99128	Method Blank
ZZZZZZ	6Q24974.D	09/25/23 04:07	OP99128	(unrelated sample)
FC9720-1	6Q24975.D	09/25/23 04:21	OP99128	(used for QC only; not part of job FC9604)
OP99128-MS	6Q24976.D	09/25/23 04:36	OP99128	Matrix Spike
FC9720-2	6Q24977.D	09/25/23 04:50	OP99128	(used for QC only; not part of job FC9604)
OP99128-DUP	6Q24978.D	09/25/23 05:04	OP99128	Duplicate
S6Q356-CC356	6Q24979.D	09/25/23 05:19	n/a	Continuing cal 4
S6Q356-ICCB	6Q24980.D	09/25/23 05:33	n/a	Continuing Calibration Blank
OP99106-BS	6Q24981.D	09/25/23 05:47	OP99106	Blank Spike
OP99106-LLBS	6Q24982.D	09/25/23 06:02	OP99106	Blank Spike
OP99106-MB	6Q24983.D	09/25/23 06:16	OP99106	Method Blank
ZZZZZZ	6Q24984.D	09/25/23 06:30	OP99106	(unrelated sample)
ZZZZZZ	6Q24985.D	09/25/23 06:45	OP99106	(unrelated sample)
ZZZZZZ	6Q24986.D	09/25/23 06:59	OP99106	(unrelated sample)
ZZZZZZ	6Q24988.D	09/25/23 07:28	OP99106	(unrelated sample)
ZZZZZZ	6Q24989.D	09/25/23 07:42	OP99106	(unrelated sample)
S6Q356-CC356	6Q24990.D	09/25/23 07:56	n/a	Continuing cal 4
S6Q356-ICCB	6Q24991.D	09/25/23 08:11	n/a	Continuing Calibration Blank
ZZZZZZ	6Q24992.D	09/25/23 08:25	OP99106	(unrelated sample)
ZZZZZZ	6Q24993.D	09/25/23 08:39	OP99106	(unrelated sample)
ZZZZZZ	6Q24994.D	09/25/23 08:54	OP99106	(unrelated sample)
ZZZZZZ	6Q24995.D	09/25/23 09:08	OP99106	(unrelated sample)
FC9639-5	6Q24996.D	09/25/23 09:22	OP99106	(used for QC only; not part of job FC9604)
FC9639-5	6Q24997.D	09/25/23 09:37	OP99106	(used for QC only; not part of job FC9604)
OP99106-MS	6Q24998.D	09/25/23 09:51	OP99106	Matrix Spike
OP99106-MSD	6Q24999.D	09/25/23 10:05	OP99106	Matrix Spike Duplicate
ZZZZZZ	6Q25000.D	09/25/23 10:19	OP99106	(unrelated sample)
ZZZZZZ	6Q25001.D	09/25/23 10:34	OP99106	(unrelated sample)
S6Q356-CC356	6Q25002.D	09/25/23 10:48	n/a	Continuing cal 4
S6Q356-ICCB	6Q25003.D	09/25/23 11:02	n/a	Continuing Calibration Blank
S6Q356-ICCB	6Q25003.D	09/25/23 11:02	n/a	Continuing Calibration Blank
OP99084-BS	6Q25004.D	09/25/23 11:17	OP99084	Blank Spike
OP99084-LLBS	6Q25005.D	09/25/23 11:31	OP99084	Blank Spike
OP99084-MB	6Q25006.D	09/25/23 11:45	OP99084	Method Blank
ZZZZZZ	6Q25007.D	09/25/23 12:00	OP99084	(unrelated sample)
ZZZZZZ	6Q25008.D	09/25/23 12:14	OP99084	(unrelated sample)
ZZZZZZ	6Q25009.D	09/25/23 12:28	OP99084	(unrelated sample)
FC9462-4	6Q25010.D	09/25/23 12:43	OP99084	(used for QC only; not part of job FC9604)
OP99084-MS	6Q25011.D	09/25/23 12:57	OP99084	Matrix Spike

6:10.2
6

Run Sequence Report

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q356	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
----------------	------------------------	-----------------------

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
OP99084-MSD	6Q25012.D	09/25/23 13:11	OP99084	Matrix Spike Duplicate
ZZZZZZ	6Q25013.D	09/25/23 13:26	OP99084	(unrelated sample)
S6Q356-CC356	6Q25014.D	09/25/23 13:40	n/a	Continuing cal 4
S6Q356-ICCB	6Q25015.D	09/25/23 13:54	n/a	Continuing Calibration Blank
S6Q356-ICCB	6Q25015.D	09/25/23 13:54	n/a	Continuing Calibration Blank
S6Q356-RT	6Q25020.D	09/25/23 15:10	n/a	Retention Time Marker
S6Q356-RT	6Q25021.D	09/25/23 15:24	n/a	Retention Time Marker
S6Q356-IBLK	6Q25023.D	09/25/23 15:53	n/a	Instrument Blank
S6Q356-IBLK	6Q25023.D	09/25/23 15:53	n/a	Instrument Blank
S6Q356-CC356	6Q25024.D	09/25/23 16:07	n/a	Continuing cal 4
S6Q356-CC356	6Q25025.D	09/25/23 16:21	n/a	Continuing cal 1.0LL
FC9131-8	6Q25026.D	09/25/23 16:36	OP99134	(used for QC only; not part of job FC9604)
OP99134-MS	6Q25027.D	09/25/23 16:50	OP99134	Matrix Spike
OP99134-MSD	6Q25028.D	09/25/23 17:04	OP99134	Matrix Spike Duplicate
ZZZZZZ	6Q25029.D	09/25/23 17:19	OP99134	(unrelated sample)
ZZZZZZ	6Q25030.D	09/25/23 17:33	OP99134	(unrelated sample)
ZZZZZZ	6Q25034.D	09/25/23 18:18	OP99155	(unrelated sample)
ZZZZZZ	6Q25035.D	09/25/23 18:32	OP99155	(unrelated sample)
S6Q356-ECC356	6Q25036.D	09/25/23 18:46	n/a	Ending cal 4
S6Q356-ICCB	6Q25037.D	09/25/23 19:01	n/a	Continuing Calibration Blank
S6Q356-ICCB	6Q25037.D	09/25/23 19:01	n/a	Continuing Calibration Blank

6.10.2

6

Run Sequence Report

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q357	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
----------------	------------------------	-----------------------

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q357-RT	6Q25044.D	09/25/23 20:41	n/a	Retention Time Marker
S6Q357-RT	6Q25045.D	09/25/23 20:55	n/a	Retention Time Marker
S6Q357-IBLK	6Q25047.D	09/25/23 21:24	n/a	Instrument Blank
S6Q357-IBLK	6Q25047.D	09/25/23 21:24	n/a	Instrument Blank
S6Q357-CC356	6Q25048.D	09/25/23 21:38	n/a	Continuing cal 4
S6Q357-CC356	6Q25049.D	09/25/23 21:53	n/a	Continuing cal 1.0LL
OP99174-BS	6Q25050.D	09/25/23 22:07	OP99174	Blank Spike
OP99174-LLBS	6Q25051.D	09/25/23 22:21	OP99174	Blank Spike
OP99174-MB	6Q25052.D	09/25/23 22:36	OP99174	Method Blank
FC9604-2	6Q25053.D	09/25/23 22:50	OP99174	AF-RHP01-EB01LF-2309
FC9604-3	6Q25054.D	09/25/23 23:04	OP99174	AF-RHP01-EB02LF-2309
FC9604-6	6Q25055.D	09/25/23 23:19	OP99174	AF-RHMW01R-EB02LF-2309
S6Q357-CC356	6Q25056.D	09/25/23 23:33	n/a	Continuing cal 4
S6Q357-ICCB	6Q25057.D	09/25/23 23:47	n/a	Continuing Calibration Blank
S6Q357-ICCB	6Q25057.D	09/25/23 23:47	n/a	Continuing Calibration Blank
OP99135-BS	6Q25058.D	09/26/23 00:02	OP99135	Blank Spike
OP99135-LLBS	6Q25059.D	09/26/23 00:16	OP99135	Blank Spike
OP99135-MB	6Q25060.D	09/26/23 00:30	OP99135	Method Blank
FC9414-1	6Q25061.D	09/26/23 00:45	OP99135	(used for QC only; not part of job FC9604)
ZZZZZZ	6Q25064.D	09/26/23 01:28	OP99135	(unrelated sample)
ZZZZZZ	6Q25066.D	09/26/23 01:56	OP99135	(unrelated sample)
ZZZZZZ	6Q25067.D	09/26/23 02:11	OP99135	(unrelated sample)
S6Q357-CC356	6Q25068.D	09/26/23 02:25	n/a	Continuing cal 4
S6Q357-ICCB	6Q25069.D	09/26/23 02:39	n/a	Continuing Calibration Blank
S6Q357-ICCB	6Q25069.D	09/26/23 02:39	n/a	Continuing Calibration Blank
ZZZZZZ	6Q25070.D	09/26/23 02:54	OP99135	(unrelated sample)
ZZZZZZ	6Q25071.D	09/26/23 03:08	OP99135	(unrelated sample)
ZZZZZZ	6Q25072.D	09/26/23 03:22	OP99135	(unrelated sample)
ZZZZZZ	6Q25073.D	09/26/23 03:37	OP99135	(unrelated sample)
ZZZZZZ	6Q25074.D	09/26/23 03:51	OP99135	(unrelated sample)
S6Q357-CC356	6Q25075.D	09/26/23 04:05	n/a	Continuing cal 4
S6Q357-ICCB	6Q25076.D	09/26/23 04:20	n/a	Continuing Calibration Blank
S6Q357-ICCB	6Q25076.D	09/26/23 04:20	n/a	Continuing Calibration Blank
OP99100-BS	6Q25077.D	09/26/23 04:34	OP99100	Blank Spike
OP99100-LLBS	6Q25078.D	09/26/23 04:48	OP99100	Blank Spike
OP99100-MB	6Q25079.D	09/26/23 05:02	OP99100	Method Blank
ZZZZZZ	6Q25080.D	09/26/23 05:17	OP99100	(unrelated sample)
ZZZZZZ	6Q25081.D	09/26/23 05:31	OP99100	(unrelated sample)
ZZZZZZ	6Q25082.D	09/26/23 05:45	OP99100	(unrelated sample)
ZZZZZZ	6Q25083.D	09/26/23 06:00	OP99100	(unrelated sample)
ZZZZZZ	6Q25084.D	09/26/23 06:14	OP99100	(unrelated sample)
ZZZZZZ	6Q25085.D	09/26/23 06:28	OP99100	(unrelated sample)
S6Q357-CC356	6Q25086.D	09/26/23 06:43	n/a	Continuing cal 4
S6Q357-ICCB	6Q25087.D	09/26/23 06:57	n/a	Continuing Calibration Blank
FC9469-7	6Q25088.D	09/26/23 07:11	OP99100	(used for QC only; not part of job FC9604)
OP99100-MS	6Q25089.D	09/26/23 07:26	OP99100	Matrix Spike

Run Sequence Report

Job Number: FC9604
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q357	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
----------------	------------------------	-----------------------

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
OP99100-MSD	6Q25090.D	09/26/23 07:40	OP99100	Matrix Spike Duplicate
ZZZZZZ	6Q25091.D	09/26/23 07:54	OP99100	(unrelated sample)
ZZZZZZ	6Q25092.D	09/26/23 08:09	OP99100	(unrelated sample)
ZZZZZZ	6Q25093.D	09/26/23 08:23	OP99100	(unrelated sample)
ZZZZZZ	6Q25094.D	09/26/23 08:37	OP99100	(unrelated sample)
ZZZZZZ	6Q25095.D	09/26/23 08:52	OP99100	(unrelated sample)
ZZZZZZ	6Q25096.D	09/26/23 09:06	OP99100	(unrelated sample)
ZZZZZZ	6Q25097.D	09/26/23 09:20	OP99100	(unrelated sample)
S6Q357-CC356	6Q25098.D	09/26/23 09:35	n/a	Continuing cal 4
S6Q357-ICCB	6Q25099.D	09/26/23 09:49	n/a	Continuing Calibration Blank
S6Q357-ICCB	6Q25099.D	09/26/23 09:49	n/a	Continuing Calibration Blank
ZZZZZZ	6Q25100.D	09/26/23 10:03	OP99100	(unrelated sample)
ZZZZZZ	6Q25101.D	09/26/23 10:18	OP99100	(unrelated sample)
ZZZZZZ	6Q25102.D	09/26/23 10:32	OP99100	(unrelated sample)
ZZZZZZ	6Q25103.D	09/26/23 10:46	OP99100	(unrelated sample)
ZZZZZZ	6Q25104.D	09/26/23 11:01	OP99100	(unrelated sample)
ZZZZZZ	6Q25105.D	09/26/23 11:15	OP99134	(unrelated sample)
ZZZZZZ	6Q25106.D	09/26/23 11:37	OP99134	(unrelated sample)
FC9414-1	6Q25107.D	09/26/23 11:51	OP99135	(used for QC only; not part of job FC9604)
OP99135-MS	6Q25108.D	09/26/23 12:06	OP99135	Matrix Spike
OP99135-MSD	6Q25109.D	09/26/23 12:20	OP99135	Matrix Spike Duplicate
S6Q357-CC356	6Q25110.D	09/26/23 12:34	n/a	Continuing cal 4
S6Q357-ICCB	6Q25111.D	09/26/23 12:49	n/a	Continuing Calibration Blank
S6Q357-ICCB	6Q25111.D	09/26/23 12:49	n/a	Continuing Calibration Blank
ZZZZZZ	6Q25113.D	09/26/23 13:17	OP99135	(unrelated sample)
ZZZZZZ	6Q25115.D	09/26/23 13:55	OP99135	(unrelated sample)
S6Q357-ECC356	6Q25116.D	09/26/23 14:09	n/a	Ending cal 4
S6Q357-ICCB	6Q25117.D	09/26/23 14:23	n/a	Continuing Calibration Blank
S6Q357-ICCB	6Q25117.D	09/26/23 14:23	n/a	Continuing Calibration Blank

6.10.3

6

MS Semi-volatiles

Raw Data

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtje
 09/22/23 13:19

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24827.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/22/2023 12:25:09 AM
 Sample Name : FC9604-1
 Vial : P2-A4
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99077,S6Q355,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	241299	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	39182	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	92944	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	74674	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	103853	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	41474	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	38414	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	44611	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	34728	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	13101	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	25779	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	28947	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	16193	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	14457	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	3044	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4476	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4306	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	24230	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	51646	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	19448	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	83056	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	115201	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9754	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	9078	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	20454	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	100906	5.00 µg/L	0.012
18O2-PFHxS	7.313	403.0 -> 83.9	11838	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	108070	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	32402	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	44566	1.25 µg/L	0.012
13C2-PFHxA	5.642	315.1 -> 270.0	66795	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	3044	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4476	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4306	4.84 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C2-PFDoDA	9.080	615.1 -> 570.0	34728	1.06 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.6%		
13C2-PFTeDA	9.784	715.2 -> 670.0	13101	1.00 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 79.9%		
13C3-PFBS	5.571	302.1 -> 79.9	28947	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-PFHxS	7.301	402.1 -> 79.9	16193	2.53 µg/L	-0.012

7.1.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C4-PFBA	3.010	216.8 -> 171.9	241299	9.80 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C4-PFHpA	6.569	367.1 -> 322.0	74674	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C5-PFHxA	5.641	318.0 -> 273.0	92944	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C5-PFPeA	4.434	268.3 -> 223.0	39182	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C6-PFDA	8.198	519.1 -> 474.1	38414	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C7-PFUnDA	8.651	570.0 -> 525.1	44611	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C8-FOSA	9.682	506.1 -> 77.8	25779	1.92 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 76.8%		
13C8-PFOA	7.198	421.1 -> 376.0	103853	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C8-PFOS	8.348	507.1 -> 79.9	14457	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C9-PFNA	7.717	472.1 -> 427.0	41474	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.7%		
d3-MeFOSAA	8.256	573.2 -> 419.0	24230	4.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.8%		
13C3-HFPO-DA	6.019	286.9 -> 168.9	51646	10.43 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
d3-MeFOSA	10.769	515.0 -> 219.0	9078	1.87 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 74.7%		
d5-EtFOSAA	8.452	589.2 -> 419.0	19448	4.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 81.5%		
d7-MeFOSE	10.678	623.2 -> 58.9	83056	19.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 76.1%		
d9-EtFOSE	10.923	639.2 -> 58.9	115201	20.11 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 80.4%		
d5-EtFOSA	10.989	531.1 -> 219.0	9754	2.15 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 86.2%		

Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.	
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	3.018	212.8 -> 168.9	10826	1.46 µg/L	100
PFBS	5.572	298.7 -> 79.9 298.7 -> 98.8	2518 984	0.18 µg/L	95
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	-	613.1 -> 569.0 613.1 -> 319.0	-	N.D.	
PFDS	9.057	599.0 -> 79.9	0	µg/L m	1

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	0			
PFHpA	6.569	363.1 -> 319.0	15768	0.42	µg/L	m 95
		363.1 -> 169.0	2216			
PFHpS	-	449.0 -> 79.9	-	N.D.		
		449.0 -> 98.9				
PFHxA	5.644	313.0 -> 269.0	15241	0.47	µg/L	100
		313.0 -> 118.9	706			
PFHxS	7.302	398.7 -> 79.9	5457	0.52	µg/L	m 97
		398.7 -> 98.9	2702			
PFNA	7.730	463.0 -> 419.0	3242	0.12	µg/L	m 97
		463.0 -> 219.0	728			
PFNS	-	548.8 -> 79.9	-	N.D.		
		548.8 -> 98.9				
PFOA	7.200	413.0 -> 369.0	20051	0.42	µg/L	m 90
		413.0 -> 169.0	4401			
PFOS	8.350	498.9 -> 79.9	11449	1.40	µg/L	m 84
		498.9 -> 98.8	4625			
PFPeA	4.436	263.0 -> 219.0	19435	1.01	µg/L	100
PFPeS	6.620	349.1 -> 79.9	504	0.06	µg/L	m 98
		349.1 -> 98.9	254			
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.		
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

7.1.1
7

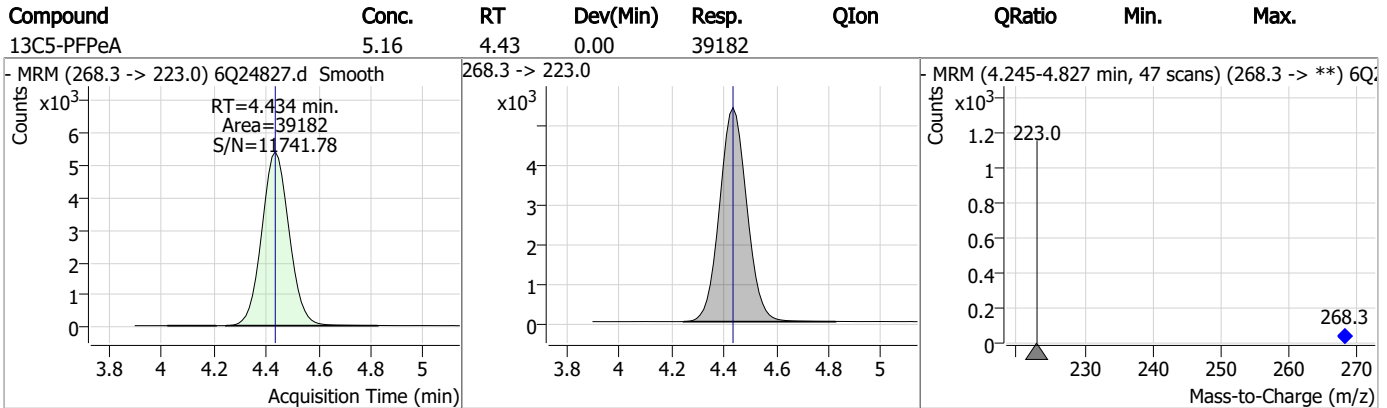
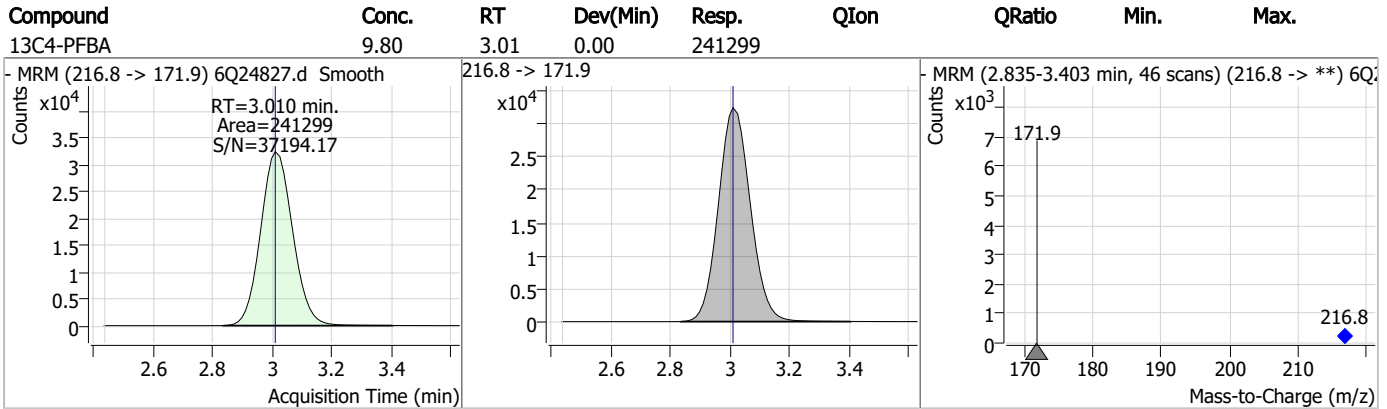
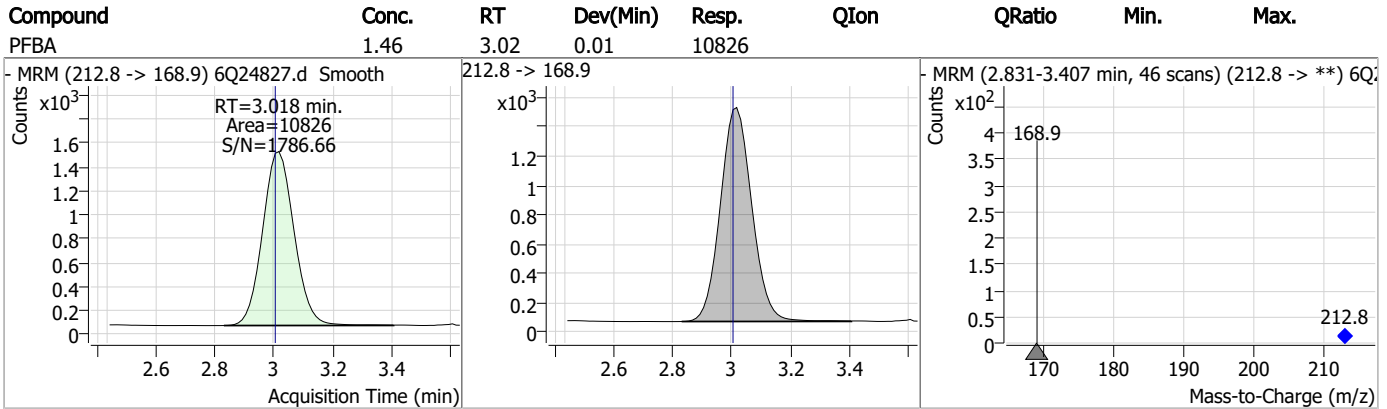
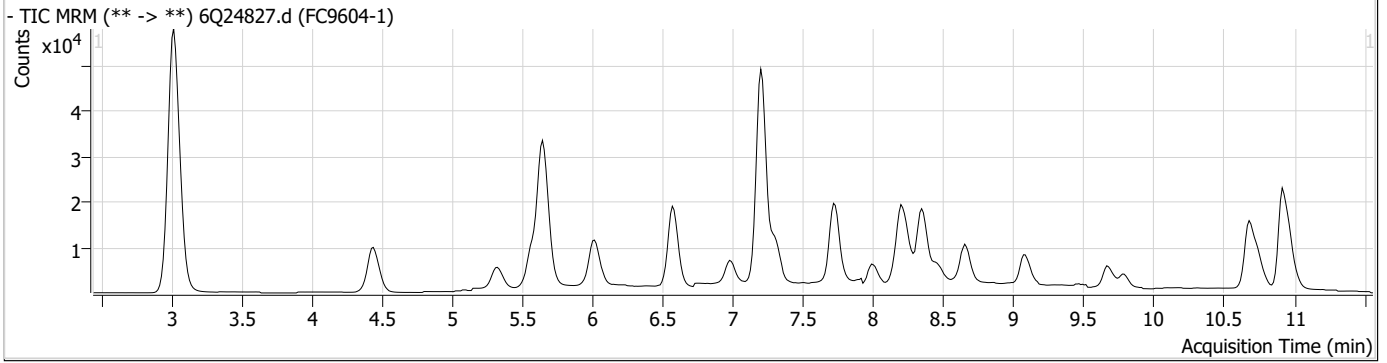
Perfluorinated Compounds by LC/MS/MS

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

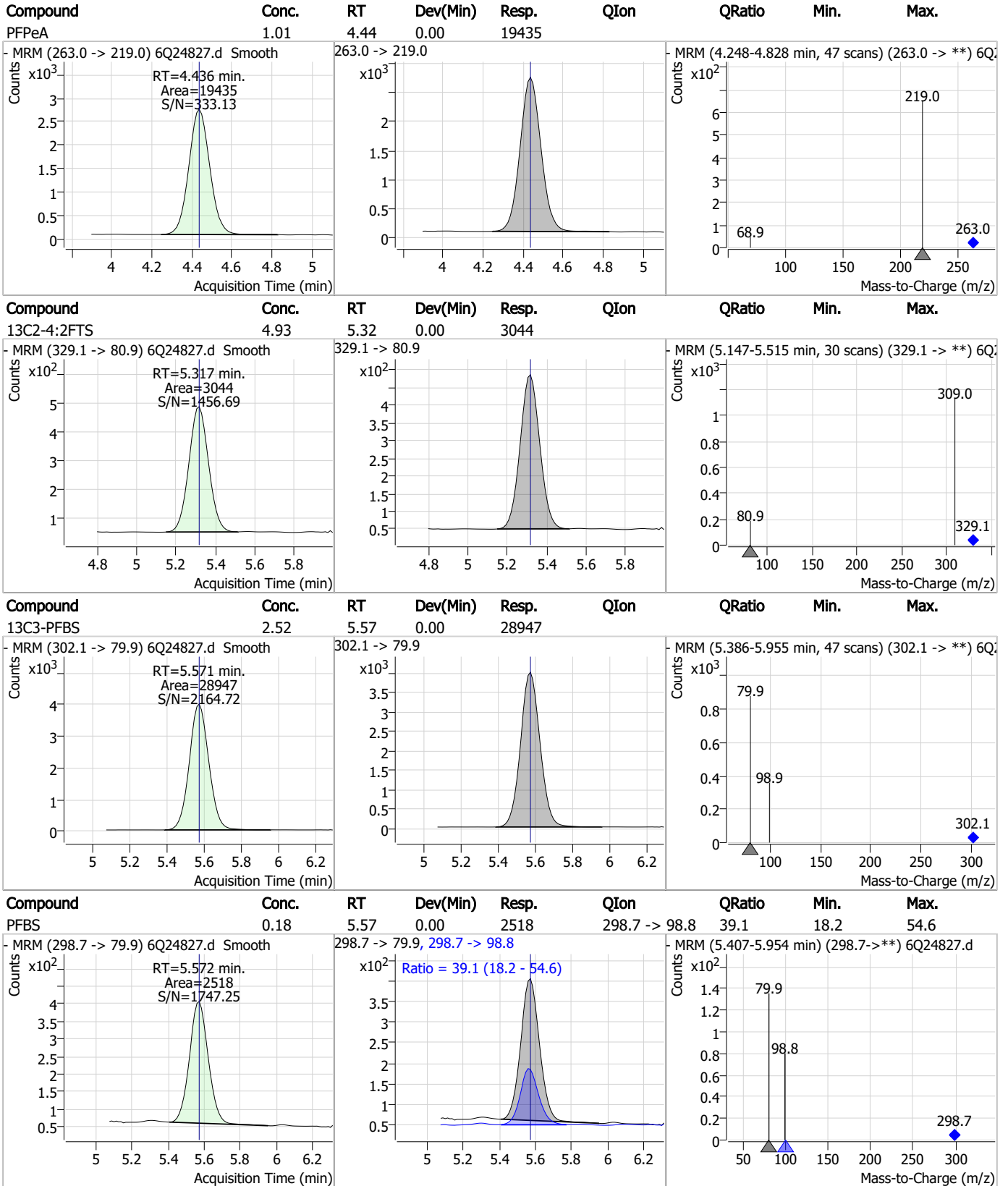
7.1.1
7



Perfluorinated Compounds by LC/MS/MS

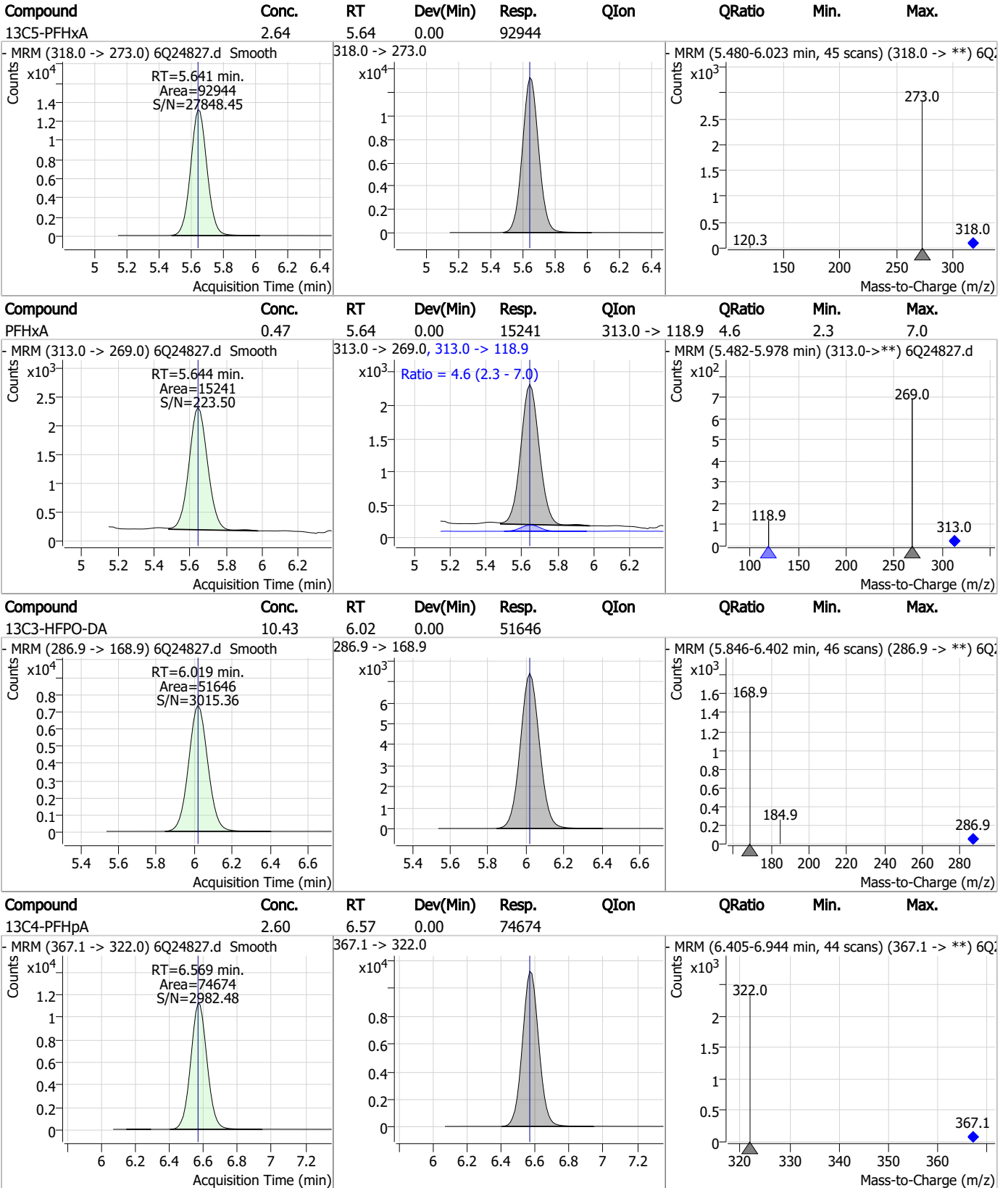


Perfluorinated Compounds by LC/MS/MS



7.1.1
7

Perfluorinated Compounds by LC/MS/MS

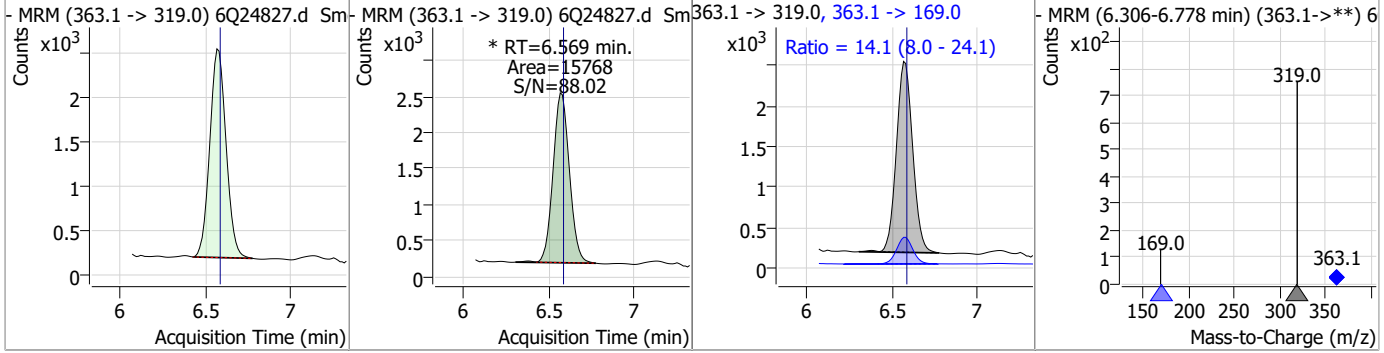


7.1.1

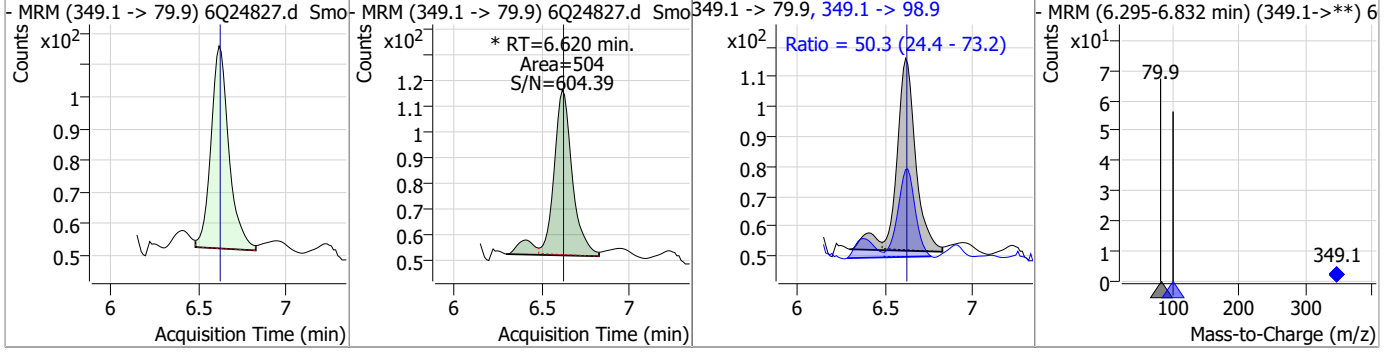
7

Perfluorinated Compounds by LC/MS/MS

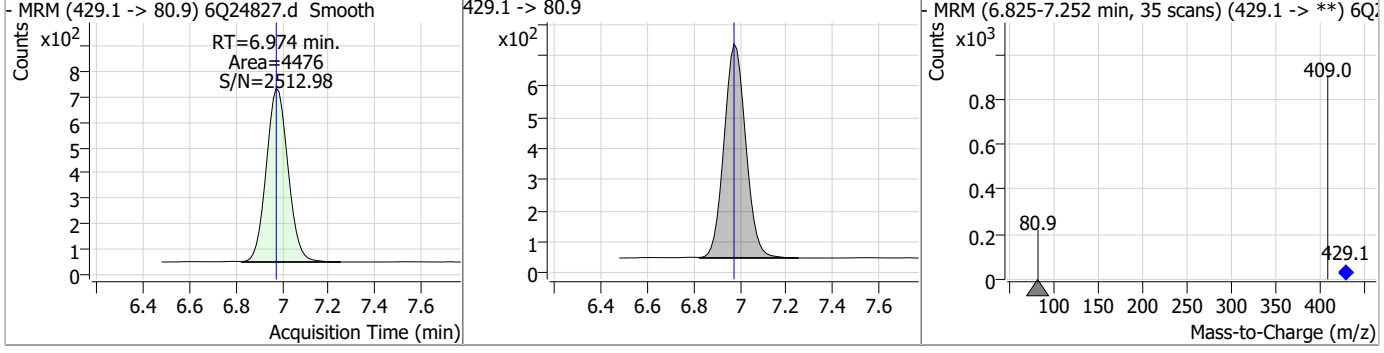
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.42	6.57	-0.01	15768 (m)	363.1 -> 169.0	14.1	8.0	24.1



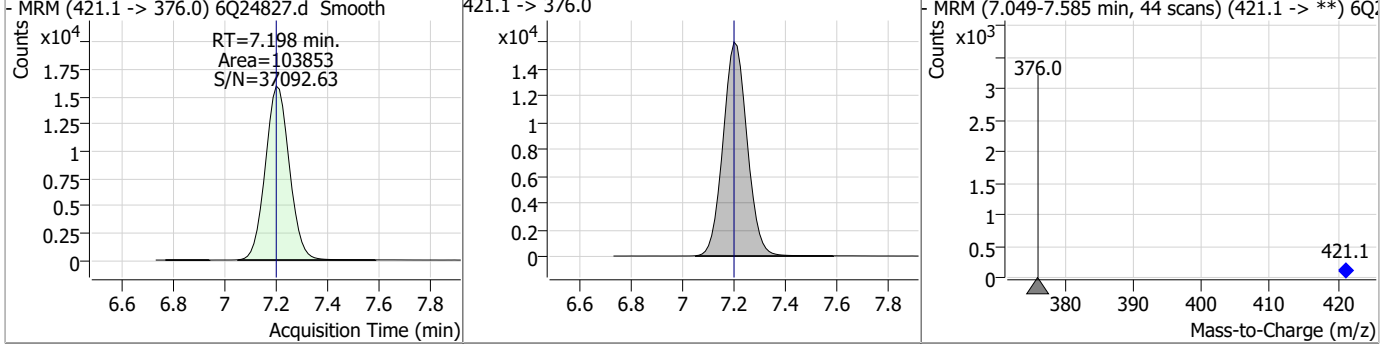
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.06	6.62	0.00	504 (m)	349.1 -> 98.9	50.3	24.4	73.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.14	6.97	0.00	4476				

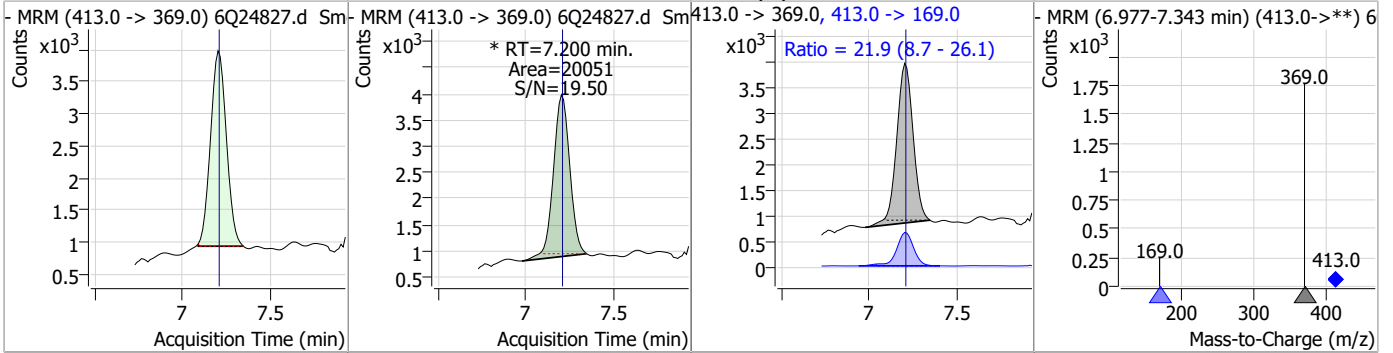


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.65	7.20	0.00	103853				

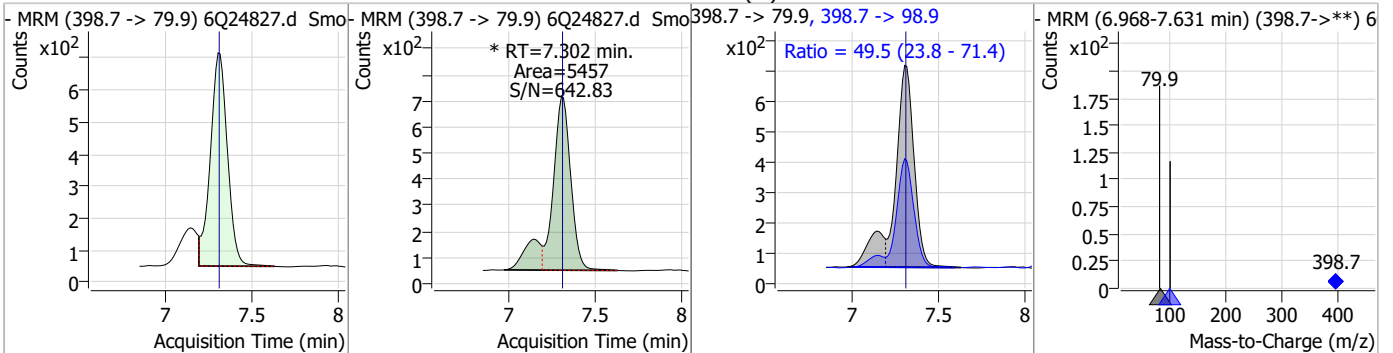


Perfluorinated Compounds by LC/MS/MS

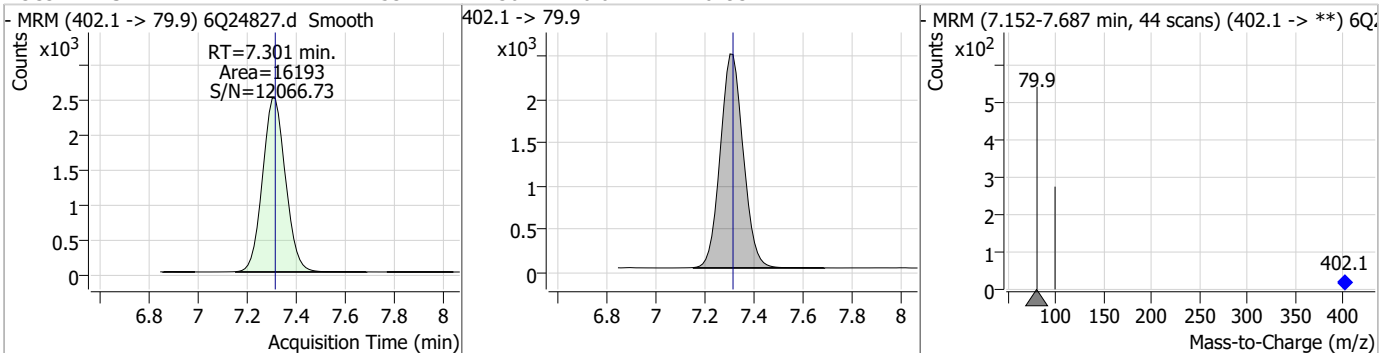
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.42	7.20	0.00	20051 (m)	413.0 -> 169.0	21.9	8.7	26.1



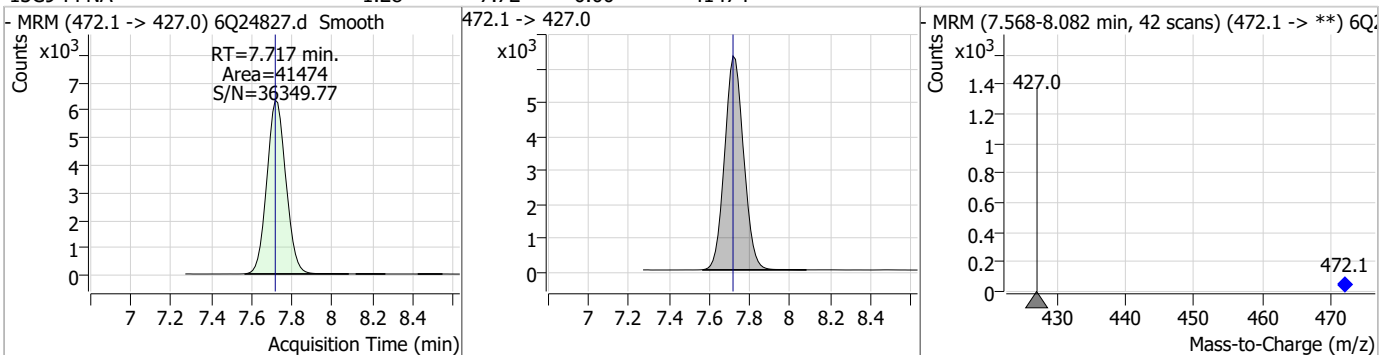
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.52	7.30	0.00	5457 (m)	398.7 -> 98.9	49.5	23.8	71.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.53	7.30	-0.01	16193				

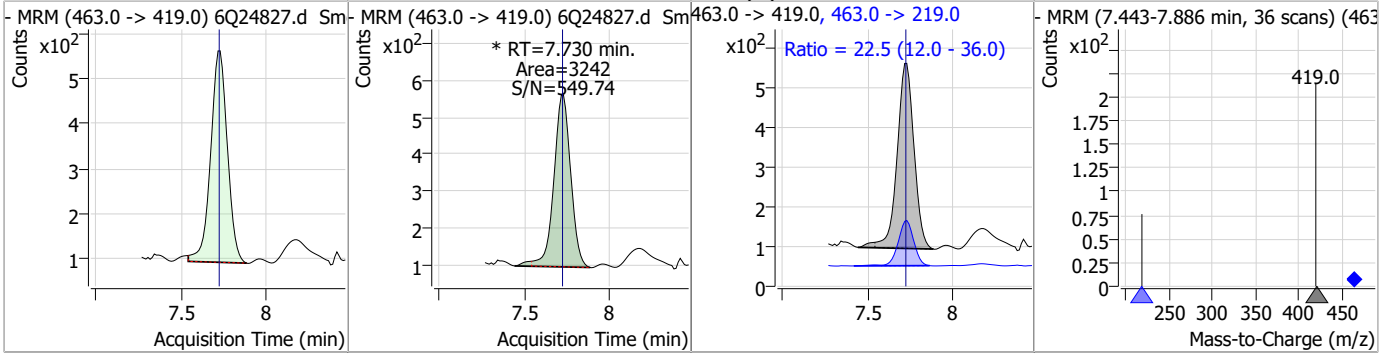


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.28	7.72	0.00	41474				

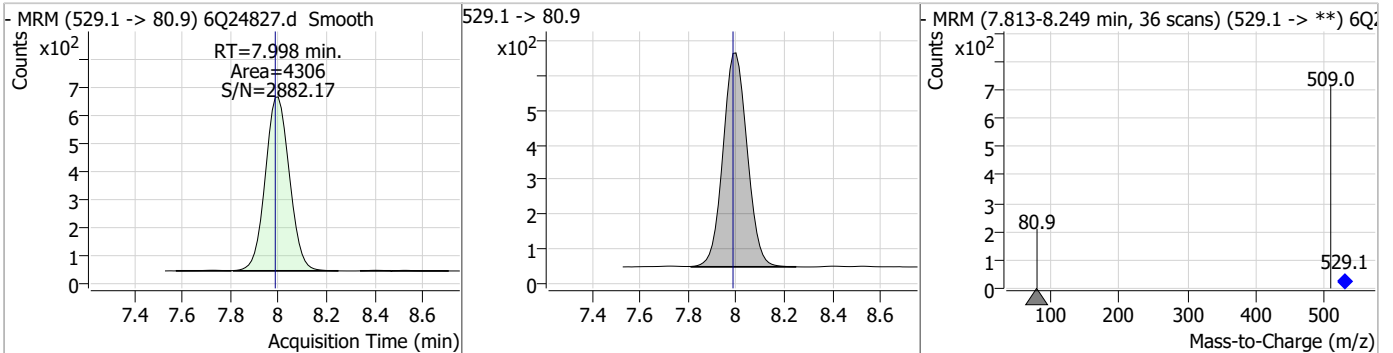


Perfluorinated Compounds by LC/MS/MS

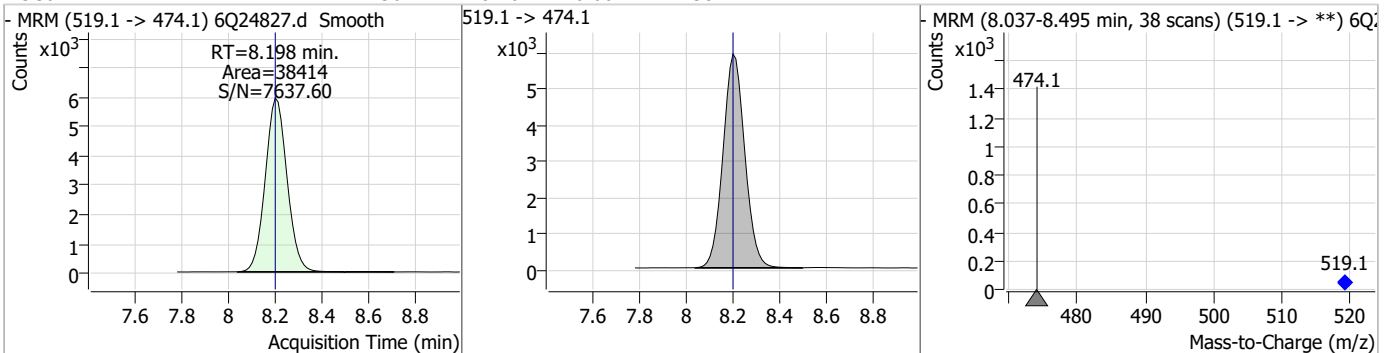
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.12	7.73	0.01	3242 (m)	463.0 -> 219.0	22.5	12.0	36.0



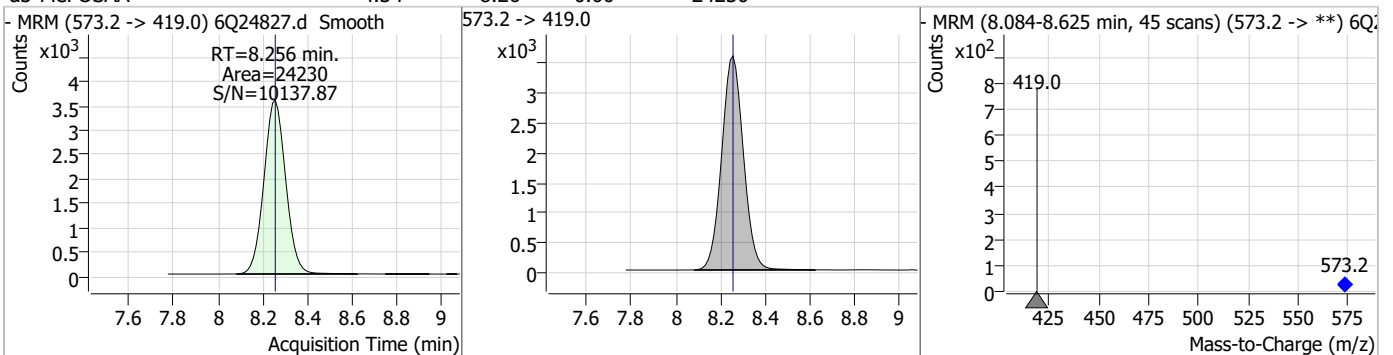
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.84	8.00	0.01	4306				



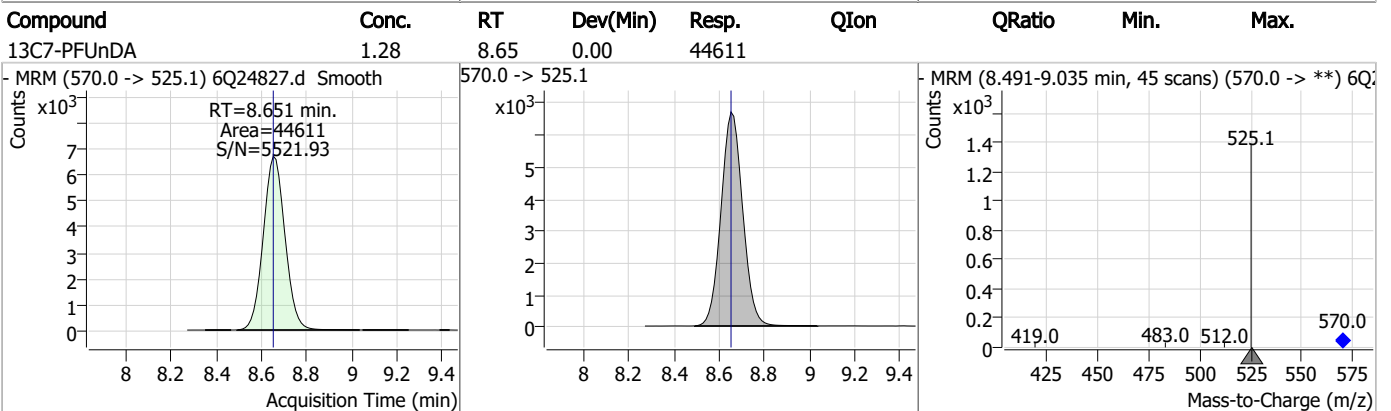
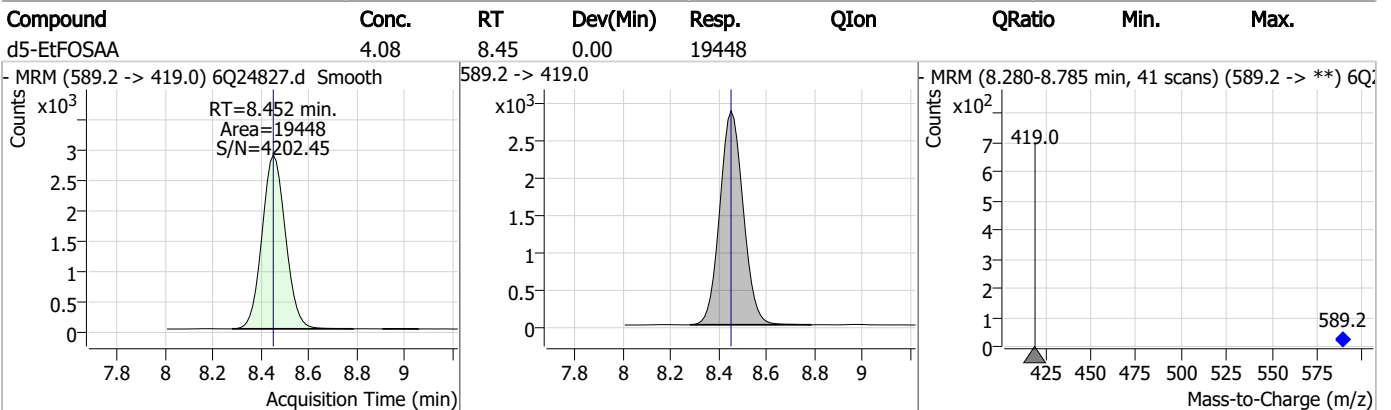
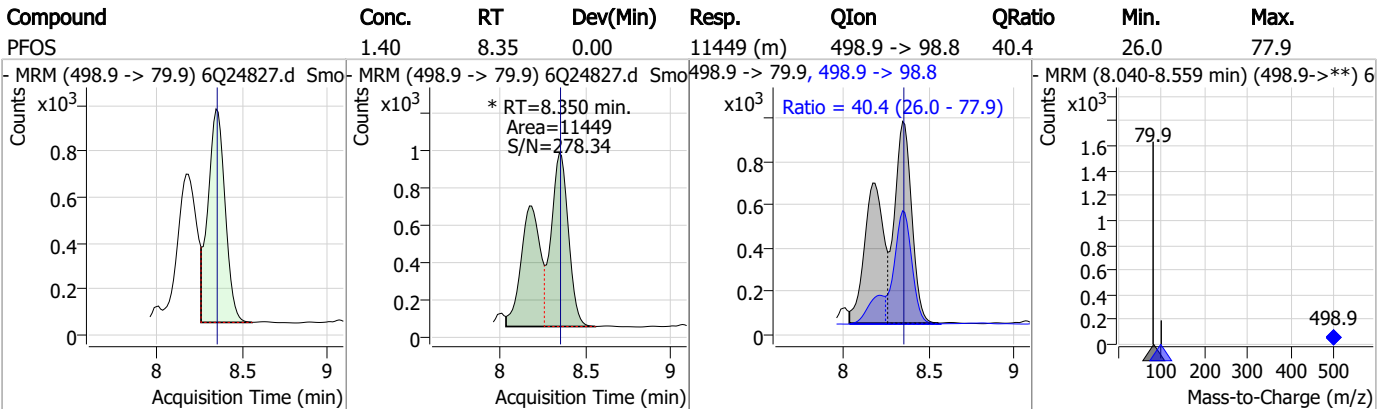
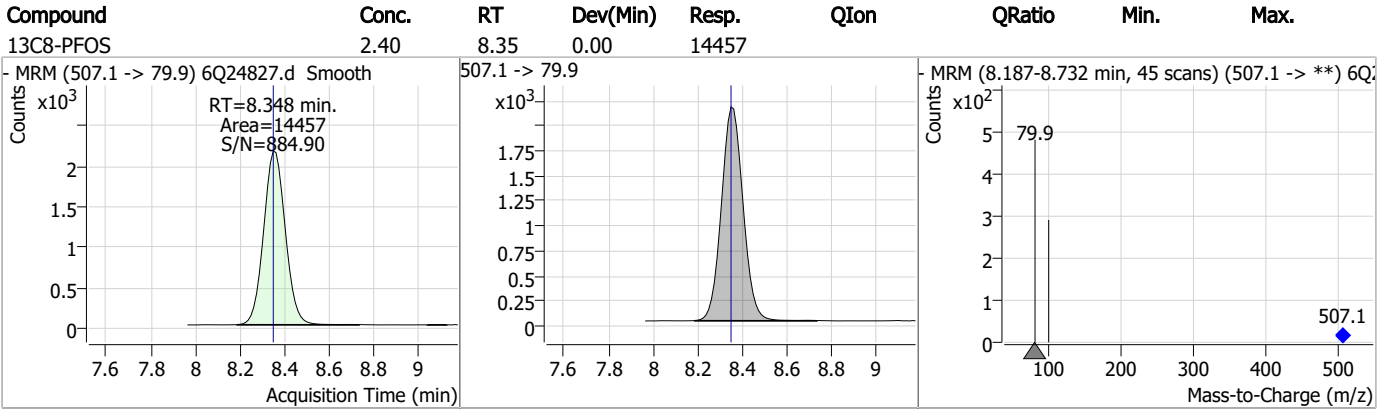
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.30	8.20	0.00	38414				



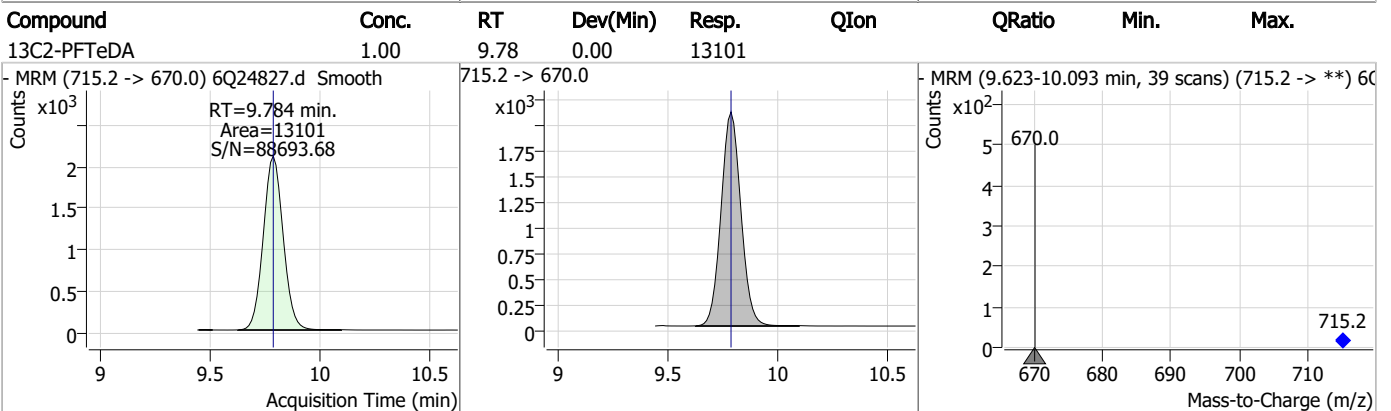
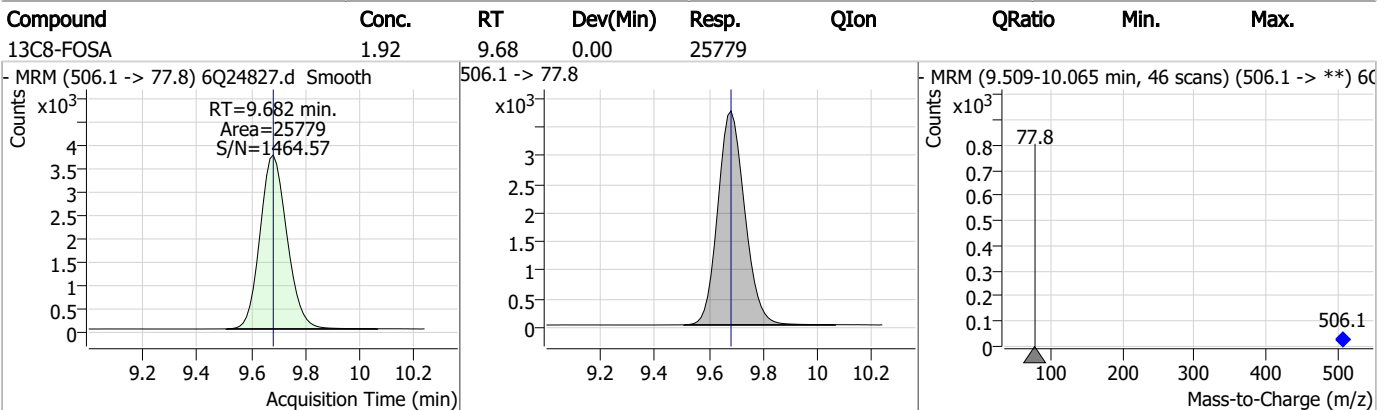
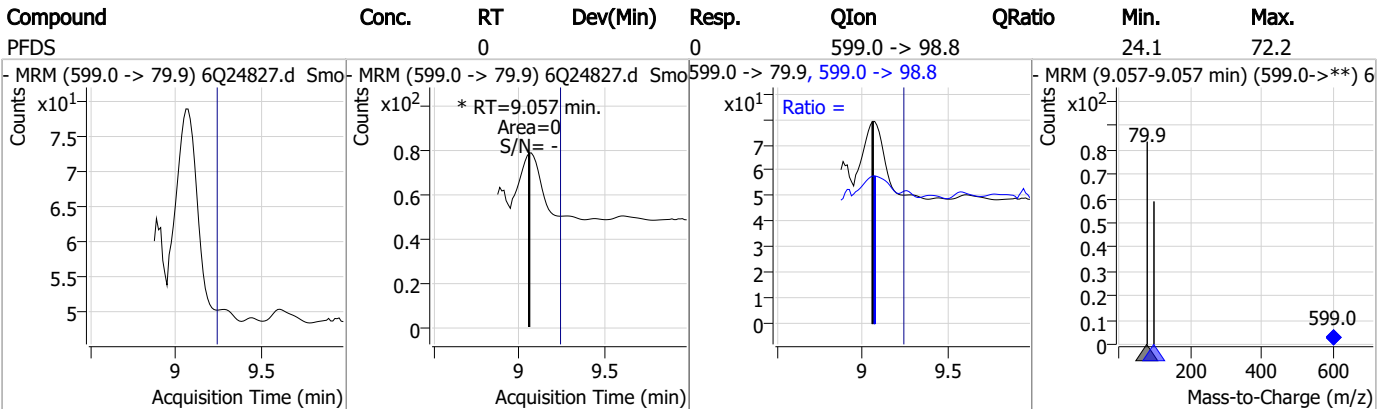
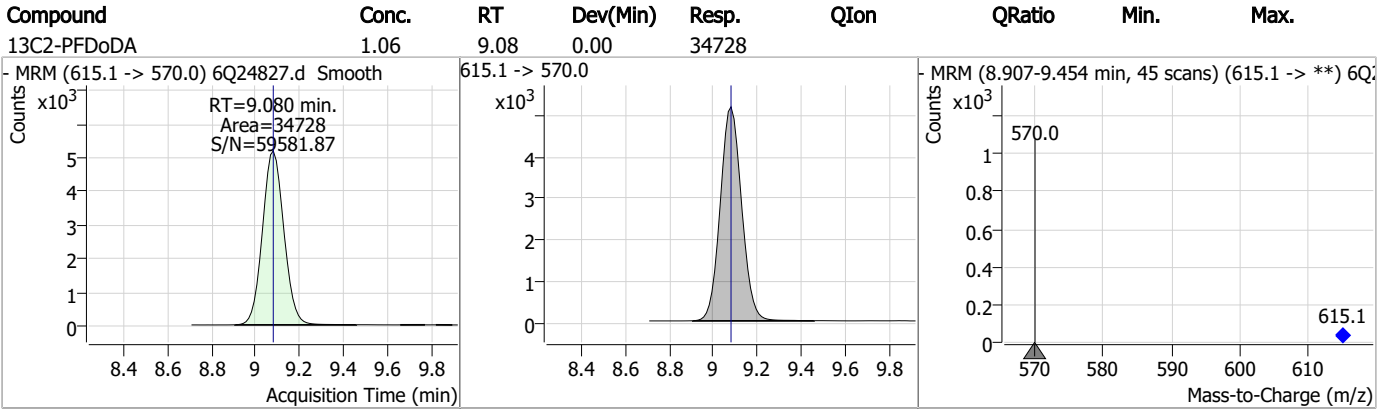
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.34	8.26	0.00	24230				



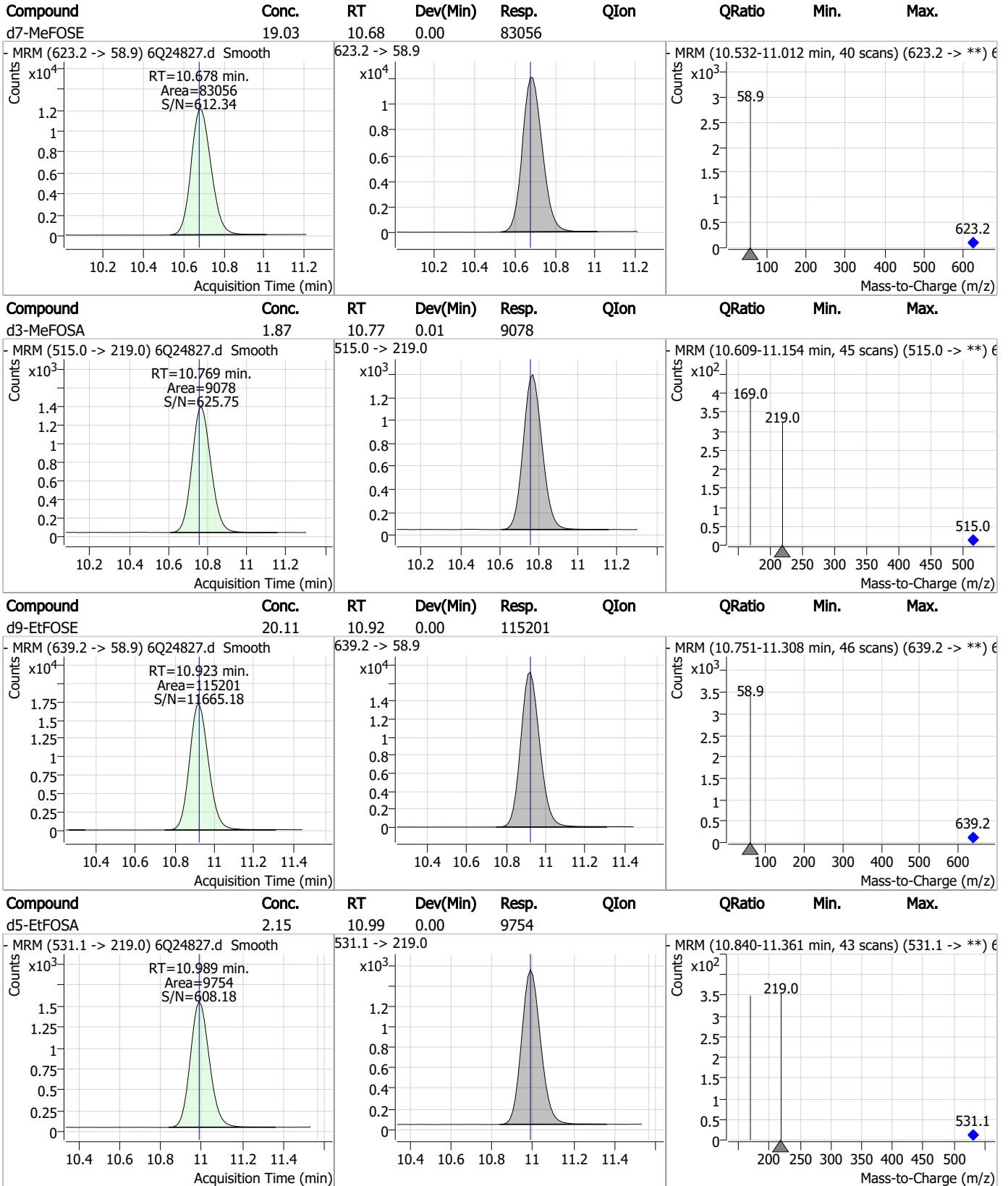
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: FC9604-1 Method: EPA DRAFT 1633
Lab FileID: 6Q24827.D Analyst approved: 09/22/23 11:10 Anna Ludwig
Injection Time: 09/22/23 00:25 Supervisor approved: 09/22/23 13:19 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		6.57	Split peak
Perfluoropentanesulfonic acid	2706-91-4		6.62	Split peak
Perfluorooctanoic acid	335-67-1		7.20	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorononanoic acid	375-95-1		7.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.1.1.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25053.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 10:50:29 PM
 Sample Name : FC9604-2
 Vial : P5-E7
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q357.batch.bin
 Sample Information : OP99174,S6Q357,520,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	195923	10.00 µg/L	0.037
M5-PFPeA	4.422	268.3 -> 223.0	81388	5.00 µg/L	0.012
M5-PFHxA	5.641	318.0 -> 273.0	74020	2.50 µg/L	0.012
M4-PFHpA	6.569	367.1 -> 322.0	70144	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	90528	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	36704	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	38799	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	40828	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	35008	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	13930	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	27023	2.50 µg/L	0.012
M3-PFBS	5.559	302.1 -> 79.9	29196	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	16854	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	16834	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3260	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4631	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4499	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	34675	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	46299	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	24403	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	93330	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	110927	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	8514	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	7878	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	15208	2.50 µg/L	-0.013
13C3-PFBA	3.001	216.0 -> 172.0	80495	5.00 µg/L	0.025
18O2-PFHxS	7.300	403.0 -> 83.9	10707	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	108629	2.50 µg/L	0.000
13C2-PFDA	8.186	515.1 -> 470.1	34874	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	39971	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	66380	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3260	5.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.1%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4631	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4499	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C2-PFDoDA	9.067	615.1 -> 570.0	35008	1.05 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.0%		
13C2-PFTeDA	9.772	715.2 -> 670.0	13930	0.99 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.9%		
13C3-PFBS	5.559	302.1 -> 79.9	29196	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C3-PFHxS	7.301	402.1 -> 79.9	16854	2.49 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 = 99.5%	
13C4-PFBA	3.010	216.8 -> 171.9	195923	10.07 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.569	367.1 -> 322.0	70144	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFHxA	5.641	318.0 -> 273.0	74020	2.65 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C5-PFPeA	4.422	268.3 -> 223.0	81388	5.18 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C6-PFDA	8.185	519.1 -> 474.1	38799	1.32 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C7-PFUnDA	8.639	570.0 -> 525.1	40828	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-FOSA	9.682	506.1 -> 77.8	27023	2.10 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.0%	
13C8-PFOA	7.198	421.1 -> 376.0	90528	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C8-PFOS	8.348	507.1 -> 79.9	16834	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C9-PFNA	7.717	472.1 -> 427.0	36704	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.4%	
d3-MeFOSAA	8.244	573.2 -> 419.0	34675	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	46299	9.25 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.5%	
d3-MeFOSA	10.757	515.0 -> 219.0	7878	2.04 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.5%	
d5-EtFOSAA	8.439	589.2 -> 419.0	24403	4.36 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 87.2%	
d7-MeFOSE	10.678	623.2 -> 58.9	93330	20.46 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.8%	
d9-EtFOSE	10.911	639.2 -> 58.9	110927	19.98 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.9%	
d5-EtFOSA	10.989	531.1 -> 219.0	8514	2.09 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.7%	

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	9.043	613.1 -> 569.0	0	µg/L m	1
		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	8.166	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	9.035	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

7.1.2
7

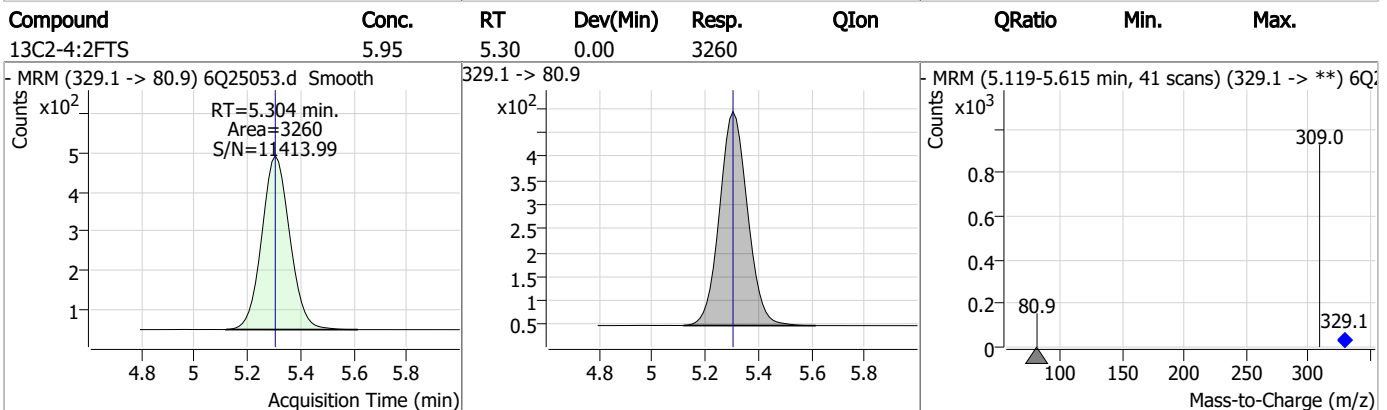
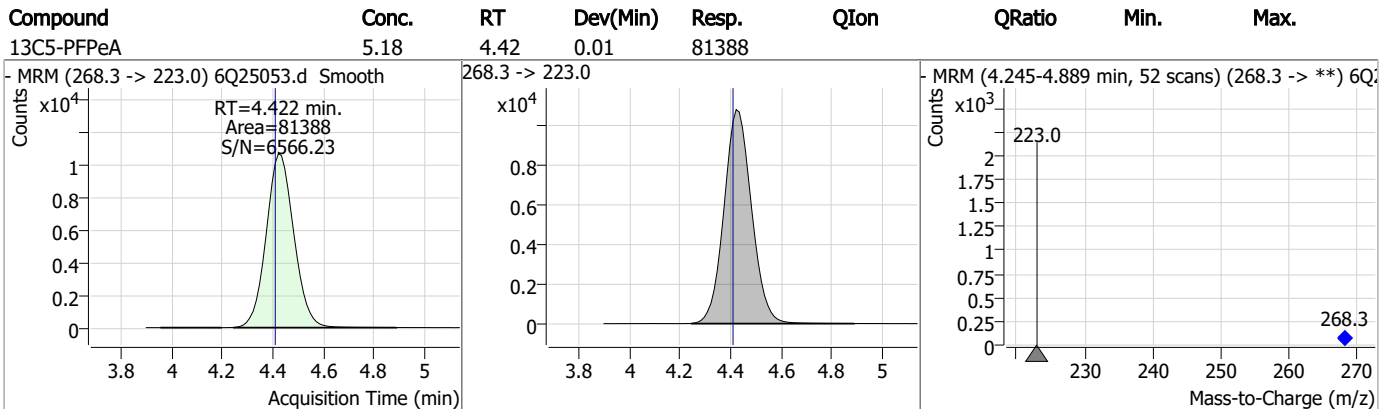
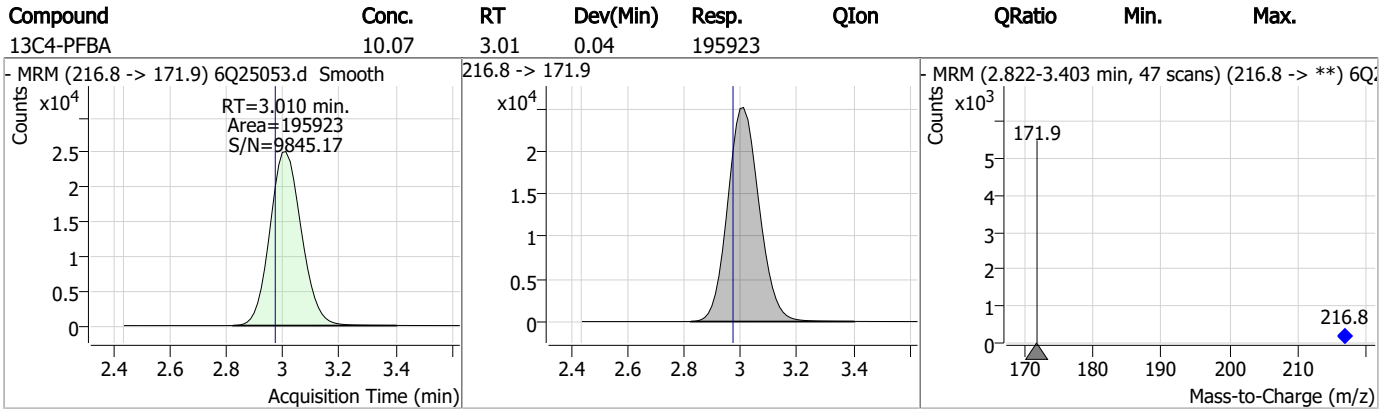
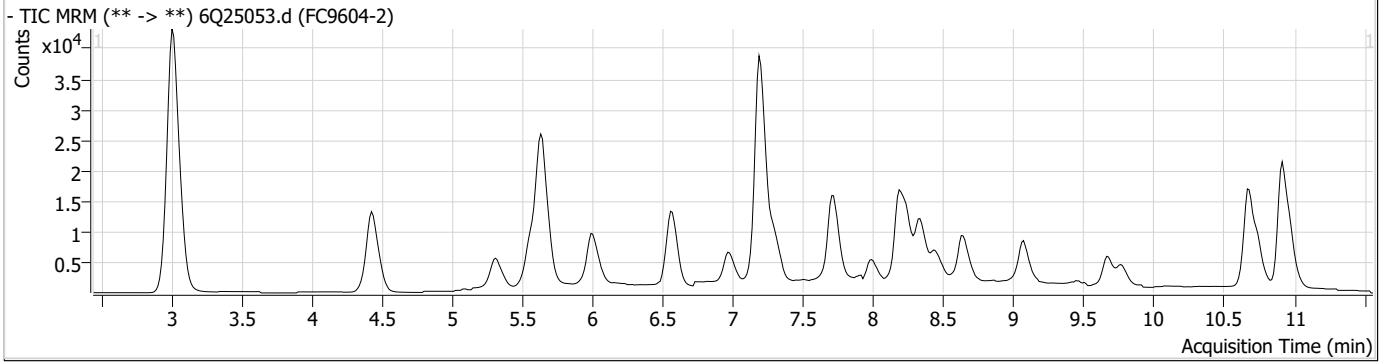
Perfluorinated Compounds by LC/MS/MS

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

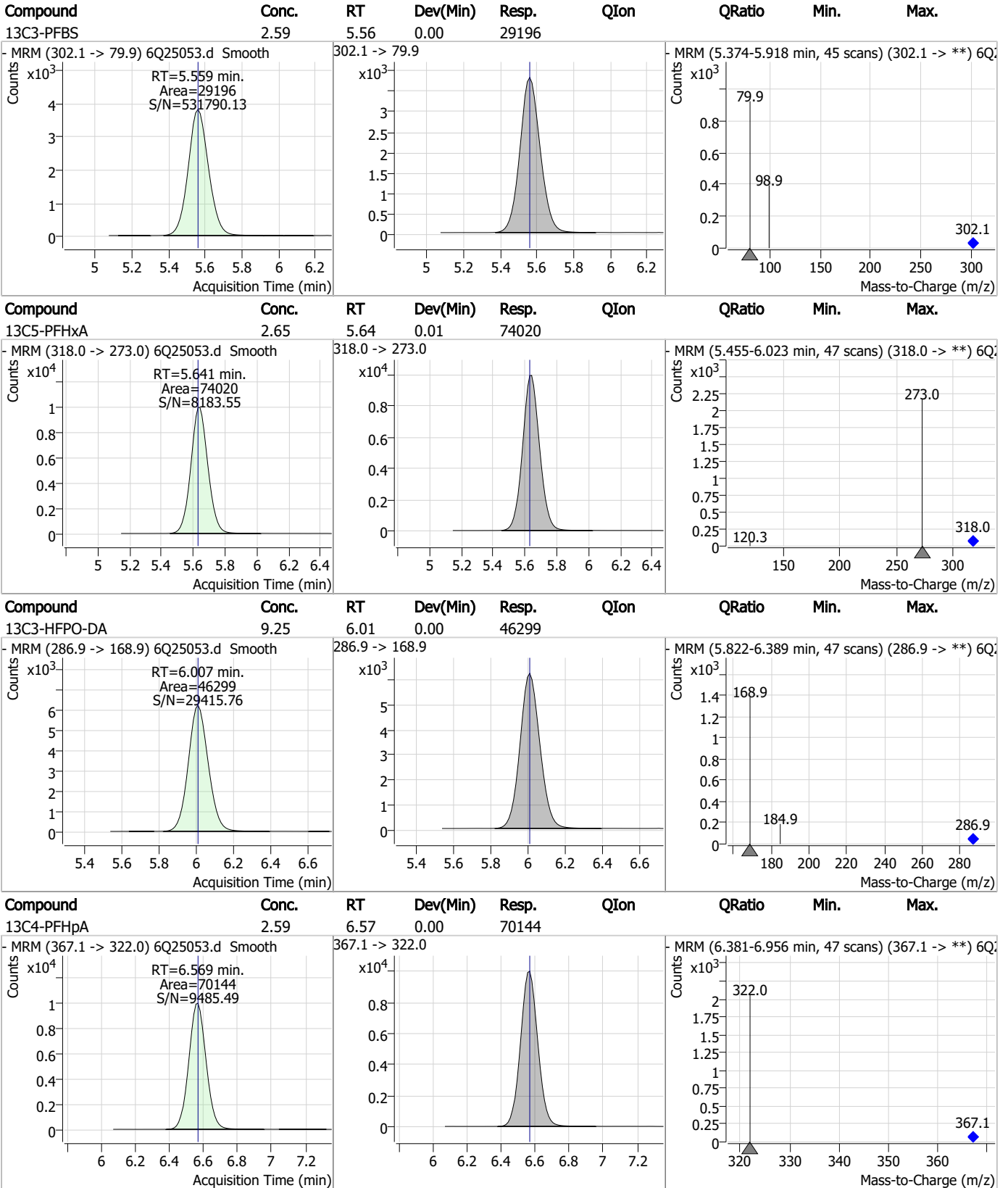
7.1.2
7



Perfluorinated Compounds by LC/MS/MS



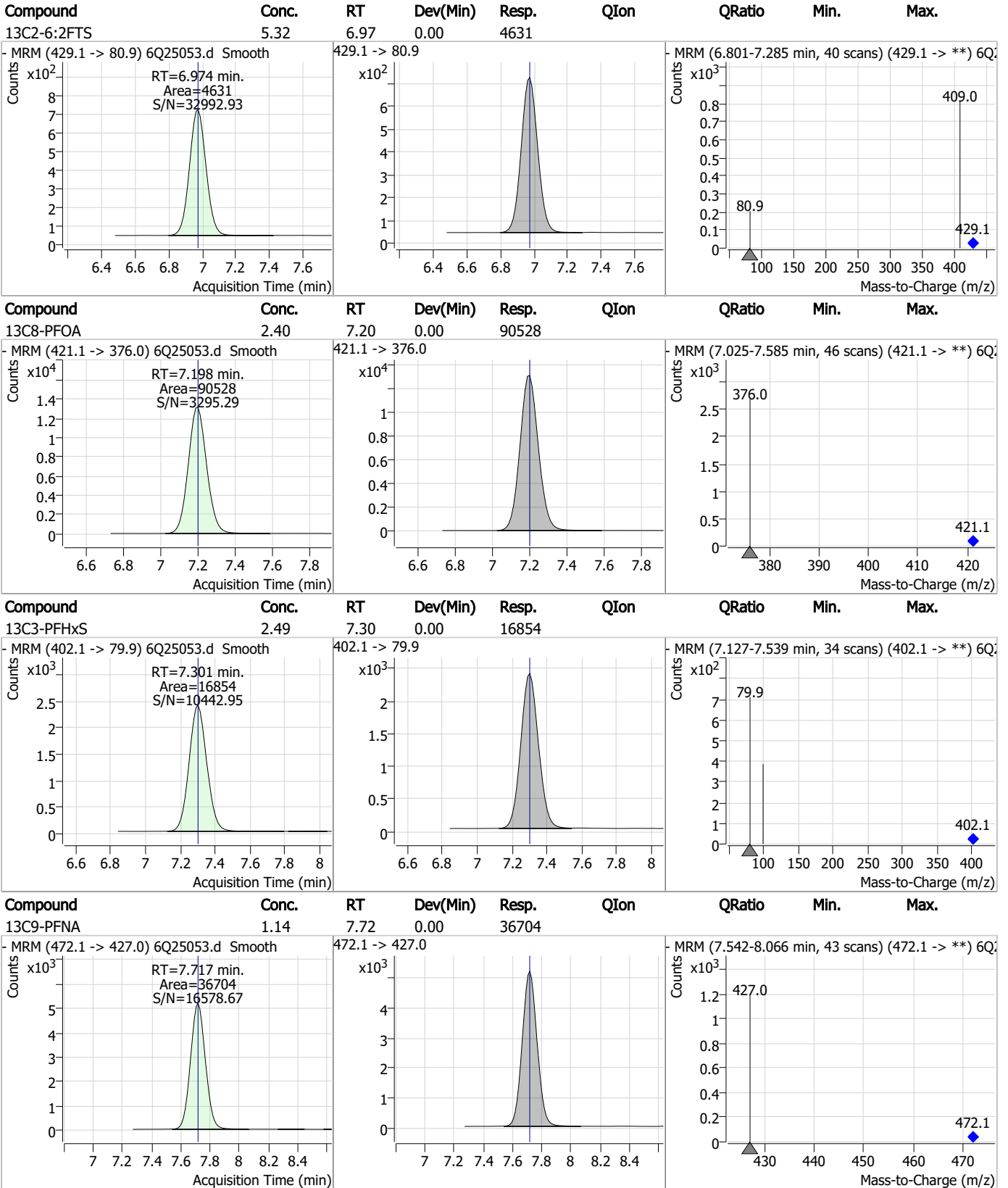
Perfluorinated Compounds by LC/MS/MS



7.1.2

7

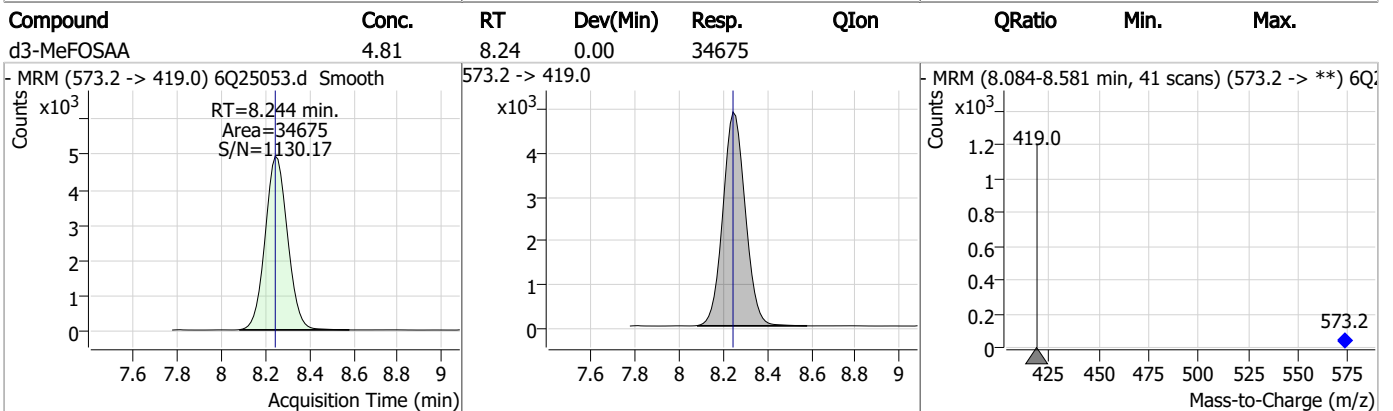
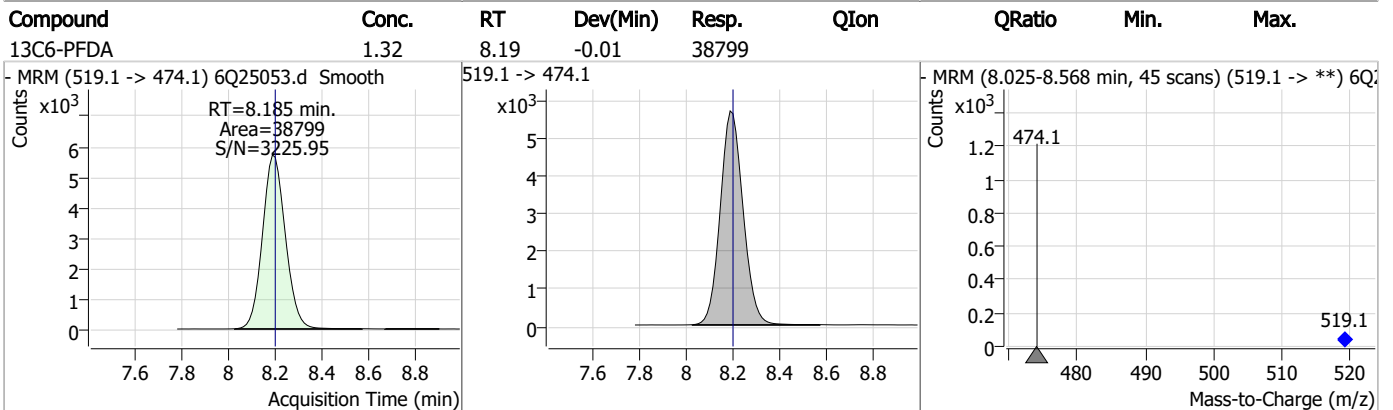
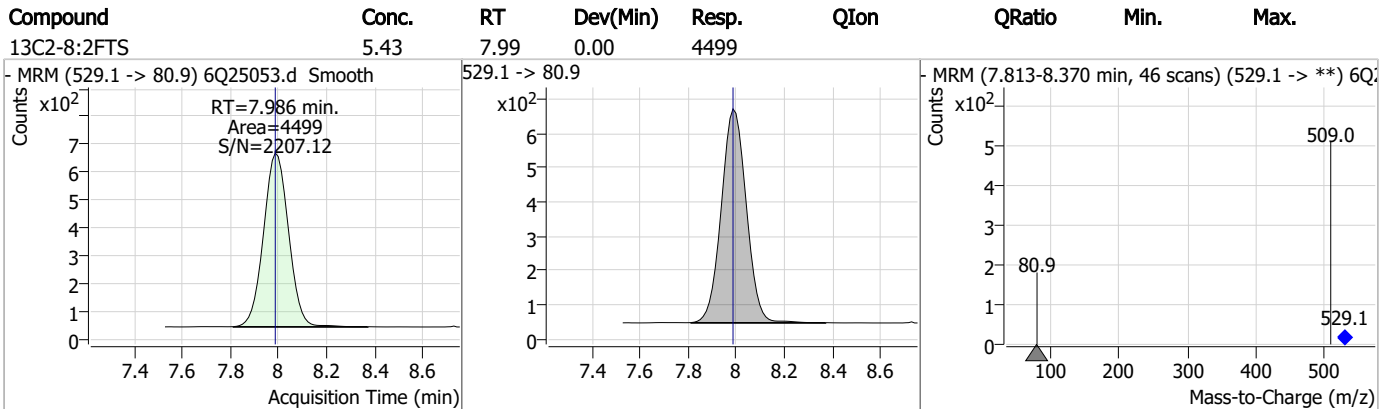
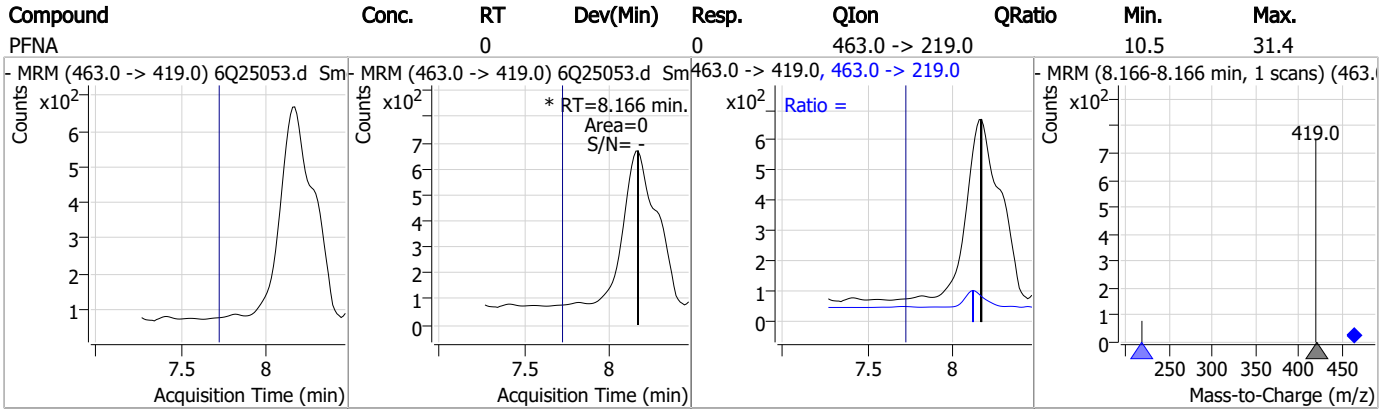
Perfluorinated Compounds by LC/MS/MS



7.1.2

7

Perfluorinated Compounds by LC/MS/MS

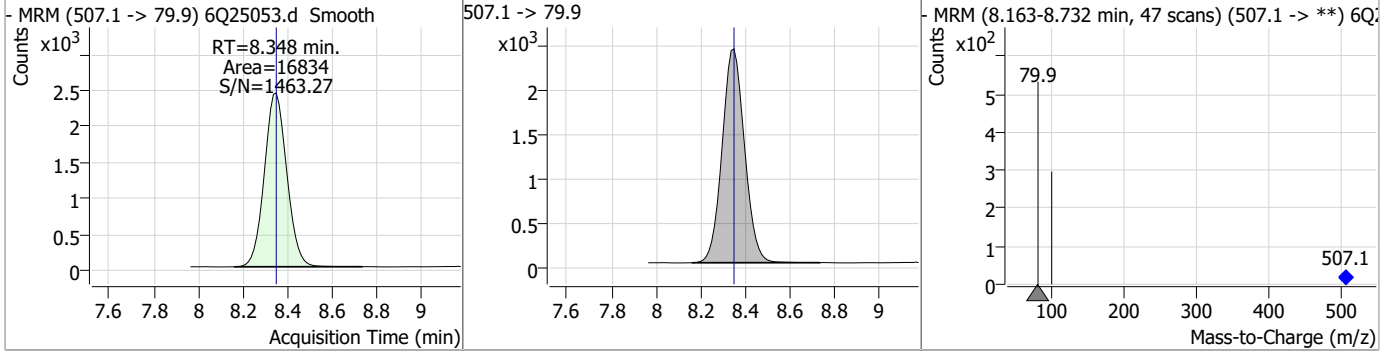


7.1.2

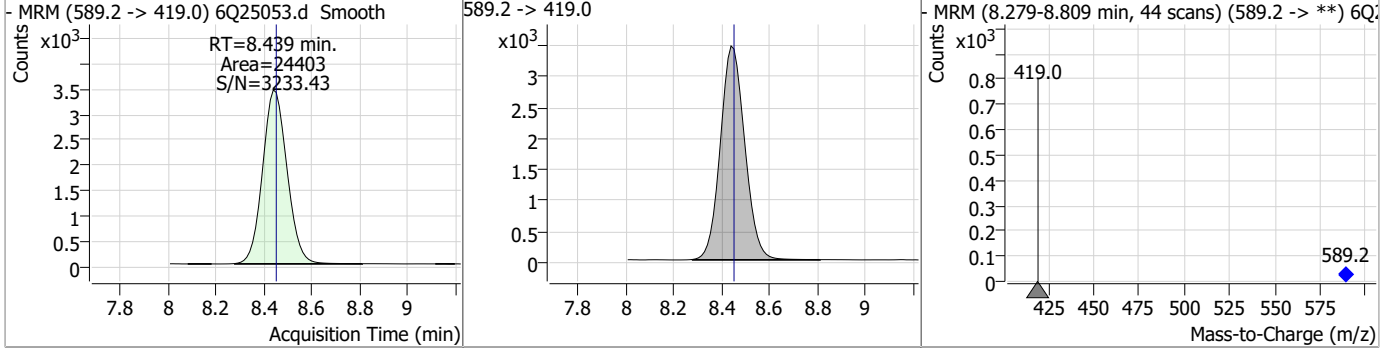
7

Perfluorinated Compounds by LC/MS/MS

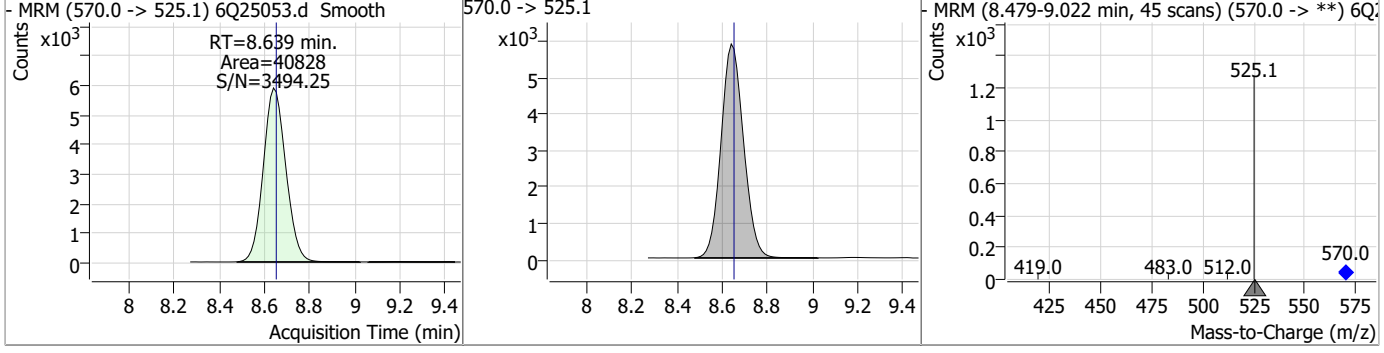
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.56	8.35	0.00	16834				



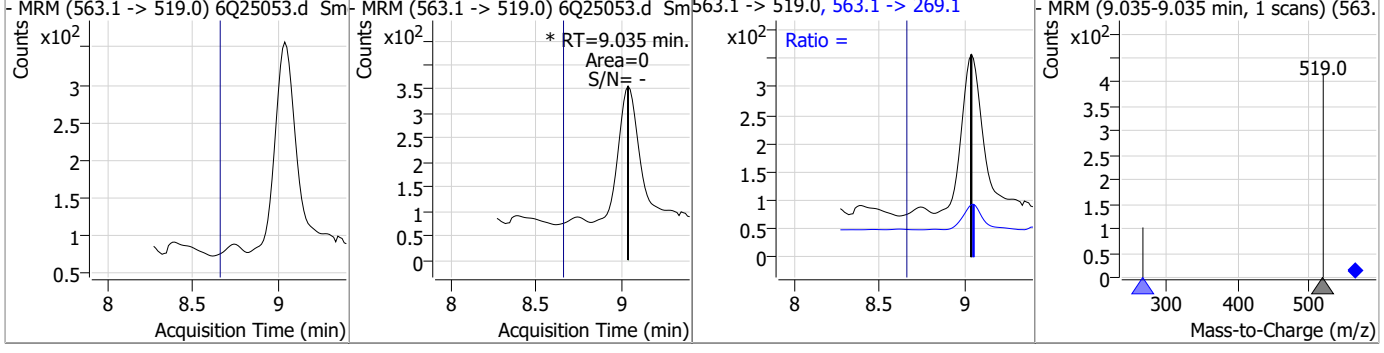
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.36	8.44	-0.01	24403				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.25	8.64	-0.01	40828				

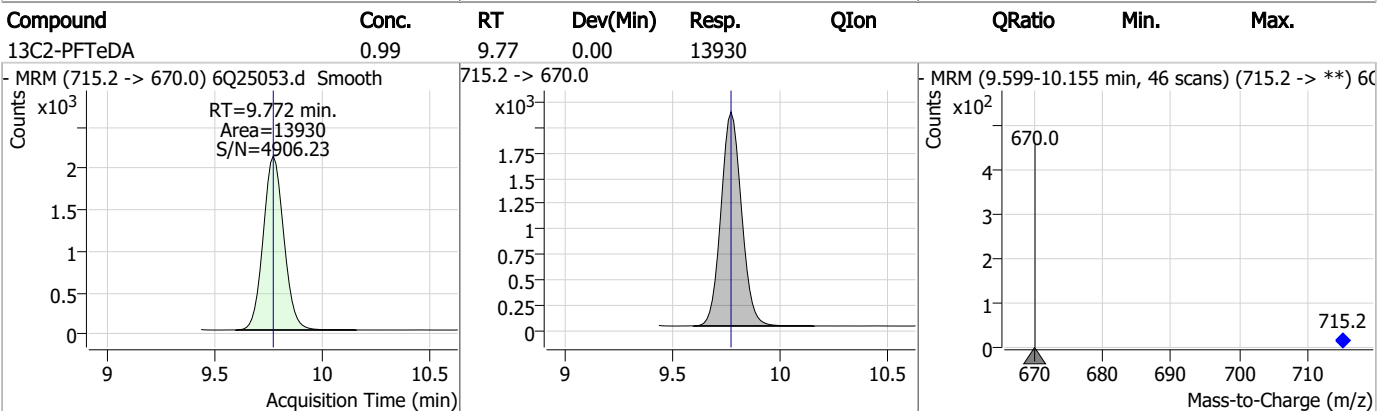
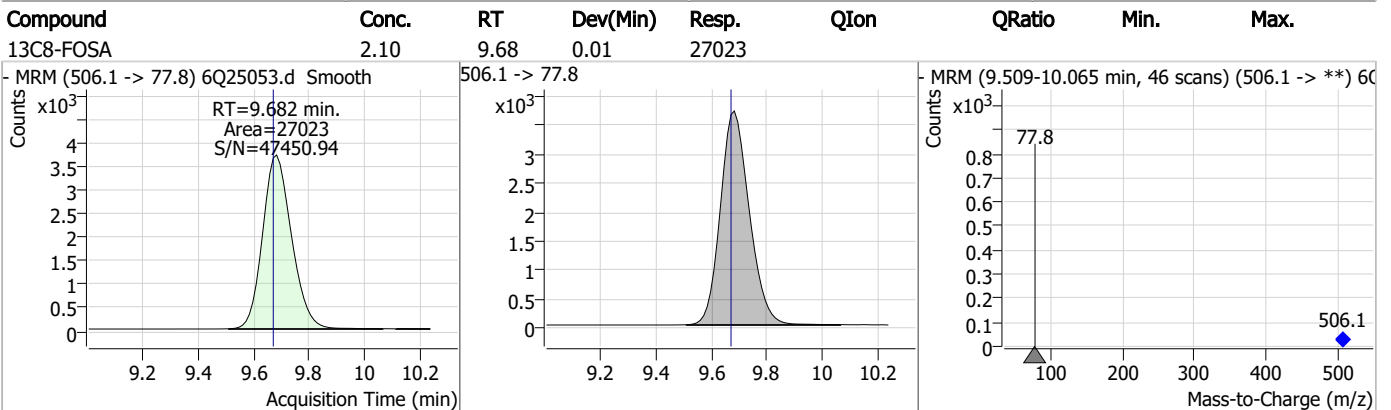
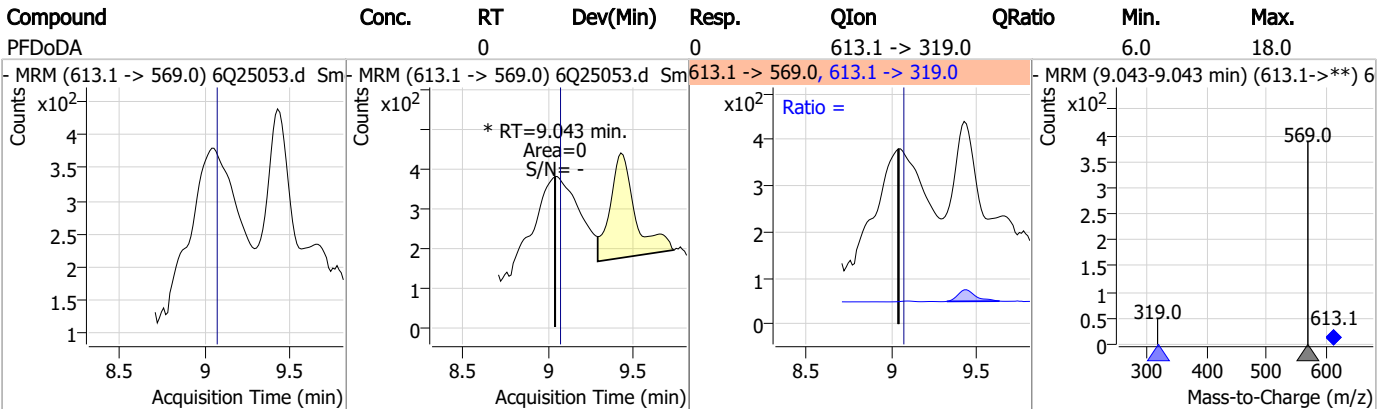
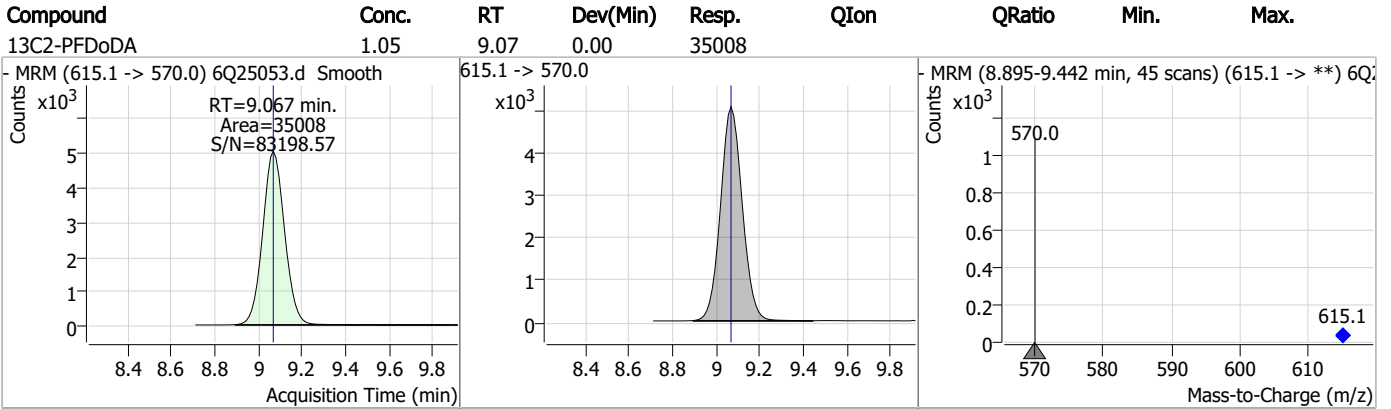


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0	0	0	563.1 -> 269.1			8.4	25.1

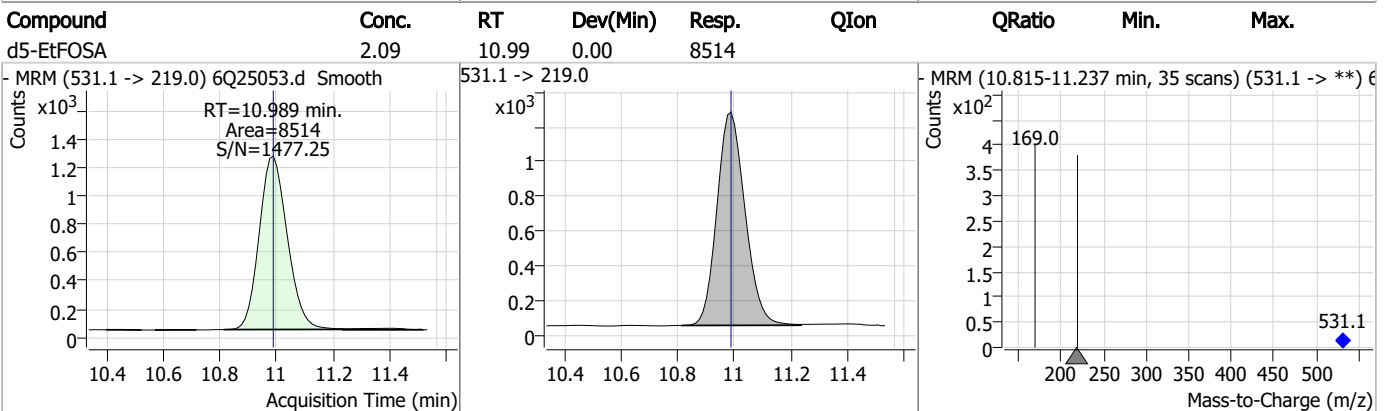
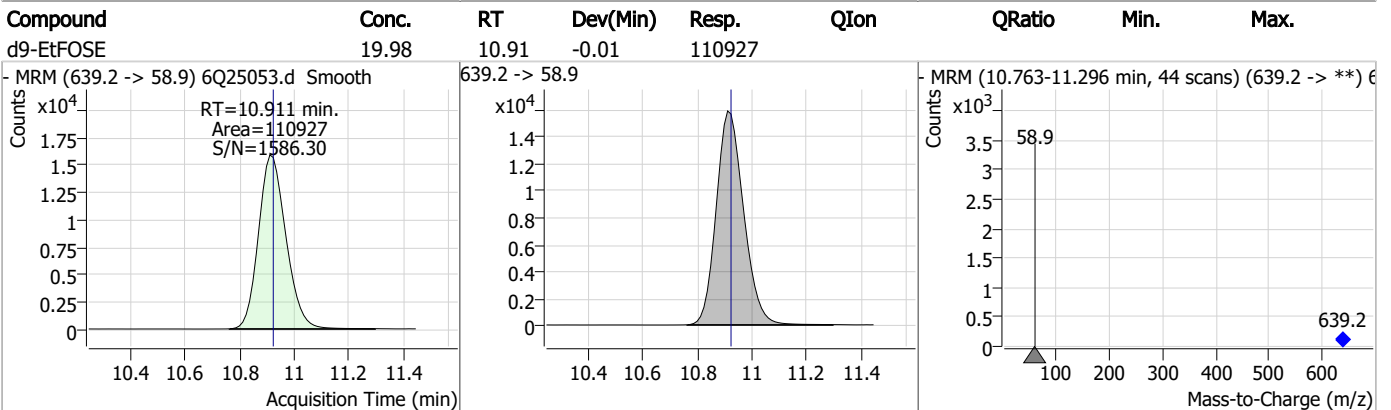
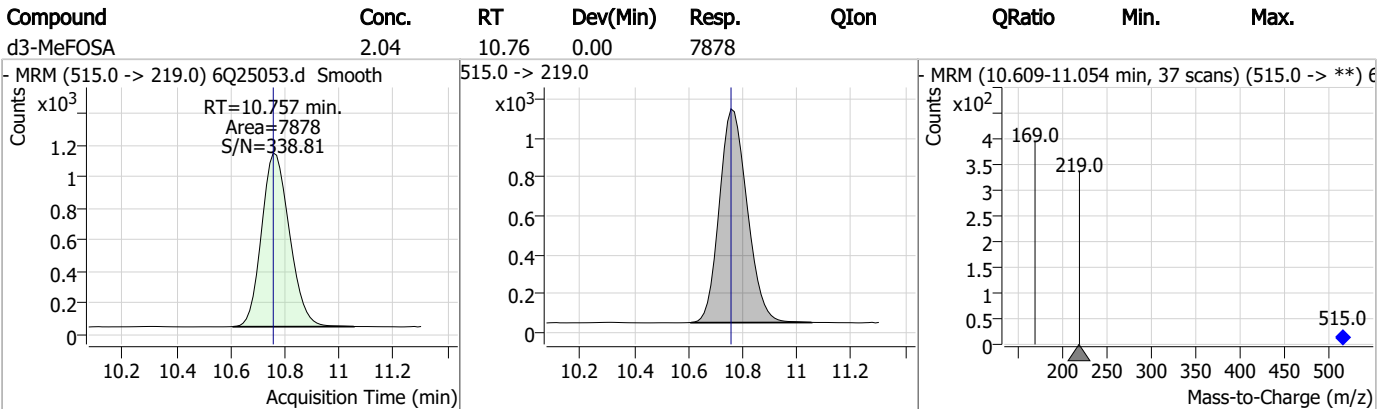
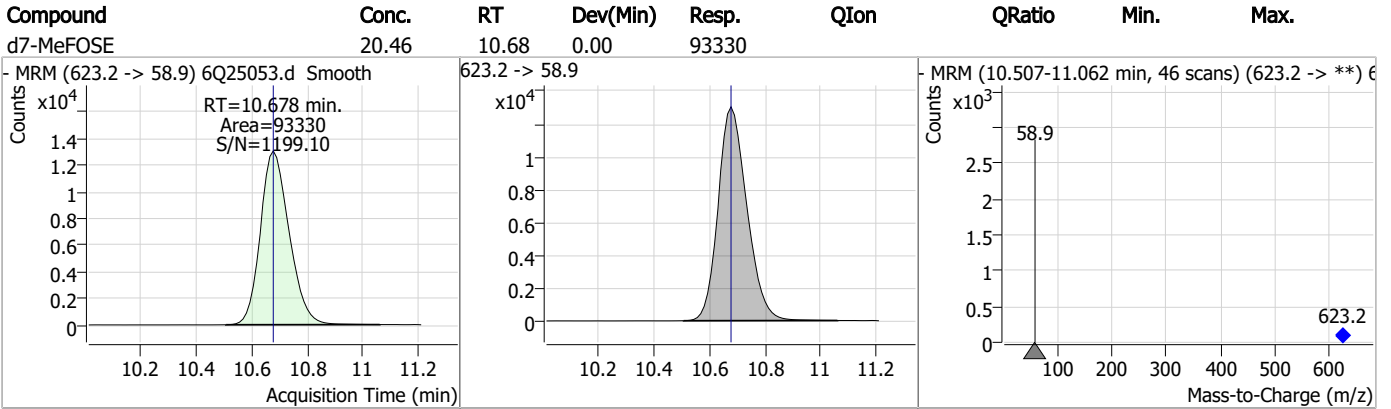


7.1.2
7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25054.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 11:04:51 PM
 Sample Name : FC9604-3
 Vial : P5-E8
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q357.batch.bin
 Sample Information : OP99174,S6Q357,490,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	177969	10.00 µg/L	0.037
M5-PFPeA	4.422	268.3 -> 223.0	73135	5.00 µg/L	0.012
M5-PFHxA	5.629	318.0 -> 273.0	65309	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	62833	2.50 µg/L	-0.012
M8-PFOA	7.198	421.1 -> 376.0	84308	2.50 µg/L	0.000
M9-PFNA	7.704	472.1 -> 427.0	35261	1.25 µg/L	-0.012
M6-PFDA	8.185	519.1 -> 474.1	34976	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	37365	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	34548	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	12724	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	25202	2.50 µg/L	0.012
M3-PFBS	5.559	302.1 -> 79.9	26469	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	17111	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	15958	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2833	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4236	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4177	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	34619	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	42674	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	26421	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	89536	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	108289	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	8706	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	7932	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	14191	2.50 µg/L	-0.013
13C3-PFBA	3.001	216.0 -> 172.0	77408	5.00 µg/L	0.025
18O2-PFHxS	7.300	403.0 -> 83.9	10179	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	99183	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	32717	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	36907	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	61163	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2833	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4236	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4177	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C2-PFDoDA	9.067	615.1 -> 570.0	34548	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.3%		
13C2-PFTeDA	9.772	715.2 -> 670.0	12724	0.96 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 76.8%		
13C3-PFBS	5.559	302.1 -> 79.9	26469	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C3-PFHxS	7.301	402.1 -> 79.9	17111	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 = 106.2%	
13C4-PFBA	3.010	216.8 -> 171.9	177969	9.51 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C4-PFHpA	6.556	367.1 -> 322.0	62833	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFHxA	5.629	318.0 -> 273.0	65309	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C5-PFPeA	4.422	268.3 -> 223.0	73135	5.05 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C6-PFDA	8.185	519.1 -> 474.1	34976	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C7-PFUnDA	8.639	570.0 -> 525.1	37365	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C8-FOSA	9.682	506.1 -> 77.8	25202	2.10 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.0%	
13C8-PFOA	7.198	421.1 -> 376.0	84308	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C8-PFOS	8.348	507.1 -> 79.9	15958	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C9-PFNA	7.704	472.1 -> 427.0	35261	1.19 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.1%	
d3-MeFOSAA	8.244	573.2 -> 419.0	34619	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	42674	9.26 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.6%	
d3-MeFOSA	10.757	515.0 -> 219.0	7932	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.9%	
d5-EtFOSAA	8.439	589.2 -> 419.0	26421	5.06 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d7-MeFOSE	10.678	623.2 -> 58.9	89536	21.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.1%	
d9-EtFOSE	10.911	639.2 -> 58.9	108289	20.91 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.6%	
d5-EtFOSA	10.989	531.1 -> 219.0	8706	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.7%	

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	9.018	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0	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	8.154	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	9.035	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

7.1.3
7

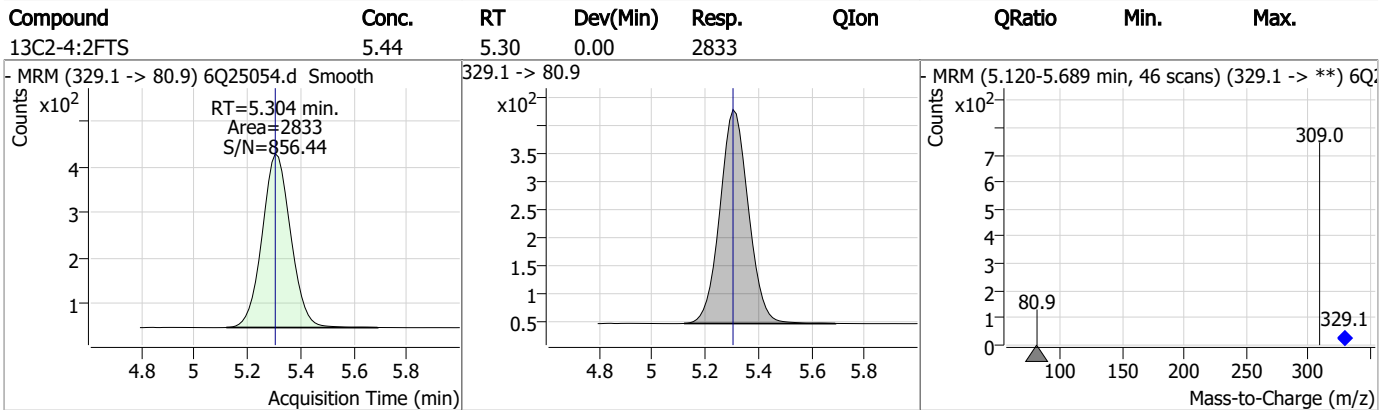
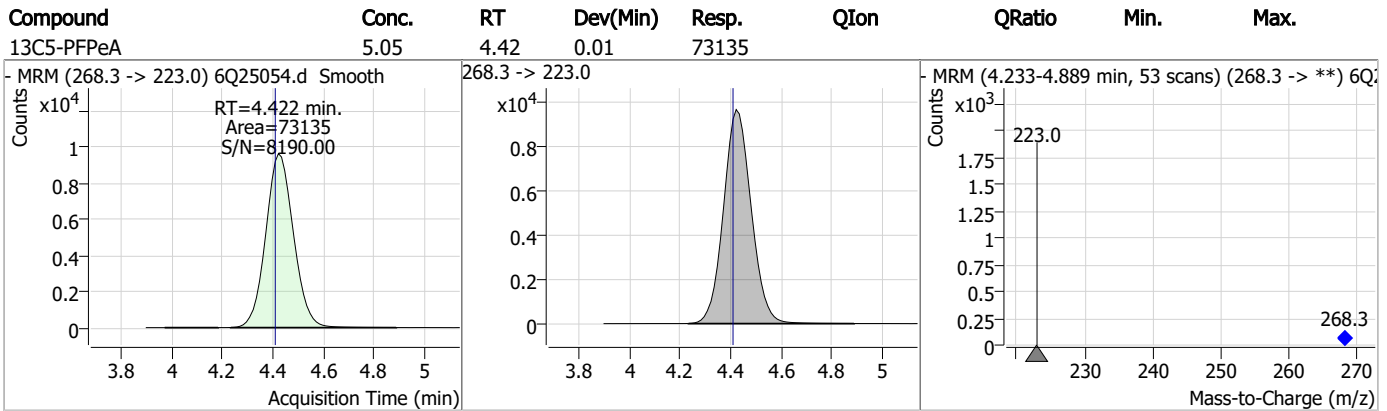
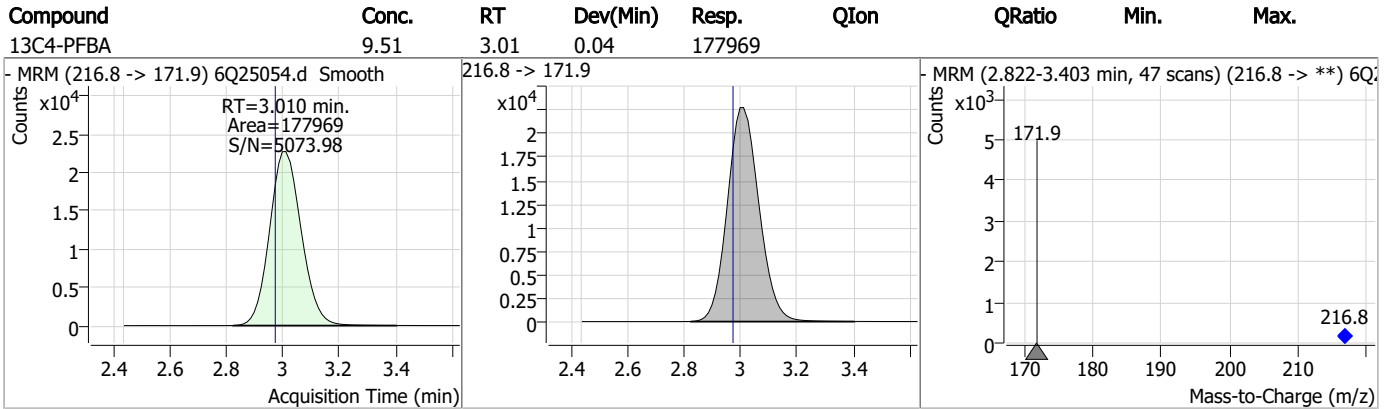
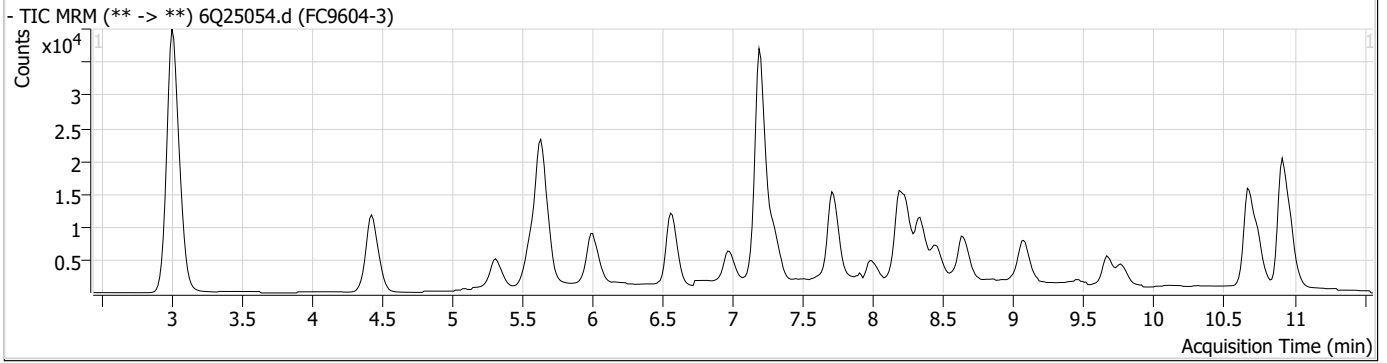
Perfluorinated Compounds by LC/MS/MS

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

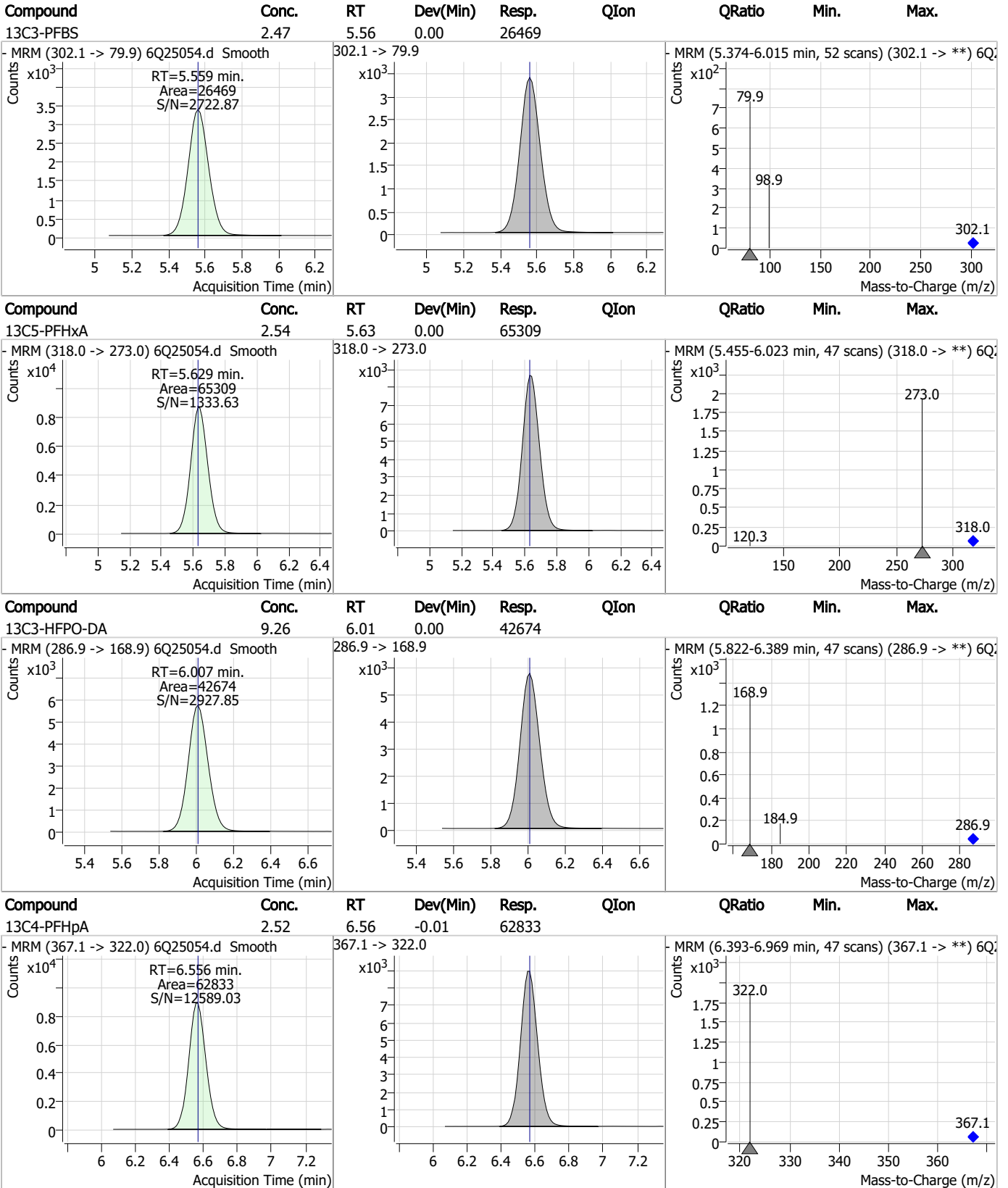
7.1.3
7



Perfluorinated Compounds by LC/MS/MS



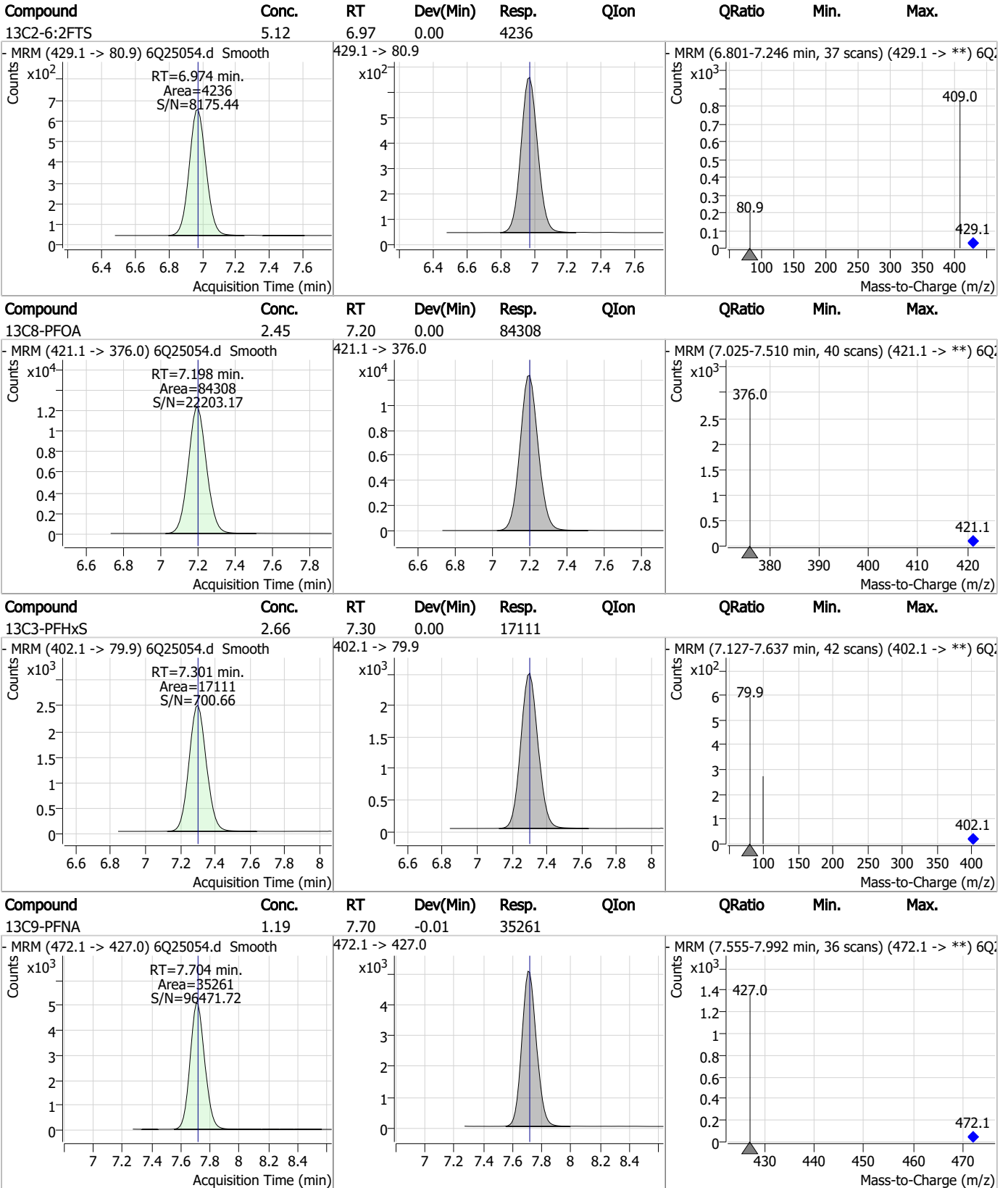
Perfluorinated Compounds by LC/MS/MS



7.1.3

7

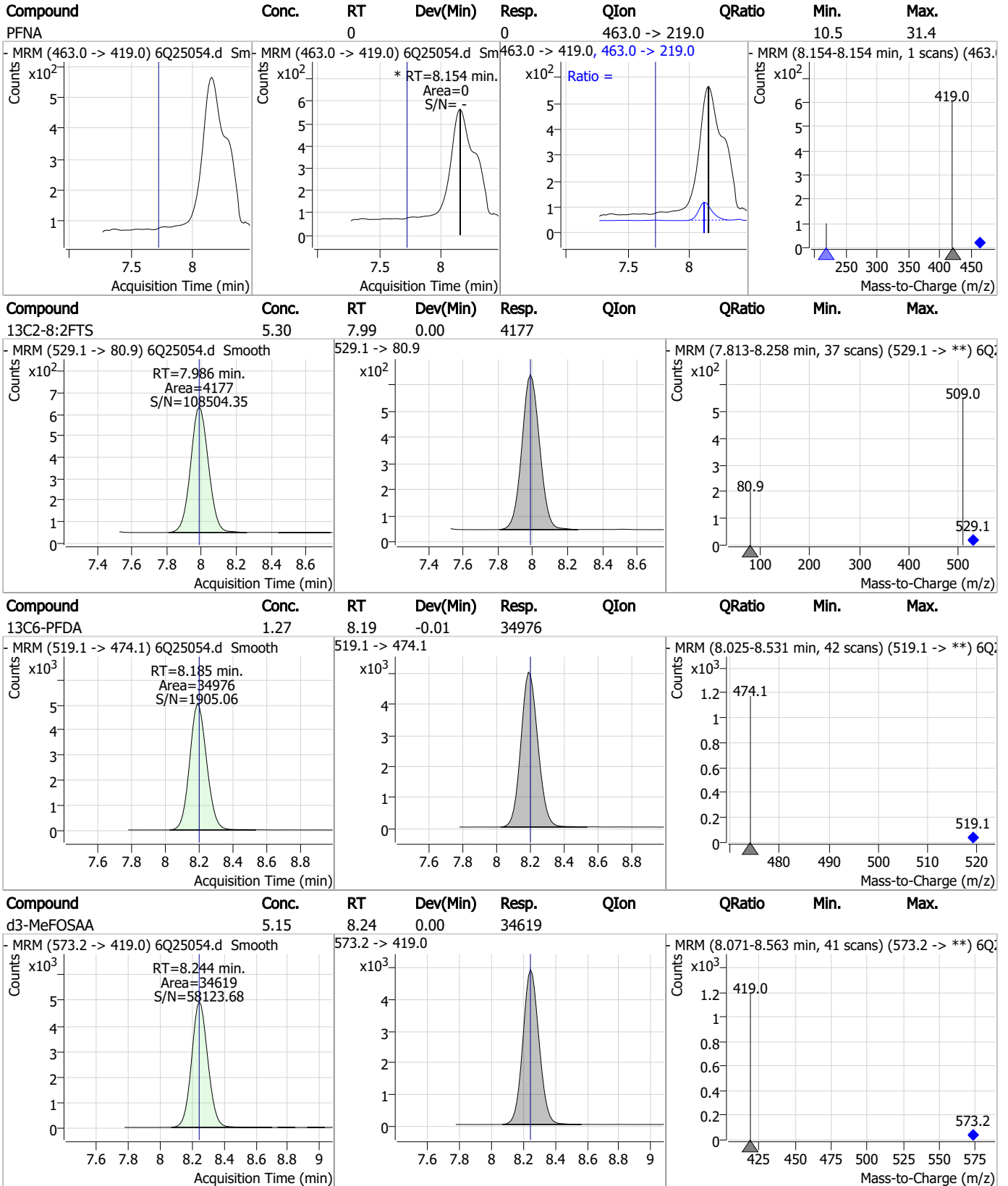
Perfluorinated Compounds by LC/MS/MS



7.1.3

7

Perfluorinated Compounds by LC/MS/MS

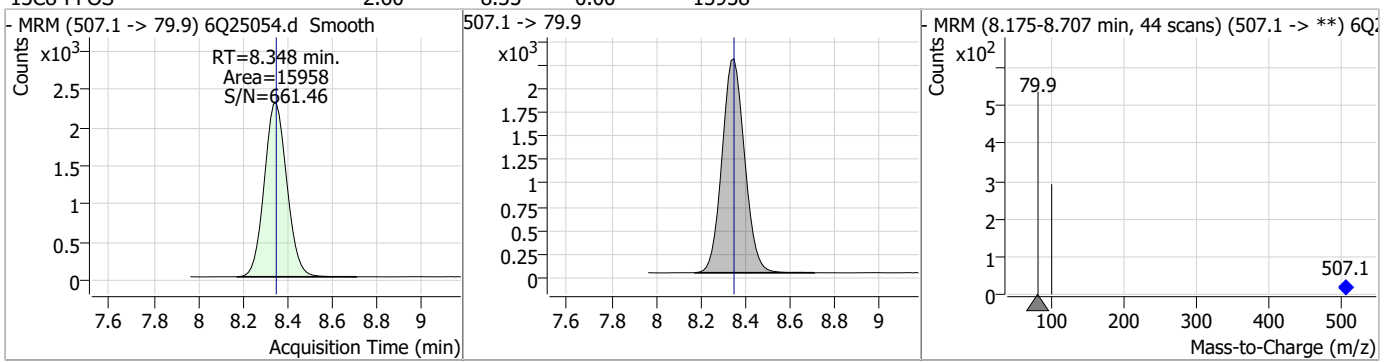


7.1.3

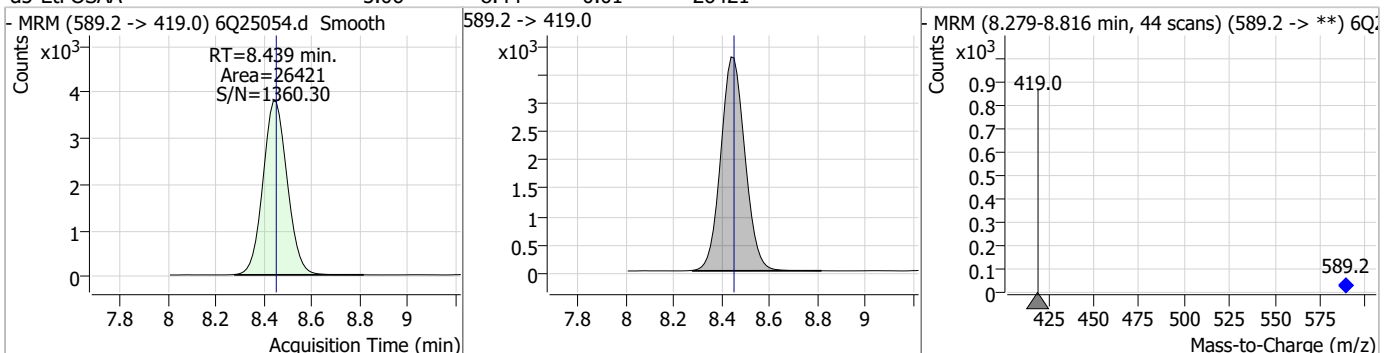
7

Perfluorinated Compounds by LC/MS/MS

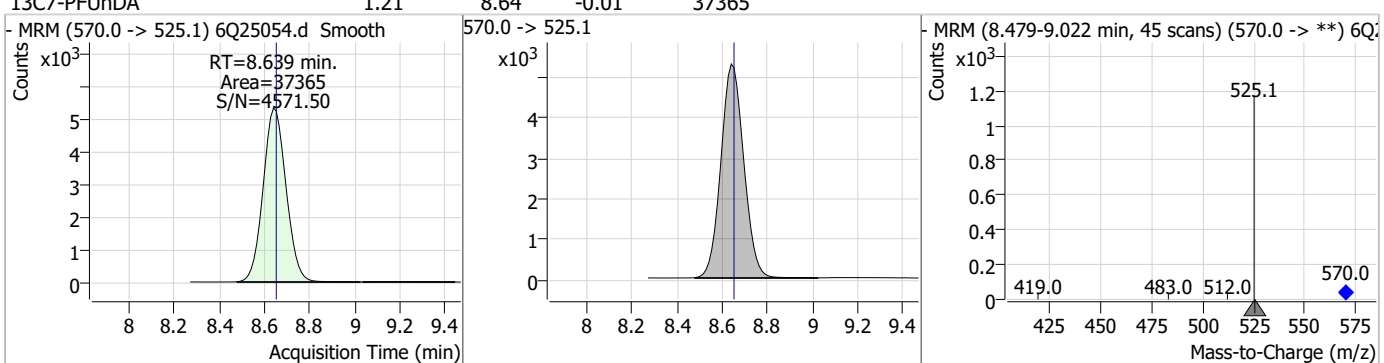
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



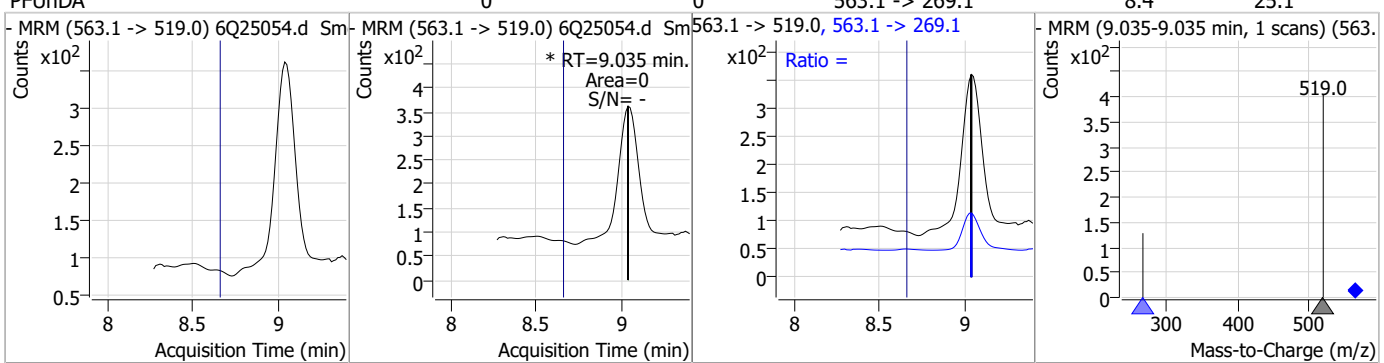
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



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

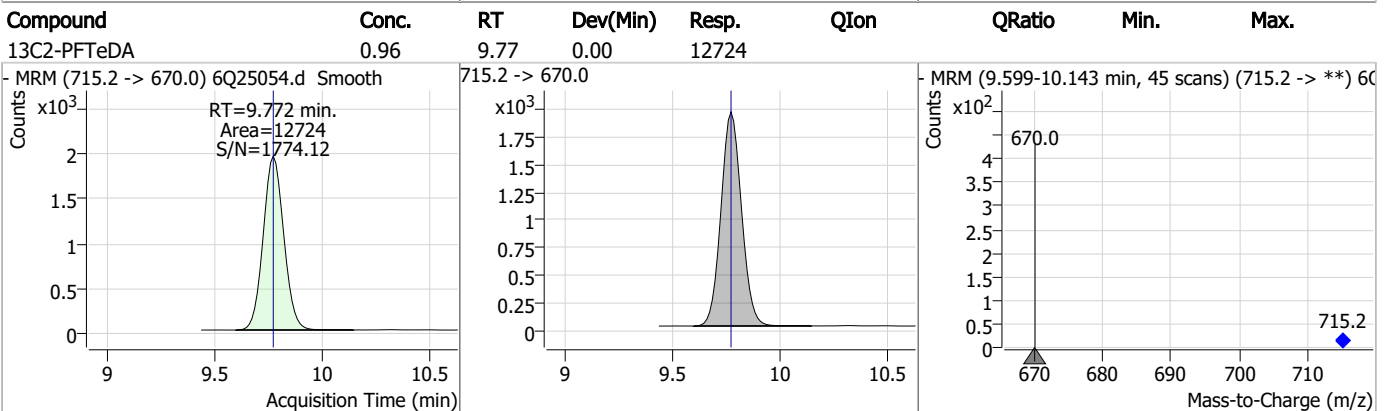
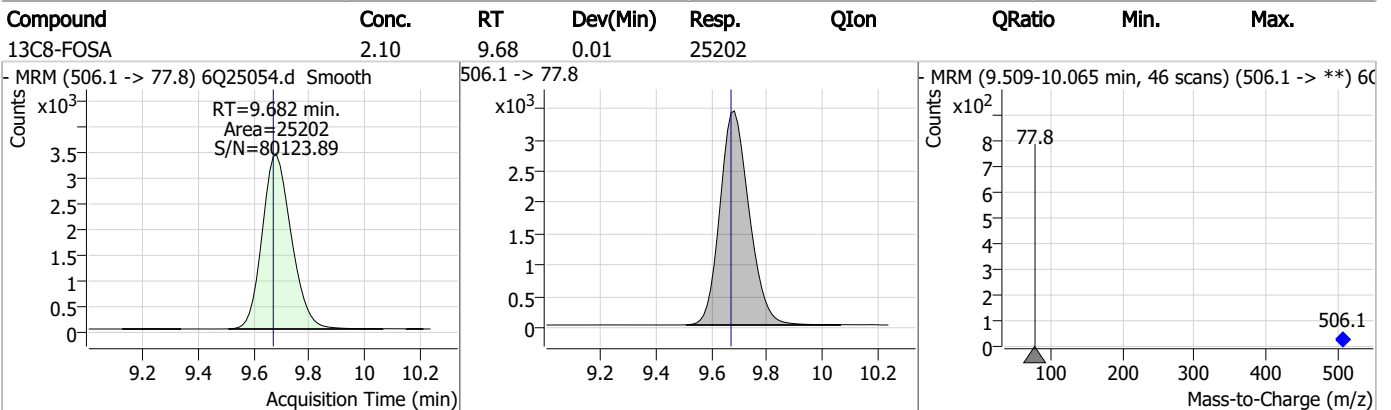
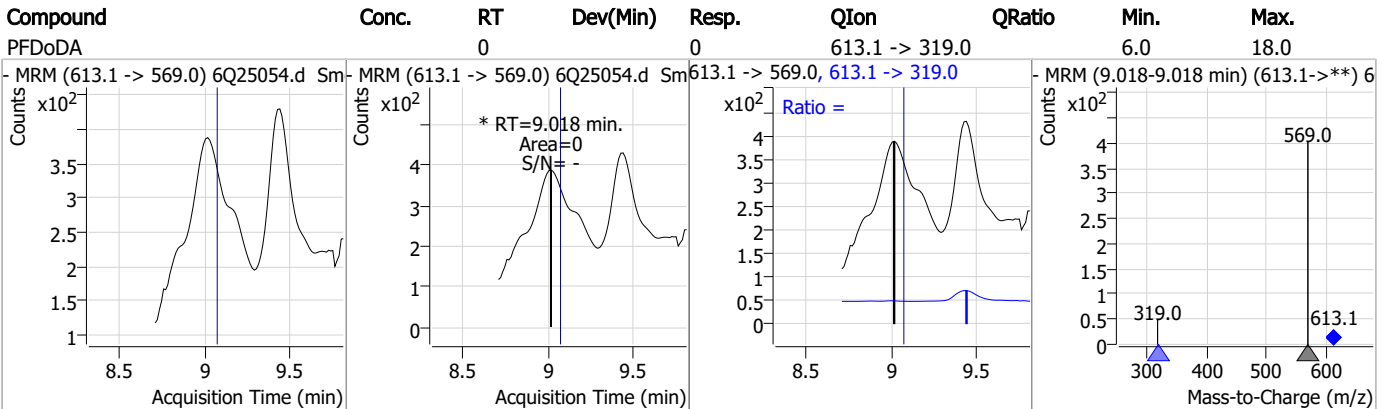
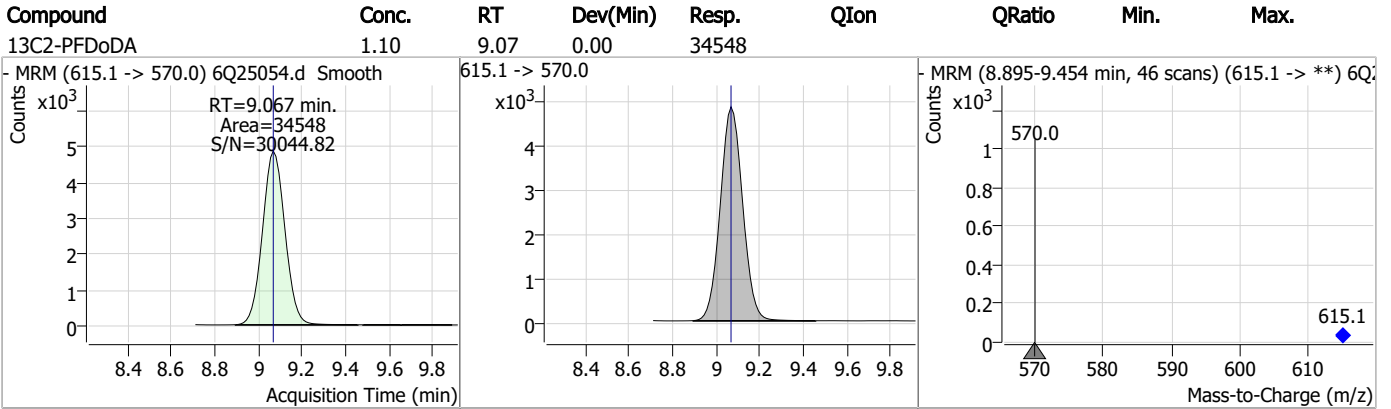


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------

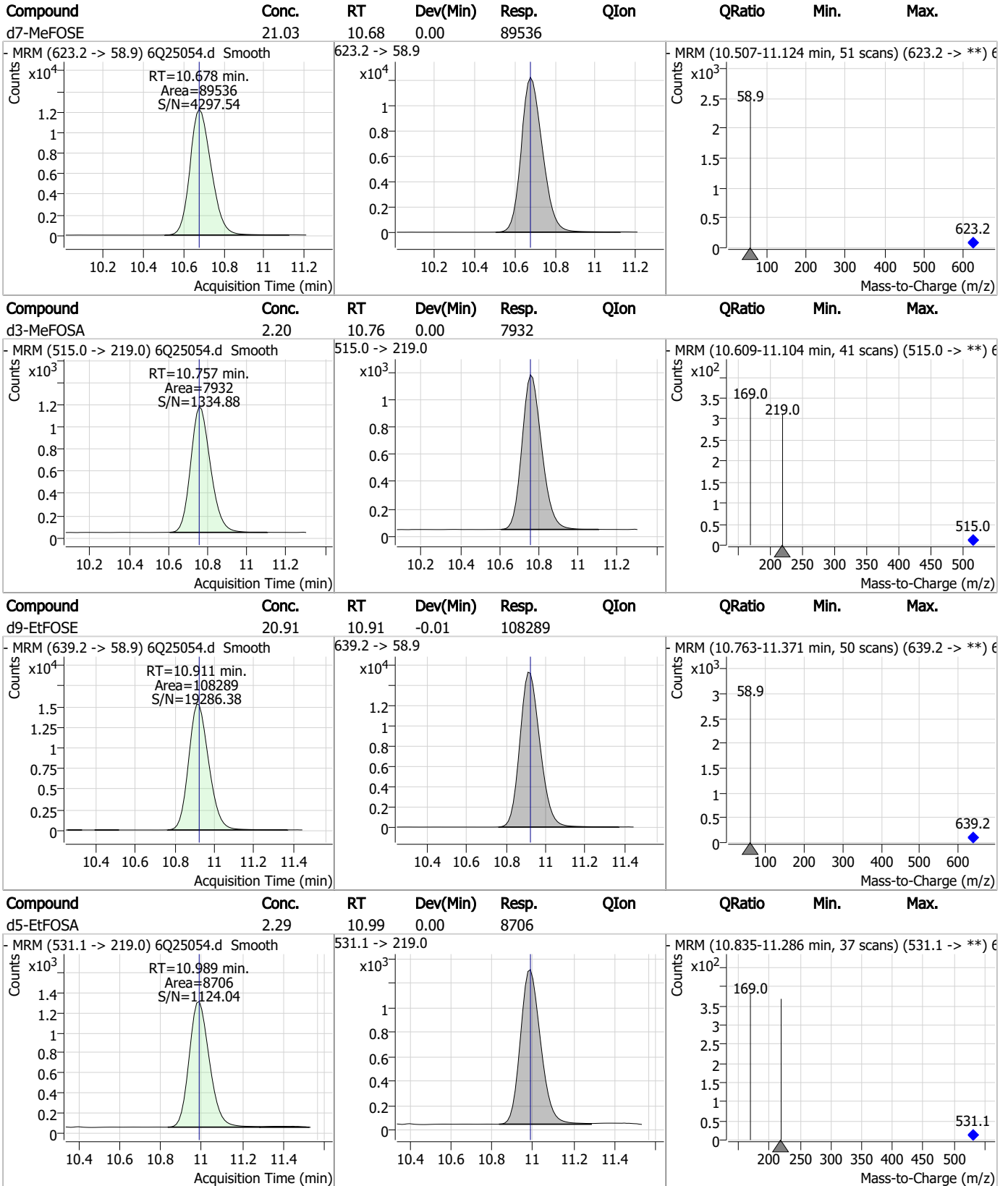


7.1.3
7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24830.d
Operator : marthav
Acq. Method : 1633full.m
Acq. Date-Time : 9/22/2023 1:08:06 AM
Sample Name : FC9604-4
Vial : P2-A7
DA Method File : 1633_092123_S6Q355.quantmethod.xml
Batch Name : s6q355.batch.bin
Sample Information : OP99077,S6Q355,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	240714	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	39635	5.00 µg/L	0.000
M5-PFHxA	5.654	318.0 -> 273.0	96343	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	75837	2.50 µg/L	0.012
M8-PFOA	7.198	421.1 -> 376.0	99987	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	41034	1.25 µg/L	0.012
M6-PFDA	8.198	519.1 -> 474.1	36262	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	44646	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	33765	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	12250	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	28040	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	29451	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	16267	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	14099	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	2959	5.00 µg/L	0.000
M2-6:2FTS	6.986	429.1 -> 80.9	4579	5.00 µg/L	0.012
M2-8:2FTS	7.998	529.1 -> 80.9	4604	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	24652	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	51989	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	19547	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	81308	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	112161	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	8295	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	8866	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	20245	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	95438	5.00 µg/L	0.012
18O2-PFHxS	7.313	403.0 -> 83.9	11501	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	112536	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	33796	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	45732	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	66596	2.50 µg/L	0.000

System Monitoring Compounds

13C2-4:2FTS	5.317	329.1 -> 80.9	2959	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-6:2FTS	6.986	429.1 -> 80.9	4579	5.41 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4604	5.33 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C2-PFDoDA	9.080	615.1 -> 570.0	33765	0.99 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.9%		
13C2-PFTeDA	9.784	715.2 -> 670.0	12250	0.90 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 71.6%		
13C3-PFBS	5.571	302.1 -> 79.9	29451	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C3-PFHxS	7.313	402.1 -> 79.9	16267	2.61 µg/L	0.000

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 = 104.5%	
13C4-PFBA	3.010	216.8 -> 171.9	240714	10.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFHpA	6.581	367.1 -> 322.0	75837	2.65 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C5-PFHxA	5.654	318.0 -> 273.0	96343	2.75 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.9%	
13C5-PFPeA	4.434	268.3 -> 223.0	39635	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C6-PFDA	8.198	519.1 -> 474.1	36262	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C7-PFUnDA	8.651	570.0 -> 525.1	44646	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-FOSA	9.682	506.1 -> 77.8	28040	2.11 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.4%	
13C8-PFOA	7.198	421.1 -> 376.0	99987	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C8-PFOS	8.348	507.1 -> 79.9	14099	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C9-PFNA	7.729	472.1 -> 427.0	41034	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSAA	8.256	573.2 -> 419.0	24652	4.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.2%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	51989	10.53 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d3-MeFOSA	10.757	515.0 -> 219.0	8866	1.84 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 73.7%	
d5-EtFOSAA	8.452	589.2 -> 419.0	19547	4.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.8%	
d7-MeFOSE	10.678	623.2 -> 58.9	81308	18.82 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.3%	
d9-EtFOSE	10.923	639.2 -> 58.9	112161	19.78 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.1%	
d5-EtFOSA	10.989	531.1 -> 219.0	8295	1.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.0%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	3.219	212.8 -> 168.9	0	µg/L m	1
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.	

7.14
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	5.210	449.0 -> 98.9	0	µg/L	m	1
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	0	N.D.		
		398.7 -> 79.9				
PFNA	8.178	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	4.449	498.9 -> 98.8	5051	0.26 µg/L	m	100
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.1.4
7

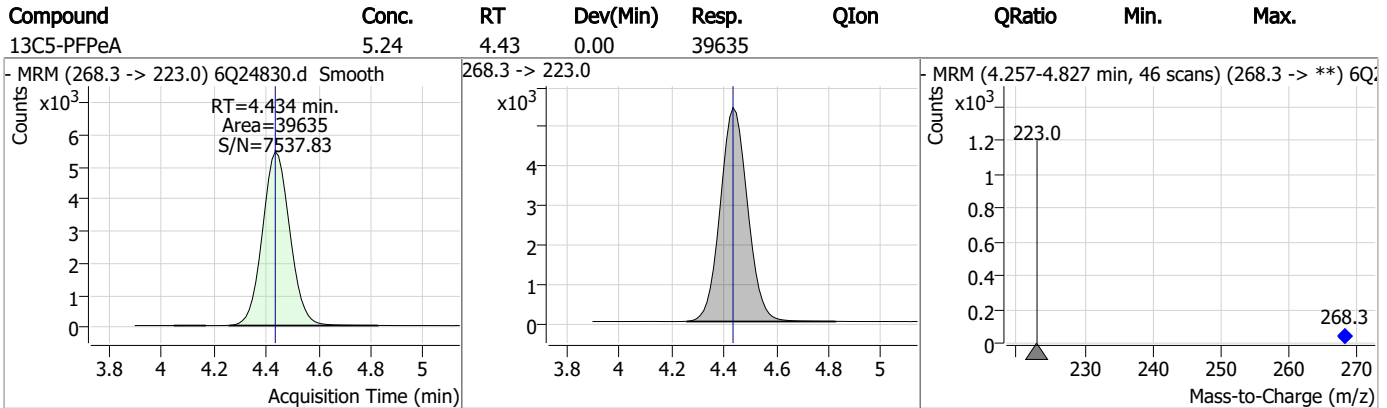
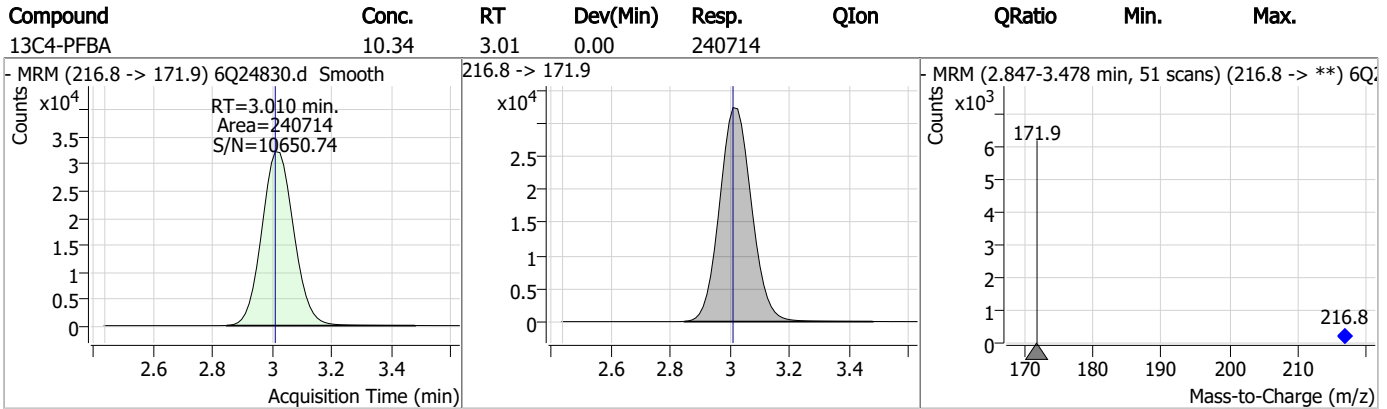
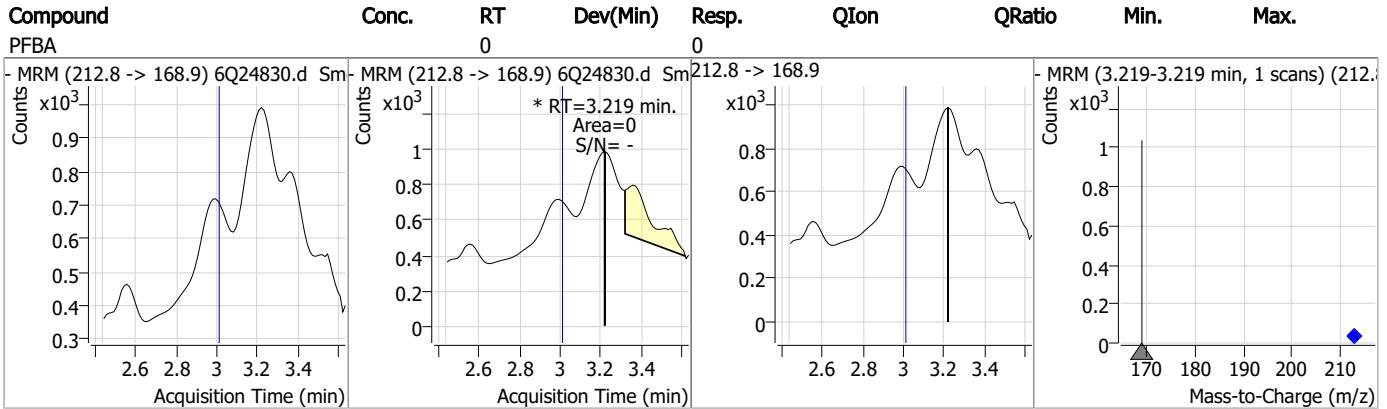
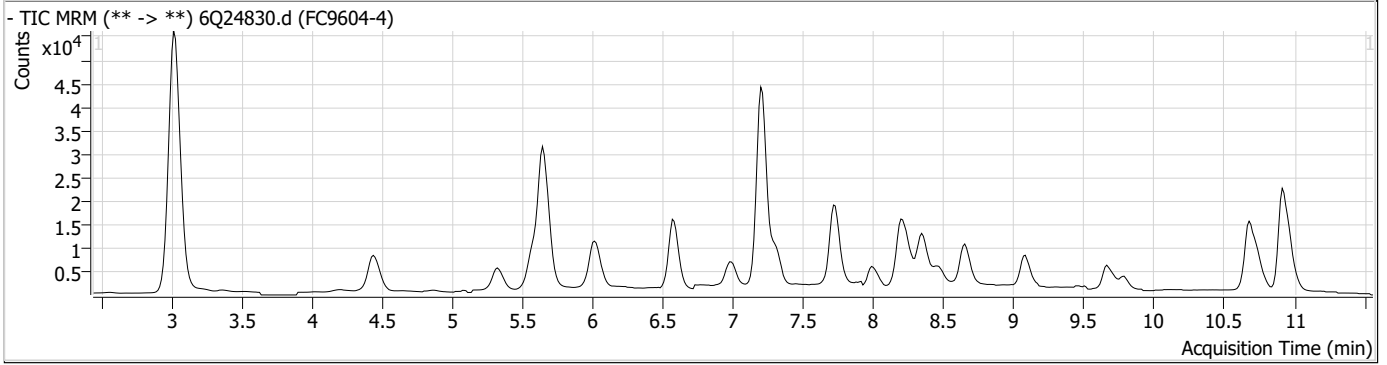
Perfluorinated Compounds by LC/MS/MS

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

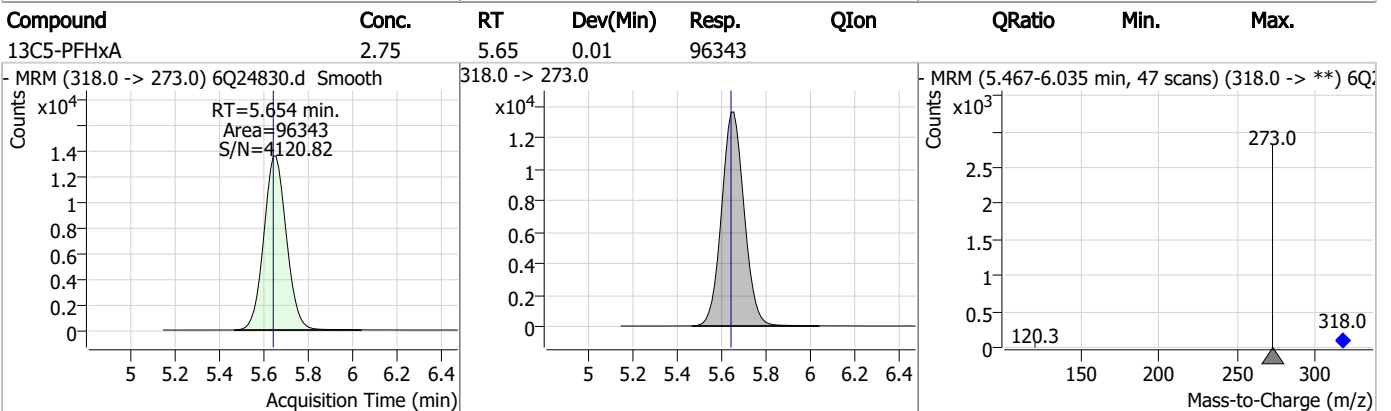
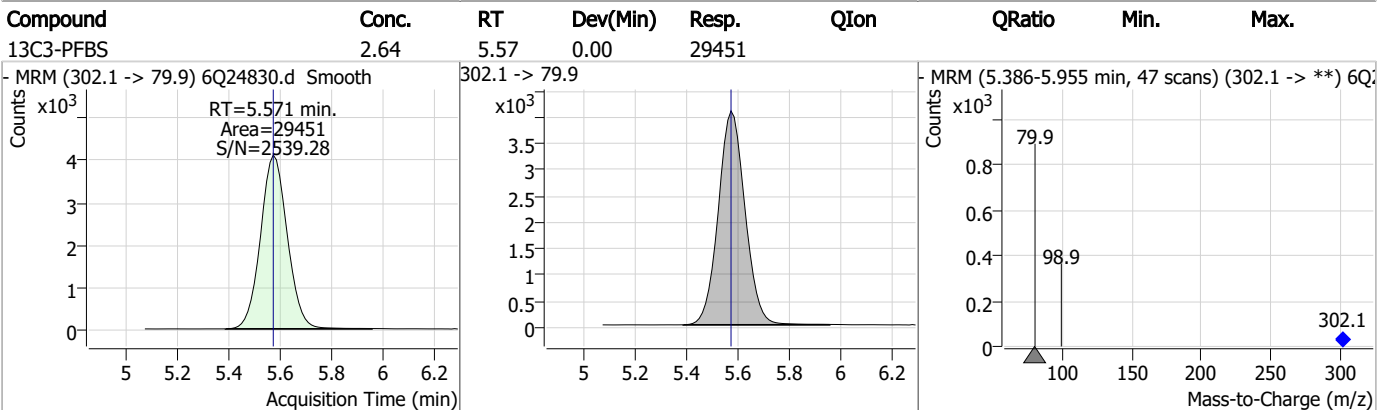
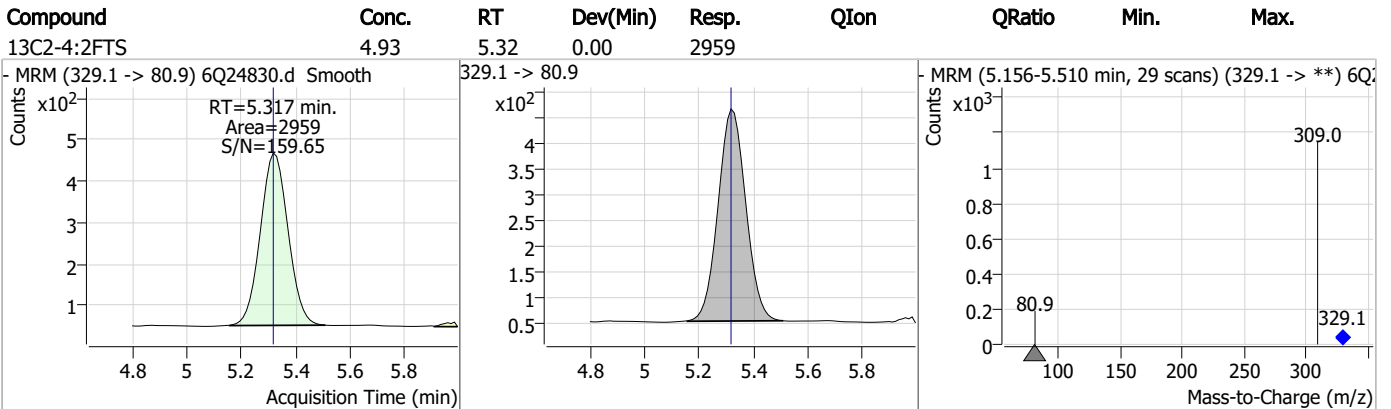
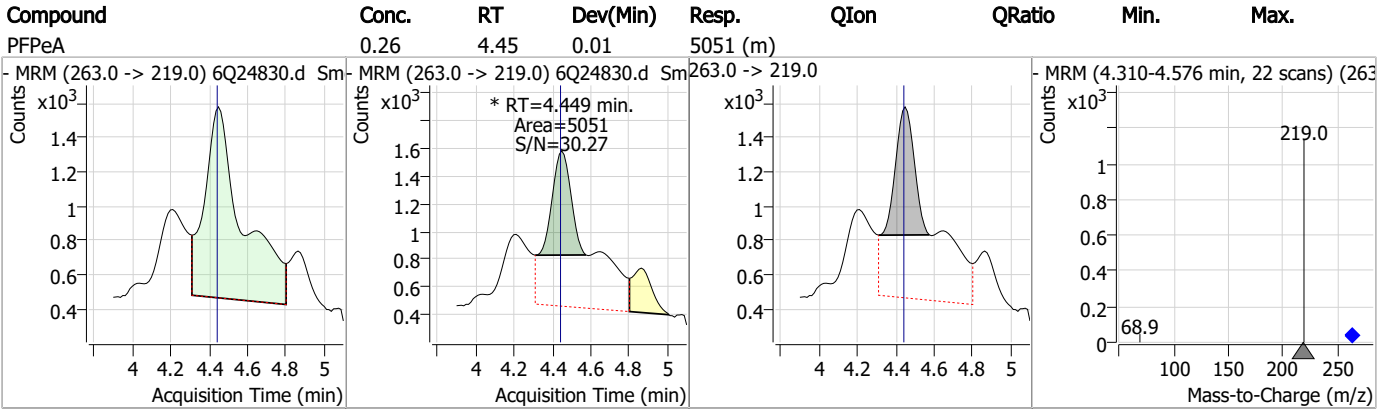
7.1.4
7



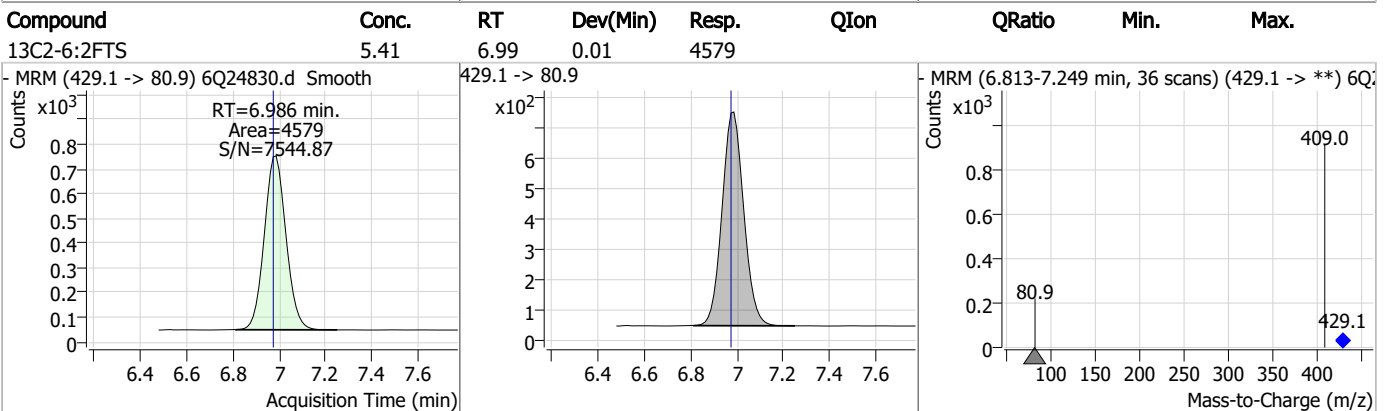
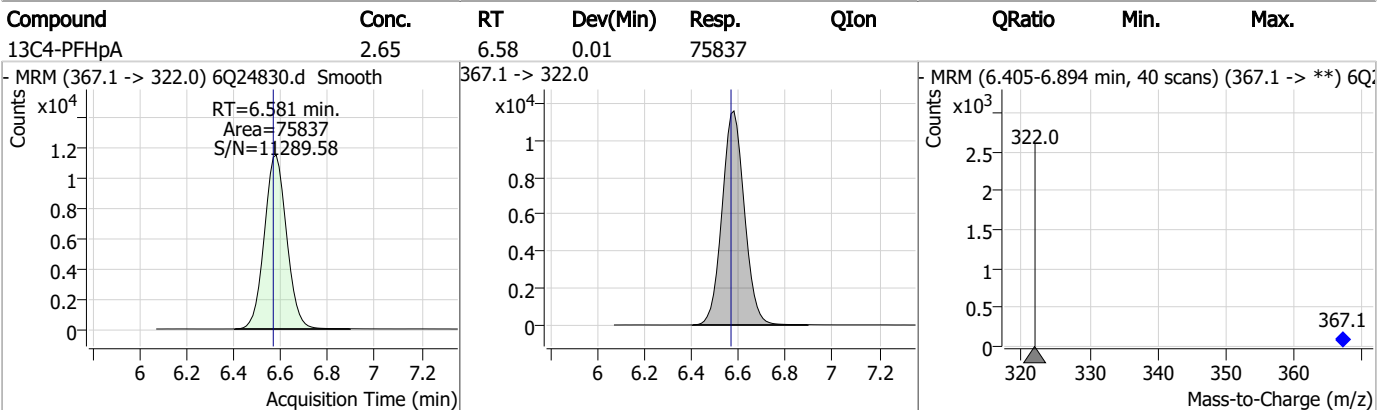
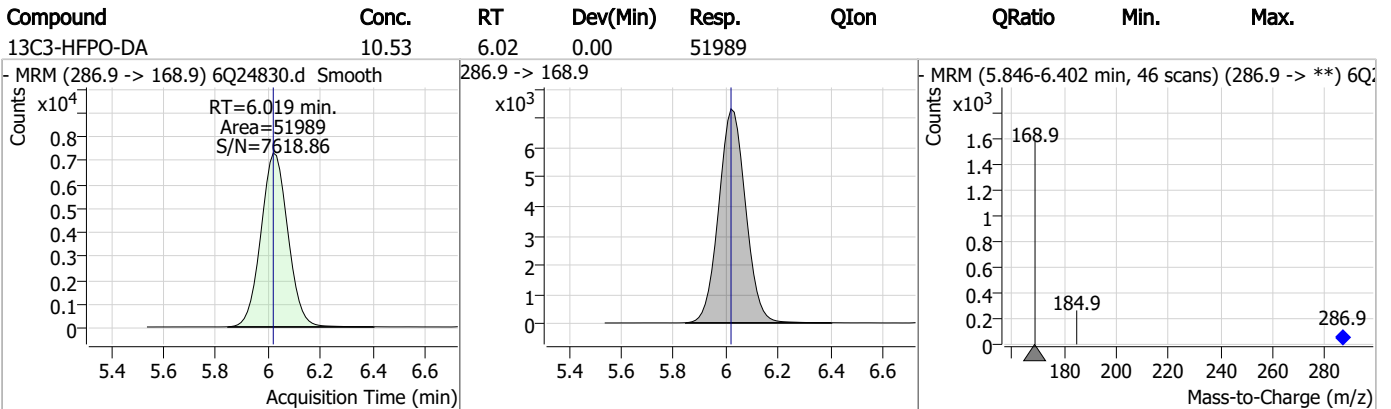
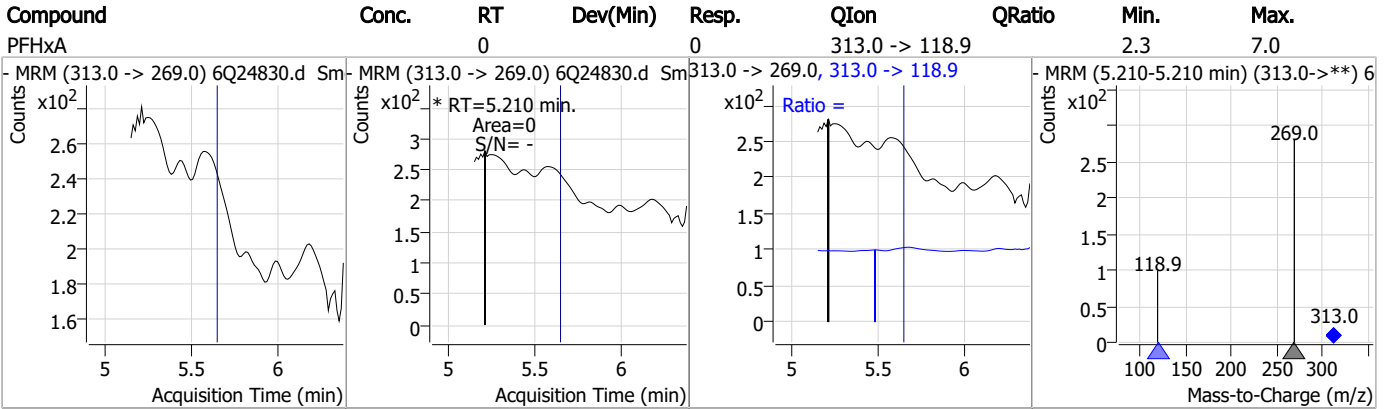
Perfluorinated Compounds by LC/MS/MS



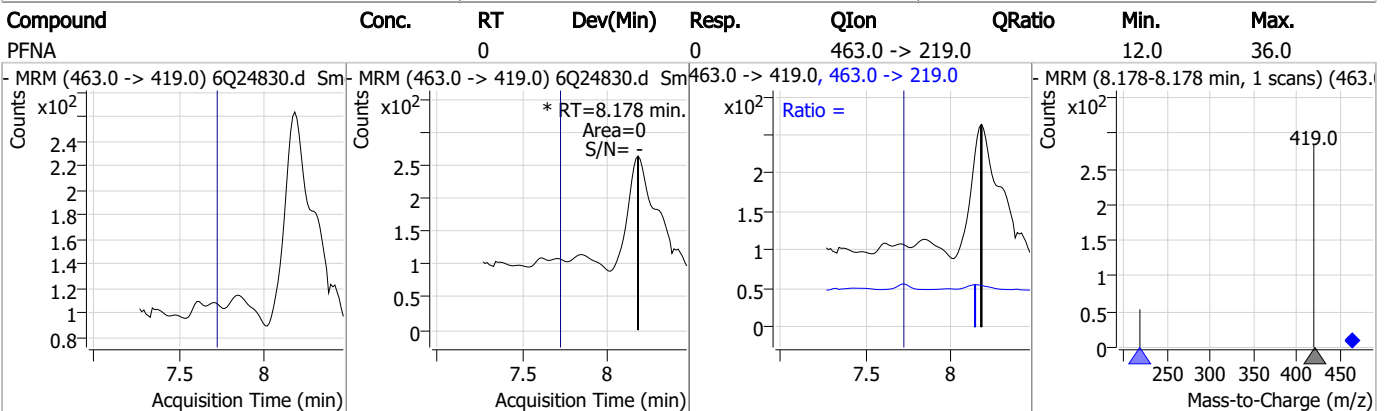
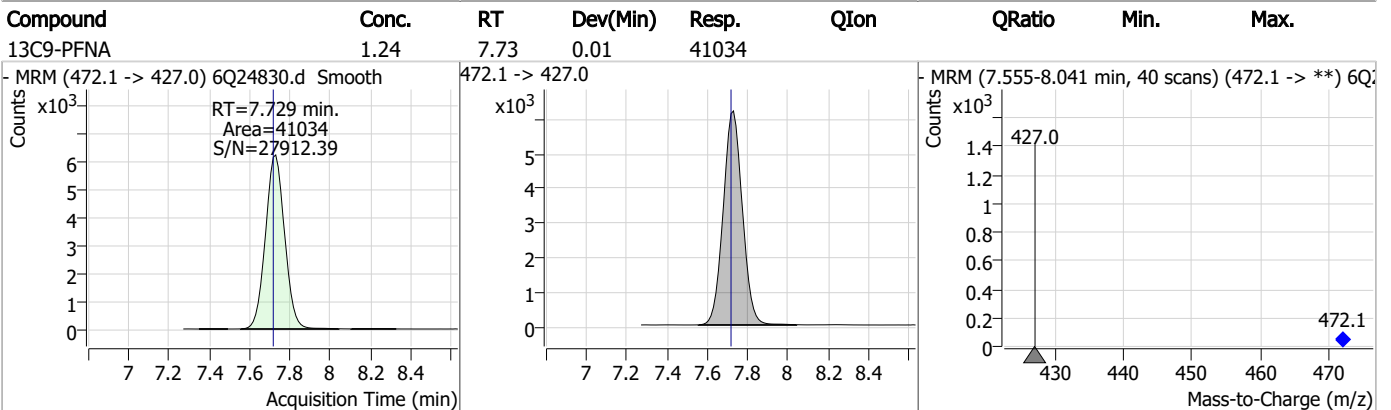
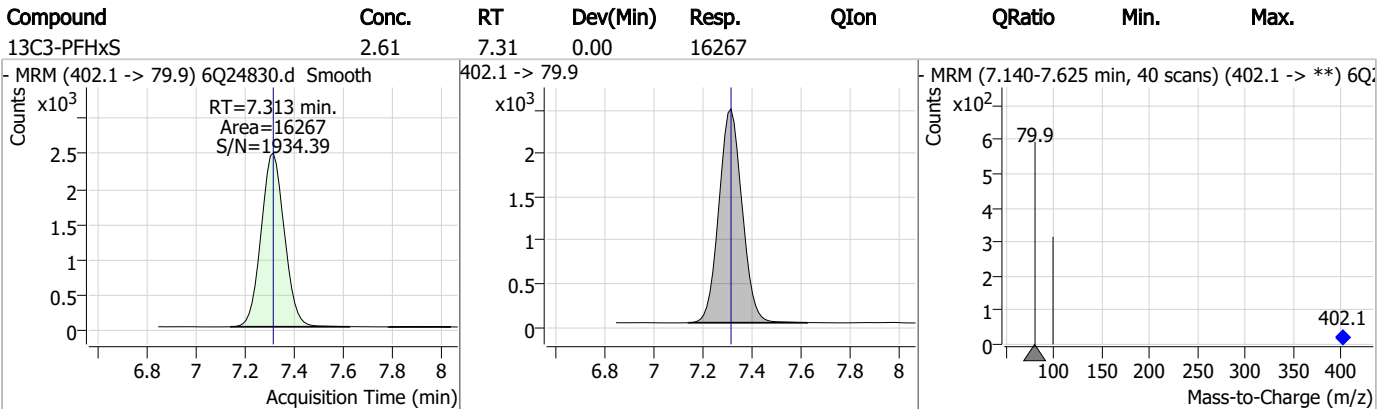
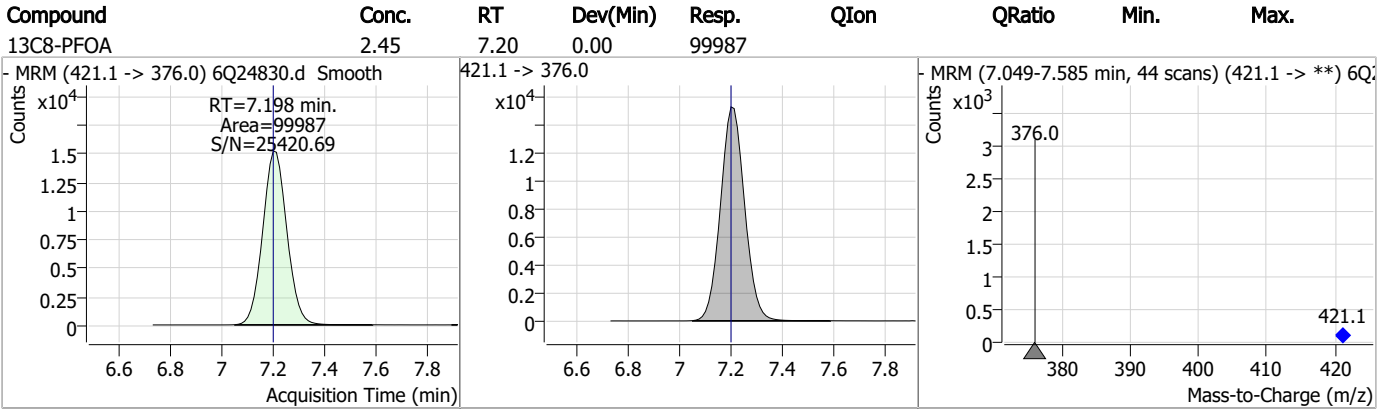
Perfluorinated Compounds by LC/MS/MS



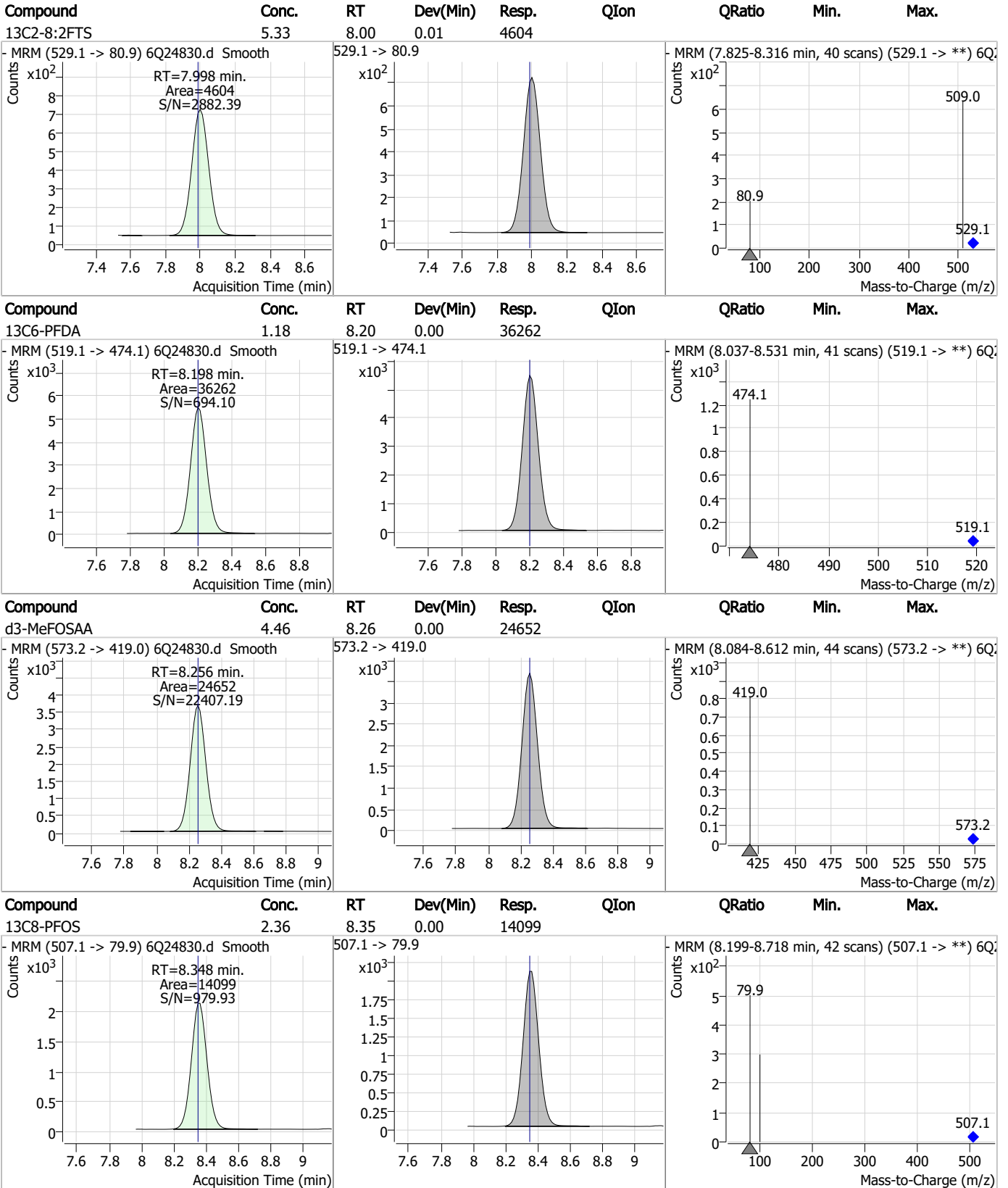
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



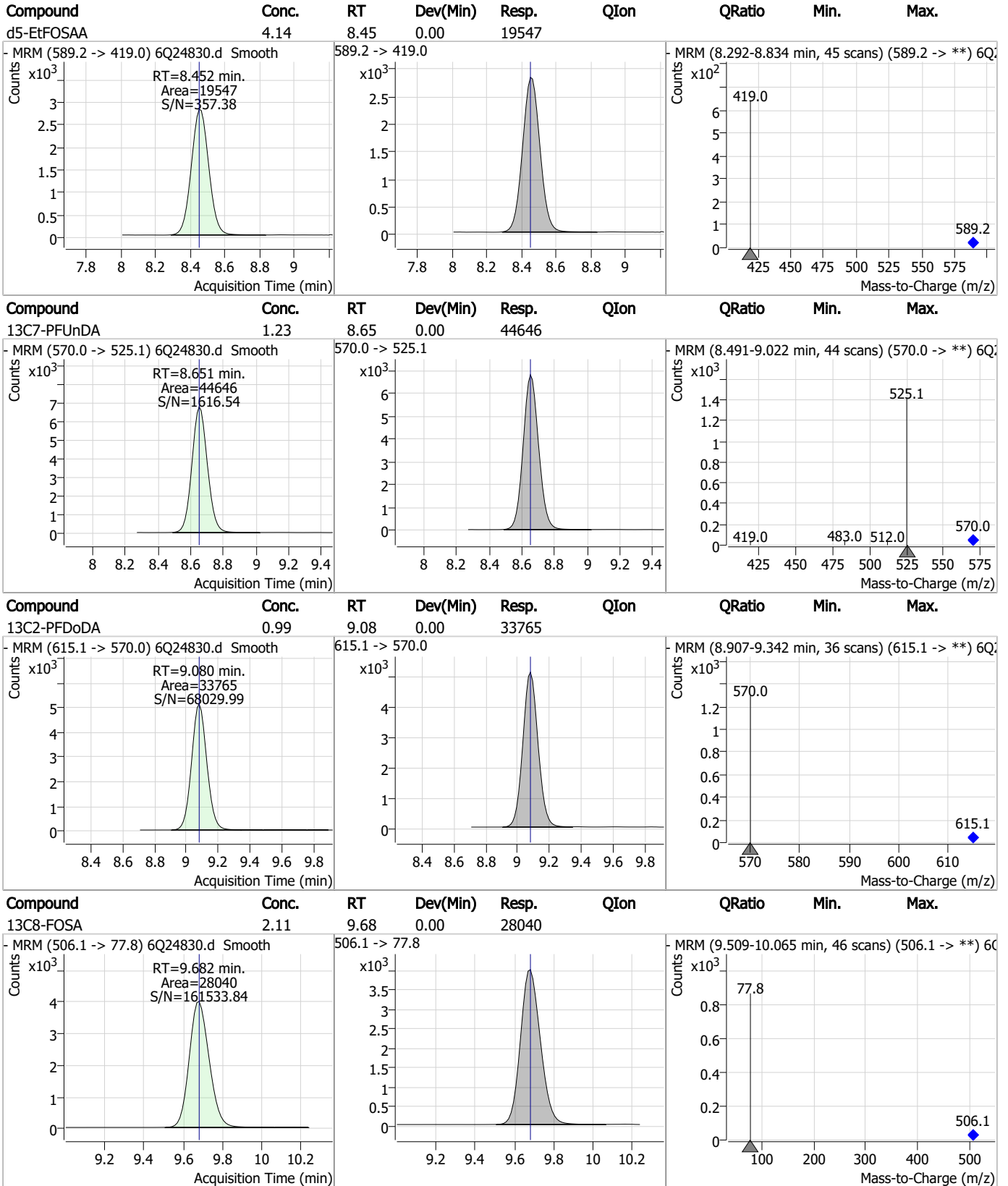
Perfluorinated Compounds by LC/MS/MS



7.1.4

7

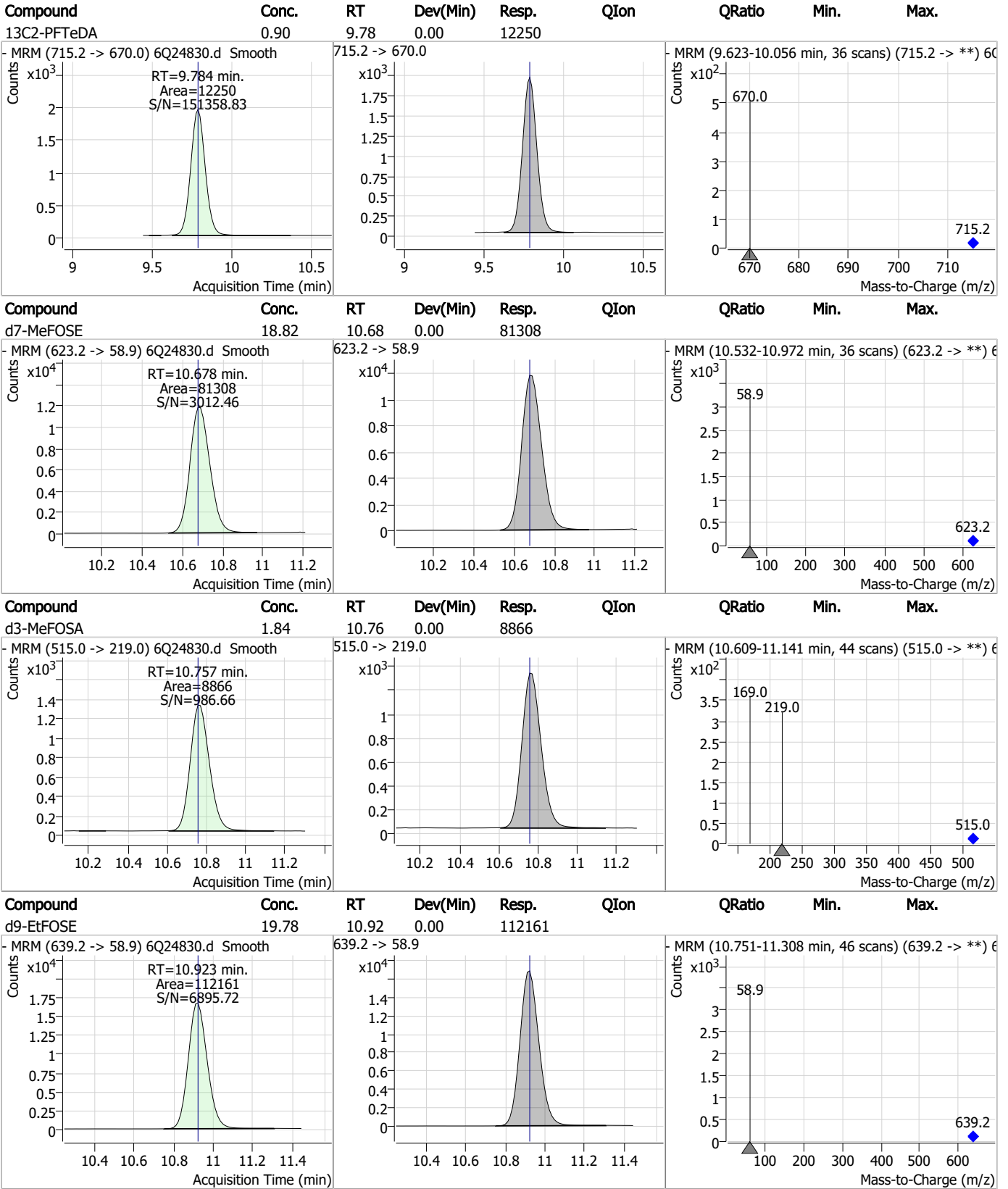
Perfluorinated Compounds by LC/MS/MS



7.1.4

7

Perfluorinated Compounds by LC/MS/MS



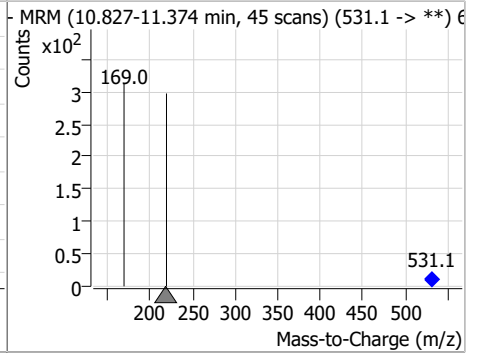
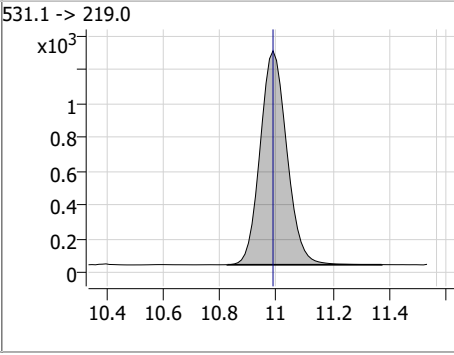
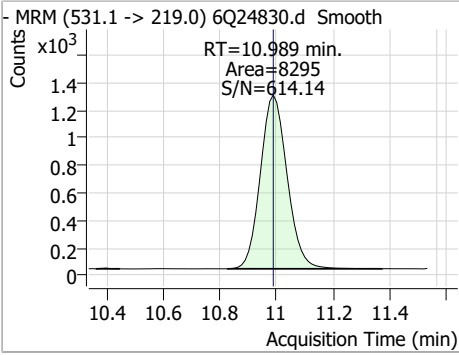
7.1.4

7



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.85	10.99	0.00	8295				



7.1.4
7

Manual Integration Approval Summary

Sample Number: FC9604-4 Method: EPA DRAFT 1633
Lab FileID: 6Q24830.D Analyst approved: 09/22/23 11:10 Anna Ludwig
Injection Time: 09/22/23 01:08 Supervisor approved: 09/22/23 13:19 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoropentanoic acid	2706-90-3		4.45	Poor instrument integration

7.1.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24831.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/22/2023 1:22:26 AM
 Sample Name : FC9604-5
 Vial : P2-A8
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99077,S6Q355,520,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	251967	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	39234	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	89273	2.50 µg/L	0.000
M4-PFHpA	6.581	367.1 -> 322.0	77250	2.50 µg/L	0.012
M8-PFOA	7.198	421.1 -> 376.0	98265	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	40322	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	36515	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	48671	1.25 µg/L	0.000
M2-PFDoDA	9.079	615.1 -> 570.0	43296	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	13628	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	26919	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	29395	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	15982	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	14782	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	3372	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4931	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4481	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	27204	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	49924	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	23050	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	87219	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	119946	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	10270	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	9743	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	21522	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	100581	5.00 µg/L	0.012
18O2-PFHxS	7.313	403.0 -> 83.9	11564	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	109309	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	32327	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	44800	1.25 µg/L	0.012
13C2-PFHxA	5.642	315.1 -> 270.0	70578	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	3372	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4931	5.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.9%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4481	5.16 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C2-PFDoDA	9.079	615.1 -> 570.0	43296	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C2-PFTeDA	9.784	715.2 -> 670.0	13628	1.04 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 83.3%		
13C3-PFBS	5.571	302.1 -> 79.9	29395	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C3-PFHxS	7.313	402.1 -> 79.9	15982	2.55 µg/L	0.000

7.15
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C4-PFBA	3.010	216.8 -> 171.9	251967	10.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C4-PFHpA	6.581	367.1 -> 322.0	77250	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFHxA	5.641	318.0 -> 273.0	89273	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C5-PFPeA	4.434	268.3 -> 223.0	39234	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C6-PFDA	8.198	519.1 -> 474.1	36515	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C7-PFUnDA	8.651	570.0 -> 525.1	48671	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.0%	
13C8-FOSA	9.682	506.1 -> 77.8	26919	1.90 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.2%	
13C8-PFOA	7.198	421.1 -> 376.0	98265	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C8-PFOS	8.348	507.1 -> 79.9	14782	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C9-PFNA	7.717	472.1 -> 427.0	40322	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
d3-MeFOSAA	8.256	573.2 -> 419.0	27204	4.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.6%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	49924	9.54 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.4%	
d3-MeFOSA	10.769	515.0 -> 219.0	9743	1.90 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.2%	
d5-EtFOSAA	8.452	589.2 -> 419.0	23050	4.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
d7-MeFOSE	10.678	623.2 -> 58.9	87219	18.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.0%	
d9-EtFOSE	10.923	639.2 -> 58.9	119946	19.90 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.6%	
d5-EtFOSA	10.989	531.1 -> 219.0	10270	2.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.2%	

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	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	9.018	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0	0		
PFDS	-	599.0 -> 79.9	-	N.D.	



7.15
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	8.191	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	-	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

7.1.5
7

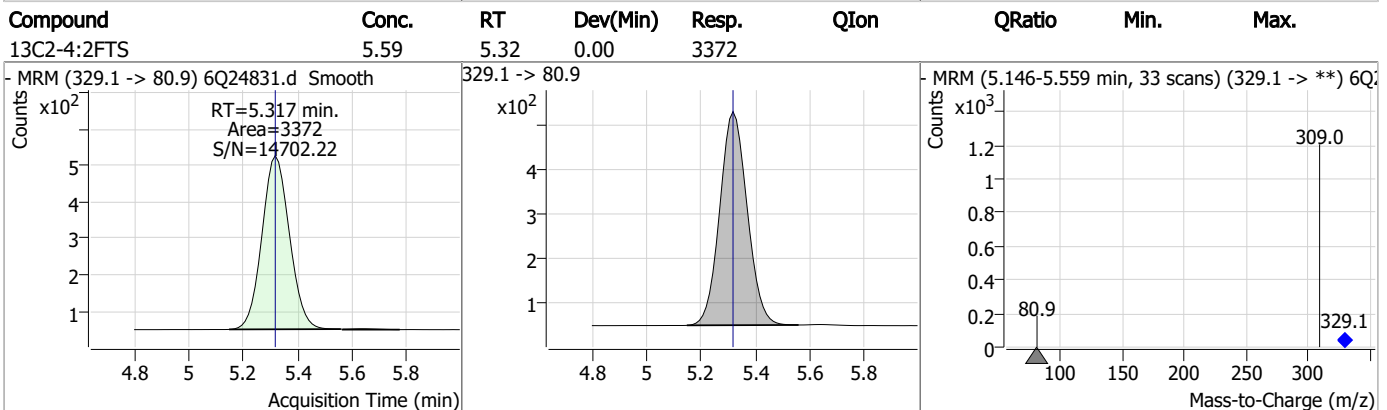
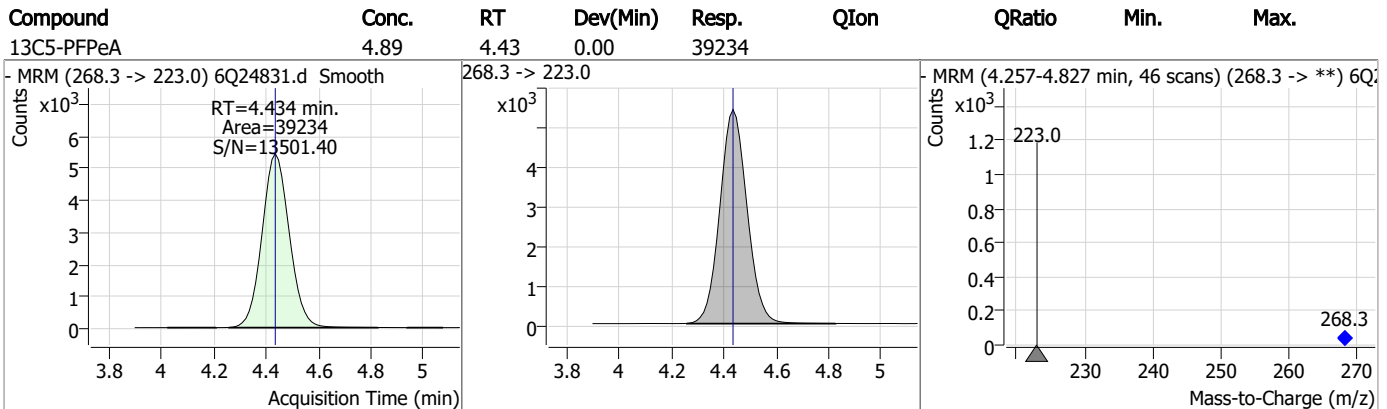
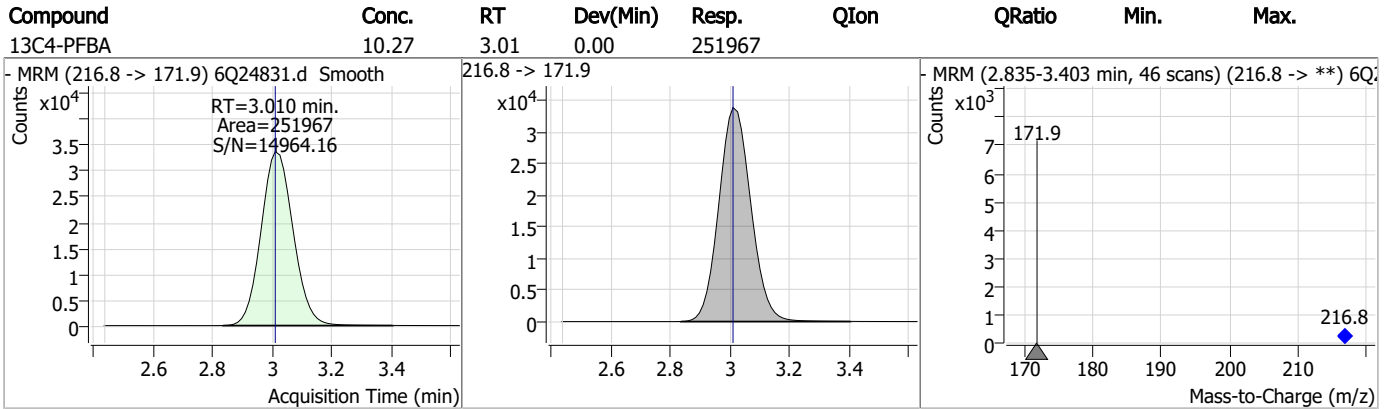
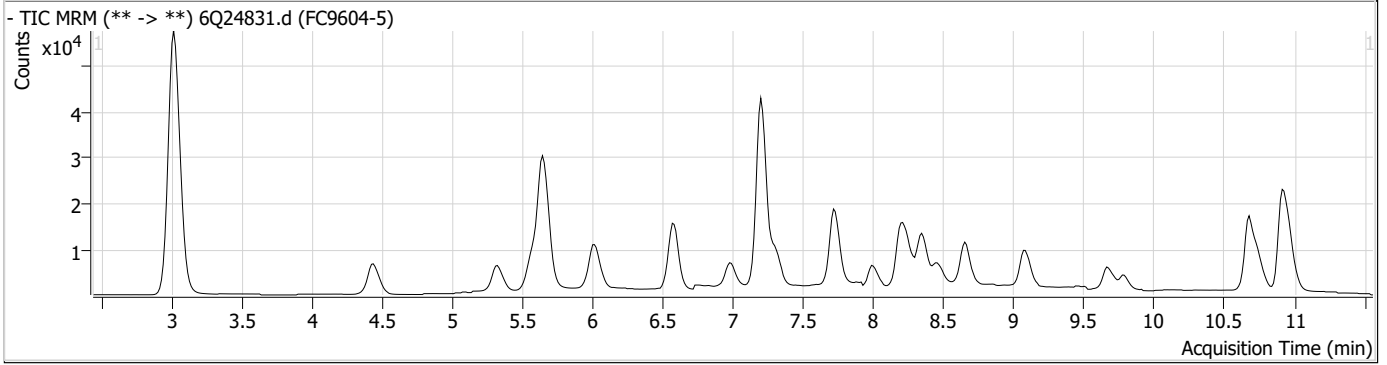
Perfluorinated Compounds by LC/MS/MS

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

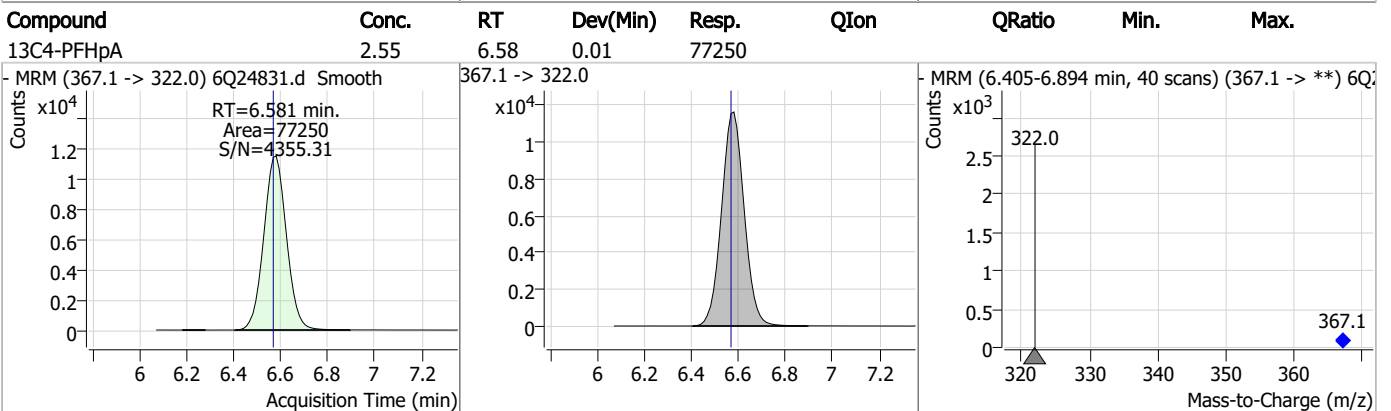
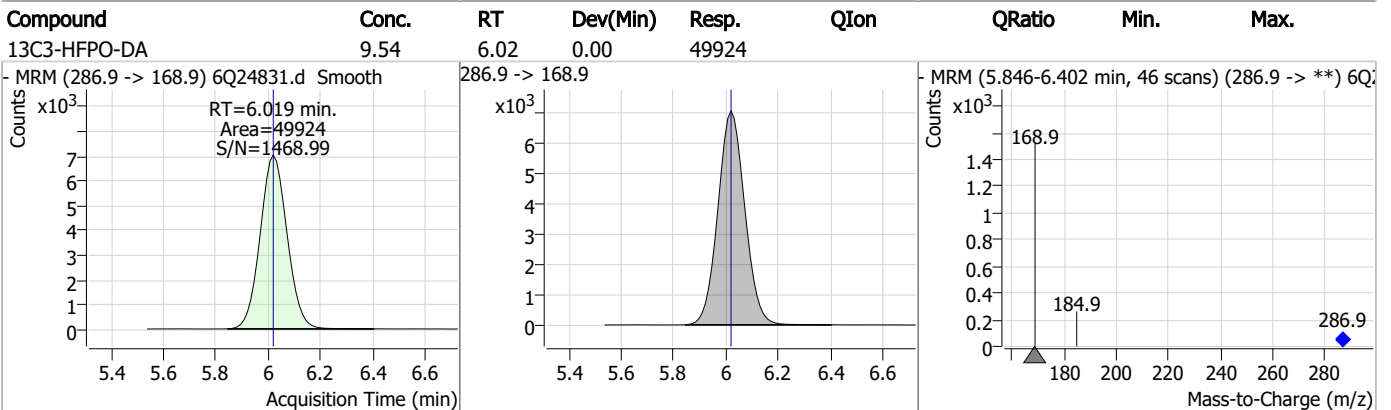
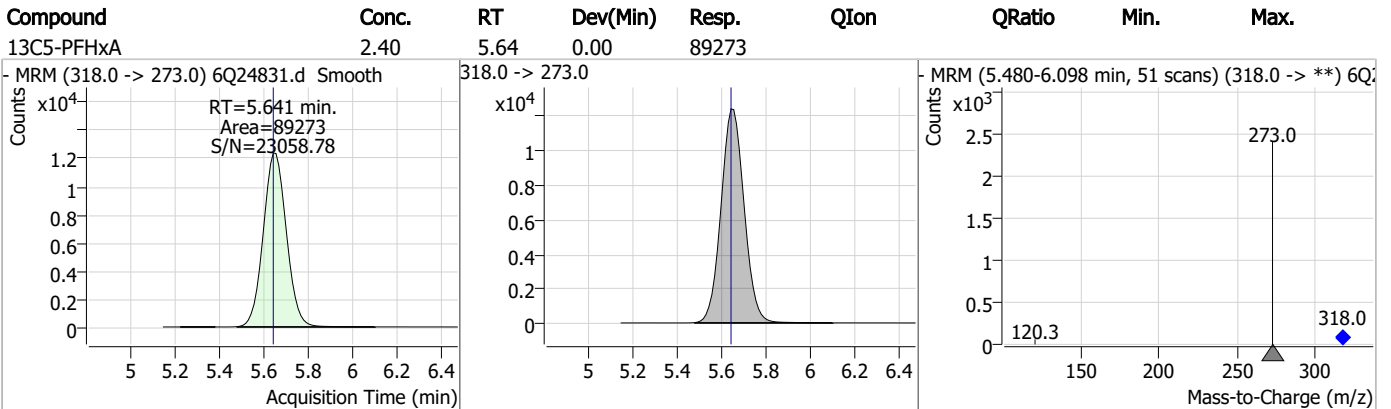
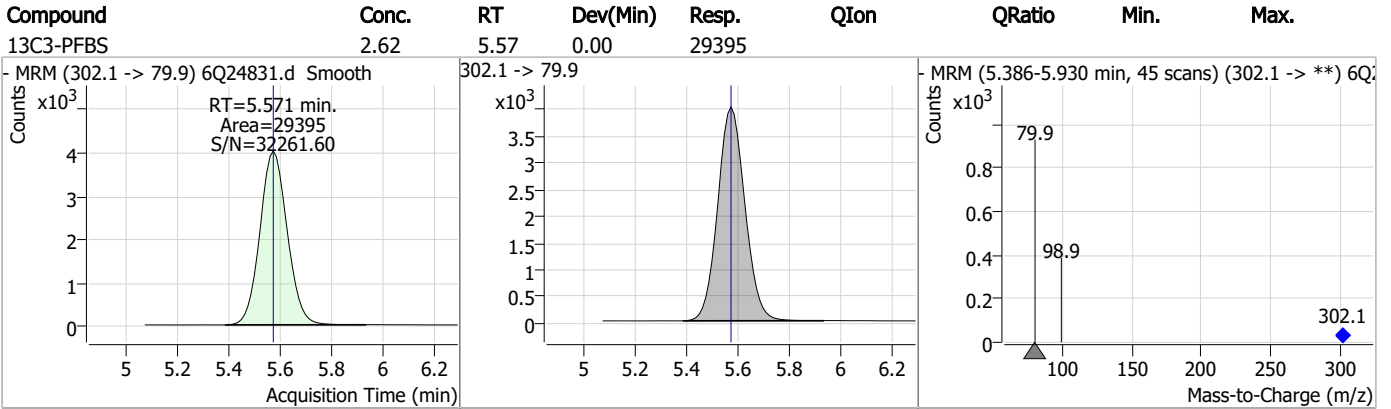
7.1.5
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

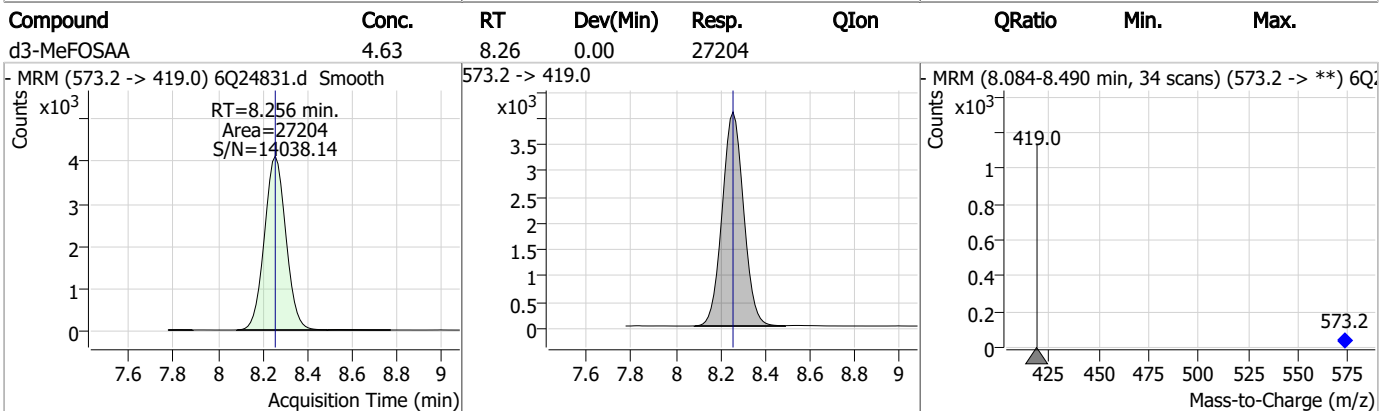
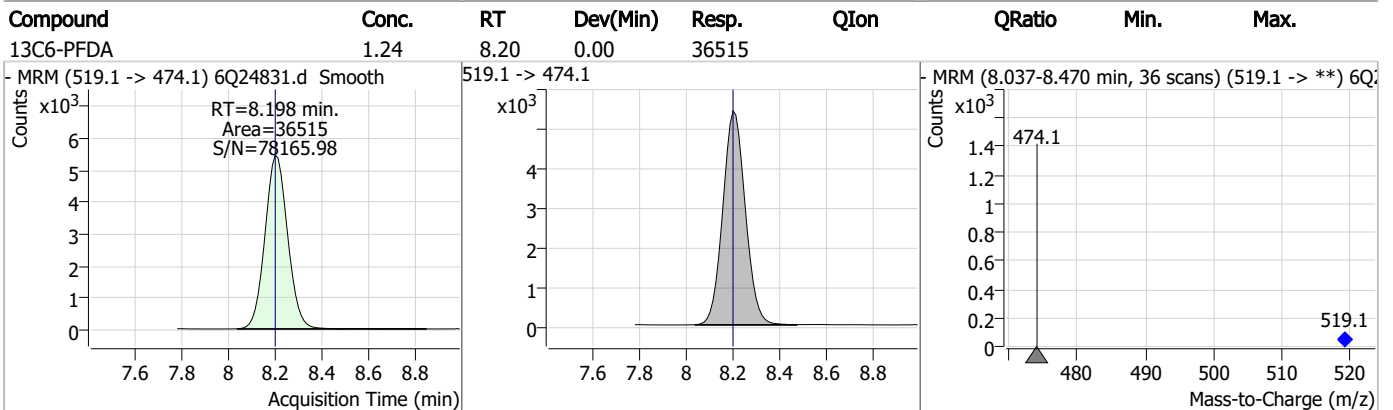
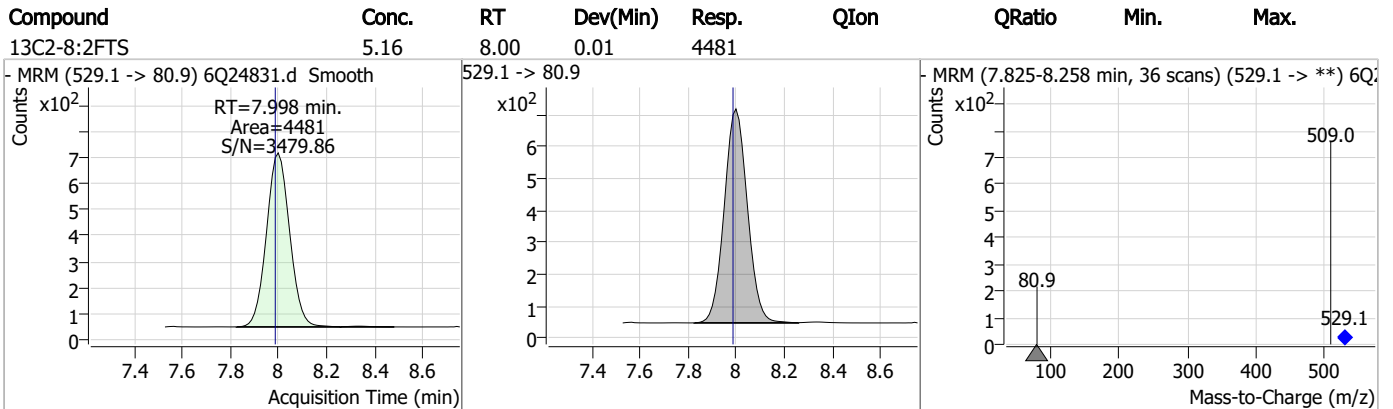
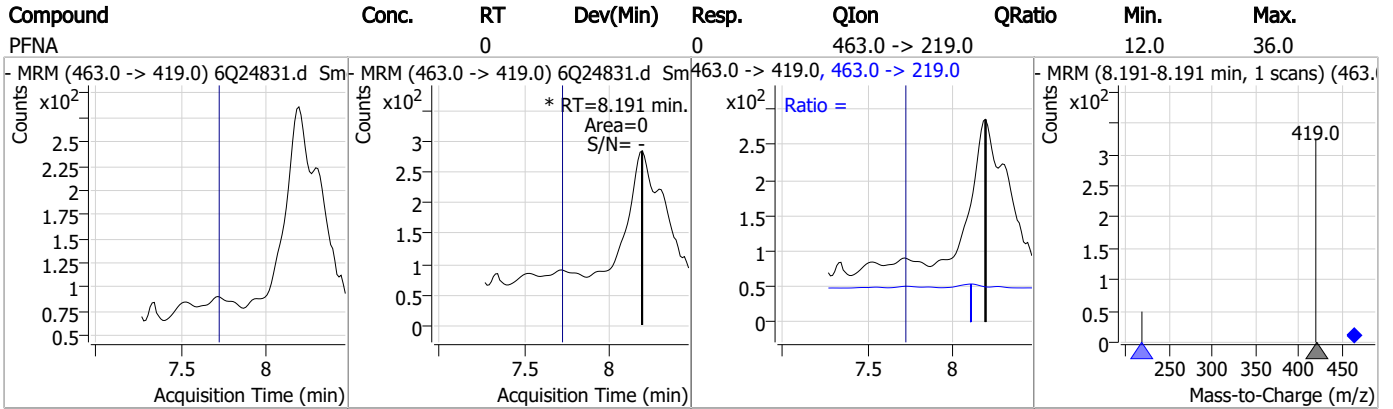
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.80	6.97	0.00	4931				
13C8-PFOA	2.48	7.20	0.00	98265				
13C3-PFHxS	2.55	7.31	0.00	15982				
13C9-PFNA	1.24	7.72	0.00	40322				

7.1.5

7



Perfluorinated Compounds by LC/MS/MS



7.1.5

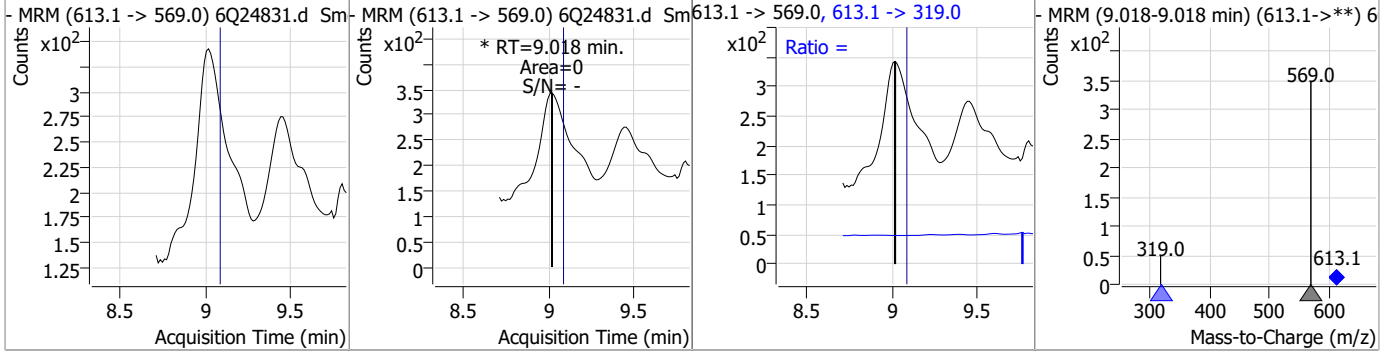
7

Perfluorinated Compounds by LC/MS/MS

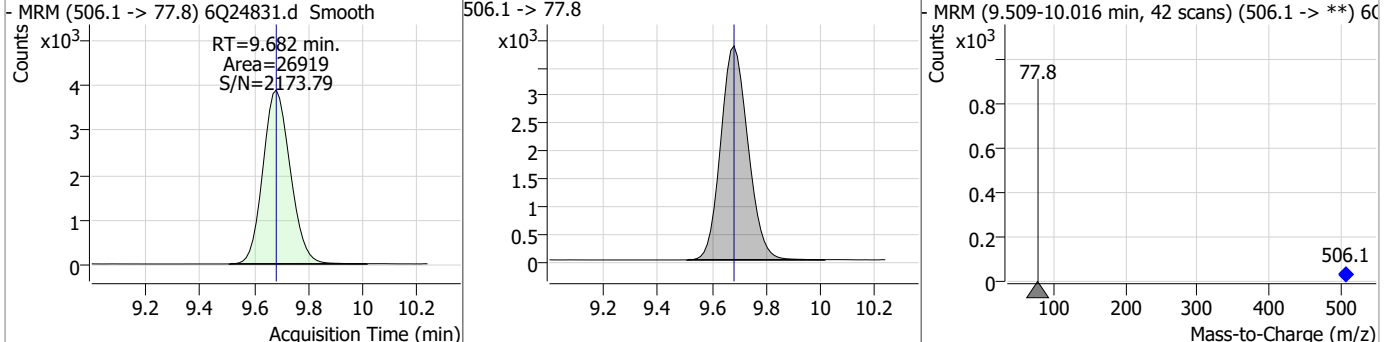
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.33	8.35	0.00	14782				
- MRM (507.1 -> 79.9) 6Q24831.d Smooth Counts x10 ³ RT=8.348 min. Area=14782 S/N=12806.35 Acquisition Time (min)			507.1 -> 79.9 Counts x10 ³ Acquisition Time (min)			- MRM (8.187-8.607 min, 35 scans) (507.1 -> **) 6Q24831.d Smooth Counts x10 ² 79.9 507.1 Mass-to-Charge (m/z)		
d5-EtFOSAA	4.59	8.45	0.00	23050				
- MRM (589.2 -> 419.0) 6Q24831.d Smooth Counts x10 ³ RT=8.452 min. Area=23050 S/N=11214.05 Acquisition Time (min)			589.2 -> 419.0 Counts x10 ³ Acquisition Time (min)			- MRM (8.292-8.834 min, 45 scans) (589.2 -> **) 6Q24831.d Smooth Counts x10 ² 419.0 589.2 Mass-to-Charge (m/z)		
13C7-PFUnDA	1.40	8.65	0.00	48671				
- MRM (570.0 -> 525.1) 6Q24831.d Smooth Counts x10 ⁴ RT=8.651 min. Area=48671 S/N=3344.93 Acquisition Time (min)			570.0 -> 525.1 Counts x10 ³ Acquisition Time (min)			- MRM (8.491-9.022 min, 44 scans) (570.0 -> **) 6Q24831.d Smooth Counts x10 ³ 525.1 570.0 Mass-to-Charge (m/z)		
13C2-PFDoDA	1.32	9.08	0.00	43296				
- MRM (615.1 -> 570.0) 6Q24831.d Smooth Counts x10 ³ RT=9.079 min. Area=43296 S/N=2545.02 Acquisition Time (min)			615.1 -> 570.0 Counts x10 ³ Acquisition Time (min)			- MRM (8.907-9.467 min, 46 scans) (615.1 -> **) 6Q24831.d Smooth Counts x10 ³ 570.0 615.1 Mass-to-Charge (m/z)		

Perfluorinated Compounds by LC/MS/MS

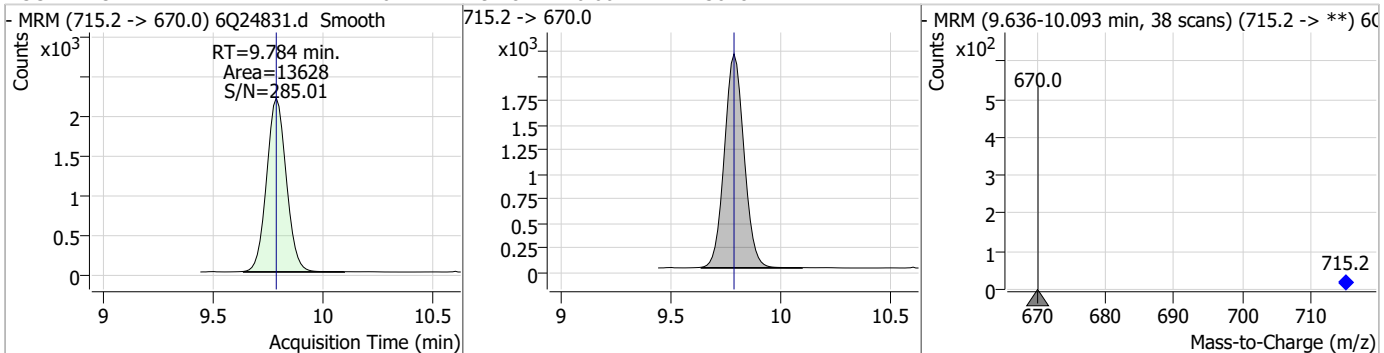
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DA	0	0	0	0	613.1 -> 319.0		6.0	18.0



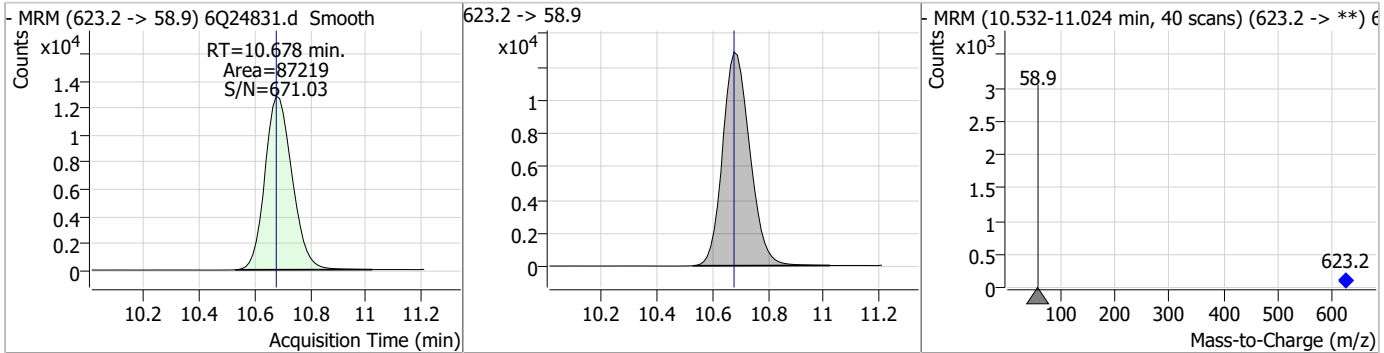
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	1.90	9.68	0.00	26919				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.04	9.78	0.00	13628				

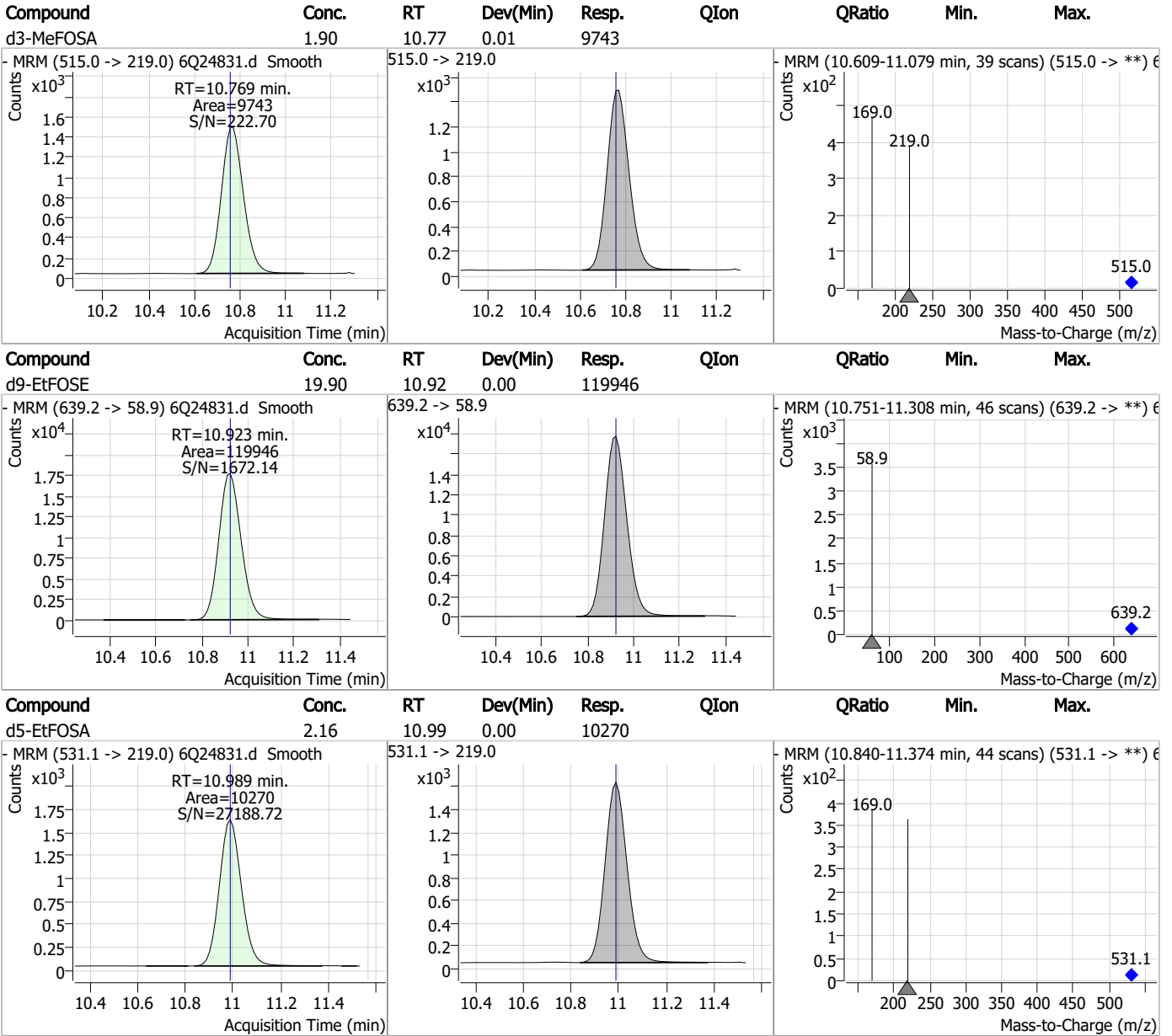


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	18.99	10.68	0.00	87219				



7.1.5
7

Perfluorinated Compounds by LC/MS/MS



7.1.5

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25055.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 11:19:10 PM
 Sample Name : FC9604-6
 Vial : P5-E9
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q357.batch.bin
 Sample Information : OP99174,S6Q357,520,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	170758	10.00 µg/L	0.025
M5-PFPeA	4.422	268.3 -> 223.0	70573	5.00 µg/L	0.012
M5-PFHxA	5.629	318.0 -> 273.0	61409	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	60161	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	78581	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	34349	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	33063	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	33650	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	32798	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	11696	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	23567	2.50 µg/L	0.012
M3-PFBS	5.559	302.1 -> 79.9	25966	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	15227	2.50 µg/L	0.000
M8-PFOS	8.336	507.1 -> 79.9	14257	2.50 µg/L	-0.013
M2-4:2FTS	5.304	329.1 -> 80.9	2600	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4084	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	3861	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	31892	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	41268	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	23106	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	80736	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	96160	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	7240	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	6908	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	15411	2.50 µg/L	0.000
13C3-PFBA	3.001	216.0 -> 172.0	81639	5.00 µg/L	0.025
18O2-PFHxS	7.300	403.0 -> 83.9	11147	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	109406	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	34257	1.25 µg/L	-0.012
13C5-PFNA	7.705	468.0 -> 423.0	36739	1.25 µg/L	-0.012
13C2-PFHxA	5.630	315.1 -> 270.0	65810	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2600	4.56 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.2%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4084	4.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.1%		
13C2-8:2FTS	7.986	529.1 -> 80.9	3861	4.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.5%		
13C2-PFDoDA	9.067	615.1 -> 570.0	32798	1.00 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 80.1%		
13C2-PFTeDA	9.772	715.2 -> 670.0	11696	0.84 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 67.4%		
13C3-PFBS	5.559	302.1 -> 79.9	25966	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 88.7%		
13C3-PFHxS	7.301	402.1 -> 79.9	15227	2.16 µg/L	0.000

7.1.6
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 = 86.3%	
13C4-PFBA	2.997	216.8 -> 171.9	170758	8.65 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.5%	
13C4-PFHpA	6.556	367.1 -> 322.0	60161	2.24 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.6%	
13C5-PFHxA	5.629	318.0 -> 273.0	61409	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.8%	
13C5-PFPeA	4.422	268.3 -> 223.0	70573	4.53 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.6%	
13C6-PFDA	8.185	519.1 -> 474.1	33063	1.15 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C7-PFUnDA	8.639	570.0 -> 525.1	33650	1.04 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 83.6%	
13C8-FOSA	9.682	506.1 -> 77.8	23567	1.81 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 72.3%	
13C8-PFOA	7.186	421.1 -> 376.0	78581	2.07 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.9%	
13C8-PFOS	8.336	507.1 -> 79.9	14257	2.14 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.7%	
13C9-PFNA	7.717	472.1 -> 427.0	34349	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.0%	
d3-MeFOSAA	8.244	573.2 -> 419.0	31892	4.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 87.3%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	41268	8.32 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.2%	
d3-MeFOSA	10.757	515.0 -> 219.0	6908	1.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 70.5%	
d5-EtFOSAA	8.439	589.2 -> 419.0	23106	4.07 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 81.4%	
d7-MeFOSE	10.678	623.2 -> 58.9	80736	17.46 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 69.9%	
d9-EtFOSE	10.911	639.2 -> 58.9	96160	17.10 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 68.4%	
d5-EtFOSA	10.989	531.1 -> 219.0	7240	1.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 70.2%	

Target Compounds

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

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	8.142	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	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

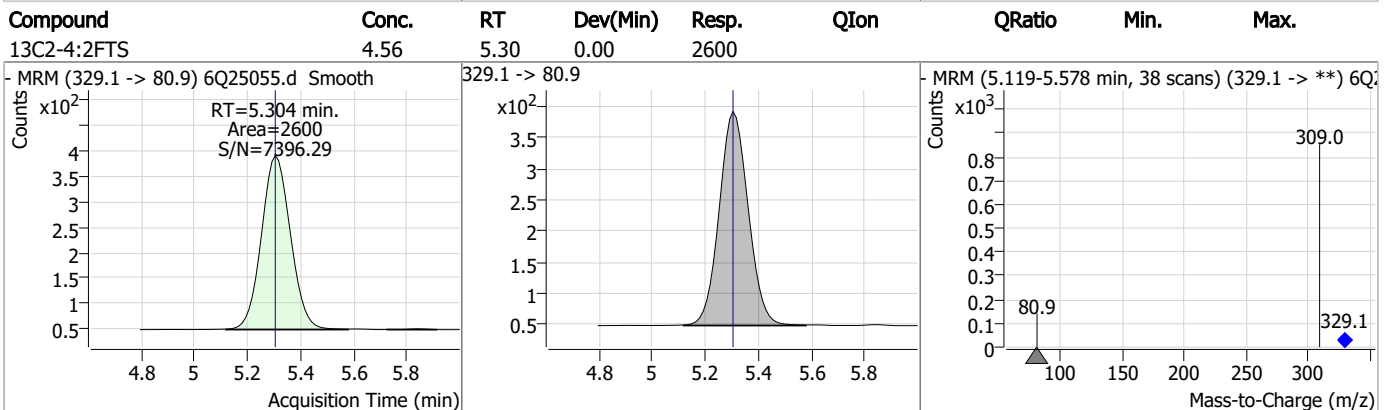
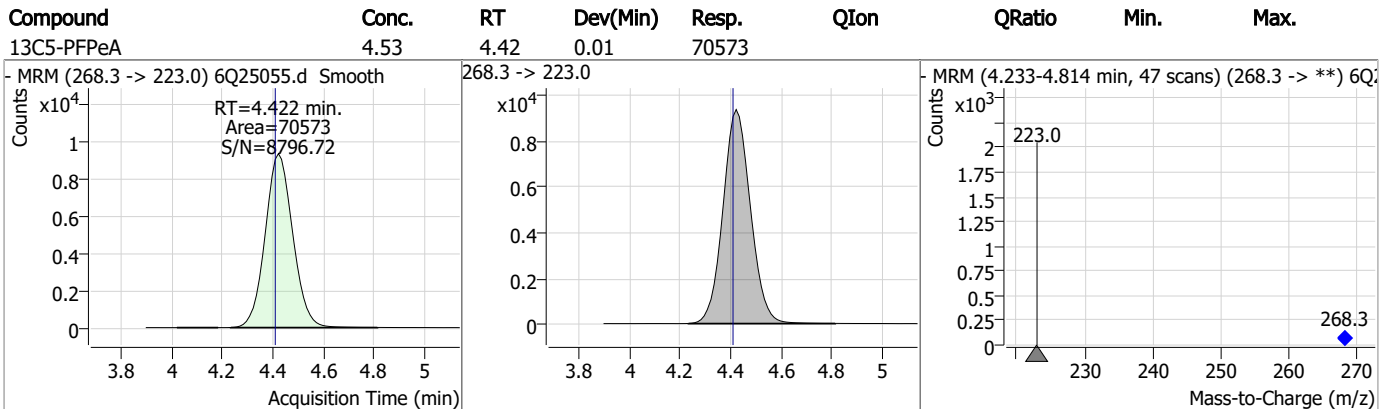
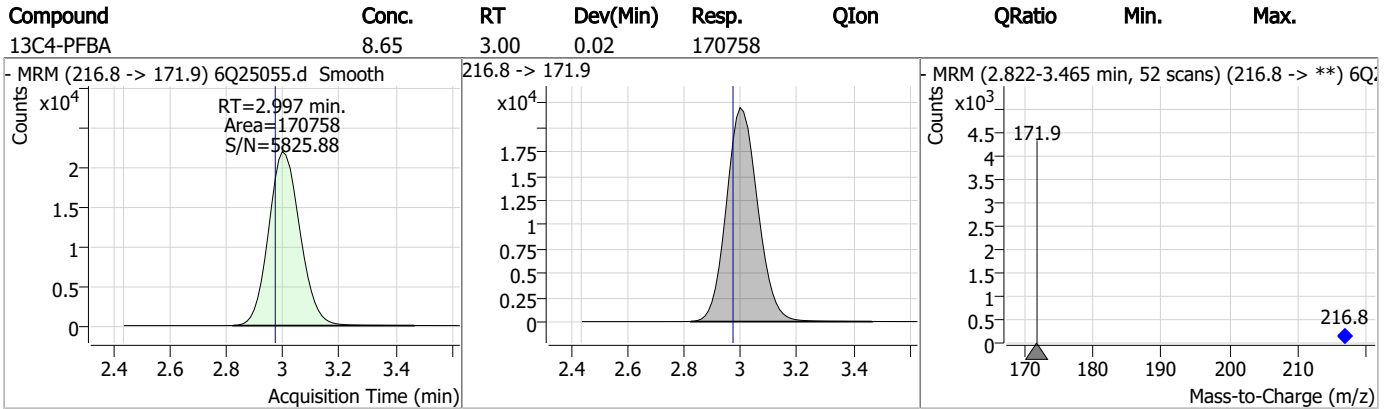
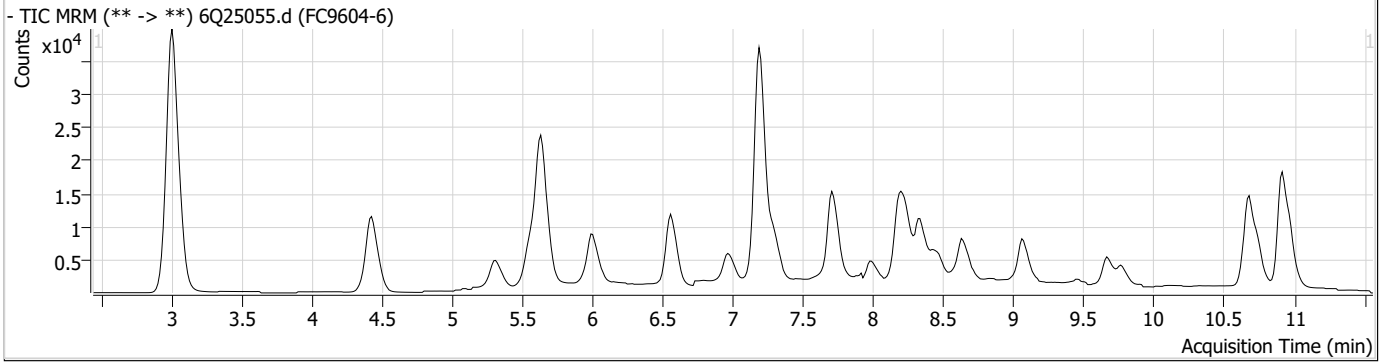
Perfluorinated Compounds by LC/MS/MS

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

7.1.6
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	2.22	5.56	0.00	25966				
13C5-PFHxA	2.22	5.63	0.00	61409				
13C3-HFPO-DA	8.32	6.01	0.00	41268				
13C4-PFHpA	2.24	6.56	-0.01	60161				

7.1.6

7

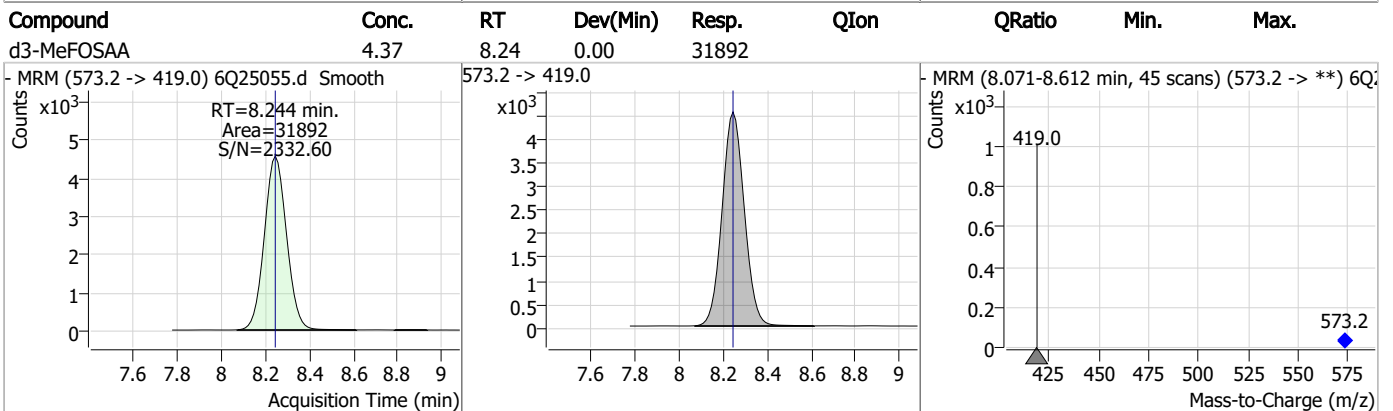
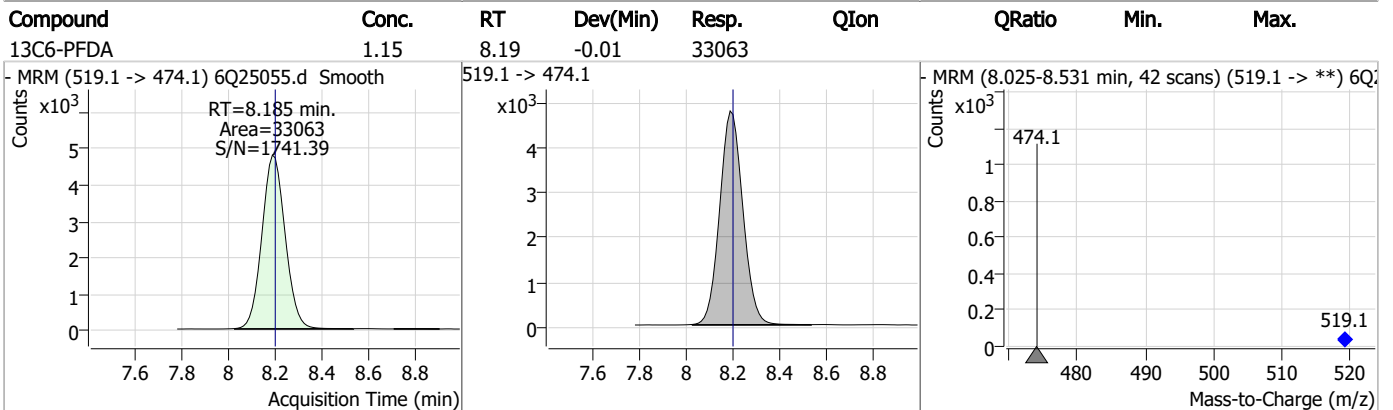
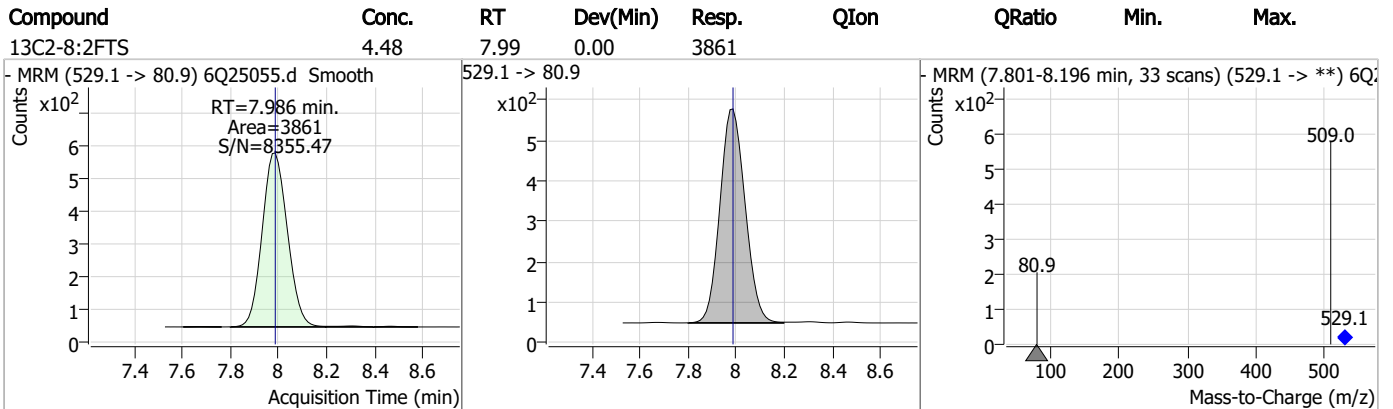
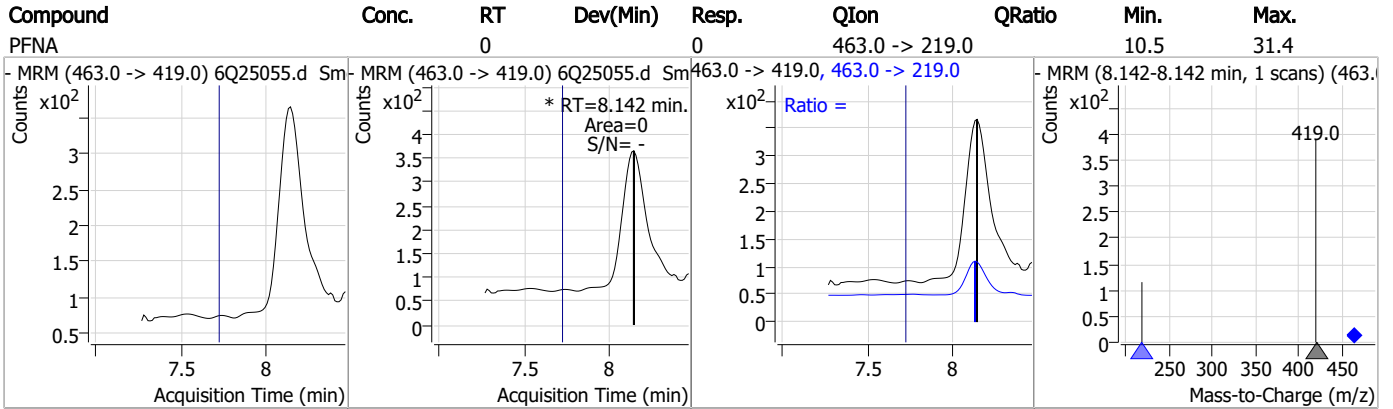
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.51	6.97	0.00	4084				
13C8-PFOA	2.07	7.19	-0.01	78581				
13C3-PFHxS	2.16	7.30	0.00	15227				
13C9-PFNA	1.16	7.72	0.00	34349				

7.1.6

7

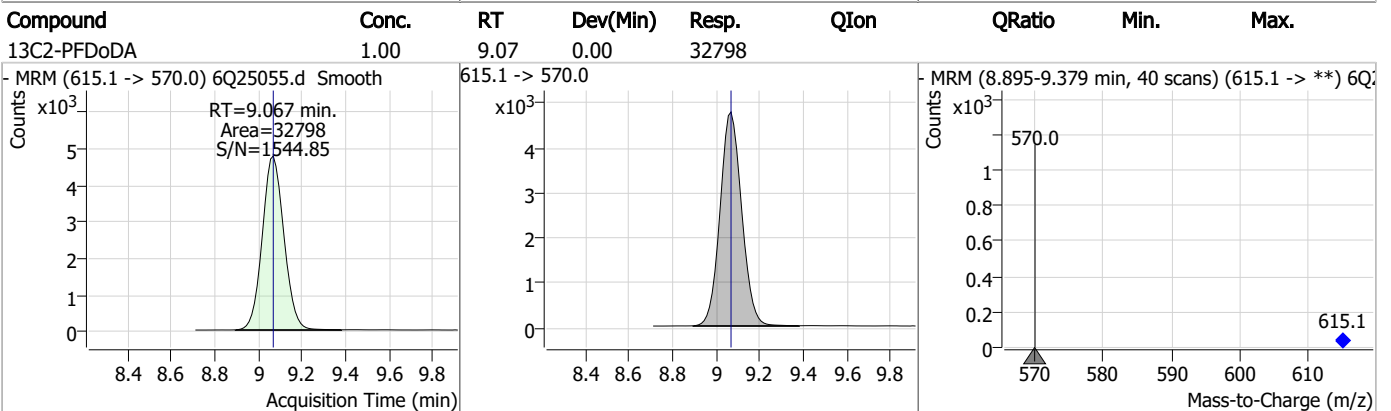
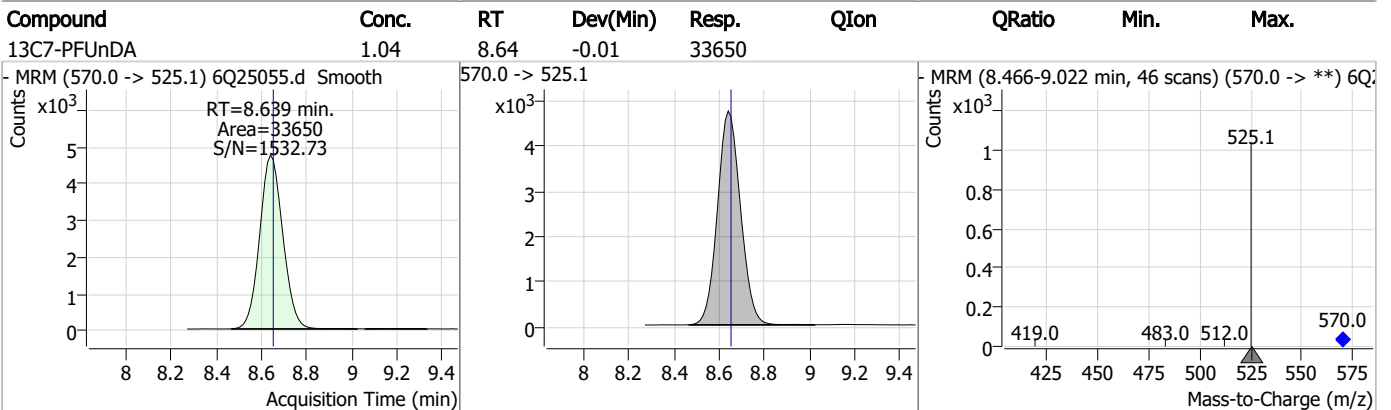
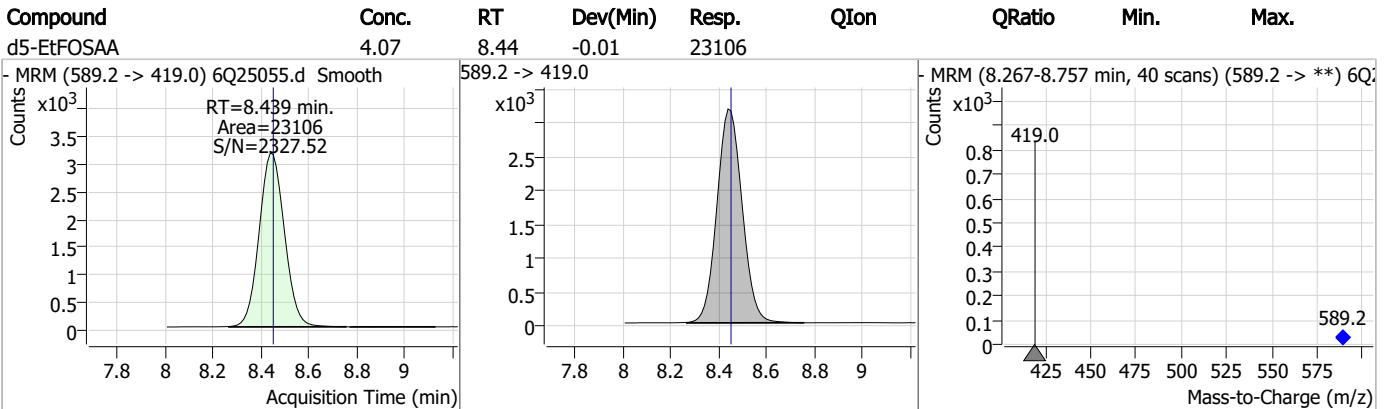
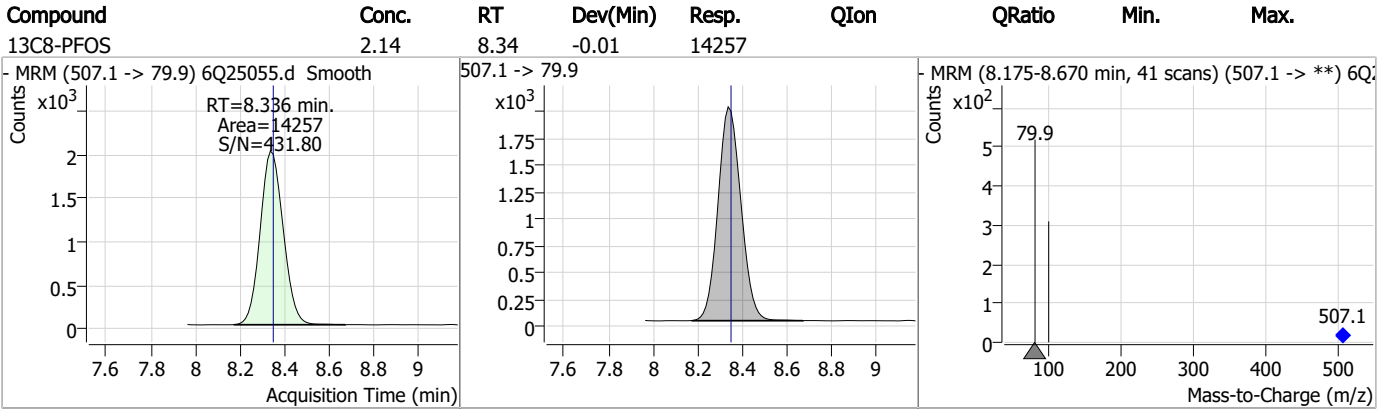
Perfluorinated Compounds by LC/MS/MS



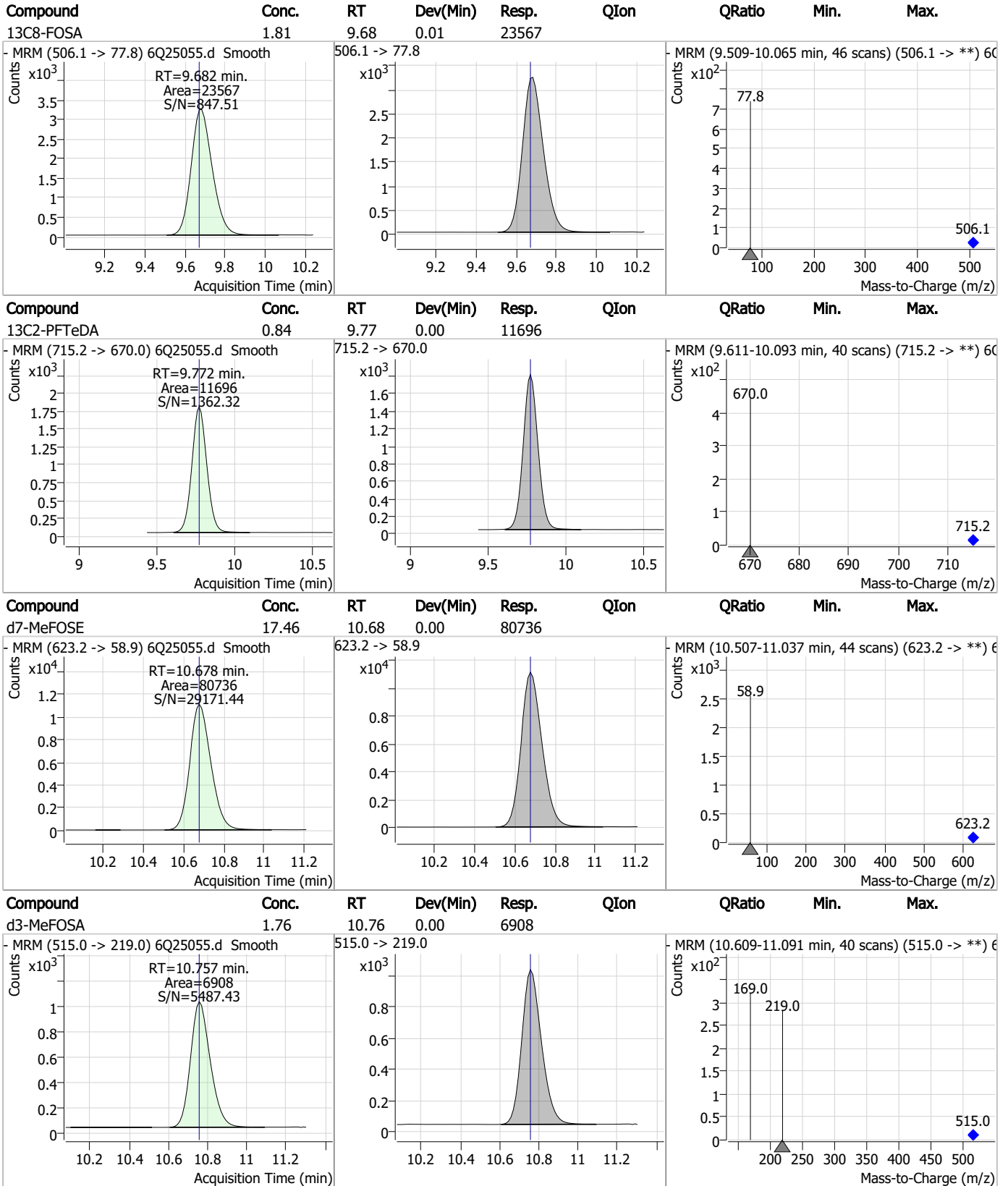
7.1.6

7

Perfluorinated Compounds by LC/MS/MS



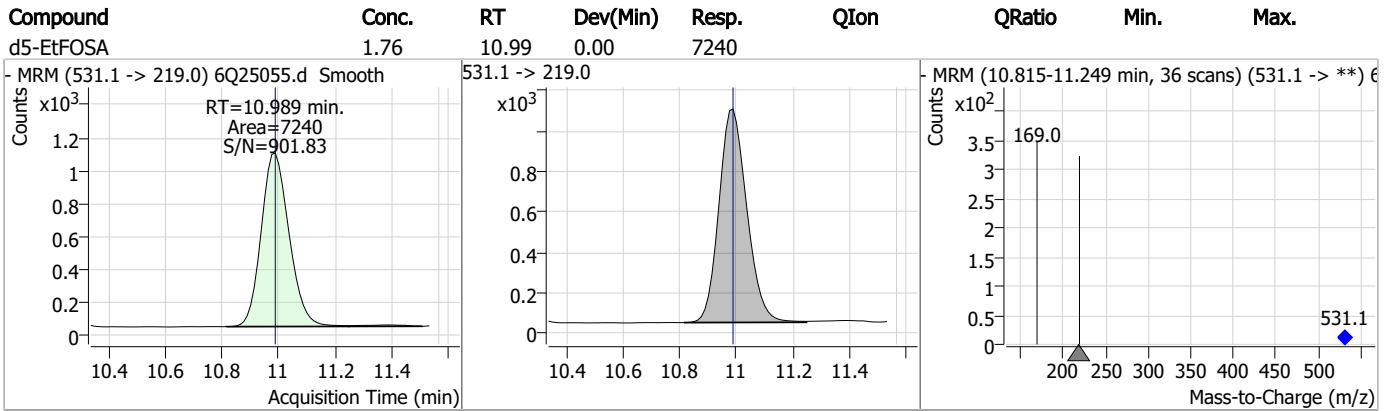
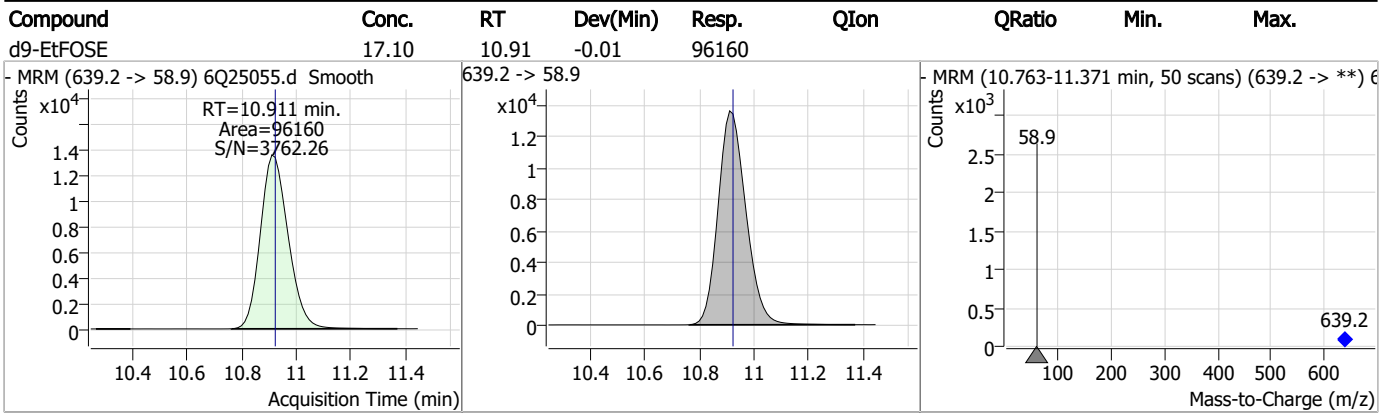
Perfluorinated Compounds by LC/MS/MS



7.1.6

7

Perfluorinated Compounds by LC/MS/MS



7.1.6

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24833.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/22/2023 1:51:06 AM
 Sample Name : FC9604-7
 Vial : P2-B1
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99077,S6Q355,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	265802	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	43509	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	94725	2.50 µg/L	0.000
M4-PFHpA	6.581	367.1 -> 322.0	78794	2.50 µg/L	0.012
M8-PFOA	7.198	421.1 -> 376.0	102036	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	39613	1.25 µg/L	0.012
M6-PFDA	8.210	519.1 -> 474.1	38439	1.25 µg/L	0.012
M7-PFUnDA	8.651	570.0 -> 525.1	49553	1.25 µg/L	0.000
M2-PFDoDA	9.079	615.1 -> 570.0	43294	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	14189	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	27826	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	29237	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	17201	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	16794	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	3476	5.00 µg/L	0.000
M2-6:2FTS	6.986	429.1 -> 80.9	5011	5.00 µg/L	0.012
M2-8:2FTS	7.998	529.1 -> 80.9	4847	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	28556	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	52603	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	21664	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	92004	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	128947	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	10170	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	9895	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	19091	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	106044	5.00 µg/L	0.012
18O2-PFHxS	7.313	403.0 -> 83.9	12586	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	113783	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	34974	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	45882	1.25 µg/L	0.012
13C2-PFHxA	5.642	315.1 -> 270.0	69447	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	3476	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C2-6:2FTS	6.986	429.1 -> 80.9	5011	5.41 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4847	5.13 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C2-PFDoDA	9.079	615.1 -> 570.0	43294	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-PFTeDA	9.784	715.2 -> 670.0	14189	1.00 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 80.2%		
13C3-PFBS	5.571	302.1 -> 79.9	29237	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C3-PFHxS	7.313	402.1 -> 79.9	17201	2.52 µg/L	0.000

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 = 100.9%		
13C4-PFBA	3.010	216.8 -> 171.9	265802	10.28	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.8%		
13C4-PFHpA	6.581	367.1 -> 322.0	78794	2.64	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%		
13C5-PFHxA	5.641	318.0 -> 273.0	94725	2.59	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%		
13C5-PFPeA	4.434	268.3 -> 223.0	43509	5.51	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.2%		
13C6-PFDA	8.210	519.1 -> 474.1	38439	1.21	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.6%		
13C7-PFUnDA	8.651	570.0 -> 525.1	49553	1.32	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%		
13C8-FOSA	9.682	506.1 -> 77.8	27826	2.22	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.8%		
13C8-PFOA	7.198	421.1 -> 376.0	102036	2.47	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%		
13C8-PFOS	8.348	507.1 -> 79.9	16794	2.99	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.5%		
13C9-PFNA	7.729	472.1 -> 427.0	39613	1.19	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.2%		
d3-MeFOSAA	8.256	573.2 -> 419.0	28556	5.48	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.6%		
13C3-HFPO-DA	6.019	286.9 -> 168.9	52603	10.21	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
d3-MeFOSA	10.769	515.0 -> 219.0	9895	2.18	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.2%		
d5-EtFOSAA	8.452	589.2 -> 419.0	21664	4.86	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.3%		
d7-MeFOSE	10.678	623.2 -> 58.9	92004	22.58	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.3%		
d9-EtFOSE	10.923	639.2 -> 58.9	128947	24.12	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.5%		
d5-EtFOSA	10.989	531.1 -> 219.0	10170	2.41	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%		

Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.		
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.		
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.		
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.		
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.		
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.		
PFBA	-	212.8 -> 168.9	-	N.D.		
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.		
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.		
PFDODA	9.018	613.1 -> 569.0 613.1 -> 319.0	0	µg/L	m	1
PFDS	-	599.0 -> 79.9	-	N.D.		

7.17
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	8.191	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	7.200	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	-	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

7.1.7
7

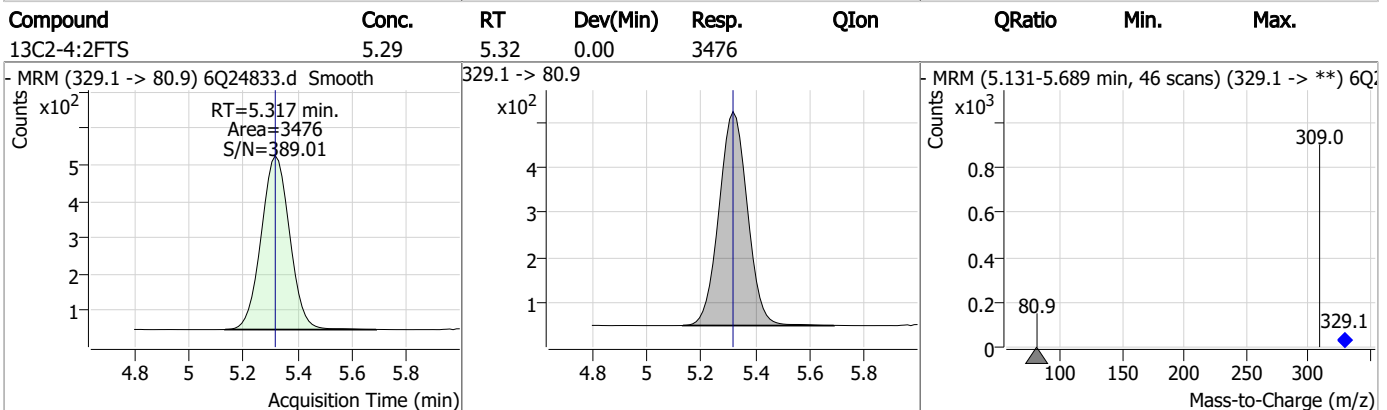
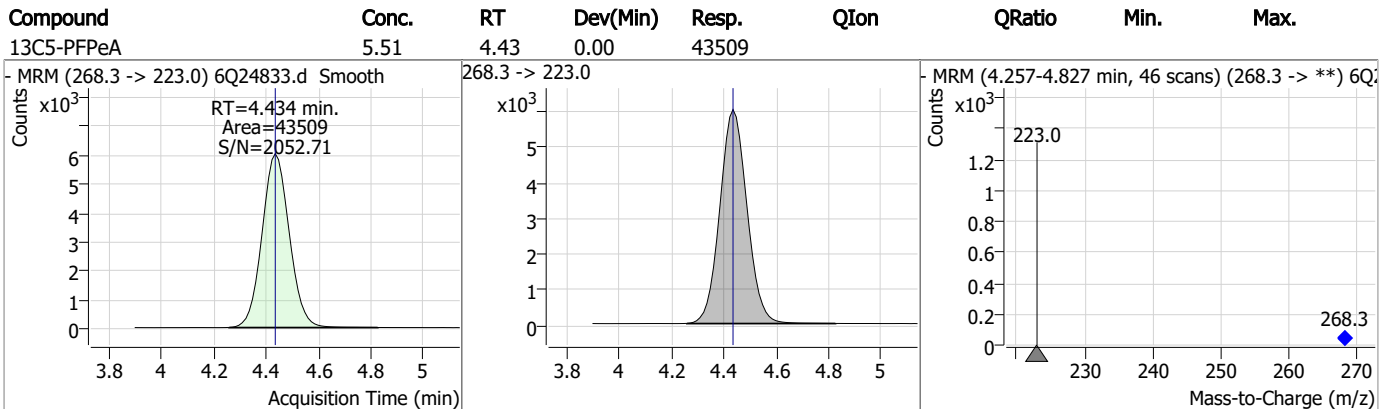
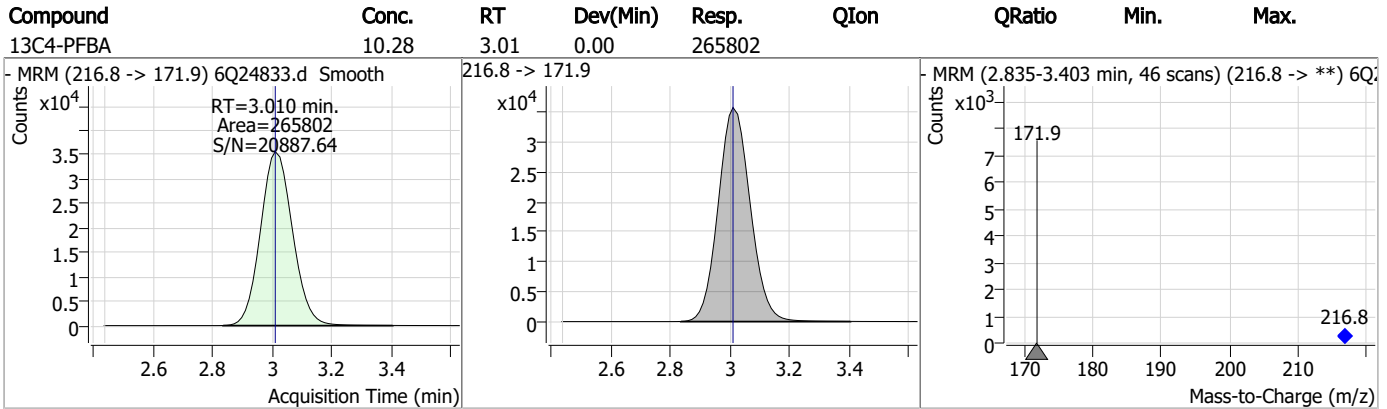
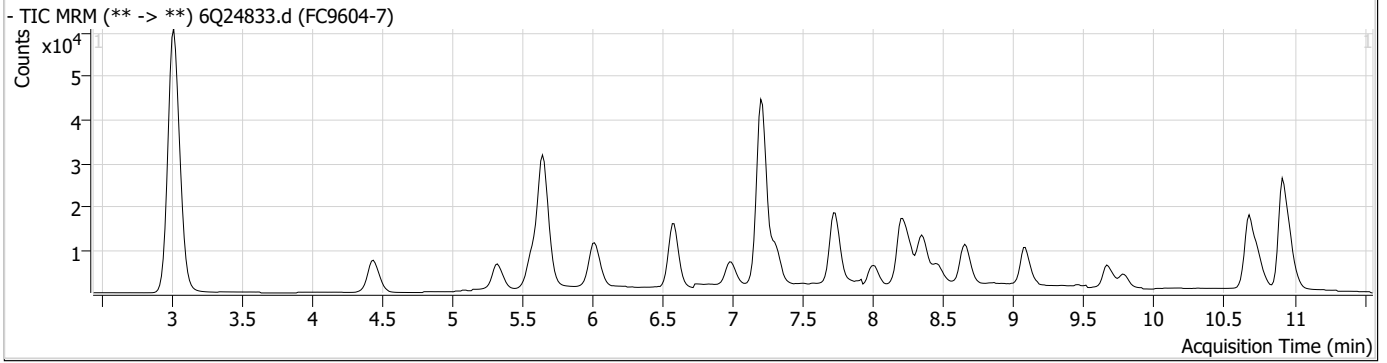
Perfluorinated Compounds by LC/MS/MS

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

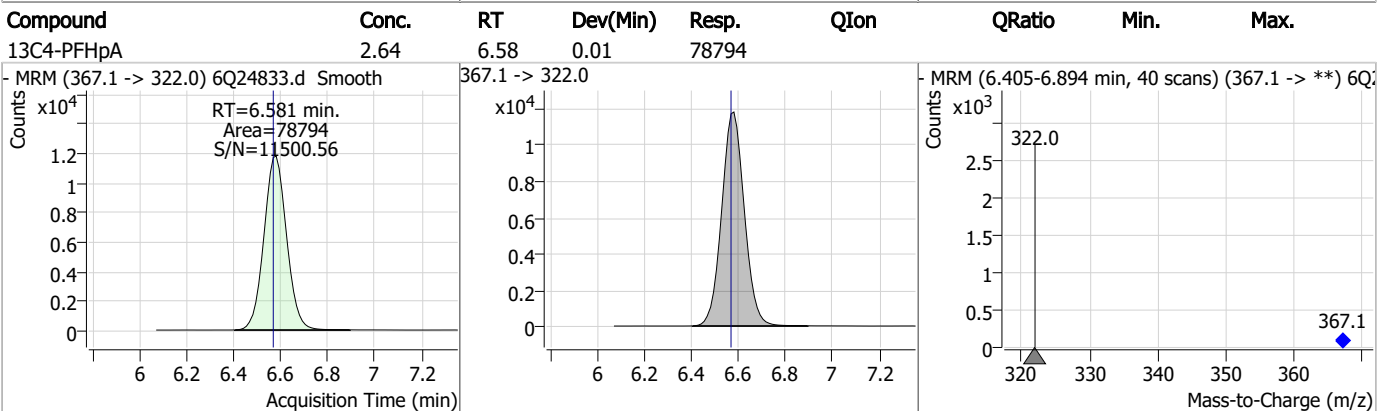
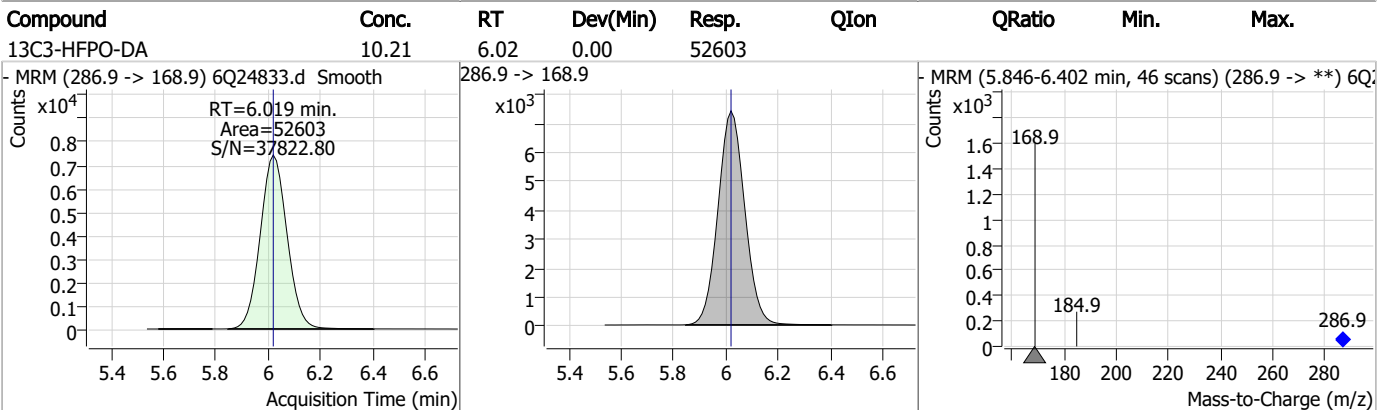
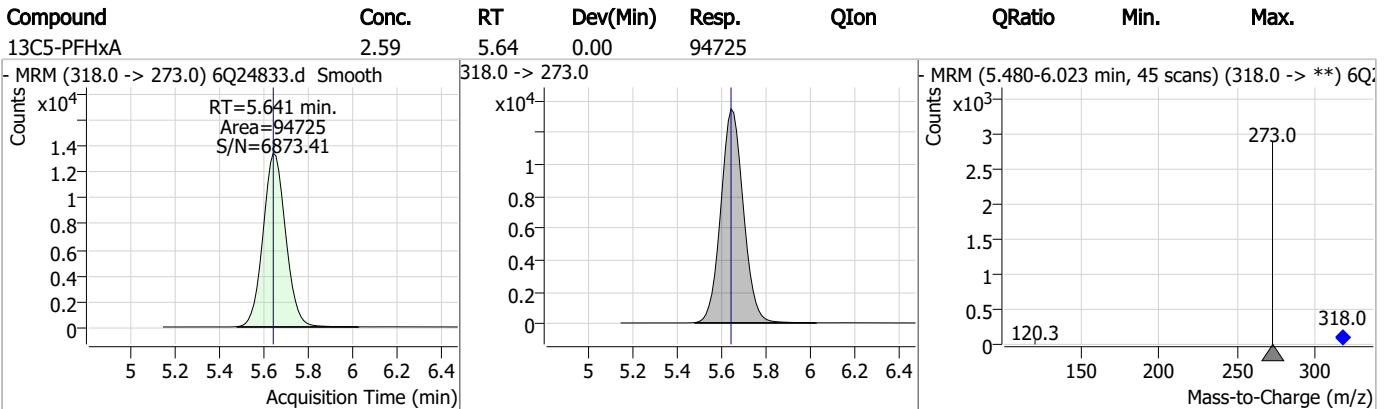
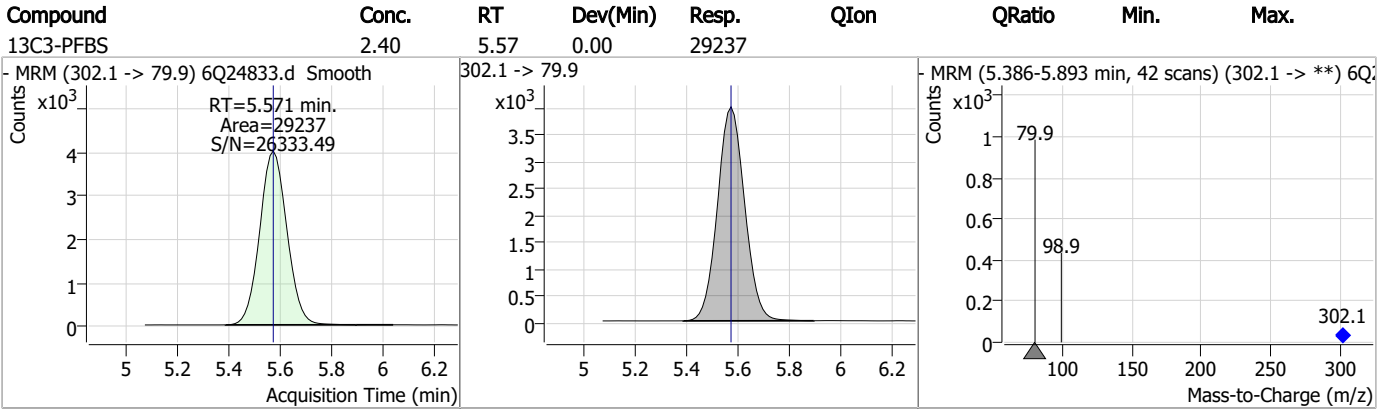
7.1.7
7



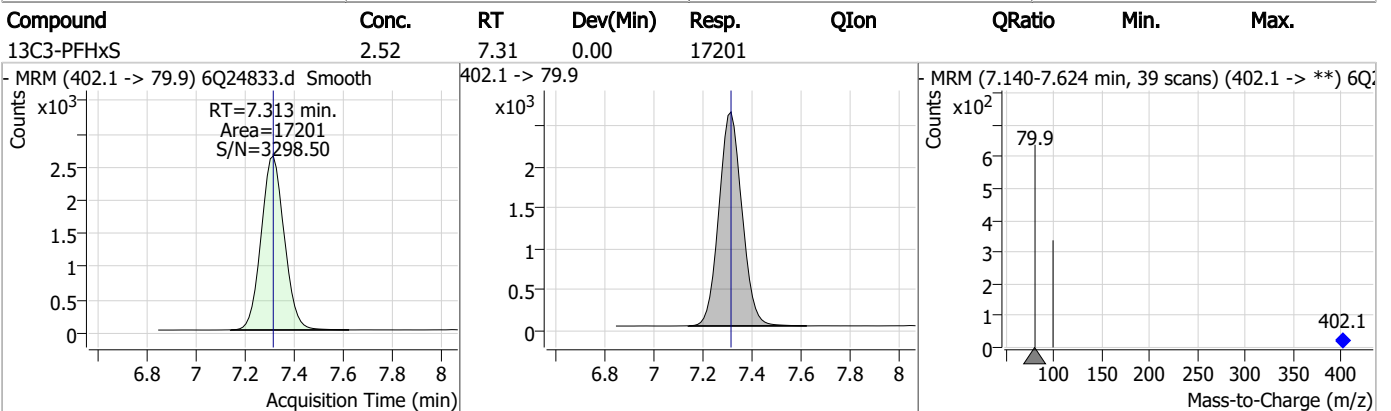
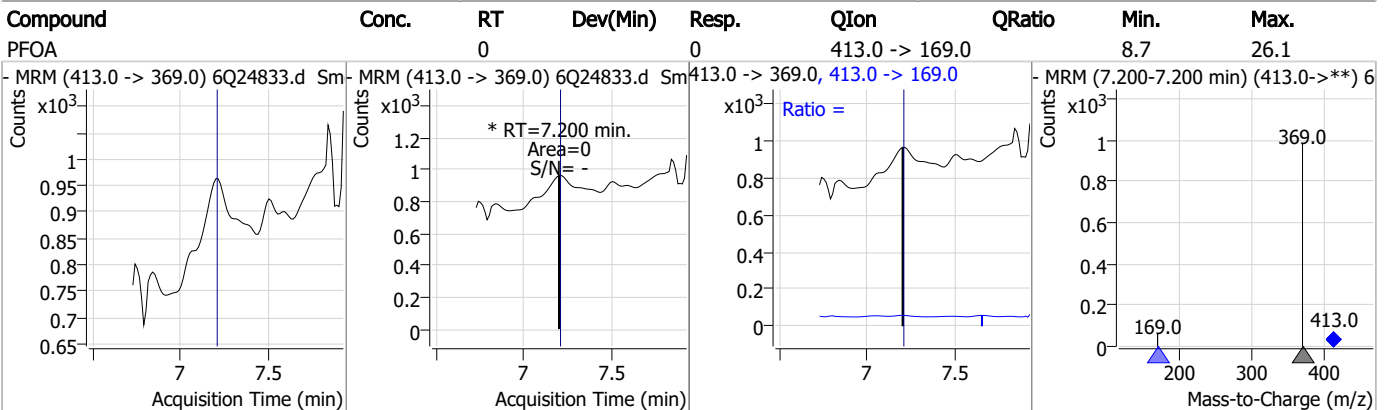
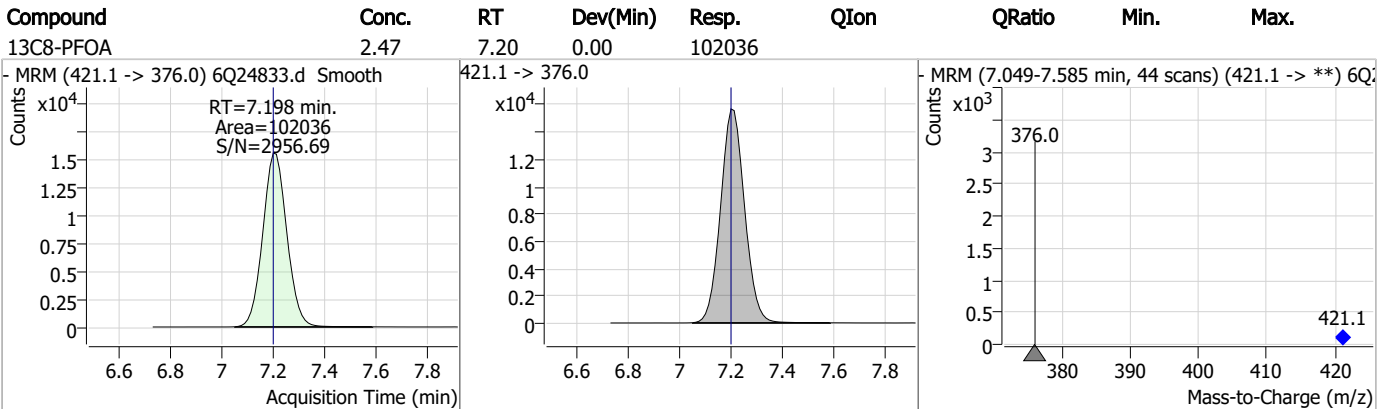
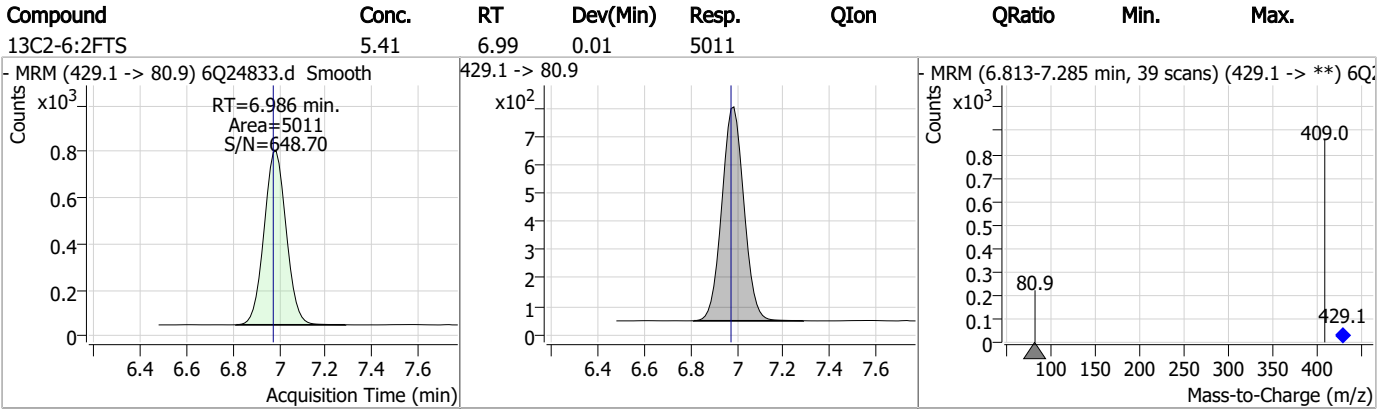
Perfluorinated Compounds by LC/MS/MS



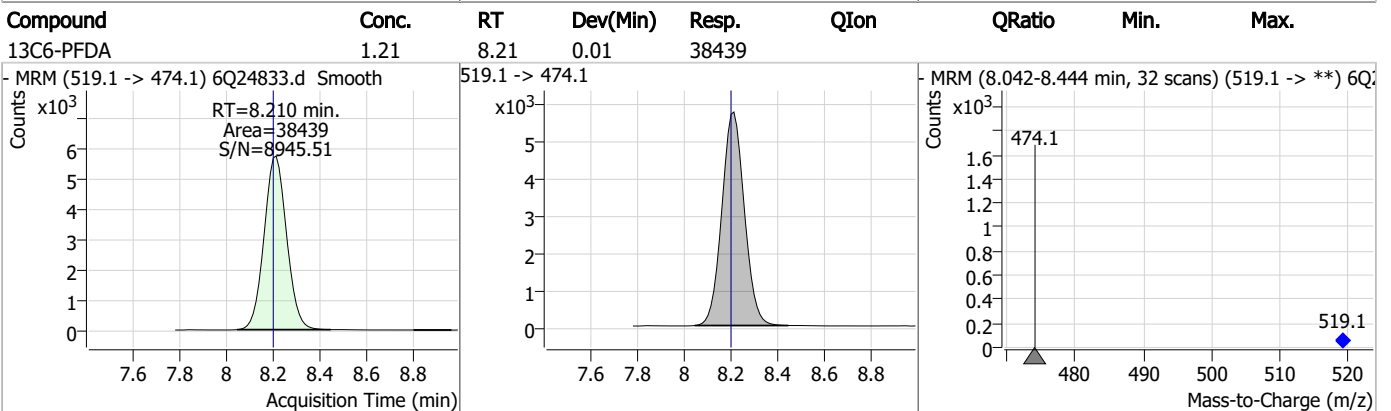
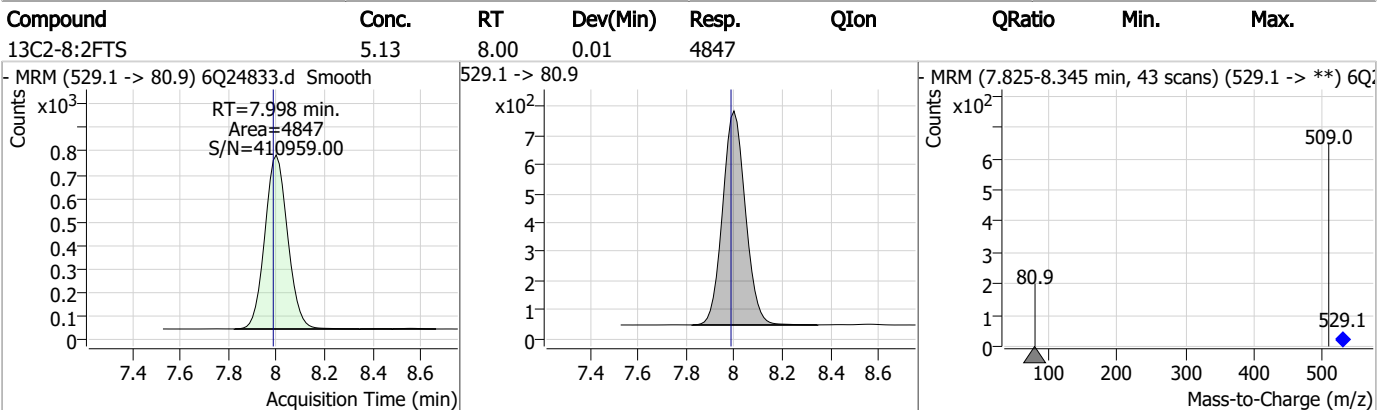
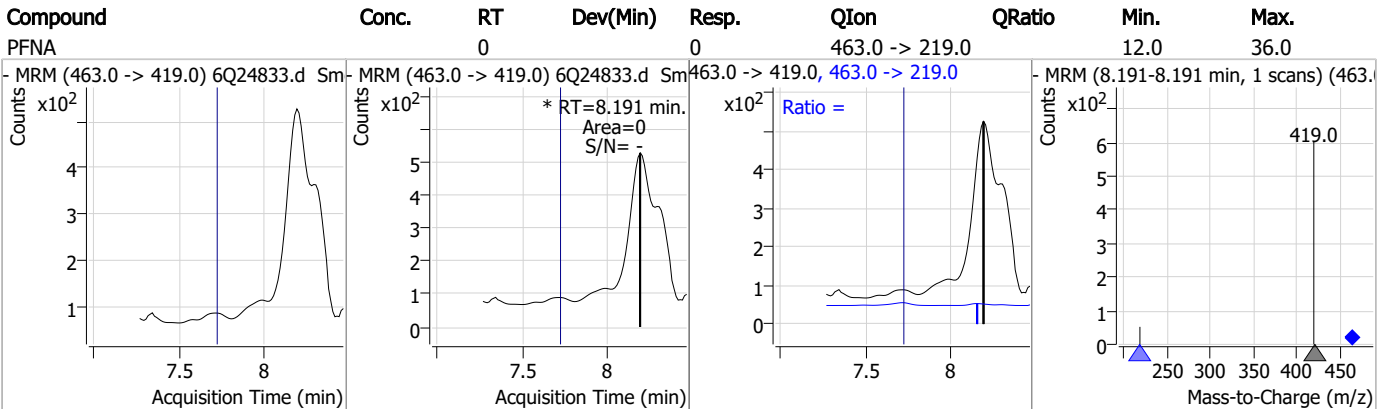
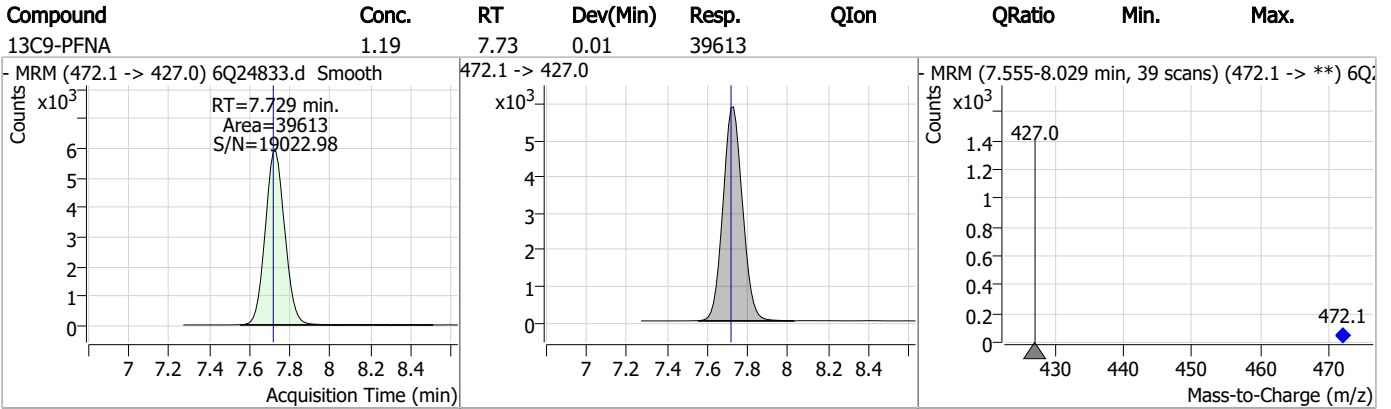
Perfluorinated Compounds by LC/MS/MS



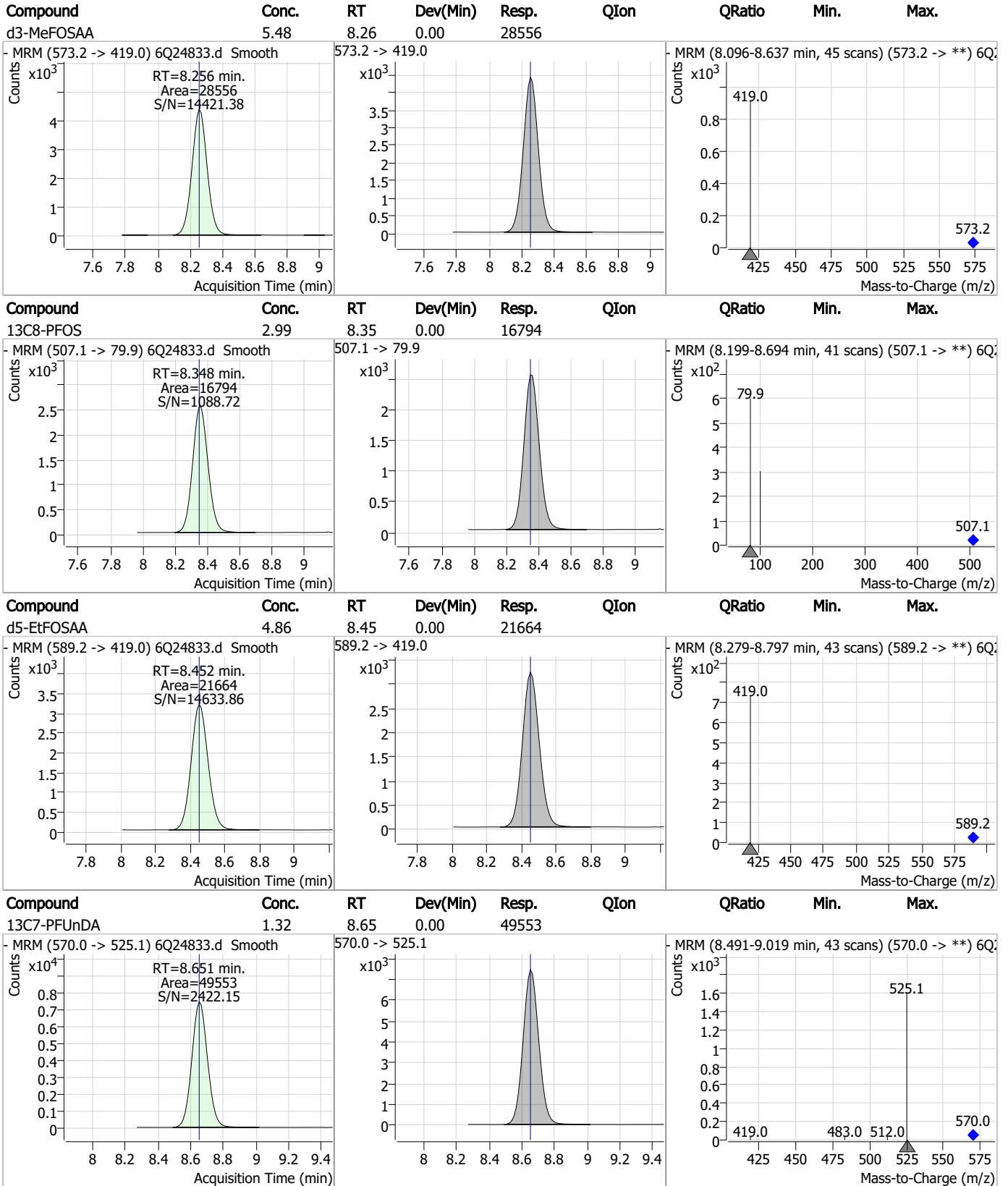
Perfluorinated Compounds by LC/MS/MS



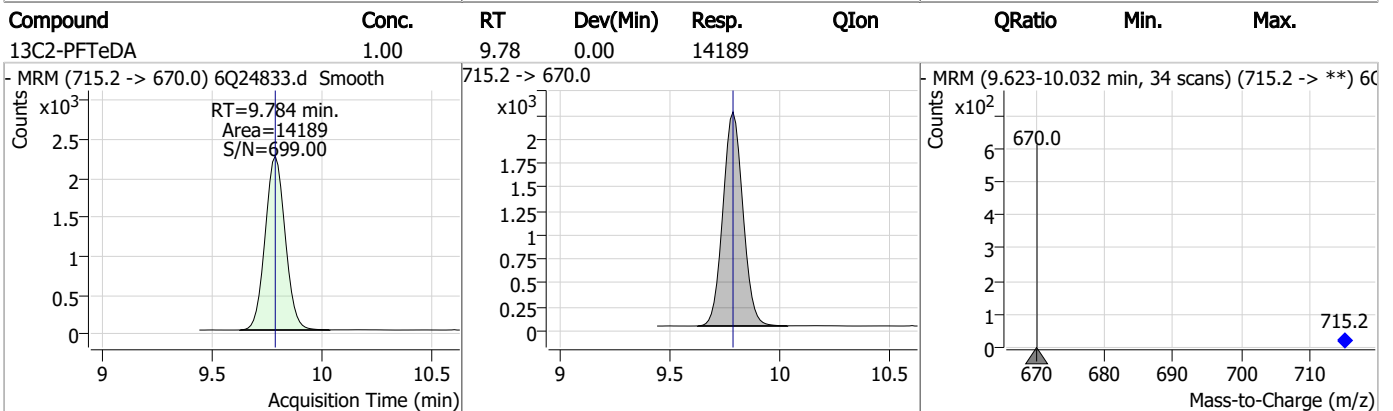
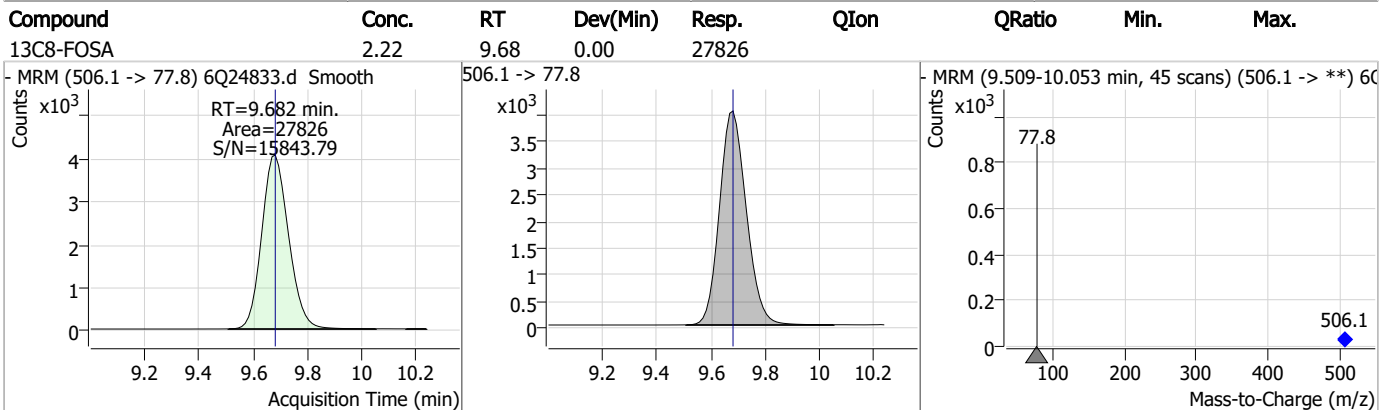
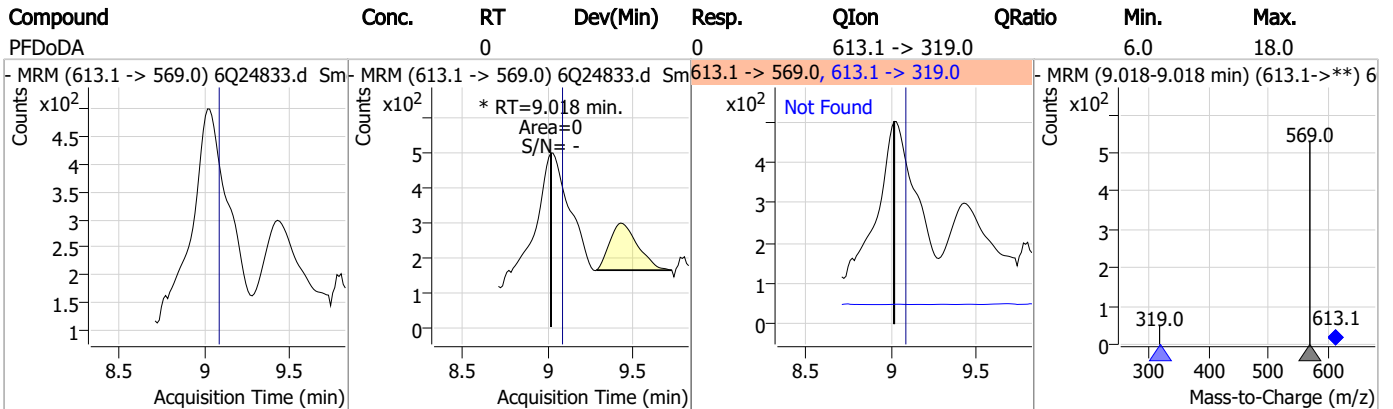
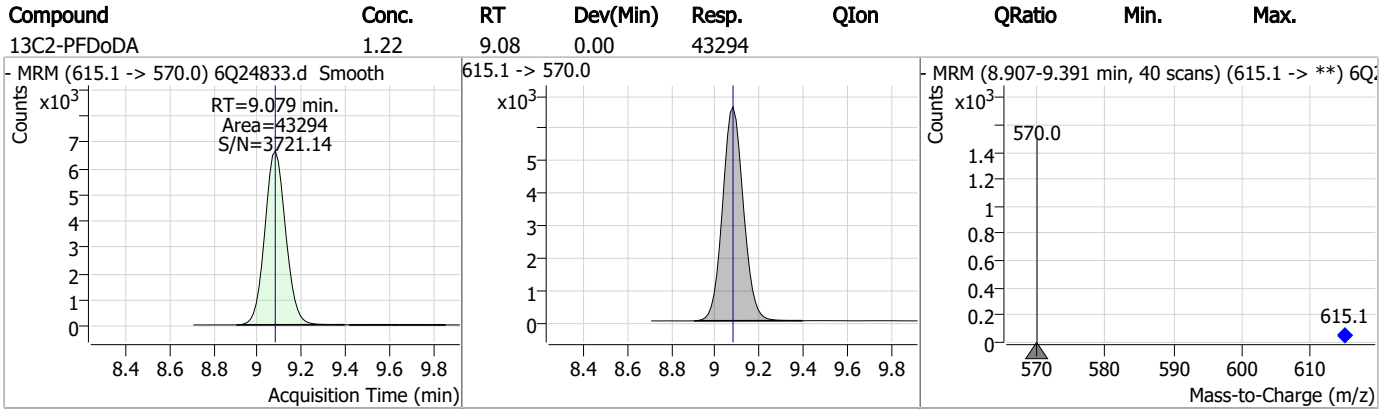
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



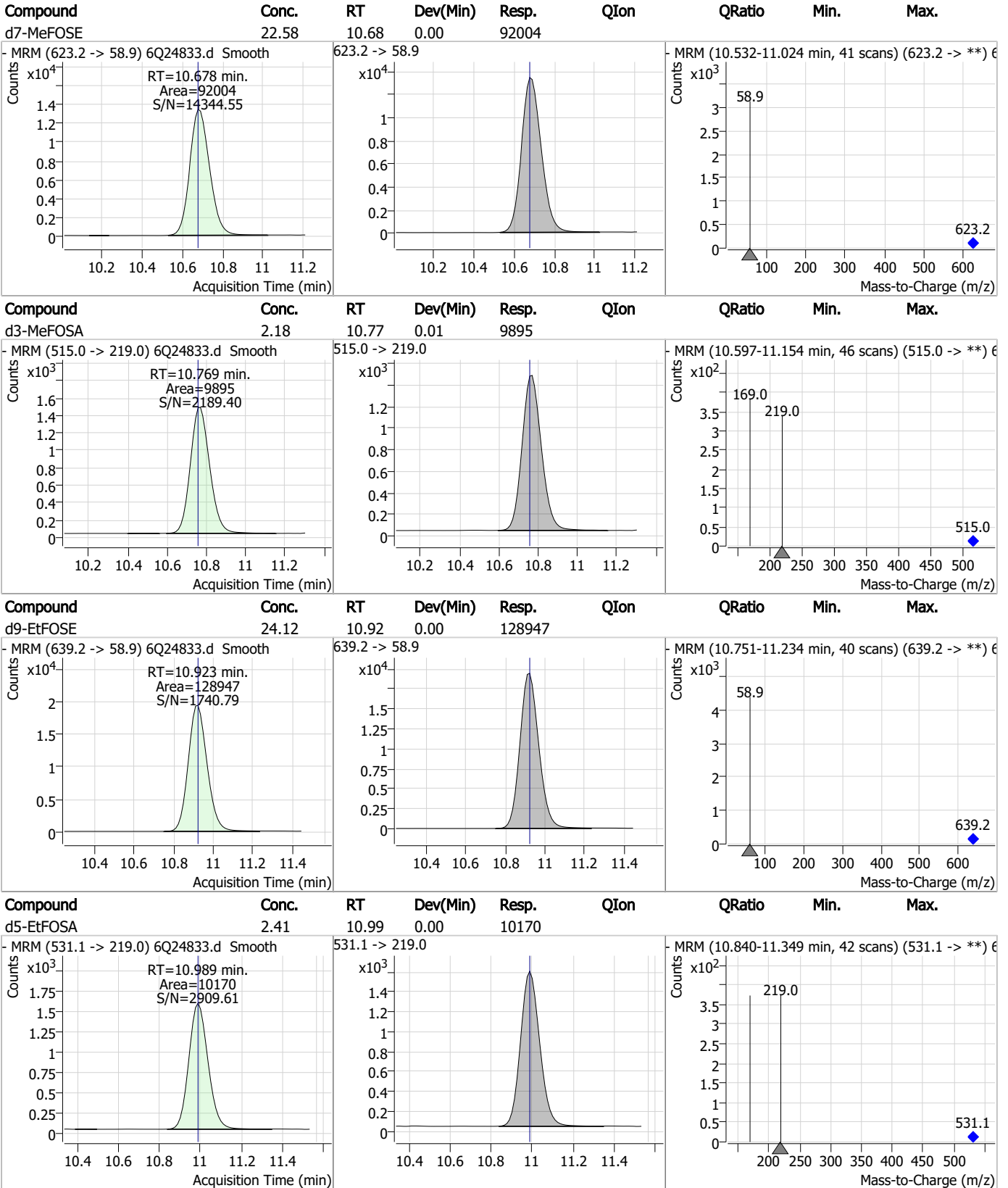
Perfluorinated Compounds by LC/MS/MS



7.1.7

7

Perfluorinated Compounds by LC/MS/MS



7.1.7

7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24826.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/22/2023 12:10:50 AM
 Sample Name : OP99077-MB
 Vial : P2-A3
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99077,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	264561	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	41112	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	99597	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	76162	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	104684	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	40333	1.25 µg/L	0.012
M6-PFDA	8.198	519.1 -> 474.1	41909	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	49155	1.25 µg/L	0.000
M2-PFDoDA	9.079	615.1 -> 570.0	44461	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	15545	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	20553	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	30347	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	16961	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	15599	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	3536	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	5173	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4928	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	28623	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	56969	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	22979	5.00 µg/L	0.000
M7-MeFOSE	10.690	623.2 -> 58.9	68967	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	105398	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	8664	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	8320	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	17795	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	96592	5.00 µg/L	0.012
18O2-PFHxS	7.313	403.0 -> 83.9	11249	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	106145	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	32423	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	43201	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	64196	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	3536	6.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.5%		
13C2-6:2FTS	6.974	429.1 -> 80.9	5173	6.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.0%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4928	5.83 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.7%		
13C2-PFDoDA	9.079	615.1 -> 570.0	44461	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.3%		
13C2-PFTeDA	9.784	715.2 -> 670.0	15545	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C3-PFBS	5.571	302.1 -> 79.9	30347	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.4%		
13C3-PFHxS	7.301	402.1 -> 79.9	16961	2.78 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 = 111.4%	
13C4-PFBA	3.010	216.8 -> 171.9	264561	11.23 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C4-PFHpA	6.569	367.1 -> 322.0	76162	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C5-PFHxA	5.641	318.0 -> 273.0	99597	2.95 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.8%	
13C5-PFPeA	4.434	268.3 -> 223.0	41112	5.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.7%	
13C6-PFDA	8.198	519.1 -> 474.1	41909	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.6%	
13C7-PFUnDA	8.651	570.0 -> 525.1	49155	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.7%	
13C8-FOSA	9.682	506.1 -> 77.8	20553	1.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 70.4%	
13C8-PFOA	7.198	421.1 -> 376.0	104684	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C8-PFOS	8.348	507.1 -> 79.9	15599	2.98 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.0%	
13C9-PFNA	7.729	472.1 -> 427.0	40333	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%	
d3-MeFOSAA	8.256	573.2 -> 419.0	28623	5.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.8%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	56969	11.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 119.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	8320	1.97 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.7%	
d5-EtFOSAA	8.452	589.2 -> 419.0	22979	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.7%	
d7-MeFOSE	10.690	623.2 -> 58.9	68967	18.16 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 72.6%	
d9-EtFOSE	10.923	639.2 -> 58.9	105398	21.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.6%	
d5-EtFOSA	10.989	531.1 -> 219.0	8664	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.0%	

Target Compounds

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

7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.	
		363.1 -> 319.0			
PFHpS	-	363.1 -> 169.0	-	N.D.	
		449.0 -> 79.9			
PFHxA	-	449.0 -> 98.9	-	N.D.	
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	-	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	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

7.2.1
7

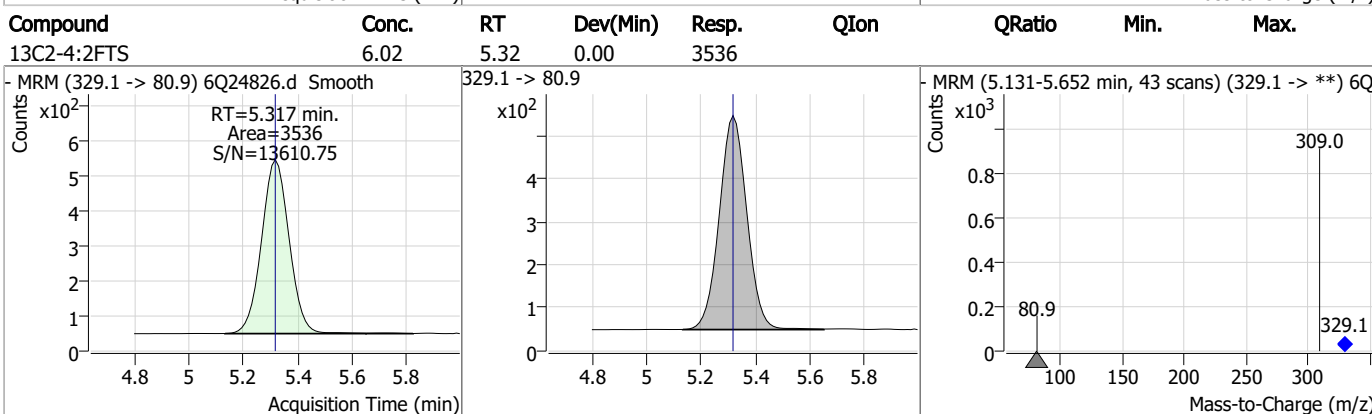
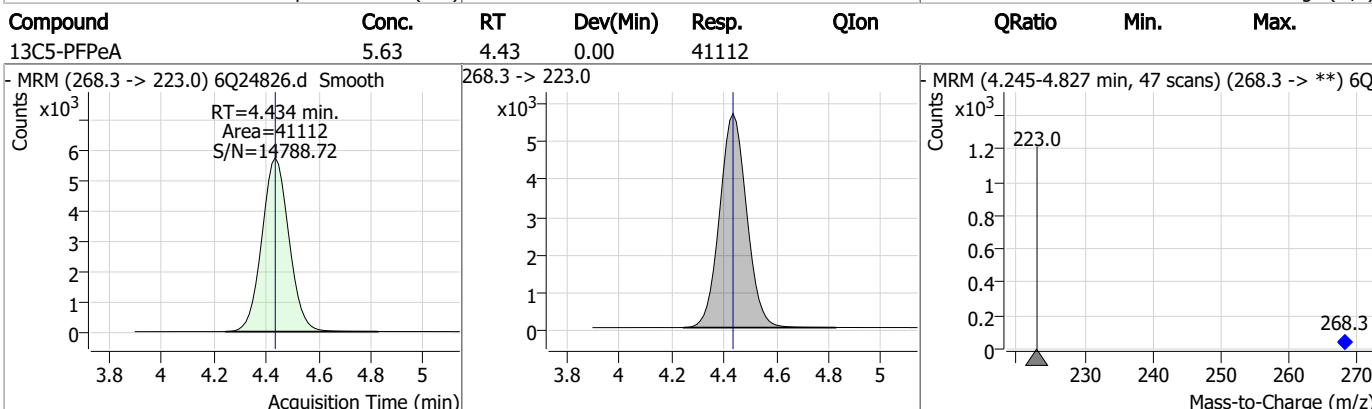
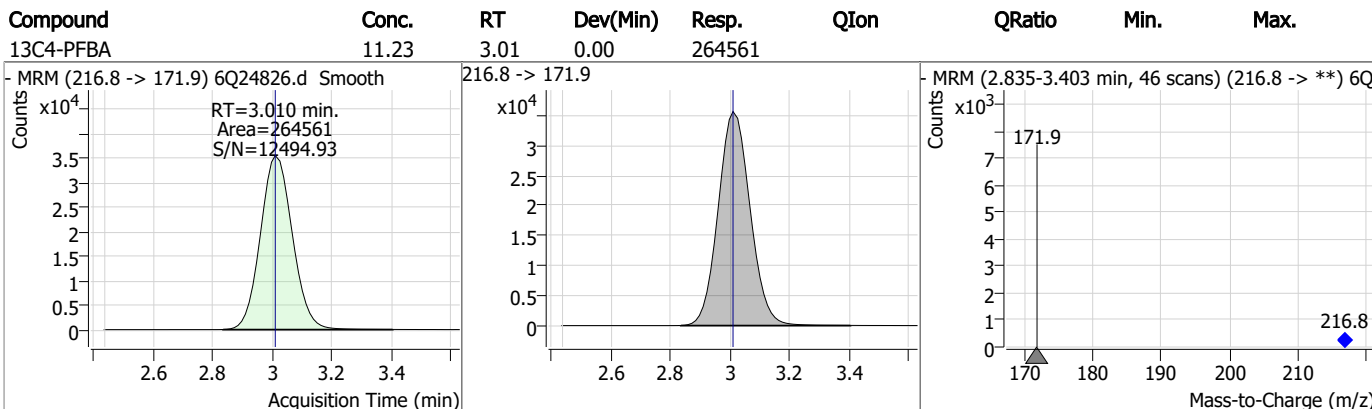
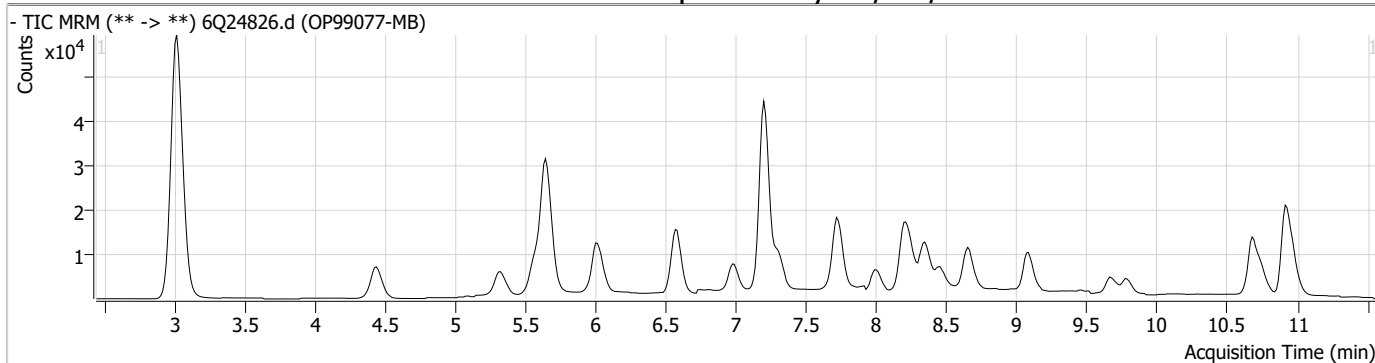
Perfluorinated Compounds by LC/MS/MS

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

7.2.1

7

Perfluorinated Compounds by LC/MS/MS



7.2.1
7

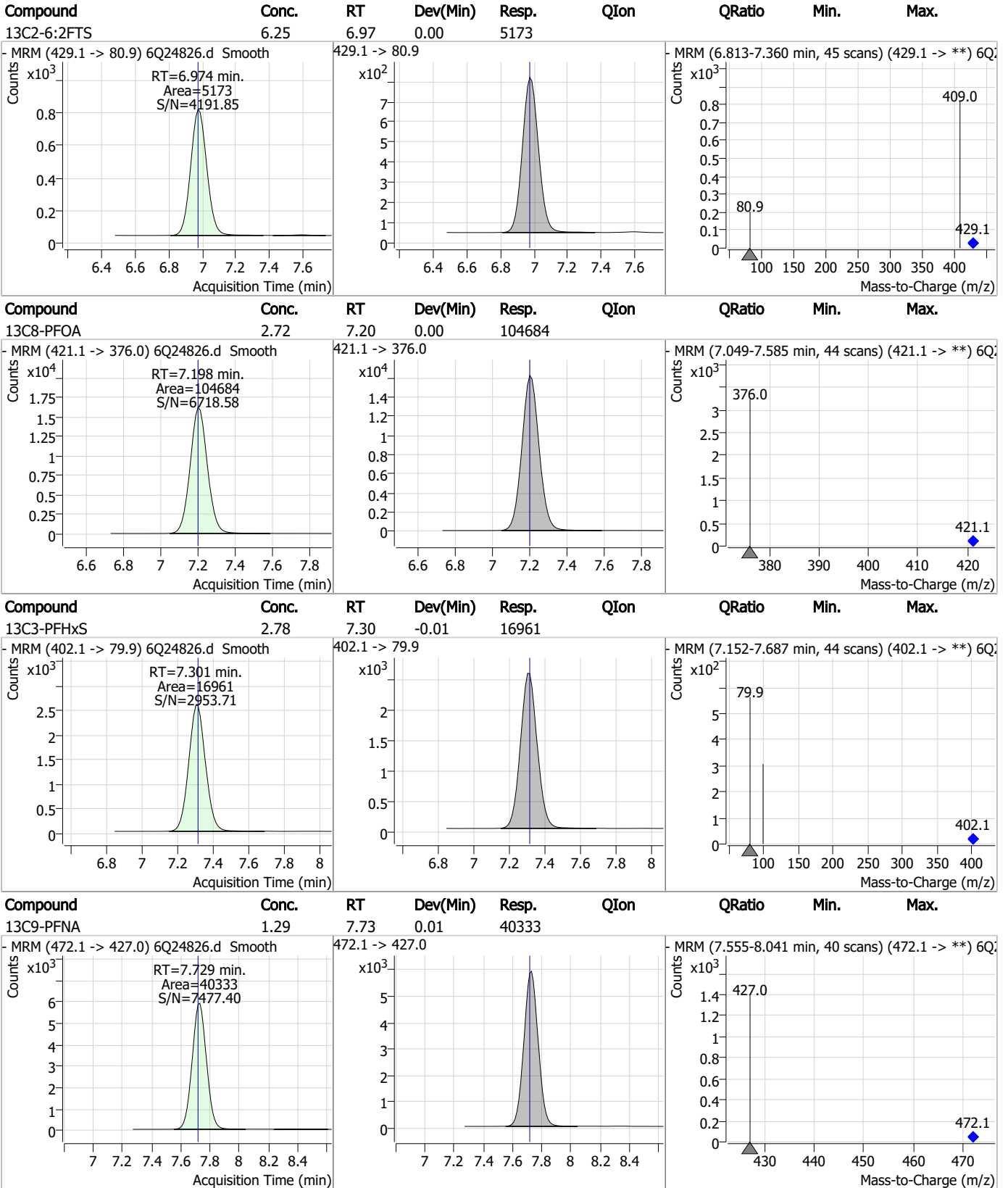
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.79	5.57	0.00	30347				
13C5-PFHxA	2.95	5.64	0.00	99597				
13C3-HFPO-DA	11.97	6.02	0.00	56969				
13C4-PFHpA	2.76	6.57	0.00	76162				

7.2.1

7

Perfluorinated Compounds by LC/MS/MS

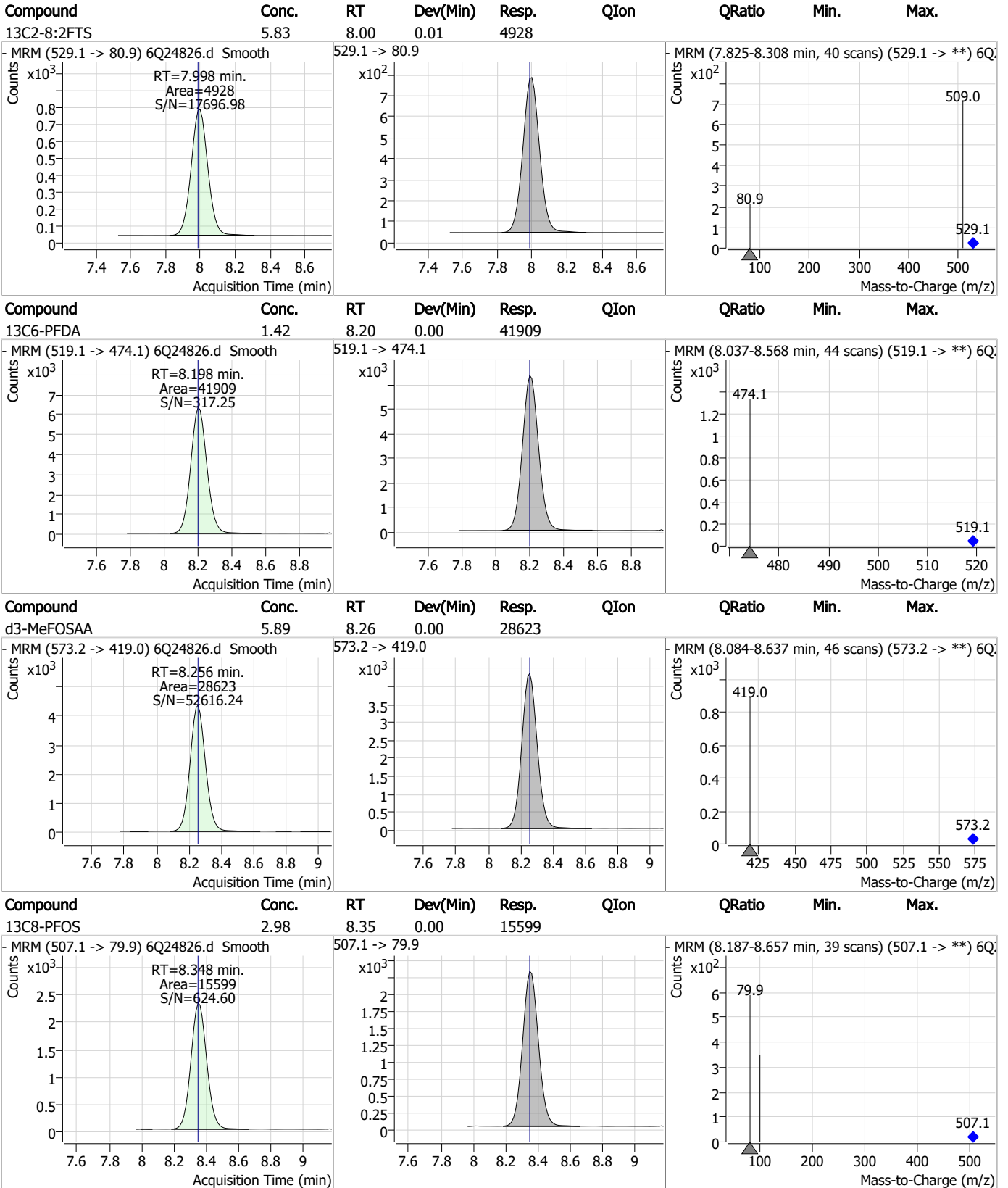


7.2.1

7



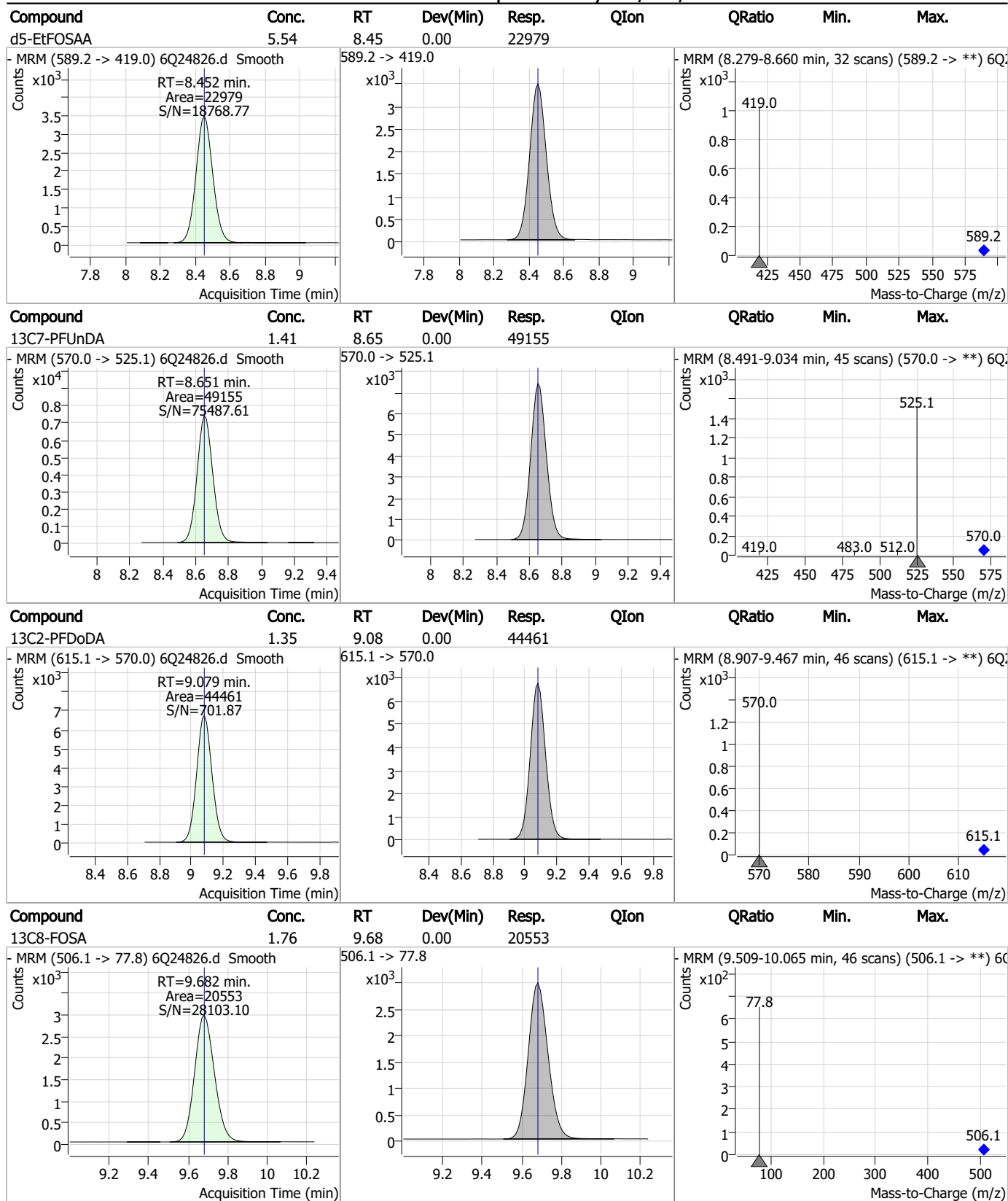
Perfluorinated Compounds by LC/MS/MS



7.2.1

7

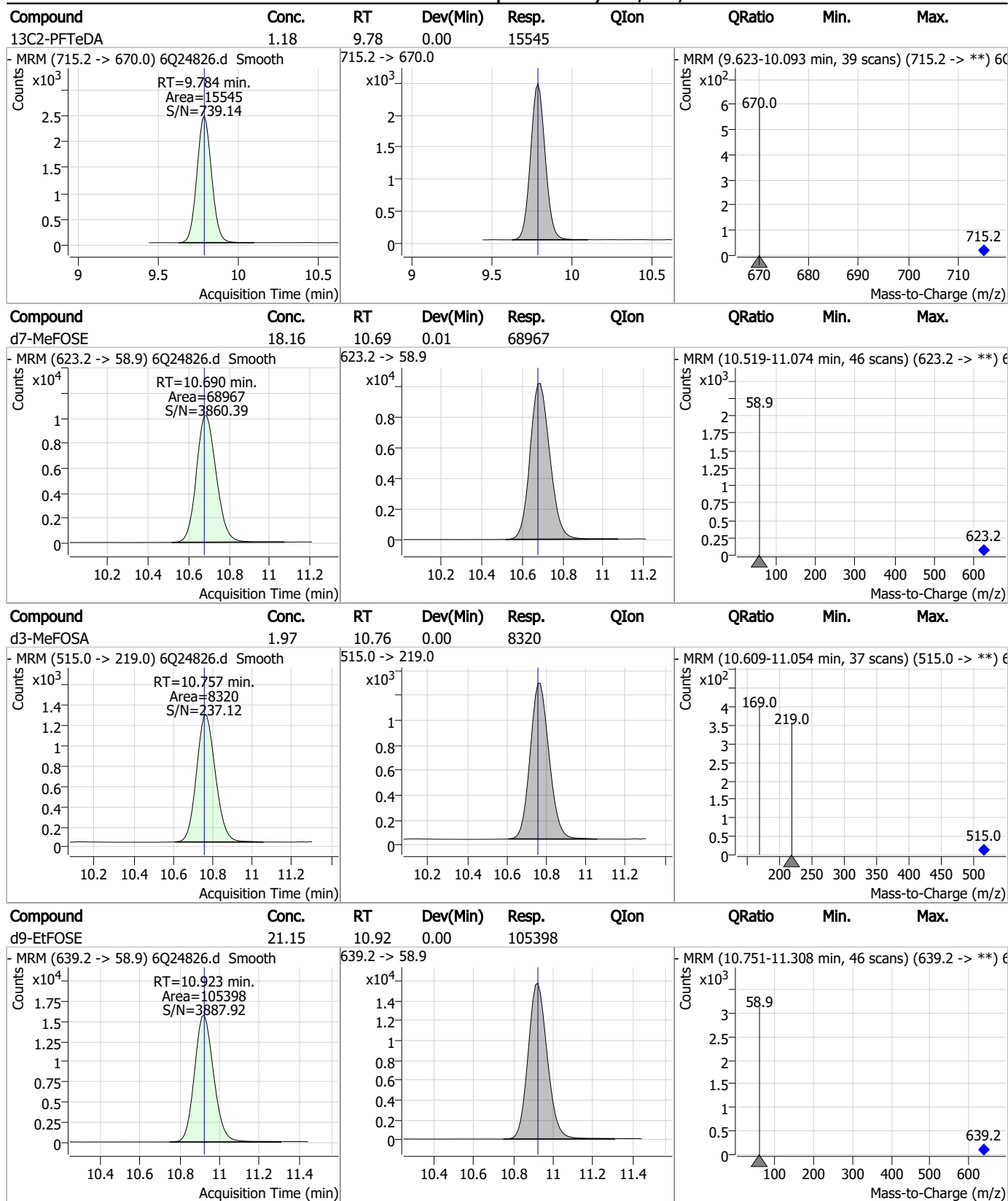
Perfluorinated Compounds by LC/MS/MS



7.2.1
7



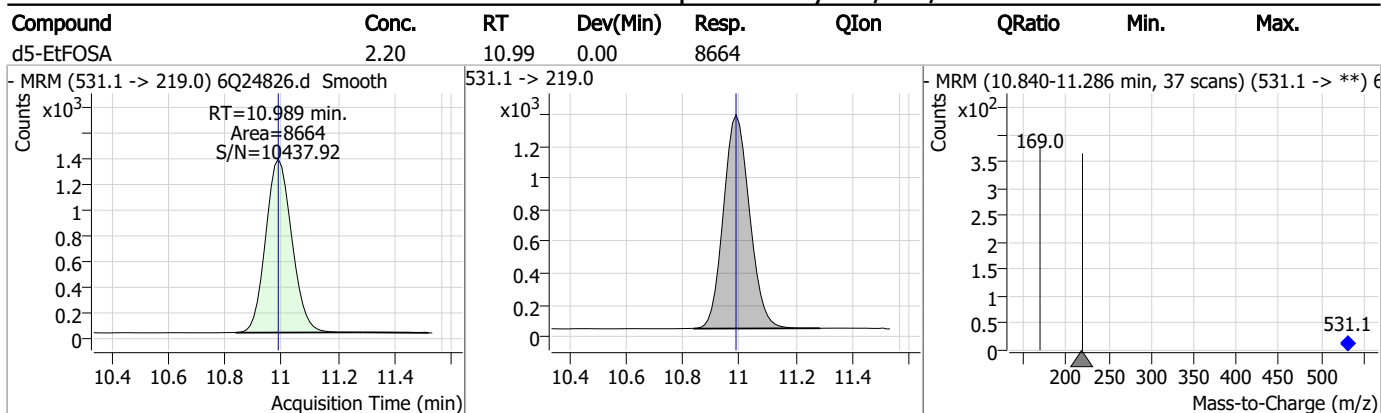
Perfluorinated Compounds by LC/MS/MS



7.2.1
7



Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25052.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 10:36:09 PM
 Sample Name : OP99174-MB
 Vial : P5-E6
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q357.batch.bin
 Sample Information : OP99174,S6Q357,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	194287	10.00 µg/L	0.025
M5-PFPeA	4.422	268.3 -> 223.0	80458	5.00 µg/L	0.012
M5-PFHxA	5.629	318.0 -> 273.0	71096	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	69193	2.50 µg/L	0.000
M8-PFOA	7.186	421.1 -> 376.0	93328	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	40006	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	39277	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	41094	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	38920	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	14013	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	24678	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	30184	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	17817	2.50 µg/L	0.000
M8-PFOS	8.336	507.1 -> 79.9	17298	2.50 µg/L	-0.013
M2-4:2FTS	5.304	329.1 -> 80.9	3202	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4711	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4336	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	33847	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	46880	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	28888	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	84961	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	112190	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	8719	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	7553	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	14891	2.50 µg/L	-0.013
13C3-PFBA	3.001	216.0 -> 172.0	81276	5.00 µg/L	0.025
18O2-PFHxS	7.300	403.0 -> 83.9	11049	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	107876	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	34397	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	37305	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	65941	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3202	5.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.3%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4711	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4336	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-PFDoDA	9.067	615.1 -> 570.0	38920	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C2-PFTeDA	9.772	715.2 -> 670.0	14013	1.01 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 80.4%		
13C3-PFBS	5.559	302.1 -> 79.9	30184	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C3-PFHxS	7.301	402.1 -> 79.9	17817	2.55 µg/L	0.000

7.22
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C4-PFBA	2.997	216.8 -> 171.9	194287	9.89 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C4-PFHpA	6.569	367.1 -> 322.0	69193	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C5-PFHxA	5.629	318.0 -> 273.0	71096	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFPeA	4.422	268.3 -> 223.0	80458	5.15 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C6-PFDA	8.185	519.1 -> 474.1	39277	1.36 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C7-PFUnDA	8.639	570.0 -> 525.1	41094	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-FOSA	9.670	506.1 -> 77.8	24678	1.96 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.4%	
13C8-PFOA	7.186	421.1 -> 376.0	93328	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-PFOS	8.336	507.1 -> 79.9	17298	2.69 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C9-PFNA	7.717	472.1 -> 427.0	40006	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.7%	
d3-MeFOSAA	8.244	573.2 -> 419.0	33847	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	46880	9.43 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.3%	
d3-MeFOSA	10.757	515.0 -> 219.0	7553	1.99 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.8%	
d5-EtFOSAA	8.439	589.2 -> 419.0	28888	5.27 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
d7-MeFOSE	10.678	623.2 -> 58.9	84961	19.02 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.1%	
d9-EtFOSE	10.911	639.2 -> 58.9	112190	20.64 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.6%	
d5-EtFOSA	10.989	531.1 -> 219.0	8719	2.19 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.5%	

7.22
7

Target Compounds

QValue

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

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	9.035	563.1 -> 519.0	0		µg/L	m
		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	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.2
7

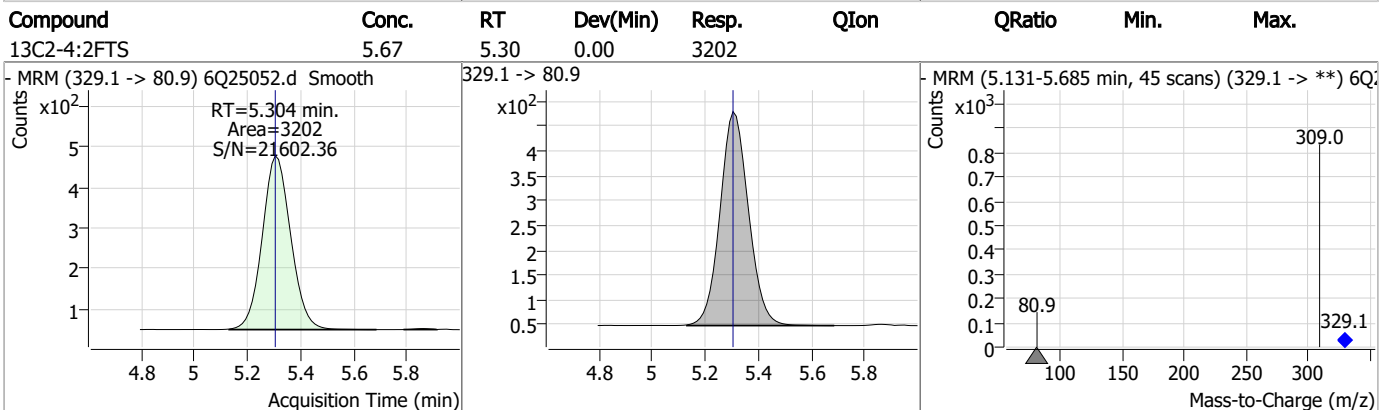
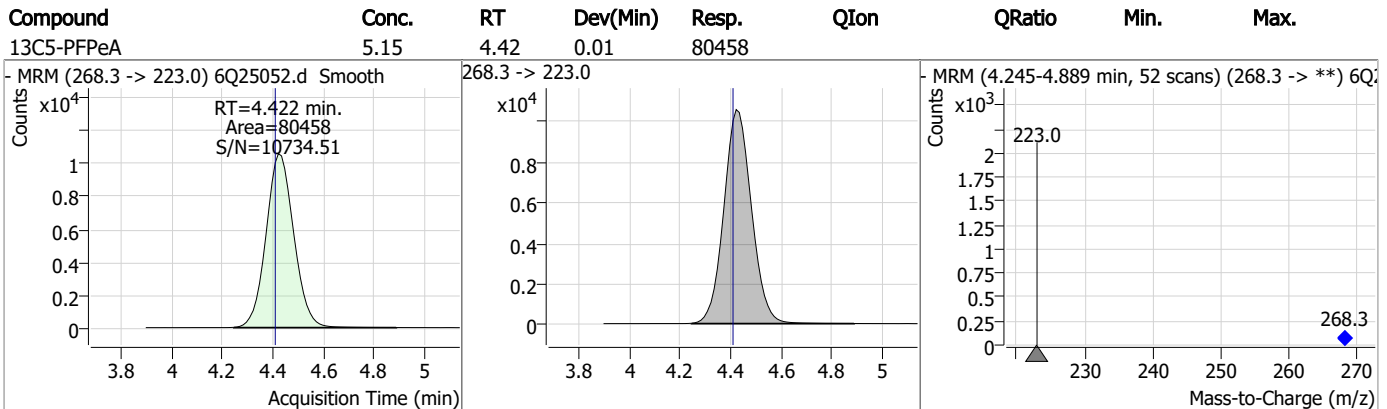
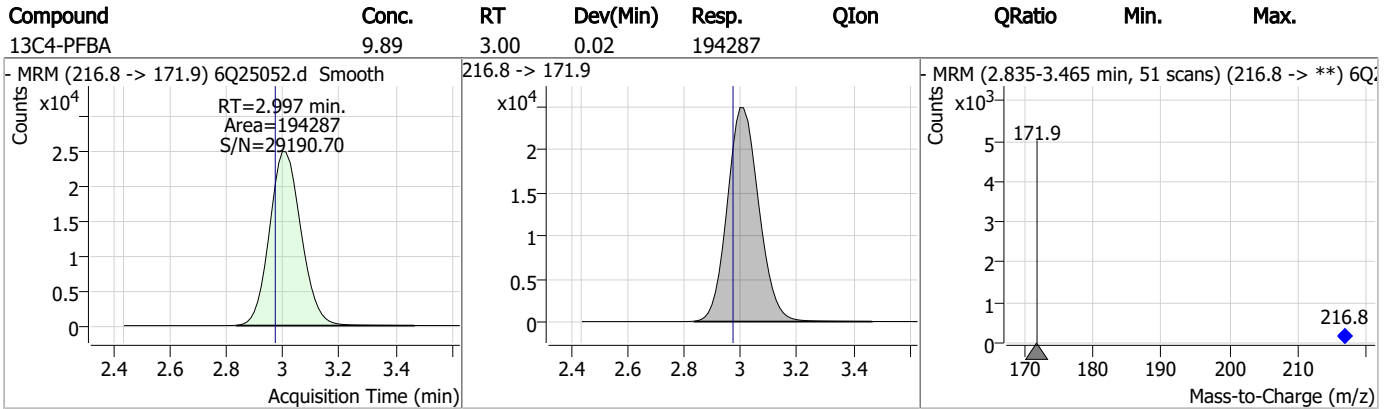
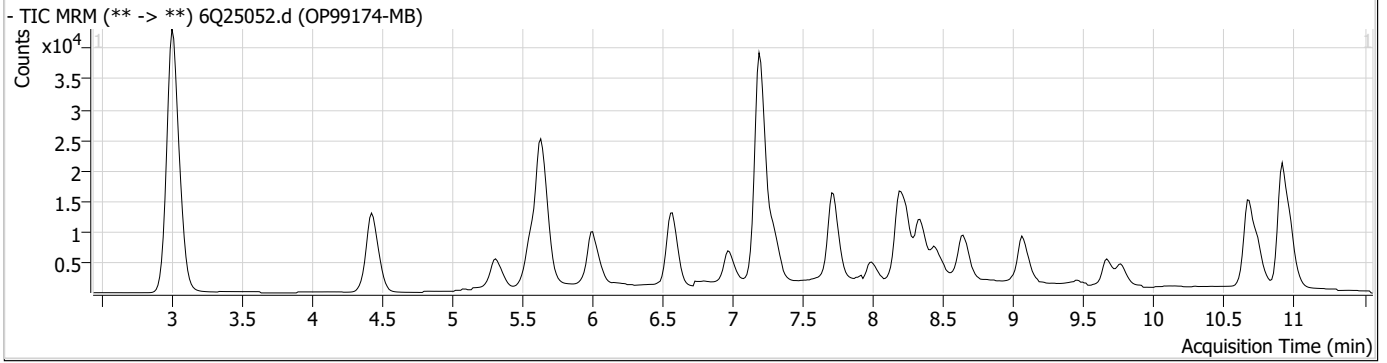
Perfluorinated Compounds by LC/MS/MS

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

7.2.2

7

Perfluorinated Compounds by LC/MS/MS



7.2.2

7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.60	5.56	0.00	30184				
13C5-PFHxA	2.57	5.63	0.00	71096				
13C3-HFPO-DA	9.43	6.01	0.00	46880				
13C4-PFHpA	2.57	6.57	0.00	69193				

7.2.2

7

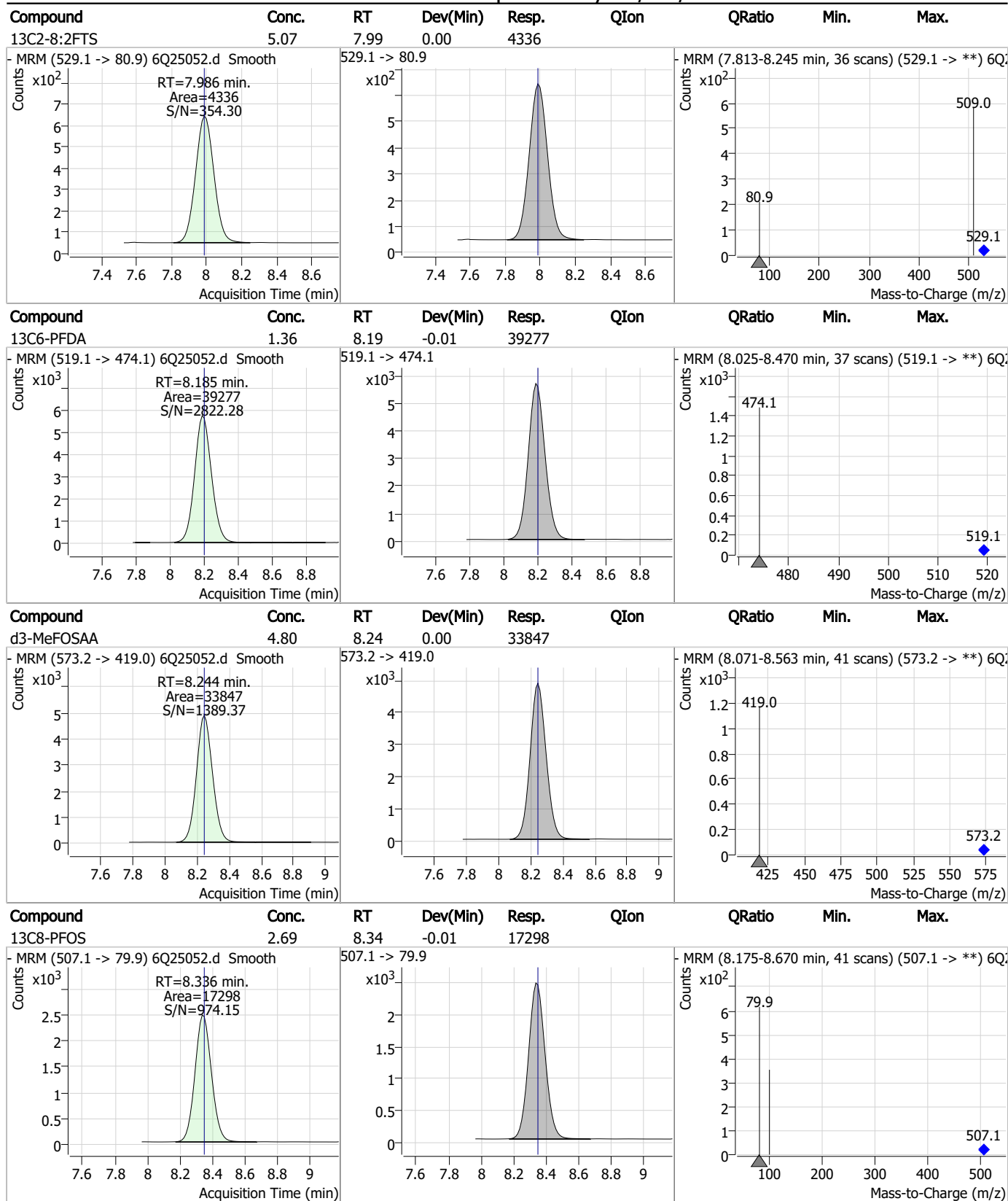


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.24	6.97	0.00	4711				
13C8-PFOA	2.50	7.19	-0.01	93328				
13C3-PFHxS	2.55	7.30	0.00	17817				
13C9-PFNA	1.33	7.72	0.00	40006				

7.22
7

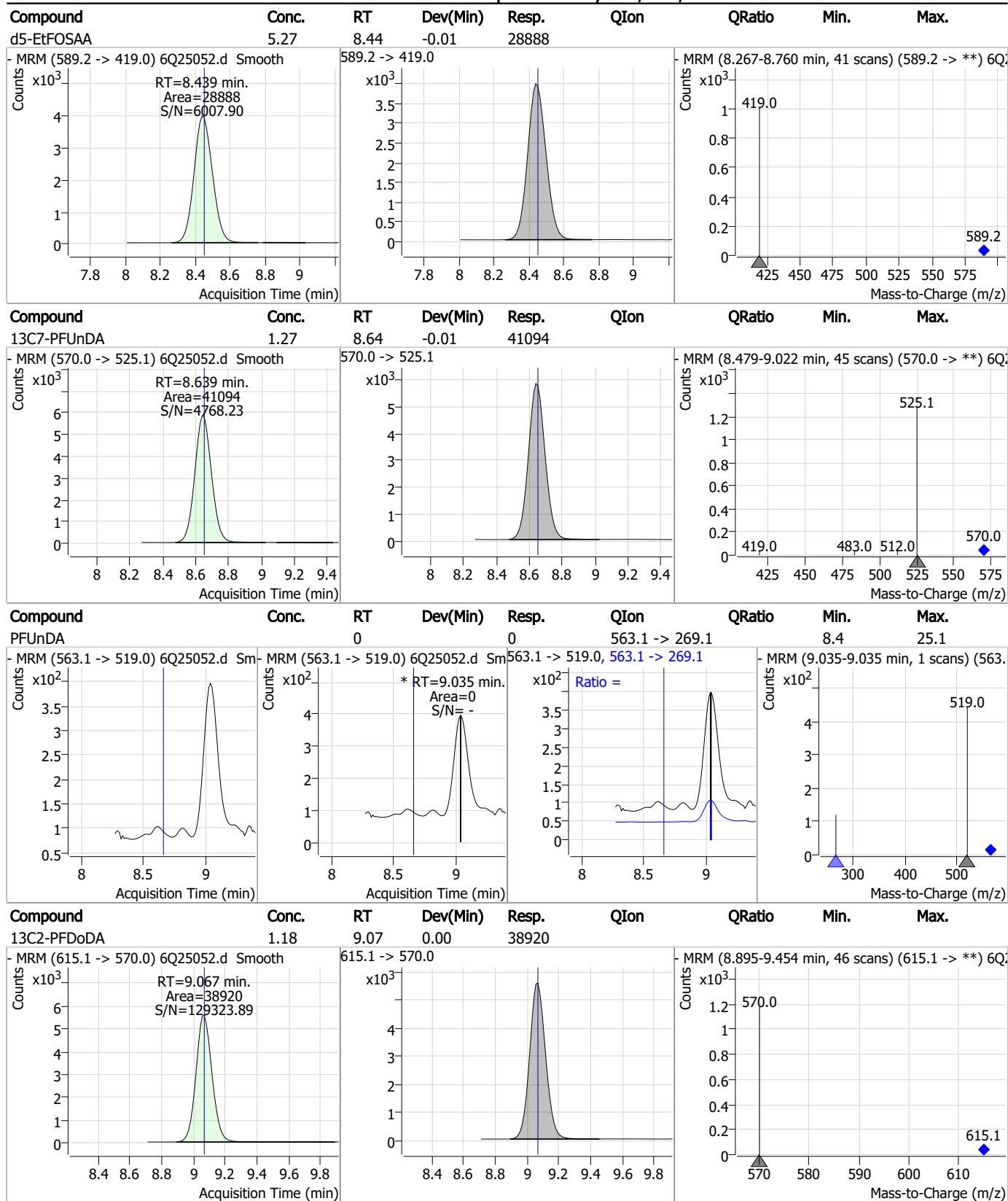
Perfluorinated Compounds by LC/MS/MS



7.2.2
7



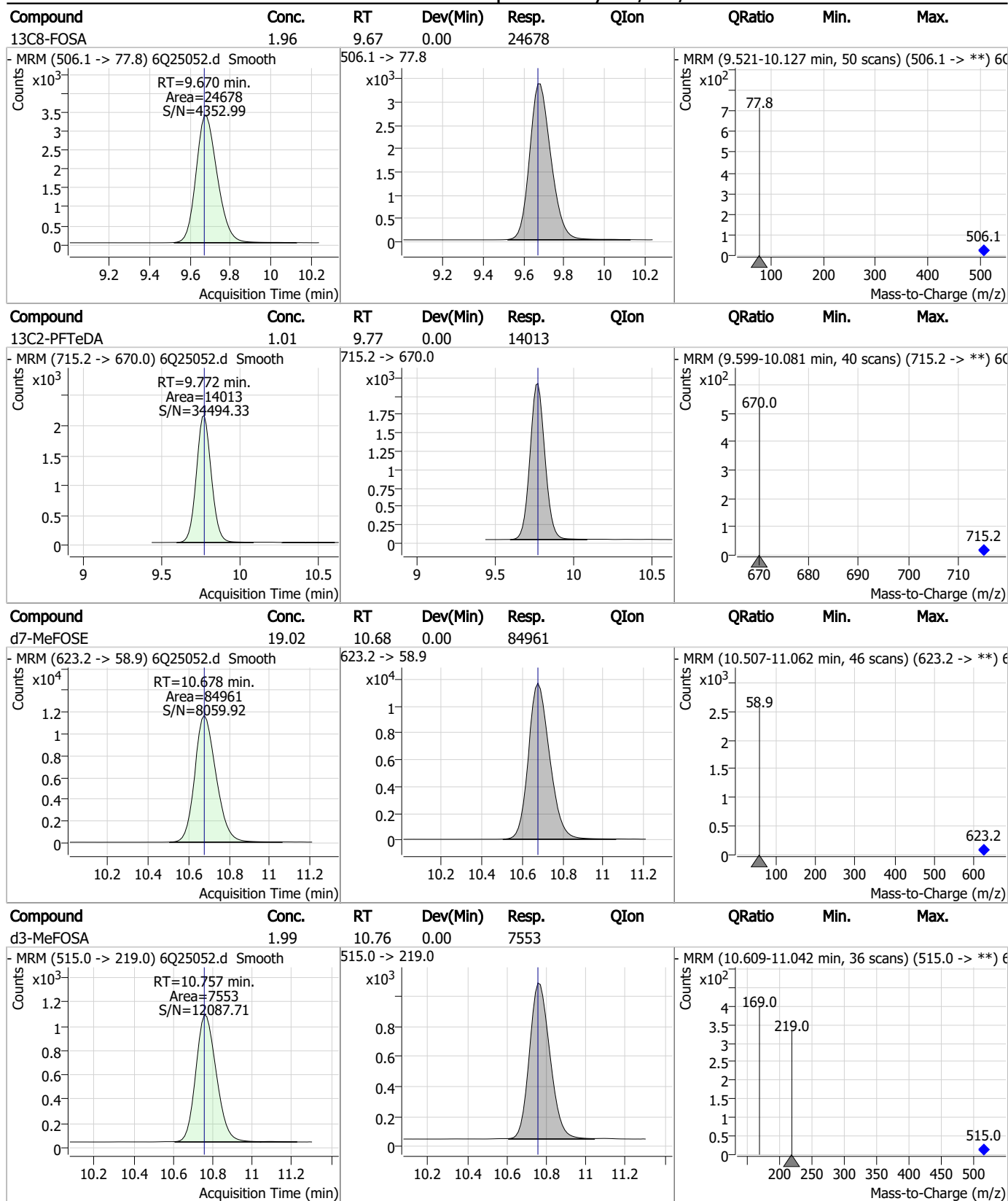
Perfluorinated Compounds by LC/MS/MS



7.2.2
7



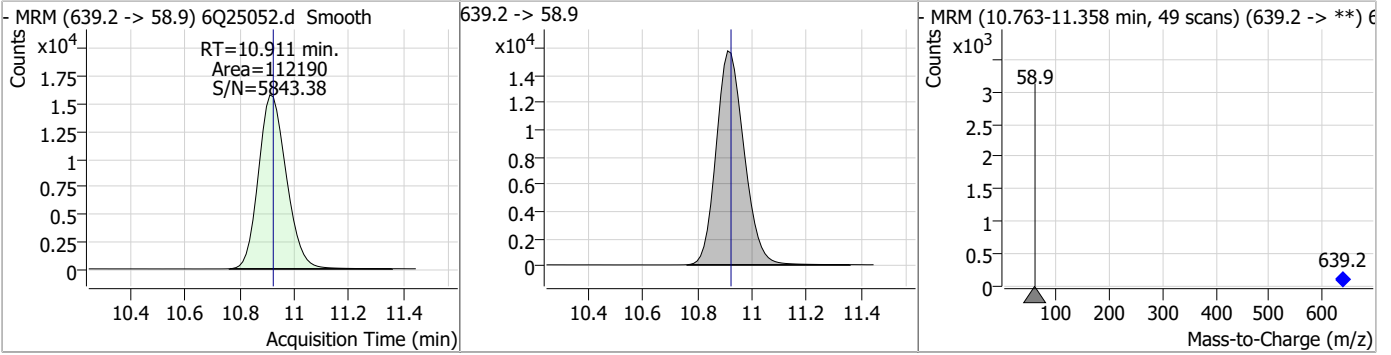
Perfluorinated Compounds by LC/MS/MS



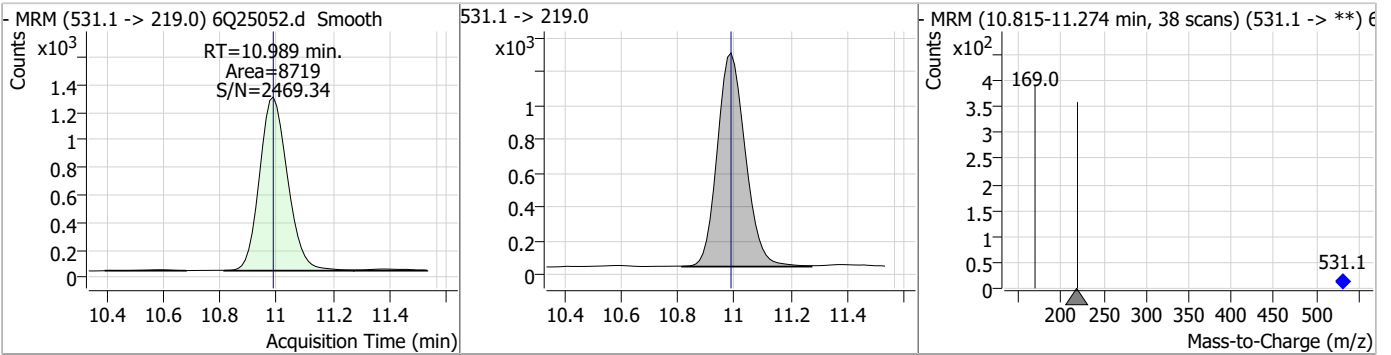
7.2.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.64	10.91	-0.01	112190				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.19	10.99	0.00	8719				



7.2.2

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24819.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 10:30:35 PM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	303789	10.00 µg/L	-0.025
M5-PFPeA	4.422	268.3 -> 223.0	49449	5.00 µg/L	-0.012
M5-PFHxA	5.641	318.0 -> 273.0	112371	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	94757	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	128846	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	53806	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	47592	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	59149	1.25 µg/L	0.000
M2-PFDoDA	9.079	615.1 -> 570.0	51887	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	20243	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	40304	2.50 µg/L	-0.012
M3-PFBS	5.559	302.1 -> 79.9	36444	2.50 µg/L	-0.012
M3-PFHxS	7.301	402.1 -> 79.9	20321	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	19331	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	4019	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	6036	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	5845	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	33447	5.00 µg/L	-0.012
M3-HFPO-DA	6.007	286.9 -> 168.9	62882	10.00 µg/L	-0.012
M5-EtFOSAA	8.452	589.2 -> 419.0	27285	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	131228	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	172460	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	13834	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	14041	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	23839	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	123525	5.00 µg/L	-0.012
18O2-PFHxS	7.300	403.0 -> 83.9	14536	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	131488	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	40316	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	52355	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	90123	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	4019	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-6:2FTS	6.974	429.1 -> 80.9	6036	5.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.9%		
13C2-8:2FTS	7.986	529.1 -> 80.9	5845	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.1%		
13C2-PFDoDA	9.079	615.1 -> 570.0	51887	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-PFTeDA	9.784	715.2 -> 670.0	20243	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C3-PFBS	5.559	302.1 -> 79.9	36444	2.59 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C3-PFHxS	7.301	402.1 -> 79.9	20321	2.58 µg/L	-0.012

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 = 103.3%	
13C4-PFBA	2.985	216.8 -> 171.9	303789	10.08 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C4-PFHpA	6.569	367.1 -> 322.0	94757	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C5-PFHxA	5.641	318.0 -> 273.0	112371	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C5-PFPeA	4.422	268.3 -> 223.0	49449	4.83 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C6-PFDA	8.198	519.1 -> 474.1	47592	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C7-PFUnDA	8.651	570.0 -> 525.1	59149	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C8-FOSA	9.670	506.1 -> 77.8	40304	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C8-PFOA	7.198	421.1 -> 376.0	128846	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C8-PFOS	8.348	507.1 -> 79.9	19331	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C9-PFNA	7.717	472.1 -> 427.0	53806	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.4%	
d3-MeFOSAA	8.244	573.2 -> 419.0	33447	5.14 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	62882	9.41 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.1%	
d3-MeFOSA	10.769	515.0 -> 219.0	14041	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
d5-EtFOSAA	8.452	589.2 -> 419.0	27285	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
d7-MeFOSE	10.678	623.2 -> 58.9	131228	25.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
d9-EtFOSE	10.923	639.2 -> 58.9	172460	25.83 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
d5-EtFOSA	10.989	531.1 -> 219.0	13834	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	

7.2.3
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	-	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)
		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	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 118.9				
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFNS	-	548.8 -> 79.9	-	N.D.		
		548.8 -> 98.9				
PFOA	7.249	413.0 -> 369.0	0		µg/L m	1
		413.0 -> 169.0	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	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.3
7

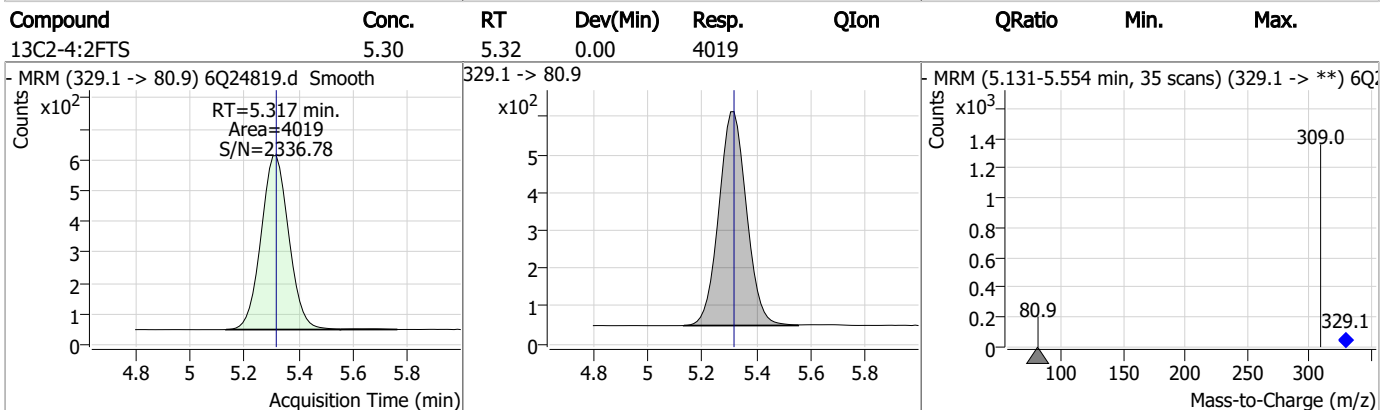
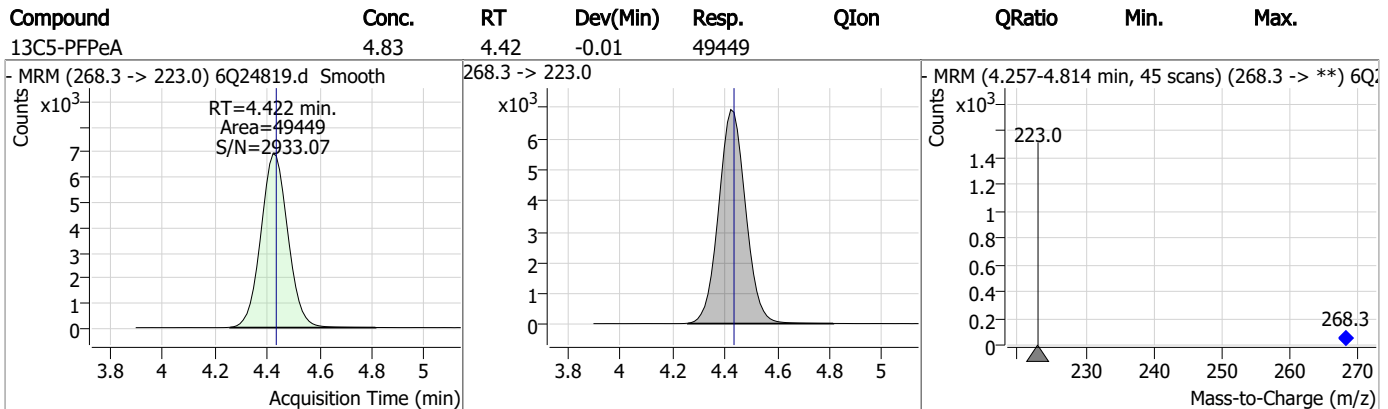
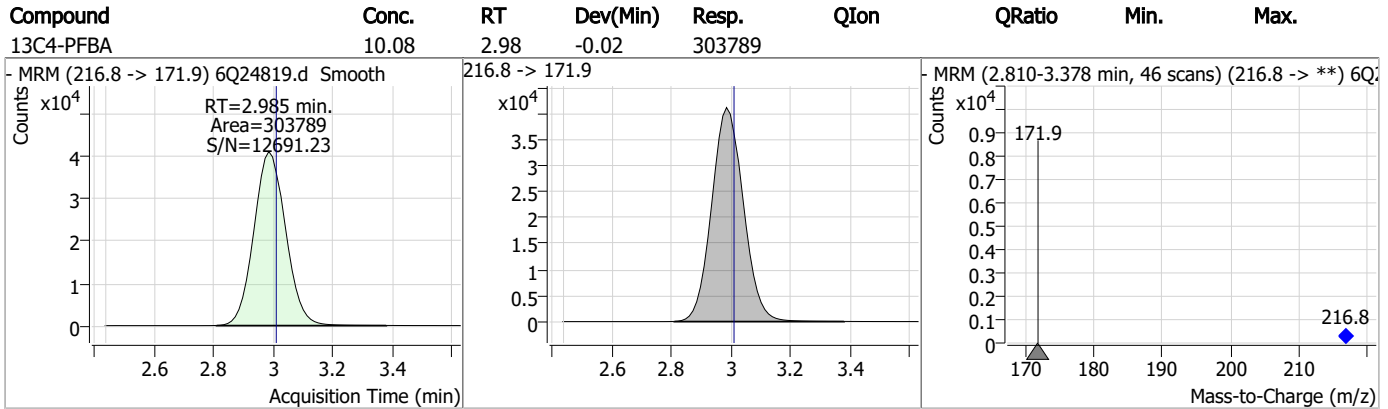
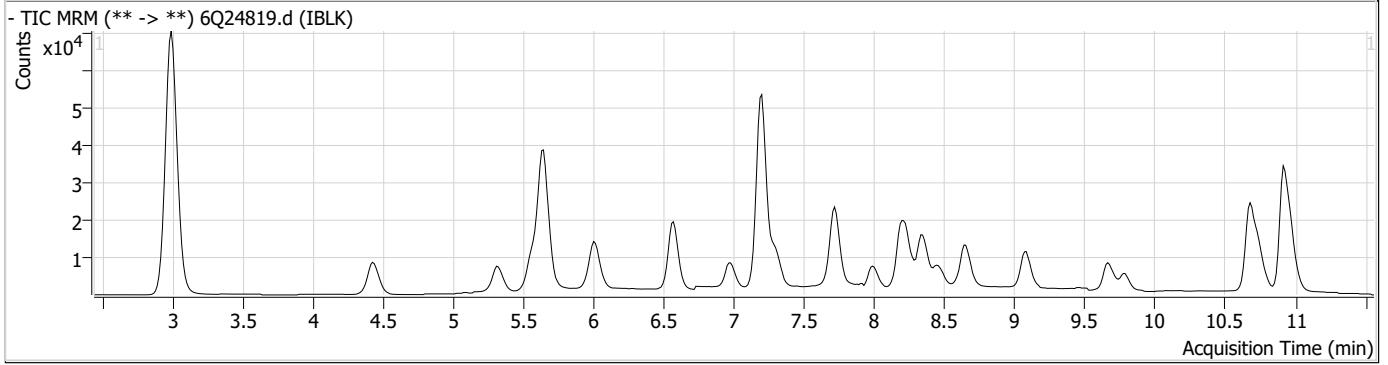
Perfluorinated Compounds by LC/MS/MS

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

7.2.3

7

Perfluorinated Compounds by LC/MS/MS



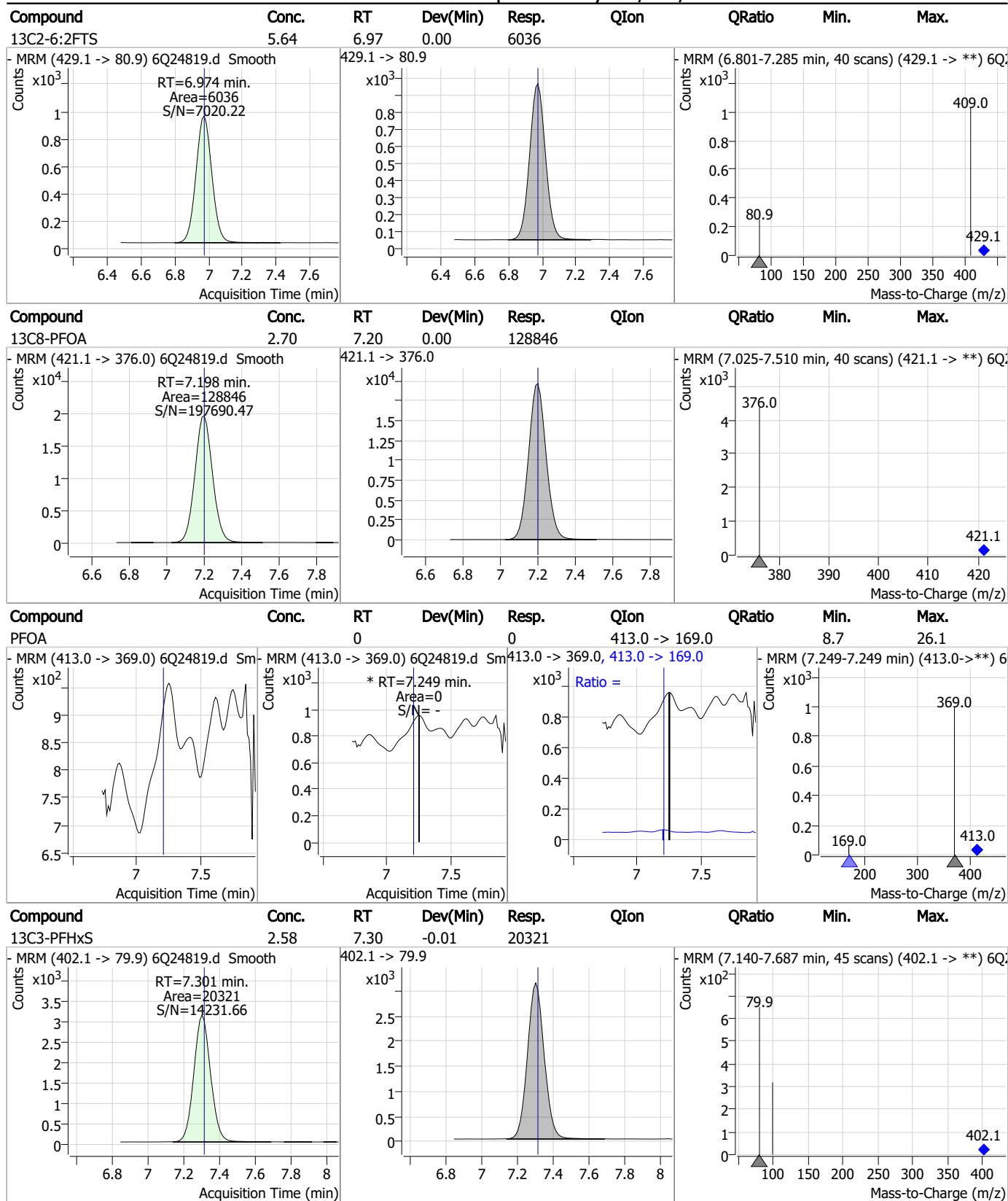
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.59	5.56	-0.01	36444				
13C5-PFHxA	2.37	5.64	0.00	112371				
13C3-HFPO-DA	9.41	6.01	-0.01	62882				
13C4-PFHpA	2.45	6.57	0.00	94757				

7.2.3
7



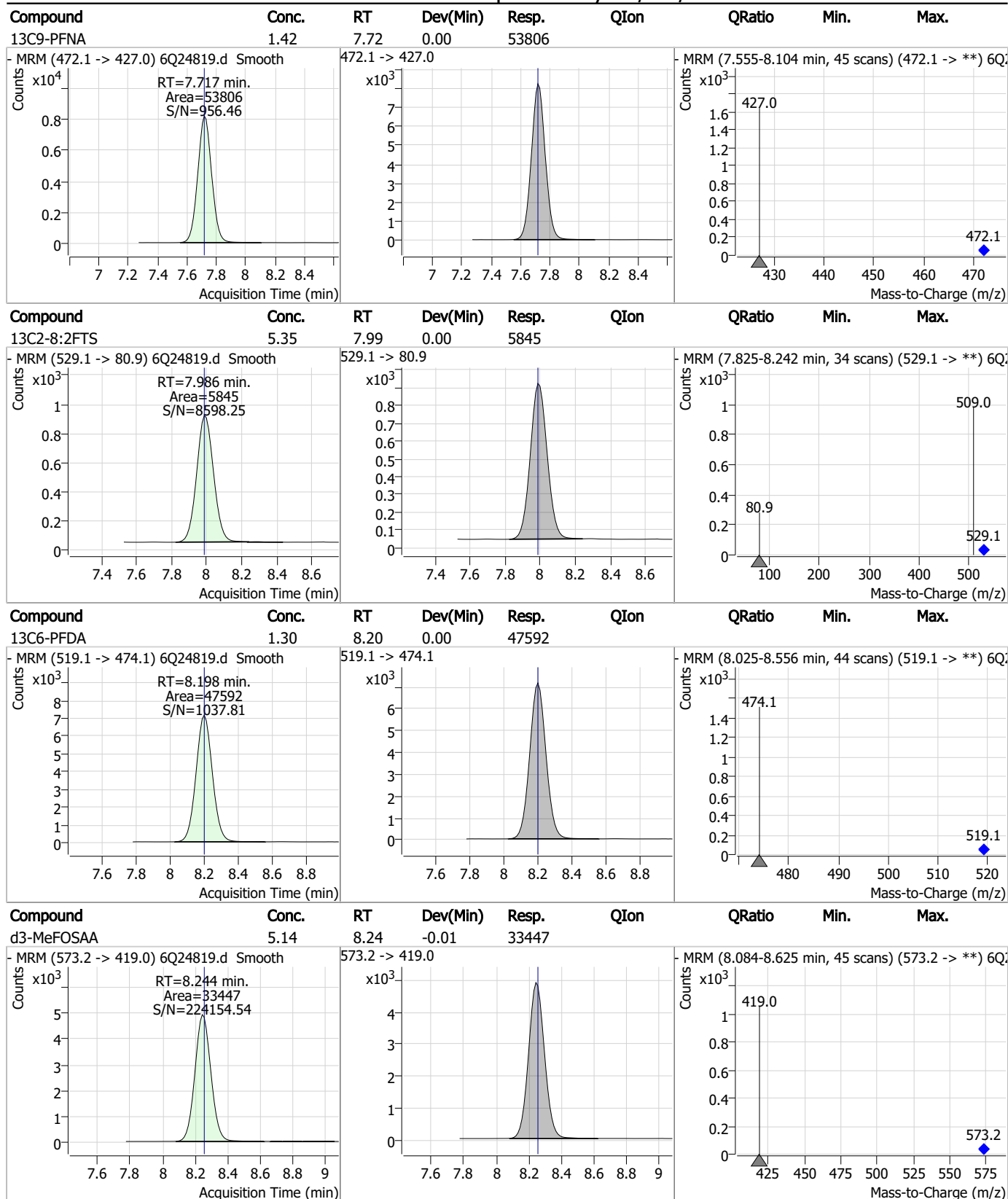
Perfluorinated Compounds by LC/MS/MS



7.2.3
7



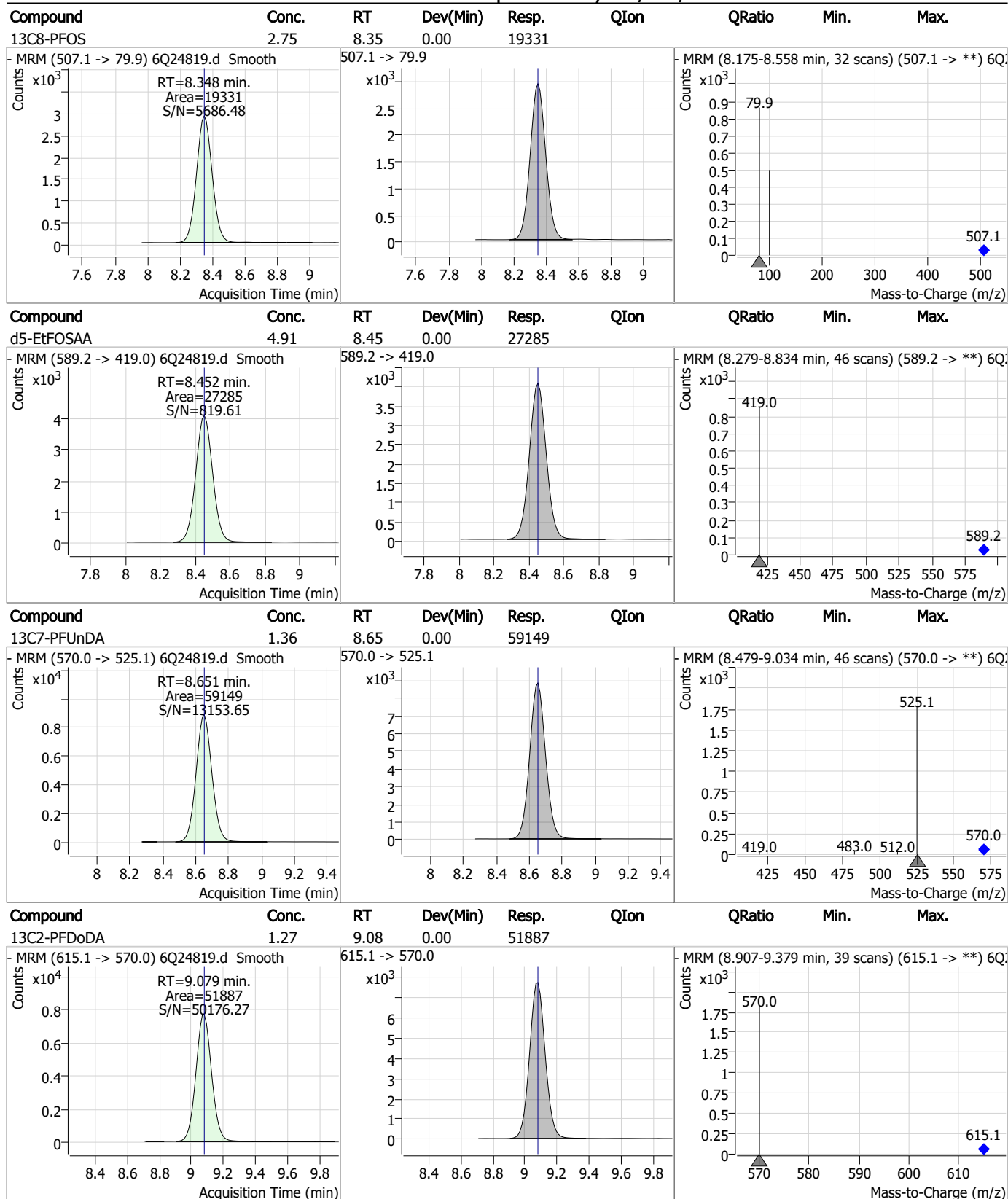
Perfluorinated Compounds by LC/MS/MS



7.2.3
7



Perfluorinated Compounds by LC/MS/MS

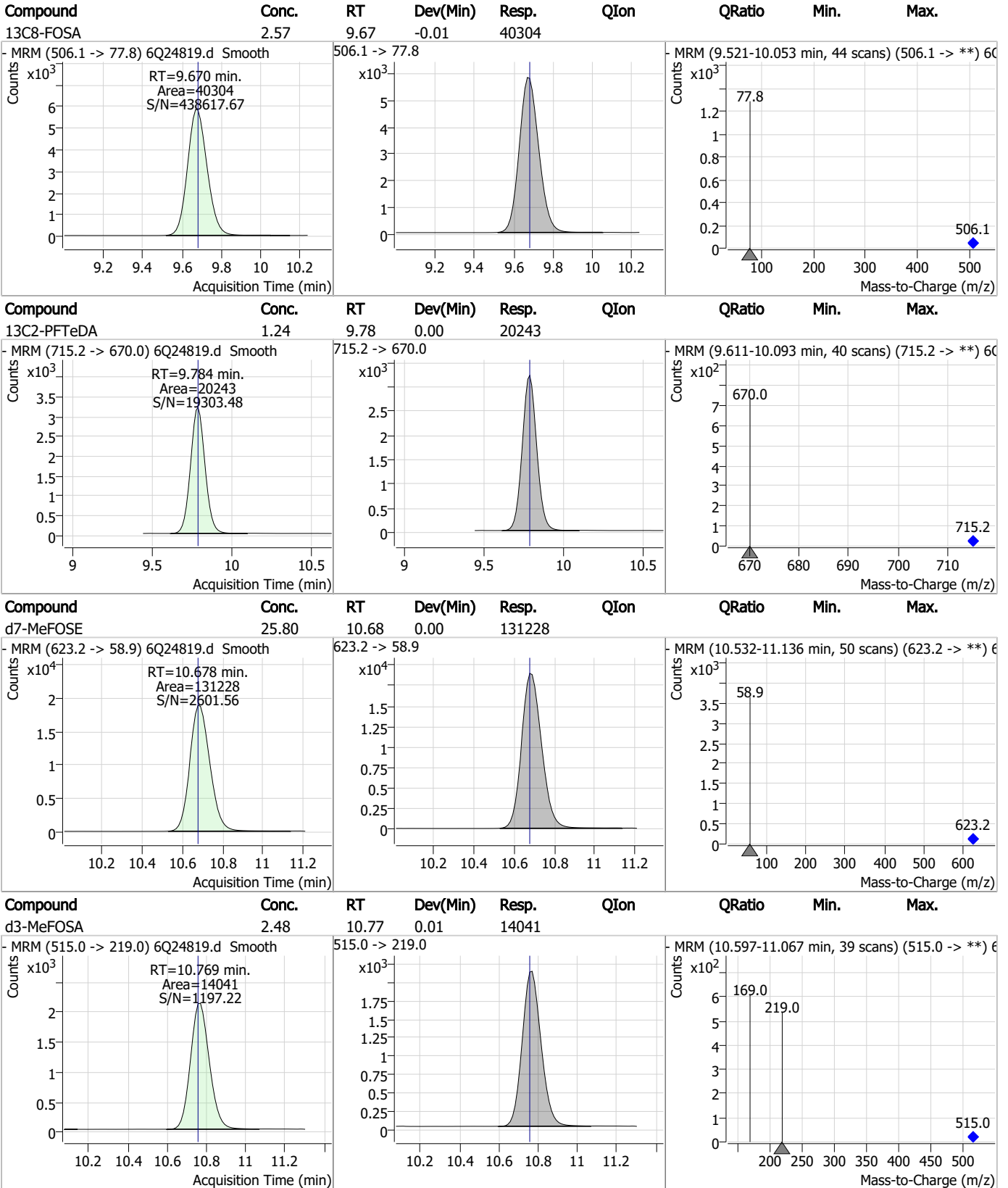


7.2.3

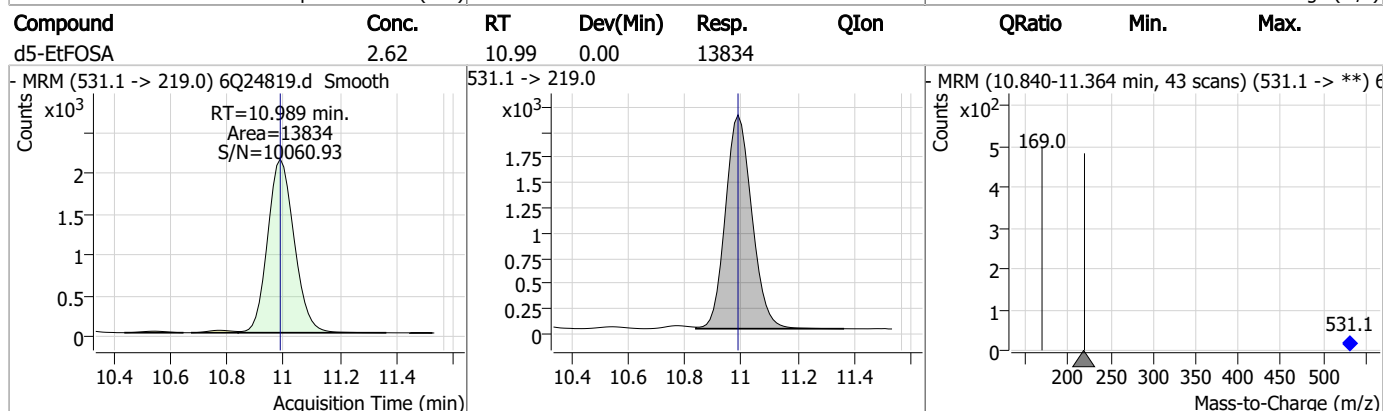
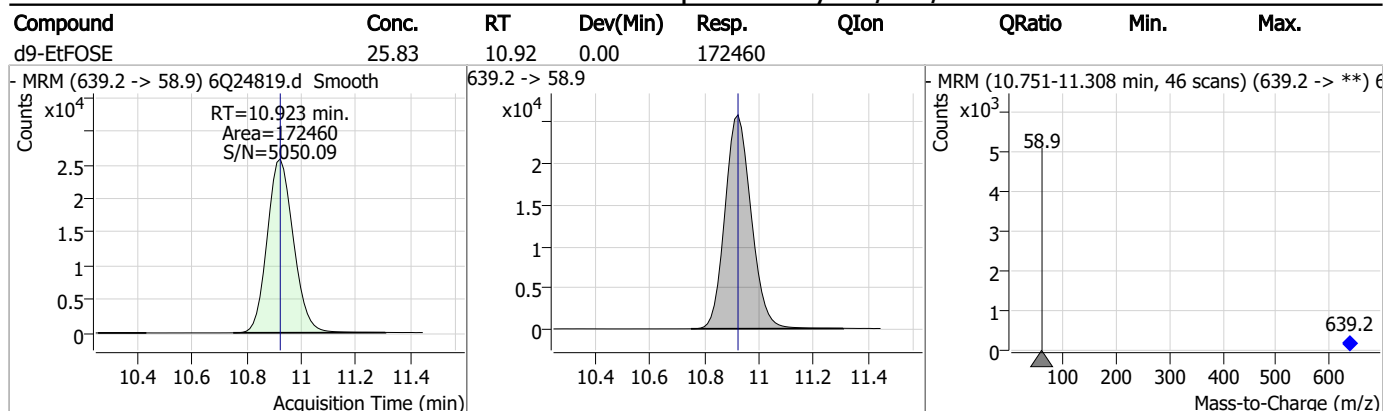
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.2.3
7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25047.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 9:24:35 PM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q357.batch.bin
 Sample Information : OP99081,S6Q357,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	184694	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	75663	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	68270	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	66596	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	87402	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	36808	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	37000	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	42377	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	39719	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16147	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	32098	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	28333	2.50 µg/L	-0.013
M3-PFHxS	7.289	402.1 -> 79.9	16443	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	17161	2.50 µg/L	0.000
M2-4:2FTS	5.292	329.1 -> 80.9	2935	5.00 µg/L	-0.012
M2-6:2FTS	6.961	429.1 -> 80.9	4469	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	4037	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	36409	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	45319	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	27314	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	103502	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	125868	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9680	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9287	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	15290	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	76946	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10774	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	102899	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	33865	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	37791	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	63471	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.292	329.1 -> 80.9	2935	5.33 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.5%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4469	5.10 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4037	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C2-PFDoDA	9.067	615.1 -> 570.0	39719	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16147	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C3-PFBS	5.546	302.1 -> 79.9	28333	2.50 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.289	402.1 -> 79.9	16443	2.41 µg/L	-0.012

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 = 96.5%	
13C4-PFBA	2.972	216.8 -> 171.9	184694	9.93 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C4-PFHpA	6.556	367.1 -> 322.0	66596	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C5-PFHxA	5.629	318.0 -> 273.0	68270	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFPeA	4.409	268.3 -> 223.0	75663	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C6-PFDA	8.185	519.1 -> 474.1	37000	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C7-PFUnDA	8.639	570.0 -> 525.1	42377	1.33 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C8-FOSA	9.670	506.1 -> 77.8	32098	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C8-PFOA	7.186	421.1 -> 376.0	87402	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C8-PFOS	8.348	507.1 -> 79.9	17161	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C9-PFNA	7.717	472.1 -> 427.0	36808	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.9%	
d3-MeFOSAA	8.244	573.2 -> 419.0	36409	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	45319	9.47 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	9287	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	
d5-EtFOSAA	8.439	589.2 -> 419.0	27314	4.85 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	103502	22.57 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.3%	
d9-EtFOSE	10.911	639.2 -> 58.9	125868	22.55 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.2%	
d5-EtFOSA	10.989	531.1 -> 219.0	9680	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	

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	8.593	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	9.443	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0	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	8.129	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	7.636	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.258	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

7.2.4
7

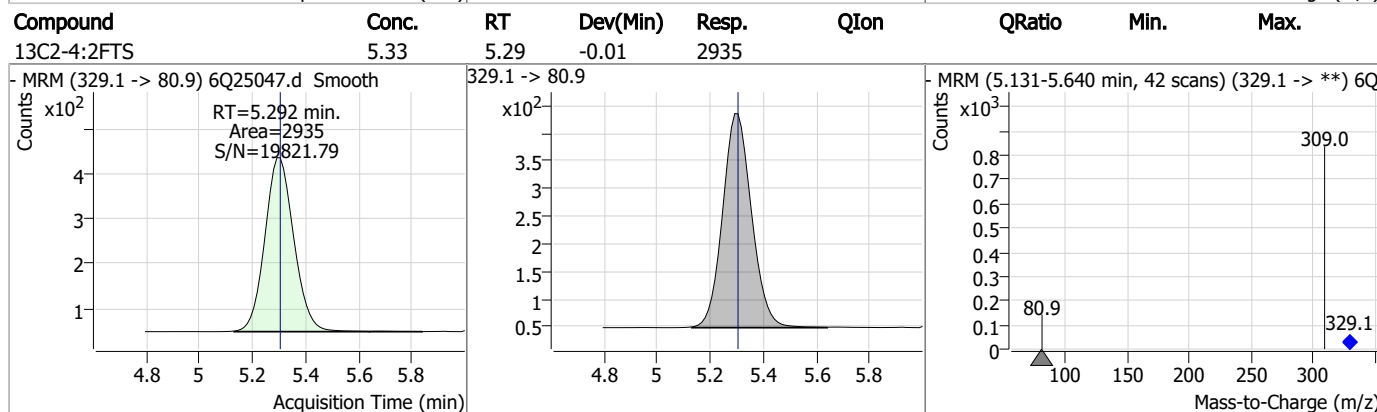
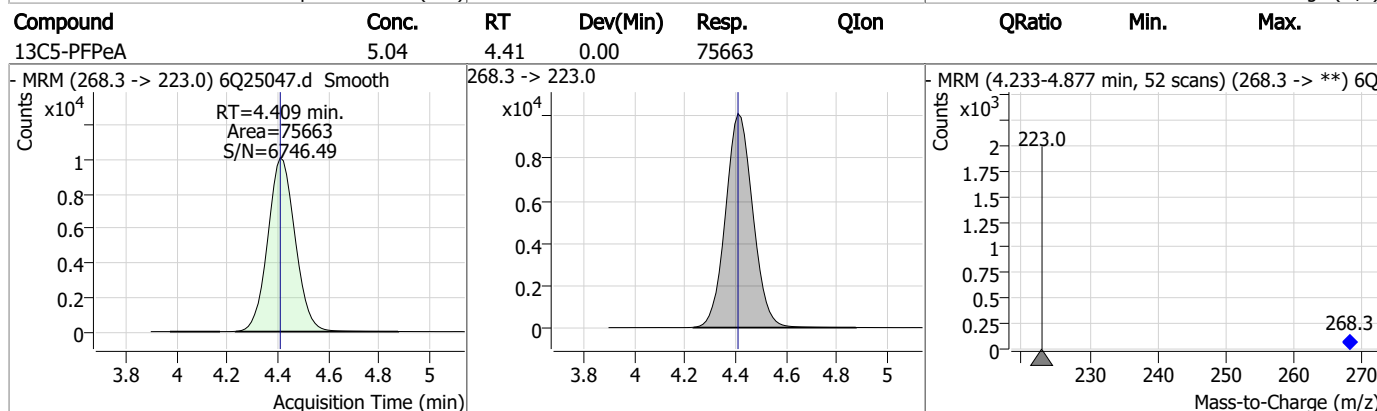
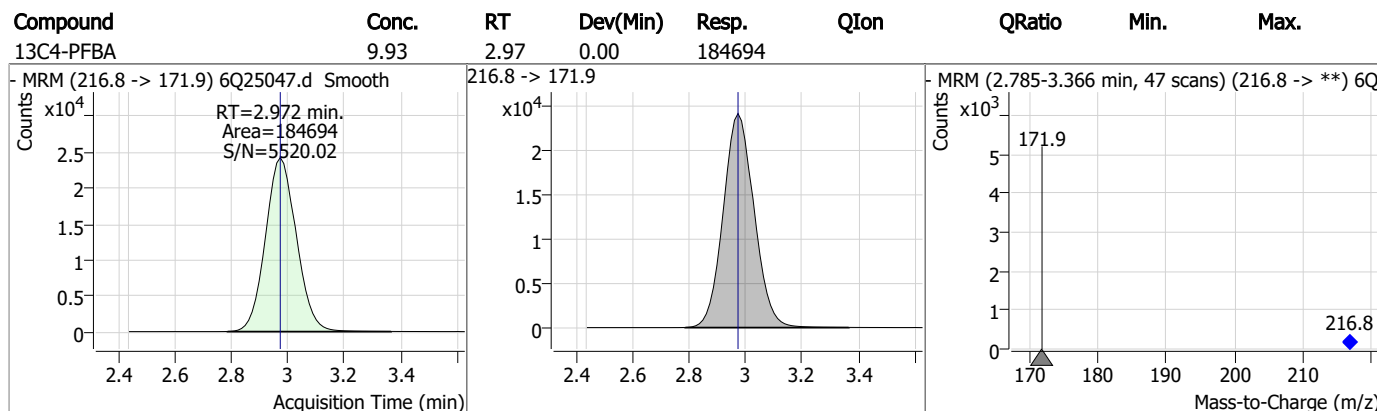
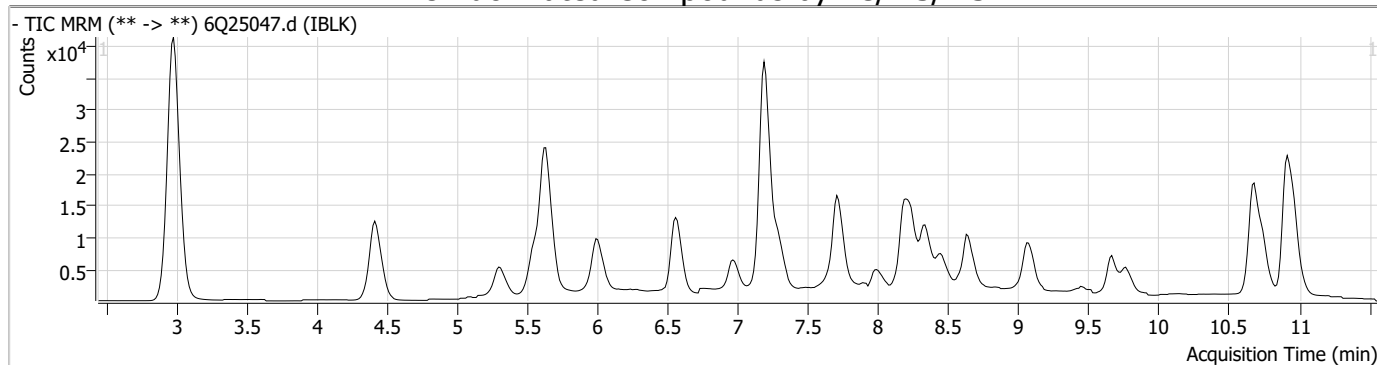
Perfluorinated Compounds by LC/MS/MS

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

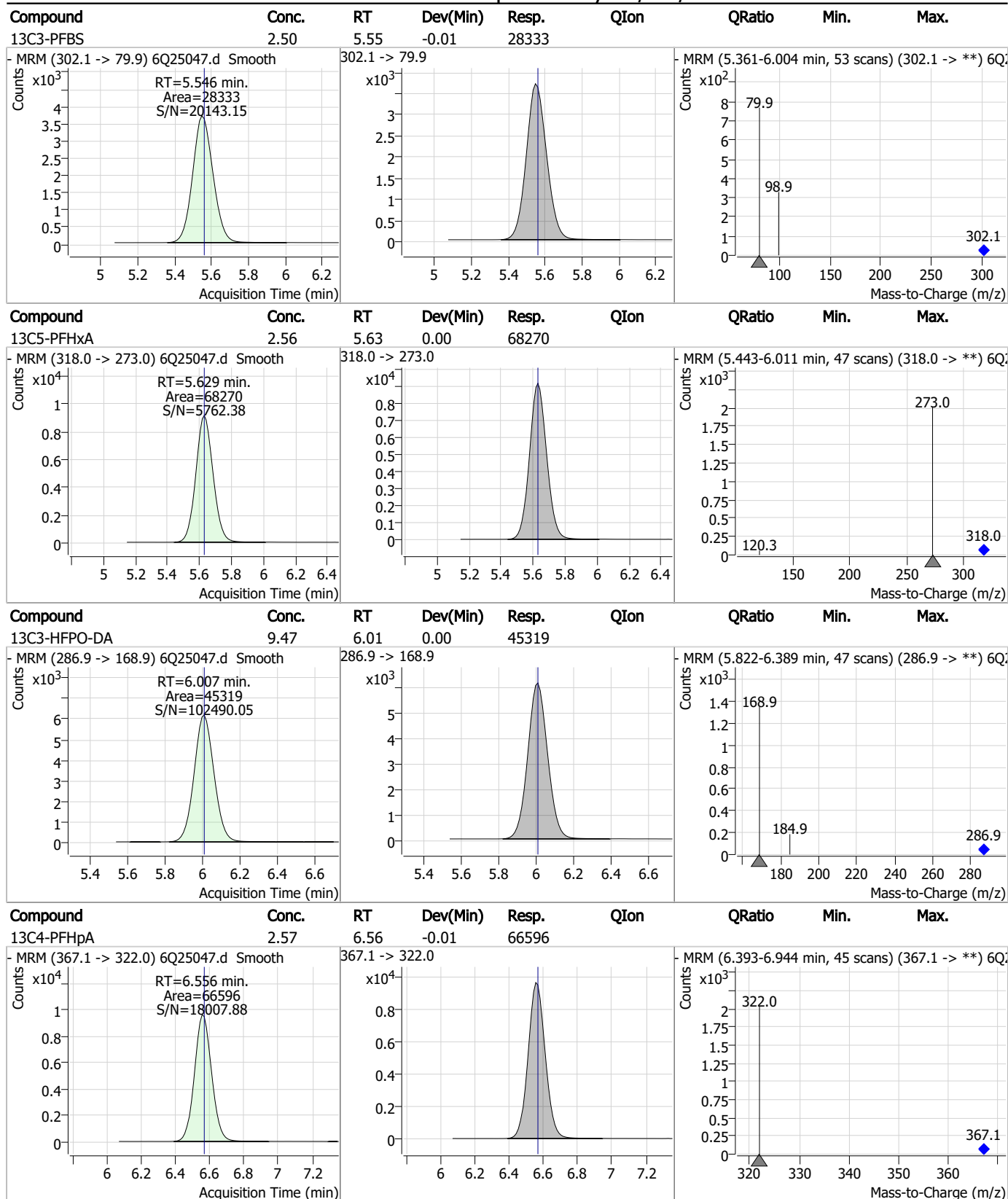
7.2.4

7

Perfluorinated Compounds by LC/MS/MS

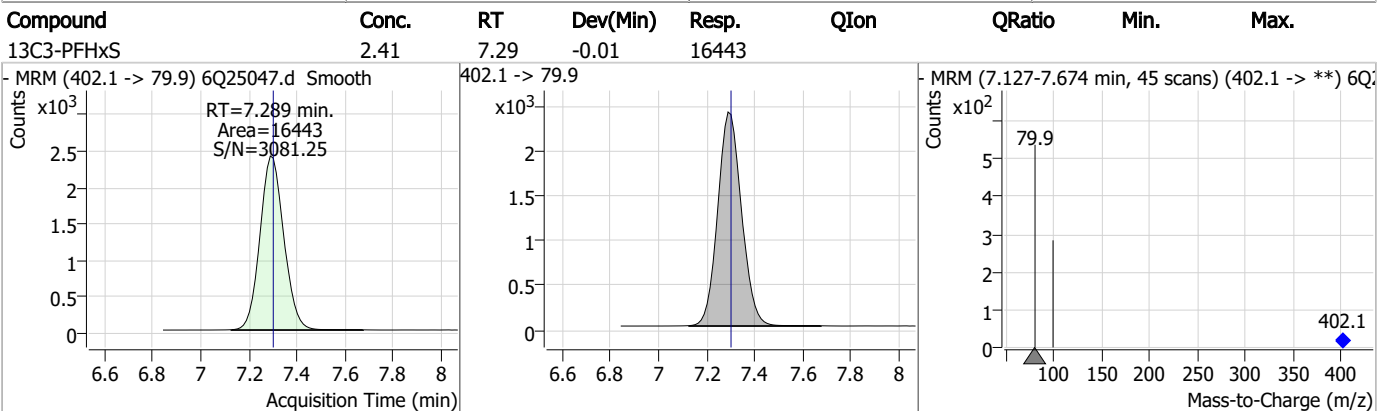
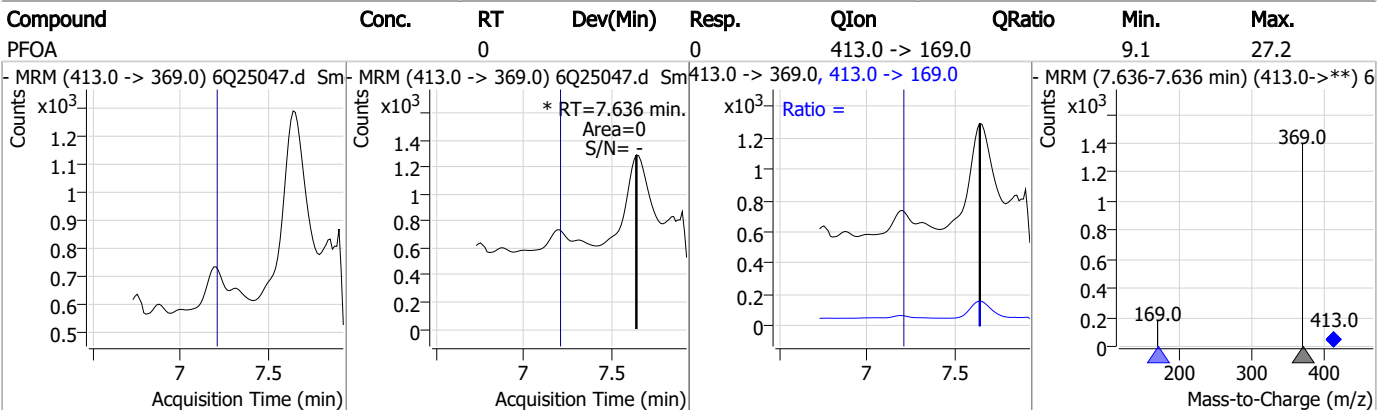
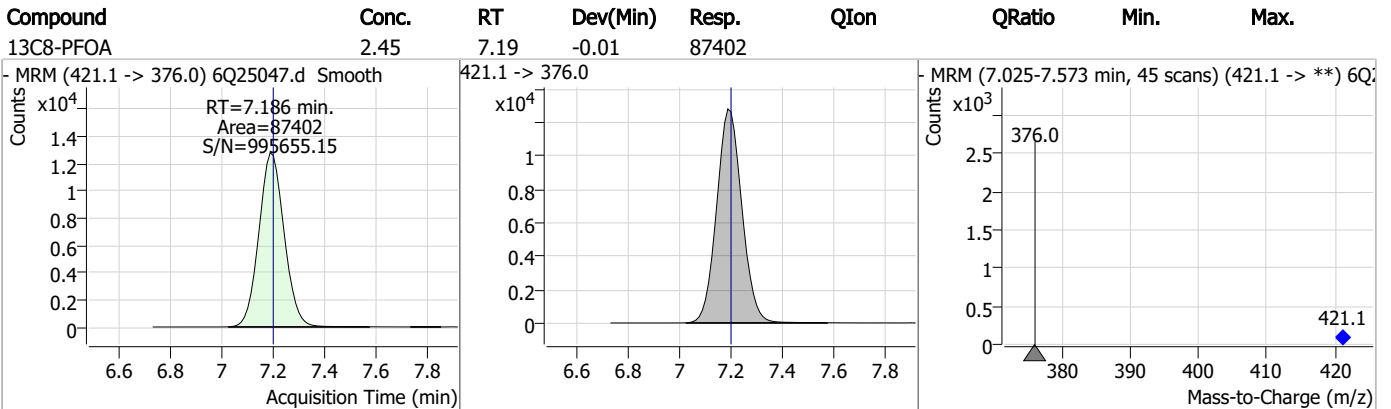
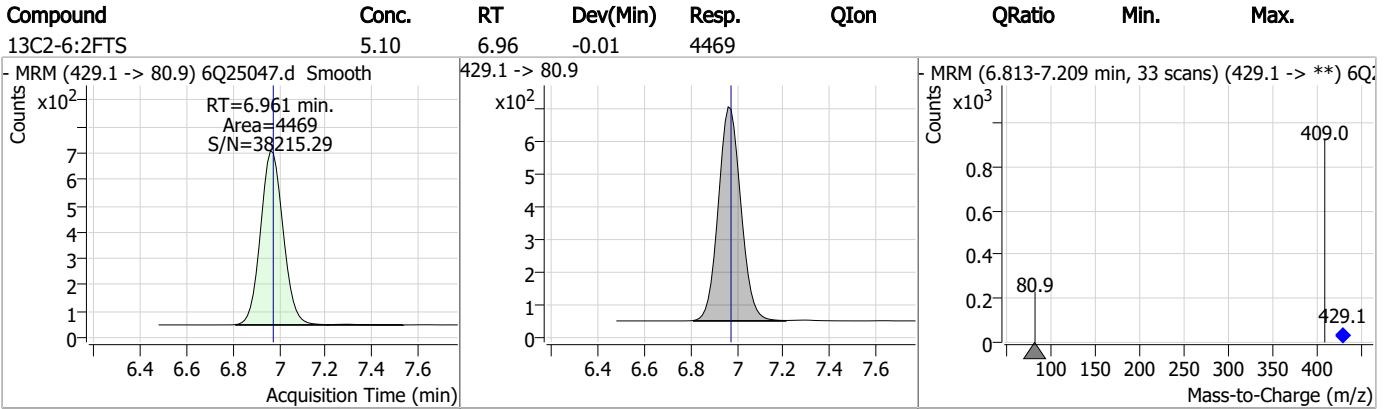


Perfluorinated Compounds by LC/MS/MS

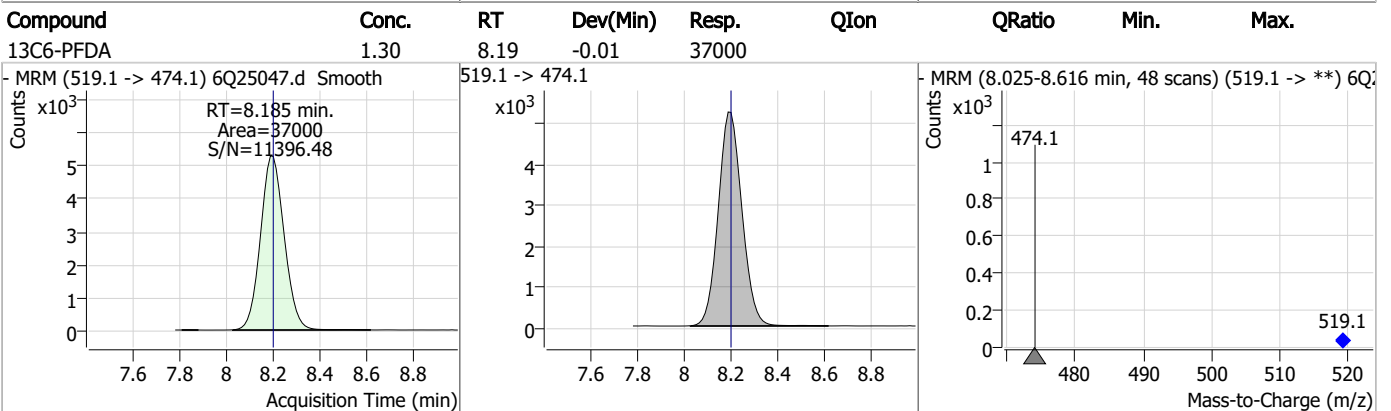
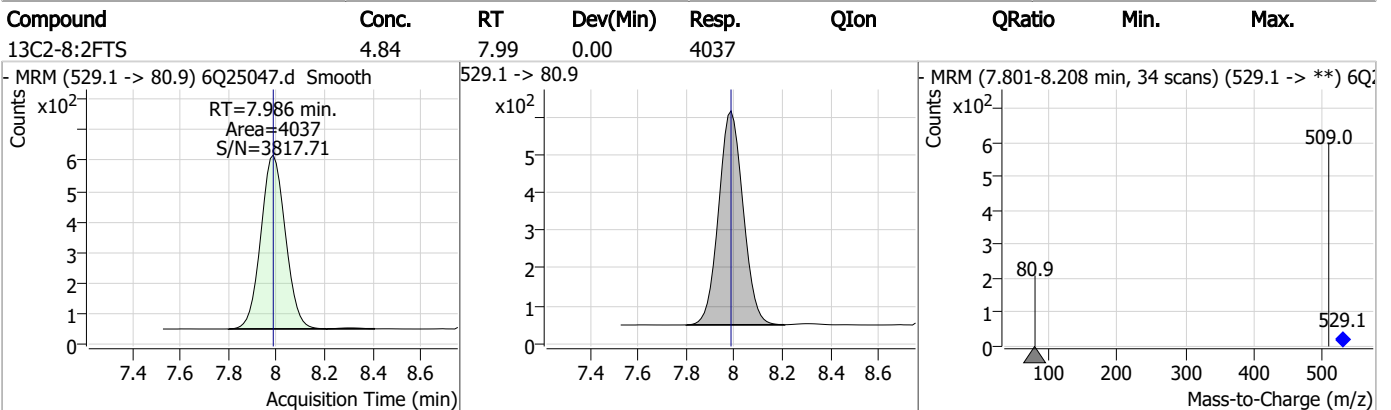
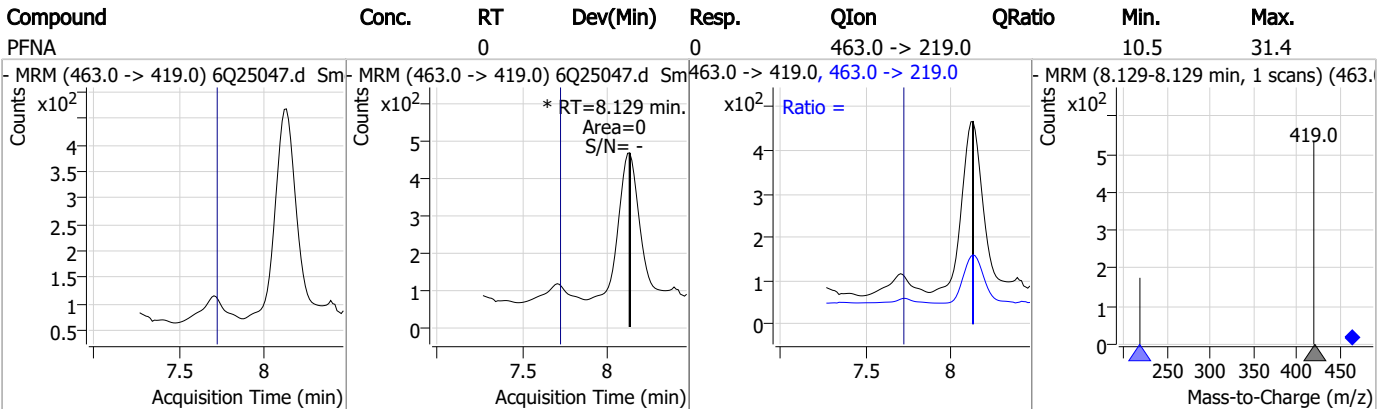
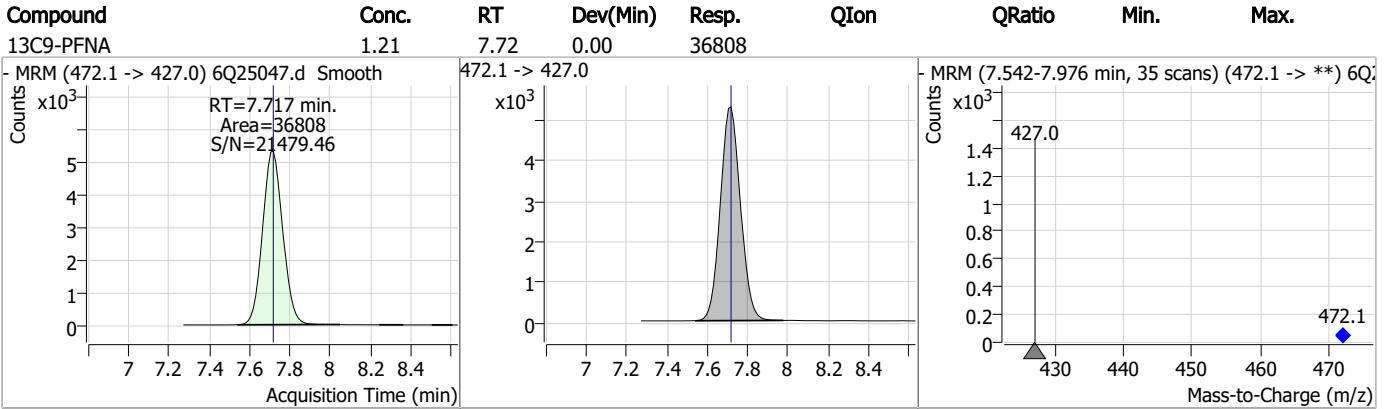


7.2.4
7

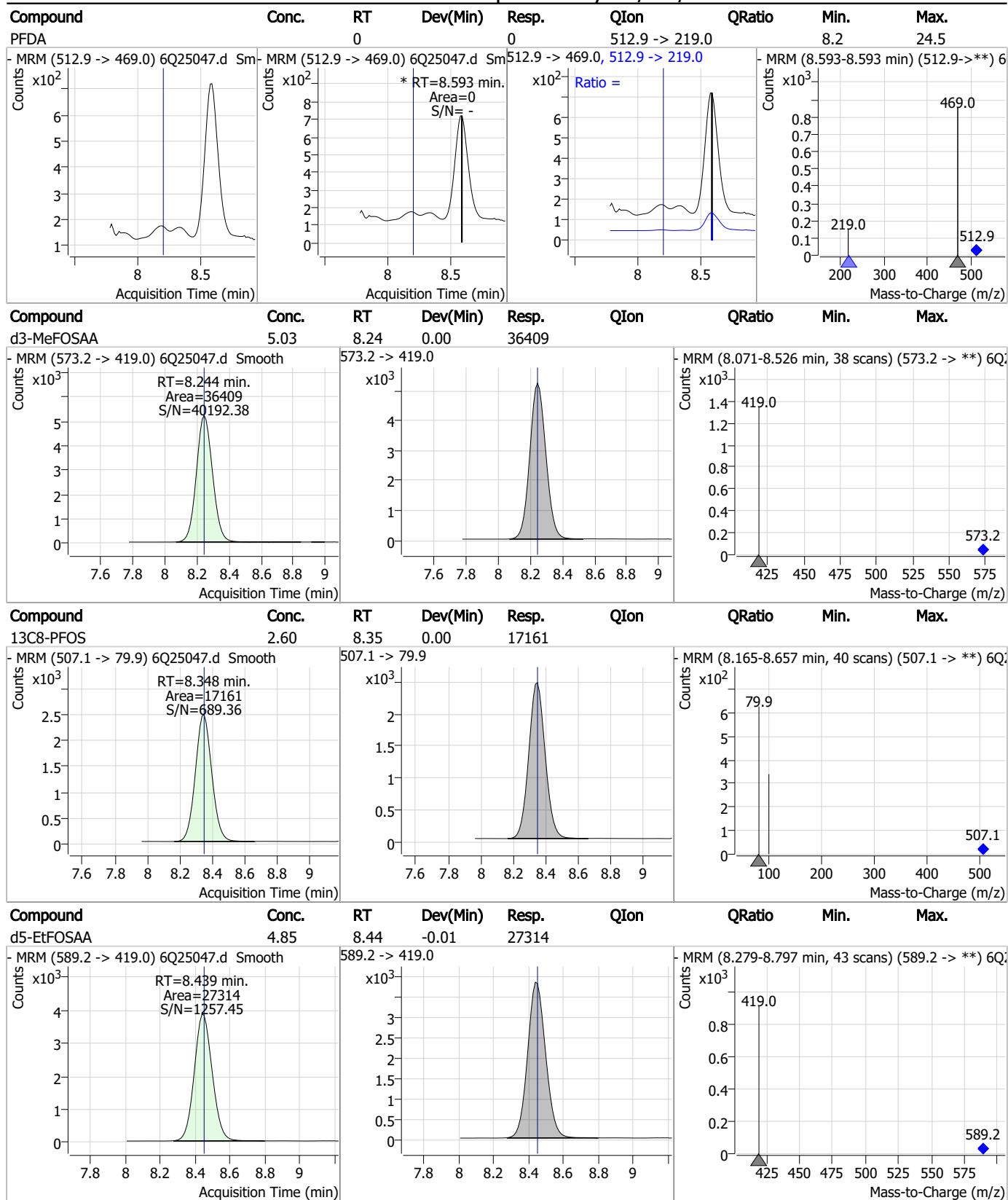
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

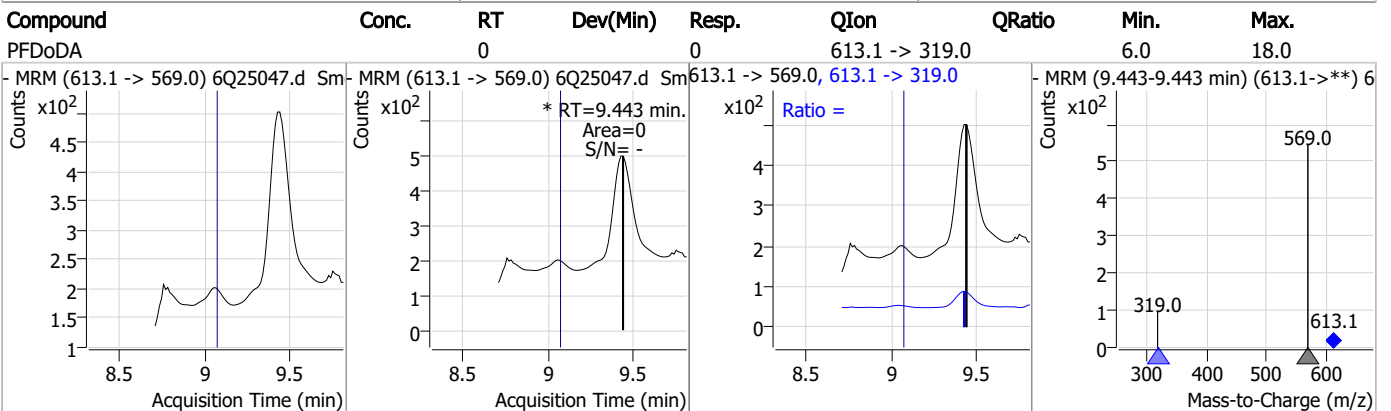
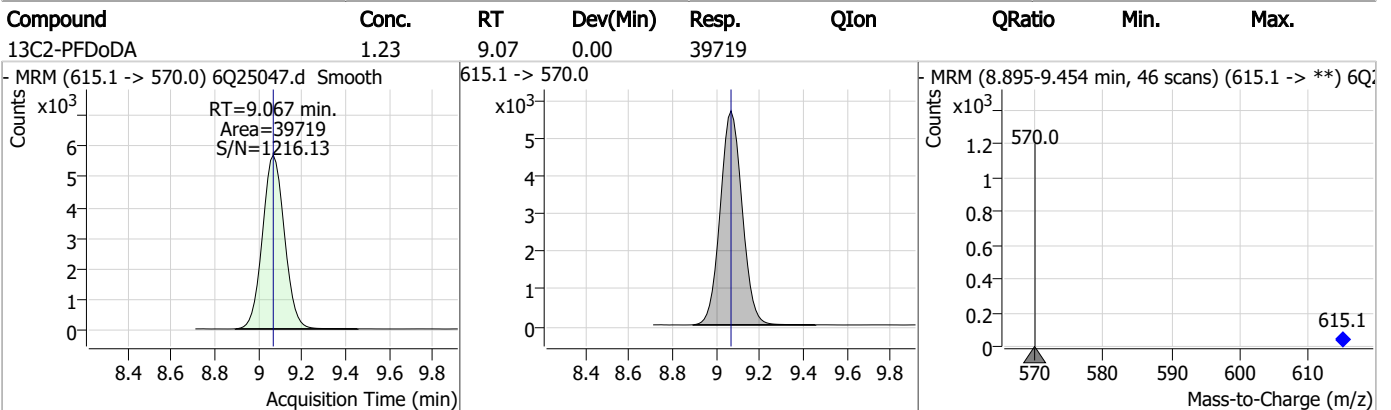
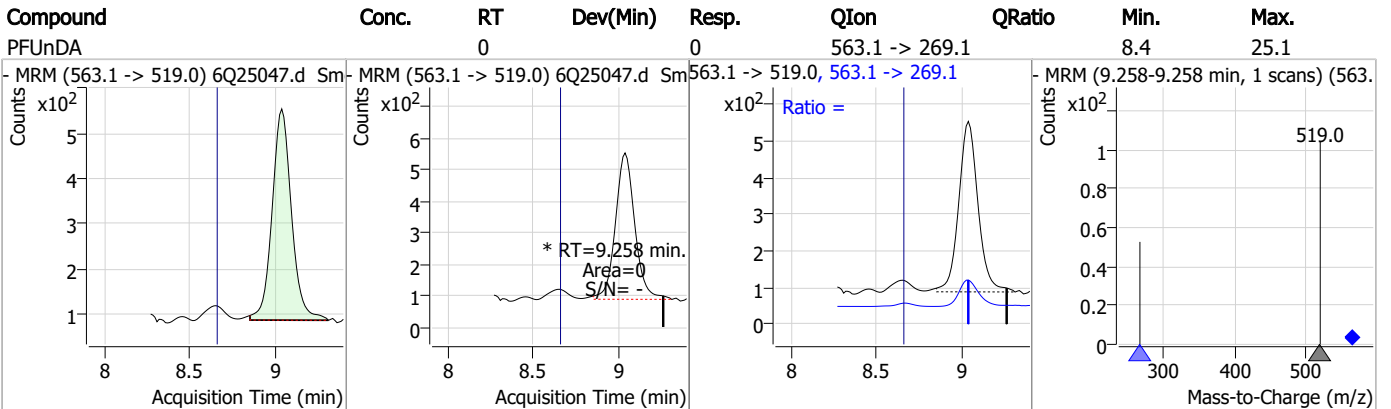
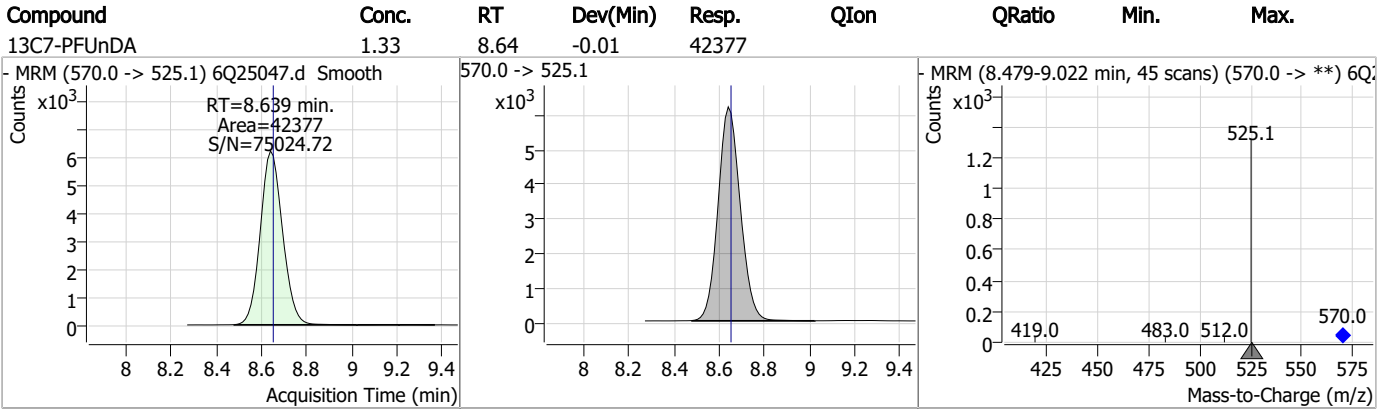


Perfluorinated Compounds by LC/MS/MS



7.2.4
7

Perfluorinated Compounds by LC/MS/MS

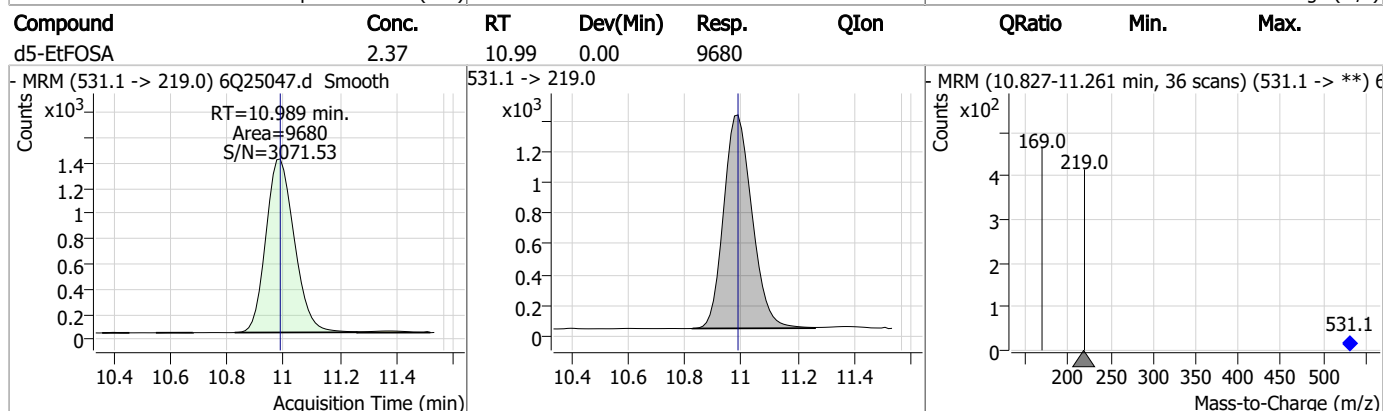
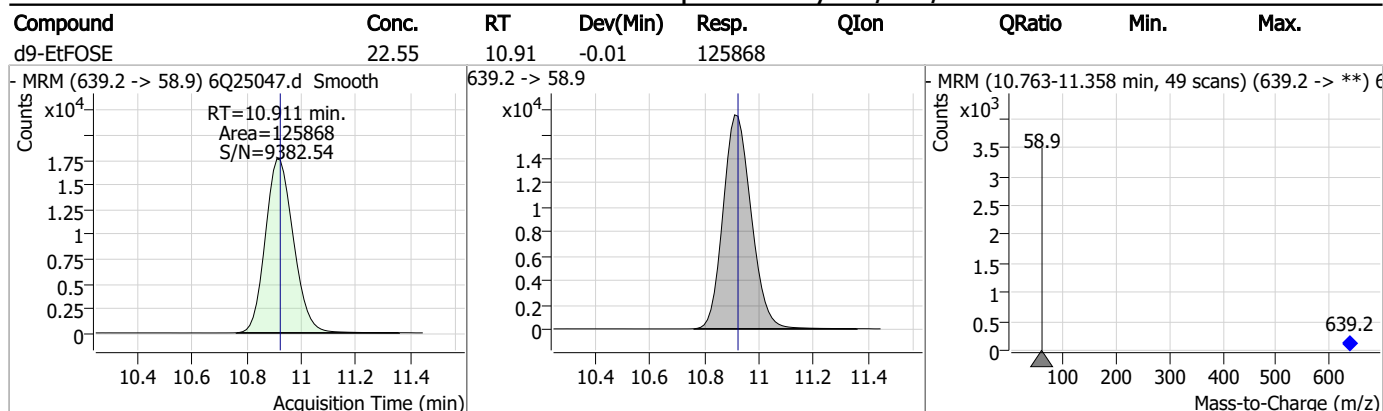


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.48	9.67	0.00	32098				
13C2-PFTeDA	1.18	9.77	0.00	16147				
d7-MeFOSE	22.57	10.68	0.00	103502				
d3-MeFOSA	2.39	10.76	0.00	9287				

7.2.4
7

Perfluorinated Compounds by LC/MS/MS



7.2.4
7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24835.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/22/2023 2:19:47 AM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	301100	10.00 µg/L	-0.025
M5-PFPeA	4.422	268.3 -> 223.0	48058	5.00 µg/L	-0.012
M5-PFHxA	5.641	318.0 -> 273.0	108139	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	95938	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	122907	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	51583	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	49775	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	60296	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	49876	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	21461	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	40959	2.50 µg/L	-0.012
M3-PFBS	5.559	302.1 -> 79.9	35253	2.50 µg/L	-0.012
M3-PFHxS	7.301	402.1 -> 79.9	20157	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	19706	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3991	5.00 µg/L	-0.012
M2-6:2FTS	6.974	429.1 -> 80.9	5684	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	6083	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	34140	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	63445	10.00 µg/L	-0.012
M5-EtFOSAA	8.452	589.2 -> 419.0	29277	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	128101	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	167544	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	13544	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	13995	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	24850	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	121471	5.00 µg/L	-0.012
18O2-PFHxS	7.300	403.0 -> 83.9	14440	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	138546	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	40552	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	55608	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	84617	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3991	5.30 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C2-6:2FTS	6.974	429.1 -> 80.9	5684	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C2-8:2FTS	7.998	529.1 -> 80.9	6083	5.61 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.2%		
13C2-PFDoDA	9.080	615.1 -> 570.0	49876	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFTeDA	9.784	715.2 -> 670.0	21461	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C3-PFBS	5.559	302.1 -> 79.9	35253	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C3-PFHxS	7.301	402.1 -> 79.9	20157	2.58 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 = 103.1%	
13C4-PFBA	2.985	216.8 -> 171.9	301100	10.16 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C4-PFHpA	6.569	367.1 -> 322.0	95938	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C5-PFHxA	5.641	318.0 -> 273.0	108139	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C5-PFPeA	4.422	268.3 -> 223.0	48058	5.00 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C6-PFDA	8.198	519.1 -> 474.1	49775	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C7-PFUnDA	8.651	570.0 -> 525.1	60296	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.6%	
13C8-FOSA	9.670	506.1 -> 77.8	40959	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-PFOA	7.198	421.1 -> 376.0	122907	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C8-PFOS	8.348	507.1 -> 79.9	19706	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C9-PFNA	7.717	472.1 -> 427.0	51583	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.3%	
d3-MeFOSAA	8.256	573.2 -> 419.0	34140	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	63445	10.11 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d3-MeFOSA	10.757	515.0 -> 219.0	13995	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
d5-EtFOSAA	8.452	589.2 -> 419.0	29277	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	128101	24.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
d9-EtFOSE	10.923	639.2 -> 58.9	167544	24.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d5-EtFOSA	10.989	531.1 -> 219.0	13544	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	

7.25
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	-	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	7.858	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.5
7

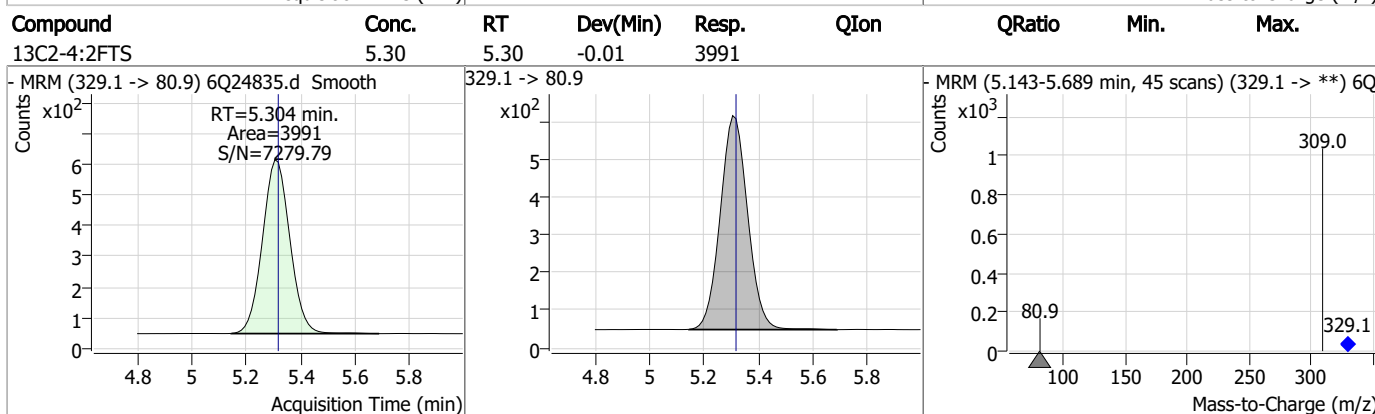
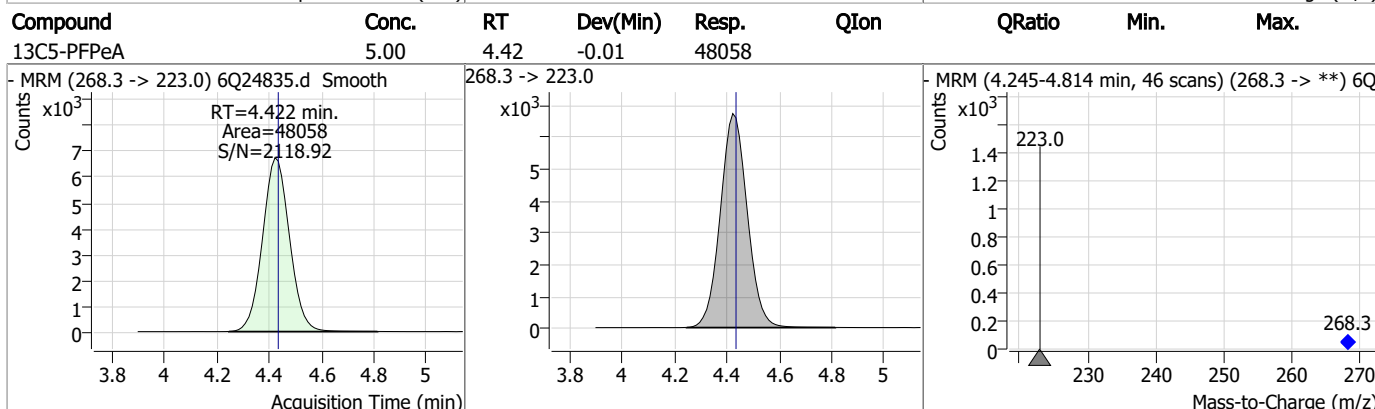
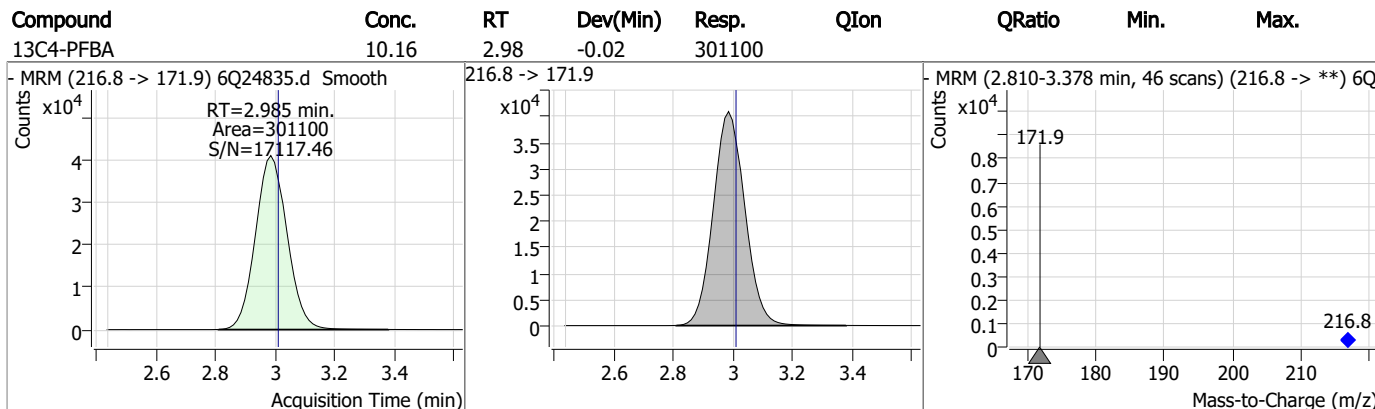
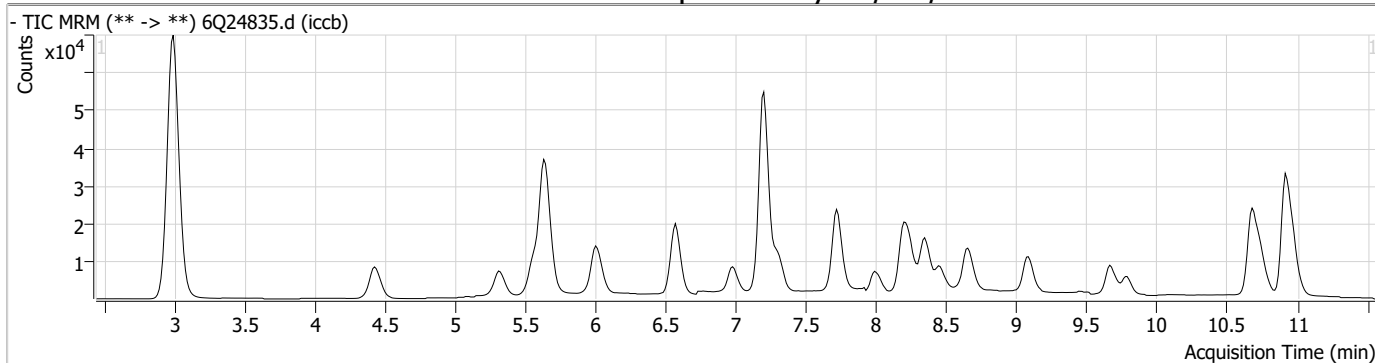
Perfluorinated Compounds by LC/MS/MS

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

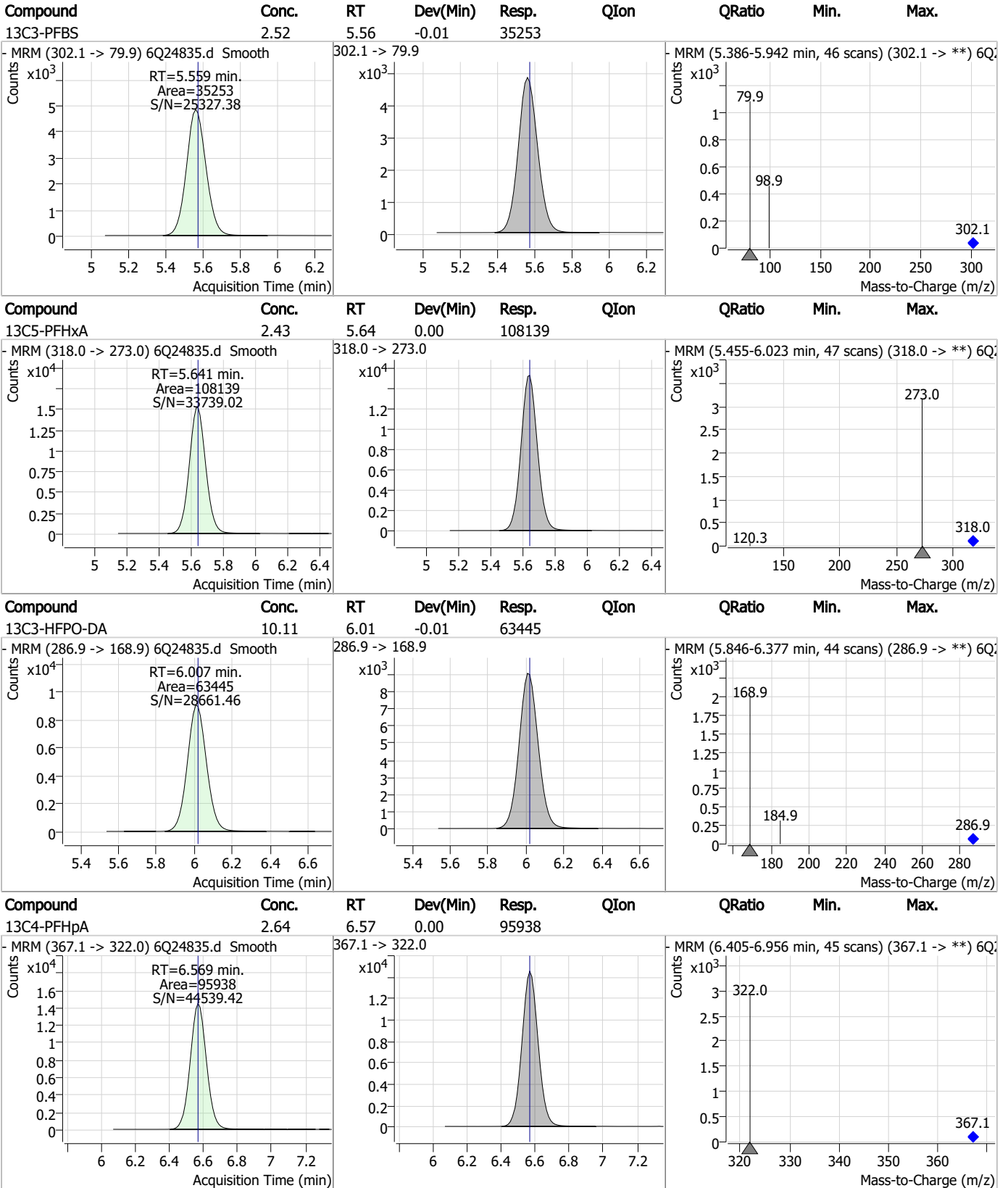
7.2.5

7

Perfluorinated Compounds by LC/MS/MS



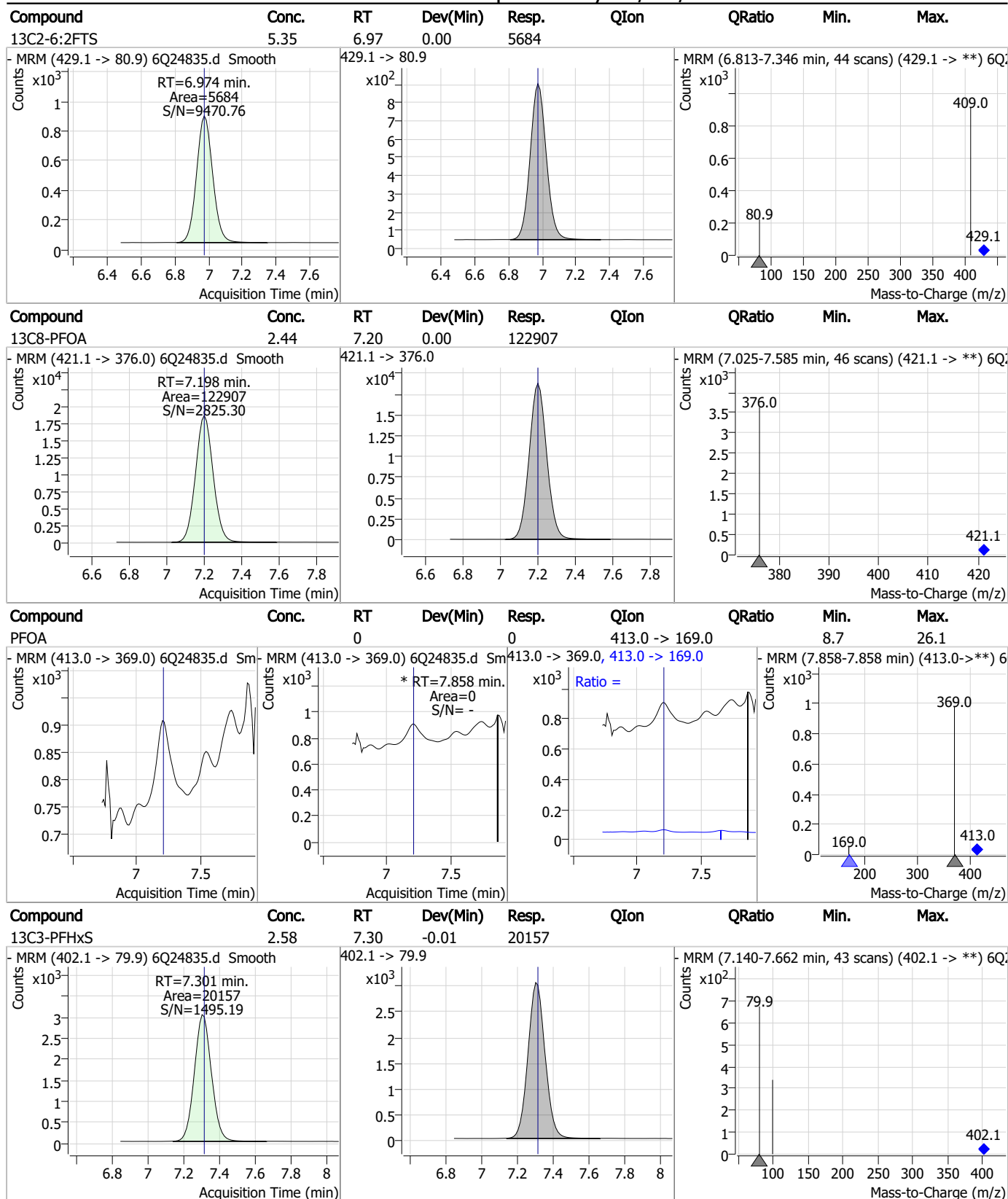
Perfluorinated Compounds by LC/MS/MS



7.2.5

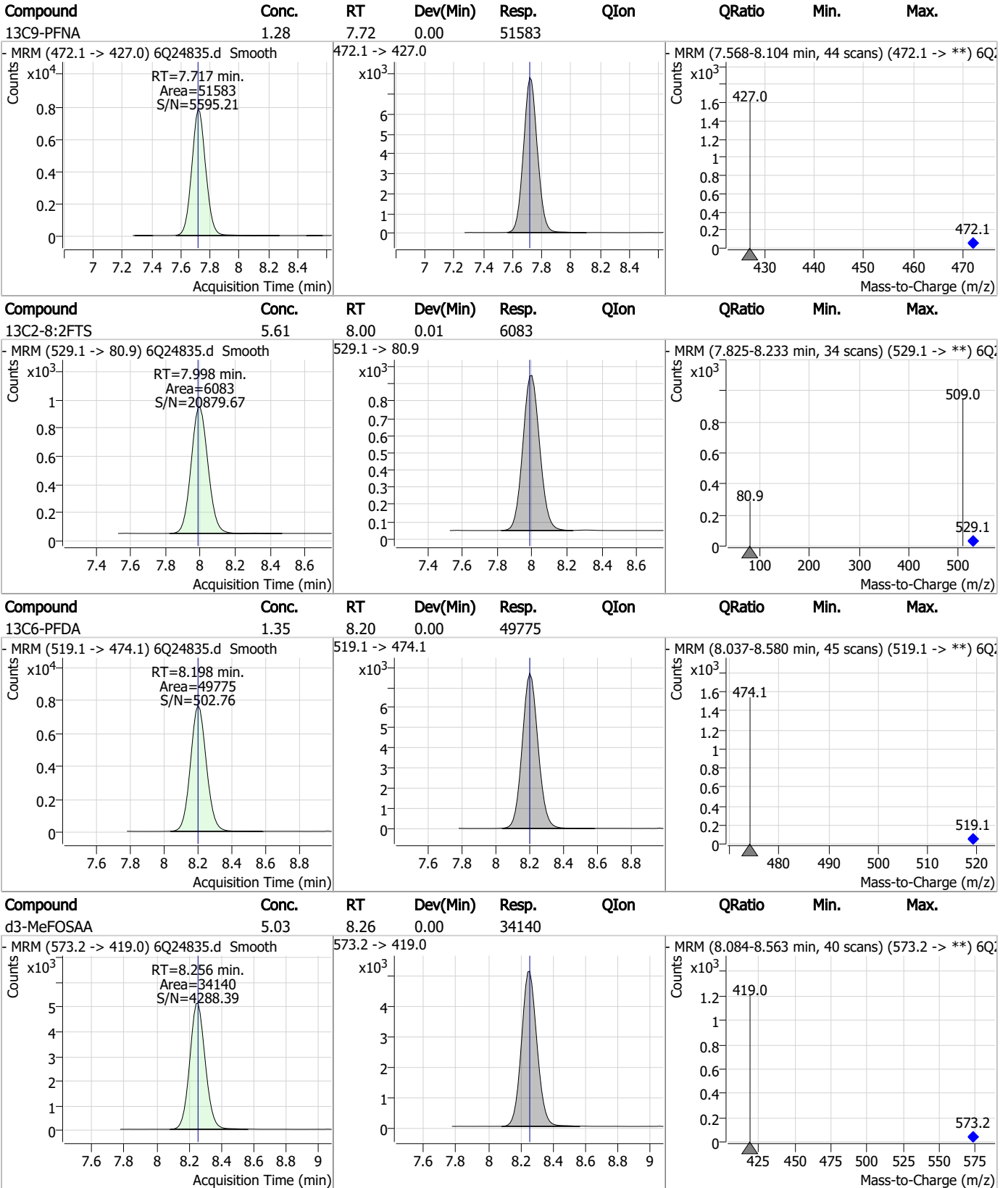
7

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.
13C8-PFOS	2.69	8.35	0.00	19706				
d5-EtFOSAA	5.05	8.45	0.00	29277				
13C7-PFUnDA	1.38	8.65	0.00	60296				
13C2-PFDoDA	1.21	9.08	0.00	49876				

7.2.5

7

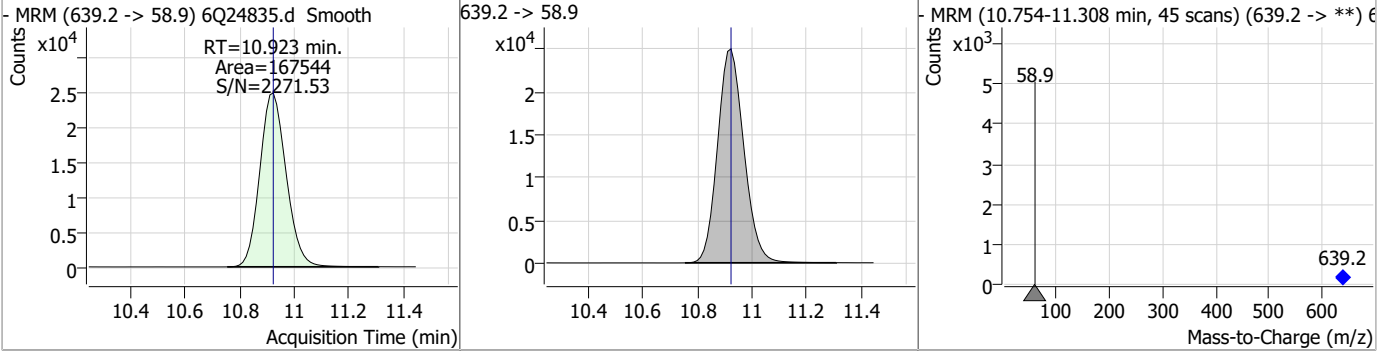
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.51	9.67	-0.01	40959				
13C2-PFTeDA	1.31	9.78	0.00	21461				
d7-MeFOSE	24.16	10.68	0.00	128101				
d3-MeFOSA	2.37	10.76	0.00	13995				

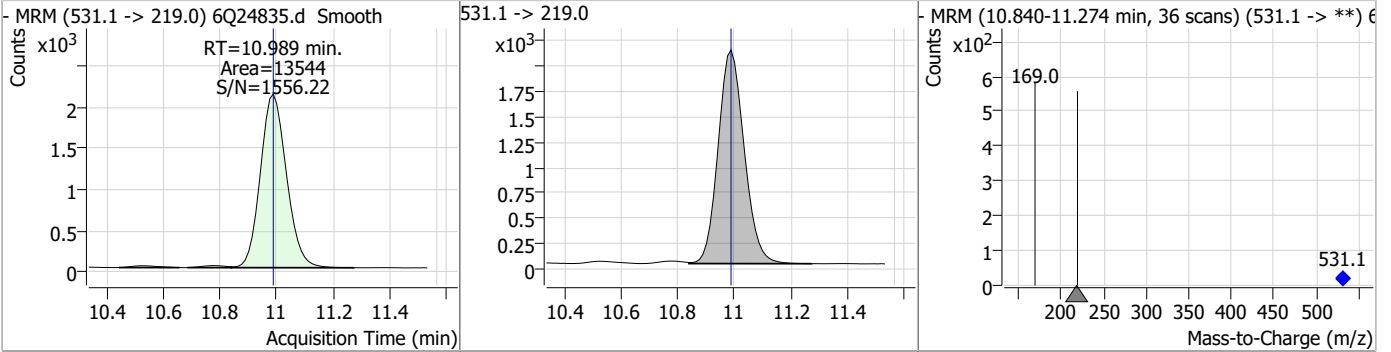
7.2.5
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.07	10.92	0.00	167544				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.46	10.99	0.00	13544				



7.2.5

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24824.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 11:42:12 PM
 Sample Name : OP99077-BS
 Vial : P2-A1
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99077,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	205783	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	42279	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	98806	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	80155	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	103662	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	43542	1.25 µg/L	0.012
M6-PFDA	8.198	519.1 -> 474.1	40975	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	51927	1.25 µg/L	0.000
M2-PFDoDA	9.079	615.1 -> 570.0	46978	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	16879	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	26557	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	30603	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	17531	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	16237	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	3462	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	5131	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	5105	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	28484	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	57378	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	23408	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	78477	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	114873	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9781	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	9782	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	18065	2.50 µg/L	0.012
13C3-PFBA	3.014	216.0 -> 172.0	98266	5.00 µg/L	0.012
18O2-PFHxS	7.313	403.0 -> 83.9	11990	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	104087	2.50 µg/L	0.000
13C2-PFDA	8.210	515.1 -> 470.1	34042	1.25 µg/L	0.012
13C5-PFNA	7.729	468.0 -> 423.0	42255	1.25 µg/L	0.012
13C2-PFHxA	5.642	315.1 -> 270.0	68243	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	3462	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C2-6:2FTS	6.974	429.1 -> 80.9	5131	5.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.3%		
13C2-8:2FTS	7.998	529.1 -> 80.9	5105	5.67 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.4%		
13C2-PFDoDA	9.079	615.1 -> 570.0	46978	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.0%		
13C2-PFTeDA	9.784	715.2 -> 670.0	16879	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C3-PFBS	5.571	302.1 -> 79.9	30603	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C3-PFHxS	7.313	402.1 -> 79.9	17531	2.70 µg/L	0.000

7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C4-PFBA	3.010	216.8 -> 171.9	205783	8.59 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.9%	
13C4-PFHpA	6.569	367.1 -> 322.0	80155	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.4%	
13C5-PFHxA	5.641	318.0 -> 273.0	98806	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.0%	
13C5-PFPeA	4.434	268.3 -> 223.0	42279	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C6-PFDA	8.198	519.1 -> 474.1	40975	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C7-PFUnDA	8.651	570.0 -> 525.1	51927	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.4%	
13C8-FOSA	9.682	506.1 -> 77.8	26557	2.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.5%	
13C8-PFOA	7.198	421.1 -> 376.0	103662	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C8-PFOS	8.361	507.1 -> 79.9	16237	3.05 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 122.0%	
13C9-PFNA	7.729	472.1 -> 427.0	43542	1.42 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.7%	
d3-MeFOSAA	8.256	573.2 -> 419.0	28484	5.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.5%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	57378	11.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.4%	
d3-MeFOSA	10.769	515.0 -> 219.0	9782	2.28 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.1%	
d5-EtFOSAA	8.452	589.2 -> 419.0	23408	5.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.1%	
d7-MeFOSE	10.678	623.2 -> 58.9	78477	20.36 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.4%	
d9-EtFOSE	10.923	639.2 -> 58.9	114873	22.70 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.8%	
d5-EtFOSA	10.989	531.1 -> 219.0	9781	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	52128	9.30 µg/L	99
		327.1 -> 80.9	20198		
6:2FTS	6.974	427.1 -> 407.0	43616	9.19 µg/L	97
		427.1 -> 80.9	17351		
8:2FTS	7.999	527.1 -> 507.0	29639	9.14 µg/L	88
		527.1 -> 80.8	11608		
EtFOSAA	8.465	584.2 -> 419.1	9696	2.74 µg/L	96
		584.2 -> 526.0	5959		
FOSA	9.684	498.1 -> 77.9	22833	2.49 µg/L	99
		498.1 -> 478.0	678		
MeFOSAA	8.257	570.1 -> 419.0	16215	2.51 µg/L	96
		570.1 -> 483.0	3532		
PFBA	3.018	212.8 -> 168.9	61915	9.76 µg/L	100
PFBS	5.572	298.7 -> 79.9	31770	2.19 µg/L	97
		298.7 -> 98.8	12072		
PFDA	8.198	512.9 -> 469.0	87673	2.40 µg/L	98
		512.9 -> 219.0	15452		
PFDoDA	9.080	613.1 -> 569.0	79003	2.31 µg/L	100
		613.1 -> 319.0	9489		
PFDS	9.233	599.0 -> 79.9	10708	2.25 µg/L	99

7.31
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	5094	2.41	µg/L	97
		363.1 -> 319.0	98122			
PFHpS	7.856	363.1 -> 169.0	14713	2.15	µg/L	93
		449.0 -> 79.9	17121			
PFHxA	5.644	449.0 -> 98.9	8906	2.39	µg/L	100
		313.0 -> 269.0	82091			
PFHxS	7.314	313.0 -> 118.9	3745	2.24	µg/L	97
		398.7 -> 79.9	25385			
PFNA	7.730	398.7 -> 98.9	11548	2.52	µg/L	97
		463.0 -> 419.0	70629			
PFNS	8.814	463.0 -> 219.0	15747	2.35	µg/L	94
		548.8 -> 79.9	18547			
PFOA	7.200	548.8 -> 98.9	9718	2.34	µg/L	97
		413.0 -> 369.0	112040			
PFOS	8.362	413.0 -> 169.0	20902	2.14	µg/L	98
		498.9 -> 79.9	19655			
PFPeA	4.436	498.9 -> 98.8	9929	4.95	µg/L	100
		263.0 -> 219.0	103095			
PFPeS	6.620	349.1 -> 79.9	21804	2.32	µg/L	94
		349.1 -> 98.9	9744			
PFTeDA	9.785	713.1 -> 669.0	53360	2.36	µg/L	100
		713.1 -> 168.9	4368			
PFTrDA	9.452	663.0 -> 619.0	76732	2.10	µg/L	97
		663.0 -> 168.9	6742			
PFUnDA	8.652	563.1 -> 519.0	69565	2.31	µg/L	97
		563.1 -> 269.1	11111			
11CI-PF3OUdS	9.491	630.9 -> 450.9	84361	4.53	µg/L	99
		632.9 -> 452.9	26469			
9CI-PF3ONS	8.690	530.8 -> 351.0	144099	4.38	µg/L	94
		532.8 -> 353.0	40528			
ADONA	6.817	376.9 -> 250.9	383687	4.53	µg/L	98
		376.9 -> 84.8	97969			
HFPO-DA	6.020	284.9 -> 168.9	26780	4.92	µg/L	98
		284.9 -> 184.9	3544			
3:3FTCA	3.902	241.0 -> 177.0	11845	10.71	µg/L	99
		241.0 -> 117.0	1169			
5:3FTCA	6.296	341.0 -> 237.1	362087	60.07	µg/L	93
		341.0 -> 217.0	238538			
7:3FTCA	7.682	441.0 -> 316.9	212050	60.30	µg/L	99
		441.0 -> 336.9	484951			
EtFOSA	10.990	526.0 -> 219.0	23265	4.53	µg/L	98
		526.0 -> 169.0	29398			
EtFOSE	10.937	630.0 -> 58.9	60661	11.27	µg/L	100
		511.9 -> 219.0	21552			
MeFOSA	10.758	511.9 -> 169.0	28876	4.90	µg/L	92
		616.1 -> 58.9	40024			
MeFOSE	10.691	699.1 -> 79.9	5154	11.88	µg/L	100
		699.1 -> 98.8	3023			
PFDoDS	9.898	295.0 -> 201.0	19757	2.20	µg/L	97
		295.0 -> 84.9	4896			
NFDHA	5.524	279.0 -> 85.1	73632	4.86	µg/L	99
		229.0 -> 84.9	52843			
PFMBA	4.850	314.8 -> 134.9	198317	4.99	µg/L	100
		314.8 -> 82.9	6479			
PFMPA	3.563			4.84	µg/L	100
PFEESA	6.112			4.39	µg/L	100

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

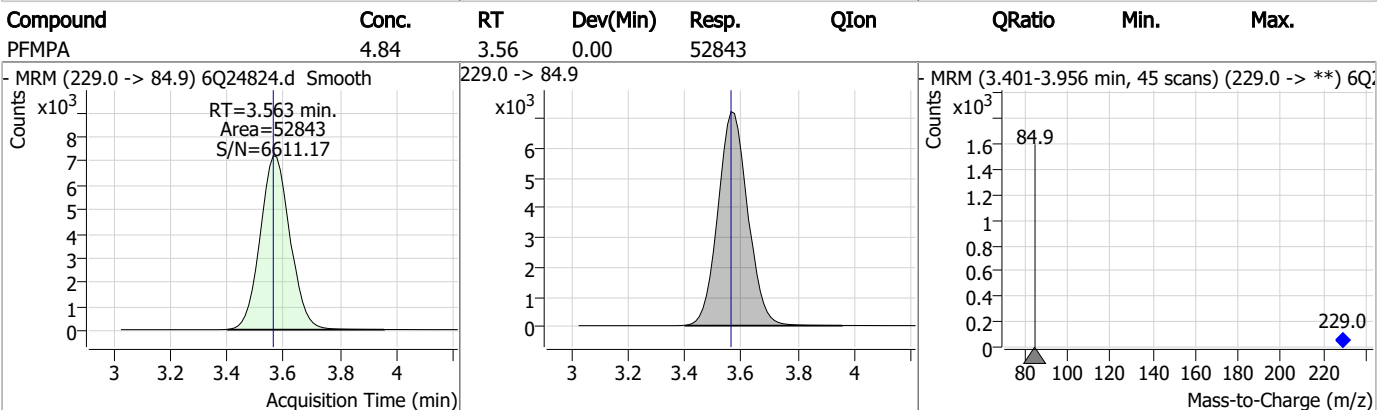
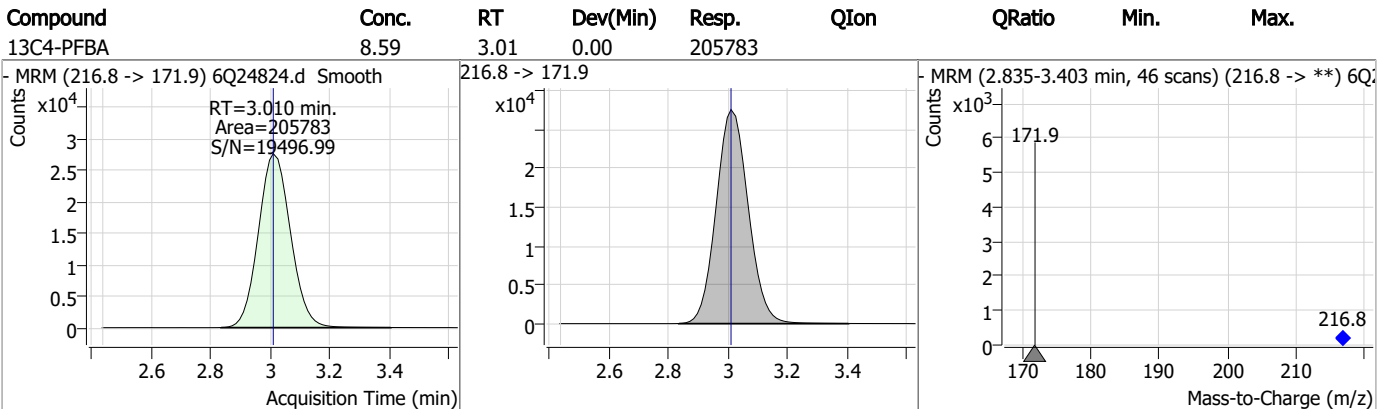
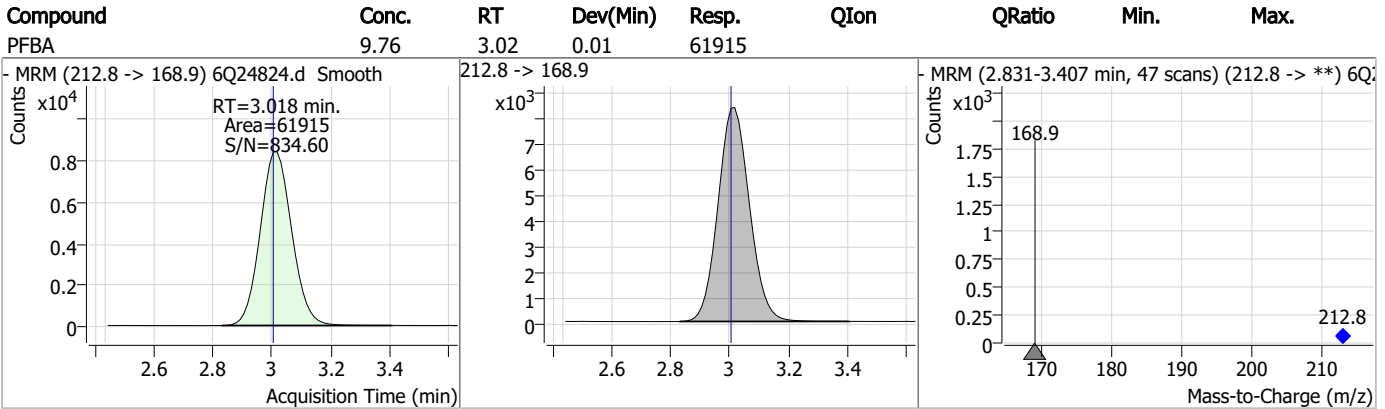
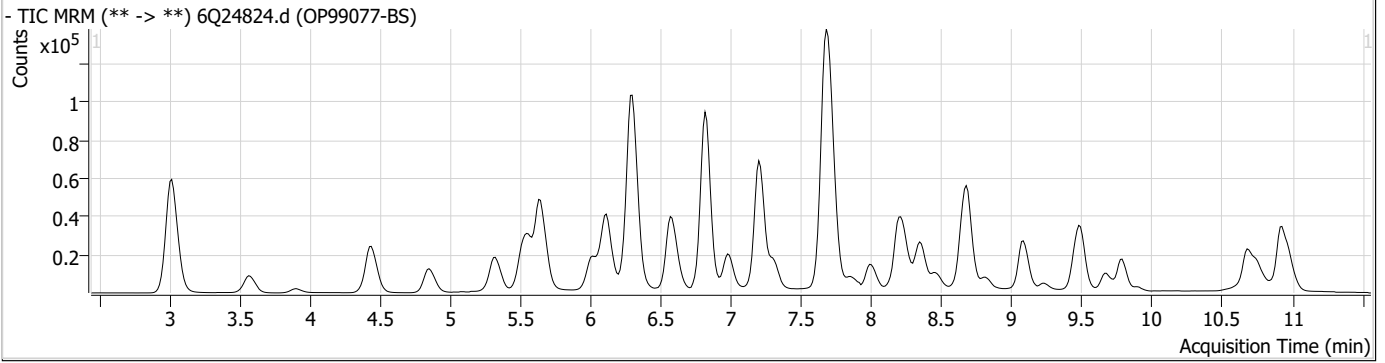
Perfluorinated Compounds by LC/MS/MS

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

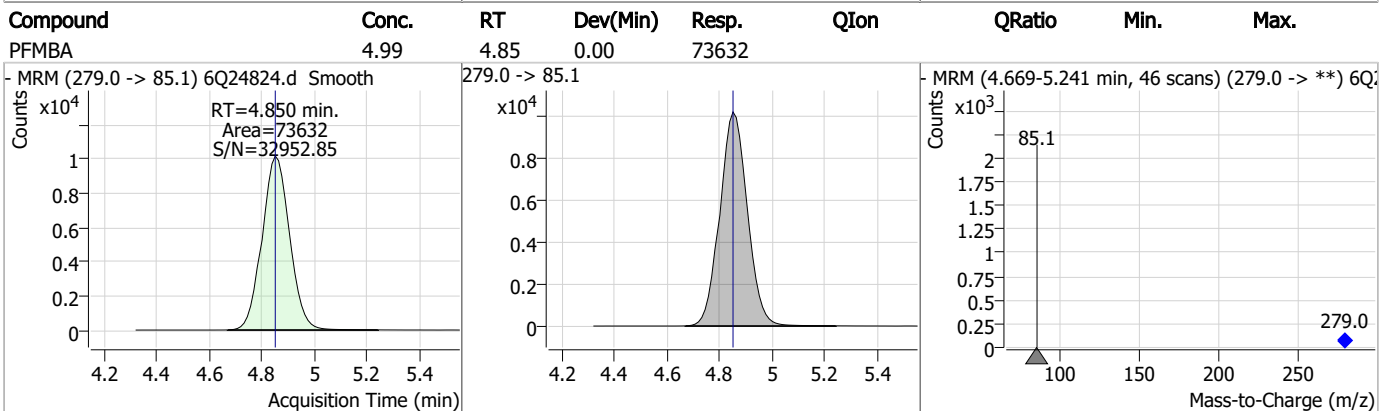
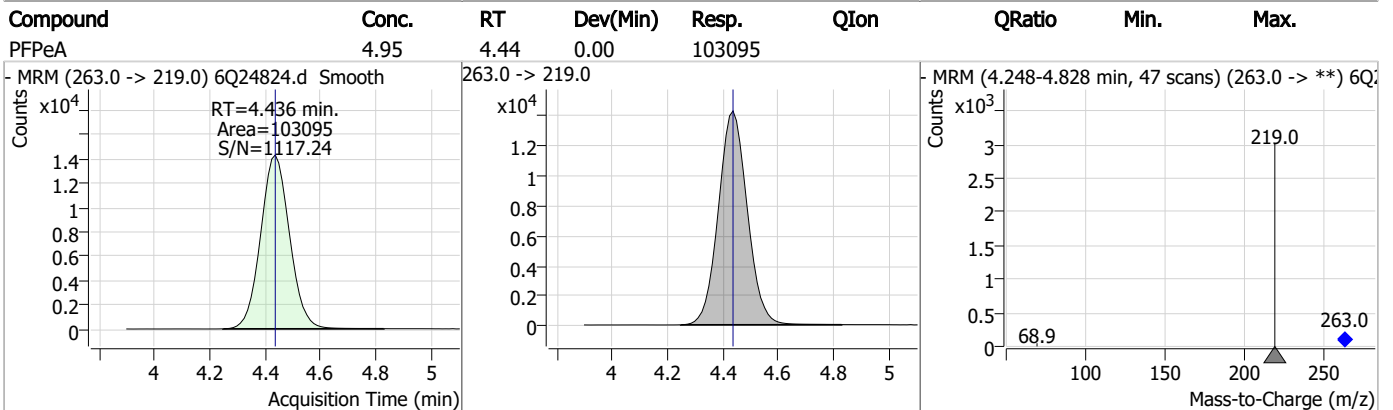
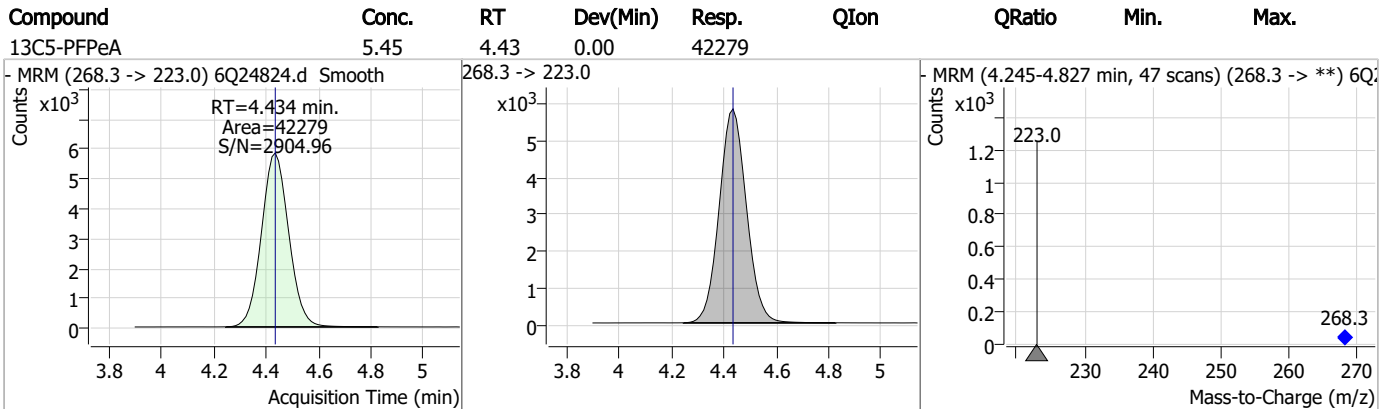
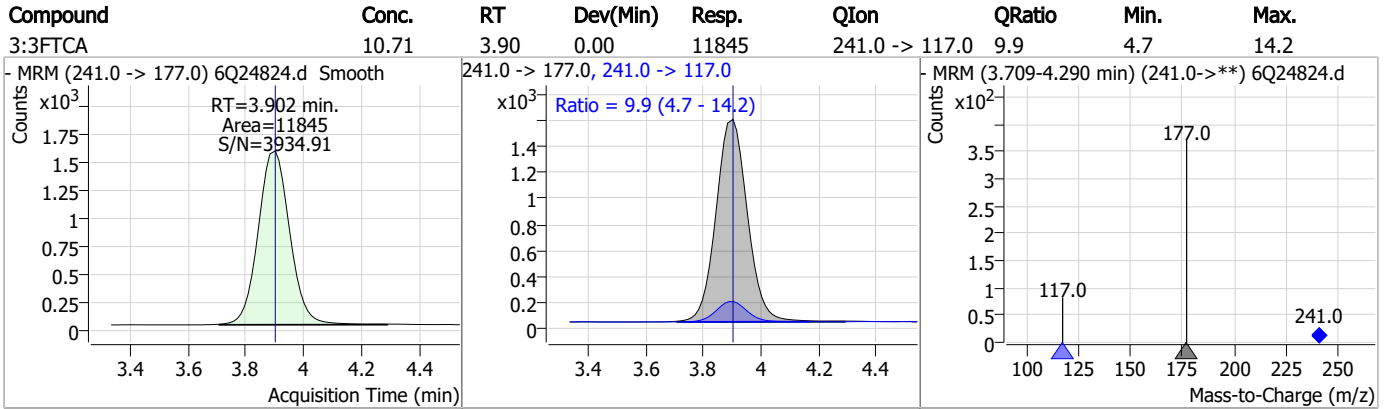
7.3.1

7

Perfluorinated Compounds by LC/MS/MS



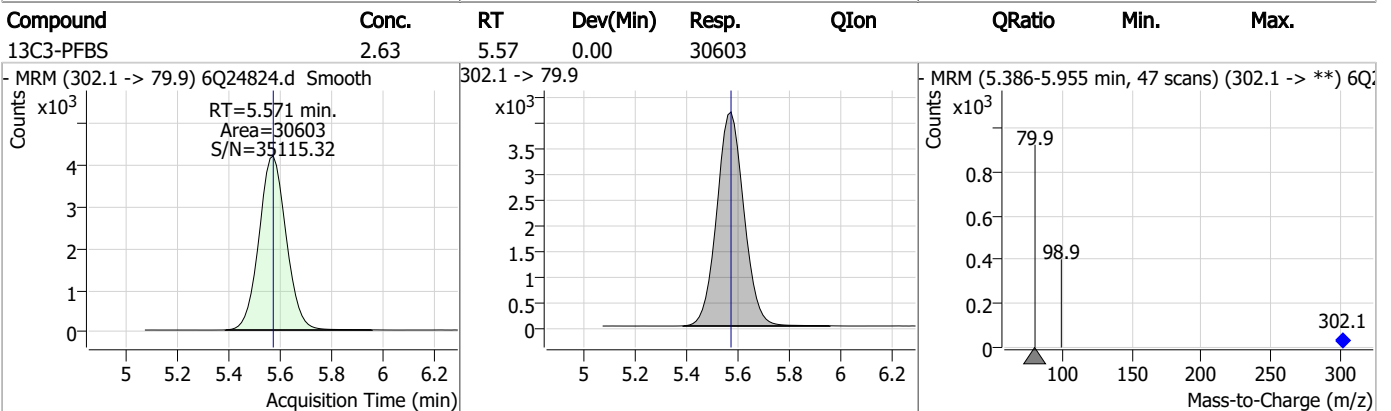
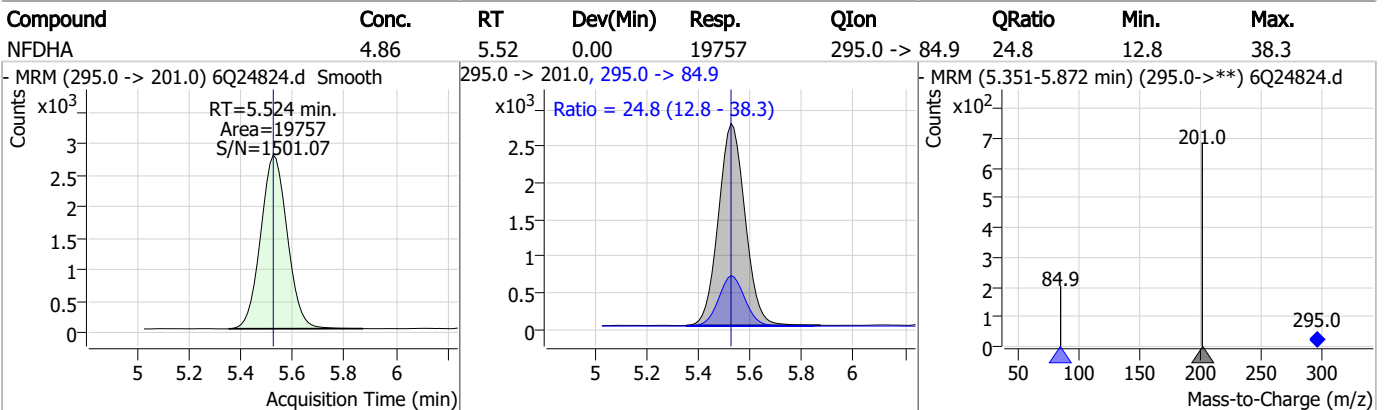
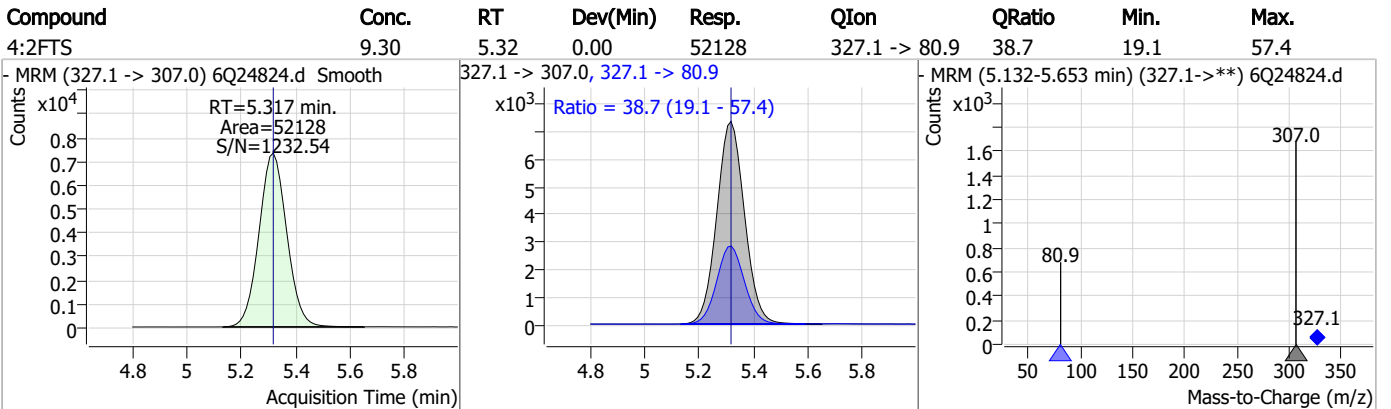
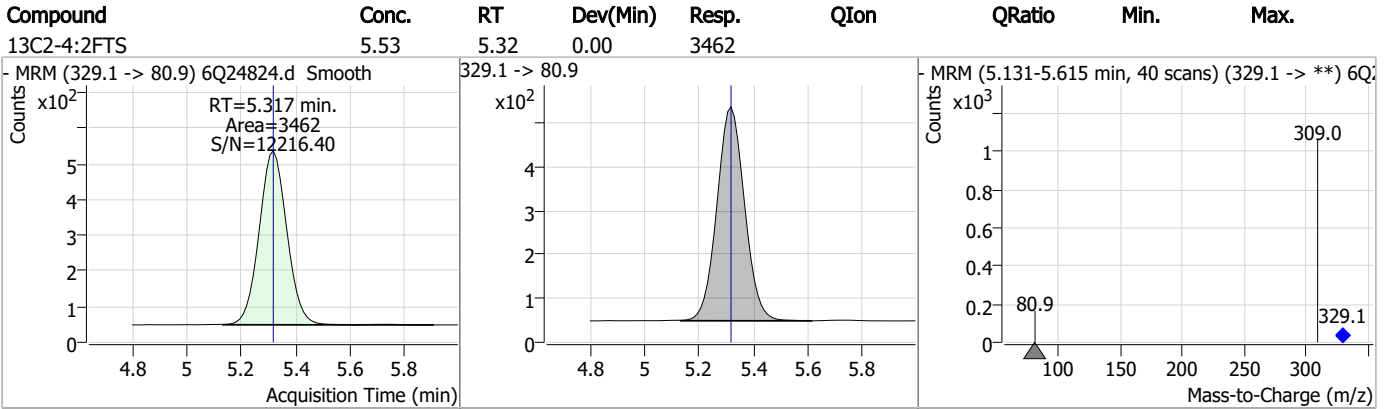
Perfluorinated Compounds by LC/MS/MS



7.3.1

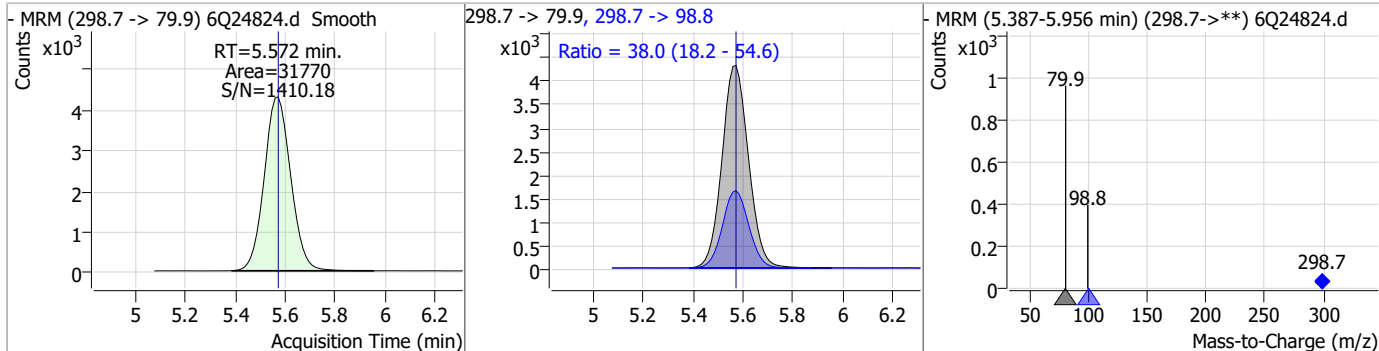
7

Perfluorinated Compounds by LC/MS/MS

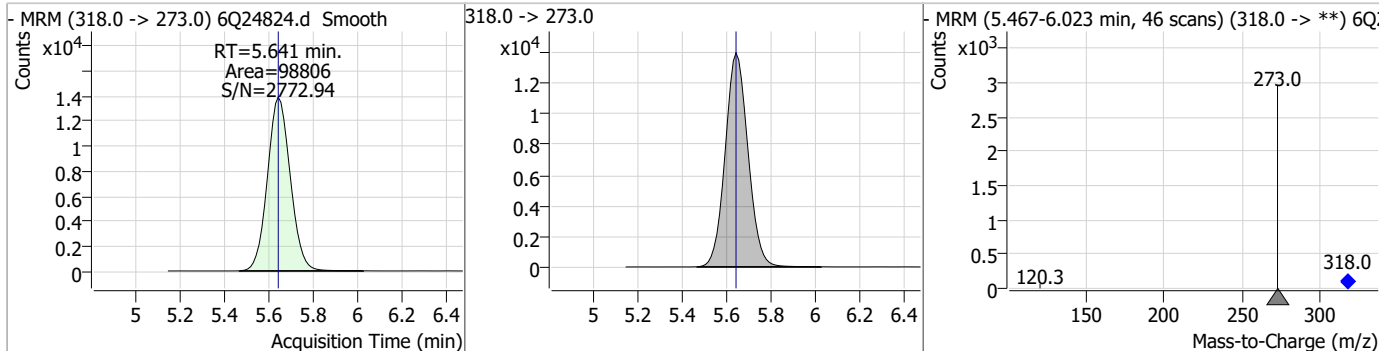


Perfluorinated Compounds by LC/MS/MS

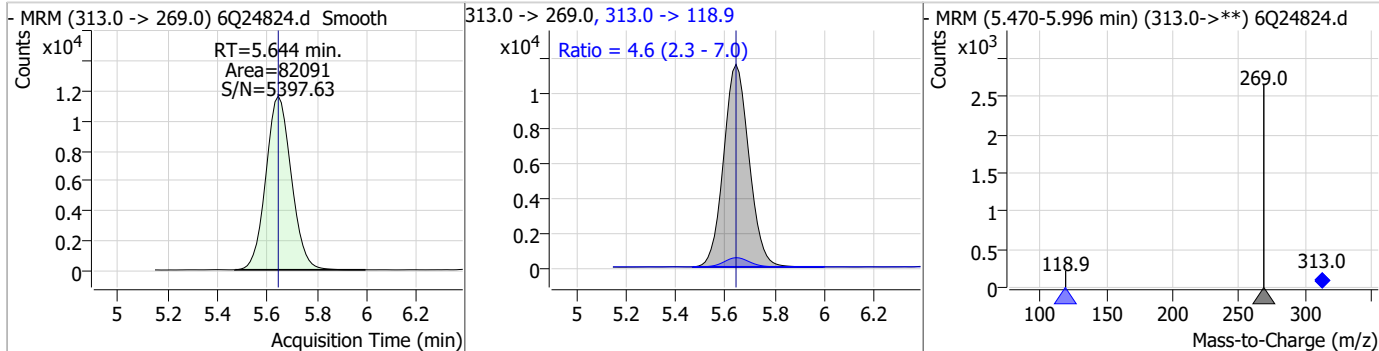
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.19	5.57	0.00	31770	298.7 -> 98.8	38.0	18.2	54.6



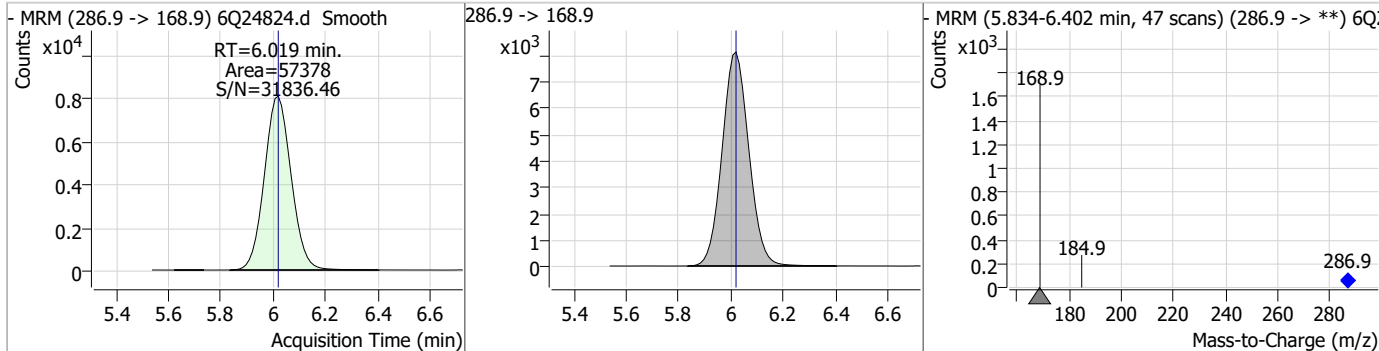
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.75	5.64	0.00	98806				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.39	5.64	0.00	82091	313.0 -> 118.9	4.6	2.3	7.0



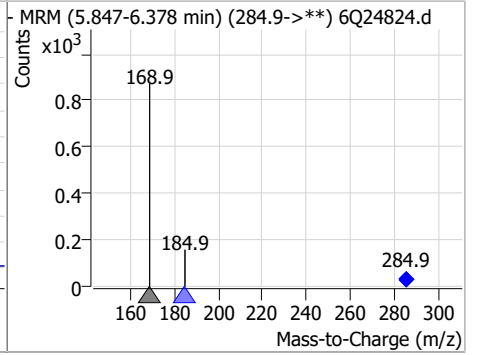
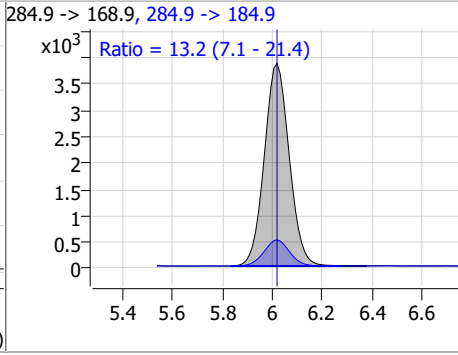
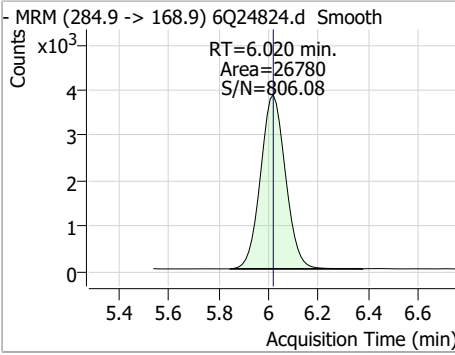
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.34	6.02	0.00	57378				



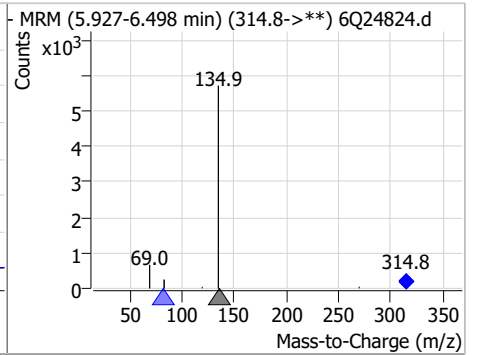
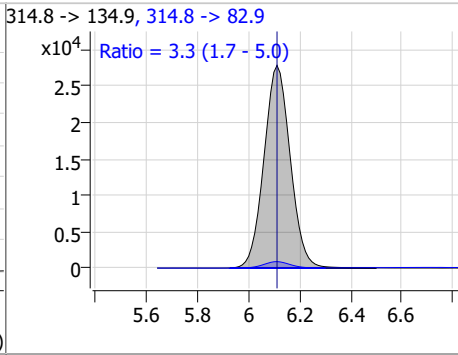
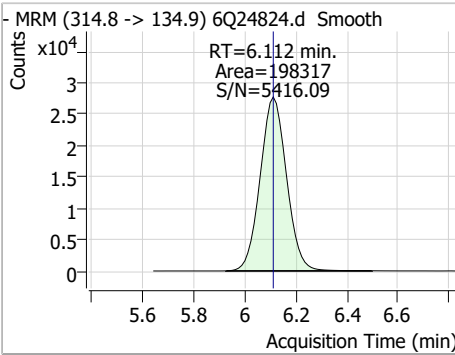
7.3.1
7

Perfluorinated Compounds by LC/MS/MS

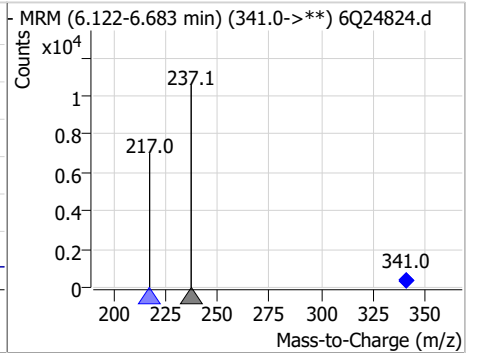
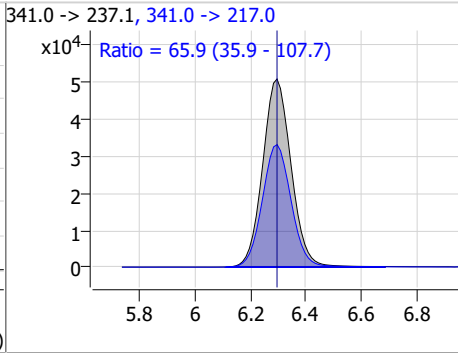
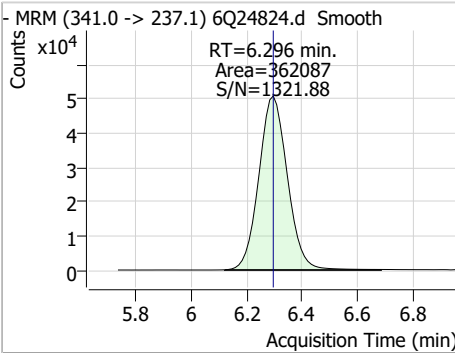
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.92	6.02	0.00	26780	284.9 -> 184.9	13.2	7.1	21.4



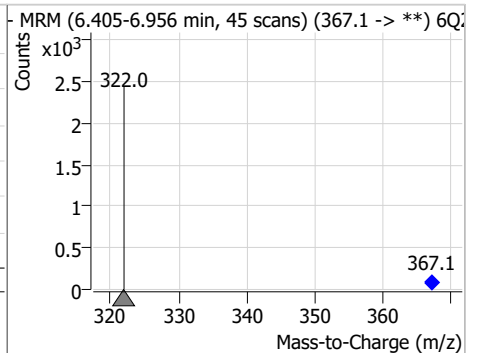
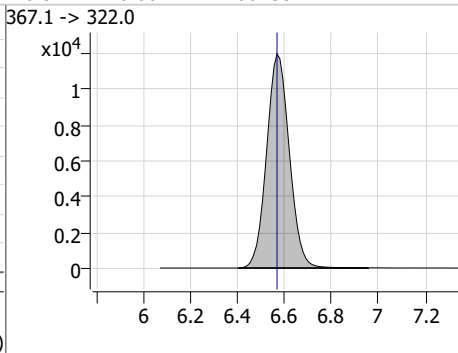
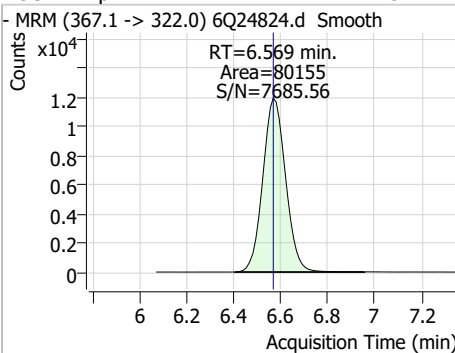
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.39	6.11	0.00	198317	314.8 -> 82.9	3.3	1.7	5.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	60.07	6.30	0.00	362087	341.0 -> 217.0	65.9	35.9	107.7

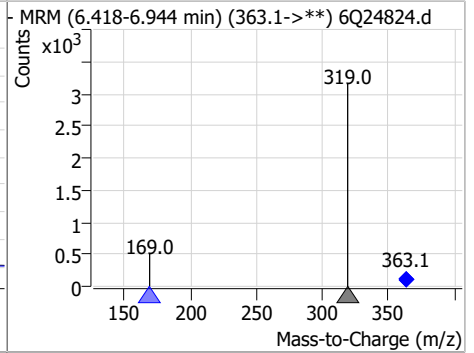
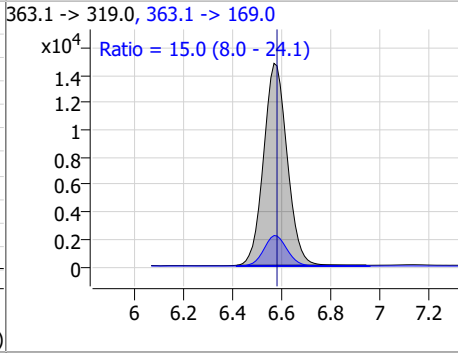
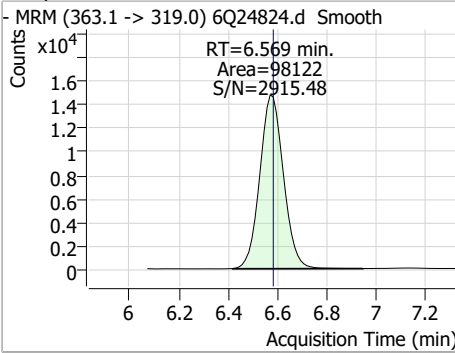


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.73	6.57	0.00	80155	367.1 -> 322.0			

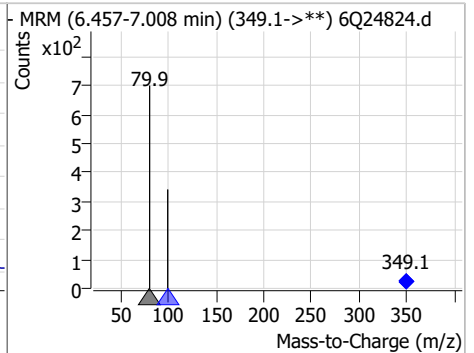
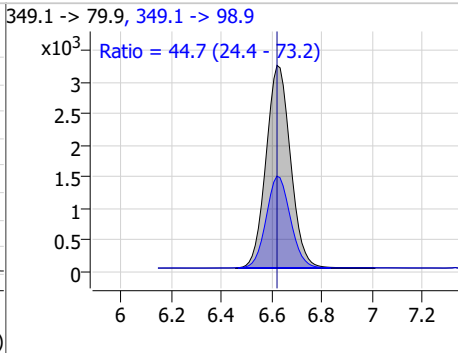
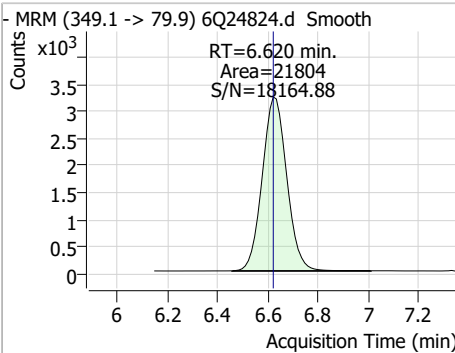


Perfluorinated Compounds by LC/MS/MS

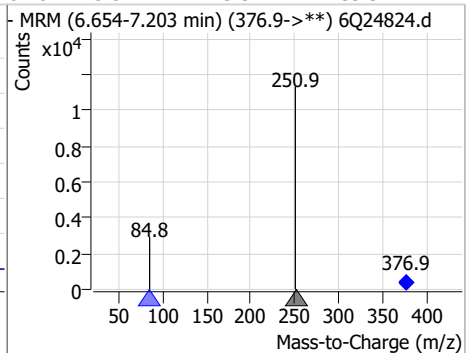
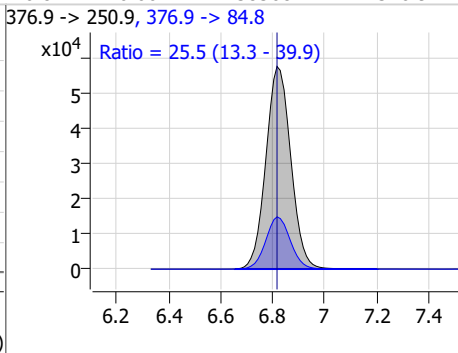
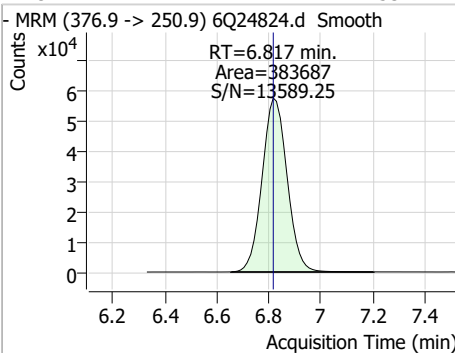
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.41	6.57	-0.01	98122	363.1 -> 169.0	15.0	8.0	24.1



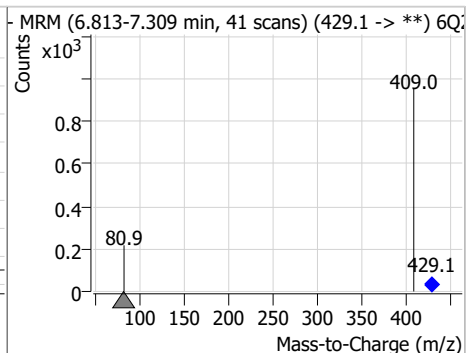
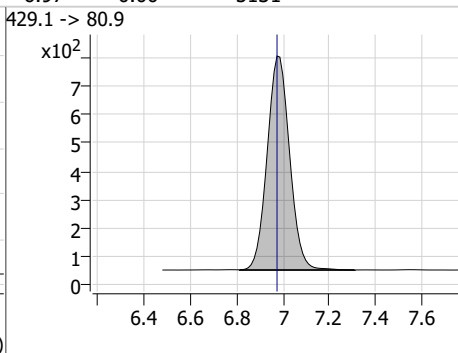
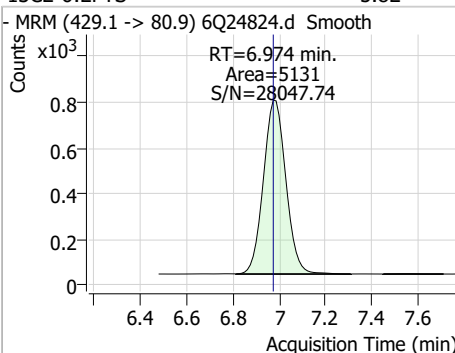
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.32	6.62	0.00	21804	349.1 -> 98.9	44.7	24.4	73.2



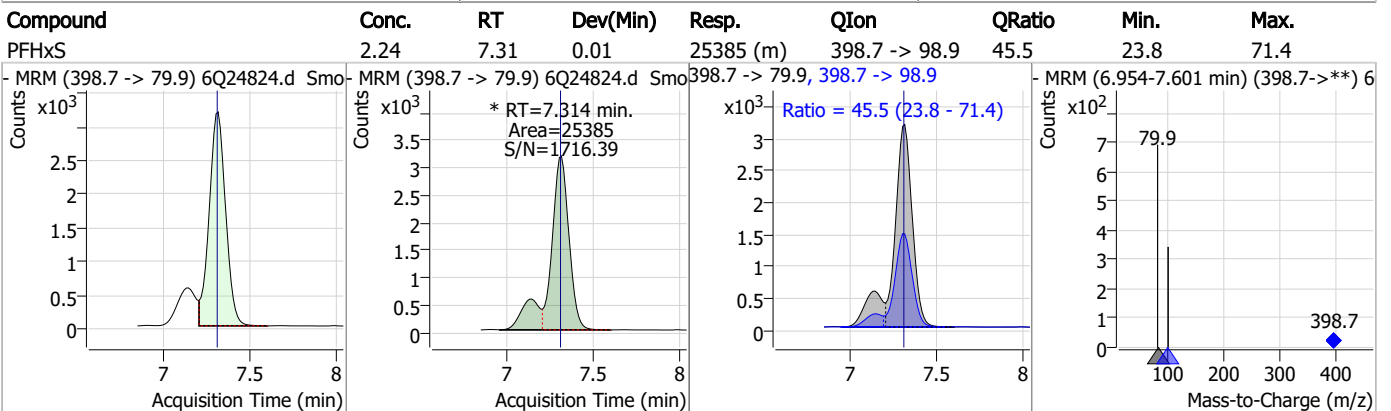
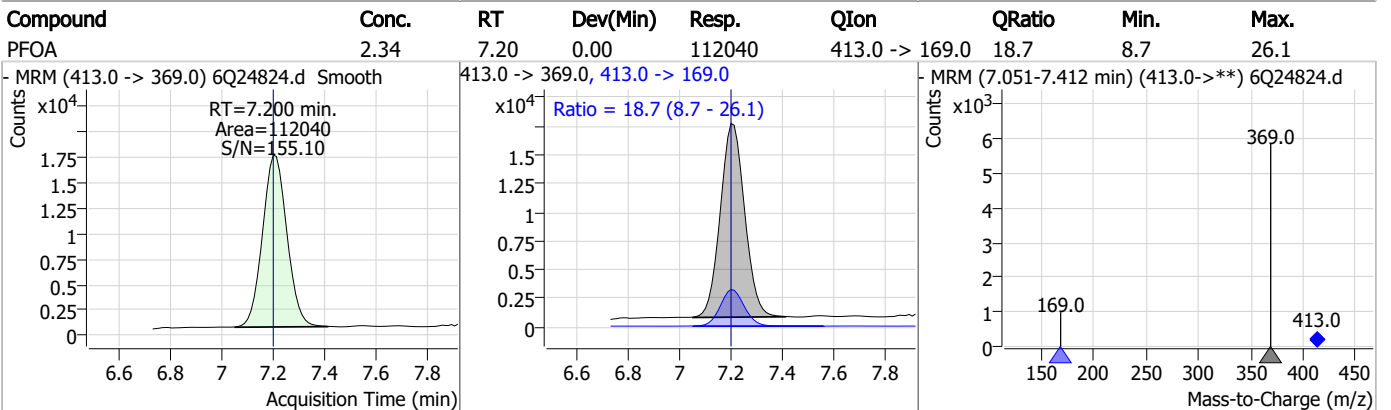
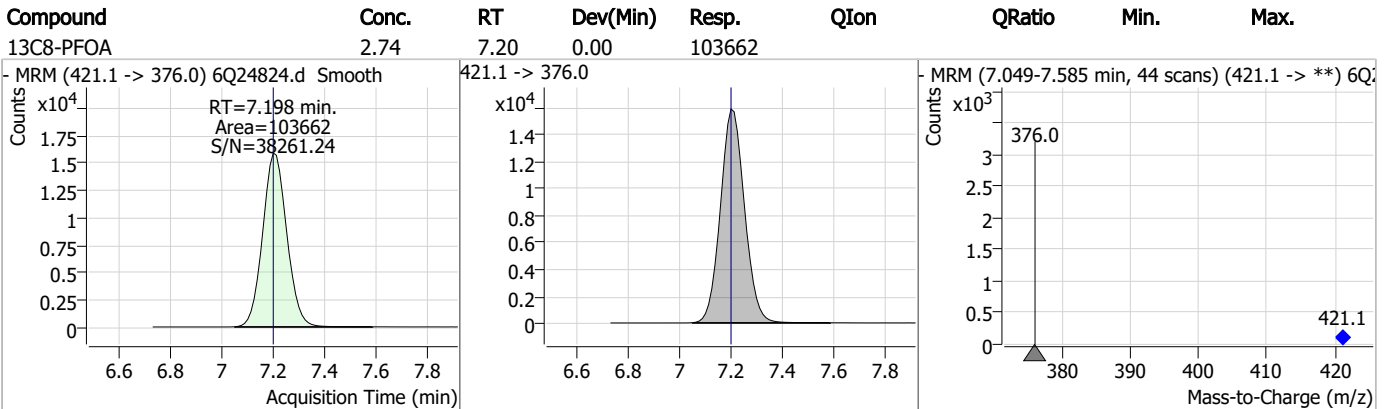
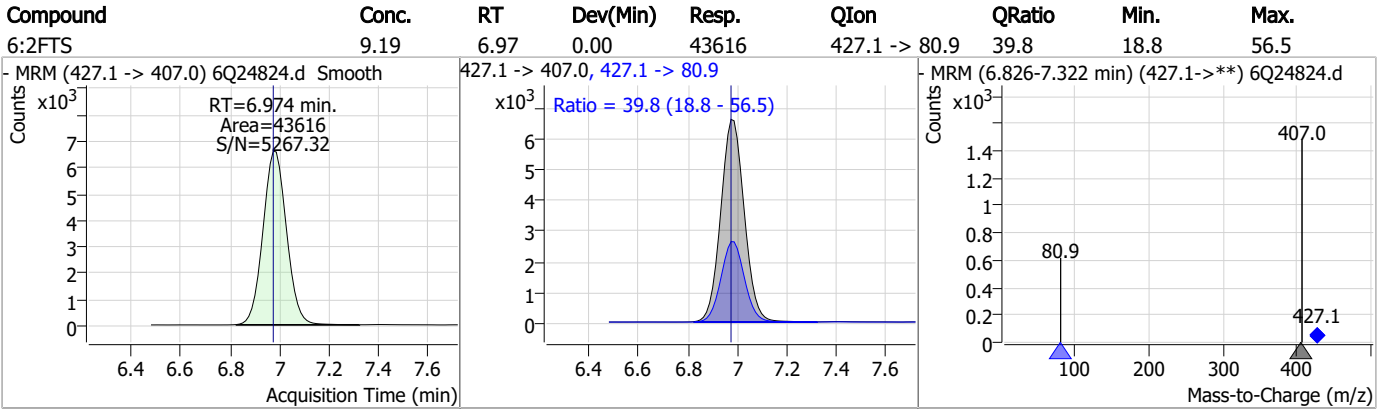
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.53	6.82	0.00	383687	376.9 -> 84.8	25.5	13.3	39.9



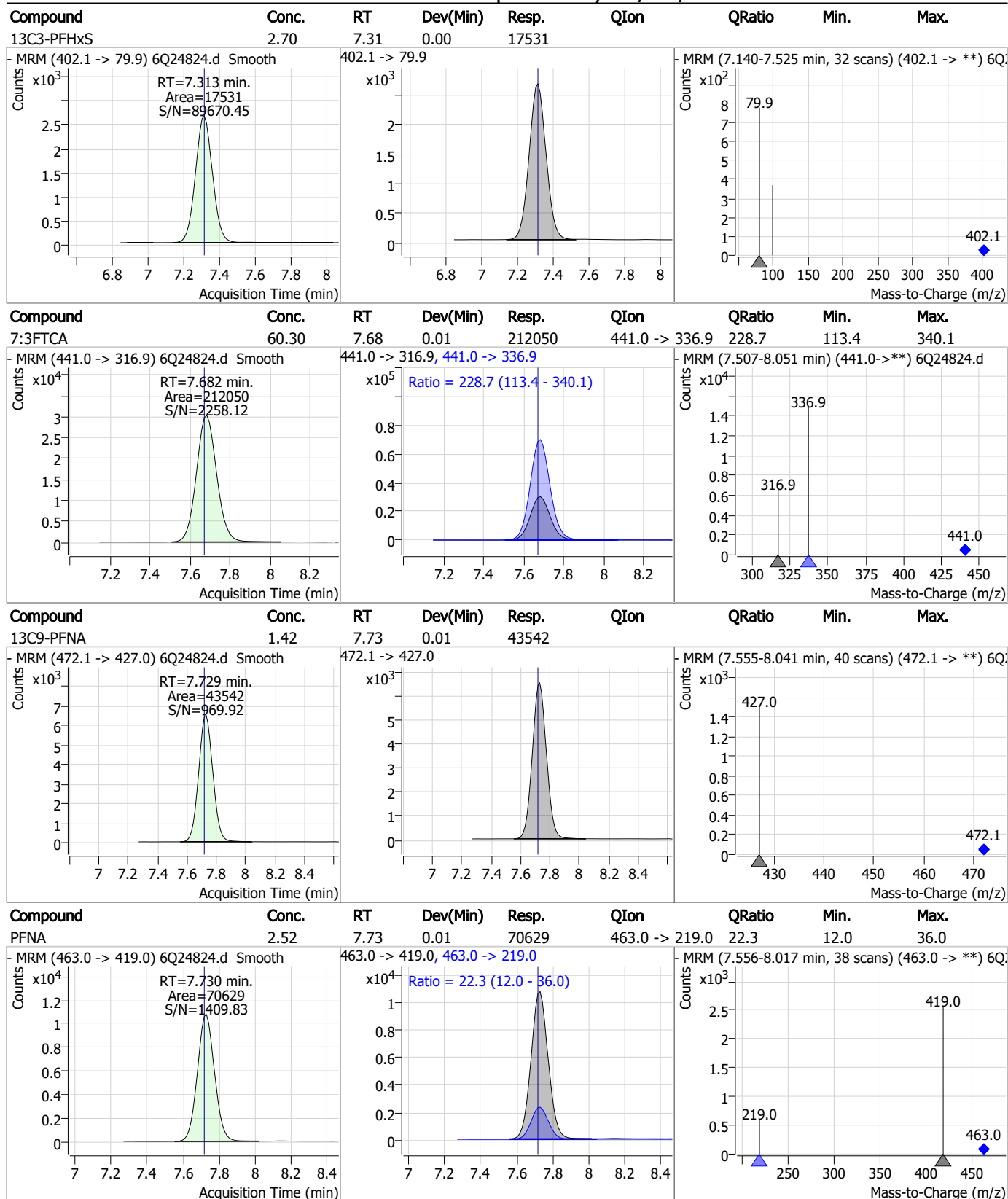
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.82	6.97	0.00	5131	429.1 -> 80.9			



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.3.1

7

Perfluorinated Compounds by LC/MS/MS

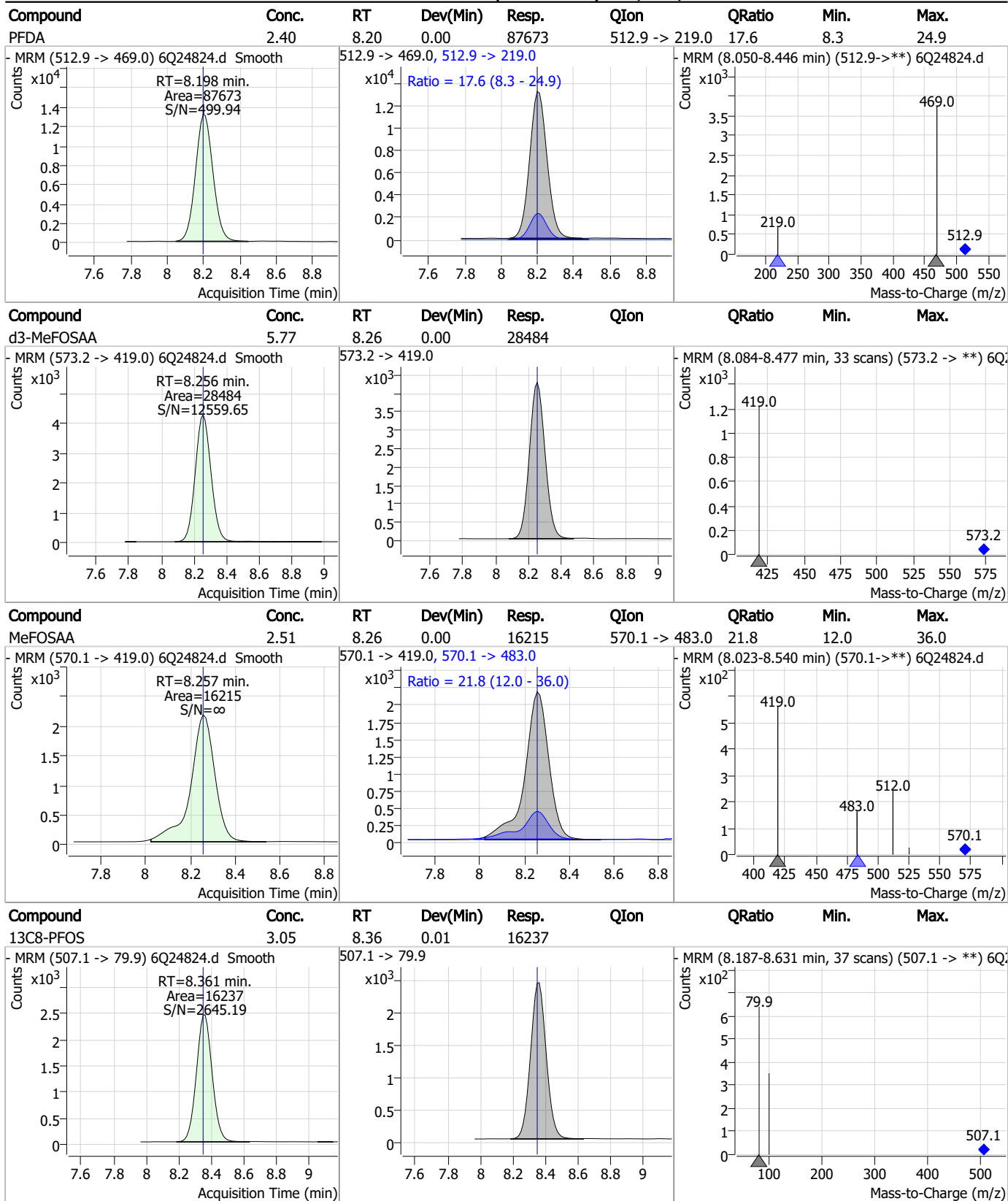
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.15	7.86	0.00	17121	449.0 -> 98.9	52.0	23.5	70.6
13C2-8:2FTS	5.67	8.00	0.01	5105	529.1 -> 80.9			
8:2FTS	9.14	8.00	0.00	29639	527.1 -> 80.8	39.2	16.2	48.5
13C6-PFDA	1.32	8.20	0.00	40975	519.1 -> 474.1			

7.3.1

7



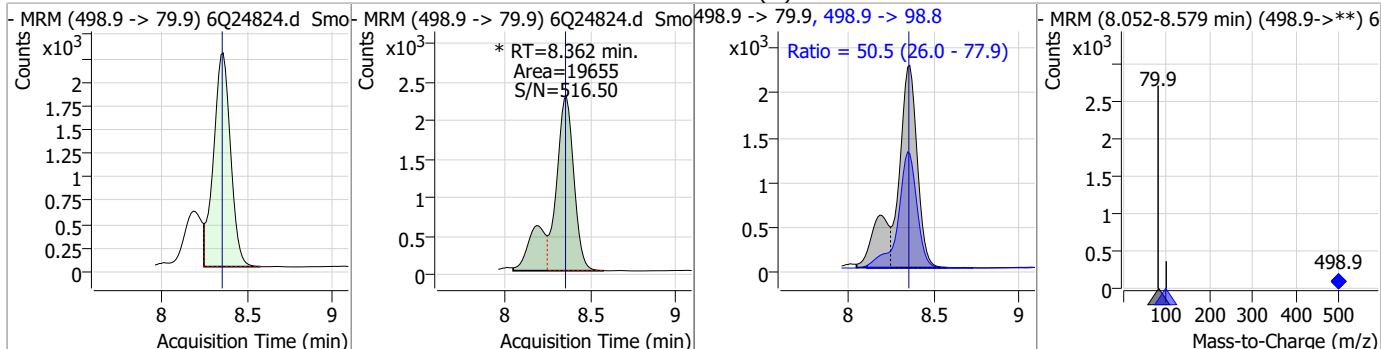
Perfluorinated Compounds by LC/MS/MS



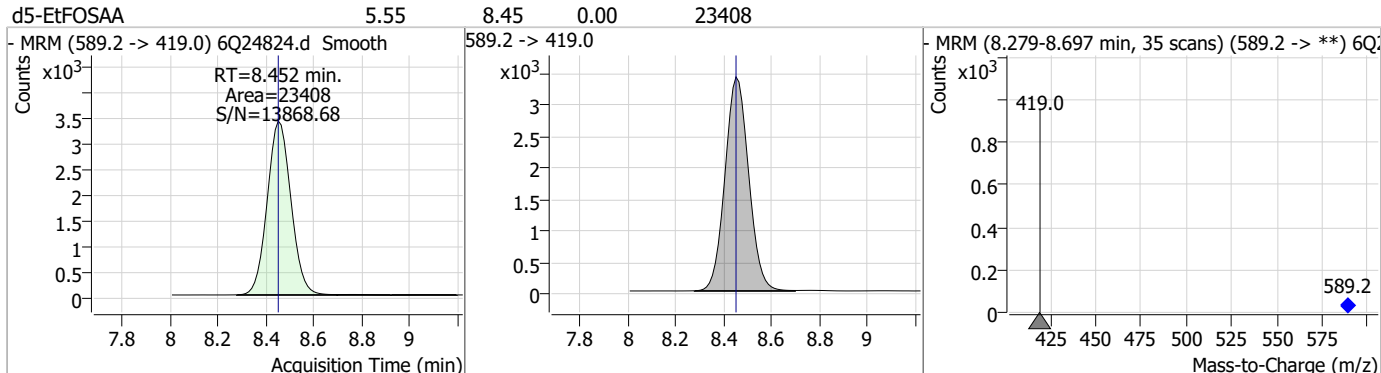
7.3.1
7

Perfluorinated Compounds by LC/MS/MS

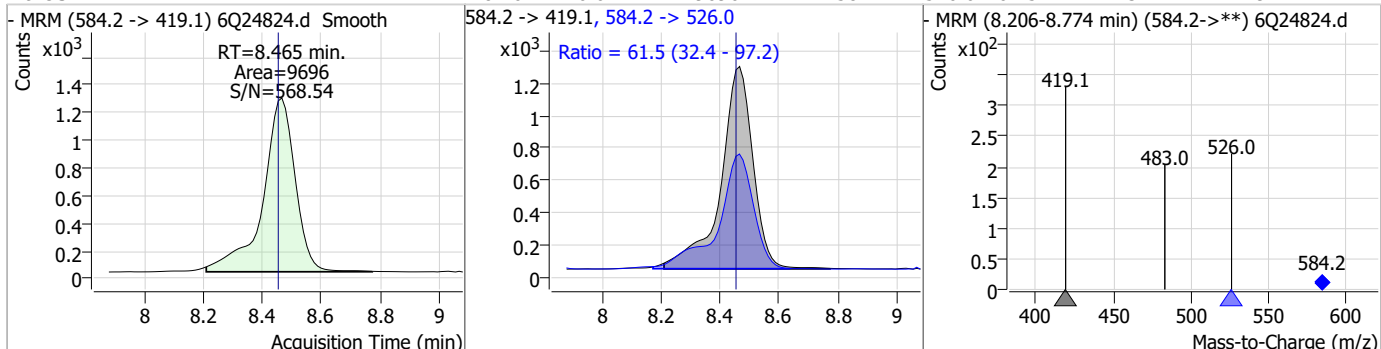
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.14	8.36	0.01	19655 (m)	498.9 -> 98.8	50.5	26.0	77.9



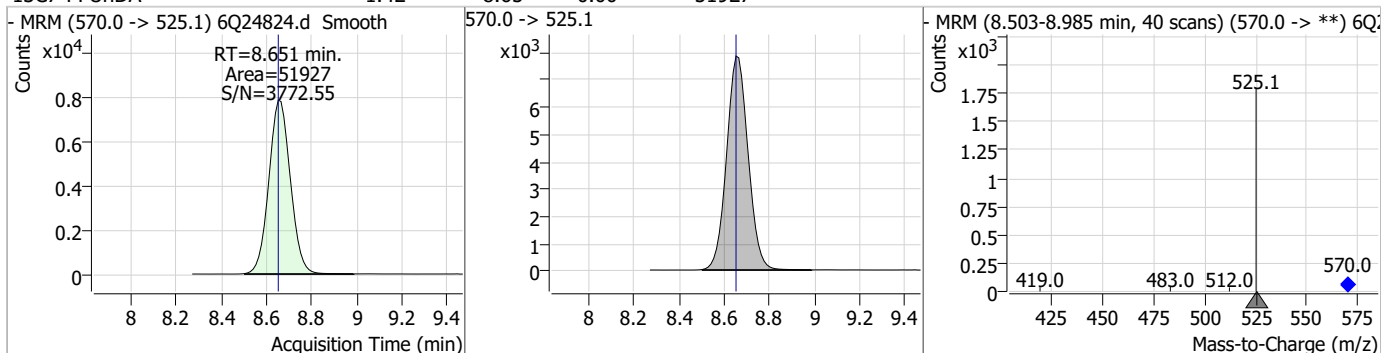
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.55	8.45	0.00	23408				



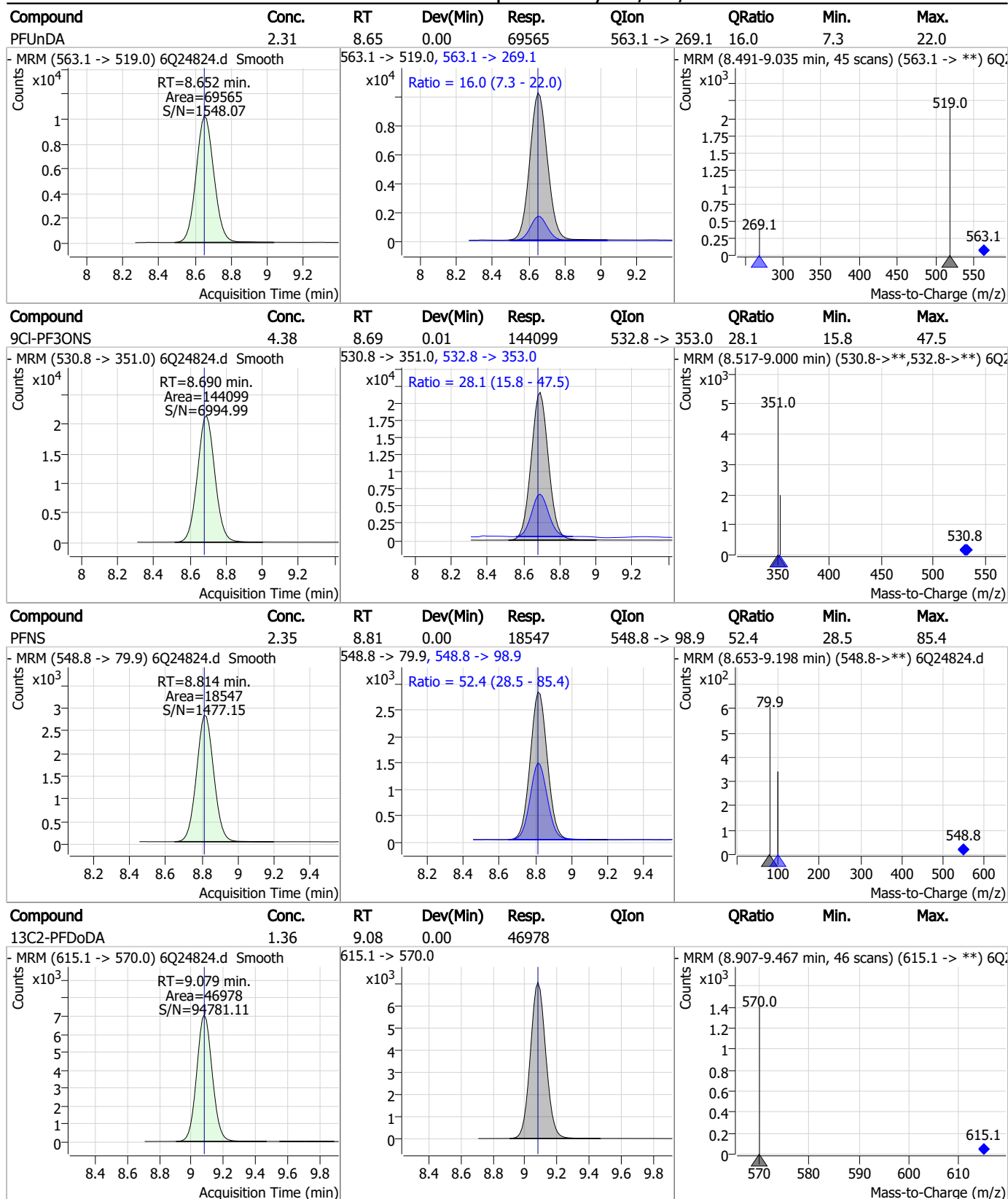
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.74	8.46	0.01	9696	584.2 -> 526.0	61.5	32.4	97.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.42	8.65	0.00	51927				

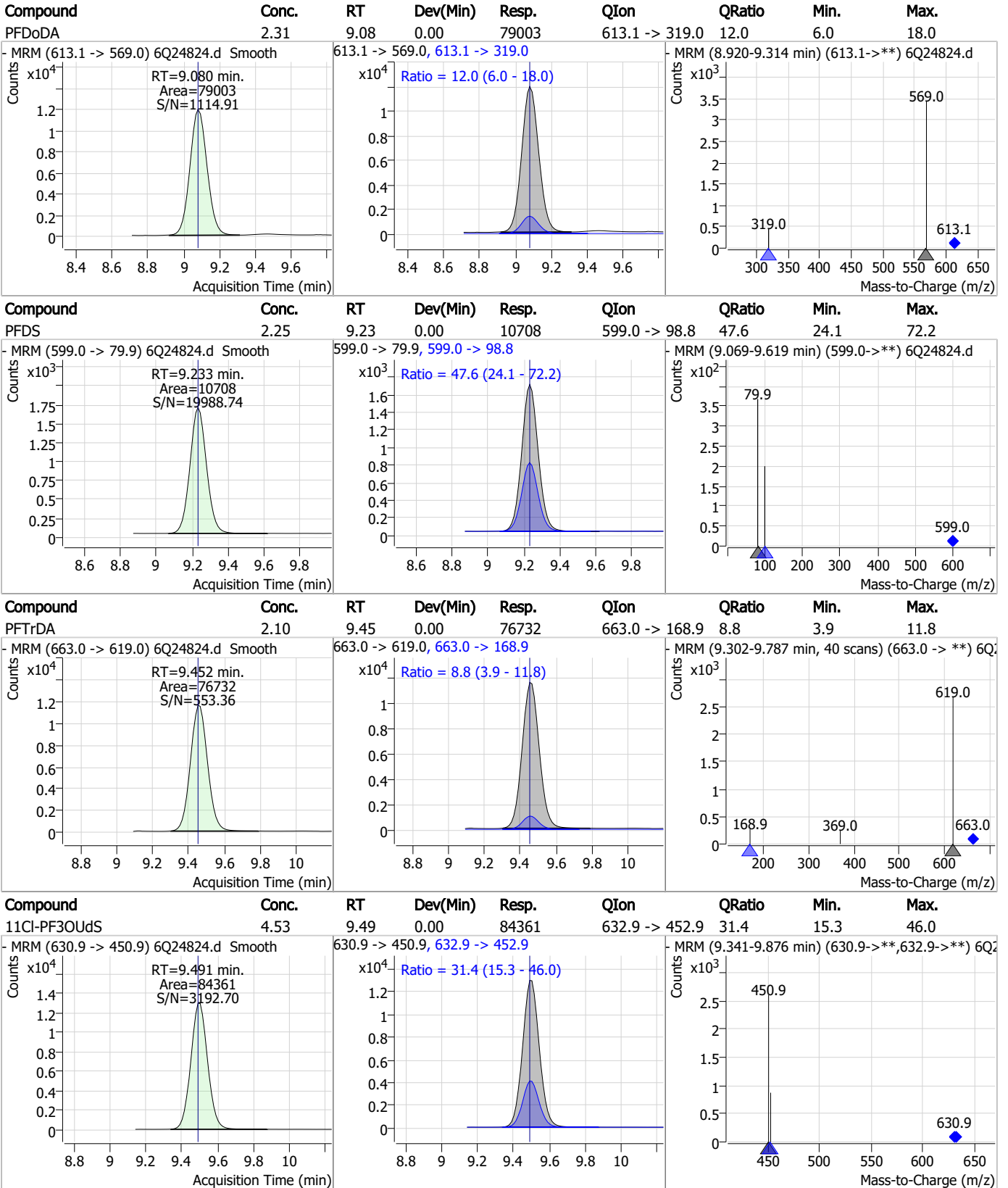


Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Perfluorinated Compounds by LC/MS/MS

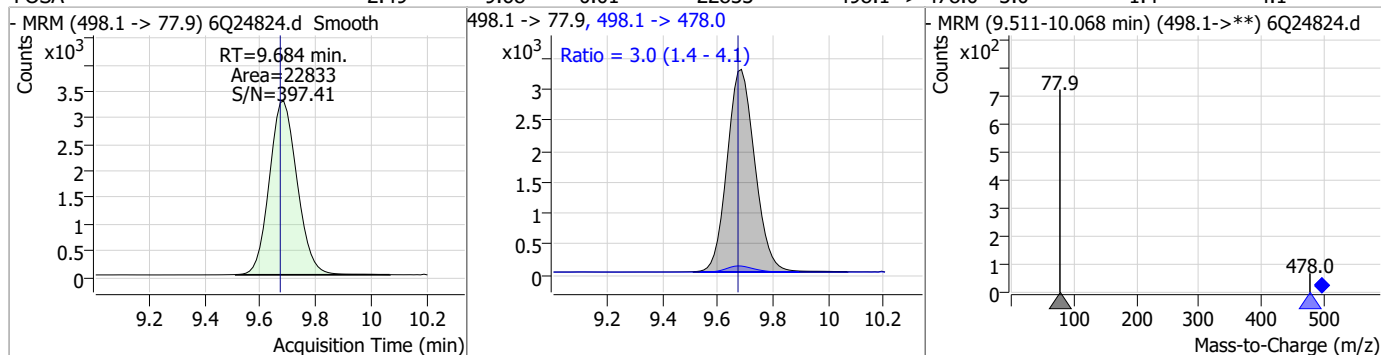


7.3.1

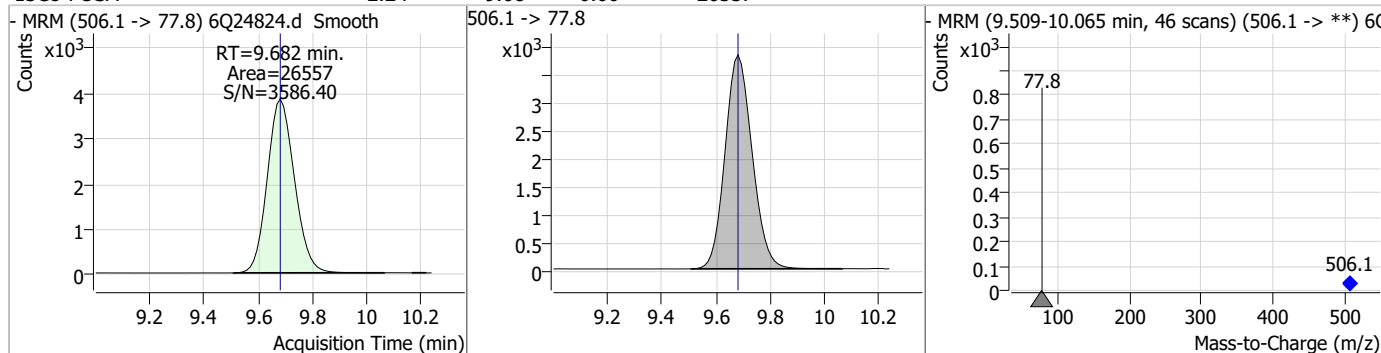
7

Perfluorinated Compounds by LC/MS/MS

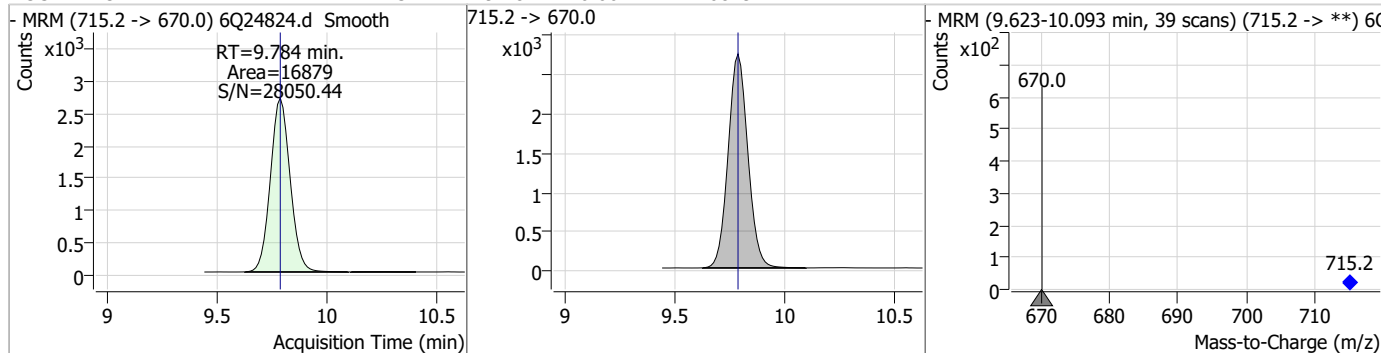
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.49	9.68	0.01	22833	498.1 -> 478.0	3.0	1.4	4.1



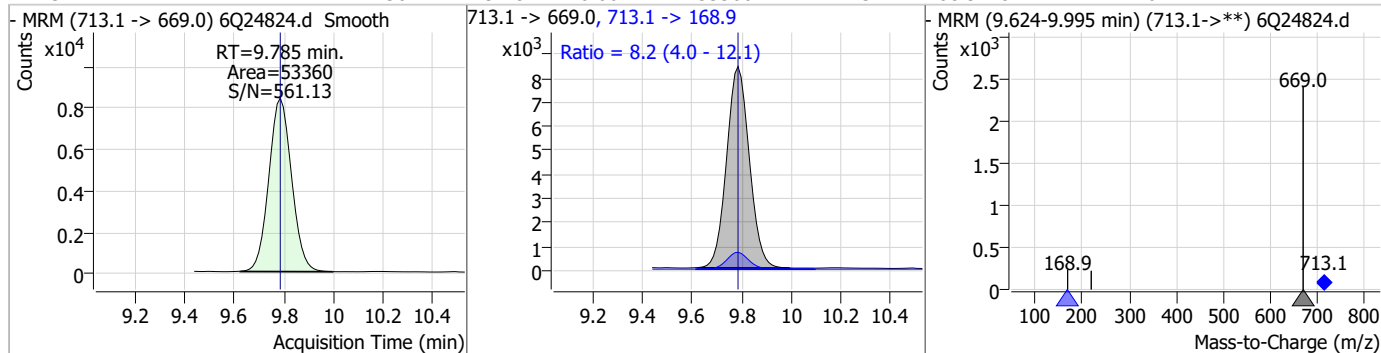
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.24	9.68	0.00	26557				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.23	9.78	0.00	16879				

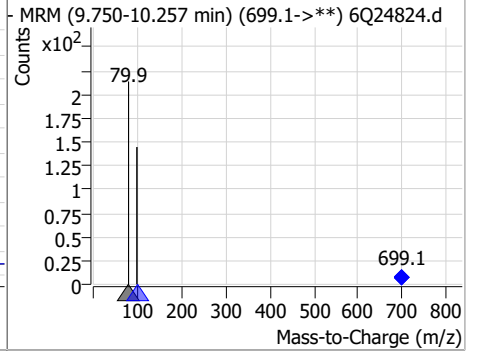
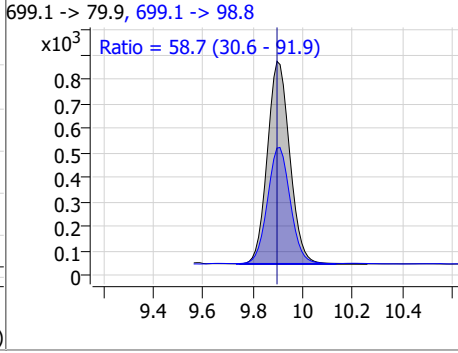
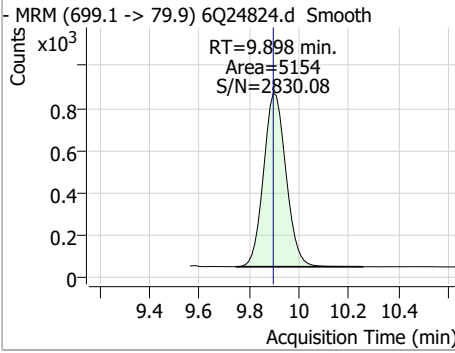


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.36	9.78	0.00	53360	713.1 -> 168.9	8.2	4.0	12.1

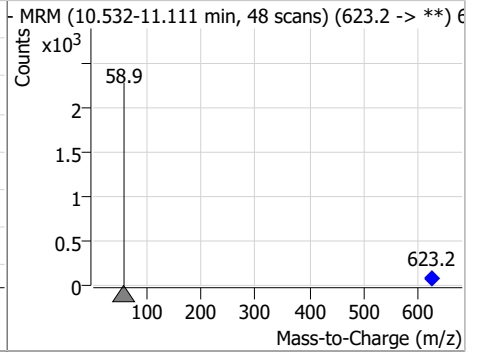
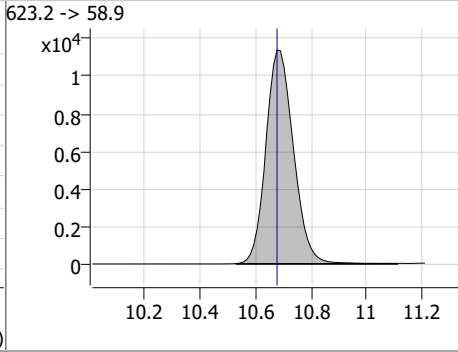
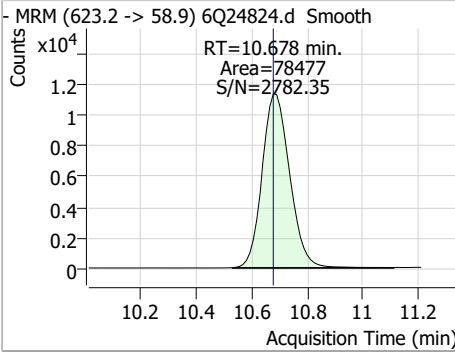


Perfluorinated Compounds by LC/MS/MS

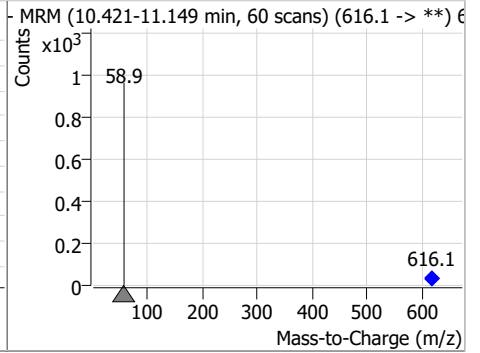
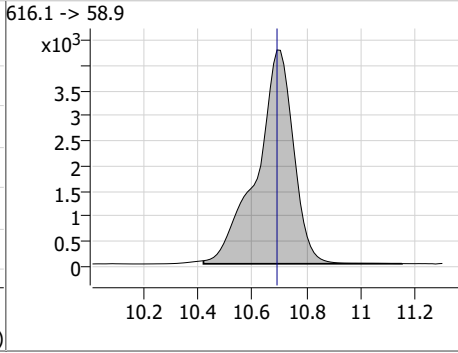
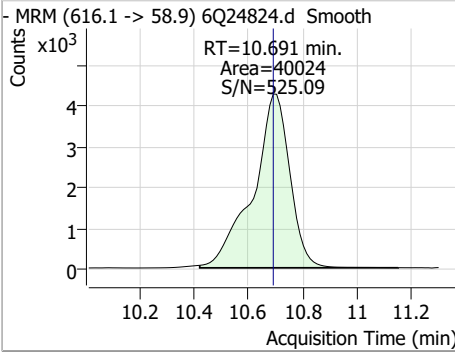
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.20	9.90	0.00	5154	699.1 -> 98.8	58.7	30.6	91.9



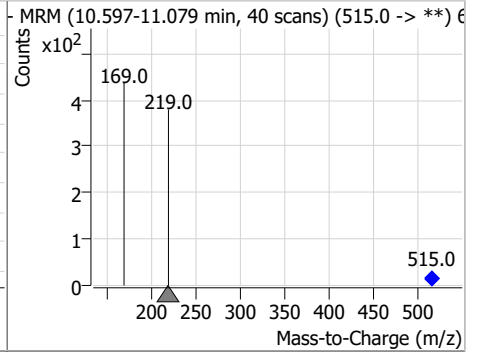
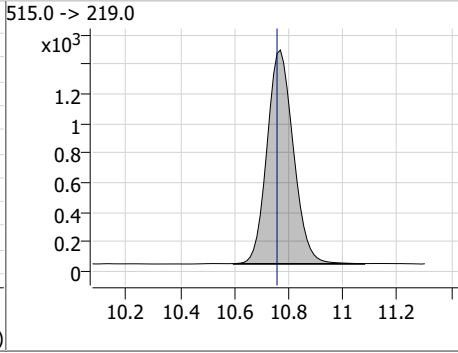
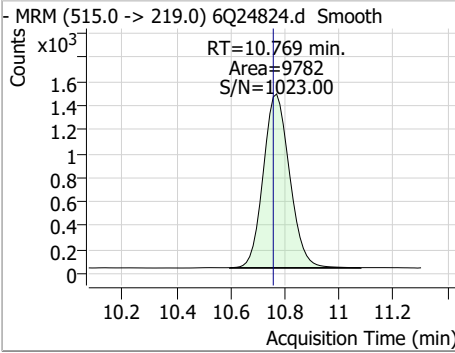
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.36	10.68	0.00	78477				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.88	10.69	0.00	40024				

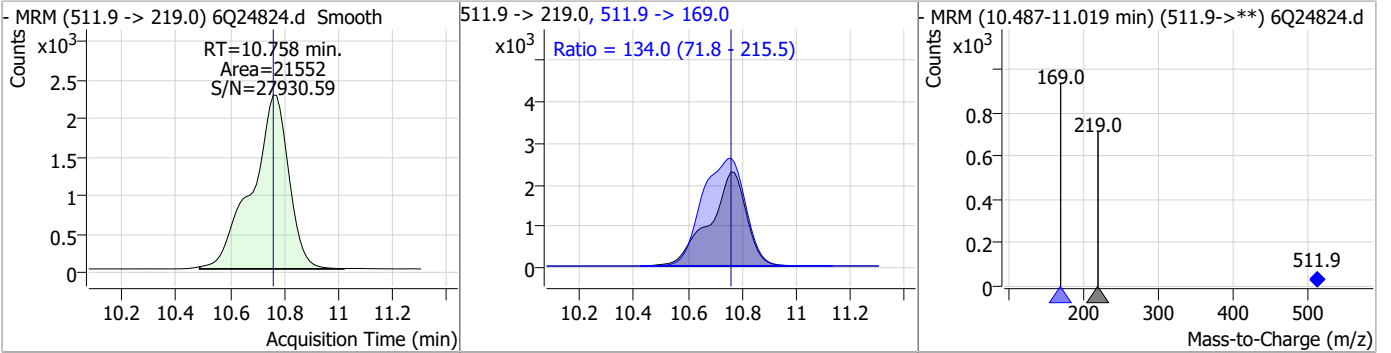


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.28	10.77	0.01	9782				

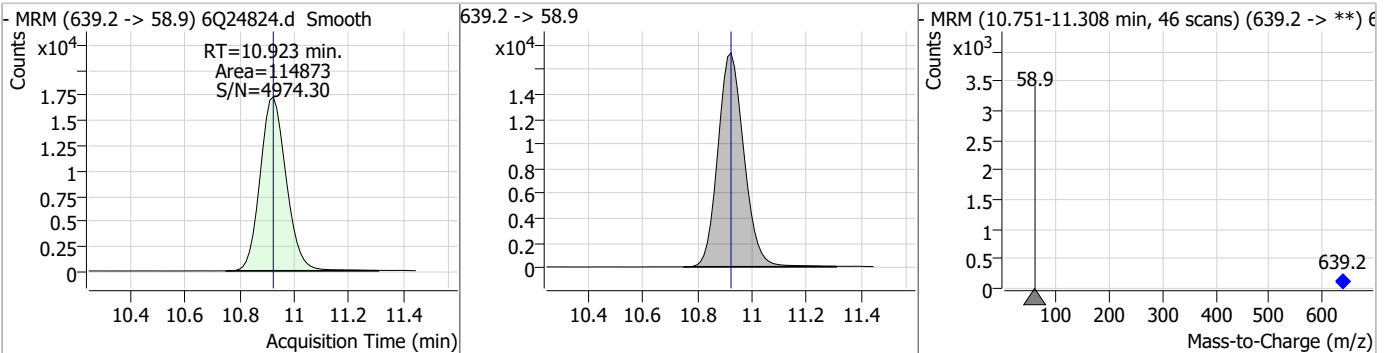


Perfluorinated Compounds by LC/MS/MS

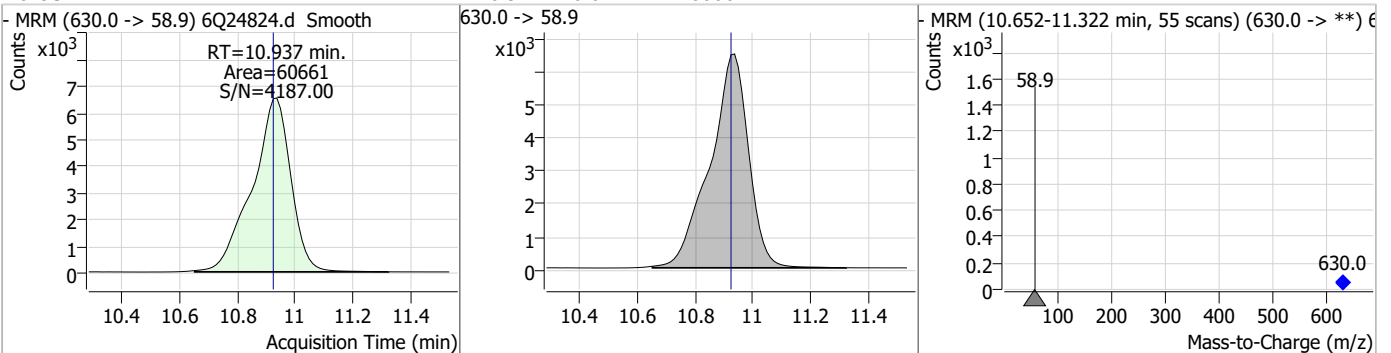
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.90	10.76	0.00	21552	511.9 -> 169.0	134.0	71.8	215.5



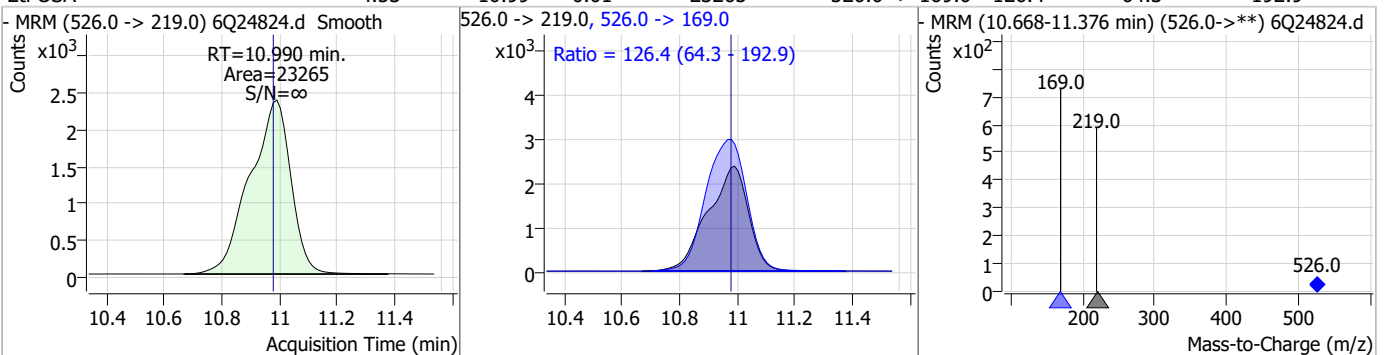
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.70	10.92	0.00	114873				



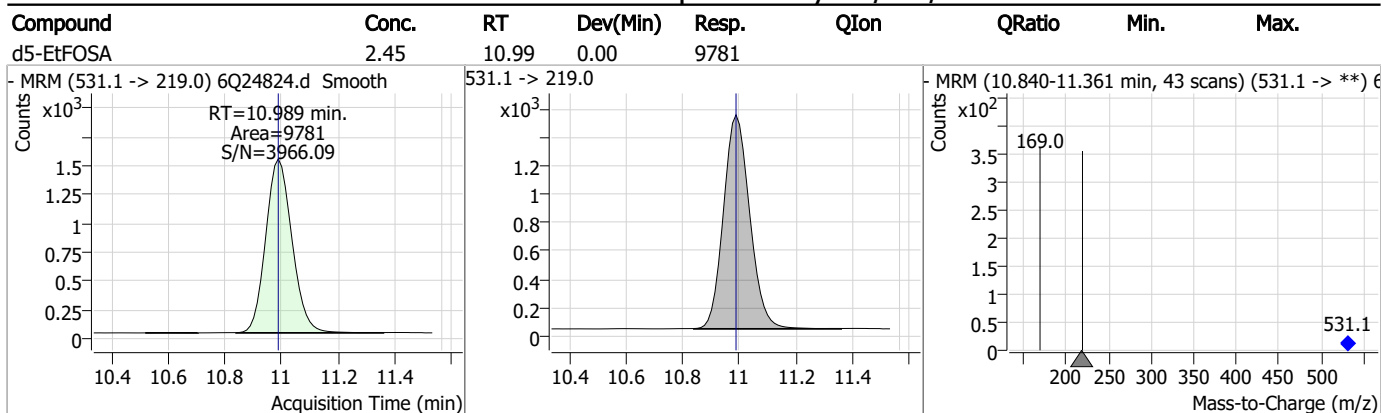
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.27	10.94	0.01	60661				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	4.53	10.99	0.01	23265	526.0 -> 169.0	126.4	64.3	192.9



Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Manual Integration Approval Summary

Sample Number: OP99077-BS Method: EPA DRAFT 1633
Lab FileID: 6Q24824.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 23:42 Supervisor approved: 09/22/23 13:19 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak

7.3.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24825.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 11:56:30 PM
 Sample Name : OP99077-LLBS:3
 Vial : P2-A2
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99077,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	275819	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	43482	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	101728	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	79875	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	103105	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	42946	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	38921	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	48555	1.25 µg/L	0.000
M2-PFDoDA	9.079	615.1 -> 570.0	44537	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	17050	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	25880	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	31515	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	18397	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	16071	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	3557	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	5209	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	5221	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	29874	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	55303	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	24544	5.00 µg/L	0.000
M7-MeFOSE	10.690	623.2 -> 58.9	86117	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	124467	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9810	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	9686	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	19470	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	100719	5.00 µg/L	0.012
18O2-PFHxS	7.313	403.0 -> 83.9	11519	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	105761	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	31531	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	46086	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	68883	2.50 µg/L	0.000

System Monitoring Compounds

13C2-4:2FTS	5.317	329.1 -> 80.9	3557	5.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.4%		
13C2-6:2FTS	6.974	429.1 -> 80.9	5209	6.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.9%		
13C2-8:2FTS	7.998	529.1 -> 80.9	5221	6.04 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.7%		
13C2-PFDoDA	9.079	615.1 -> 570.0	44537	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.5%		
13C2-PFTeDA	9.784	715.2 -> 670.0	17050	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C3-PFBS	5.571	302.1 -> 79.9	31515	2.82 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.0%		
13C3-PFHxS	7.313	402.1 -> 79.9	18397	2.95 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 = 118.0%	
13C4-PFBA	3.010	216.8 -> 171.9	275819	11.23 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C4-PFHpA	6.569	367.1 -> 322.0	79875	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C5-PFHxA	5.641	318.0 -> 273.0	101728	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C5-PFPeA	4.434	268.3 -> 223.0	43482	5.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.1%	
13C6-PFDA	8.198	519.1 -> 474.1	38921	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C7-PFUnDA	8.651	570.0 -> 525.1	48555	1.43 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.5%	
13C8-FOSA	9.682	506.1 -> 77.8	25880	2.02 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.0%	
13C8-PFOA	7.198	421.1 -> 376.0	103105	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C8-PFOS	8.348	507.1 -> 79.9	16071	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.1%	
13C9-PFNA	7.717	472.1 -> 427.0	42946	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.8%	
d3-MeFOSAA	8.256	573.2 -> 419.0	29874	5.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.4%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	55303	10.83 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.3%	
d3-MeFOSA	10.769	515.0 -> 219.0	9686	2.09 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.7%	
d5-EtFOSAA	8.452	589.2 -> 419.0	24544	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.1%	
d7-MeFOSE	10.690	623.2 -> 58.9	86117	20.73 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.9%	
d9-EtFOSE	10.923	639.2 -> 58.9	124467	22.83 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.3%	
d5-EtFOSA	10.989	531.1 -> 219.0	9810	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.0%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	17757	3.08 µg/L	98
		327.1 -> 80.9	6524		
6:2FTS	6.974	427.1 -> 407.0	14400	2.99 µg/L	99
		427.1 -> 80.9	5546		
8:2FTS	7.999	527.1 -> 507.0	9293	2.80 µg/L	85
		527.1 -> 80.8	3803		
EtFOSAA	8.465	584.2 -> 419.1	3190	0.86 µg/L	95
		584.2 -> 526.0	1935		
FOSA	9.684	498.1 -> 77.9	7241	0.81 µg/L	100
		498.1 -> 478.0	197		
MeFOSAA	8.257	570.1 -> 419.0	5457	0.81 µg/L	92
		570.1 -> 483.0	1107		
PFBA	3.018	212.8 -> 168.9	26541	3.12 µg/L	100
PFBS	5.572	298.7 -> 79.9	10536	0.71 µg/L	98
		298.7 -> 98.8	3983		
PFDA	8.198	512.9 -> 469.0	29171	0.84 µg/L	100
		512.9 -> 219.0	4800		
PFDODA	9.080	613.1 -> 569.0	23272	0.72 µg/L	95
		613.1 -> 319.0	3215		
PFDS	9.233	599.0 -> 79.9	3373	0.72 µg/L	96

7.3.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	1710	0.81	µg/L	95
		363.1 -> 319.0	32770			
PFHpS	7.856	363.1 -> 169.0	4609	0.77	µg/L	99
		449.0 -> 79.9	6071			
PFHxA	5.644	449.0 -> 98.9	2803	0.74	µg/L	99
		313.0 -> 269.0	26187			
PFHxS	7.314	313.0 -> 118.9	1324	0.65	µg/L	93
		398.7 -> 79.9	7753			
PFNA	7.717	398.7 -> 98.9	4055	0.74	µg/L	97
		463.0 -> 419.0	20356			
PFNS	8.814	463.0 -> 219.0	5194	0.79	µg/L	98
		548.8 -> 79.9	6159			
PFOA	7.200	548.8 -> 98.9	3418	0.83	µg/L	99
		413.0 -> 369.0	39305			
PFOS	8.350	413.0 -> 169.0	6597	0.76	µg/L	92
		498.9 -> 79.9	6900			
PFPeA	4.436	498.9 -> 98.8	3198	1.56	µg/L	100
		263.0 -> 219.0	33320			
PFPeS	6.620	349.1 -> 79.9	7037	0.71	µg/L	97
		349.1 -> 98.9	3296			
PFTeDA	9.785	713.1 -> 669.0	17117	0.75	µg/L	99
		713.1 -> 168.9	1450			
PFTrDA	9.452	663.0 -> 619.0	25254	0.73	µg/L	98
		663.0 -> 168.9	2171			
PFUnDA	8.652	563.1 -> 519.0	22181	0.79	µg/L	99
		563.1 -> 269.1	3172			
11CI-PF3OUdS	9.491	630.9 -> 450.9	25200	1.40	µg/L	96
		632.9 -> 452.9	8319			
9CI-PF3ONS	8.690	530.8 -> 351.0	46205	1.46	µg/L	94
		532.8 -> 353.0	16015			
ADONA	6.817	376.9 -> 250.9	128370	1.57	µg/L	97
		376.9 -> 84.8	31865			
HFPO-DA	6.020	284.9 -> 168.9	8111	1.55	µg/L	99
		284.9 -> 184.9	1112			
3:3FTCA	3.902	241.0 -> 177.0	4290	2.89	µg/L	99
		241.0 -> 117.0	429			
5:3FTCA	6.296	341.0 -> 237.1	112538	18.13	µg/L	93
		341.0 -> 217.0	74682			
7:3FTCA	7.682	441.0 -> 316.9	70844	19.57	µg/L	99
		441.0 -> 336.9	159943			
EtFOSA	10.990	526.0 -> 219.0	7806	1.51	µg/L	99
		526.0 -> 169.0	10116			
EtFOSE	10.937	630.0 -> 58.9	22410	3.84	µg/L	100
		511.9 -> 219.0	6855			
MeFOSA	10.758	511.9 -> 169.0	9873	1.57	µg/L	100
		616.1 -> 58.9	14026			
MeFOSE	10.691	699.1 -> 79.9	1624	3.79	µg/L	100
		699.1 -> 98.8	965			
PFDoDS	9.898	295.0 -> 201.0	6306	0.70	µg/L	98
		295.0 -> 84.9	1652			
NFDHA	5.524	279.0 -> 85.1	23601	1.56	µg/L	100
		229.0 -> 84.9	17506			
PFMBA	4.850	314.8 -> 134.9	65082	1.40	µg/L	98
		314.8 -> 82.9	1732			

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



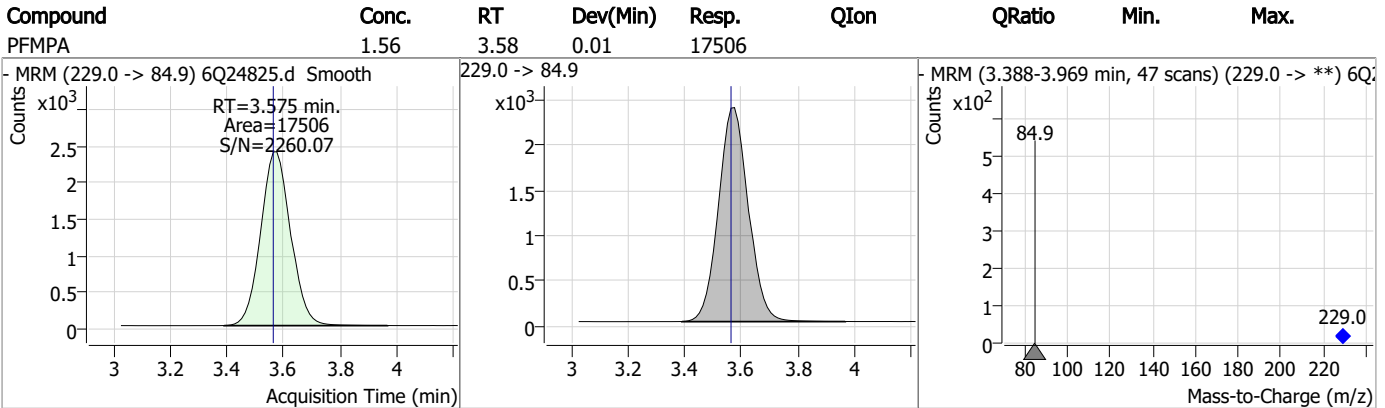
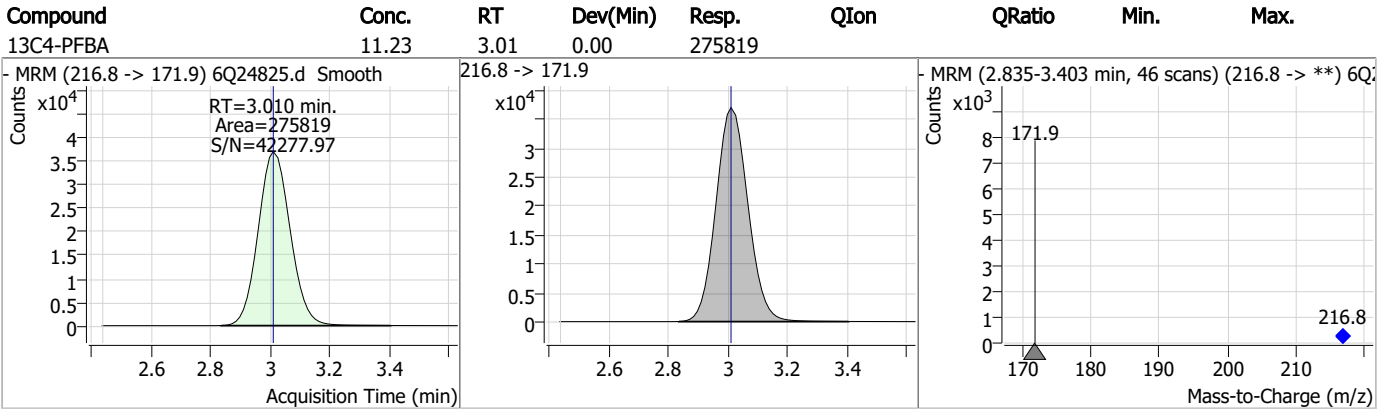
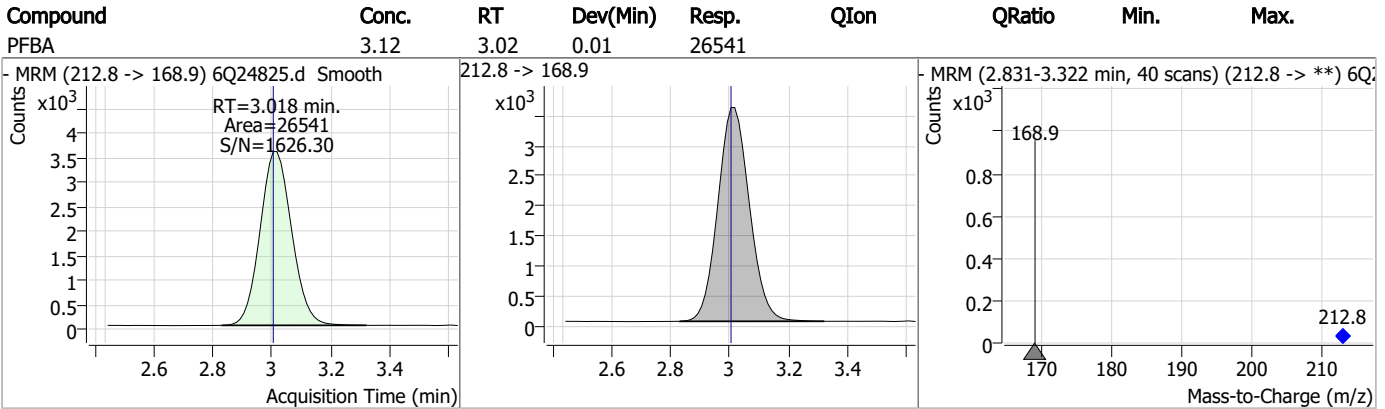
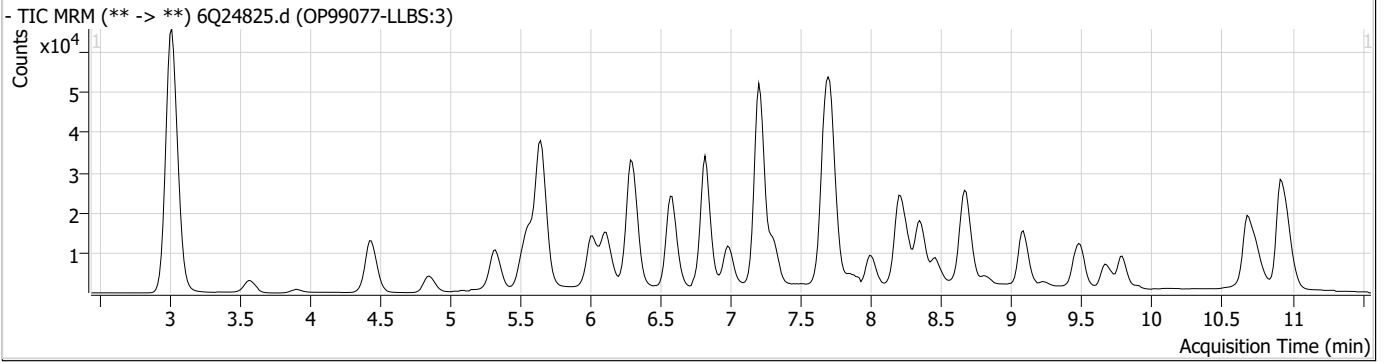
Perfluorinated Compounds by LC/MS/MS

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

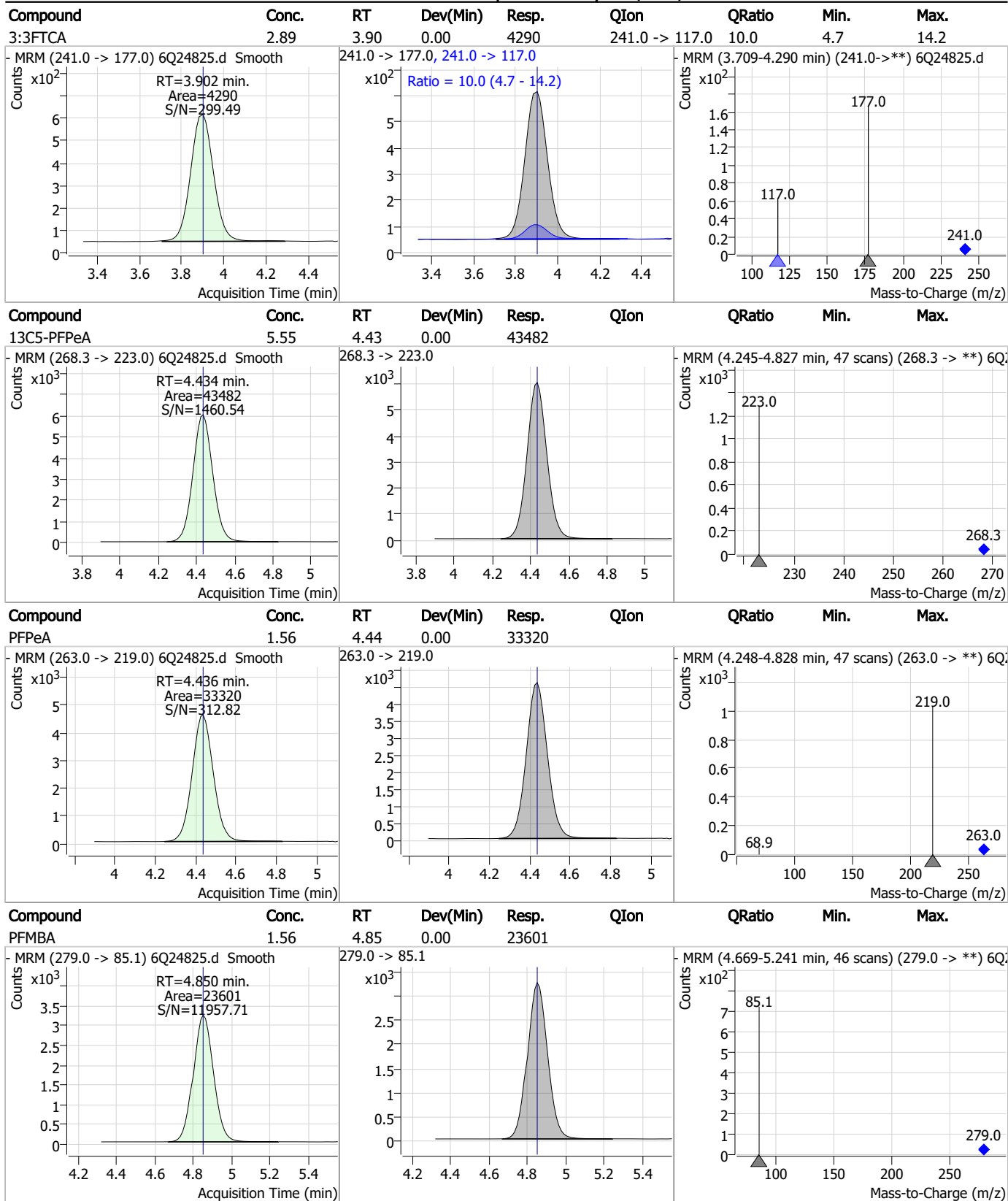
7.3.2

7

Perfluorinated Compounds by LC/MS/MS

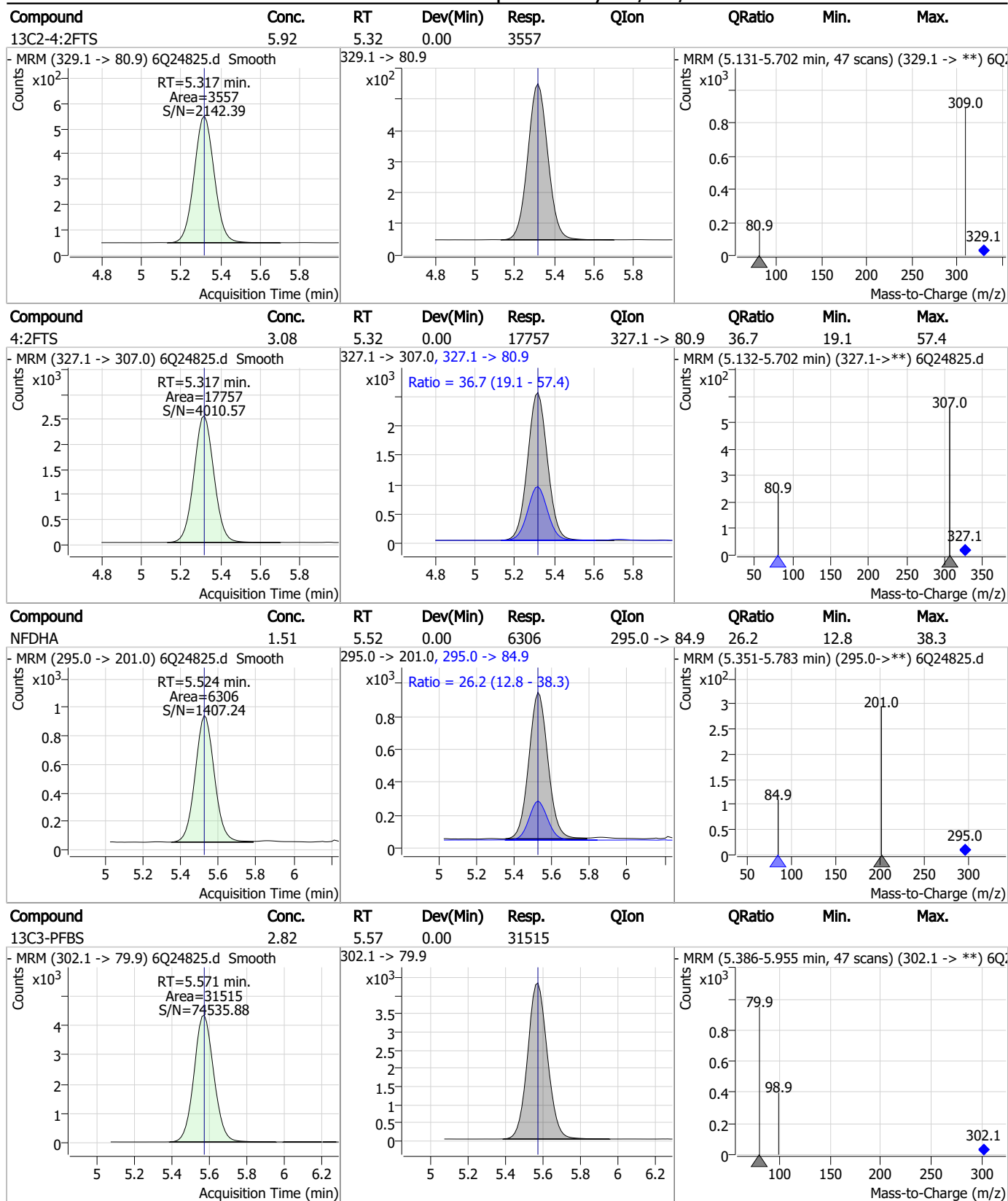


Perfluorinated Compounds by LC/MS/MS



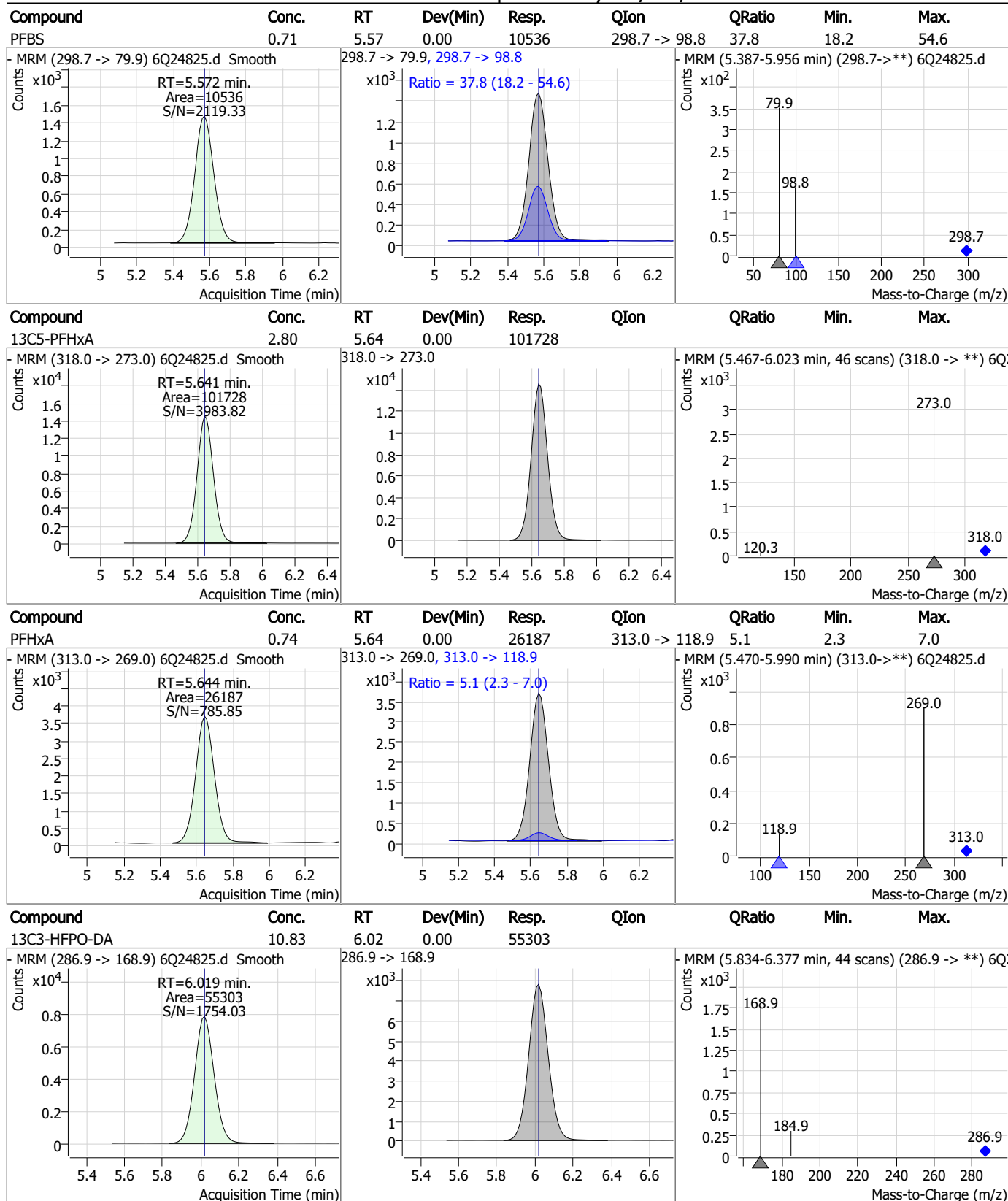
7.3.2
7

Perfluorinated Compounds by LC/MS/MS



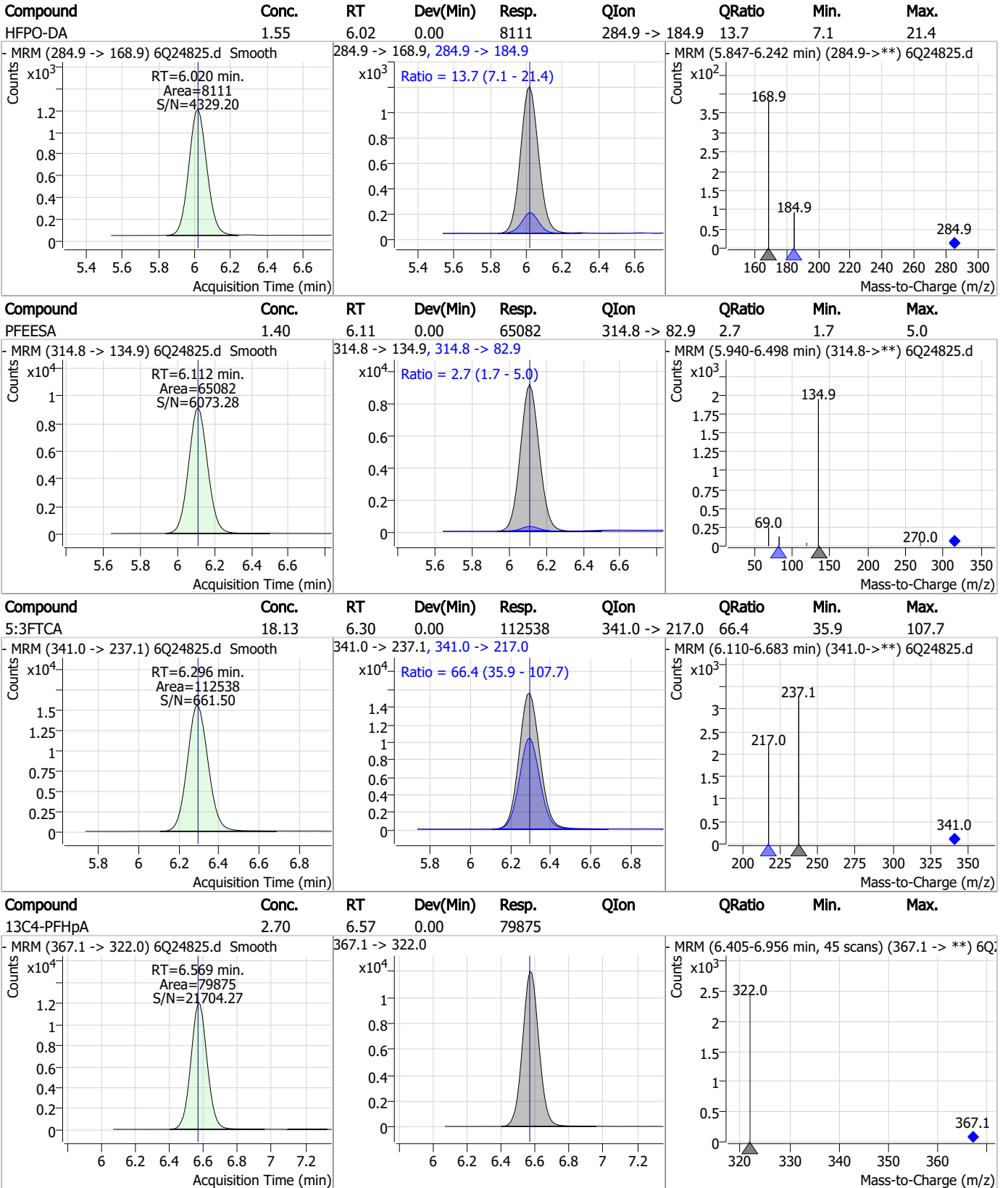
7.3.2
7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

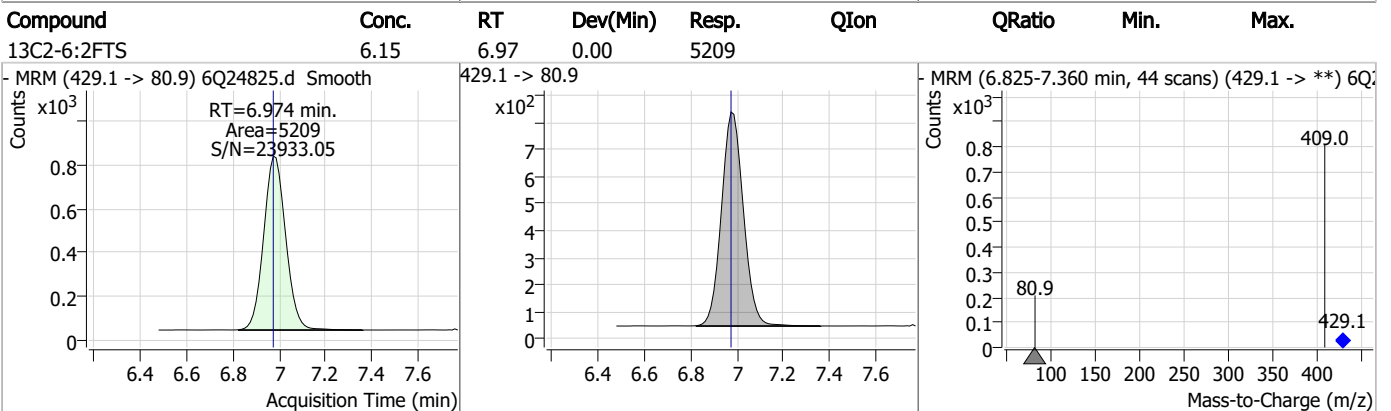
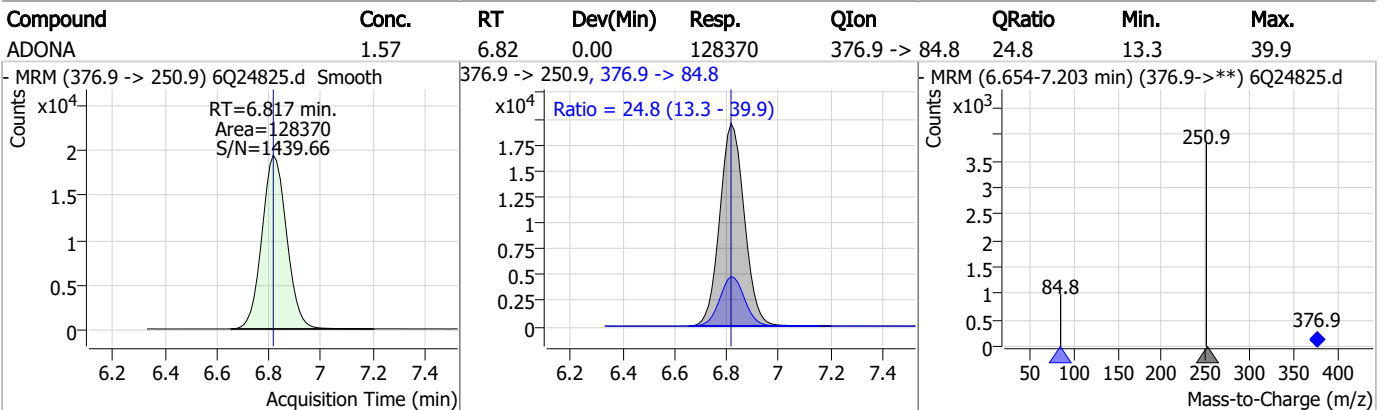
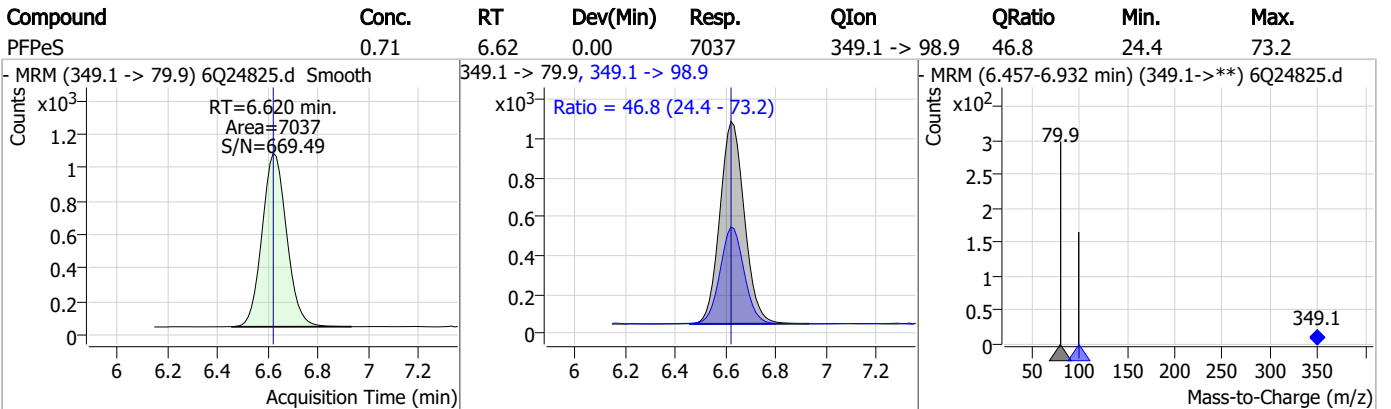
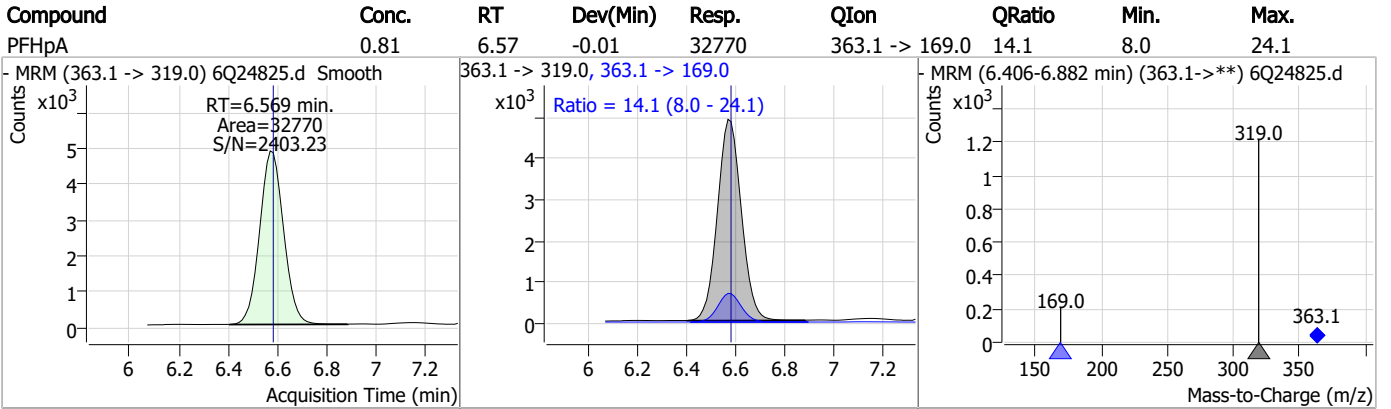
Perfluorinated Compounds by LC/MS/MS



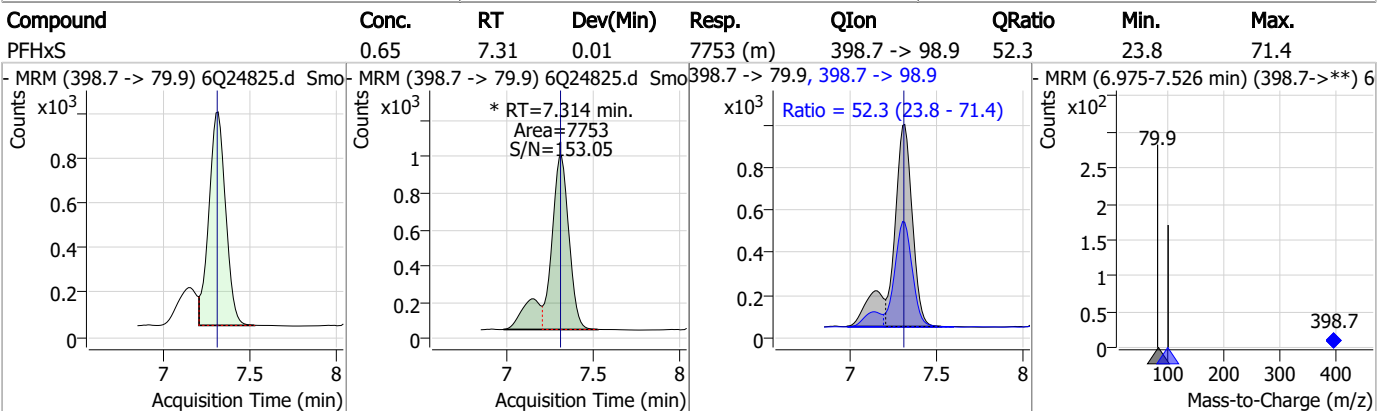
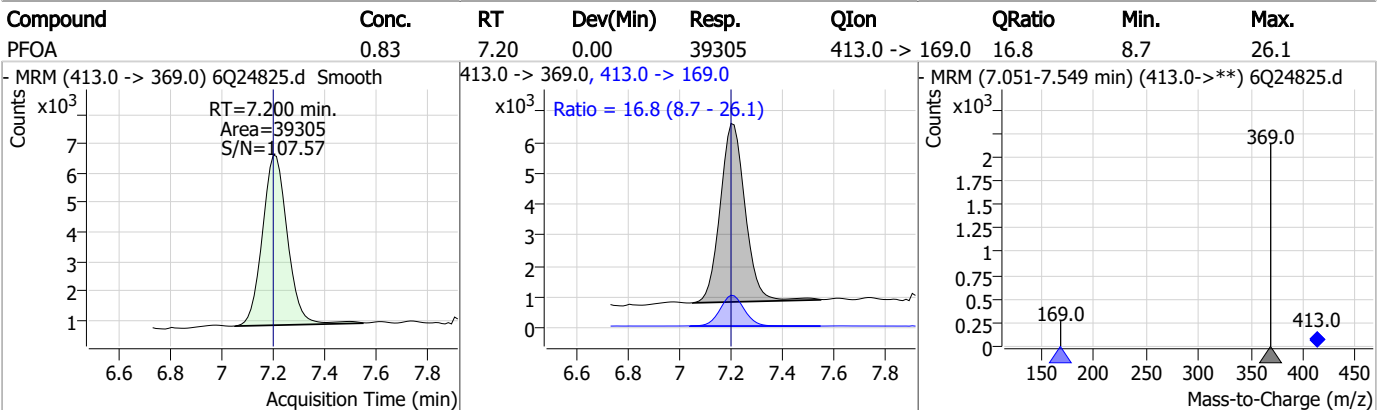
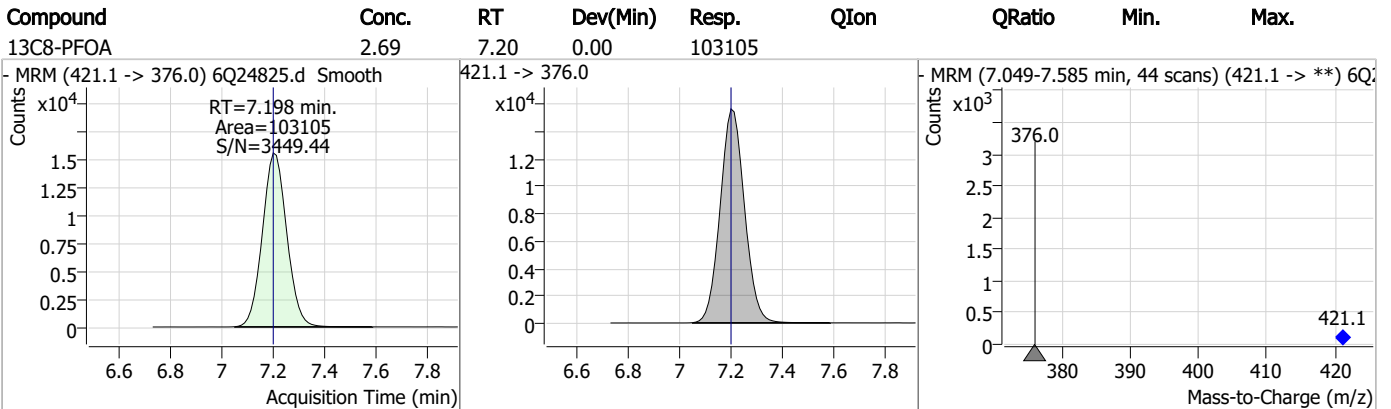
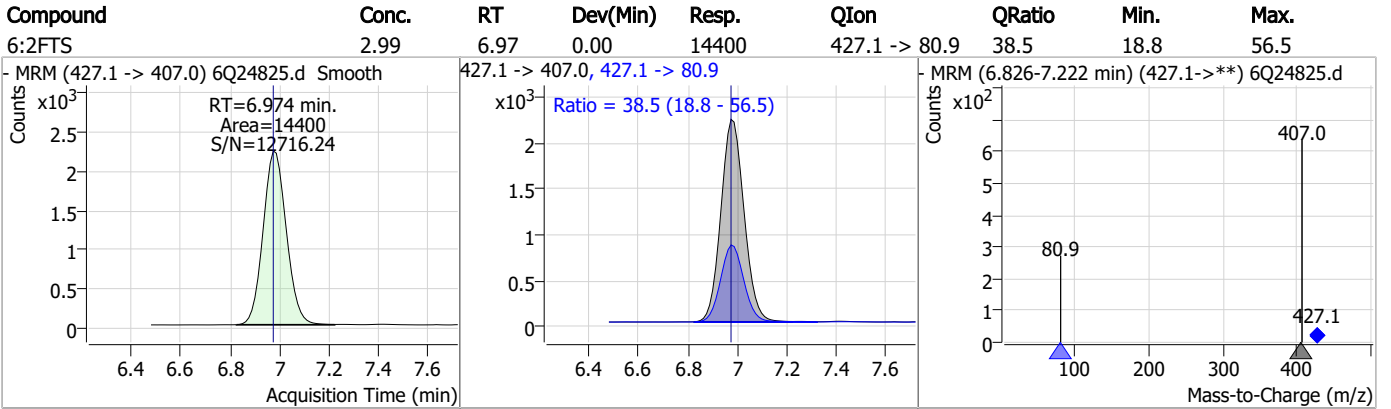
7.3.2

7

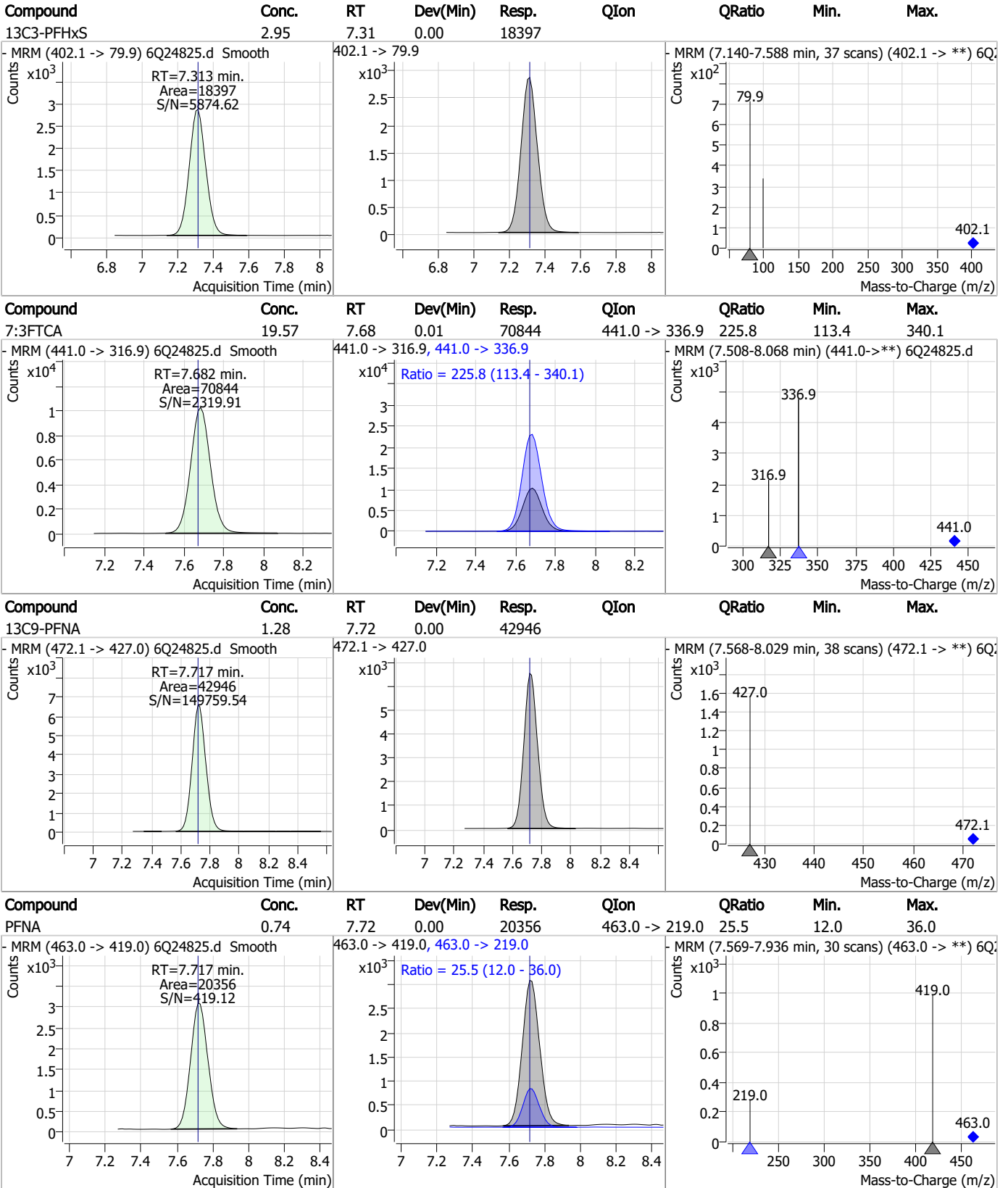
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



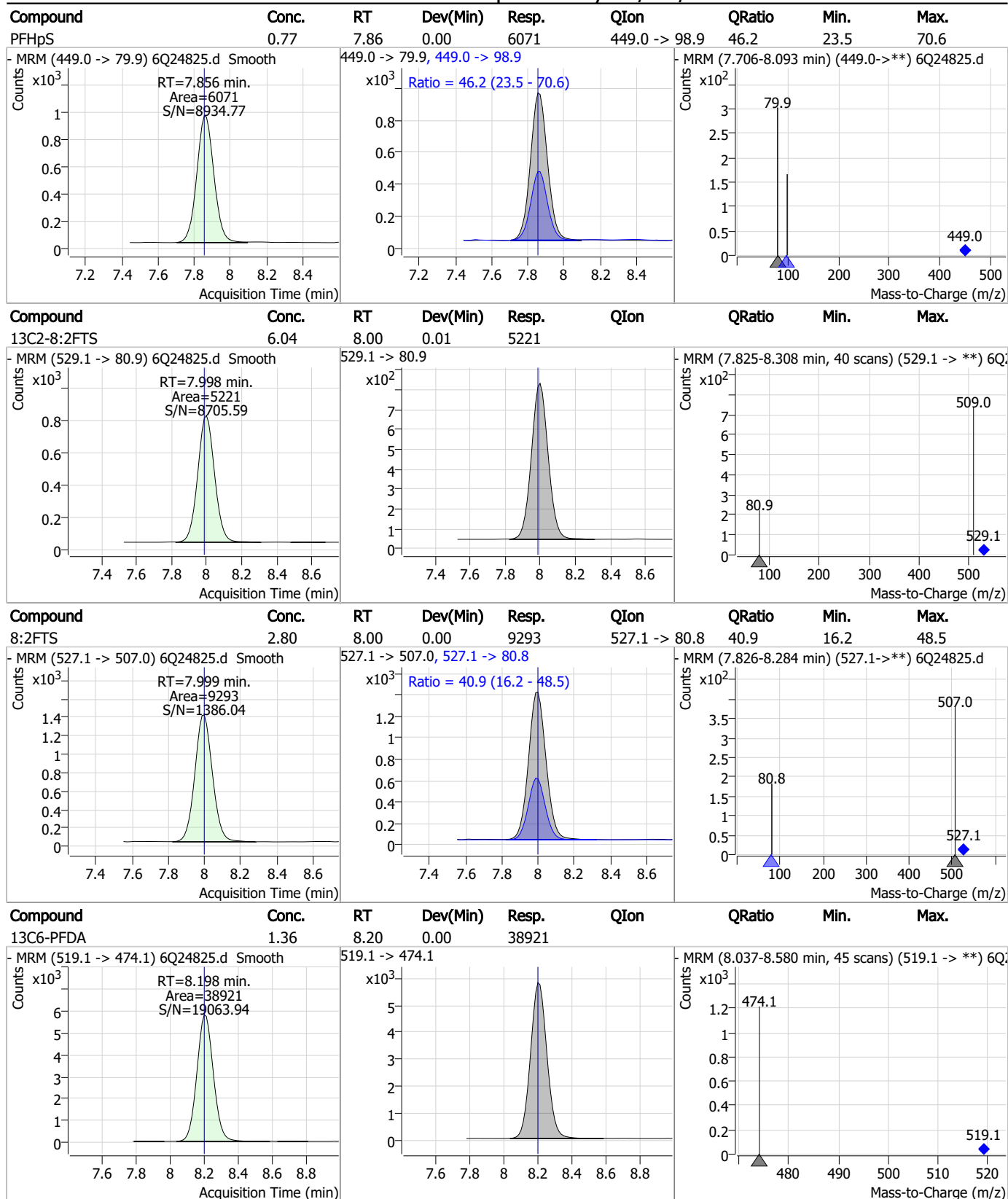
Perfluorinated Compounds by LC/MS/MS



7.3.2

7

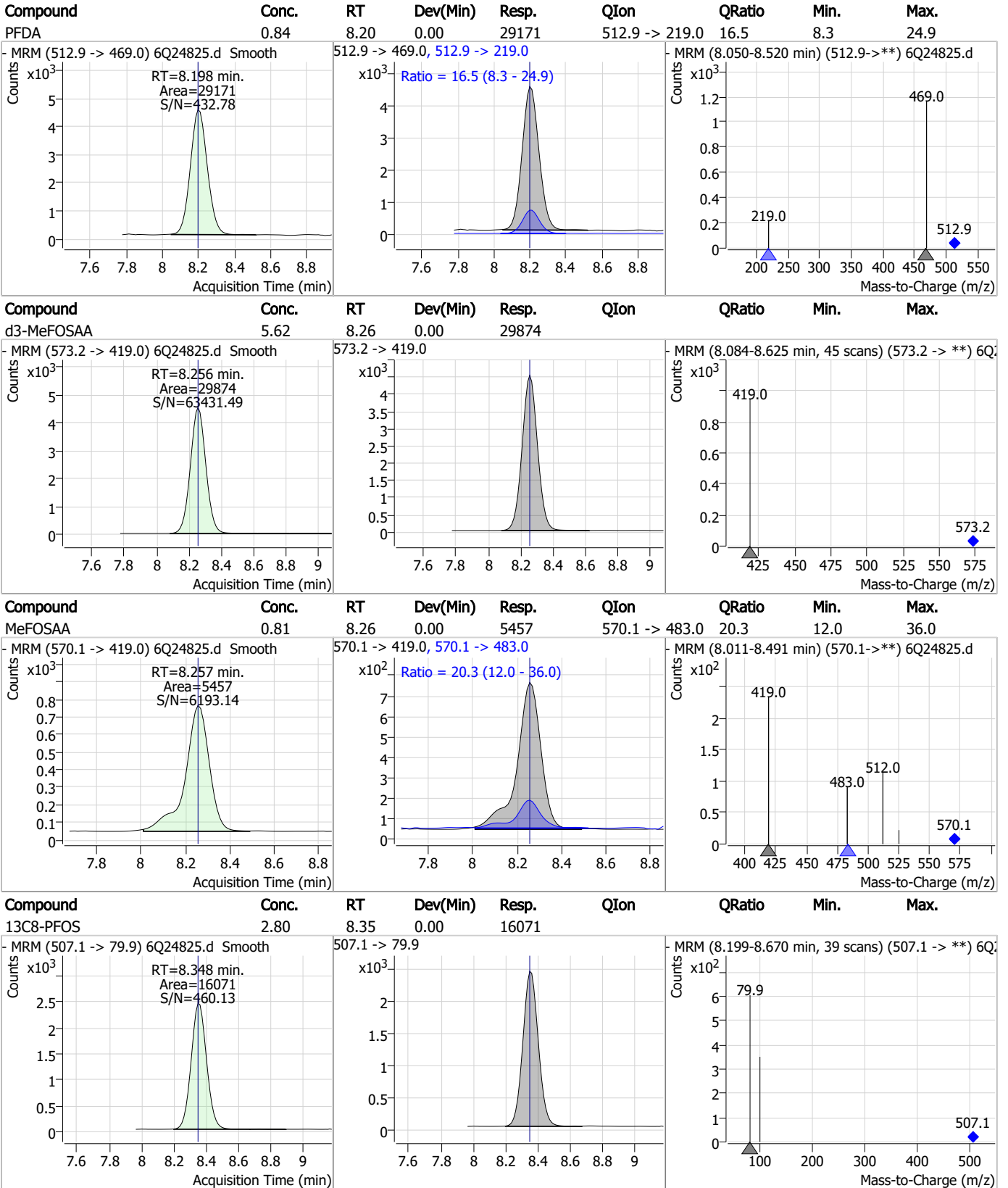
Perfluorinated Compounds by LC/MS/MS



7.3.2
7



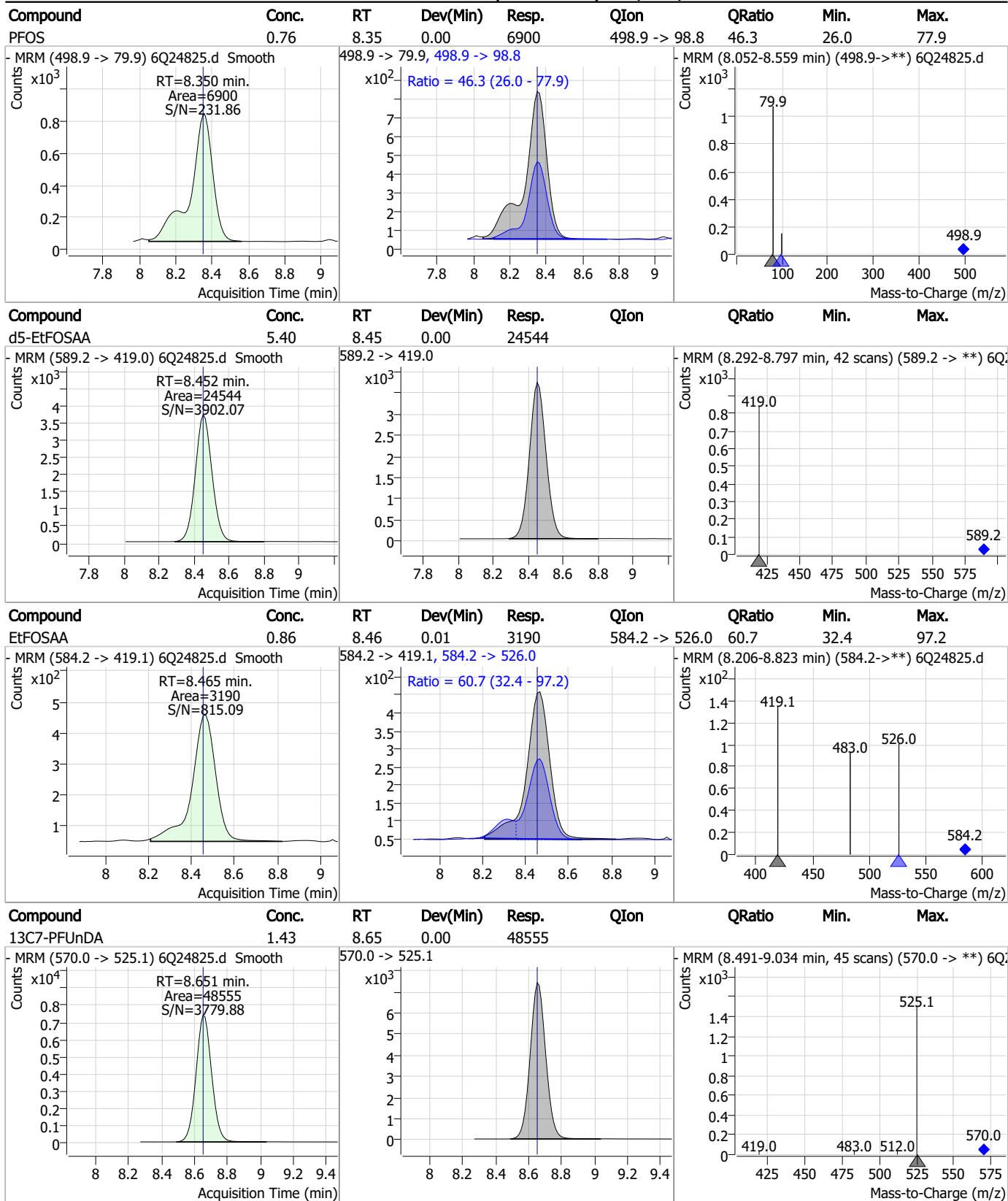
Perfluorinated Compounds by LC/MS/MS



7.3.2

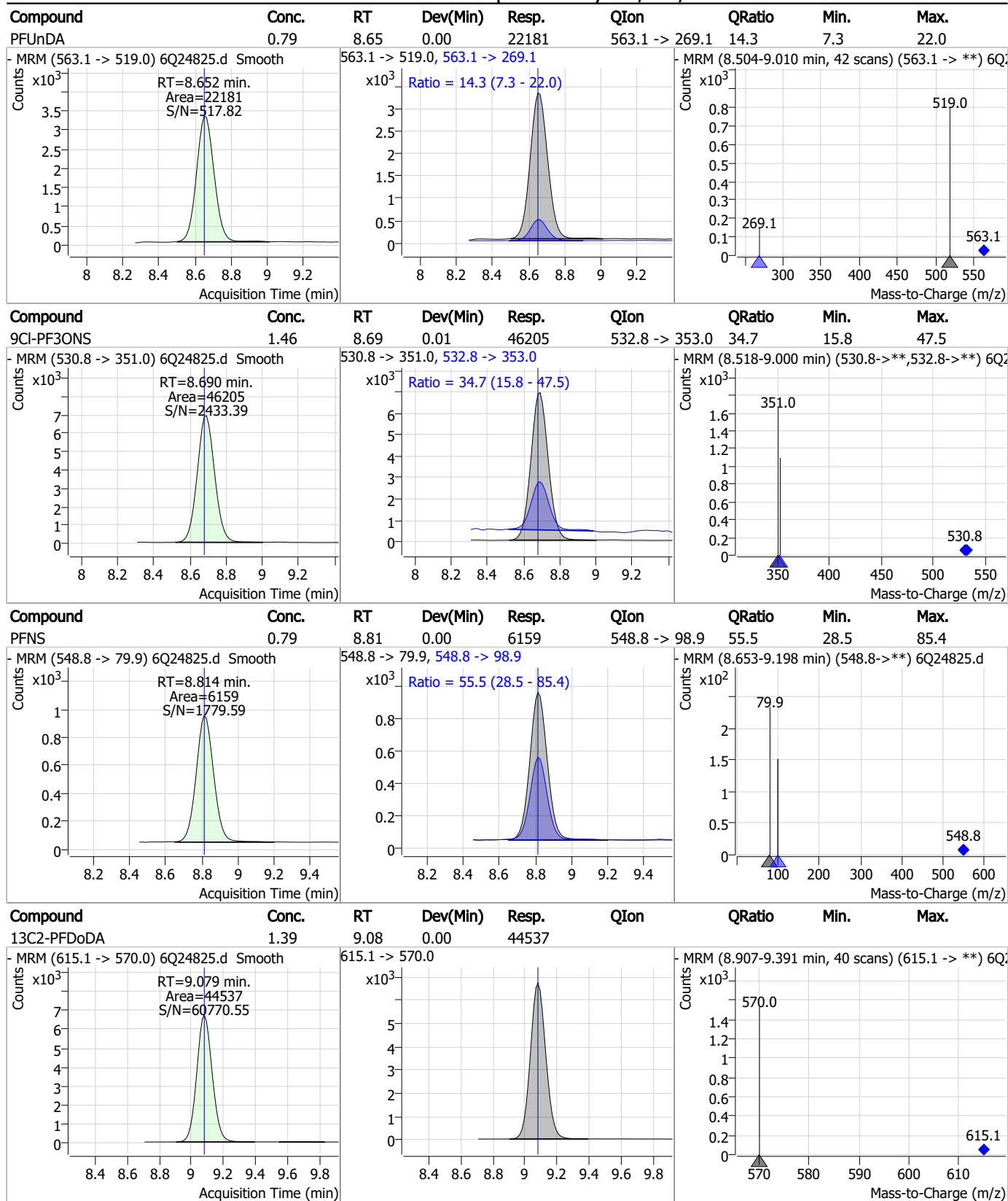
7

Perfluorinated Compounds by LC/MS/MS



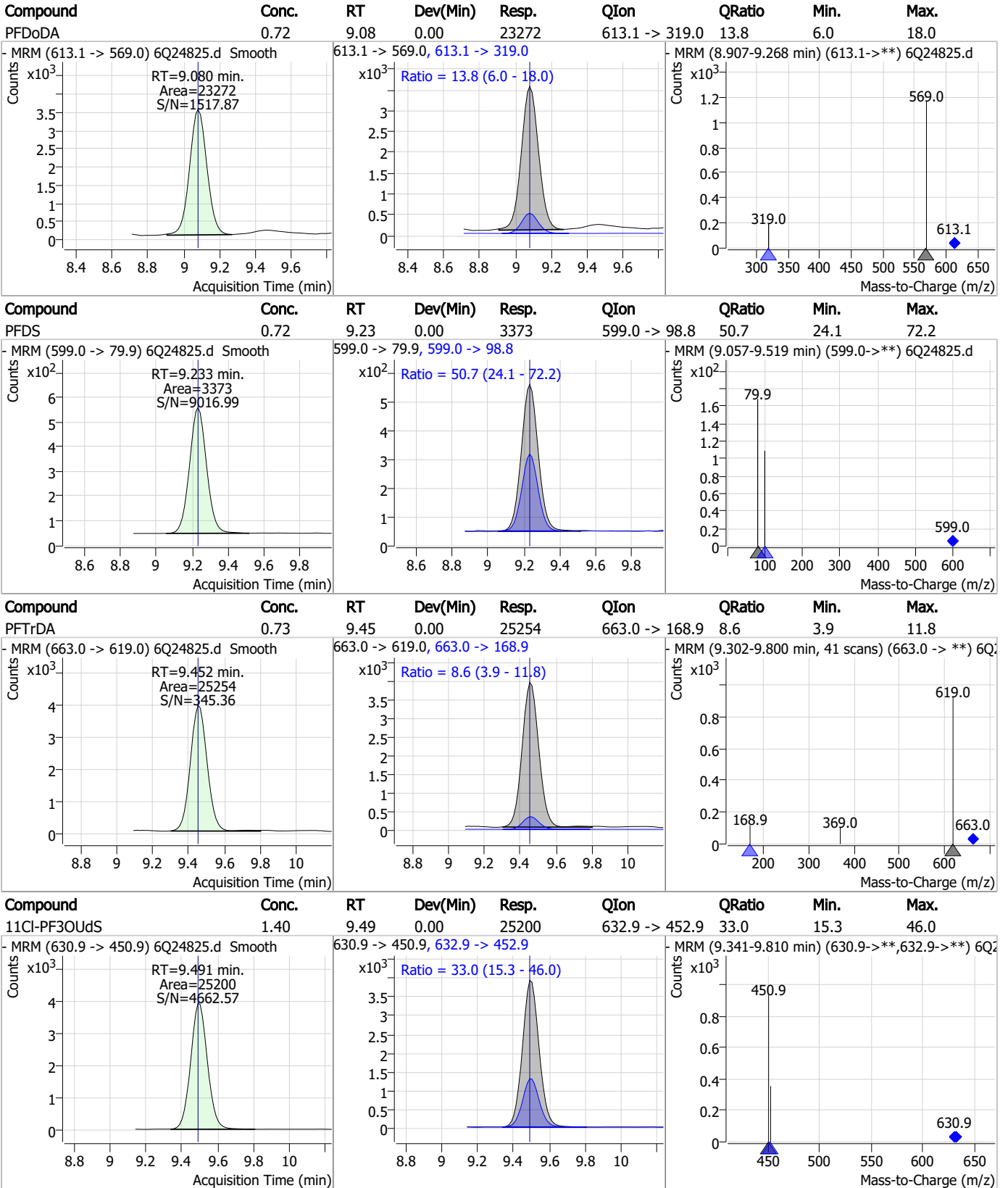
7.3.2
7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Perfluorinated Compounds by LC/MS/MS

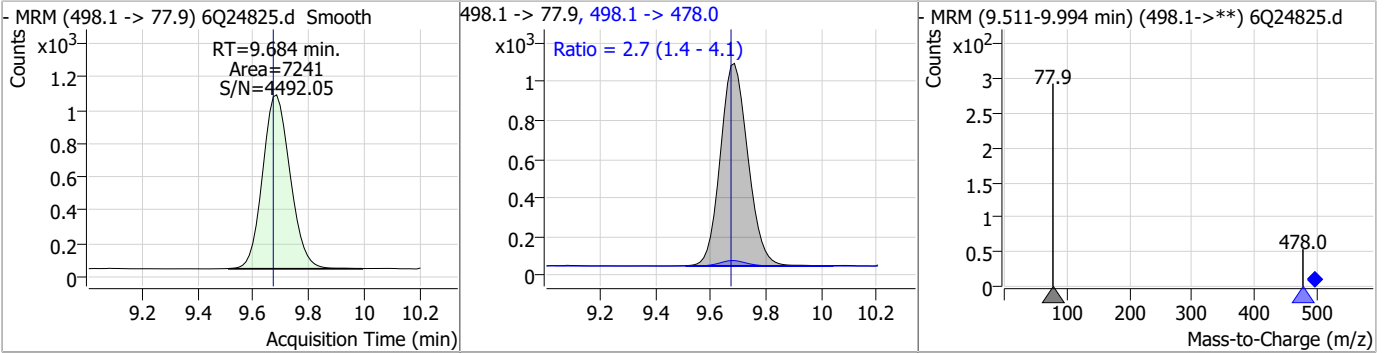


7.3.2

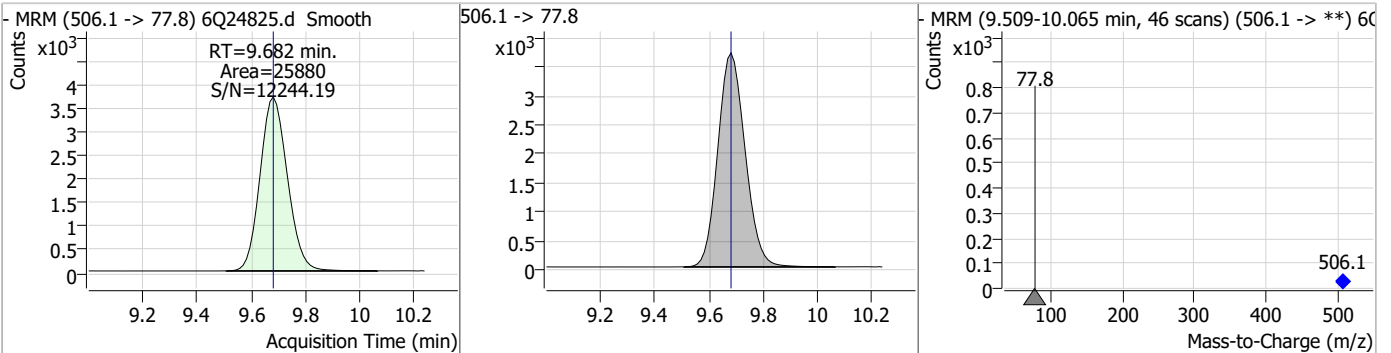
7

Perfluorinated Compounds by LC/MS/MS

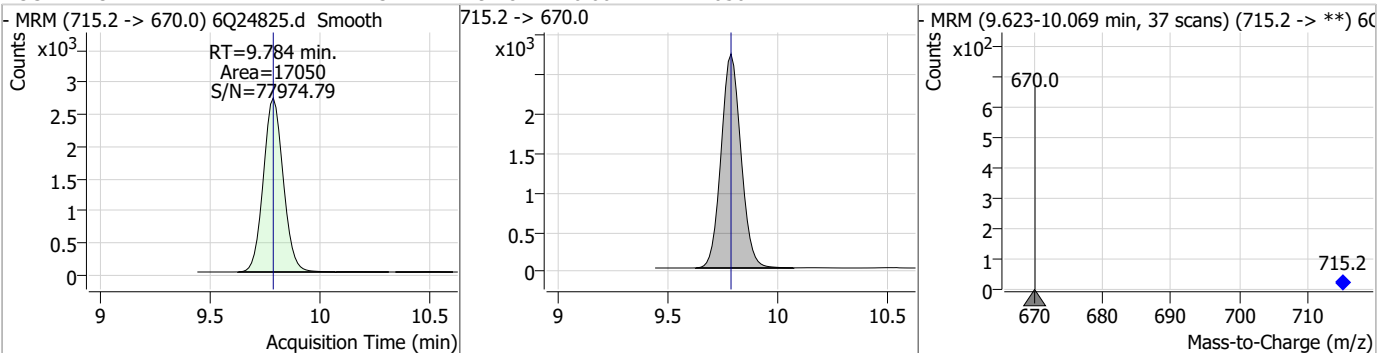
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.81	9.68	0.01	7241	498.1 -> 478.0	2.7	1.4	4.1



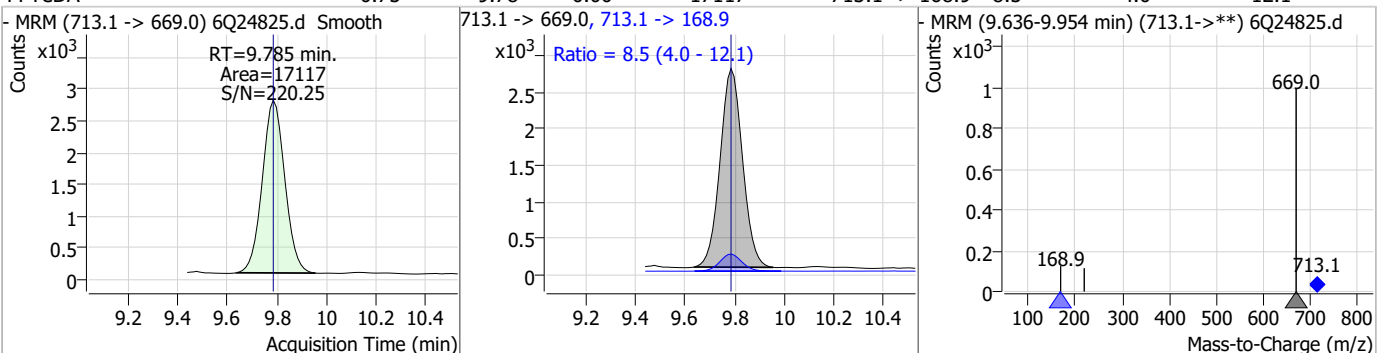
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.02	9.68	0.00	25880				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.34	9.78	0.00	17050				

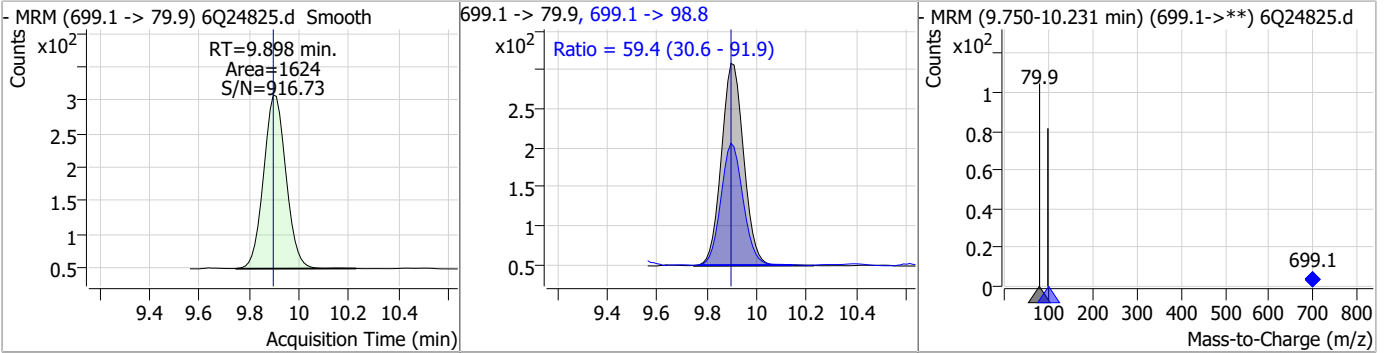


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.75	9.78	0.00	17117	713.1 -> 168.9	8.5	4.0	12.1

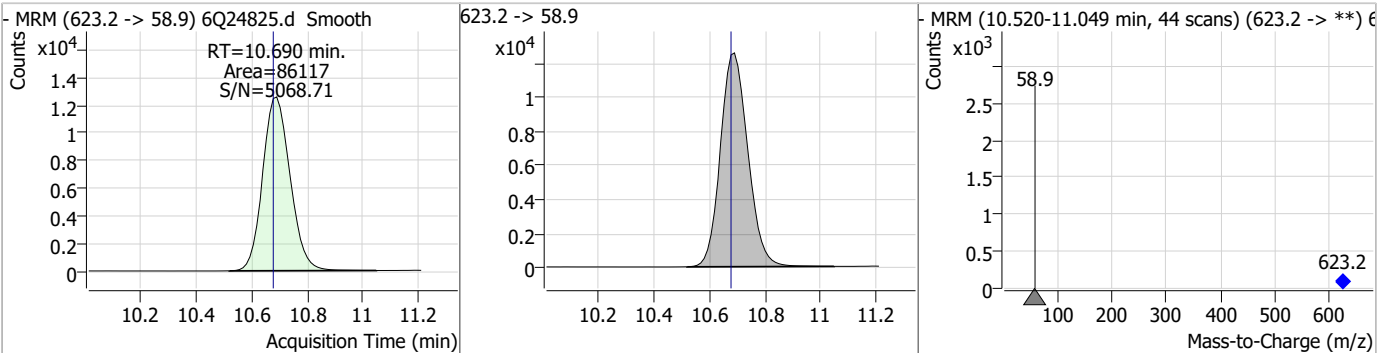


Perfluorinated Compounds by LC/MS/MS

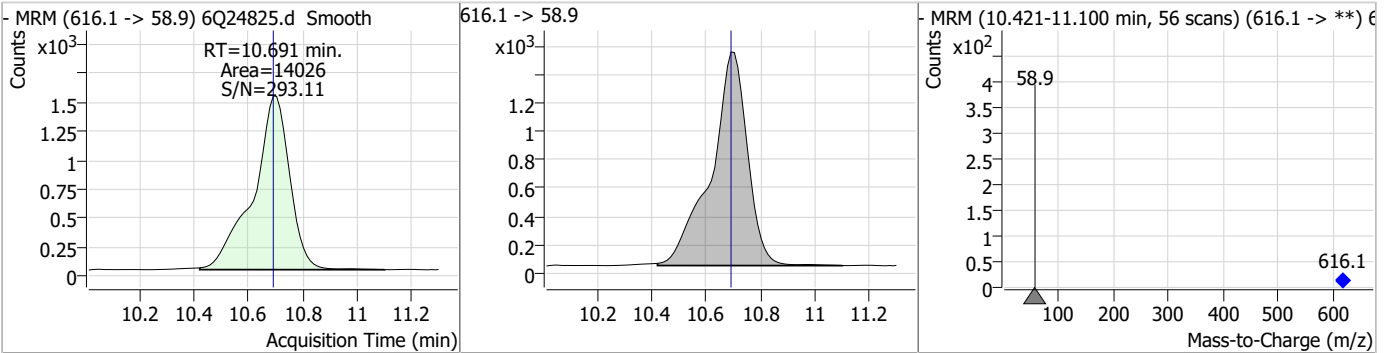
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.70	9.90	0.00	1624	699.1 -> 98.8	59.4	30.6	91.9



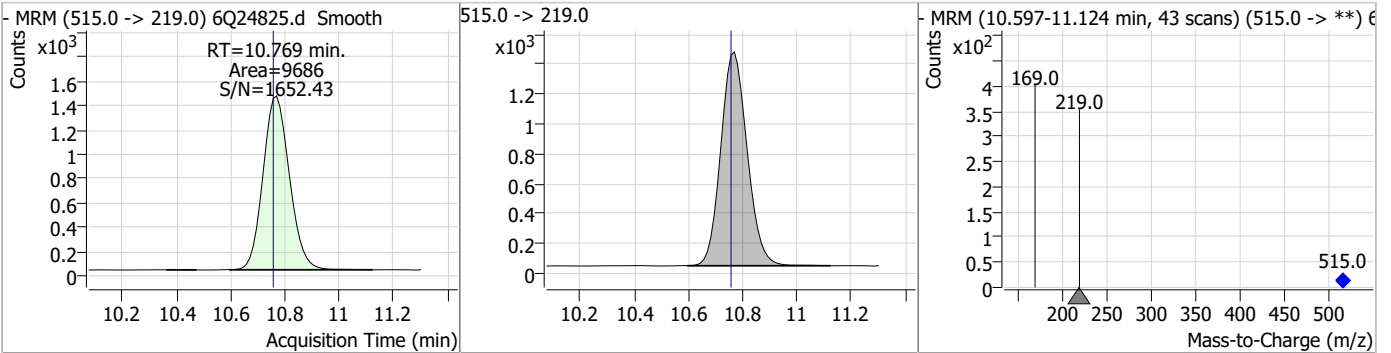
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.73	10.69	0.01	86117				



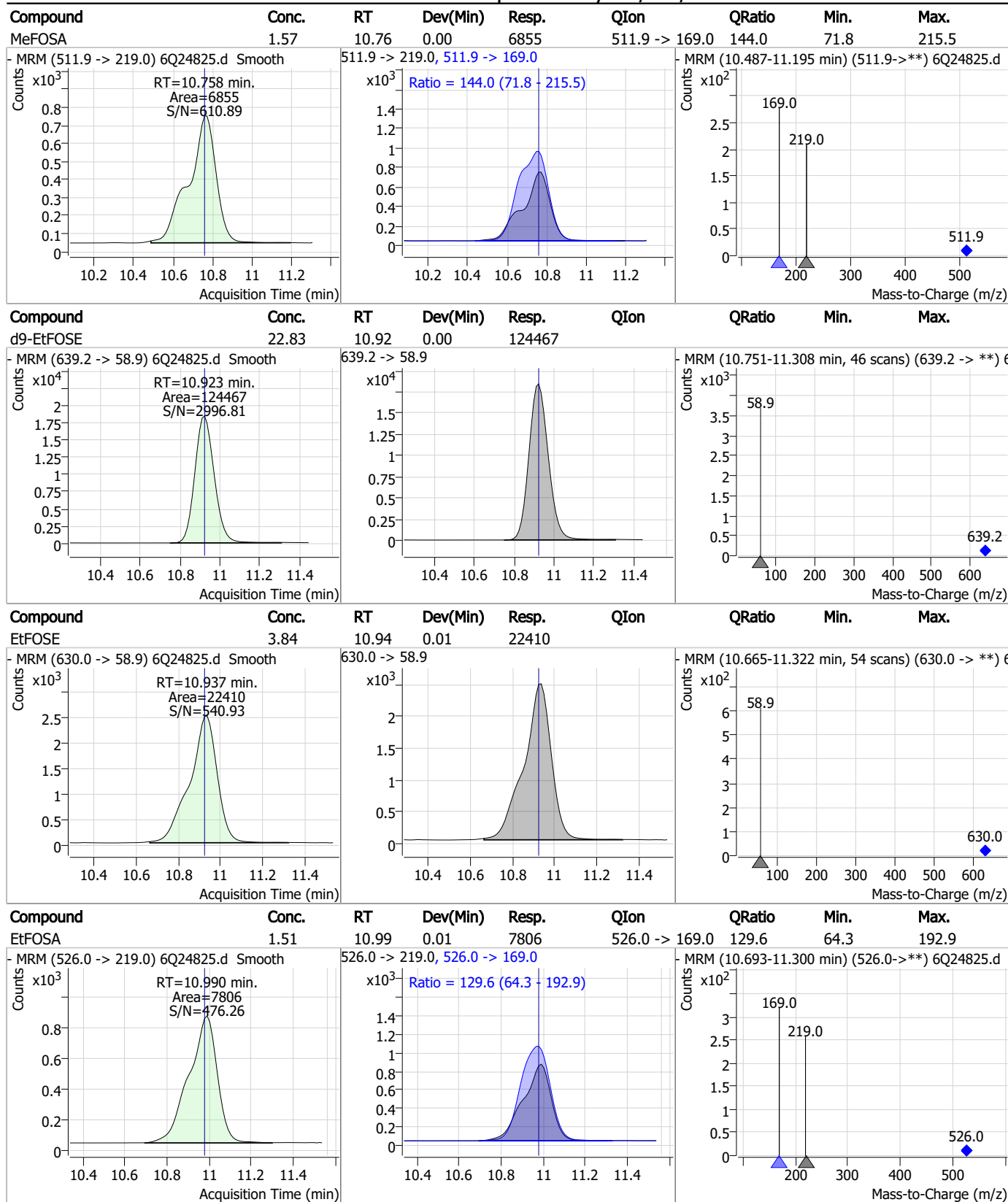
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.79	10.69	0.00	14026				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.09	10.77	0.01	9686				



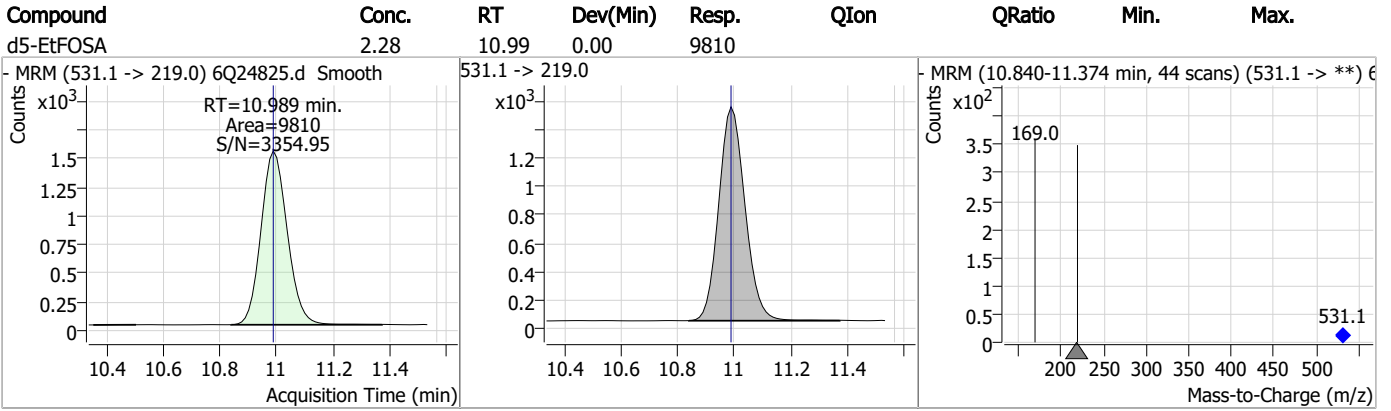
Perfluorinated Compounds by LC/MS/MS



7.3.2
7



Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Manual Integration Approval Summary

Sample Number: OP99077-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q24825.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 23:56 Supervisor approved: 09/22/23 13:19 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak

7.3.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25050.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 10:07:32 PM
 Sample Name : OP99174-BS
 Vial : P5-E4
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q357.batch.bin
 Sample Information : OP99174,S6Q357,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	74043	10.00 µg/L	0.025
M5-PFPeA	4.422	268.3 -> 223.0	77906	5.00 µg/L	0.012
M5-PFHxA	5.629	318.0 -> 273.0	70189	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	68534	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	85243	2.50 µg/L	-0.012
M9-PFNA	7.704	472.1 -> 427.0	37200	1.25 µg/L	-0.012
M6-PFDA	8.185	519.1 -> 474.1	39104	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	40039	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	37857	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	13683	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	24877	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	28736	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	16580	2.50 µg/L	0.000
M8-PFOS	8.336	507.1 -> 79.9	17645	2.50 µg/L	-0.013
M2-4:2FTS	5.304	329.1 -> 80.9	3086	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	4253	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	4050	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	34567	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	45768	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	28036	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	87485	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	108158	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	8423	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	7784	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	14258	2.50 µg/L	-0.013
13C3-PFBA	3.001	216.0 -> 172.0	77833	5.00 µg/L	0.025
18O2-PFHxS	7.300	403.0 -> 83.9	10246	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	103677	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	31191	1.25 µg/L	-0.012
13C5-PFNA	7.705	468.0 -> 423.0	35374	1.25 µg/L	-0.012
13C2-PFHxA	5.630	315.1 -> 270.0	62438	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3086	5.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.8%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4253	5.10 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4050	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-PFDoDA	9.067	615.1 -> 570.0	37857	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-PFTeDA	9.772	715.2 -> 670.0	13683	1.08 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.6%		
13C3-PFBS	5.559	302.1 -> 79.9	28736	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C3-PFHxS	7.301	402.1 -> 79.9	16580	2.56 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 = 102.3%	
13C4-PFBA	2.997	216.8 -> 171.9	74043	3.94 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 39.4%	
13C4-PFHpA	6.556	367.1 -> 322.0	68534	2.69 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C5-PFHxA	5.629	318.0 -> 273.0	70189	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C5-PFPeA	4.422	268.3 -> 223.0	77906	5.27 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C6-PFDA	8.185	519.1 -> 474.1	39104	1.49 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 119.4%	
13C7-PFUnDA	8.639	570.0 -> 525.1	40039	1.37 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C8-FOSA	9.670	506.1 -> 77.8	24877	2.06 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.5%	
13C8-PFOA	7.186	421.1 -> 376.0	85243	2.37 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C8-PFOS	8.336	507.1 -> 79.9	17645	2.87 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.6%	
13C9-PFNA	7.704	472.1 -> 427.0	37200	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.6%	
d3-MeFOSAA	8.244	573.2 -> 419.0	34567	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	45768	9.73 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
d3-MeFOSA	10.757	515.0 -> 219.0	7784	2.15 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.9%	
d5-EtFOSAA	8.439	589.2 -> 419.0	28036	5.34 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.8%	
d7-MeFOSE	10.678	623.2 -> 58.9	87485	20.45 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.8%	
d9-EtFOSE	10.911	639.2 -> 58.9	108158	20.78 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.1%	
d5-EtFOSA	10.989	531.1 -> 219.0	8423	2.21 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.3%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	47906	9.49 µg/L	96
		327.1 -> 80.9	19510		
6:2FTS	6.962	427.1 -> 407.0	40429	11.03 µg/L	98
		427.1 -> 80.9	17134		
8:2FTS	7.987	527.1 -> 507.0	25639	9.93 µg/L	88
		527.1 -> 80.8	10883		
EtFOSAA	8.440	584.2 -> 419.1	11317	2.42 µg/L	93
		584.2 -> 526.0	7391		
FOSA	9.672	498.1 -> 77.9	23779	2.51 µg/L	100
		498.1 -> 478.0	643		
MeFOSAA	8.245	570.1 -> 419.0	15405	2.55 µg/L	93
		570.1 -> 483.0	3146		
PFBA	3.006	212.8 -> 168.9	26534	10.04 µg/L	100
PFBS	5.560	298.7 -> 79.9	20204	2.16 µg/L	97
		298.7 -> 98.8	7869		
PFDA	8.186	512.9 -> 469.0	67355	2.18 µg/L	96
		512.9 -> 219.0	12112		
PFDODA	9.068	613.1 -> 569.0	73849	2.68 µg/L	100
		613.1 -> 319.0	8889		
PFDS	9.220	599.0 -> 79.9	8975	2.10 µg/L	90

7.3.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.557	599.0 -> 98.8	4840	2.30	µg/L	97
		363.1 -> 319.0	85409			
PFHpS	7.843	363.1 -> 169.0	13146	2.10	µg/L	88
		449.0 -> 79.9	16378			
PFHxA	5.631	449.0 -> 98.9	8095	2.36	µg/L	99
		313.0 -> 269.0	59437			
PFHxS	7.290	313.0 -> 118.9	2714	2.37	µg/L	97
		398.7 -> 79.9	15292			
PFNA	7.717	398.7 -> 98.9	7123	2.36	µg/L	93
		463.0 -> 419.0	56889			
PFNS	8.802	463.0 -> 219.0	13618	1.98	µg/L	90
		548.8 -> 79.9	12135			
PFOA	7.187	548.8 -> 98.9	6780	2.55	µg/L	98
		413.0 -> 369.0	93232			
PFOS	8.337	413.0 -> 169.0	16208	2.09	µg/L	69
		498.9 -> 79.9	15917			
PFPeA	4.424	498.9 -> 98.8	7466	4.79	µg/L	100
		263.0 -> 219.0	75146			
PFPeS	6.608	349.1 -> 79.9	21997	2.45	µg/L	100
		349.1 -> 98.9	9701			
PFTeDA	9.772	713.1 -> 669.0	41775	2.58	µg/L	99
		713.1 -> 168.9	3279			
PFTrDA	9.440	663.0 -> 619.0	60309	2.50	µg/L	99
		663.0 -> 168.9	5027			
PFUnDA	8.639	563.1 -> 519.0	63302	2.39	µg/L	97
		563.1 -> 269.1	9873			
11CI-PF3OUdS	9.479	630.9 -> 450.9	55098	4.60	µg/L	100
		632.9 -> 452.9	17866			
9CI-PF3ONS	8.678	530.8 -> 351.0	101222	4.98	µg/L	96
		532.8 -> 353.0	30125			
ADONA	6.804	376.9 -> 250.9	281590	5.01	µg/L	96
		376.9 -> 84.8	76555			
HFPO-DA	6.007	284.9 -> 168.9	20399	4.53	µg/L	99
		284.9 -> 184.9	2243			
3:3FTCA	3.883	241.0 -> 177.0	6553	15.27	µg/L	100
		241.0 -> 117.0	791			
5:3FTCA	6.283	341.0 -> 237.1	277057	58.50	µg/L	98
		341.0 -> 217.0	186917			
7:3FTCA	7.669	441.0 -> 316.9	162273	60.48	µg/L	91
		441.0 -> 336.9	347447			
EtFOSA	10.978	526.0 -> 219.0	19875	4.75	µg/L	100
		526.0 -> 169.0	25707			
EtFOSE	10.924	630.0 -> 58.9	53439	12.31	µg/L	100
		511.9 -> 219.0	17797			
MeFOSA	10.758	511.9 -> 169.0	24790	5.08	µg/L	98
		616.1 -> 58.9	42585			
MeFOSE	10.691	699.1 -> 79.9	5210	10.99	µg/L	100
		699.1 -> 98.8	2857			
PFDoDS	9.886	295.0 -> 201.0	15325	2.05	µg/L	96
		295.0 -> 84.9	3980			
NFDHA	5.512	279.0 -> 85.1	58932	4.74	µg/L	99
		229.0 -> 84.9	27980			
PFMBA	4.838	314.8 -> 134.9	128704	4.11	µg/L	99
		314.8 -> 82.9	5387			

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

7.3.3
7

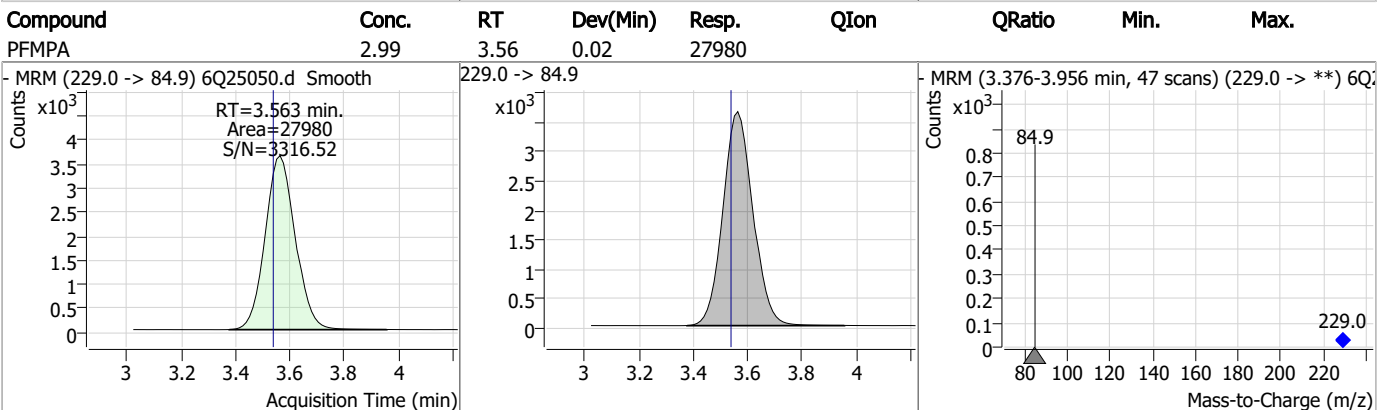
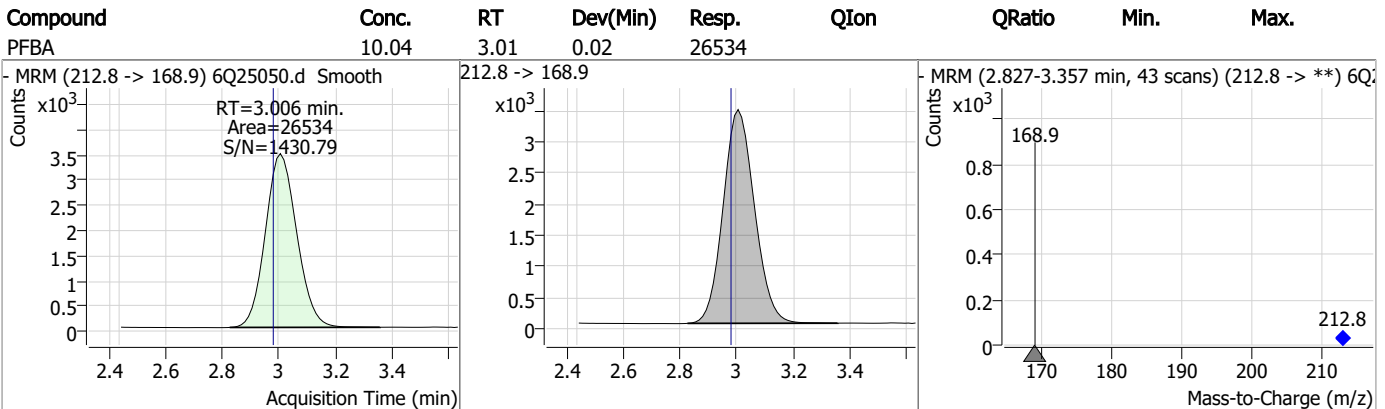
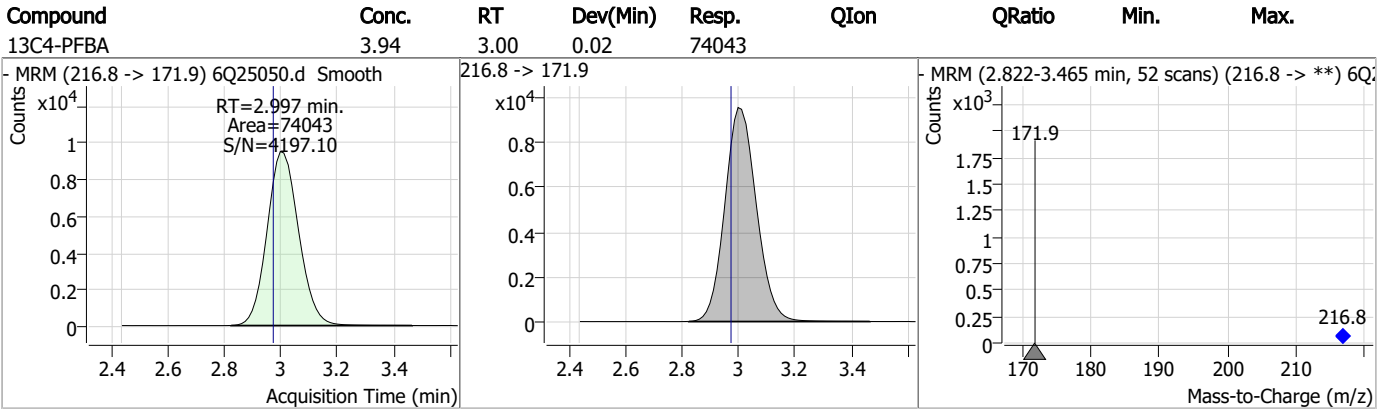
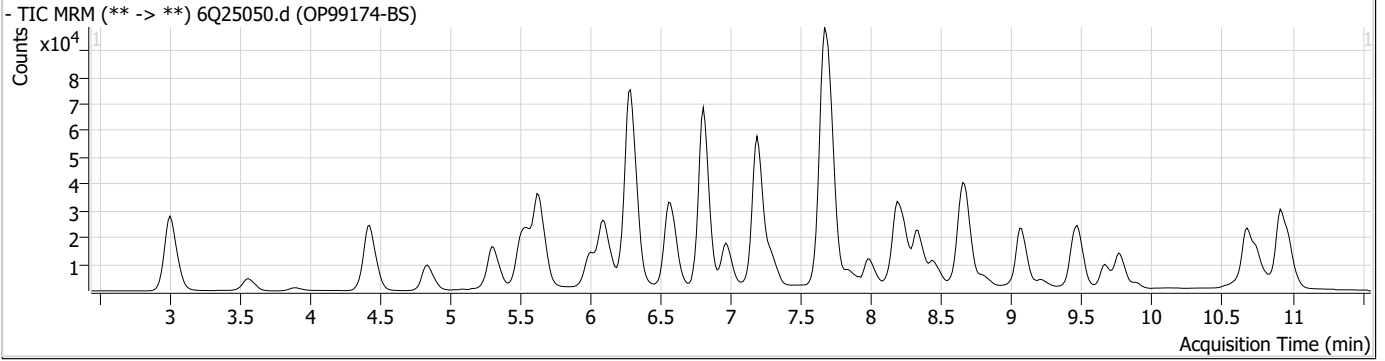
Perfluorinated Compounds by LC/MS/MS

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

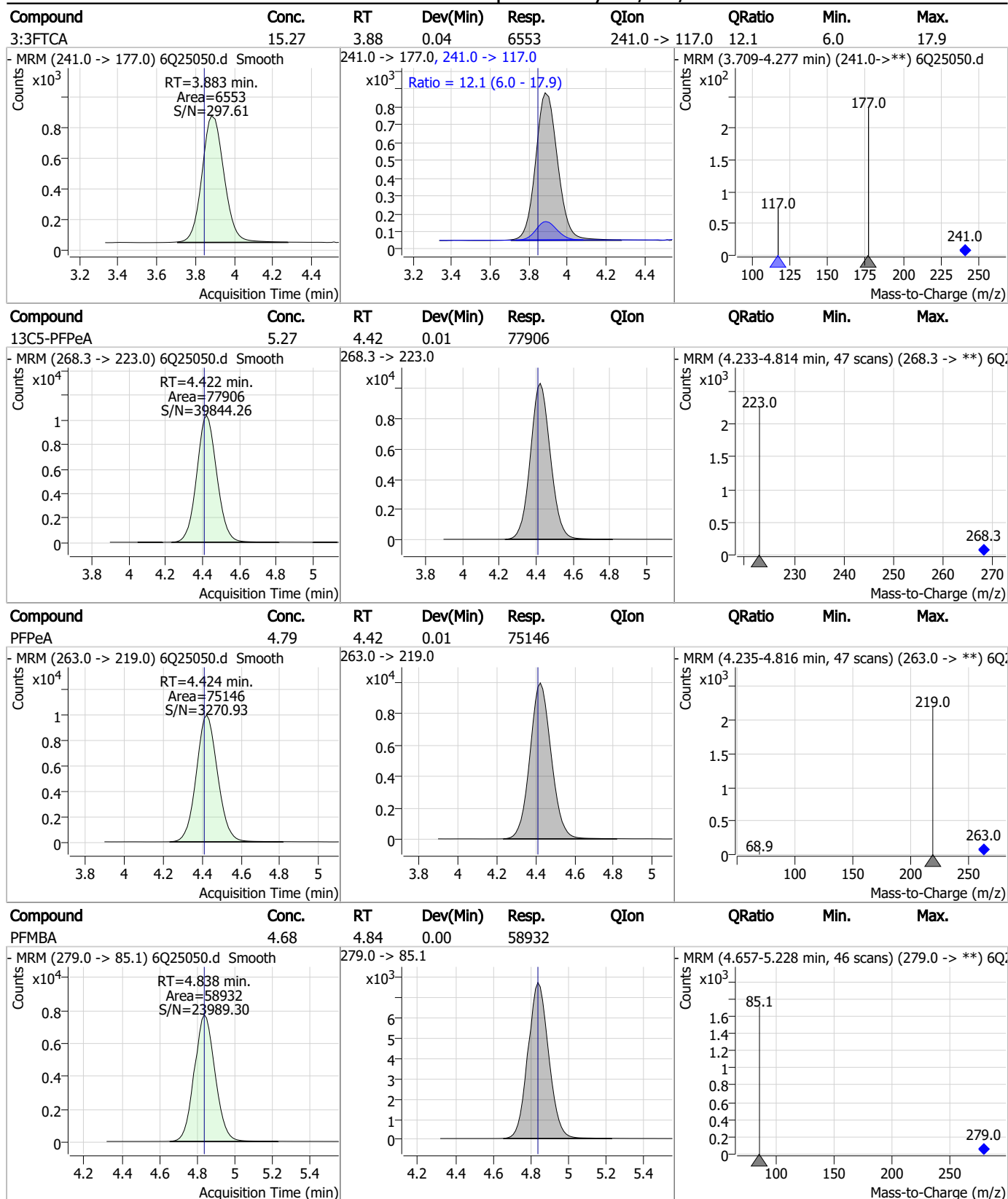
7.3.3

7

Perfluorinated Compounds by LC/MS/MS

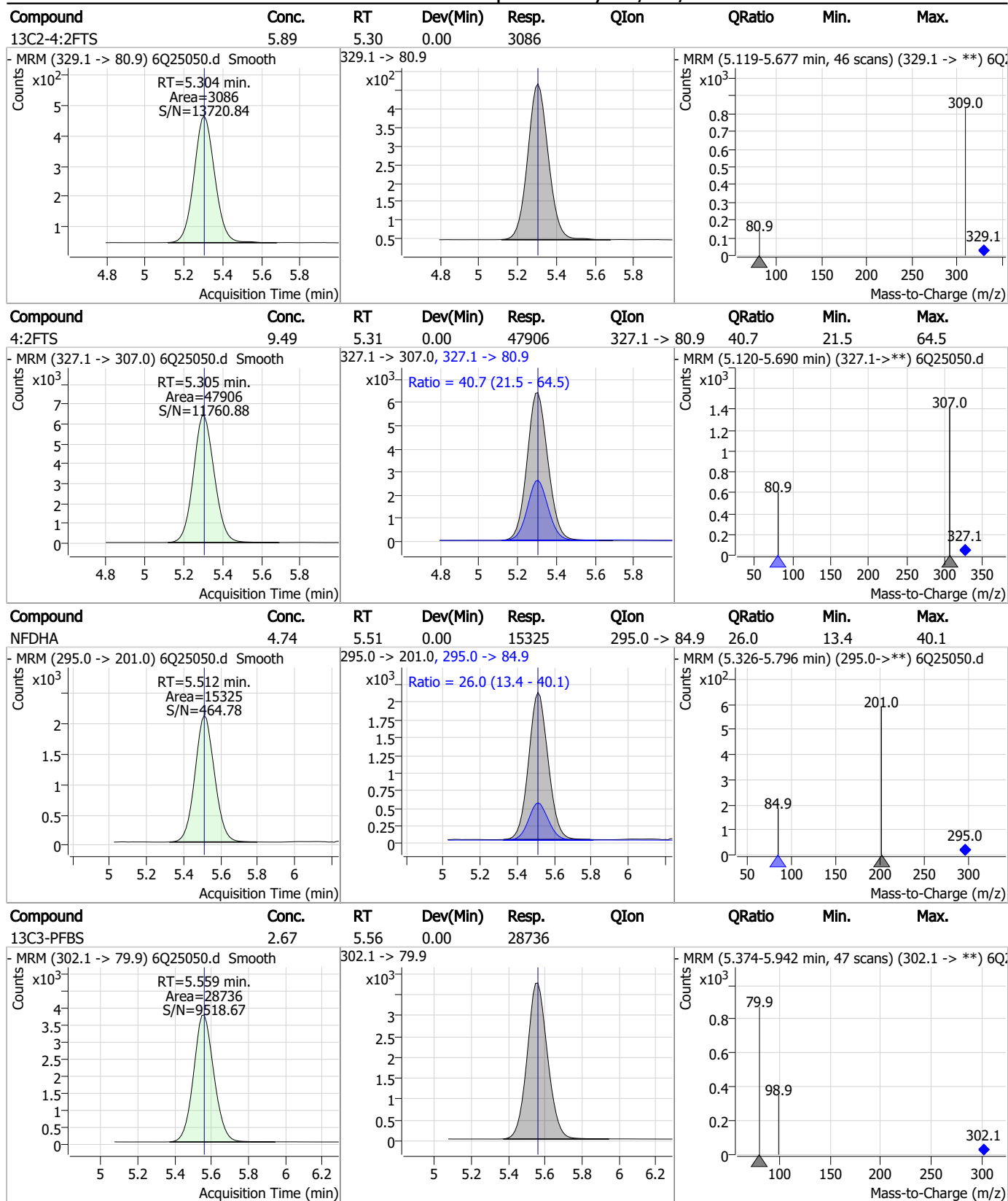


Perfluorinated Compounds by LC/MS/MS



7.3.3
7

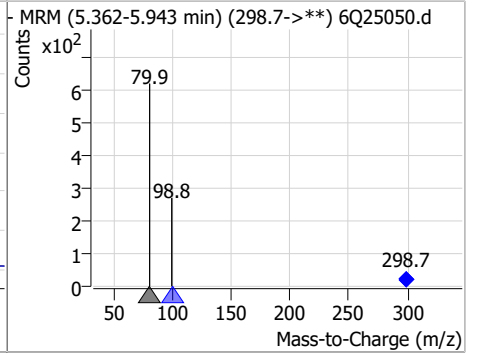
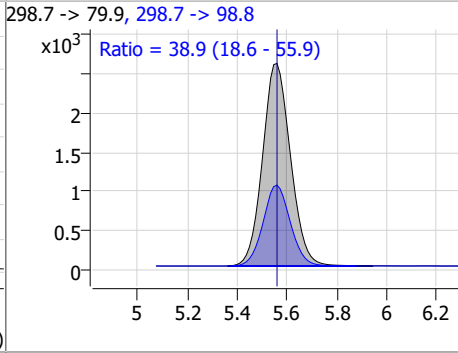
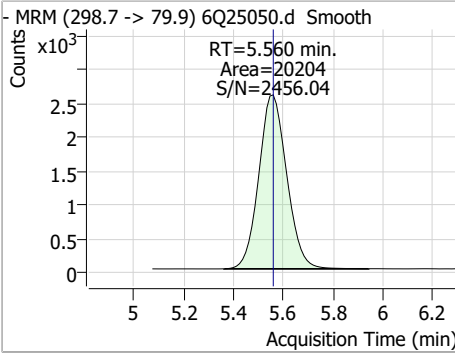
Perfluorinated Compounds by LC/MS/MS



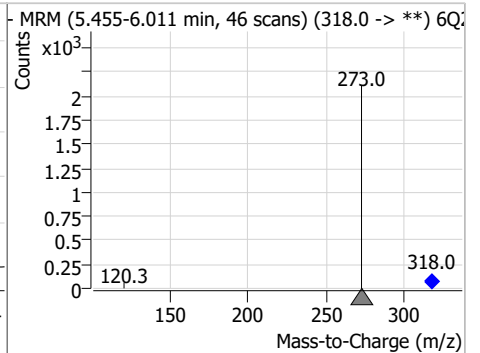
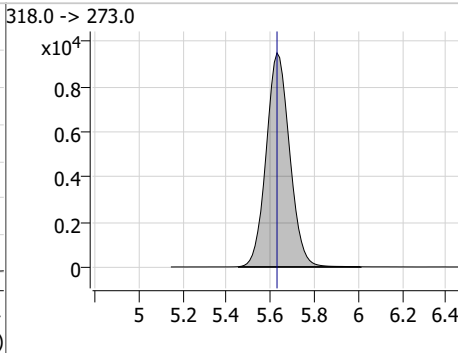
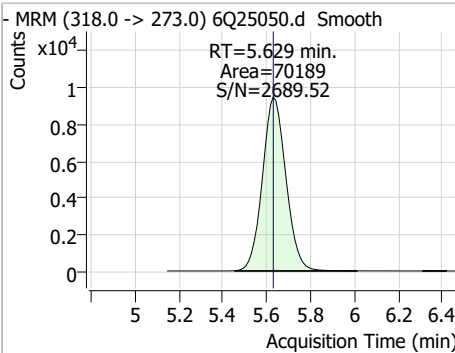
7.3.3
7

Perfluorinated Compounds by LC/MS/MS

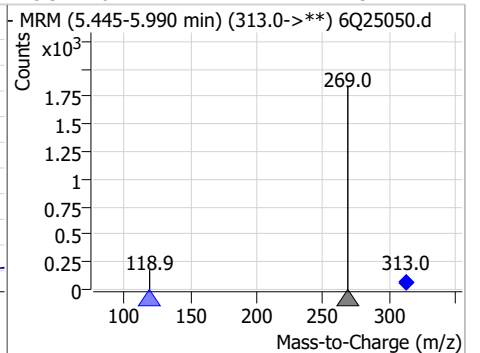
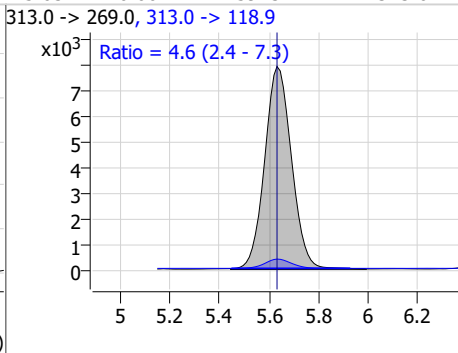
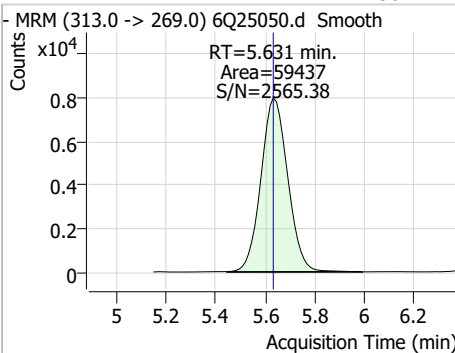
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.16	5.56	0.00	20204	298.7 -> 98.8	38.9	18.6	55.9



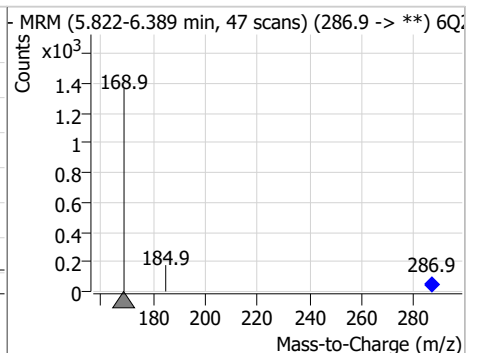
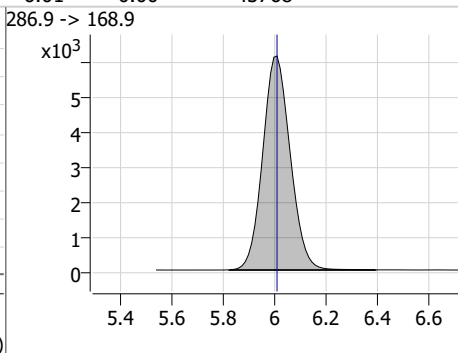
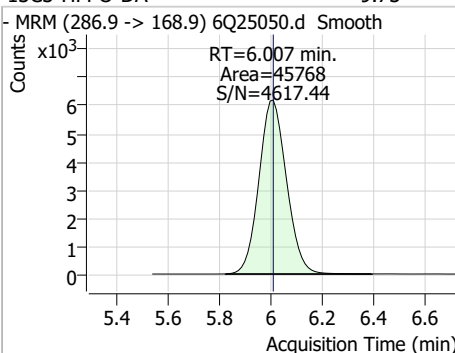
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.67	5.63	0.00	70189				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.36	5.63	0.00	59437	313.0 -> 118.9	4.6	2.4	7.3

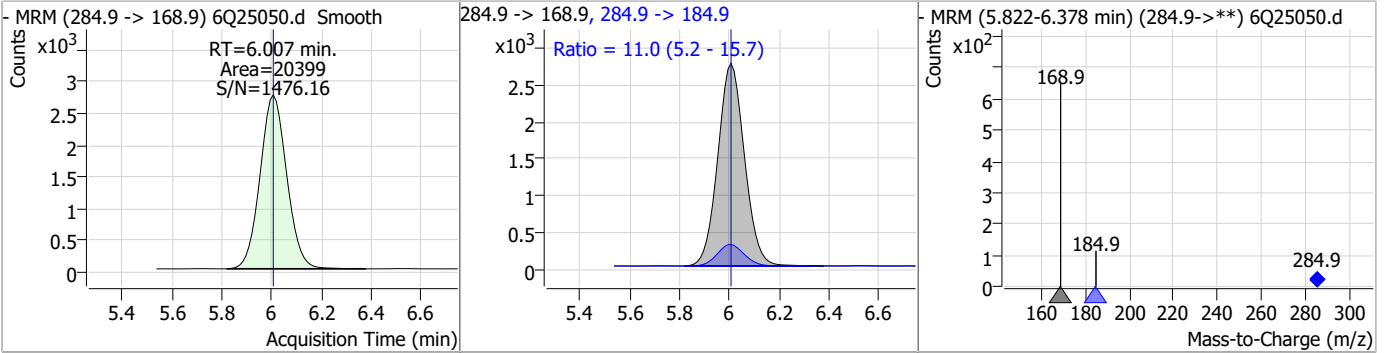


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.73	6.01	0.00	45768				

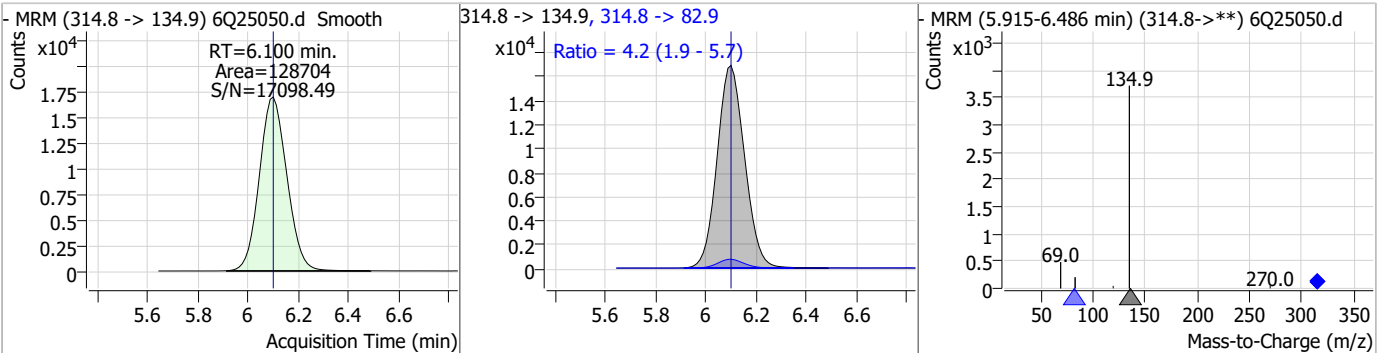


Perfluorinated Compounds by LC/MS/MS

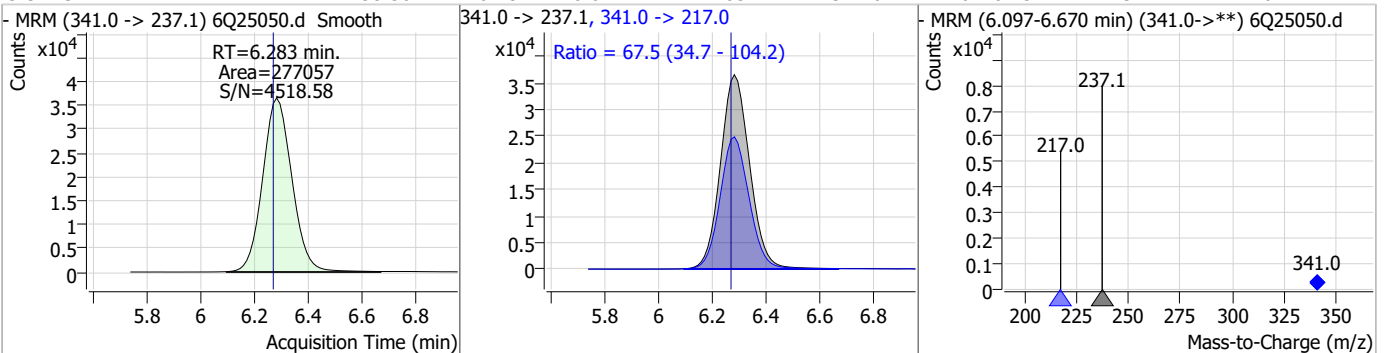
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.53	6.01	0.00	20399	284.9 -> 184.9	11.0	5.2	15.7



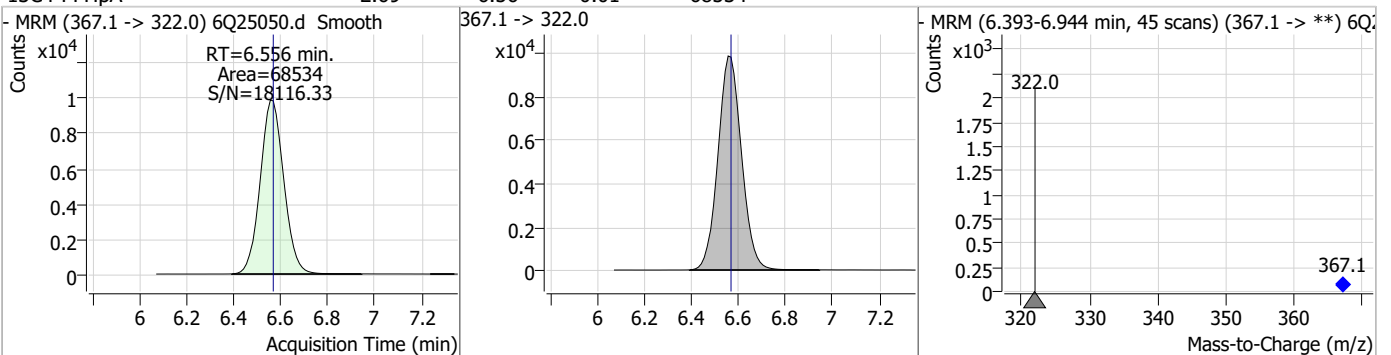
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.11	6.10	0.00	128704	314.8 -> 82.9	4.2	1.9	5.7



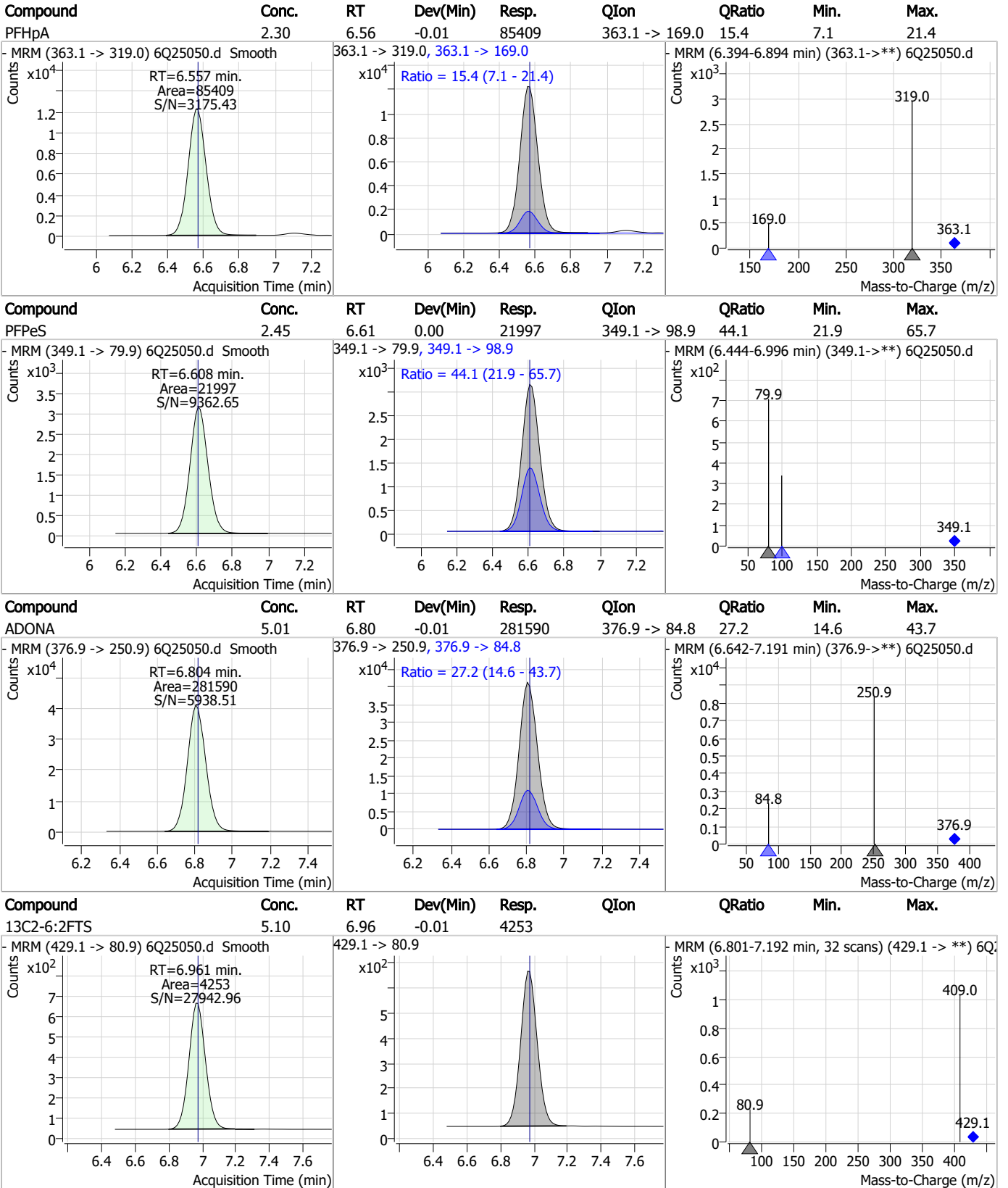
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	58.50	6.28	0.01	277057	341.0 -> 217.0	67.5	34.7	104.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.69	6.56	-0.01	68534	367.1 -> 322.0	-	-	-



Perfluorinated Compounds by LC/MS/MS

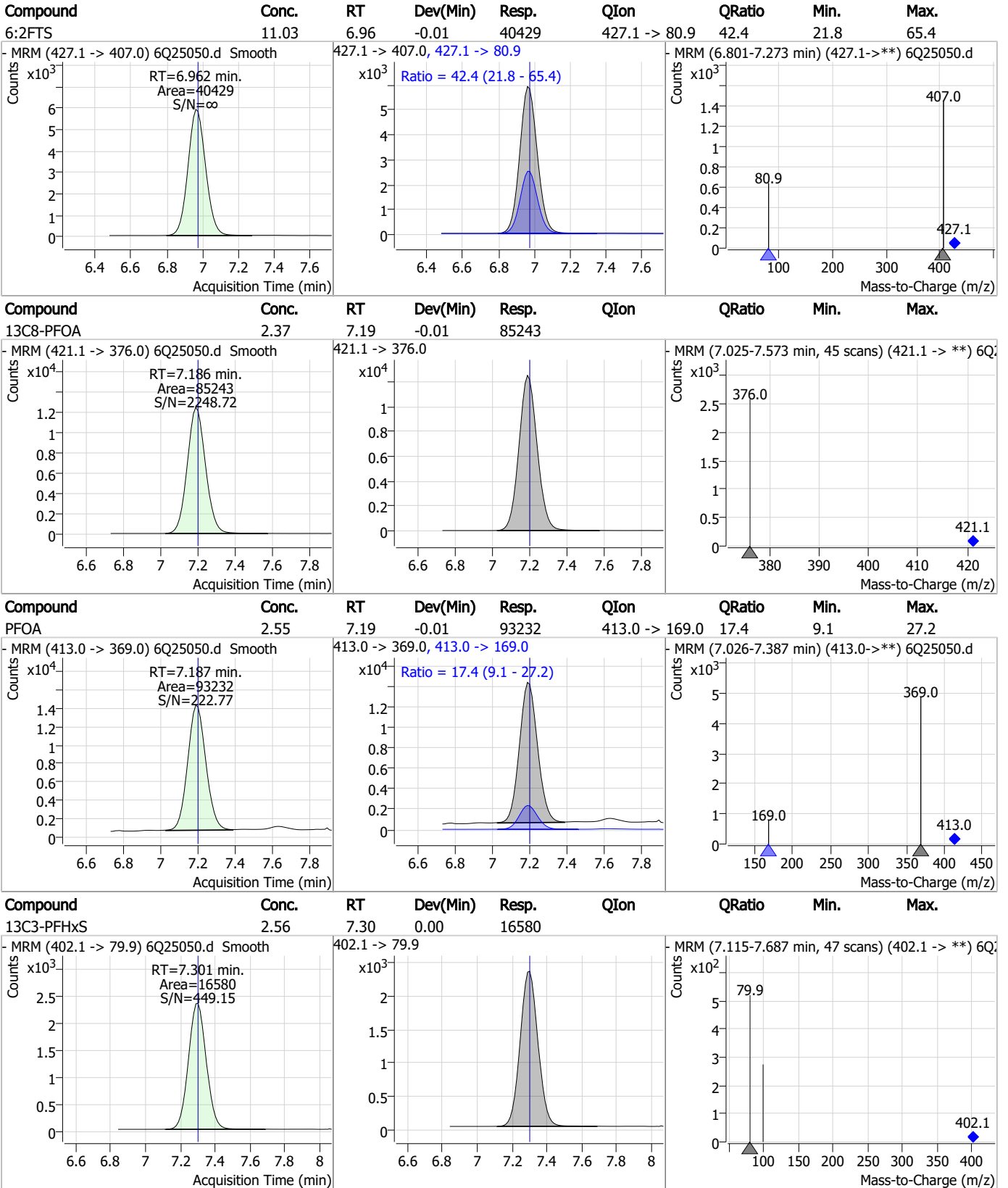


7.3.3

7



Perfluorinated Compounds by LC/MS/MS

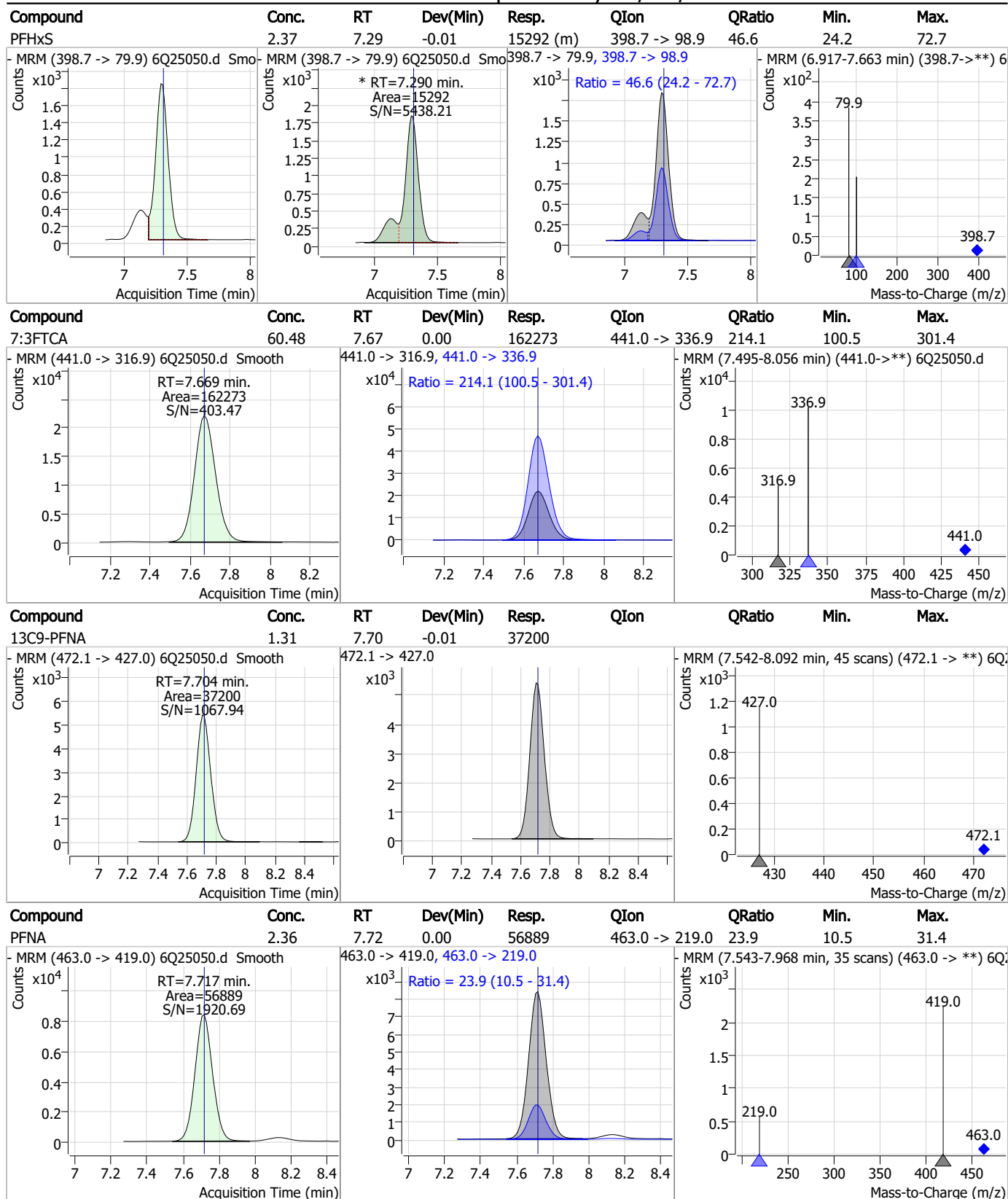


7.3.3

7

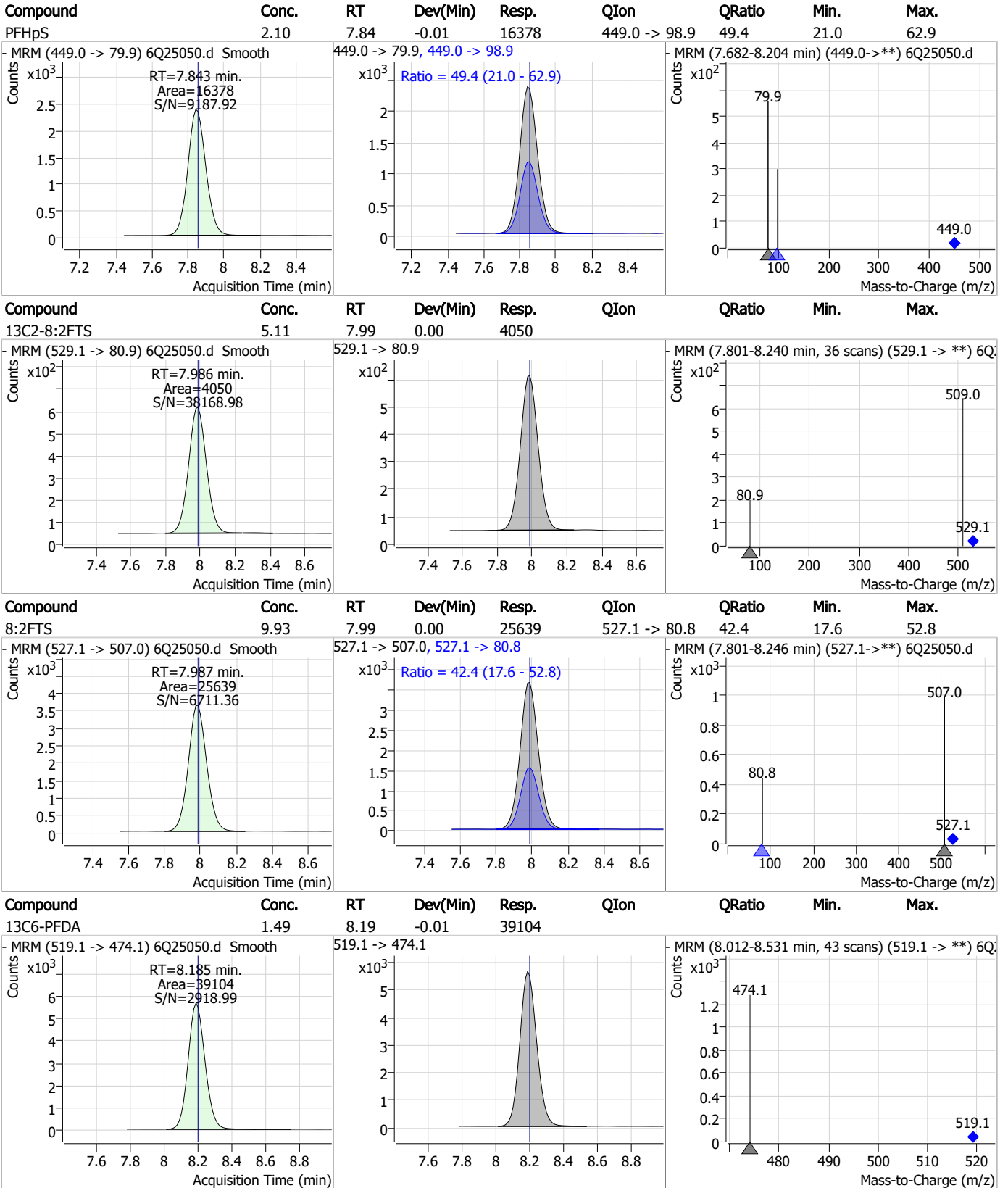


Perfluorinated Compounds by LC/MS/MS



7.3.3
7

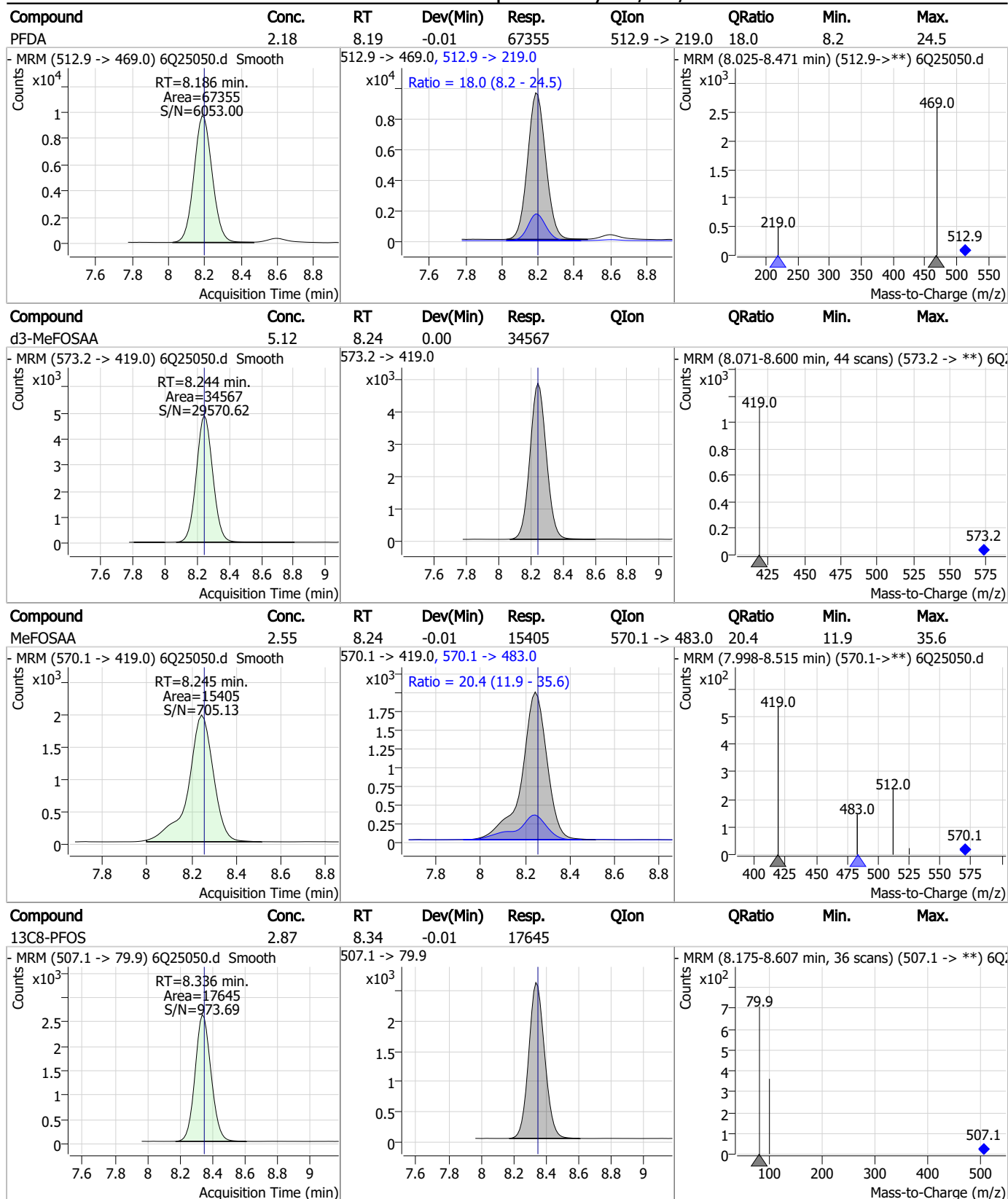
Perfluorinated Compounds by LC/MS/MS



7.3.3

7

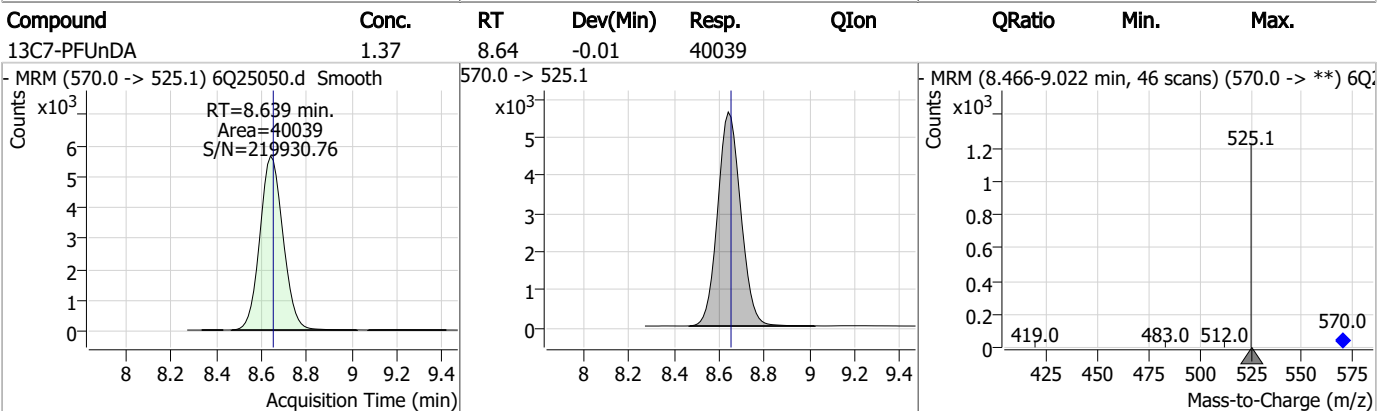
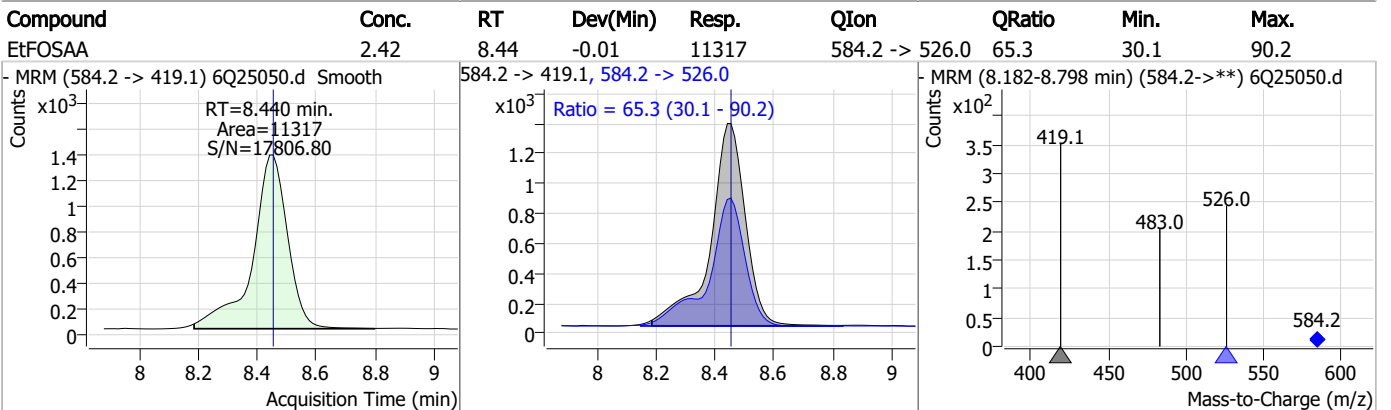
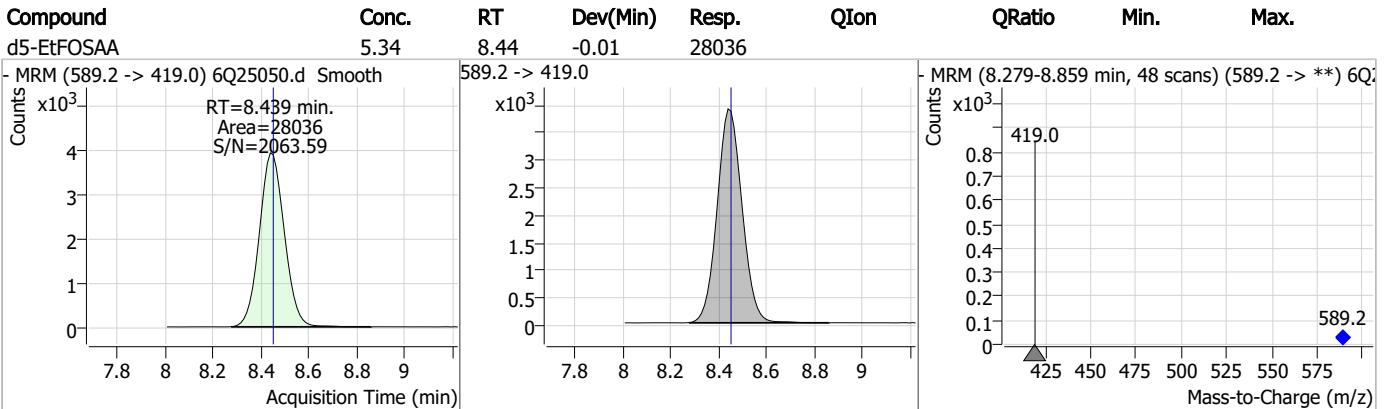
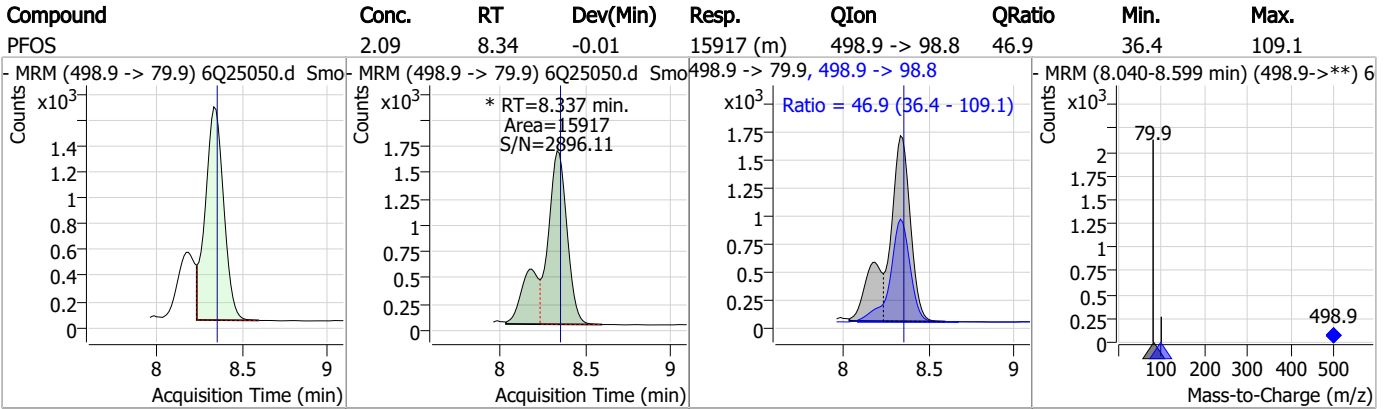
Perfluorinated Compounds by LC/MS/MS



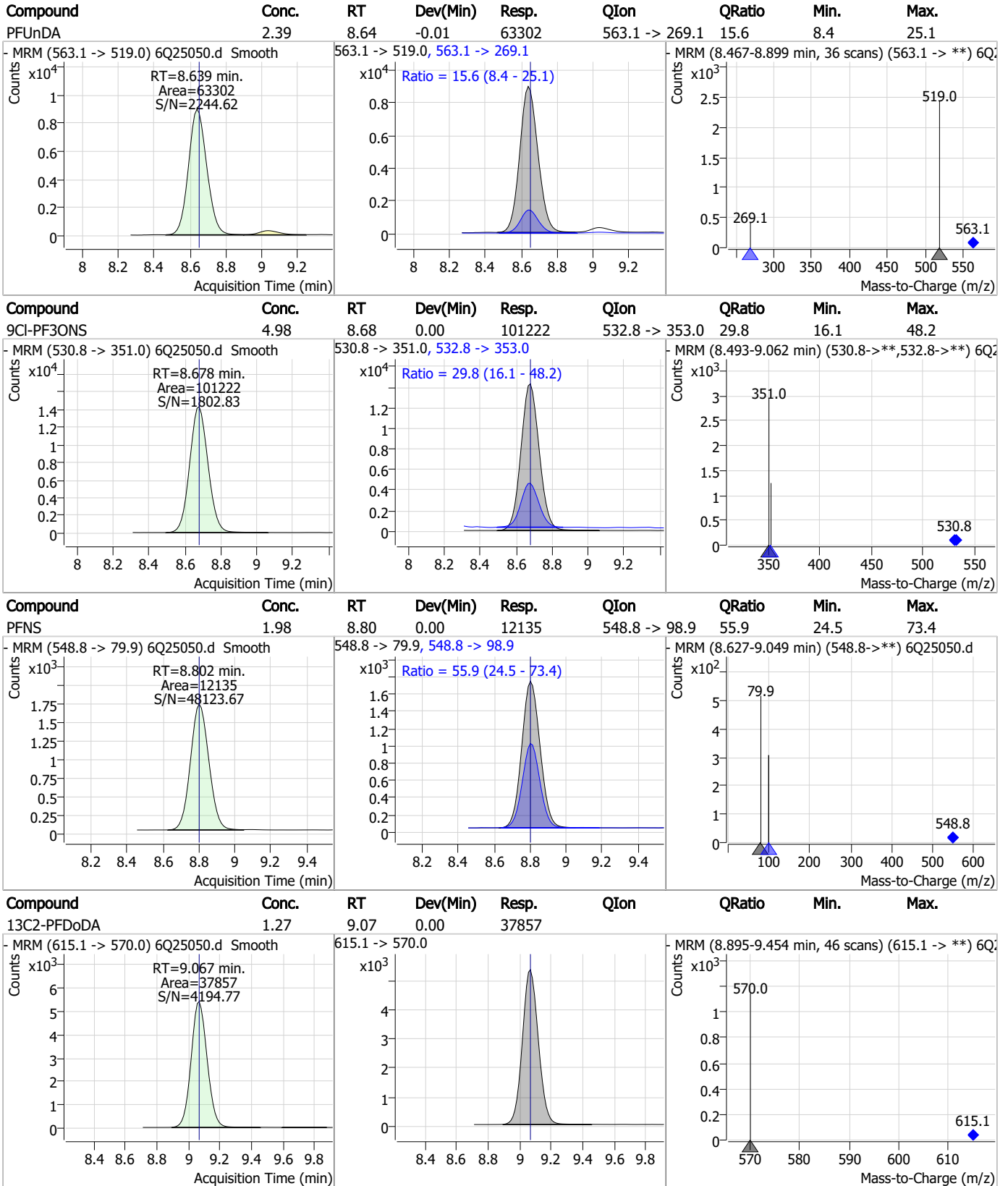
7.3.3

7

Perfluorinated Compounds by LC/MS/MS



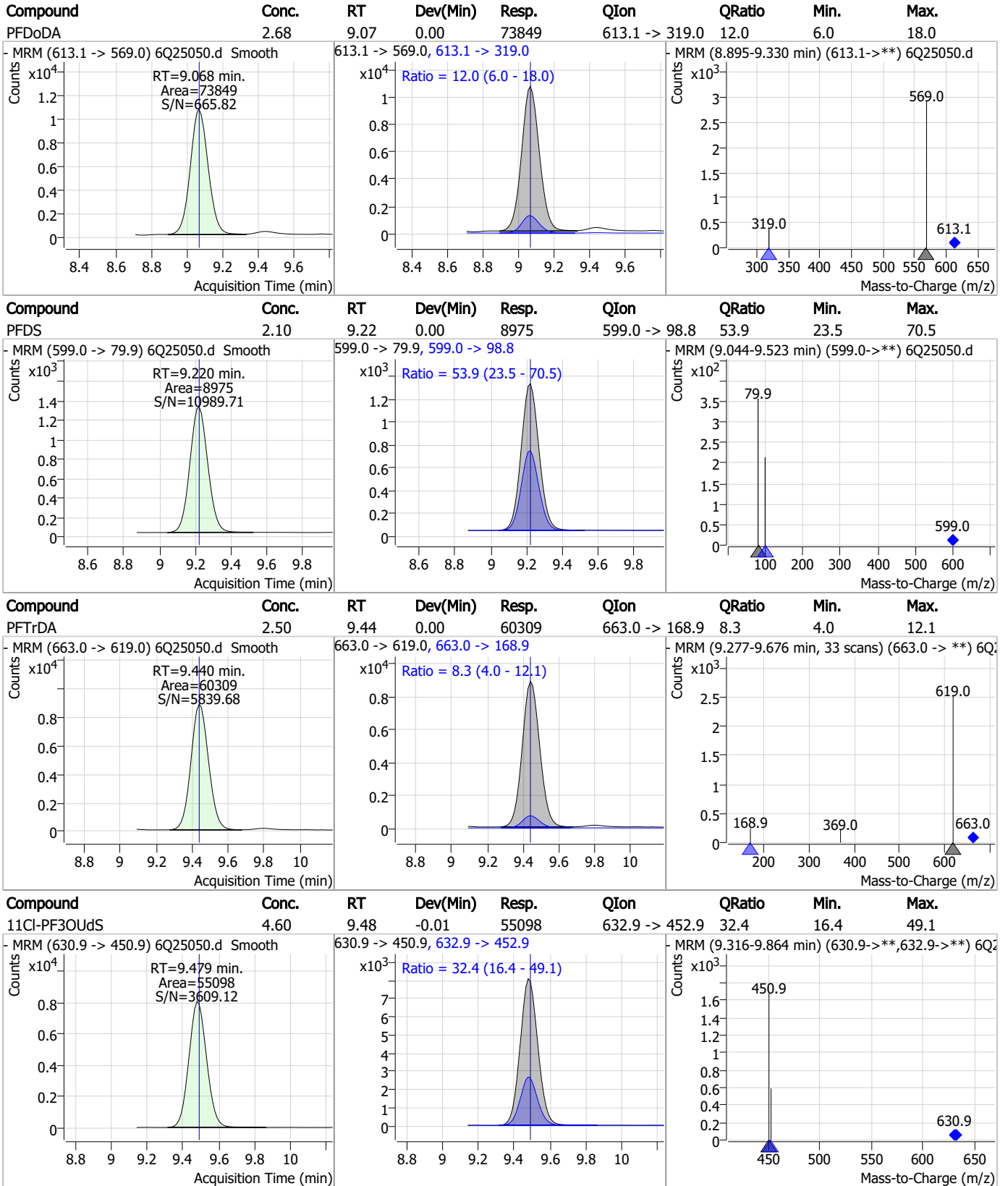
Perfluorinated Compounds by LC/MS/MS



7.3.3

7

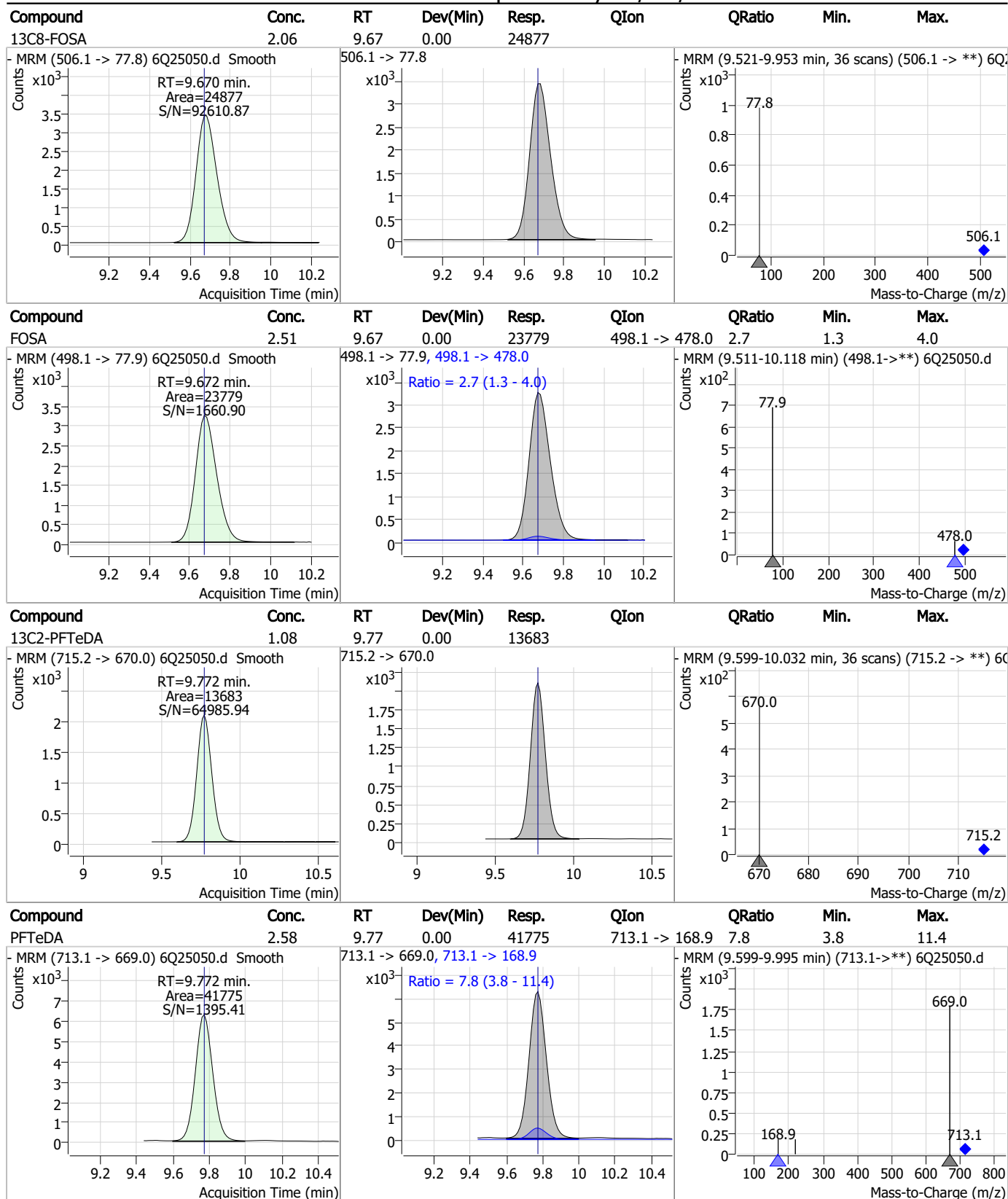
Perfluorinated Compounds by LC/MS/MS



7.3.3

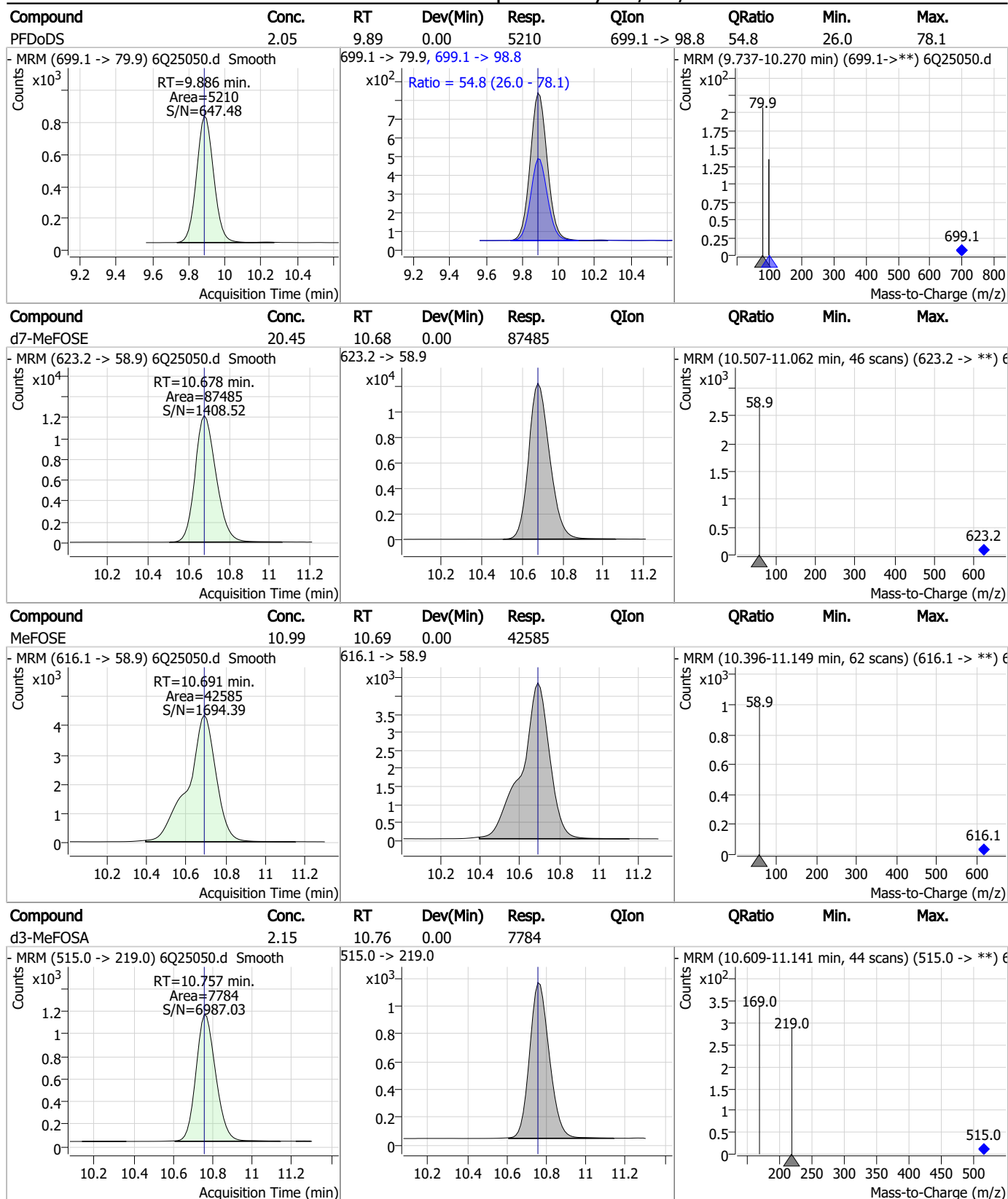
7

Perfluorinated Compounds by LC/MS/MS



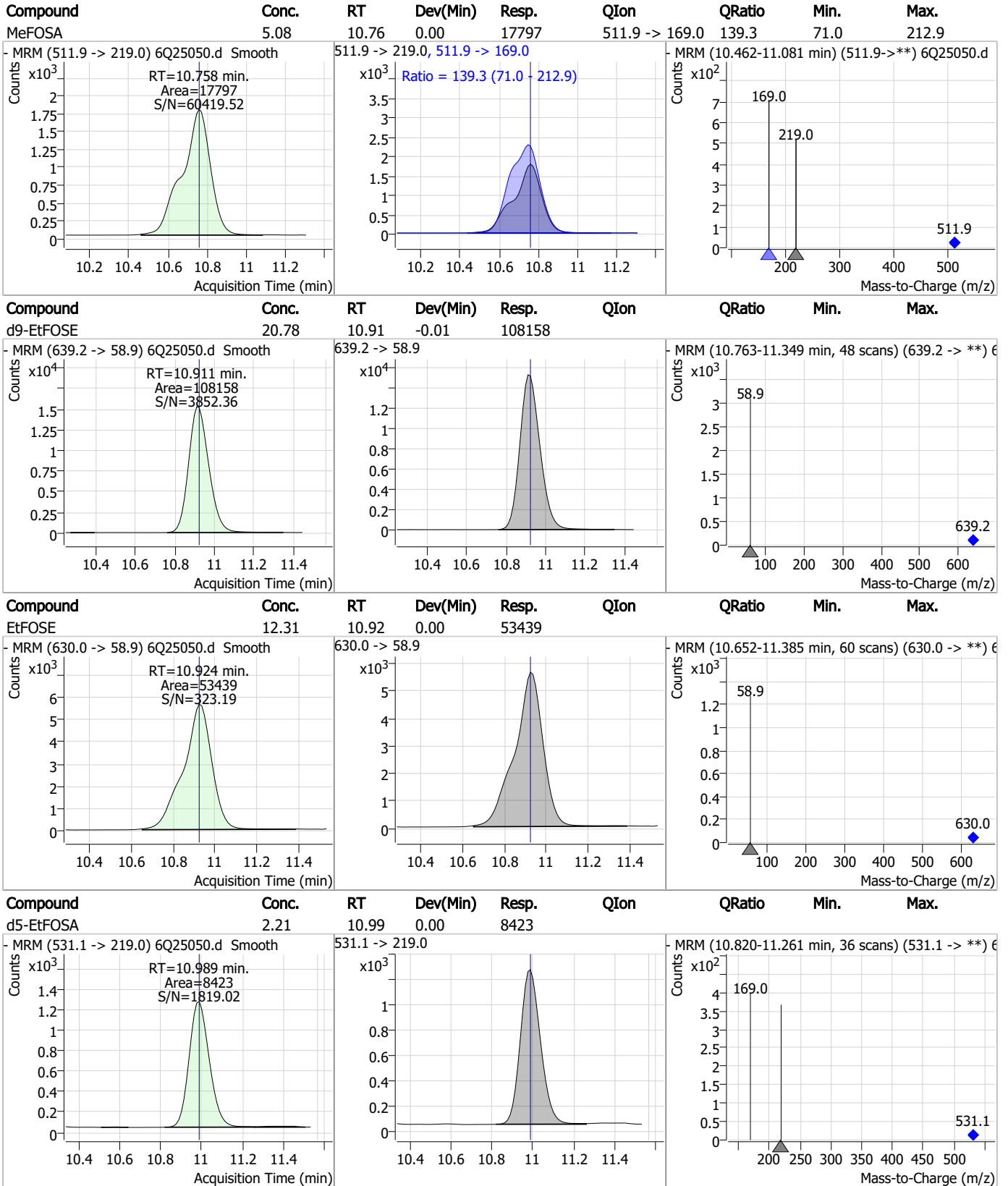
7.3.3
7

Perfluorinated Compounds by LC/MS/MS



7.3.3
7

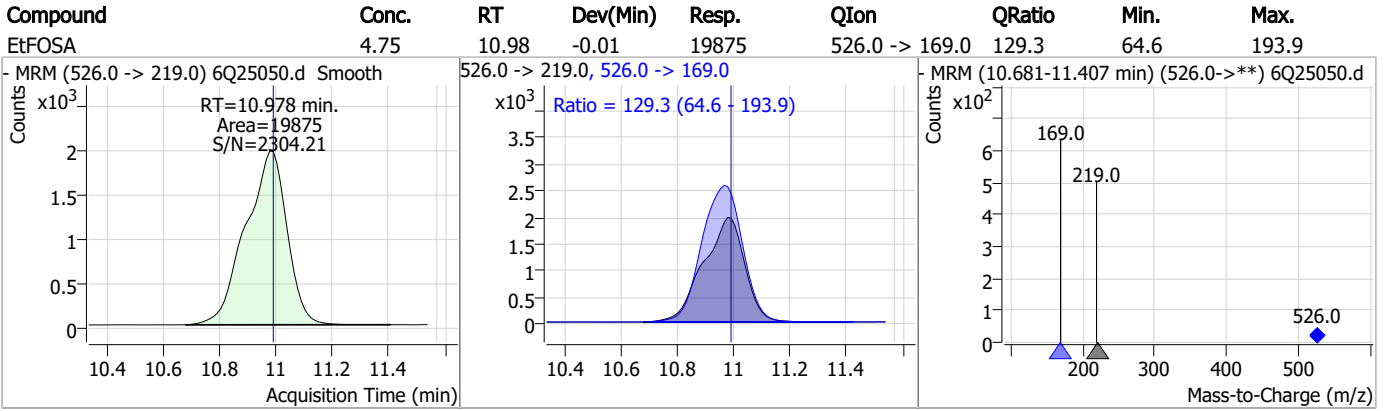
Perfluorinated Compounds by LC/MS/MS



7.3.3

7

Perfluorinated Compounds by LC/MS/MS



7.3.3

7

Manual Integration Approval Summary

Sample Number: OP99174-BS Method: EPA DRAFT 1633
Lab FileID: 6Q25050.D Analyst approved: 09/26/23 15:45 Martha Valls
Injection Time: 09/25/23 22:07 Supervisor approved: 09/26/23 19:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

7.3.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25051.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 10:21:50 PM
 Sample Name : OP99174-LLBS:3
 Vial : P5-E5
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q357.batch.bin
 Sample Information : OP99174,S6Q357,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	195769	10.00 µg/L	0.025
M5-PFPeA	4.422	268.3 -> 223.0	80316	5.00 µg/L	0.012
M5-PFHxA	5.629	318.0 -> 273.0	72482	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	68746	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	95469	2.50 µg/L	-0.012
M9-PFNA	7.704	472.1 -> 427.0	39951	1.25 µg/L	-0.012
M6-PFDA	8.185	519.1 -> 474.1	39415	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	40255	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	40336	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	13993	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	23671	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	30532	2.50 µg/L	0.000
M3-PFHxS	7.289	402.1 -> 79.9	17386	2.50 µg/L	-0.012
M8-PFOS	8.336	507.1 -> 79.9	17240	2.50 µg/L	-0.013
M2-4:2FTS	5.304	329.1 -> 80.9	3144	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	4430	5.00 µg/L	-0.012
M2-8:2FTS	7.974	529.1 -> 80.9	4289	5.00 µg/L	-0.012
M3-MeFOSAA	8.244	573.2 -> 419.0	37674	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	47820	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	28978	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	77522	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	102501	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	7407	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	7003	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	14862	2.50 µg/L	-0.013
13C3-PFBA	3.001	216.0 -> 172.0	77364	5.00 µg/L	0.025
18O2-PFHxS	7.300	403.0 -> 83.9	10467	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	101644	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	35612	1.25 µg/L	-0.012
13C5-PFNA	7.705	468.0 -> 423.0	35168	1.25 µg/L	-0.012
13C2-PFHxA	5.630	315.1 -> 270.0	63707	2.50 µg/L	0.000

System Monitoring Compounds

13C2-4:2FTS	5.304	329.1 -> 80.9	3144	5.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.5%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4430	5.21 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C2-8:2FTS	7.974	529.1 -> 80.9	4289	5.30 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C2-PFDoDA	9.067	615.1 -> 570.0	40336	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.7%		
13C2-PFTeDA	9.772	715.2 -> 670.0	13993	0.97 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 77.6%		
13C3-PFBS	5.559	302.1 -> 79.9	30532	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.0%		
13C3-PFHxS	7.289	402.1 -> 79.9	17386	2.62 µg/L	-0.012

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 = 105.0%	
13C4-PFBA	2.997	216.8 -> 171.9	195769	10.47 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C4-PFHpA	6.556	367.1 -> 322.0	68746	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C5-PFHxA	5.629	318.0 -> 273.0	72482	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C5-PFPeA	4.422	268.3 -> 223.0	80316	5.32 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C6-PFDA	8.185	519.1 -> 474.1	39415	1.32 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C7-PFUnDA	8.639	570.0 -> 525.1	40255	1.20 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C8-FOSA	9.670	506.1 -> 77.8	23671	1.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.3%	
13C8-PFOA	7.186	421.1 -> 376.0	95469	2.71 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C8-PFOS	8.336	507.1 -> 79.9	17240	2.69 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C9-PFNA	7.704	472.1 -> 427.0	39951	1.41 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.0%	
d3-MeFOSAA	8.244	573.2 -> 419.0	37674	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	47820	9.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d3-MeFOSA	10.757	515.0 -> 219.0	7003	1.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.1%	
d5-EtFOSAA	8.439	589.2 -> 419.0	28978	5.30 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.9%	
d7-MeFOSE	10.678	623.2 -> 58.9	77522	17.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 69.6%	
d9-EtFOSE	10.911	639.2 -> 58.9	102501	18.90 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.6%	
d5-EtFOSA	10.989	531.1 -> 219.0	7407	1.86 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.5%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	13992	2.72 µg/L	99
		327.1 -> 80.9	5962		
6:2FTS	6.962	427.1 -> 407.0	11761	3.08 µg/L	99
		427.1 -> 80.9	5024		
8:2FTS	7.974	527.1 -> 507.0	7634	2.79 µg/L	87
		527.1 -> 80.8	3276		
EtFOSAA	8.440	584.2 -> 419.1	3116	0.65 µg/L	m 96
		584.2 -> 526.0	1975		
FOSA	9.672	498.1 -> 77.9	7166	0.80 µg/L	100
		498.1 -> 478.0	189		
MeFOSAA	8.245	570.1 -> 419.0	4448	0.67 µg/L	95
		570.1 -> 483.0	946		
PFBA	3.006	212.8 -> 168.9	19966	2.86 µg/L	100
PFBS	5.560	298.7 -> 79.9	6055	0.61 µg/L	97
		298.7 -> 98.8	2148		
PFDA	8.186	512.9 -> 469.0	20272	0.65 µg/L	98
		512.9 -> 219.0	3519		
PFDODA	9.068	613.1 -> 569.0	21890	0.74 µg/L	99
		613.1 -> 319.0	2512		
PFDS	9.220	599.0 -> 79.9	2512	0.60 µg/L	81

7.3.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1494			
PFHpA	6.557	363.1 -> 319.0	25299	0.68	µg/L	99
		363.1 -> 169.0	3771			
PFHpS	7.843	449.0 -> 79.9	4911	0.65	µg/L	91
		449.0 -> 98.9	2351			
PFHxA	5.631	313.0 -> 269.0	17330	0.67	µg/L	100
		313.0 -> 118.9	861			
PFHxS	7.290	398.7 -> 79.9	4573	0.68	µg/L	m 100
		398.7 -> 98.9	2212			
PFNA	7.705	463.0 -> 419.0	16546	0.64	µg/L	89
		463.0 -> 219.0	4319			
PFNS	8.802	548.8 -> 79.9	4138	0.69	µg/L	98
		548.8 -> 98.9	1961			
PFOA	7.187	413.0 -> 369.0	28464	0.69	µg/L	99
		413.0 -> 169.0	5075			
PFOS	8.337	498.9 -> 79.9	4625	0.62	µg/L	m 75
		498.9 -> 98.8	2387			
PFPeA	4.424	263.0 -> 219.0	22548	1.39	µg/L	100
PFPeS	6.608	349.1 -> 79.9	6115	0.65	µg/L	98
		349.1 -> 98.9	2752			
PFTeDA	9.772	713.1 -> 669.0	12243	0.74	µg/L	99
		713.1 -> 168.9	972			
PFTrDA	9.440	663.0 -> 619.0	16191	0.63	µg/L	98
		663.0 -> 168.9	1411			
PFUnDA	8.639	563.1 -> 519.0	19139	0.72	µg/L	96
		563.1 -> 269.1	3509			
11Cl-PF3OUdS	9.479	630.9 -> 450.9	16567	1.32	µg/L	98
		632.9 -> 452.9	5213			
9Cl-PF3ONS	8.666	530.8 -> 351.0	30089	1.42	µg/L	100
		532.8 -> 353.0	9593			
ADONA	6.804	376.9 -> 250.9	84364	1.44	µg/L	96
		376.9 -> 84.8	22679			
HFPO-DA	6.007	284.9 -> 168.9	6255	1.33	µg/L	98
		284.9 -> 184.9	611			
3:3FTCA	3.883	241.0 -> 177.0	3351	2.95	µg/L	97
		241.0 -> 117.0	362			
5:3FTCA	6.283	341.0 -> 237.1	79904	16.34	µg/L	98
		341.0 -> 217.0	57025			
7:3FTCA	7.669	441.0 -> 316.9	49000	17.68	µg/L	94
		441.0 -> 336.9	102755			
EtFOSA	10.978	526.0 -> 219.0	4893	1.33	µg/L	91
		526.0 -> 169.0	6859			
EtFOSE	10.924	630.0 -> 58.9	13492	3.28	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	4442	1.41	µg/L	99
		511.9 -> 169.0	6360			
MeFOSE	10.691	616.1 -> 58.9	11264	3.28	µg/L	100
PFDoDS	9.886	699.1 -> 79.9	1378	0.55	µg/L	87
		699.1 -> 98.8	843			
NFDHA	5.512	295.0 -> 201.0	4627	1.38	µg/L	99
		295.0 -> 84.9	1261			
PFMBA	4.838	279.0 -> 85.1	17709	1.36	µg/L	100
PFMPA	3.563	229.0 -> 84.9	12814	1.33	µg/L	100
PFEESA	6.100	314.8 -> 134.9	38003	1.17	µg/L	100
		314.8 -> 82.9	1413			

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

7.34
7

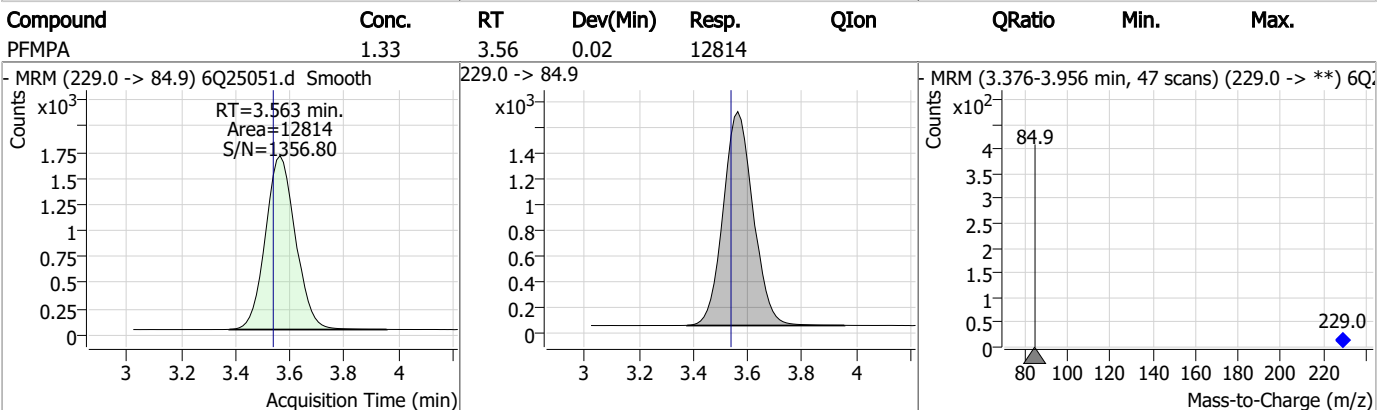
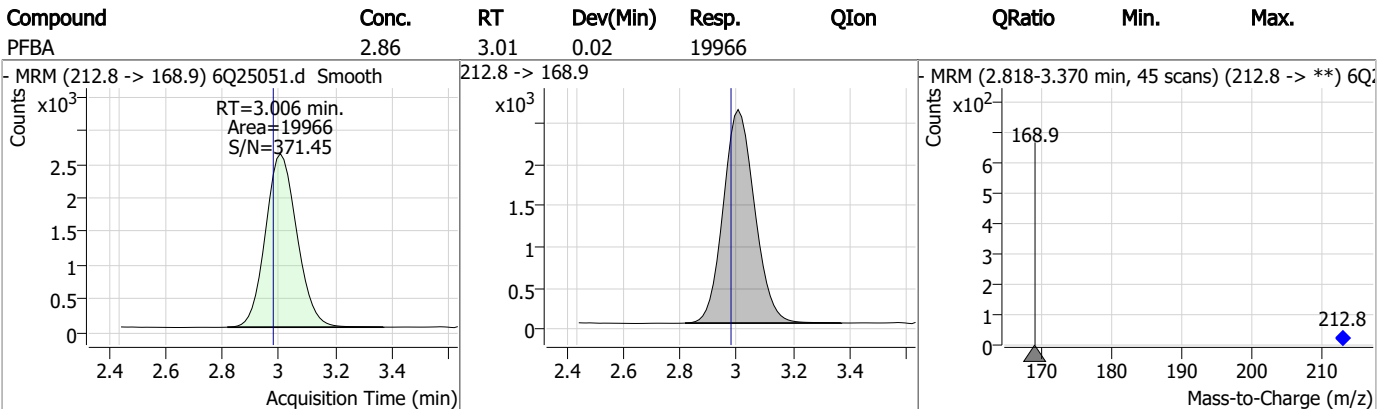
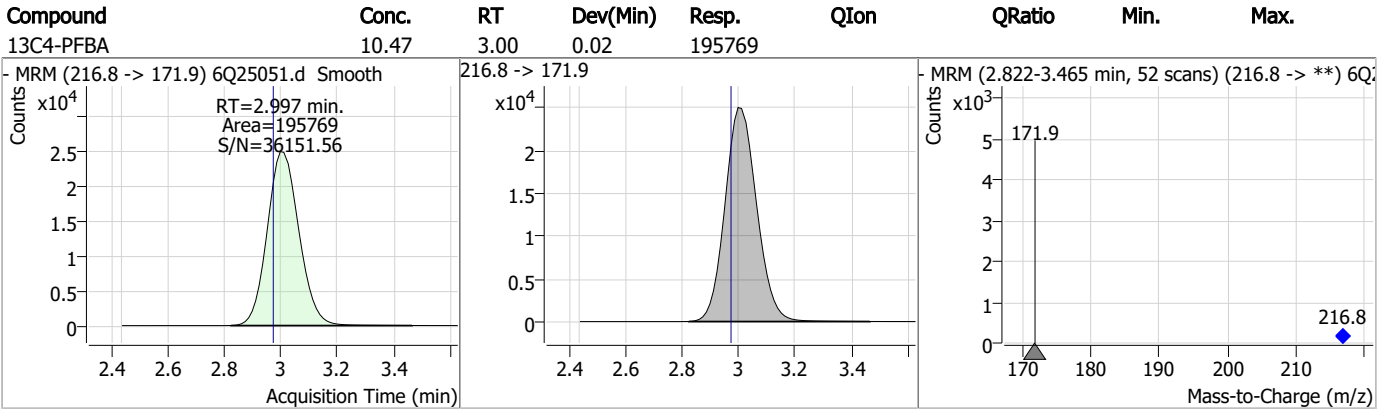
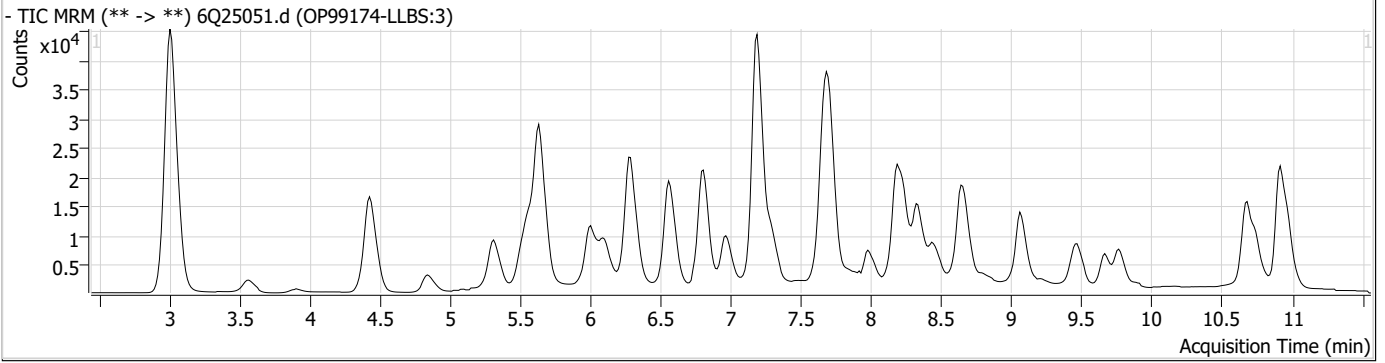
Perfluorinated Compounds by LC/MS/MS

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

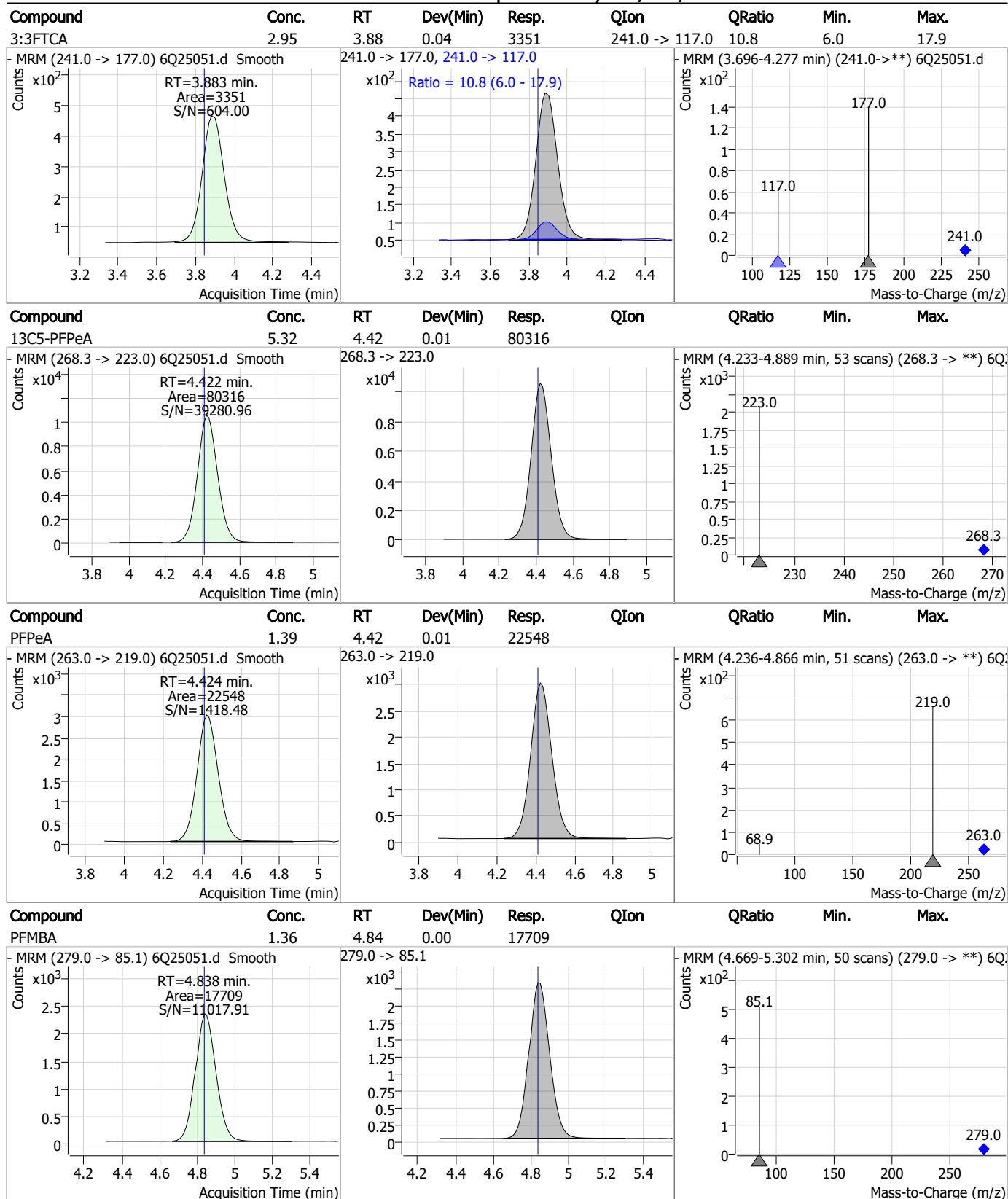
7.3.4

7

Perfluorinated Compounds by LC/MS/MS

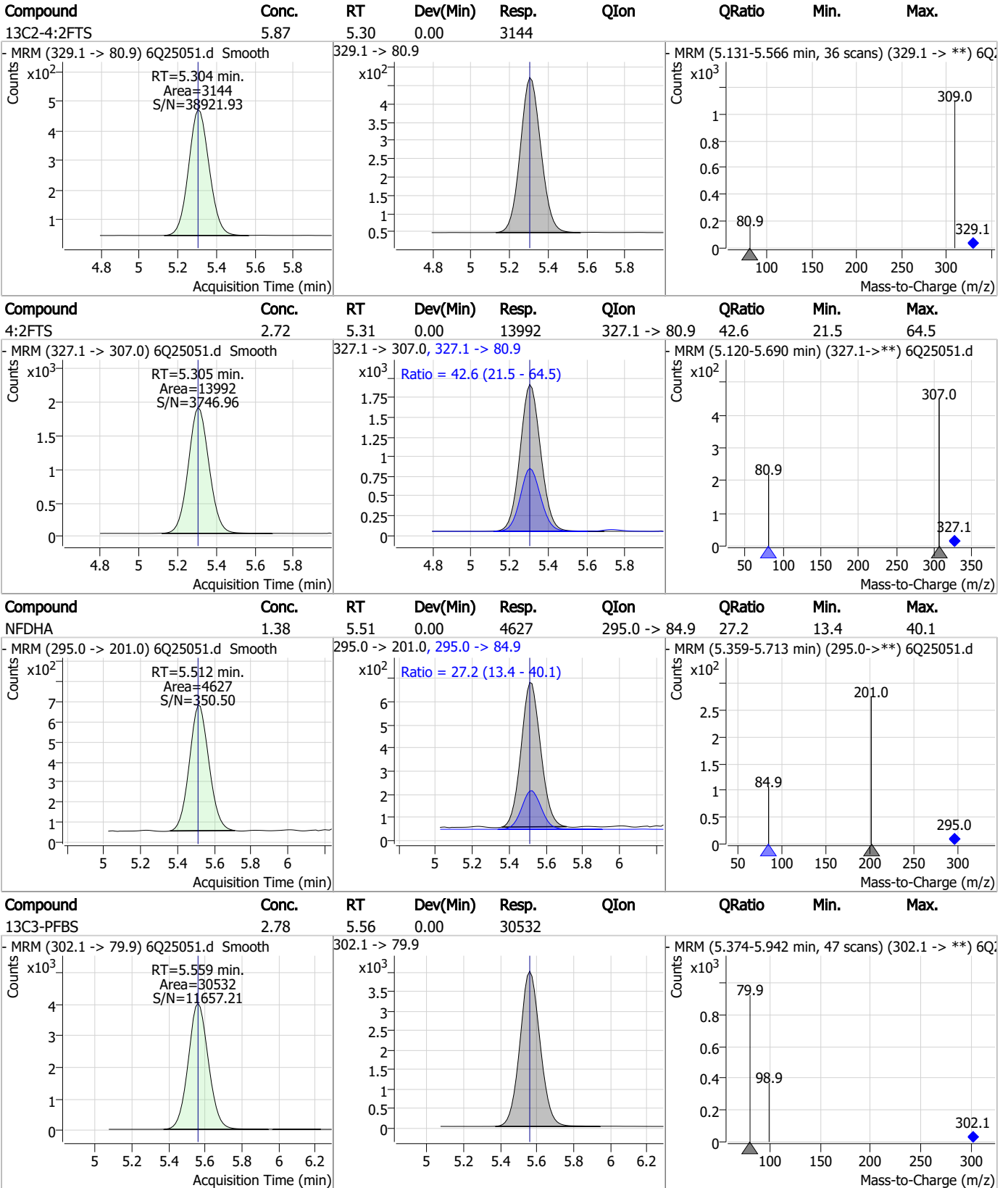


Perfluorinated Compounds by LC/MS/MS



7.3.4
7

Perfluorinated Compounds by LC/MS/MS

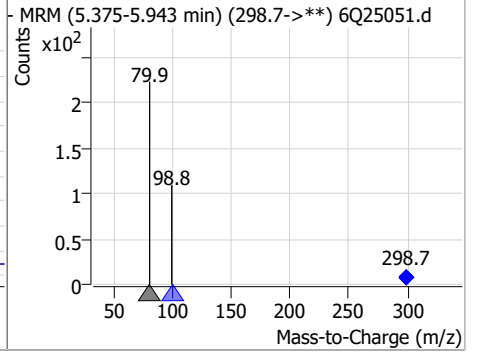
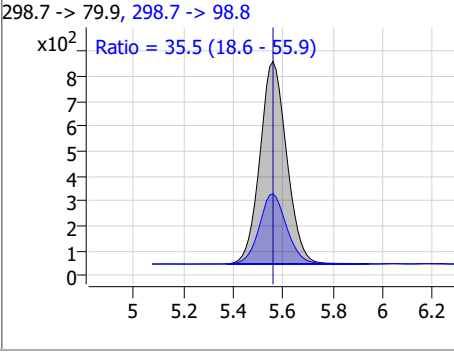
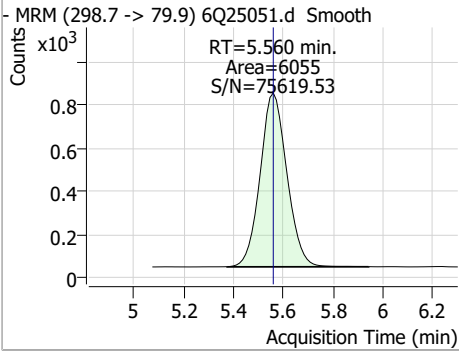


7.3.4

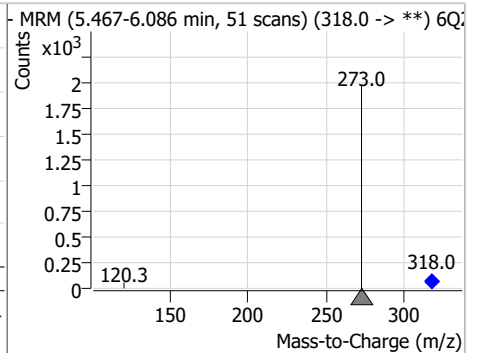
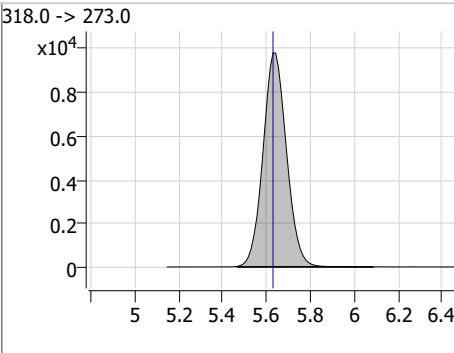
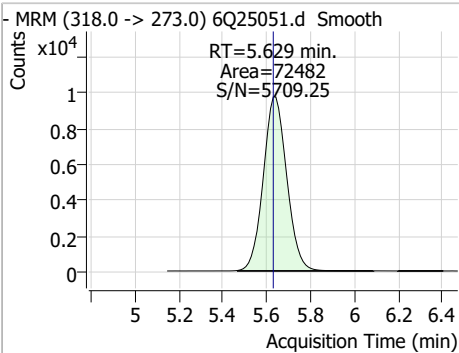
7

Perfluorinated Compounds by LC/MS/MS

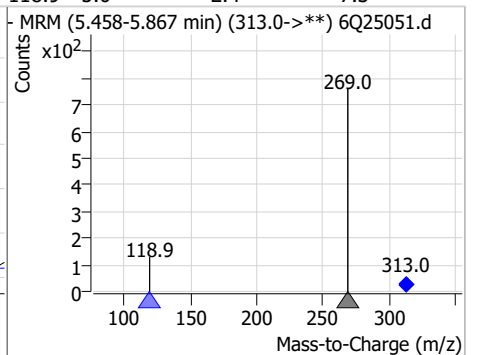
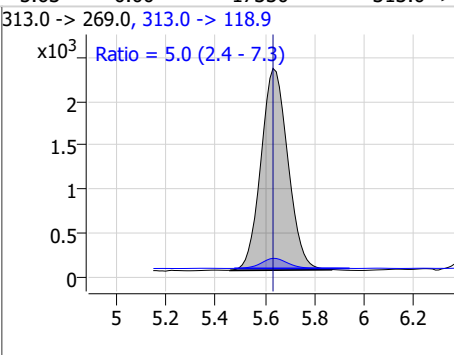
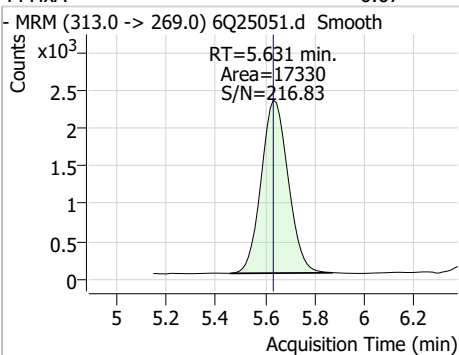
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.61	5.56	0.00	6055	298.7 -> 98.8	35.5	18.6	55.9



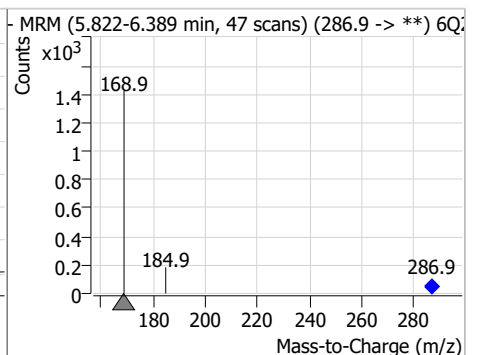
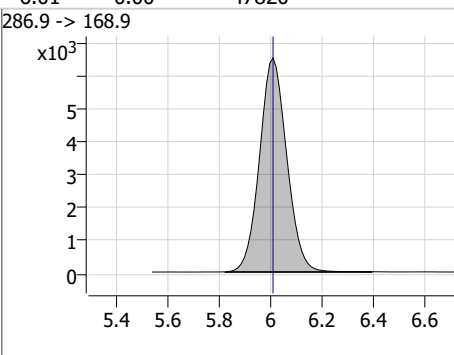
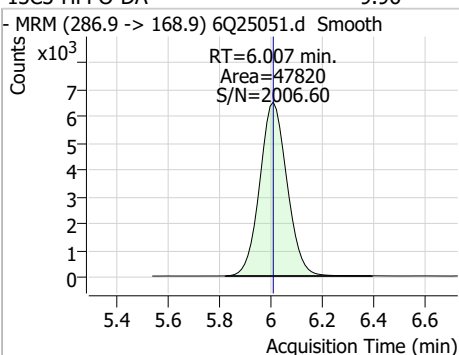
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.71	5.63	0.00	72482				



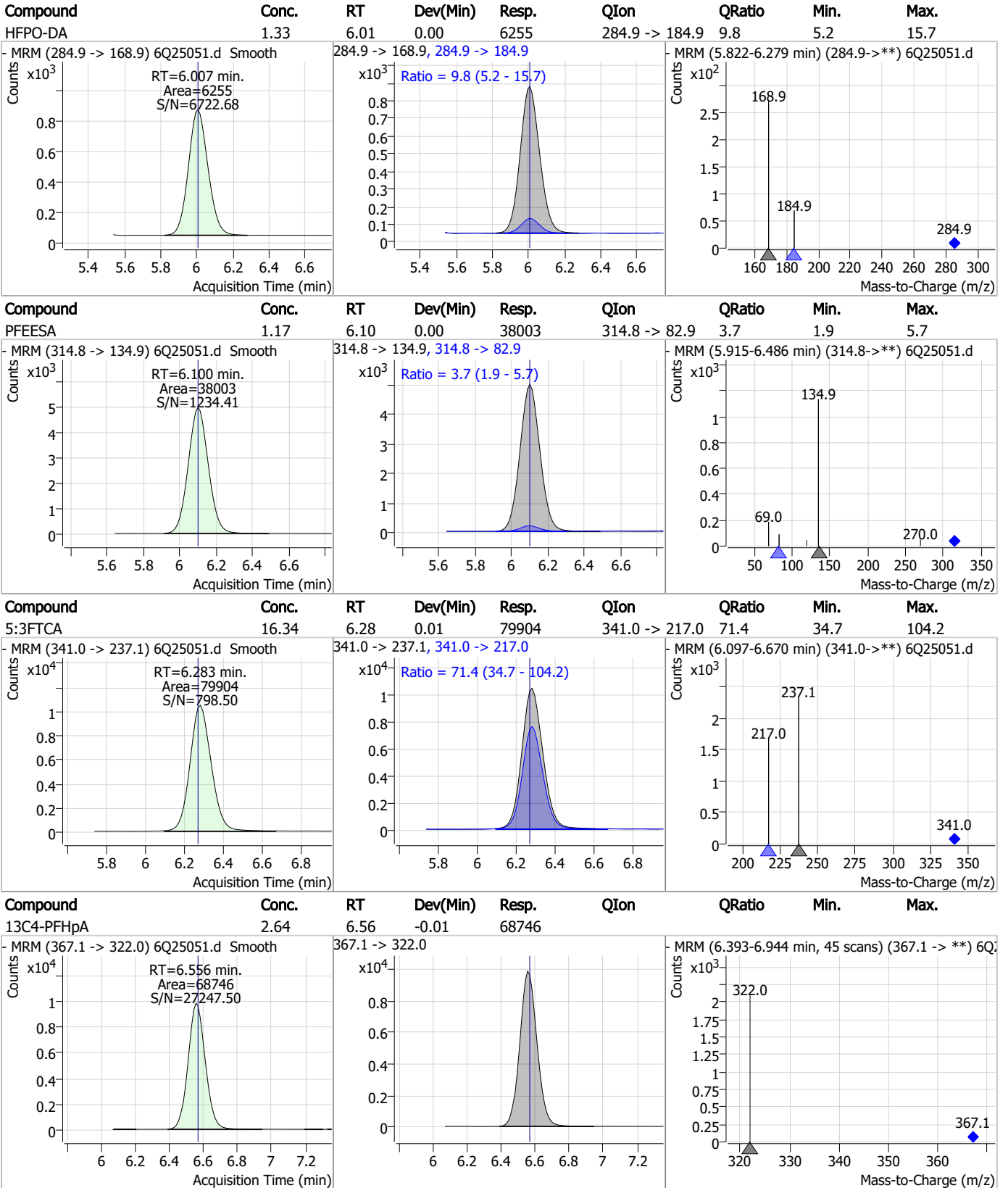
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.67	5.63	0.00	17330	313.0 -> 118.9	5.0	2.4	7.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.96	6.01	0.00	47820				



Perfluorinated Compounds by LC/MS/MS



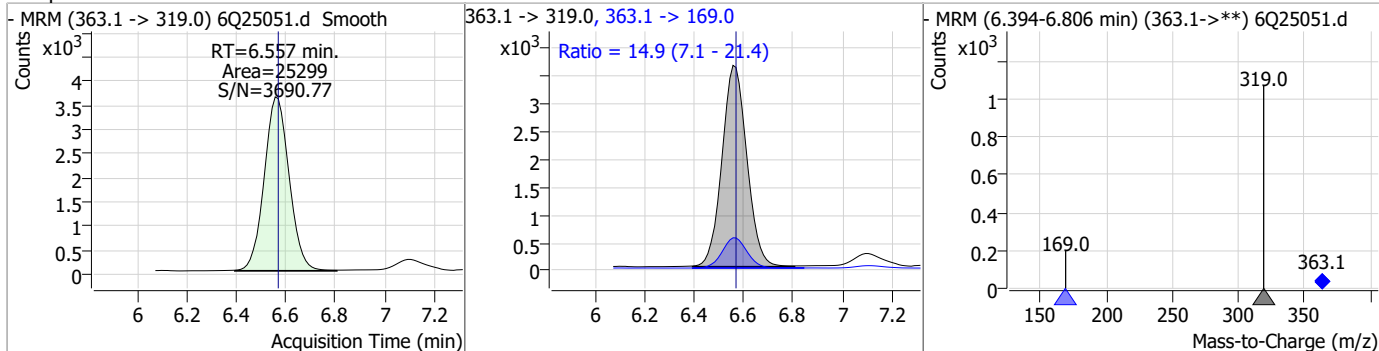
7.3.4

7

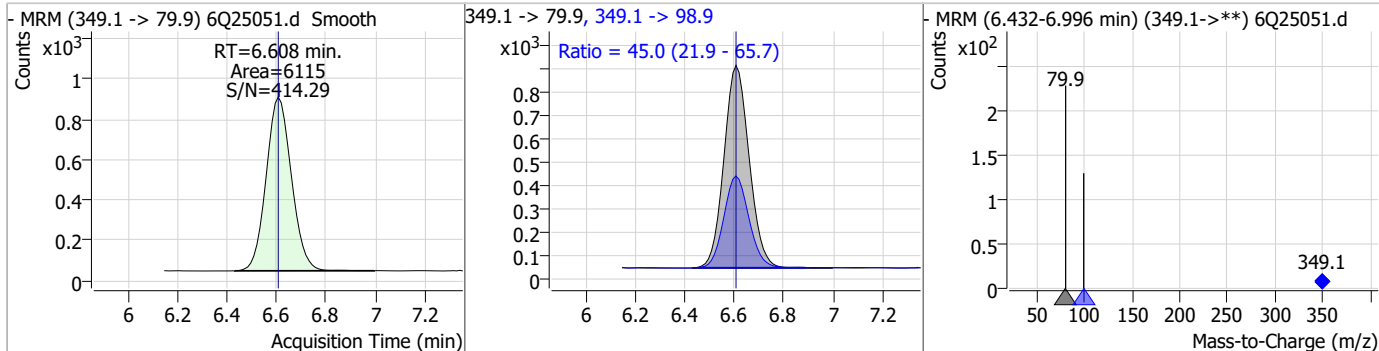


Perfluorinated Compounds by LC/MS/MS

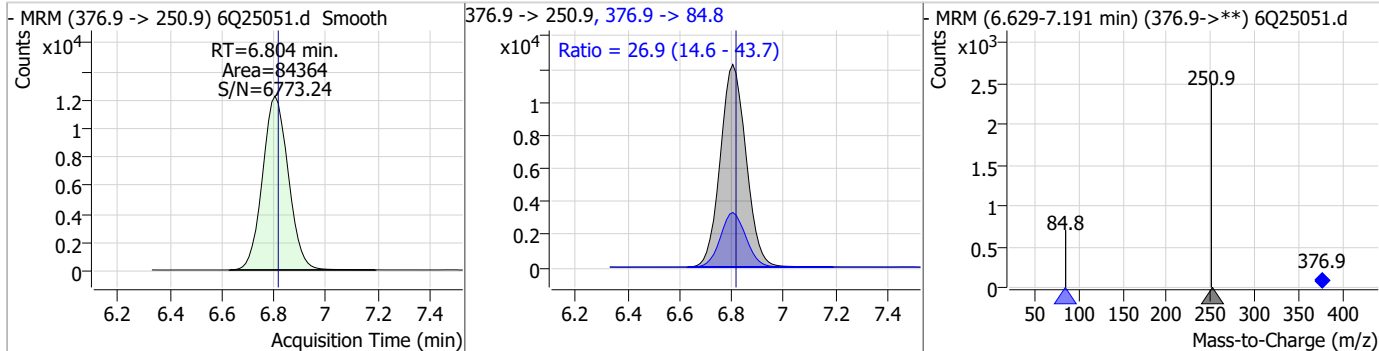
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.68	6.56	-0.01	25299	363.1 -> 169.0	14.9	7.1	21.4



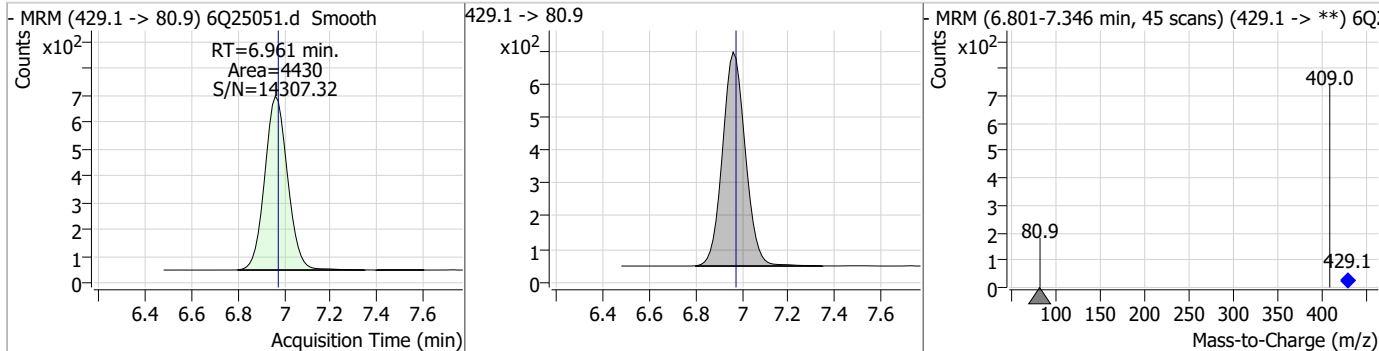
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.65	6.61	0.00	6115	349.1 -> 98.9	45.0	21.9	65.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.44	6.80	-0.01	84364	376.9 -> 84.8	26.9	14.6	43.7

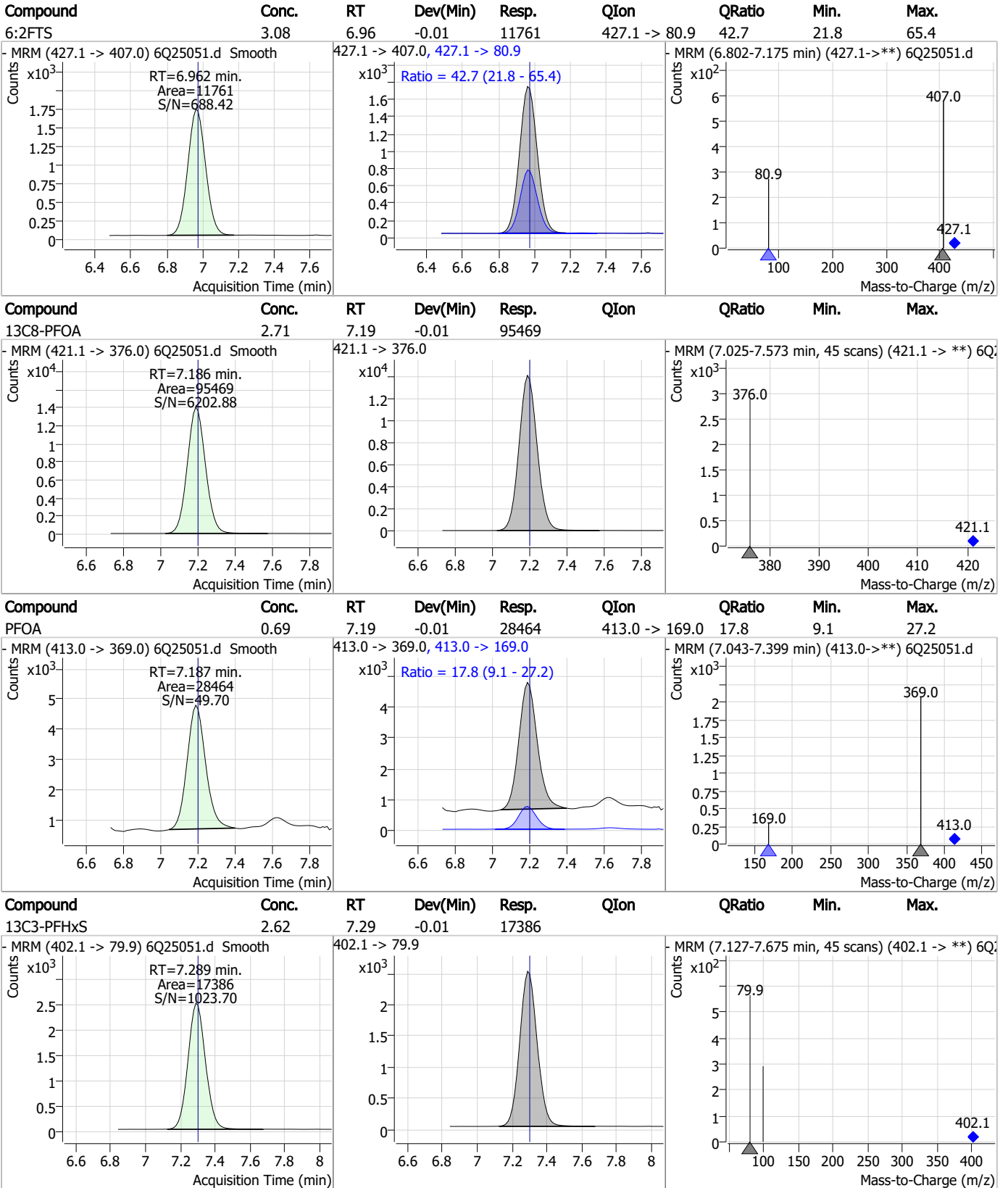


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.21	6.96	-0.01	4430	429.1 -> 80.9			



7.3.4
7

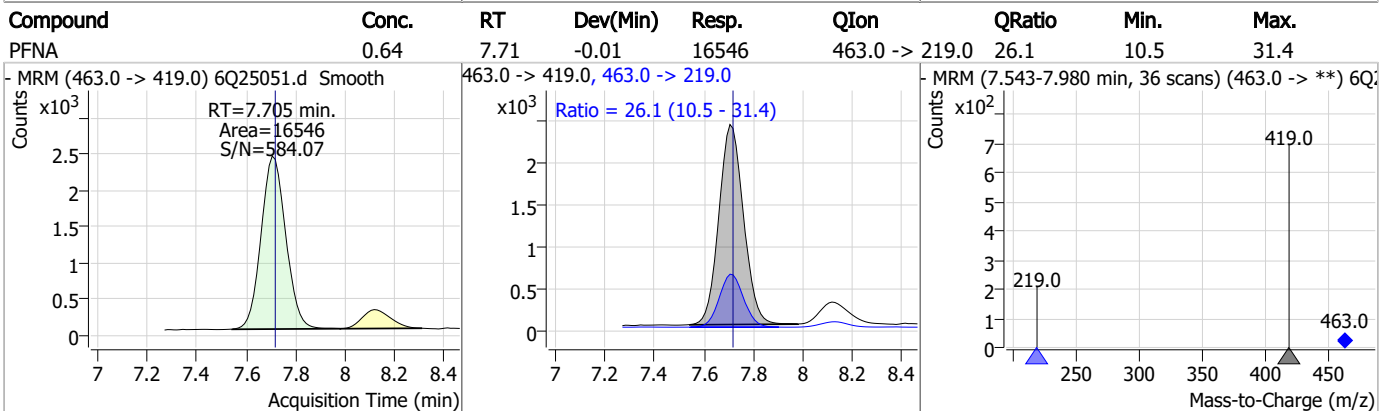
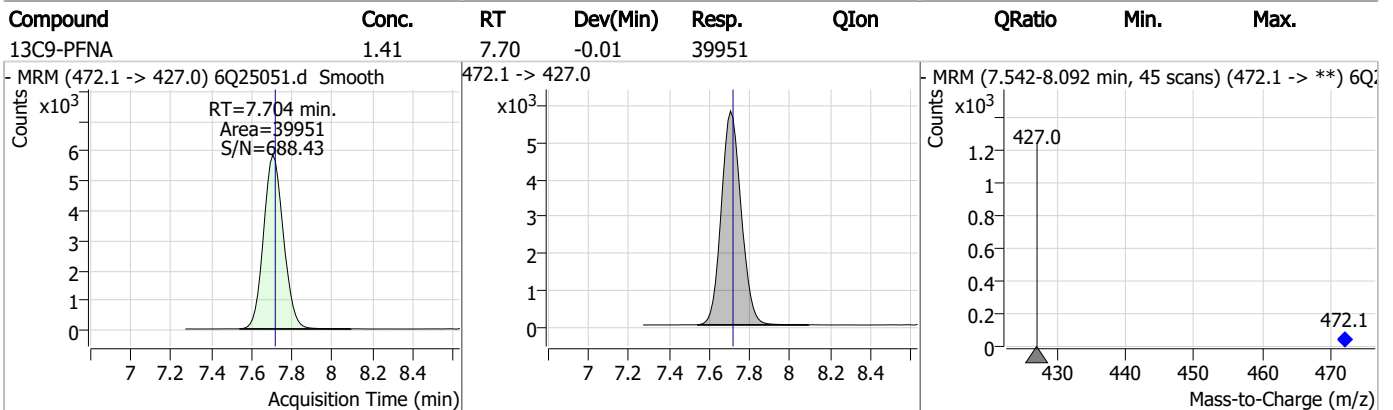
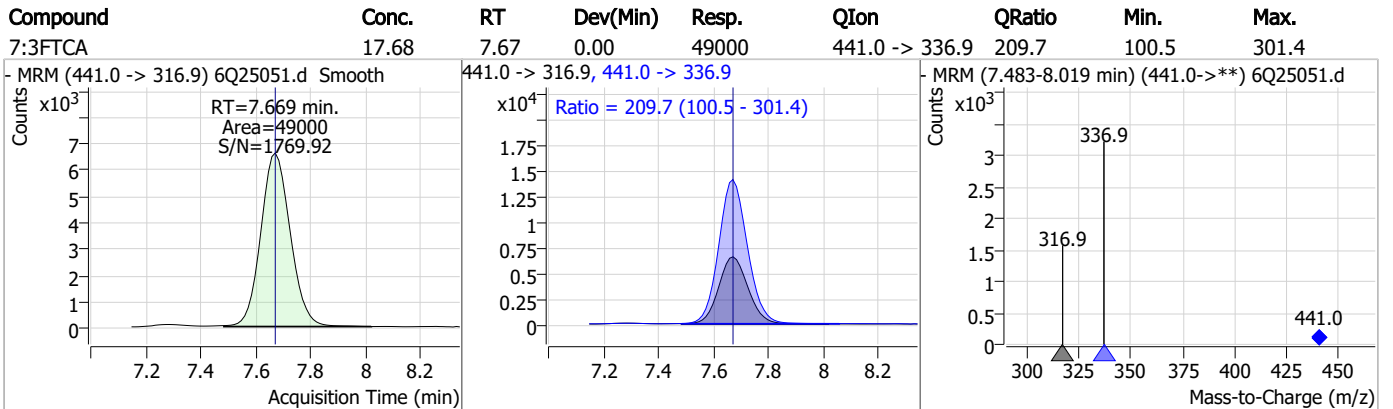
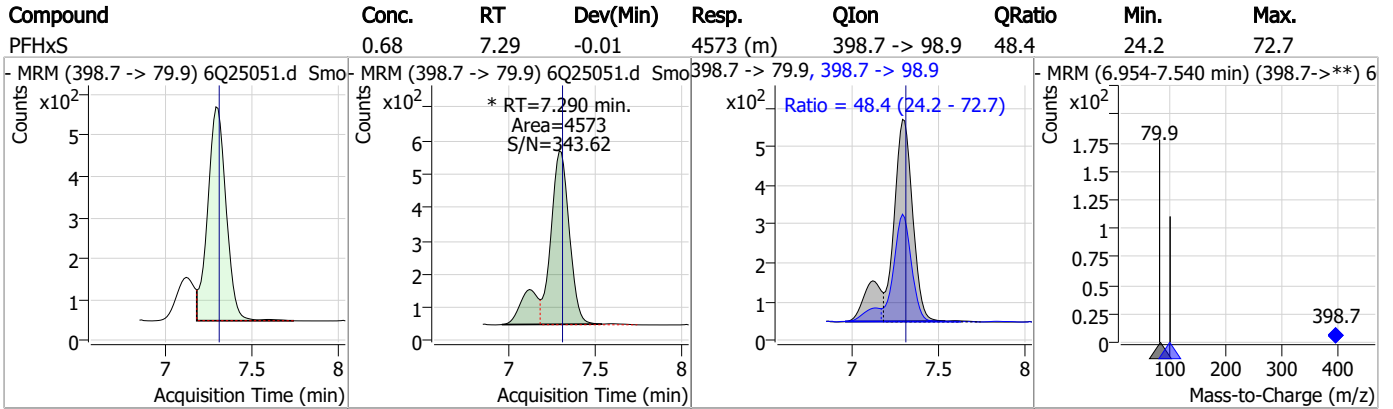
Perfluorinated Compounds by LC/MS/MS



7.3.4

7

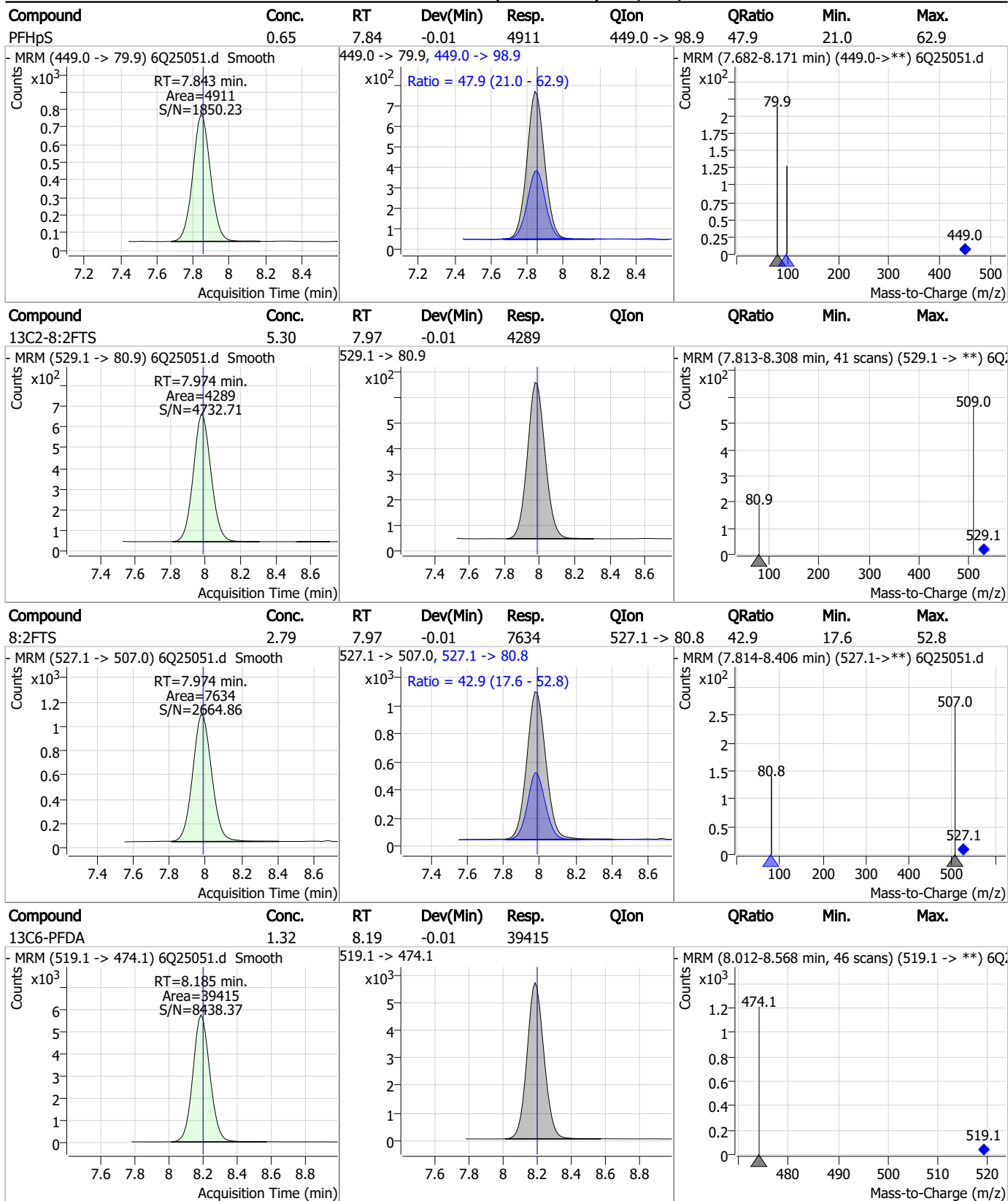
Perfluorinated Compounds by LC/MS/MS



7.3.4

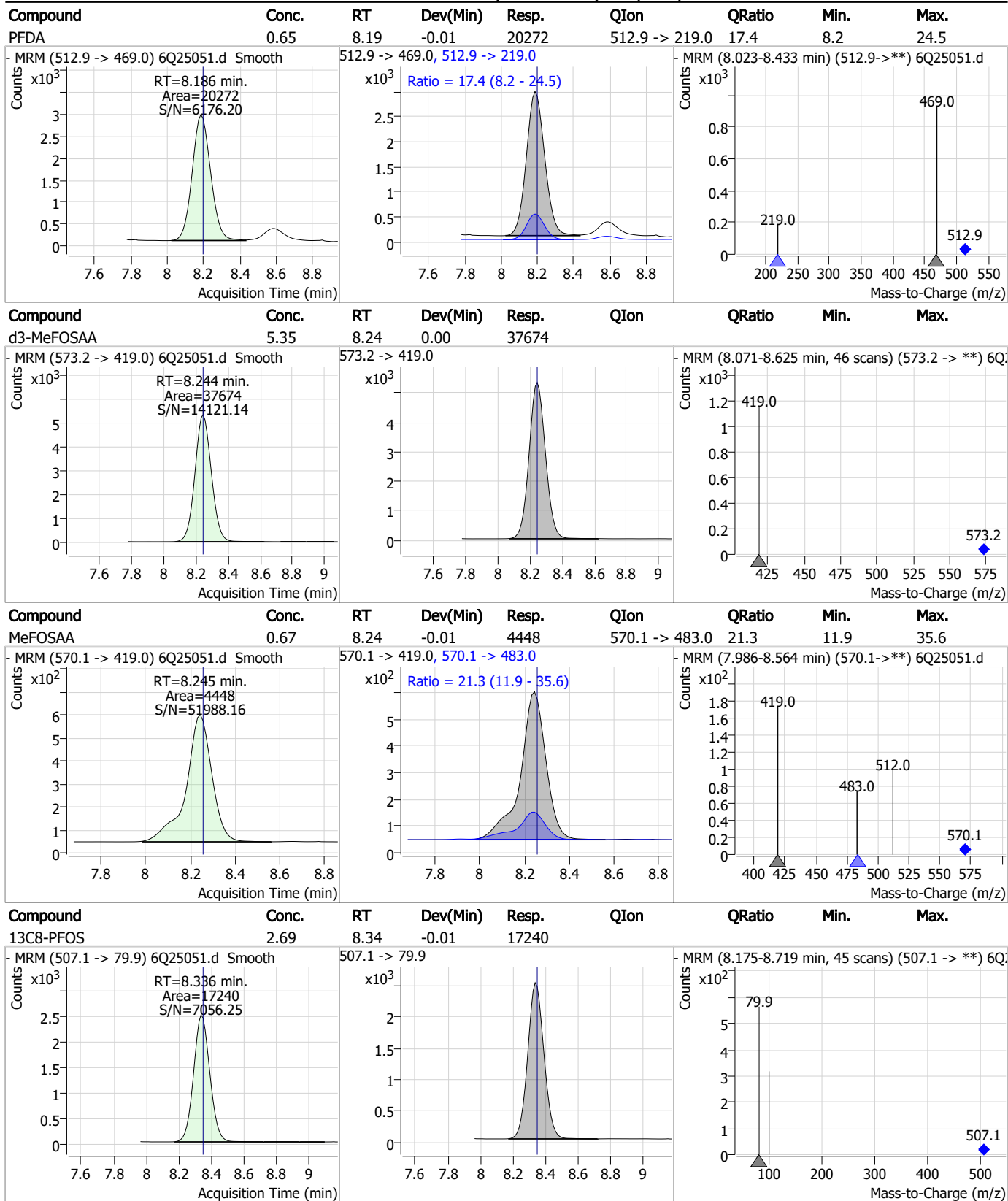
7

Perfluorinated Compounds by LC/MS/MS



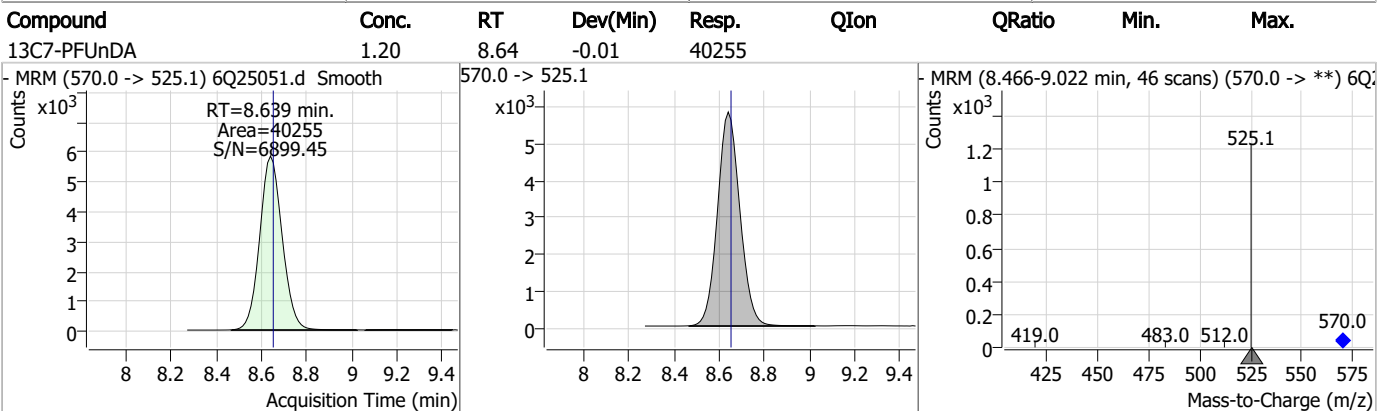
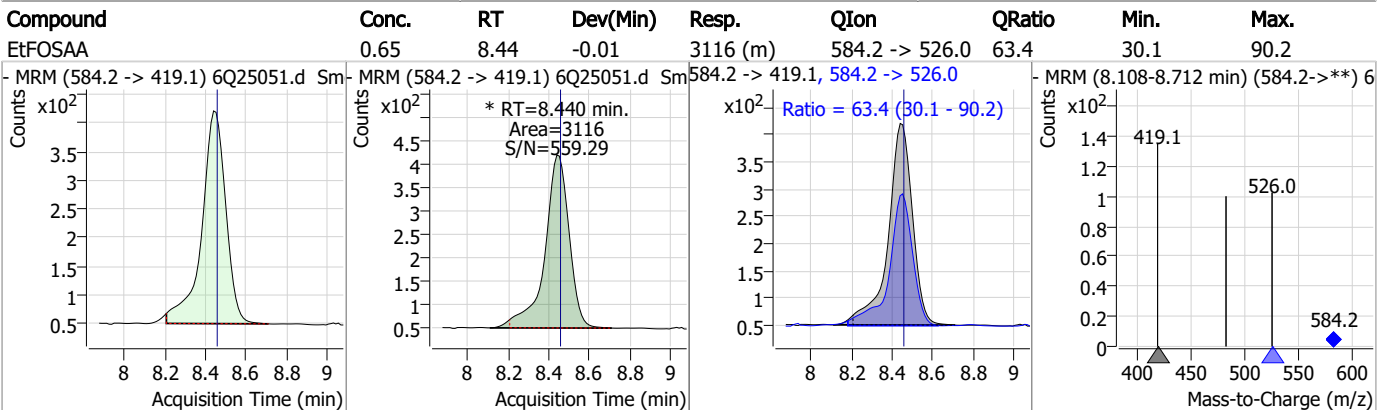
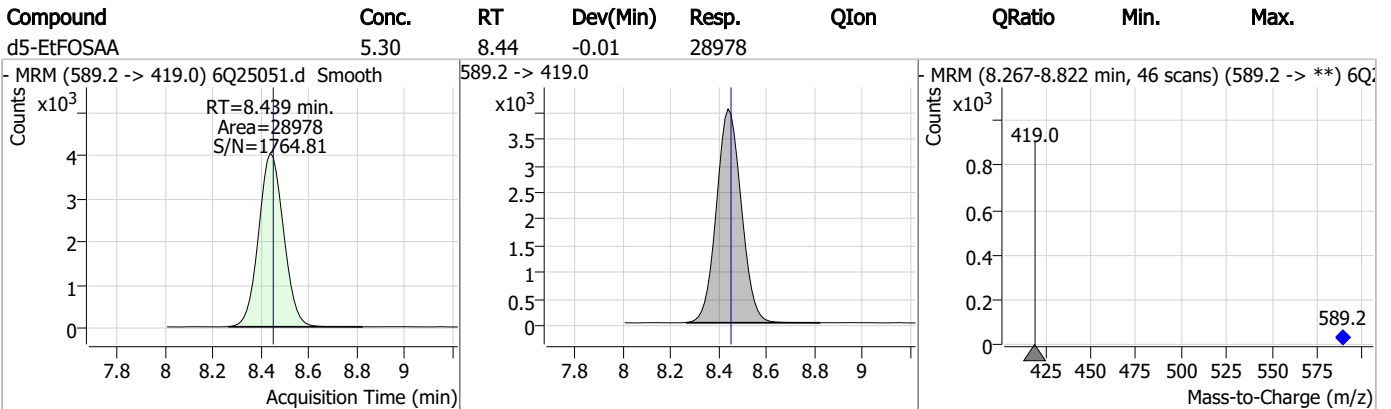
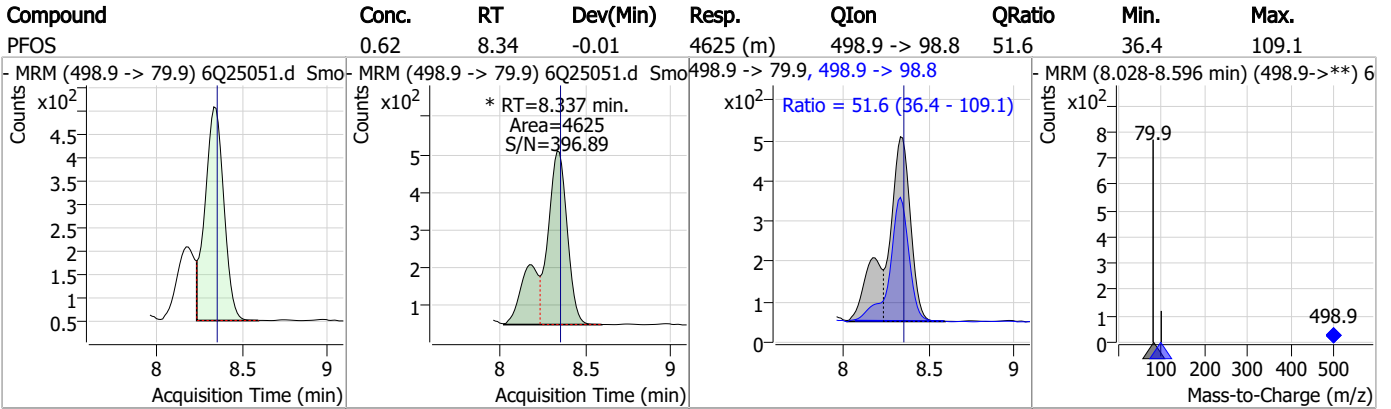
7.3.4
7

Perfluorinated Compounds by LC/MS/MS



7.3.4
7

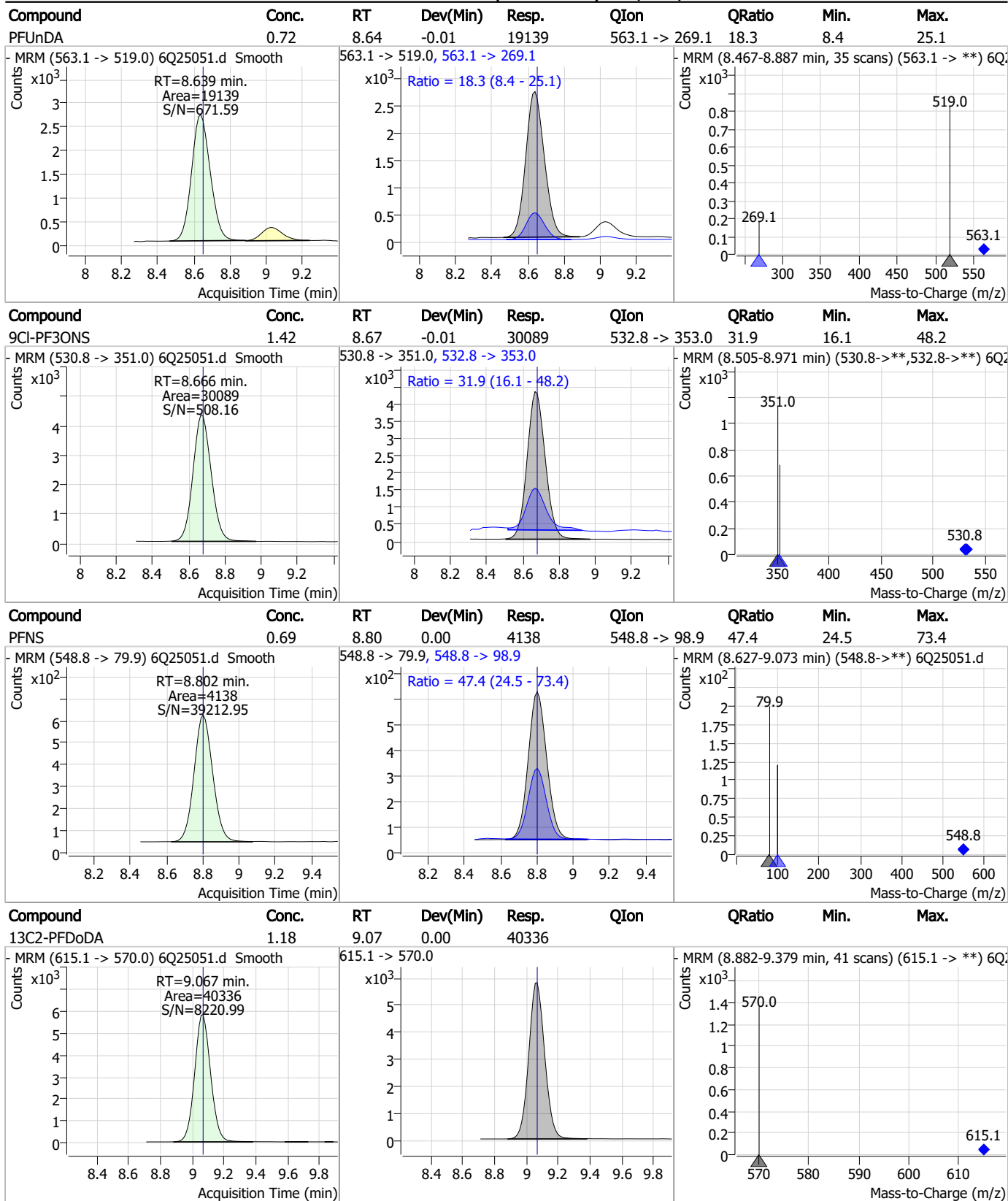
Perfluorinated Compounds by LC/MS/MS



7.3.4

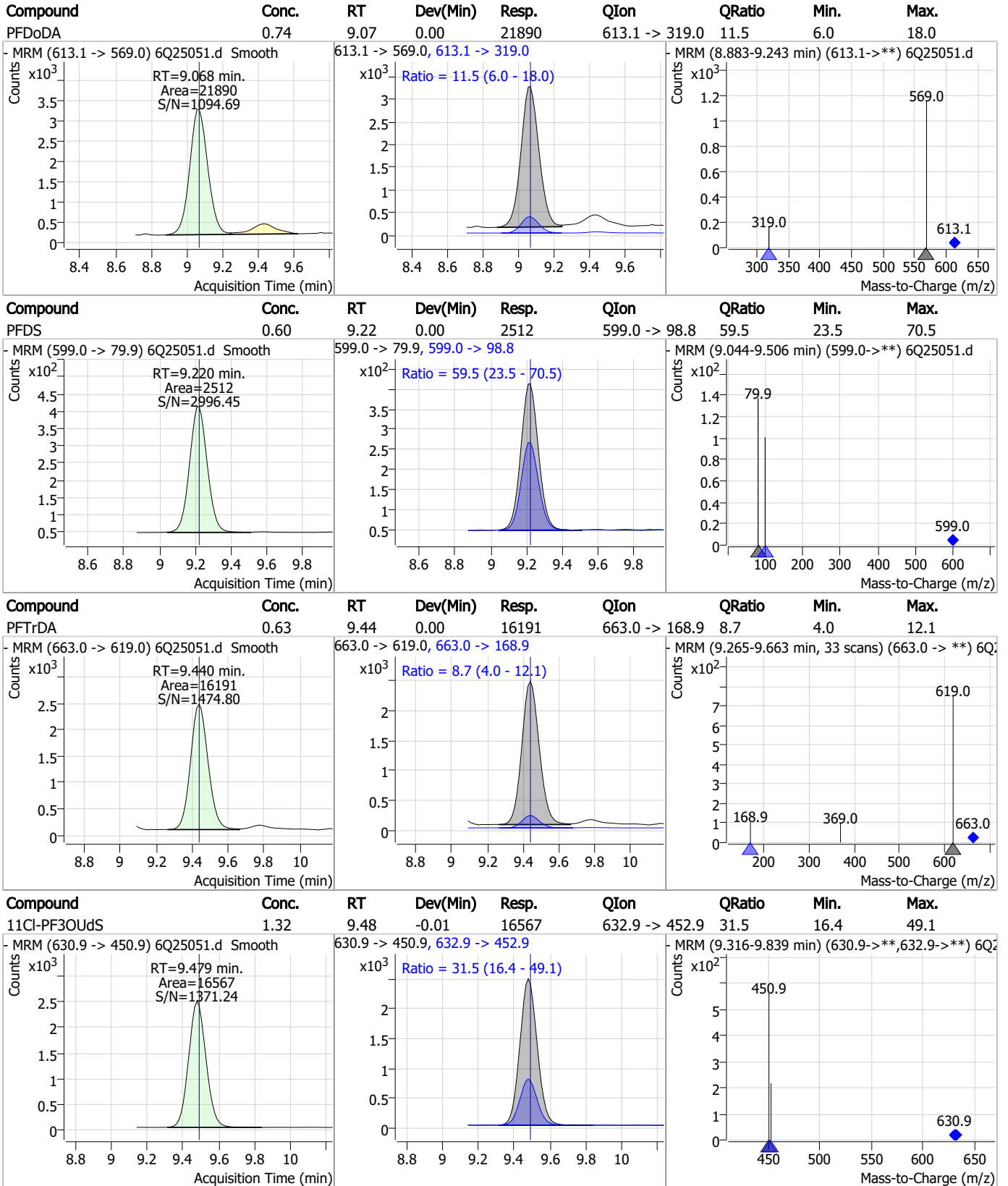
7

Perfluorinated Compounds by LC/MS/MS



7.3.4
7

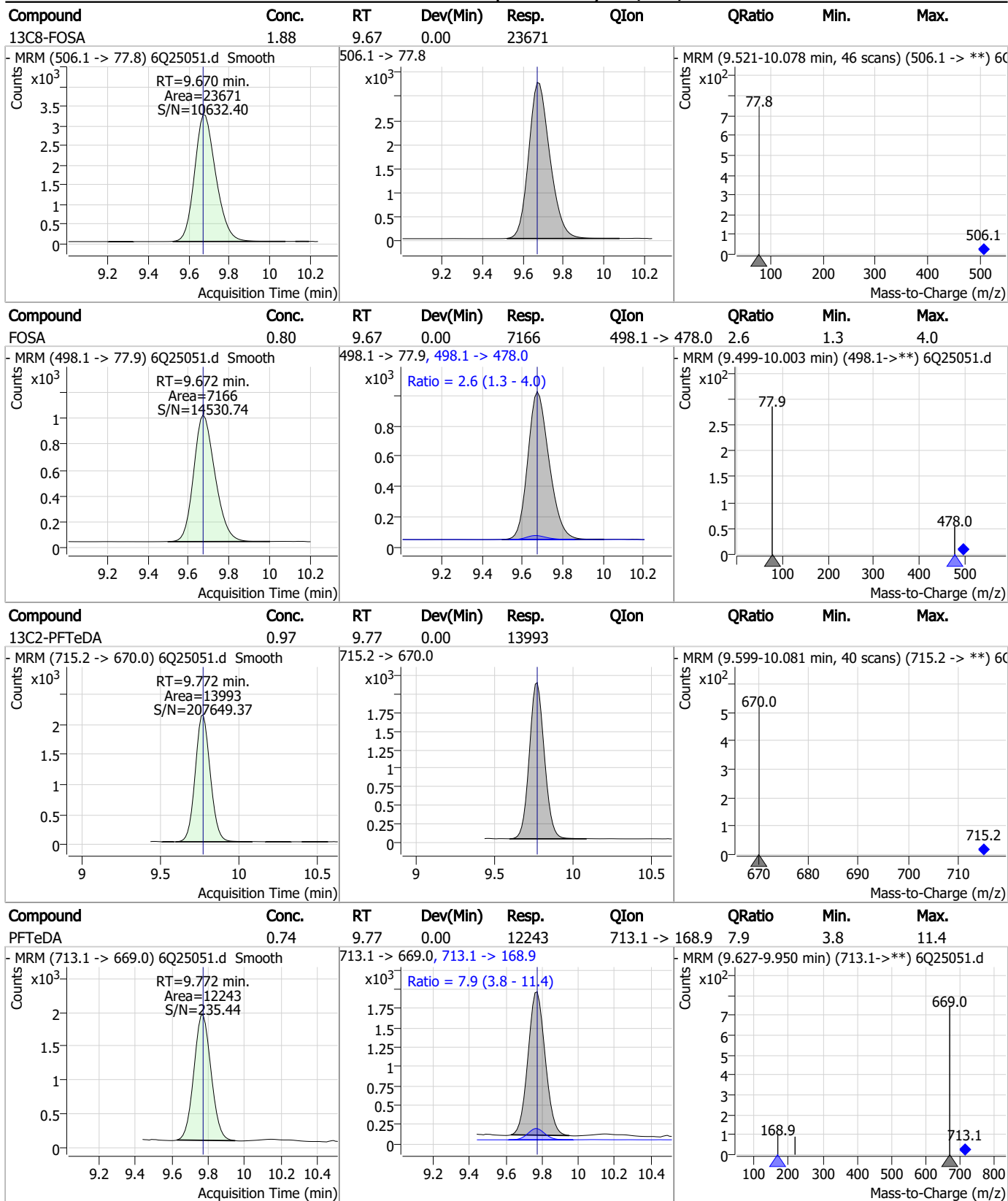
Perfluorinated Compounds by LC/MS/MS



7.3.4

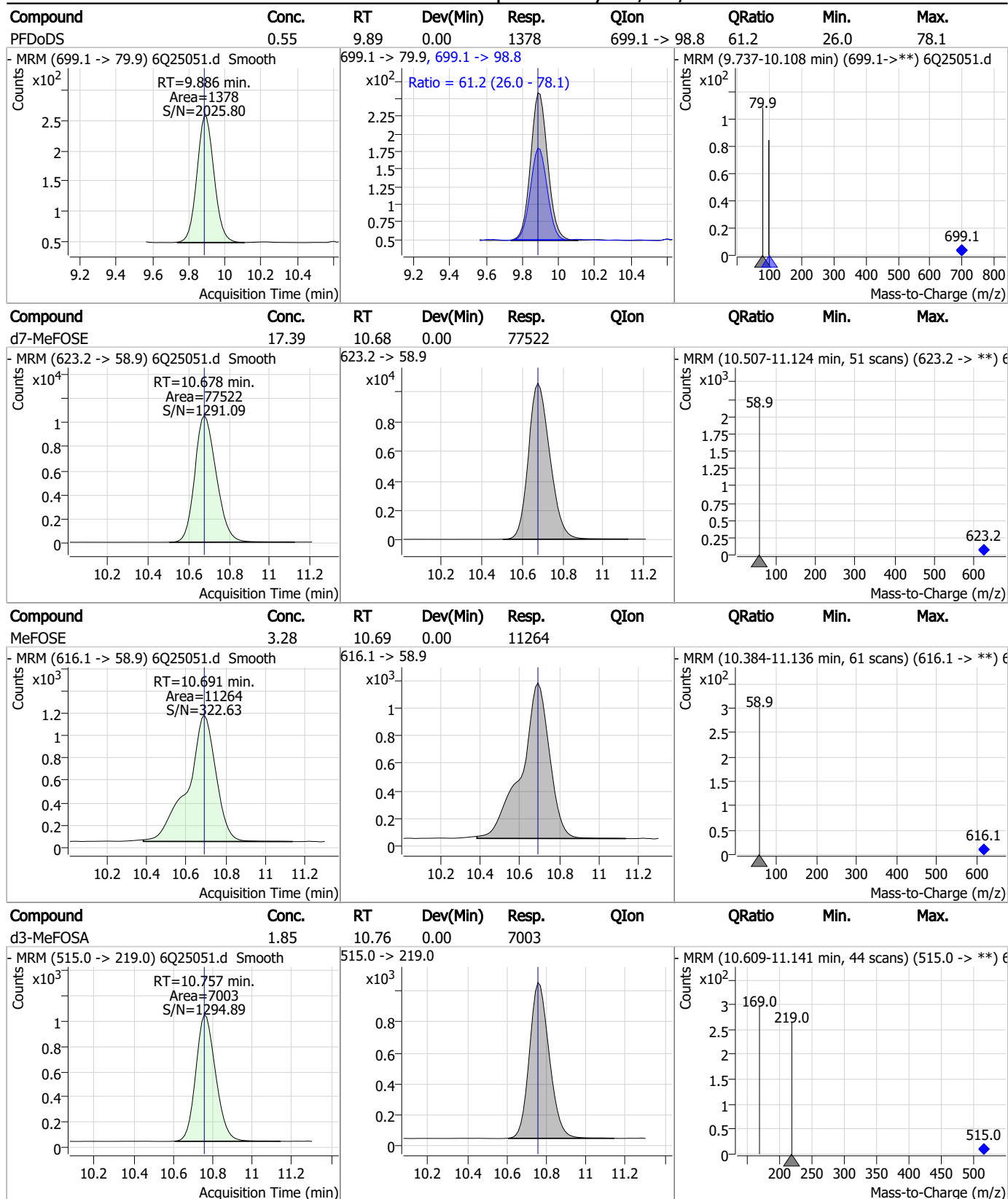
7

Perfluorinated Compounds by LC/MS/MS



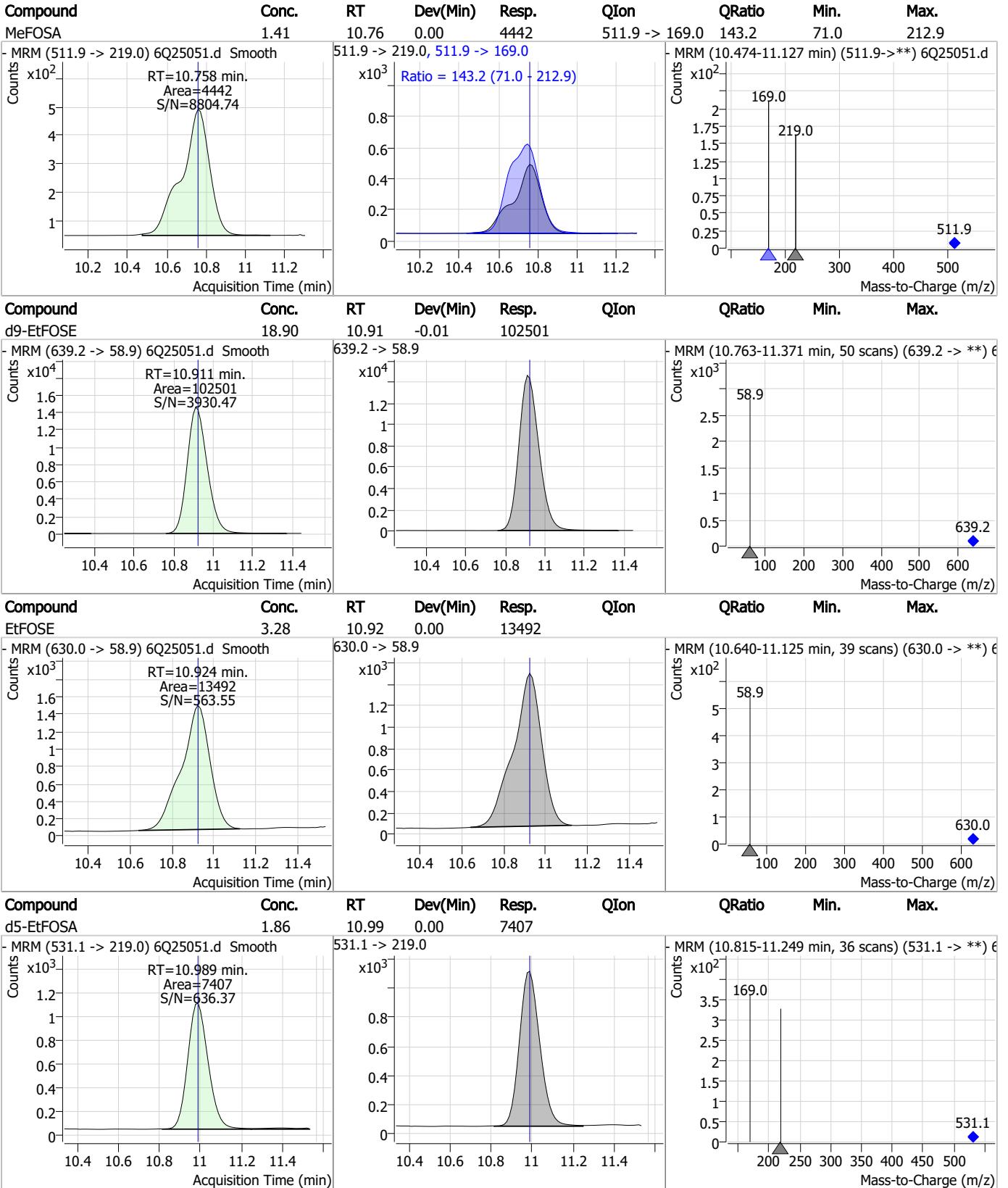
7.3.4
7

Perfluorinated Compounds by LC/MS/MS



7.3.4
7

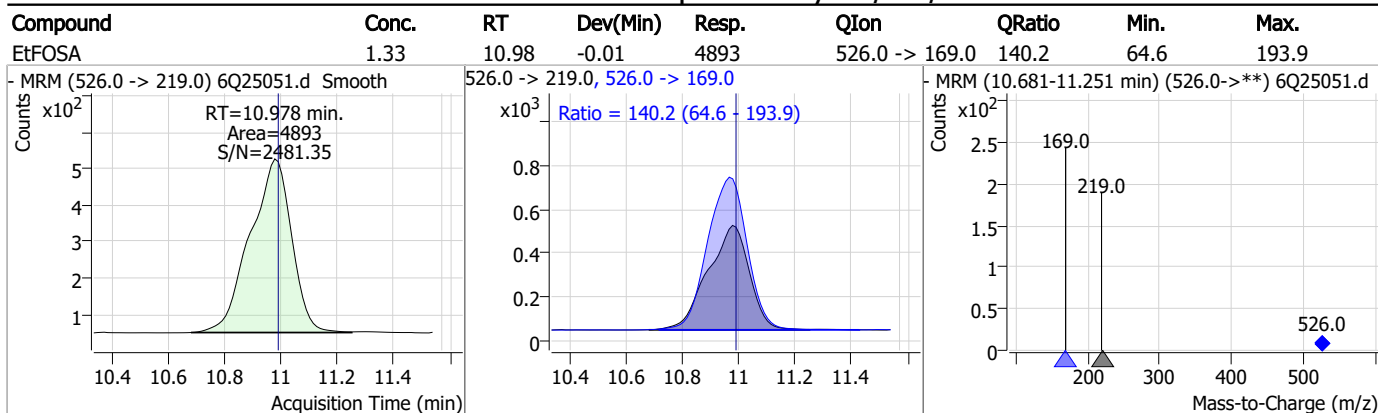
Perfluorinated Compounds by LC/MS/MS



7.3.4

7

Perfluorinated Compounds by LC/MS/MS



7.3.4
7

Manual Integration Approval Summary

Sample Number: OP99174-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q25051.D Analyst approved: 09/26/23 15:45 Martha Valls
Injection Time: 09/25/23 22:21 Supervisor approved: 09/26/23 19:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.44	Split peak

7.3.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24837.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/22/2023 2:48:25 AM
 Sample Name : OP99077-MS
 Vial : P2-B3
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99077,S6Q355,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	241144	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	38273	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	93346	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	74431	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	96397	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	39045	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	41419	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	46062	1.25 µg/L	0.000
M2-PFDoDA	9.079	615.1 -> 570.0	40156	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	14556	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	25495	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	29516	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	16192	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	13898	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	2894	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4327	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4215	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	26347	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	53661	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	20255	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	82696	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	117885	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9691	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9637	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	20946	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	102193	5.00 µg/L	0.012
18O2-PFHxS	7.313	403.0 -> 83.9	11570	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	113559	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	34562	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	44198	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	67107	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2894	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4327	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4215	4.85 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C2-PFDoDA	9.079	615.1 -> 570.0	40156	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.7%		
13C2-PFTeDA	9.784	715.2 -> 670.0	14556	1.04 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 83.2%		
13C3-PFBS	5.571	302.1 -> 79.9	29516	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C3-PFHxS	7.313	402.1 -> 79.9	16192	2.58 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 = 103.4%	
13C4-PFBA	3.010	216.8 -> 171.9	241144	9.67 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C4-PFHpA	6.569	367.1 -> 322.0	74431	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C5-PFHxA	5.641	318.0 -> 273.0	93346	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C5-PFPeA	4.434	268.3 -> 223.0	38273	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C6-PFDA	8.198	519.1 -> 474.1	41419	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C7-PFUnDA	8.651	570.0 -> 525.1	46062	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C8-FOSA	9.682	506.1 -> 77.8	25495	1.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.1%	
13C8-PFOA	7.198	421.1 -> 376.0	96397	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C8-PFOS	8.348	507.1 -> 79.9	13898	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.1%	
13C9-PFNA	7.717	472.1 -> 427.0	39045	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.5%	
d3-MeFOSAA	8.256	573.2 -> 419.0	26347	4.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.1%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	53661	10.78 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.8%	
d3-MeFOSA	10.757	515.0 -> 219.0	9637	1.94 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.4%	
d5-EtFOSAA	8.452	589.2 -> 419.0	20255	4.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.9%	
d7-MeFOSE	10.678	623.2 -> 58.9	82696	18.50 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.0%	
d9-EtFOSE	10.923	639.2 -> 58.9	117885	20.10 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.4%	
d5-EtFOSA	10.989	531.1 -> 219.0	9691	2.09 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.6%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	48173	10.28 µg/L	99
		327.1 -> 80.9	18620		
6:2FTS	6.974	427.1 -> 407.0	38910	9.73 µg/L	93
		427.1 -> 80.9	16367		
8:2FTS	7.987	527.1 -> 507.0	29450	11.00 µg/L	93
		527.1 -> 80.8	10660		
EtFOSAA	8.452	584.2 -> 419.1	9261	3.02 µg/L	100
		584.2 -> 526.0	5993		
FOSA	9.672	498.1 -> 77.9	23665	2.69 µg/L	100
		498.1 -> 478.0	660		
MeFOSAA	8.257	570.1 -> 419.0	15320	2.56 µg/L	100
		570.1 -> 483.0	3684		
PFBA	3.018	212.8 -> 168.9	91729	12.34 µg/L	100
PFBS	5.572	298.7 -> 79.9	39195	2.80 µg/L	99
		298.7 -> 98.8	14590		
PFDA	8.198	512.9 -> 469.0	96590	2.61 µg/L	99
		512.9 -> 219.0	15430		
PFDODA	9.080	613.1 -> 569.0	76571	2.62 µg/L	99
		613.1 -> 319.0	8974		
PFDS	9.233	599.0 -> 79.9	9203	2.26 µg/L	91

7.4.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	4965	3.25	µg/L	m
		363.1 -> 319.0	123071			
PFHpS	7.856	363.1 -> 169.0	18682	2.69	µg/L	100
		449.0 -> 79.9	18275			
PFHxA	5.644	449.0 -> 98.9	8583	3.23	µg/L	100
		313.0 -> 269.0	104866			
PFHxS	7.314	313.0 -> 118.9	4924	2.82	µg/L	m
		398.7 -> 79.9	29520			
PFNA	7.717	398.7 -> 98.9	14453	2.77	µg/L	m
		463.0 -> 419.0	69608			
PFNS	8.814	463.0 -> 219.0	17860	2.51	µg/L	95
		548.8 -> 79.9	16935			
PFOA	7.200	548.8 -> 98.9	9019	3.29	µg/L	m
		413.0 -> 369.0	146455			
PFOS	8.350	413.0 -> 169.0	26017	4.32	µg/L	m
		498.9 -> 79.9	33907			
PFPeA	4.436	498.9 -> 98.8	15435	6.88	µg/L	100
		263.0 -> 219.0	129769			
PFPeS	6.620	349.1 -> 79.9	22325	2.57	µg/L	m
		349.1 -> 98.9	10023			
PFTeDA	9.785	713.1 -> 669.0	54511	2.80	µg/L	97
		713.1 -> 168.9	3865			
PFTrDA	9.452	663.0 -> 619.0	76137	2.44	µg/L	99
		663.0 -> 168.9	6105			
PFUnDA	8.652	563.1 -> 519.0	63933	2.39	µg/L	96
		563.1 -> 269.1	10367			
11CI-PF3OUdS	9.491	630.9 -> 450.9	74559	4.28	µg/L	95
		632.9 -> 452.9	24953			
9CI-PF3ONS	8.690	530.8 -> 351.0	149063	4.85	µg/L	97
		532.8 -> 353.0	44834			
ADONA	6.817	376.9 -> 250.9	402437	5.08	µg/L	97
		376.9 -> 84.8	100590			
HFPO-DA	6.020	284.9 -> 168.9	26077	5.12	µg/L	98
		284.9 -> 184.9	3488			
3:3FTCA	3.902	241.0 -> 177.0	13129	10.13	µg/L	100
		241.0 -> 117.0	1237			
5:3FTCA	6.296	341.0 -> 237.1	361505	63.48	µg/L	92
		341.0 -> 217.0	236534			
7:3FTCA	7.682	441.0 -> 316.9	222931	67.11	µg/L	98
		441.0 -> 336.9	497312			
EtFOSA	10.990	526.0 -> 219.0	25789	5.06	µg/L	99
		526.0 -> 169.0	32732			
EtFOSE	10.924	630.0 -> 58.9	72643	13.15	µg/L	100
		511.9 -> 219.0	23663			
MeFOSA	10.758	511.9 -> 169.0	32722	5.46	µg/L	96
		616.1 -> 58.9	48602			
MeFOSE	10.691	699.1 -> 79.9	4476	13.69	µg/L	100
		699.1 -> 98.8	2629			
PFDoDS	9.898	295.0 -> 201.0	19719	2.23	µg/L	97
		295.0 -> 84.9	4703			
NFDHA	5.524	279.0 -> 85.1	75101	5.14	µg/L	97
		229.0 -> 84.9	54376			
PFMBA	4.850	314.8 -> 134.9	194281	5.63	µg/L	100
		314.8 -> 82.9	7384			
PFMPA	3.575			5.50	µg/L	100
PFEESA	6.112			4.55	µg/L	99

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

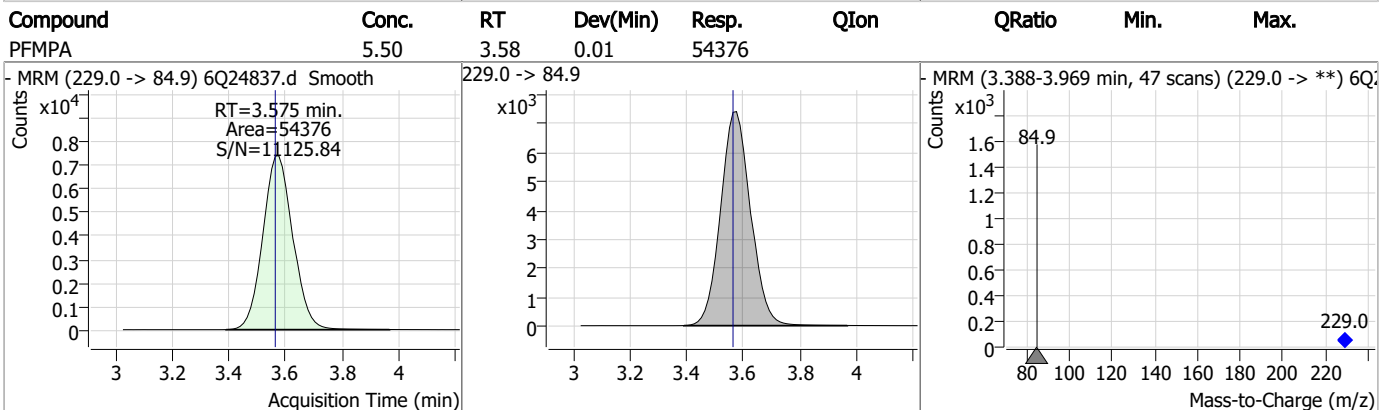
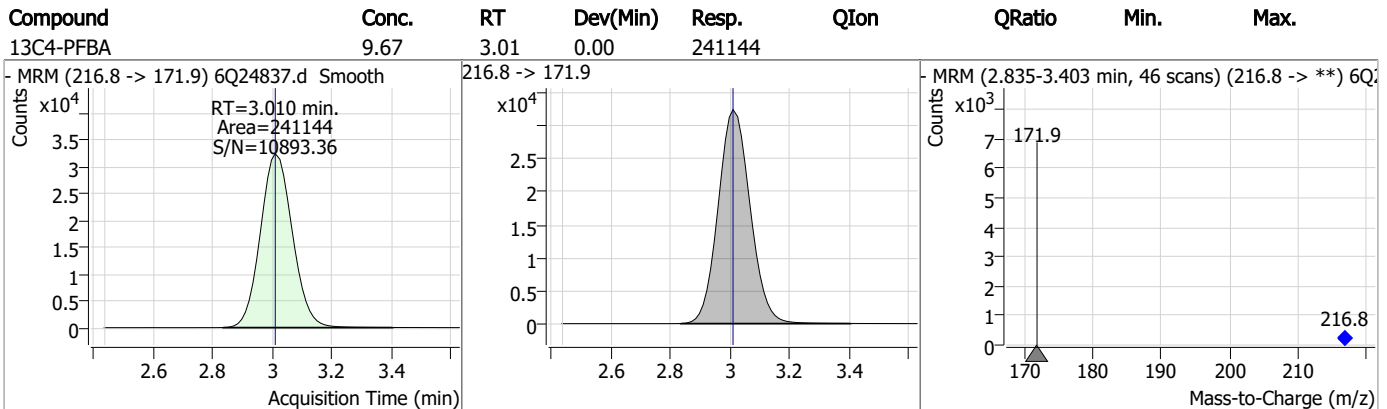
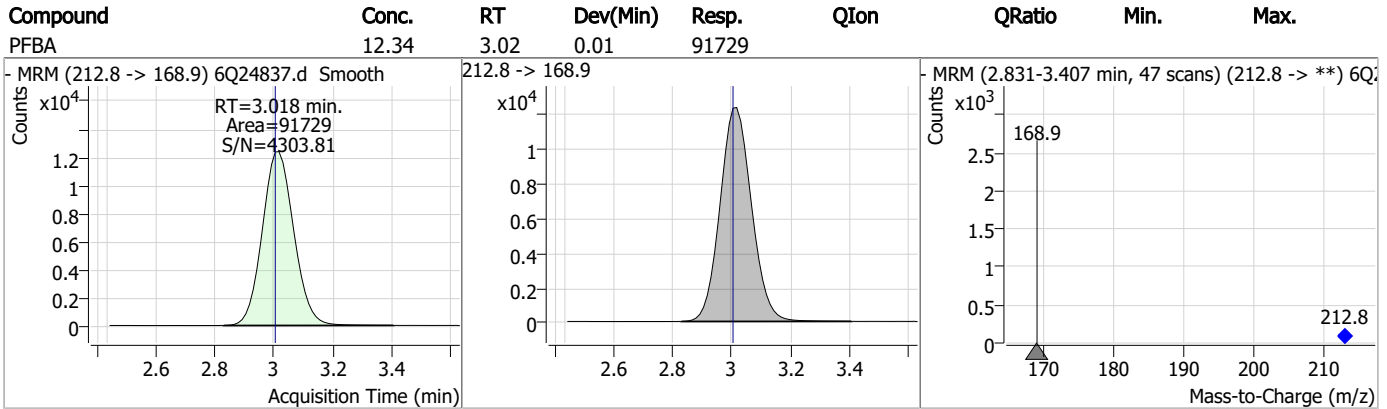
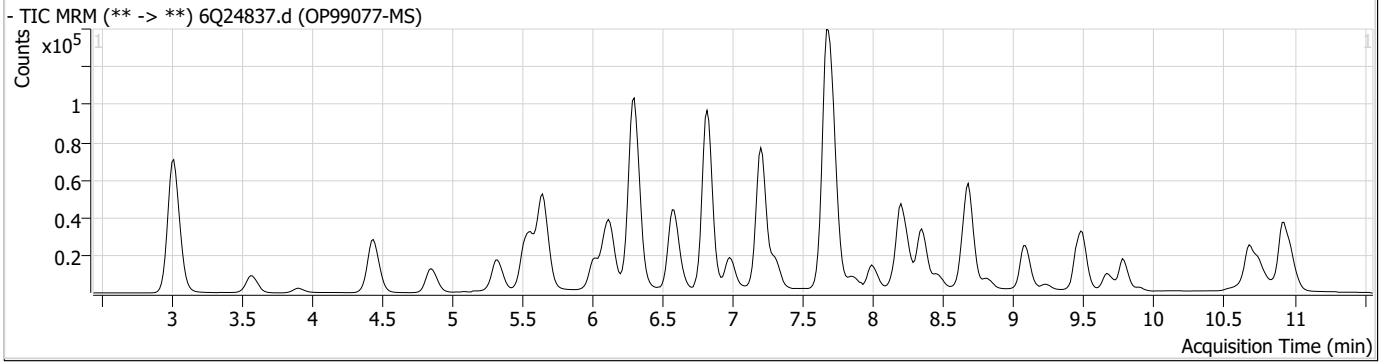
Perfluorinated Compounds by LC/MS/MS

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

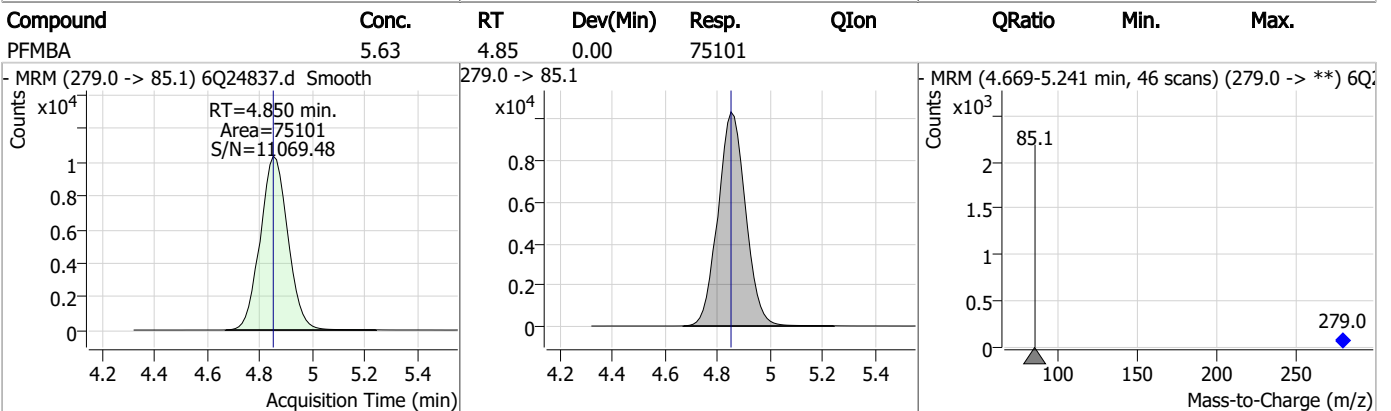
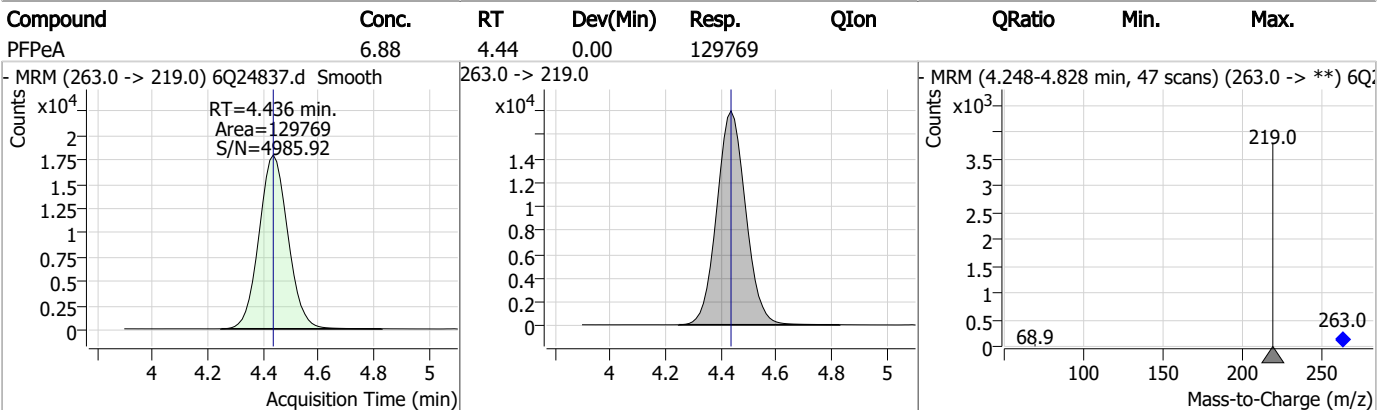
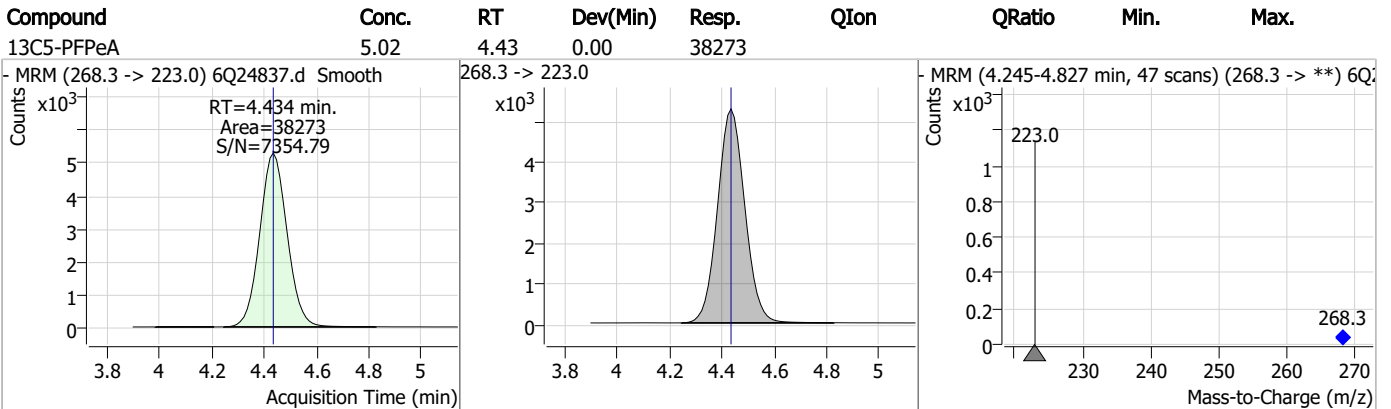
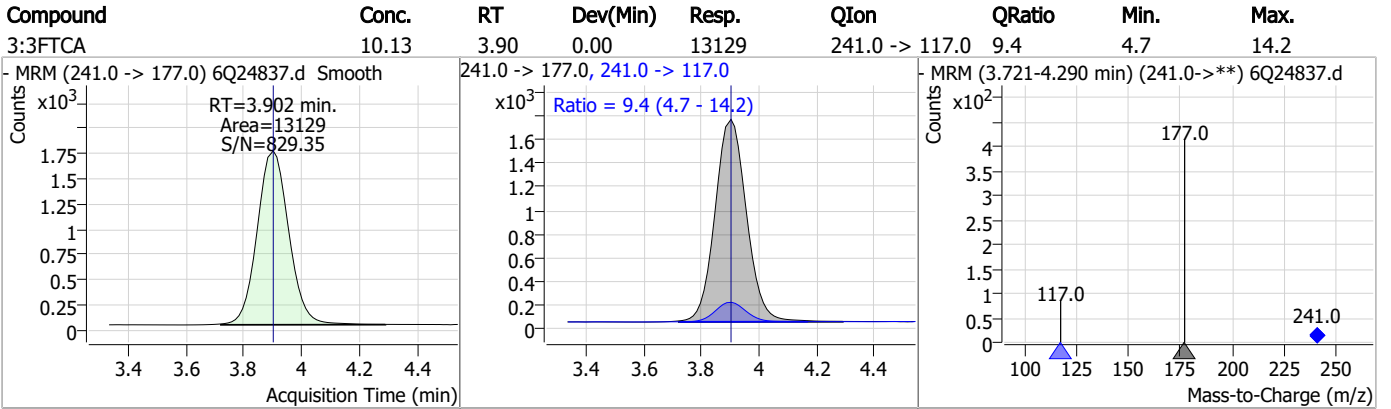
7.4.1

7

Perfluorinated Compounds by LC/MS/MS



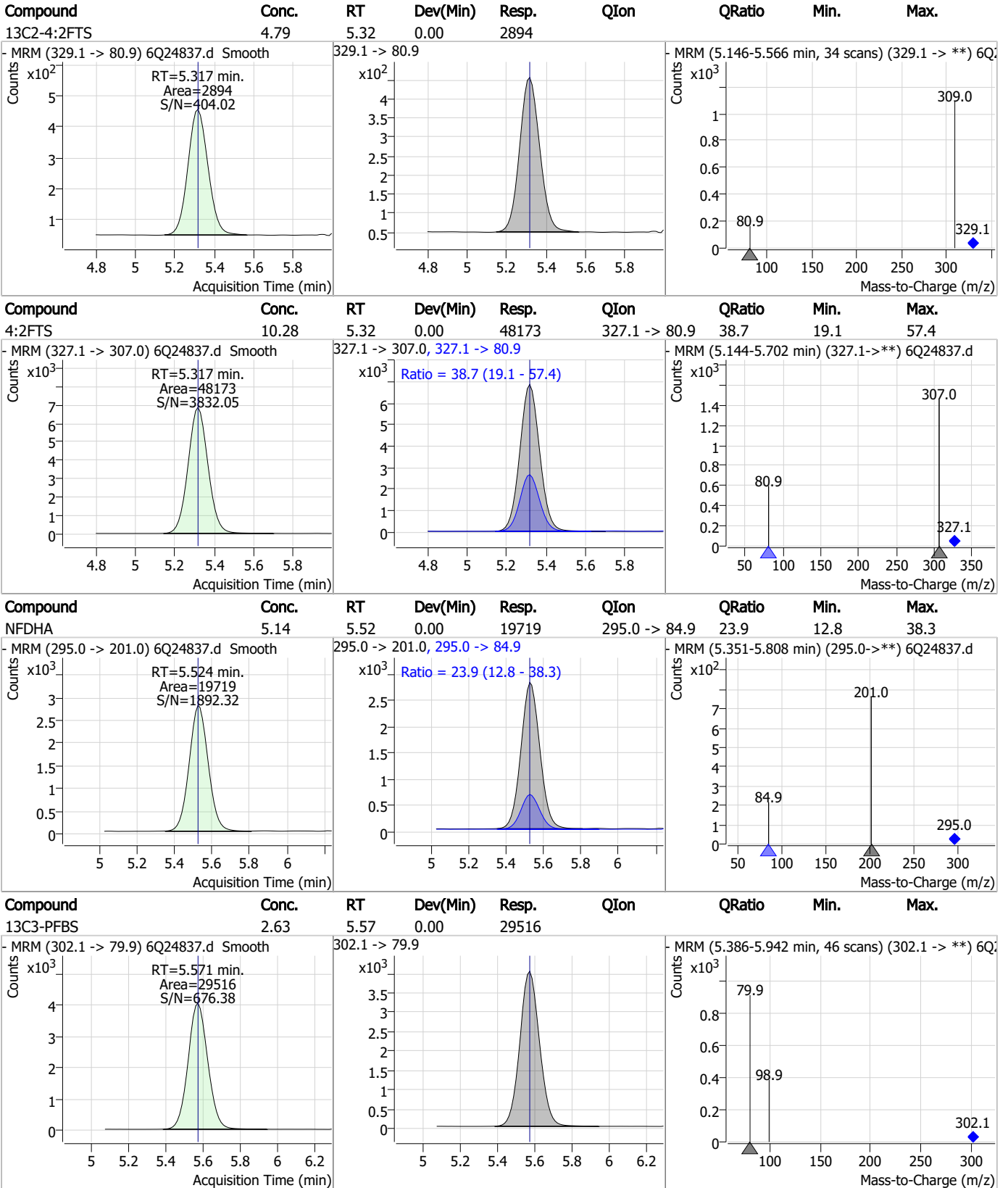
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Perfluorinated Compounds by LC/MS/MS



7.4.1

7

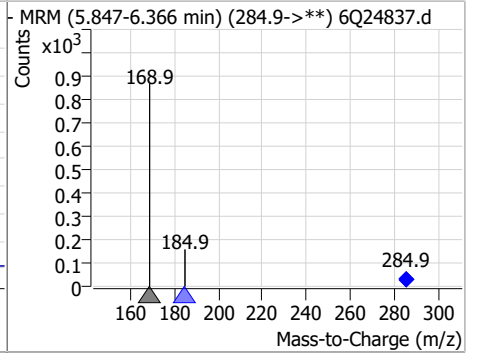
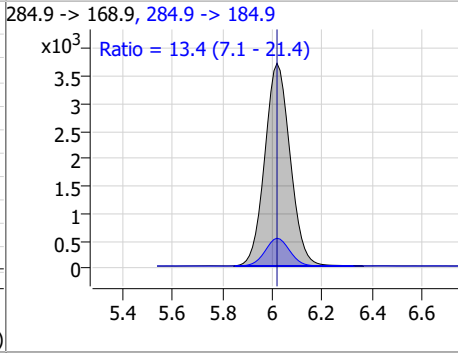
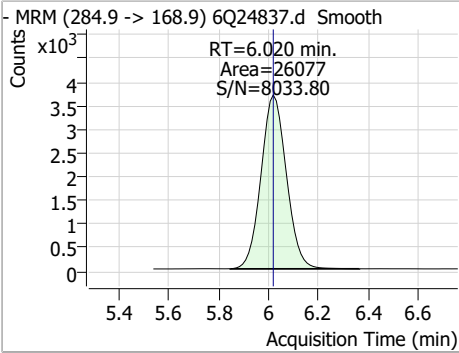
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.80	5.57	0.00	39195	298.7 -> 98.8	37.2	18.2	54.6
13C5-PFHxA	2.64	5.64	0.00	93346				
PFHxA	3.23	5.64	0.00	104866	313.0 -> 118.9	4.7	2.3	7.0
13C3-HFPO-DA	10.78	6.02	0.00	53661				

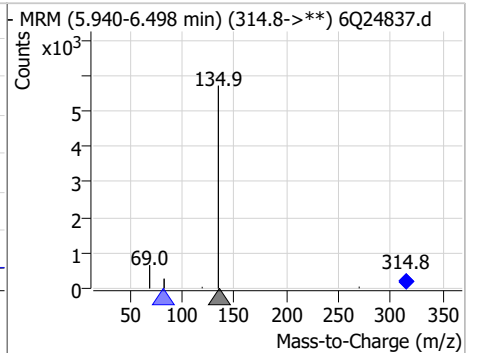
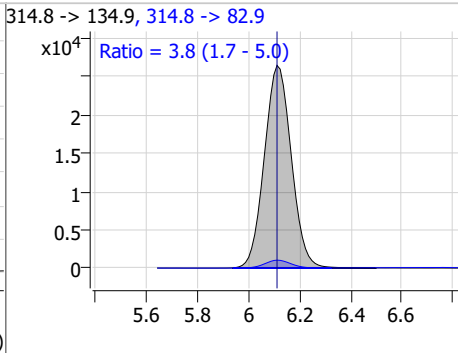
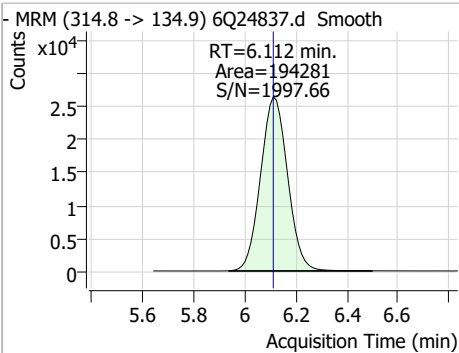
7.4.1
7

Perfluorinated Compounds by LC/MS/MS

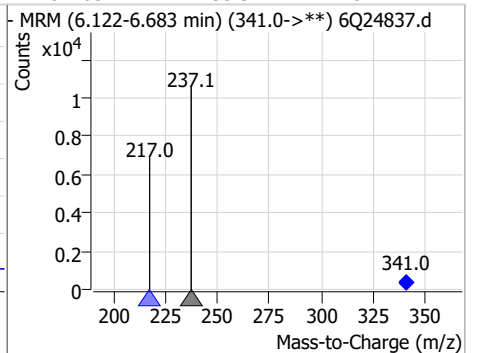
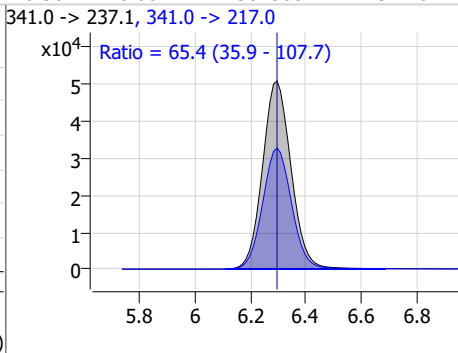
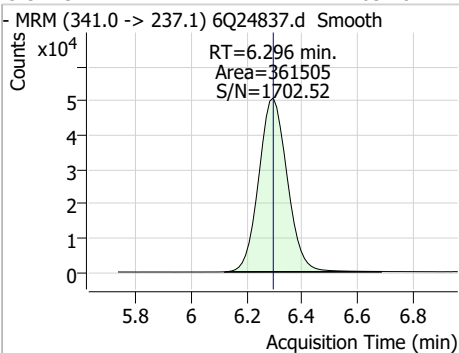
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.12	6.02	0.00	26077	284.9 -> 184.9	13.4	7.1	21.4



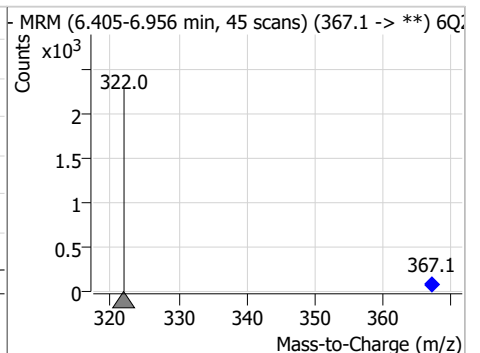
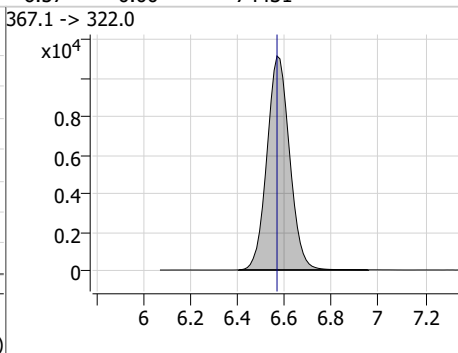
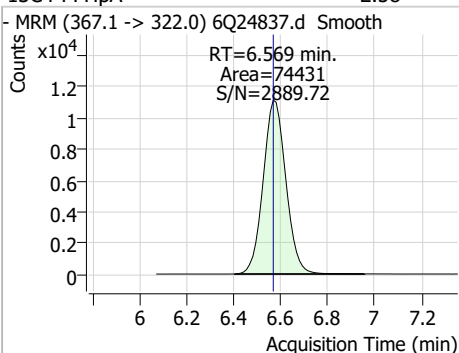
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.55	6.11	0.00	194281	314.8 -> 82.9	3.8	1.7	5.0



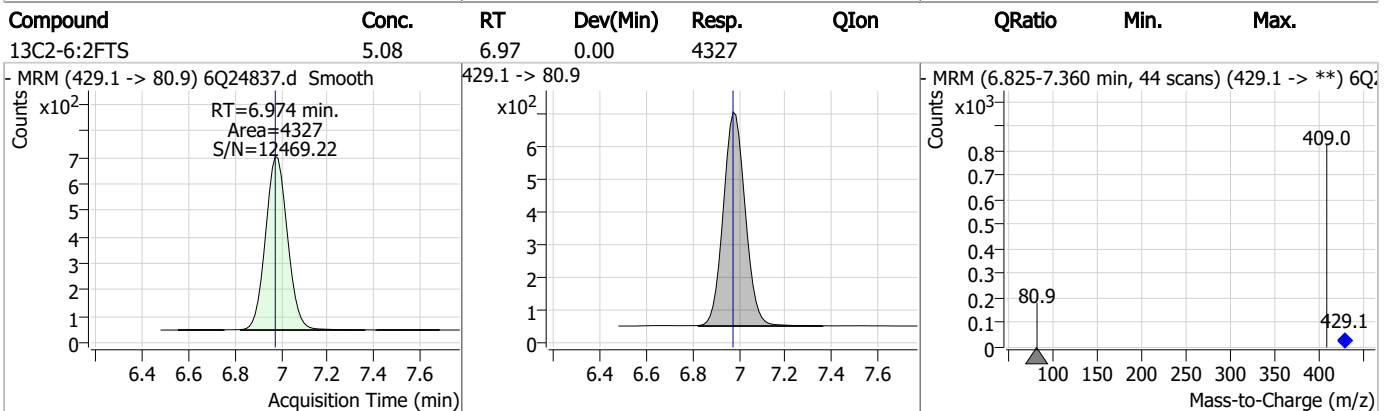
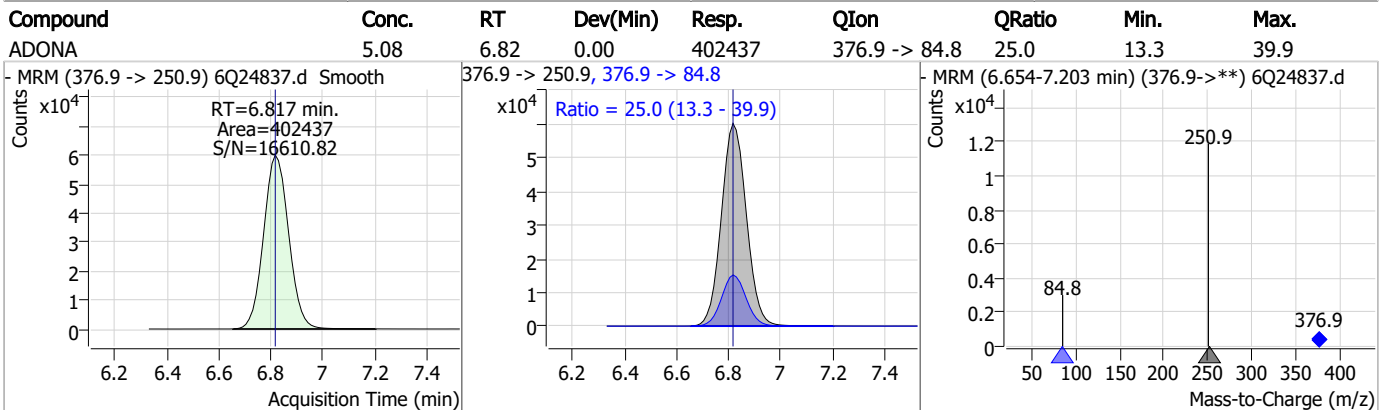
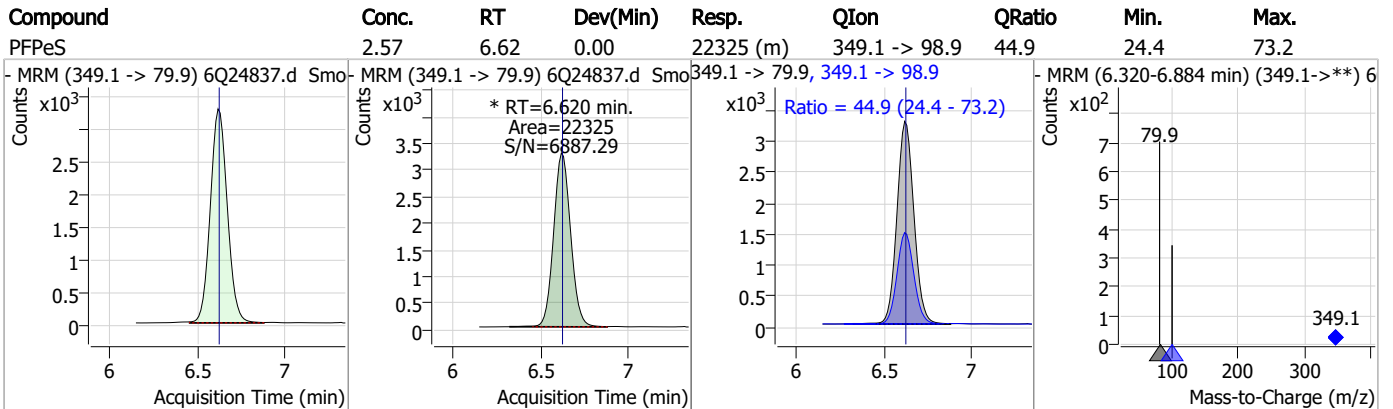
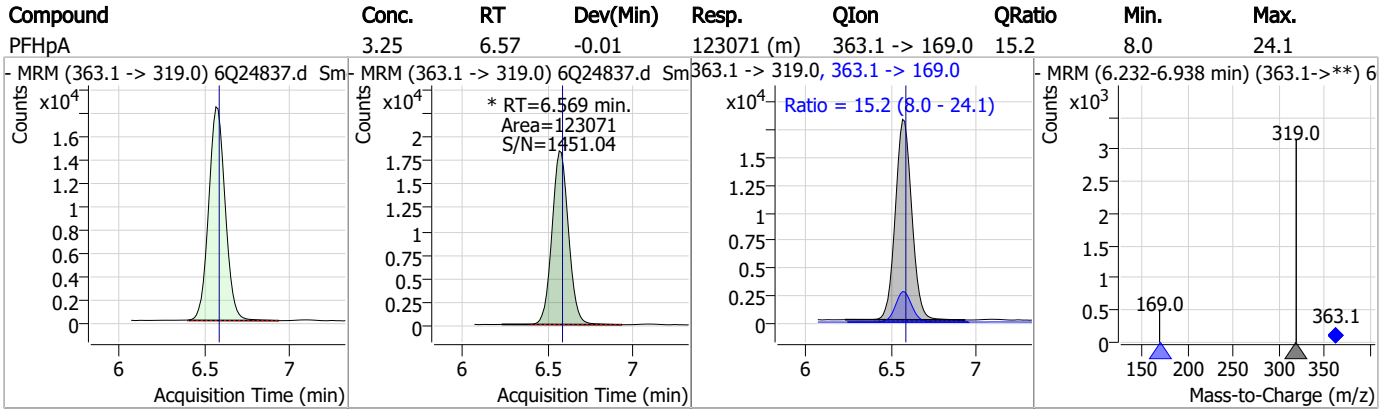
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	63.48	6.30	0.00	361505	341.0 -> 217.0	65.4	35.9	107.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.58	6.57	0.00	74431	367.1 -> 322.0			



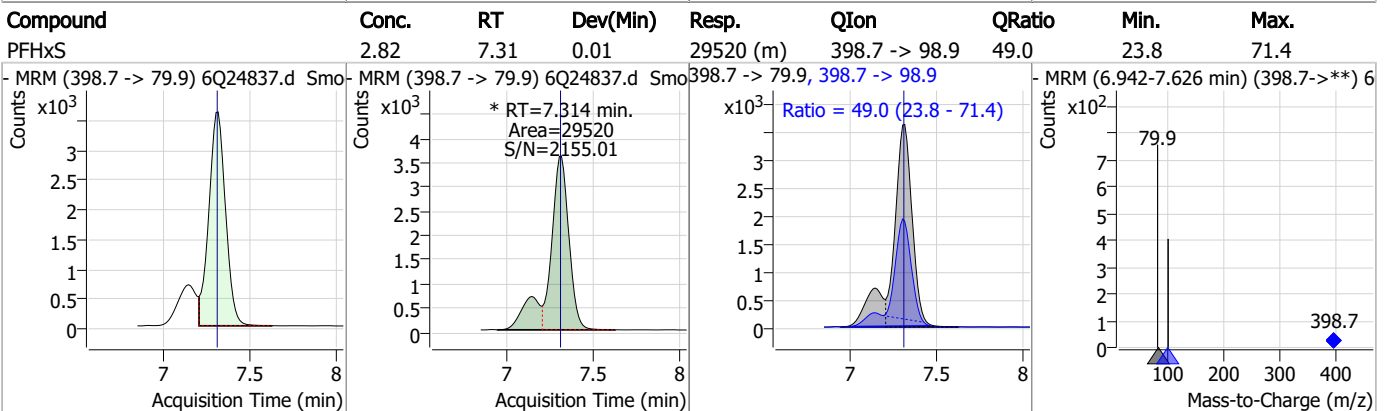
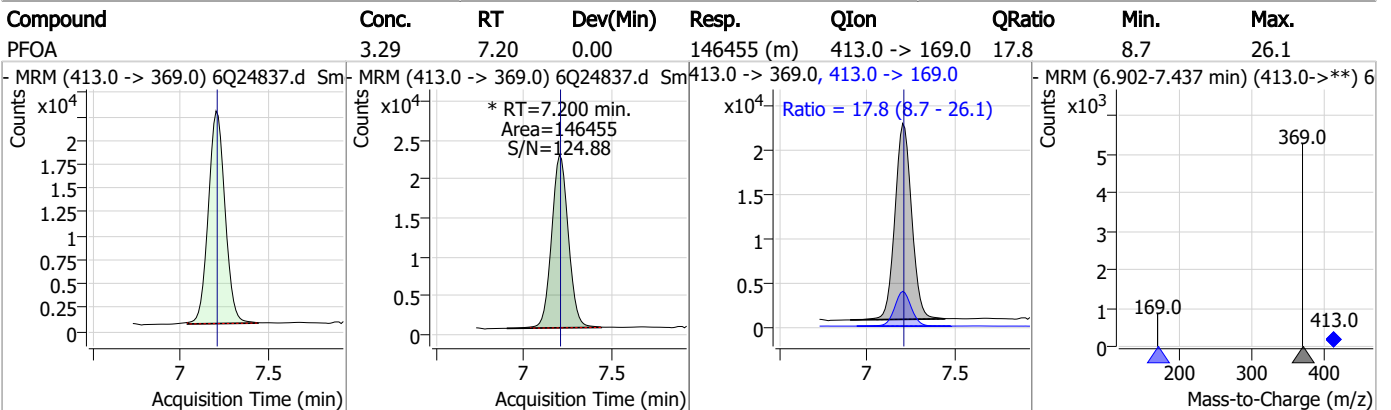
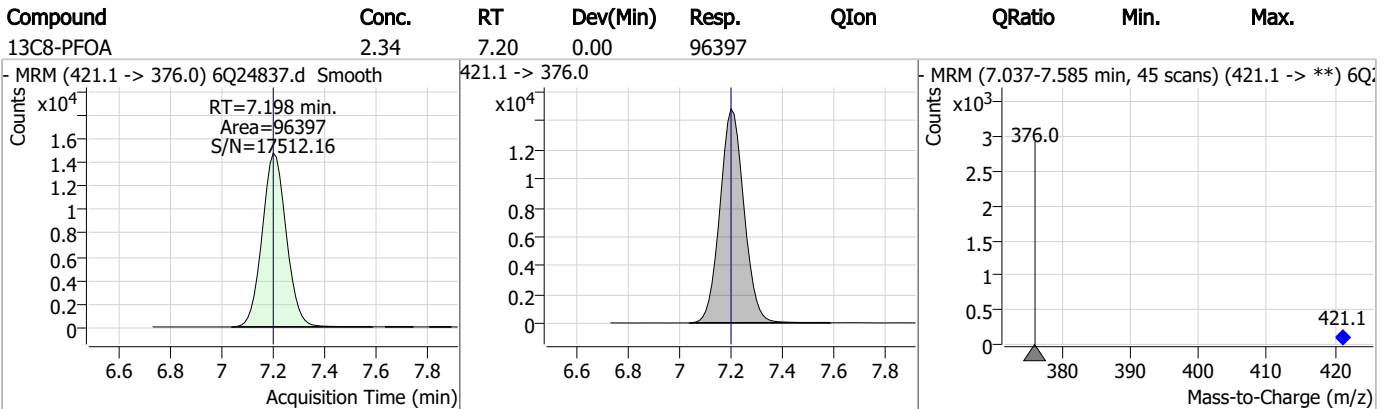
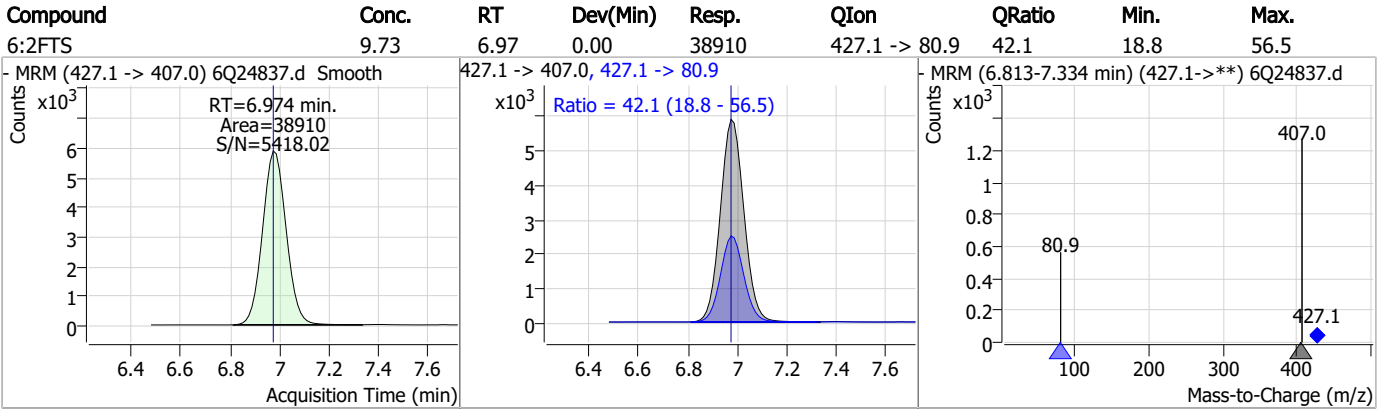
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Perfluorinated Compounds by LC/MS/MS

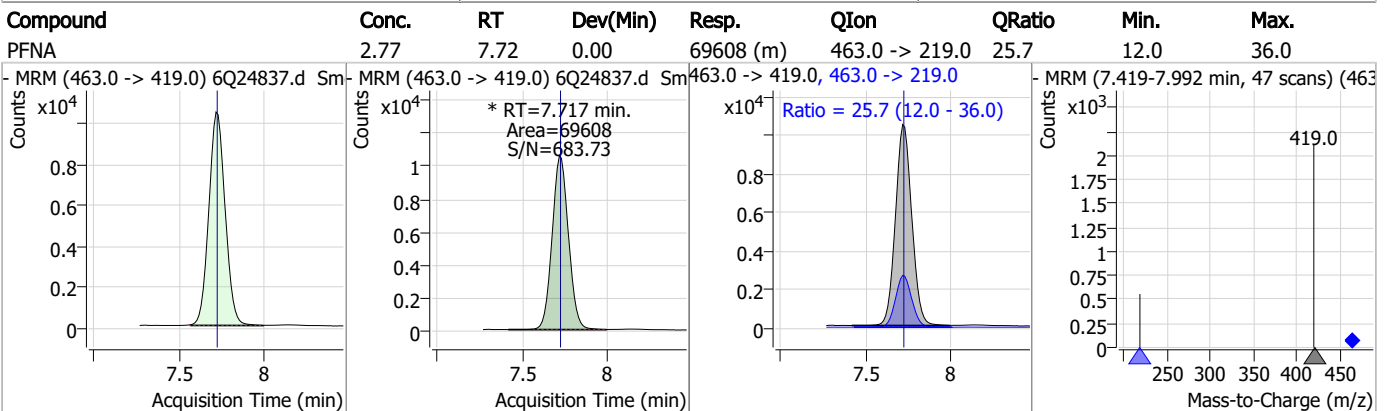
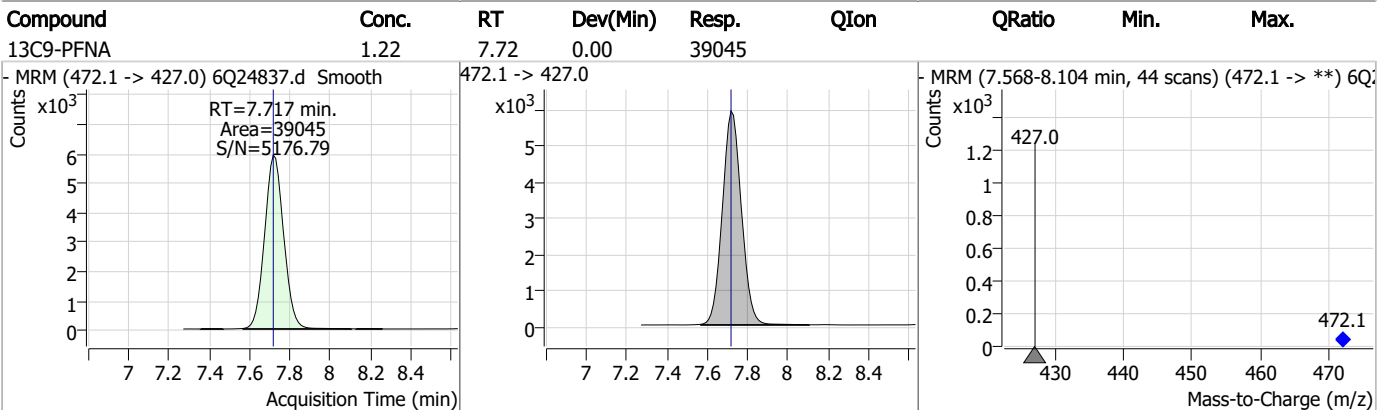
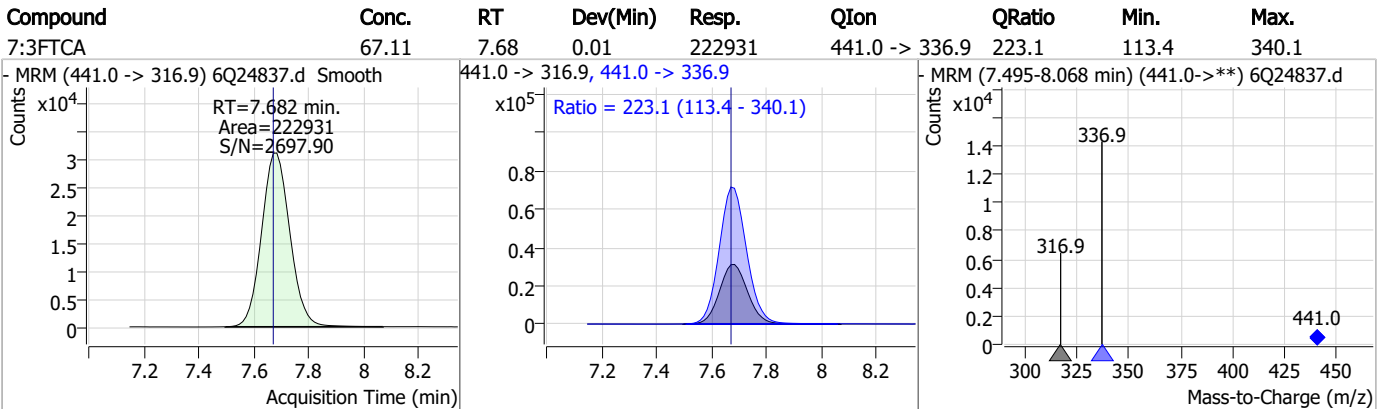
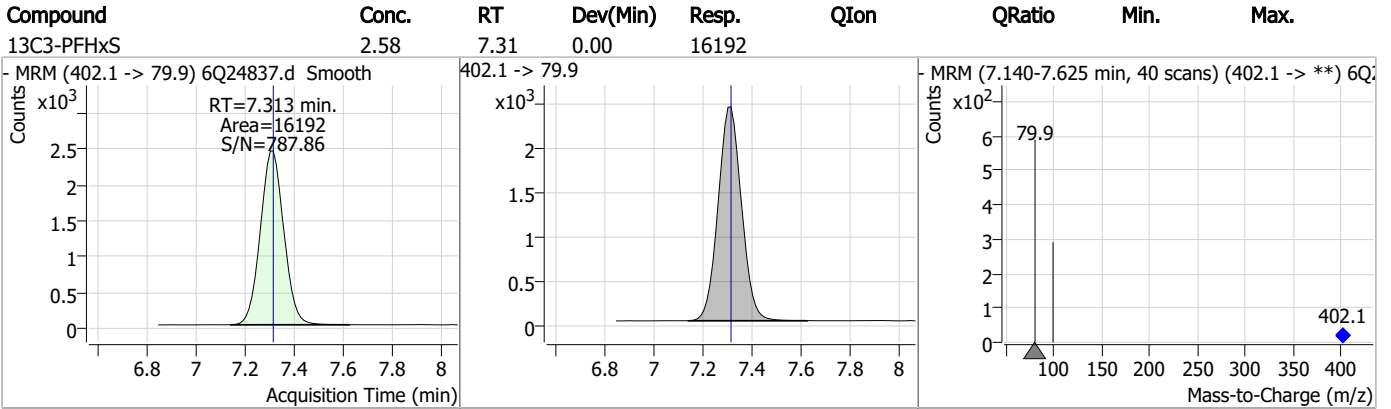


7.4.1

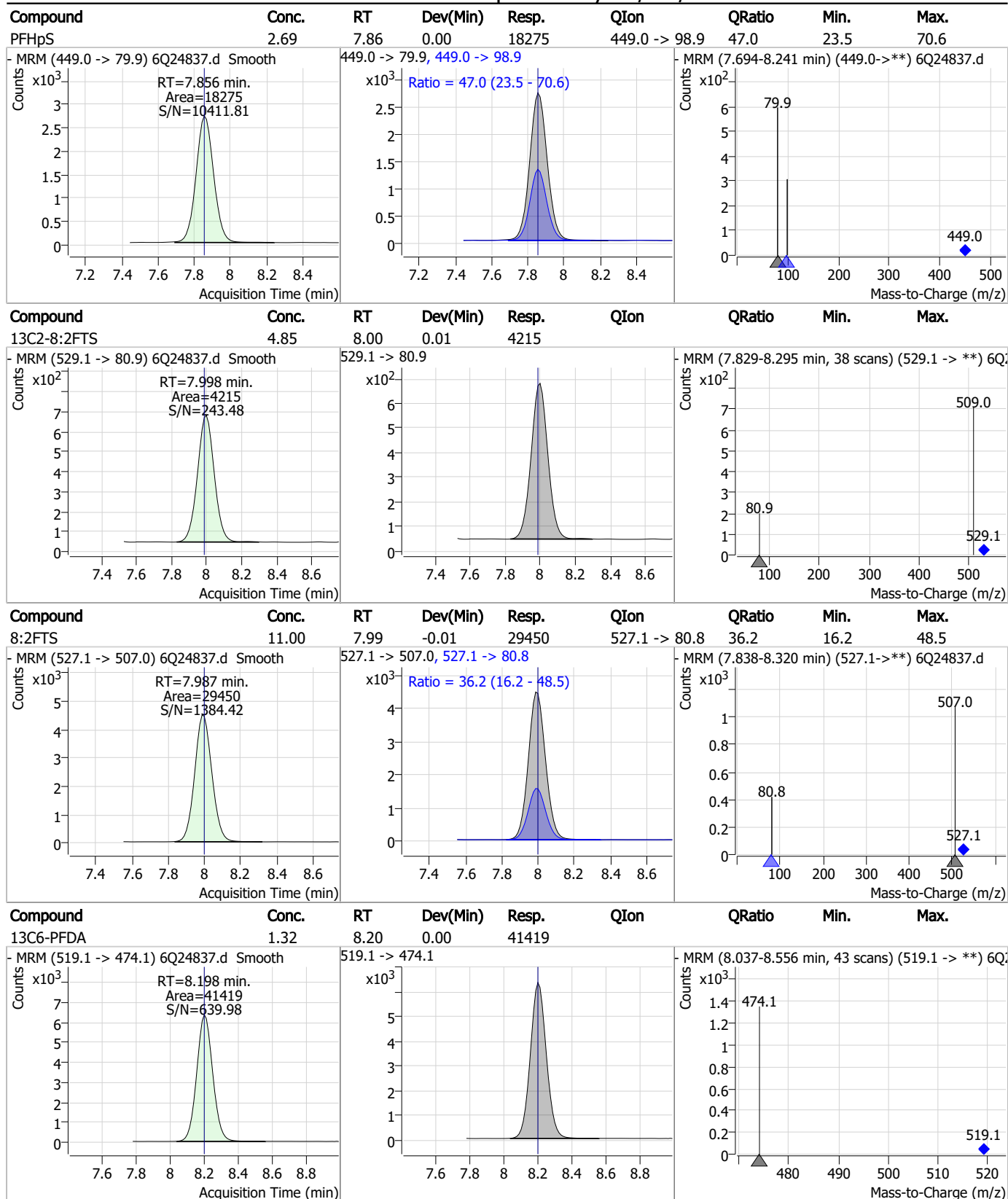
7



Perfluorinated Compounds by LC/MS/MS

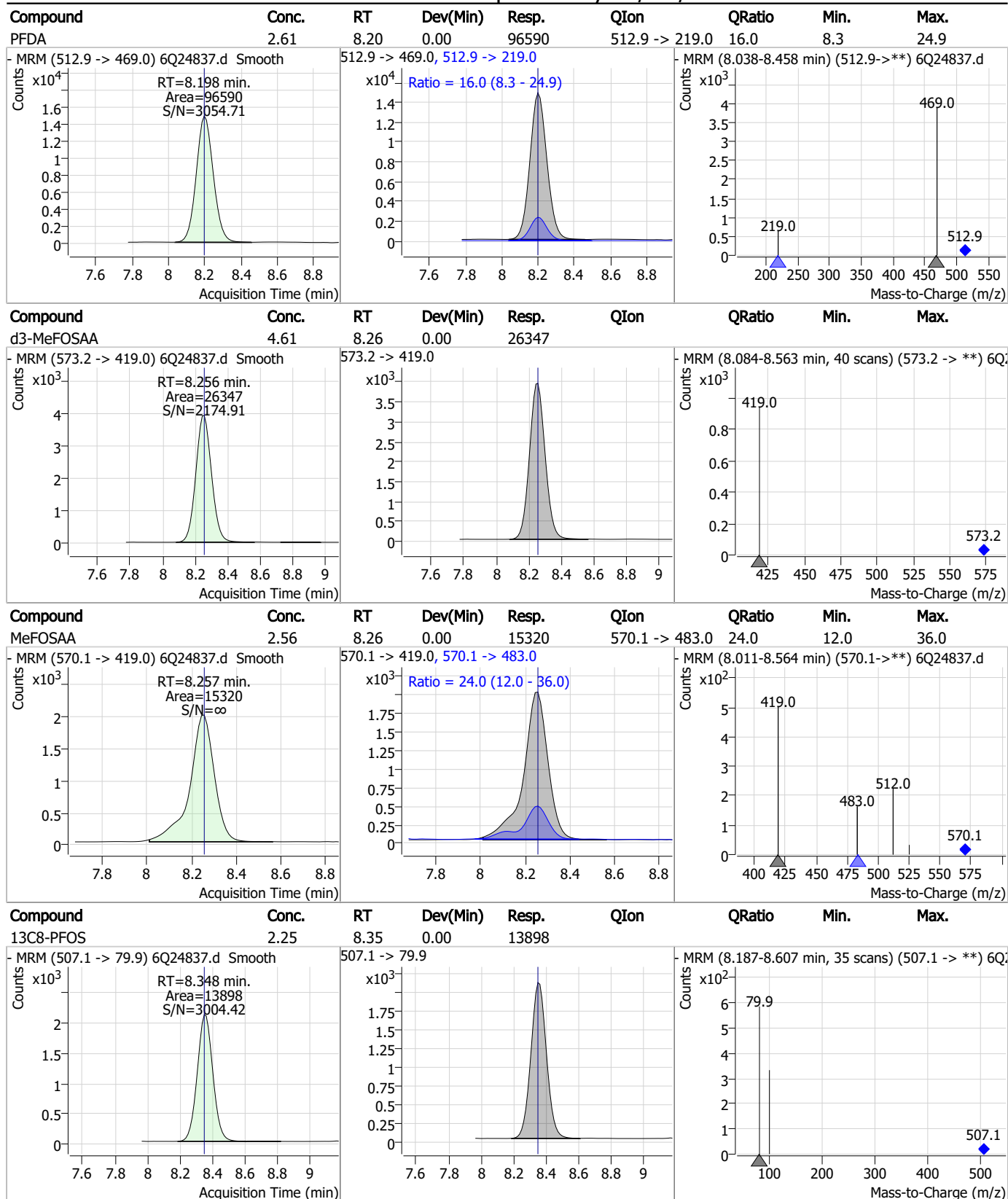


Perfluorinated Compounds by LC/MS/MS



7.4.1
7

Perfluorinated Compounds by LC/MS/MS

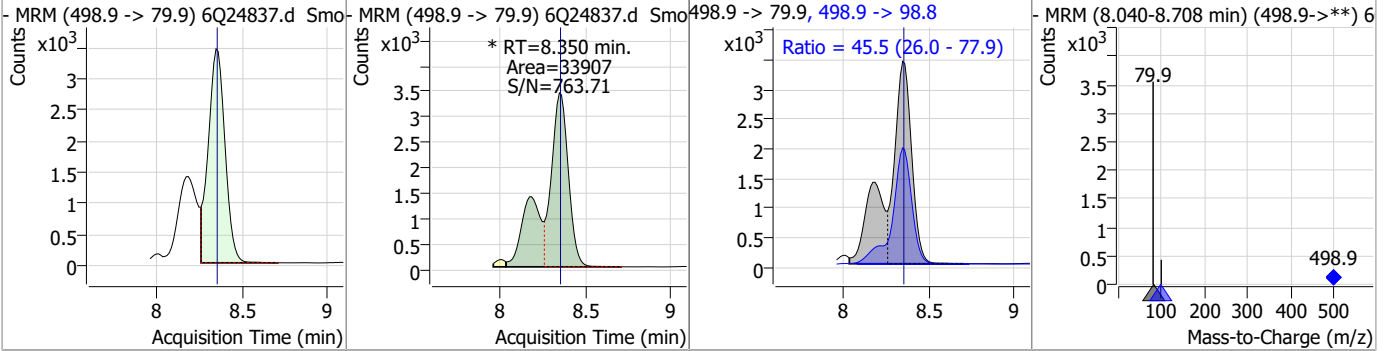


7.4.1

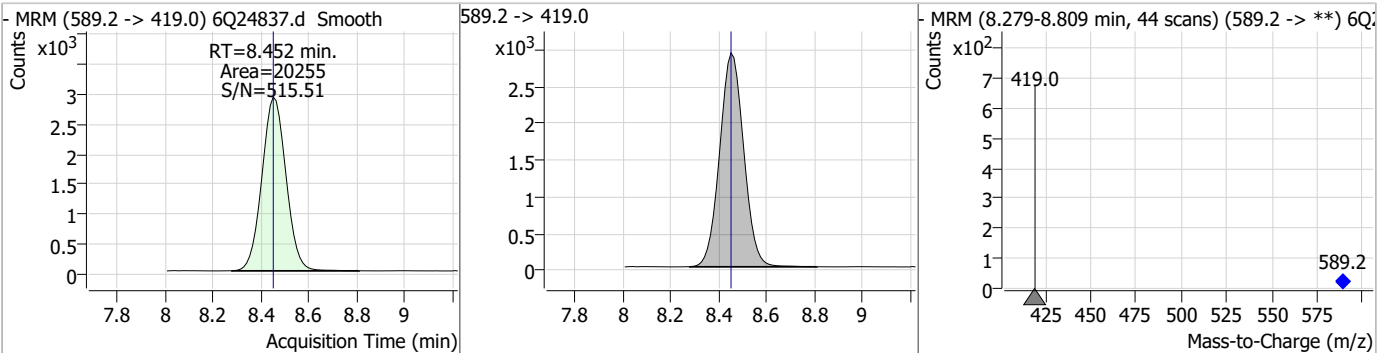
7

Perfluorinated Compounds by LC/MS/MS

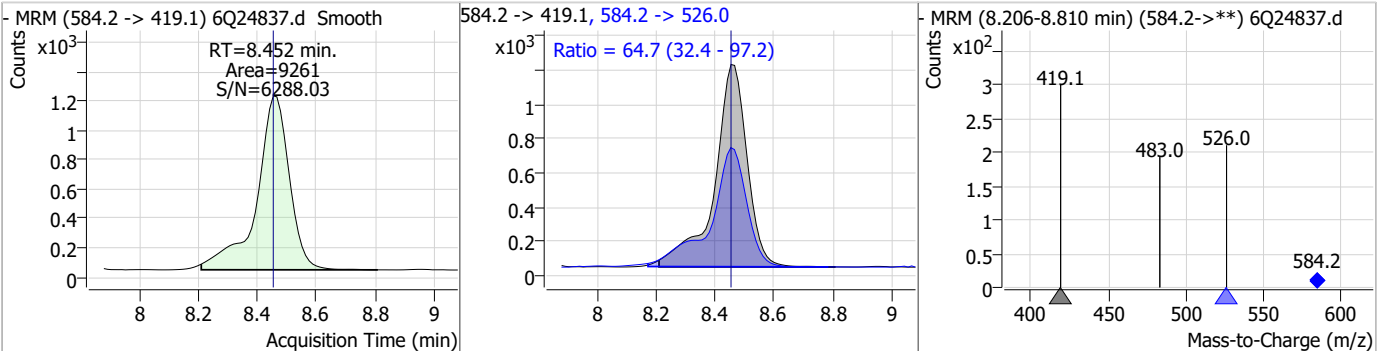
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.32	8.35	0.00	33907 (m)	498.9 -> 98.8	45.5	26.0	77.9



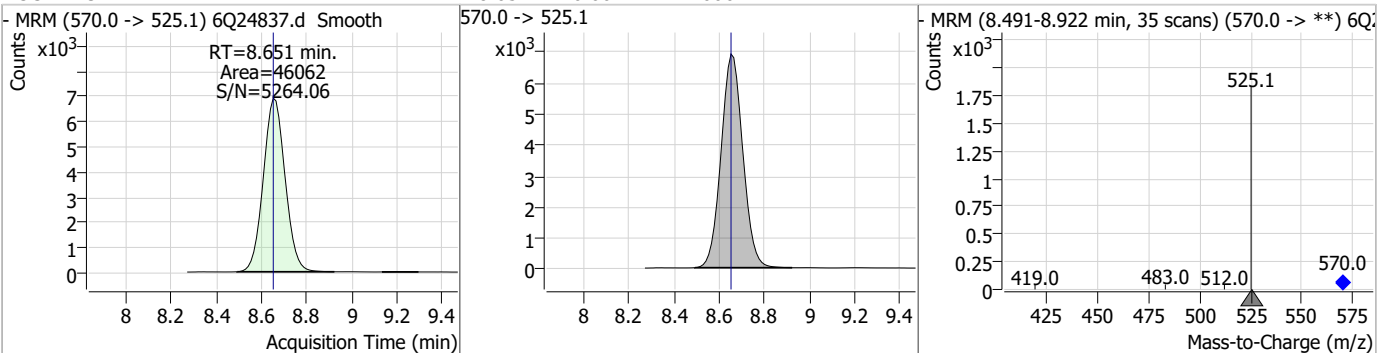
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.15	8.45	0.00	20255				



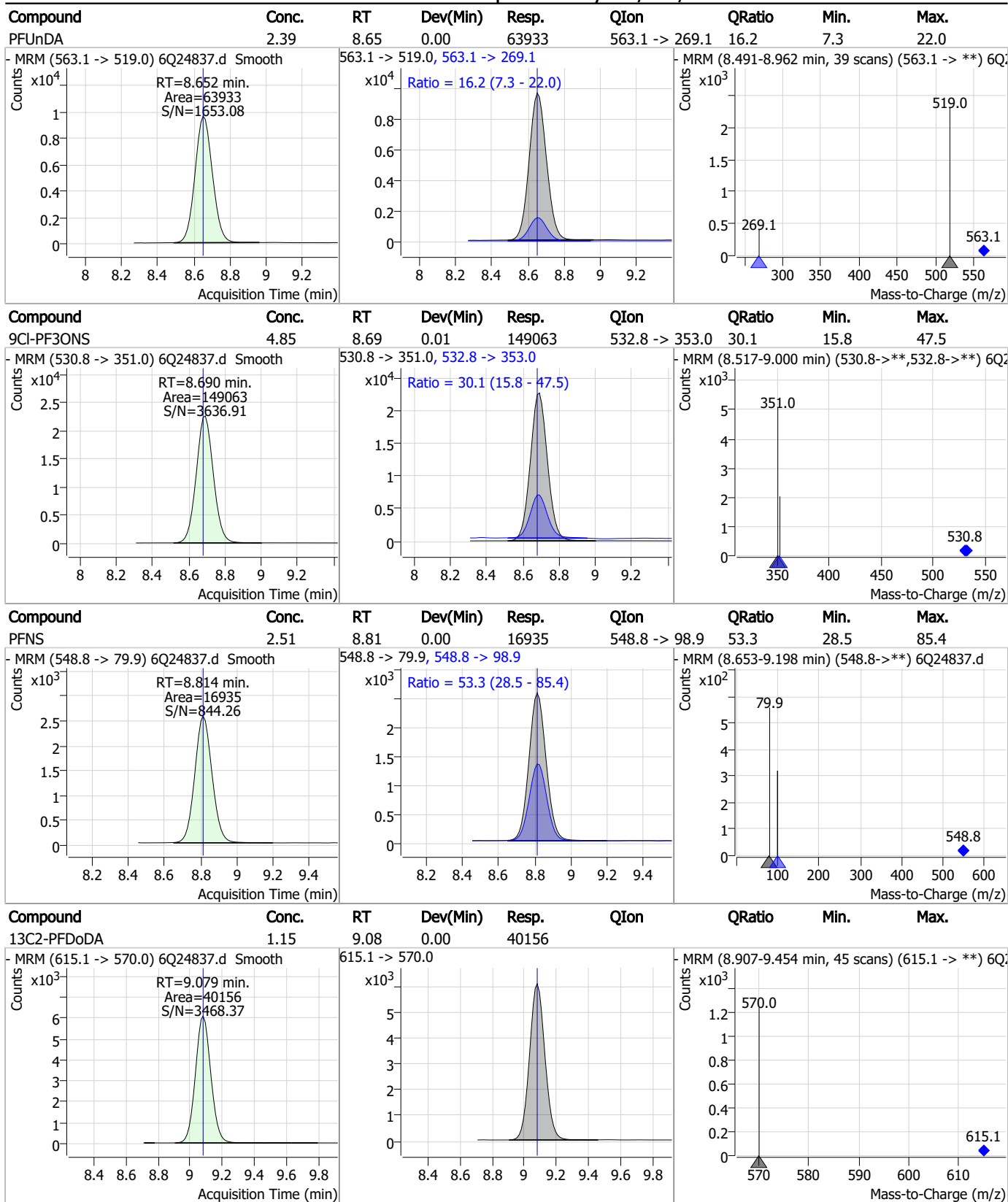
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	3.02	8.45	0.00	9261	584.2 -> 526.0	64.7	32.4	97.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.24	8.65	0.00	46062				

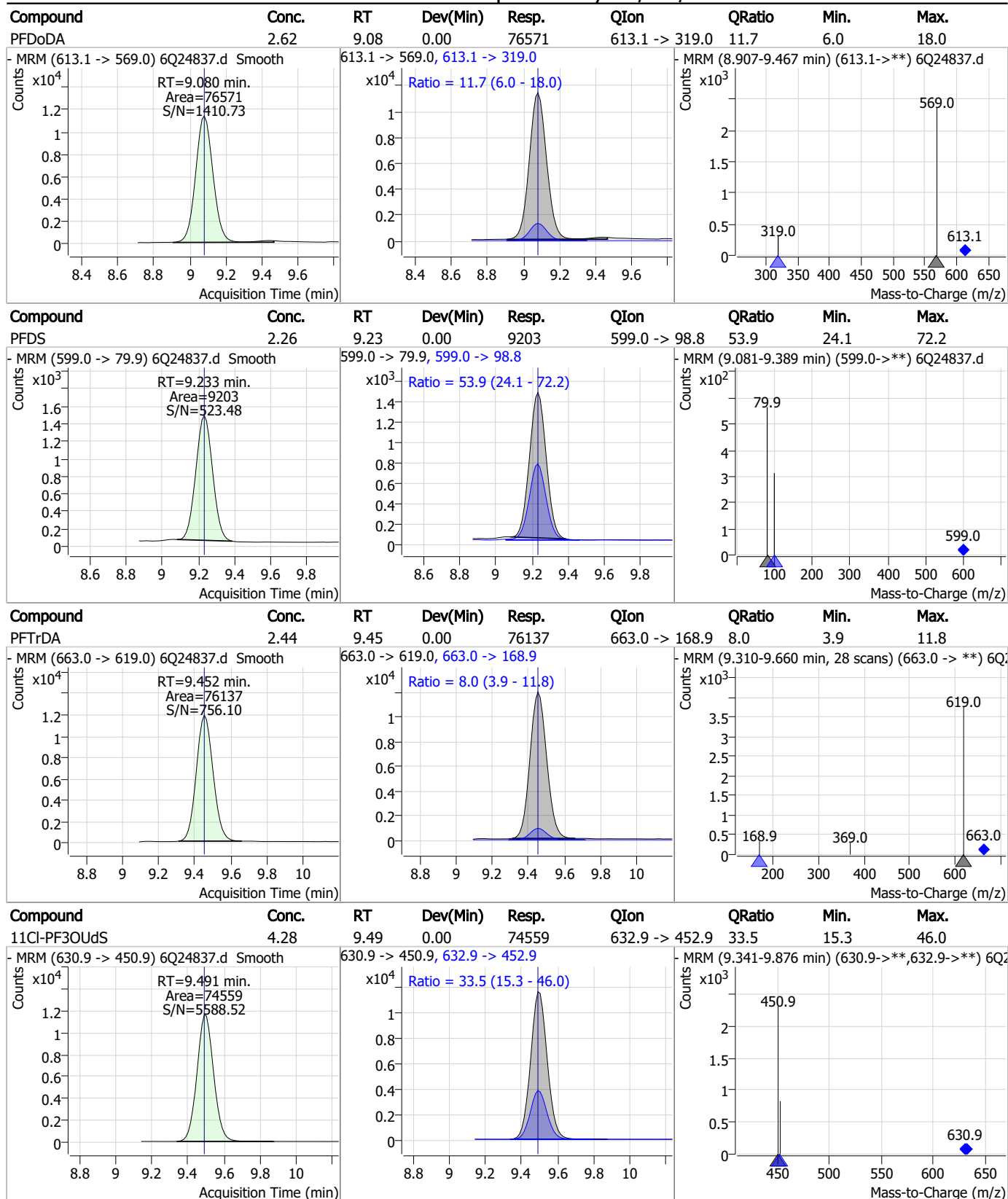


Perfluorinated Compounds by LC/MS/MS



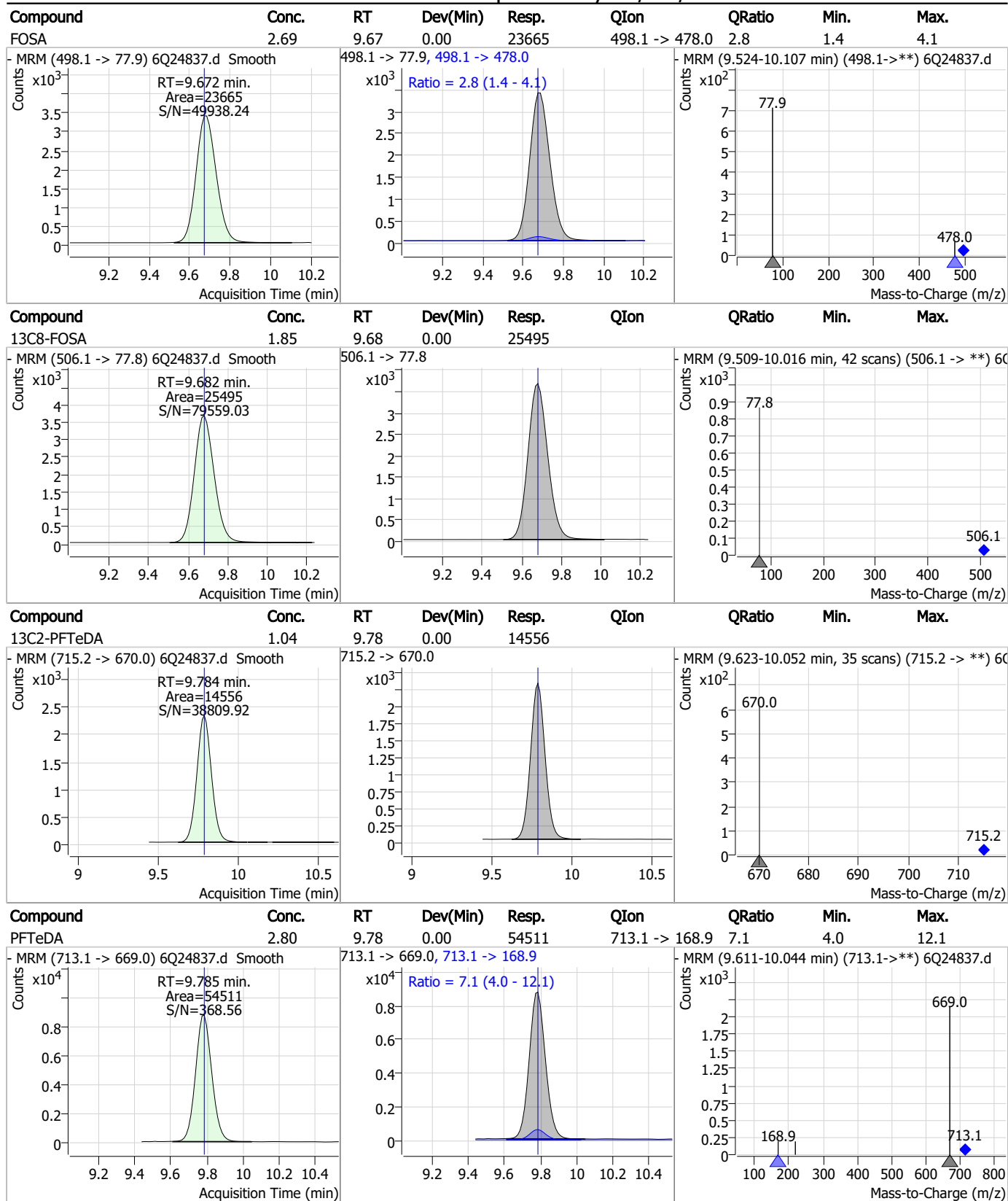
7.4.1
7

Perfluorinated Compounds by LC/MS/MS



7.4.1
7

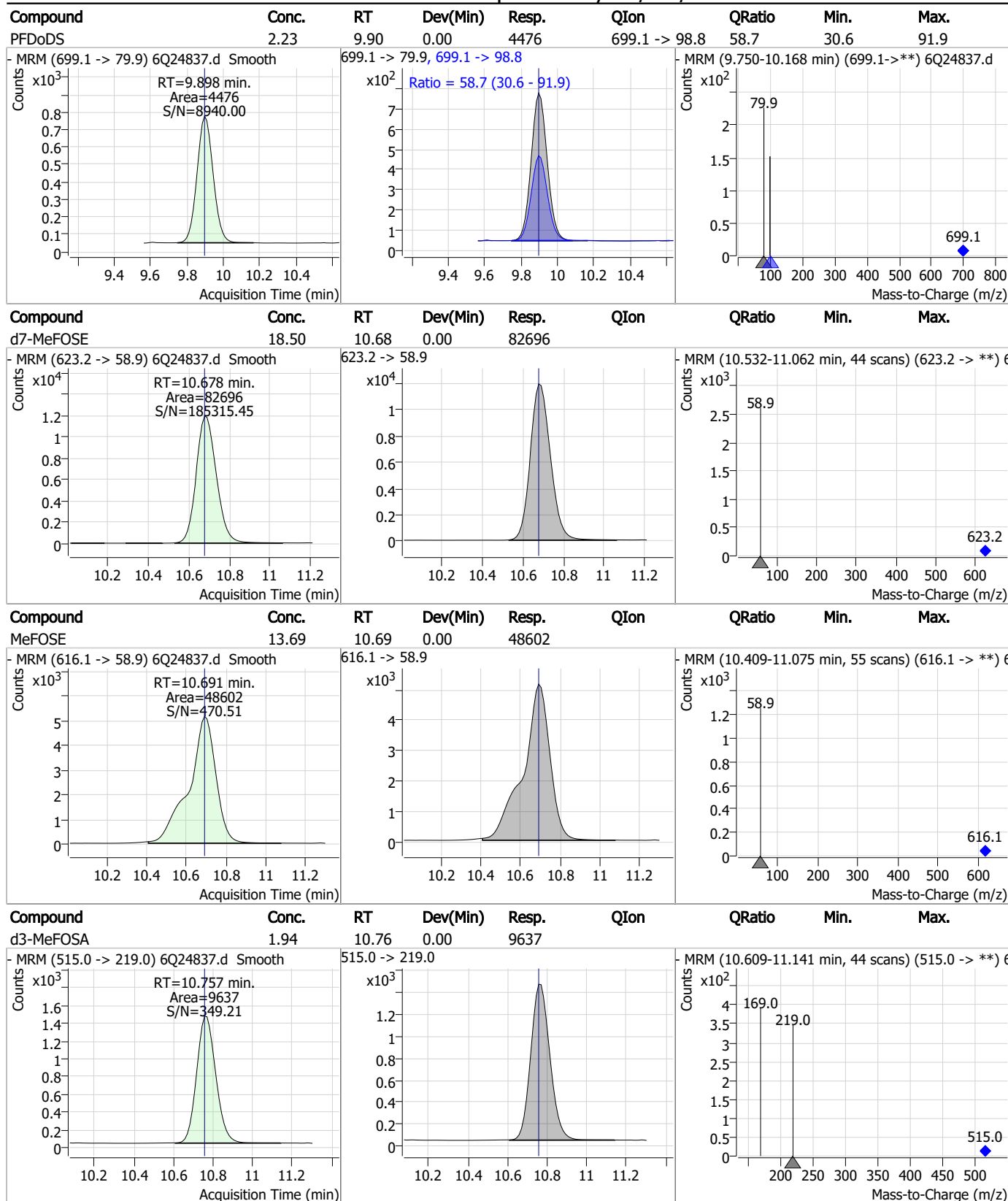
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

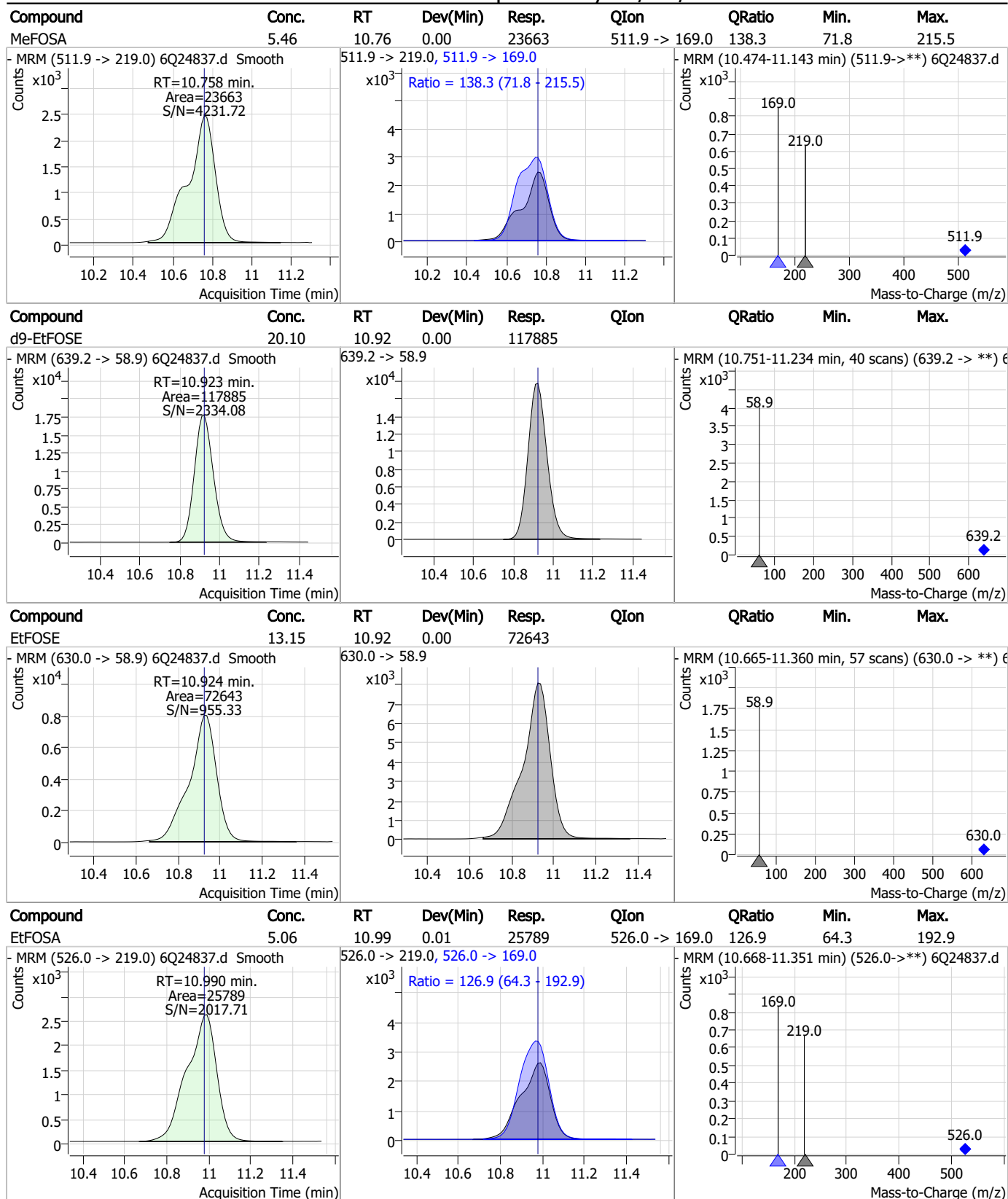
Perfluorinated Compounds by LC/MS/MS



7.4.1

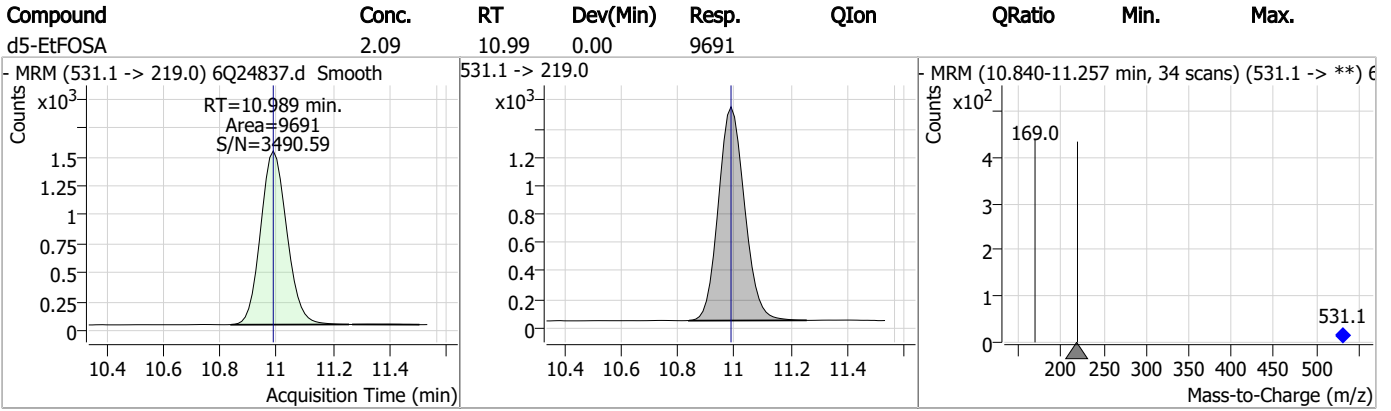
7

Perfluorinated Compounds by LC/MS/MS



7.4.1
7

Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Manual Integration Approval Summary

Sample Number: OP99077-MS Method: EPA DRAFT 1633
Lab FileID: 6Q24837.D Analyst approved: 09/22/23 11:10 Anna Ludwig
Injection Time: 09/22/23 02:48 Supervisor approved: 09/22/23 13:19 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		6.57	Split peak
Perfluoropentanesulfonic acid	2706-91-4		6.62	Split peak
Perfluorooctanoic acid	335-67-1		7.20	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorononanoic acid	375-95-1		7.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.4.1.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24839.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/22/2023 3:17:04 AM
 Sample Name : OP99077-DUP
 Vial : P2-B5
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99077,S6Q355,520,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	248027	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	39355	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	93171	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	77121	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	100568	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	40902	1.25 µg/L	0.012
M6-PFDA	8.198	519.1 -> 474.1	38206	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	41753	1.25 µg/L	0.000
M2-PFDoDA	9.079	615.1 -> 570.0	37431	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	12668	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	26163	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	30027	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	16434	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	14892	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	3019	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4387	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4008	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	26265	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	52509	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	22113	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	81659	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	113195	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9128	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9275	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	19205	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	98032	5.00 µg/L	0.012
18O2-PFHxS	7.313	403.0 -> 83.9	11283	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	109286	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	33146	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	45173	1.25 µg/L	0.012
13C2-PFHxA	5.642	315.1 -> 270.0	67617	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	3019	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4387	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4008	4.73 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C2-PFDoDA	9.079	615.1 -> 570.0	37431	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.2%		
13C2-PFTeDA	9.784	715.2 -> 670.0	12668	0.94 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 75.5%		
13C3-PFBS	5.571	302.1 -> 79.9	30027	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C3-PFHxS	7.313	402.1 -> 79.9	16434	2.69 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 = 107.6%	
13C4-PFBA	3.010	216.8 -> 171.9	248027	10.37 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C4-PFHpA	6.569	367.1 -> 322.0	77121	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C5-PFHxA	5.641	318.0 -> 273.0	93171	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C5-PFPeA	4.434	268.3 -> 223.0	39355	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C6-PFDA	8.198	519.1 -> 474.1	38206	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C7-PFUnDA	8.651	570.0 -> 525.1	41753	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C8-FOSA	9.682	506.1 -> 77.8	26163	2.07 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.0%	
13C8-PFOA	7.198	421.1 -> 376.0	100568	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C8-PFOS	8.361	507.1 -> 79.9	14892	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C9-PFNA	7.729	472.1 -> 427.0	40902	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.9%	
d3-MeFOSAA	8.256	573.2 -> 419.0	26265	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	52509	10.47 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	9275	2.03 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.3%	
d5-EtFOSAA	8.452	589.2 -> 419.0	22113	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
d7-MeFOSE	10.678	623.2 -> 58.9	81659	19.93 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.7%	
d9-EtFOSE	10.923	639.2 -> 58.9	113195	21.05 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.2%	
d5-EtFOSA	10.989	531.1 -> 219.0	9128	2.15 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.9%	
Target Compounds					QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.	
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	3.018	212.8 -> 168.9	11461	1.50 µg/L	100
PFBS	5.572	298.7 -> 79.9 298.7 -> 98.8	5948 2274	0.42 µg/L	97
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	-	613.1 -> 569.0 613.1 -> 319.0	-	N.D.	
PFDS	9.069	599.0 -> 79.9	0	µg/L m	1

7.5.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	0			
PFHpA	6.582	363.1 -> 319.0	22445	0.57	µg/L m	97
		363.1 -> 169.0	3326			
PFHpS	-	449.0 -> 79.9	-	N.D.		
		449.0 -> 98.9				
PFHxA	5.644	313.0 -> 269.0	21995	0.68	µg/L	99
		313.0 -> 118.9	950			
PFHxS	7.314	398.7 -> 79.9	5932	0.56	µg/L m	100
		398.7 -> 98.9	2835			
PFNA	7.730	463.0 -> 419.0	3547	0.13	µg/L m	89
		463.0 -> 219.0	1050			
PFNS	-	548.8 -> 79.9	-	N.D.		
		548.8 -> 98.9				
PFOA	7.200	413.0 -> 369.0	27477	0.59	µg/L m	98
		413.0 -> 169.0	5034			
PFOS	8.362	498.9 -> 79.9	13086	1.55	µg/L m	84
		498.9 -> 98.8	5313			
PFPeA	4.436	263.0 -> 219.0	25007	1.29	µg/L	100
PFPeS	6.633	349.1 -> 79.9	635	0.07	µg/L m	93
		349.1 -> 98.9	279			
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.		
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

7.5.1
7

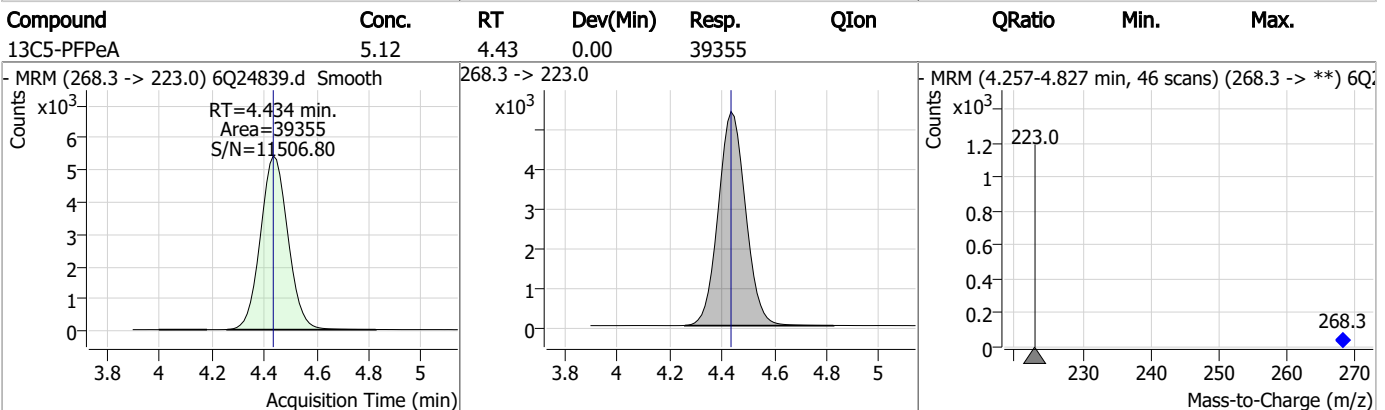
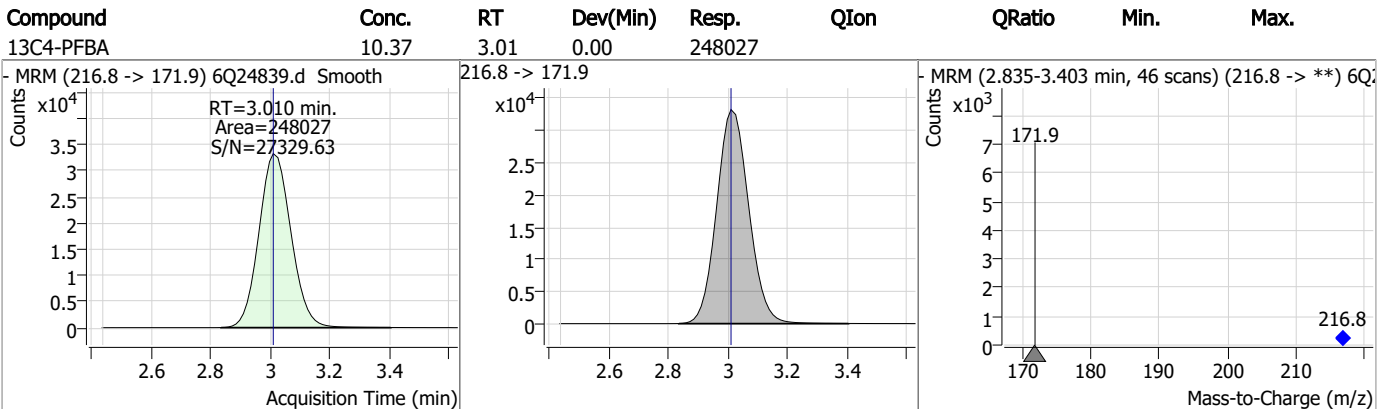
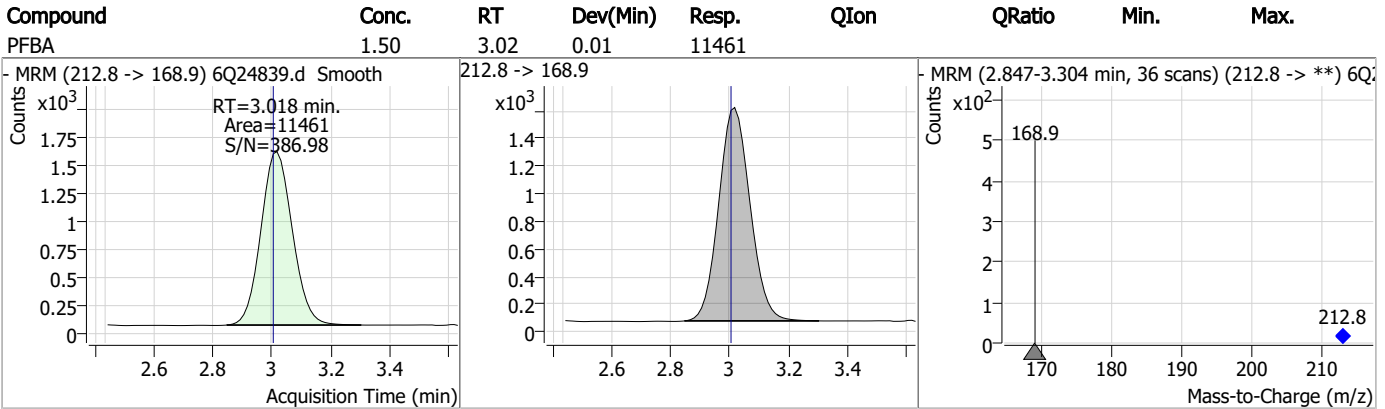
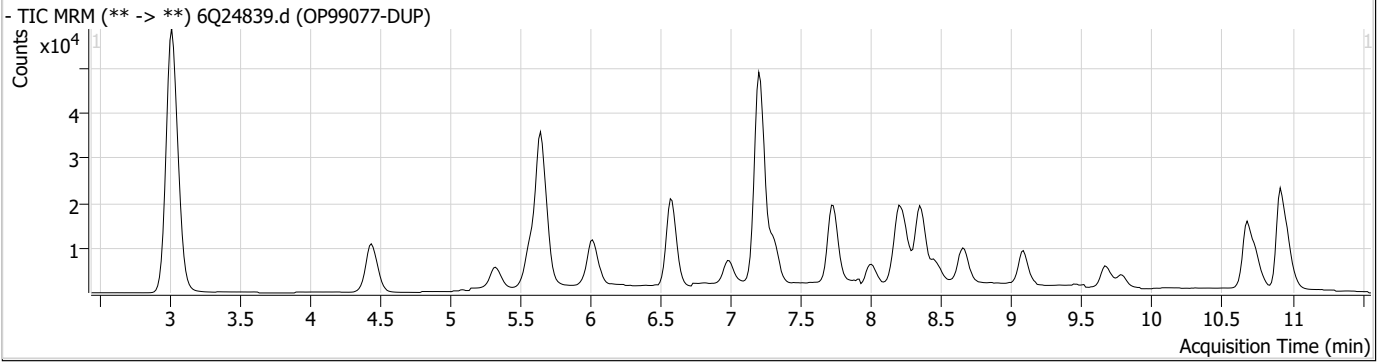
Perfluorinated Compounds by LC/MS/MS

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

7.5.1

7

Perfluorinated Compounds by LC/MS/MS

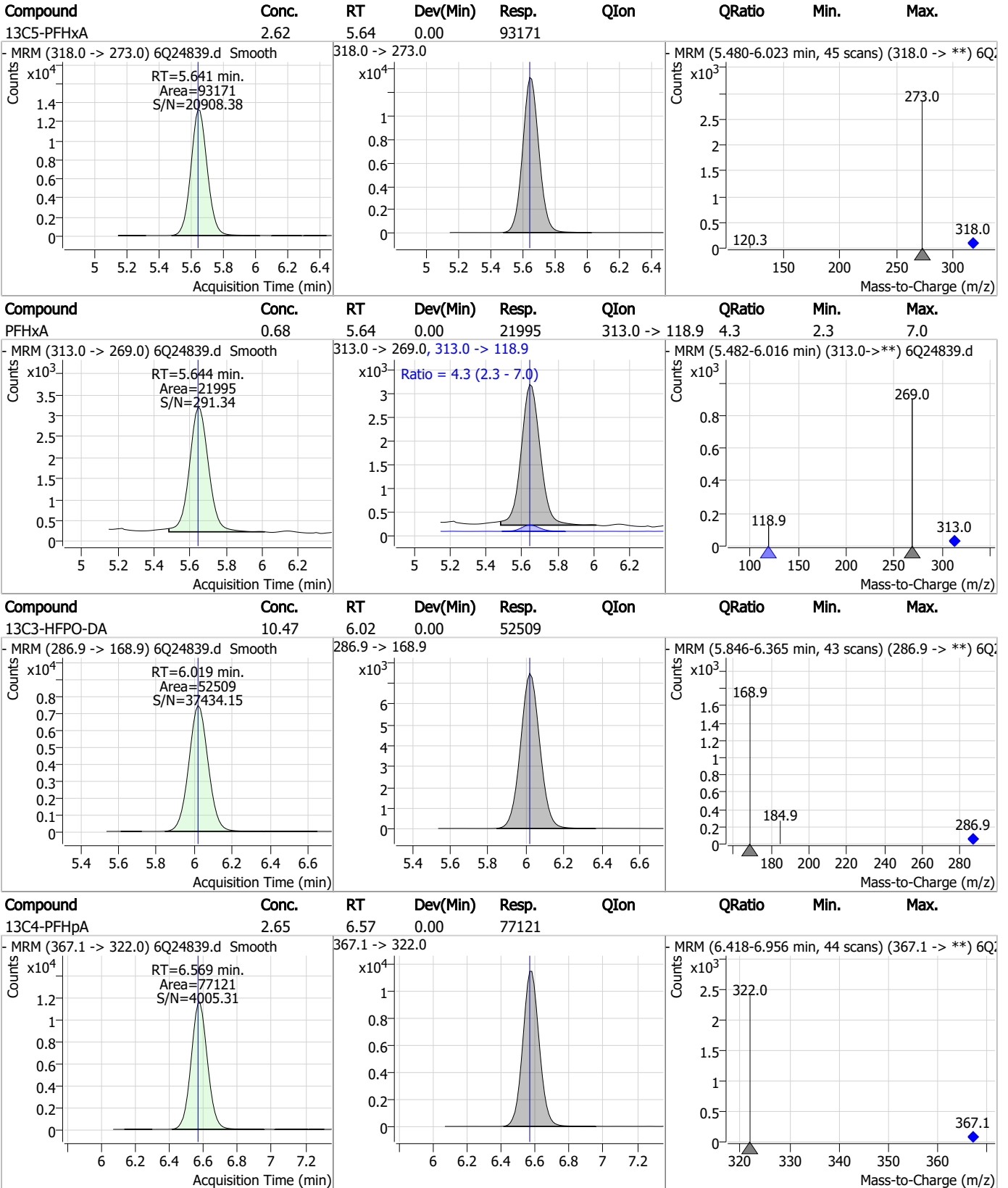


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.29	4.44	0.00	25007				
13C2-4:2FTS	5.13	5.32	0.00	3019				
13C3-PFBS	2.75	5.57	0.00	30027				
PFBS	0.42	5.57	0.00	5948	298.7 -> 98.8	38.2	18.2	54.6

7.5.1
7

Perfluorinated Compounds by LC/MS/MS

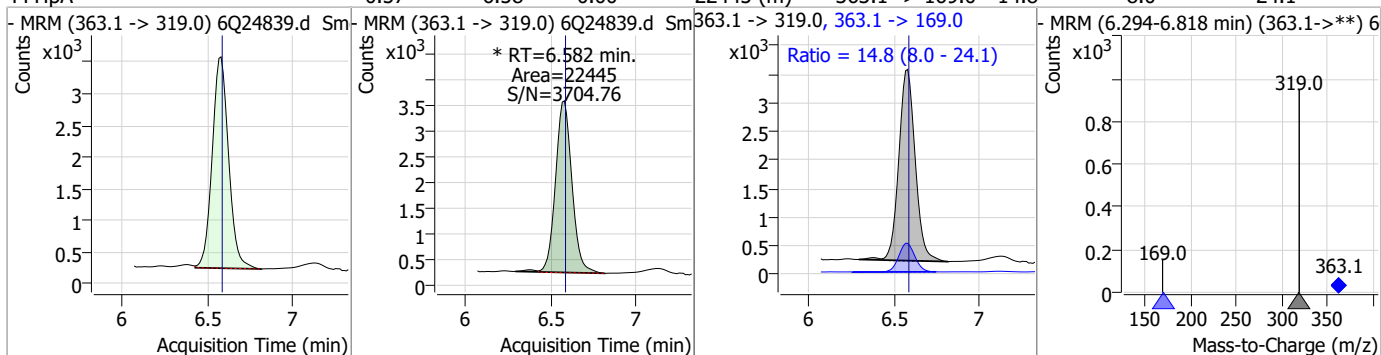


7.5.1

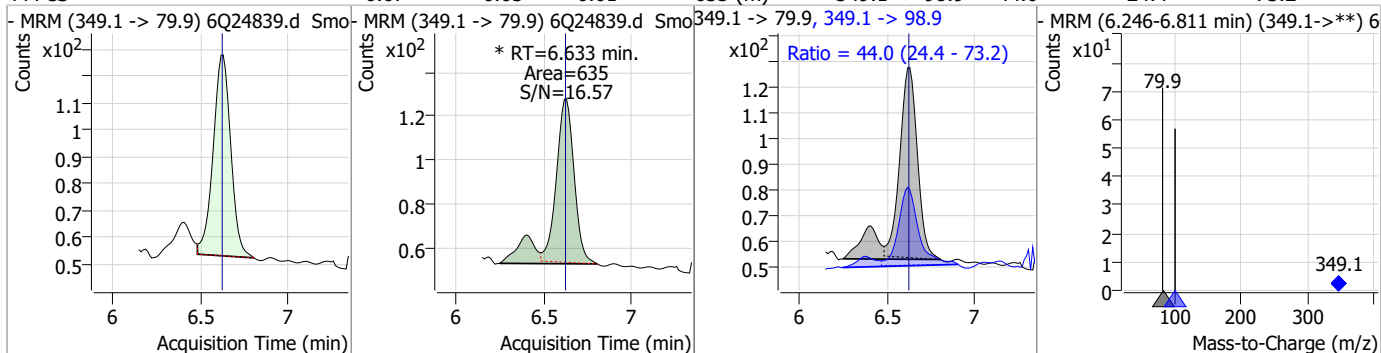
7

Perfluorinated Compounds by LC/MS/MS

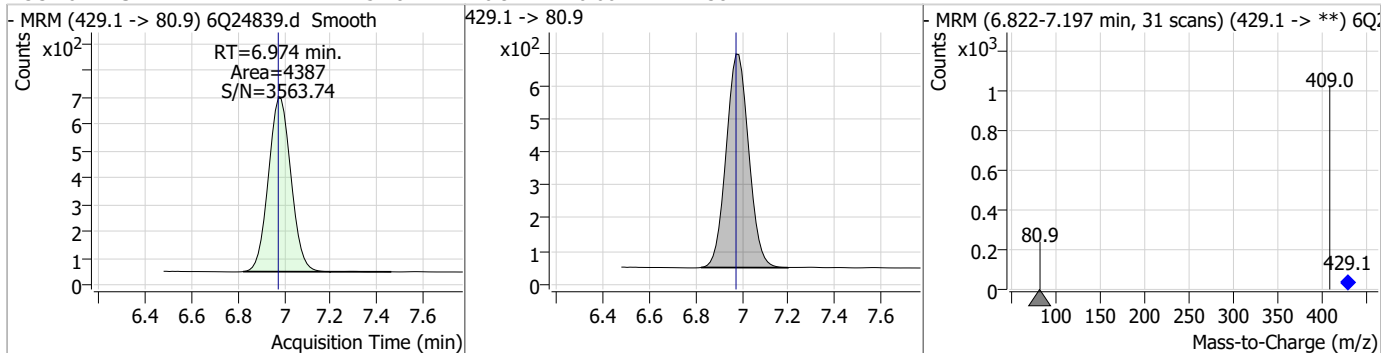
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.57	6.58	0.00	22445 (m)	363.1 -> 169.0	14.8	8.0	24.1



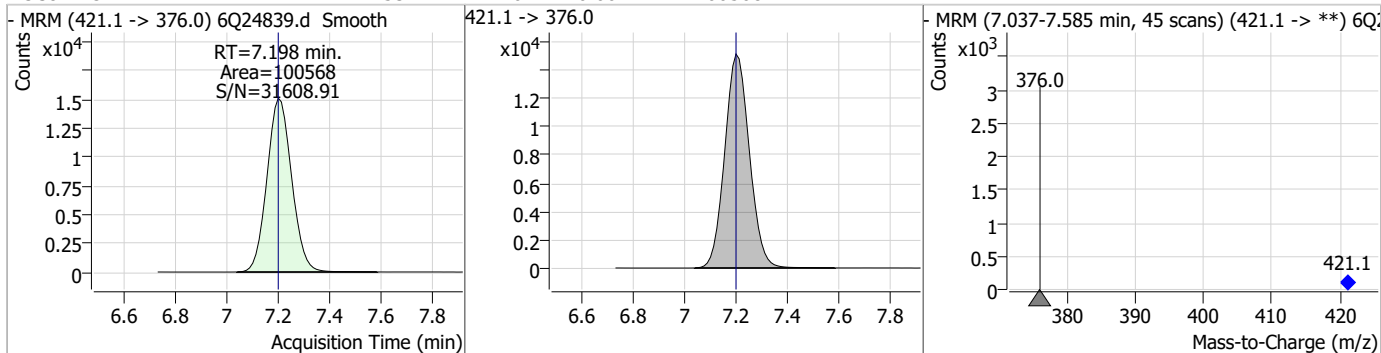
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.07	6.63	0.01	635 (m)	349.1 -> 98.9	44.0	24.4	73.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.28	6.97	0.00	4387				

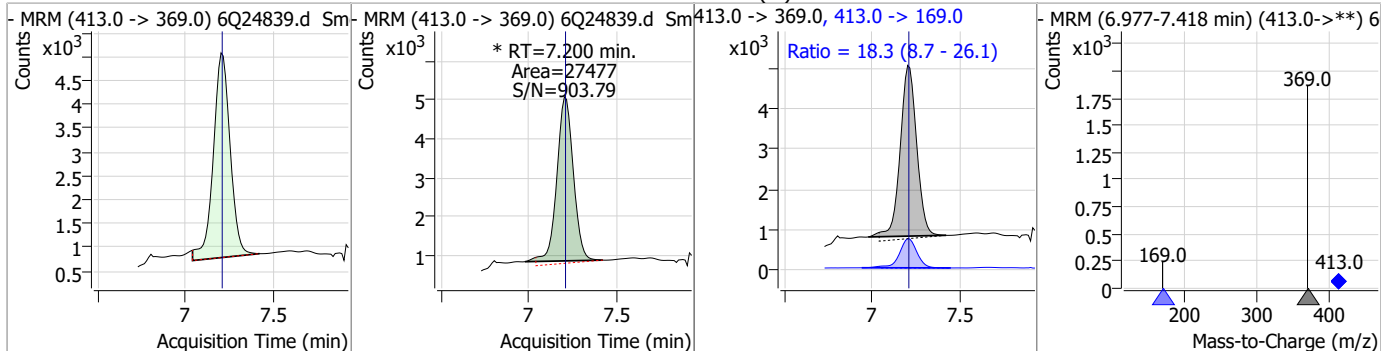


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.53	7.20	0.00	100568				

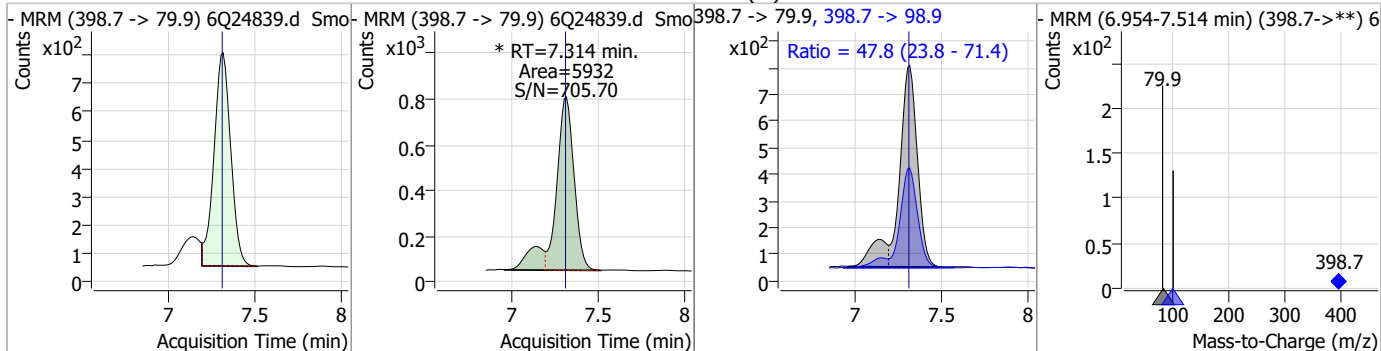


Perfluorinated Compounds by LC/MS/MS

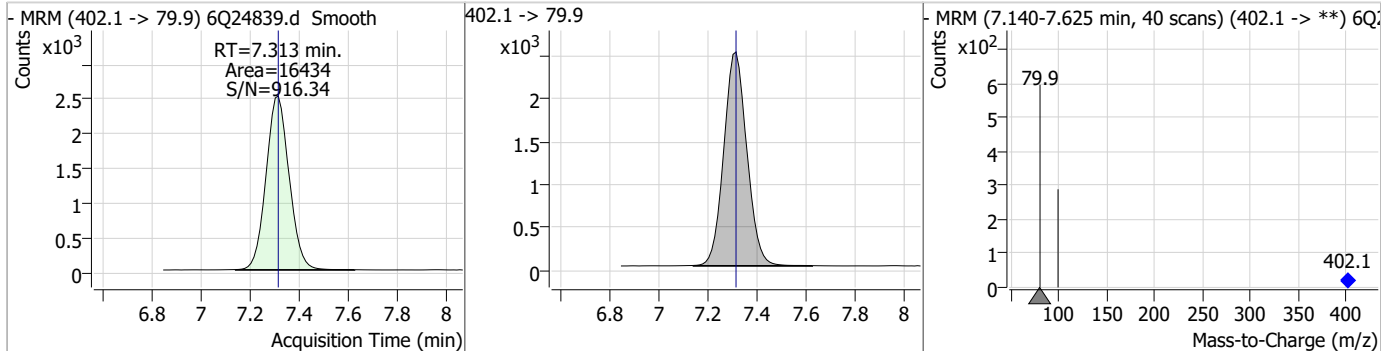
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.59	7.20	0.00	27477 (m)	413.0 -> 169.0	18.3	8.7	26.1



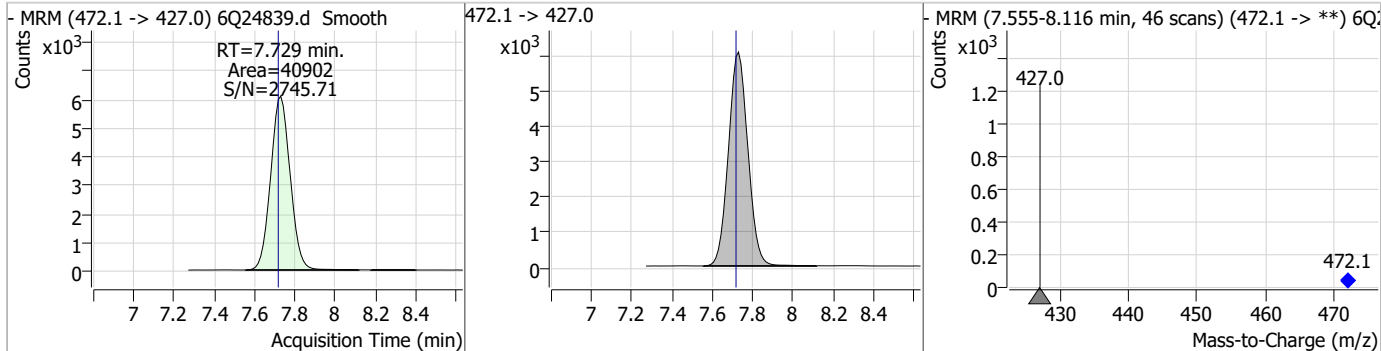
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.56	7.31	0.01	5932 (m)	398.7 -> 98.9	47.8	23.8	71.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.69	7.31	0.00	16434				

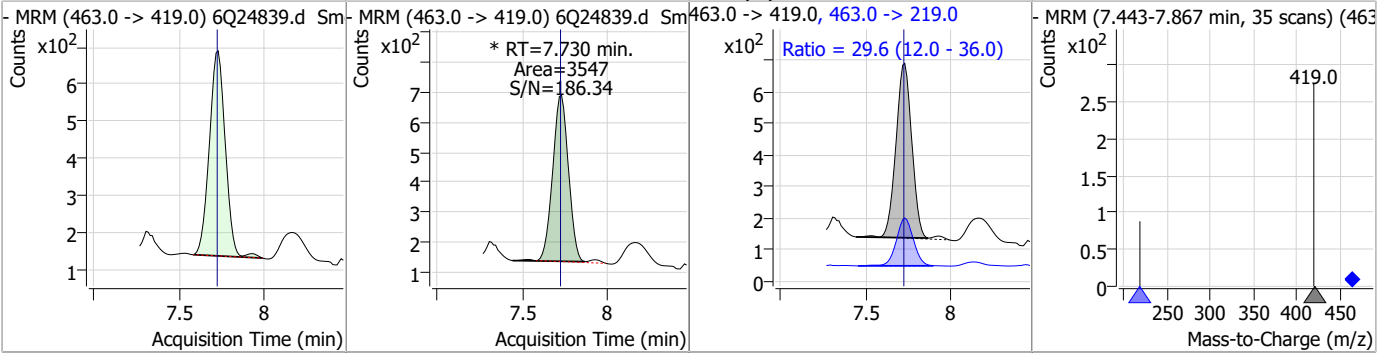


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.25	7.73	0.01	40902				

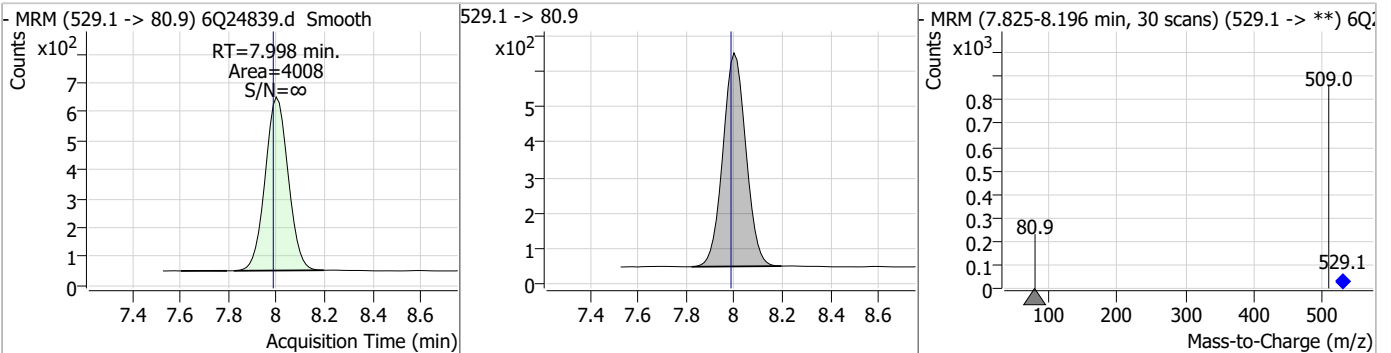


Perfluorinated Compounds by LC/MS/MS

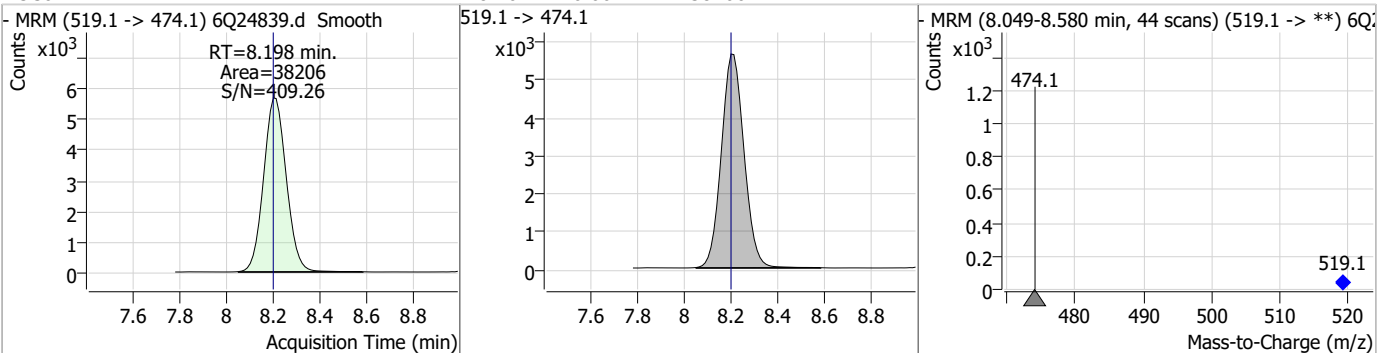
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.13	7.73	0.01	3547 (m)	463.0 -> 219.0	29.6	12.0	36.0



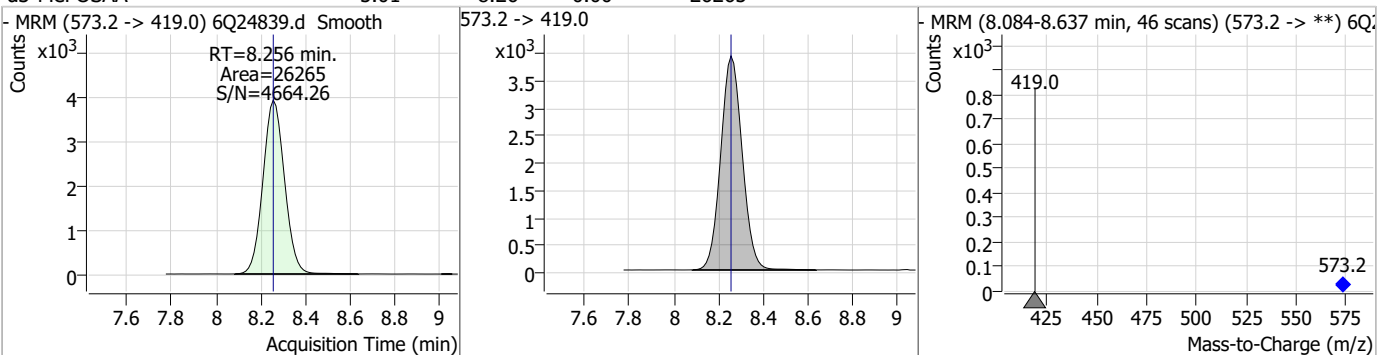
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.73	8.00	0.01	4008				



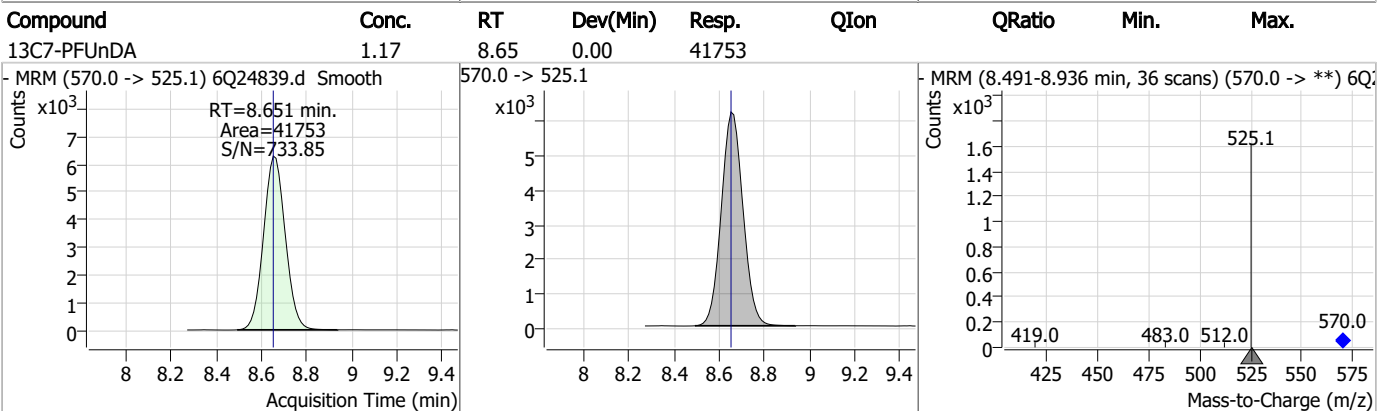
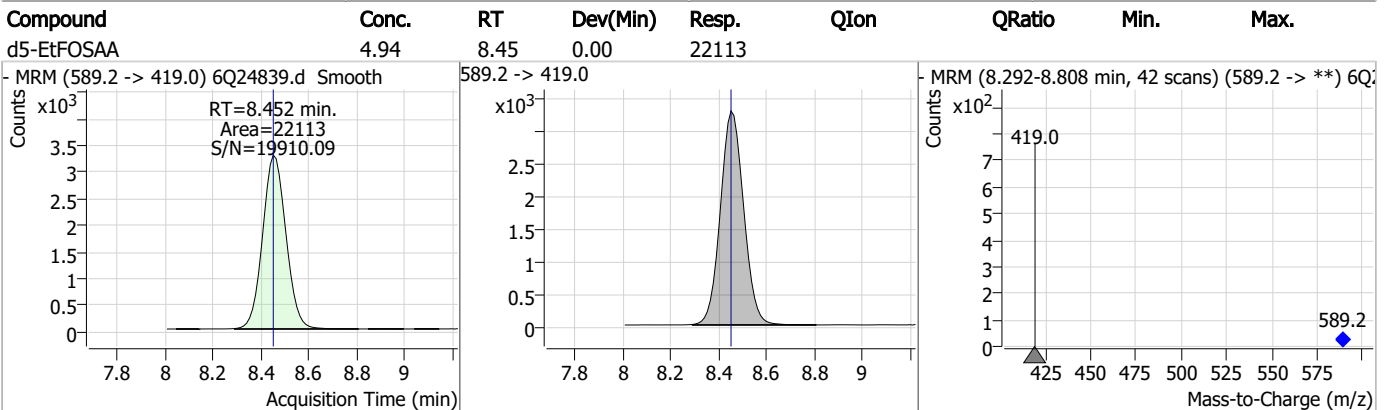
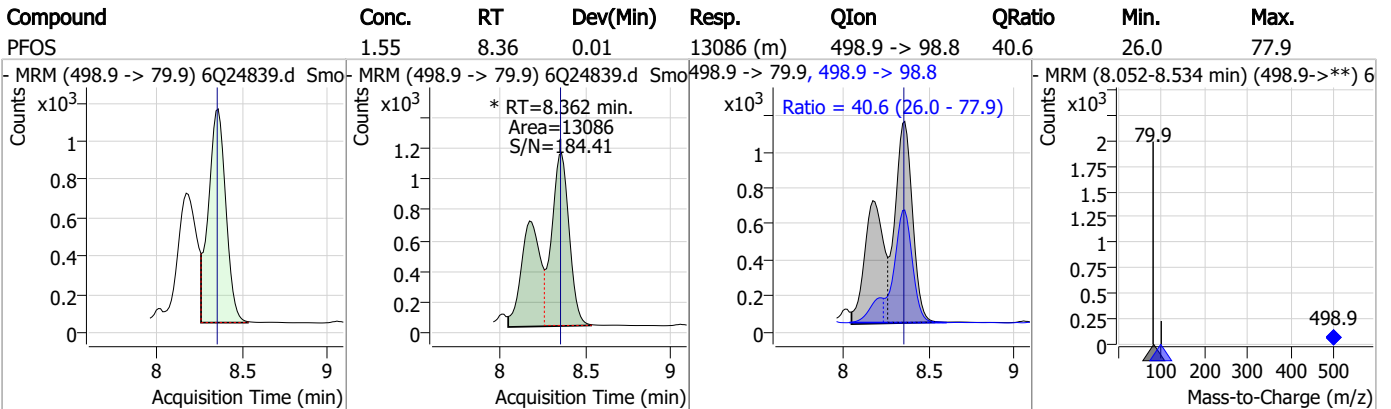
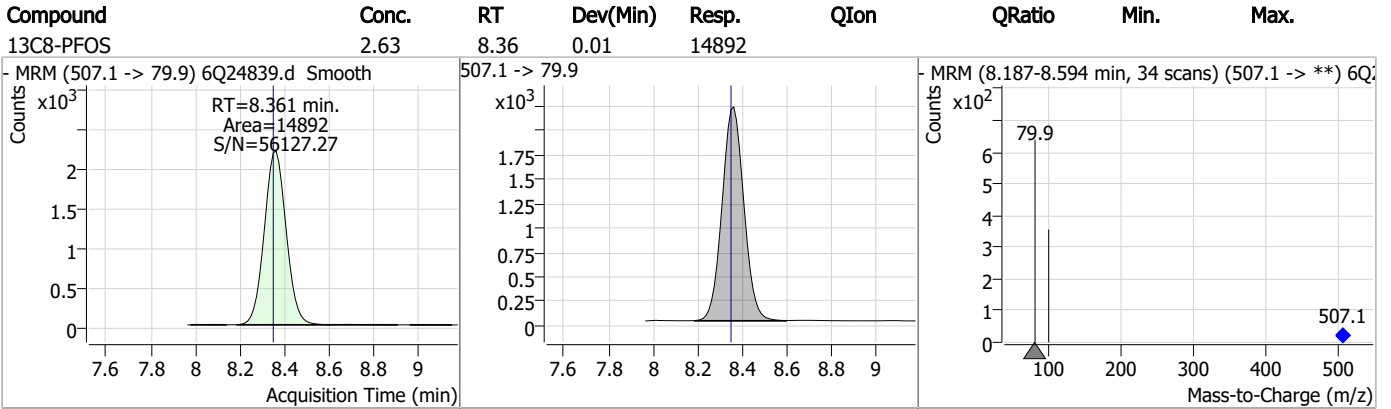
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.27	8.20	0.00	38206				



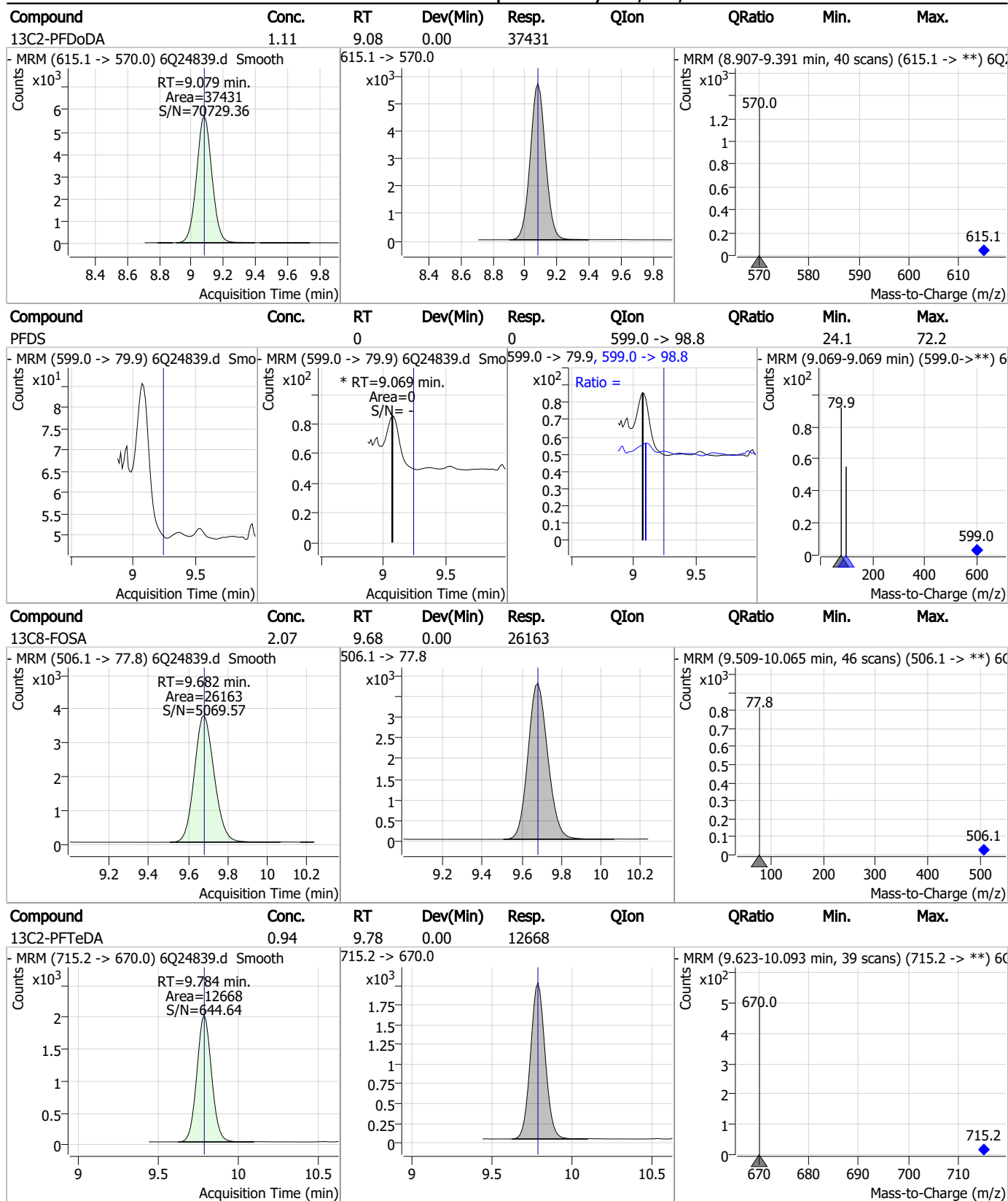
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.01	8.26	0.00	26265				



Perfluorinated Compounds by LC/MS/MS



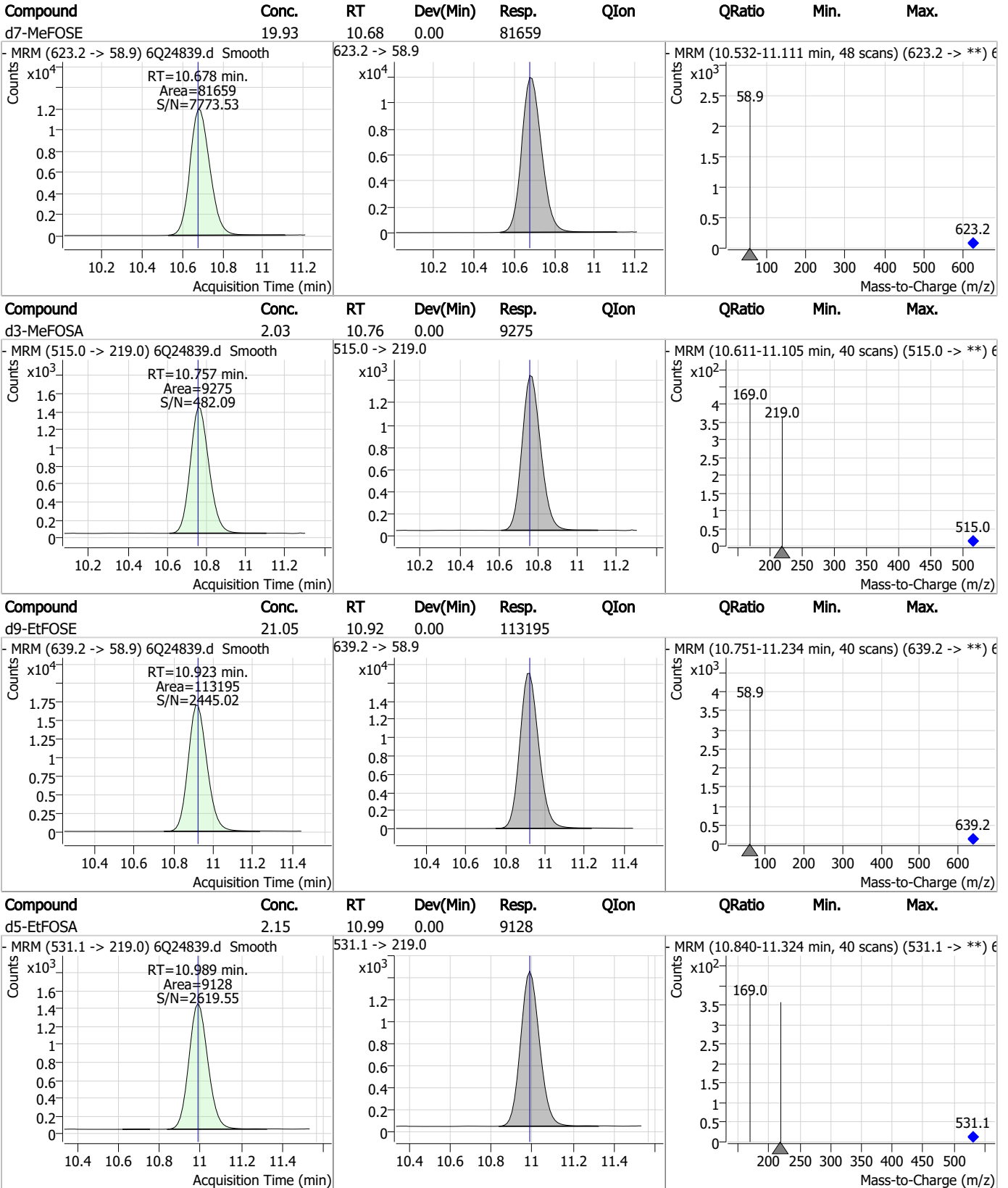
Perfluorinated Compounds by LC/MS/MS



7.5.1
7



Perfluorinated Compounds by LC/MS/MS



7.5.1

7

Manual Integration Approval Summary

Sample Number: OP99077-DUP Method: EPA DRAFT 1633
Lab FileID: 6Q24839.D Analyst approved: 09/22/23 11:10 Anna Ludwig
Injection Time: 09/22/23 03:17 Supervisor approved: 09/22/23 13:19 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		6.58	Split peak
Perfluoropentanesulfonic acid	2706-91-4		6.63	Split peak
Perfluorooctanoic acid	335-67-1		7.20	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorononanoic acid	375-95-1		7.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak

7.5.1.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtie
 09/22/23 13:16

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24808.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 7:52:54 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q355 TDCA.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

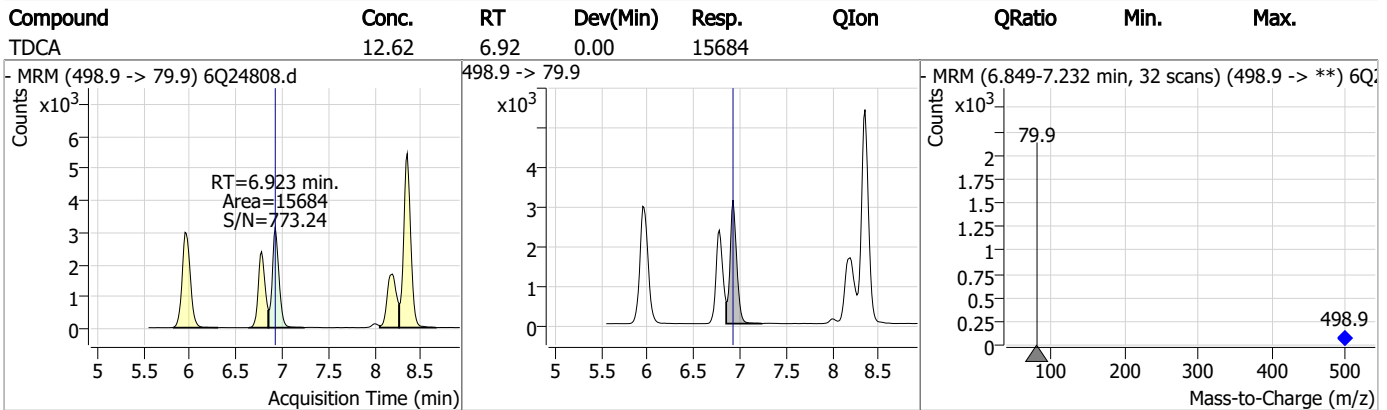
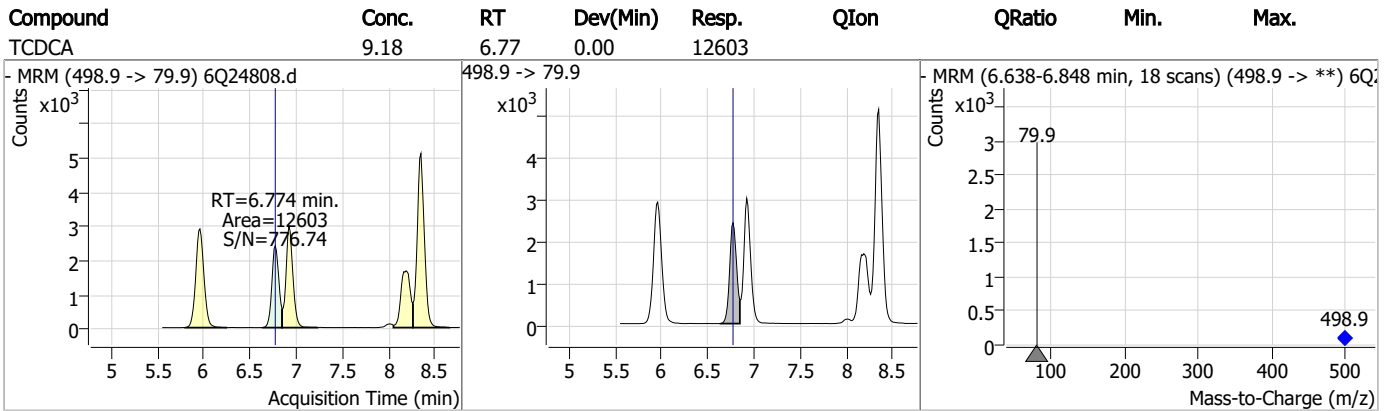
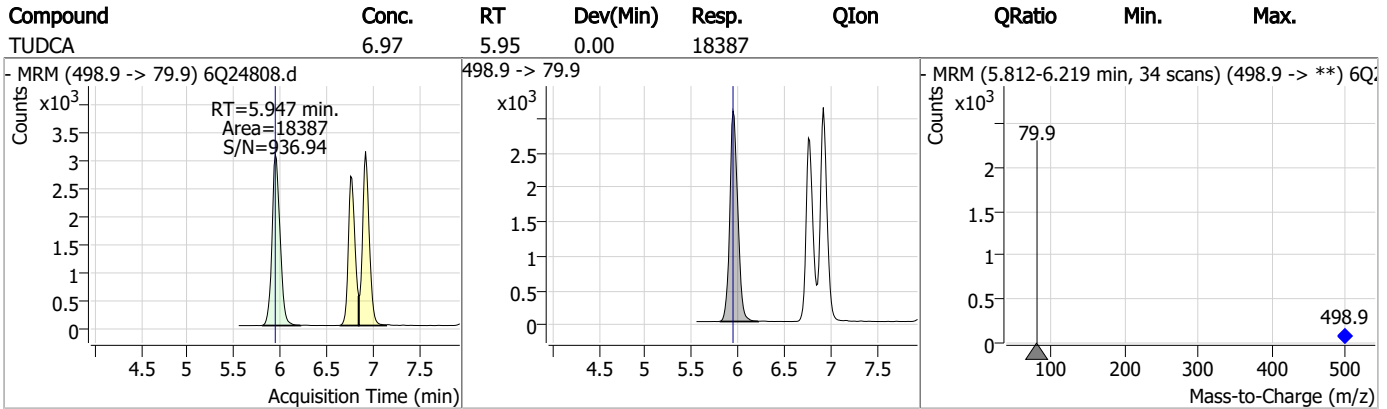
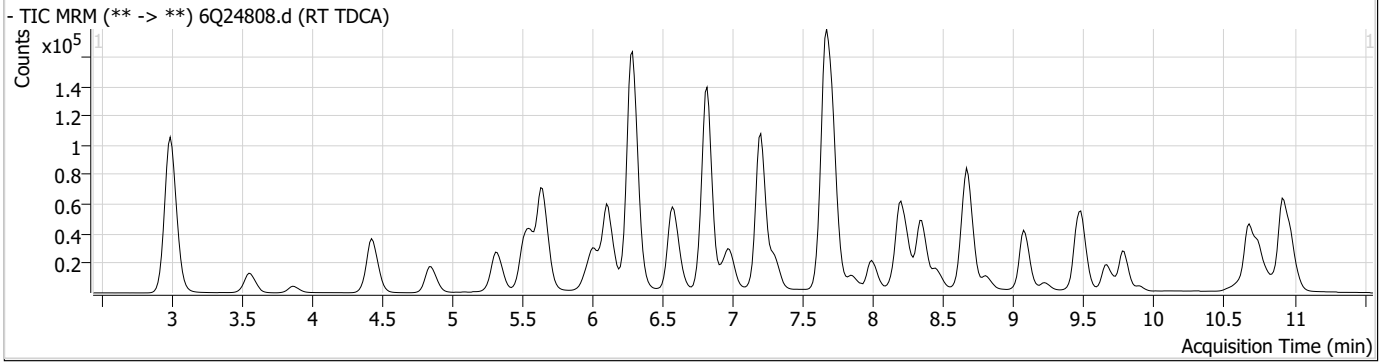
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.348	507.1 -> 79.9	29744	2.50	µg/L	-0.025	
13C4-PFOS	8.349	502.8 -> 79.9	44003	2.50	µg/L	-0.025	
System Monitoring Compounds							
13C8-PFOS	8.348	507.1 -> 79.9	29744	1.71	µg/L	-0.025	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 68.6%				
Target Compounds							
PFOS	8.350	498.9 -> 79.9 498.9 -> 98.8	40124 18876	3.95	µg/L	m	97
TCDCa	6.774	498.9 -> 79.9	12603	9.18	ng/ml		100
TDCA	6.923	498.9 -> 79.9	15684	12.62	ng/ml		100
TUDCA	5.947	498.9 -> 79.9	18387	6.97	ng/ml		100

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

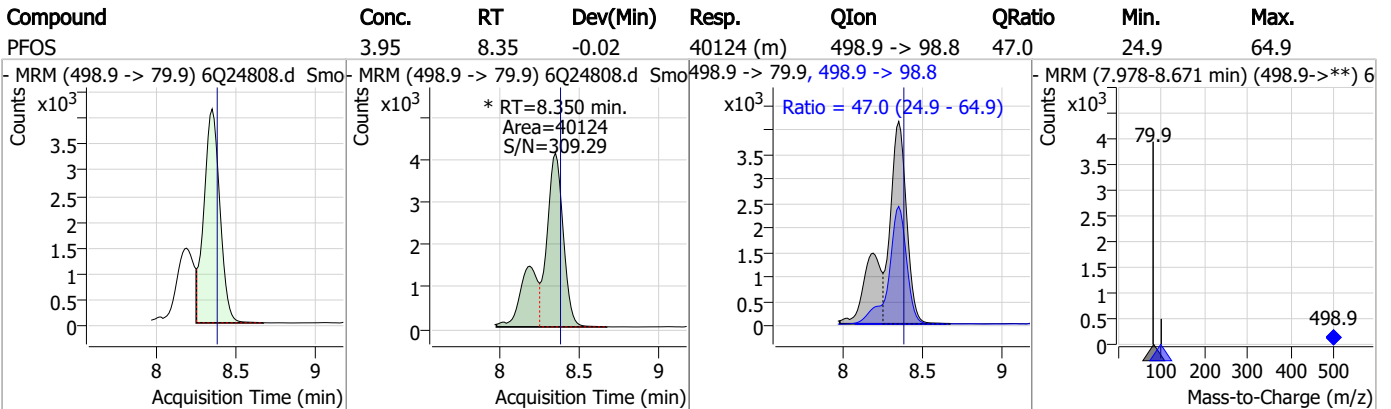
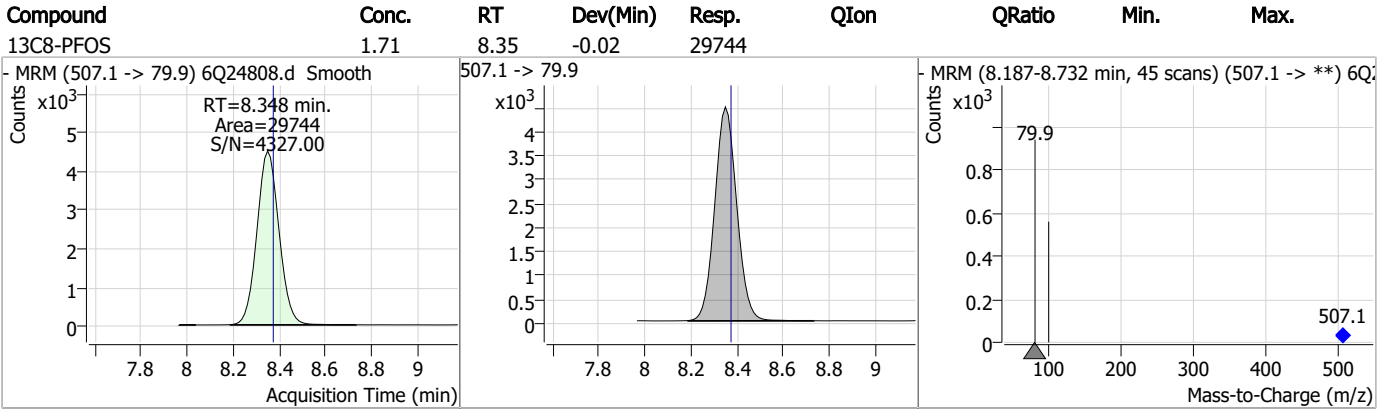
7.6.1
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.1
7



Manual Integration Approval Summary

Sample Number: S6Q355-RT Method: EPA DRAFT 1633
Lab FileID: 6Q24808.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 19:52 Supervisor approved: 09/22/23 13:16 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.6.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24809.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 8:07:13 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	312484	10.00 µg/L	-0.025
M5-PFPeA	4.422	268.3 -> 223.0	52372	5.00 µg/L	-0.012
M5-PFHxA	5.641	318.0 -> 273.0	119467	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	95540	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	127364	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	51427	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	51156	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	62723	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	57408	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	21990	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	43748	2.50 µg/L	-0.012
M3-PFBS	5.559	302.1 -> 79.9	36866	2.50 µg/L	-0.012
M3-PFHxS	7.301	402.1 -> 79.9	20897	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	20403	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	3924	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	5496	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	5686	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	33825	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	67301	10.00 µg/L	-0.012
M5-EtFOSAA	8.452	589.2 -> 419.0	28657	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	141317	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	181036	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	14435	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	16043	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	24990	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	129593	5.00 µg/L	-0.012
18O2-PFHxS	7.300	403.0 -> 83.9	15137	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	137918	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	47057	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	58033	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	85749	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	3924	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-6:2FTS	6.974	429.1 -> 80.9	5496	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C2-8:2FTS	7.986	529.1 -> 80.9	5686	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C2-PFDoDA	9.080	615.1 -> 570.0	57408	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C2-PFTeDA	9.784	715.2 -> 670.0	21990	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C3-PFBS	5.559	302.1 -> 79.9	36866	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C3-PFHxS	7.301	402.1 -> 79.9	20897	2.55 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 = 102.0%	
13C4-PFBA	2.985	216.8 -> 171.9	312484	9.89 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C4-PFHpA	6.569	367.1 -> 322.0	95540	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C5-PFHxA	5.641	318.0 -> 273.0	119467	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C5-PFPeA	4.422	268.3 -> 223.0	52372	5.37 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C6-PFDA	8.198	519.1 -> 474.1	51156	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C7-PFUnDA	8.651	570.0 -> 525.1	62723	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C8-FOSA	9.670	506.1 -> 77.8	43748	2.67 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C8-PFOA	7.198	421.1 -> 376.0	127364	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-PFOS	8.348	507.1 -> 79.9	20403	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.9%	
13C9-PFNA	7.717	472.1 -> 427.0	51427	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.8%	
d3-MeFOSAA	8.256	573.2 -> 419.0	33825	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	67301	10.58 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
d3-MeFOSA	10.769	515.0 -> 219.0	16043	2.70 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.0%	
d5-EtFOSAA	8.452	589.2 -> 419.0	28657	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d7-MeFOSE	10.678	623.2 -> 58.9	141317	26.50 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
d9-EtFOSE	10.923	639.2 -> 58.9	181036	25.87 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
d5-EtFOSA	10.989	531.1 -> 219.0	14435	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	334797	52.68 µg/L	100
		327.1 -> 80.9	127070		
6:2FTS	6.974	427.1 -> 407.0	272382	53.60 µg/L	99
		427.1 -> 80.9	101586		
8:2FTS	7.987	527.1 -> 507.0	198865	55.07 µg/L	95
		527.1 -> 80.8	69511		
EtFOSAA	8.452	584.2 -> 419.1	65383	15.09 µg/L	93
		584.2 -> 526.0	45781		
FOSA	9.672	498.1 -> 77.9	483224	32.02 µg/L	100
		498.1 -> 478.0	13375		
MeFOSAA	8.257	570.1 -> 419.0	112624	14.68 µg/L	94
		570.1 -> 483.0	23637		
PFBA	2.993	212.8 -> 168.9	541235	56.20 µg/L	100
PFBS	5.560	298.7 -> 79.9	226038	12.95 µg/L	99
		298.7 -> 98.8	82948		
PFDA	8.198	512.9 -> 469.0	637351	13.95 µg/L	99
		512.9 -> 219.0	103560		
PFDoDA	9.080	613.1 -> 569.0	604815	14.46 µg/L	100
		613.1 -> 319.0	72372		
PFDS	9.220	599.0 -> 79.9	76599	12.80 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	36467			
PFHpA	6.569	363.1 -> 319.0	703774	14.49	µg/L	97
		363.1 -> 169.0	104916			
PFHpS	7.856	449.0 -> 79.9	127648	12.78	µg/L	96
		449.0 -> 98.9	63428			
PFHxA	5.644	313.0 -> 269.0	573496	13.81	µg/L	100
		313.0 -> 118.9	26218			
PFHxS	7.302	398.7 -> 79.9	170272	12.61	µg/L	m 96
		398.7 -> 98.9	85614			
PFNA	7.593	463.0 -> 419.0	1000052	30.26	µg/L	m 94
		463.0 -> 219.0	271062			
PFNS	8.814	548.8 -> 79.9	127248	12.84	µg/L	94
		548.8 -> 98.9	67252			
PFOA	7.200	413.0 -> 369.0	1873821	31.91	µg/L	m 99
		413.0 -> 169.0	337486			
PFOS	8.350	498.9 -> 79.9	140970	12.22	µg/L	m 100
		498.9 -> 98.8	72691			
PFPeA	4.424	263.0 -> 219.0	715124	27.72	µg/L	100
PFPeS	6.620	349.1 -> 79.9	152684	13.60	µg/L	94
		349.1 -> 98.9	68328			
PFTeDA	9.785	713.1 -> 669.0	412227	14.01	µg/L	100
		713.1 -> 168.9	33731			
PFTrDA	9.452	663.0 -> 619.0	642374	14.42	µg/L	100
		663.0 -> 168.9	50971			
PFUnDA	8.652	563.1 -> 519.0	474832	13.04	µg/L	100
		563.1 -> 269.1	69090			
11CI-PF3OUdS	9.491	630.9 -> 450.9	584151	26.74	µg/L	100
		632.9 -> 452.9	179797			
9CI-PF3ONS	8.678	530.8 -> 351.0	1070955	27.78	µg/L	92
		532.8 -> 353.0	289913			
ADONA	6.817	376.9 -> 250.9	2727907	27.46	µg/L	96
		376.9 -> 84.8	669602			
HFPO-DA	6.020	284.9 -> 168.9	176270	27.59	µg/L	99
		284.9 -> 184.9	25543			
3:3FTCA	3.858	241.0 -> 177.0	117103	69.71	µg/L	100
		241.0 -> 117.0	11051			
5:3FTCA	6.283	341.0 -> 237.1	2573276	353.08	µg/L	94
		341.0 -> 217.0	1721458			
7:3FTCA	7.669	441.0 -> 316.9	1464784	344.52	µg/L	92
		441.0 -> 336.9	3140381			
EtFOSA	10.990	526.0 -> 219.0	370852	48.89	µg/L	100
		526.0 -> 169.0	474970			
EtFOSE	10.924	630.0 -> 58.9	795770	93.78	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	342252	47.41	µg/L	93
		511.9 -> 169.0	461261			
MeFOSE	10.691	616.1 -> 58.9	538051	88.69	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	38647	13.14	µg/L	92
		699.1 -> 98.8	21418			
NFDHA	5.524	295.0 -> 201.0	131772	26.82	µg/L	97
		295.0 -> 84.9	31931			
PFMBA	4.850	279.0 -> 85.1	502721	27.53	µg/L	100
PFMPA	3.551	229.0 -> 84.9	373332	27.61	µg/L	100
PFEESA	6.112	314.8 -> 134.9	1386918	25.37	µg/L	100
		314.8 -> 82.9	45278			

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

7.6.2
7

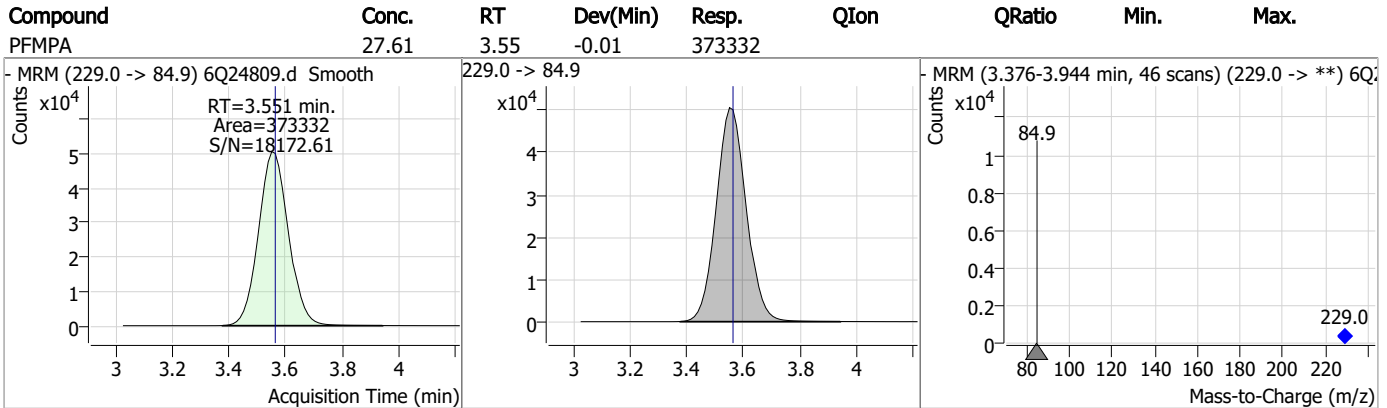
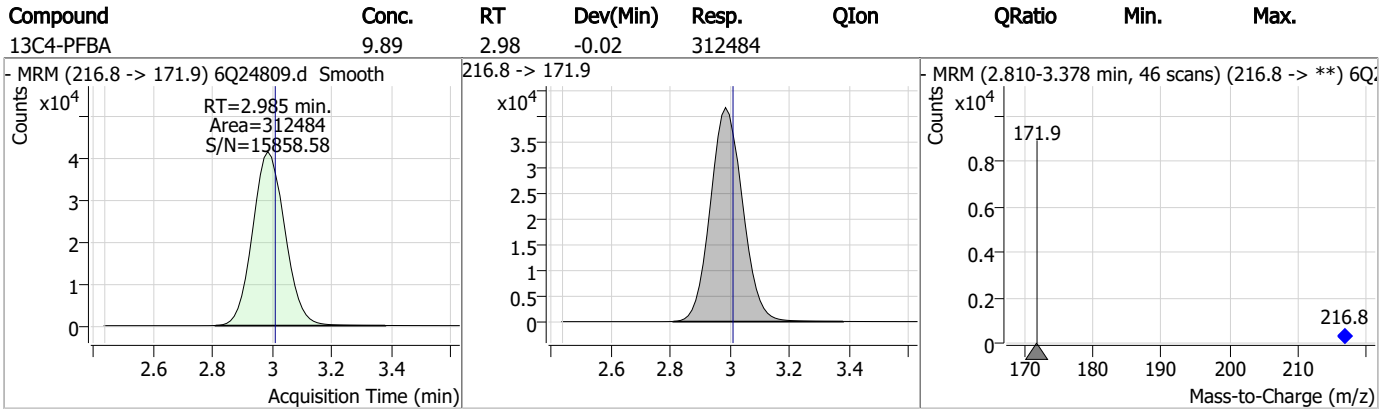
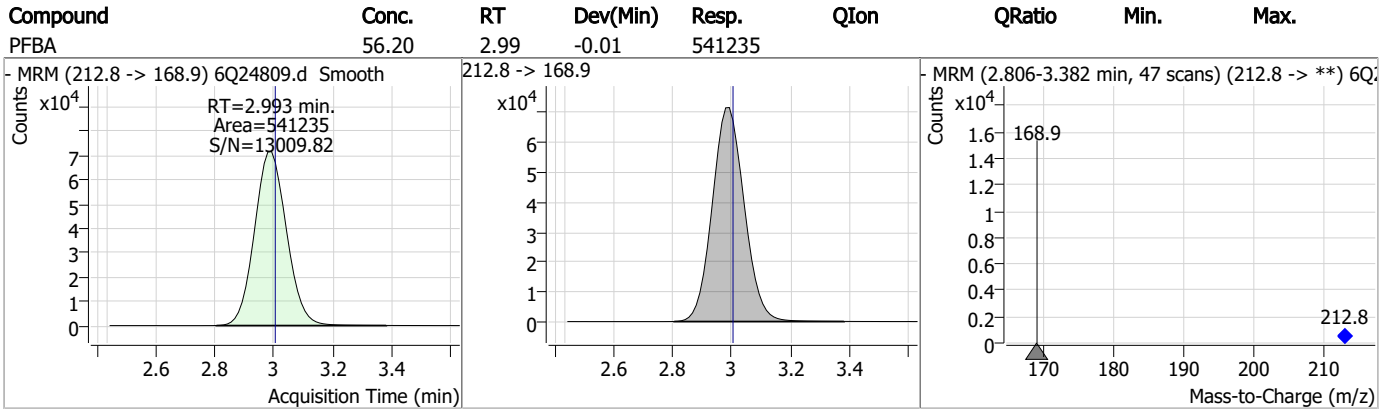
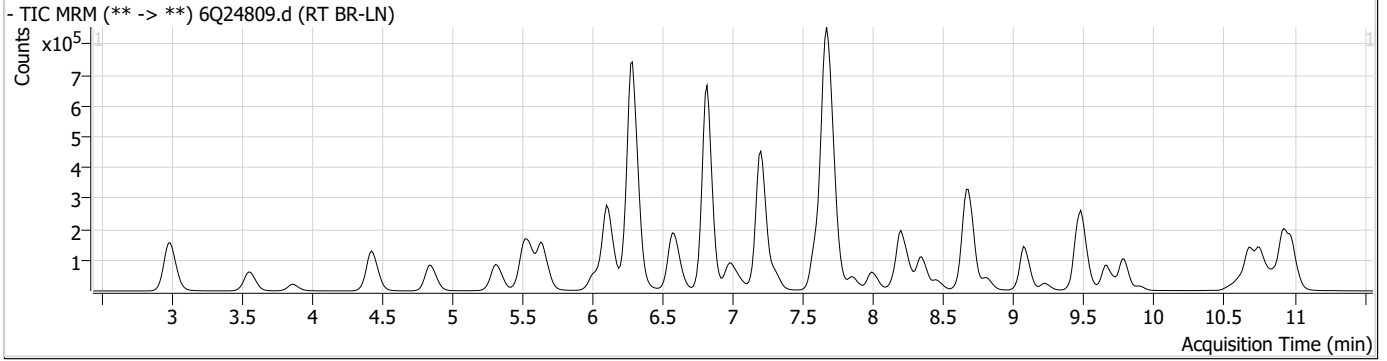
Perfluorinated Compounds by LC/MS/MS

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

7.6.2

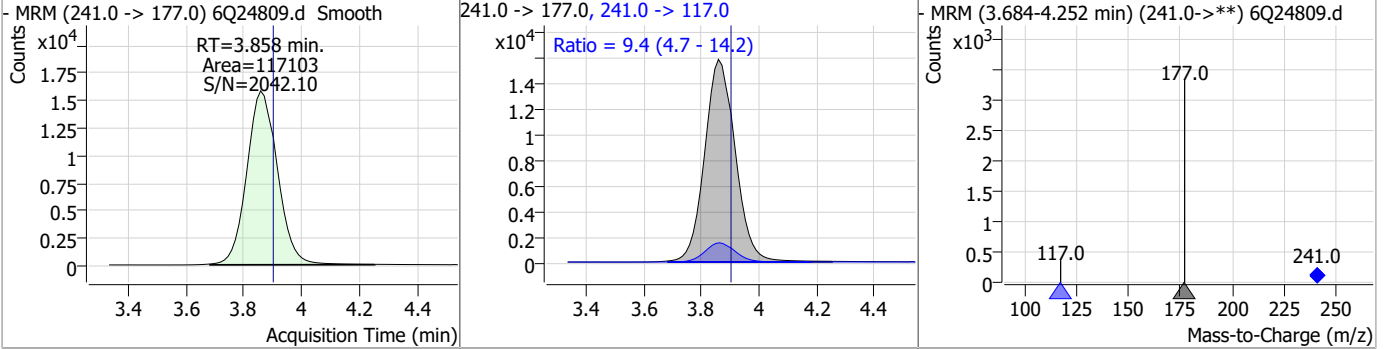
7

Perfluorinated Compounds by LC/MS/MS

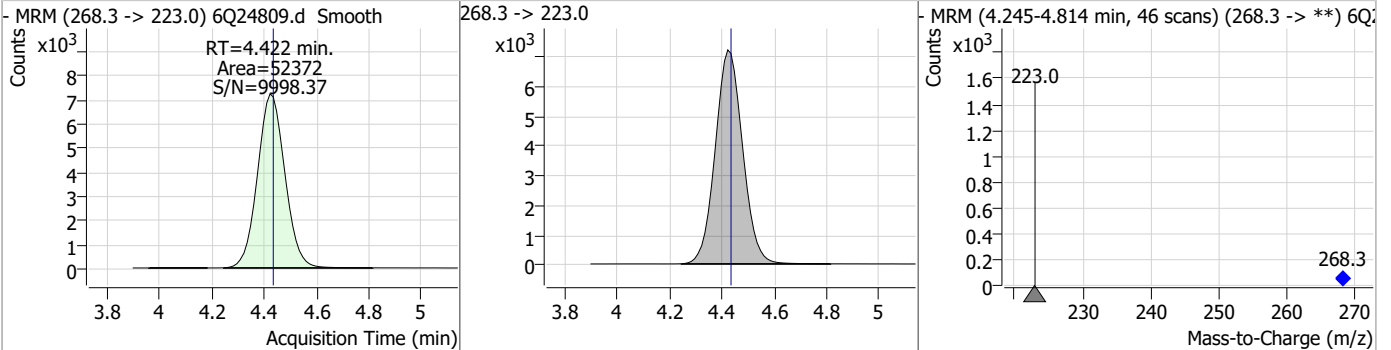


Perfluorinated Compounds by LC/MS/MS

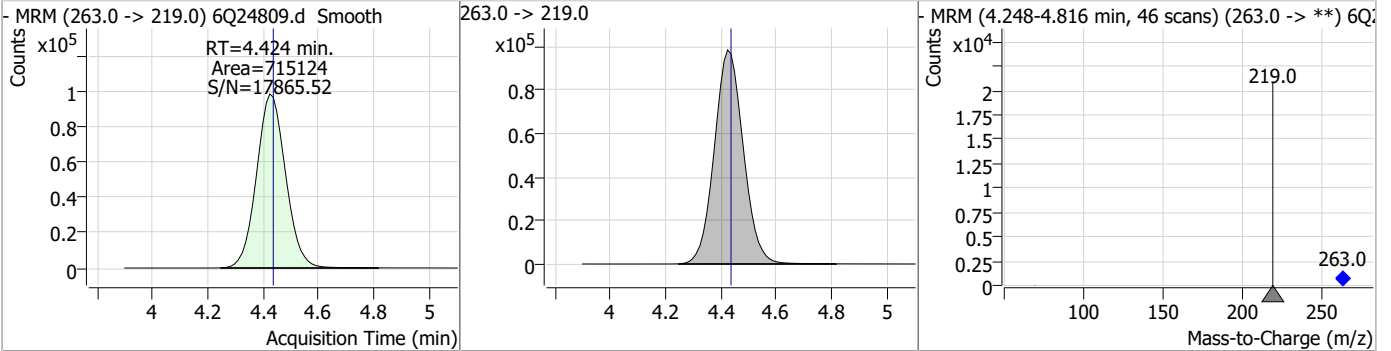
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	69.71	3.86	-0.04	117103	241.0 -> 117.0	9.4	4.7	14.2



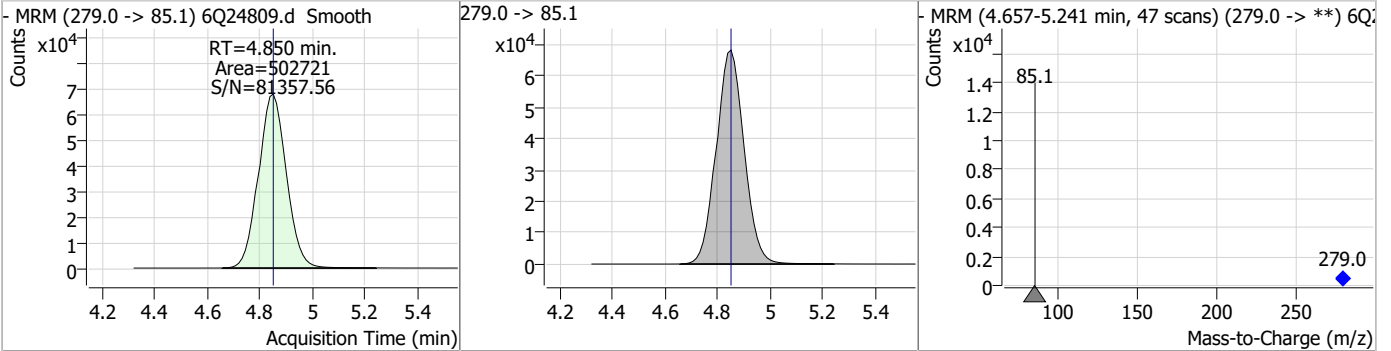
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.37	4.42	-0.01	52372				



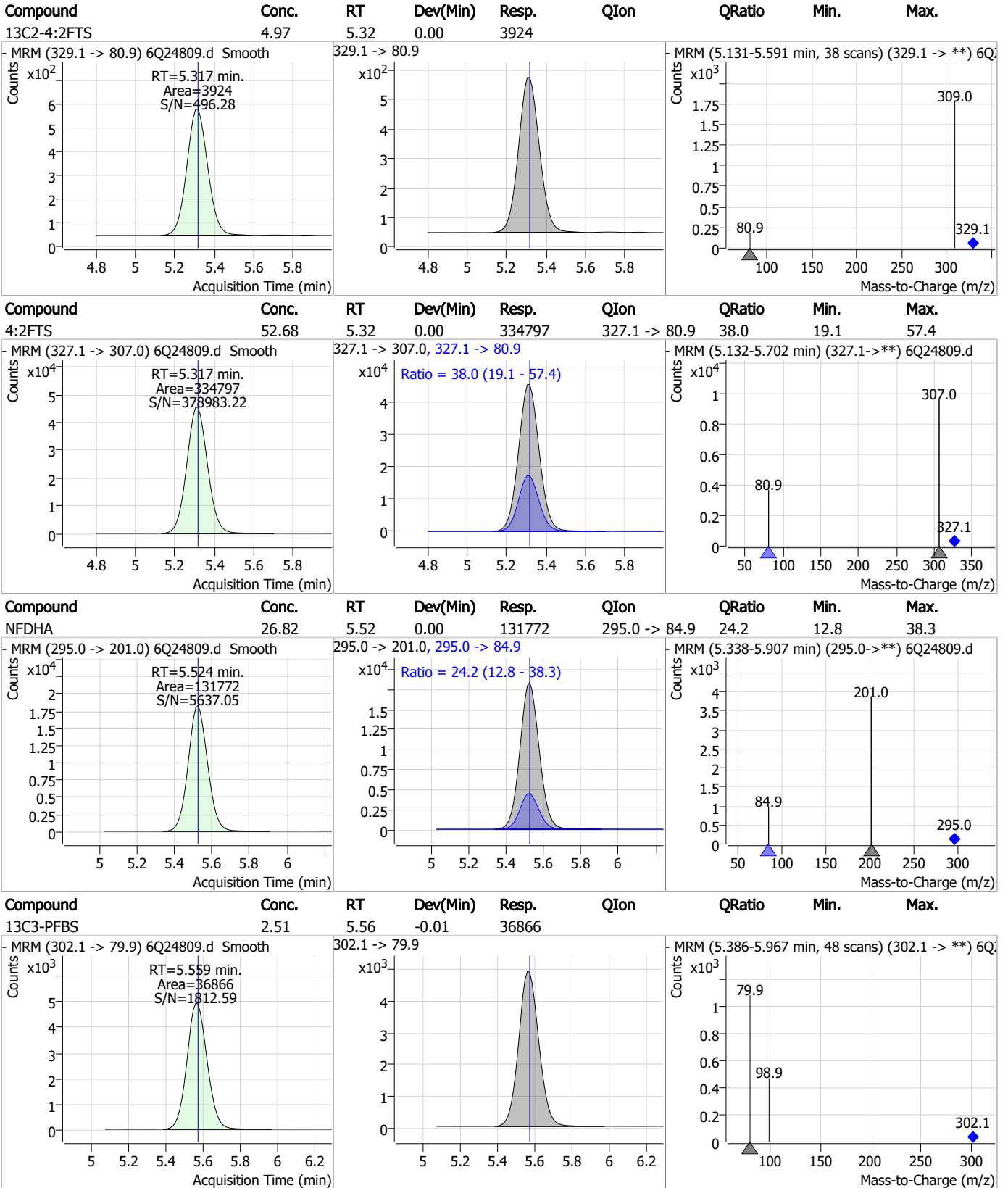
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	27.72	4.42	-0.01	715124				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	27.53	4.85	0.00	502721				



Perfluorinated Compounds by LC/MS/MS

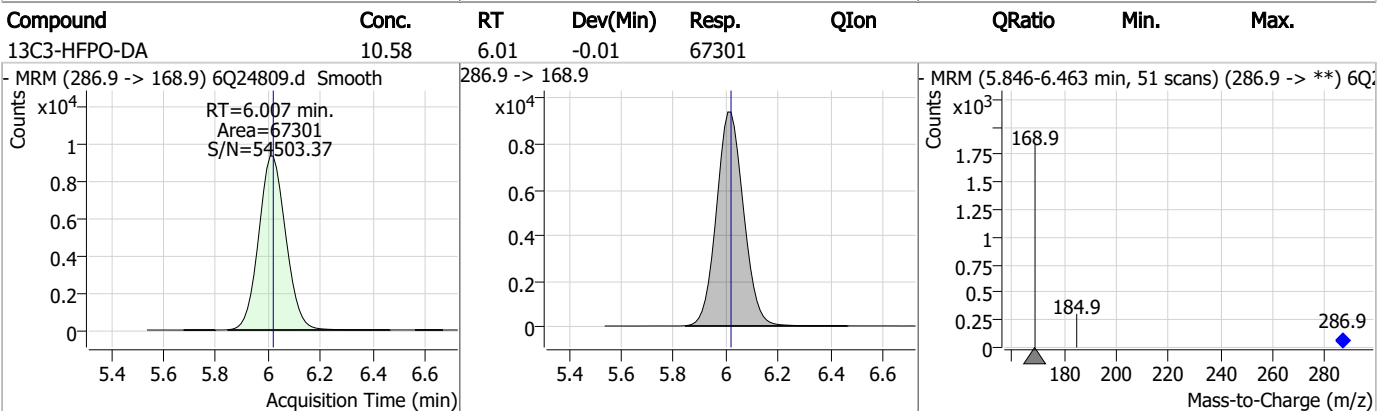
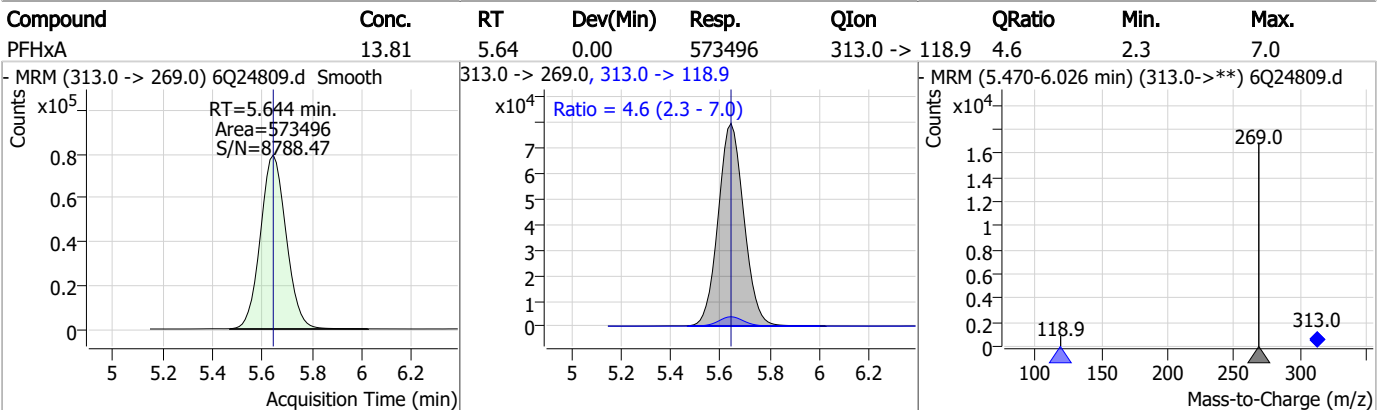
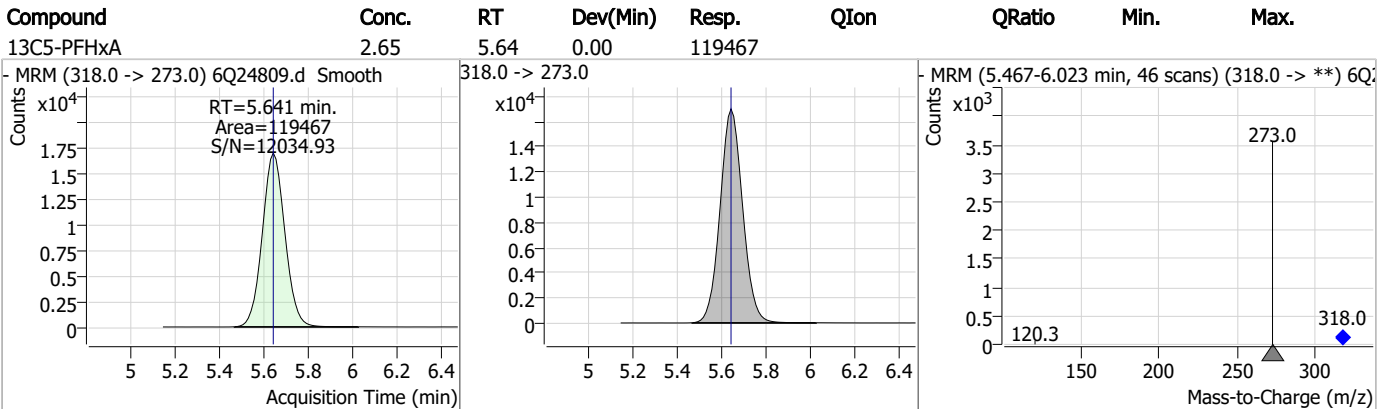
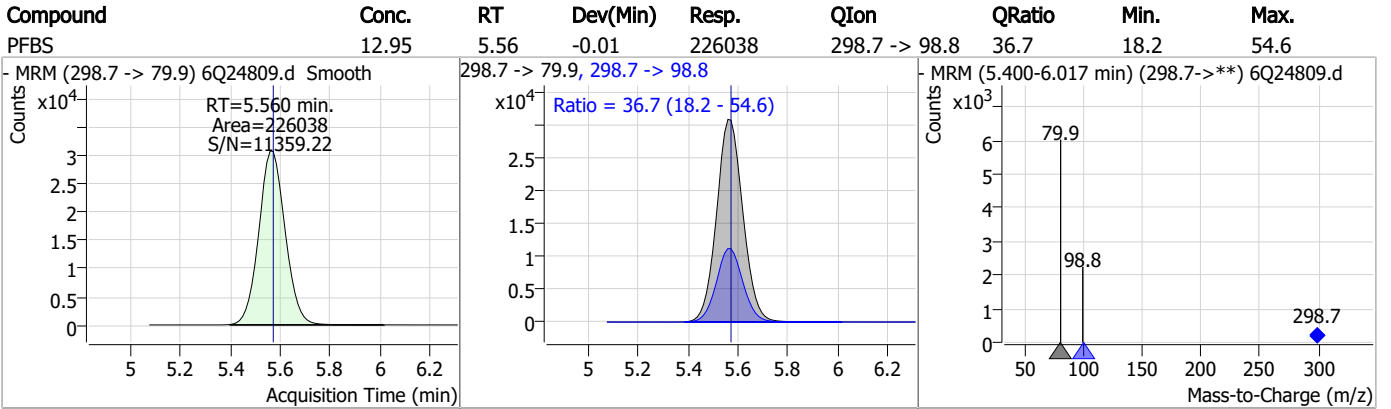


7.6.2

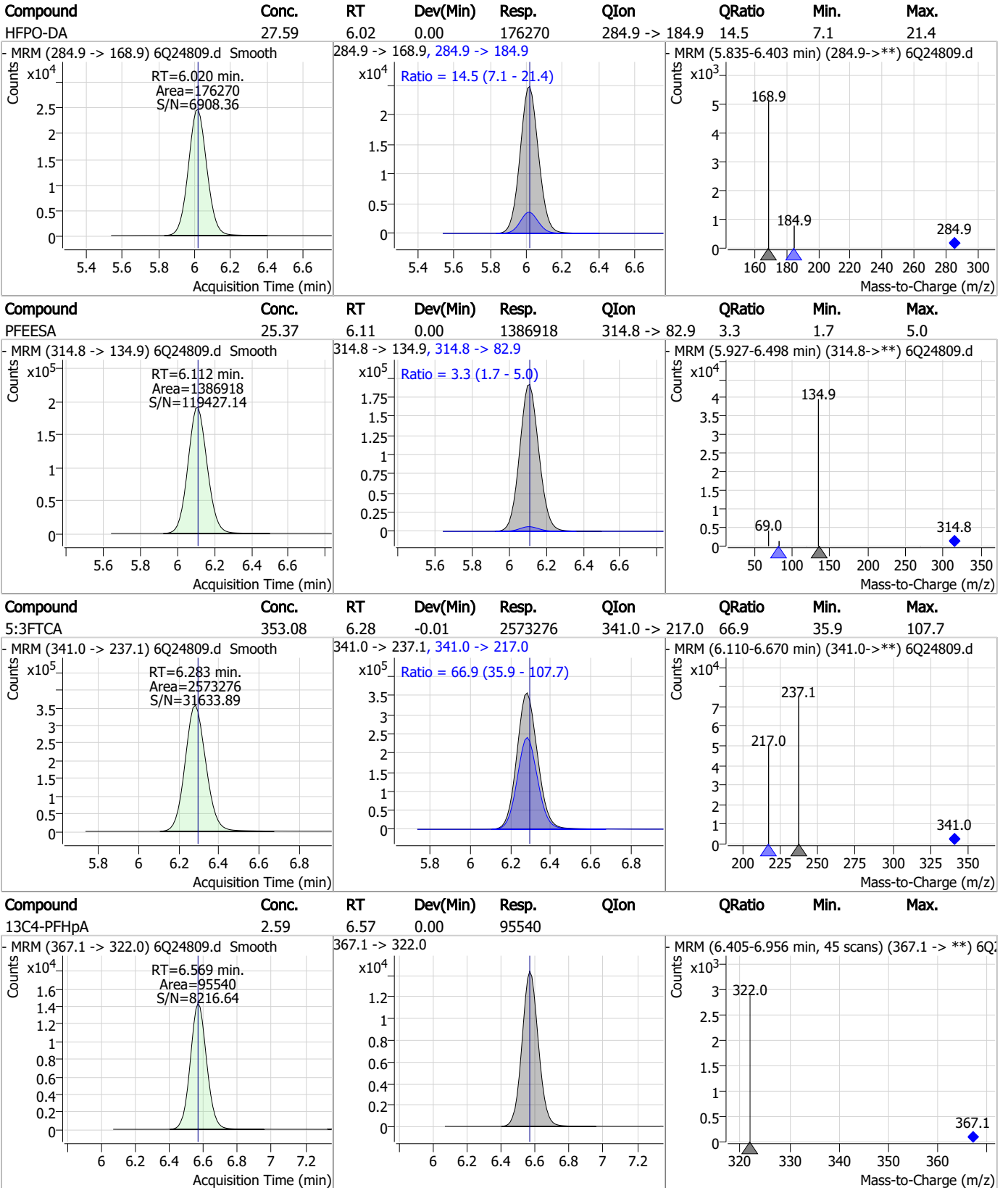
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Perfluorinated Compounds by LC/MS/MS

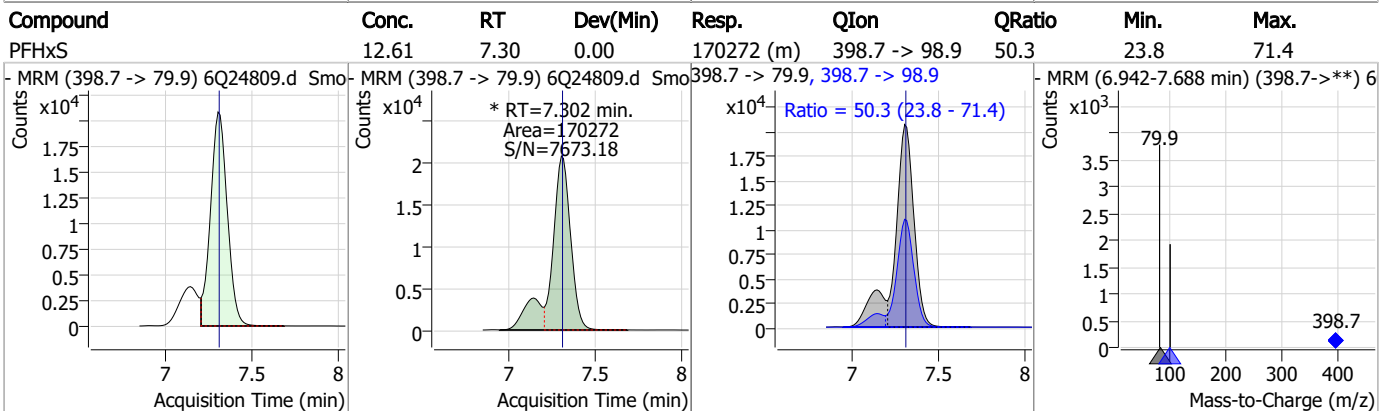
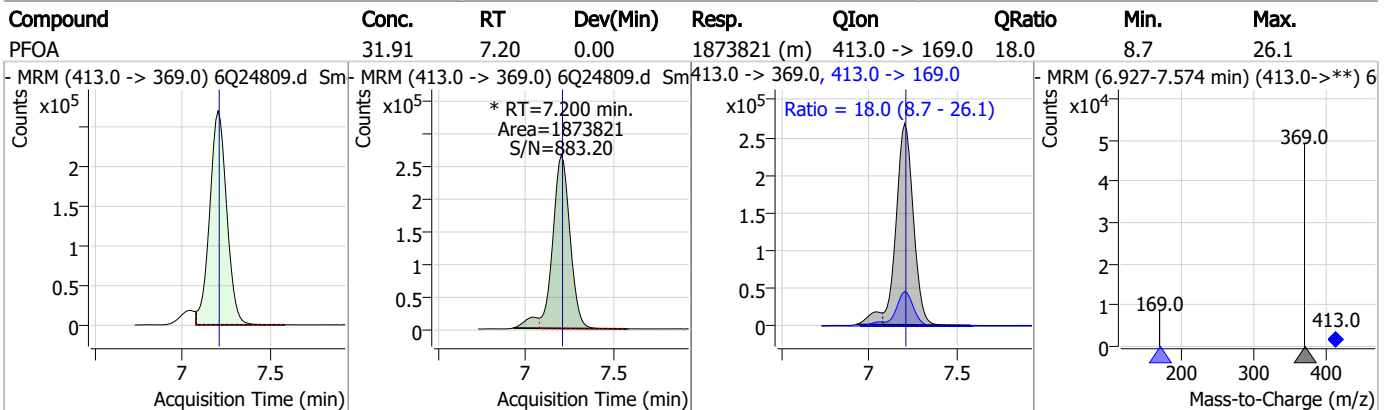
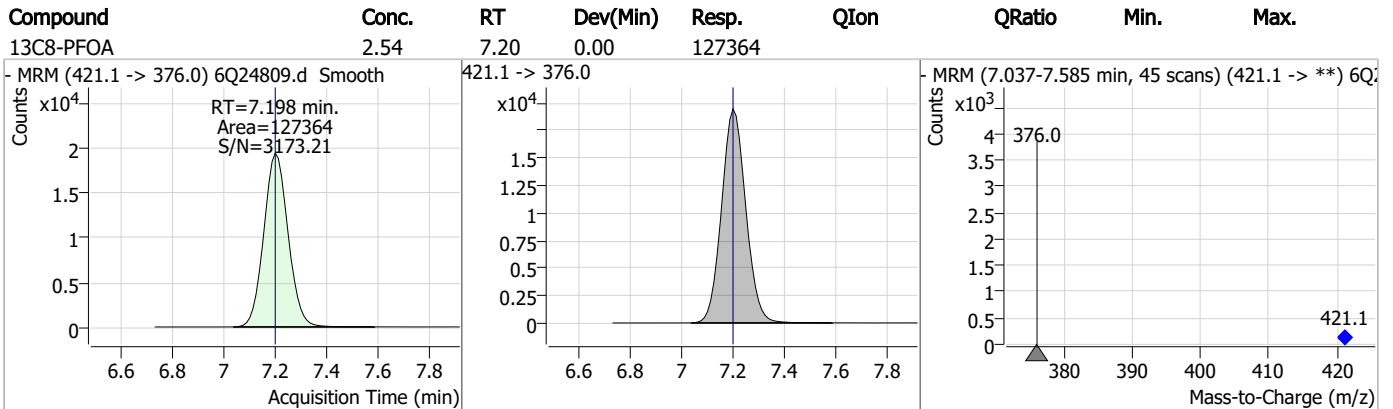
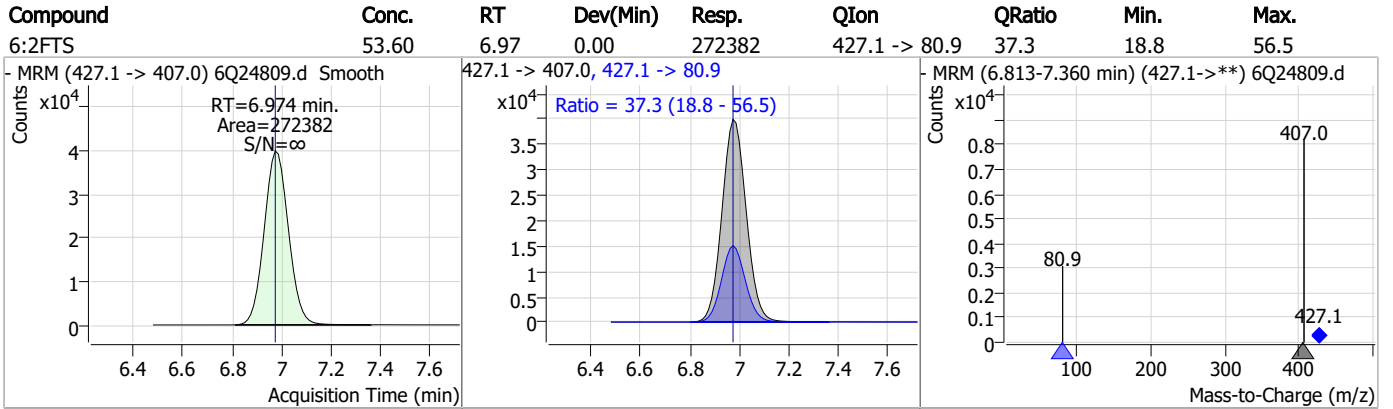
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	14.49	6.57	-0.01	703774	363.1 -> 169.0	14.9	8.0	24.1
PFPeS	13.60	6.62	0.00	152684	349.1 -> 98.9	44.8	24.4	73.2
ADONA	27.46	6.82	0.00	2727907	376.9 -> 84.8	24.5	13.3	39.9
13C2-6:2FTS	4.94	6.97	0.00	5496	429.1 -> 80.9			

7.6.2

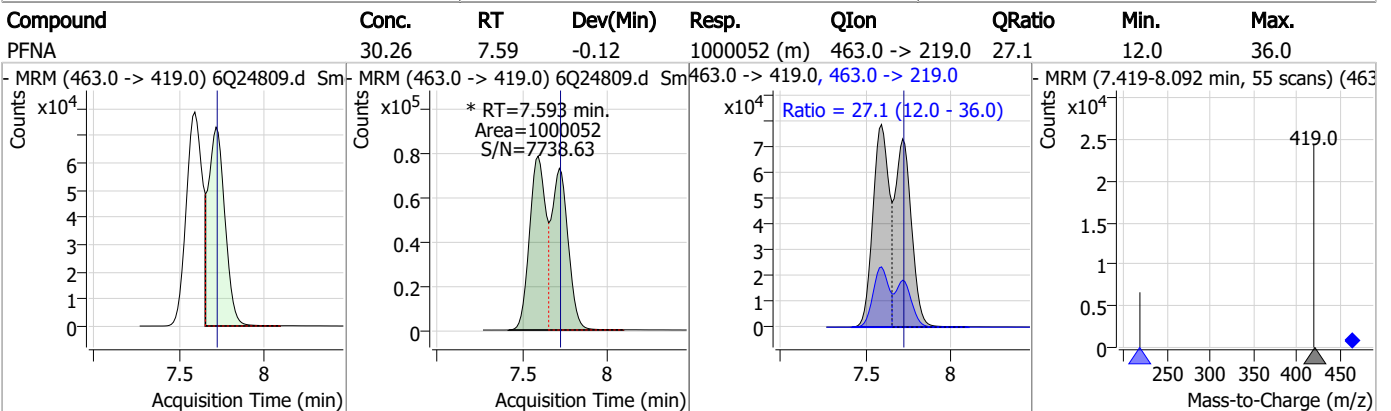
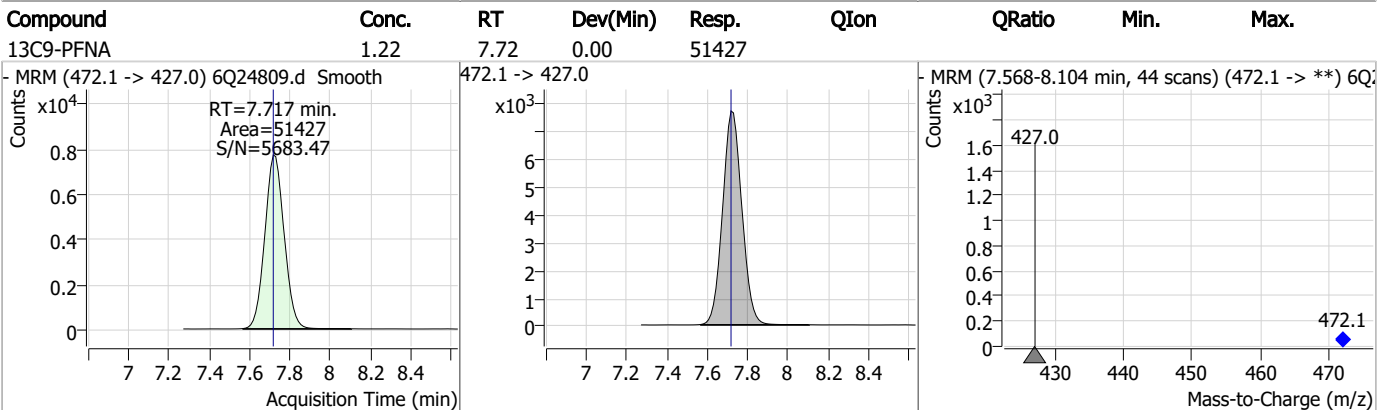
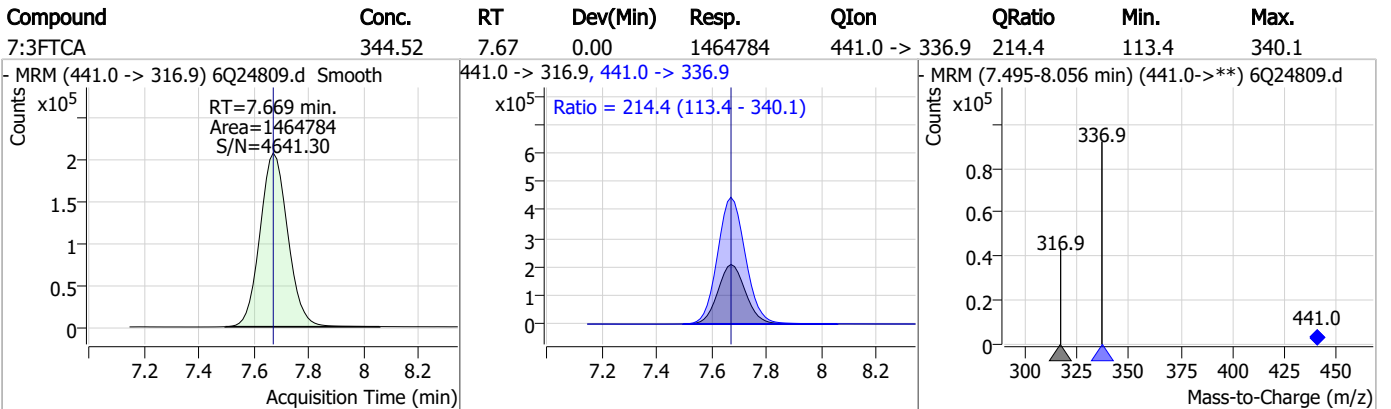
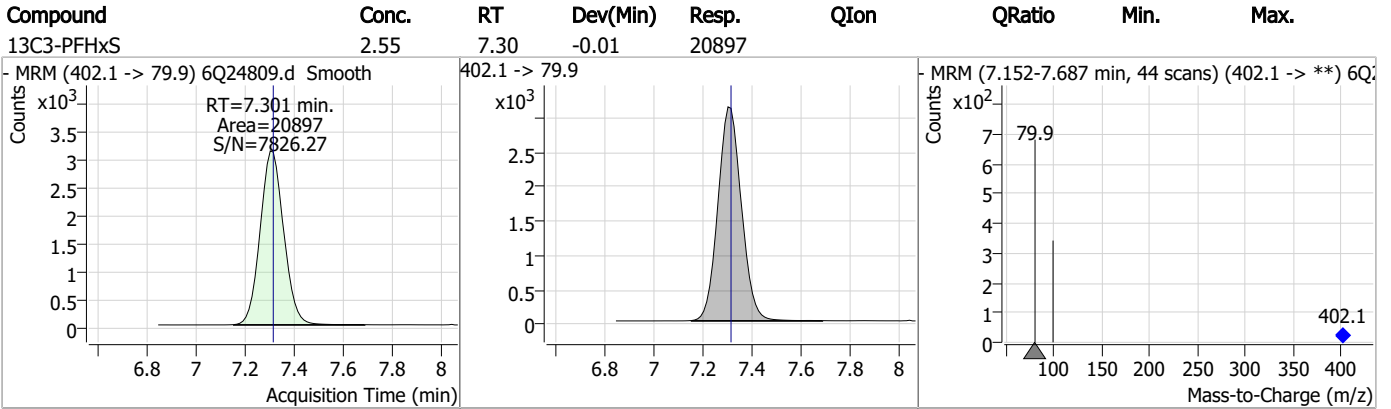
7



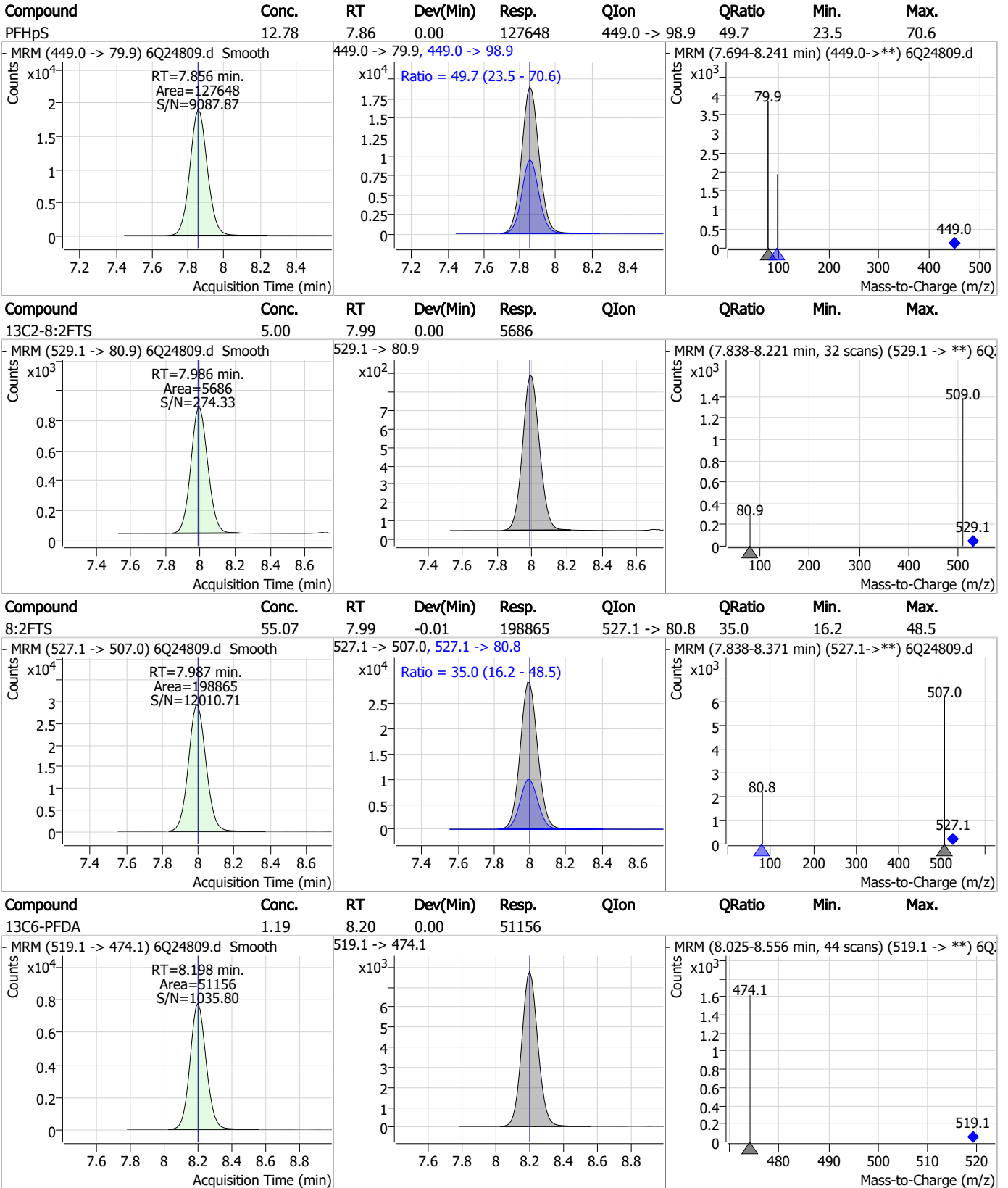
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



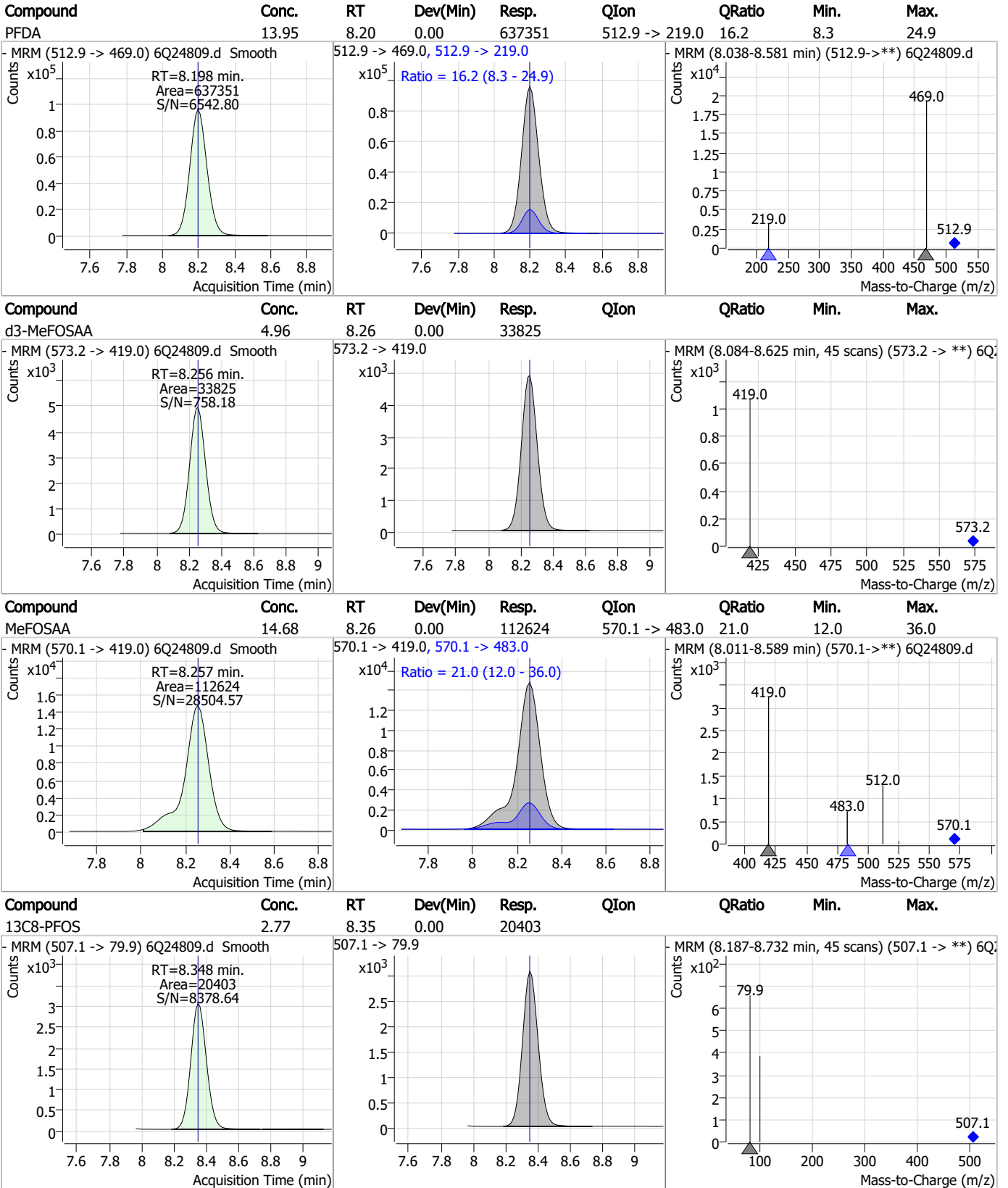
Perfluorinated Compounds by LC/MS/MS



7.6.2

7

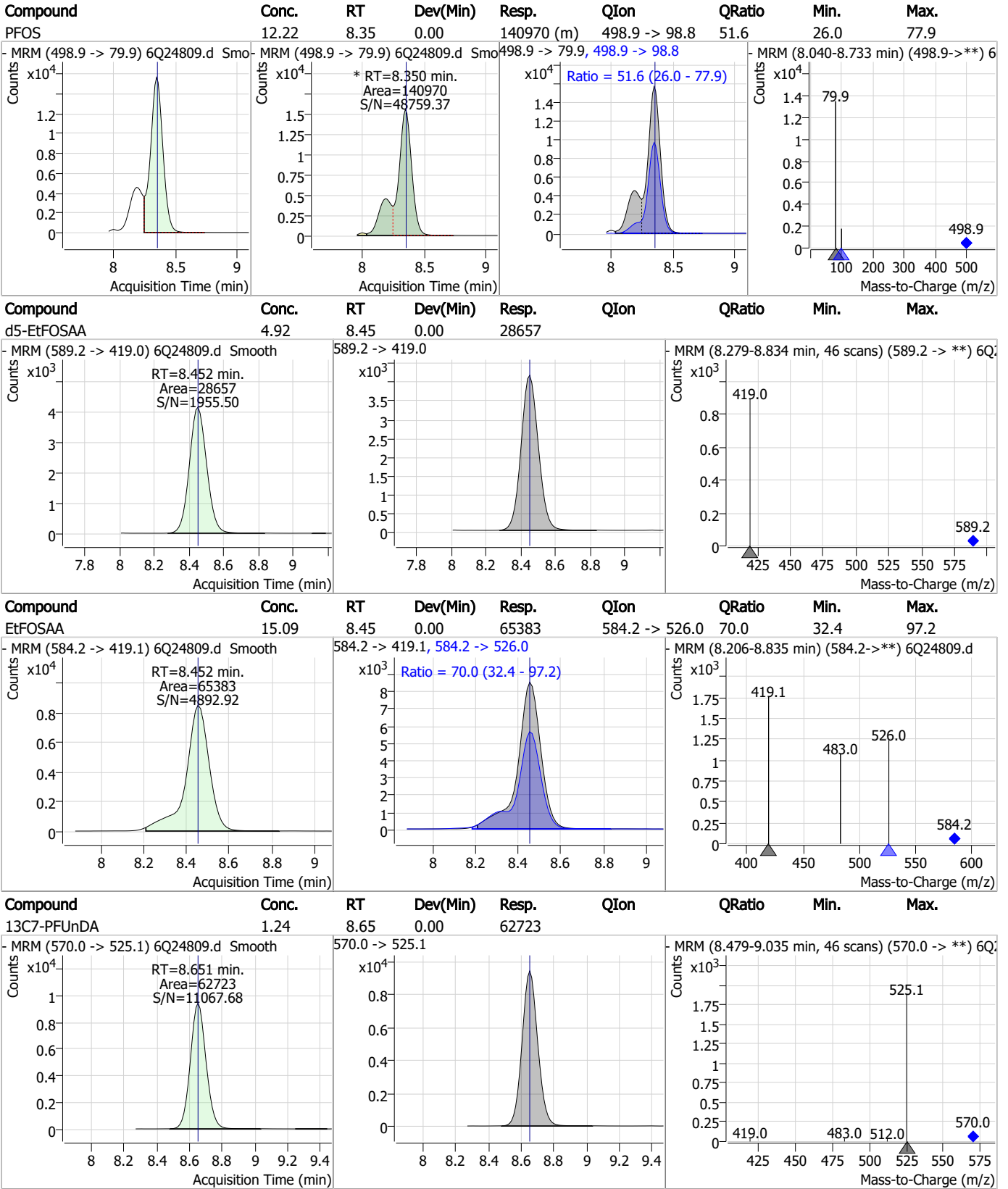
Perfluorinated Compounds by LC/MS/MS



7.6.2

7

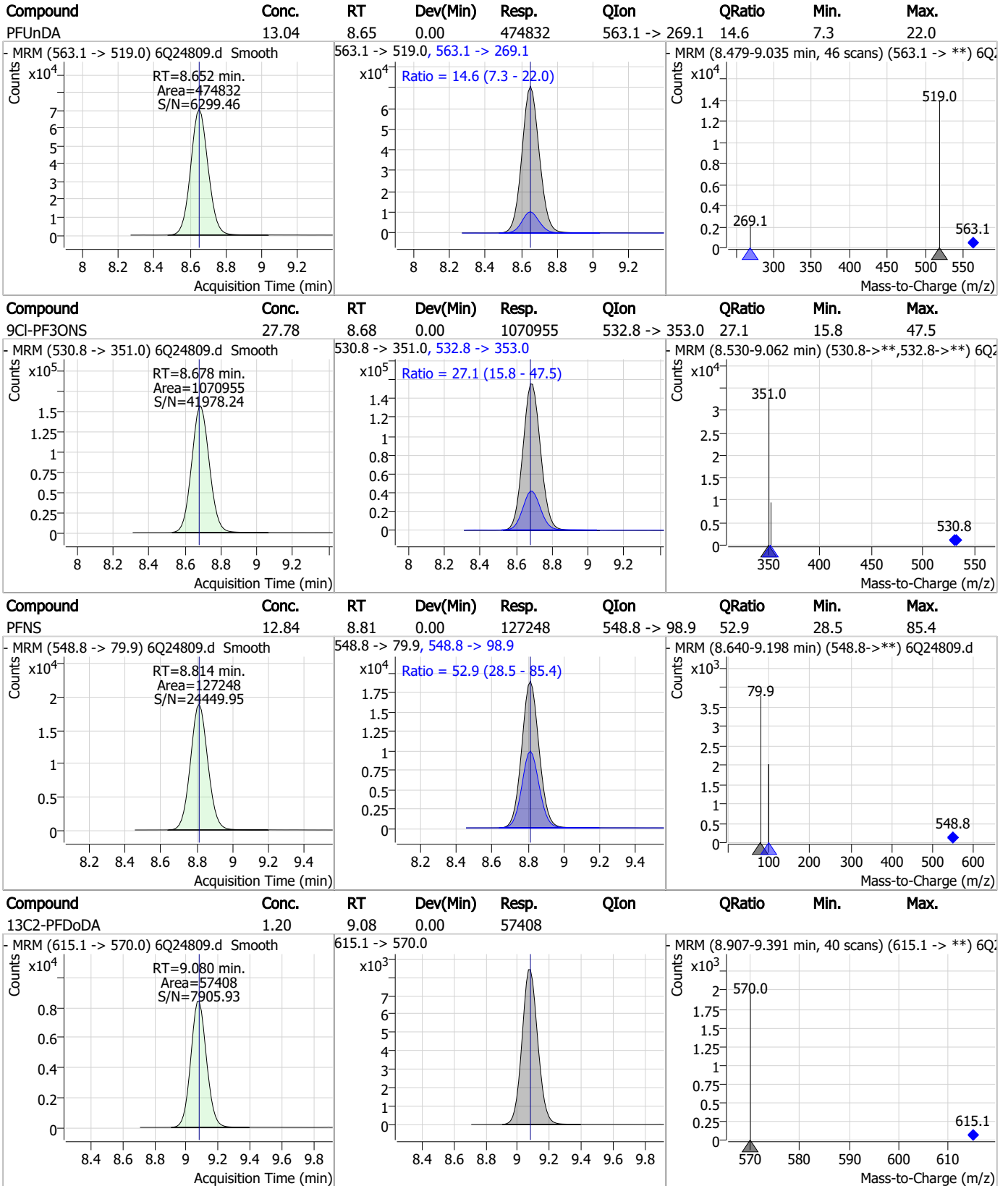
Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Perfluorinated Compounds by LC/MS/MS

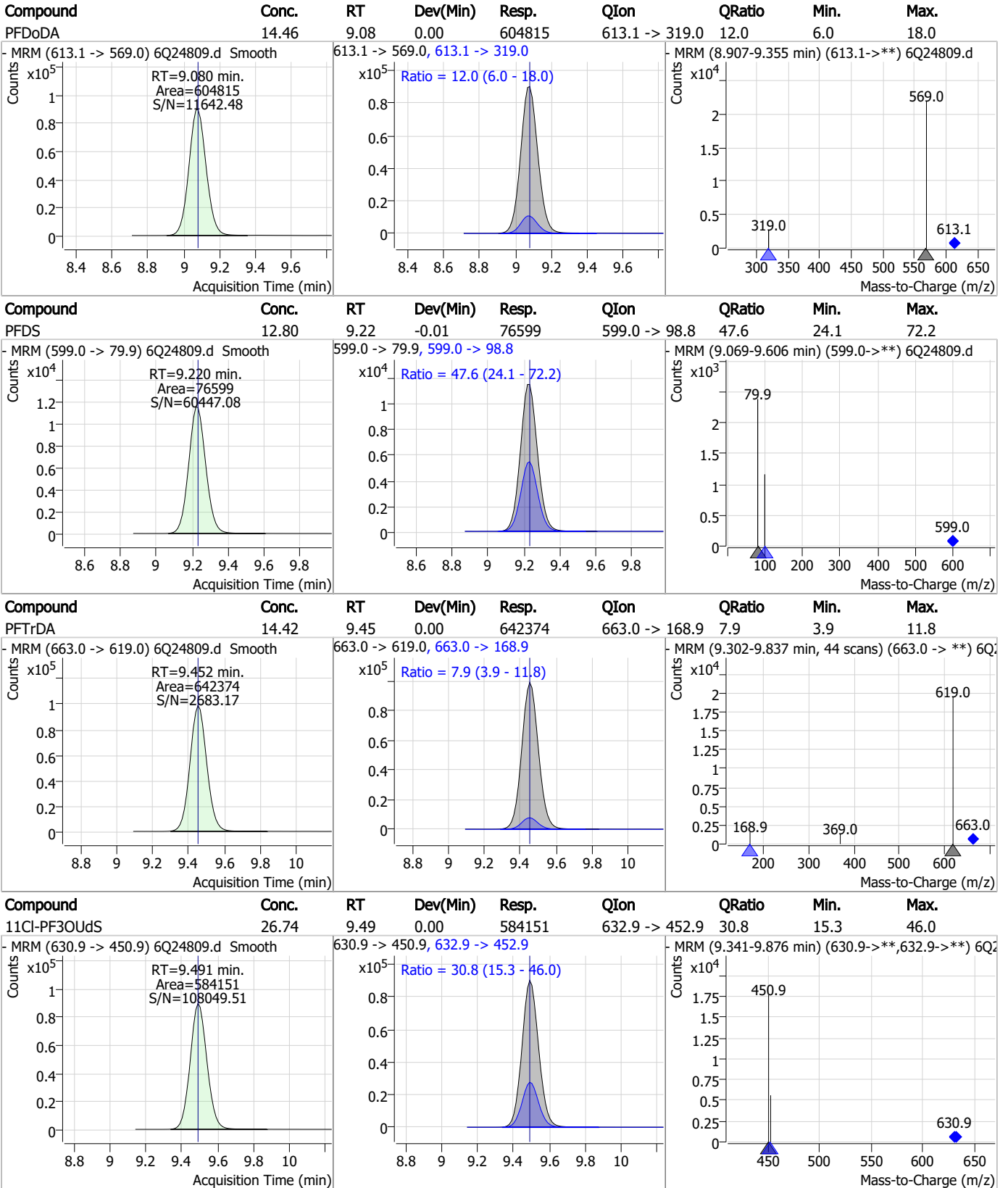


7.6.2

7



Perfluorinated Compounds by LC/MS/MS

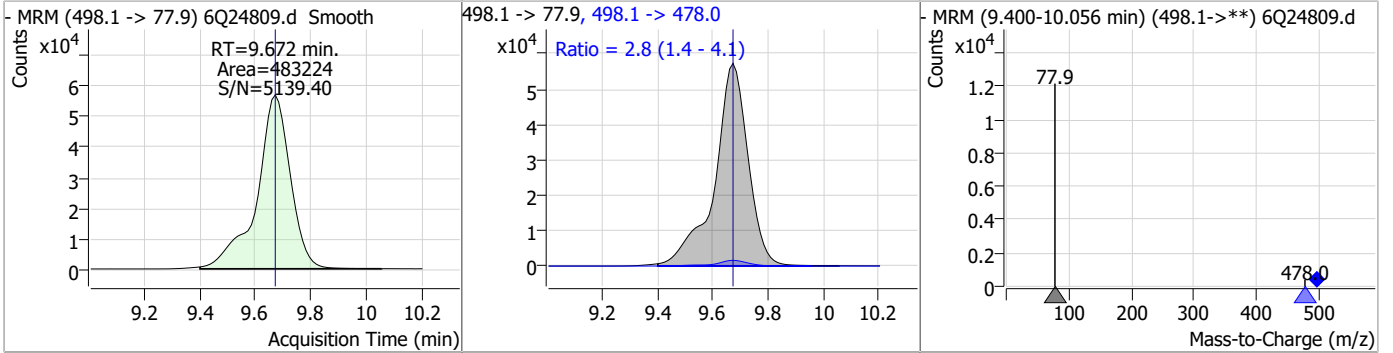


7.6.2

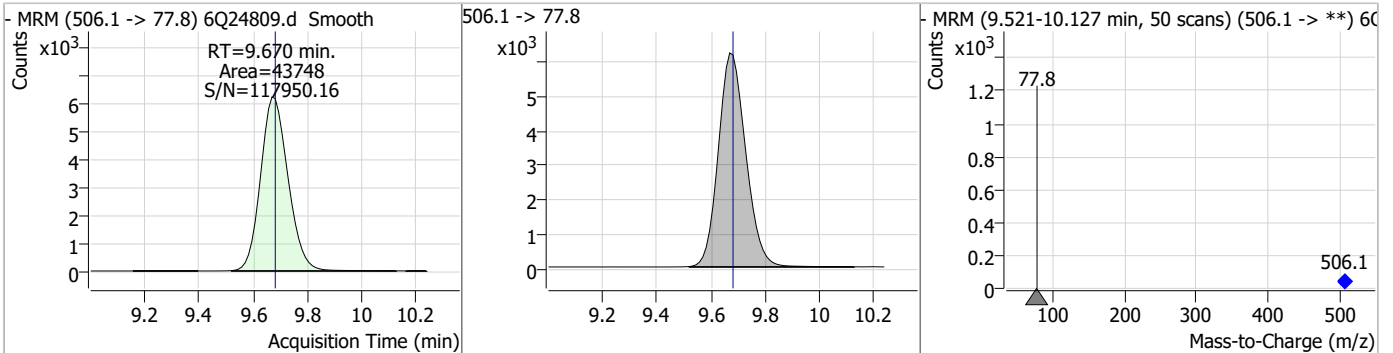
7

Perfluorinated Compounds by LC/MS/MS

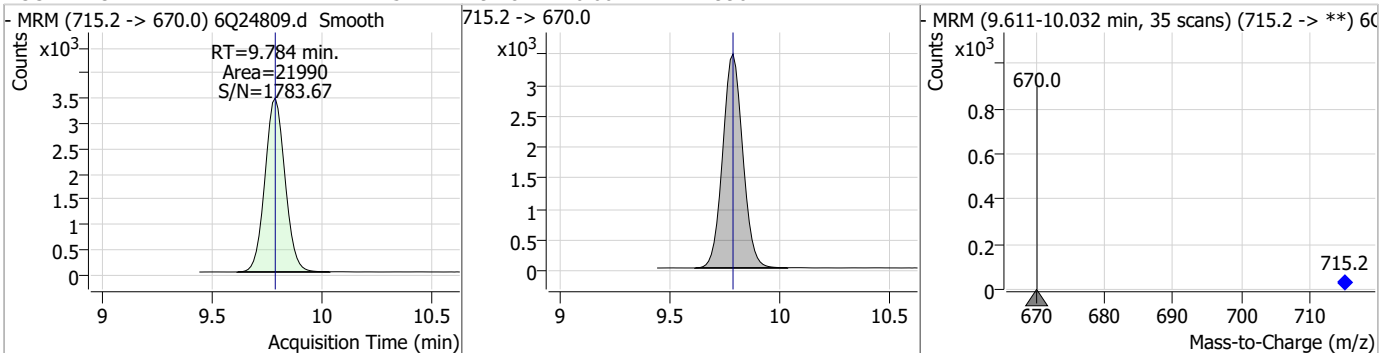
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	32.02	9.67	0.00	483224	498.1 -> 478.0	2.8	1.4	4.1



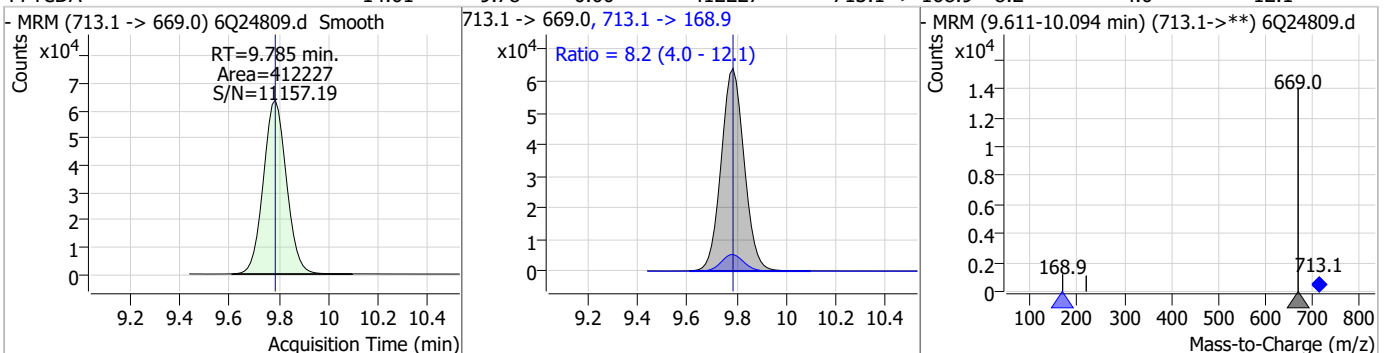
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.67	9.67	-0.01	43748				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.15	9.78	0.00	21990				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	14.01	9.78	0.00	412227	713.1 -> 168.9	8.2	4.0	12.1



Perfluorinated Compounds by LC/MS/MS

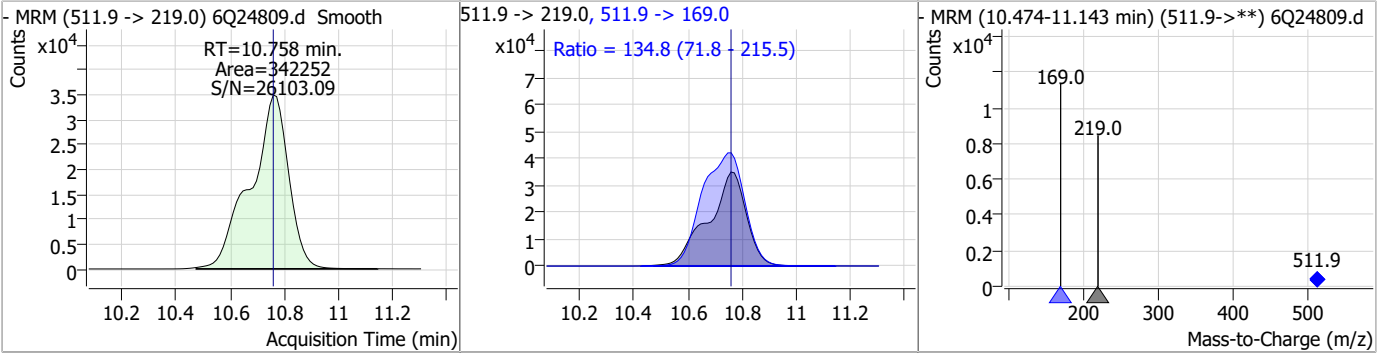
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	13.14	9.90	0.00	38647	699.1 -> 98.8	55.4	30.6	91.9
d7-MeFOSE	26.50	10.68	0.00	141317	623.2 -> 58.9	623.2 -> 58.9	623.2 -> **)	623.2
MeFOSE	88.69	10.69	0.00	538051	616.1 -> 58.9	616.1 -> **)	616.1 -> **)	616.1
d3-MeFOSA	2.70	10.77	0.01	16043	515.0 -> 219.0	515.0 -> **)	515.0 -> **)	515.0

7.6.2

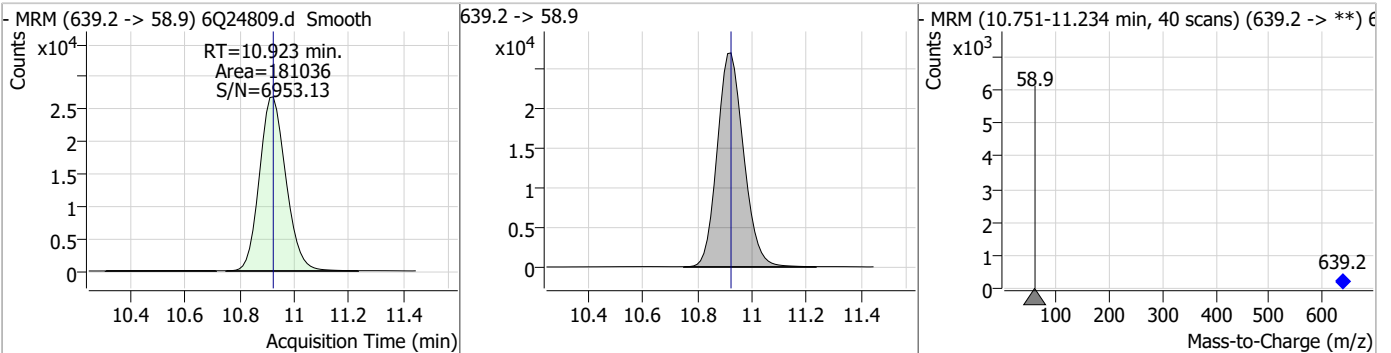
7

Perfluorinated Compounds by LC/MS/MS

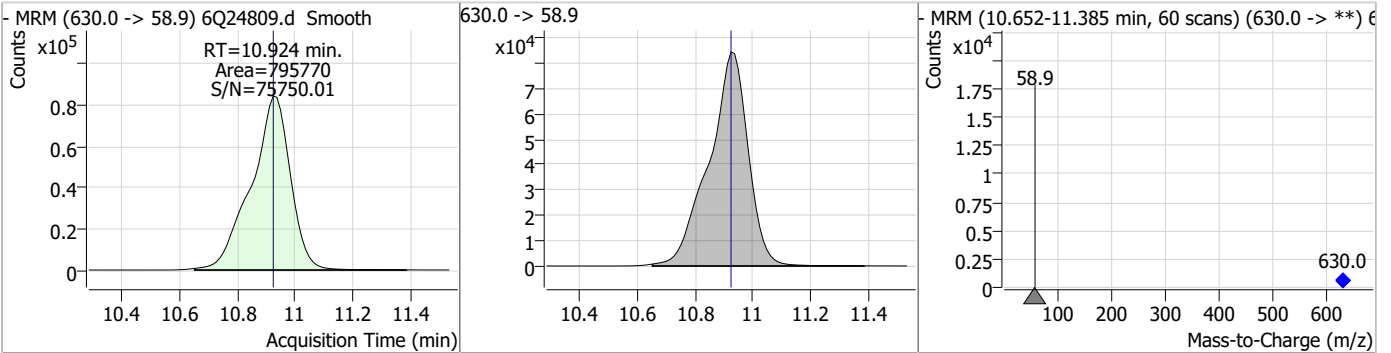
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	47.41	10.76	0.00	342252	511.9 -> 169.0	134.8	71.8	215.5



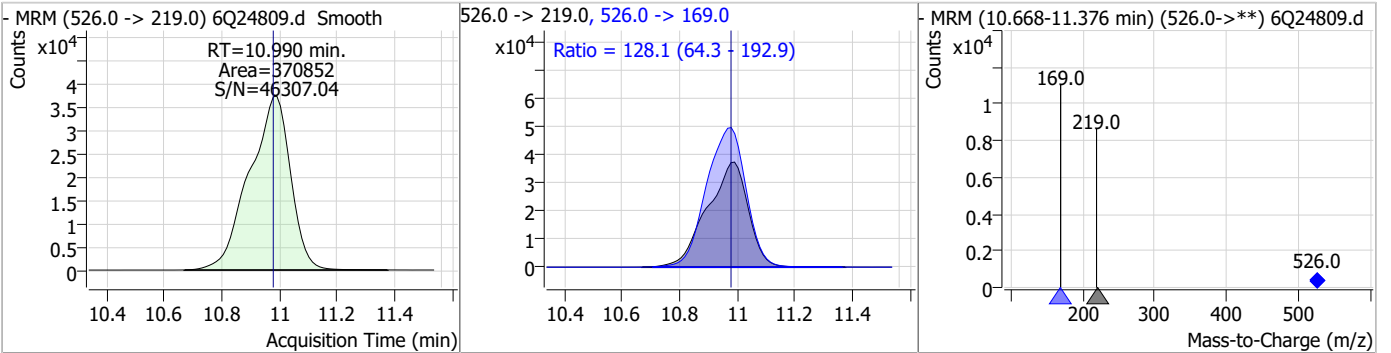
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.87	10.92	0.00	181036				



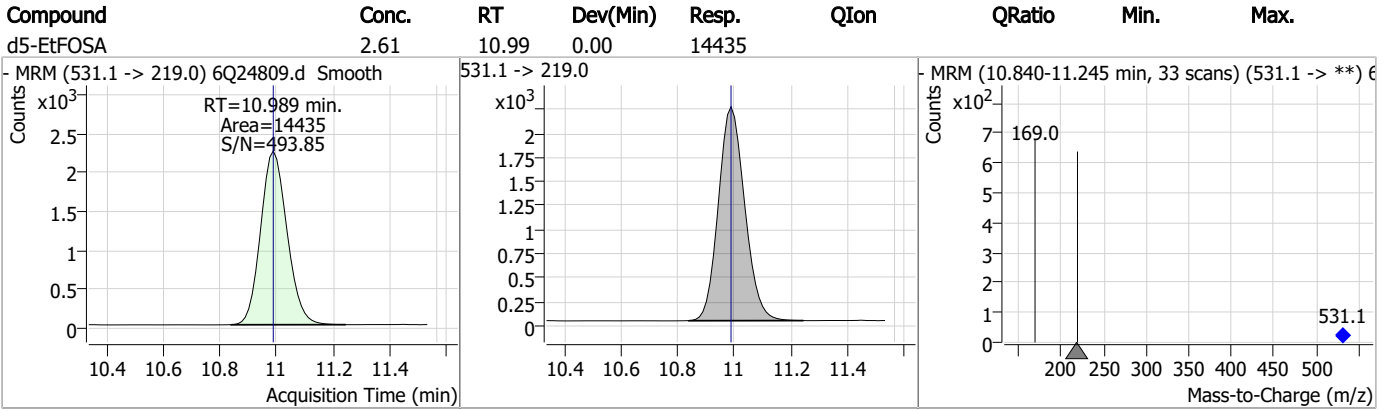
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	93.78	10.92	0.00	795770				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	48.89	10.99	0.01	370852	526.0 -> 169.0	128.1	64.3	192.9



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S6Q355-RT Method: EPA DRAFT 1633
Lab FileID: 6Q24809.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 20:07 Supervisor approved: 09/22/23 13:16 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.20	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorononanoic acid	375-95-1		7.59	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.6.2.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtie
 09/26/23 16:05

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24916.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 2:17:05 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : S6Q356 TDCA.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.348	507.1 -> 79.9	21348	2.50	µg/L	-0.025	
13C4-PFOS	8.349	502.8 -> 79.9	21408	2.50	µg/L	-0.025	
System Monitoring Compounds							
13C8-PFOS	8.348	507.1 -> 79.9	21348	2.53	µg/L	-0.025	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%				
Target Compounds							
PFOS	8.350	498.9 -> 79.9 498.9 -> 98.8	23319 9709	3.20	µg/L	m	95
TCDCa	6.774	498.9 -> 79.9	3115	3.16	ng/ml		100
TDCA	6.923	498.9 -> 79.9	3701	4.15	ng/ml		100
TUDCA	5.947	498.9 -> 79.9	4811	2.54	ng/ml		100

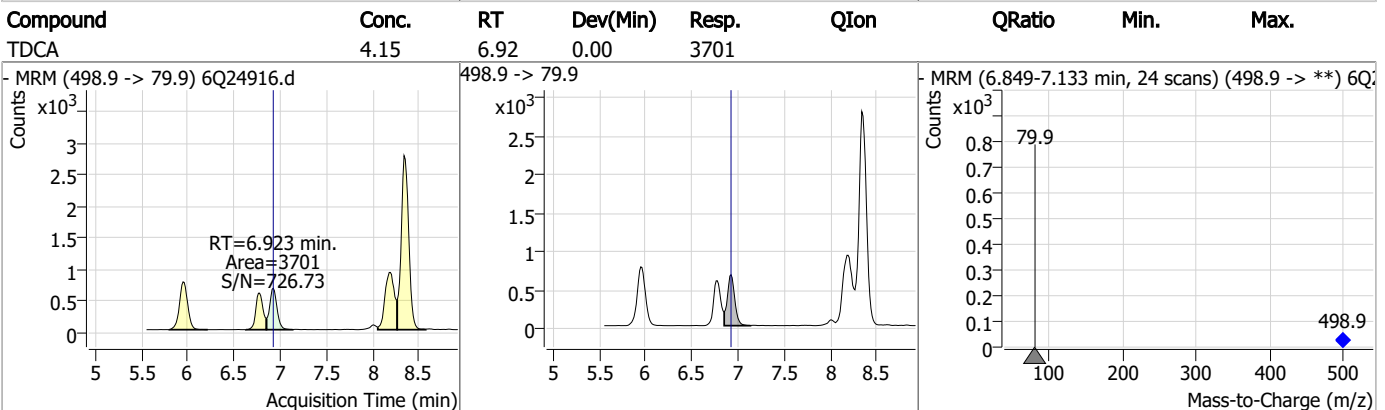
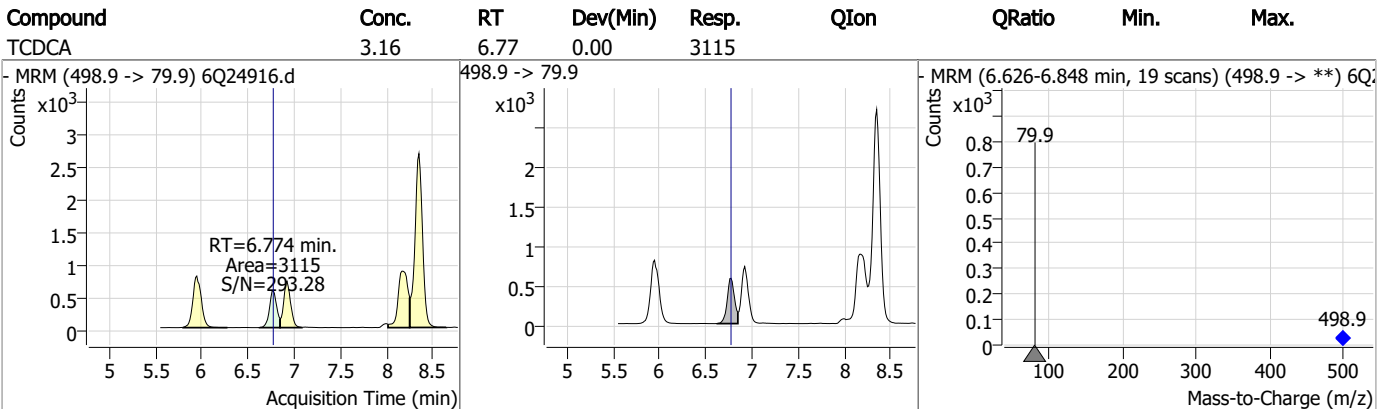
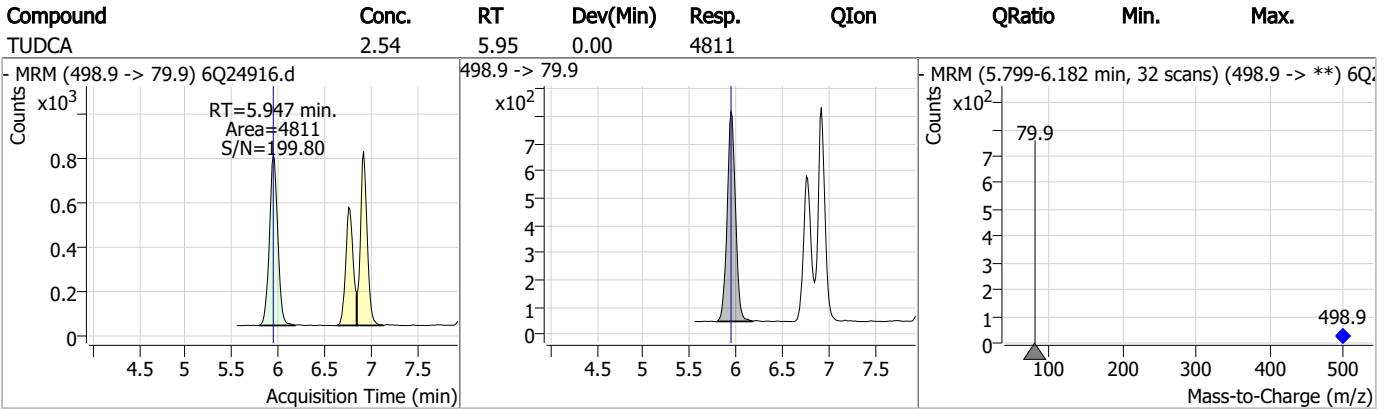
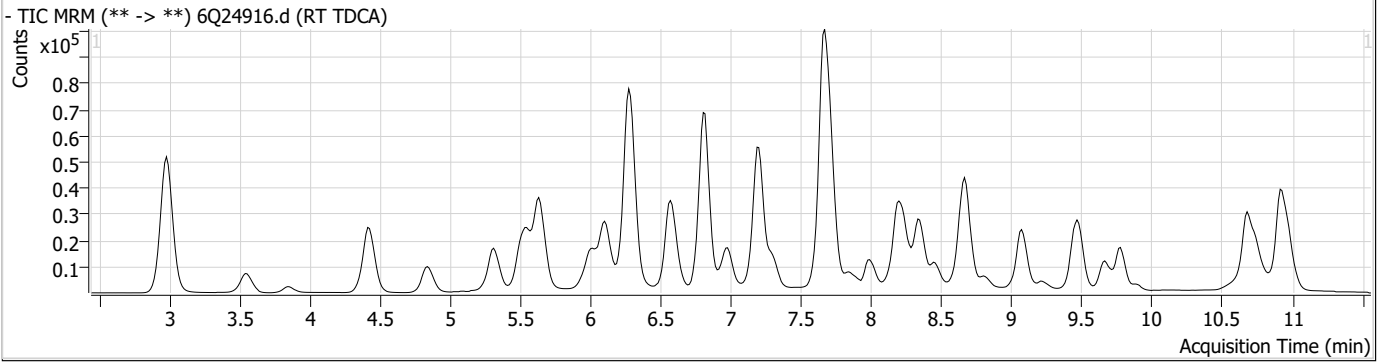
= Qualifier out of range, m = manually integrated, + = Area summed

7.6.3

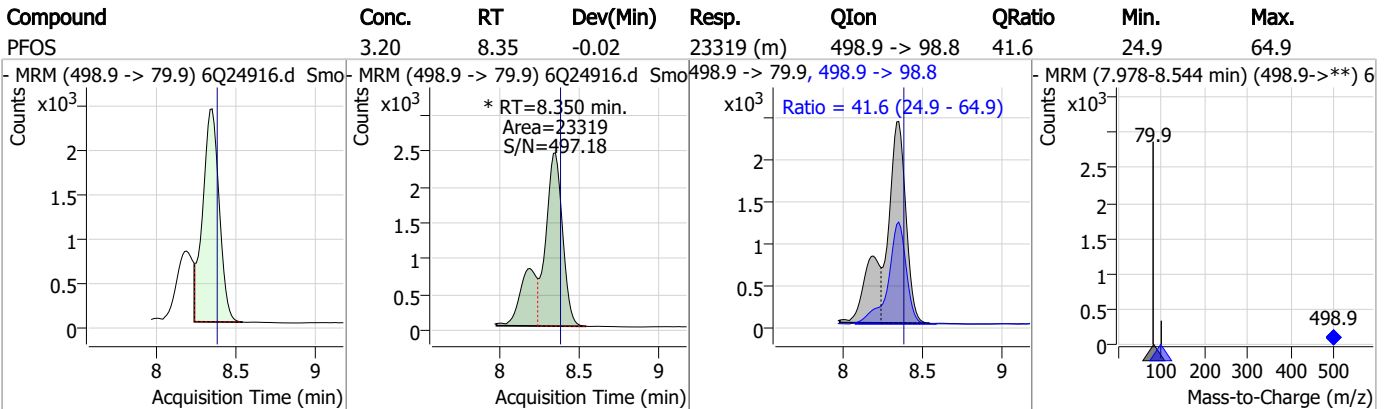
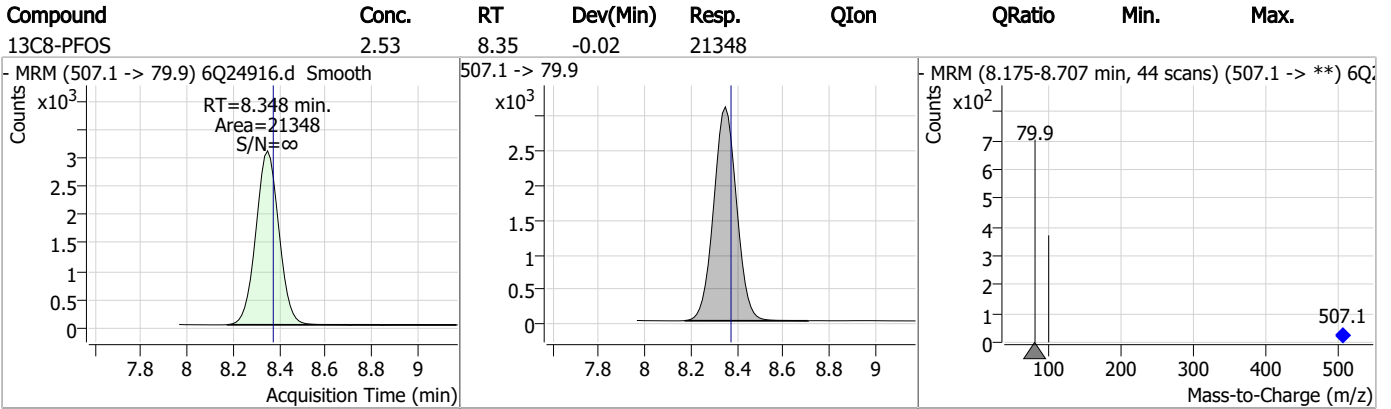
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.3
7



Manual Integration Approval Summary

Sample Number: S6Q356-RT Method: EPA DRAFT 1633
Lab FileID: 6Q24916.D Analyst approved: 09/26/23 15:37 Martha Valls
Injection Time: 09/24/23 14:17 Supervisor approved: 09/26/23 16:05 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.6.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24917.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 2:31:23 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	173329	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	68810	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	64457	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	60850	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	77626	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	34071	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	32826	1.25 µg/L	0.000
M7-PFUnDA	8.639	570.0 -> 525.1	36635	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	37495	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	15886	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30491	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	27312	2.50 µg/L	-0.013
M3-PFHxS	7.301	402.1 -> 79.9	15817	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	15228	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2574	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4023	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4007	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	32733	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	45039	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	24502	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	104466	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	126260	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9227	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	8894	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	13503	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	71425	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10320	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	91868	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	31703	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	35506	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	58968	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2574	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4023	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4007	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C2-PFDoDA	9.067	615.1 -> 570.0	37495	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-PFTeDA	9.772	715.2 -> 670.0	15886	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C3-PFBS	5.546	302.1 -> 79.9	27312	2.52 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C3-PFHxS	7.301	402.1 -> 79.9	15817	2.42 µg/L	0.000

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 = 96.9%	
13C4-PFBA	2.972	216.8 -> 171.9	173329	10.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C4-PFHpA	6.569	367.1 -> 322.0	60850	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C5-PFHxA	5.629	318.0 -> 273.0	64457	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C5-PFPeA	4.409	268.3 -> 223.0	68810	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C6-PFDA	8.198	519.1 -> 474.1	32826	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C7-PFUnDA	8.639	570.0 -> 525.1	36635	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-FOSA	9.670	506.1 -> 77.8	30491	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C8-PFOA	7.198	421.1 -> 376.0	77626	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-PFOS	8.348	507.1 -> 79.9	15228	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C9-PFNA	7.717	472.1 -> 427.0	34071	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.5%	
d3-MeFOSAA	8.244	573.2 -> 419.0	32733	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	45039	10.13 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
d3-MeFOSA	10.757	515.0 -> 219.0	8894	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
d5-EtFOSAA	8.452	589.2 -> 419.0	24502	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	104466	25.79 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
d9-EtFOSE	10.923	639.2 -> 58.9	126260	25.62 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
d5-EtFOSA	10.989	531.1 -> 219.0	9227	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	213403	50.67 µg/L	97
		327.1 -> 80.9	87141		
6:2FTS	6.974	427.1 -> 407.0	181546	52.37 µg/L	94
		427.1 -> 80.9	71878		
8:2FTS	7.987	527.1 -> 507.0	125312	49.05 µg/L	90
		527.1 -> 80.8	51686		
EtFOSAA	8.452	584.2 -> 419.1	56810	13.93 µg/L	95
		584.2 -> 526.0	36189		
FOSA	9.672	498.1 -> 77.9	361395	31.18 µg/L	100
		498.1 -> 478.0	9478		
MeFOSAA	8.245	570.1 -> 419.0	74819	13.06 µg/L	97
		570.1 -> 483.0	16759		
PFBA	2.968	212.8 -> 168.9	330764	53.45 µg/L	100
PFBS	5.560	298.7 -> 79.9	102535	11.51 µg/L	99
		298.7 -> 98.8	38478		
PFDA	8.198	512.9 -> 469.0	346347	13.37 µg/L	100
		512.9 -> 219.0	56844		
PFDoDA	9.068	613.1 -> 569.0	362032	13.25 µg/L	98
		613.1 -> 319.0	45807		
PFDS	9.220	599.0 -> 79.9	47322	12.85 µg/L	98

7.6.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	22885			
PFHpA	6.569	363.1 -> 319.0	451254	13.67	µg/L	99
		363.1 -> 169.0	67289			
PFHpS	7.856	449.0 -> 79.9	88093	13.12	µg/L	93
		449.0 -> 98.9	40669			
PFHxA	5.631	313.0 -> 269.0	301815	13.04	µg/L	99
		313.0 -> 118.9	14113			
PFHxS	7.302	398.7 -> 79.9	76476	12.42	µg/L	m 100
		398.7 -> 98.9	36990			
PFNA	7.593	463.0 -> 419.0	612239	27.77	µg/L	m 87
		463.0 -> 219.0	164304			
PFNS	8.802	548.8 -> 79.9	68715	12.96	µg/L	98
		548.8 -> 98.9	34576			
PFOA	7.200	413.0 -> 369.0	1064607	31.95	µg/L	m 99
		413.0 -> 169.0	195539			
PFOS	8.350	498.9 -> 79.9	83793	12.76	µg/L	m 68
		498.9 -> 98.8	38725			
PFPeA	4.411	263.0 -> 219.0	376877	27.21	µg/L	100
PFPeS	6.620	349.1 -> 79.9	113319	13.21	µg/L	97
		349.1 -> 98.9	47249			
PFTeDA	9.772	713.1 -> 669.0	252280	13.43	µg/L	98
		713.1 -> 168.9	20607			
PFTrDA	9.440	663.0 -> 619.0	348623	14.57	µg/L	100
		663.0 -> 168.9	27953			
PFUnDA	8.652	563.1 -> 519.0	324762	13.39	µg/L	99
		563.1 -> 269.1	52529			
11CI-PF3OUdS	9.491	630.9 -> 450.9	295901	25.11	µg/L	99
		632.9 -> 452.9	95208			
9CI-PF3ONS	8.678	530.8 -> 351.0	500919	25.05	µg/L	99
		532.8 -> 353.0	157598			
ADONA	6.817	376.9 -> 250.9	1402939	25.35	µg/L	98
		376.9 -> 84.8	395153			
HFPO-DA	6.007	284.9 -> 168.9	117806	26.58	µg/L	98
		284.9 -> 184.9	11399			
3:3FTCA	3.846	241.0 -> 177.0	65568	65.26	µg/L	100
		241.0 -> 117.0	7726			
5:3FTCA	6.271	341.0 -> 237.1	1361762	313.08	µg/L	100
		341.0 -> 217.0	946567			
7:3FTCA	7.669	441.0 -> 316.9	795233	322.73	µg/L	98
		441.0 -> 336.9	1617620			
EtFOSA	10.978	526.0 -> 219.0	215038	46.90	µg/L	95
		526.0 -> 169.0	289299			
EtFOSE	10.924	630.0 -> 58.9	450520	88.87	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	188062	46.98	µg/L	96
		511.9 -> 169.0	257357			
MeFOSE	10.691	616.1 -> 58.9	429156	92.71	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	27777	12.64	µg/L	97
		699.1 -> 98.8	15150			
NFDHA	5.512	295.0 -> 201.0	74385	25.03	µg/L	99
		295.0 -> 84.9	20410			
PFMBA	4.838	279.0 -> 85.1	303601	27.28	µg/L	100
PFMPA	3.538	229.0 -> 84.9	227483	27.52	µg/L	100
PFEESA	6.100	314.8 -> 134.9	668192	23.22	µg/L	100
		314.8 -> 82.9	25853			

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

7.6.4
7

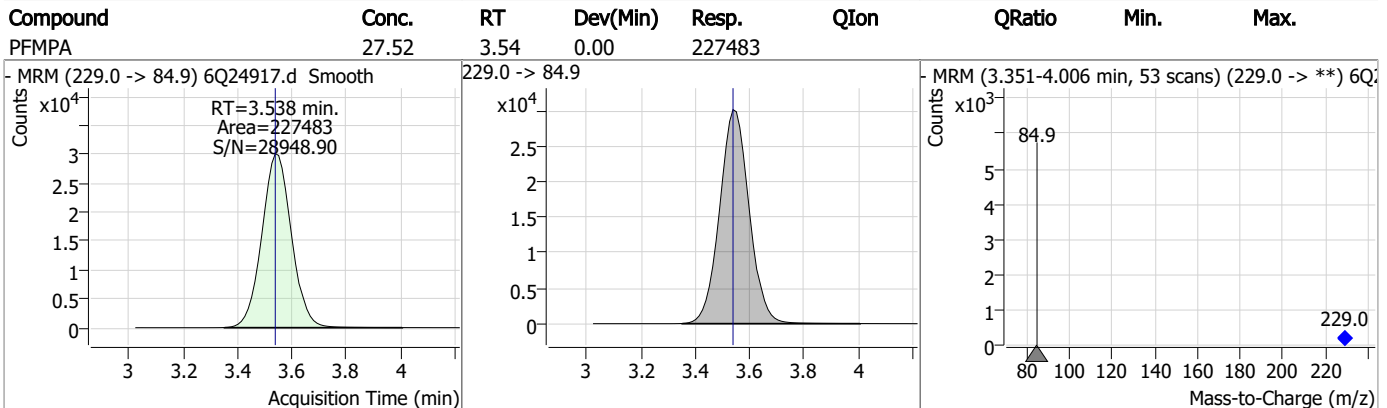
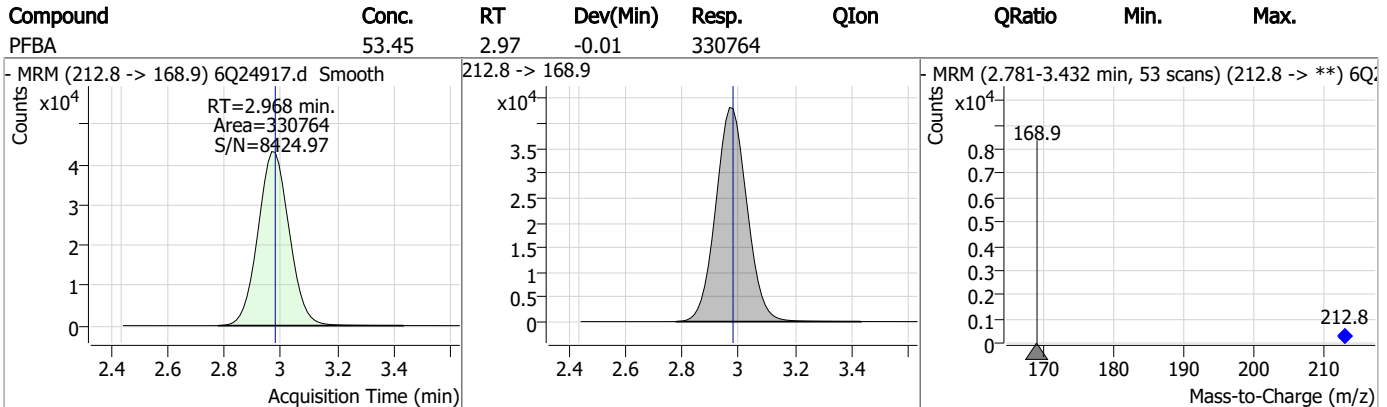
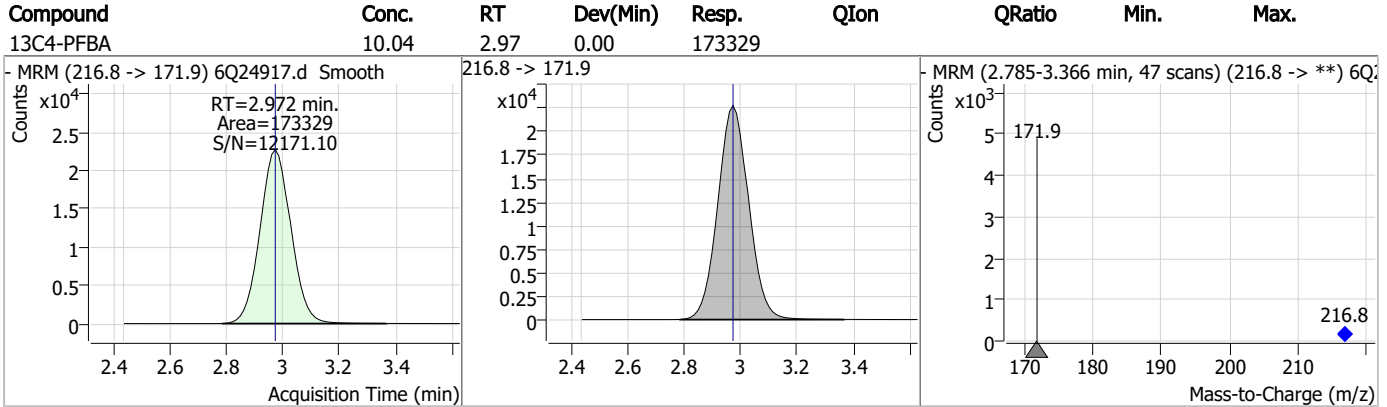
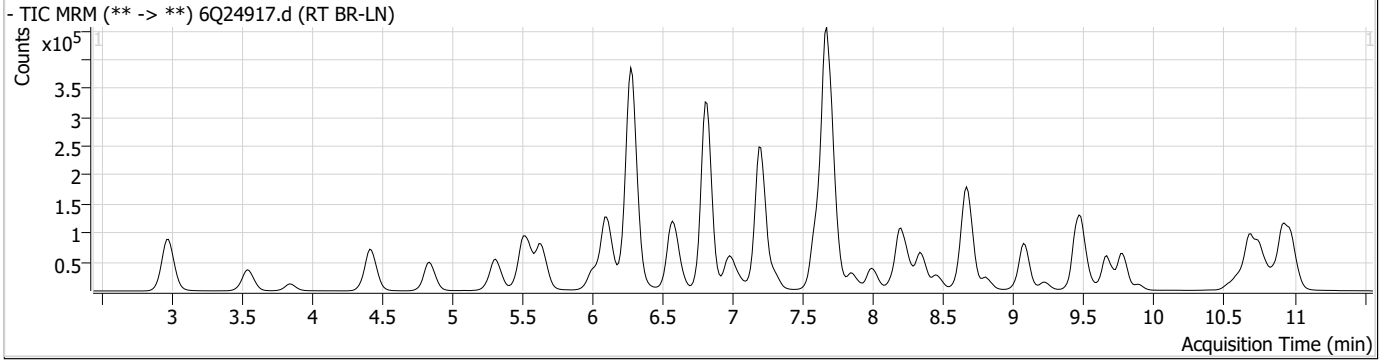
Perfluorinated Compounds by LC/MS/MS

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

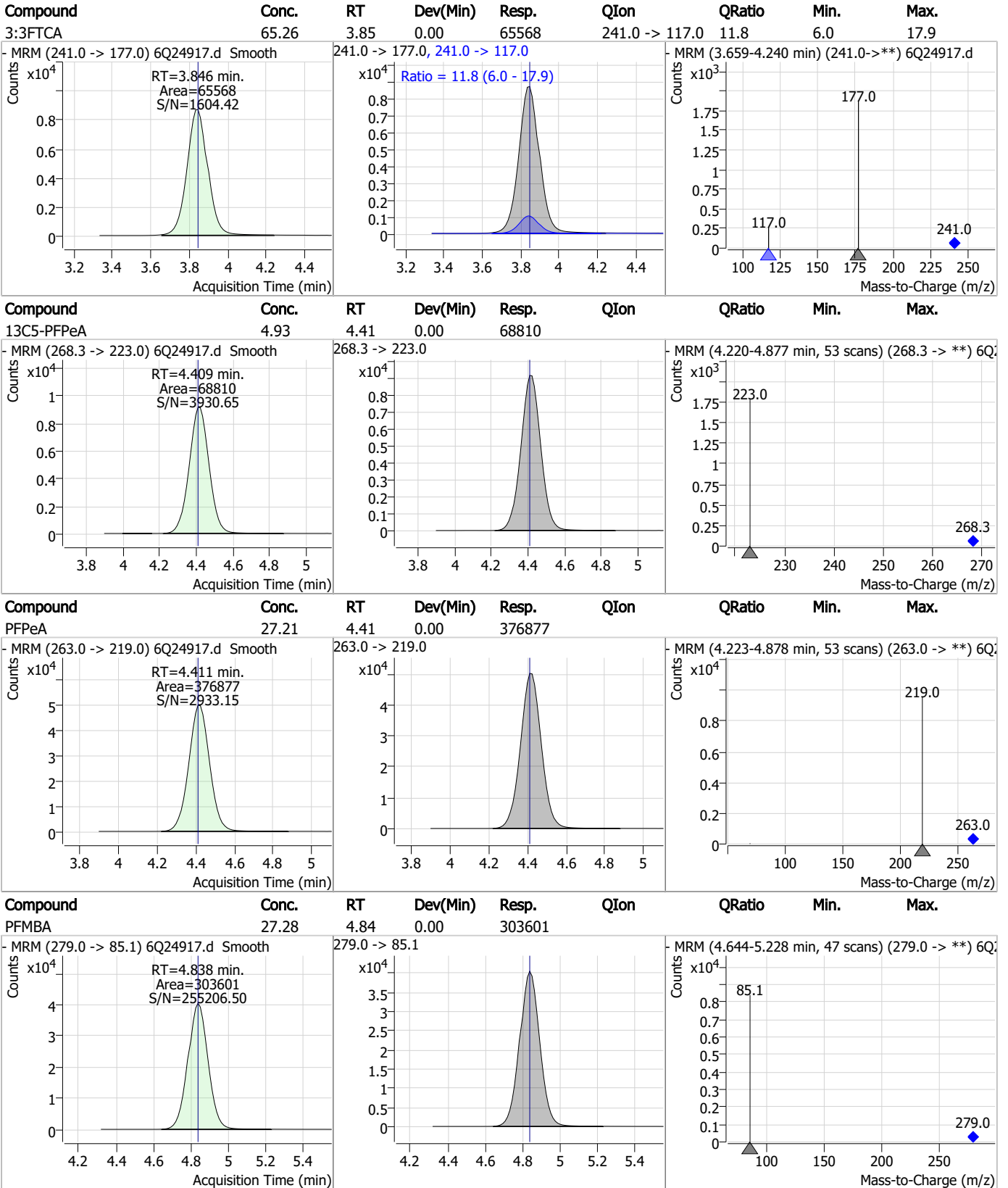
7.6.4

7

Perfluorinated Compounds by LC/MS/MS



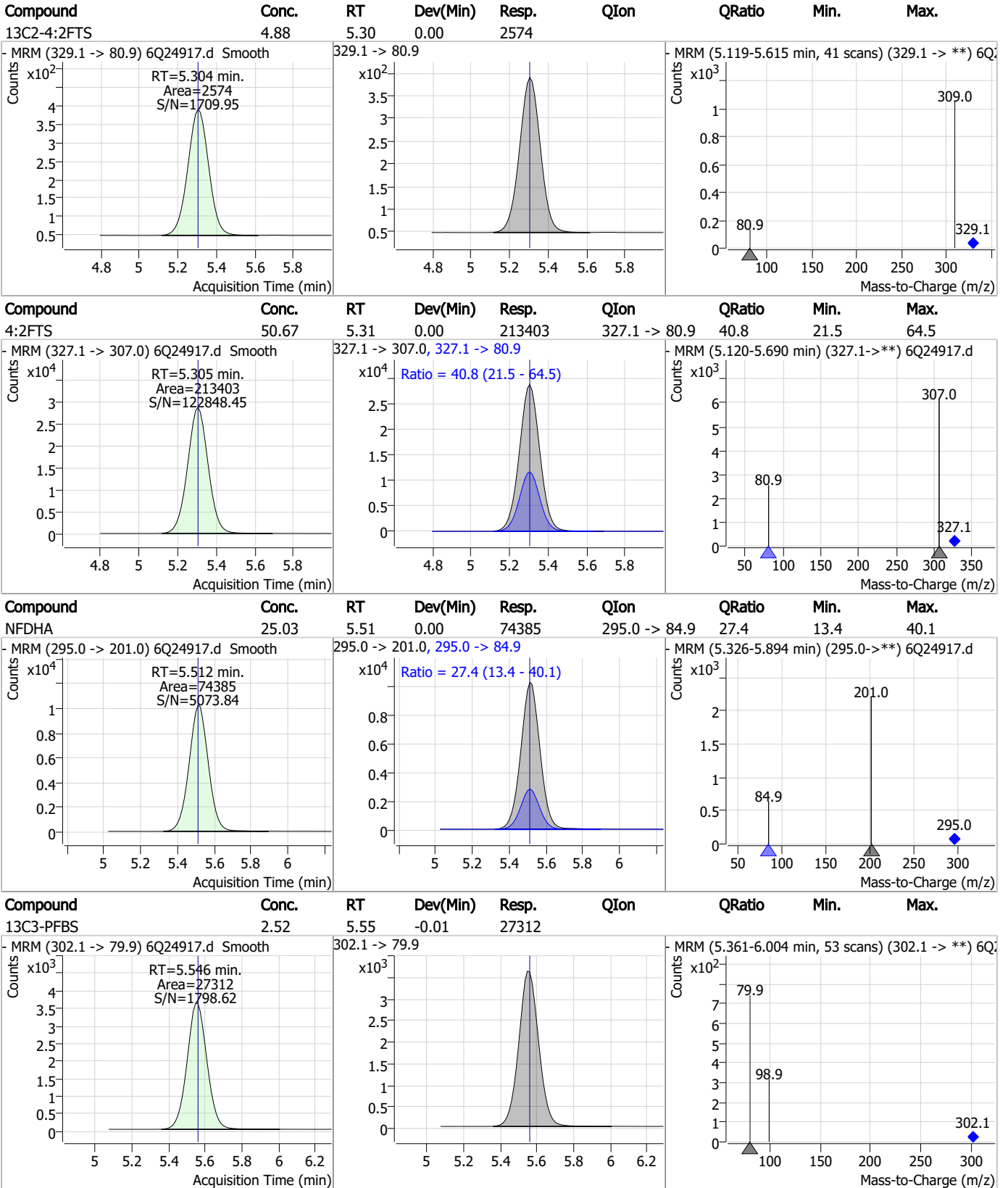
Perfluorinated Compounds by LC/MS/MS



7.6.4

7

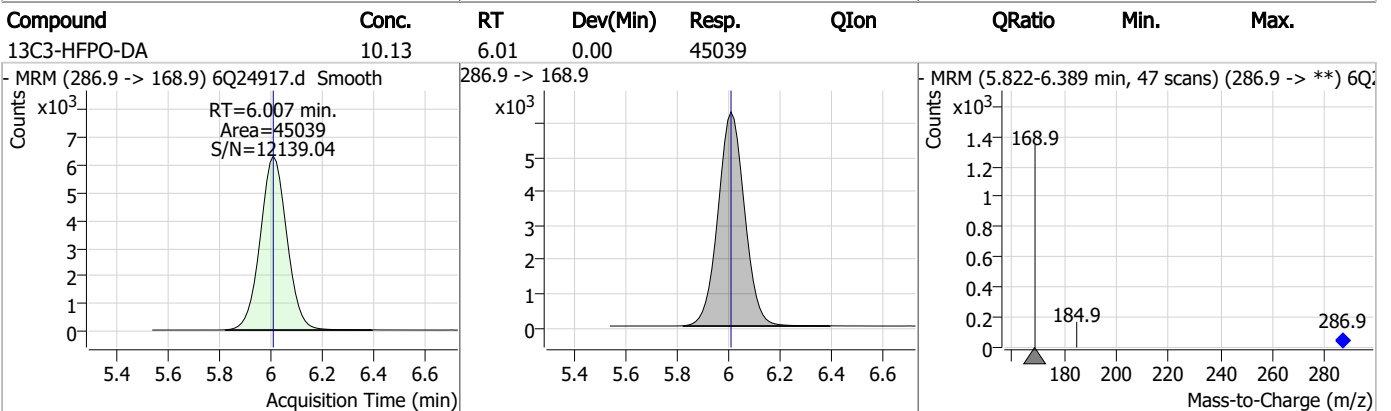
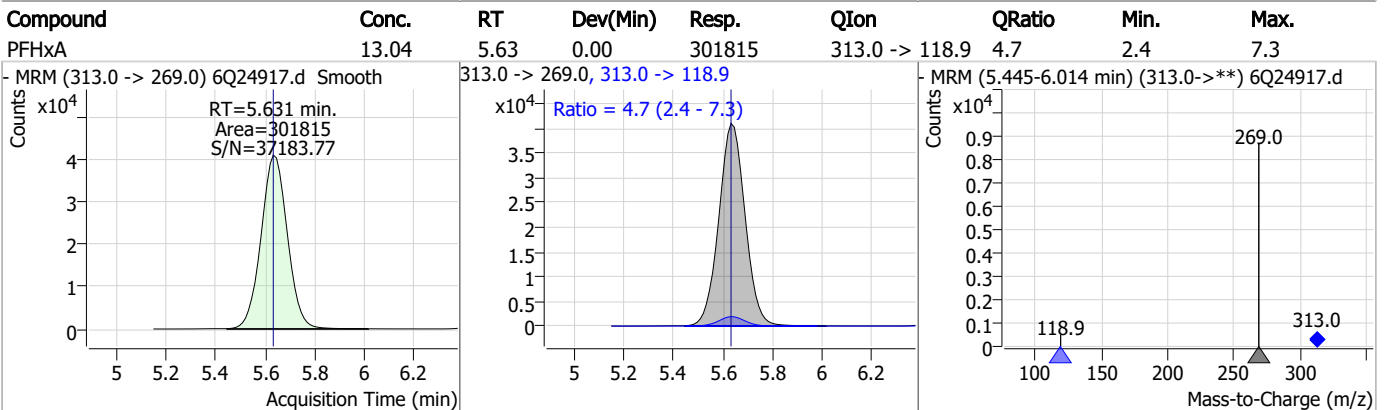
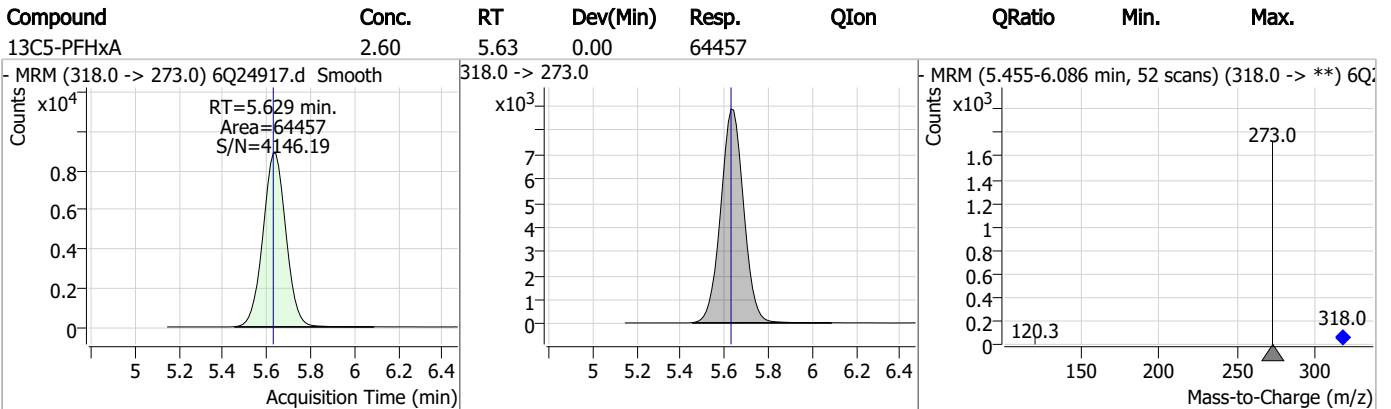
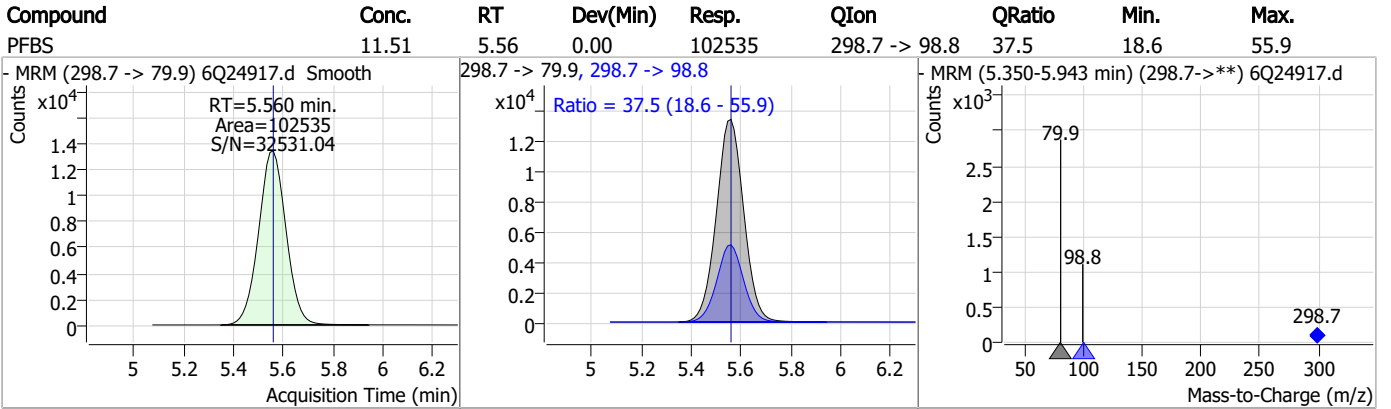
Perfluorinated Compounds by LC/MS/MS



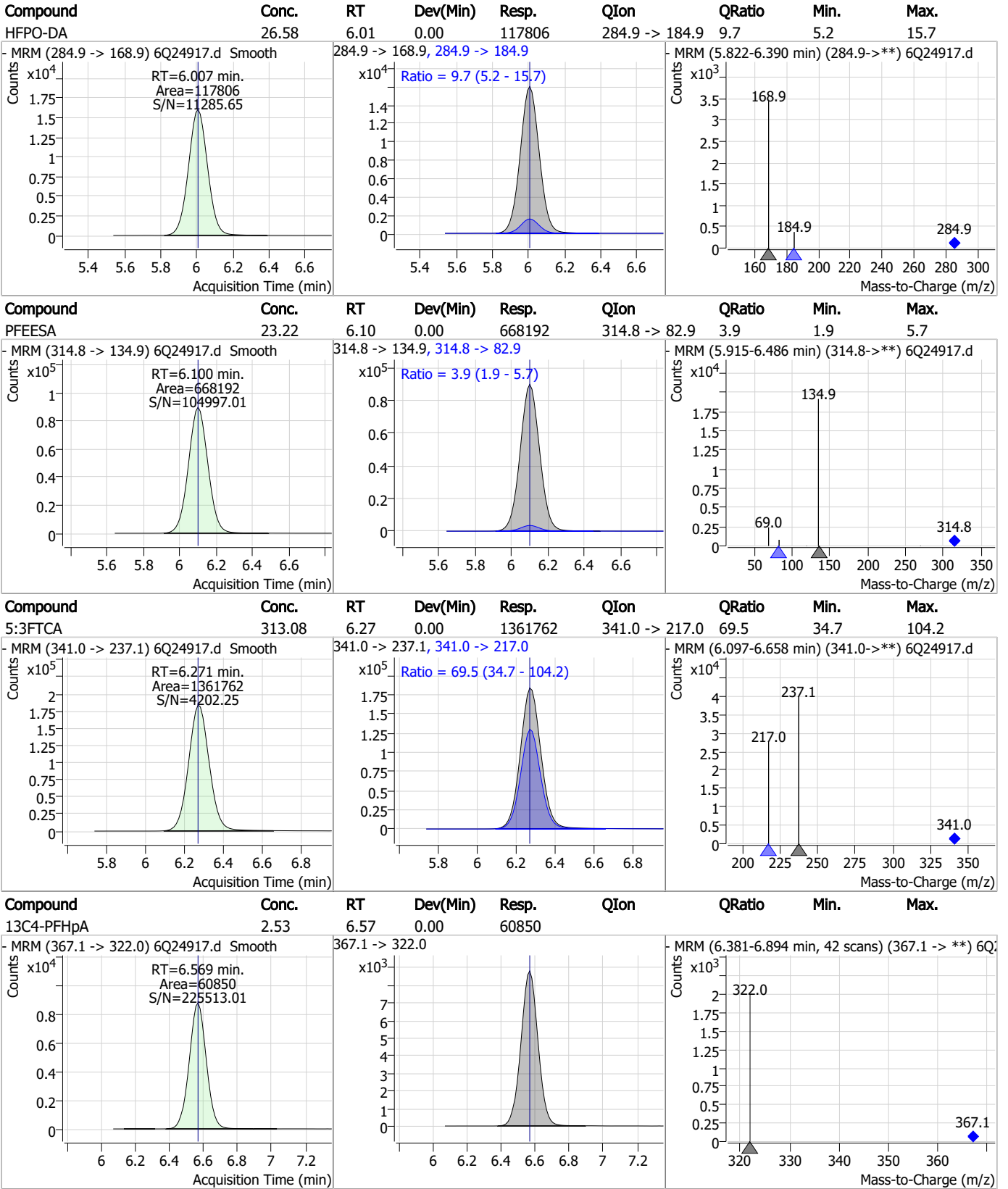
7.6.4

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.4

7

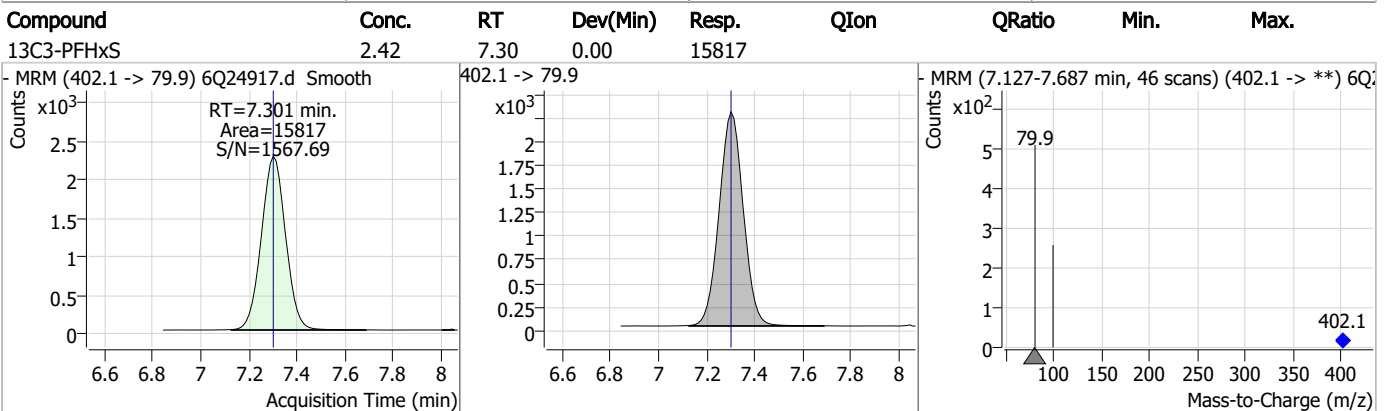
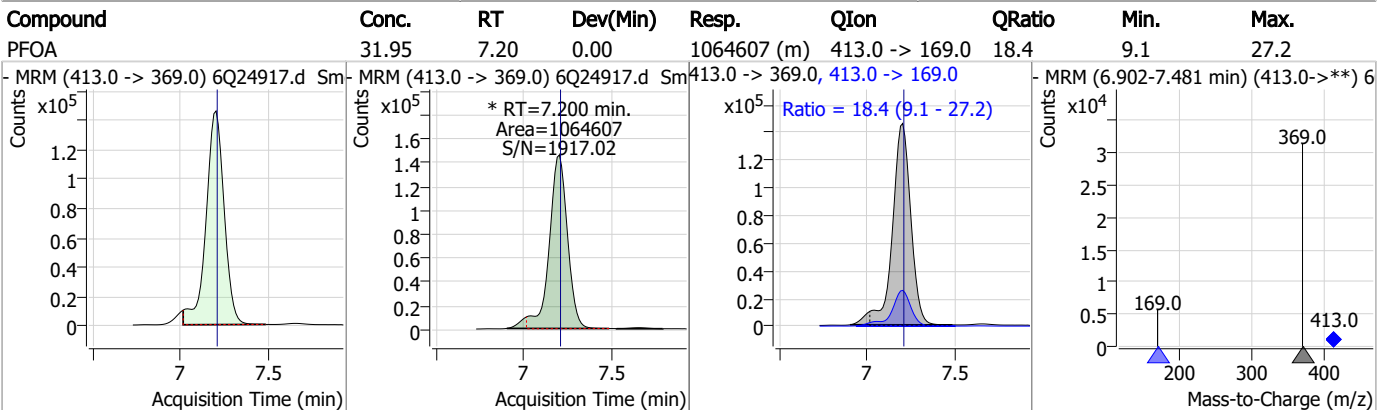
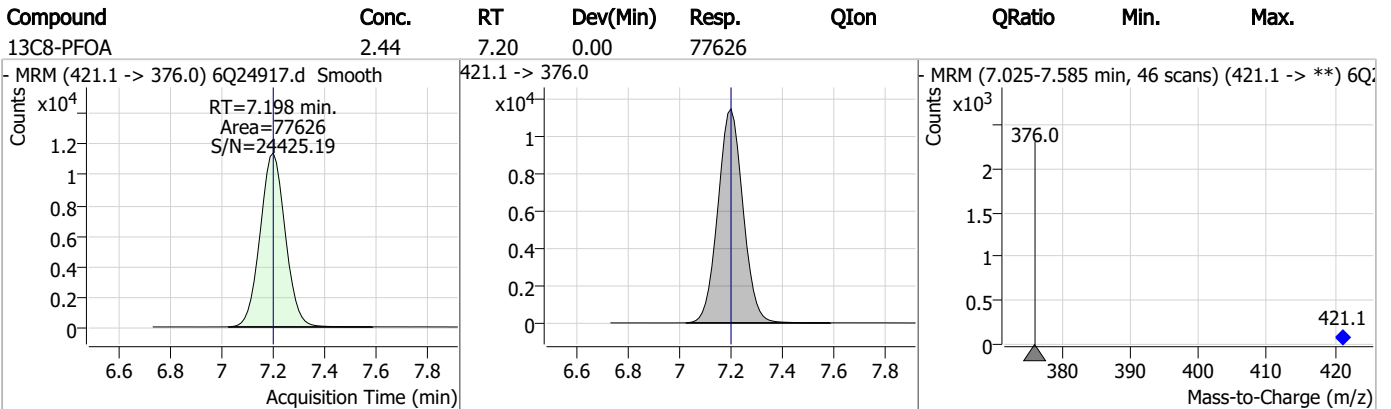
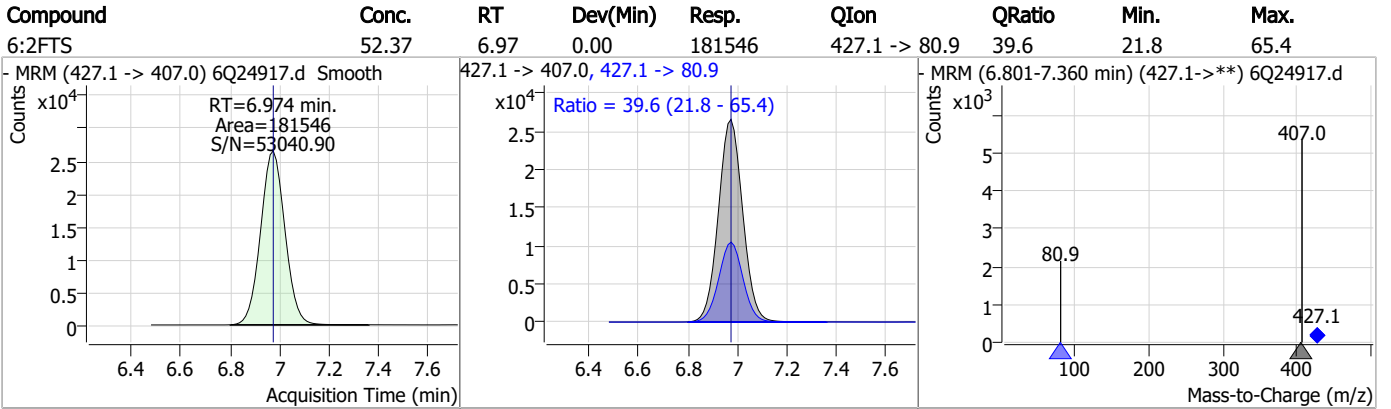
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	13.67	6.57	0.00	451254	363.1 -> 169.0	14.9	7.1	21.4
- MRM (363.1 -> 319.0) 6Q24917.d Smooth			363.1 -> 319.0, 363.1 -> 169.0		- MRM (6.394-6.953 min) (363.1->**) 6Q24917.d			
PFPeS	13.21	6.62	0.01	113319	349.1 -> 98.9	41.7	21.9	65.7
- MRM (349.1 -> 79.9) 6Q24917.d Smooth			349.1 -> 79.9, 349.1 -> 98.9		- MRM (6.432-6.933 min) (349.1->**) 6Q24917.d			
ADONA	25.35	6.82	0.00	1402939	376.9 -> 84.8	28.2	14.6	43.7
- MRM (376.9 -> 250.9) 6Q24917.d Smooth			376.9 -> 250.9, 376.9 -> 84.8		- MRM (6.629-7.129 min) (376.9->**) 6Q24917.d			
13C2-6:2FTS	4.79	6.97	0.00	4023	429.1 -> 80.9			
- MRM (429.1 -> 80.9) 6Q24917.d Smooth			429.1 -> 80.9		- MRM (6.801-7.285 min, 40 scans) (429.1 -> **) 6Q24917.d			

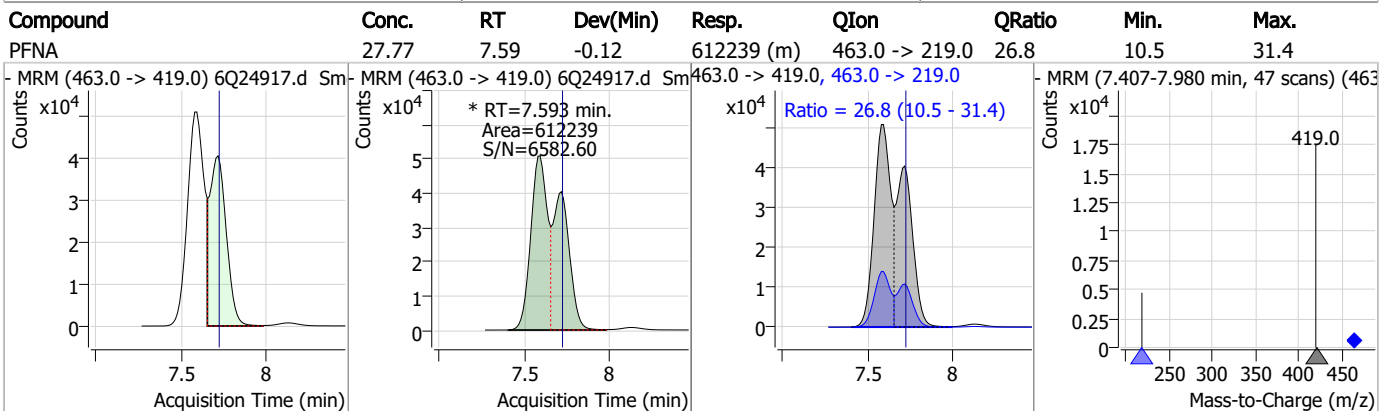
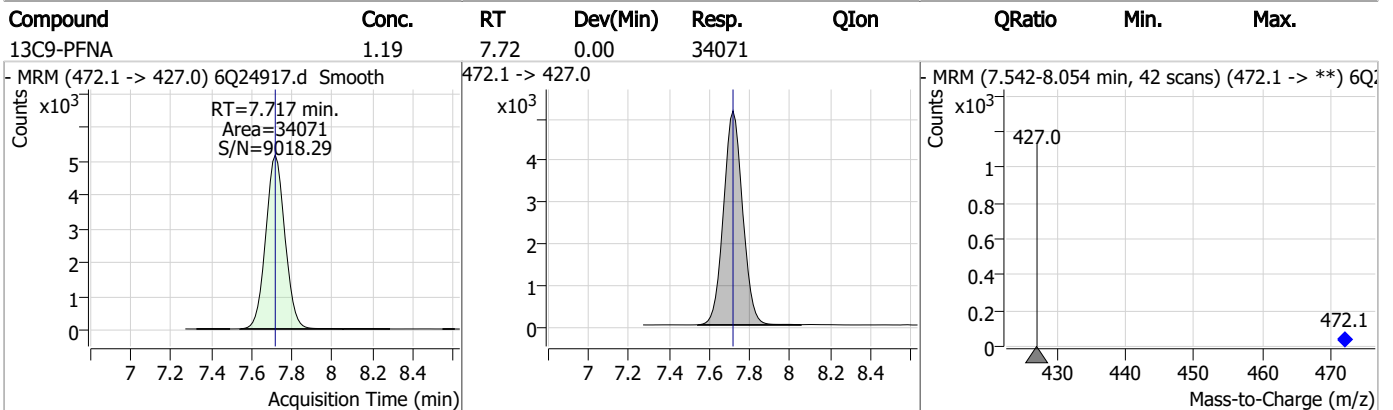
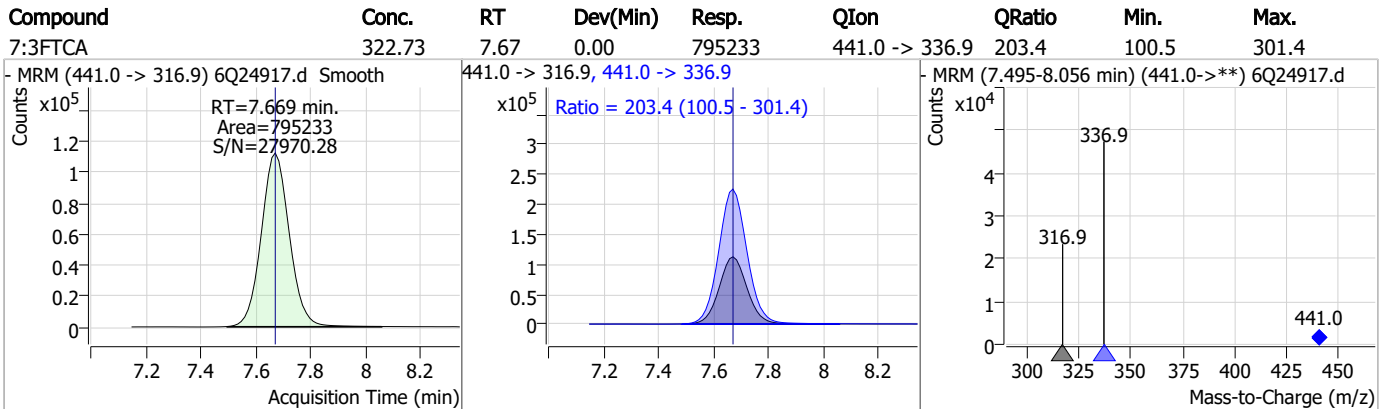
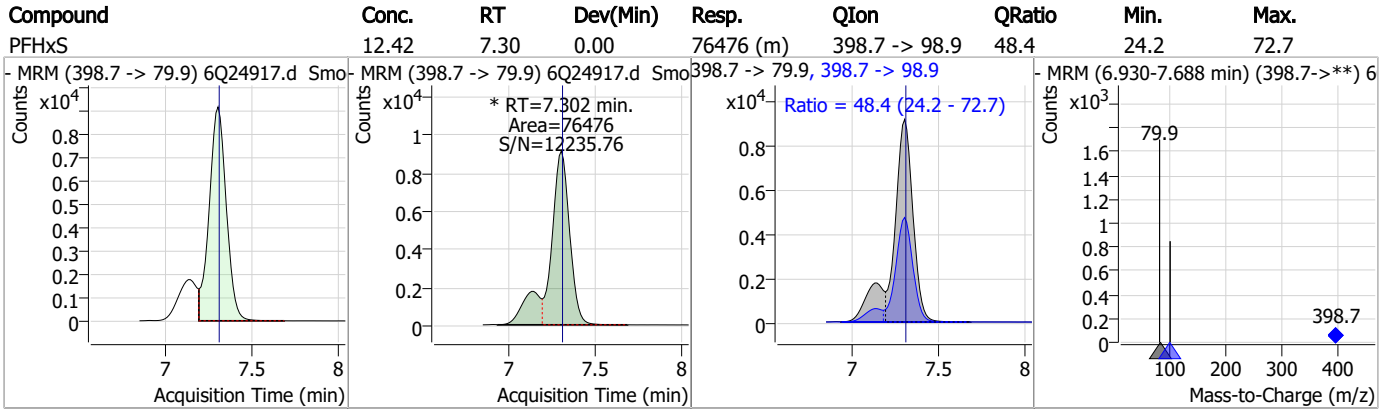
7.6.4

7

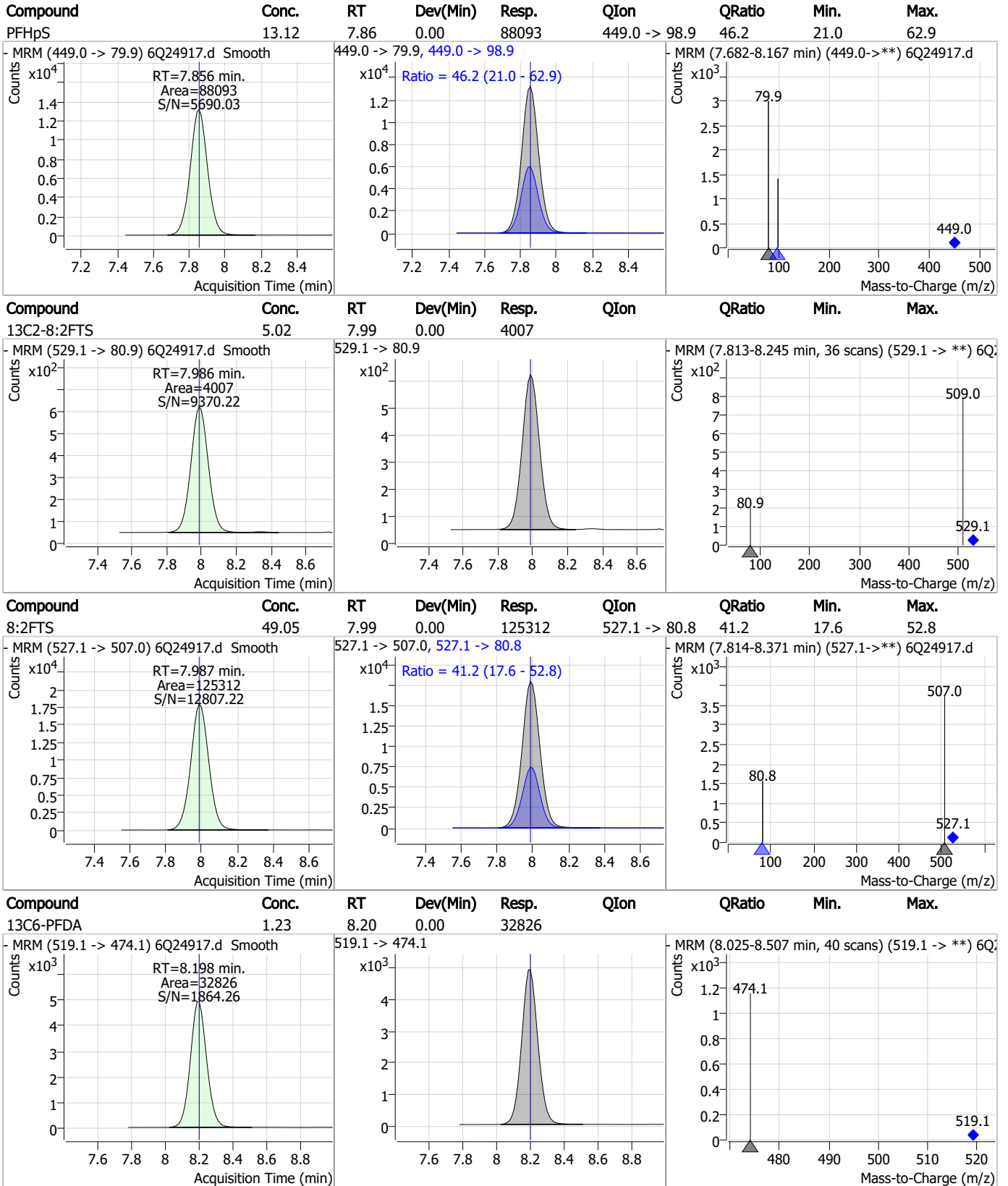
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



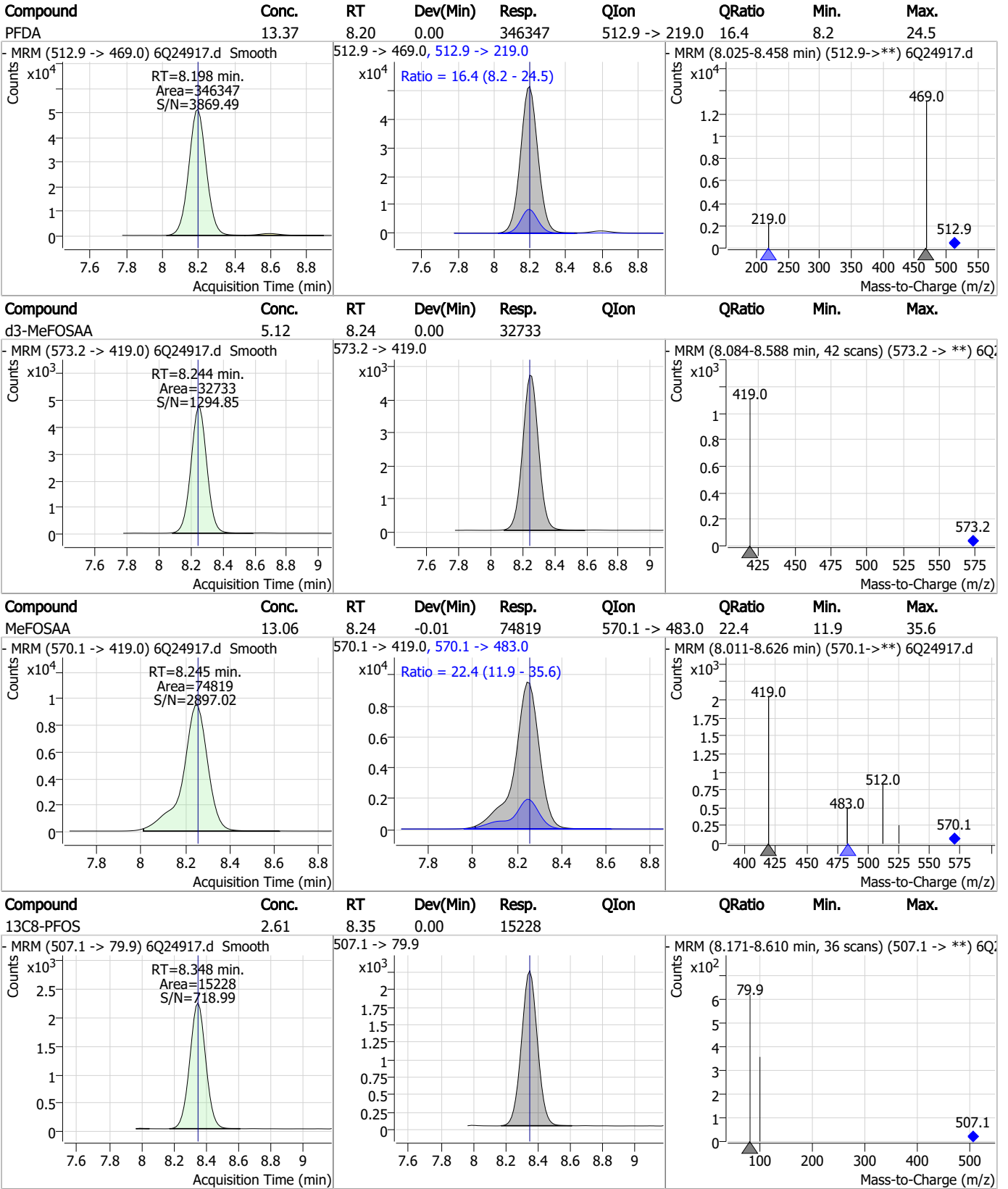
Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Perfluorinated Compounds by LC/MS/MS

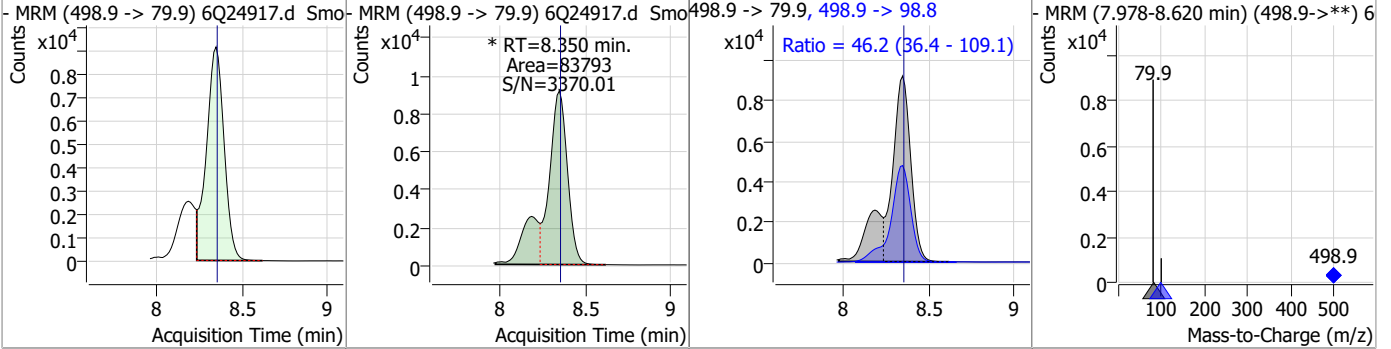


7.6.4

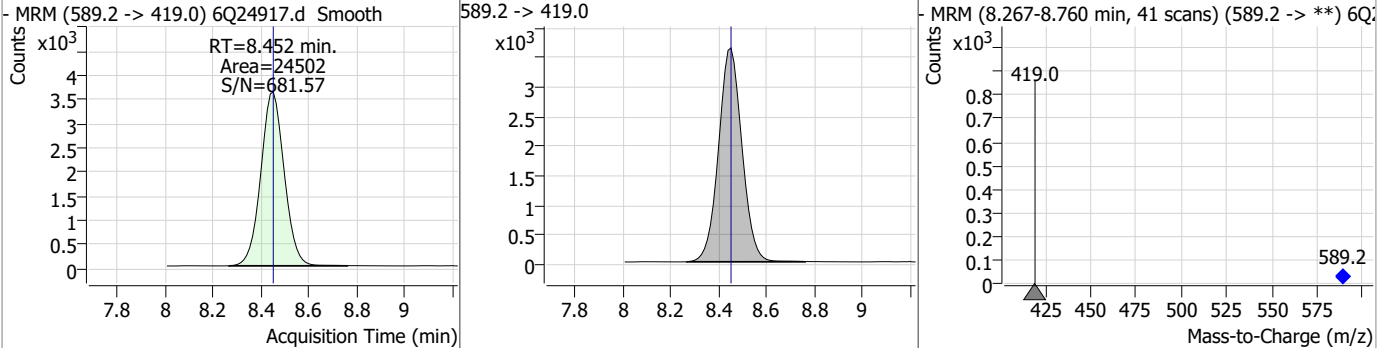
7

Perfluorinated Compounds by LC/MS/MS

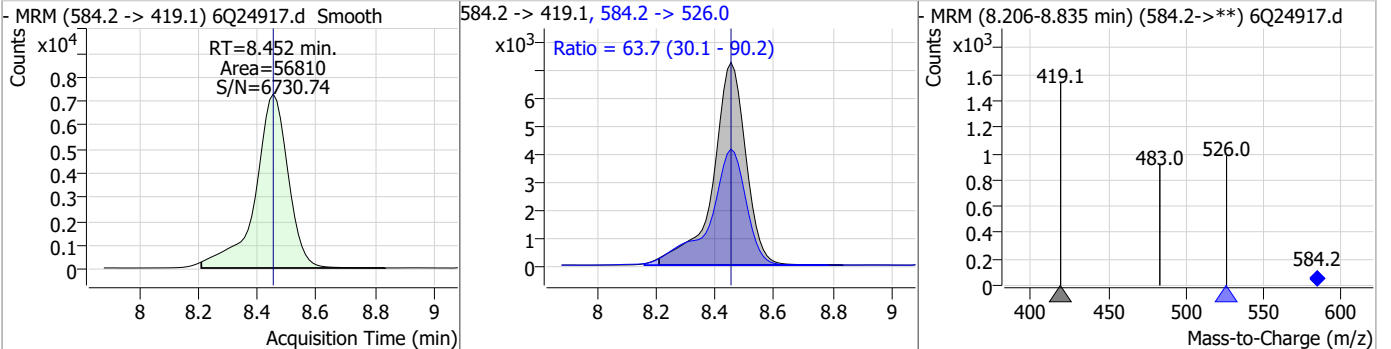
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	12.76	8.35	0.00	83793 (m)	498.9 -> 98.8	46.2	36.4	109.1



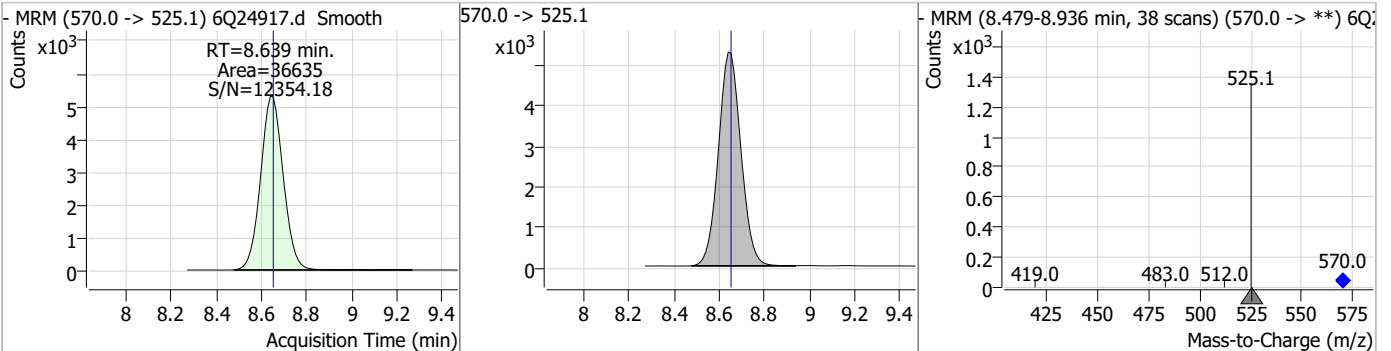
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.93	8.45	0.00	24502	589.2 -> 419.0	63.7	30.1	90.2



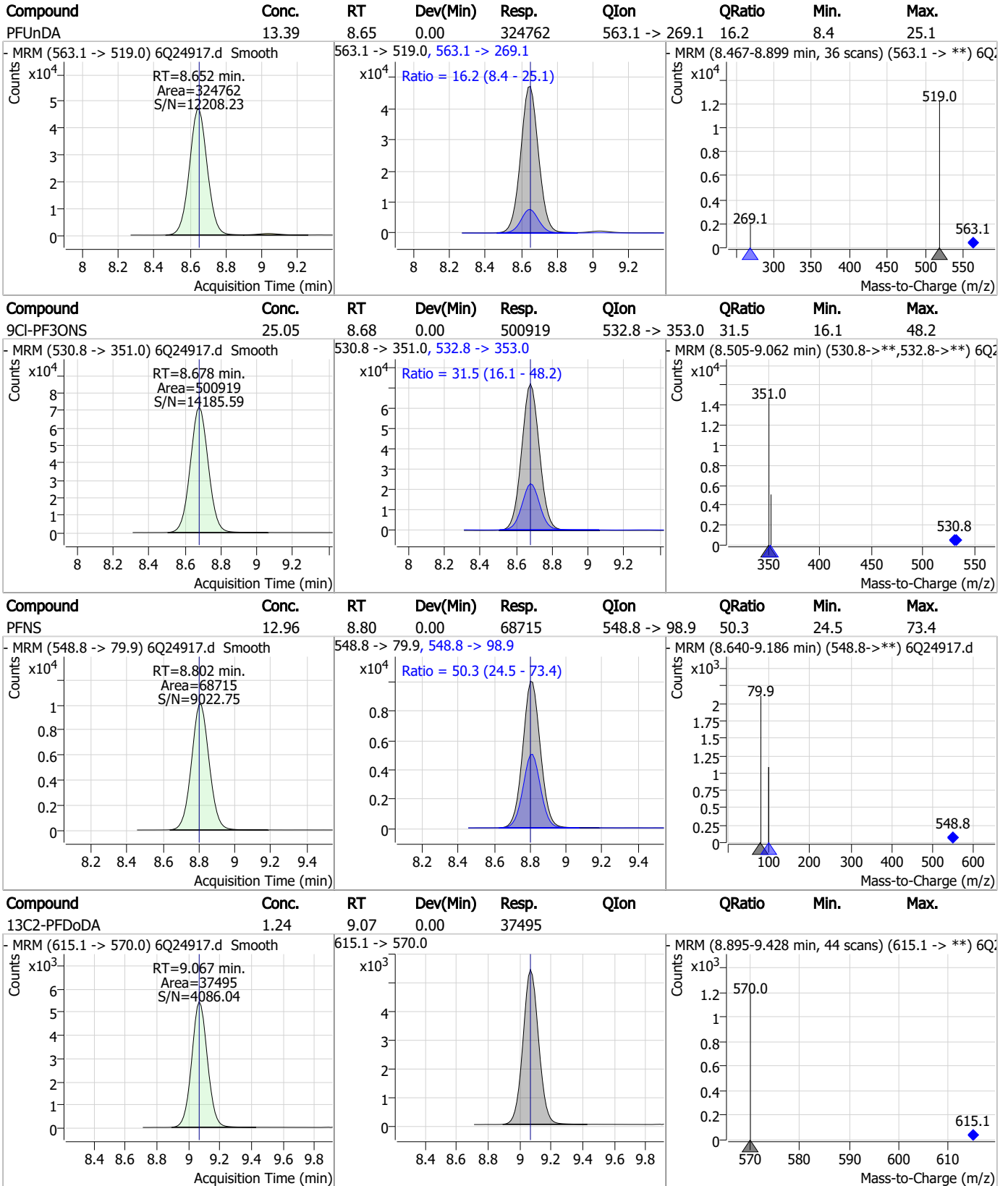
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	13.93	8.45	0.00	56810	584.2 -> 526.0	63.7	30.1	90.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.23	8.64	-0.01	36635	570.0 -> 525.1	63.7	30.1	90.2



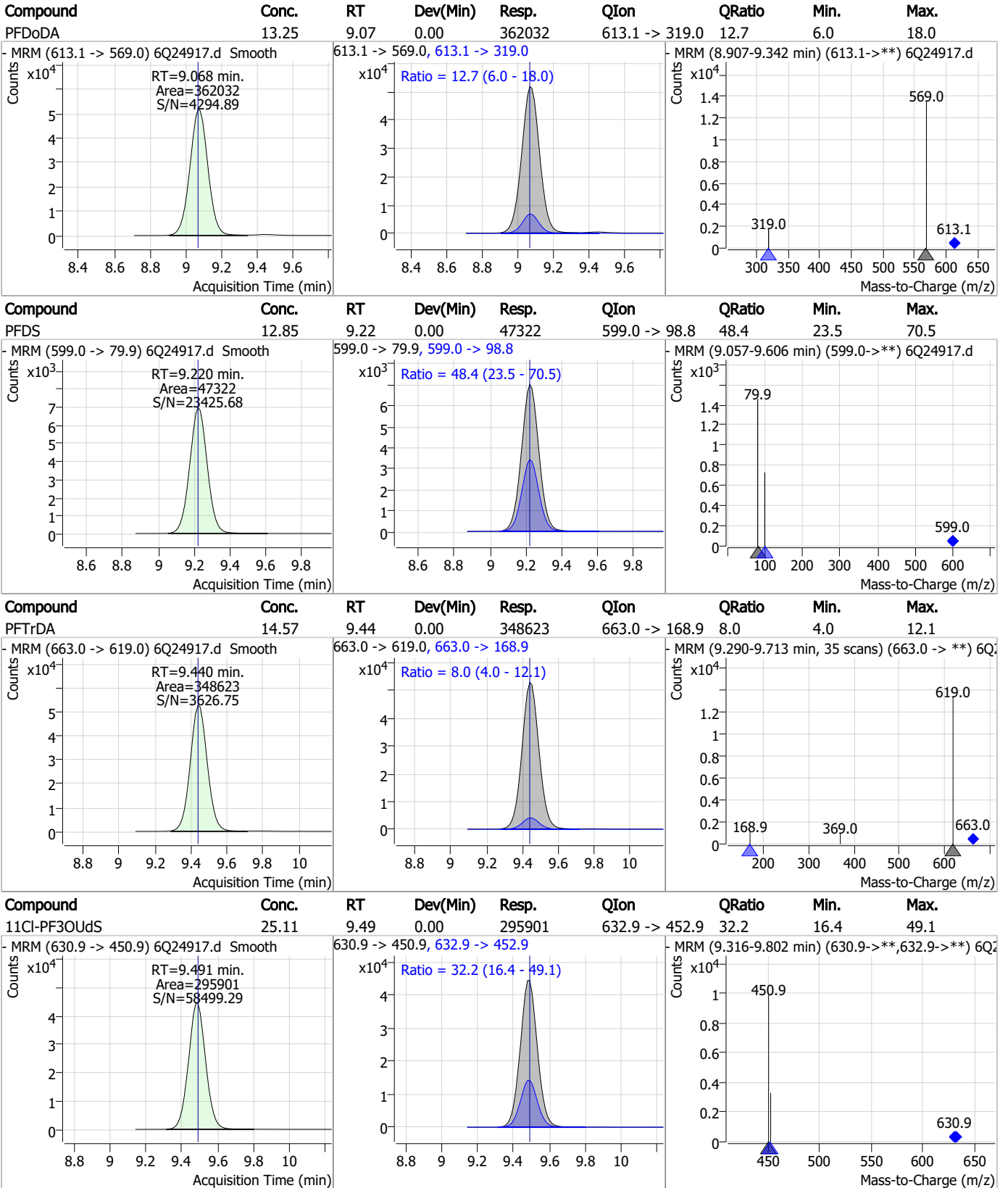
Perfluorinated Compounds by LC/MS/MS



7.6.4

7

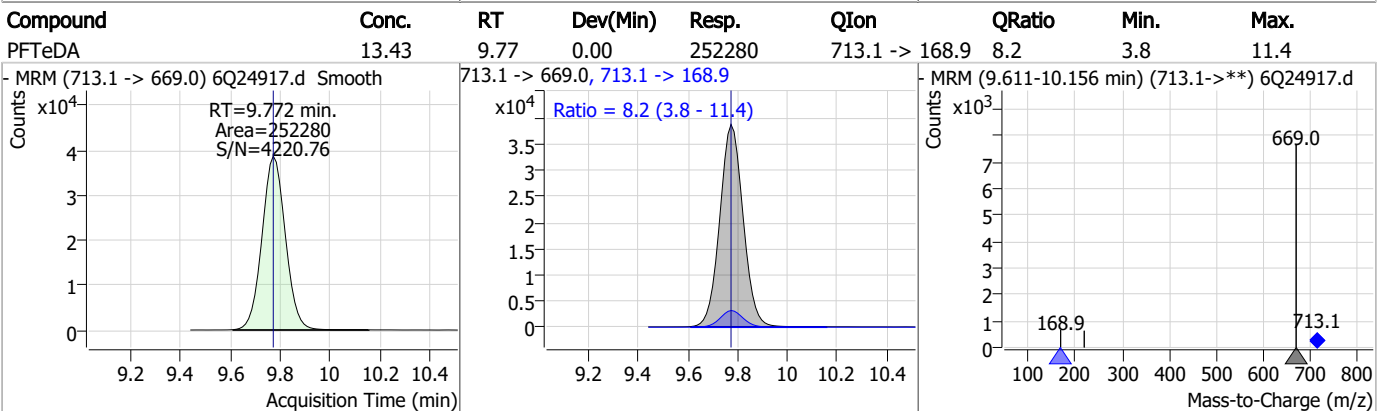
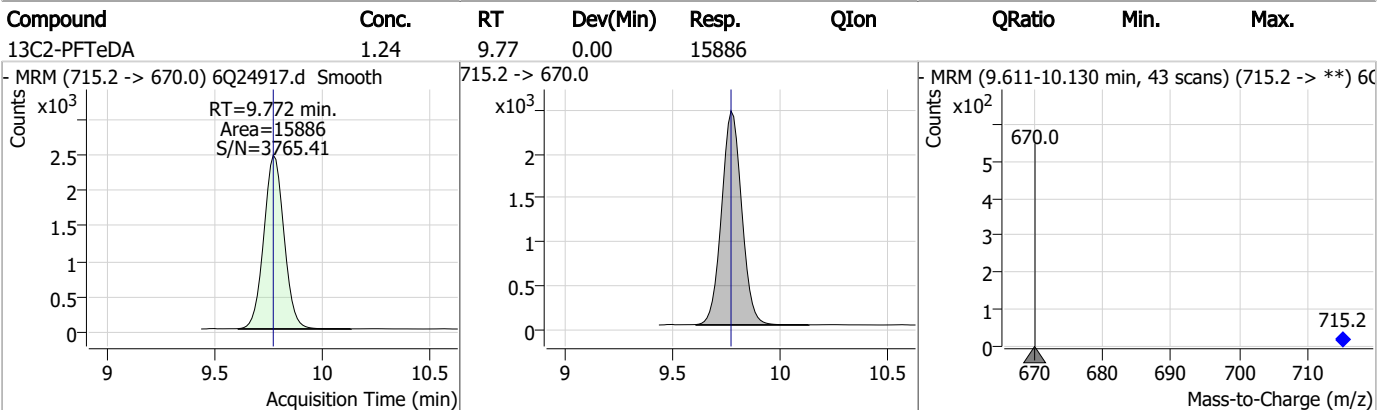
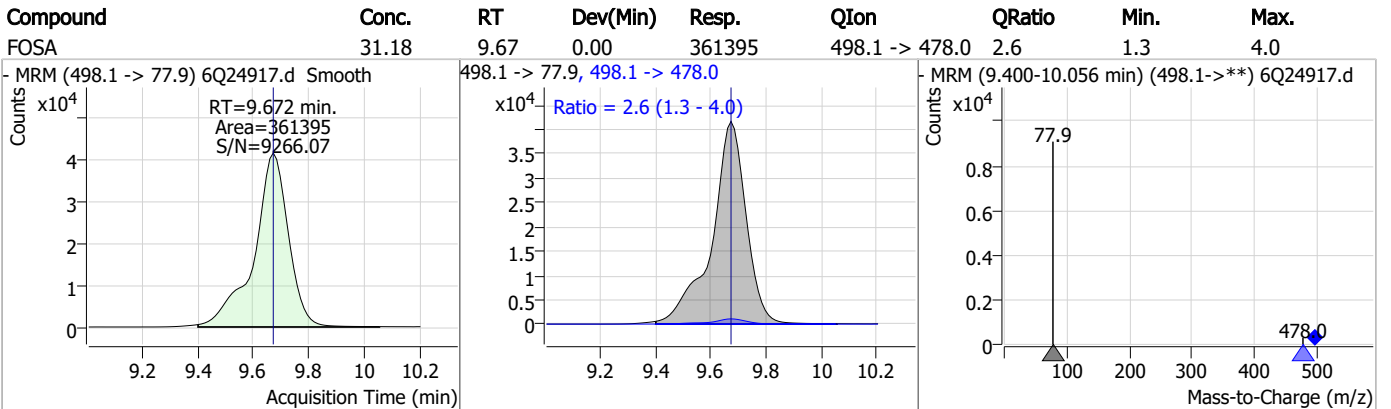
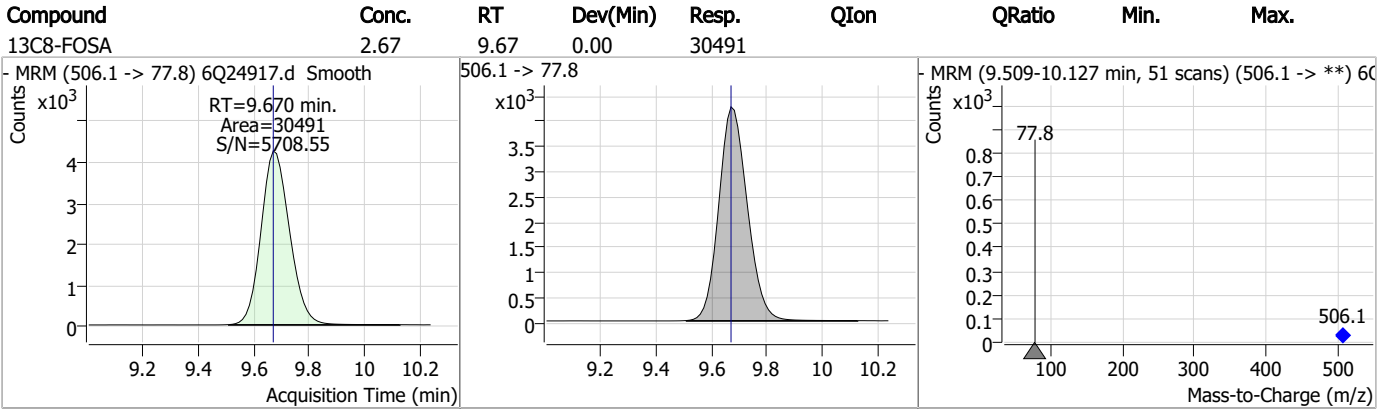
Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

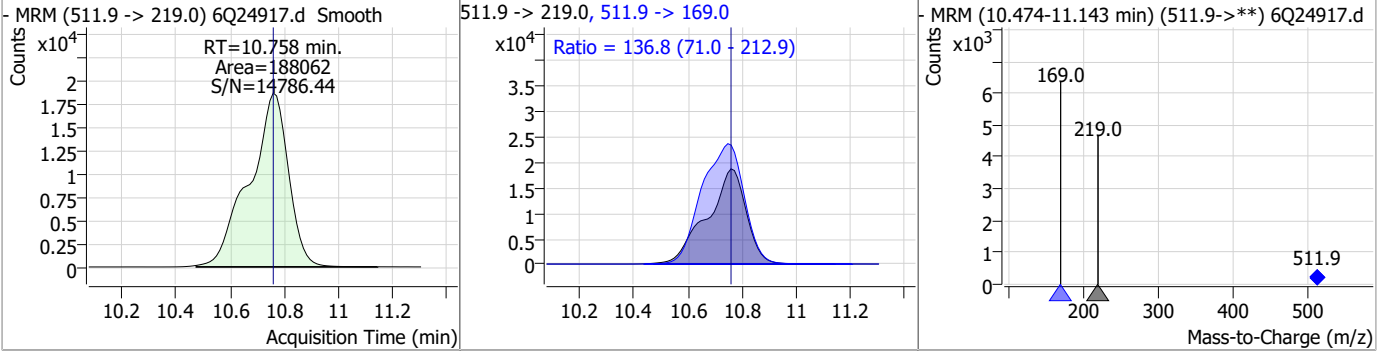
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	12.64	9.90	0.01	27777	699.1 -> 98.8	54.5	26.0	78.1
d7-MeFOSE	25.79	10.68	0.00	104466	623.2 -> 58.9			
MeFOSE	92.71	10.69	0.00	429156	616.1 -> 58.9			
d3-MeFOSA	2.59	10.76	0.00	8894	515.0 -> 219.0			

7.6.4

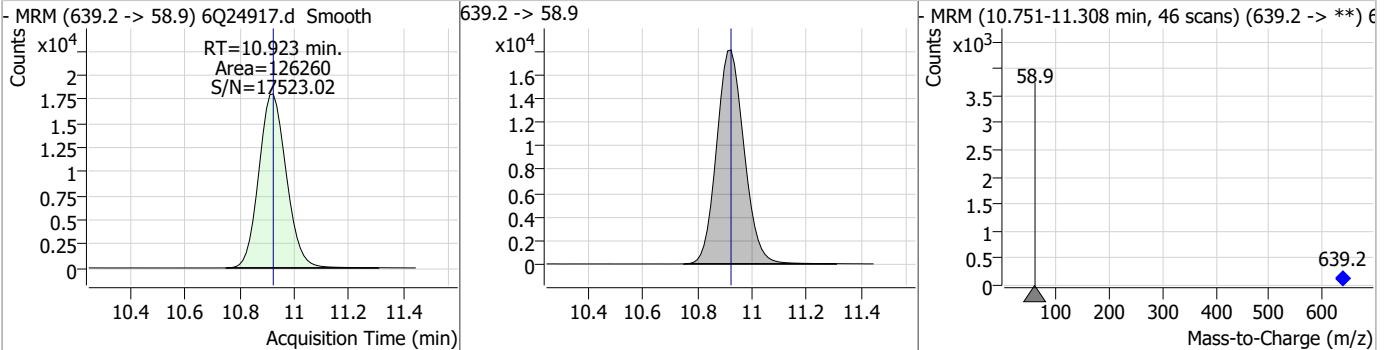
7

Perfluorinated Compounds by LC/MS/MS

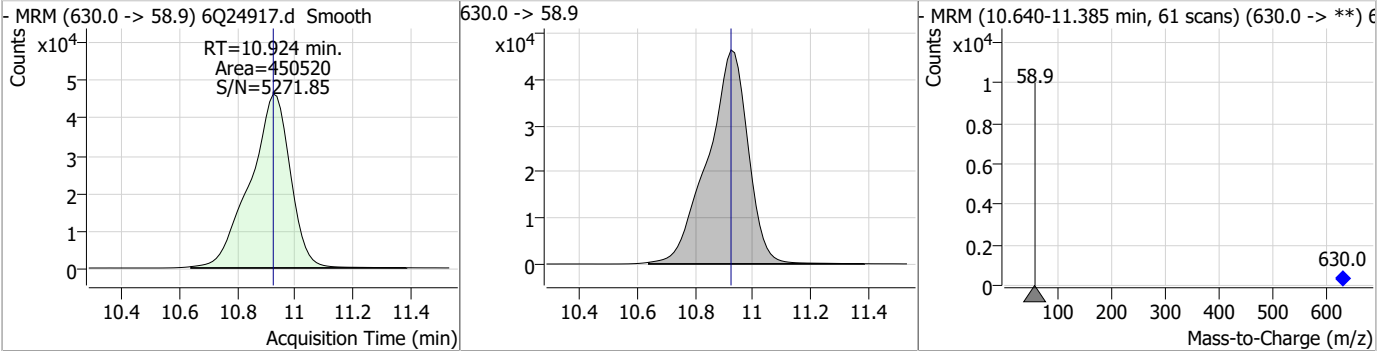
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	46.98	10.76	0.00	188062	511.9 -> 169.0	136.8	71.0	212.9



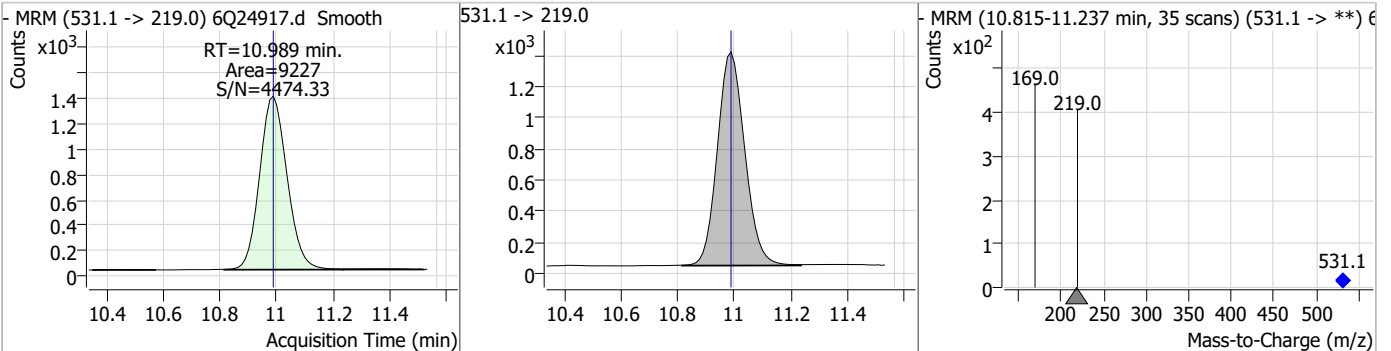
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.62	10.92	0.00	126260				



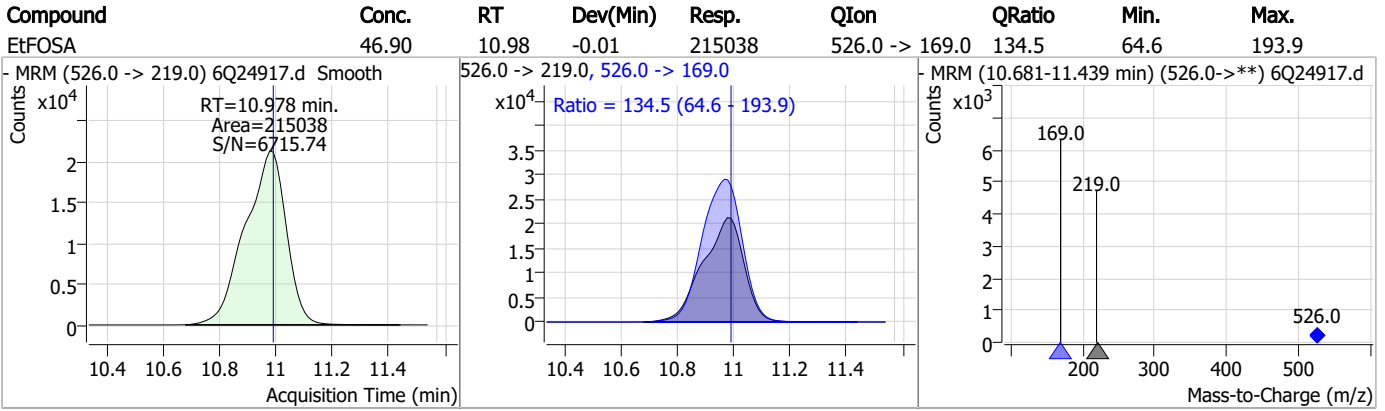
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	88.87	10.92	0.00	450520				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.55	10.99	0.00	9227				



Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Manual Integration Approval Summary

Sample Number: S6Q356-RT Method: EPA DRAFT 1633
Lab FileID: 6Q24917.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 14:31 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.20	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorononanoic acid	375-95-1		7.59	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.6.4.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Norman Farmer
 09/26/23 19:09

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25044.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 8:41:36 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q357 TDCA.batch.bin
 Sample Information : OP99081,S6Q357,500,,,5.0,1,water

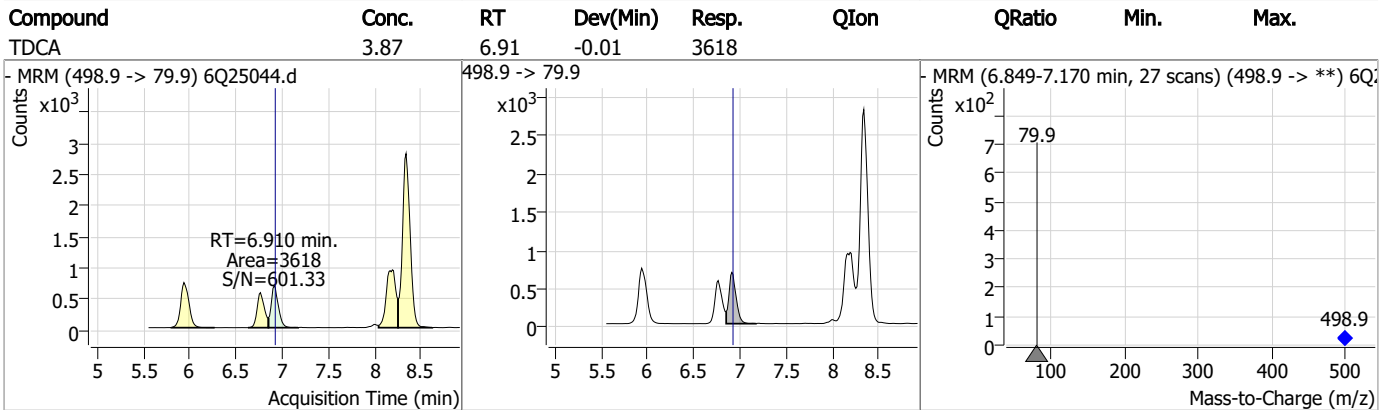
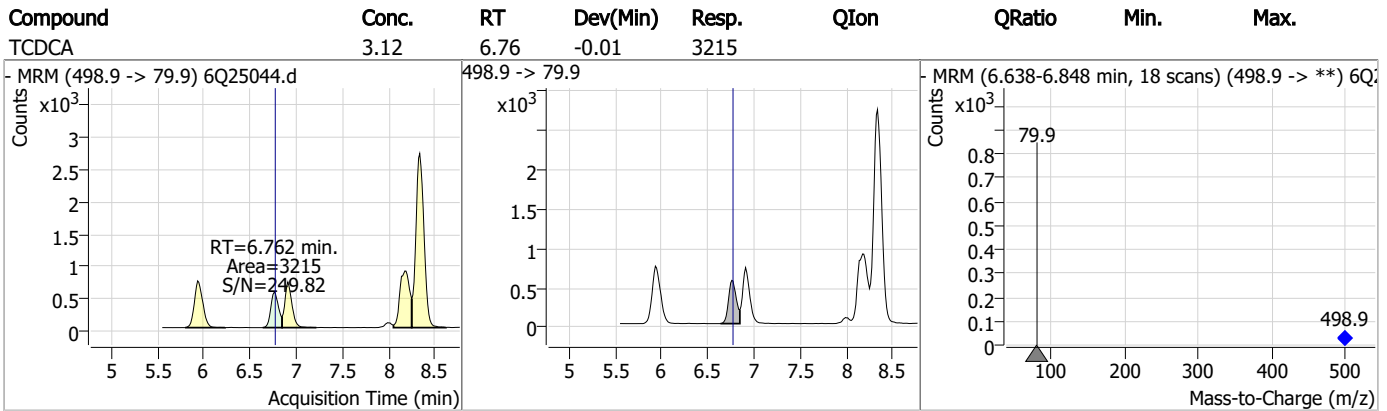
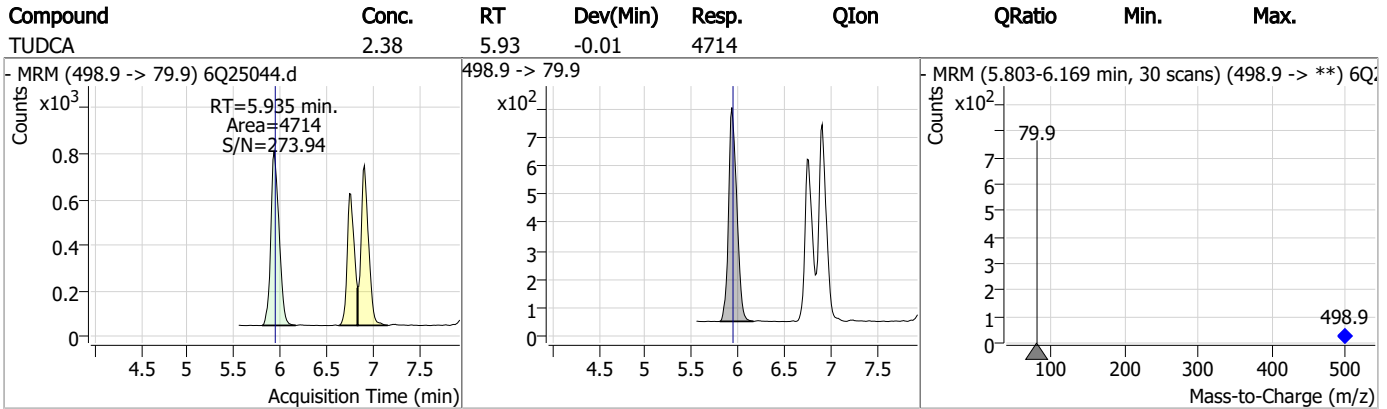
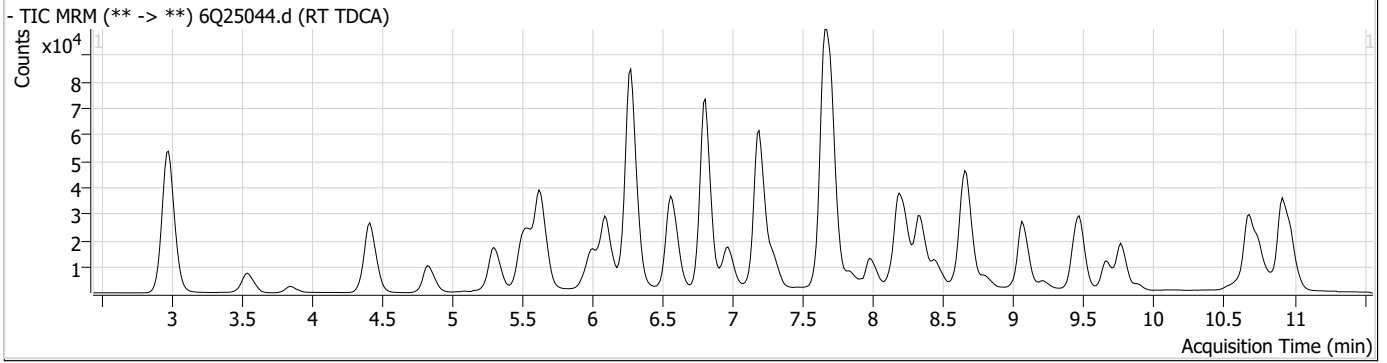
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M8-PFOS	8.336	507.1 -> 79.9	22370	2.50 µg/L	-0.037
13C4-PFOS	8.336	502.8 -> 79.9	22283	2.50 µg/L	-0.037
System Monitoring Compounds					
13C8-PFOS	8.336	507.1 -> 79.9	22370	2.55 µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
Target Compounds					
PFOS	8.337	498.9 -> 79.9 498.9 -> 98.8	21358 10773	2.79 µg/L m	92
TCDCa	6.762	498.9 -> 79.9	3215	3.12 ng/ml	100
TDCA	6.910	498.9 -> 79.9	3618	3.87 ng/ml	100
TUDCA	5.935	498.9 -> 79.9	4714	2.38 ng/ml	100

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

7.6.5

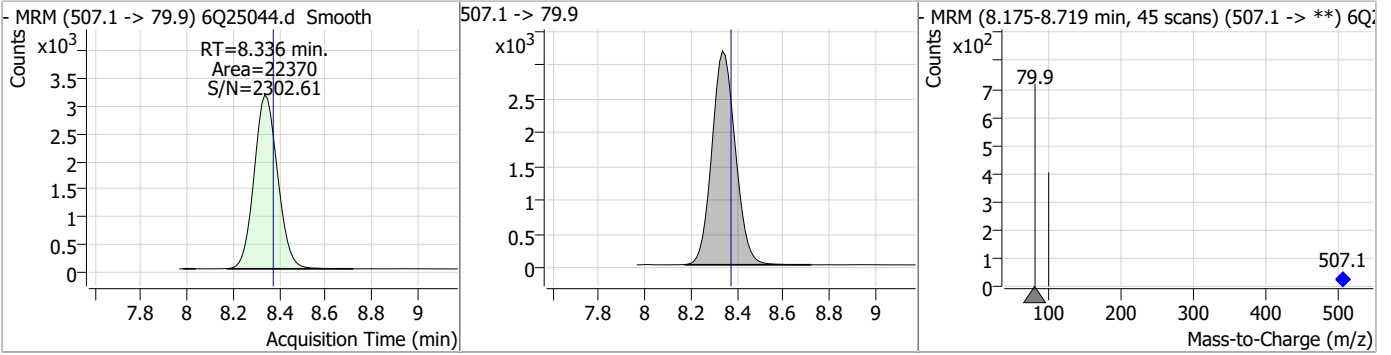
7

Perfluorinated Compounds by LC/MS/MS

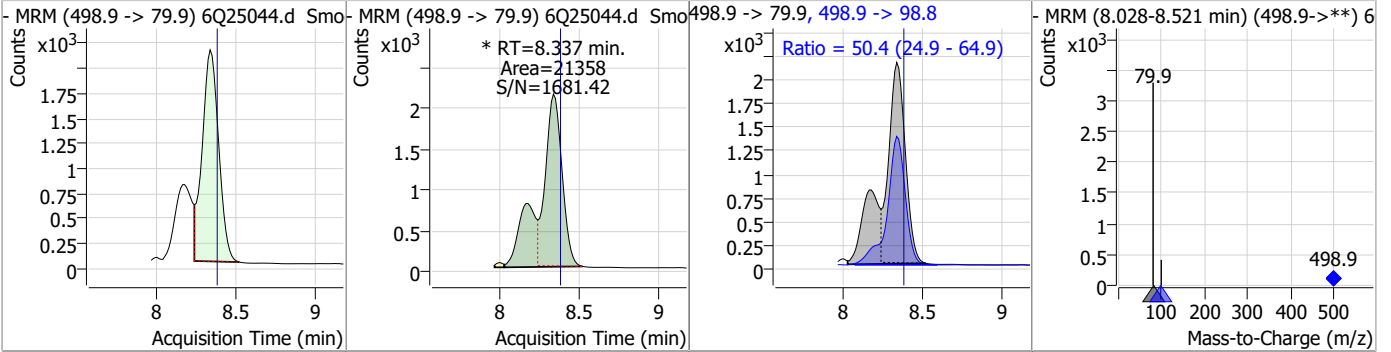


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.55	8.34	-0.04	22370				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.79	8.34	-0.04	21358 (m)	498.9 -> 98.8	50.4	24.9	64.9



7.6.5

7



Manual Integration Approval Summary

Sample Number: S6Q357-RT Method: EPA DRAFT 1633
Lab FileID: 6Q25044.D Analyst approved: 09/26/23 15:45 Martha Valls
Injection Time: 09/25/23 20:41 Supervisor approved: 09/26/23 19:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

7.6.5.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25045.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 8:55:56 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q357.batch.bin
 Sample Information : OP99081,S6Q357,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	180000	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	75111	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	64206	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	64983	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	87321	2.50 µg/L	-0.012
M9-PFNA	7.704	472.1 -> 427.0	34050	1.25 µg/L	-0.012
M6-PFDA	8.185	519.1 -> 474.1	36673	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	38355	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	41374	1.25 µg/L	0.000
M2-PFTeDA	9.759	715.2 -> 670.0	16409	1.25 µg/L	-0.012
M8-FOSA	9.670	506.1 -> 77.8	31610	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	27676	2.50 µg/L	-0.013
M3-PFHxS	7.289	402.1 -> 79.9	16119	2.50 µg/L	-0.012
M8-PFOS	8.336	507.1 -> 79.9	15755	2.50 µg/L	-0.013
M2-4:2FTS	5.292	329.1 -> 80.9	2618	5.00 µg/L	-0.012
M2-6:2FTS	6.961	429.1 -> 80.9	4047	5.00 µg/L	-0.012
M2-8:2FTS	7.974	529.1 -> 80.9	4132	5.00 µg/L	-0.012
M3-MeFOSAA	8.244	573.2 -> 419.0	33949	5.00 µg/L	0.000
M3-HFPO-DA	5.994	286.9 -> 168.9	43927	10.00 µg/L	-0.012
M5-EtFOSAA	8.439	589.2 -> 419.0	26824	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	104416	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	123304	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9479	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9211	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	13699	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	75504	5.00 µg/L	0.000
18O2-PFHxS	7.288	403.0 -> 83.9	10340	2.50 µg/L	-0.012
13C4-PFOA	7.187	417.1 -> 372.0	100597	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	32746	1.25 µg/L	-0.012
13C5-PFNA	7.705	468.0 -> 423.0	34195	1.25 µg/L	-0.012
13C2-PFHxA	5.630	315.1 -> 270.0	64264	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.292	329.1 -> 80.9	2618	4.95 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4047	4.81 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C2-8:2FTS	7.974	529.1 -> 80.9	4132	5.17 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C2-PFDoDA	9.067	615.1 -> 570.0	41374	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C2-PFTeDA	9.759	715.2 -> 670.0	16409	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C3-PFBS	5.546	302.1 -> 79.9	27676	2.55 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C3-PFHxS	7.289	402.1 -> 79.9	16119	2.46 µg/L	-0.012

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 = 98.5%	
13C4-PFBA	2.972	216.8 -> 171.9	180000	9.86 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C4-PFHpA	6.556	367.1 -> 322.0	64983	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C5-PFHxA	5.629	318.0 -> 273.0	64206	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C5-PFPeA	4.409	268.3 -> 223.0	75111	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C6-PFDA	8.185	519.1 -> 474.1	36673	1.33 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C7-PFUnDA	8.639	570.0 -> 525.1	38355	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-FOSA	9.670	506.1 -> 77.8	31610	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C8-PFOA	7.186	421.1 -> 376.0	87321	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C8-PFOS	8.336	507.1 -> 79.9	15755	2.66 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C9-PFNA	7.704	472.1 -> 427.0	34050	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%	
d3-MeFOSAA	8.244	573.2 -> 419.0	33949	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C3-HFPO-DA	5.994	286.9 -> 168.9	43927	9.07 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	9211	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
d5-EtFOSAA	8.439	589.2 -> 419.0	26824	5.32 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.4%	
d7-MeFOSE	10.678	623.2 -> 58.9	104416	25.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
d9-EtFOSE	10.911	639.2 -> 58.9	123304	24.66 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
d5-EtFOSA	10.989	531.1 -> 219.0	9479	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
Target Compounds					QValue
4:2FTS	5.293	327.1 -> 307.0	224994	52.52 µg/L	97
		327.1 -> 80.9	92234		
6:2FTS	6.962	427.1 -> 407.0	189820	54.44 µg/L	95
		427.1 -> 80.9	77094		
8:2FTS	7.987	527.1 -> 507.0	137697	52.27 µg/L	96
		527.1 -> 80.8	52063		
EtFOSAA	8.452	584.2 -> 419.1	63101	14.13 µg/L	99
		584.2 -> 526.0	37565		
FOSA	9.672	498.1 -> 77.9	374744	31.18 µg/L	100
		498.1 -> 478.0	10317		
MeFOSAA	8.245	570.1 -> 419.0	83906	14.12 µg/L	93
		570.1 -> 483.0	17097		
PFBA	2.968	212.8 -> 168.9	347941	54.14 µg/L	100
PFBS	5.547	298.7 -> 79.9	105674	11.71 µg/L	98
		298.7 -> 98.8	38209		
PFDA	8.186	512.9 -> 469.0	379023	13.10 µg/L	99
		512.9 -> 219.0	62859		
PFDoDA	9.068	613.1 -> 569.0	404154	13.41 µg/L	99
		613.1 -> 319.0	49701		
PFDS	9.220	599.0 -> 79.9	47883	12.57 µg/L	94

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	24517			
PFHpA	6.557	363.1 -> 319.0	474783	13.47	µg/L	99
		363.1 -> 169.0	70299			
PFHpS	7.843	449.0 -> 79.9	84190	12.12	µg/L	86
		449.0 -> 98.9	42618			
PFHxA	5.631	313.0 -> 269.0	320894	13.92	µg/L	99
		313.0 -> 118.9	15019			
PFHxS	7.290	398.7 -> 79.9	80013	12.76	µg/L	m 97
		398.7 -> 98.9	37297			
PFNA	7.581	463.0 -> 419.0	682937	30.99	µg/L	m 90
		463.0 -> 219.0	173781			
PFNS	8.802	548.8 -> 79.9	70785	12.90	µg/L	98
		548.8 -> 98.9	35560			
PFOA	7.187	413.0 -> 369.0	1125001	30.02	µg/L	m 99
		413.0 -> 169.0	210214			
PFOS	8.337	498.9 -> 79.9	84924	12.50	µg/L	m 74
		498.9 -> 98.8	43297			
PFPeA	4.411	263.0 -> 219.0	395570	26.16	µg/L	100
PFPeS	6.608	349.1 -> 79.9	110017	12.59	µg/L	94
		349.1 -> 98.9	52122			
PFTeDA	9.772	713.1 -> 669.0	268819	13.86	µg/L	99
		713.1 -> 168.9	21322			
PFTrDA	9.440	663.0 -> 619.0	354896	13.44	µg/L	100
		663.0 -> 168.9	28553			
PFUnDA	8.639	563.1 -> 519.0	351704	13.85	µg/L	97
		563.1 -> 269.1	54130			
11CI-PF3OUdS	9.479	630.9 -> 450.9	317239	27.60	µg/L	99
		632.9 -> 452.9	101284			
9CI-PF3ONS	8.666	530.8 -> 351.0	526703	27.01	µg/L	100
		532.8 -> 353.0	168576			
ADONA	6.804	376.9 -> 250.9	1461402	27.07	µg/L	98
		376.9 -> 84.8	408092			
HFPO-DA	5.995	284.9 -> 168.9	115022	26.61	µg/L	100
		284.9 -> 184.9	12246			
3:3FTCA	3.846	241.0 -> 177.0	67353	64.56	µg/L	100
		241.0 -> 117.0	7930			
5:3FTCA	6.271	341.0 -> 237.1	1444040	333.30	µg/L	97
		341.0 -> 217.0	963236			
7:3FTCA	7.657	441.0 -> 316.9	896588	365.29	µg/L	99
		441.0 -> 336.9	1791791			
EtFOSA	10.978	526.0 -> 219.0	222742	47.29	µg/L	98
		526.0 -> 169.0	292505			
EtFOSE	10.924	630.0 -> 58.9	449691	90.83	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	198348	47.85	µg/L	97
		511.9 -> 169.0	275310			
MeFOSE	10.691	616.1 -> 58.9	413608	89.40	µg/L	100
PFDoS	9.886	699.1 -> 79.9	30529	13.43	µg/L	98
		699.1 -> 98.8	15427			
NFDHA	5.512	295.0 -> 201.0	80805	27.30	µg/L	96
		295.0 -> 84.9	19858			
PFMBA	4.838	279.0 -> 85.1	307848	25.34	µg/L	100
PFMPA	3.538	229.0 -> 84.9	228395	25.31	µg/L	100
PFEESA	6.088	314.8 -> 134.9	685917	23.93	µg/L	99
		314.8 -> 82.9	24534			

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

7.6.6
7

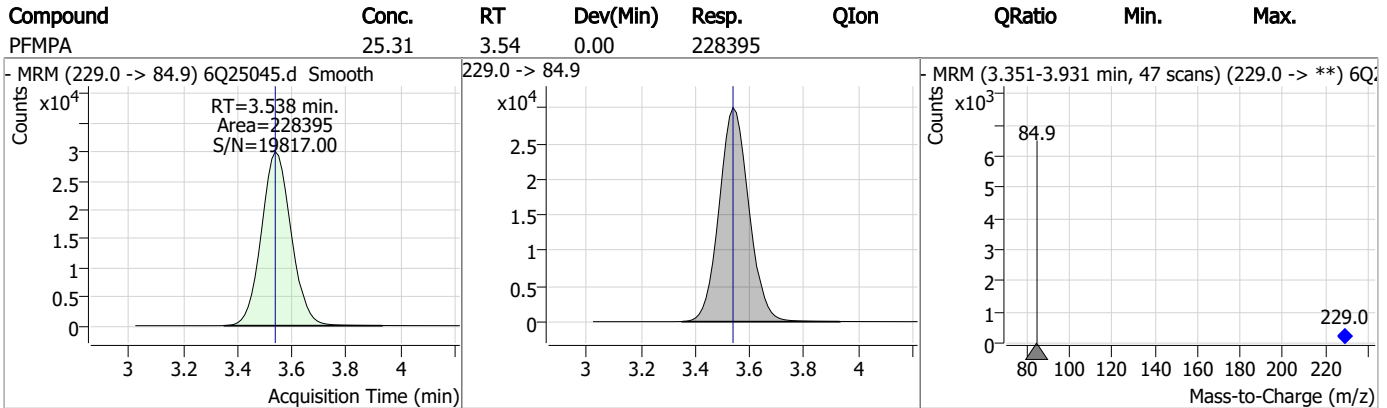
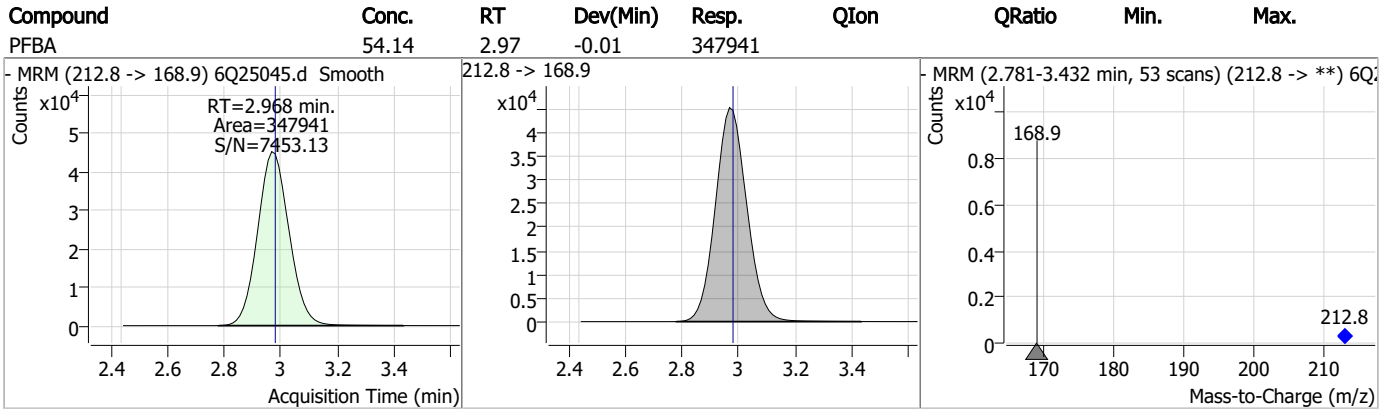
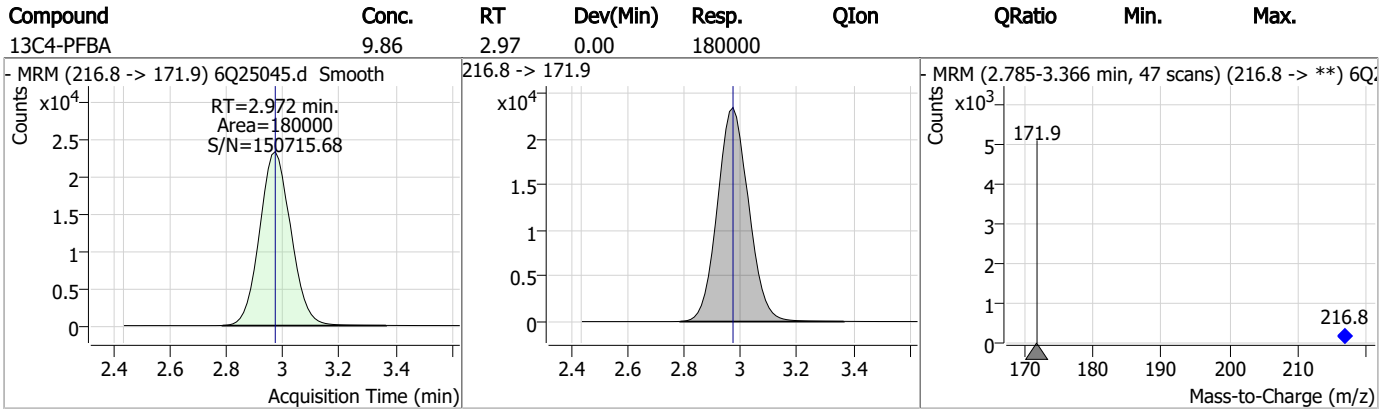
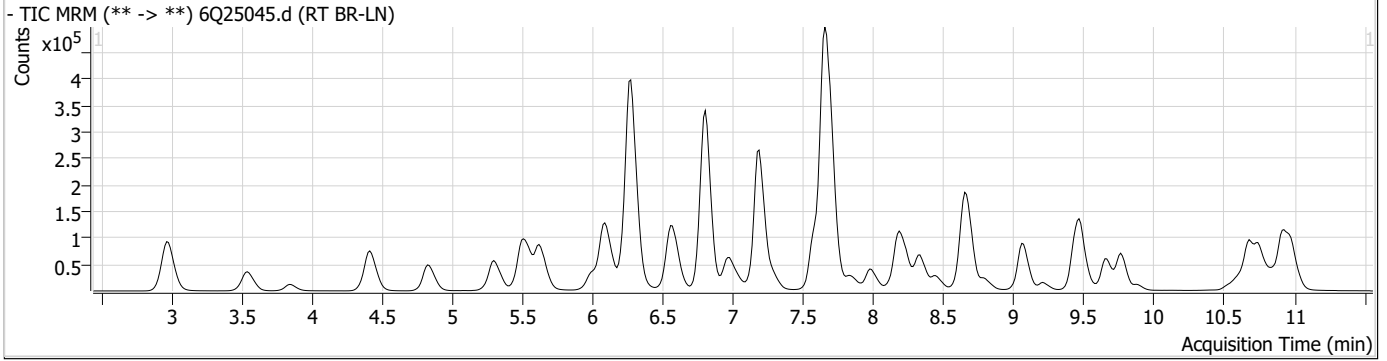
Perfluorinated Compounds by LC/MS/MS

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

7.6.6

7

Perfluorinated Compounds by LC/MS/MS



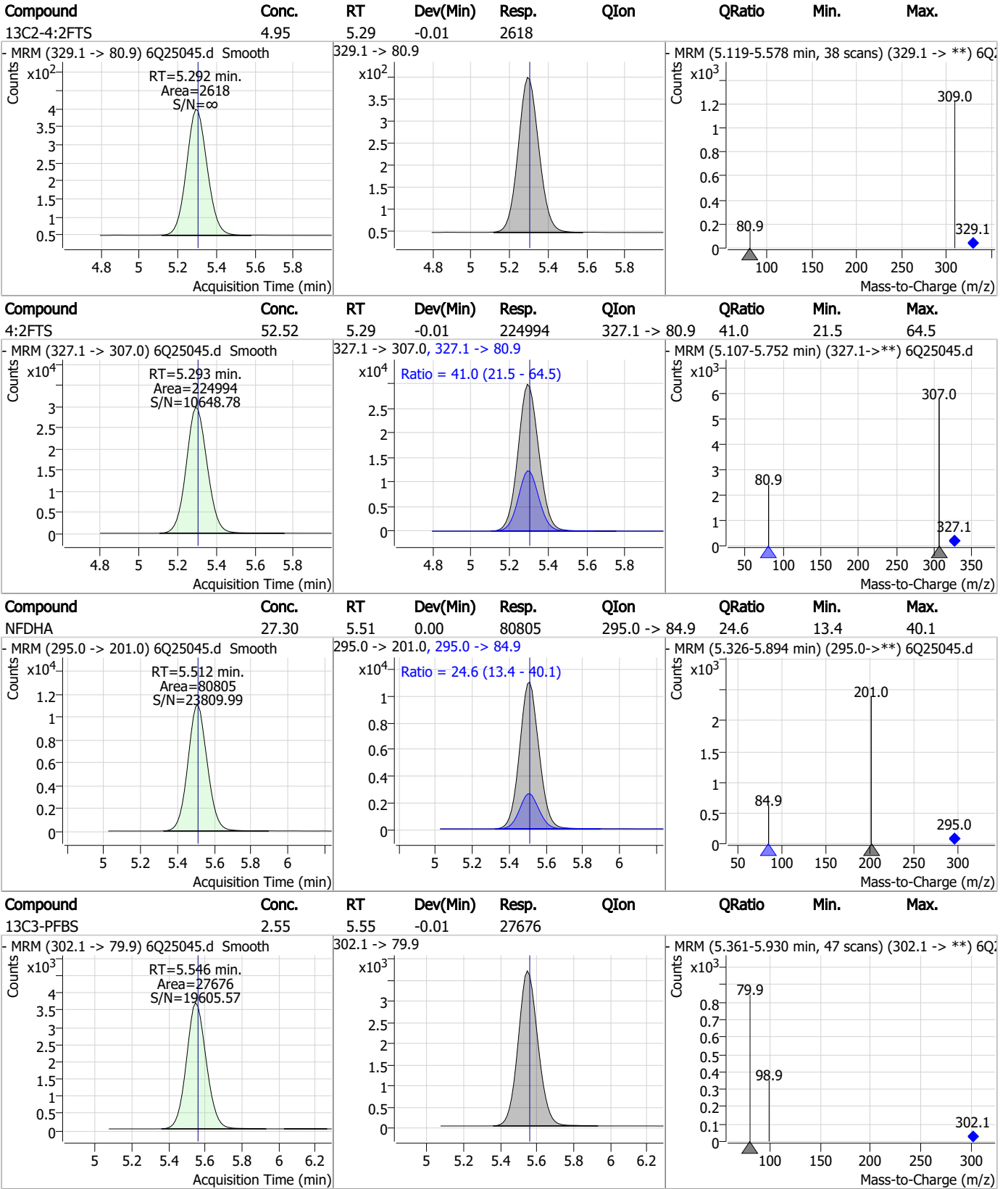
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	64.56	3.85	0.00	67353	241.0 -> 117.0	11.8	6.0	17.9
13C5-PFPeA	4.94	4.41	0.00	75111				
PFPeA	26.16	4.41	0.00	395570				
PFMBA	25.34	4.84	0.00	307848				

7.6.6

7

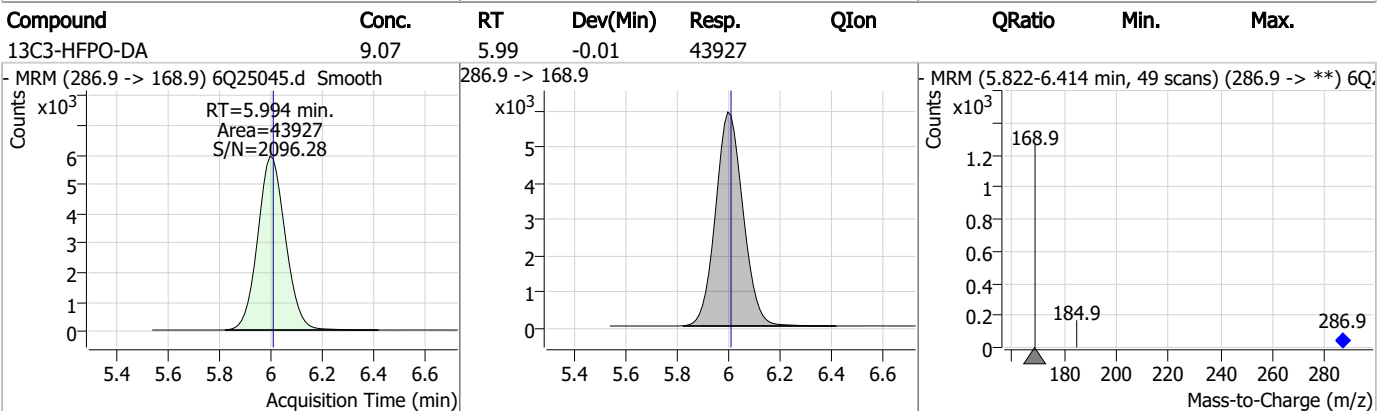
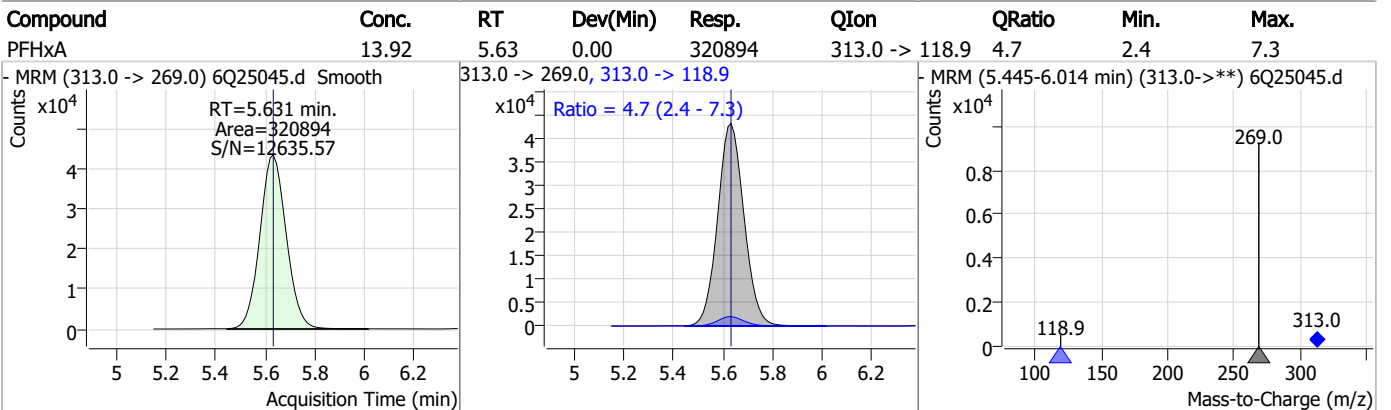
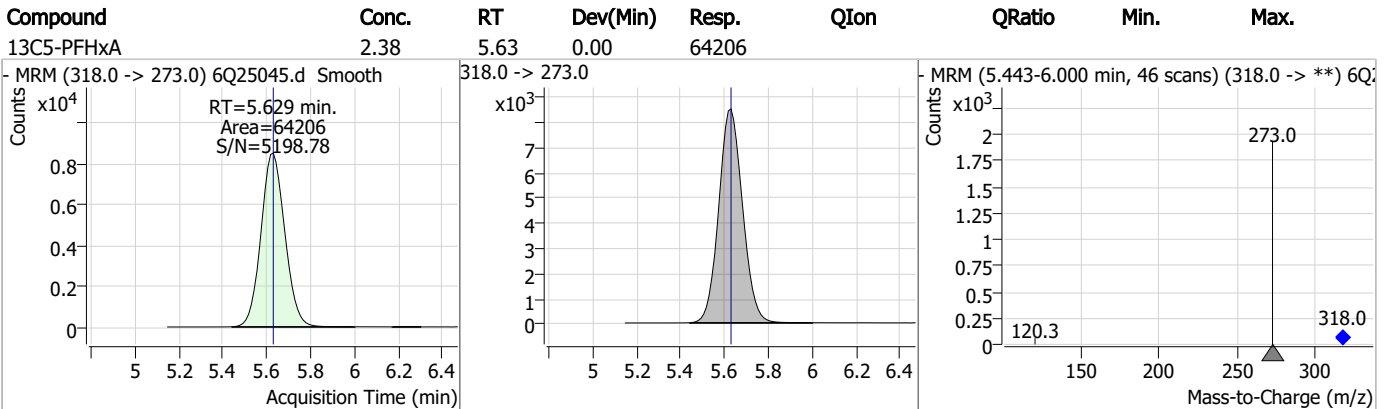
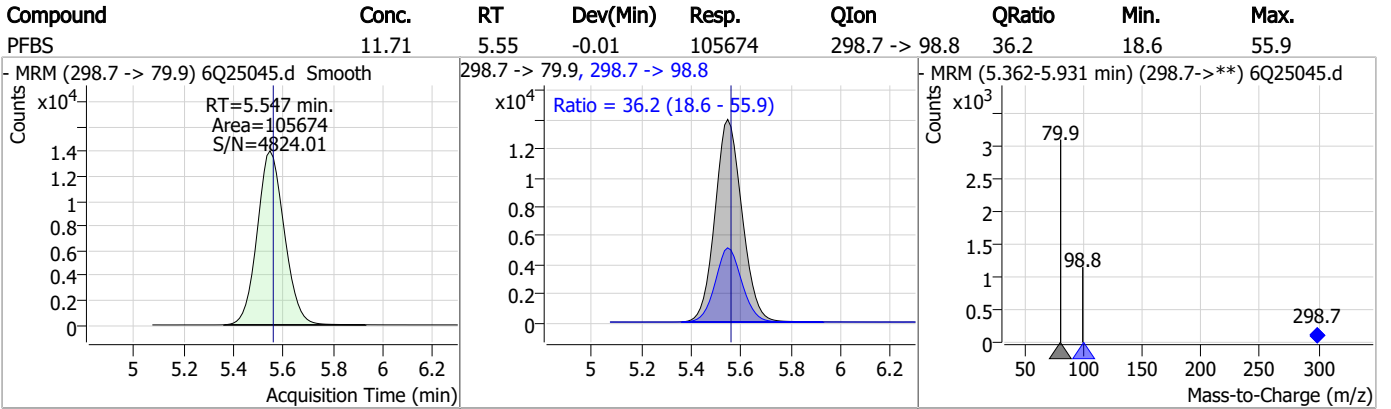
Perfluorinated Compounds by LC/MS/MS



7.6.6

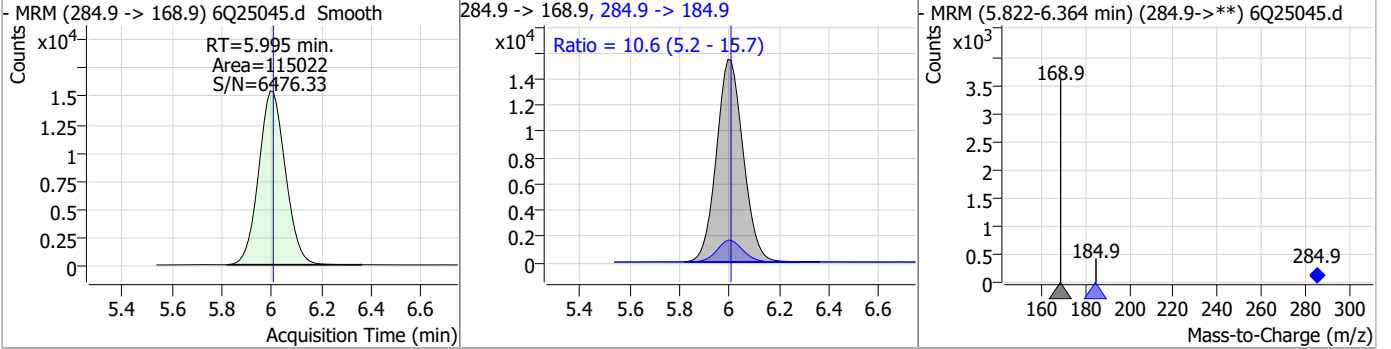
7

Perfluorinated Compounds by LC/MS/MS

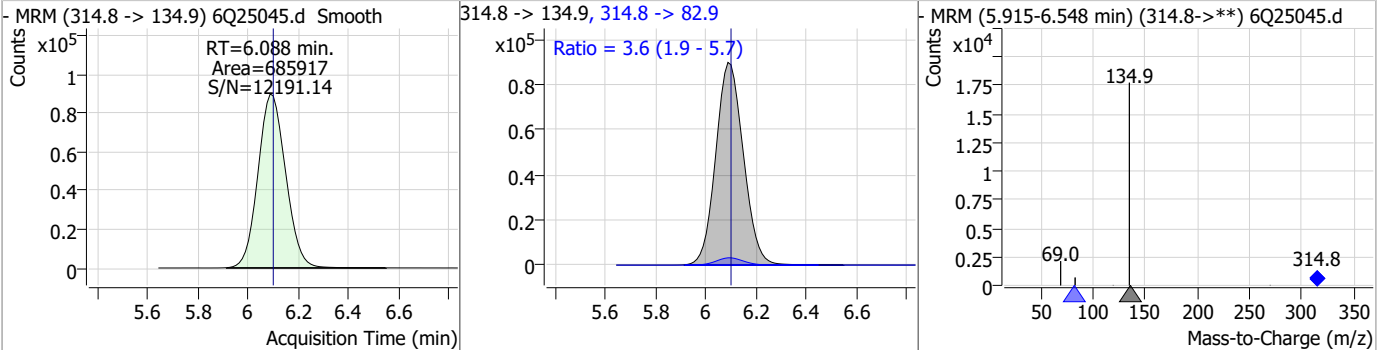


Perfluorinated Compounds by LC/MS/MS

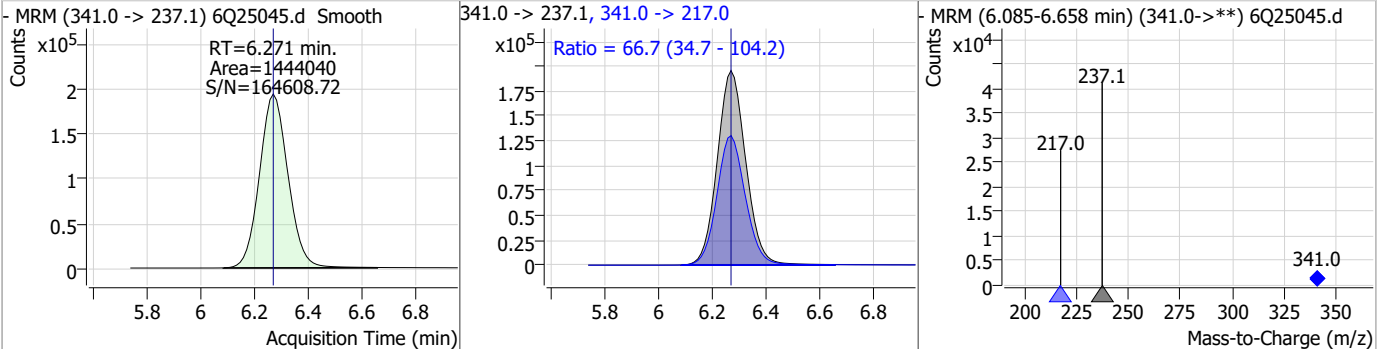
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	26.61	6.00	-0.01	115022	284.9 -> 184.9	10.6	5.2	15.7



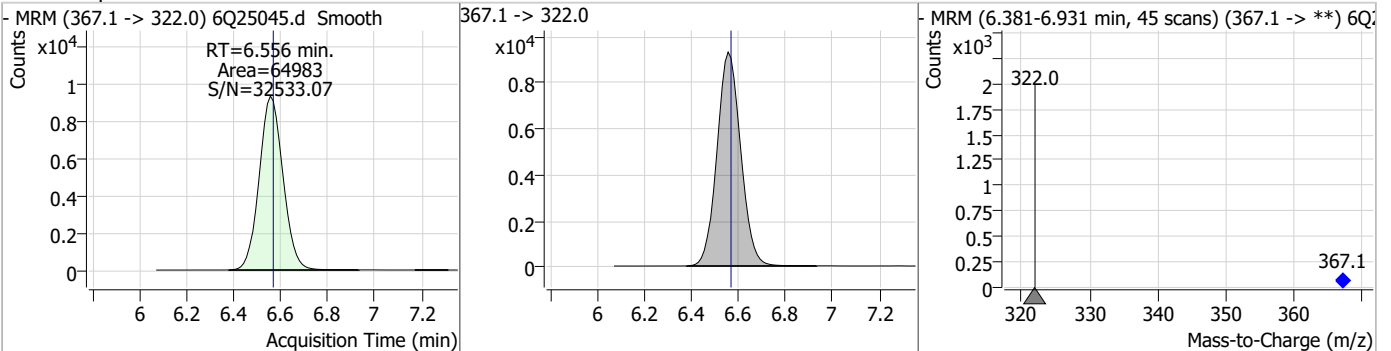
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	23.93	6.09	-0.01	685917	314.8 -> 82.9	3.6	1.9	5.7



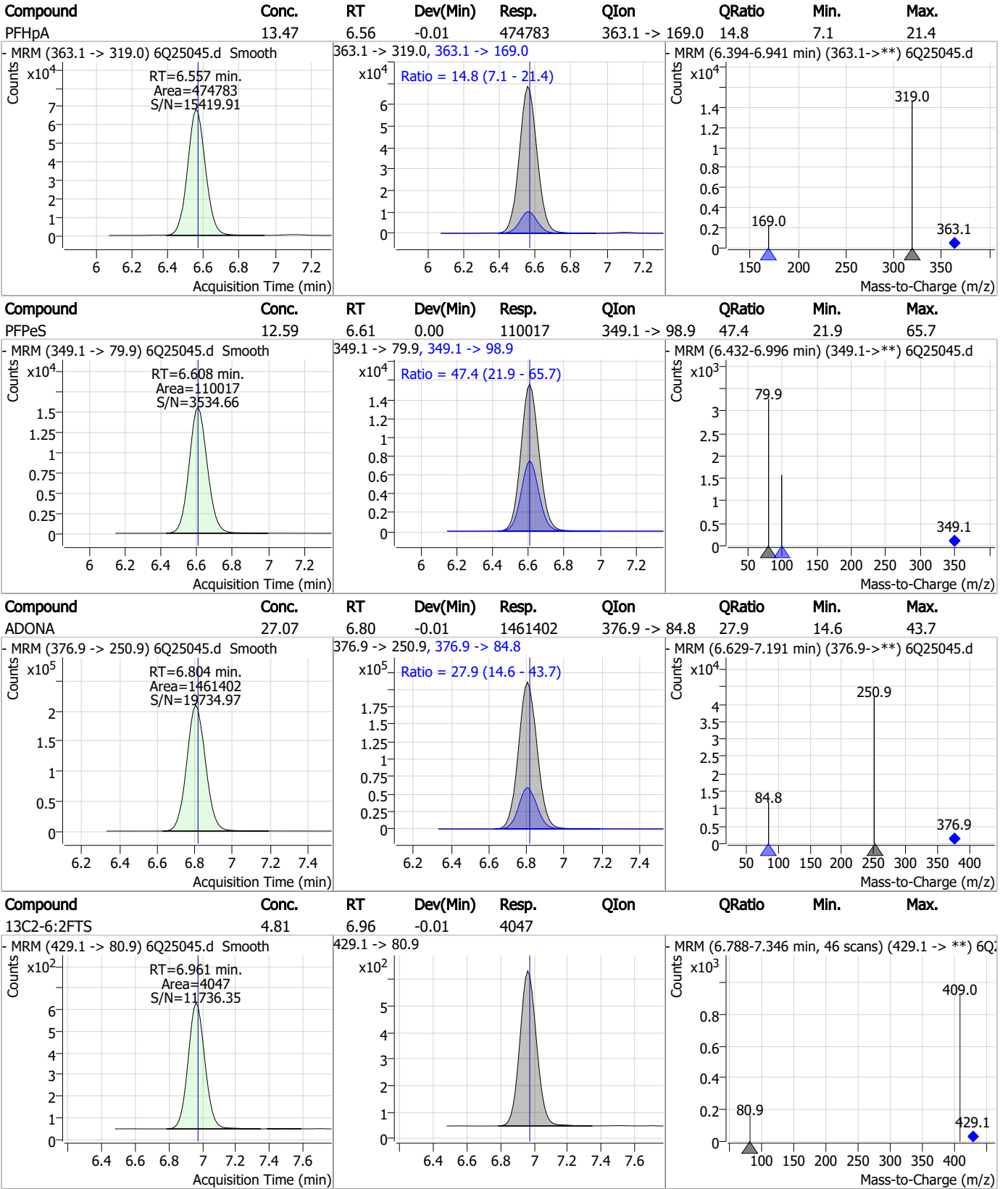
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	333.30	6.27	0.00	1444040	341.0 -> 217.0	66.7	34.7	104.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.48	6.56	-0.01	64983	367.1 -> 322.0			



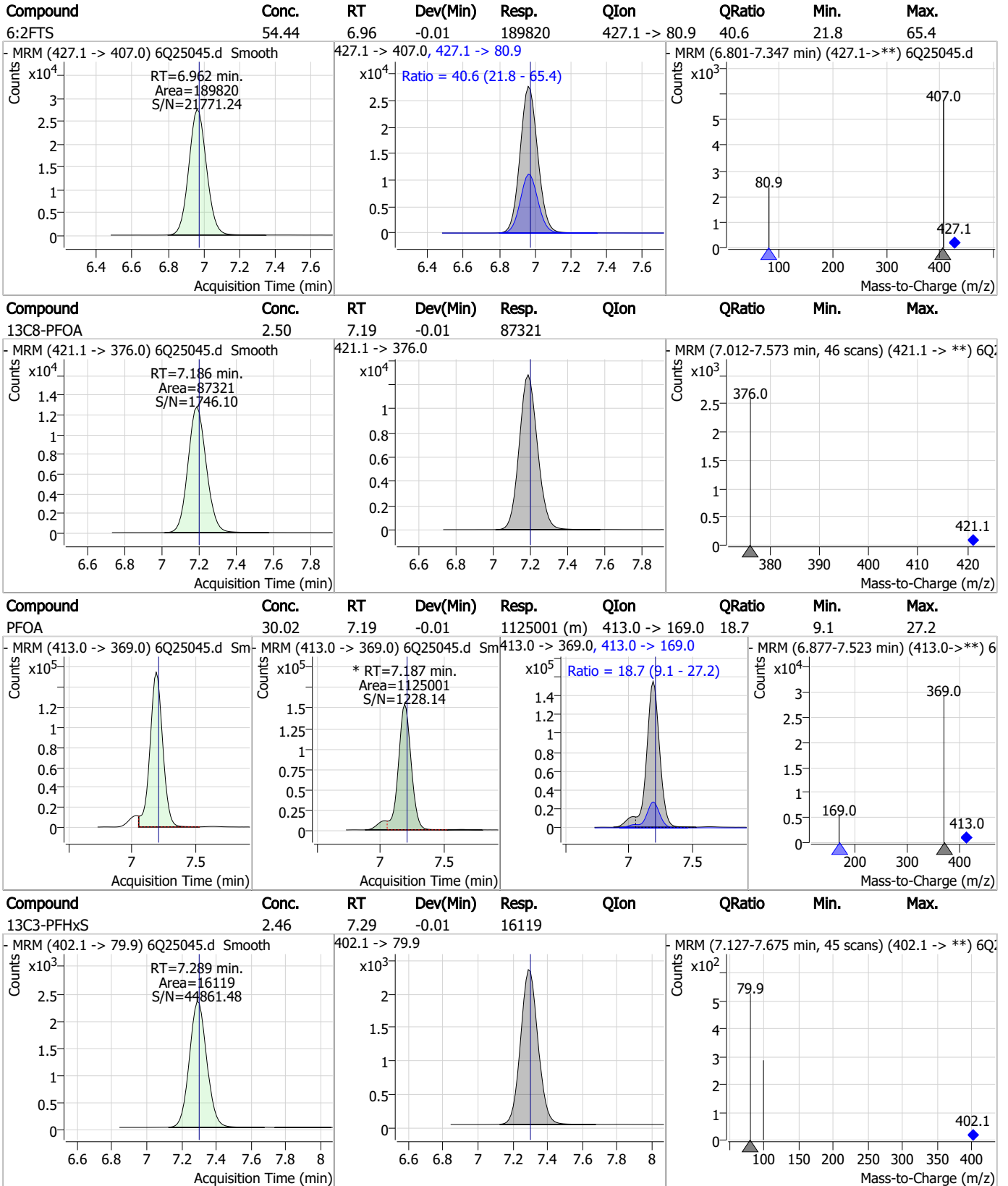
Perfluorinated Compounds by LC/MS/MS



7.6.6
7



Perfluorinated Compounds by LC/MS/MS

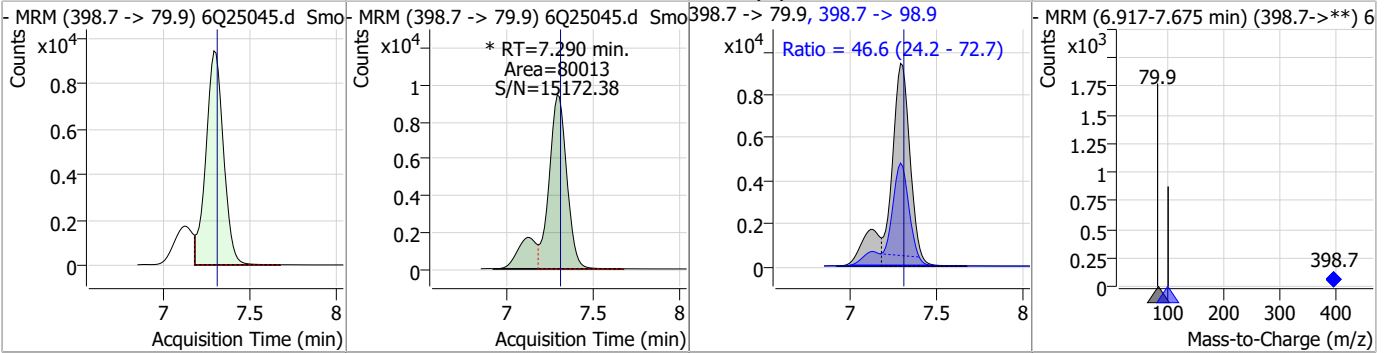


7.6.6

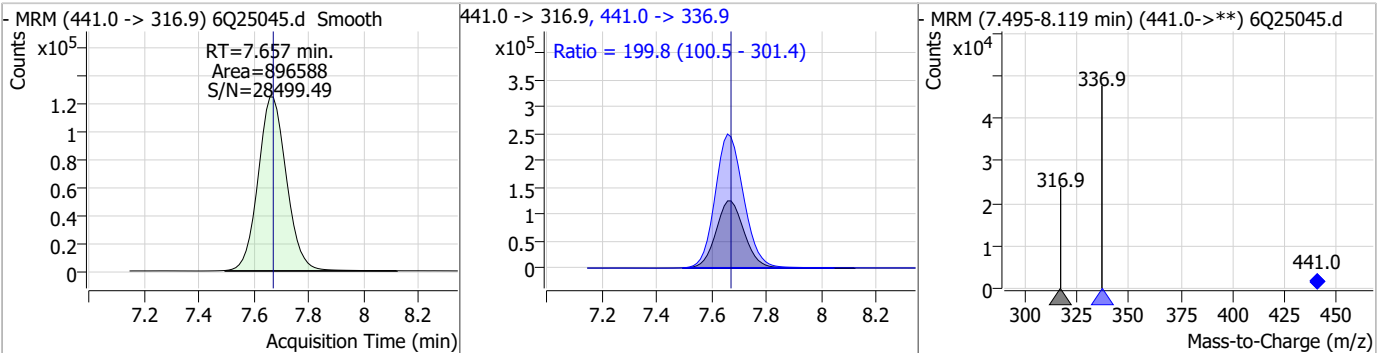
7

Perfluorinated Compounds by LC/MS/MS

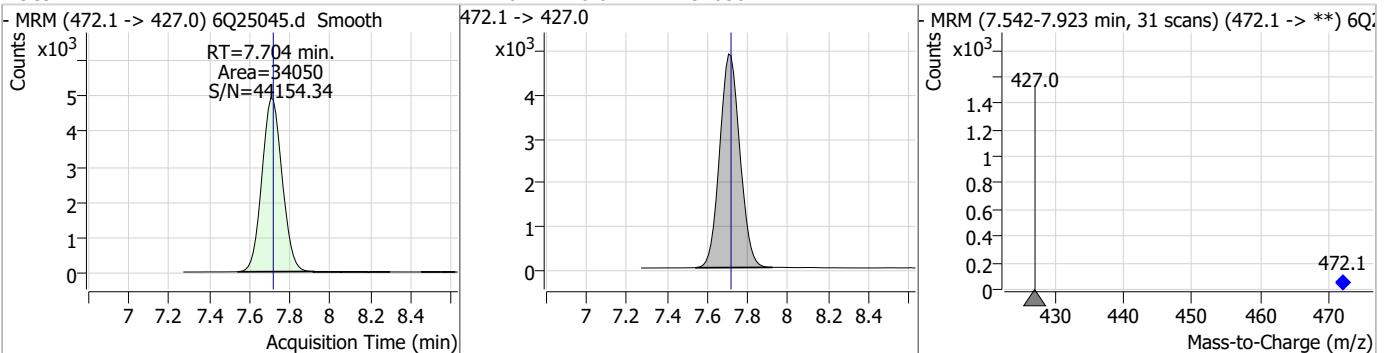
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	12.76	7.29	-0.01	80013 (m)	398.7 -> 98.9	46.6	24.2	72.7



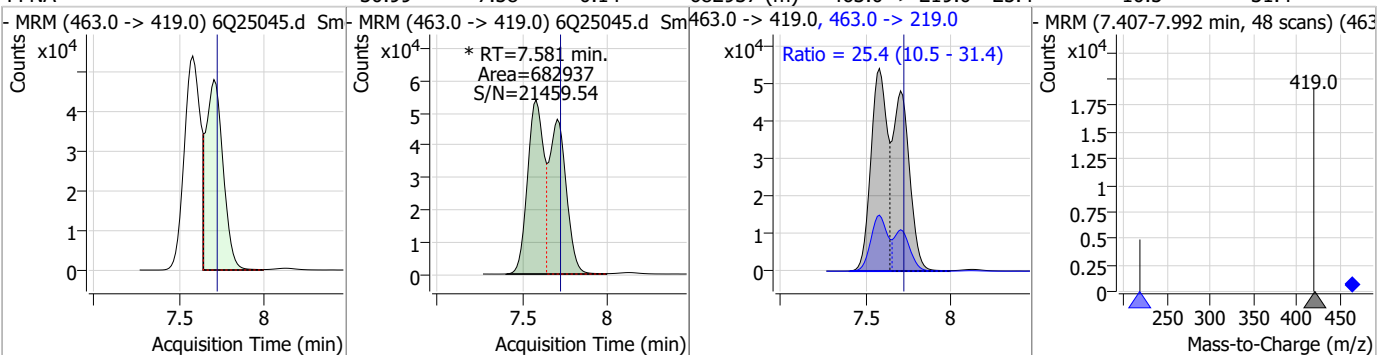
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	365.29	7.66	-0.01	896588	441.0 -> 336.9	199.8	100.5	301.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.24	7.70	-0.01	34050	472.1 -> 427.0	-	-	-



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	30.99	7.58	-0.14	682937 (m)	463.0 -> 219.0	25.4	10.5	31.4



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	12.12	7.84	-0.01	84190	449.0 -> 98.9	50.6	21.0	62.9
13C2-8:2FTS	5.17	7.97	-0.01	4132				
8:2FTS	52.27	7.99	0.00	137697	527.1 -> 80.8	37.8	17.6	52.8
13C6-PFDA	1.33	8.19	-0.01	36673				

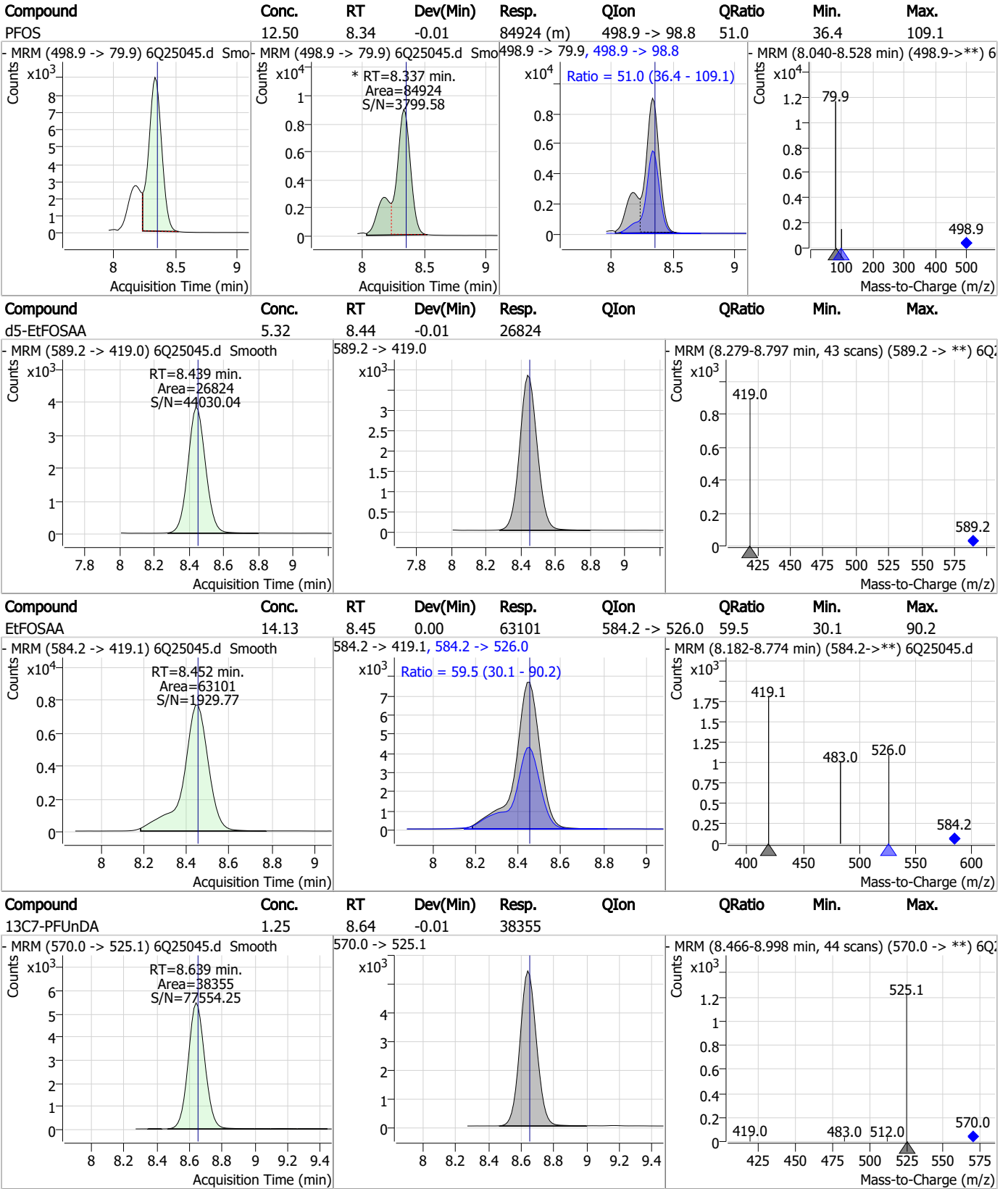
7.6.6

7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	13.10	8.19	-0.01	379023	512.9 -> 219.0	16.6	8.2	24.5
d3-MeFOSAA	5.23	8.24	0.00	33949				
MeFOSAA	14.12	8.24	-0.01	83906	570.1 -> 483.0	20.4	11.9	35.6
13C8-PFOS	2.66	8.34	-0.01	15755				

Perfluorinated Compounds by LC/MS/MS

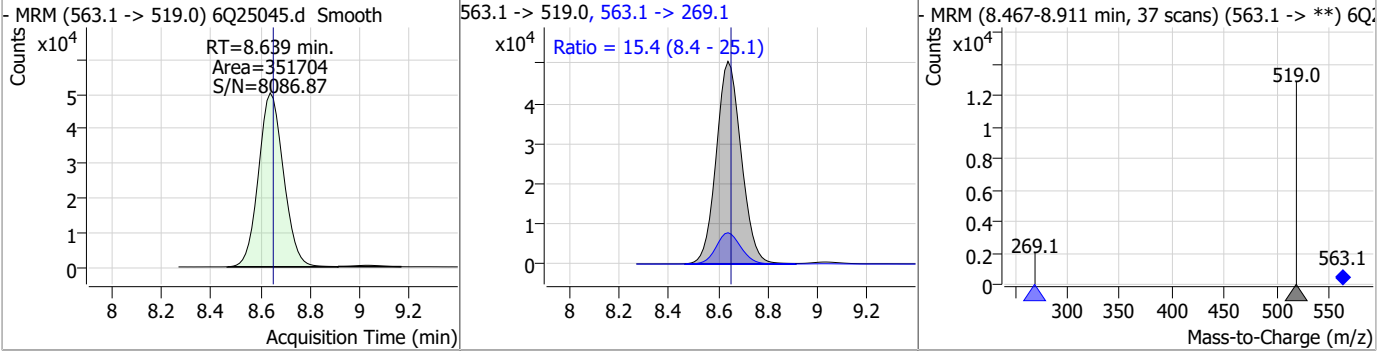


7.6.6

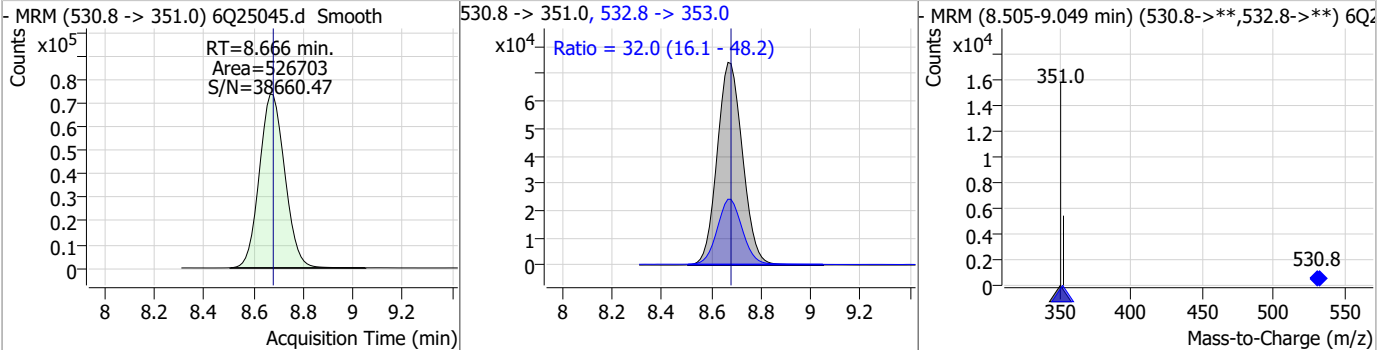
7

Perfluorinated Compounds by LC/MS/MS

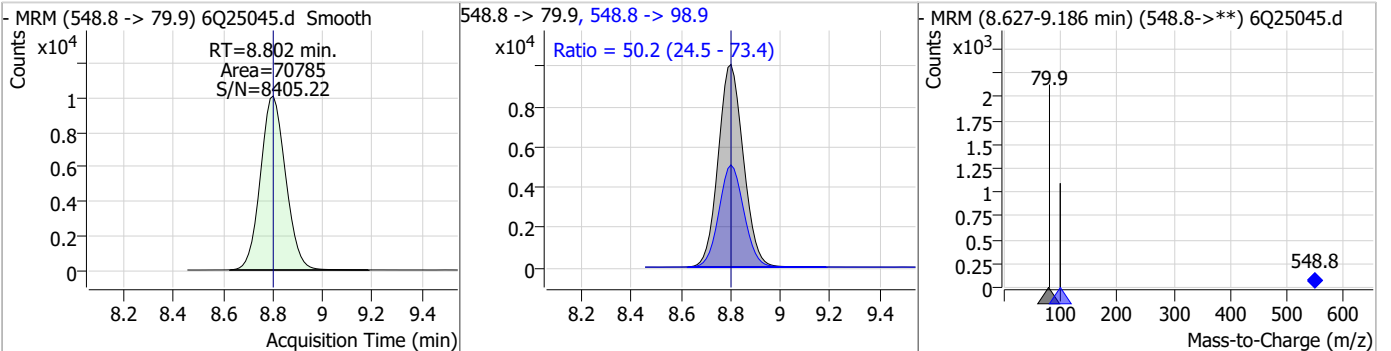
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	13.85	8.64	-0.01	351704	563.1 -> 269.1	15.4	8.4	25.1



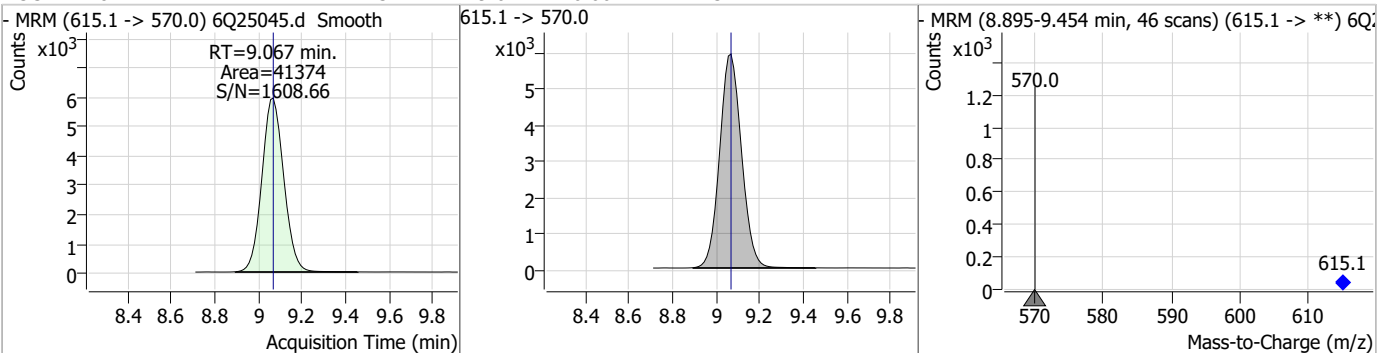
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	27.01	8.67	-0.01	526703	532.8 -> 353.0	32.0	16.1	48.2



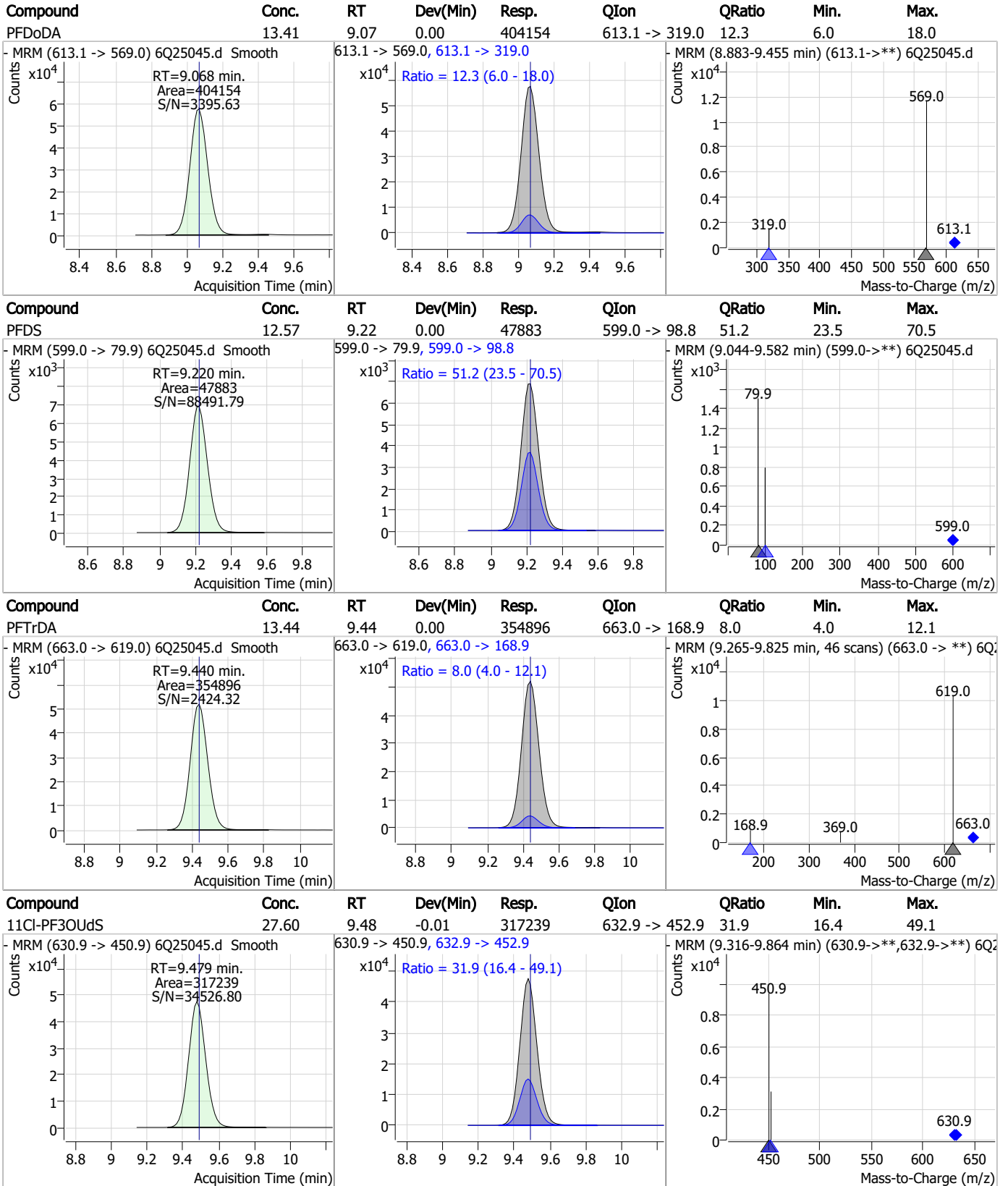
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	12.90	8.80	0.00	70785	548.8 -> 98.9	50.2	24.5	73.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.32	9.07	0.00	41374	615.1 -> 570.0	-	-	-



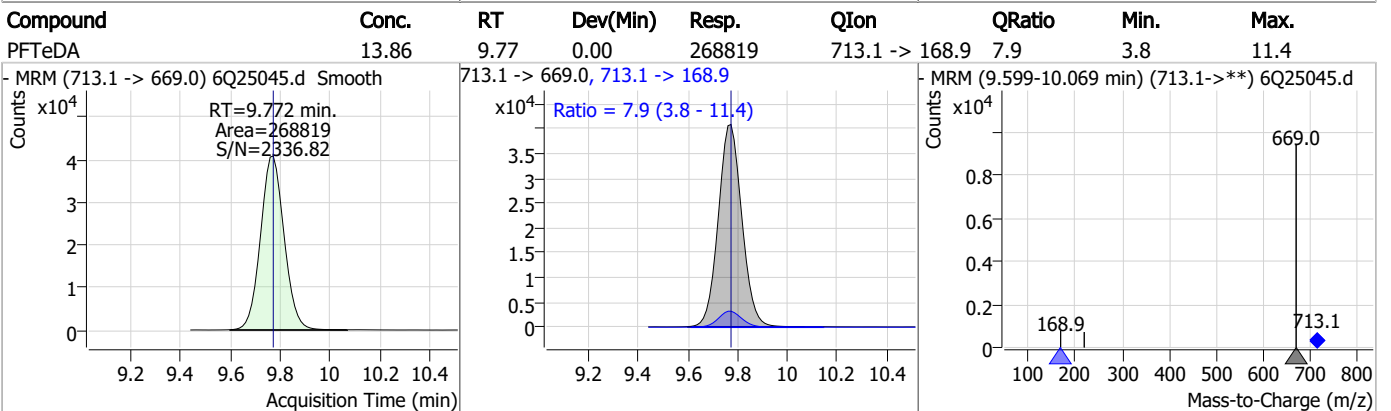
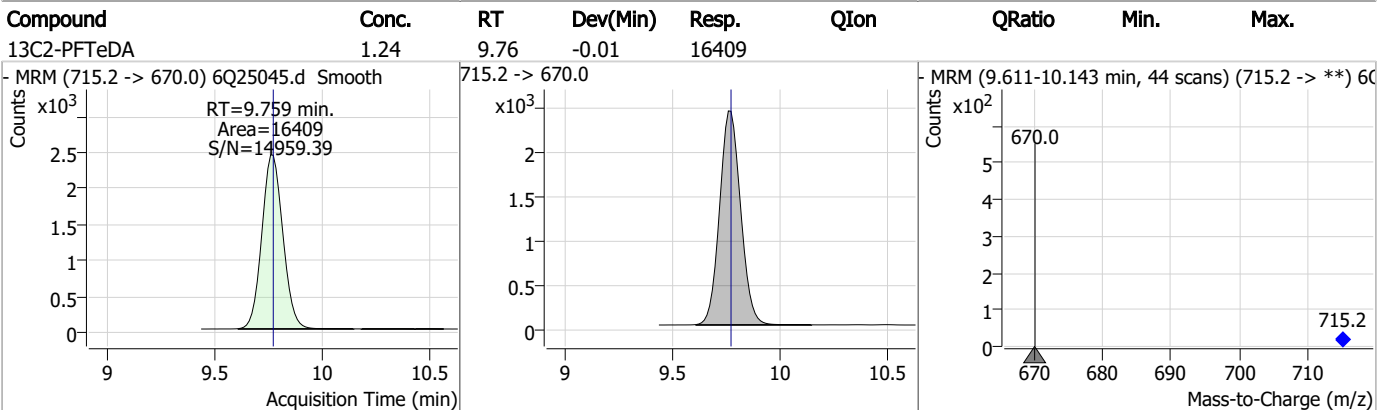
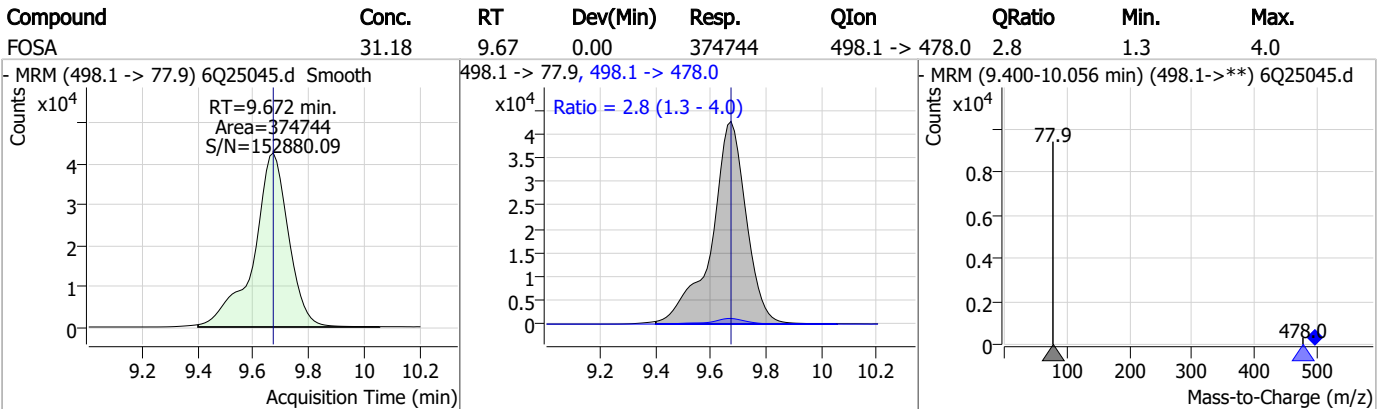
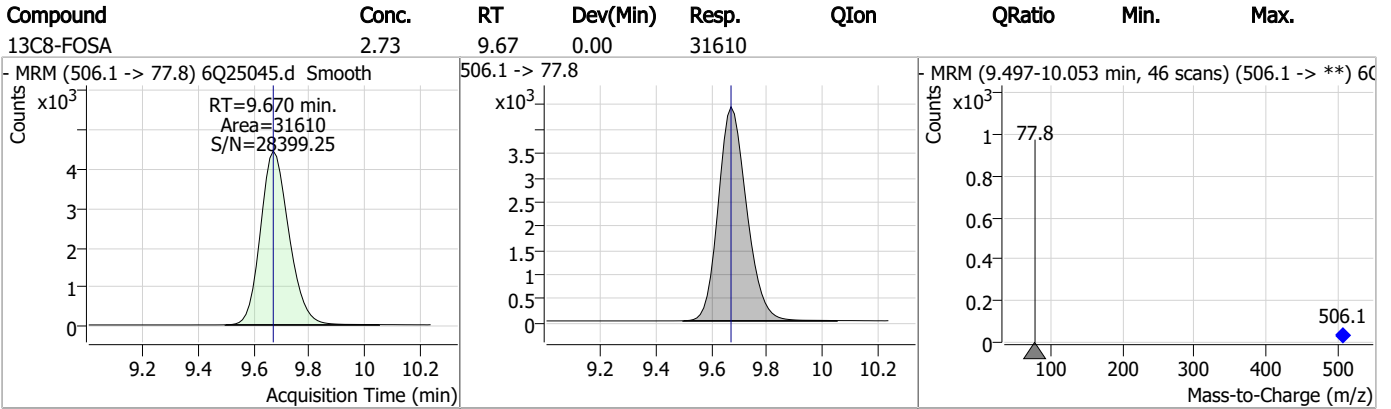
Perfluorinated Compounds by LC/MS/MS



7.6.6

7

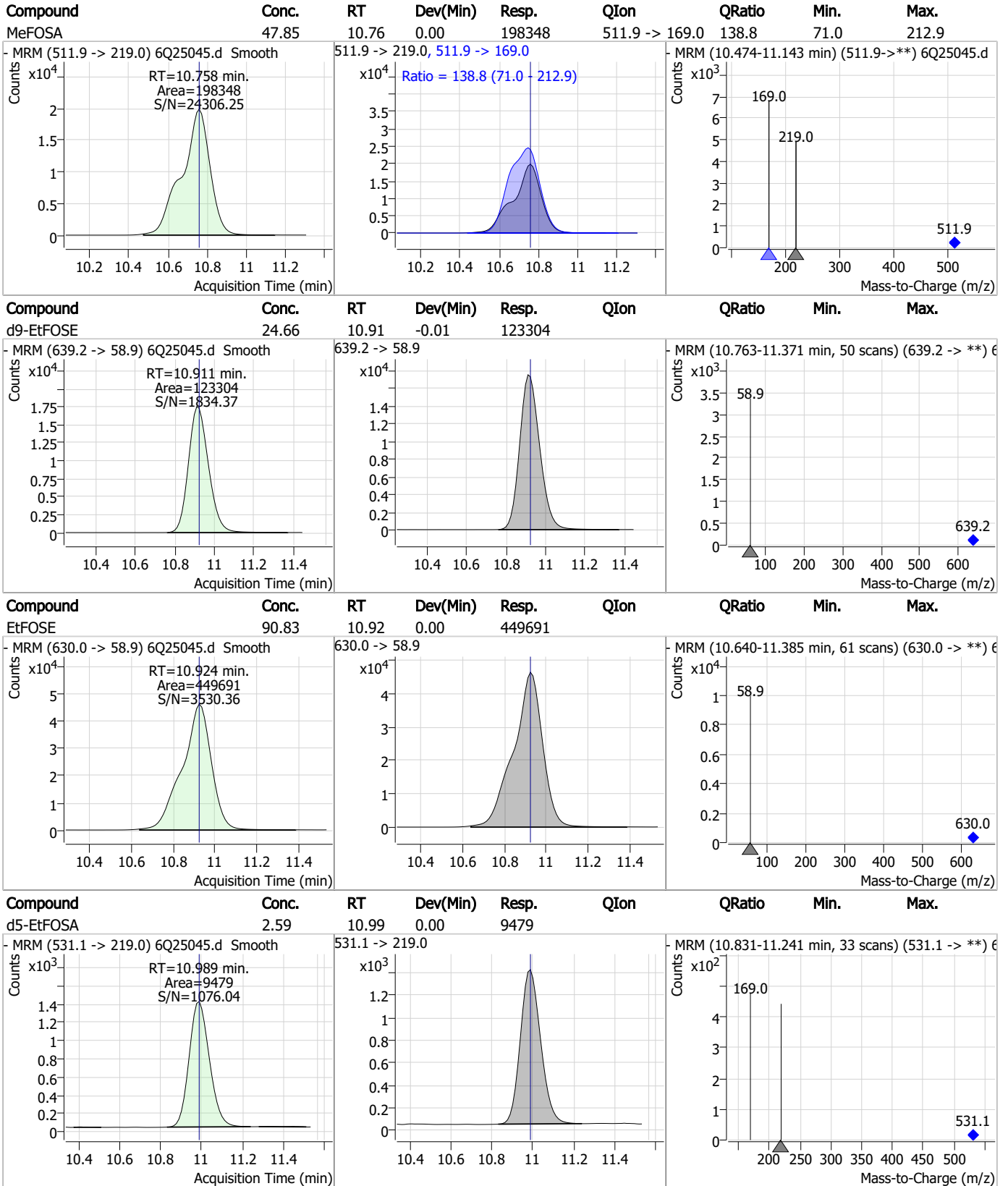
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	13.43	9.89	0.00	30529	699.1 -> 98.8	50.5	26.0	78.1
- MRM (699.1 -> 79.9) 6Q25045.d Smooth			699.1 -> 79.9, 699.1 -> 98.8		- MRM (9.725-10.270 min) (699.1->**) 6Q25045.d			
d7-MeFOSE	25.41	10.68	0.00	104416				
- MRM (623.2 -> 58.9) 6Q25045.d Smooth			623.2 -> 58.9		- MRM (10.508-11.024 min, 42 scans) (623.2 -> **) 6Q25045.d			
MeFOSE	89.40	10.69	0.00	413608				
- MRM (616.1 -> 58.9) 6Q25045.d Smooth			616.1 -> 58.9		- MRM (10.396-11.149 min, 62 scans) (616.1 -> **) 6Q25045.d			
d3-MeFOSA	2.64	10.76	0.00	9211				
- MRM (515.0 -> 219.0) 6Q25045.d Smooth			515.0 -> 219.0		- MRM (10.597-11.085 min, 40 scans) (515.0 -> **) 6Q25045.d			

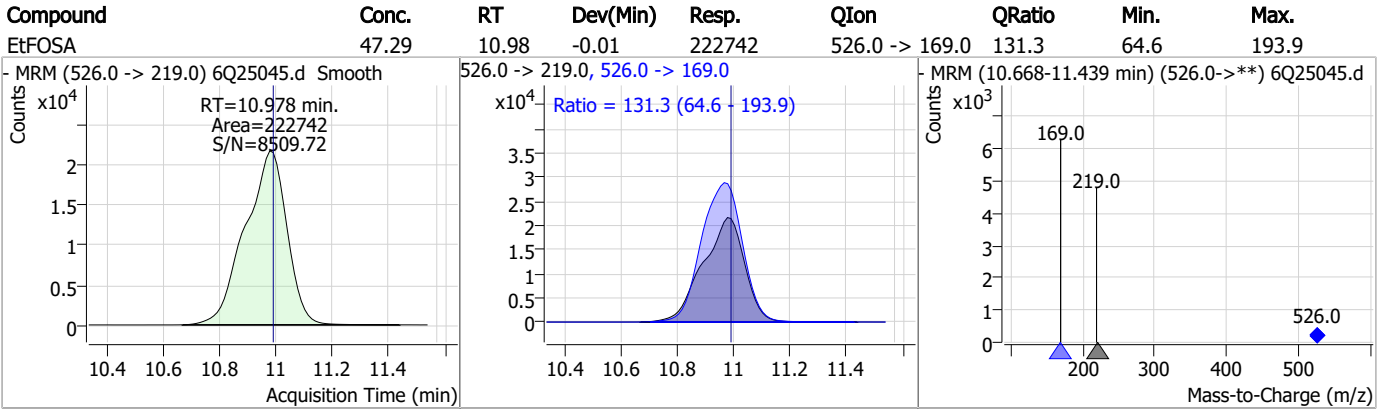
Perfluorinated Compounds by LC/MS/MS



7.6.6

7

Perfluorinated Compounds by LC/MS/MS



7.6.6

7

Manual Integration Approval Summary

Sample Number: S6Q357-RT Method: EPA DRAFT 1633
Lab FileID: 6Q25045.D Analyst approved: 09/26/23 15:45 Martha Valls
Injection Time: 09/25/23 20:55 Supervisor approved: 09/26/23 19:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.19	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorononanoic acid	375-95-1		7.58	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

7.6.6.1
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 08 September 2023 10:38:10
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.81E+0 [R] (Torr); 2.89E-5 [H] (Torr)

Source Parameters

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

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	112.92	-0.07	Pass	0.70	0.75	0.05	Pass	589408
302.00	301.90	-0.10	Pass	0.70	0.82	0.12	Pass	2012303
601.98	601.87	-0.11	Pass	0.70	0.78	0.08	Pass	2774400
1033.99	1033.92	-0.07	Pass	0.70	0.69	-0.01	Pass	1828876
1633.95	1633.92	-0.03	Pass	0.70	0.78	0.08	Pass	1214432
2233.91	2233.80	-0.11	Pass	0.70	0.82	0.12	Pass	615071

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.05	0.05	Pass	0.70	0.63	-0.07	Pass	207094
112.99	112.98	-0.01	Pass	0.70	0.73	0.03	Pass	703374
302.00	301.98	-0.02	Pass	0.70	0.72	0.02	Pass	1830422
601.98	602.01	0.03	Pass	0.70	0.68	-0.02	Pass	2651956
1033.99	1033.99	0.00	Pass	0.70	0.72	0.02	Pass	1332855
1633.95	1633.95	0.00	Pass	0.70	0.73	0.03	Pass	1015072
2233.91	2233.83	-0.08	Pass	0.70	0.70	0.00	Pass	430759

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.91	-0.08	Pass	1.20	1.34	0.14	Pass	688563
302.00	301.83	-0.17	Pass	1.20	1.61	0.41	Pass	2815407
601.98	601.82	-0.16	Pass	1.20	1.74	0.54	Pass	4213825
1033.99	1033.88	-0.11	Pass	1.20	1.71	0.51	Pass	3045914
1633.95	1633.89	-0.06	Pass	1.20	1.67	0.47	Pass	2571946
2233.91	2233.73	-0.18	Pass	1.20	1.50	0.30	Pass	1157215

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.05	0.05	Pass	1.20	1.15	-0.05	Pass	263040
112.99	112.97	-0.02	Pass	1.20	1.21	0.01	Pass	1036516
302.00	301.90	-0.10	Pass	1.20	1.41	0.21	Pass	2387216
601.98	601.95	-0.03	Pass	1.20	1.41	0.21	Pass	3443771
1033.99	1033.94	-0.05	Pass	1.20	1.40	0.20	Pass	2419136
1633.95	1633.91	-0.04	Pass	1.20	1.30	0.10	Pass	2300119
2233.91	2233.84	-0.07	Pass	1.20	1.17	-0.03	Pass	1137390

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.83	-0.16	Pass	2.50	2.66	0.16	Pass	714524
302.00	301.85	-0.15	Pass	2.50	2.98	0.48	Pass	3305801
601.98	601.77	-0.21	Pass	2.50	3.03	0.53	Pass	4346811
1033.99	1033.78	-0.21	Pass	2.50	3.04	0.54	Pass	4542787
1633.95	1633.78	-0.17	Pass	2.50	3.14	0.64	Pass	4299429
2233.91	2233.82	-0.09	Pass	2.50	2.46	-0.04	Pass	2697015

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	2.45	-0.05	Pass	283898
112.99	112.96	-0.03	Pass	2.50	2.57	0.07	Pass	1214436
302.00	301.85	-0.15	Pass	2.50	2.56	0.06	Pass	3299787
601.98	602.05	0.07	Pass	2.50	2.79	0.29	Pass	4553553
1033.99	1033.94	-0.05	Pass	2.50	2.86	0.36	Pass	3846373
1633.95	1633.95	0.00	Pass	2.50	2.62	0.12	Pass	4259139
2233.91	2233.85	-0.06	Pass	2.50	2.77	0.27	Pass	2967219

7.7.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24811.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 8:35:51 PM
 Sample Name : ic355-1
 Vial : P1-A2
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	337420	10.00 µg/L	-0.025
M5-PFPeA	4.422	268.3 -> 223.0	55718	5.00 µg/L	-0.012
M5-PFHxA	5.641	318.0 -> 273.0	122466	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	103120	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	132881	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	58760	1.25 µg/L	0.012
M6-PFDA	8.198	519.1 -> 474.1	56618	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	67422	1.25 µg/L	0.000
M2-PFDoDA	9.079	615.1 -> 570.0	60168	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	23582	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	43672	2.50 µg/L	-0.012
M3-PFBS	5.559	302.1 -> 79.9	39081	2.50 µg/L	-0.012
M3-PFHxS	7.301	402.1 -> 79.9	22595	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	20496	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	4549	5.00 µg/L	-0.012
M2-6:2FTS	6.974	429.1 -> 80.9	6277	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	6371	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	39184	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	67601	10.00 µg/L	-0.012
M5-EtFOSAA	8.452	589.2 -> 419.0	31327	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	147792	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	190452	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	15036	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	16270	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	27640	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	138089	5.00 µg/L	-0.012
18O2-PFHxS	7.313	403.0 -> 83.9	16460	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	152589	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	46314	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	60778	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	93377	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	4549	5.30 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C2-6:2FTS	6.974	429.1 -> 80.9	6277	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-8:2FTS	7.998	529.1 -> 80.9	6371	5.15 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-PFDoDA	9.079	615.1 -> 570.0	60168	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C2-PFTeDA	9.784	715.2 -> 670.0	23582	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C3-PFBS	5.559	302.1 -> 79.9	39081	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C3-PFHxS	7.301	402.1 -> 79.9	22595	2.53 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 = 101.4%	
13C4-PFBA	2.985	216.8 -> 171.9	337420	10.02 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.569	367.1 -> 322.0	103120	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C5-PFHxA	5.641	318.0 -> 273.0	122466	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C5-PFPeA	4.422	268.3 -> 223.0	55718	5.25 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C6-PFDA	8.198	519.1 -> 474.1	56618	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C7-PFUnDA	8.651	570.0 -> 525.1	67422	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C8-FOSA	9.670	506.1 -> 77.8	43672	2.41 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C8-PFOA	7.198	421.1 -> 376.0	132881	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C8-PFOS	8.348	507.1 -> 79.9	20496	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C9-PFNA	7.729	472.1 -> 427.0	58760	1.33 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.7%	
d3-MeFOSAA	8.256	573.2 -> 419.0	39184	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	67601	9.76 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
d3-MeFOSA	10.757	515.0 -> 219.0	16270	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
d5-EtFOSAA	8.452	589.2 -> 419.0	31327	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
d7-MeFOSE	10.678	623.2 -> 58.9	147792	25.06 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d9-EtFOSE	10.923	639.2 -> 58.9	190452	24.60 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
d5-EtFOSA	10.989	531.1 -> 219.0	15036	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	5556	0.75 µg/L	98
		327.1 -> 80.9	2055		
6:2FTS	6.974	427.1 -> 407.0	4869	0.84 µg/L	100
		427.1 -> 80.9	1828		
8:2FTS	7.999	527.1 -> 507.0	3418	0.84 µg/L	99
		527.1 -> 80.8	1121		
EtFOSAA	8.465	584.2 -> 419.1	945	0.20 µg/L	98
		584.2 -> 526.0	600		
FOSA	9.672	498.1 -> 77.9	3102	0.21 µg/L	99
		498.1 -> 478.0	93		
MeFOSAA	8.257	570.1 -> 419.0	1732	0.19 µg/L	87
		570.1 -> 483.0	308		
PFBA	2.981	212.8 -> 168.9	8122	0.78 µg/L	100
PFBS	5.560	298.7 -> 79.9	3373	0.18 µg/L	100
		298.7 -> 98.8	1225		
PFDA	8.198	512.9 -> 469.0	9902	0.20 µg/L	98
		512.9 -> 219.0	1540		
PFDODA	9.080	613.1 -> 569.0	8229	0.19 µg/L	92
		613.1 -> 319.0	1237		
PFDS	9.233	599.0 -> 79.9	1157	0.19 µg/L	84

7.7.2
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	681			
PFHpA	6.569	363.1 -> 319.0	10145	0.19	µg/L	99
		363.1 -> 169.0	1582			
PFHpS	7.868	449.0 -> 79.9	1819	0.18	µg/L	97
		449.0 -> 98.9	899			
PFHxA	5.644	313.0 -> 269.0	8751	0.21	µg/L	100
		313.0 -> 118.9	415			
PFHxS	7.314	398.7 -> 79.9	2792	0.19	µg/L	m 94
		398.7 -> 98.9	1212			
PFNA	7.717	463.0 -> 419.0	6892	0.18	µg/L	97
		463.0 -> 219.0	1761			
PFNS	8.814	548.8 -> 79.9	1768	0.18	µg/L	90
		548.8 -> 98.9	1141			
PFOA	7.200	413.0 -> 369.0	13519	0.22	µg/L	97
		413.0 -> 169.0	2189			
PFOS	8.350	498.9 -> 79.9	2471	0.21	µg/L	90
		498.9 -> 98.8	1115			
PFPeA	4.424	263.0 -> 219.0	10953	0.40	µg/L	100
PFPeS	6.620	349.1 -> 79.9	2347	0.19	µg/L	87
		349.1 -> 98.9	935			
PFTeDA	9.785	713.1 -> 669.0	6597	0.21	µg/L	98
		713.1 -> 168.9	482			
PFTrDA	9.452	663.0 -> 619.0	9043	0.19	µg/L	94
		663.0 -> 168.9	898			
PFUnDA	8.652	563.1 -> 519.0	6915	0.18	µg/L	97
		563.1 -> 269.1	1091			
11Cl-PF3OUdS	9.491	630.9 -> 450.9	8294	0.38	µg/L	98
		632.9 -> 452.9	2644			
9Cl-PF3ONS	8.678	530.8 -> 351.0	15382	0.40	µg/L	92
		532.8 -> 353.0	5528			
ADONA	6.817	376.9 -> 250.9	37852	0.38	µg/L	100
		376.9 -> 84.8	10048			
HFPO-DA	6.007	284.9 -> 168.9	2678	0.42	µg/L	98
		284.9 -> 184.9	359			
3:3FTCA	3.858	241.0 -> 177.0	1640	0.90	µg/L	99
		241.0 -> 117.0	164			
5:3FTCA	6.283	341.0 -> 237.1	36176	4.84	µg/L	96
		341.0 -> 217.0	24719			
7:3FTCA	7.669	441.0 -> 316.9	20479	4.70	µg/L	90
		441.0 -> 336.9	43018			
EtFOSA	10.990	526.0 -> 219.0	3089	0.39	µg/L	95
		526.0 -> 169.0	3797			
EtFOSE	10.924	630.0 -> 58.9	8561	0.96	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	2767	0.38	µg/L	93
		511.9 -> 169.0	3751			
MeFOSE	10.691	616.1 -> 58.9	5908	0.93	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	553	0.19	µg/L	94
		699.1 -> 98.8	364			
NFDHA	5.524	295.0 -> 201.0	2084	0.41	µg/L	99
		295.0 -> 84.9	516			
PFMBA	4.850	279.0 -> 85.1	7361	0.38	µg/L	100
PFMPA	3.551	229.0 -> 84.9	5498	0.38	µg/L	100
PFEESA	6.112	314.8 -> 134.9	19089	0.34	µg/L	100
		314.8 -> 82.9	653			

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

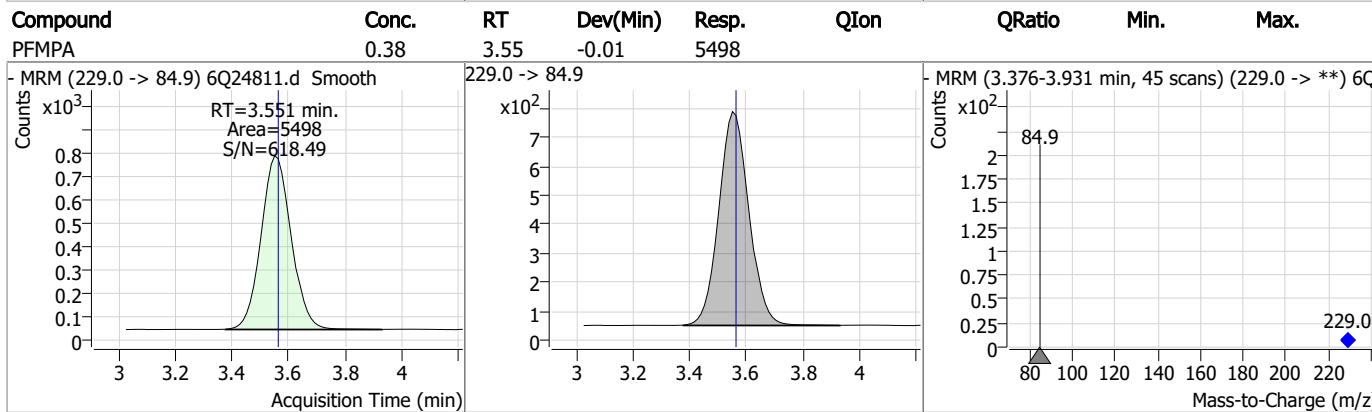
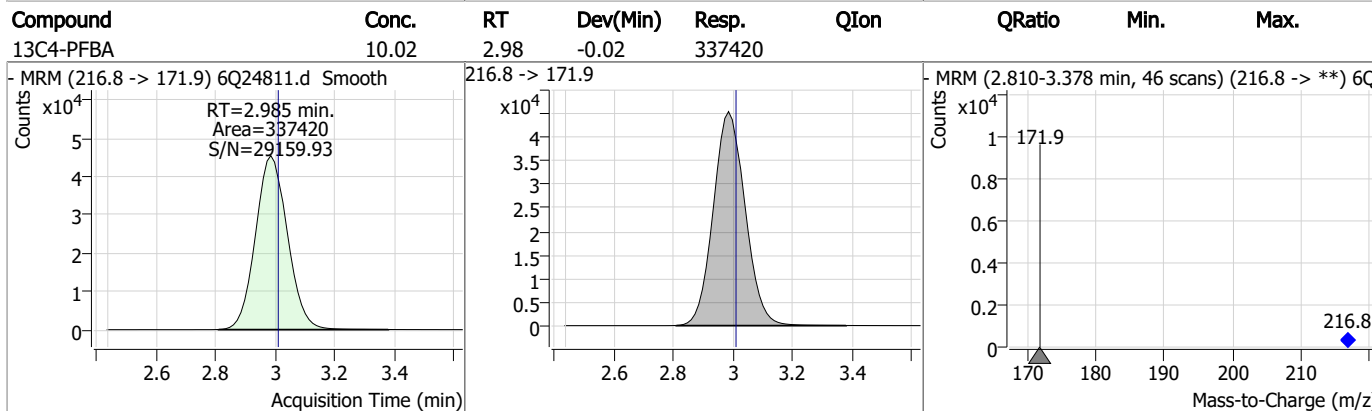
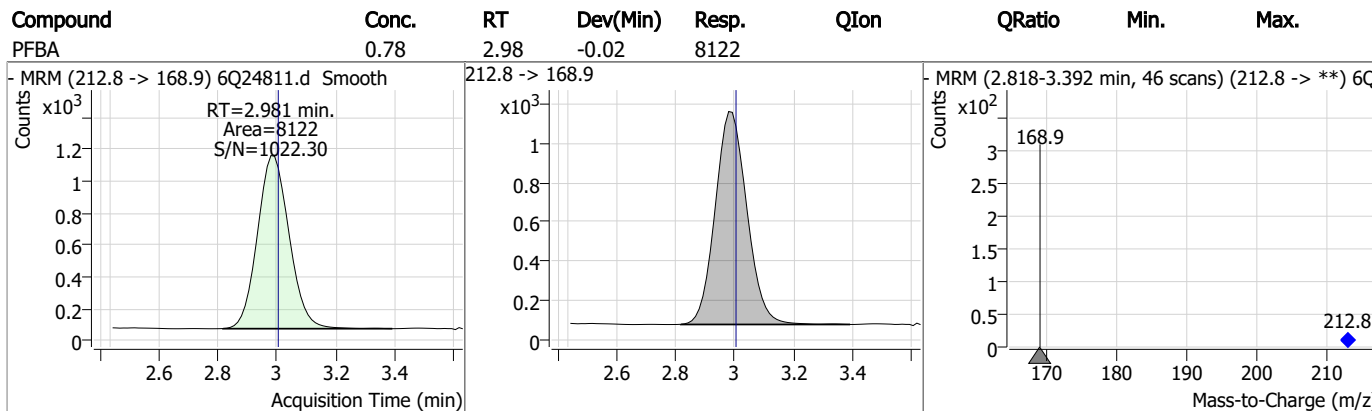
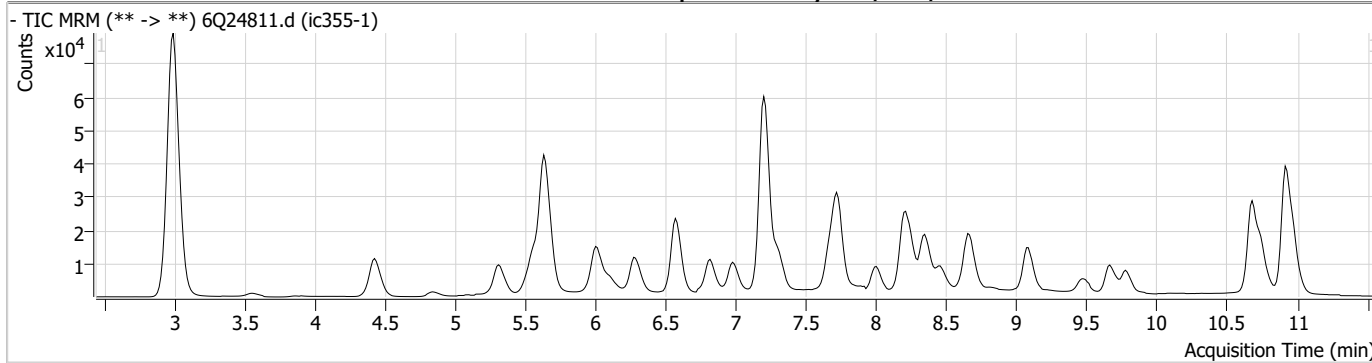
Perfluorinated Compounds by LC/MS/MS

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

7.7.2
7

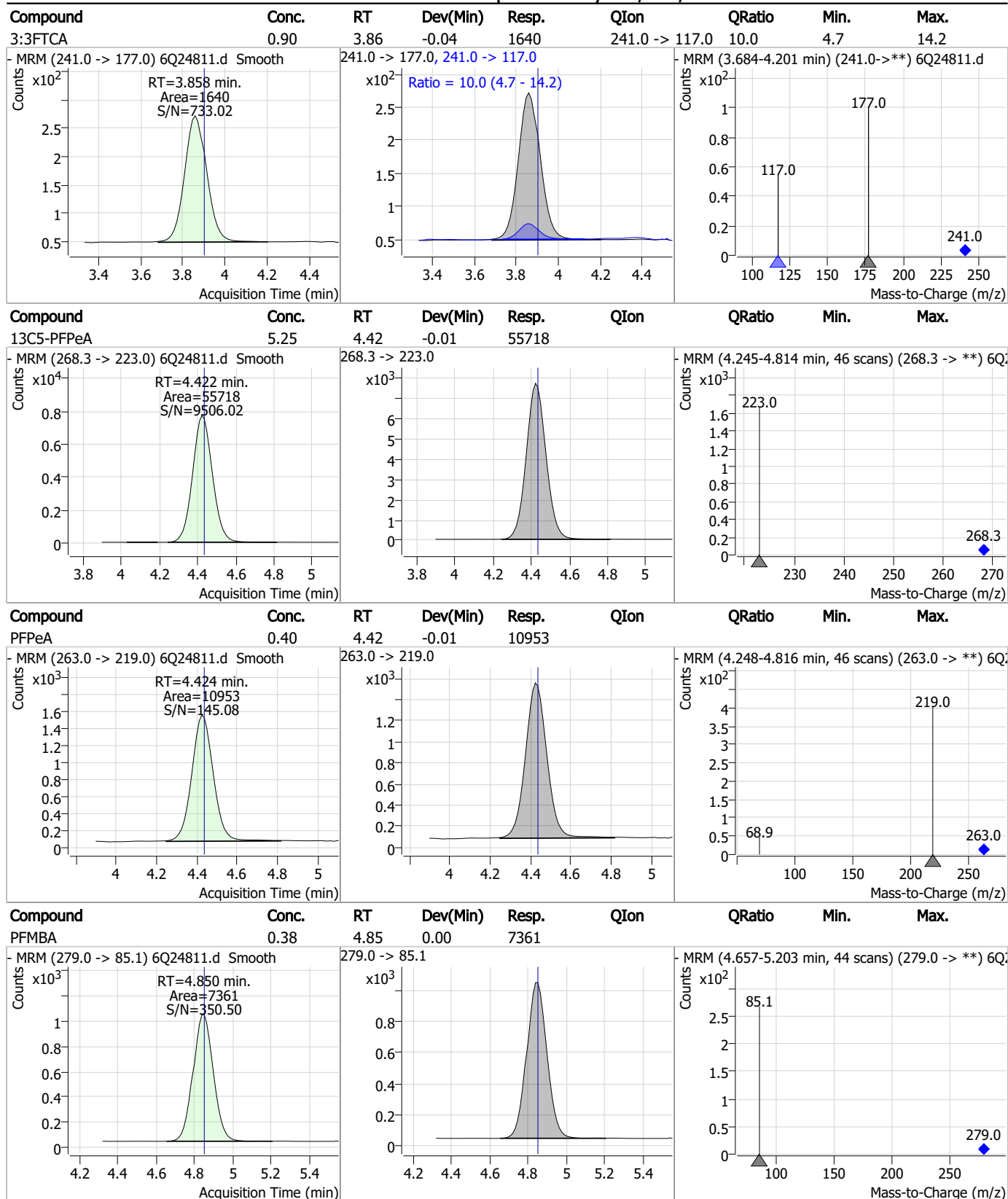


Perfluorinated Compounds by LC/MS/MS



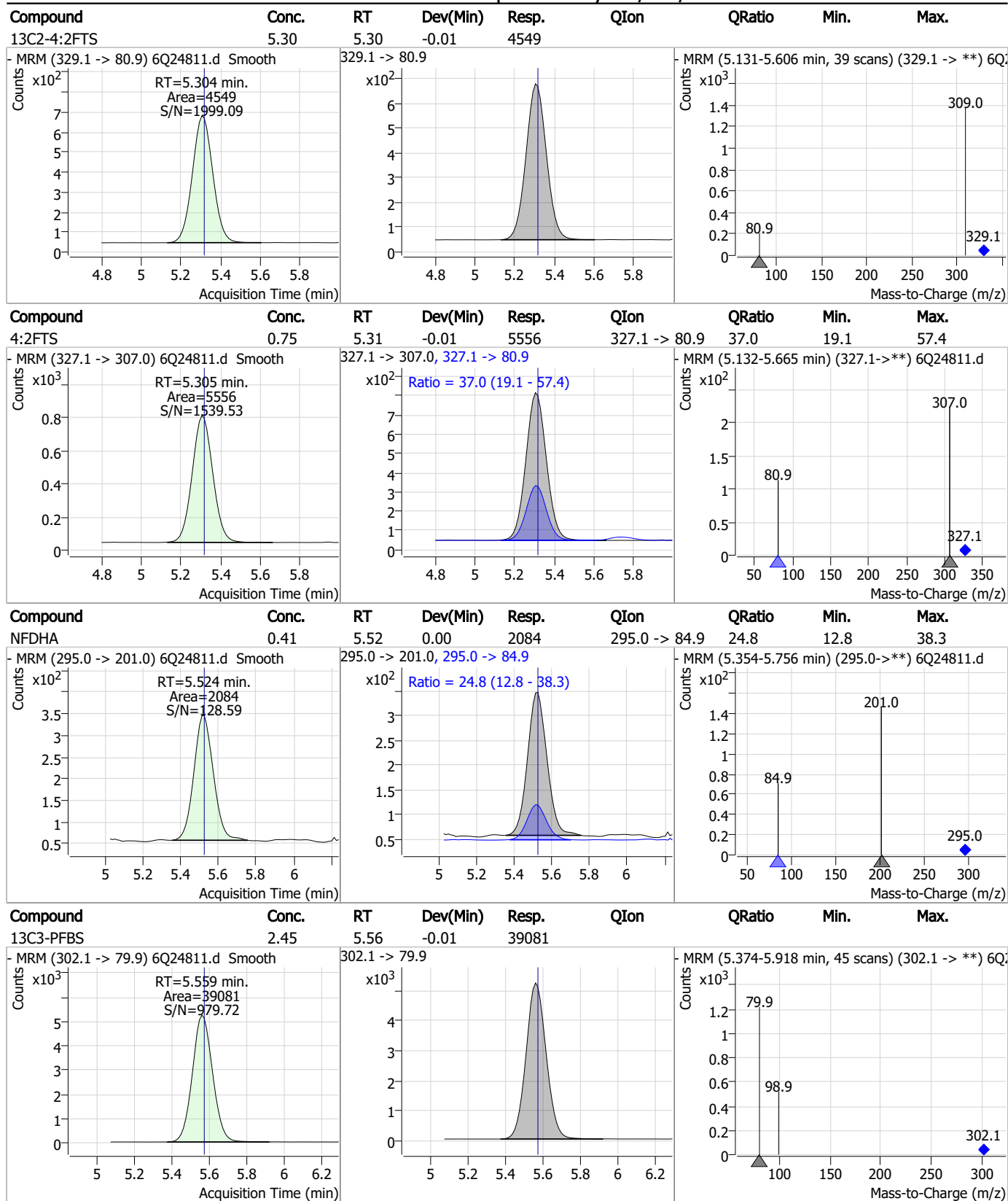
7.7.2
7

Perfluorinated Compounds by LC/MS/MS



7.7.2
7

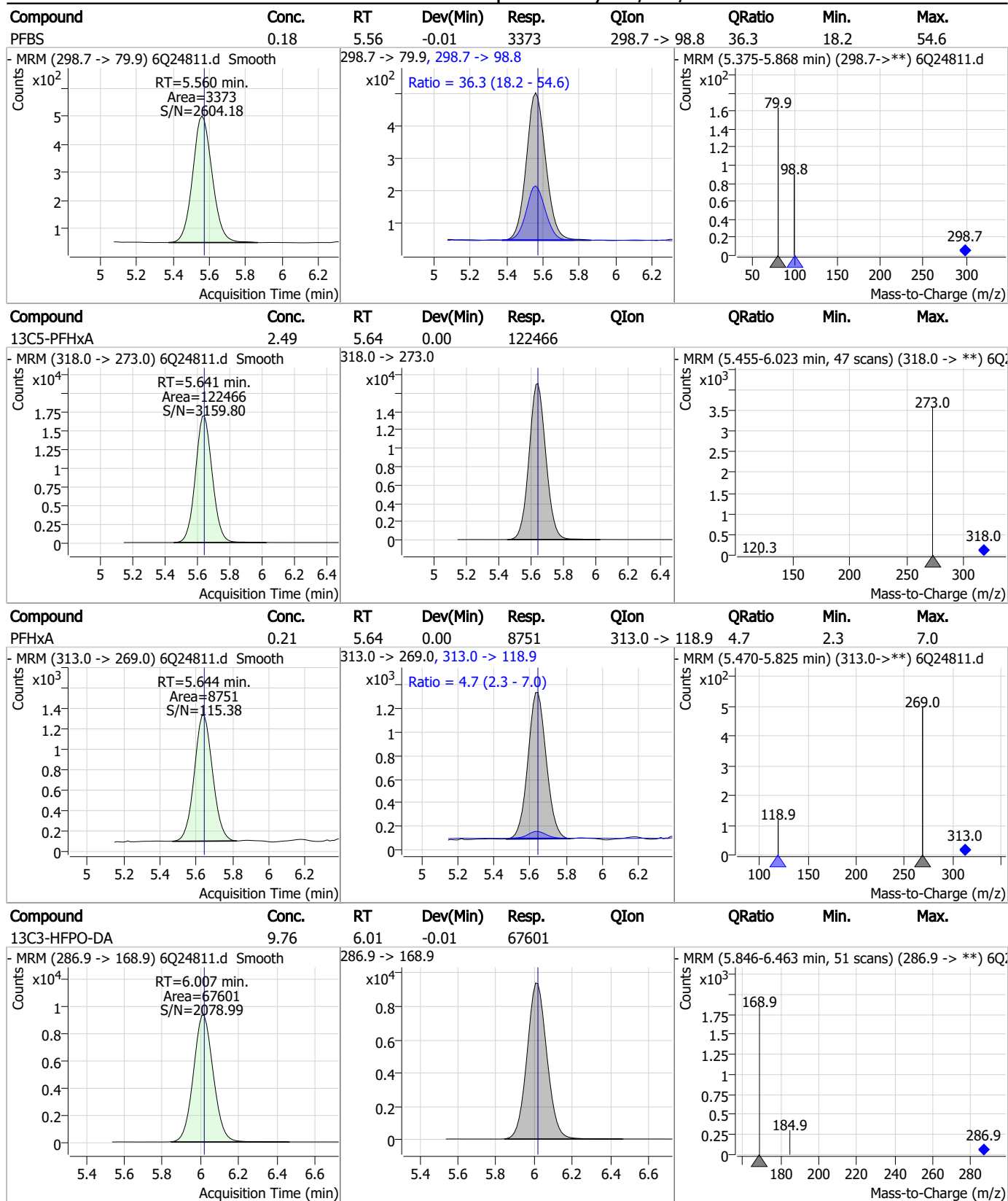
Perfluorinated Compounds by LC/MS/MS



7.7.2
7



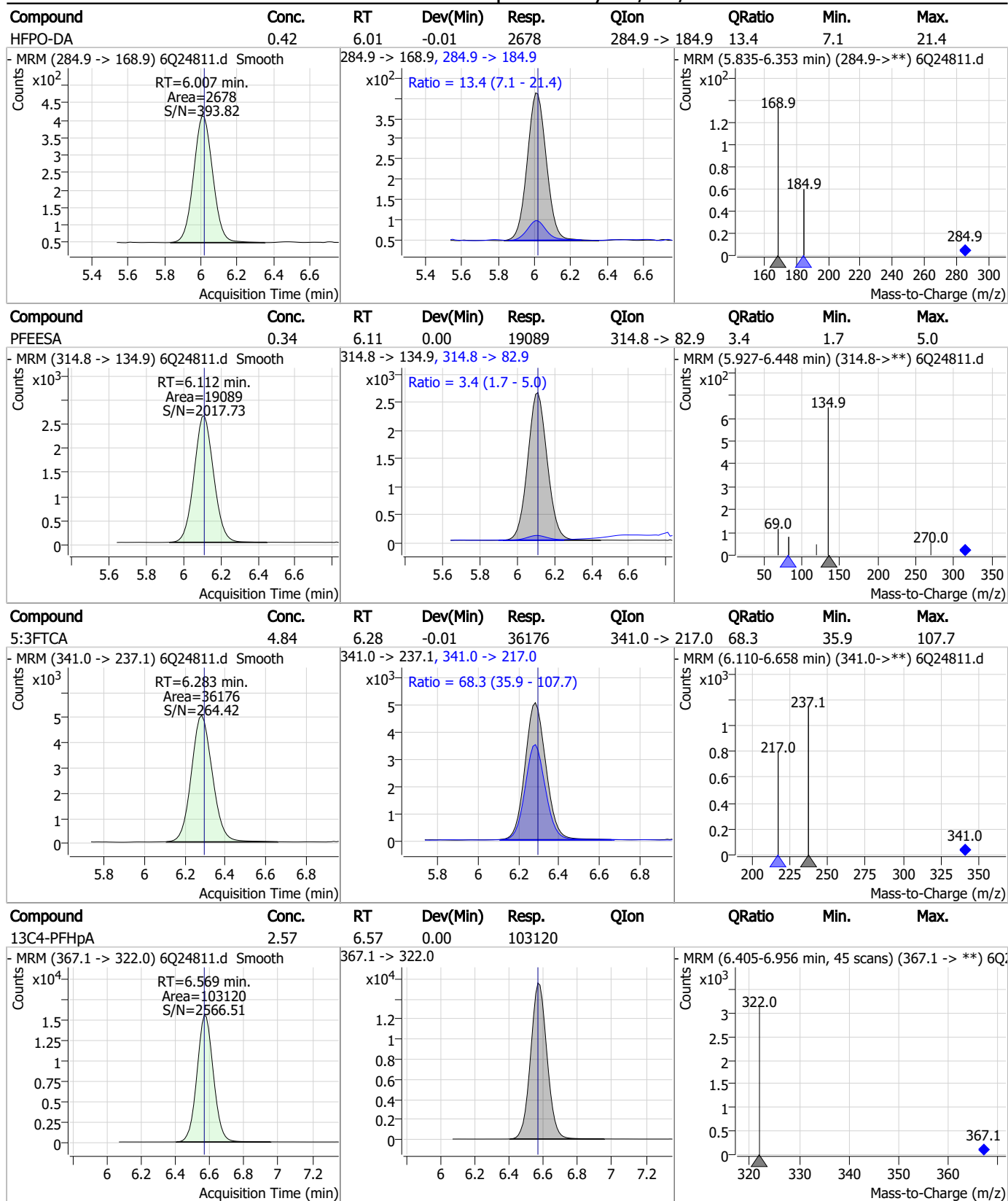
Perfluorinated Compounds by LC/MS/MS



7.7.2
7

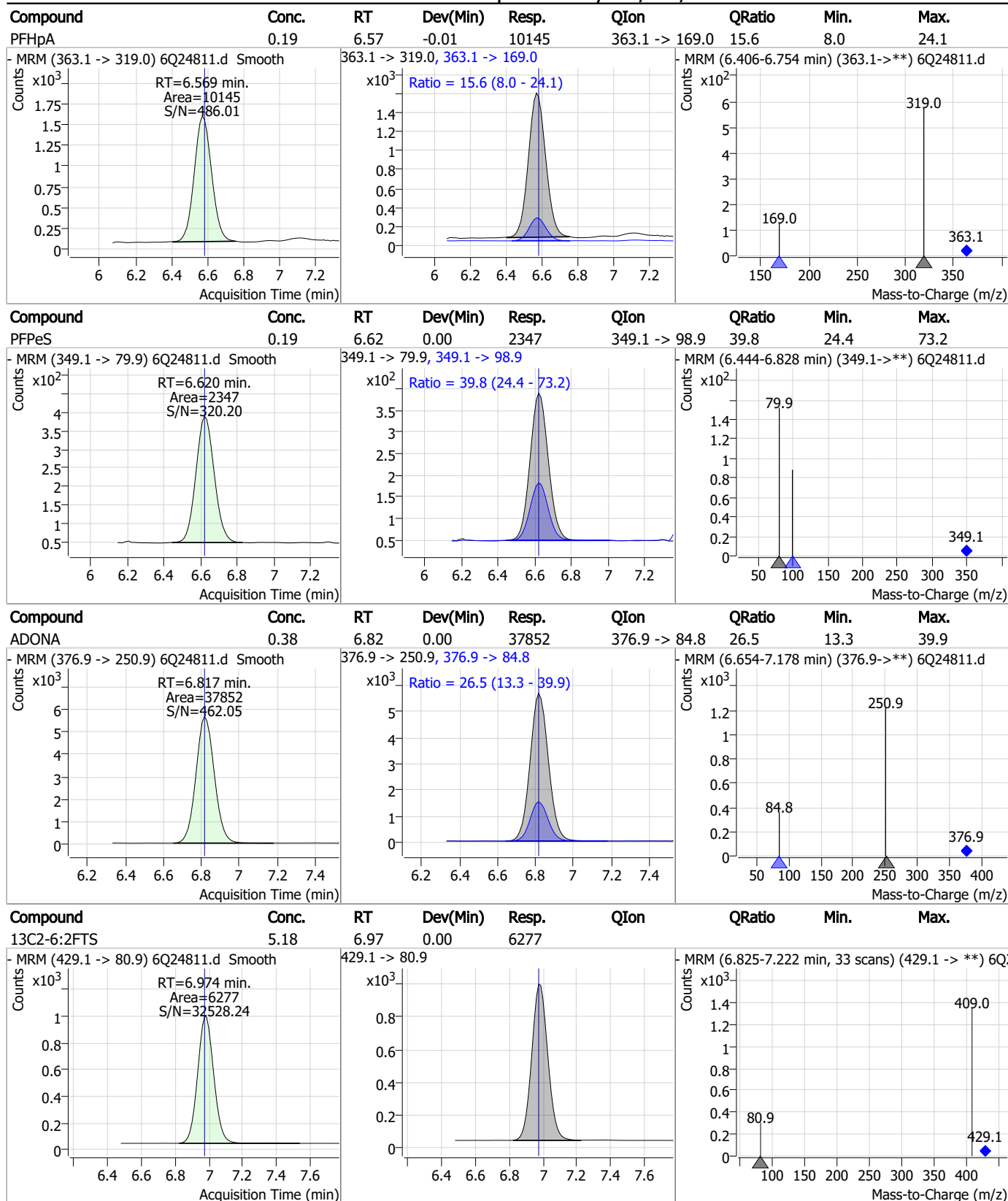


Perfluorinated Compounds by LC/MS/MS



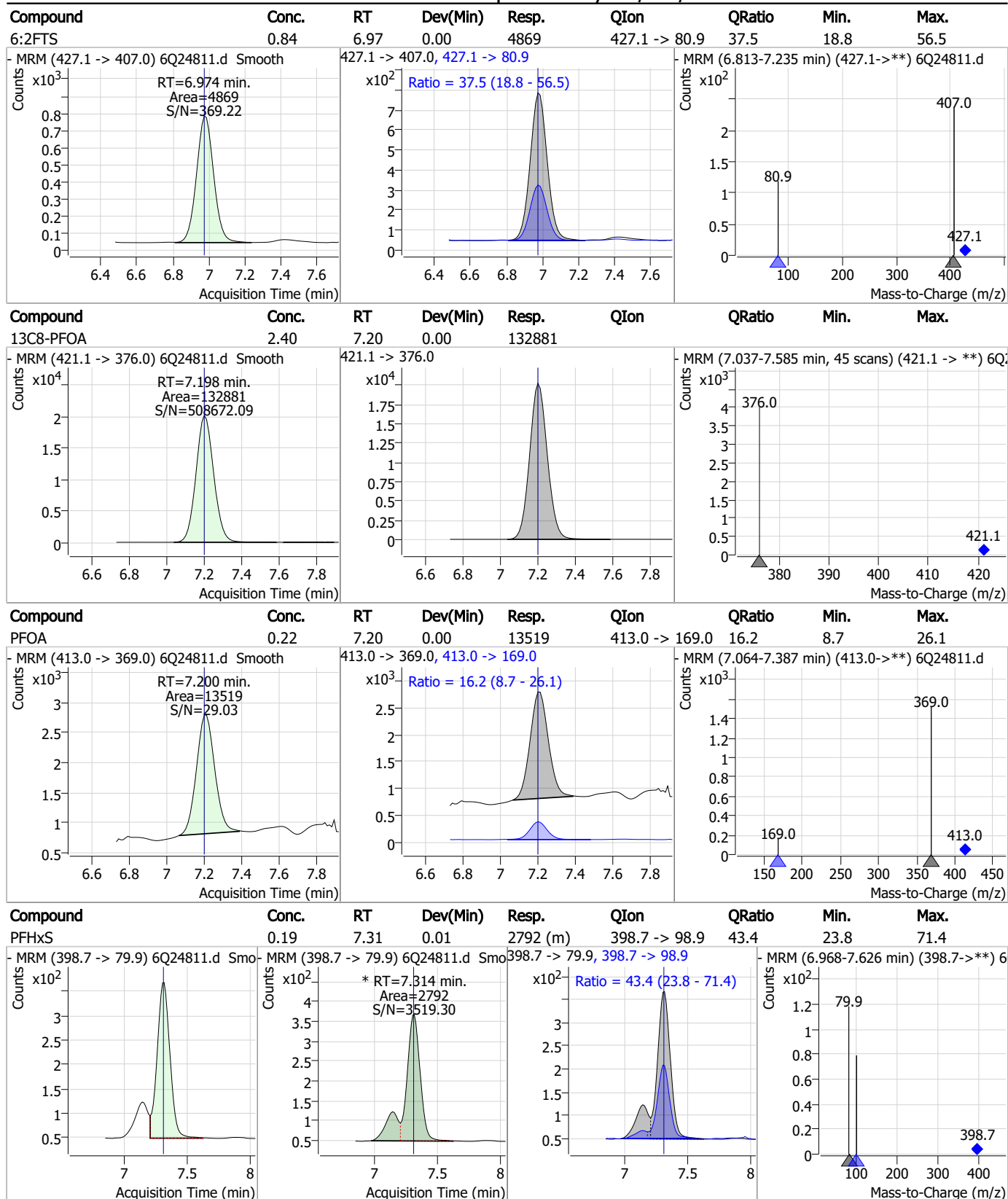
7.7.2
7

Perfluorinated Compounds by LC/MS/MS



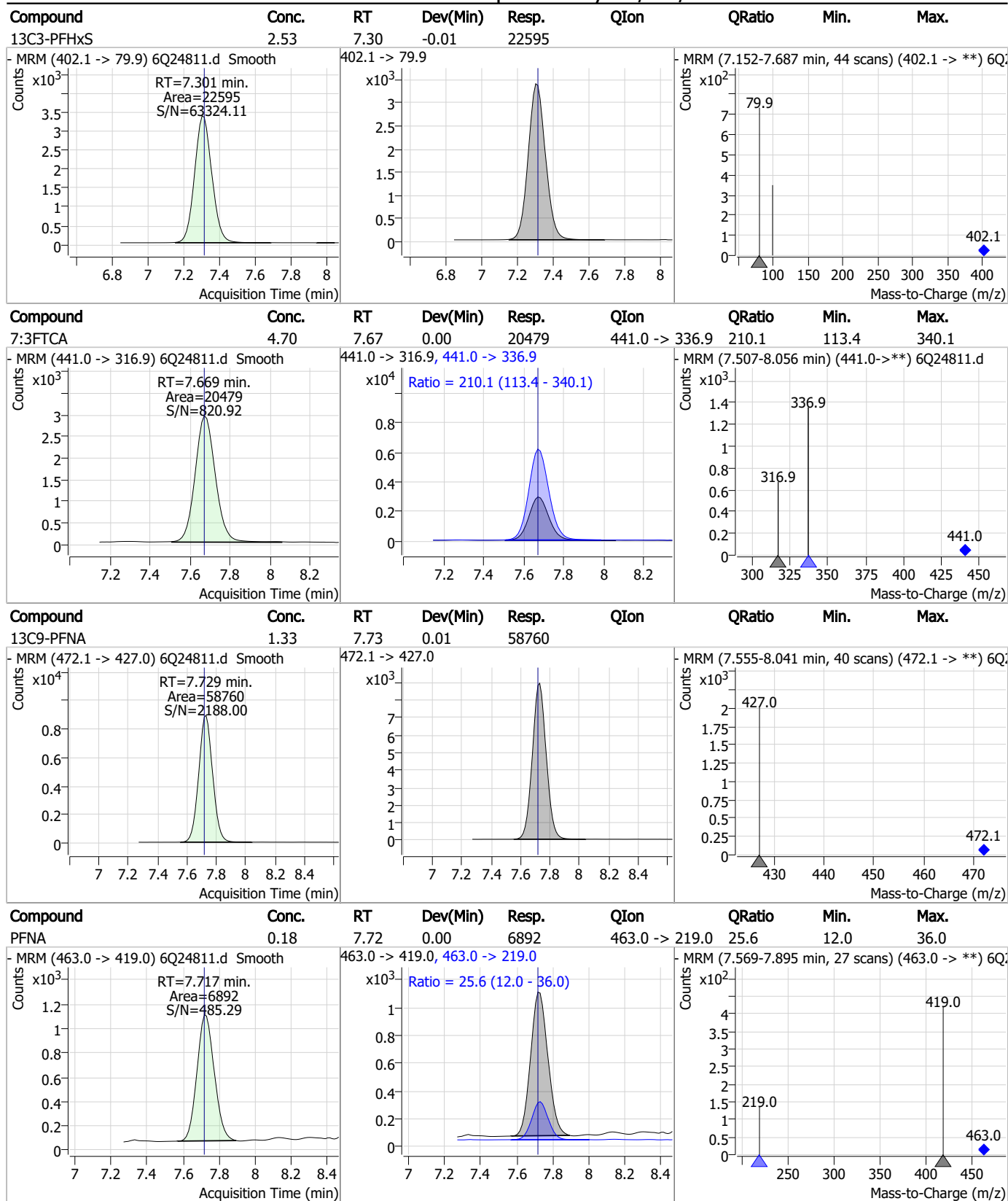
7.7.2
7

Perfluorinated Compounds by LC/MS/MS



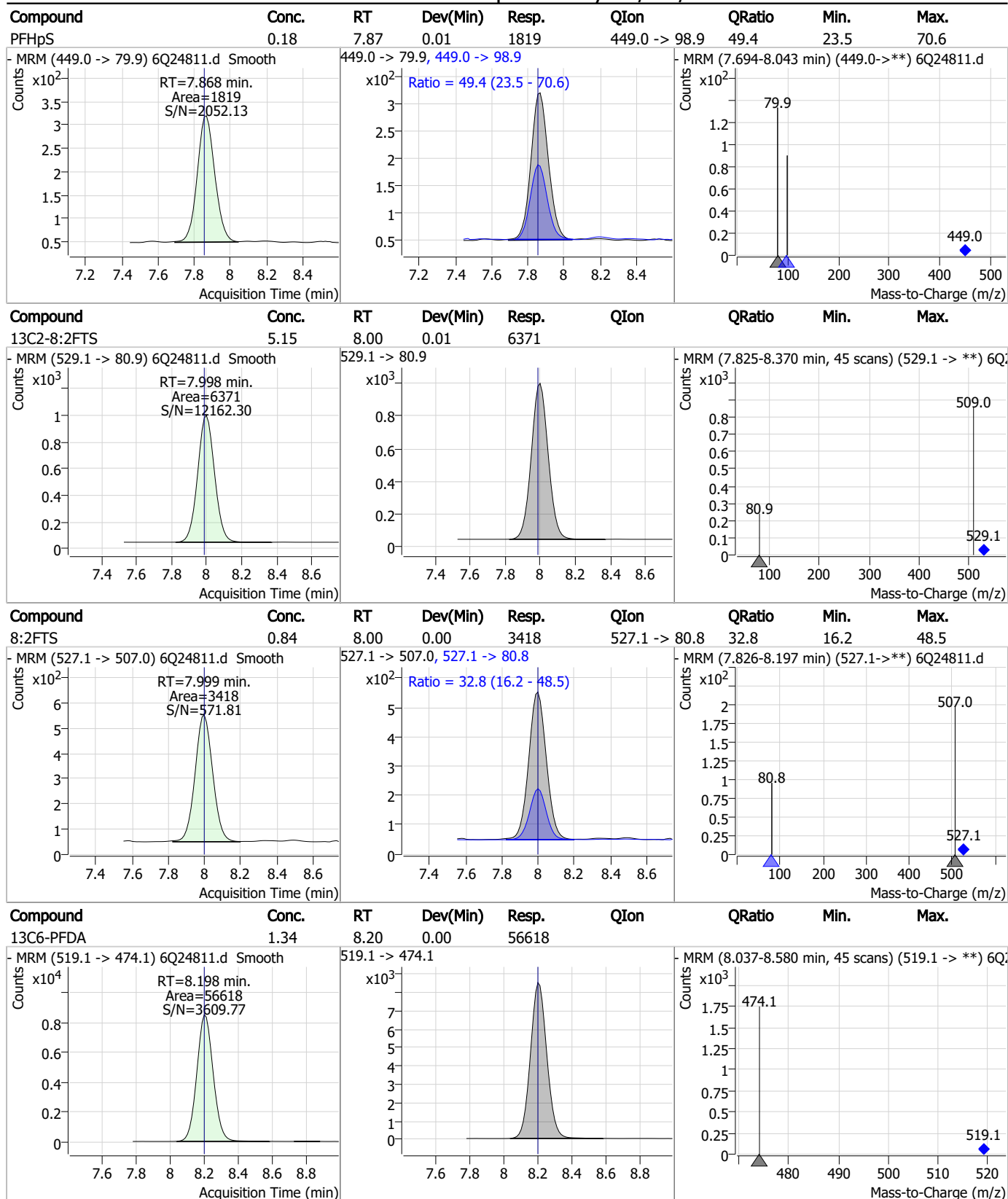
7.7.2
7

Perfluorinated Compounds by LC/MS/MS



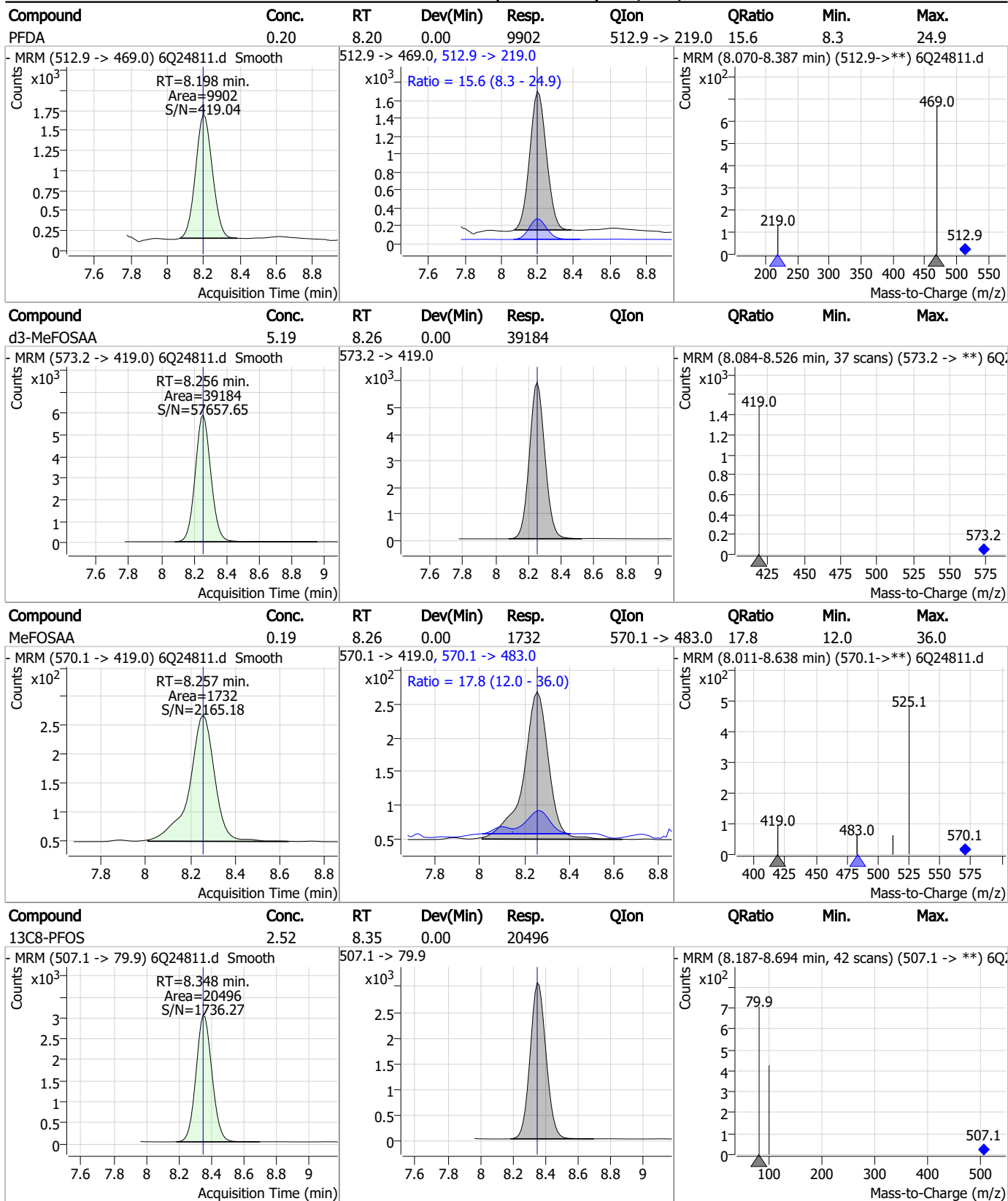
7.7.2
7

Perfluorinated Compounds by LC/MS/MS



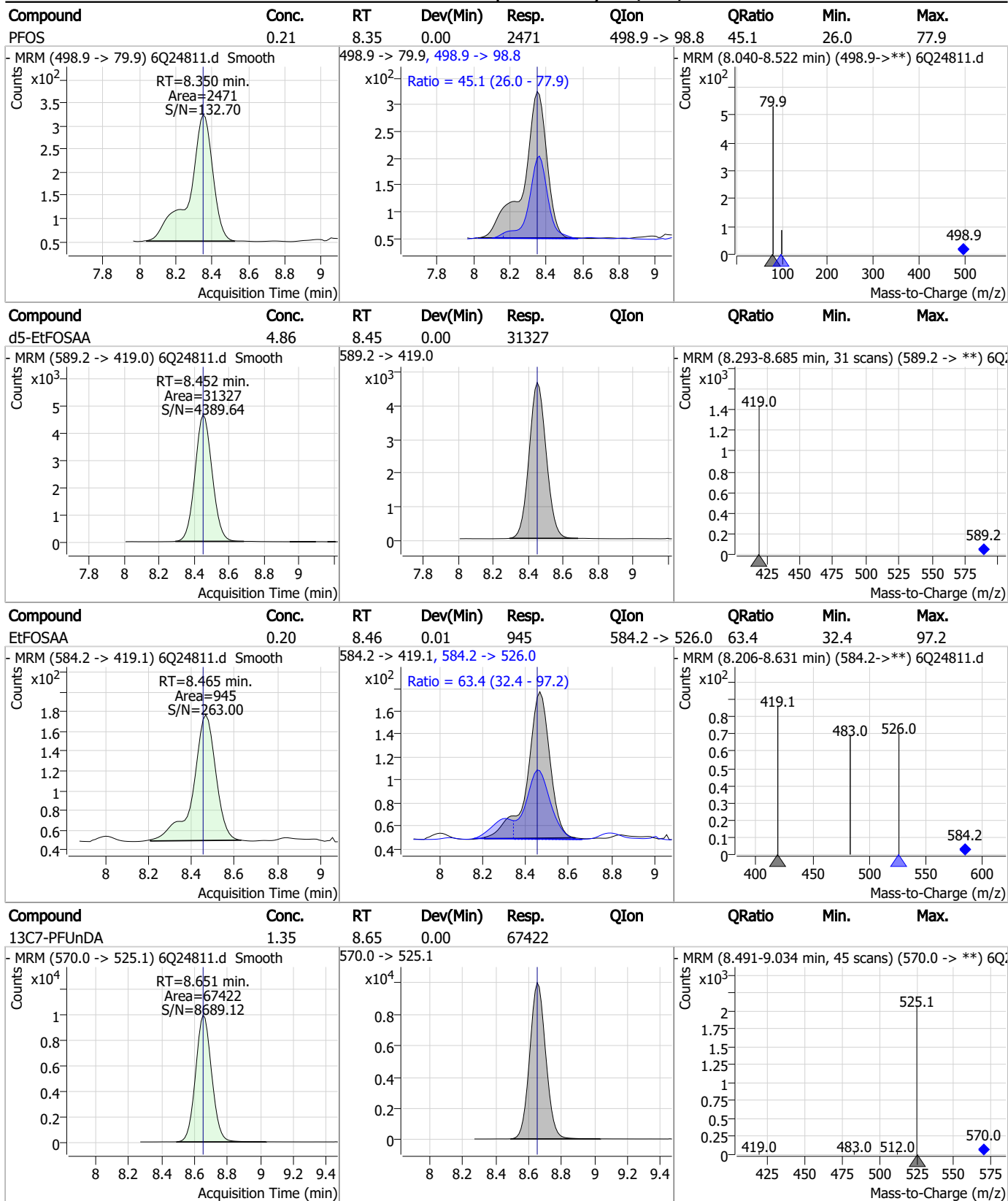
7.7.2
7

Perfluorinated Compounds by LC/MS/MS



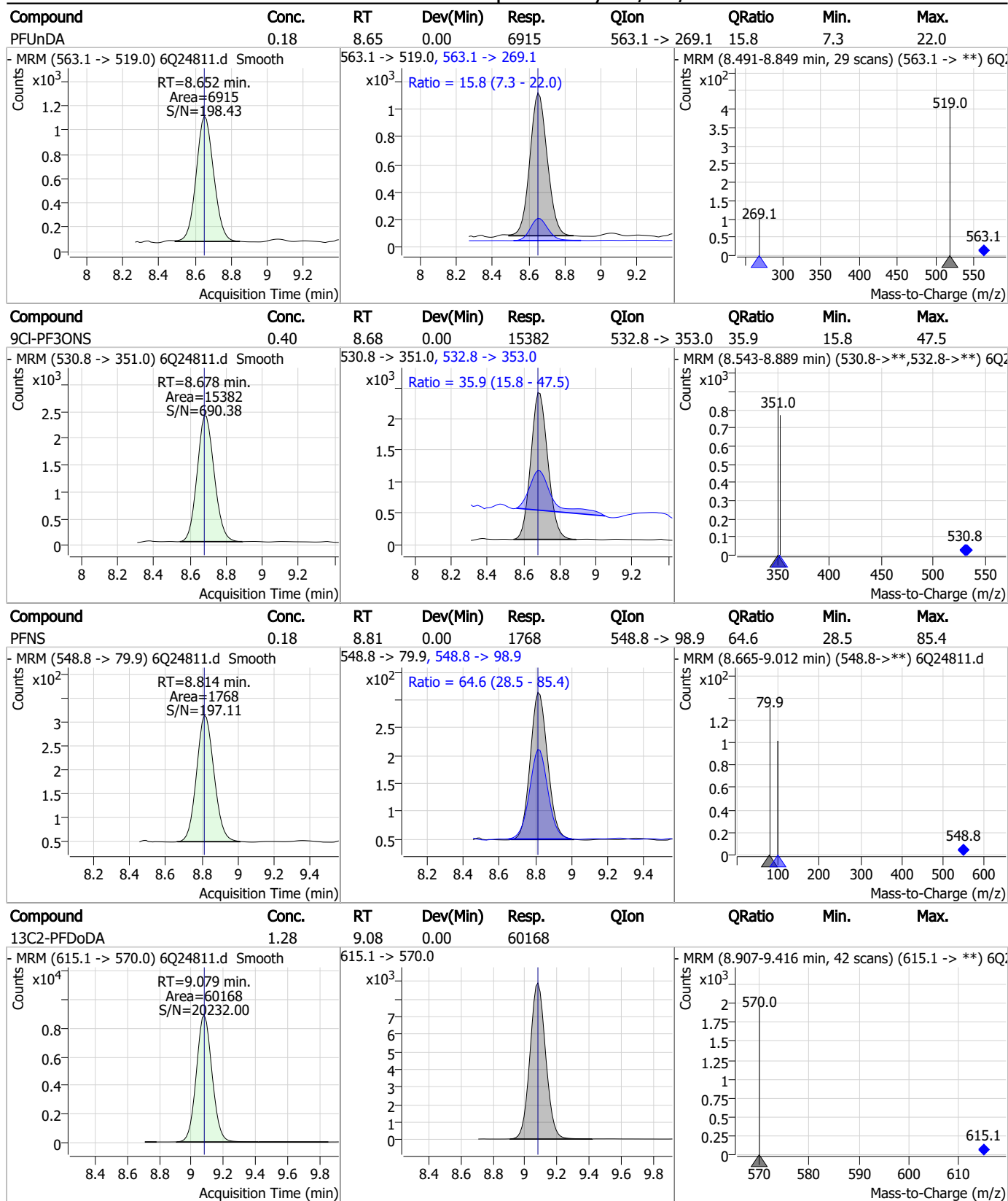
7.7.2
7

Perfluorinated Compounds by LC/MS/MS



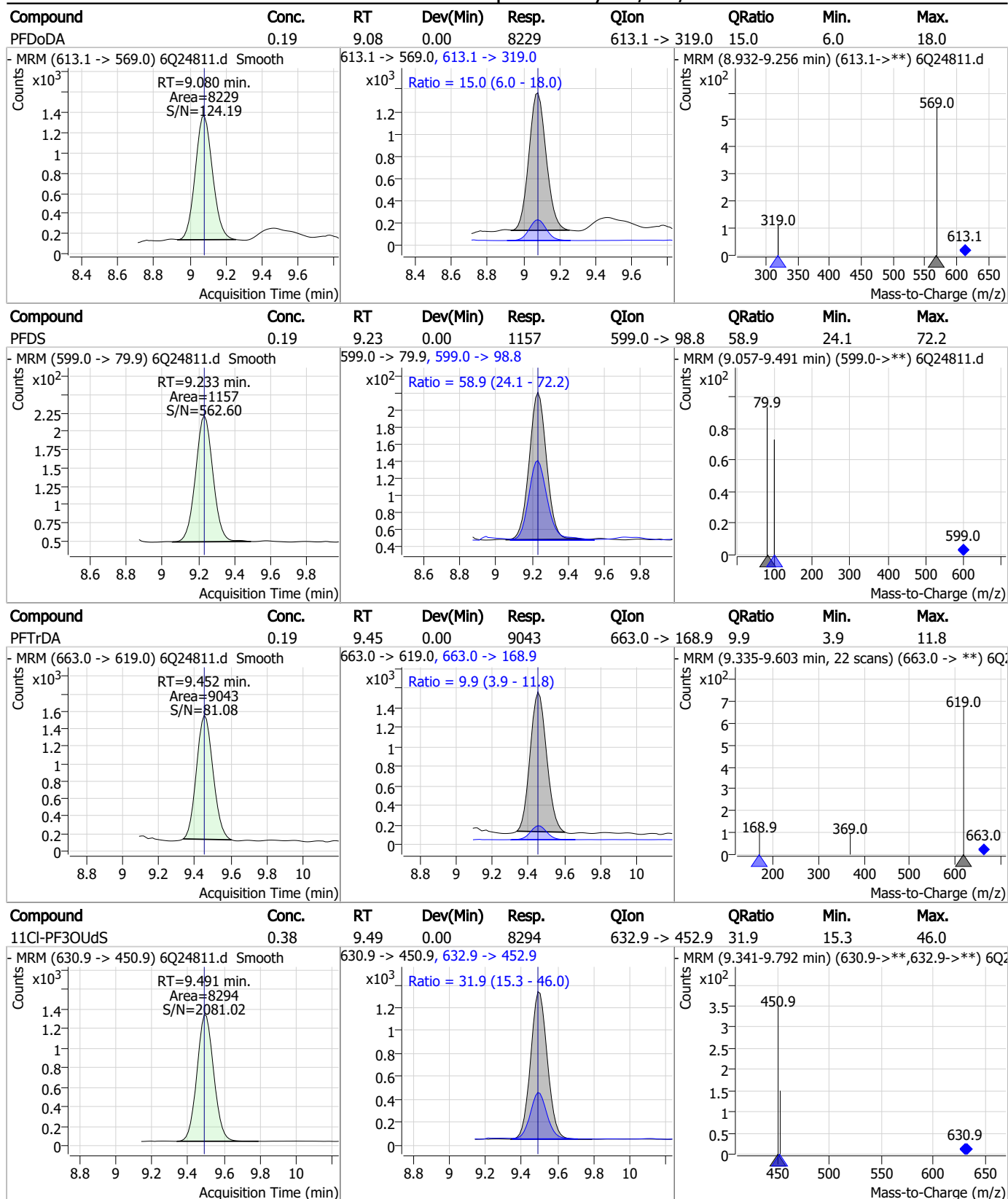
7.7.2
7

Perfluorinated Compounds by LC/MS/MS



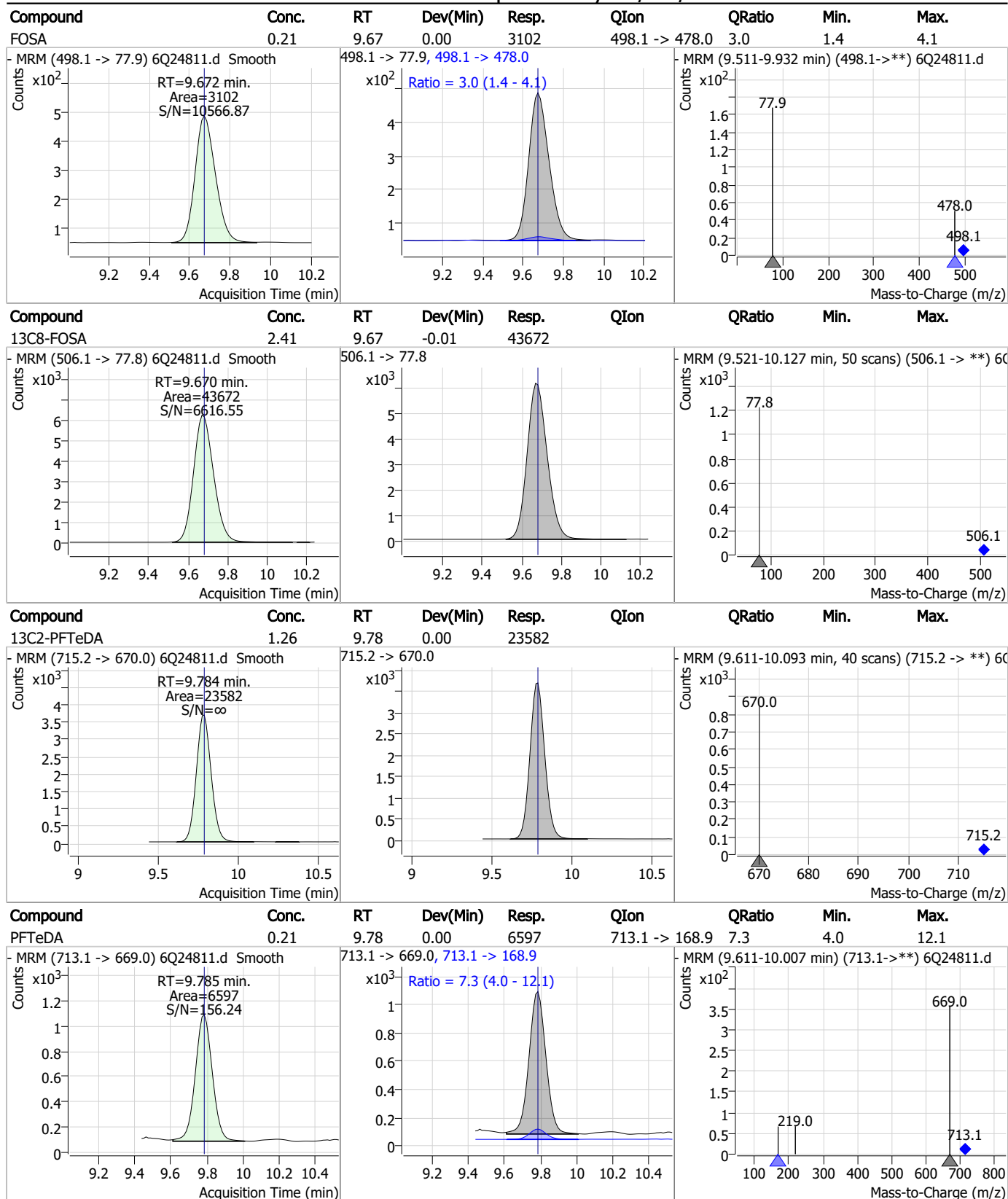
7.7.2
7

Perfluorinated Compounds by LC/MS/MS



7.7.2
7

Perfluorinated Compounds by LC/MS/MS



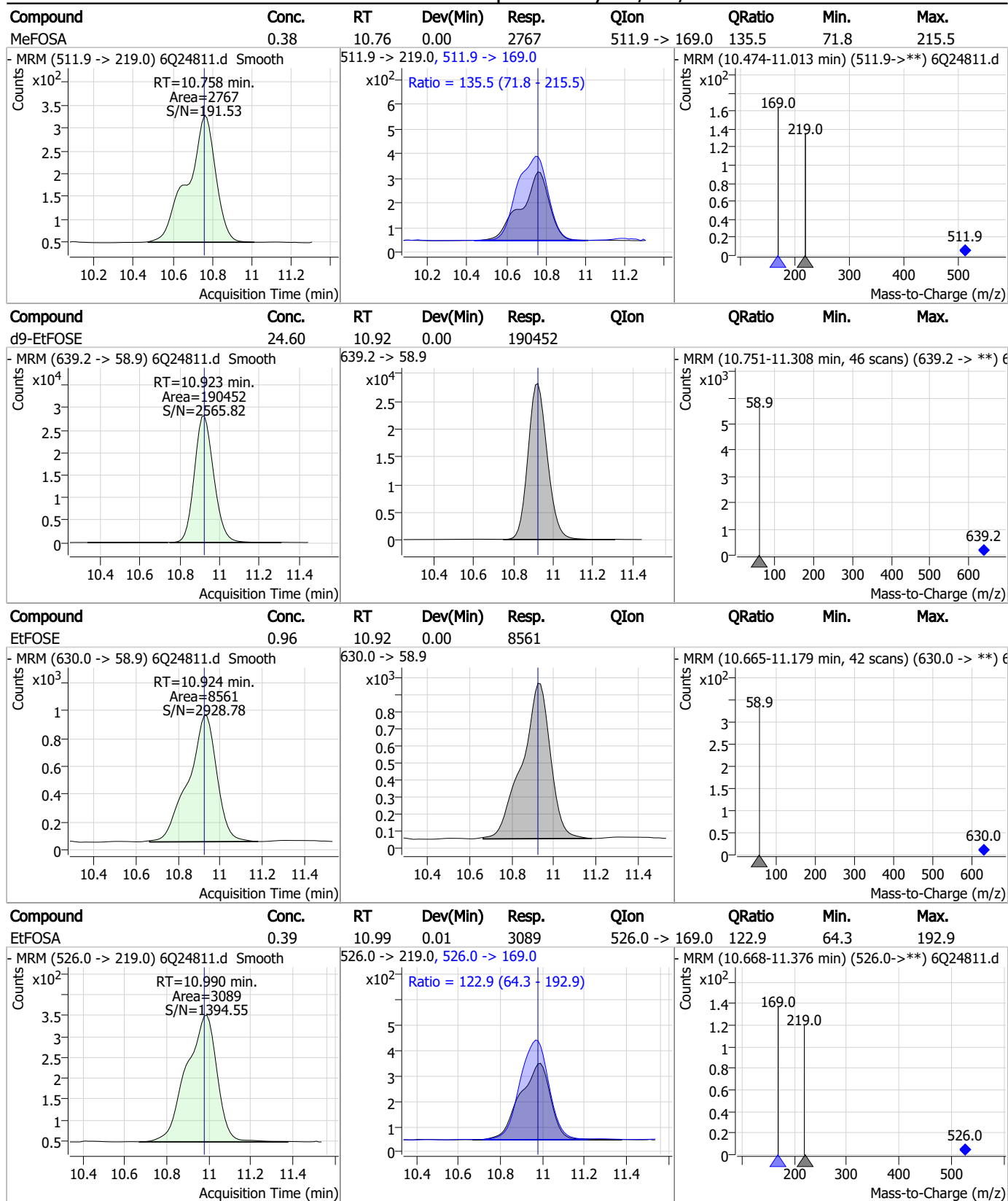
7.7.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.19	9.90	0.00	553	699.1 -> 98.8	65.7	30.6	91.9
d7-MeFOSE	25.06	10.68	0.00	147792				
MeFOSE	0.93	10.69	0.00	5908				
d3-MeFOSA	2.48	10.76	0.00	16270				

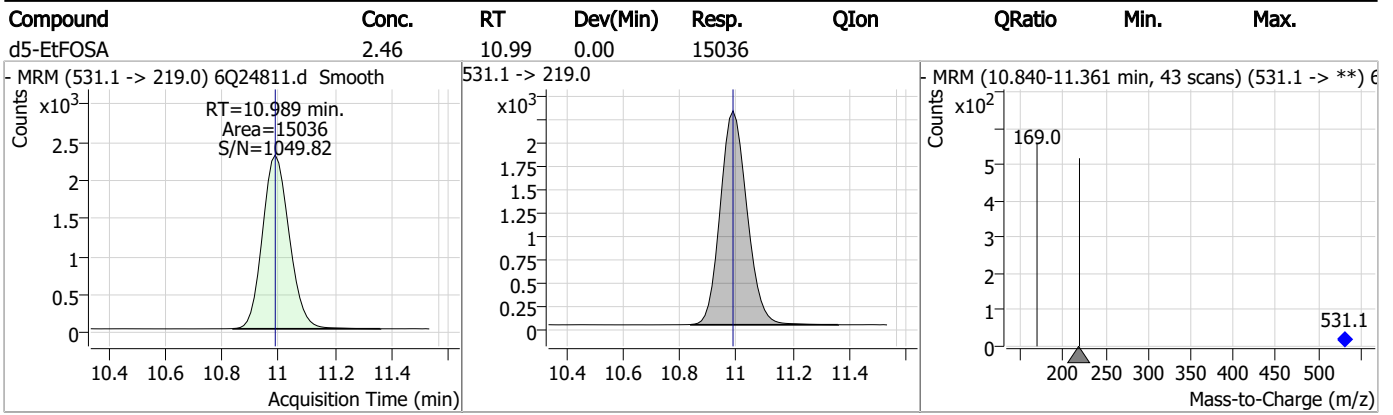
7.7.2
7

Perfluorinated Compounds by LC/MS/MS



7.7.2
7

Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Manual Integration Approval Summary

Sample Number: S6Q355-IC355 Method: EPA DRAFT 1633
Lab FileID: 6Q24811.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 20:35 Supervisor approved: 09/22/23 13:16 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak

7.7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24812.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 8:50:13 PM
 Sample Name : ic355-2
 Vial : P1-A3
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	332247	10.00 µg/L	-0.025
M5-PFPeA	4.422	268.3 -> 223.0	54322	5.00 µg/L	-0.012
M5-PFHxA	5.641	318.0 -> 273.0	125823	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	101513	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	129615	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	52885	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	53989	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	61600	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	59201	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	23067	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	45312	2.50 µg/L	-0.012
M3-PFBS	5.559	302.1 -> 79.9	40080	2.50 µg/L	-0.012
M3-PFHxS	7.301	402.1 -> 79.9	21356	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	20452	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	4785	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	6602	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	6623	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	38755	5.00 µg/L	-0.012
M3-HFPO-DA	6.007	286.9 -> 168.9	69038	10.00 µg/L	-0.012
M5-EtFOSAA	8.452	589.2 -> 419.0	32213	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	145716	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	197890	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	15164	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	15715	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	26282	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	136927	5.00 µg/L	-0.012
18O2-PFHxS	7.300	403.0 -> 83.9	16037	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	144424	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	46080	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	61953	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	94393	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	4785	5.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.4%		
13C2-6:2FTS	6.974	429.1 -> 80.9	6602	5.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.9%		
13C2-8:2FTS	7.986	529.1 -> 80.9	6623	5.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C2-PFDoDA	9.080	615.1 -> 570.0	59201	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-PFTeDA	9.784	715.2 -> 670.0	23067	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C3-PFBS	5.559	302.1 -> 79.9	40080	2.58 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C3-PFHxS	7.301	402.1 -> 79.9	21356	2.46 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 = 98.4%		
13C4-PFBA	2.985	216.8 -> 171.9	332247	9.95 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C4-PFHpA	6.569	367.1 -> 322.0	101513	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C5-PFHxA	5.641	318.0 -> 273.0	125823	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C5-PFPeA	4.422	268.3 -> 223.0	54322	5.06 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C6-PFDA	8.198	519.1 -> 474.1	53989	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C7-PFUnDA	8.651	570.0 -> 525.1	61600	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C8-FOSA	9.670	506.1 -> 77.8	45312	2.63 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C8-PFOA	7.198	421.1 -> 376.0	129615	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C8-PFOS	8.348	507.1 -> 79.9	20452	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C9-PFNA	7.717	472.1 -> 427.0	52885	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.2%		
d3-MeFOSAA	8.244	573.2 -> 419.0	38755	5.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C3-HFPO-DA	6.007	286.9 -> 168.9	69038	9.86 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
d3-MeFOSA	10.757	515.0 -> 219.0	15715	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
d5-EtFOSAA	8.452	589.2 -> 419.0	32213	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.1%		
d7-MeFOSE	10.678	623.2 -> 58.9	145716	25.98 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
d9-EtFOSE	10.923	639.2 -> 58.9	197890	26.88 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 107.5%		
d5-EtFOSA	10.989	531.1 -> 219.0	15164	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.2%		
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	10856	1.40 µg/L	97
		327.1 -> 80.9	4367		
6:2FTS	6.974	427.1 -> 407.0	9399	1.54 µg/L	96
		427.1 -> 80.9	3773		
8:2FTS	7.987	527.1 -> 507.0	6469	1.54 µg/L	88
		527.1 -> 80.8	2509		
EtFOSAA	8.465	584.2 -> 419.1	1724	0.35 µg/L	91
		584.2 -> 526.0	1242	m	
FOSA	9.672	498.1 -> 77.9	6218	0.40 µg/L	100
		498.1 -> 478.0	174		
MeFOSAA	8.245	570.1 -> 419.0	3387	0.39 µg/L	98
		570.1 -> 483.0	850		
PFBA	2.981	212.8 -> 168.9	16174	1.58 µg/L	100
PFBS	5.560	298.7 -> 79.9	6654	0.35 µg/L	99
		298.7 -> 98.8	2469		
PFDA	8.198	512.9 -> 469.0	17258	0.36 µg/L	94
		512.9 -> 219.0	3316		
PFDODA	9.080	613.1 -> 569.0	16113	0.37 µg/L	98
		613.1 -> 319.0	2054		
PFDS	9.233	599.0 -> 79.9	2339	0.39 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1134			
PFHpA	6.569	363.1 -> 319.0	20738	0.40	µg/L	97
		363.1 -> 169.0	3041			
PFHpS	7.856	449.0 -> 79.9	3614	0.36	µg/L	90
		449.0 -> 98.9	1946			
PFHxA	5.644	313.0 -> 269.0	17030	0.39	µg/L	100
		313.0 -> 118.9	825			
PFHxS	7.302	398.7 -> 79.9	5395	0.39	µg/L	m 99
		398.7 -> 98.9	2518			
PFNA	7.717	463.0 -> 419.0	13780	0.41	µg/L	97
		463.0 -> 219.0	3545			
PFNS	8.814	548.8 -> 79.9	3704	0.37	µg/L	95
		548.8 -> 98.9	1965			
PFOA	7.200	413.0 -> 369.0	25633	0.43	µg/L	99
		413.0 -> 169.0	4578			
PFOS	8.350	498.9 -> 79.9	4435	0.38	µg/L	m 98
		498.9 -> 98.8	2255			
PFPeA	4.424	263.0 -> 219.0	21342	0.80	µg/L	100
PFPeS	6.620	349.1 -> 79.9	4308	0.38	µg/L	94
		349.1 -> 98.9	2285			
PFTeDA	9.785	713.1 -> 669.0	12354	0.40	µg/L	98
		713.1 -> 168.9	892			
PFTrDA	9.452	663.0 -> 619.0	18086	0.39	µg/L	96
		663.0 -> 168.9	1672			
PFUnDA	8.652	563.1 -> 519.0	14405	0.40	µg/L	96
		563.1 -> 269.1	2337			
11CI-PF3OUdS	9.491	630.9 -> 450.9	17222	0.77	µg/L	98
		632.9 -> 452.9	5146			
9CI-PF3ONS	8.678	530.8 -> 351.0	29526	0.75	µg/L	89
		532.8 -> 353.0	11071			
ADONA	6.804	376.9 -> 250.9	78544	0.77	µg/L	94
		376.9 -> 84.8	18411			
HFPO-DA	6.007	284.9 -> 168.9	5461	0.83	µg/L	95
		284.9 -> 184.9	667			
3:3FTCA	3.858	241.0 -> 177.0	3418	1.91	µg/L	100
		241.0 -> 117.0	326			
5:3FTCA	6.271	341.0 -> 237.1	72598	9.46	µg/L	96
		341.0 -> 217.0	54497			
7:3FTCA	7.669	441.0 -> 316.9	41344	9.23	µg/L	100
		441.0 -> 336.9	93948			
EtFOSA	10.978	526.0 -> 219.0	6075	0.76	µg/L	95
		526.0 -> 169.0	8146			
EtFOSE	10.937	630.0 -> 58.9	17339	1.87	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	5967	0.84	µg/L	88
		511.9 -> 169.0	7652			
MeFOSE	10.691	616.1 -> 58.9	12251	1.96	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	1196	0.41	µg/L	89
		699.1 -> 98.8	630			
NFDHA	5.524	295.0 -> 201.0	4315	0.83	µg/L	95
		295.0 -> 84.9	992			
PFMBA	4.850	279.0 -> 85.1	14710	0.78	µg/L	100
PFMPA	3.551	229.0 -> 84.9	11005	0.78	µg/L	100
PFEESA	6.100	314.8 -> 134.9	39571	0.69	µg/L	99
		314.8 -> 82.9	1429			

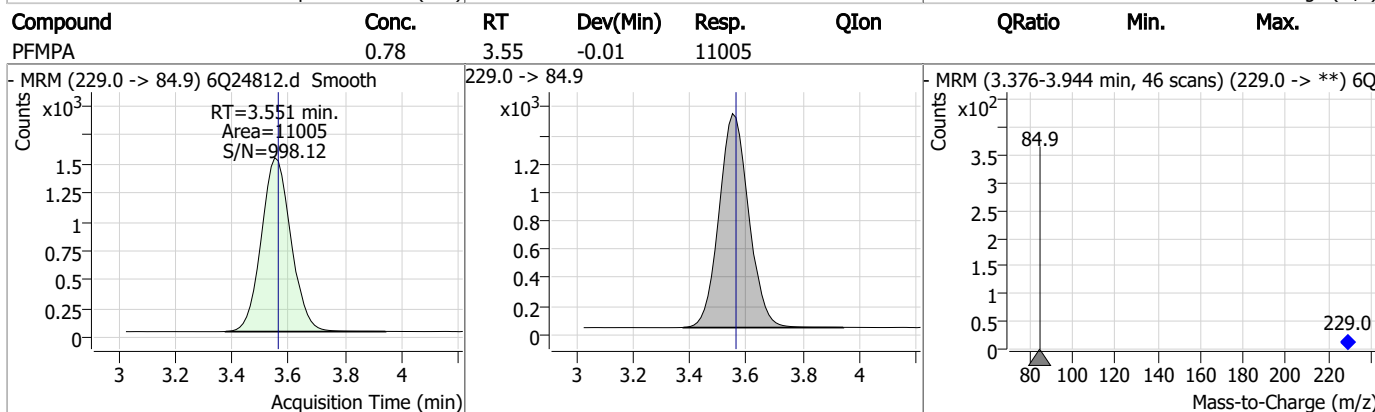
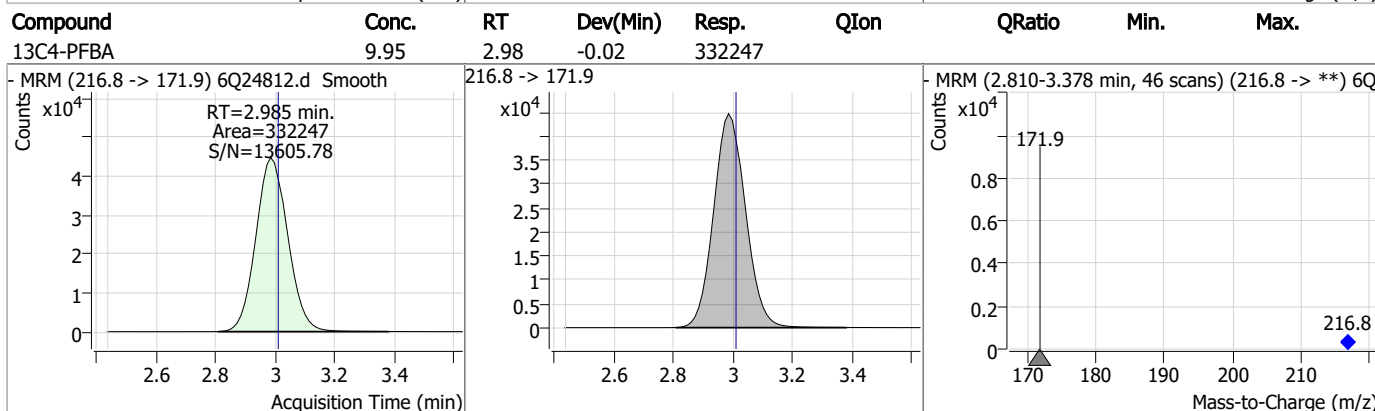
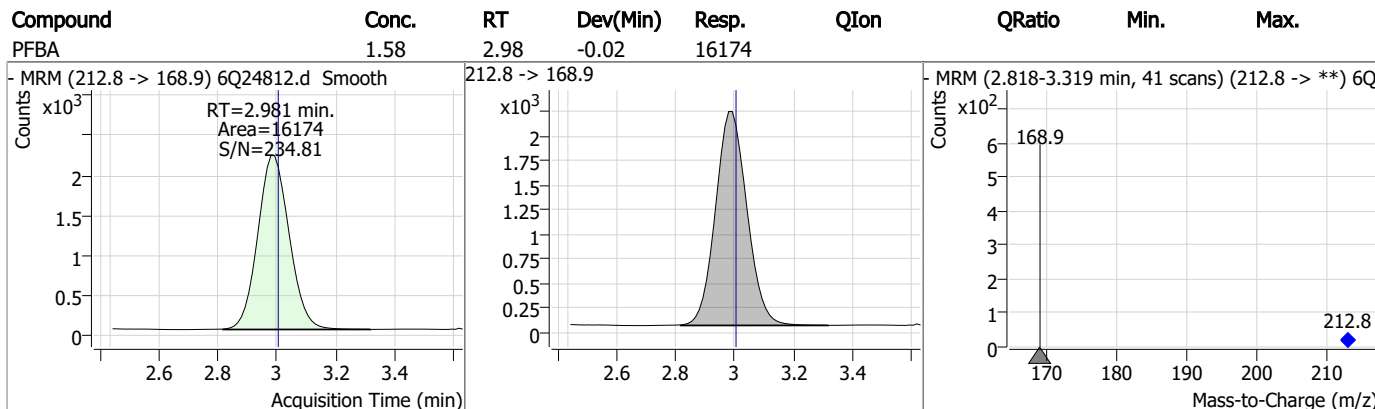
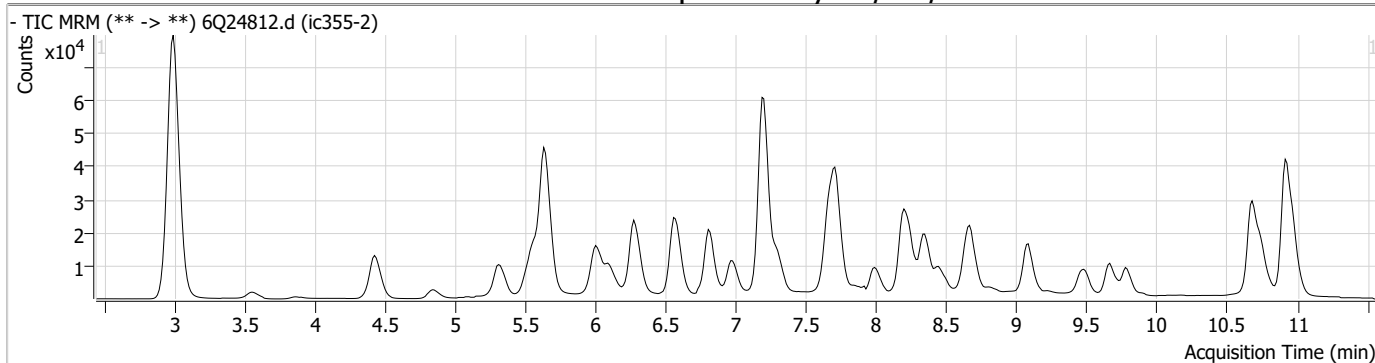
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

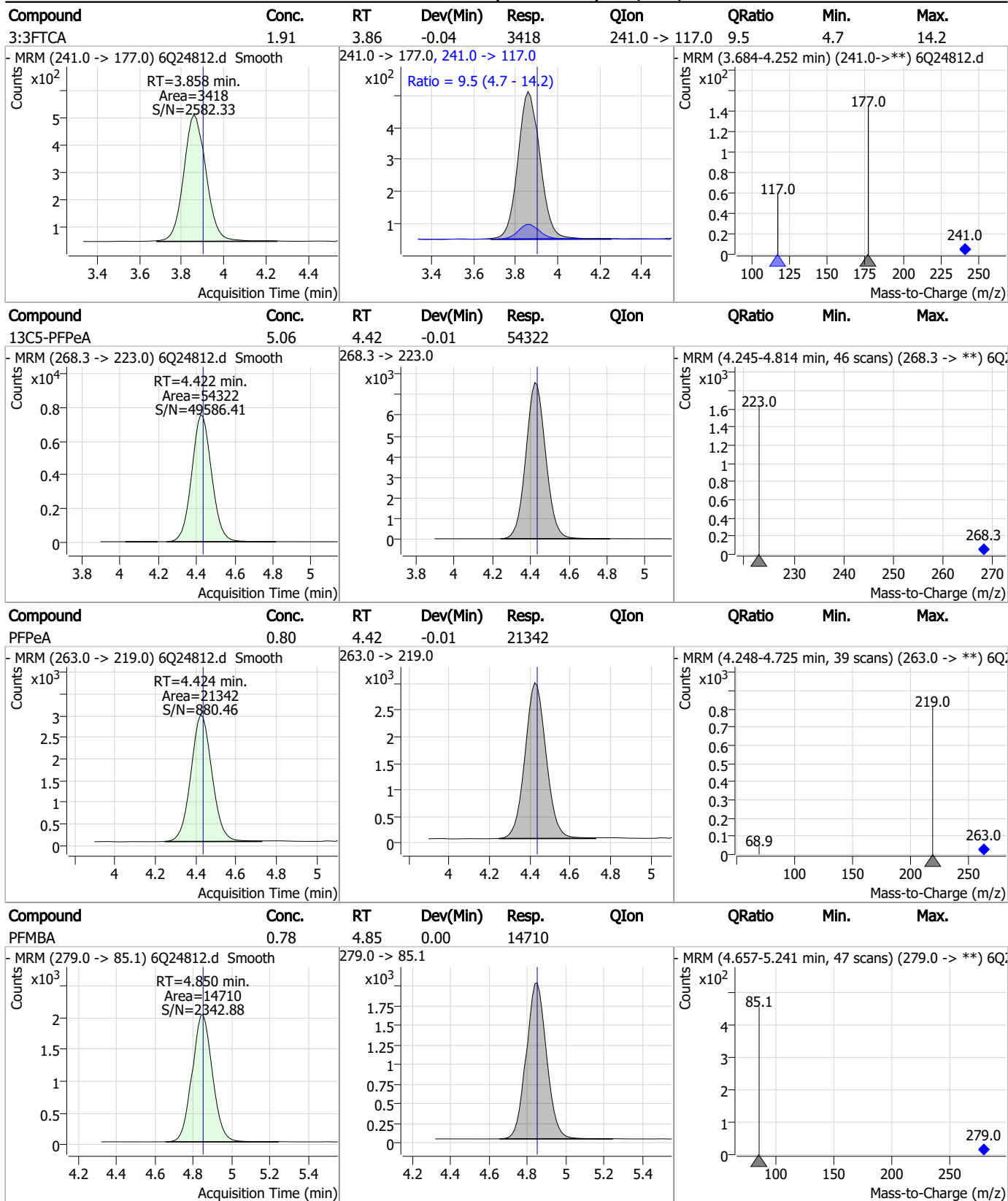
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.3
7

Perfluorinated Compounds by LC/MS/MS

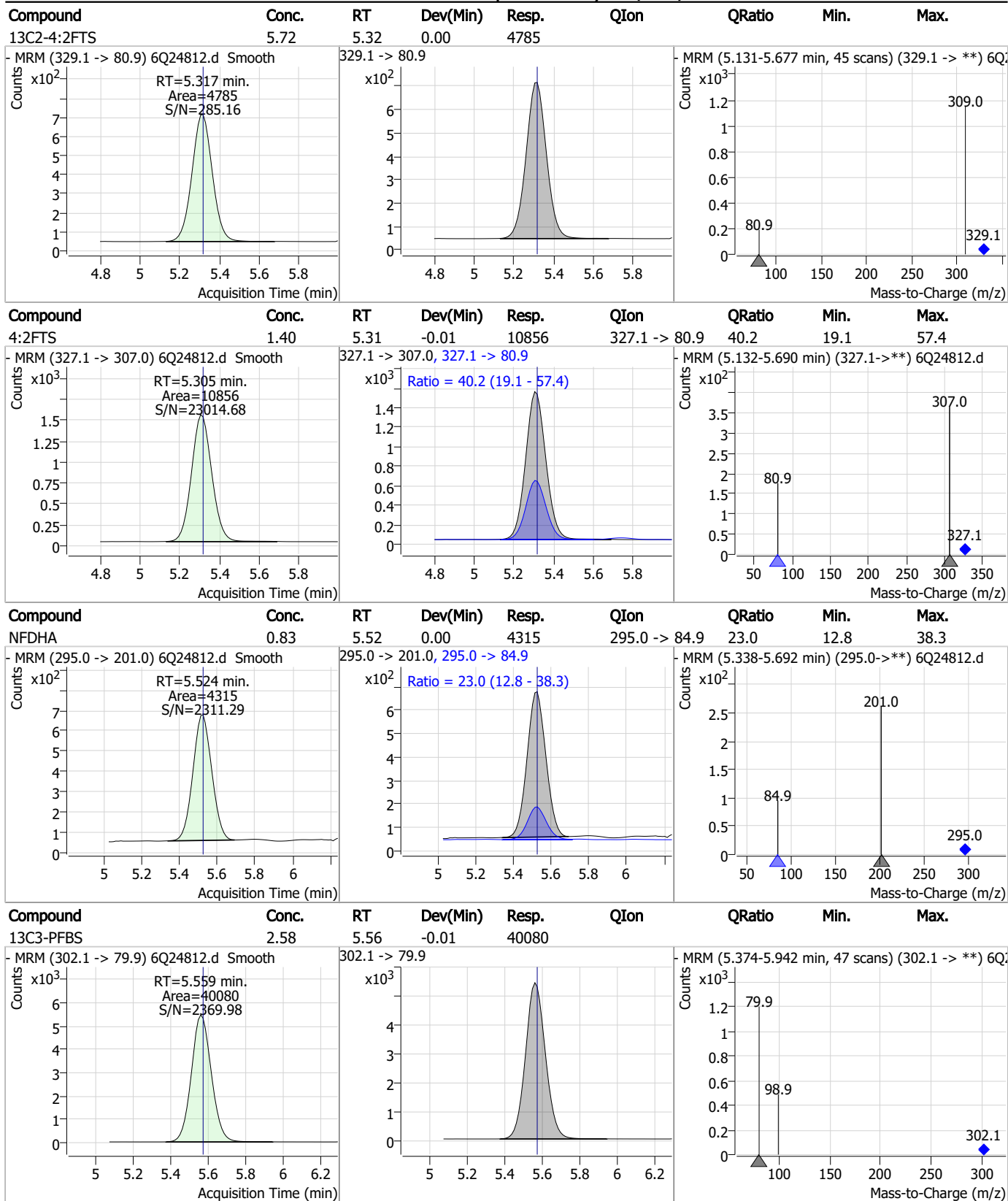


Perfluorinated Compounds by LC/MS/MS



7.7.3
7

Perfluorinated Compounds by LC/MS/MS



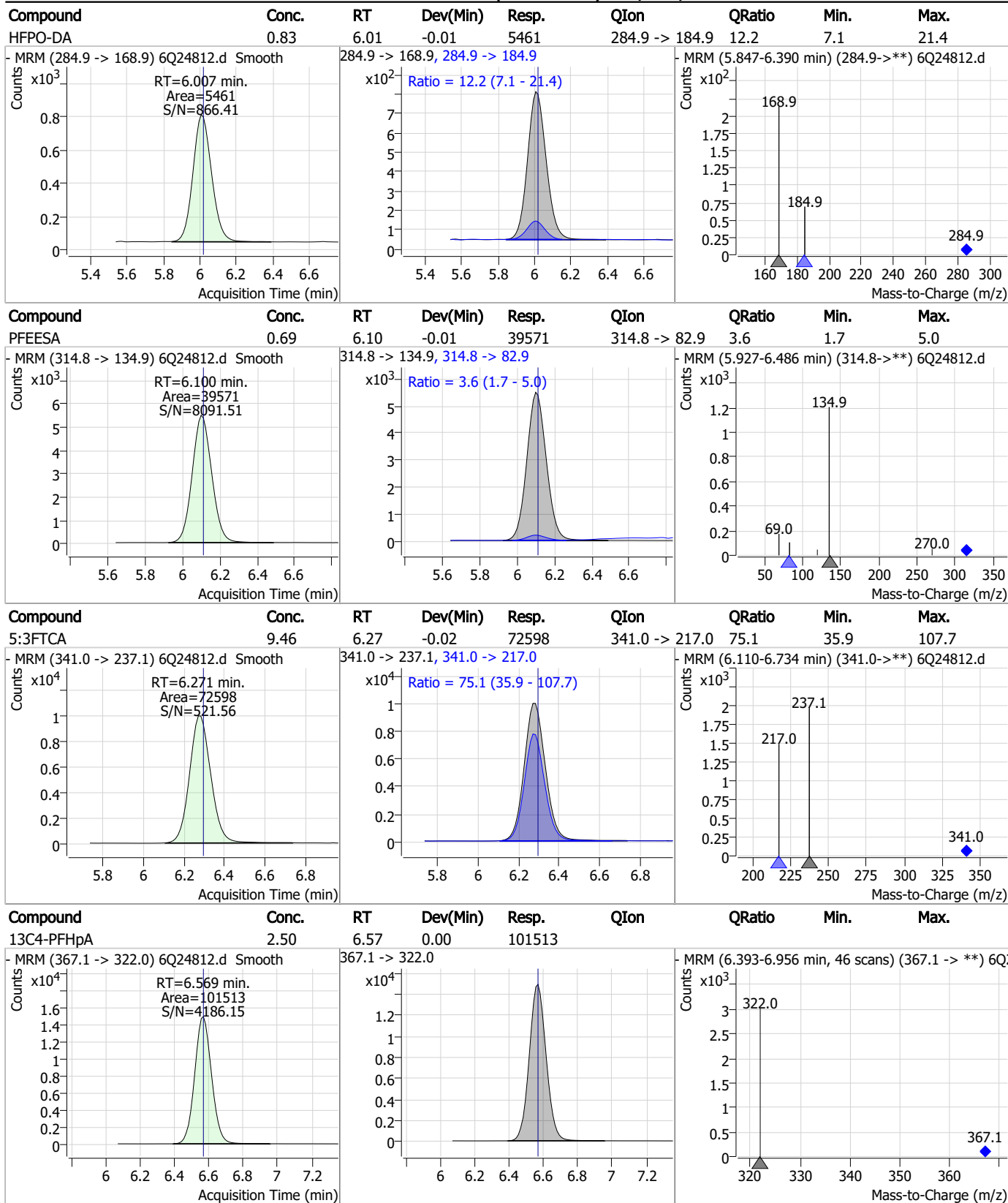
7.7.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.35	5.56	-0.01	6654	298.7 -> 98.8	37.1	18.2	54.6
13C5-PFHxA	2.53	5.64	0.00	125823				
PFHxA	0.39	5.64	0.00	17030	313.0 -> 118.9	4.8	2.3	7.0
13C3-HFPO-DA	9.86	6.01	-0.01	69038				

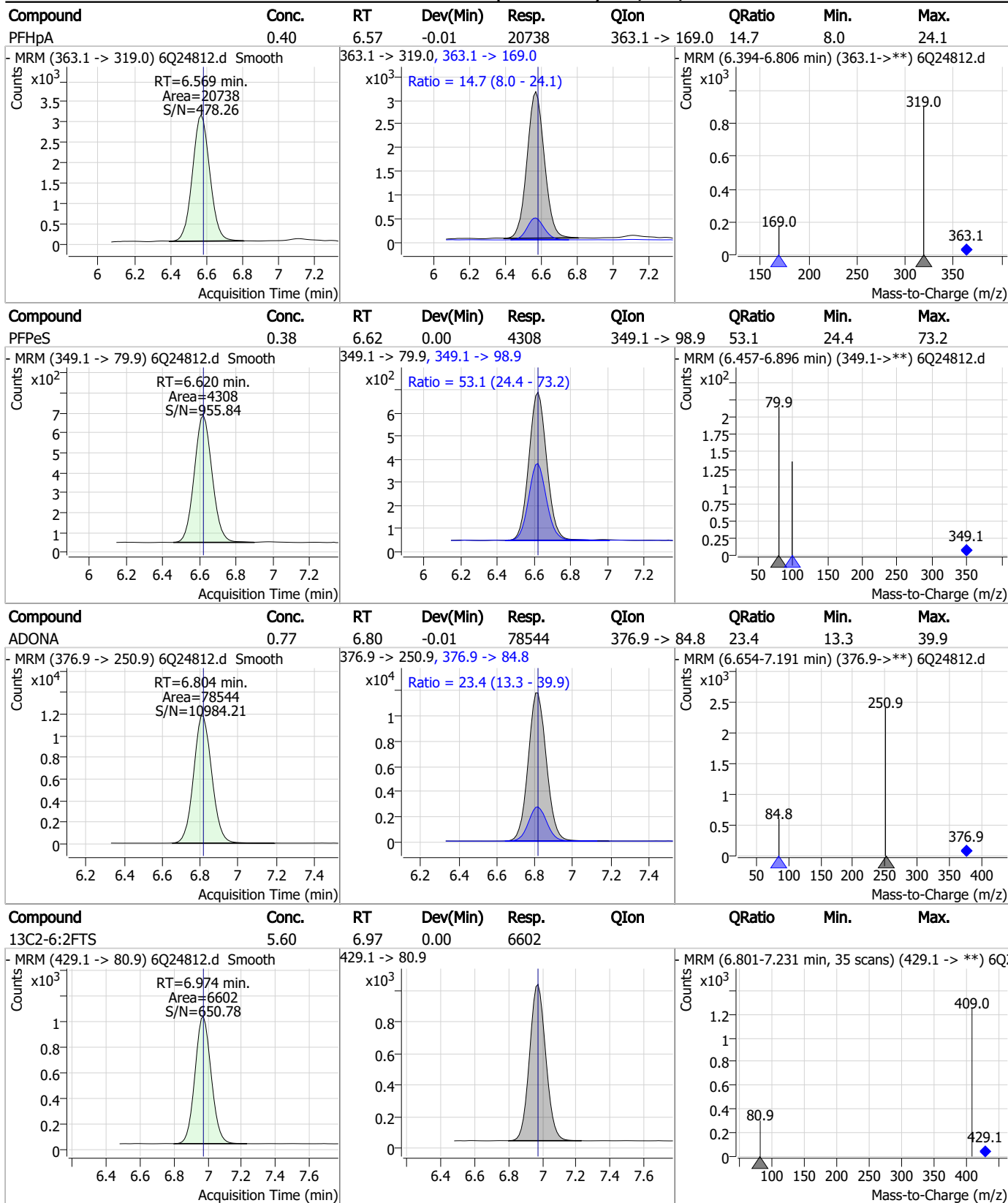
7.7.3
7

Perfluorinated Compounds by LC/MS/MS



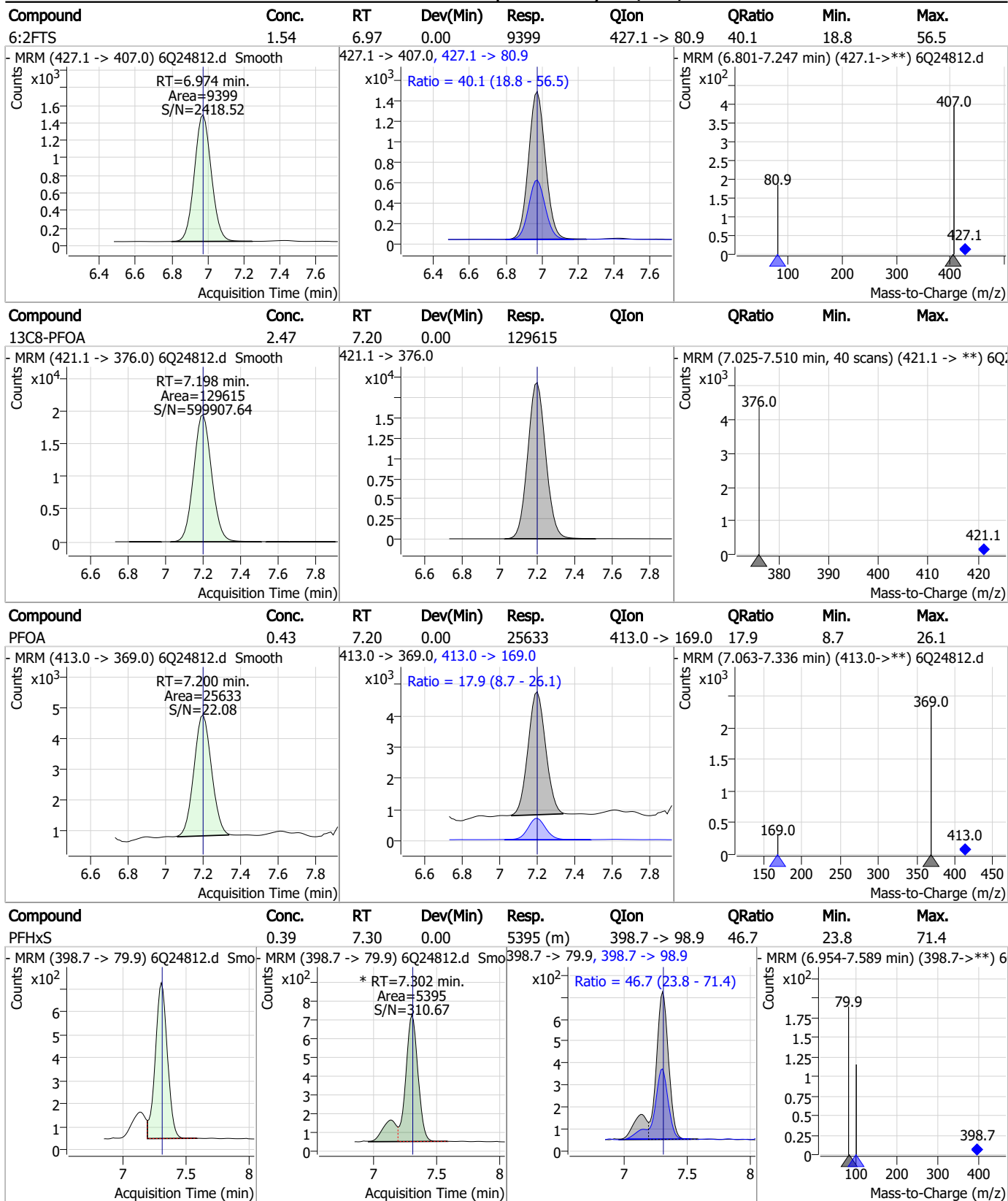
7.7.3
7

Perfluorinated Compounds by LC/MS/MS



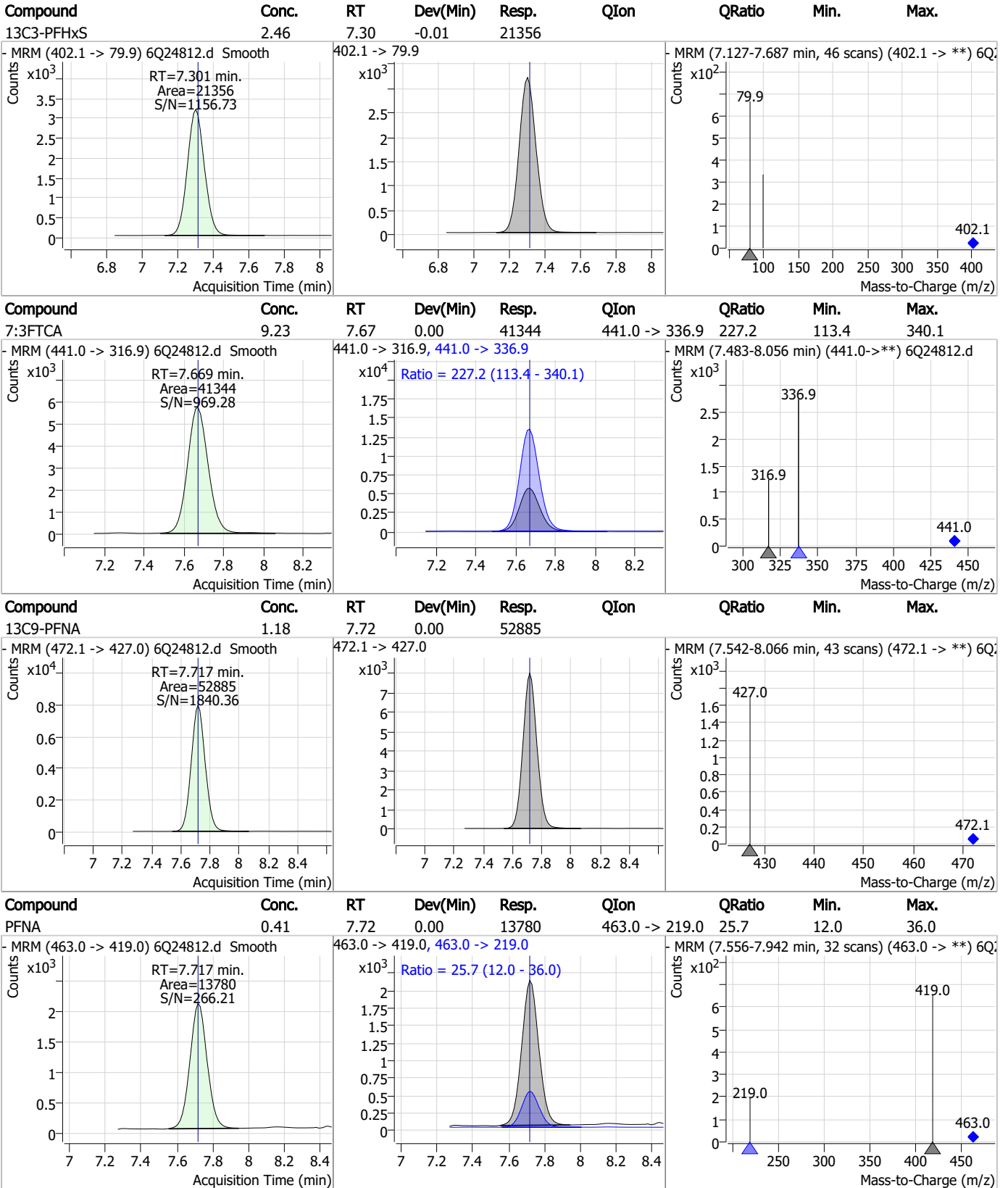
7.7.3
7

Perfluorinated Compounds by LC/MS/MS



7.7.3
7

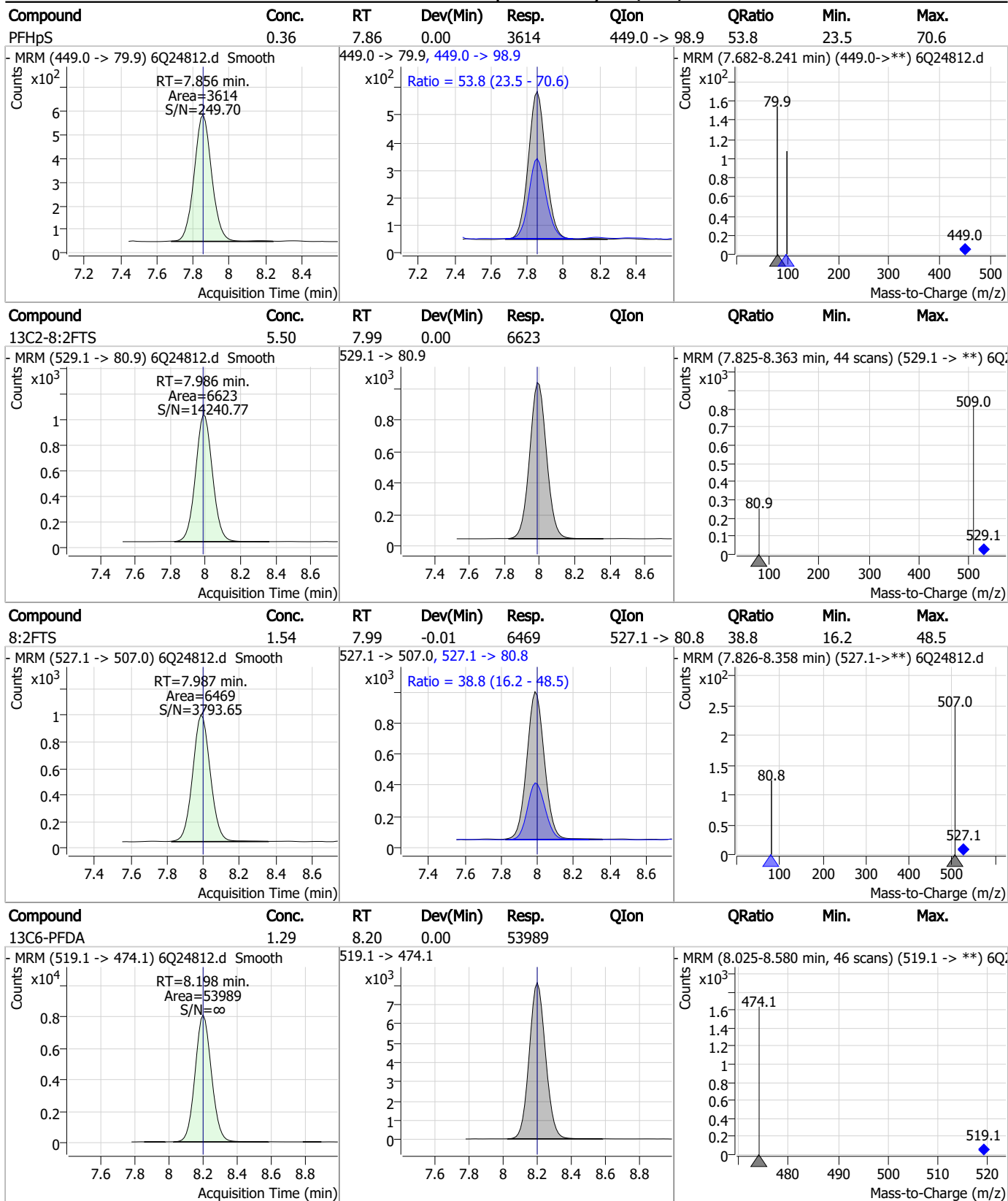
Perfluorinated Compounds by LC/MS/MS



7.7.3

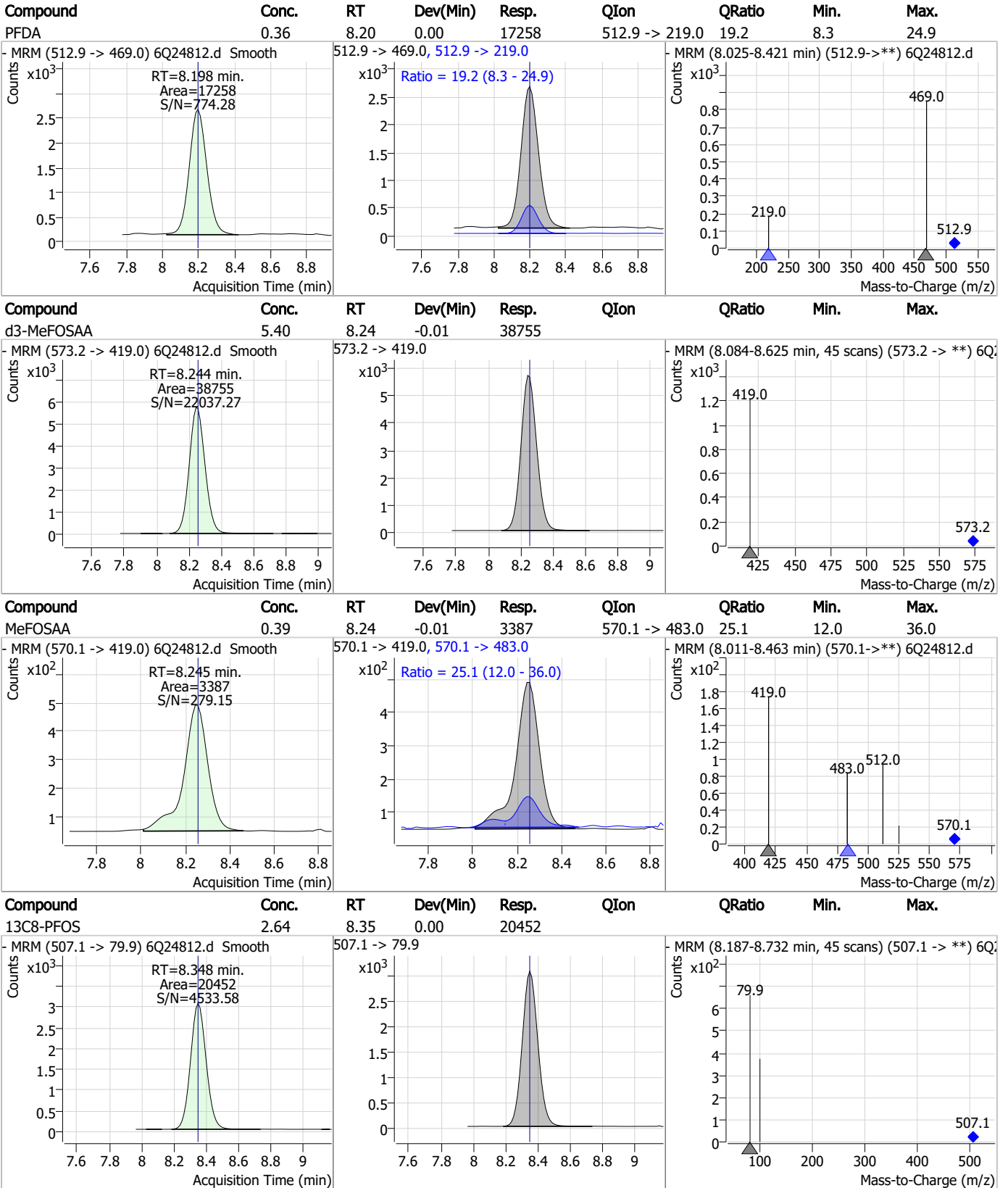
7

Perfluorinated Compounds by LC/MS/MS



7.7.3
7

Perfluorinated Compounds by LC/MS/MS

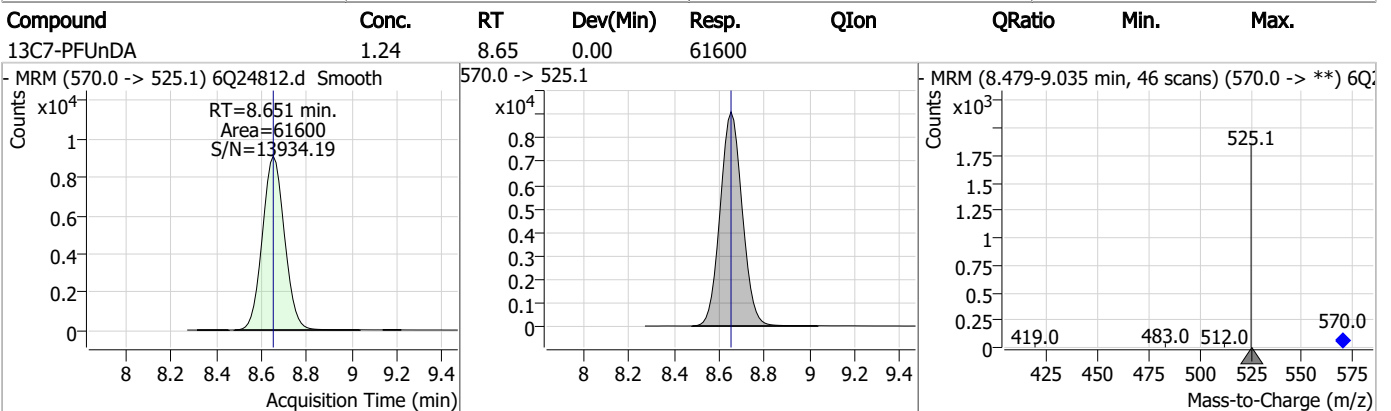
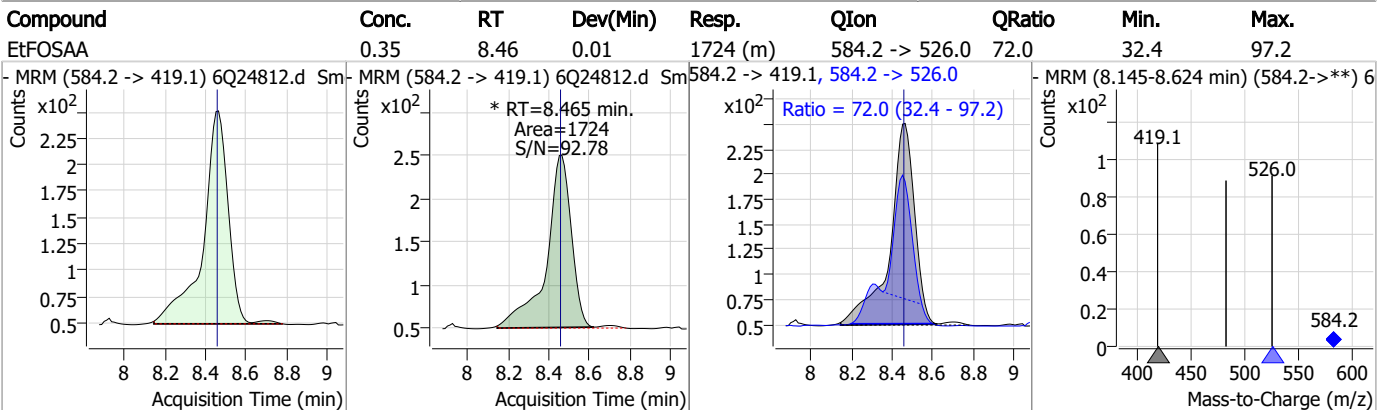
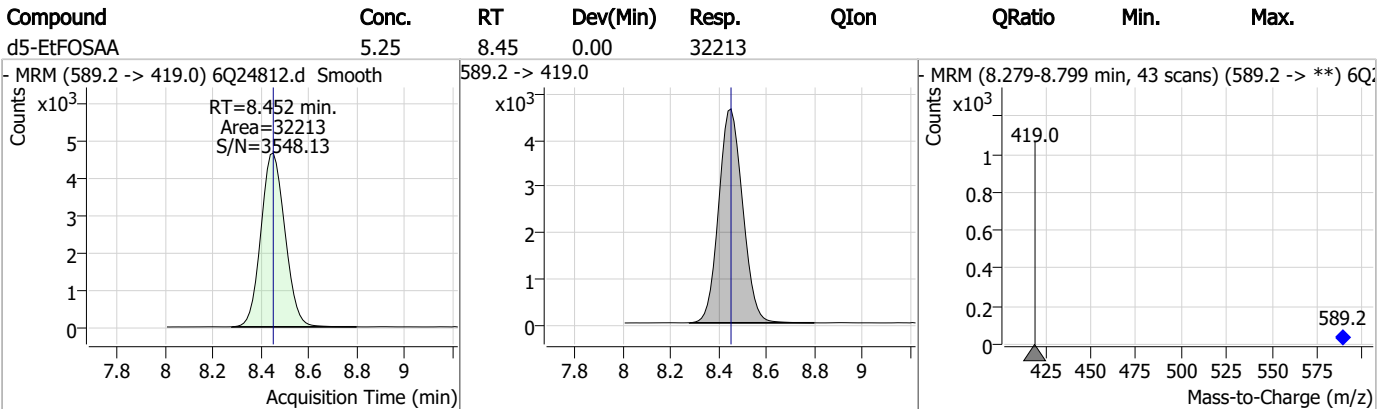
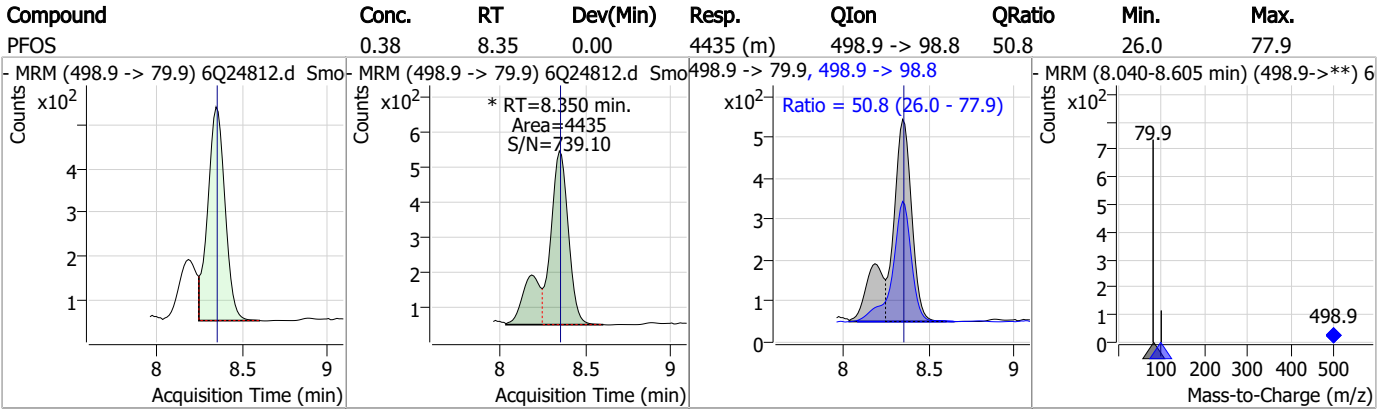


7.7.3

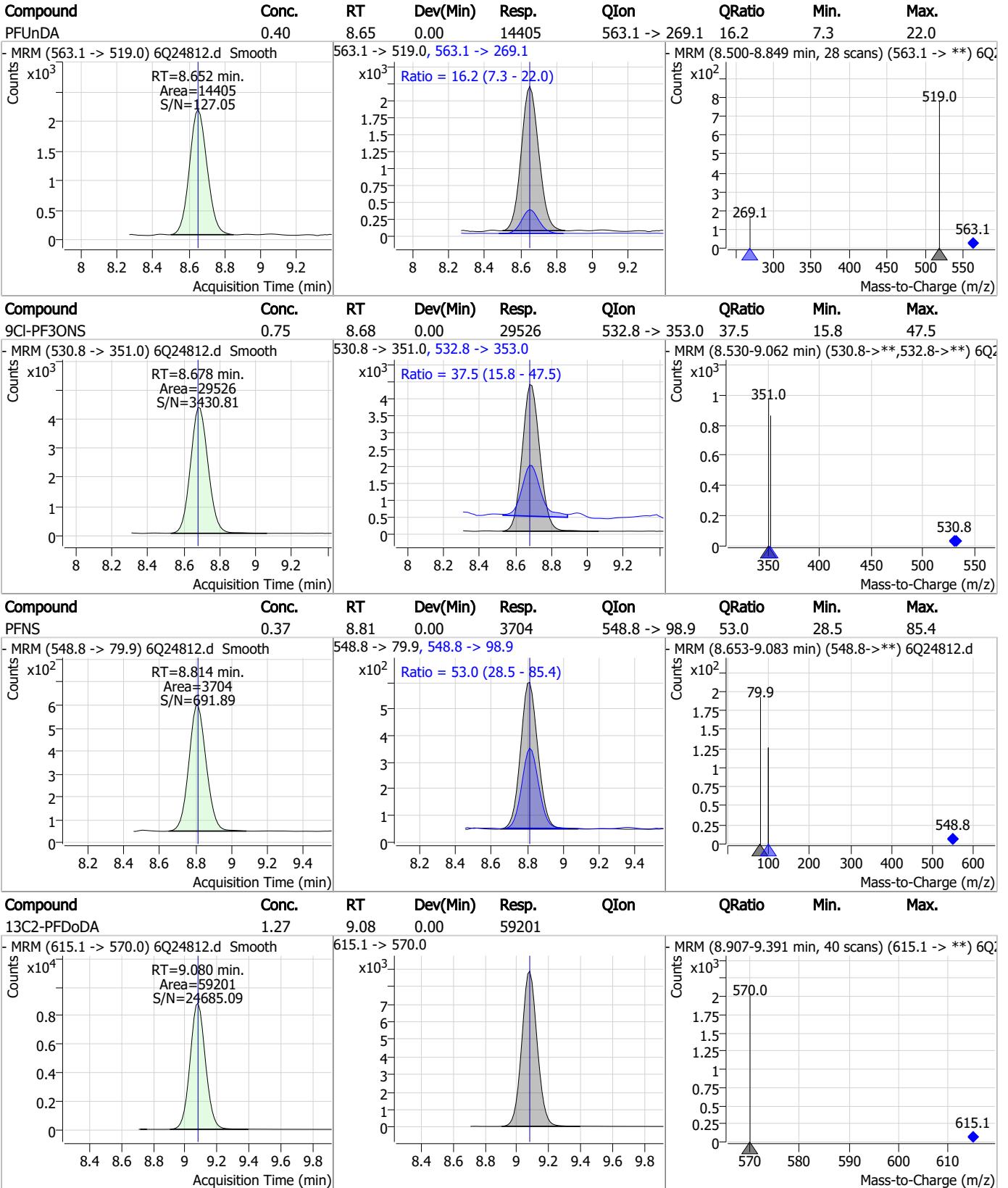
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

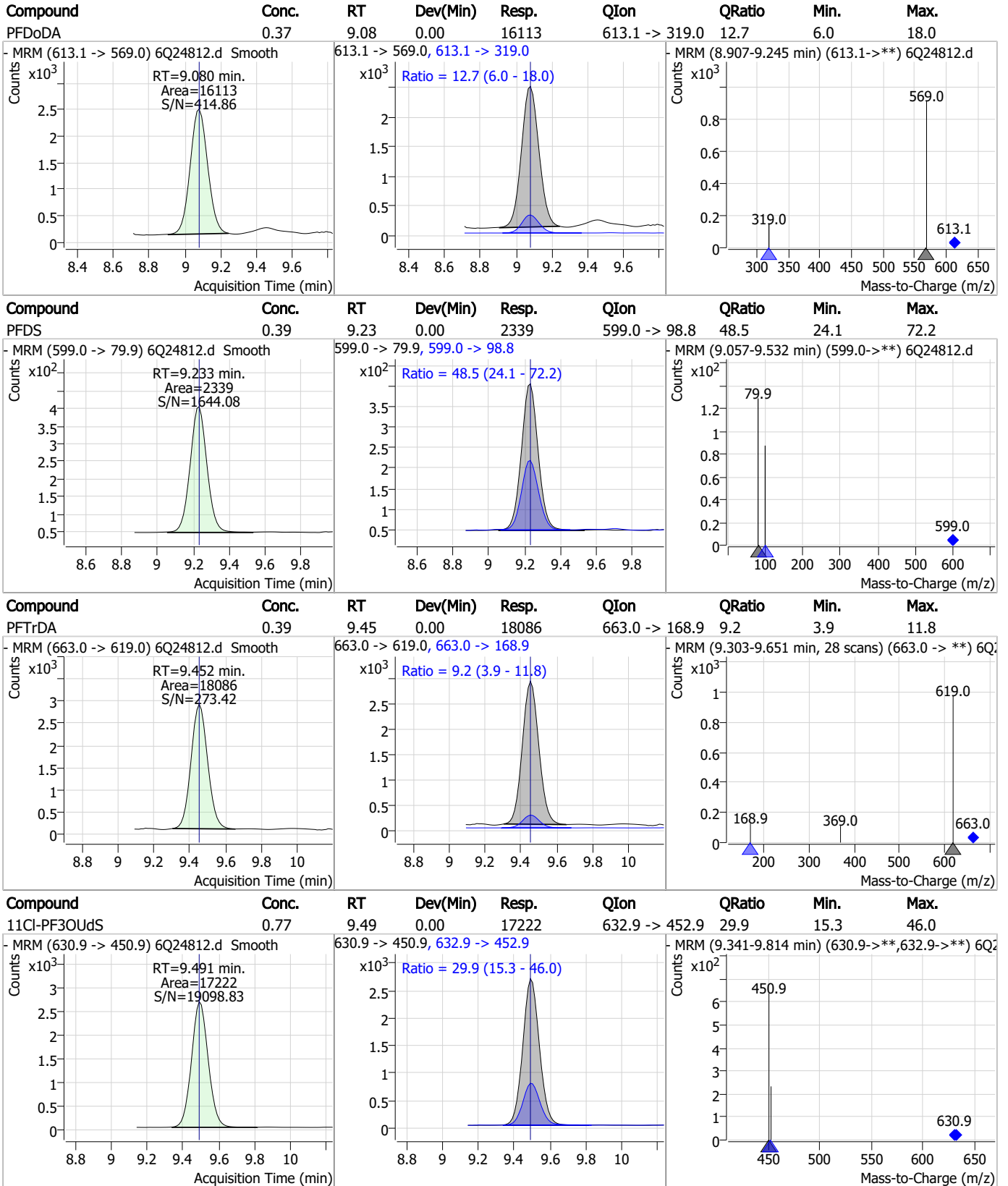


7.7.3

7



Perfluorinated Compounds by LC/MS/MS



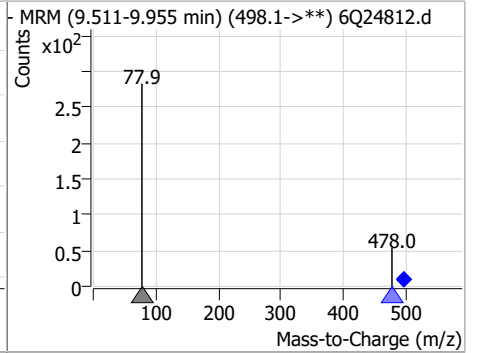
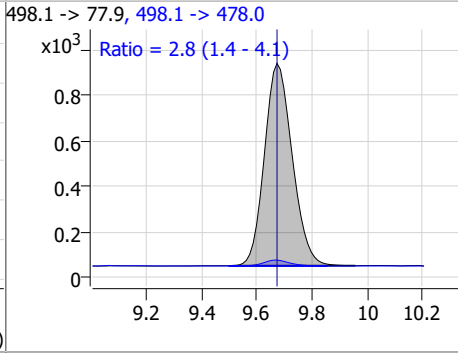
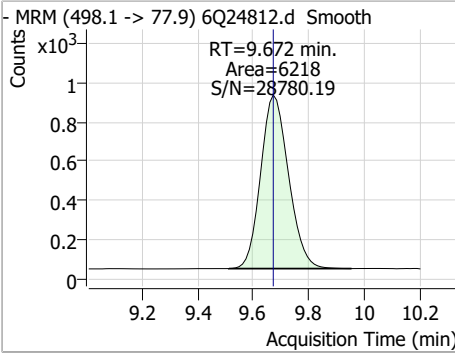
7.7.3

7

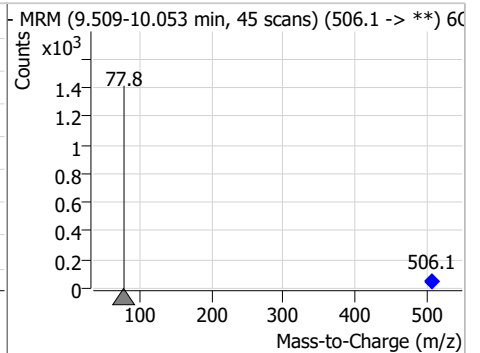
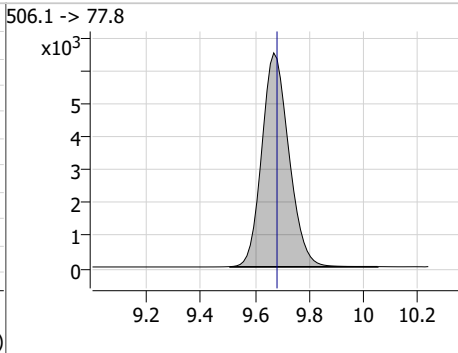
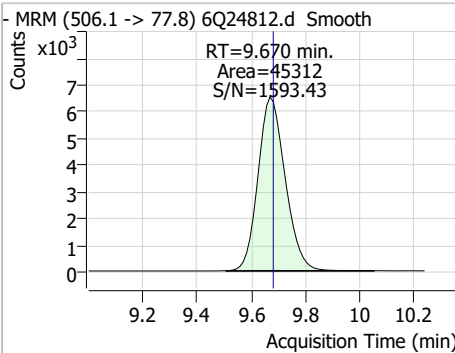


Perfluorinated Compounds by LC/MS/MS

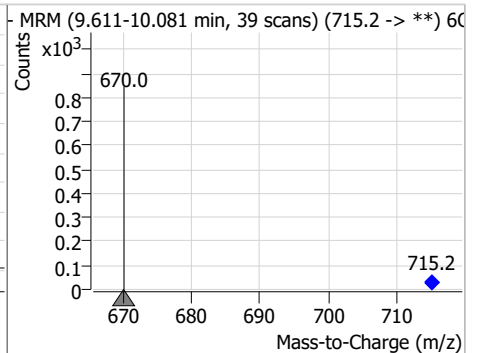
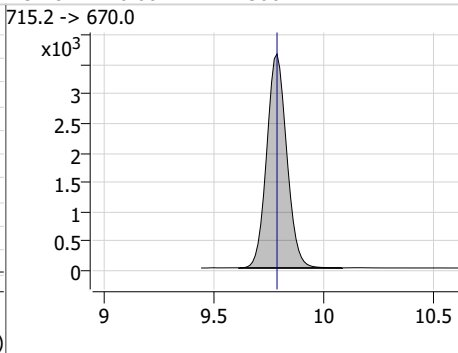
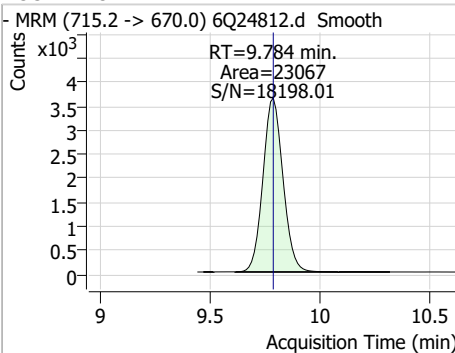
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.40	9.67	0.00	6218	498.1 -> 478.0	2.8	1.4	4.1



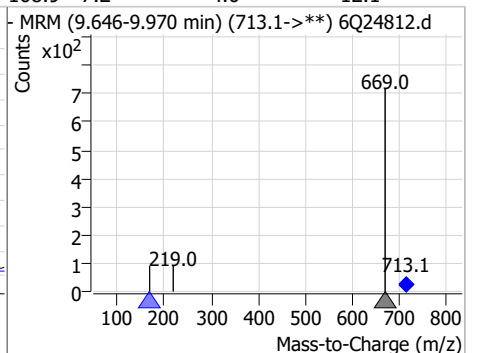
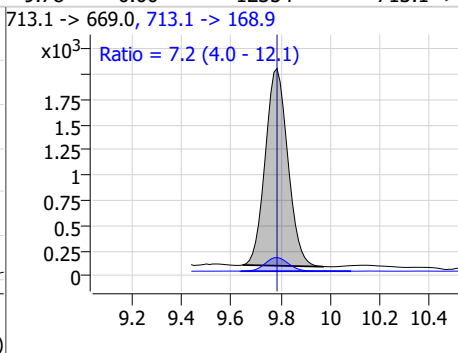
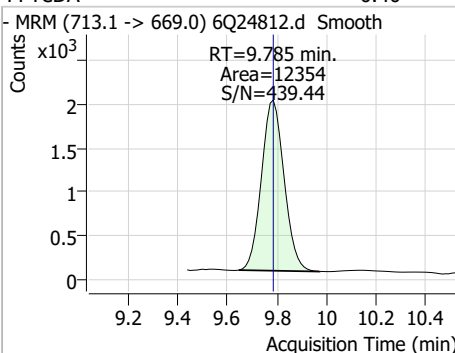
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.63	9.67	-0.01	45312				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.78	0.00	23067				

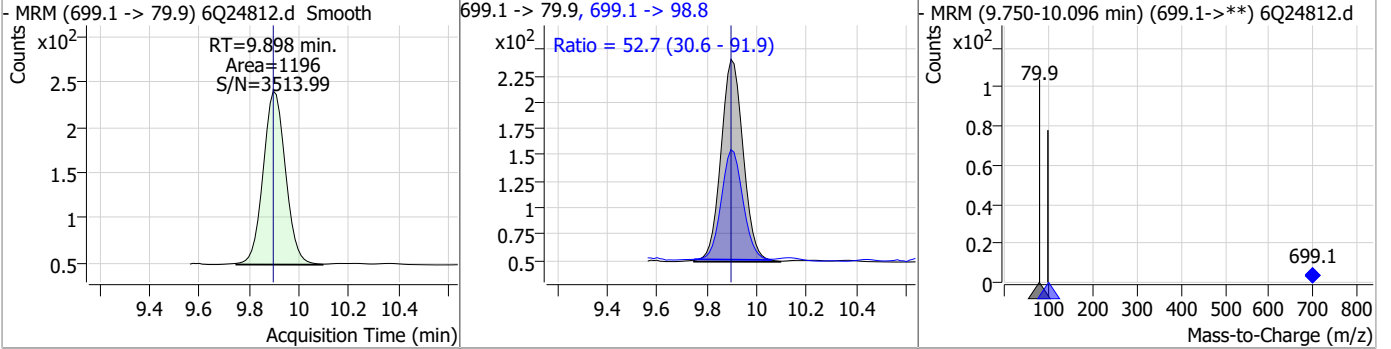


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.40	9.78	0.00	12354	713.1 -> 168.9	7.2	4.0	12.1

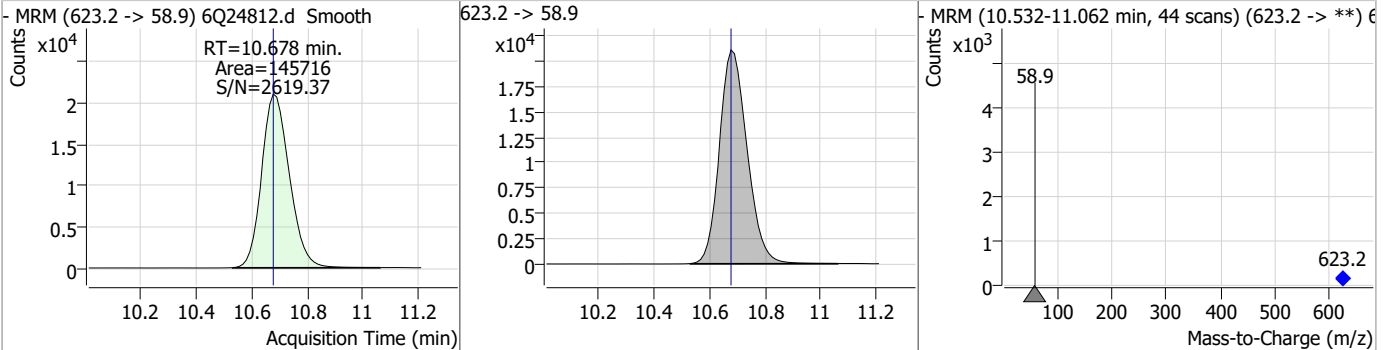


Perfluorinated Compounds by LC/MS/MS

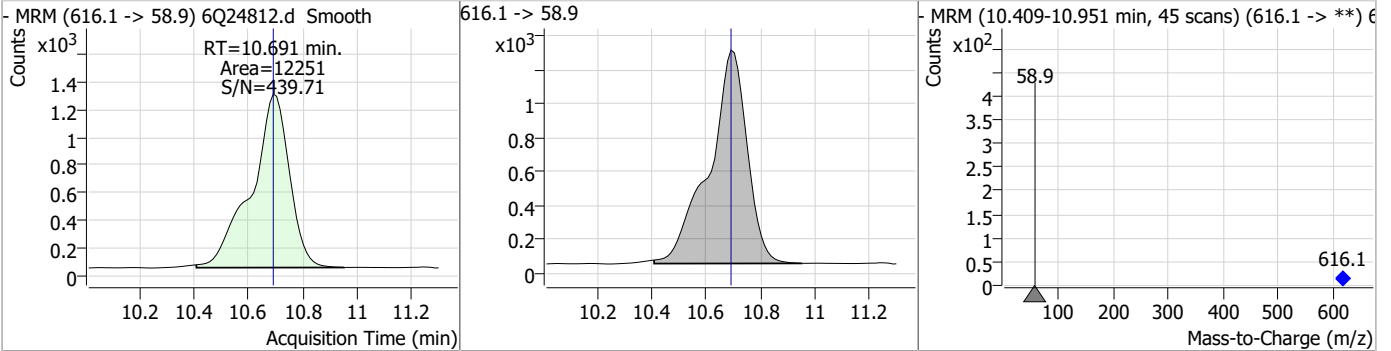
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.41	9.90	0.00	1196	699.1 -> 98.8	52.7	30.6	91.9



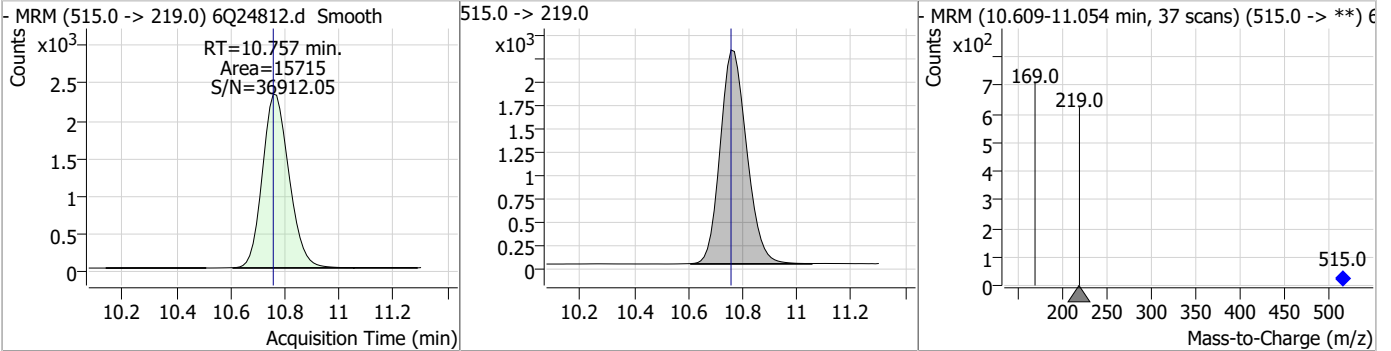
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.98	10.68	0.00	145716				



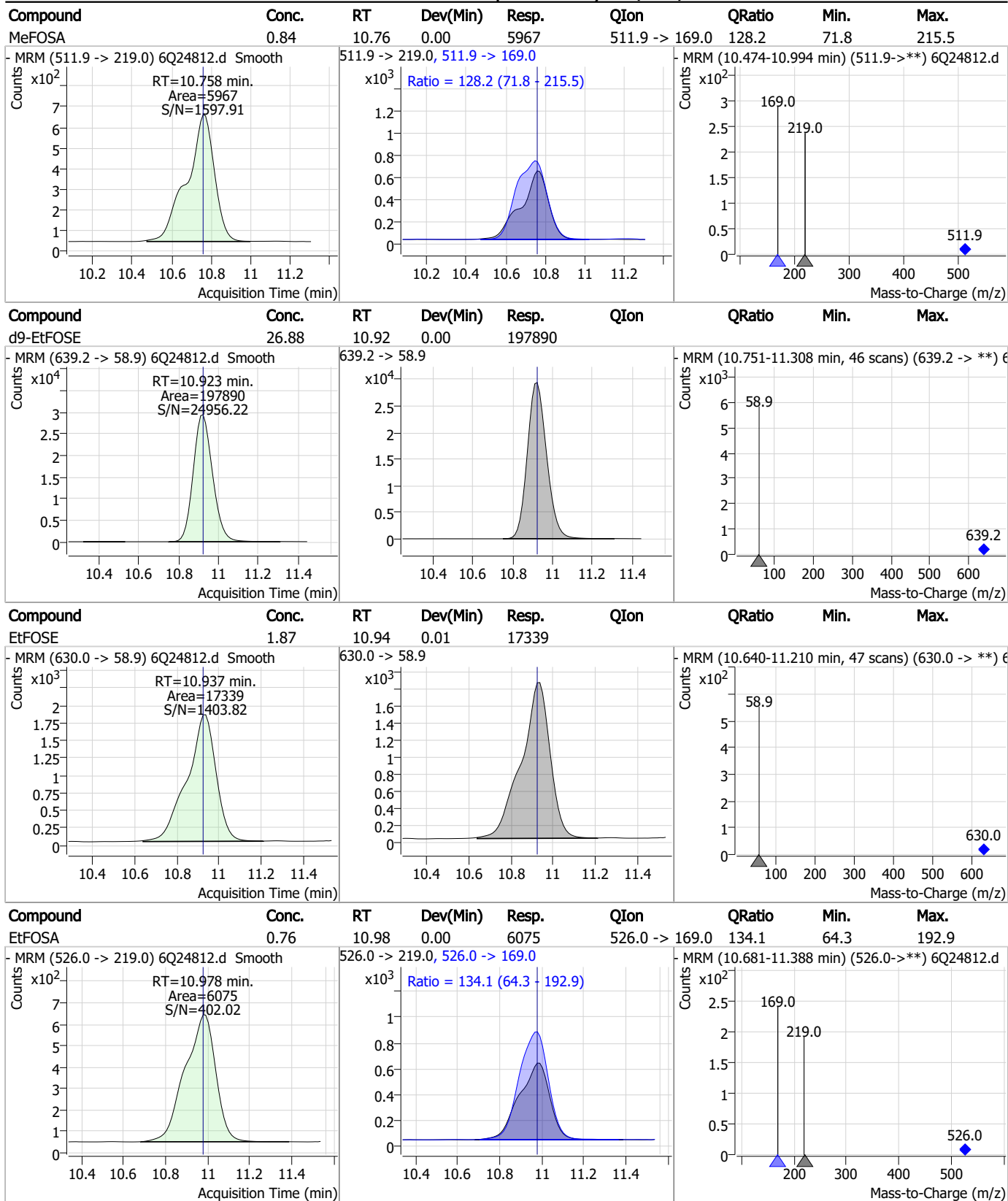
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.96	10.69	0.00	12251				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.51	10.76	0.00	15715				



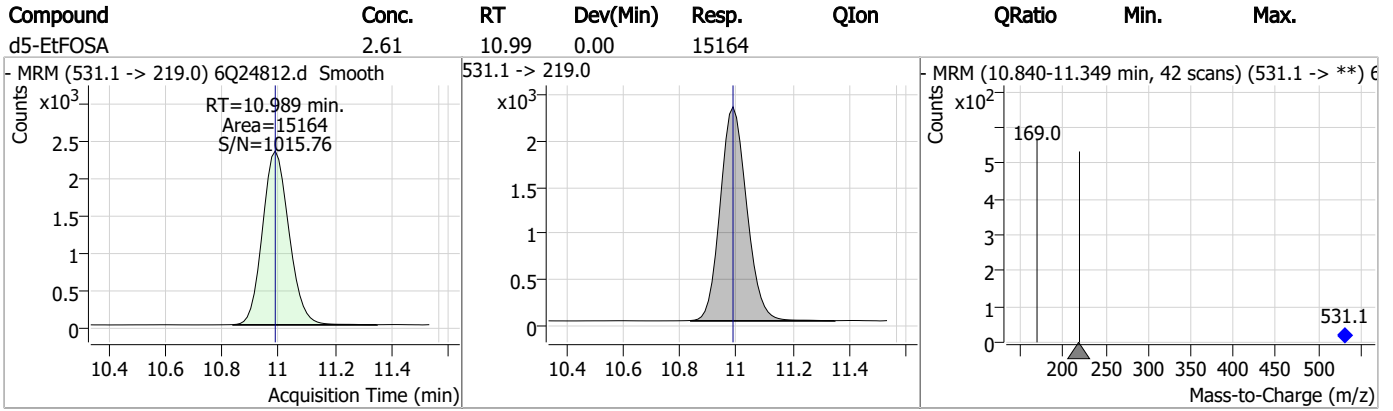
Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Manual Integration Approval Summary

Sample Number: S6Q355-IC355 Method: EPA DRAFT 1633
Lab FileID: 6Q24812.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 20:50 Supervisor approved: 09/22/23 13:16 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.46	Split peak

7.7.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24813.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 9:04:32 PM
 Sample Name : ic355-3
 Vial : P1-A4
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	352404	10.00 µg/L	-0.025
M5-PFPeA	4.422	268.3 -> 223.0	56926	5.00 µg/L	-0.012
M5-PFHxA	5.641	318.0 -> 273.0	129214	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	110914	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	144061	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	55435	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	54618	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	68453	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	60354	1.25 µg/L	-0.012
M2-PFTeDA	9.784	715.2 -> 670.0	23077	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	47129	2.50 µg/L	-0.012
M3-PFBS	5.559	302.1 -> 79.9	42293	2.50 µg/L	-0.012
M3-PFHxS	7.301	402.1 -> 79.9	23535	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	21248	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	4505	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	6436	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	6748	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	38577	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	73114	10.00 µg/L	-0.012
M5-EtFOSAA	8.452	589.2 -> 419.0	33485	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	149482	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	197495	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	15392	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	15739	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	29438	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	144142	5.00 µg/L	-0.012
18O2-PFHxS	7.300	403.0 -> 83.9	17395	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	148749	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	48403	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	61793	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	98887	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	4505	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C2-6:2FTS	6.974	429.1 -> 80.9	6436	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-8:2FTS	7.986	529.1 -> 80.9	6748	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C2-PFDoDA	9.067	615.1 -> 570.0	60354	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C2-PFTeDA	9.784	715.2 -> 670.0	23077	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.2%		
13C3-PFBS	5.559	302.1 -> 79.9	42293	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C3-PFHxS	7.301	402.1 -> 79.9	23535	2.50 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 = 99.9%	
13C4-PFBA	2.985	216.8 -> 171.9	352404	10.02 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.569	367.1 -> 322.0	110914	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C5-PFHxA	5.641	318.0 -> 273.0	129214	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C5-PFPeA	4.422	268.3 -> 223.0	56926	5.06 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.198	519.1 -> 474.1	54618	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C7-PFUnDA	8.651	570.0 -> 525.1	68453	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C8-FOSA	9.670	506.1 -> 77.8	47129	2.44 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-PFOA	7.198	421.1 -> 376.0	144061	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C8-PFOS	8.348	507.1 -> 79.9	21248	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C9-PFNA	7.717	472.1 -> 427.0	55435	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSAA	8.256	573.2 -> 419.0	38577	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	73114	9.97 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	15739	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.9%	
d5-EtFOSAA	8.452	589.2 -> 419.0	33485	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
d7-MeFOSE	10.678	623.2 -> 58.9	149482	23.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
d9-EtFOSE	10.923	639.2 -> 58.9	197495	23.95 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.8%	
d5-EtFOSA	10.989	531.1 -> 219.0	15392	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.5%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	35210	4.83 µg/L	98
		327.1 -> 80.9	13074		
6:2FTS	6.974	427.1 -> 407.0	28104	4.72 µg/L	98
		427.1 -> 80.9	11014		
8:2FTS	7.999	527.1 -> 507.0	18805	4.39 µg/L	85
		527.1 -> 80.8	7637		
EtFOSAA	8.452	584.2 -> 419.1	6029	1.19 µg/L	96
		584.2 -> 526.0	4118		
FOSA	9.672	498.1 -> 77.9	19638	1.21 µg/L	99
		498.1 -> 478.0	568		
MeFOSAA	8.257	570.1 -> 419.0	10793	1.23 µg/L	96
		570.1 -> 483.0	2374		
PFBA	2.993	212.8 -> 168.9	51590	4.75 µg/L	100
PFBS	5.560	298.7 -> 79.9	21309	1.06 µg/L	99
		298.7 -> 98.8	7640		
PFDA	8.198	512.9 -> 469.0	58030	1.19 µg/L	97
		512.9 -> 219.0	10452		
PFDODA	9.068	613.1 -> 569.0	55735	1.27 µg/L	99
		613.1 -> 319.0	6420		
PFDS	9.220	599.0 -> 79.9	7250	1.16 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3395			
PFHpA	6.569	363.1 -> 319.0	63790	1.13	µg/L	99
		363.1 -> 169.0	9964			
PFHpS	7.856	449.0 -> 79.9	11803	1.13	µg/L	95
		449.0 -> 98.9	5929			
PFHxA	5.644	313.0 -> 269.0	55330	1.23	µg/L	99
		313.0 -> 118.9	2377			
PFHxS	7.302	398.7 -> 79.9	15902	1.05	µg/L	m 94
		398.7 -> 98.9	8260			
PFNA	7.717	463.0 -> 419.0	43714	1.23	µg/L	97
		463.0 -> 219.0	11232			
PFNS	8.814	548.8 -> 79.9	12012	1.16	µg/L	94
		548.8 -> 98.9	6350			
PFOA	7.200	413.0 -> 369.0	69648	1.05	µg/L	95
		413.0 -> 169.0	13524			
PFOS	8.350	498.9 -> 79.9	11825	0.98	µg/L	m 94
		498.9 -> 98.8	6624			
PFPeA	4.424	263.0 -> 219.0	67892	2.42	µg/L	100
PFPeS	6.620	349.1 -> 79.9	14300	1.13	µg/L	92
		349.1 -> 98.9	6237			
PFTeDA	9.785	713.1 -> 669.0	38451	1.25	µg/L	99
		713.1 -> 168.9	3021			
PFTrDA	9.452	663.0 -> 619.0	58266	1.24	µg/L	98
		663.0 -> 168.9	5020			
PFUnDA	8.652	563.1 -> 519.0	45601	1.15	µg/L	96
		563.1 -> 269.1	7408			
11CI-PF3OUdS	9.491	630.9 -> 450.9	53296	2.25	µg/L	95
		632.9 -> 452.9	17735			
9CI-PF3ONS	8.678	530.8 -> 351.0	100109	2.39	µg/L	94
		532.8 -> 353.0	28152			
ADONA	6.817	376.9 -> 250.9	252629	2.34	µg/L	97
		376.9 -> 84.8	63811			
HFPO-DA	6.007	284.9 -> 168.9	16620	2.39	µg/L	98
		284.9 -> 184.9	2256			
3:3FTCA	3.858	241.0 -> 177.0	10821	5.71	µg/L	99
		241.0 -> 117.0	1079			
5:3FTCA	6.283	341.0 -> 237.1	238209	30.22	µg/L	95
		341.0 -> 217.0	161606			
7:3FTCA	7.669	441.0 -> 316.9	142286	30.94	µg/L	87
		441.0 -> 336.9	293223			
EtFOSA	10.990	526.0 -> 219.0	19527	2.41	µg/L	97
		526.0 -> 169.0	25718			
EtFOSE	10.924	630.0 -> 58.9	55074	5.95	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	17922	2.53	µg/L	97
		511.9 -> 169.0	25174			
MeFOSE	10.691	616.1 -> 58.9	39198	6.11	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	3583	1.17	µg/L	92
		699.1 -> 98.8	1975			
NFDHA	5.524	295.0 -> 201.0	13073	2.46	µg/L	97
		295.0 -> 84.9	3145			
PFMBA	4.850	279.0 -> 85.1	47618	2.40	µg/L	100
PFMPA	3.551	229.0 -> 84.9	34760	2.37	µg/L	100
PFEESA	6.112	314.8 -> 134.9	131706	2.23	µg/L	100
		314.8 -> 82.9	4447			

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

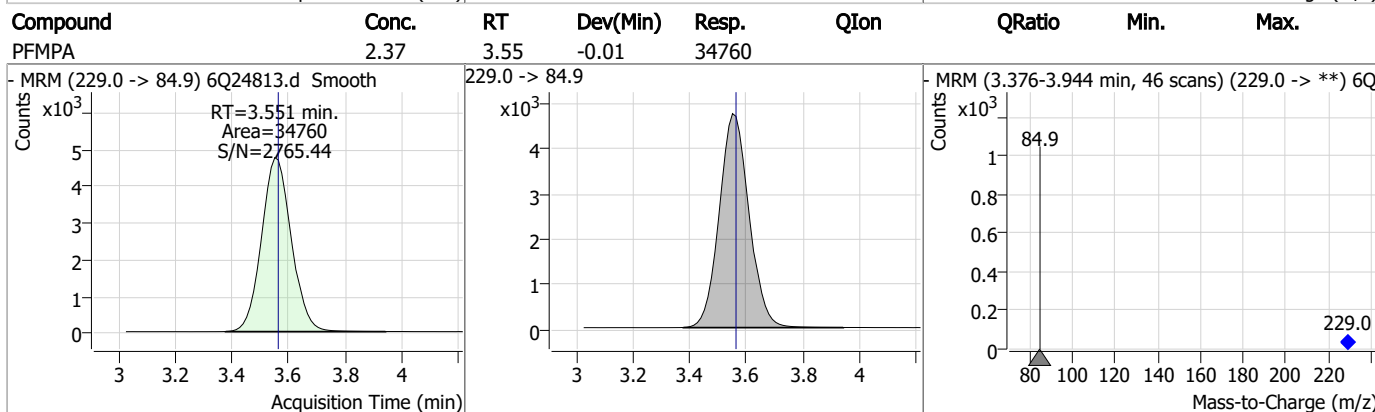
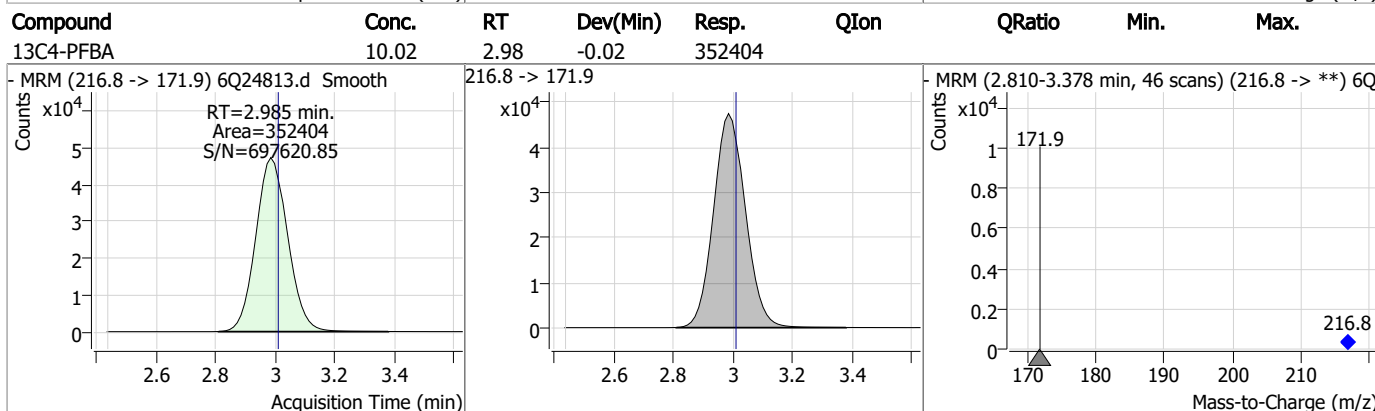
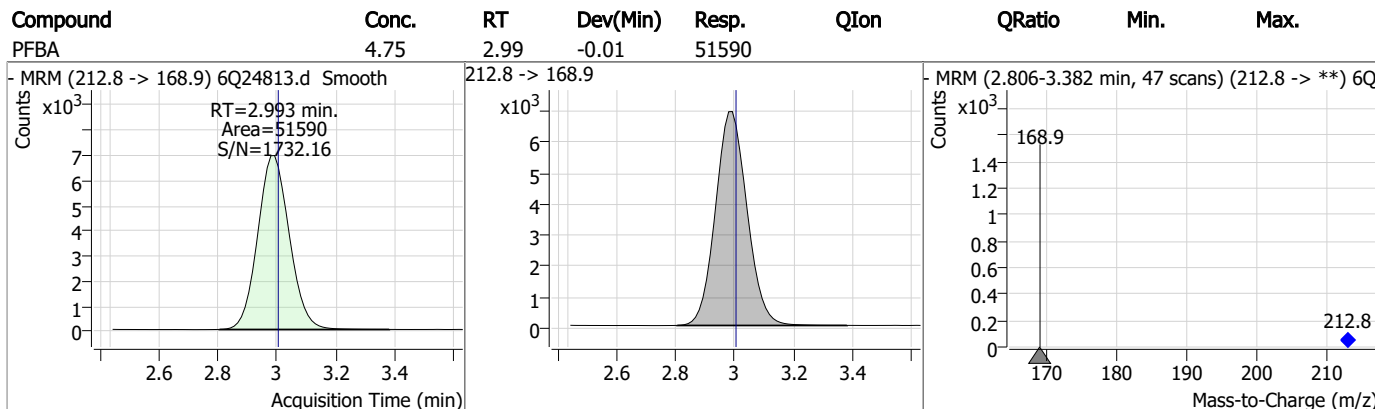
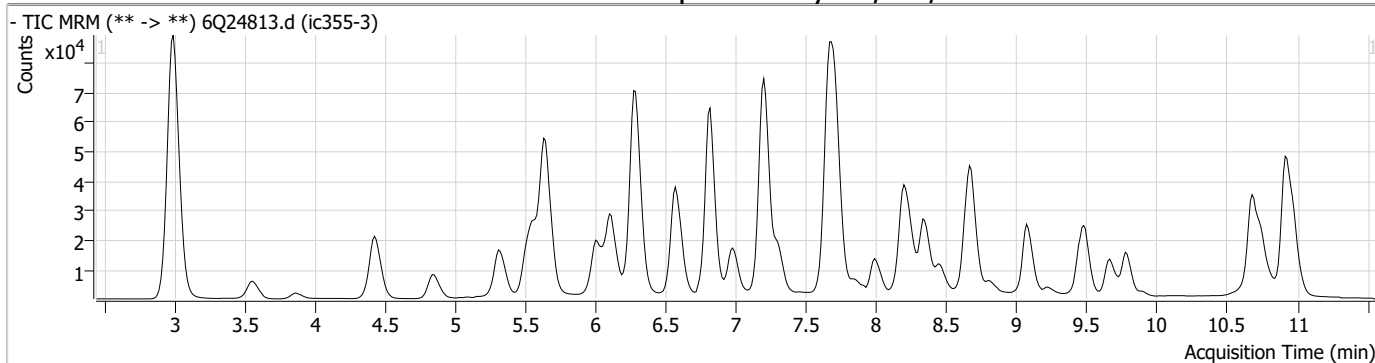
Perfluorinated Compounds by LC/MS/MS

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

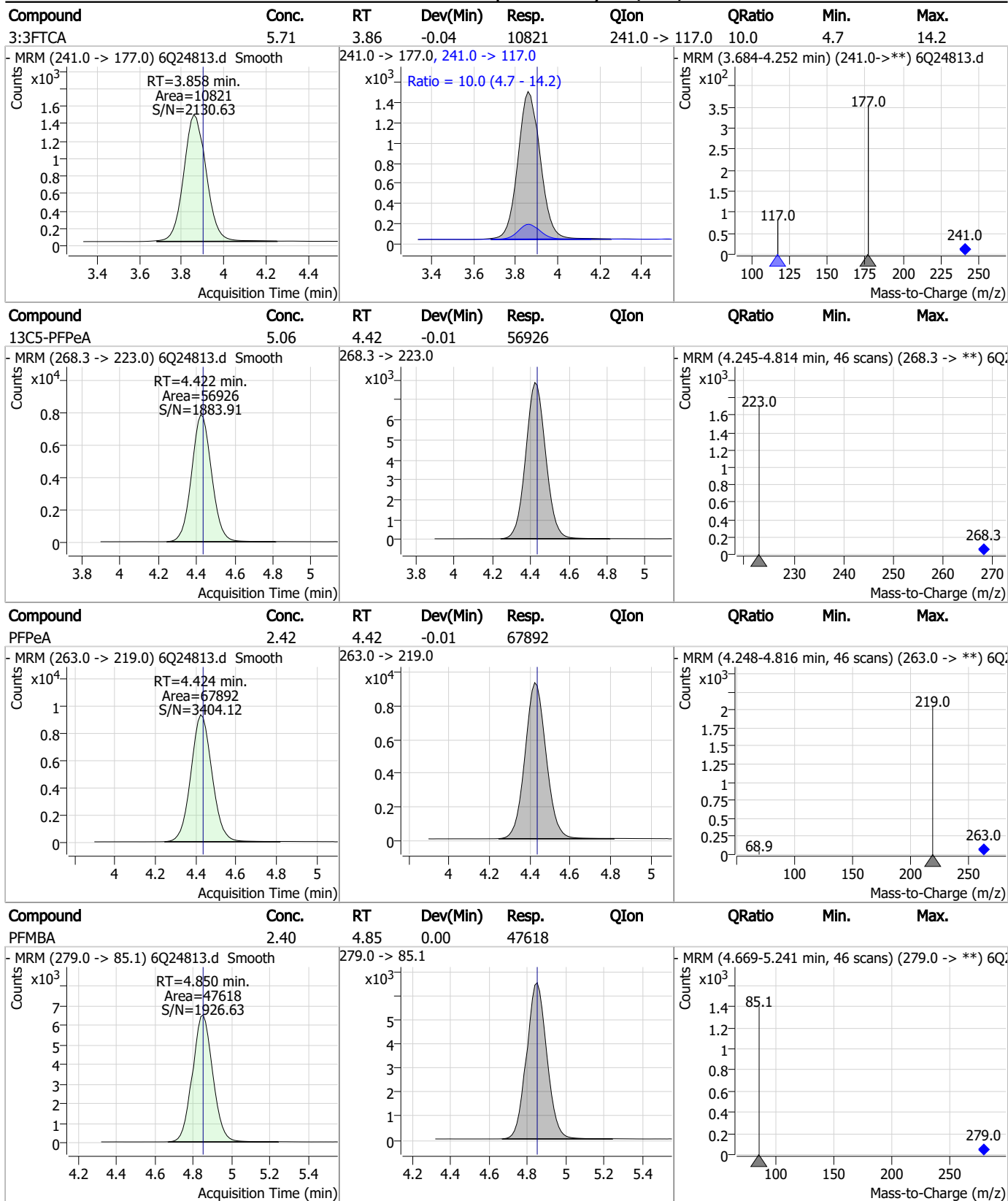
7.7.4

7

Perfluorinated Compounds by LC/MS/MS

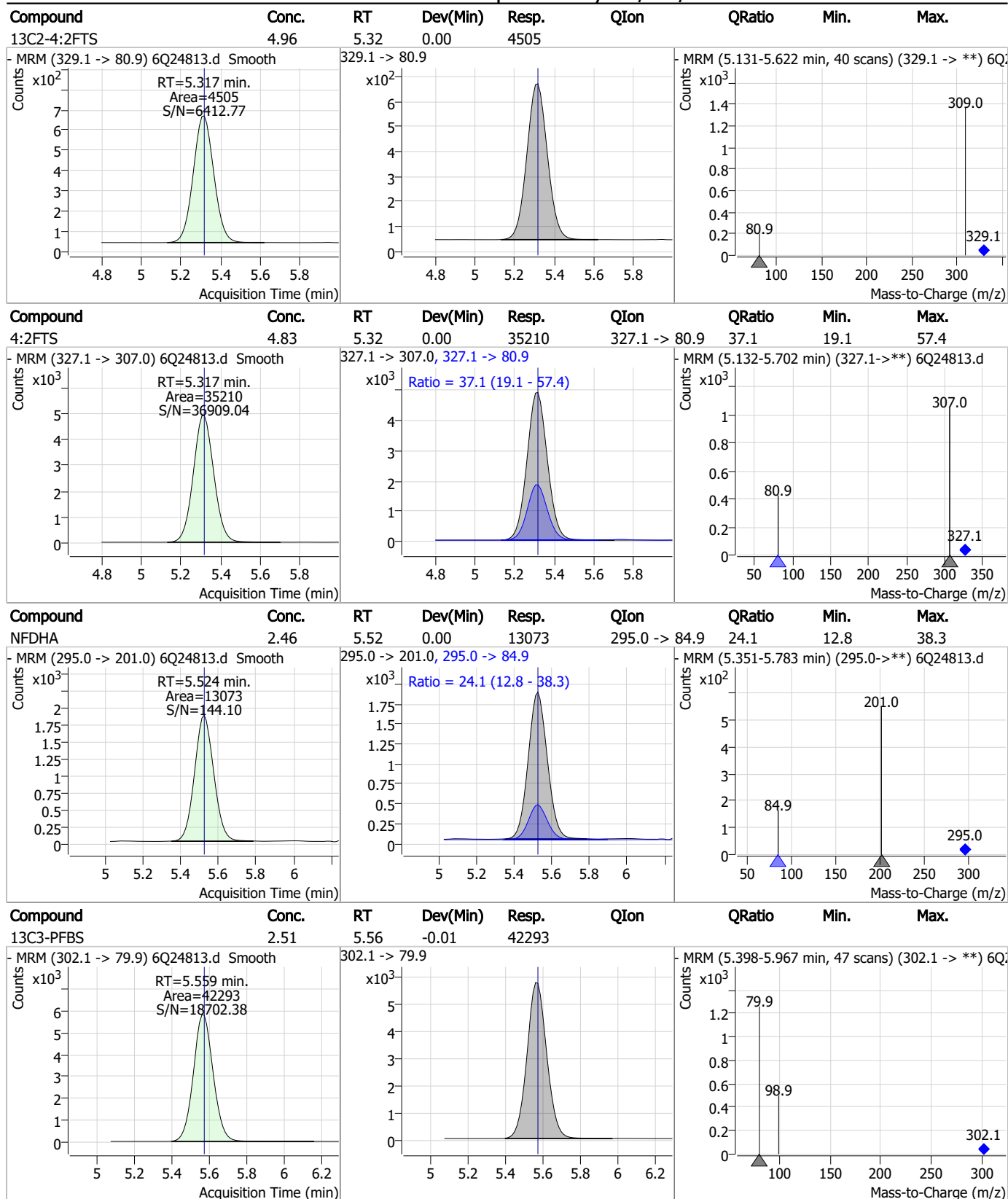


Perfluorinated Compounds by LC/MS/MS



7.7.4

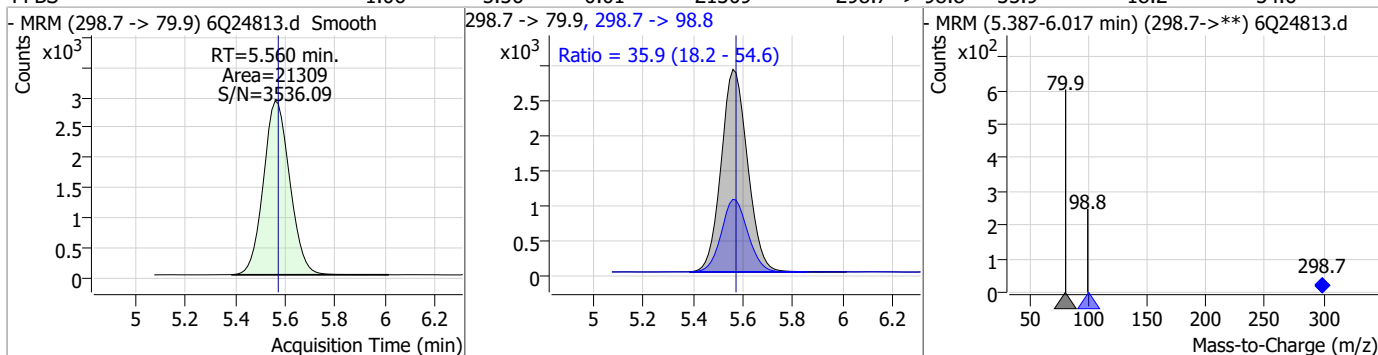
Perfluorinated Compounds by LC/MS/MS



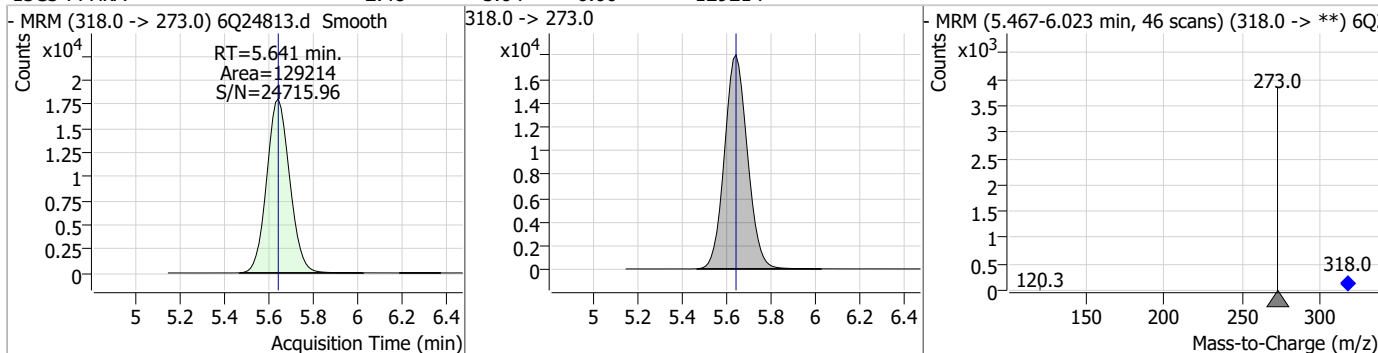
7.7.4
7

Perfluorinated Compounds by LC/MS/MS

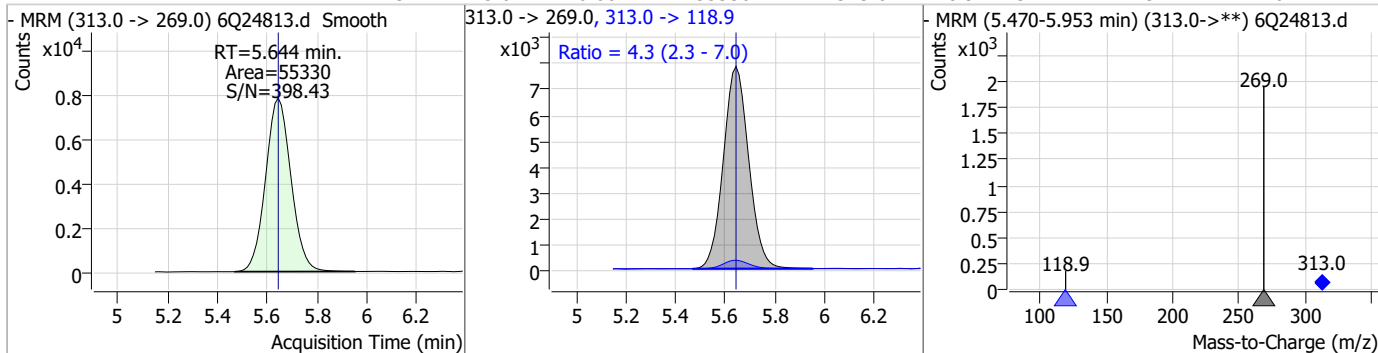
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.06	5.56	-0.01	21309	298.7 -> 98.8	35.9	18.2	54.6



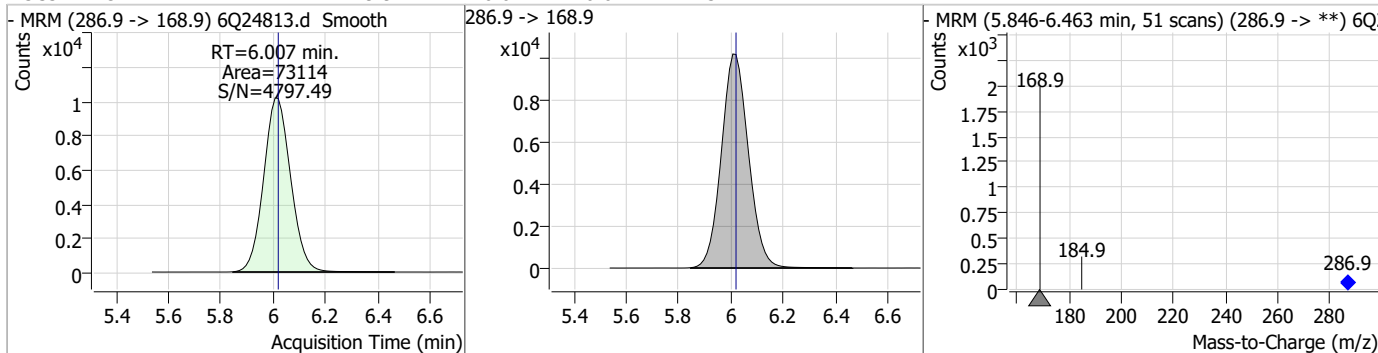
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.48	5.64	0.00	129214				



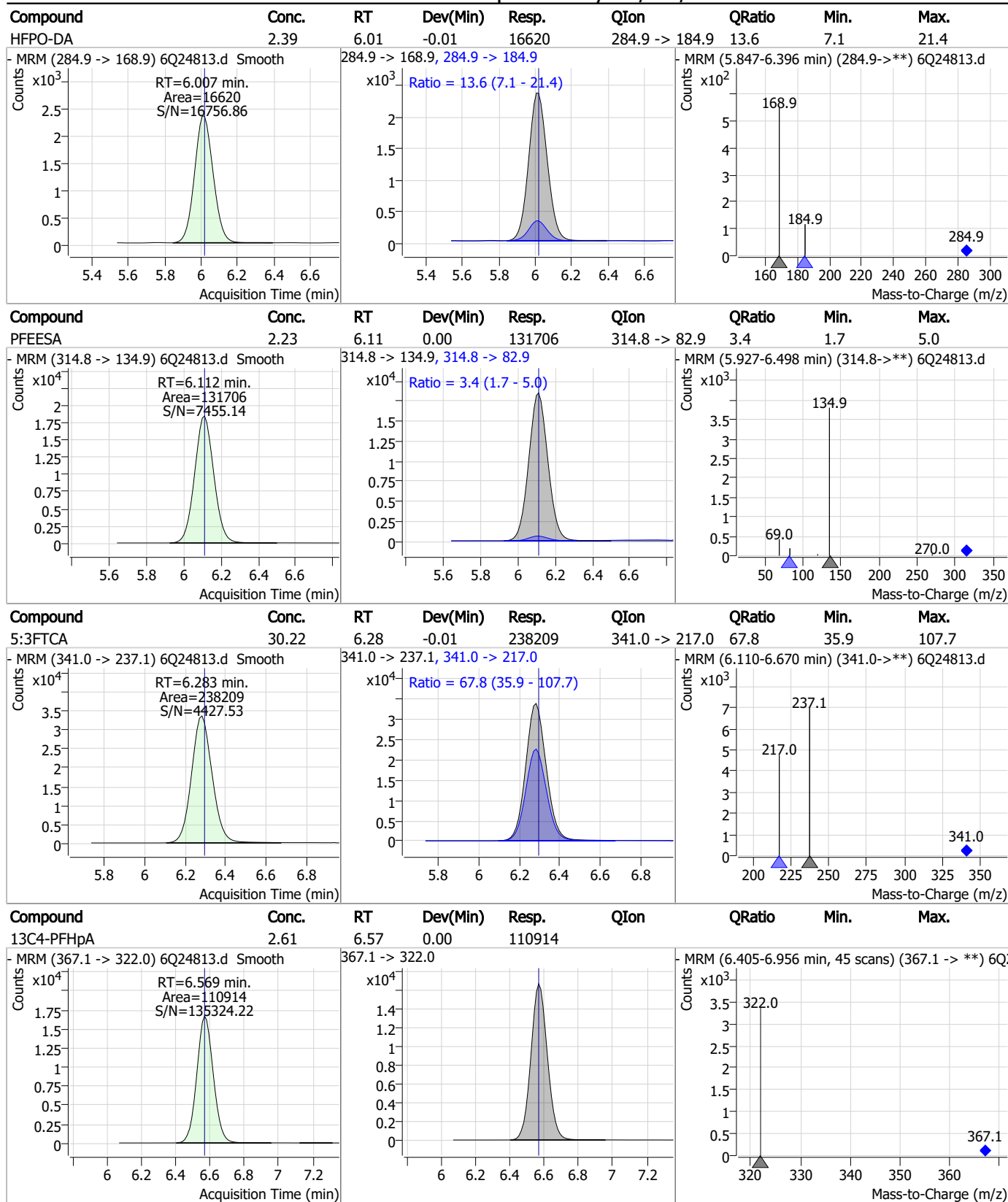
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.23	5.64	0.00	55330	313.0 -> 118.9	4.3	2.3	7.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.97	6.01	-0.01	73114				

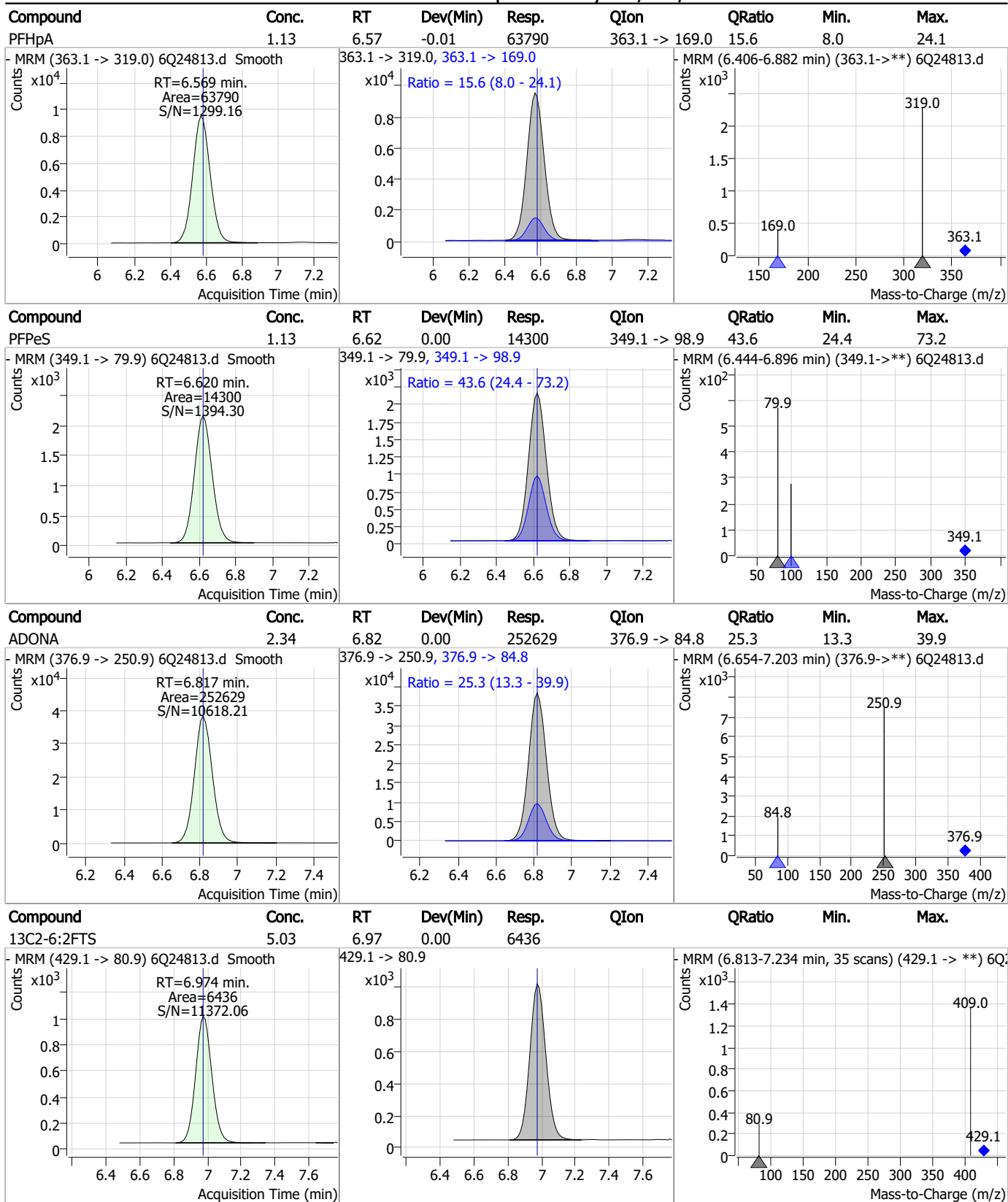


Perfluorinated Compounds by LC/MS/MS



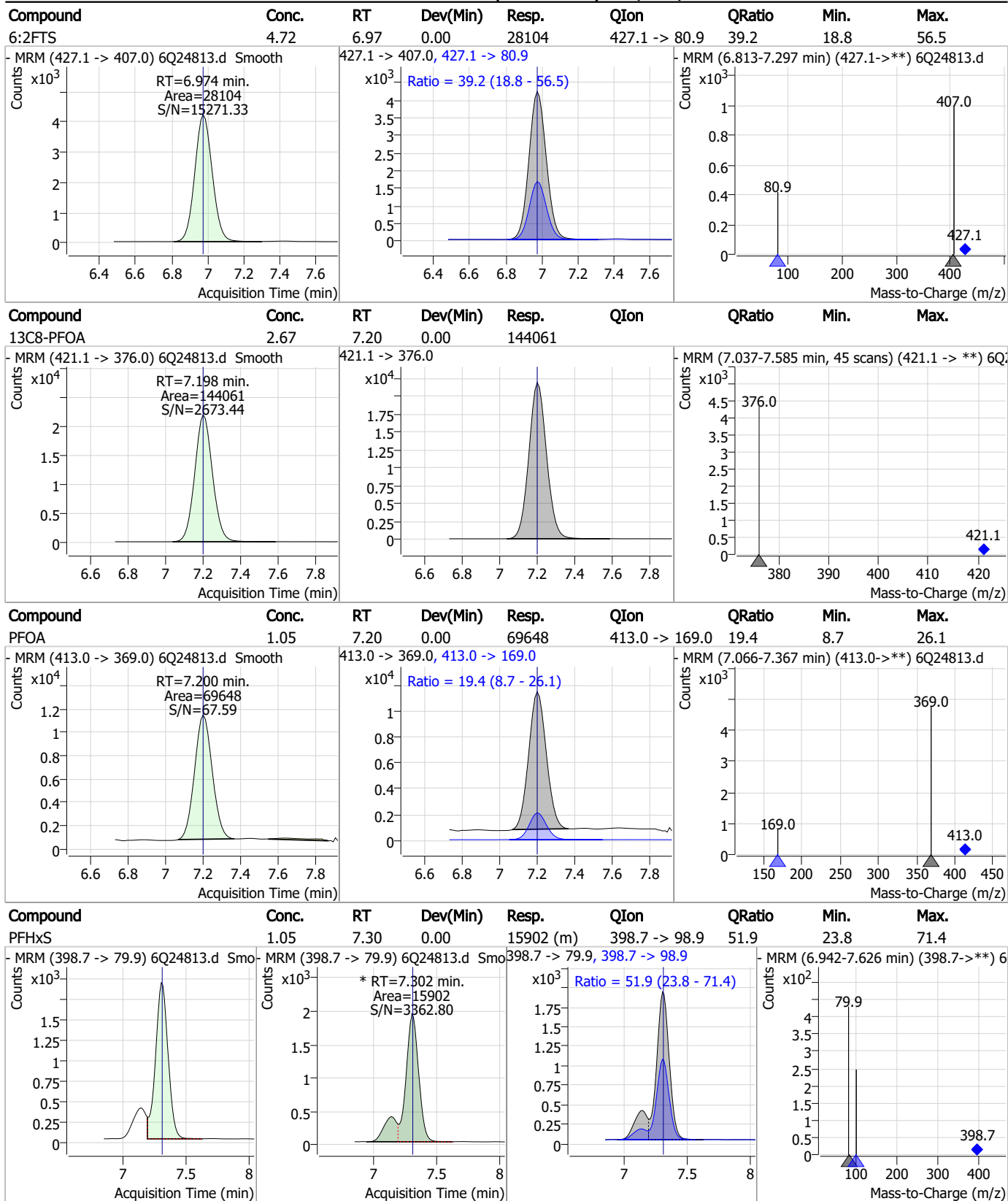
7.7.4
7

Perfluorinated Compounds by LC/MS/MS



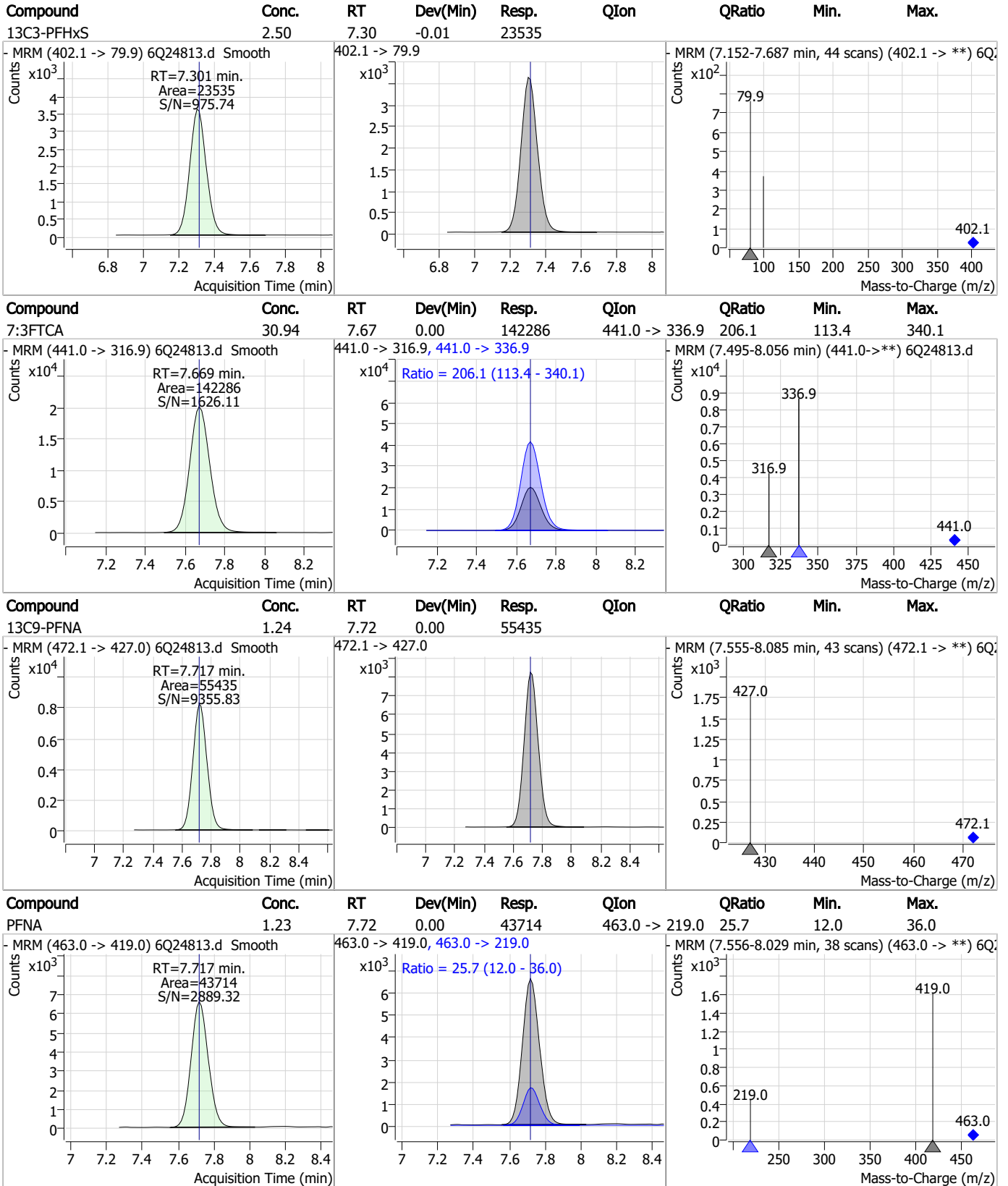
7.7.4
7

Perfluorinated Compounds by LC/MS/MS



7.7.4
7

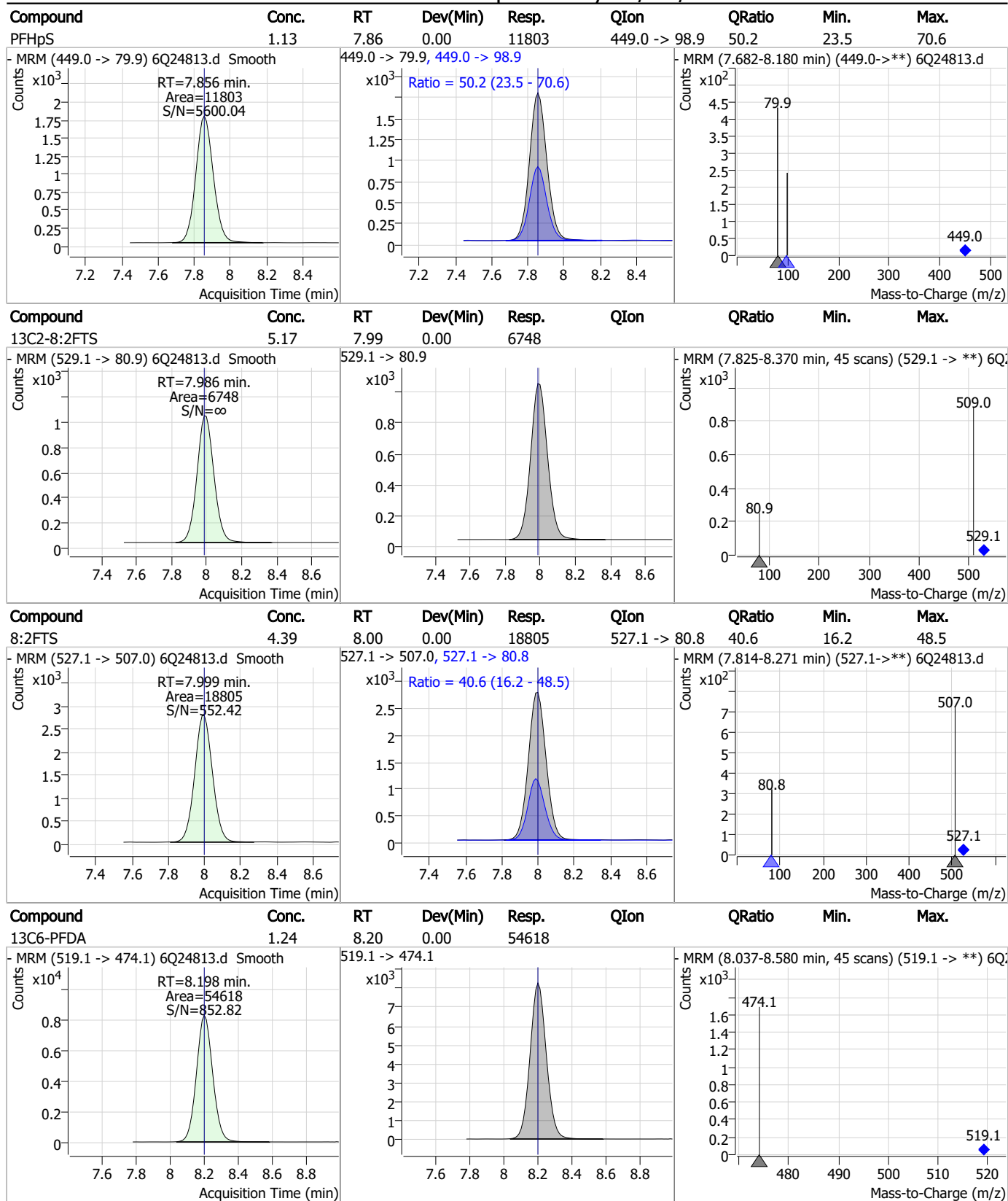
Perfluorinated Compounds by LC/MS/MS



7.7.4

7

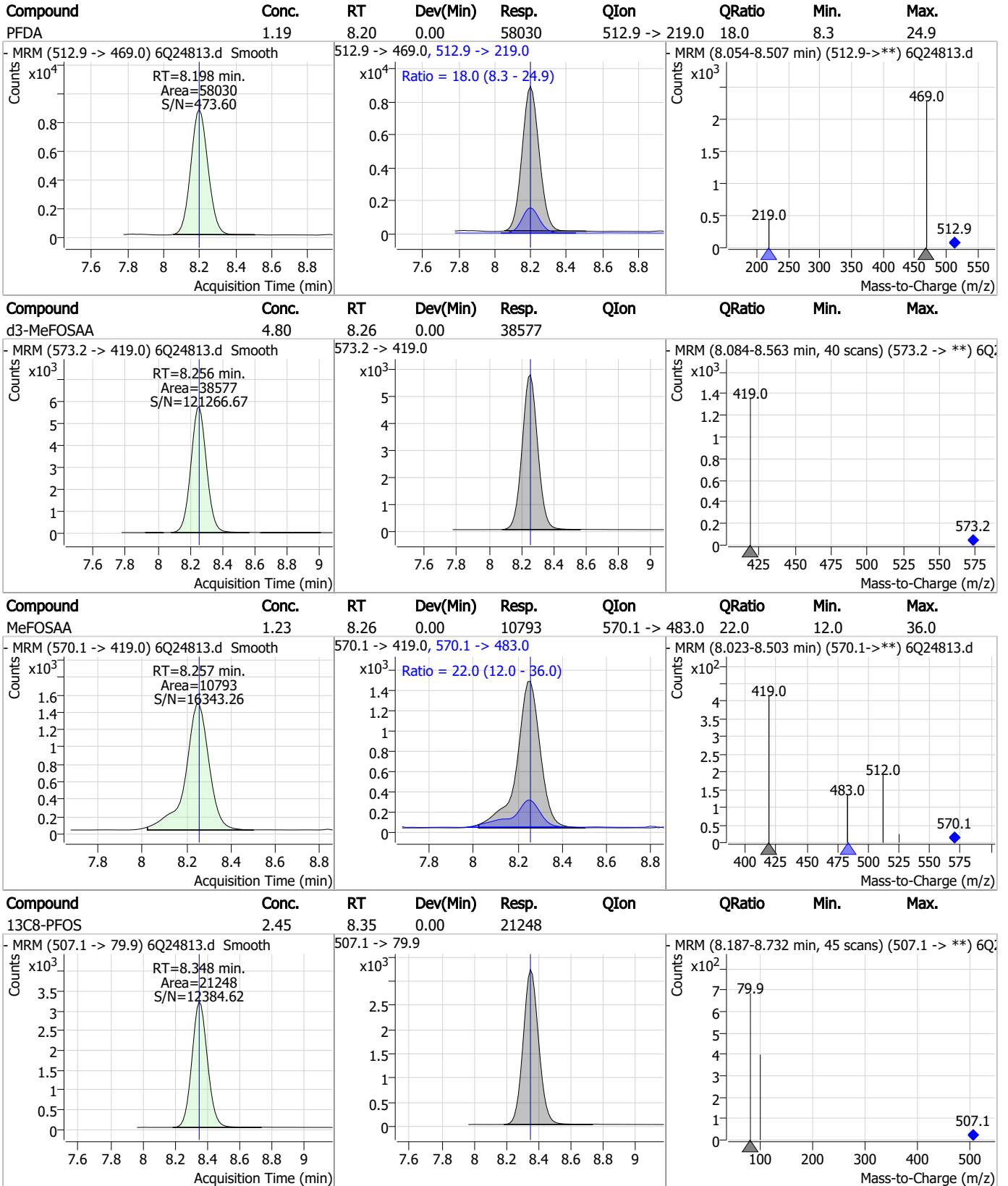
Perfluorinated Compounds by LC/MS/MS



7.7.4

7

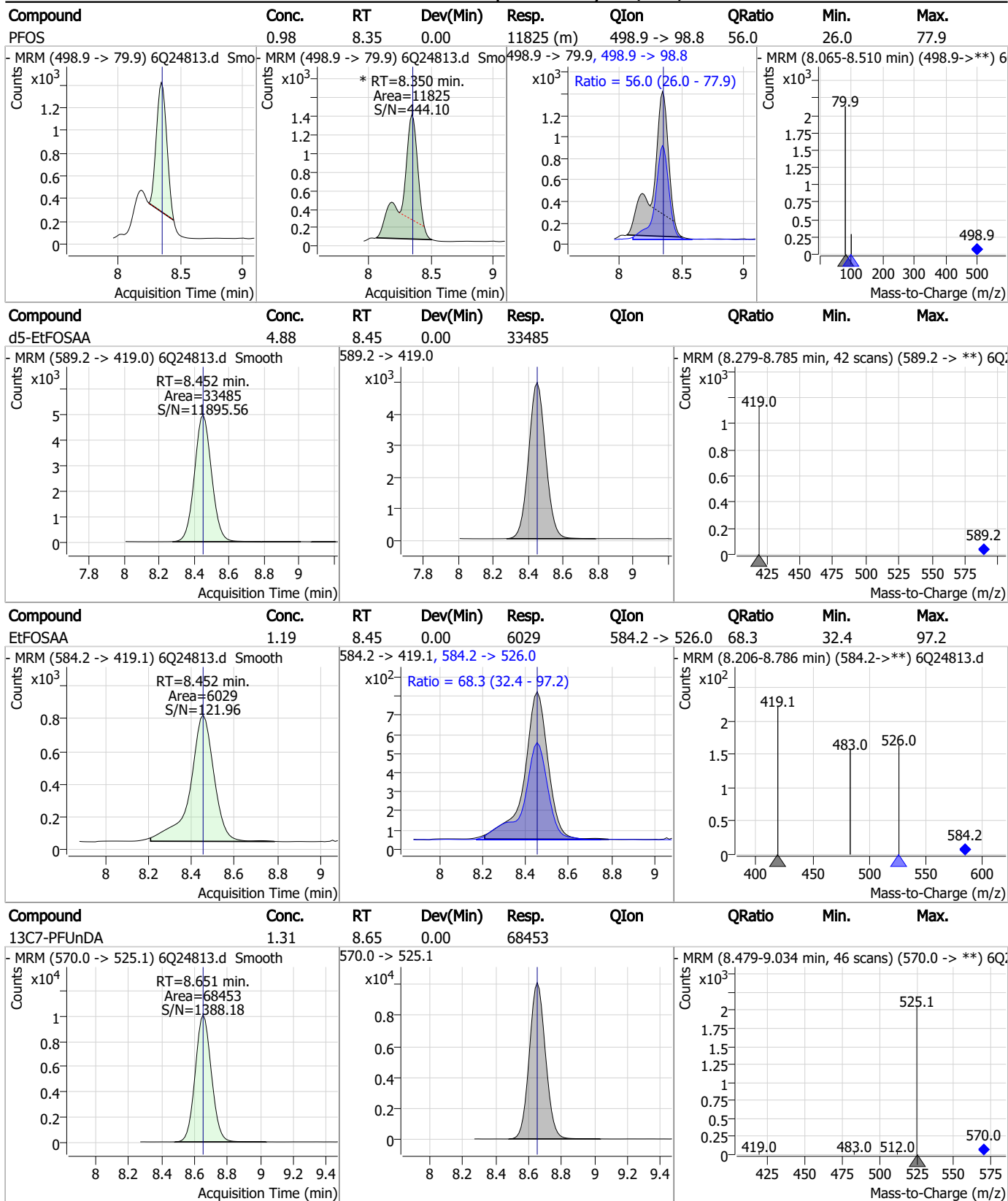
Perfluorinated Compounds by LC/MS/MS



7.7.4

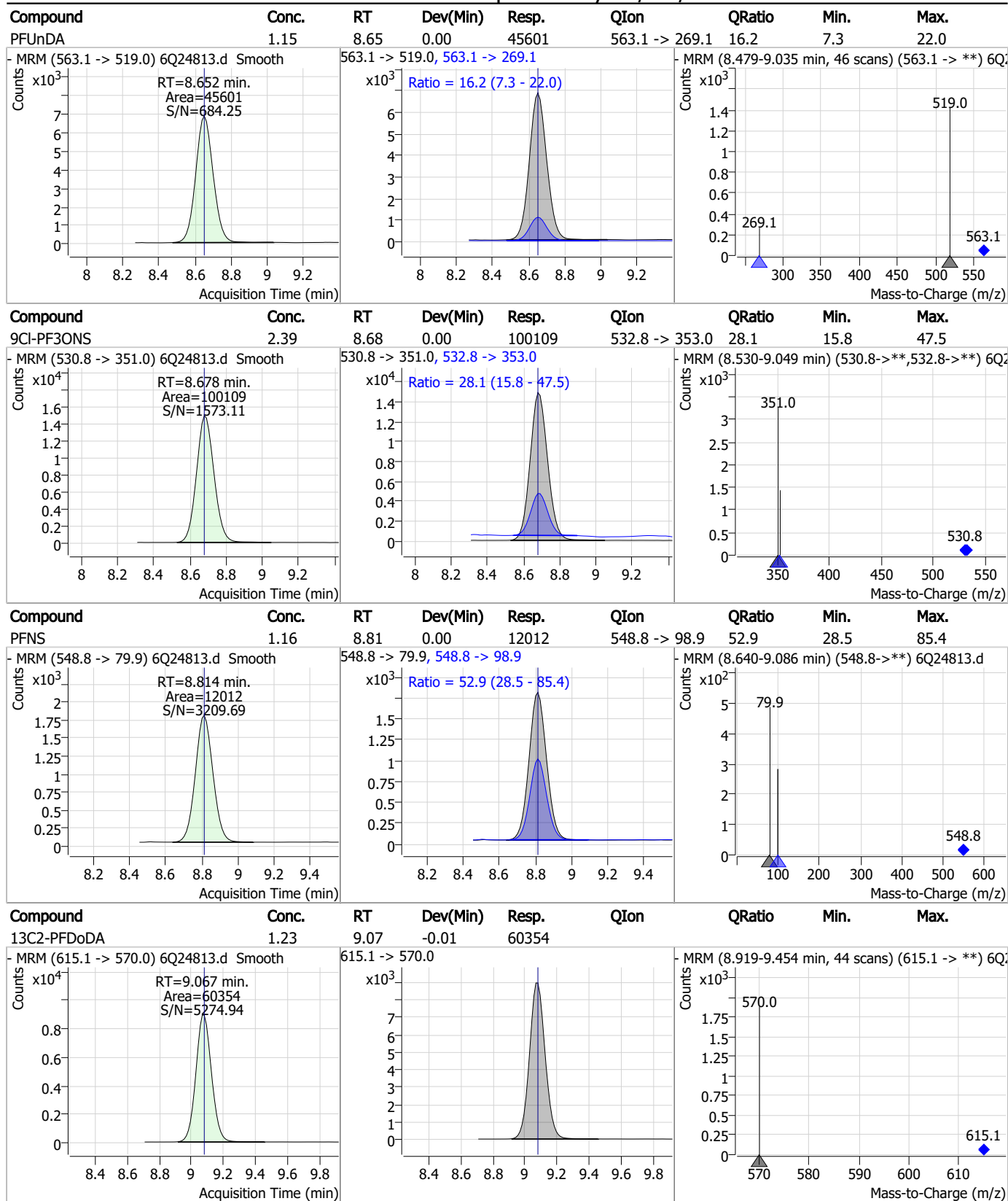
7

Perfluorinated Compounds by LC/MS/MS



7.7.4
7

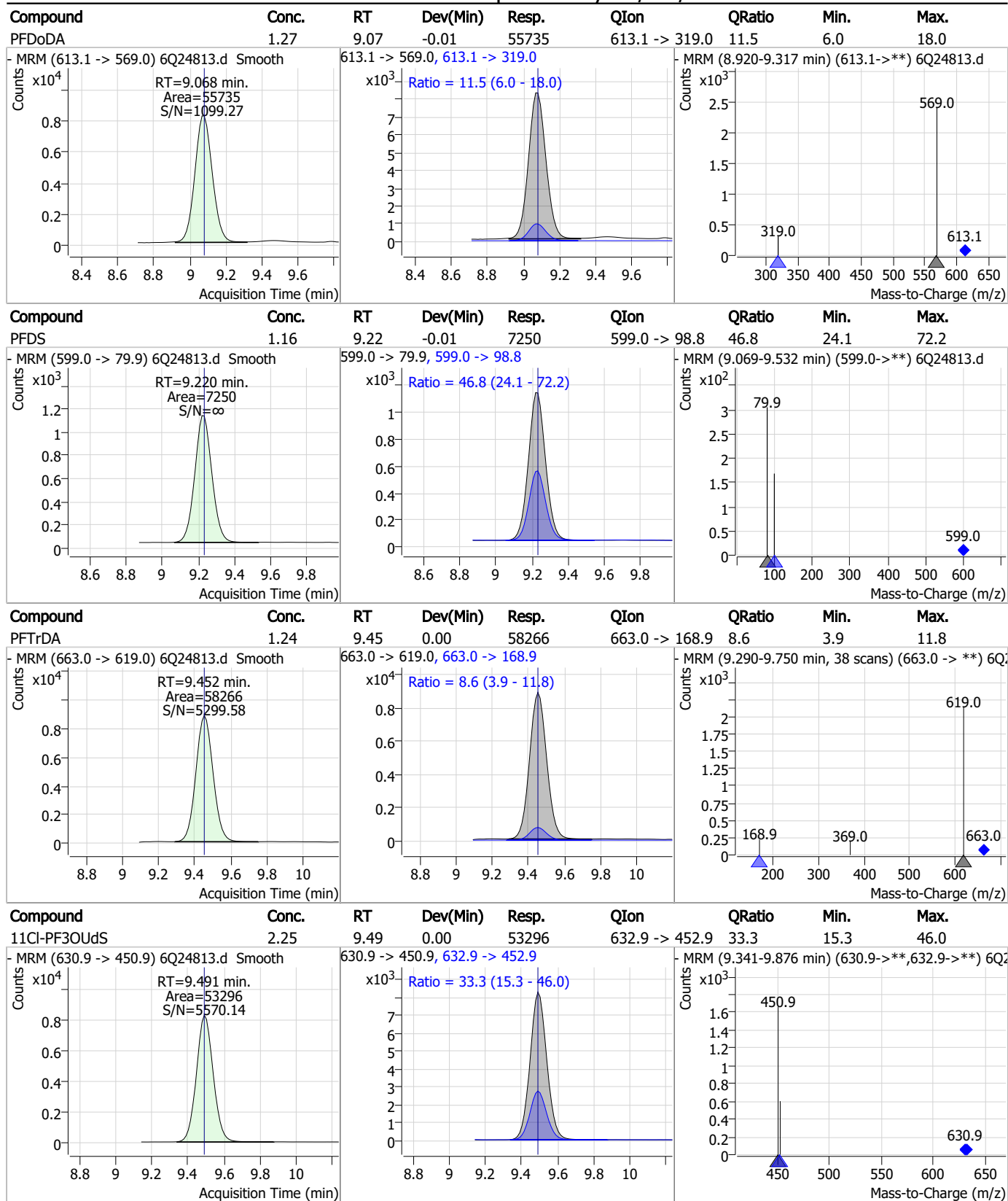
Perfluorinated Compounds by LC/MS/MS



7.7.4

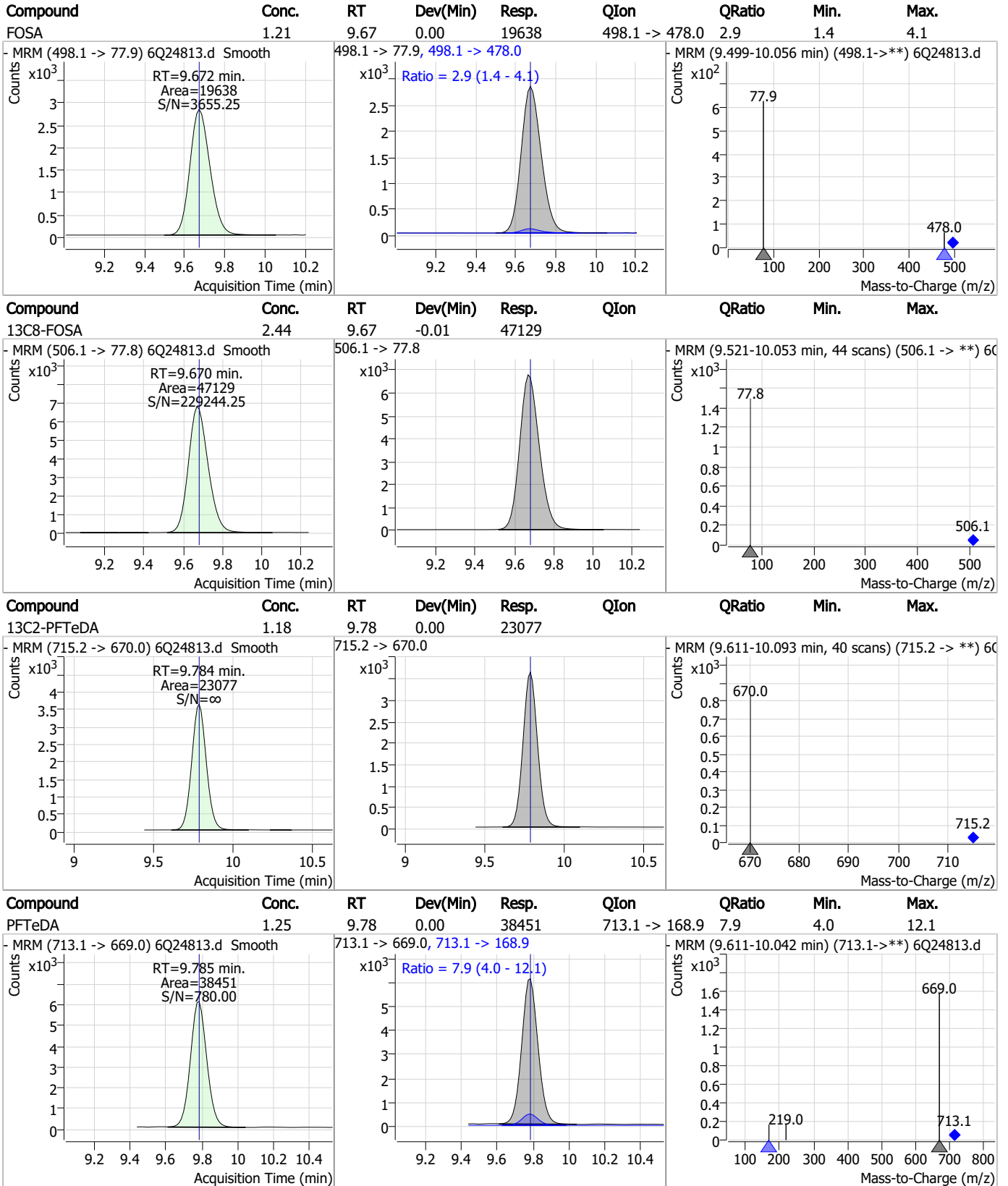
7

Perfluorinated Compounds by LC/MS/MS



7.7.4
7

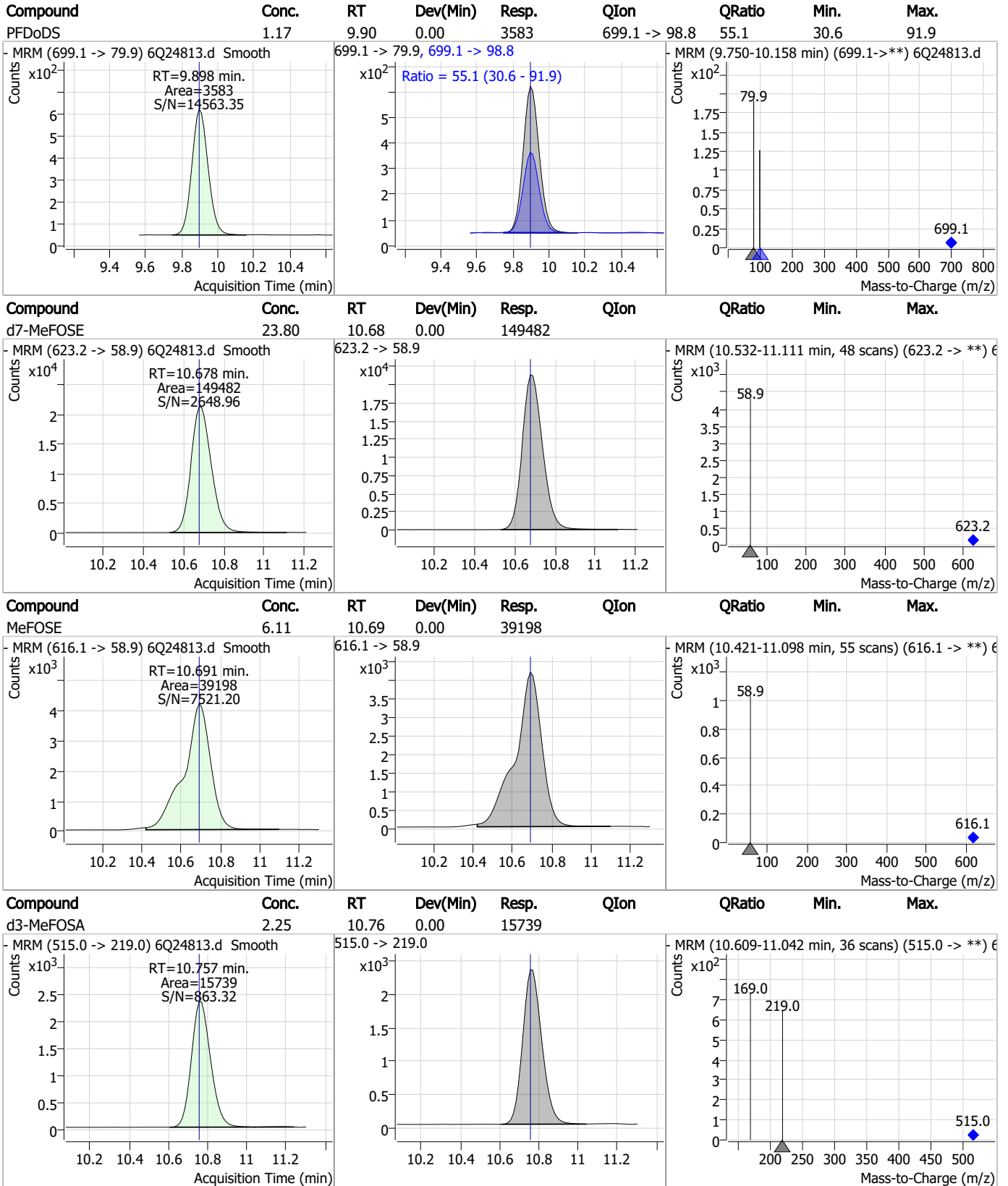
Perfluorinated Compounds by LC/MS/MS



7.7.4

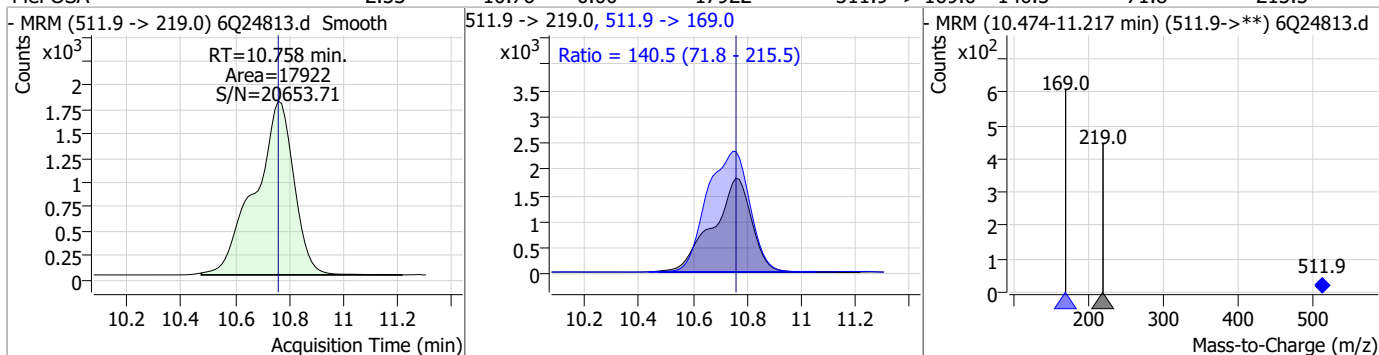
7

Perfluorinated Compounds by LC/MS/MS

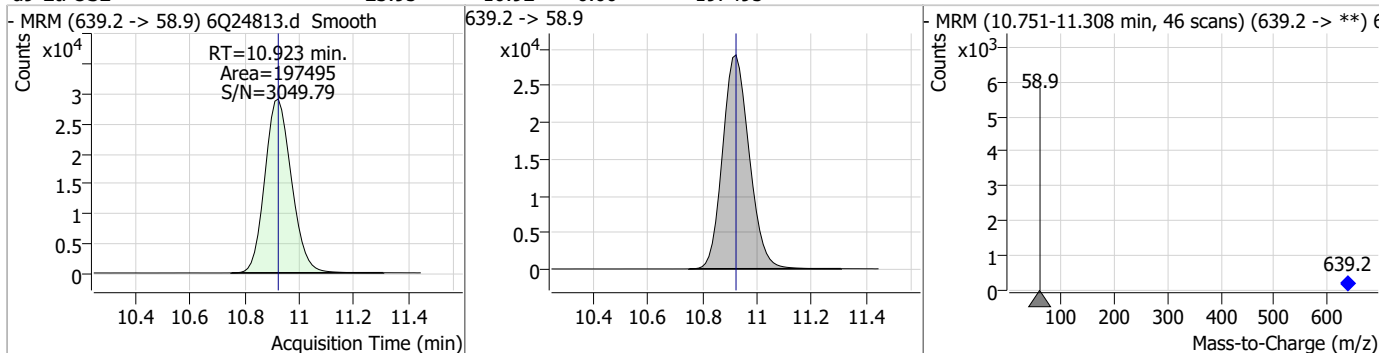


Perfluorinated Compounds by LC/MS/MS

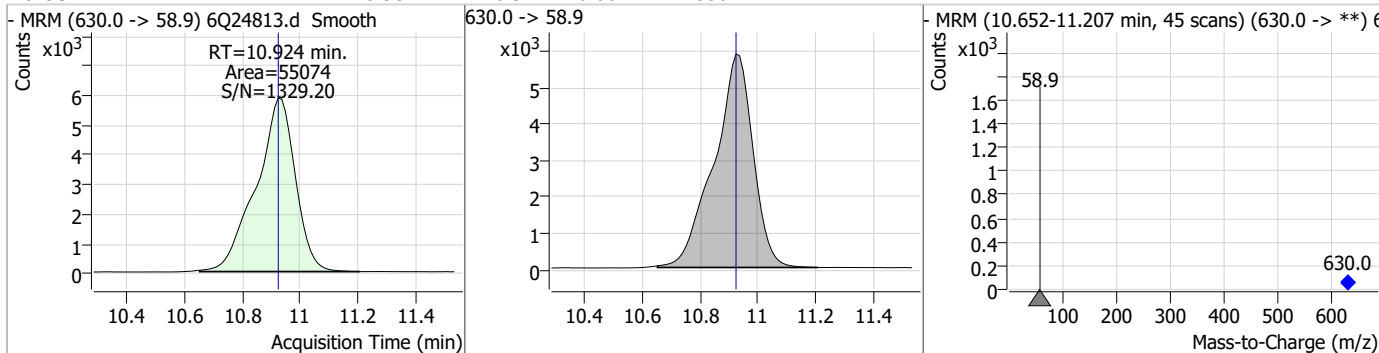
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.53	10.76	0.00	17922	511.9 -> 169.0	140.5	71.8	215.5



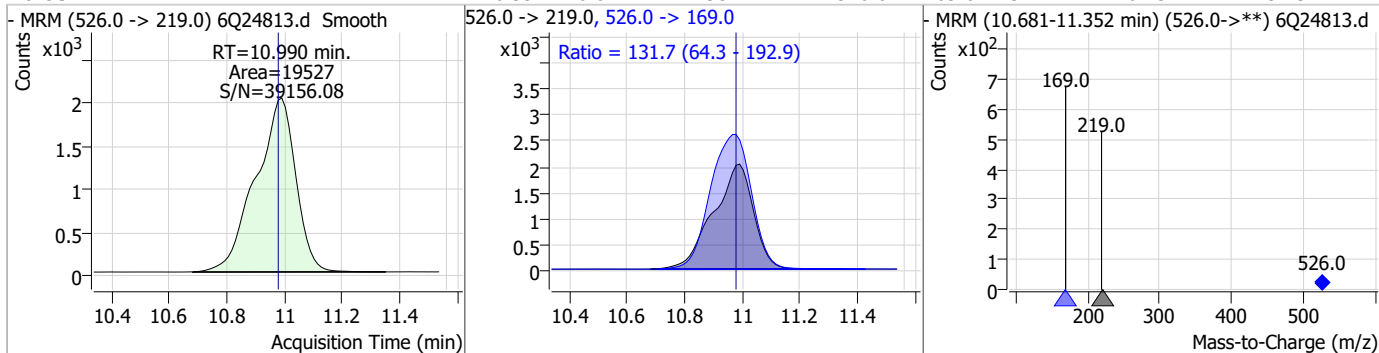
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.95	10.92	0.00	197495				



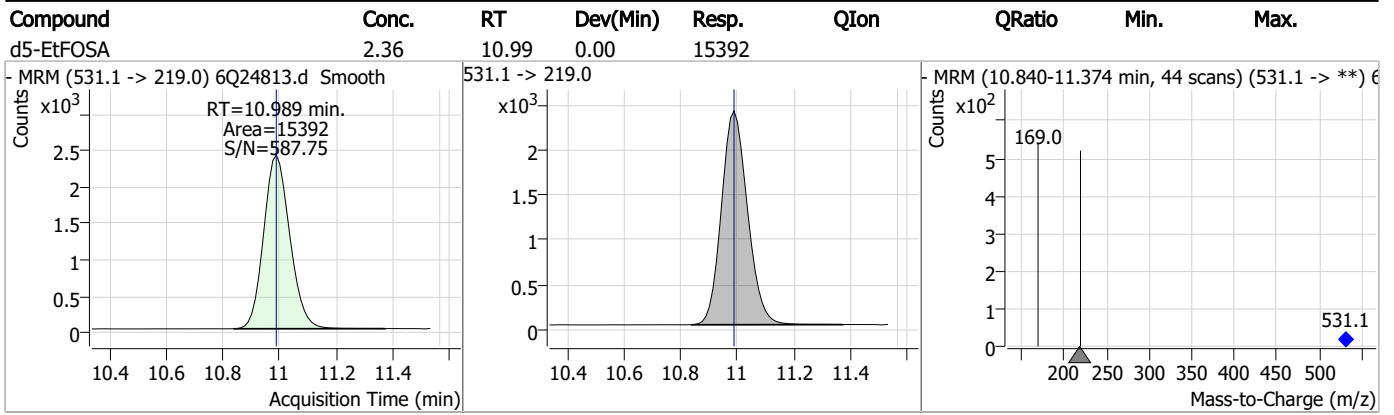
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	5.95	10.92	0.00	55074				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	2.41	10.99	0.01	19527	526.0 -> 169.0	131.7	64.3	192.9



Perfluorinated Compounds by LC/MS/MS



7.7.4

7

Manual Integration Approval Summary

Sample Number: S6Q355-IC355 Method: EPA DRAFT 1633
Lab FileID: 6Q24813.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 21:04 Supervisor approved: 09/22/23 13:16 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.7.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24814.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 9:18:55 PM
 Sample Name : icc355-4
 Vial : P1-A5
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	348134	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	56055	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	132642	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	106056	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	138831	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	56566	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	52884	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	65238	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	59737	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	24481	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	45886	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	42319	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	21641	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	19544	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	4618	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	6185	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	6278	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	37365	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	73119	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	32314	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	151989	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	189631	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	15280	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	15990	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	27921	2.50 µg/L	0.000
13C3-PFBA	3.001	216.0 -> 172.0	142360	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	16395	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	153238	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	47138	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	58191	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	96767	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	4618	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C2-6:2FTS	6.974	429.1 -> 80.9	6185	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C2-8:2FTS	7.986	529.1 -> 80.9	6278	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFDoDA	9.080	615.1 -> 570.0	59737	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFTeDA	9.784	715.2 -> 670.0	24481	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C3-PFBS	5.571	302.1 -> 79.9	42319	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C3-PFHxS	7.313	402.1 -> 79.9	21641	2.44 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 = 97.5%	
13C4-PFBA	3.010	216.8 -> 171.9	348134	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFHpA	6.569	367.1 -> 322.0	106056	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFHxA	5.641	318.0 -> 273.0	132642	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C5-PFPeA	4.434	268.3 -> 223.0	56055	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C6-PFDA	8.198	519.1 -> 474.1	52884	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C7-PFUnDA	8.651	570.0 -> 525.1	65238	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-FOSA	9.682	506.1 -> 77.8	45886	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C8-PFOA	7.198	421.1 -> 376.0	138831	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-PFOS	8.348	507.1 -> 79.9	19544	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C9-PFNA	7.717	472.1 -> 427.0	56566	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.2%	
d3-MeFOSAA	8.256	573.2 -> 419.0	37365	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	73119	10.19 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d3-MeFOSA	10.757	515.0 -> 219.0	15990	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
d5-EtFOSAA	8.452	589.2 -> 419.0	32314	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d7-MeFOSE	10.678	623.2 -> 58.9	151989	25.51 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d9-EtFOSE	10.923	639.2 -> 58.9	189631	24.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
d5-EtFOSA	10.989	531.1 -> 219.0	15280	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	61256	8.19 µg/L	100
		327.1 -> 80.9	23426		
6:2FTS	6.974	427.1 -> 407.0	51294	8.97 µg/L	100
		427.1 -> 80.9	19321		
8:2FTS	7.999	527.1 -> 507.0	38391	9.63 µg/L	100
		527.1 -> 80.8	12406		
EtFOSAA	8.452	584.2 -> 419.1	10874	2.23 µg/L	100
		584.2 -> 526.0	7048	m	
FOSA	9.672	498.1 -> 77.9	34747	2.19 µg/L	100
		498.1 -> 478.0	950		
MeFOSAA	8.257	570.1 -> 419.0	18483	2.18 µg/L	100
		570.1 -> 483.0	4441		
PFBA	3.006	212.8 -> 168.9	94327	8.79 µg/L	100
PFBS	5.572	298.7 -> 79.9	38761	1.93 µg/L	100
		298.7 -> 98.8	14099		
PFDA	8.198	512.9 -> 469.0	110632	2.34 µg/L	100
		512.9 -> 219.0	18398		
PFDODA	9.080	613.1 -> 569.0	96097	2.21 µg/L	100
		613.1 -> 319.0	11542		
PFDS	9.233	599.0 -> 79.9	13064	2.28 µg/L	100

7.7.5
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.582	599.0 -> 98.8	6289	2.10	µg/L	100
		363.1 -> 319.0	113272			
PFHpS	7.856	363.1 -> 169.0	18221	2.33	µg/L	100
		449.0 -> 79.9	22268			
PFHxA	5.644	449.0 -> 98.9	10478	2.07	µg/L	100
		313.0 -> 269.0	95259			
PFHxS	7.302	313.0 -> 118.9	4453	2.11	µg/L	m
		398.7 -> 79.9	29479			
PFNA	7.717	398.7 -> 98.9	14041	2.25	µg/L	100
		463.0 -> 419.0	81843			
PFNS	8.814	463.0 -> 219.0	19653	2.15	µg/L	100
		548.8 -> 79.9	20378			
PFOA	7.200	548.8 -> 98.9	11606	2.24	µg/L	100
		413.0 -> 369.0	143160			
PFOS	8.350	413.0 -> 169.0	24910	2.09	µg/L	m
		498.9 -> 79.9	23099			
PFPeA	4.436	498.9 -> 98.8	11994	4.36	µg/L	100
		263.0 -> 219.0	120346			
PFPeS	6.620	349.1 -> 79.9	24909	2.14	µg/L	100
		349.1 -> 98.9	12160			
PFTeDA	9.785	713.1 -> 669.0	69808	2.13	µg/L	100
		713.1 -> 168.9	5652			
PFTrDA	9.452	663.0 -> 619.0	104385	2.25	µg/L	100
		663.0 -> 168.9	8178			
PFUnDA	8.652	563.1 -> 519.0	87804	2.32	µg/L	100
		563.1 -> 269.1	12851			
11CI-PF3OUdS	9.491	630.9 -> 450.9	103490	4.36	µg/L	100
		632.9 -> 452.9	31727			
9CI-PF3ONS	8.678	530.8 -> 351.0	177491	4.24	µg/L	100
		532.8 -> 353.0	56158			
ADONA	6.817	376.9 -> 250.9	455506	4.22	µg/L	100
		376.9 -> 84.8	121017			
HFPO-DA	6.020	284.9 -> 168.9	30404	4.38	µg/L	100
		284.9 -> 184.9	4329			
3:3FTCA	3.902	241.0 -> 177.0	20815	11.12	µg/L	100
		241.0 -> 117.0	1971			
5:3FTCA	6.296	341.0 -> 237.1	446899	55.23	µg/L	100
		341.0 -> 217.0	320835			
7:3FTCA	7.669	441.0 -> 316.9	264785	56.09	µg/L	100
		441.0 -> 336.9	600329			
EtFOSA	10.978	526.0 -> 219.0	37046	4.61	µg/L	100
		526.0 -> 169.0	47638			
EtFOSE	10.924	630.0 -> 58.9	104074	11.71	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	33057	4.59	µg/L	100
		511.9 -> 169.0	47484			
MeFOSE	10.691	616.1 -> 58.9	69840	10.70	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	6171	2.19	µg/L	100
		699.1 -> 98.8	3779			
NFDHA	5.524	295.0 -> 201.0	23352	4.28	µg/L	100
		295.0 -> 84.9	5956			
PFMBA	4.850	279.0 -> 85.1	87494	4.48	µg/L	100
PFMPA	3.563	229.0 -> 84.9	64649	4.47	µg/L	100
PFEESA	6.112	314.8 -> 134.9	235516	3.88	µg/L	100
		314.8 -> 82.9	7909			

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

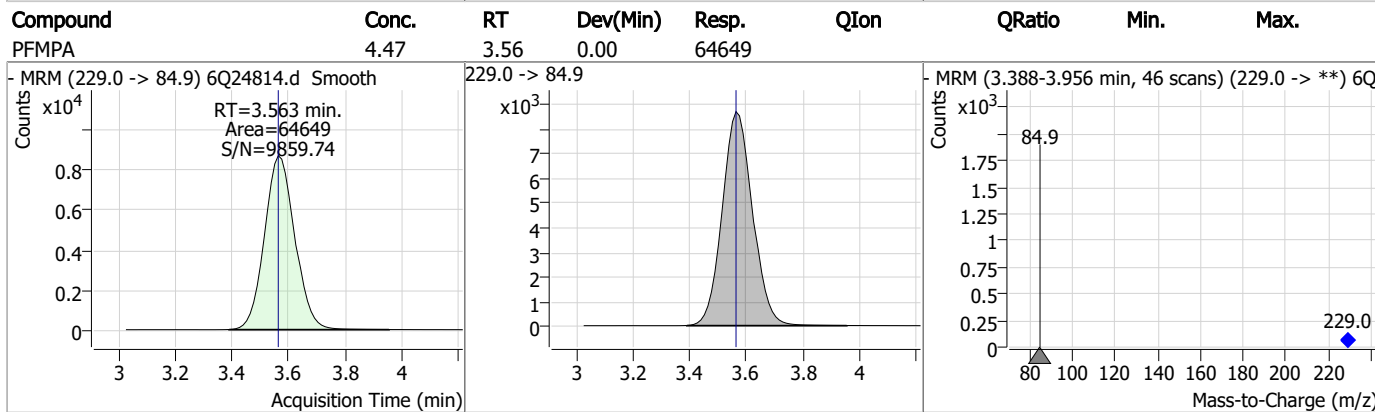
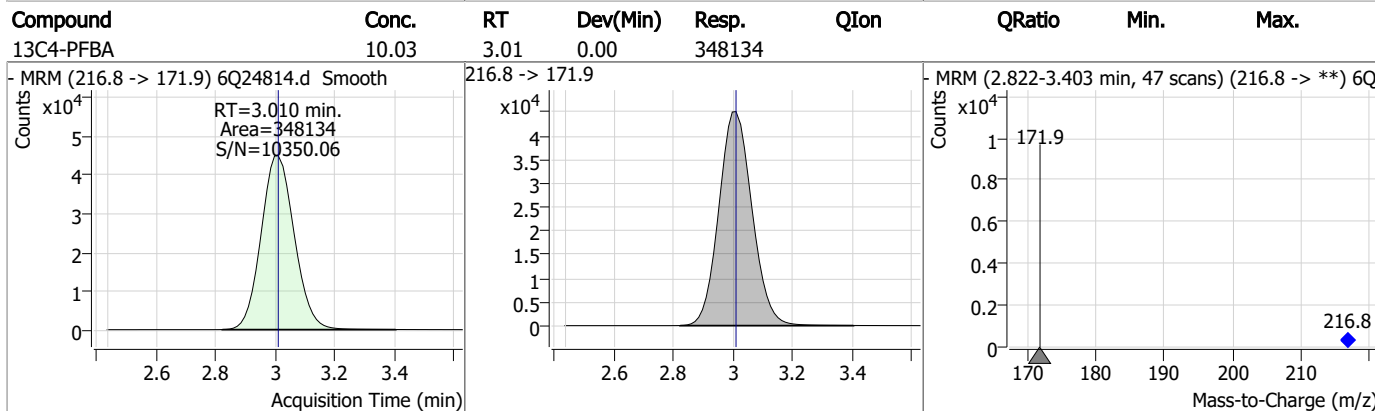
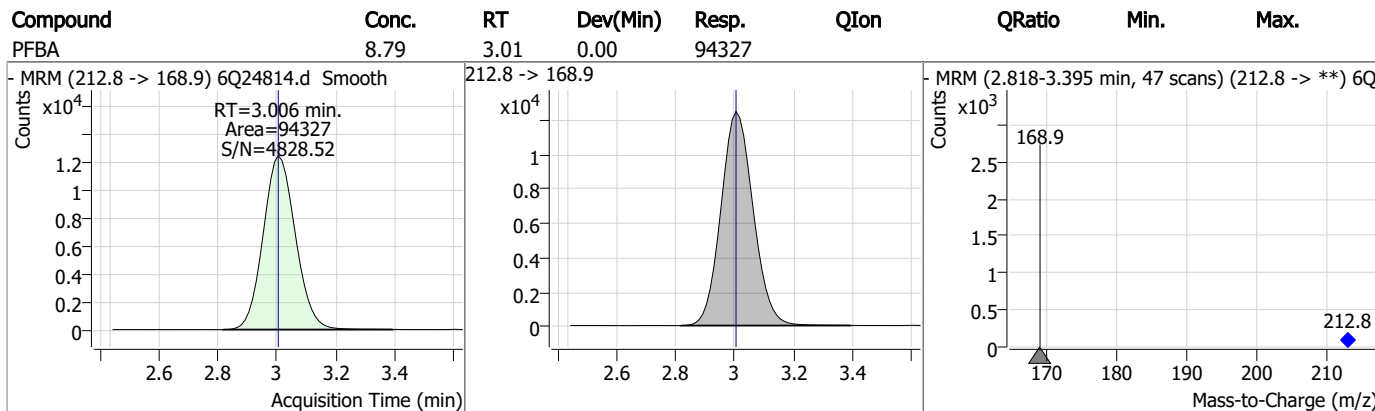
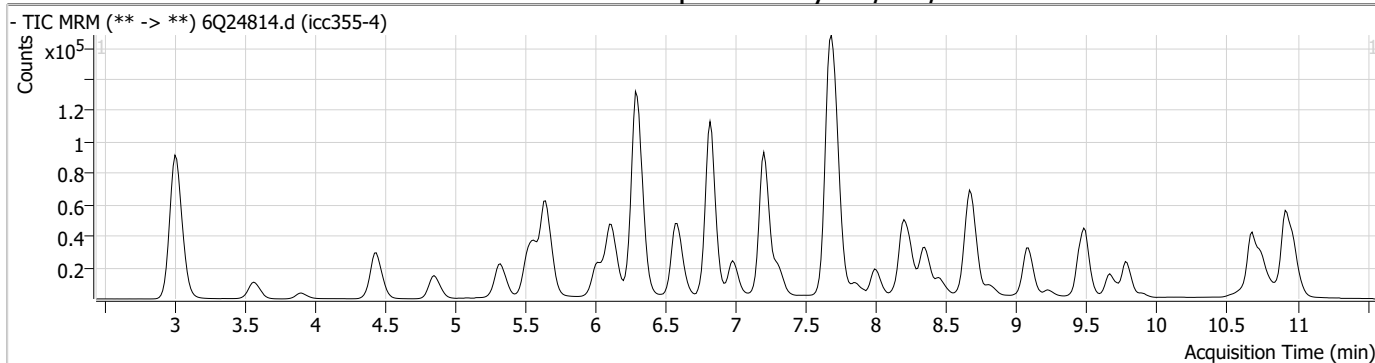
Perfluorinated Compounds by LC/MS/MS

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

7.7.5

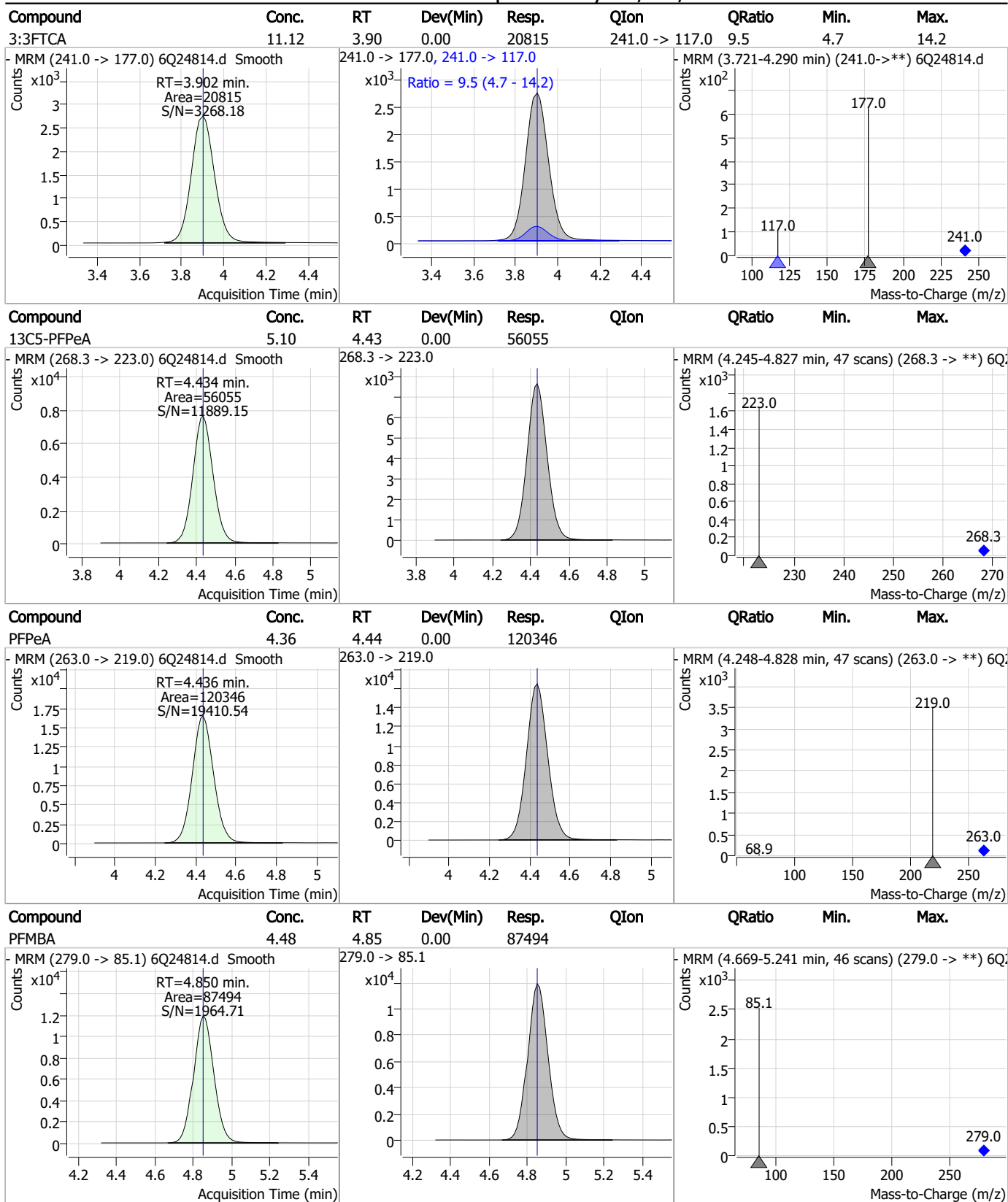
7

Perfluorinated Compounds by LC/MS/MS



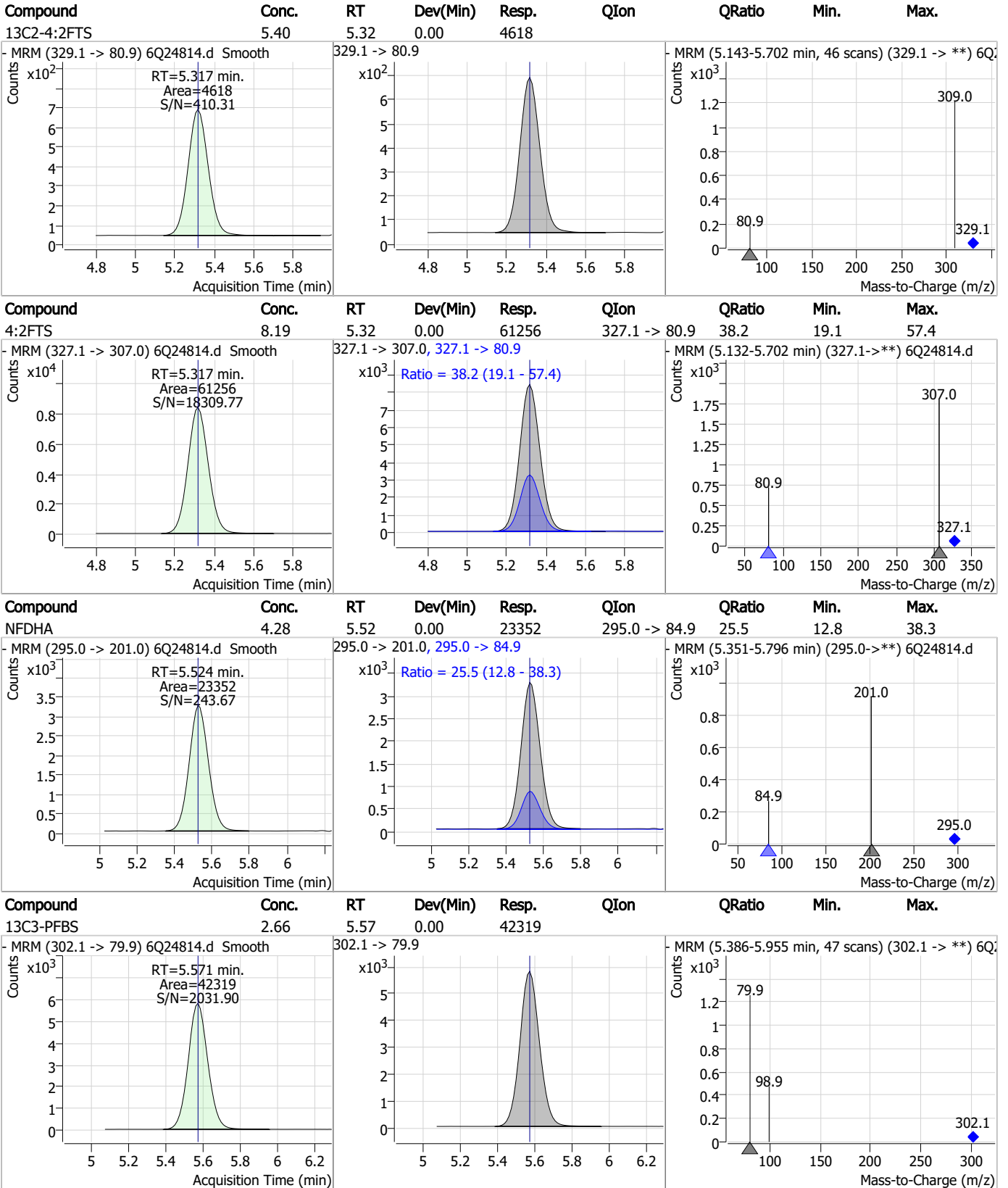
7.7.5
7

Perfluorinated Compounds by LC/MS/MS



7.7.5
7

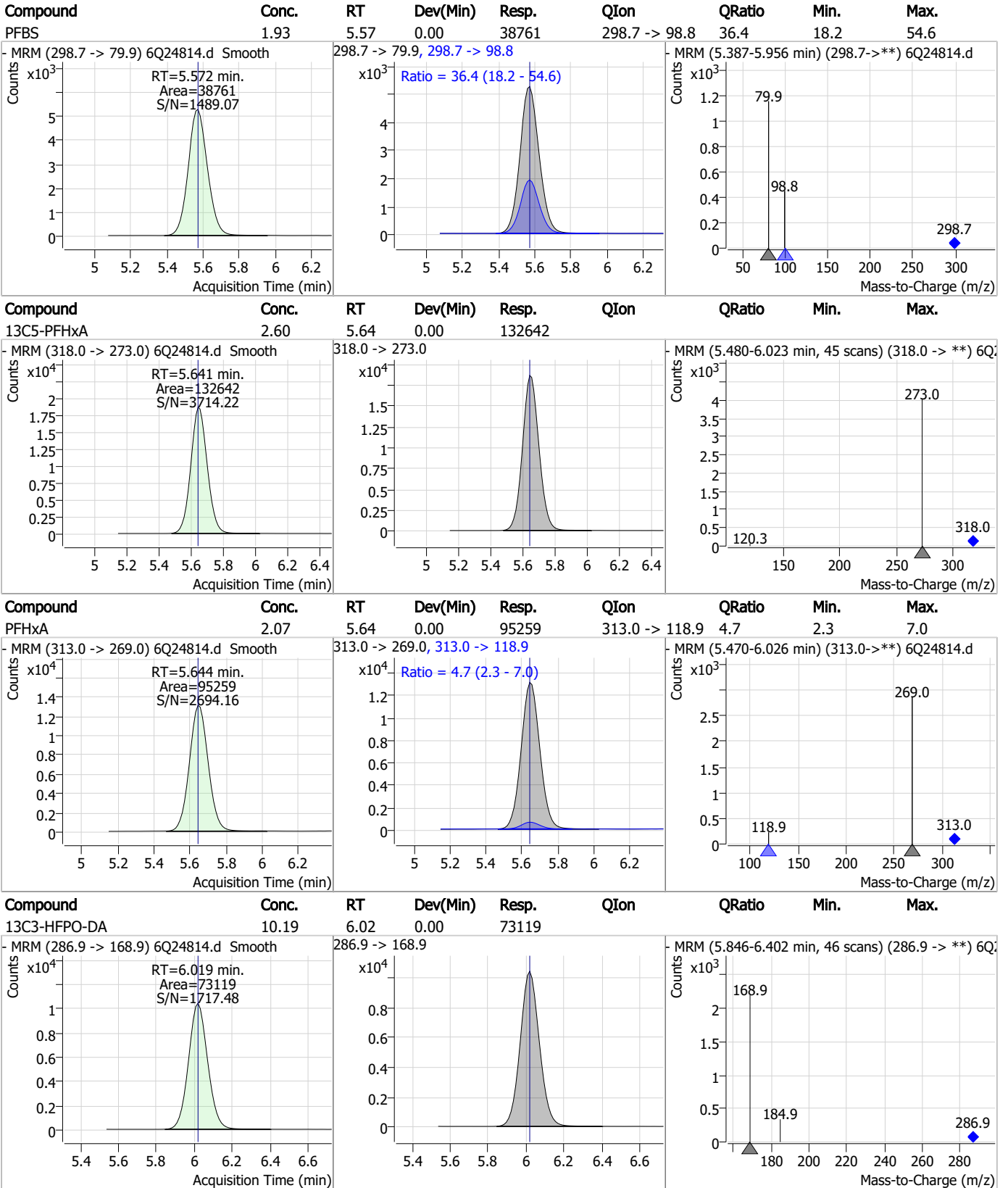
Perfluorinated Compounds by LC/MS/MS



7.7.5

7

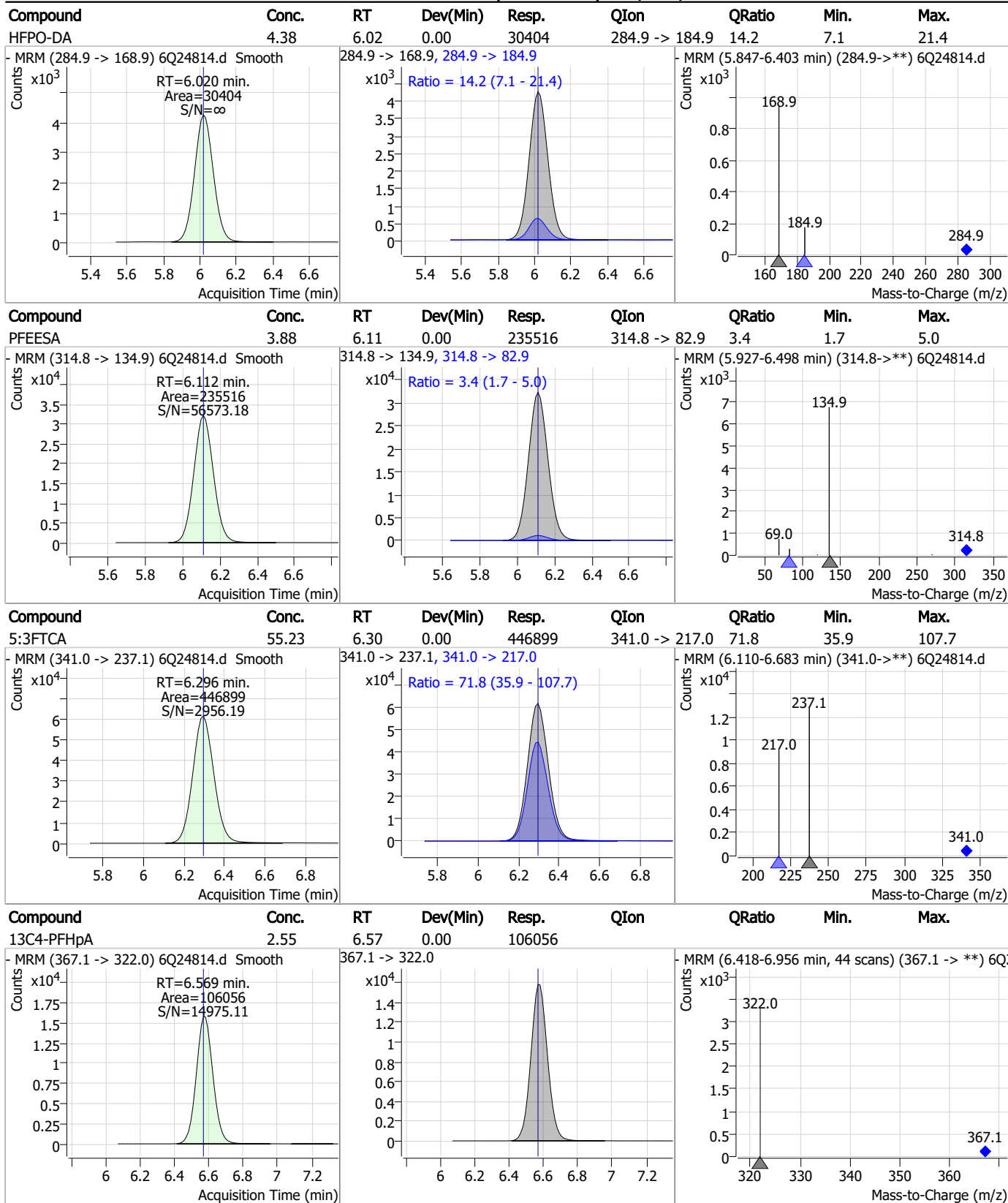
Perfluorinated Compounds by LC/MS/MS



7.7.5

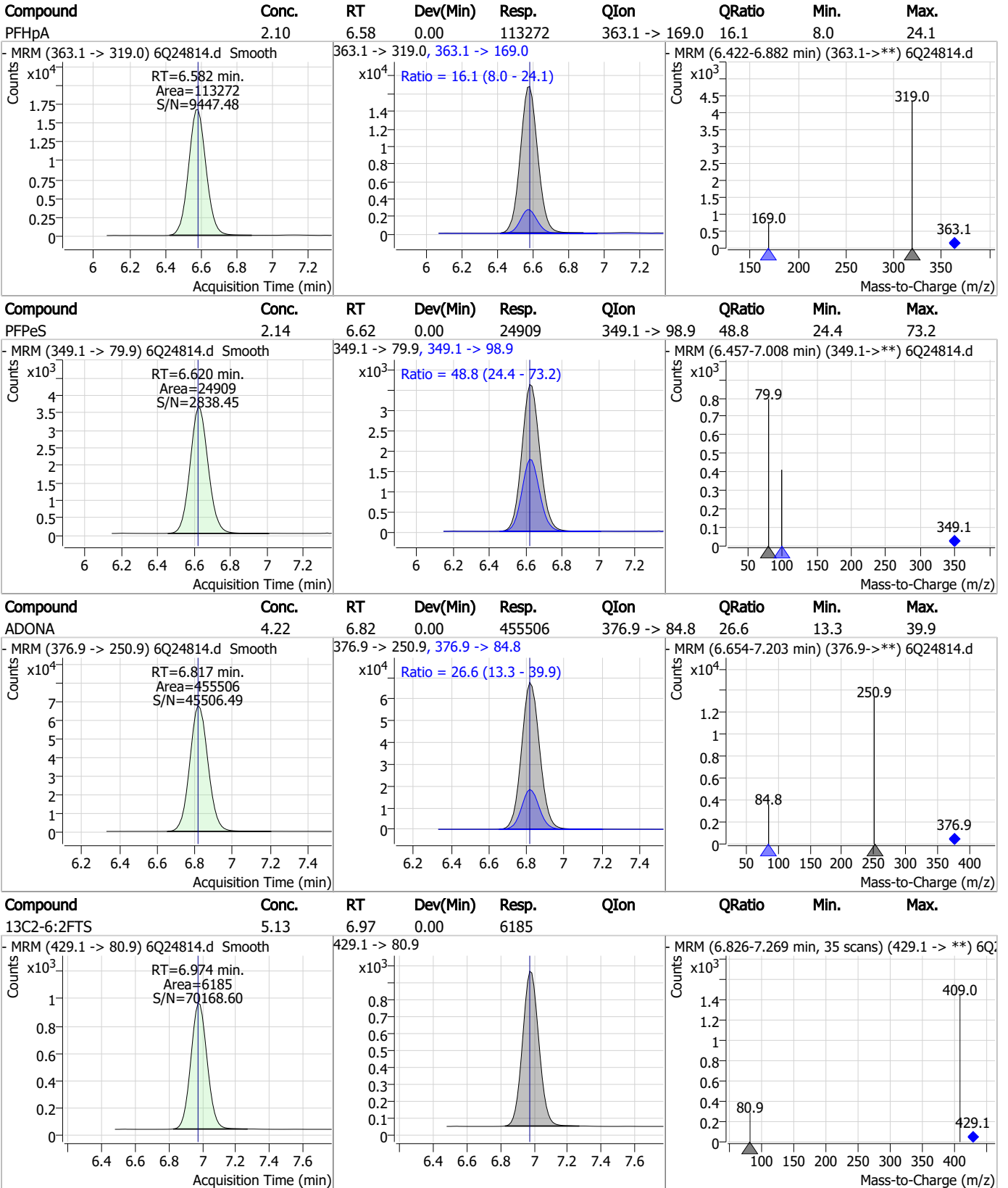
7

Perfluorinated Compounds by LC/MS/MS



7.7.5
7

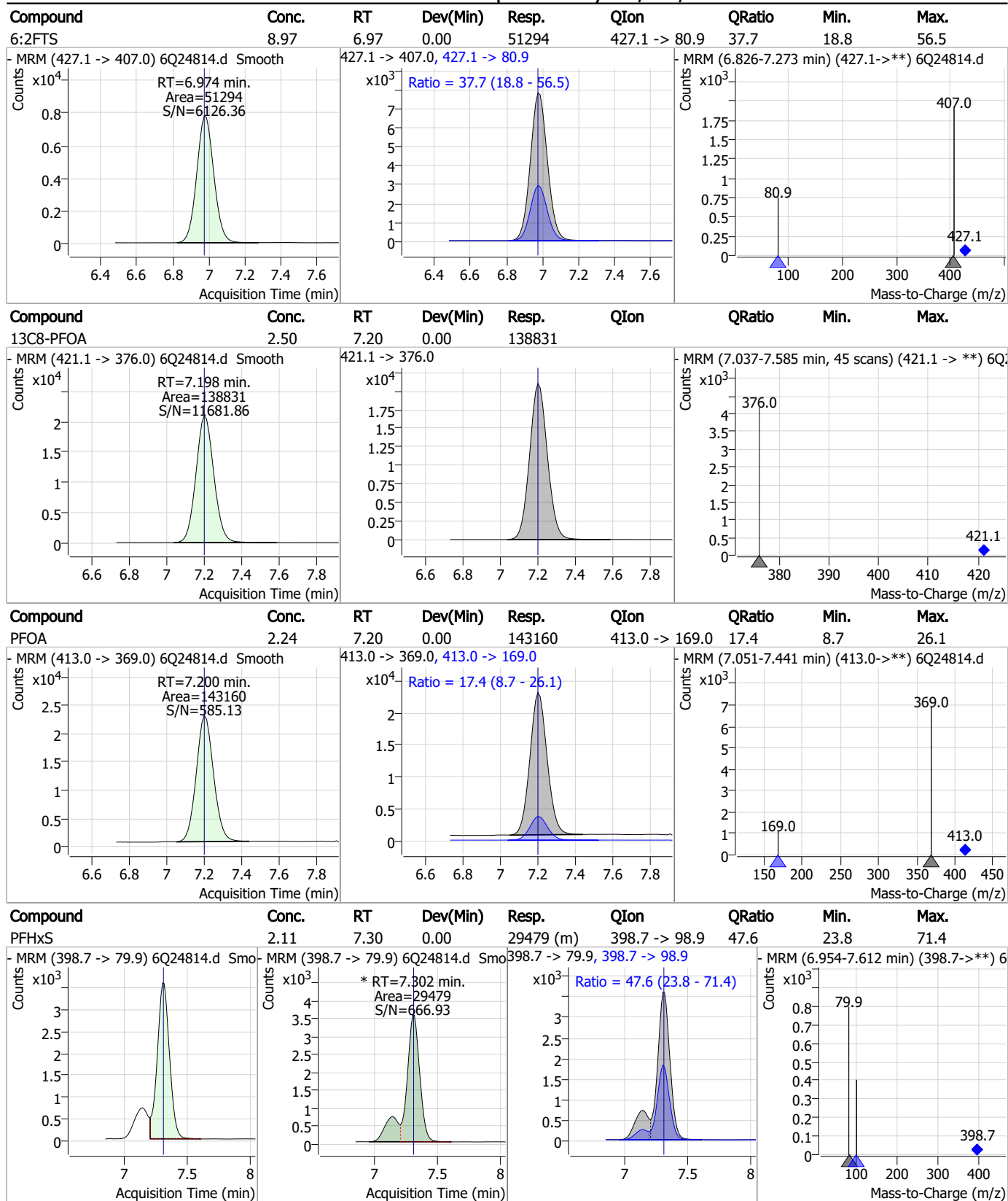
Perfluorinated Compounds by LC/MS/MS



7.7.5

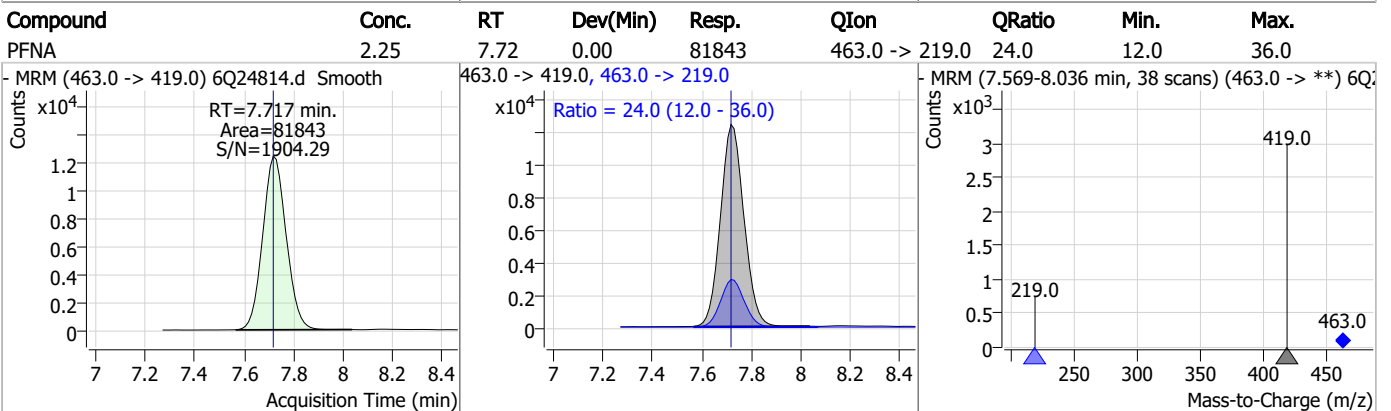
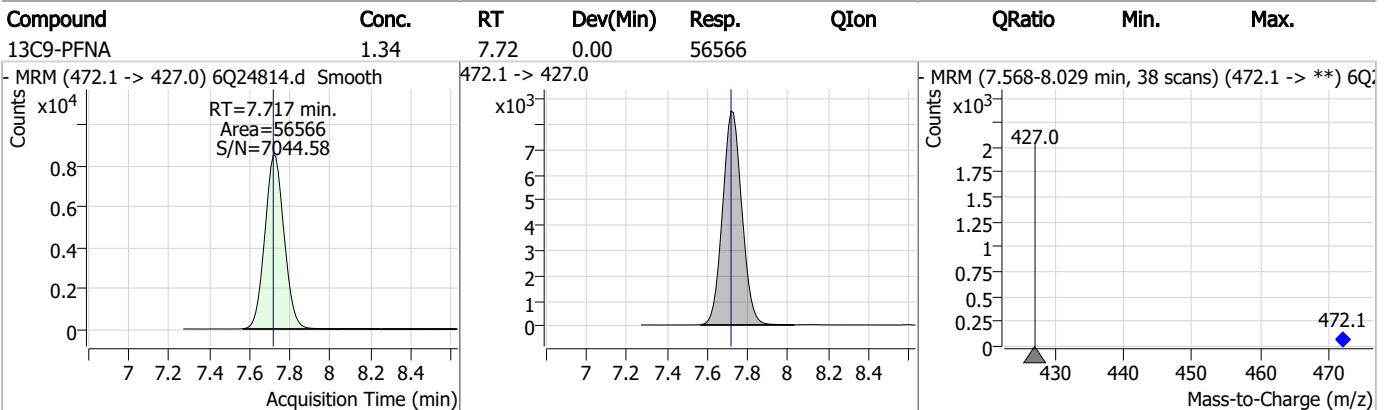
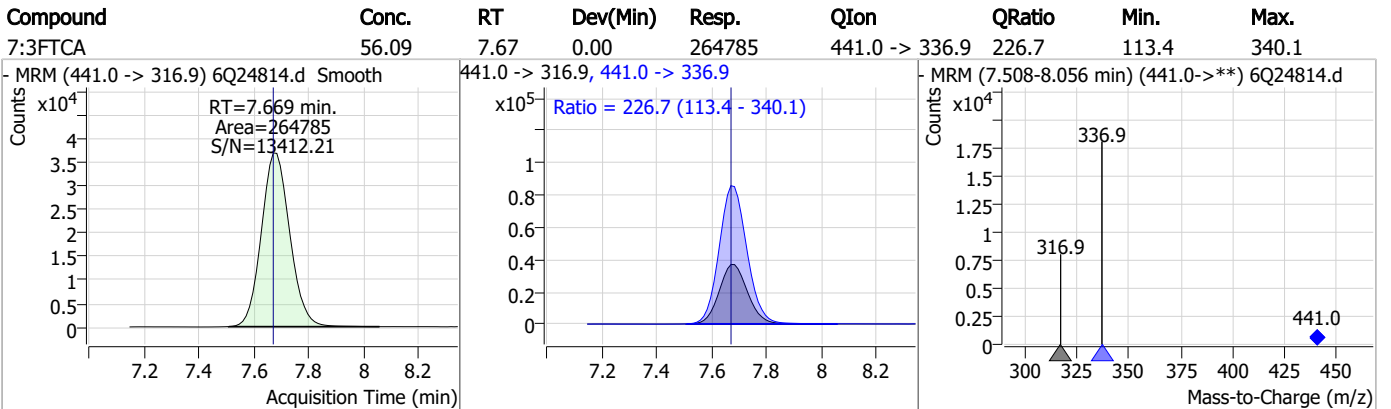
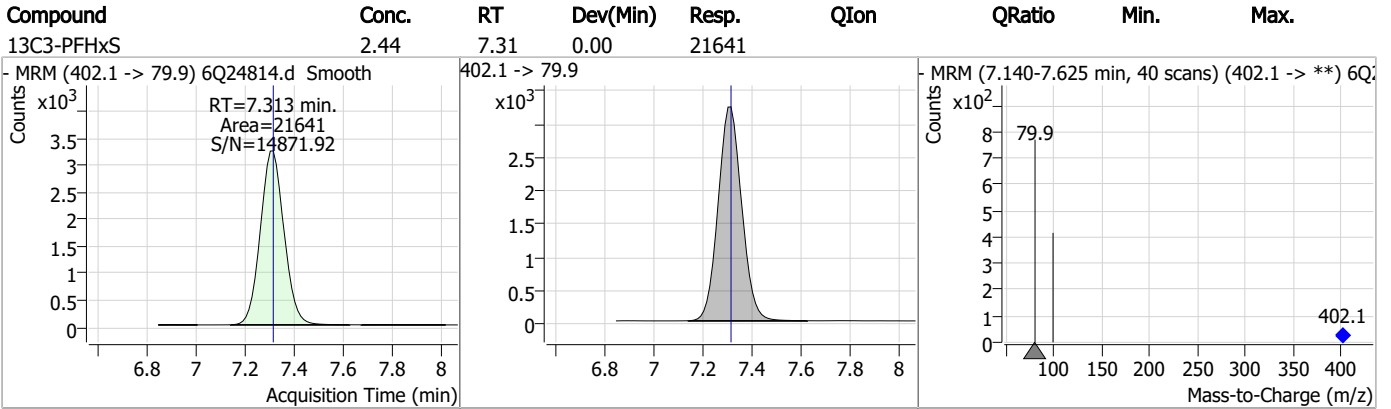
7

Perfluorinated Compounds by LC/MS/MS



7.7.5
7

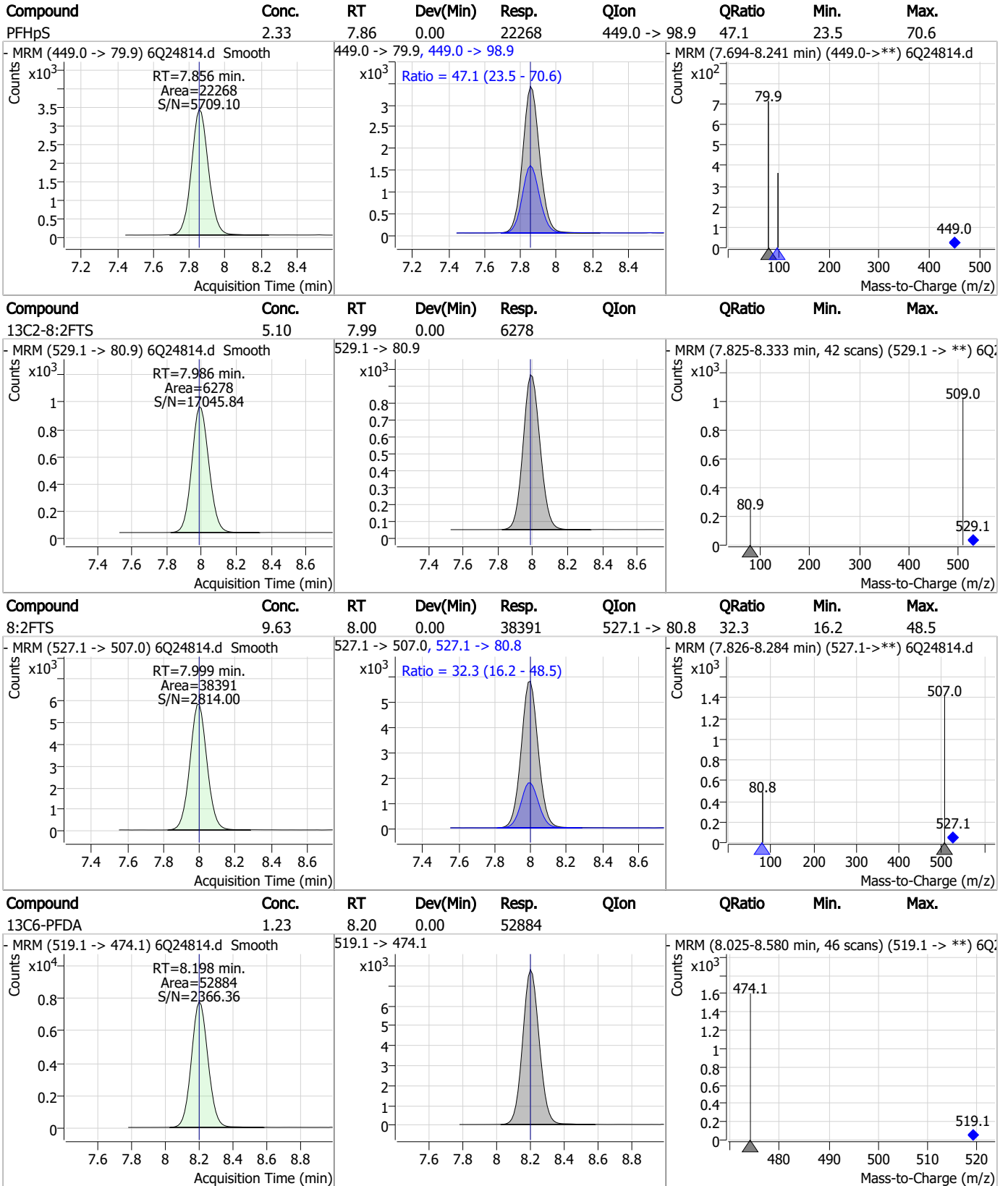
Perfluorinated Compounds by LC/MS/MS



7.7.5

7

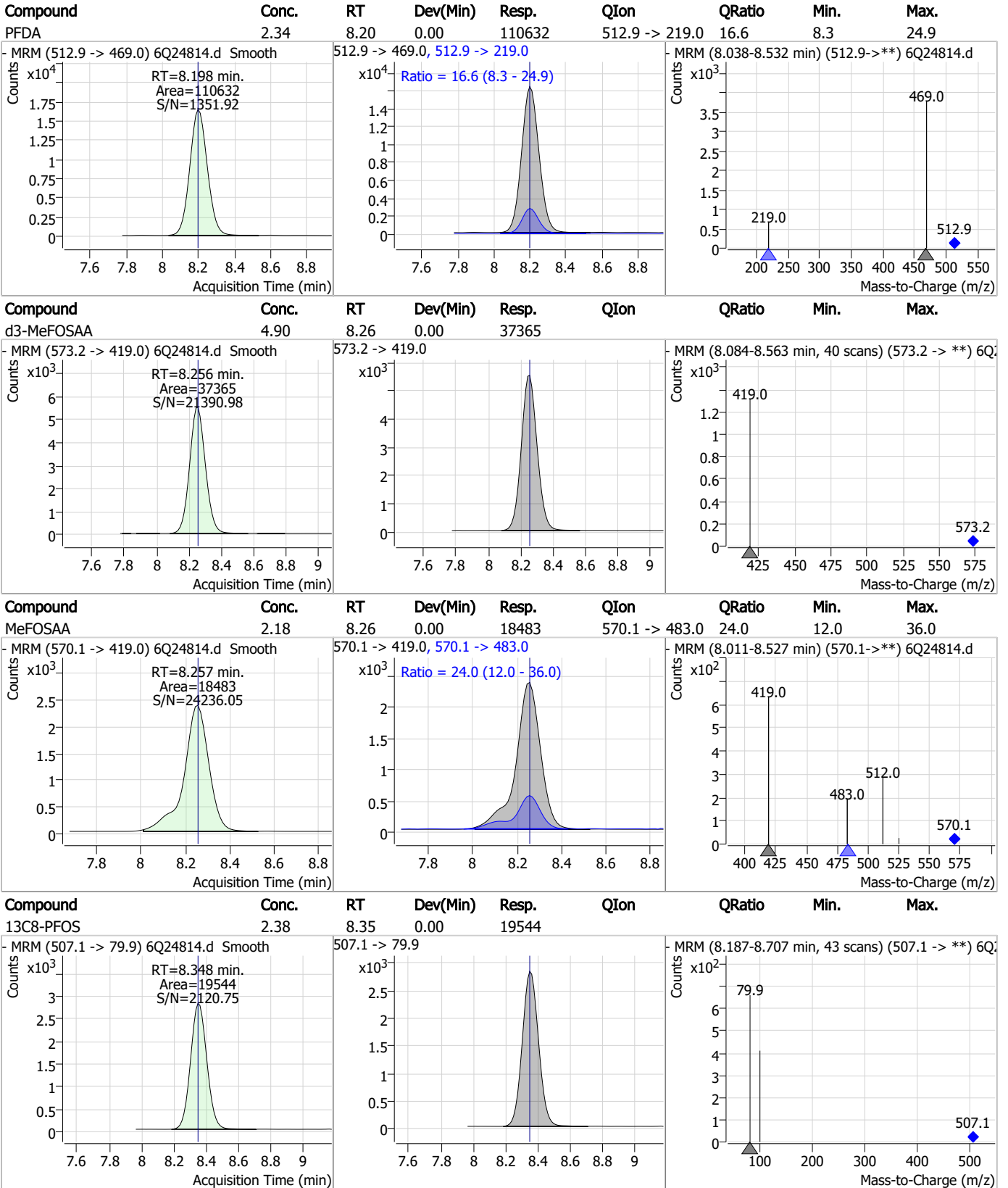
Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Perfluorinated Compounds by LC/MS/MS

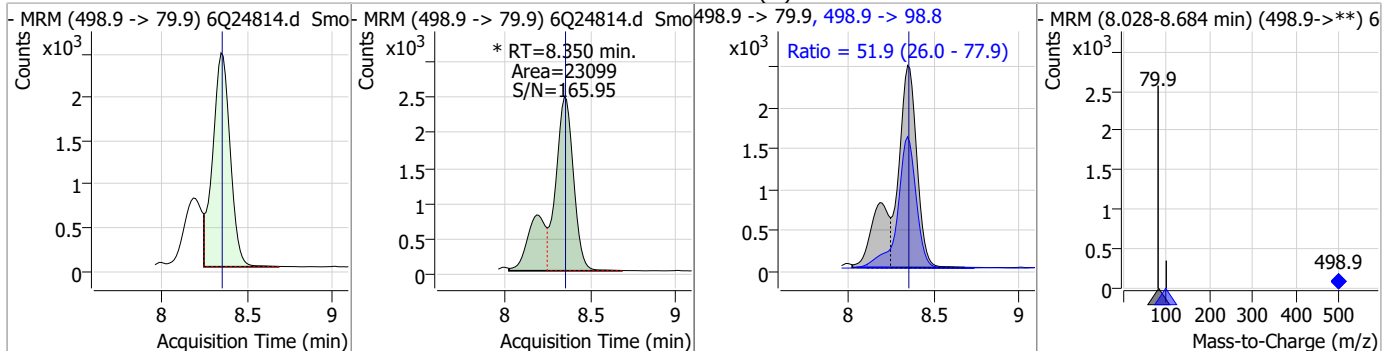


7.7.5

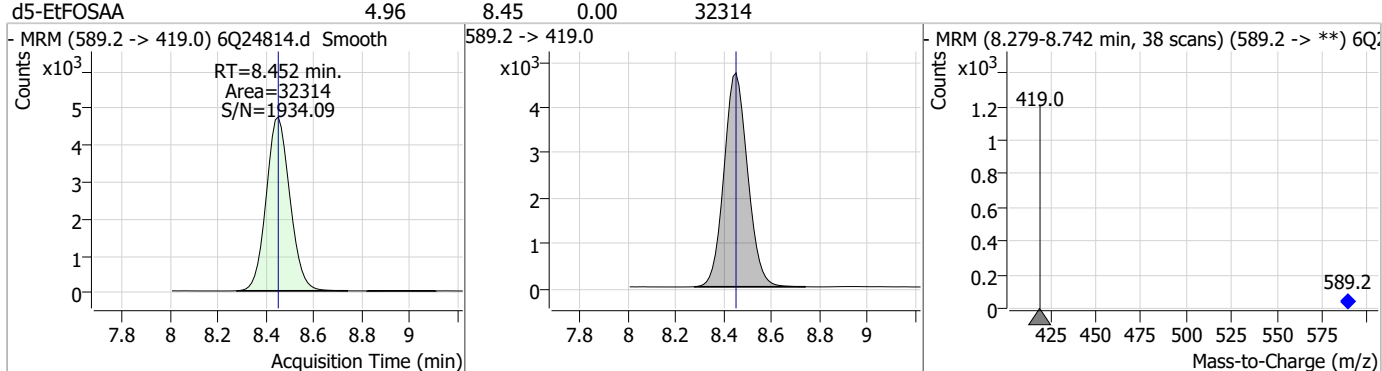
7

Perfluorinated Compounds by LC/MS/MS

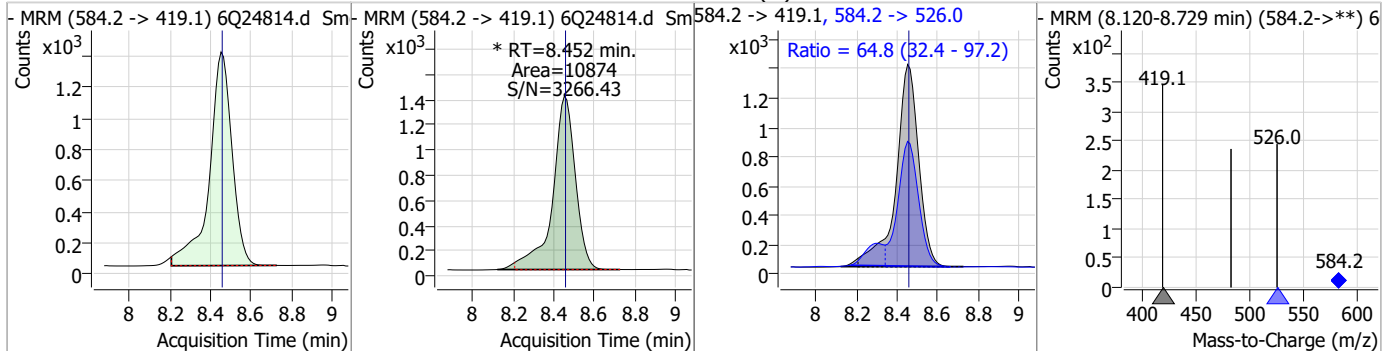
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.09	8.35	0.00	23099 (m)	498.9 -> 98.8	51.9	26.0	77.9



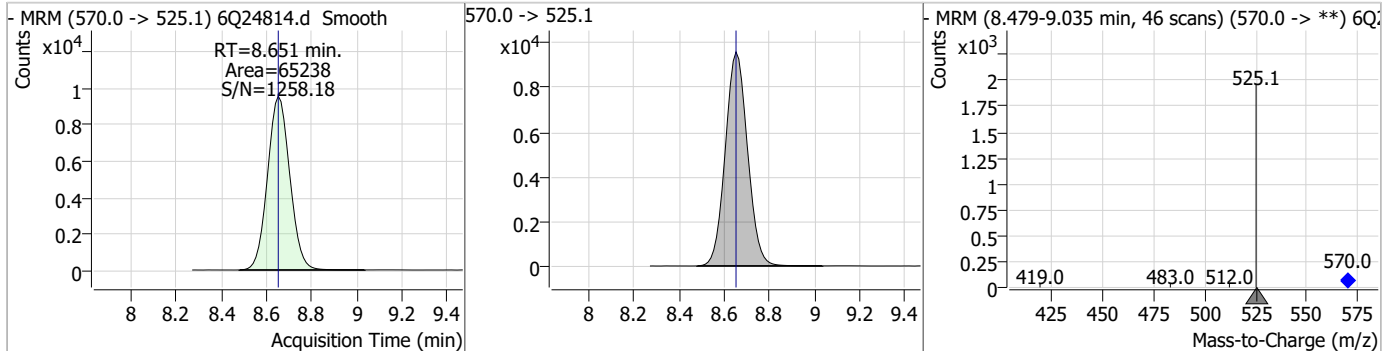
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.96	8.45	0.00	32314				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.23	8.45	0.00	10874 (m)	584.2 -> 526.0	64.8	32.4	97.2

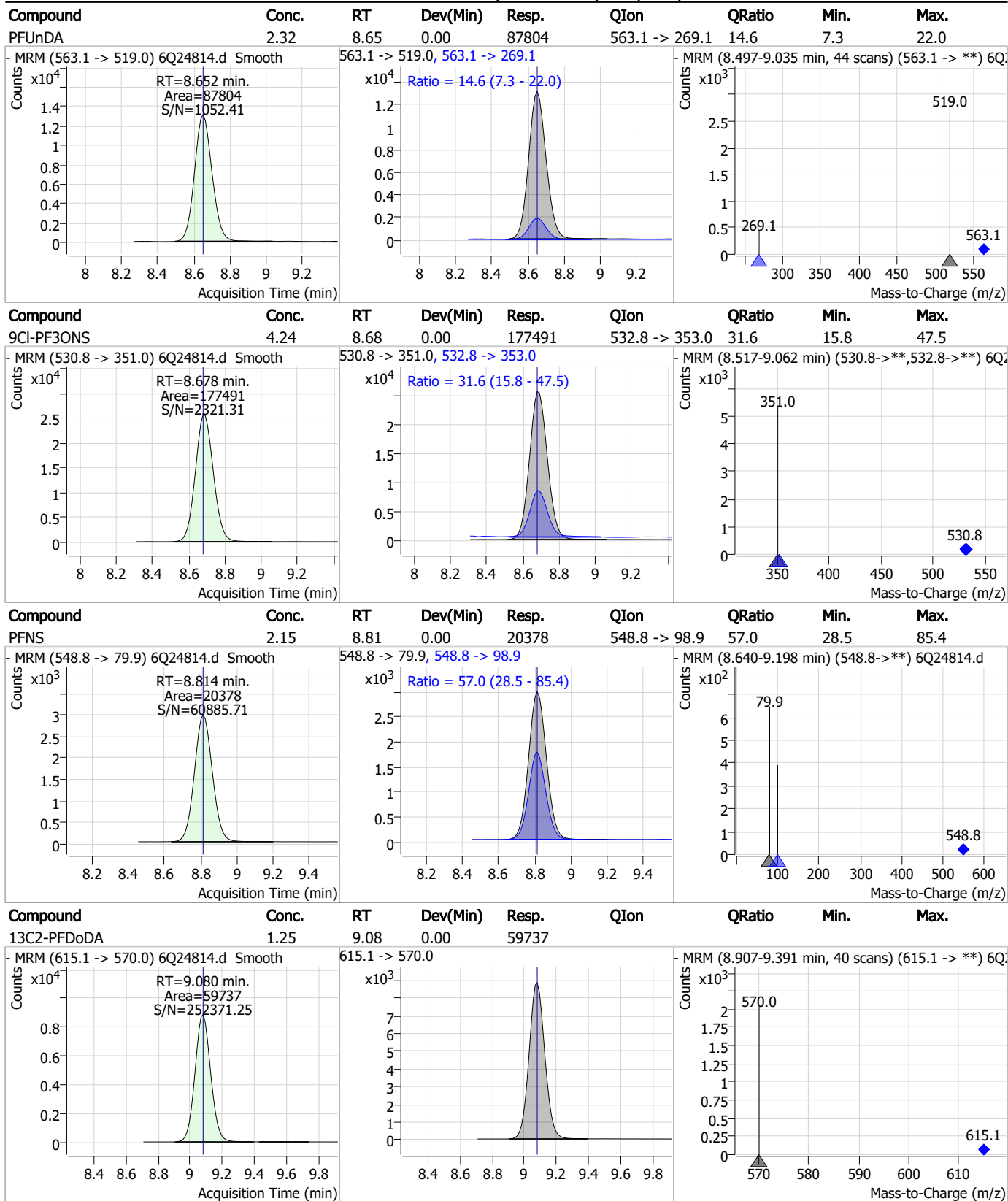


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.29	8.65	0.00	65238				



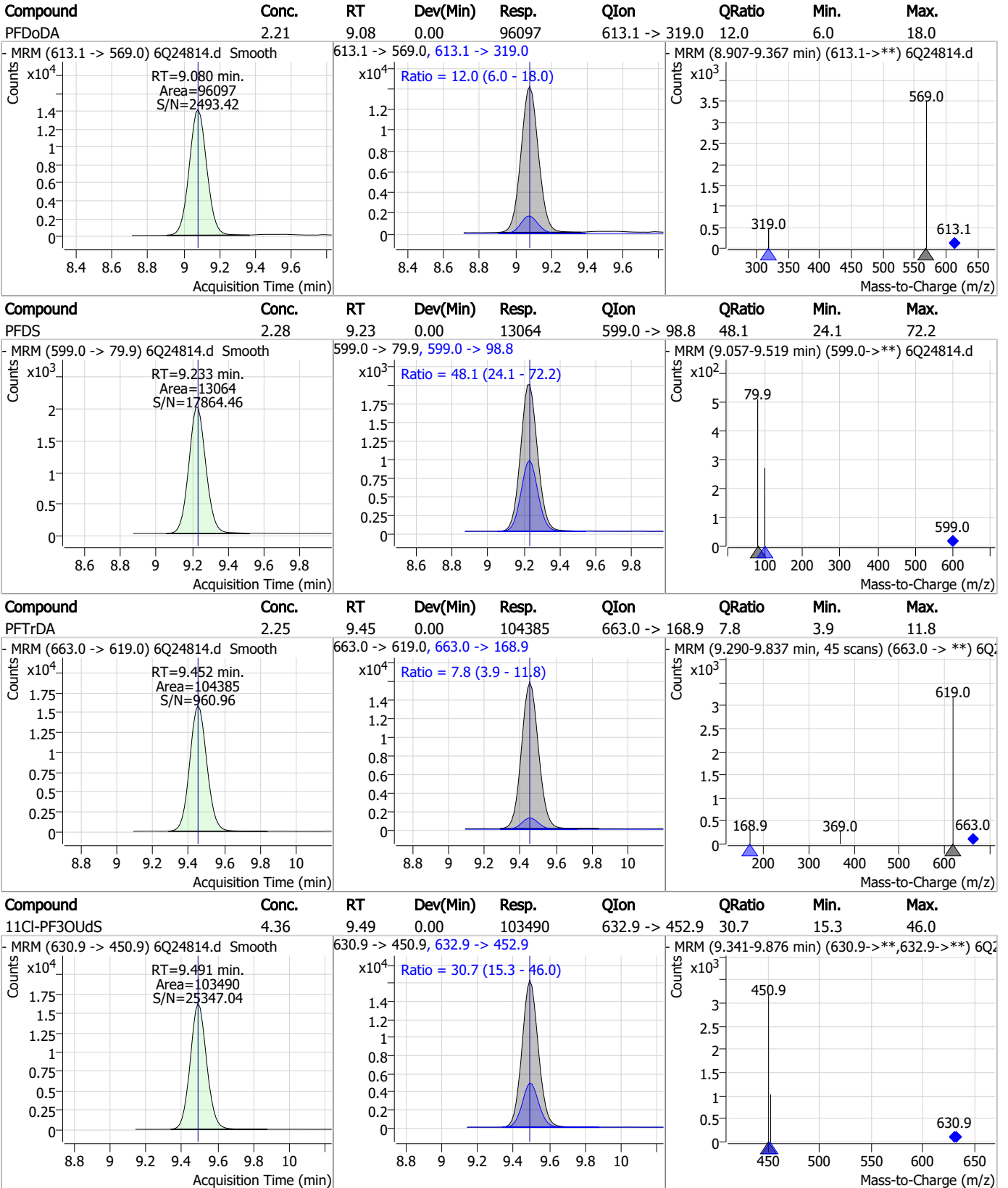
7.7.5
7

Perfluorinated Compounds by LC/MS/MS



7.7.5
7

Perfluorinated Compounds by LC/MS/MS

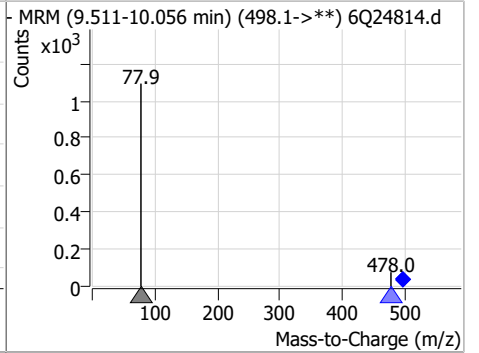
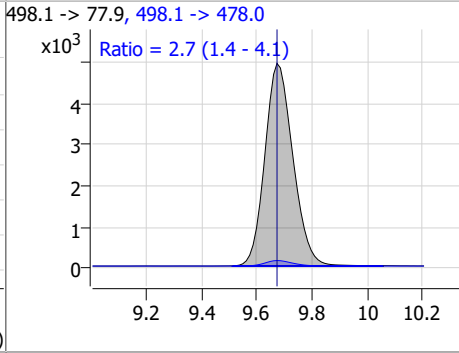
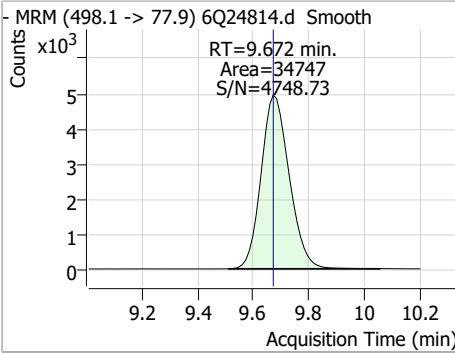


7.7.5

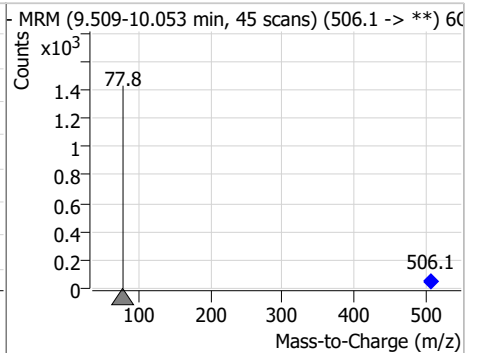
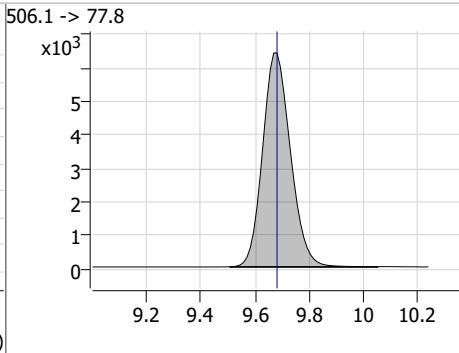
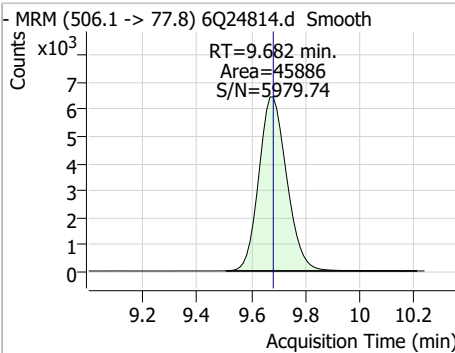
7

Perfluorinated Compounds by LC/MS/MS

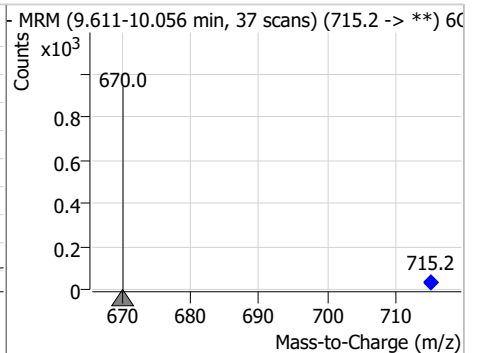
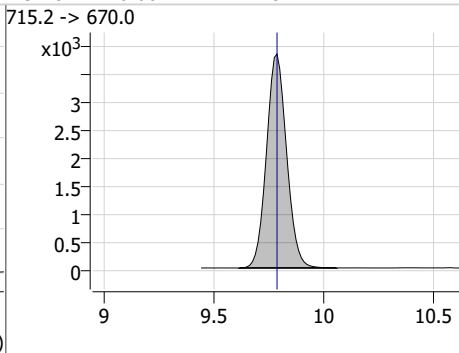
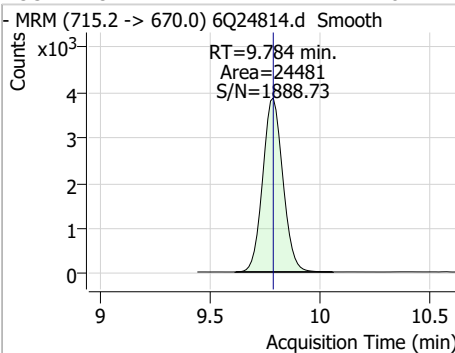
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.19	9.67	0.00	34747	498.1 -> 478.0	2.7	1.4	4.1



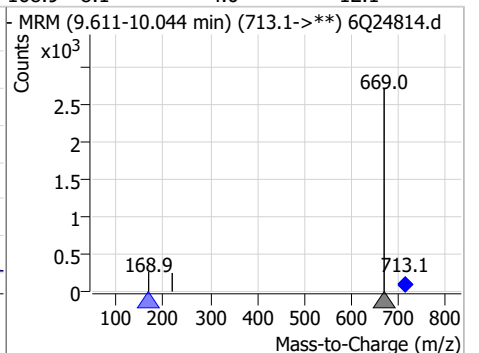
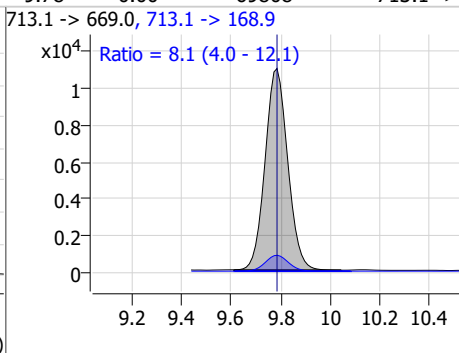
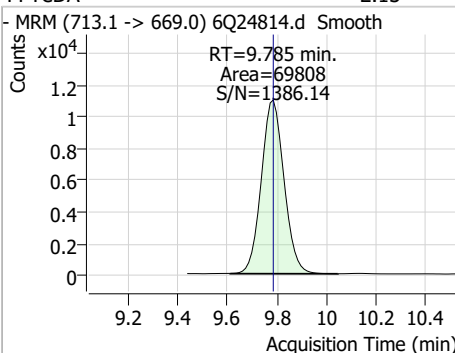
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.50	9.68	0.00	45886	506.1 -> 478.0	2.7	1.4	4.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.28	9.78	0.00	24481	715.2 -> 670.0	8.1	4.0	12.1

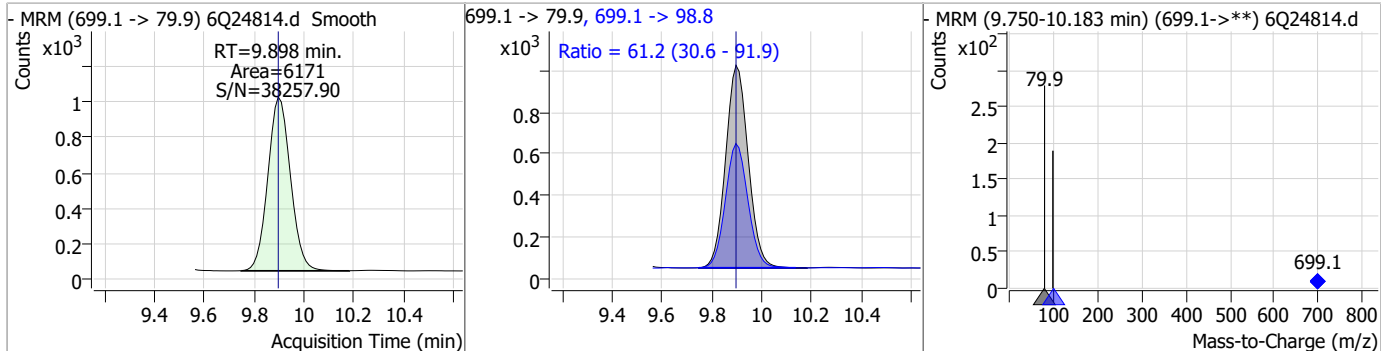


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.13	9.78	0.00	69808	713.1 -> 168.9	8.1	4.0	12.1

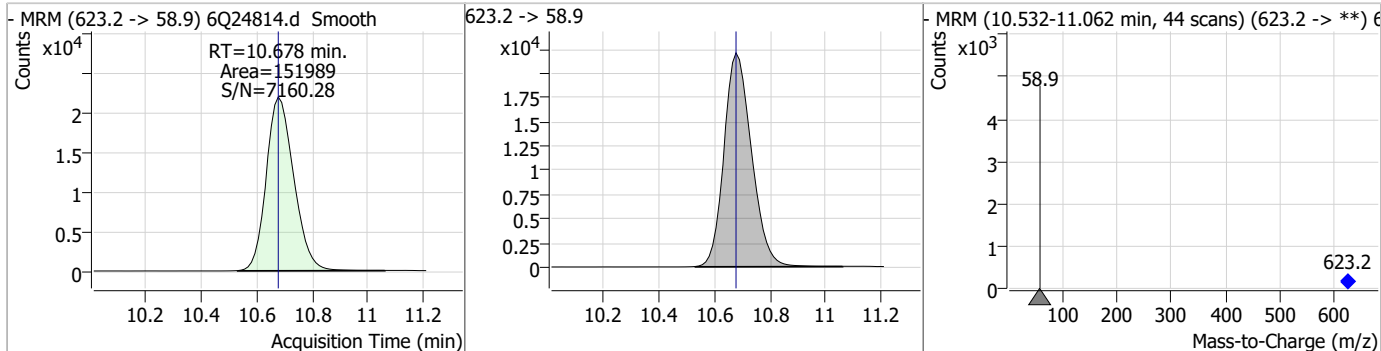


Perfluorinated Compounds by LC/MS/MS

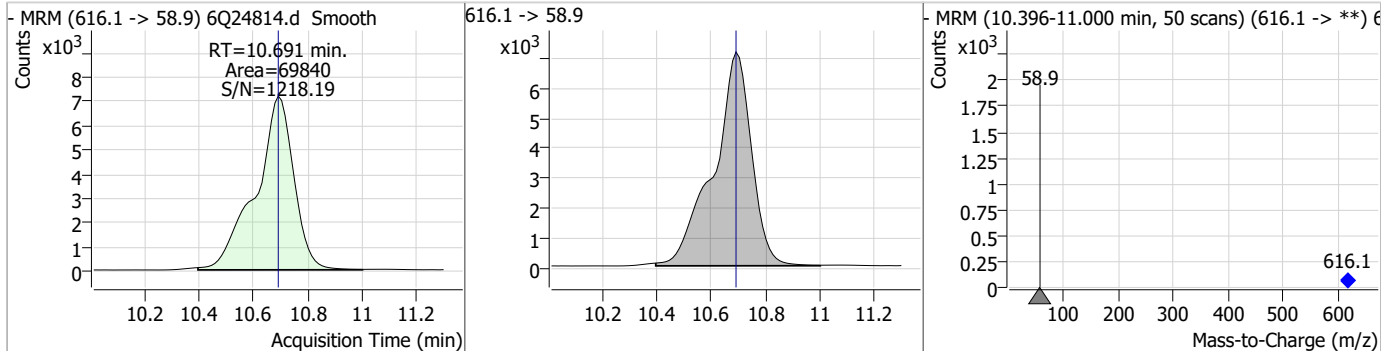
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.19	9.90	0.00	6171	699.1 -> 98.8	61.2	30.6	91.9



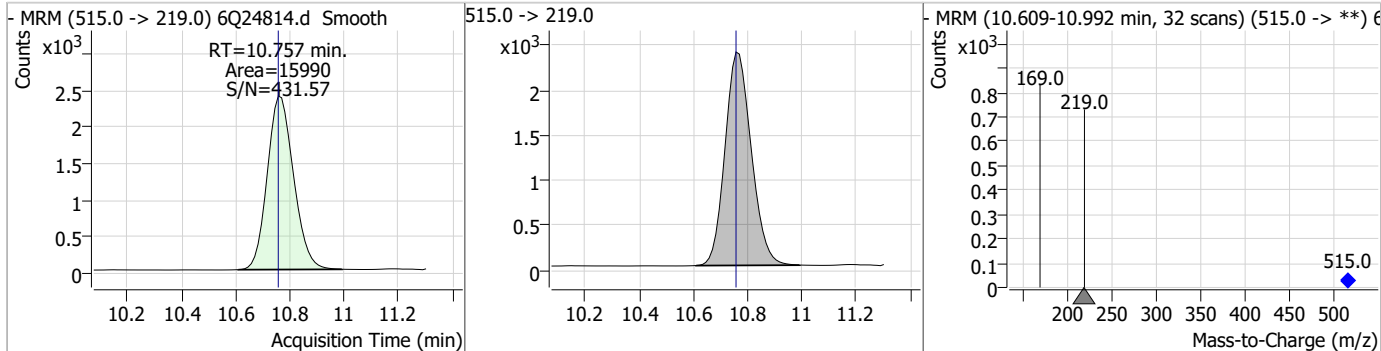
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.51	10.68	0.00	151989				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	10.70	10.69	0.00	69840				



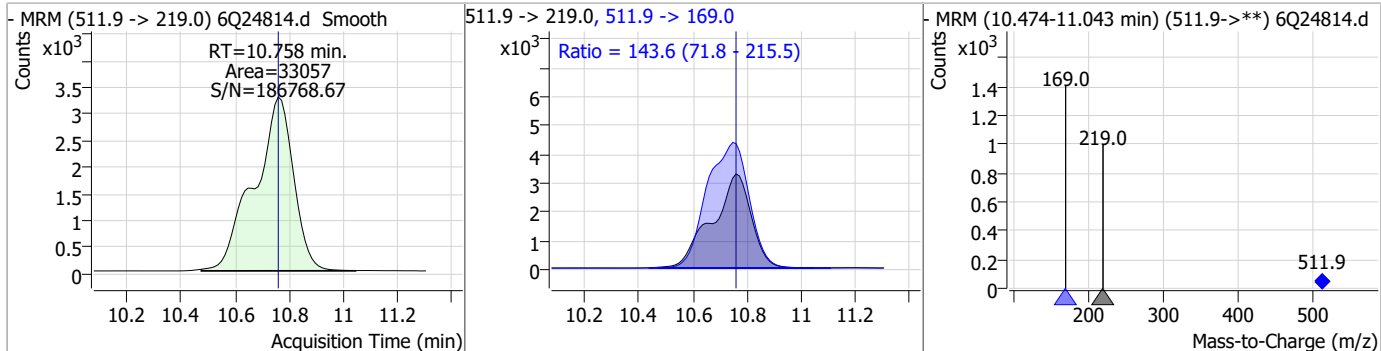
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.41	10.76	0.00	15990				



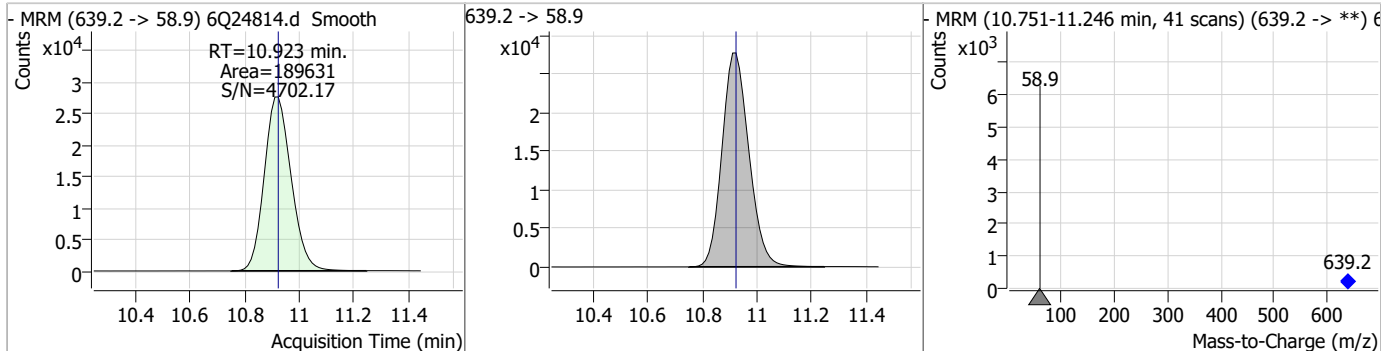
7.7.5
7

Perfluorinated Compounds by LC/MS/MS

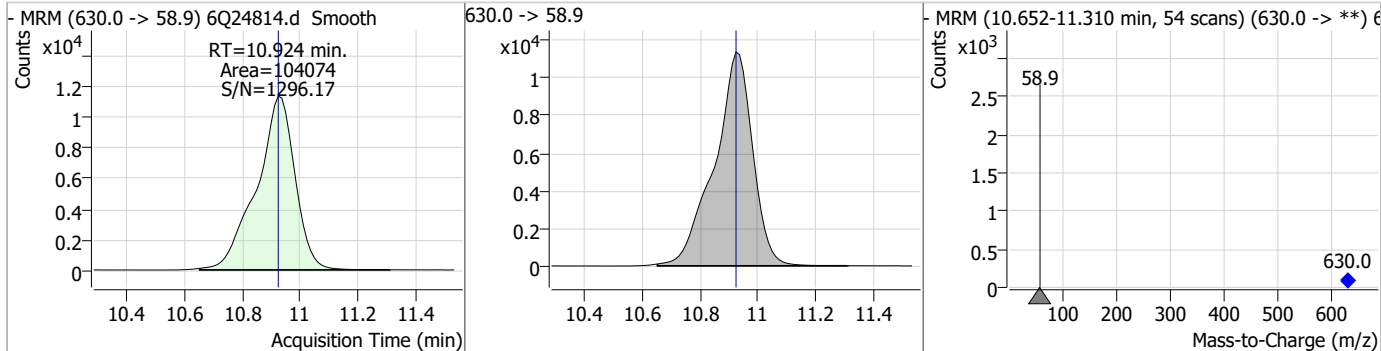
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	4.59	10.76	0.00	33057	511.9 -> 169.0	143.6	71.8	215.5



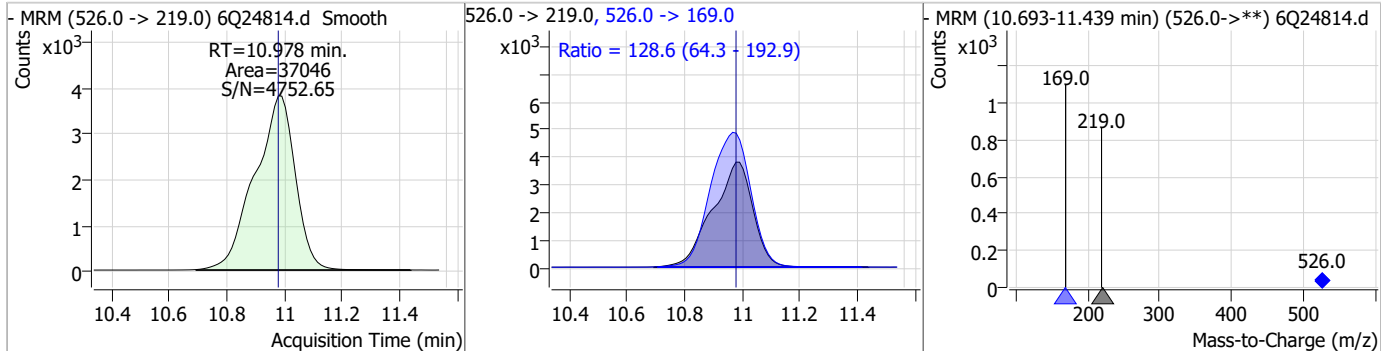
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.25	10.92	0.00	189631				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.71	10.92	0.00	104074				

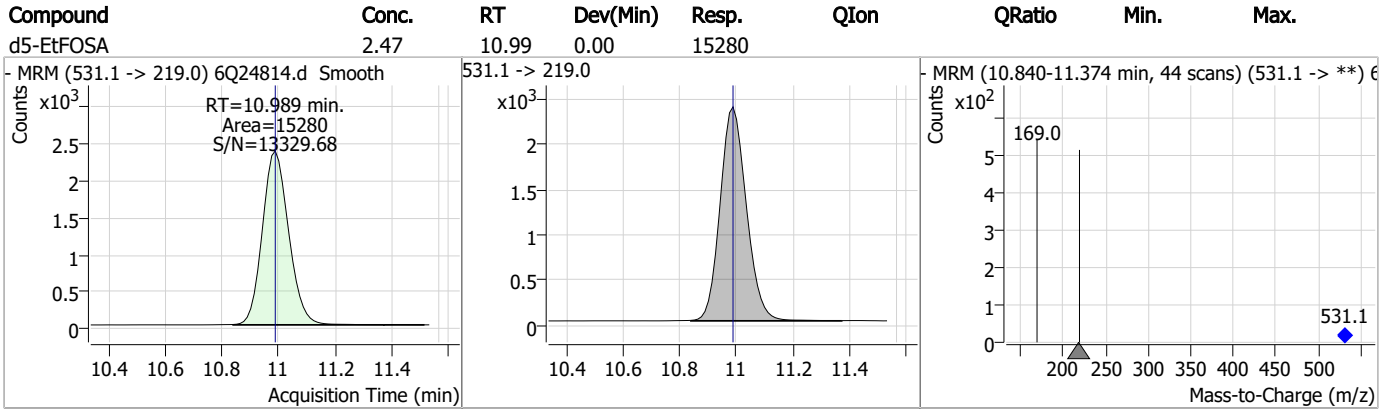


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	4.61	10.98	0.00	37046	526.0 -> 169.0	128.6	64.3	192.9



7.7.5
7

Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Manual Integration Approval Summary

Sample Number: S6Q355-ICC355 Method: EPA DRAFT 1633
Lab FileID: 6Q24814.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 21:18 Supervisor approved: 09/22/23 13:16 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.5.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 09/22/23 13:16

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24815.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 9:33:15 PM
 Sample Name : ic355-5
 Vial : P1-A6
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	325232	10.00 µg/L	-0.025
M5-PFPeA	4.422	268.3 -> 223.0	51685	5.00 µg/L	-0.012
M5-PFHxA	5.641	318.0 -> 273.0	119603	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	97812	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	131938	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	51596	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	50498	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	57546	1.25 µg/L	0.000
M2-PFDoDA	9.079	615.1 -> 570.0	57161	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	23497	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	43567	2.50 µg/L	-0.012
M3-PFBS	5.559	302.1 -> 79.9	38318	2.50 µg/L	-0.012
M3-PFHxS	7.301	402.1 -> 79.9	21676	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	19792	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	4265	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	6151	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	5638	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	36630	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	67127	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	31252	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	138796	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	191757	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	14688	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	15612	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	26638	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	132512	5.00 µg/L	-0.012
18O2-PFHxS	7.313	403.0 -> 83.9	15717	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	137870	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	47014	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	61195	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	93693	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	4265	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C2-6:2FTS	6.974	429.1 -> 80.9	6151	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C2-8:2FTS	7.998	529.1 -> 80.9	5638	4.78 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C2-PFDoDA	9.079	615.1 -> 570.0	57161	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-PFTeDA	9.784	715.2 -> 670.0	23497	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C3-PFBS	5.559	302.1 -> 79.9	38318	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C3-PFHxS	7.301	402.1 -> 79.9	21676	2.55 µg/L	-0.012

7.7.6
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C4-PFBA	2.985	216.8 -> 171.9	325232	10.06 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.569	367.1 -> 322.0	97812	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C5-PFHxA	5.641	318.0 -> 273.0	119603	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C5-PFPeA	4.422	268.3 -> 223.0	51685	4.85 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C6-PFDA	8.198	519.1 -> 474.1	50498	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C7-PFUnDA	8.651	570.0 -> 525.1	57546	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.0%	
13C8-FOSA	9.670	506.1 -> 77.8	43567	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-PFOA	7.198	421.1 -> 376.0	131938	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C8-PFOS	8.348	507.1 -> 79.9	19792	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C9-PFNA	7.717	472.1 -> 427.0	51596	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.0%	
d3-MeFOSAA	8.256	573.2 -> 419.0	36630	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	67127	9.66 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
d3-MeFOSA	10.757	515.0 -> 219.0	15612	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
d5-EtFOSAA	8.452	589.2 -> 419.0	31252	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	138796	24.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d9-EtFOSE	10.911	639.2 -> 58.9	191757	25.70 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
d5-EtFOSA	10.989	531.1 -> 219.0	14688	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	134145	19.42 µg/L	98
		327.1 -> 80.9	49221		
6:2FTS	6.974	427.1 -> 407.0	105436	18.54 µg/L	99
		427.1 -> 80.9	40130		
8:2FTS	7.999	527.1 -> 507.0	74502	20.81 µg/L	89
		527.1 -> 80.8	28532		
EtFOSAA	8.452	584.2 -> 419.1	24337	5.15 µg/L	m 97
		584.2 -> 526.0	15290		
FOSA	9.672	498.1 -> 77.9	75918	5.05 µg/L	99
		498.1 -> 478.0	2266		
MeFOSAA	8.257	570.1 -> 419.0	42180	5.08 µg/L	95
		570.1 -> 483.0	9006		
PFBA	2.993	212.8 -> 168.9	202917	20.25 µg/L	100
PFBS	5.572	298.7 -> 79.9	79713	4.39 µg/L	94
		298.7 -> 98.8	31747		
PFDA	8.198	512.9 -> 469.0	233368	5.17 µg/L	98
		512.9 -> 219.0	36589		
PFDoDA	9.080	613.1 -> 569.0	208707	5.01 µg/L	98
		613.1 -> 319.0	23808		
PFDS	9.233	599.0 -> 79.9	27923	4.81 µg/L	97

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	12884			
PFHpA	6.569	363.1 -> 319.0	256155	5.15	µg/L	97
		363.1 -> 169.0	37532			
PFHpS	7.856	449.0 -> 79.9	44571	4.60	µg/L	90
		449.0 -> 98.9	23888			
PFHxA	5.644	313.0 -> 269.0	213888	5.14	µg/L	99
		313.0 -> 118.9	9162			
PFHxS	7.302	398.7 -> 79.9	62366	4.45	µg/L	m 98
		398.7 -> 98.9	30503			
PFNA	7.717	463.0 -> 419.0	170325	5.14	µg/L	98
		463.0 -> 219.0	42500			
PFNS	8.814	548.8 -> 79.9	45869	4.77	µg/L	98
		548.8 -> 98.9	25315			
PFOA	7.200	413.0 -> 369.0	304088	5.00	µg/L	99
		413.0 -> 169.0	52210			
PFOS	8.350	498.9 -> 79.9	50754	4.54	µg/L	m 99
		498.9 -> 98.8	26152			
PFPeA	4.424	263.0 -> 219.0	259432	10.19	µg/L	100
PFPeS	6.620	349.1 -> 79.9	54525	4.68	µg/L	96
		349.1 -> 98.9	25025			
PFTeDA	9.785	713.1 -> 669.0	153006	4.87	µg/L	100
		713.1 -> 168.9	12448			
PFTrDA	9.452	663.0 -> 619.0	230283	5.19	µg/L	100
		663.0 -> 168.9	17963			
PFUnDA	8.652	563.1 -> 519.0	185677	5.56	µg/L	98
		563.1 -> 269.1	28423			
11CI-PF3OUdS	9.491	630.9 -> 450.9	222031	10.19	µg/L	99
		632.9 -> 452.9	67517			
9CI-PF3ONS	8.690	530.8 -> 351.0	396857	10.32	µg/L	92
		532.8 -> 353.0	107629			
ADONA	6.817	376.9 -> 250.9	942619	9.51	µg/L	99
		376.9 -> 84.8	257343			
HFPO-DA	6.020	284.9 -> 168.9	65913	10.34	µg/L	99
		284.9 -> 184.9	9203			
3:3FTCA	3.858	241.0 -> 177.0	42675	24.41	µg/L	100
		241.0 -> 117.0	4106			
5:3FTCA	6.283	341.0 -> 237.1	939448	128.76	µg/L	95
		341.0 -> 217.0	633405			
7:3FTCA	7.669	441.0 -> 316.9	551551	129.58	µg/L	91
		441.0 -> 336.9	1169924			
EtFOSA	10.990	526.0 -> 219.0	76420	9.90	µg/L	97
		526.0 -> 169.0	100639			
EtFOSE	10.924	630.0 -> 58.9	229838	25.57	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	70976	10.10	µg/L	92
		511.9 -> 169.0	95178			
MeFOSE	10.691	616.1 -> 58.9	155576	26.11	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	14028	4.92	µg/L	88
		699.1 -> 98.8	7331			
NFDHA	5.524	295.0 -> 201.0	49371	10.04	µg/L	100
		295.0 -> 84.9	12544			
PFMBA	4.850	279.0 -> 85.1	186608	10.35	µg/L	100
PFMPA	3.551	229.0 -> 84.9	136106	10.20	µg/L	100
PFEESA	6.112	314.8 -> 134.9	507041	9.27	µg/L	100
		314.8 -> 82.9	17173			

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

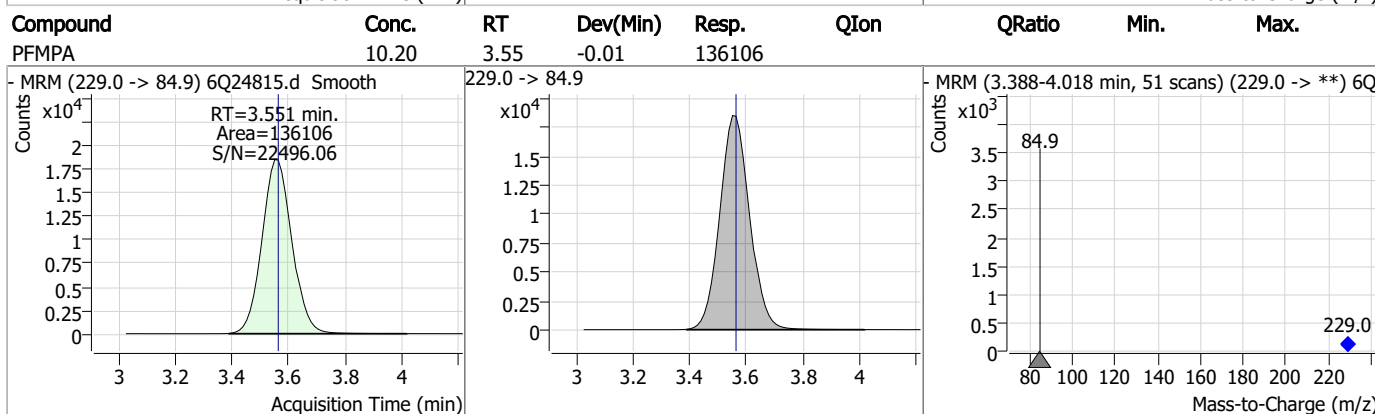
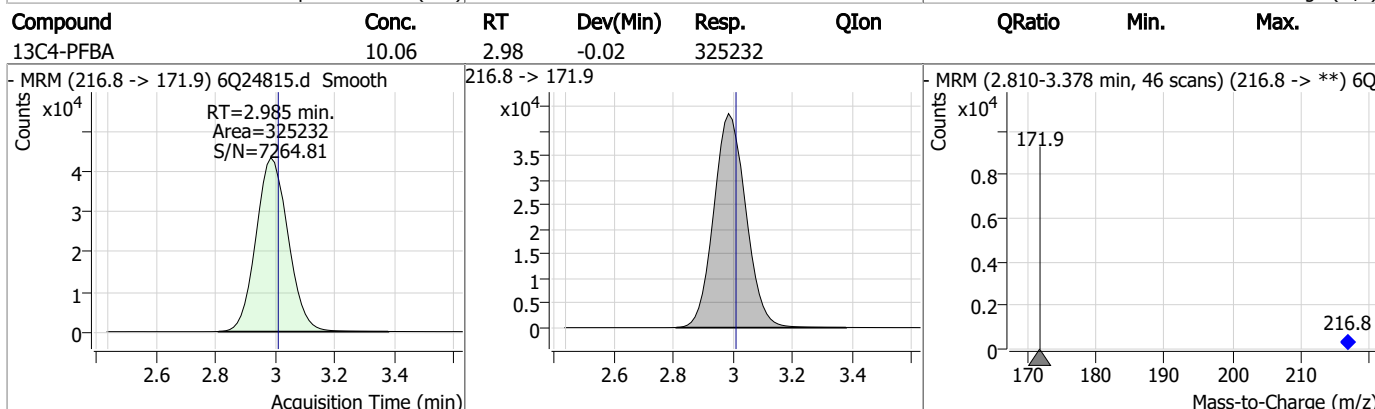
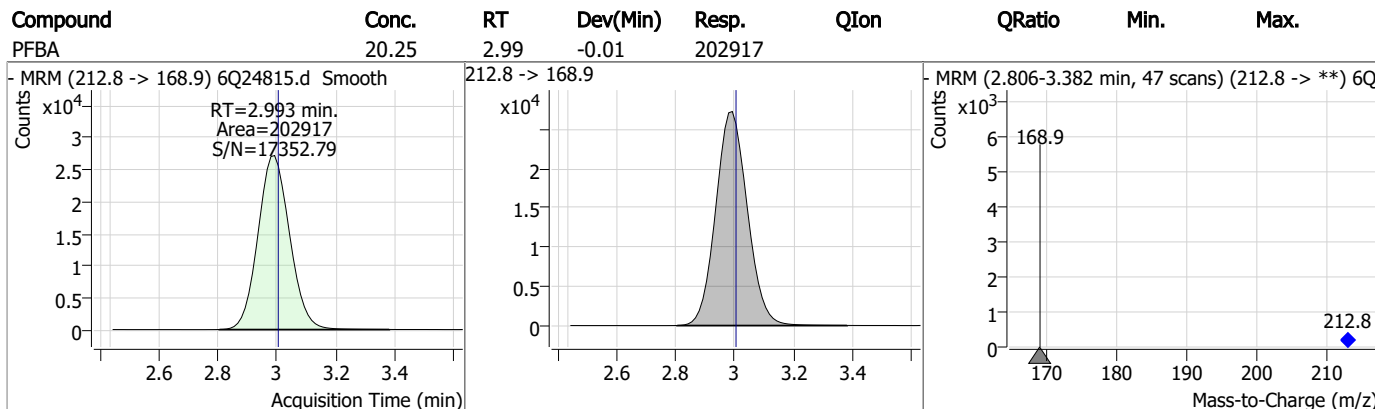
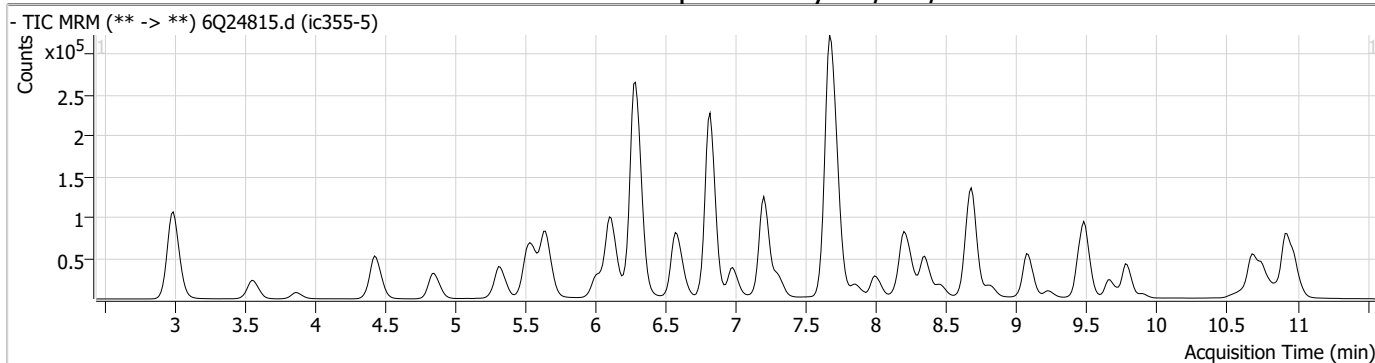
Perfluorinated Compounds by LC/MS/MS

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

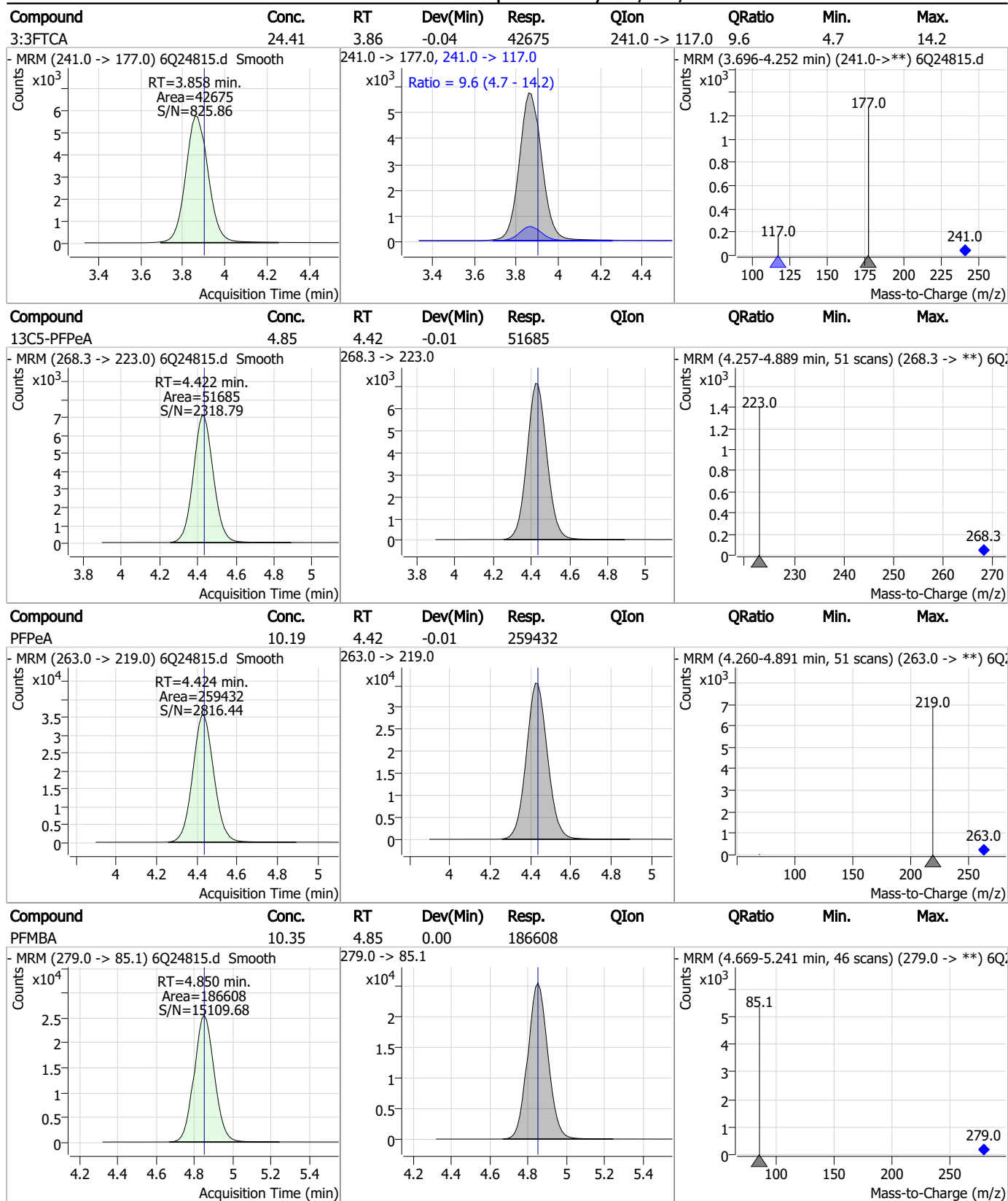
7.7.6
7



Perfluorinated Compounds by LC/MS/MS

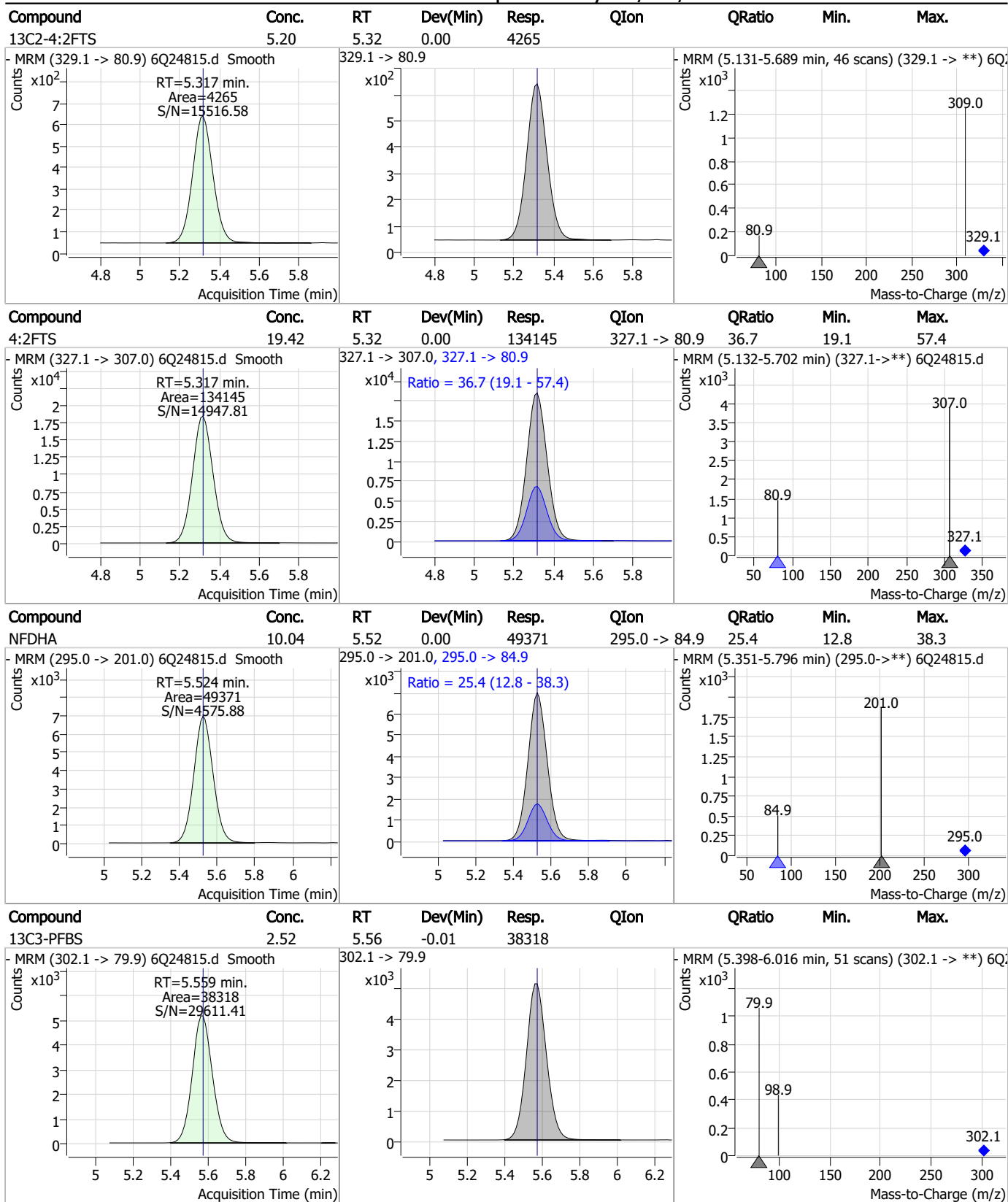


Perfluorinated Compounds by LC/MS/MS



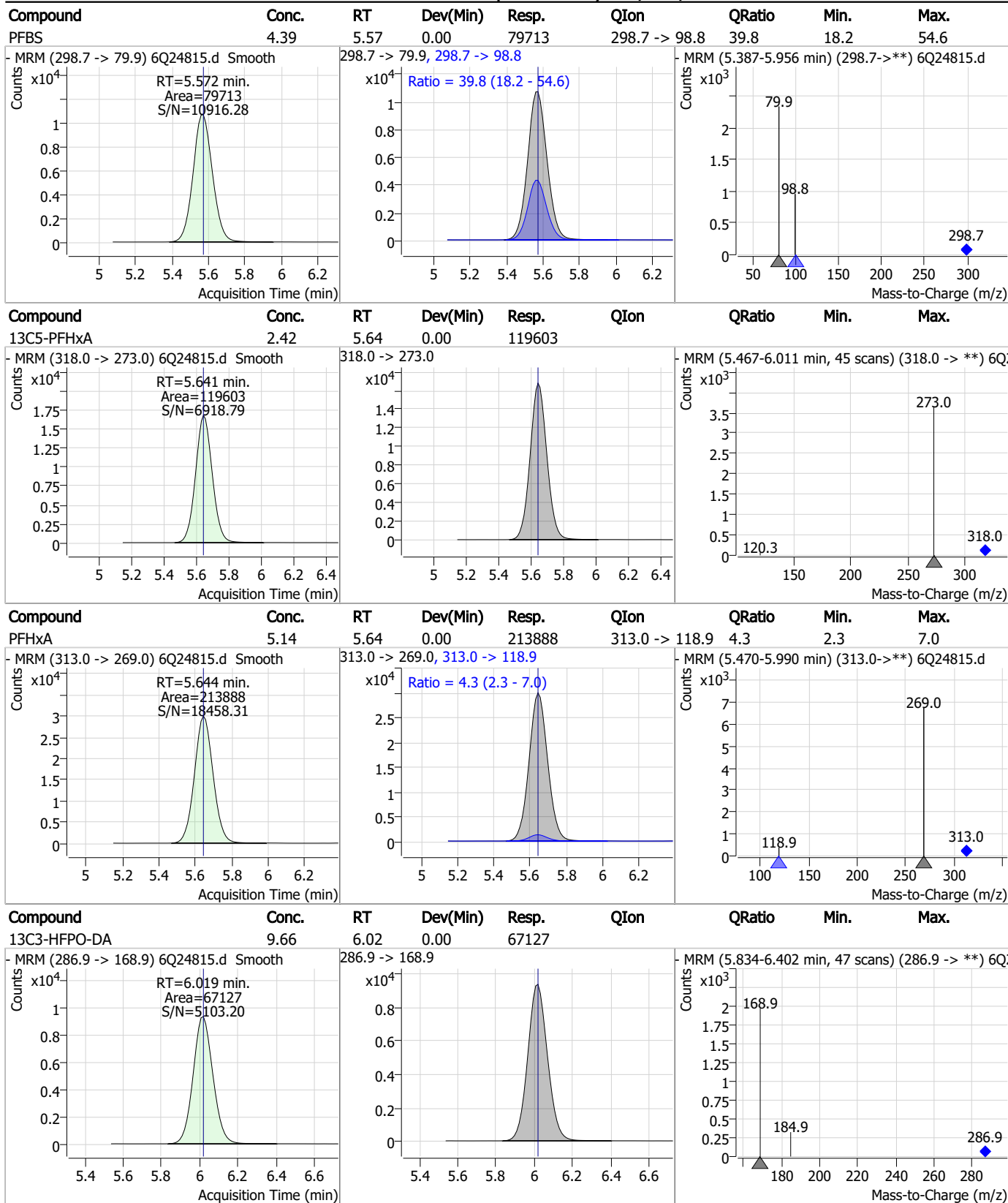
7.7.6
7

Perfluorinated Compounds by LC/MS/MS



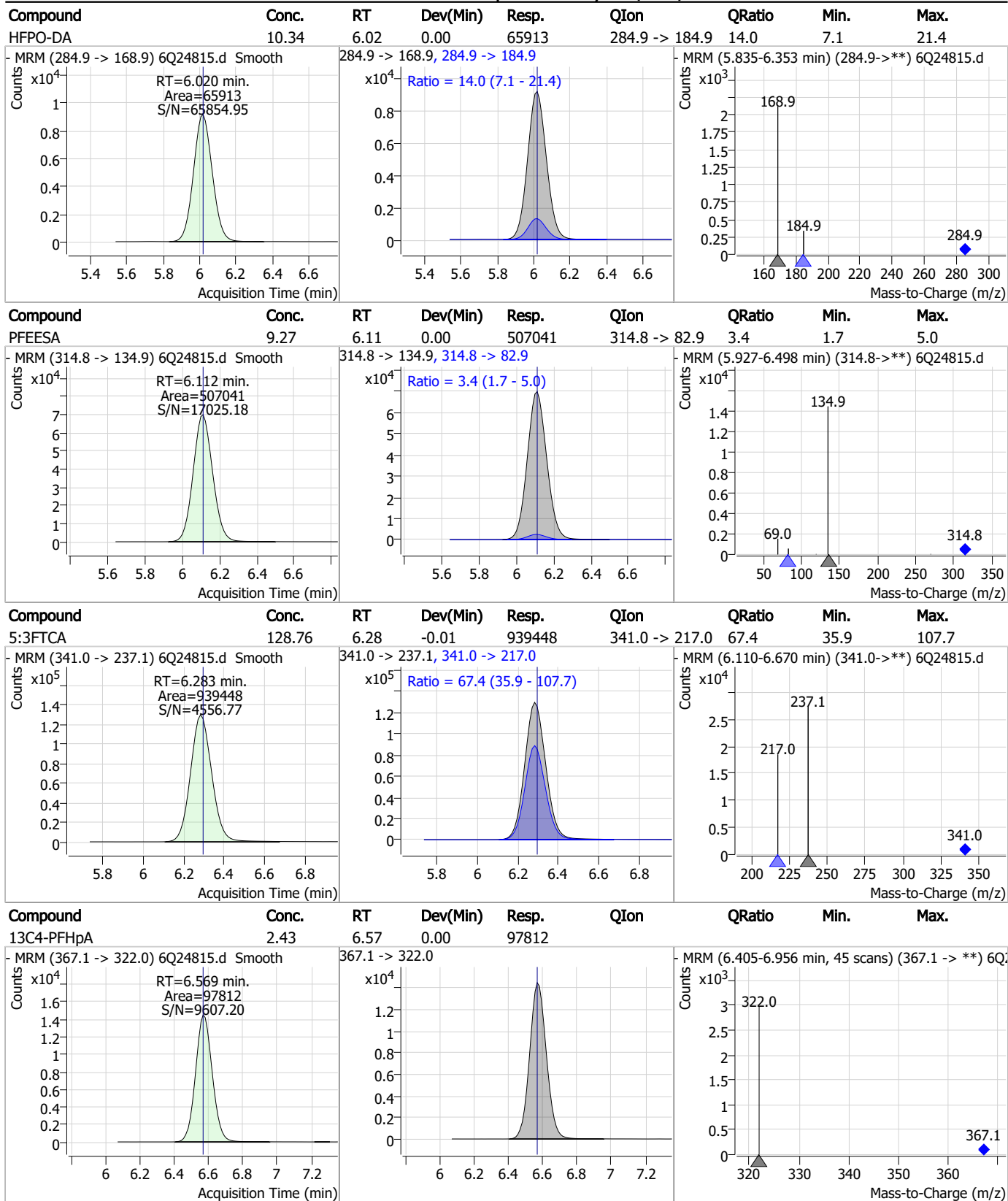
7.7.6
7

Perfluorinated Compounds by LC/MS/MS



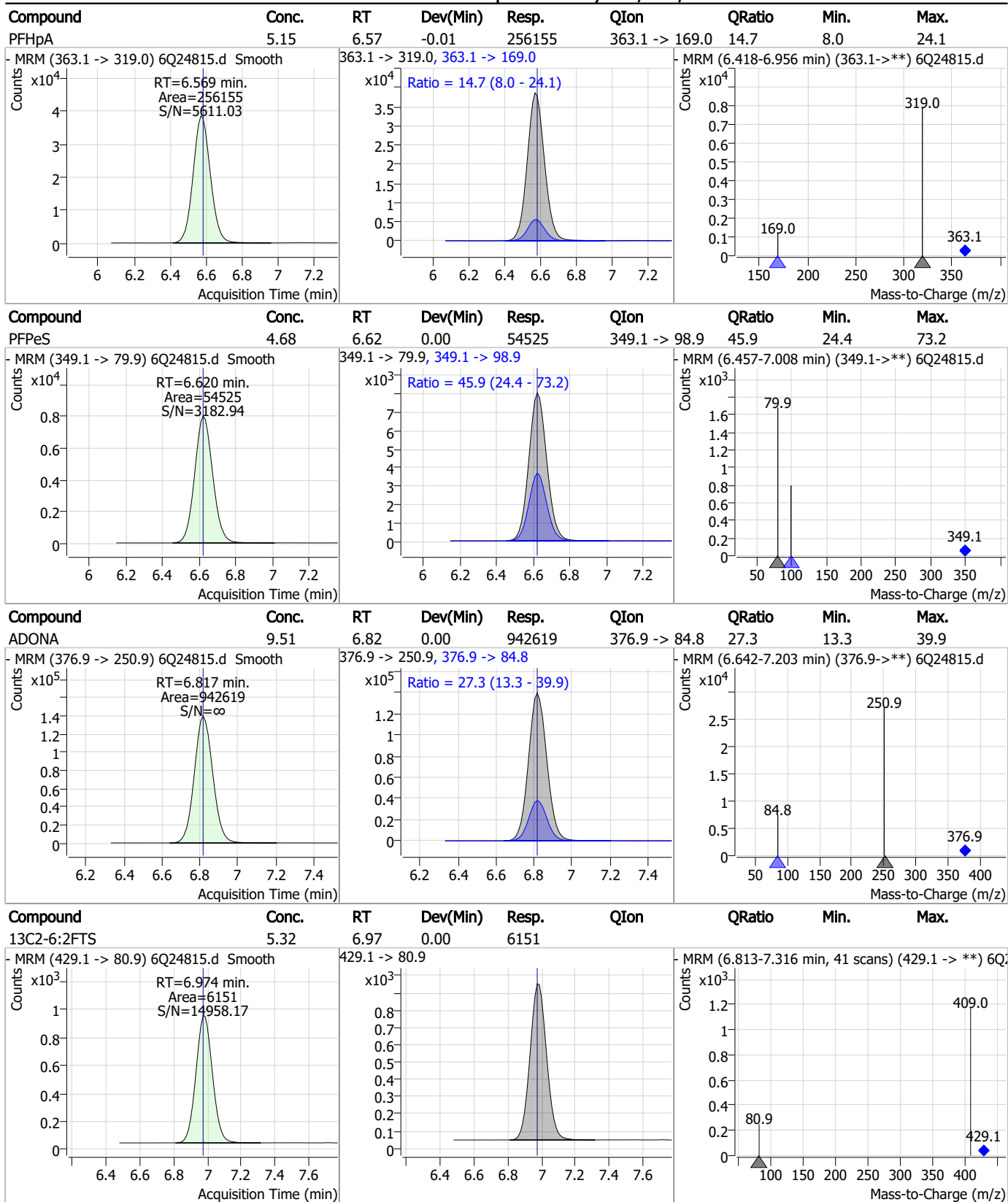
7.7.6
7

Perfluorinated Compounds by LC/MS/MS



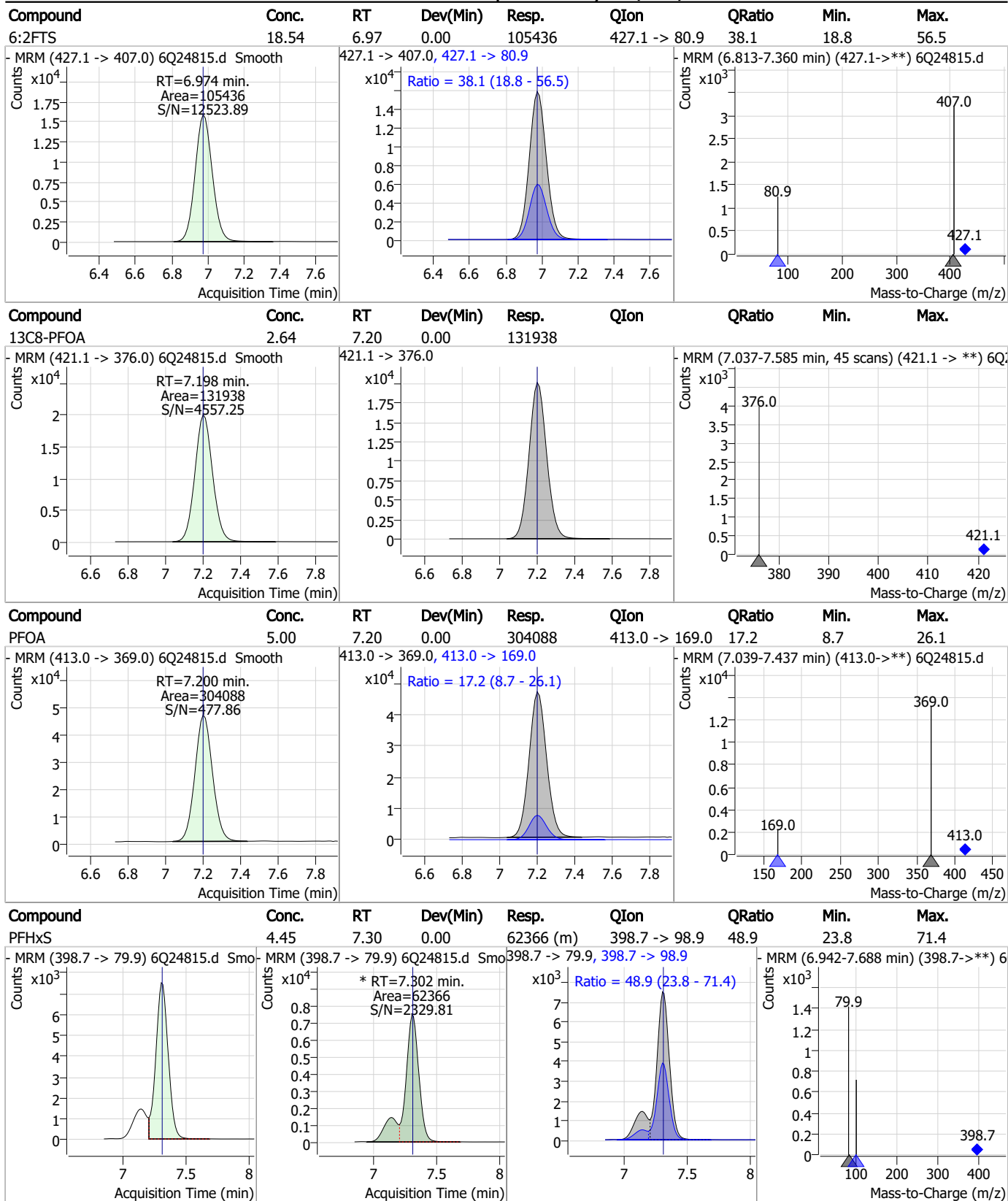
7.7.6
7

Perfluorinated Compounds by LC/MS/MS



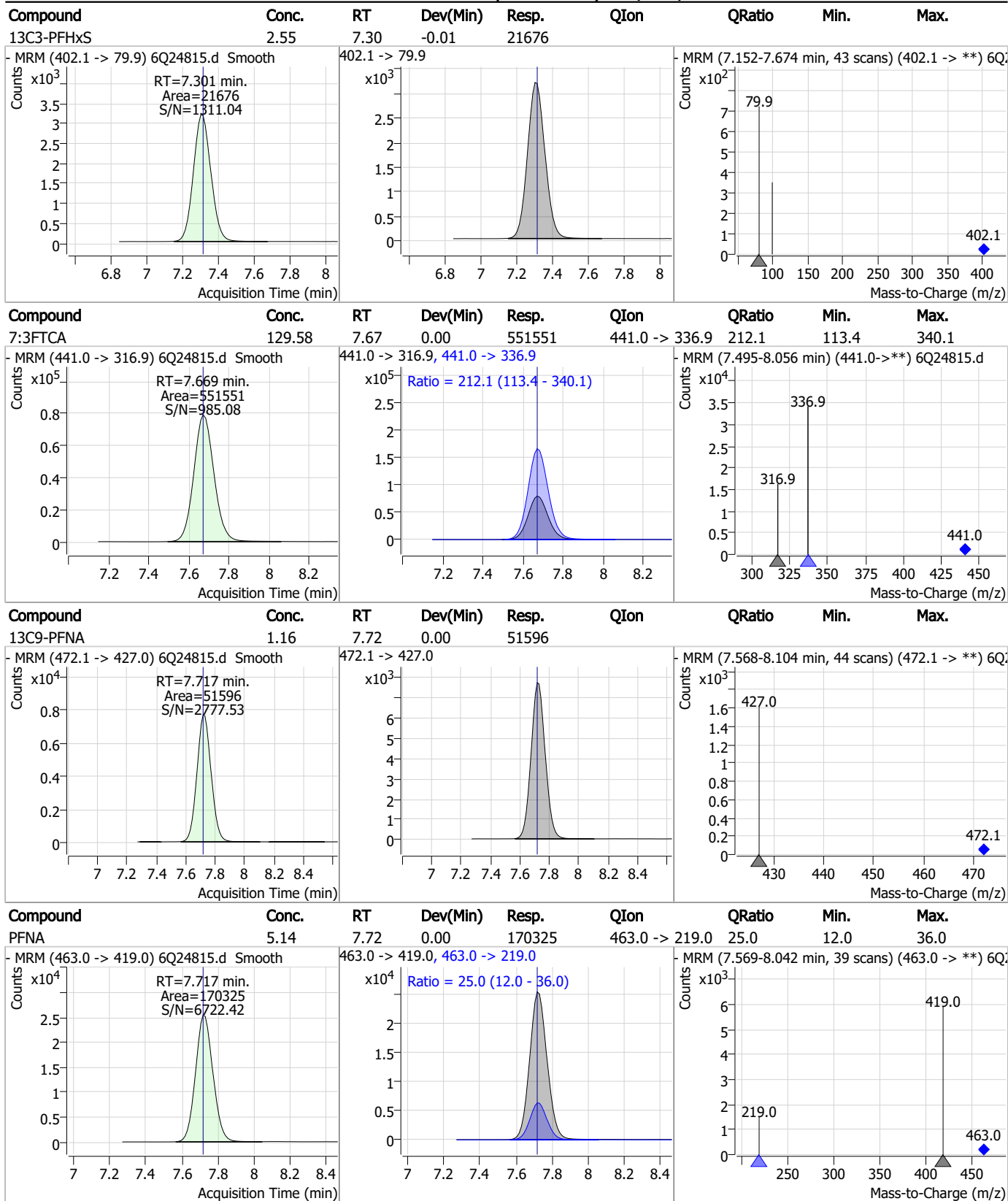
7.7.6
7

Perfluorinated Compounds by LC/MS/MS



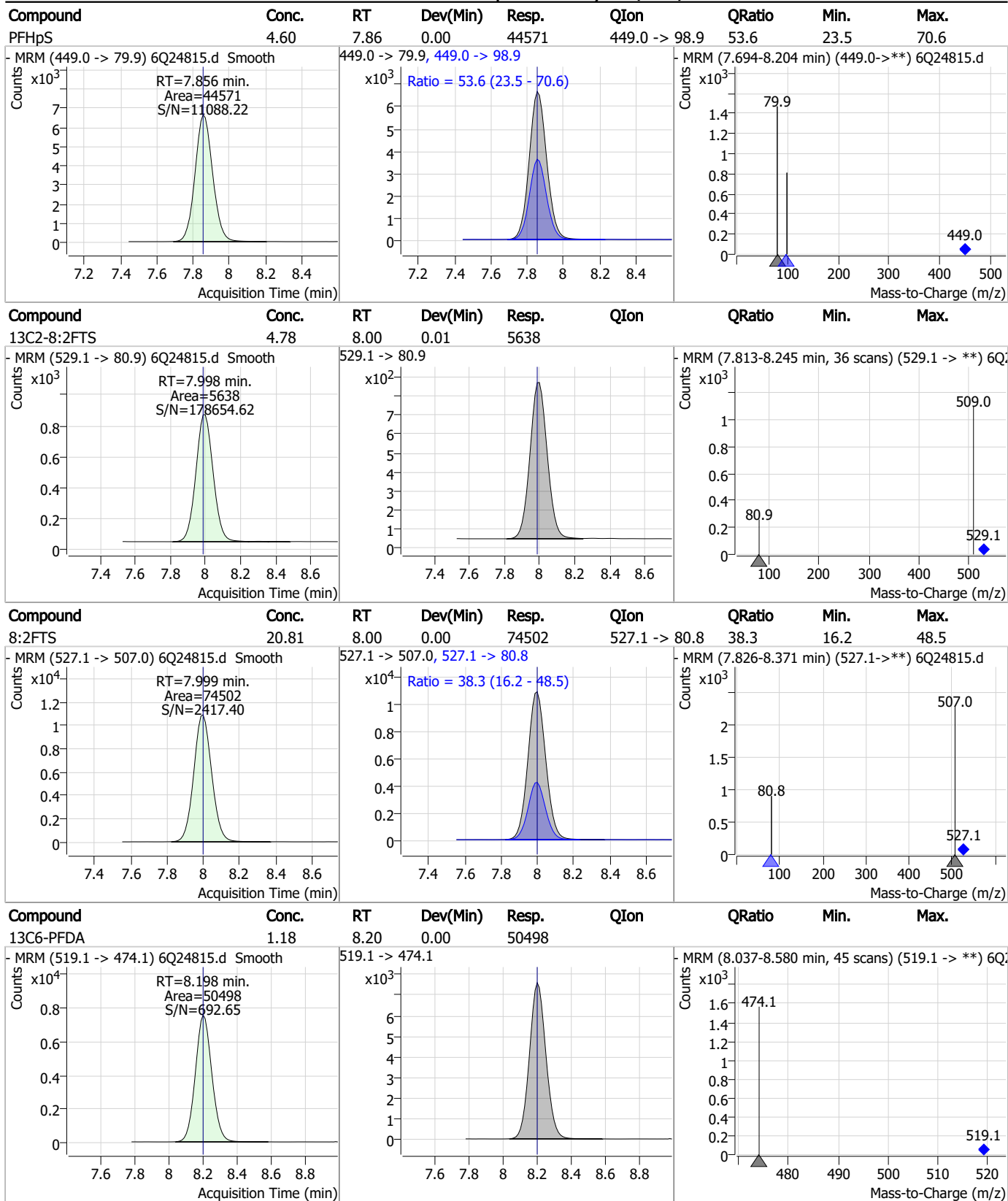
7.7.6
7

Perfluorinated Compounds by LC/MS/MS



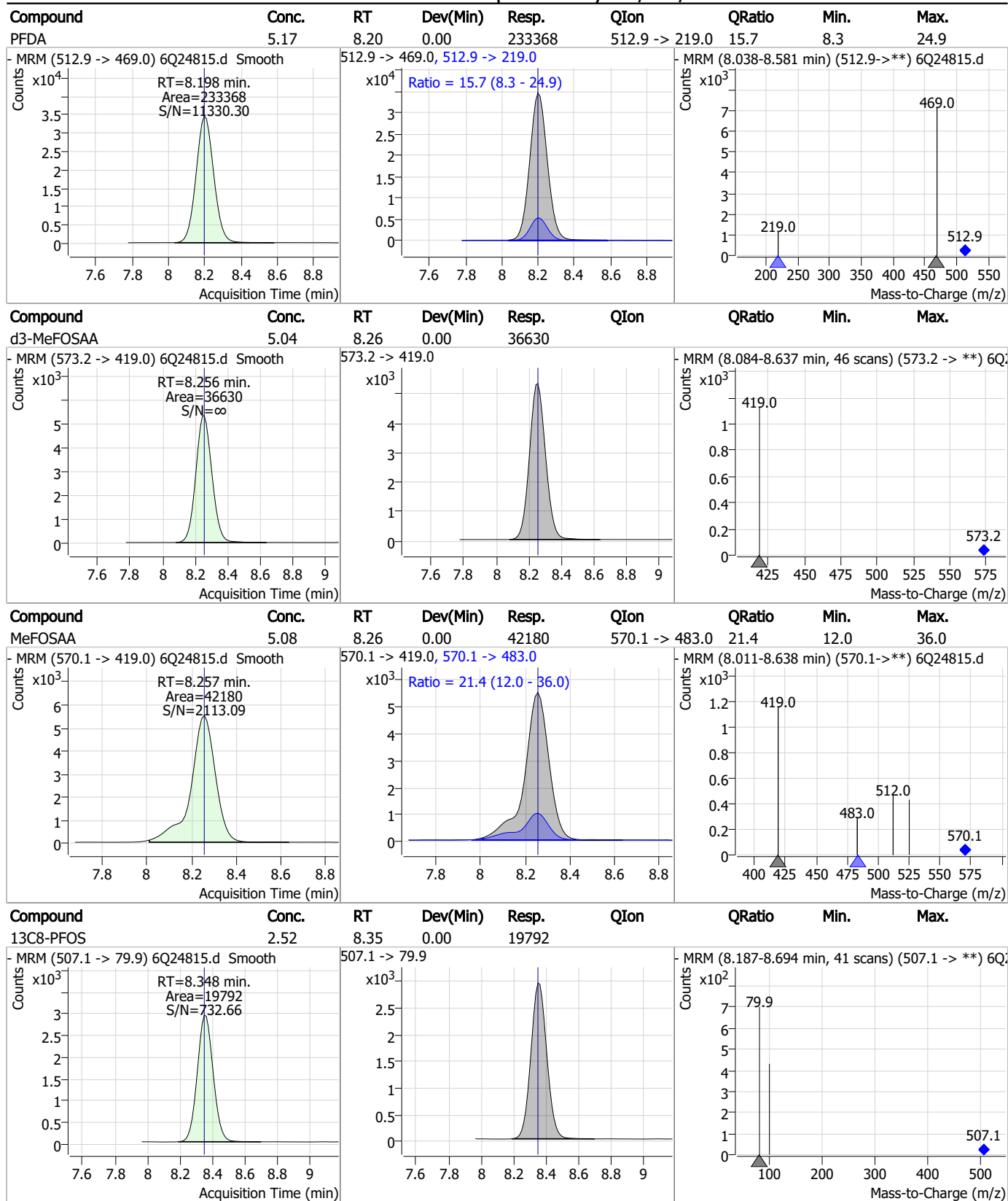
7.7.6
7

Perfluorinated Compounds by LC/MS/MS



7.7.6
7

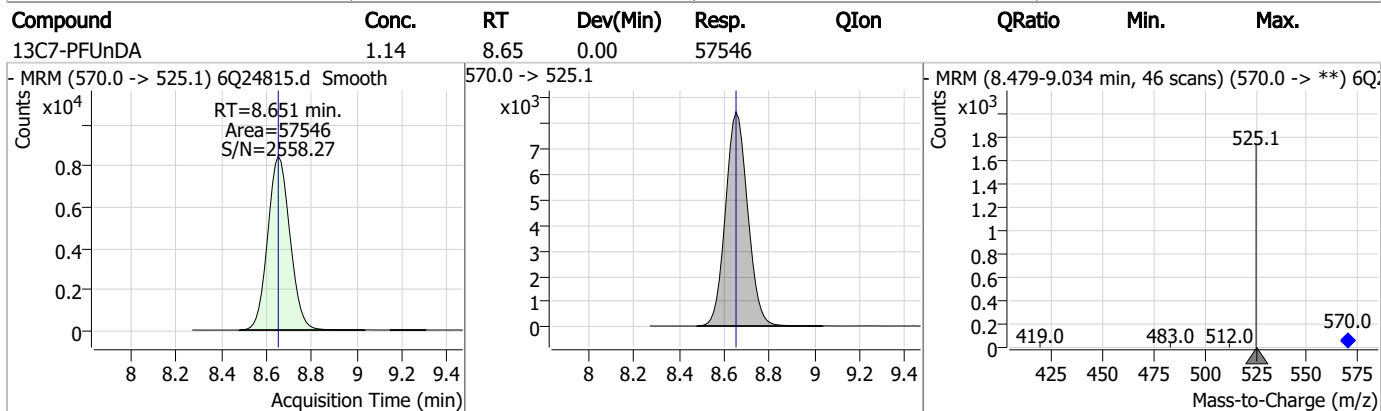
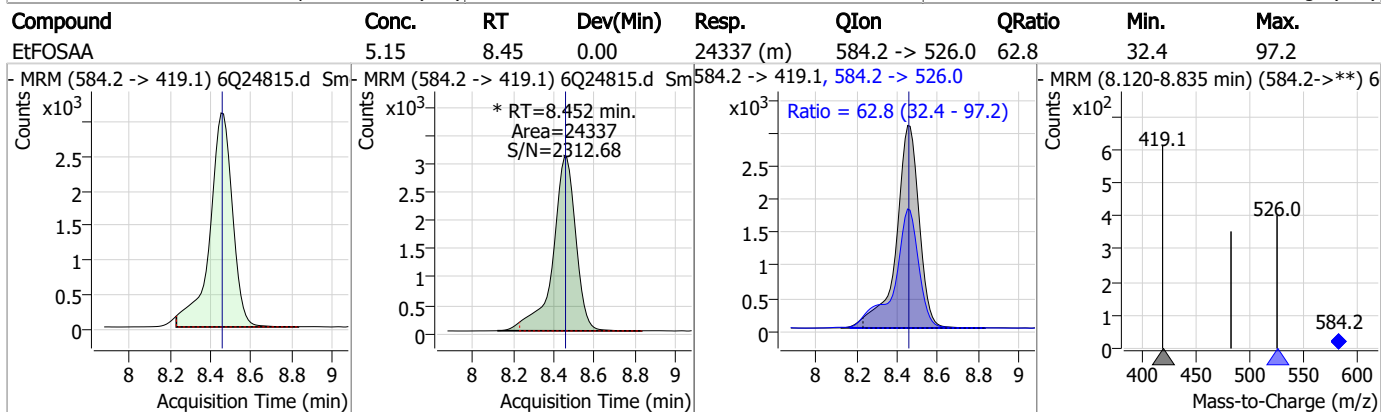
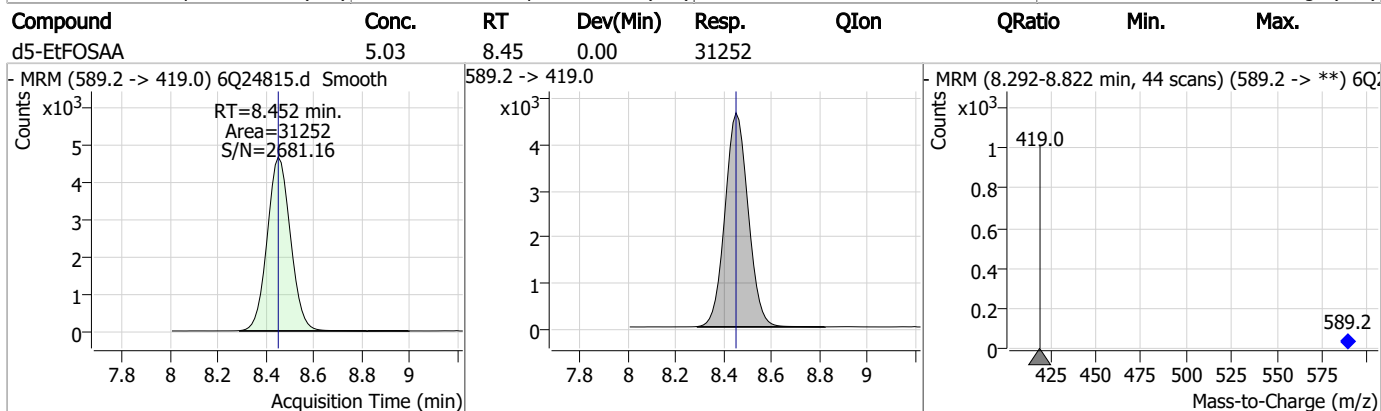
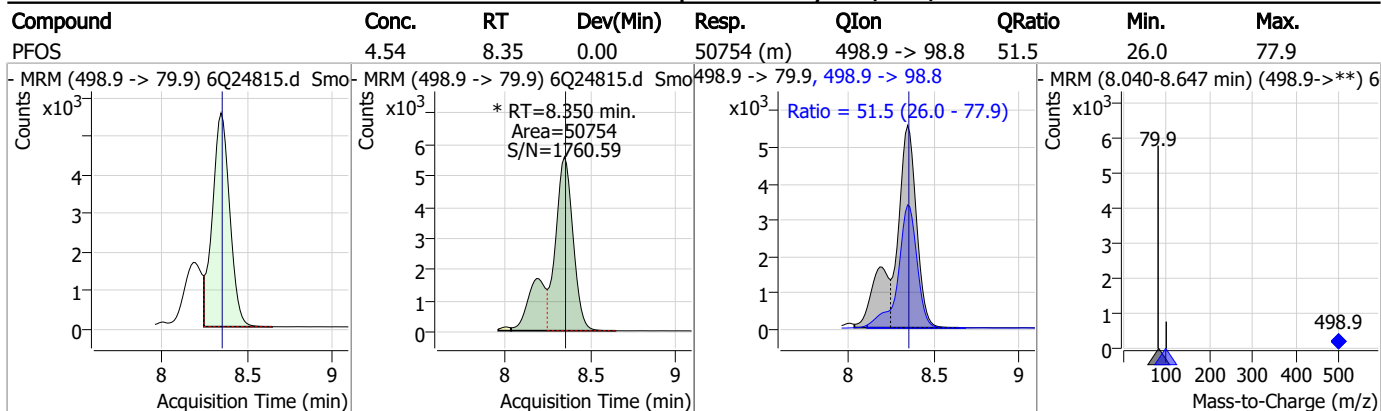
Perfluorinated Compounds by LC/MS/MS



7.7.6

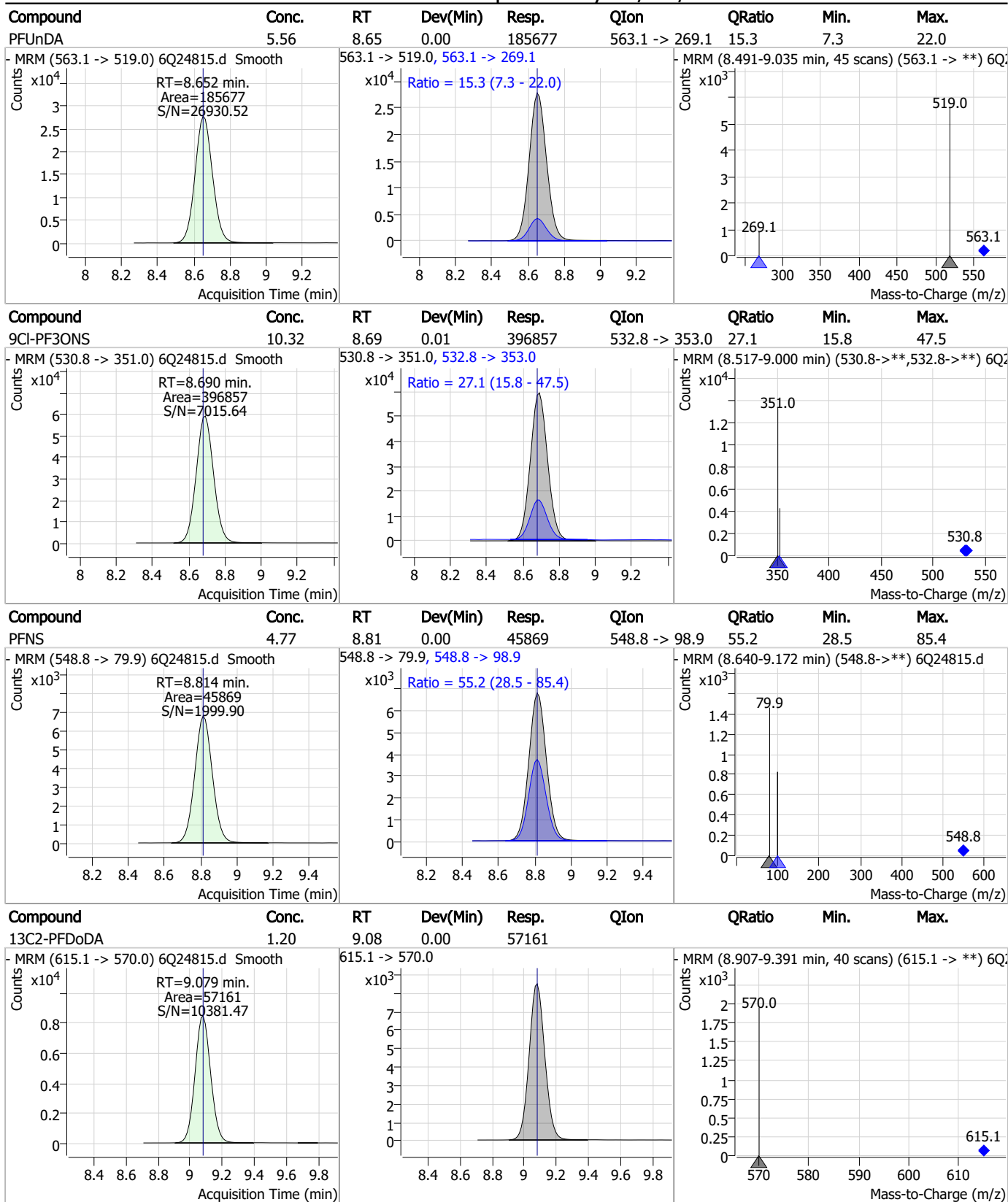
7

Perfluorinated Compounds by LC/MS/MS



7.7.6
7

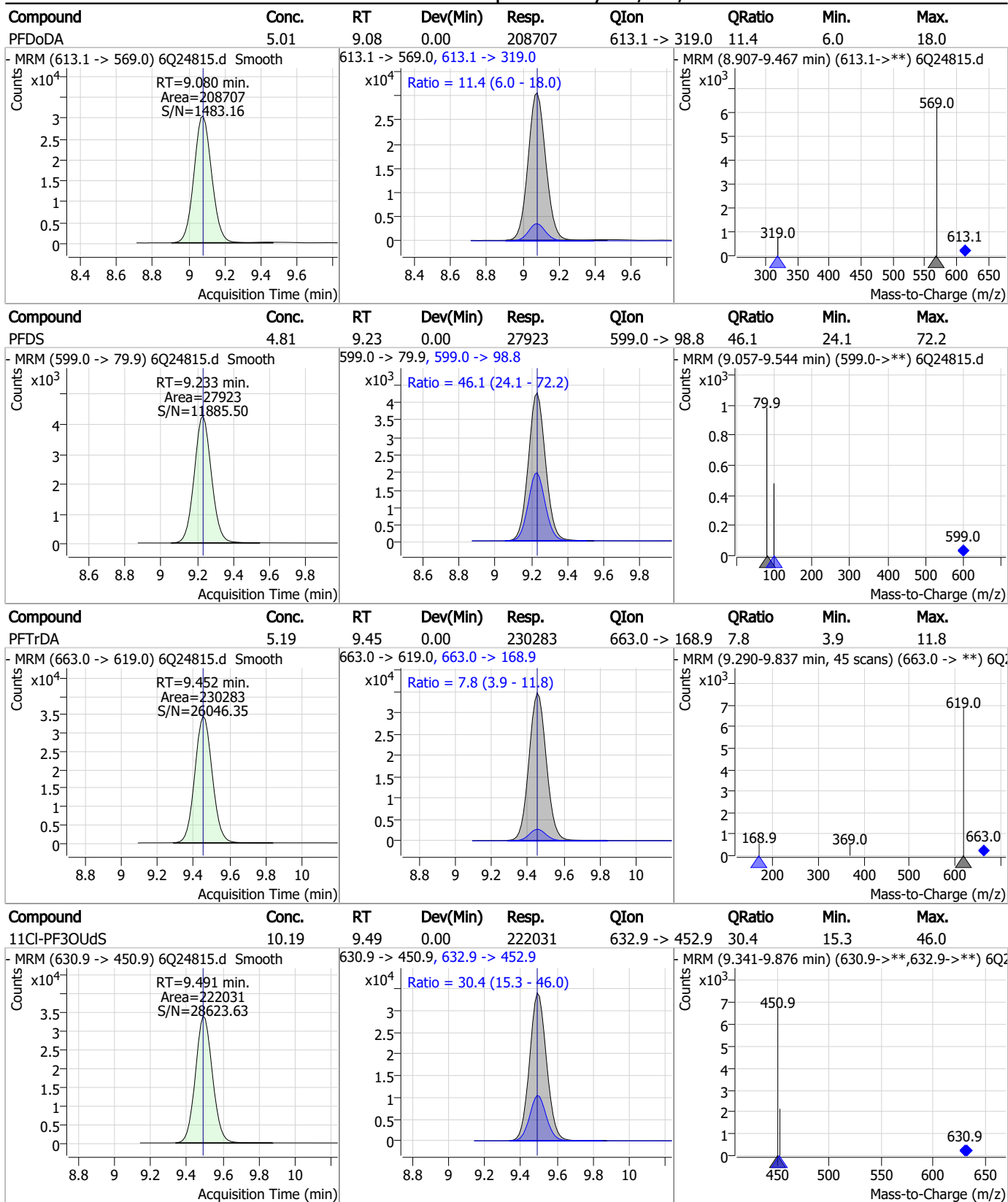
Perfluorinated Compounds by LC/MS/MS



7.7.6
7



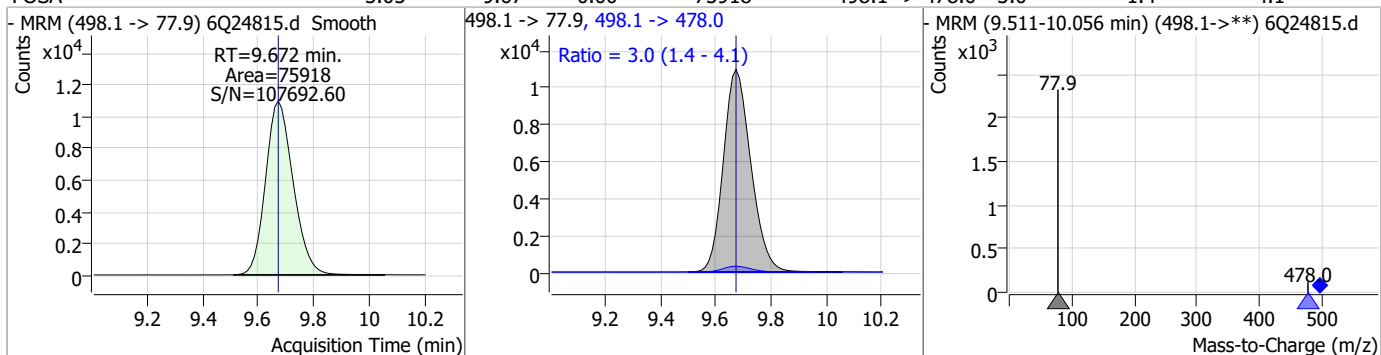
Perfluorinated Compounds by LC/MS/MS



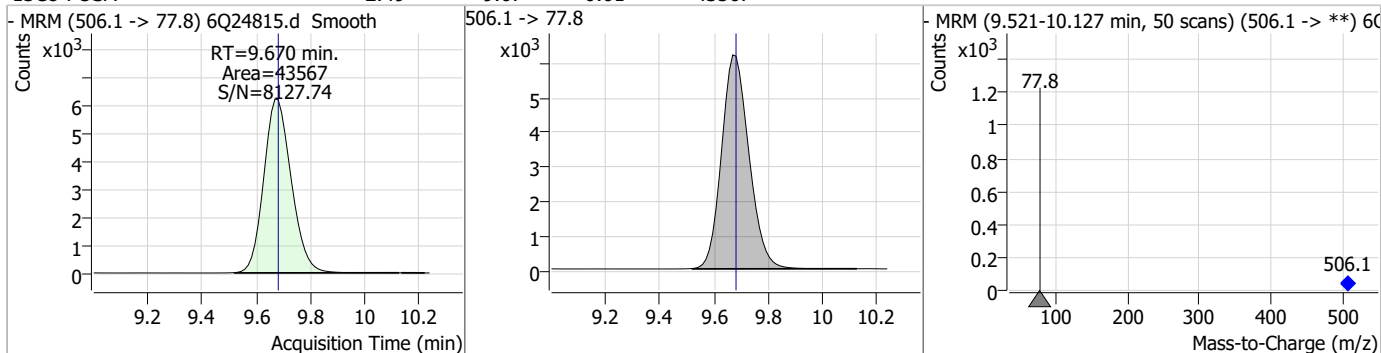
7.7.6
7

Perfluorinated Compounds by LC/MS/MS

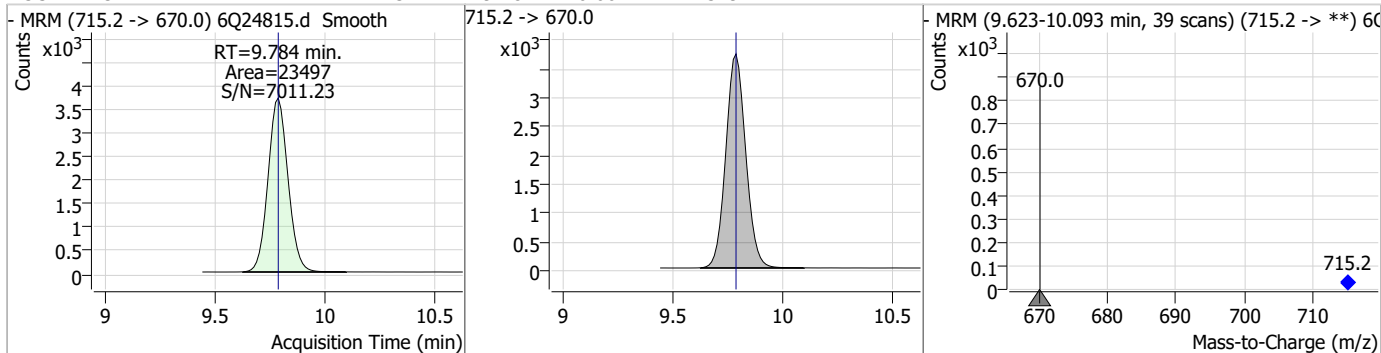
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	5.05	9.67	0.00	75918	498.1 -> 478.0	3.0	1.4	4.1



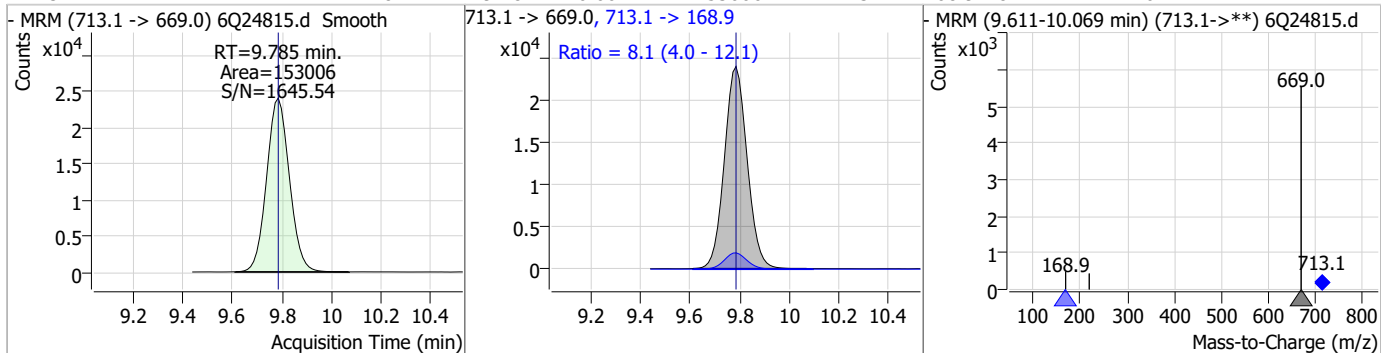
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.49	9.67	-0.01	43567				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.23	9.78	0.00	23497				

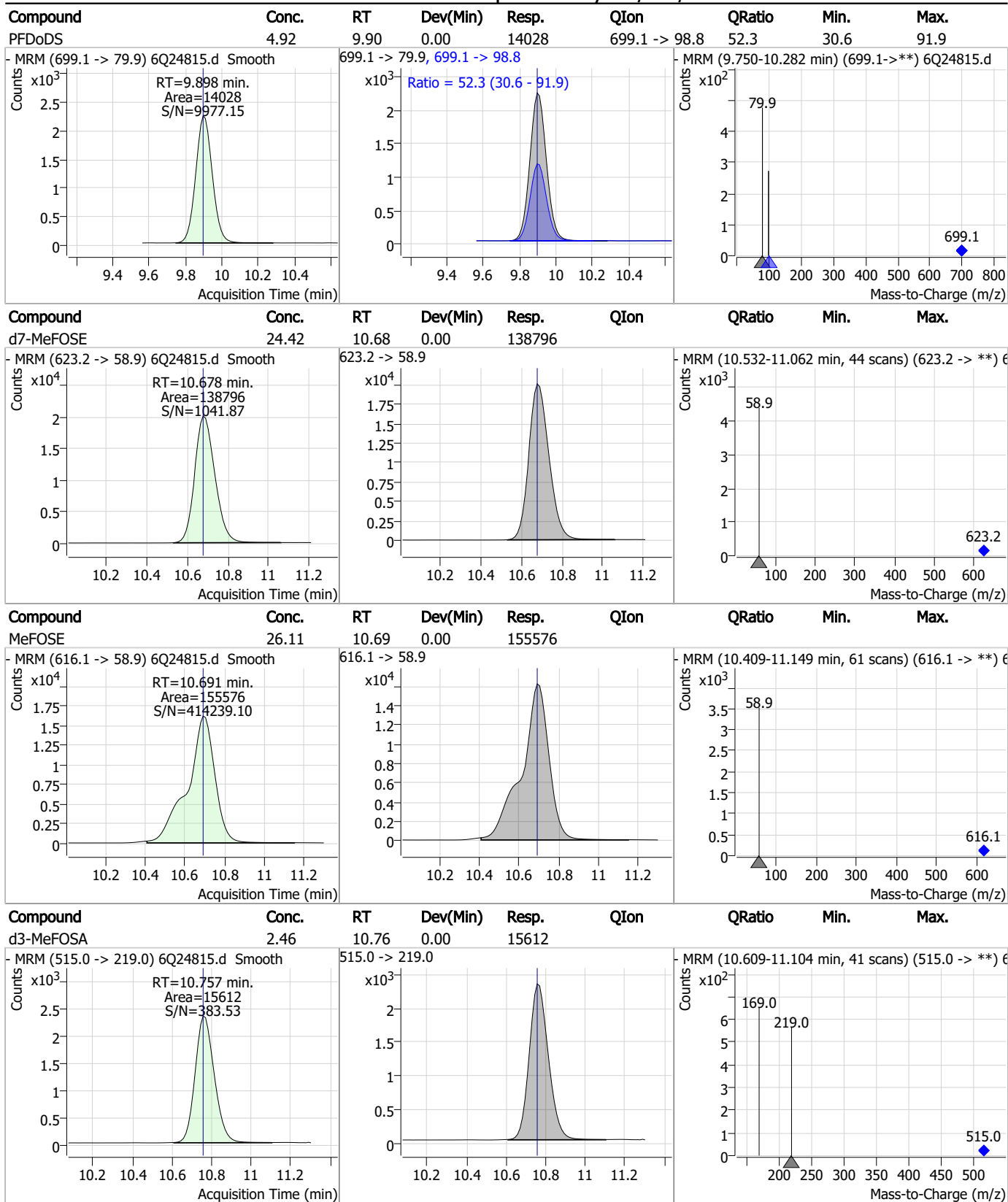


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.87	9.78	0.00	153006	713.1 -> 168.9	8.1	4.0	12.1



7.7.6
7

Perfluorinated Compounds by LC/MS/MS

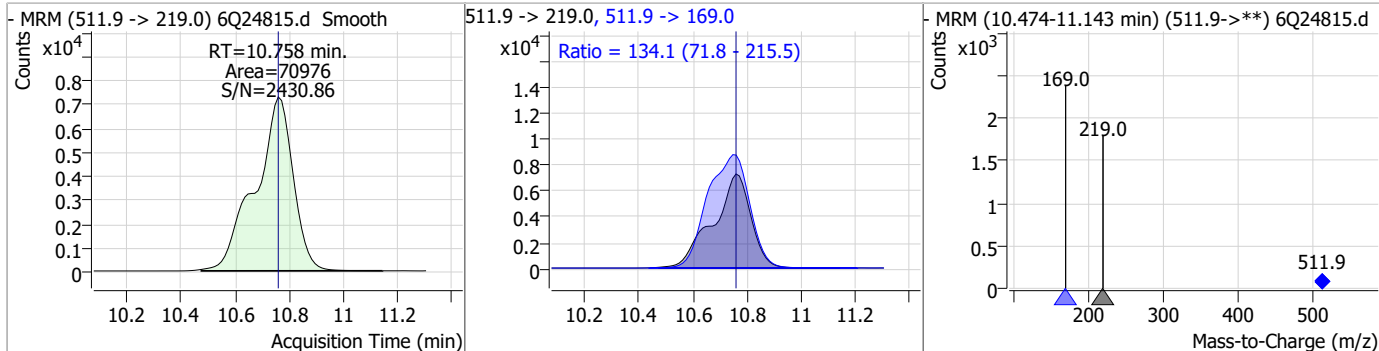


7.7.6
7

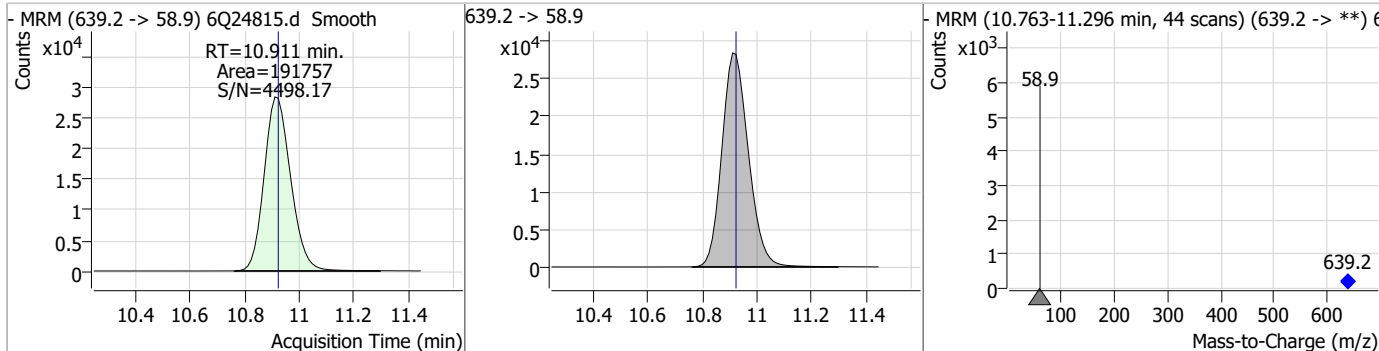


Perfluorinated Compounds by LC/MS/MS

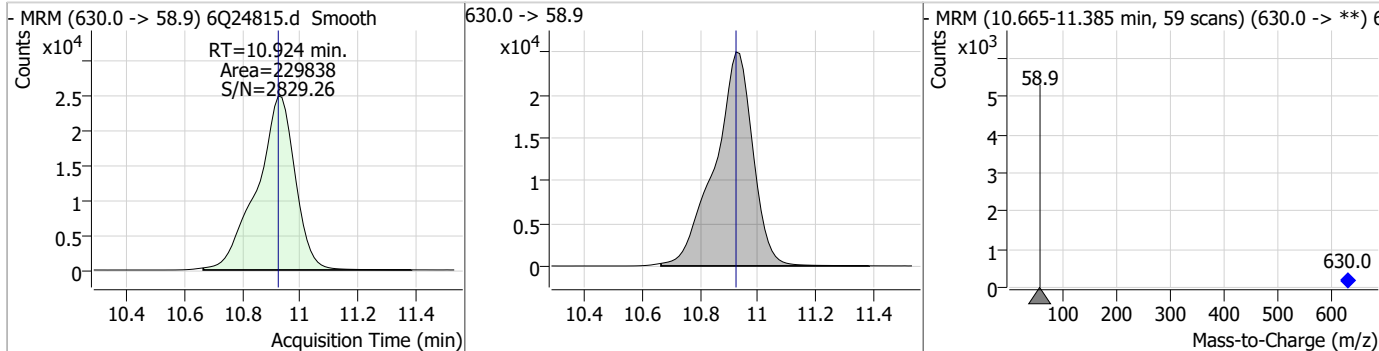
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	10.10	10.76	0.00	70976	511.9 -> 169.0	134.1	71.8	215.5



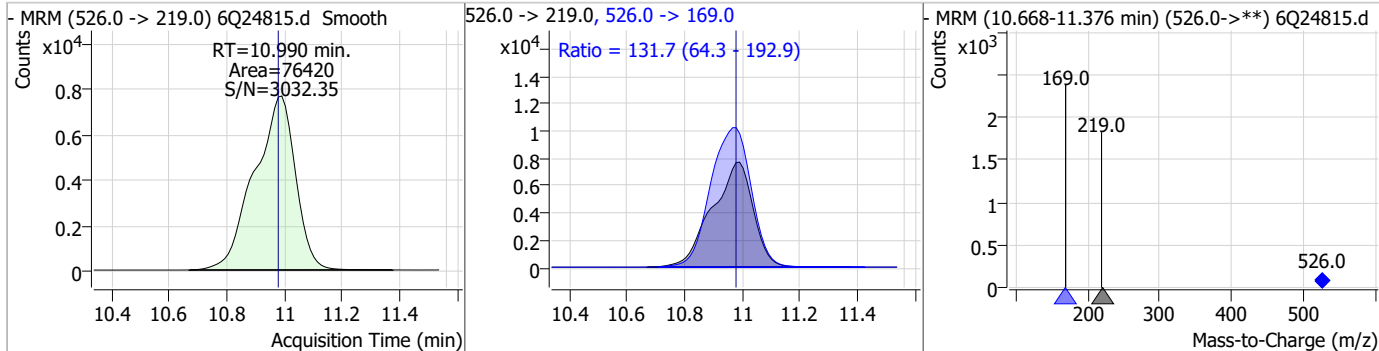
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.70	10.91	-0.01	191757				



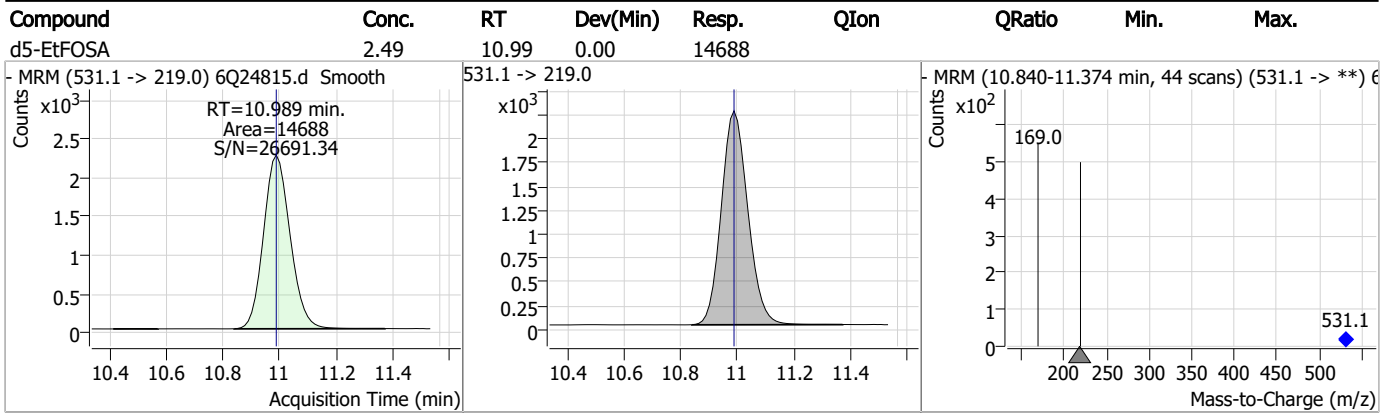
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	25.57	10.92	0.00	229838				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	9.90	10.99	0.01	76420	526.0 -> 169.0	131.7	64.3	192.9



Perfluorinated Compounds by LC/MS/MS



7.7.6

7

Manual Integration Approval Summary

Sample Number: S6Q355-IC355 Method: EPA DRAFT 1633
Lab FileID: 6Q24815.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 21:33 Supervisor approved: 09/22/23 13:16 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.6.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 09/22/23 13:16

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24816.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 9:47:34 PM
 Sample Name : ic355-6
 Vial : P1-A7
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	302010	10.00 µg/L	-0.025
M5-PFPeA	4.422	268.3 -> 223.0	48729	5.00 µg/L	-0.012
M5-PFHxA	5.641	318.0 -> 273.0	111889	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	92052	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	121696	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	51411	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	48251	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	59530	1.25 µg/L	0.000
M2-PFDoDA	9.079	615.1 -> 570.0	53369	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	21388	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	40498	2.50 µg/L	-0.012
M3-PFBS	5.559	302.1 -> 79.9	36214	2.50 µg/L	-0.012
M3-PFHxS	7.301	402.1 -> 79.9	20935	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	17996	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	3719	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	5523	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	5388	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	34533	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	66241	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	27585	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	134004	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	171258	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	13760	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	14255	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	24180	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	123917	5.00 µg/L	-0.012
18O2-PFHxS	7.300	403.0 -> 83.9	14753	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	138266	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	40923	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	55294	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	83746	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	3719	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-6:2FTS	6.974	429.1 -> 80.9	5523	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C2-8:2FTS	7.998	529.1 -> 80.9	5388	4.86 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C2-PFDoDA	9.079	615.1 -> 570.0	53369	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-PFTeDA	9.784	715.2 -> 670.0	21388	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C3-PFBS	5.559	302.1 -> 79.9	36214	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C3-PFHxS	7.301	402.1 -> 79.9	20935	2.62 µg/L	-0.012

7.7.7
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C4-PFBA	2.985	216.8 -> 171.9	302010	9.99 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.569	367.1 -> 322.0	92052	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C5-PFHxA	5.641	318.0 -> 273.0	111889	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C5-PFPeA	4.422	268.3 -> 223.0	48729	5.12 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C6-PFDA	8.198	519.1 -> 474.1	48251	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C7-PFUnDA	8.651	570.0 -> 525.1	59530	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C8-FOSA	9.670	506.1 -> 77.8	40498	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C8-PFOA	7.198	421.1 -> 376.0	121696	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C8-PFOS	8.348	507.1 -> 79.9	17996	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C9-PFNA	7.717	472.1 -> 427.0	51411	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
d3-MeFOSAA	8.256	573.2 -> 419.0	34533	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	66241	10.67 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	14255	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
d5-EtFOSAA	8.452	589.2 -> 419.0	27585	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
d7-MeFOSE	10.678	623.2 -> 58.9	134004	25.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
d9-EtFOSE	10.911	639.2 -> 58.9	171258	25.29 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
d5-EtFOSA	10.989	531.1 -> 219.0	13760	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	303053	50.31 µg/L	99
		327.1 -> 80.9	113792		
6:2FTS	6.974	427.1 -> 407.0	243930	47.77 µg/L	99
		427.1 -> 80.9	93360		
8:2FTS	7.987	527.1 -> 507.0	174692	51.06 µg/L	84
		527.1 -> 80.8	72520		
EtFOSAA	8.452	584.2 -> 419.1	60329	14.46 µg/L	m 96
		584.2 -> 526.0	41197		
FOSA	9.672	498.1 -> 77.9	175629	12.57 µg/L	100
		498.1 -> 478.0	4893		
MeFOSAA	8.257	570.1 -> 419.0	97251	12.41 µg/L	96
		570.1 -> 483.0	21377		
PFBA	2.993	212.8 -> 168.9	494137	53.09 µg/L	100
PFBS	5.560	298.7 -> 79.9	203064	11.84 µg/L	99
		298.7 -> 98.8	72214		
PFDA	8.198	512.9 -> 469.0	581801	13.50 µg/L	97
		512.9 -> 219.0	89582		
PFDoDA	9.080	613.1 -> 569.0	533362	13.72 µg/L	99
		613.1 -> 319.0	60898		
PFDS	9.233	599.0 -> 79.9	68026	12.89 µg/L	100

7.7.7
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	32559			
PFHpA	6.569	363.1 -> 319.0	624189	13.33	µg/L	98
		363.1 -> 169.0	94143			
PFHpS	7.856	449.0 -> 79.9	113766	12.91	µg/L	97
		449.0 -> 98.9	56107			
PFHxA	5.644	313.0 -> 269.0	517632	13.31	µg/L	99
		313.0 -> 118.9	23109			
PFHxS	7.302	398.7 -> 79.9	155403	11.49	µg/L	m 97
		398.7 -> 98.9	71192			
PFNA	7.717	463.0 -> 419.0	417554	12.64	µg/L	100
		463.0 -> 219.0	100752			
PFNS	8.814	548.8 -> 79.9	113533	12.98	µg/L	97
		548.8 -> 98.9	62613			
PFOA	7.200	413.0 -> 369.0	726330	12.94	µg/L	98
		413.0 -> 169.0	133541			
PFOS	8.350	498.9 -> 79.9	125647	12.35	µg/L	m 98
		498.9 -> 98.8	63841			
PFPeA	4.424	263.0 -> 219.0	626855	26.12	µg/L	100
PFPeS	6.620	349.1 -> 79.9	135783	12.07	µg/L	95
		349.1 -> 98.9	61571			
PFTeDA	9.785	713.1 -> 669.0	386483	13.51	µg/L	99
		713.1 -> 168.9	29777			
PFTrDA	9.452	663.0 -> 619.0	557010	13.45	µg/L	98
		663.0 -> 168.9	47775			
PFUnDA	8.652	563.1 -> 519.0	421696	12.20	µg/L	99
		563.1 -> 269.1	63207			
11Cl-PF3OUdS	9.491	630.9 -> 450.9	524919	24.42	µg/L	99
		632.9 -> 452.9	165122			
9Cl-PF3ONS	8.690	530.8 -> 351.0	864497	22.78	µg/L	100
		532.8 -> 353.0	274999			
ADONA	6.817	376.9 -> 250.9	2348110	24.01	µg/L	97
		376.9 -> 84.8	587345			
HFPO-DA	6.020	284.9 -> 168.9	155439	24.72	µg/L	99
		284.9 -> 184.9	21679			
3:3FTCA	3.858	241.0 -> 177.0	105856	65.20	µg/L	100
		241.0 -> 117.0	10093			
5:3FTCA	6.283	341.0 -> 237.1	2317911	339.58	µg/L	94
		341.0 -> 217.0	1543322			
7:3FTCA	7.669	441.0 -> 316.9	1300708	326.64	µg/L	99
		441.0 -> 336.9	2922572			
EtFOSA	10.990	526.0 -> 219.0	192444	26.61	µg/L	97
		526.0 -> 169.0	240220			
EtFOSE	10.924	630.0 -> 58.9	540114	67.29	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	172970	26.96	µg/L	100
		511.9 -> 169.0	247839			
MeFOSE	10.691	616.1 -> 58.9	374729	65.14	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	32234	12.42	µg/L	98
		699.1 -> 98.8	19163			
NFDHA	5.524	295.0 -> 201.0	124519	27.06	µg/L	98
		295.0 -> 84.9	30394			
PFMBA	4.850	279.0 -> 85.1	454091	26.72	µg/L	100
PFMPA	3.551	229.0 -> 84.9	332900	26.46	µg/L	100
PFEESA	6.112	314.8 -> 134.9	1184318	23.13	µg/L	100
		314.8 -> 82.9	39395			

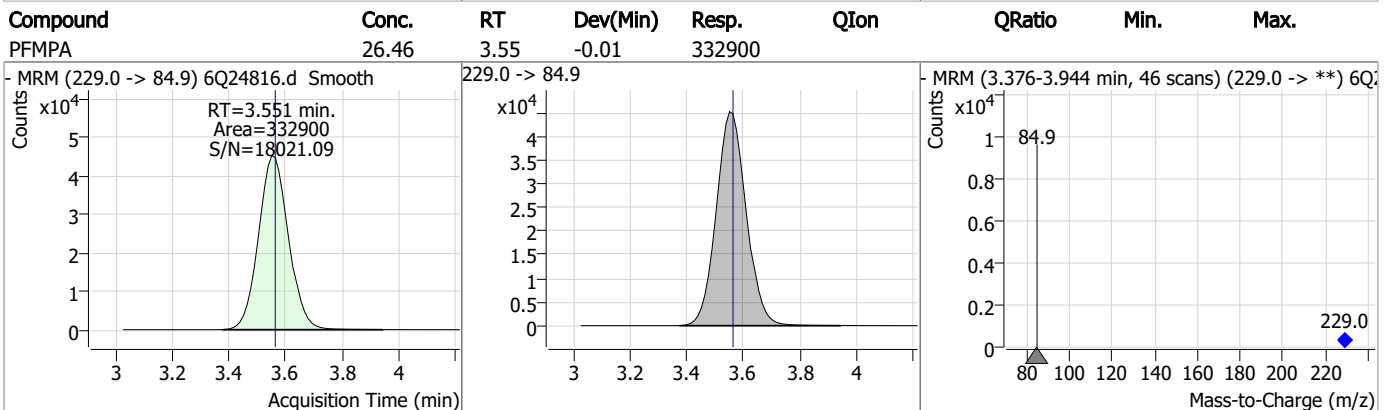
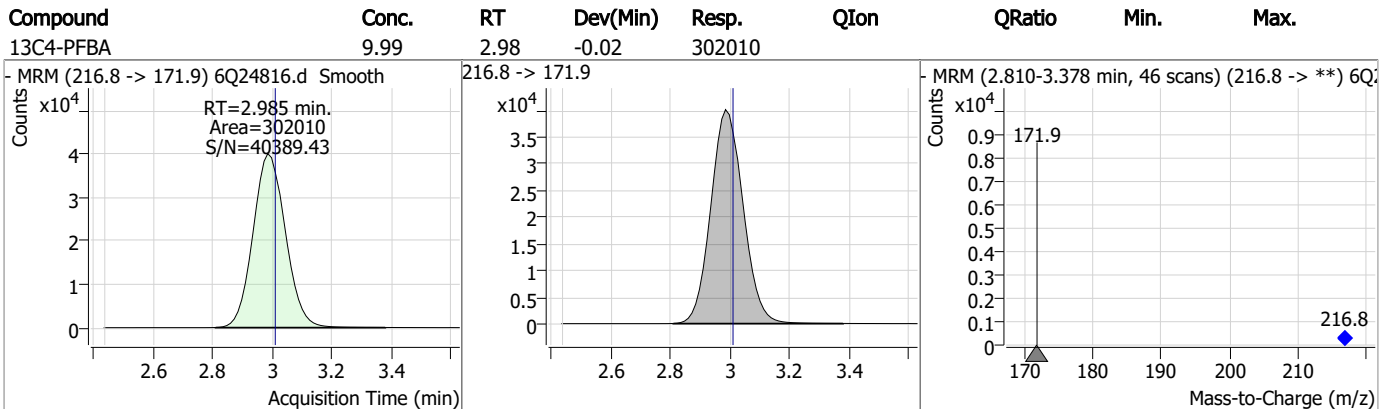
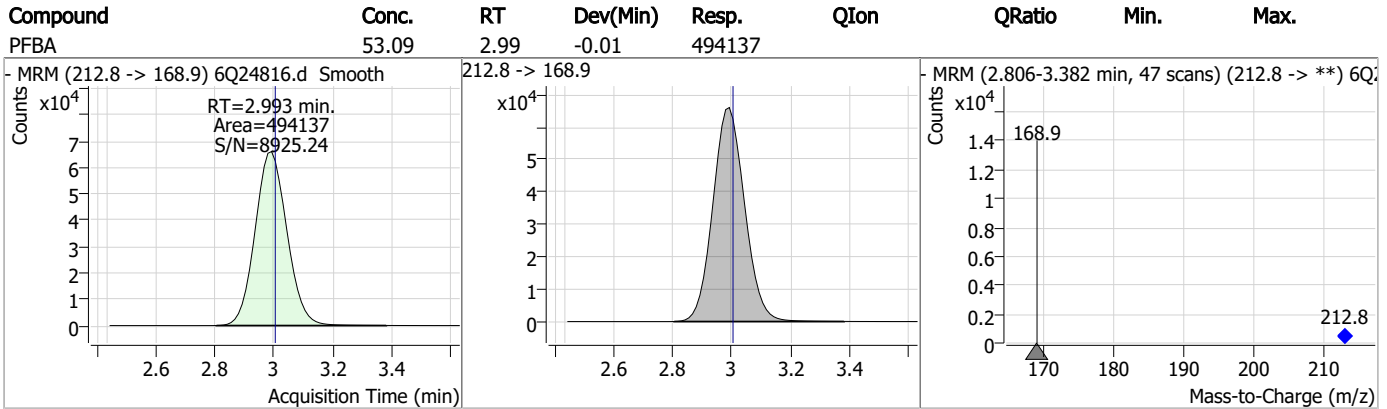
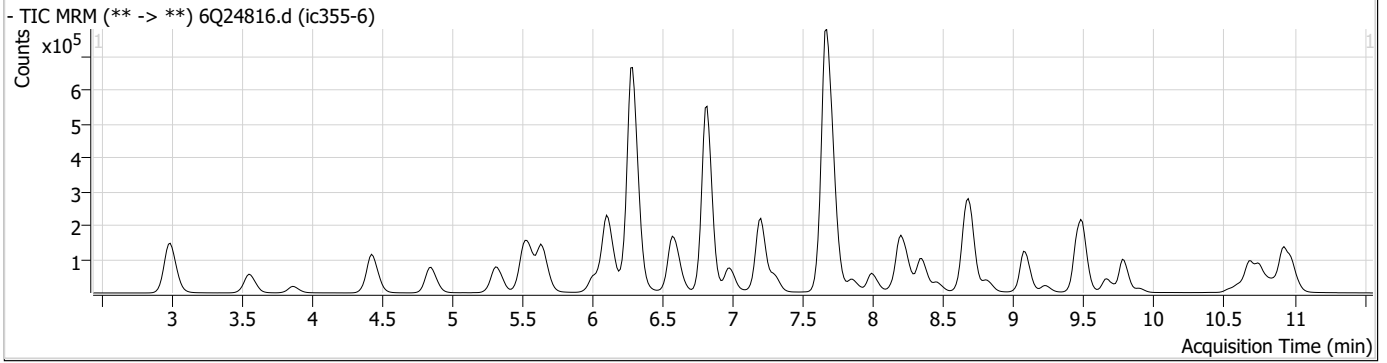
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

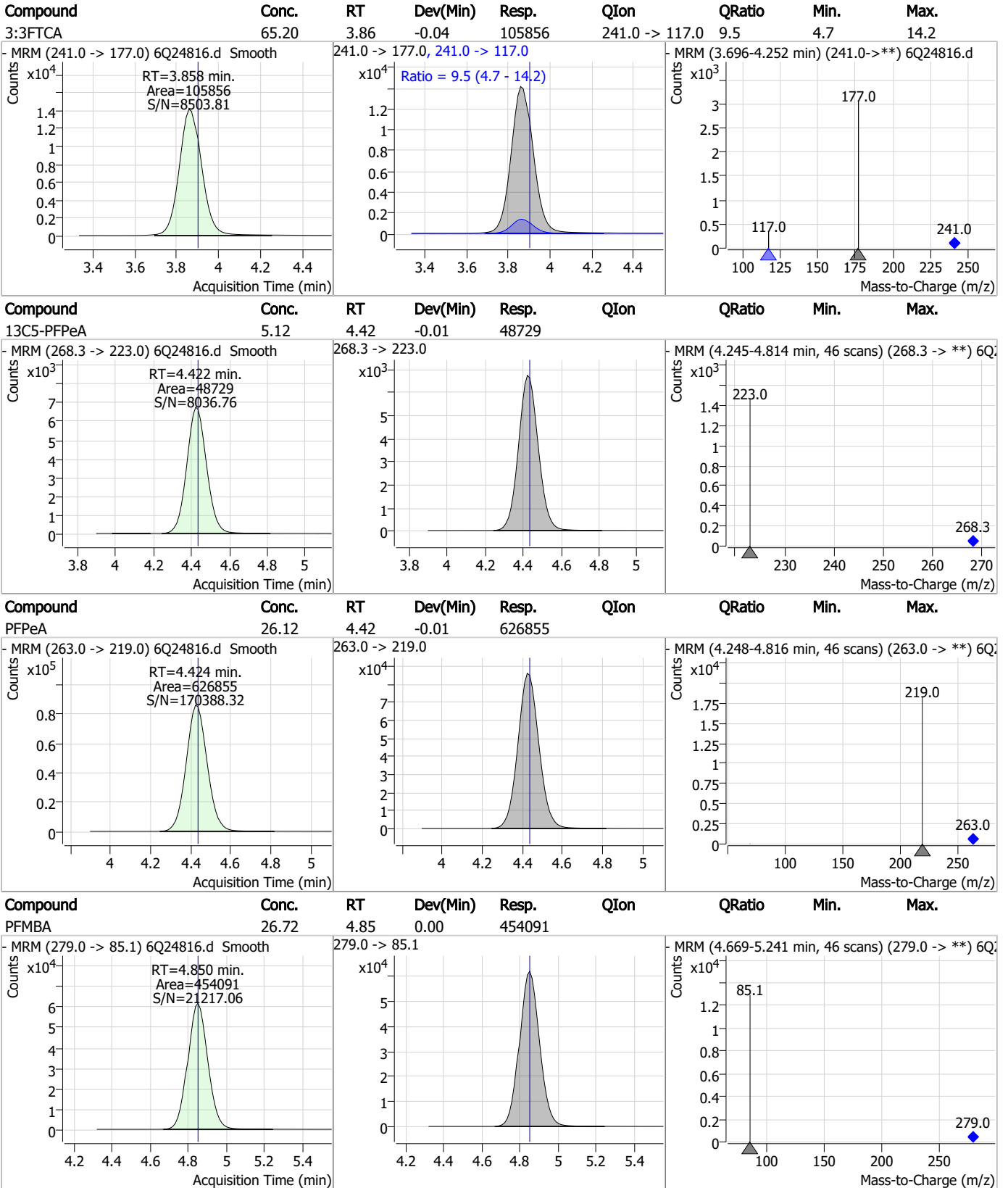
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.7
7

Perfluorinated Compounds by LC/MS/MS



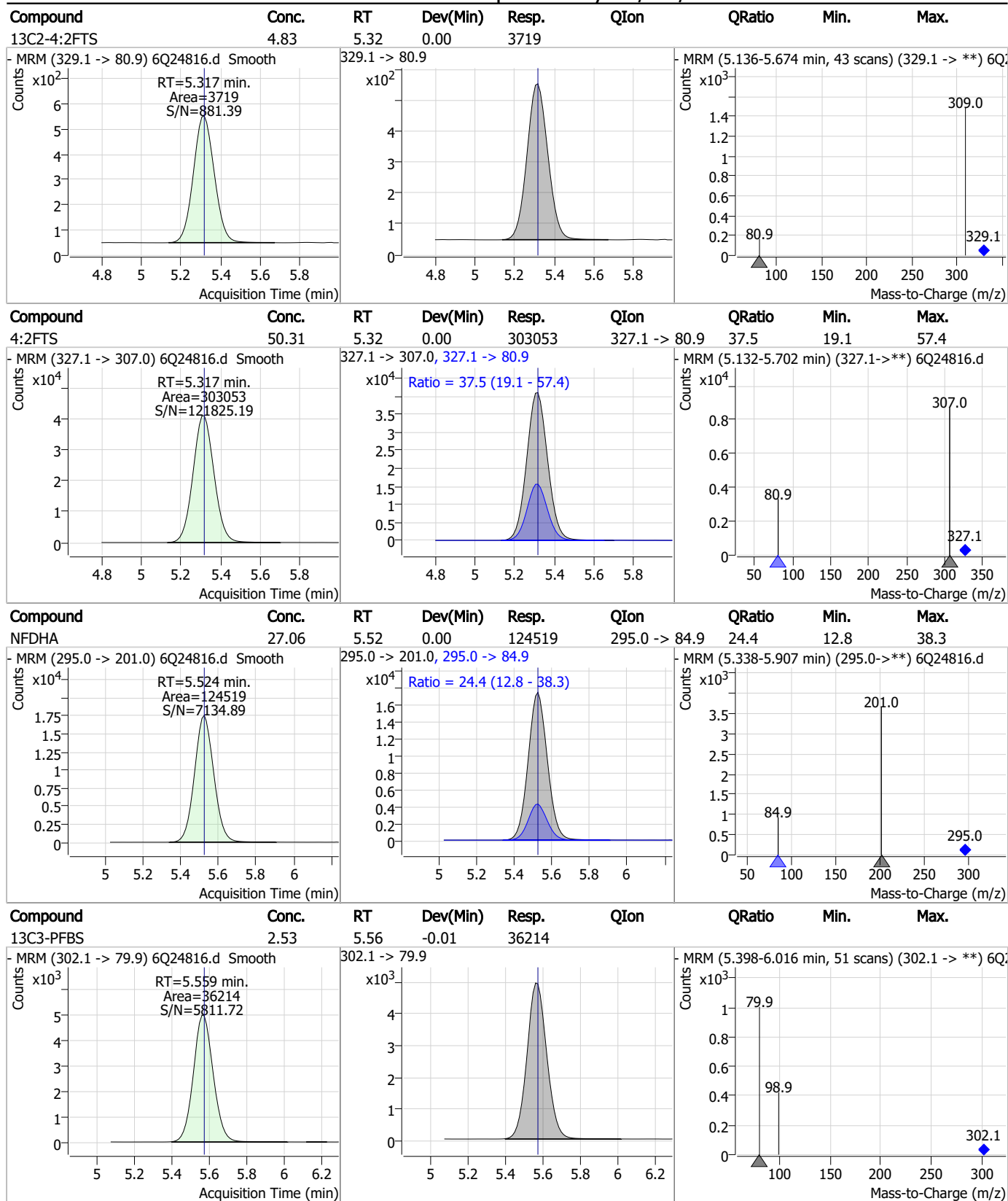
Perfluorinated Compounds by LC/MS/MS



7.7.7

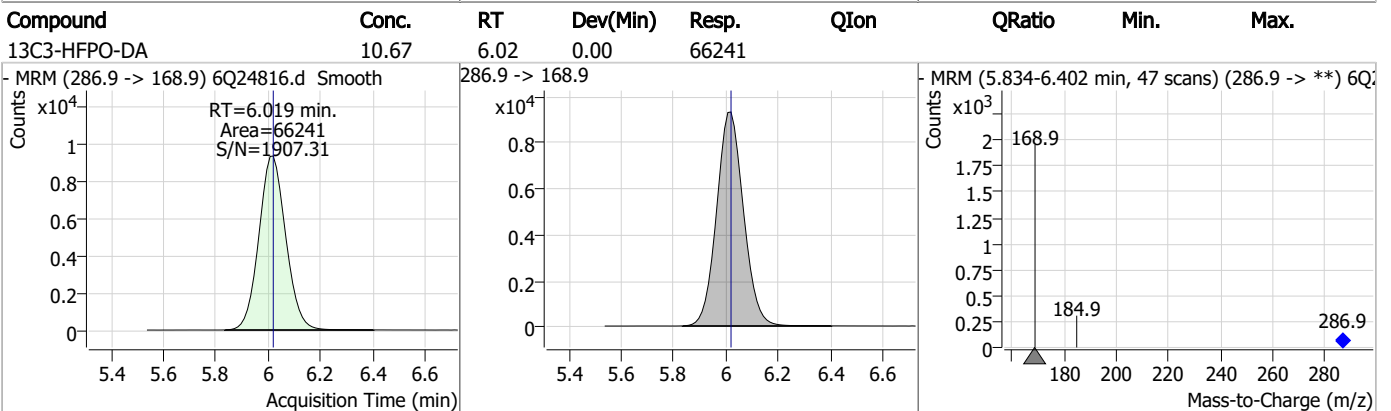
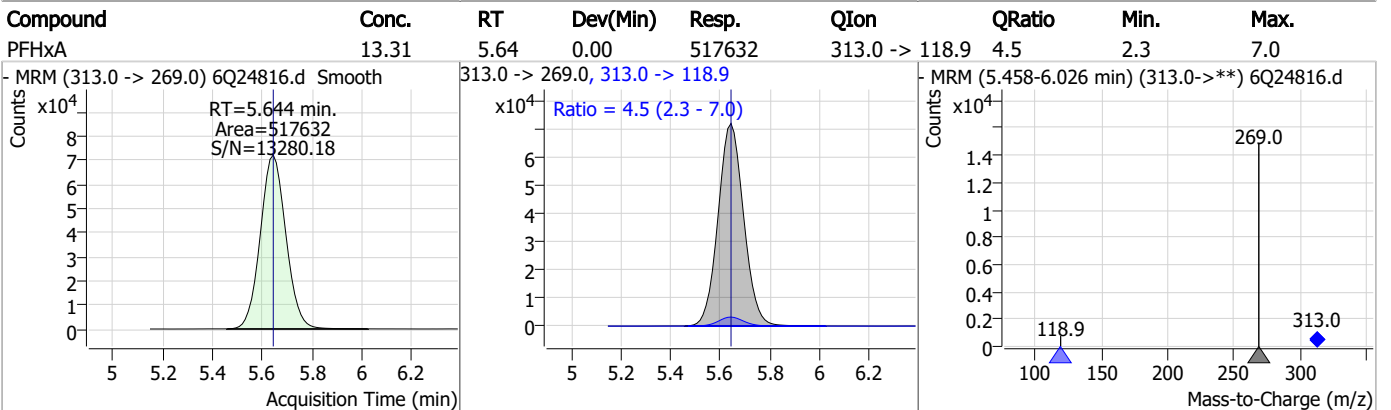
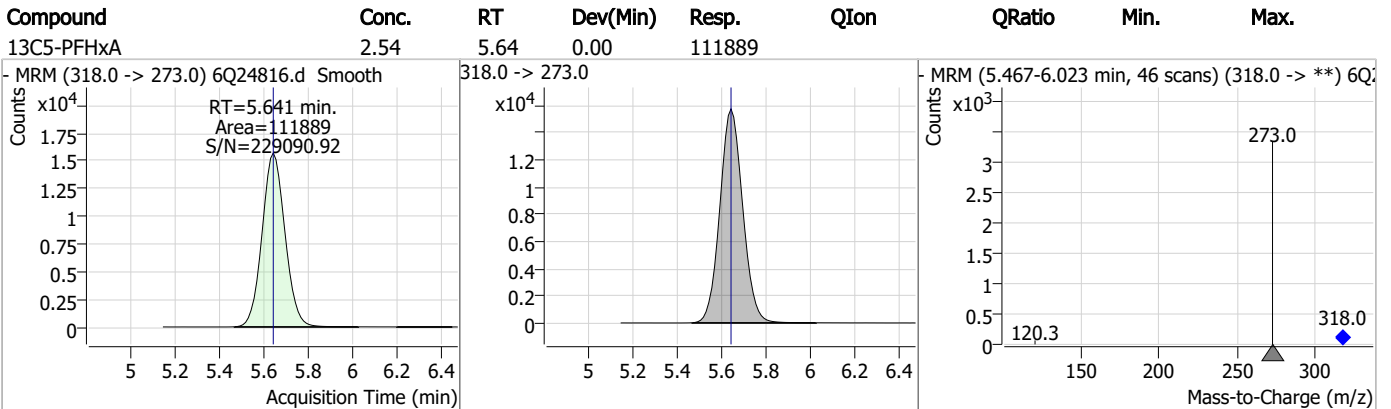
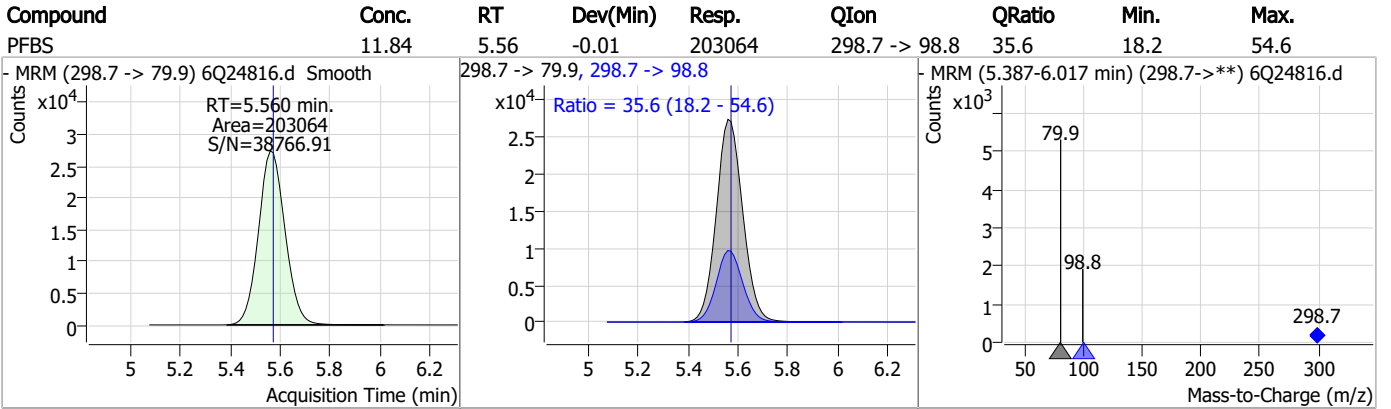
7

Perfluorinated Compounds by LC/MS/MS

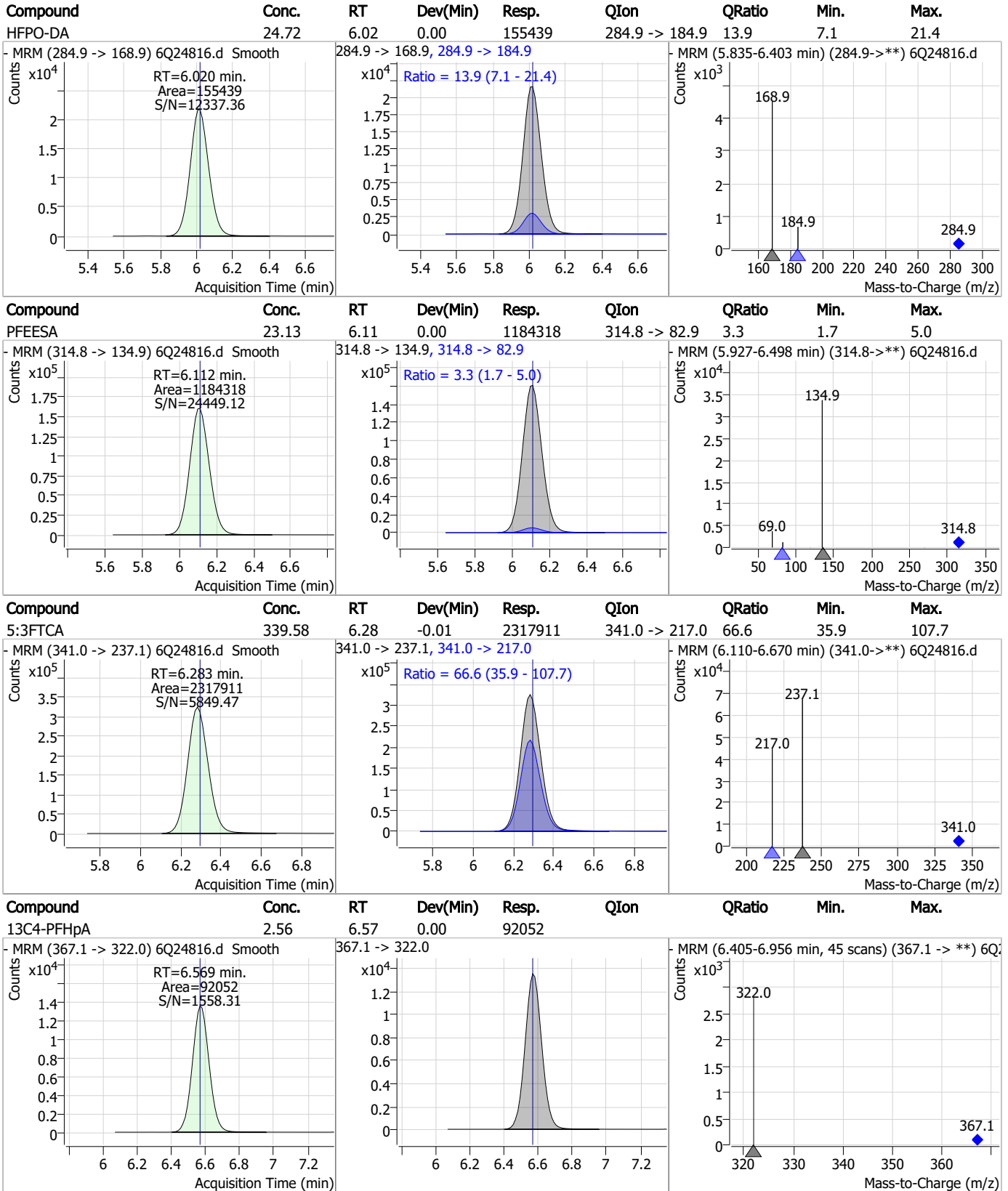


7.7.7

Perfluorinated Compounds by LC/MS/MS



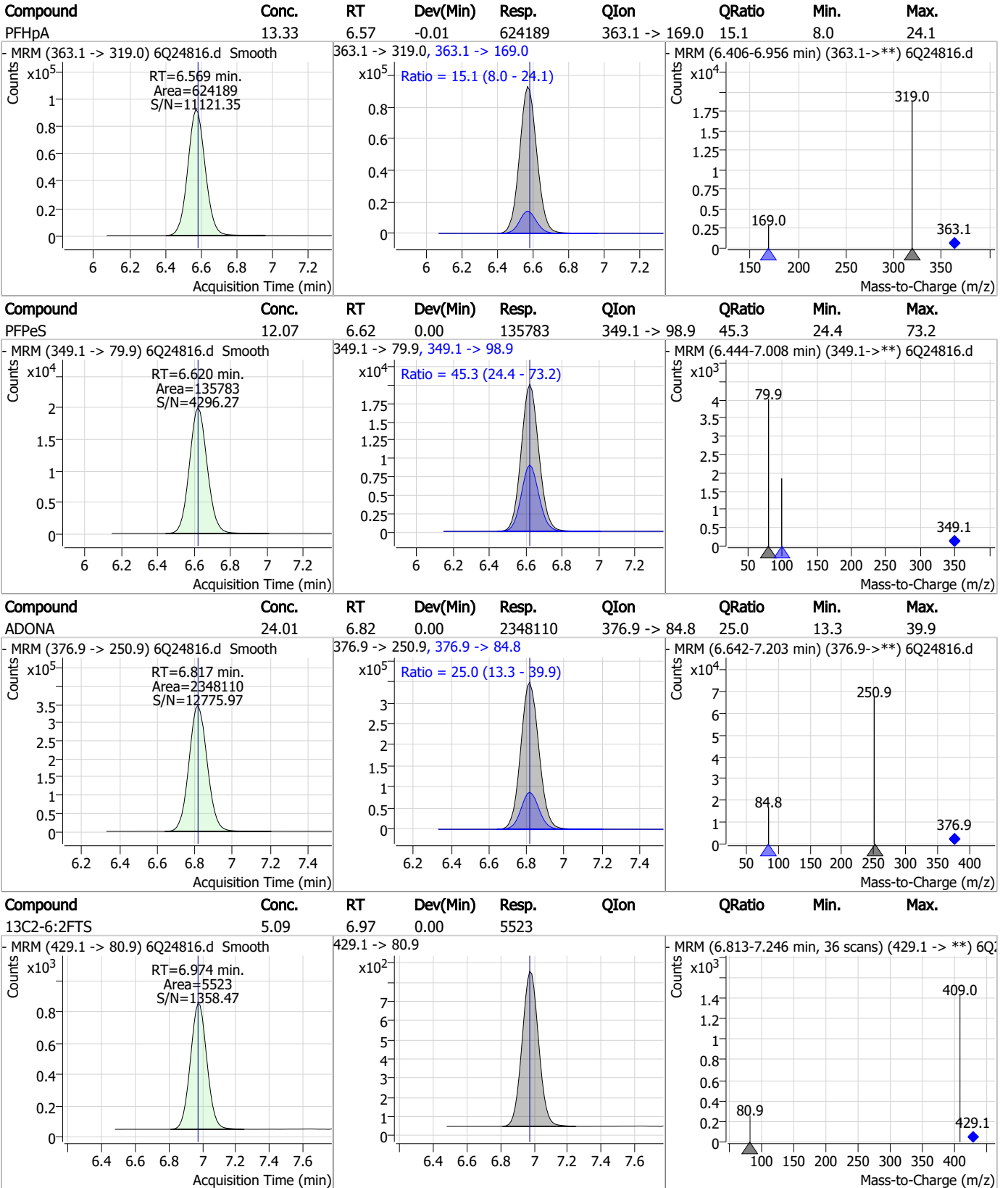
Perfluorinated Compounds by LC/MS/MS



7.7.7

7

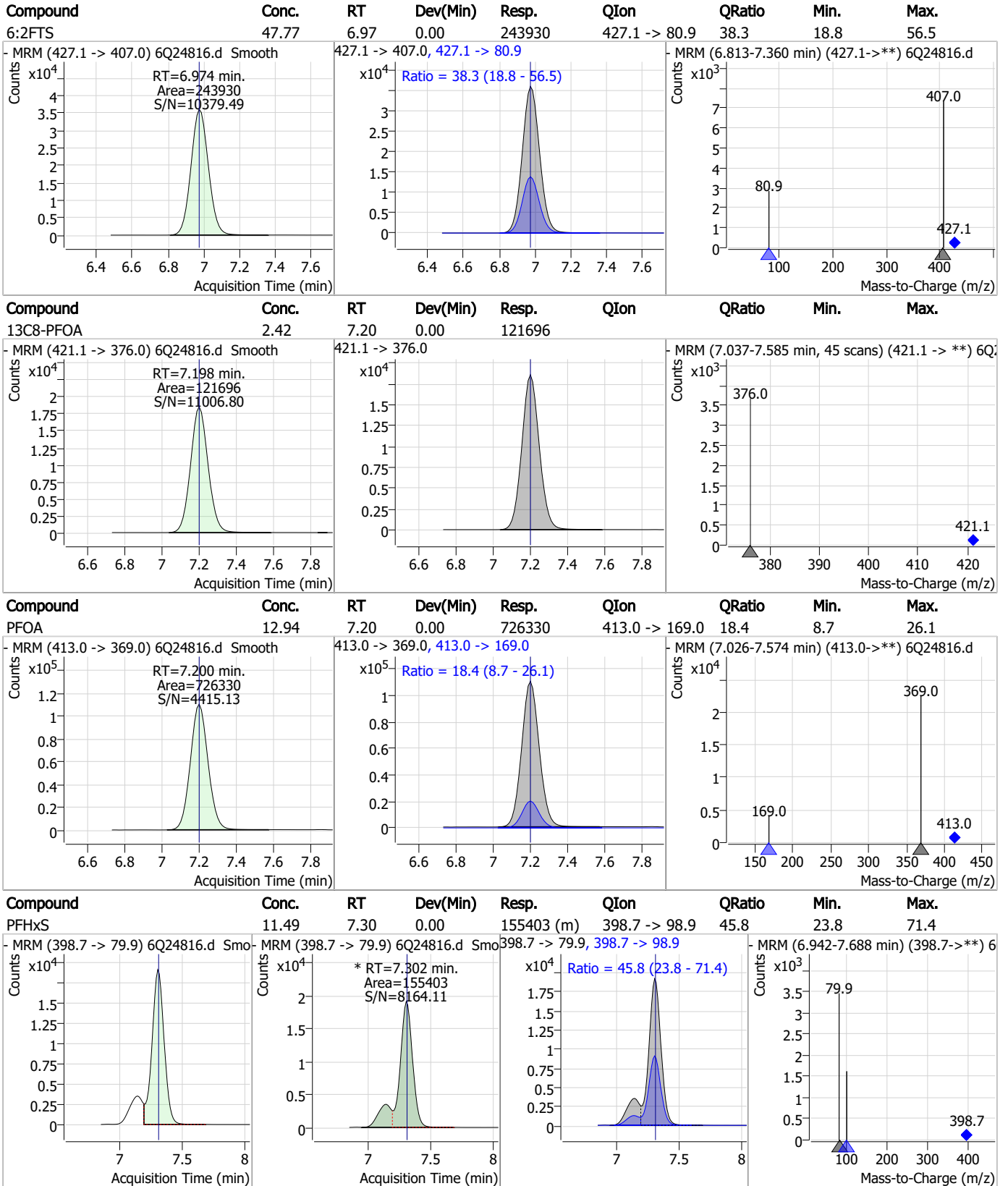
Perfluorinated Compounds by LC/MS/MS



7.7.7

7

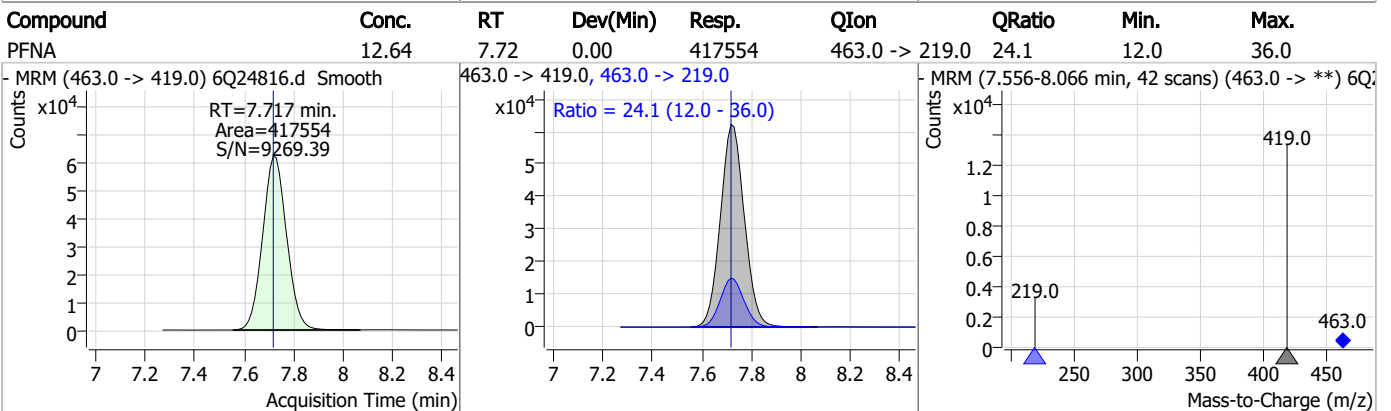
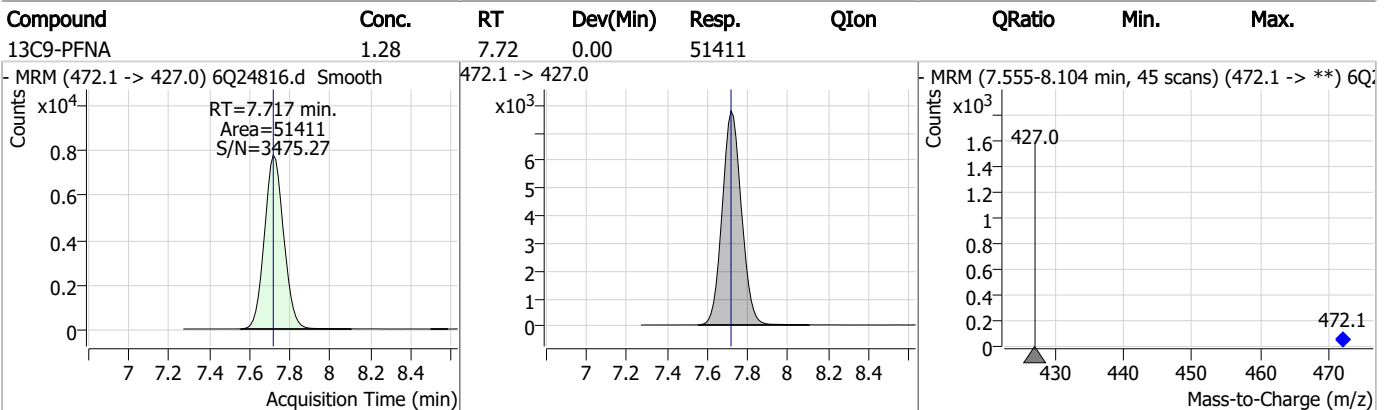
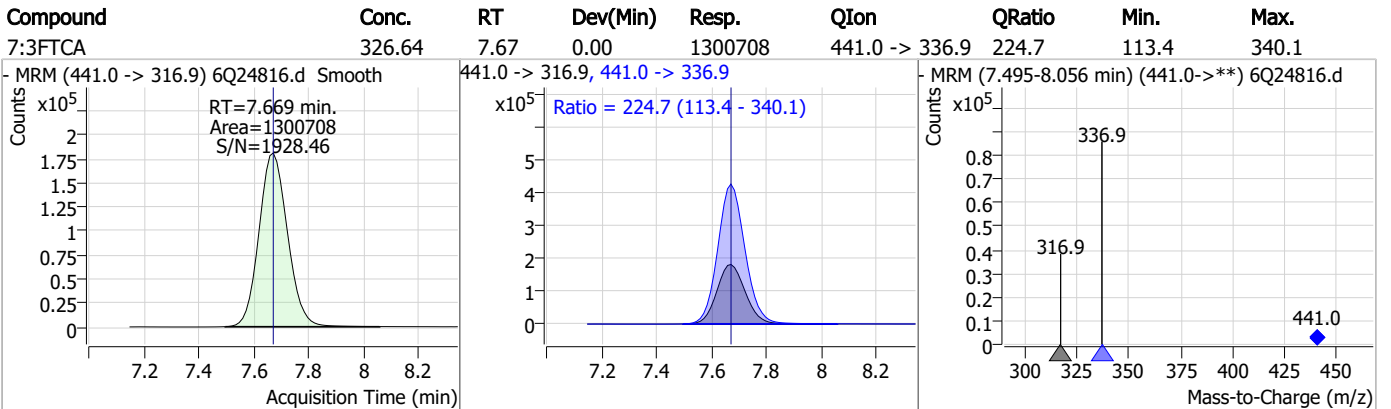
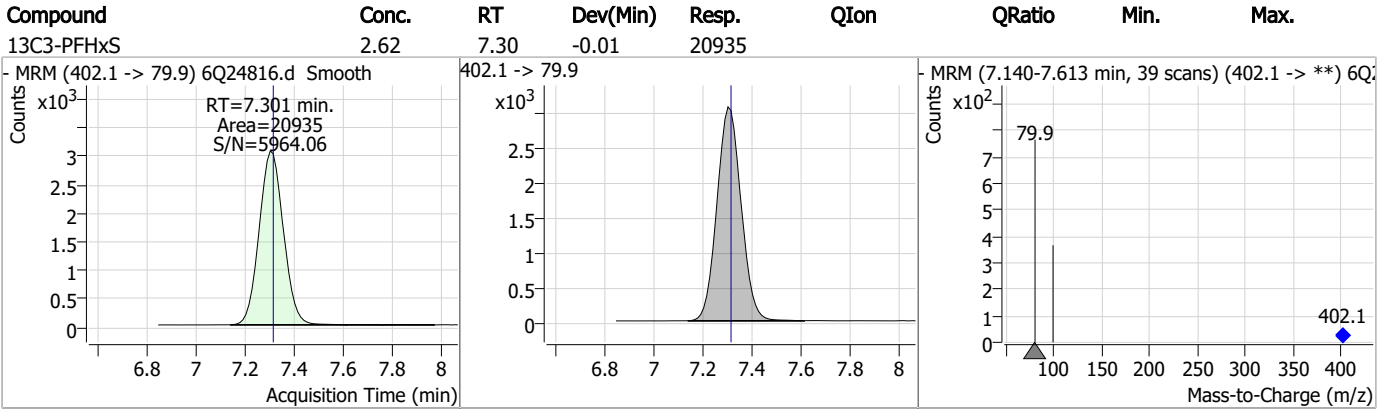
Perfluorinated Compounds by LC/MS/MS



7.7.7

7

Perfluorinated Compounds by LC/MS/MS



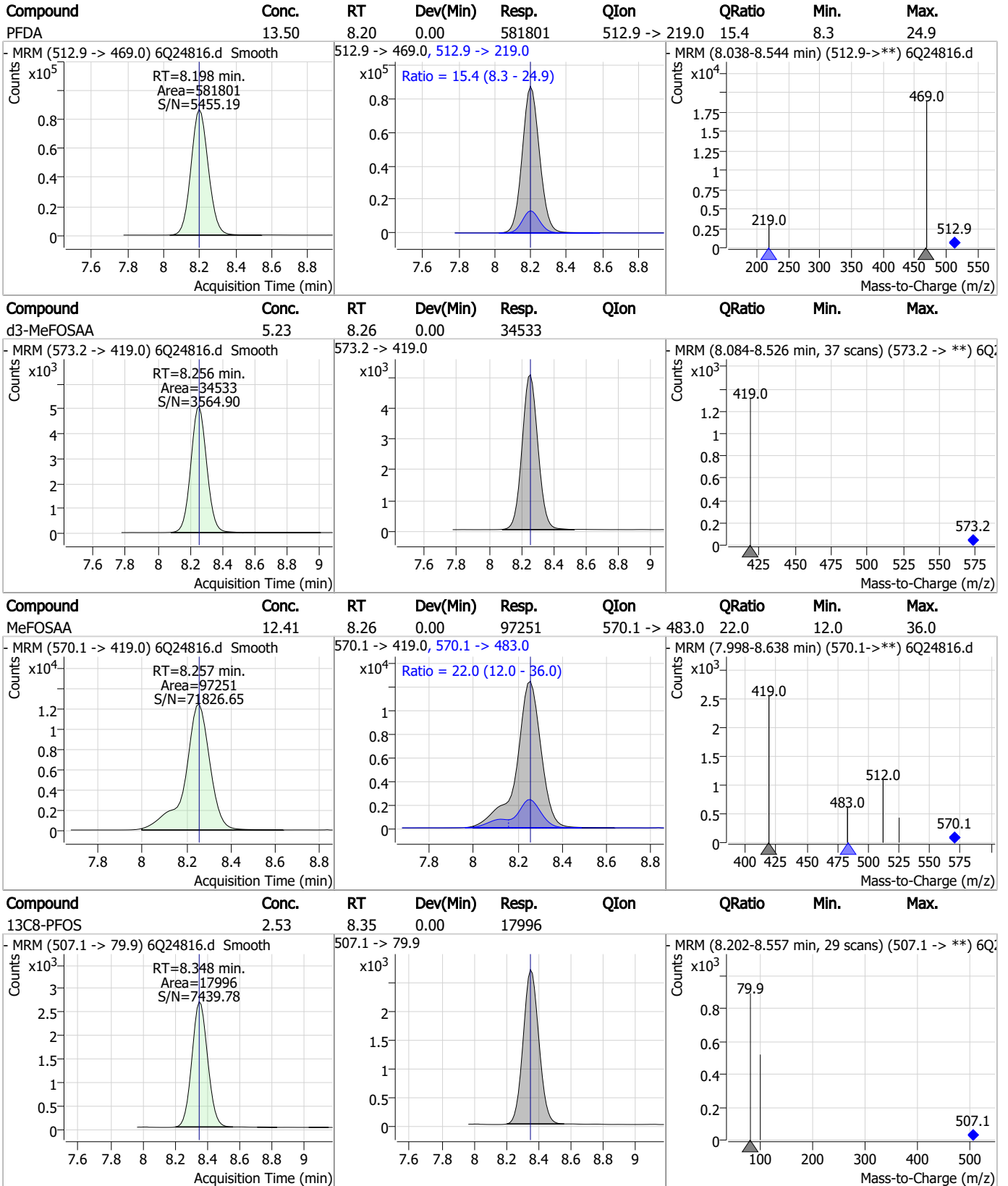
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	12.91	7.86	0.00	113766	449.0 -> 98.9	49.3	23.5	70.6
13C2-8:2FTS	4.86	8.00	0.01	5388	529.1 -> 80.9			
8:2FTS	51.06	7.99	-0.01	174692	527.1 -> 80.8	41.5	16.2	48.5
13C6-PFDA	1.30	8.20	0.00	48251	519.1 -> 474.1			

7.7.7

7

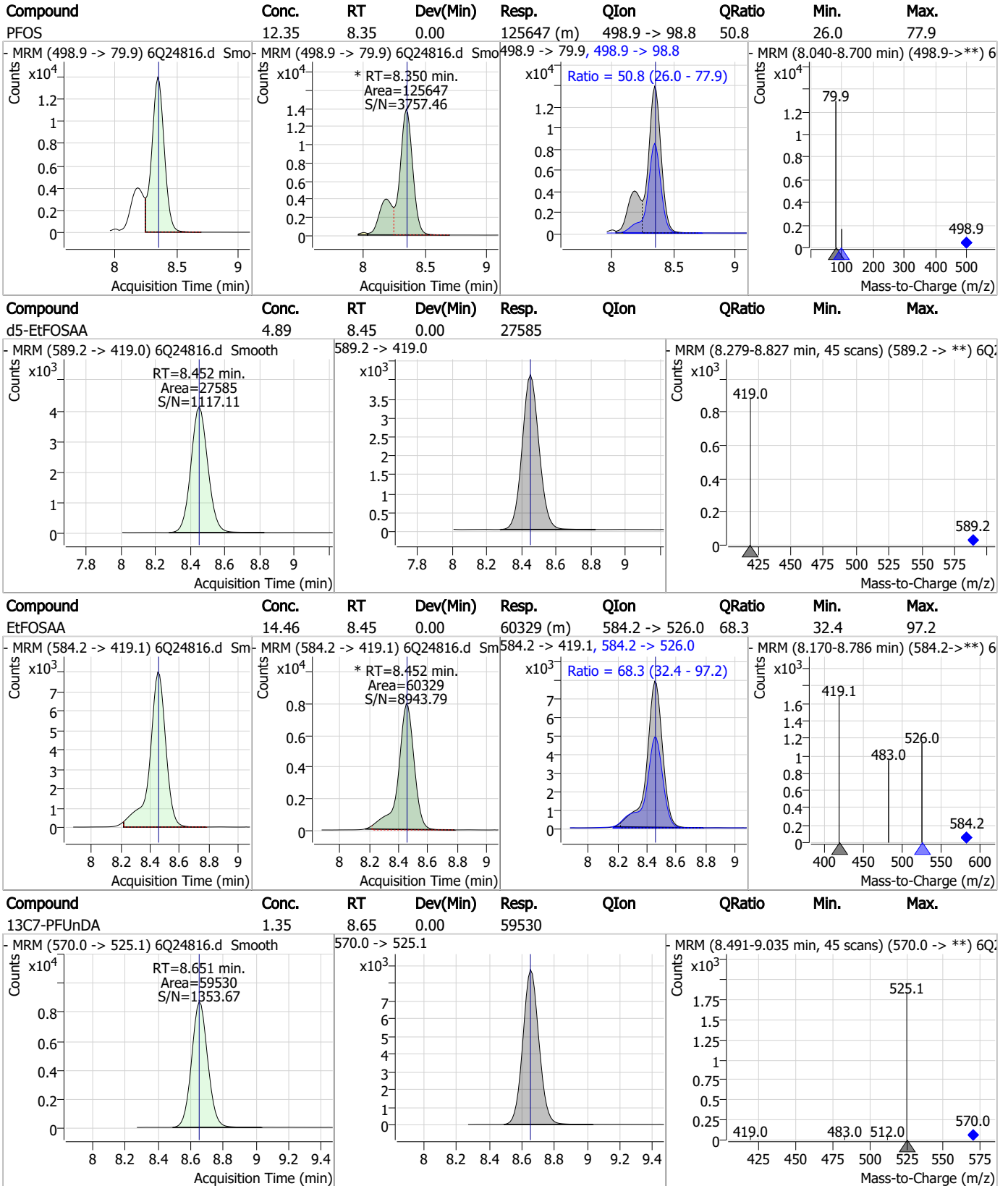
Perfluorinated Compounds by LC/MS/MS



7.7.7

7

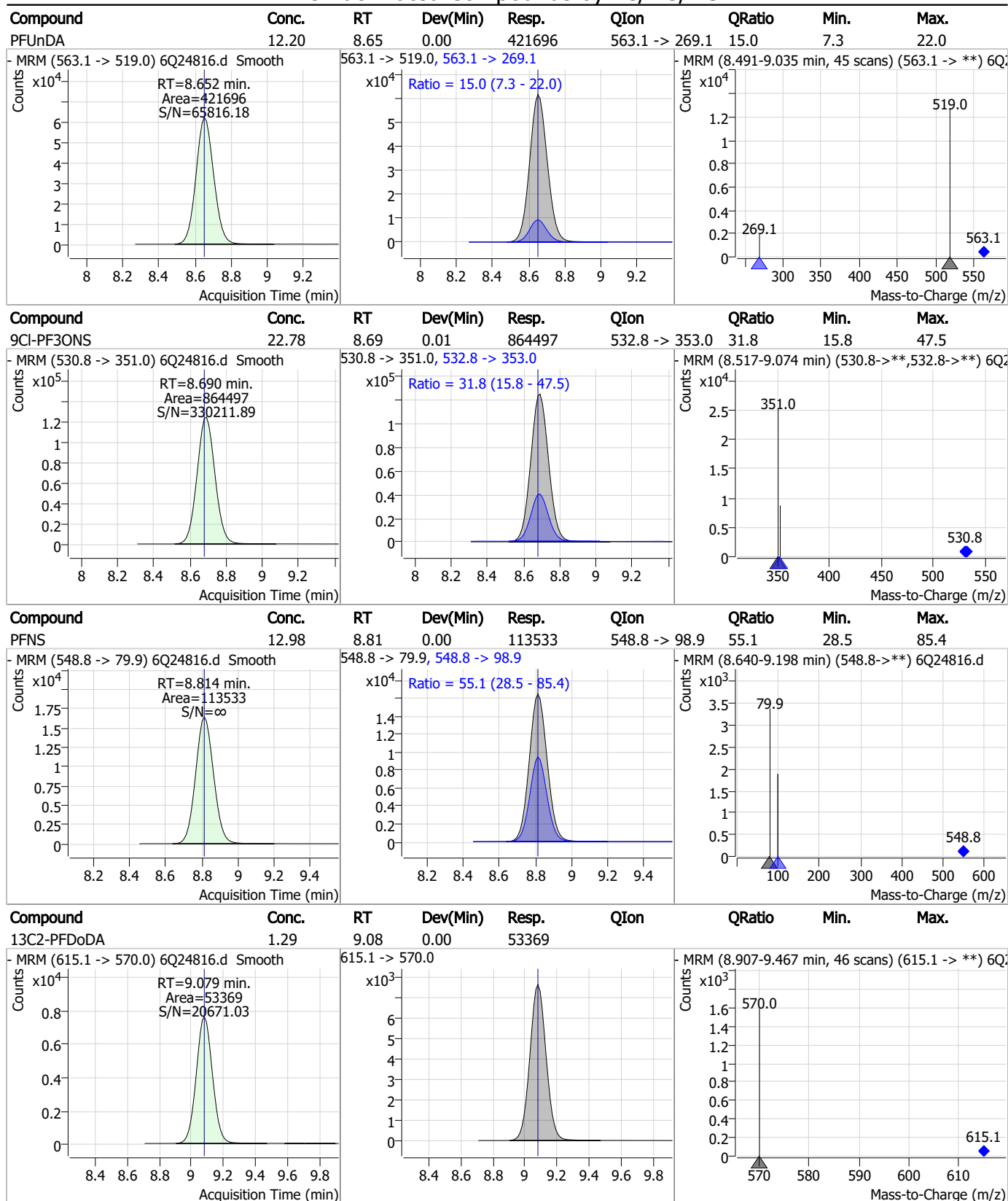
Perfluorinated Compounds by LC/MS/MS



7.7.7

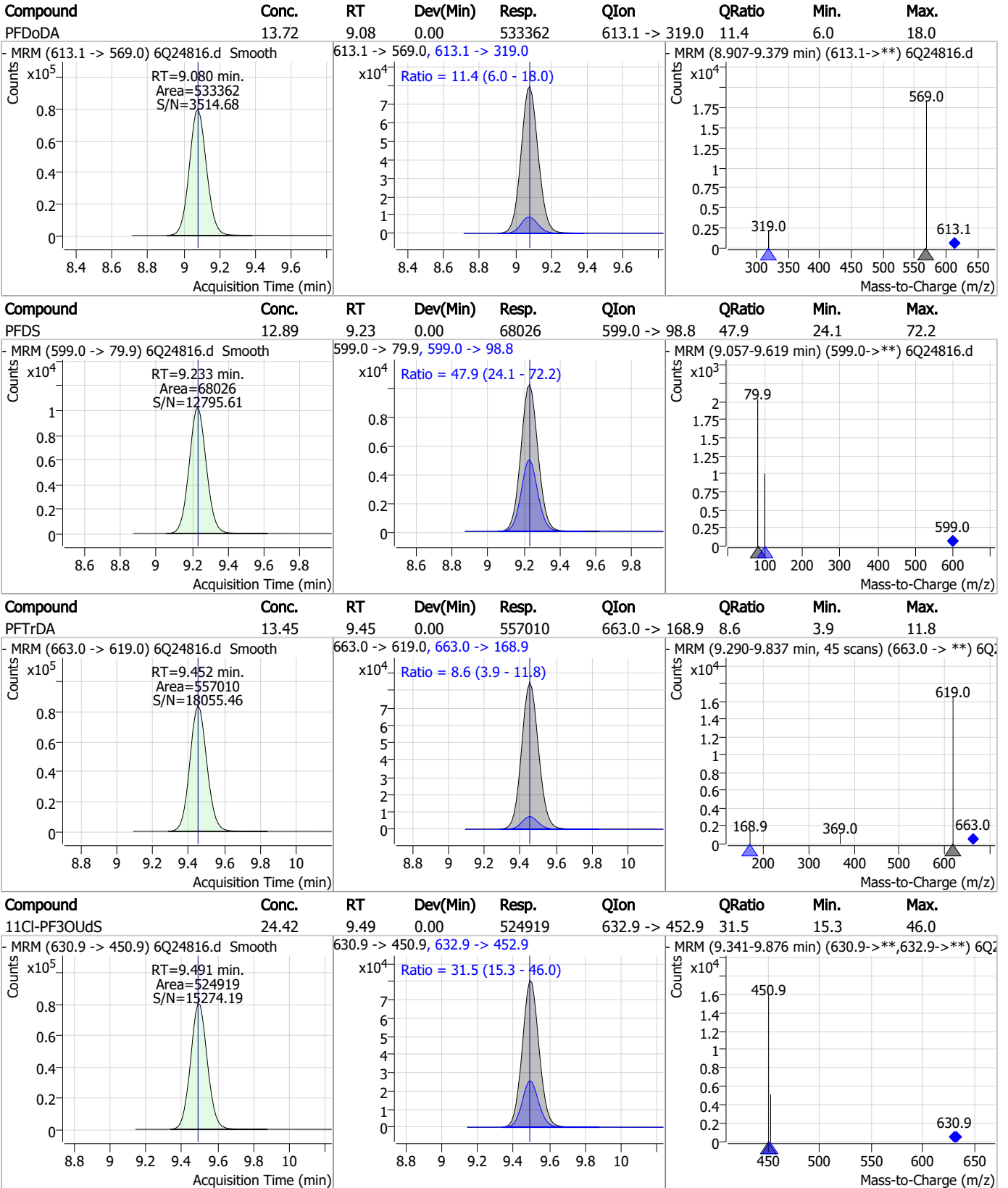
7

Perfluorinated Compounds by LC/MS/MS



7.7.7
7

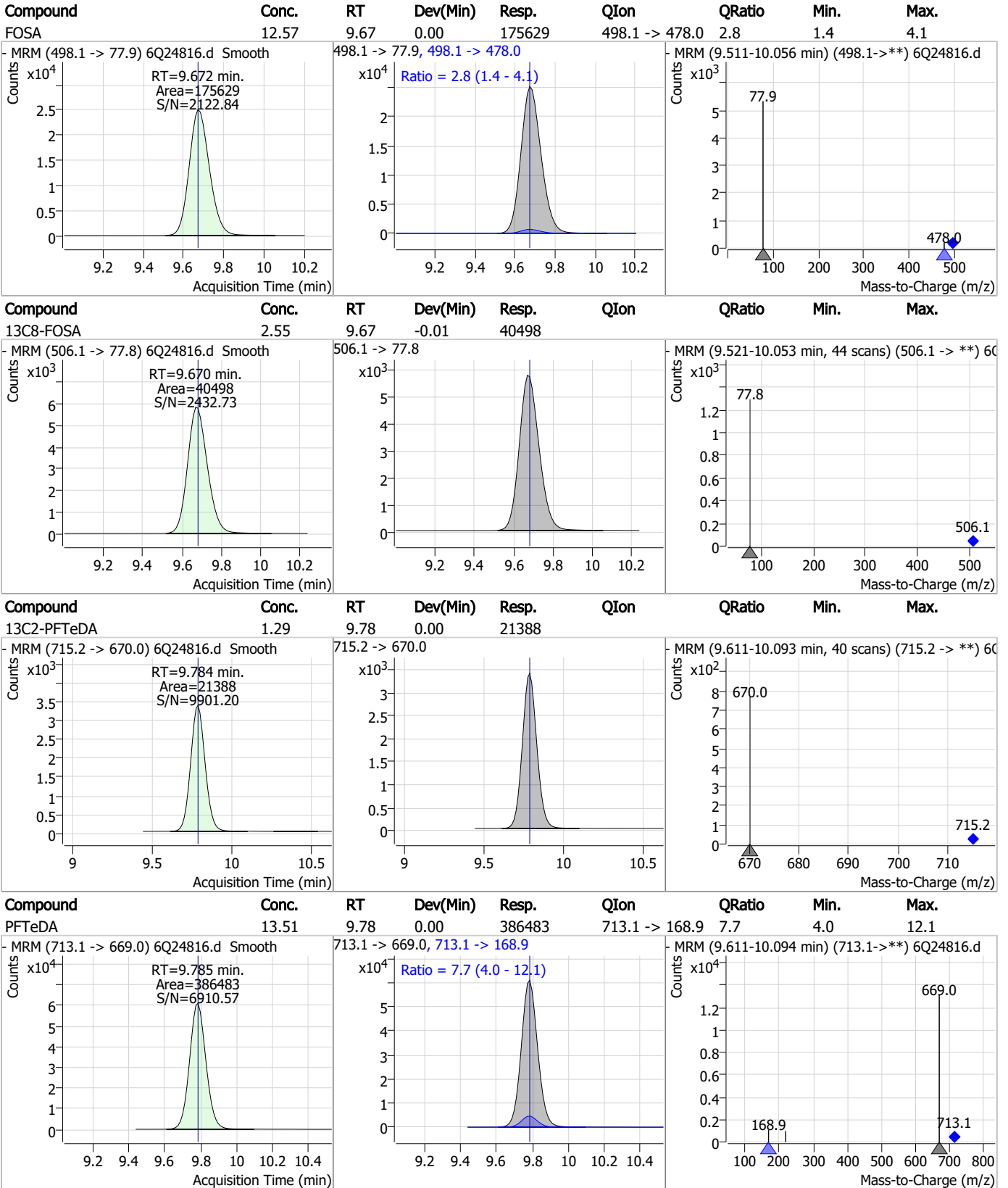
Perfluorinated Compounds by LC/MS/MS



7.7.7
7



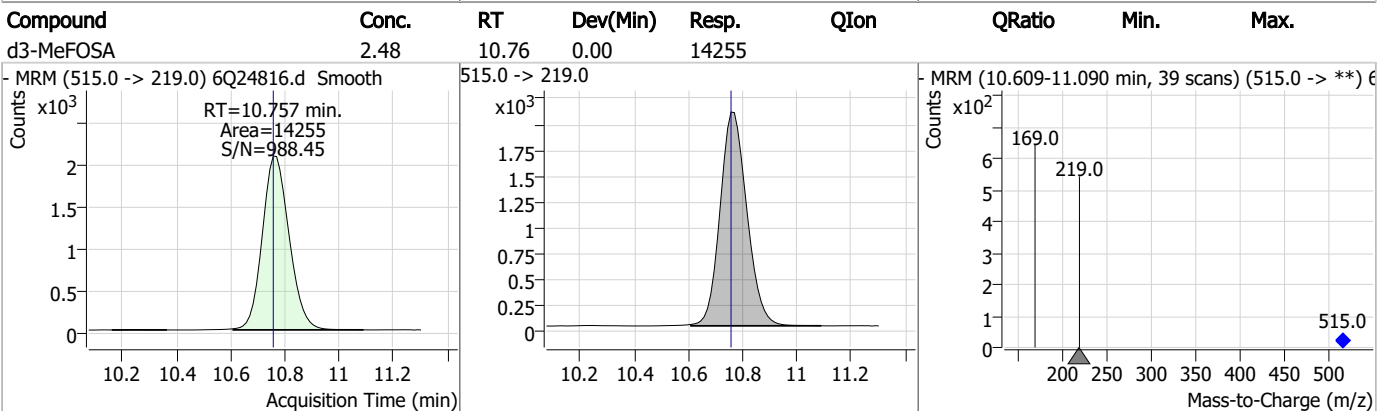
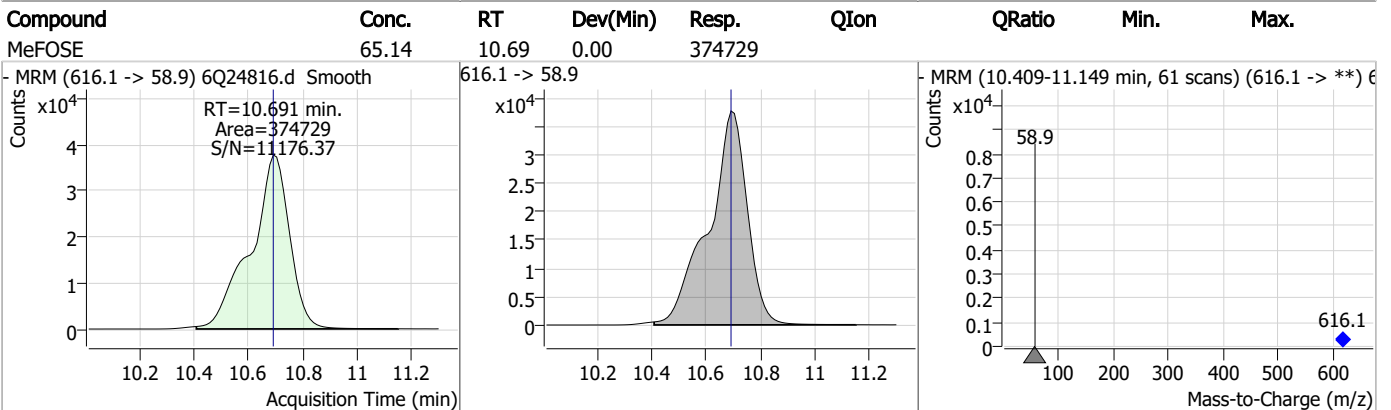
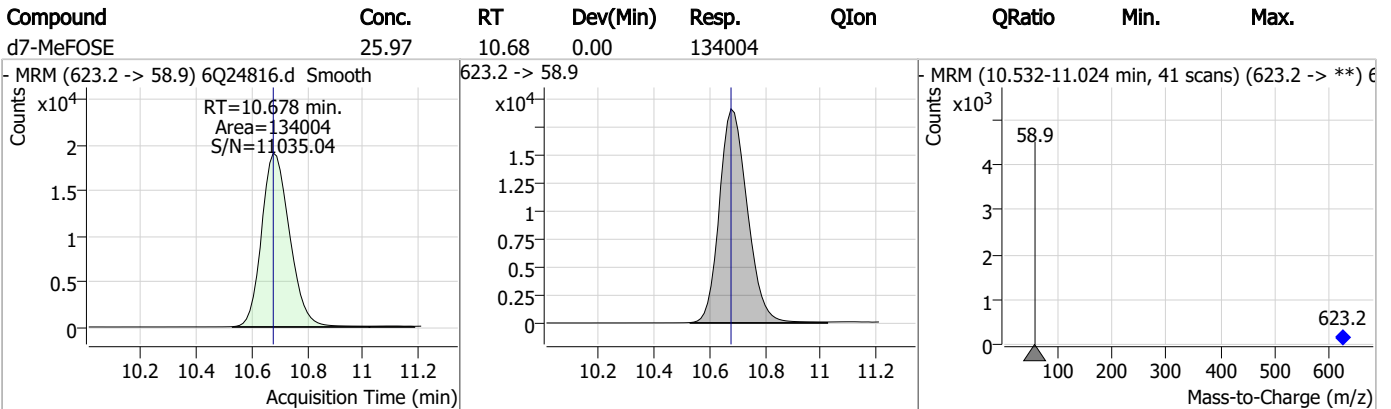
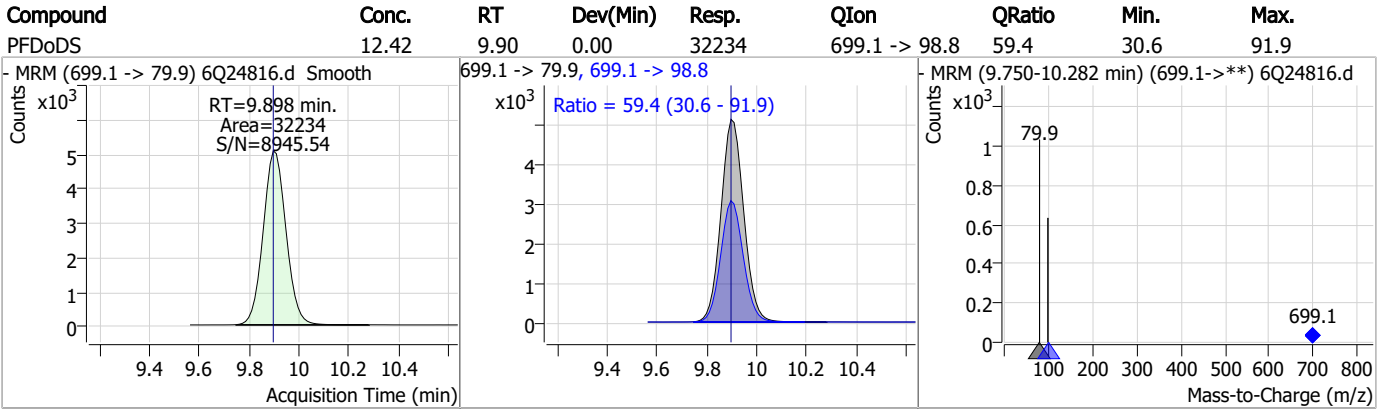
Perfluorinated Compounds by LC/MS/MS



7.7.7

7

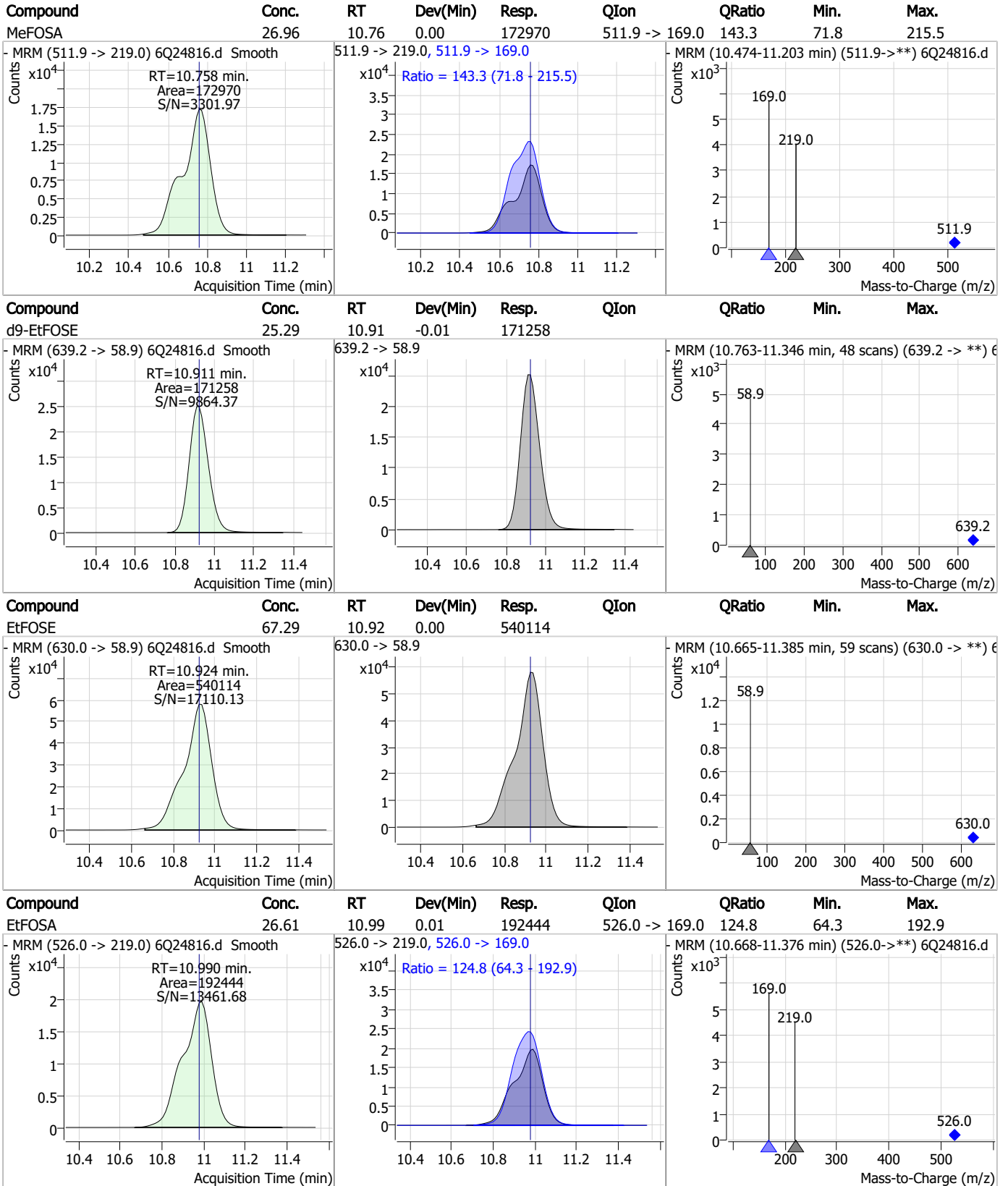
Perfluorinated Compounds by LC/MS/MS



7.7.7

7

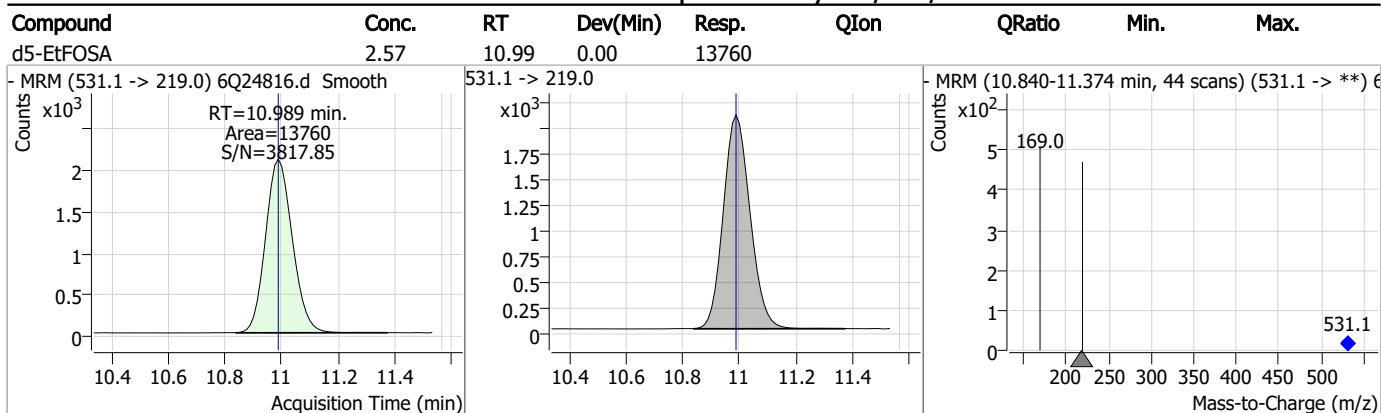
Perfluorinated Compounds by LC/MS/MS



7.7.7

7

Perfluorinated Compounds by LC/MS/MS



7.7.7
7

Manual Integration Approval Summary

Sample Number: S6Q355-IC355 Method: EPA DRAFT 1633
Lab FileID: 6Q24816.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 21:47 Supervisor approved: 09/22/23 13:16 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.7.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 09/22/23 13:16

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24817.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 10:01:55 PM
 Sample Name : ic355-7
 Vial : P1-A8
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	289279	10.00 µg/L	-0.025
M5-PFPeA	4.422	268.3 -> 223.0	48363	5.00 µg/L	-0.012
M5-PFHxA	5.641	318.0 -> 273.0	114189	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	87678	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	121762	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	48745	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	45696	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	54778	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	53183	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	20957	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	38959	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	35128	2.50 µg/L	-0.012
M3-PFHxS	7.301	402.1 -> 79.9	20045	2.50 µg/L	-0.012
M8-PFOS	8.361	507.1 -> 79.9	18671	2.50 µg/L	0.012
M2-4:2FTS	5.304	329.1 -> 80.9	3338	5.00 µg/L	-0.012
M2-6:2FTS	6.974	429.1 -> 80.9	4853	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	5449	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	32449	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	65088	10.00 µg/L	-0.012
M5-EtFOSAA	8.452	589.2 -> 419.0	29284	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	130092	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	173270	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	13349	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	15105	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	25102	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	119396	5.00 µg/L	-0.012
18O2-PFHxS	7.313	403.0 -> 83.9	14638	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	136859	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	42418	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	54446	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	85623	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3338	4.37 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.4%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4853	4.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.1%		
13C2-8:2FTS	7.998	529.1 -> 80.9	5449	4.96 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-PFDoDA	9.080	615.1 -> 570.0	53183	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C2-PFTeDA	9.784	715.2 -> 670.0	20957	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFBS	5.559	302.1 -> 79.9	35128	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C3-PFHxS	7.301	402.1 -> 79.9	20045	2.53 µg/L	-0.012

7.7.8
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 = 101.1%	
13C4-PFBA	2.985	216.8 -> 171.9	289279	9.93 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C4-PFHpA	6.569	367.1 -> 322.0	87678	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C5-PFHxA	5.641	318.0 -> 273.0	114189	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C5-PFPeA	4.422	268.3 -> 223.0	48363	4.97 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C6-PFDA	8.198	519.1 -> 474.1	45696	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C7-PFUnDA	8.651	570.0 -> 525.1	54778	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C8-FOSA	9.682	506.1 -> 77.8	38959	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C8-PFOA	7.198	421.1 -> 376.0	121762	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C8-PFOS	8.361	507.1 -> 79.9	18671	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C9-PFNA	7.717	472.1 -> 427.0	48745	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.8%	
d3-MeFOSAA	8.256	573.2 -> 419.0	32449	4.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	65088	10.25 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
d3-MeFOSA	10.769	515.0 -> 219.0	15105	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
d5-EtFOSAA	8.452	589.2 -> 419.0	29284	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	130092	24.29 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
d9-EtFOSE	10.923	639.2 -> 58.9	173270	24.65 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
d5-EtFOSA	10.989	531.1 -> 219.0	13349	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	562438	104.04 µg/L	99
		327.1 -> 80.9	209792		
6:2FTS	6.974	427.1 -> 407.0	436108	97.20 µg/L	99
		427.1 -> 80.9	168009		
8:2FTS	7.987	527.1 -> 507.0	321941	93.04 µg/L	91
		527.1 -> 80.8	121012		
EtFOSAA	8.452	584.2 -> 419.1	114639	25.89 µg/L	94
		584.2 -> 526.0	80033		
FOSA	9.672	498.1 -> 77.9	370935	27.60 µg/L	100
		498.1 -> 478.0	10401		
MeFOSAA	8.257	570.1 -> 419.0	203910	27.70 µg/L	96
		570.1 -> 483.0	44693		
PFBA	2.993	212.8 -> 168.9	960877	107.79 µg/L	100
PFBS	5.560	298.7 -> 79.9	390644	23.49 µg/L	98
		298.7 -> 98.8	147087		
PFDA	8.198	512.9 -> 469.0	1097652	26.89 µg/L	99
		512.9 -> 219.0	187252		
PFDoDA	9.080	613.1 -> 569.0	1131491	29.20 µg/L	97
		613.1 -> 319.0	123285		
PFDS	9.233	599.0 -> 79.9	127267	23.24 µg/L	91

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	68587			
PFHpA	6.569	363.1 -> 319.0	1264805	28.37	µg/L	98
		363.1 -> 169.0	190991			
PFHpS	7.856	449.0 -> 79.9	226253	24.75	µg/L	98
		449.0 -> 98.9	109518			
PFHxA	5.644	313.0 -> 269.0	1029209	25.92	µg/L	100
		313.0 -> 118.9	46923			
PFHxS	7.302	398.7 -> 79.9	310455	23.96	µg/L	m 99
		398.7 -> 98.9	145275			
PFNA	7.717	463.0 -> 419.0	891375	28.46	µg/L	95
		463.0 -> 219.0	193535			
PFNS	8.814	548.8 -> 79.9	237078	26.13	µg/L	95
		548.8 -> 98.9	126996			
PFOA	7.200	413.0 -> 369.0	1464549	26.09	µg/L	99
		413.0 -> 169.0	263231			
PFOS	8.350	498.9 -> 79.9	237609	22.51	µg/L	m 96
		498.9 -> 98.8	116837			
PFPeA	4.424	263.0 -> 219.0	1266558	53.17	µg/L	100
PFPeS	6.620	349.1 -> 79.9	263397	24.46	µg/L	96
		349.1 -> 98.9	121239			
PFTeDA	9.785	713.1 -> 669.0	755149	26.94	µg/L	98
		713.1 -> 168.9	55362			
PFTrDA	9.452	663.0 -> 619.0	1085235	26.29	µg/L	99
		663.0 -> 168.9	87155			
PFUnDA	8.652	563.1 -> 519.0	883225	27.77	µg/L	100
		563.1 -> 269.1	128801			
11Cl-PF3OUdS	9.491	630.9 -> 450.9	1009366	47.78	µg/L	97
		632.9 -> 452.9	327578			
9Cl-PF3ONS	8.690	530.8 -> 351.0	1768614	47.44	µg/L	99
		532.8 -> 353.0	566434			
ADONA	6.817	376.9 -> 250.9	4867448	50.66	µg/L	95
		376.9 -> 84.8	1158165			
HFPO-DA	6.020	284.9 -> 168.9	318986	51.63	µg/L	100
		284.9 -> 184.9	45742			
3:3FTCA	3.871	241.0 -> 177.0	217147	139.63	µg/L	100
		241.0 -> 117.0	20274			
5:3FTCA	6.283	341.0 -> 237.1	4666857	669.95	µg/L	94
		341.0 -> 217.0	3120289			
7:3FTCA	7.669	441.0 -> 316.9	2737241	673.55	µg/L	90
		441.0 -> 336.9	5775537			
EtFOSA	10.990	526.0 -> 219.0	387248	55.21	µg/L	98
		526.0 -> 169.0	505466			
EtFOSE	10.937	630.0 -> 58.9	1074582	132.31	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	355242	52.26	µg/L	96
		511.9 -> 169.0	490821			
MeFOSE	10.691	616.1 -> 58.9	770683	138.00	µg/L	100
PFDoS	9.898	699.1 -> 79.9	68910	25.60	µg/L	94
		699.1 -> 98.8	38903			
NFDHA	5.524	295.0 -> 201.0	246518	52.50	µg/L	97
		295.0 -> 84.9	58568			
PFMBA	4.850	279.0 -> 85.1	903492	53.57	µg/L	100
PFMPA	3.551	229.0 -> 84.9	669360	53.61	µg/L	100
PFEESA	6.100	314.8 -> 134.9	2515476	48.15	µg/L	100
		314.8 -> 82.9	84735			

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

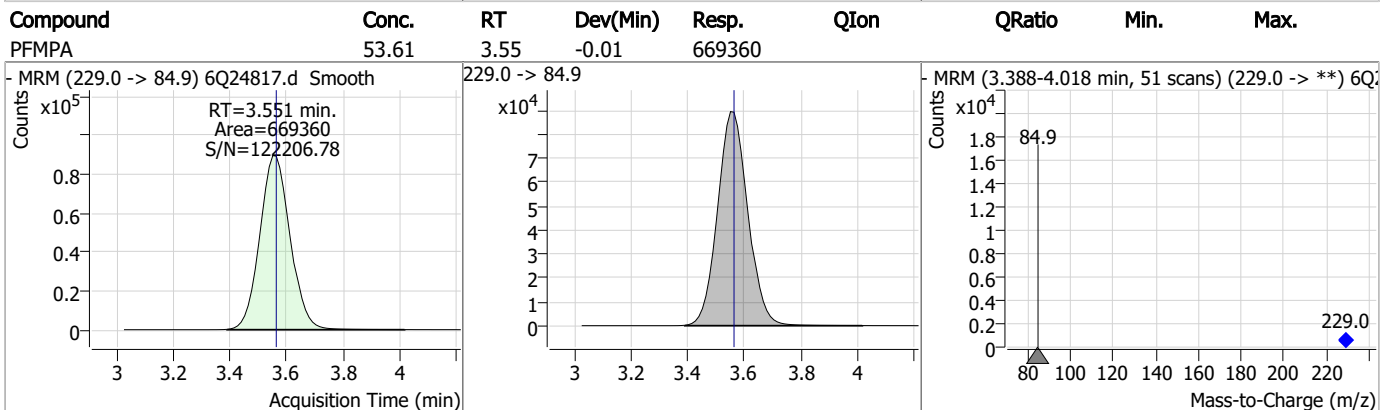
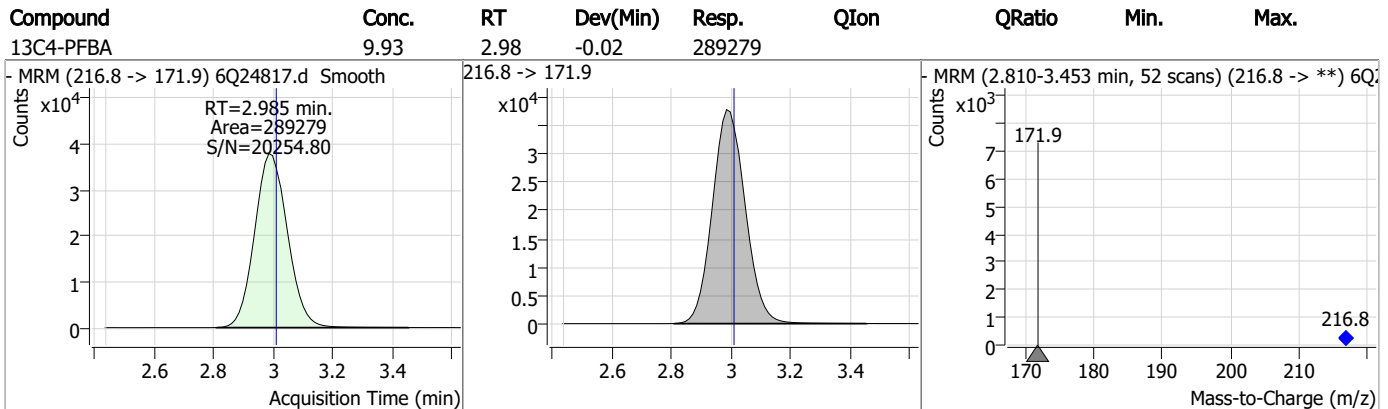
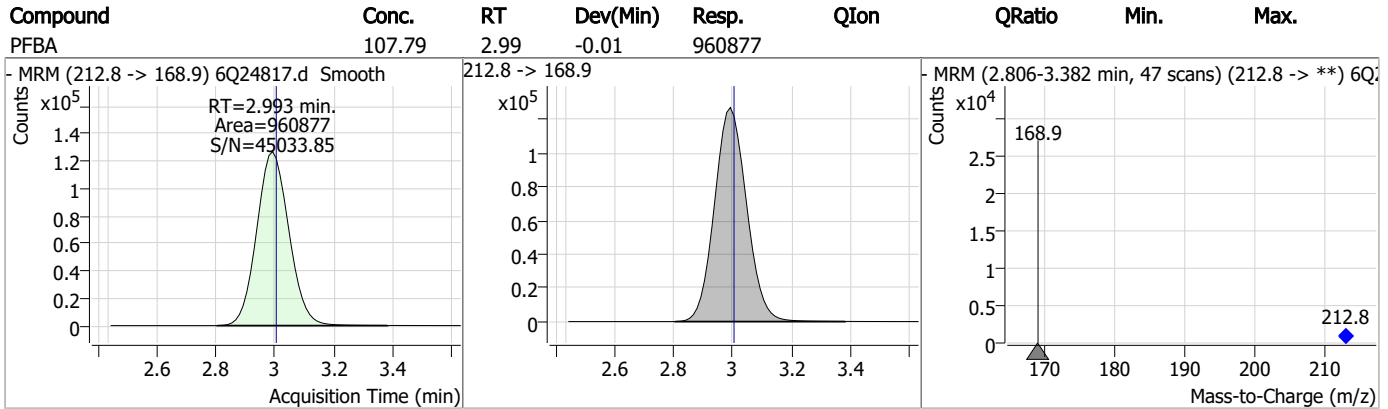
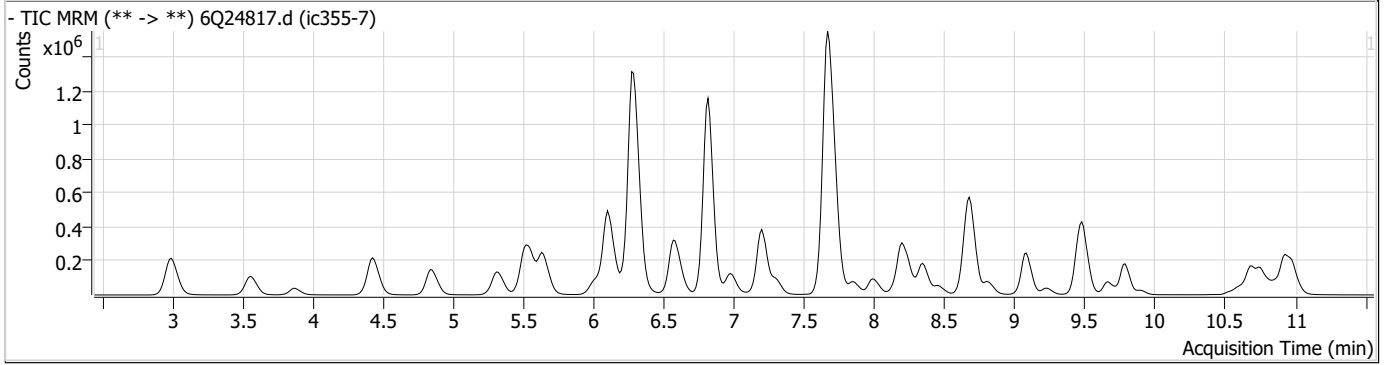
Perfluorinated Compounds by LC/MS/MS

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

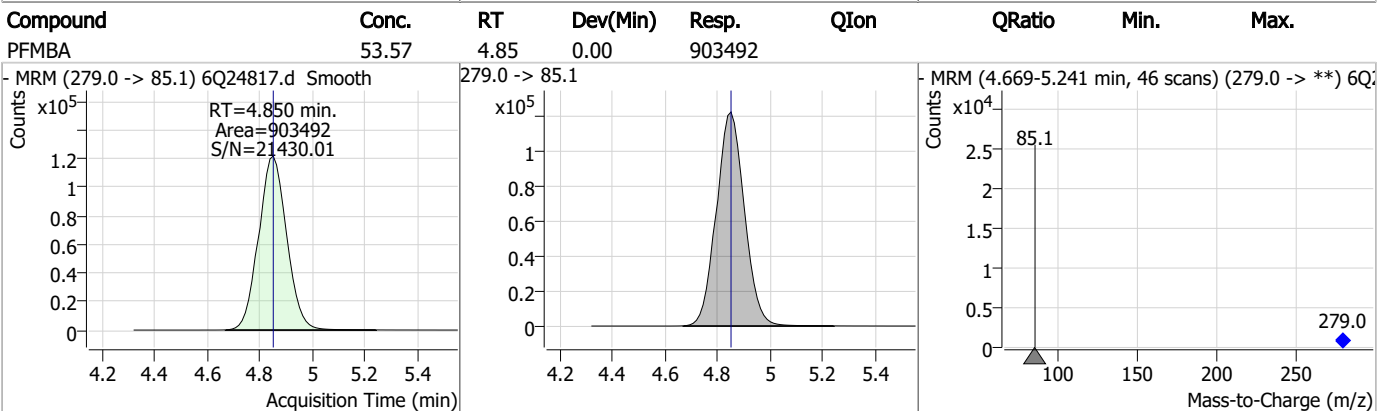
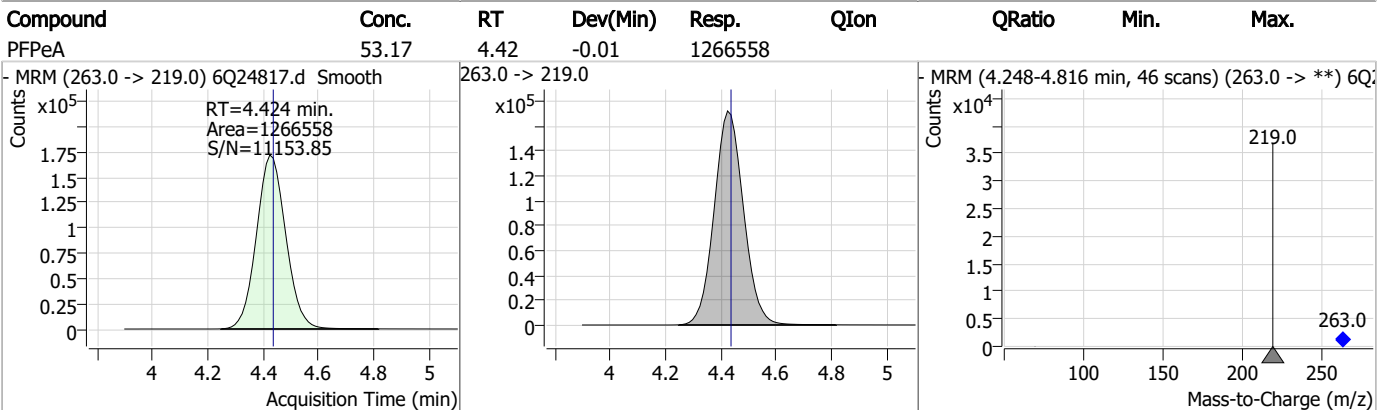
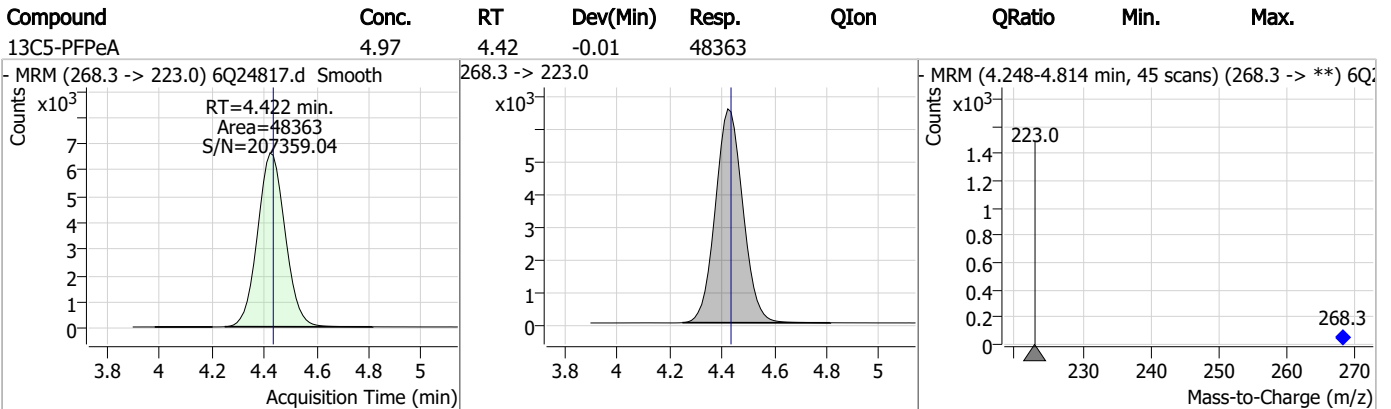
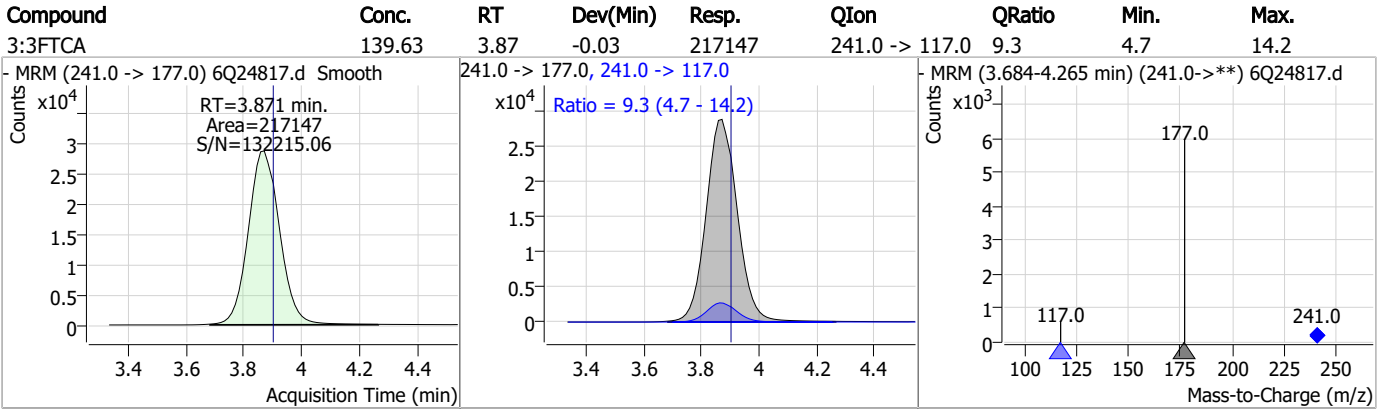
7.7.8
7



Perfluorinated Compounds by LC/MS/MS



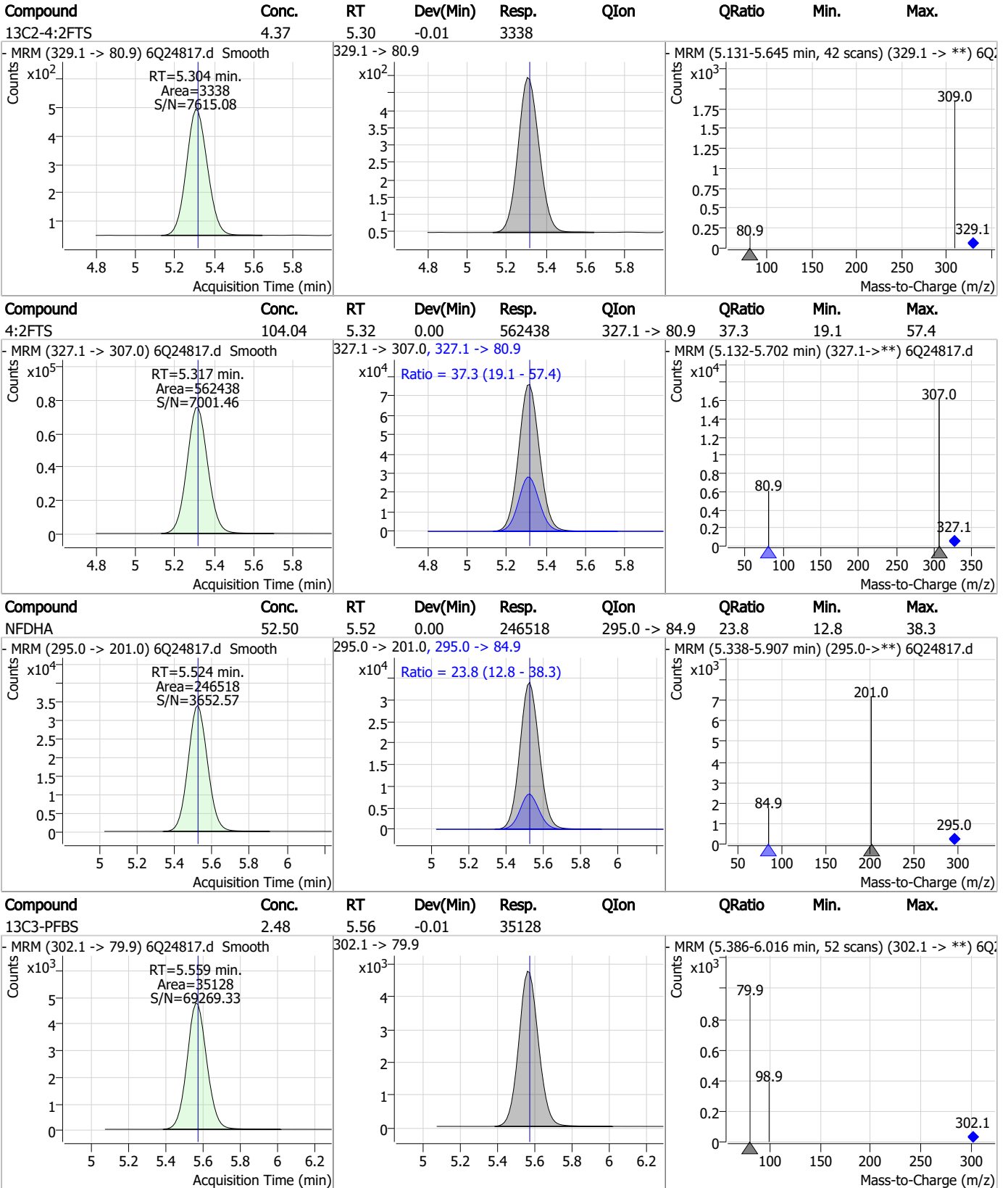
Perfluorinated Compounds by LC/MS/MS



7.7.8

7

Perfluorinated Compounds by LC/MS/MS

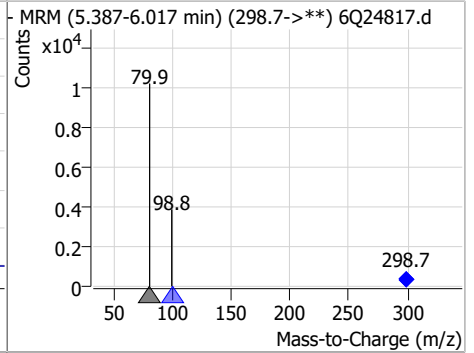
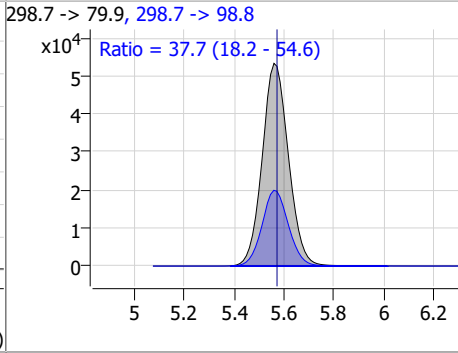
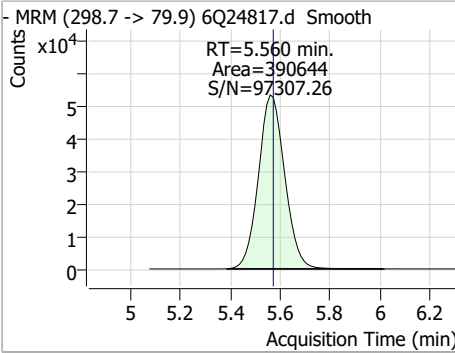


7.7.8

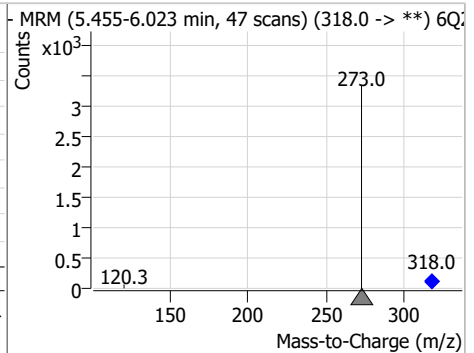
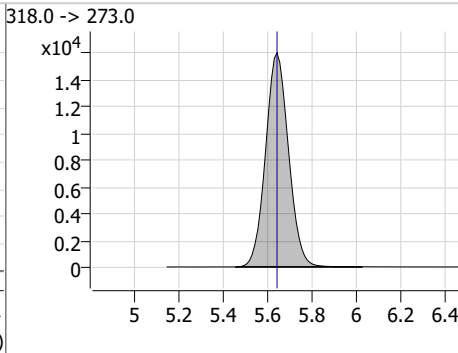
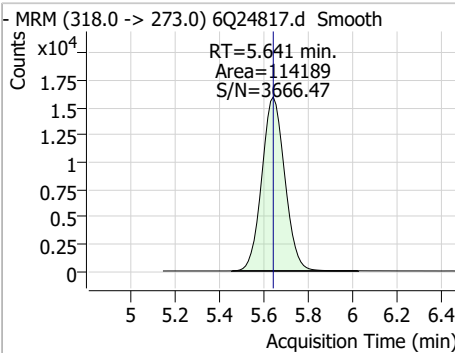
7

Perfluorinated Compounds by LC/MS/MS

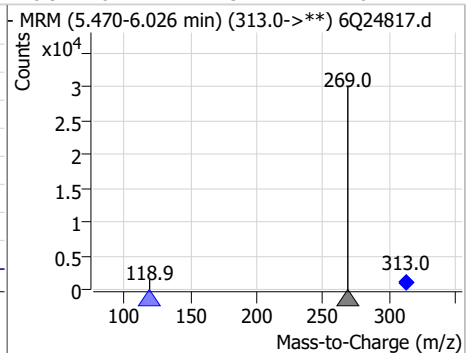
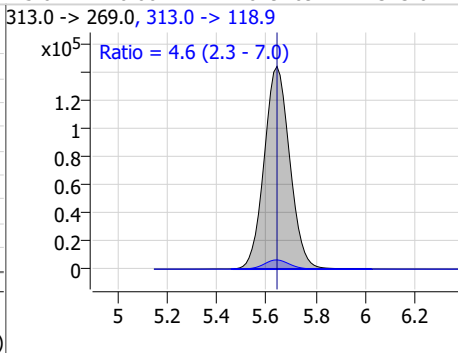
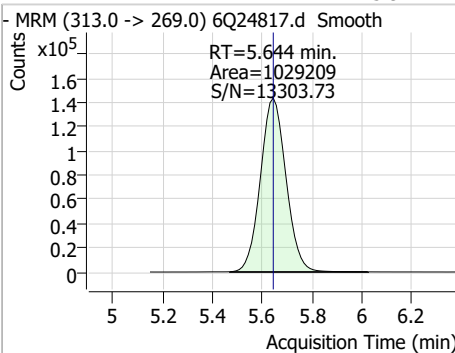
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	23.49	5.56	-0.01	390644	298.7 -> 98.8	37.7	18.2	54.6



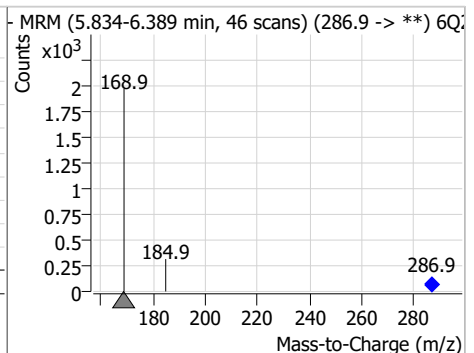
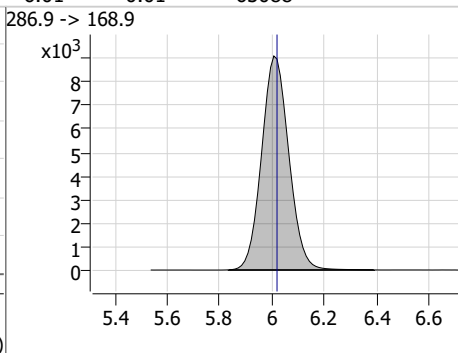
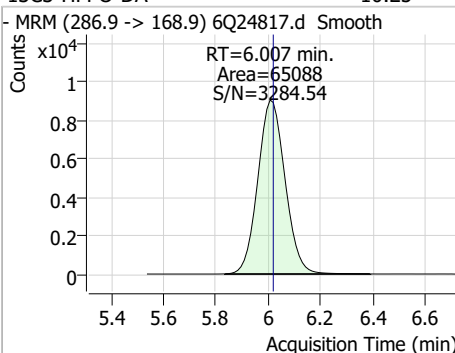
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.53	5.64	0.00	114189				



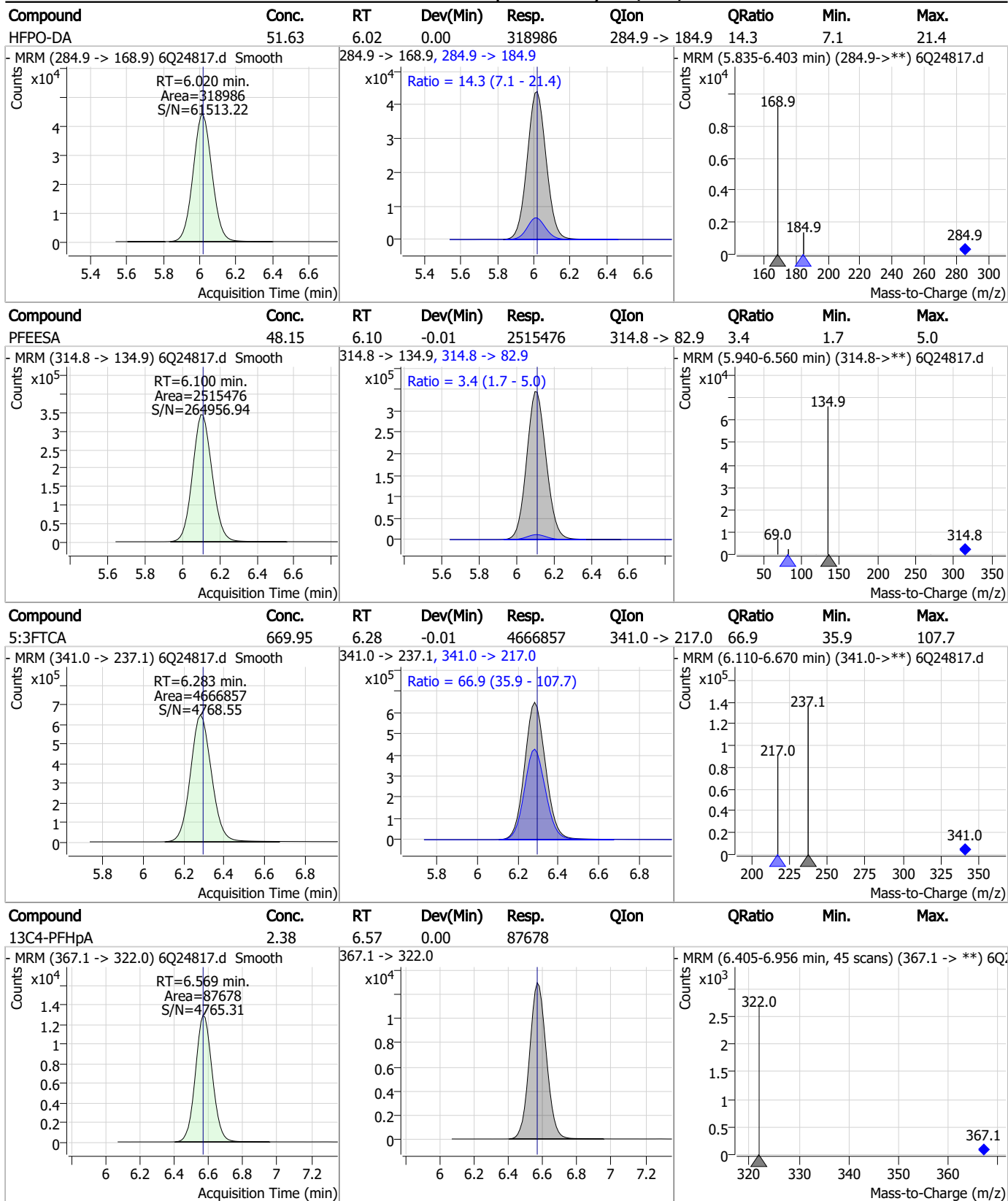
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	25.92	5.64	0.00	1029209	313.0 -> 118.9	4.6	2.3	7.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.25	6.01	-0.01	65088				

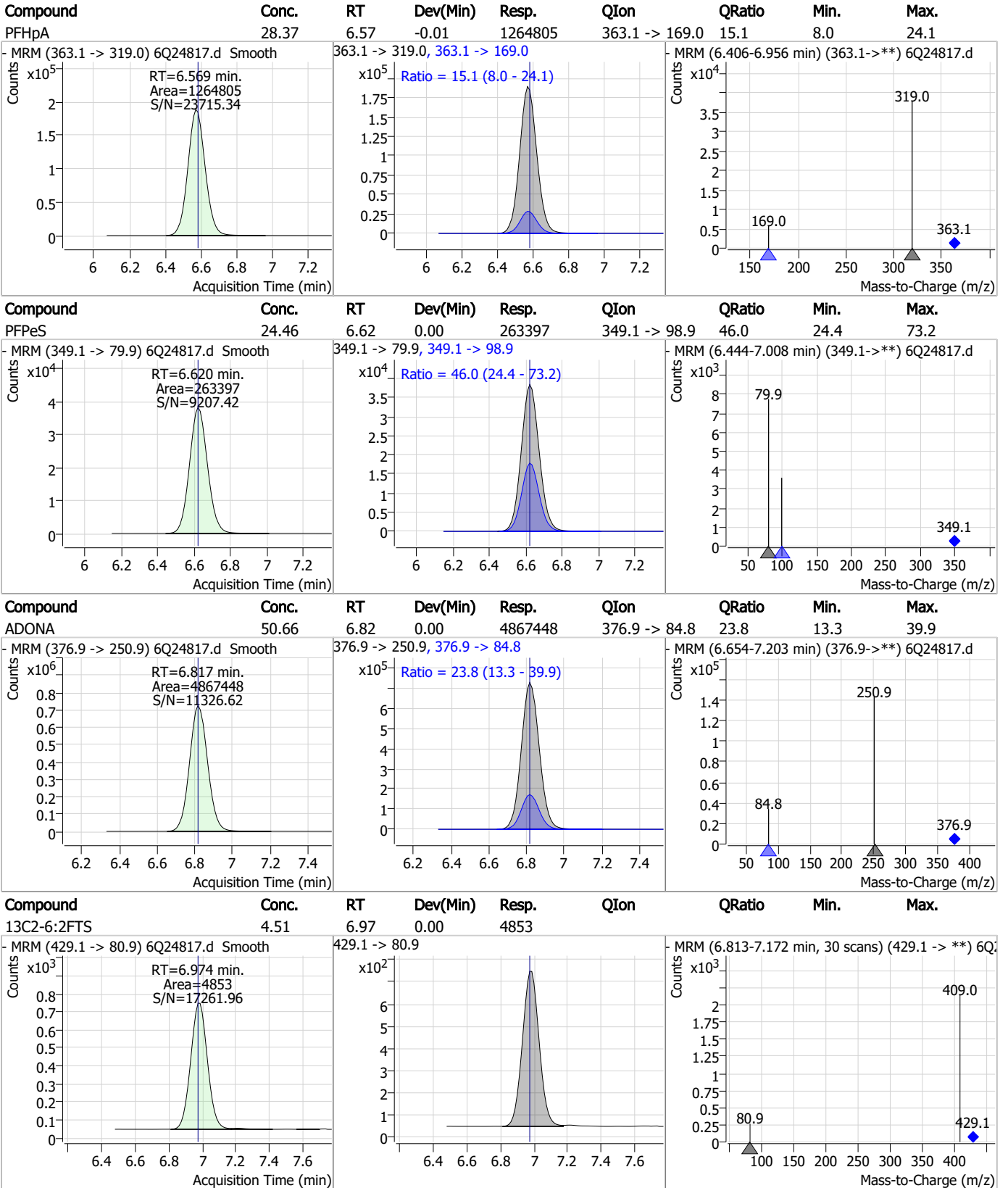


Perfluorinated Compounds by LC/MS/MS



7.7.8
7

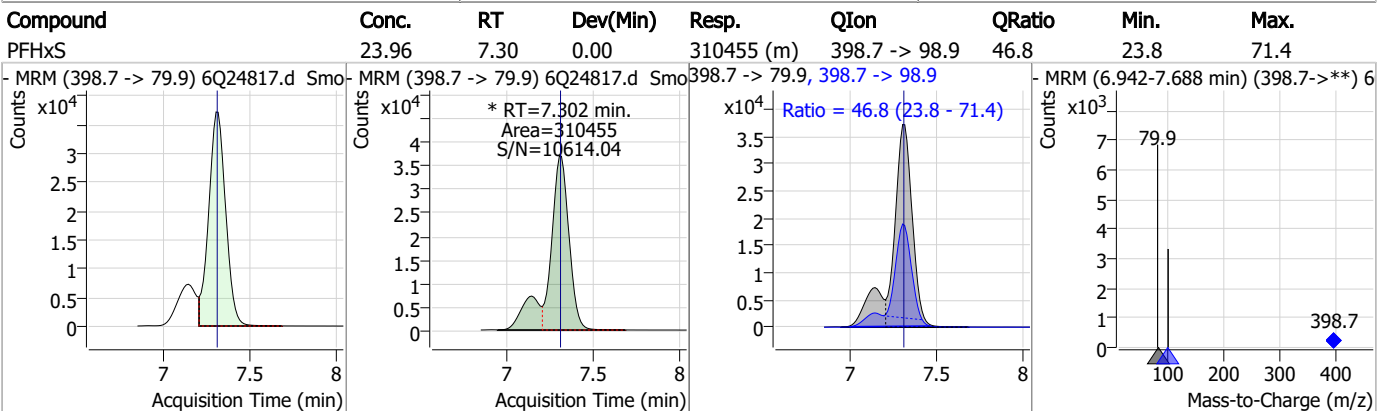
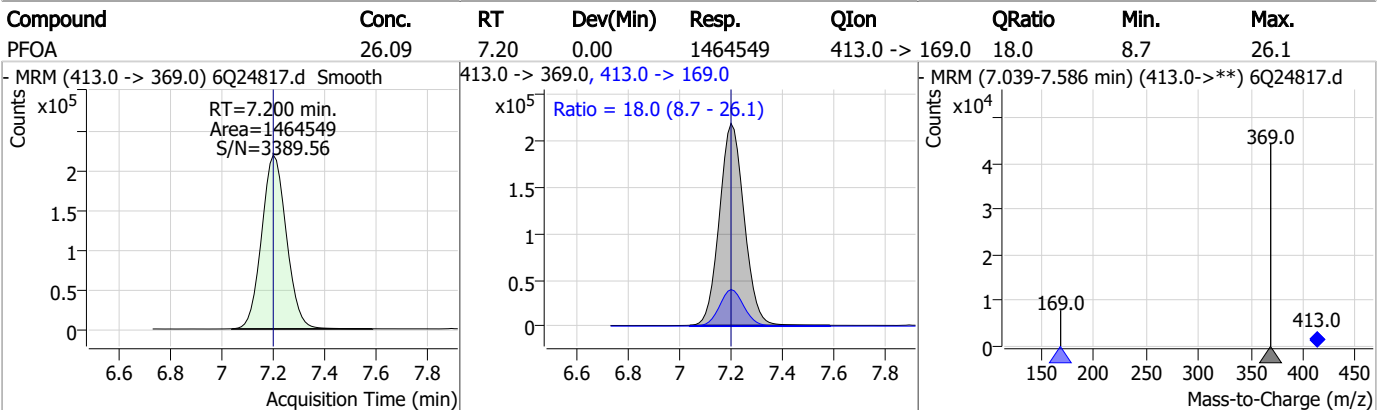
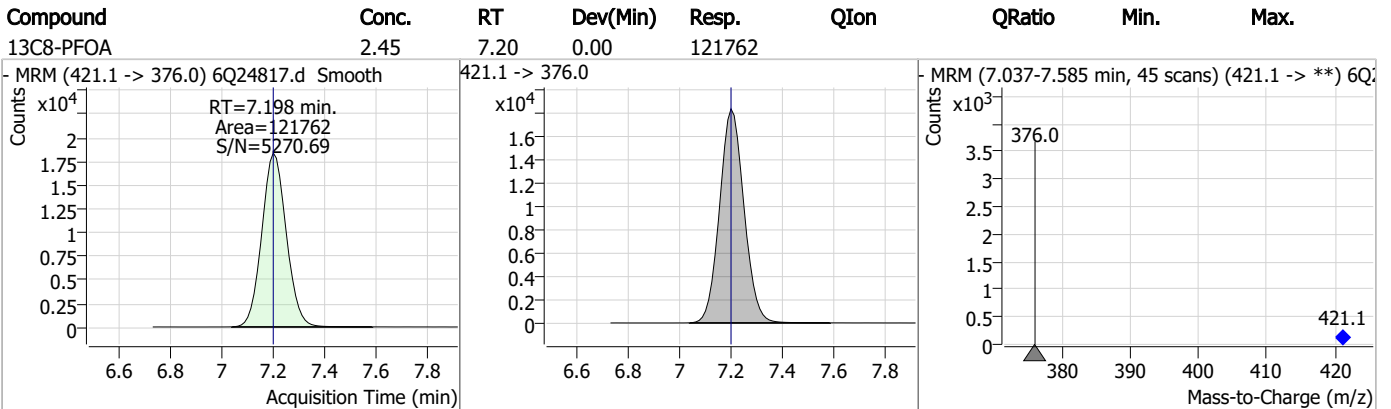
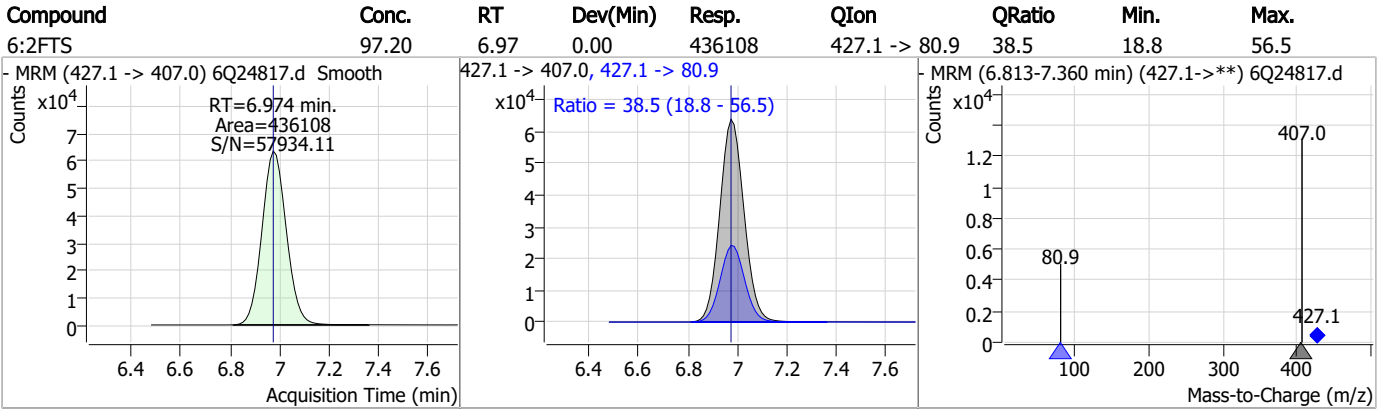
Perfluorinated Compounds by LC/MS/MS



7.7.8

7

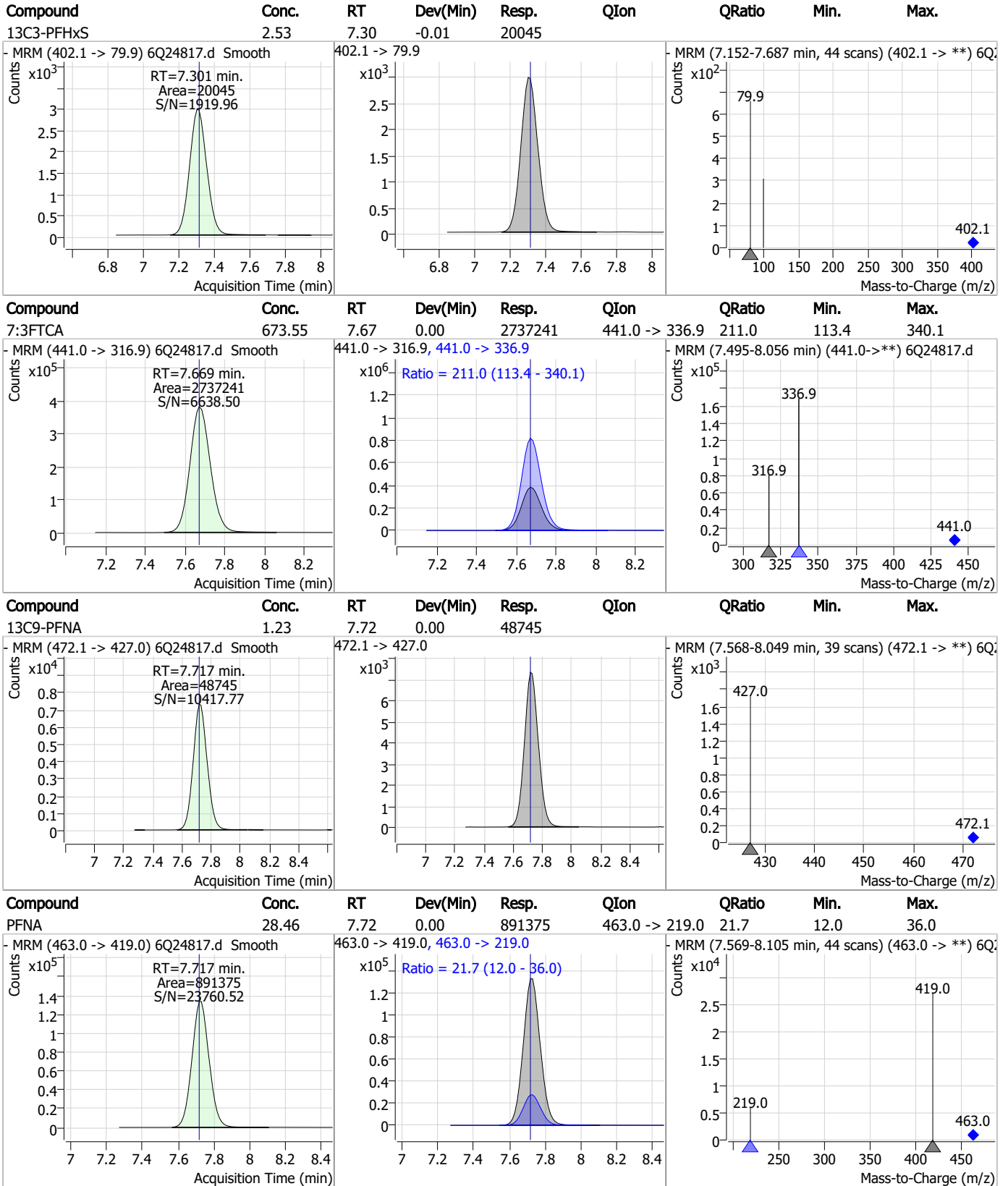
Perfluorinated Compounds by LC/MS/MS



7.7.8

7

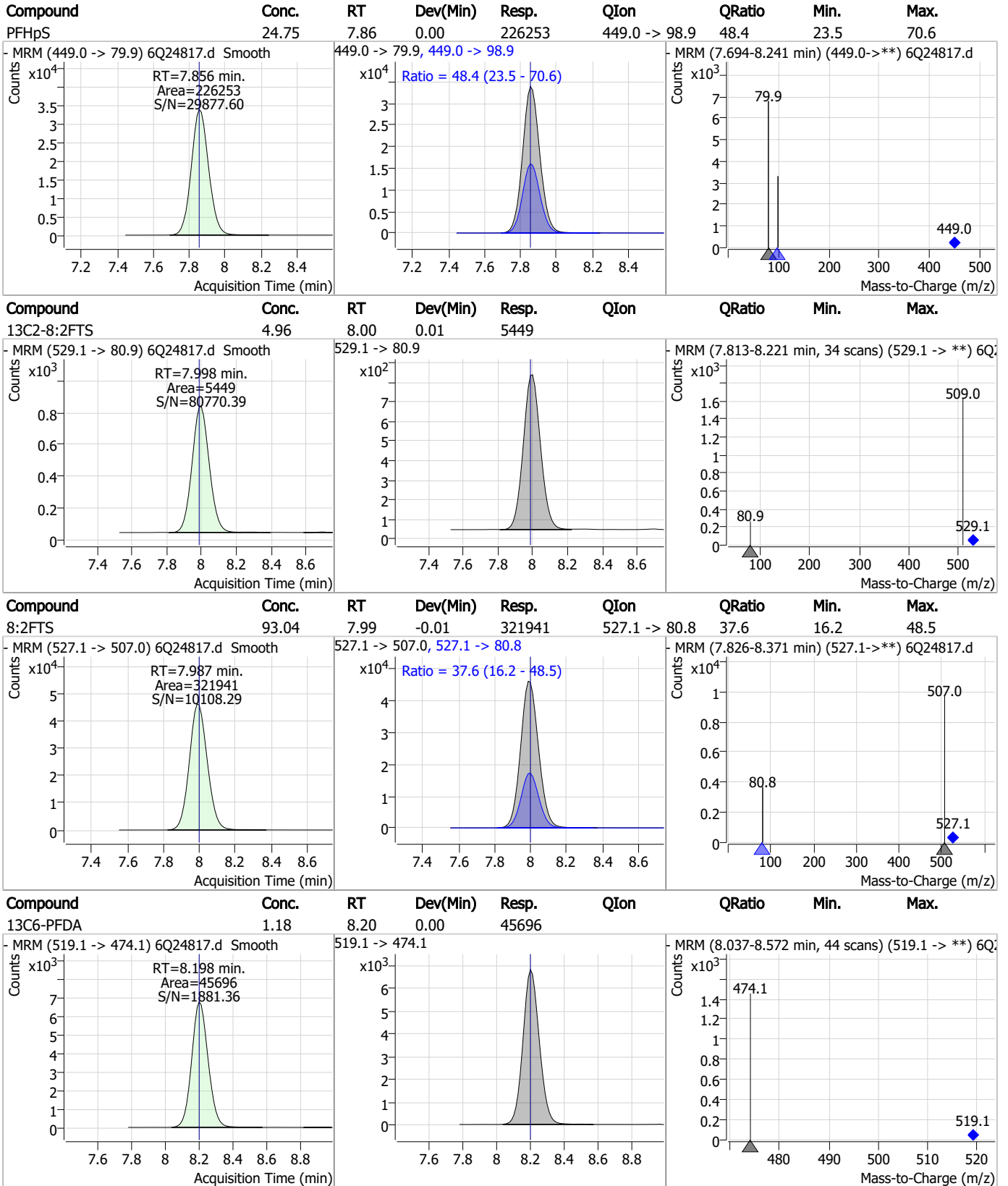
Perfluorinated Compounds by LC/MS/MS



7.7.8

7

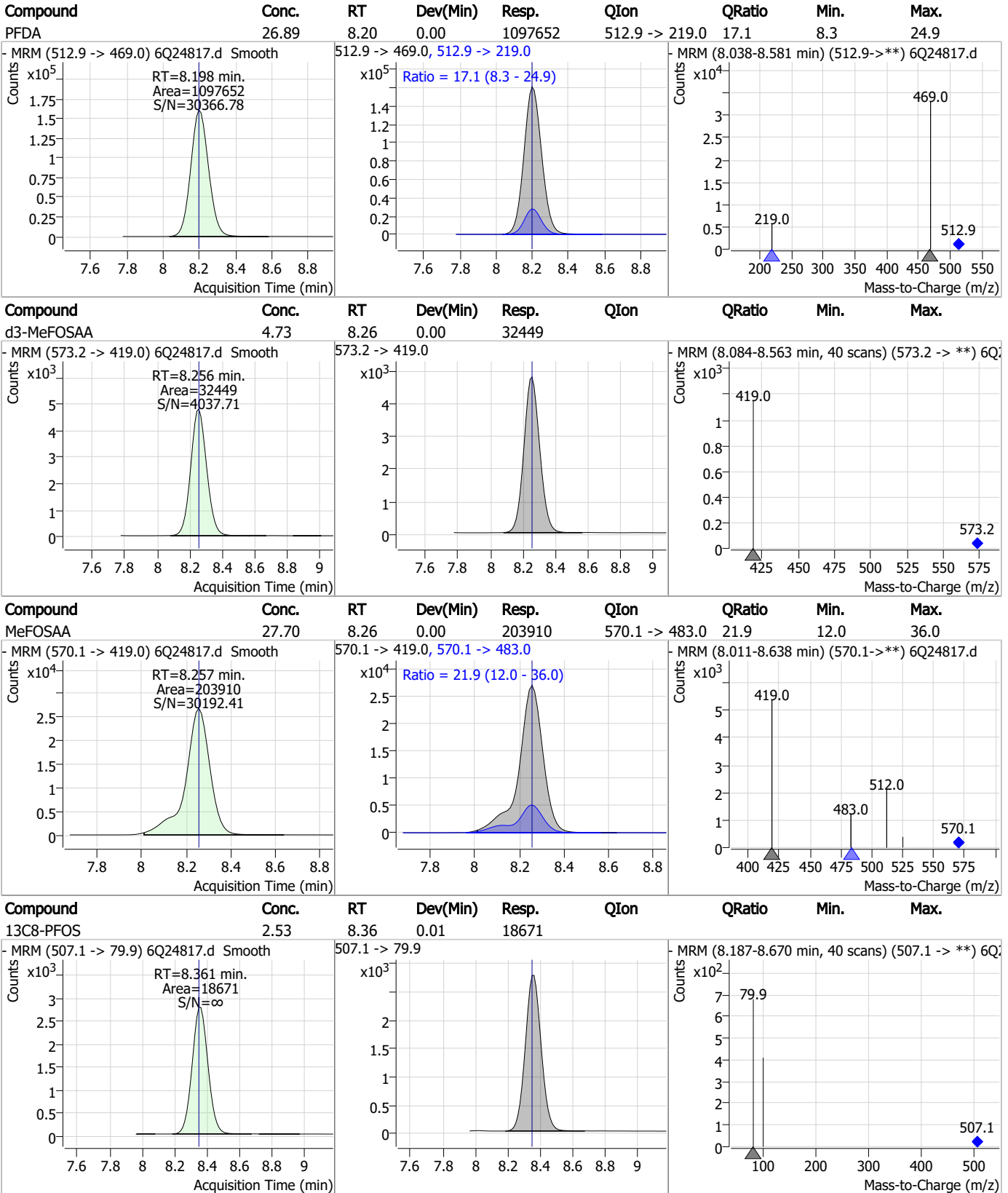
Perfluorinated Compounds by LC/MS/MS



7.7.8

7

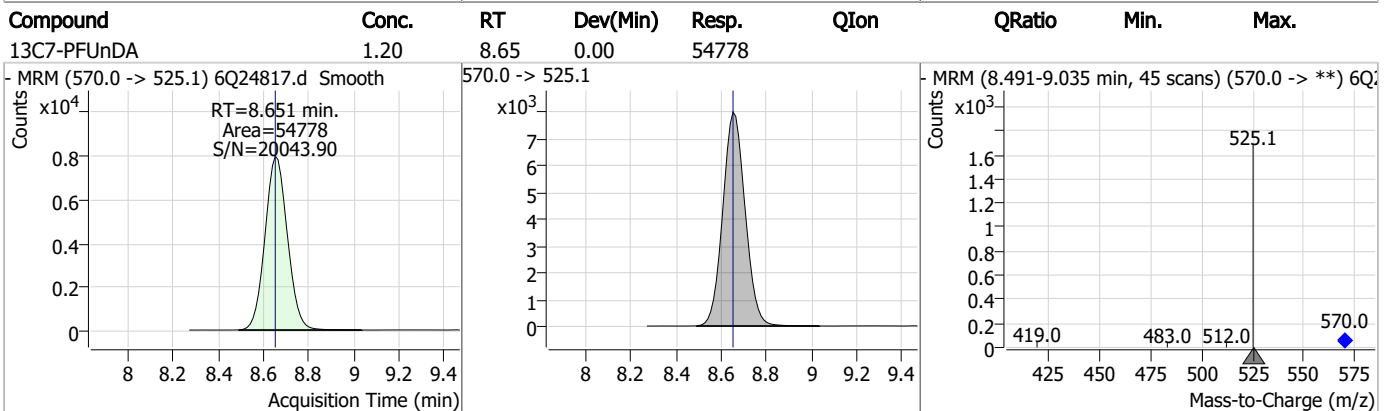
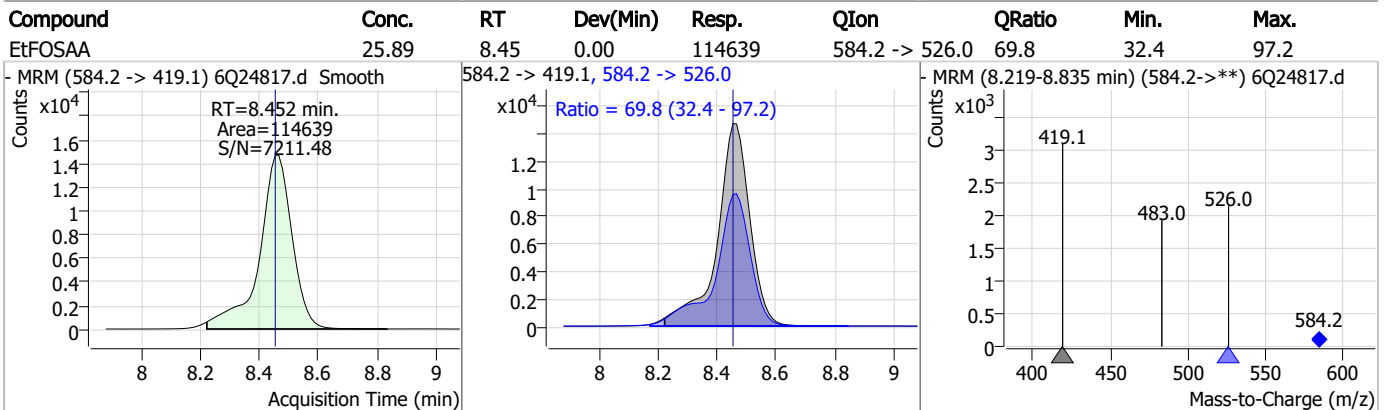
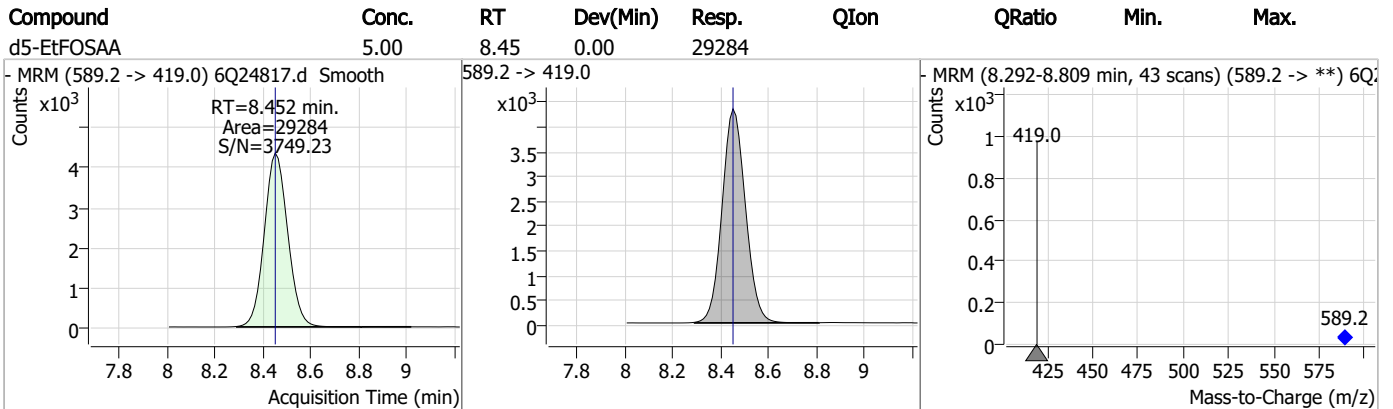
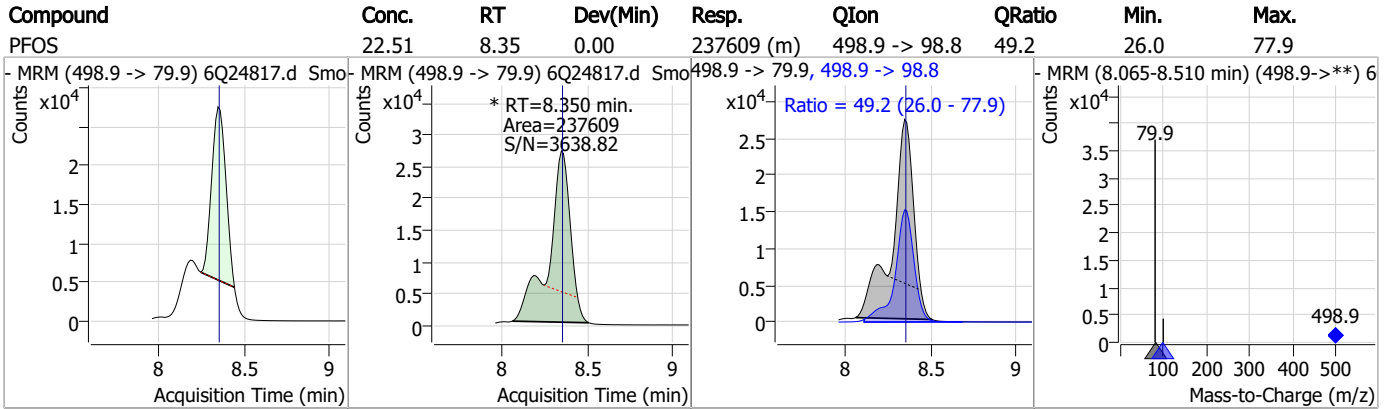
Perfluorinated Compounds by LC/MS/MS



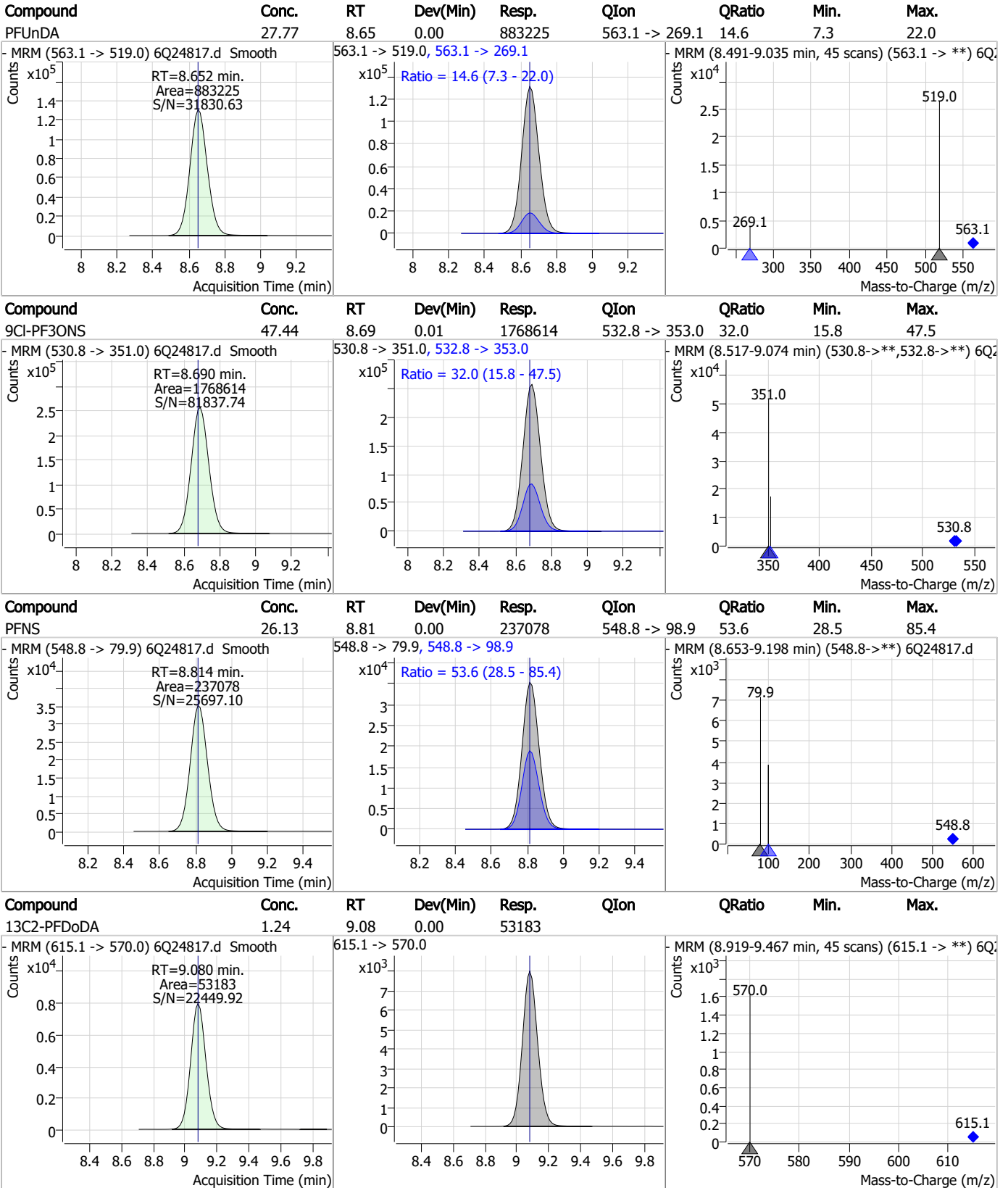
7.7.8

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

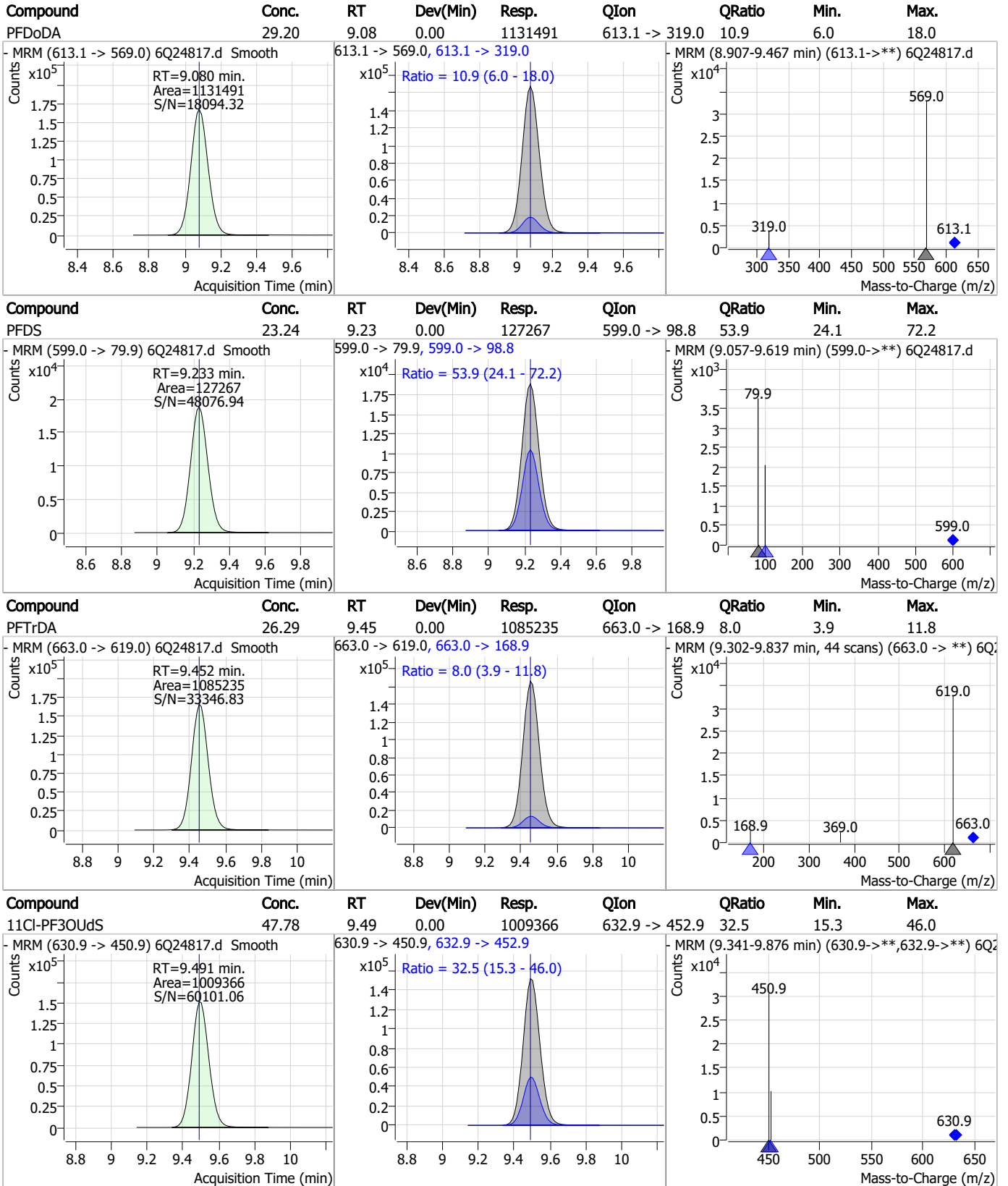


7.7.8

7



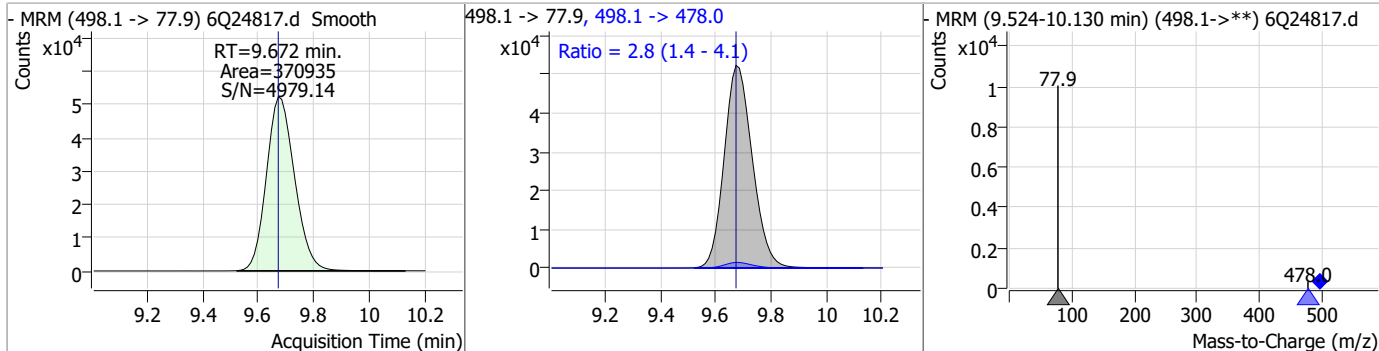
Perfluorinated Compounds by LC/MS/MS



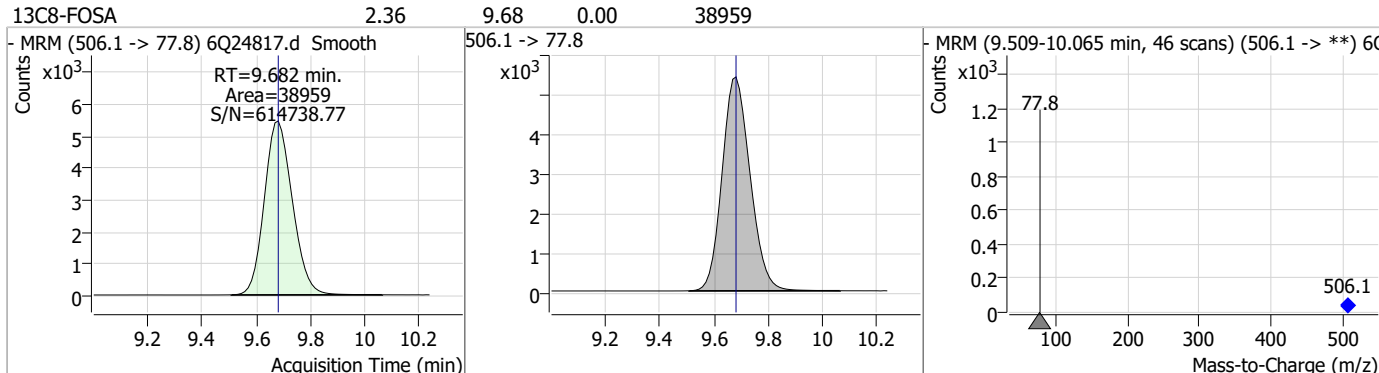
7.7.8
7

Perfluorinated Compounds by LC/MS/MS

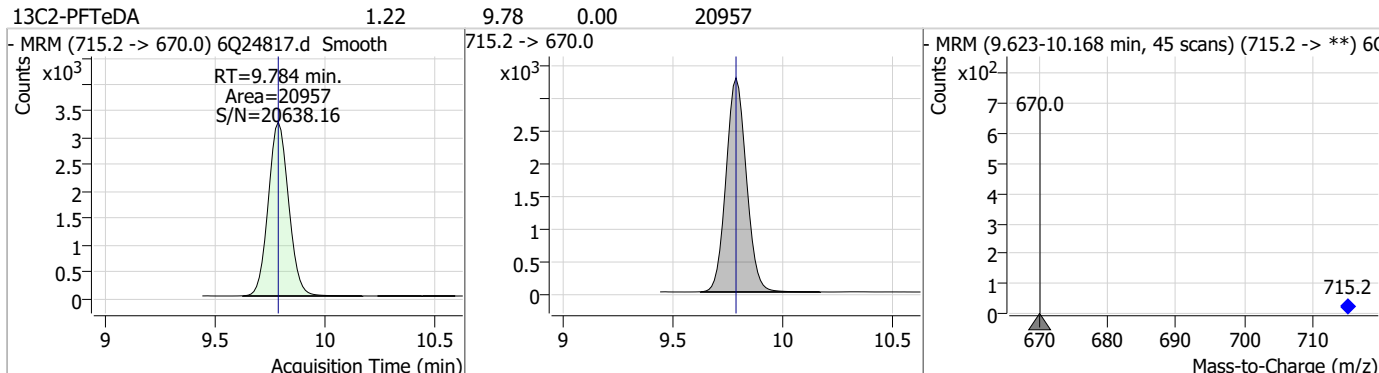
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	27.60	9.67	0.00	370935	498.1 -> 478.0	2.8	1.4	4.1



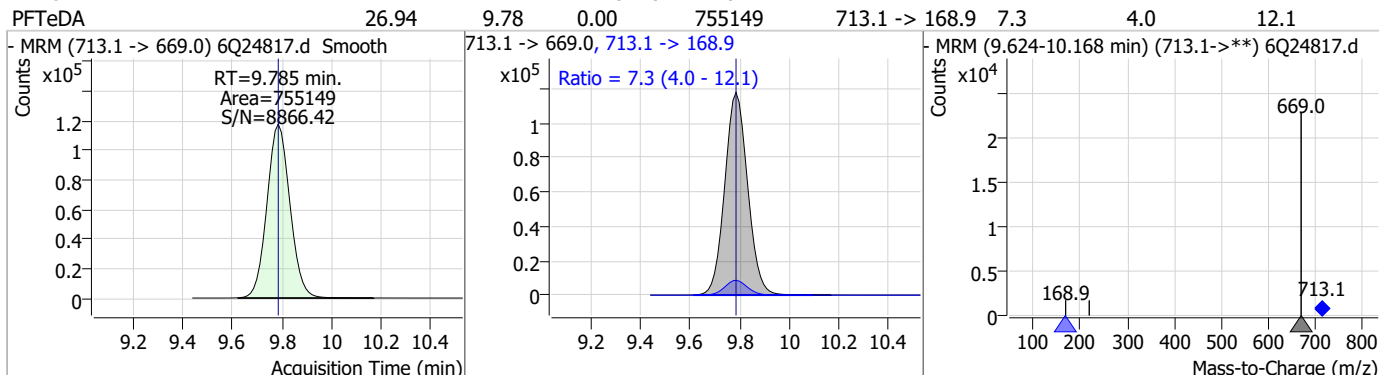
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.36	9.68	0.00	38959				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.78	0.00	20957				

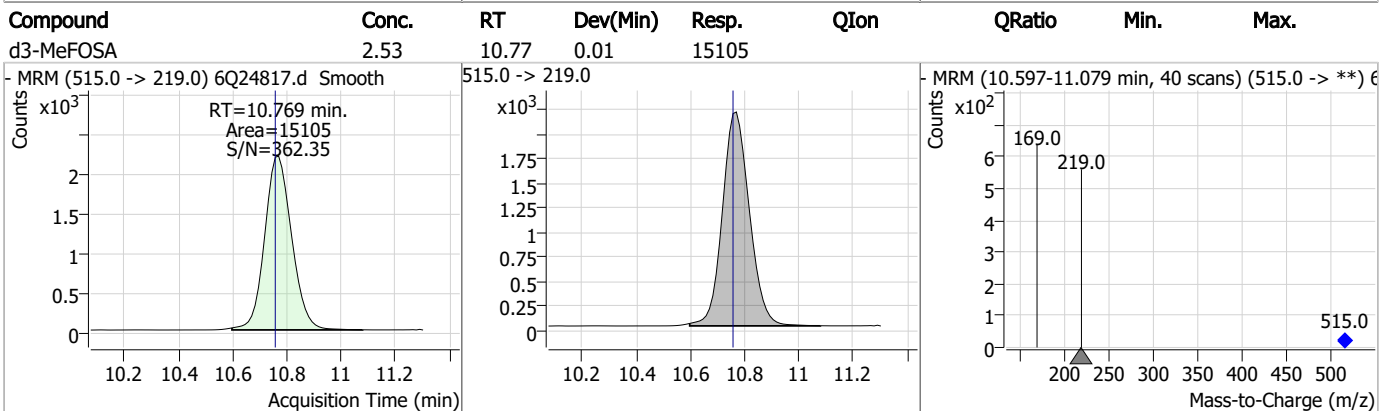
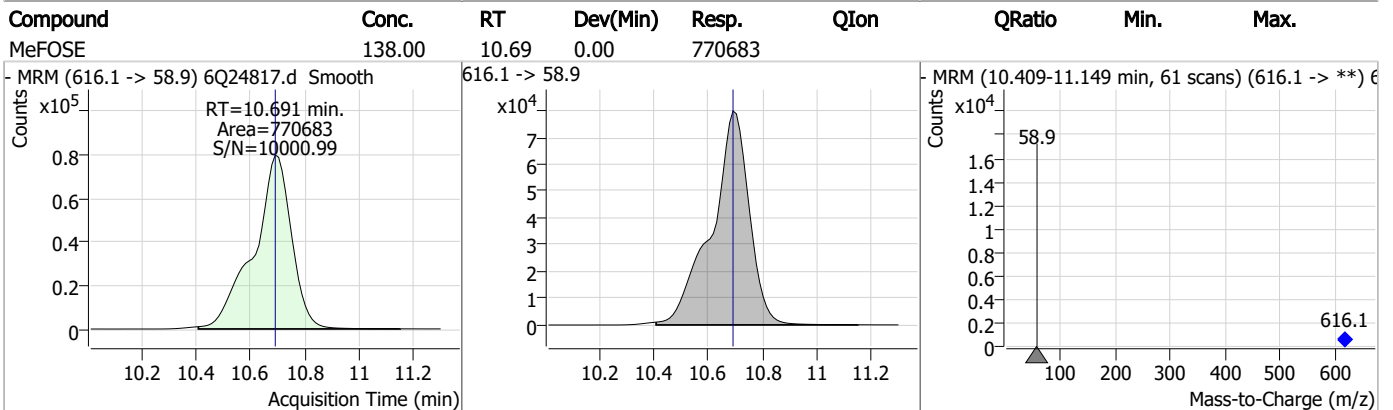
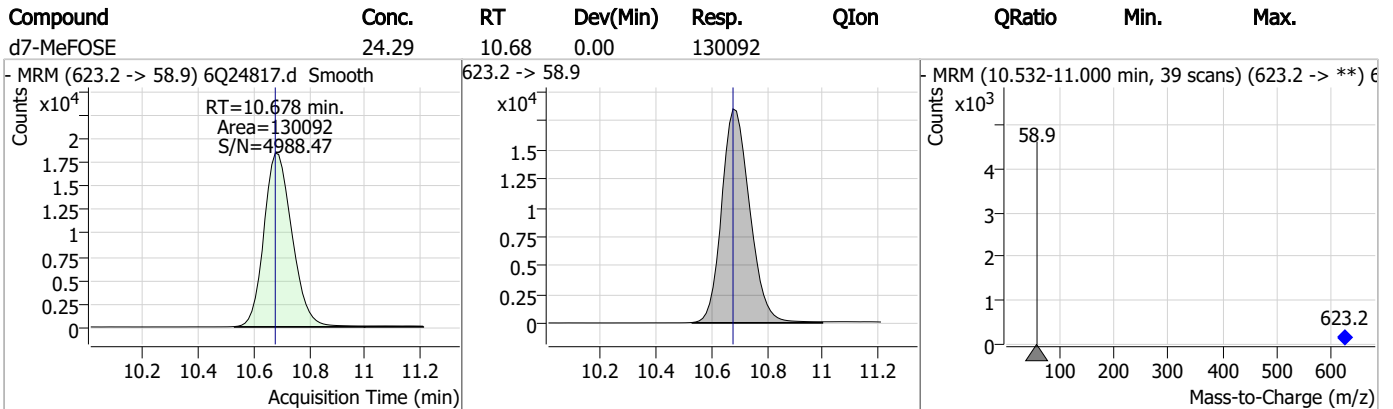
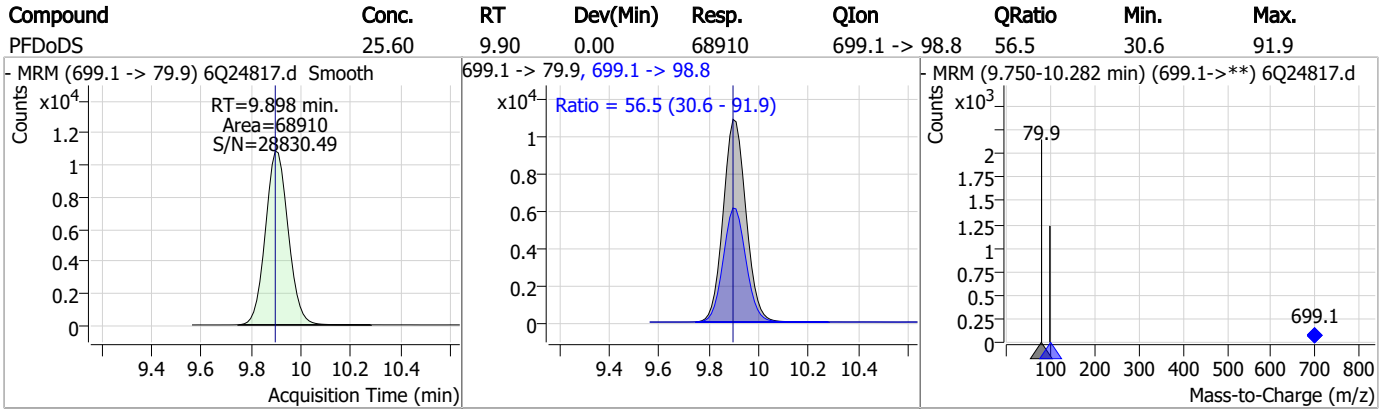


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	26.94	9.78	0.00	755149	713.1 -> 168.9	7.3	4.0	12.1



7.7.8
7

Perfluorinated Compounds by LC/MS/MS

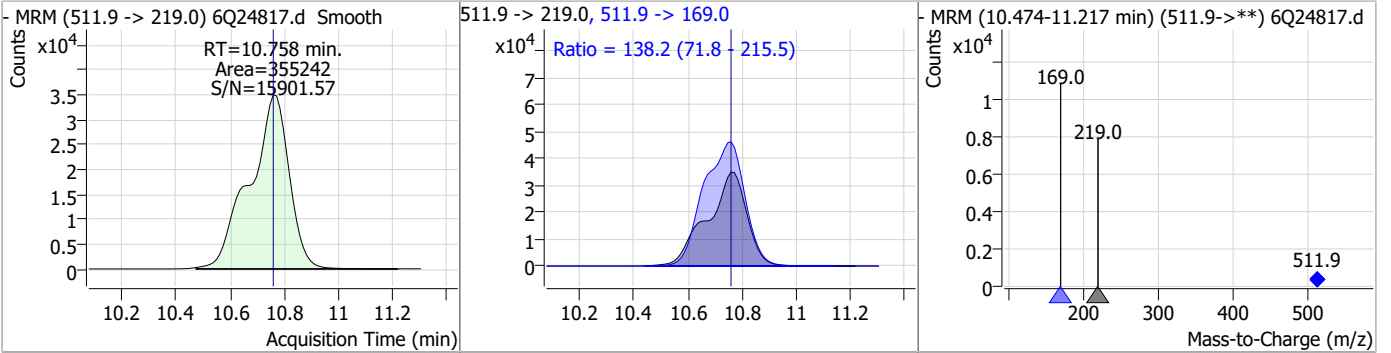


7.7.8

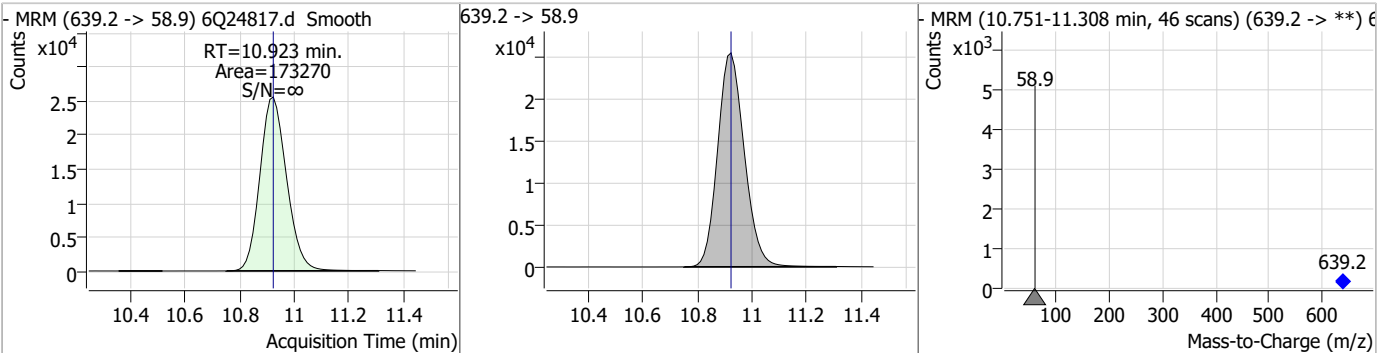
7

Perfluorinated Compounds by LC/MS/MS

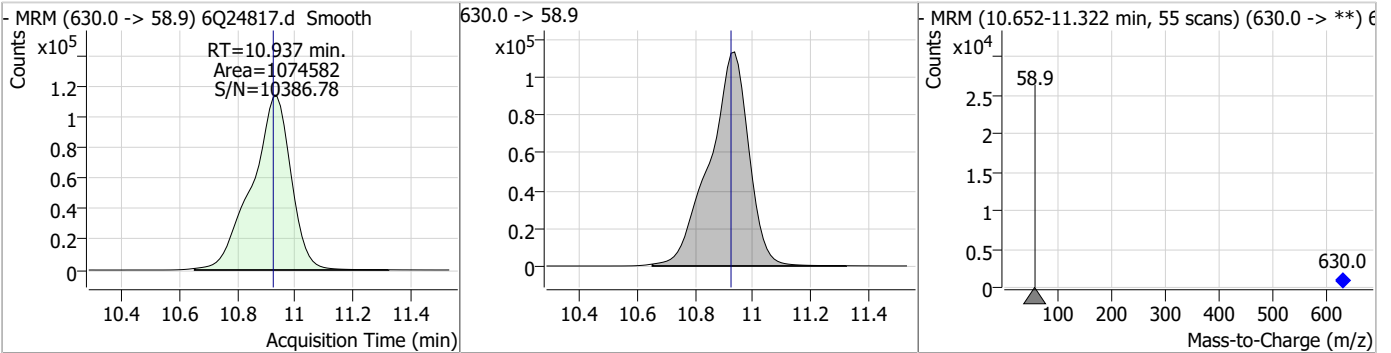
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	52.26	10.76	0.00	355242	511.9 -> 169.0	138.2	71.8	215.5



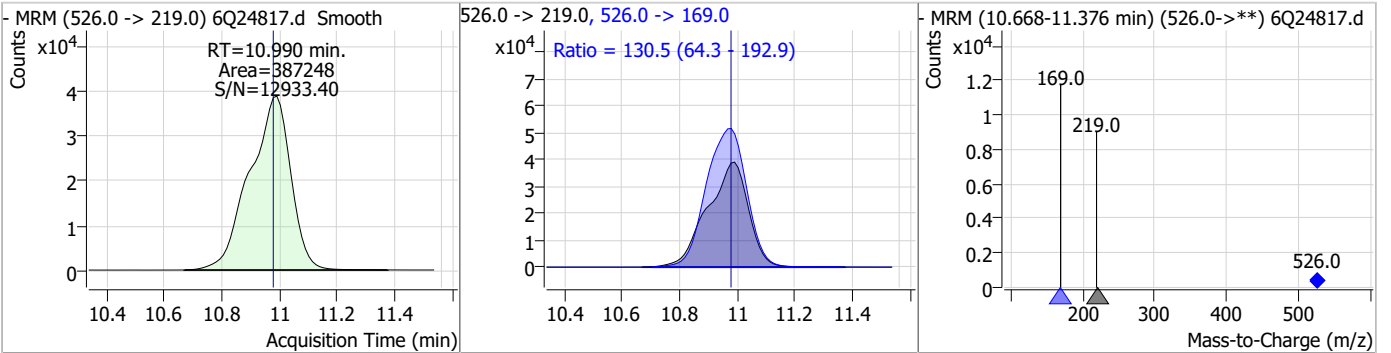
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.65	10.92	0.00	173270				



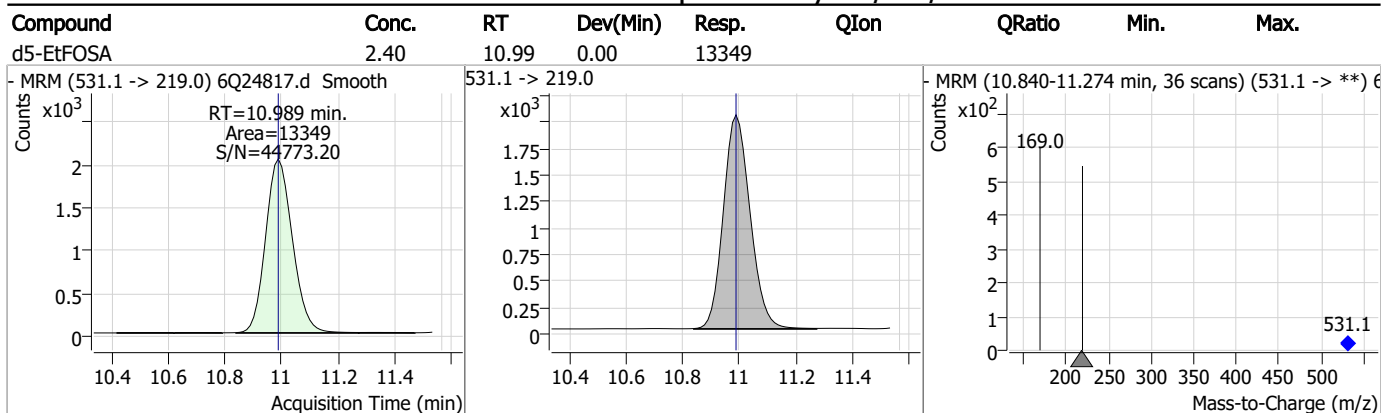
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	132.31	10.94	0.01	1074582				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	55.21	10.99	0.01	387248	526.0 -> 169.0	130.5	64.3	192.9



Perfluorinated Compounds by LC/MS/MS



7.7.8
7

Manual Integration Approval Summary

Sample Number: S6Q355-IC355 Method: EPA DRAFT 1633
Lab FileID: 6Q24817.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 22:01 Supervisor approved: 09/22/23 13:16 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.7.8.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24818.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 10:16:15 PM
 Sample Name : ic355-8
 Vial : P1-A9
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	256620	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	43728	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	106178	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	86251	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	112924	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	45555	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	45216	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	48030	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	50491	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	21059	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	39442	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	31313	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	18350	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	16459	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	3142	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4356	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4807	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	29427	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	59956	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	27399	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	122045	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	158190	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	13383	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	15656	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	22892	2.50 µg/L	0.000
13C3-PFBA	3.014	216.0 -> 172.0	105267	5.00 µg/L	0.012
18O2-PFHxS	7.313	403.0 -> 83.9	14264	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	126637	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	40102	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	50953	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	83872	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	3142	4.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 84.4%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4356	4.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.0%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4807	4.49 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.7%		
13C2-PFDoDA	9.080	615.1 -> 570.0	50491	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-PFTeDA	9.784	715.2 -> 670.0	21059	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C3-PFBS	5.571	302.1 -> 79.9	31313	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.6%		
13C3-PFHxS	7.301	402.1 -> 79.9	18350	2.38 µg/L	-0.012

7.7.9
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C4-PFBA	3.010	216.8 -> 171.9	256620	9.99 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.569	367.1 -> 322.0	86251	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C5-PFHxA	5.641	318.0 -> 273.0	106178	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C5-PFPeA	4.434	268.3 -> 223.0	43728	4.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.7%	
13C6-PFDA	8.198	519.1 -> 474.1	45216	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C7-PFUnDA	8.651	570.0 -> 525.1	48030	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.1%	
13C8-FOSA	9.682	506.1 -> 77.8	39442	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C8-PFOA	7.198	421.1 -> 376.0	112924	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-PFOS	8.348	507.1 -> 79.9	16459	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C9-PFNA	7.717	472.1 -> 427.0	45555	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.6%	
d3-MeFOSAA	8.256	573.2 -> 419.0	29427	4.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	59956	9.64 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
d3-MeFOSA	10.769	515.0 -> 219.0	15656	2.88 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.1%	
d5-EtFOSAA	8.452	589.2 -> 419.0	27399	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	122045	24.98 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
d9-EtFOSE	10.923	639.2 -> 58.9	158190	24.67 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
d5-EtFOSA	10.989	531.1 -> 219.0	13383	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	1120515	220.21 µg/L	100
		327.1 -> 80.9	427325		
6:2FTS	6.974	427.1 -> 407.0	899405	223.30 µg/L	99
		427.1 -> 80.9	334410		
8:2FTS	7.987	527.1 -> 507.0	633421	207.50 µg/L	91
		527.1 -> 80.8	235922		
EtFOSAA	8.452	584.2 -> 419.1	272351	65.74 µg/L	m 99
		584.2 -> 526.0	179078		
FOSA	9.672	498.1 -> 77.9	860849	63.27 µg/L	99
		498.1 -> 478.0	24935		
MeFOSAA	8.257	570.1 -> 419.0	454006	68.00 µg/L	94
		570.1 -> 483.0	94851		
PFBA	3.006	212.8 -> 168.9	2085787	263.75 µg/L	100
PFBS	5.572	298.7 -> 79.9	848079	57.21 µg/L	98
		298.7 -> 98.8	319770		
PFDA	8.198	512.9 -> 469.0	2643877	65.46 µg/L	97
		512.9 -> 219.0	406673		
PFDoDA	9.080	613.1 -> 569.0	2211341	60.12 µg/L	98
		613.1 -> 319.0	285380		
PFDS	9.233	599.0 -> 79.9	307028	63.61 µg/L	98

7.7.9
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	144244	65.75	µg/L	94
		363.1 -> 319.0	2883614			
PFHpS	7.856	363.1 -> 169.0	395969	64.66	µg/L	96
		449.0 -> 79.9	520980			
PFHxA	5.644	449.0 -> 98.9	258071	66.08	µg/L	99
		313.0 -> 269.0	2439302			
PFHxS	7.302	313.0 -> 118.9	103241	58.40	µg/L	m
		398.7 -> 79.9	692571			
PFNA	7.717	398.7 -> 98.9	334091	63.38	µg/L	98
		463.0 -> 419.0	1855341			
PFNS	8.814	463.0 -> 219.0	467929	65.53	µg/L	92
		548.8 -> 79.9	524067			
PFOA	7.200	548.8 -> 98.9	268881	63.29	µg/L	97
		413.0 -> 369.0	3295360			
PFOS	8.350	413.0 -> 169.0	611981	61.31	µg/L	m
		498.9 -> 79.9	570449			
PFPeA	4.436	498.9 -> 98.8	275775	129.70	µg/L	100
		263.0 -> 219.0	2793465			
PFPeS	6.620	349.1 -> 79.9	602385	61.11	µg/L	96
		349.1 -> 98.9	277382			
PFTeDA	9.785	713.1 -> 669.0	1713472	60.82	µg/L	99
		713.1 -> 168.9	134247			
PFTrDA	9.452	663.0 -> 619.0	2415623	61.64	µg/L	100
		663.0 -> 168.9	189665			
PFUnDA	8.652	563.1 -> 519.0	1859549	66.68	µg/L	100
		563.1 -> 269.1	269401			
11Cl-PF3OUdS	9.491	630.9 -> 450.9	2267319	116.52	µg/L	100
		632.9 -> 452.9	701964			
9Cl-PF3ONS	8.690	530.8 -> 351.0	3682585	107.23	µg/L	100
		532.8 -> 353.0	1161986			
ADONA	6.817	376.9 -> 250.9	10436152	117.91	µg/L	99
		376.9 -> 84.8	2747735			
HFPO-DA	6.020	284.9 -> 168.9	729218	128.14	µg/L	99
		284.9 -> 184.9	100230			
3:3FTCA	3.902	241.0 -> 177.0	511390	370.69	µg/L	100
		241.0 -> 117.0	48661			
5:3FTCA	6.283	341.0 -> 237.1	10399312	1605.50	µg/L	98
		341.0 -> 217.0	7607397			
7:3FTCA	7.669	441.0 -> 316.9	6324202	1673.61	µg/L	96
		441.0 -> 336.9	13973629			
EtFOSA	10.990	526.0 -> 219.0	898615	127.78	µg/L	99
		526.0 -> 169.0	1164708			
EtFOSE	10.924	630.0 -> 58.9	2455560	331.17	µg/L	100
		511.9 -> 219.0	824032			
MeFOSA	10.758	511.9 -> 169.0	1142459	116.96	µg/L	96
		616.1 -> 58.9	1744280			
MeFOSE	10.691	699.1 -> 79.9	147929	332.92	µg/L	100
		699.1 -> 98.8	85393			
PFDoDS	9.898	295.0 -> 201.0	516879	62.34	µg/L	95
		295.0 -> 84.9	124819			
NFDHA	5.524	279.0 -> 85.1	2004840	118.37	µg/L	97
		229.0 -> 84.9	1514557			
PFMBA	4.850	314.8 -> 134.9	5629922	131.48	µg/L	100
		314.8 -> 82.9	177117			
PFMPA	3.563			134.16	µg/L	100
PFEESA	6.112			115.89	µg/L	99

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

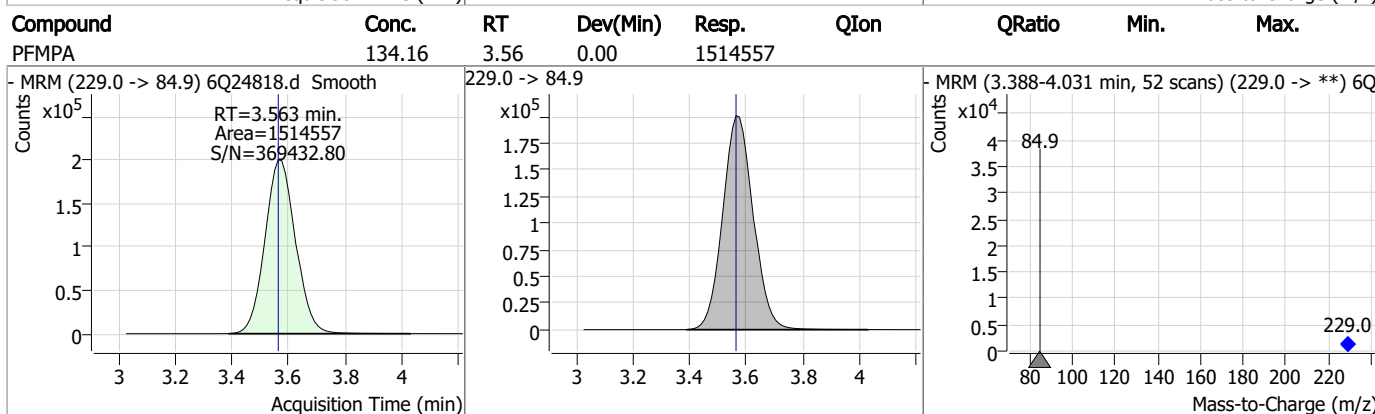
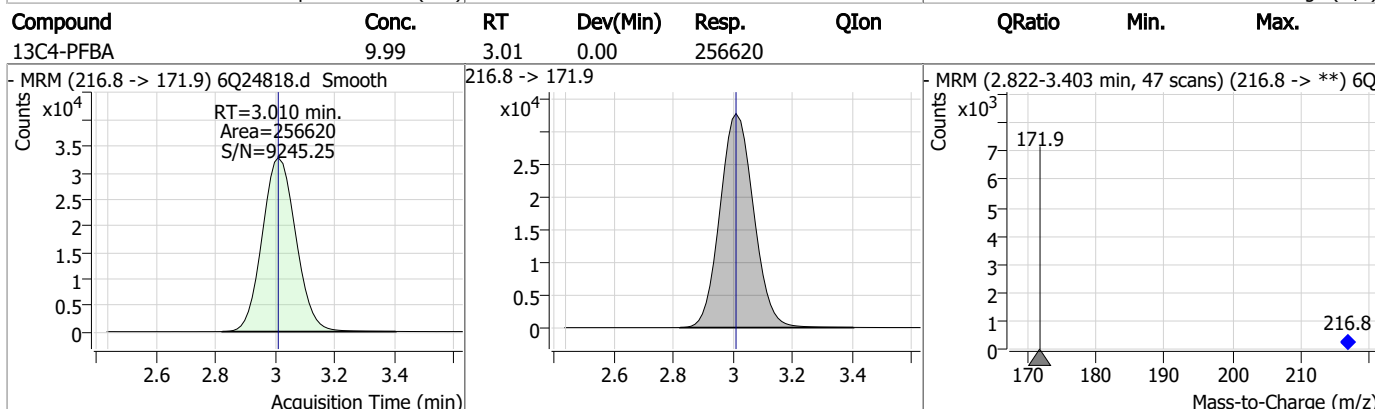
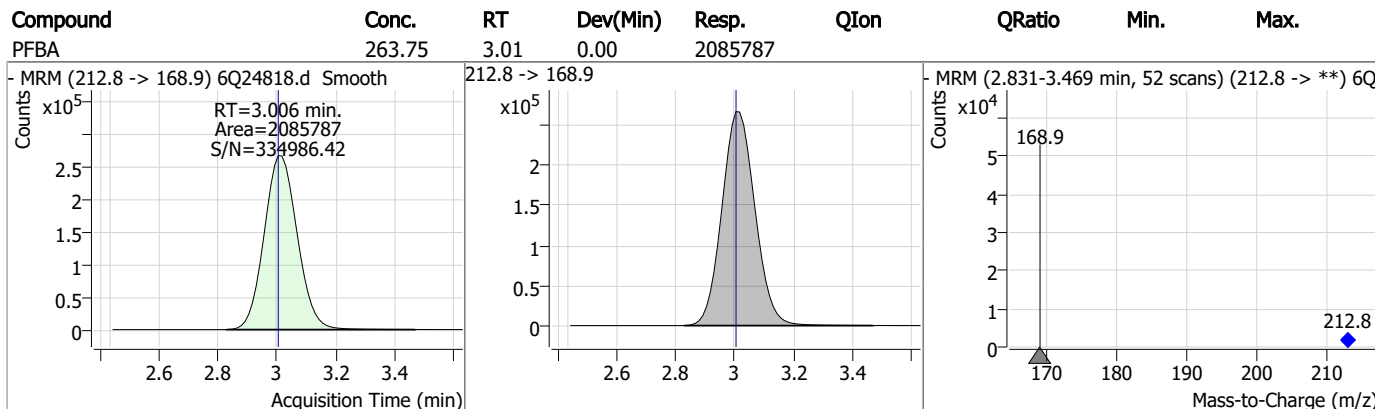
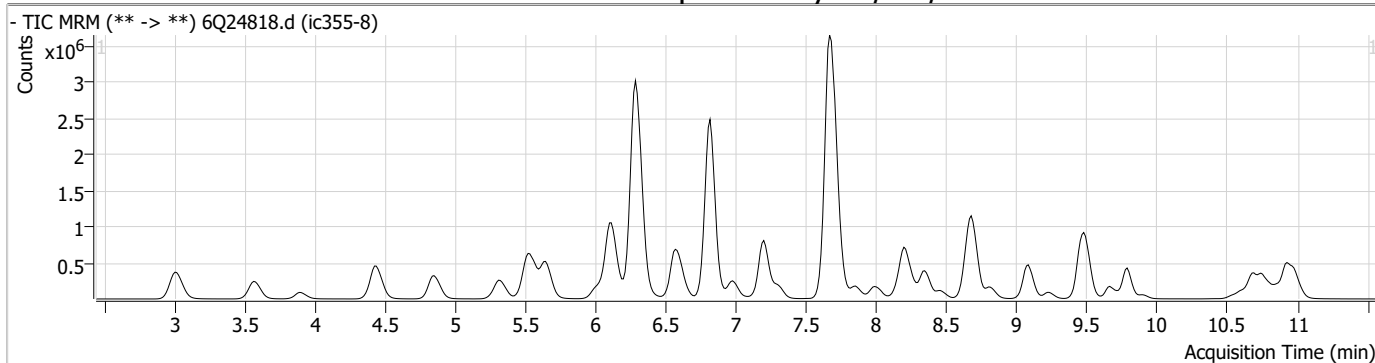
Perfluorinated Compounds by LC/MS/MS

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

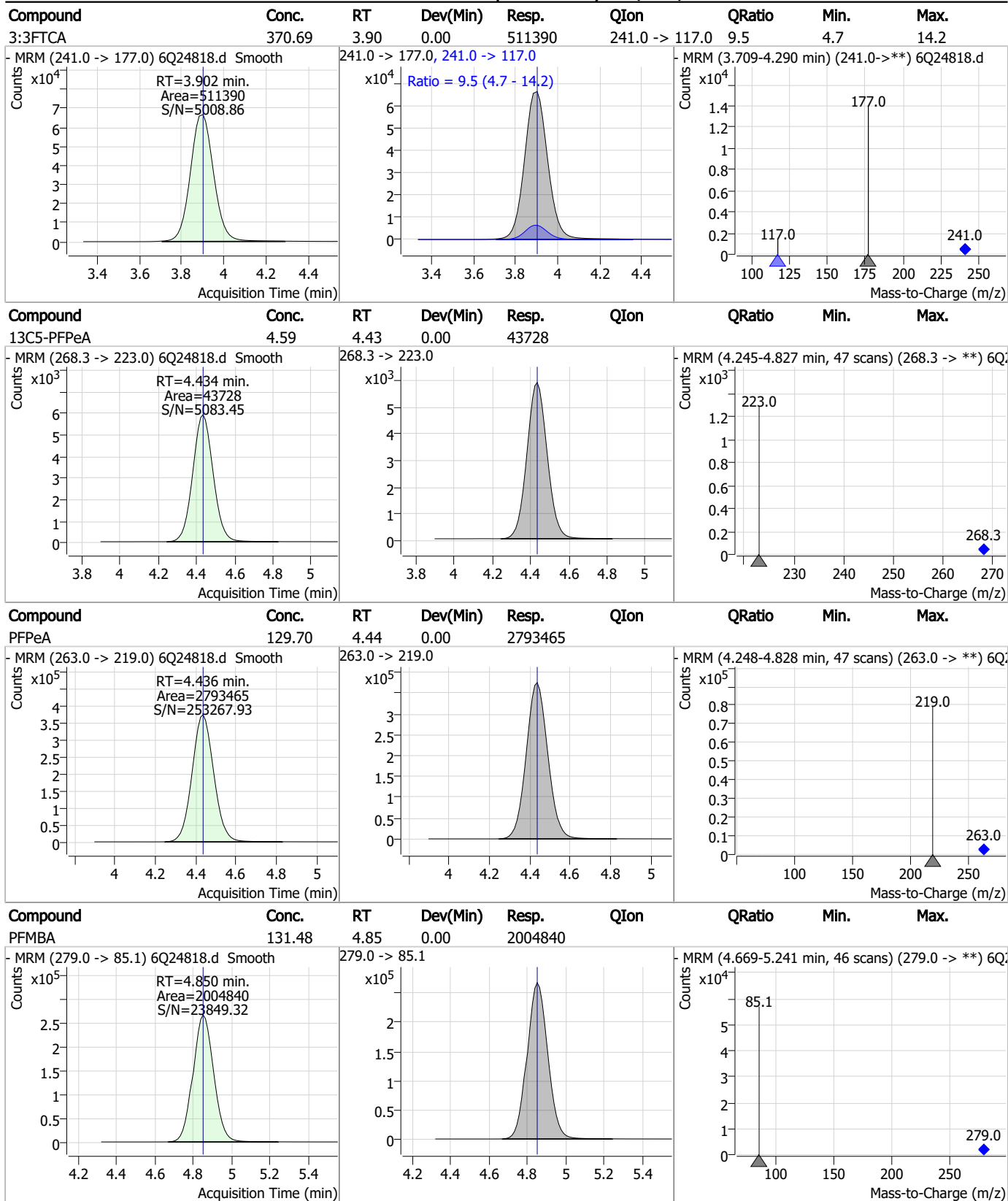
7.7.9

7

Perfluorinated Compounds by LC/MS/MS

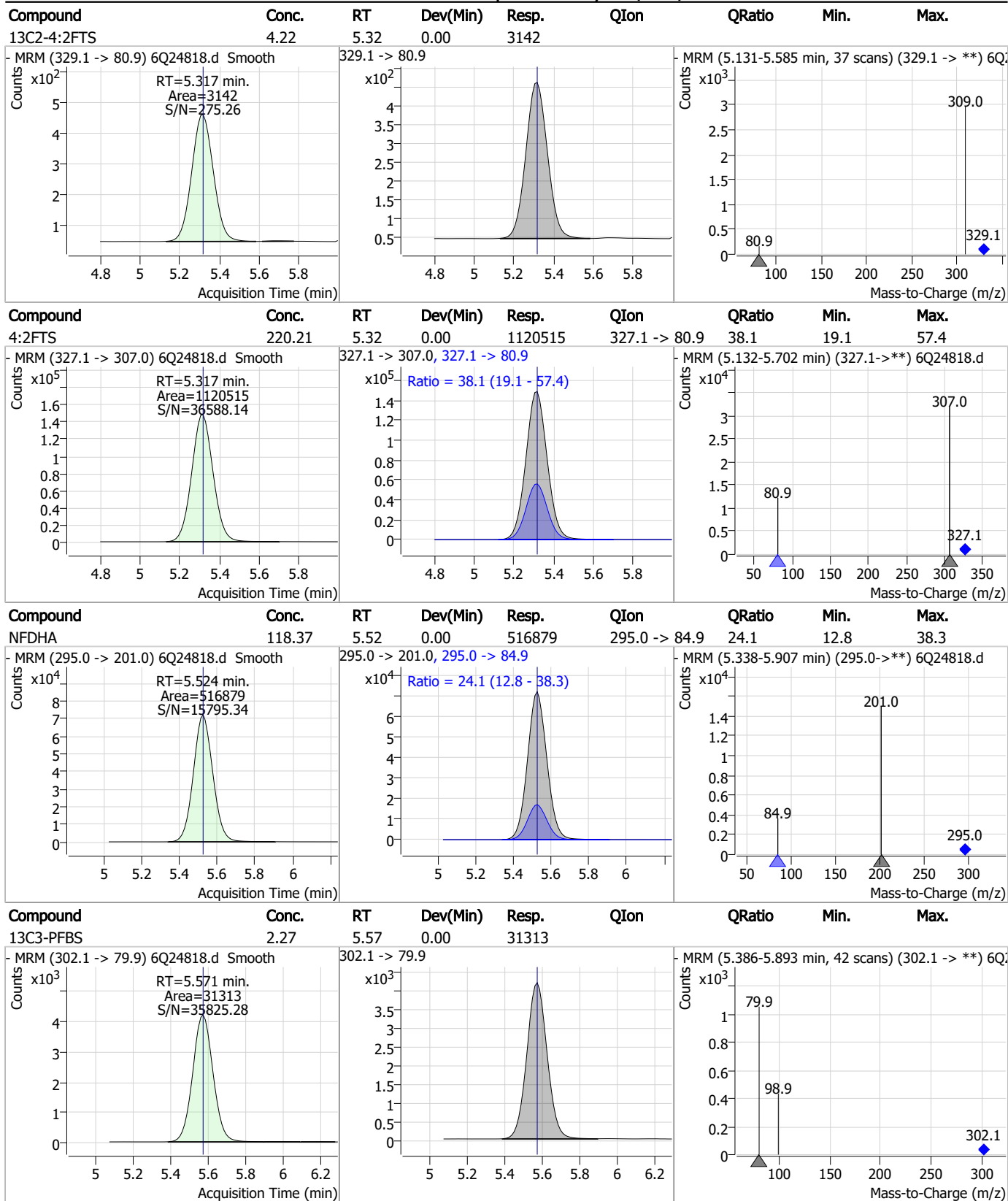


Perfluorinated Compounds by LC/MS/MS



7.7.9
7

Perfluorinated Compounds by LC/MS/MS



7.7.9
7

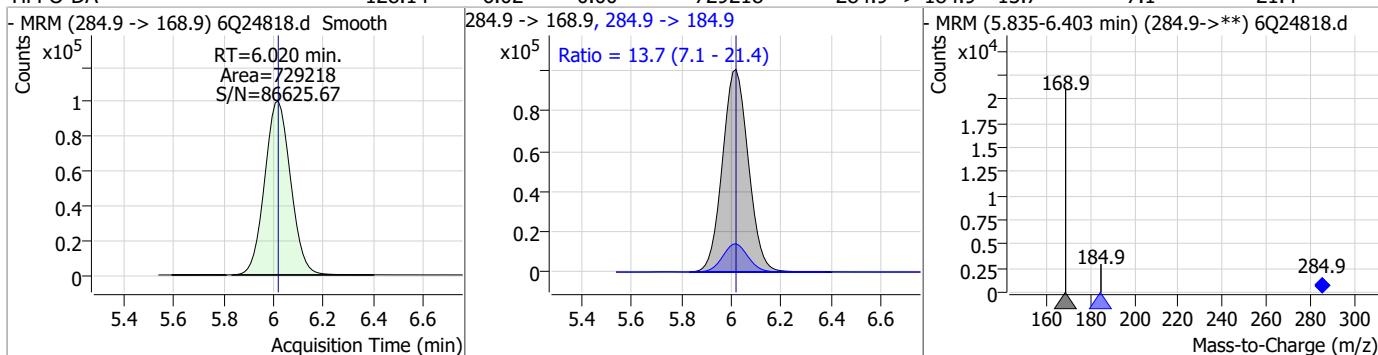
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	57.21	5.57	0.00	848079	298.7 -> 98.8	37.7	18.2	54.6
13C5-PFHxA	2.40	5.64	0.00	106178	318.0 -> 273.0	4.2	2.3	7.0
PFHxA	66.08	5.64	0.00	2439302	313.0 -> 118.9	4.2	2.3	7.0
13C3-HFPO-DA	9.64	6.02	0.00	59956	286.9 -> 168.9	4.2	2.3	7.0

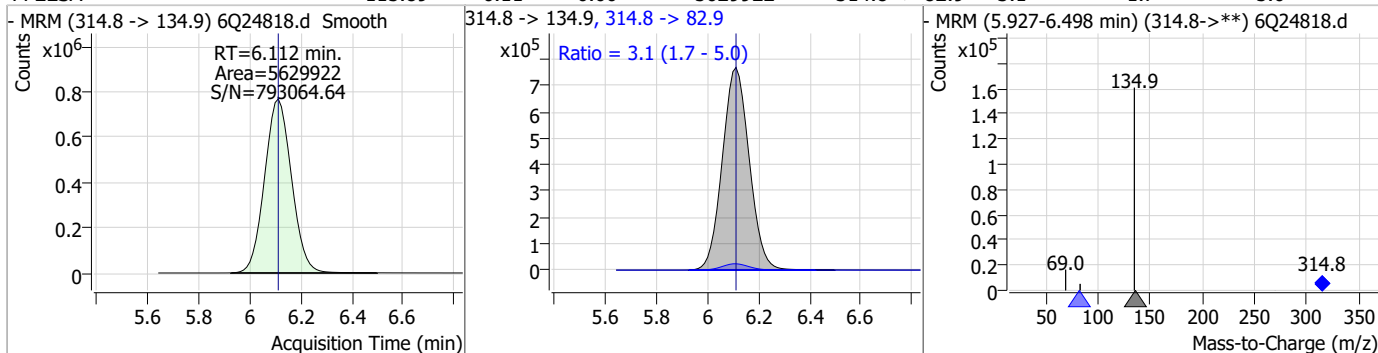
7.7.9
7

Perfluorinated Compounds by LC/MS/MS

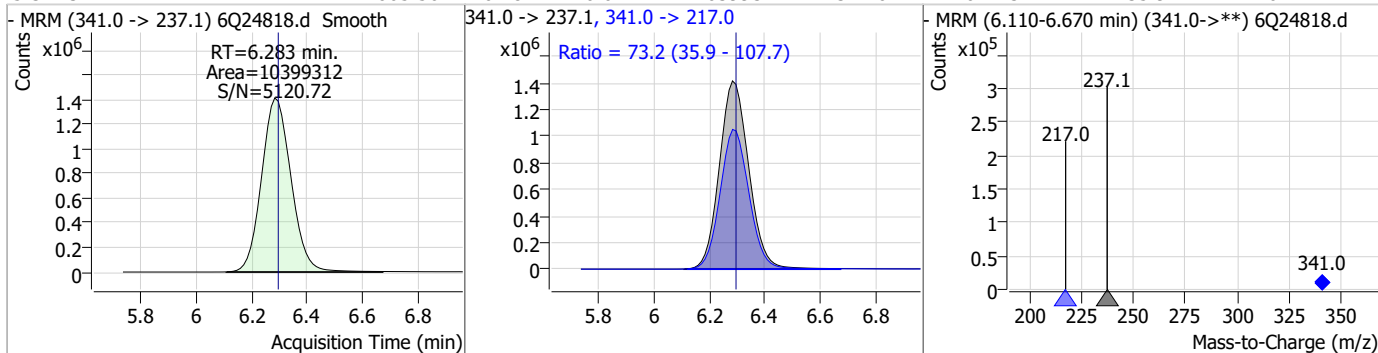
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	128.14	6.02	0.00	729218	284.9 -> 184.9	13.7	7.1	21.4



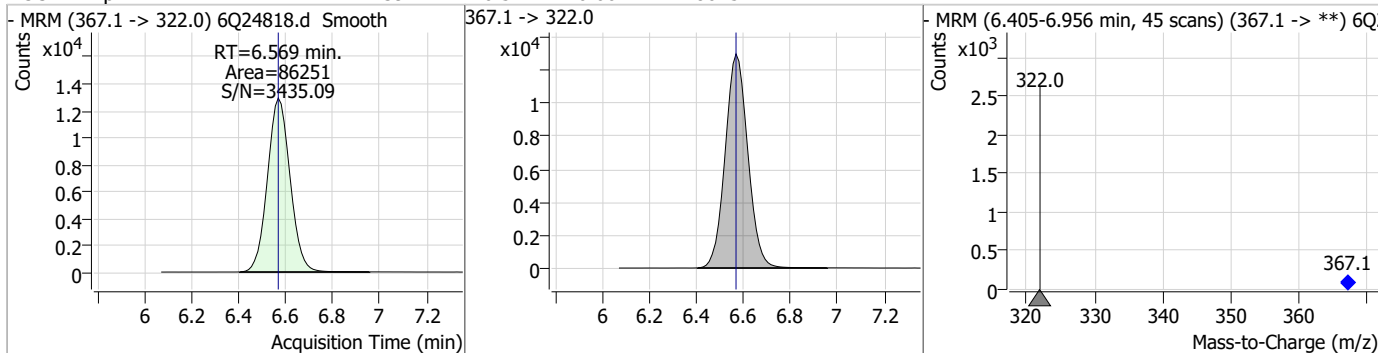
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	115.89	6.11	0.00	5629922	314.8 -> 82.9	3.1	1.7	5.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1605.50	6.28	-0.01	10399312	341.0 -> 217.0	73.2	35.9	107.7

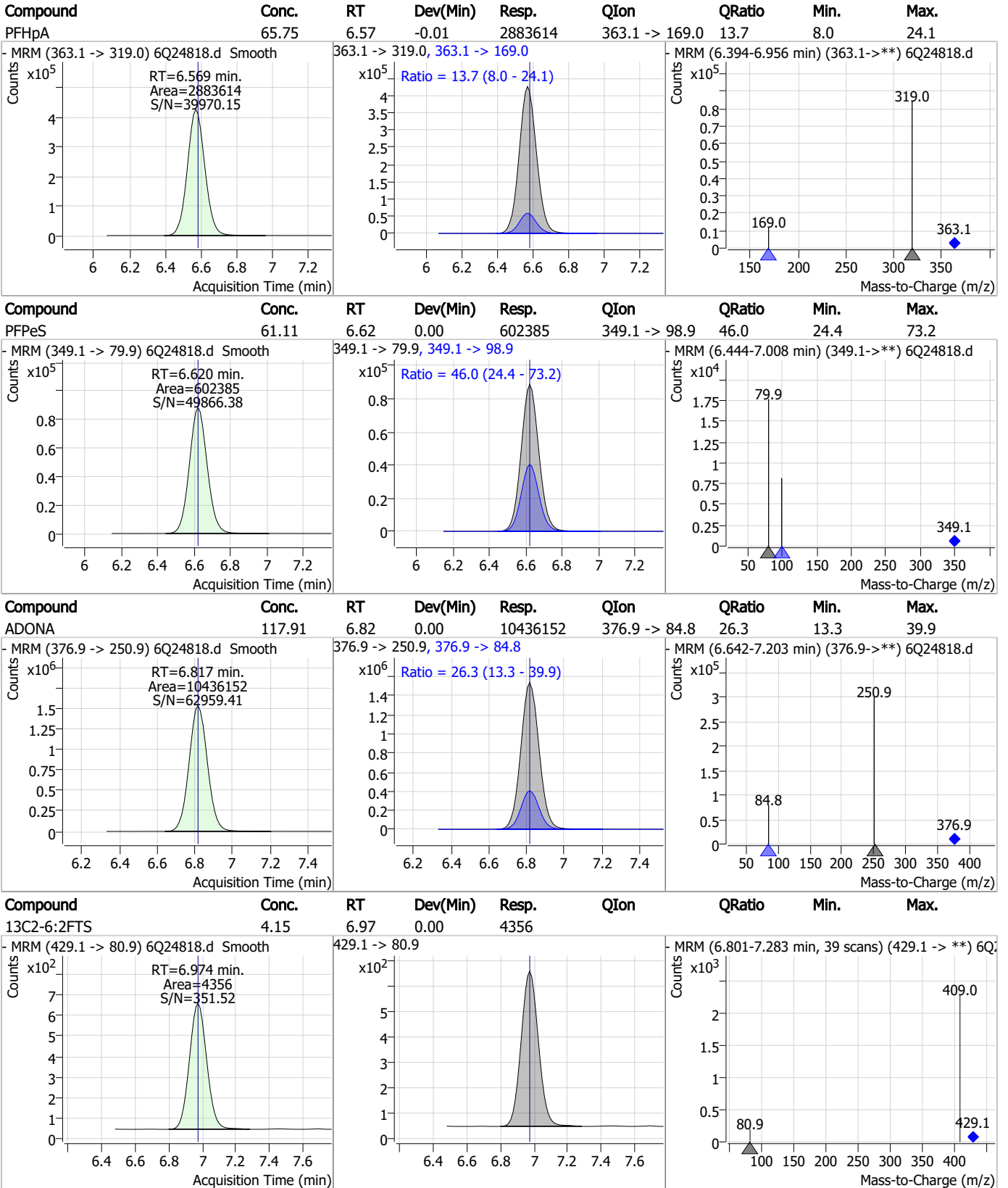


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.39	6.57	0.00	86251	367.1 -> 322.0			



7.7.9
7

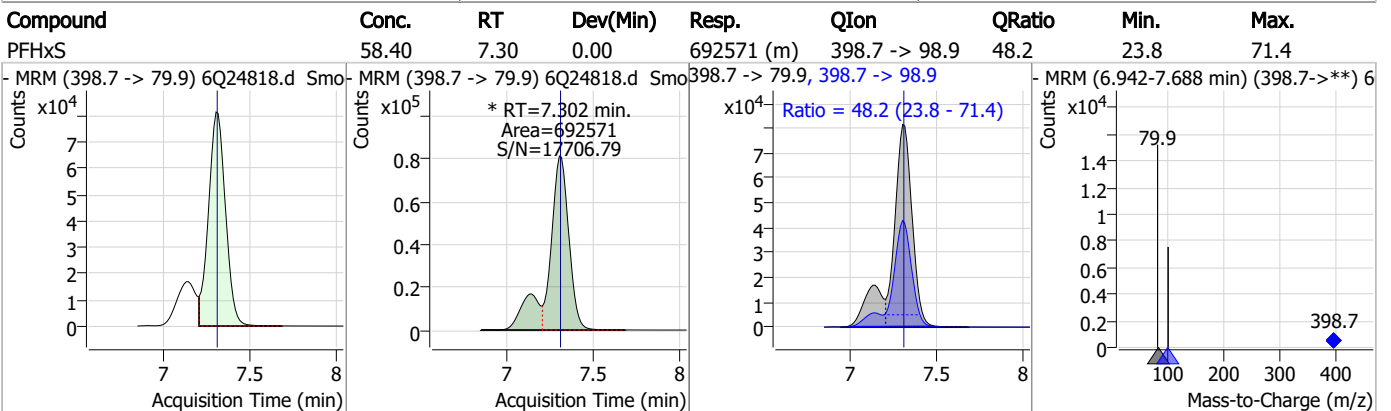
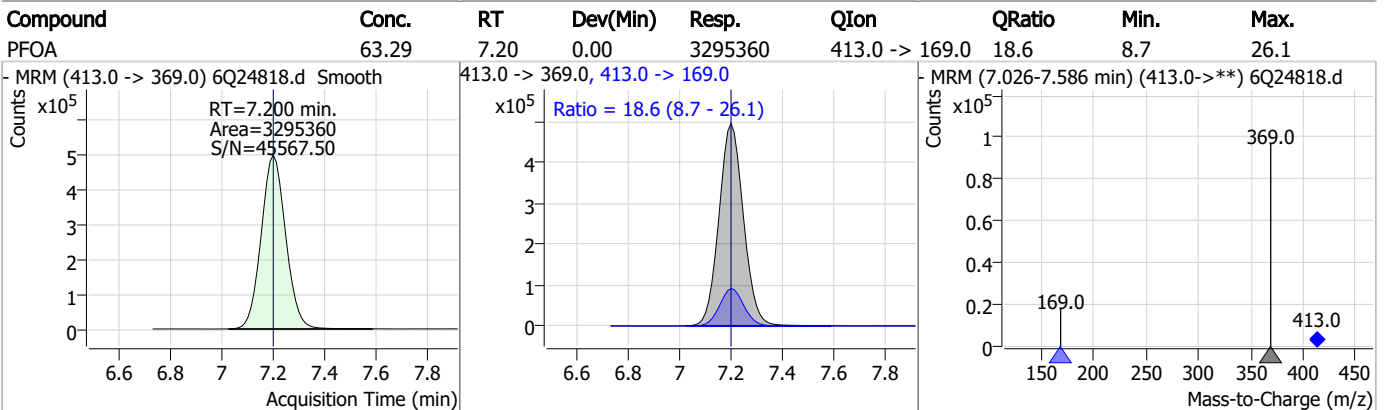
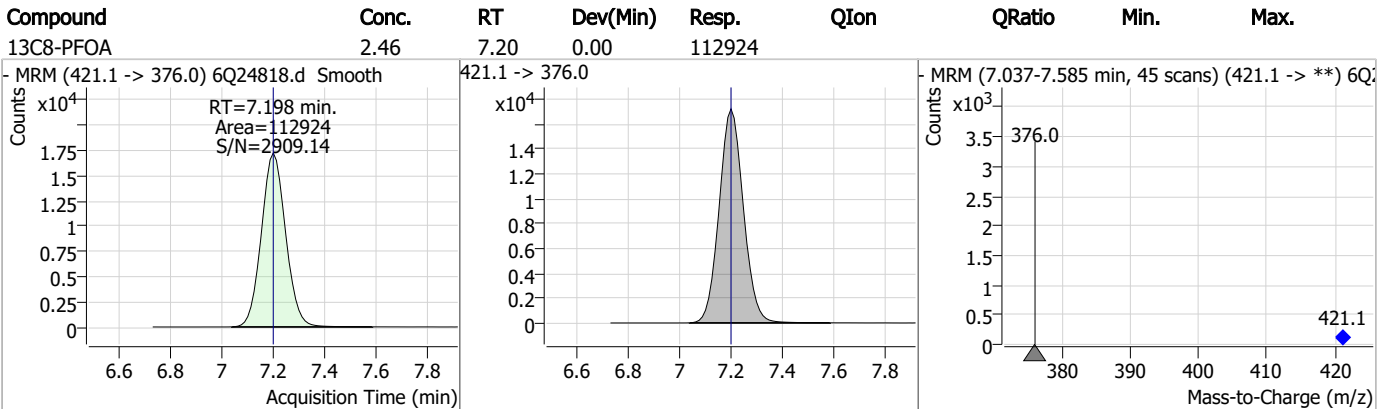
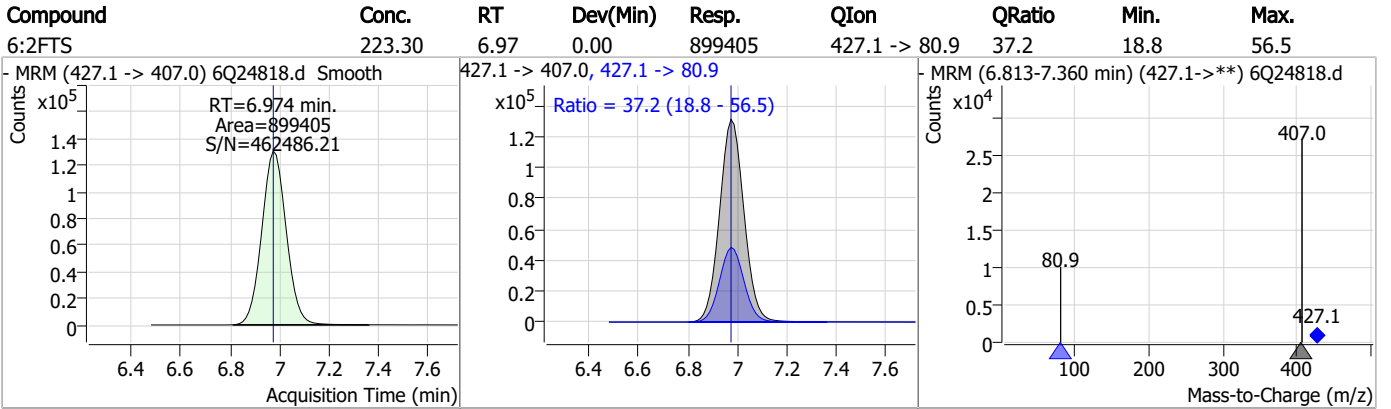
Perfluorinated Compounds by LC/MS/MS



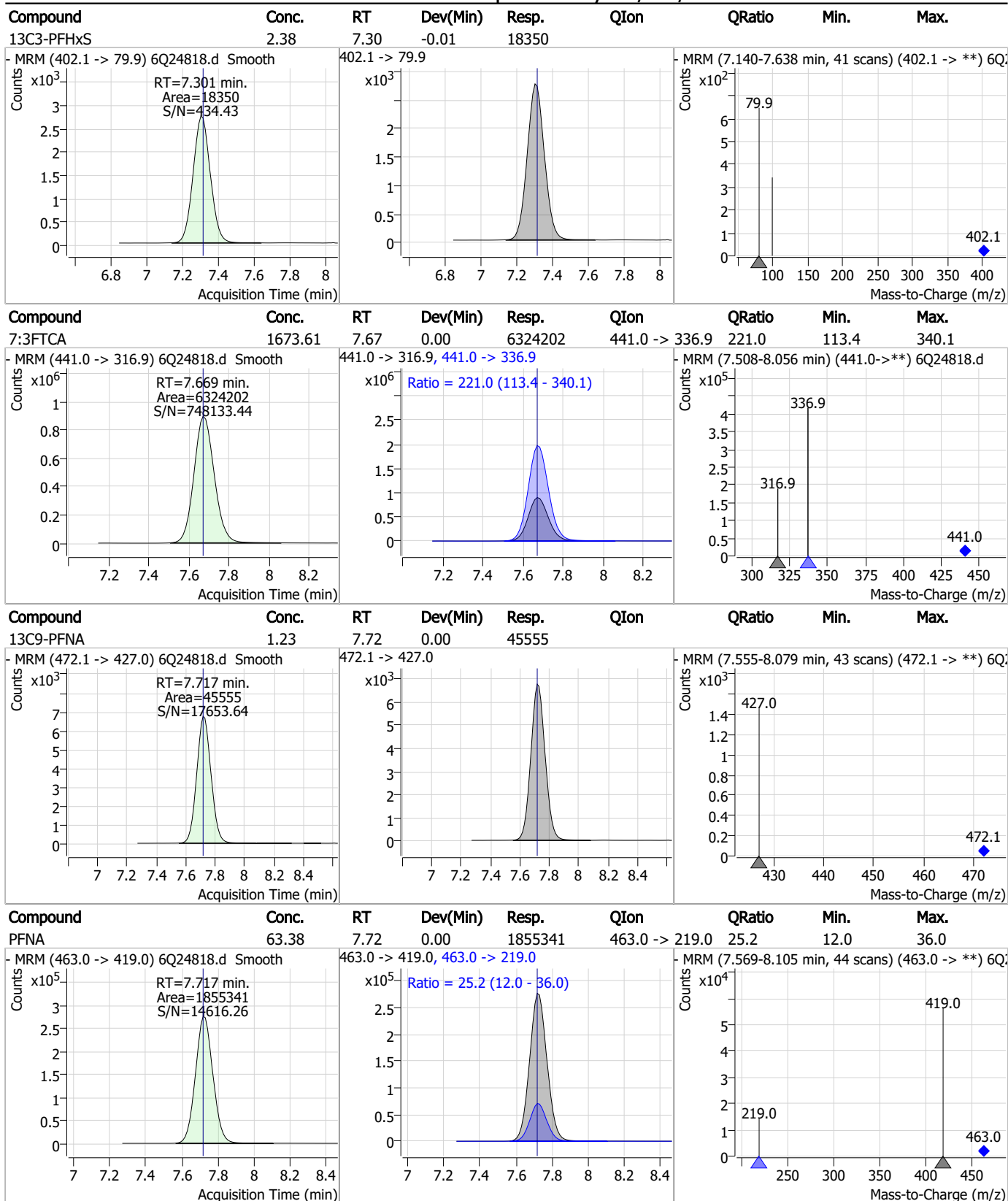
7.7.9

7

Perfluorinated Compounds by LC/MS/MS



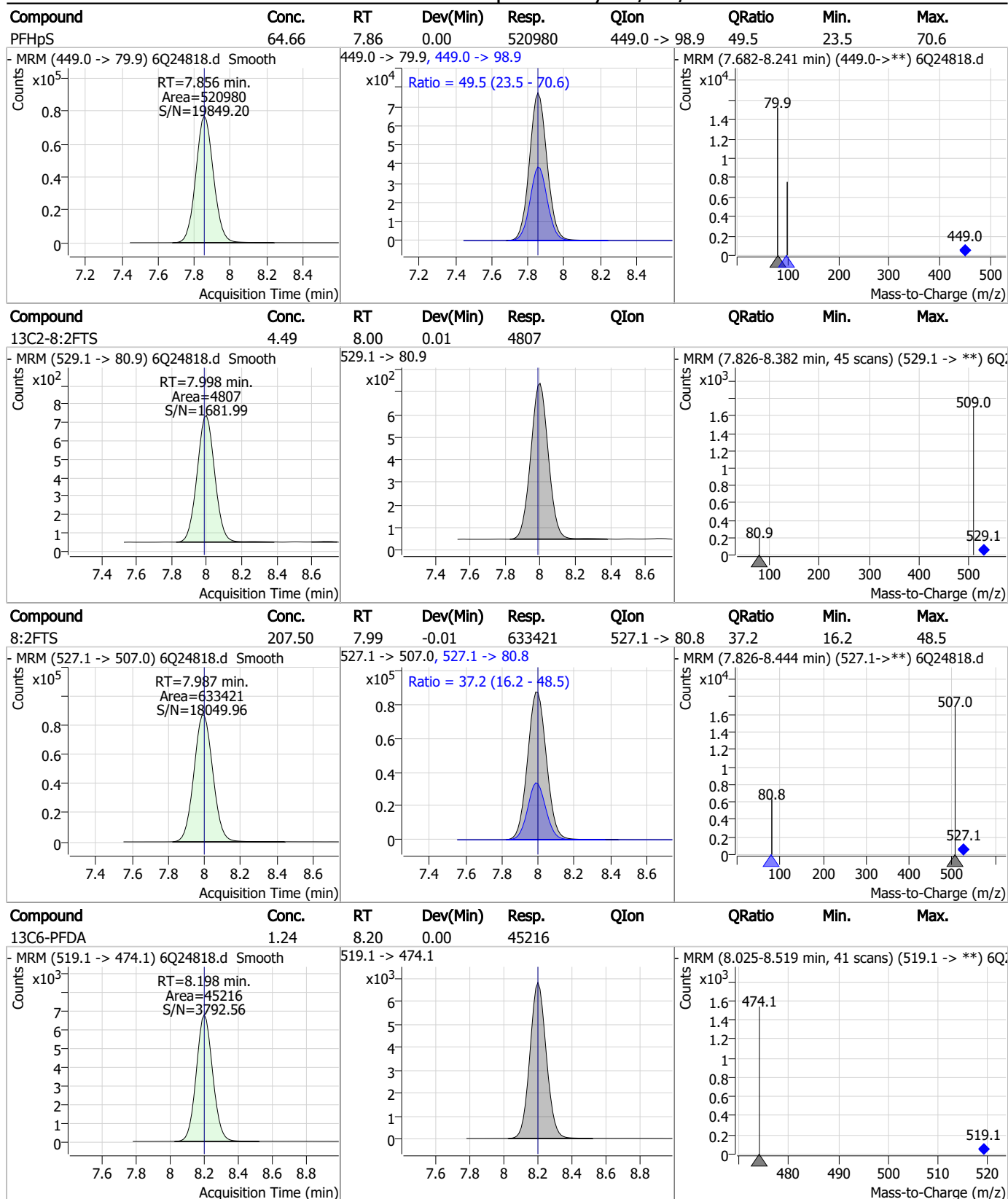
Perfluorinated Compounds by LC/MS/MS



7.7.9
7

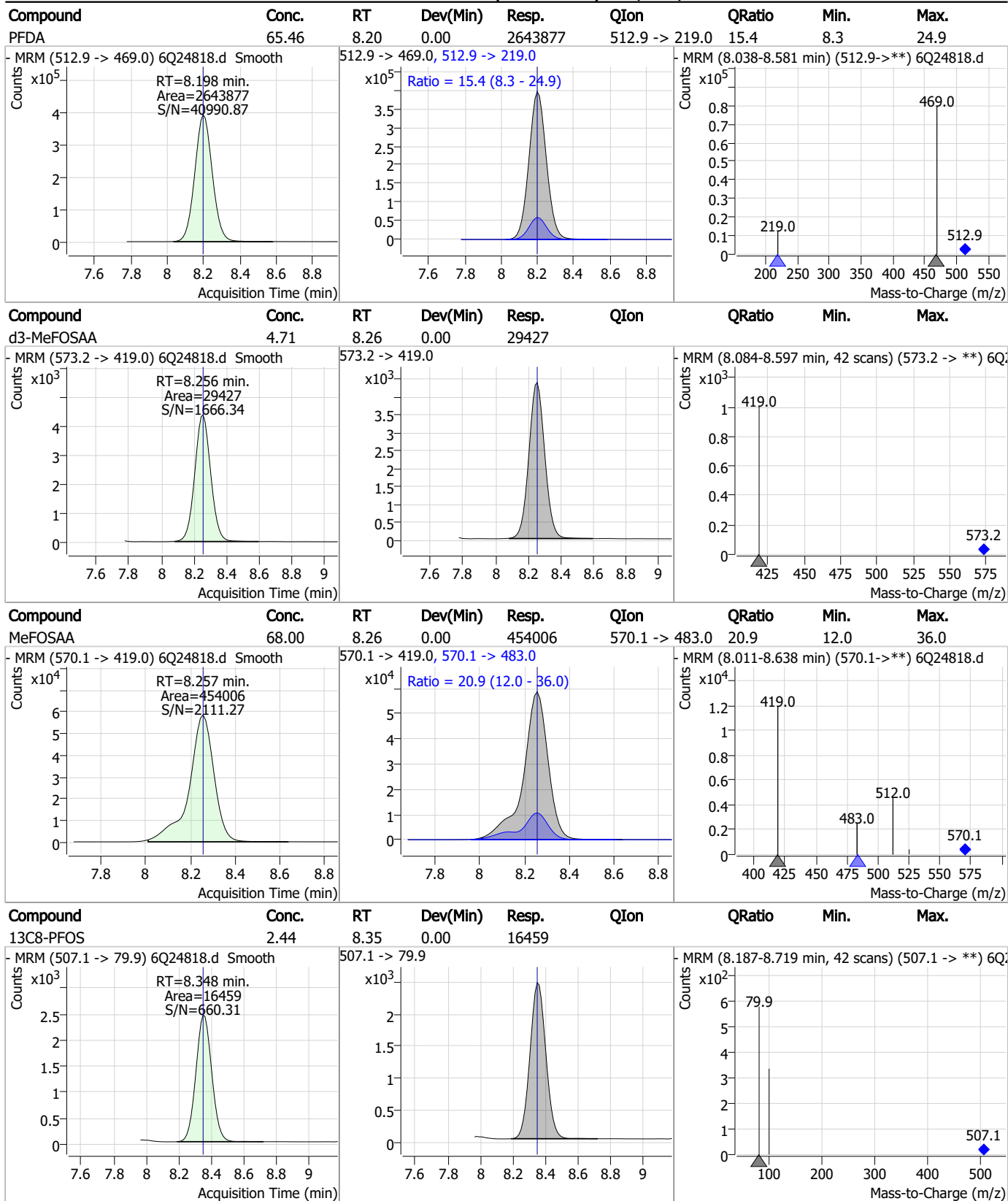


Perfluorinated Compounds by LC/MS/MS



7.7.9
7

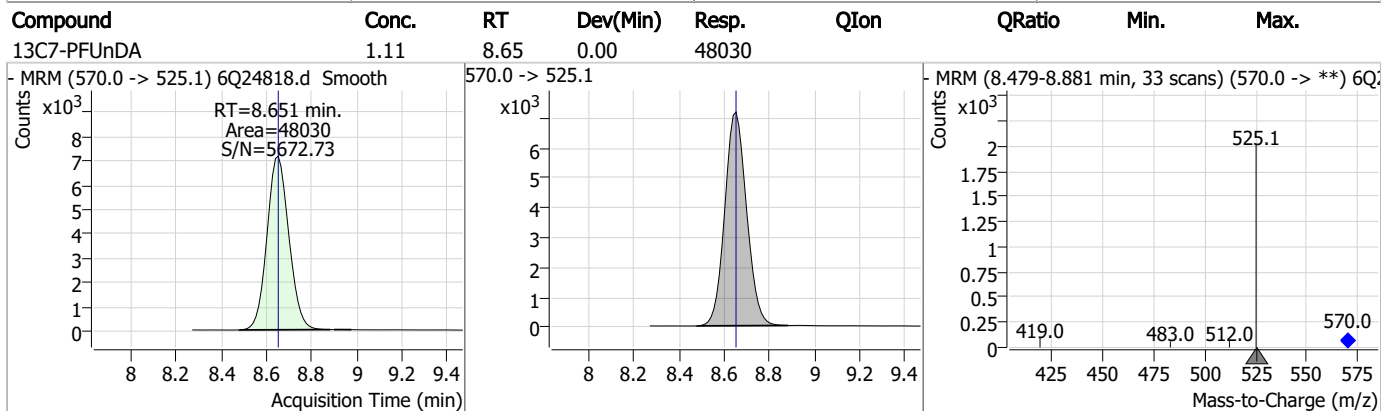
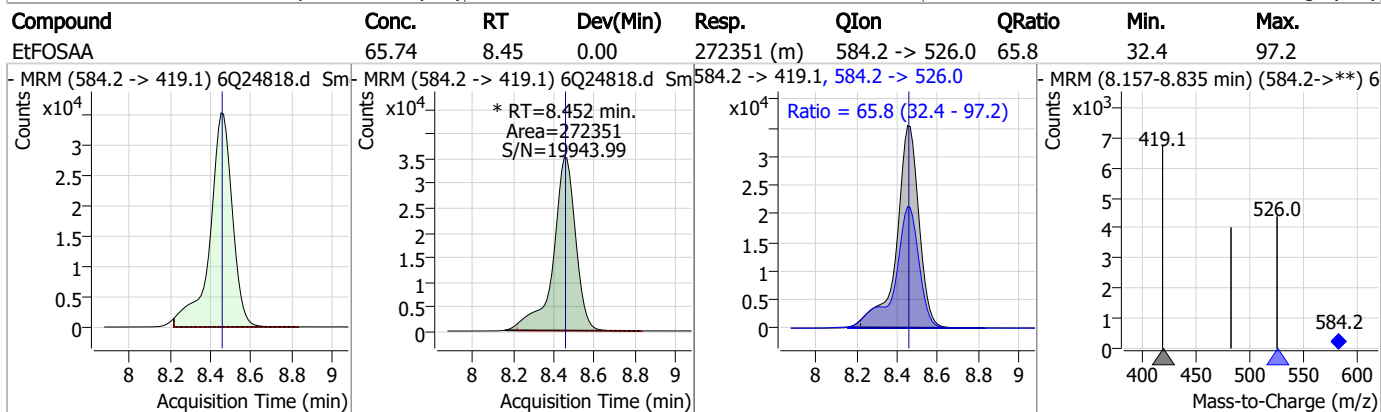
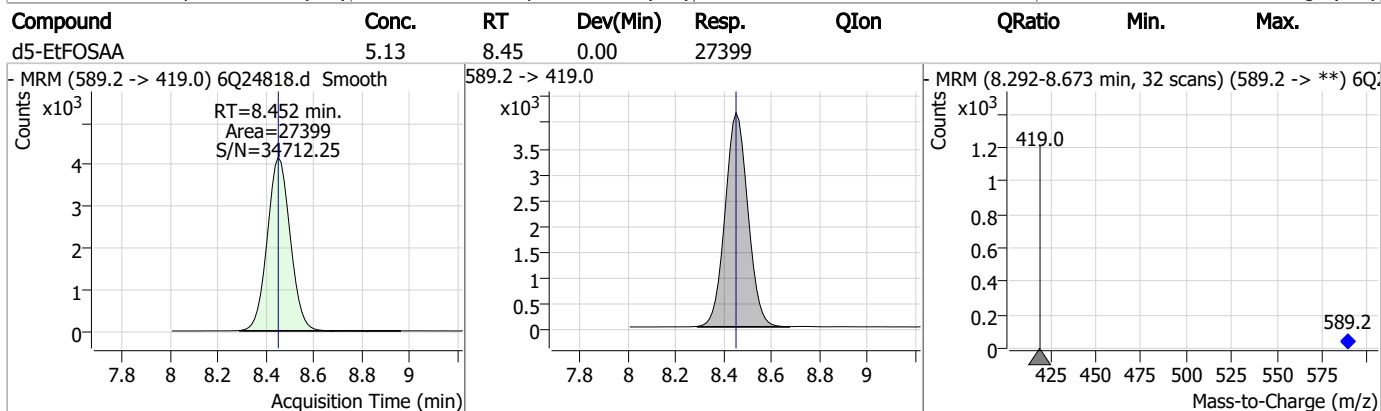
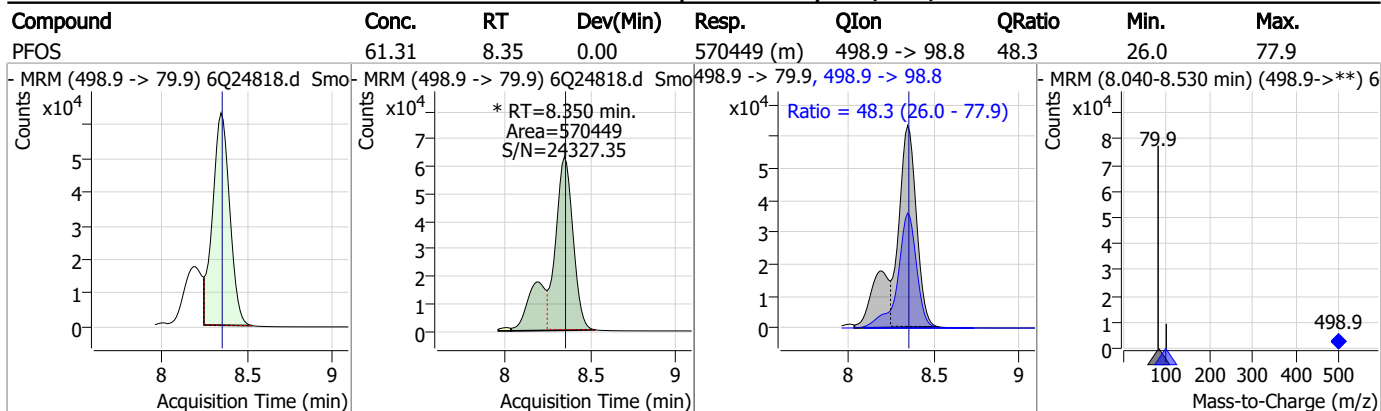
Perfluorinated Compounds by LC/MS/MS



7.7.9

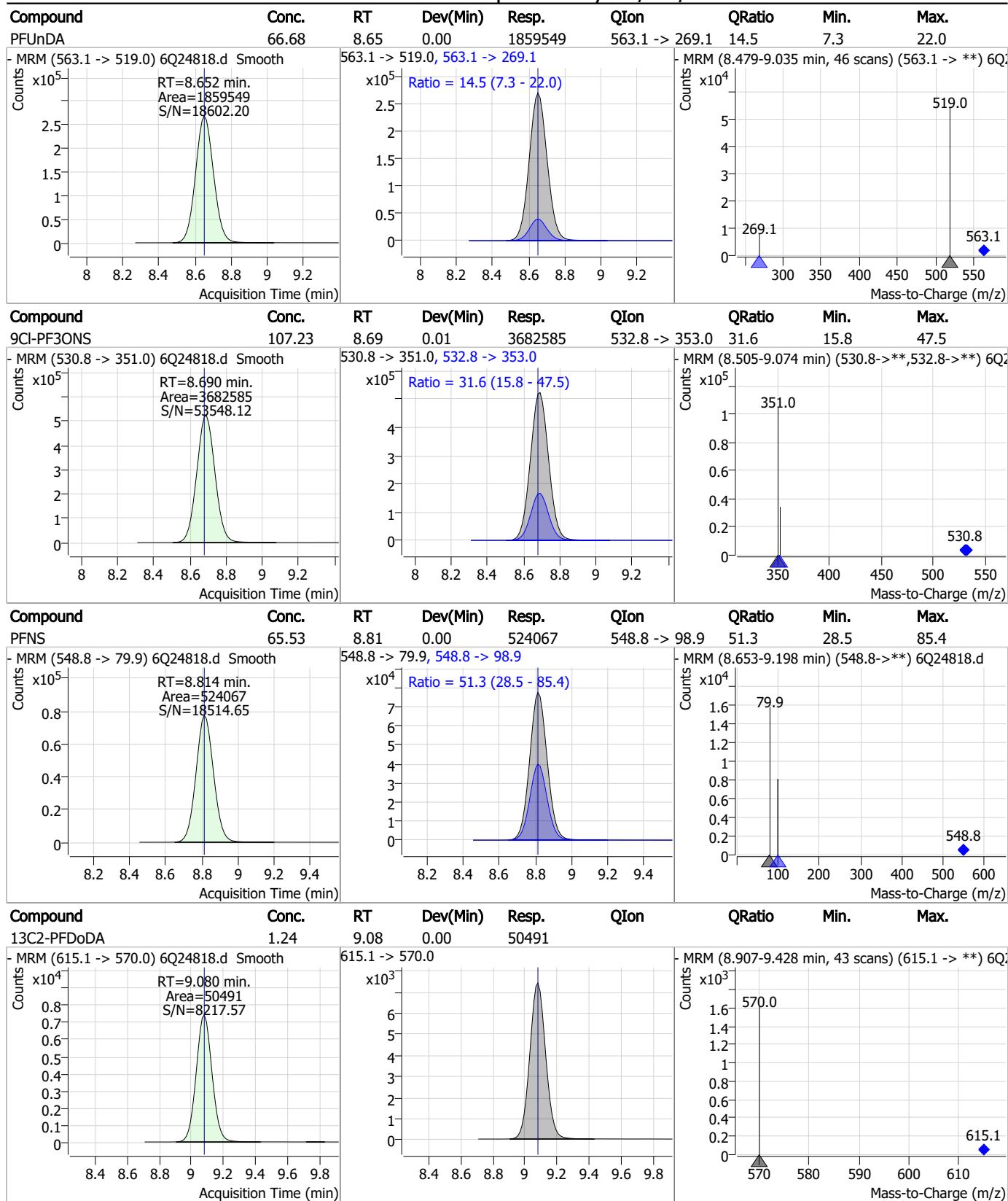
7

Perfluorinated Compounds by LC/MS/MS



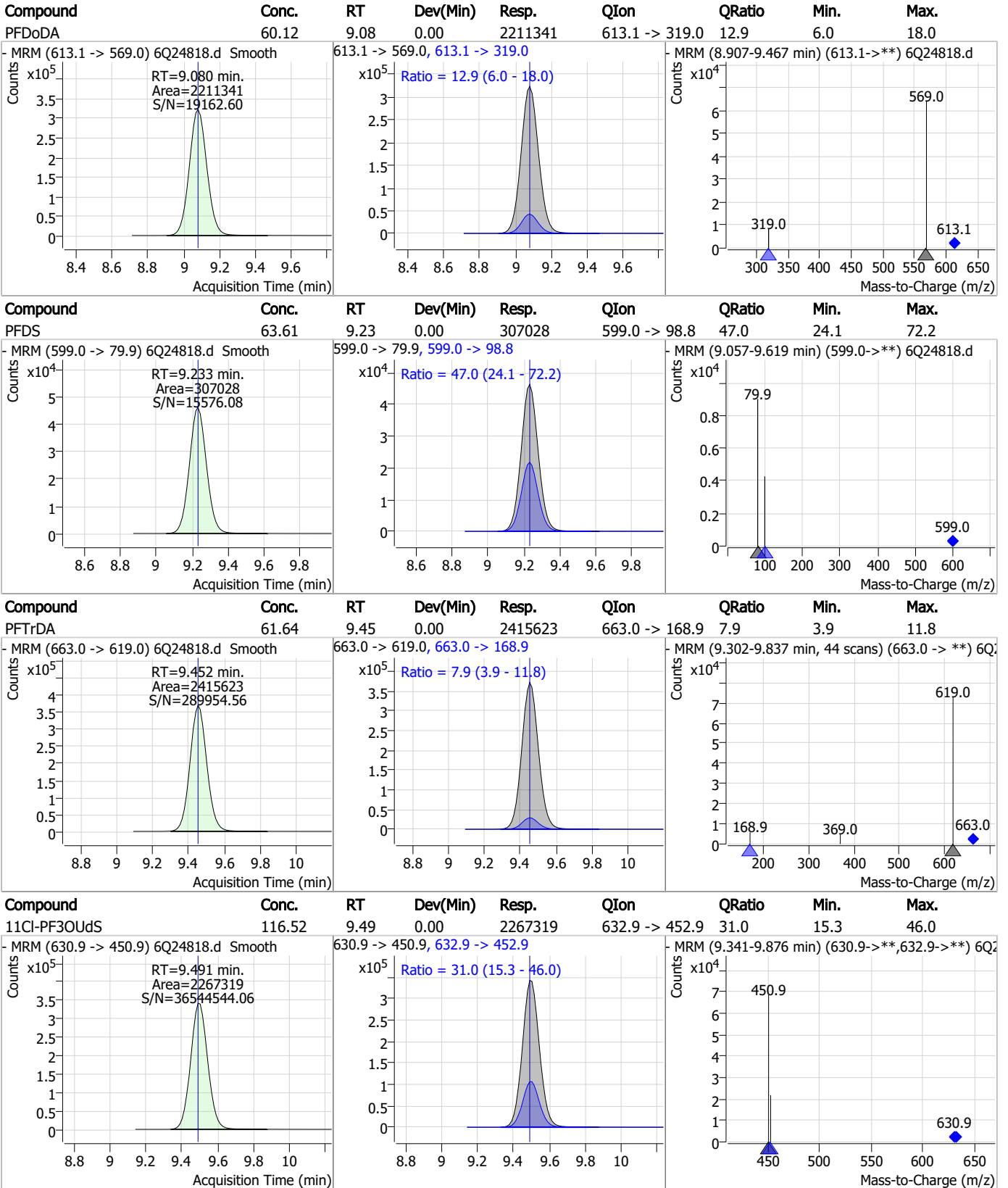
7.7.9
7

Perfluorinated Compounds by LC/MS/MS



7.7.9
7

Perfluorinated Compounds by LC/MS/MS



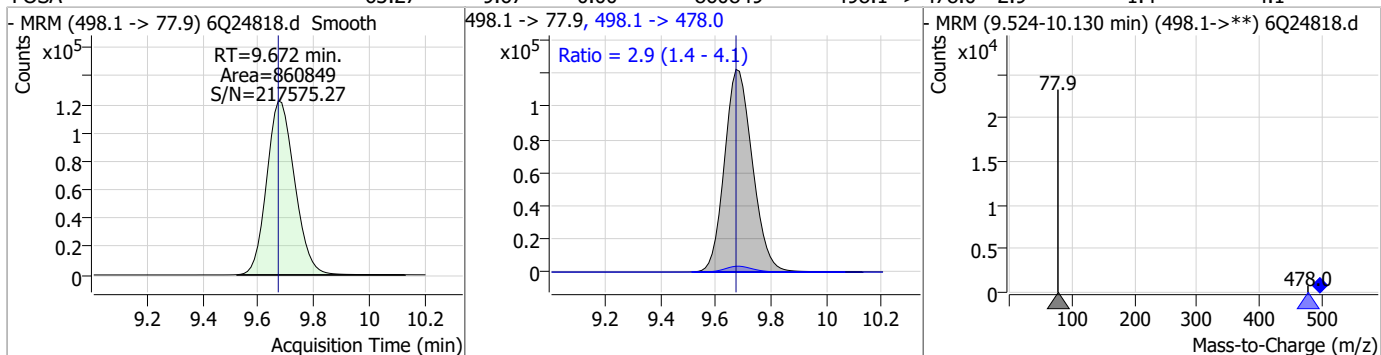
7.7.9

7

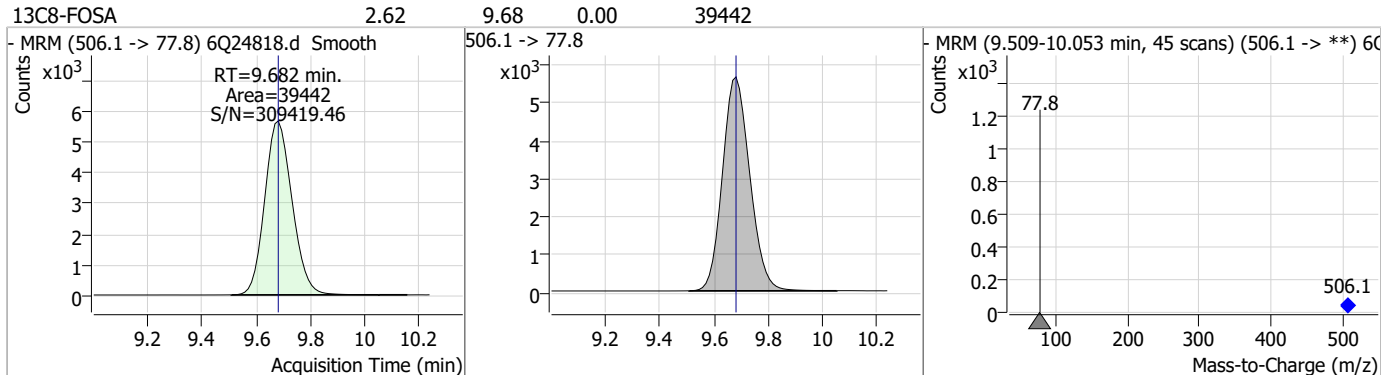


Perfluorinated Compounds by LC/MS/MS

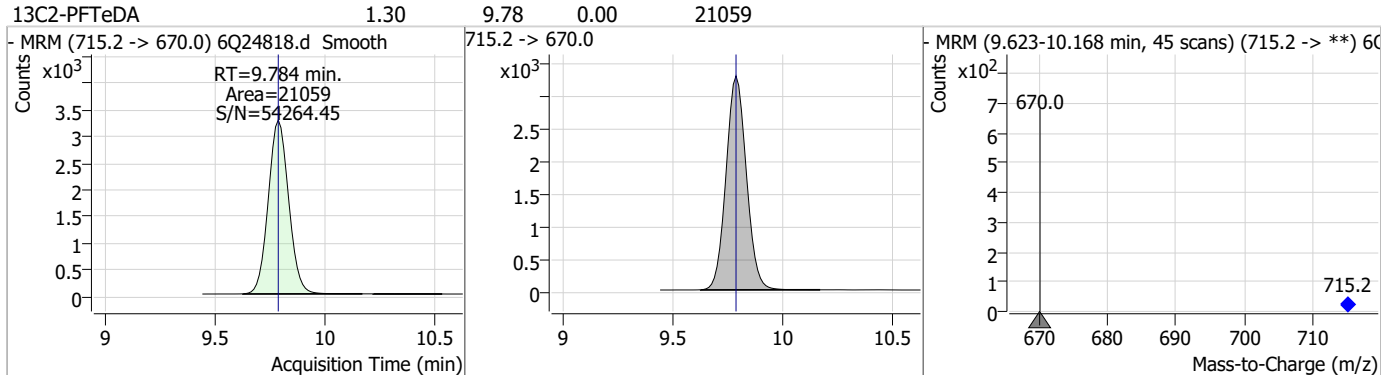
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	63.27	9.67	0.00	860849	498.1 -> 478.0	2.9	1.4	4.1



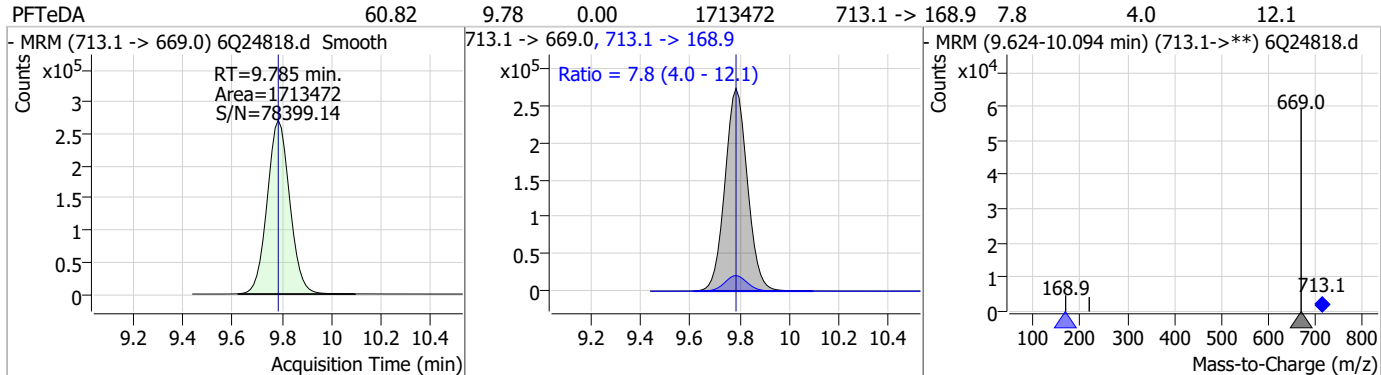
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.62	9.68	0.00	39442				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	9.78	0.00	21059				

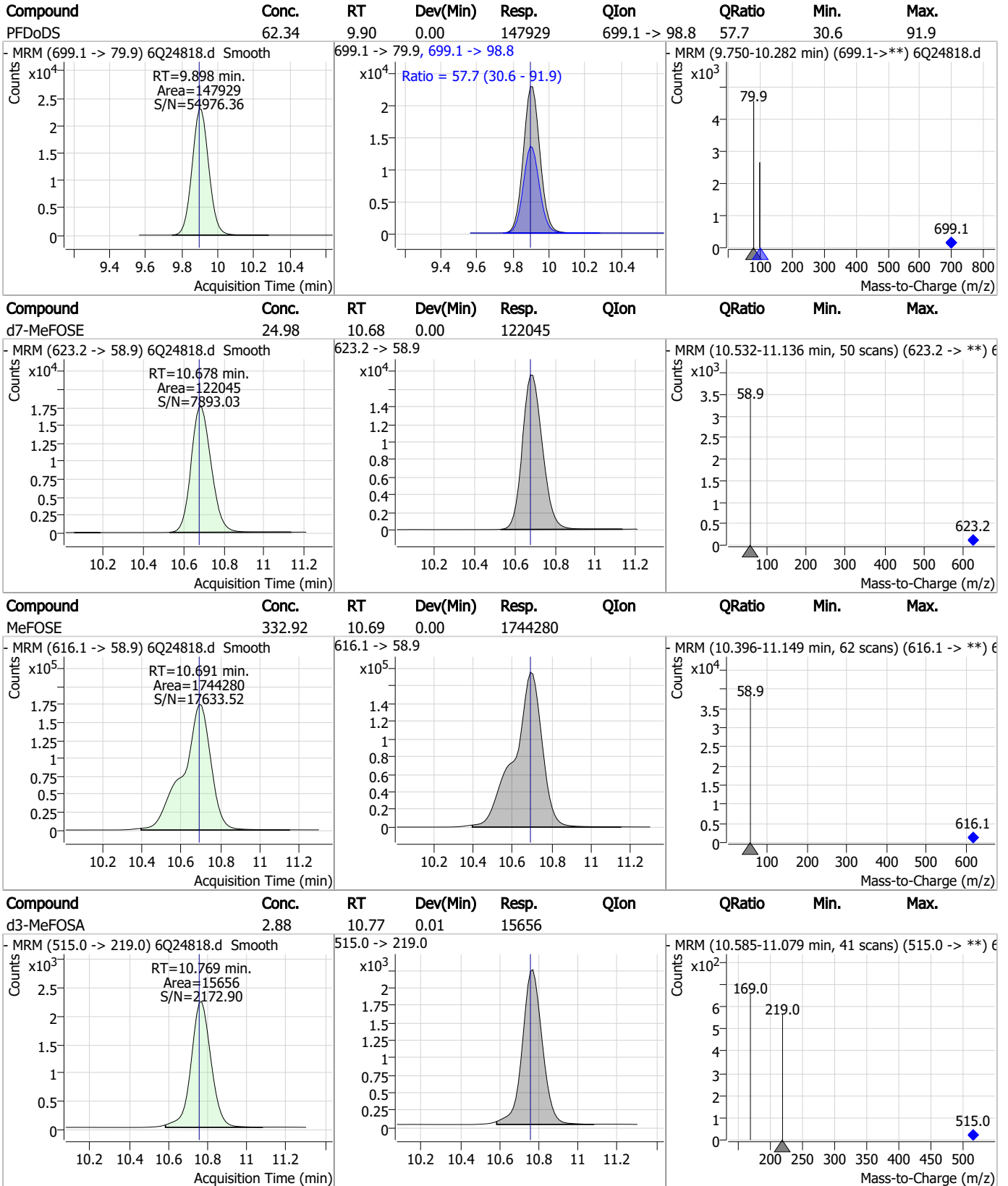


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	60.82	9.78	0.00	1713472	713.1 -> 168.9	7.8	4.0	12.1



7.7.9
7

Perfluorinated Compounds by LC/MS/MS

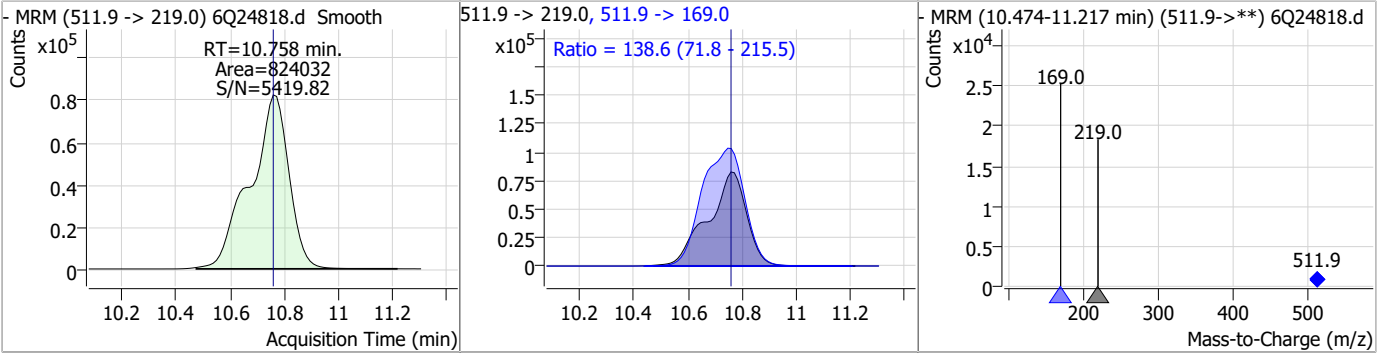


7.7.9

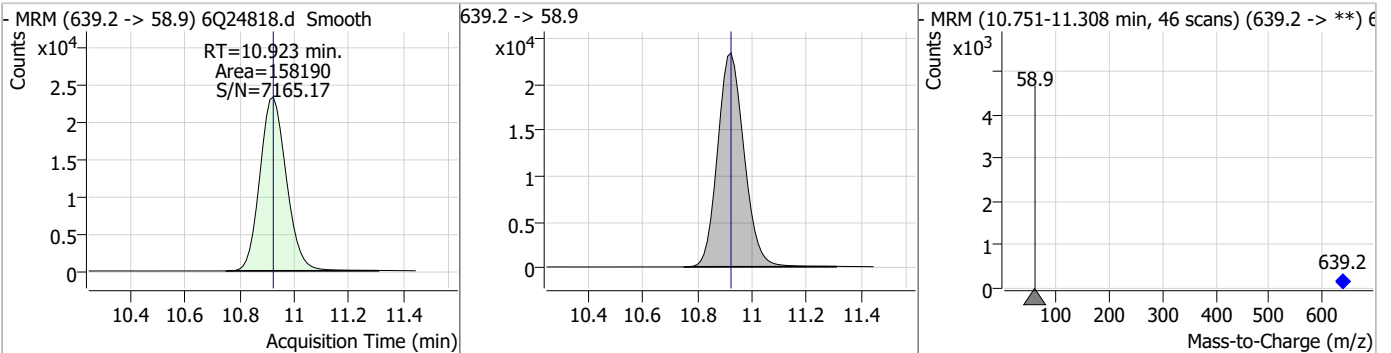
7

Perfluorinated Compounds by LC/MS/MS

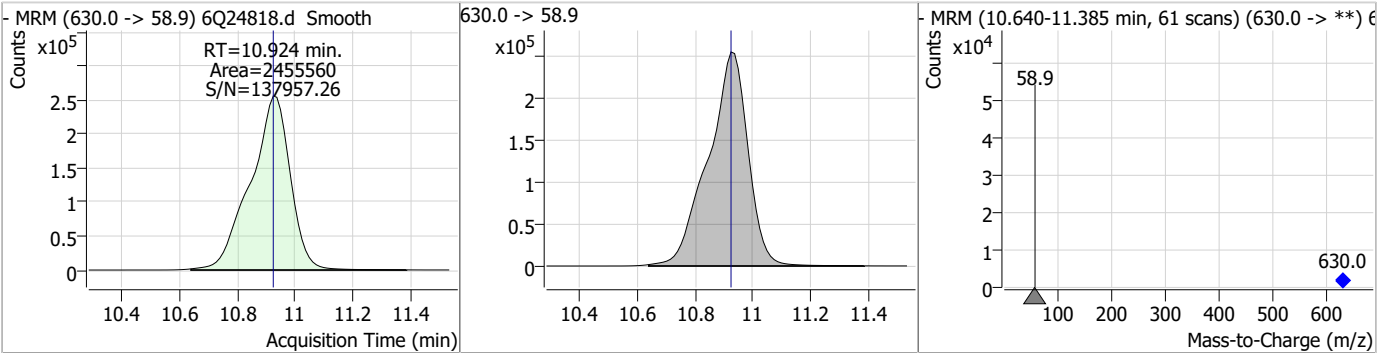
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	116.96	10.76	0.00	824032	511.9 -> 169.0	138.6	71.8	215.5



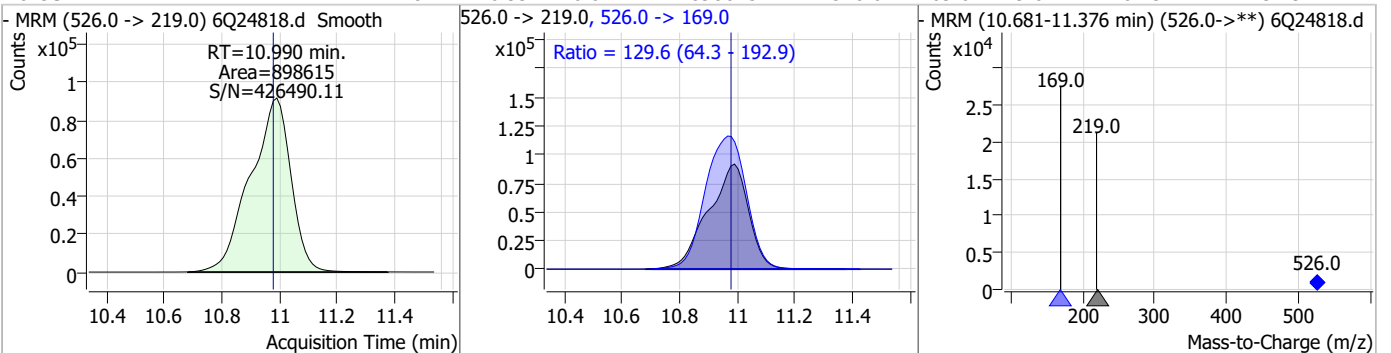
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.67	10.92	0.00	158190				



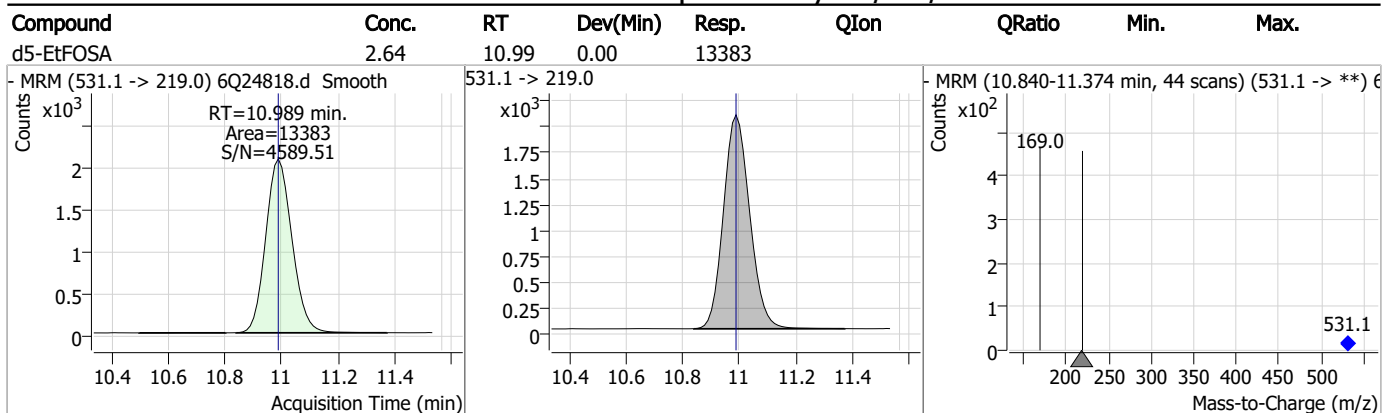
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	331.17	10.92	0.00	2455560				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	127.78	10.99	0.01	898615	526.0 -> 169.0	129.6	64.3	192.9



Perfluorinated Compounds by LC/MS/MS



7.7.9
7



Manual Integration Approval Summary

Sample Number: S6Q355-IC355 Method: EPA DRAFT 1633
Lab FileID: 6Q24818.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 22:16 Supervisor approved: 09/22/23 13:16 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.9.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24820.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 10:44:53 PM
 Sample Name : icv355-4
 Vial : P1-B1
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	339151	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	53696	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	122427	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	99831	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	128283	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	58447	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	54790	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	67725	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	59228	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	21977	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	44262	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	38396	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	22022	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	21776	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	4524	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	6256	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	6046	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	38087	5.00 µg/L	-0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	69811	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	31706	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	138417	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	198964	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	14938	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	14872	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	27888	2.50 µg/L	0.000
13C3-PFBA	3.001	216.0 -> 172.0	138177	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	16061	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	149360	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	46726	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	59991	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	89291	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	4524	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C2-6:2FTS	6.974	429.1 -> 80.9	6256	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C2-8:2FTS	7.986	529.1 -> 80.9	6046	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C2-PFDoDA	9.080	615.1 -> 570.0	59228	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFTeDA	9.784	715.2 -> 670.0	21977	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.0%		
13C3-PFBS	5.571	302.1 -> 79.9	38396	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C3-PFHxS	7.301	402.1 -> 79.9	22022	2.53 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 = 101.3%	
13C4-PFBA	3.010	216.8 -> 171.9	339151	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.569	367.1 -> 322.0	99831	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C5-PFHxA	5.641	318.0 -> 273.0	122427	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C5-PFPeA	4.434	268.3 -> 223.0	53696	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C6-PFDA	8.198	519.1 -> 474.1	54790	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C7-PFUnDA	8.651	570.0 -> 525.1	67725	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C8-FOSA	9.682	506.1 -> 77.8	44262	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C8-PFOA	7.198	421.1 -> 376.0	128283	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C8-PFOS	8.348	507.1 -> 79.9	21776	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C9-PFNA	7.717	472.1 -> 427.0	58447	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.5%	
d3-MeFOSAA	8.244	573.2 -> 419.0	38087	5.00 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	69811	10.54 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
d3-MeFOSA	10.769	515.0 -> 219.0	14872	2.24 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.7%	
d5-EtFOSAA	8.439	589.2 -> 419.0	31706	4.87 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
d7-MeFOSE	10.678	623.2 -> 58.9	138417	23.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
d9-EtFOSE	10.923	639.2 -> 58.9	198964	25.47 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d5-EtFOSA	10.989	531.1 -> 219.0	14938	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	59347	8.10 µg/L	98
		327.1 -> 80.9	22116		
6:2FTS	6.974	427.1 -> 407.0	48063	8.31 µg/L	96
		427.1 -> 80.9	19136		
8:2FTS	7.987	527.1 -> 507.0	34478	8.98 µg/L	87
		527.1 -> 80.8	13598		
EtFOSAA	8.452	584.2 -> 419.1	11530	2.40 µg/L	98
		584.2 -> 526.0	7298		
FOSA	9.672	498.1 -> 77.9	33637	2.20 µg/L	99
		498.1 -> 478.0	1028		
MeFOSAA	8.257	570.1 -> 419.0	18270	2.11 µg/L	96
		570.1 -> 483.0	4035		
PFBA	3.006	212.8 -> 168.9	92341	8.84 µg/L	100
PFBS	5.572	298.7 -> 79.9	35538	1.96 µg/L	94
		298.7 -> 98.8	14235		
PFDA	8.198	512.9 -> 469.0	106526	2.18 µg/L	98
		512.9 -> 219.0	16756		
PFDODA	9.080	613.1 -> 569.0	89959	2.08 µg/L	100
		613.1 -> 319.0	10955		
PFDS	9.220	599.0 -> 79.9	12367	1.94 µg/L	97

7.7.10
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	6221	2.28	µg/L	96
		363.1 -> 319.0	115924			
PFHpS	7.856	363.1 -> 169.0	16640	2.04	µg/L	99
		449.0 -> 79.9	21792			
PFHxA	5.644	449.0 -> 98.9	10421	2.17	µg/L	100
		313.0 -> 269.0	92229			
PFHxS	7.302	313.0 -> 118.9	4438	1.94	µg/L	100
		398.7 -> 79.9	27675			
PFNA	7.717	398.7 -> 98.9	13221	2.05	µg/L	99
		463.0 -> 419.0	77149			
PFNS	8.814	463.0 -> 219.0	18095	2.04	µg/L	95
		548.8 -> 79.9	21628			
PFOA	7.200	548.8 -> 98.9	11606	2.36	µg/L	98
		413.0 -> 369.0	139793			
PFOS	8.350	413.0 -> 169.0	25420	1.81	µg/L	95
		498.9 -> 79.9	22268			
PFPeA	4.436	498.9 -> 98.8	10829	4.41	µg/L	100
		263.0 -> 219.0	116711			
PFPeS	6.620	349.1 -> 79.9	25329	2.14	µg/L	89
		349.1 -> 98.9	10498			
PFTeDA	9.785	713.1 -> 669.0	67372	2.29	µg/L	98
		713.1 -> 168.9	5049			
PFTrDA	9.452	663.0 -> 619.0	96987	2.11	µg/L	98
		663.0 -> 168.9	8161			
PFUnDA	8.652	563.1 -> 519.0	82560	2.10	µg/L	100
		563.1 -> 269.1	12203			
11Cl-PF3OUdS	9.491	630.9 -> 450.9	103660	4.58	µg/L	100
		632.9 -> 452.9	31793			
9Cl-PF3ONS	8.678	530.8 -> 351.0	178722	4.47	µg/L	96
		532.8 -> 353.0	52798			
ADONA	6.817	376.9 -> 250.9	432895	4.20	µg/L	98
		376.9 -> 84.8	118613			
HFPO-DA	6.020	284.9 -> 168.9	29557	4.46	µg/L	98
		284.9 -> 184.9	4401			
3:3FTCA	3.902	241.0 -> 177.0	19565	10.73	µg/L	99
		241.0 -> 117.0	1914			
5:3FTCA	6.296	341.0 -> 237.1	440861	59.03	µg/L	92
		341.0 -> 217.0	288177			
7:3FTCA	7.669	441.0 -> 316.9	242915	55.75	µg/L	98
		441.0 -> 336.9	558736			
EtFOSA	10.990	526.0 -> 219.0	36663	4.67	µg/L	97
		526.0 -> 169.0	45973			
EtFOSE	10.937	630.0 -> 58.9	98694	10.58	µg/L	100
		511.9 -> 219.0	31406			
MeFOSA	10.758	511.9 -> 169.0	46661	4.69	µg/L	96
		616.1 -> 58.9	69298			
MeFOSE	10.691	699.1 -> 79.9	6371	11.66	µg/L	100
		699.1 -> 98.8	3557			
PFDoDS	9.898	295.0 -> 201.0	22136	2.03	µg/L	93
		295.0 -> 84.9	5291			
NFDHA	5.524	279.0 -> 85.1	84577	4.40	µg/L	97
		229.0 -> 84.9	62805			
PFMBA	4.850	314.8 -> 134.9	235134	4.52	µg/L	100
		314.8 -> 82.9	7717			
PFMPA	3.563			4.53	µg/L	100
PFEESA	6.112			4.20	µg/L	100

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

7.7.10
7

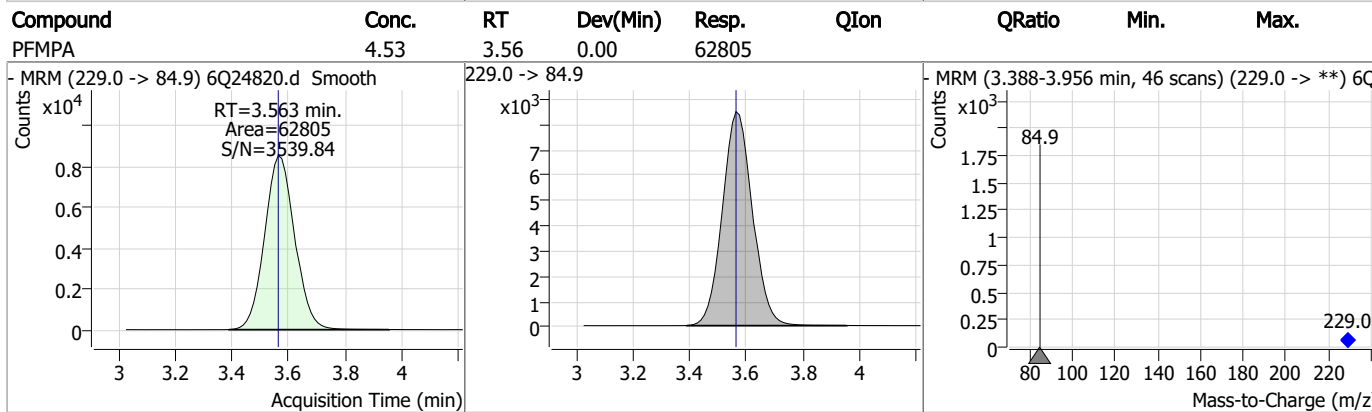
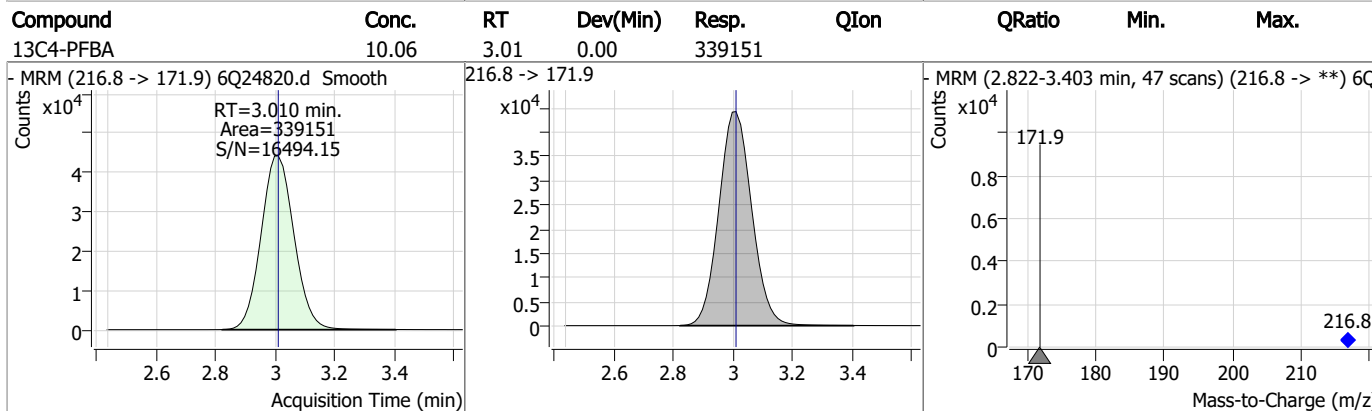
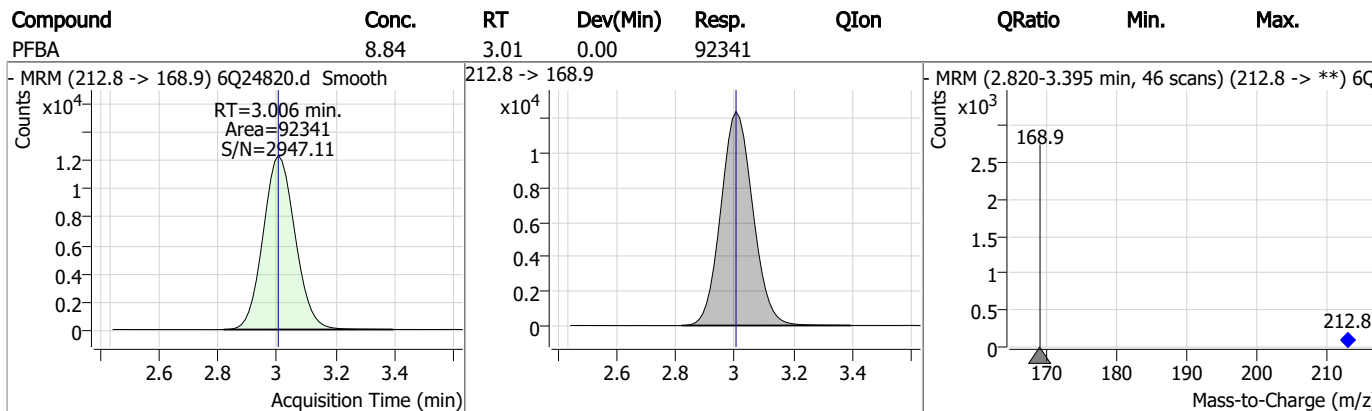
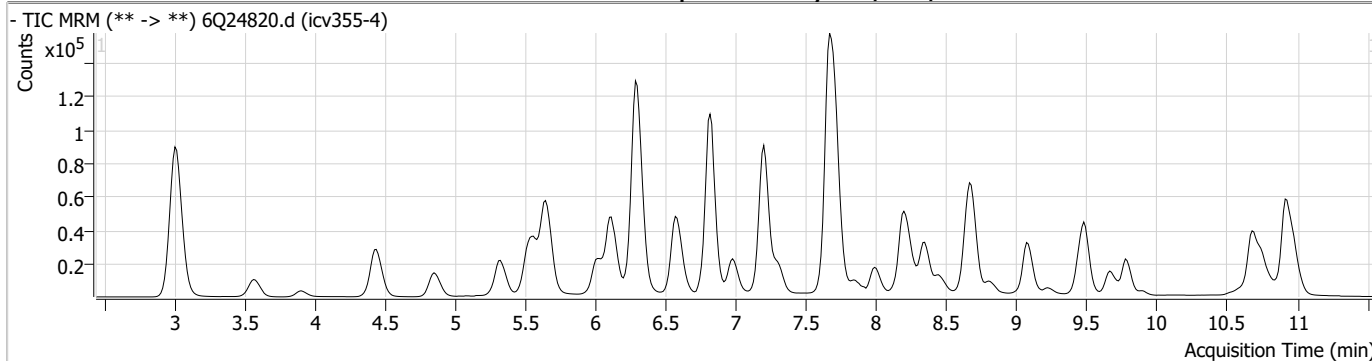
Perfluorinated Compounds by LC/MS/MS

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

7.7.10

7

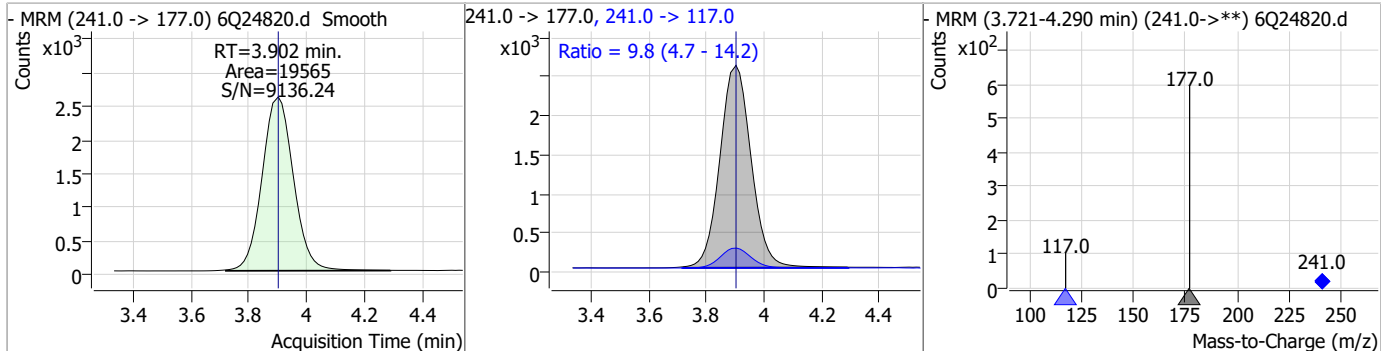
Perfluorinated Compounds by LC/MS/MS



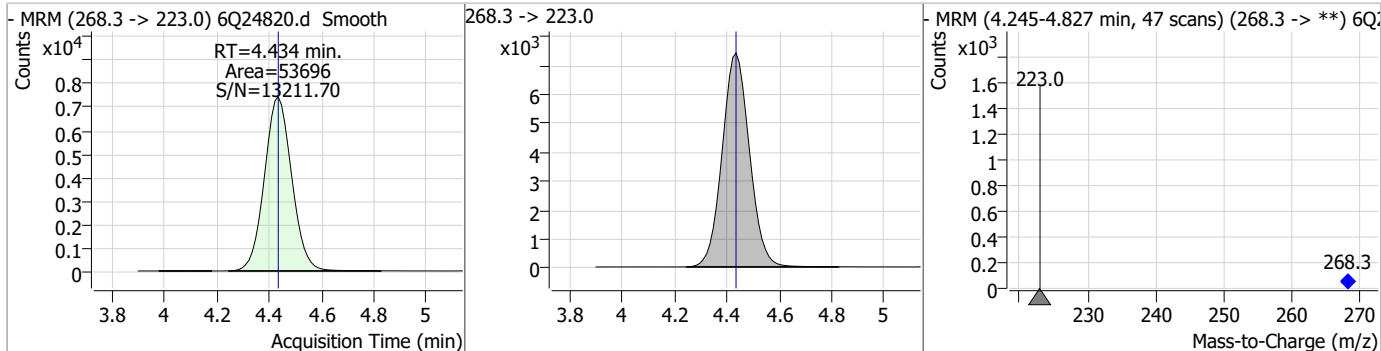
7.7.10
7

Perfluorinated Compounds by LC/MS/MS

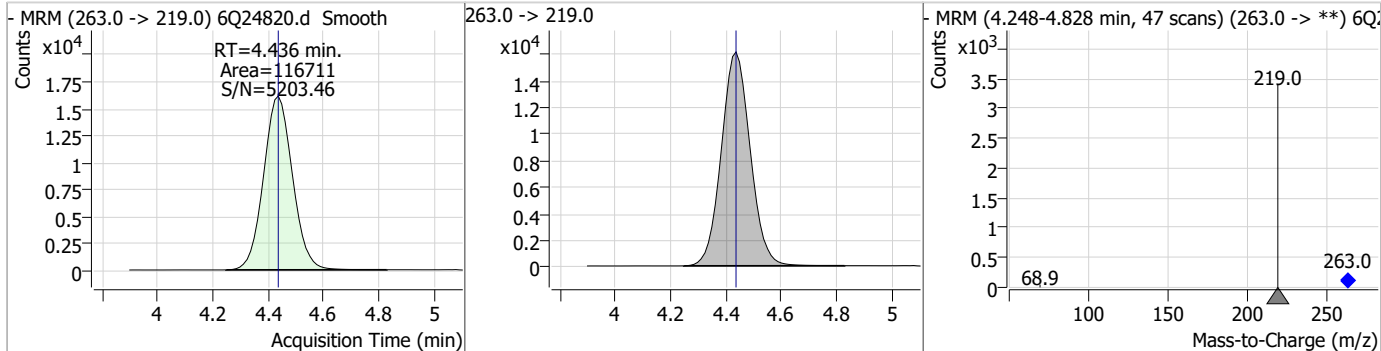
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	10.73	3.90	0.00	19565	241.0 -> 117.0	9.8	4.7	14.2



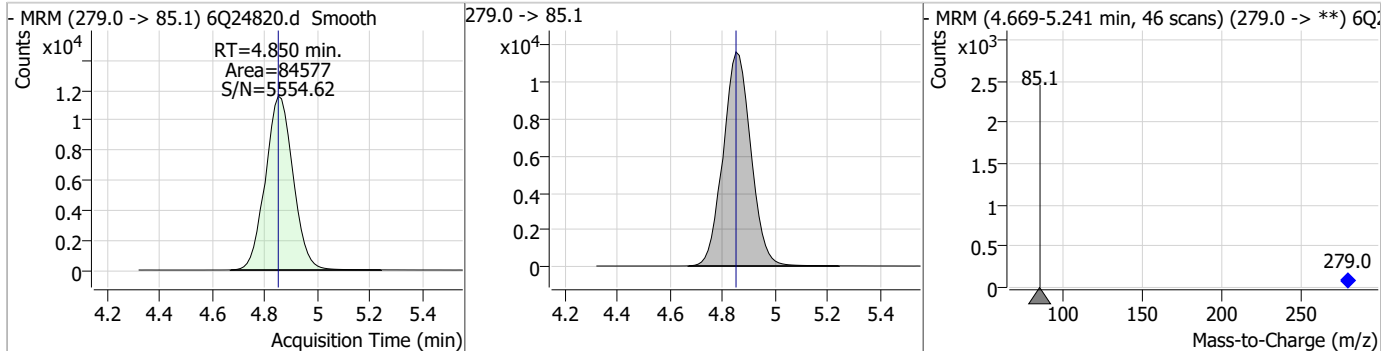
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.29	4.43	0.00	53696				



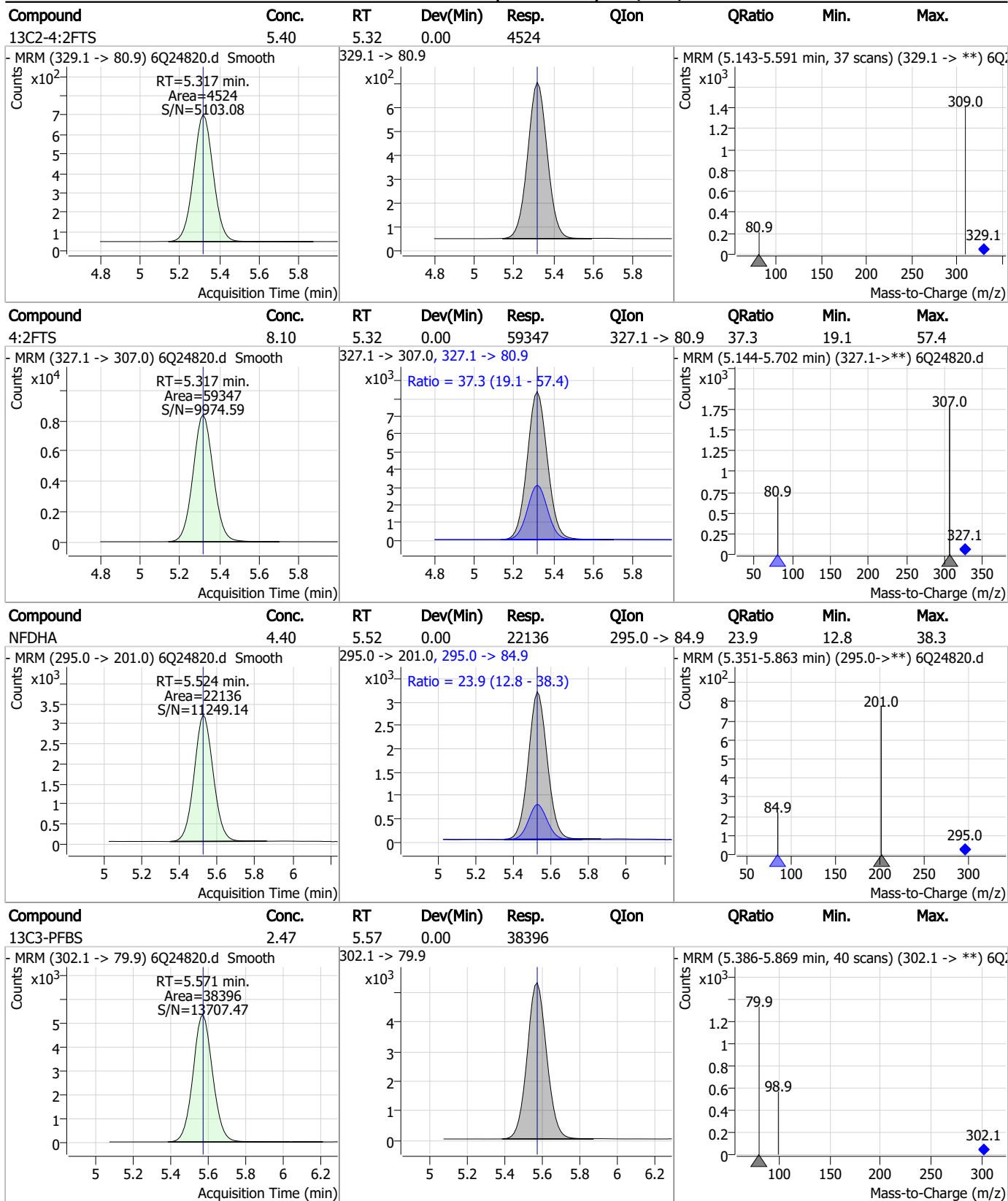
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.41	4.44	0.00	116711				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.52	4.85	0.00	84577				

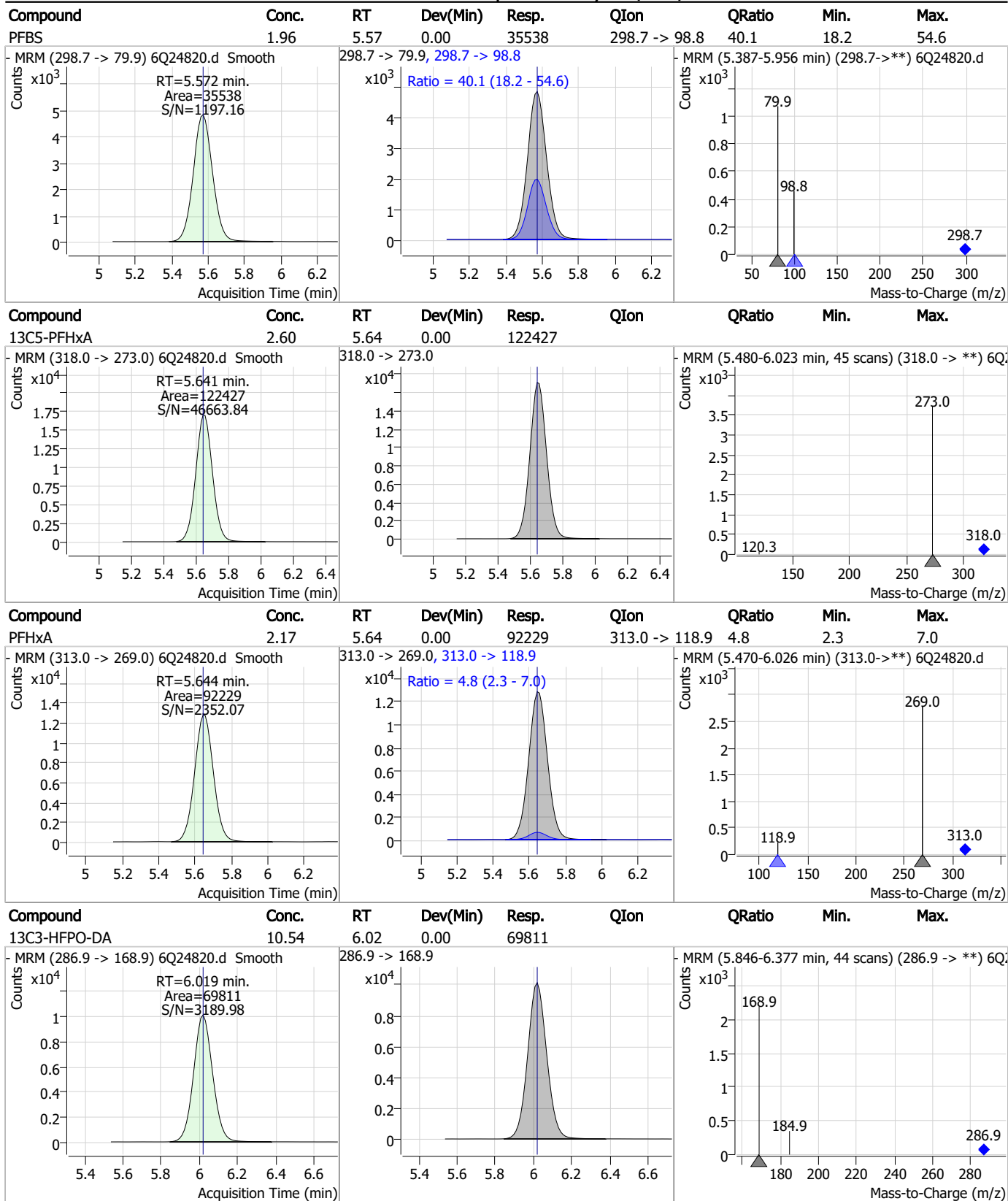


Perfluorinated Compounds by LC/MS/MS



7.7.10
7

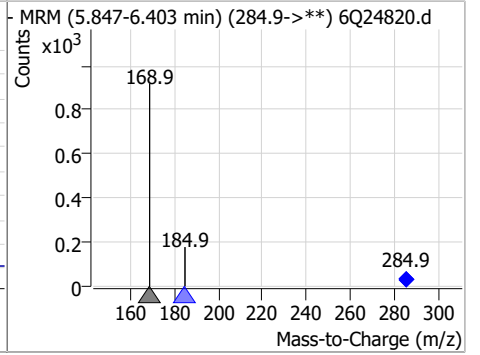
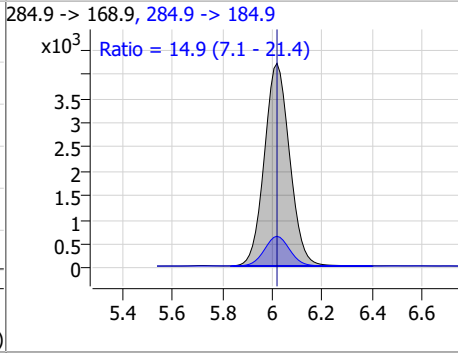
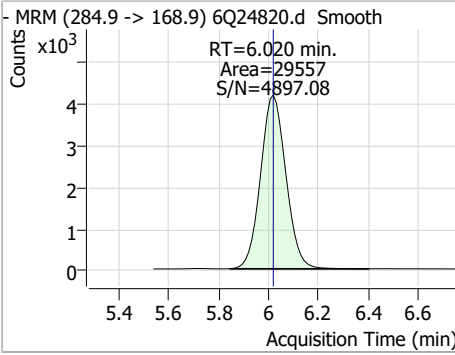
Perfluorinated Compounds by LC/MS/MS



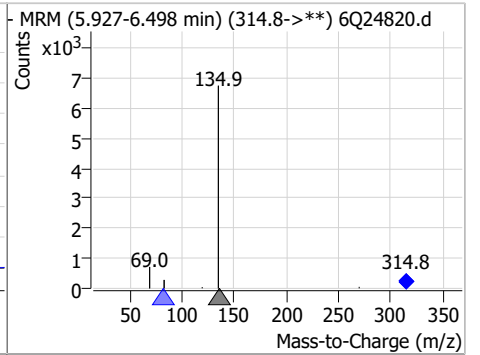
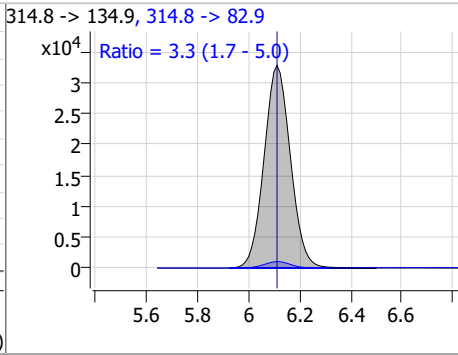
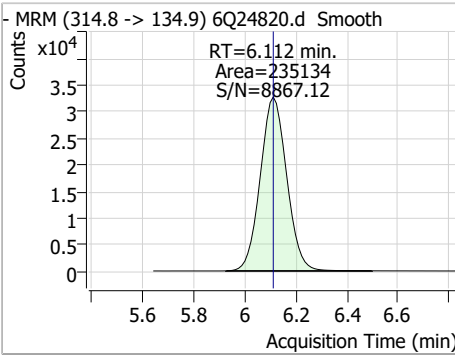
7.7.10
7

Perfluorinated Compounds by LC/MS/MS

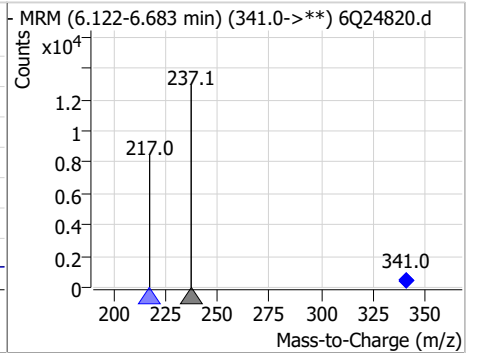
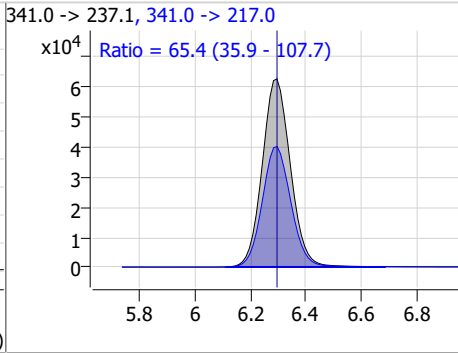
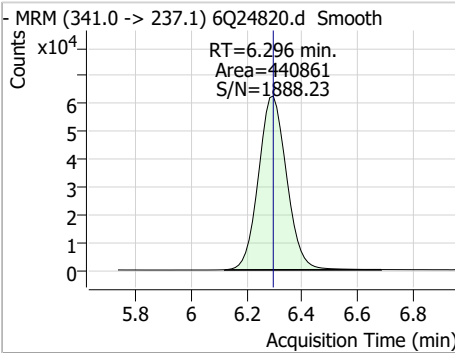
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.46	6.02	0.00	29557	284.9 -> 184.9	14.9	7.1	21.4



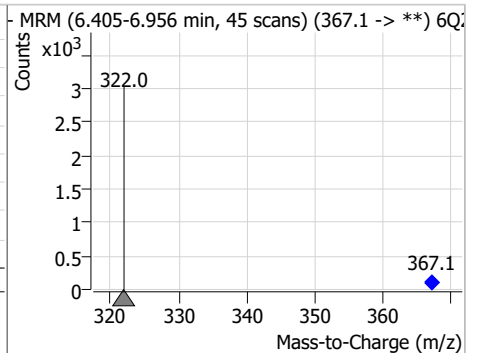
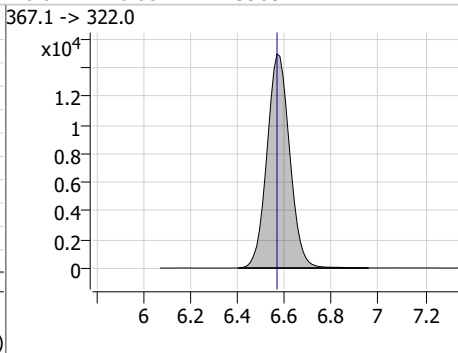
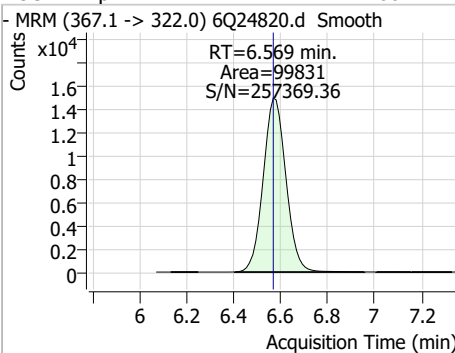
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.20	6.11	0.00	235134	314.8 -> 82.9	3.3	1.7	5.0



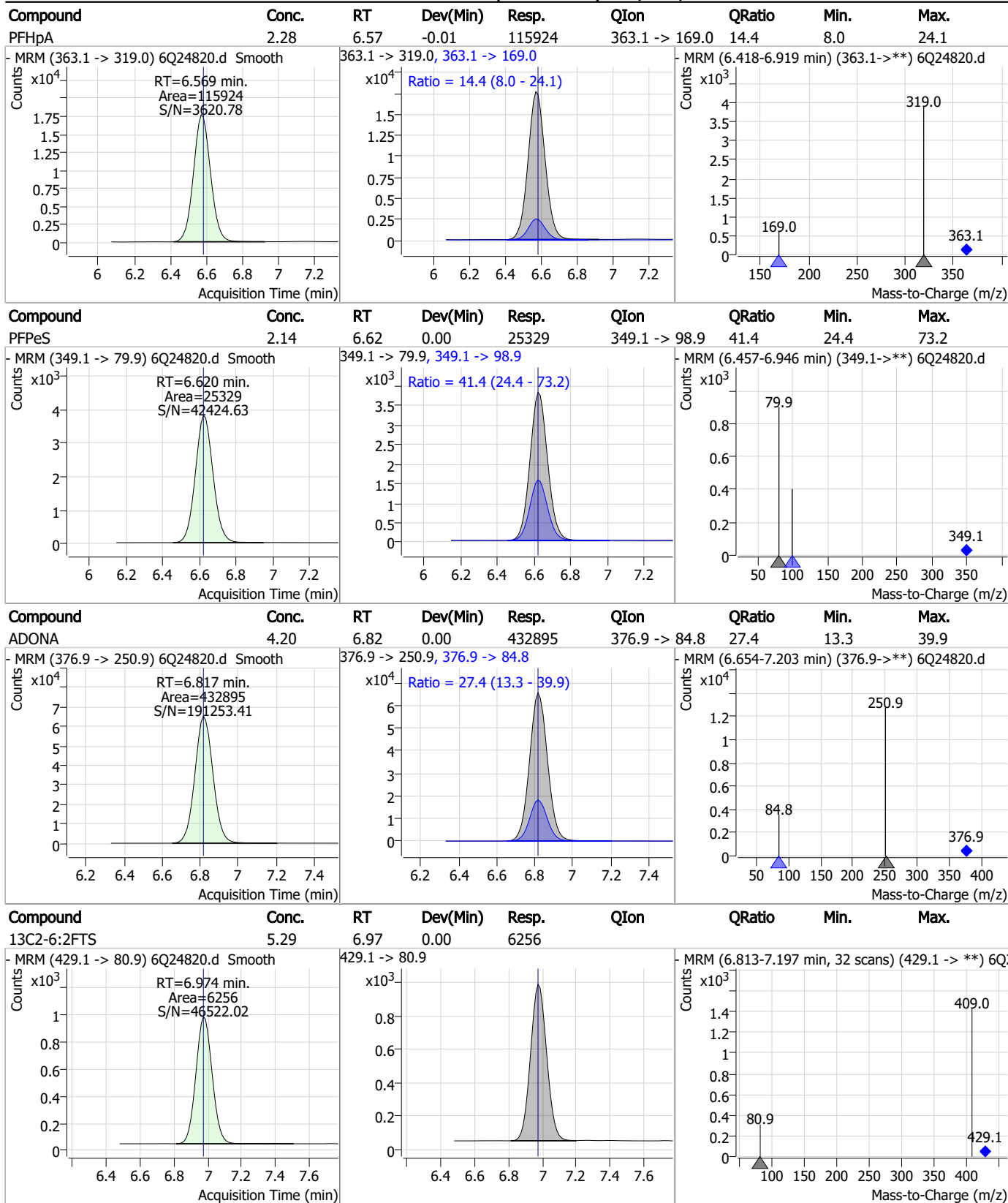
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	59.03	6.30	0.00	440861	341.0 -> 217.0	65.4	35.9	107.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.60	6.57	0.00	99831	367.1 -> 322.0			

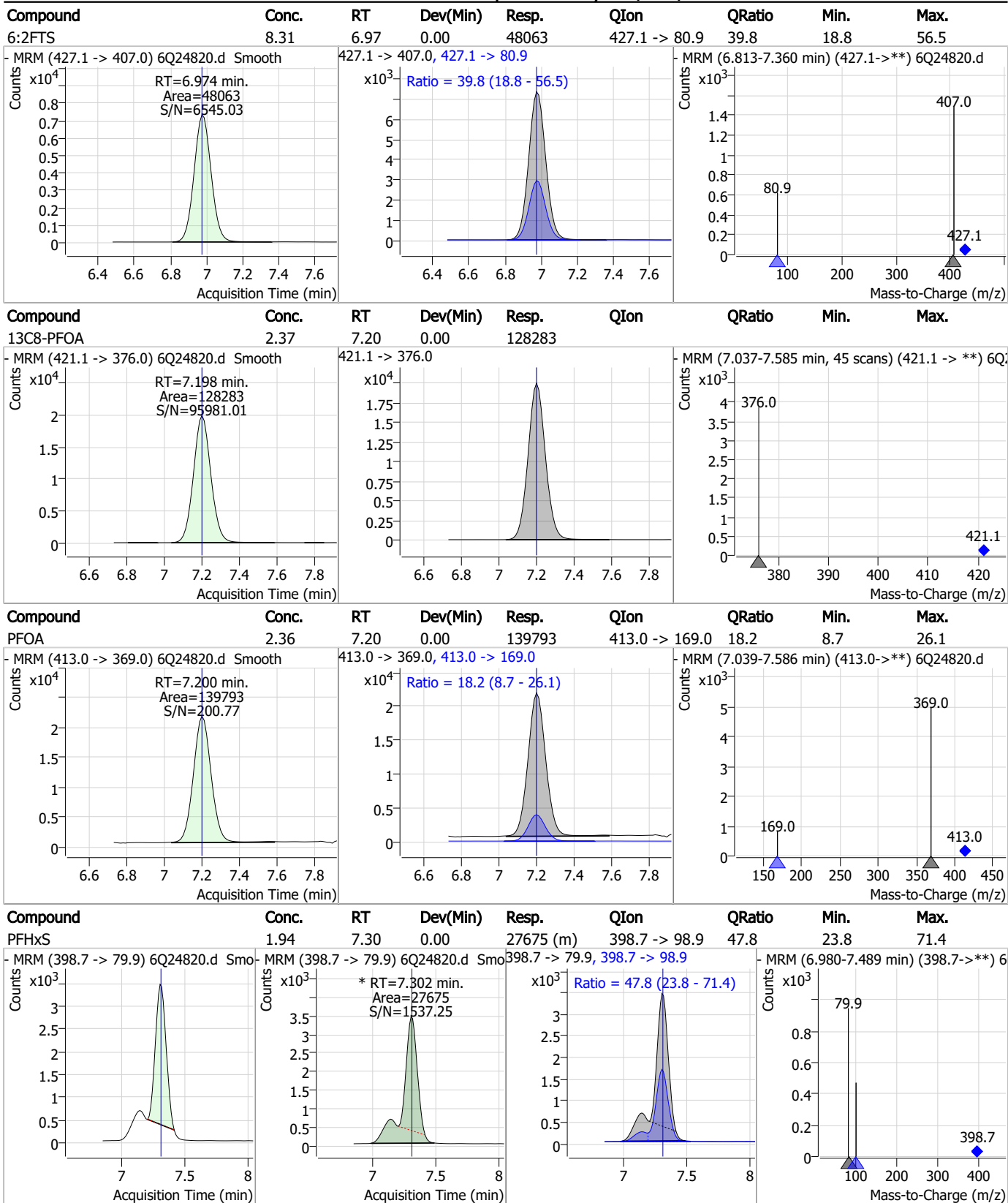


Perfluorinated Compounds by LC/MS/MS



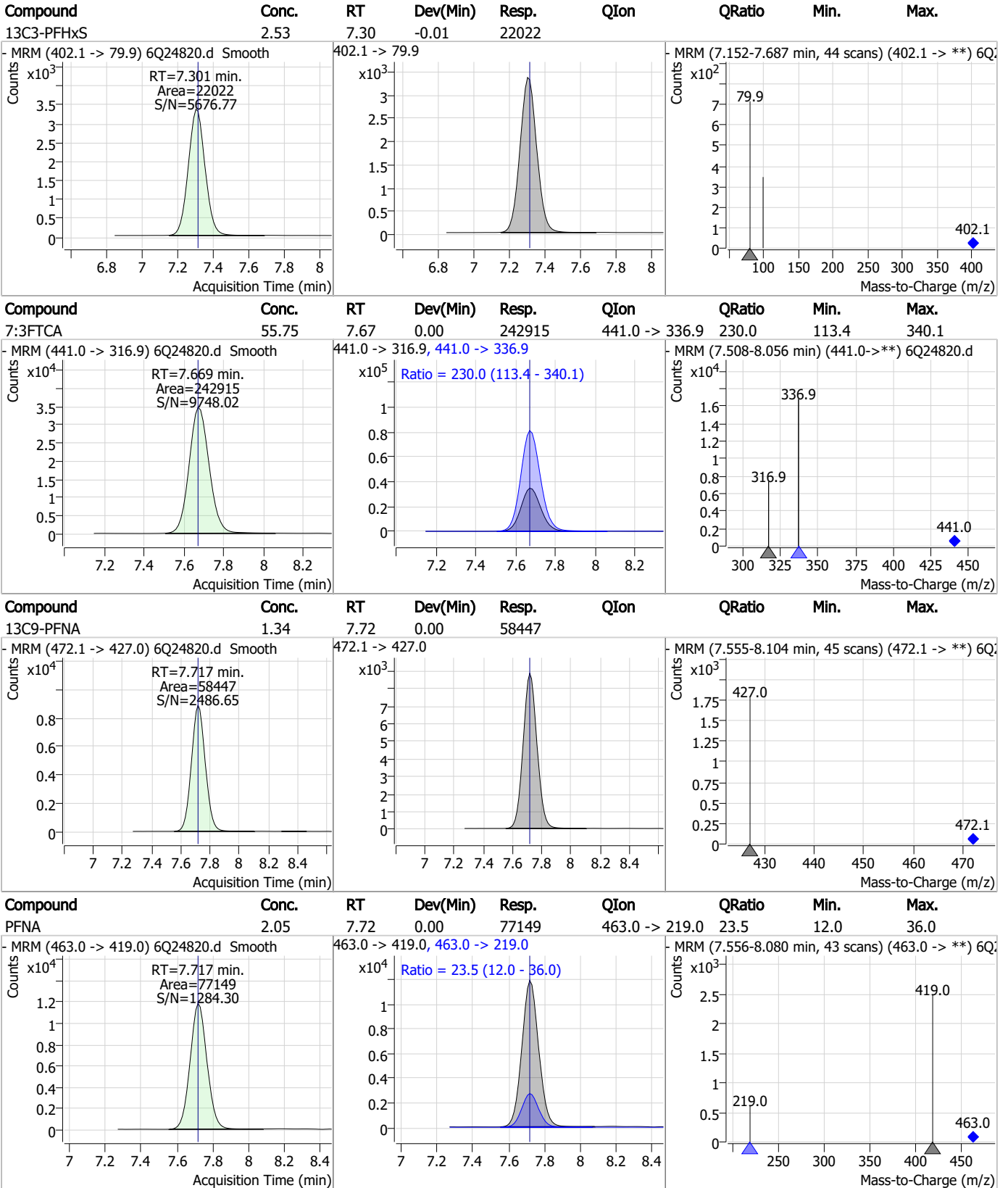
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10
7

Perfluorinated Compounds by LC/MS/MS



7.7.10 7

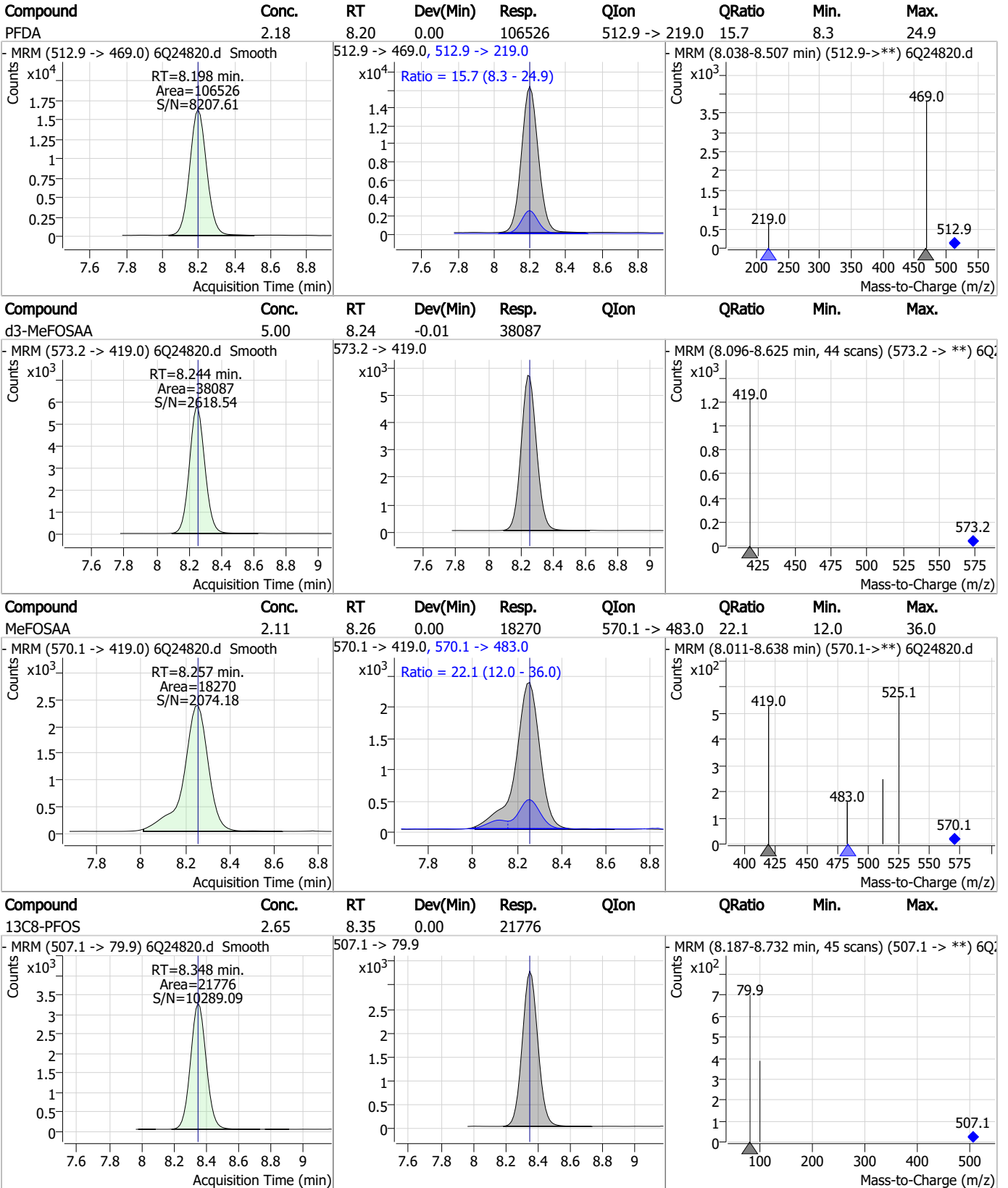


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.04	7.86	0.00	21792	449.0 -> 98.9	47.8	23.5	70.6
13C2-8:2FTS	5.01	7.99	0.00	6046	529.1 -> 80.9			
8:2FTS	8.98	7.99	-0.01	34478	527.1 -> 80.8	39.4	16.2	48.5
13C6-PFDA	1.29	8.20	0.00	54790	519.1 -> 474.1			

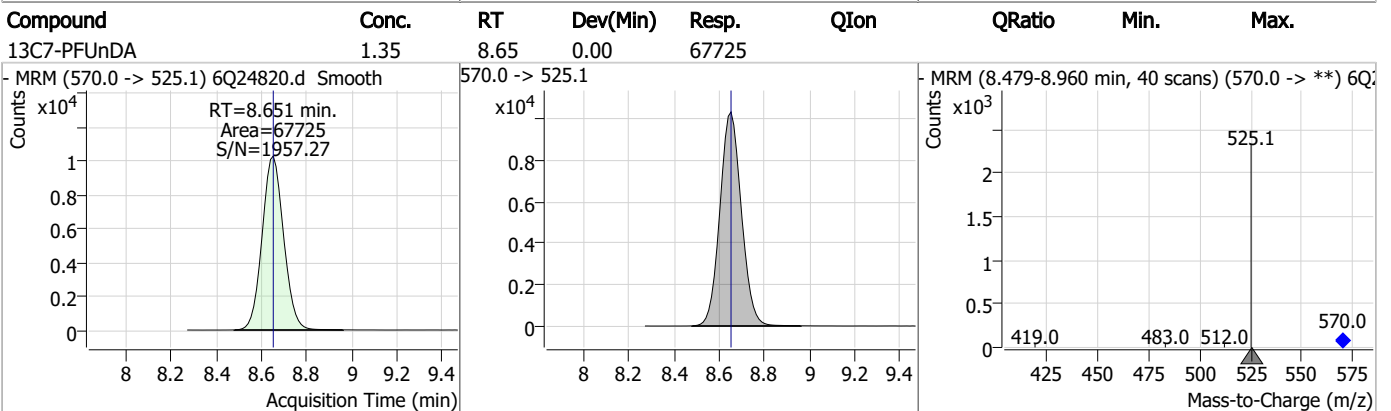
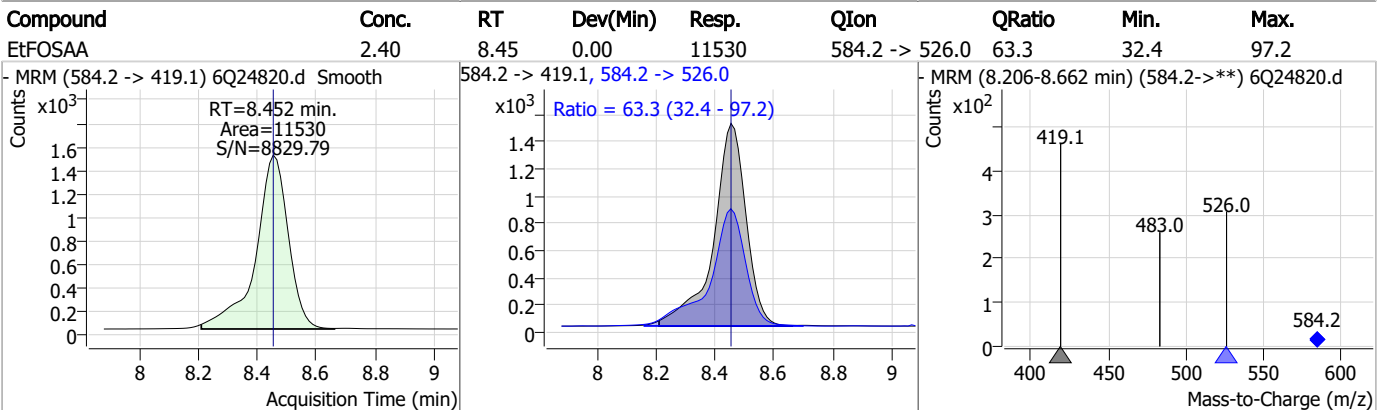
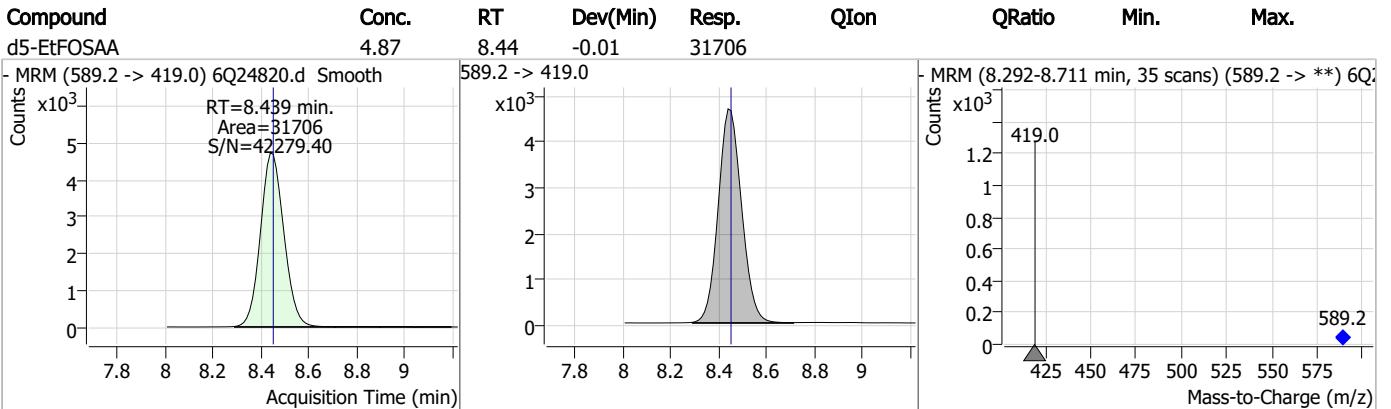
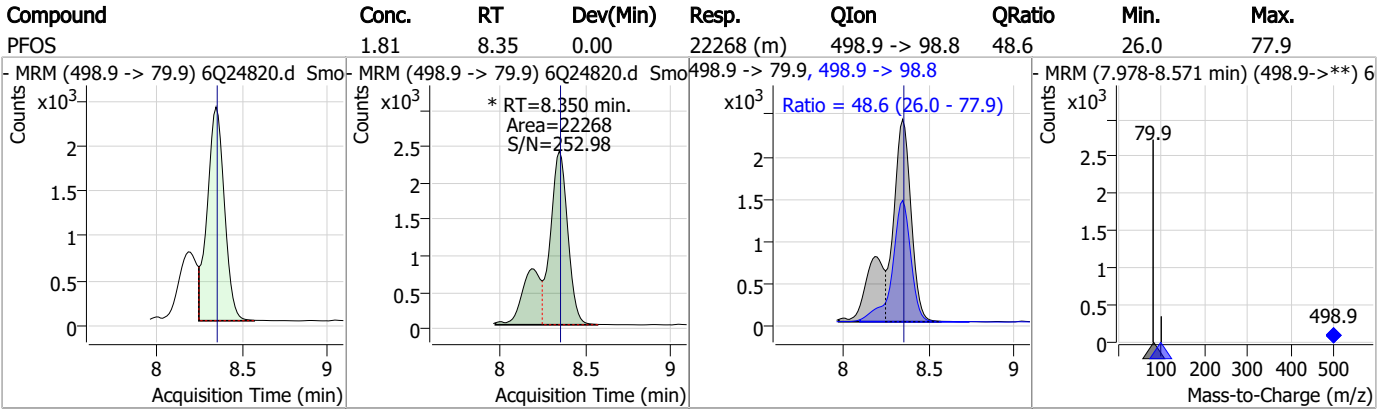
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

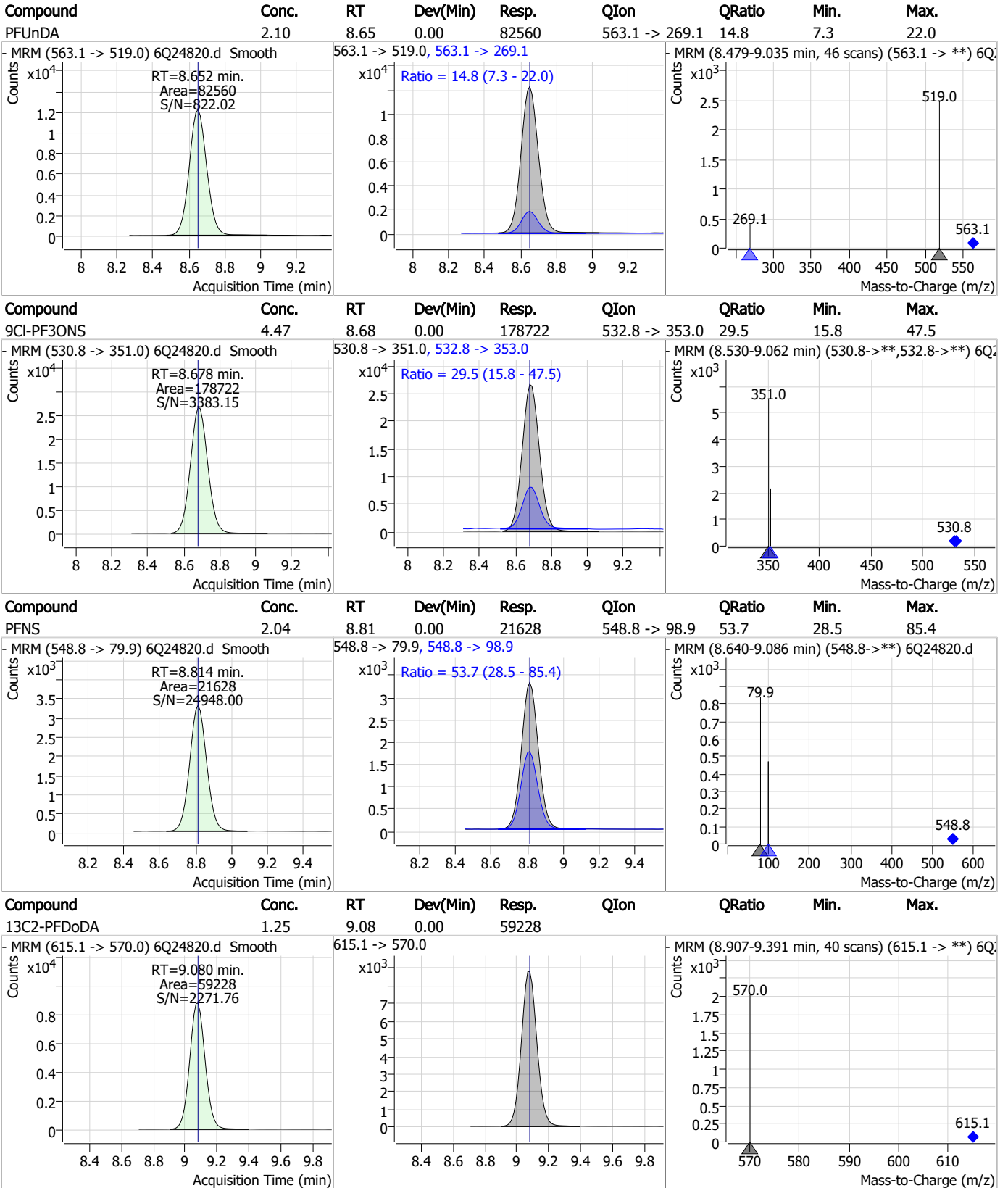


7.7.10 7

Perfluorinated Compounds by LC/MS/MS

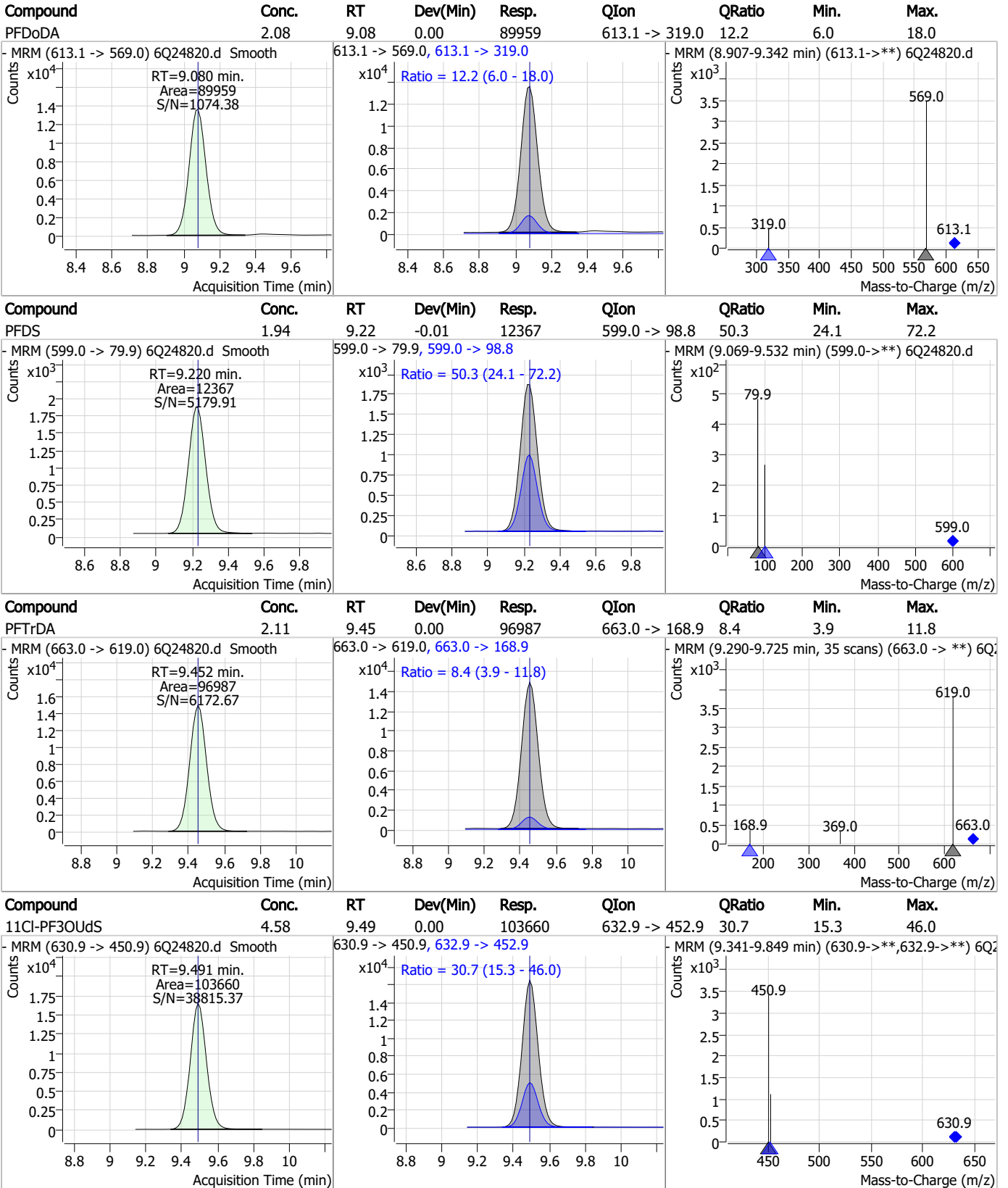


Perfluorinated Compounds by LC/MS/MS



7.7.10 7

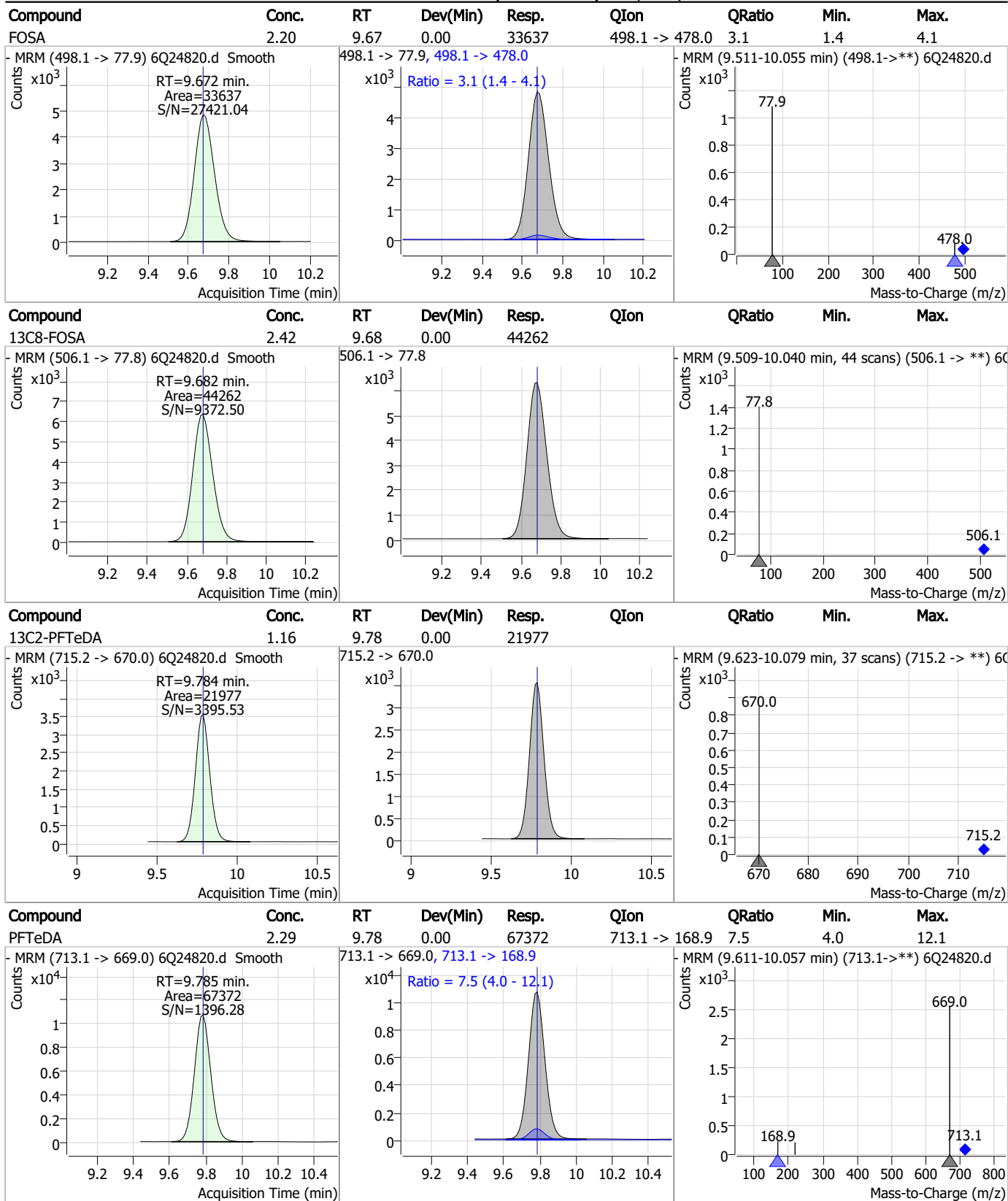
Perfluorinated Compounds by LC/MS/MS



7.7.10 7



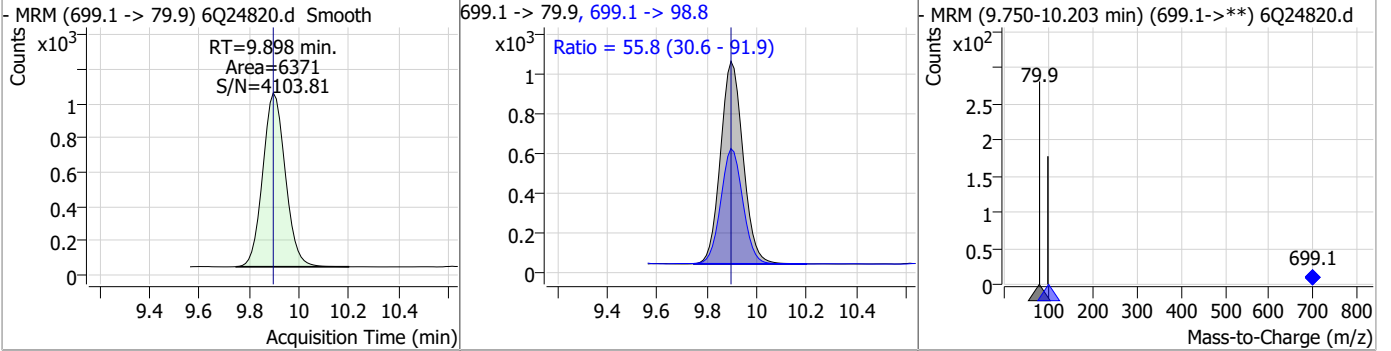
Perfluorinated Compounds by LC/MS/MS



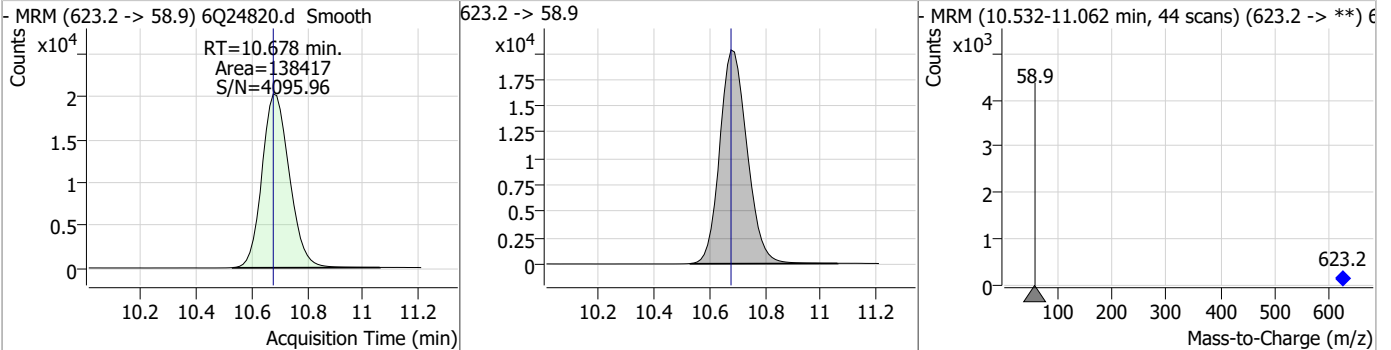
7.7.10
7

Perfluorinated Compounds by LC/MS/MS

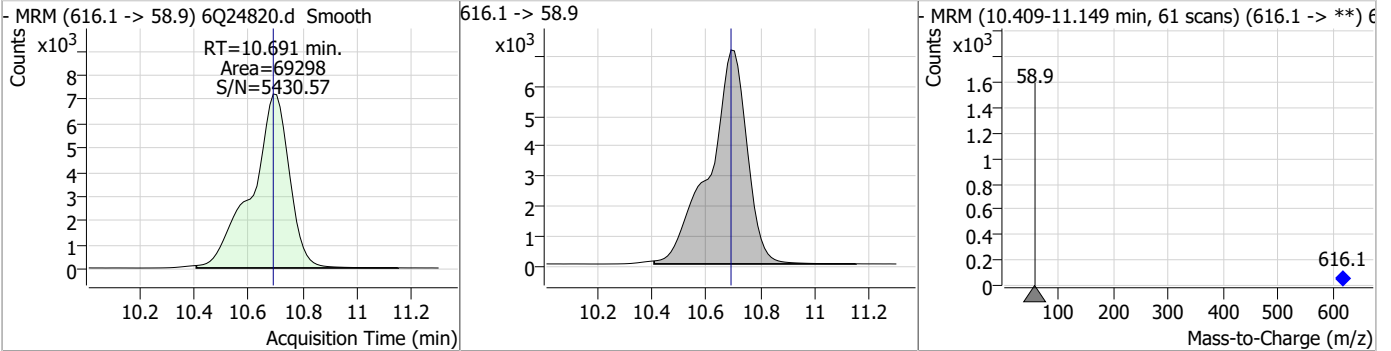
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.03	9.90	0.00	6371	699.1 -> 98.8	55.8	30.6	91.9



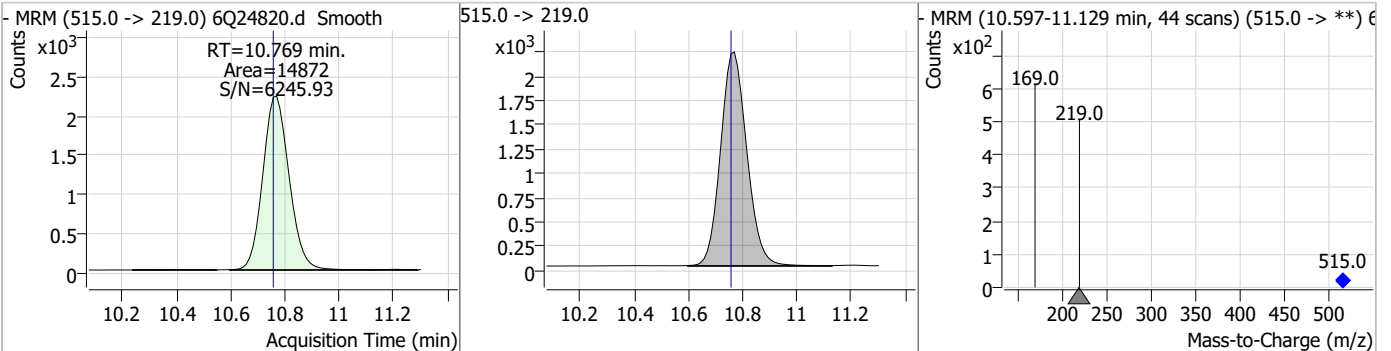
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.26	10.68	0.00	138417				



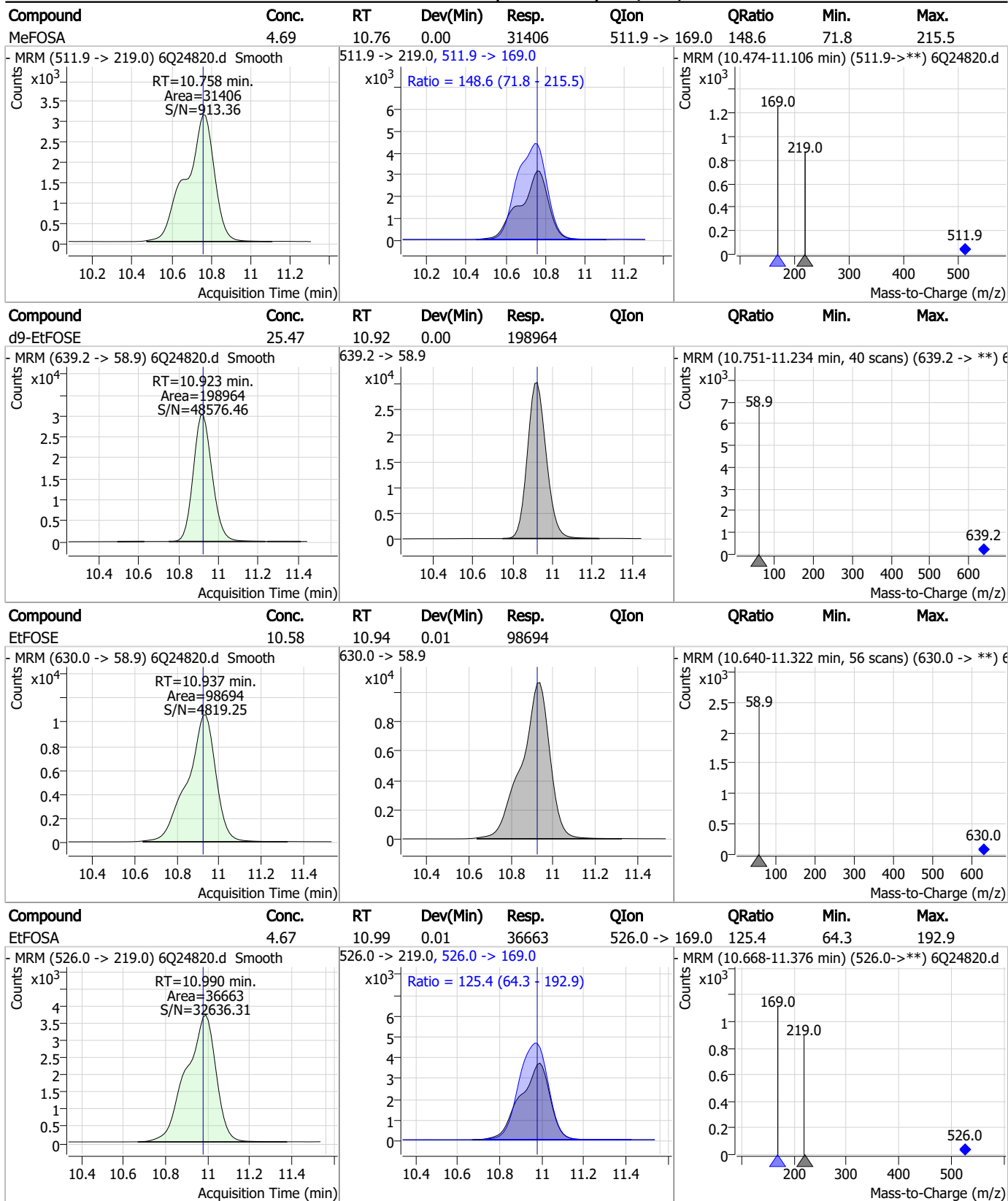
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.66	10.69	0.00	69298				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.24	10.77	0.01	14872				

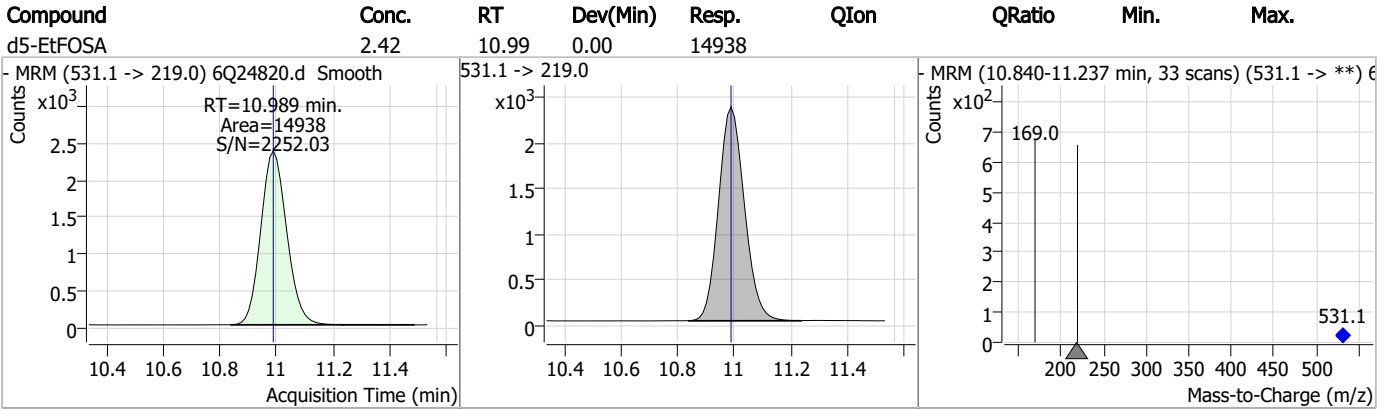


Perfluorinated Compounds by LC/MS/MS



7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10 7

Manual Integration Approval Summary

Sample Number: S6Q355-ICV355 Method: EPA DRAFT 1633
Lab FileID: 6Q24820.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 22:44 Supervisor approved: 09/22/23 13:16 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.7.10.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24821.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 10:59:12 PM
 Sample Name : icv355-20
 Vial : P1-B2
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	293367	10.00 µg/L	-0.025
M5-PFPeA	4.422	268.3 -> 223.0	46018	5.00 µg/L	-0.012
M5-PFHxA	5.641	318.0 -> 273.0	106399	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	87648	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	116893	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	47144	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	46354	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	58475	1.25 µg/L	0.000
M2-PFDoDA	9.079	615.1 -> 570.0	53442	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	19787	1.25 µg/L	-0.012
M8-FOSA	9.670	506.1 -> 77.8	36599	2.50 µg/L	-0.012
M3-PFBS	5.571	302.1 -> 79.9	33332	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	18552	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	16652	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	3740	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	5295	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	5304	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	30152	5.00 µg/L	-0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	60170	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	26624	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	129500	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	167997	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	13065	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	14355	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	23801	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	121169	5.00 µg/L	-0.012
18O2-PFHxS	7.313	403.0 -> 83.9	13519	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	126045	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	39714	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	51765	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	80057	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	3740	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-6:2FTS	6.974	429.1 -> 80.9	5295	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.5%		
13C2-8:2FTS	7.986	529.1 -> 80.9	5304	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C2-PFDoDA	9.079	615.1 -> 570.0	53442	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-PFTeDA	9.772	715.2 -> 670.0	19787	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C3-PFBS	5.571	302.1 -> 79.9	33332	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C3-PFHxS	7.301	402.1 -> 79.9	18552	2.53 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 = 101.4%	
13C4-PFBA	2.985	216.8 -> 171.9	293367	9.93 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C4-PFHpA	6.569	367.1 -> 322.0	87648	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFHxA	5.641	318.0 -> 273.0	106399	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFPeA	4.422	268.3 -> 223.0	46018	5.06 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C6-PFDA	8.198	519.1 -> 474.1	46354	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C7-PFUnDA	8.651	570.0 -> 525.1	58475	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.5%	
13C8-FOSA	9.670	506.1 -> 77.8	36599	2.34 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C8-PFOA	7.198	421.1 -> 376.0	116893	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C8-PFOS	8.348	507.1 -> 79.9	16652	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C9-PFNA	7.717	472.1 -> 427.0	47144	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%	
d3-MeFOSAA	8.244	573.2 -> 419.0	30152	4.64 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	60170	10.13 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
d3-MeFOSA	10.757	515.0 -> 219.0	14355	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
d5-EtFOSAA	8.452	589.2 -> 419.0	26624	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
d7-MeFOSE	10.678	623.2 -> 58.9	129500	25.50 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d9-EtFOSE	10.923	639.2 -> 58.9	167997	25.20 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
d5-EtFOSA	10.989	531.1 -> 219.0	13065	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	141483	23.36 µg/L	97
		327.1 -> 80.9	51292		
6:2FTS	6.974	427.1 -> 407.0	110705	22.61 µg/L	98
		427.1 -> 80.9	40492		
8:2FTS	7.987	527.1 -> 507.0	74875	22.23 µg/L	90
		527.1 -> 80.8	28305		
EtFOSAA	8.452	584.2 -> 419.1	92205	22.90 µg/L	m 96
		584.2 -> 526.0	56861		
FOSA	9.672	498.1 -> 77.9	274500	21.74 µg/L	100
		498.1 -> 478.0	7495		
MeFOSAA	8.257	570.1 -> 419.0	154998	22.66 µg/L	95
		570.1 -> 483.0	33086		
PFBA	2.993	212.8 -> 168.9	188528	20.85 µg/L	100
PFBS	5.560	298.7 -> 79.9	341883	21.67 µg/L	96
		298.7 -> 98.8	133321		
PFDA	8.198	512.9 -> 469.0	885269	21.38 µg/L	99
		512.9 -> 219.0	142683		
PFDoDA	9.080	613.1 -> 569.0	692457	17.79 µg/L	99
		613.1 -> 319.0	85986		
PFDS	9.233	599.0 -> 79.9	107269	21.96 µg/L	99

7.7.11
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	52522			
PFHpA	6.569	363.1 -> 319.0	955815	21.45	µg/L	97
		363.1 -> 169.0	141136			
PFHpS	7.856	449.0 -> 79.9	180920	22.19	µg/L	97
		449.0 -> 98.9	88328			
PFHxA	5.644	313.0 -> 269.0	842637	22.78	µg/L	99
		313.0 -> 118.9	35966			
PFHxS	7.302	398.7 -> 79.9	264745	22.08	µg/L	m 99
		398.7 -> 98.9	128133			
PFNA	7.717	463.0 -> 419.0	711318	23.48	µg/L	98
		463.0 -> 219.0	165450			
PFNS	8.814	548.8 -> 79.9	180259	22.28	µg/L	93
		548.8 -> 98.9	93259			
PFOA	7.200	413.0 -> 369.0	1077029	19.98	µg/L	98
		413.0 -> 169.0	197207			
PFOS	8.350	498.9 -> 79.9	200394	21.29	µg/L	m 86
		498.9 -> 98.8	83942			
PFPeA	4.424	263.0 -> 219.0	497053	21.93	µg/L	100
PFPeS	6.620	349.1 -> 79.9	212291	21.30	µg/L	98
		349.1 -> 98.9	100945			
PFTeDA	9.785	713.1 -> 669.0	589568	22.27	µg/L	98
		713.1 -> 168.9	44149			
PFTrDA	9.452	663.0 -> 619.0	735727	17.74	µg/L	98
		663.0 -> 168.9	61643			
PFUnDA	8.652	563.1 -> 519.0	647548	19.07	µg/L	99
		563.1 -> 269.1	93044			
11Cl-PF3OUdS	9.491	630.9 -> 450.9	438284	22.44	µg/L	98
		632.9 -> 452.9	130798			
9Cl-PF3ONS	8.678	530.8 -> 351.0	723144	20.98	µg/L	96
		532.8 -> 353.0	243125			
ADONA	6.817	376.9 -> 250.9	1769297	19.92	µg/L	98
		376.9 -> 84.8	449378			
HFPO-DA	6.020	284.9 -> 168.9	118206	20.70	µg/L	99
		284.9 -> 184.9	17147			
3:3FTCA	3.858	241.0 -> 177.0	31183	19.77	µg/L	100
		241.0 -> 117.0	2980			
5:3FTCA	6.283	341.0 -> 237.1	144427	22.25	µg/L	96
		341.0 -> 217.0	98529			
7:3FTCA	7.669	441.0 -> 316.9	78071	20.62	µg/L	100
		441.0 -> 336.9	176742			
EtFOSA	10.990	526.0 -> 219.0	130923	19.07	µg/L	76
		526.0 -> 169.0	131900			
EtFOSE	10.937	630.0 -> 58.9	851115	108.09	µg/L	100
MeFOSA	10.771	511.9 -> 219.0	117755	18.23	µg/L	74
		511.9 -> 169.0	131276			
MeFOSE	10.703	616.1 -> 58.9	599904	107.91	µg/L	100
PFDoS	9.898	699.1 -> 79.9	50313	20.96	µg/L	93
		699.1 -> 98.8	28039			
NFDHA	5.524	295.0 -> 201.0	92988	21.25	µg/L	99
		295.0 -> 84.9	23249			
PFMBA	4.850	279.0 -> 85.1	343326	21.39	µg/L	100
PFMPA	3.551	229.0 -> 84.9	255776	21.53	µg/L	100
PFEESA	6.112	314.8 -> 134.9	906863	18.63	µg/L	100
		314.8 -> 82.9	31725			

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

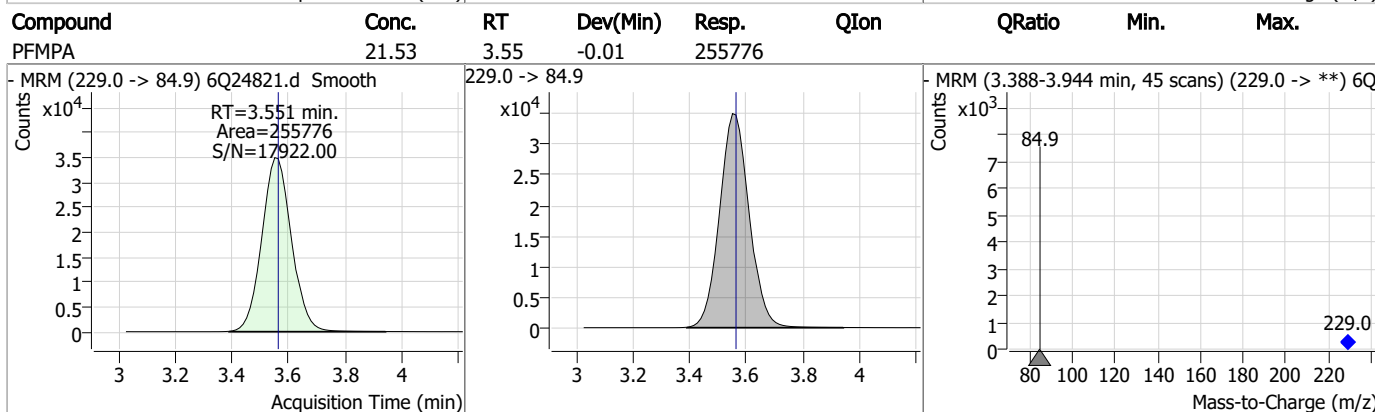
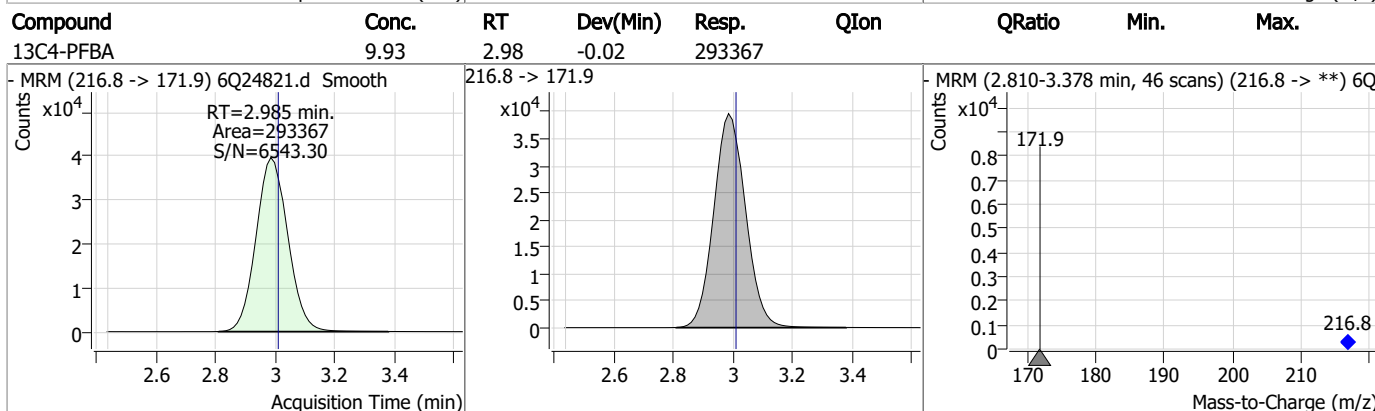
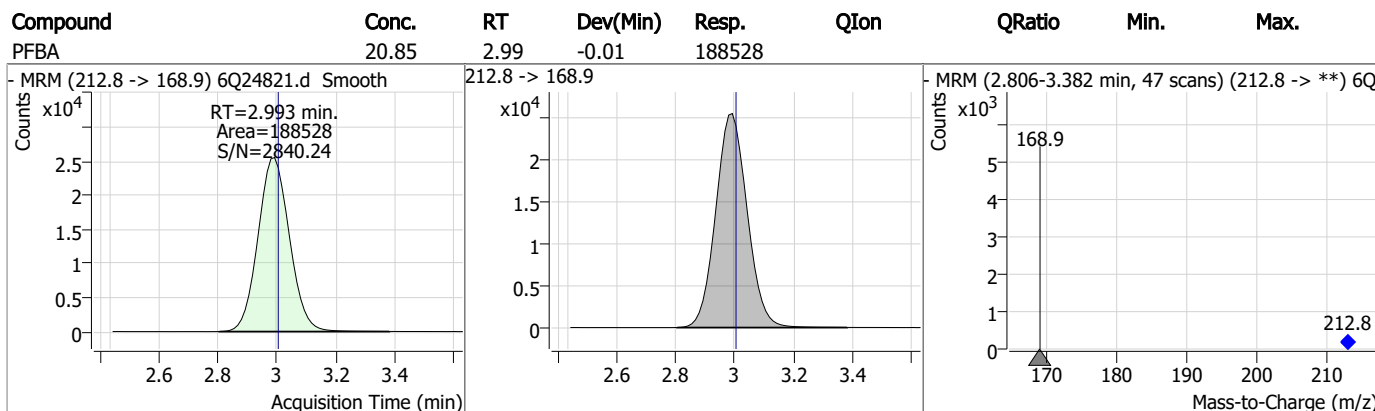
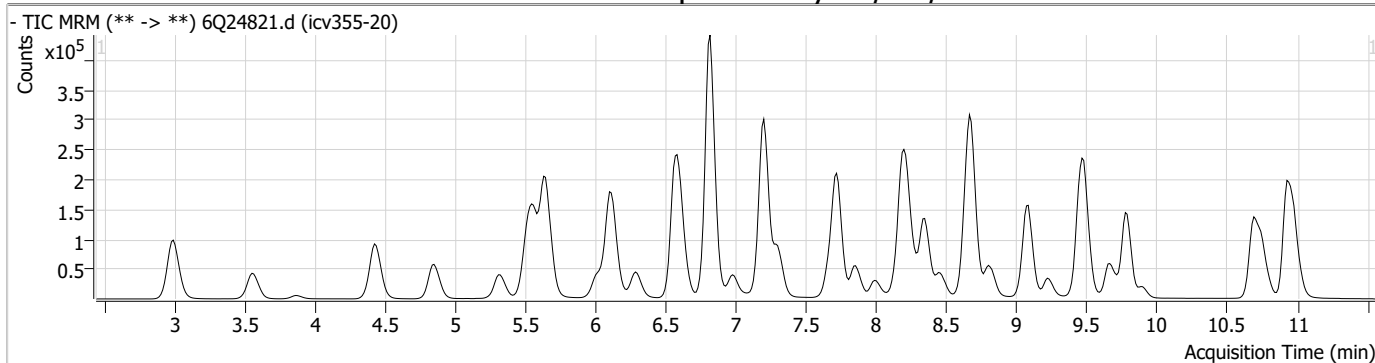
Perfluorinated Compounds by LC/MS/MS

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

7:7.11

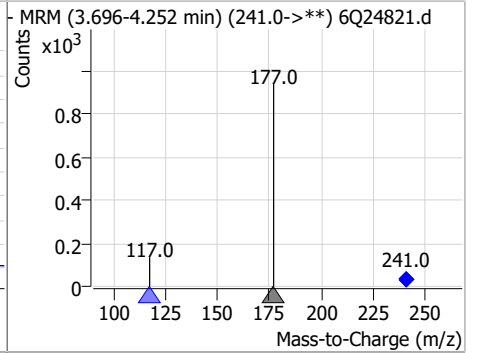
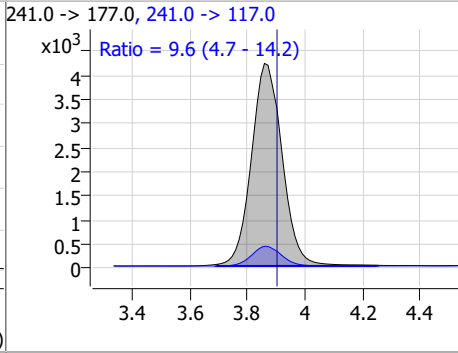
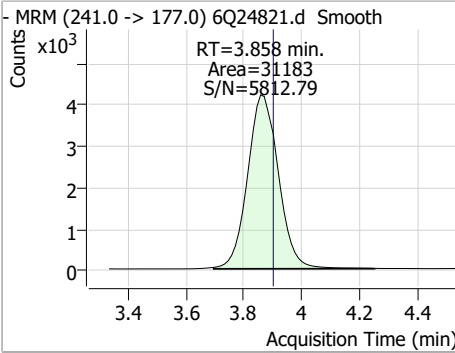
7

Perfluorinated Compounds by LC/MS/MS

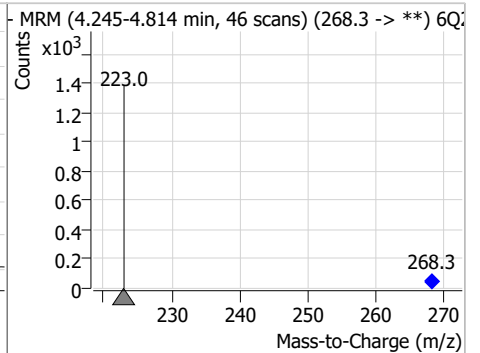
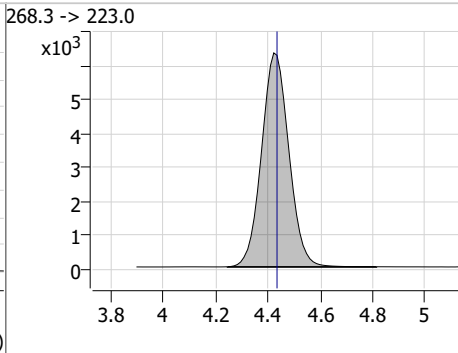
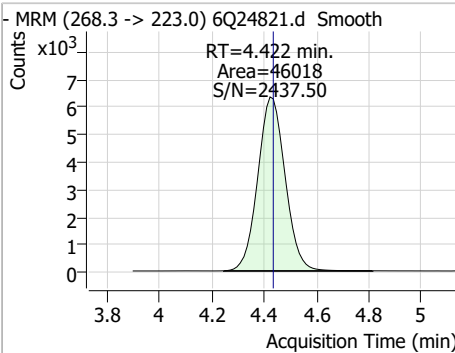


Perfluorinated Compounds by LC/MS/MS

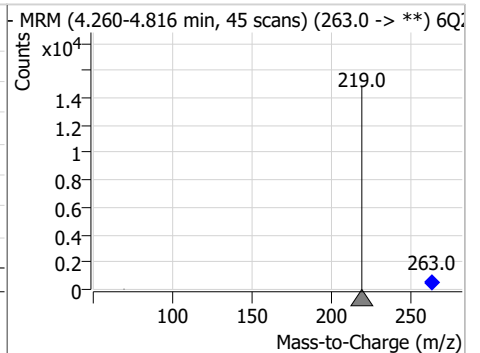
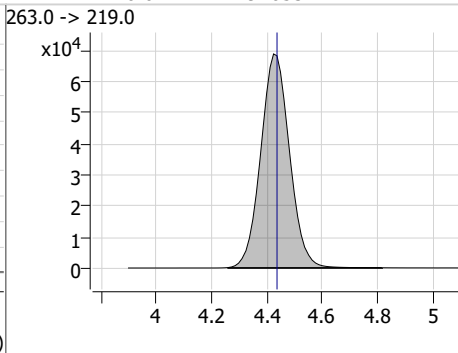
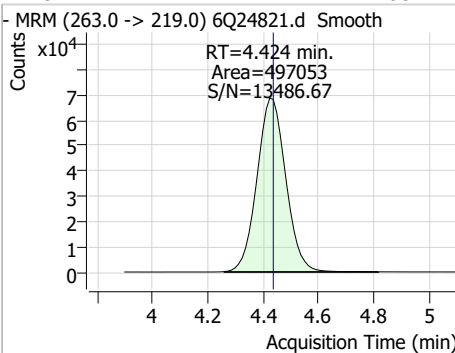
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	19.77	3.86	-0.04	31183	241.0 -> 117.0	9.6	4.7	14.2



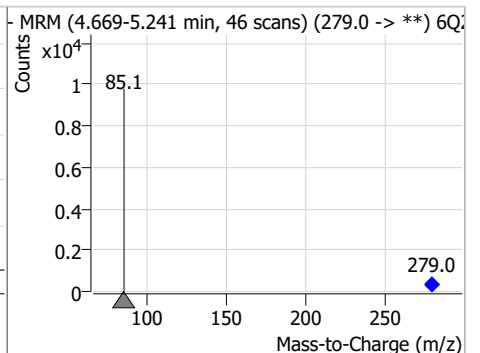
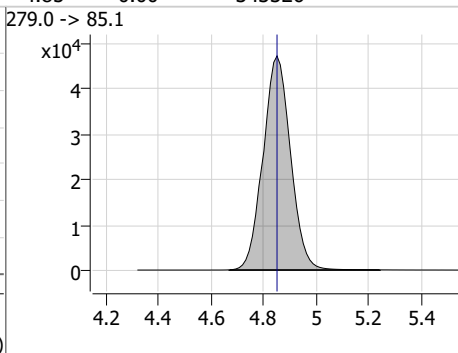
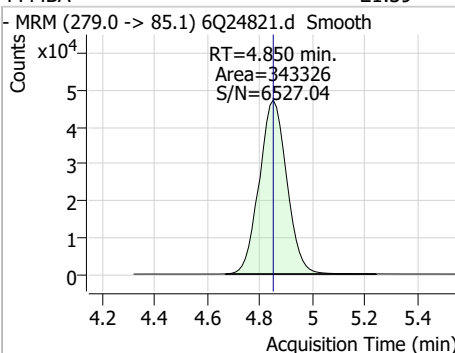
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.06	4.42	-0.01	46018				



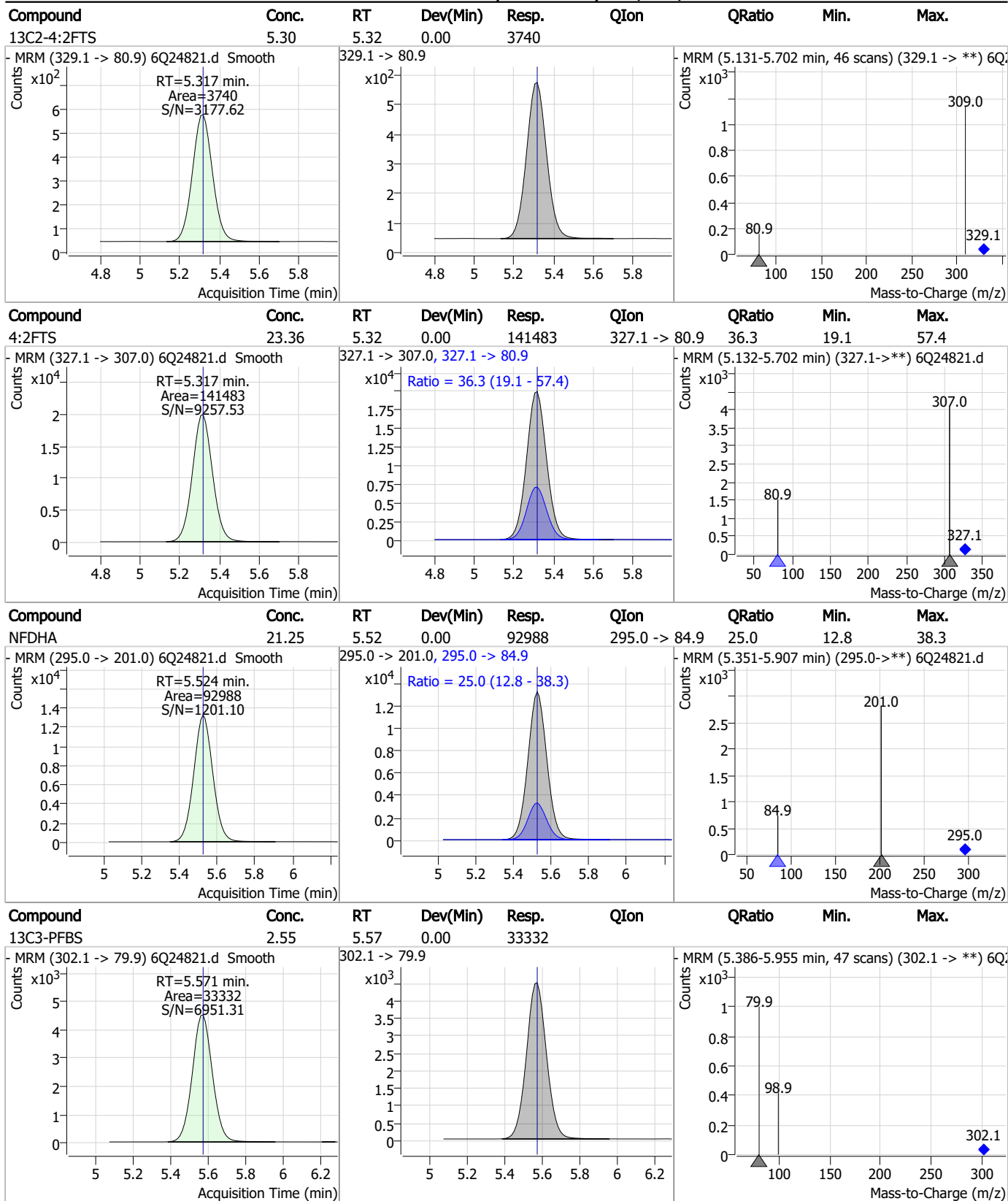
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	21.93	4.42	-0.01	497053				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	21.39	4.85	0.00	343326				



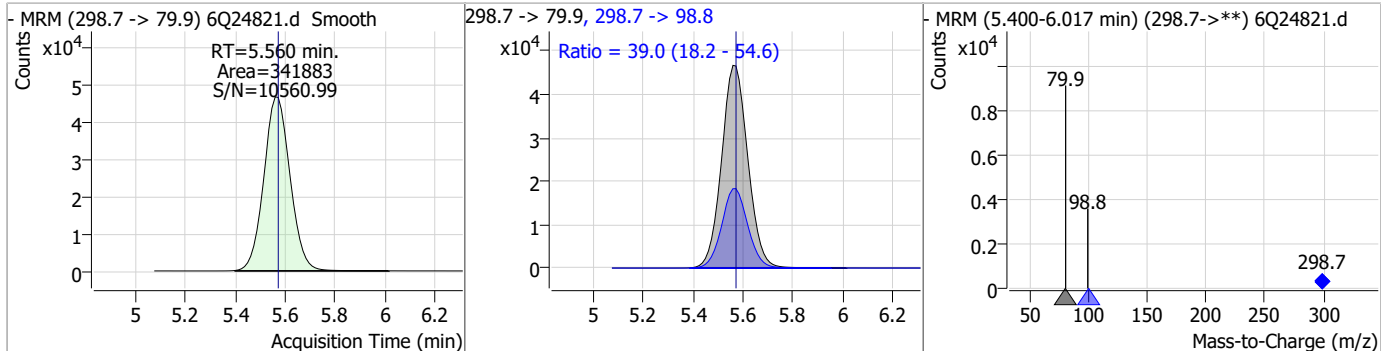
Perfluorinated Compounds by LC/MS/MS



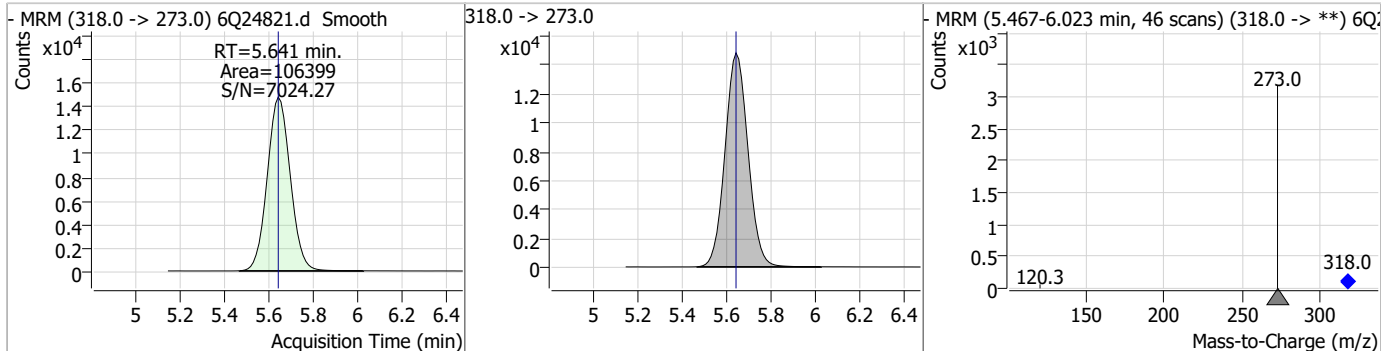
7.7.11
7

Perfluorinated Compounds by LC/MS/MS

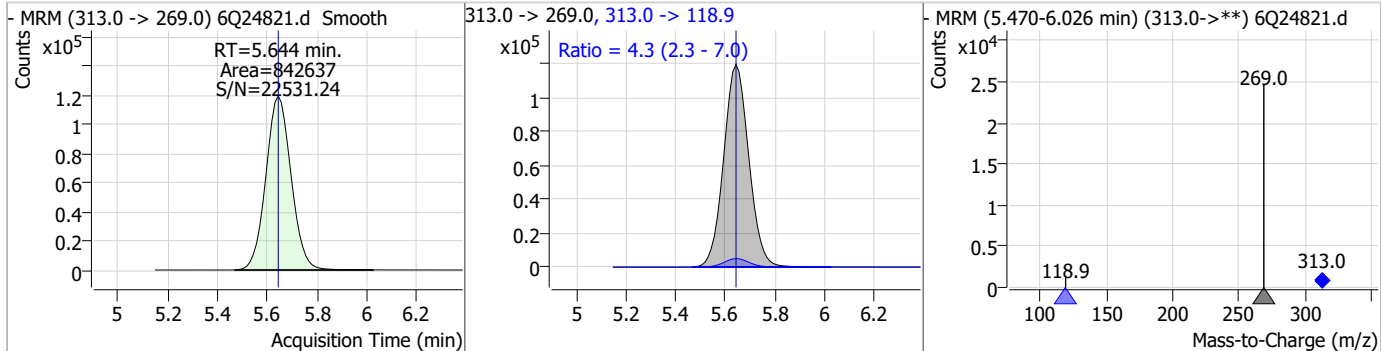
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.67	5.56	-0.01	341883	298.7 -> 98.8	39.0	18.2	54.6



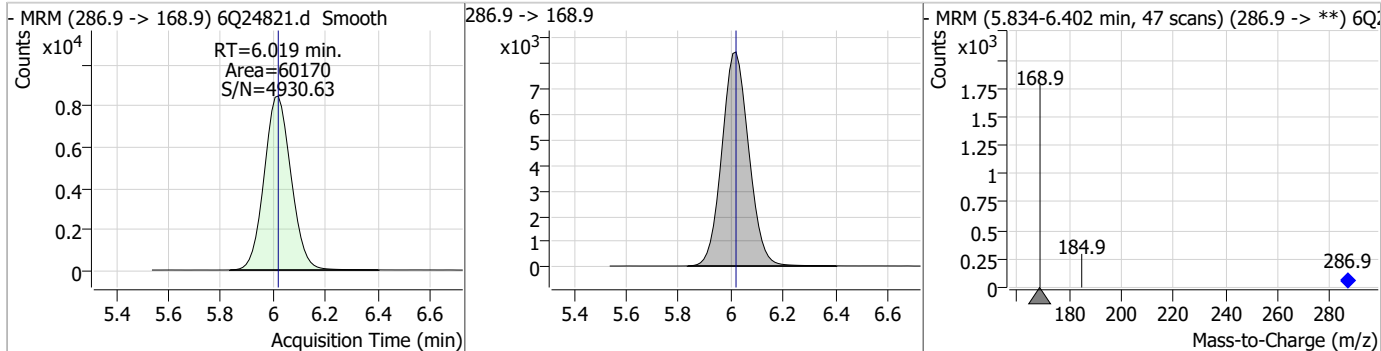
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.64	0.00	106399				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	22.78	5.64	0.00	842637	313.0 -> 118.9	4.3	2.3	7.0



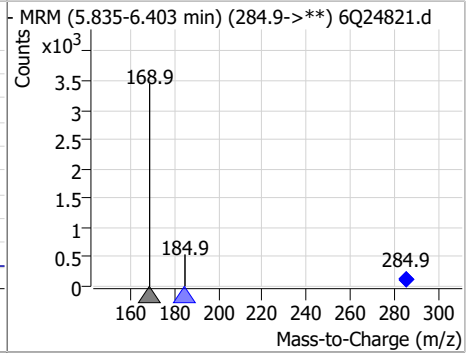
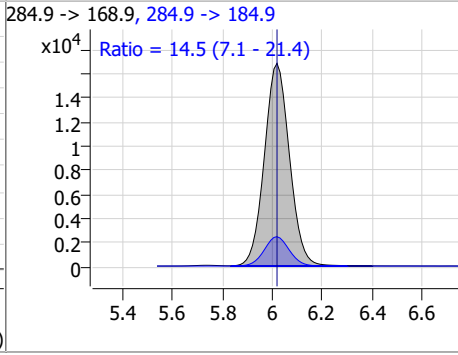
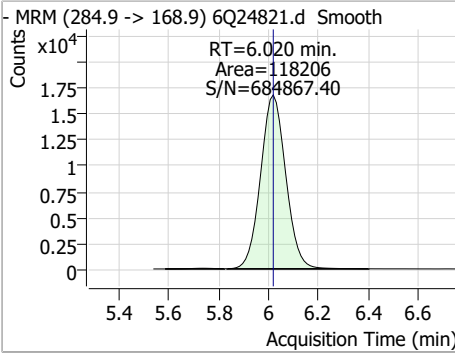
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.13	6.02	0.00	60170				



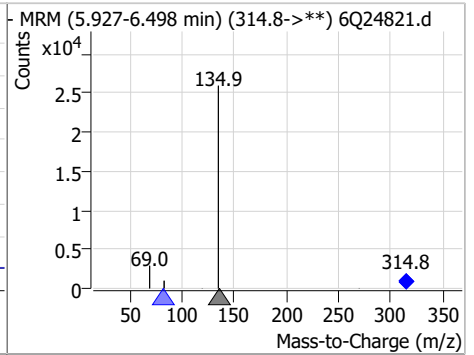
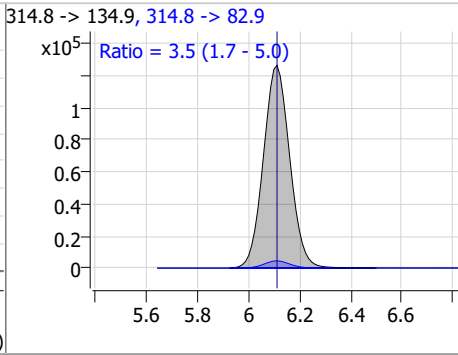
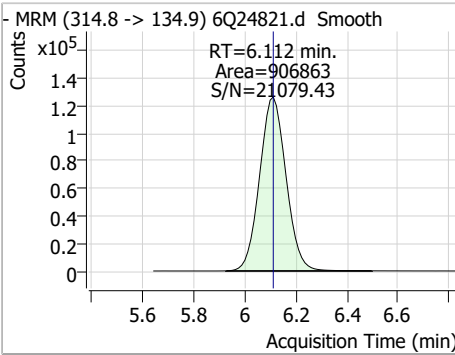
7.7.11
7

Perfluorinated Compounds by LC/MS/MS

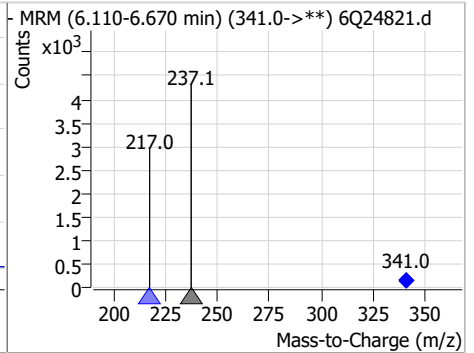
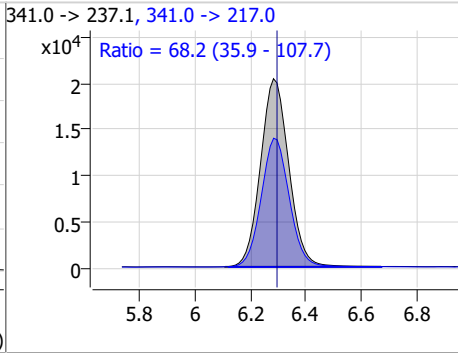
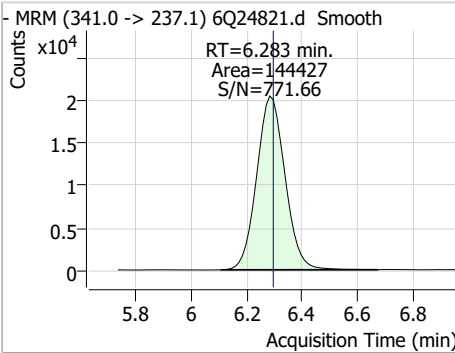
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.70	6.02	0.00	118206	284.9 -> 184.9	14.5	7.1	21.4



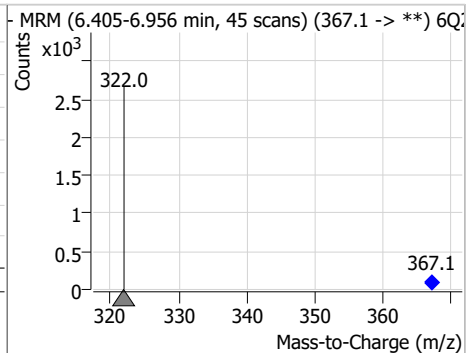
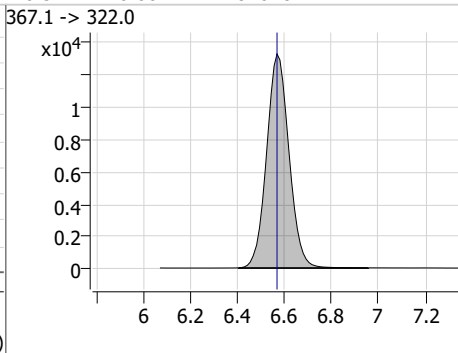
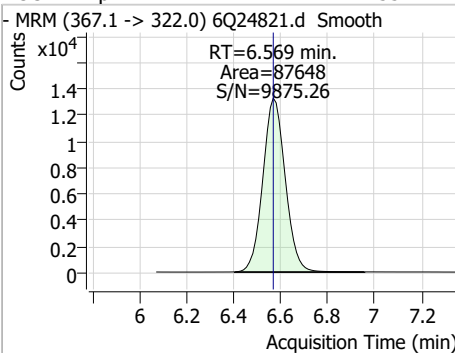
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	18.63	6.11	0.00	906863	314.8 -> 82.9	3.5	1.7	5.0



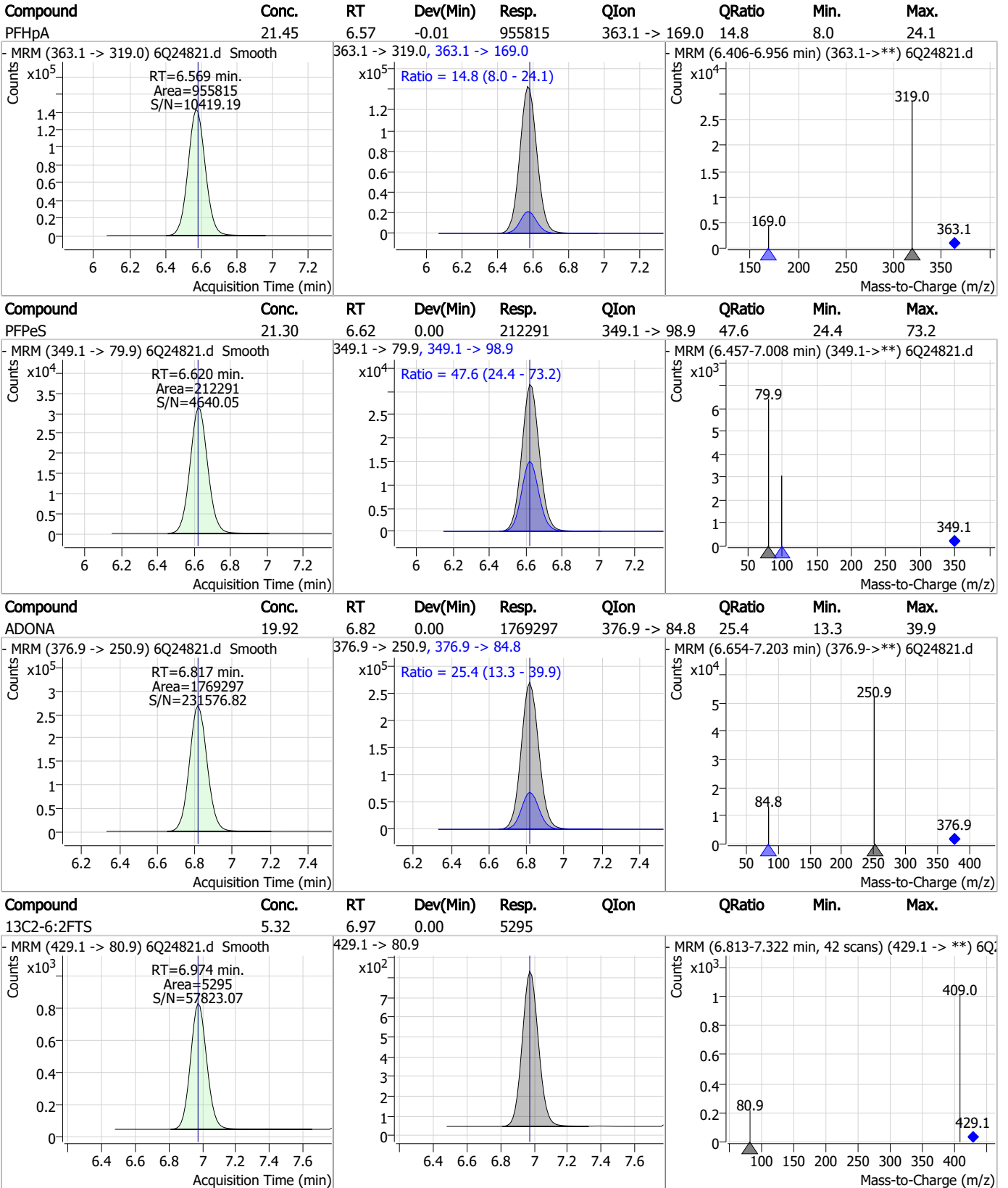
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	22.25	6.28	-0.01	144427	341.0 -> 217.0	68.2	35.9	107.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.55	6.57	0.00	87648	367.1 -> 322.0			



Perfluorinated Compounds by LC/MS/MS

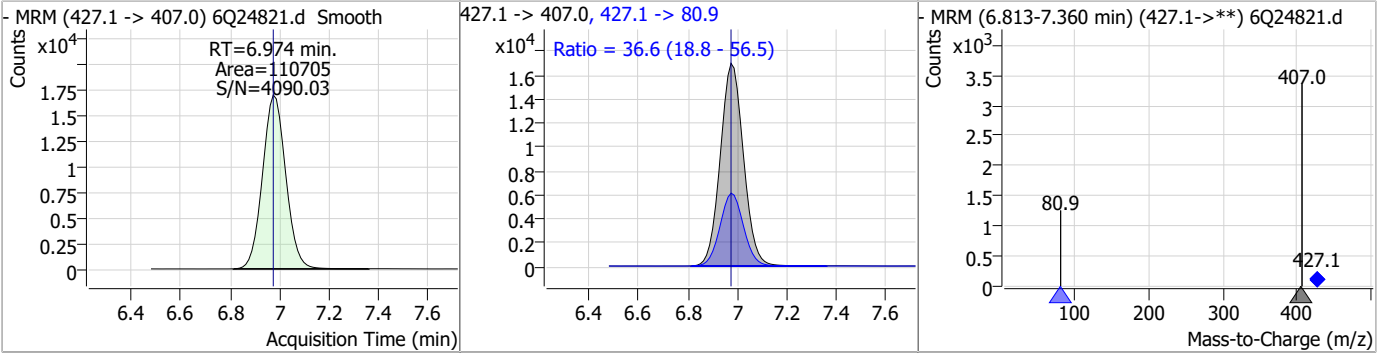


7.7.11
7

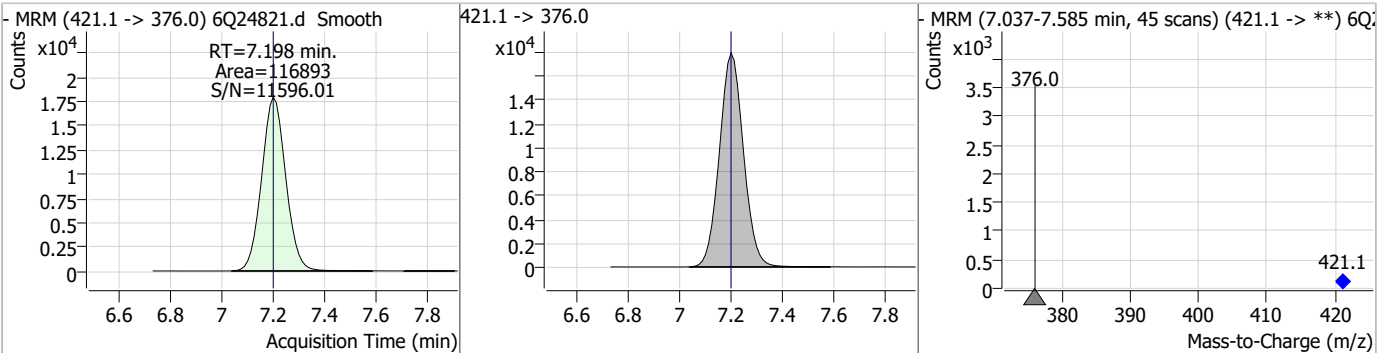


Perfluorinated Compounds by LC/MS/MS

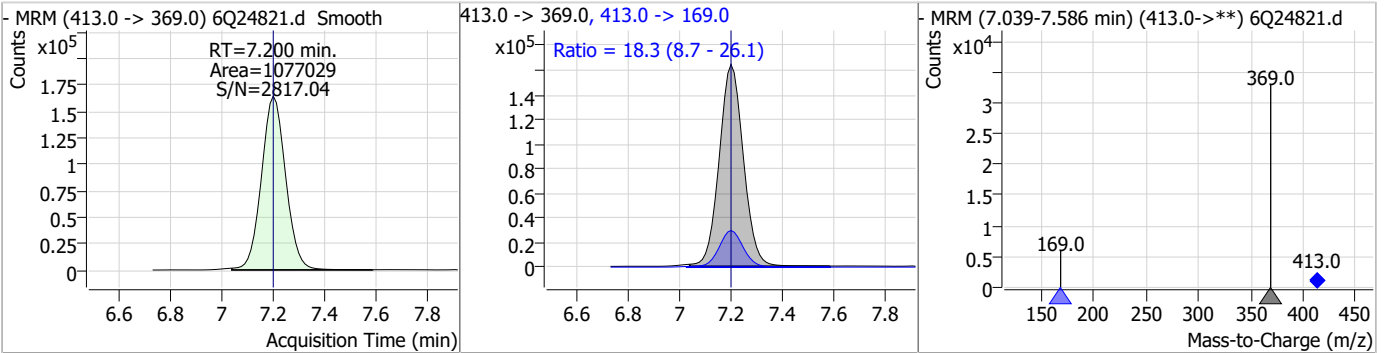
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	22.61	6.97	0.00	110705	427.1 -> 80.9	36.6	18.8	56.5



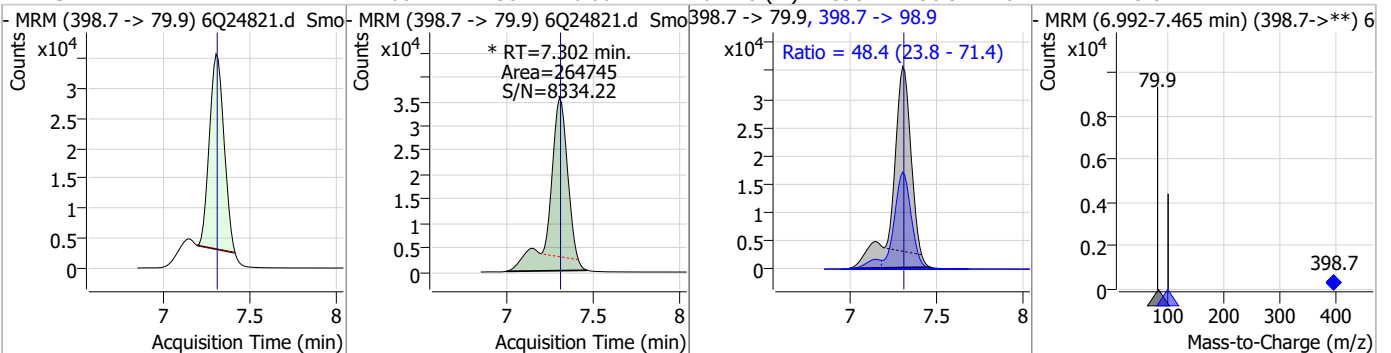
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.55	7.20	0.00	116893				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.98	7.20	0.00	1077029	413.0 -> 169.0	18.3	8.7	26.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	22.08	7.30	0.00	264745 (m)	398.7 -> 98.9	48.4	23.8	71.4



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.53	7.30	-0.01	18552				
7:3FTCA	20.62	7.67	0.00	78071	441.0 -> 336.9	226.4	113.4	340.1
13C9-PFNA	1.26	7.72	0.00	47144				
PFNA	23.48	7.72	0.00	711318	463.0 -> 219.0	23.3	12.0	36.0

7.7.11
7



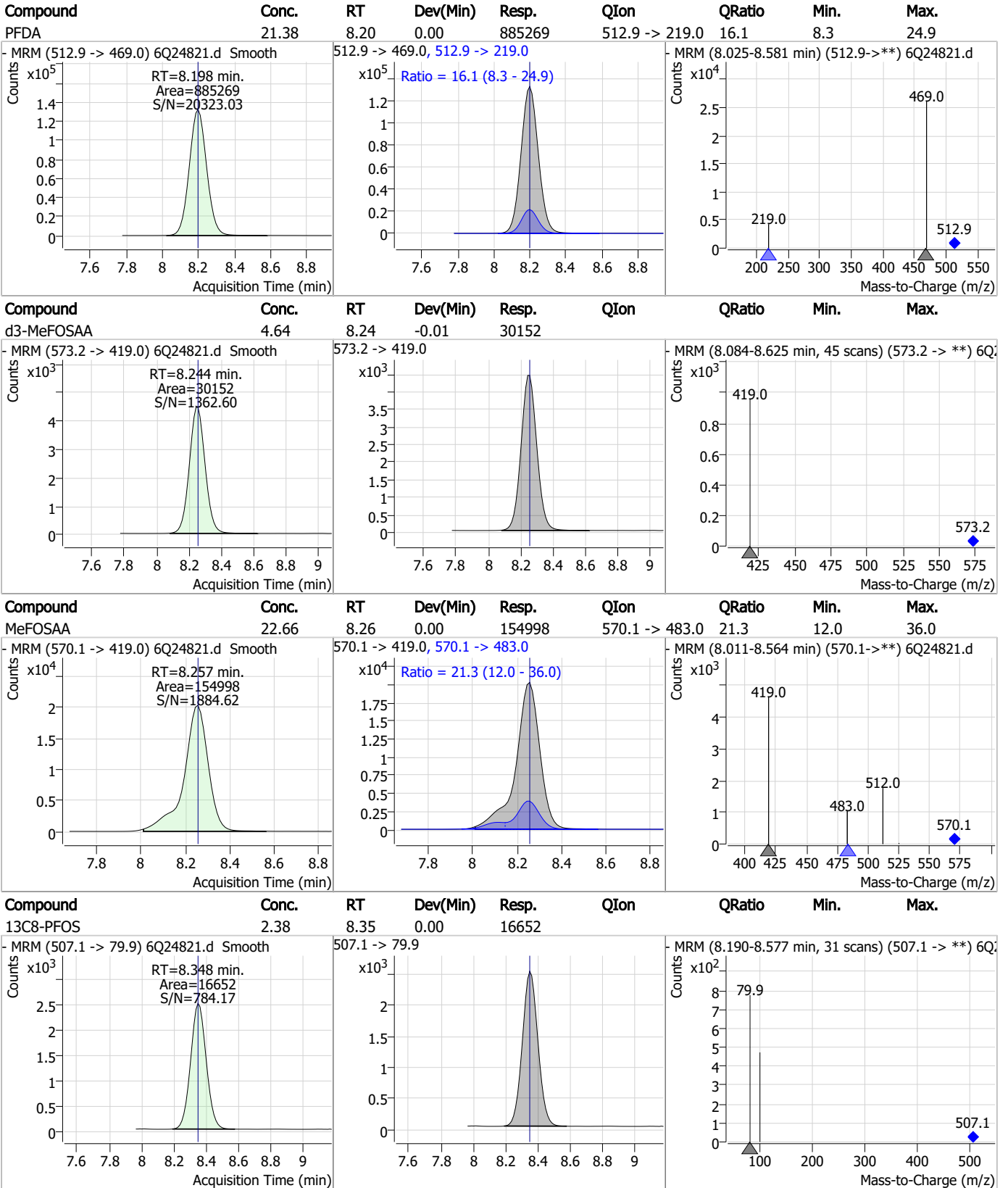
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	22.19	7.86	0.00	180920	449.0 -> 98.9	48.8	23.5	70.6
13C2-8:2FTS	5.22	7.99	0.00	5304	529.1 -> 80.9			
8:2FTS	22.23	7.99	-0.01	74875	527.1 -> 80.8	37.8	16.2	48.5
13C6-PFDA	1.28	8.20	0.00	46354	519.1 -> 474.1			

7.7.11
7



Perfluorinated Compounds by LC/MS/MS

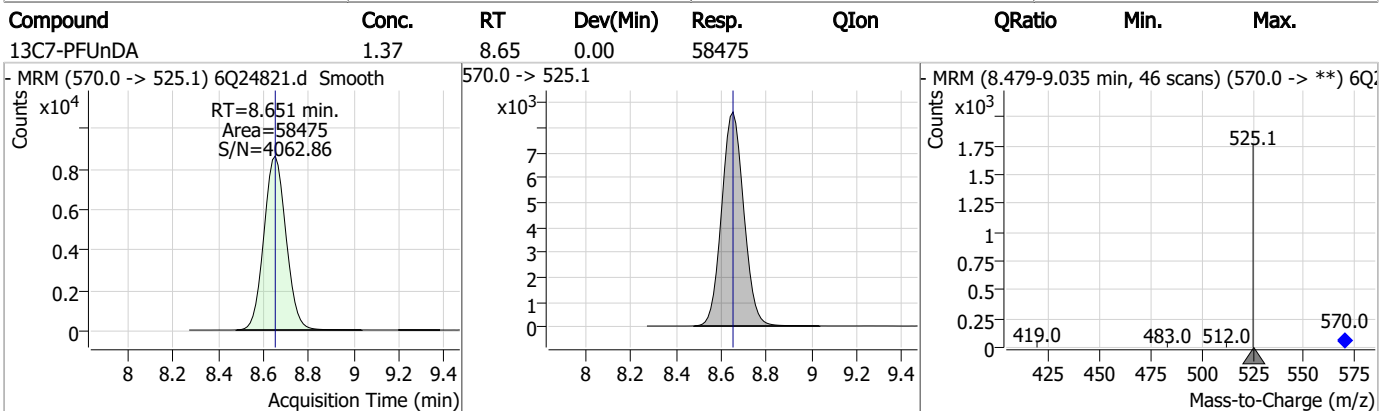
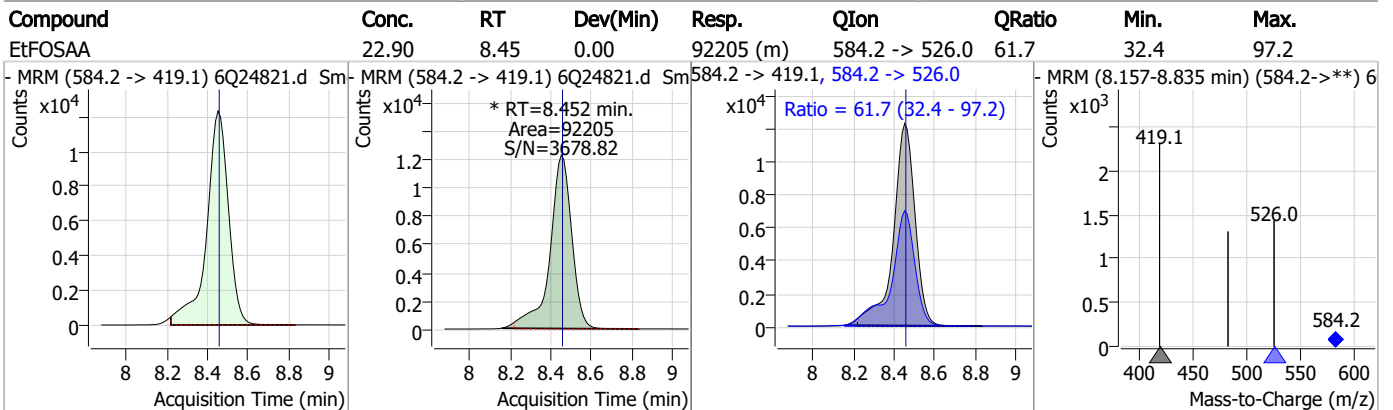
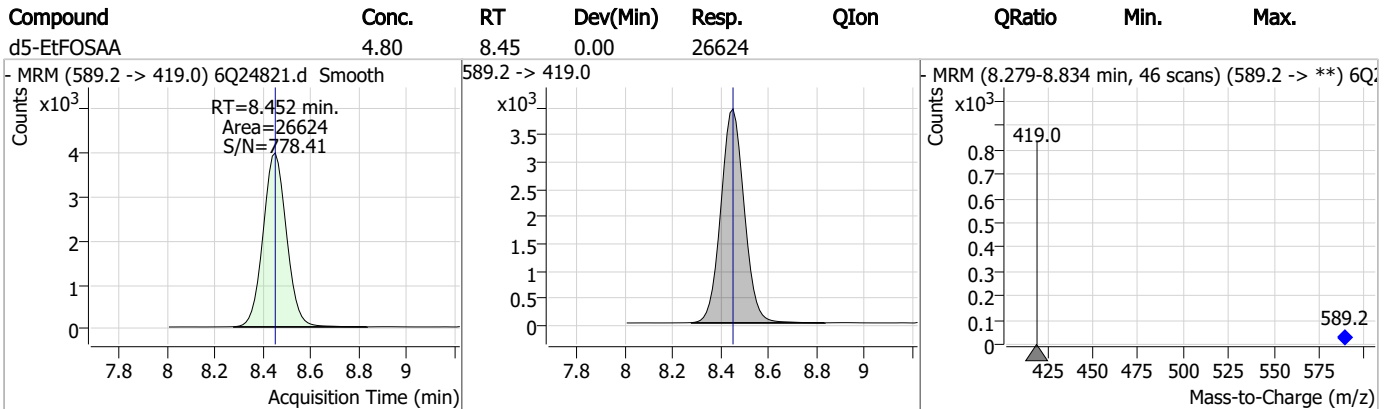
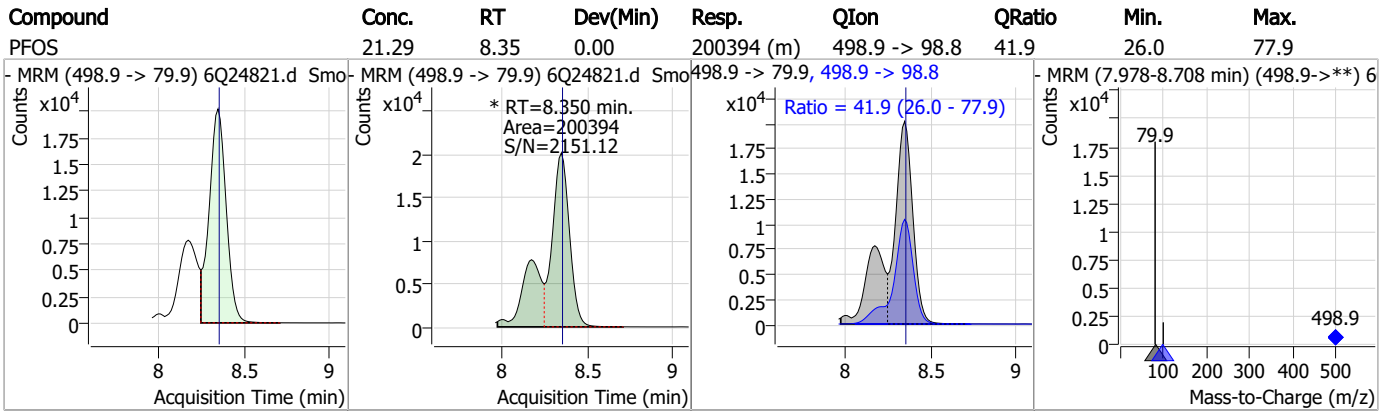


7.7.11

7

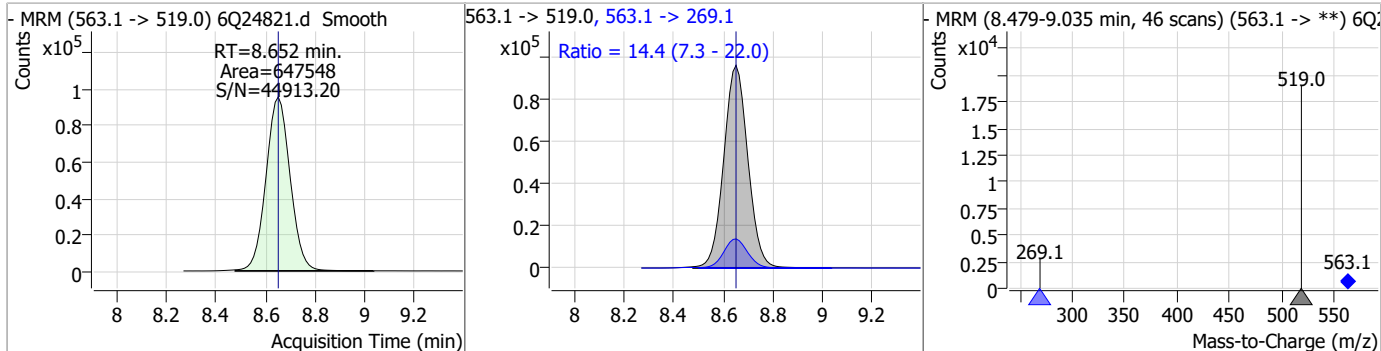


Perfluorinated Compounds by LC/MS/MS

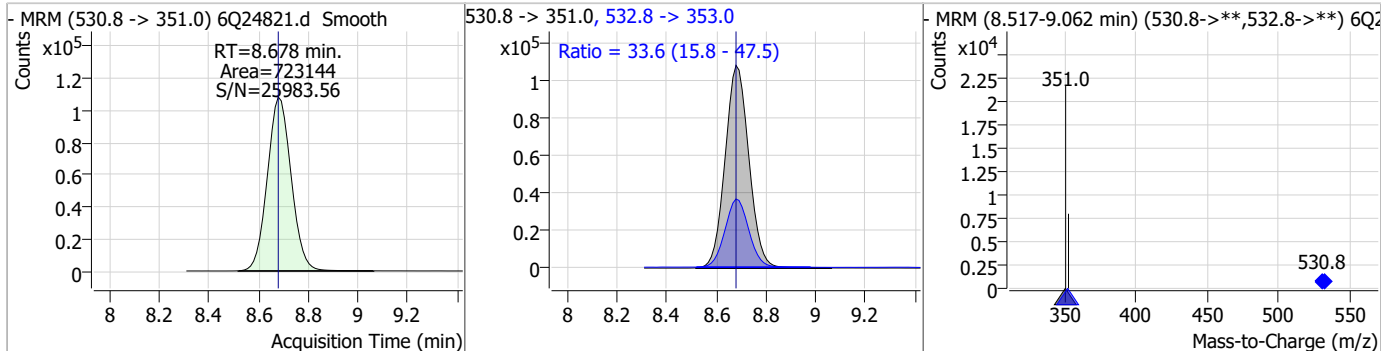


Perfluorinated Compounds by LC/MS/MS

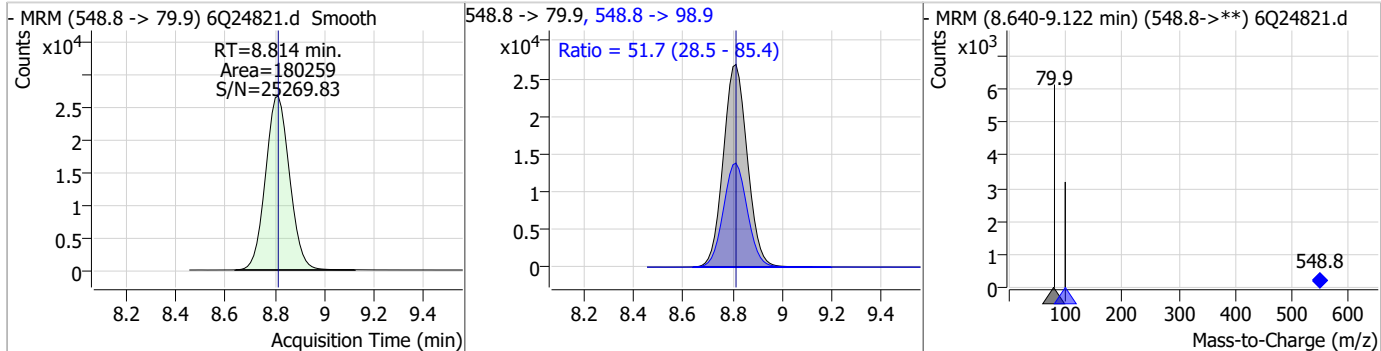
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.07	8.65	0.00	647548	563.1 -> 269.1	14.4	7.3	22.0



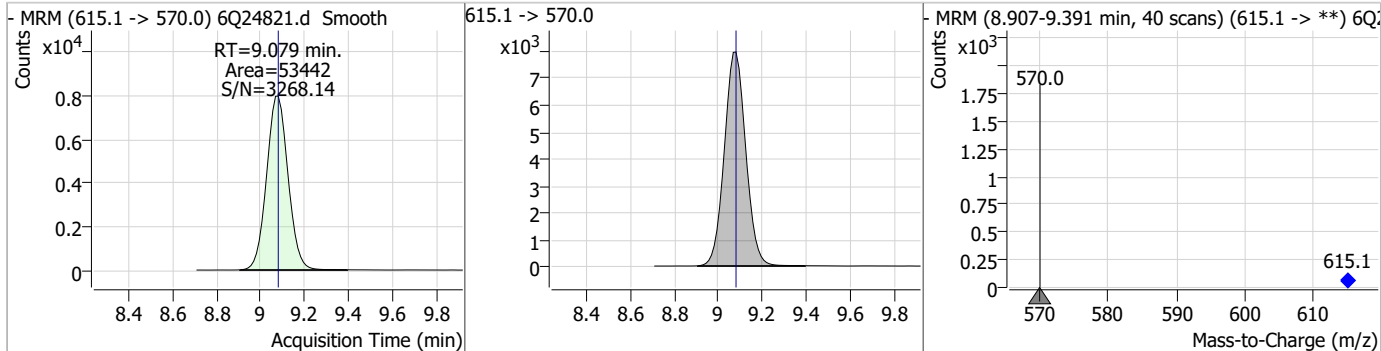
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	20.98	8.68	0.00	723144	532.8 -> 353.0	33.6	15.8	47.5



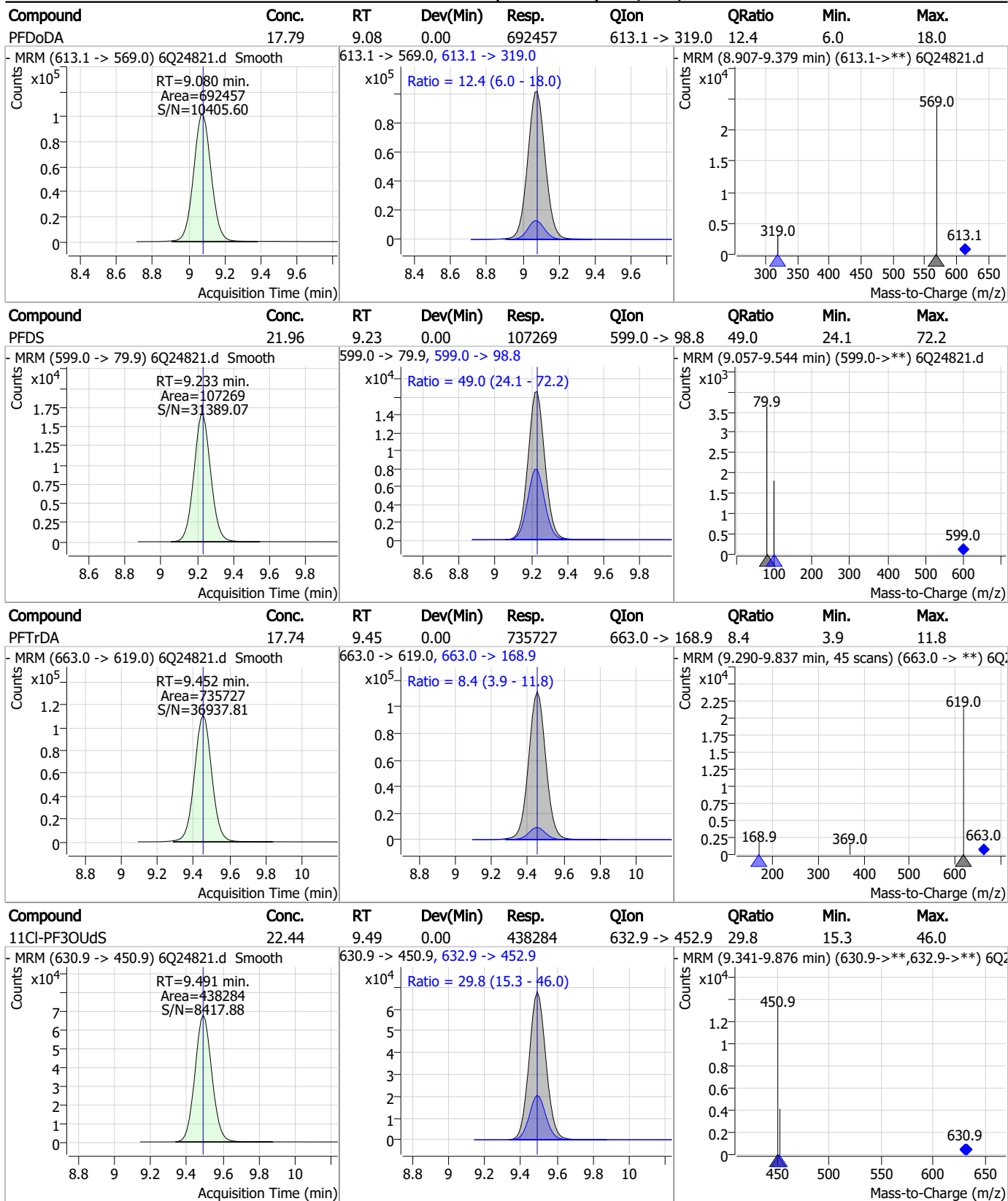
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	22.28	8.81	0.00	180259	548.8 -> 98.9	51.7	28.5	85.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.33	9.08	0.00	53442	615.1 -> 570.0	-	-	-



Perfluorinated Compounds by LC/MS/MS

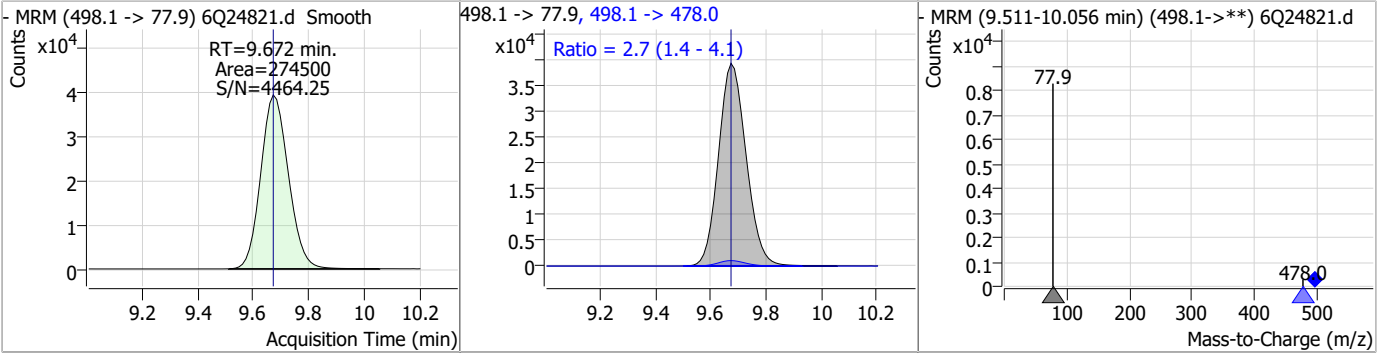


7.7.11
7

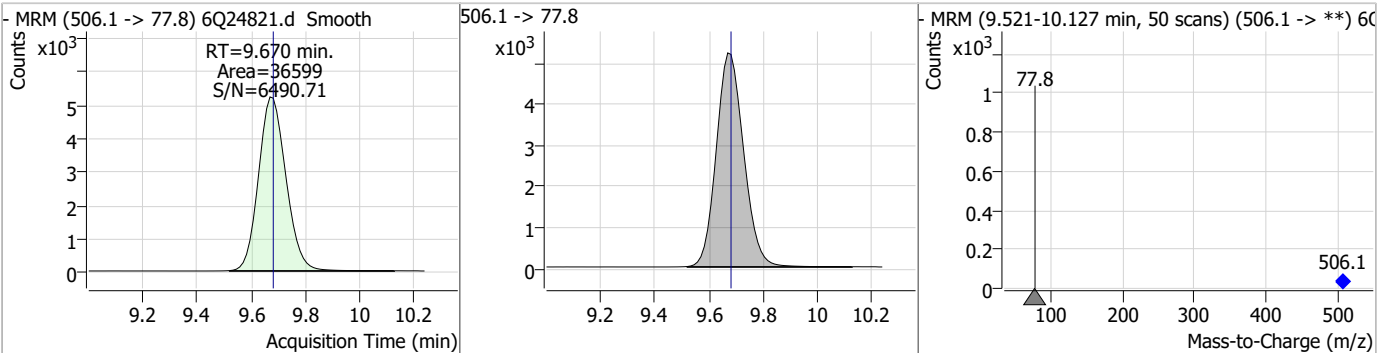


Perfluorinated Compounds by LC/MS/MS

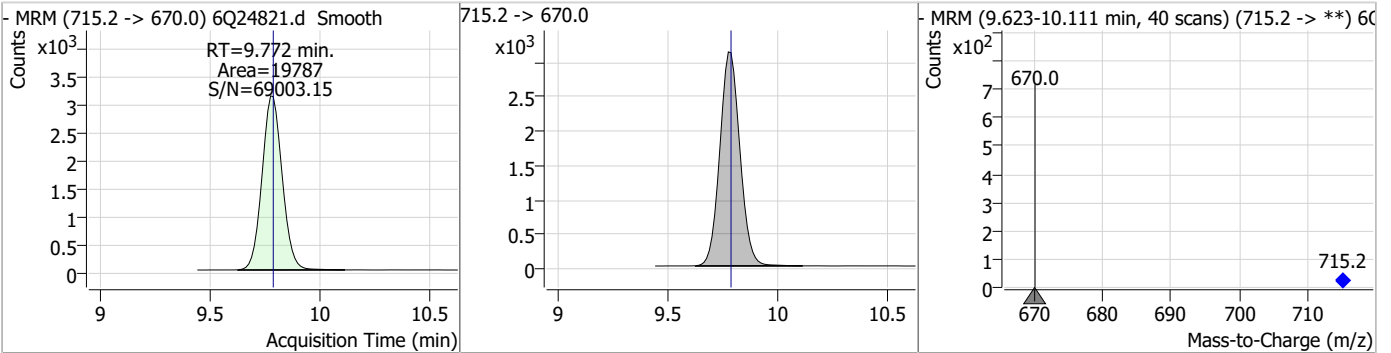
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	21.74	9.67	0.00	274500	498.1 -> 478.0	2.7	1.4	4.1



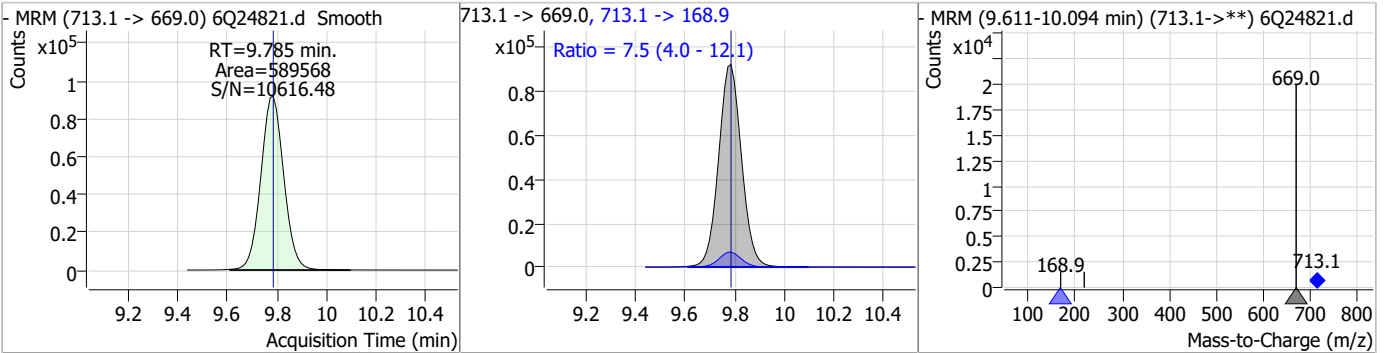
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.34	9.67	-0.01	36599				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.23	9.77	-0.01	19787				



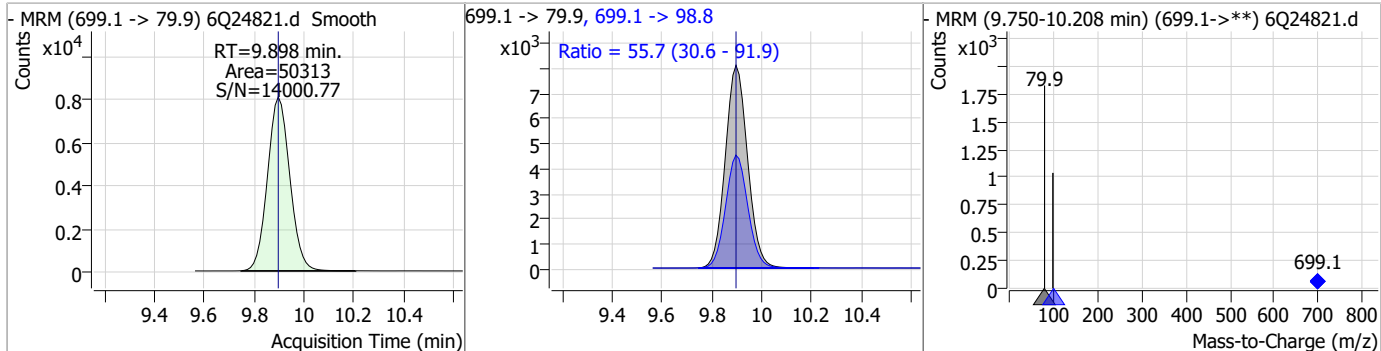
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	22.27	9.78	0.00	589568	713.1 -> 168.9	7.5	4.0	12.1



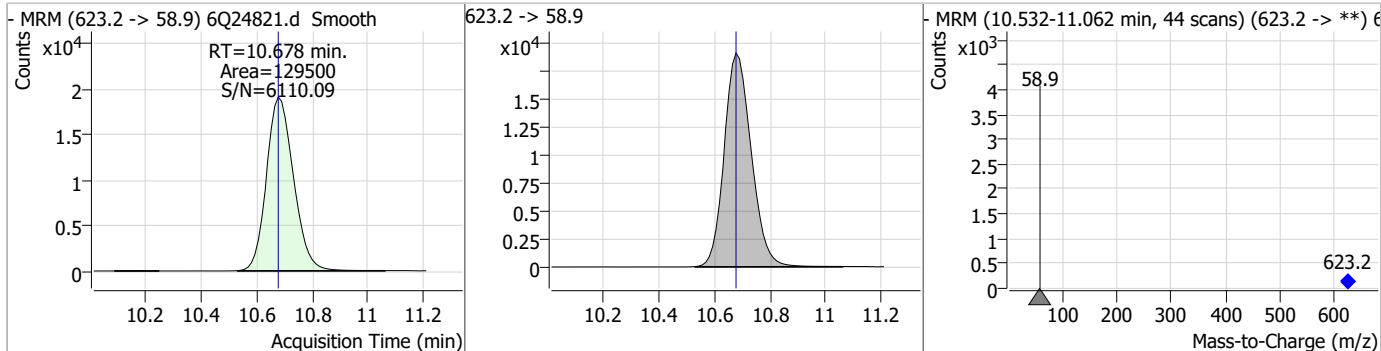
7.7.11
7

Perfluorinated Compounds by LC/MS/MS

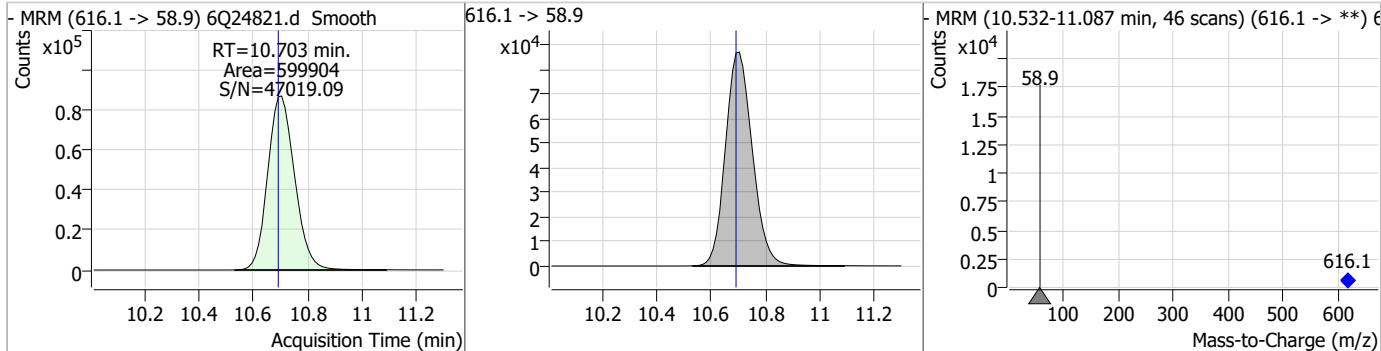
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	20.96	9.90	0.00	50313	699.1 -> 98.8	55.7	30.6	91.9



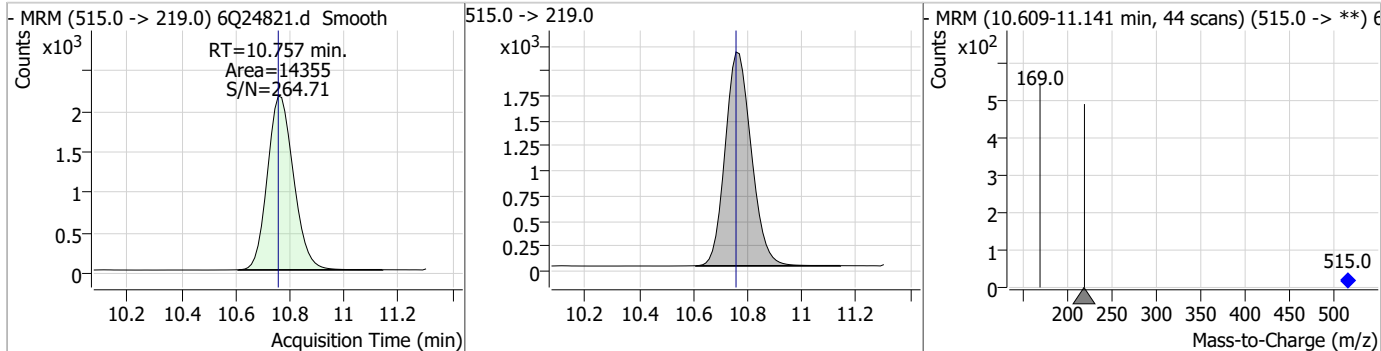
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.50	10.68	0.00	129500				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	107.91	10.70	0.01	599904				

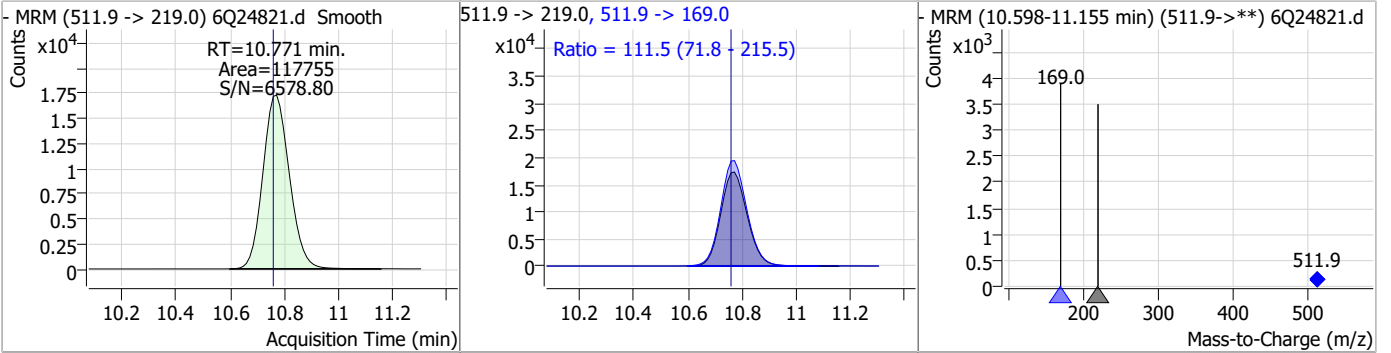


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.54	10.76	0.00	14355				

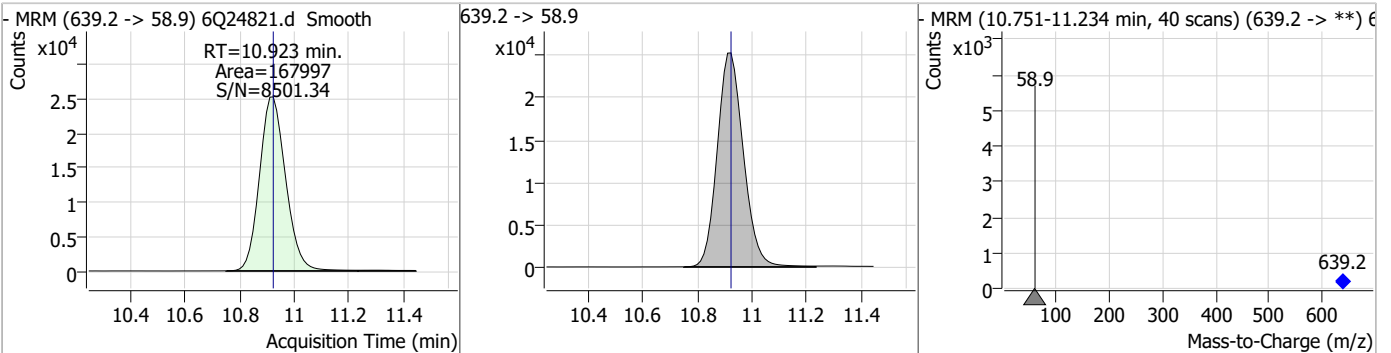


Perfluorinated Compounds by LC/MS/MS

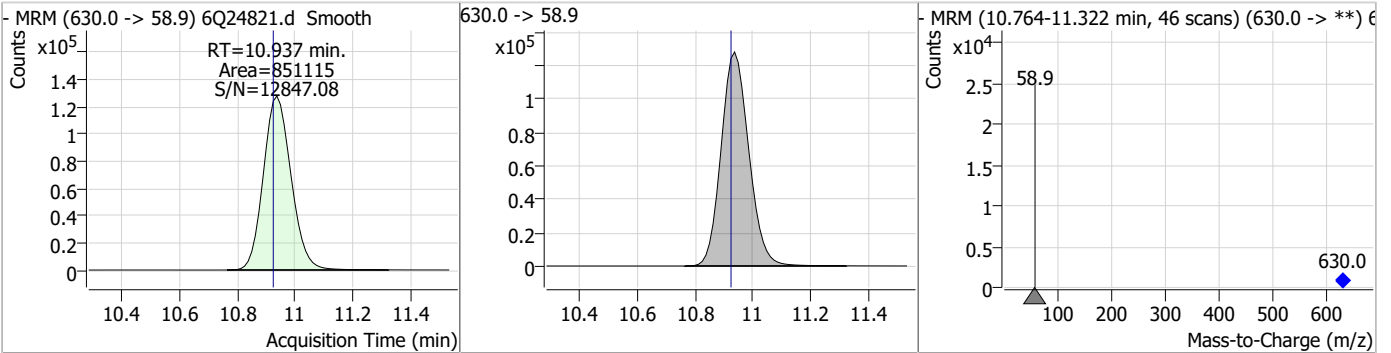
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	18.23	10.77	0.01	117755	511.9 -> 169.0	111.5	71.8	215.5



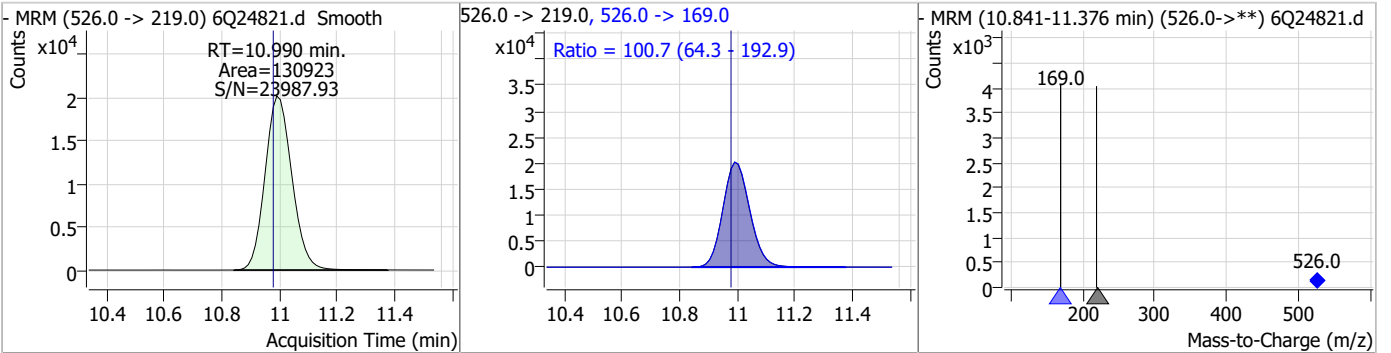
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.20	10.92	0.00	167997				



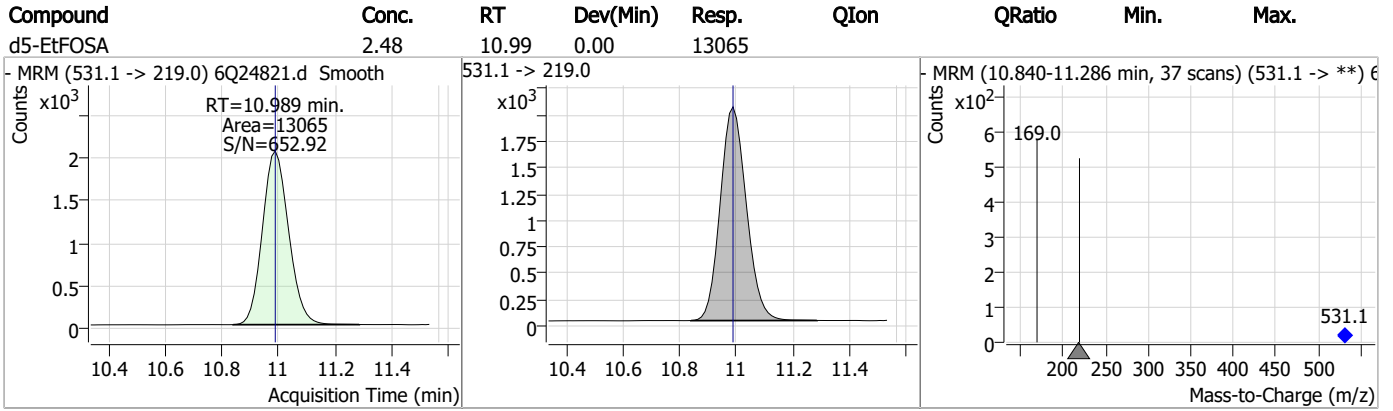
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	108.09	10.94	0.01	851115				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	19.07	10.99	0.01	130923	526.0 -> 169.0	100.7	64.3	192.9



Perfluorinated Compounds by LC/MS/MS



7.7.11

7



Manual Integration Approval Summary

Sample Number: S6Q355-ICV355 Method: EPA DRAFT 1633
Lab FileID: 6Q24821.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 22:59 Supervisor approved: 09/22/23 13:16 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.11.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24822.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 11:13:31 PM
 Sample Name : cc355-4
 Vial : P1-A5
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	336139	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	54277	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	116598	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	96426	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	136061	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	53389	1.25 µg/L	0.012
M6-PFDA	8.198	519.1 -> 474.1	48203	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	66515	1.25 µg/L	0.000
M2-PFDoDA	9.079	615.1 -> 570.0	58844	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	21584	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	43719	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	38174	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	22977	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	20743	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	4552	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	6355	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	6274	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	35753	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	72870	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	34311	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	144724	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	189682	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	14290	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	15612	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	25674	2.50 µg/L	0.012
13C3-PFBA	3.001	216.0 -> 172.0	135787	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	16371	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	144416	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	46444	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	61200	1.25 µg/L	0.012
13C2-PFHxA	5.642	315.1 -> 270.0	89163	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	4552	5.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C2-6:2FTS	6.974	429.1 -> 80.9	6355	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C2-8:2FTS	7.998	529.1 -> 80.9	6274	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-PFDoDA	9.079	615.1 -> 570.0	58844	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C2-PFTeDA	9.784	715.2 -> 670.0	21584	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C3-PFBS	5.571	302.1 -> 79.9	38174	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFHxS	7.313	402.1 -> 79.9	22977	2.59 µg/L	0.000

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 = 103.7%	
13C4-PFBA	3.010	216.8 -> 171.9	336139	10.15 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFHpA	6.569	367.1 -> 322.0	96426	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFHxA	5.641	318.0 -> 273.0	116598	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFPeA	4.434	268.3 -> 223.0	54277	5.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C6-PFDA	8.198	519.1 -> 474.1	48203	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.2%	
13C7-PFUnDA	8.651	570.0 -> 525.1	66515	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C8-FOSA	9.682	506.1 -> 77.8	43719	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C8-PFOA	7.198	421.1 -> 376.0	136061	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C8-PFOS	8.361	507.1 -> 79.9	20743	2.74 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C9-PFNA	7.729	472.1 -> 427.0	53389	1.20 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.2%	
d3-MeFOSAA	8.256	573.2 -> 419.0	35753	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	72870	11.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.2%	
d3-MeFOSA	10.757	515.0 -> 219.0	15612	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
d5-EtFOSAA	8.452	589.2 -> 419.0	34311	5.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	144724	26.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.7%	
d9-EtFOSE	10.923	639.2 -> 58.9	189682	26.38 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
d5-EtFOSA	10.989	531.1 -> 219.0	14290	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	59017	8.00 µg/L	97
		327.1 -> 80.9	21444		
6:2FTS	6.987	427.1 -> 407.0	49293	8.39 µg/L	100
		427.1 -> 80.9	18677		
8:2FTS	7.999	527.1 -> 507.0	36543	9.17 µg/L	95
		527.1 -> 80.8	12793		
EtFOSAA	8.465	584.2 -> 419.1	10463	2.02 µg/L	94
		584.2 -> 526.0	7312		
FOSA	9.672	498.1 -> 77.9	34302	2.27 µg/L	99
		498.1 -> 478.0	795		
MeFOSAA	8.257	570.1 -> 419.0	19396	2.39 µg/L	93
		570.1 -> 483.0	3958		
PFBA	3.006	212.8 -> 168.9	92205	8.90 µg/L	100
PFBS	5.572	298.7 -> 79.9	36517	2.02 µg/L	98
		298.7 -> 98.8	13712		
PFDA	8.198	512.9 -> 469.0	105550	2.45 µg/L	99
		512.9 -> 219.0	16946		
PFDODA	9.080	613.1 -> 569.0	95903	2.24 µg/L	97
		613.1 -> 319.0	10400		
PFDS	9.233	599.0 -> 79.9	11726	1.93 µg/L	97

7.7.12
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	5886	2.35	µg/L	96
		363.1 -> 319.0	115268			
PFHpS	7.856	363.1 -> 169.0	16829	2.02	µg/L	93
		449.0 -> 79.9	20543			
PFHxA	5.644	449.0 -> 98.9	10625	2.26	µg/L	100
		313.0 -> 269.0	91520			
PFHxS	7.302	313.0 -> 118.9	4323	1.86	µg/L	m
		398.7 -> 79.9	27552			
PFNA	7.730	398.7 -> 98.9	13591	2.22	µg/L	98
		463.0 -> 419.0	76265			
PFNS	8.814	463.0 -> 219.0	19107	2.08	µg/L	93
		548.8 -> 79.9	21000			
PFOA	7.200	548.8 -> 98.9	10825	2.30	µg/L	98
		413.0 -> 369.0	144441			
PFOS	8.350	413.0 -> 169.0	24074	1.99	µg/L	m
		498.9 -> 79.9	23350			
PFPeA	4.436	498.9 -> 98.8	11444	4.33	µg/L	100
		263.0 -> 219.0	115653			
PFPeS	6.620	349.1 -> 79.9	24056	1.95	µg/L	97
		349.1 -> 98.9	11219			
PFTeDA	9.785	713.1 -> 669.0	70521	2.44	µg/L	98
		713.1 -> 168.9	5159			
PFTrDA	9.452	663.0 -> 619.0	100277	2.20	µg/L	98
		663.0 -> 168.9	8495			
PFUnDA	8.652	563.1 -> 519.0	78473	2.03	µg/L	95
		563.1 -> 269.1	12982			
11CI-PF3OUdS	9.491	630.9 -> 450.9	98809	4.18	µg/L	99
		632.9 -> 452.9	29842			
9CI-PF3ONS	8.690	530.8 -> 351.0	174344	4.18	µg/L	99
		532.8 -> 353.0	55912			
ADONA	6.817	376.9 -> 250.9	441168	4.10	µg/L	97
		376.9 -> 84.8	109808			
HFPO-DA	6.020	284.9 -> 168.9	28437	4.11	µg/L	99
		284.9 -> 184.9	3906			
3:3FTCA	3.902	241.0 -> 177.0	19926	11.03	µg/L	100
		241.0 -> 117.0	1918			
5:3FTCA	6.296	341.0 -> 237.1	433468	60.94	µg/L	94
		341.0 -> 217.0	288676			
7:3FTCA	7.682	441.0 -> 316.9	246167	59.32	µg/L	96
		441.0 -> 336.9	575489			
EtFOSA	10.990	526.0 -> 219.0	35890	4.78	µg/L	98
		526.0 -> 169.0	45519			
EtFOSE	10.924	630.0 -> 58.9	99884	11.23	µg/L	100
		511.9 -> 219.0	32634			
MeFOSA	10.758	511.9 -> 169.0	44604	4.64	µg/L	94
		616.1 -> 58.9	70618			
MeFOSE	10.691	699.1 -> 79.9	6090	11.37	µg/L	100
		699.1 -> 98.8	3481			
PFDoDS	9.898	295.0 -> 201.0	23066	2.04	µg/L	95
		295.0 -> 84.9	5556			
NFDHA	5.524	279.0 -> 85.1	84189	4.81	µg/L	97
		229.0 -> 84.9	62500			
PFMBA	4.850	314.8 -> 134.9	230300	4.46	µg/L	100
		314.8 -> 82.9	7012			
PFMPA	3.563			4.32	µg/L	99
PFEESA	6.112					

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

7.7.12
7

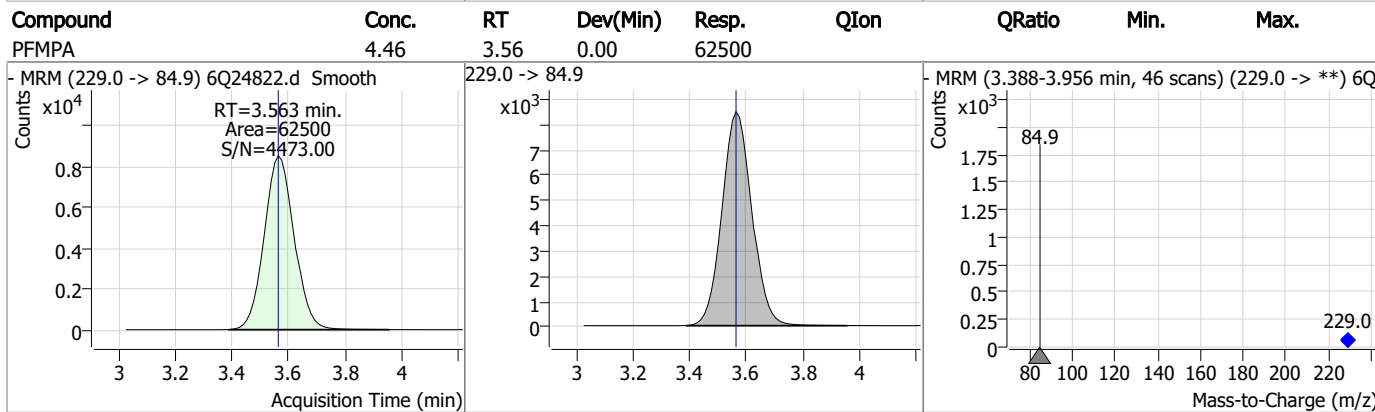
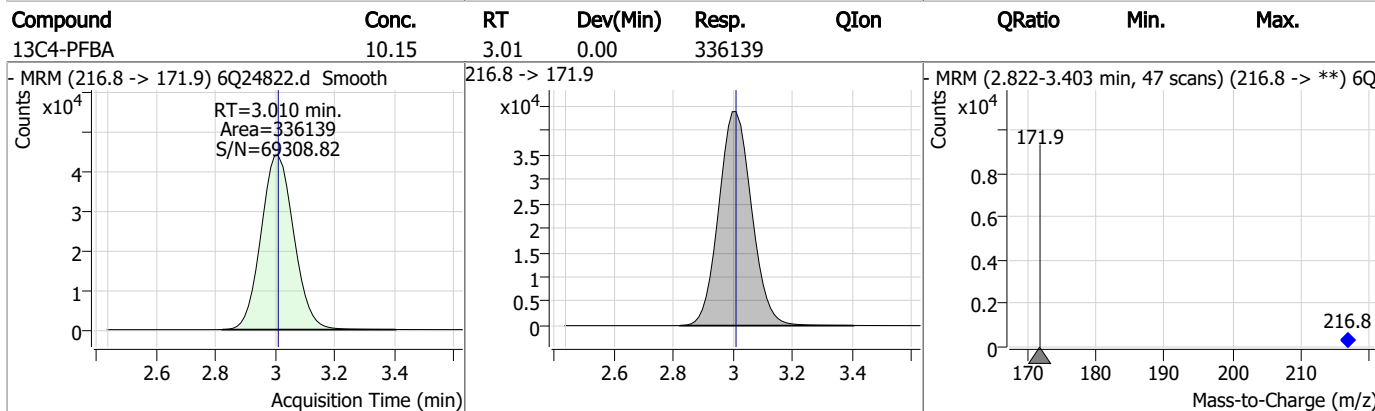
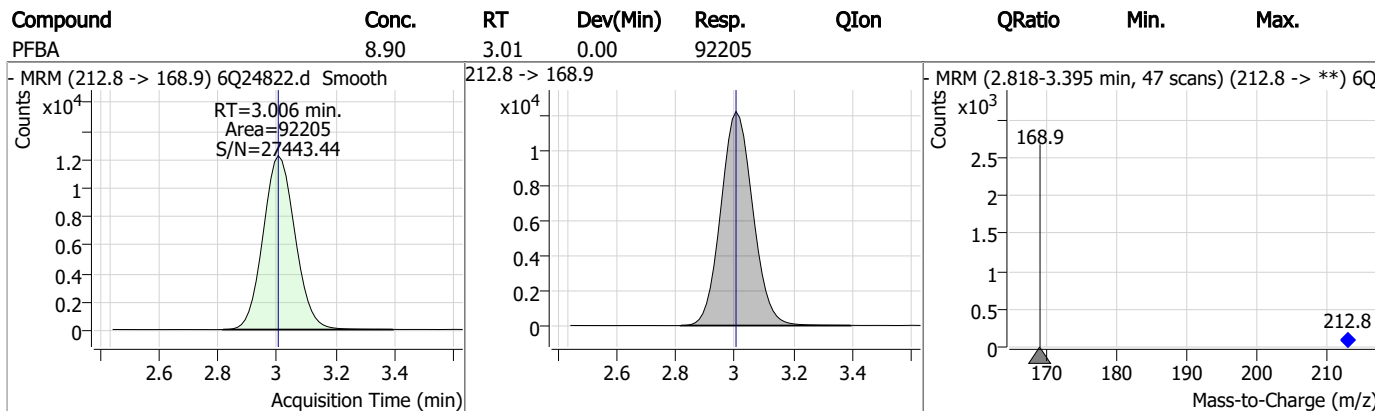
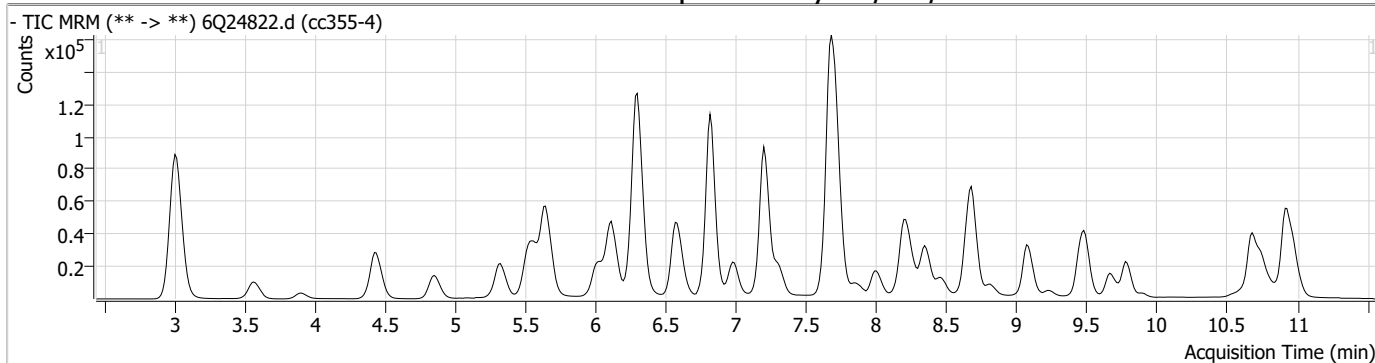
Perfluorinated Compounds by LC/MS/MS

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

7.7.12

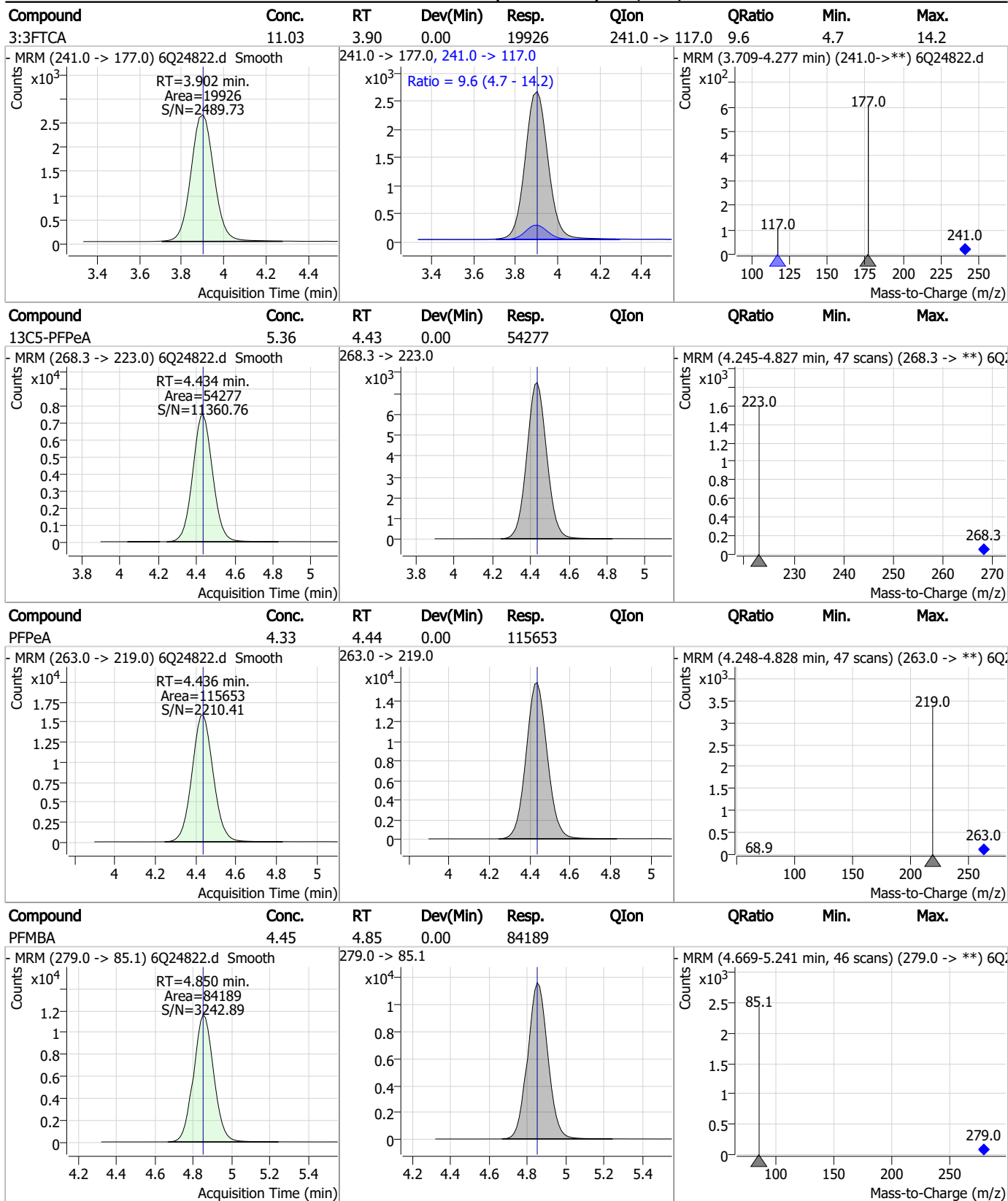
7

Perfluorinated Compounds by LC/MS/MS



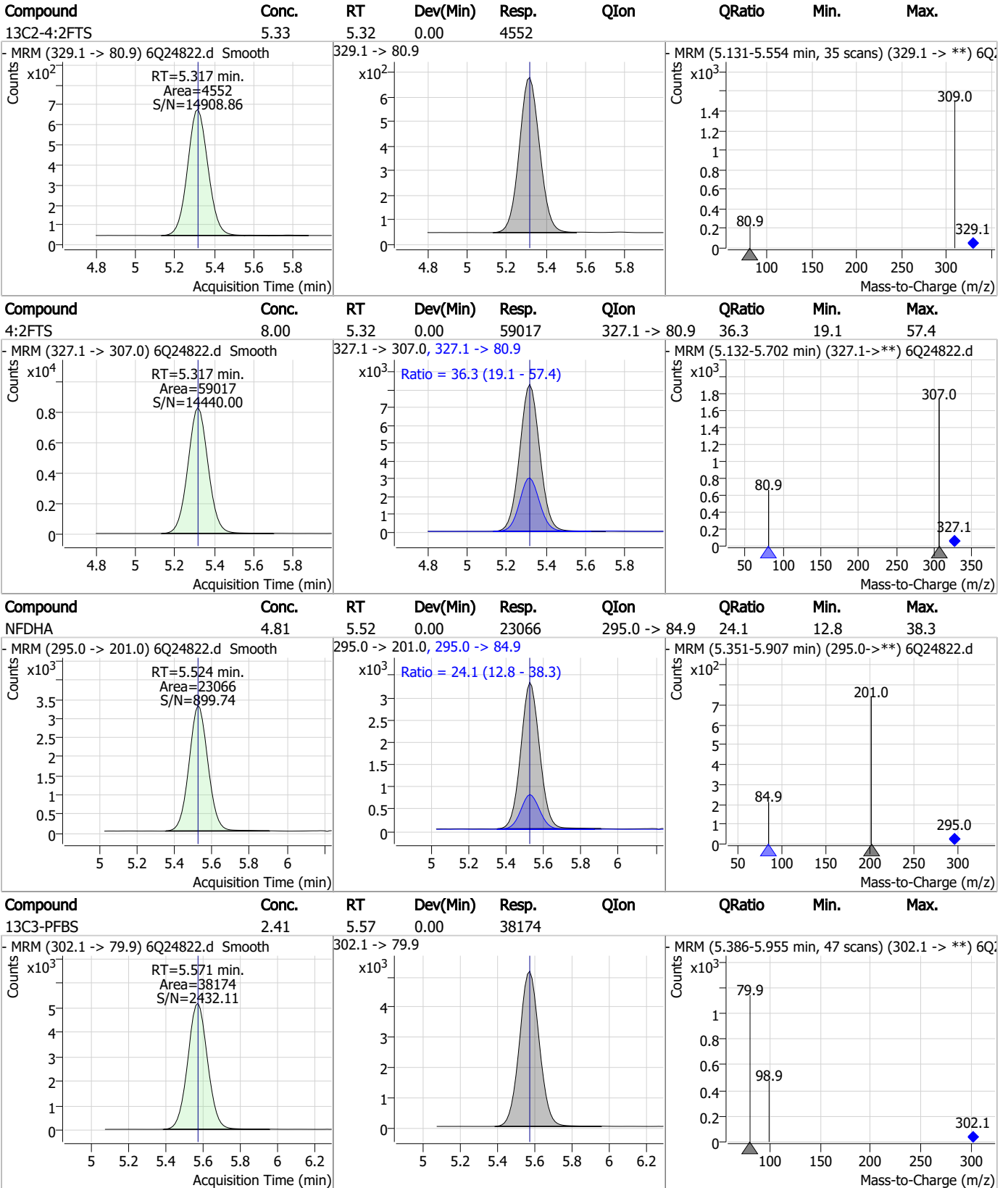
7.7.12
7

Perfluorinated Compounds by LC/MS/MS



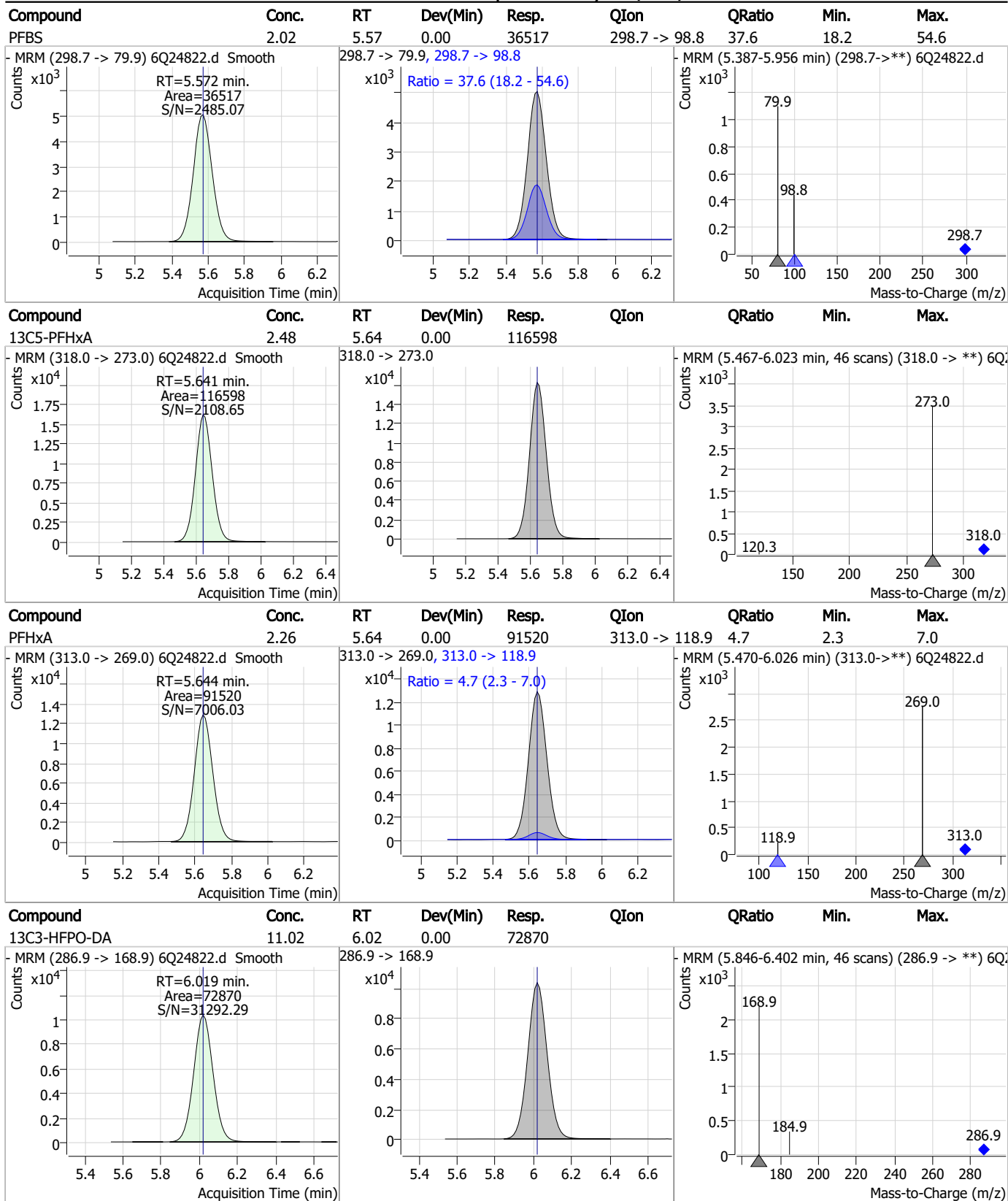
7.7.12
7

Perfluorinated Compounds by LC/MS/MS



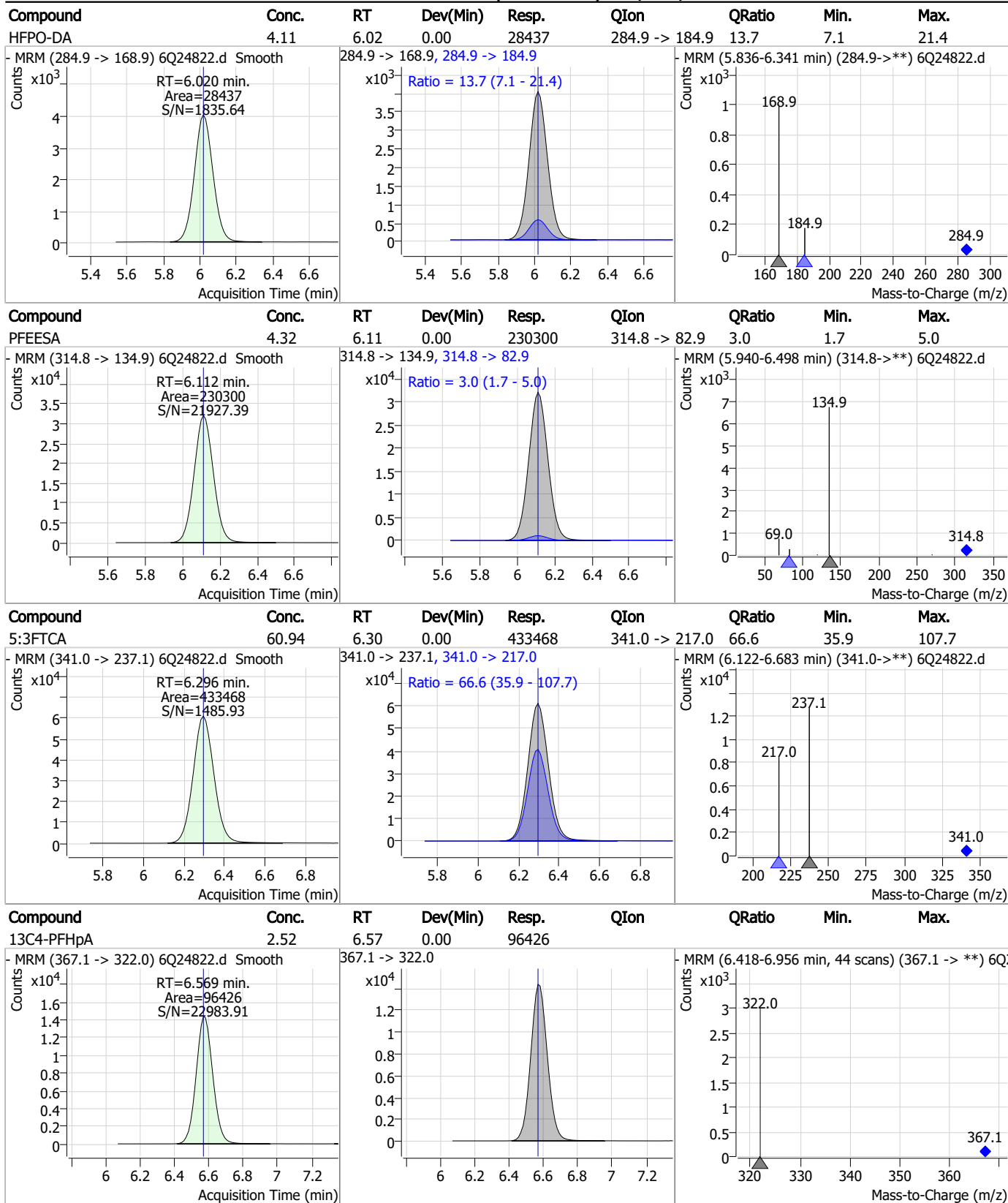
7.7.12 7

Perfluorinated Compounds by LC/MS/MS



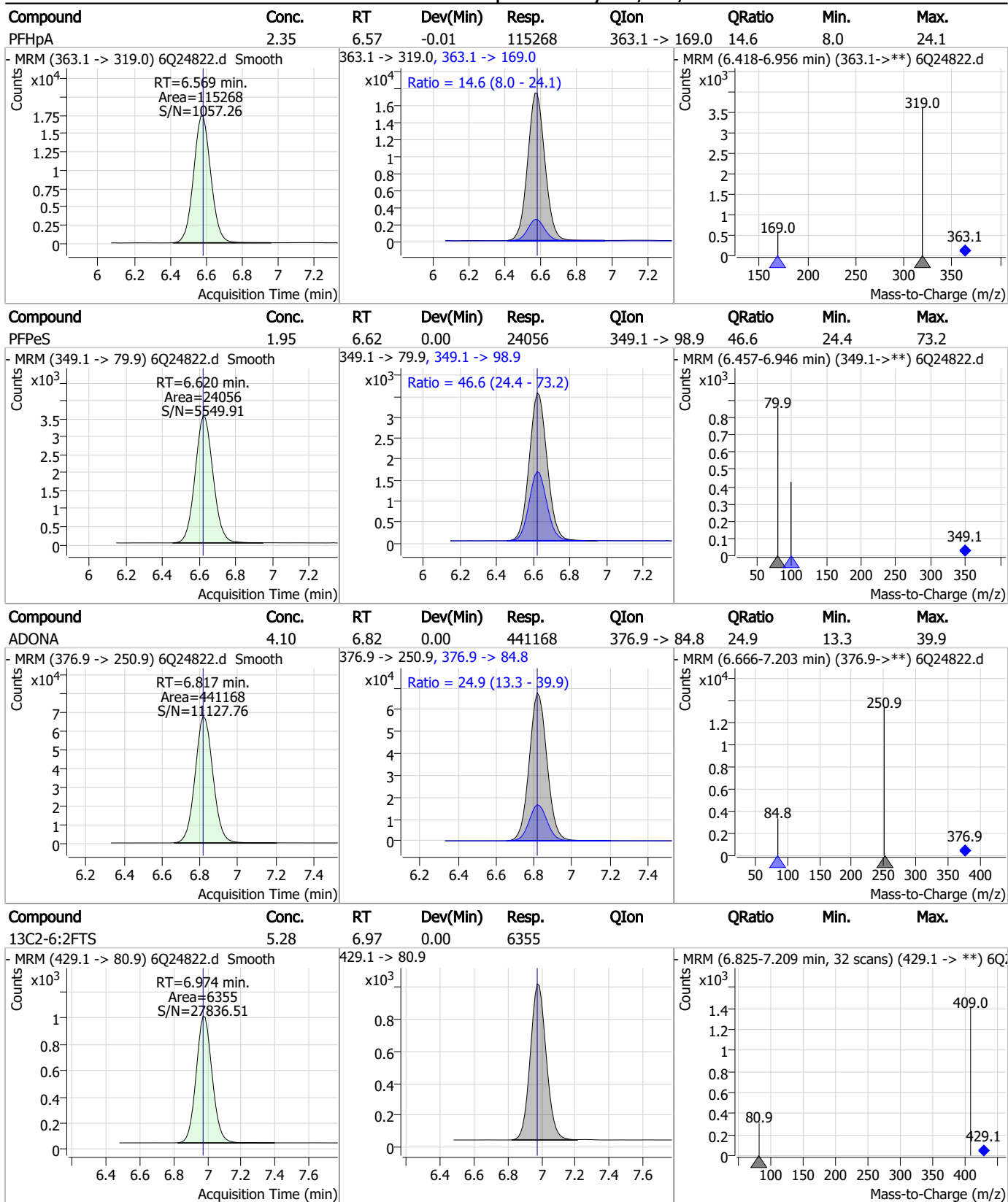
7.7.12
7

Perfluorinated Compounds by LC/MS/MS



7.7.12
7

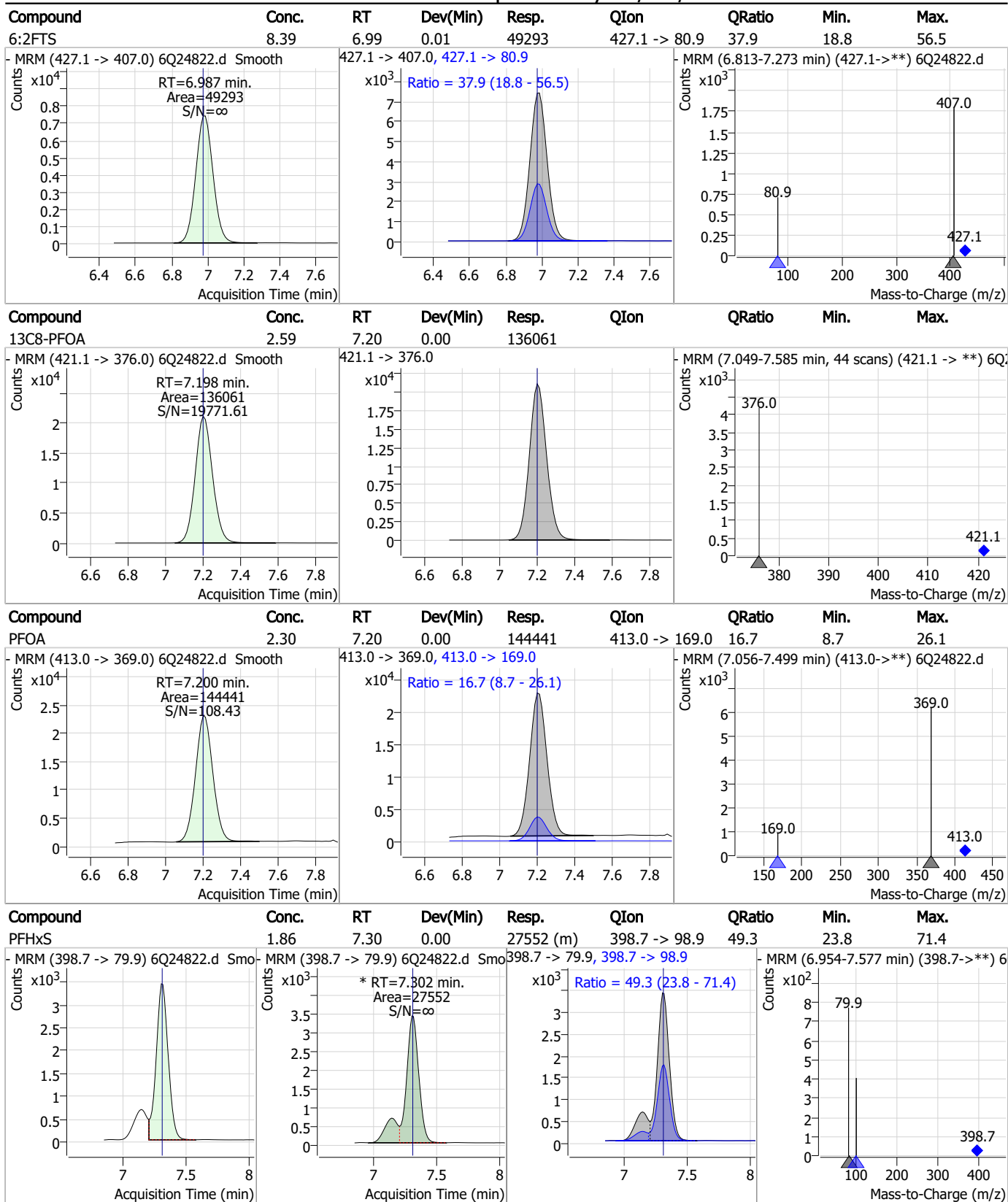
Perfluorinated Compounds by LC/MS/MS



7.7.12
7

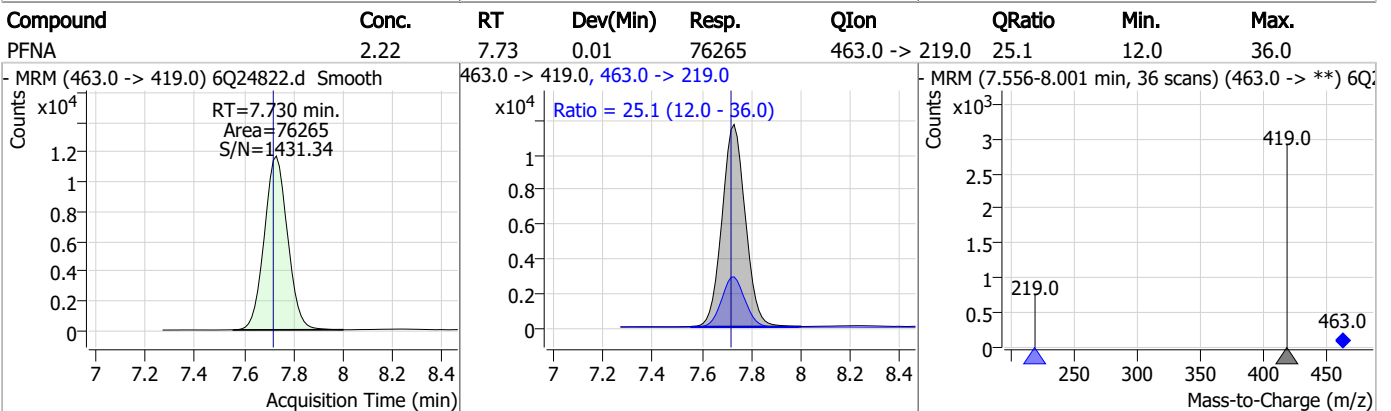
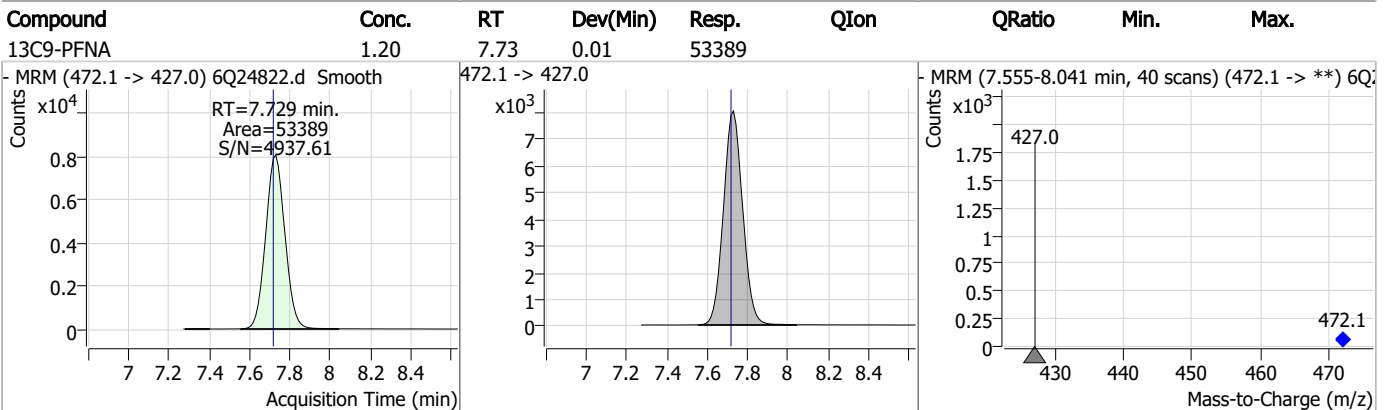
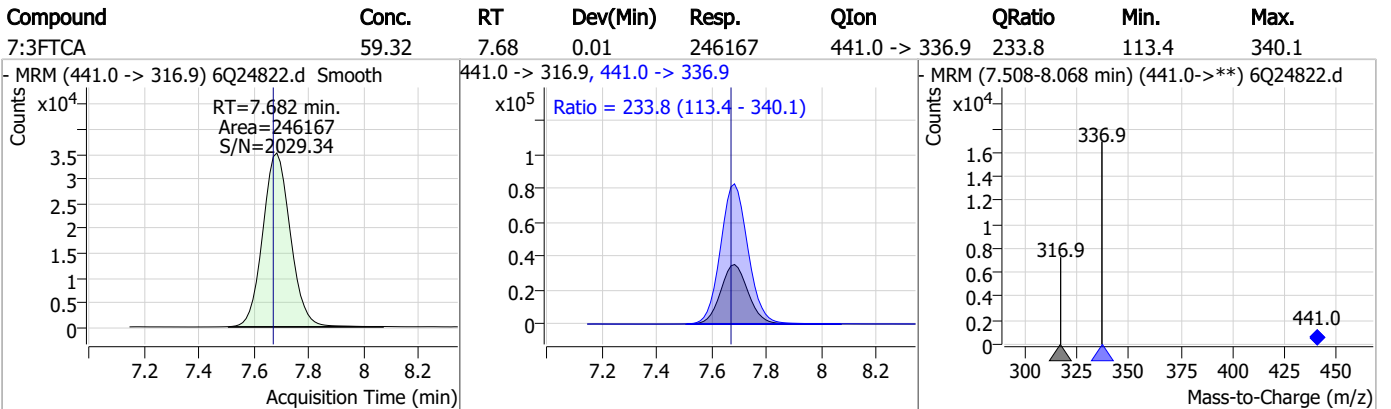
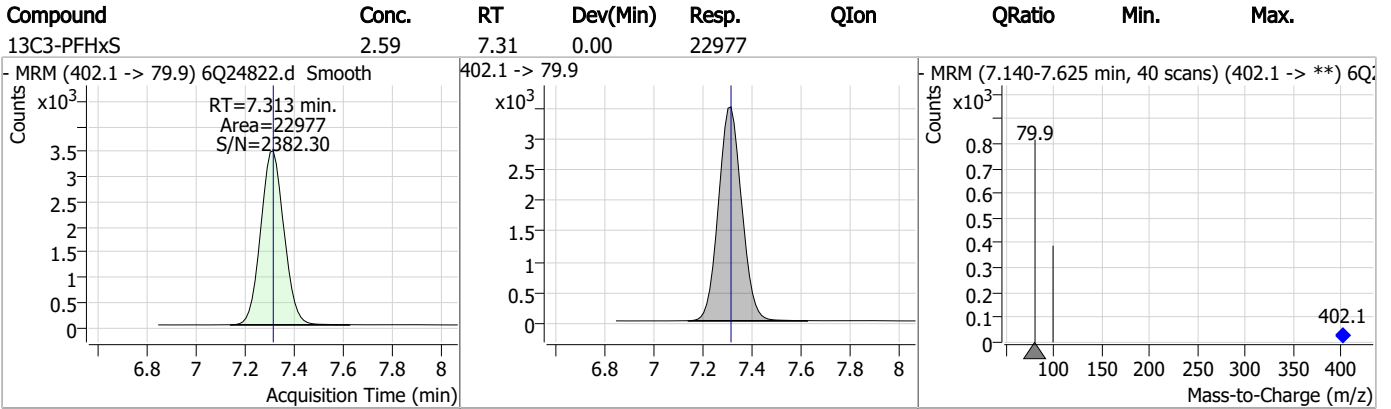


Perfluorinated Compounds by LC/MS/MS



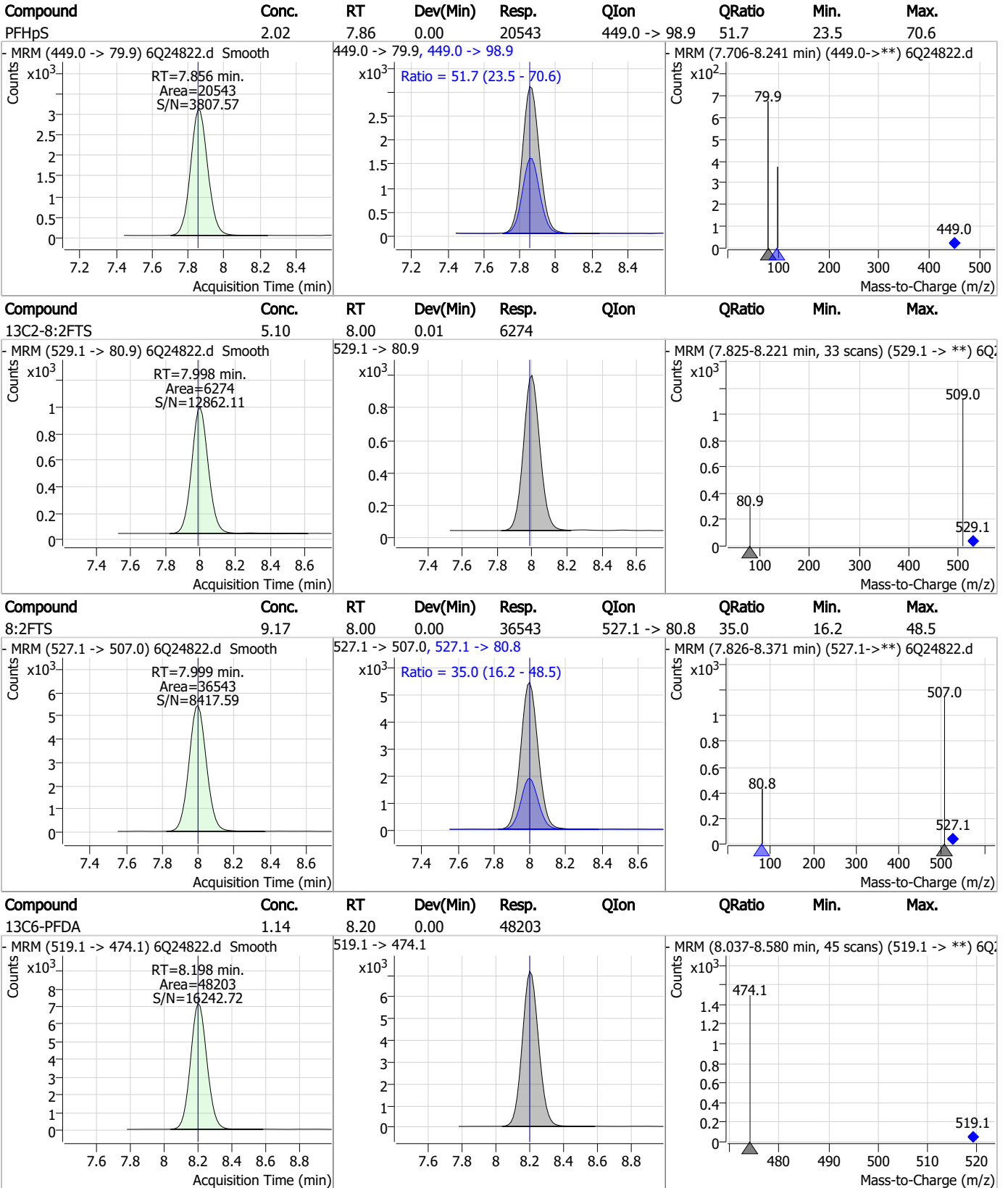
7.7.12

Perfluorinated Compounds by LC/MS/MS



7.7.12 7

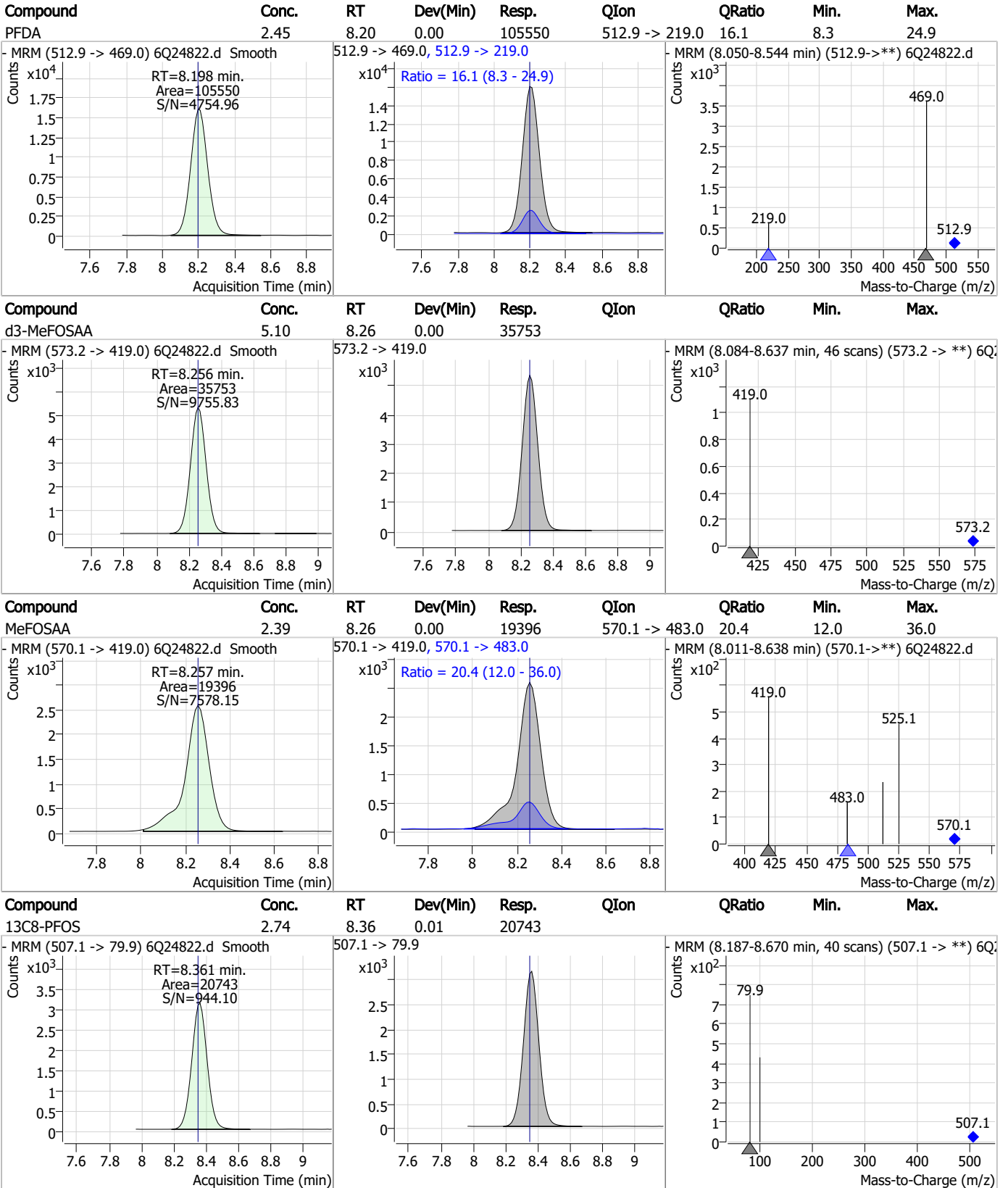
Perfluorinated Compounds by LC/MS/MS



7.7.12

7

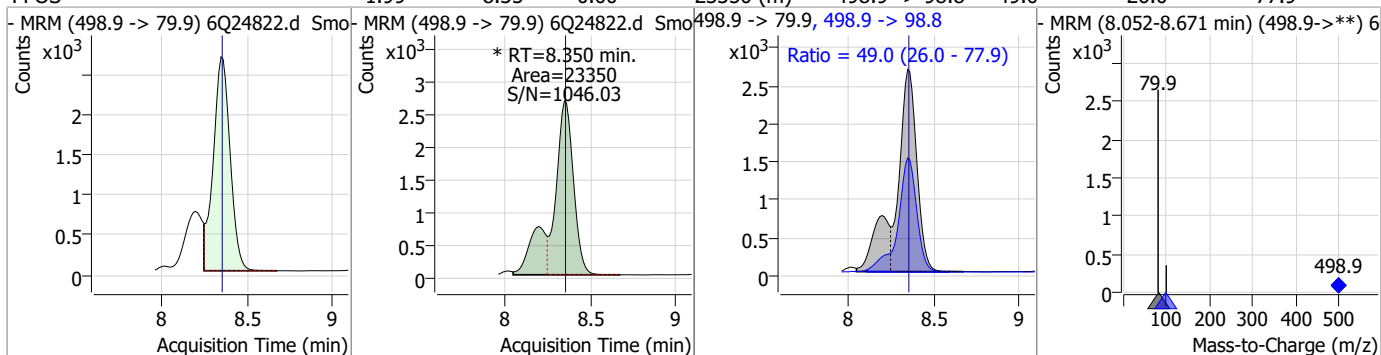
Perfluorinated Compounds by LC/MS/MS



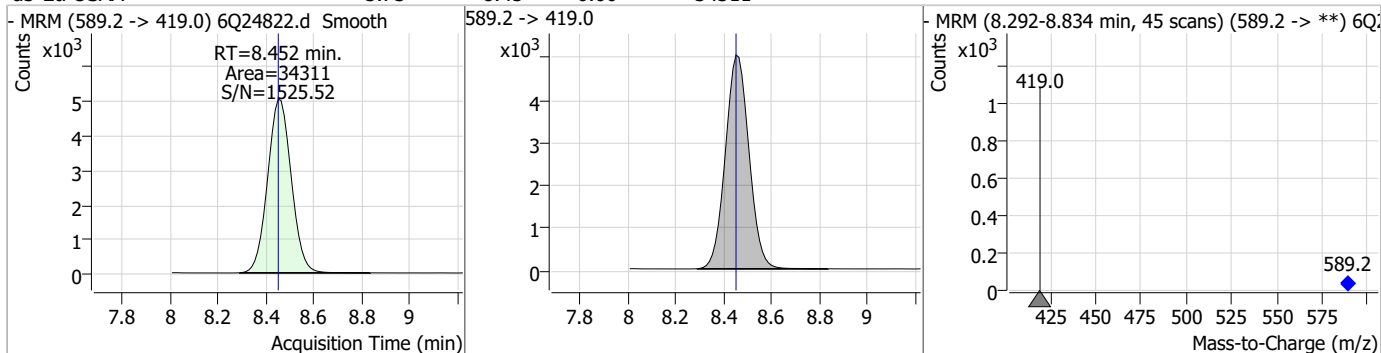
7.7.12
7

Perfluorinated Compounds by LC/MS/MS

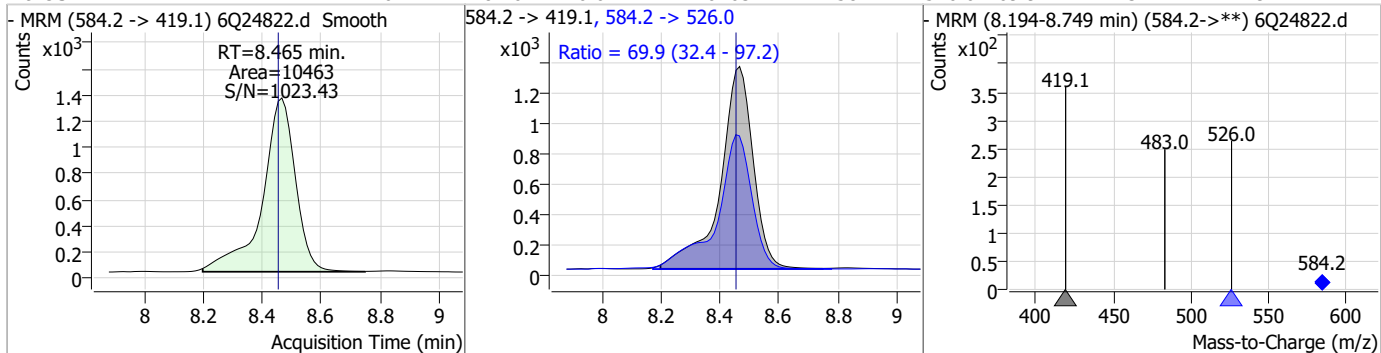
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.99	8.35	0.00	23350 (m)	498.9 -> 98.8	49.0	26.0	77.9



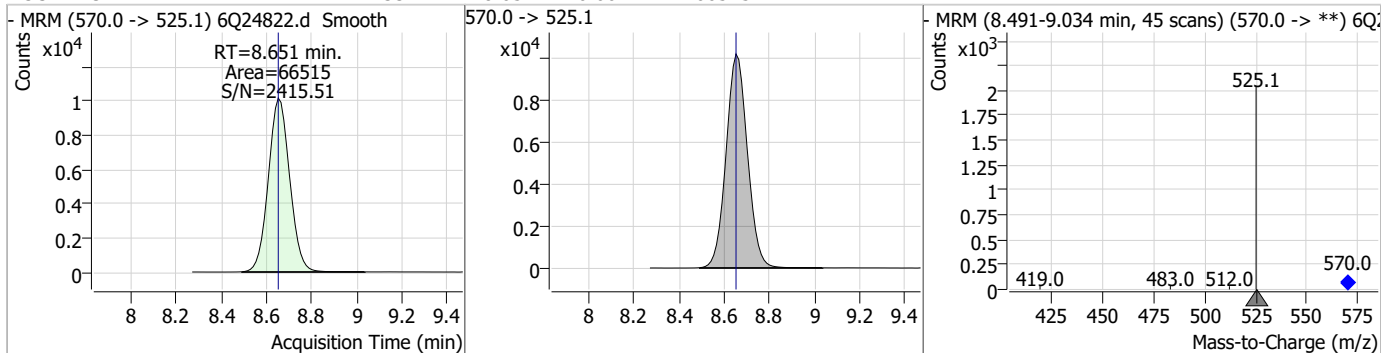
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.73	8.45	0.00	34311	589.2 -> 419.0	69.9	32.4	97.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.02	8.46	0.01	10463	584.2 -> 419.1	69.9	32.4	97.2

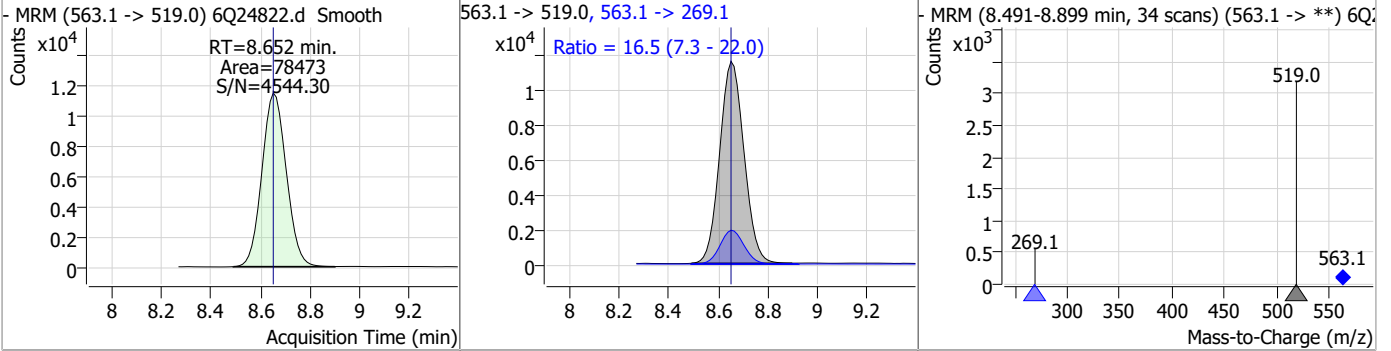


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.33	8.65	0.00	66515	570.0 -> 525.1	69.9	32.4	97.2

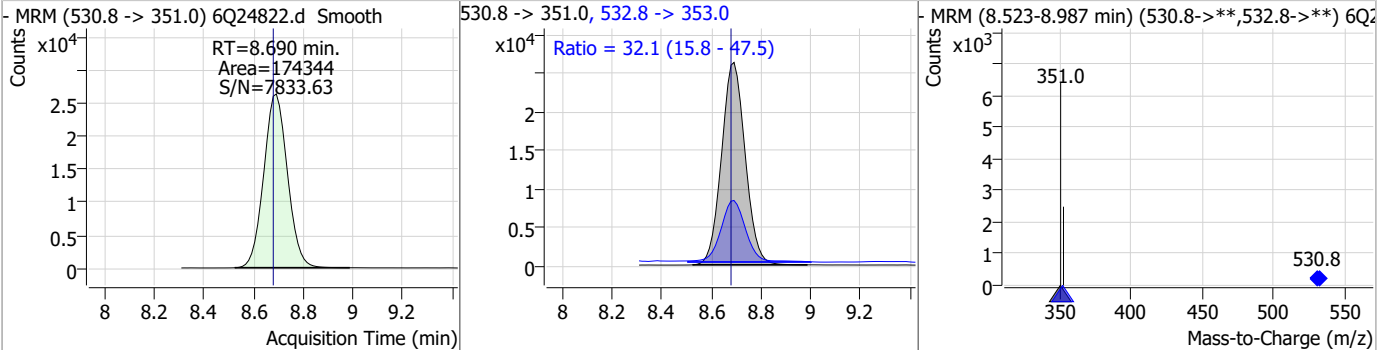


Perfluorinated Compounds by LC/MS/MS

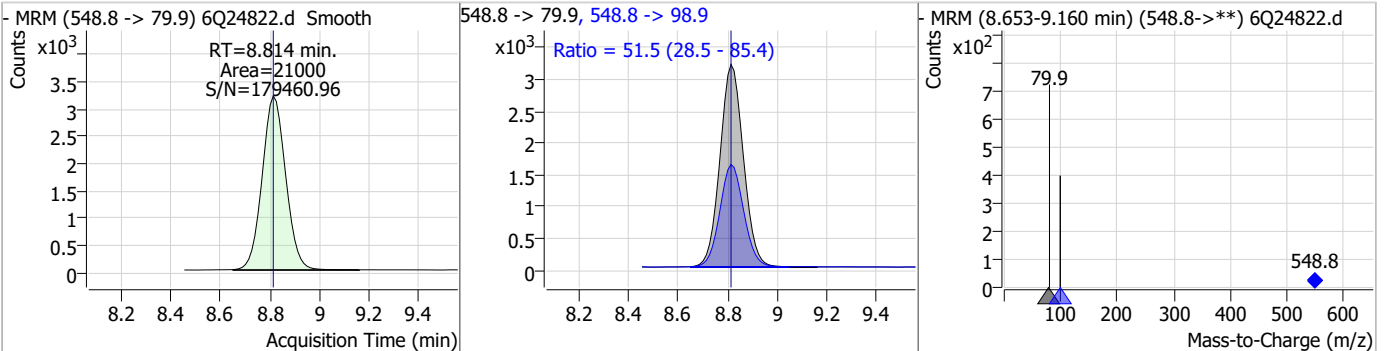
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.03	8.65	0.00	78473	563.1 -> 269.1	16.5	7.3	22.0



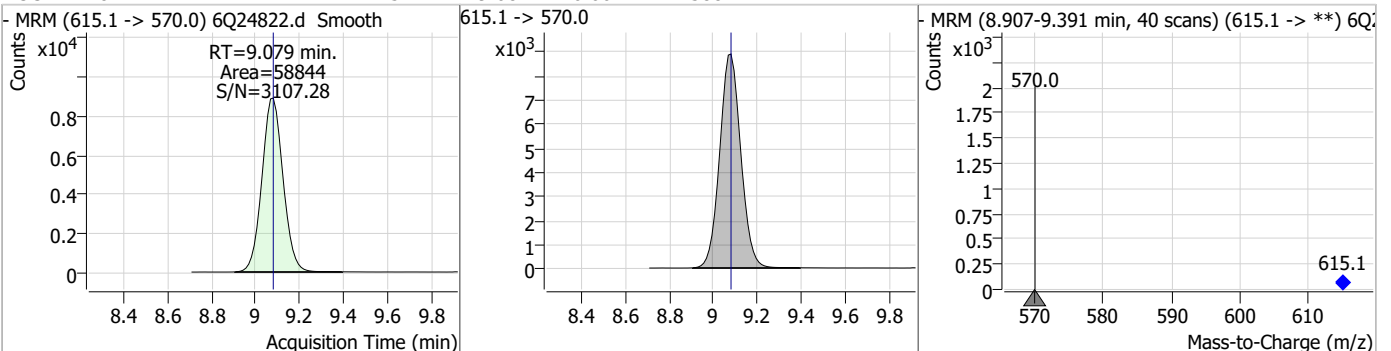
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	4.18	8.69	0.01	174344	532.8 -> 353.0	32.1	15.8	47.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.08	8.81	0.00	21000	548.8 -> 98.9	51.5	28.5	85.4

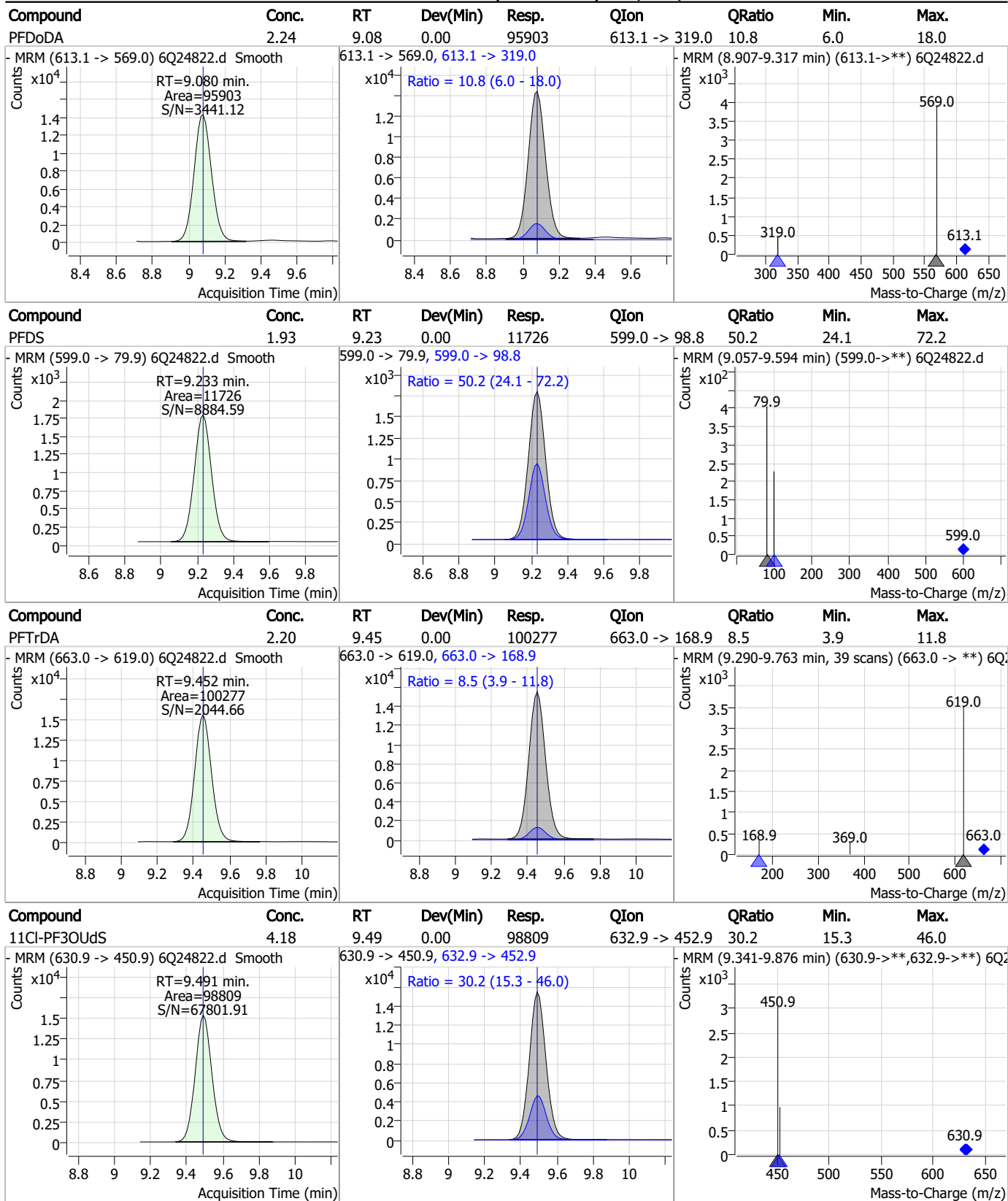


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.25	9.08	0.00	58844	615.1 -> 570.0			



7.7.12 7

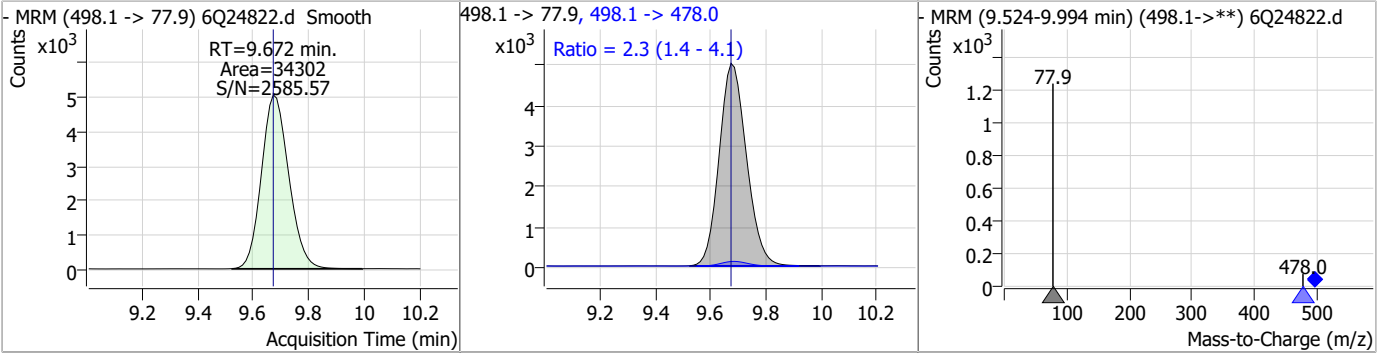
Perfluorinated Compounds by LC/MS/MS



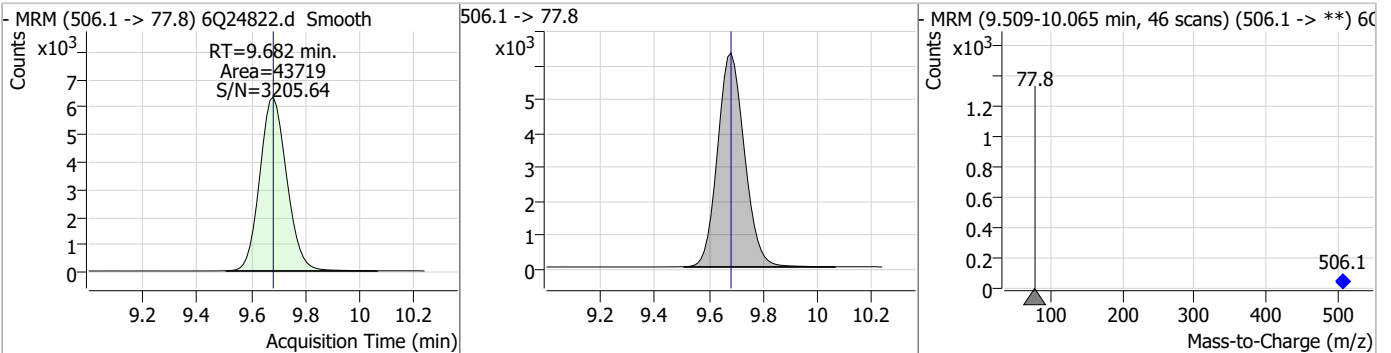
7.7.12
7

Perfluorinated Compounds by LC/MS/MS

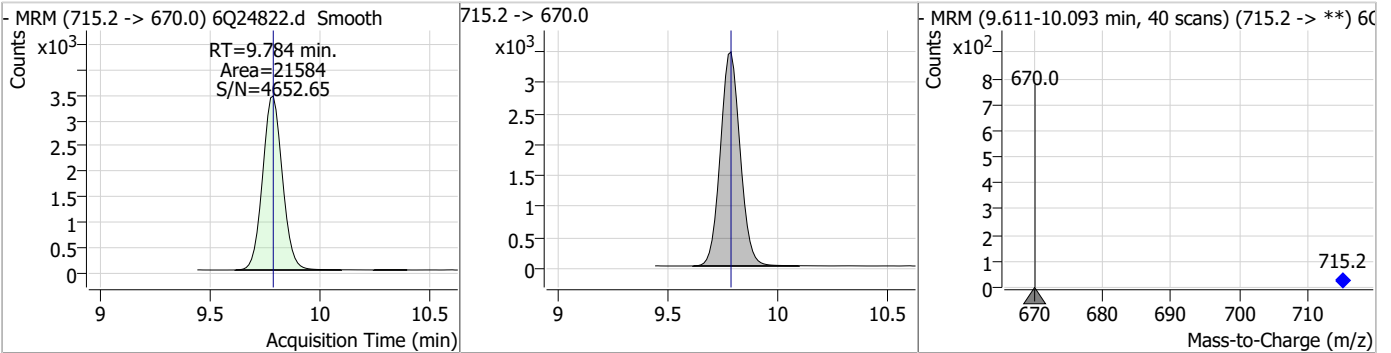
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.27	9.67	0.00	34302	498.1 -> 478.0	2.3	1.4	4.1



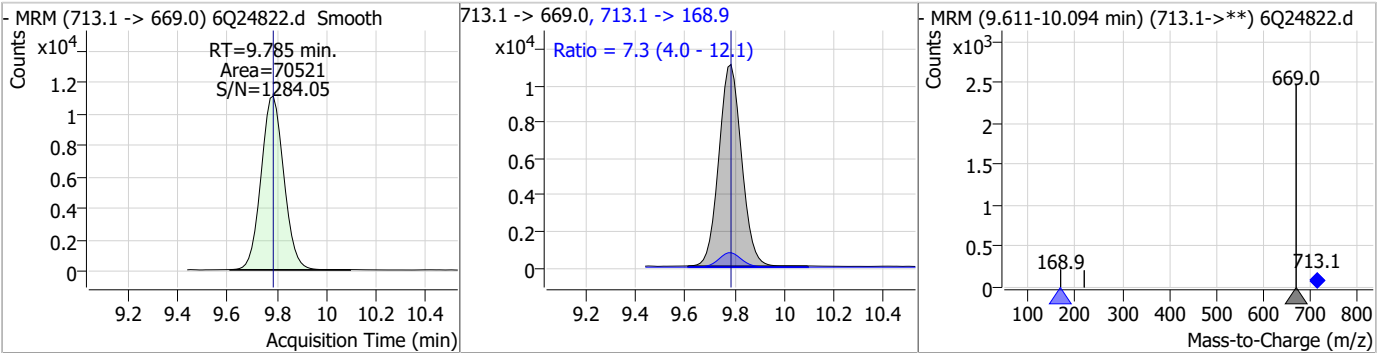
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.59	9.68	0.00	43719	506.1 -> 77.8	7.3	4.0	12.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.15	9.78	0.00	21584	715.2 -> 670.0	7.3	4.0	12.1



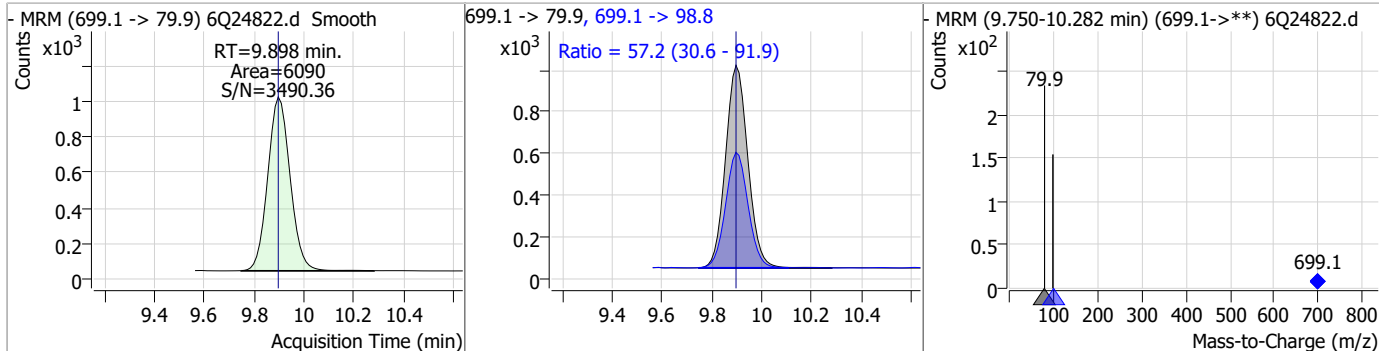
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.44	9.78	0.00	70521	713.1 -> 168.9	7.3	4.0	12.1



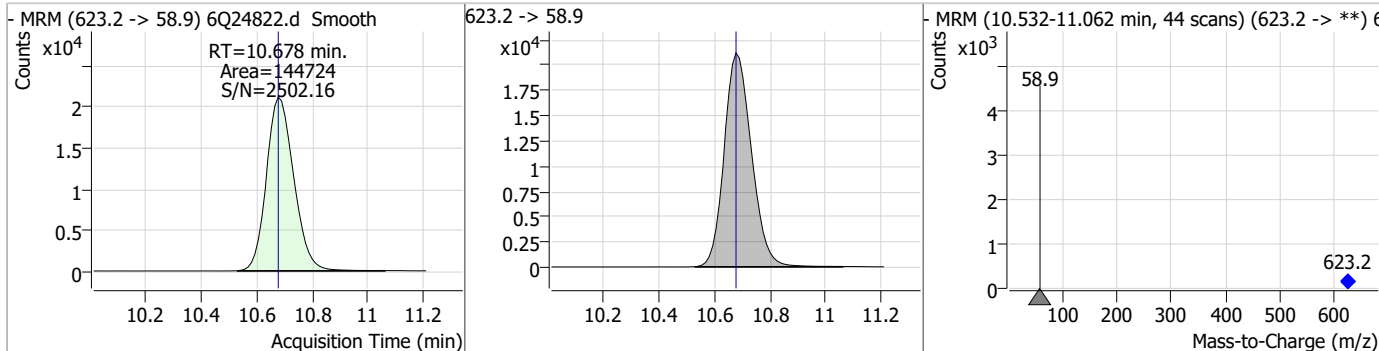
7.7.12 7

Perfluorinated Compounds by LC/MS/MS

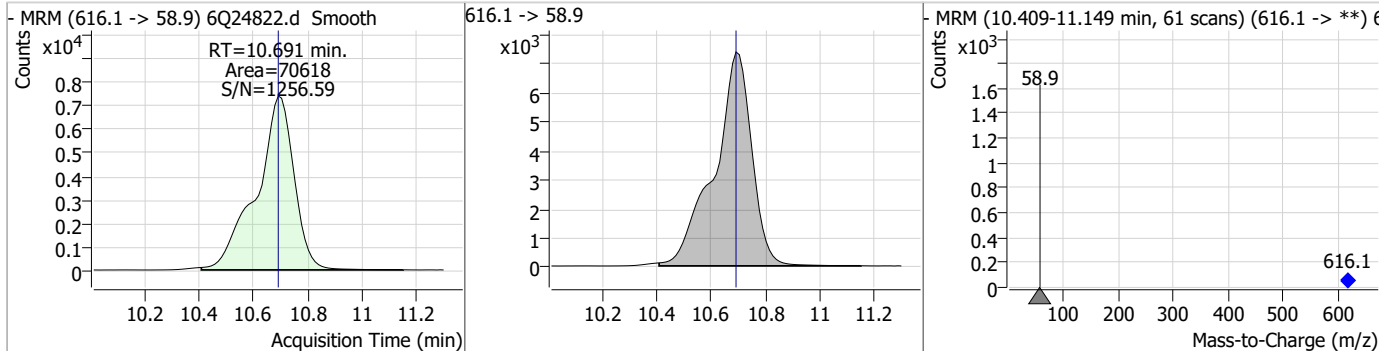
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.04	9.90	0.00	6090	699.1 -> 98.8	57.2	30.6	91.9



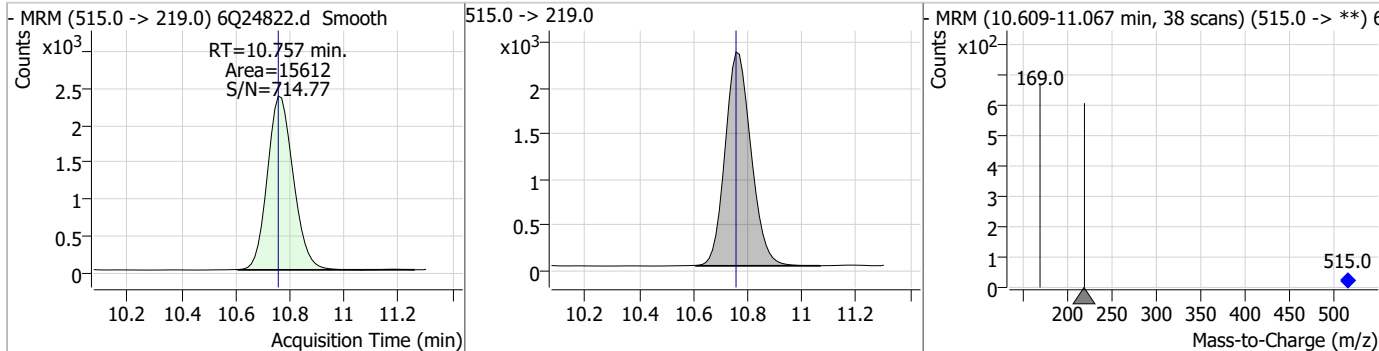
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.42	10.68	0.00	144724				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.37	10.69	0.00	70618				



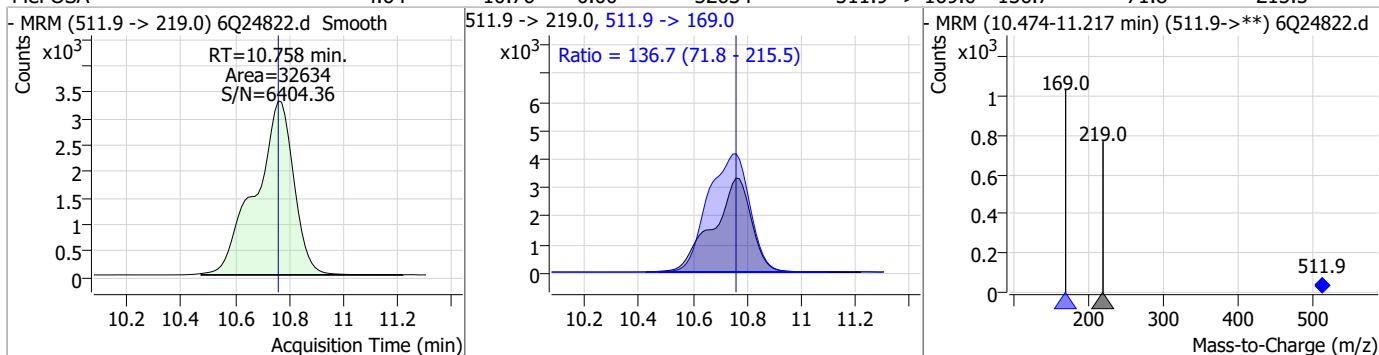
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.56	10.76	0.00	15612				



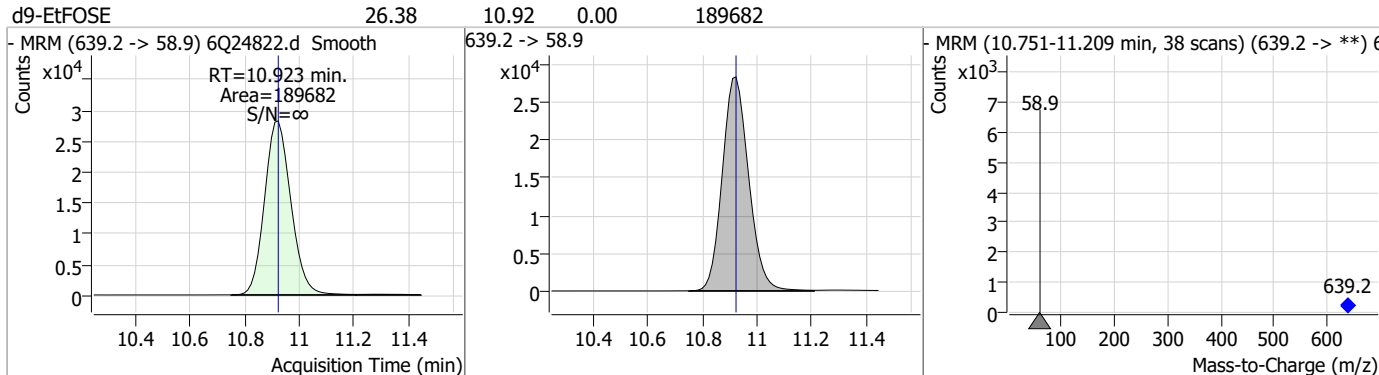
7.7.12
7

Perfluorinated Compounds by LC/MS/MS

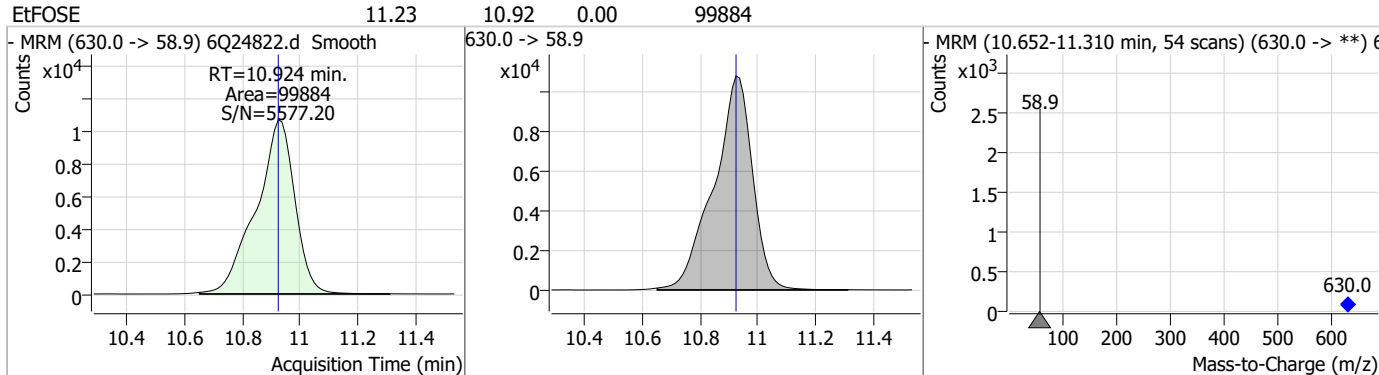
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	4.64	10.76	0.00	32634	511.9 -> 169.0	136.7	71.8	215.5



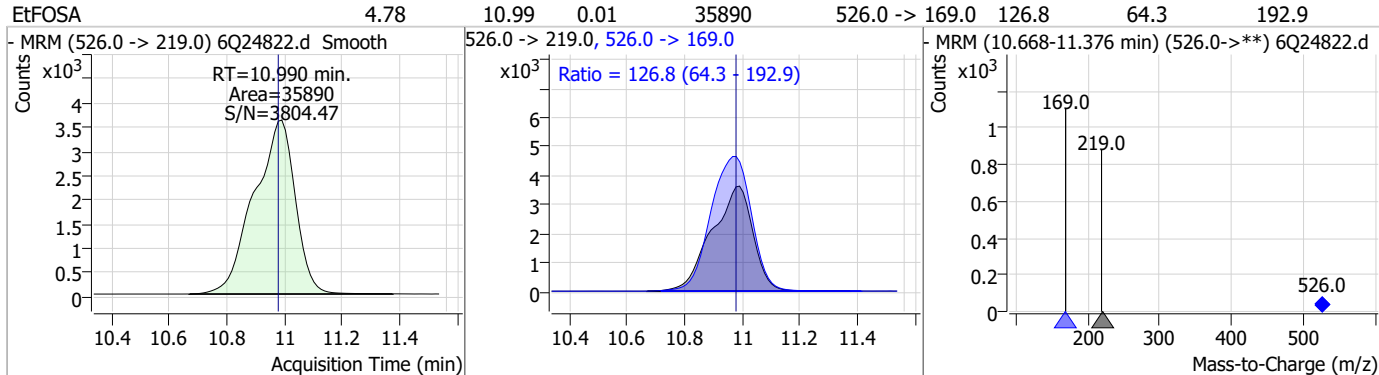
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.38	10.92	0.00	189682				



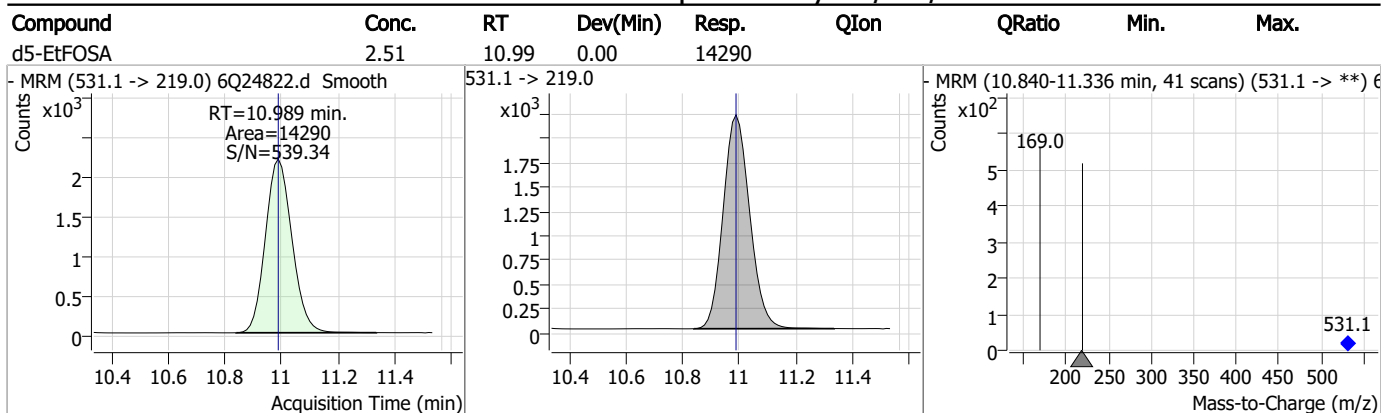
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.23	10.92	0.00	99884				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	4.78	10.99	0.01	35890	526.0 -> 169.0	126.8	64.3	192.9



Perfluorinated Compounds by LC/MS/MS



7.7.12
7



Manual Integration Approval Summary

Sample Number: S6Q355-CC355 Method: EPA DRAFT 1633
Lab FileID: 6Q24822.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 23:13 Supervisor approved: 09/22/23 13:16 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.7.12.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24823.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/21/2023 11:27:50 PM
 Sample Name : cc355-1.0LL
 Vial : P1-A2
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	324943	10.00 µg/L	-0.025
M5-PFPeA	4.422	268.3 -> 223.0	53539	5.00 µg/L	-0.012
M5-PFHxA	5.641	318.0 -> 273.0	121500	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	100344	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	126309	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	53894	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	52320	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	62434	1.25 µg/L	0.000
M2-PFDoDA	9.079	615.1 -> 570.0	58343	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	23339	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	44579	2.50 µg/L	-0.012
M3-PFBS	5.559	302.1 -> 79.9	37411	2.50 µg/L	-0.012
M3-PFHxS	7.301	402.1 -> 79.9	22284	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	20520	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	4597	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	6784	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	5789	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	38059	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	71759	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	32075	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	136070	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	185143	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	14610	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	14354	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	24787	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	131769	5.00 µg/L	-0.012
18O2-PFHxS	7.313	403.0 -> 83.9	15717	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	138582	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	47263	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	55746	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	88940	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	4597	5.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.1%		
13C2-6:2FTS	6.974	429.1 -> 80.9	6784	5.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.3%		
13C2-8:2FTS	7.998	529.1 -> 80.9	5789	4.90 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFDoDA	9.079	615.1 -> 570.0	58343	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C2-PFTeDA	9.784	715.2 -> 670.0	23339	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C3-PFBS	5.559	302.1 -> 79.9	37411	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C3-PFHxS	7.301	402.1 -> 79.9	22284	2.62 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 = 104.7%	
13C4-PFBA	2.985	216.8 -> 171.9	324943	10.11 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C4-PFHpA	6.569	367.1 -> 322.0	100344	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C5-PFHxA	5.641	318.0 -> 273.0	121500	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C5-PFPeA	4.422	268.3 -> 223.0	53539	5.30 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C6-PFDA	8.198	519.1 -> 474.1	52320	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C7-PFUnDA	8.651	570.0 -> 525.1	62434	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-FOSA	9.670	506.1 -> 77.8	44579	2.74 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.5%	
13C8-PFOA	7.198	421.1 -> 376.0	126309	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-PFOS	8.348	507.1 -> 79.9	20520	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.4%	
13C9-PFNA	7.717	472.1 -> 427.0	53894	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.7%	
d3-MeFOSAA	8.256	573.2 -> 419.0	38059	5.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.5%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	71759	10.88 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.8%	
d3-MeFOSA	10.769	515.0 -> 219.0	14354	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
d5-EtFOSAA	8.452	589.2 -> 419.0	32075	5.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.9%	
d7-MeFOSE	10.678	623.2 -> 58.9	136070	25.72 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
d9-EtFOSE	10.923	639.2 -> 58.9	185143	26.67 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.7%	
d5-EtFOSA	10.989	531.1 -> 219.0	14610	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	5337	0.72 µg/L	98
		327.1 -> 80.9	2087		
6:2FTS	6.974	427.1 -> 407.0	4621	0.74 µg/L	99
		427.1 -> 80.9	1779		
8:2FTS	7.999	527.1 -> 507.0	2953	0.80 µg/L	93
		527.1 -> 80.8	1076		
EtFOSAA	8.452	584.2 -> 419.1	1016	0.21 µg/L	m 91
		584.2 -> 526.0	584		
FOSA	9.672	498.1 -> 77.9	2772	0.18 µg/L	97
		498.1 -> 478.0	100		
MeFOSAA	8.257	570.1 -> 419.0	1789	0.21 µg/L	m 88
		570.1 -> 483.0	327		
PFBA	2.993	212.8 -> 168.9	7944	0.79 µg/L	100
PFBS	5.560	298.7 -> 79.9	3577	0.20 µg/L	96
		298.7 -> 98.8	1213		
PFDA	8.198	512.9 -> 469.0	8851	0.19 µg/L	98
		512.9 -> 219.0	1562		
PFDODA	9.080	613.1 -> 569.0	8214	0.19 µg/L	98
		613.1 -> 319.0	1038		
PFDS	9.233	599.0 -> 79.9	1184	0.20 µg/L	98

7.7.13
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	586			
PFHpA	6.569	363.1 -> 319.0	9593	0.19	µg/L	99
		363.1 -> 169.0	1515			
PFHpS	7.856	449.0 -> 79.9	1789	0.18	µg/L	96
		449.0 -> 98.9	891			
PFHxA	5.644	313.0 -> 269.0	8427	0.20	µg/L	98
		313.0 -> 118.9	350			
PFHxS	7.302	398.7 -> 79.9	2931	0.20	µg/L	m 95
		398.7 -> 98.9	1287			
PFNA	7.730	463.0 -> 419.0	6446	0.19	µg/L	97
		463.0 -> 219.0	1657			
PFNS	8.814	548.8 -> 79.9	1729	0.17	µg/L	98
		548.8 -> 98.9	1005			
PFOA	7.200	413.0 -> 369.0	13326	0.23	µg/L	100
		413.0 -> 169.0	2316			
PFOS	8.350	498.9 -> 79.9	2093	0.18	µg/L	m 94
		498.9 -> 98.8	1002			
PFPeA	4.424	263.0 -> 219.0	10326	0.39	µg/L	100
PFPeS	6.620	349.1 -> 79.9	2387	0.20	µg/L	90
		349.1 -> 98.9	1005			
PFTeDA	9.785	713.1 -> 669.0	5709	0.18	µg/L	96
		713.1 -> 168.9	540			
PFTrDA	9.452	663.0 -> 619.0	8190	0.18	µg/L	93
		663.0 -> 168.9	829			
PFUnDA	8.652	563.1 -> 519.0	7330	0.20	µg/L	99
		563.1 -> 269.1	1031			
11CI-PF3OUdS	9.491	630.9 -> 450.9	8146	0.35	µg/L	96
		632.9 -> 452.9	2672			
9CI-PF3ONS	8.690	530.8 -> 351.0	14611	0.36	µg/L	98
		532.8 -> 353.0	4415			
ADONA	6.817	376.9 -> 250.9	36805	0.35	µg/L	100
		376.9 -> 84.8	9750			
HFPO-DA	6.020	284.9 -> 168.9	2582	0.38	µg/L	97
		284.9 -> 184.9	396			
3:3FTCA	3.858	241.0 -> 177.0	1615	0.92	µg/L	98
		241.0 -> 117.0	141			
5:3FTCA	6.283	341.0 -> 237.1	34142	4.61	µg/L	97
		341.0 -> 217.0	23590			
7:3FTCA	7.669	441.0 -> 316.9	20054	4.64	µg/L	89
		441.0 -> 336.9	41917			
EtFOSA	10.990	526.0 -> 219.0	3077	0.40	µg/L	97
		526.0 -> 169.0	3848			
EtFOSE	10.924	630.0 -> 58.9	8577	0.99	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	2690	0.42	µg/L	97
		511.9 -> 169.0	3772			
MeFOSE	10.691	616.1 -> 58.9	5607	0.96	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	517	0.17	µg/L	86
		699.1 -> 98.8	261			
NFDHA	5.524	295.0 -> 201.0	1933	0.39	µg/L	98
		295.0 -> 84.9	474			
PFMBA	4.850	279.0 -> 85.1	7208	0.39	µg/L	100
PFMPA	3.551	229.0 -> 84.9	5171	0.37	µg/L	100
PFEESA	6.112	314.8 -> 134.9	18848	0.34	µg/L	100
		314.8 -> 82.9	633			

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

7.7.13
7

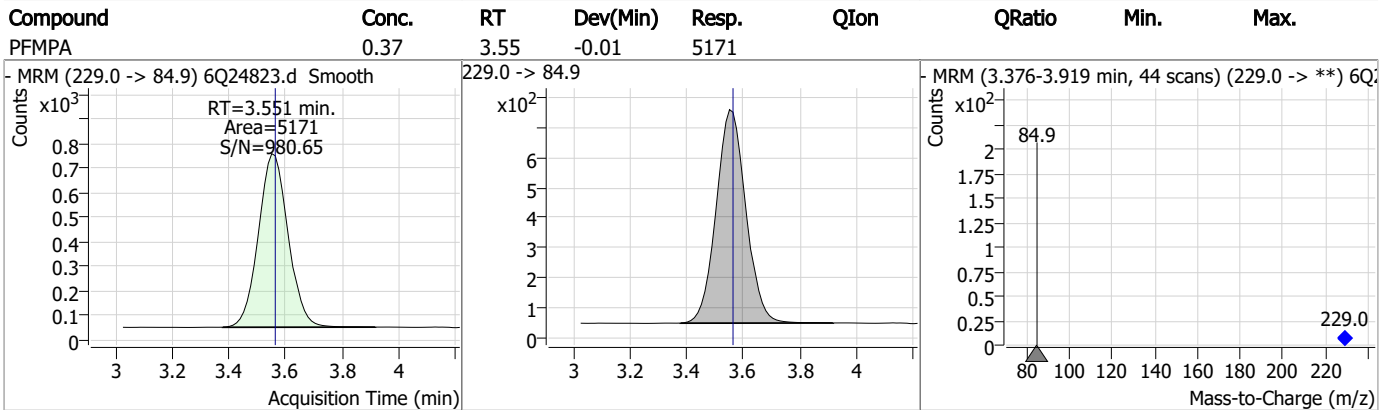
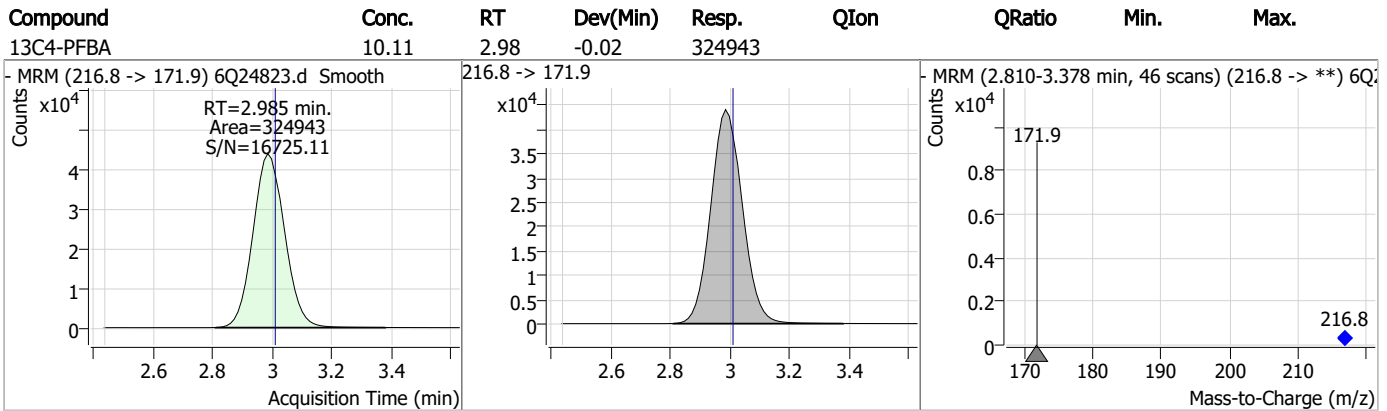
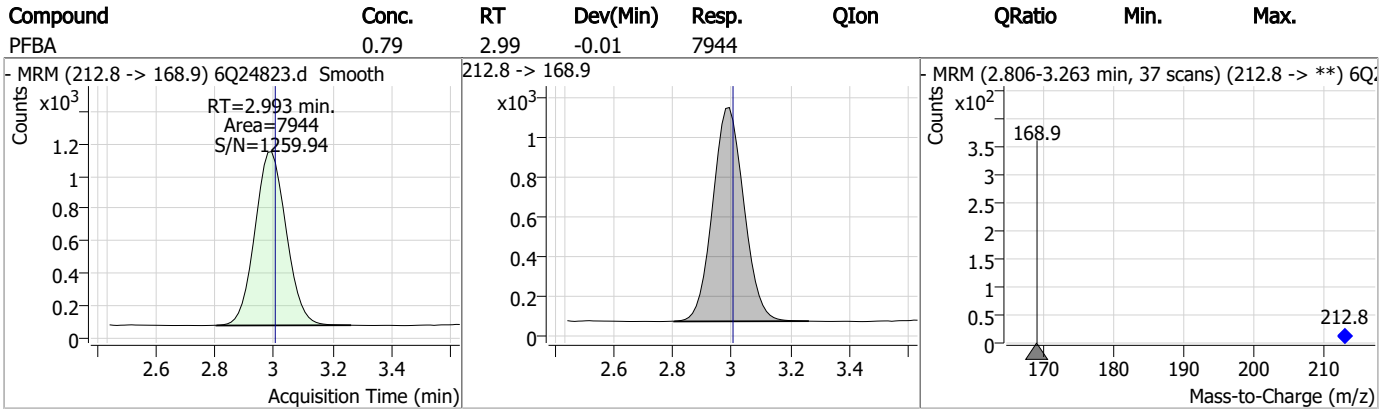
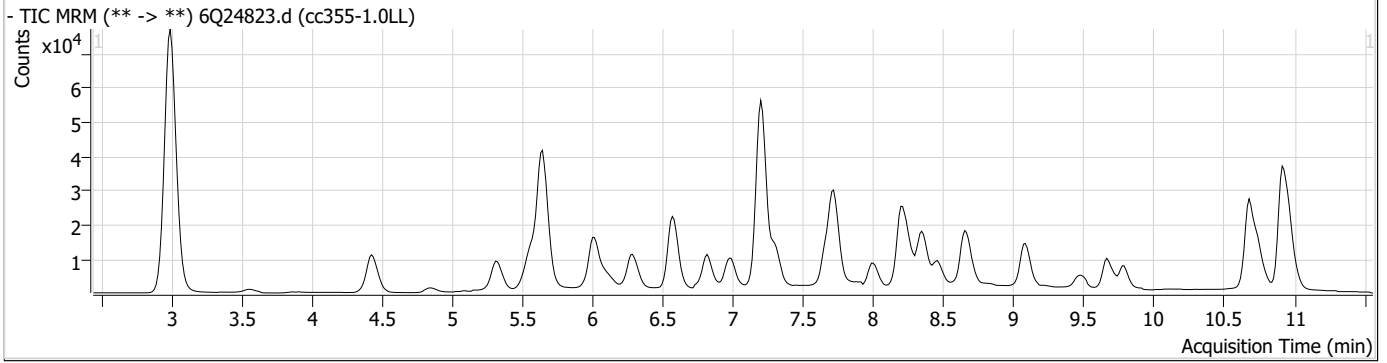
Perfluorinated Compounds by LC/MS/MS

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

7.7.13

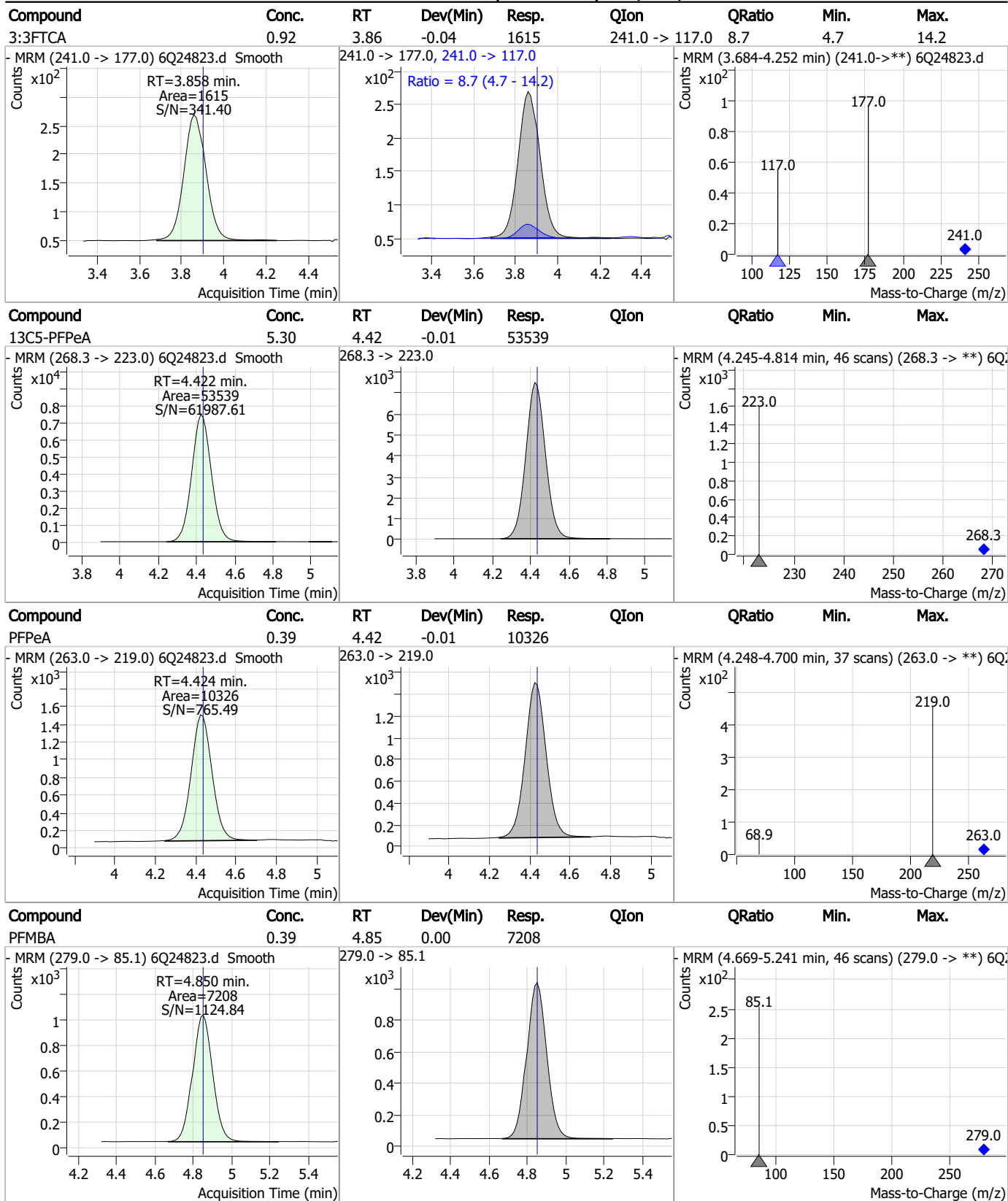
7

Perfluorinated Compounds by LC/MS/MS



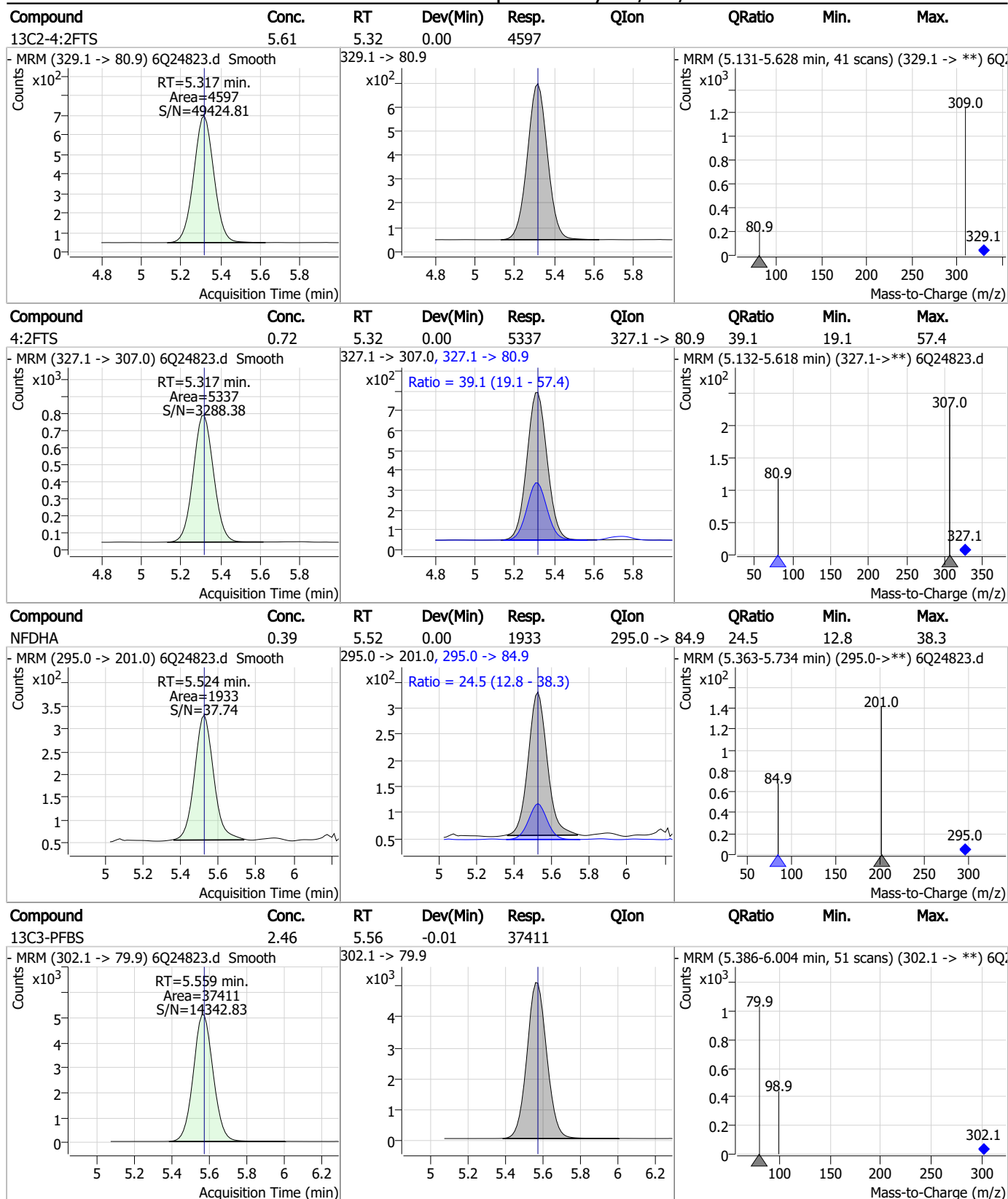
7.7.13
7

Perfluorinated Compounds by LC/MS/MS



7.7.13
7

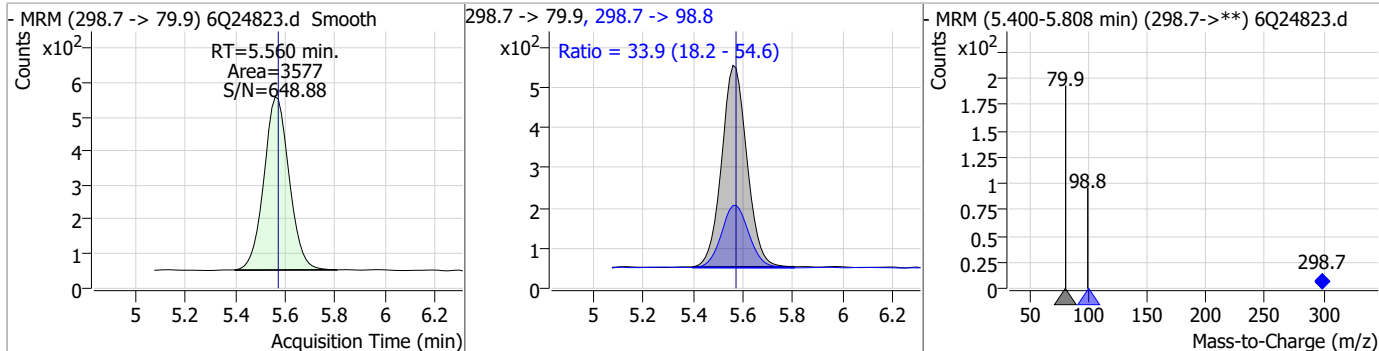
Perfluorinated Compounds by LC/MS/MS



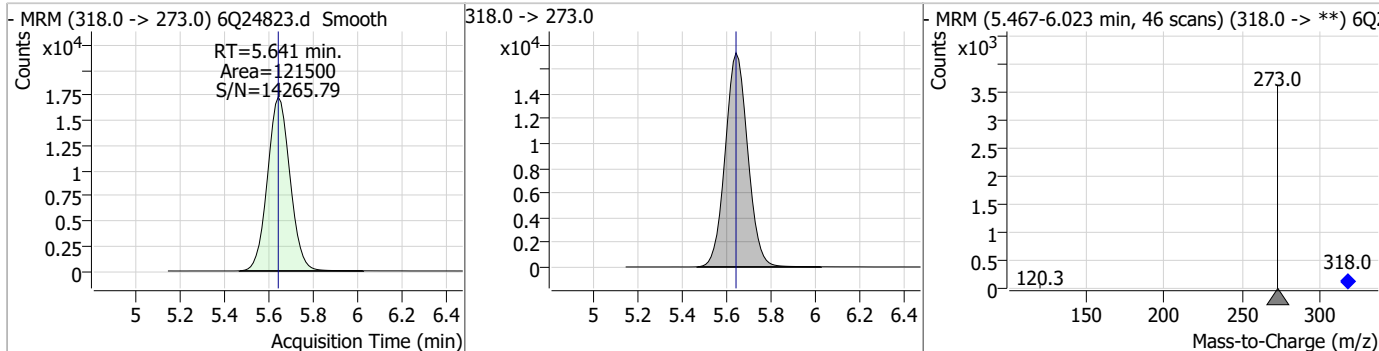
7.7.13
7

Perfluorinated Compounds by LC/MS/MS

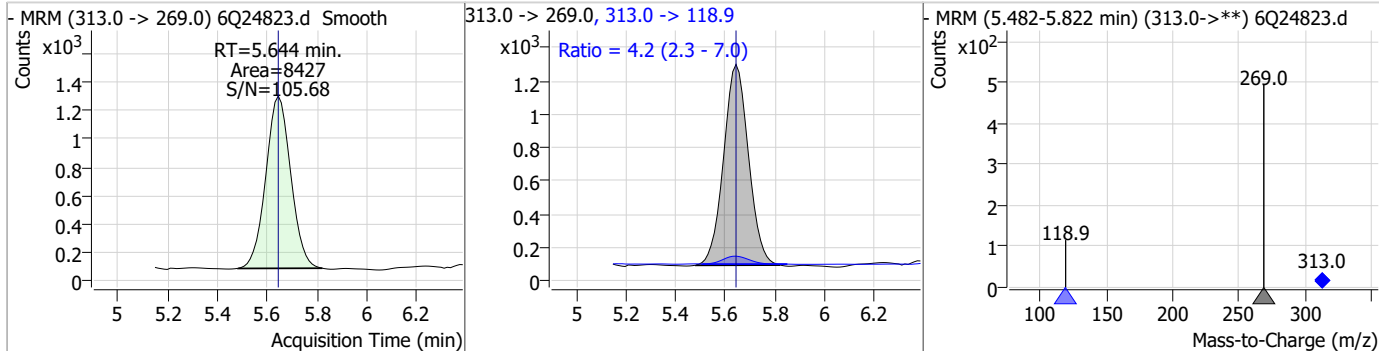
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.20	5.56	-0.01	3577	298.7 -> 98.8	33.9	18.2	54.6



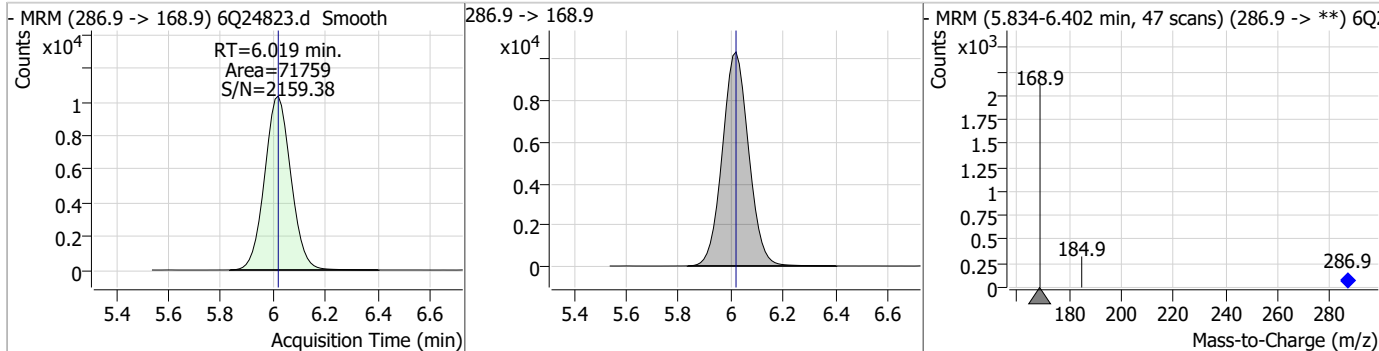
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.59	5.64	0.00	121500				



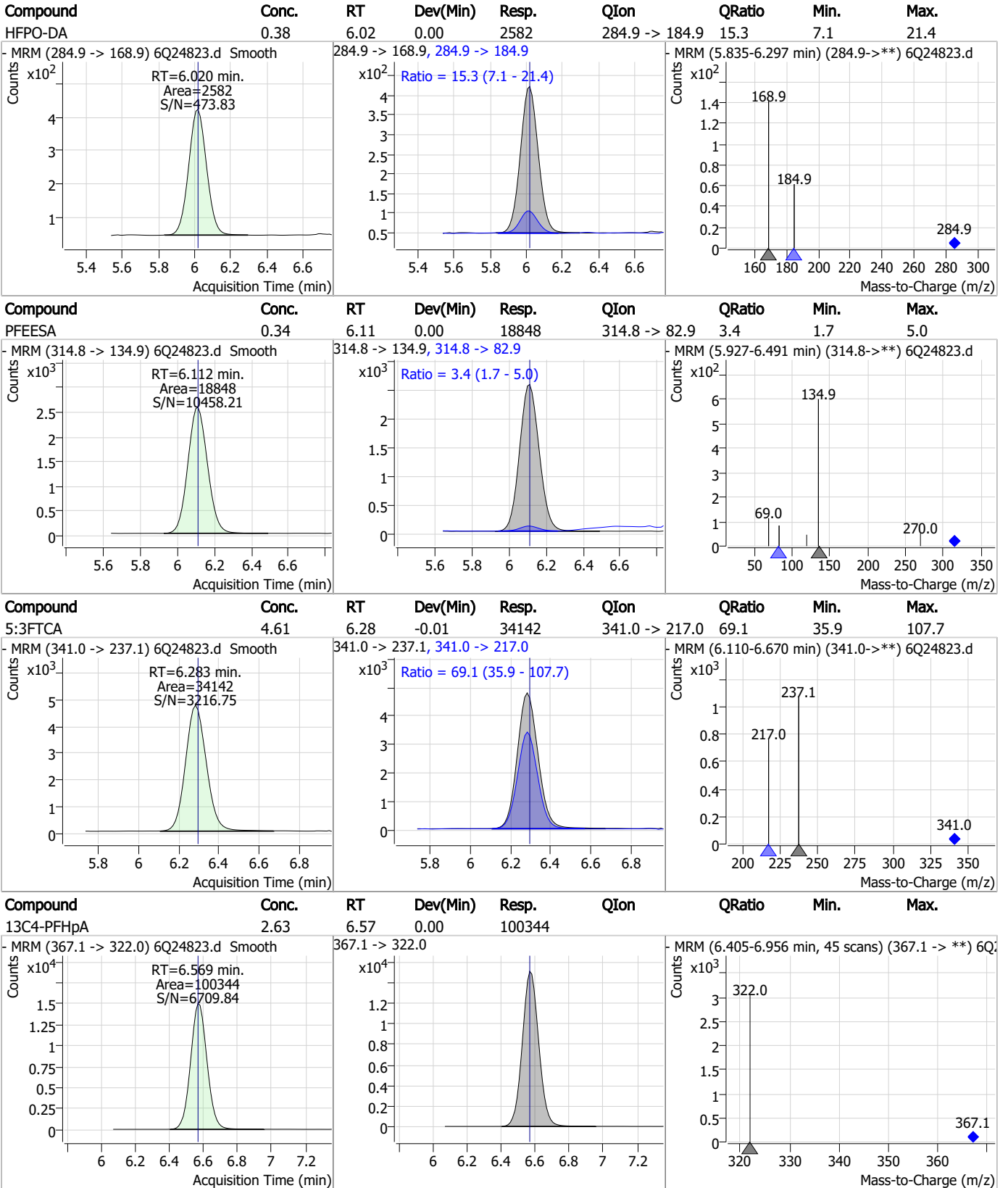
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.20	5.64	0.00	8427	313.0 -> 118.9	4.2	2.3	7.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.88	6.02	0.00	71759				



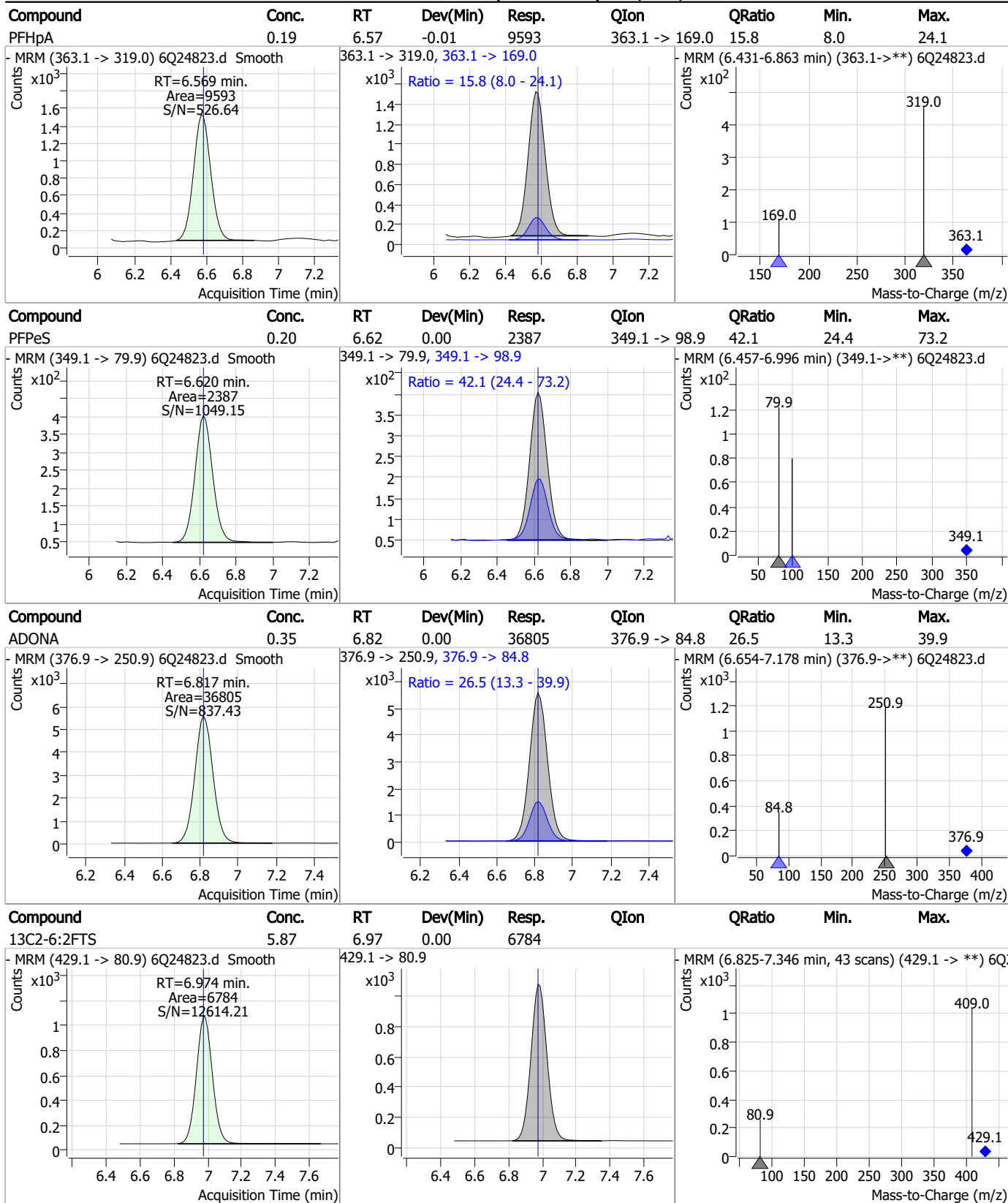
Perfluorinated Compounds by LC/MS/MS



7.7.13 7

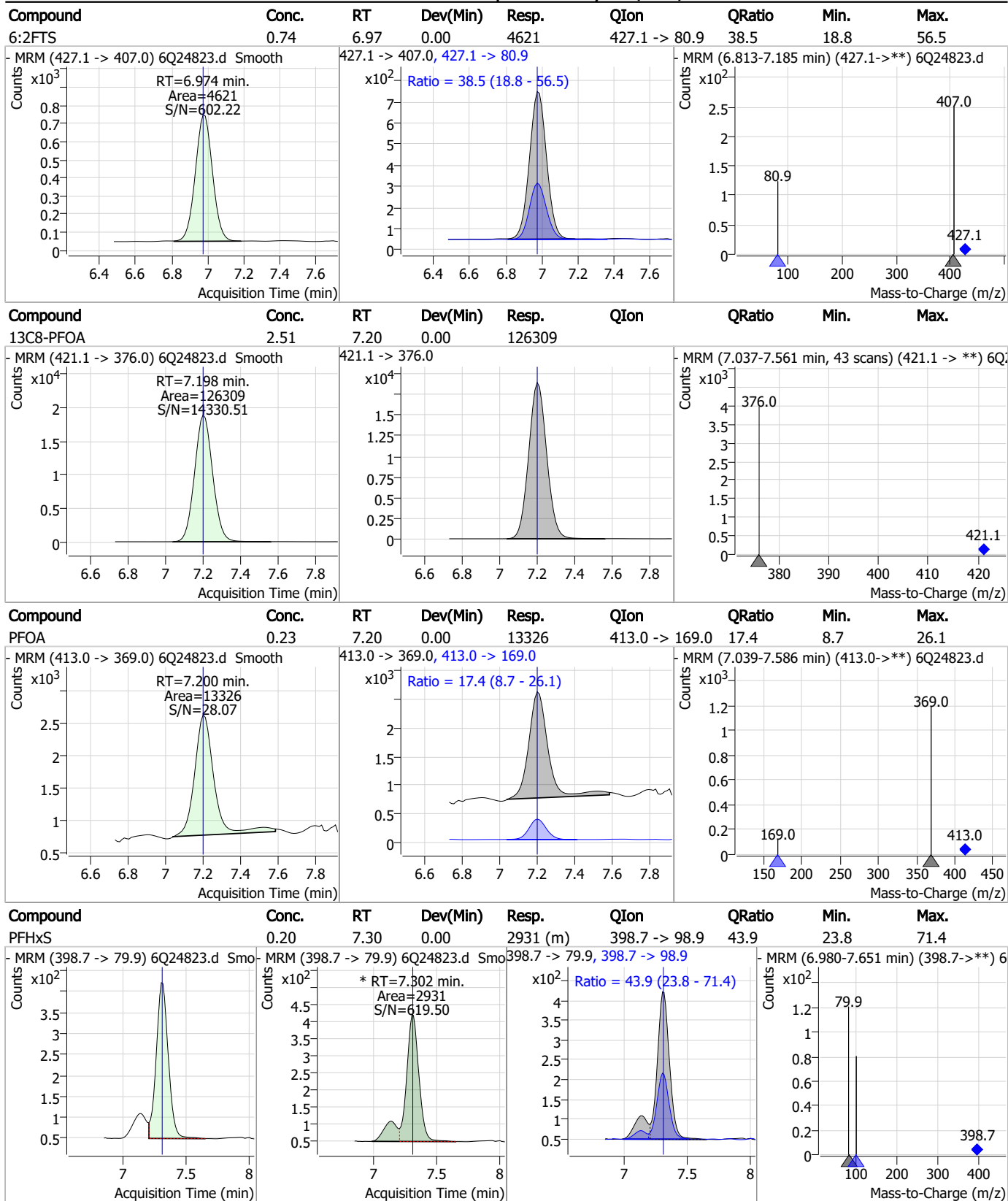


Perfluorinated Compounds by LC/MS/MS



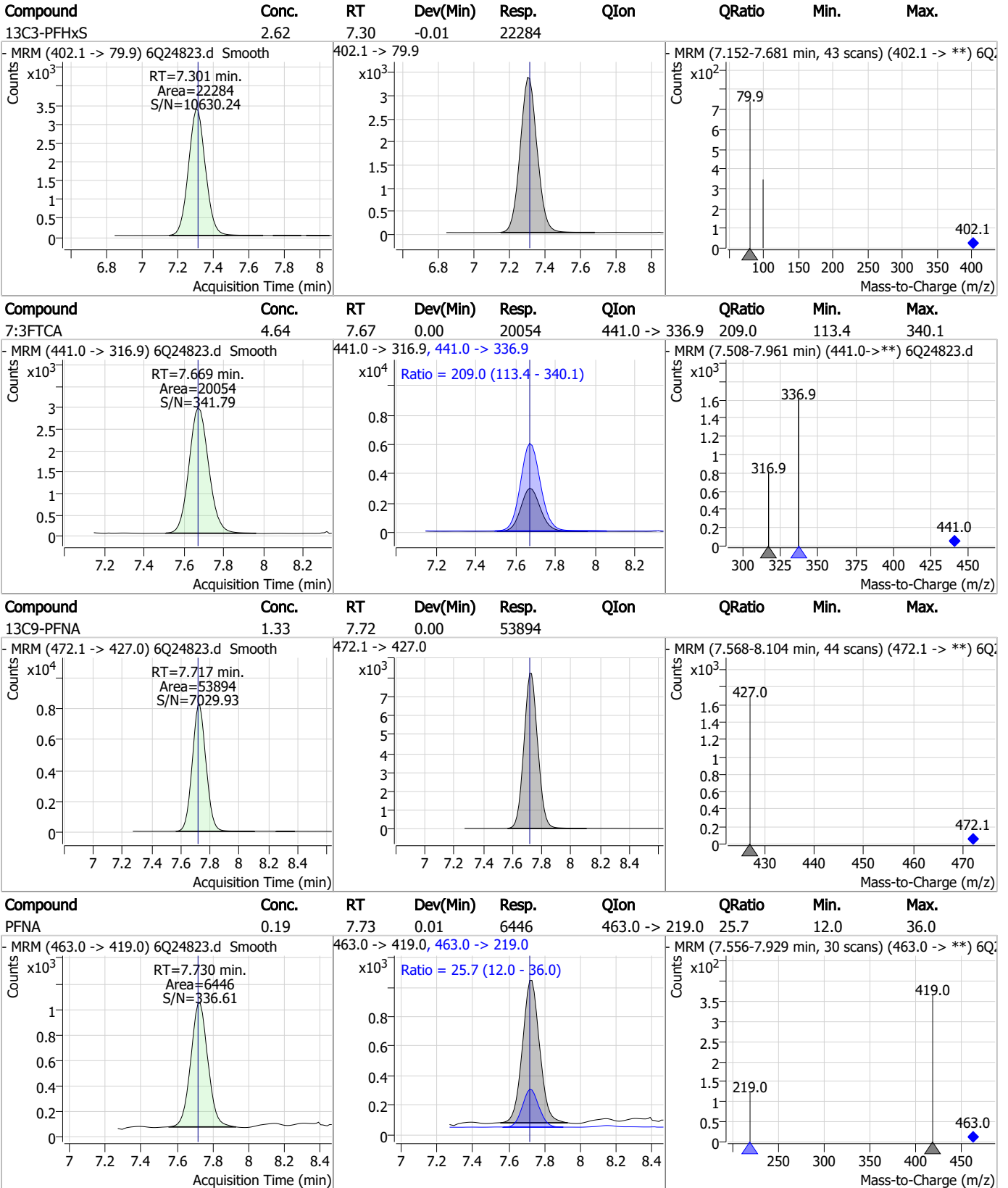
7.7.13
7

Perfluorinated Compounds by LC/MS/MS



7.7.13
7

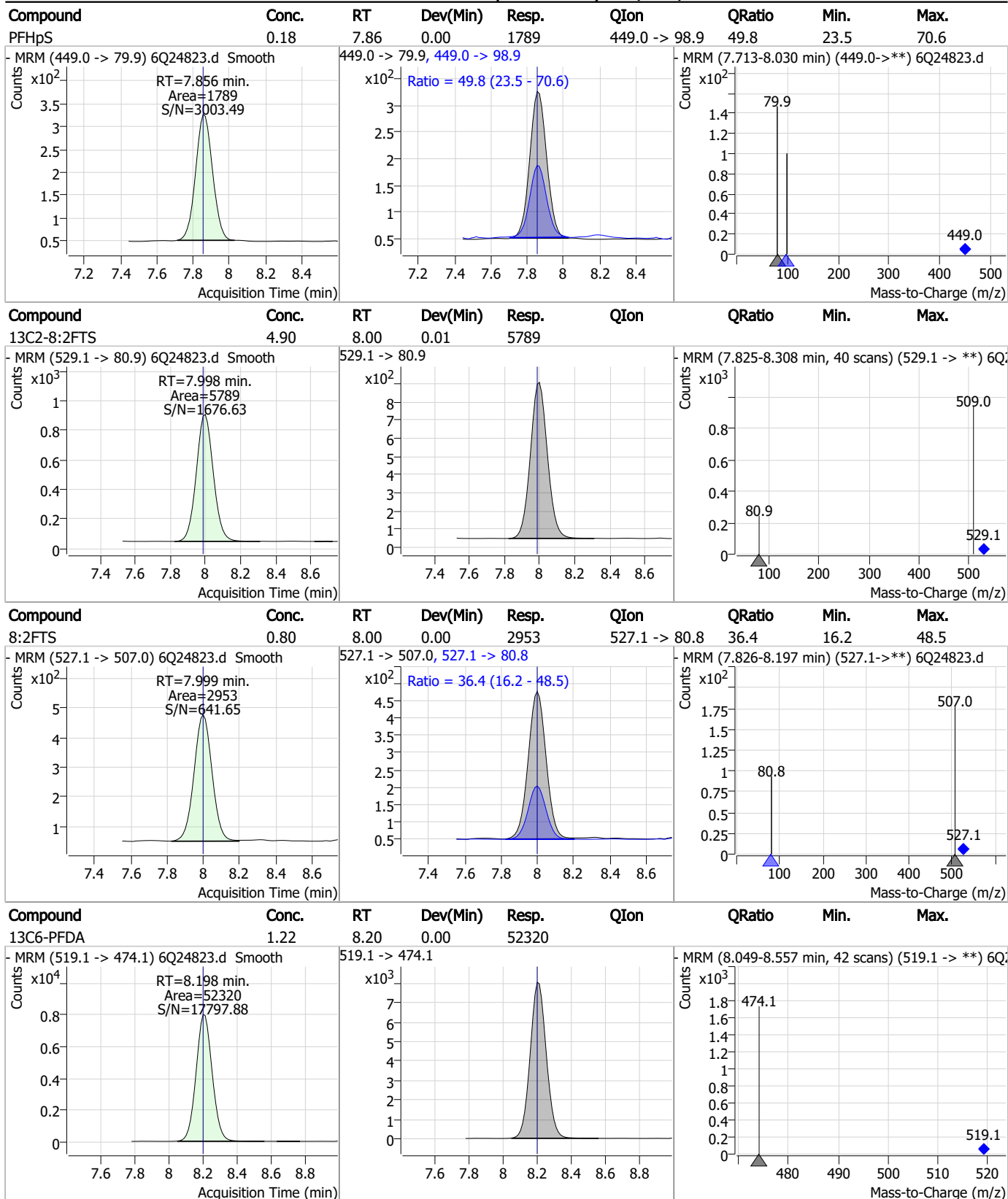
Perfluorinated Compounds by LC/MS/MS



7.7.13
7



Perfluorinated Compounds by LC/MS/MS

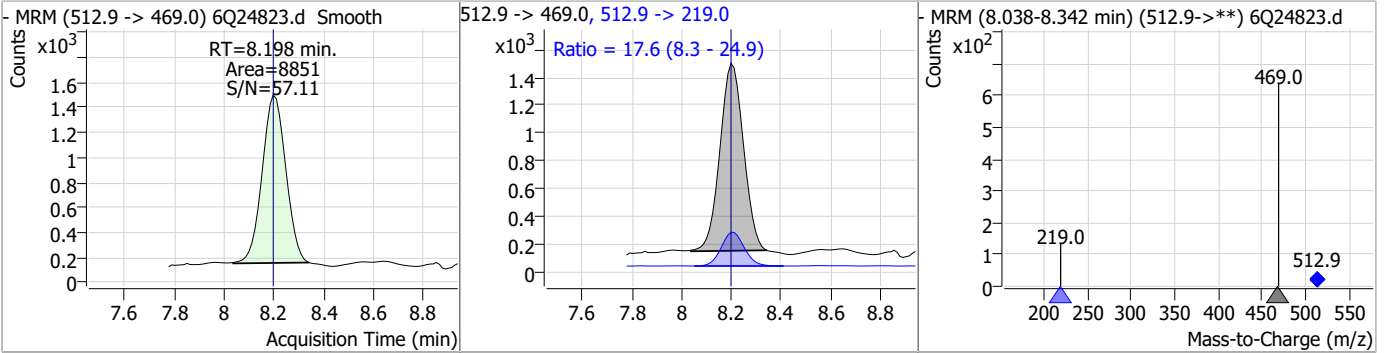


7.7.13

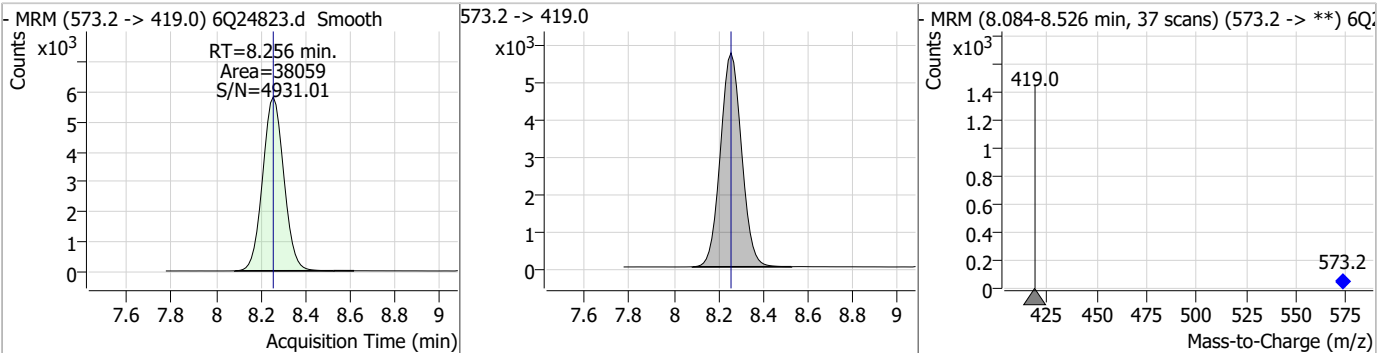
7

Perfluorinated Compounds by LC/MS/MS

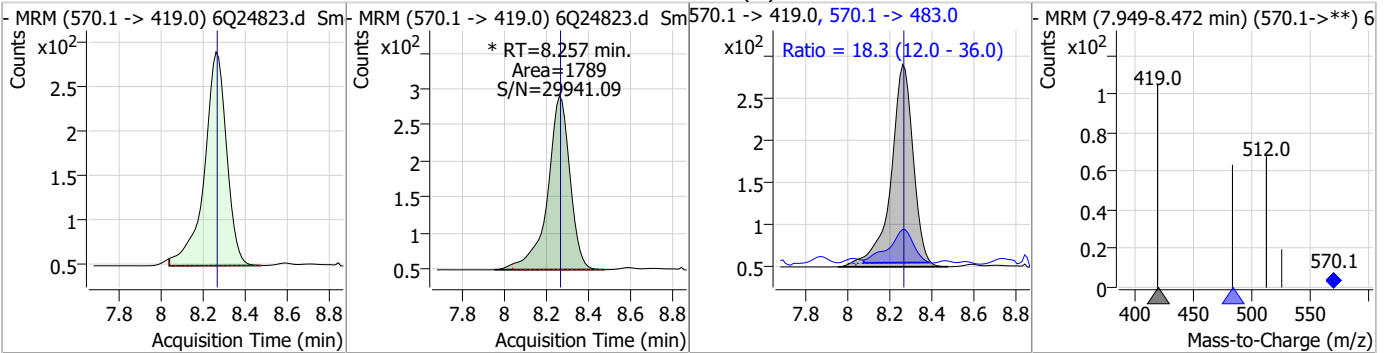
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.19	8.20	0.00	8851	512.9 -> 219.0	17.6	8.3	24.9



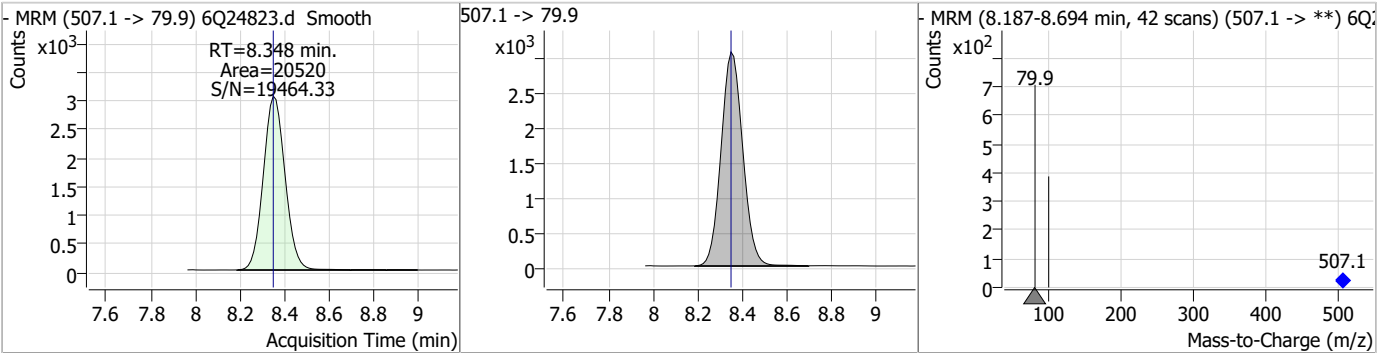
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.62	8.26	0.00	38059				



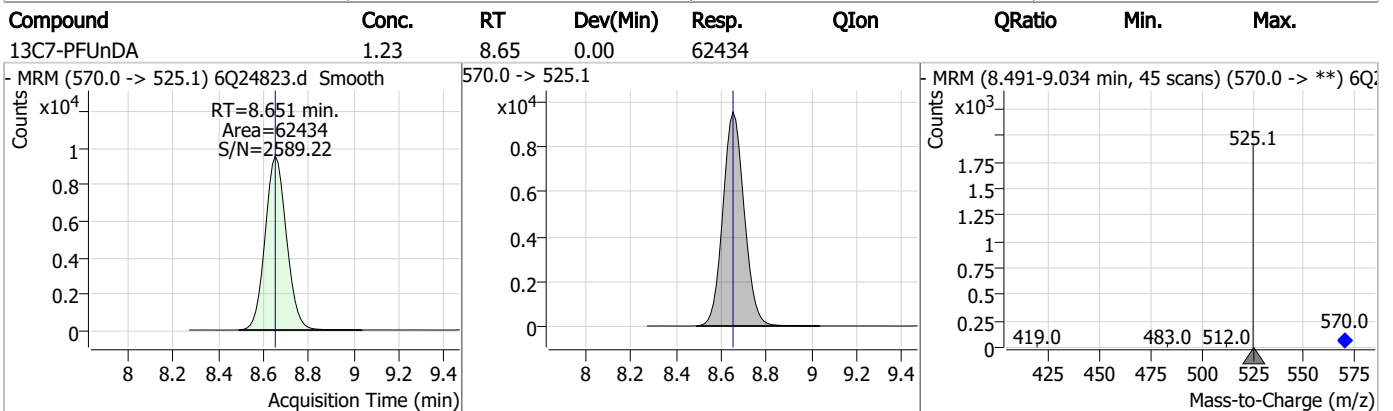
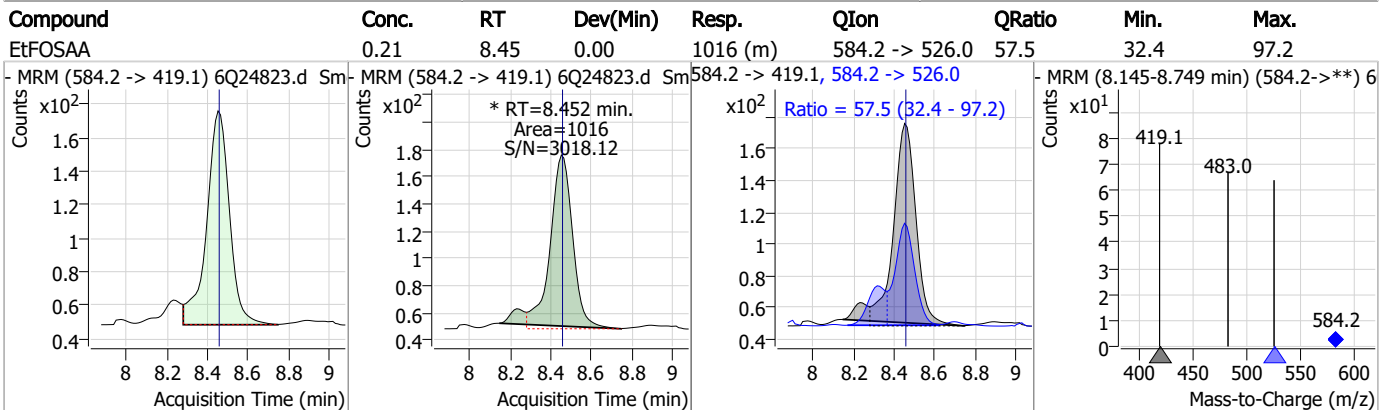
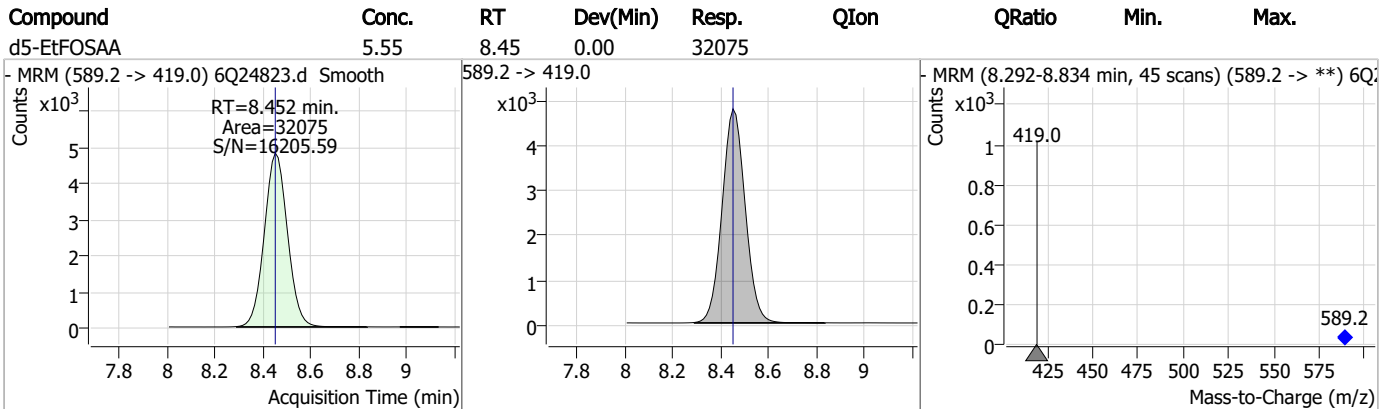
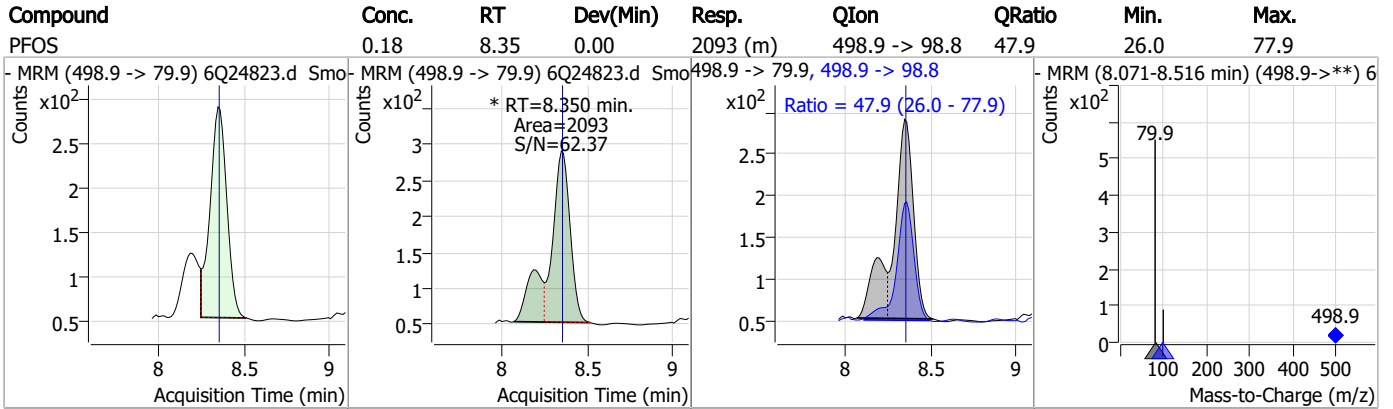
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.21	8.26	0.00	1789 (m)	570.1 -> 483.0	18.3	12.0	36.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.81	8.35	0.00	20520				

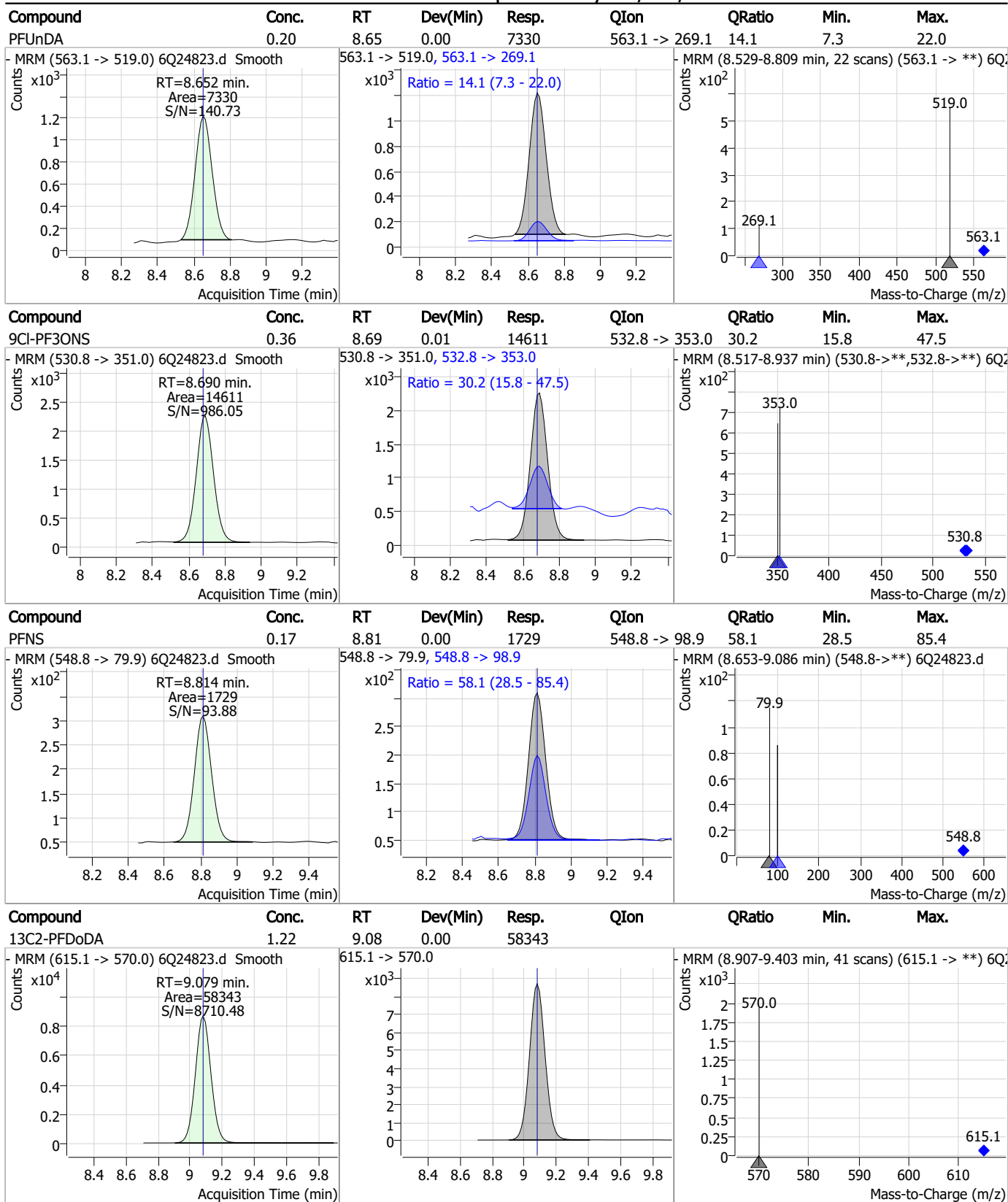


Perfluorinated Compounds by LC/MS/MS



7.7.13
7

Perfluorinated Compounds by LC/MS/MS

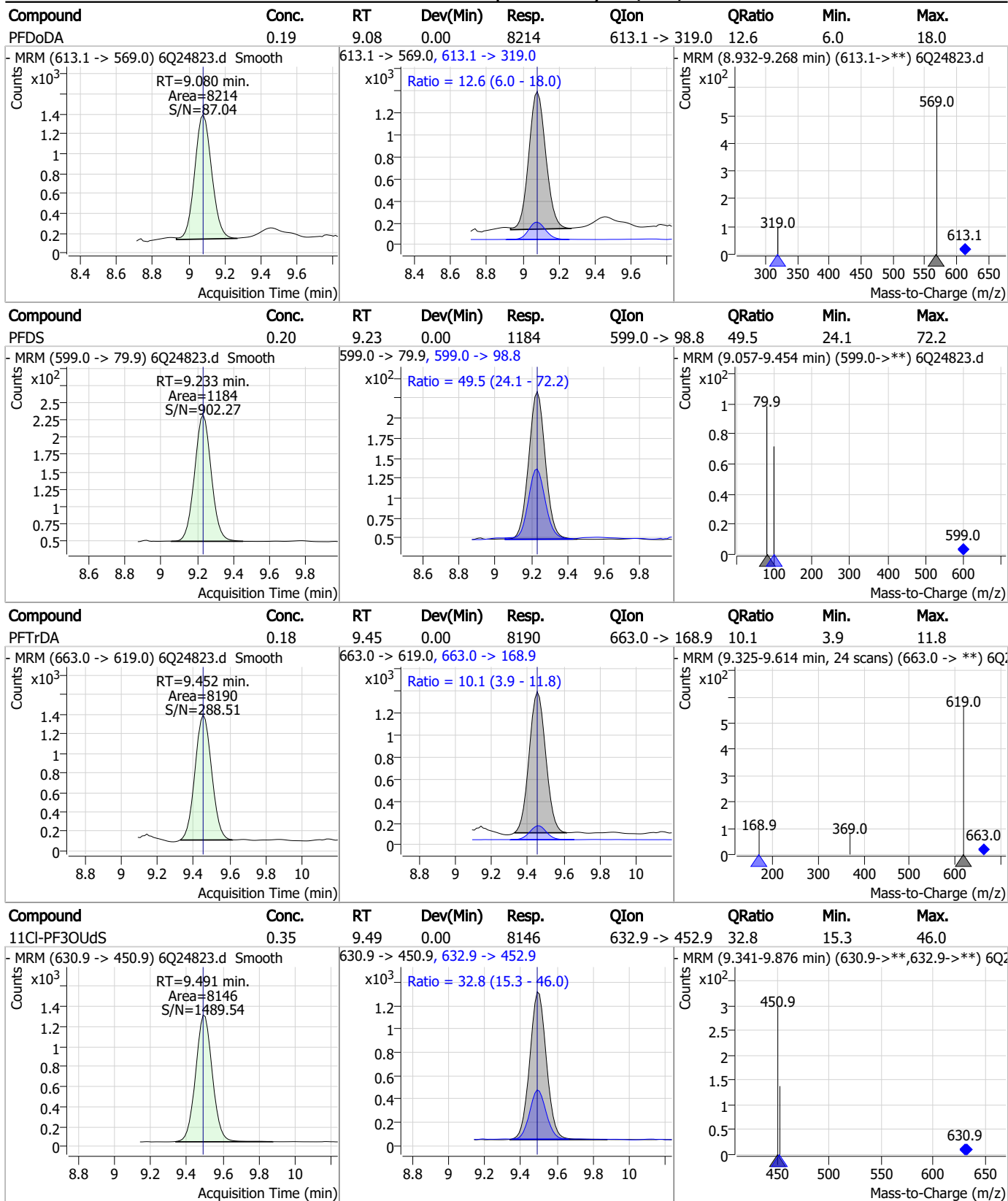


7.7.13

7



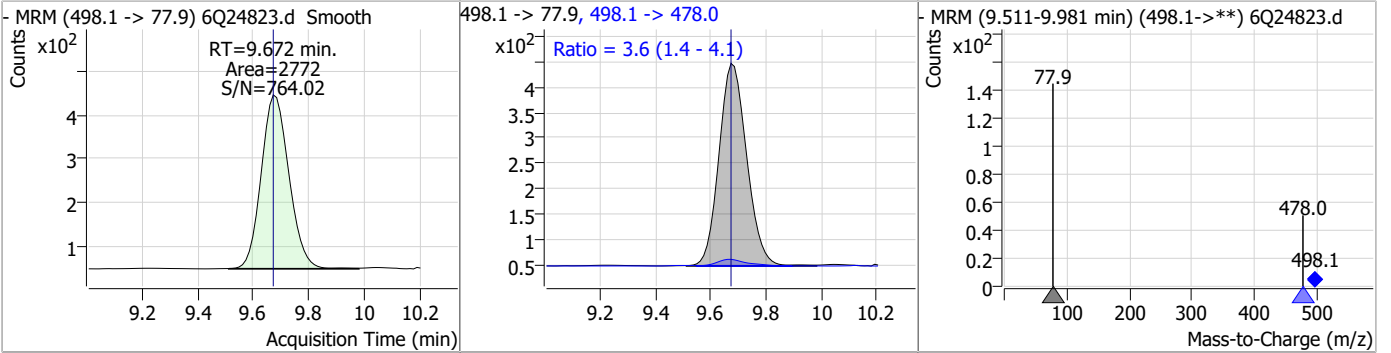
Perfluorinated Compounds by LC/MS/MS



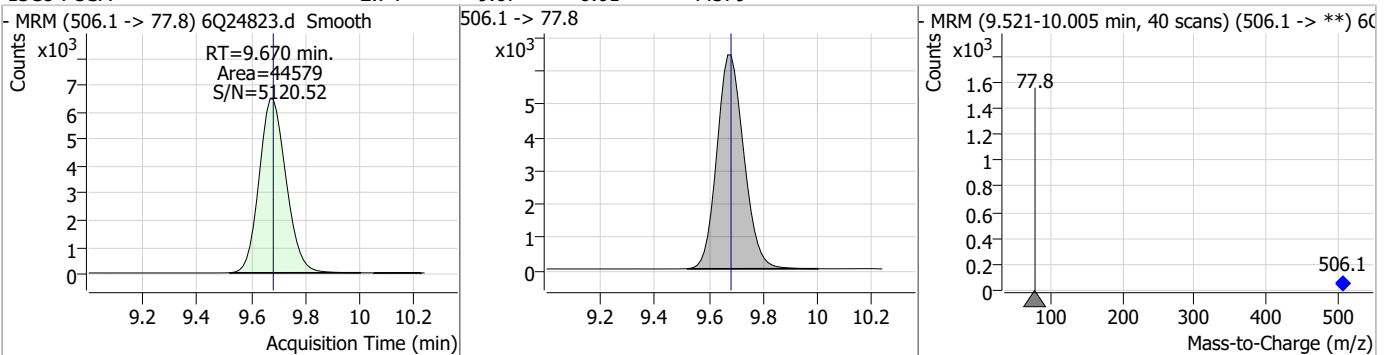
7.7.13
7

Perfluorinated Compounds by LC/MS/MS

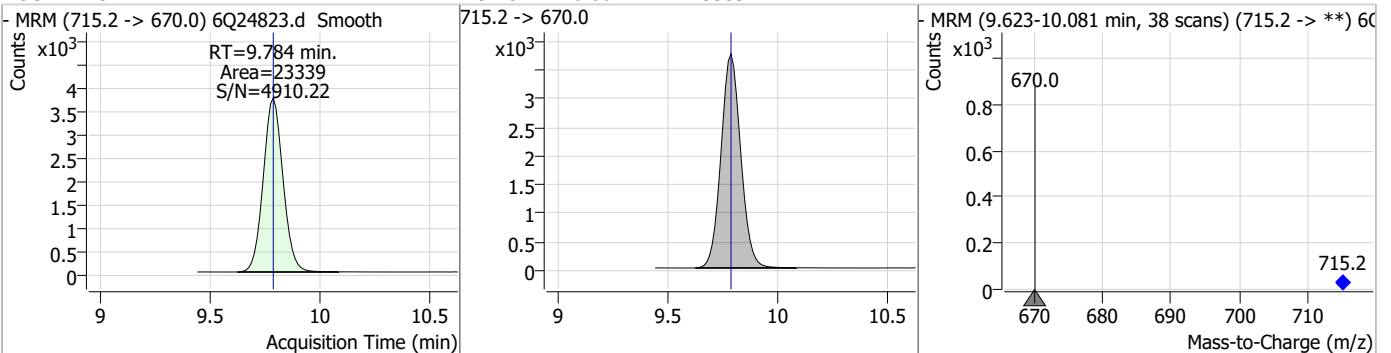
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.18	9.67	0.00	2772	498.1 -> 478.0	3.6	1.4	4.1



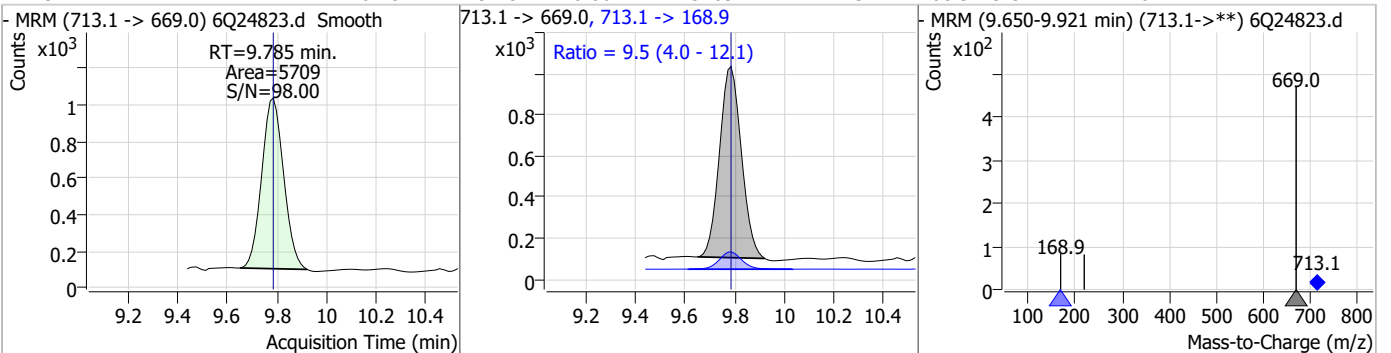
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.74	9.67	-0.01	44579				



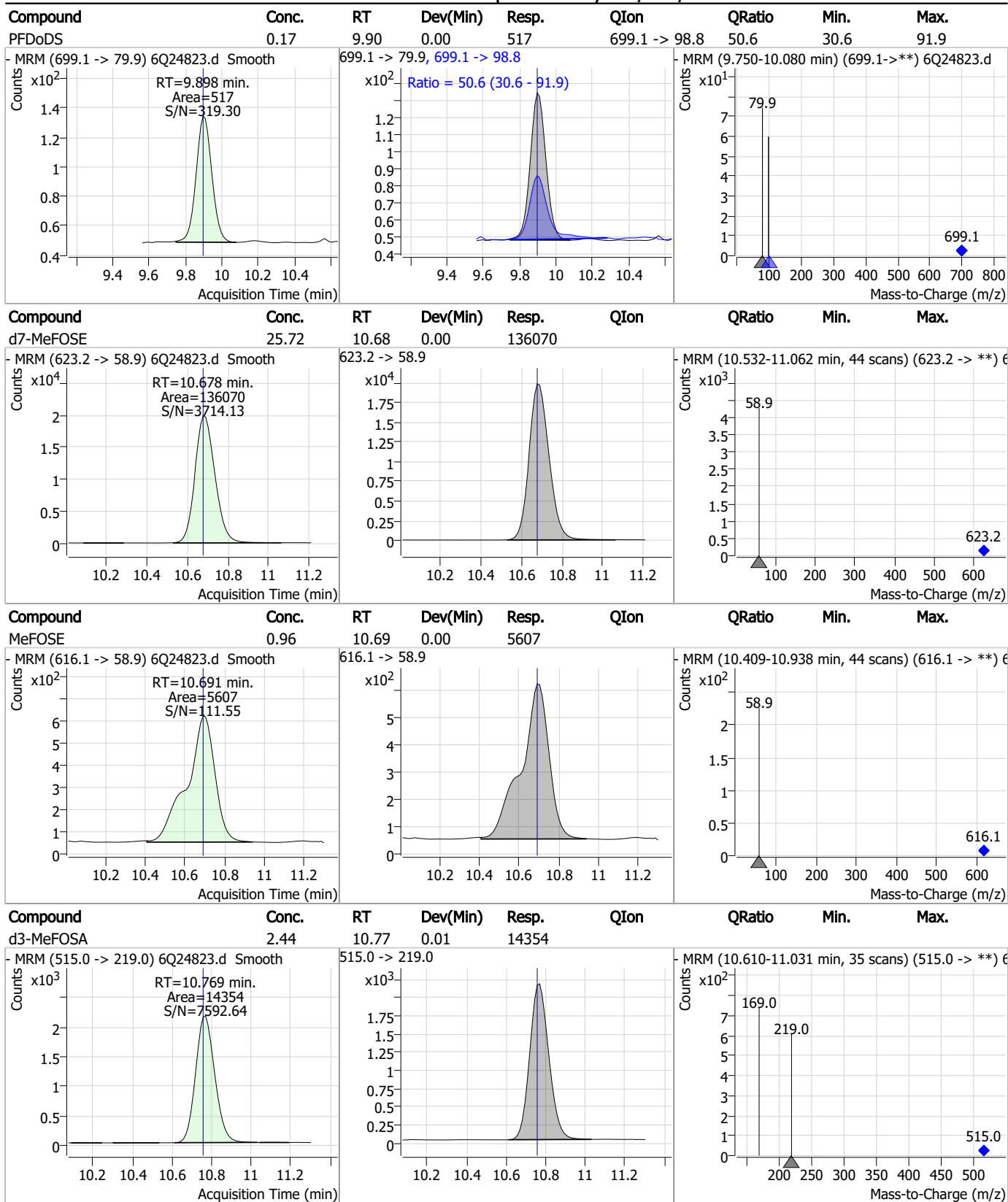
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.78	0.00	23339				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.18	9.78	0.00	5709	713.1 -> 168.9	9.5	4.0	12.1



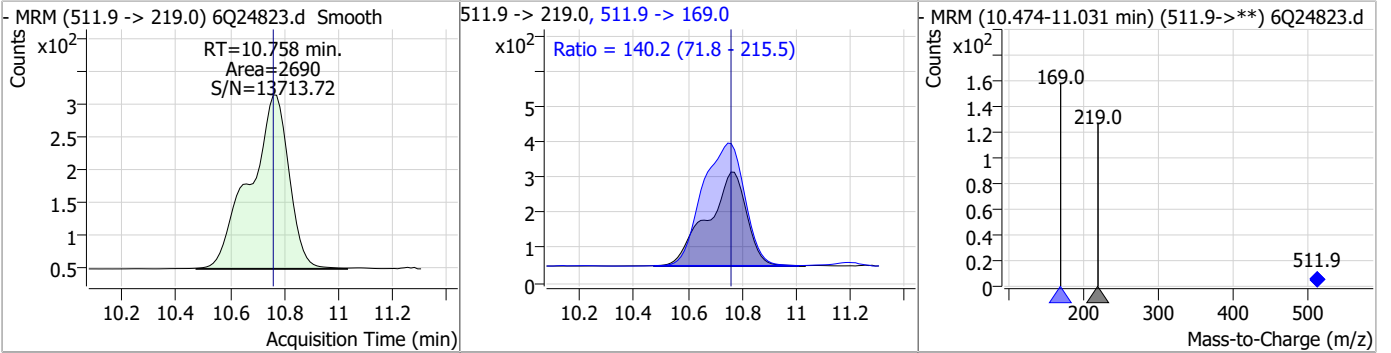
Perfluorinated Compounds by LC/MS/MS



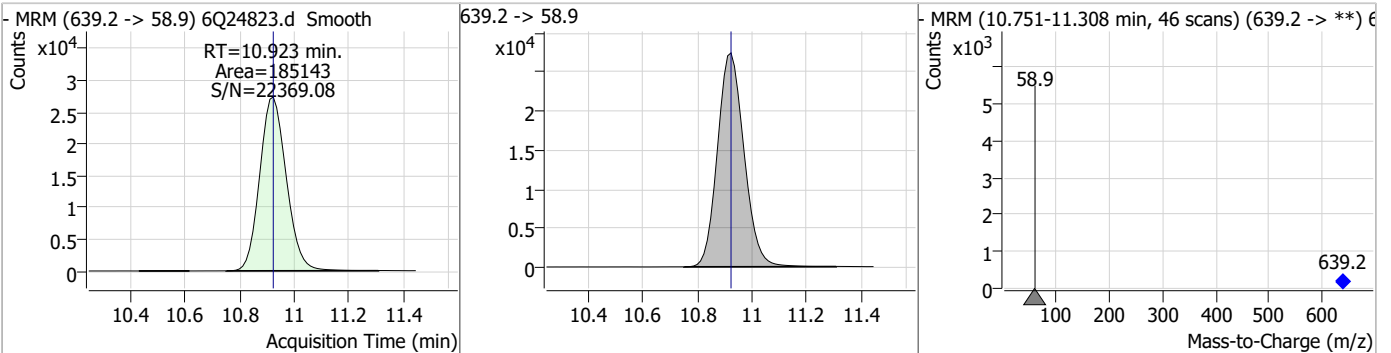
7.7.13
7

Perfluorinated Compounds by LC/MS/MS

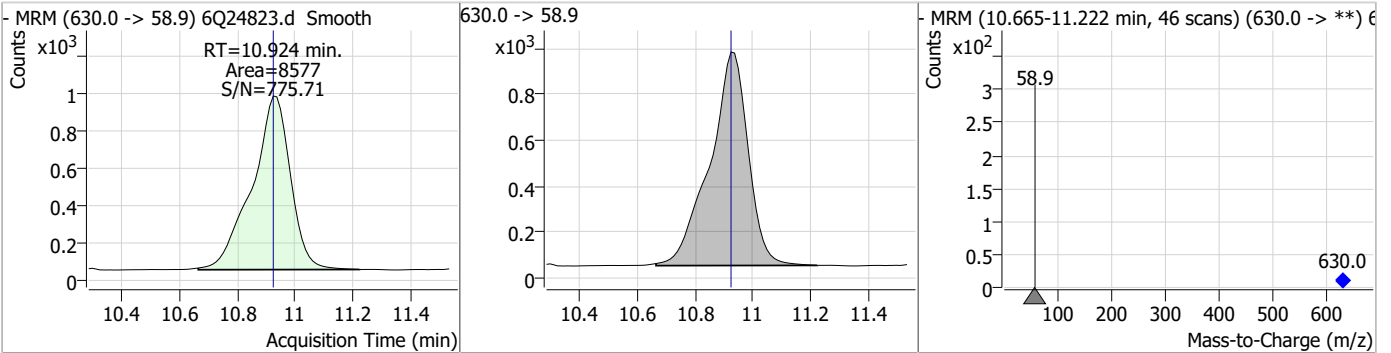
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	0.42	10.76	0.00	2690	511.9 -> 169.0	140.2	71.8	215.5



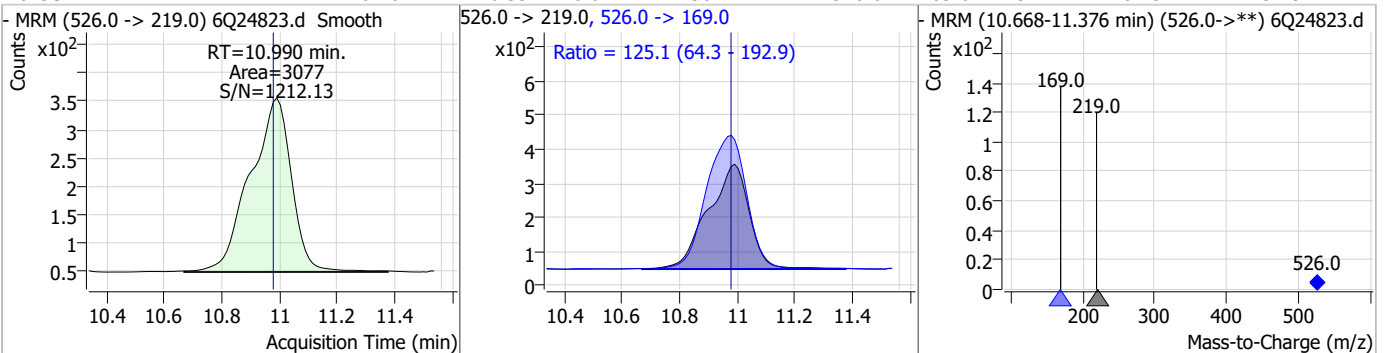
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.67	10.92	0.00	185143				



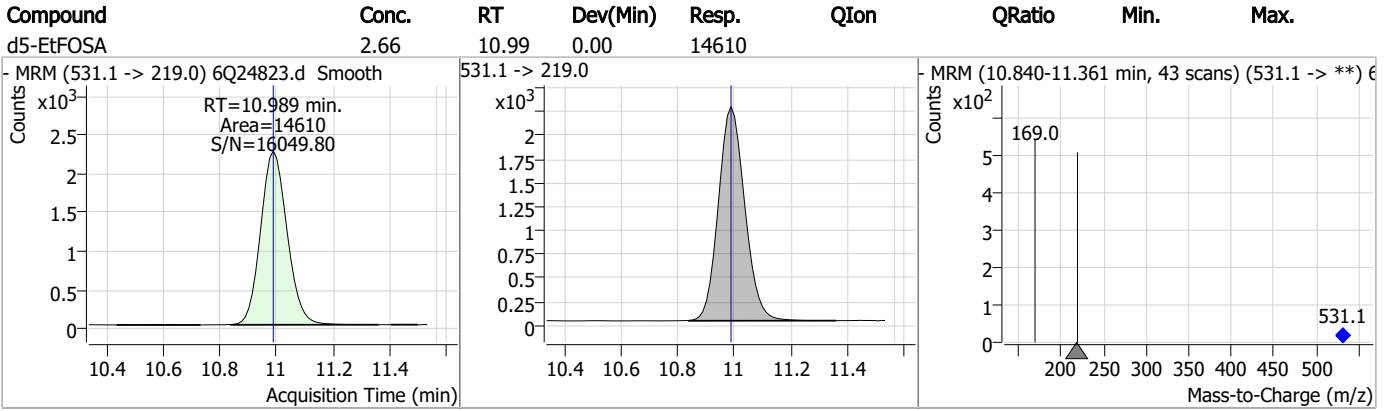
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.99	10.92	0.00	8577				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	0.40	10.99	0.01	3077	526.0 -> 169.0	125.1	64.3	192.9



Perfluorinated Compounds by LC/MS/MS



7.7.13

7

Manual Integration Approval Summary

Sample Number: S6Q355-CC355 Method: EPA DRAFT 1633
Lab FileID: 6Q24823.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/21/23 23:27 Supervisor approved: 09/22/23 13:16 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
MeFOSAA	2355-31-9		8.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.13.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24834.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/22/2023 2:05:28 AM
 Sample Name : cc355-4
 Vial : P1-A5
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	337496	10.00 µg/L	0.000
M5-PFPeA	4.434	268.3 -> 223.0	54465	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	122766	2.50 µg/L	0.000
M4-PFHpA	6.581	367.1 -> 322.0	98959	2.50 µg/L	0.012
M8-PFOA	7.198	421.1 -> 376.0	133616	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	55462	1.25 µg/L	0.012
M6-PFDA	8.198	519.1 -> 474.1	50424	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	62574	1.25 µg/L	0.000
M2-PFDoDA	9.079	615.1 -> 570.0	57640	1.25 µg/L	0.000
M2-PFTeDA	9.784	715.2 -> 670.0	21618	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	44473	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	38259	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	21842	2.50 µg/L	-0.012
M8-PFOS	8.361	507.1 -> 79.9	19890	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	4274	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	6041	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	6146	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	37963	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	70426	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	33116	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	136806	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	186785	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	14752	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	14819	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	27416	2.50 µg/L	0.012
13C3-PFBA	3.001	216.0 -> 172.0	137655	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	16148	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	145099	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	47378	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	60724	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	96701	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	4274	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-6:2FTS	6.974	429.1 -> 80.9	6041	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-8:2FTS	7.998	529.1 -> 80.9	6146	5.07 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C2-PFDoDA	9.079	615.1 -> 570.0	57640	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C2-PFTeDA	9.784	715.2 -> 670.0	21618	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C3-PFBS	5.571	302.1 -> 79.9	38259	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFHxS	7.301	402.1 -> 79.9	21842	2.50 µg/L	-0.012

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 = 99.9%	
13C4-PFBA	3.010	216.8 -> 171.9	337496	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.581	367.1 -> 322.0	98959	2.38 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C5-PFHxA	5.641	318.0 -> 273.0	122766	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C5-PFPeA	4.434	268.3 -> 223.0	54465	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.198	519.1 -> 474.1	50424	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C7-PFUnDA	8.651	570.0 -> 525.1	62574	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-FOSA	9.682	506.1 -> 77.8	44473	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOA	7.198	421.1 -> 376.0	133616	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-PFOS	8.361	507.1 -> 79.9	19890	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C9-PFNA	7.729	472.1 -> 427.0	55462	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.8%	
d3-MeFOSAA	8.256	573.2 -> 419.0	37963	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	70426	9.82 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d3-MeFOSA	10.769	515.0 -> 219.0	14819	2.27 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.9%	
d5-EtFOSAA	8.452	589.2 -> 419.0	33116	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	136806	23.38 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
d9-EtFOSE	10.923	639.2 -> 58.9	186785	24.33 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
d5-EtFOSA	10.989	531.1 -> 219.0	14752	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	60785	8.78 µg/L	99
		327.1 -> 80.9	22938		
6:2FTS	6.974	427.1 -> 407.0	47668	8.53 µg/L	97
		427.1 -> 80.9	18906		
8:2FTS	7.999	527.1 -> 507.0	34256	8.78 µg/L	93
		527.1 -> 80.8	12478		
EtFOSAA	8.452	584.2 -> 419.1	11055	2.21 µg/L	98
		584.2 -> 526.0	7012		
FOSA	9.672	498.1 -> 77.9	32699	2.13 µg/L	99
		498.1 -> 478.0	993		
MeFOSAA	8.257	570.1 -> 419.0	18176	2.11 µg/L	97
		570.1 -> 483.0	4107		
PFBA	3.006	212.8 -> 168.9	92796	8.92 µg/L	100
PFBS	5.572	298.7 -> 79.9	35800	1.98 µg/L	98
		298.7 -> 98.8	13522		
PFDA	8.198	512.9 -> 469.0	105182	2.34 µg/L	97
		512.9 -> 219.0	16124		
PFDODA	9.080	613.1 -> 569.0	96379	2.30 µg/L	98
		613.1 -> 319.0	10990		
PFDS	9.233	599.0 -> 79.9	11883	2.04 µg/L	97

7.7.14
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	5927			
PFHpA	6.569	363.1 -> 319.0	114867	2.28	µg/L	95
		363.1 -> 169.0	16182			
PFHpS	7.856	449.0 -> 79.9	19831	2.04	µg/L	94
		449.0 -> 98.9	10118			
PFHxA	5.644	313.0 -> 269.0	96630	2.26	µg/L	98
		313.0 -> 118.9	4039			
PFHxS	7.314	398.7 -> 79.9	27358	1.94	µg/L	m 98
		398.7 -> 98.9	13349			
PFNA	7.730	463.0 -> 419.0	78051	2.19	µg/L	99
		463.0 -> 219.0	18168			
PFNS	8.814	548.8 -> 79.9	21573	2.23	µg/L	94
		548.8 -> 98.9	11387			
PFOA	7.200	413.0 -> 369.0	139030	2.26	µg/L	99
		413.0 -> 169.0	23731			
PFOS	8.350	498.9 -> 79.9	21399	1.90	µg/L	m 99
		498.9 -> 98.8	11222			
PFPeA	4.436	263.0 -> 219.0	115421	4.30	µg/L	100
PFPeS	6.620	349.1 -> 79.9	24383	2.08	µg/L	97
		349.1 -> 98.9	11342			
PFTeDA	9.785	713.1 -> 669.0	68792	2.38	µg/L	98
		713.1 -> 168.9	5084			
PFTrDA	9.452	663.0 -> 619.0	102532	2.29	µg/L	99
		663.0 -> 168.9	8414			
PFUnDA	8.652	563.1 -> 519.0	76980	2.12	µg/L	95
		563.1 -> 269.1	12884			
11CI-PF3OUdS	9.491	630.9 -> 450.9	95882	4.19	µg/L	99
		632.9 -> 452.9	29723			
9CI-PF3ONS	8.690	530.8 -> 351.0	168742	4.18	µg/L	95
		532.8 -> 353.0	48748			
ADONA	6.817	376.9 -> 250.9	431261	4.15	µg/L	99
		376.9 -> 84.8	113412			
HFPO-DA	6.020	284.9 -> 168.9	30607	4.58	µg/L	98
		284.9 -> 184.9	4144			
3:3FTCA	3.902	241.0 -> 177.0	20000	11.02	µg/L	99
		241.0 -> 117.0	1976			
5:3FTCA	6.296	341.0 -> 237.1	443955	59.28	µg/L	93
		341.0 -> 217.0	293516			
7:3FTCA	7.682	441.0 -> 316.9	254104	58.16	µg/L	98
		441.0 -> 336.9	568737			
EtFOSA	10.990	526.0 -> 219.0	34955	4.51	µg/L	98
		526.0 -> 169.0	45720			
EtFOSE	10.924	630.0 -> 58.9	98037	11.20	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	32867	4.93	µg/L	94
		511.9 -> 169.0	44558			
MeFOSE	10.691	616.1 -> 58.9	66971	11.40	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	6216	2.17	µg/L	94
		699.1 -> 98.8	3506			
NFDHA	5.524	295.0 -> 201.0	23068	4.57	µg/L	97
		295.0 -> 84.9	5503			
PFMBA	4.850	279.0 -> 85.1	84042	4.42	µg/L	100
PFMPA	3.563	229.0 -> 84.9	62159	4.42	µg/L	100
PFEESA	6.112	314.8 -> 134.9	226093	4.03	µg/L	100
		314.8 -> 82.9	7490			

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

7.7.14
7

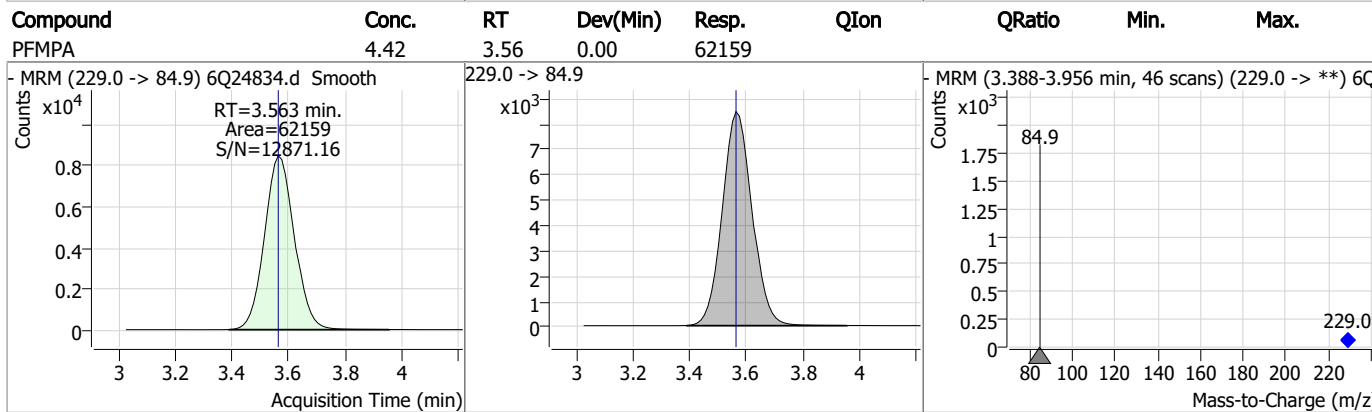
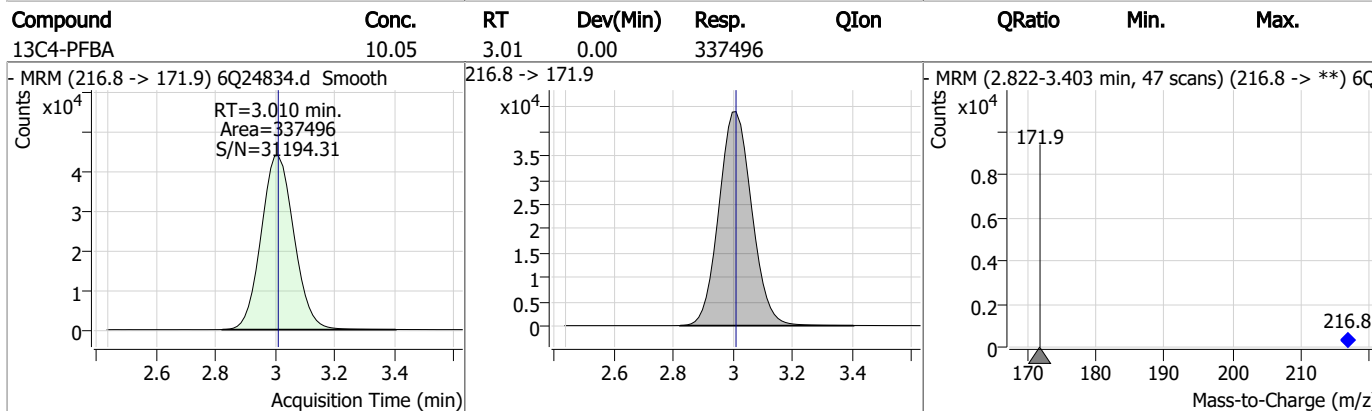
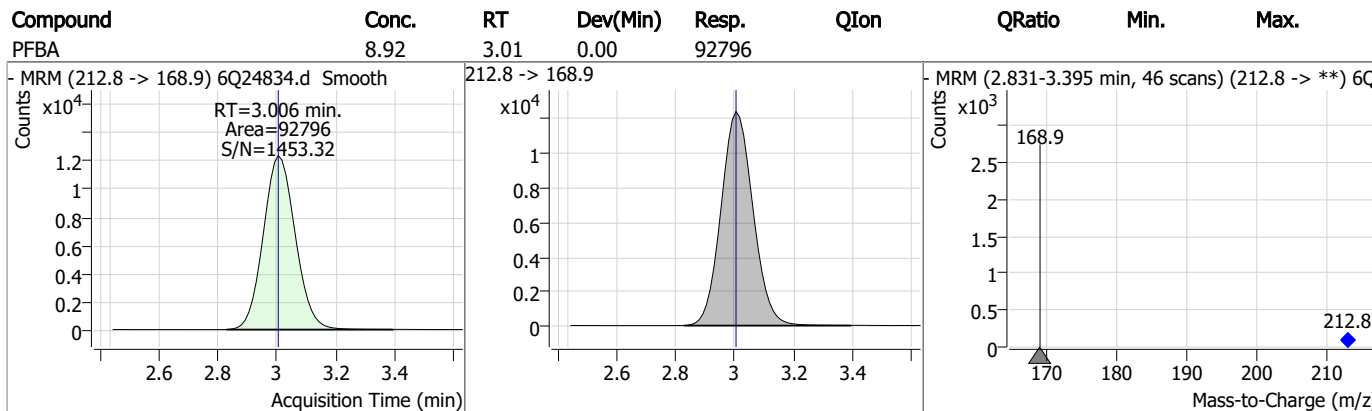
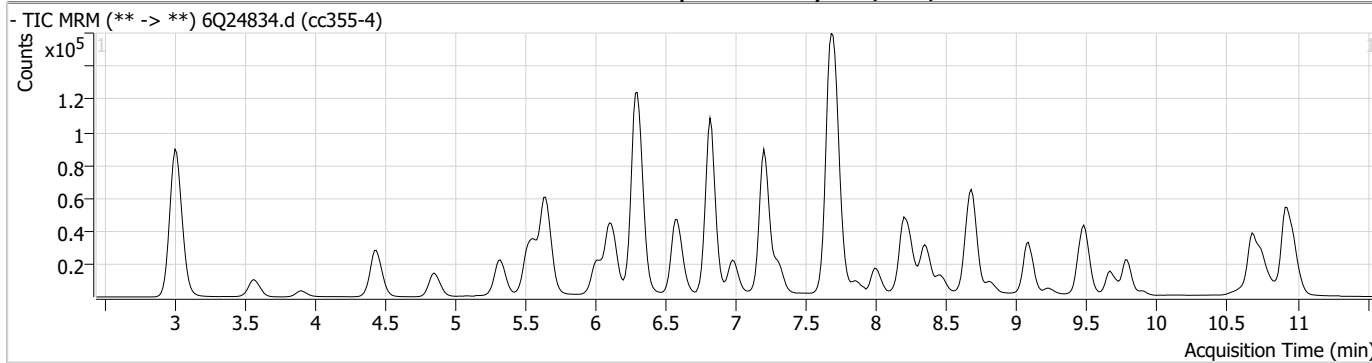
Perfluorinated Compounds by LC/MS/MS

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

7.7.14

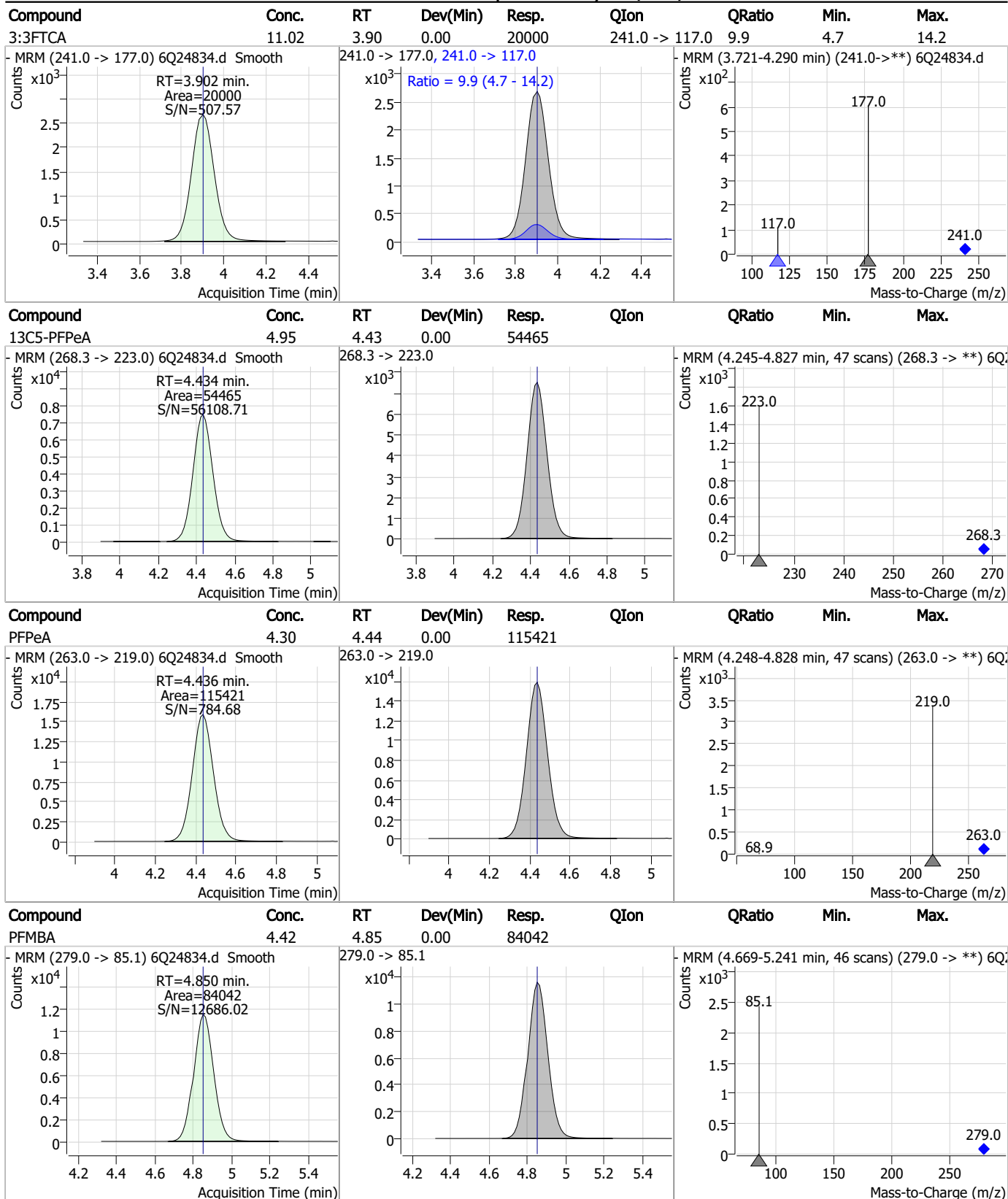
7

Perfluorinated Compounds by LC/MS/MS



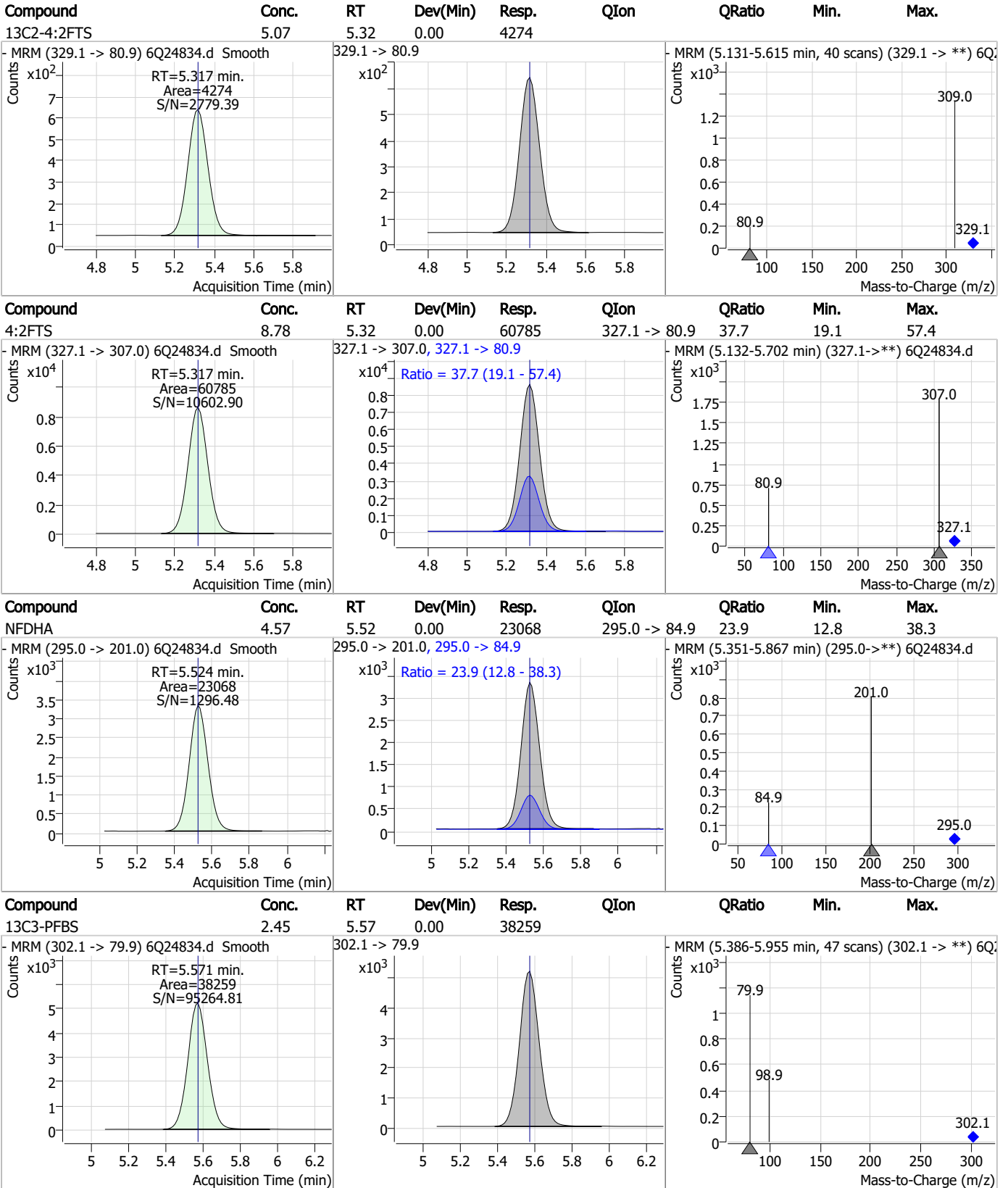
7.7.14
7

Perfluorinated Compounds by LC/MS/MS



7.7.14

Perfluorinated Compounds by LC/MS/MS

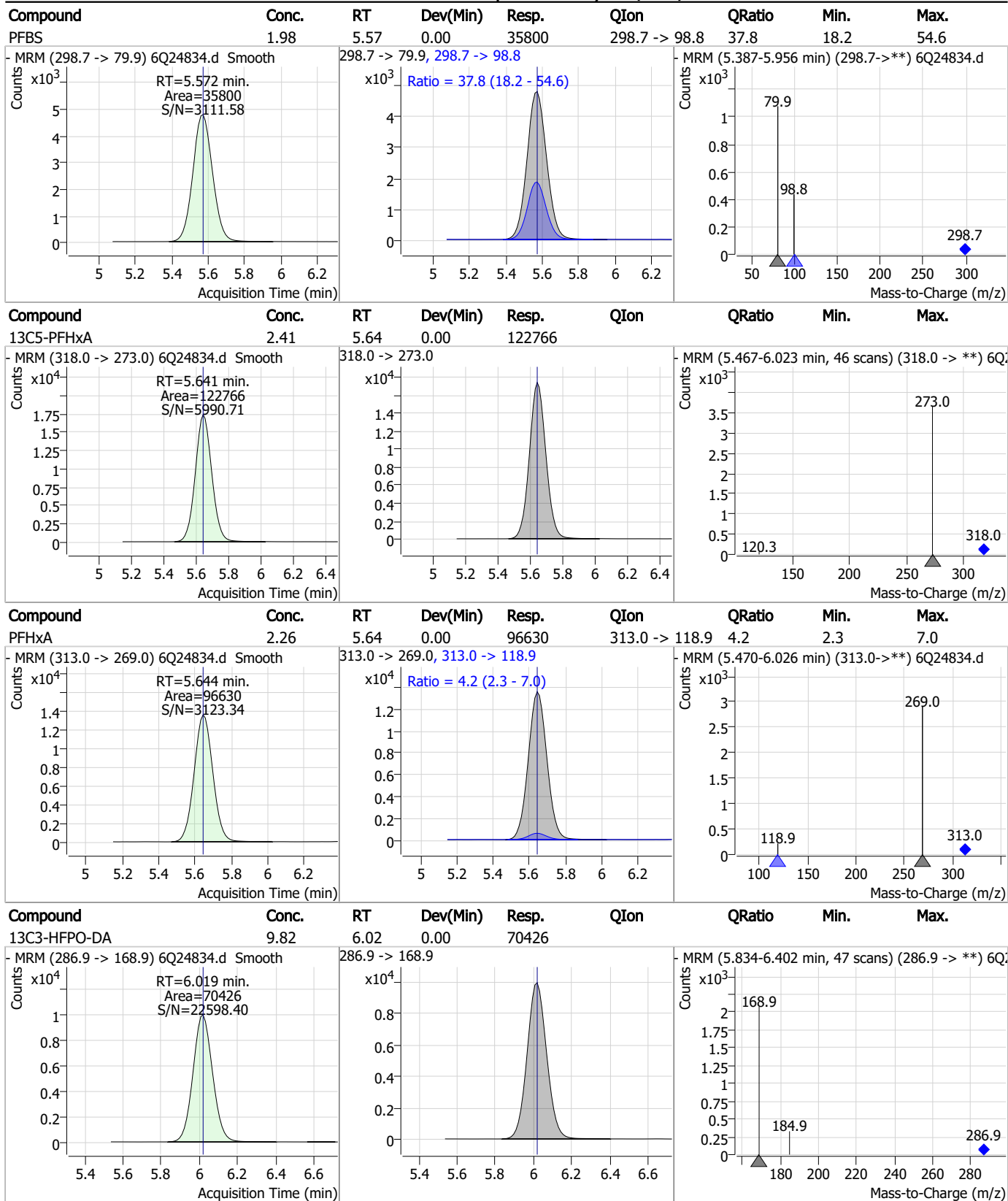


7.7.14

7



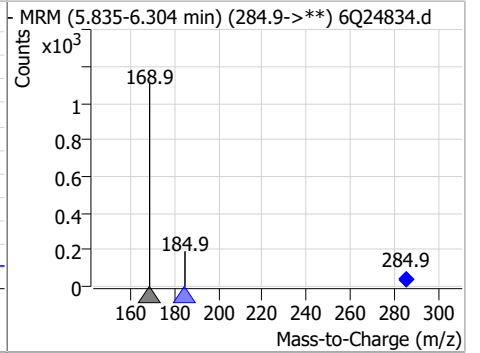
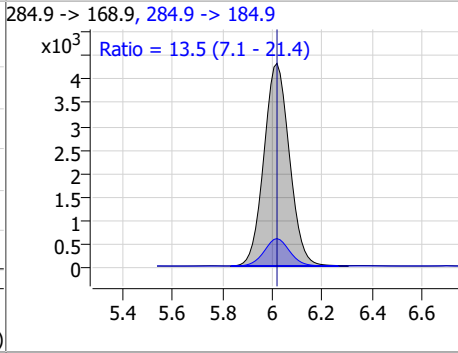
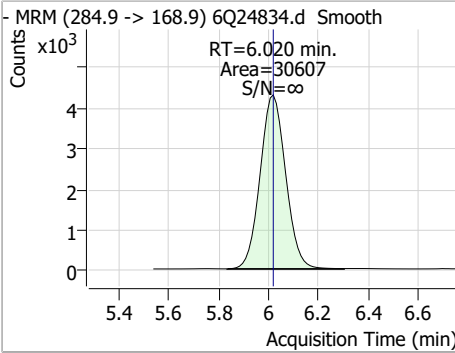
Perfluorinated Compounds by LC/MS/MS



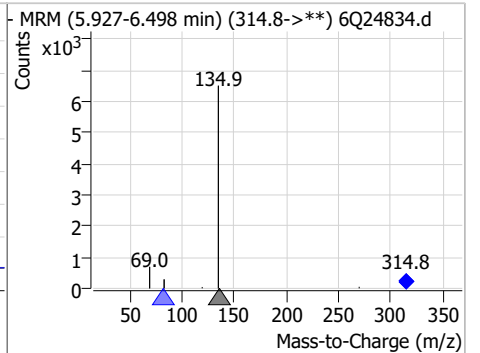
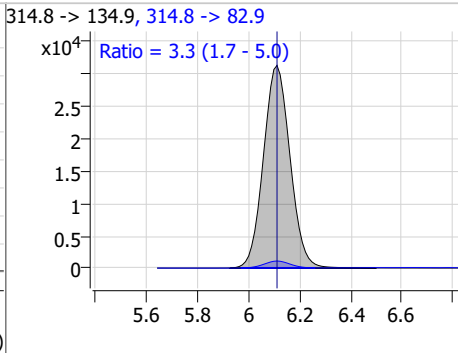
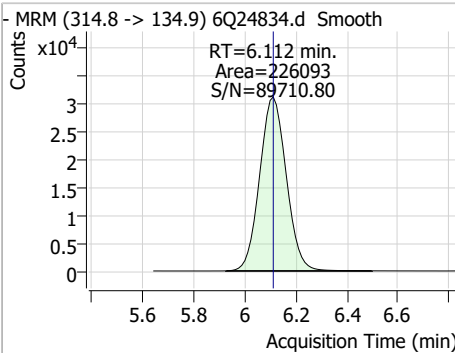
7.7.14

Perfluorinated Compounds by LC/MS/MS

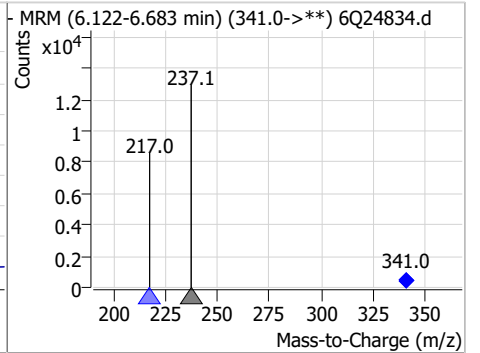
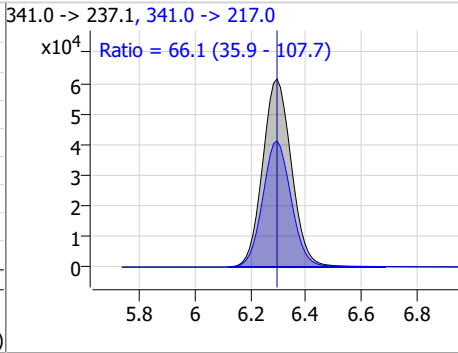
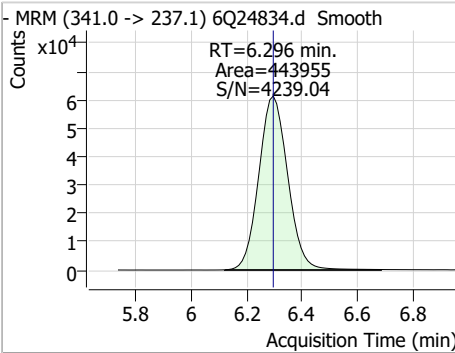
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.58	6.02	0.00	30607	284.9 -> 184.9	13.5	7.1	21.4



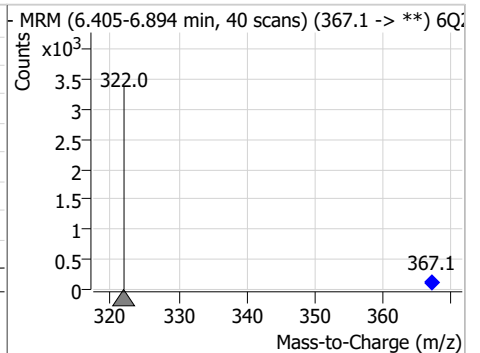
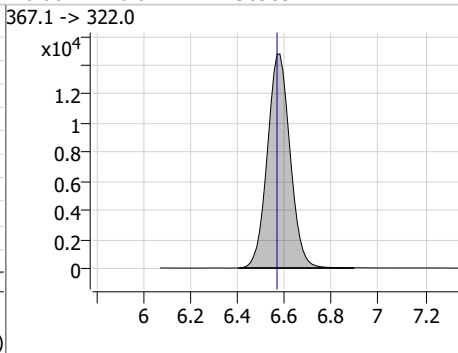
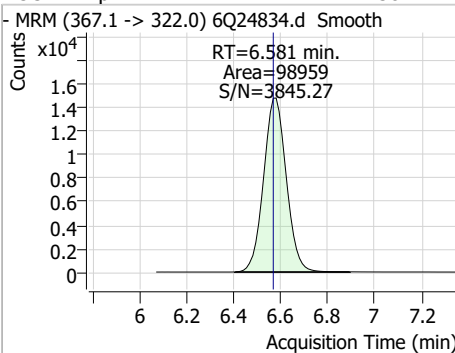
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.03	6.11	0.00	226093	314.8 -> 82.9	3.3	1.7	5.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	59.28	6.30	0.00	443955	341.0 -> 217.0	66.1	35.9	107.7

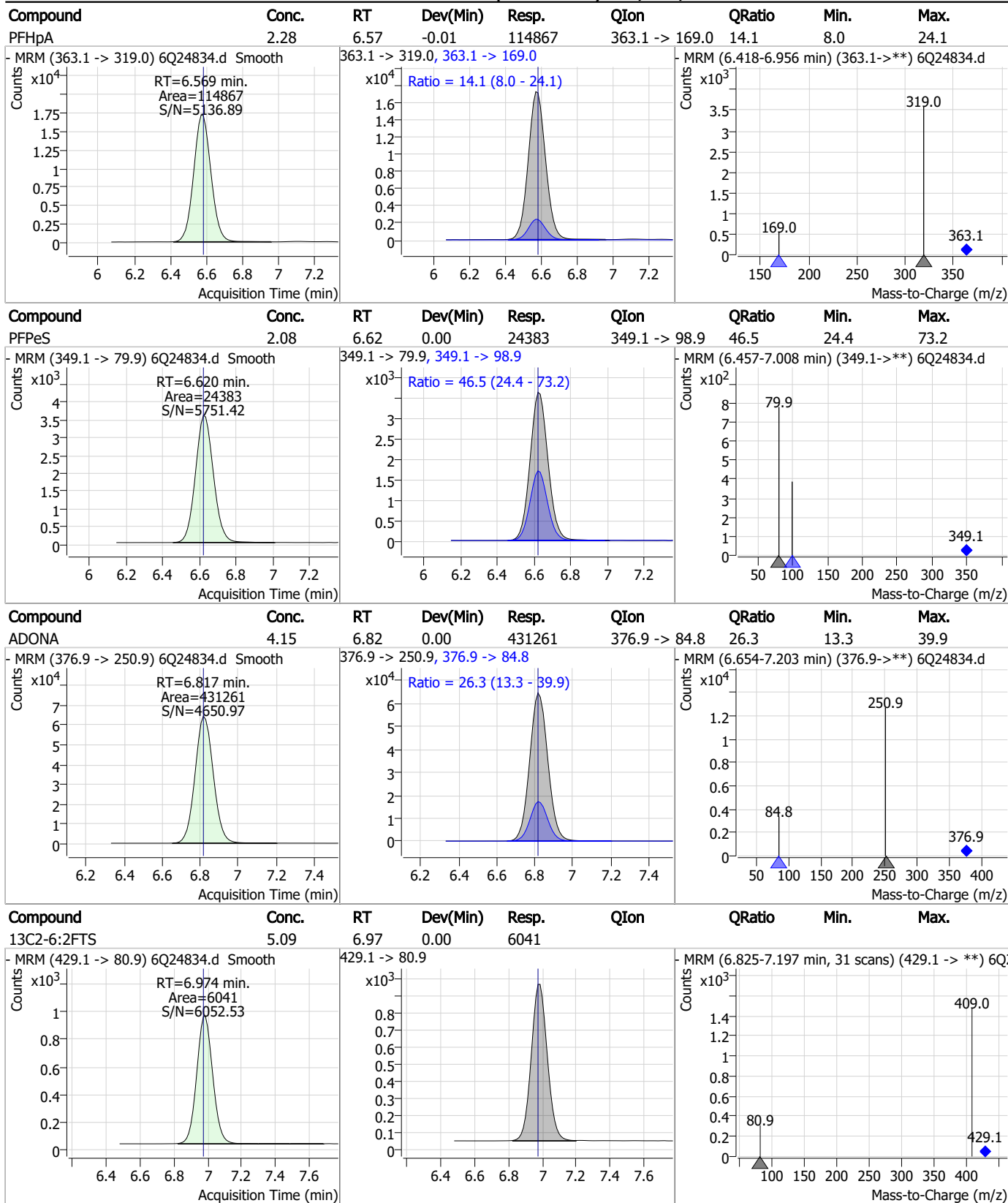


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.38	6.58	0.01	98959	367.1 -> 322.0			



7.7.14
7

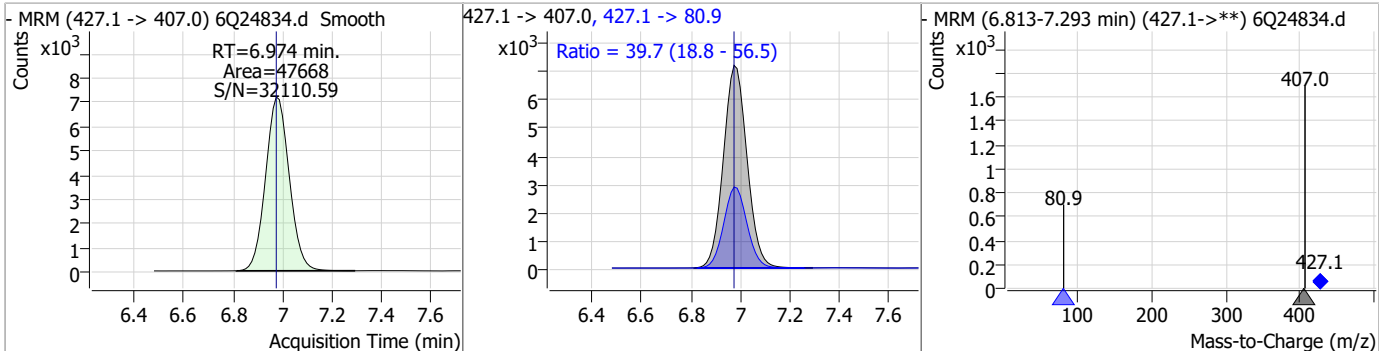
Perfluorinated Compounds by LC/MS/MS



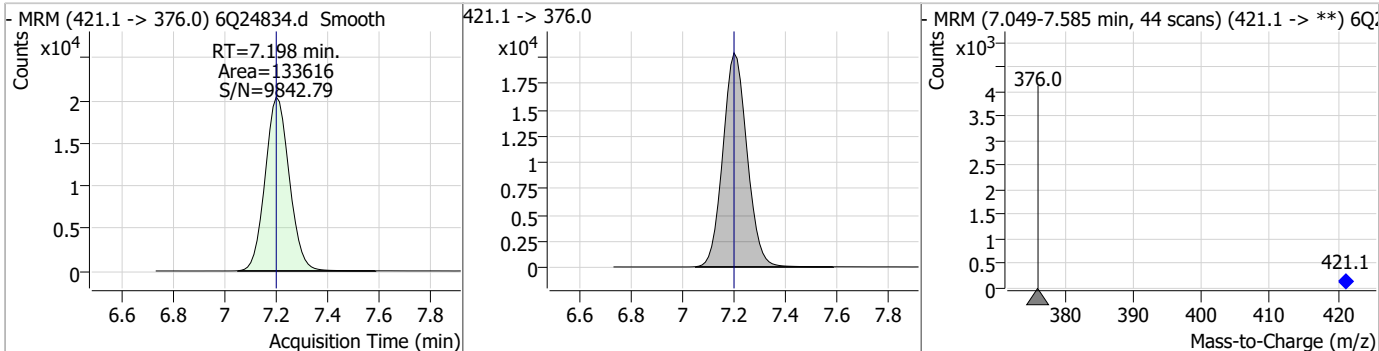
7.7.14
7

Perfluorinated Compounds by LC/MS/MS

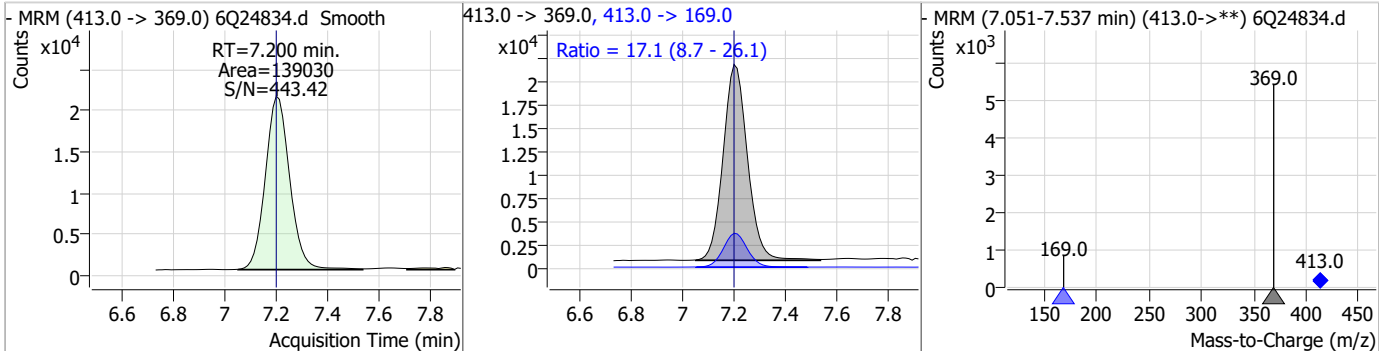
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	8.53	6.97	0.00	47668	427.1 -> 80.9	39.7	18.8	56.5



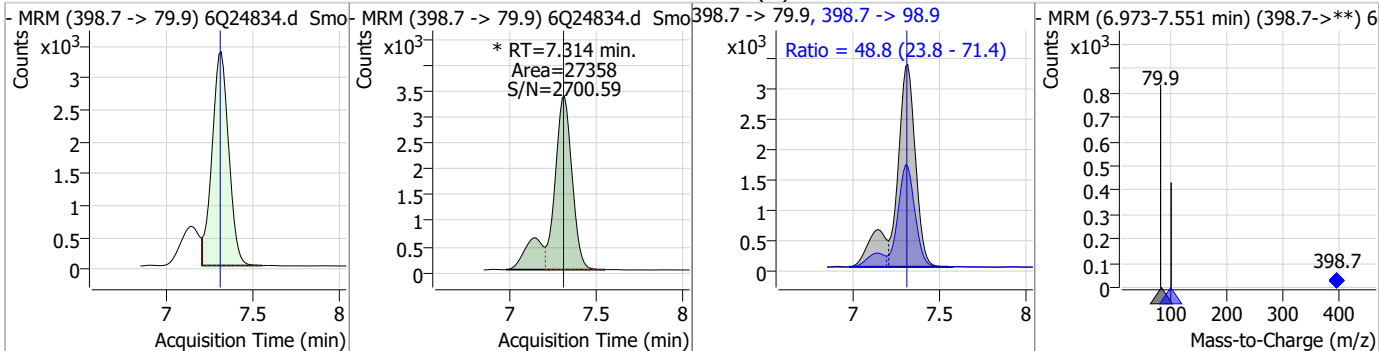
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.54	7.20	0.00	133616				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.26	7.20	0.00	139030	413.0 -> 169.0	17.1	8.7	26.1

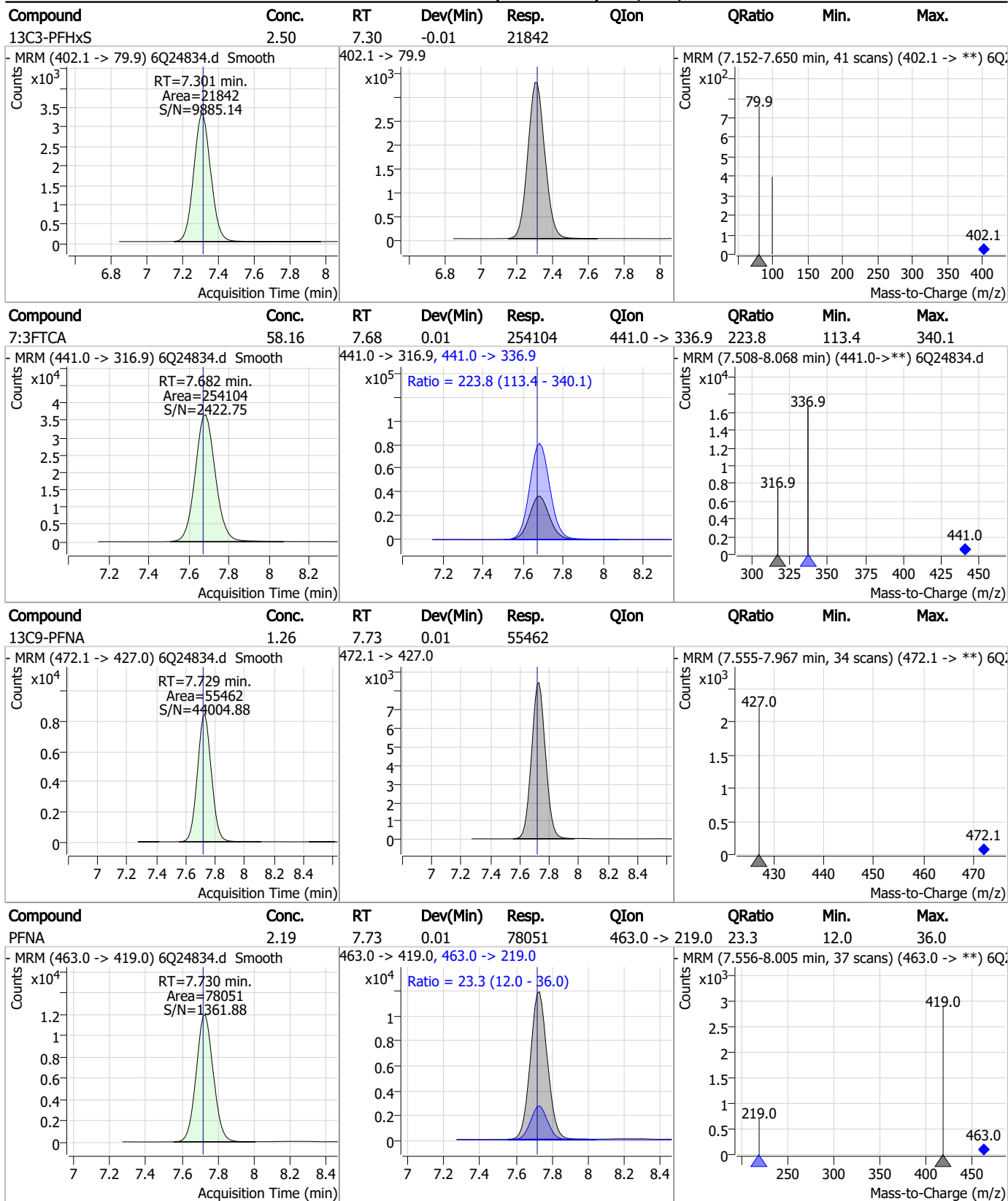


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.94	7.31	0.01	27358 (m)	398.7 -> 98.9	48.8	23.8	71.4



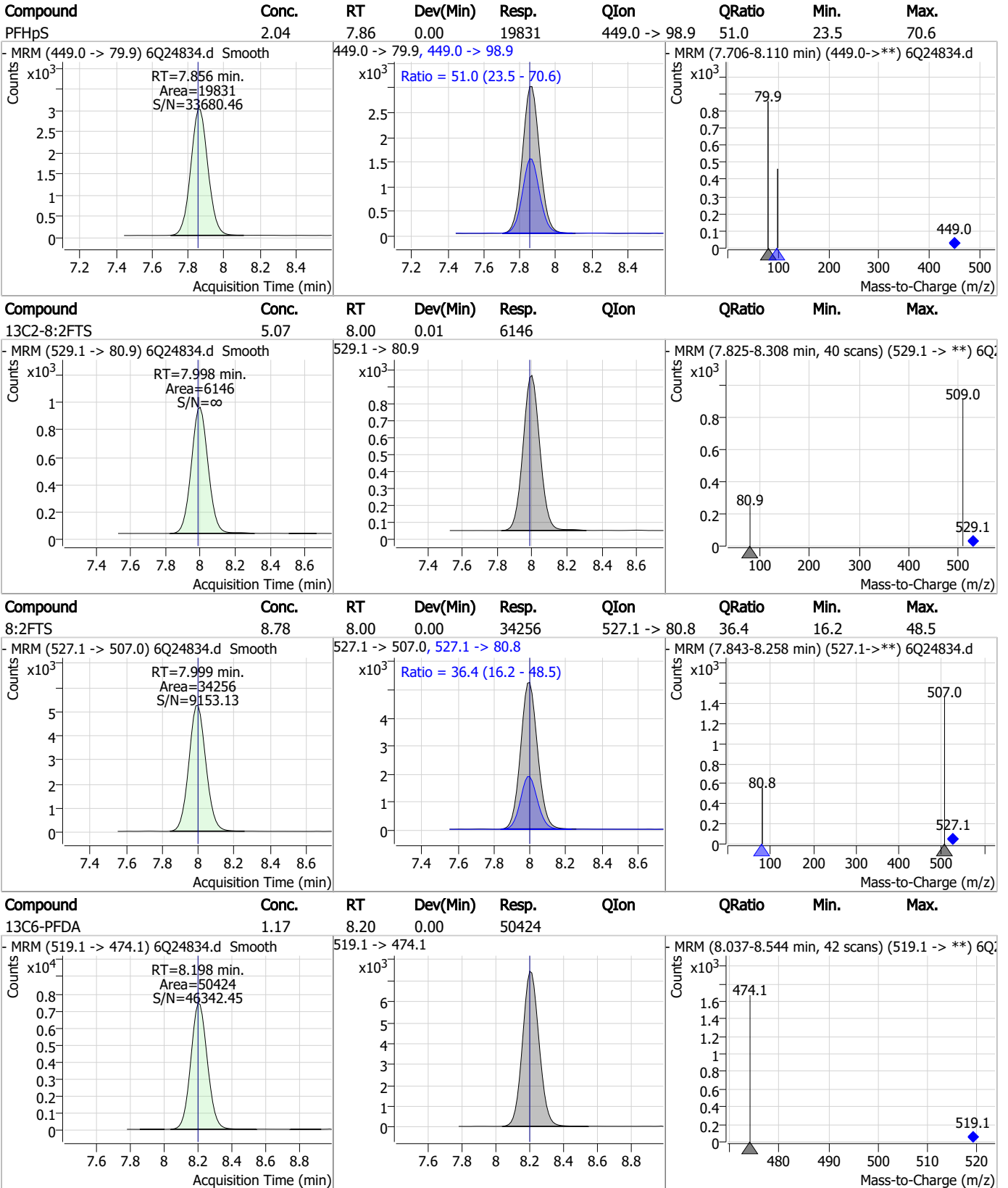
7.7.14
7

Perfluorinated Compounds by LC/MS/MS



7.7.14
7

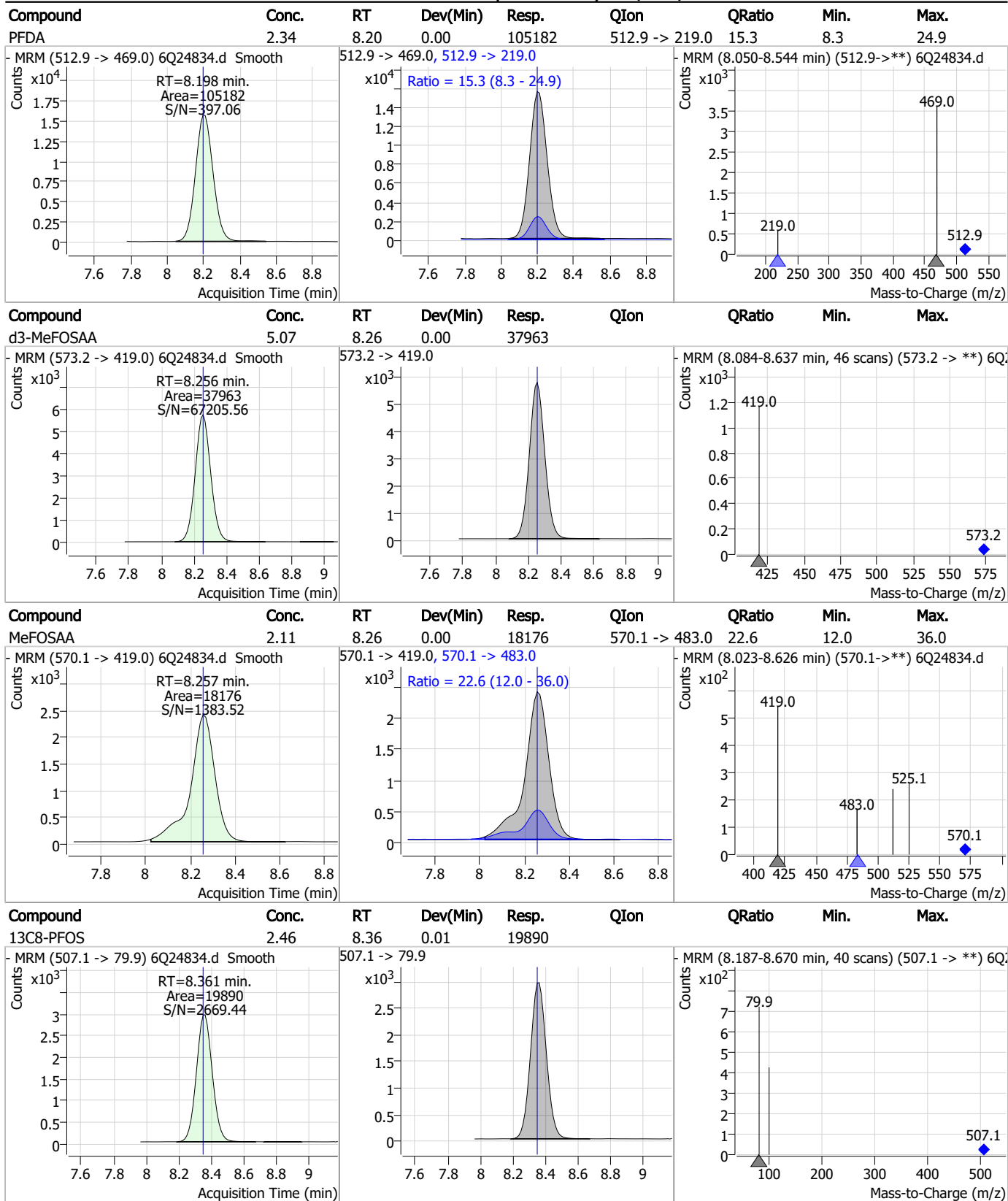
Perfluorinated Compounds by LC/MS/MS



7.7.14



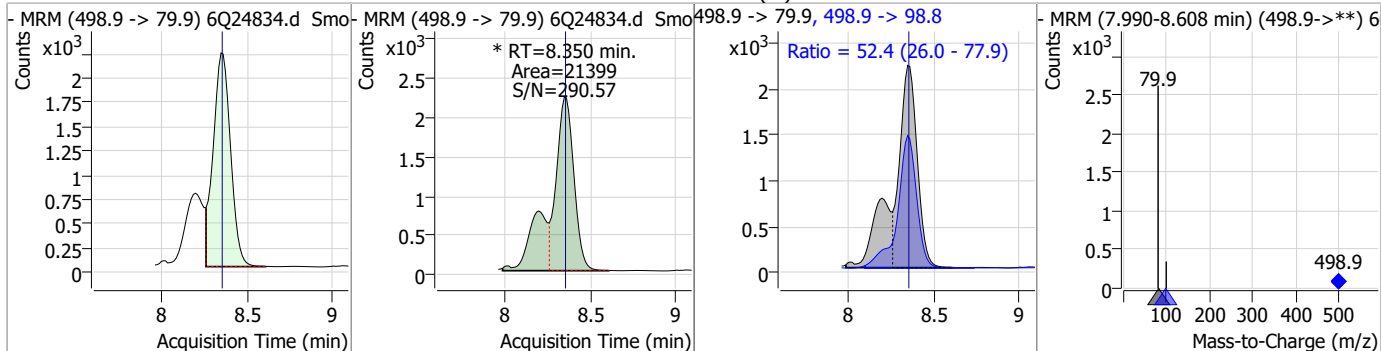
Perfluorinated Compounds by LC/MS/MS



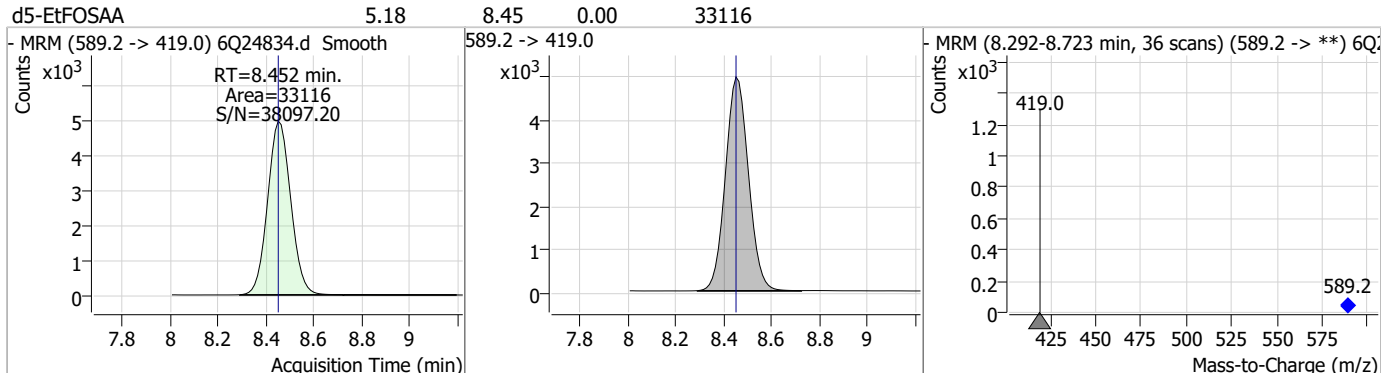
7.7.14
7

Perfluorinated Compounds by LC/MS/MS

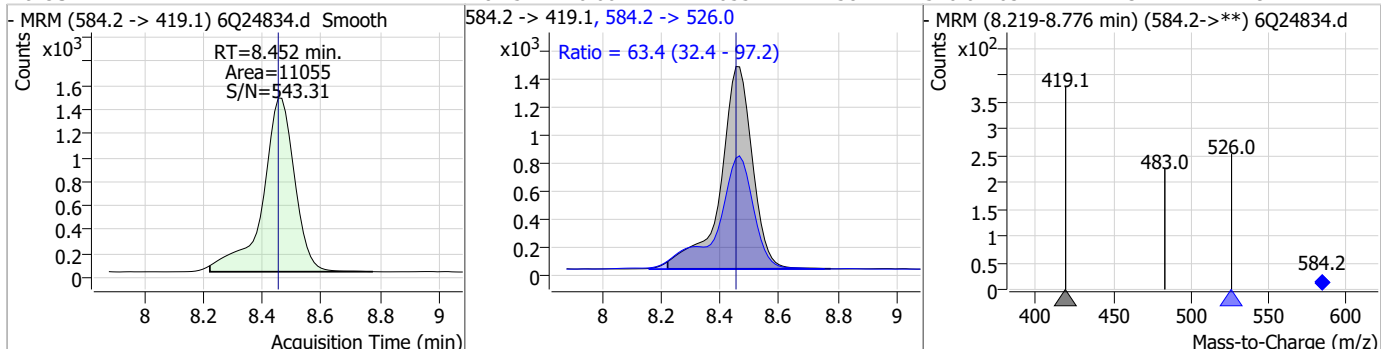
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.90	8.35	0.00	21399 (m)	498.9 -> 98.8	52.4	26.0	77.9



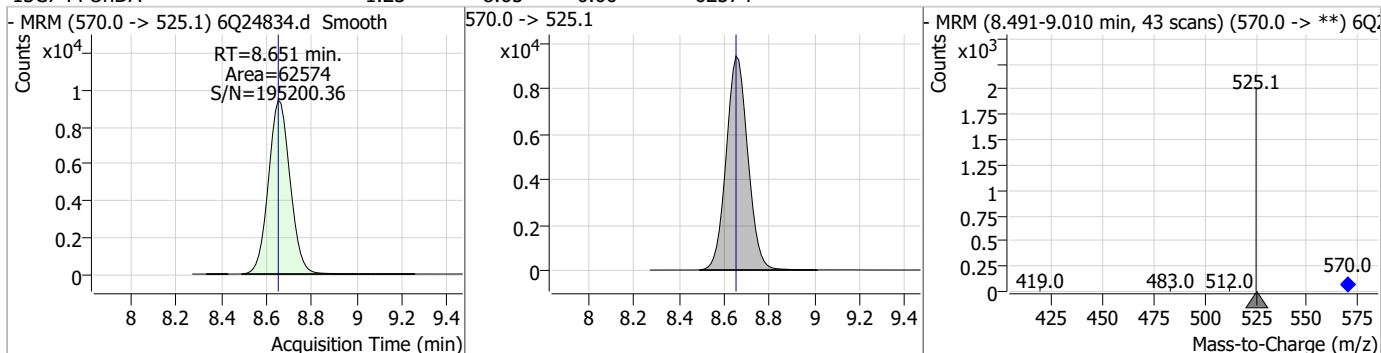
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.18	8.45	0.00	33116				



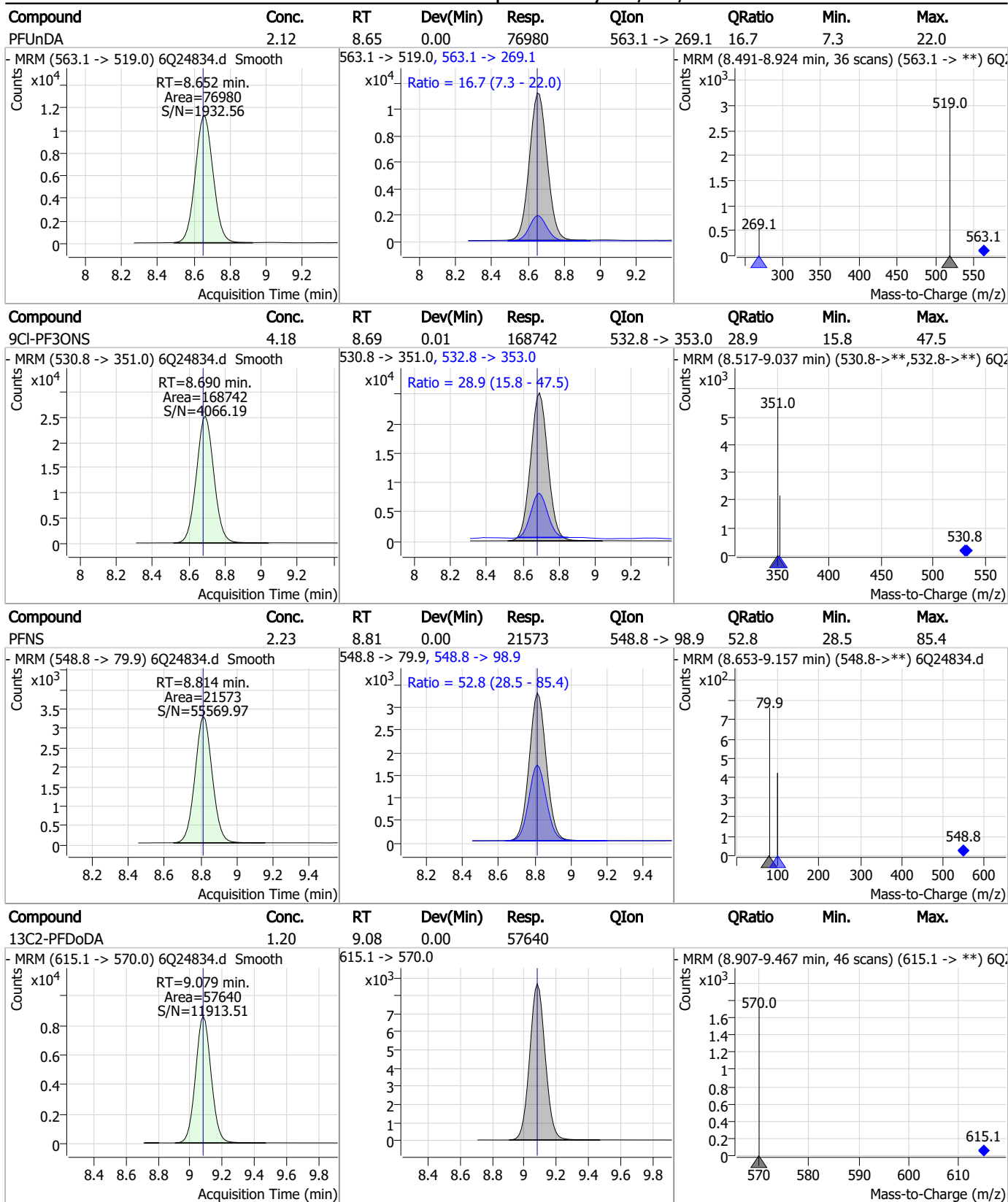
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.21	8.45	0.00	11055	584.2 -> 526.0	63.4	32.4	97.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.23	8.65	0.00	62574				

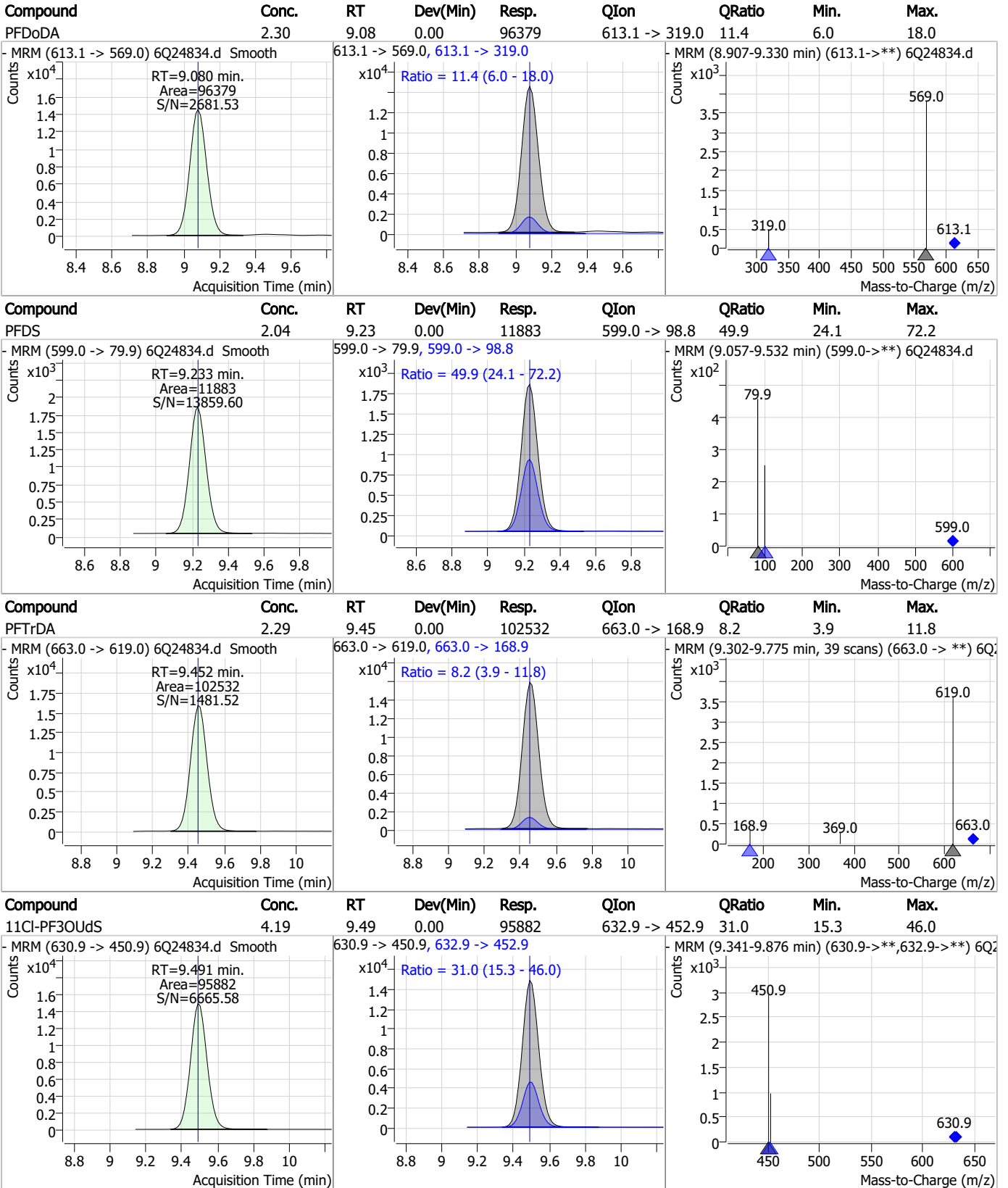


Perfluorinated Compounds by LC/MS/MS



7.7.14
7

Perfluorinated Compounds by LC/MS/MS

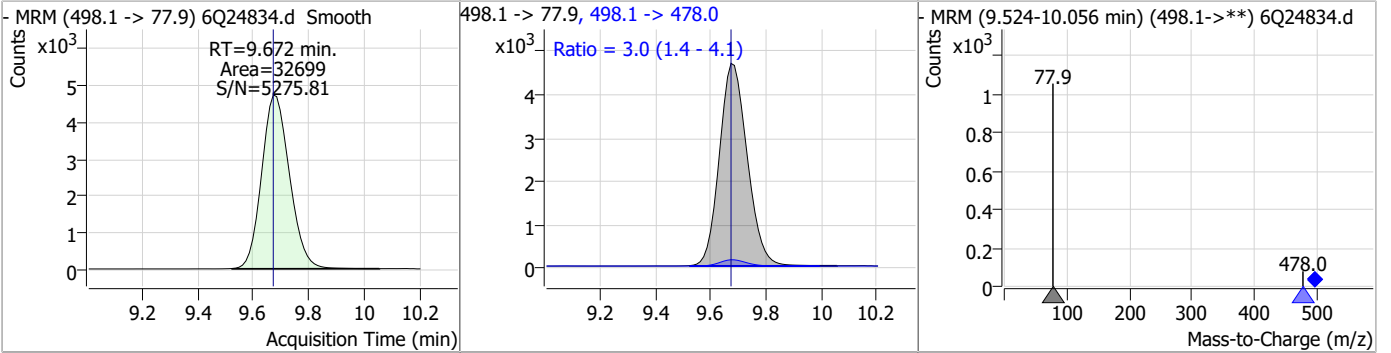


7.7.14

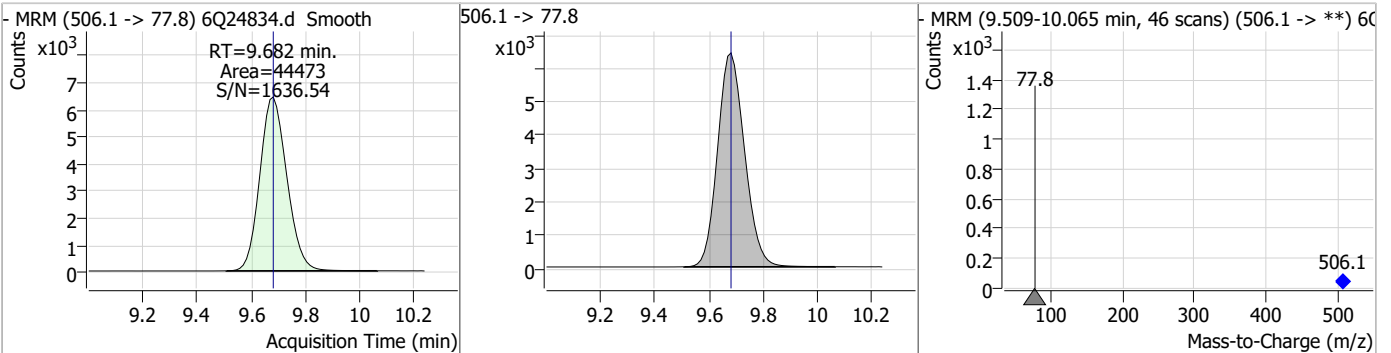


Perfluorinated Compounds by LC/MS/MS

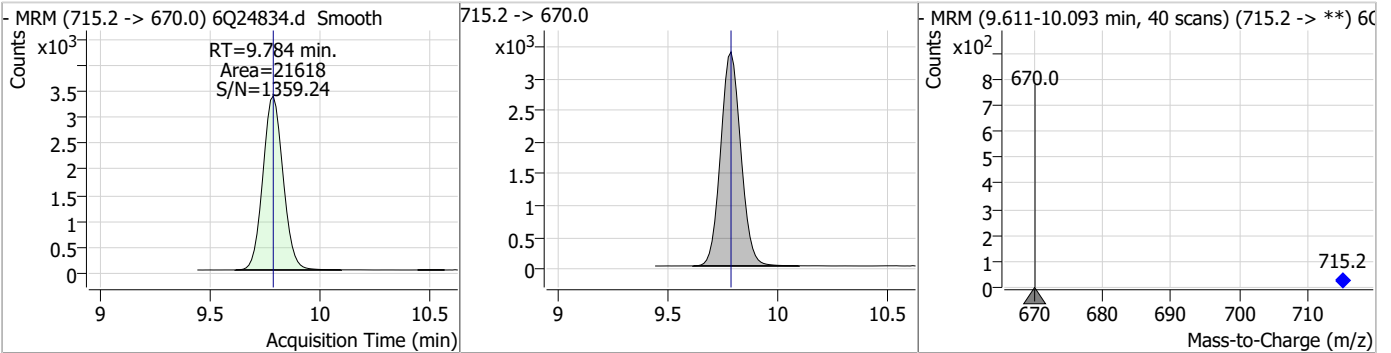
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.13	9.67	0.00	32699	498.1 -> 478.0	3.0	1.4	4.1



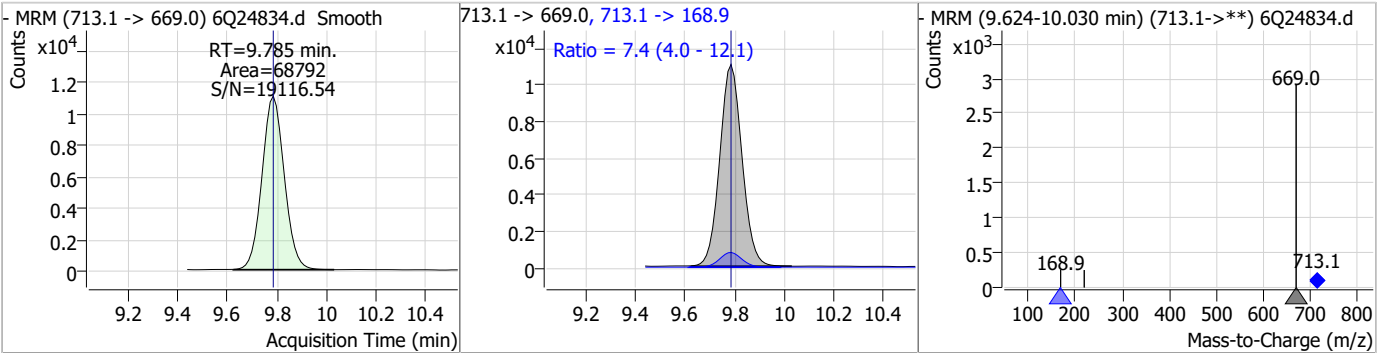
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.47	9.68	0.00	44473	506.1 -> 77.8	7.4	4.0	12.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.13	9.78	0.00	21618	715.2 -> 670.0	7.4	4.0	12.1

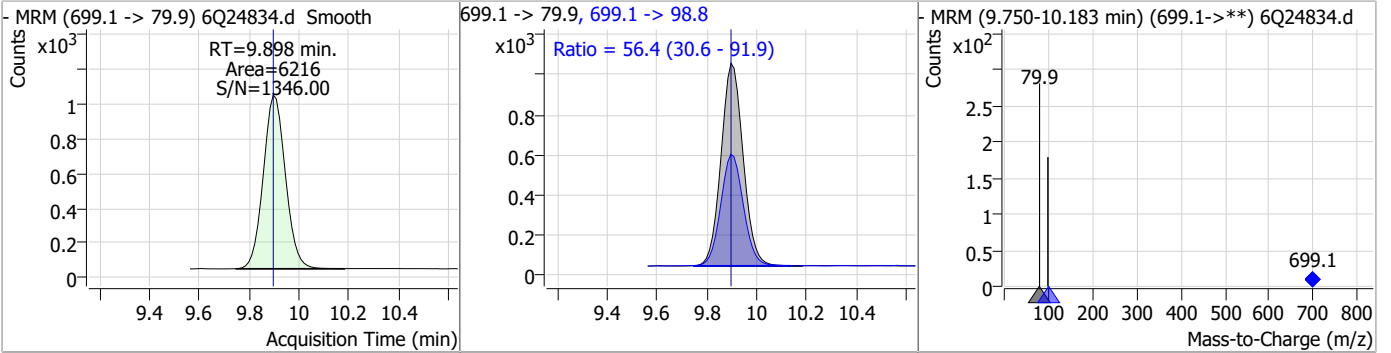


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.38	9.78	0.00	68792	713.1 -> 168.9	7.4	4.0	12.1

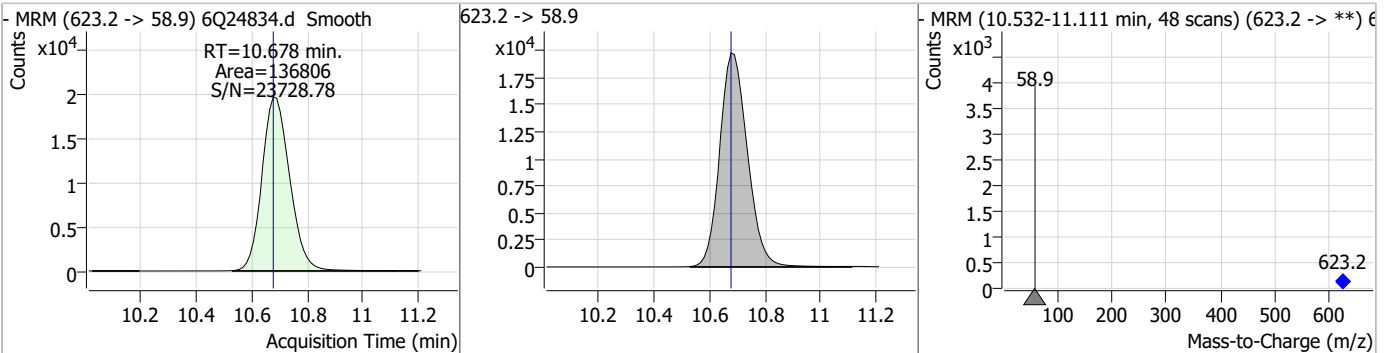


Perfluorinated Compounds by LC/MS/MS

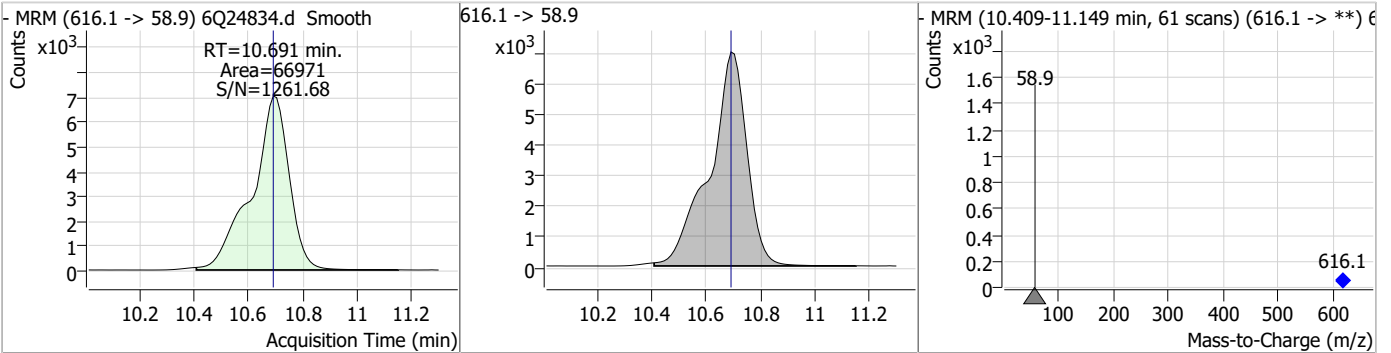
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.17	9.90	0.00	6216	699.1 -> 98.8	56.4	30.6	91.9



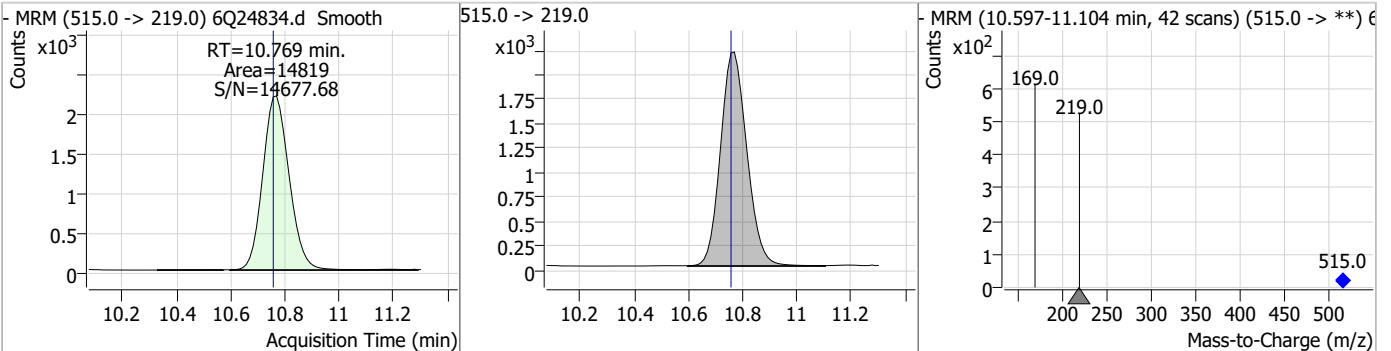
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.38	10.68	0.00	136806				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.40	10.69	0.00	66971				



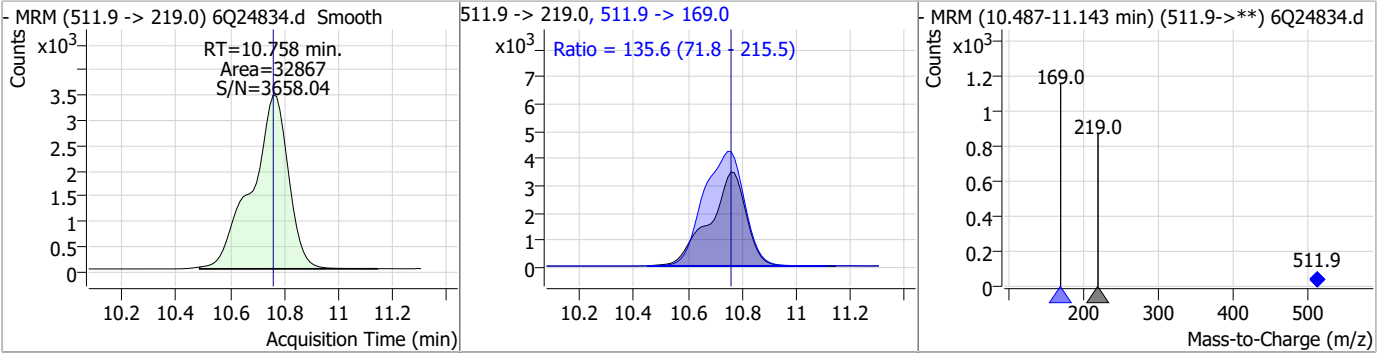
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.27	10.77	0.01	14819				



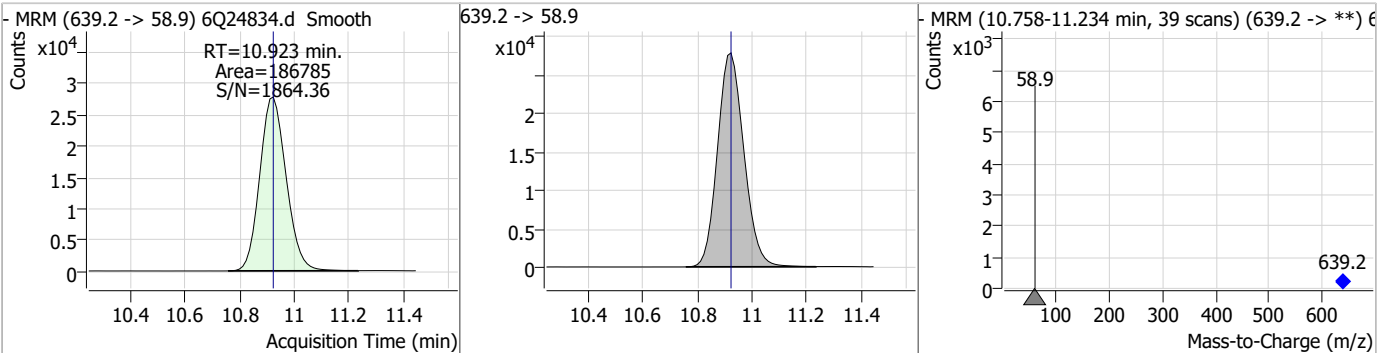
7.7.14
7

Perfluorinated Compounds by LC/MS/MS

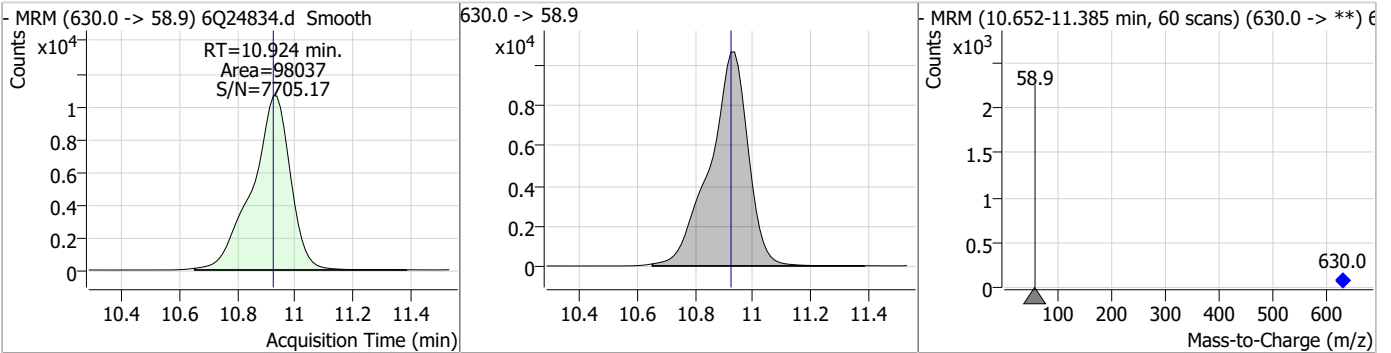
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.93	10.76	0.00	32867	511.9 -> 169.0	135.6	71.8	215.5



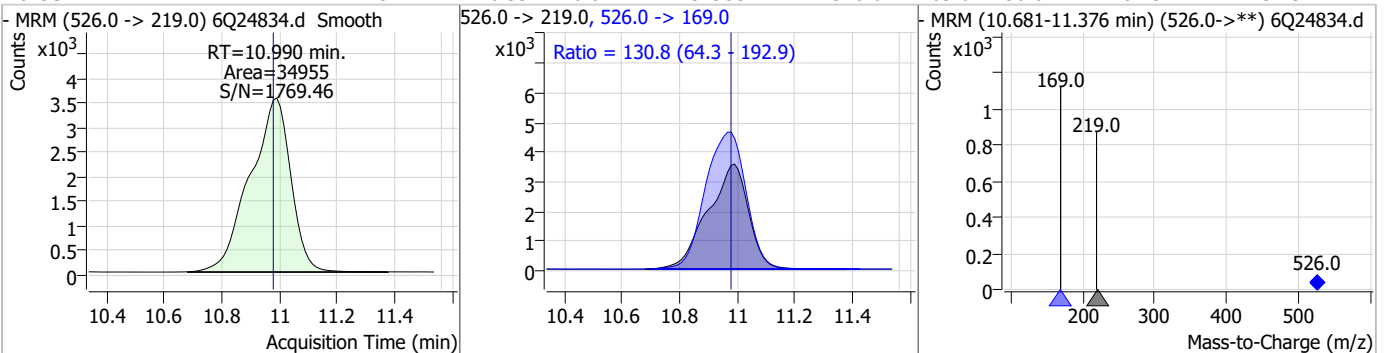
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.33	10.92	0.00	186785				



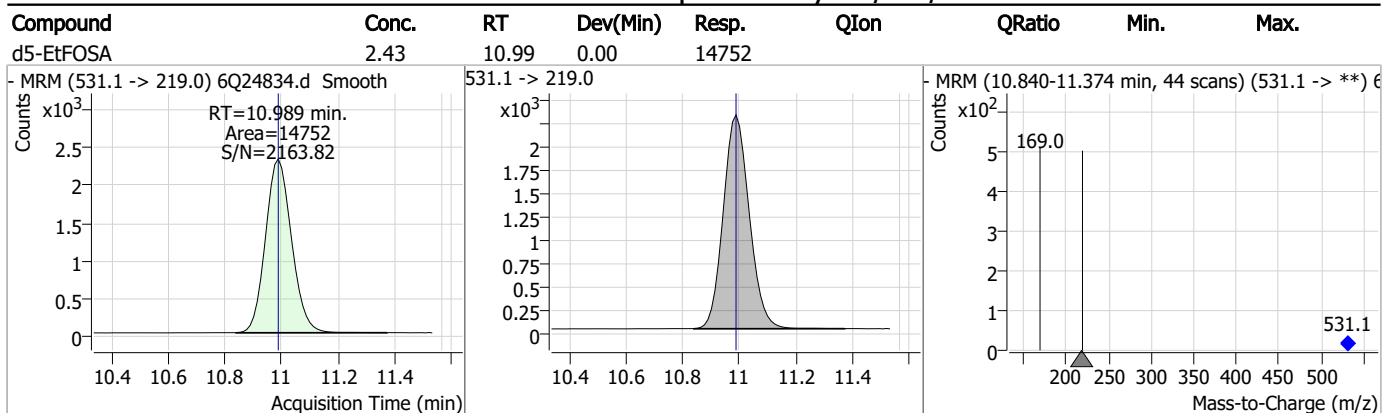
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.20	10.92	0.00	98037				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	4.51	10.99	0.01	34955	526.0 -> 169.0	130.8	64.3	192.9



Perfluorinated Compounds by LC/MS/MS



7.7.14
7

Manual Integration Approval Summary

Sample Number: S6Q355-CC355 Method: EPA DRAFT 1633
Lab FileID: 6Q24834.D Analyst approved: 09/22/23 11:03 Anna Ludwig
Injection Time: 09/22/23 02:05 Supervisor approved: 09/22/23 13:16 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.7.14.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24845.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/22/2023 4:43:04 AM
 Sample Name : cc355-4
 Vial : P1-A5
 DA Method File : 1633_092123_S6Q355.quantmethod.xml
 Batch Name : s6q355.batch.bin
 Sample Information : OP99081,S6Q355,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	335636	10.00 µg/L	-0.012
M5-PFPeA	4.434	268.3 -> 223.0	52867	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	128918	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	101306	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	131743	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	58583	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	57979	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	67799	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	71104	1.25 µg/L	-0.012
M2-PFTeDA	9.784	715.2 -> 670.0	29600	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	49290	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	39159	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	20889	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	20898	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	4435	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	6386	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	5920	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	43717	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	67876	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	34545	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	144638	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	190941	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	14616	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	15311	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	27886	2.50 µg/L	0.000
13C3-PFBA	3.001	216.0 -> 172.0	135949	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	16451	2.50 µg/L	0.012
13C4-PFOA	7.199	417.1 -> 372.0	151496	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	50674	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	62445	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	90720	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	4435	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C2-6:2FTS	6.974	429.1 -> 80.9	6386	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C2-8:2FTS	7.998	529.1 -> 80.9	5920	4.79 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C2-PFDoDA	9.067	615.1 -> 570.0	71104	1.39 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.8%		
13C2-PFTeDA	9.784	715.2 -> 670.0	29600	1.44 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 115.5%		
13C3-PFBS	5.571	302.1 -> 79.9	39159	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C3-PFHxS	7.301	402.1 -> 79.9	20889	2.34 µg/L	-0.012

7.7.15
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.8%	
13C4-PFBA	2.997	216.8 -> 171.9	335636	10.12 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C4-PFHpA	6.569	367.1 -> 322.0	101306	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C5-PFHxA	5.641	318.0 -> 273.0	128918	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C5-PFPeA	4.434	268.3 -> 223.0	52867	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C6-PFDA	8.198	519.1 -> 474.1	57979	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C7-PFUnDA	8.651	570.0 -> 525.1	67799	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C8-FOSA	9.682	506.1 -> 77.8	49290	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C8-PFOA	7.198	421.1 -> 376.0	131743	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-PFOS	8.348	507.1 -> 79.9	20898	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C9-PFNA	7.717	472.1 -> 427.0	58583	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.5%	
d3-MeFOSAA	8.256	573.2 -> 419.0	43717	5.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.8%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	67876	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
d3-MeFOSA	10.757	515.0 -> 219.0	15311	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.4%	
d5-EtFOSAA	8.452	589.2 -> 419.0	34545	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
d7-MeFOSE	10.678	623.2 -> 58.9	144638	24.31 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
d9-EtFOSE	10.911	639.2 -> 58.9	190941	24.45 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
d5-EtFOSA	10.989	531.1 -> 219.0	14616	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	60905	8.48 µg/L	96
		327.1 -> 80.9	21810		
6:2FTS	6.974	427.1 -> 407.0	48330	8.19 µg/L	96
		427.1 -> 80.9	19252		
8:2FTS	7.999	527.1 -> 507.0	33972	9.04 µg/L	88
		527.1 -> 80.8	13348		
EtFOSAA	8.452	584.2 -> 419.1	12054	2.31 µg/L	92
		584.2 -> 526.0	8574		
FOSA	9.672	498.1 -> 77.9	36848	2.17 µg/L	99
		498.1 -> 478.0	1122		
MeFOSAA	8.257	570.1 -> 419.0	20372	2.05 µg/L	94
		570.1 -> 483.0	4311		
PFBA	3.006	212.8 -> 168.9	93667	9.06 µg/L	100
PFBS	5.572	298.7 -> 79.9	35550	1.92 µg/L	97
		298.7 -> 98.8	13565		
PFDA	8.198	512.9 -> 469.0	100988	1.95 µg/L	99
		512.9 -> 219.0	17087		
PFDoDA	9.080	613.1 -> 569.0	105146	2.03 µg/L	99
		613.1 -> 319.0	12236		
PFDS	9.233	599.0 -> 79.9	12429	2.03 µg/L	95

7.7.15
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	6362			
PFHpA	6.569	363.1 -> 319.0	109094	2.12	µg/L	98
		363.1 -> 169.0	16570			
PFHpS	7.856	449.0 -> 79.9	20991	2.05	µg/L	100
		449.0 -> 98.9	9875			
PFHxA	5.644	313.0 -> 269.0	92913	2.07	µg/L	99
		313.0 -> 118.9	4156			
PFHxS	7.302	398.7 -> 79.9	27020	2.00	µg/L	m 97
		398.7 -> 98.9	13473			
PFNA	7.717	463.0 -> 419.0	80478	2.14	µg/L	99
		463.0 -> 219.0	19536			
PFNS	8.814	548.8 -> 79.9	20743	2.04	µg/L	98
		548.8 -> 98.9	11571			
PFOA	7.200	413.0 -> 369.0	129074	2.12	µg/L	100
		413.0 -> 169.0	22656			
PFOS	8.350	498.9 -> 79.9	22448	1.90	µg/L	m 93
		498.9 -> 98.8	10566			
PFPeA	4.436	263.0 -> 219.0	113838	4.37	µg/L	100
PFPeS	6.620	349.1 -> 79.9	24533	2.19	µg/L	98
		349.1 -> 98.9	11581			
PFTeDA	9.785	713.1 -> 669.0	86159	2.18	µg/L	99
		713.1 -> 168.9	6573			
PFTrDA	9.452	663.0 -> 619.0	115568	2.09	µg/L	99
		663.0 -> 168.9	9539			
PFUnDA	8.652	563.1 -> 519.0	91066	2.31	µg/L	100
		563.1 -> 269.1	13183			
11CI-PF3OUdS	9.491	630.9 -> 450.9	95394	4.33	µg/L	94
		632.9 -> 452.9	32659			
9CI-PF3ONS	8.678	530.8 -> 351.0	172346	4.43	µg/L	95
		532.8 -> 353.0	59051			
ADONA	6.817	376.9 -> 250.9	458843	4.58	µg/L	96
		376.9 -> 84.8	112117			
HFPO-DA	6.020	284.9 -> 168.9	30876	4.79	µg/L	98
		284.9 -> 184.9	4189			
3:3FTCA	3.902	241.0 -> 177.0	19944	11.05	µg/L	99
		241.0 -> 117.0	1952			
5:3FTCA	6.296	341.0 -> 237.1	462532	58.81	µg/L	89
		341.0 -> 217.0	289928			
7:3FTCA	7.669	441.0 -> 316.9	279147	60.84	µg/L	95
		441.0 -> 336.9	608779			
EtFOSA	10.990	526.0 -> 219.0	35246	4.59	µg/L	95
		526.0 -> 169.0	47437			
EtFOSE	10.924	630.0 -> 58.9	103233	11.53	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	33719	4.89	µg/L	97
		511.9 -> 169.0	46988			
MeFOSE	10.691	616.1 -> 58.9	69435	11.18	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	6558	2.18	µg/L	94
		699.1 -> 98.8	3702			
NFDHA	5.524	295.0 -> 201.0	22233	4.19	µg/L	98
		295.0 -> 84.9	5490			
PFMBA	4.850	279.0 -> 85.1	83702	4.54	µg/L	100
PFMPA	3.563	229.0 -> 84.9	61339	4.49	µg/L	100
PFEESA	6.112	314.8 -> 134.9	221749	3.76	µg/L	100
		314.8 -> 82.9	7743			

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

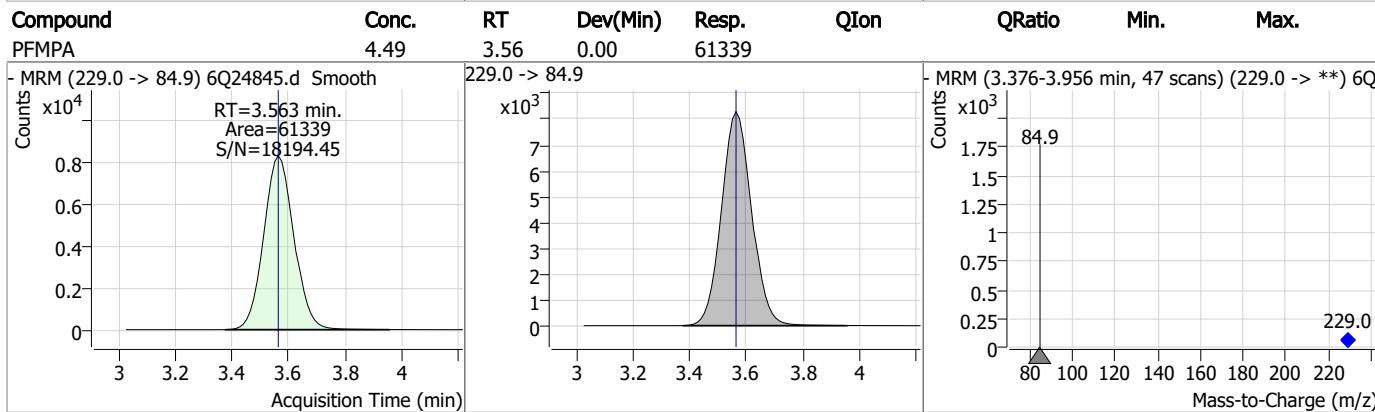
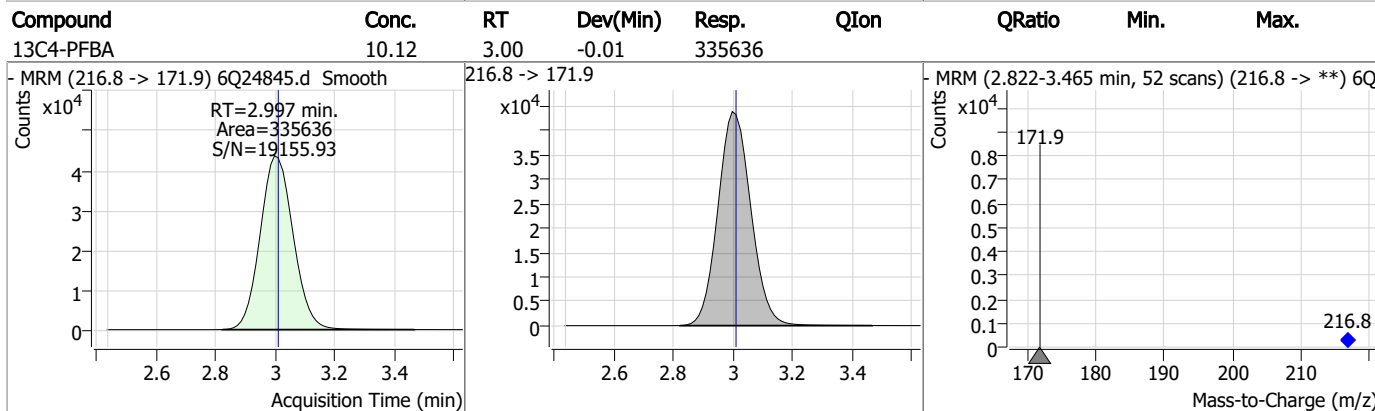
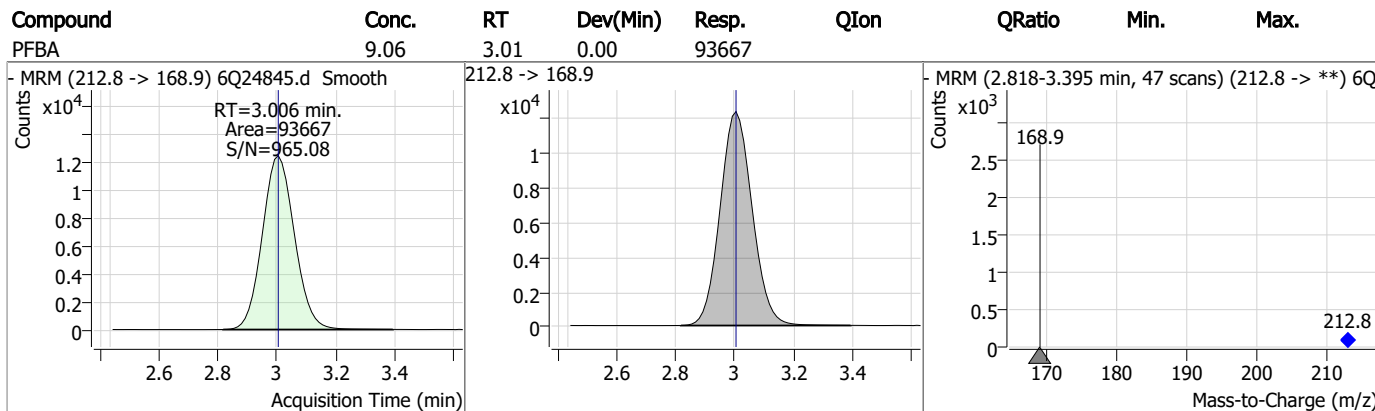
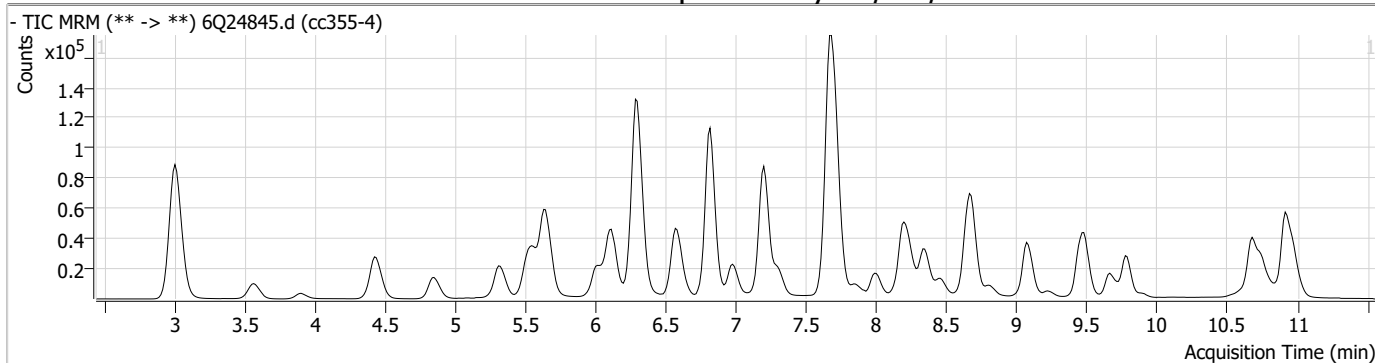
Perfluorinated Compounds by LC/MS/MS

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

7.7.15

7

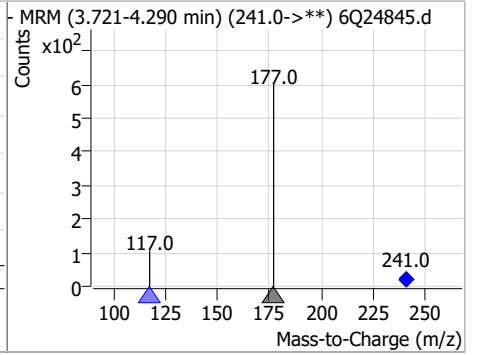
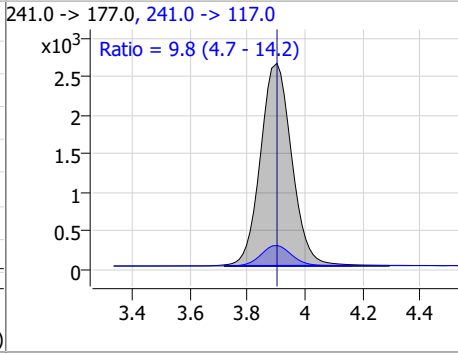
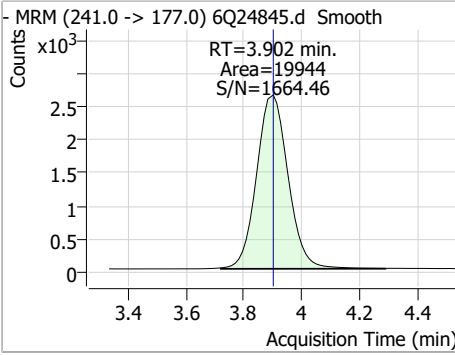
Perfluorinated Compounds by LC/MS/MS



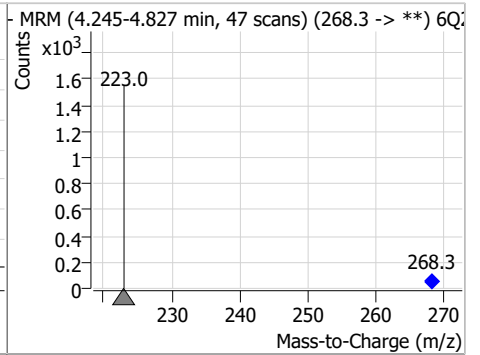
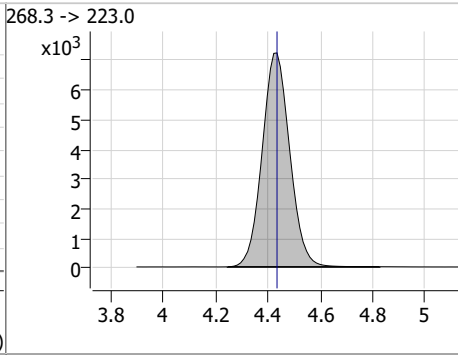
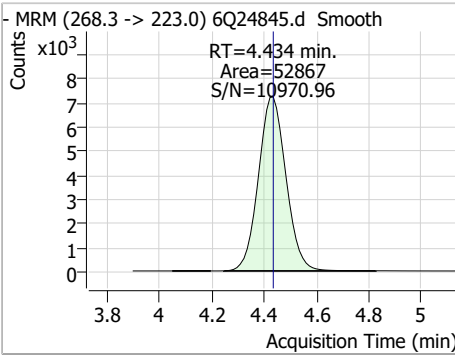
7.7.15
7

Perfluorinated Compounds by LC/MS/MS

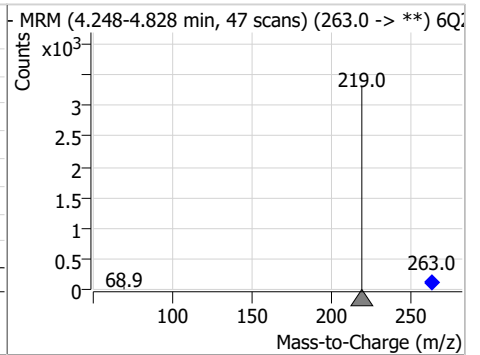
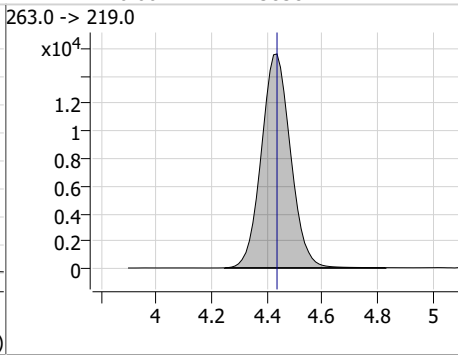
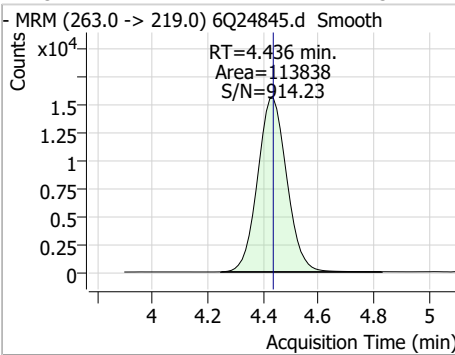
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.05	3.90	0.00	19944	241.0 -> 117.0	9.8	4.7	14.2



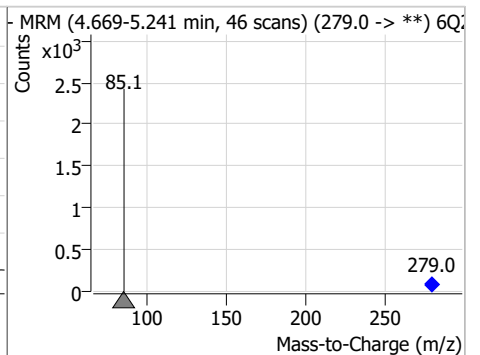
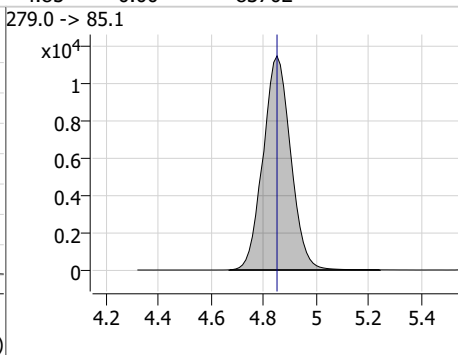
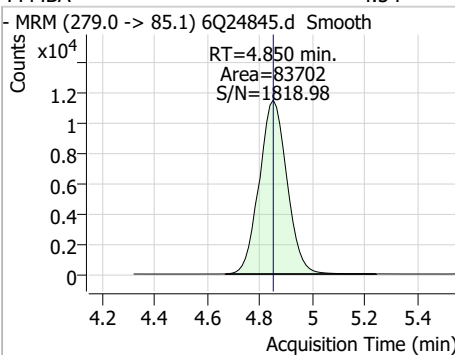
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.13	4.43	0.00	52867				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.37	4.44	0.00	113838				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.54	4.85	0.00	83702				



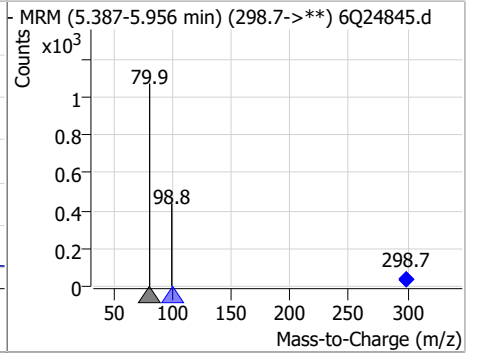
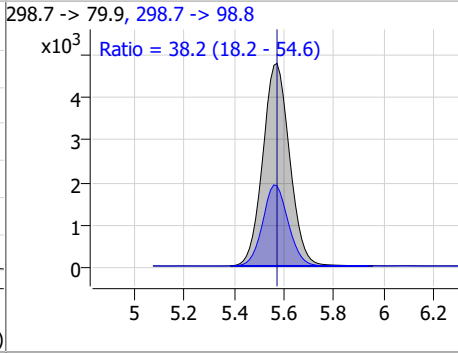
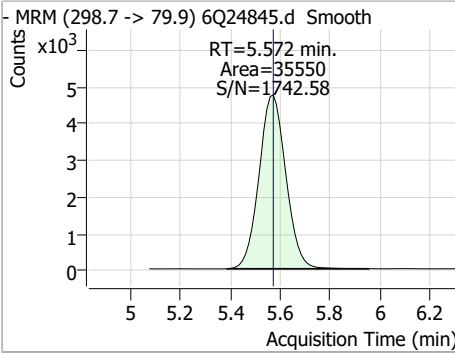
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.17	5.32	0.00	4435				
4:2FTS	8.48	5.32	0.00	60905	327.1 -> 80.9	35.8	19.1	57.4
NFDHA	4.19	5.52	0.00	22233	295.0 -> 84.9	24.7	12.8	38.3
13C3-PFBS	2.46	5.57	0.00	39159				

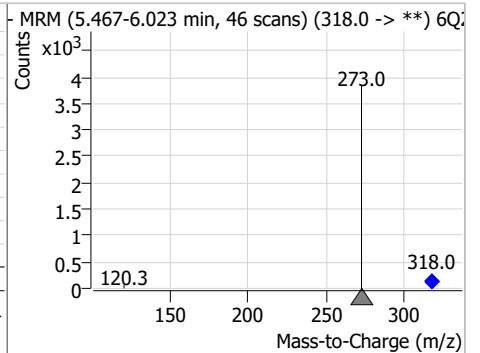
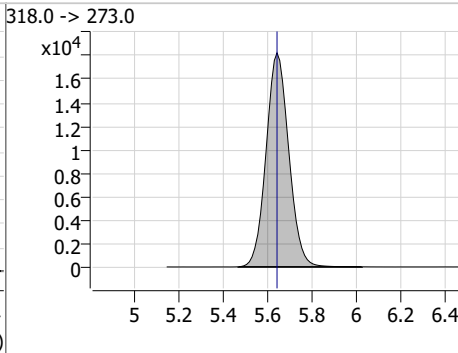
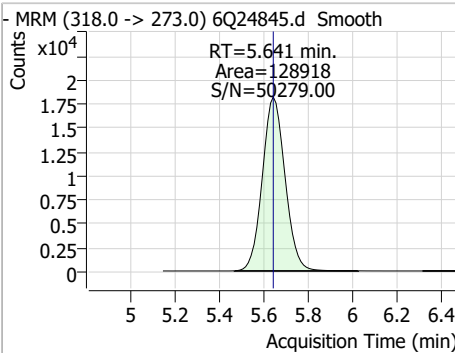
7.7.15
7

Perfluorinated Compounds by LC/MS/MS

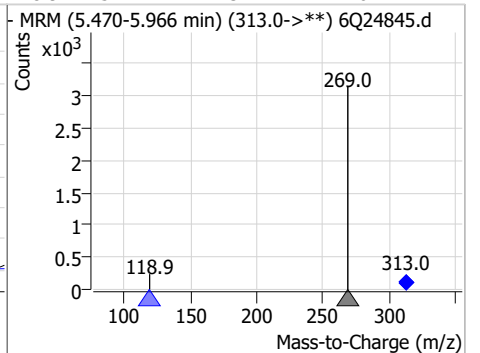
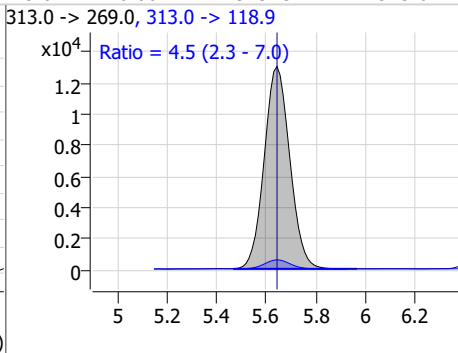
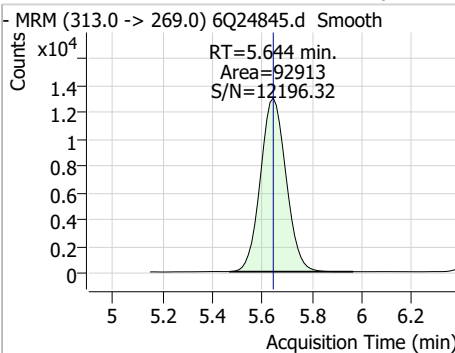
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.92	5.57	0.00	35550	298.7 -> 98.8	38.2	18.2	54.6



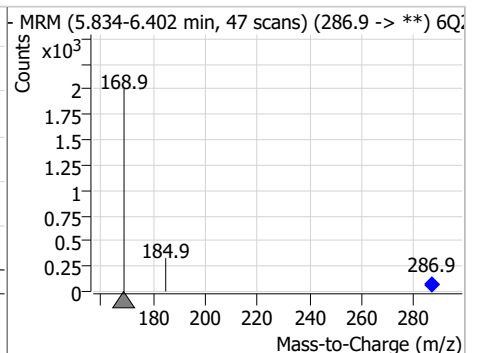
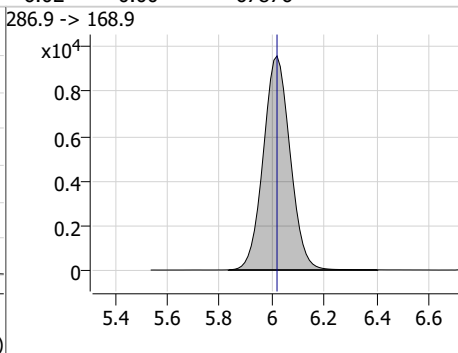
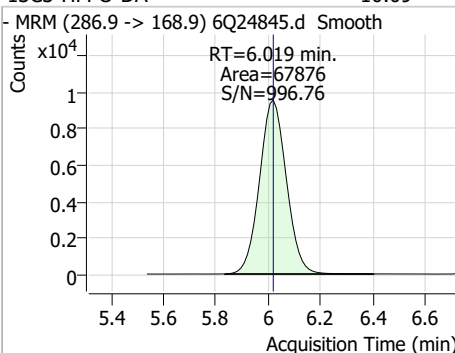
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.70	5.64	0.00	128918	318.0 -> 273.0	4.5	2.3	7.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.07	5.64	0.00	92913	313.0 -> 118.9	4.5	2.3	7.0

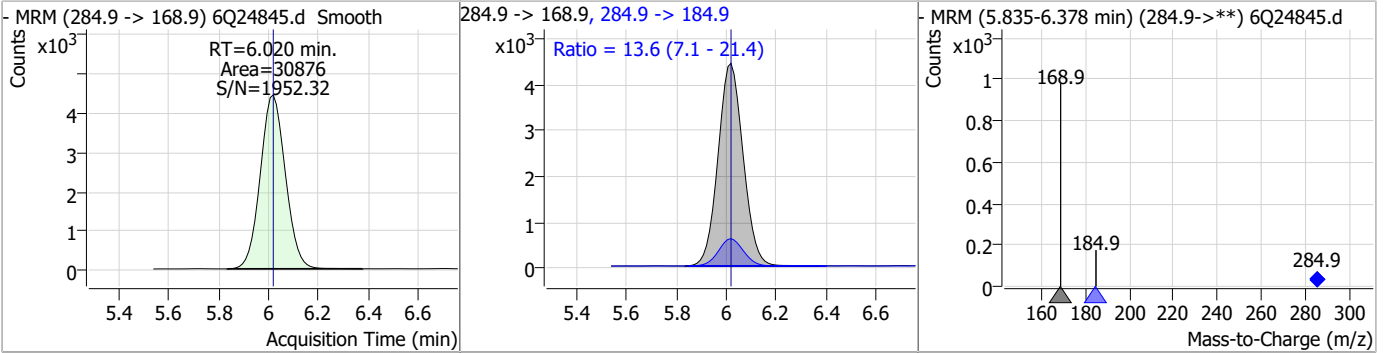


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.09	6.02	0.00	67876	286.9 -> 168.9	4.5	2.3	7.0

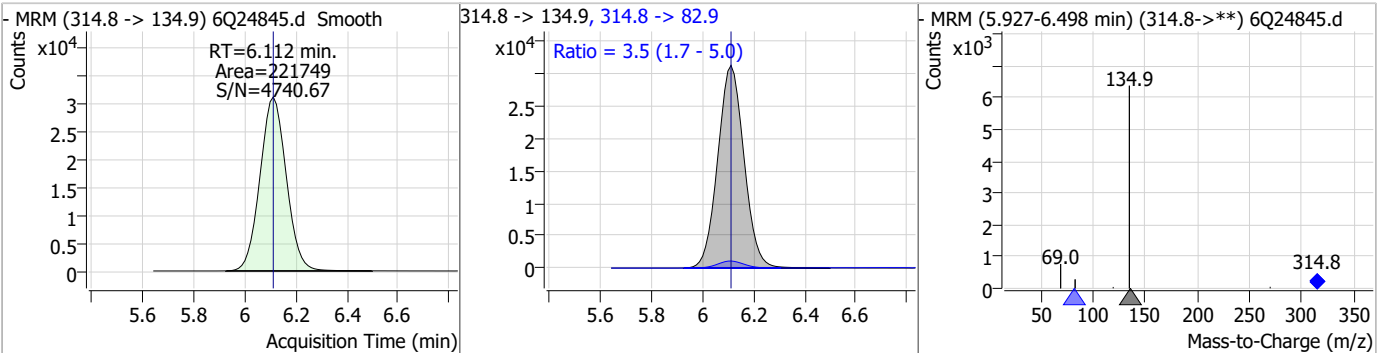


Perfluorinated Compounds by LC/MS/MS

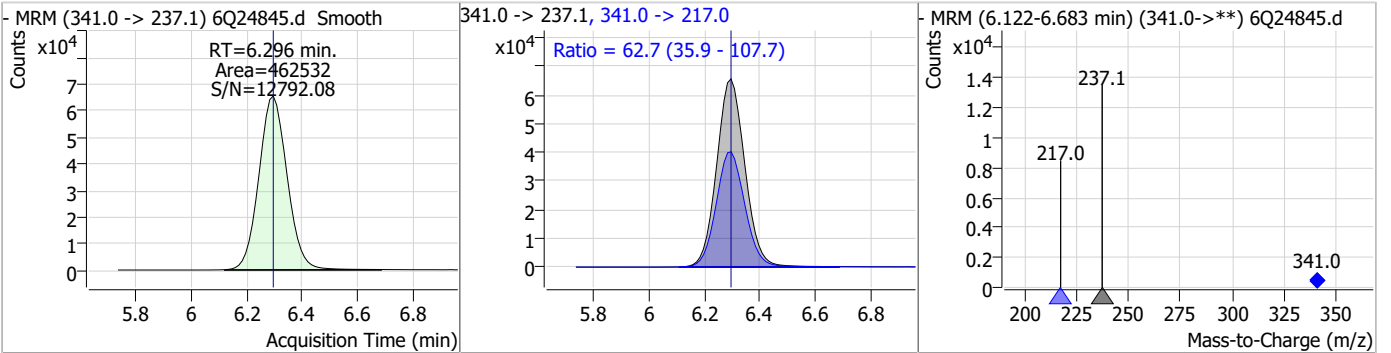
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.79	6.02	0.00	30876	284.9 -> 184.9	13.6	7.1	21.4



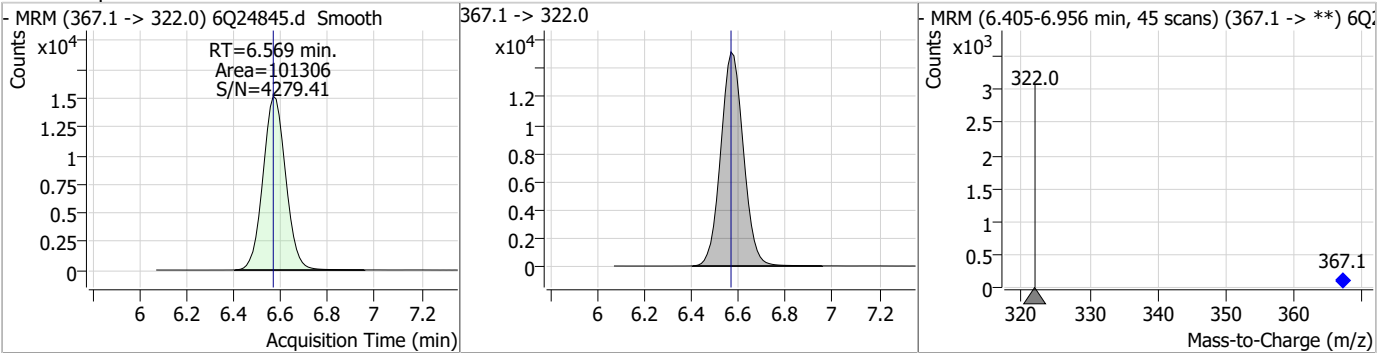
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	3.76	6.11	0.00	221749	314.8 -> 82.9	3.5	1.7	5.0



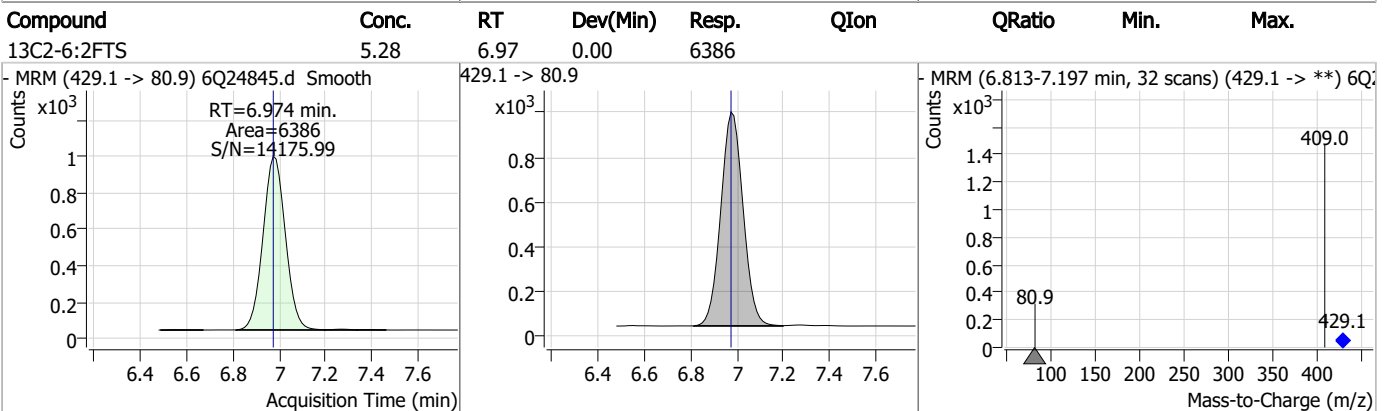
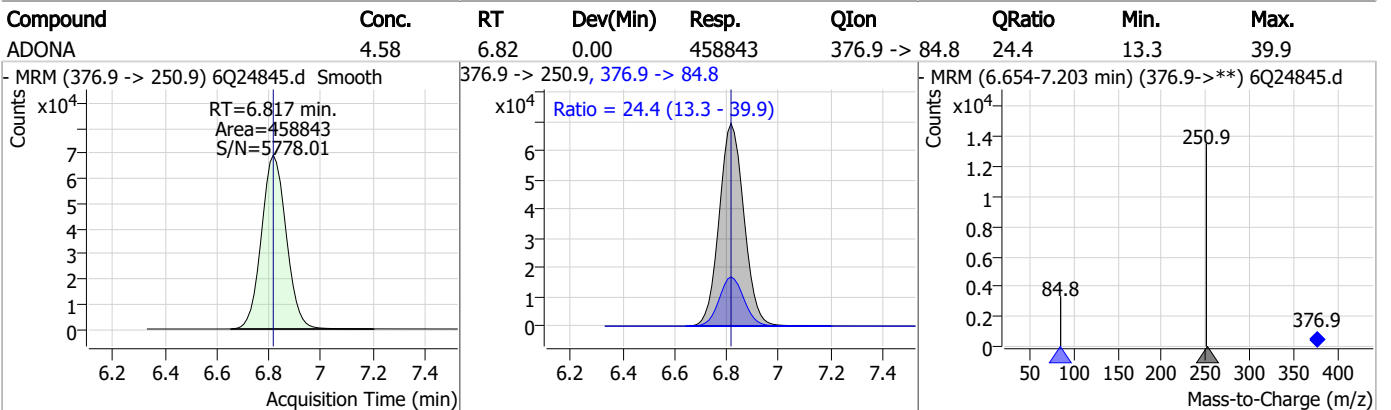
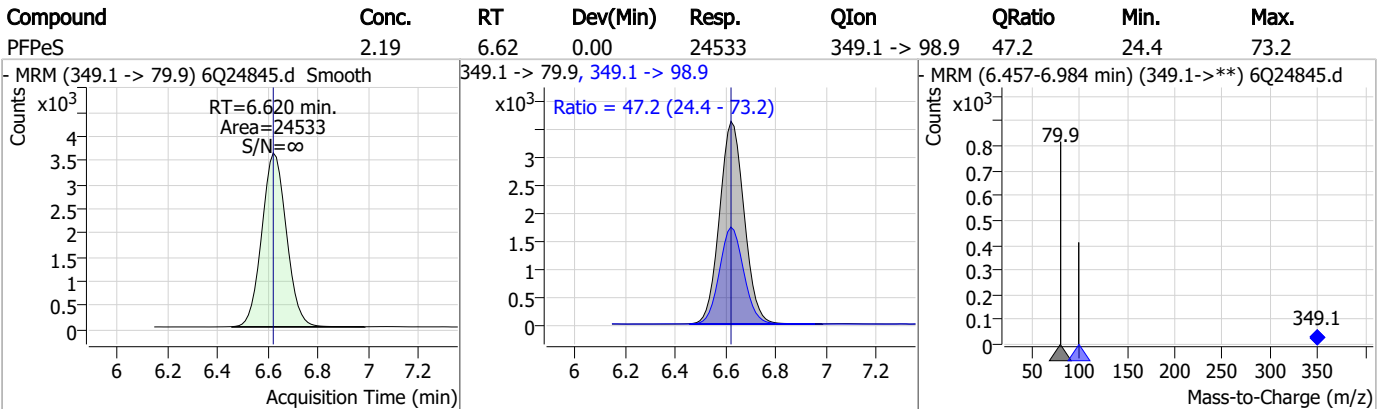
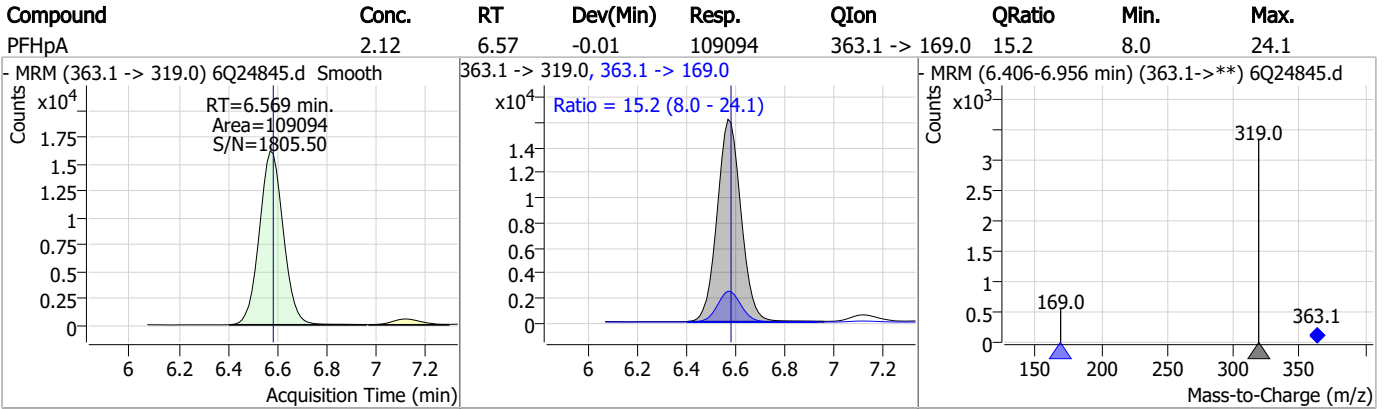
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	58.81	6.30	0.00	462532	341.0 -> 217.0	62.7	35.9	107.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.60	6.57	0.00	101306	367.1 -> 322.0	-	-	-



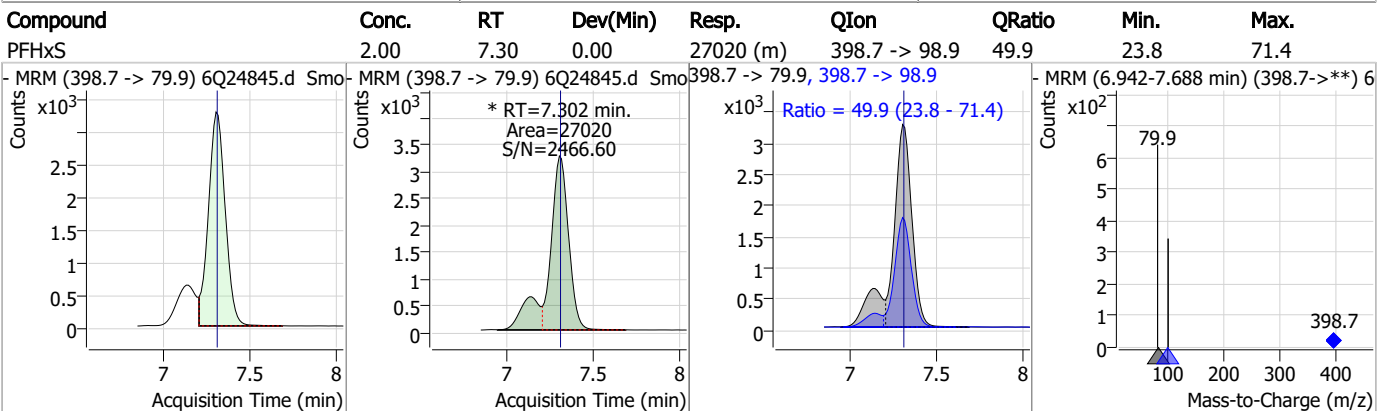
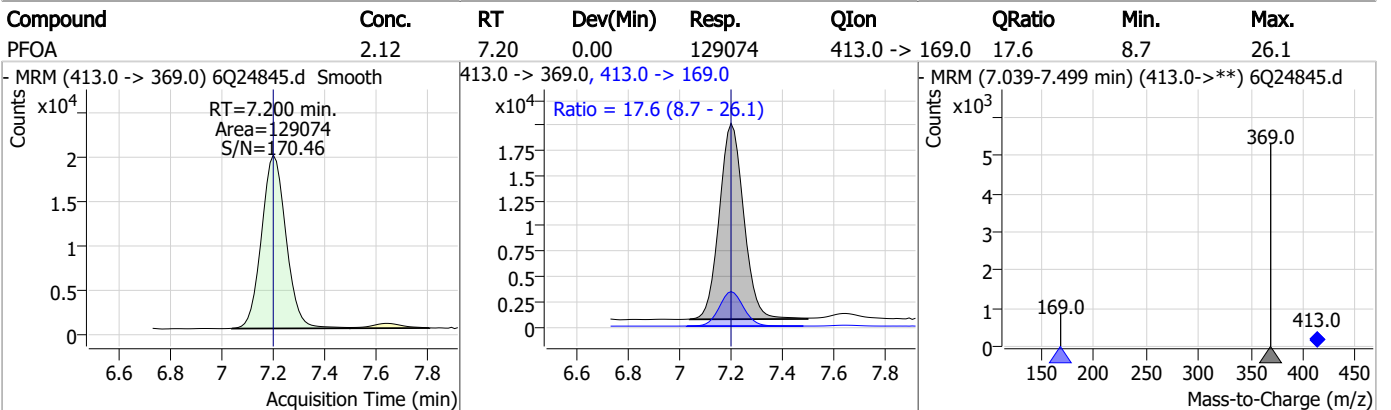
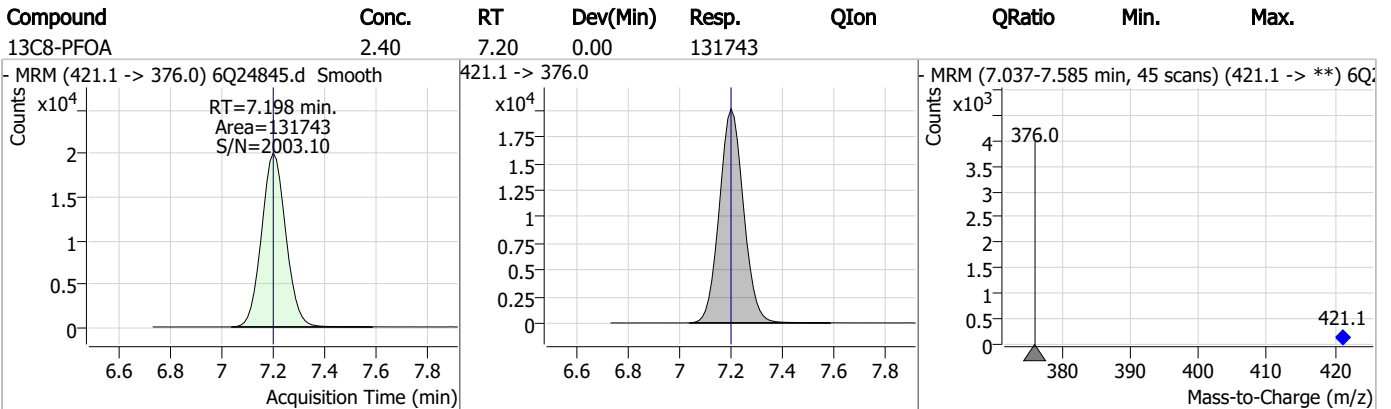
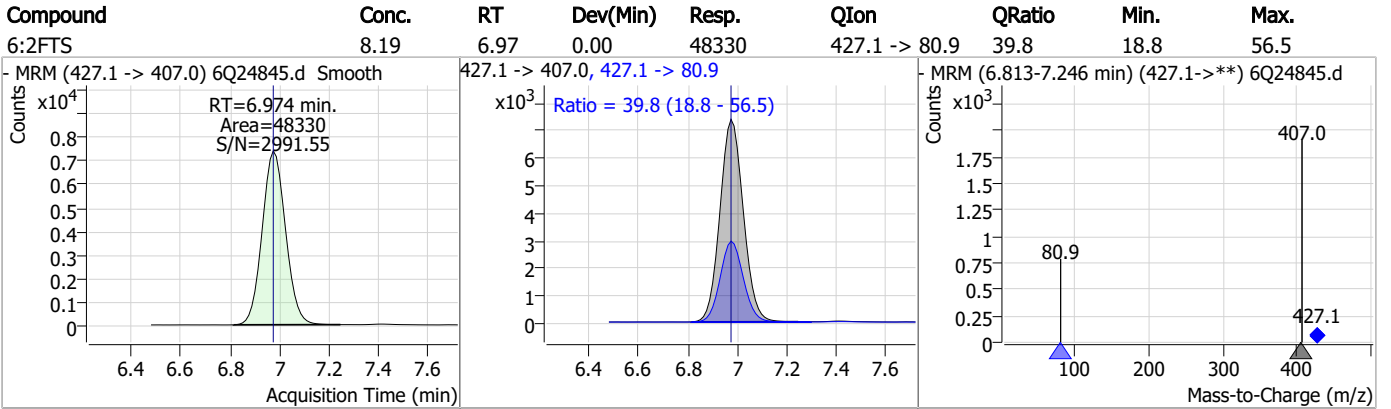
Perfluorinated Compounds by LC/MS/MS



7.7.15
7

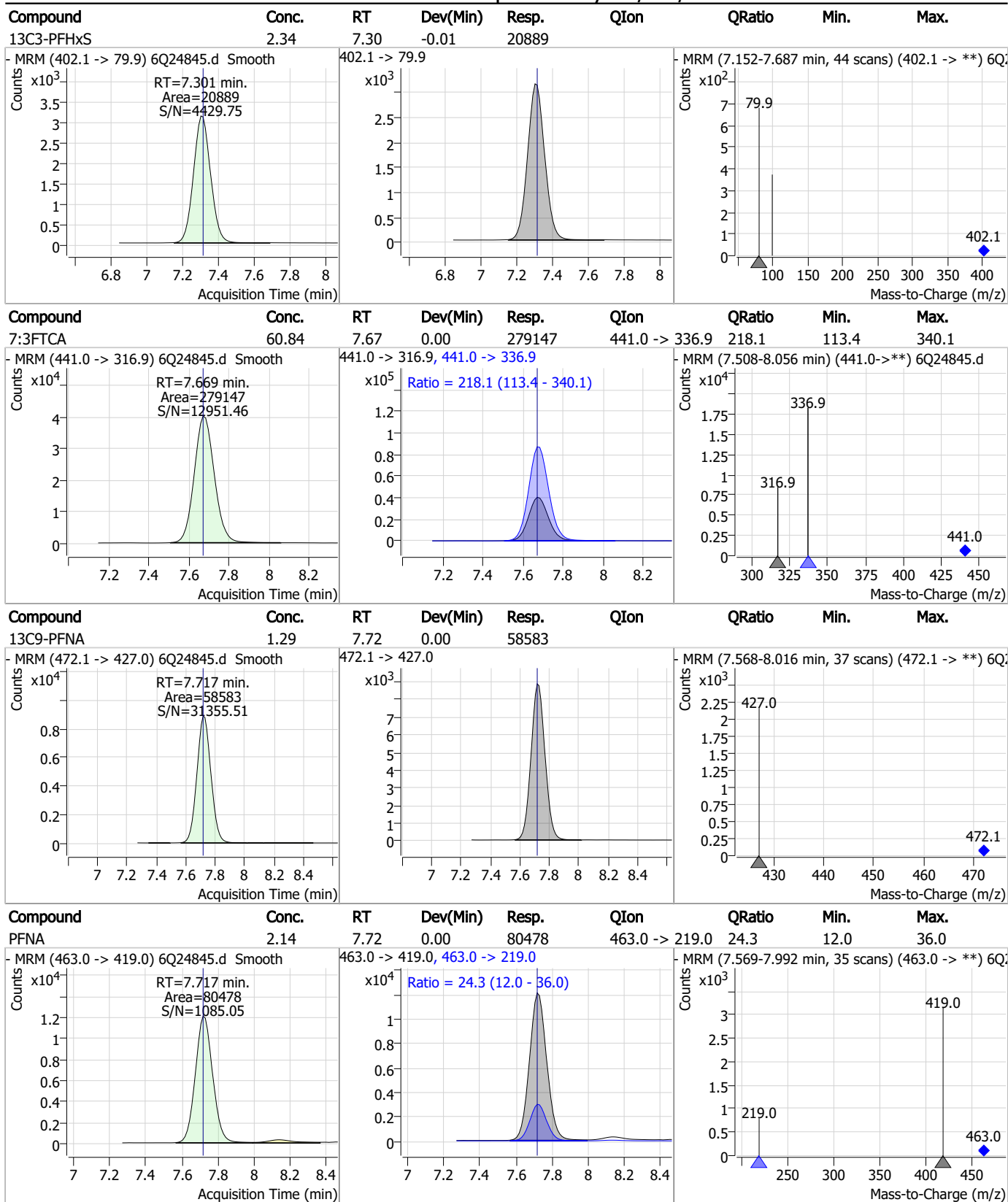


Perfluorinated Compounds by LC/MS/MS



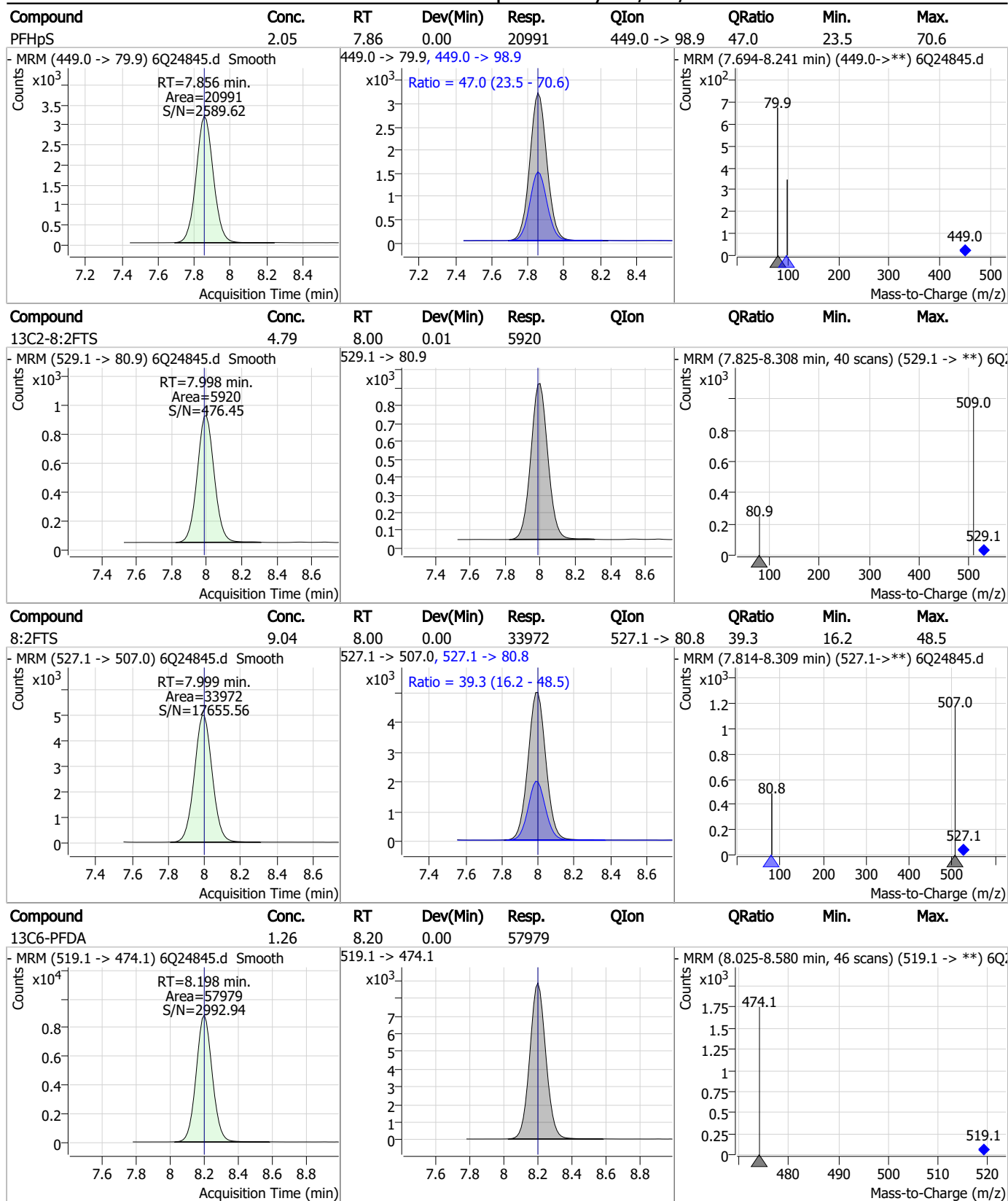
7.7.15 7

Perfluorinated Compounds by LC/MS/MS



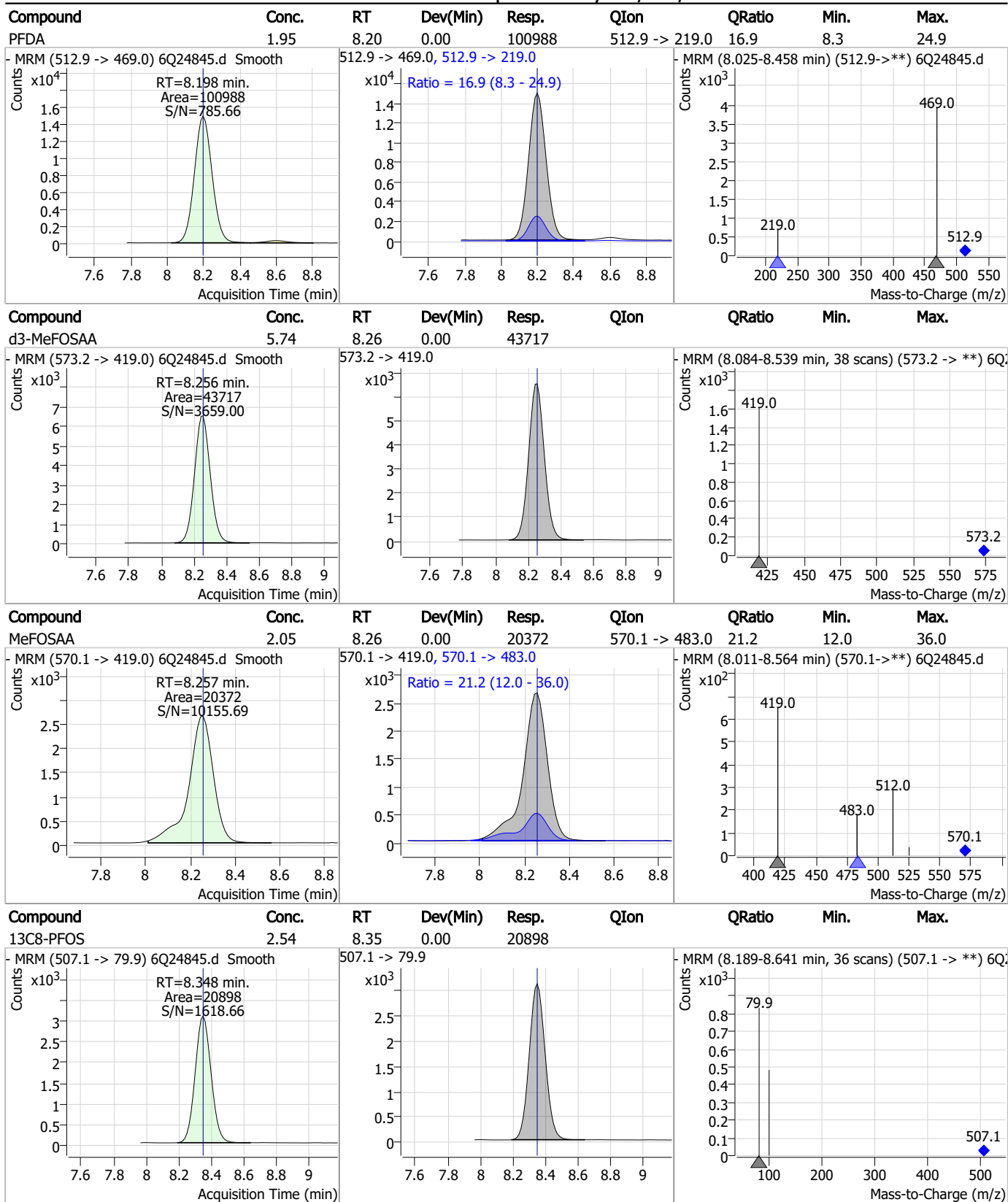
7.7.15
7

Perfluorinated Compounds by LC/MS/MS



7.7.15

Perfluorinated Compounds by LC/MS/MS

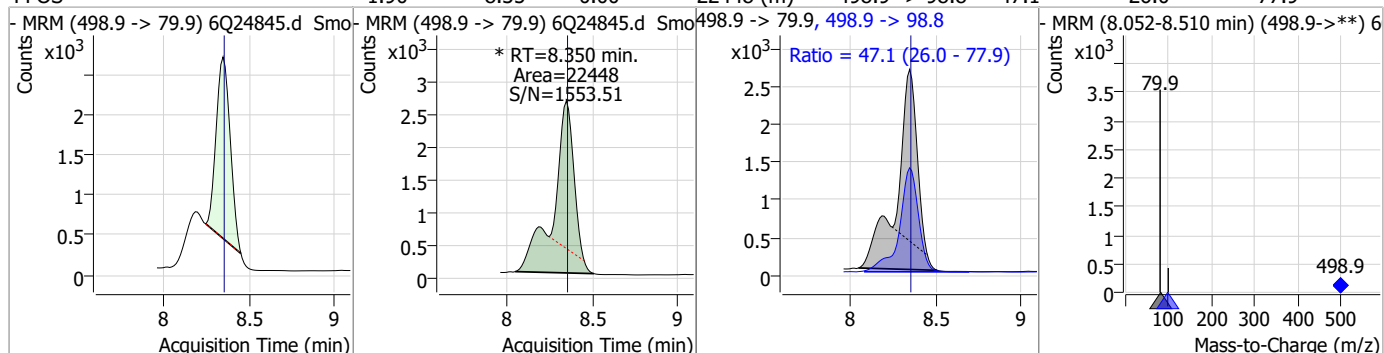


7.7.15

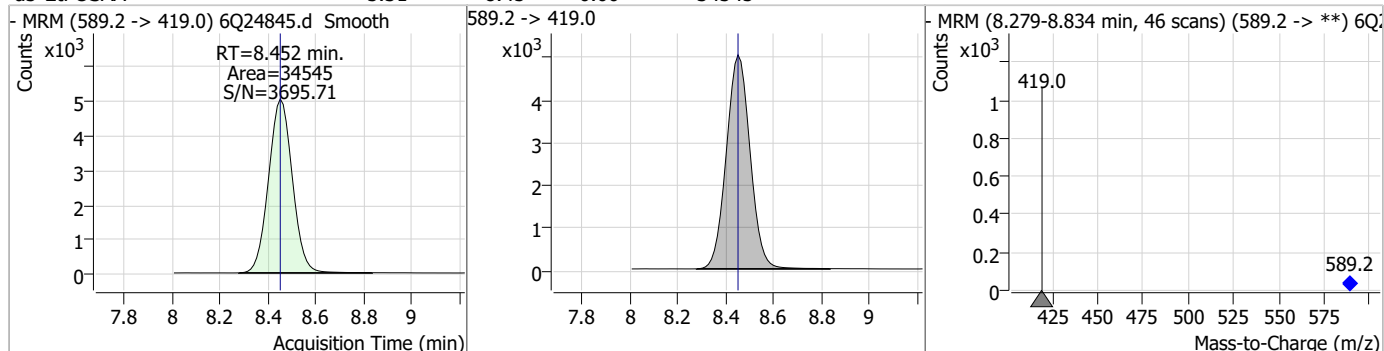
7

Perfluorinated Compounds by LC/MS/MS

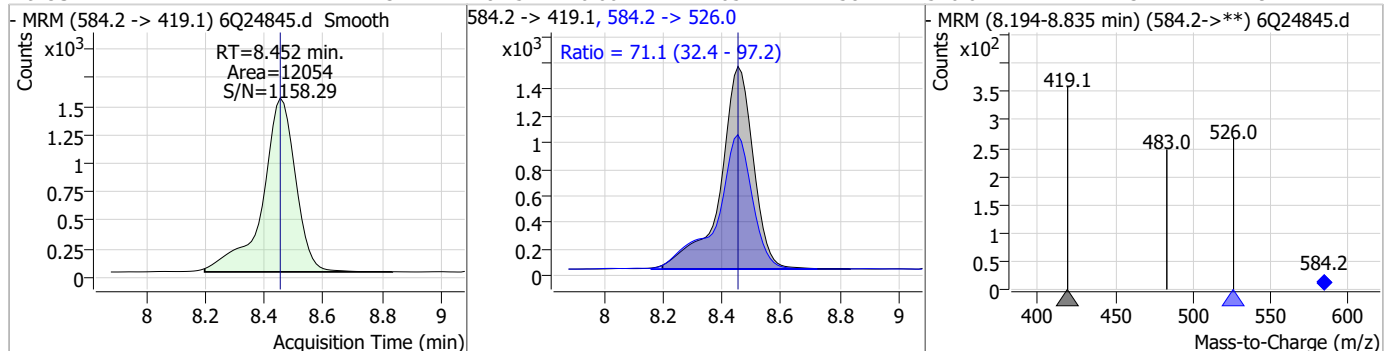
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.90	8.35	0.00	22448 (m)	498.9 -> 98.8	47.1	26.0	77.9



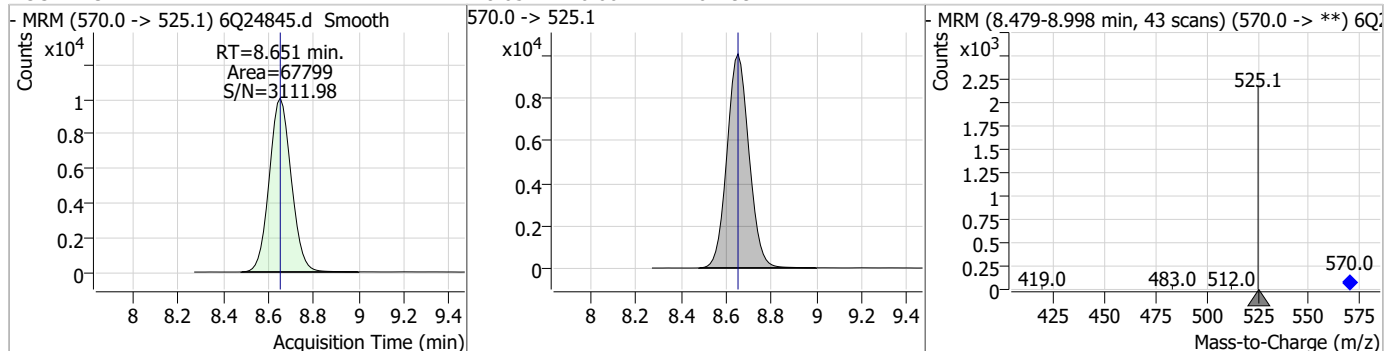
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.31	8.45	0.00	34545				



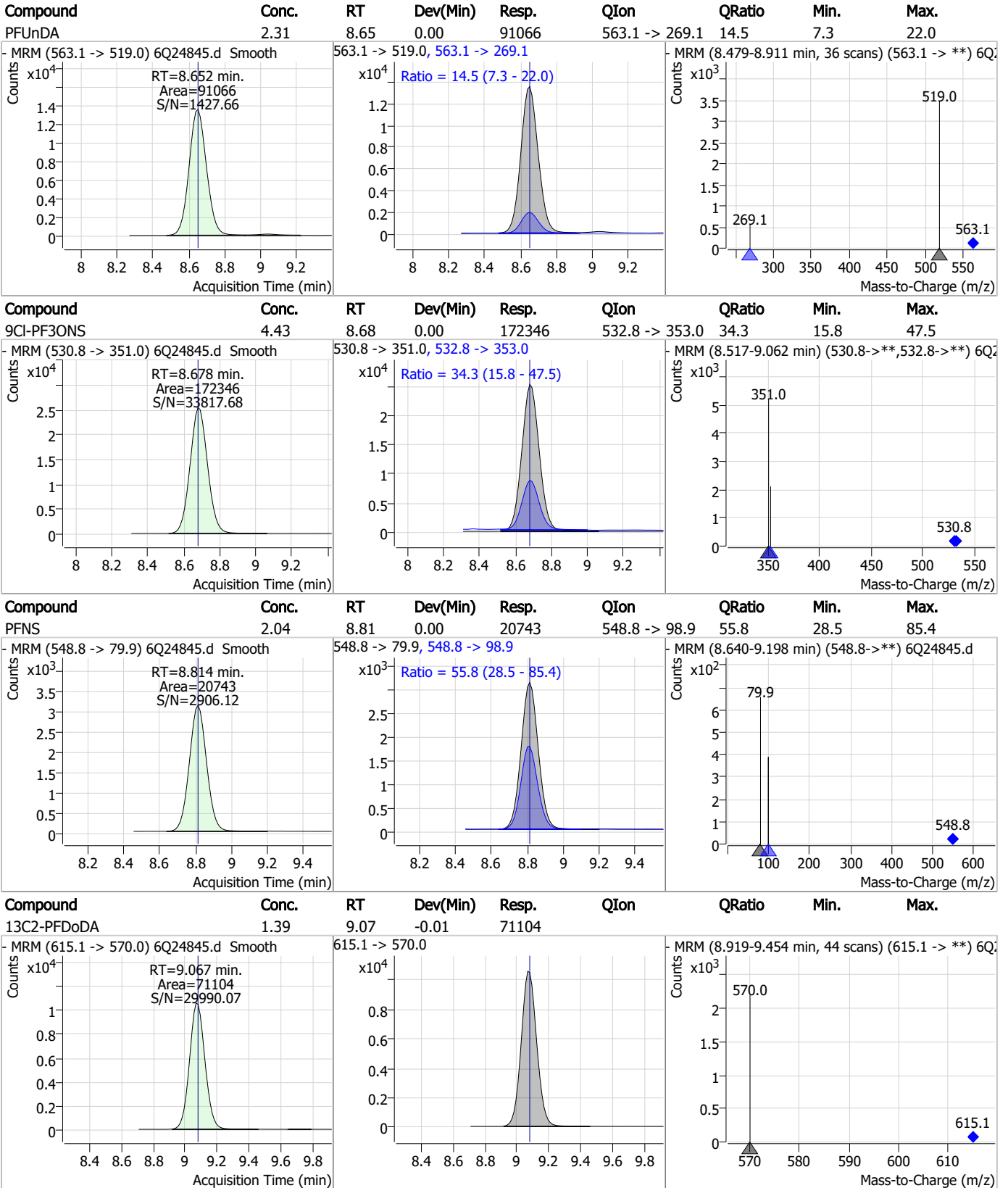
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.31	8.45	0.00	12054	584.2 -> 526.0	71.1	32.4	97.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.24	8.65	0.00	67799				



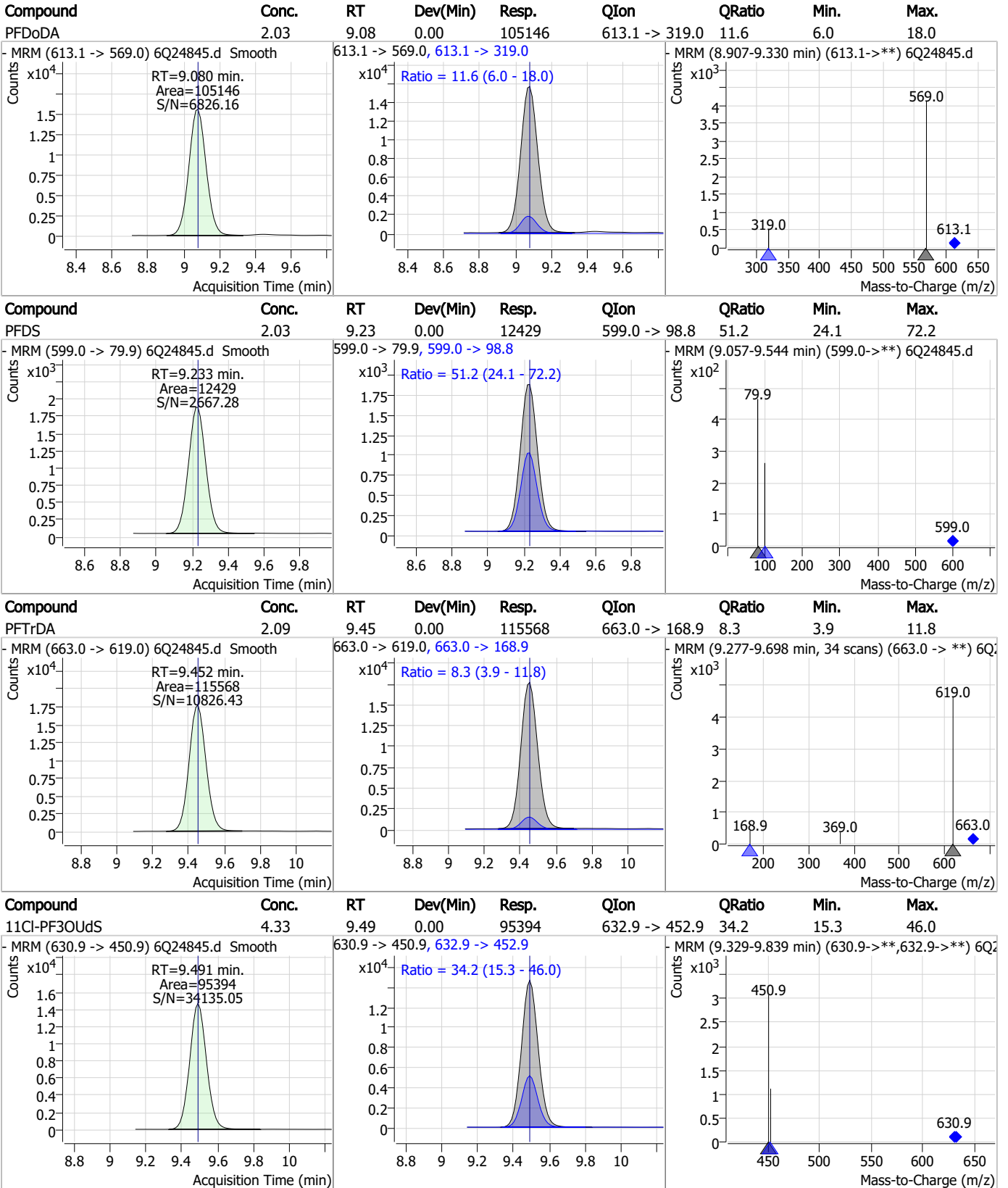
Perfluorinated Compounds by LC/MS/MS



7.7.15
7



Perfluorinated Compounds by LC/MS/MS

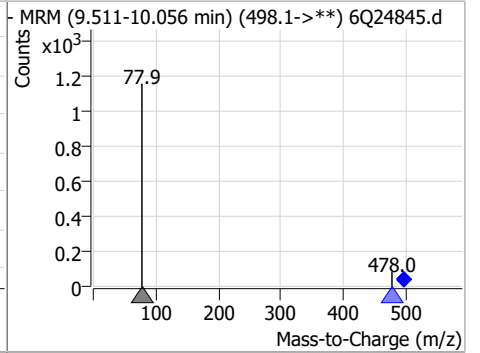
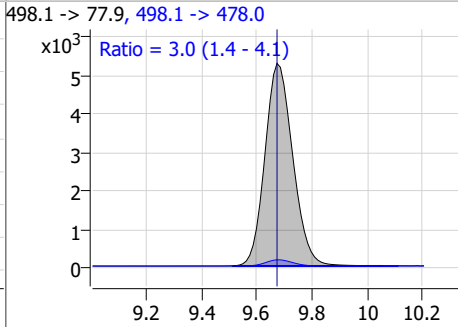
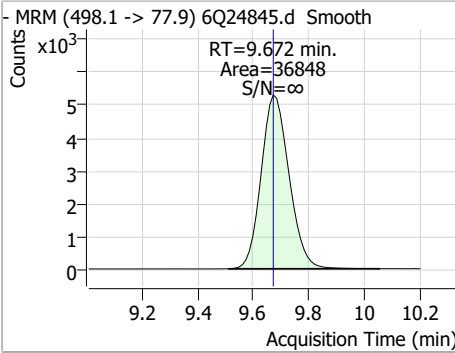


7.7.15 7

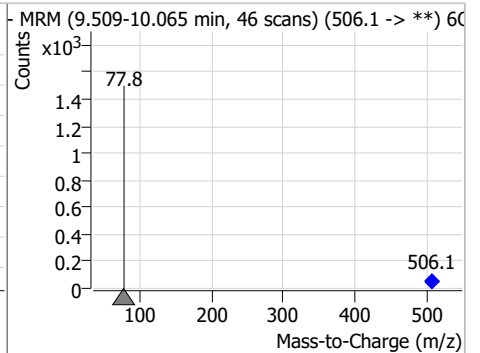
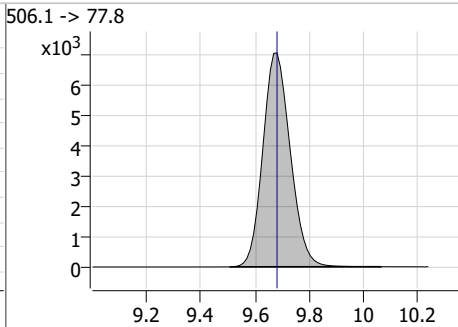
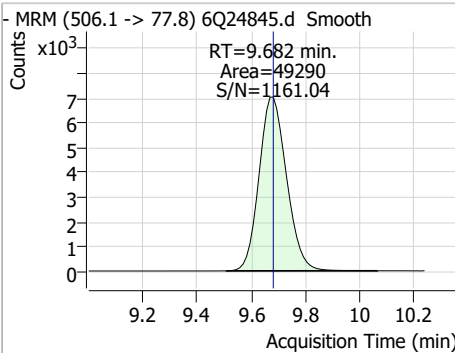


Perfluorinated Compounds by LC/MS/MS

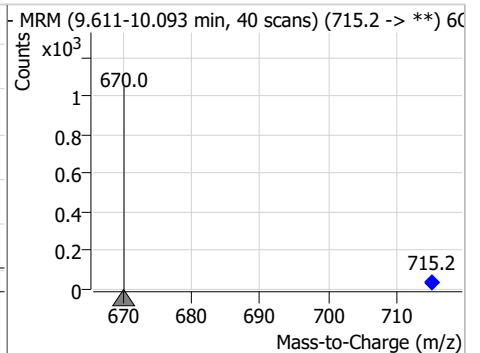
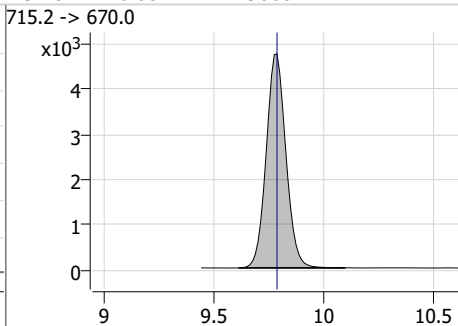
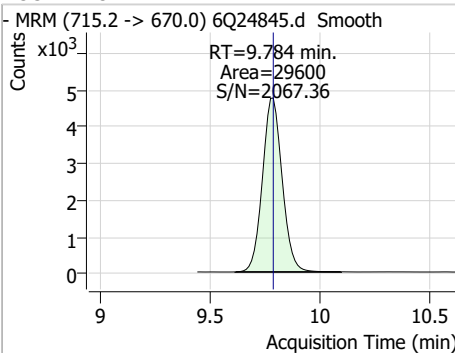
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.17	9.67	0.00	36848	498.1 -> 478.0	3.0	1.4	4.1



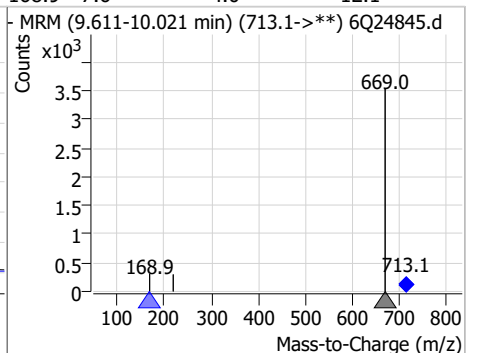
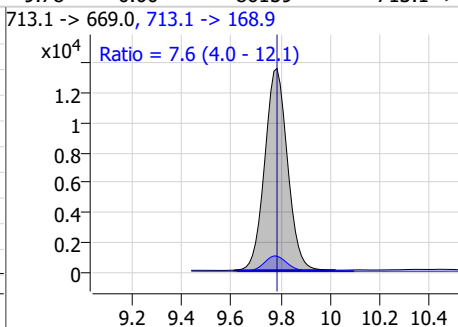
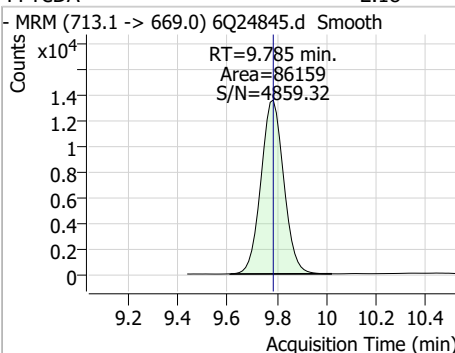
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.69	9.68	0.00	49290	506.1 -> 77.8			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.44	9.78	0.00	29600	715.2 -> 670.0			

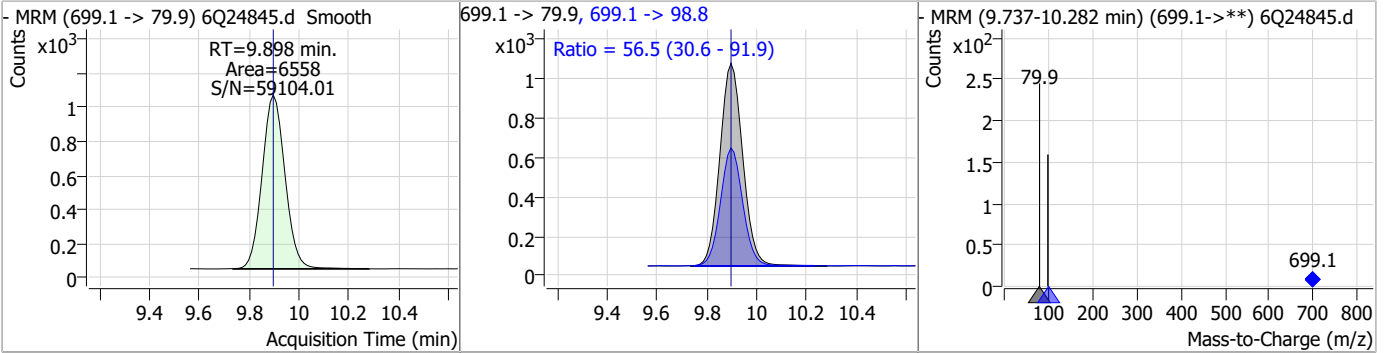


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.18	9.78	0.00	86159	713.1 -> 168.9	7.6	4.0	12.1

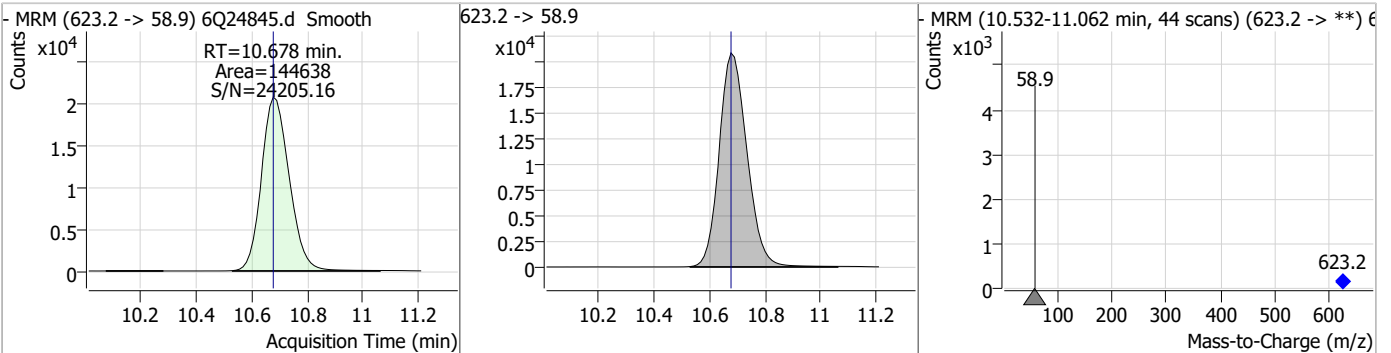


Perfluorinated Compounds by LC/MS/MS

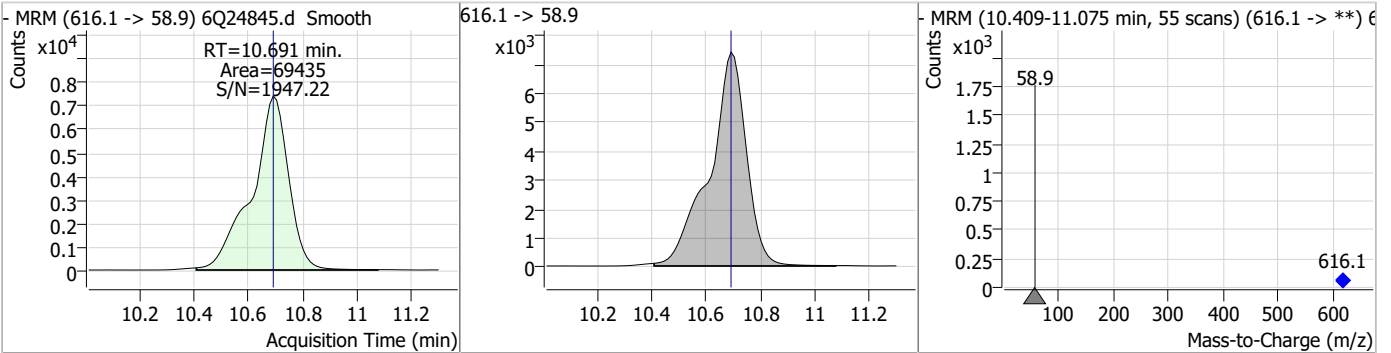
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.18	9.90	0.00	6558	699.1 -> 98.8	56.5	30.6	91.9



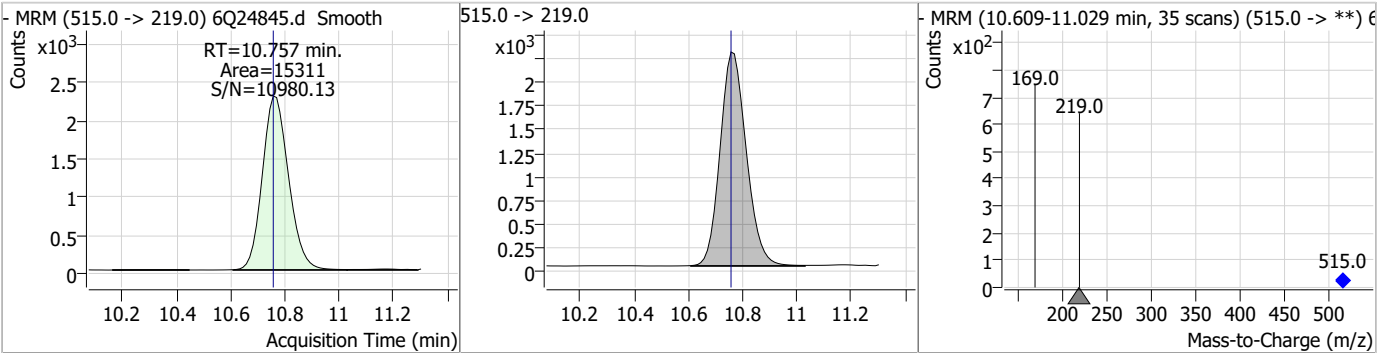
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.31	10.68	0.00	144638				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.18	10.69	0.00	69435				

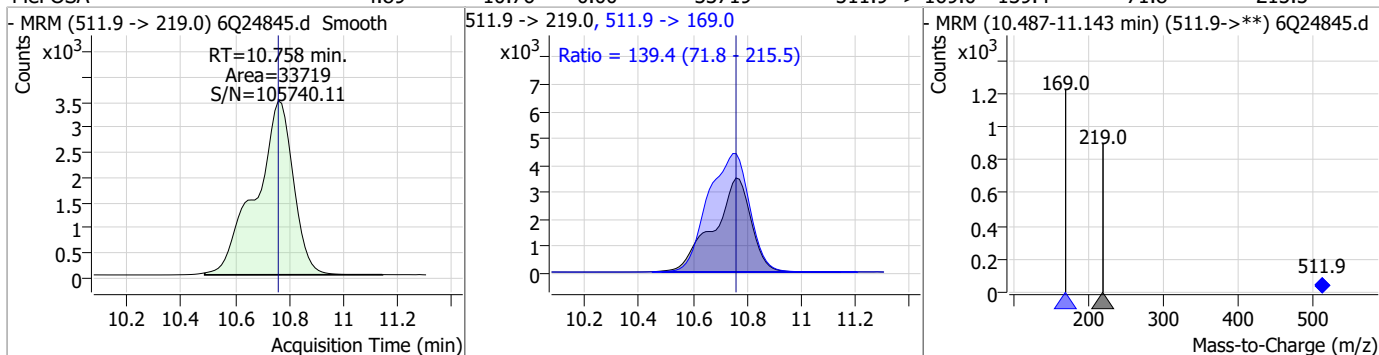


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.31	10.76	0.00	15311				

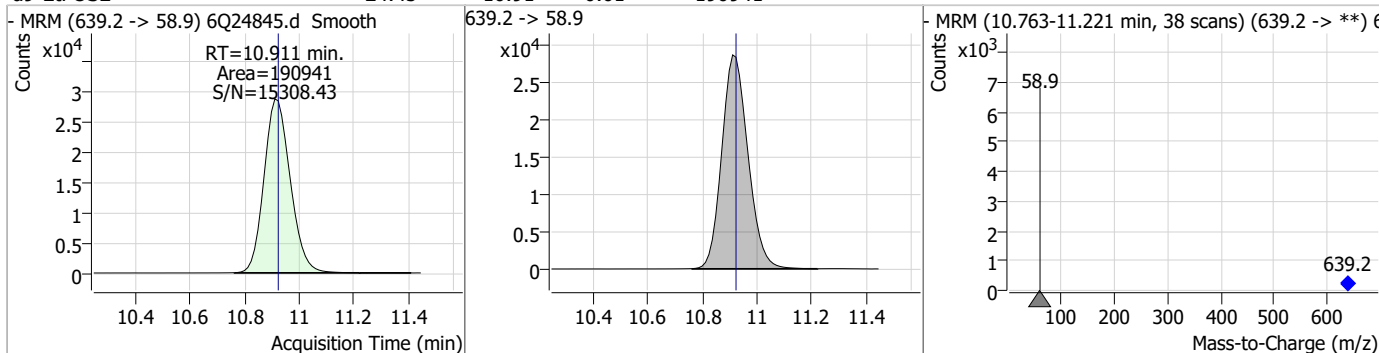


Perfluorinated Compounds by LC/MS/MS

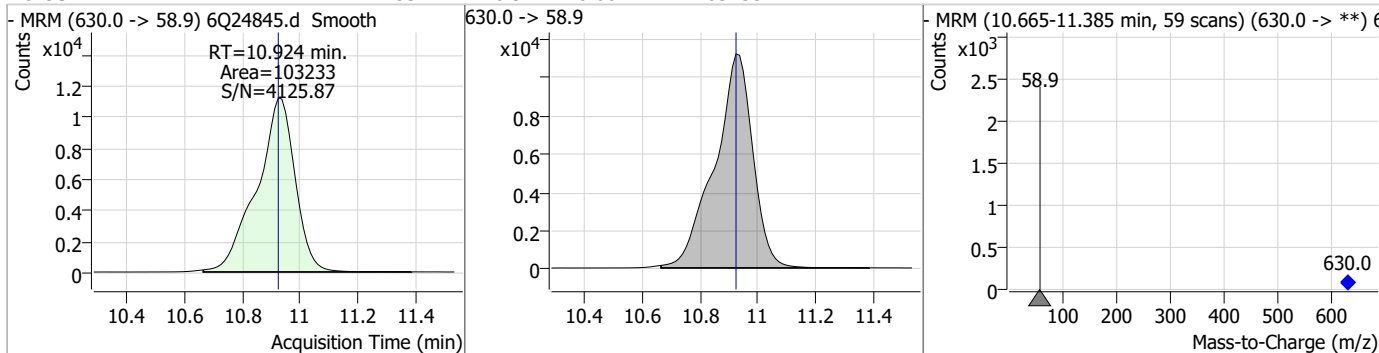
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	4.89	10.76	0.00	33719	511.9 -> 169.0	139.4	71.8	215.5



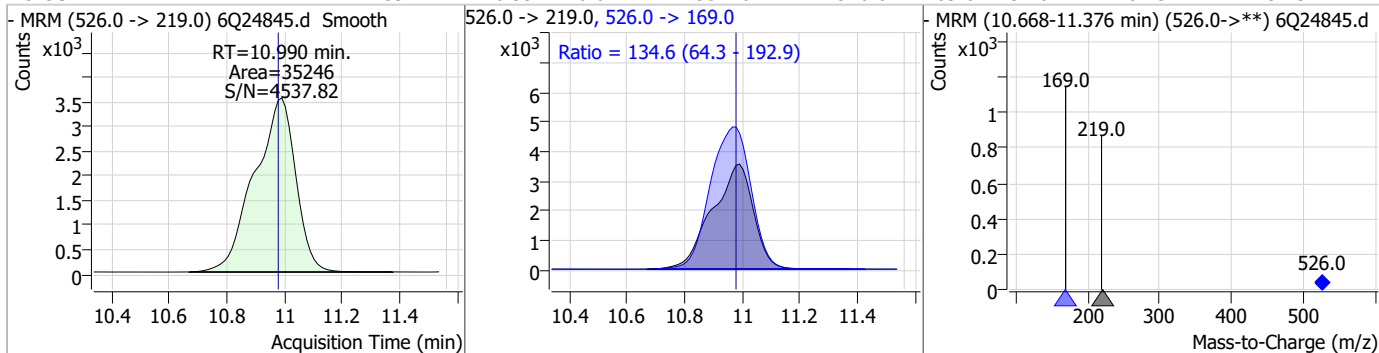
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.45	10.91	-0.01	190941				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.53	10.92	0.00	103233				

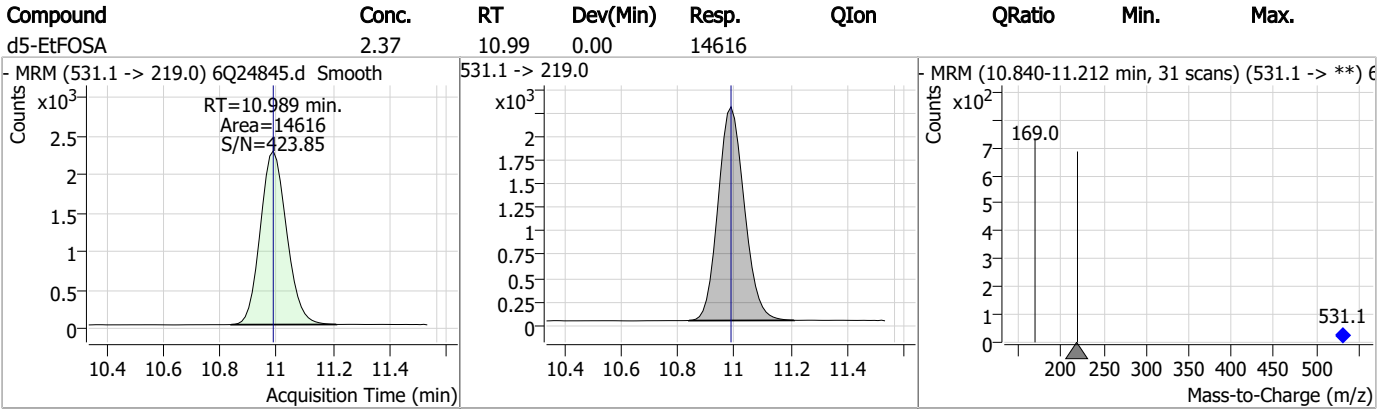


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	4.59	10.99	0.01	35246	526.0 -> 169.0	134.6	64.3	192.9



7.7.15
7

Perfluorinated Compounds by LC/MS/MS



7.7.15

7

Manual Integration Approval Summary

Sample Number: S6Q355-CC355 Method: EPA DRAFT 1633
Lab FileID: 6Q24845.D Analyst approved: 09/22/23 14:10 Anna Ludwig
Injection Time: 09/22/23 04:43 Supervisor approved: 09/22/23 14:15 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.7.15.1

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 24 September 2023 10:44:15
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.tune.xml
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.78E+0 [R] (Torr); 2.88E-5 [H] (Torr)

Source Parameters

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

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	112.99	0.00	Pass	0.70	0.72	0.02	Pass	489480
302.00	302.00	0.00	Pass	0.70	0.69	-0.01	Pass	1501108
601.98	602.00	0.02	Pass	0.70	0.67	-0.03	Pass	2835148
1033.99	1033.95	-0.04	Pass	0.70	0.63	-0.07	Pass	1893707
1633.95	1633.95	0.00	Pass	0.70	0.67	-0.03	Pass	1211147
2233.91	2233.86	-0.05	Pass	0.70	0.66	-0.04	Pass	453902

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.05	0.05	Pass	0.70	0.67	-0.03	Pass	161424
112.99	113.00	0.01	Pass	0.70	0.76	0.06	Pass	550950
302.00	302.02	0.02	Pass	0.70	0.71	0.01	Pass	1305620
601.98	602.05	0.07	Pass	0.70	0.75	0.05	Pass	2028879
1033.99	1034.06	0.07	Pass	0.70	0.59	-0.11	Pass	1219978
1633.95	1634.03	0.08	Pass	0.70	0.64	-0.06	Pass	724147
2233.91	2233.90	-0.01	Pass	0.70	0.66	-0.04	Pass	277349

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.91	-0.08	Pass	1.20	1.29	0.09	Pass	580171
302.00	301.72	-0.28	Pass	1.20	1.67	0.47	Pass	2034664
601.98	601.70	-0.28	Pass	1.20	1.77	0.57	Pass	3967155
1033.99	1033.77	-0.22	Pass	1.20	1.80	0.60	Pass	3284851
1633.95	1633.69	-0.26	Pass	1.20	1.70	0.50	Pass	2662869
2233.91	2233.55	-0.36	Pass	1.20	1.60	0.40	Pass	1360355

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.07	0.07	Pass	1.20	1.21	0.01	Pass	180274
112.99	112.98	-0.01	Pass	1.20	1.26	0.06	Pass	866182
302.00	301.89	-0.11	Pass	1.20	1.28	0.08	Pass	2075272
601.98	602.06	0.08	Pass	1.20	1.19	-0.01	Pass	3891138
1033.99	1033.96	-0.03	Pass	1.20	1.35	0.15	Pass	1959228
1633.95	1633.98	0.03	Pass	1.20	1.31	0.11	Pass	1576138
2233.91	2233.92	0.01	Pass	1.20	1.20	0.00	Pass	660842

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.82	-0.17	Pass	2.50	2.75	0.25	Pass	644803
302.00	301.77	-0.23	Pass	2.50	3.03	0.53	Pass	2136322
601.98	601.65	-0.33	Pass	2.50	3.12	0.62	Pass	4879731
1033.99	1033.67	-0.32	Pass	2.50	3.09	0.59	Pass	4254316
1633.95	1633.65	-0.30	Pass	2.50	3.14	0.64	Pass	4572286
2233.91	2233.60	-0.31	Pass	2.50	2.91	0.41	Pass	2908777

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.00	0.00	Pass	2.50	2.52	0.02	Pass	240245
112.99	113.00	0.01	Pass	2.50	2.53	0.03	Pass	1167022
302.00	301.86	-0.14	Pass	2.50	2.71	0.21	Pass	2365328
601.98	602.04	0.06	Pass	2.50	2.78	0.28	Pass	4621654
1033.99	1033.95	-0.04	Pass	2.50	2.86	0.36	Pass	2941626
1633.95	1633.97	0.02	Pass	2.50	2.70	0.20	Pass	3455931
2233.91	2233.90	-0.01	Pass	2.50	2.72	0.22	Pass	2199732

7.7.16
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24919.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 3:00:01 PM
 Sample Name : ic356-1
 Vial : P1-A2
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	185123	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	75017	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	65393	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	62953	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	87299	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	35199	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	35287	1.25 µg/L	0.000
M7-PFUnDA	8.639	570.0 -> 525.1	39681	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	38439	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16656	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30694	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	29355	2.50 µg/L	-0.013
M3-PFHxS	7.289	402.1 -> 79.9	17816	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	15633	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3133	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	4559	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	4534	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	35385	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	46307	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	27673	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	113467	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	136310	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	10127	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9231	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	14481	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	75950	5.00 µg/L	0.000
18O2-PFHxS	7.288	403.0 -> 83.9	11053	2.50 µg/L	-0.012
13C4-PFOA	7.187	417.1 -> 372.0	100205	2.50 µg/L	-0.012
13C2-PFDA	8.198	515.1 -> 470.1	33169	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	34823	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	63468	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3133	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4559	5.07 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4534	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-PFDoDA	9.067	615.1 -> 570.0	38439	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16656	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C3-PFBS	5.546	302.1 -> 79.9	29355	2.53 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C3-PFHxS	7.289	402.1 -> 79.9	17816	2.55 µg/L	-0.012

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 = 101.9%	
13C4-PFBA	2.972	216.8 -> 171.9	185123	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C4-PFHpA	6.556	367.1 -> 322.0	62953	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C5-PFHxA	5.629	318.0 -> 273.0	65393	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C5-PFPeA	4.409	268.3 -> 223.0	75017	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C6-PFDA	8.198	519.1 -> 474.1	35287	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C7-PFUnDA	8.639	570.0 -> 525.1	39681	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C8-FOSA	9.670	506.1 -> 77.8	30694	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C8-PFOA	7.186	421.1 -> 376.0	87299	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-PFOS	8.348	507.1 -> 79.9	15633	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C9-PFNA	7.717	472.1 -> 427.0	35199	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.6%	
d3-MeFOSAA	8.244	573.2 -> 419.0	35385	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	46307	9.68 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
d3-MeFOSA	10.757	515.0 -> 219.0	9231	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
d5-EtFOSAA	8.452	589.2 -> 419.0	27673	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
d7-MeFOSE	10.678	623.2 -> 58.9	113467	26.12 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
d9-EtFOSE	10.923	639.2 -> 58.9	136310	25.79 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
d5-EtFOSA	10.989	531.1 -> 219.0	10127	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
Target Compounds					QValue
4:2FTS	5.293	327.1 -> 307.0	3317	0.65 µg/L	99
		327.1 -> 80.9	1407		
6:2FTS	6.962	427.1 -> 407.0	2923	0.74 µg/L	99
		427.1 -> 80.9	1300		
8:2FTS	7.987	527.1 -> 507.0	1905	0.66 µg/L	89
		527.1 -> 80.8	792		
EtFOSAA	8.452	584.2 -> 419.1	865	0.19 µg/L	m 86
		584.2 -> 526.0	614		
FOSA	9.672	498.1 -> 77.9	2179	0.19 µg/L	99
		498.1 -> 478.0	65		
MeFOSAA	8.245	570.1 -> 419.0	1216	0.20 µg/L	95
		570.1 -> 483.0	259		
PFBA	2.981	212.8 -> 168.9	4845	0.73 µg/L	100
PFBS	5.547	298.7 -> 79.9	1591	0.17 µg/L	93
		298.7 -> 98.8	527		
PFDA	8.186	512.9 -> 469.0	5195	0.19 µg/L	96
		512.9 -> 219.0	761		
PFDODA	9.068	613.1 -> 569.0	5414	0.19 µg/L	98
		613.1 -> 319.0	600		
PFDS	9.220	599.0 -> 79.9	658	0.17 µg/L	88

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	363			
PFHpA	6.569	363.1 -> 319.0	6451	0.19	µg/L	98
		363.1 -> 169.0	973			
PFHpS	7.843	449.0 -> 79.9	1124	0.16	µg/L	86
		449.0 -> 98.9	571			
PFHxA	5.631	313.0 -> 269.0	4323	0.18	µg/L	98
		313.0 -> 118.9	182			
PFHxS	7.290	398.7 -> 79.9	1129	0.16	µg/L	m 99
		398.7 -> 98.9	535			
PFNA	7.717	463.0 -> 419.0	4187	0.18	µg/L	89
		463.0 -> 219.0	1098			
PFNS	8.802	548.8 -> 79.9	991	0.18	µg/L	93
		548.8 -> 98.9	533			
PFOA	7.187	413.0 -> 369.0	7046	0.19	µg/L	97
		413.0 -> 169.0	1192			
PFOS	8.337	498.9 -> 79.9	1214	0.18	µg/L	m 67
		498.9 -> 98.8	549			
PFPeA	4.411	263.0 -> 219.0	5476	0.36	µg/L	100
PFPeS	6.608	349.1 -> 79.9	1674	0.17	µg/L	98
		349.1 -> 98.9	757			
PFTeDA	9.772	713.1 -> 669.0	3636	0.18	µg/L	99
		713.1 -> 168.9	293			
PFTrDA	9.440	663.0 -> 619.0	4544	0.19	µg/L	98
		663.0 -> 168.9	408			
PFUnDA	8.652	563.1 -> 519.0	4687	0.18	µg/L	95
		563.1 -> 269.1	685			
11Cl-PF3OUdS	9.479	630.9 -> 450.9	4256	0.35	µg/L	98
		632.9 -> 452.9	1337			
9Cl-PF3ONS	8.678	530.8 -> 351.0	6771	0.33	µg/L	82
		532.8 -> 353.0	1498			
ADONA	6.804	376.9 -> 250.9	19111	0.34	µg/L	97
		376.9 -> 84.8	5858			
HFPO-DA	6.007	284.9 -> 168.9	1821	0.40	µg/L	99
		284.9 -> 184.9	201			
3:3FTCA	3.846	241.0 -> 177.0	998	0.93	µg/L	98
		241.0 -> 117.0	112			
5:3FTCA	6.271	341.0 -> 237.1	21218	4.81	µg/L	99
		341.0 -> 217.0	14889			
7:3FTCA	7.669	441.0 -> 316.9	11151	4.46	µg/L	95
		441.0 -> 336.9	23287			
EtFOSA	10.990	526.0 -> 219.0	1778	0.35	µg/L	99
		526.0 -> 169.0	2276			
EtFOSE	10.924	630.0 -> 58.9	5164	0.94	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	1613	0.39	µg/L	90
		511.9 -> 169.0	2097			
MeFOSE	10.691	616.1 -> 58.9	4401	0.88	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	435	0.19	µg/L	88
		699.1 -> 98.8	264			
NFDHA	5.512	295.0 -> 201.0	1308	0.43	µg/L	97
		295.0 -> 84.9	328			
PFMBA	4.838	279.0 -> 85.1	4449	0.37	µg/L	100
PFMPA	3.538	229.0 -> 84.9	3223	0.36	µg/L	100
PFEESA	6.100	314.8 -> 134.9	9946	0.34	µg/L	98
		314.8 -> 82.9	299			

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

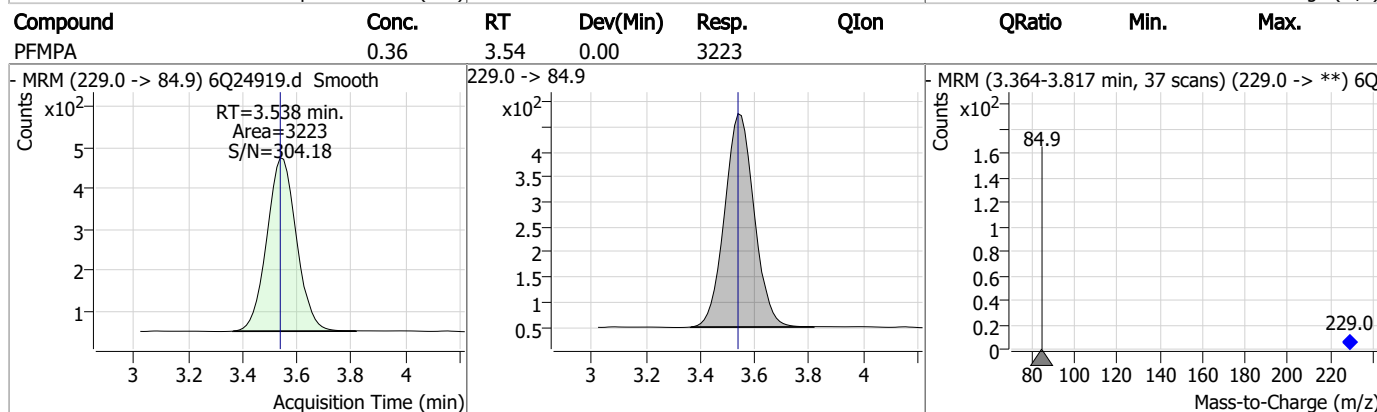
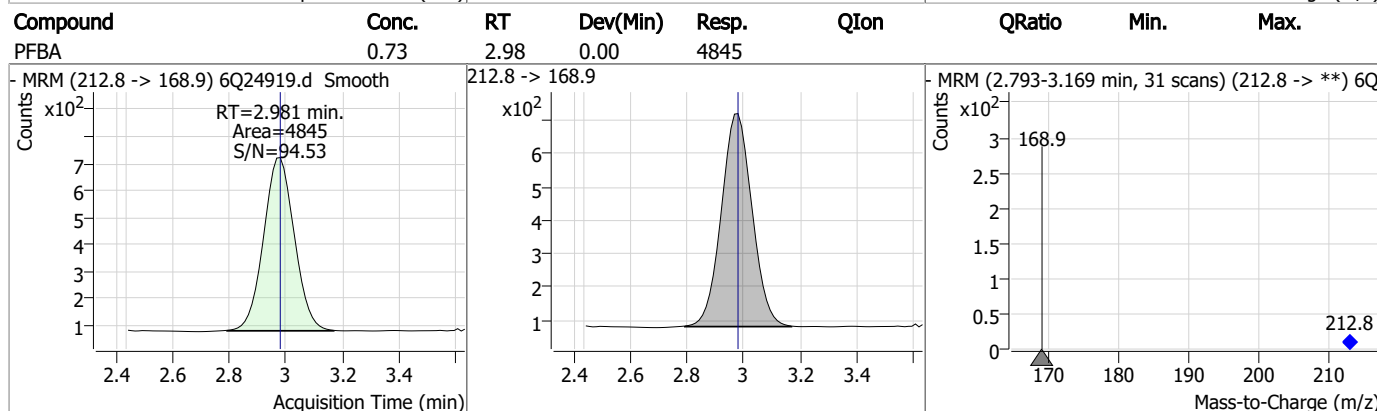
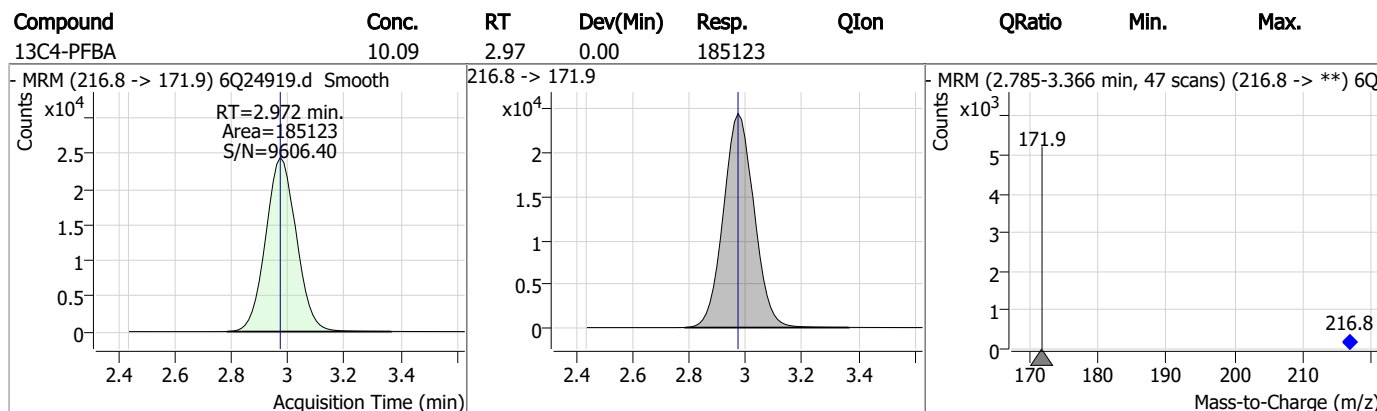
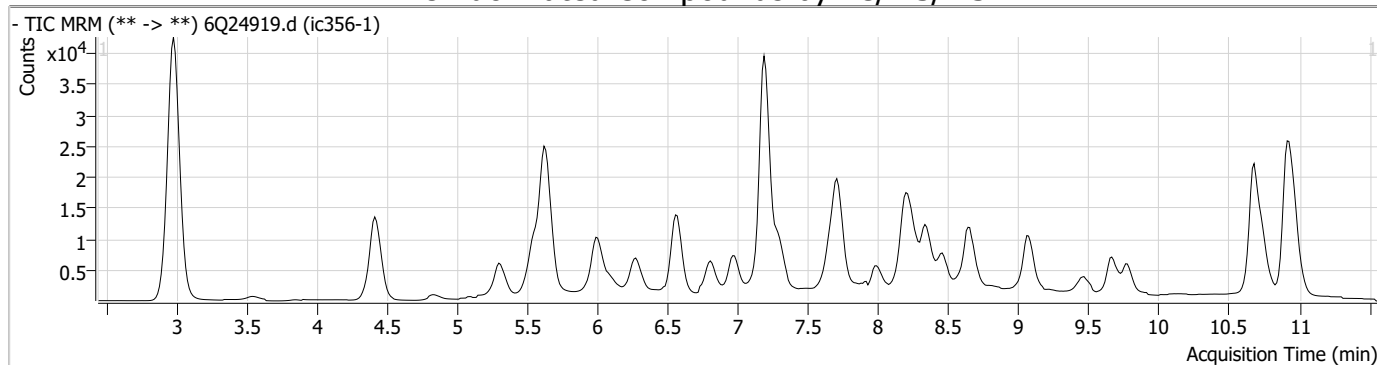
Perfluorinated Compounds by LC/MS/MS

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

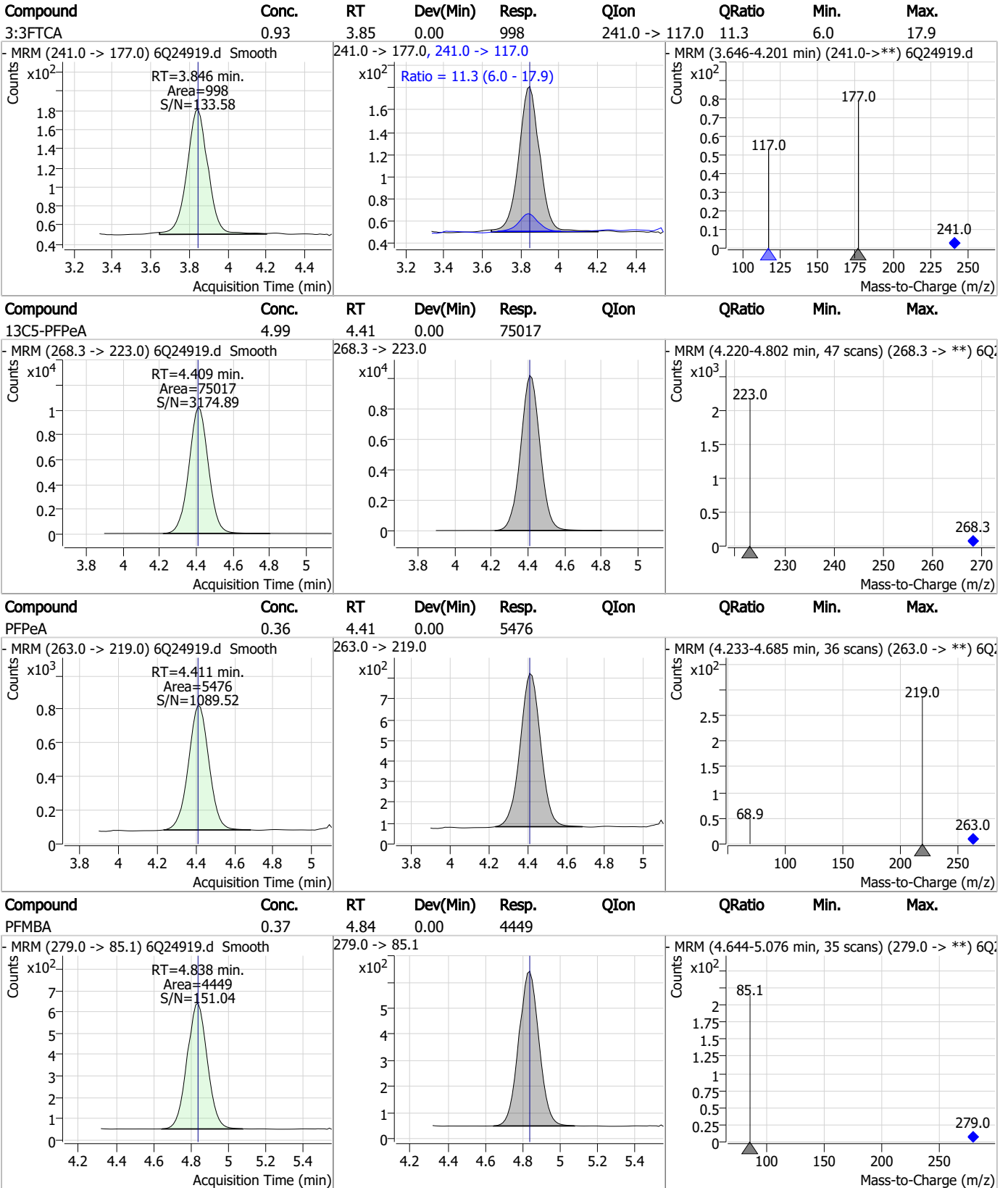
7.7.17
7



Perfluorinated Compounds by LC/MS/MS

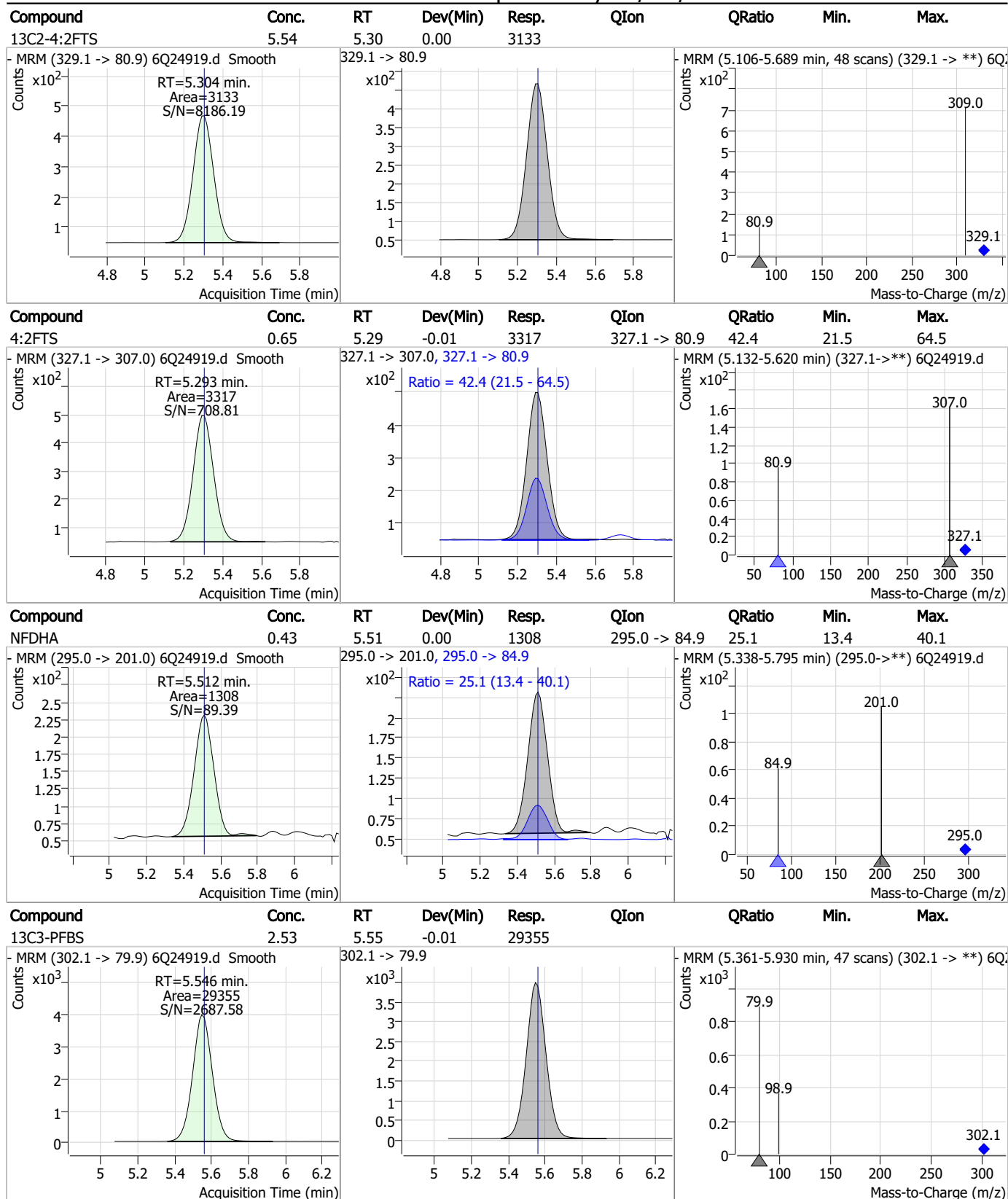


Perfluorinated Compounds by LC/MS/MS



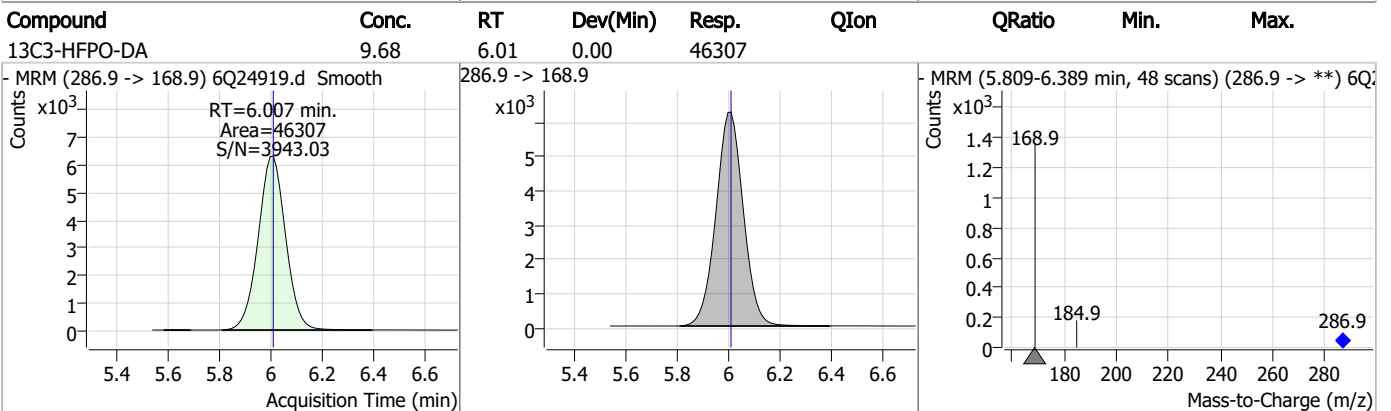
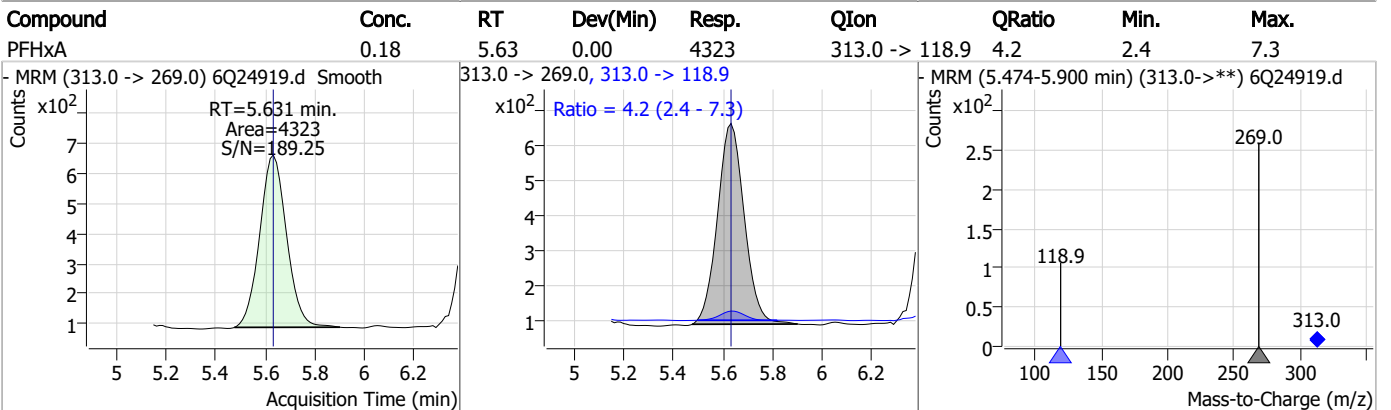
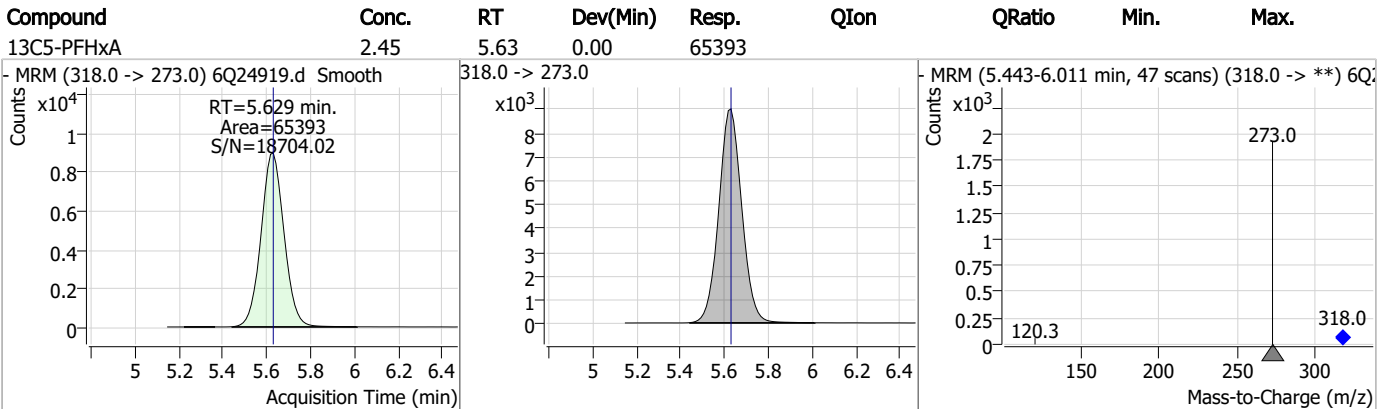
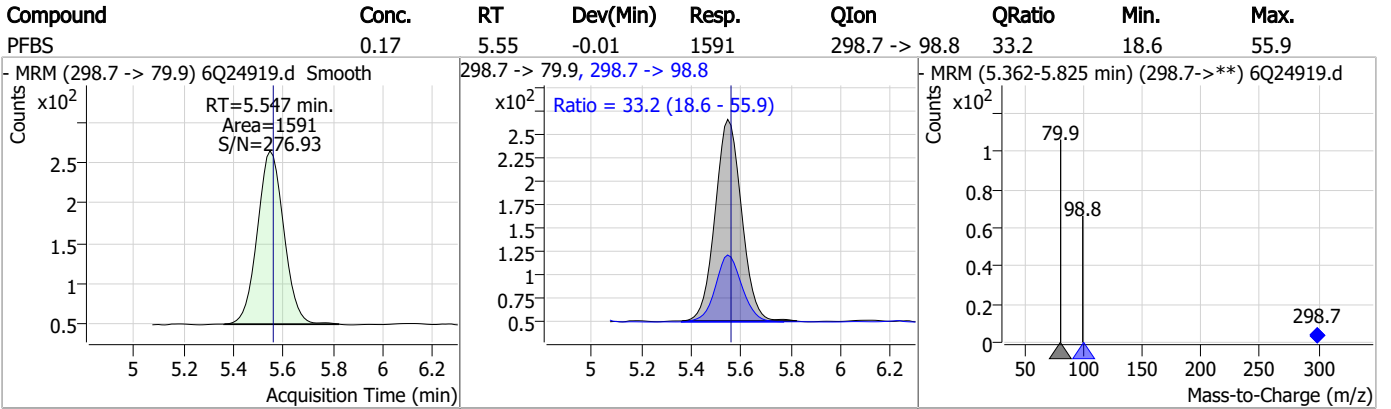
7.7.17

Perfluorinated Compounds by LC/MS/MS



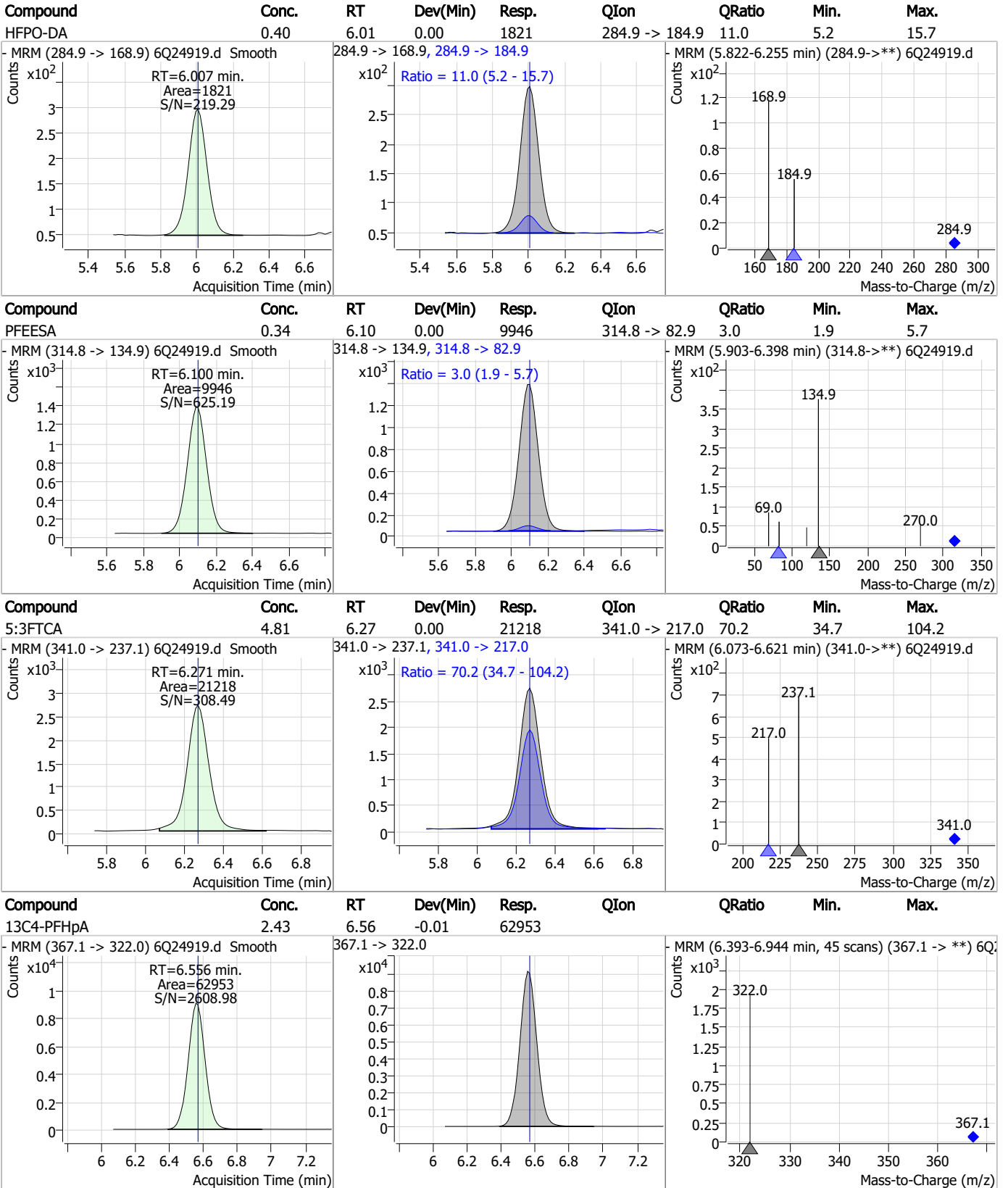
7.7.17

Perfluorinated Compounds by LC/MS/MS



7.7.17

Perfluorinated Compounds by LC/MS/MS

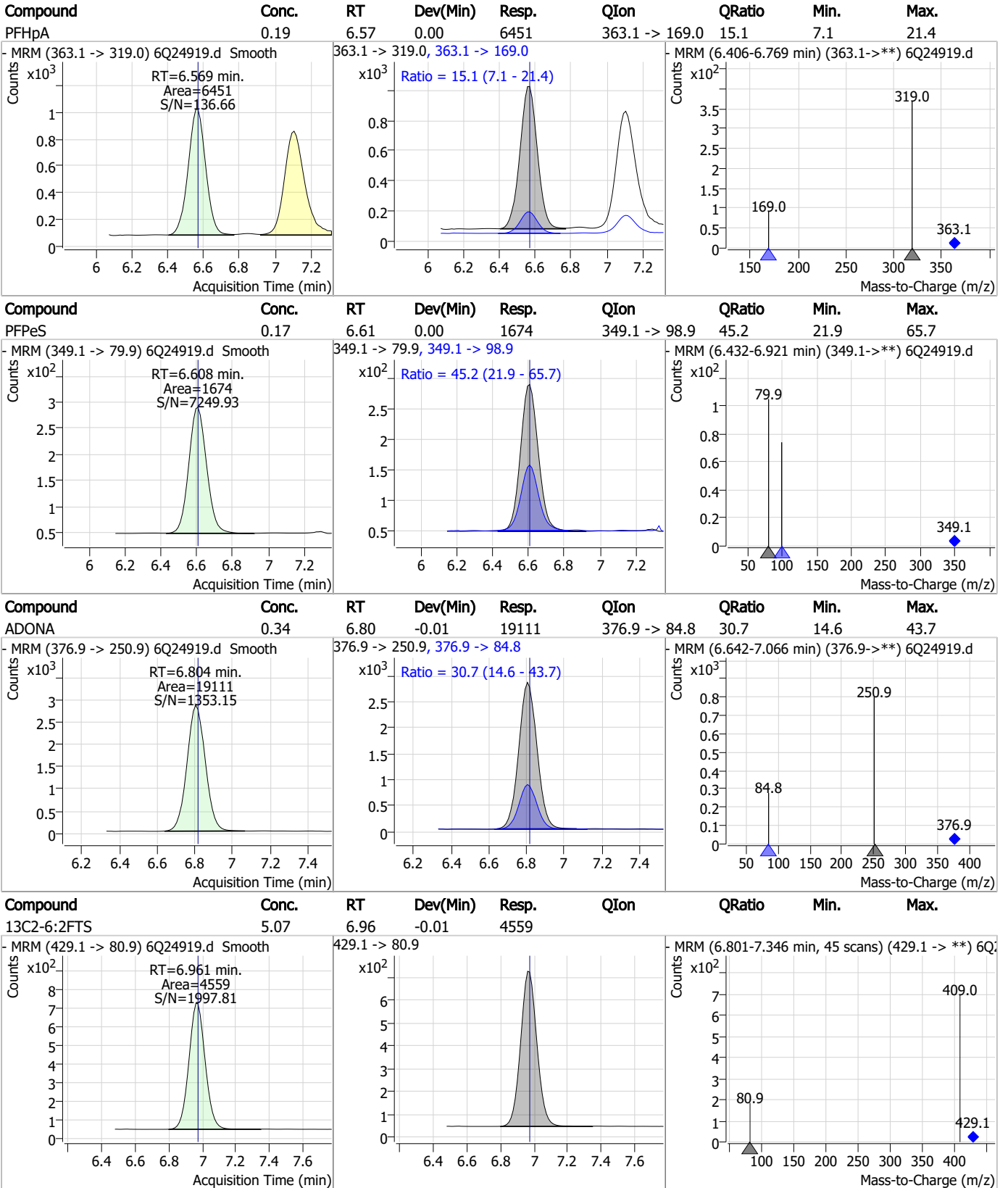


7.7.17

7



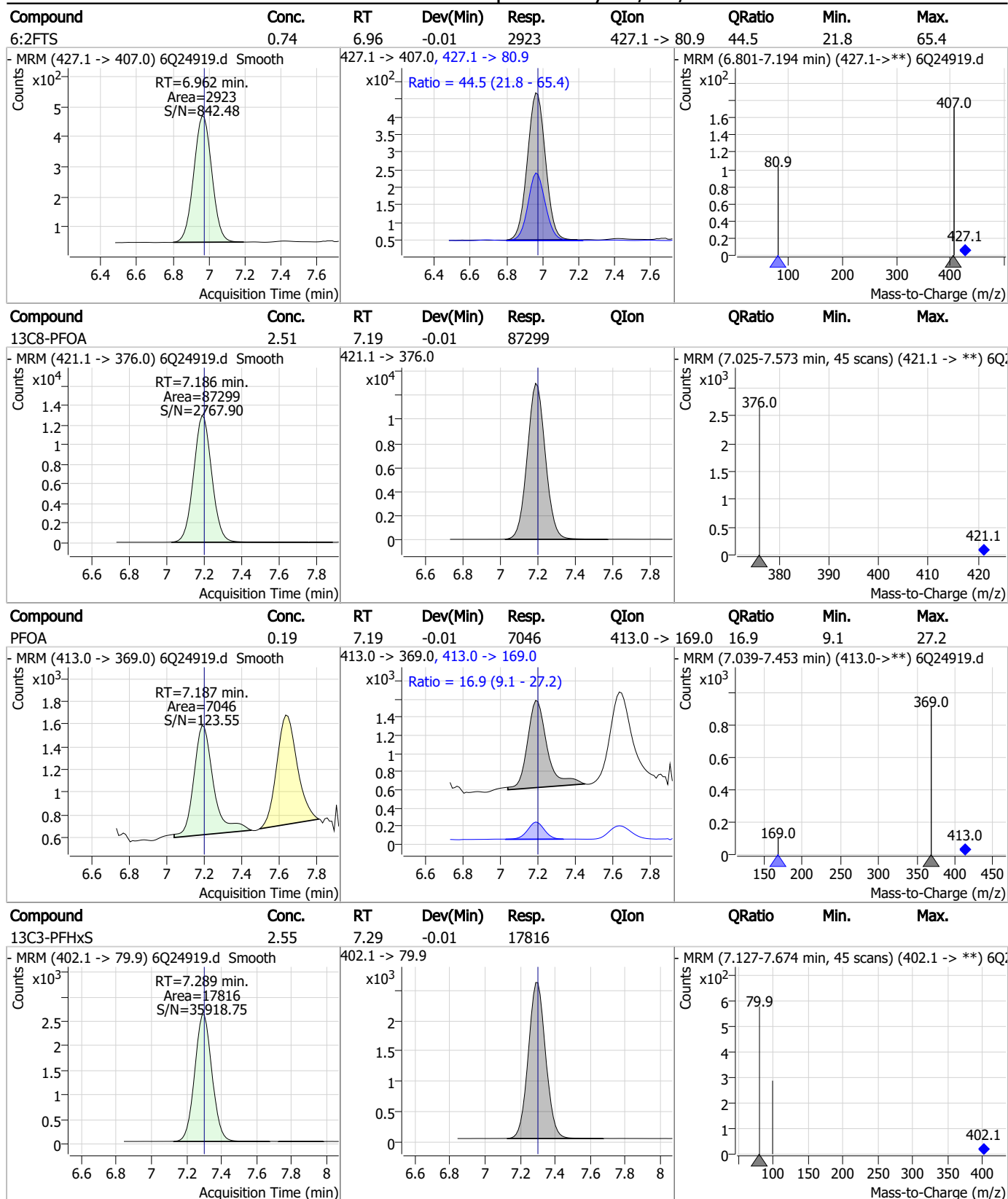
Perfluorinated Compounds by LC/MS/MS



7.7.17

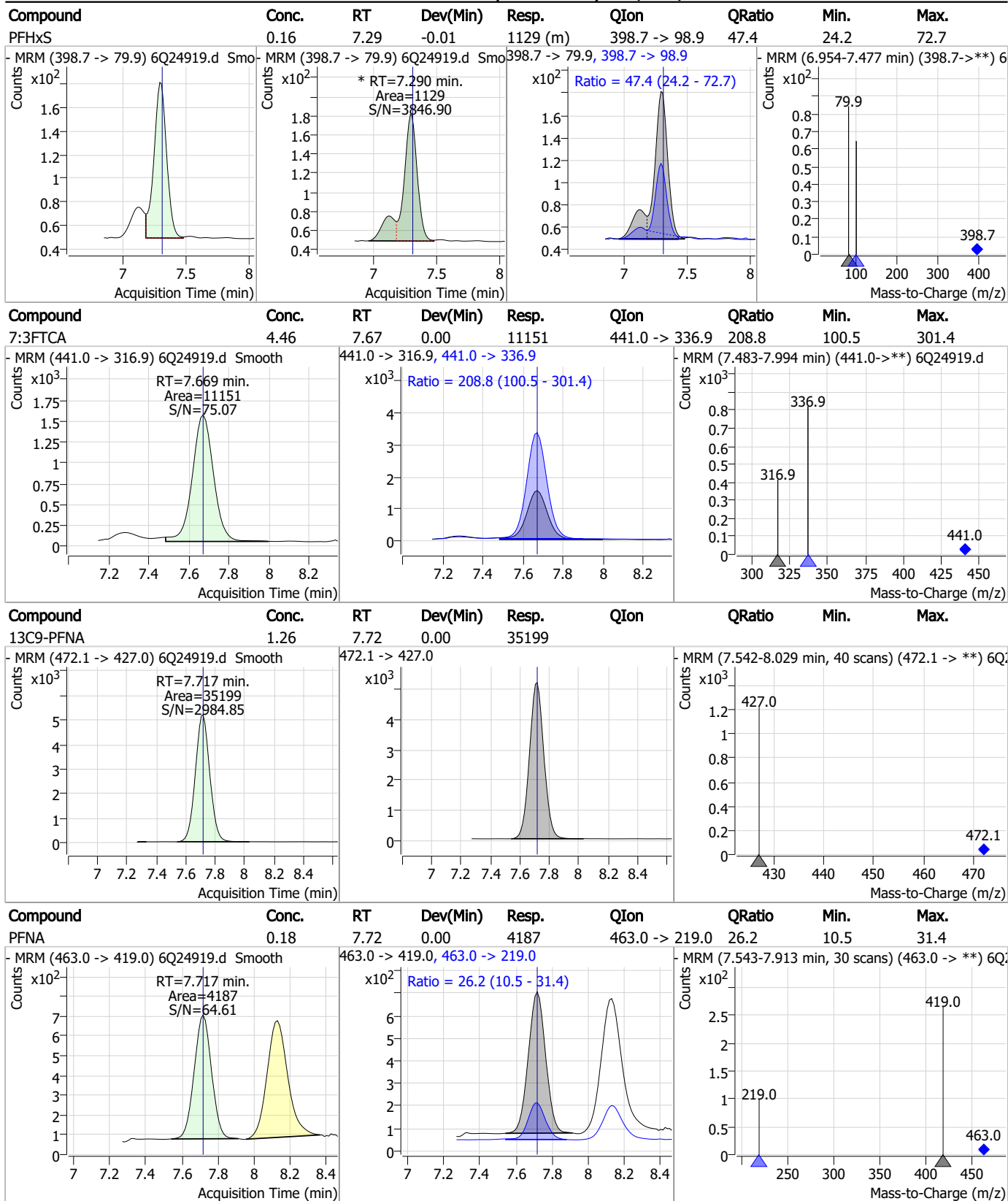


Perfluorinated Compounds by LC/MS/MS



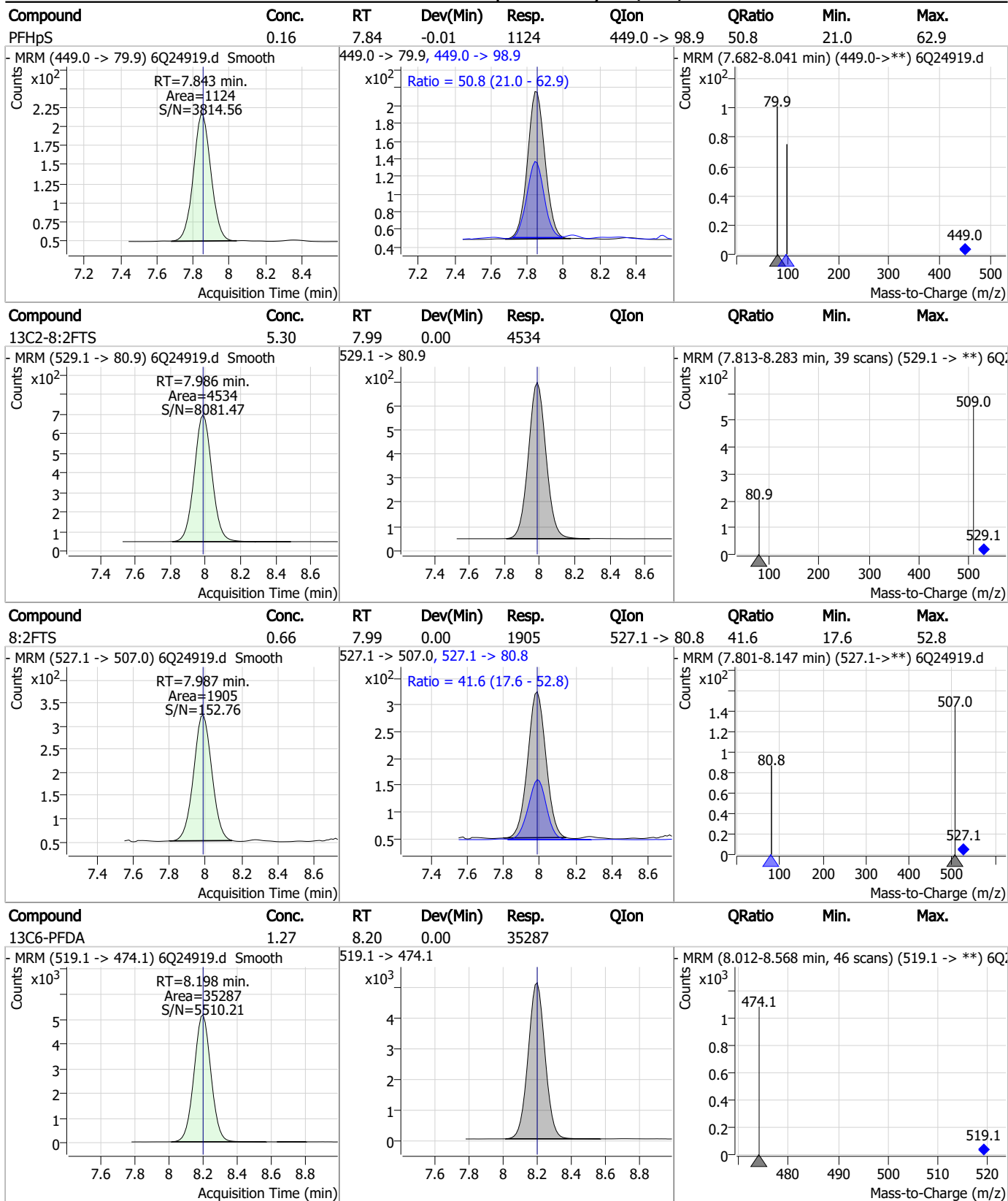
7.7.17

Perfluorinated Compounds by LC/MS/MS



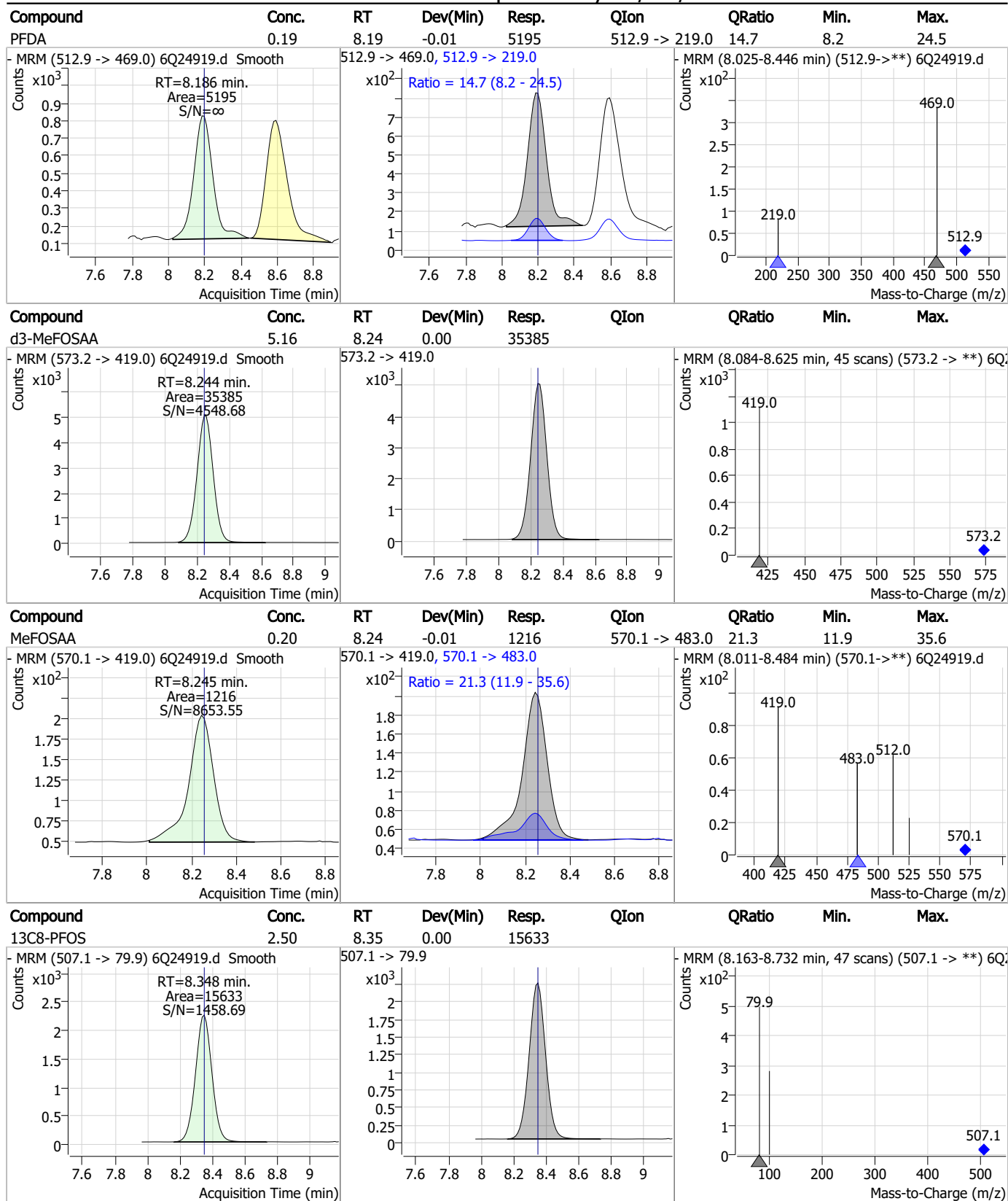
7.7.17

Perfluorinated Compounds by LC/MS/MS



7.7.17

Perfluorinated Compounds by LC/MS/MS

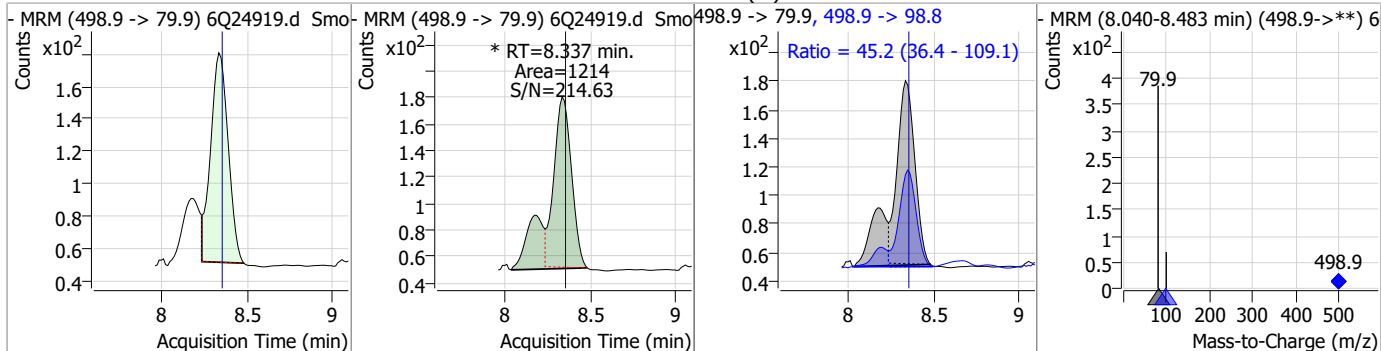


7.7.17

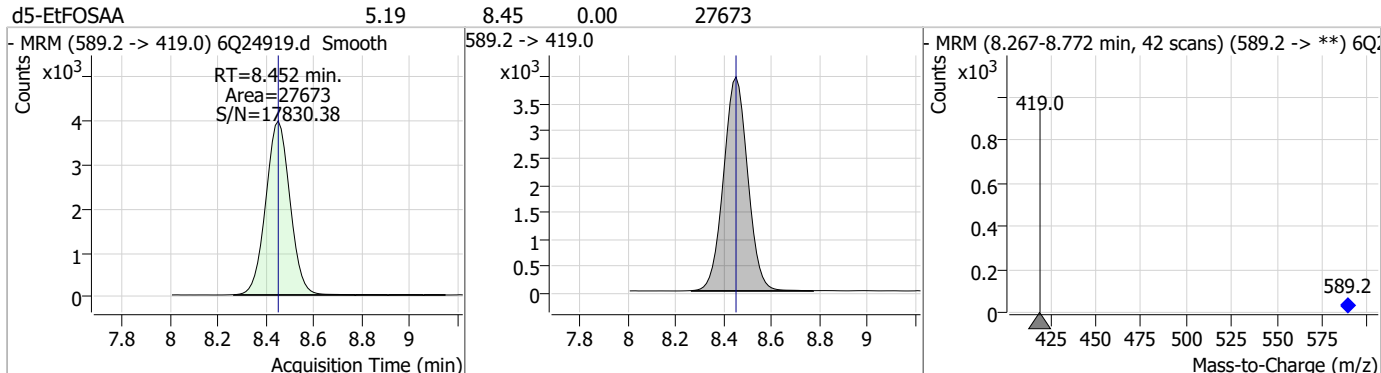
7

Perfluorinated Compounds by LC/MS/MS

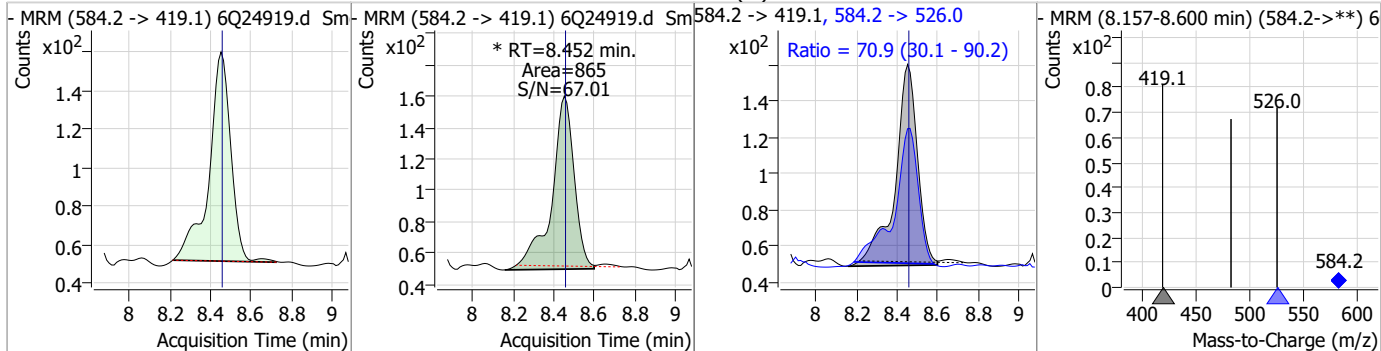
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.18	8.34	-0.01	1214 (m)	498.9 -> 98.8	45.2	36.4	109.1



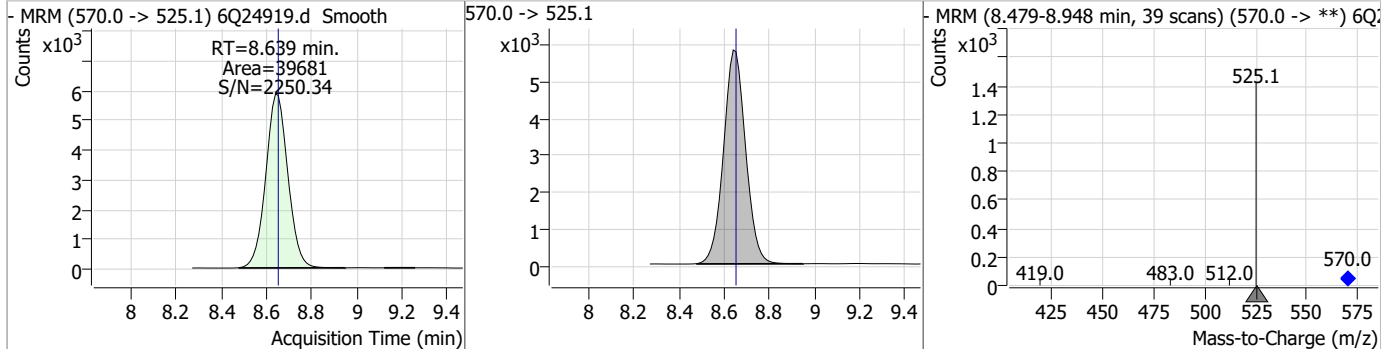
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.19	8.45	0.00	27673				



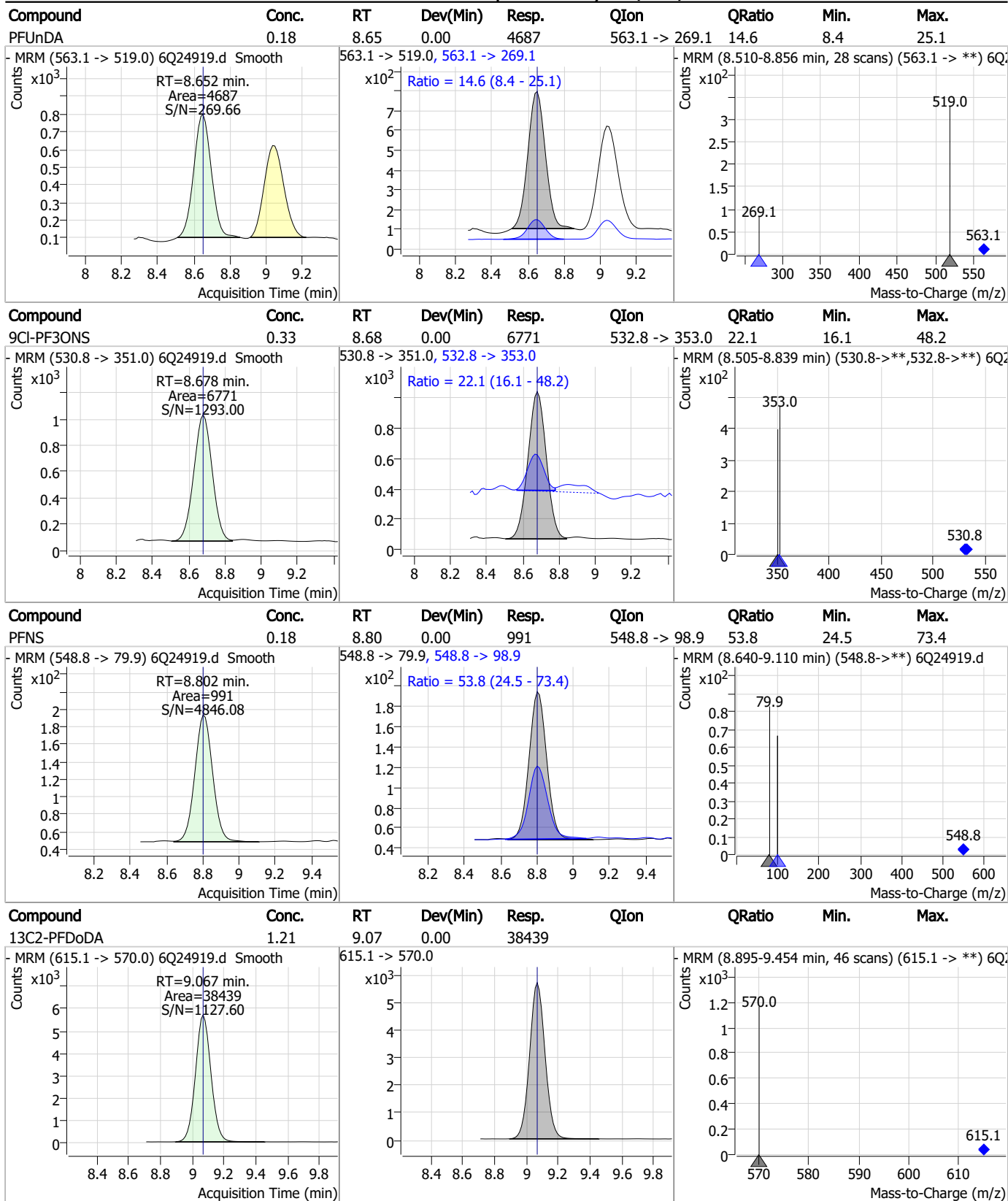
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.19	8.45	0.00	865 (m)	584.2 -> 526.0	70.9	30.1	90.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.27	8.64	-0.01	39681				

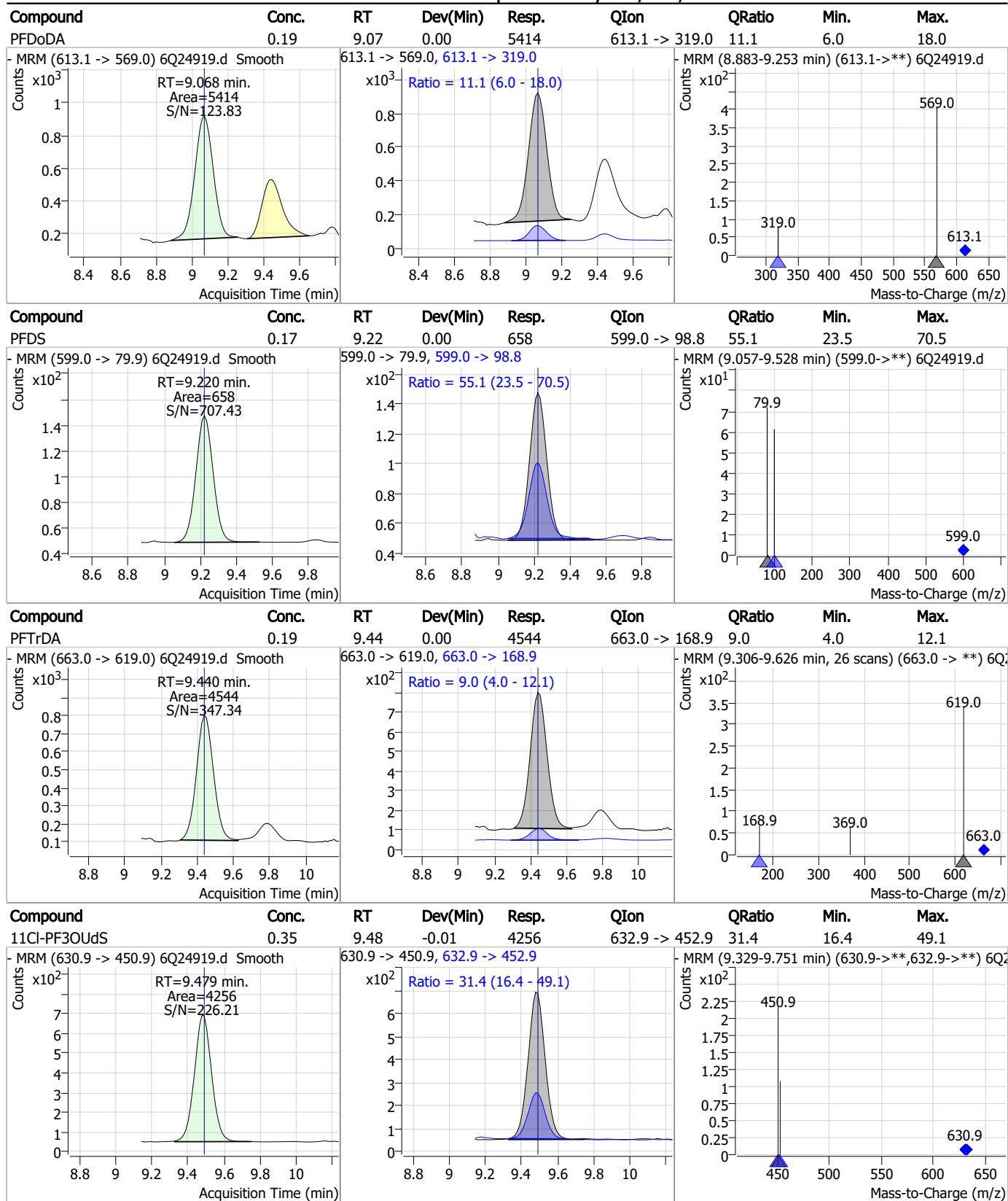


Perfluorinated Compounds by LC/MS/MS



7.7.17

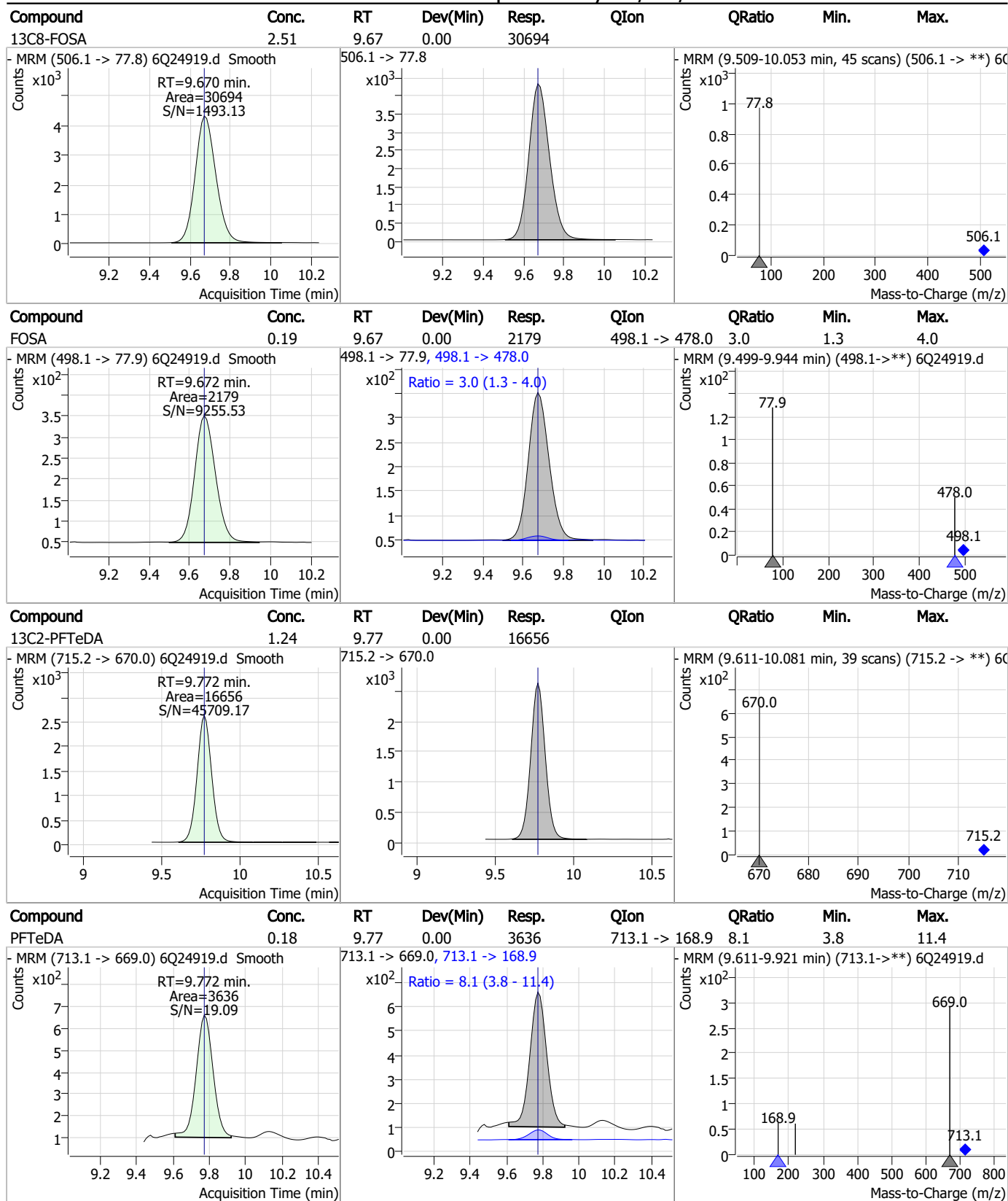
Perfluorinated Compounds by LC/MS/MS



7.7.17

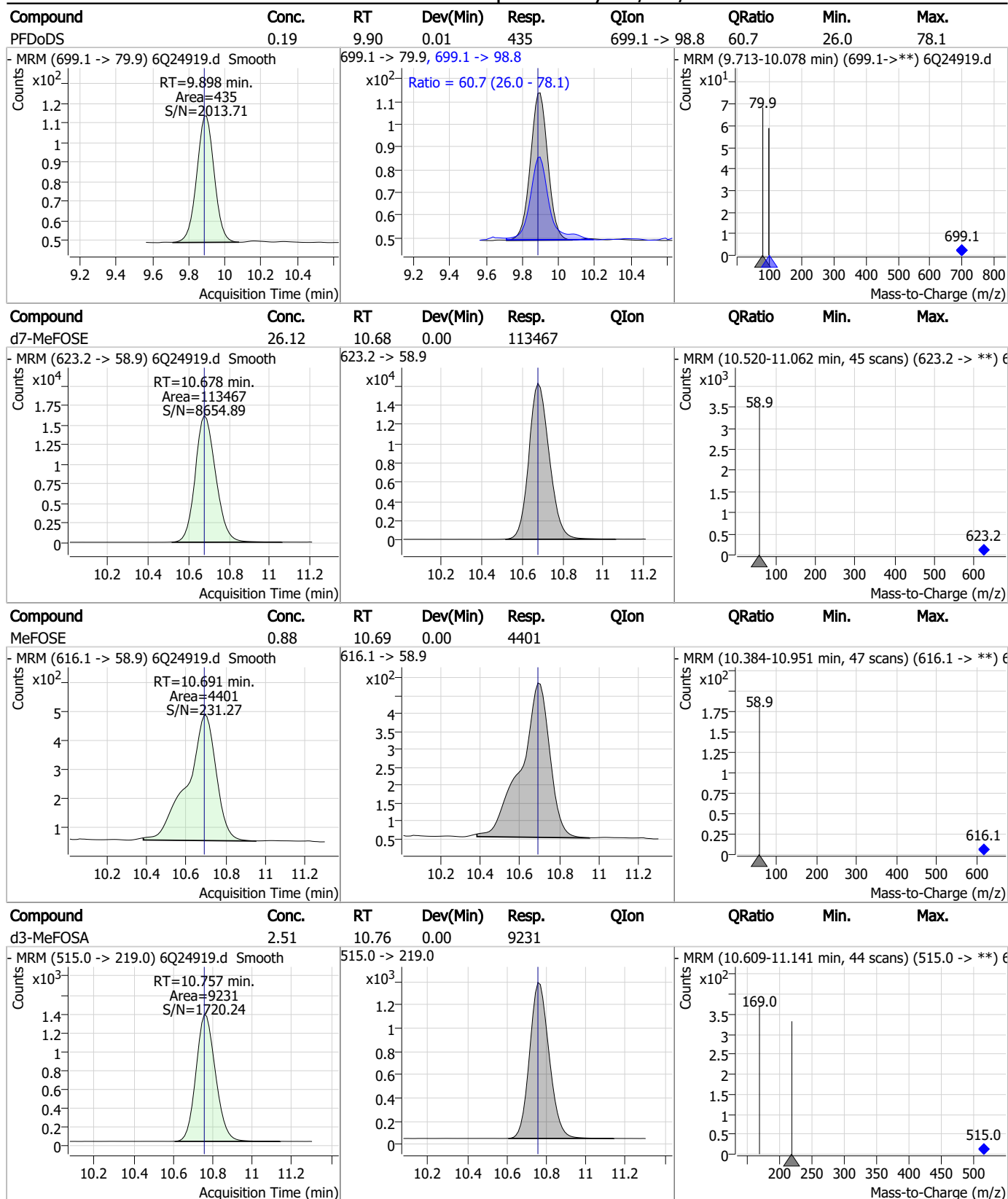
7

Perfluorinated Compounds by LC/MS/MS



7.7.17

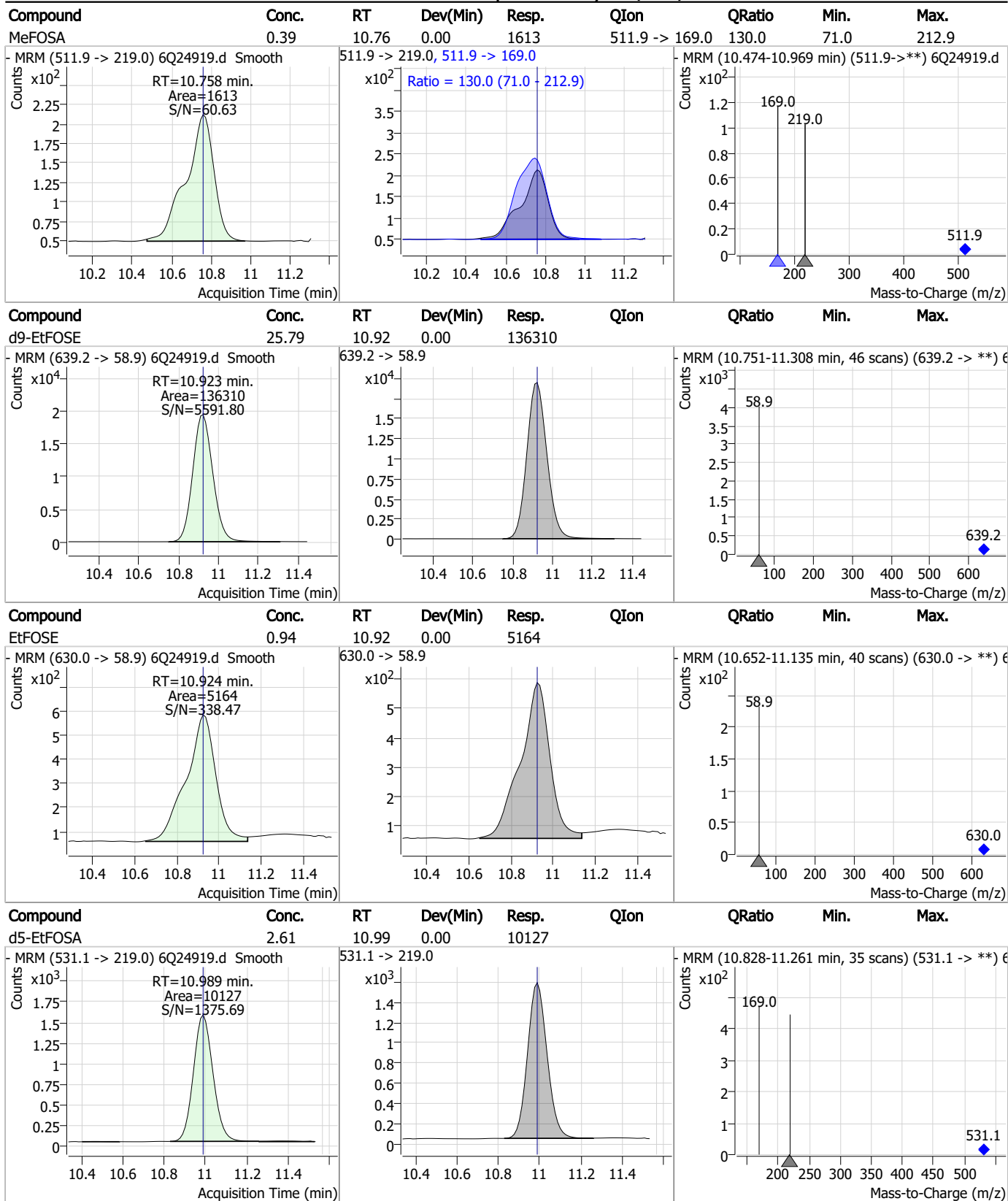
Perfluorinated Compounds by LC/MS/MS



7.7.17

7

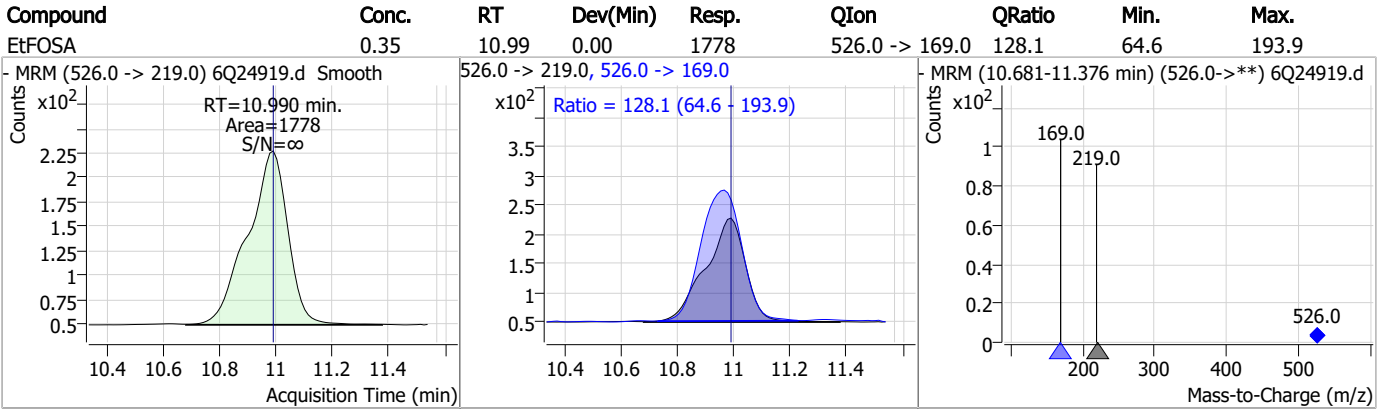
Perfluorinated Compounds by LC/MS/MS



7.7.17

7

Perfluorinated Compounds by LC/MS/MS



7.7.17
7



Manual Integration Approval Summary

Sample Number: S6Q356-IC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24919.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 15:00 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.17.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24920.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 3:14:19 PM
 Sample Name : ic356-2
 Vial : P1-A3
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	188061	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	75200	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	64784	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	65218	2.50 µg/L	0.000
M8-PFOA	7.186	421.1 -> 376.0	84522	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	37341	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	34920	1.25 µg/L	0.000
M7-PFUnDA	8.639	570.0 -> 525.1	40545	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	40152	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16910	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	32454	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	29016	2.50 µg/L	-0.013
M3-PFHxS	7.301	402.1 -> 79.9	17117	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	16946	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2917	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4724	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4365	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	35610	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	47512	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	26771	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	112149	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	138674	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	10401	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9307	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	15224	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	77313	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	11032	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	101823	2.50 µg/L	-0.012
13C2-PFDA	8.198	515.1 -> 470.1	33667	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	35742	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	61966	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2917	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.4%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4724	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4365	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C2-PFDoDA	9.067	615.1 -> 570.0	40152	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16910	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C3-PFBS	5.546	302.1 -> 79.9	29016	2.50 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.301	402.1 -> 79.9	17117	2.45 µg/L	0.000

7.7.18
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 = 98.1%		
13C4-PFBA	2.972	216.8 -> 171.9	188061	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C4-PFHpA	6.569	367.1 -> 322.0	65218	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C5-PFHxA	5.629	318.0 -> 273.0	64784	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C5-PFPeA	4.409	268.3 -> 223.0	75200	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C6-PFDA	8.198	519.1 -> 474.1	34920	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C7-PFUnDA	8.639	570.0 -> 525.1	40545	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C8-FOSA	9.670	506.1 -> 77.8	32454	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C8-PFOA	7.186	421.1 -> 376.0	84522	2.39 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C8-PFOS	8.348	507.1 -> 79.9	16946	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C9-PFNA	7.717	472.1 -> 427.0	37341	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.0%		
d3-MeFOSAA	8.244	573.2 -> 419.0	35610	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C3-HFPO-DA	6.007	286.9 -> 168.9	47512	10.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
d3-MeFOSA	10.757	515.0 -> 219.0	9307	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.1%		
d5-EtFOSAA	8.452	589.2 -> 419.0	26771	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.5%		
d7-MeFOSE	10.678	623.2 -> 58.9	112149	24.56 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
d9-EtFOSE	10.923	639.2 -> 58.9	138674	24.96 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
d5-EtFOSA	10.989	531.1 -> 219.0	10401	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
Target Compounds					QValue
4:2FTS	5.293	327.1 -> 307.0	7580	1.59 µg/L	98
		327.1 -> 80.9	3340		
6:2FTS	6.974	427.1 -> 407.0	6757	1.66 µg/L	97
		427.1 -> 80.9	2825		
8:2FTS	7.987	527.1 -> 507.0	4520	1.62 µg/L	84
		527.1 -> 80.8	2009		
EtFOSAA	8.452	584.2 -> 419.1	2079	0.47 µg/L	97
		584.2 -> 526.0	1300		
FOSA	9.672	498.1 -> 77.9	5033	0.41 µg/L	99
		498.1 -> 478.0	146		
MeFOSAA	8.257	570.1 -> 419.0	2785	0.45 µg/L	95
		570.1 -> 483.0	590		
PFBA	2.981	212.8 -> 168.9	11178	1.66 µg/L	100
PFBS	5.547	298.7 -> 79.9	3624	0.38 µg/L	96
		298.7 -> 98.8	1270		
PFDA	8.198	512.9 -> 469.0	11340	0.41 µg/L	97
		512.9 -> 219.0	2010		
PFDODA	9.068	613.1 -> 569.0	11674	0.40 µg/L	97
		613.1 -> 319.0	1514		
PFDS	9.220	599.0 -> 79.9	1632	0.40 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	822			
PFHpA	6.557	363.1 -> 319.0	14913	0.42	µg/L	99
		363.1 -> 169.0	2101			
PFHpS	7.843	449.0 -> 79.9	2896	0.39	µg/L	92
		449.0 -> 98.9	1366			
PFHxA	5.631	313.0 -> 269.0	9951	0.43	µg/L	98
		313.0 -> 118.9	428			
PFHxS	7.302	398.7 -> 79.9	2499	0.38	µg/L	m 98
		398.7 -> 98.9	1250			
PFNA	7.717	463.0 -> 419.0	10265	0.42	µg/L	95
		463.0 -> 219.0	2370			
PFNS	8.814	548.8 -> 79.9	2293	0.39	µg/L	95
		548.8 -> 98.9	1204			
PFOA	7.187	413.0 -> 369.0	15031	0.41	µg/L	99
		413.0 -> 169.0	2634			
PFOS	8.350	498.9 -> 79.9	2821	0.39	µg/L	m 72
		498.9 -> 98.8	1399			
PFPeA	4.411	263.0 -> 219.0	12760	0.84	µg/L	100
PFPeS	6.608	349.1 -> 79.9	3680	0.40	µg/L	93
		349.1 -> 98.9	1778			
PFTeDA	9.772	713.1 -> 669.0	8284	0.41	µg/L	96
		713.1 -> 168.9	743			
PFTrDA	9.440	663.0 -> 619.0	10694	0.42	µg/L	98
		663.0 -> 168.9	952			
PFUnDA	8.639	563.1 -> 519.0	11425	0.43	µg/L	100
		563.1 -> 269.1	1915			
11Cl-PF3OUdS	9.479	630.9 -> 450.9	10104	0.81	µg/L	99
		632.9 -> 452.9	3354			
9Cl-PF3ONS	8.678	530.8 -> 351.0	15909	0.75	µg/L	88
		532.8 -> 353.0	6184			
ADONA	6.804	376.9 -> 250.9	47330	0.81	µg/L	99
		376.9 -> 84.8	13477			
HFPO-DA	6.007	284.9 -> 168.9	3928	0.84	µg/L	99
		284.9 -> 184.9	434			
3:3FTCA	3.846	241.0 -> 177.0	2234	2.05	µg/L	99
		241.0 -> 117.0	254			
5:3FTCA	6.271	341.0 -> 237.1	47597	10.89	µg/L	97
		341.0 -> 217.0	34315			
7:3FTCA	7.669	441.0 -> 316.9	26625	10.75	µg/L	85
		441.0 -> 336.9	59711			
EtFOSA	10.990	526.0 -> 219.0	4397	0.85	µg/L	94
		526.0 -> 169.0	5386			
EtFOSE	10.924	630.0 -> 58.9	11439	2.05	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	3575	0.85	µg/L	94
		511.9 -> 169.0	4812			
MeFOSE	10.691	616.1 -> 58.9	10352	2.08	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	978	0.40	µg/L	95
		699.1 -> 98.8	542			
NFDHA	5.512	295.0 -> 201.0	2669	0.89	µg/L	97
		295.0 -> 84.9	748			
PFMBA	4.838	279.0 -> 85.1	10293	0.85	µg/L	100
PFMPA	3.551	229.0 -> 84.9	7624	0.84	µg/L	100
PFEESA	6.100	314.8 -> 134.9	21642	0.75	µg/L	99
		314.8 -> 82.9	784			

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

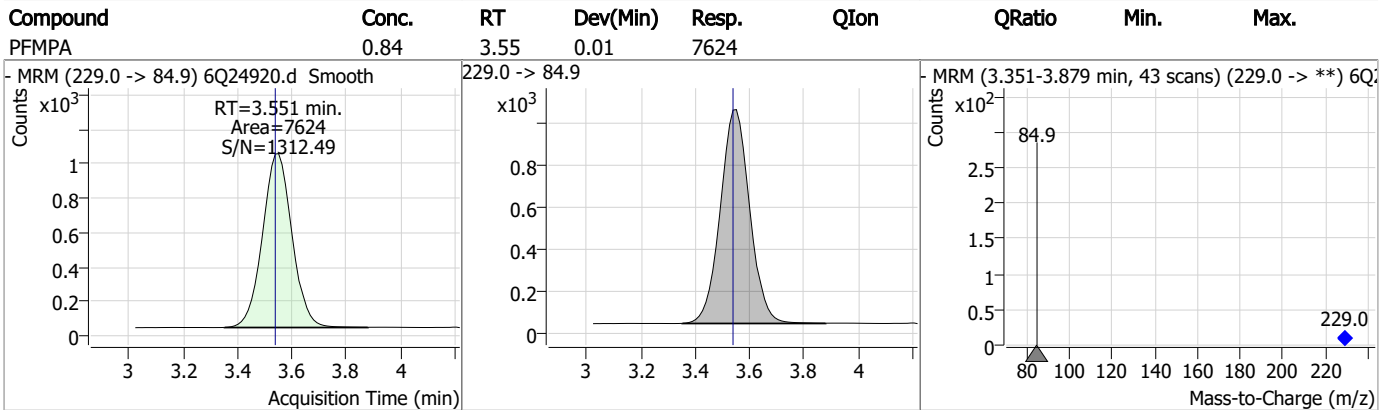
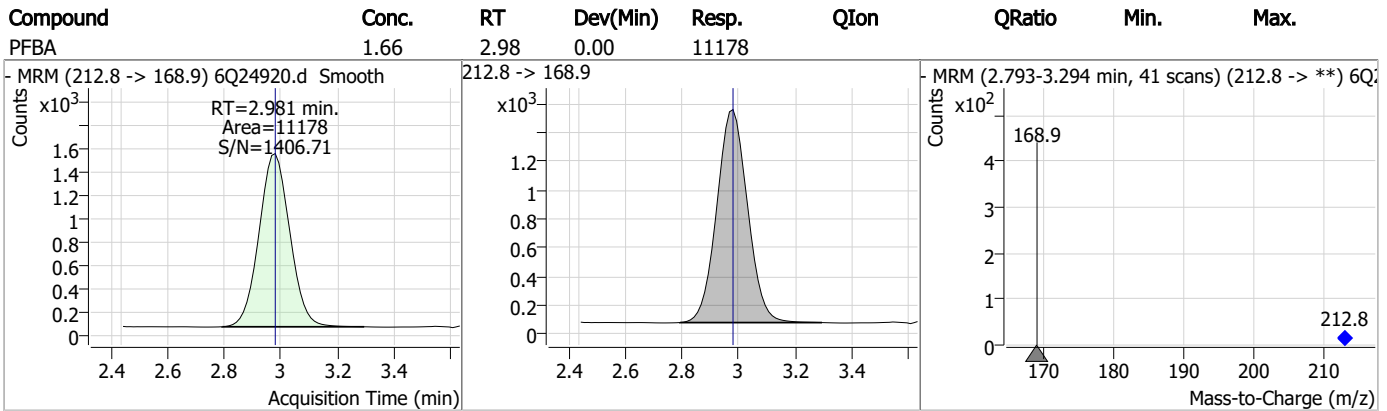
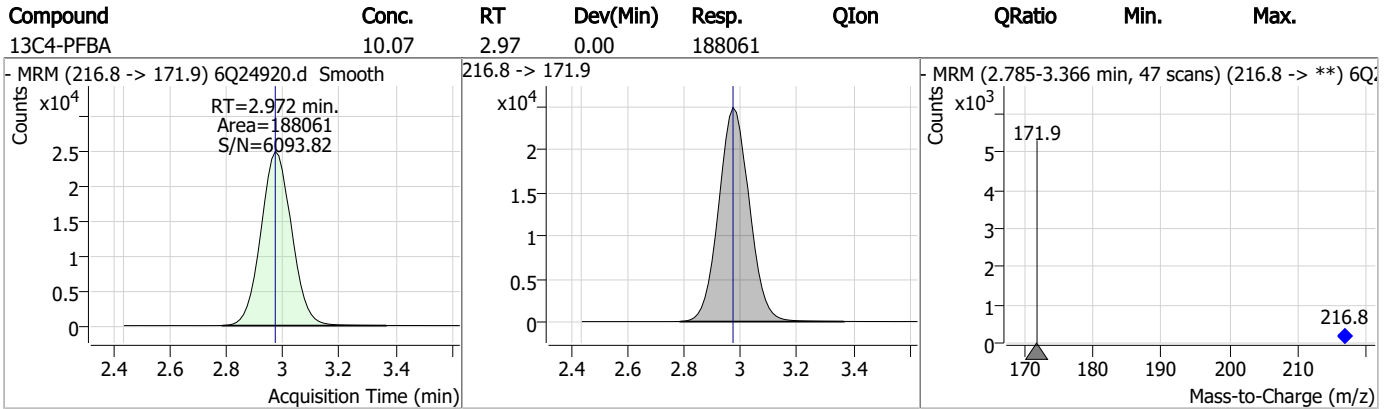
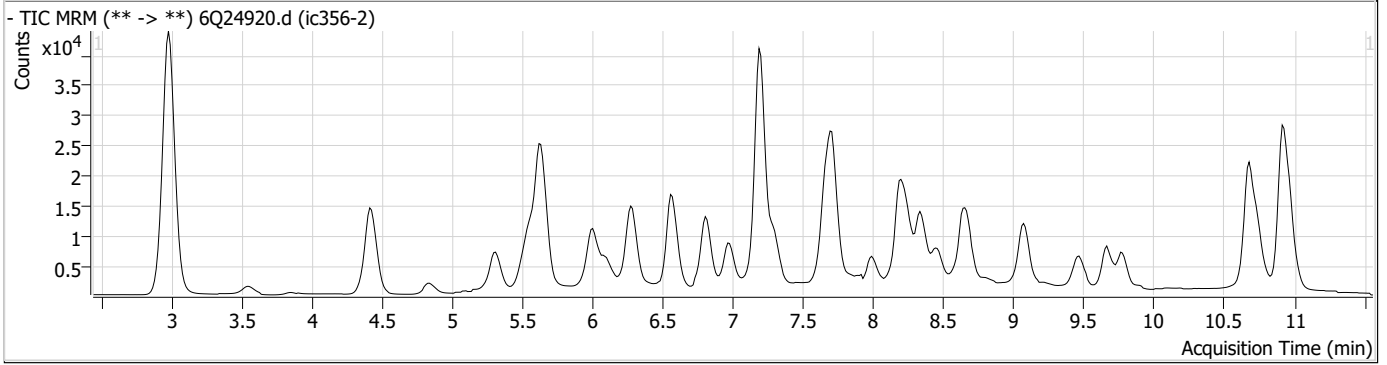
Perfluorinated Compounds by LC/MS/MS

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

7.7.18

7

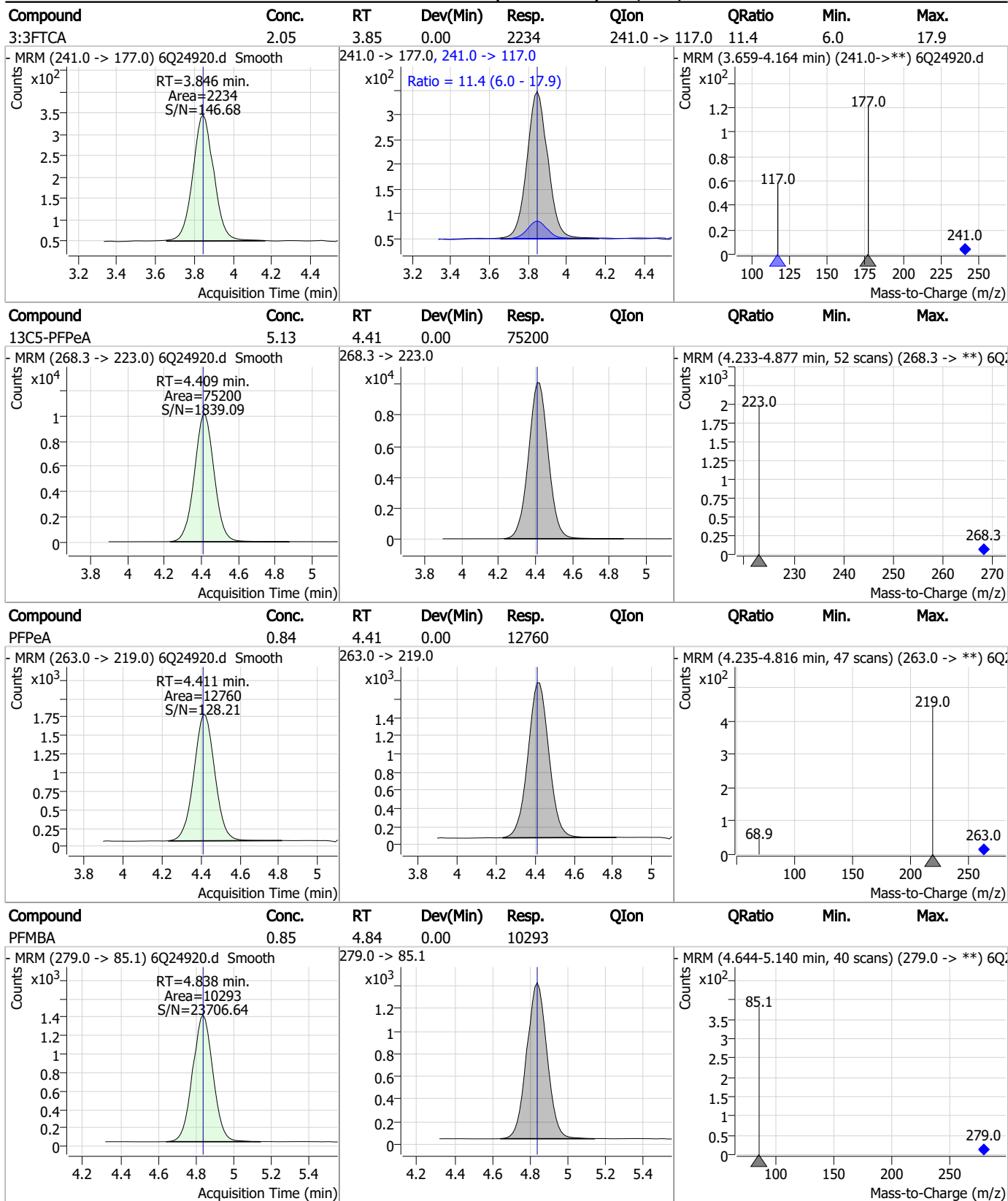
Perfluorinated Compounds by LC/MS/MS



7.7.18

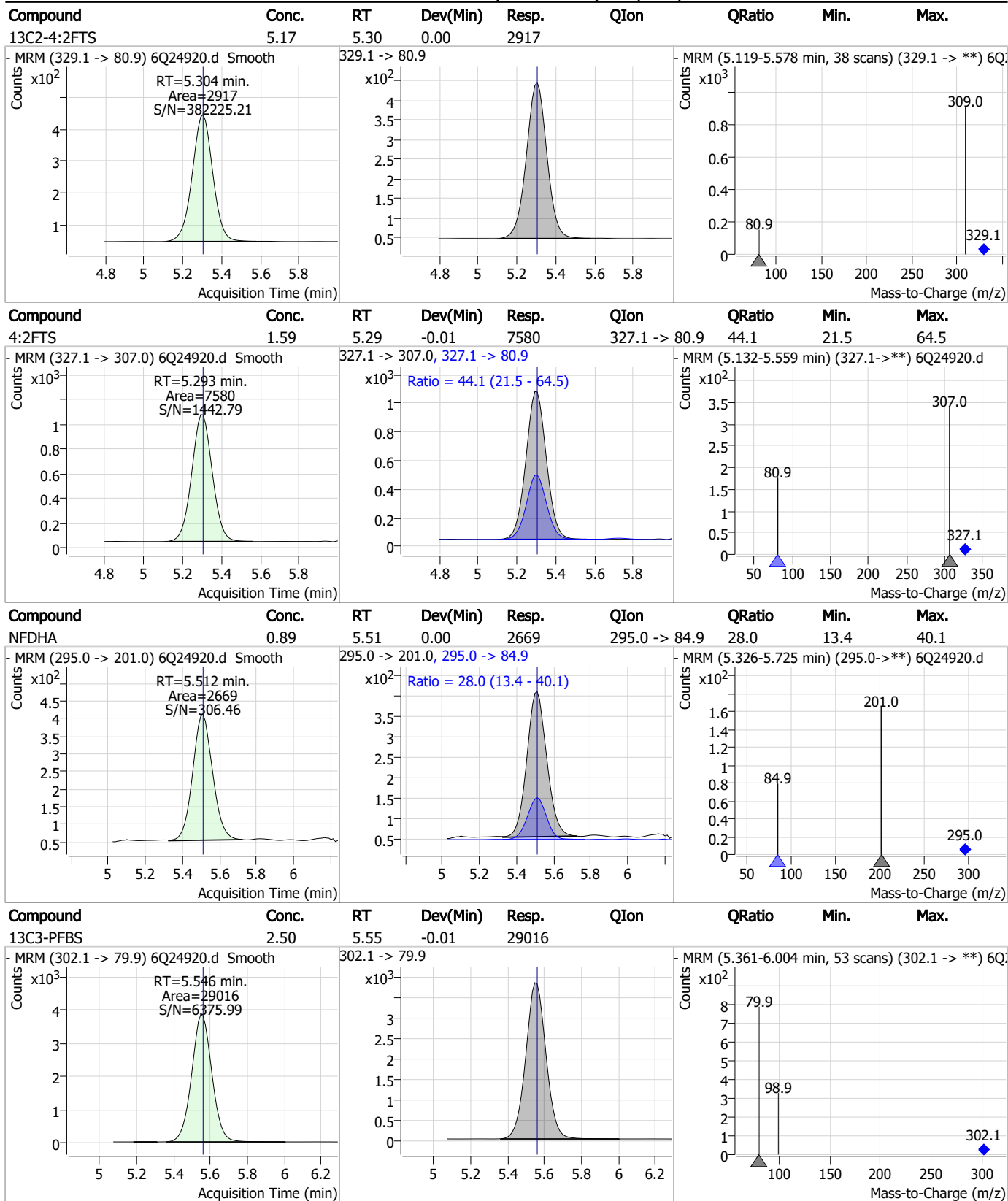
7

Perfluorinated Compounds by LC/MS/MS



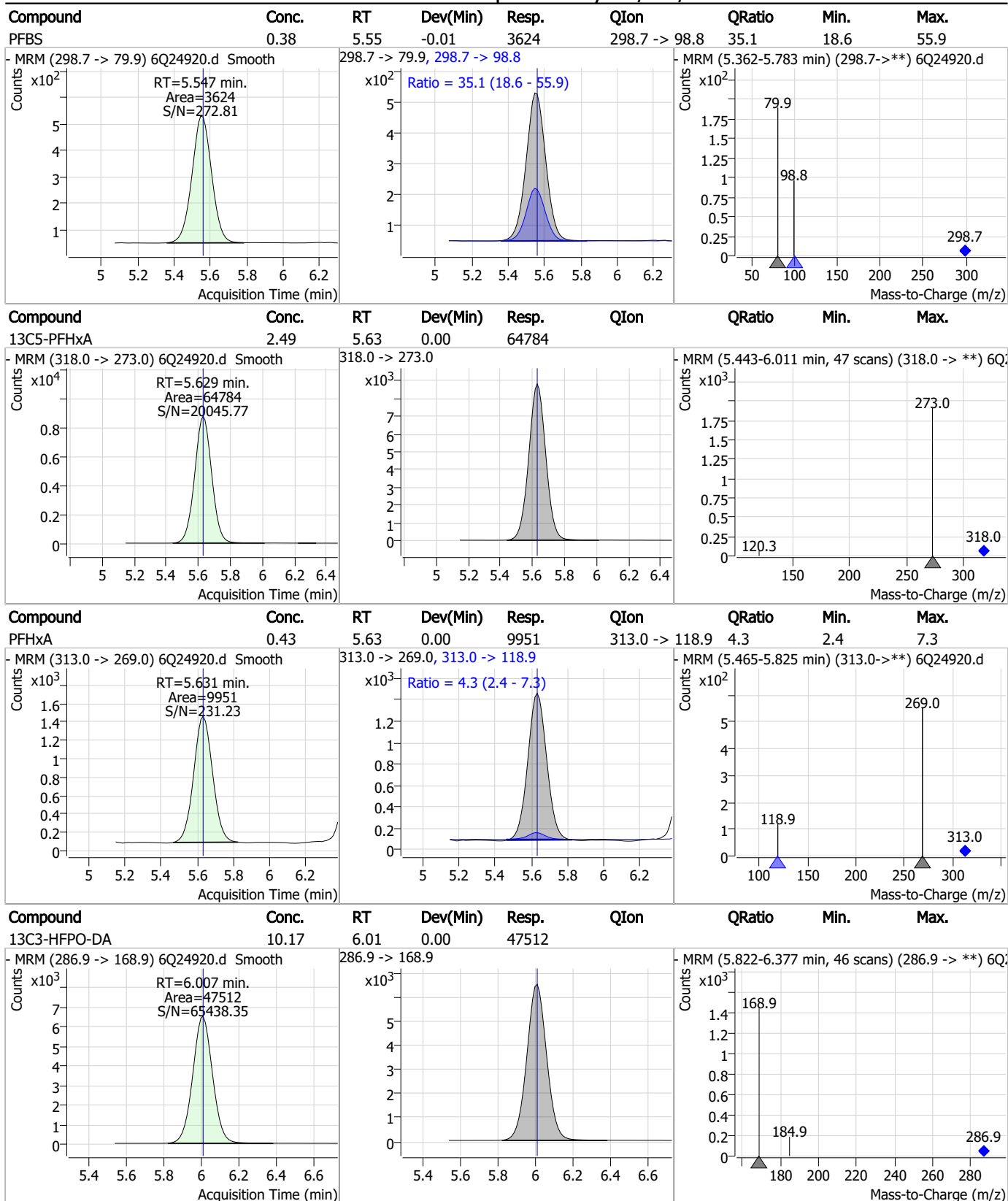
7.7.18

Perfluorinated Compounds by LC/MS/MS



7.7.18 7

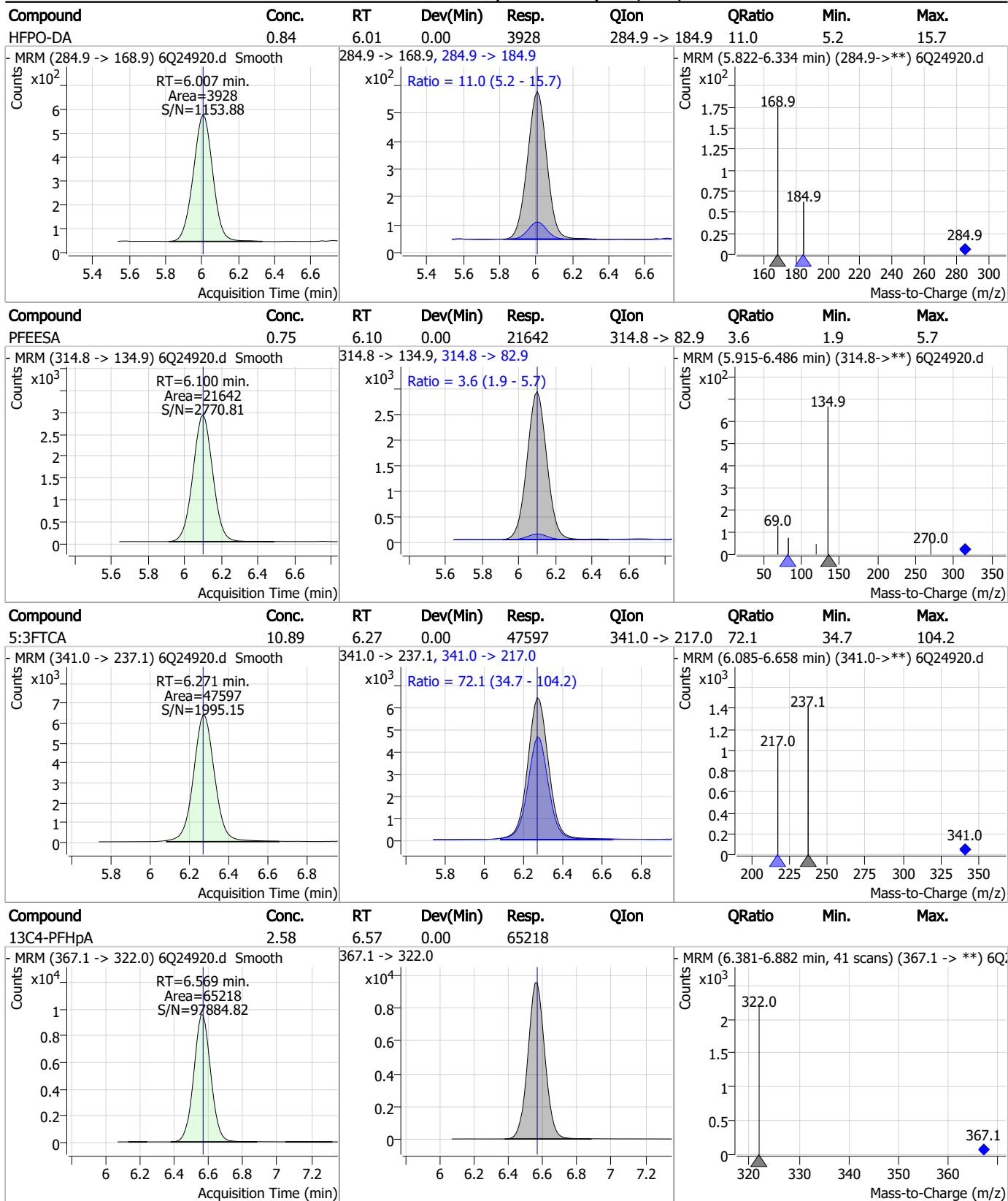
Perfluorinated Compounds by LC/MS/MS



7.7.18

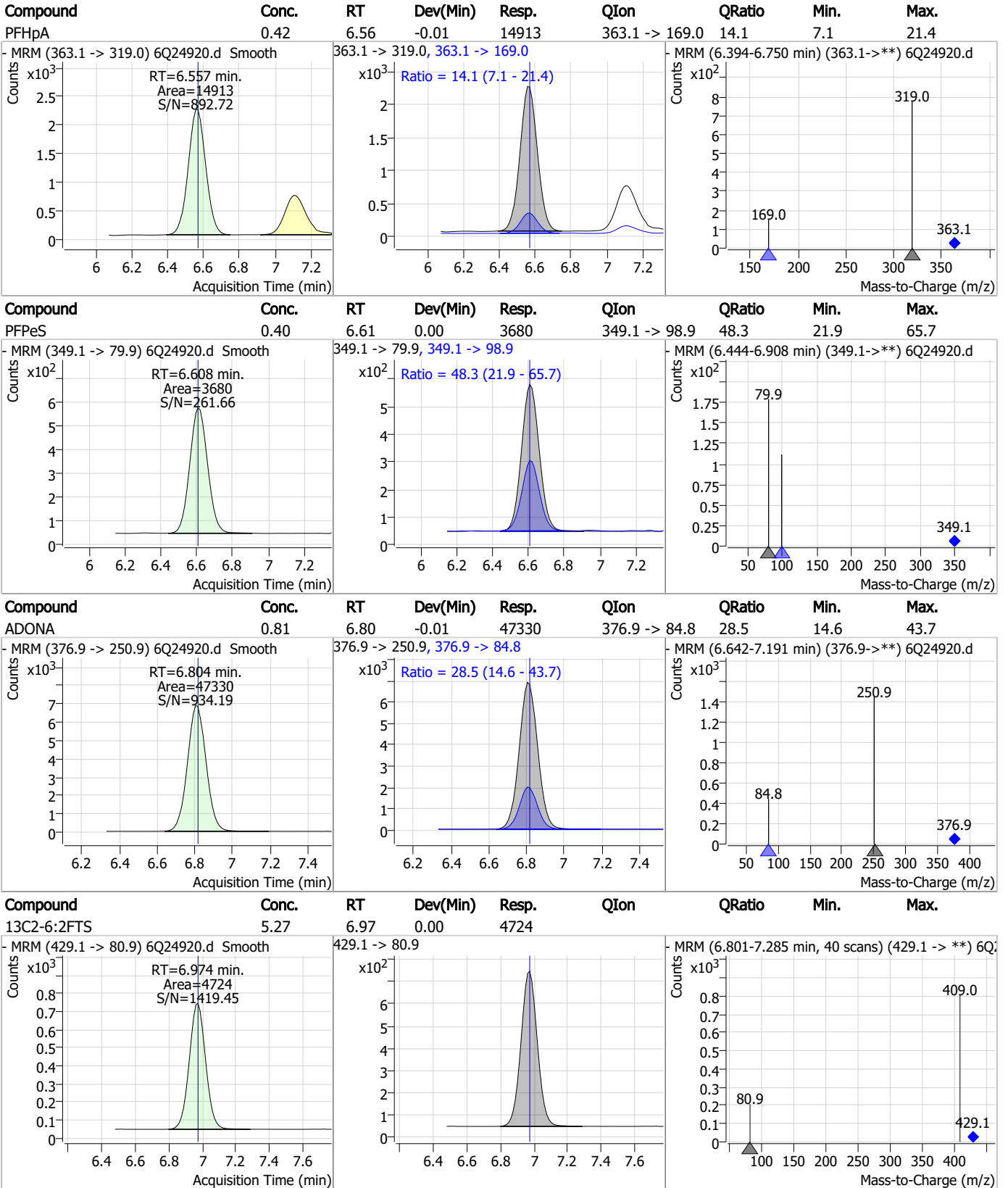
7

Perfluorinated Compounds by LC/MS/MS



7.7.18 7

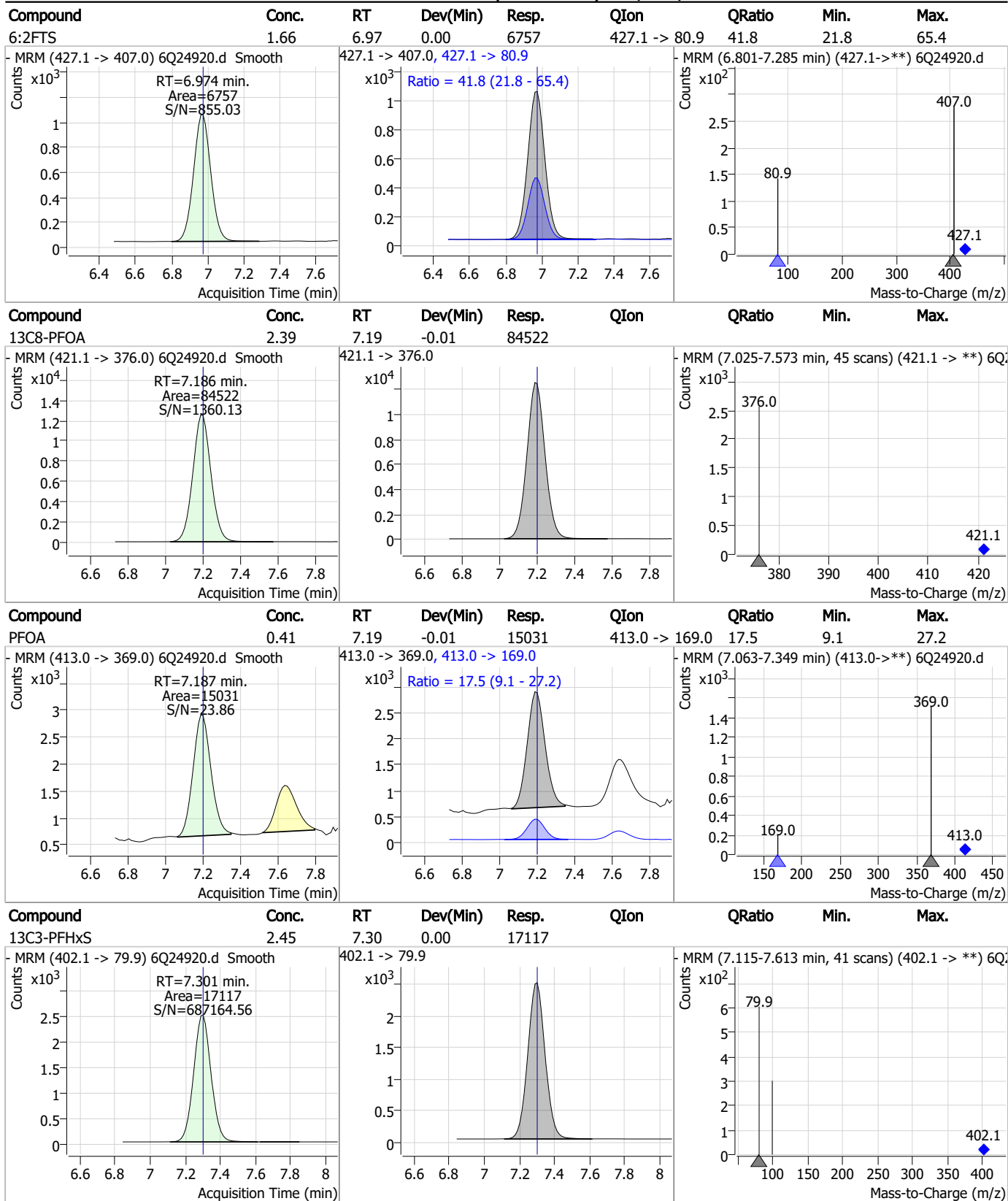
Perfluorinated Compounds by LC/MS/MS



7.7.18 7

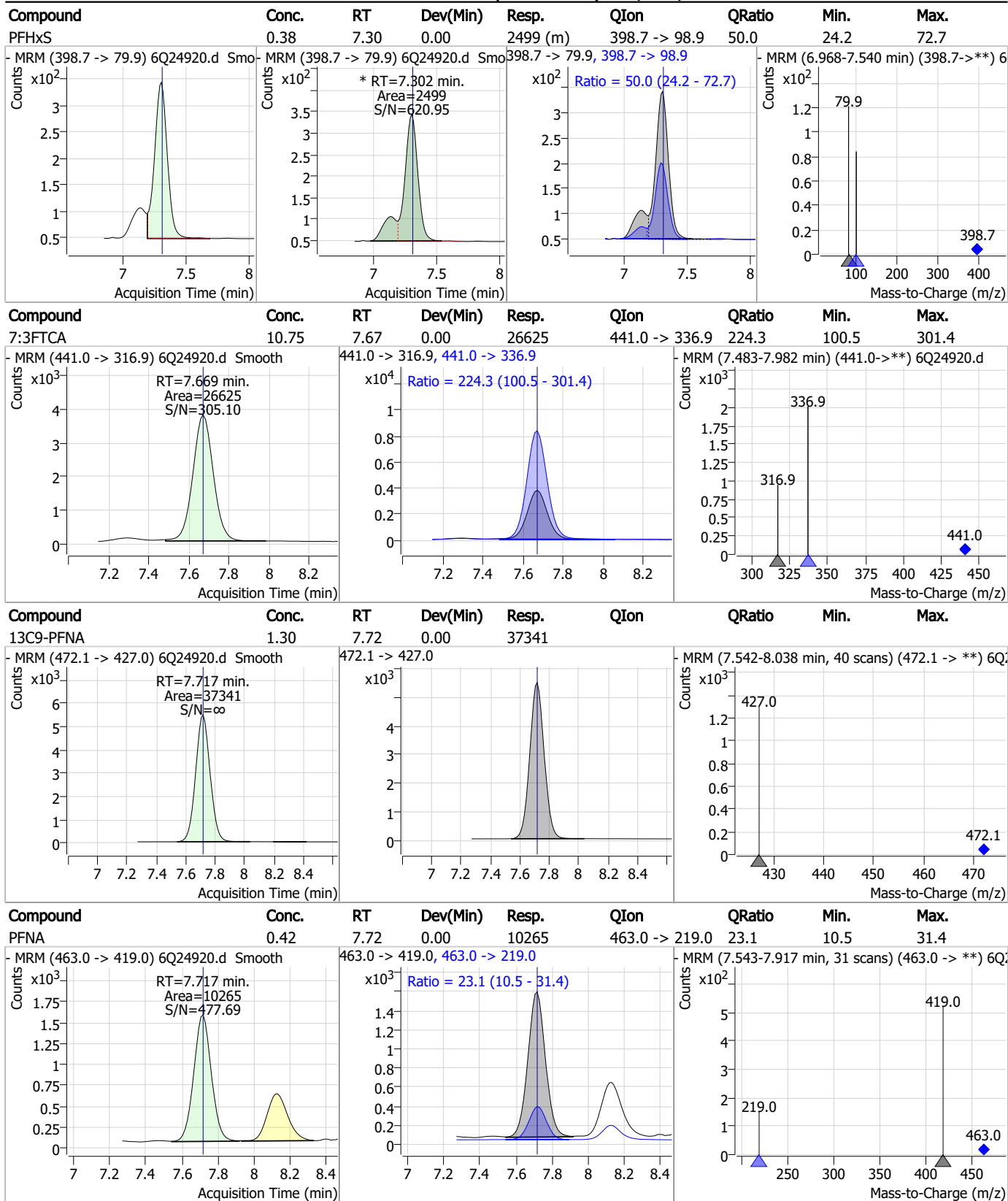


Perfluorinated Compounds by LC/MS/MS



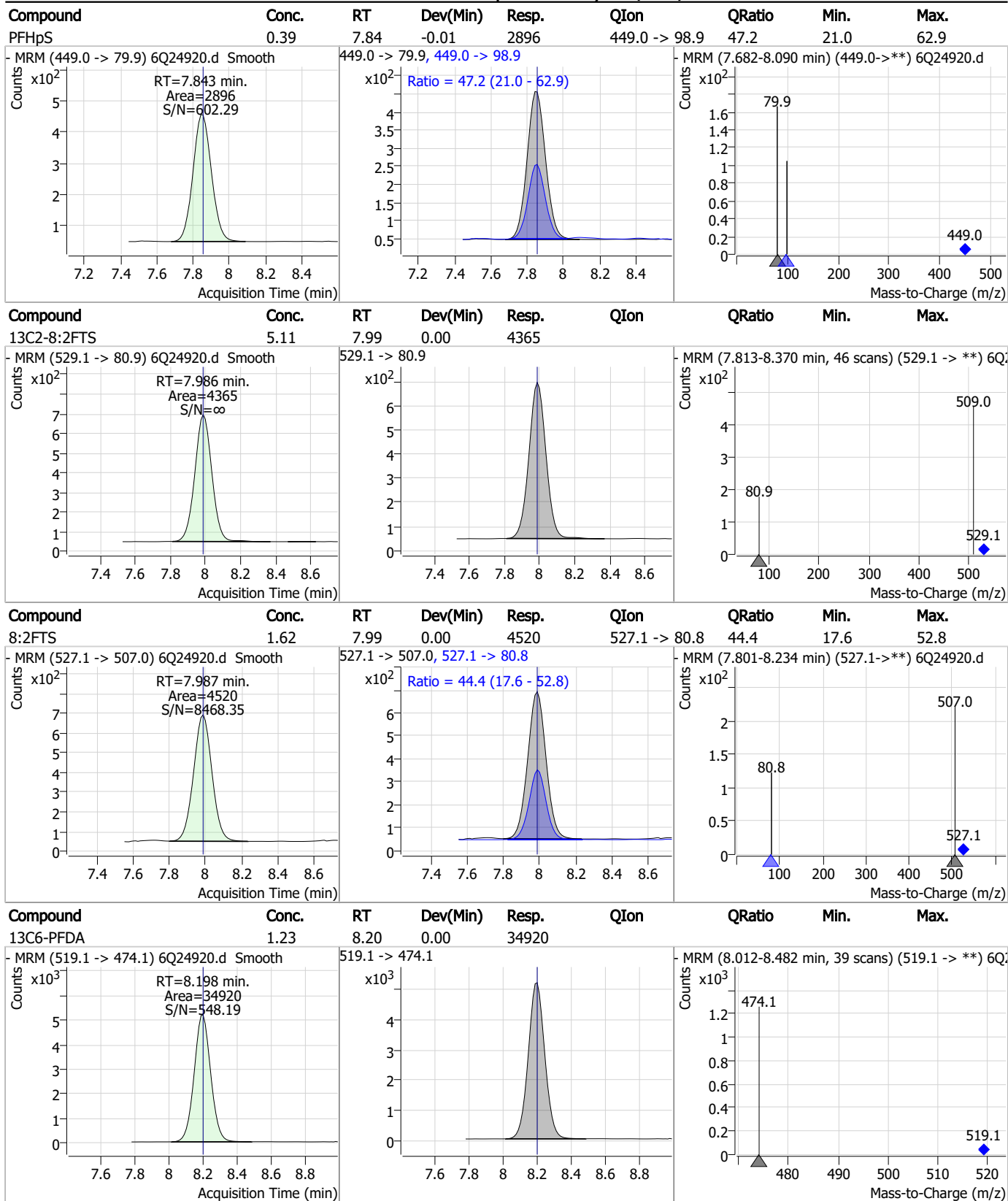
7.7.18

Perfluorinated Compounds by LC/MS/MS



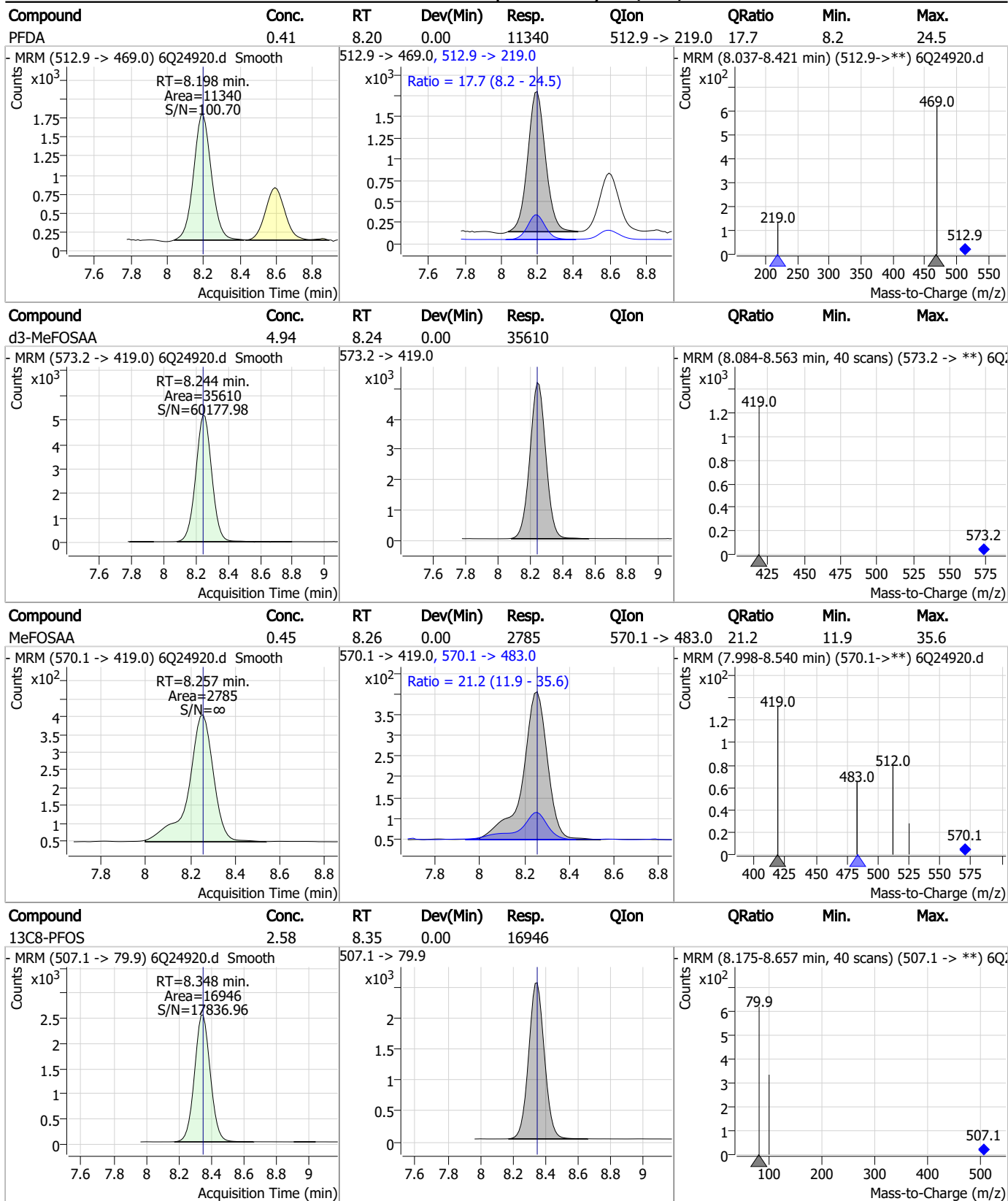
7.7.18
7

Perfluorinated Compounds by LC/MS/MS



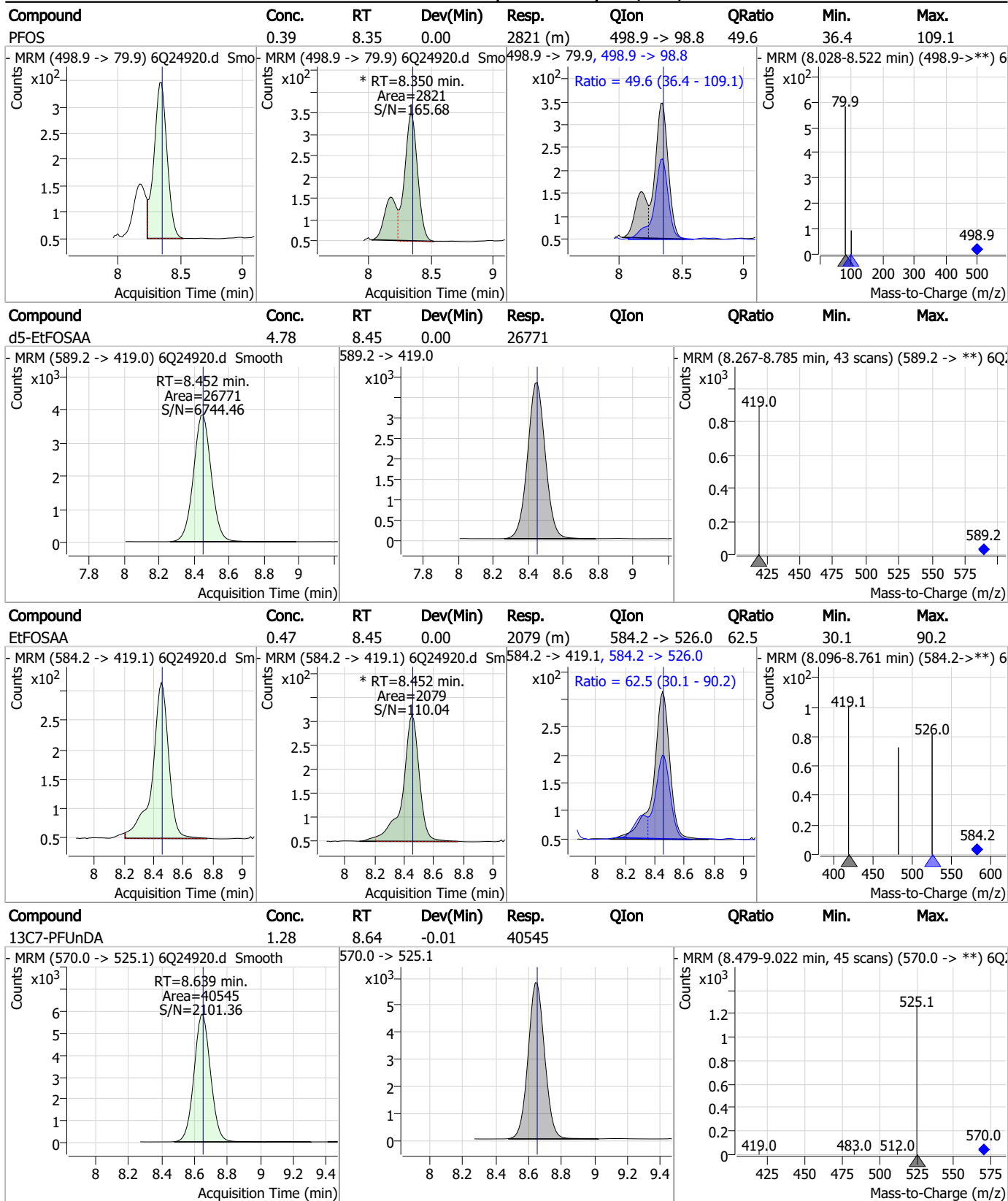
7.7.18 7

Perfluorinated Compounds by LC/MS/MS



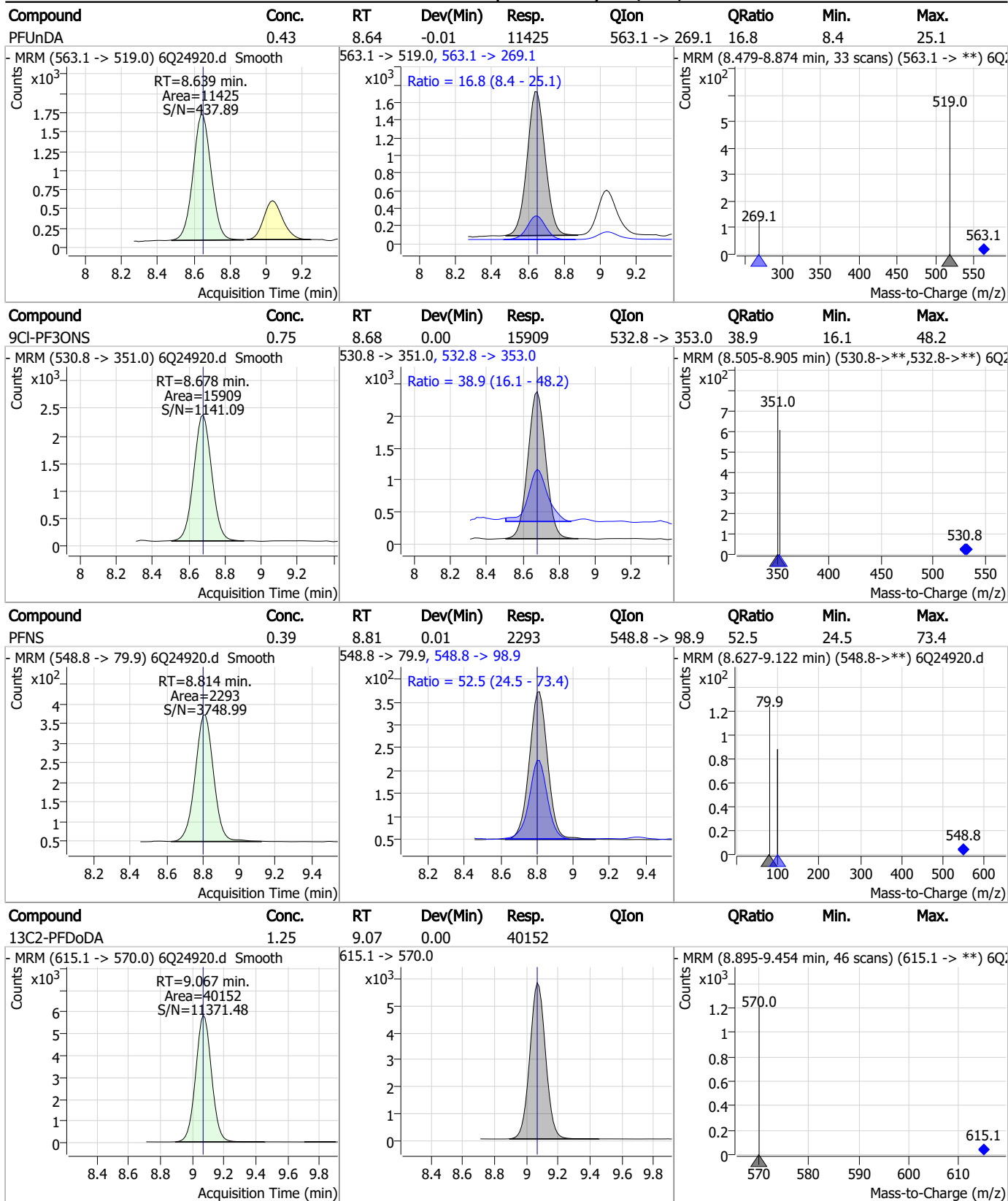
7.7.18

Perfluorinated Compounds by LC/MS/MS



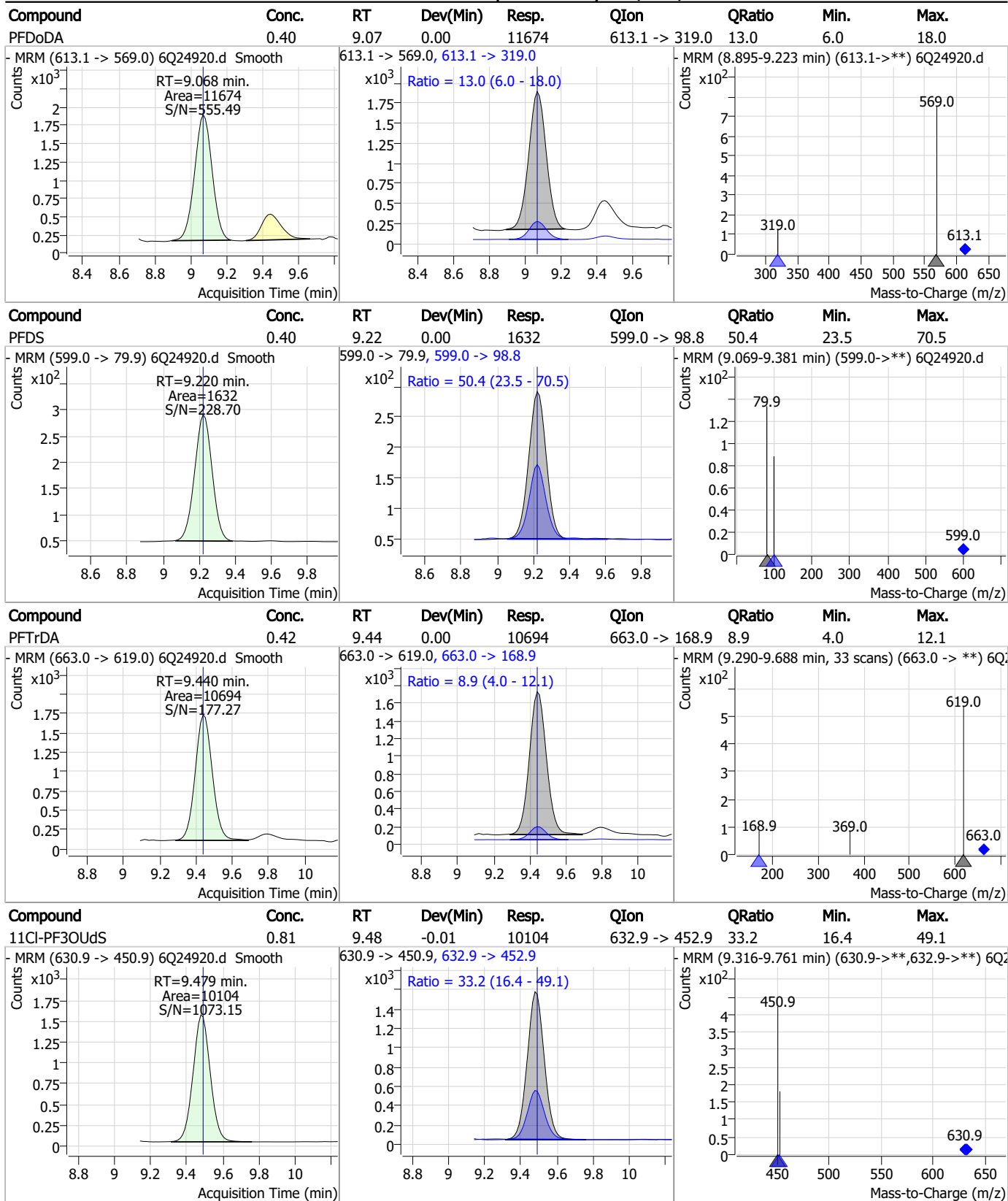
7.7.18

Perfluorinated Compounds by LC/MS/MS



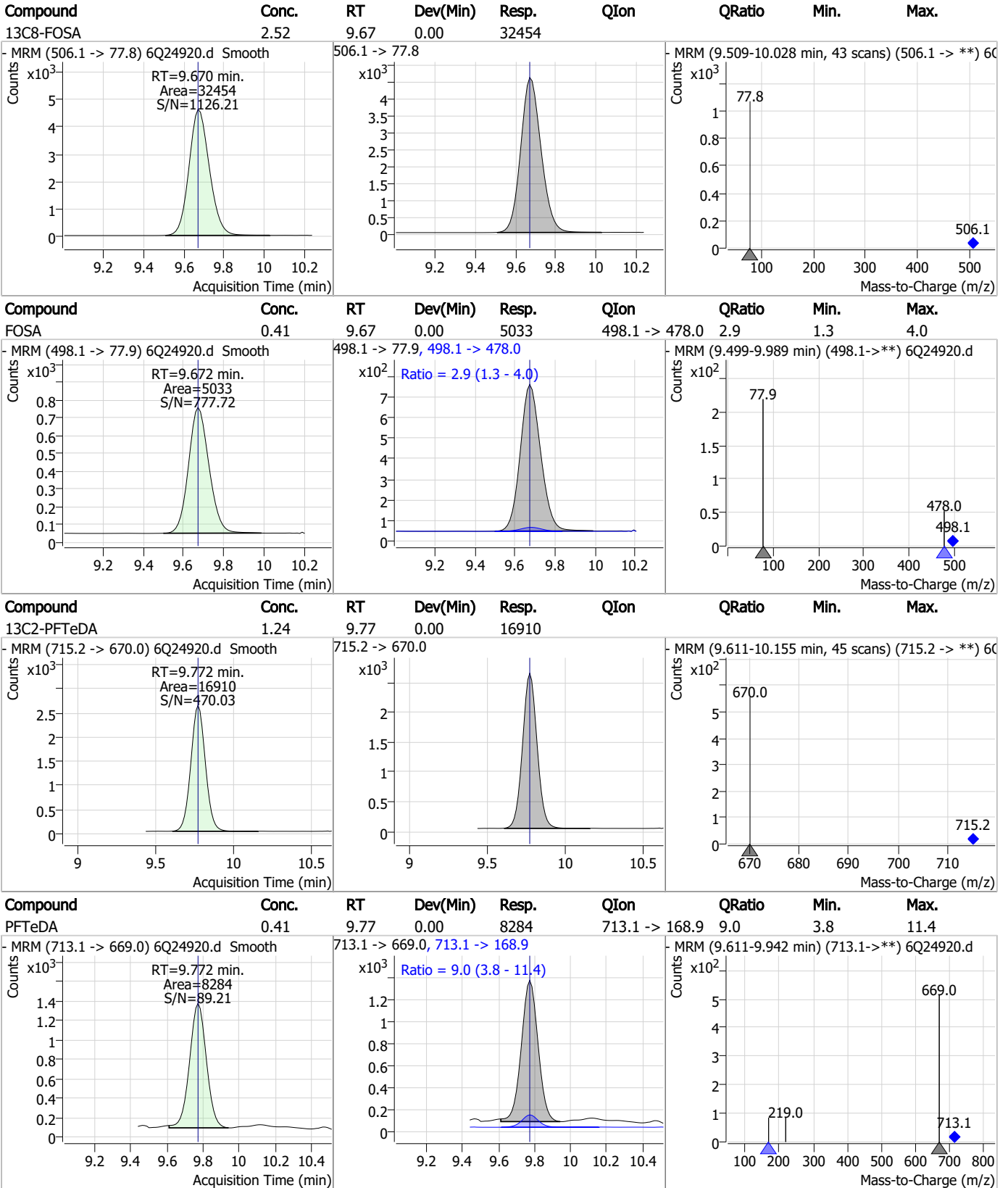
7.7.18 7

Perfluorinated Compounds by LC/MS/MS



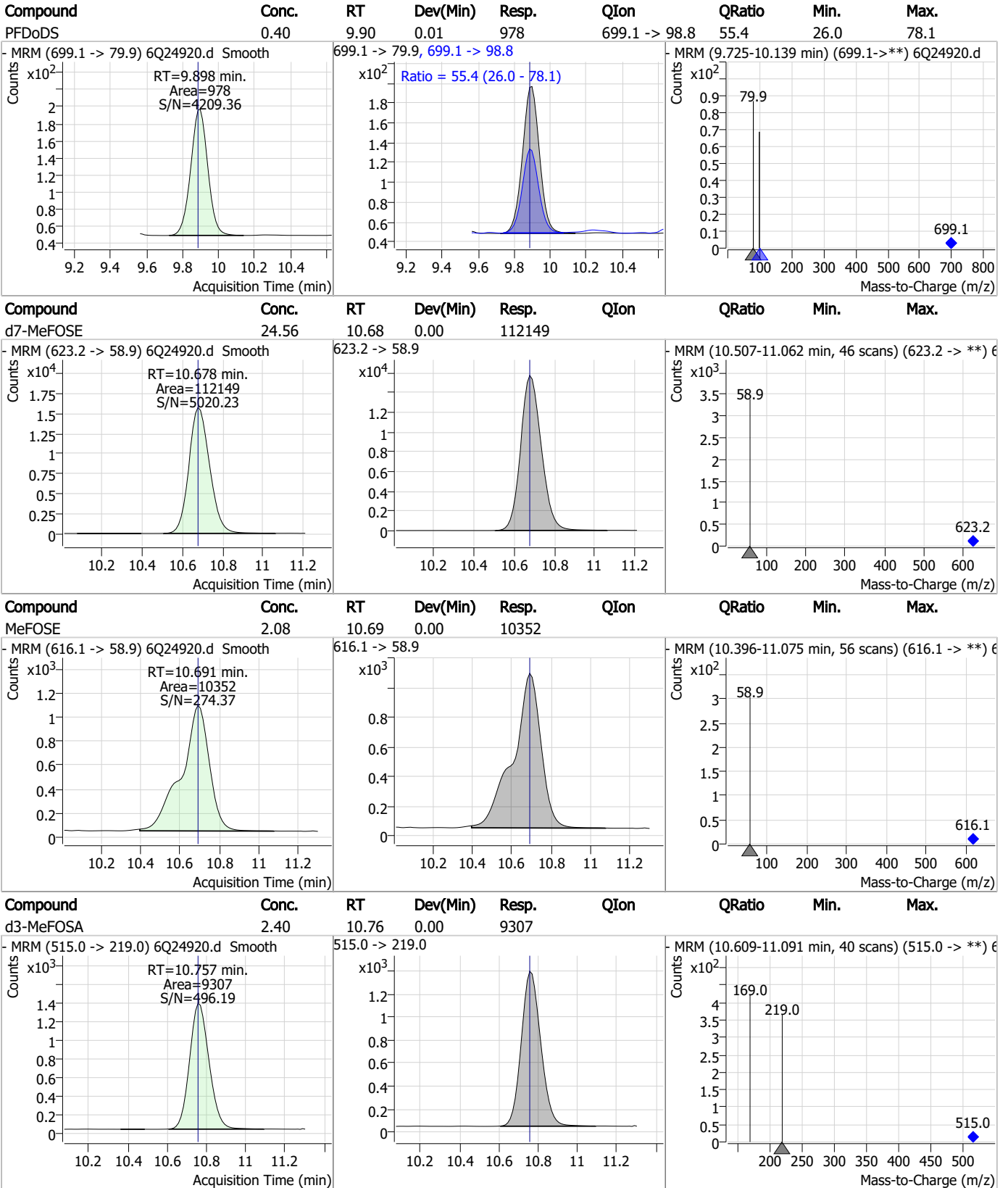
7.7.18
7

Perfluorinated Compounds by LC/MS/MS



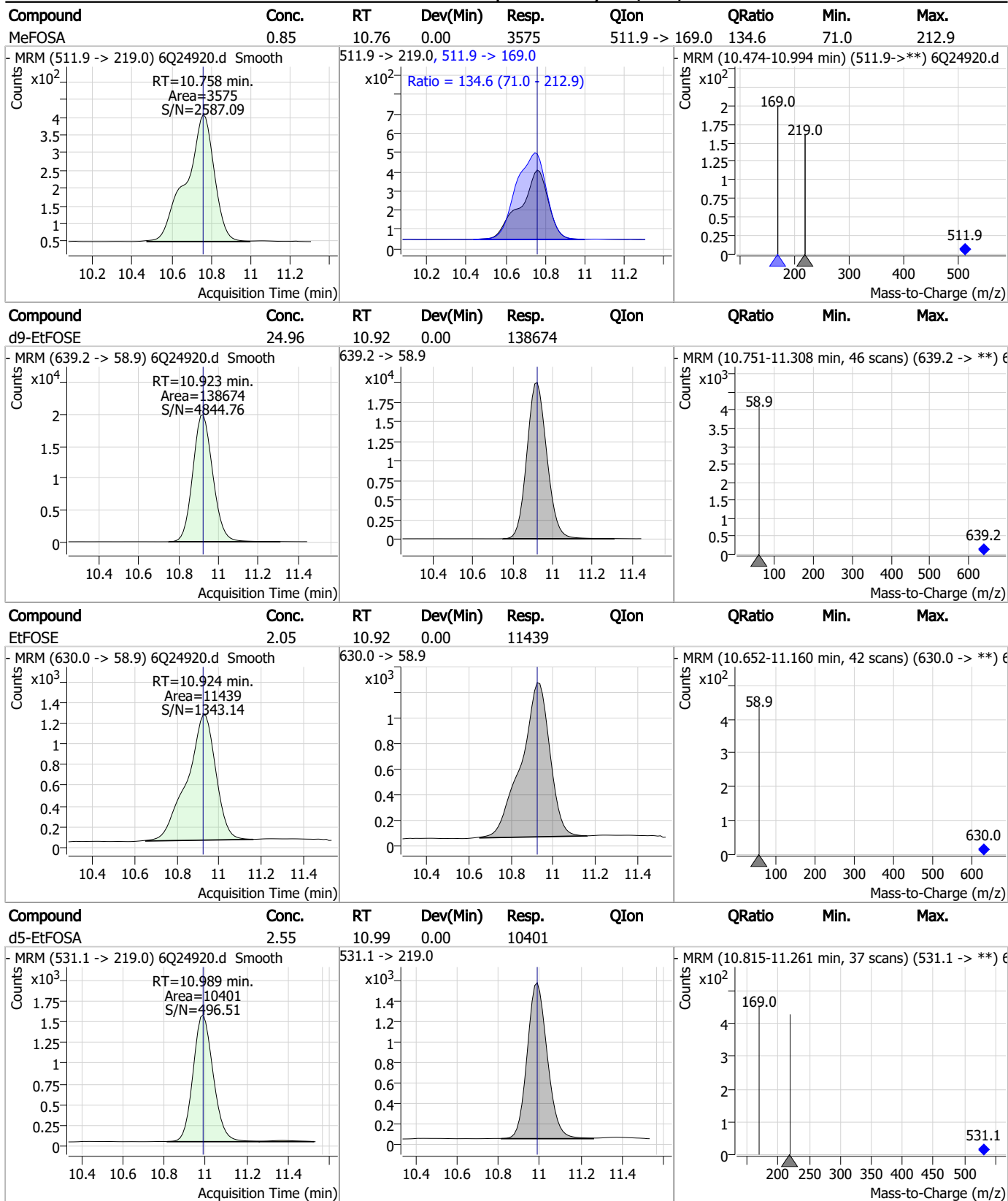
7.7.18 7

Perfluorinated Compounds by LC/MS/MS



7.7.18 7

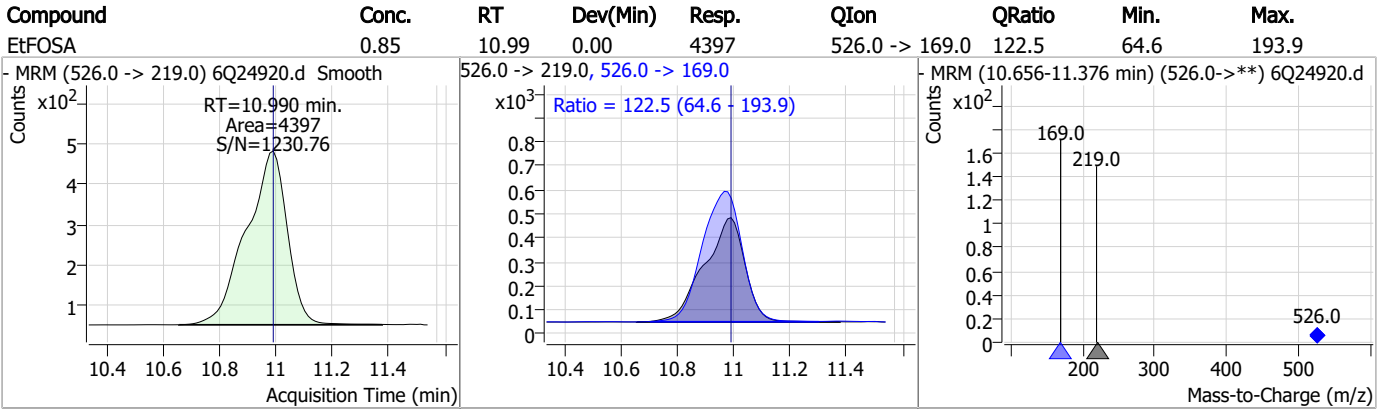
Perfluorinated Compounds by LC/MS/MS



7.7.18

7

Perfluorinated Compounds by LC/MS/MS



7.7.18
7

Manual Integration Approval Summary

Sample Number: S6Q356-IC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24920.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 15:14 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.18.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24921.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 3:28:39 PM
 Sample Name : ic356-3
 Vial : P1-A4
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	188036	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	76441	5.00 µg/L	0.012
M5-PFHxA	5.629	318.0 -> 273.0	68366	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	67762	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	89449	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	37951	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	35928	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	41307	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	39250	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16639	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	31051	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	29915	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	16843	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	16772	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3045	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4874	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4384	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	36178	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	47184	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	28013	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	118690	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	139717	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	10175	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9139	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	15400	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	77816	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	11091	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	98462	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	33378	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	37987	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	65013	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3045	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4874	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4384	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-PFDoDA	9.067	615.1 -> 570.0	39250	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16639	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C3-PFBS	5.559	302.1 -> 79.9	29915	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFHxS	7.301	402.1 -> 79.9	16843	2.40 µg/L	0.000

7.7.19
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 = 96.0%		
13C4-PFBA	2.972	216.8 -> 171.9	188036	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C4-PFHpA	6.569	367.1 -> 322.0	67762	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C5-PFHxA	5.629	318.0 -> 273.0	68366	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C5-PFPeA	4.422	268.3 -> 223.0	76441	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C6-PFDA	8.198	519.1 -> 474.1	35928	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C7-PFUnDA	8.651	570.0 -> 525.1	41307	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C8-FOSA	9.670	506.1 -> 77.8	31051	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C8-PFOA	7.198	421.1 -> 376.0	89449	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C8-PFOS	8.348	507.1 -> 79.9	16772	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C9-PFNA	7.717	472.1 -> 427.0	37951	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
d3-MeFOSAA	8.244	573.2 -> 419.0	36178	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C3-HFPO-DA	6.007	286.9 -> 168.9	47184	9.63 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 96.3%		
d3-MeFOSA	10.757	515.0 -> 219.0	9139	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.3%		
d5-EtFOSAA	8.452	589.2 -> 419.0	28013	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.8%		
d7-MeFOSE	10.678	623.2 -> 58.9	118690	25.69 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
d9-EtFOSE	10.923	639.2 -> 58.9	139717	24.86 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
d5-EtFOSA	10.989	531.1 -> 219.0	10175	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	22750	4.57 µg/L	99
		327.1 -> 80.9	9695		
6:2FTS	6.974	427.1 -> 407.0	18924	4.51 µg/L	96
		427.1 -> 80.9	8713		
8:2FTS	7.987	527.1 -> 507.0	12866	4.60 µg/L	90
		527.1 -> 80.8	5258		
EtFOSAA	8.453	584.2 -> 419.1	5483	1.18 µg/L	92
		584.2 -> 526.0	3626	m	
FOSA	9.672	498.1 -> 77.9	15513	1.31 µg/L	100
		498.1 -> 478.0	411		
MeFOSAA	8.245	570.1 -> 419.0	7595	1.20 µg/L	93
		570.1 -> 483.0	1544		
PFBA	2.981	212.8 -> 168.9	32764	4.88 µg/L	100
PFBS	5.560	298.7 -> 79.9	10678	1.09 µg/L	99
		298.7 -> 98.8	3914		
PFDA	8.198	512.9 -> 469.0	34440	1.21 µg/L	100
		512.9 -> 219.0	5631		
PFDODA	9.068	613.1 -> 569.0	34992	1.22 µg/L	95
		613.1 -> 319.0	4832		
PFDS	9.220	599.0 -> 79.9	4665	1.15 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2223			
PFHpA	6.569	363.1 -> 319.0	42522	1.16	µg/L	99
		363.1 -> 169.0	6247			
PFHpS	7.856	449.0 -> 79.9	8567	1.16	µg/L	88
		449.0 -> 98.9	4267			
PFHxA	5.631	313.0 -> 269.0	29784	1.21	µg/L	99
		313.0 -> 118.9	1355			
PFHxS	7.302	398.7 -> 79.9	7560	1.15	µg/L	m 97
		398.7 -> 98.9	3797			
PFNA	7.717	463.0 -> 419.0	28241	1.15	µg/L	91
		463.0 -> 219.0	7127			
PFNS	8.814	548.8 -> 79.9	6994	1.20	µg/L	99
		548.8 -> 98.9	3489			
PFOA	7.200	413.0 -> 369.0	44419	1.16	µg/L	99
		413.0 -> 169.0	8178			
PFOS	8.350	498.9 -> 79.9	7831	1.08	µg/L	m 73
		498.9 -> 98.8	3952			
PFPeA	4.424	263.0 -> 219.0	37017	2.41	µg/L	100
PFPeS	6.620	349.1 -> 79.9	10783	1.18	µg/L	94
		349.1 -> 98.9	5121			
PFTeDA	9.772	713.1 -> 669.0	24511	1.25	µg/L	100
		713.1 -> 168.9	1828			
PFTrDA	9.440	663.0 -> 619.0	31796	1.27	µg/L	99
		663.0 -> 168.9	2678			
PFUnDA	8.652	563.1 -> 519.0	32368	1.18	µg/L	97
		563.1 -> 269.1	4934			
11CI-PF3OUdS	9.491	630.9 -> 450.9	30242	2.45	µg/L	100
		632.9 -> 452.9	9896			
9CI-PF3ONS	8.678	530.8 -> 351.0	52042	2.48	µg/L	96
		532.8 -> 353.0	15497			
ADONA	6.804	376.9 -> 250.9	136534	2.35	µg/L	99
		376.9 -> 84.8	40192			
HFPO-DA	6.007	284.9 -> 168.9	11612	2.50	µg/L	98
		284.9 -> 184.9	1124			
3:3FTCA	3.846	241.0 -> 177.0	6440	5.91	µg/L	99
		241.0 -> 117.0	732			
5:3FTCA	6.271	341.0 -> 237.1	136831	29.66	µg/L	97
		341.0 -> 217.0	91803			
7:3FTCA	7.669	441.0 -> 316.9	77340	29.59	µg/L	92
		441.0 -> 336.9	164553			
EtFOSA	10.990	526.0 -> 219.0	12545	2.48	µg/L	95
		526.0 -> 169.0	15560			
EtFOSE	10.924	630.0 -> 58.9	34557	6.16	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	10744	2.61	µg/L	95
		511.9 -> 169.0	14532			
MeFOSE	10.691	616.1 -> 58.9	31704	6.03	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	2640	1.09	µg/L	86
		699.1 -> 98.8	1627			
NFDHA	5.512	295.0 -> 201.0	7464	2.37	µg/L	96
		295.0 -> 84.9	2137			
PFMBA	4.838	279.0 -> 85.1	29864	2.42	µg/L	100
PFMPA	3.551	229.0 -> 84.9	22220	2.42	µg/L	100
PFEESA	6.100	314.8 -> 134.9	66241	2.17	µg/L	100
		314.8 -> 82.9	2579			

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

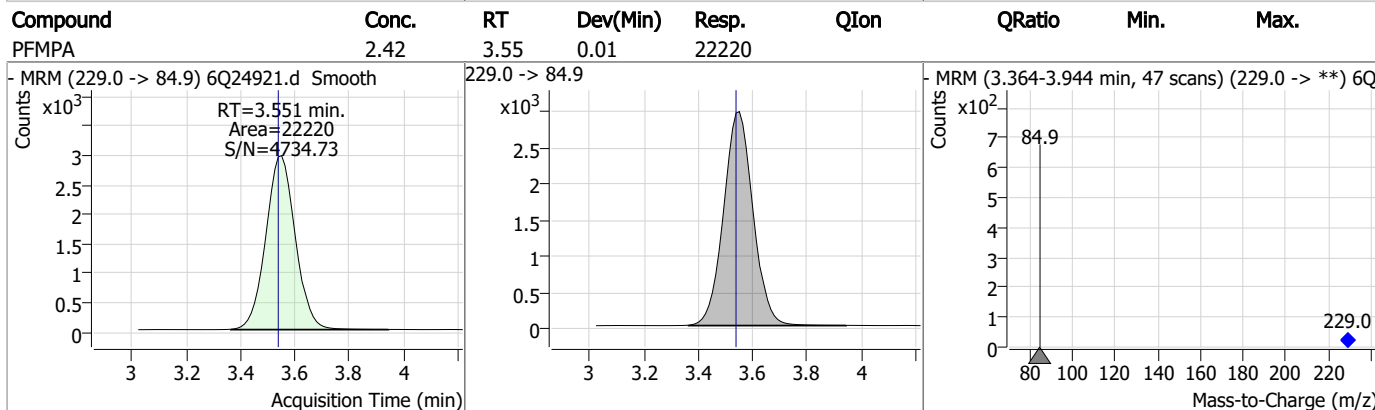
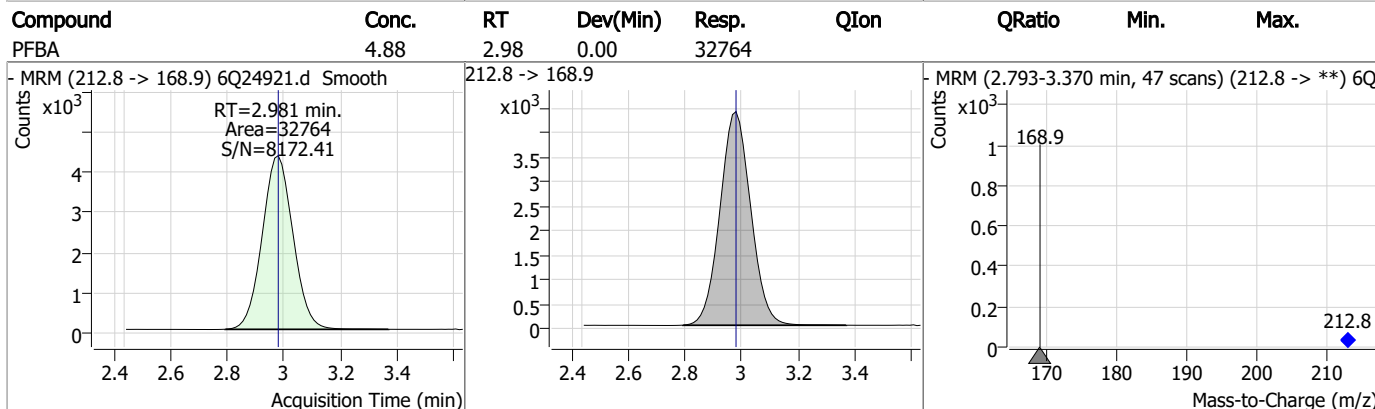
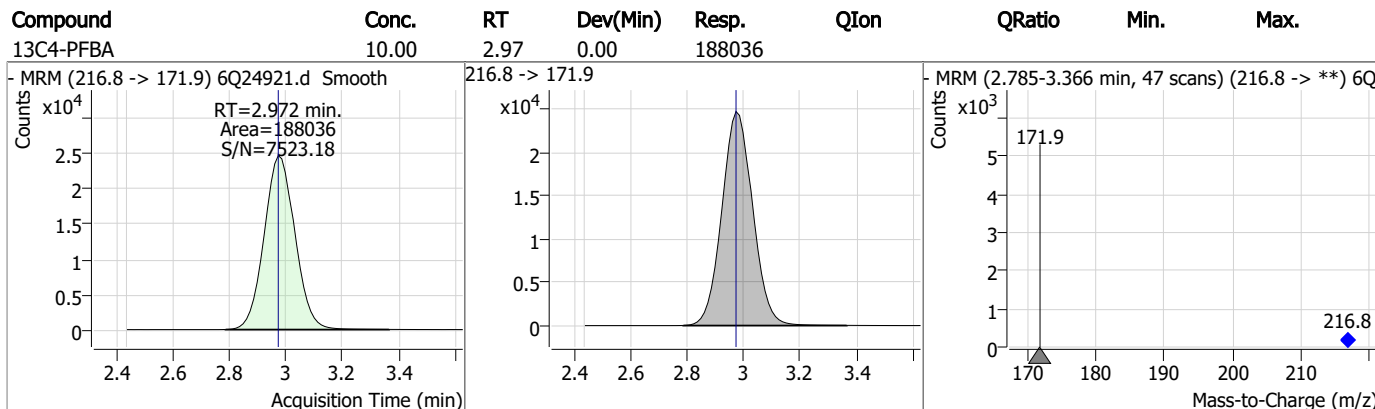
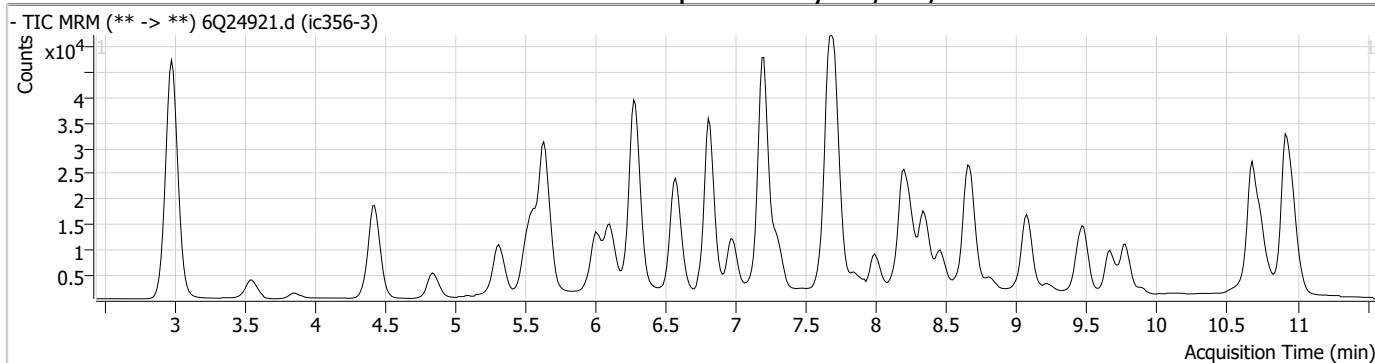
Perfluorinated Compounds by LC/MS/MS

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

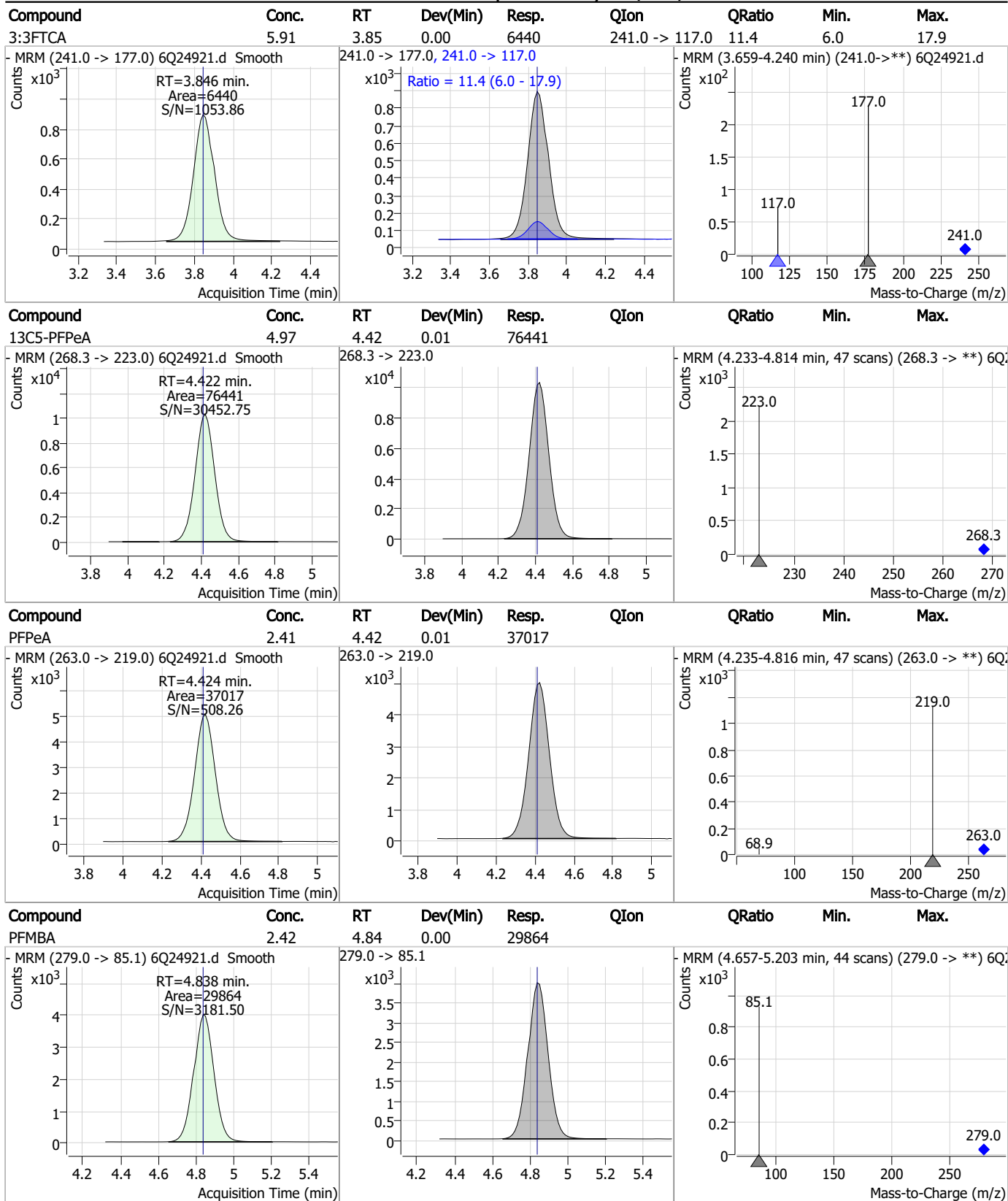
7.7.19

7

Perfluorinated Compounds by LC/MS/MS



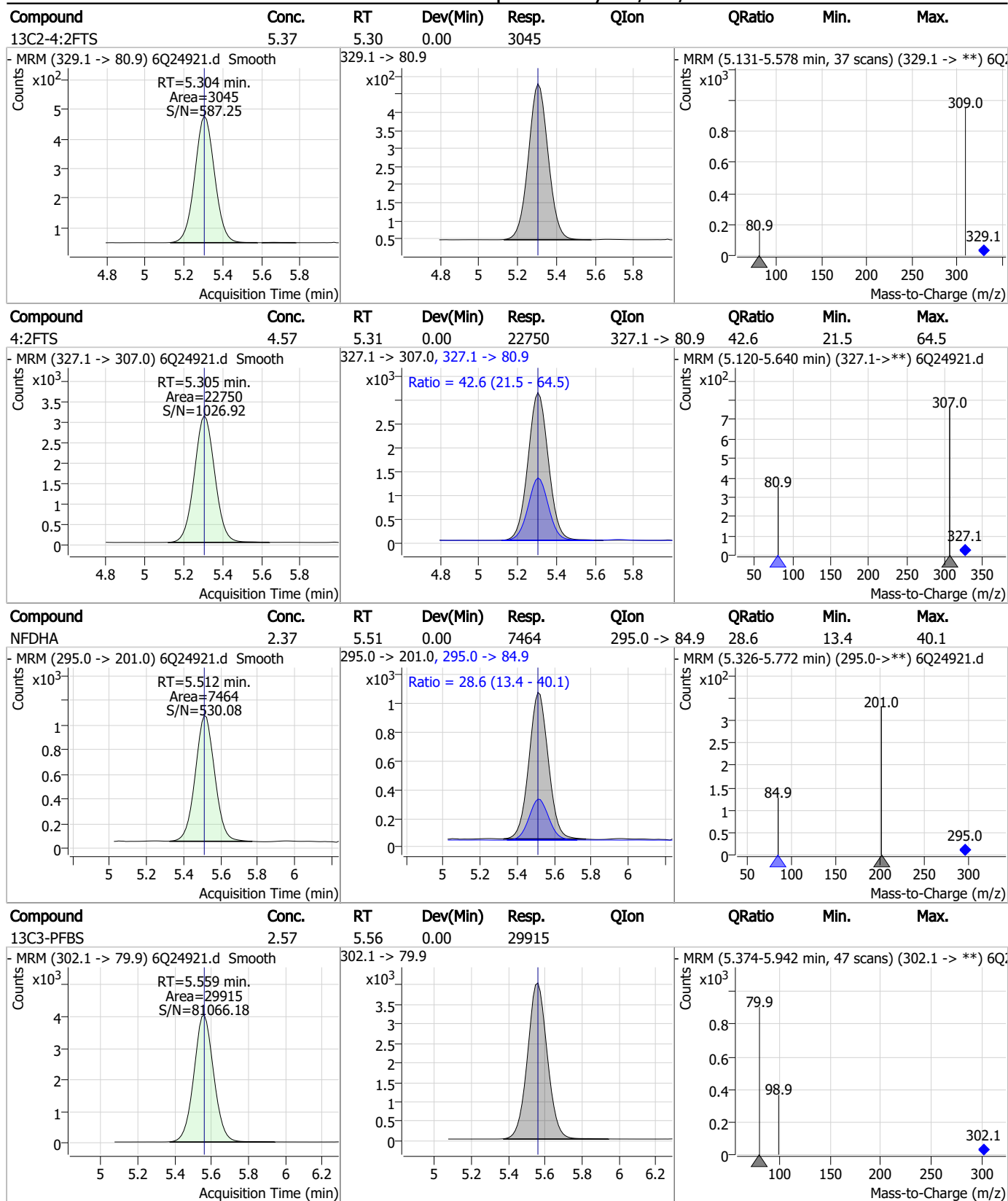
Perfluorinated Compounds by LC/MS/MS



7.7.19

7

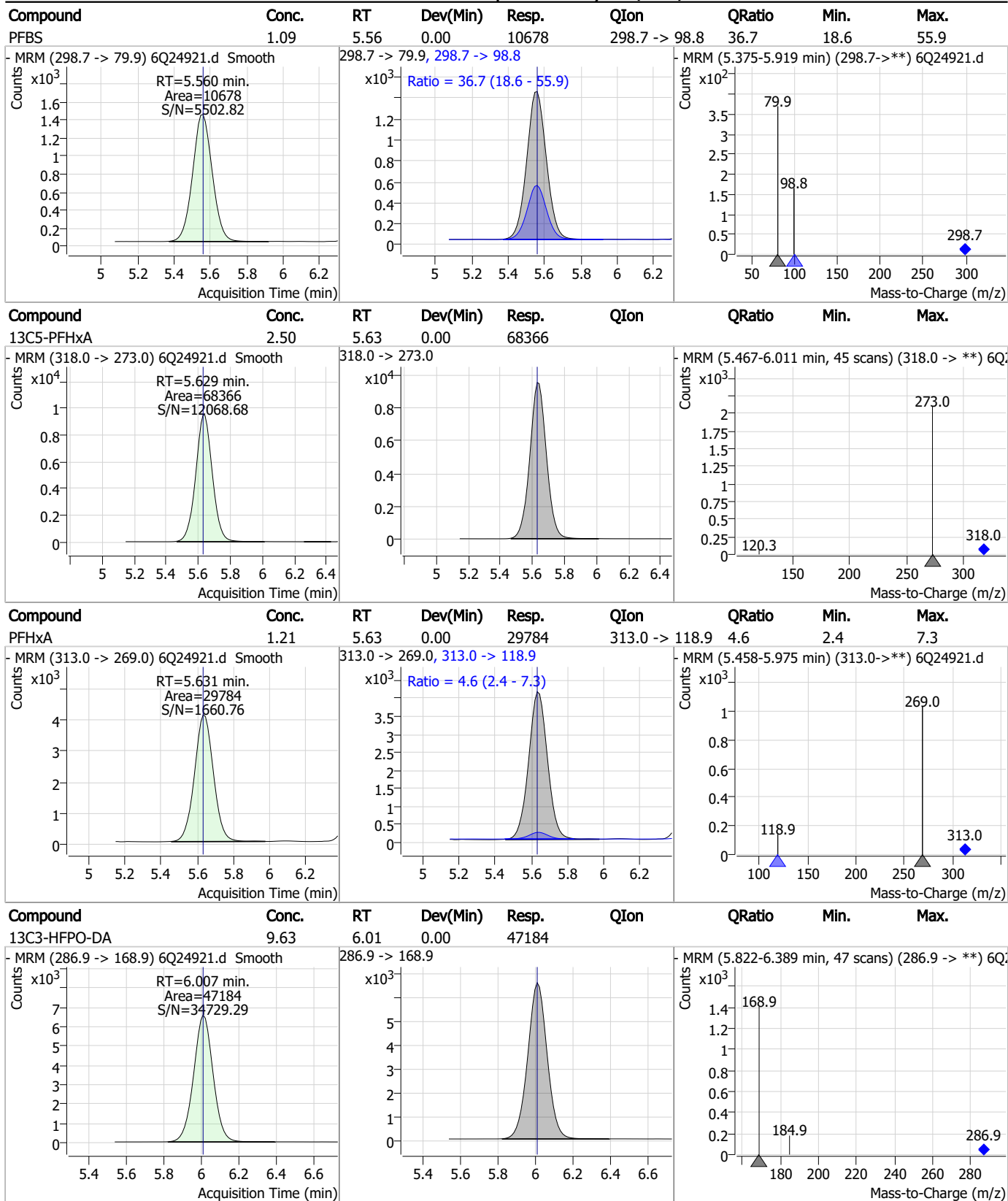
Perfluorinated Compounds by LC/MS/MS



7.7.19

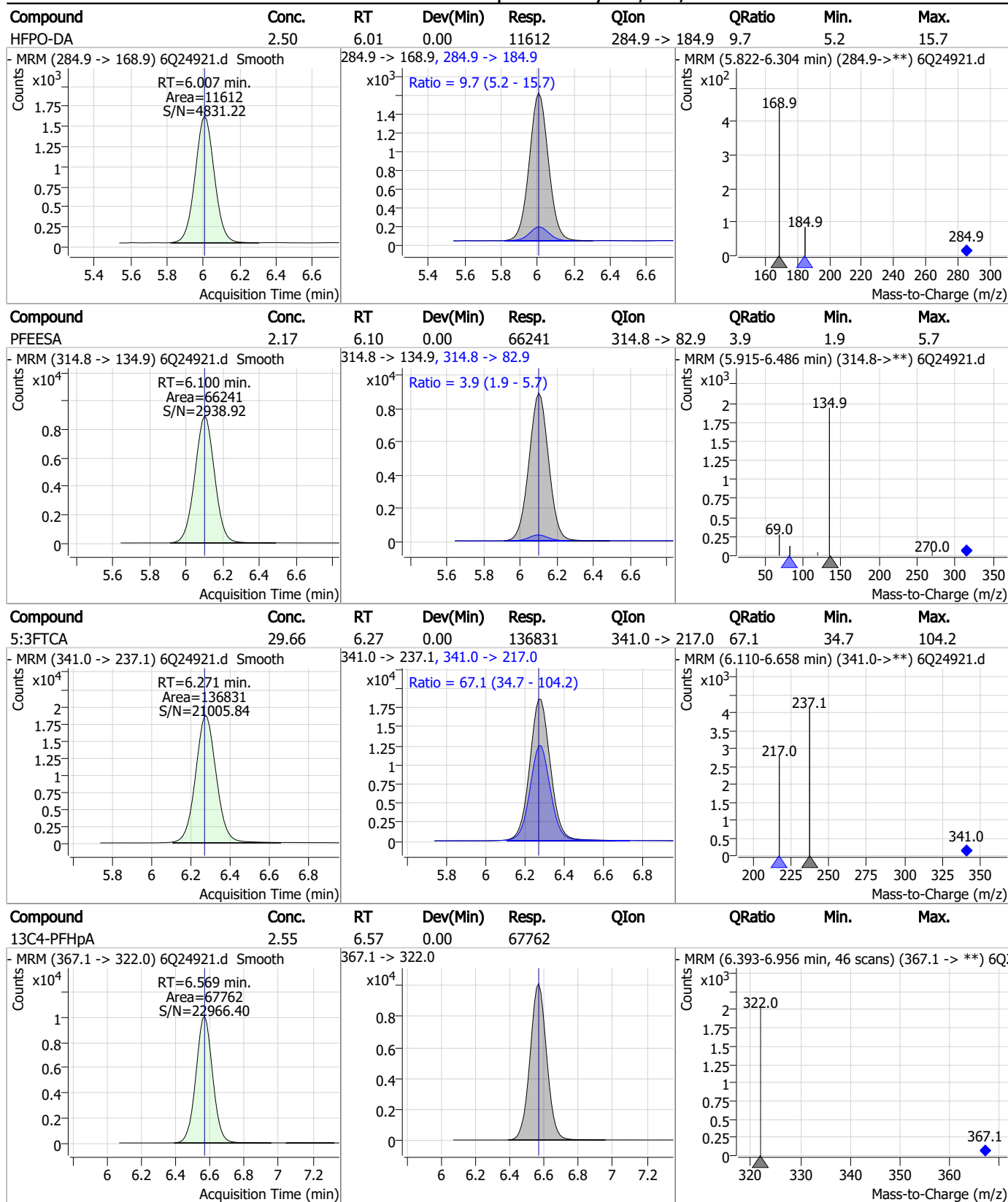
7

Perfluorinated Compounds by LC/MS/MS



7.7.19

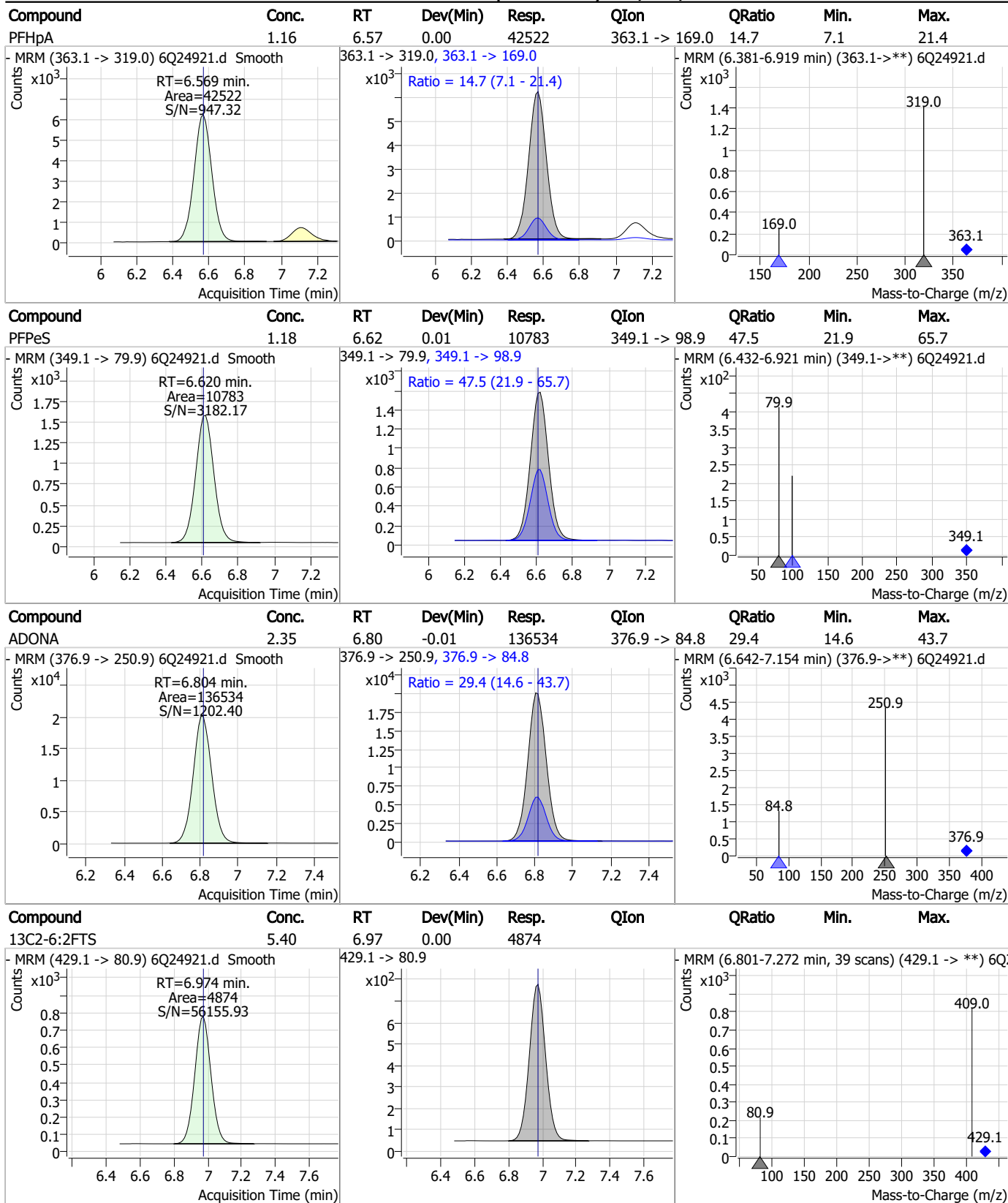
Perfluorinated Compounds by LC/MS/MS



7.7.19

7

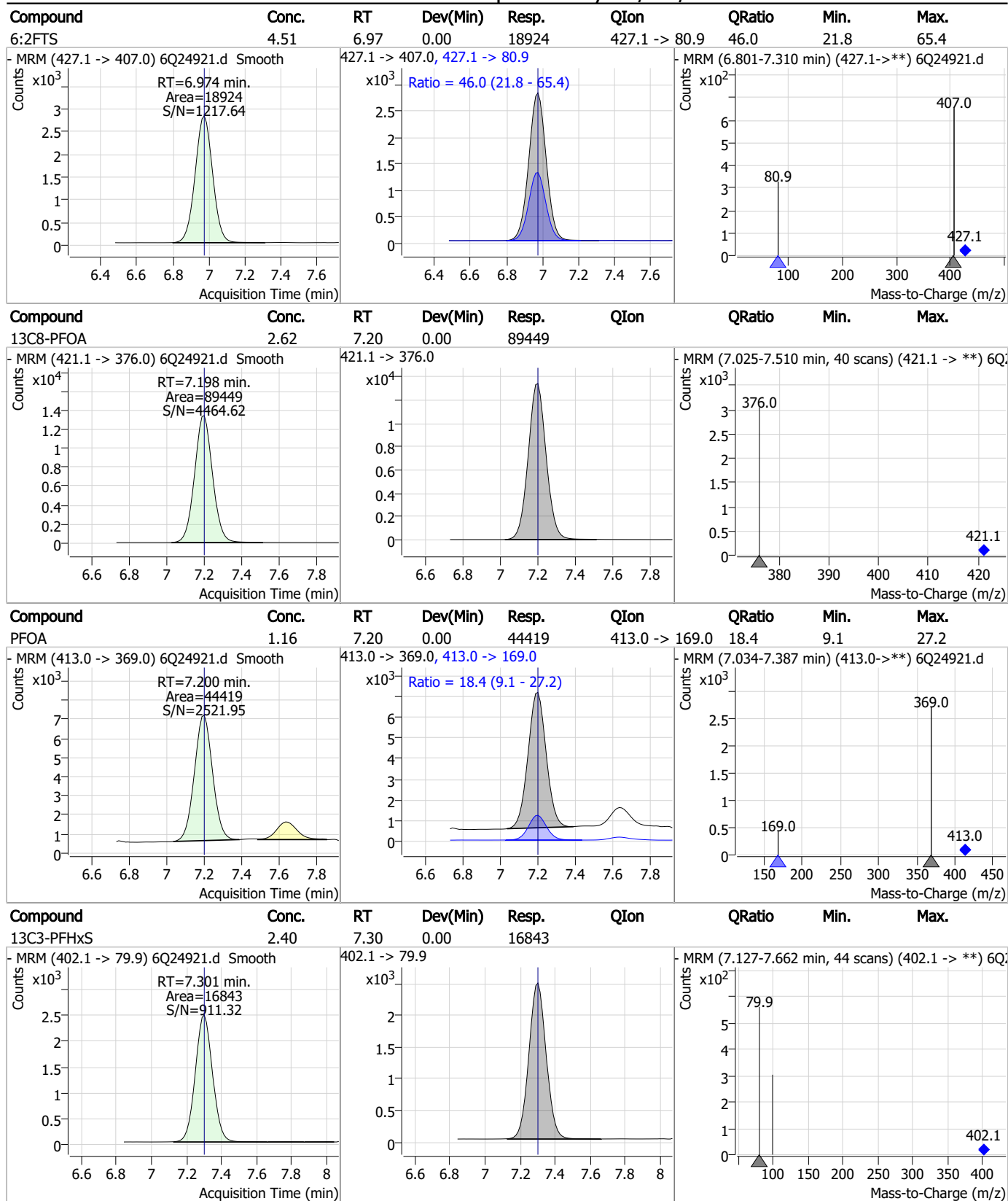
Perfluorinated Compounds by LC/MS/MS



7.7.19

7

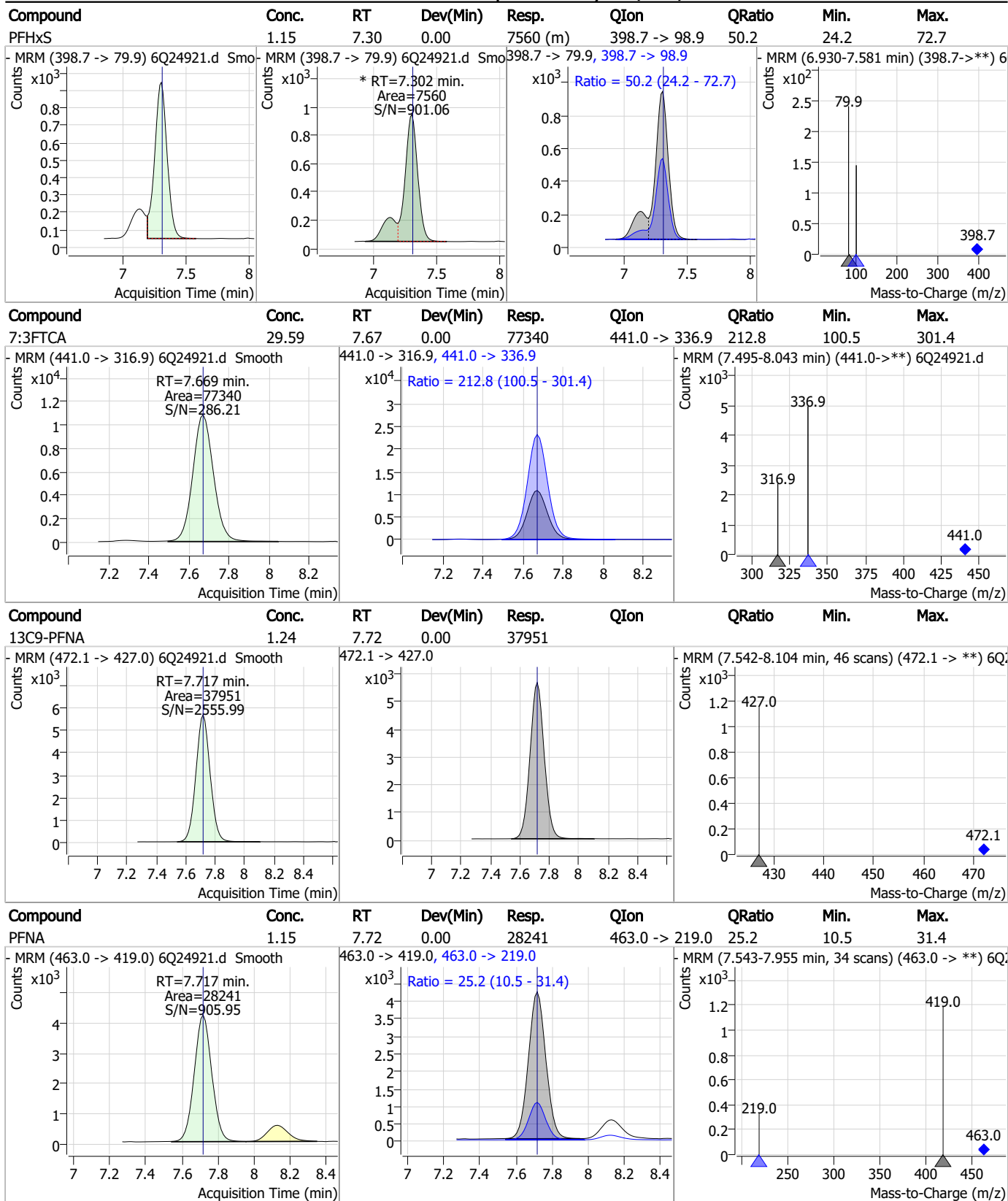
Perfluorinated Compounds by LC/MS/MS



7.7.19

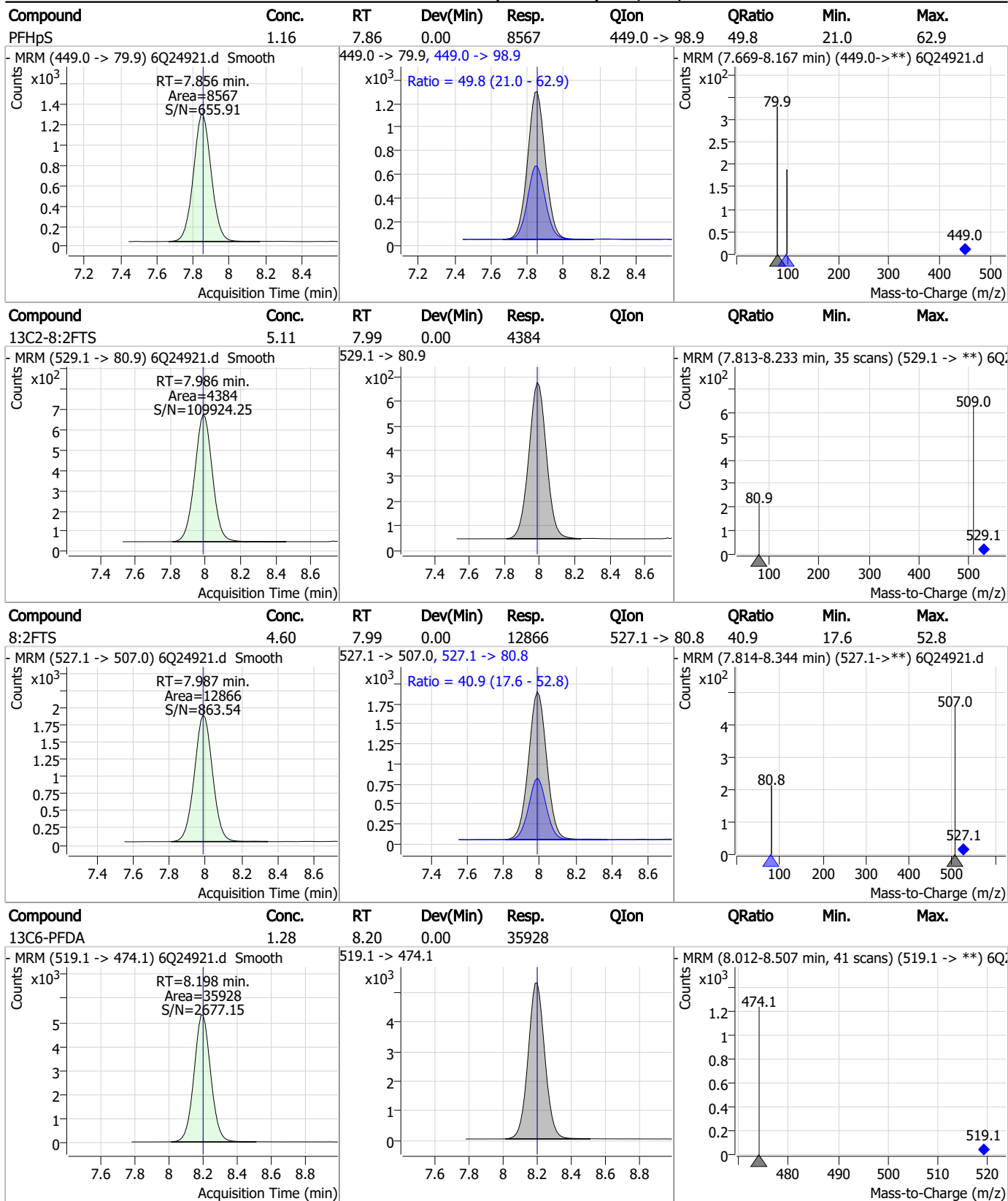
7

Perfluorinated Compounds by LC/MS/MS



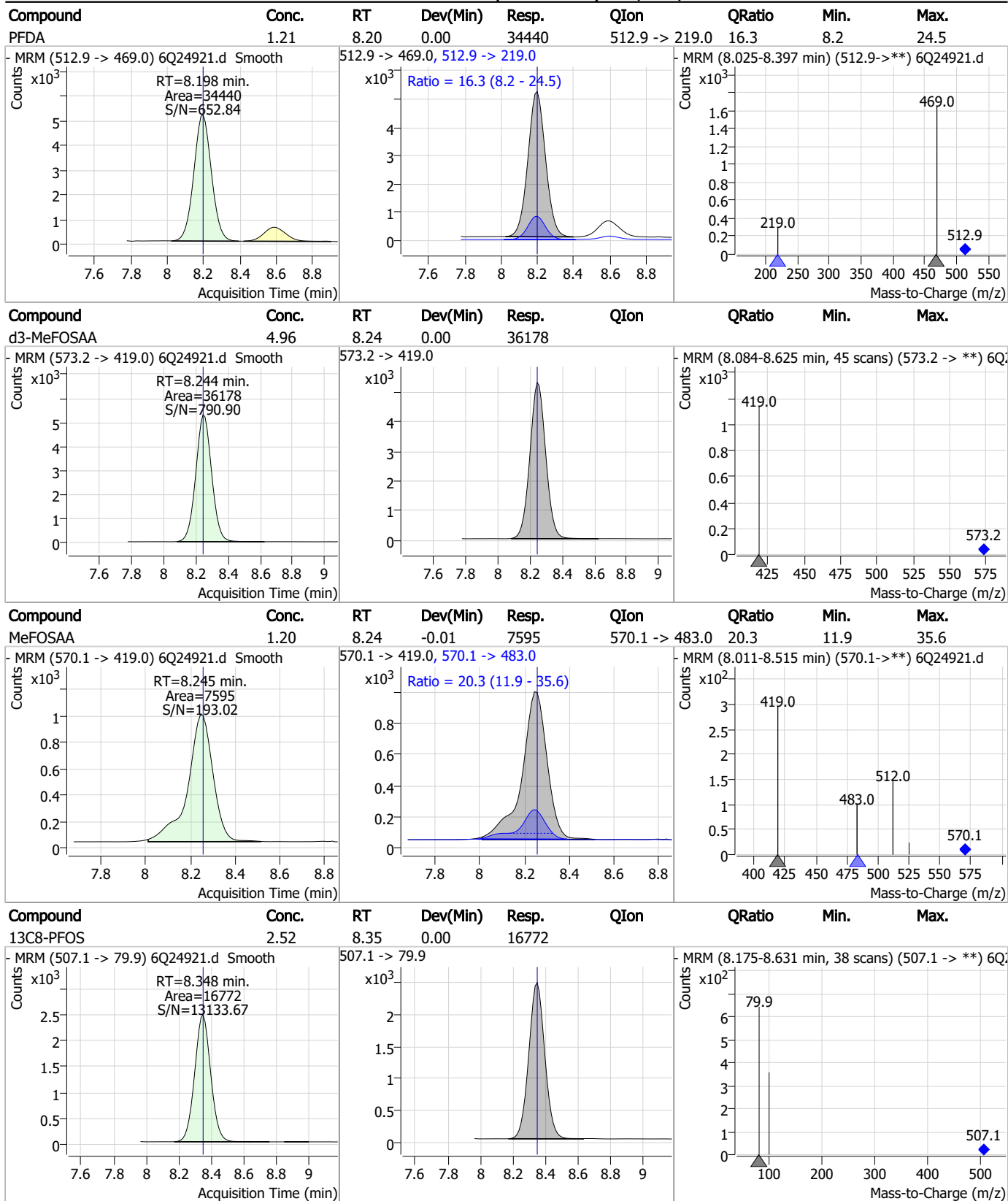
7.7.19
7

Perfluorinated Compounds by LC/MS/MS



7.7.19

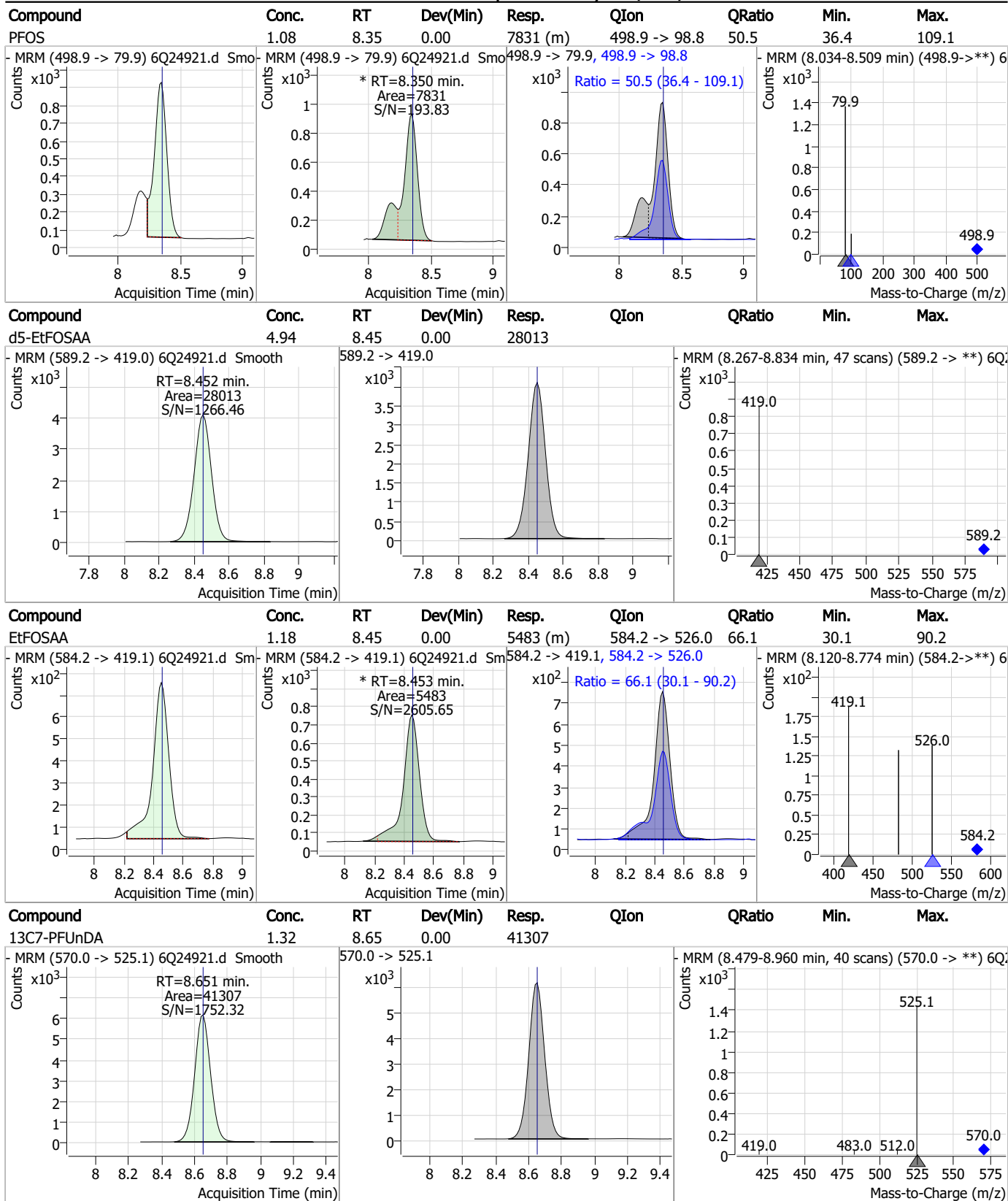
Perfluorinated Compounds by LC/MS/MS



7.7.19

7

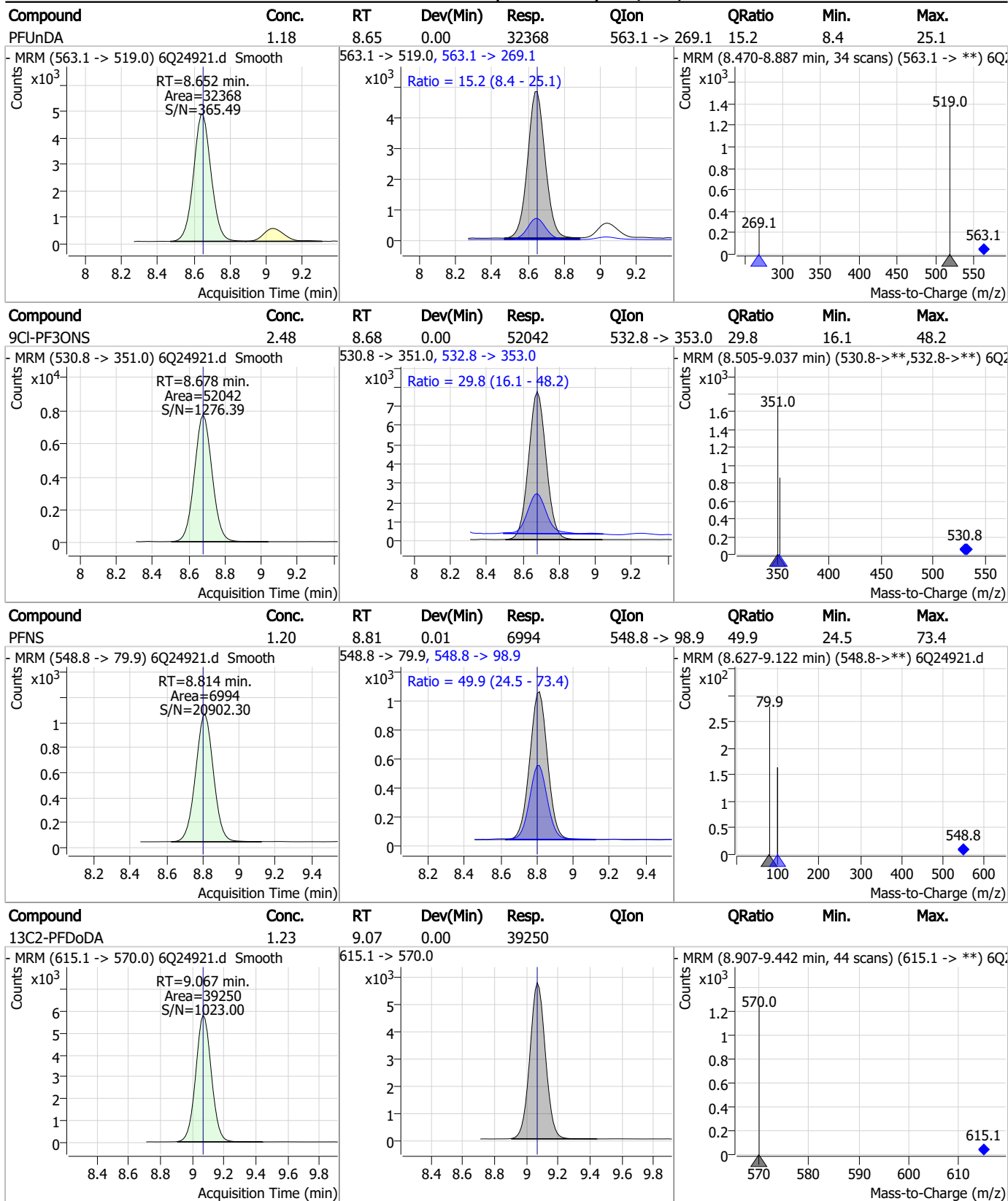
Perfluorinated Compounds by LC/MS/MS



7.7.19

7

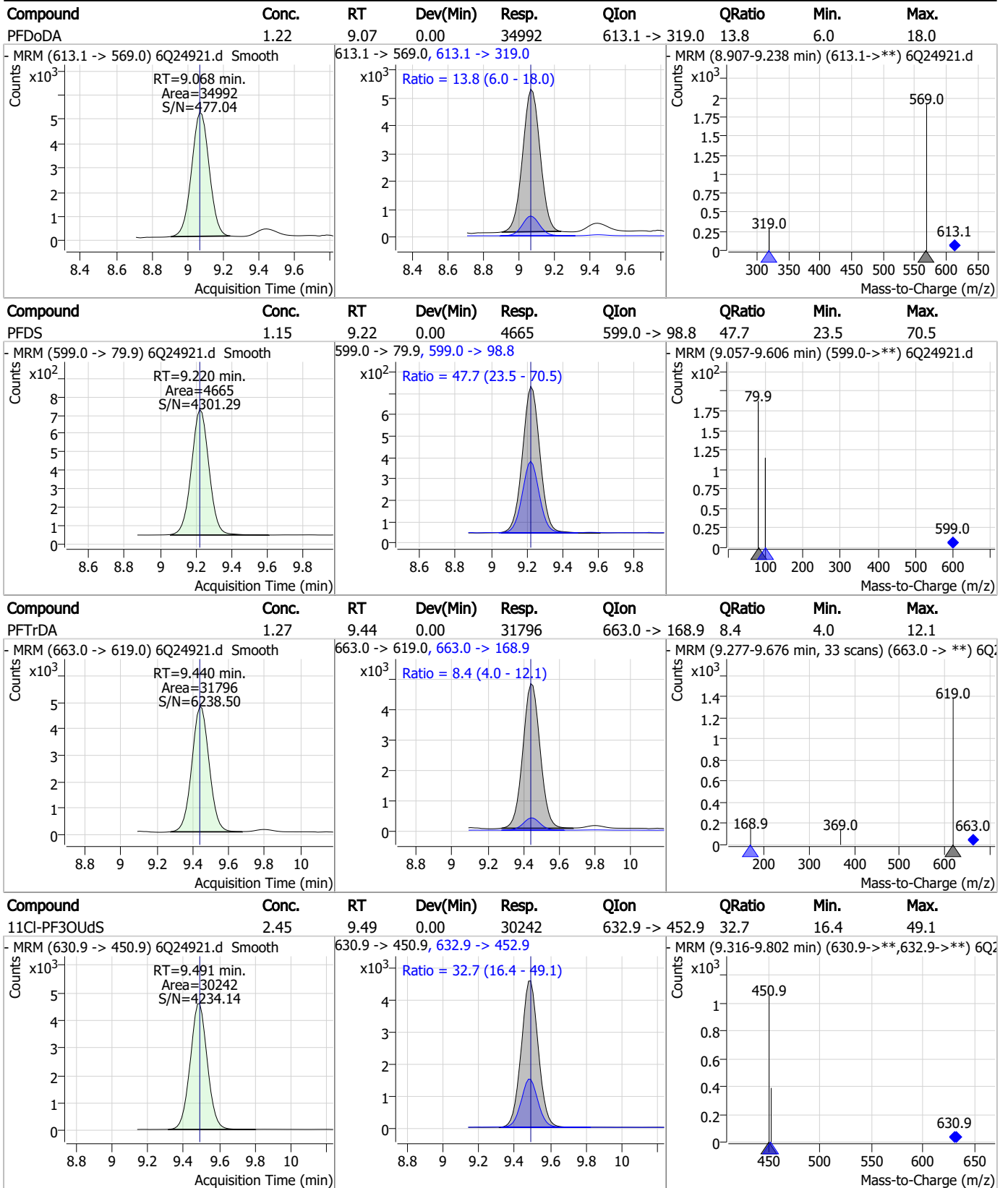
Perfluorinated Compounds by LC/MS/MS



7.7.19

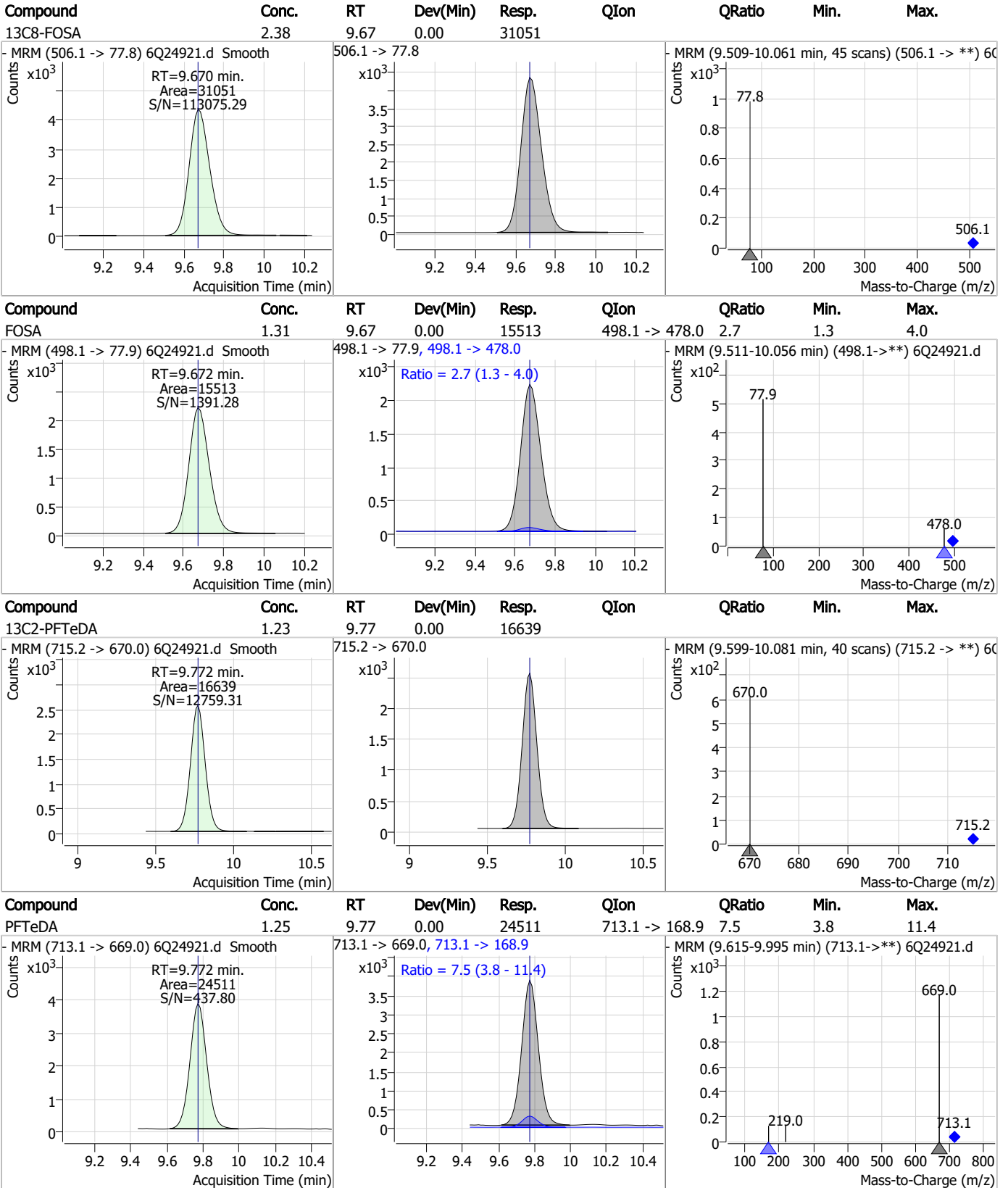
7

Perfluorinated Compounds by LC/MS/MS



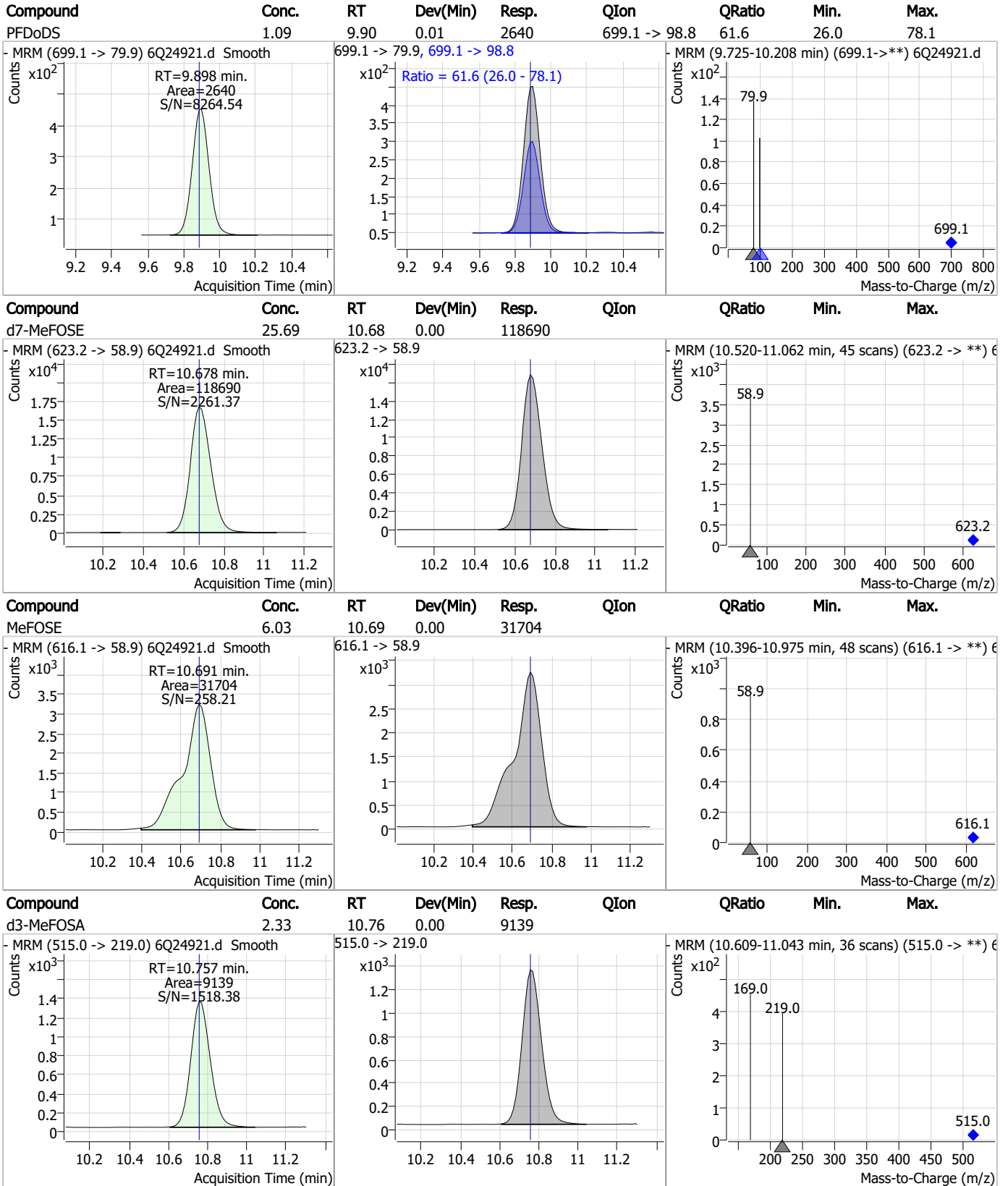
7.7.19
7

Perfluorinated Compounds by LC/MS/MS



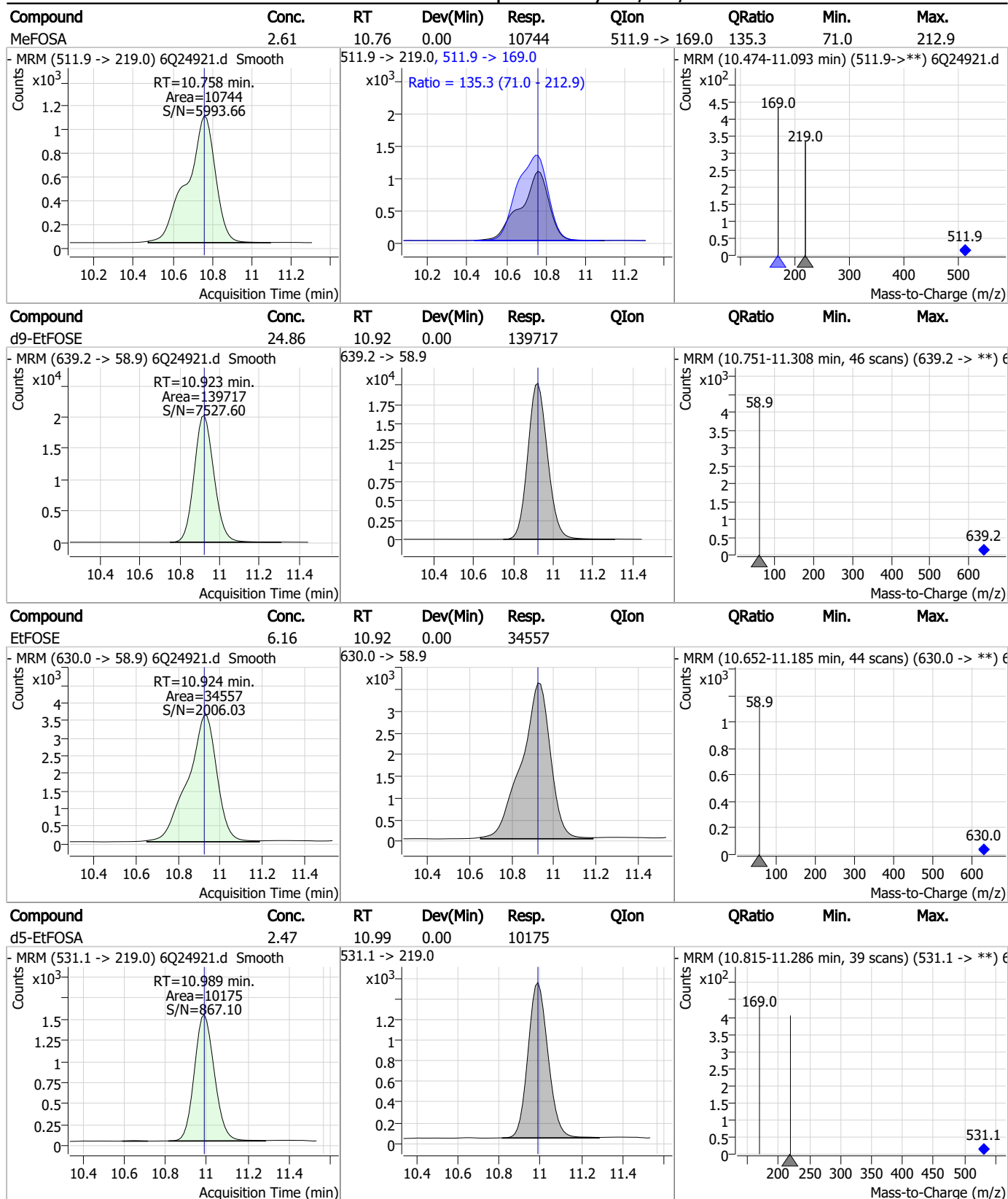
7.7.19 7

Perfluorinated Compounds by LC/MS/MS



7.7.19 7

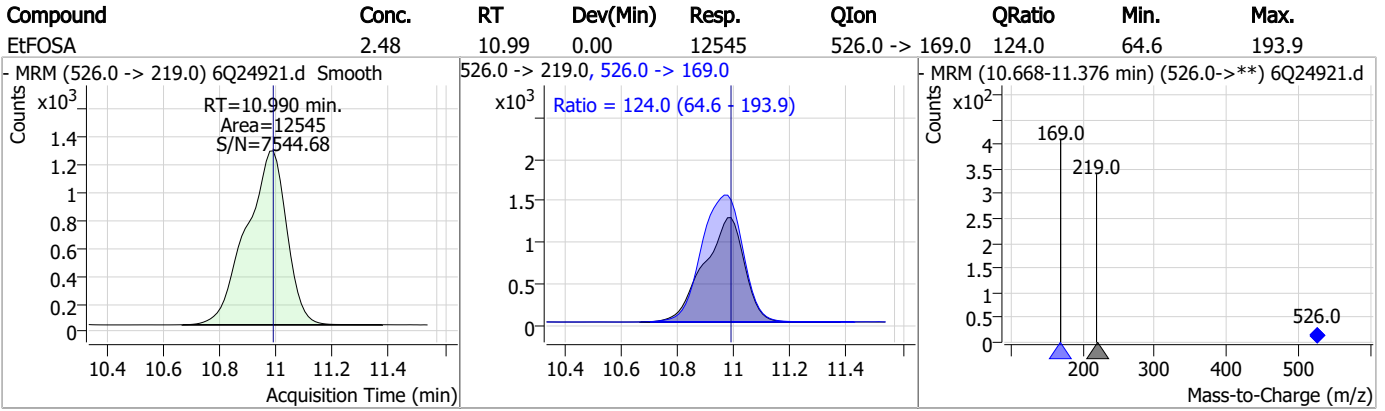
Perfluorinated Compounds by LC/MS/MS



7.7.19

7

Perfluorinated Compounds by LC/MS/MS



7.7.19

7

Manual Integration Approval Summary

Sample Number: S6Q356-IC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24921.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 15:28 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.19.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24922.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 3:42:59 PM
 Sample Name : icc356-4
 Vial : P1-A5
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	175600	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	71040	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	63293	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	61371	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	78709	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	31835	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	34630	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	37268	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	36721	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	15474	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	29995	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	26978	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	16287	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	14989	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2773	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4720	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4252	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	32933	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	45461	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	25900	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	106831	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	128792	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9218	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9088	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	13833	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	71814	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	9953	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	93900	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	29948	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	33930	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	58298	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2773	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.0%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4720	5.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.7%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4252	5.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.4%		
13C2-PFDoDA	9.067	615.1 -> 570.0	36721	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C2-PFTeDA	9.772	715.2 -> 670.0	15474	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C3-PFBS	5.559	302.1 -> 79.9	26978	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C3-PFHxS	7.301	402.1 -> 79.9	16287	2.59 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFBA	2.972	216.8 -> 171.9	175600	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C4-PFHpA	6.569	367.1 -> 322.0	61371	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C5-PFHxA	5.629	318.0 -> 273.0	63293	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C5-PFPeA	4.409	268.3 -> 223.0	71040	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C6-PFDA	8.198	519.1 -> 474.1	34630	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C7-PFUnDA	8.651	570.0 -> 525.1	37268	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C8-FOSA	9.670	506.1 -> 77.8	29995	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C8-PFOA	7.198	421.1 -> 376.0	78709	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C8-PFOS	8.348	507.1 -> 79.9	14989	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C9-PFNA	7.717	472.1 -> 427.0	31835	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.4%	
d3-MeFOSAA	8.244	573.2 -> 419.0	32933	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	45461	10.35 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
d3-MeFOSA	10.757	515.0 -> 219.0	9088	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
d5-EtFOSAA	8.452	589.2 -> 419.0	25900	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
d7-MeFOSE	10.678	623.2 -> 58.9	106831	25.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
d9-EtFOSE	10.923	639.2 -> 58.9	128792	25.51 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d5-EtFOSA	10.989	531.1 -> 219.0	9218	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	44517	9.81 µg/L	100
		327.1 -> 80.9	19133		
6:2FTS	6.974	427.1 -> 407.0	36752	9.04 µg/L	100
		427.1 -> 80.9	16030		
8:2FTS	7.987	527.1 -> 507.0	27367	10.10 µg/L	100
		527.1 -> 80.8	9624		
EtFOSAA	8.452	584.2 -> 419.1	10890	2.53 µg/L	100
		584.2 -> 526.0	6550		
FOSA	9.672	498.1 -> 77.9	28220	2.47 µg/L	100
		498.1 -> 478.0	753		
MeFOSAA	8.257	570.1 -> 419.0	14611	2.53 µg/L	100
		570.1 -> 483.0	3464		
PFBA	2.981	212.8 -> 168.9	64328	10.26 µg/L	100
PFBS	5.560	298.7 -> 79.9	19768	2.25 µg/L	100
		298.7 -> 98.8	7363		
PFDA	8.198	512.9 -> 469.0	63550	2.33 µg/L	100
		512.9 -> 219.0	10380		
PFDODA	9.068	613.1 -> 569.0	70507	2.64 µg/L	100
		613.1 -> 319.0	8478		
PFDS	9.220	599.0 -> 79.9	9338	2.58 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	4389	2.53	µg/L	100
		363.1 -> 319.0	84327			
PFHpS	7.856	363.1 -> 169.0	12041	2.66	µg/L	100
		449.0 -> 79.9	17598			
PFHxA	5.631	449.0 -> 98.9	7383	2.60	µg/L	100
		313.0 -> 269.0	59004			
PFHxS	7.302	313.0 -> 118.9	2886	2.41	µg/L	96
		398.7 -> 79.9	15299			
PFNA	7.717	398.7 -> 98.9	6987	2.90	µg/L	100
		463.0 -> 419.0	59643			
PFNS	8.802	463.0 -> 219.0	12494	2.50	µg/L	100
		548.8 -> 79.9	13052			
PFOA	7.200	548.8 -> 98.9	6382	2.58	µg/L	100
		413.0 -> 369.0	87196			
PFOS	8.350	413.0 -> 169.0	15790	2.40	µg/L	78
		498.9 -> 79.9	15510			
PFPeA	4.411	498.9 -> 98.8	8390	5.12	µg/L	100
		263.0 -> 219.0	73236			
PFPeS	6.608	349.1 -> 79.9	22046	2.50	µg/L	100
		349.1 -> 98.9	9651			
PFTeDA	9.772	713.1 -> 669.0	49408	2.70	µg/L	100
		713.1 -> 168.9	3746			
PFTrDA	9.440	663.0 -> 619.0	65947	2.81	µg/L	100
		663.0 -> 168.9	5330			
PFUnDA	8.652	563.1 -> 519.0	61909	2.51	µg/L	100
		563.1 -> 269.1	10367			
11CI-PF3OUdS	9.491	630.9 -> 450.9	56419	4.74	µg/L	100
		632.9 -> 452.9	18460			
9CI-PF3ONS	8.678	530.8 -> 351.0	102250	5.07	µg/L	100
		532.8 -> 353.0	32841			
ADONA	6.817	376.9 -> 250.9	260625	4.66	µg/L	100
		376.9 -> 84.8	75874			
HFPO-DA	6.007	284.9 -> 168.9	22263	4.98	µg/L	100
		284.9 -> 184.9	2328			
3:3FTCA	3.846	241.0 -> 177.0	12513	12.29	µg/L	100
		241.0 -> 117.0	1491			
5:3FTCA	6.271	341.0 -> 237.1	273924	64.14	µg/L	100
		341.0 -> 217.0	190263			
7:3FTCA	7.669	441.0 -> 316.9	160221	66.22	µg/L	100
		441.0 -> 336.9	321908			
EtFOSA	10.990	526.0 -> 219.0	23407	5.11	µg/L	100
		526.0 -> 169.0	30263			
EtFOSE	10.924	630.0 -> 58.9	67389	13.03	µg/L	100
		511.9 -> 219.0	20015			
MeFOSA	10.758	511.9 -> 169.0	28404	4.89	µg/L	100
		616.1 -> 58.9	58675			
MeFOSE	10.691	699.1 -> 79.9	5666	12.40	µg/L	100
		699.1 -> 98.8	2952			
PFDoDS	9.886	295.0 -> 201.0	14735	2.62	µg/L	100
		295.0 -> 84.9	3935			
NFDHA	5.512	279.0 -> 85.1	58407	5.08	µg/L	100
		229.0 -> 84.9	43323			
PFMBA	3.538	314.8 -> 134.9	129274	4.58	µg/L	100
		314.8 -> 82.9	4927			

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

7.7.20
7

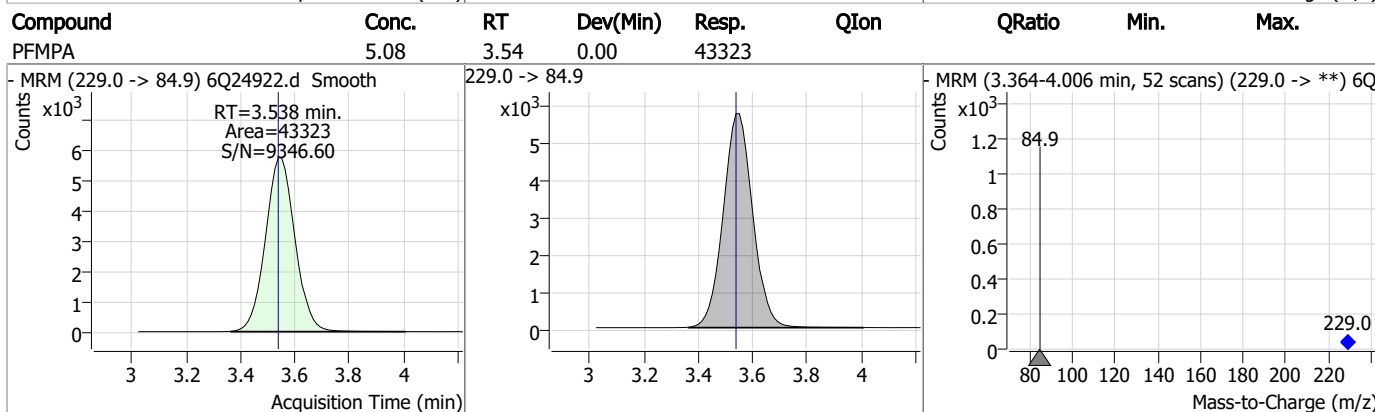
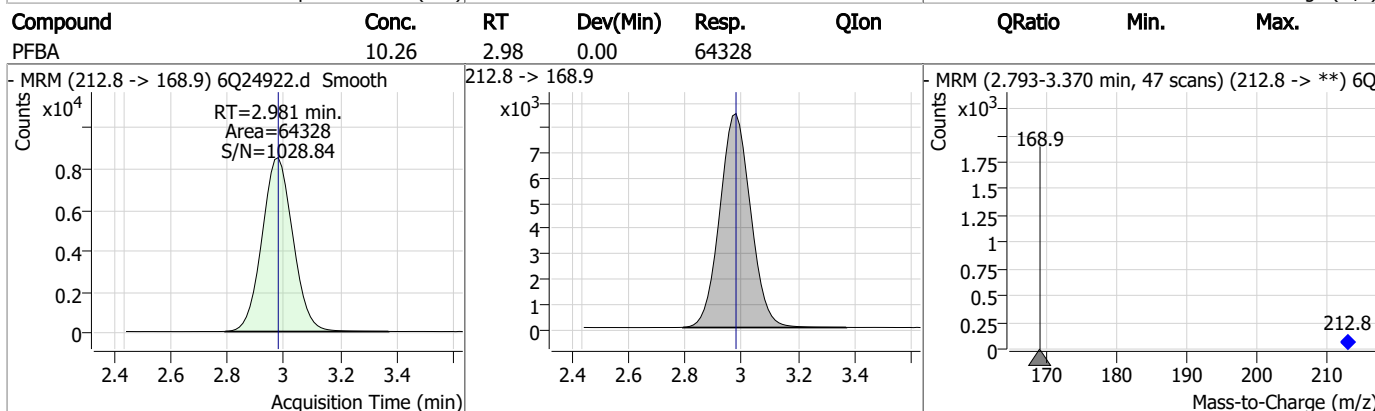
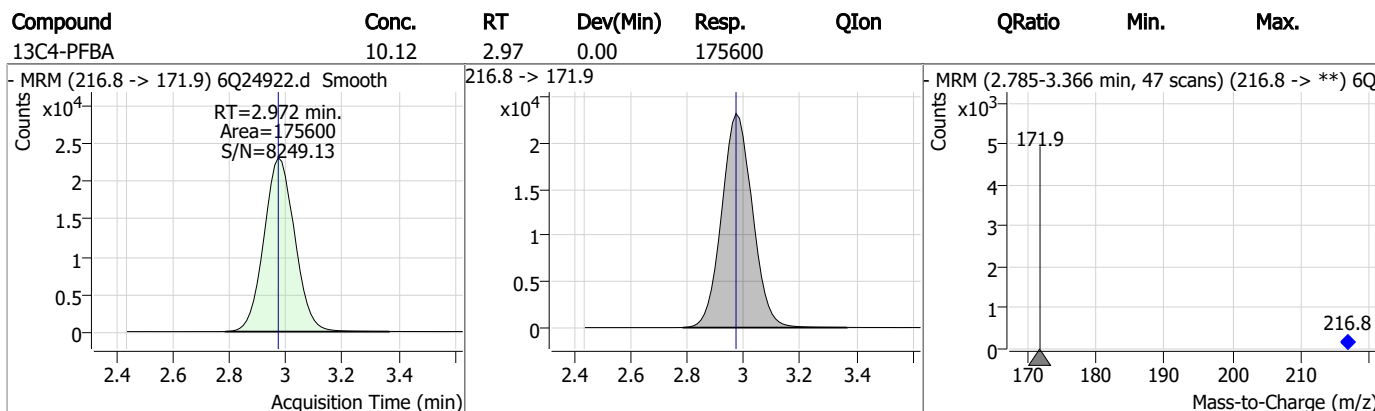
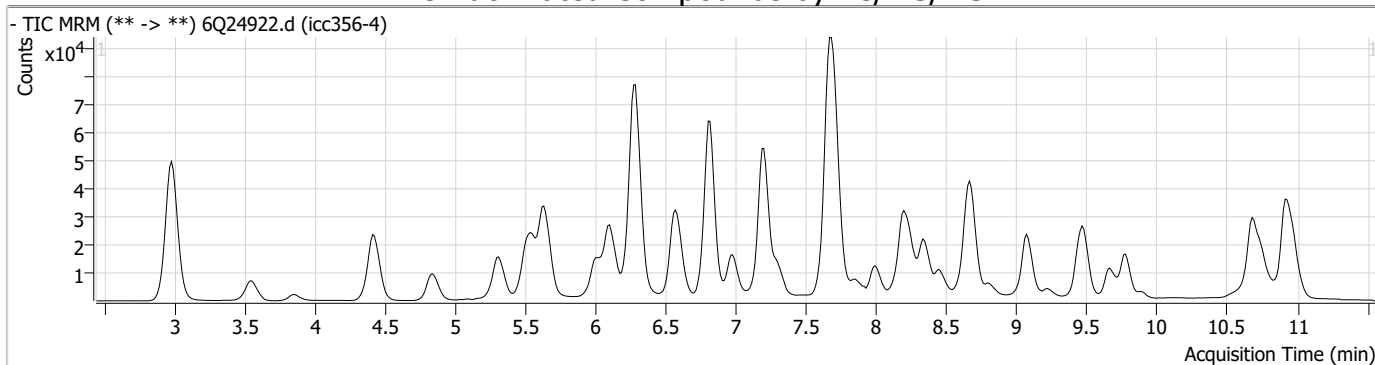
Perfluorinated Compounds by LC/MS/MS

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

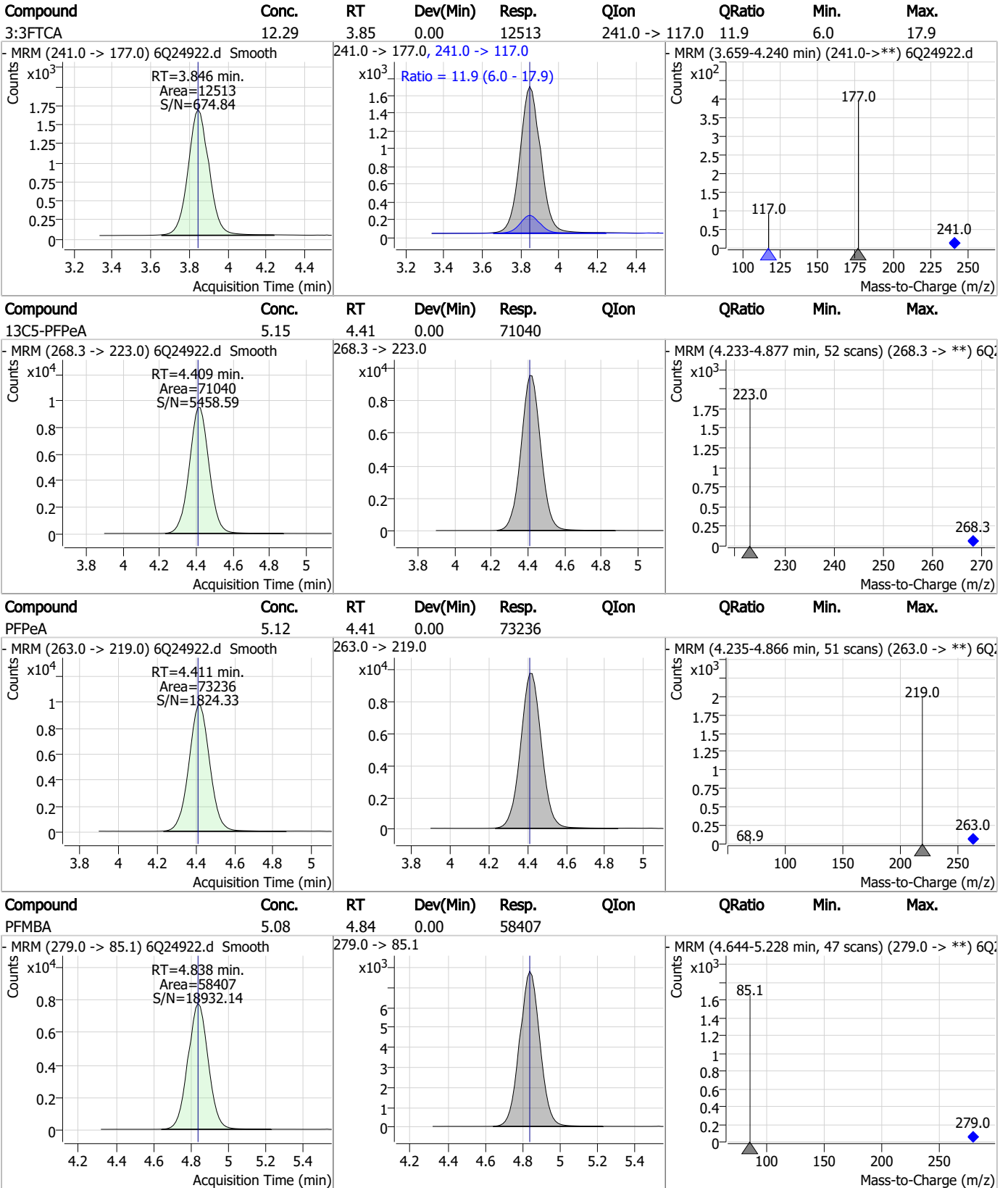
7.7.20

7

Perfluorinated Compounds by LC/MS/MS

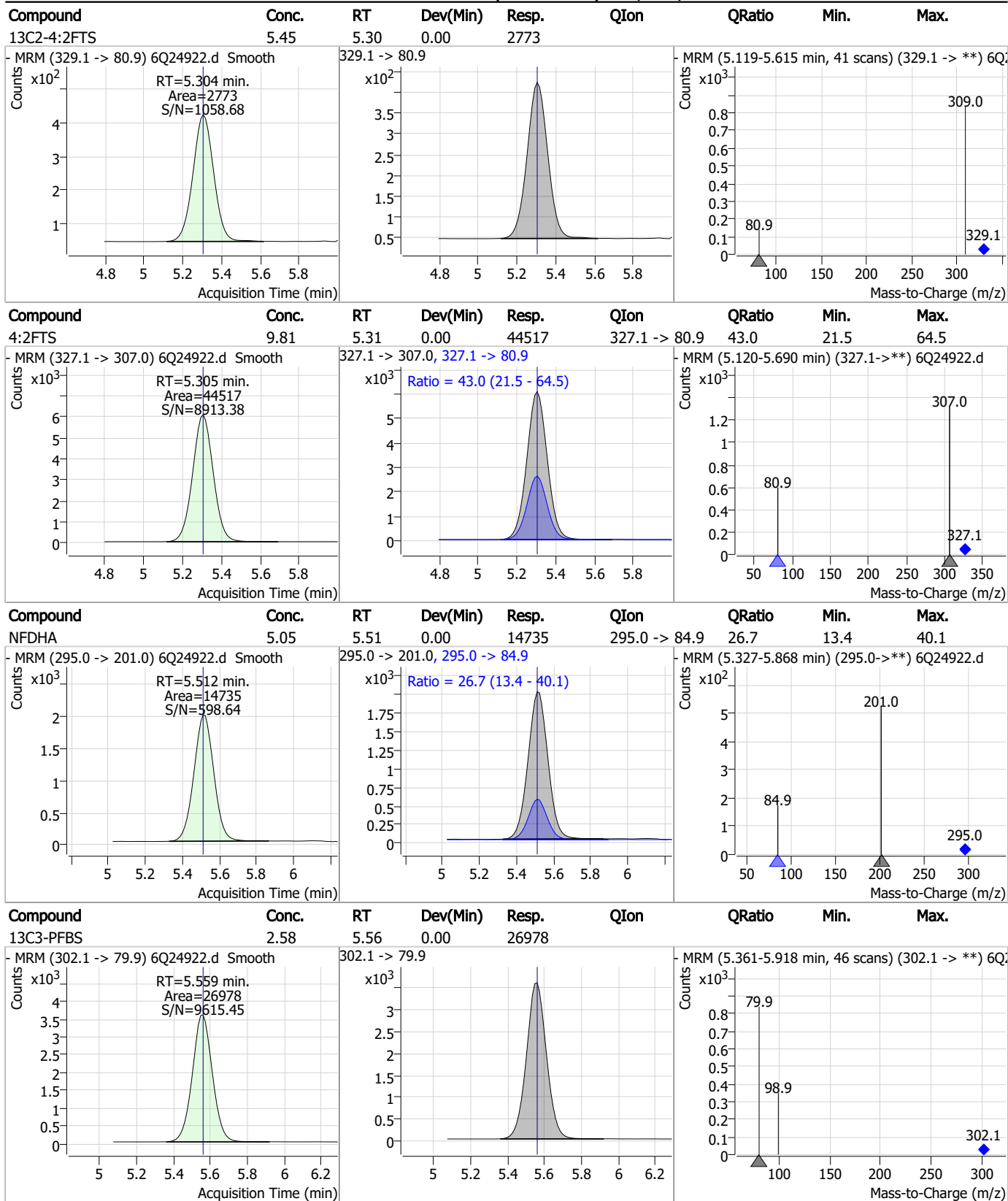


Perfluorinated Compounds by LC/MS/MS



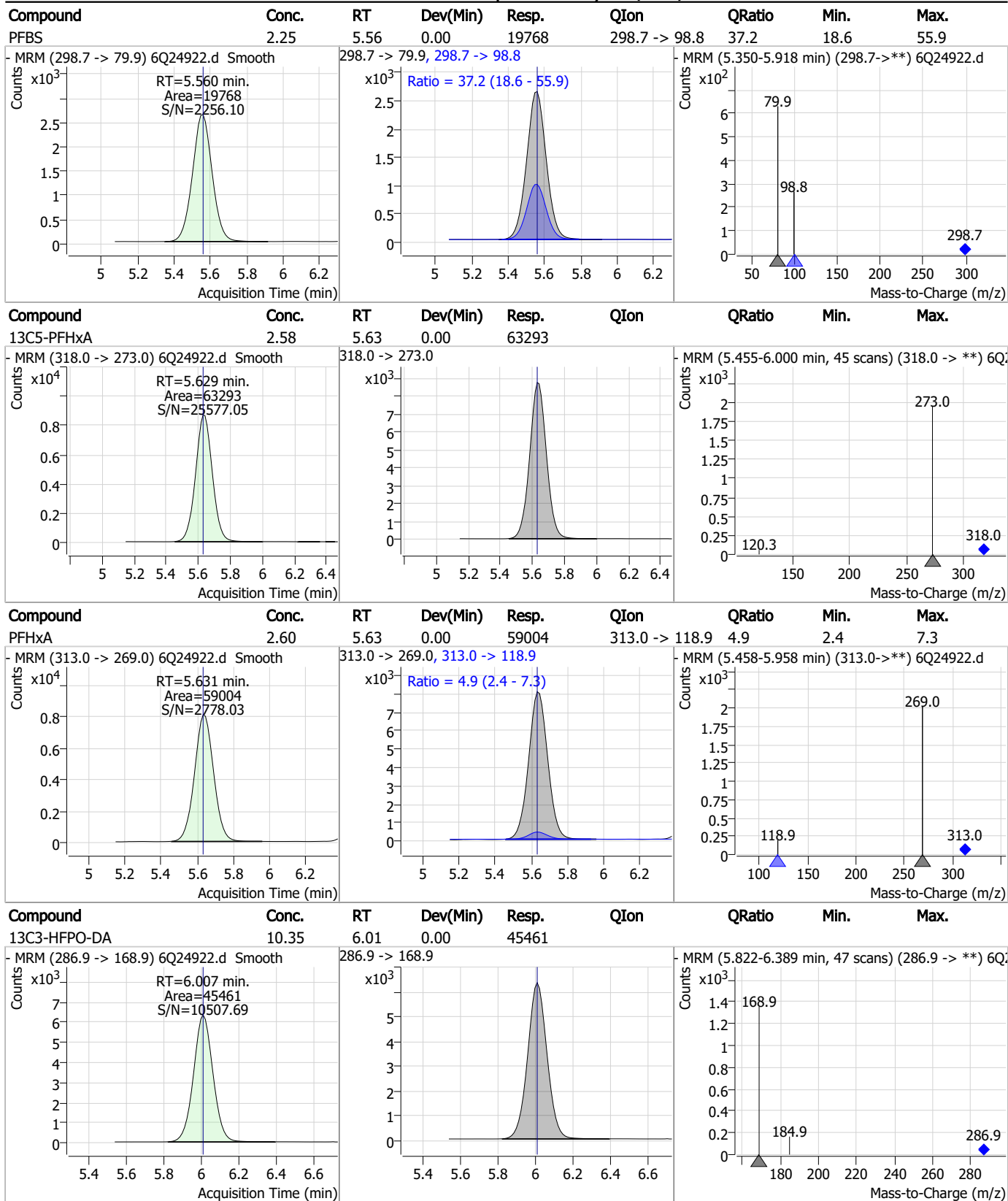
7.7.20
7

Perfluorinated Compounds by LC/MS/MS



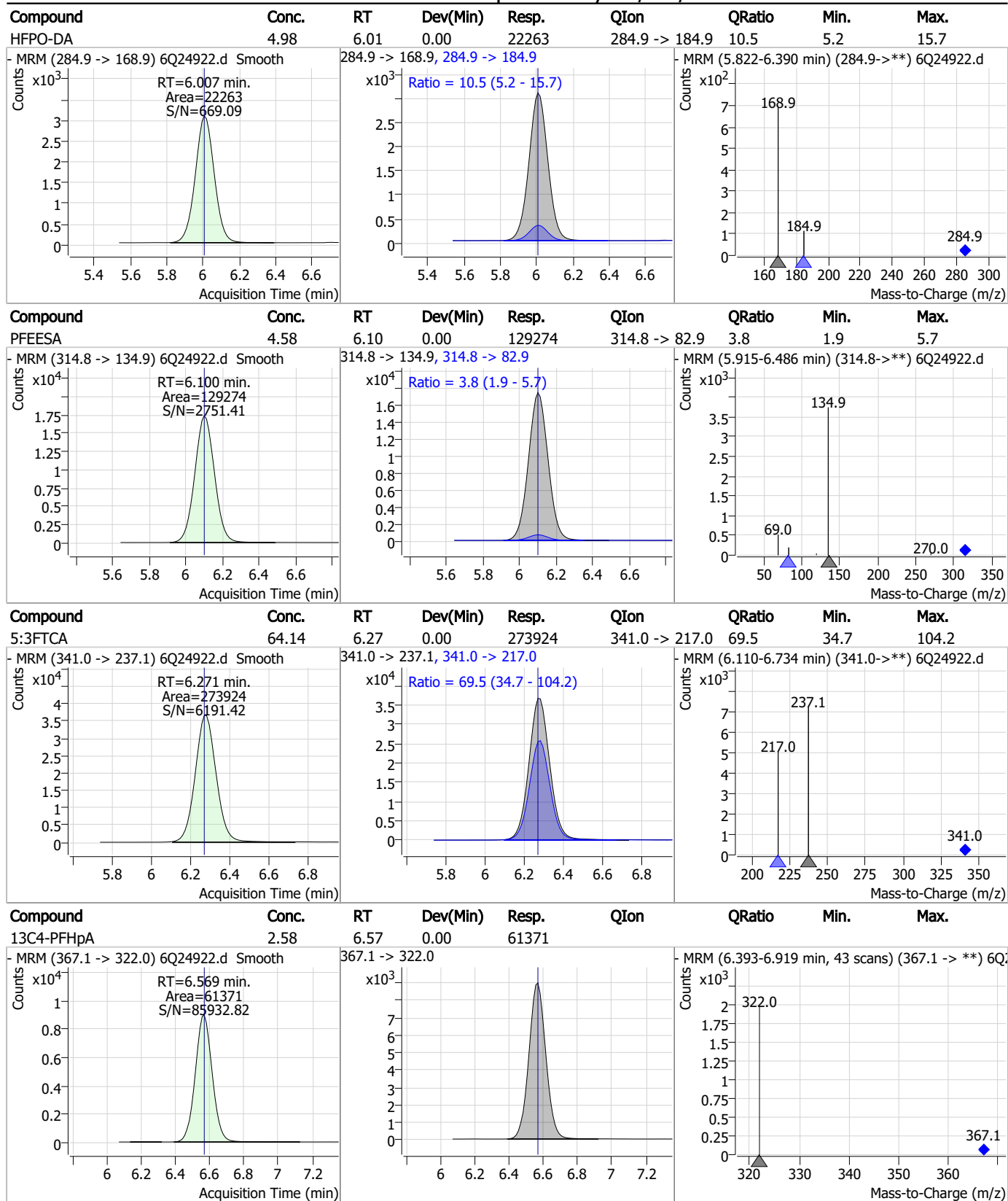
7.7.20
7

Perfluorinated Compounds by LC/MS/MS



7.7.20
7

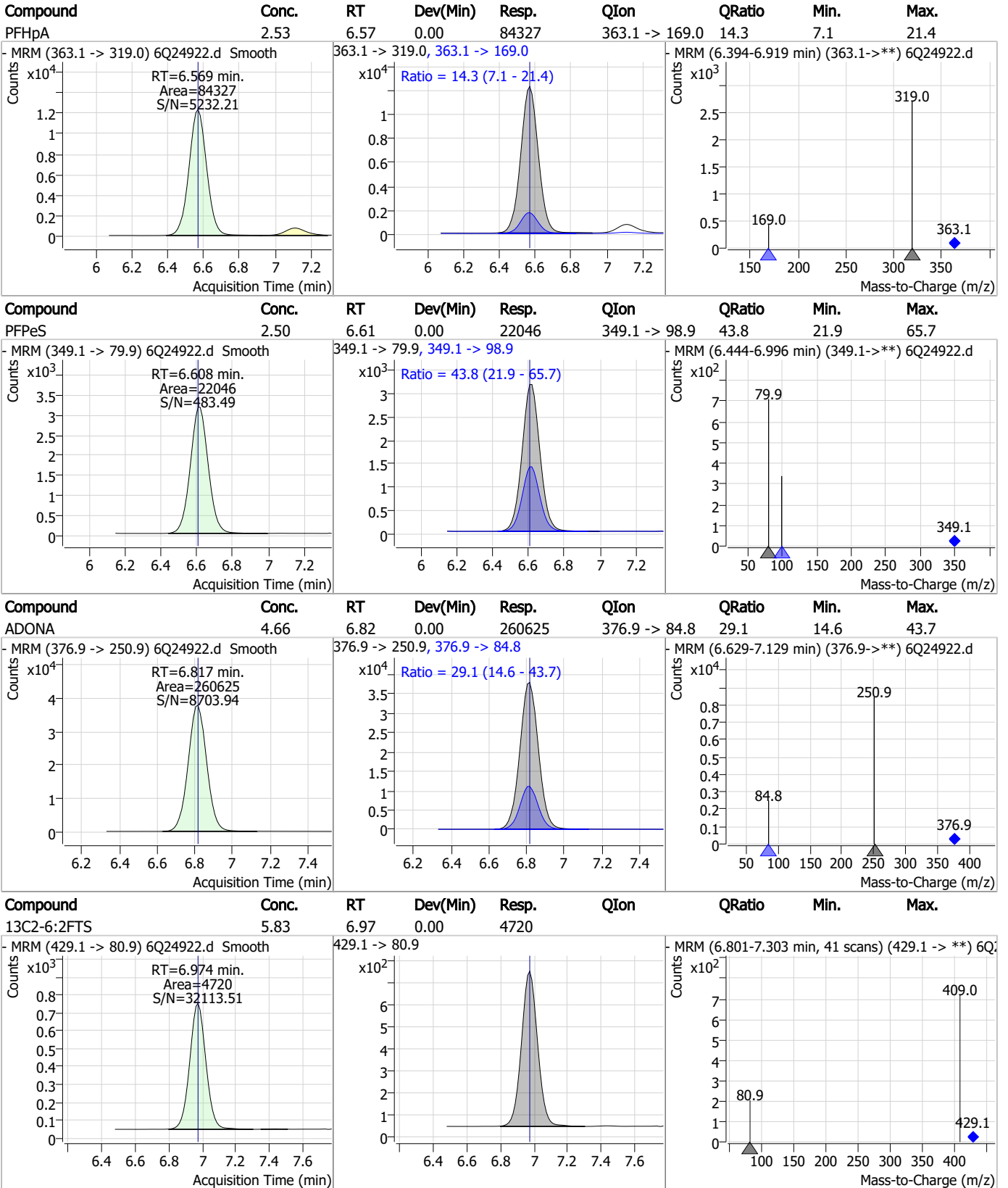
Perfluorinated Compounds by LC/MS/MS



7.7.20

7

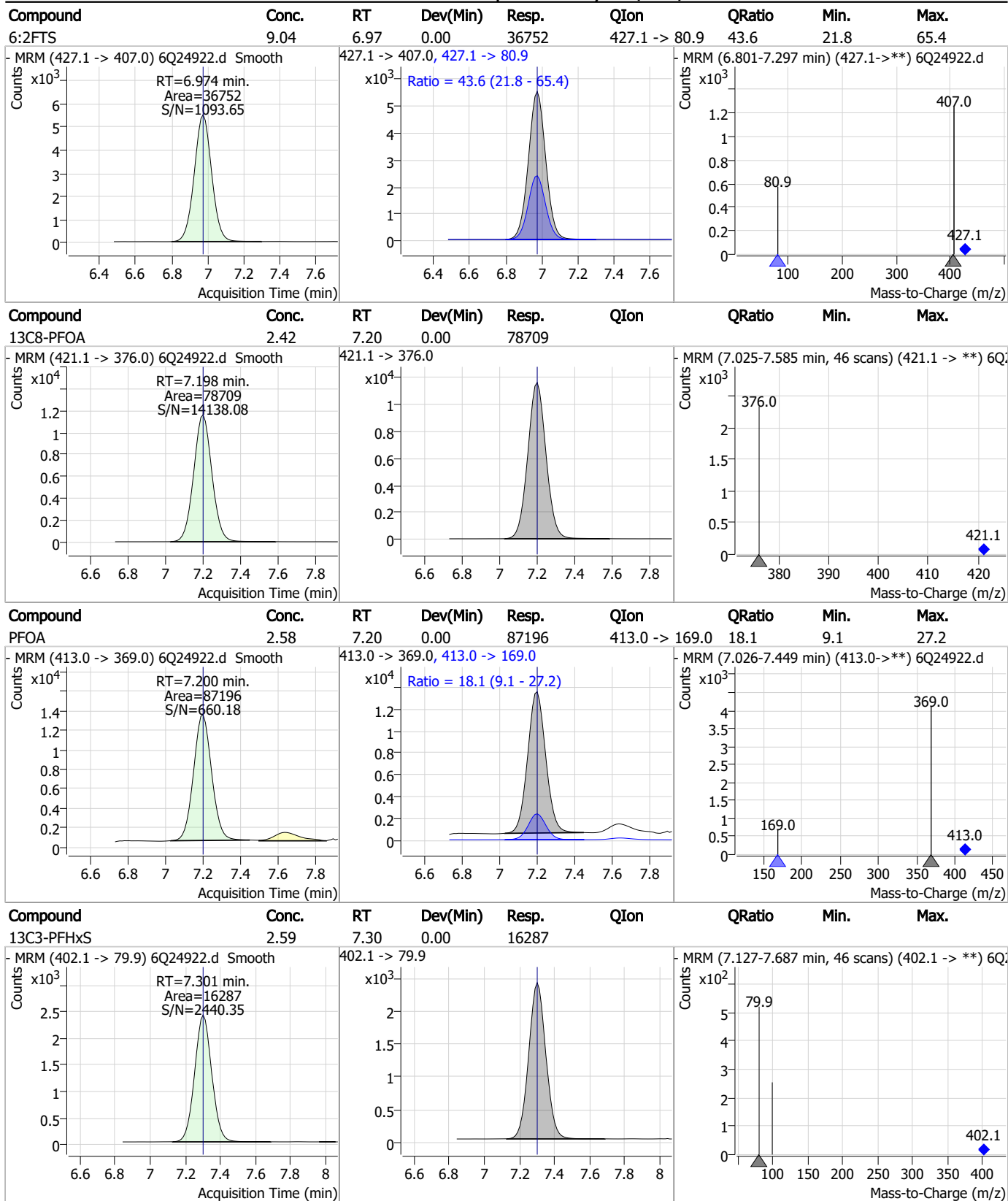
Perfluorinated Compounds by LC/MS/MS



7.7.20

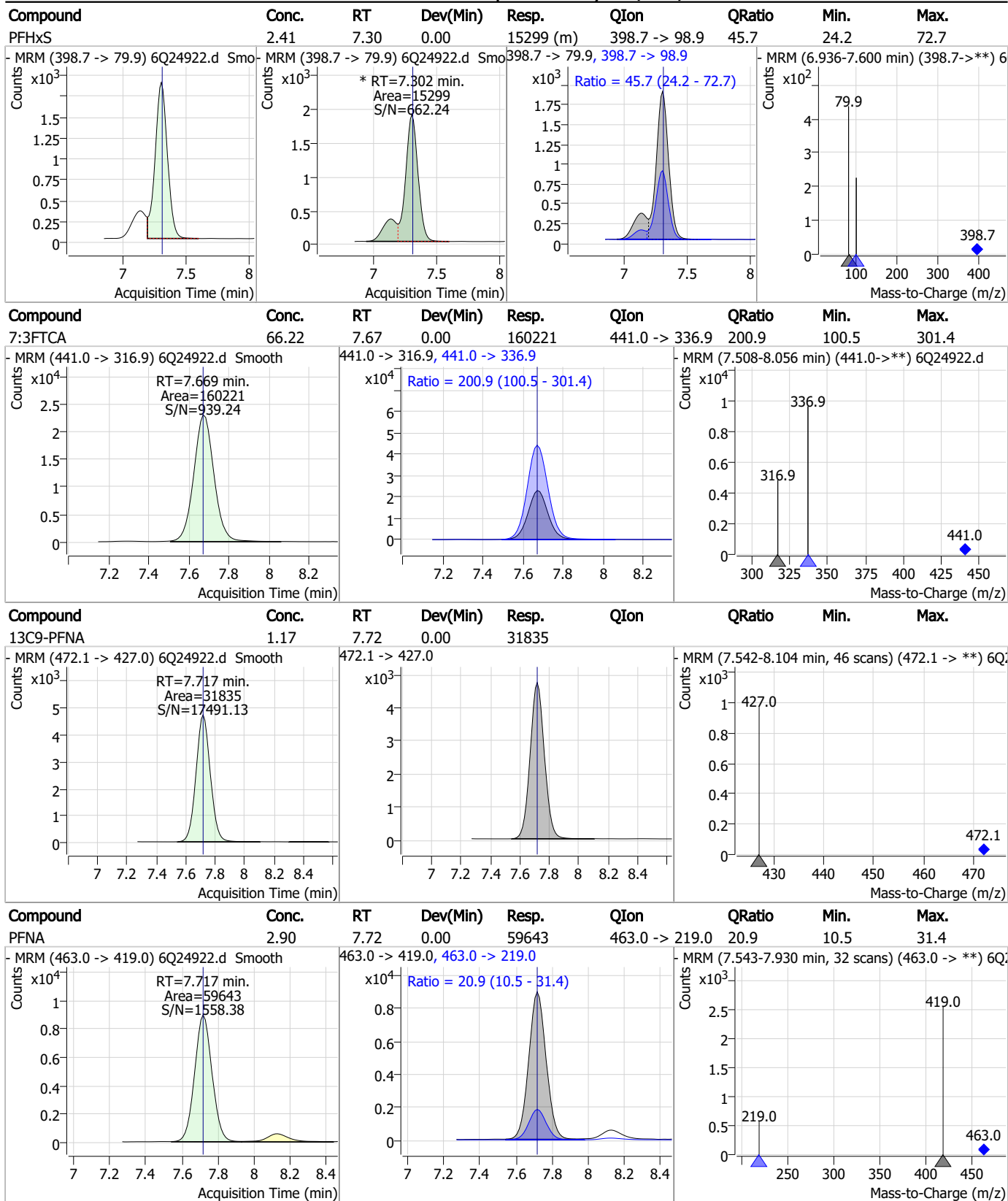
7

Perfluorinated Compounds by LC/MS/MS



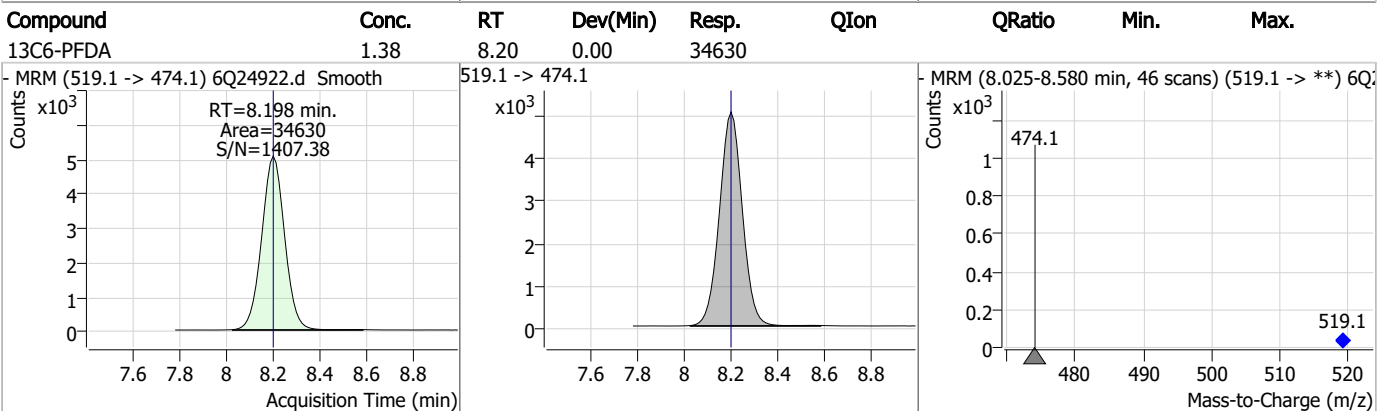
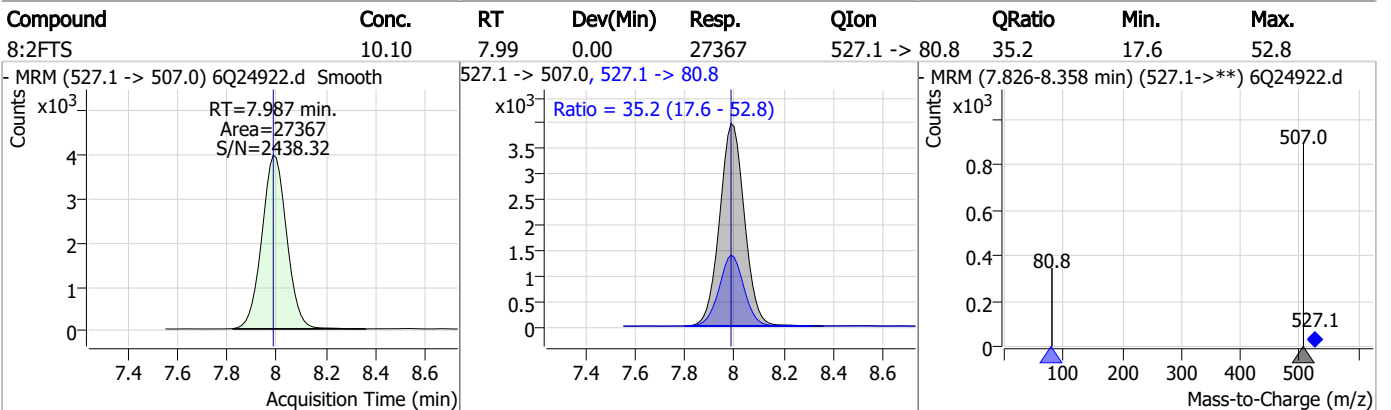
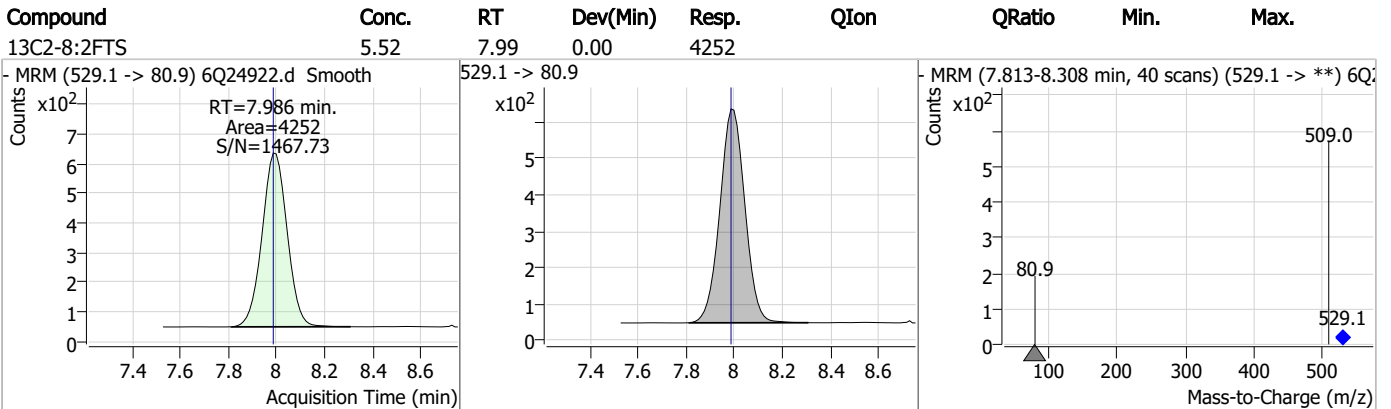
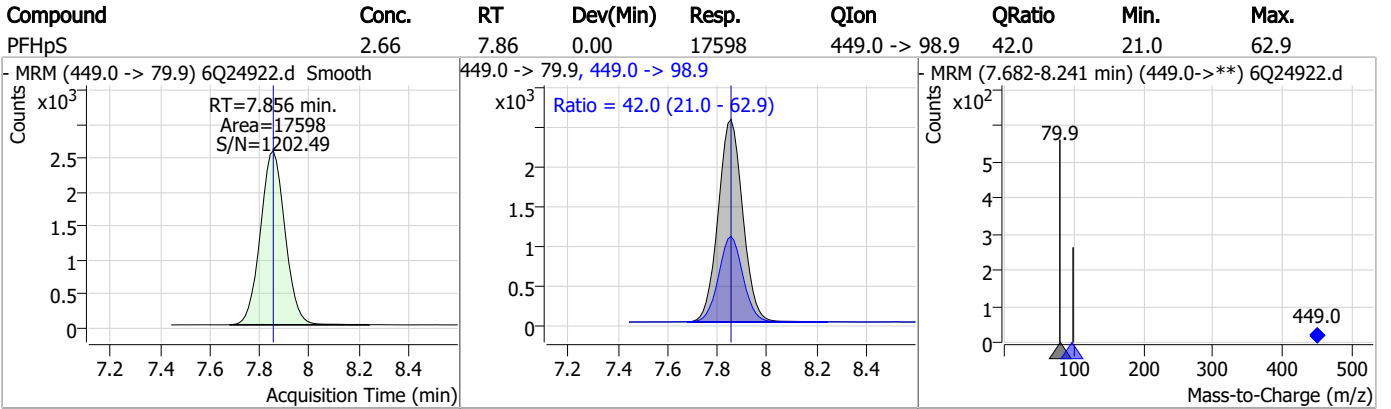
7.7.20
7

Perfluorinated Compounds by LC/MS/MS



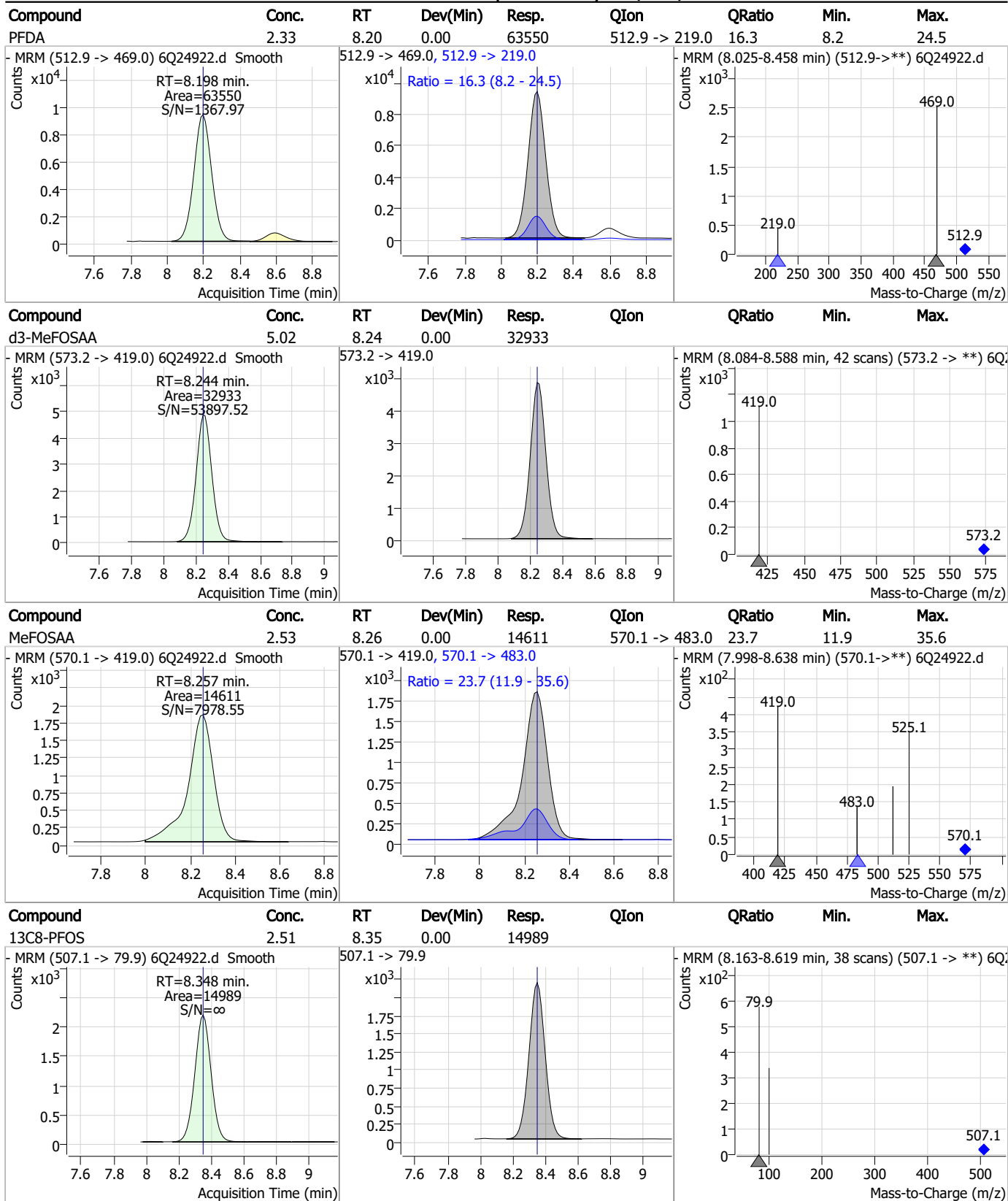
7.7.20
7

Perfluorinated Compounds by LC/MS/MS



7.7.20
7

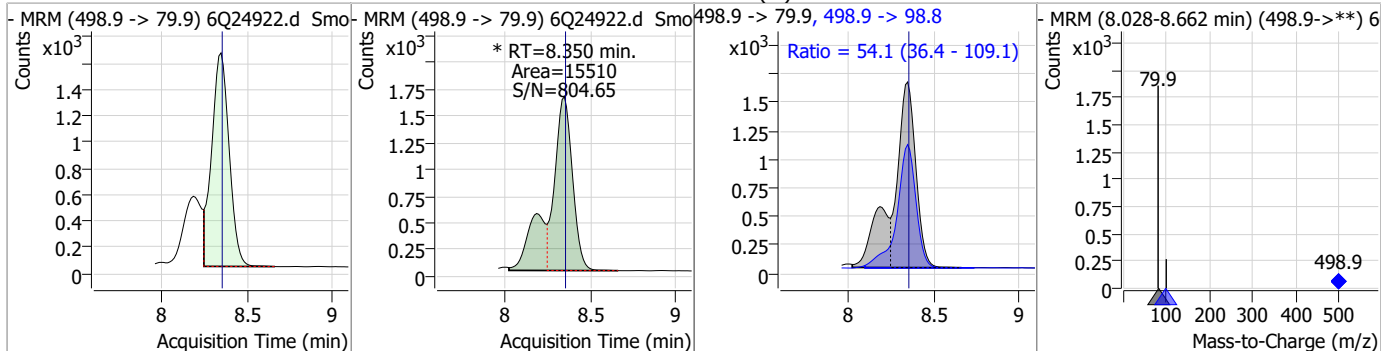
Perfluorinated Compounds by LC/MS/MS



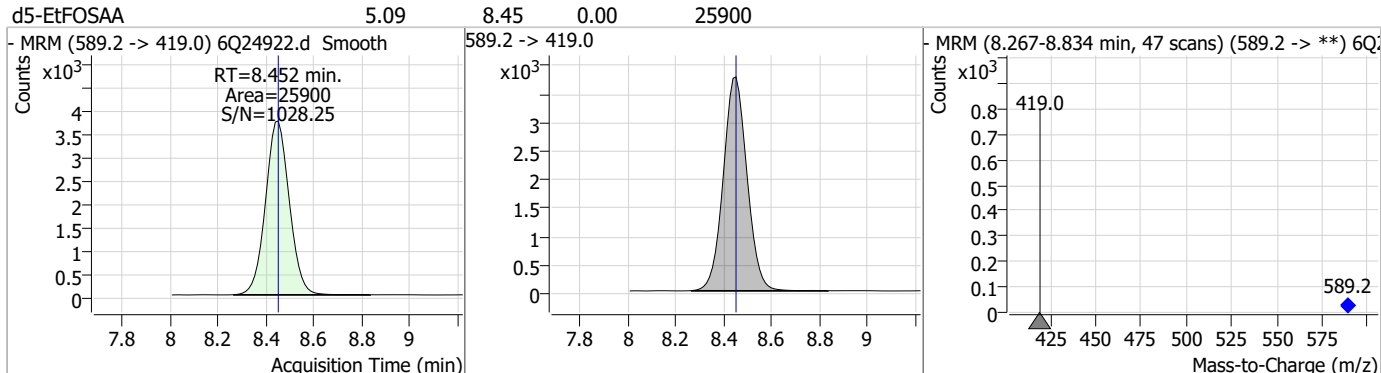
7.7.20 7

Perfluorinated Compounds by LC/MS/MS

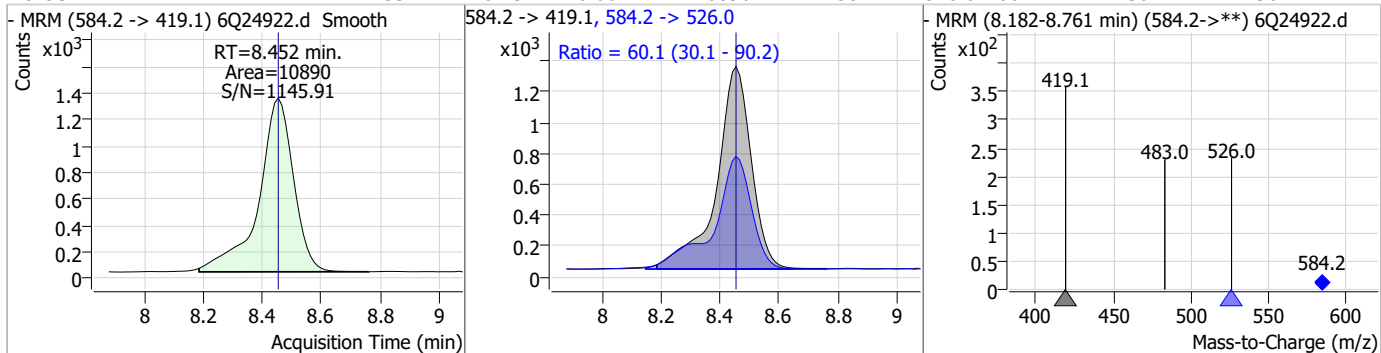
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.40	8.35	0.00	15510 (m)	498.9 -> 98.8	54.1	36.4	109.1



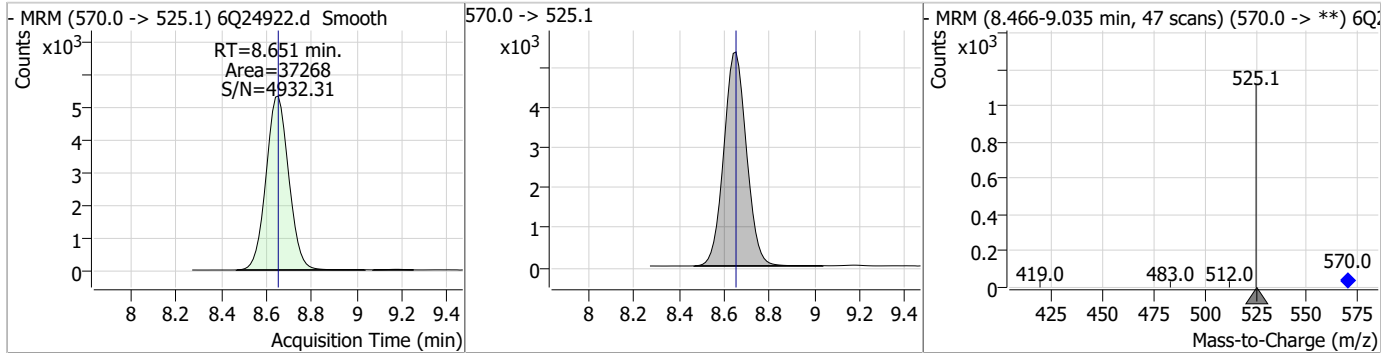
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.09	8.45	0.00	25900				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.53	8.45	0.00	10890	584.2 -> 526.0	60.1	30.1	90.2

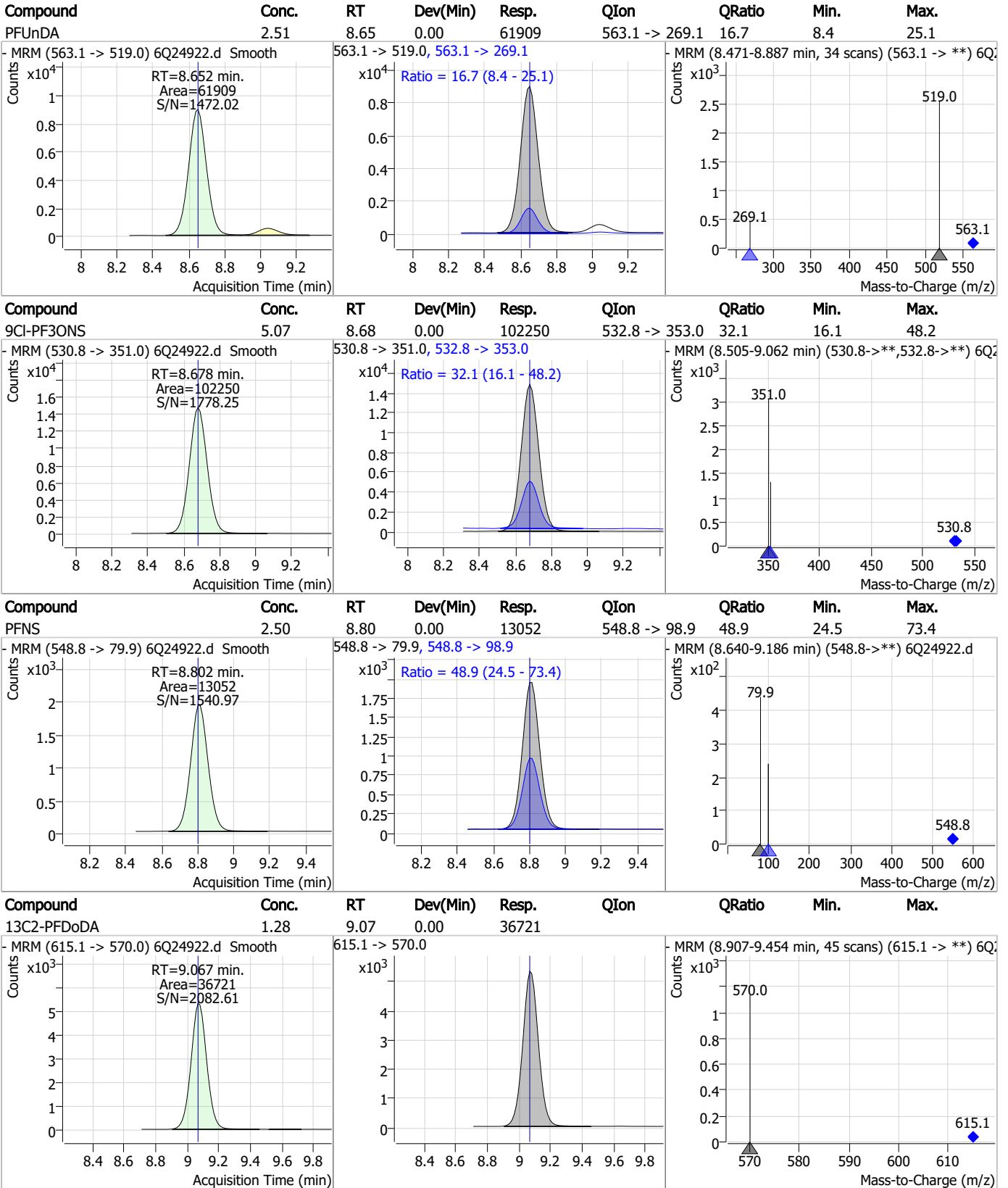


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.32	8.65	0.00	37268				



7.7.20
7

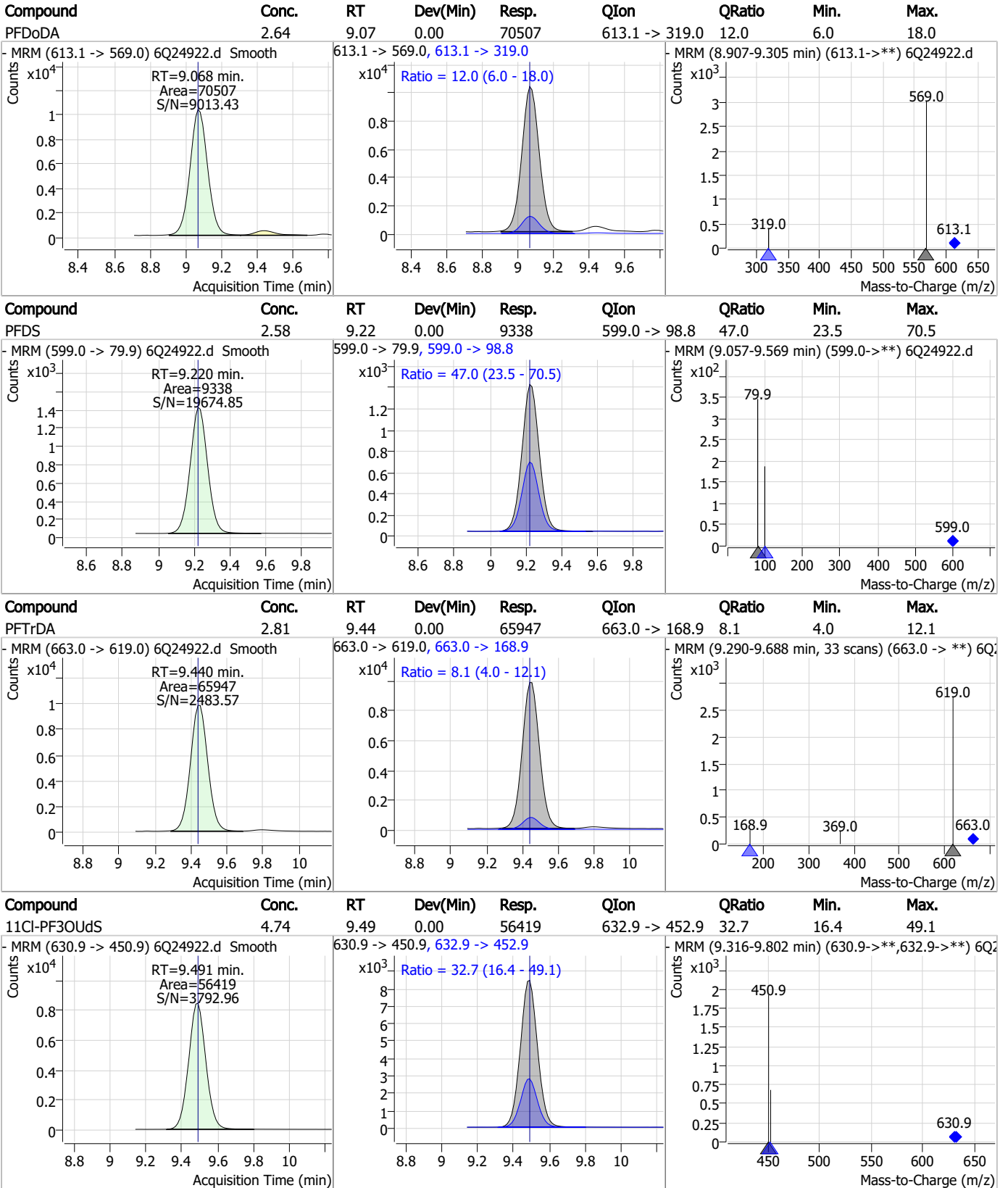
Perfluorinated Compounds by LC/MS/MS



7.7.20 7



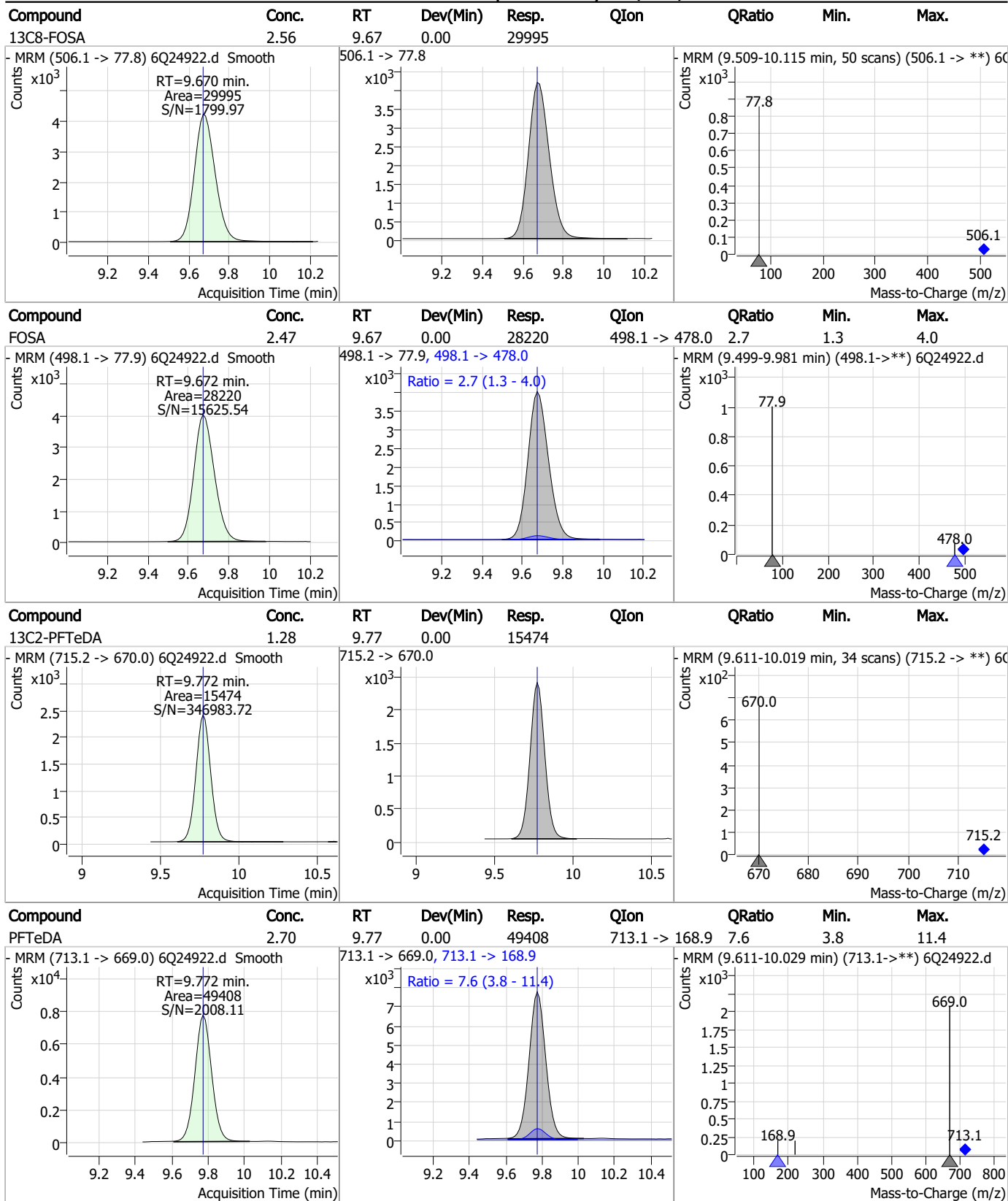
Perfluorinated Compounds by LC/MS/MS



7.7.20

7

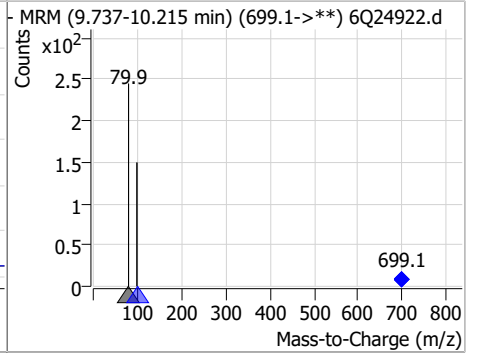
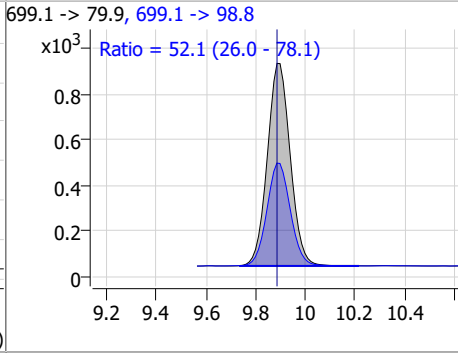
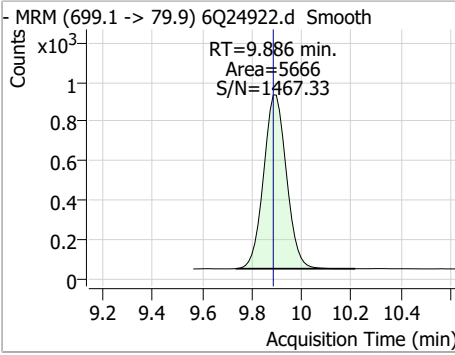
Perfluorinated Compounds by LC/MS/MS



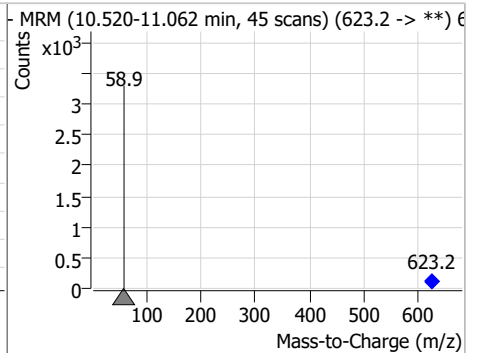
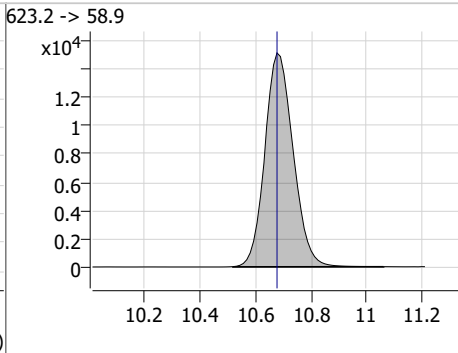
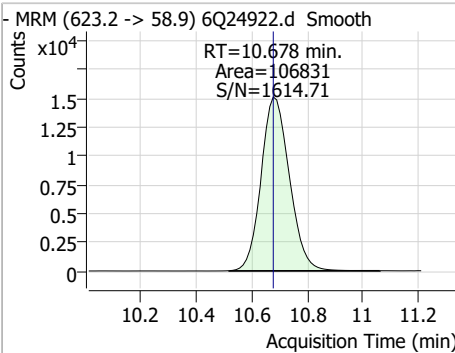
7.7.20 7

Perfluorinated Compounds by LC/MS/MS

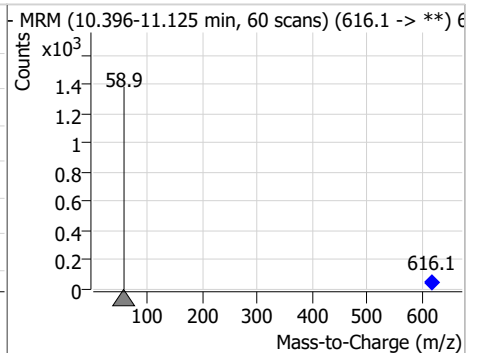
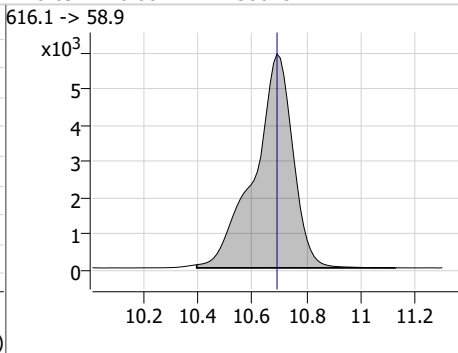
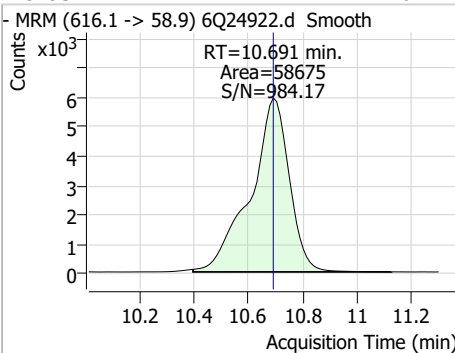
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.62	9.89	0.00	5666	699.1 -> 98.8	52.1	26.0	78.1



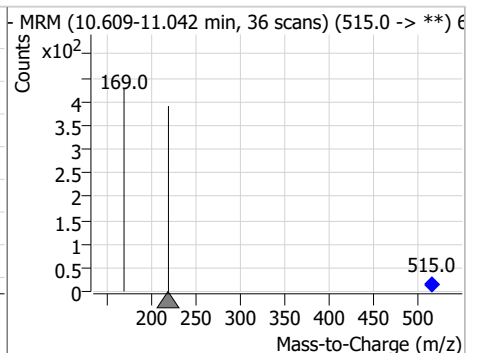
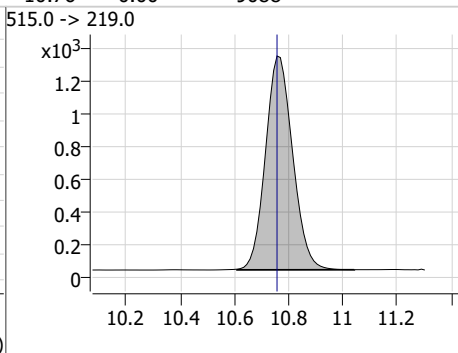
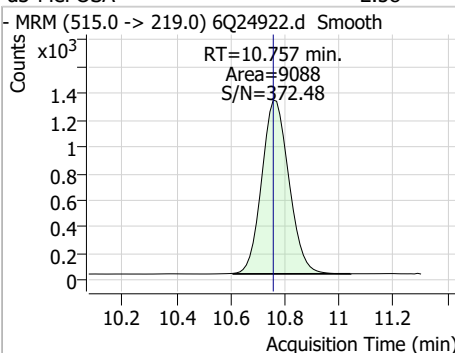
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.74	10.68	0.00	106831				



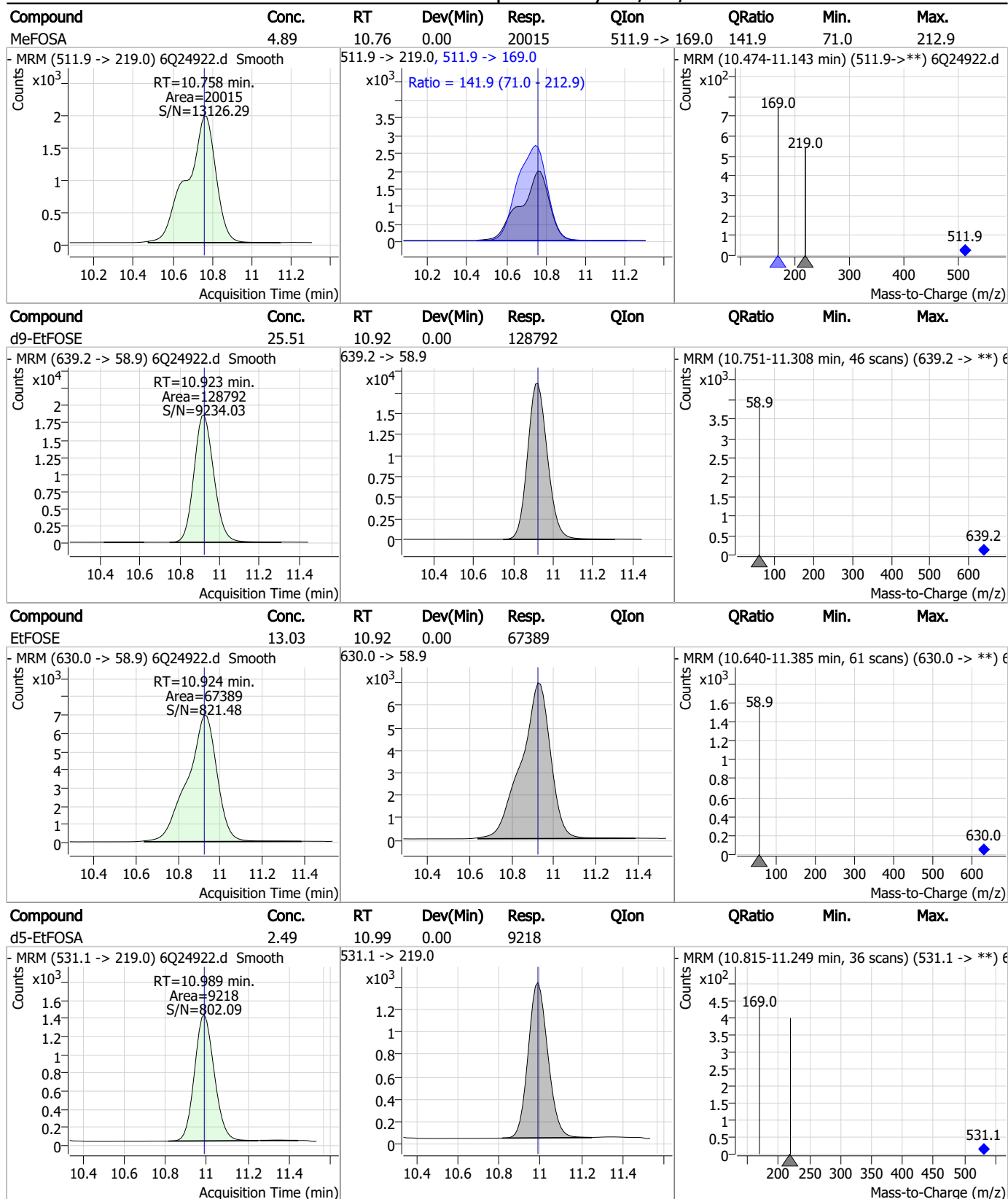
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.40	10.69	0.00	58675				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.58	10.76	0.00	9088				



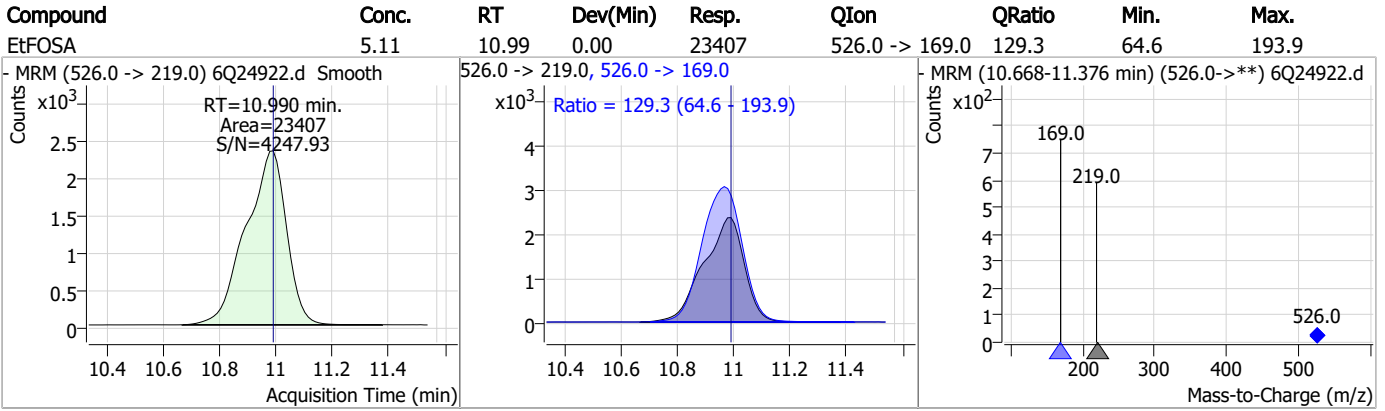
Perfluorinated Compounds by LC/MS/MS



7.7.20

7

Perfluorinated Compounds by LC/MS/MS



7.7.20

7

Manual Integration Approval Summary

Sample Number: S6Q356-ICC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24922.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 15:42 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.7.20.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtie
 09/26/23 13:54

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24923.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 3:57:18 PM
 Sample Name : ic356-5
 Vial : P1-A6
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	183537	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	74290	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	66189	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	63238	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	86788	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	35898	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	34048	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	39731	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	40698	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16334	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30862	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	28915	2.50 µg/L	-0.013
M3-PFHxS	7.301	402.1 -> 79.9	17379	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	15369	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2805	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	4411	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	4057	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	37060	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	48289	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	27783	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	109153	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	136339	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9774	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9082	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	14710	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	75833	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10474	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	95228	2.50 µg/L	-0.012
13C2-PFDA	8.198	515.1 -> 470.1	33383	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	35576	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	61889	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2805	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4411	5.18 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4057	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFDoDA	9.067	615.1 -> 570.0	40698	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16334	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C3-PFBS	5.546	302.1 -> 79.9	28915	2.63 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C3-PFHxS	7.301	402.1 -> 79.9	17379	2.62 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 = 104.9%	
13C4-PFBA	2.972	216.8 -> 171.9	183537	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.556	367.1 -> 322.0	63238	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C5-PFHxA	5.629	318.0 -> 273.0	66189	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C5-PFPeA	4.409	268.3 -> 223.0	74290	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C6-PFDA	8.185	519.1 -> 474.1	34048	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C7-PFUnDA	8.639	570.0 -> 525.1	39731	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C8-FOSA	9.670	506.1 -> 77.8	30862	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOA	7.186	421.1 -> 376.0	86788	2.63 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C8-PFOS	8.348	507.1 -> 79.9	15369	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C9-PFNA	7.717	472.1 -> 427.0	35898	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
d3-MeFOSAA	8.244	573.2 -> 419.0	37060	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	48289	10.35 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
d3-MeFOSA	10.757	515.0 -> 219.0	9082	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
d5-EtFOSAA	8.452	589.2 -> 419.0	27783	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	109153	24.73 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
d9-EtFOSE	10.923	639.2 -> 58.9	136339	25.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
d5-EtFOSA	10.989	531.1 -> 219.0	9774	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	83387	18.17 µg/L	100
		327.1 -> 80.9	35883		
6:2FTS	6.962	427.1 -> 407.0	70854	18.64 µg/L	100
		427.1 -> 80.9	30804		
8:2FTS	7.987	527.1 -> 507.0	52155	20.16 µg/L	96
		527.1 -> 80.8	19471		
EtFOSAA	8.452	584.2 -> 419.1	21608	4.67 µg/L	94
		584.2 -> 526.0	14028		
FOSA	9.672	498.1 -> 77.9	56738	4.84 µg/L	100
		498.1 -> 478.0	1541		
MeFOSAA	8.245	570.1 -> 419.0	30054	4.63 µg/L	95
		570.1 -> 483.0	6352		
PFBA	2.981	212.8 -> 168.9	125332	19.13 µg/L	100
PFBS	5.547	298.7 -> 79.9	38955	4.13 µg/L	99
		298.7 -> 98.8	14840		
PFDA	8.186	512.9 -> 469.0	130477	4.86 µg/L	99
		512.9 -> 219.0	20705		
PFDoDA	9.068	613.1 -> 569.0	140291	4.73 µg/L	99
		613.1 -> 319.0	17328		
PFDS	9.220	599.0 -> 79.9	18075	4.86 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	8446			
PFHpA	6.557	363.1 -> 319.0	159360	4.65	µg/L	97
		363.1 -> 169.0	24679			
PFHpS	7.843	449.0 -> 79.9	32060	4.73	µg/L	89
		449.0 -> 98.9	15747			
PFHxA	5.631	313.0 -> 269.0	113213	4.76	µg/L	100
		313.0 -> 118.9	5573			
PFHxS	7.290	398.7 -> 79.9	29148	4.31	µg/L	m 98
		398.7 -> 98.9	13712			
PFNA	7.717	463.0 -> 419.0	111825	4.81	µg/L	93
		463.0 -> 219.0	26953			
PFNS	8.802	548.8 -> 79.9	25202	4.71	µg/L	97
		548.8 -> 98.9	12919			
PFOA	7.187	413.0 -> 369.0	177723	4.77	µg/L	98
		413.0 -> 169.0	30694			
PFOS	8.337	498.9 -> 79.9	30671	4.63	µg/L	m 71
		498.9 -> 98.8	14907			
PFPeA	4.411	263.0 -> 219.0	144594	9.67	µg/L	100
PFPeS	6.608	349.1 -> 79.9	40159	4.26	µg/L	93
		349.1 -> 98.9	19396			
PFTeDA	9.772	713.1 -> 669.0	94871	4.91	µg/L	99
		713.1 -> 168.9	7426			
PFTrDA	9.440	663.0 -> 619.0	119698	4.61	µg/L	99
		663.0 -> 168.9	10107			
PFUnDA	8.639	563.1 -> 519.0	128595	4.89	µg/L	96
		563.1 -> 269.1	19131			
11CI-PF3OUdS	9.491	630.9 -> 450.9	113218	8.96	µg/L	97
		632.9 -> 452.9	35050			
9CI-PF3ONS	8.678	530.8 -> 351.0	189424	8.84	µg/L	97
		532.8 -> 353.0	58119			
ADONA	6.804	376.9 -> 250.9	530987	8.95	µg/L	100
		376.9 -> 84.8	154029			
HFPO-DA	6.007	284.9 -> 168.9	43697	9.19	µg/L	100
		284.9 -> 184.9	4593			
3:3FTCA	3.846	241.0 -> 177.0	24944	23.45	µg/L	99
		241.0 -> 117.0	2867			
5:3FTCA	6.271	341.0 -> 237.1	540294	120.97	µg/L	93
		341.0 -> 217.0	344256			
7:3FTCA	7.657	441.0 -> 316.9	314268	124.20	µg/L	98
		441.0 -> 336.9	640238			
EtFOSA	10.990	526.0 -> 219.0	45329	9.33	µg/L	95
		526.0 -> 169.0	61245			
EtFOSE	10.924	630.0 -> 58.9	128455	23.47	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	39614	9.69	µg/L	99
		511.9 -> 169.0	55675			
MeFOSE	10.691	616.1 -> 58.9	117742	24.34	µg/L	100
PFDoS	9.898	699.1 -> 79.9	11083	5.00	µg/L	99
		699.1 -> 98.8	5834			
NFDHA	5.512	295.0 -> 201.0	28530	9.35	µg/L	100
		295.0 -> 84.9	7639			
PFMBA	4.838	279.0 -> 85.1	116115	9.66	µg/L	100
PFMPA	3.538	229.0 -> 84.9	86160	9.65	µg/L	100
PFEESA	6.100	314.8 -> 134.9	252383	8.54	µg/L	100
		314.8 -> 82.9	9745			

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

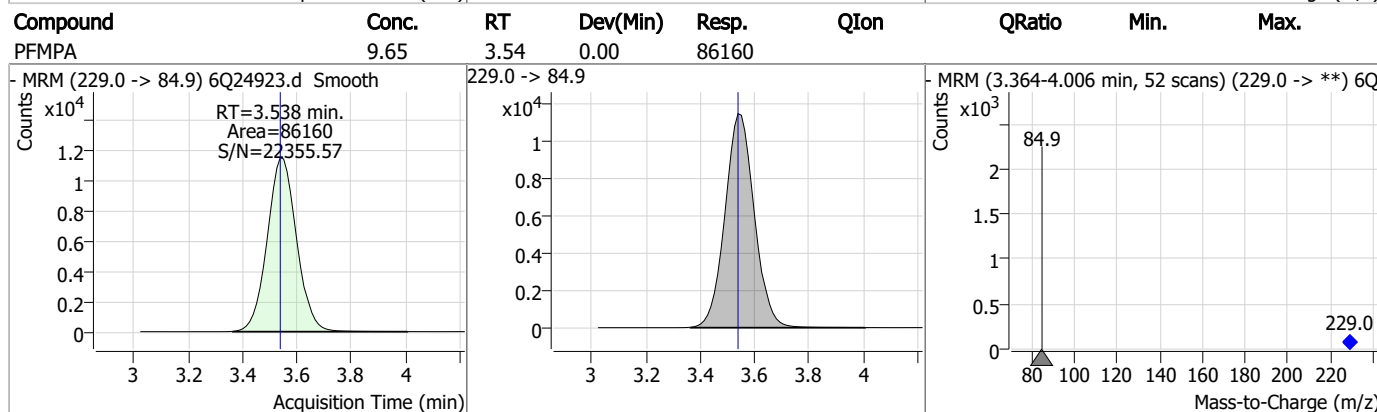
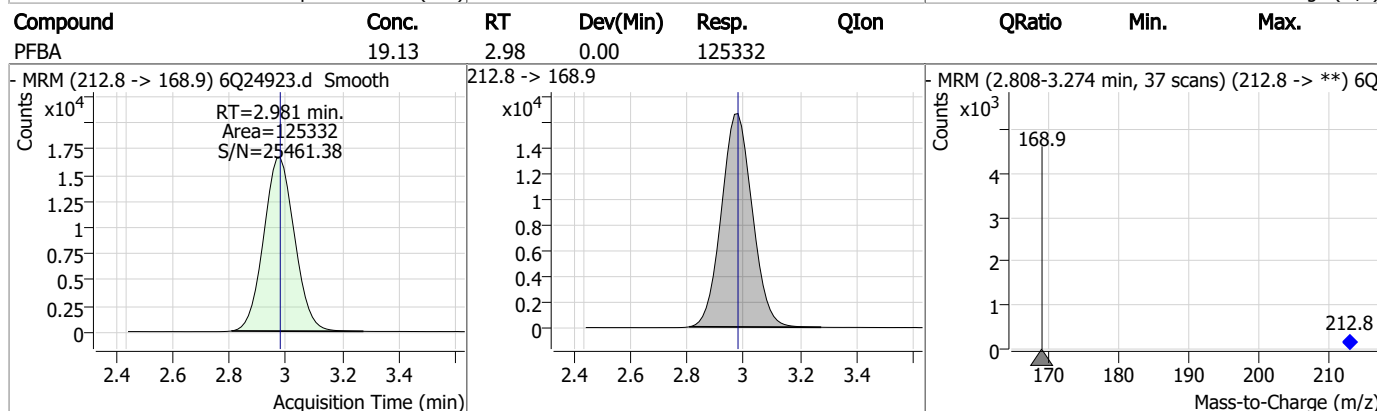
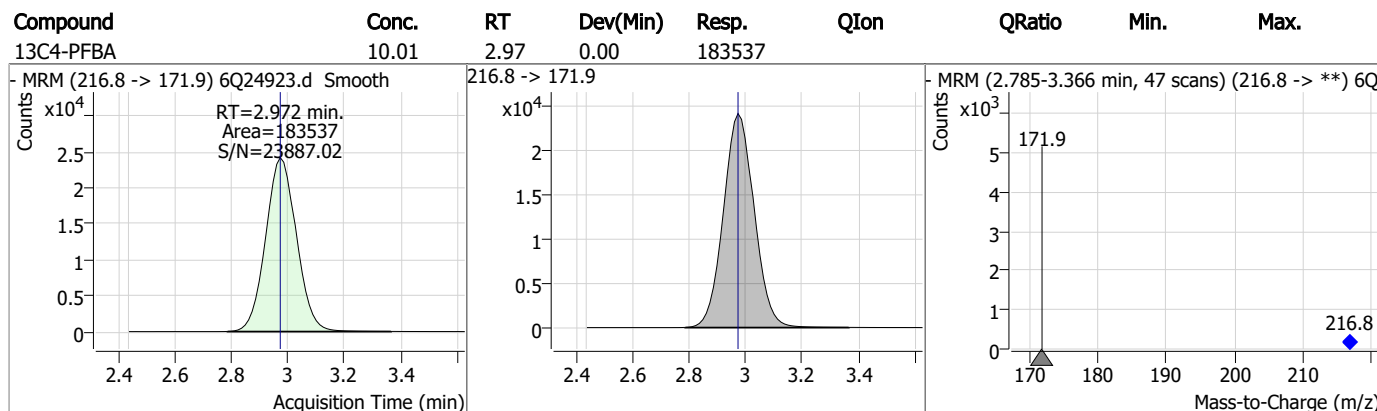
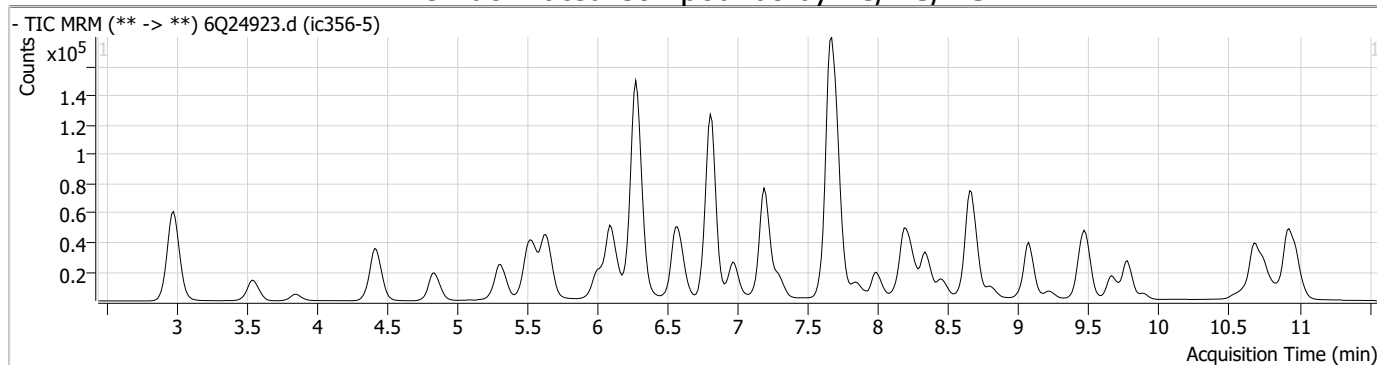
Perfluorinated Compounds by LC/MS/MS

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

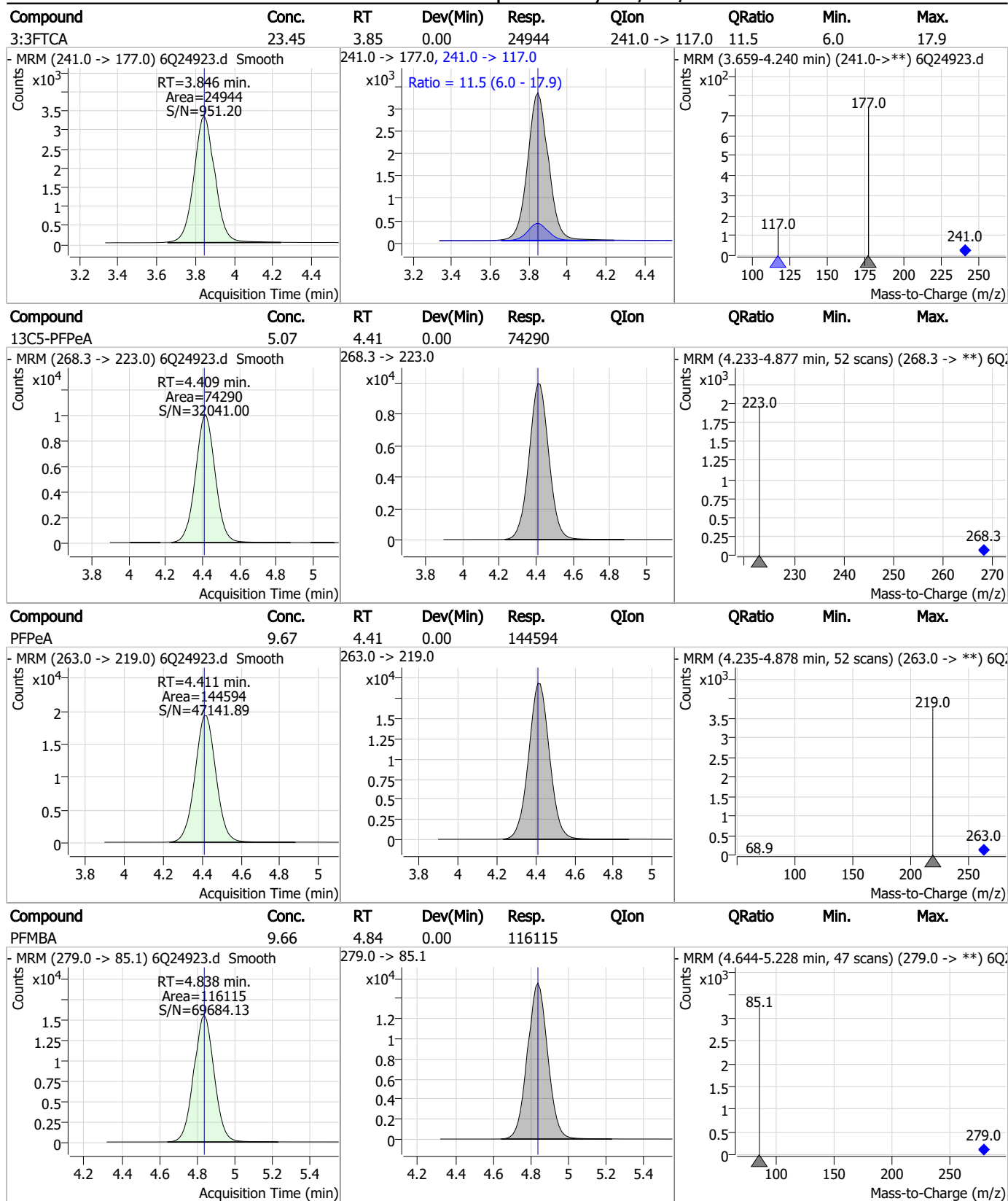
7.7.21
7



Perfluorinated Compounds by LC/MS/MS



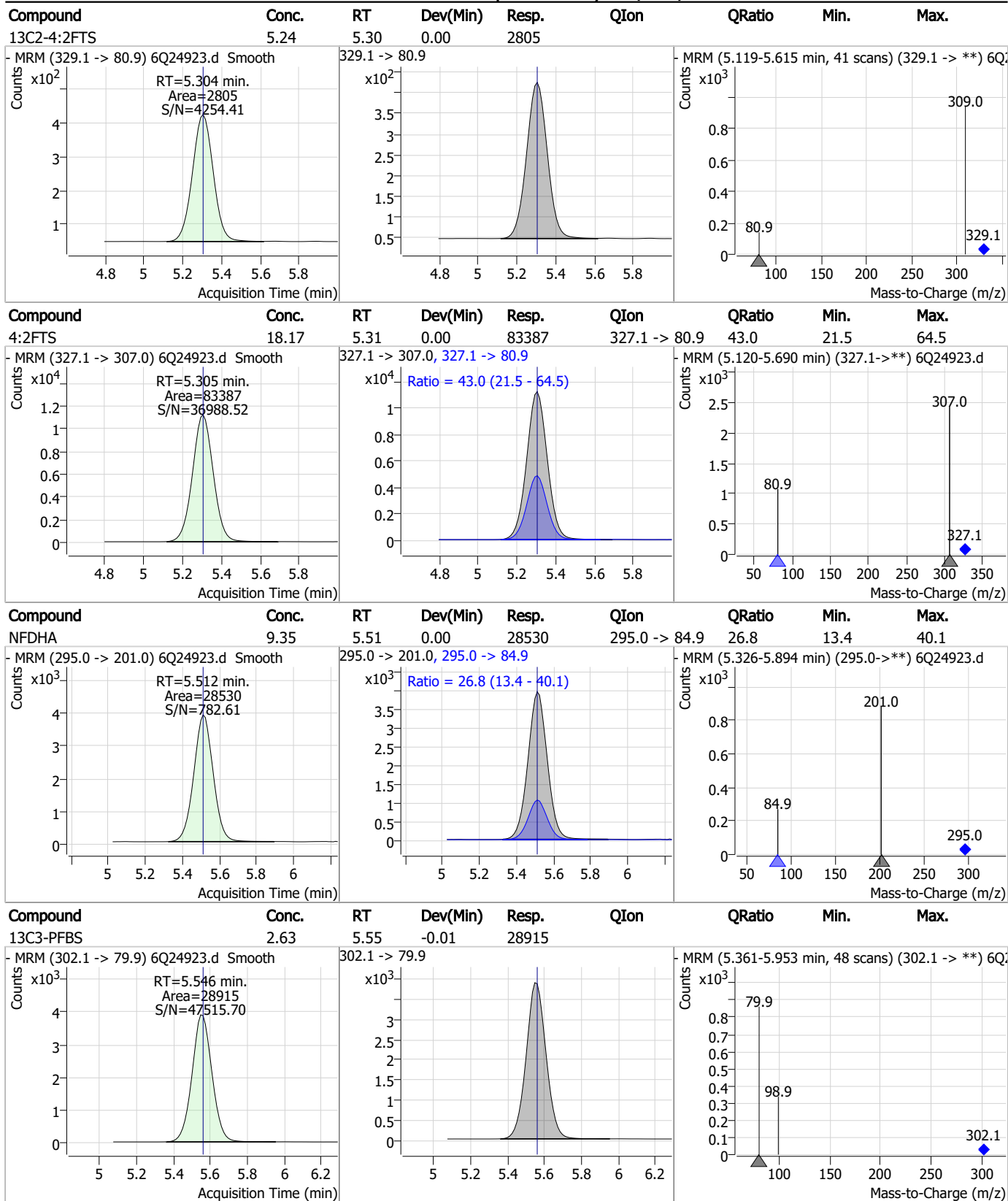
Perfluorinated Compounds by LC/MS/MS



7.7.21

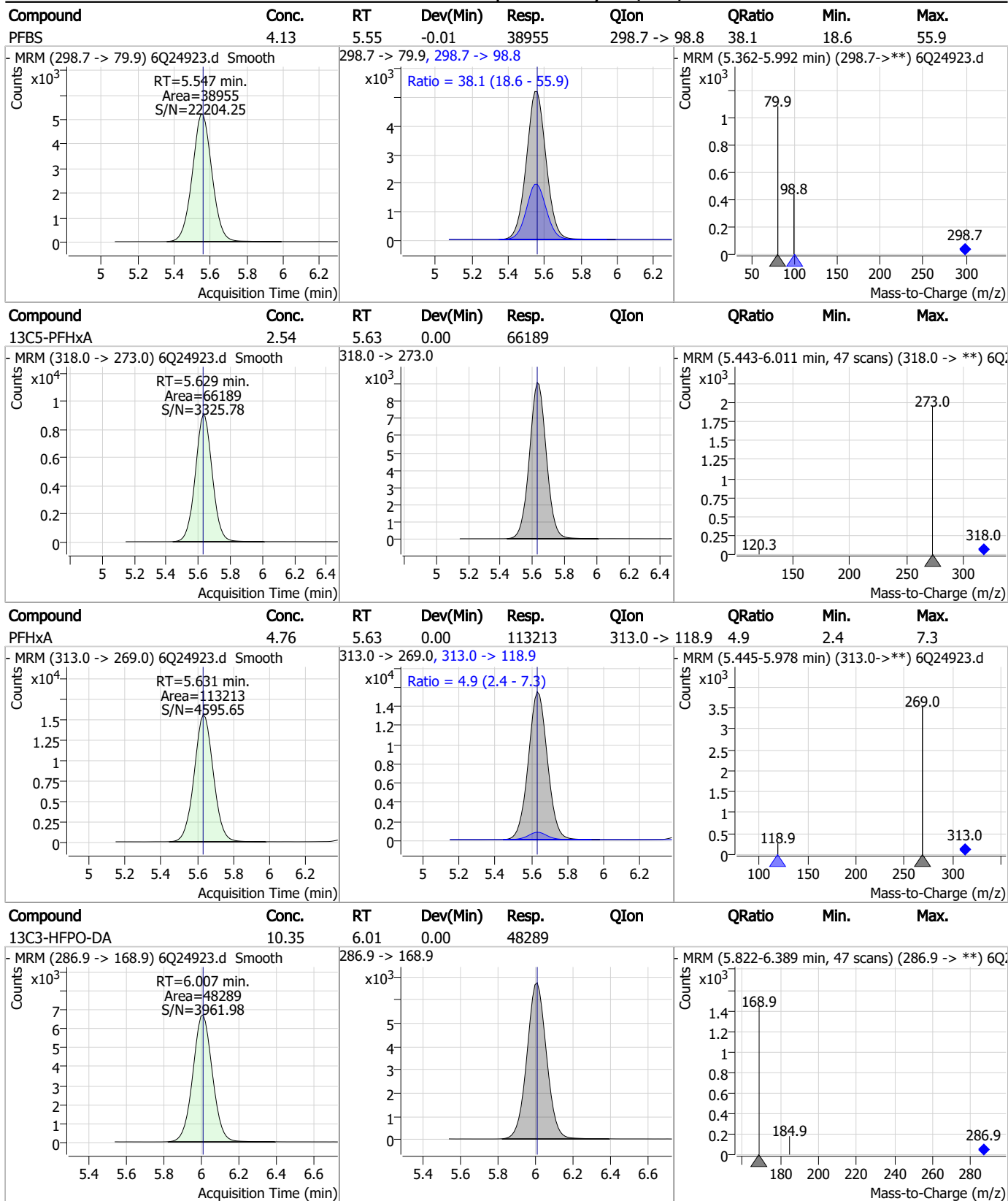
7

Perfluorinated Compounds by LC/MS/MS



7.7.21

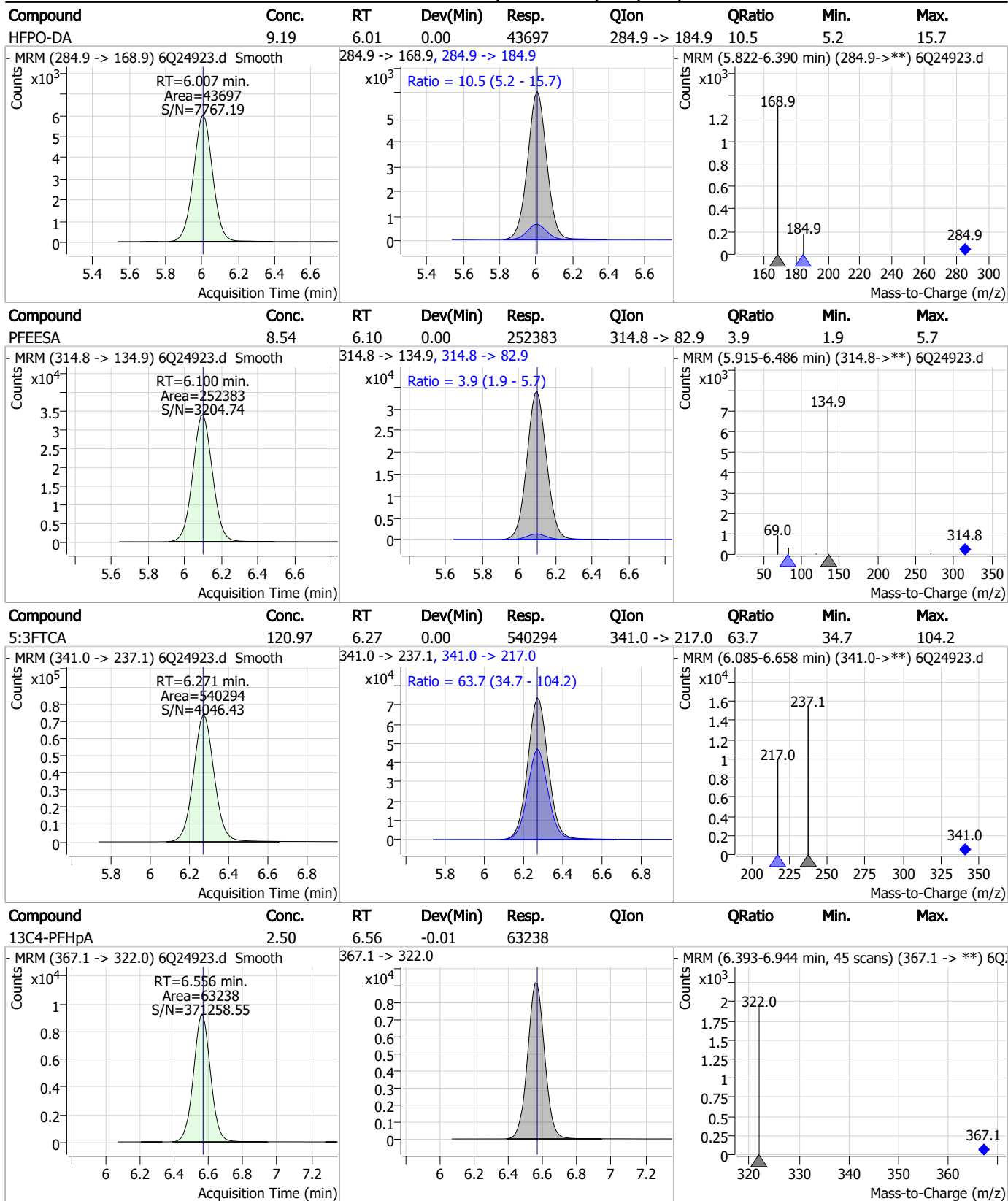
Perfluorinated Compounds by LC/MS/MS



7.7.21

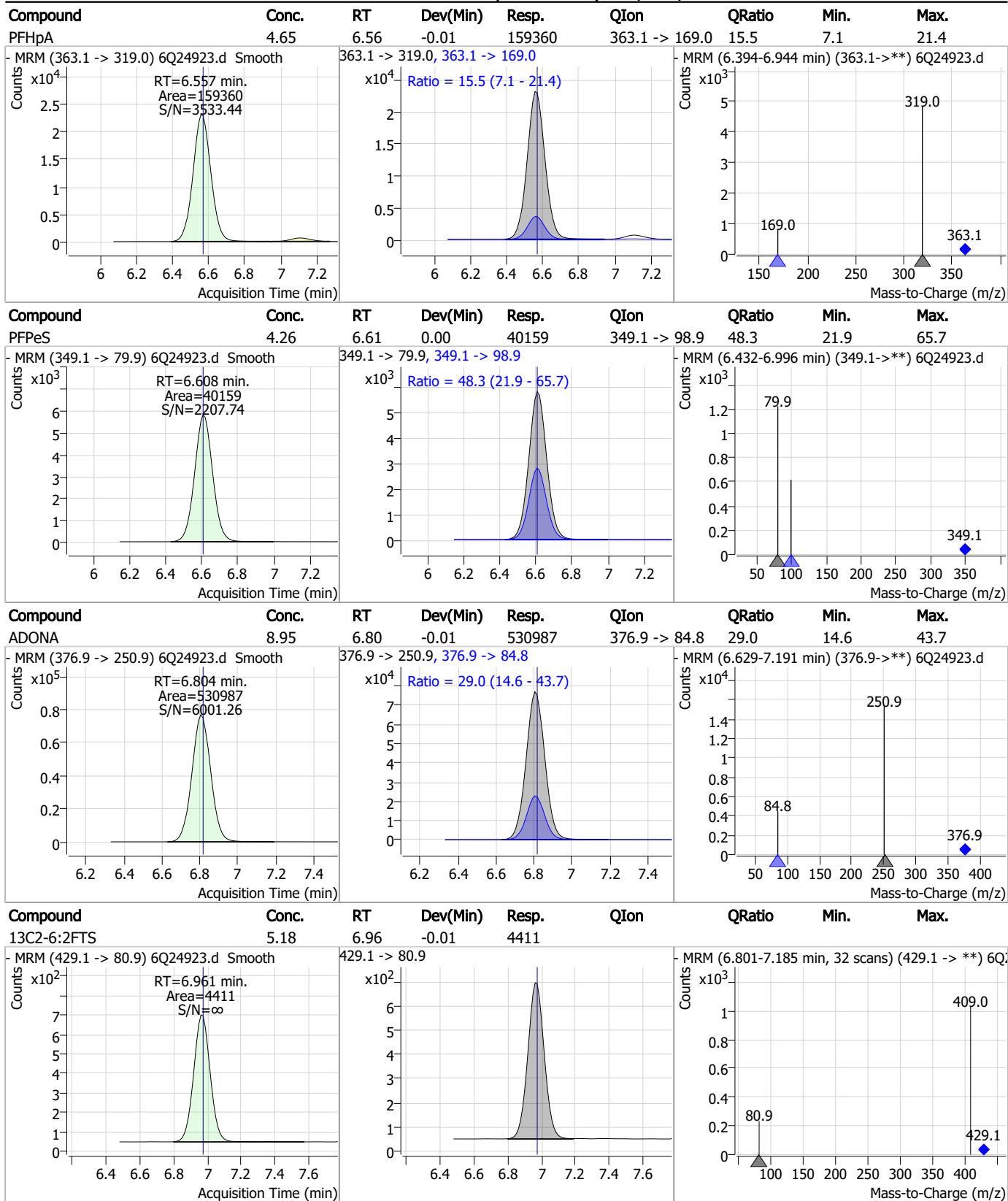
7

Perfluorinated Compounds by LC/MS/MS



7.7.21
7

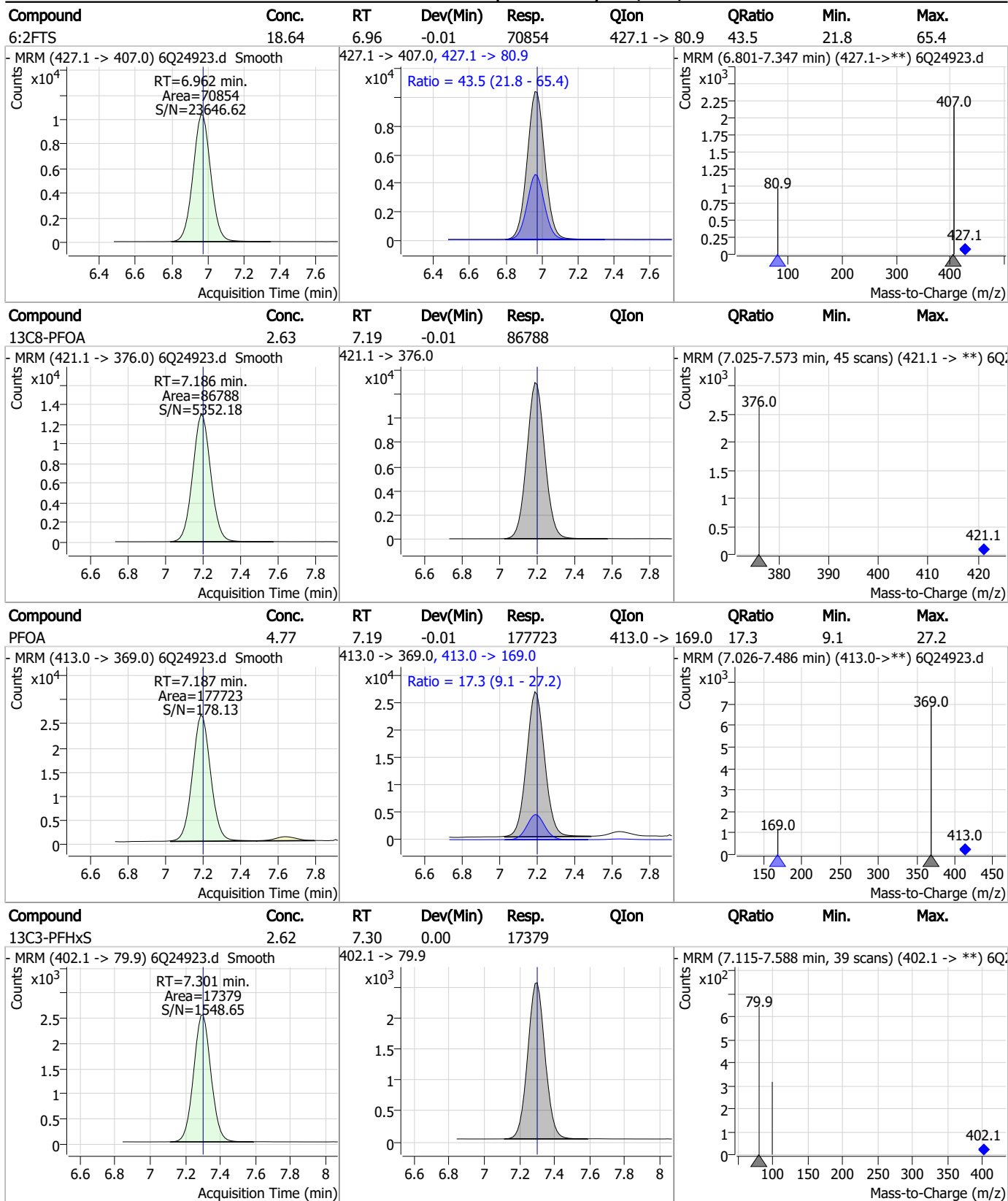
Perfluorinated Compounds by LC/MS/MS



7.7.21
7



Perfluorinated Compounds by LC/MS/MS

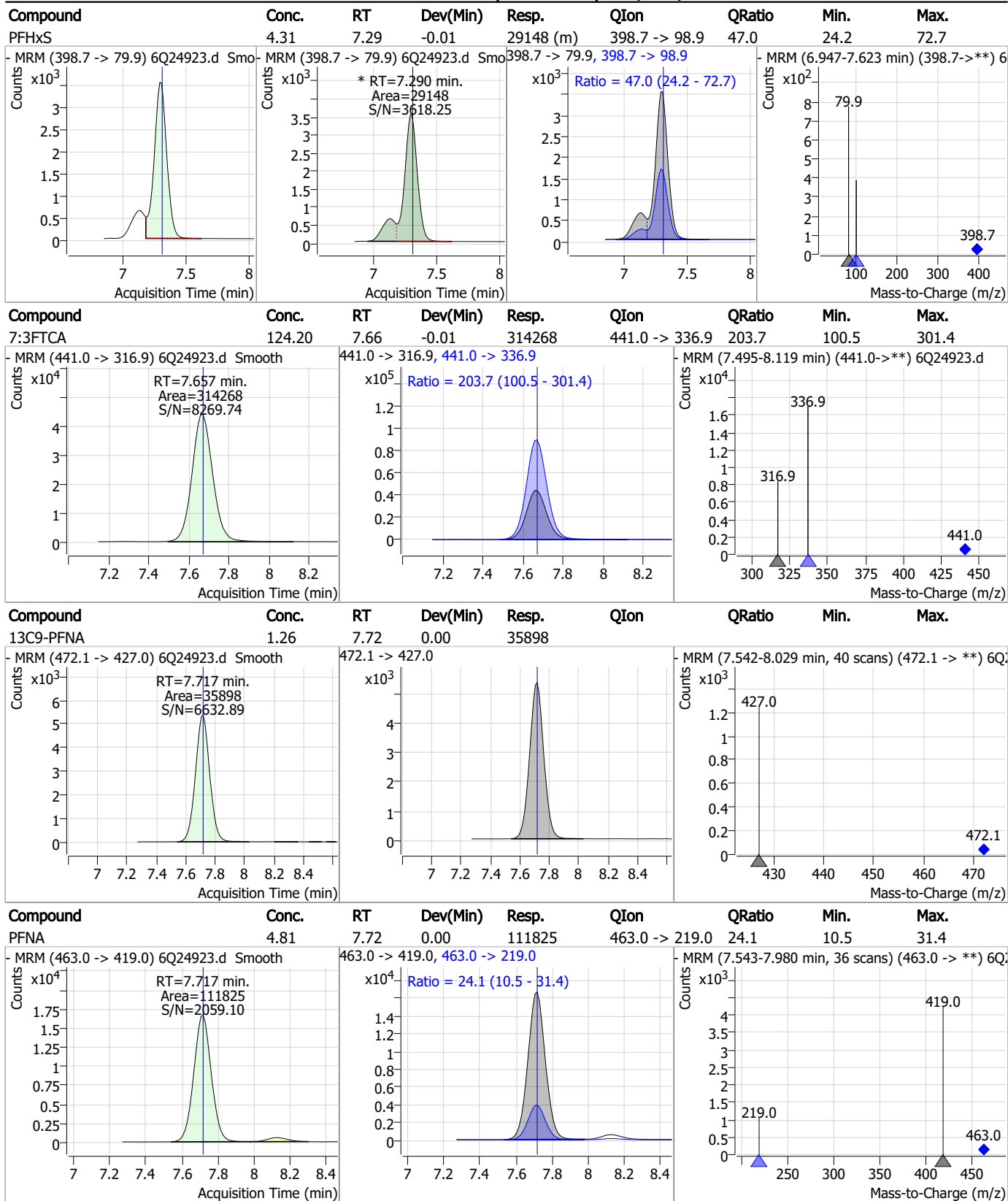


7.7.21

7



Perfluorinated Compounds by LC/MS/MS



7.7.21

7

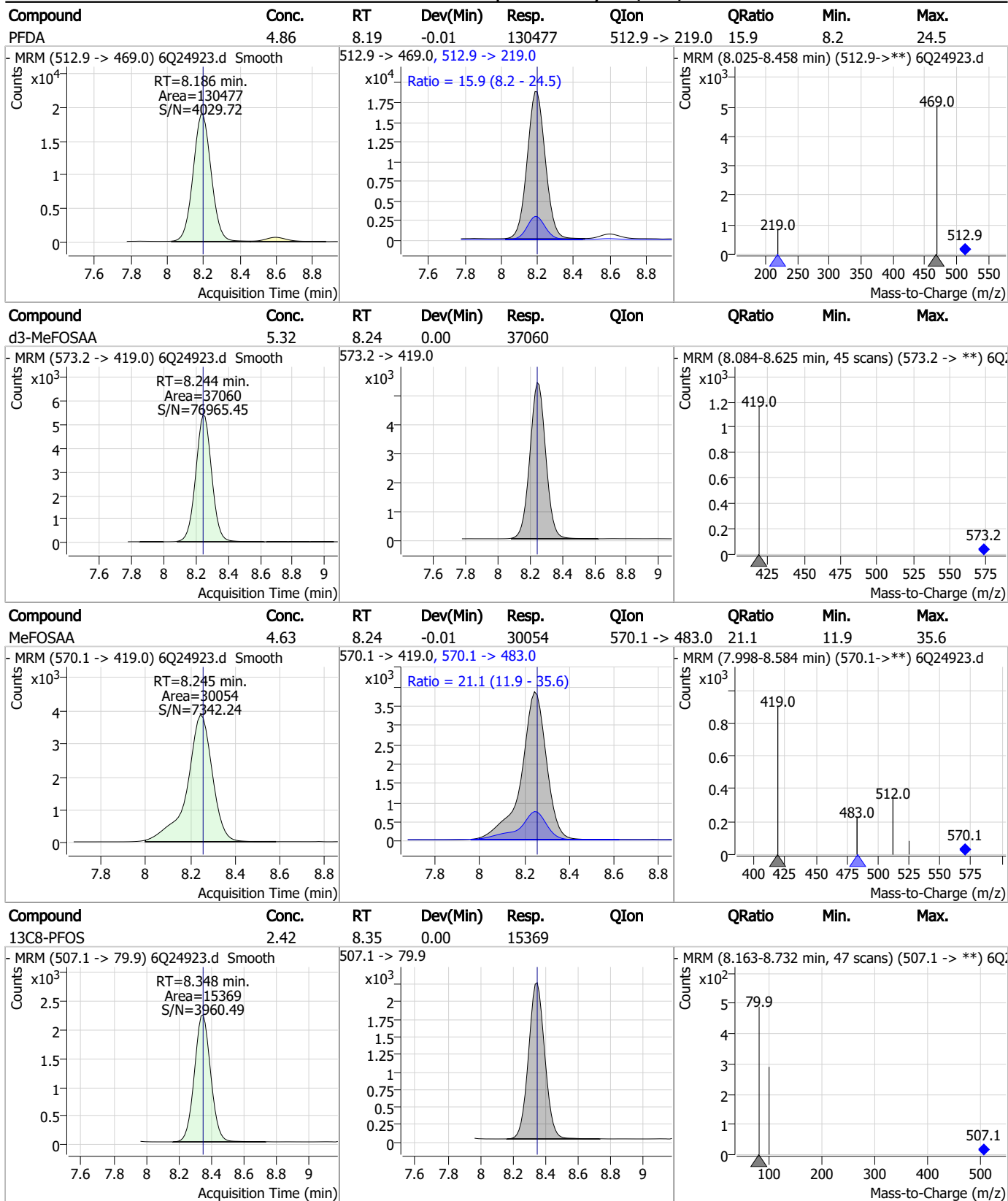
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	4.73	7.84	-0.01	32060	449.0 -> 98.9	49.1	21.0	62.9
13C2-8:2FTS	5.01	7.99	0.00	4057	529.1 -> 80.9			
8:2FTS	20.16	7.99	0.00	52155	527.1 -> 80.8	37.3	17.6	52.8
13C6-PFDA	1.21	8.19	-0.01	34048	519.1 -> 474.1			

7.7.21

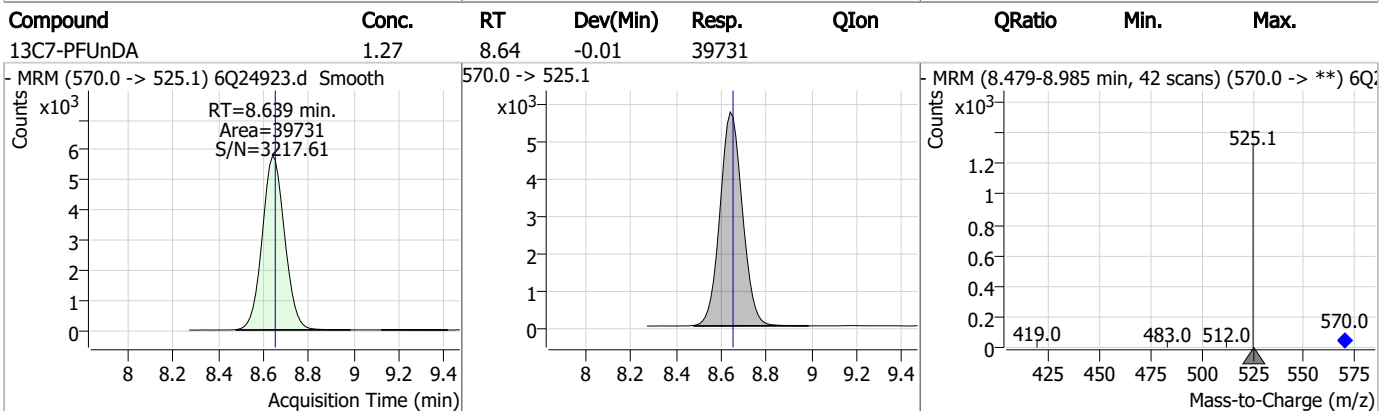
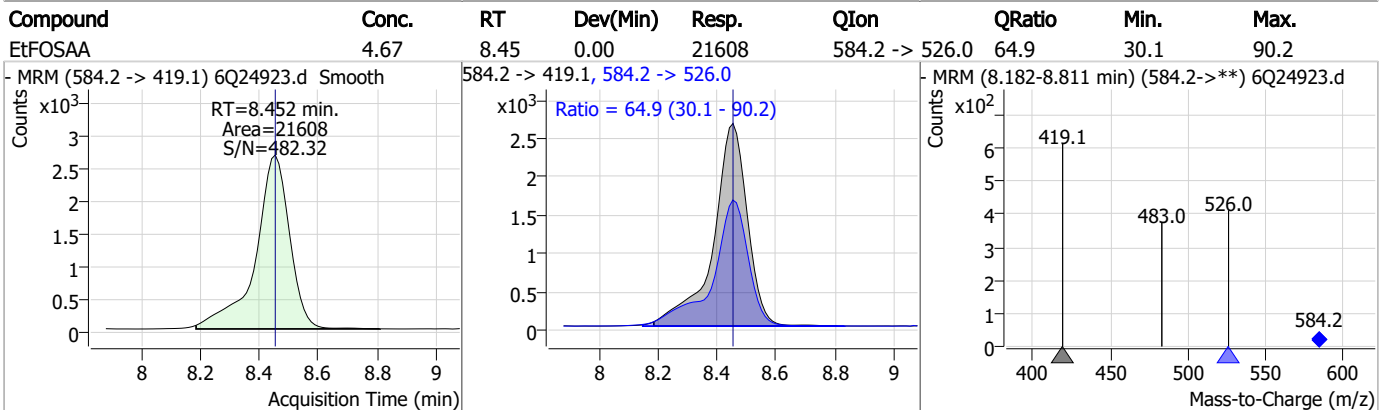
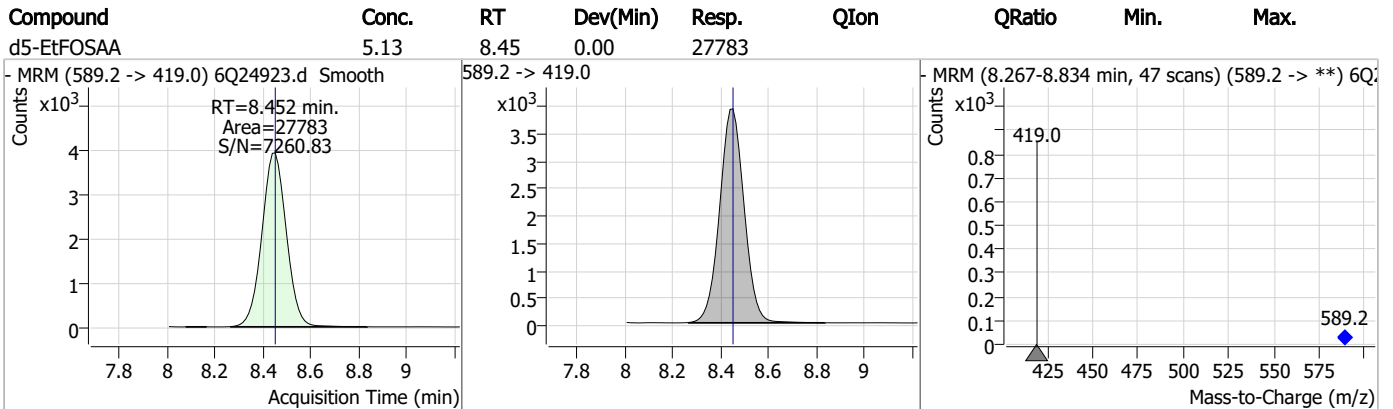
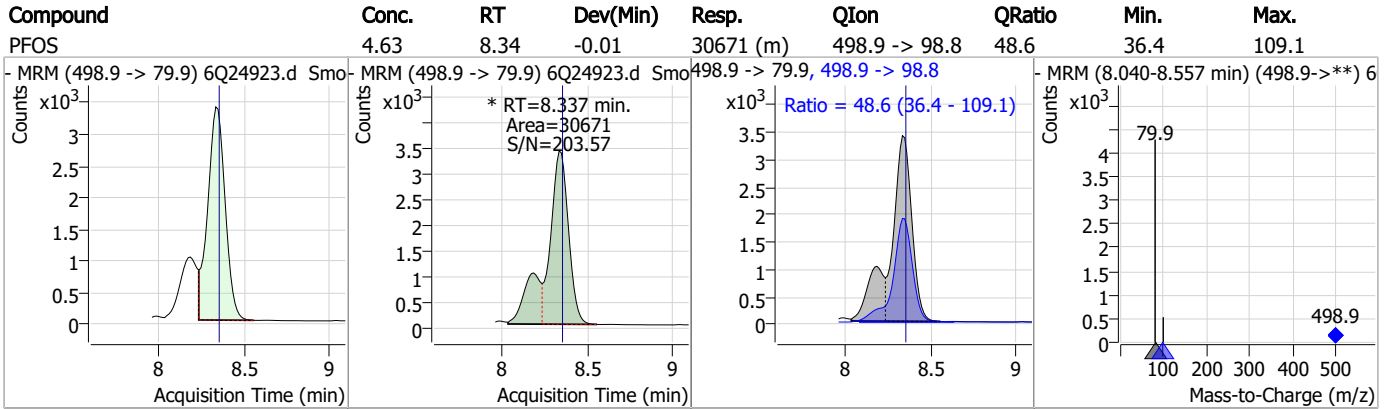


Perfluorinated Compounds by LC/MS/MS



7.7.21

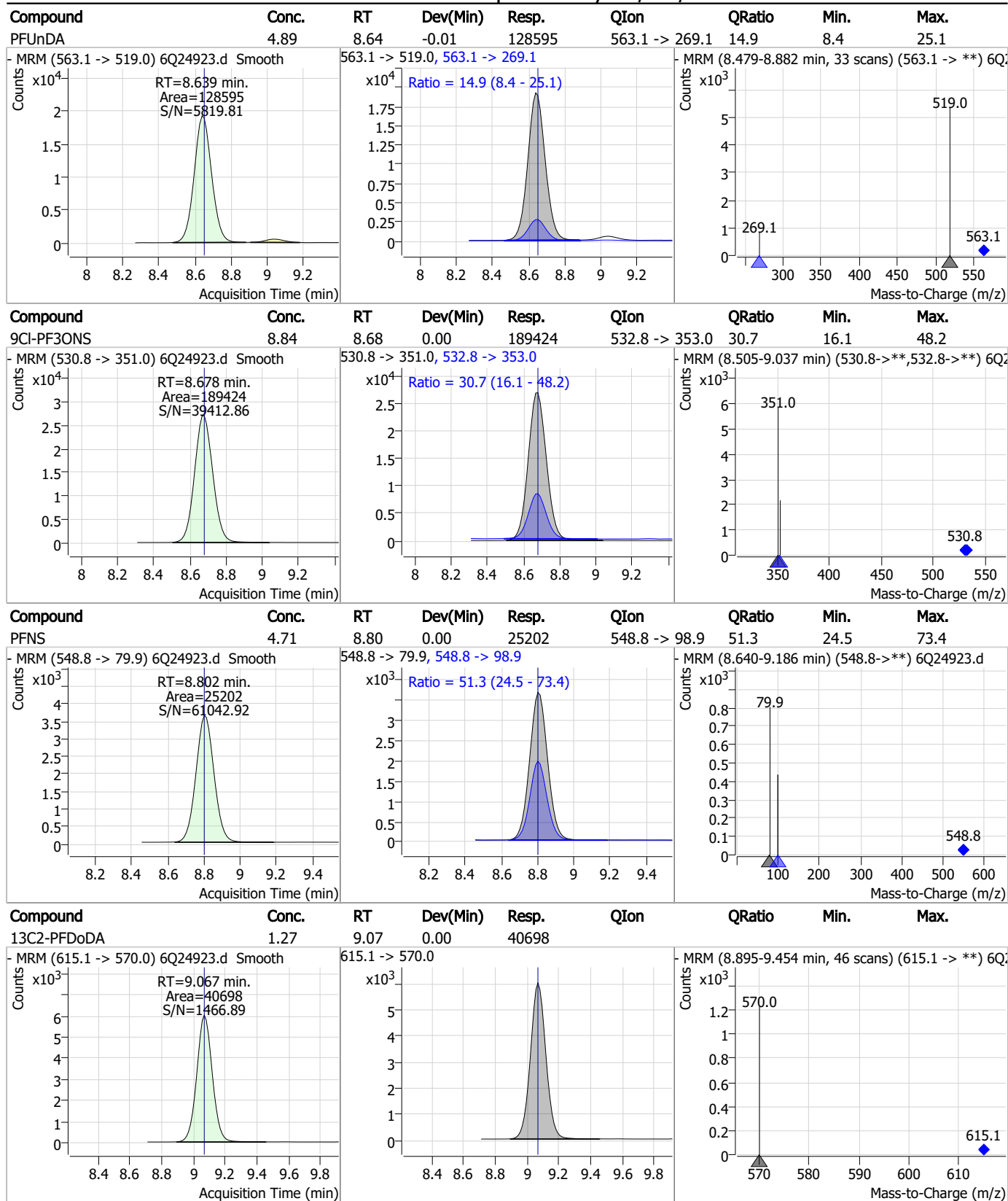
Perfluorinated Compounds by LC/MS/MS



7.7.21

7

Perfluorinated Compounds by LC/MS/MS

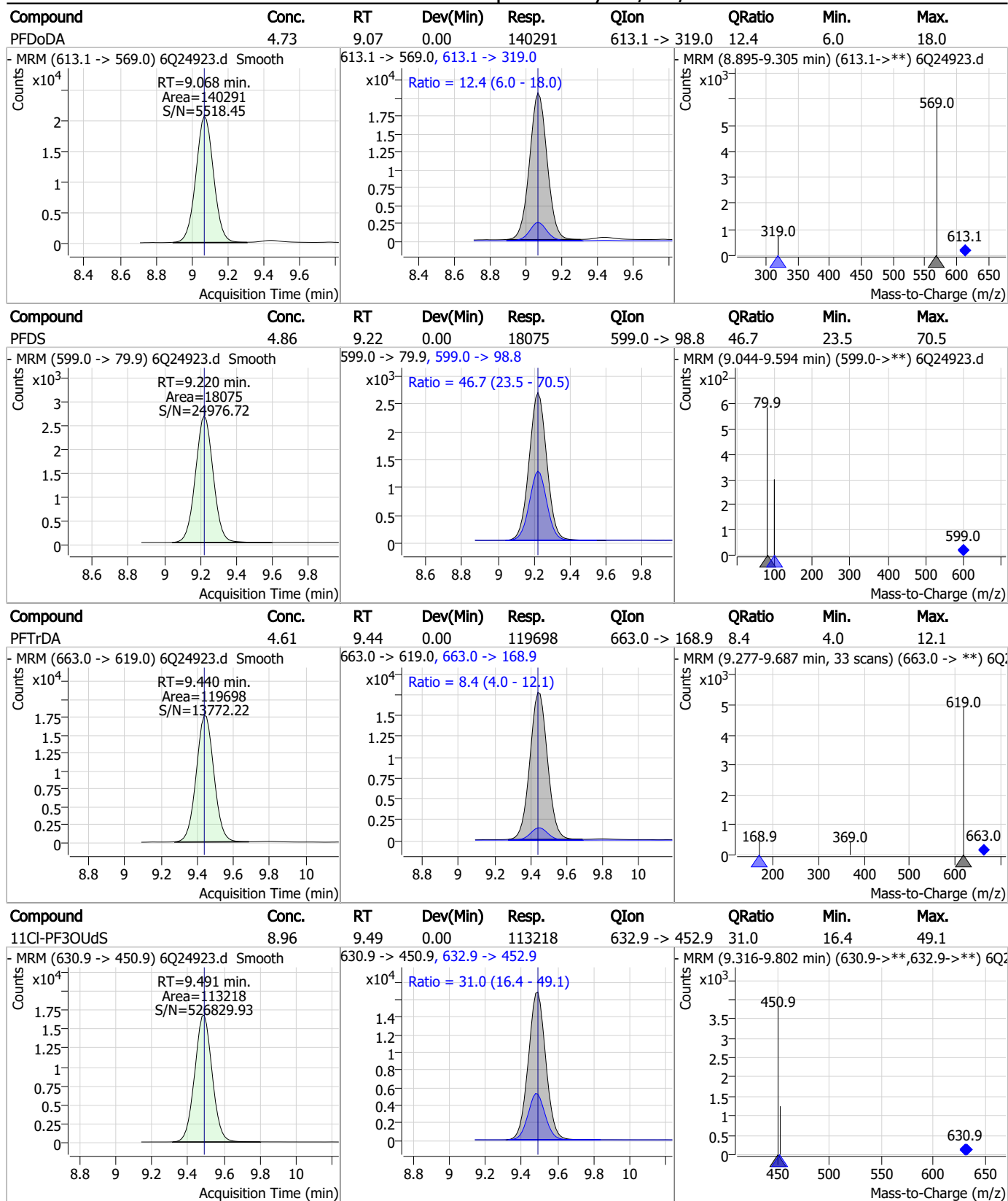


7.7.21

7



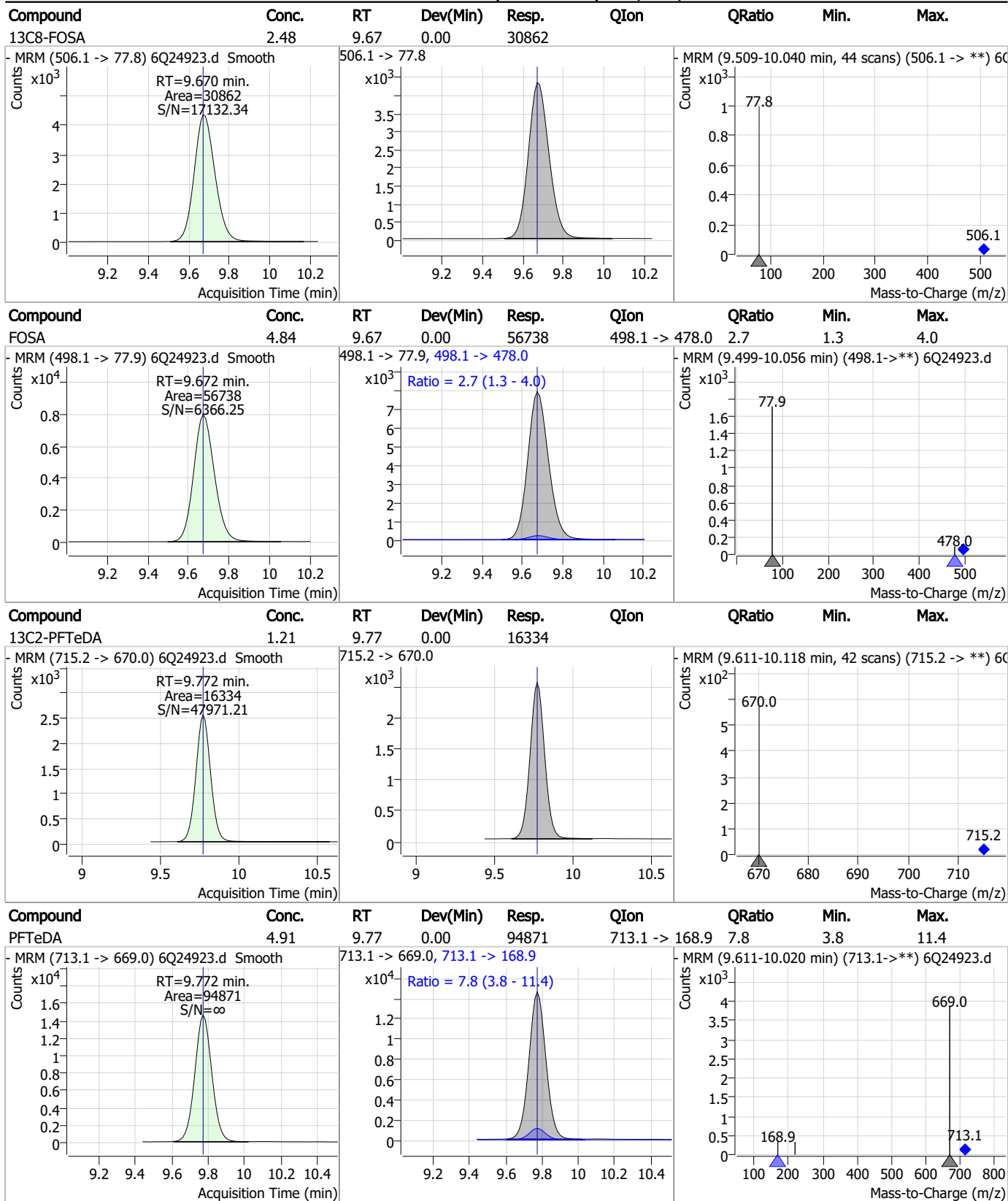
Perfluorinated Compounds by LC/MS/MS



7.7.21

7

Perfluorinated Compounds by LC/MS/MS

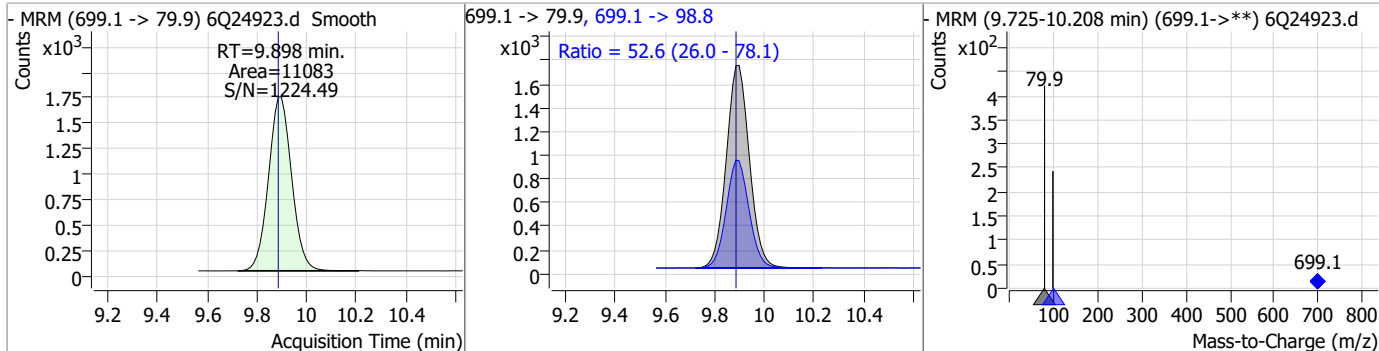


7.7.21

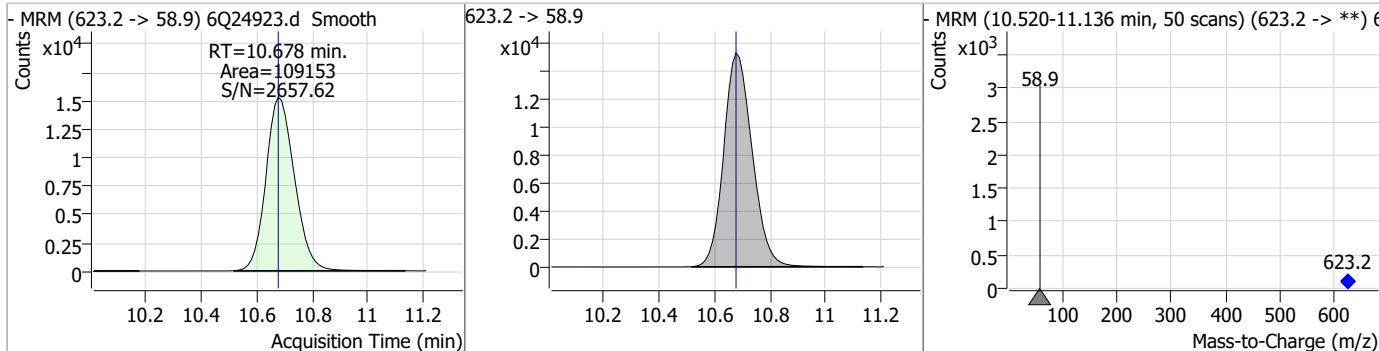
7

Perfluorinated Compounds by LC/MS/MS

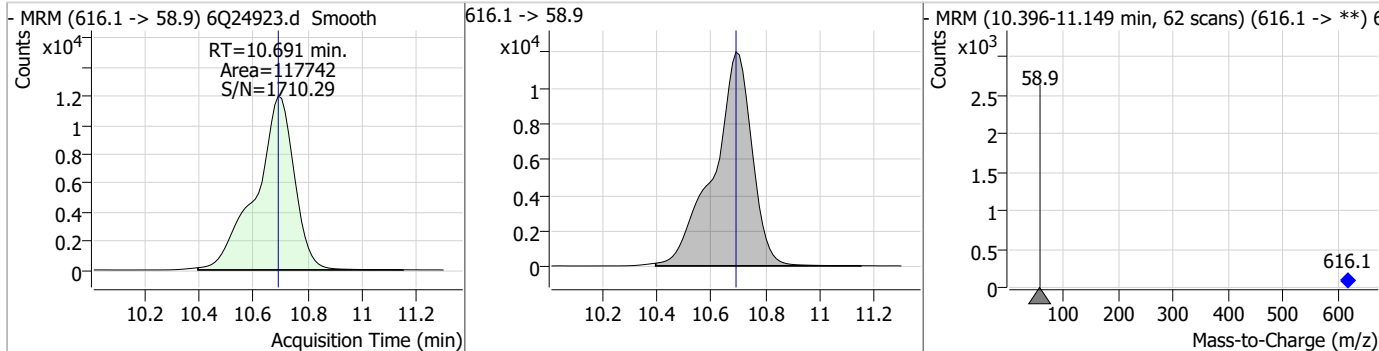
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	5.00	9.90	0.01	11083	699.1 -> 98.8	52.6	26.0	78.1



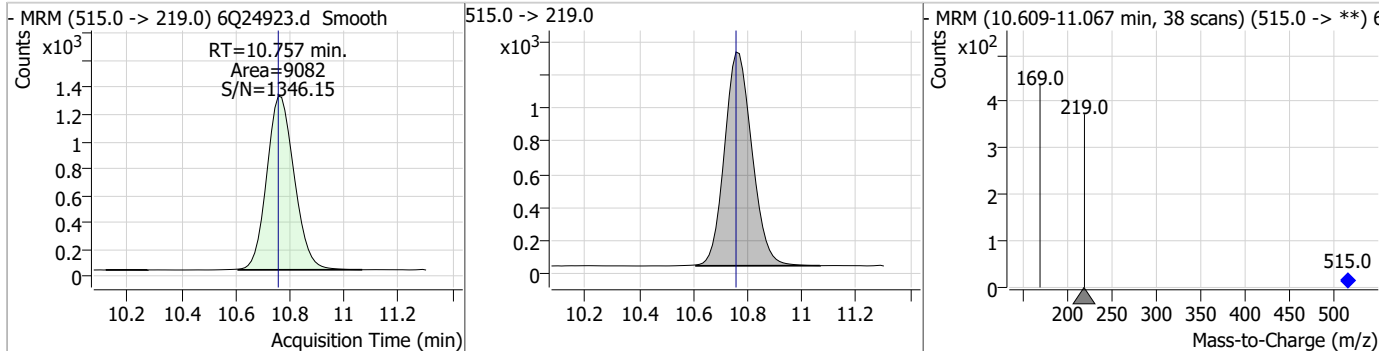
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.73	10.68	0.00	109153				



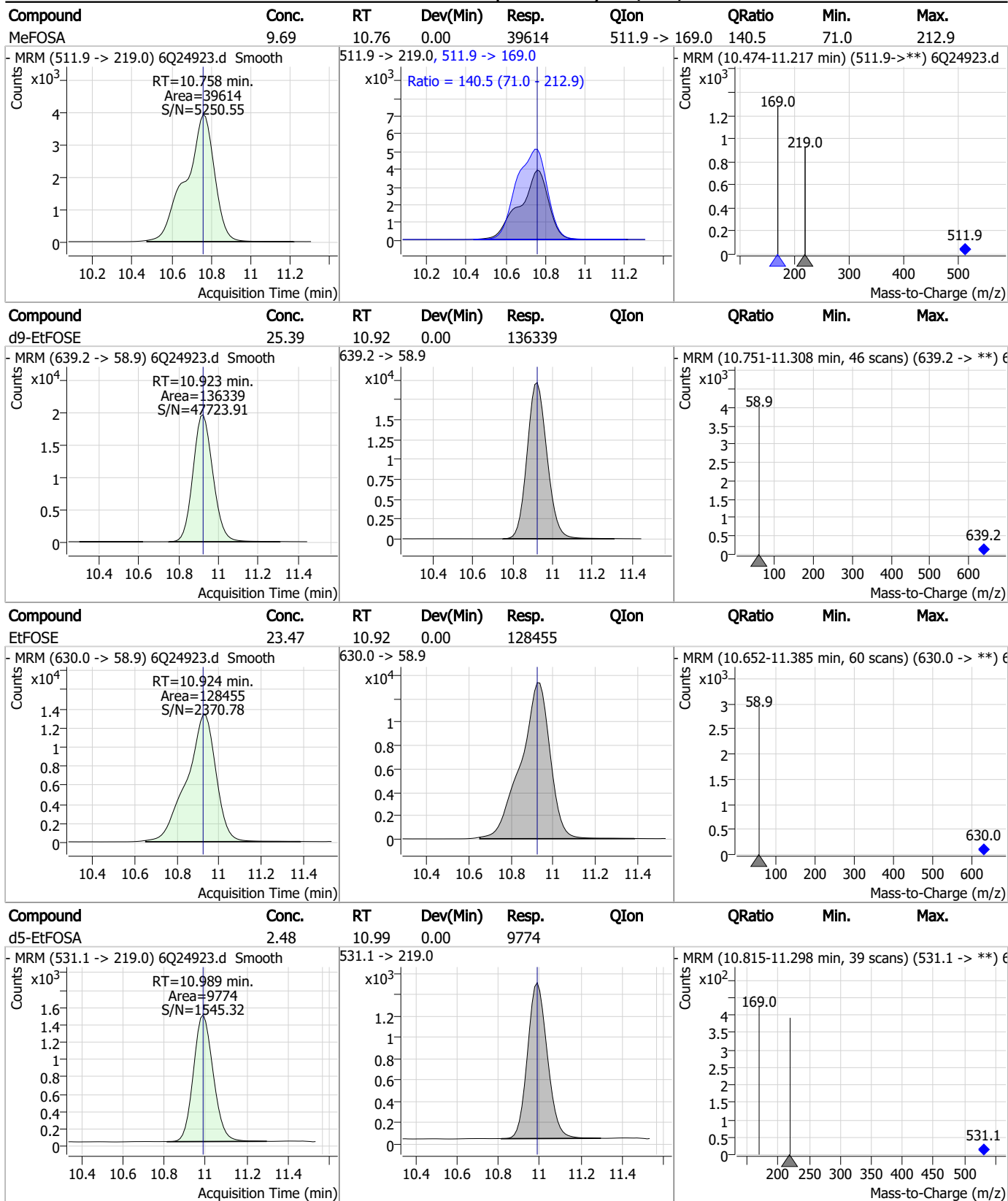
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	24.34	10.69	0.00	117742				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.43	10.76	0.00	9082				



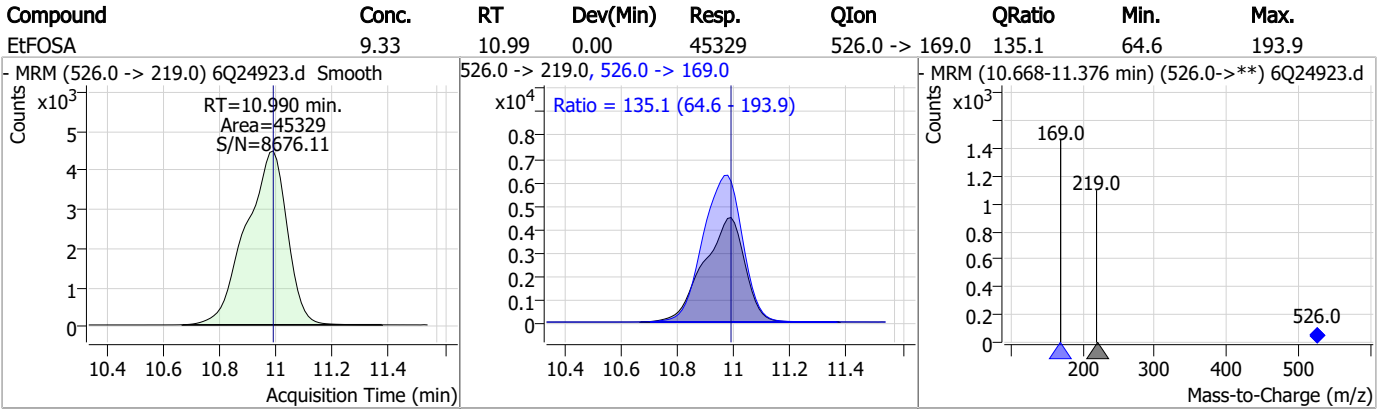
Perfluorinated Compounds by LC/MS/MS



7.7.21

7

Perfluorinated Compounds by LC/MS/MS



7.7.21

7

Manual Integration Approval Summary

Sample Number: S6Q356-IC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24923.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 15:57 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

7.7.21.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtie
 09/26/23 13:54

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24924.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 4:11:40 PM
 Sample Name : ic356-6
 Vial : P1-A7
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	176755	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	71933	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	64537	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	61131	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	80540	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	33842	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	33598	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	36876	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	38897	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16507	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30922	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	27910	2.50 µg/L	-0.013
M3-PFHxS	7.301	402.1 -> 79.9	16859	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	15476	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2575	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	3988	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	3991	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	34277	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	46608	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	27135	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	103371	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	130677	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9662	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9054	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	14304	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	73325	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10416	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	98430	2.50 µg/L	-0.012
13C2-PFDA	8.198	515.1 -> 470.1	30929	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	34356	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	59842	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2575	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-6:2FTS	6.961	429.1 -> 80.9	3988	4.71 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.2%		
13C2-8:2FTS	7.986	529.1 -> 80.9	3991	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-PFDoDA	9.067	615.1 -> 570.0	38897	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16507	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C3-PFBS	5.546	302.1 -> 79.9	27910	2.55 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C3-PFHxS	7.301	402.1 -> 79.9	16859	2.56 µg/L	0.000

7.7.22
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C4-PFBA	2.972	216.8 -> 171.9	176755	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.556	367.1 -> 322.0	61131	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C5-PFHxA	5.629	318.0 -> 273.0	64537	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFPeA	4.409	268.3 -> 223.0	71933	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C6-PFDA	8.198	519.1 -> 474.1	33598	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C7-PFUnDA	8.651	570.0 -> 525.1	36876	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-FOSA	9.670	506.1 -> 77.8	30922	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C8-PFOA	7.186	421.1 -> 376.0	80540	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C8-PFOS	8.348	507.1 -> 79.9	15476	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C9-PFNA	7.717	472.1 -> 427.0	33842	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSAA	8.244	573.2 -> 419.0	34277	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	46608	10.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
d3-MeFOSA	10.757	515.0 -> 219.0	9054	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
d5-EtFOSAA	8.452	589.2 -> 419.0	27135	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	103371	24.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
d9-EtFOSE	10.923	639.2 -> 58.9	130677	25.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
d5-EtFOSA	10.989	531.1 -> 219.0	9662	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	204618	48.55 µg/L	98
		327.1 -> 80.9	84942		
6:2FTS	6.974	427.1 -> 407.0	173784	50.57 µg/L	99
		427.1 -> 80.9	74651		
8:2FTS	7.987	527.1 -> 507.0	120946	47.53 µg/L	91
		527.1 -> 80.8	48771		
EtFOSAA	8.452	584.2 -> 419.1	55618	12.31 µg/L	100
		584.2 -> 526.0	33279		
FOSA	9.672	498.1 -> 77.9	149164	12.69 µg/L	100
		498.1 -> 478.0	3884		
MeFOSAA	8.245	570.1 -> 419.0	75546	12.59 µg/L	95
		570.1 -> 483.0	15956		
PFBA	2.981	212.8 -> 168.9	327539	51.91 µg/L	100
PFBS	5.547	298.7 -> 79.9	101970	11.20 µg/L	98
		298.7 -> 98.8	36467		
PFDA	8.198	512.9 -> 469.0	342989	12.94 µg/L	99
		512.9 -> 219.0	56946		
PFDoDA	9.068	613.1 -> 569.0	369606	13.04 µg/L	99
		613.1 -> 319.0	45111		
PFDS	9.220	599.0 -> 79.9	46489	12.43 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	22355			
PFHpA	6.569	363.1 -> 319.0	437578	13.20	µg/L	99
		363.1 -> 169.0	63631			
PFHpS	7.856	449.0 -> 79.9	85899	12.59	µg/L	92
		449.0 -> 98.9	40307			
PFHxA	5.631	313.0 -> 269.0	293245	12.66	µg/L	99
		313.0 -> 118.9	13686			
PFHxS	7.302	398.7 -> 79.9	76427	11.65	µg/L	m 98
		398.7 -> 98.9	35891			
PFNA	7.717	463.0 -> 419.0	283563	12.95	µg/L	94
		463.0 -> 219.0	67399			
PFNS	8.802	548.8 -> 79.9	65799	12.21	µg/L	95
		548.8 -> 98.9	34587			
PFOA	7.200	413.0 -> 369.0	457449	13.23	µg/L	99
		413.0 -> 169.0	80484			
PFOS	8.350	498.9 -> 79.9	79073	11.85	µg/L	m 73
		498.9 -> 98.8	39912			
PFPeA	4.411	263.0 -> 219.0	377770	26.09	µg/L	100
PFPeS	6.608	349.1 -> 79.9	106875	11.69	µg/L	96
		349.1 -> 98.9	49450			
PFTeDA	9.772	713.1 -> 669.0	246551	12.64	µg/L	99
		713.1 -> 168.9	19599			
PFTrDA	9.440	663.0 -> 619.0	306730	12.36	µg/L	98
		663.0 -> 168.9	27276			
PFUnDA	8.652	563.1 -> 519.0	323268	13.24	µg/L	97
		563.1 -> 269.1	49828			
11CI-PF3OUdS	9.491	630.9 -> 450.9	280880	23.04	µg/L	100
		632.9 -> 452.9	91900			
9CI-PF3ONS	8.678	530.8 -> 351.0	502959	24.31	µg/L	99
		532.8 -> 353.0	158251			
ADONA	6.804	376.9 -> 250.9	1378512	24.07	µg/L	100
		376.9 -> 84.8	398376			
HFPO-DA	6.007	284.9 -> 168.9	112090	24.44	µg/L	98
		284.9 -> 184.9	10870			
3:3FTCA	3.846	241.0 -> 177.0	65097	63.54	µg/L	99
		241.0 -> 117.0	7434			
5:3FTCA	6.271	341.0 -> 237.1	1327406	304.81	µg/L	96
		341.0 -> 217.0	965655			
7:3FTCA	7.669	441.0 -> 316.9	751707	304.69	µg/L	80
		441.0 -> 336.9	1740516			
EtFOSA	10.990	526.0 -> 219.0	125479	26.14	µg/L	97
		526.0 -> 169.0	157347			
EtFOSE	10.924	630.0 -> 58.9	335986	64.04	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	104343	25.61	µg/L	99
		511.9 -> 169.0	147364			
MeFOSE	10.691	616.1 -> 58.9	321320	70.15	µg/L	100
PFDoS	9.898	699.1 -> 79.9	27691	12.40	µg/L	95
		699.1 -> 98.8	15383			
NFDHA	5.512	295.0 -> 201.0	75022	25.21	µg/L	99
		295.0 -> 84.9	20239			
PFMBA	4.838	279.0 -> 85.1	300710	25.84	µg/L	100
PFMPA	3.538	229.0 -> 84.9	222964	25.80	µg/L	100
PFEESA	6.100	314.8 -> 134.9	645666	22.41	µg/L	100
		314.8 -> 82.9	24106			

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

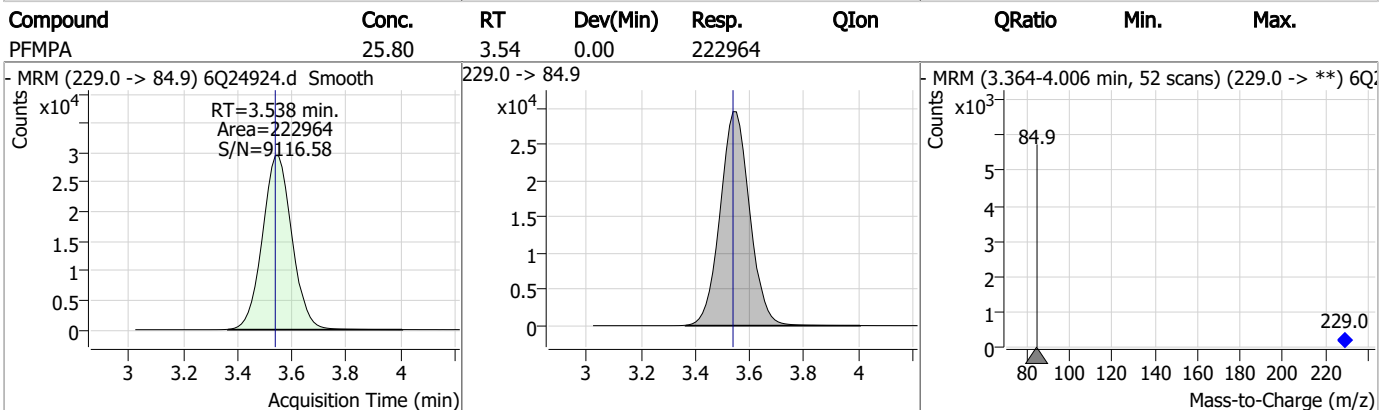
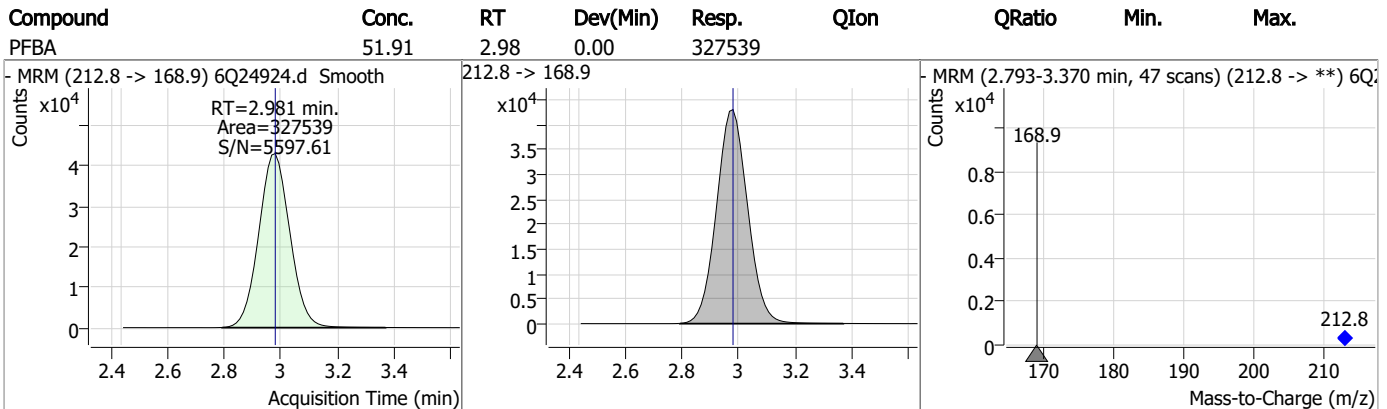
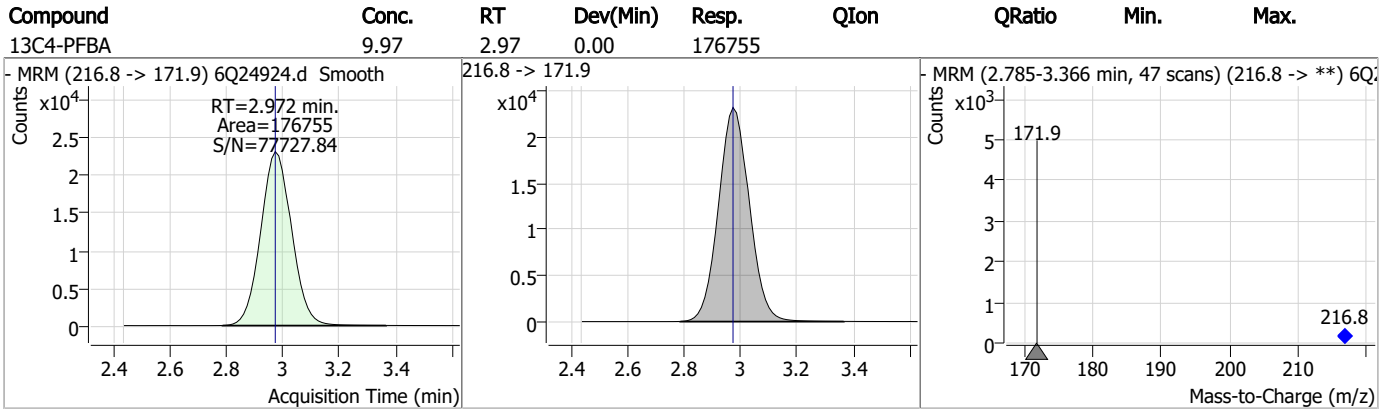
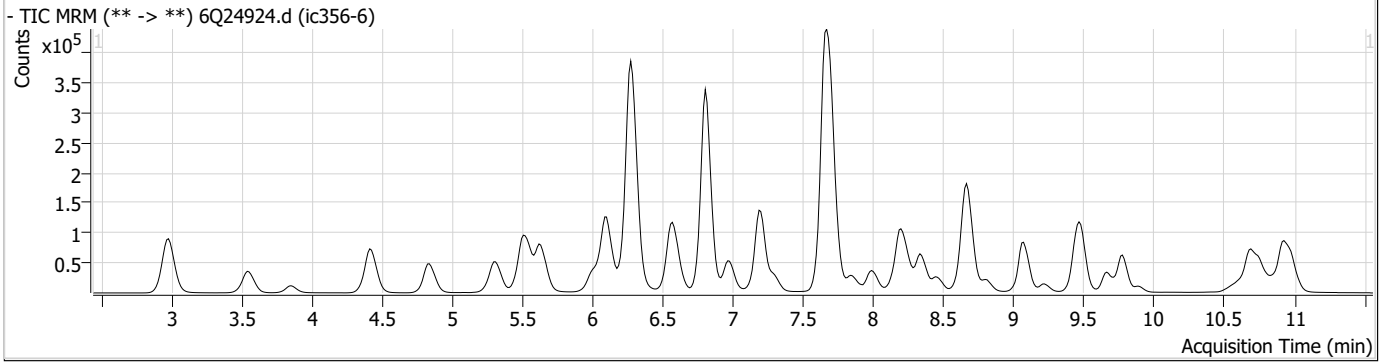
Perfluorinated Compounds by LC/MS/MS

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

7.7.22

7

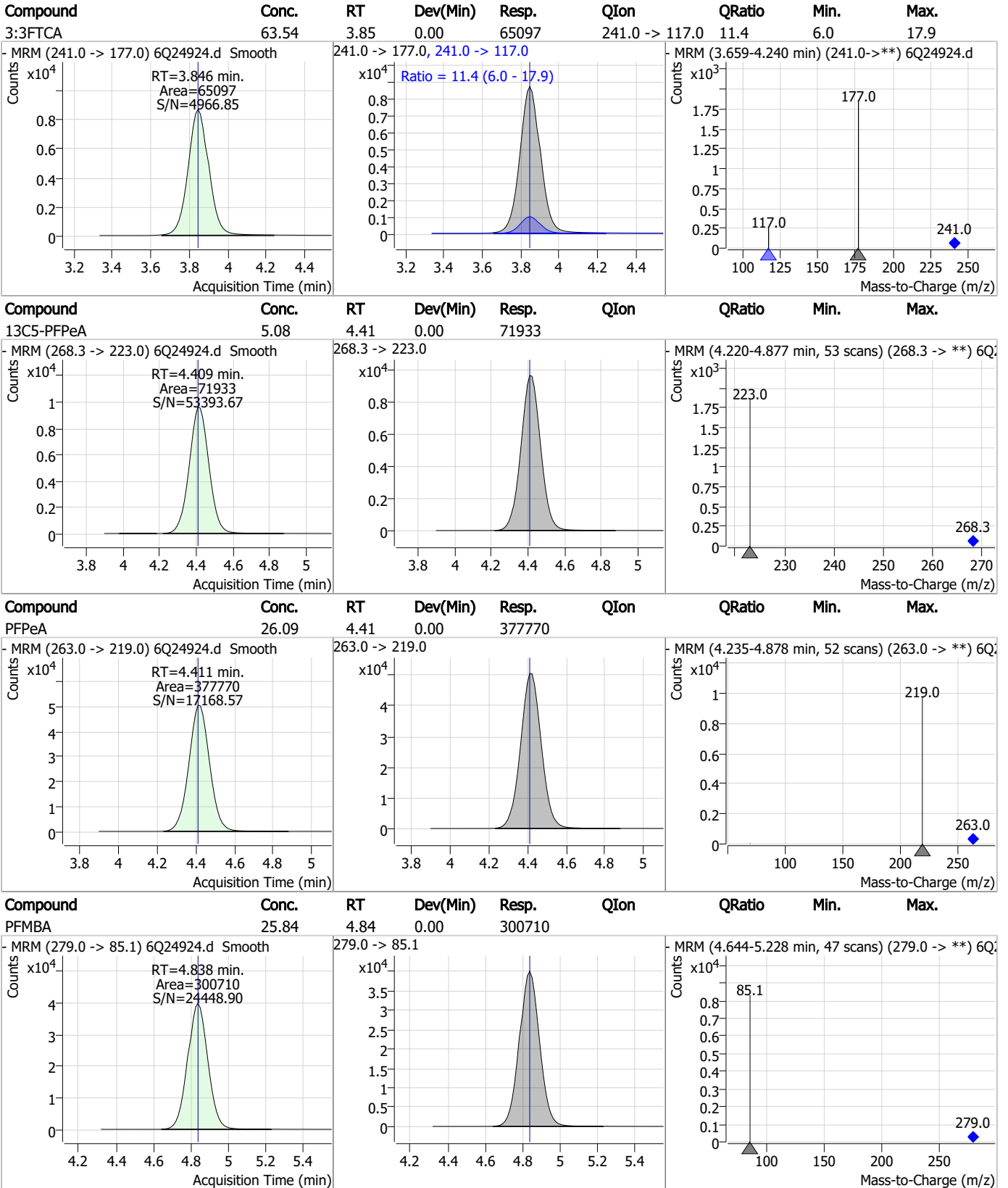
Perfluorinated Compounds by LC/MS/MS



7.7.22

7

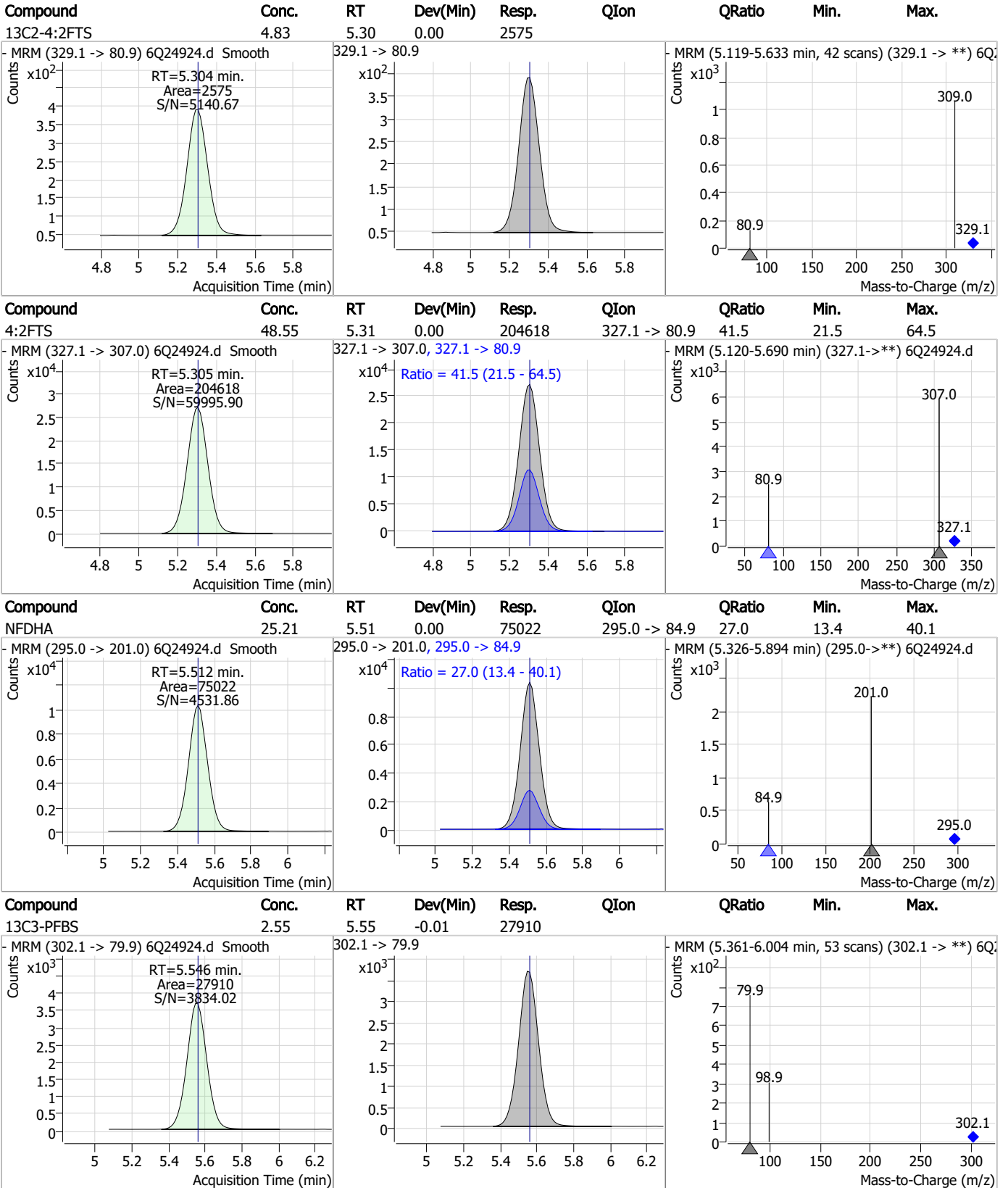
Perfluorinated Compounds by LC/MS/MS



7.7.22

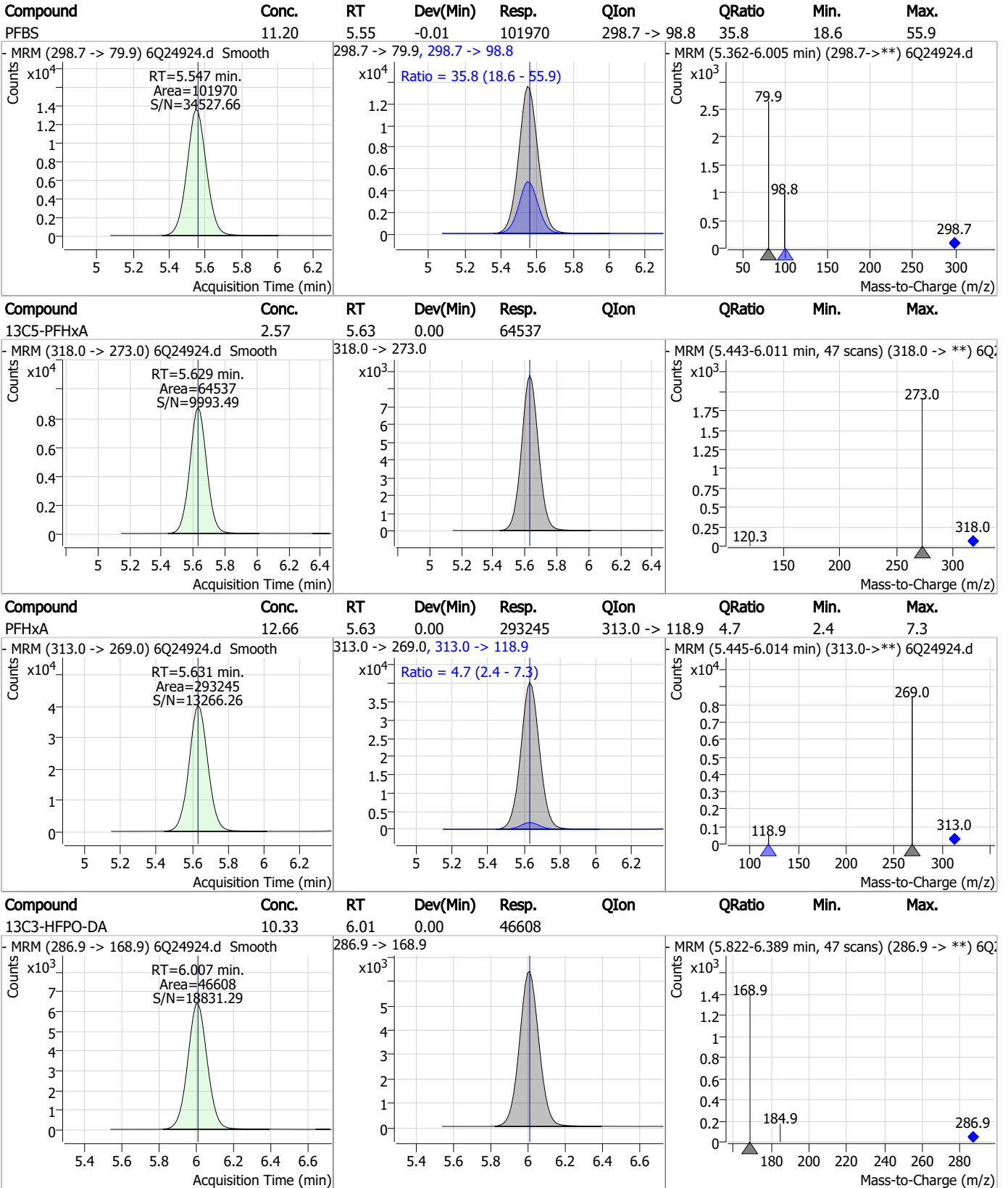
7

Perfluorinated Compounds by LC/MS/MS



7.7.22 7

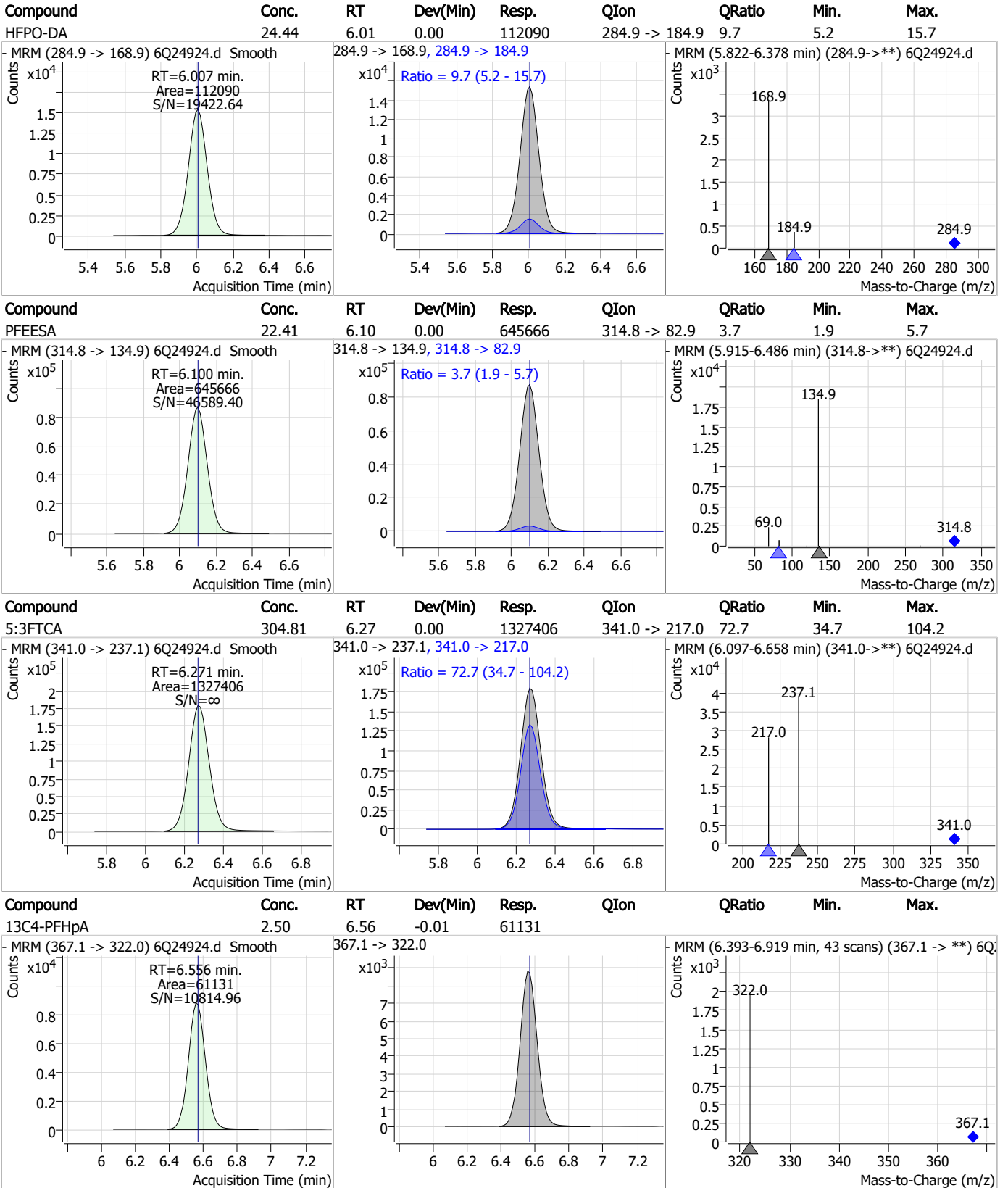
Perfluorinated Compounds by LC/MS/MS



7.7.22 7



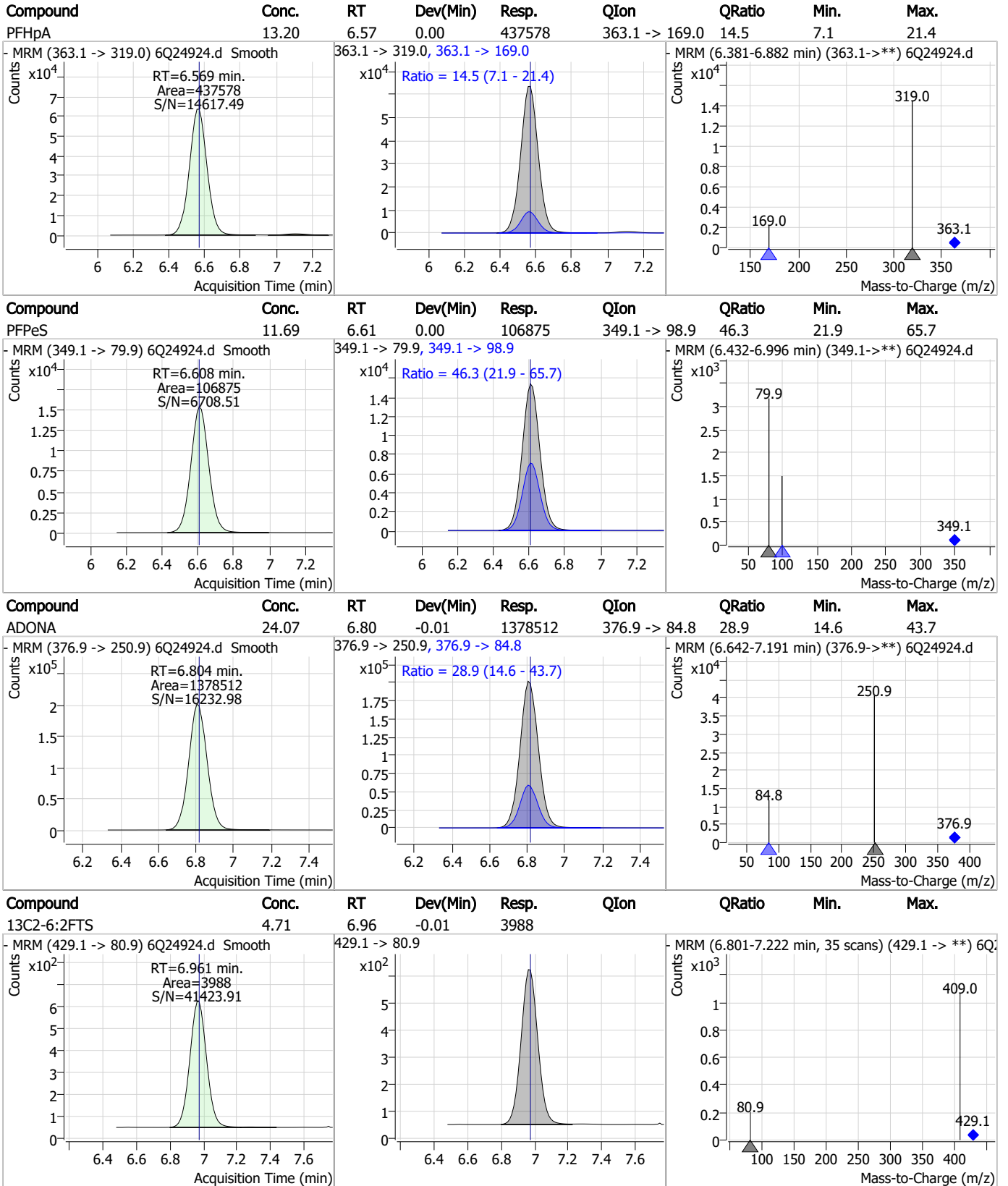
Perfluorinated Compounds by LC/MS/MS



7.7.22

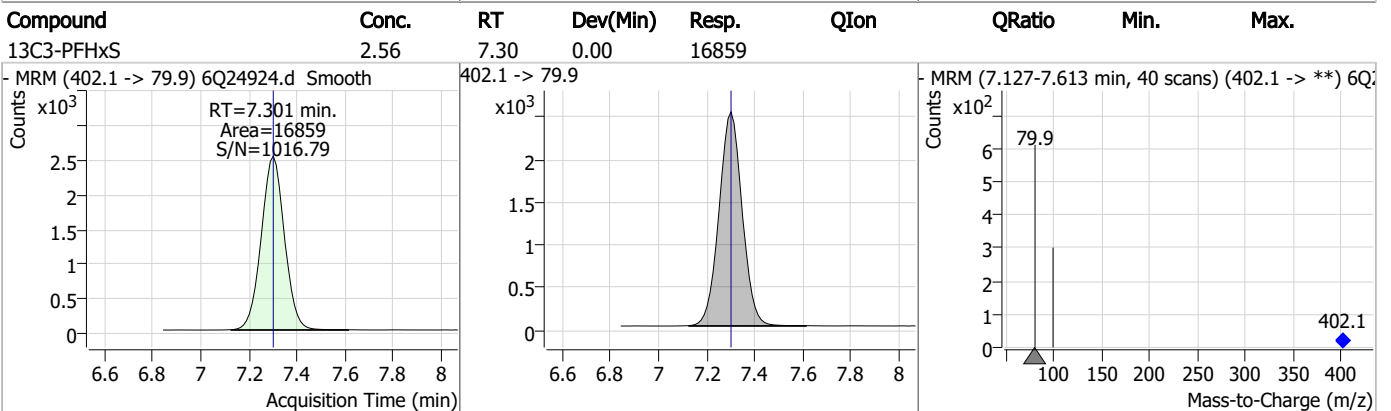
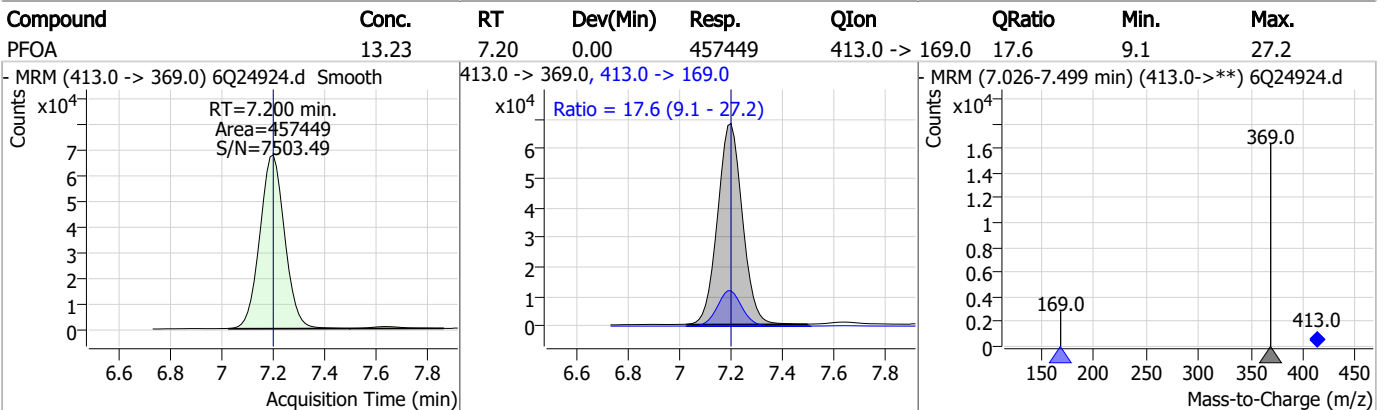
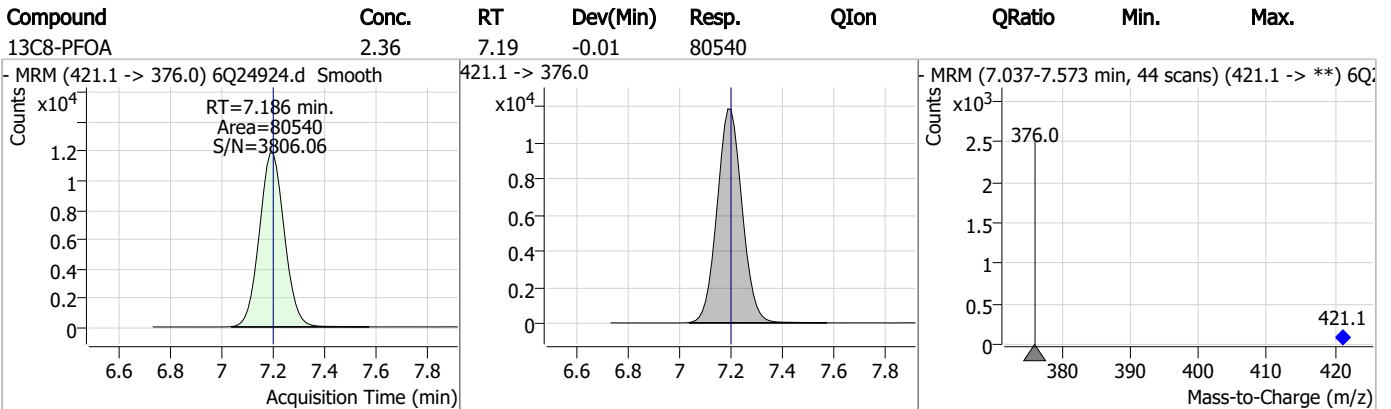
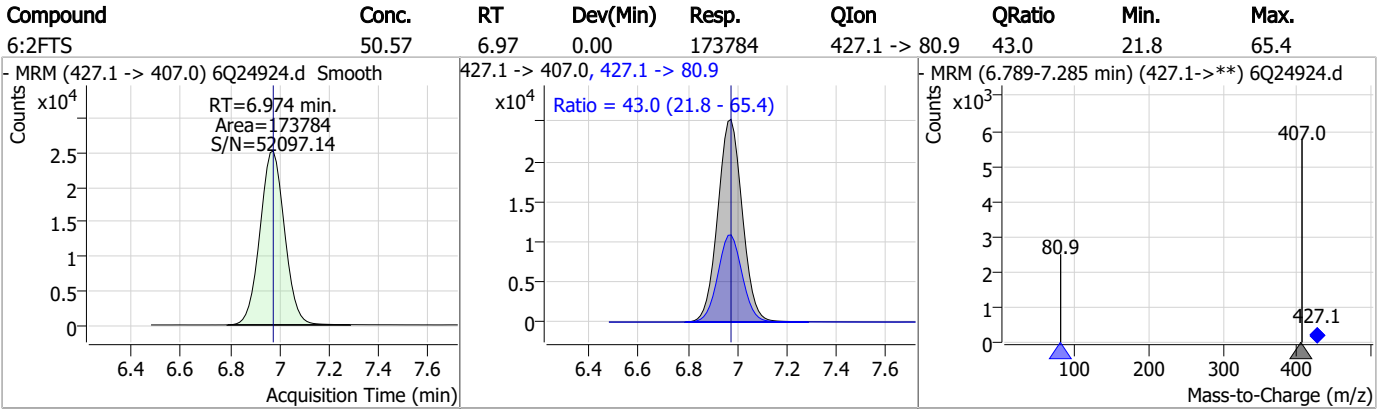
7

Perfluorinated Compounds by LC/MS/MS

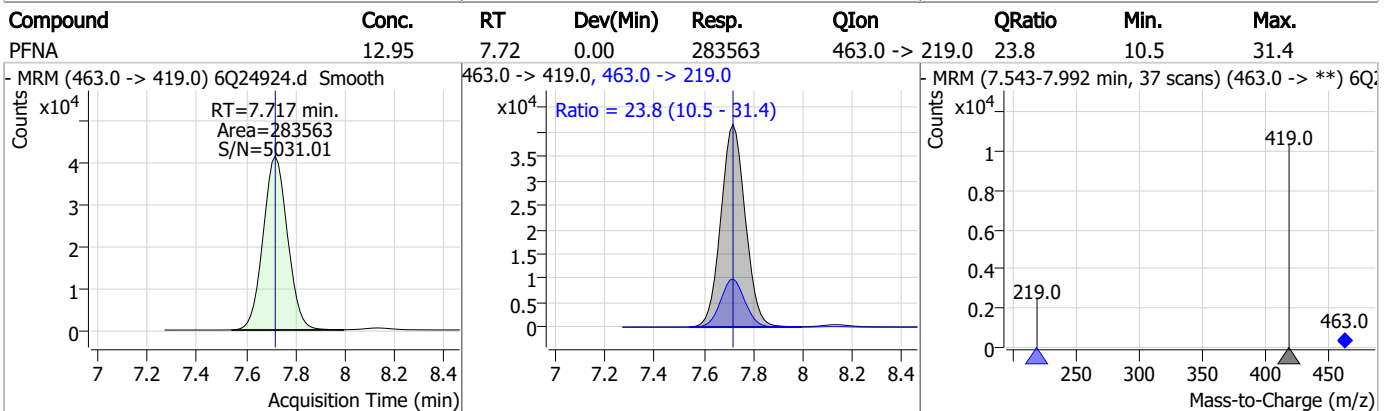
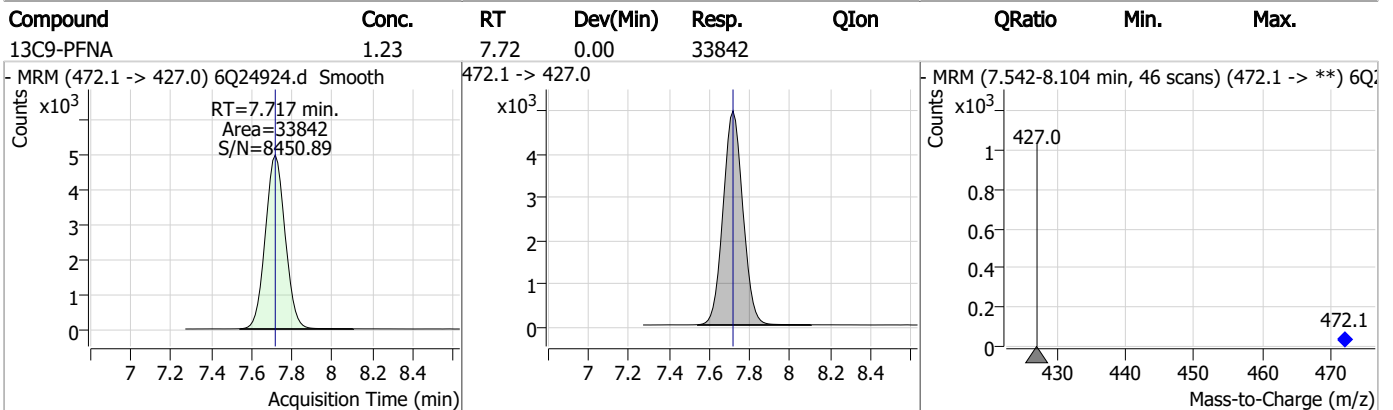
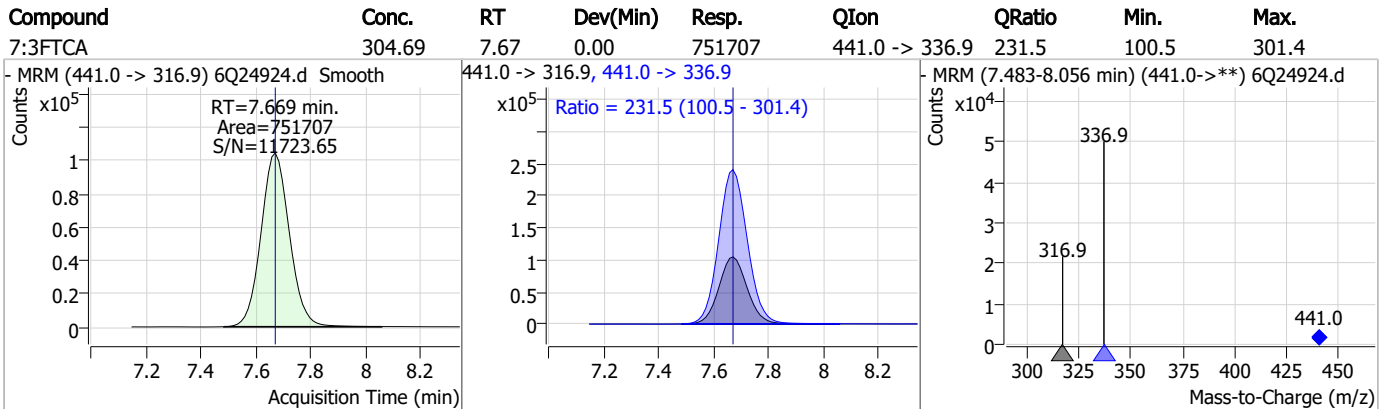
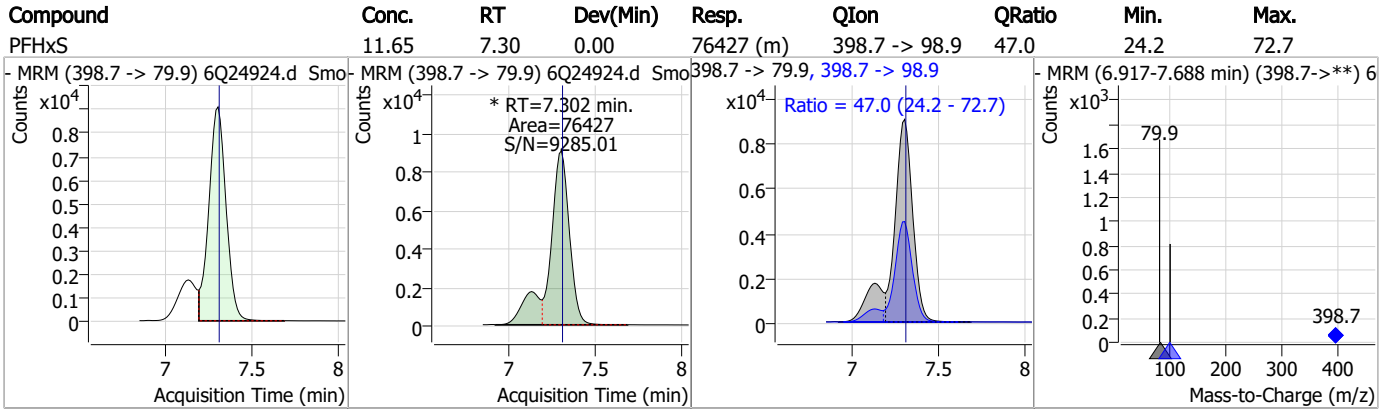


7.7.22 7

Perfluorinated Compounds by LC/MS/MS

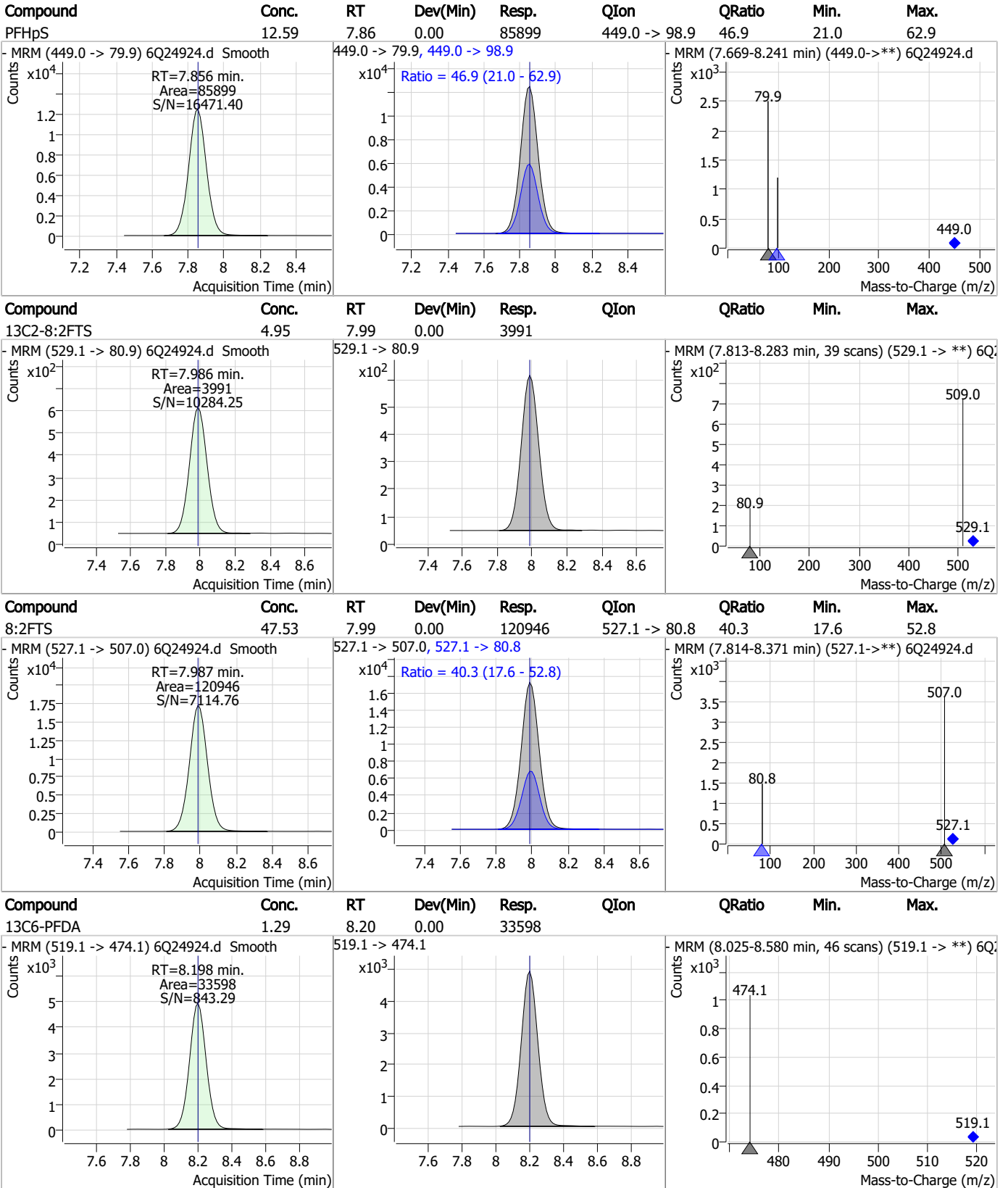


Perfluorinated Compounds by LC/MS/MS



7.7.22 7

Perfluorinated Compounds by LC/MS/MS

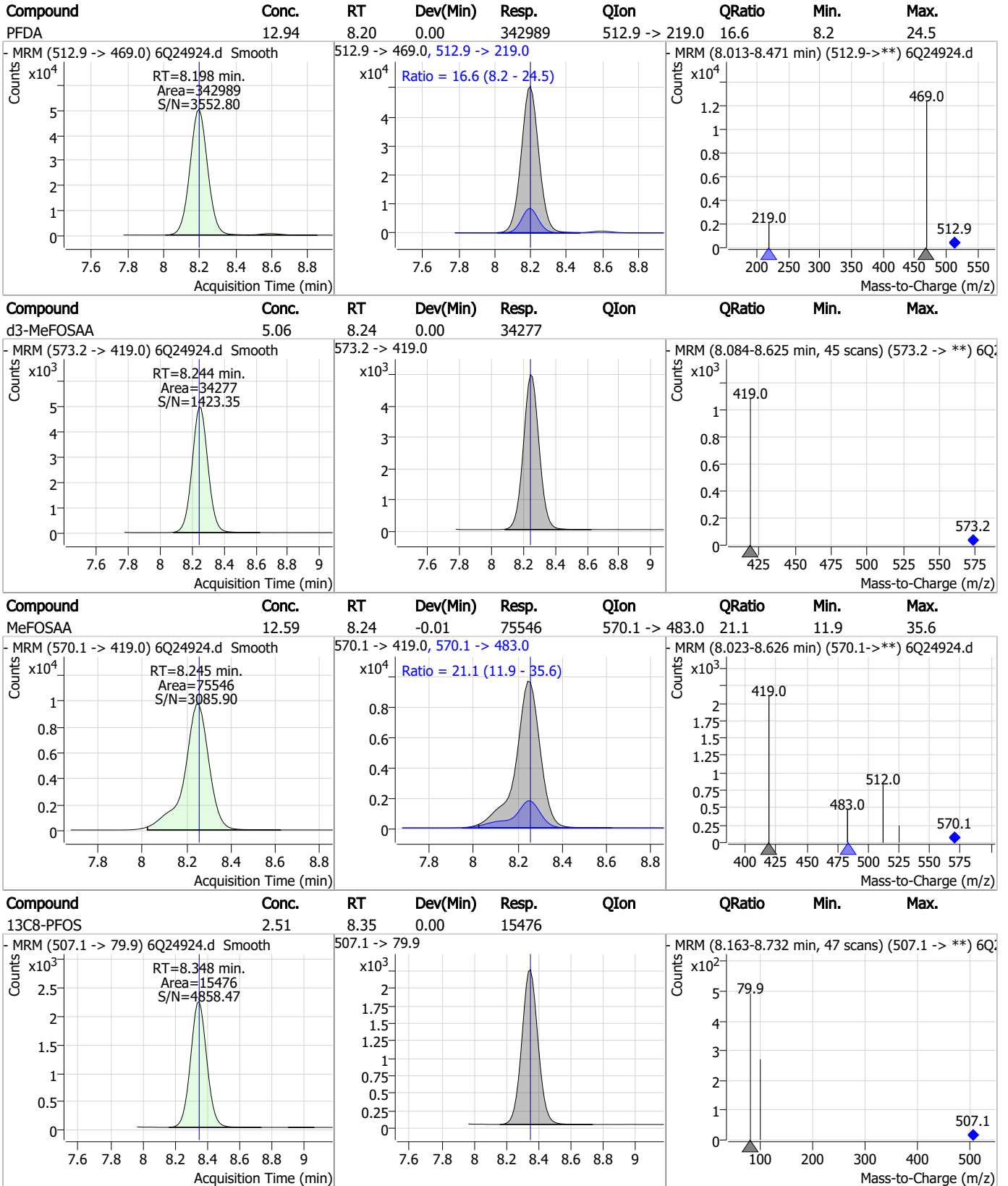


7.7.22

7



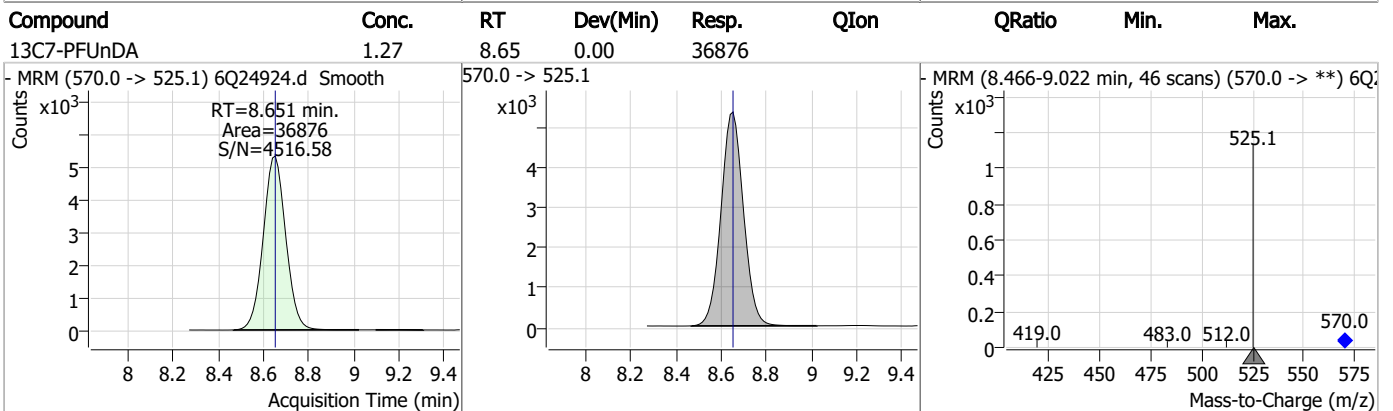
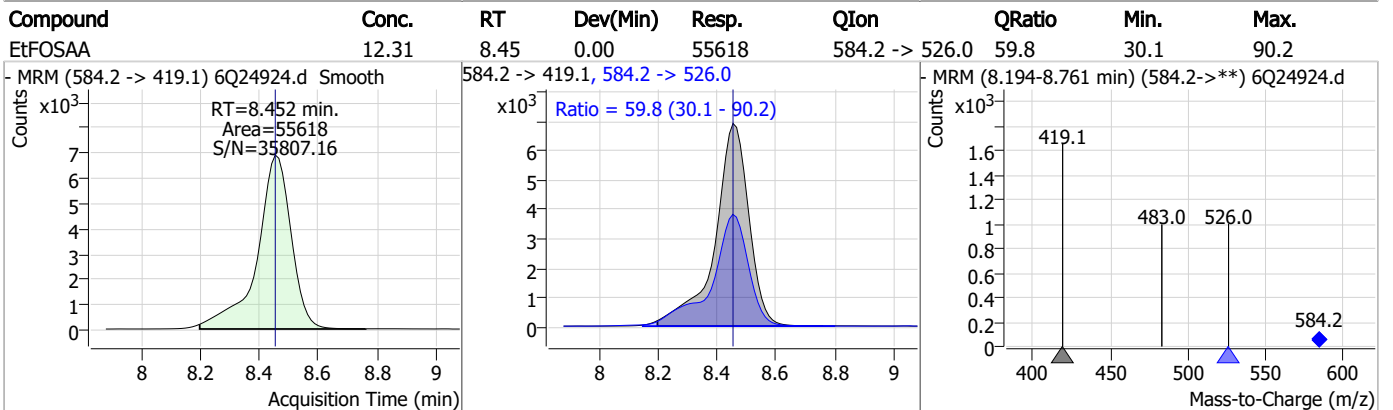
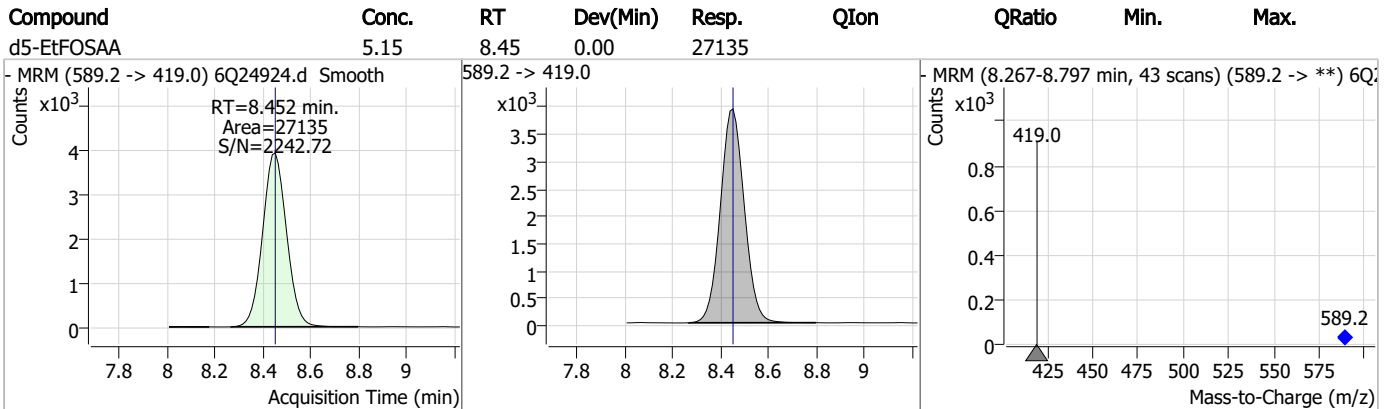
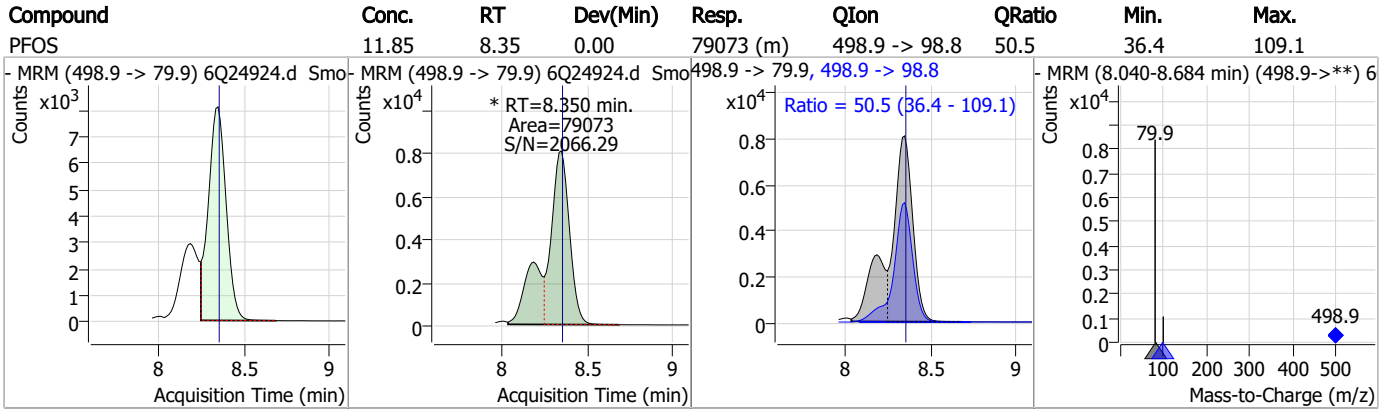
Perfluorinated Compounds by LC/MS/MS



7.7.22 7



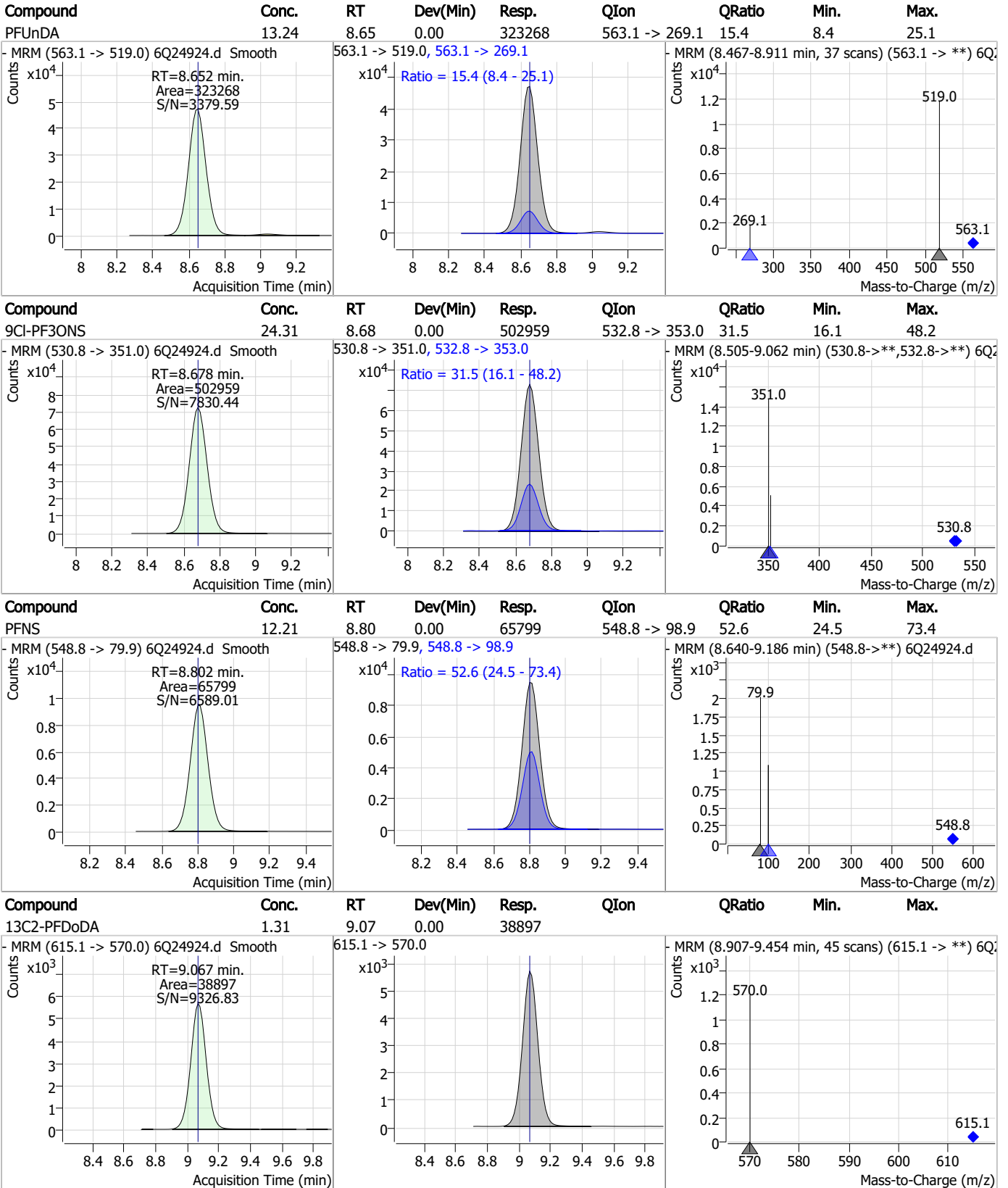
Perfluorinated Compounds by LC/MS/MS



7.7.22

7

Perfluorinated Compounds by LC/MS/MS

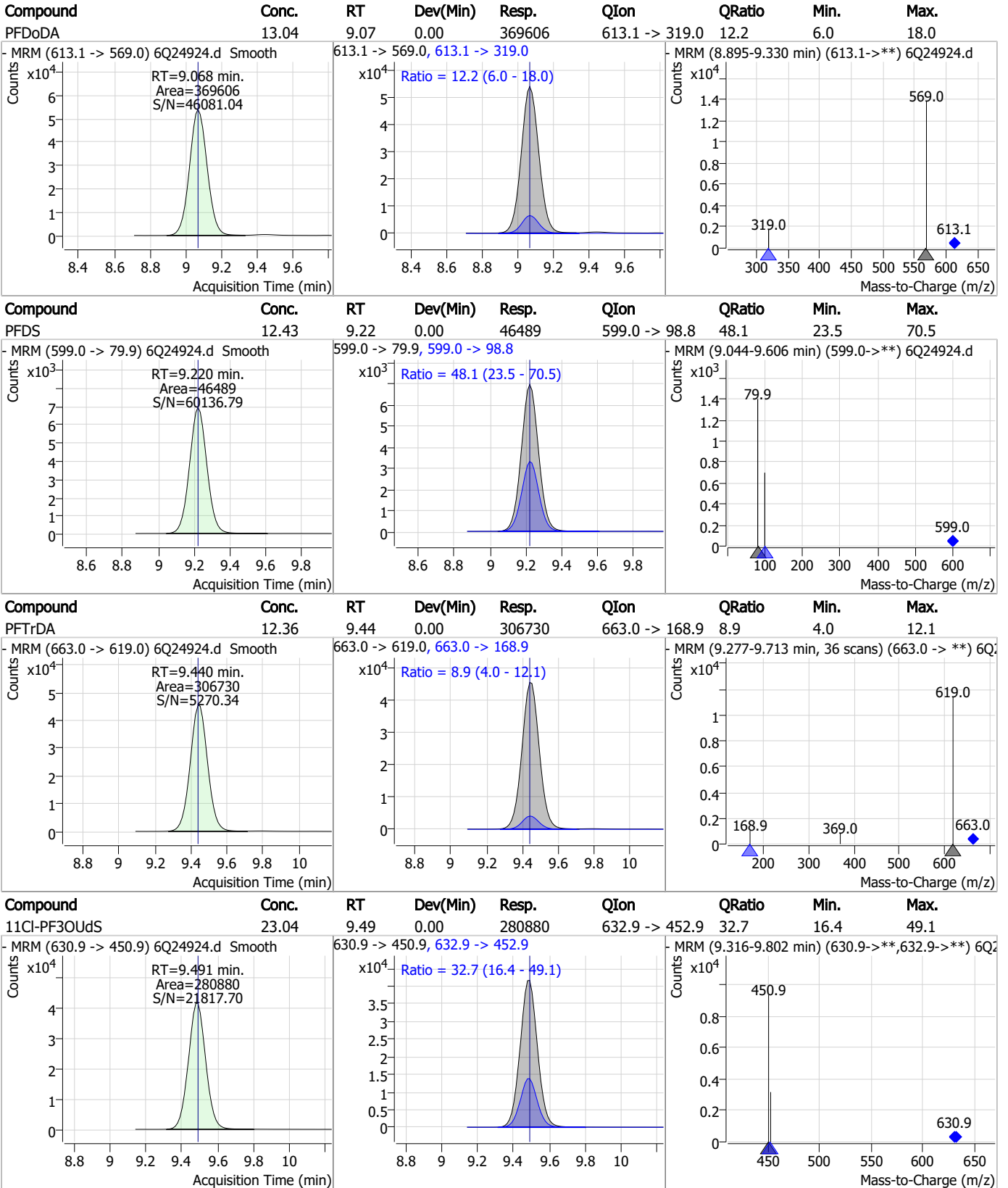


7.7.22

7



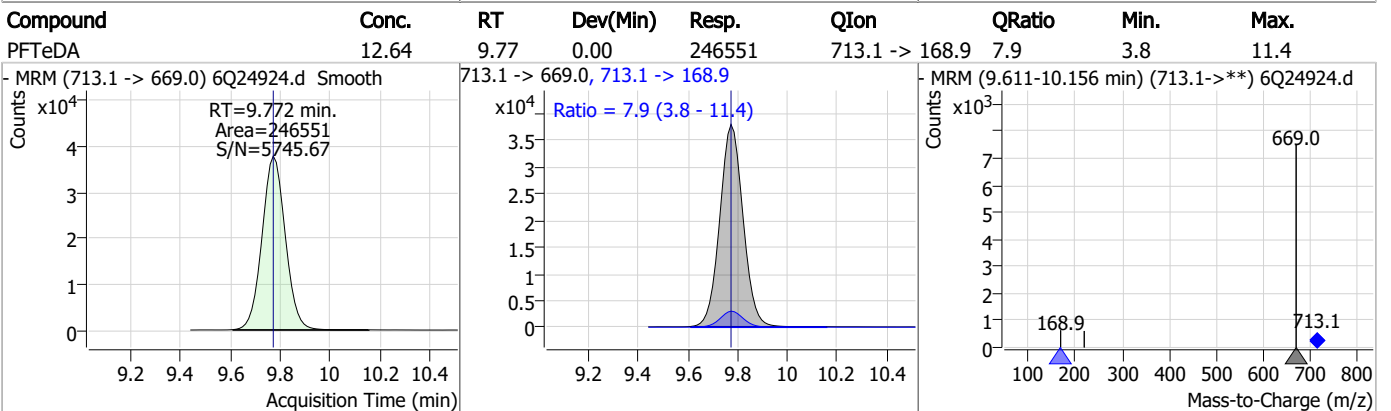
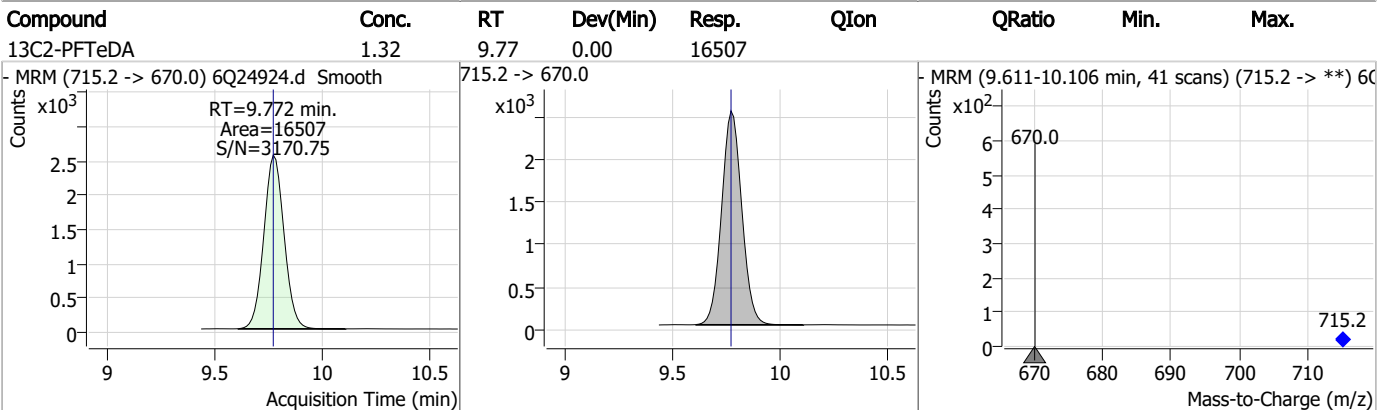
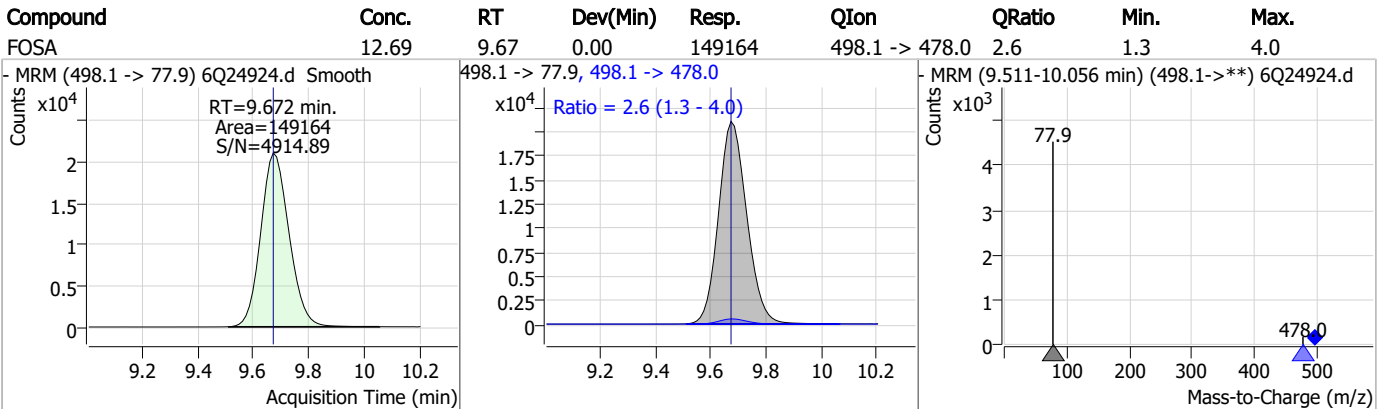
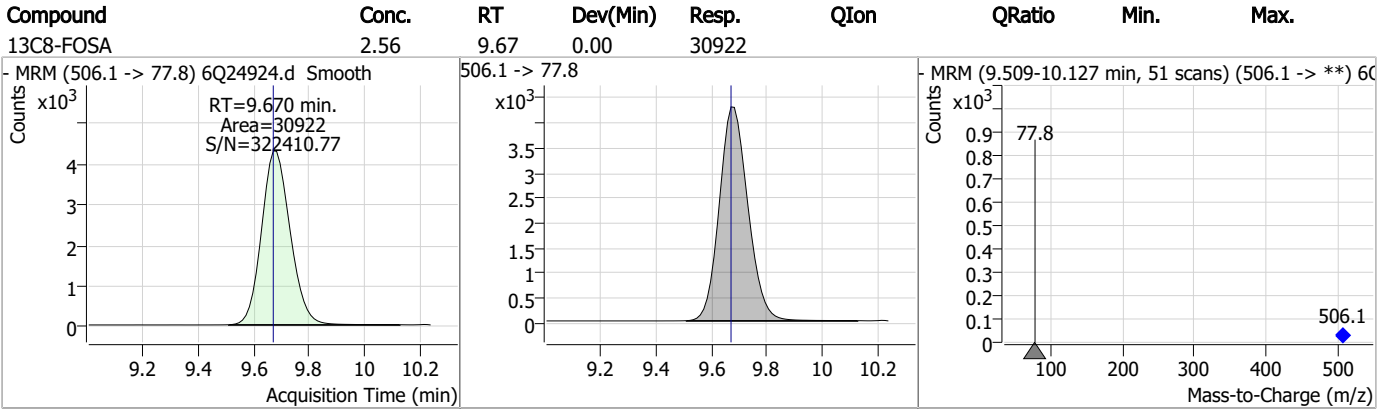
Perfluorinated Compounds by LC/MS/MS



7.7.22

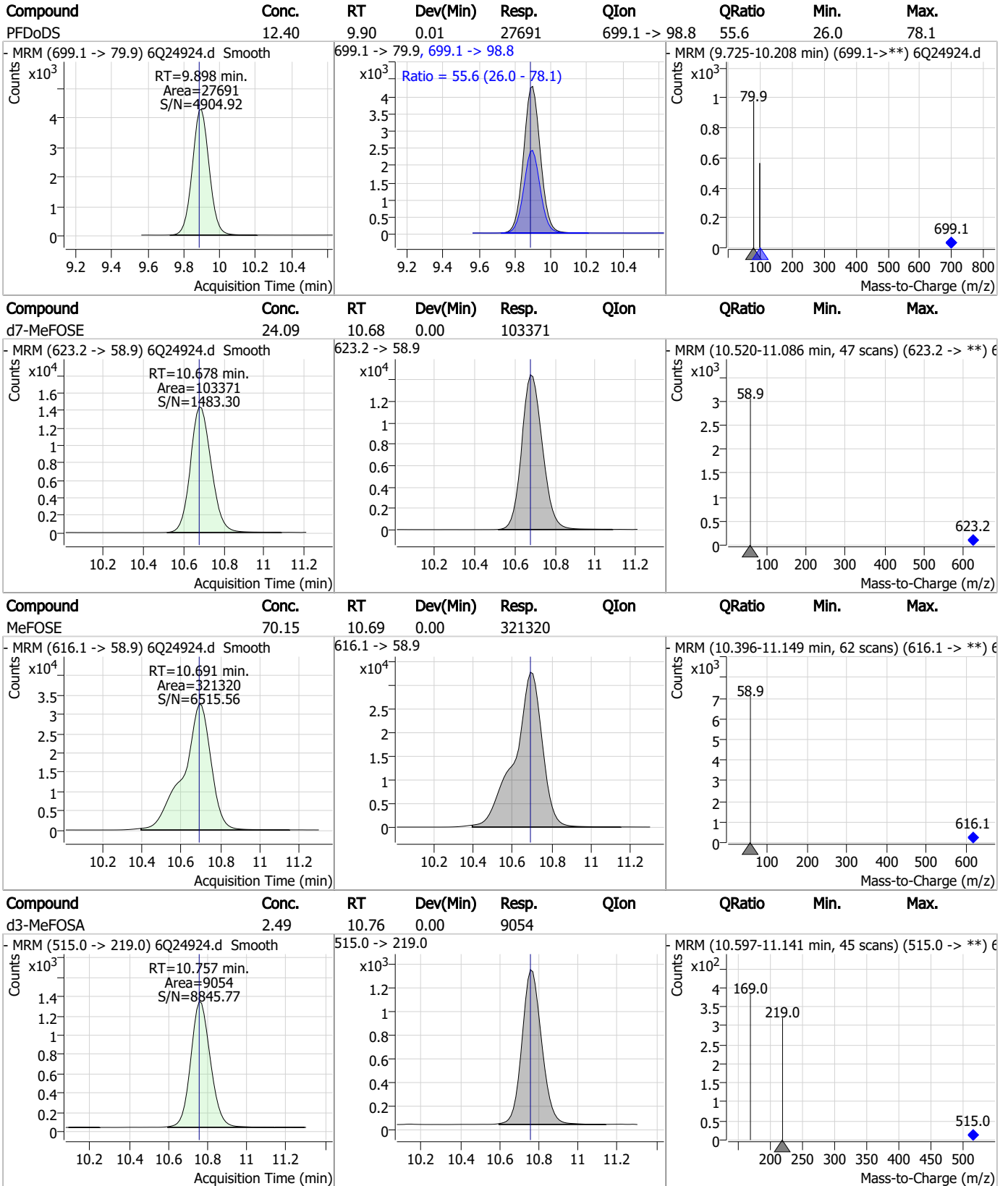
7

Perfluorinated Compounds by LC/MS/MS



7.7.22 7

Perfluorinated Compounds by LC/MS/MS

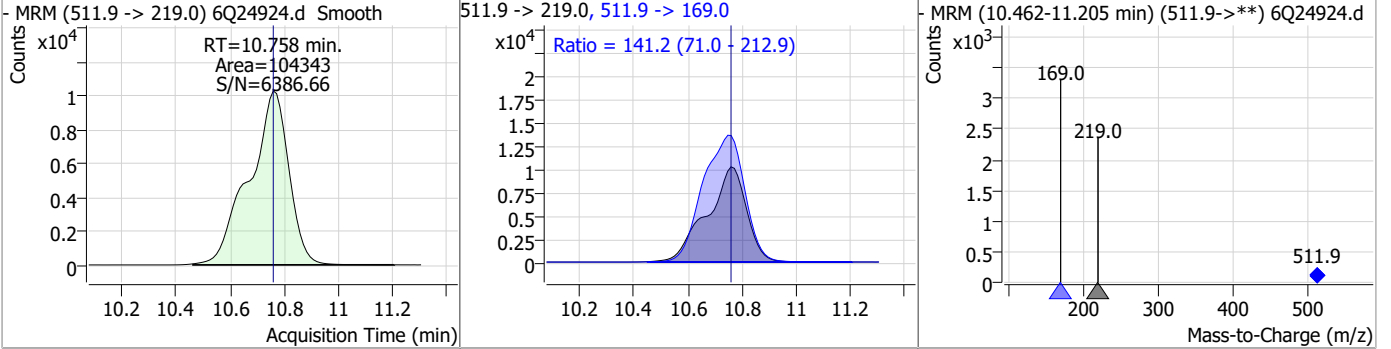


7.7.22

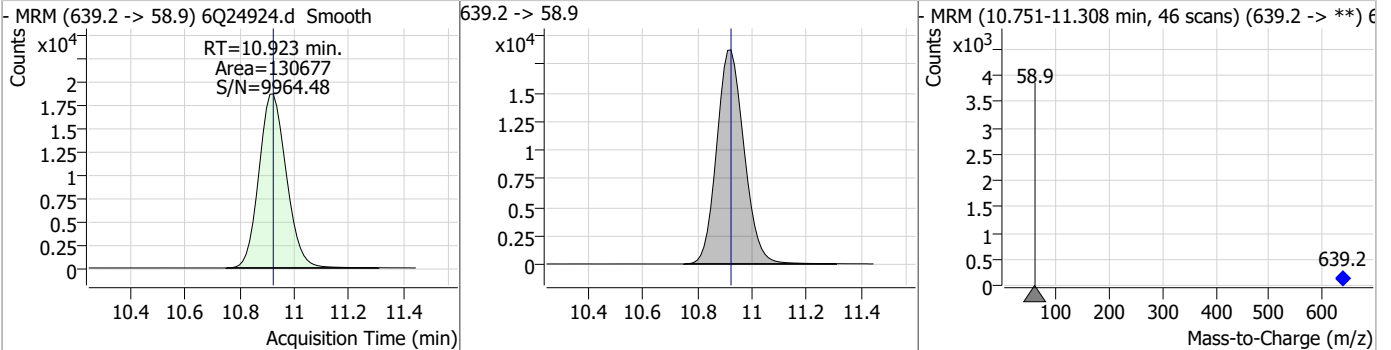
7

Perfluorinated Compounds by LC/MS/MS

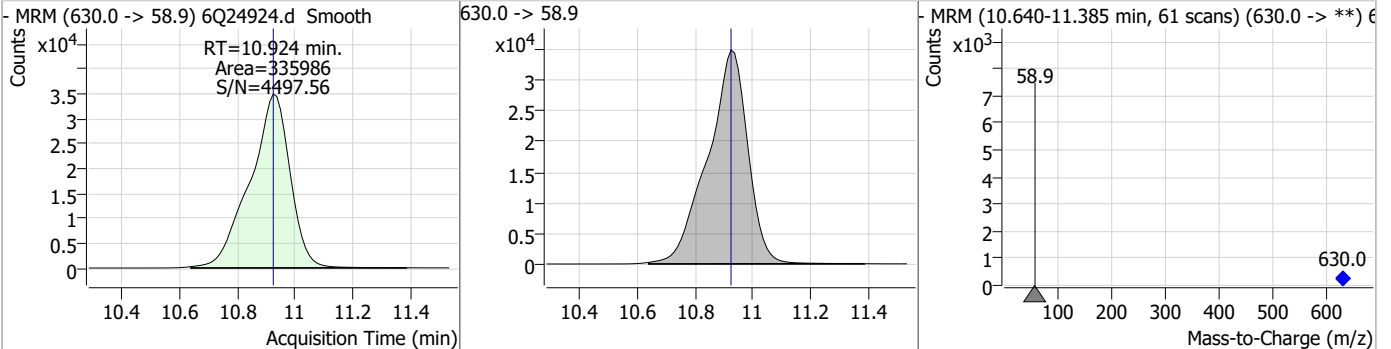
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	25.61	10.76	0.00	104343	511.9 -> 169.0	141.2	71.0	212.9



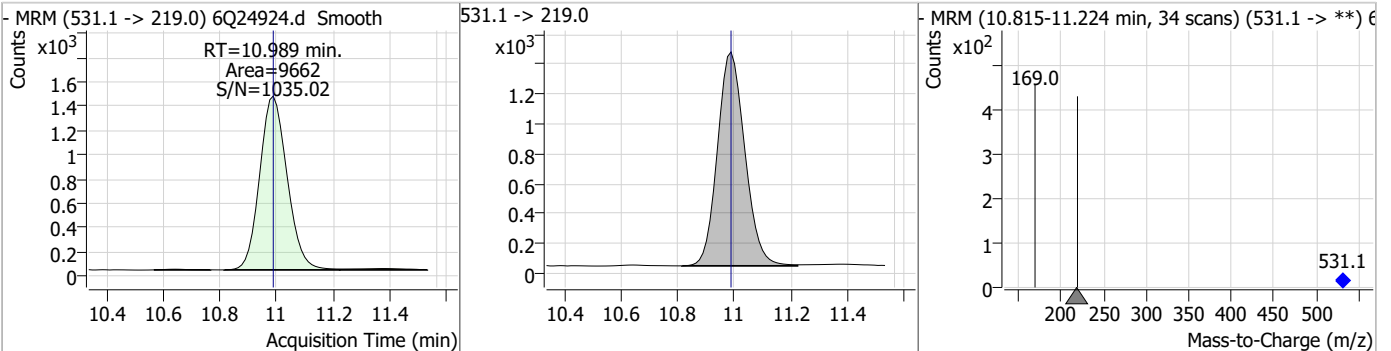
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.03	10.92	0.00	130677				



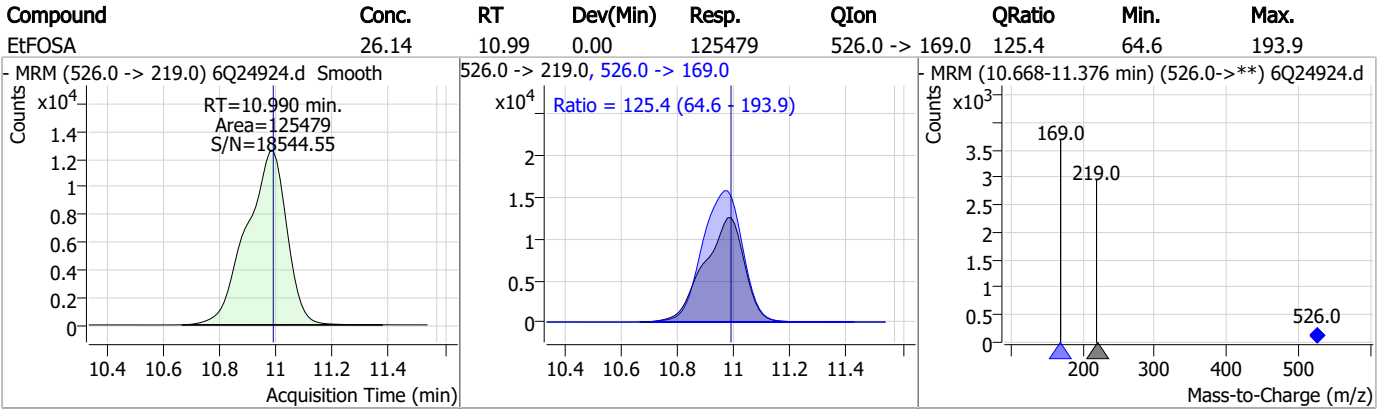
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	64.04	10.92	0.00	335986				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.52	10.99	0.00	9662				



Perfluorinated Compounds by LC/MS/MS



7.7.22

7

Manual Integration Approval Summary

Sample Number: S6Q356-IC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24924.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 16:11 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.7.22.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 09/26/23 13:54

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24925.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 4:26:00 PM
 Sample Name : ic356-7
 Vial : P1-A8
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	171355	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	70089	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	62892	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	60997	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	79562	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	33918	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	32776	1.25 µg/L	0.000
M7-PFUnDA	8.639	570.0 -> 525.1	36764	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	36456	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16256	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30763	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	26018	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	16631	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	15587	2.50 µg/L	0.000
M2-4:2FTS	5.292	329.1 -> 80.9	2398	5.00 µg/L	-0.012
M2-6:2FTS	6.974	429.1 -> 80.9	3849	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	3728	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	34170	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	45134	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	25330	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	106425	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	128815	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9563	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	9409	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	14780	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	71434	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10618	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	94741	2.50 µg/L	-0.012
13C2-PFDA	8.198	515.1 -> 470.1	34733	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	33077	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	60792	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.292	329.1 -> 80.9	2398	4.42 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.3%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3849	4.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.2%		
13C2-8:2FTS	7.986	529.1 -> 80.9	3728	4.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.8%		
13C2-PFDoDA	9.067	615.1 -> 570.0	36456	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.8%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16256	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C3-PFBS	5.559	302.1 -> 79.9	26018	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C3-PFHxS	7.301	402.1 -> 79.9	16631	2.48 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 = 99.0%	
13C4-PFBA	2.972	216.8 -> 171.9	171355	9.93 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C4-PFHpA	6.556	367.1 -> 322.0	60997	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFHxA	5.629	318.0 -> 273.0	62892	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFPeA	4.409	268.3 -> 223.0	70089	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C6-PFDA	8.198	519.1 -> 474.1	32776	1.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.8%	
13C7-PFUnDA	8.639	570.0 -> 525.1	36764	1.13 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.1%	
13C8-FOSA	9.670	506.1 -> 77.8	30763	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C8-PFOA	7.186	421.1 -> 376.0	79562	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C8-PFOS	8.348	507.1 -> 79.9	15587	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C9-PFNA	7.717	472.1 -> 427.0	33918	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.0%	
d3-MeFOSAA	8.244	573.2 -> 419.0	34170	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	45134	9.85 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
d3-MeFOSA	10.769	515.0 -> 219.0	9409	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
d5-EtFOSAA	8.452	589.2 -> 419.0	25330	4.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.1%	
d7-MeFOSE	10.678	623.2 -> 58.9	106425	24.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
d9-EtFOSE	10.923	639.2 -> 58.9	128815	23.88 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
d5-EtFOSA	10.989	531.1 -> 219.0	9563	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	378278	96.40 µg/L	98
		327.1 -> 80.9	158209		
6:2FTS	6.962	427.1 -> 407.0	316612	95.46 µg/L	98
		427.1 -> 80.9	134015		
8:2FTS	7.987	527.1 -> 507.0	239963	100.97 µg/L	93
		527.1 -> 80.8	94126		
EtFOSAA	8.453	584.2 -> 419.1	111461	26.43 µg/L	99
		584.2 -> 526.0	66528		
FOSA	9.672	498.1 -> 77.9	294719	25.20 µg/L	100
		498.1 -> 478.0	7956		
MeFOSAA	8.245	570.1 -> 419.0	148339	24.80 µg/L	93
		570.1 -> 483.0	30105		
PFBA	2.981	212.8 -> 168.9	629252	102.86 µg/L	100
PFBS	5.547	298.7 -> 79.9	191705	22.59 µg/L	100
		298.7 -> 98.8	71789		
PFDA	8.198	512.9 -> 469.0	652348	25.22 µg/L	100
		512.9 -> 219.0	105077		
PFDoDA	9.068	613.1 -> 569.0	710659	26.76 µg/L	98
		613.1 -> 319.0	89920		
PFDS	9.220	599.0 -> 79.9	91294	24.23 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	43261			
PFHpA	6.557	363.1 -> 319.0	840715	25.41	µg/L	99
		363.1 -> 169.0	124761			
PFHpS	7.856	449.0 -> 79.9	169378	24.64	µg/L	94
		449.0 -> 98.9	77635			
PFHxA	5.631	313.0 -> 269.0	574596	25.45	µg/L	100
		313.0 -> 118.9	27421			
PFHxS	7.302	398.7 -> 79.9	144027	22.25	µg/L	m 96
		398.7 -> 98.9	73886			
PFNA	7.717	463.0 -> 419.0	548428	24.99	µg/L	92
		463.0 -> 219.0	133895			
PFNS	8.802	548.8 -> 79.9	133787	24.65	µg/L	97
		548.8 -> 98.9	68335			
PFOA	7.187	413.0 -> 369.0	907528	26.57	µg/L	98
		413.0 -> 169.0	158044			
PFOS	8.350	498.9 -> 79.9	153034	22.76	µg/L	75
		498.9 -> 98.8	79961			
PFPeA	4.411	263.0 -> 219.0	726959	51.52	µg/L	100
PFPeS	6.608	349.1 -> 79.9	217945	24.17	µg/L	100
		349.1 -> 98.9	95616			
PFTeDA	9.772	713.1 -> 669.0	465555	24.23	µg/L	98
		713.1 -> 168.9	38257			
PFTrDA	9.440	663.0 -> 619.0	607711	26.12	µg/L	99
		663.0 -> 168.9	52361			
PFUnDA	8.652	563.1 -> 519.0	618232	25.39	µg/L	98
		563.1 -> 269.1	98554			
11Cl-PF3OUdS	9.479	630.9 -> 450.9	572987	48.53	µg/L	97
		632.9 -> 452.9	177871			
9Cl-PF3ONS	8.678	530.8 -> 351.0	923202	46.08	µg/L	100
		532.8 -> 353.0	298253			
ADONA	6.804	376.9 -> 250.9	2689204	48.48	µg/L	98
		376.9 -> 84.8	757721			
HFPO-DA	6.007	284.9 -> 168.9	225421	50.75	µg/L	98
		284.9 -> 184.9	22319			
3:3FTCA	3.846	241.0 -> 177.0	127912	128.79	µg/L	99
		241.0 -> 117.0	14925			
5:3FTCA	6.271	341.0 -> 237.1	2637546	621.49	µg/L	98
		341.0 -> 217.0	1800003			
7:3FTCA	7.669	441.0 -> 316.9	1520975	632.62	µg/L	88
		441.0 -> 336.9	3325535			
EtFOSA	10.990	526.0 -> 219.0	237589	50.00	µg/L	98
		526.0 -> 169.0	311588			
EtFOSE	10.924	630.0 -> 58.9	659242	127.46	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	212446	50.17	µg/L	97
		511.9 -> 169.0	292355			
MeFOSE	10.691	616.1 -> 58.9	594974	126.17	µg/L	100
PFDoS	9.886	699.1 -> 79.9	54001	24.01	µg/L	98
		699.1 -> 98.8	28908			
NFDHA	5.512	295.0 -> 201.0	141888	48.93	µg/L	99
		295.0 -> 84.9	38835			
PFMBA	4.838	279.0 -> 85.1	584119	51.52	µg/L	100
PFMPA	3.538	229.0 -> 84.9	437878	52.01	µg/L	100
PFEESA	6.100	314.8 -> 134.9	1272367	45.33	µg/L	100
		314.8 -> 82.9	49832			

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

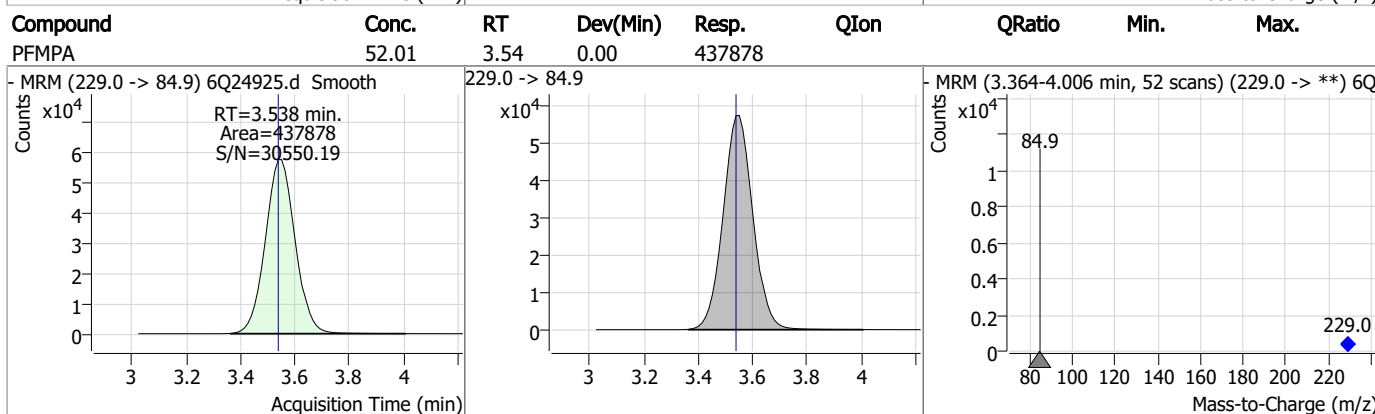
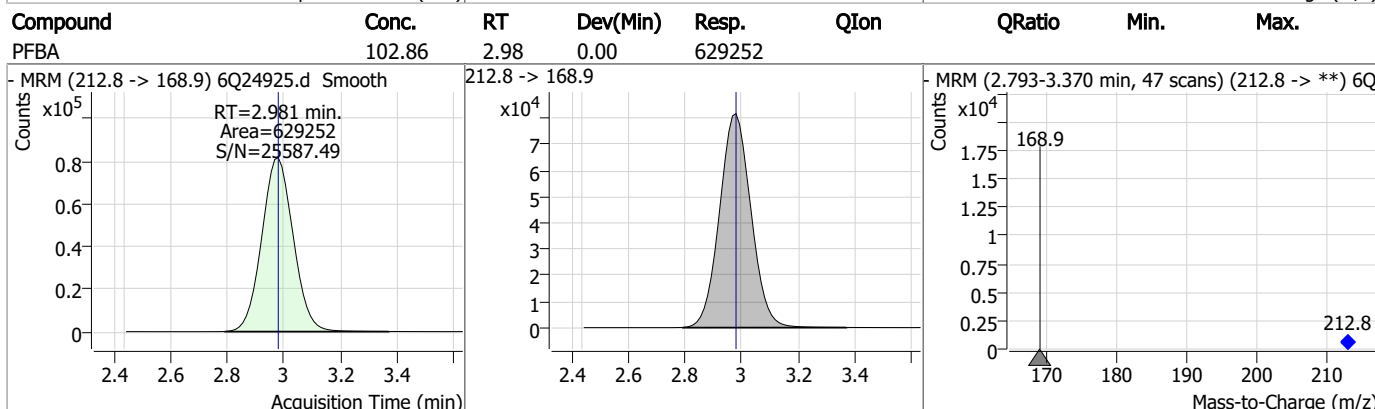
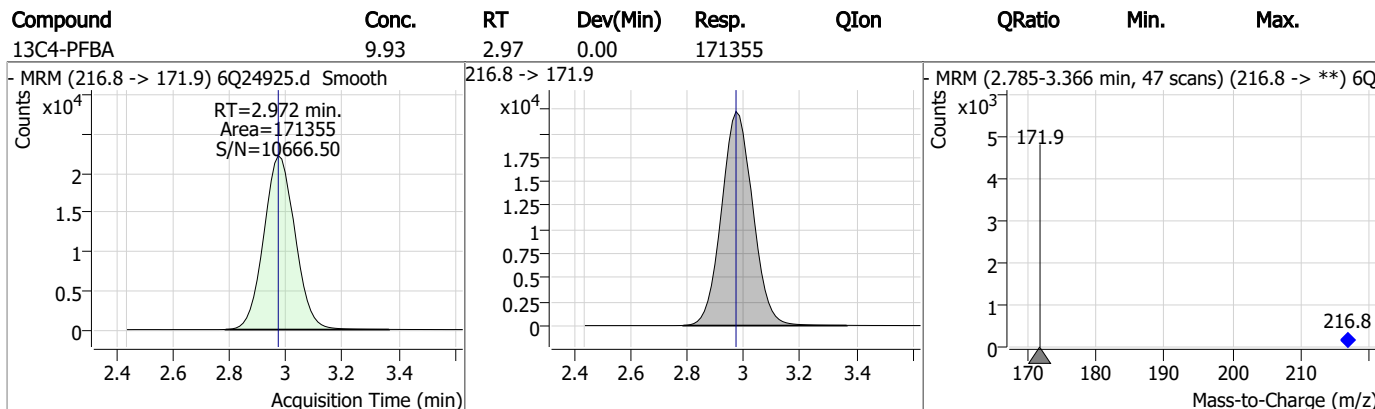
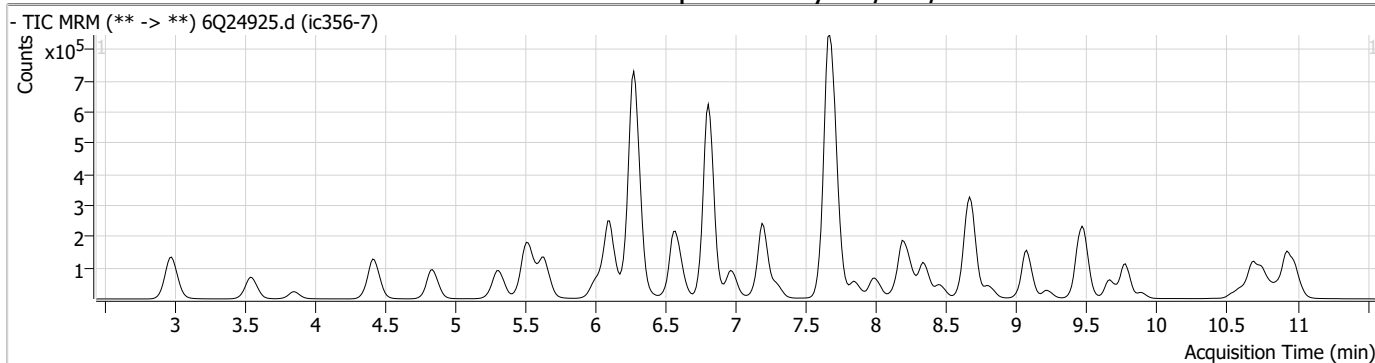
Perfluorinated Compounds by LC/MS/MS

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

7.7.23

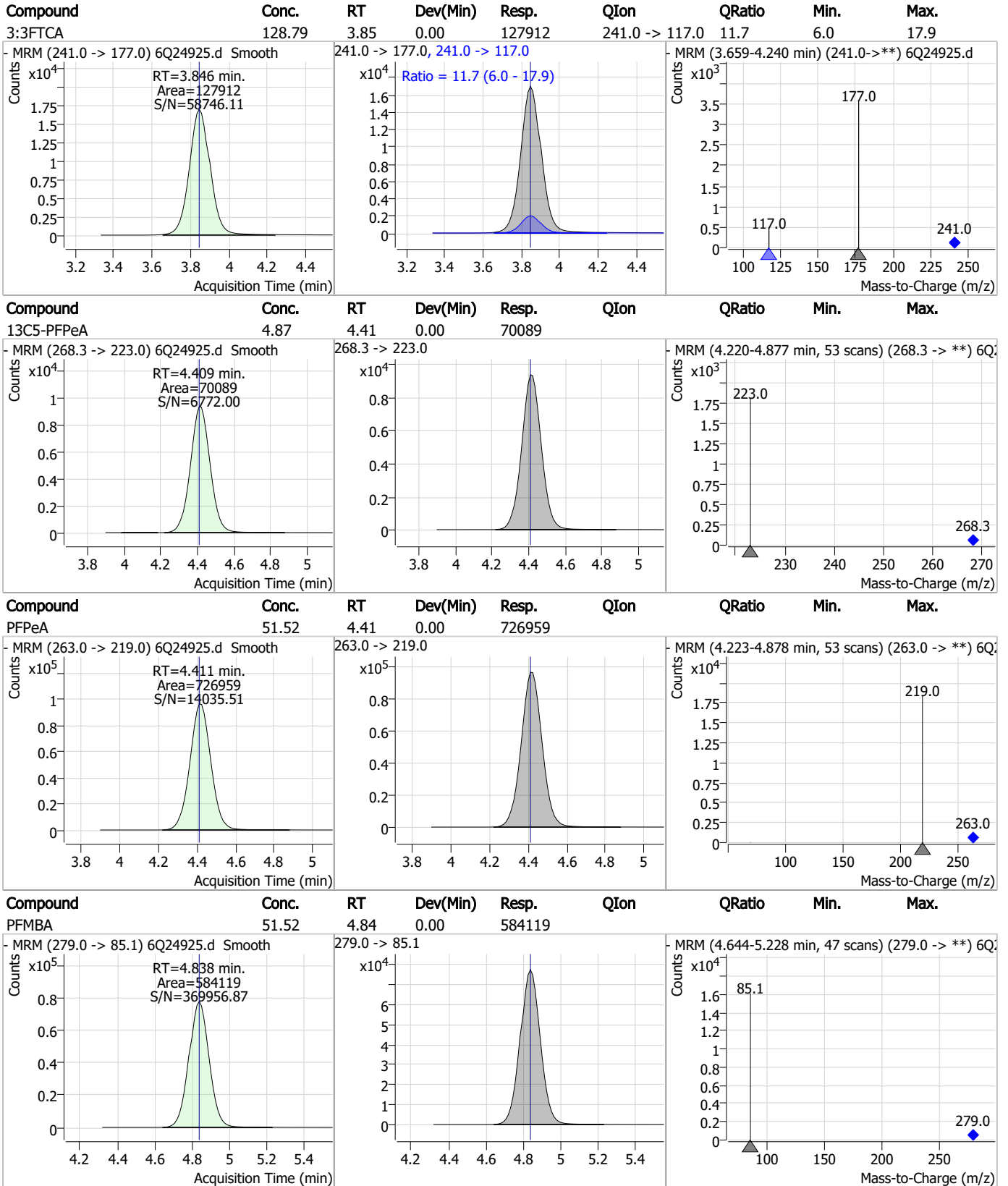
7

Perfluorinated Compounds by LC/MS/MS



7.7.23
7

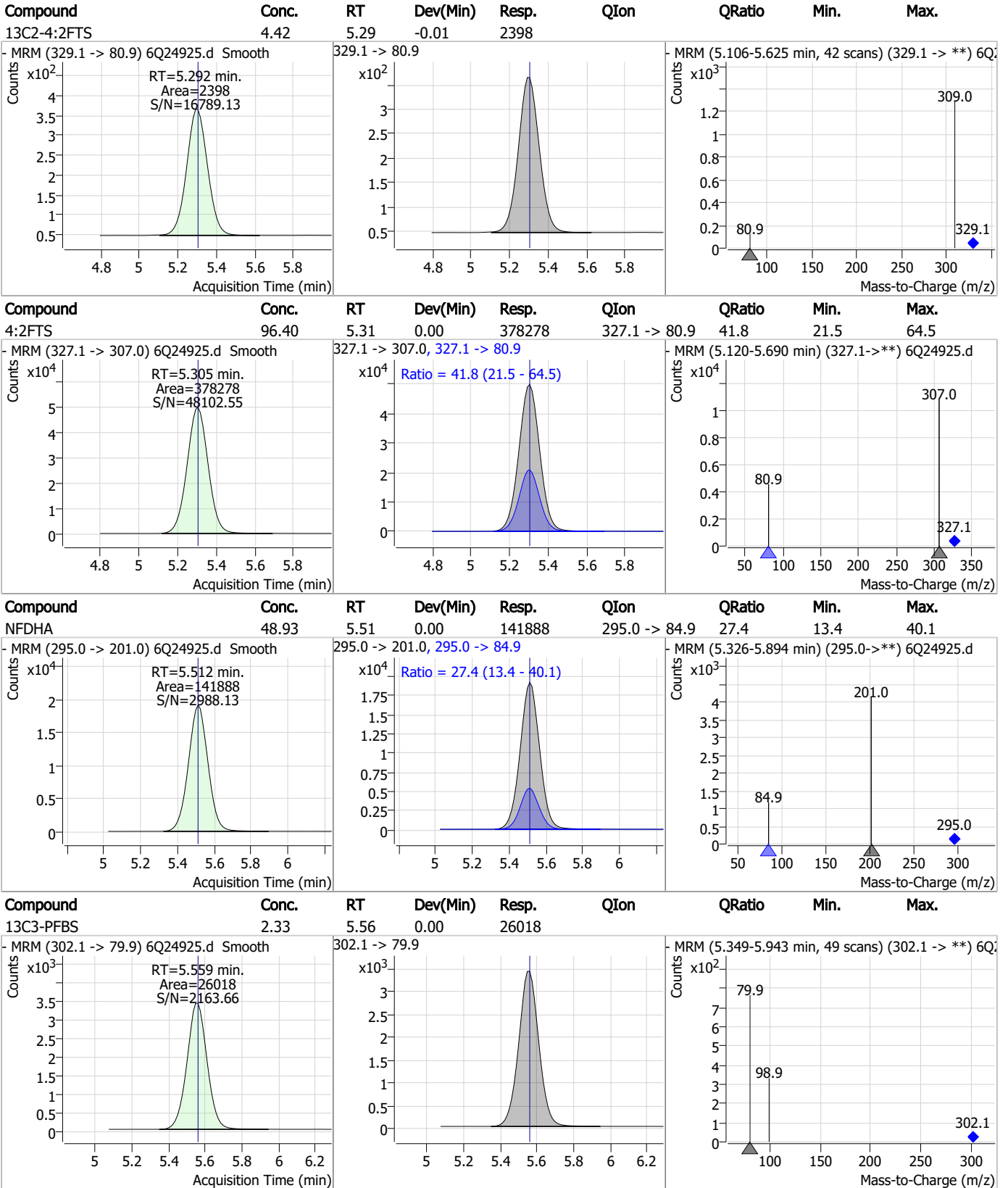
Perfluorinated Compounds by LC/MS/MS



7.7.23

7

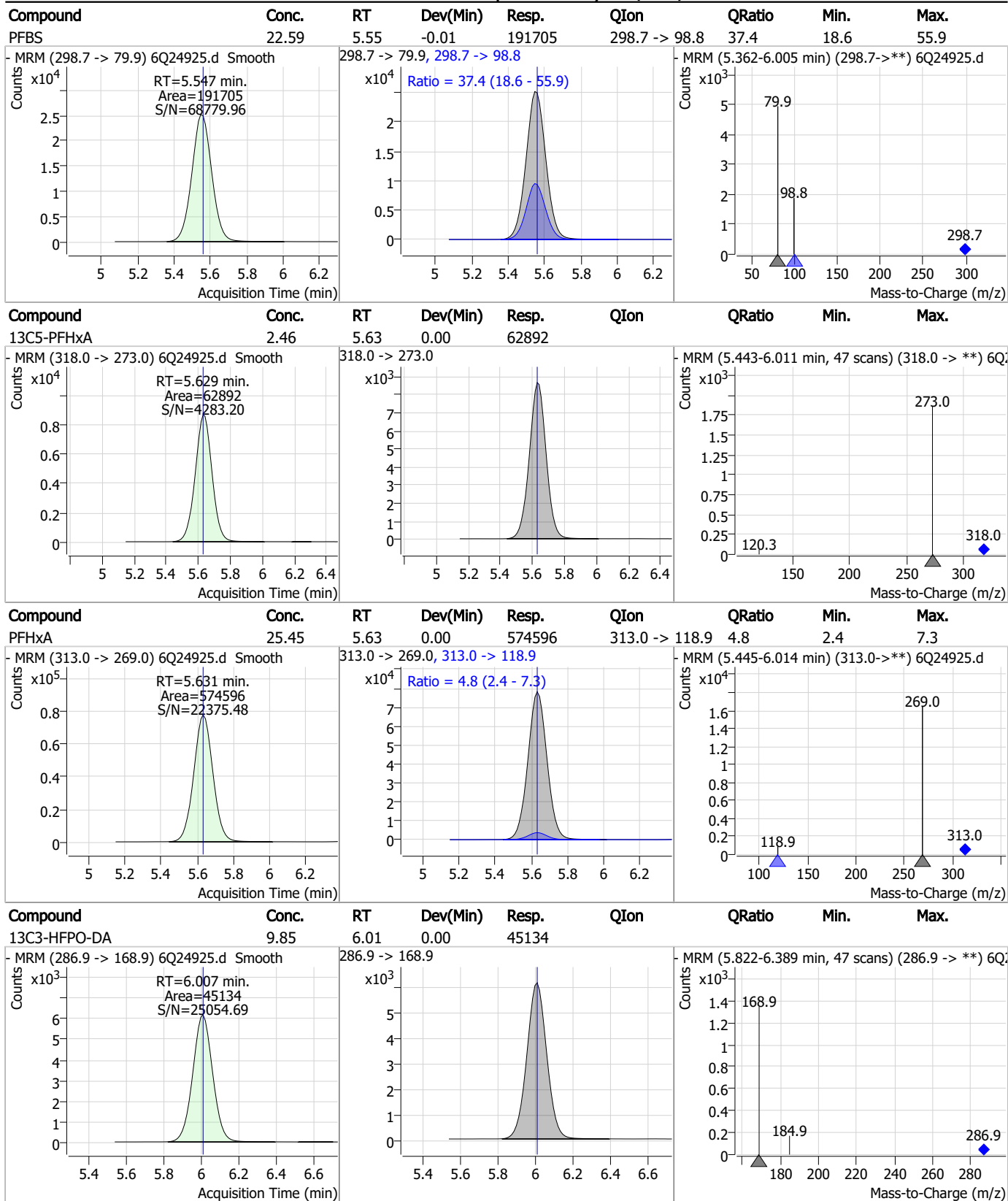
Perfluorinated Compounds by LC/MS/MS



7.7.23 7



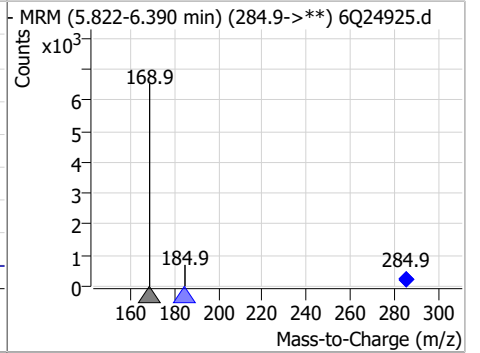
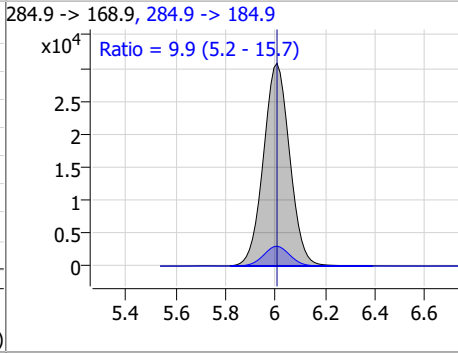
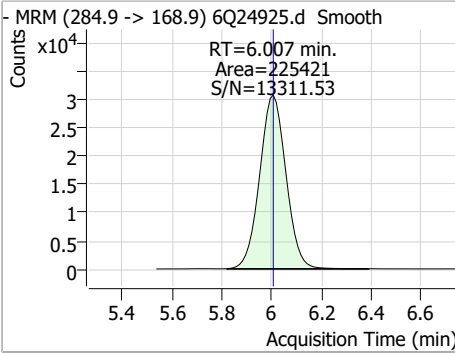
Perfluorinated Compounds by LC/MS/MS



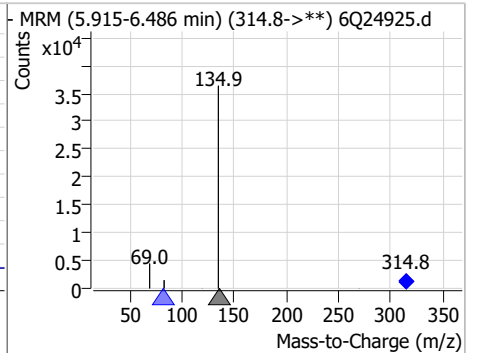
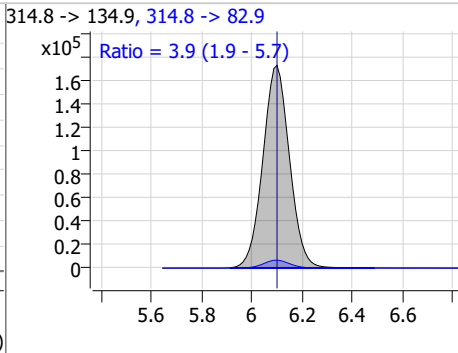
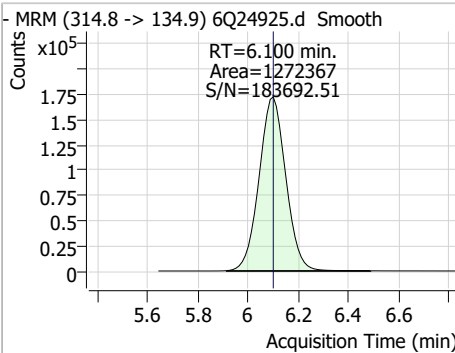
7.7.23 7

Perfluorinated Compounds by LC/MS/MS

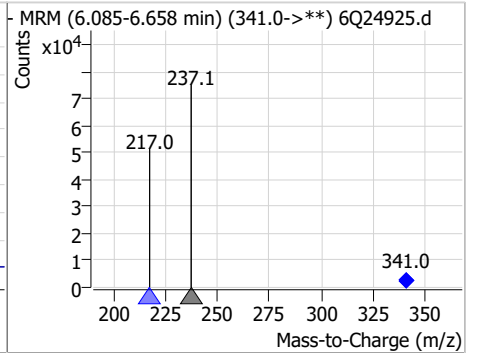
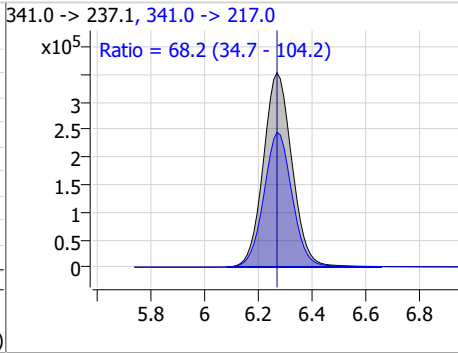
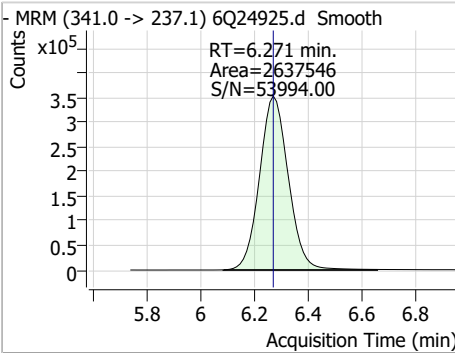
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	50.75	6.01	0.00	225421	284.9 -> 184.9	9.9	5.2	15.7



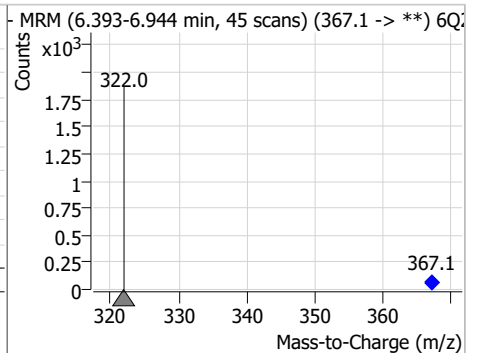
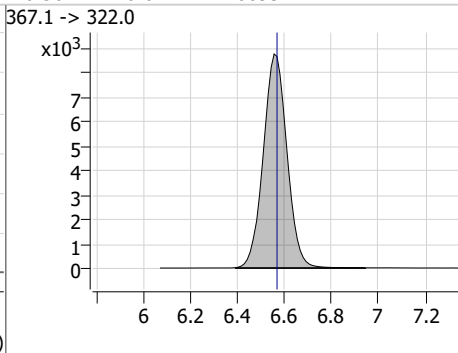
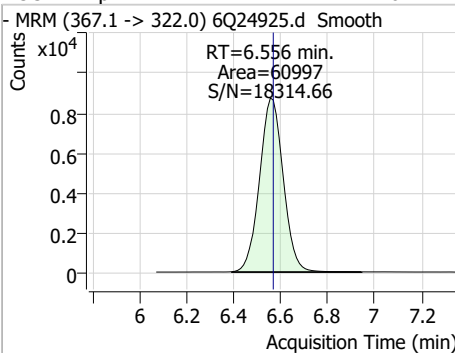
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	45.33	6.10	0.00	1272367	314.8 -> 82.9	3.9	1.9	5.7



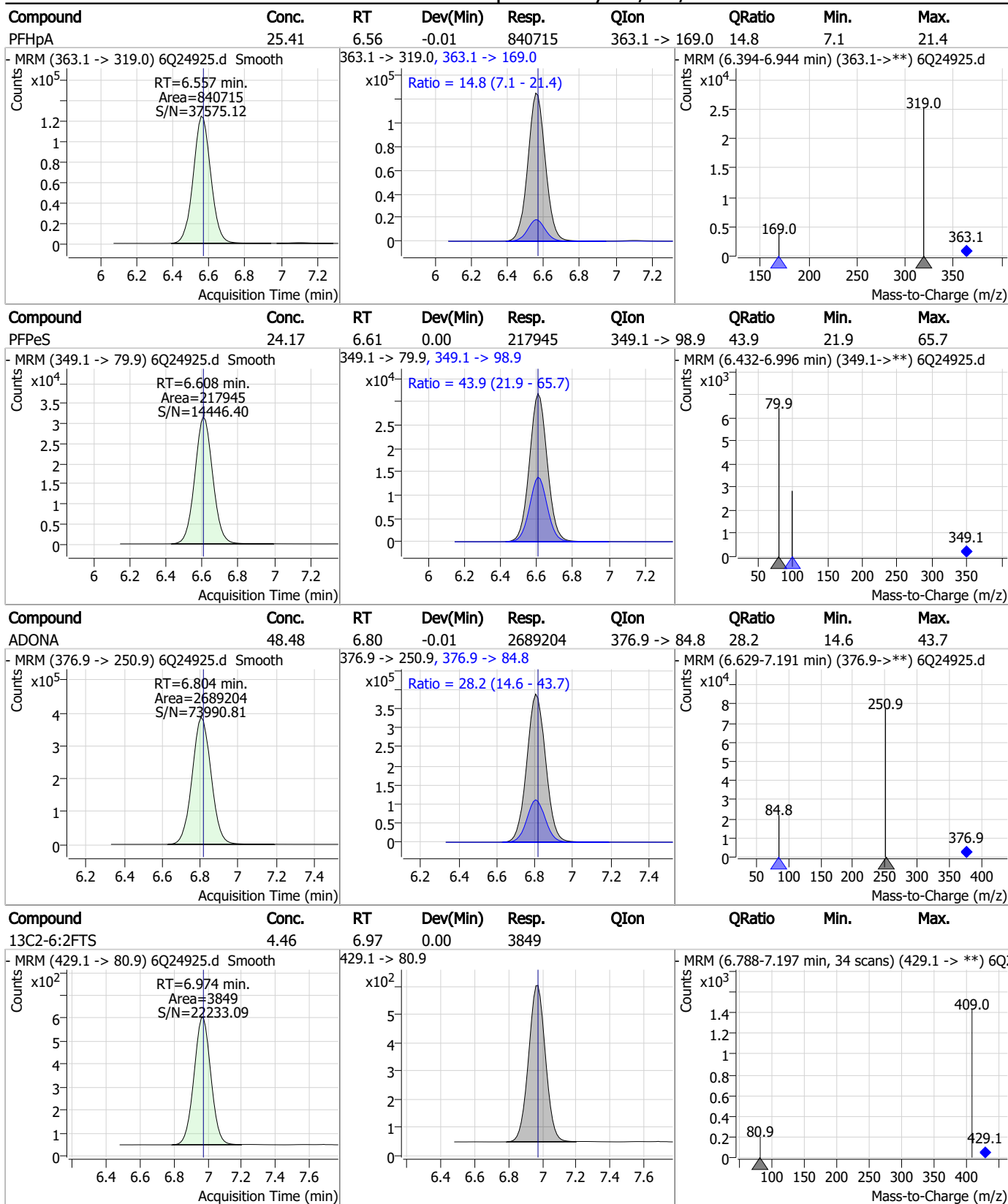
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	621.49	6.27	0.00	2637546	341.0 -> 217.0	68.2	34.7	104.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.46	6.56	-0.01	60997	367.1 -> 322.0			

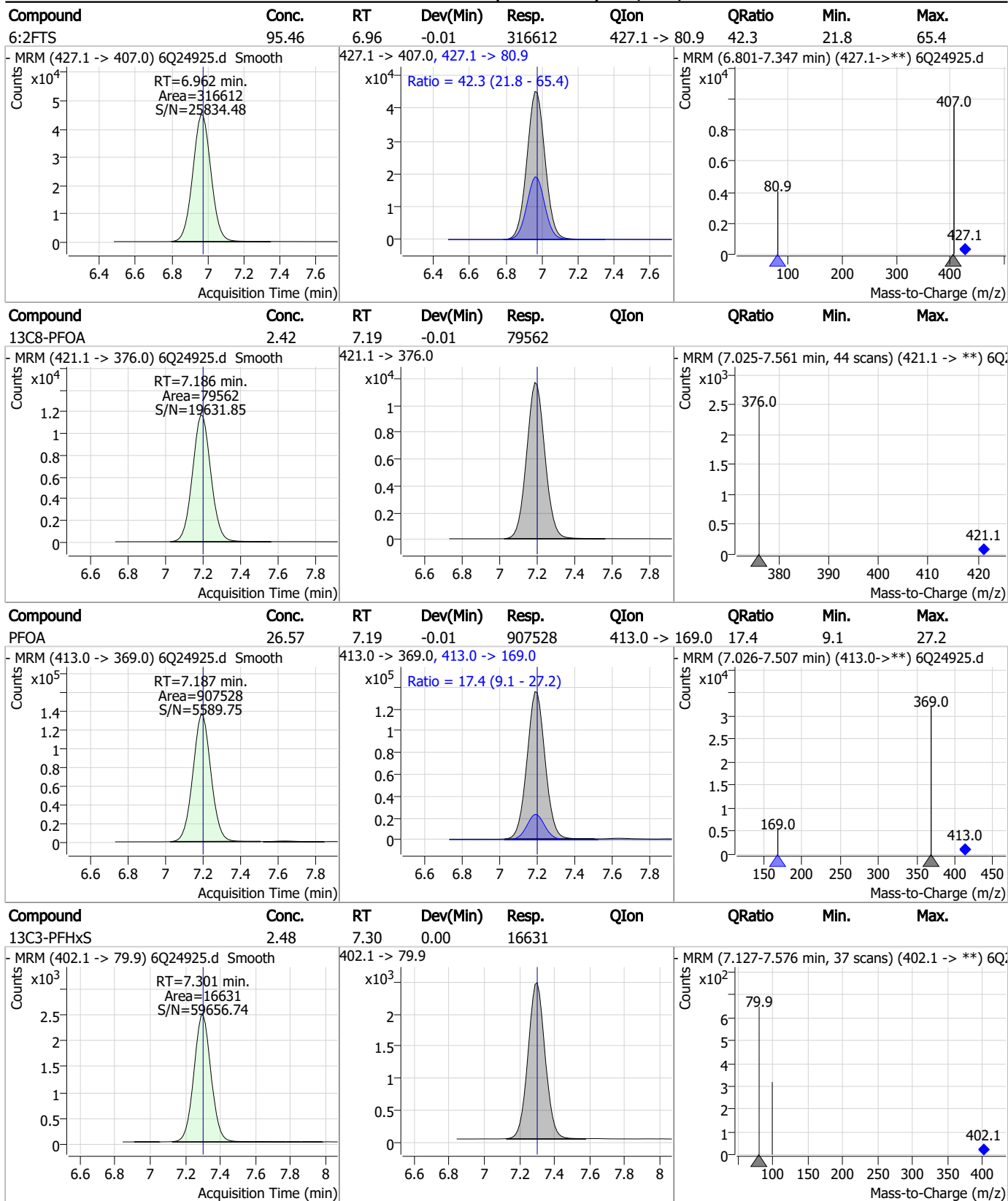


Perfluorinated Compounds by LC/MS/MS



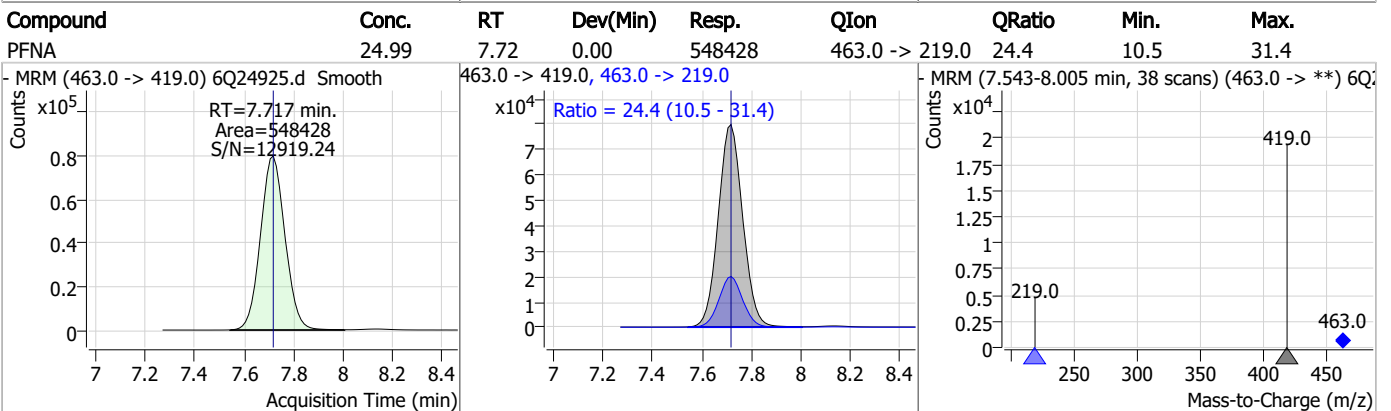
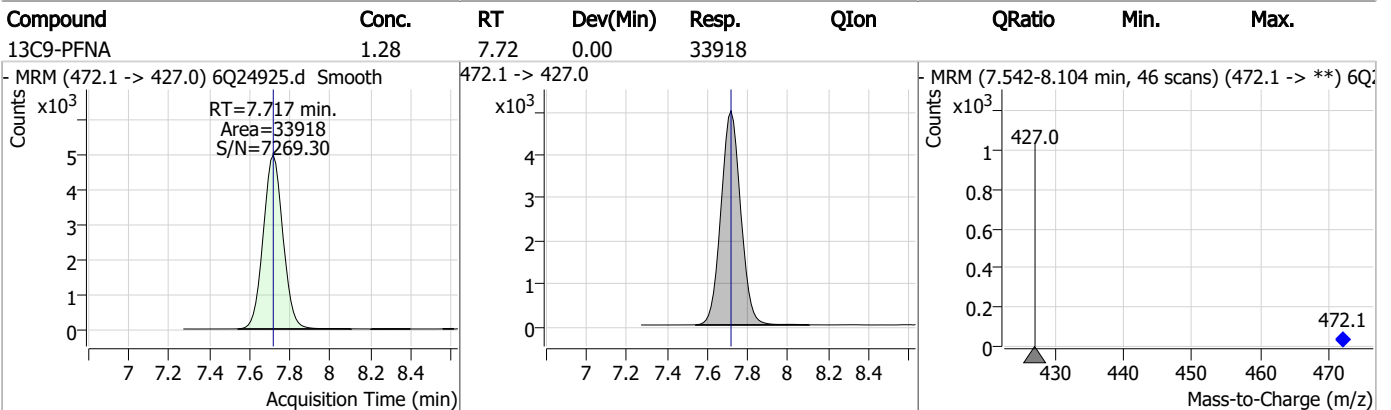
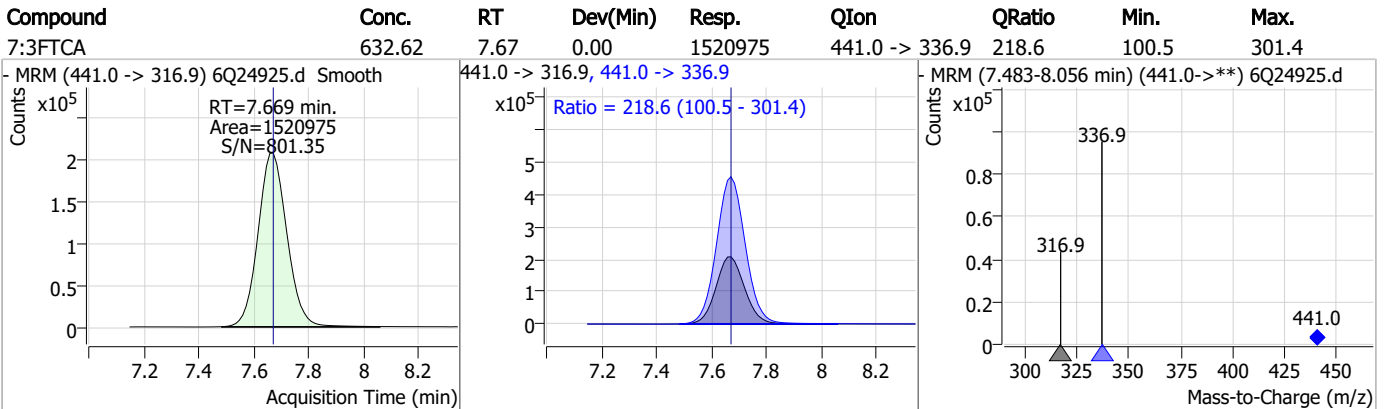
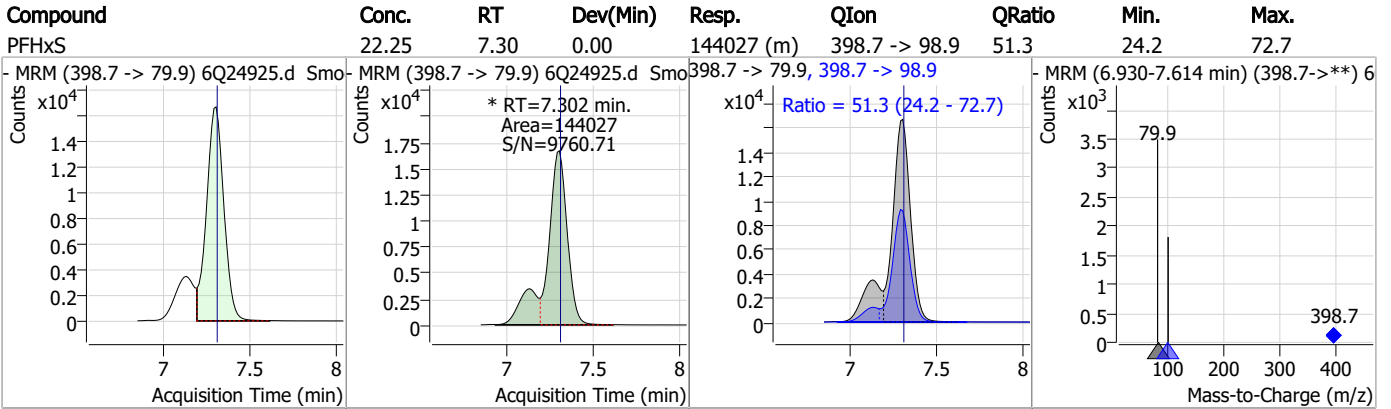
7.7.23
7

Perfluorinated Compounds by LC/MS/MS



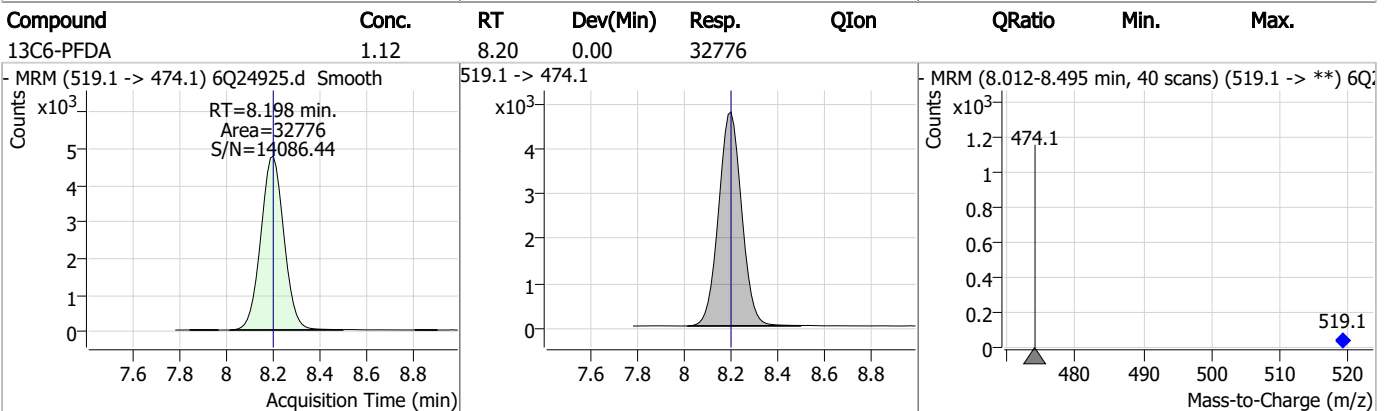
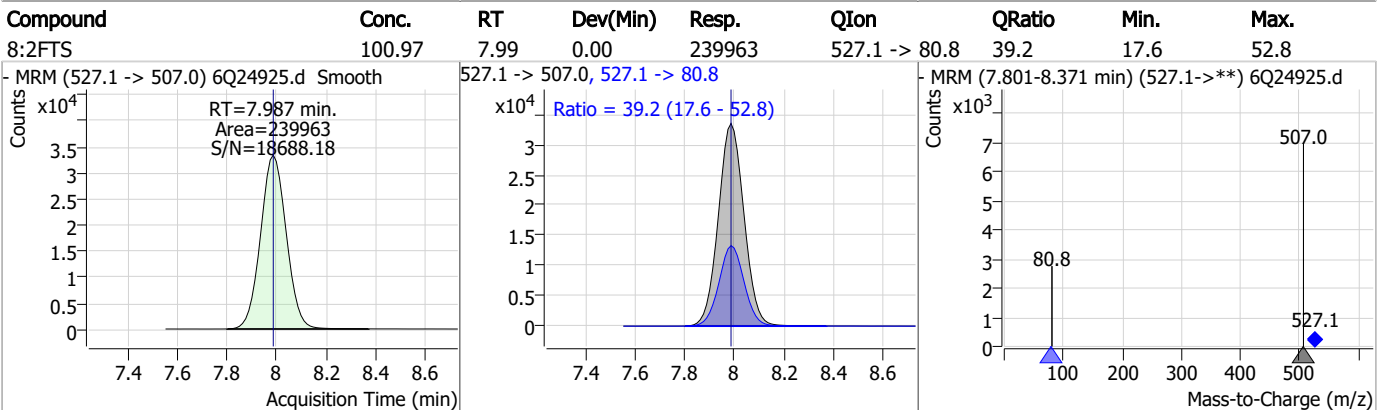
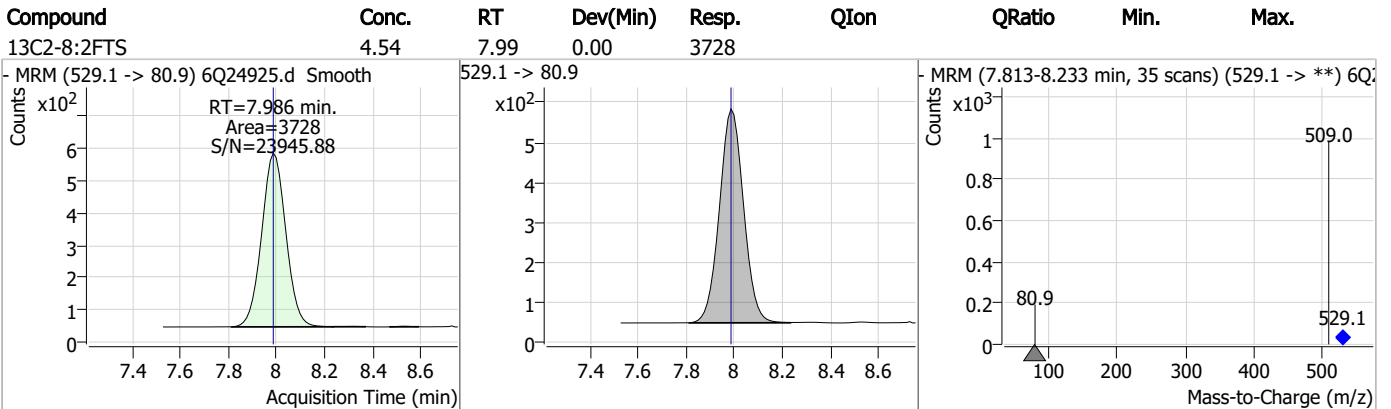
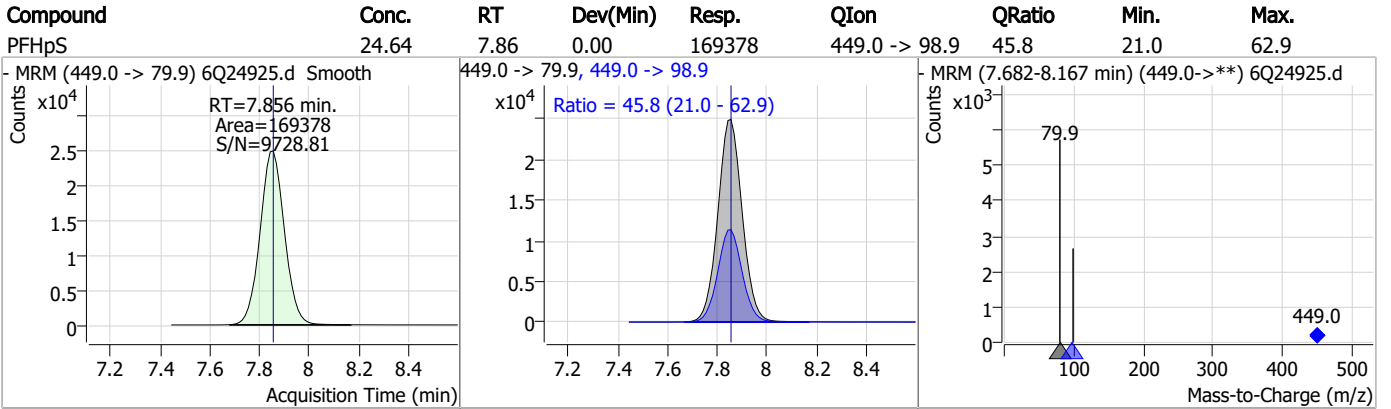
7.7.23 7

Perfluorinated Compounds by LC/MS/MS



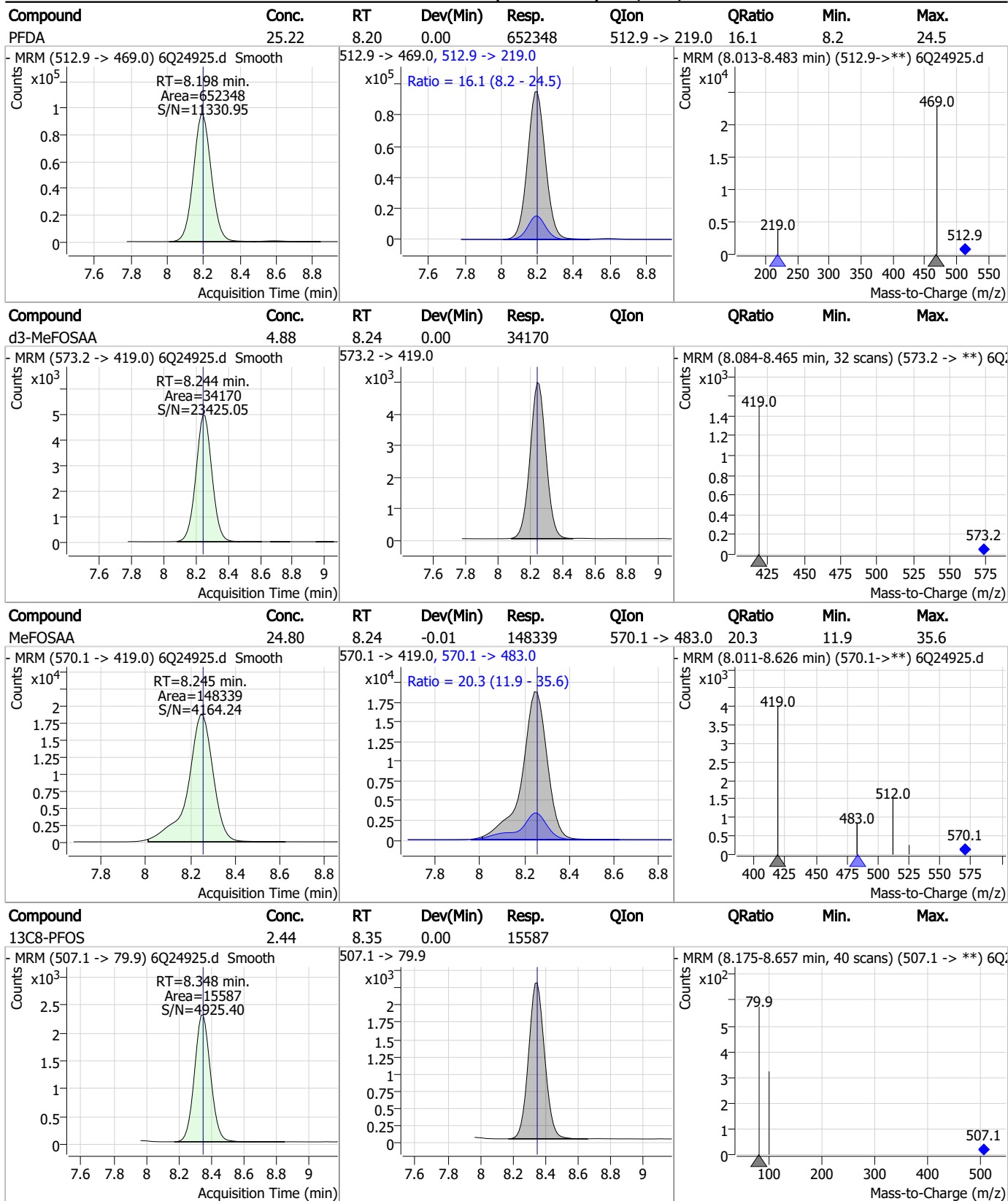
7.7.23 7

Perfluorinated Compounds by LC/MS/MS



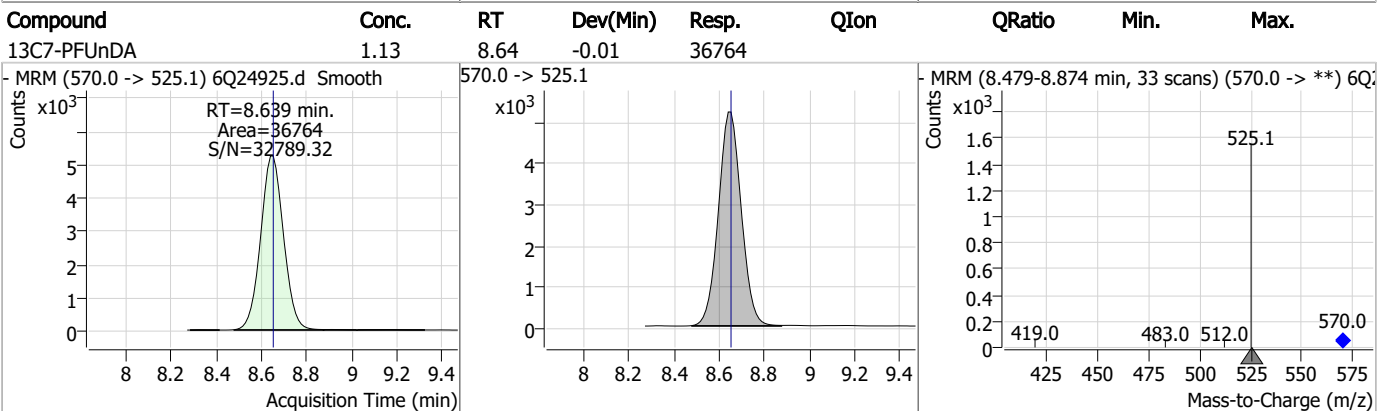
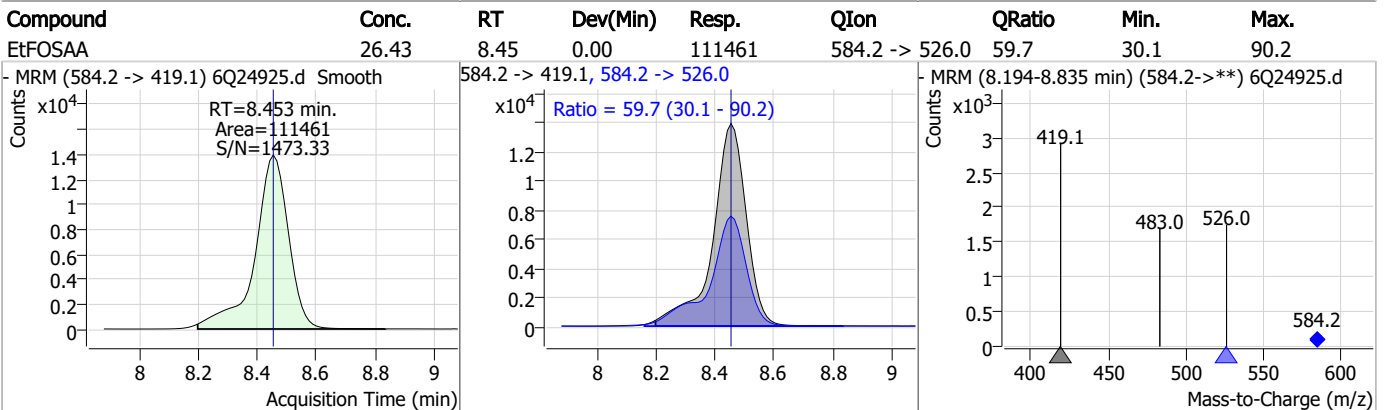
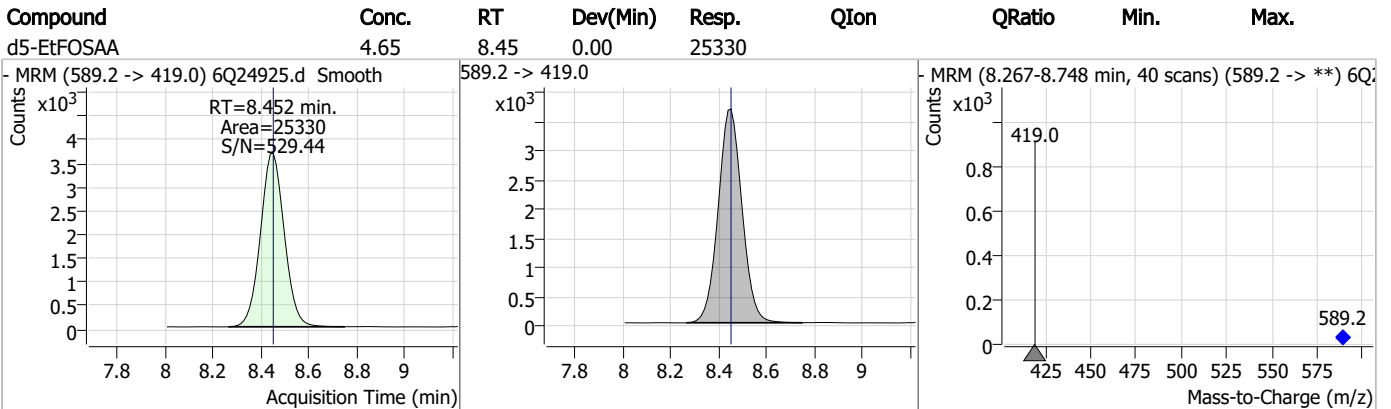
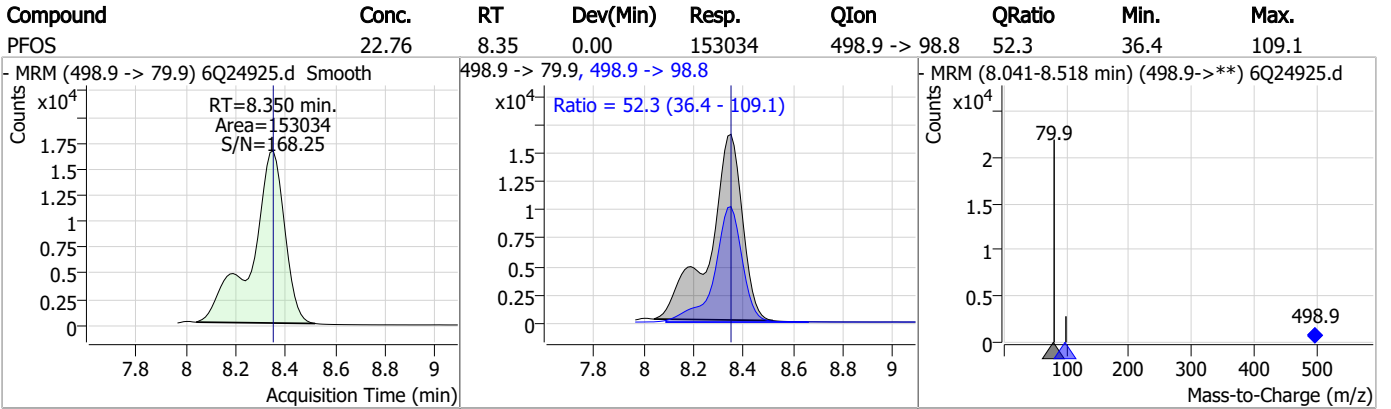
7.7.23
7

Perfluorinated Compounds by LC/MS/MS



7.7.23
7

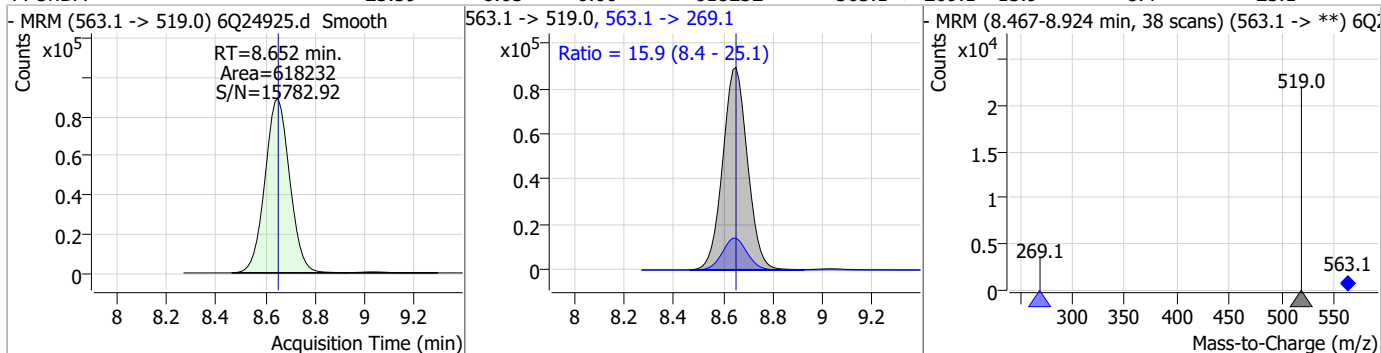
Perfluorinated Compounds by LC/MS/MS



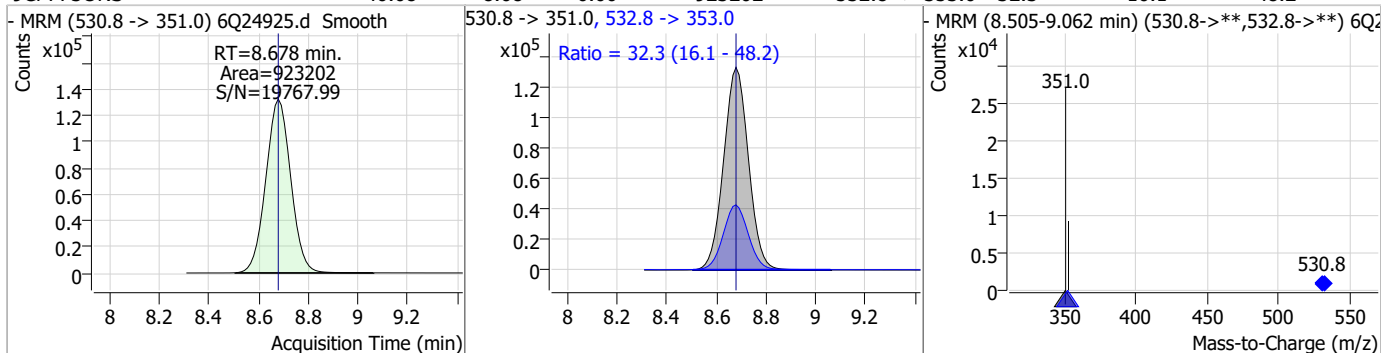
7.7.23
7

Perfluorinated Compounds by LC/MS/MS

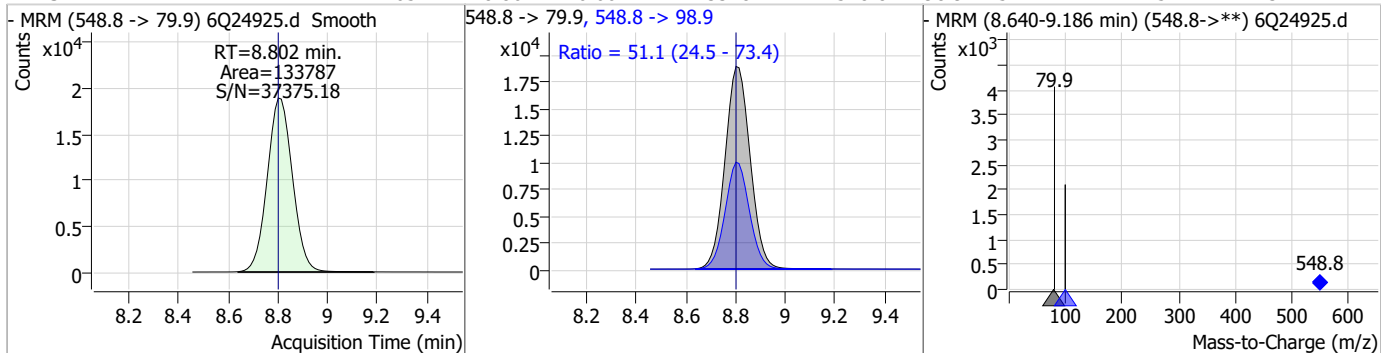
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	25.39	8.65	0.00	618232	563.1 -> 269.1	15.9	8.4	25.1



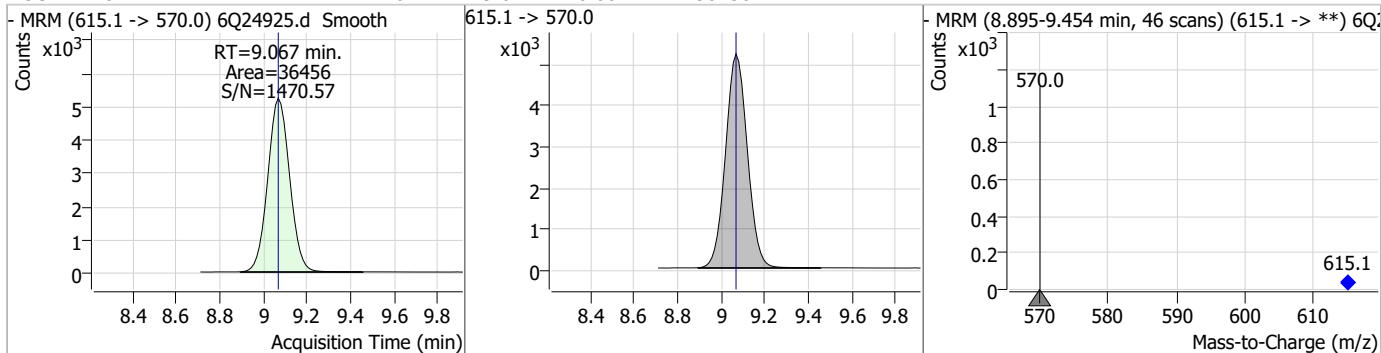
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	46.08	8.68	0.00	923202	532.8 -> 353.0	32.3	16.1	48.2



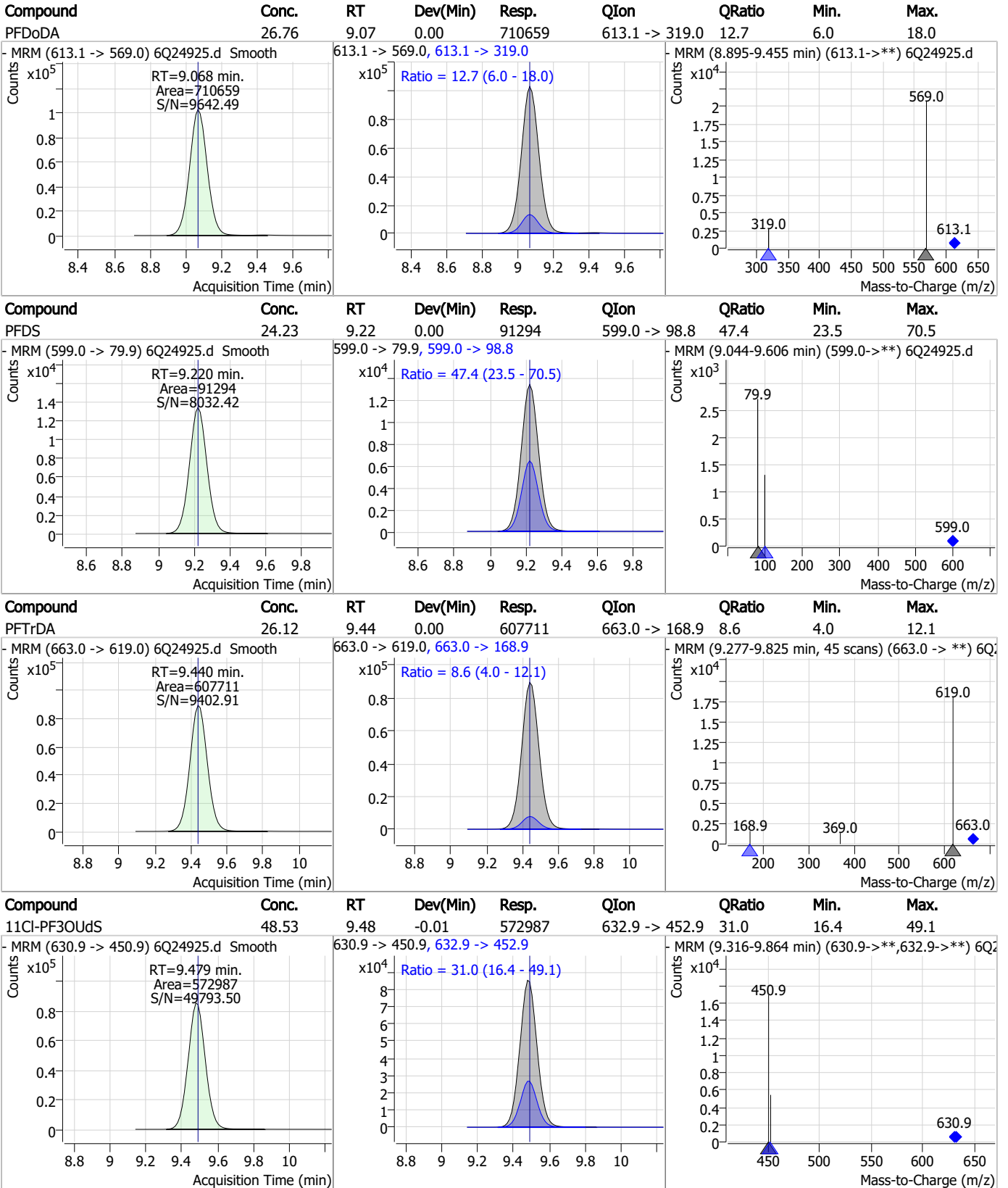
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	24.65	8.80	0.00	133787	548.8 -> 98.9	51.1	24.5	73.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.10	9.07	0.00	36456	615.1 -> 570.0			



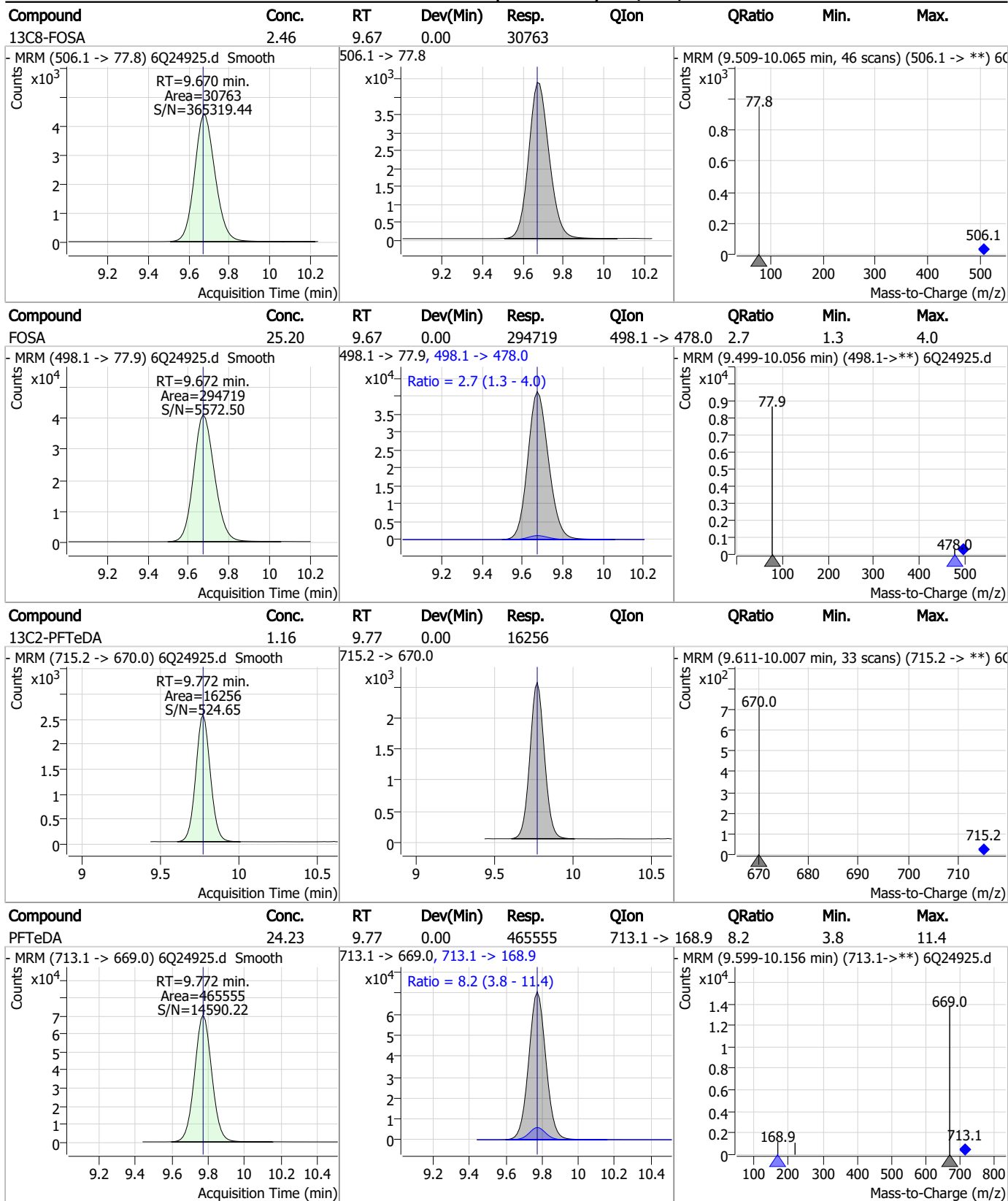
Perfluorinated Compounds by LC/MS/MS



7.7.23 7

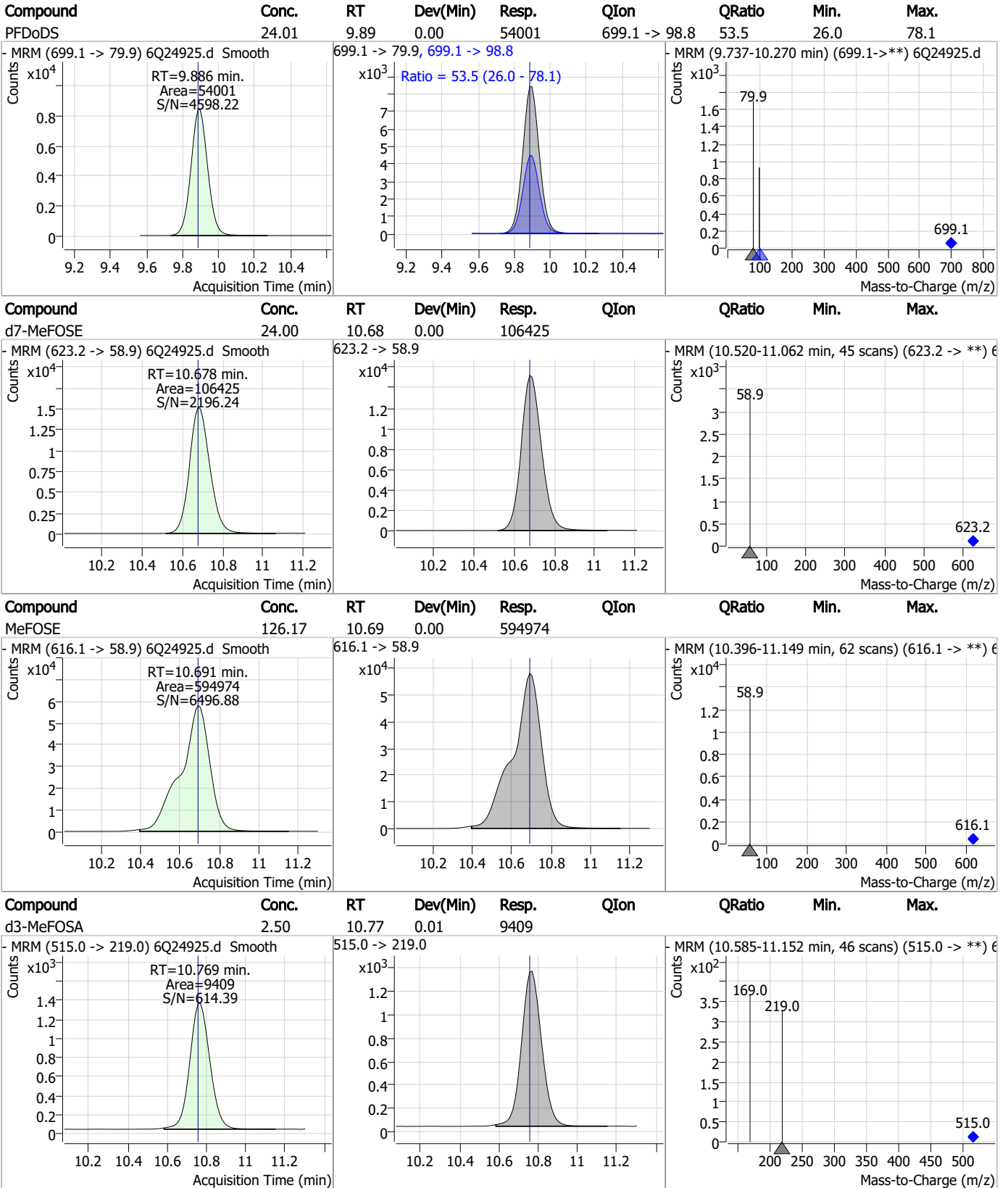


Perfluorinated Compounds by LC/MS/MS



7.7.23
7

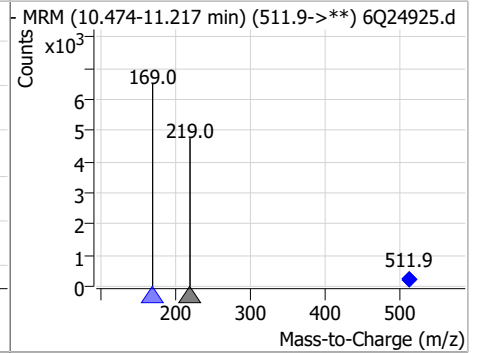
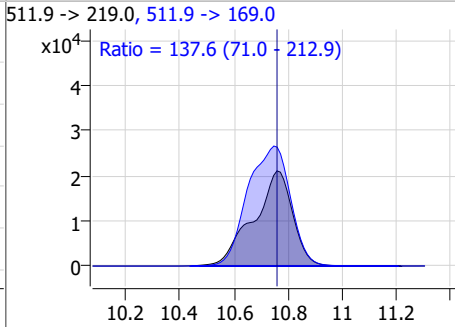
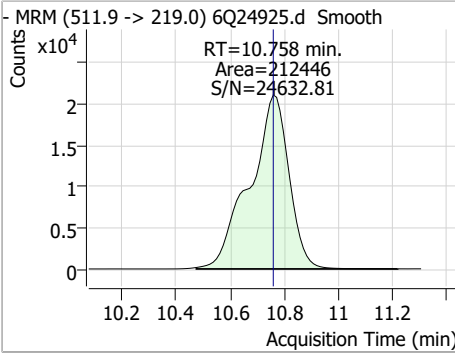
Perfluorinated Compounds by LC/MS/MS



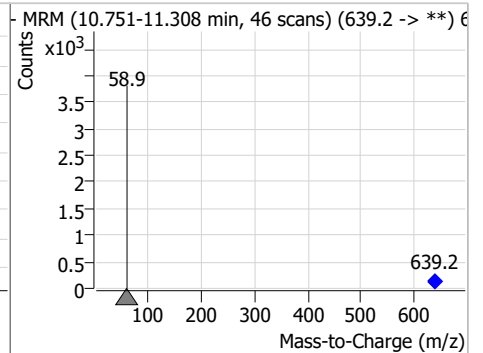
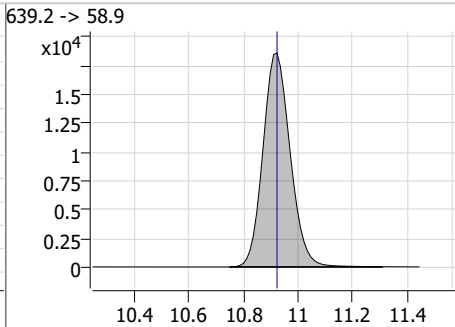
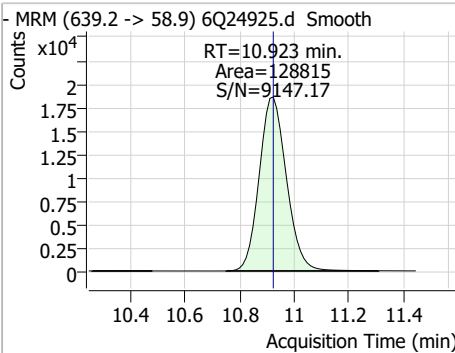
7.7.23 7

Perfluorinated Compounds by LC/MS/MS

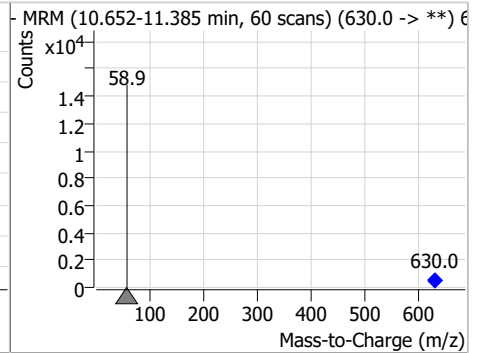
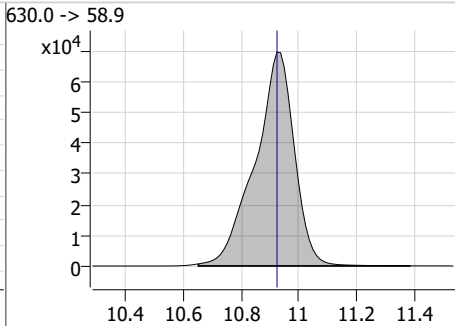
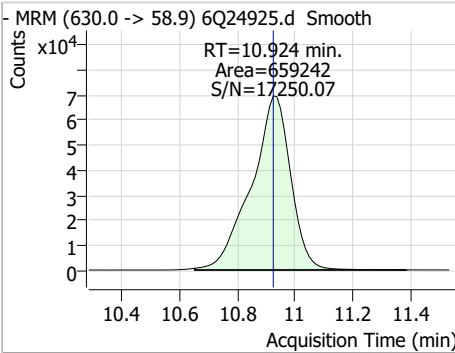
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	50.17	10.76	0.00	212446	511.9 -> 169.0	137.6	71.0	212.9



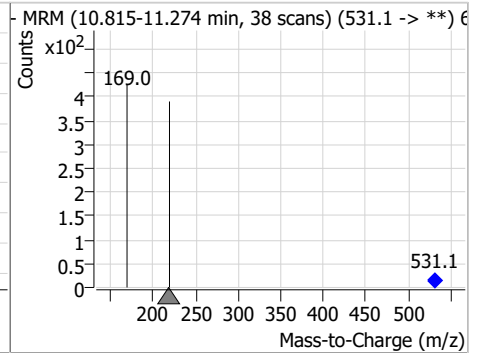
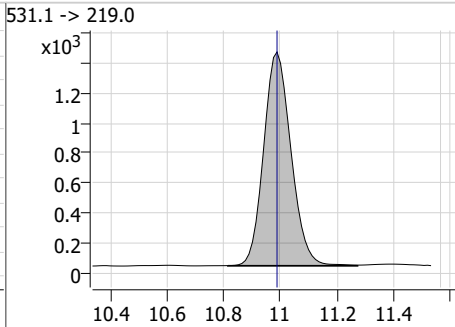
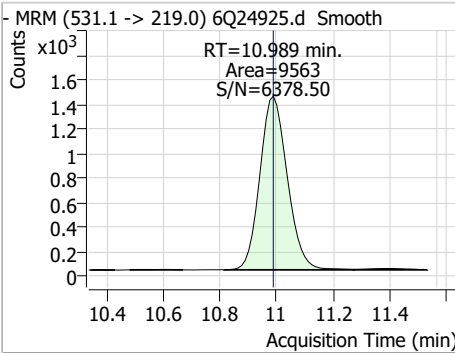
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.88	10.92	0.00	128815				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	127.46	10.92	0.00	659242				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.42	10.99	0.00	9563				

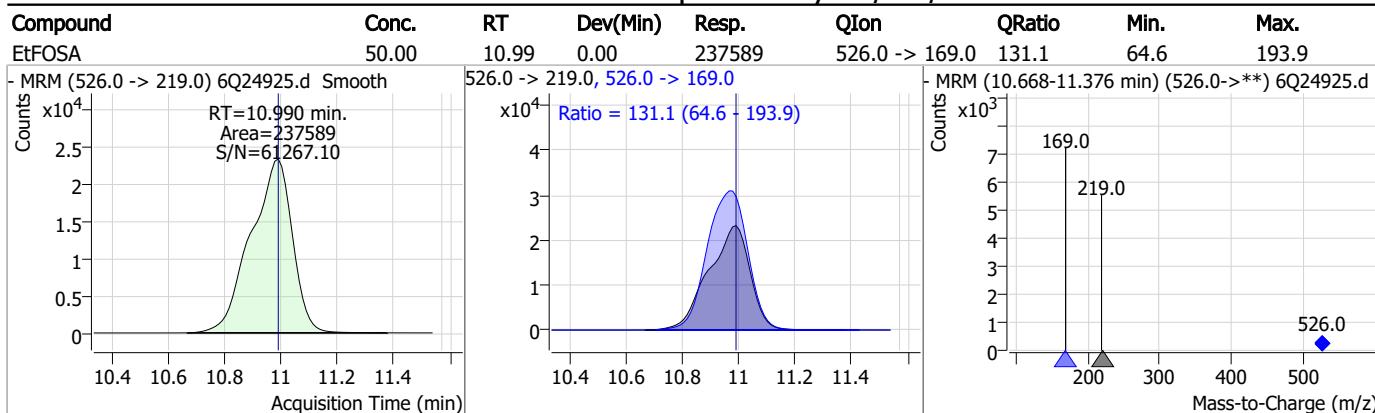


7.7.23

7



Perfluorinated Compounds by LC/MS/MS



7.7.23

7

Manual Integration Approval Summary

Sample Number: S6Q356-IC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24925.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 16:26 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak

7.7.23.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24926.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 4:40:21 PM
 Sample Name : ic356-8
 Vial : P1-A9
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	154014	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	66216	5.00 µg/L	0.012
M5-PFHxA	5.629	318.0 -> 273.0	59482	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	57455	2.50 µg/L	0.000
M8-PFOA	7.186	421.1 -> 376.0	81331	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	33311	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	30677	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	32452	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	38731	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16296	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	29214	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	24525	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	15045	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	14903	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2052	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	3338	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	3468	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	30282	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	42715	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	25549	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	102821	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	122759	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	8948	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9584	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	13678	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	64923	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10071	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	88901	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	30116	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	32432	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	58856	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2052	3.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 79.7%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3338	4.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 81.5%		
13C2-8:2FTS	7.986	529.1 -> 80.9	3468	4.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.0%		
13C2-PFDoDA	9.067	615.1 -> 570.0	38731	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16296	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C3-PFBS	5.559	302.1 -> 79.9	24525	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.7%		
13C3-PFHxS	7.301	402.1 -> 79.9	15045	2.36 µg/L	0.000

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 = 94.4%		
13C4-PFBA	2.972	216.8 -> 171.9	154014	9.82 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C4-PFHpA	6.569	367.1 -> 322.0	57455	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C5-PFHxA	5.629	318.0 -> 273.0	59482	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C5-PFPeA	4.422	268.3 -> 223.0	66216	4.75 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C6-PFDA	8.198	519.1 -> 474.1	30677	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C7-PFUnDA	8.651	570.0 -> 525.1	32452	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.7%		
13C8-FOSA	9.670	506.1 -> 77.8	29214	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C8-PFOA	7.186	421.1 -> 376.0	81331	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C8-PFOS	8.348	507.1 -> 79.9	14903	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C9-PFNA	7.717	472.1 -> 427.0	33311	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.2%		
d3-MeFOSAA	8.244	573.2 -> 419.0	30282	4.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.4%		
13C3-HFPO-DA	6.007	286.9 -> 168.9	42715	9.63 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 96.3%		
d3-MeFOSA	10.757	515.0 -> 219.0	9584	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.2%		
d5-EtFOSAA	8.439	589.2 -> 419.0	25549	5.07 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
d7-MeFOSE	10.678	623.2 -> 58.9	102821	25.06 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
d9-EtFOSE	10.911	639.2 -> 58.9	122759	24.59 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.4%		
d5-EtFOSA	10.989	531.1 -> 219.0	8948	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.8%		
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	807234	240.37 µg/L	96
		327.1 -> 80.9	328131		
6:2FTS	6.974	427.1 -> 407.0	668375	232.36 µg/L	98
		427.1 -> 80.9	282799		
8:2FTS	7.987	527.1 -> 507.0	520493	235.41 µg/L	97
		527.1 -> 80.8	193784		
EtFOSAA	8.453	584.2 -> 419.1	257149	60.46 µg/L	92
		584.2 -> 526.0	170976		
FOSA	9.672	498.1 -> 77.9	704720	63.45 µg/L	100
		498.1 -> 478.0	18726		
MeFOSAA	8.245	570.1 -> 419.0	331732	62.59 µg/L	95
		570.1 -> 483.0	71227		
PFBA	2.981	212.8 -> 168.9	1398982	254.43 µg/L	100
PFBS	5.547	298.7 -> 79.9	453539	56.70 µg/L	99
		298.7 -> 98.8	166238		
PFDA	8.198	512.9 -> 469.0	1696339	70.07 µg/L	98
		512.9 -> 219.0	264826		
PFDoDA	9.068	613.1 -> 569.0	1661329	58.88 µg/L	98
		613.1 -> 319.0	213718		
PFDS	9.220	599.0 -> 79.9	217459	60.36 µg/L	97

7.7.24
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	105956	66.29	µg/L	98
		363.1 -> 319.0	2065545			
PFHpS	7.843	363.1 -> 169.0	277750	56.92	µg/L	86
		449.0 -> 79.9	374057			
PFHxA	5.631	449.0 -> 98.9	189630	63.52	µg/L	100
		313.0 -> 269.0	1356288			
PFHxS	7.302	313.0 -> 118.9	65728	61.88	µg/L	98
		398.7 -> 79.9	362301			
PFNA	7.717	398.7 -> 98.9	170260	58.92	µg/L	93
		463.0 -> 419.0	1270143			
PFNS	8.802	463.0 -> 219.0	308239	59.31	µg/L	99
		548.8 -> 79.9	307722			
PFOA	7.200	548.8 -> 98.9	152177	61.89	µg/L	99
		413.0 -> 369.0	2160625			
PFOS	8.350	413.0 -> 169.0	380770	59.44	µg/L	69
		498.9 -> 79.9	382115			
PFPeA	4.424	498.9 -> 98.8	178478	126.55	µg/L	100
		263.0 -> 219.0	1686736			
PFPeS	6.608	349.1 -> 79.9	494936	60.67	µg/L	98
		349.1 -> 98.9	223053			
PFTeDA	9.772	713.1 -> 669.0	1204322	62.52	µg/L	99
		713.1 -> 168.9	94314			
PFTrDA	9.440	663.0 -> 619.0	1441507	58.33	µg/L	100
		663.0 -> 168.9	115798			
PFUnDA	8.639	563.1 -> 519.0	1400205	65.15	µg/L	99
		563.1 -> 269.1	225088			
11Cl-PF3OUdS	9.479	630.9 -> 450.9	1325351	118.60	µg/L	96
		632.9 -> 452.9	404235			
9Cl-PF3ONS	8.678	530.8 -> 351.0	2202726	116.16	µg/L	100
		532.8 -> 353.0	708549			
ADONA	6.804	376.9 -> 250.9	6597422	125.68	µg/L	95
		376.9 -> 84.8	1737369			
HFPO-DA	6.007	284.9 -> 168.9	548217	130.41	µg/L	97
		284.9 -> 184.9	51356			
3:3FTCA	3.846	241.0 -> 177.0	312126	349.64	µg/L	99
		241.0 -> 117.0	35930			
5:3FTCA	6.271	341.0 -> 237.1	6377507	1588.89	µg/L	96
		341.0 -> 217.0	4237852			
7:3FTCA	7.669	441.0 -> 316.9	3644598	1602.80	µg/L	87
		441.0 -> 336.9	8049394			
EtFOSA	10.990	526.0 -> 219.0	589112	132.50	µg/L	98
		526.0 -> 169.0	750146			
EtFOSE	10.924	630.0 -> 58.9	1568257	318.17	µg/L	100
		511.9 -> 219.0	507938			
MeFOSA	10.758	511.9 -> 169.0	695512	117.76	µg/L	96
		616.1 -> 58.9	1454213			
MeFOSE	10.691	699.1 -> 79.9	123926	319.18	µg/L	100
		699.1 -> 98.8	69366			
PFDoDS	9.886	295.0 -> 201.0	315087	57.64	µg/L	94
		295.0 -> 84.9	87096			
NFDHA	5.512	279.0 -> 85.1	1355603	114.89	µg/L	98
		229.0 -> 84.9	1023799			
PFMBA	4.838	314.8 -> 134.9	2959278	128.72	µg/L	100
		314.8 -> 82.9	115248			
PFMPA	3.551			111.46	µg/L	100
PFEESA	6.100					

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

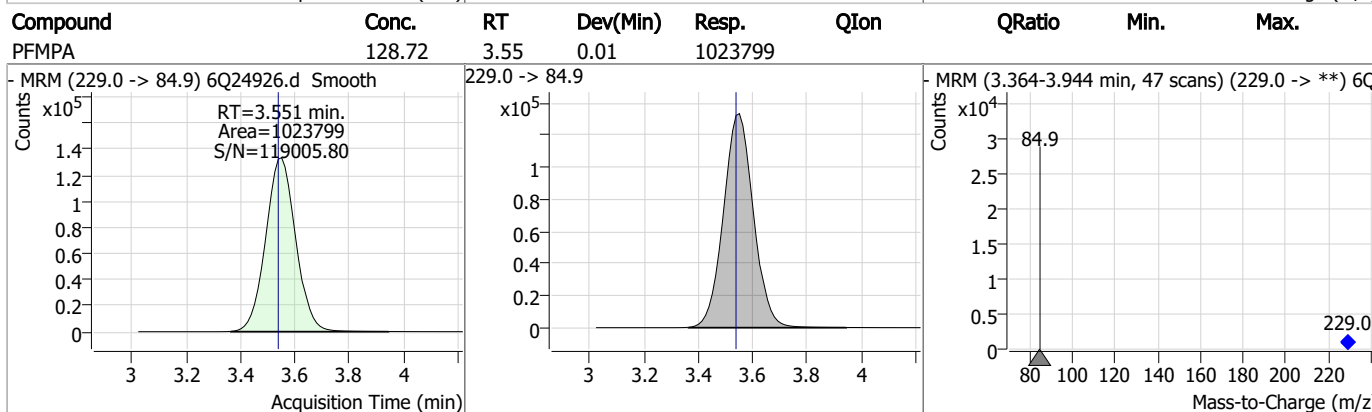
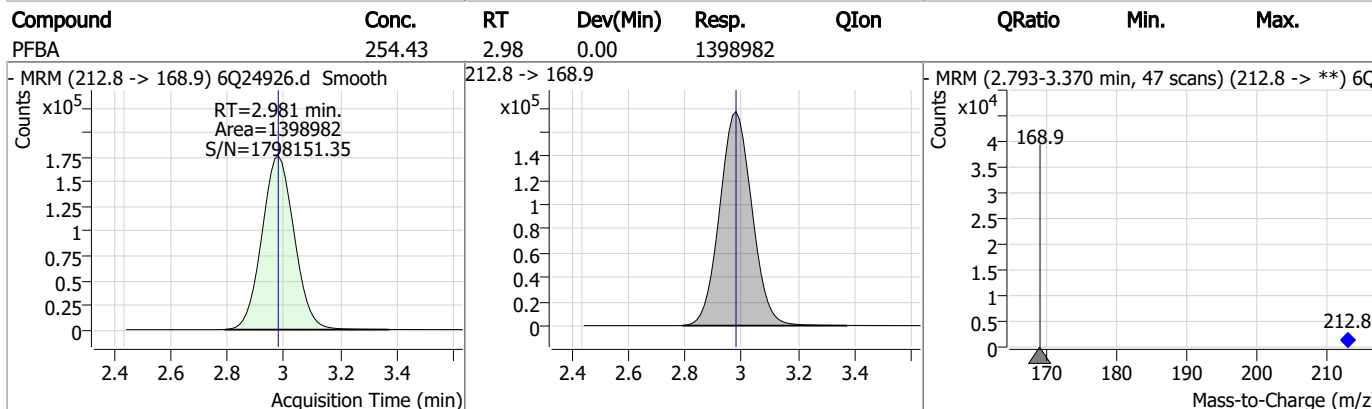
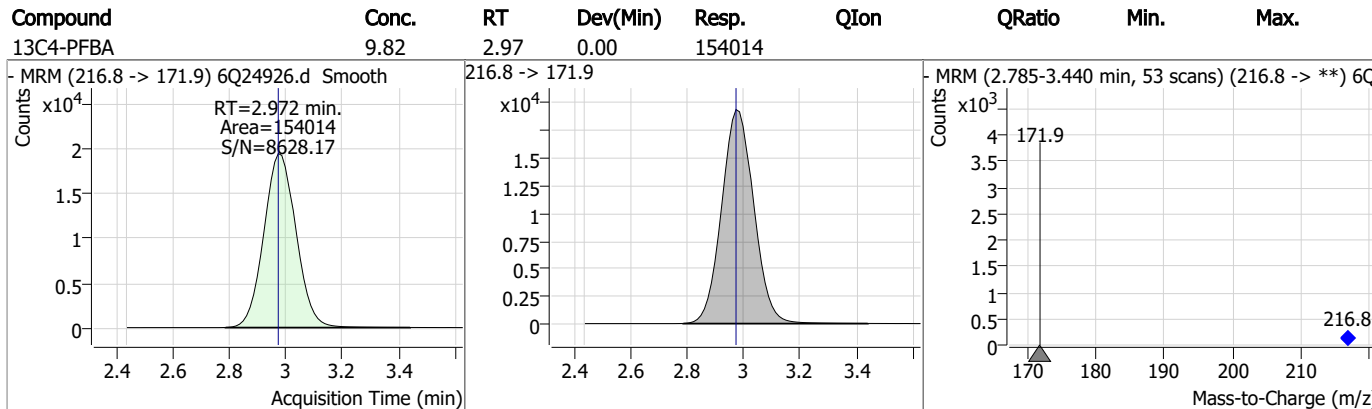
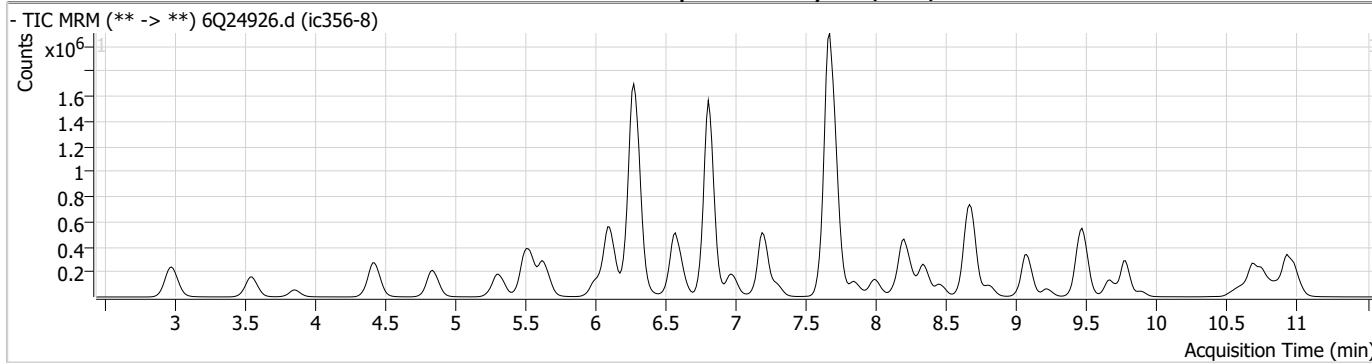
Perfluorinated Compounds by LC/MS/MS

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

7.7.24

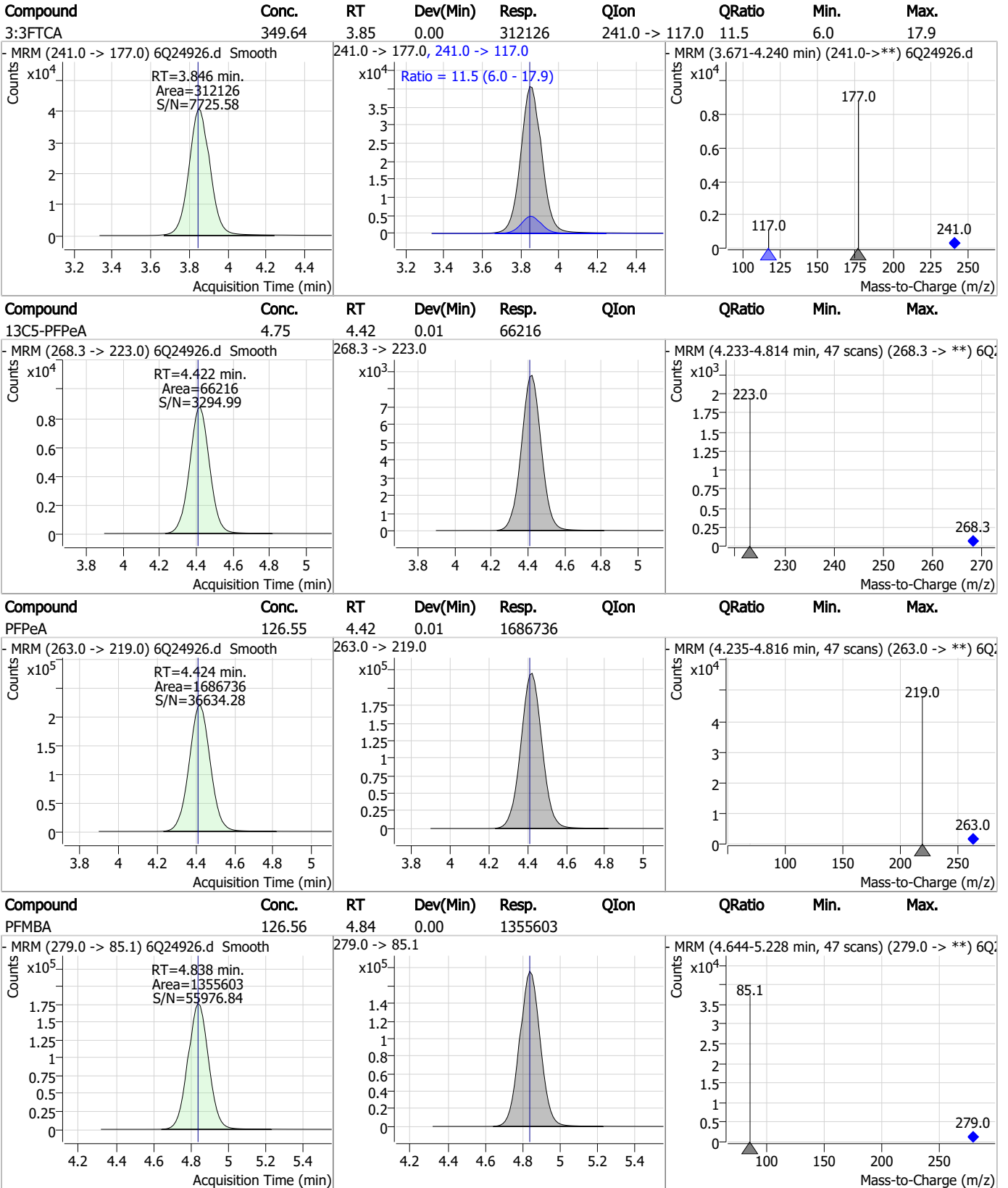
7

Perfluorinated Compounds by LC/MS/MS



7.7.24
7

Perfluorinated Compounds by LC/MS/MS

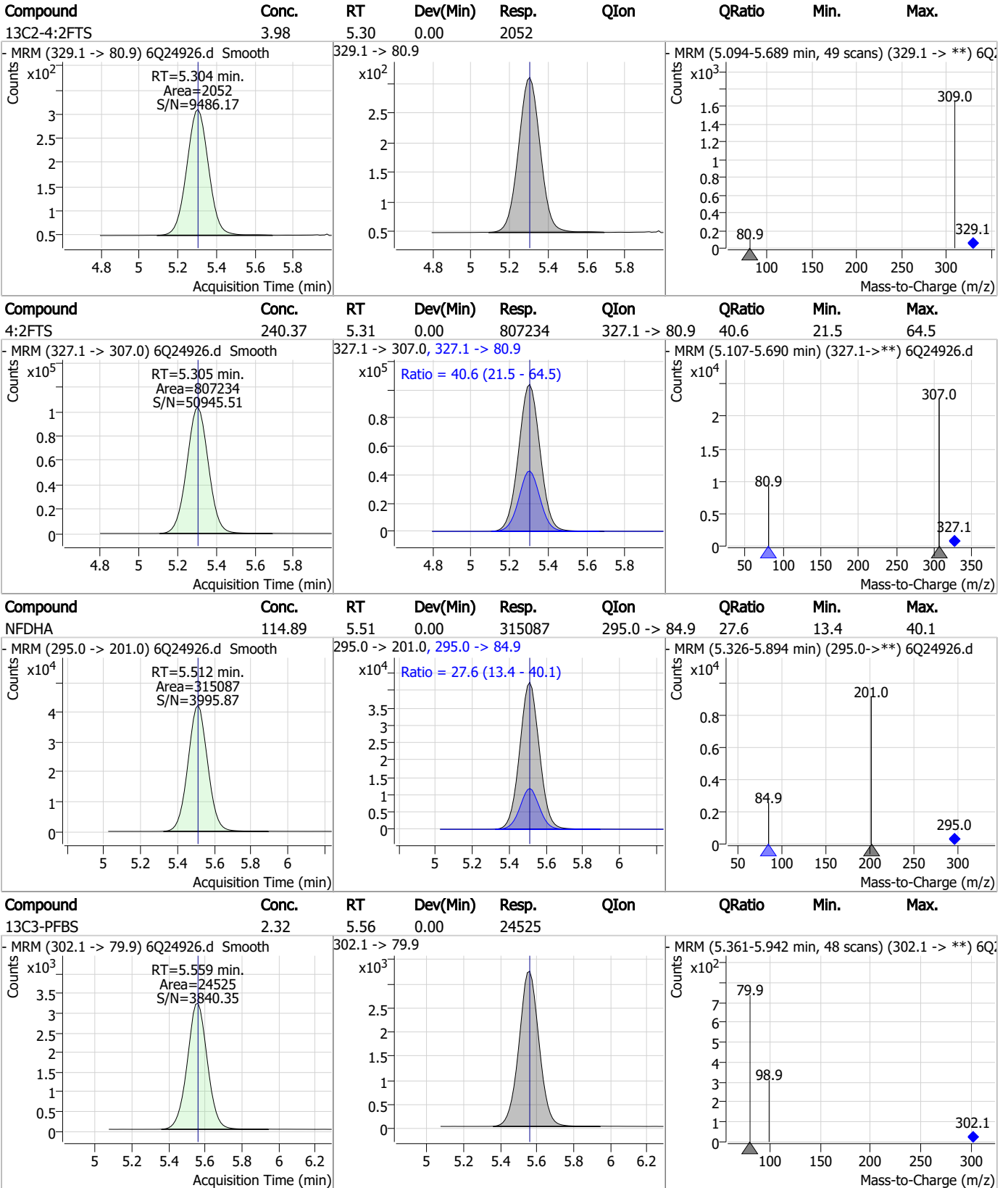


7.7.24

7



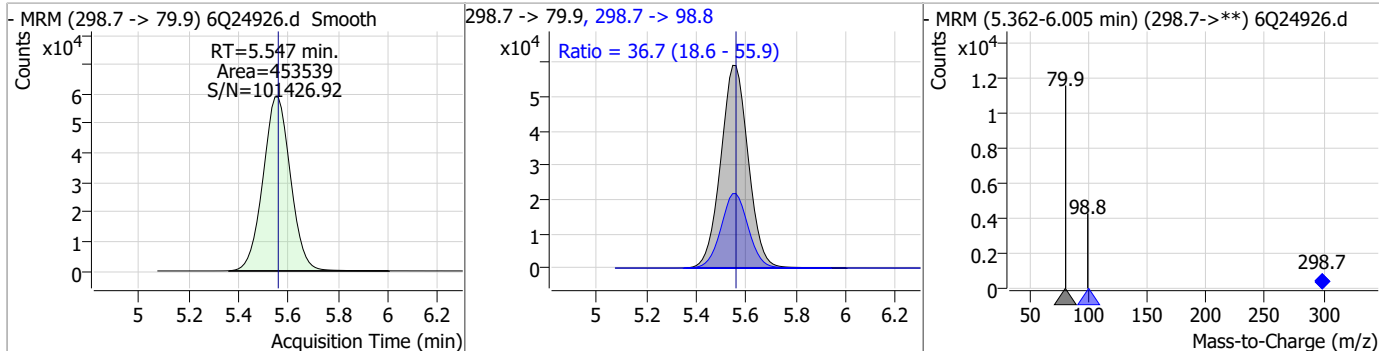
Perfluorinated Compounds by LC/MS/MS



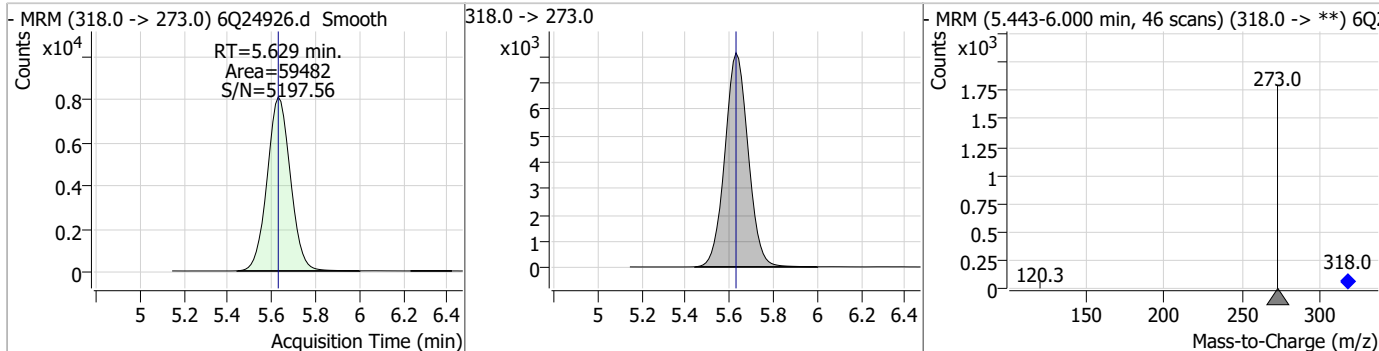
7.7.24 7

Perfluorinated Compounds by LC/MS/MS

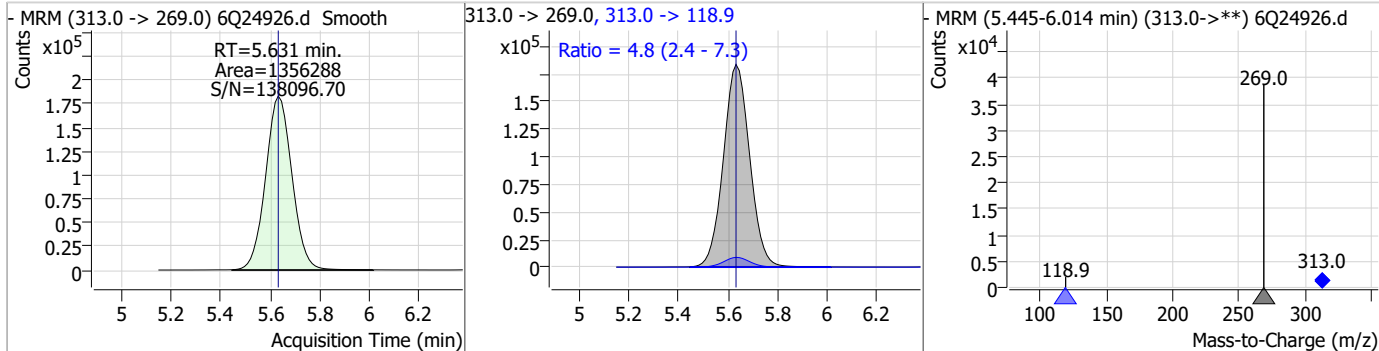
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	56.70	5.55	-0.01	453539	298.7 -> 98.8	36.7	18.6	55.9



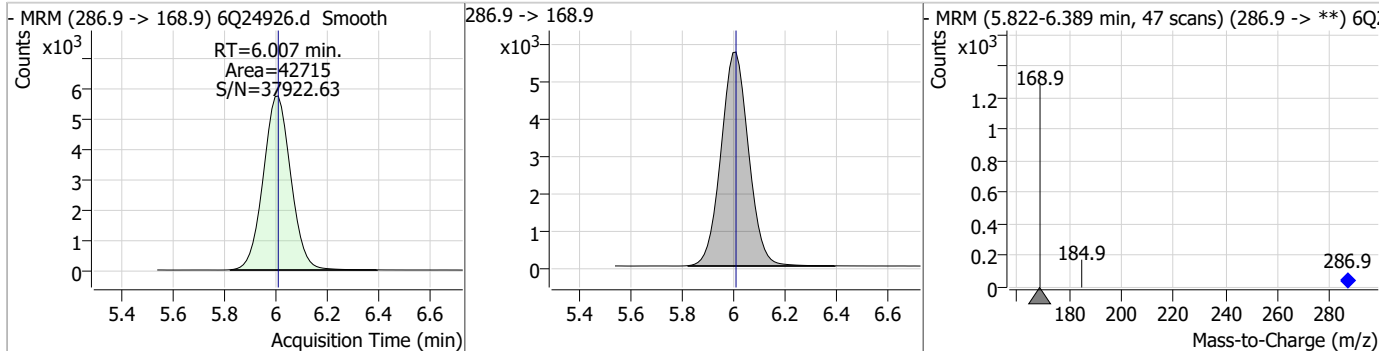
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.40	5.63	0.00	59482				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	63.52	5.63	0.00	1356288	313.0 -> 118.9	4.8	2.4	7.3



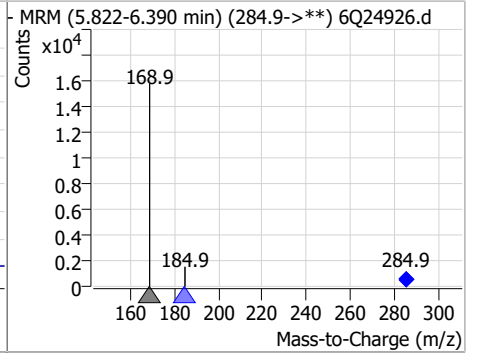
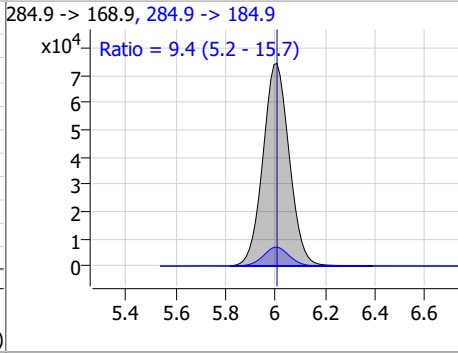
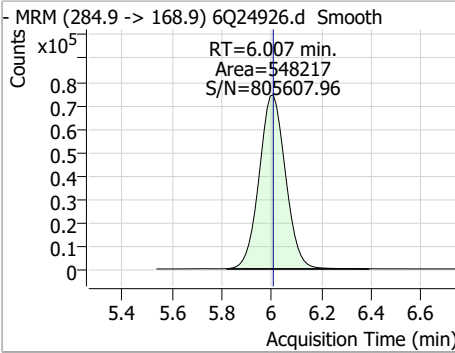
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.63	6.01	0.00	42715				



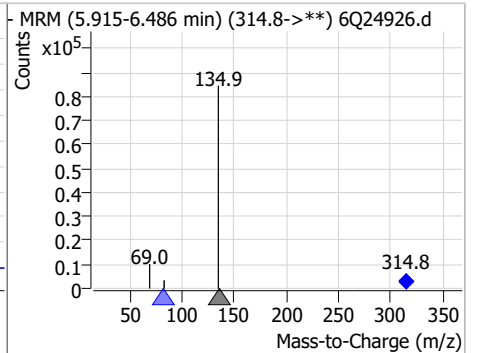
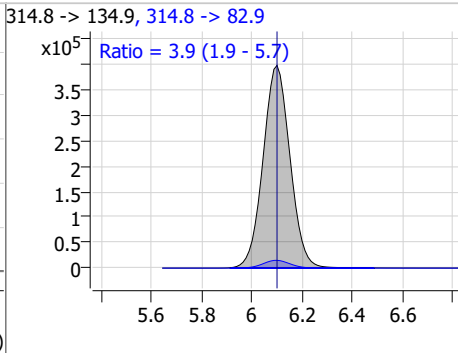
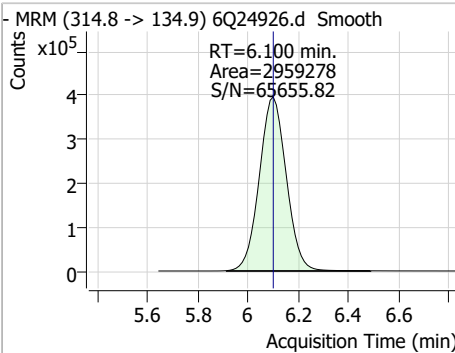
7.7.24
7

Perfluorinated Compounds by LC/MS/MS

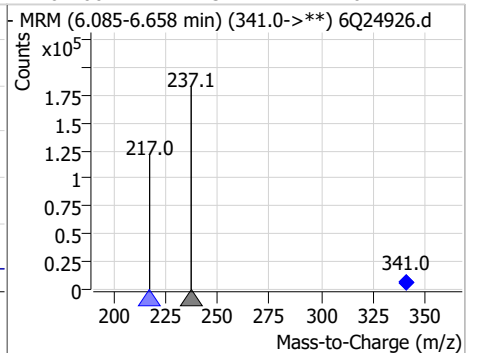
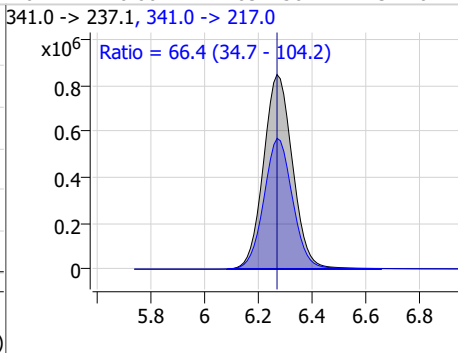
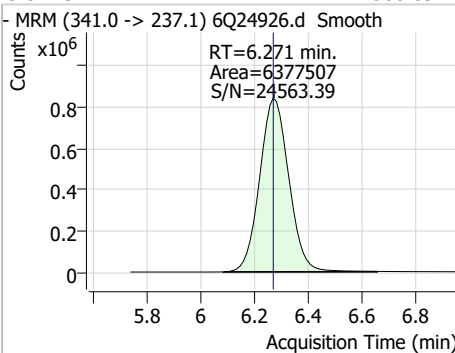
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	130.41	6.01	0.00	548217	284.9 -> 184.9	9.4	5.2	15.7



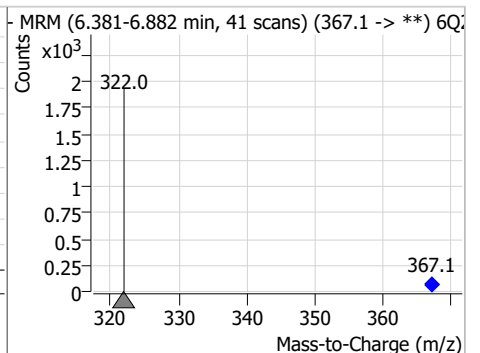
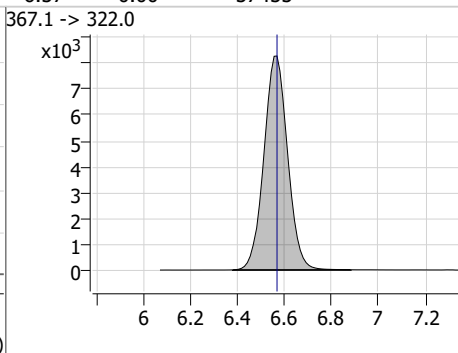
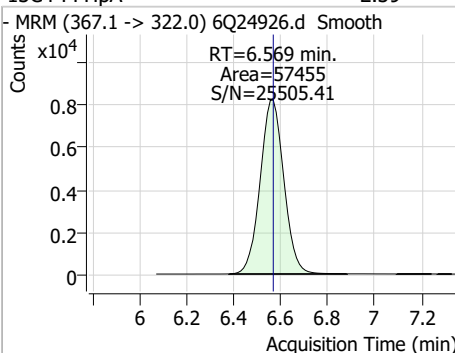
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	111.46	6.10	0.00	2959278	314.8 -> 82.9	3.9	1.9	5.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1588.89	6.27	0.00	6377507	341.0 -> 217.0	66.4	34.7	104.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.39	6.57	0.00	57455	367.1 -> 322.0			



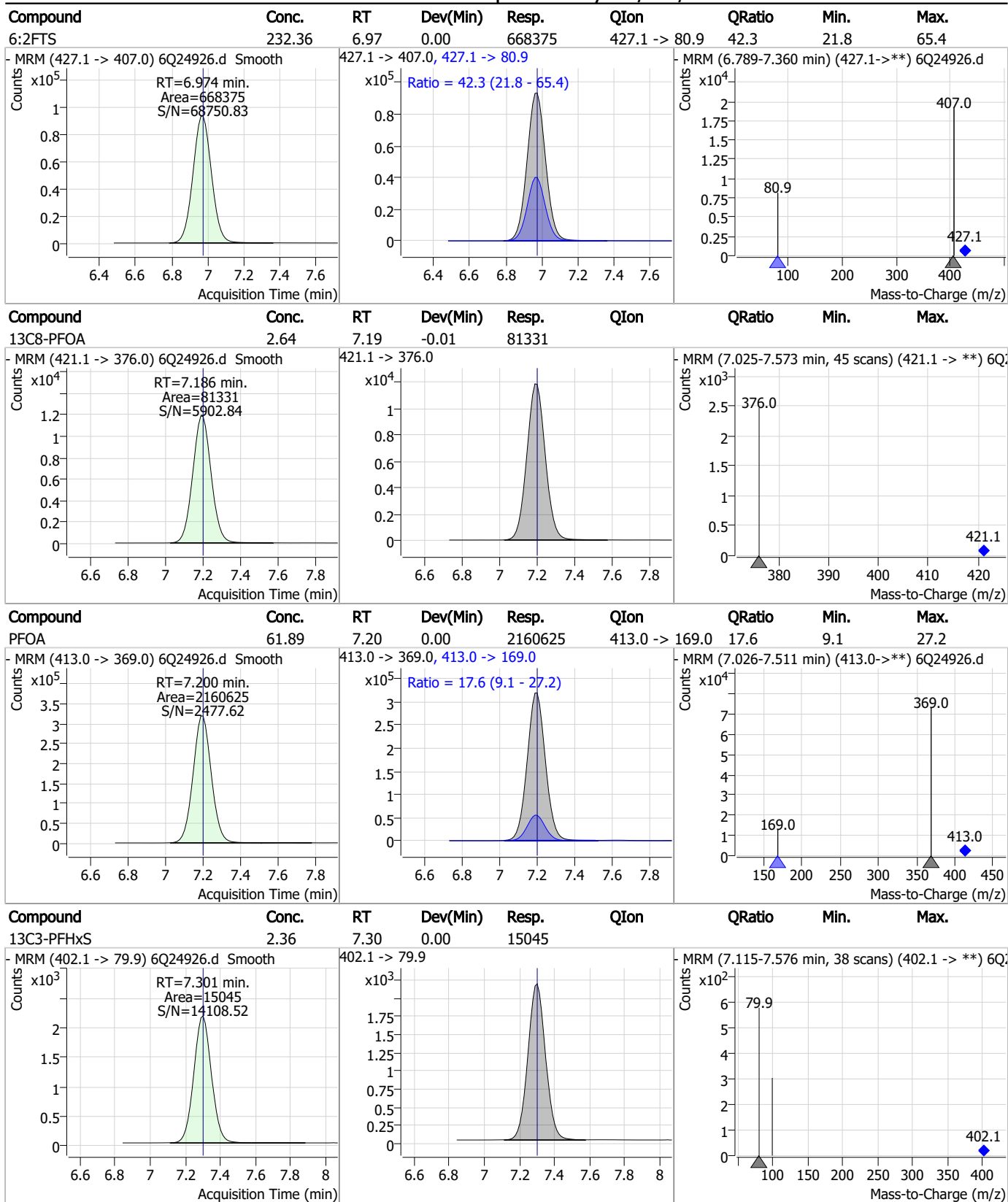
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	66.29	6.57	0.00	2065545	363.1 -> 169.0	13.4	7.1	21.4
PFPeS	60.67	6.61	0.00	494936	349.1 -> 98.9	45.1	21.9	65.7
ADONA	125.68	6.80	-0.01	6597422	376.9 -> 84.8	26.3	14.6	43.7
13C2-6:2FTS	4.08	6.97	0.00	3338	429.1 -> 80.9			

7.7.24

7

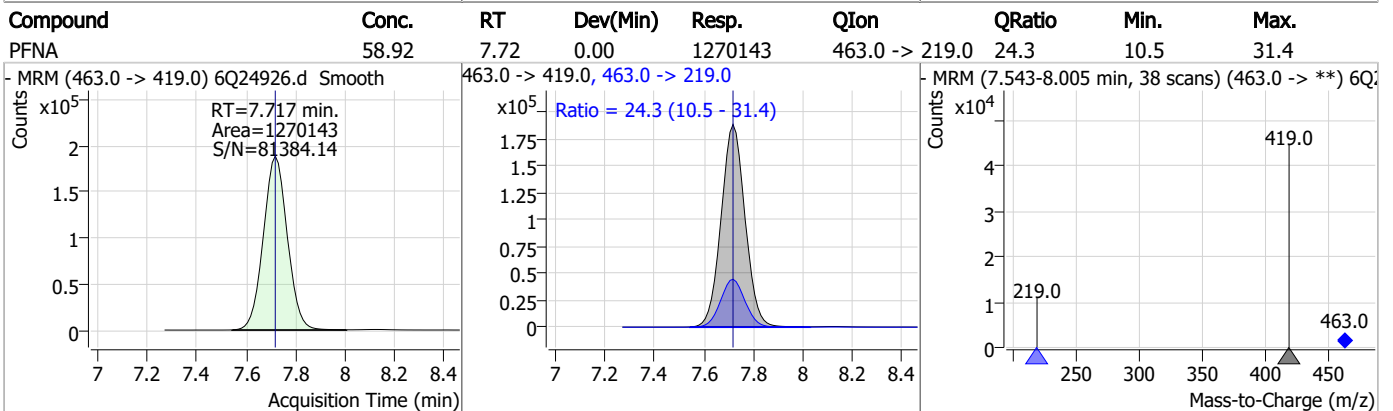
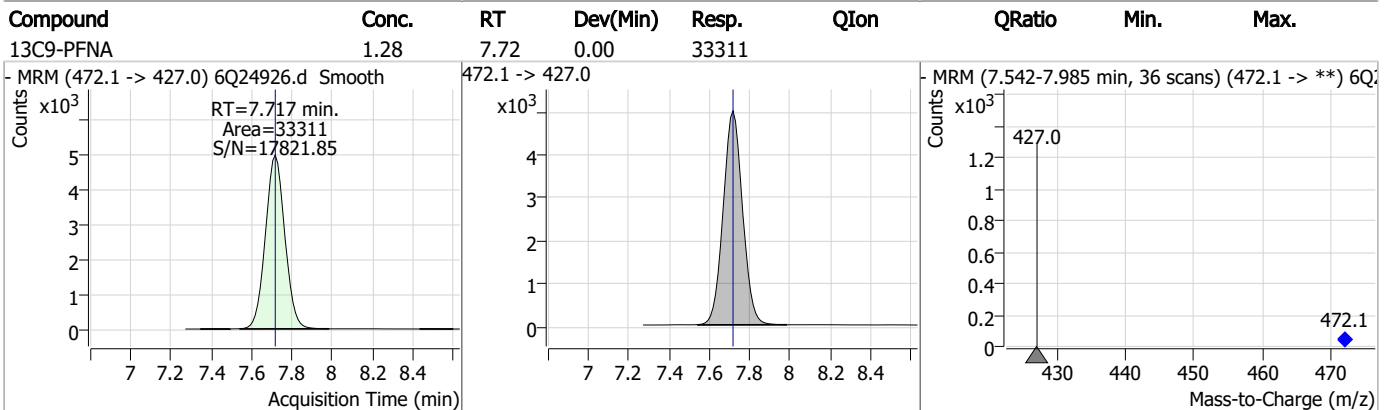
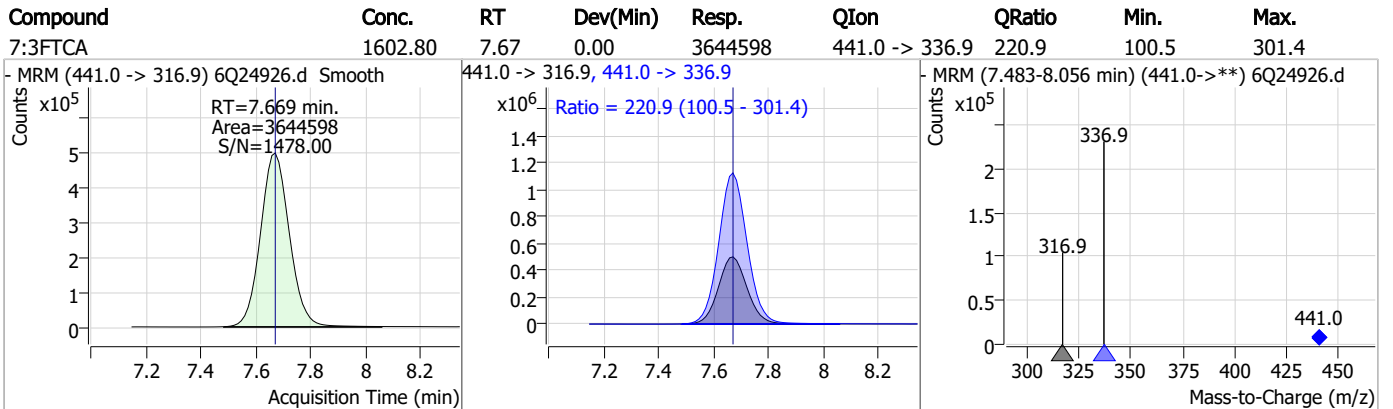
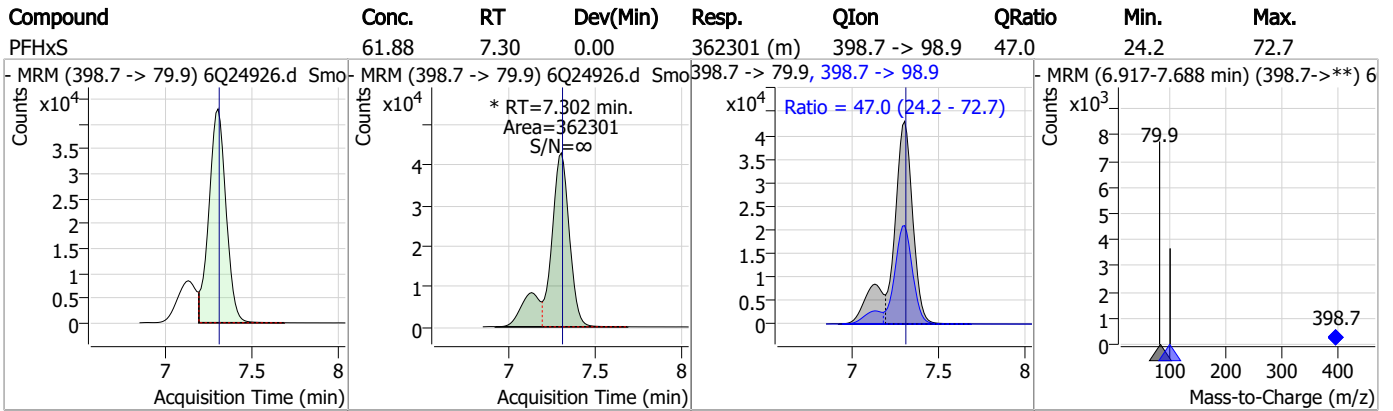
Perfluorinated Compounds by LC/MS/MS



7.7.24

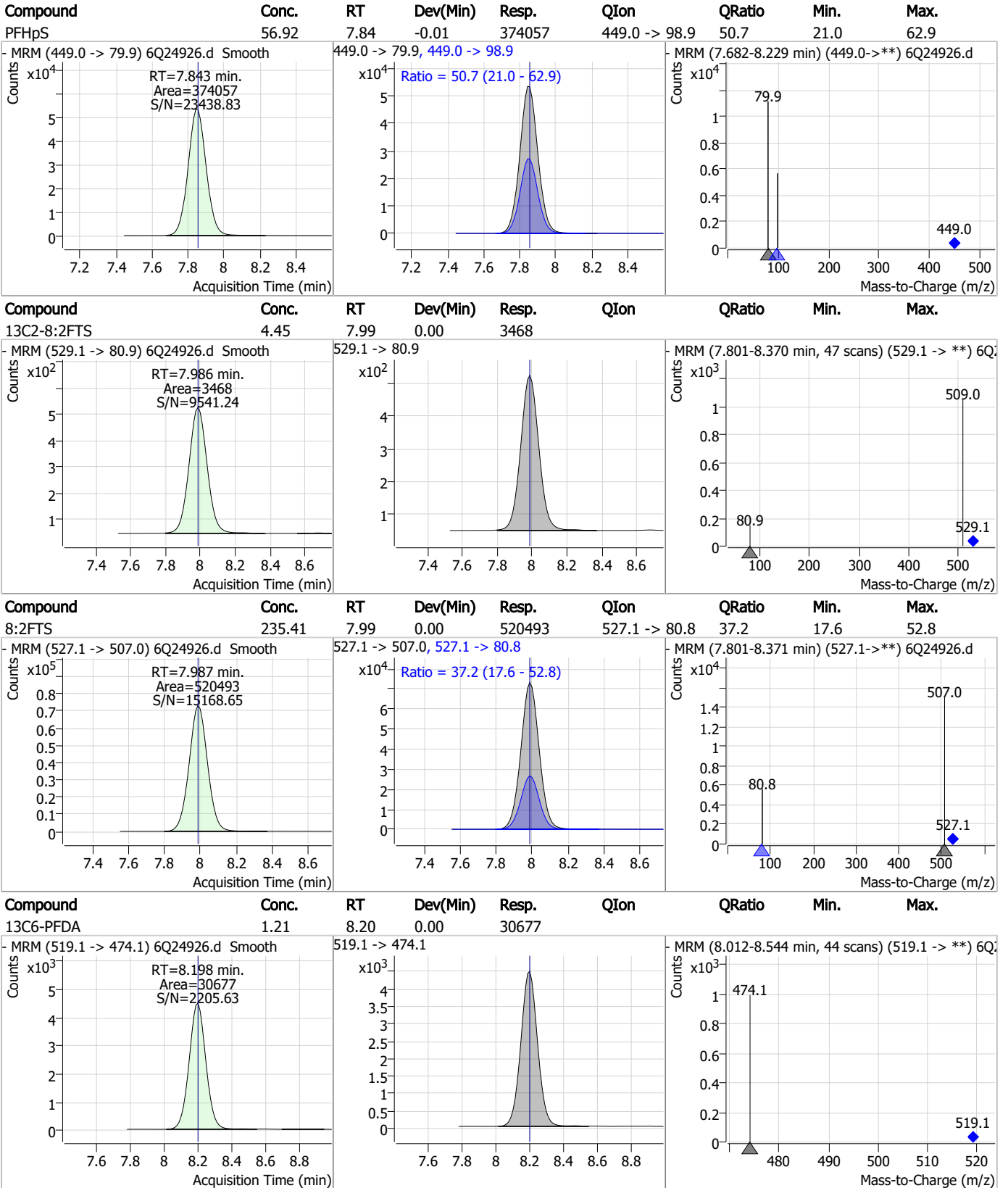
7

Perfluorinated Compounds by LC/MS/MS



7.7.24 7

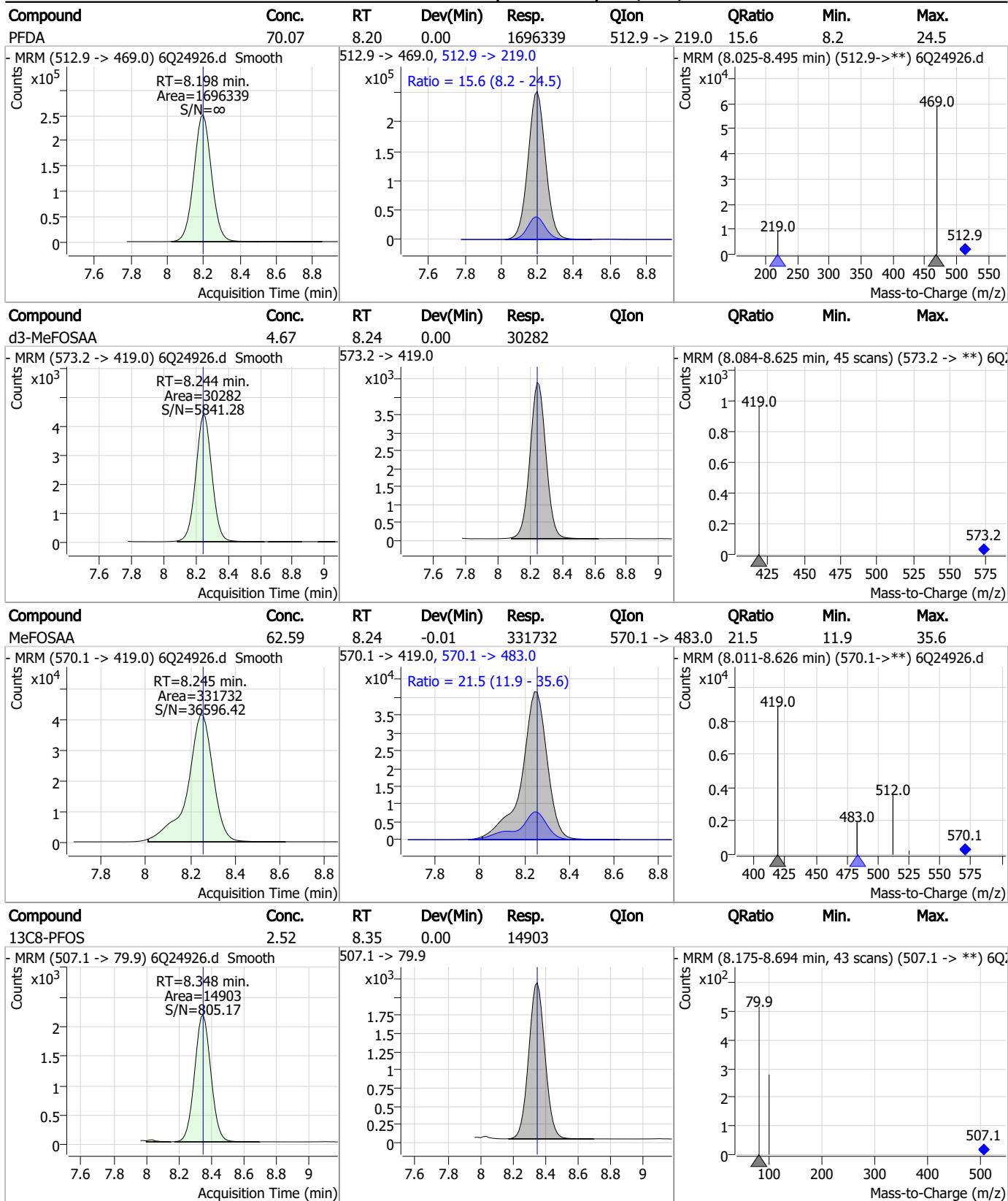
Perfluorinated Compounds by LC/MS/MS



7.7.24 7



Perfluorinated Compounds by LC/MS/MS

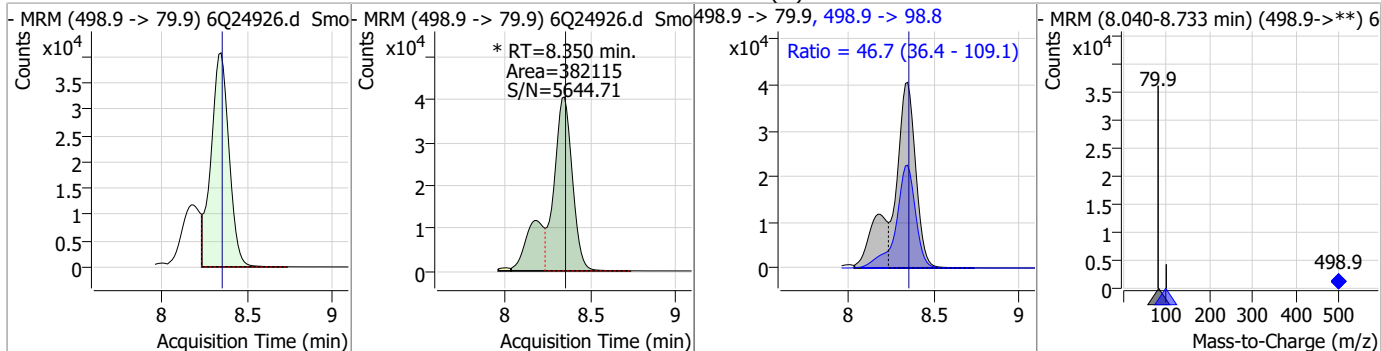


7.7.24

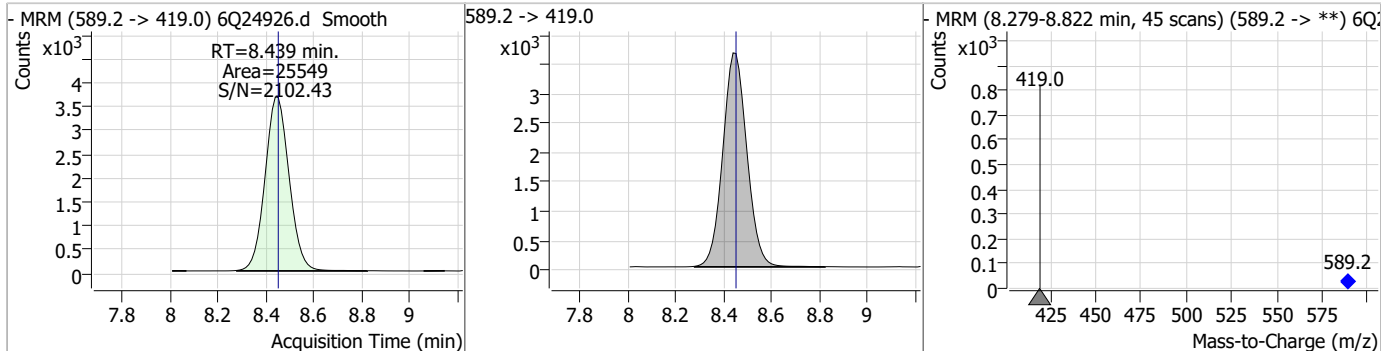
7

Perfluorinated Compounds by LC/MS/MS

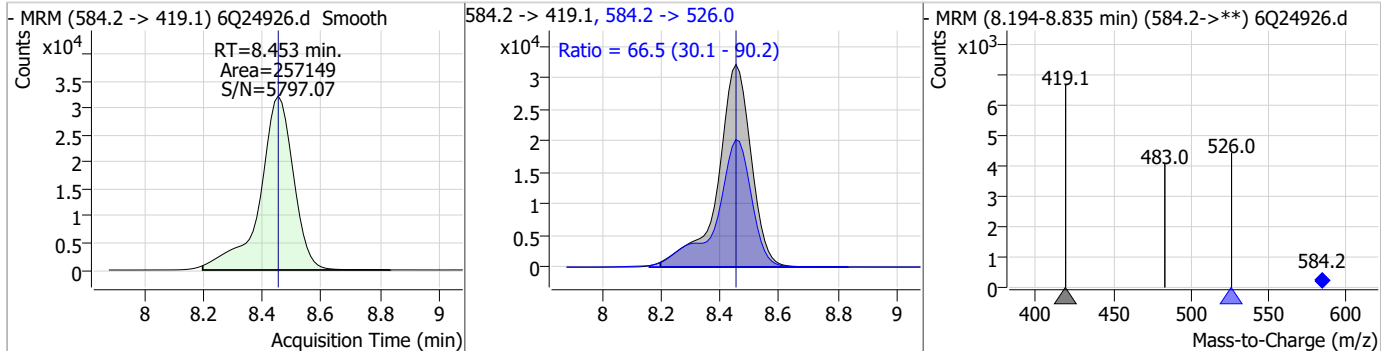
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	59.44	8.35	0.00	382115 (m)	498.9 -> 98.8	46.7	36.4	109.1



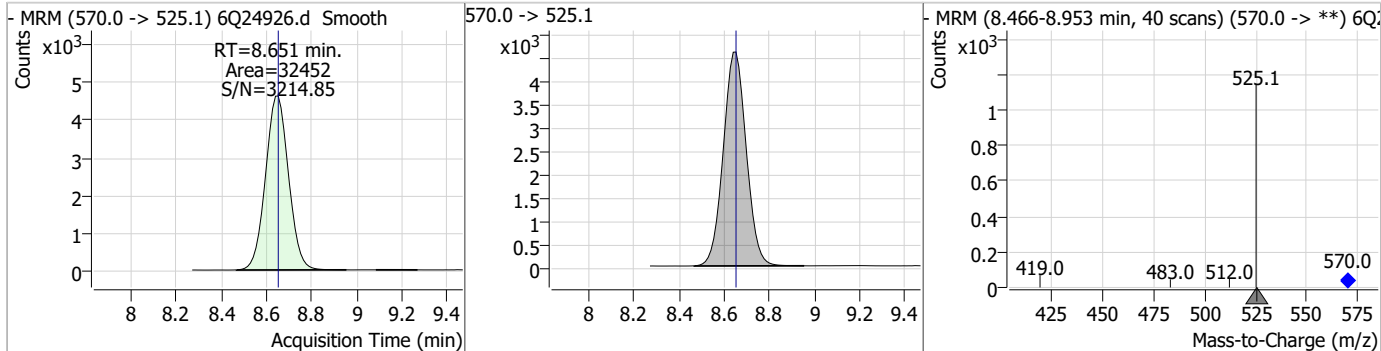
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.07	8.44	-0.01	25549				



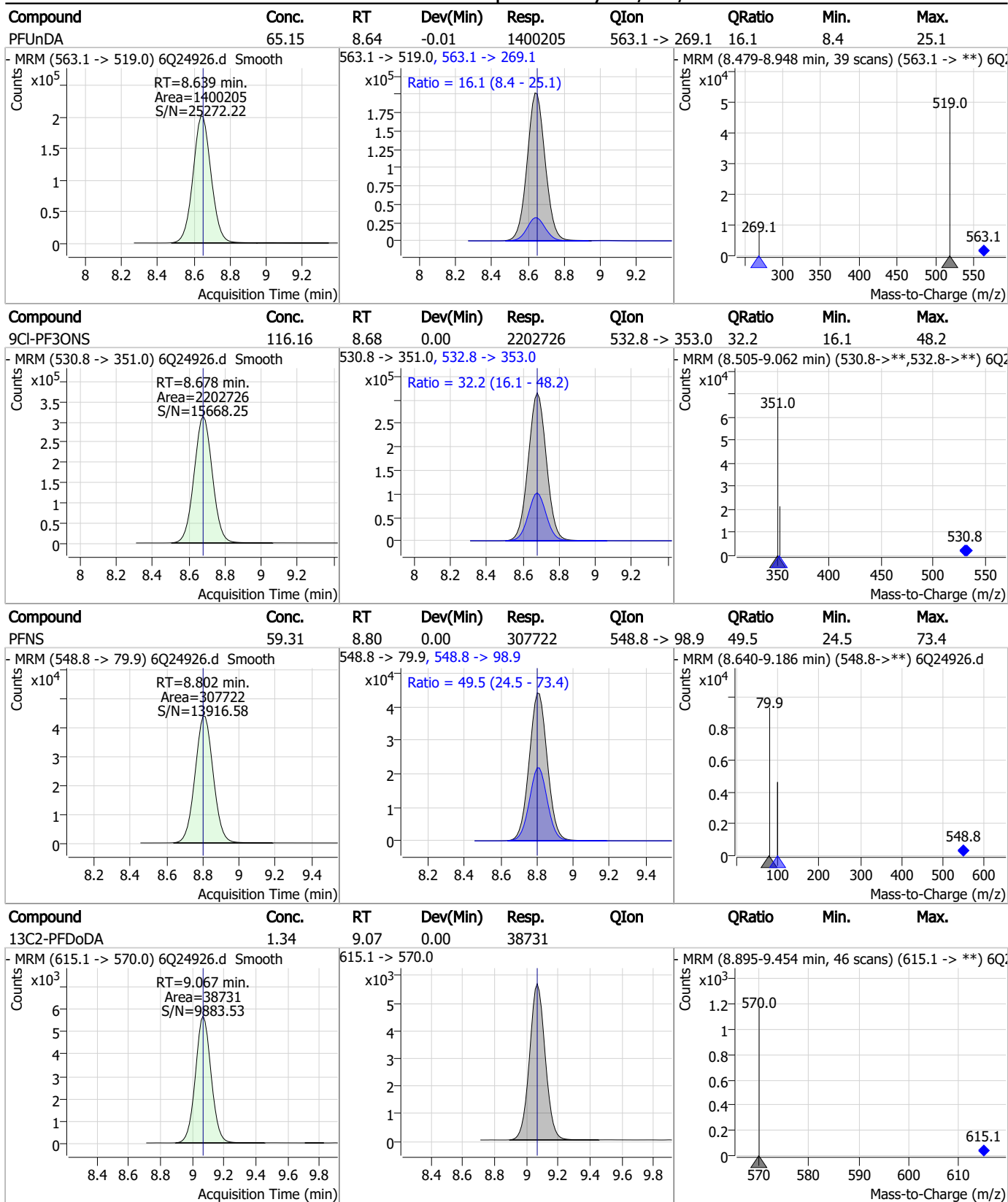
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	60.46	8.45	0.00	257149	584.2 -> 526.0	66.5	30.1	90.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.15	8.65	0.00	32452				



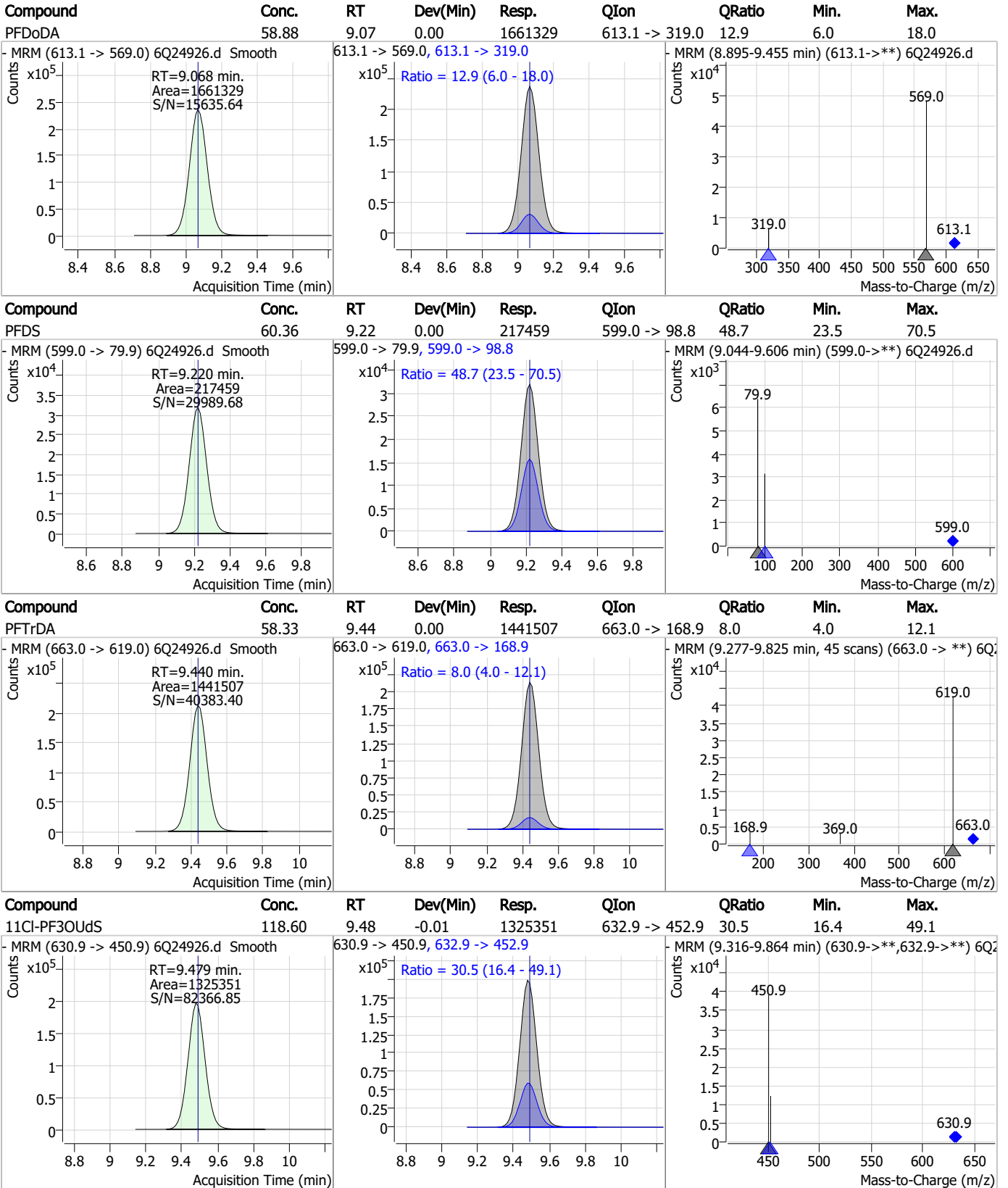
Perfluorinated Compounds by LC/MS/MS



7.7.24

7

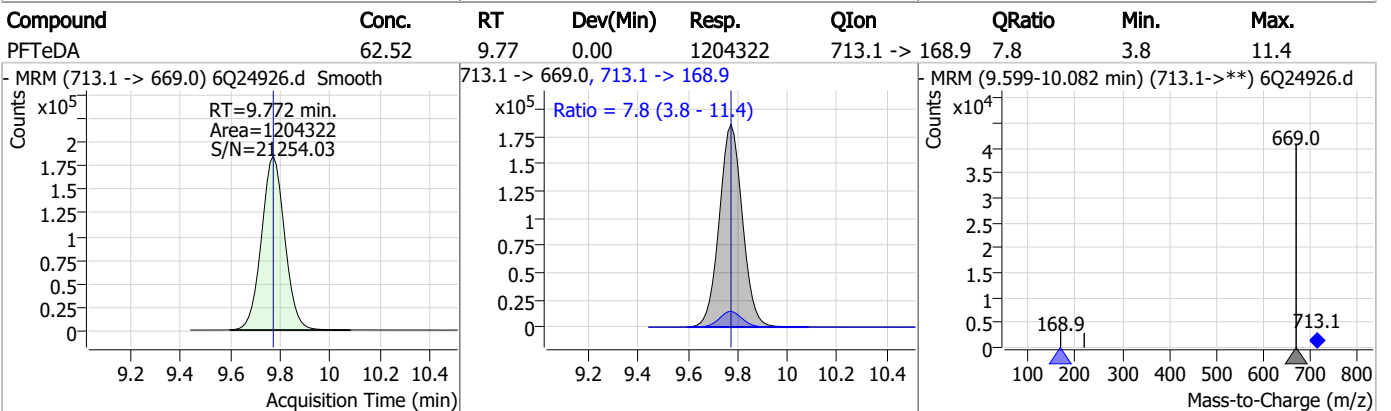
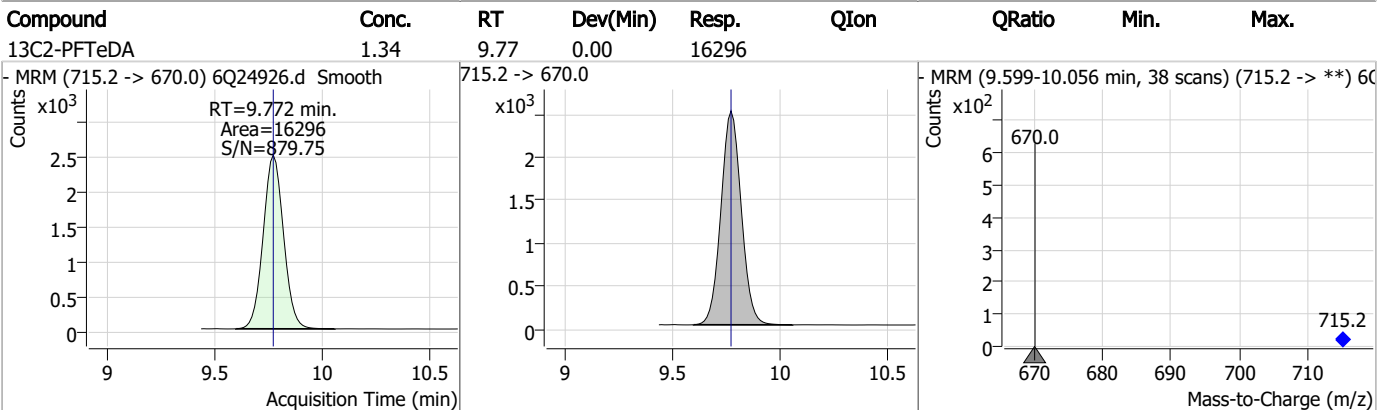
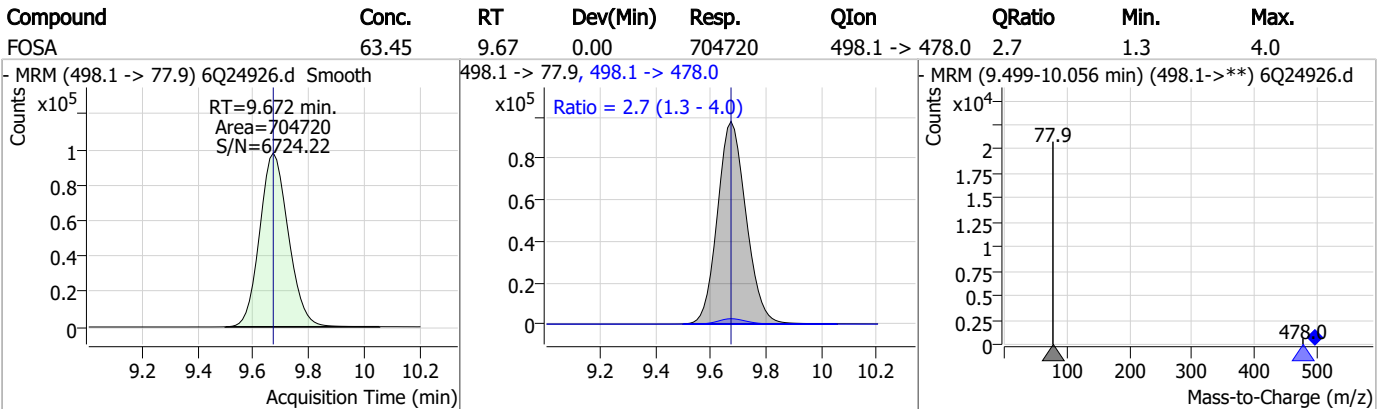
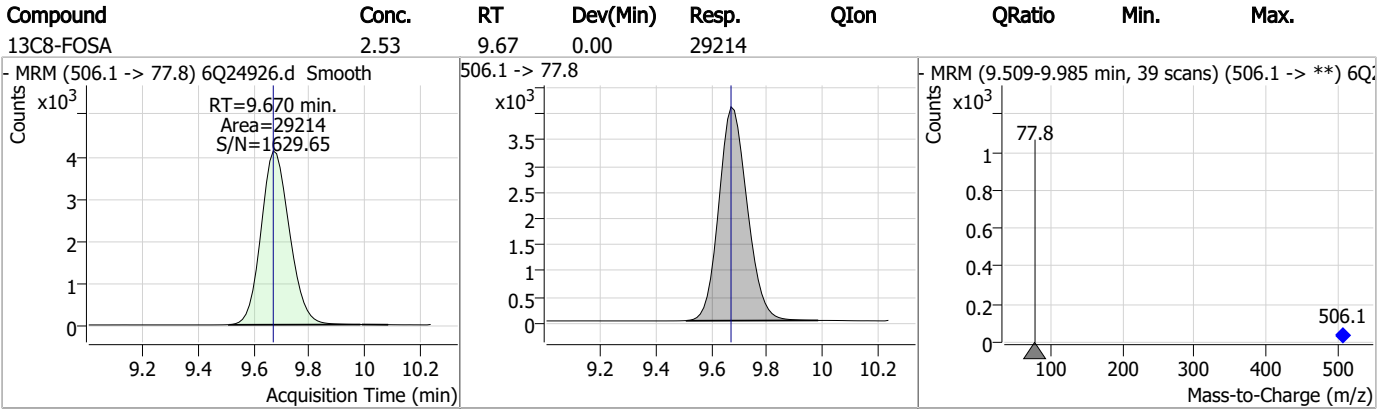
Perfluorinated Compounds by LC/MS/MS



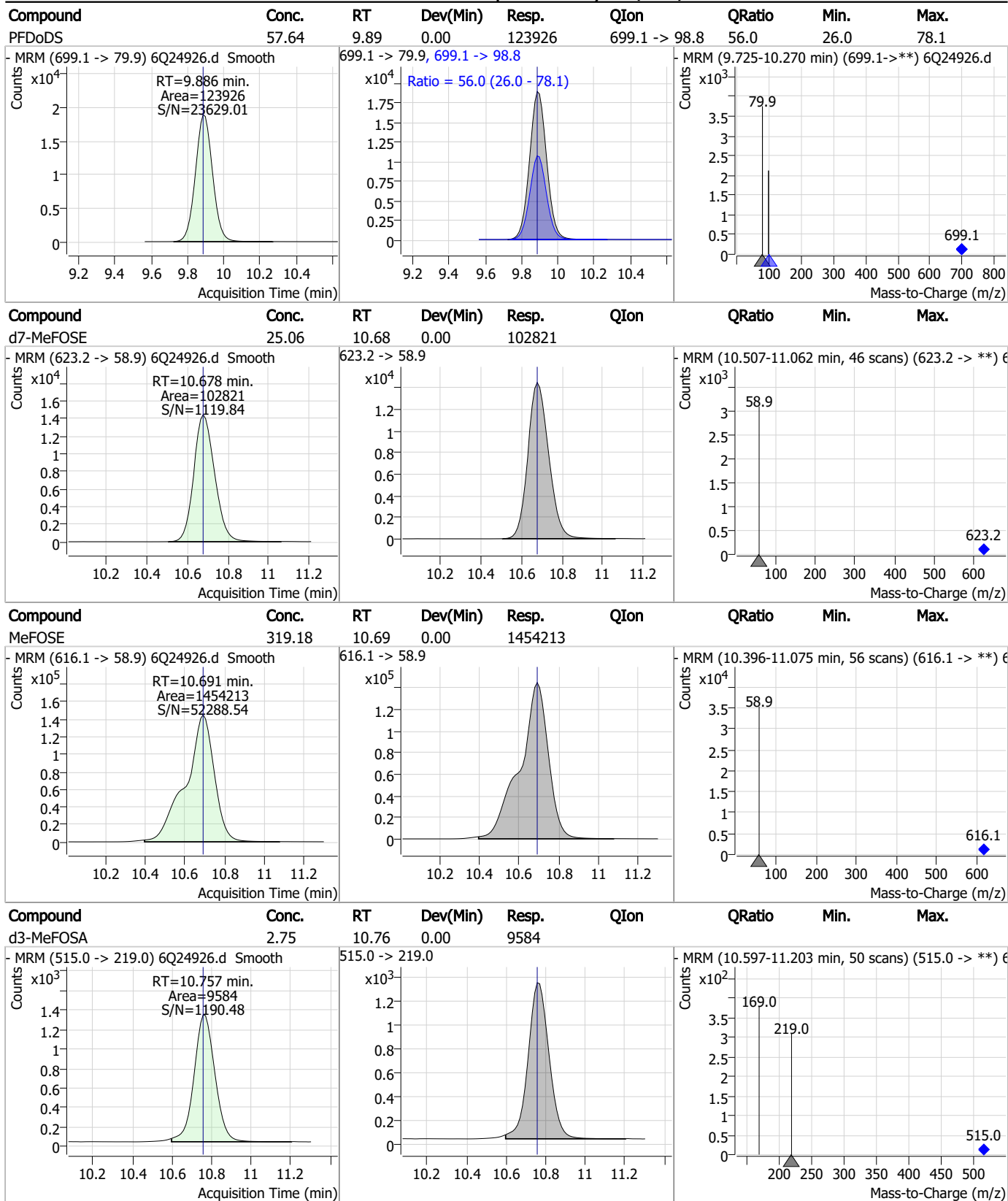
7.7.24
7



Perfluorinated Compounds by LC/MS/MS



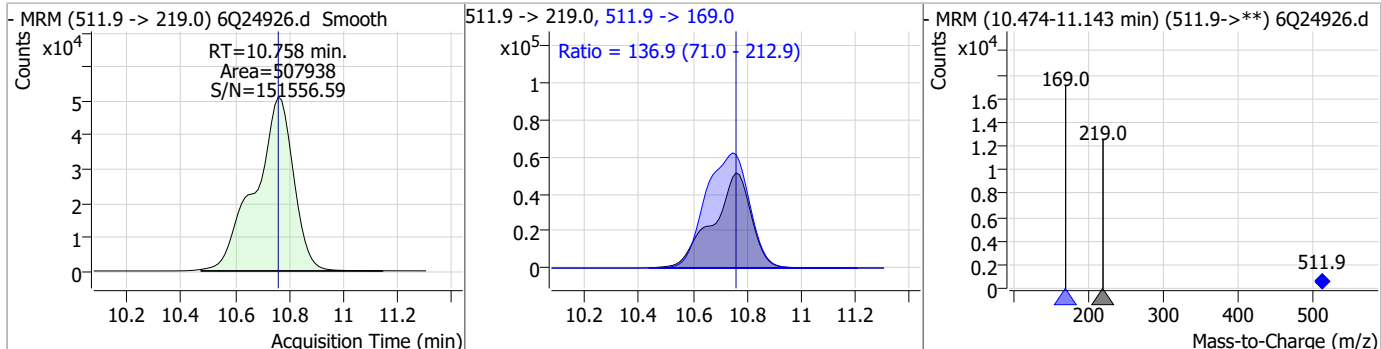
Perfluorinated Compounds by LC/MS/MS



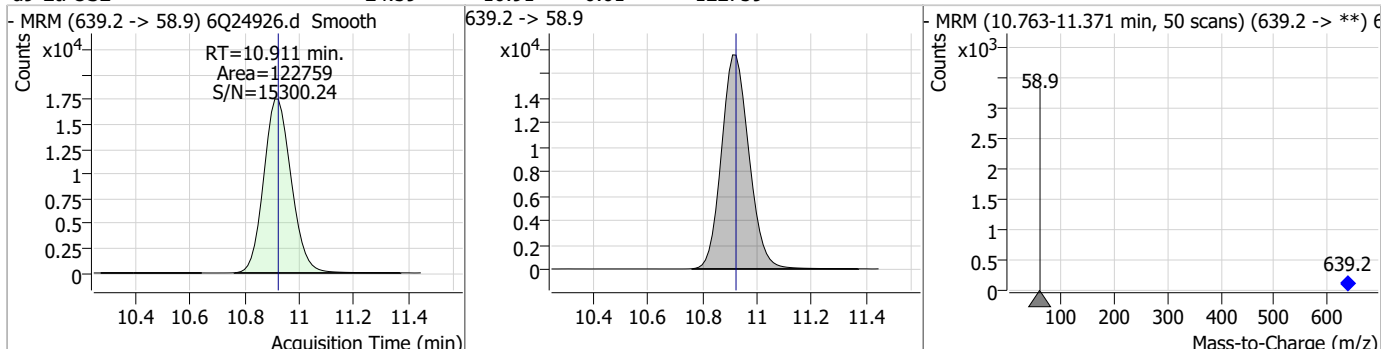
7.7.24
7

Perfluorinated Compounds by LC/MS/MS

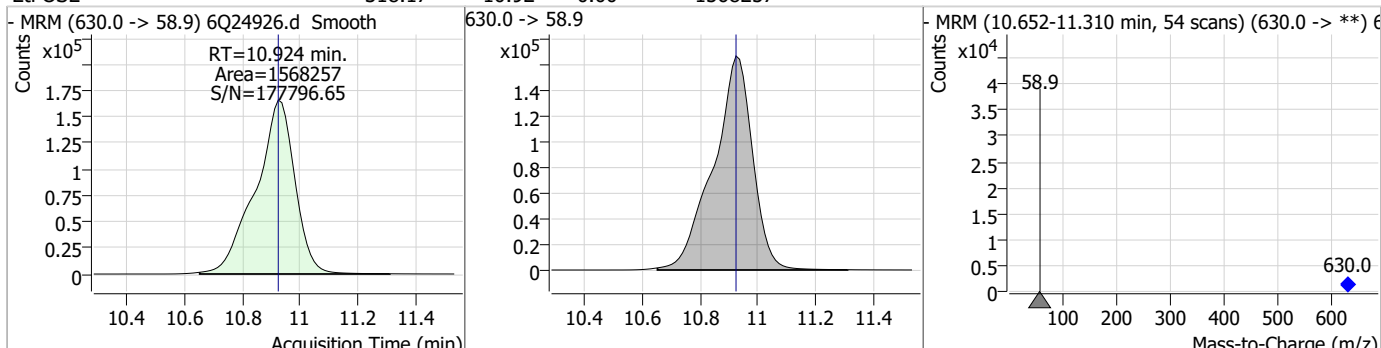
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	117.76	10.76	0.00	507938	511.9 -> 169.0	136.9	71.0	212.9



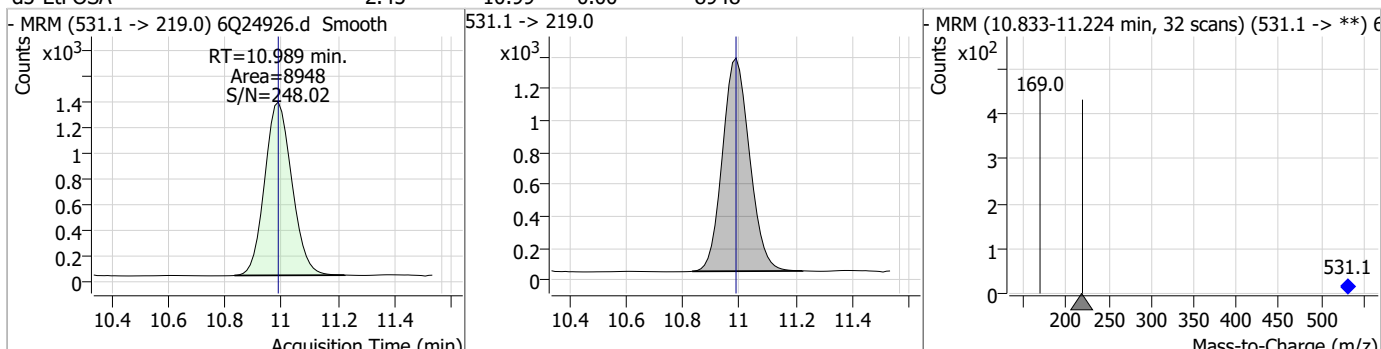
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.59	10.91	-0.01	122759				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	318.17	10.92	0.00	1568257				

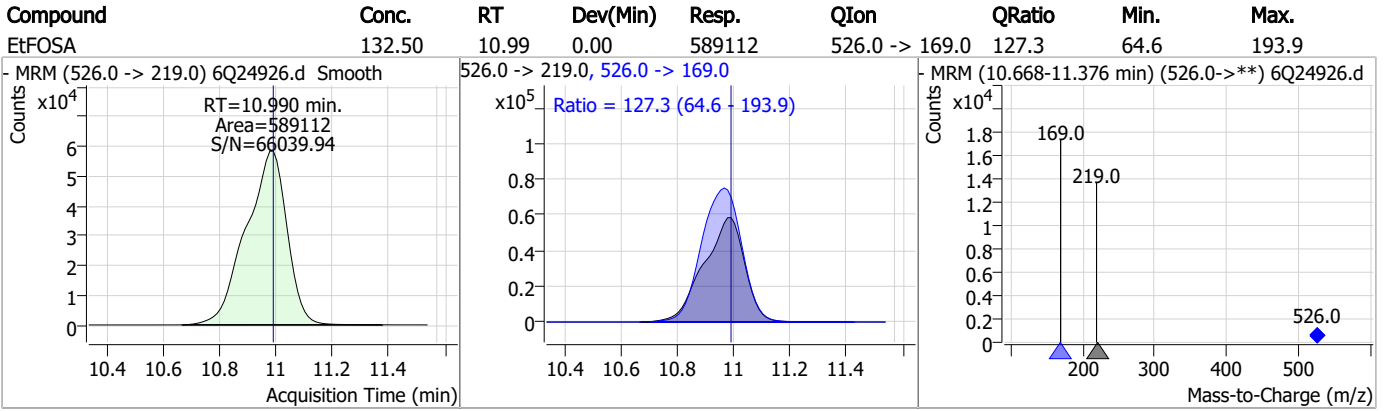


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.45	10.99	0.00	8948				



7.7.24
7

Perfluorinated Compounds by LC/MS/MS



7.7.24

7

Manual Integration Approval Summary

Sample Number: S6Q356-IC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24926.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 16:40 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.7.24.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24928.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 5:09:01 PM
 Sample Name : icv356-4
 Vial : P1-B1
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	181593	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	72608	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	64920	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	65517	2.50 µg/L	0.000
M8-PFOA	7.186	421.1 -> 376.0	84989	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	34596	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	33955	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	37298	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	39548	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16068	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30908	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	27640	2.50 µg/L	-0.013
M3-PFHxS	7.301	402.1 -> 79.9	17196	2.50 µg/L	0.000
M8-PFOS	8.336	507.1 -> 79.9	15687	2.50 µg/L	-0.013
M2-4:2FTS	5.304	329.1 -> 80.9	2782	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4520	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4034	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	34715	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	44916	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	25281	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	102552	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	133002	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9467	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9190	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	14888	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	74677	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10586	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	102046	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	31882	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	34625	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	63877	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2782	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4520	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4034	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C2-PFDoDA	9.067	615.1 -> 570.0	39548	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16068	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C3-PFBS	5.546	302.1 -> 79.9	27640	2.48 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C3-PFHxS	7.301	402.1 -> 79.9	17196	2.57 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 = 102.7%	
13C4-PFBA	2.972	216.8 -> 171.9	181593	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.569	367.1 -> 322.0	65517	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C5-PFHxA	5.629	318.0 -> 273.0	64920	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C5-PFPeA	4.409	268.3 -> 223.0	72608	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C6-PFDA	8.185	519.1 -> 474.1	33955	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C7-PFUnDA	8.639	570.0 -> 525.1	37298	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-FOSA	9.670	506.1 -> 77.8	30908	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-PFOA	7.186	421.1 -> 376.0	84989	2.40 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C8-PFOS	8.336	507.1 -> 79.9	15687	2.44 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C9-PFNA	7.717	472.1 -> 427.0	34596	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.4%	
d3-MeFOSAA	8.244	573.2 -> 419.0	34715	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	44916	9.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
d3-MeFOSA	10.757	515.0 -> 219.0	9190	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
d5-EtFOSAA	8.439	589.2 -> 419.0	25281	4.61 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.2%	
d7-MeFOSE	10.678	623.2 -> 58.9	102552	22.96 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
d9-EtFOSE	10.923	639.2 -> 58.9	133002	24.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
d5-EtFOSA	10.989	531.1 -> 219.0	9467	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	44677	9.82 µg/L	98
		327.1 -> 80.9	18542		
6:2FTS	6.962	427.1 -> 407.0	38072	9.78 µg/L	98
		427.1 -> 80.9	16029		
8:2FTS	7.987	527.1 -> 507.0	26792	10.42 µg/L	96
		527.1 -> 80.8	10072		
EtFOSAA	8.452	584.2 -> 419.1	10518	2.50 µg/L	87
		584.2 -> 526.0	7320		
FOSA	9.672	498.1 -> 77.9	28700	2.44 µg/L	99
		498.1 -> 478.0	725		
MeFOSAA	8.245	570.1 -> 419.0	15775	2.60 µg/L	97
		570.1 -> 483.0	3518		
PFBA	2.981	212.8 -> 168.9	65480	10.10 µg/L	100
PFBS	5.547	298.7 -> 79.9	21085	2.34 µg/L	97
		298.7 -> 98.8	7503		
PFDA	8.198	512.9 -> 469.0	68460	2.56 µg/L	100
		512.9 -> 219.0	11266		
PFDODA	9.068	613.1 -> 569.0	77002	2.67 µg/L	100
		613.1 -> 319.0	9107		
PFDS	9.220	599.0 -> 79.9	9543	2.52 µg/L	96

7.7.25
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4750			
PFHpA	6.569	363.1 -> 319.0	83767	2.36	µg/L	95
		363.1 -> 169.0	13539			
PFHpS	7.843	449.0 -> 79.9	16720	2.42	µg/L	93
		449.0 -> 98.9	7774			
PFHxA	5.631	313.0 -> 269.0	58201	2.50	µg/L	100
		313.0 -> 118.9	2869			
PFHxS	7.302	398.7 -> 79.9	15225	2.28	µg/L	m 97
		398.7 -> 98.9	7644			
PFNA	7.717	463.0 -> 419.0	54222	2.42	µg/L	89
		463.0 -> 219.0	14068			
PFNS	8.802	548.8 -> 79.9	13436	2.46	µg/L	95
		548.8 -> 98.9	7023			
PFOA	7.187	413.0 -> 369.0	85318	2.34	µg/L	96
		413.0 -> 169.0	16806			
PFOS	8.337	498.9 -> 79.9	16143	2.39	µg/L	m 68
		498.9 -> 98.8	7371			
PFPeA	4.411	263.0 -> 219.0	75135	5.14	µg/L	100
PFPeS	6.608	349.1 -> 79.9	21749	2.33	µg/L	99
		349.1 -> 98.9	9733			
PFTeDA	9.772	713.1 -> 669.0	49003	2.58	µg/L	99
		713.1 -> 168.9	3888			
PFTrDA	9.440	663.0 -> 619.0	67633	2.68	µg/L	99
		663.0 -> 168.9	5651			
PFUnDA	8.639	563.1 -> 519.0	67347	2.73	µg/L	94
		563.1 -> 269.1	9636			
11CI-PF3OUdS	9.491	630.9 -> 450.9	58618	4.99	µg/L	97
		632.9 -> 452.9	18085			
9CI-PF3ONS	8.678	530.8 -> 351.0	103381	5.18	µg/L	96
		532.8 -> 353.0	30931			
ADONA	6.804	376.9 -> 250.9	280766	5.09	µg/L	96
		376.9 -> 84.8	76234			
HFPO-DA	6.007	284.9 -> 168.9	23235	5.26	µg/L	98
		284.9 -> 184.9	2236			
3:3FTCA	3.846	241.0 -> 177.0	12780	12.14	µg/L	100
		241.0 -> 117.0	1534			
5:3FTCA	6.271	341.0 -> 237.1	277468	63.34	µg/L	96
		341.0 -> 217.0	183849			
7:3FTCA	7.669	441.0 -> 316.9	154168	62.12	µg/L	92
		441.0 -> 336.9	329562			
EtFOSA	10.990	526.0 -> 219.0	24542	5.22	µg/L	99
		526.0 -> 169.0	31311			
EtFOSE	10.924	630.0 -> 58.9	65642	12.29	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	20790	5.03	µg/L	99
		511.9 -> 169.0	29171			
MeFOSE	10.691	616.1 -> 58.9	61091	13.44	µg/L	100
PFDoDS	9.886	699.1 -> 79.9	5835	2.58	µg/L	99
		699.1 -> 98.8	3089			
NFDHA	5.512	295.0 -> 201.0	15092	5.04	µg/L	100
		295.0 -> 84.9	4002			
PFMBA	4.838	279.0 -> 85.1	59763	5.09	µg/L	100
PFMPA	3.538	229.0 -> 84.9	44220	5.07	µg/L	100
PFEESA	6.100	314.8 -> 134.9	126799	4.38	µg/L	100
		314.8 -> 82.9	4804			

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

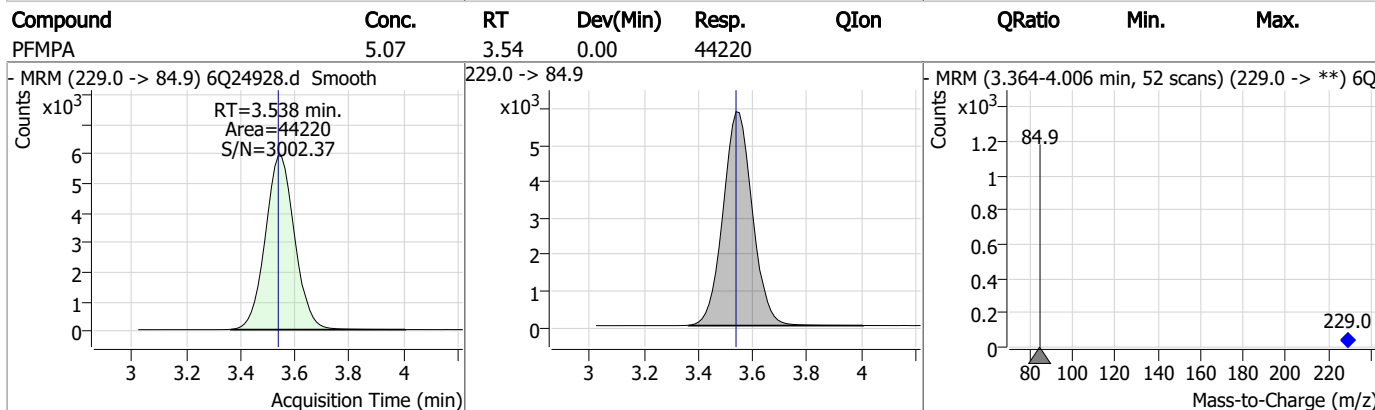
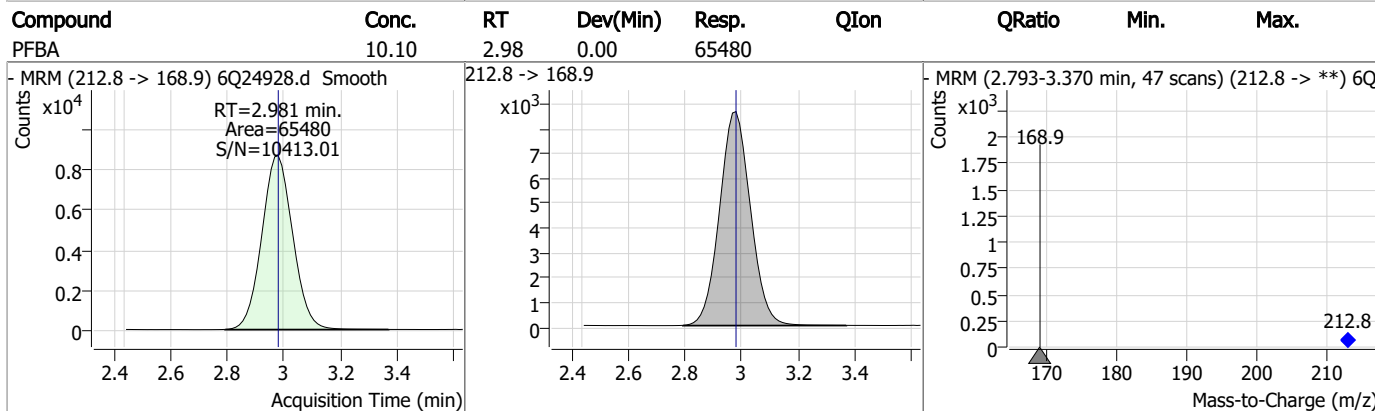
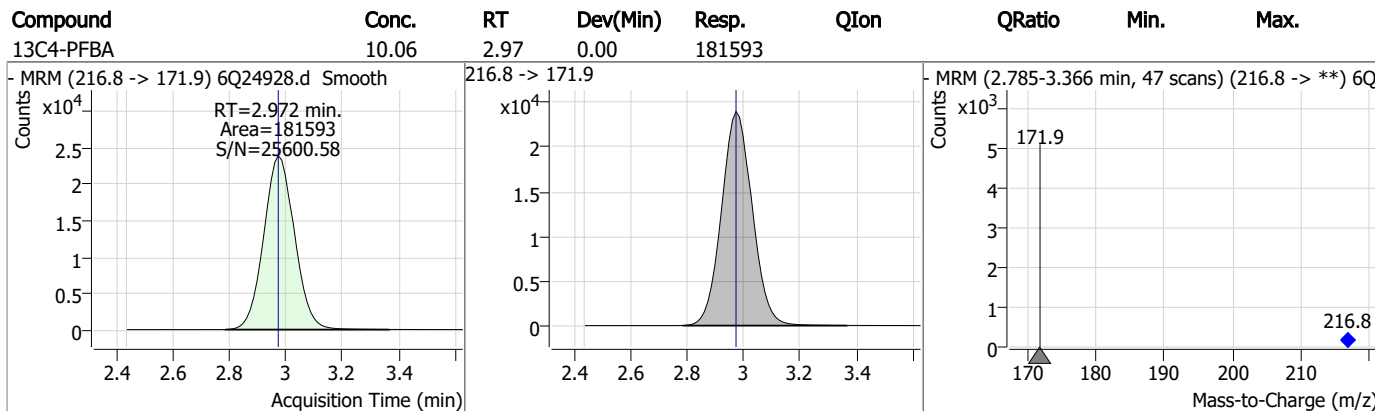
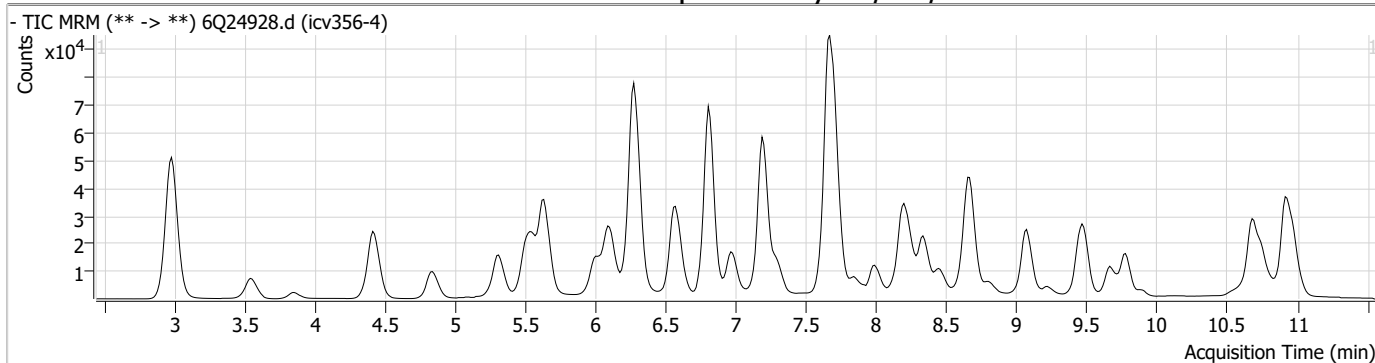
Perfluorinated Compounds by LC/MS/MS

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

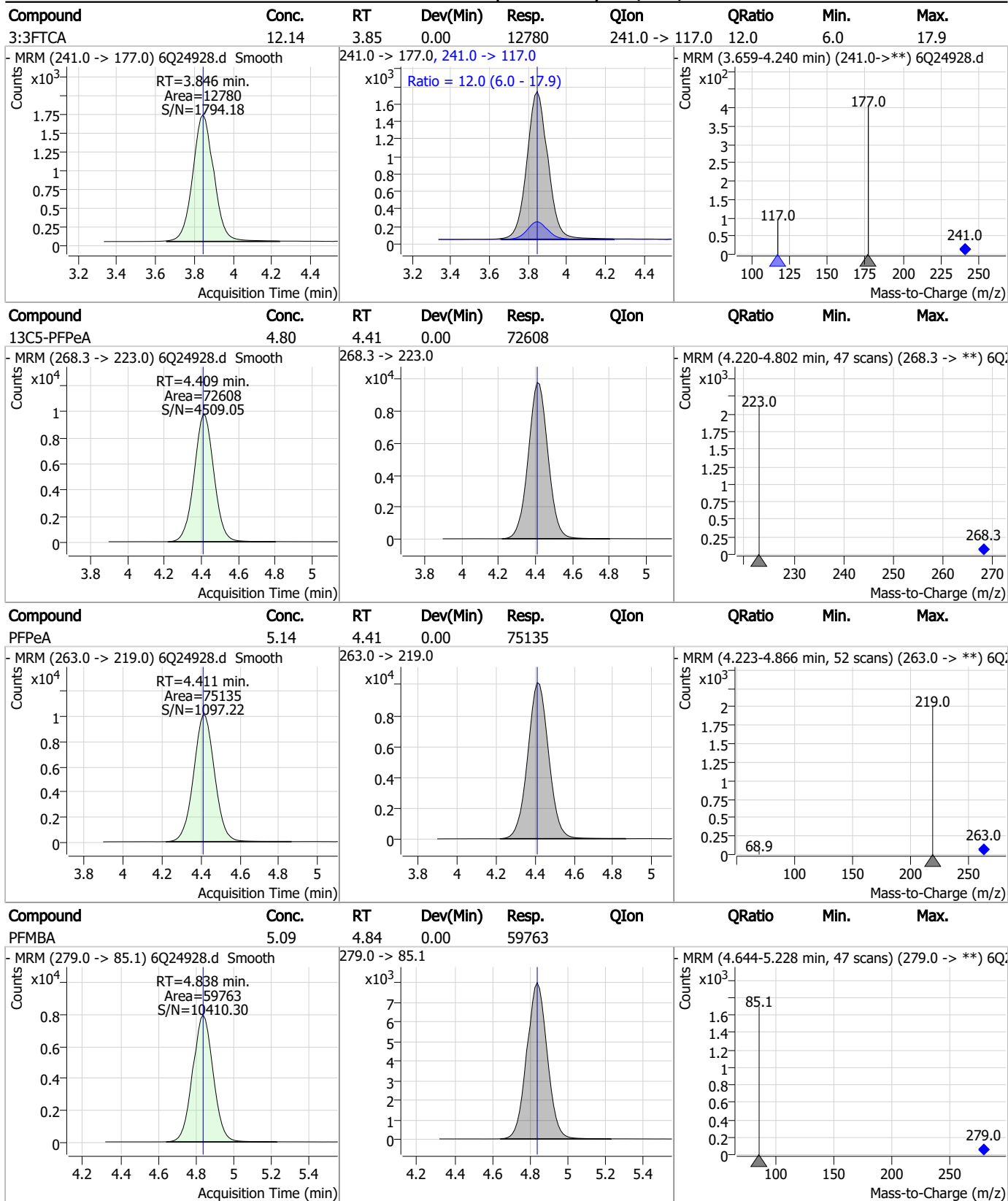
7.7.25

7

Perfluorinated Compounds by LC/MS/MS

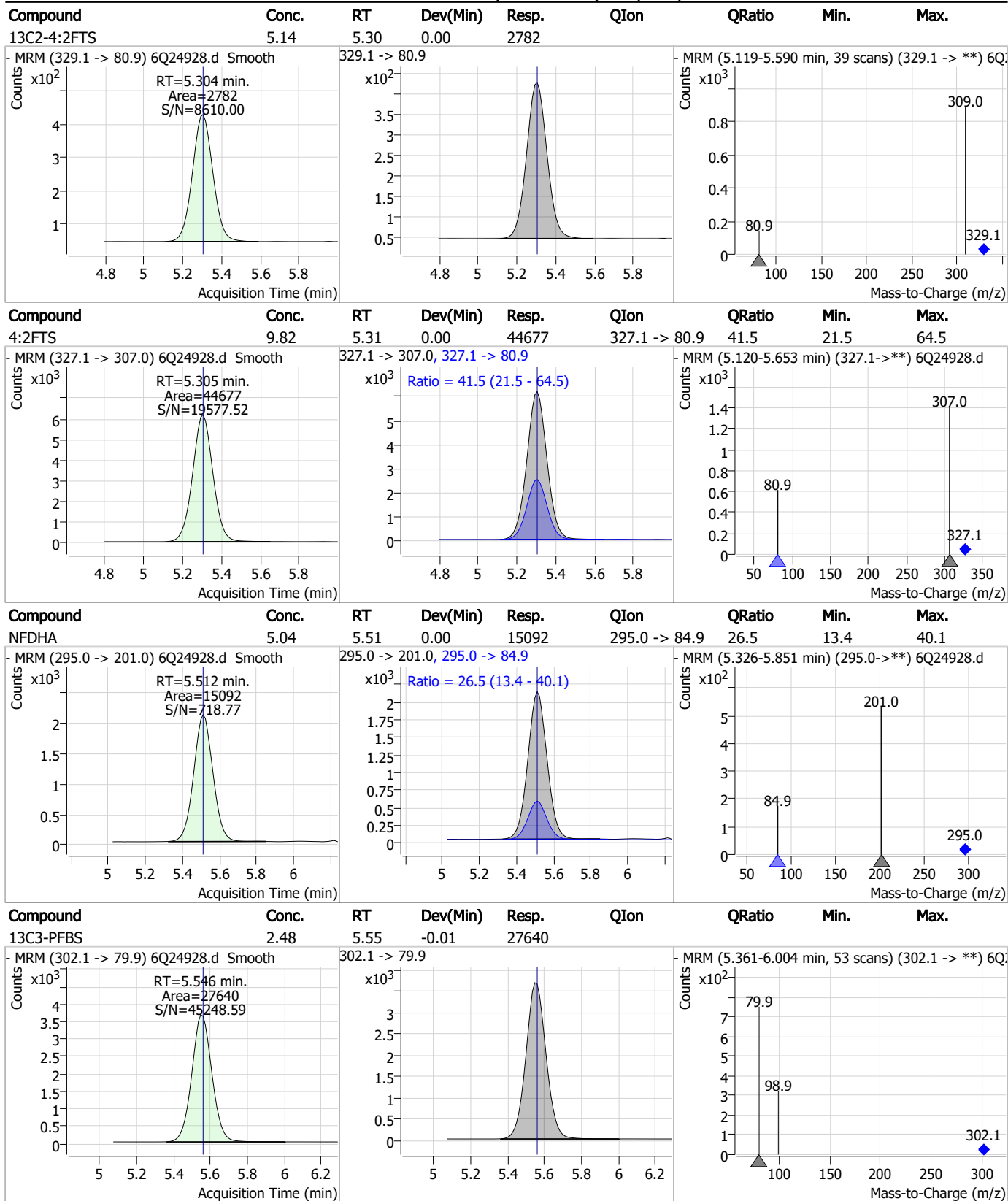


Perfluorinated Compounds by LC/MS/MS



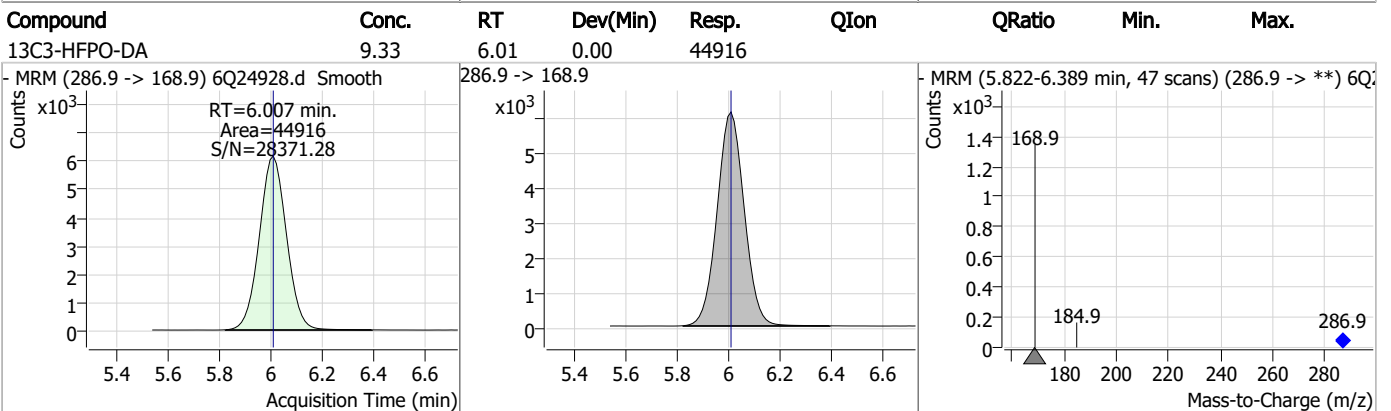
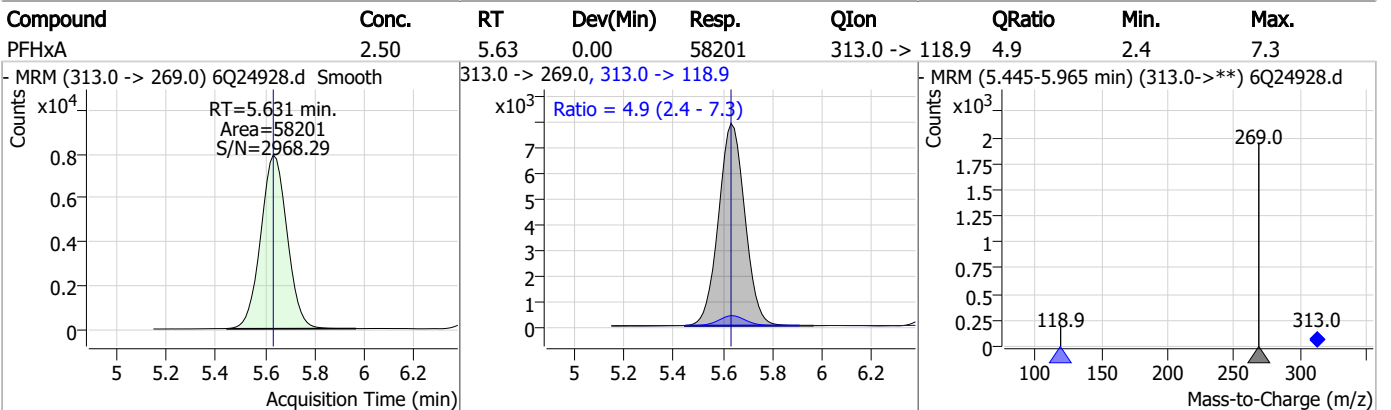
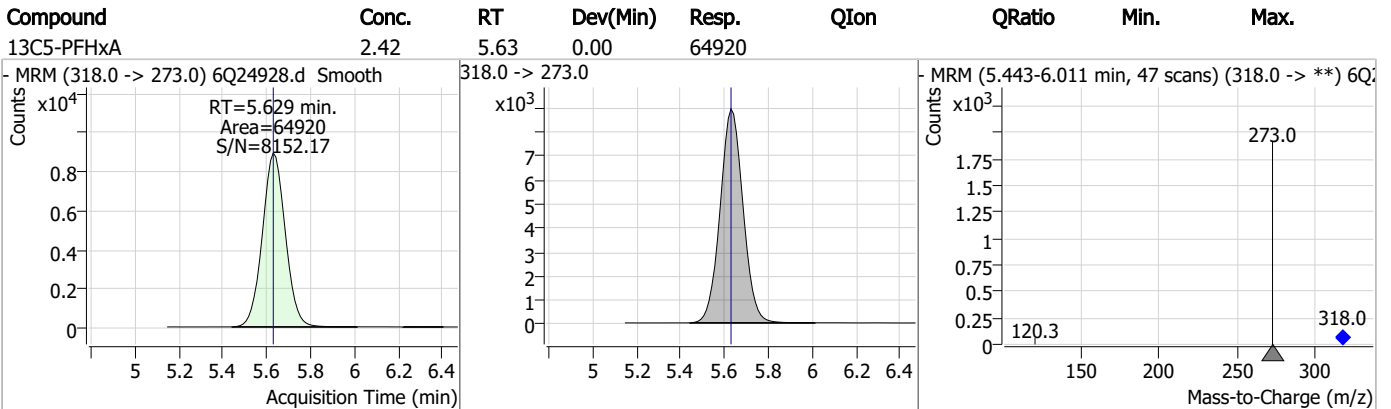
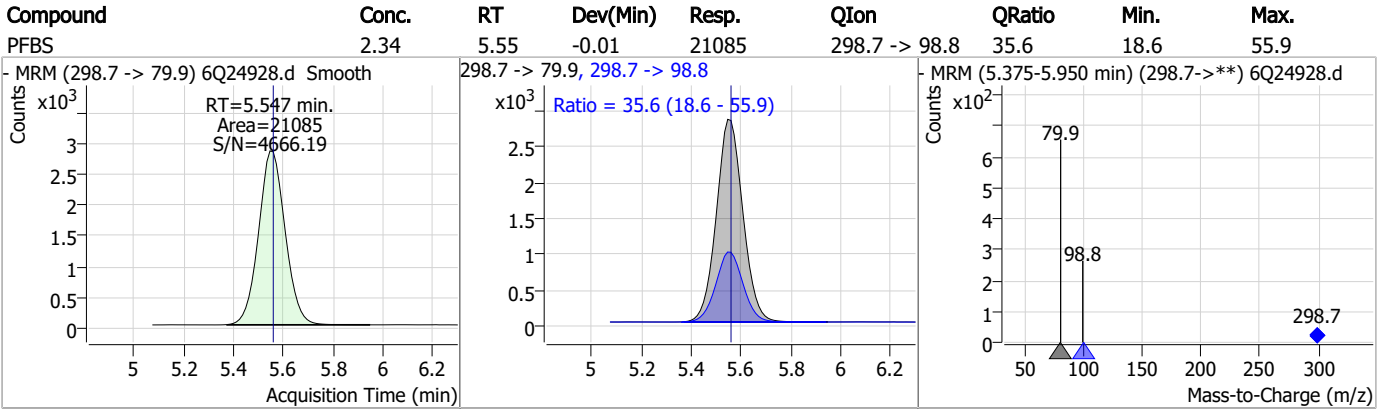
7.7.25
7

Perfluorinated Compounds by LC/MS/MS



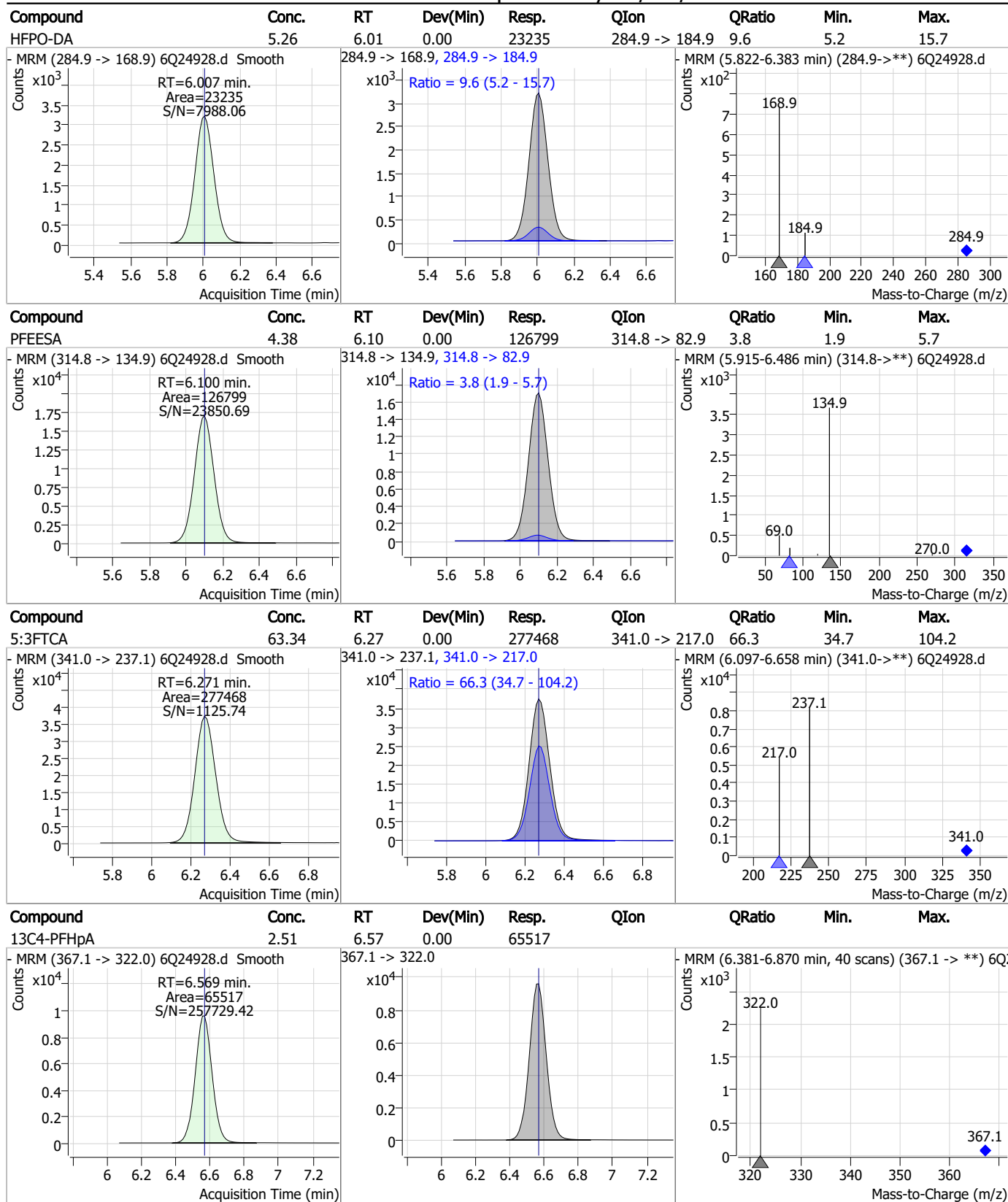
7.7.25
7

Perfluorinated Compounds by LC/MS/MS



7.7.25
7

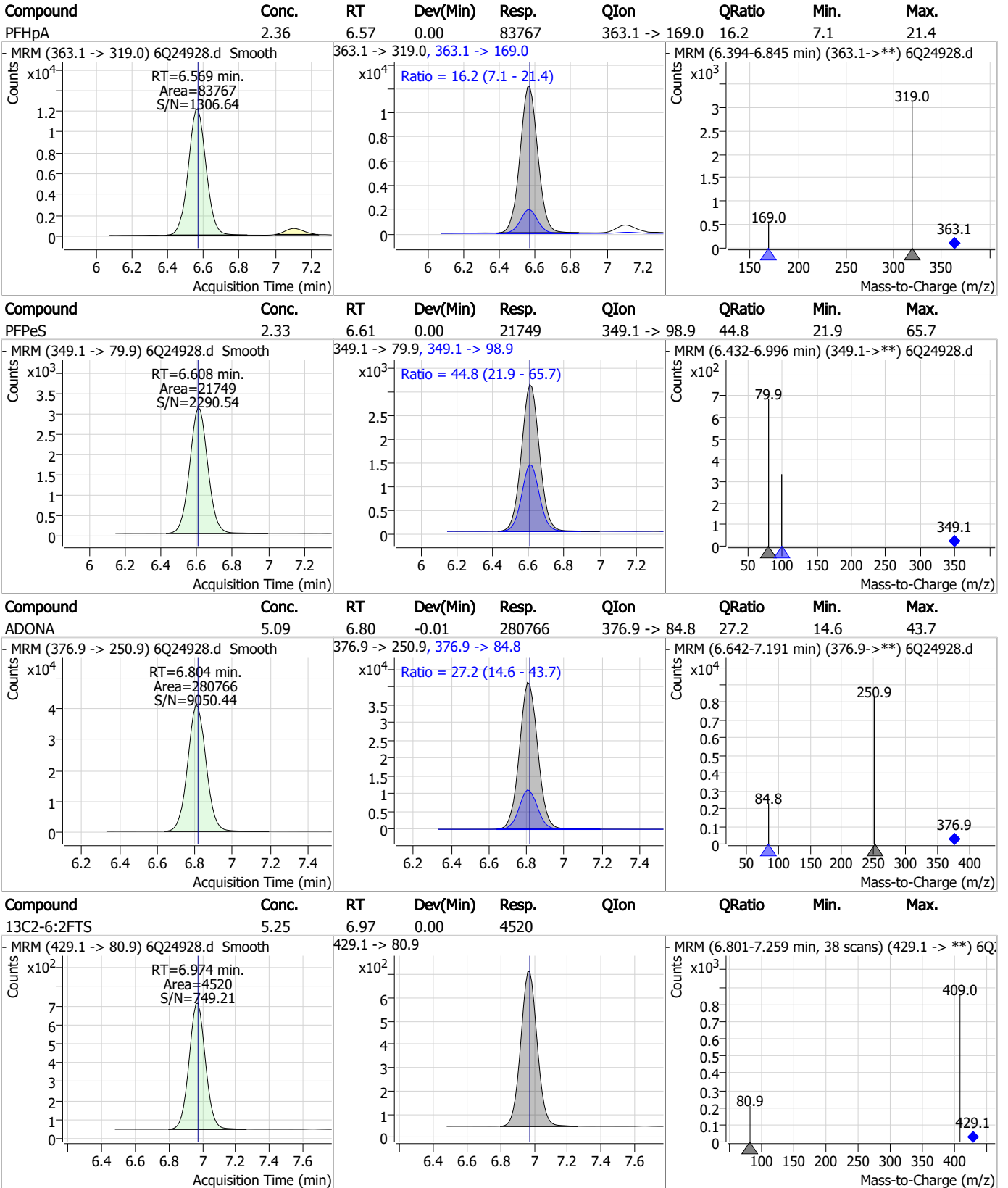
Perfluorinated Compounds by LC/MS/MS



7.7.25

7

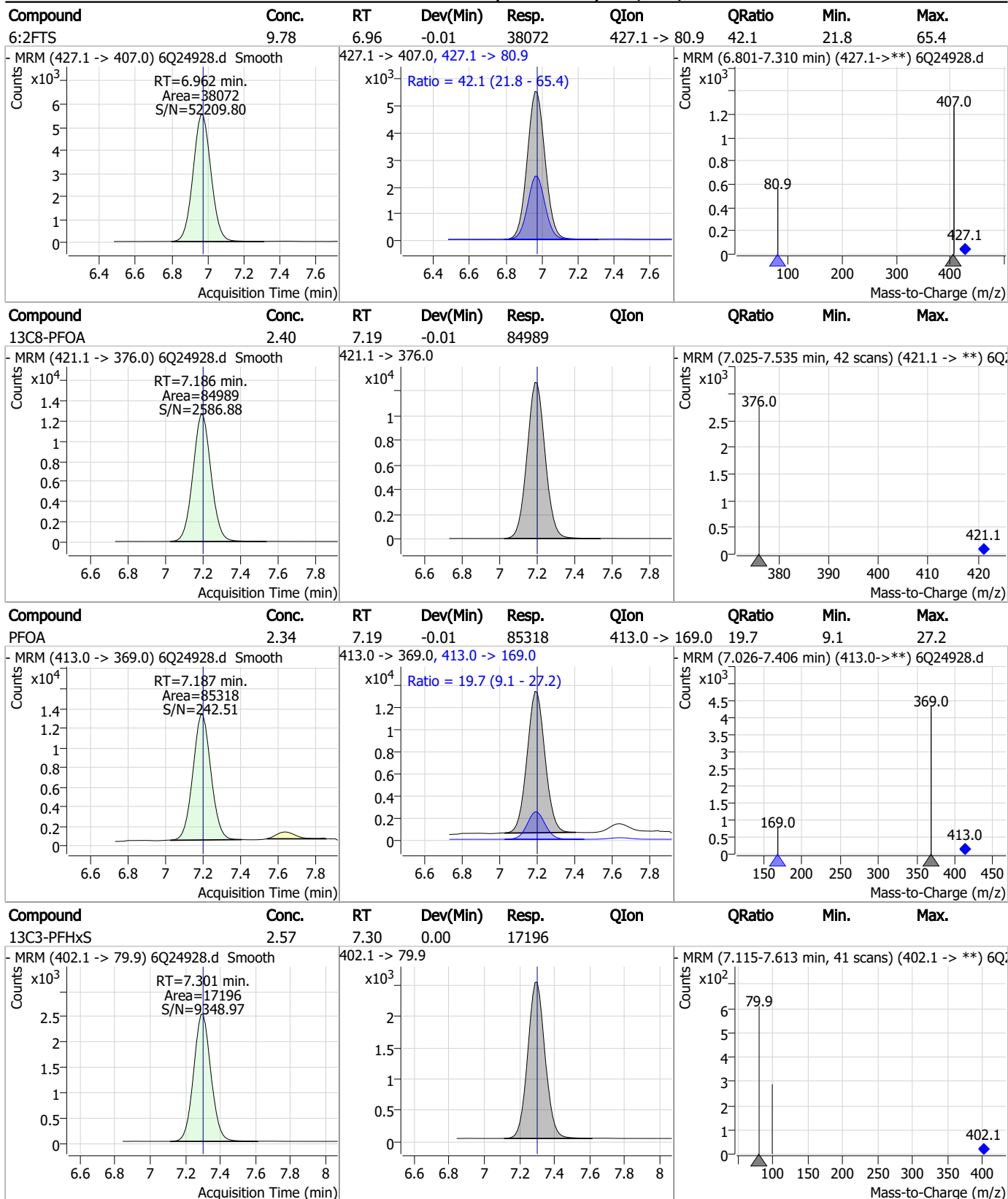
Perfluorinated Compounds by LC/MS/MS



7.7.25 7



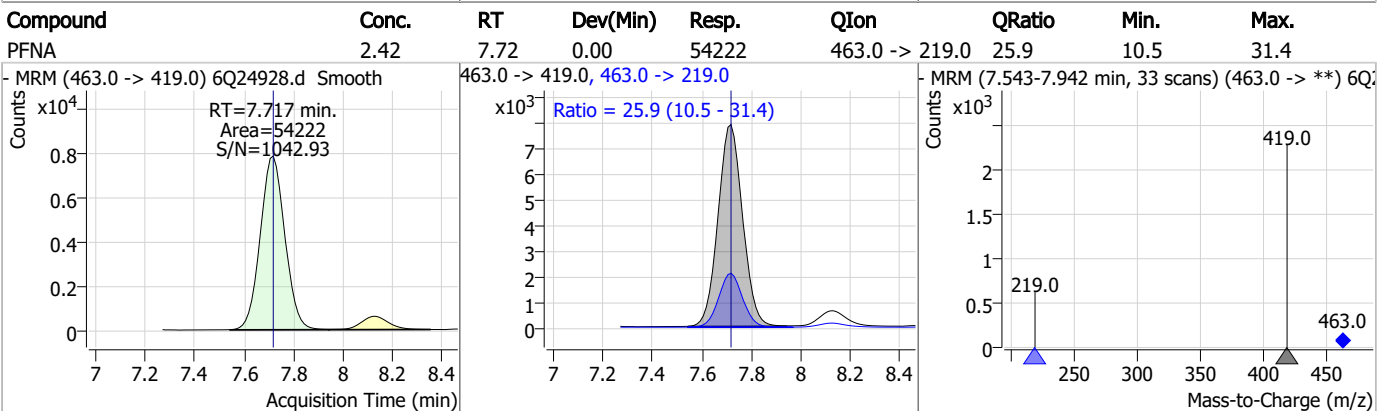
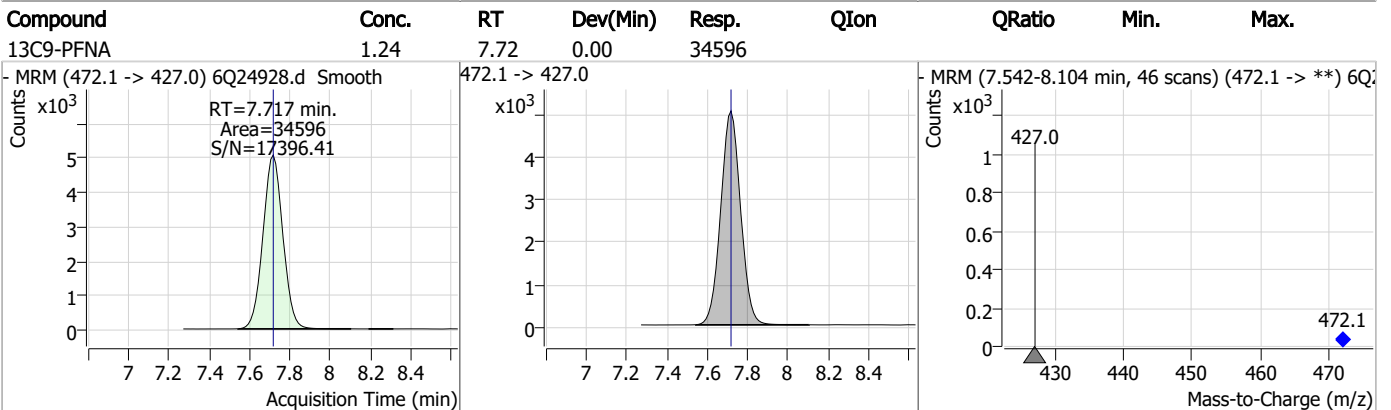
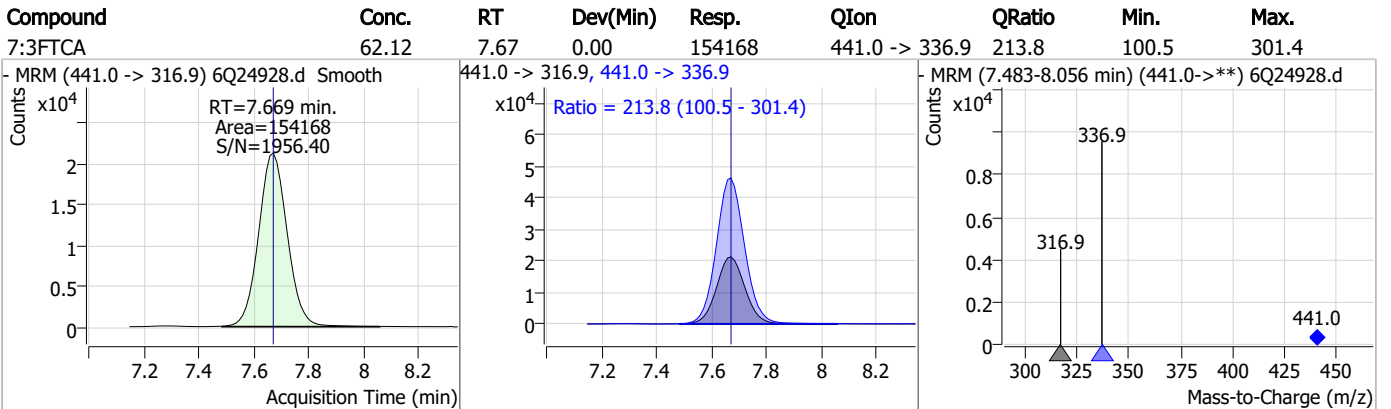
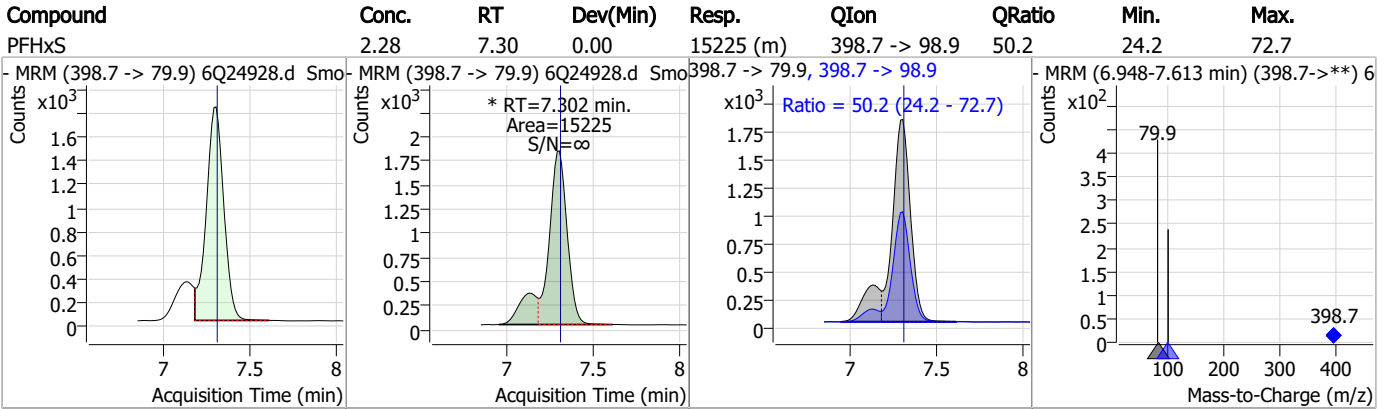
Perfluorinated Compounds by LC/MS/MS



7.7.25 7



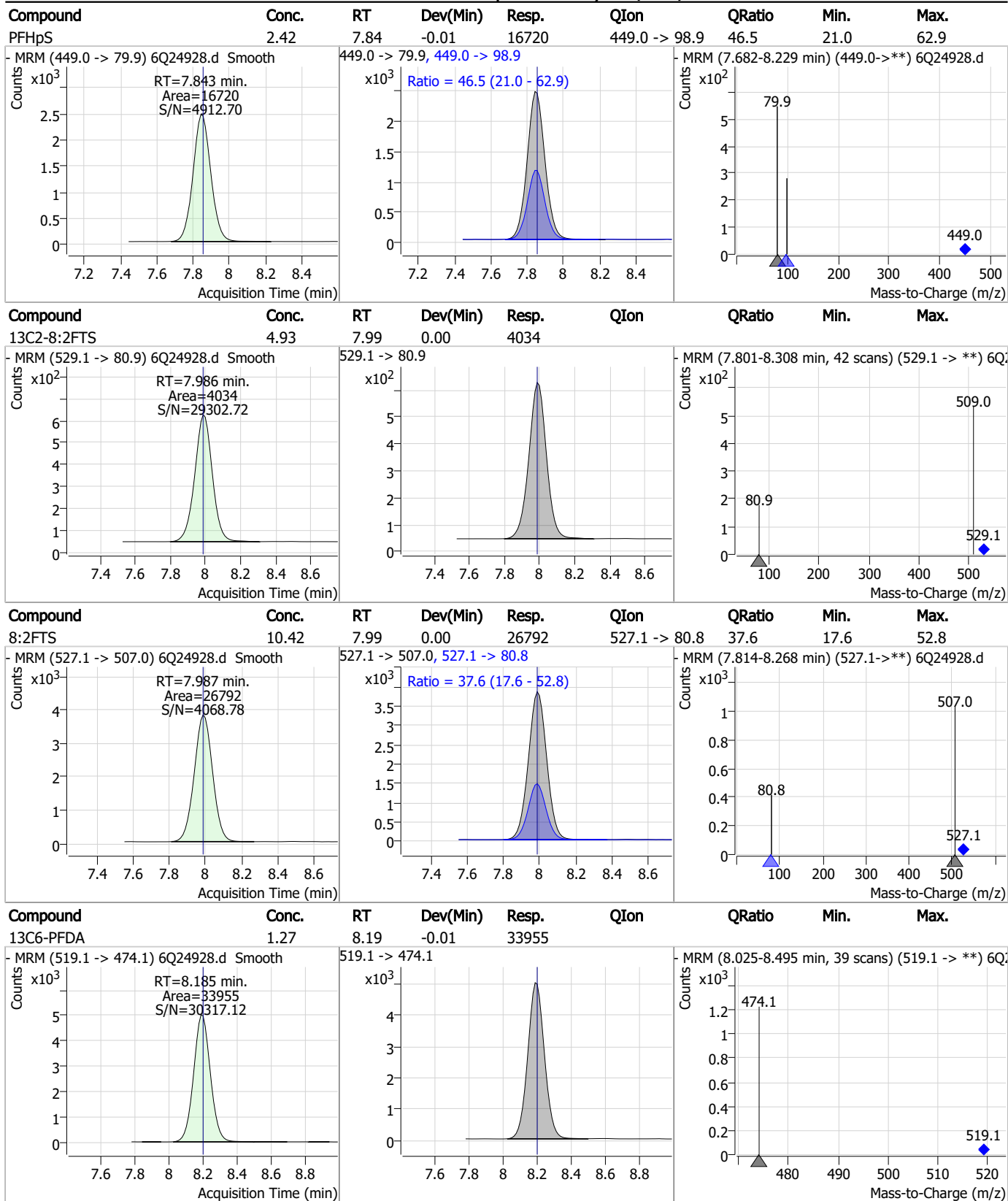
Perfluorinated Compounds by LC/MS/MS



7.7.25
7



Perfluorinated Compounds by LC/MS/MS

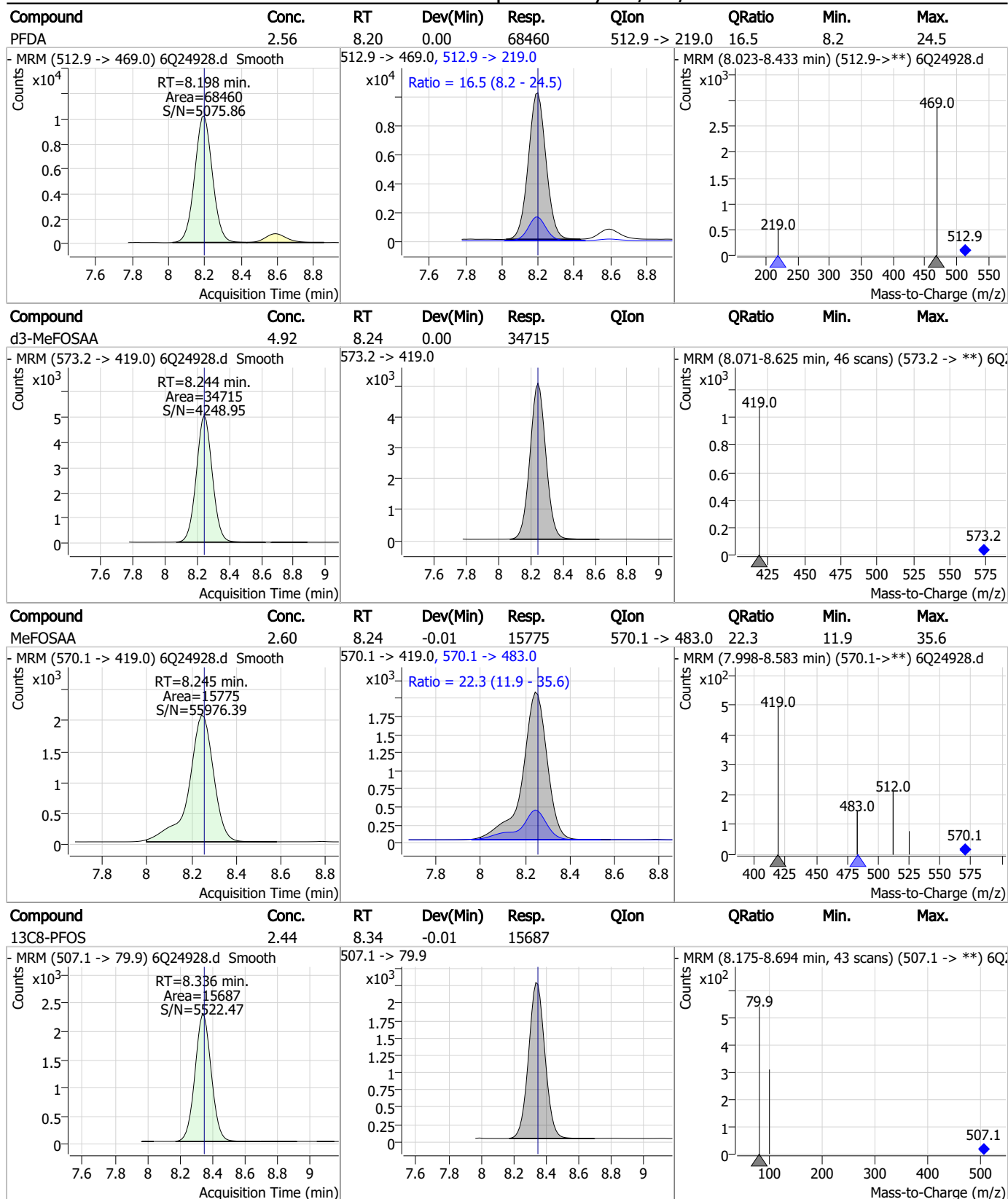


7.7.25

7



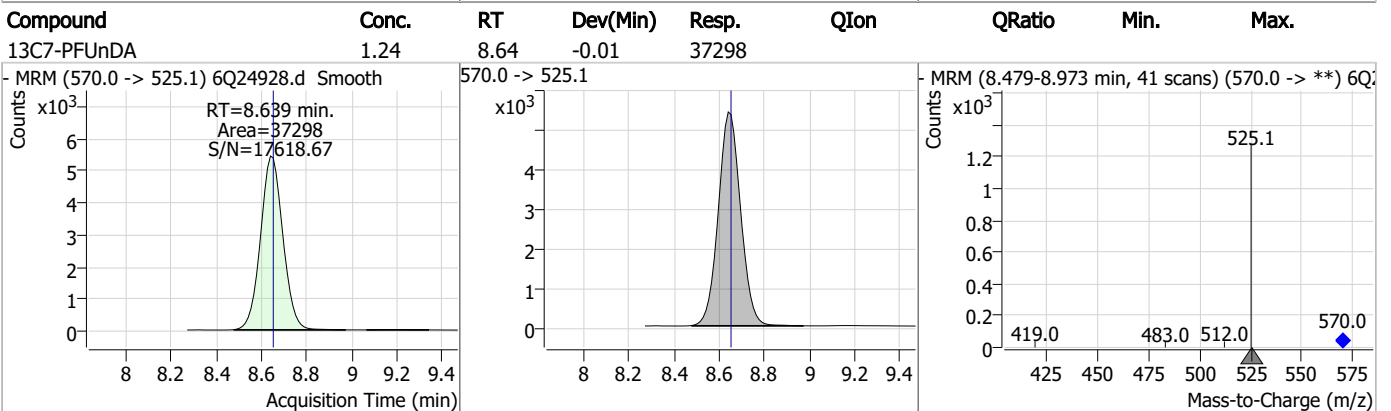
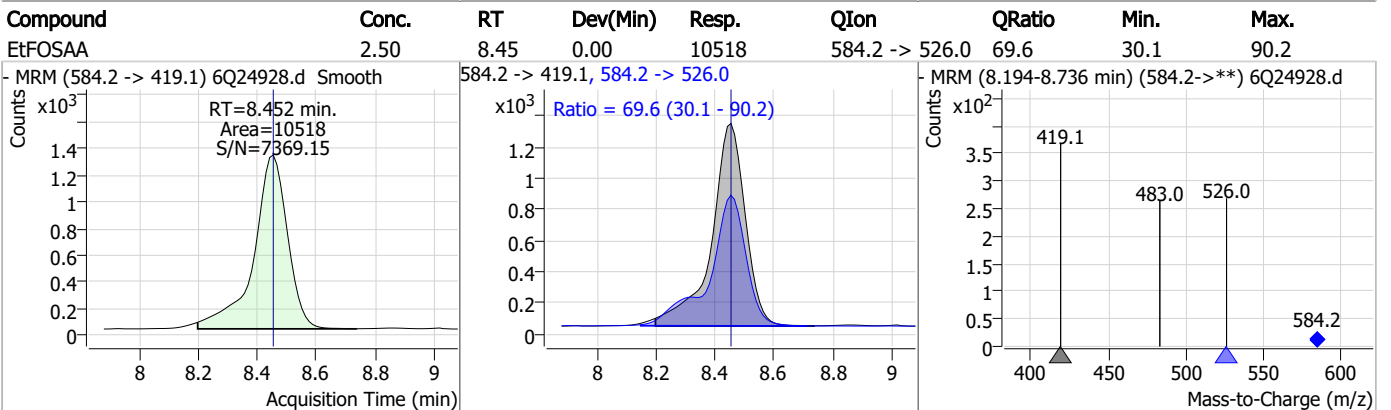
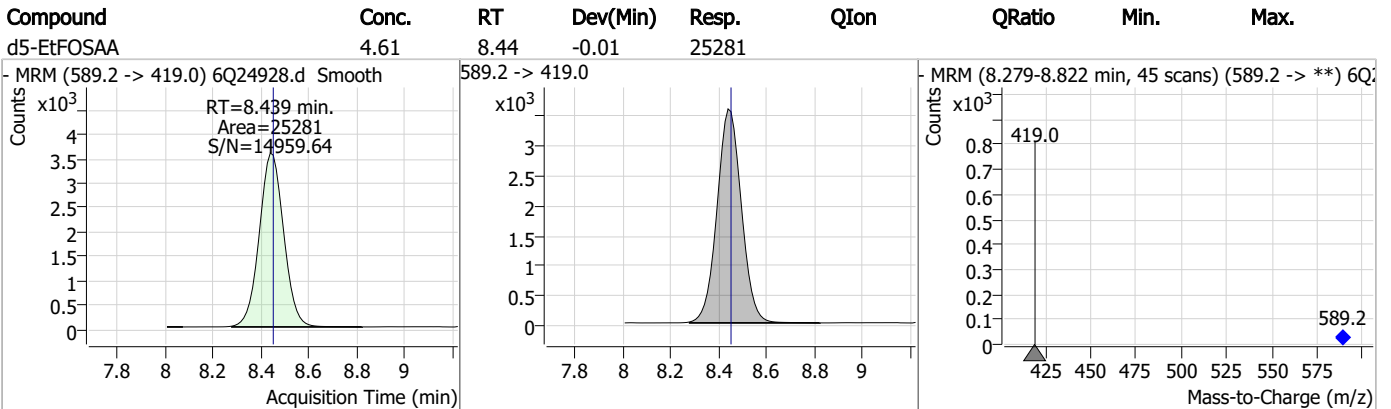
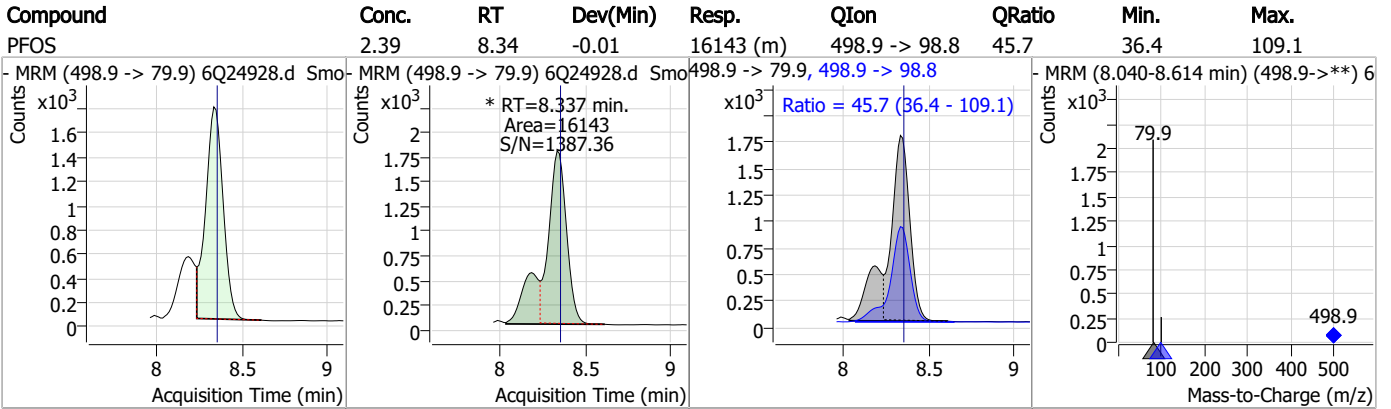
Perfluorinated Compounds by LC/MS/MS



7.7.25

7

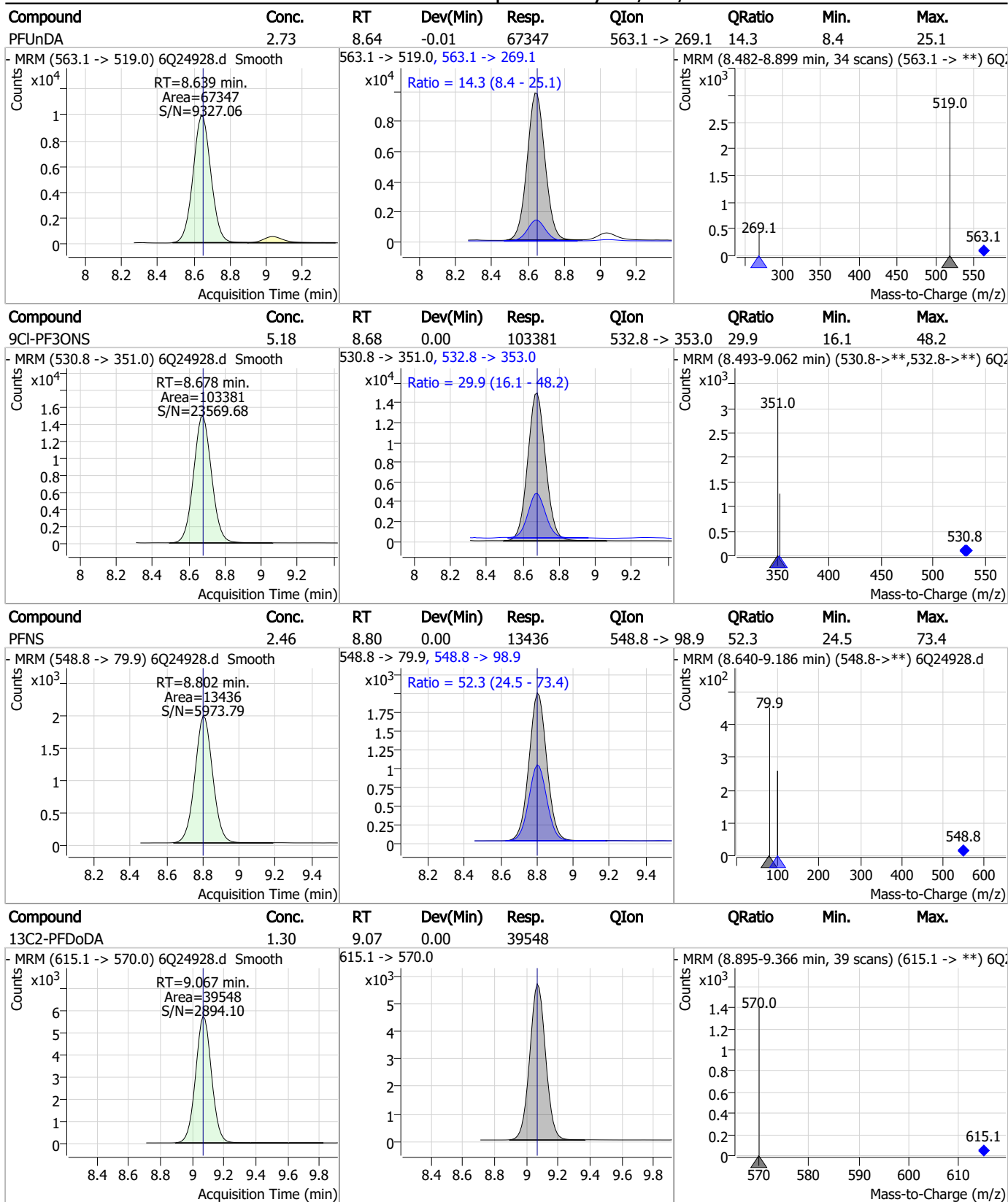
Perfluorinated Compounds by LC/MS/MS



7.7.25
7



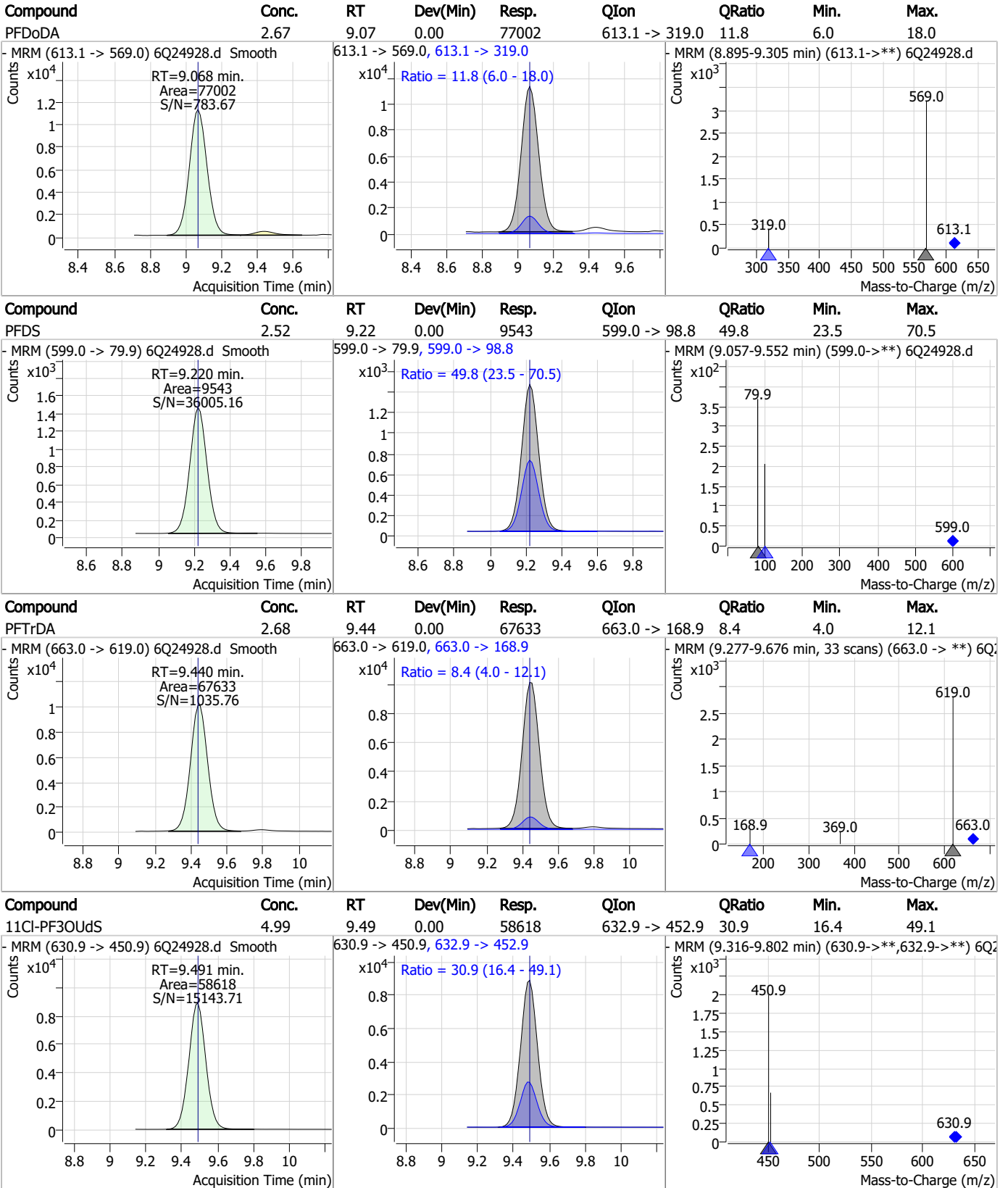
Perfluorinated Compounds by LC/MS/MS



7.7.25

7

Perfluorinated Compounds by LC/MS/MS



7.7.25 7



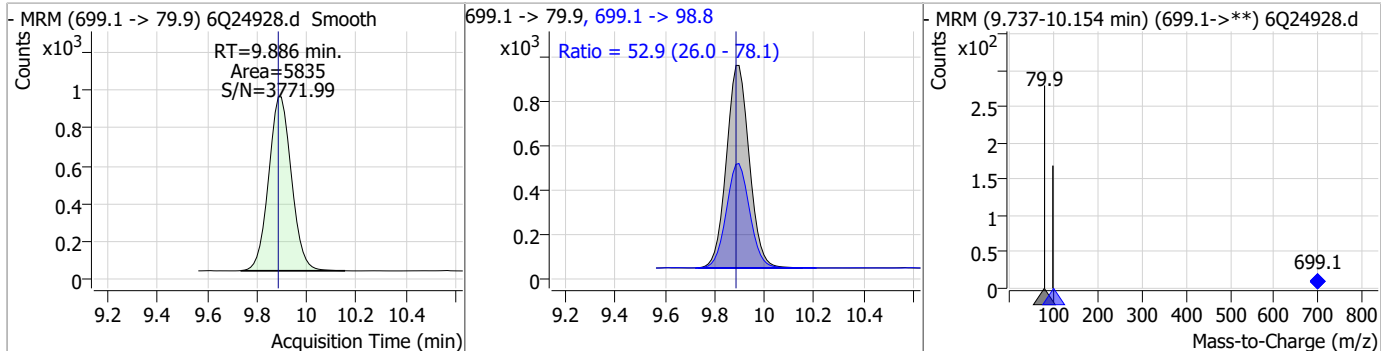
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.45	9.67	0.00	30908				
FOSA	2.44	9.67	0.00	28700	498.1 -> 478.0	2.5	1.3	4.0
13C2-PFTeDA	1.24	9.77	0.00	16068				
PFTeDA	2.58	9.77	0.00	49003	713.1 -> 168.9	7.9	3.8	11.4

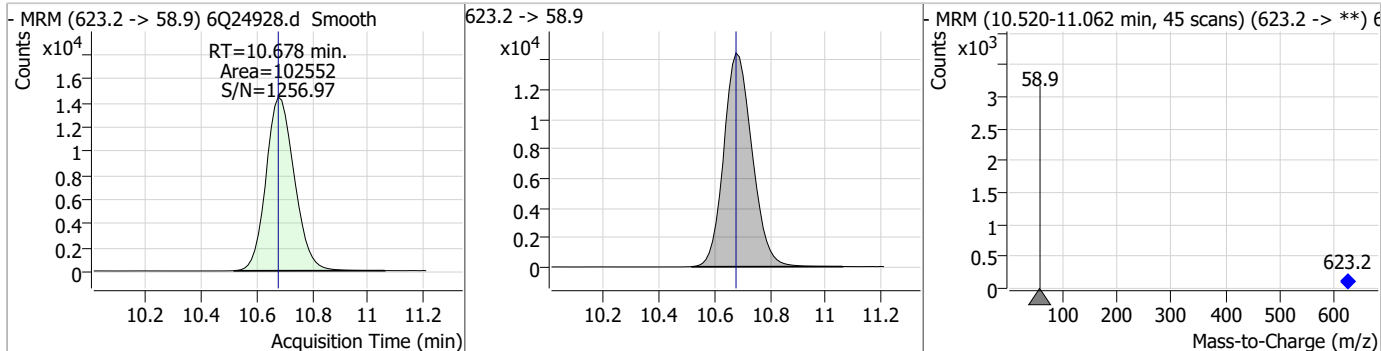
7.7.25
7

Perfluorinated Compounds by LC/MS/MS

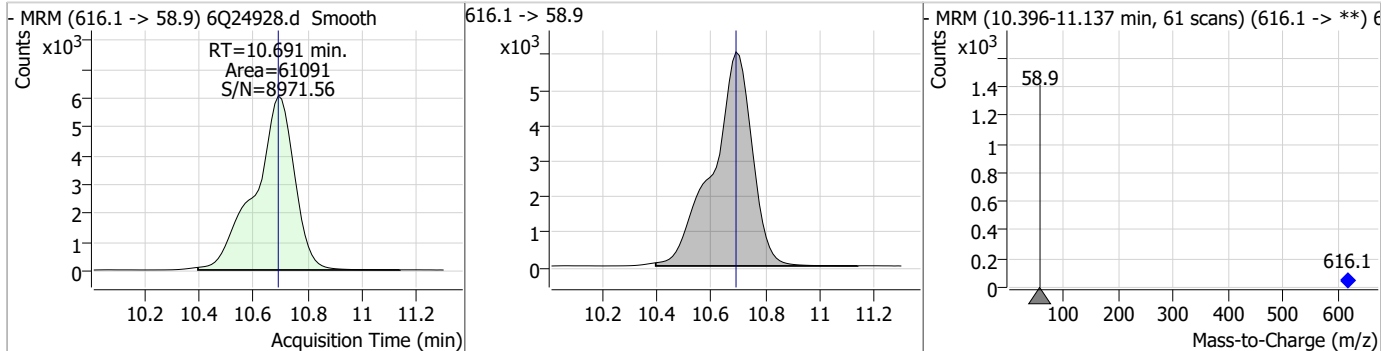
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.58	9.89	0.00	5835	699.1 -> 98.8	52.9	26.0	78.1



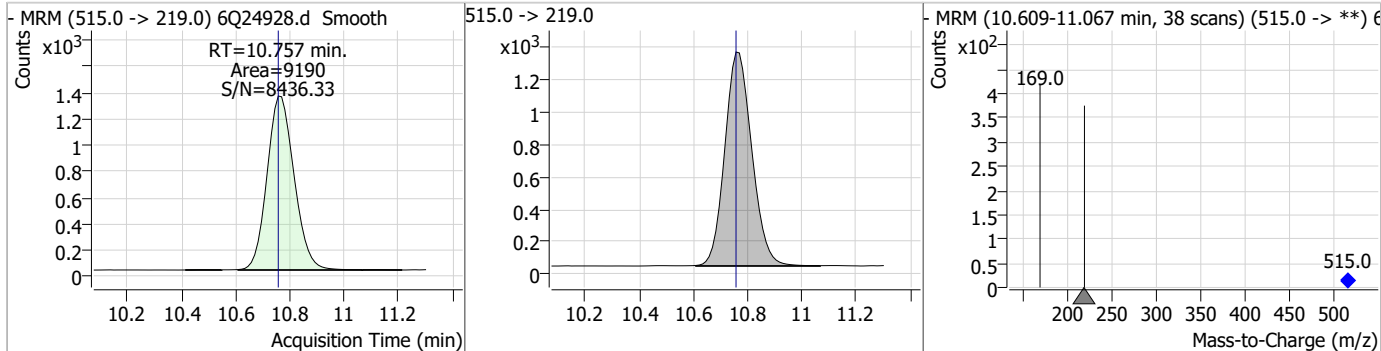
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.96	10.68	0.00	102552				



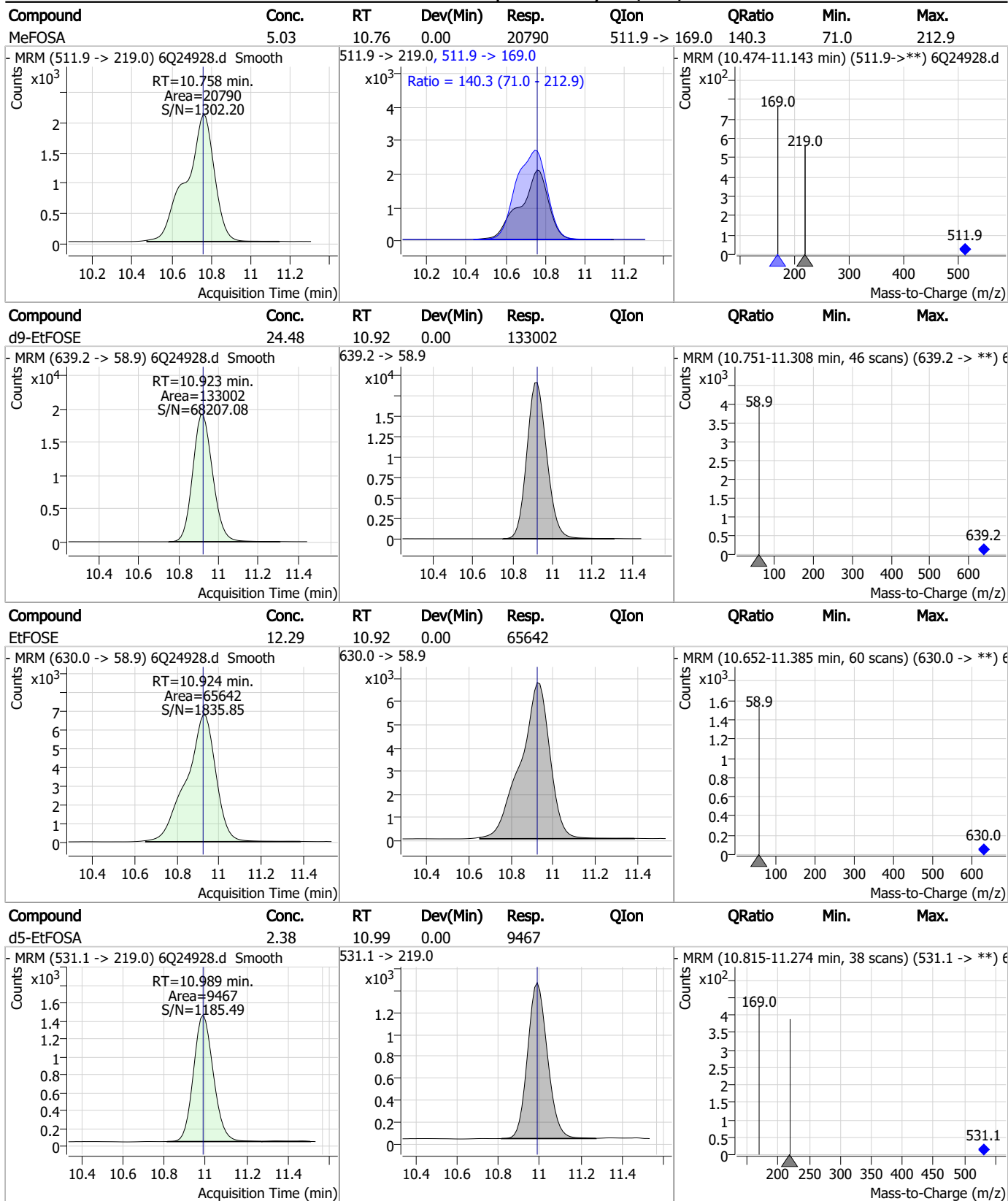
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	13.44	10.69	0.00	61091				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.43	10.76	0.00	9190				



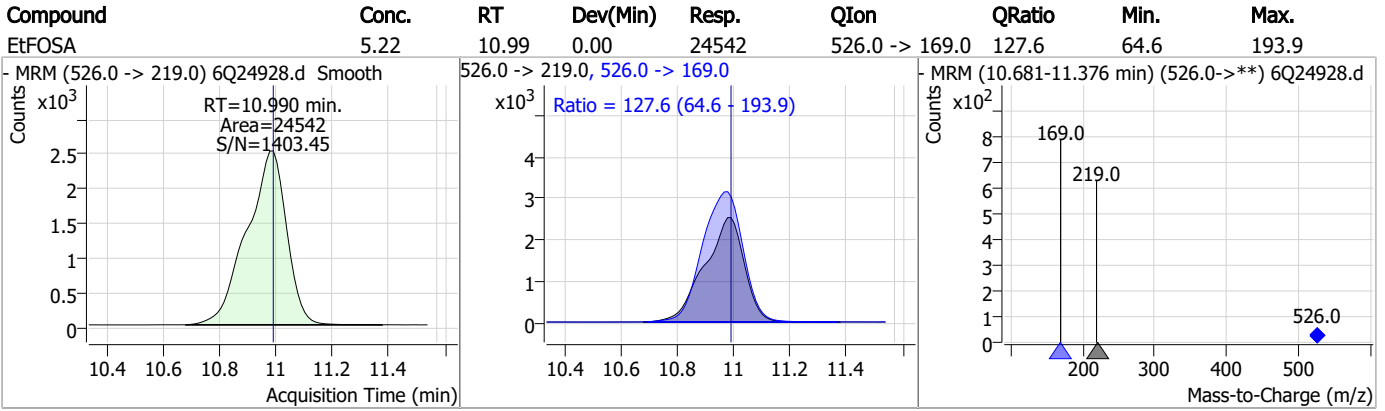
Perfluorinated Compounds by LC/MS/MS



7.7.25

7

Perfluorinated Compounds by LC/MS/MS



7.7.25

7

Manual Integration Approval Summary

Sample Number: S6Q356-ICV356 Method: EPA DRAFT 1633
Lab FileID: 6Q24928.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 17:09 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

7.7.25.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24929.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 5:23:19 PM
 Sample Name : icv356-20
 Vial : P1-B2
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	191030	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	76658	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	68209	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	64822	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	85645	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	36623	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	36276	1.25 µg/L	-0.012
M7-PFUnDA	8.651	570.0 -> 525.1	40213	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	39249	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	17604	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	30496	2.50 µg/L	0.012
M3-PFBS	5.546	302.1 -> 79.9	28695	2.50 µg/L	-0.013
M3-PFHxS	7.289	402.1 -> 79.9	17901	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	16141	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2924	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	4677	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	4436	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	34991	5.00 µg/L	0.000
M3-HFPO-DA	5.994	286.9 -> 168.9	48403	10.00 µg/L	-0.012
M5-EtFOSAA	8.439	589.2 -> 419.0	27979	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	110218	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	132634	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9864	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	9653	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	14673	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	79792	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	11113	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	101348	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	35664	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	35861	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	63051	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2924	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4677	5.18 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4436	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C2-PFDoDA	9.067	615.1 -> 570.0	39249	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C2-PFTeDA	9.772	715.2 -> 670.0	17604	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C3-PFBS	5.546	302.1 -> 79.9	28695	2.46 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C3-PFHxS	7.289	402.1 -> 79.9	17901	2.55 µg/L	-0.012

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 = 101.8%	
13C4-PFBA	2.972	216.8 -> 171.9	191030	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.556	367.1 -> 322.0	64822	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C5-PFHxA	5.629	318.0 -> 273.0	68209	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C5-PFPeA	4.409	268.3 -> 223.0	76658	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C6-PFDA	8.185	519.1 -> 474.1	36276	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C7-PFUnDA	8.651	570.0 -> 525.1	40213	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C8-FOSA	9.682	506.1 -> 77.8	30496	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-PFOA	7.186	421.1 -> 376.0	85645	2.44 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-PFOS	8.348	507.1 -> 79.9	16141	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C9-PFNA	7.717	472.1 -> 427.0	36623	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
d3-MeFOSAA	8.244	573.2 -> 419.0	34991	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C3-HFPO-DA	5.994	286.9 -> 168.9	48403	10.19 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d3-MeFOSA	10.769	515.0 -> 219.0	9653	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
d5-EtFOSAA	8.439	589.2 -> 419.0	27979	5.18 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	110218	25.04 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d9-EtFOSE	10.923	639.2 -> 58.9	132634	24.77 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
d5-EtFOSA	10.989	531.1 -> 219.0	9864	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	96635	20.19 µg/L	98
		327.1 -> 80.9	40026		
6:2FTS	6.962	427.1 -> 407.0	83542	20.73 µg/L	93
		427.1 -> 80.9	32734		
8:2FTS	7.987	527.1 -> 507.0	54300	19.20 µg/L	95
		527.1 -> 80.8	20755		
EtFOSAA	8.452	584.2 -> 419.1	82353	17.68 µg/L	96
		584.2 -> 526.0	51677		
FOSA	9.672	498.1 -> 77.9	218720	18.86 µg/L	99
		498.1 -> 478.0	6307		
MeFOSAA	8.245	570.1 -> 419.0	118897	19.41 µg/L	94
		570.1 -> 483.0	24607		
PFBA	2.981	212.8 -> 168.9	126348	18.53 µg/L	100
PFBS	5.547	298.7 -> 79.9	180644	19.30 µg/L	100
		298.7 -> 98.8	67619		
PFDA	8.186	512.9 -> 469.0	508137	17.75 µg/L	98
		512.9 -> 219.0	87644		
PFDoDA	9.068	613.1 -> 569.0	525167	18.37 µg/L	99
		613.1 -> 319.0	64847		
PFDS	9.220	599.0 -> 79.9	77404	19.84 µg/L	98

7.7.26
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	6.557	599.0 -> 98.8	37655	19.49 µg/L	99
		363.1 -> 319.0	685342		
PFHpS	7.843	363.1 -> 169.0	94634	18.86 µg/L	91
		449.0 -> 79.9	134269		
PFHxA	5.631	449.0 -> 98.9	63955	19.18 µg/L	99
		313.0 -> 269.0	469613		
PFHxS	7.302	313.0 -> 118.9	22220	18.93 µg/L	99
		398.7 -> 79.9	131846		
PFNA	7.717	398.7 -> 98.9	64327	19.92 µg/L	95
		463.0 -> 419.0	472039		
PFNS	8.802	463.0 -> 219.0	110638	19.01 µg/L	99
		548.8 -> 79.9	106810		
PFOA	7.187	548.8 -> 98.9	53099	18.90 µg/L	98
		413.0 -> 369.0	694854		
PFOS	8.337	413.0 -> 169.0	118841	18.46 µg/L	67
		498.9 -> 79.9	128543		
PFPeA	4.411	498.9 -> 98.8	57578	19.63 µg/L	100
		263.0 -> 219.0	302873		
PFPeS	6.608	349.1 -> 79.9	184567	19.02 µg/L	98
		349.1 -> 98.9	83597		
PFTeDA	9.772	713.1 -> 669.0	390203	18.75 µg/L	99
		713.1 -> 168.9	30859		
PFTrDA	9.440	663.0 -> 619.0	441346	17.62 µg/L	99
		663.0 -> 168.9	37172		
PFUnDA	8.652	563.1 -> 519.0	509134	19.12 µg/L	97
		563.1 -> 269.1	77953		
11CI-PF3OUdS	9.479	630.9 -> 450.9	255426	20.17 µg/L	97
		632.9 -> 452.9	78629		
9CI-PF3ONS	8.678	530.8 -> 351.0	427898	19.91 µg/L	94
		532.8 -> 353.0	123495		
ADONA	6.804	376.9 -> 250.9	1033463	17.37 µg/L	99
		376.9 -> 84.8	294731		
HFPO-DA	5.995	284.9 -> 168.9	83166	17.46 µg/L	99
		284.9 -> 184.9	8983		
3:3FTCA	3.846	241.0 -> 177.0	20164	18.21 µg/L	99
		241.0 -> 117.0	2316		
5:3FTCA	6.271	341.0 -> 237.1	89398	19.42 µg/L	97
		341.0 -> 217.0	59705		
7:3FTCA	7.669	441.0 -> 316.9	47295	18.14 µg/L	91
		441.0 -> 336.9	101621		
EtFOSA	10.990	526.0 -> 219.0	82872	16.91 µg/L	81
		526.0 -> 169.0	88992		
EtFOSE	10.937	630.0 -> 58.9	554434	104.11 µg/L	100
		511.9 -> 219.0	73804		
MeFOSA	10.771	511.9 -> 169.0	81717	16.99 µg/L	75
		616.1 -> 58.9	484817		
MeFOSE	10.703	699.1 -> 79.9	42384	99.27 µg/L	100
		699.1 -> 98.8	22915		
PFDoDS	9.886	295.0 -> 201.0	58565	18.20 µg/L	97
		295.0 -> 84.9	15554		
NFDHA	5.512	279.0 -> 85.1	224326	18.62 µg/L	100
		229.0 -> 84.9	167420		
PFMBA	4.838	314.8 -> 134.9	514380	18.09 µg/L	100
		314.8 -> 82.9	18672		
PFMPA	3.538			18.18 µg/L	100
PFEESA	6.100			16.90 µg/L	99

7.7.26
7

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



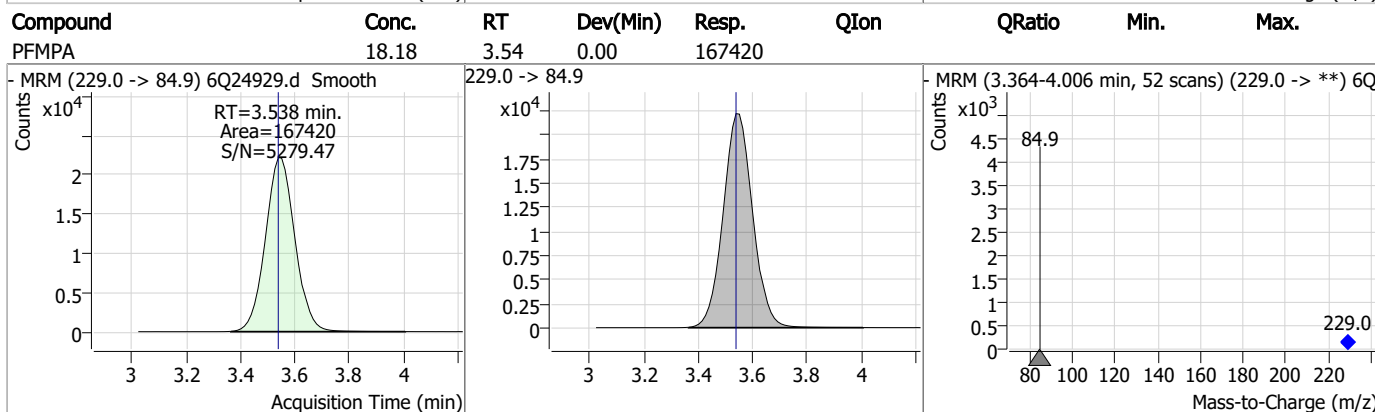
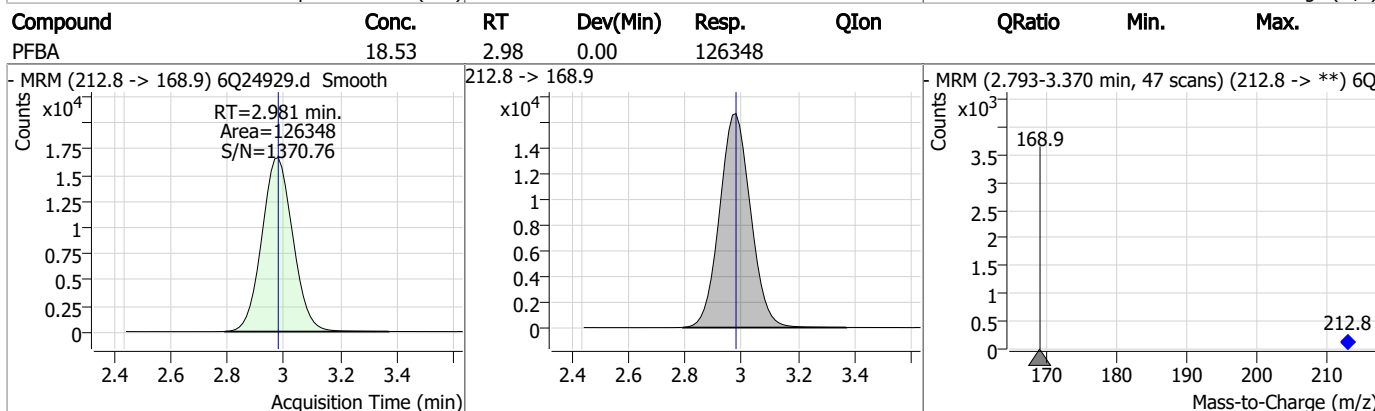
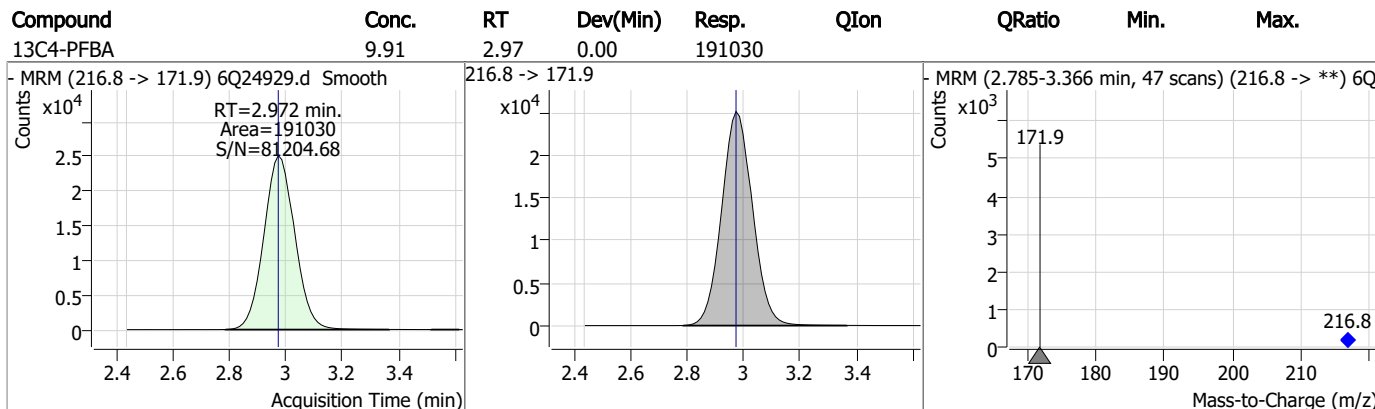
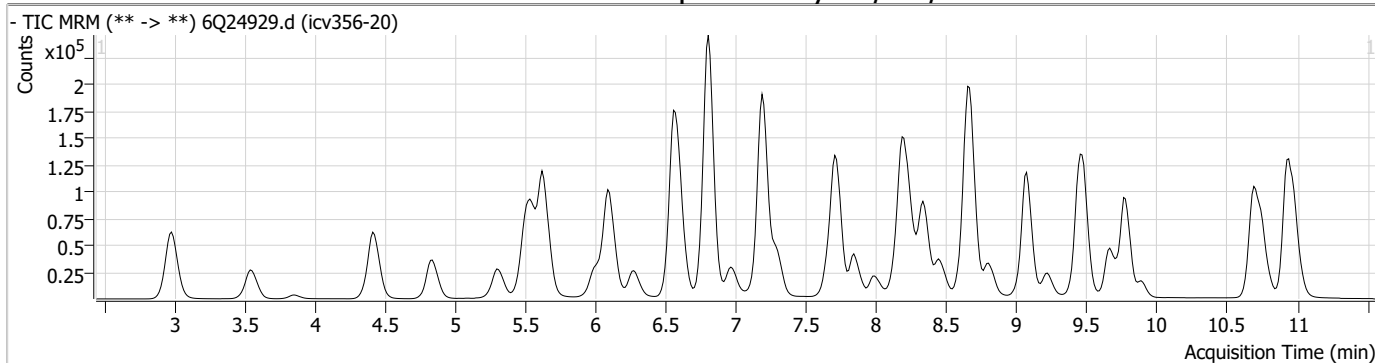
Perfluorinated Compounds by LC/MS/MS

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

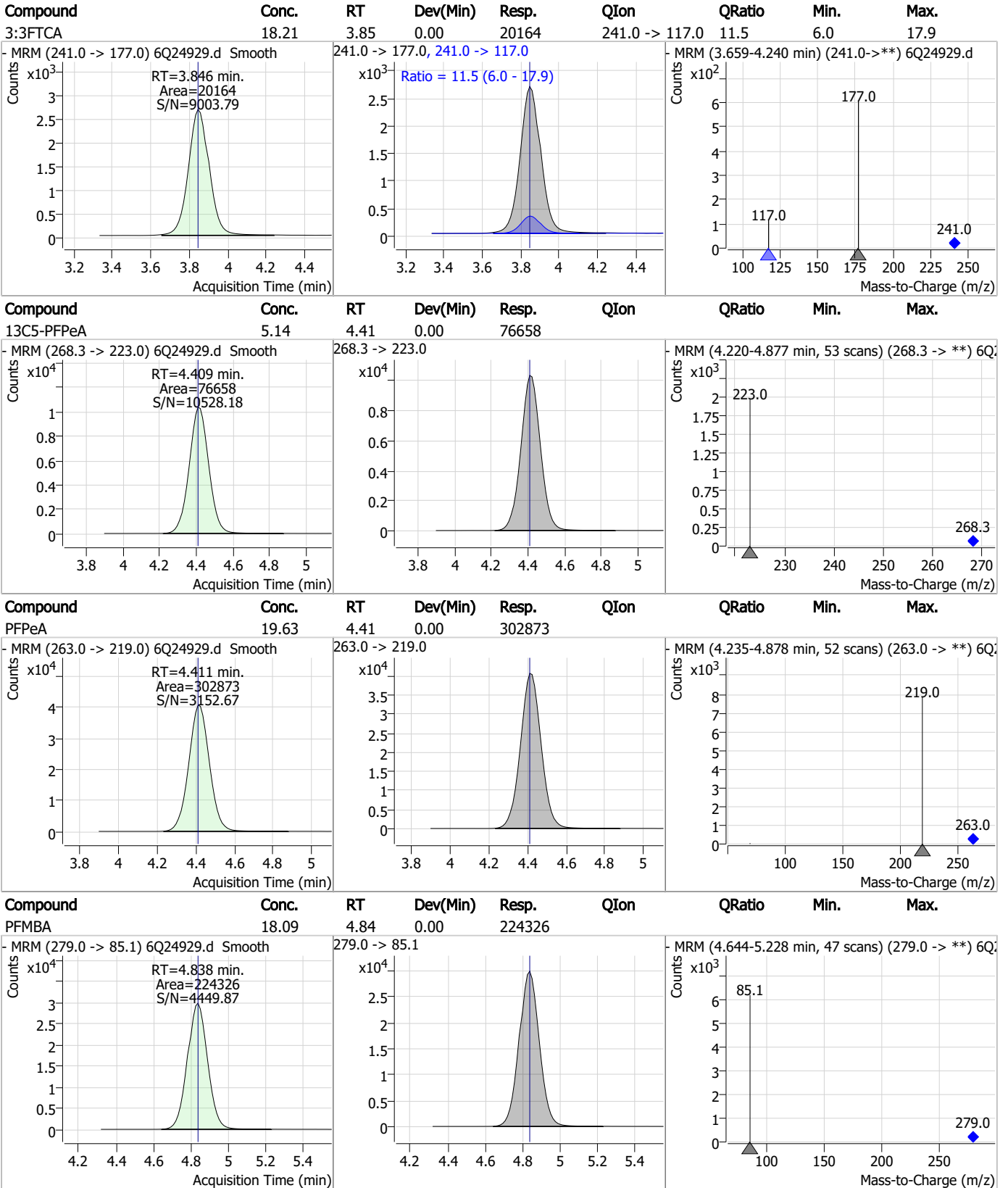
7.7.26

7

Perfluorinated Compounds by LC/MS/MS



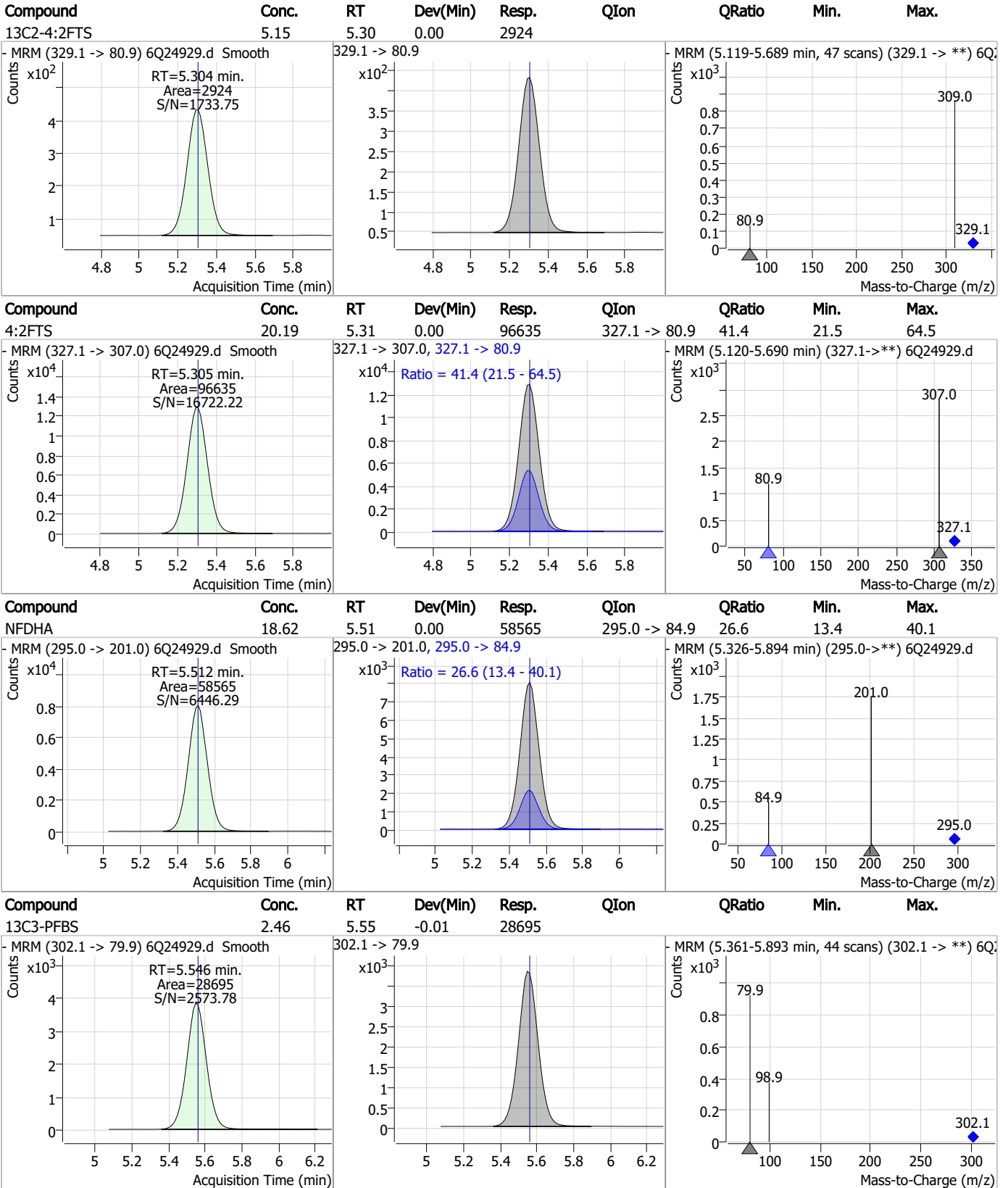
Perfluorinated Compounds by LC/MS/MS



7.7.26

7

Perfluorinated Compounds by LC/MS/MS

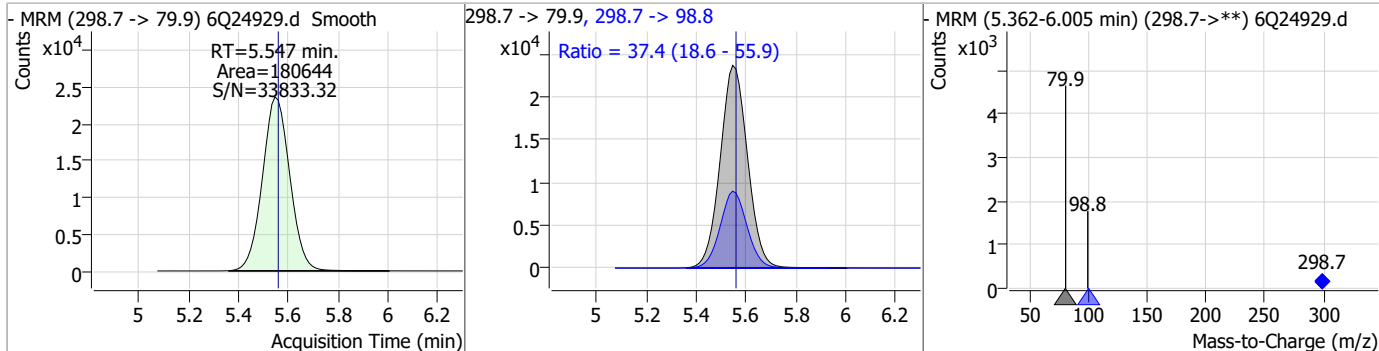


7.7.26
7

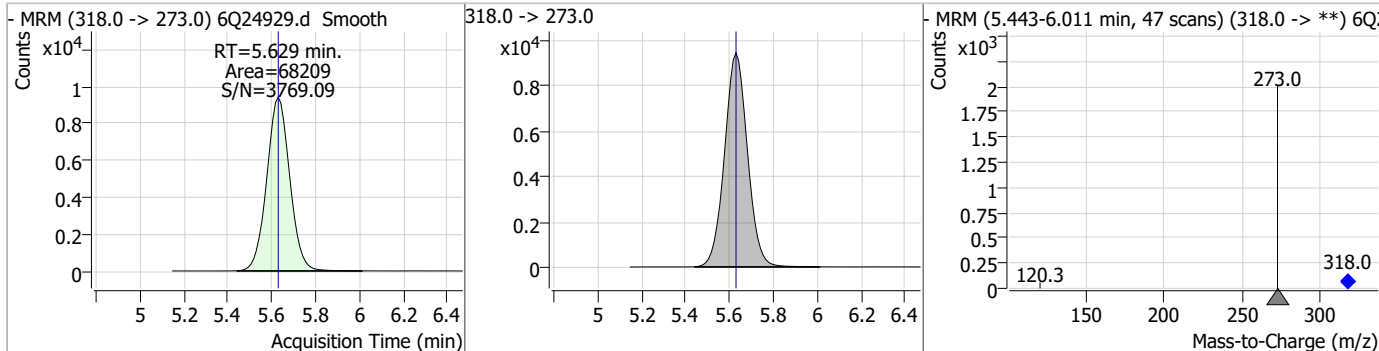


Perfluorinated Compounds by LC/MS/MS

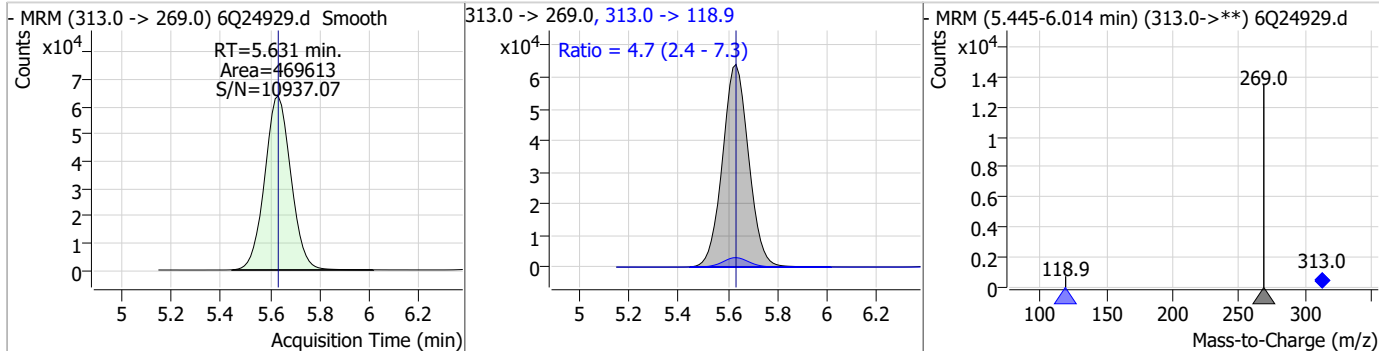
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.30	5.55	-0.01	180644	298.7 -> 98.8	37.4	18.6	55.9



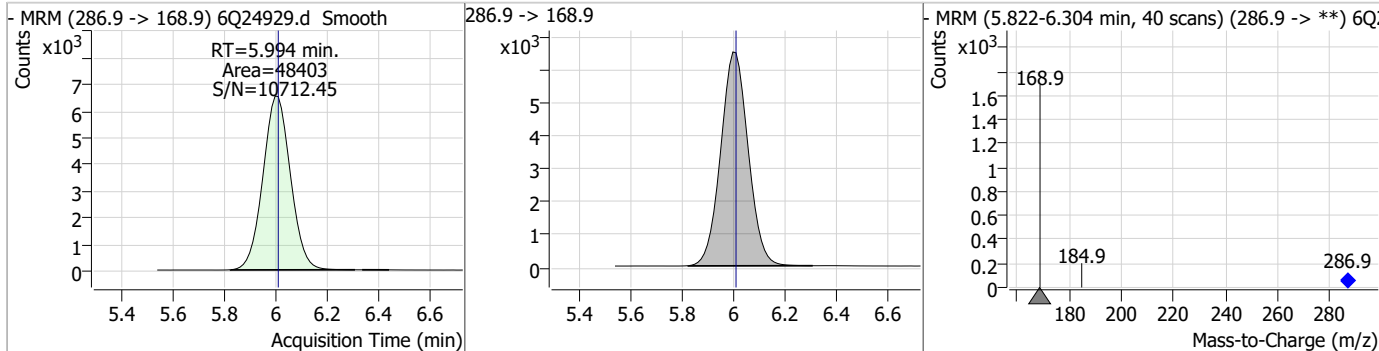
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.57	5.63	0.00	68209				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.18	5.63	0.00	469613	313.0 -> 118.9	4.7	2.4	7.3

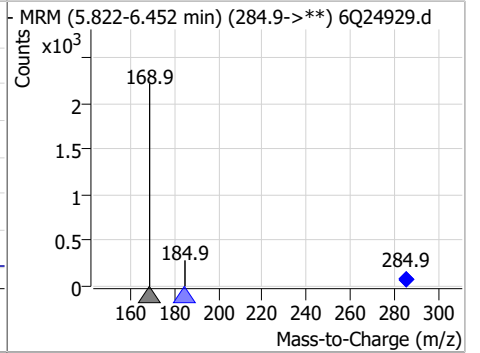
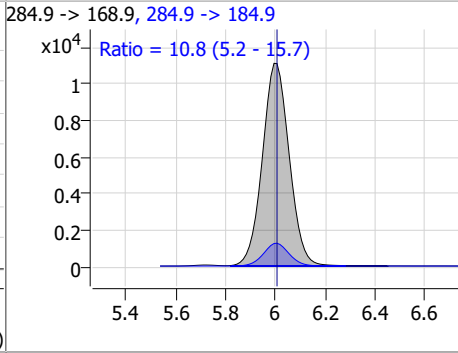
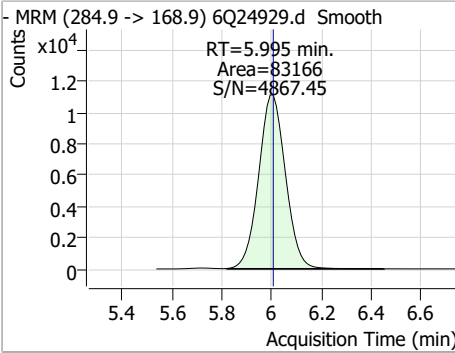


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.19	5.99	-0.01	48403				

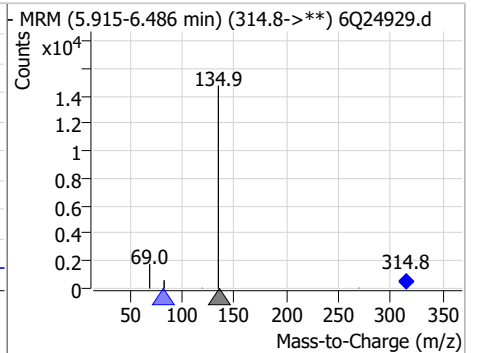
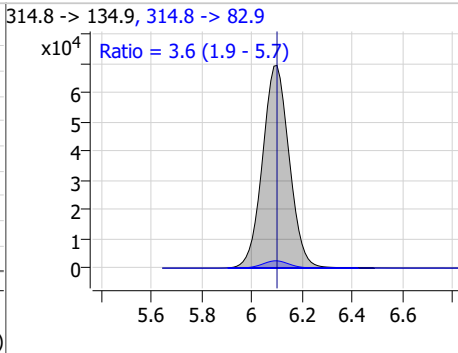
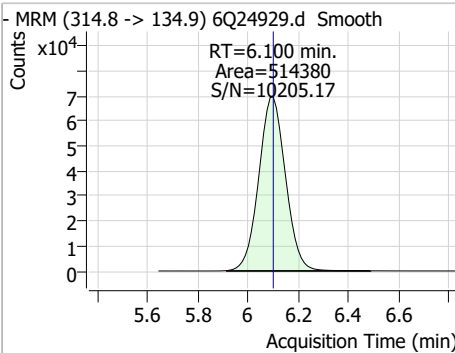


Perfluorinated Compounds by LC/MS/MS

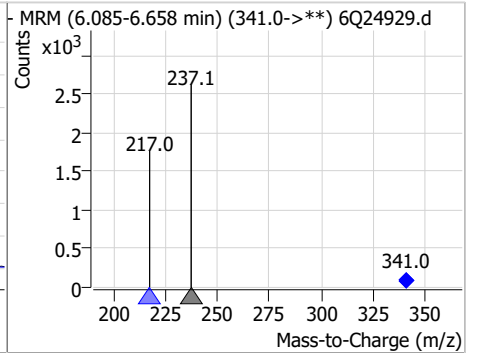
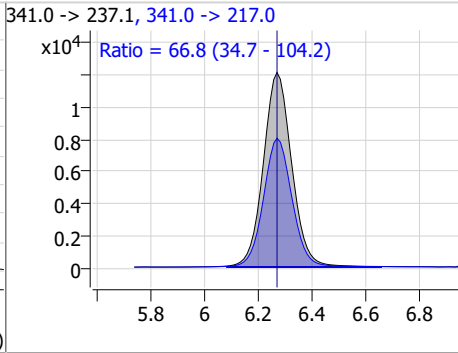
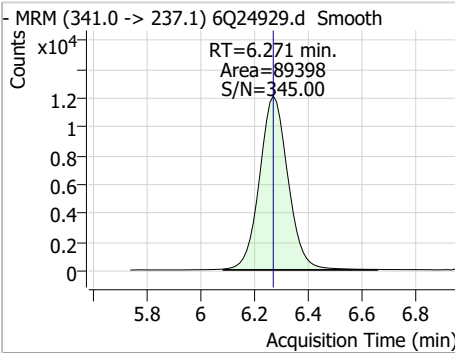
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	17.46	6.00	-0.01	83166	284.9 -> 184.9	10.8	5.2	15.7



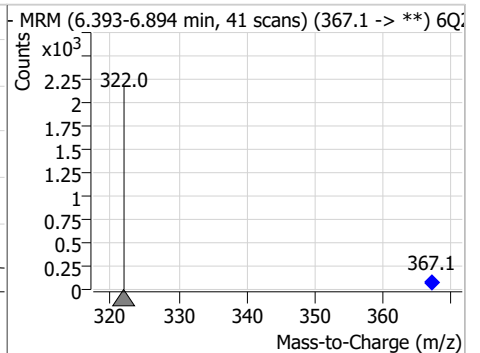
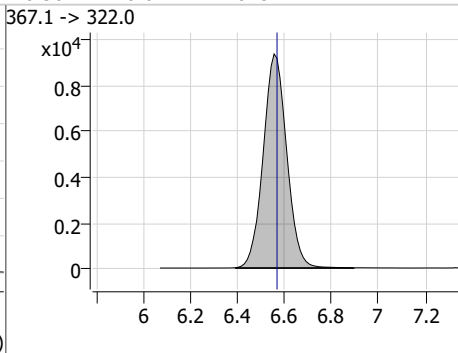
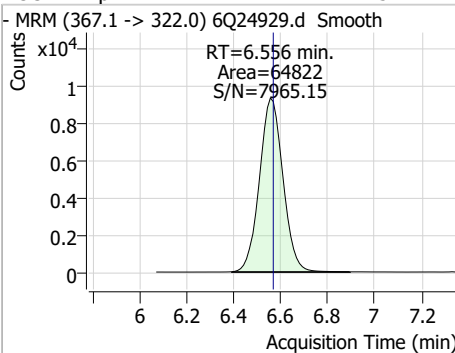
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	16.90	6.10	0.00	514380	314.8 -> 82.9	3.6	1.9	5.7



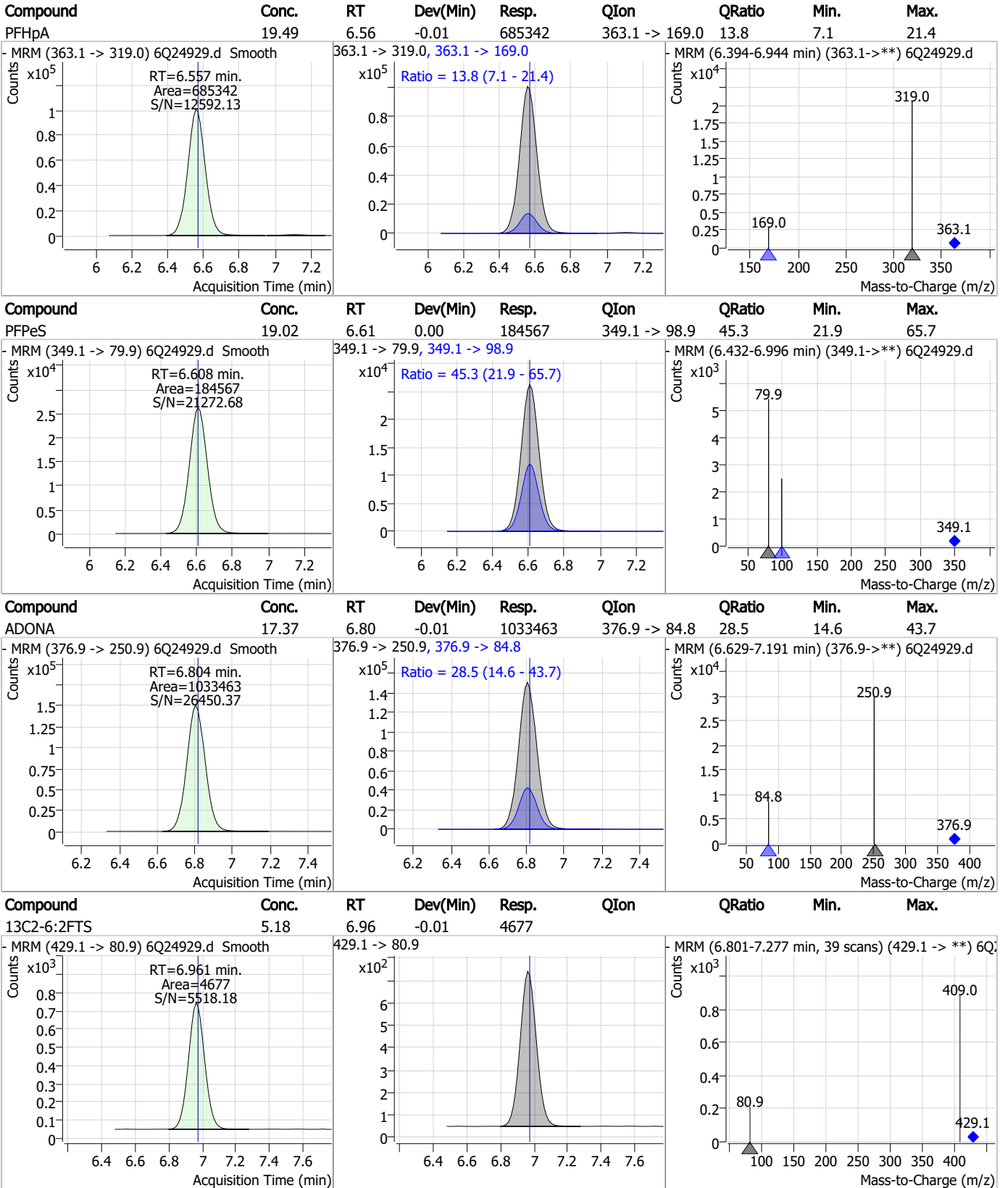
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	19.42	6.27	0.00	89398	341.0 -> 217.0	66.8	34.7	104.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.52	6.56	-0.01	64822	367.1 -> 322.0			



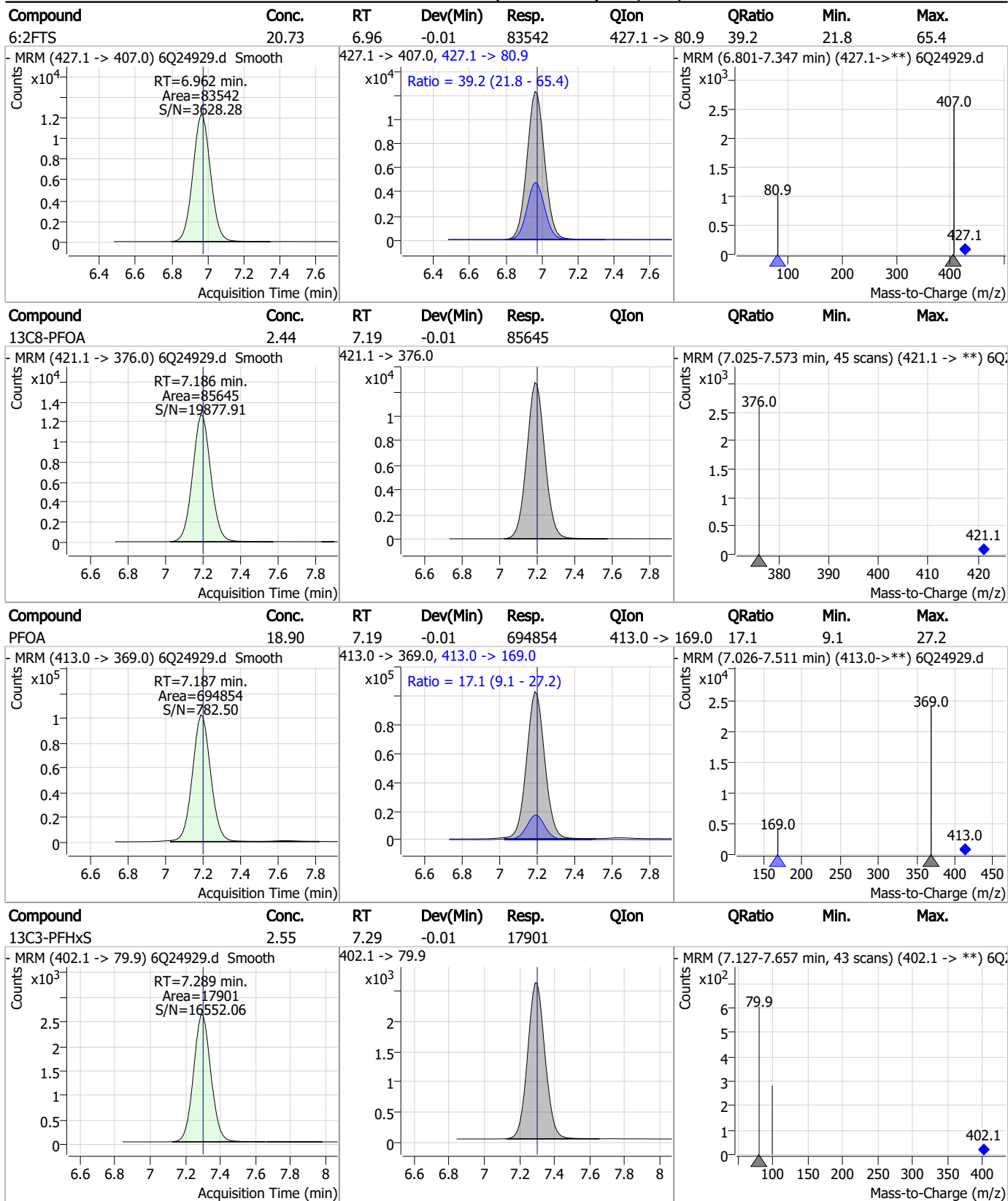
Perfluorinated Compounds by LC/MS/MS



7.7.26 7



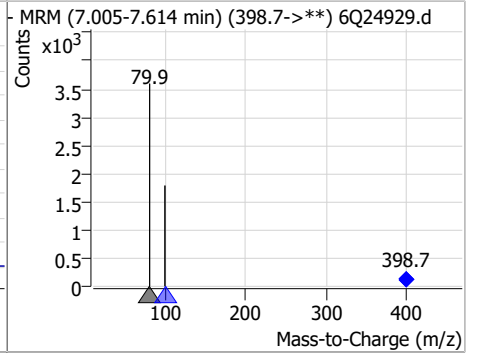
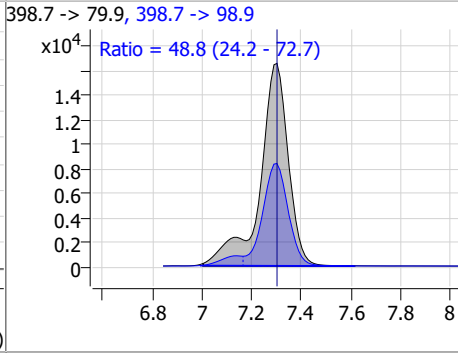
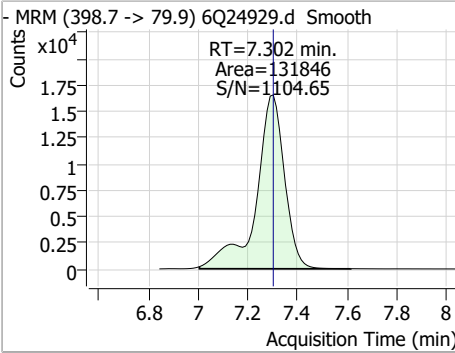
Perfluorinated Compounds by LC/MS/MS



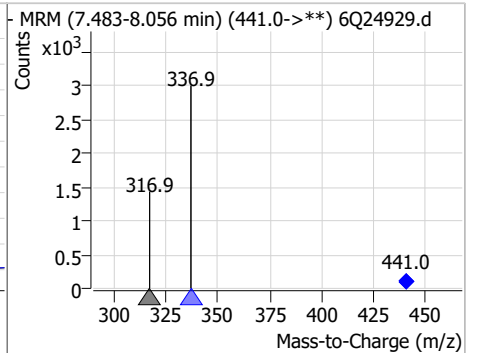
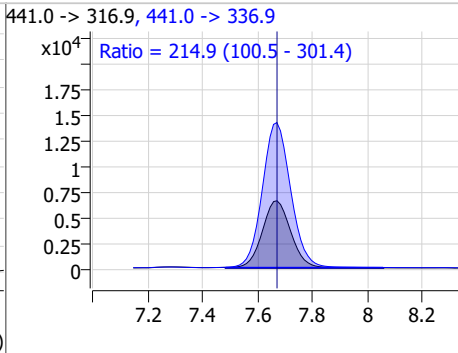
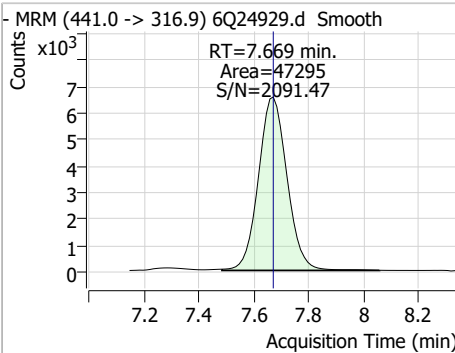
7.7.26
7

Perfluorinated Compounds by LC/MS/MS

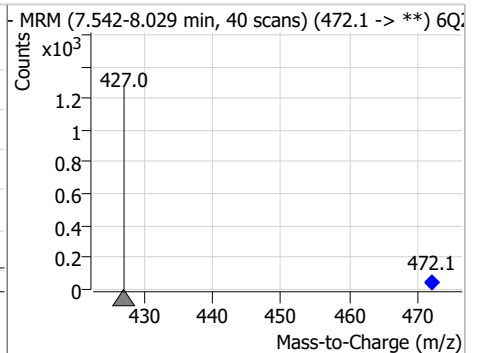
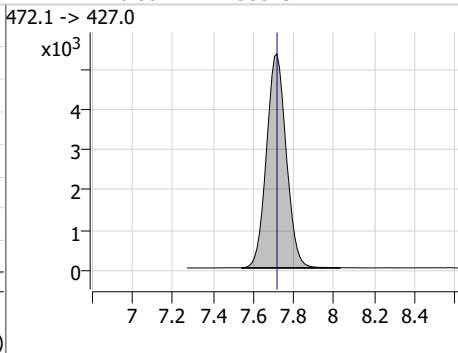
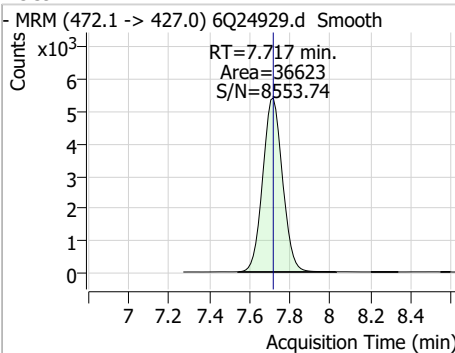
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.93	7.30	0.00	131846	398.7 -> 98.9	48.8	24.2	72.7



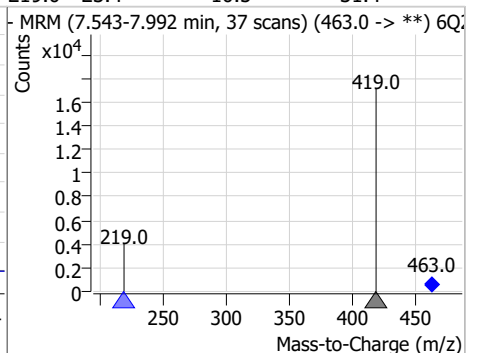
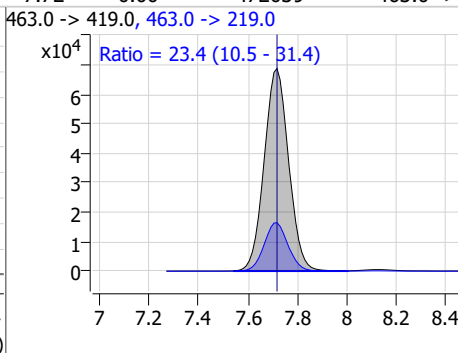
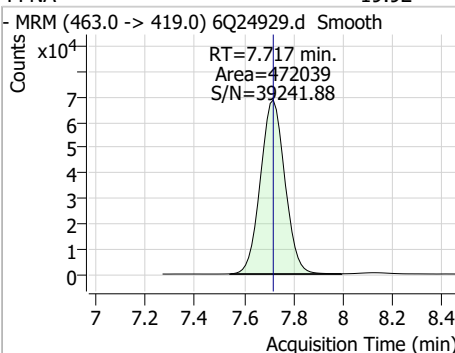
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	18.14	7.67	0.00	47295	441.0 -> 336.9	214.9	100.5	301.4



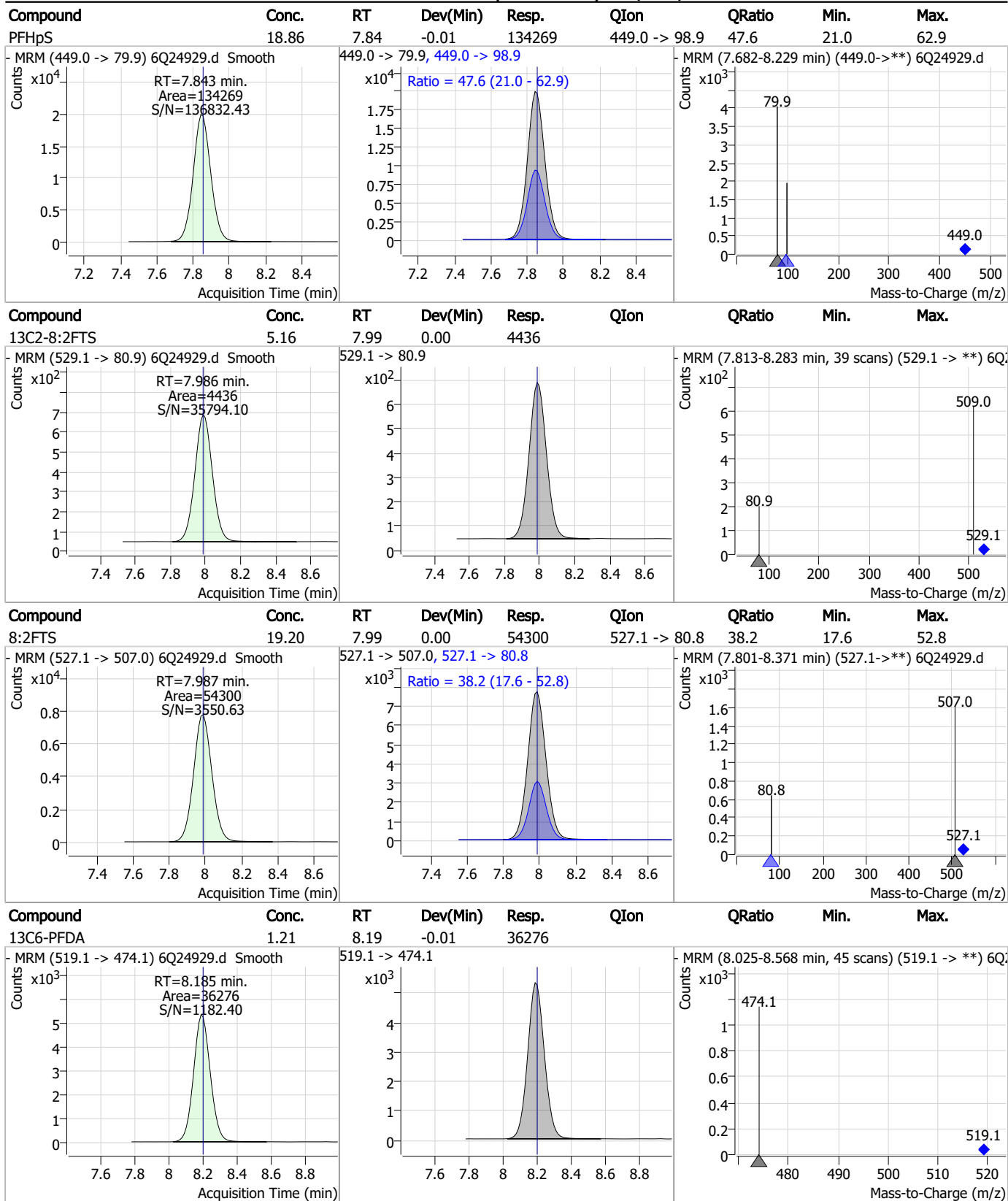
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.27	7.72	0.00	36623	472.1 -> 427.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.92	7.72	0.00	472039	463.0 -> 219.0	23.4	10.5	31.4

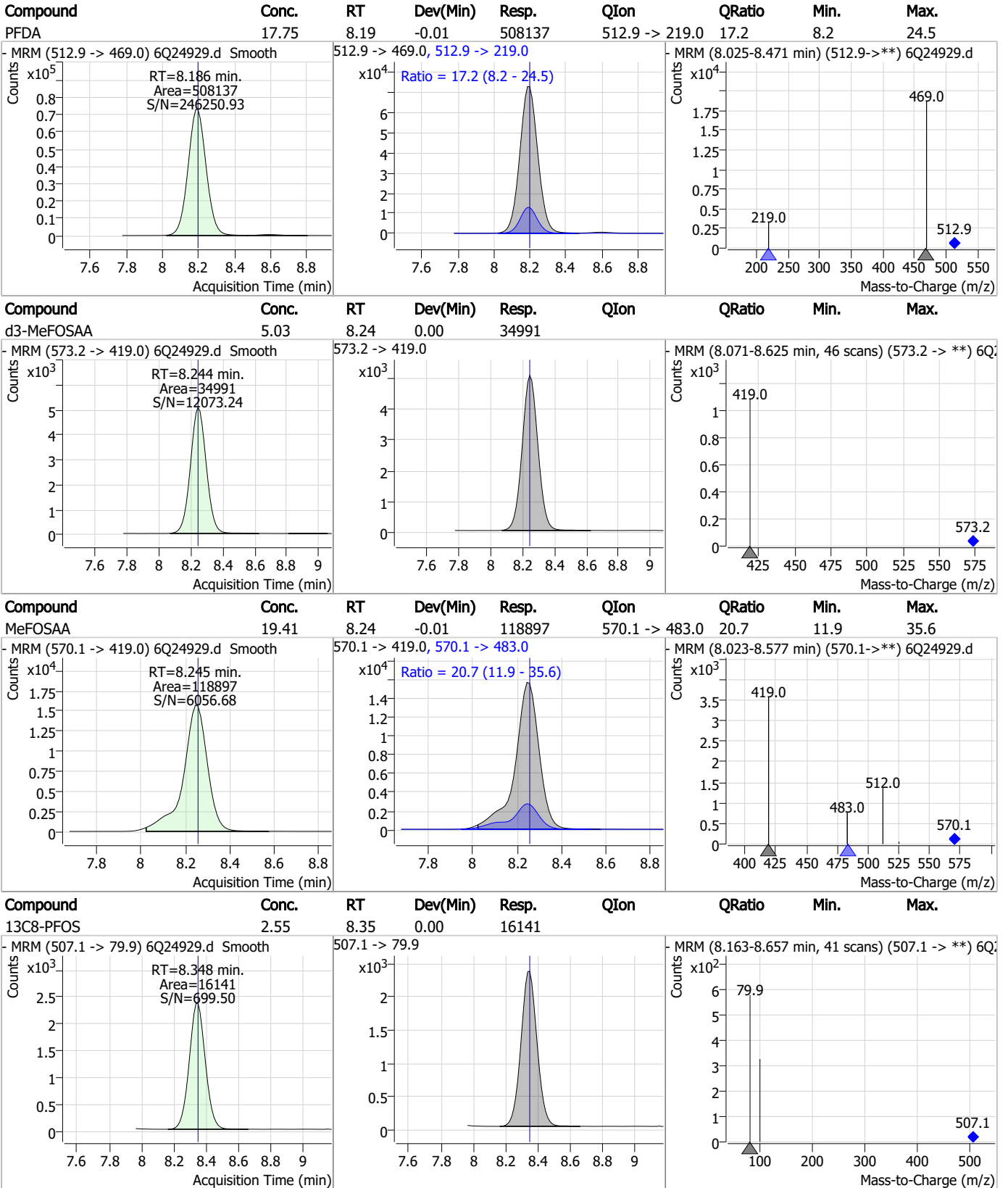


Perfluorinated Compounds by LC/MS/MS



7.7.26
7

Perfluorinated Compounds by LC/MS/MS



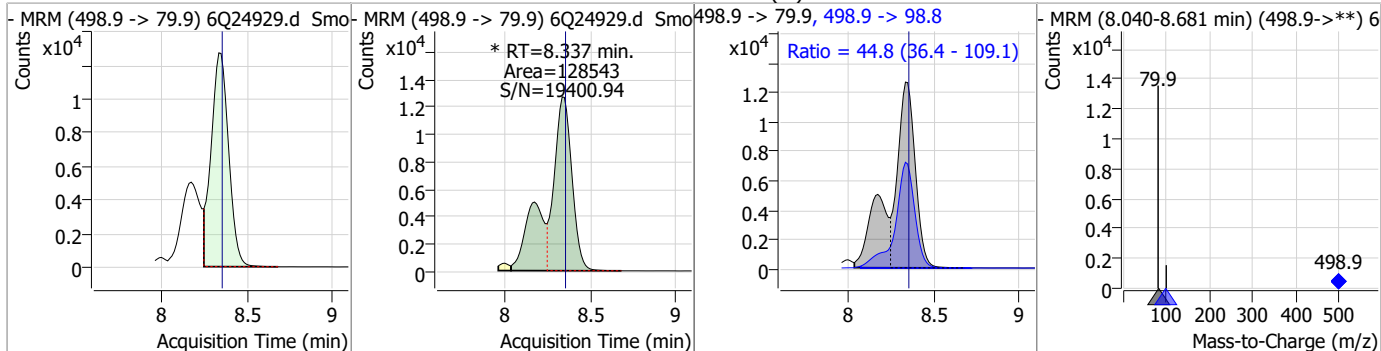
7.7.26

7

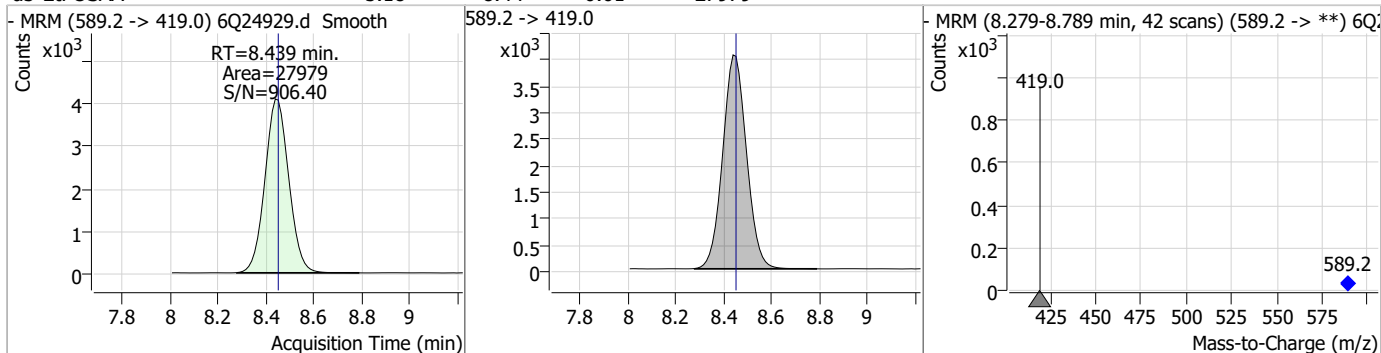


Perfluorinated Compounds by LC/MS/MS

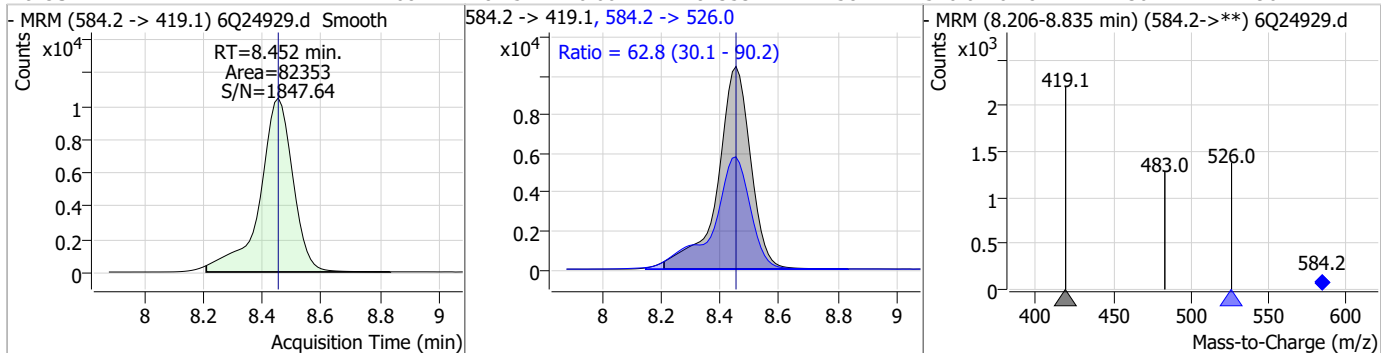
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.46	8.34	-0.01	128543 (m)	498.9 -> 98.8	44.8	36.4	109.1



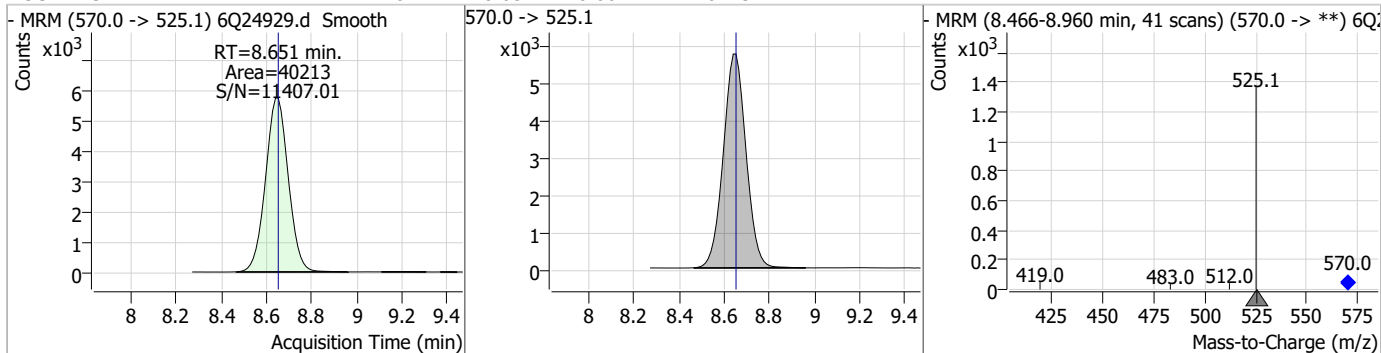
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.18	8.44	-0.01	27979				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	17.68	8.45	0.00	82353	584.2 -> 526.0	62.8	30.1	90.2

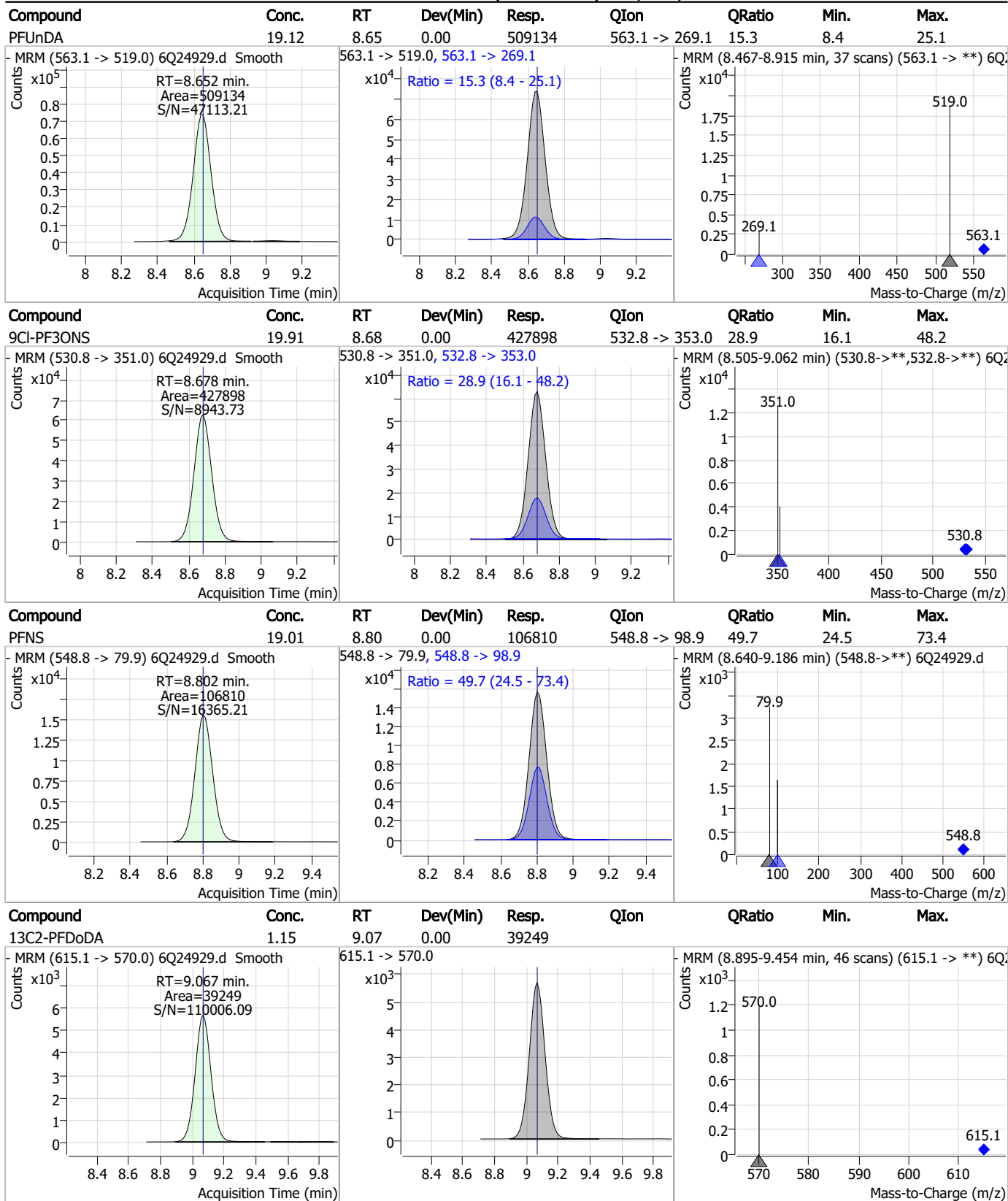


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.20	8.65	0.00	40213				



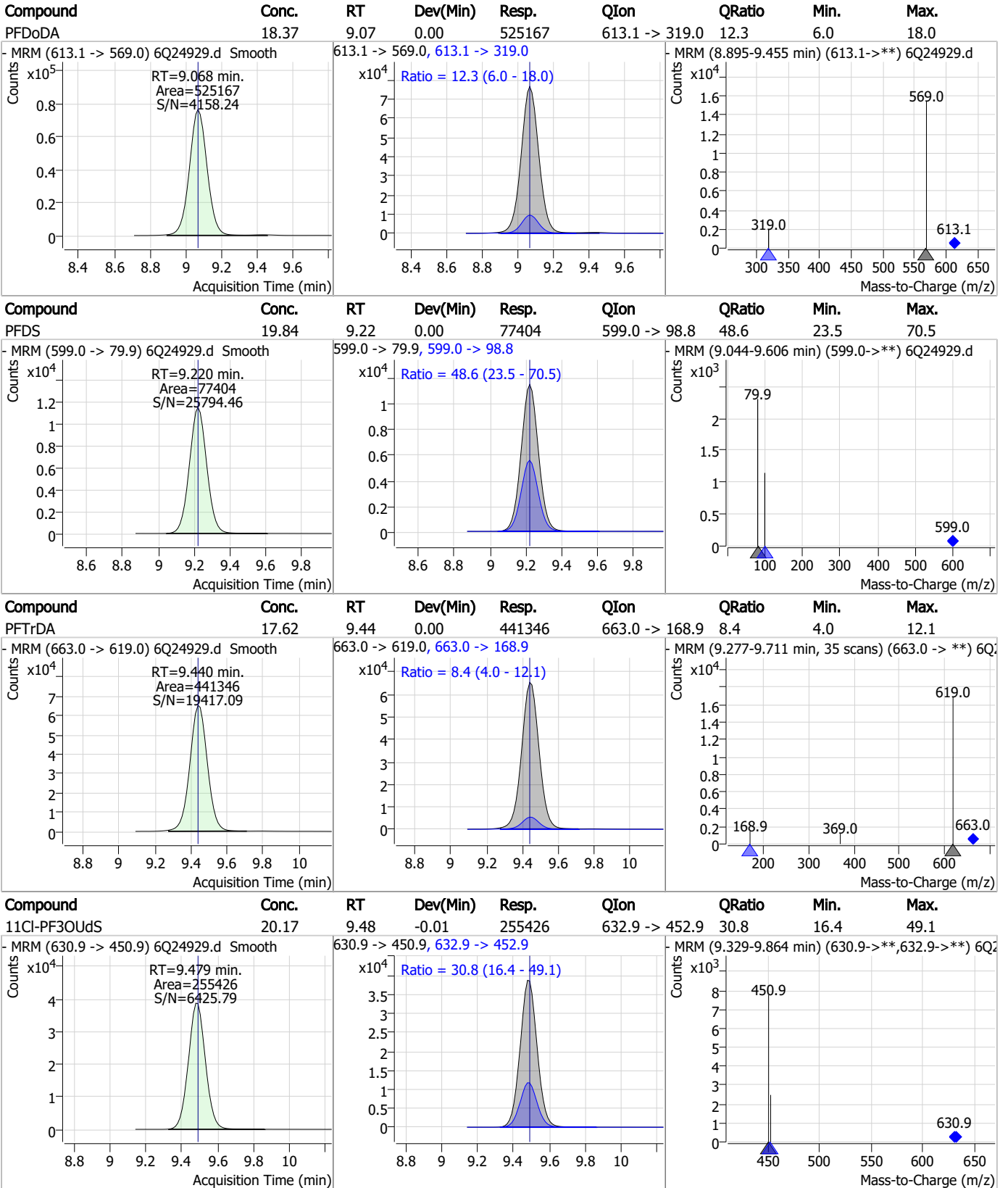
7.7.26
7

Perfluorinated Compounds by LC/MS/MS



7.7.26
7

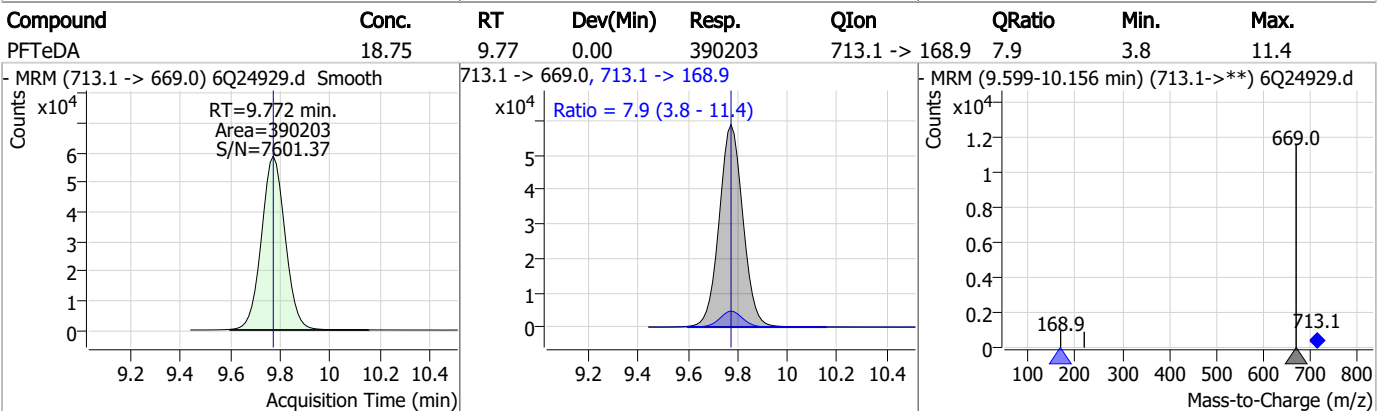
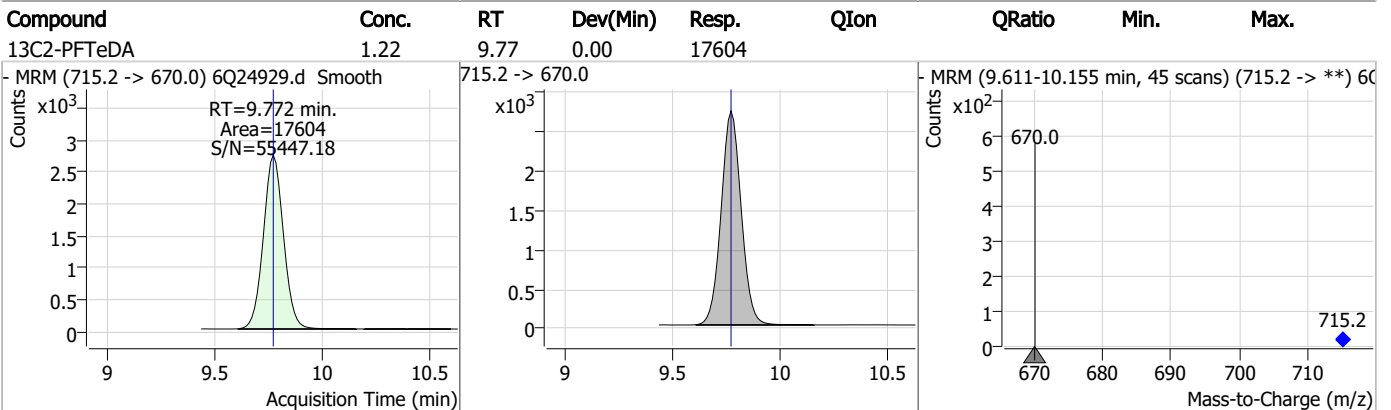
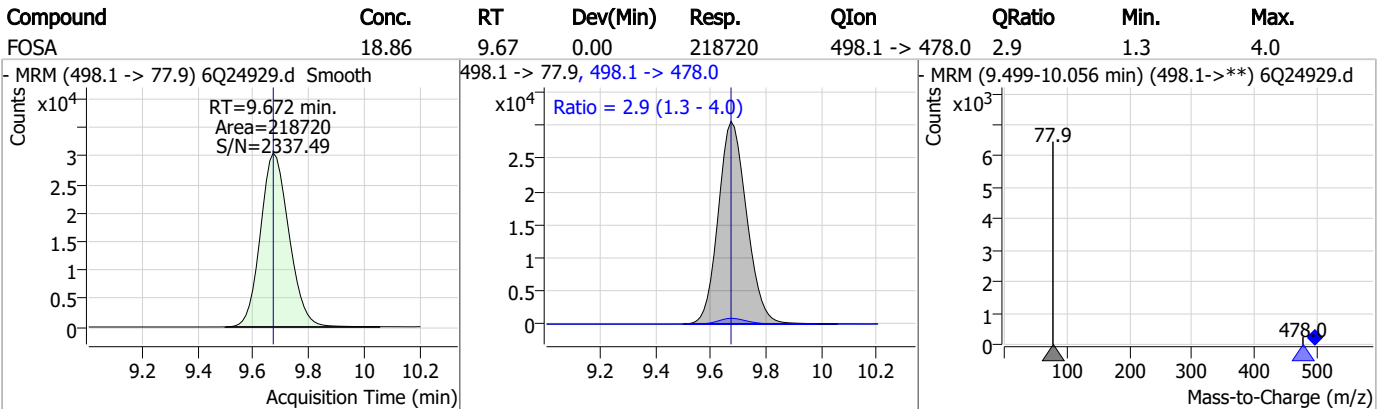
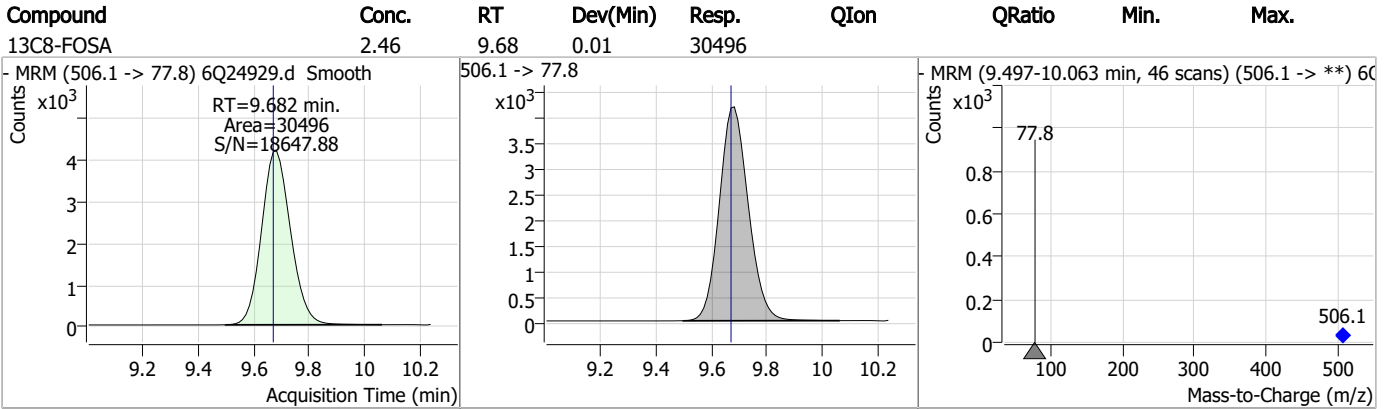
Perfluorinated Compounds by LC/MS/MS



7.7.26 7

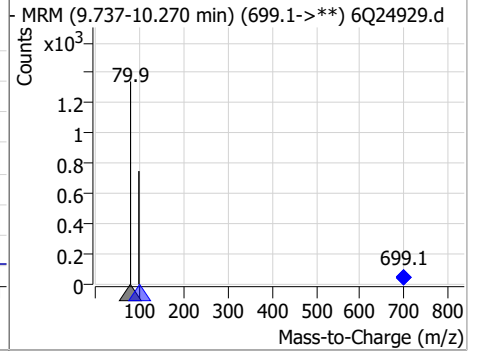
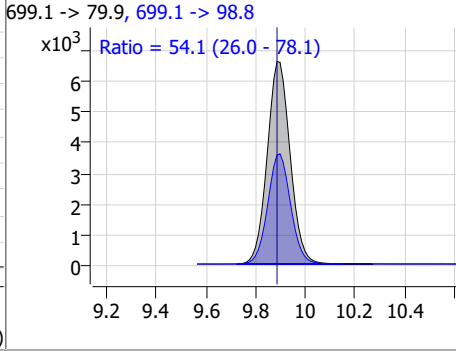
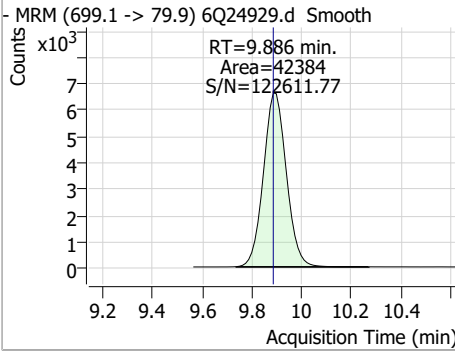


Perfluorinated Compounds by LC/MS/MS

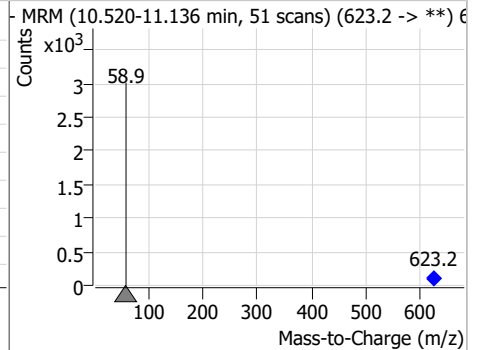
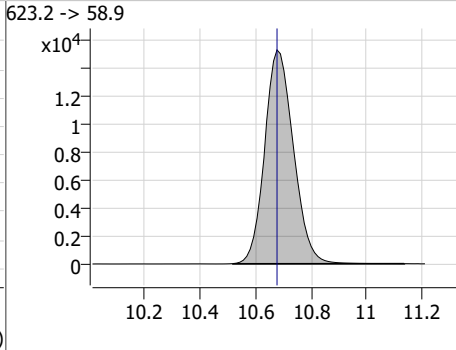
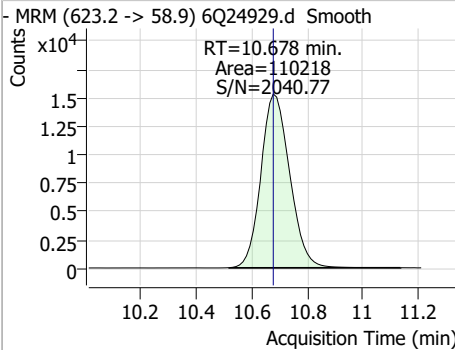


Perfluorinated Compounds by LC/MS/MS

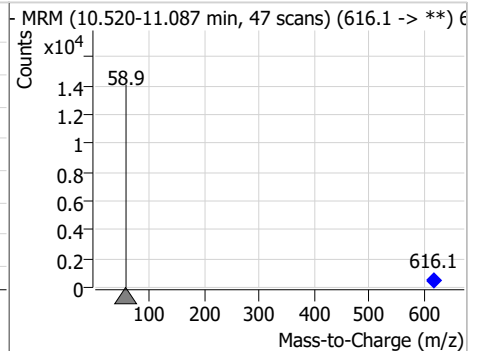
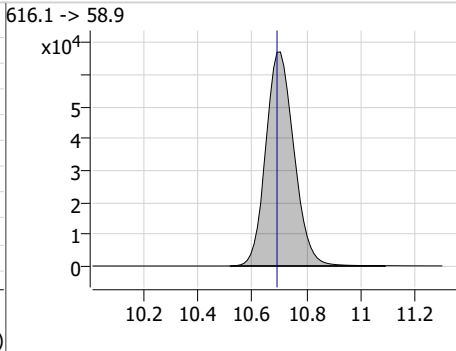
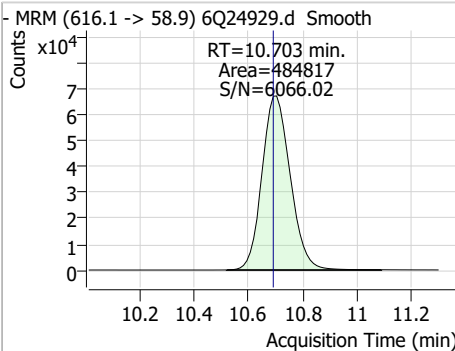
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	18.20	9.89	0.00	42384	699.1 -> 98.8	54.1	26.0	78.1



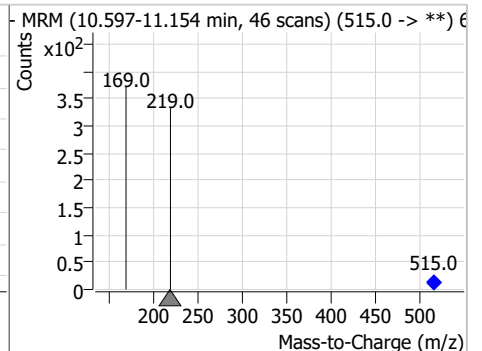
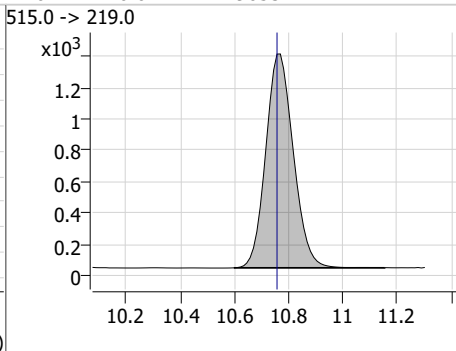
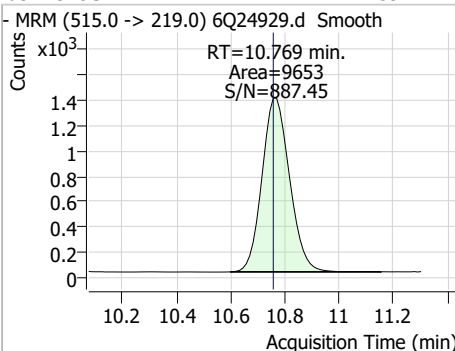
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.04	10.68	0.00	110218				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	99.27	10.70	0.01	484817				

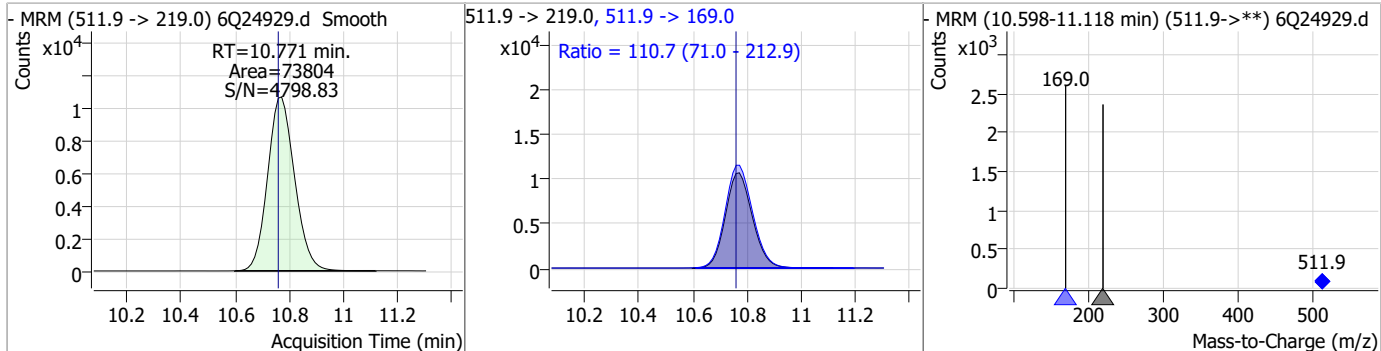


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.59	10.77	0.01	9653				

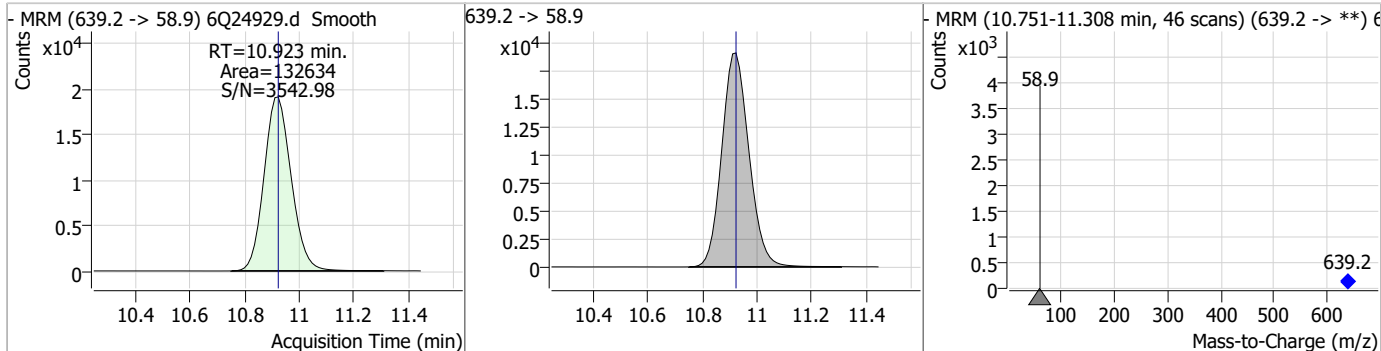


Perfluorinated Compounds by LC/MS/MS

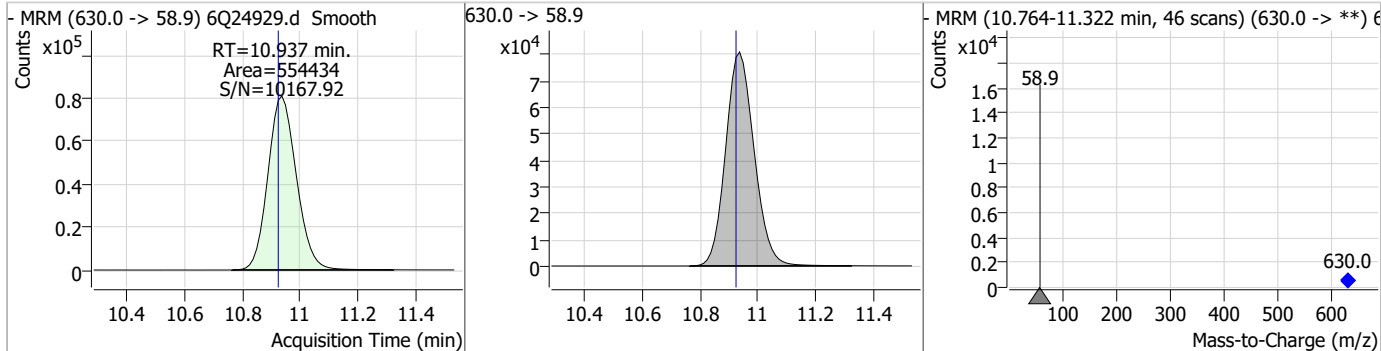
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	16.99	10.77	0.01	73804	511.9 -> 169.0	110.7	71.0	212.9



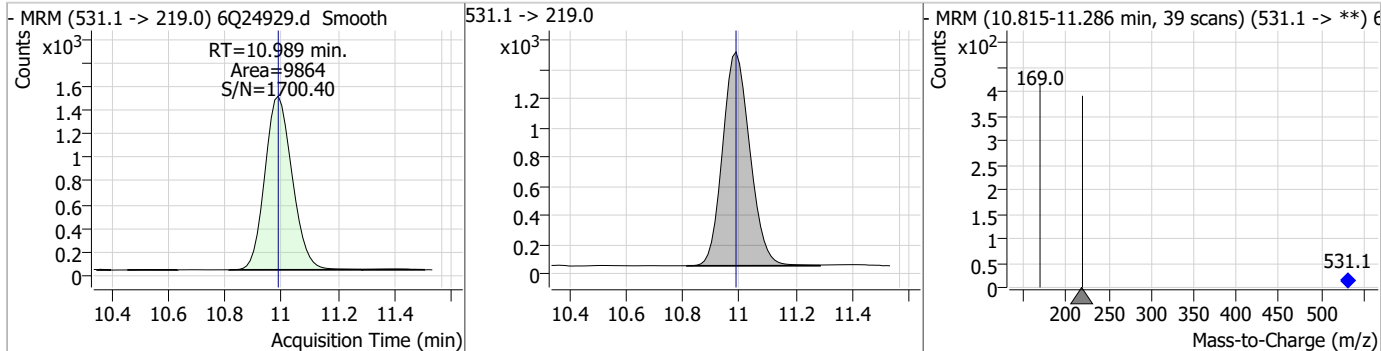
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.77	10.92	0.00	132634				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	104.11	10.94	0.01	554434				

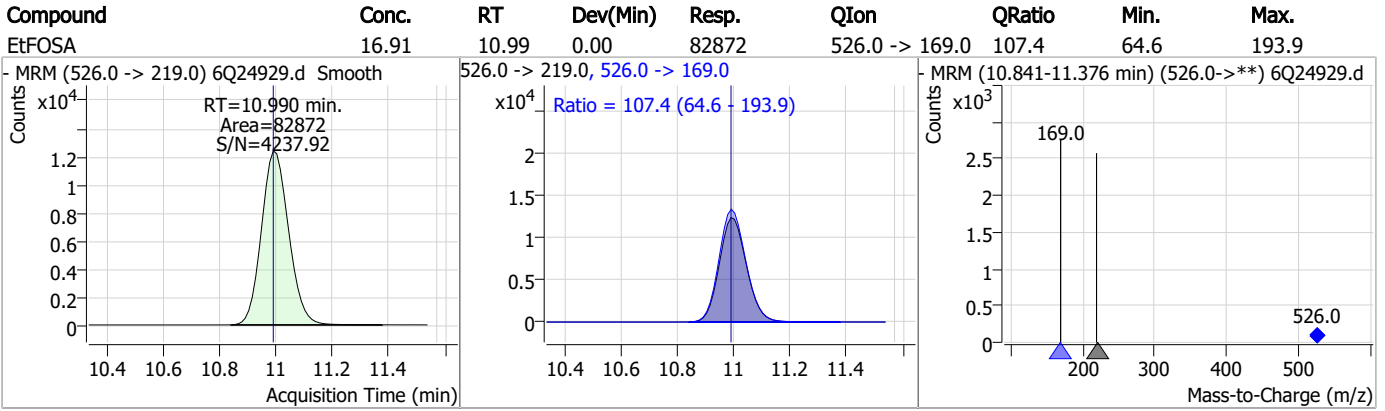


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.51	10.99	0.00	9864				



7.7.26
7

Perfluorinated Compounds by LC/MS/MS



7.7.26

7

Manual Integration Approval Summary

Sample Number: S6Q356-ICV356 Method: EPA DRAFT 1633
Lab FileID: 6Q24929.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 17:23 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

7.7.26.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25048.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 9:38:54 PM
 Sample Name : cc356-4
 Vial : P1-A5
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q357.batch.bin
 Sample Information : OP99081,S6Q357,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	178929	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	75505	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	65315	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	63831	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	86644	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	33567	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	34066	1.25 µg/L	0.000
M7-PFUnDA	8.639	570.0 -> 525.1	38074	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	38603	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	15394	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	29803	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	27813	2.50 µg/L	-0.013
M3-PFHxS	7.301	402.1 -> 79.9	16747	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	16146	2.50 µg/L	0.000
M2-4:2FTS	5.292	329.1 -> 80.9	2787	5.00 µg/L	-0.012
M2-6:2FTS	6.961	429.1 -> 80.9	4148	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	3981	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	35068	5.00 µg/L	0.000
M3-HFPO-DA	5.994	286.9 -> 168.9	43479	10.00 µg/L	-0.012
M5-EtFOSAA	8.439	589.2 -> 419.0	28099	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	104604	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	123153	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9581	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9076	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	13649	2.50 µg/L	0.000
13C3-PFBA	2.964	216.0 -> 172.0	74846	5.00 µg/L	-0.012
18O2-PFHxS	7.288	403.0 -> 83.9	10423	2.50 µg/L	-0.012
13C4-PFOA	7.187	417.1 -> 372.0	99351	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	32717	1.25 µg/L	-0.012
13C5-PFNA	7.705	468.0 -> 423.0	35641	1.25 µg/L	-0.012
13C2-PFHxA	5.630	315.1 -> 270.0	60910	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.292	329.1 -> 80.9	2787	5.23 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4148	4.89 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C2-8:2FTS	7.986	529.1 -> 80.9	3981	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C2-PFDoDA	9.067	615.1 -> 570.0	38603	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C2-PFTeDA	9.772	715.2 -> 670.0	15394	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C3-PFBS	5.546	302.1 -> 79.9	27813	2.54 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C3-PFHxS	7.301	402.1 -> 79.9	16747	2.54 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 = 101.6%		
13C4-PFBA	2.972	216.8 -> 171.9	178929	9.89 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C4-PFHpA	6.556	367.1 -> 322.0	63831	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C5-PFHxA	5.629	318.0 -> 273.0	65315	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C5-PFPeA	4.409	268.3 -> 223.0	75505	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C6-PFDA	8.198	519.1 -> 474.1	34066	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C7-PFUnDA	8.639	570.0 -> 525.1	38074	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C8-FOSA	9.670	506.1 -> 77.8	29803	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C8-PFOA	7.186	421.1 -> 376.0	86644	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C8-PFOS	8.348	507.1 -> 79.9	16146	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C9-PFNA	7.717	472.1 -> 427.0	33567	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.7%		
d3-MeFOSAA	8.244	573.2 -> 419.0	35068	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C3-HFPO-DA	5.994	286.9 -> 168.9	43479	9.47 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 94.7%		
d3-MeFOSA	10.757	515.0 -> 219.0	9076	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.6%		
d5-EtFOSAA	8.439	589.2 -> 419.0	28099	5.59 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.8%		
d7-MeFOSE	10.678	623.2 -> 58.9	104604	25.55 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
d9-EtFOSE	10.911	639.2 -> 58.9	123153	24.72 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.9%		
d5-EtFOSA	10.989	531.1 -> 219.0	9581	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.0%		
Target Compounds					QValue
4:2FTS	5.293	327.1 -> 307.0	46950	10.29 µg/L	95
		327.1 -> 80.9	18538		
6:2FTS	6.962	427.1 -> 407.0	38120	10.66 µg/L	98
		427.1 -> 80.9	16106		
8:2FTS	7.987	527.1 -> 507.0	26885	10.59 µg/L	95
		527.1 -> 80.8	10311		
EtFOSAA	8.452	584.2 -> 419.1	11808	2.52 µg/L	m 92
		584.2 -> 526.0	7831		
FOSA	9.672	498.1 -> 77.9	29427	2.60 µg/L	100
		498.1 -> 478.0	793		
MeFOSAA	8.245	570.1 -> 419.0	16470	2.68 µg/L	91
		570.1 -> 483.0	3172		
PFBA	2.968	212.8 -> 168.9	67016	10.49 µg/L	100
PFBS	5.547	298.7 -> 79.9	18796	2.07 µg/L	96
		298.7 -> 98.8	7483		
PFDA	8.186	512.9 -> 469.0	72632	2.70 µg/L	99
		512.9 -> 219.0	11540		
PFDODA	9.068	613.1 -> 569.0	78474	2.79 µg/L	100
		613.1 -> 319.0	9379		
PFDS	9.220	599.0 -> 79.9	9536	2.44 µg/L	98

7.7.27
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.557	599.0 -> 98.8	4361	2.57	µg/L	98
		363.1 -> 319.0	88990			
PFHpS	7.843	363.1 -> 169.0	13488	2.44	µg/L	87
		449.0 -> 79.9	17369			
PFHxA	5.631	449.0 -> 98.9	8690	2.66	µg/L	100
		313.0 -> 269.0	62367			
PFHxS	7.290	313.0 -> 118.9	2954	2.37	µg/L	97
		398.7 -> 79.9	15430			
PFNA	7.717	398.7 -> 98.9	7175	2.68	µg/L	96
		463.0 -> 419.0	58169			
PFNS	8.802	463.0 -> 219.0	13319	2.46	µg/L	98
		548.8 -> 79.9	13838			
PFOA	7.187	548.8 -> 98.9	6927	2.47	µg/L	99
		413.0 -> 369.0	91758			
PFOS	8.337	413.0 -> 169.0	17209	2.29	µg/L	68
		498.9 -> 79.9	15918			
PFPeA	4.411	498.9 -> 98.8	7347	4.99	µg/L	100
		263.0 -> 219.0	75882			
PFPeS	6.608	349.1 -> 79.9	21616	2.38	µg/L	98
		349.1 -> 98.9	9796			
PFTeDA	9.772	713.1 -> 669.0	52328	2.88	µg/L	100
		713.1 -> 168.9	3926			
PFTrDA	9.440	663.0 -> 619.0	63851	2.59	µg/L	97
		663.0 -> 168.9	5838			
PFUnDA	8.639	563.1 -> 519.0	64685	2.57	µg/L	99
		563.1 -> 269.1	11090			
11CI-PF3OUdS	9.479	630.9 -> 450.9	61920	5.44	µg/L	98
		632.9 -> 452.9	19677			
9CI-PF3ONS	8.678	530.8 -> 351.0	103813	5.38	µg/L	100
		532.8 -> 353.0	33564			
ADONA	6.804	376.9 -> 250.9	300314	5.62	µg/L	94
		376.9 -> 84.8	77045			
HFPO-DA	5.995	284.9 -> 168.9	20801	4.86	µg/L	97
		284.9 -> 184.9	2417			
3:3FTCA	3.846	241.0 -> 177.0	12798	12.34	µg/L	99
		241.0 -> 117.0	1461			
5:3FTCA	6.271	341.0 -> 237.1	276891	62.82	µg/L	99
		341.0 -> 217.0	194238			
7:3FTCA	7.669	441.0 -> 316.9	162103	64.92	µg/L	93
		441.0 -> 336.9	342781			
EtFOSA	10.978	526.0 -> 219.0	24793	5.21	µg/L	99
		526.0 -> 169.0	31714			
EtFOSE	10.924	630.0 -> 58.9	64970	13.14	µg/L	100
		511.9 -> 219.0	21285			
MeFOSA	10.758	511.9 -> 169.0	29264	5.21	µg/L	96
		616.1 -> 58.9	58564			
MeFOSE	10.691	699.1 -> 79.9	5611	12.63	µg/L	100
		699.1 -> 98.8	3113			
PFDoDS	9.886	295.0 -> 201.0	15088	2.41	µg/L	95
		295.0 -> 84.9	4166			
NFDHA	5.499	279.0 -> 85.1	58972	5.01	µg/L	98
		229.0 -> 84.9	43710			
PFMBA	4.838	314.8 -> 134.9	132878	4.83	µg/L	100
		314.8 -> 82.9	4649			
PFMPA	3.538			4.82	µg/L	100
PFEESA	6.088			4.56	µg/L	99

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

7.7.27
7

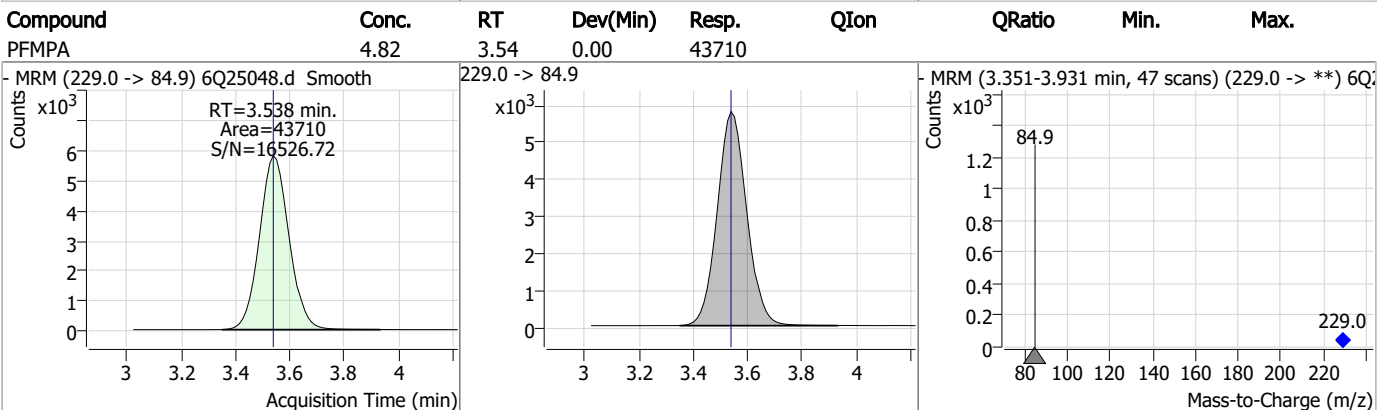
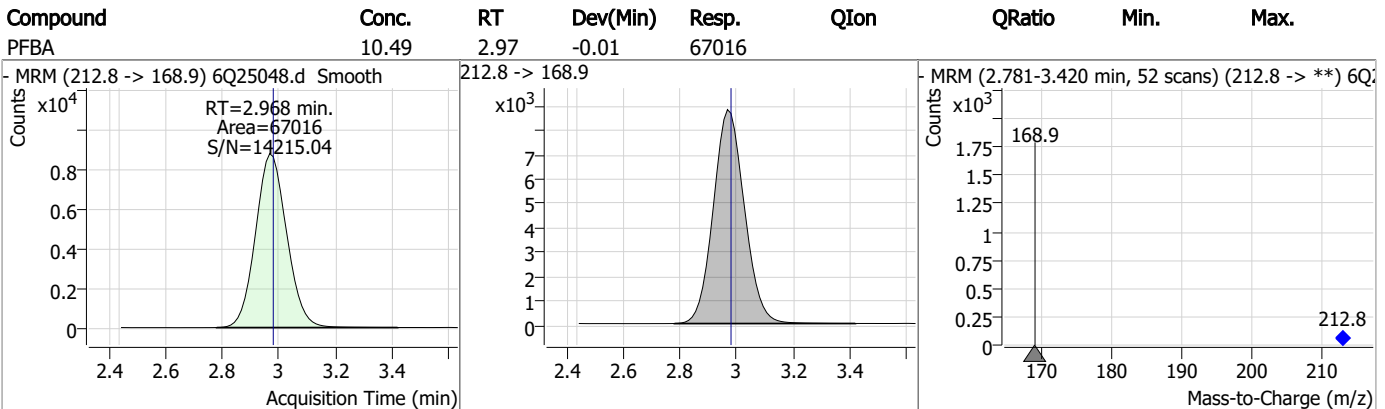
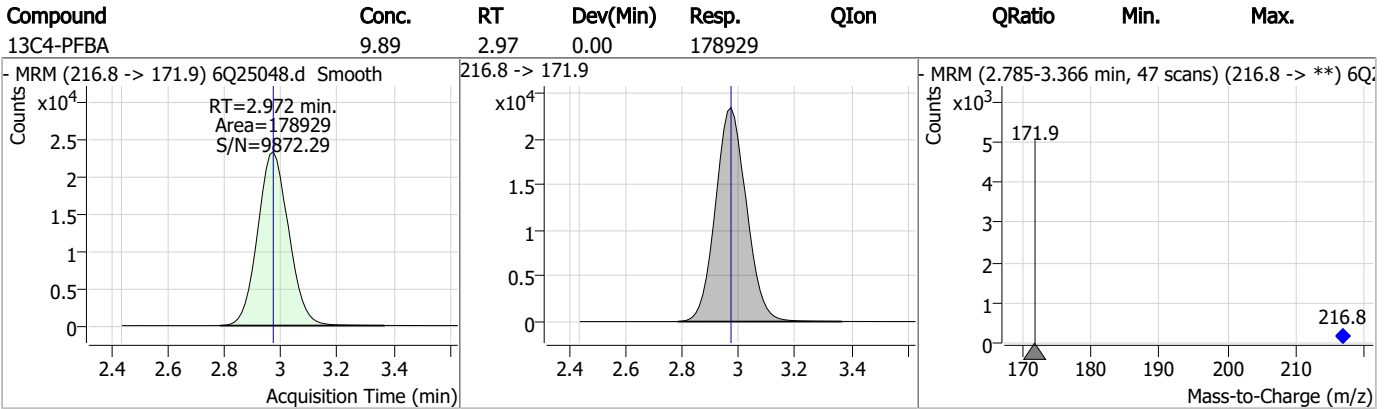
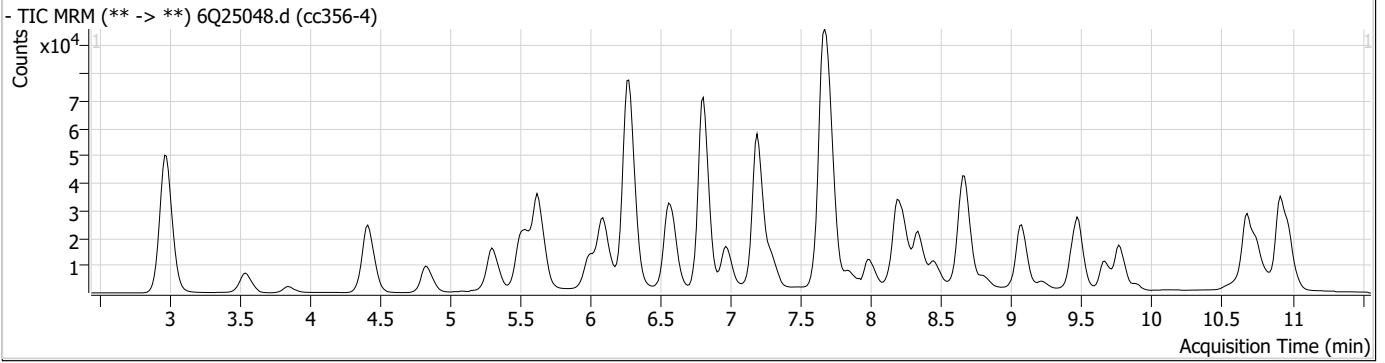
Perfluorinated Compounds by LC/MS/MS

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

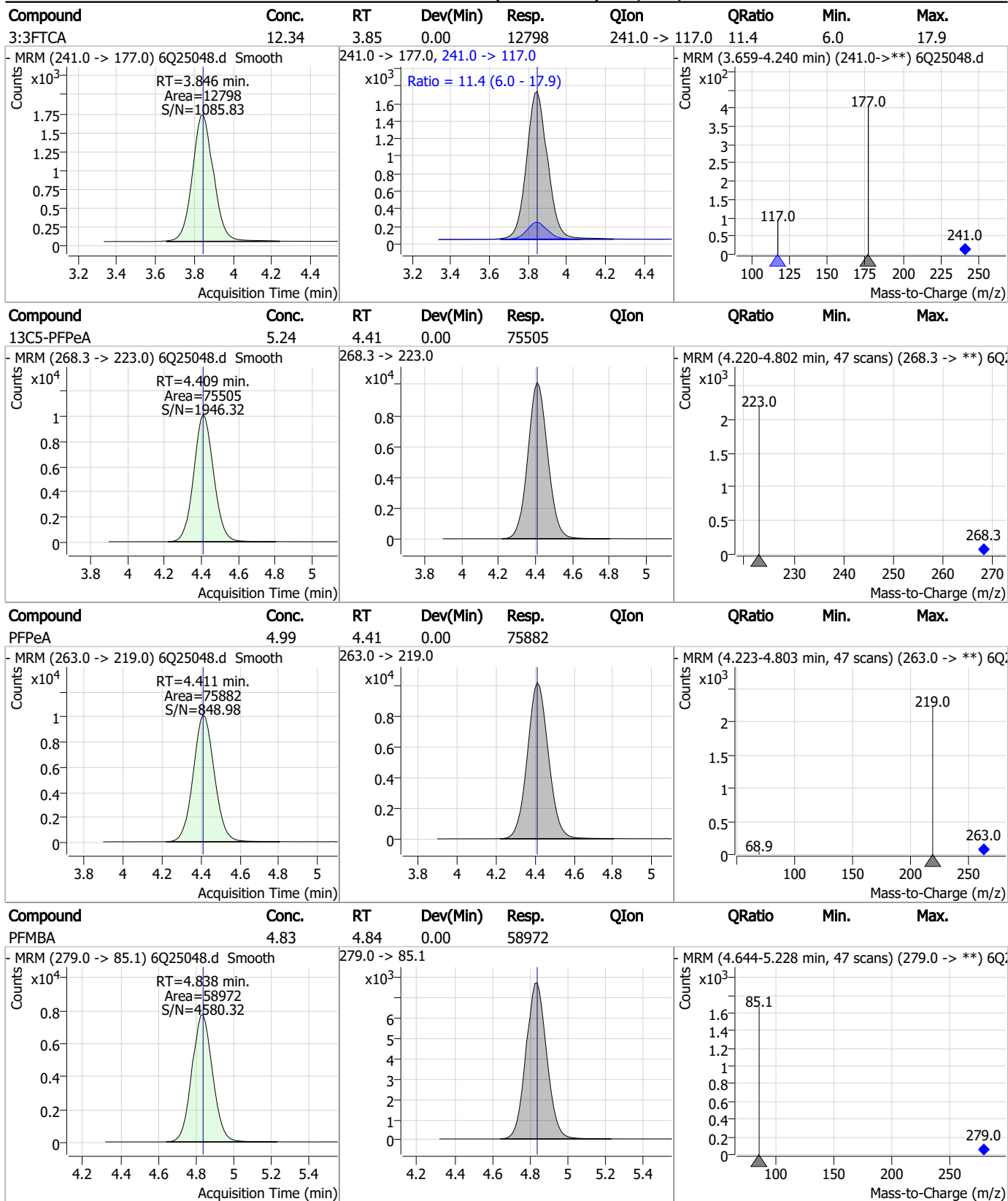
7.7.27

7

Perfluorinated Compounds by LC/MS/MS

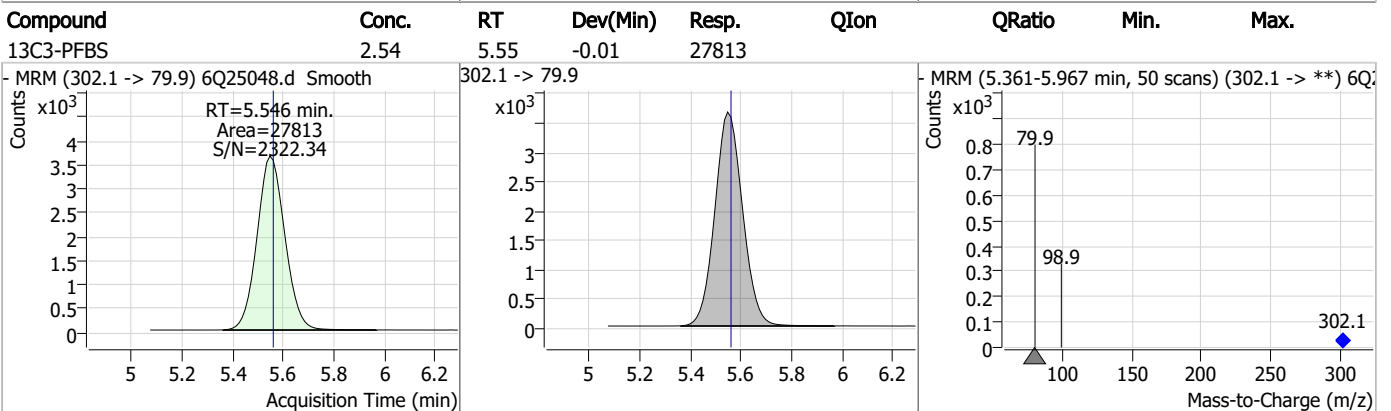
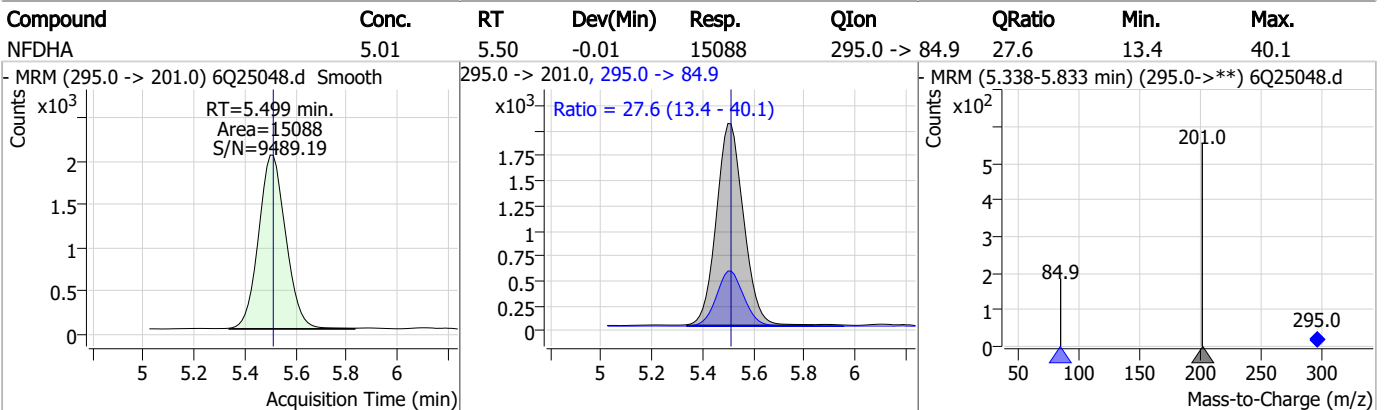
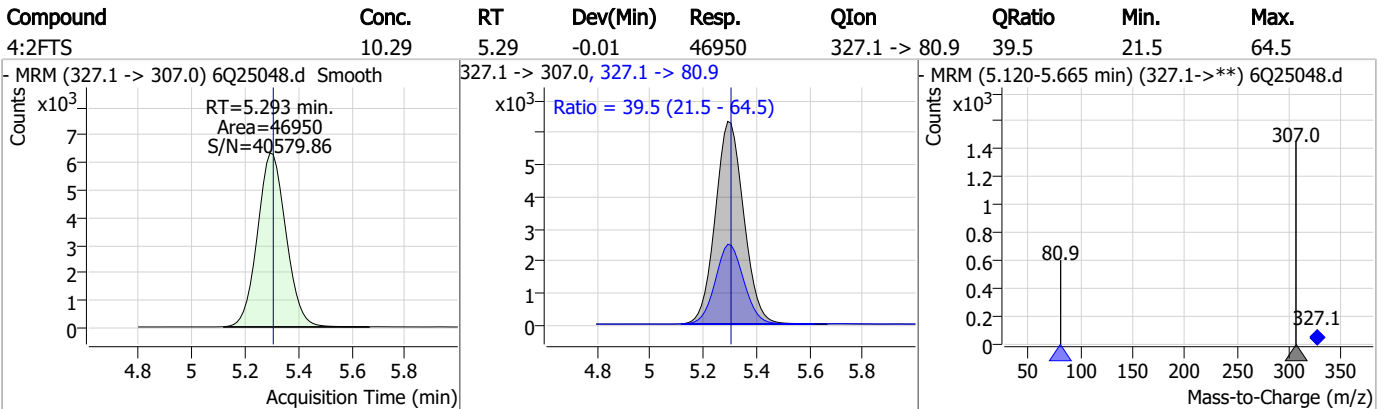
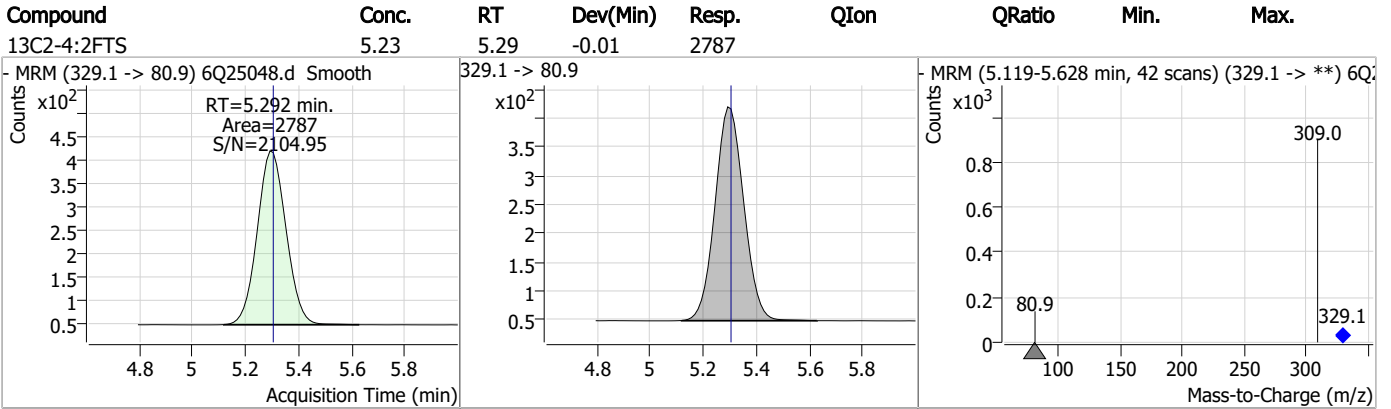


Perfluorinated Compounds by LC/MS/MS



7.7.27

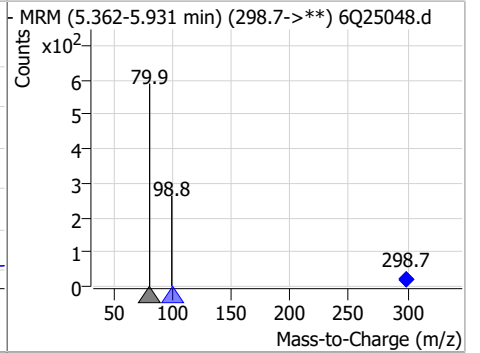
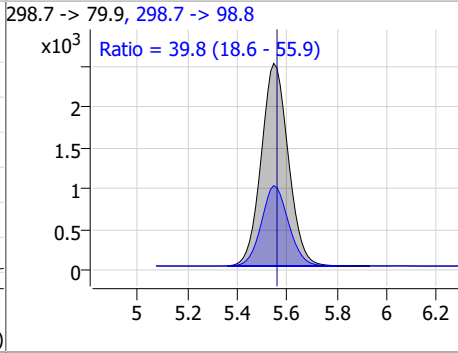
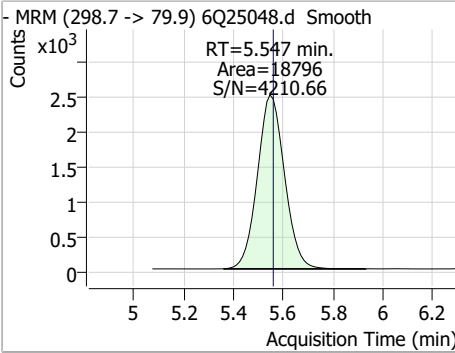
Perfluorinated Compounds by LC/MS/MS



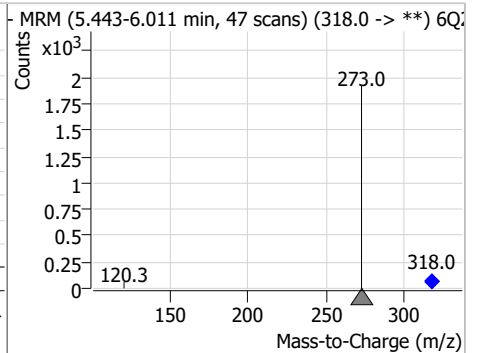
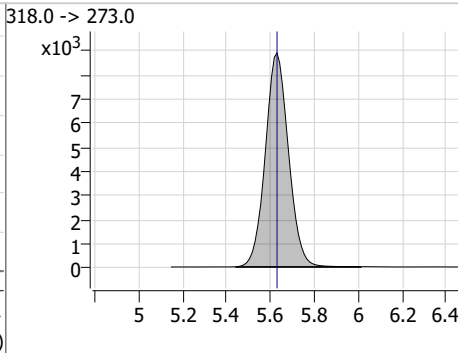
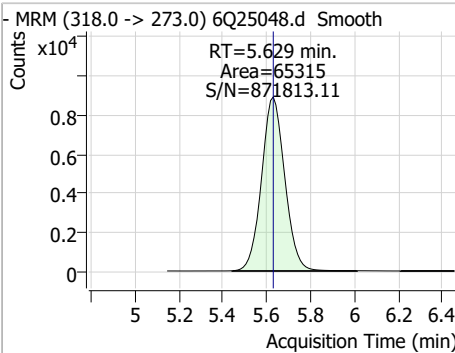
7.7.27
7

Perfluorinated Compounds by LC/MS/MS

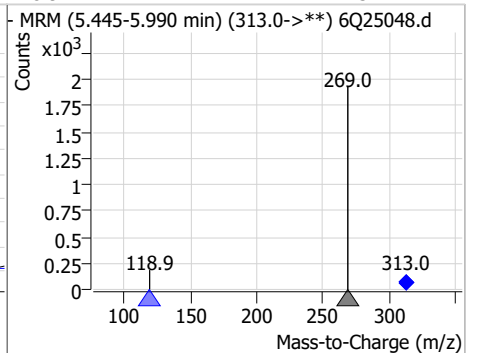
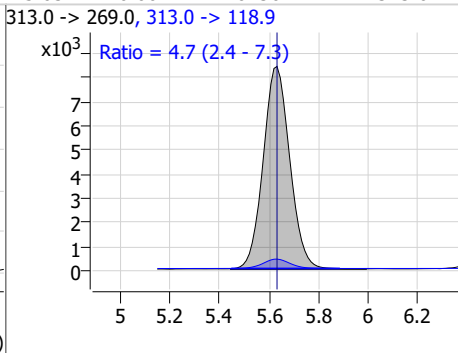
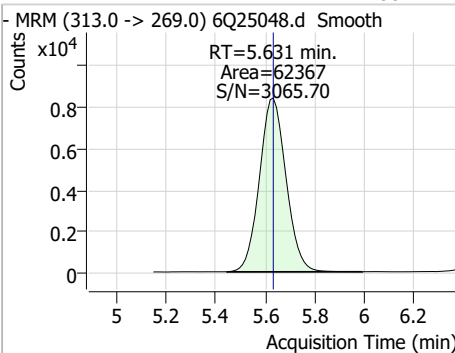
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.07	5.55	-0.01	18796	298.7 -> 98.8	39.8	18.6	55.9



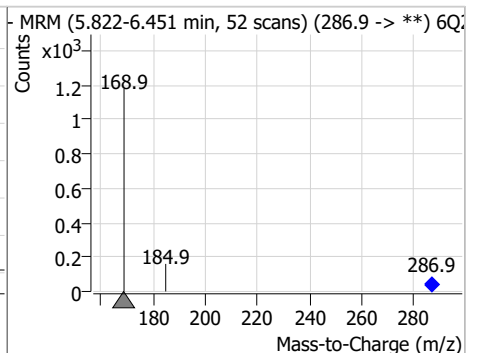
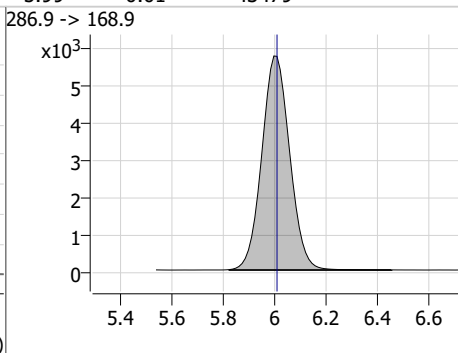
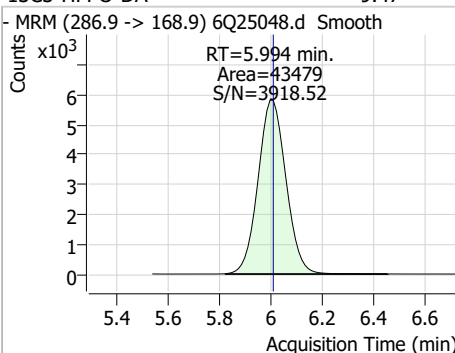
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.55	5.63	0.00	65315	318.0 -> 273.0	4.7	2.4	7.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.66	5.63	0.00	62367	313.0 -> 118.9	4.7	2.4	7.3

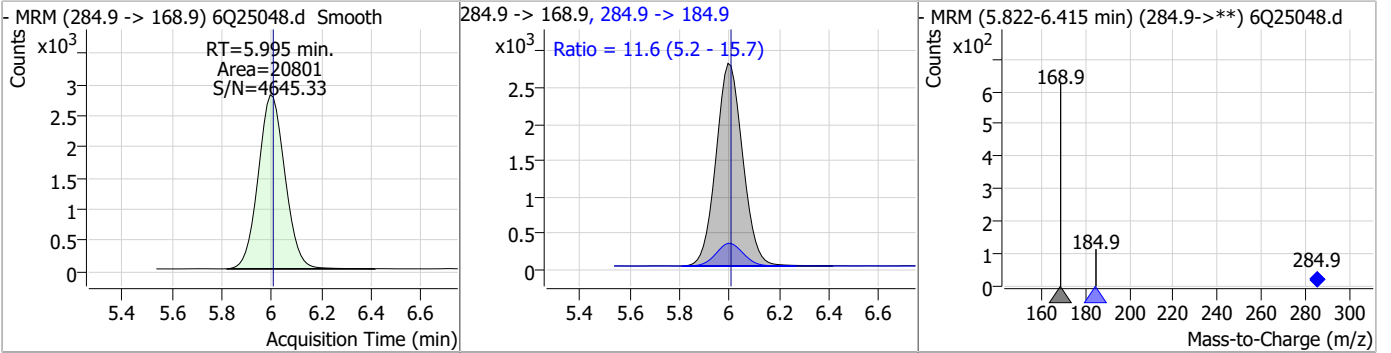


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.47	5.99	-0.01	43479	286.9 -> 168.9	4.7	2.4	7.3

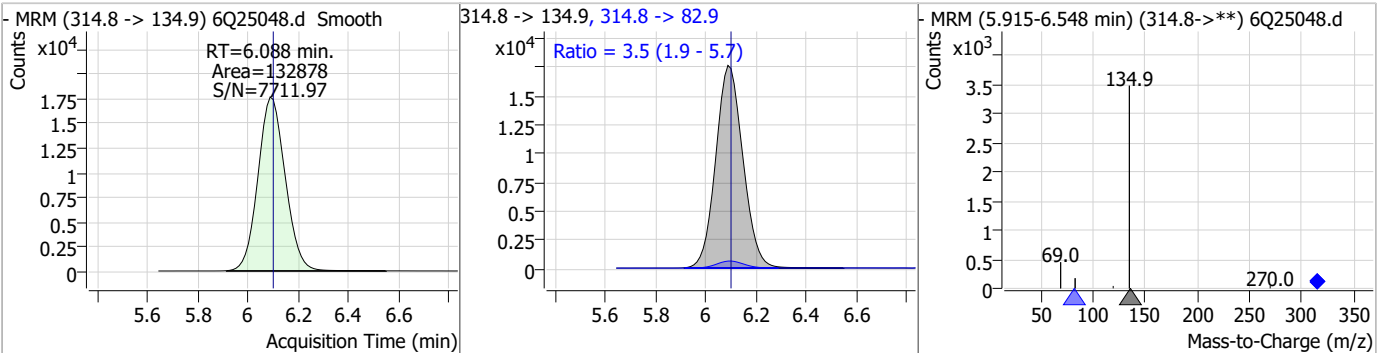


Perfluorinated Compounds by LC/MS/MS

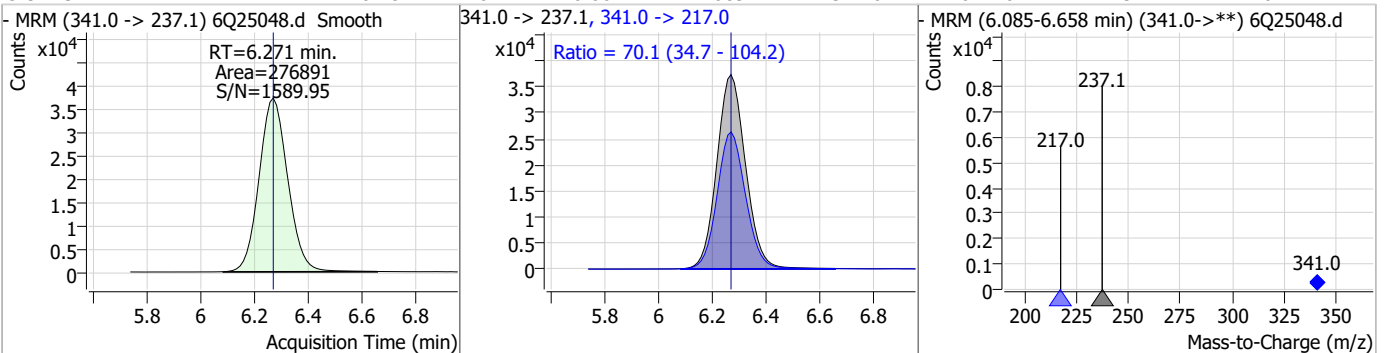
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.86	6.00	-0.01	20801	284.9 -> 184.9	11.6	5.2	15.7



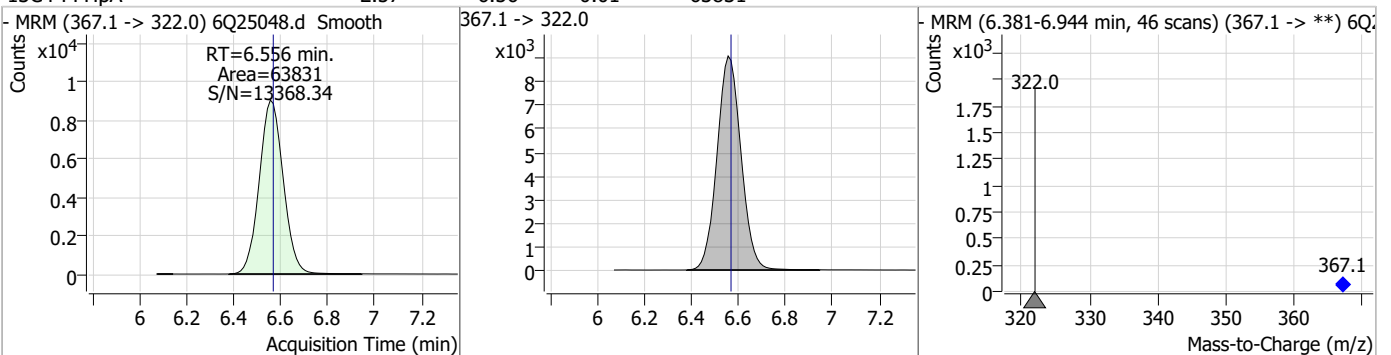
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.56	6.09	-0.01	132878	314.8 -> 82.9	3.5	1.9	5.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	62.82	6.27	0.00	276891	341.0 -> 217.0	70.1	34.7	104.2

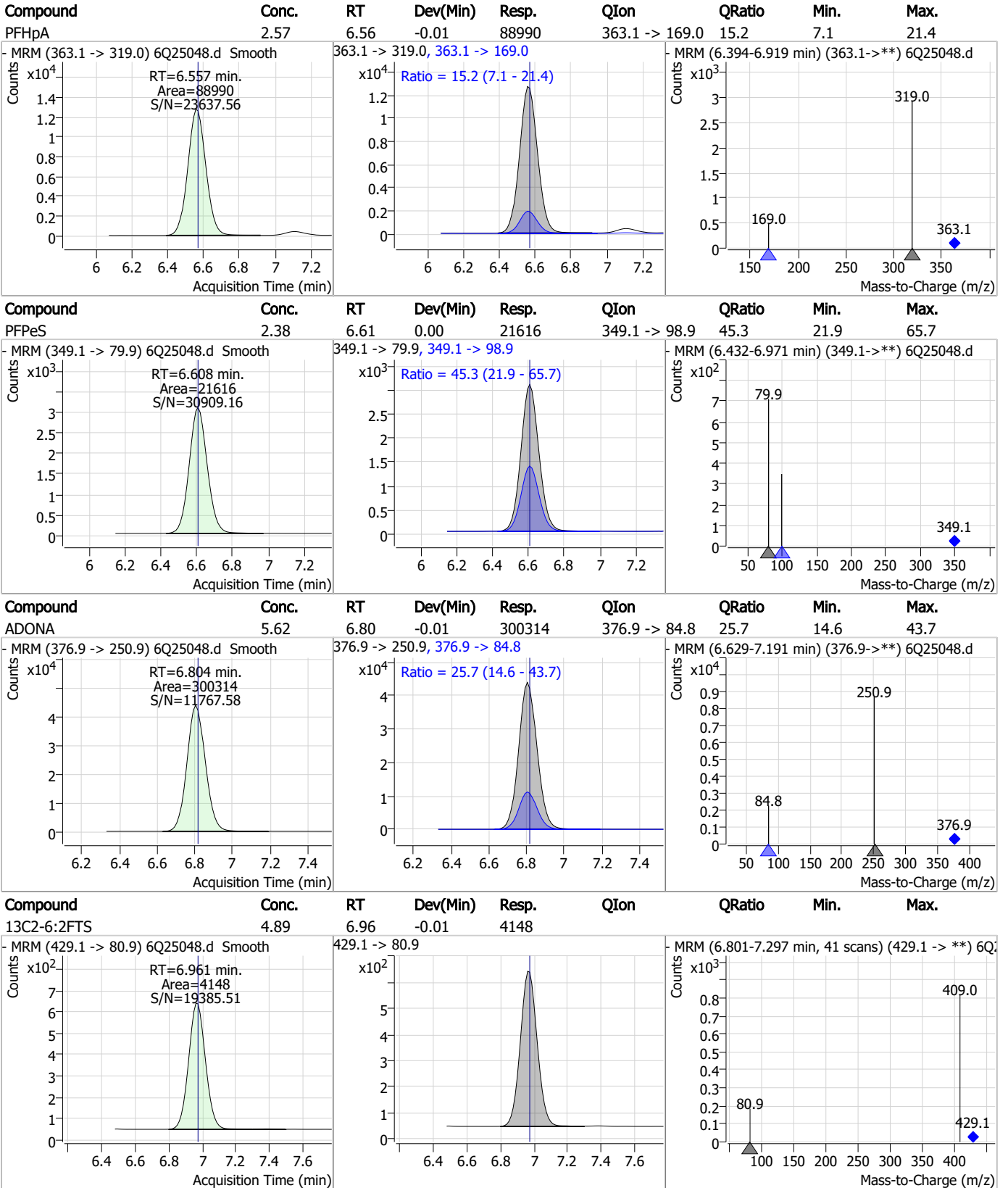


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.57	6.56	-0.01	63831	367.1 -> 322.0	-	-	-



7.7.27
7

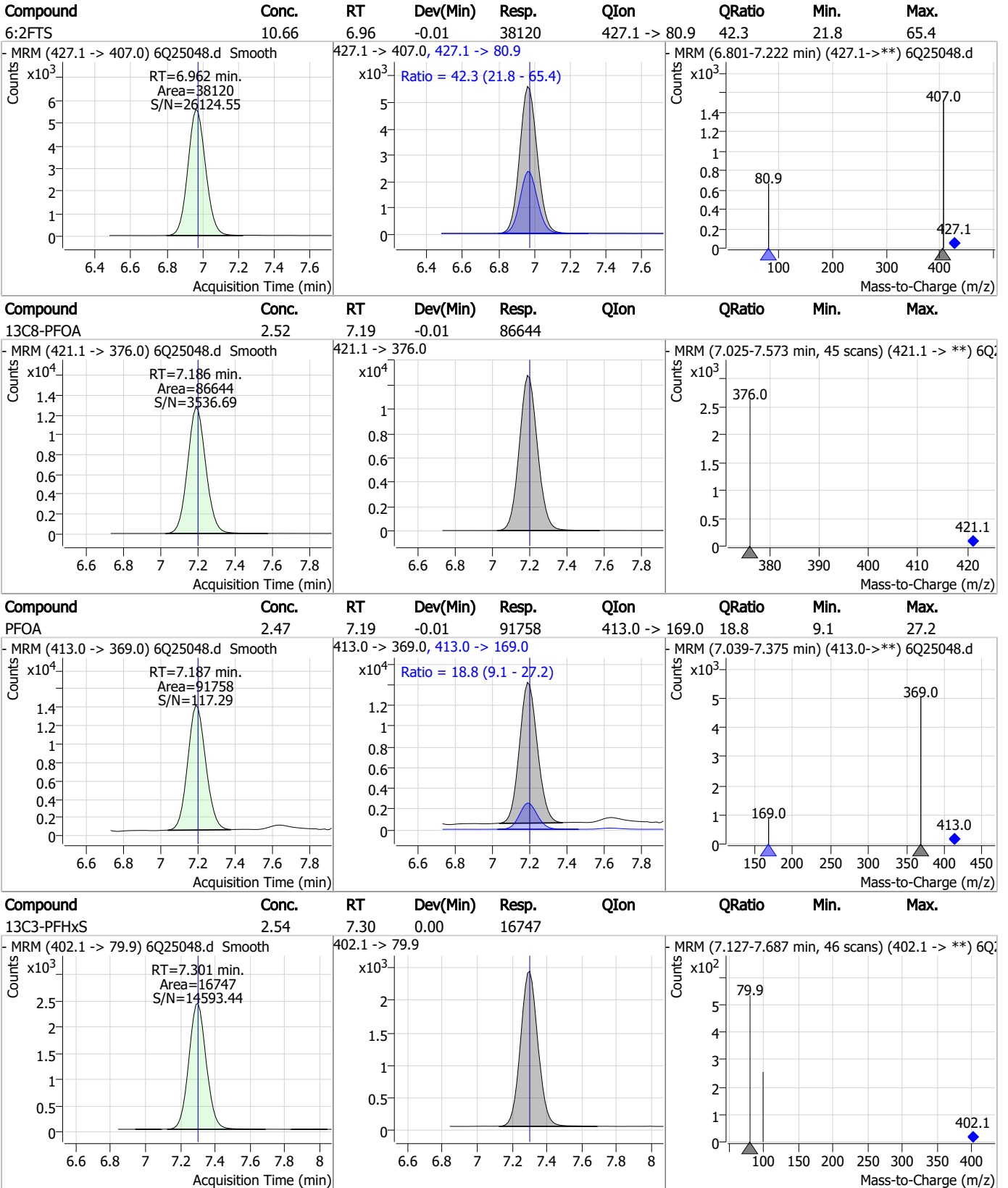
Perfluorinated Compounds by LC/MS/MS



7.7.27 7



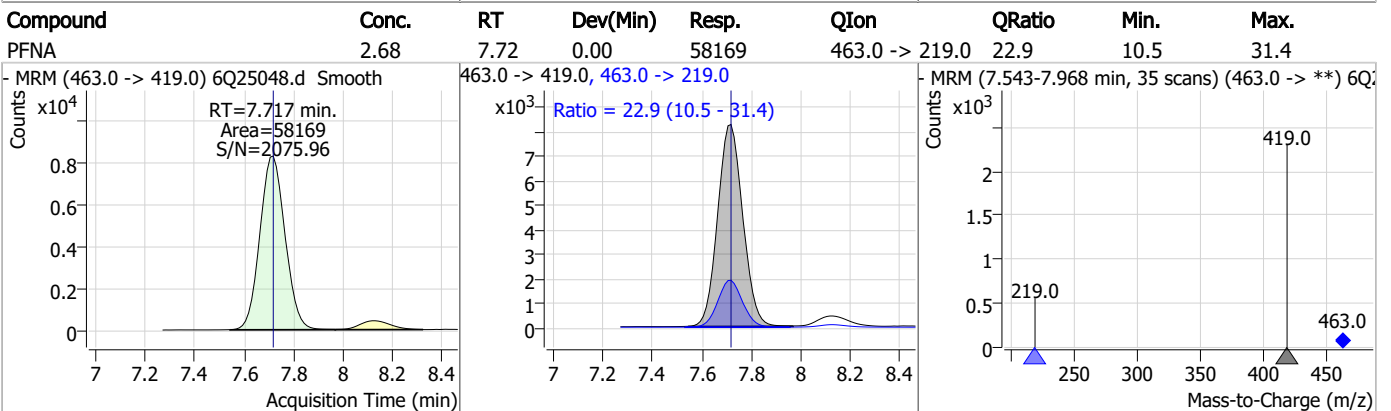
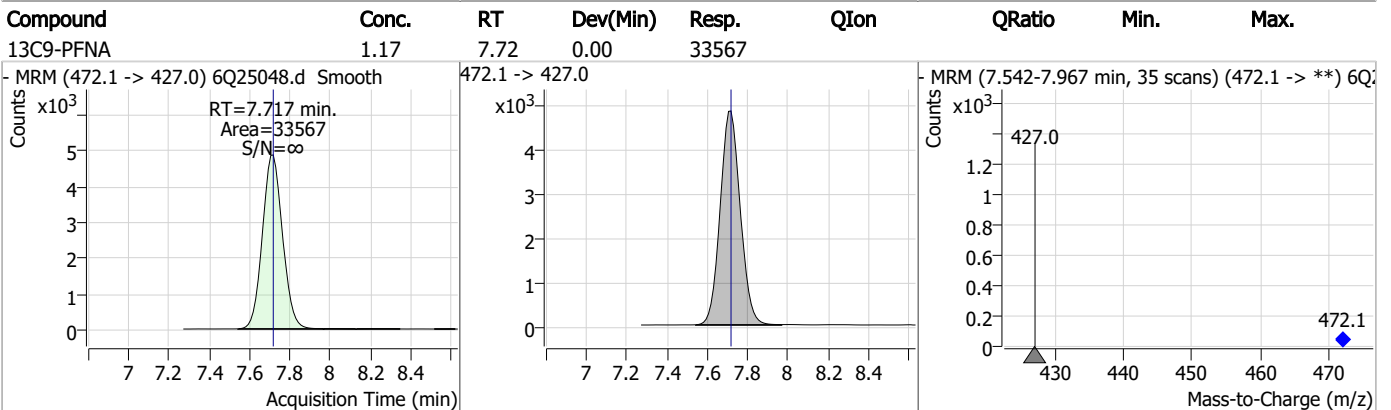
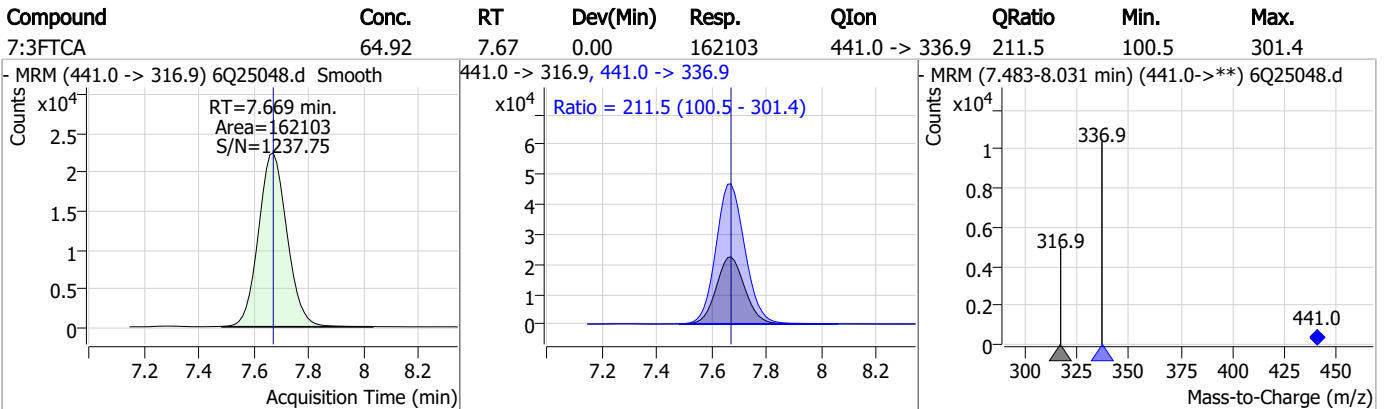
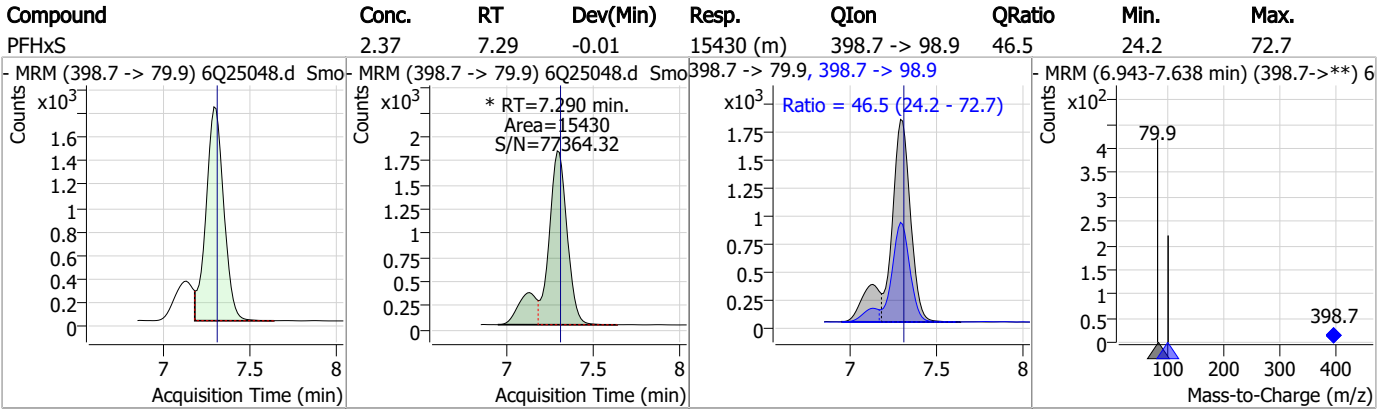
Perfluorinated Compounds by LC/MS/MS



7.7.27



Perfluorinated Compounds by LC/MS/MS



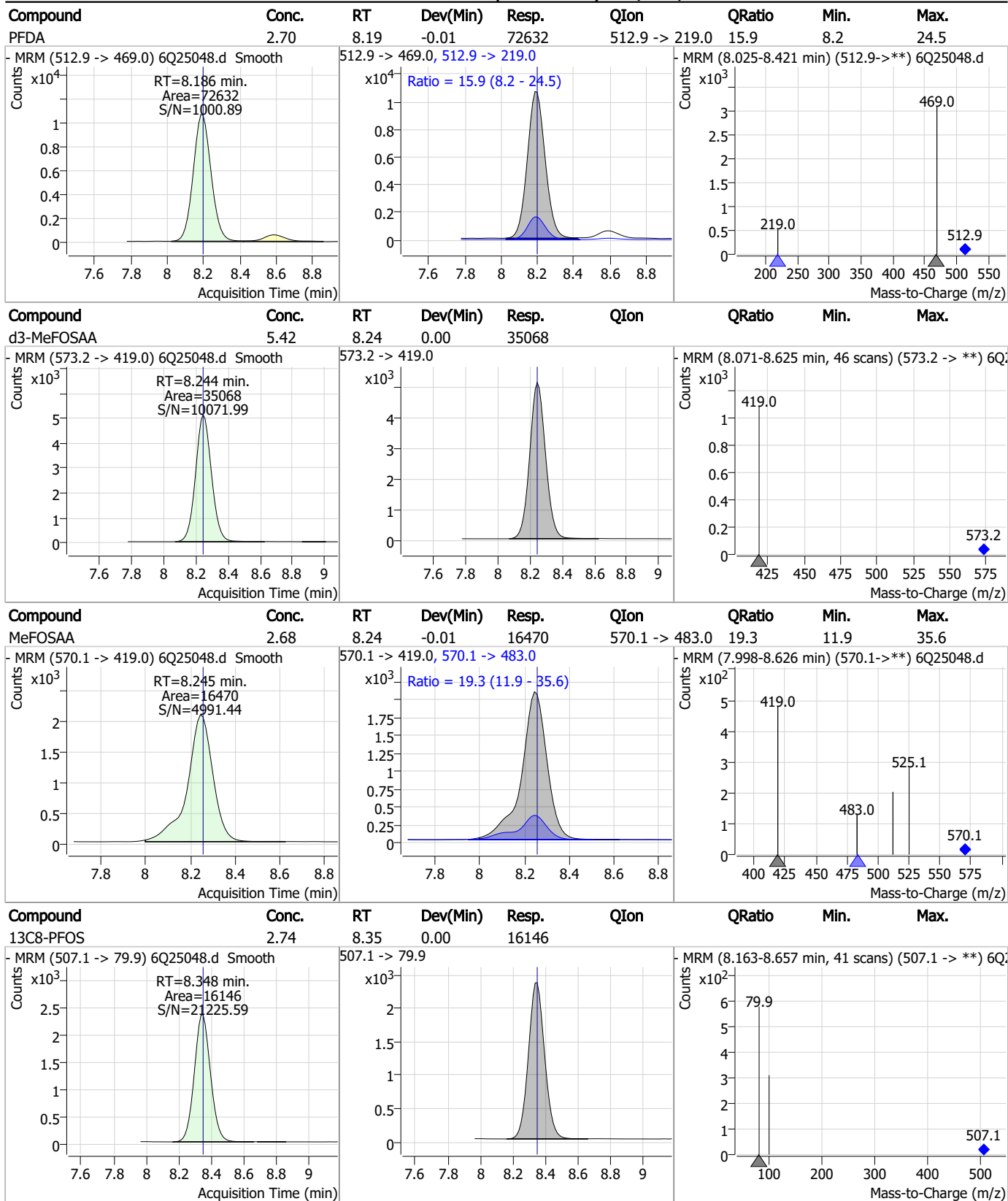
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.44	7.84	-0.01	17369	449.0 -> 98.9	50.0	21.0	62.9
13C2-8:2FTS	4.94	7.99	0.00	3981	529.1 -> 80.9			
8:2FTS	10.59	7.99	0.00	26885	527.1 -> 80.8	38.4	17.6	52.8
13C6-PFDA	1.24	8.20	0.00	34066	519.1 -> 474.1			

7.7.27



Perfluorinated Compounds by LC/MS/MS



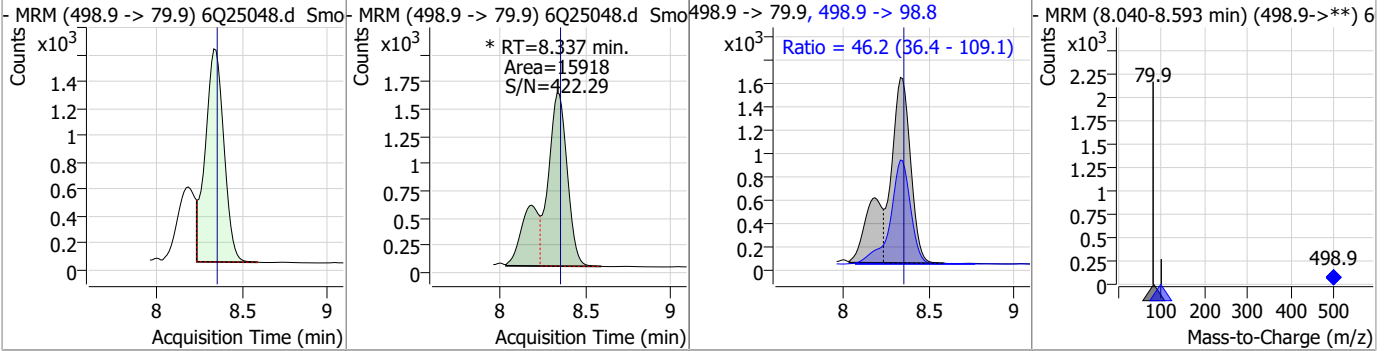
7.7.27

7

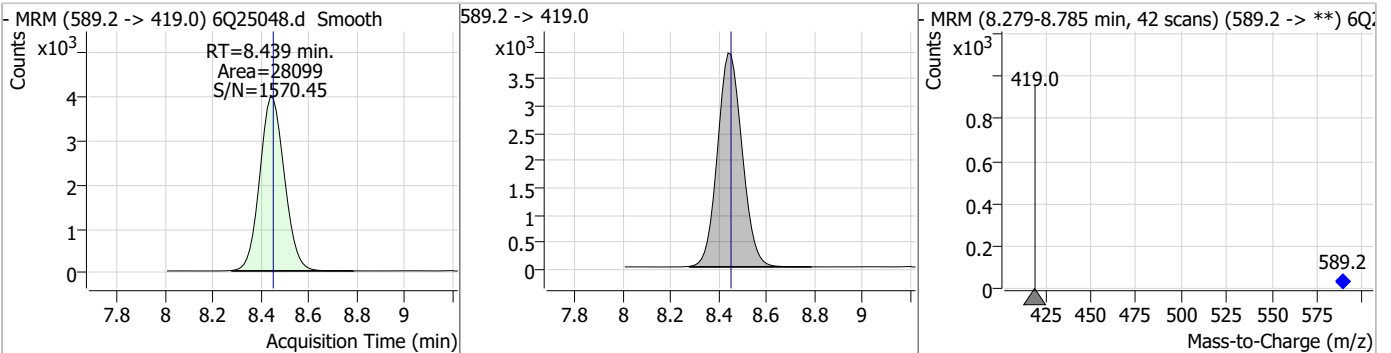


Perfluorinated Compounds by LC/MS/MS

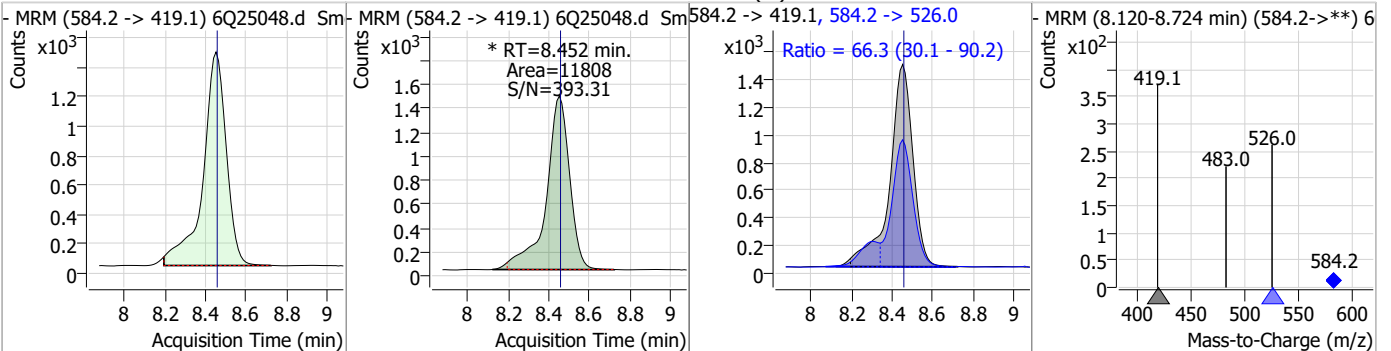
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.29	8.34	-0.01	15918 (m)	498.9 -> 98.8	46.2	36.4	109.1



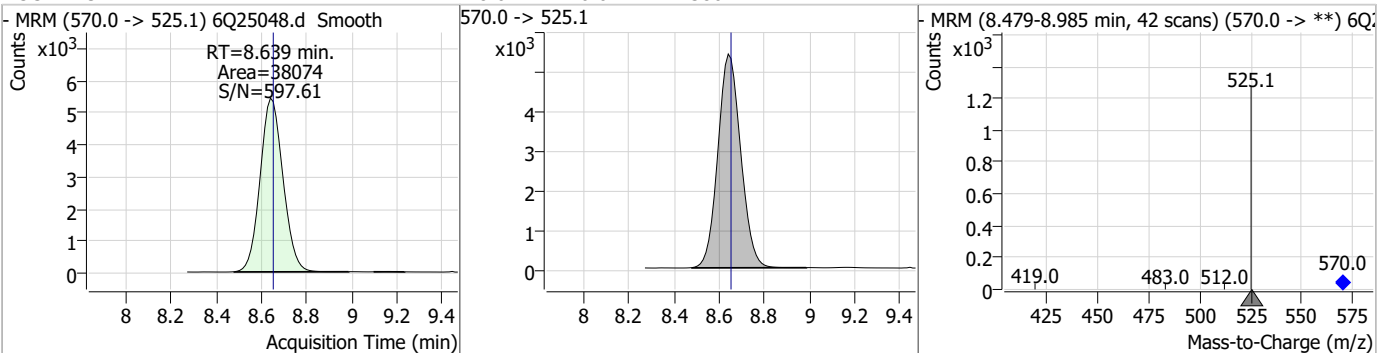
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.59	8.44	-0.01	28099				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.52	8.45	0.00	11808 (m)	584.2 -> 526.0	66.3	30.1	90.2

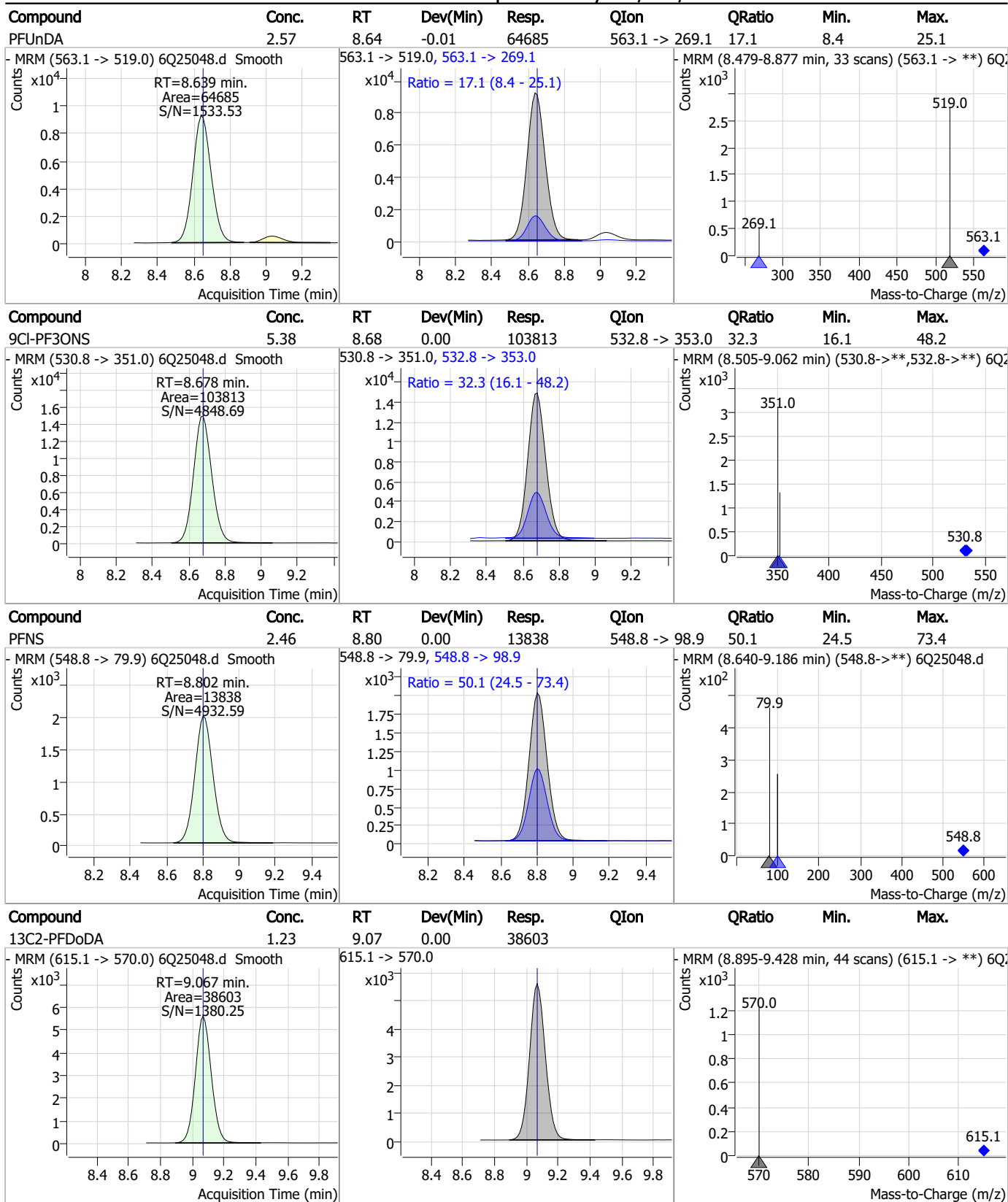


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.24	8.64	-0.01	38074				



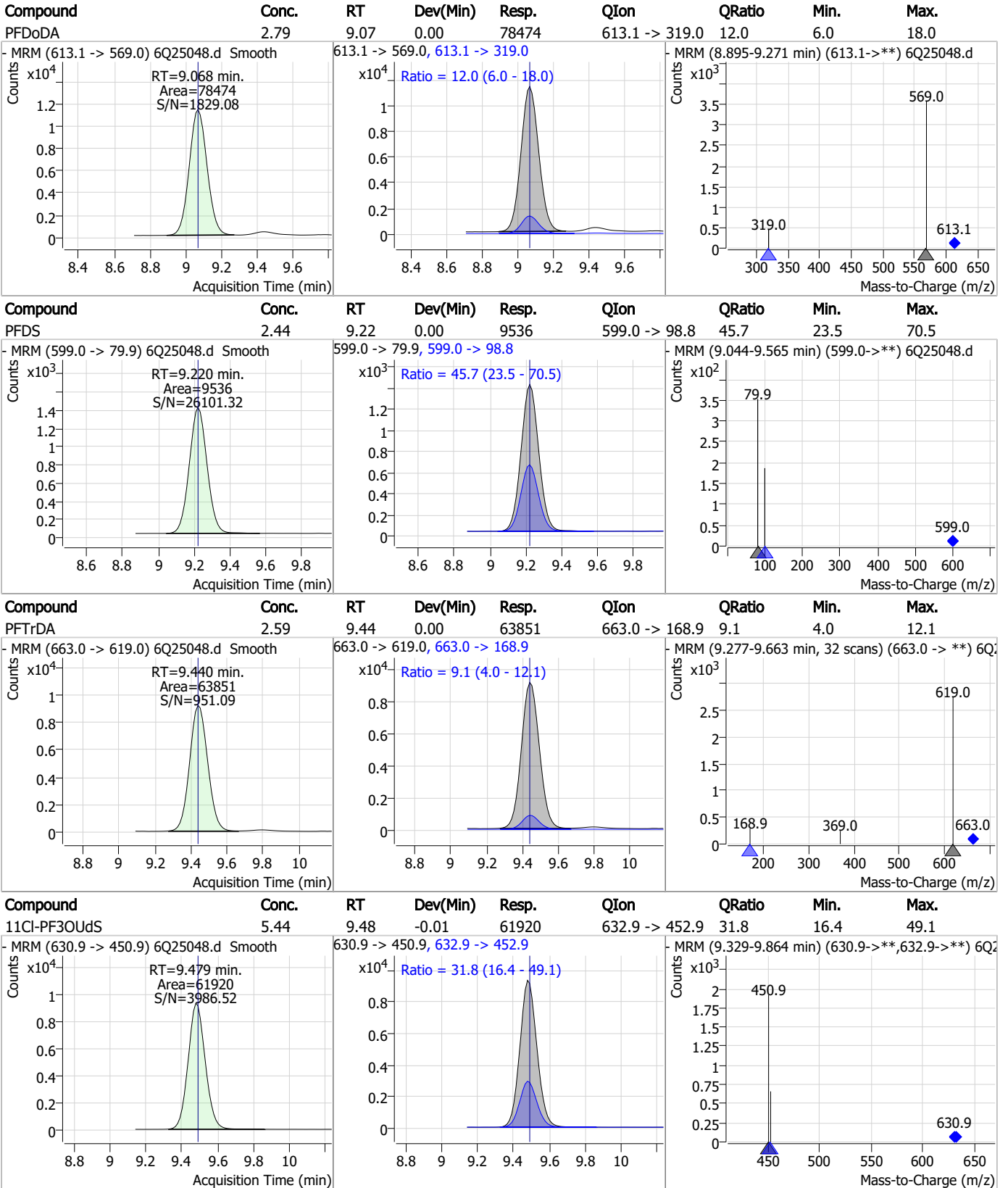
7.7.27
7

Perfluorinated Compounds by LC/MS/MS



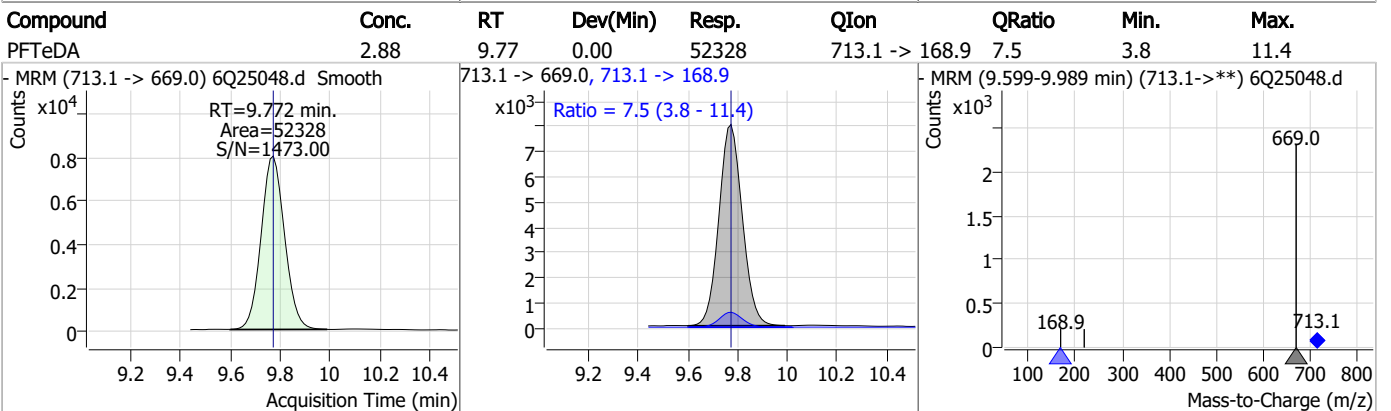
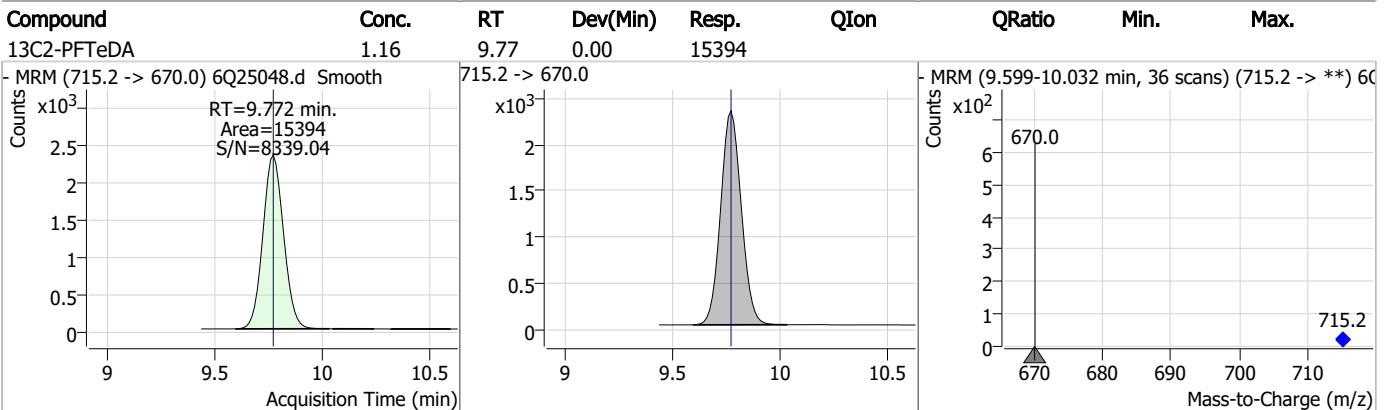
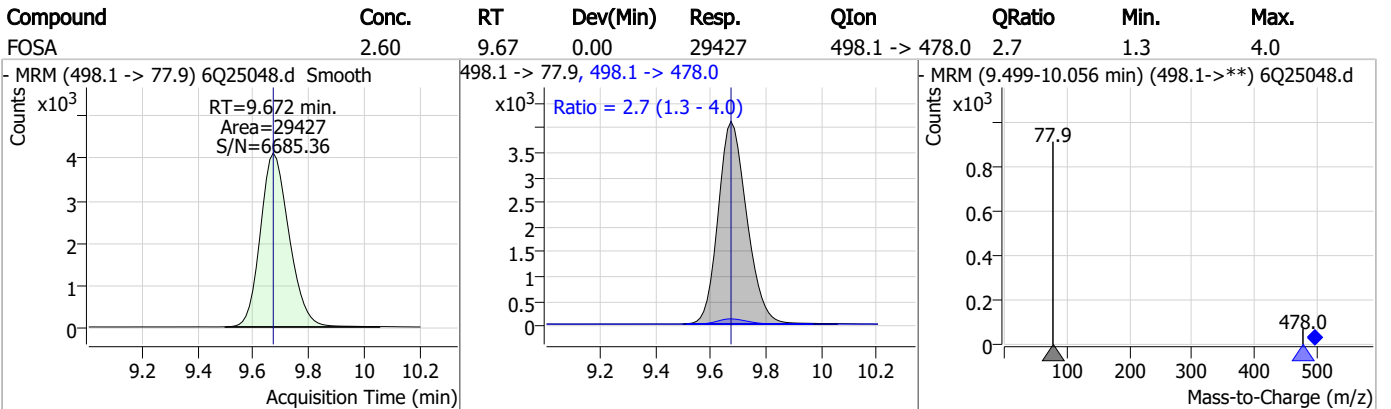
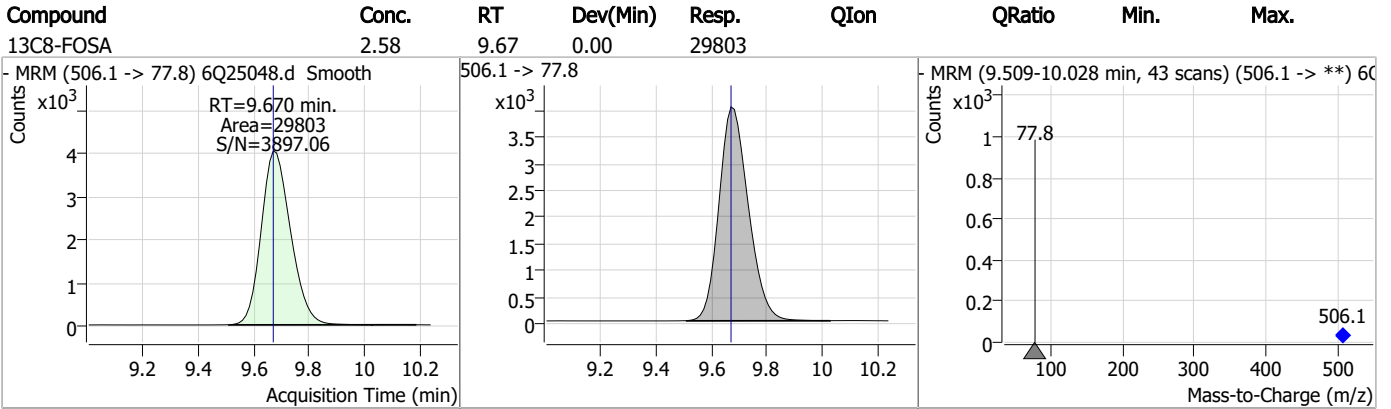
7.7.27
7

Perfluorinated Compounds by LC/MS/MS



7.7.27 7

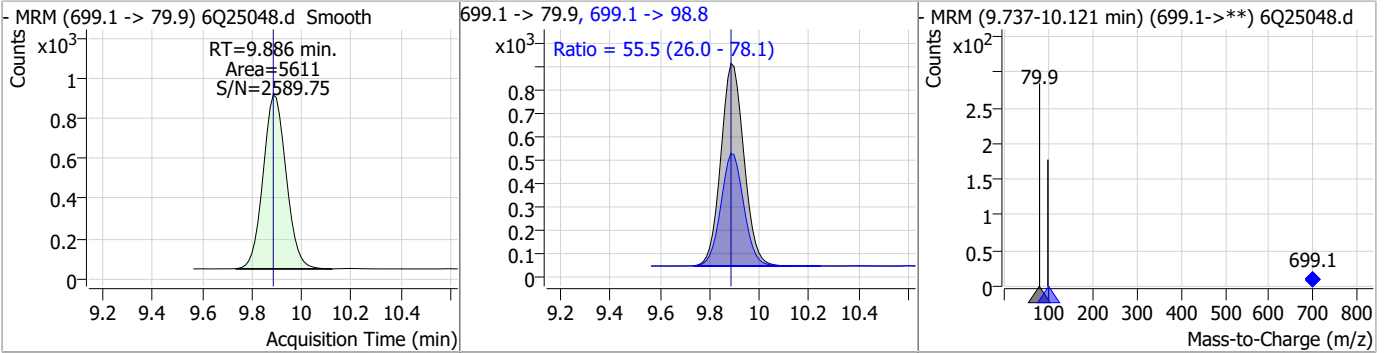
Perfluorinated Compounds by LC/MS/MS



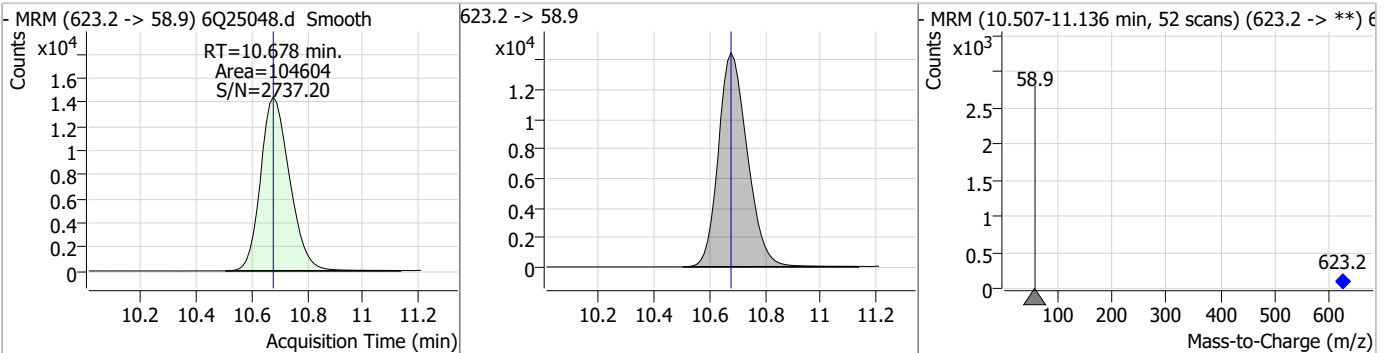
7.7.27 7

Perfluorinated Compounds by LC/MS/MS

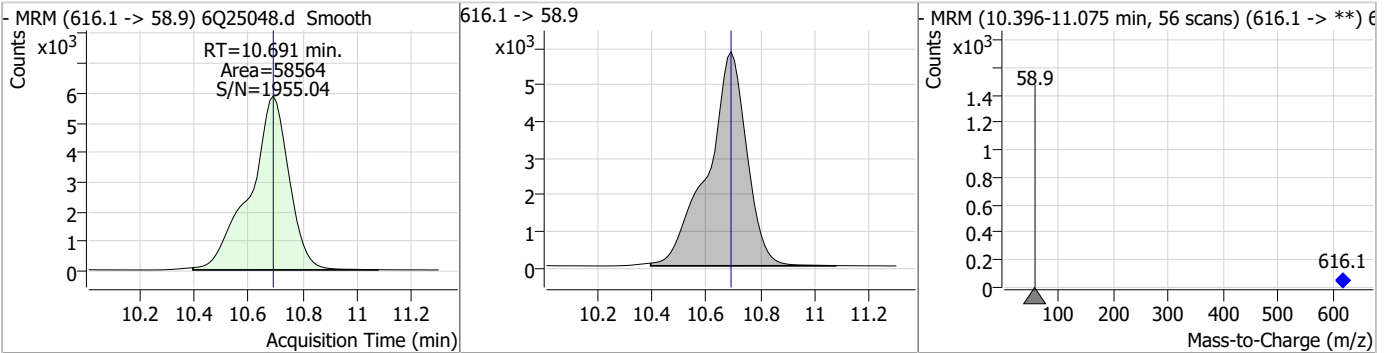
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.41	9.89	0.00	5611	699.1 -> 98.8	55.5	26.0	78.1



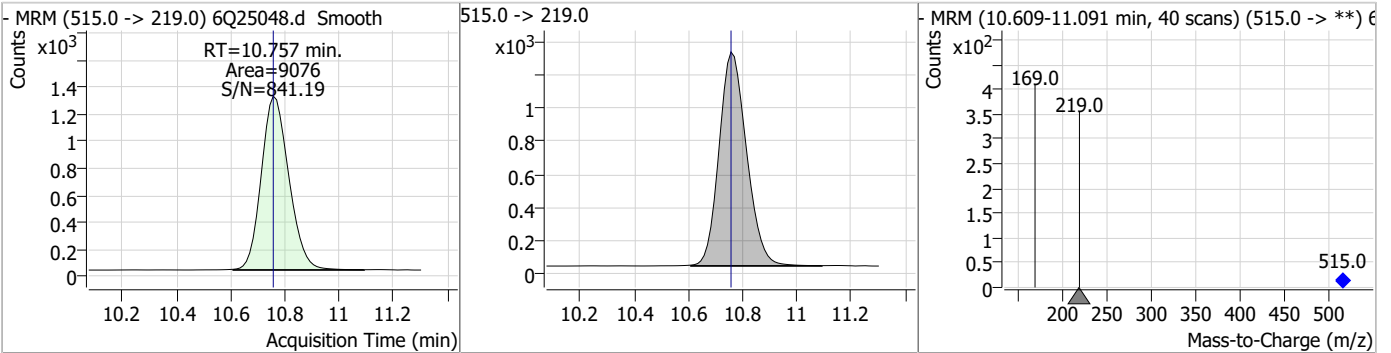
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.55	10.68	0.00	104604				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.63	10.69	0.00	58564				



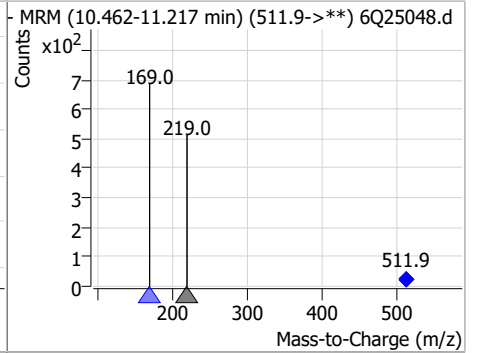
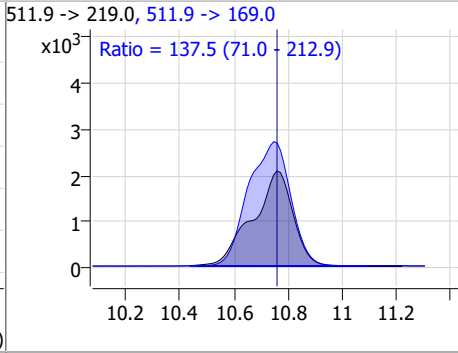
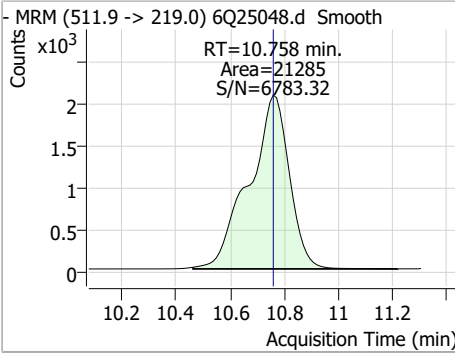
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.61	10.76	0.00	9076				



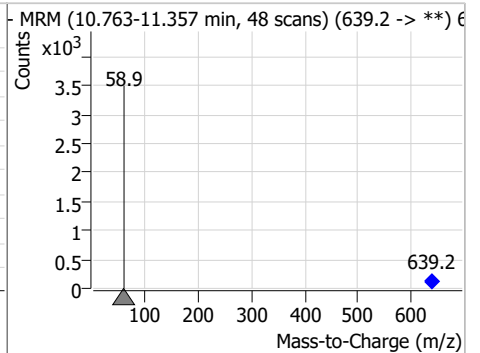
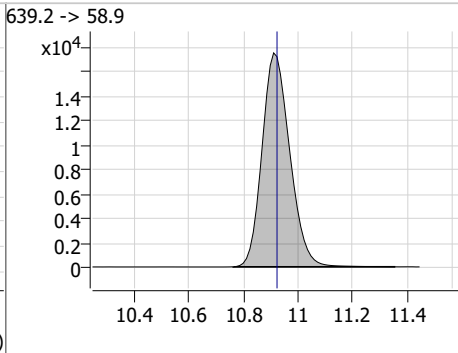
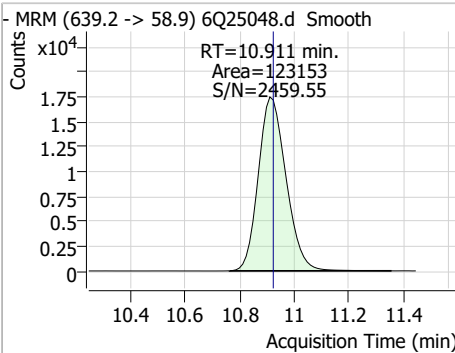
7.7.27
7

Perfluorinated Compounds by LC/MS/MS

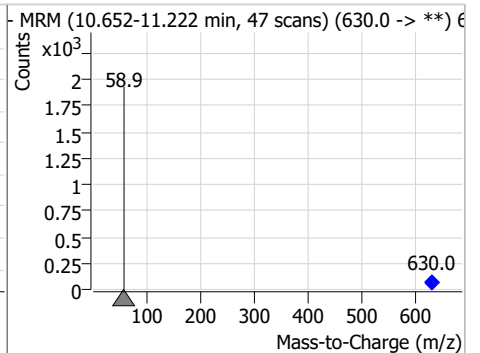
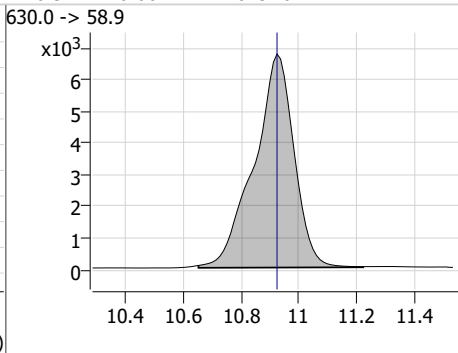
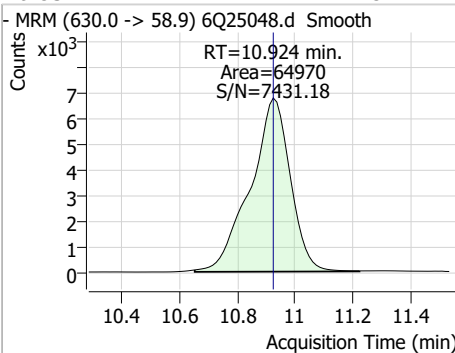
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.21	10.76	0.00	21285	511.9 -> 169.0	137.5	71.0	212.9



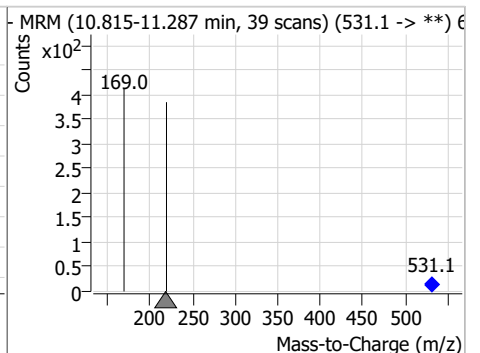
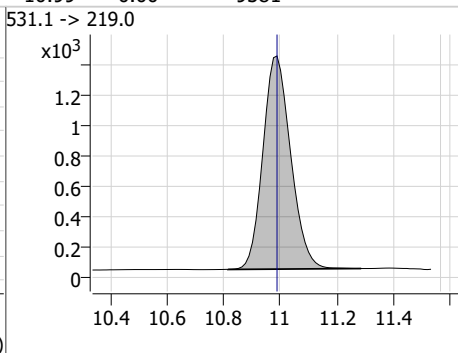
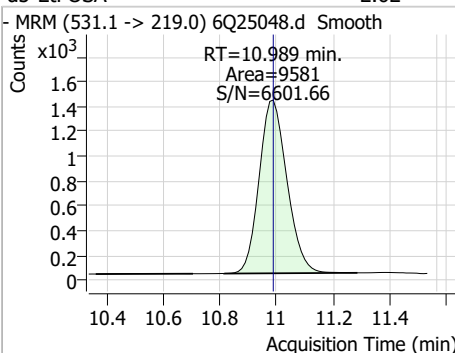
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.72	10.91	-0.01	123153				



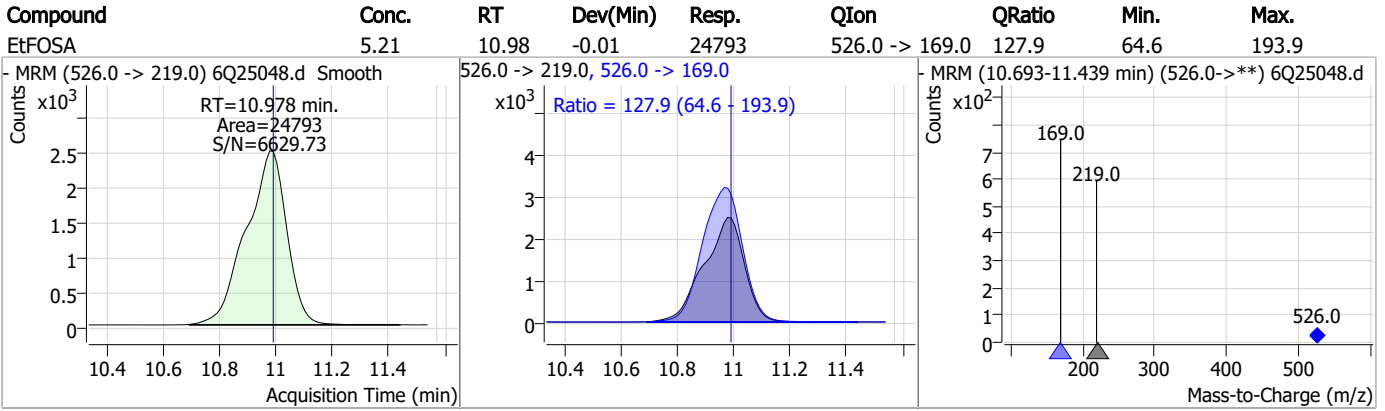
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	13.14	10.92	0.00	64970				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.62	10.99	0.00	9581				



Perfluorinated Compounds by LC/MS/MS



7.7.27
7



Manual Integration Approval Summary

Sample Number: S6Q357-CC356 Method: EPA DRAFT 1633
Lab FileID: 6Q25048.D Analyst approved: 09/26/23 15:45 Martha Valls
Injection Time: 09/25/23 21:38 Supervisor approved: 09/26/23 19:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.27.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25049.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 9:53:12 PM
 Sample Name : cc356-1.0LL
 Vial : P1-A2
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q357.batch.bin
 Sample Information : OP99081,S6Q357,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	191881	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	79759	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	70424	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	69709	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	91940	2.50 µg/L	-0.012
M9-PFNA	7.704	472.1 -> 427.0	36624	1.25 µg/L	-0.012
M6-PFDA	8.185	519.1 -> 474.1	37033	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	43942	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	40066	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	17575	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	33529	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	28711	2.50 µg/L	-0.013
M3-PFHxS	7.289	402.1 -> 79.9	16860	2.50 µg/L	-0.012
M8-PFOS	8.336	507.1 -> 79.9	16994	2.50 µg/L	-0.013
M2-4:2FTS	5.304	329.1 -> 80.9	3068	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	4710	5.00 µg/L	-0.012
M2-8:2FTS	7.974	529.1 -> 80.9	4754	5.00 µg/L	-0.012
M3-MeFOSAA	8.244	573.2 -> 419.0	35368	5.00 µg/L	0.000
M3-HFPO-DA	5.994	286.9 -> 168.9	46690	10.00 µg/L	-0.012
M5-EtFOSAA	8.439	589.2 -> 419.0	28839	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	107501	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	131492	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	10188	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9554	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	15419	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	79896	5.00 µg/L	0.000
18O2-PFHxS	7.288	403.0 -> 83.9	10953	2.50 µg/L	-0.012
13C4-PFOA	7.187	417.1 -> 372.0	104247	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	34685	1.25 µg/L	-0.012
13C5-PFNA	7.705	468.0 -> 423.0	38133	1.25 µg/L	-0.012
13C2-PFHxA	5.630	315.1 -> 270.0	67971	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3068	5.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4710	5.29 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C2-8:2FTS	7.974	529.1 -> 80.9	4754	5.61 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.2%		
13C2-PFDoDA	9.067	615.1 -> 570.0	40066	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-PFTeDA	9.772	715.2 -> 670.0	17575	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C3-PFBS	5.546	302.1 -> 79.9	28711	2.49 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C3-PFHxS	7.289	402.1 -> 79.9	16860	2.43 µg/L	-0.012

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	2.972	216.8 -> 171.9	191881	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C4-PFHpA	6.556	367.1 -> 322.0	69709	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C5-PFHxA	5.629	318.0 -> 273.0	70424	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C5-PFPeA	4.409	268.3 -> 223.0	79759	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C6-PFDA	8.185	519.1 -> 474.1	37033	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C7-PFUnDA	8.639	570.0 -> 525.1	43942	1.35 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C8-FOSA	9.670	506.1 -> 77.8	33529	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C8-PFOA	7.186	421.1 -> 376.0	91940	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C8-PFOS	8.336	507.1 -> 79.9	16994	2.55 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C9-PFNA	7.704	472.1 -> 427.0	36624	1.19 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.6%		
d3-MeFOSAA	8.244	573.2 -> 419.0	35368	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C3-HFPO-DA	5.994	286.9 -> 168.9	46690	9.11 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 91.1%		
d3-MeFOSA	10.757	515.0 -> 219.0	9554	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.4%		
d5-EtFOSAA	8.439	589.2 -> 419.0	28839	5.08 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
d7-MeFOSE	10.678	623.2 -> 58.9	107501	23.24 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 93.0%		
d9-EtFOSE	10.911	639.2 -> 58.9	131492	23.36 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 93.5%		
d5-EtFOSA	10.989	531.1 -> 219.0	10188	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
Target Compounds					QValue
4:2FTS	5.293	327.1 -> 307.0	3508	0.70 µg/L	99
		327.1 -> 80.9	1495		
6:2FTS	6.962	427.1 -> 407.0	3017	0.74 µg/L	95
		427.1 -> 80.9	1223		
8:2FTS	7.974	527.1 -> 507.0	2331	0.77 µg/L	96
		527.1 -> 80.8	869		
EtFOSAA	8.440	584.2 -> 419.1	1161	0.24 µg/L	84
		584.2 -> 526.0	560		
FOSA	9.672	498.1 -> 77.9	2230	0.17 µg/L	98
		498.1 -> 478.0	48		
MeFOSAA	8.245	570.1 -> 419.0	1083	0.17 µg/L	91
		570.1 -> 483.0	306		
PFBA	2.968	212.8 -> 168.9	5000	0.73 µg/L	100
PFBS	5.547	298.7 -> 79.9	1485	0.16 µg/L	95
		298.7 -> 98.8	595		
PFDA	8.186	512.9 -> 469.0	6005	0.21 µg/L	95
		512.9 -> 219.0	851		
PFDODA	9.068	613.1 -> 569.0	6061	0.21 µg/L	97
		613.1 -> 319.0	806		
PFDS	9.220	599.0 -> 79.9	729	0.18 µg/L	94

7.7.28
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	373			
PFHpA	6.557	363.1 -> 319.0	6869	0.18	µg/L	98
		363.1 -> 169.0	1031			
PFHpS	7.843	449.0 -> 79.9	1182	0.16	µg/L	94
		449.0 -> 98.9	541			
PFHxA	5.631	313.0 -> 269.0	4855	0.19	µg/L	98
		313.0 -> 118.9	209			
PFHxS	7.290	398.7 -> 79.9	1259	0.19	µg/L	m 90
		398.7 -> 98.9	691			
PFNA	7.705	463.0 -> 419.0	4263	0.18	µg/L	92
		463.0 -> 219.0	1052			
PFNS	8.802	548.8 -> 79.9	973	0.16	µg/L	93
		548.8 -> 98.9	521			
PFOA	7.187	413.0 -> 369.0	7677	0.19	µg/L	97
		413.0 -> 169.0	1478			
PFOS	8.337	498.9 -> 79.9	1263	0.17	µg/L	m 76
		498.9 -> 98.8	660			
PFPeA	4.411	263.0 -> 219.0	5894	0.37	µg/L	100
PFPeS	6.608	349.1 -> 79.9	1783	0.20	µg/L	96
		349.1 -> 98.9	736			
PFTeDA	9.772	713.1 -> 669.0	4341	0.21	µg/L	100
		713.1 -> 168.9	326			
PFTrDA	9.440	663.0 -> 619.0	5389	0.21	µg/L	98
		663.0 -> 168.9	475			
PFUnDA	8.639	563.1 -> 519.0	5211	0.18	µg/L	95
		563.1 -> 269.1	765			
11Cl-PF3OUdS	9.479	630.9 -> 450.9	4641	0.38	µg/L	98
		632.9 -> 452.9	1478			
9Cl-PF3ONS	8.666	530.8 -> 351.0	7714	0.37	µg/L	98
		532.8 -> 353.0	2400			
ADONA	6.804	376.9 -> 250.9	20243	0.35	µg/L	100
		376.9 -> 84.8	5937			
HFPO-DA	5.995	284.9 -> 168.9	1744	0.38	µg/L	97
		284.9 -> 184.9	205			
3:3FTCA	3.846	241.0 -> 177.0	981	0.88	µg/L	95
		241.0 -> 117.0	136			
5:3FTCA	6.271	341.0 -> 237.1	21691	4.56	µg/L	98
		341.0 -> 217.0	14690			
7:3FTCA	7.657	441.0 -> 316.9	12583	4.67	µg/L	97
		441.0 -> 336.9	25864			
EtFOSA	10.978	526.0 -> 219.0	1863	0.37	µg/L	97
		526.0 -> 169.0	2352			
EtFOSE	10.924	630.0 -> 58.9	4590	0.87	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	1538	0.36	µg/L	m 100
		511.9 -> 169.0	2181			
MeFOSE	10.691	616.1 -> 58.9	4326	0.91	µg/L	100
PFDoDS	9.886	699.1 -> 79.9	416	0.17	µg/L	91
		699.1 -> 98.8	244			
NFDHA	5.512	295.0 -> 201.0	1153	0.35	µg/L	98
		295.0 -> 84.9	293			
PFMBA	4.838	279.0 -> 85.1	4495	0.35	µg/L	100
PFMPA	3.538	229.0 -> 84.9	3275	0.34	µg/L	100
PFEESA	6.088	314.8 -> 134.9	10484	0.33	µg/L	97
		314.8 -> 82.9	297			

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

7.7.28
7

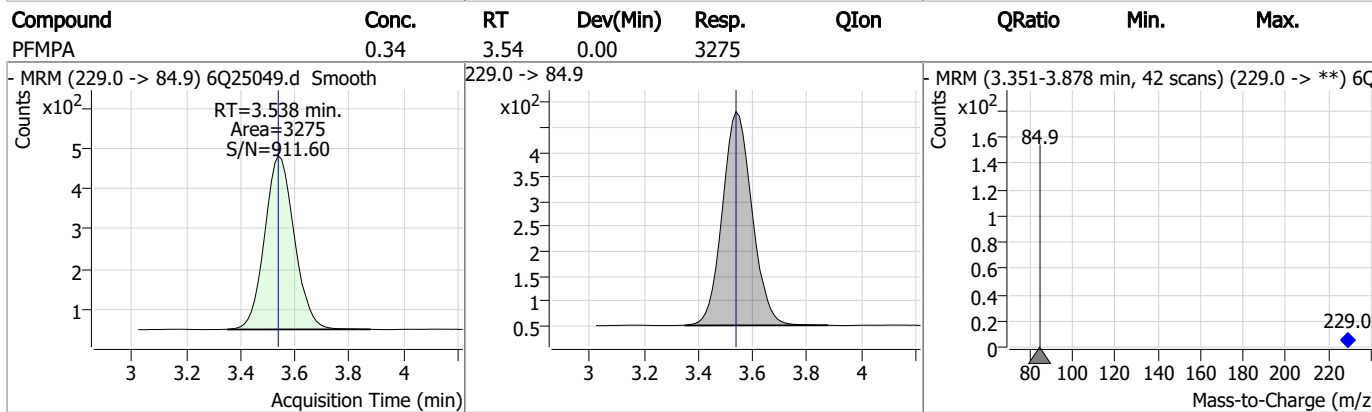
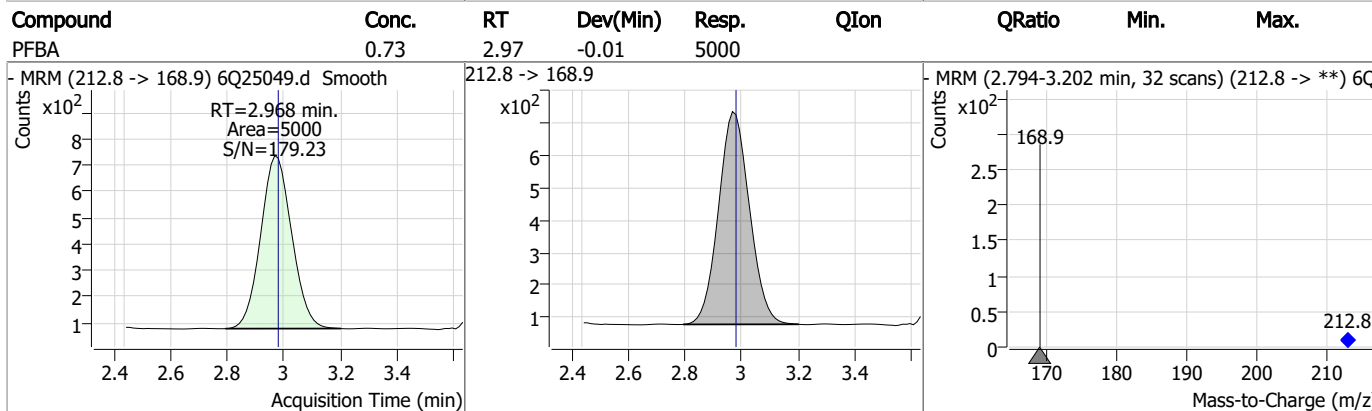
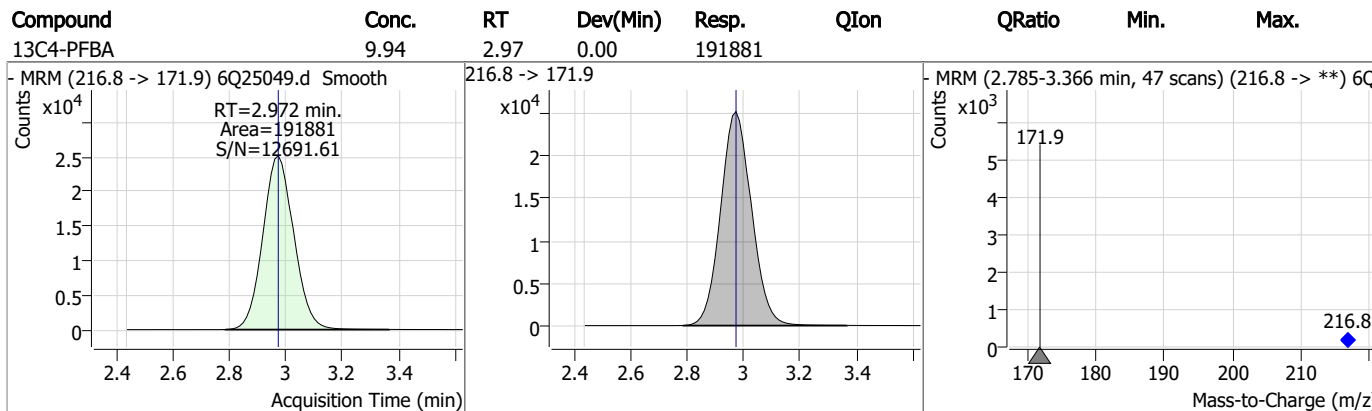
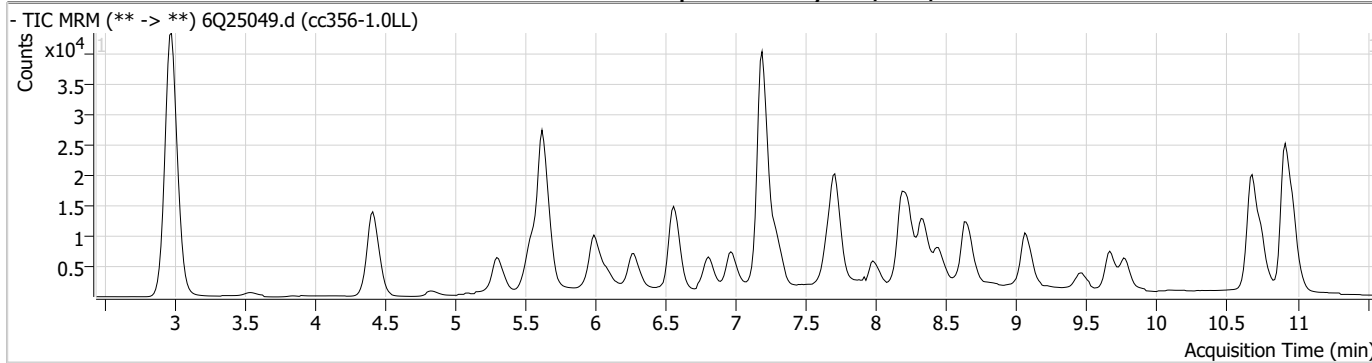
Perfluorinated Compounds by LC/MS/MS

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

7.7.28

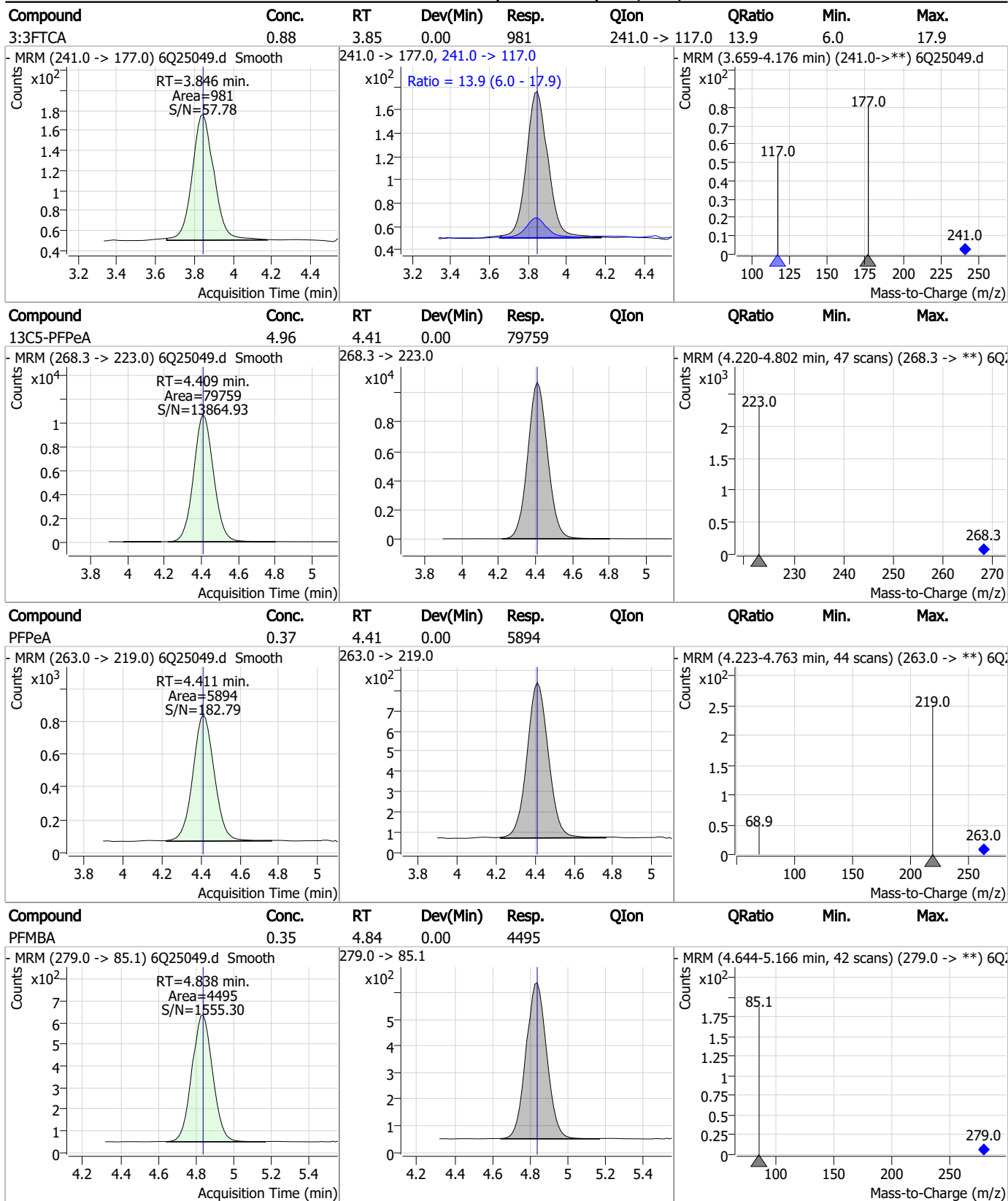
7

Perfluorinated Compounds by LC/MS/MS



7.7.28
7

Perfluorinated Compounds by LC/MS/MS



7.7.28
7

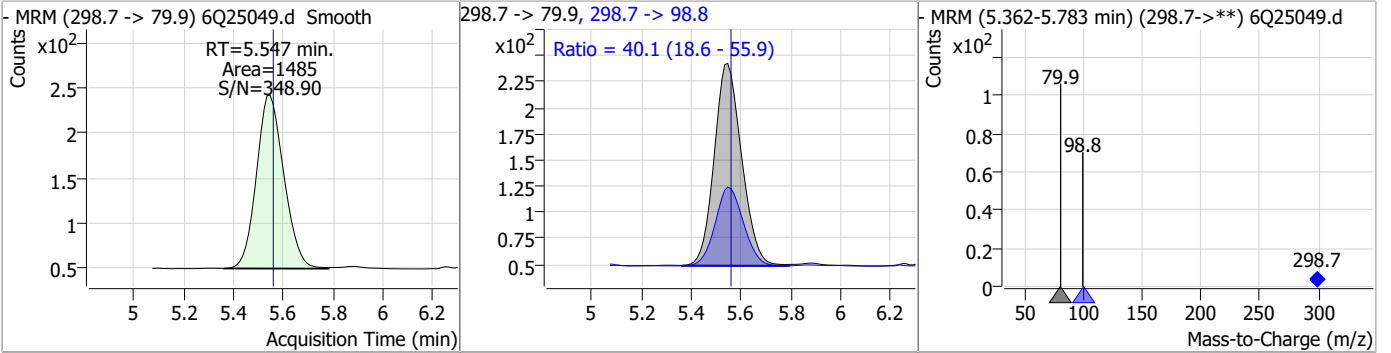
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.48	5.30	0.00	3068				
4:2FTS	0.70	5.29	-0.01	3508	327.1 -> 80.9	42.6	21.5	64.5
NFDHA	0.35	5.51	0.00	1153	295.0 -> 84.9	25.4	13.4	40.1
13C3-PFBS	2.49	5.55	-0.01	28711				

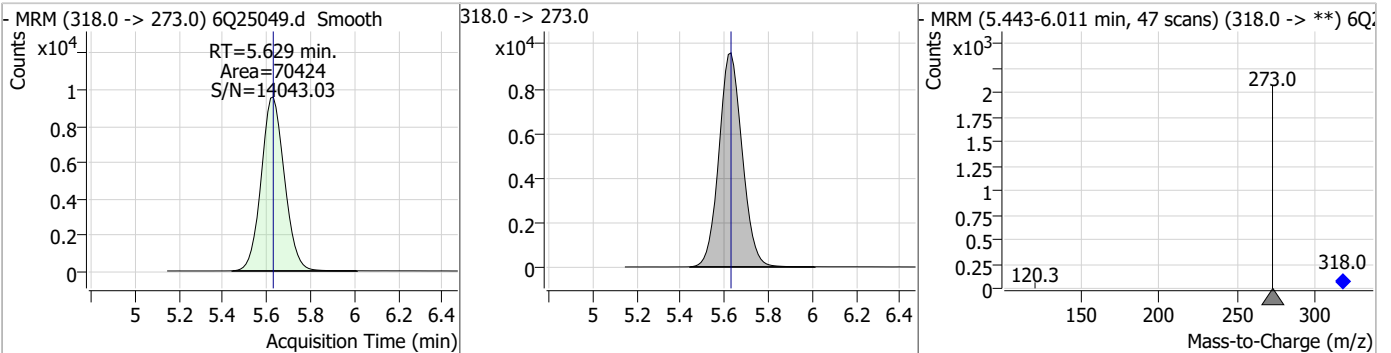
7.7.28
7

Perfluorinated Compounds by LC/MS/MS

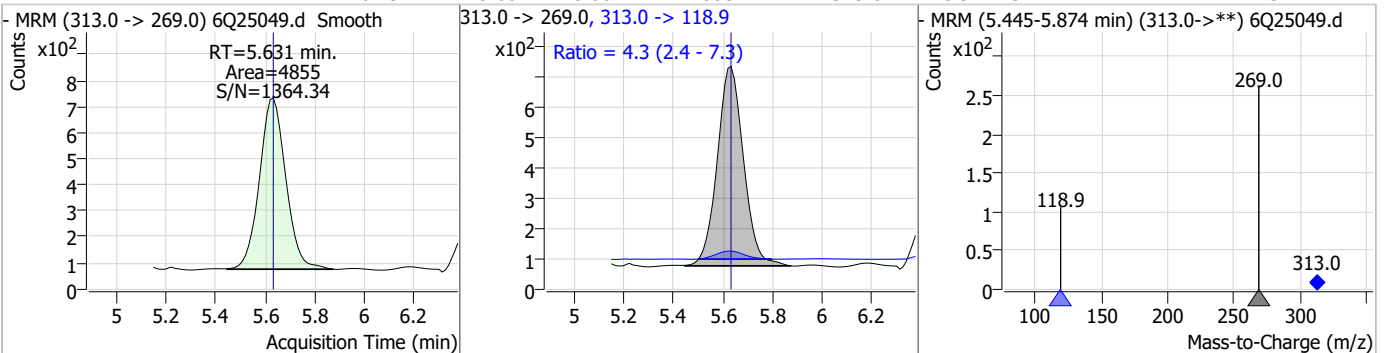
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.16	5.55	-0.01	1485	298.7 -> 98.8	40.1	18.6	55.9



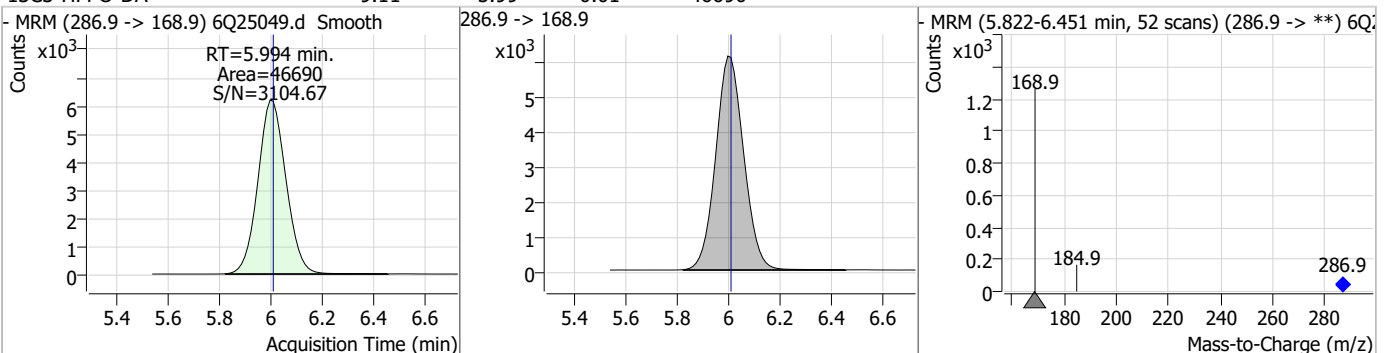
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.47	5.63	0.00	70424				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.19	5.63	0.00	4855	313.0 -> 118.9	4.3	2.4	7.3

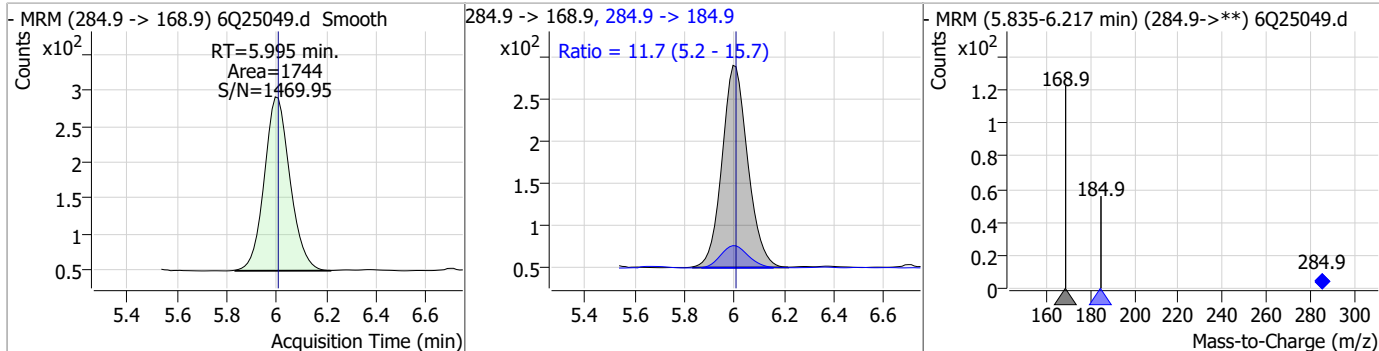


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.11	5.99	-0.01	46690				

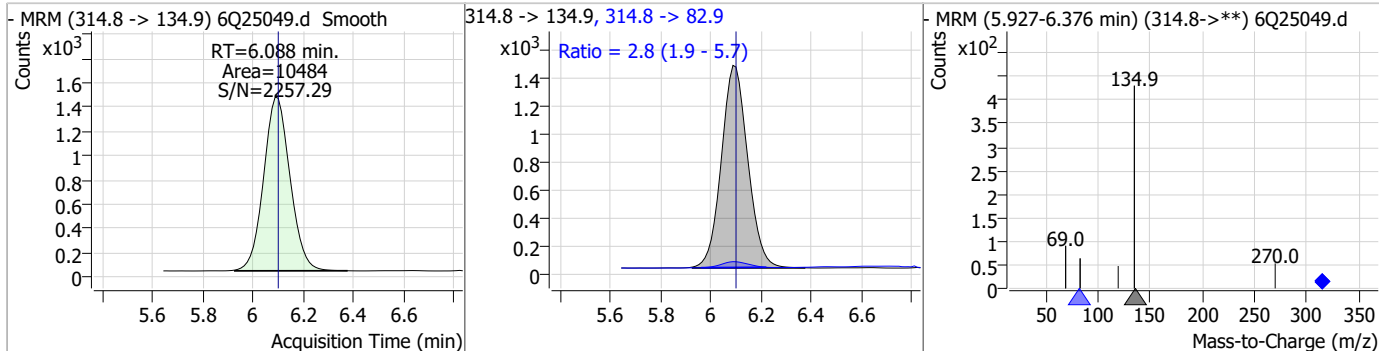


Perfluorinated Compounds by LC/MS/MS

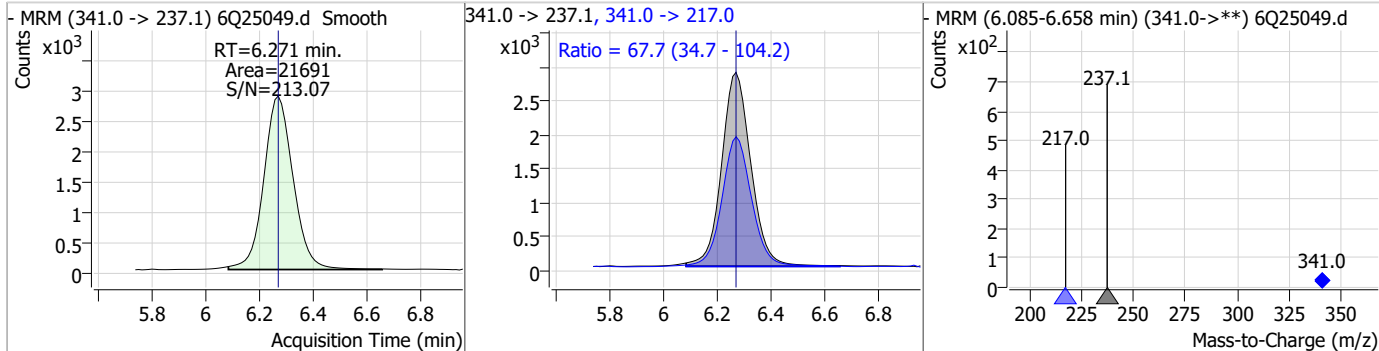
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.38	6.00	-0.01	1744	284.9 -> 184.9	11.7	5.2	15.7



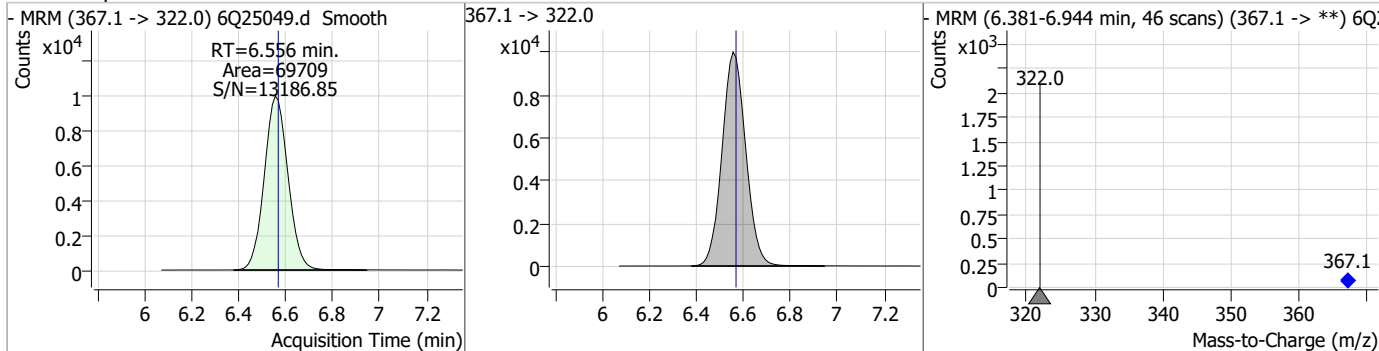
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.33	6.09	-0.01	10484	314.8 -> 82.9	2.8	1.9	5.7



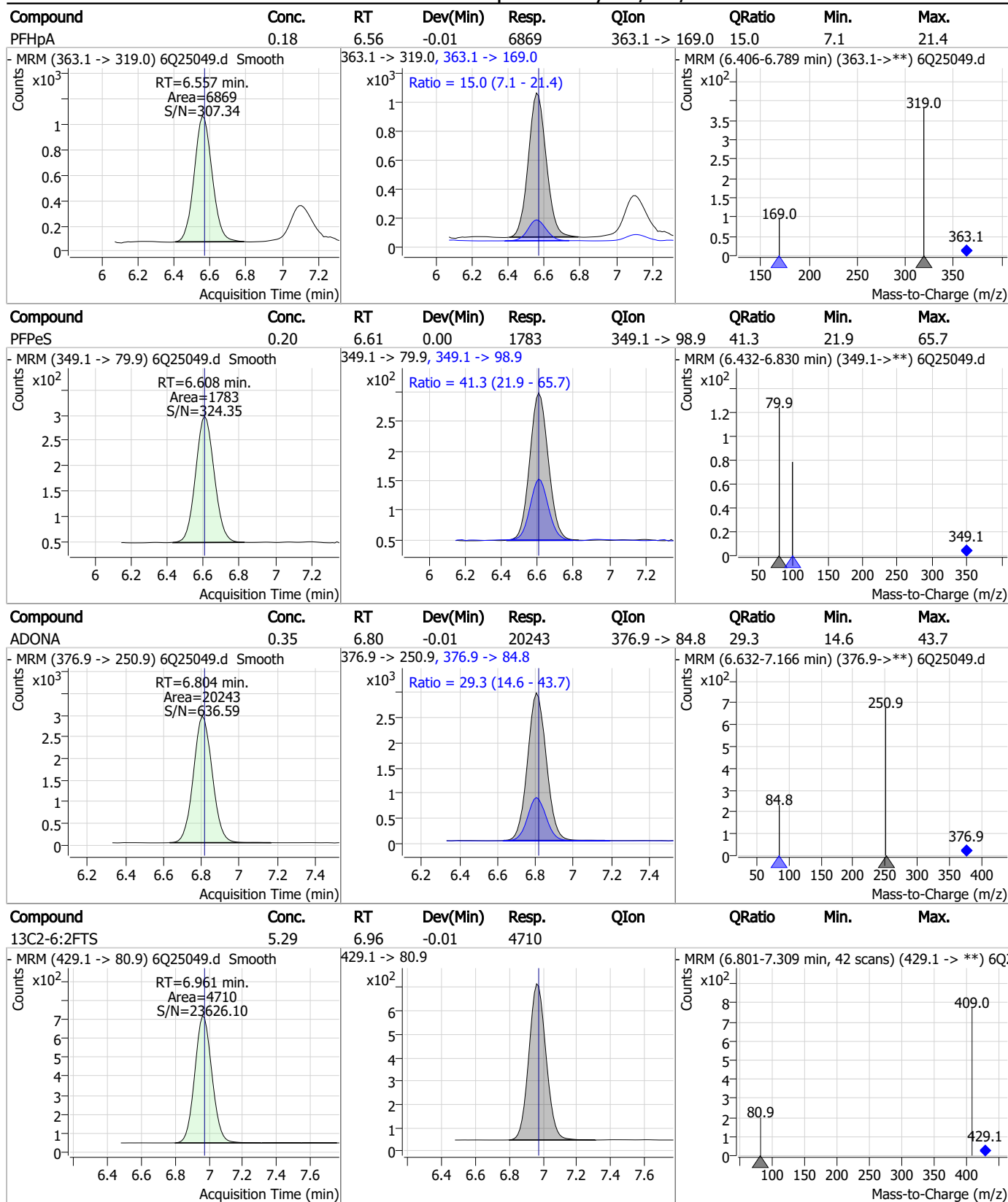
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.56	6.27	0.00	21691	341.0 -> 217.0	67.7	34.7	104.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.51	6.56	-0.01	69709	367.1 -> 322.0			



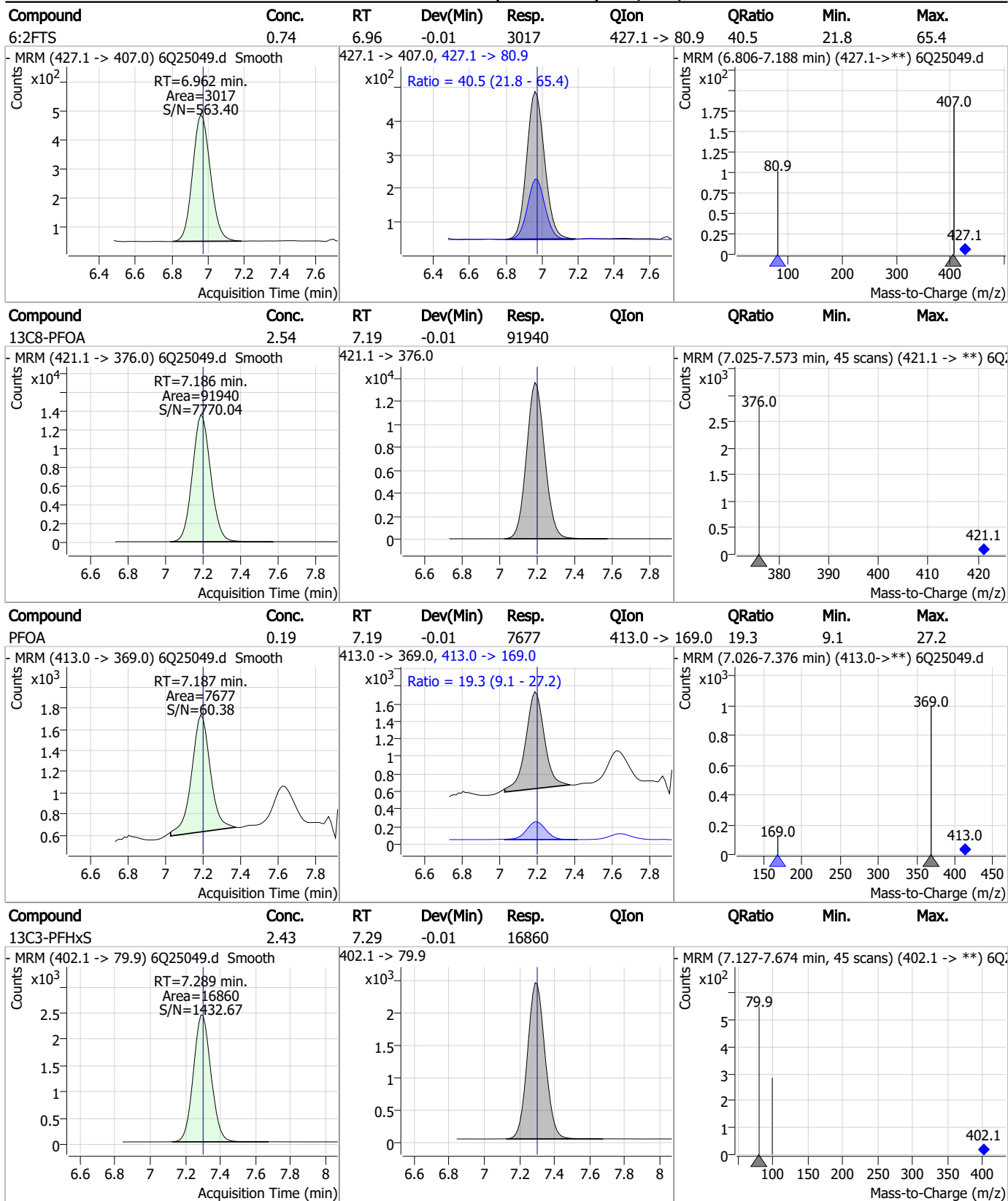
Perfluorinated Compounds by LC/MS/MS



7.7.28

7

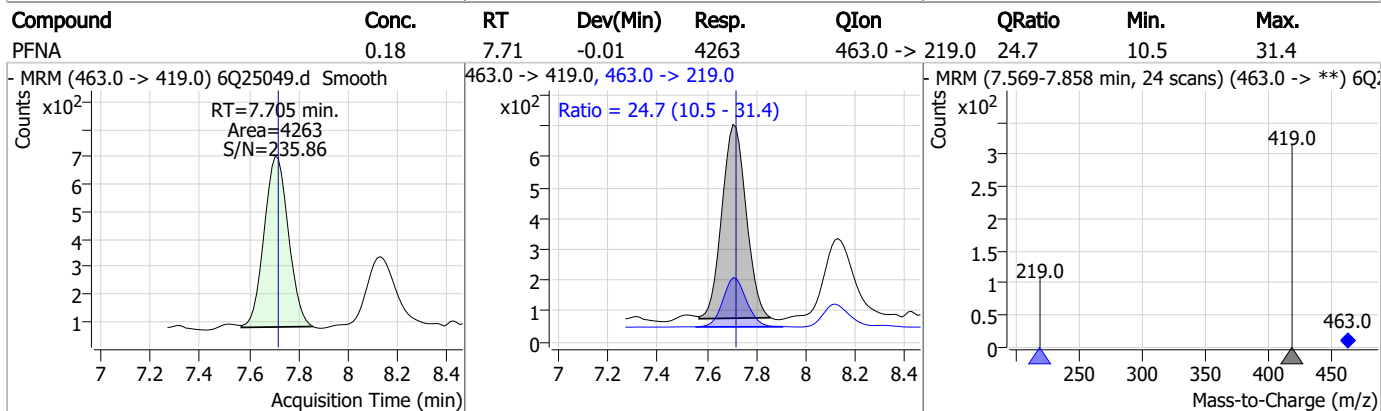
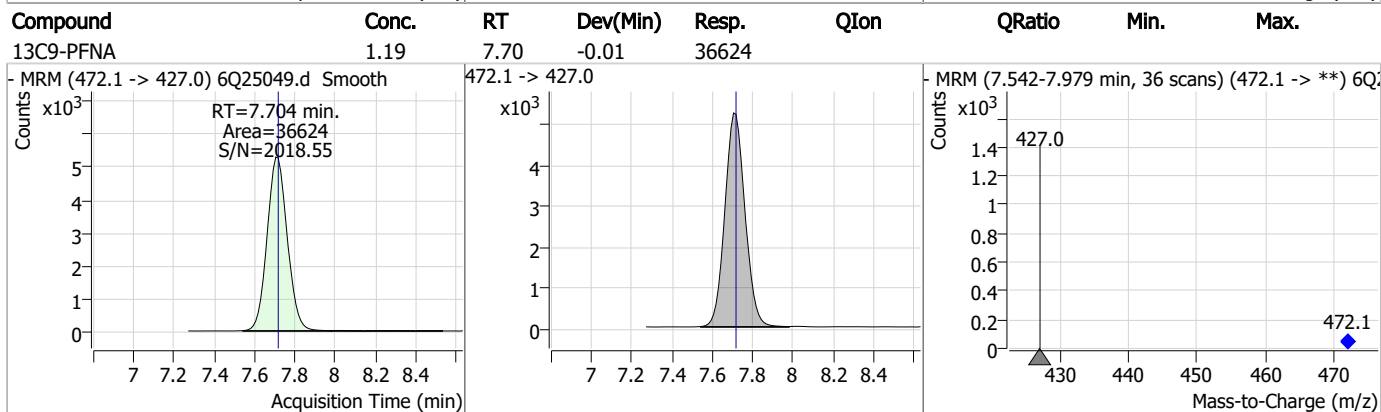
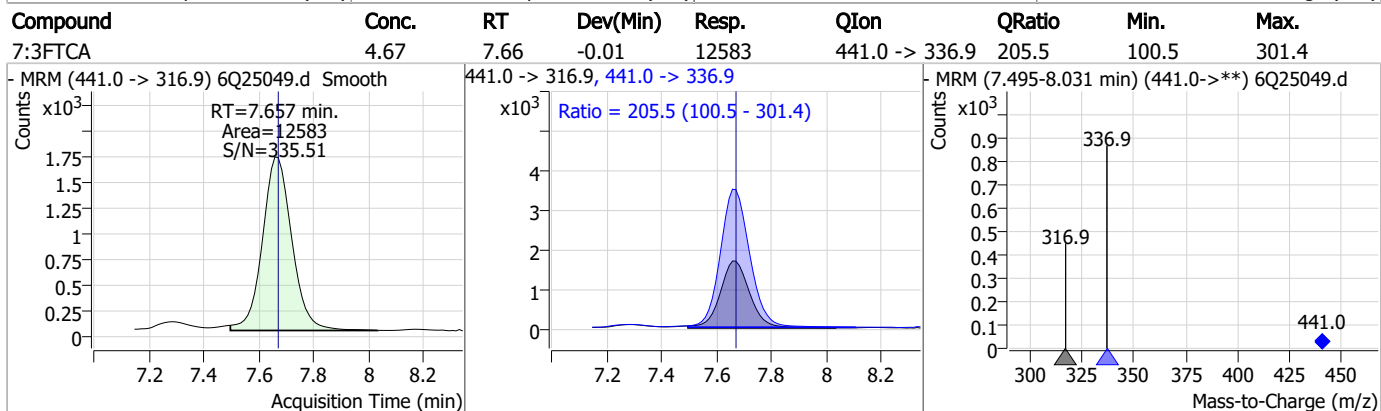
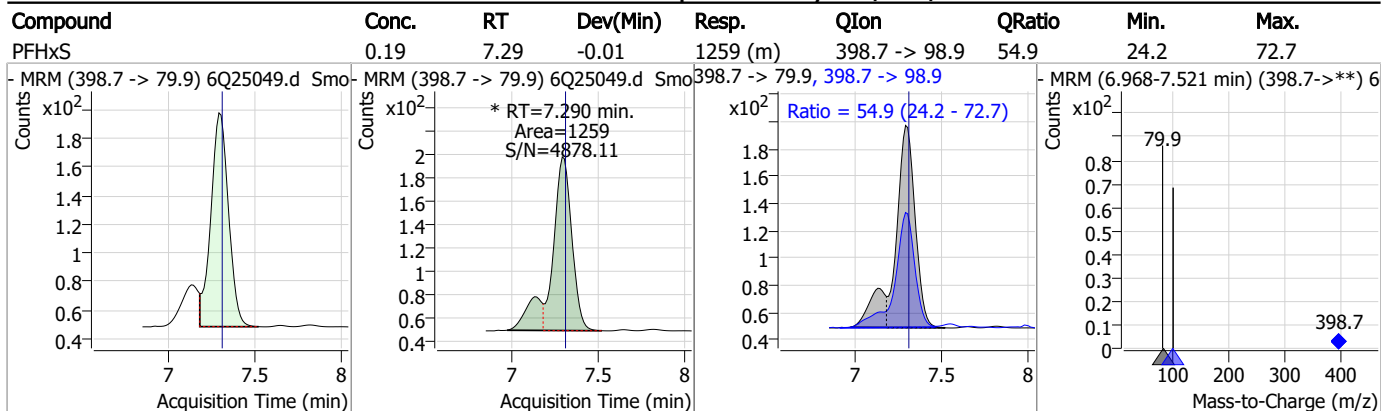
Perfluorinated Compounds by LC/MS/MS



7.7.28

7

Perfluorinated Compounds by LC/MS/MS



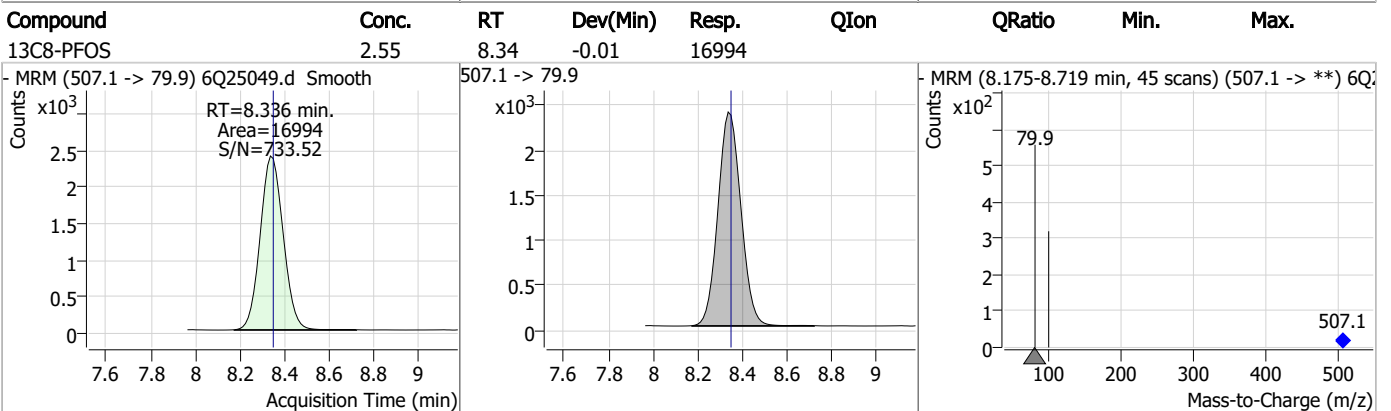
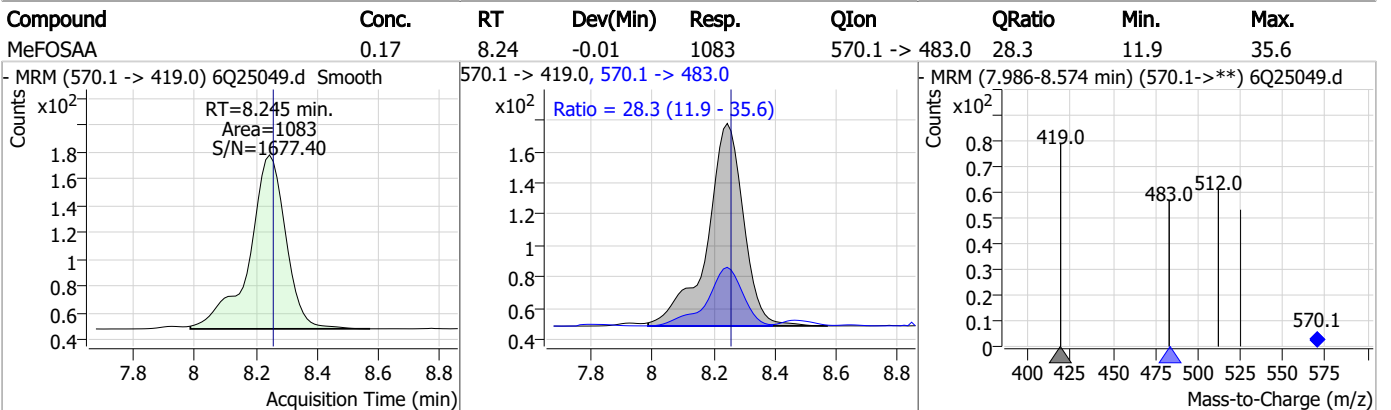
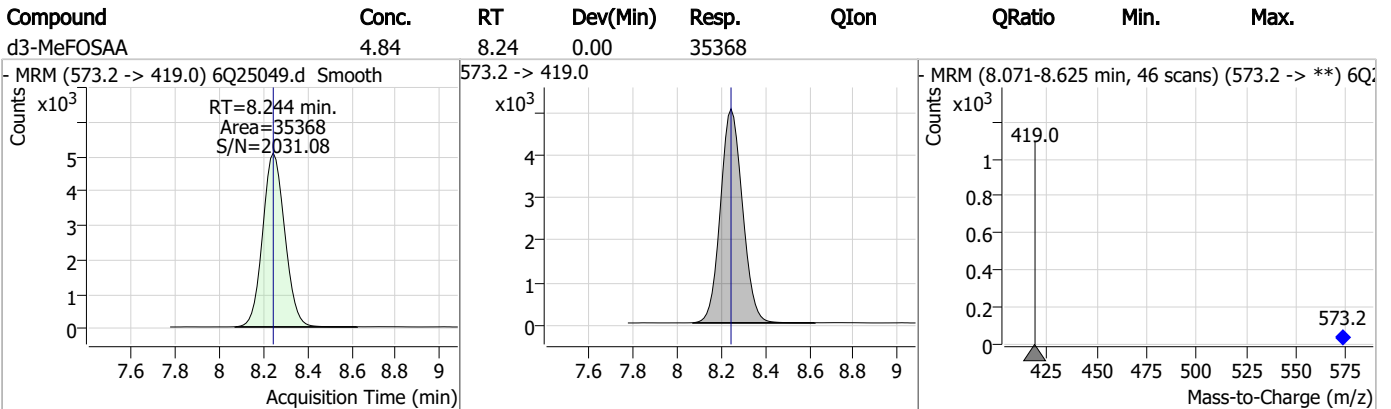
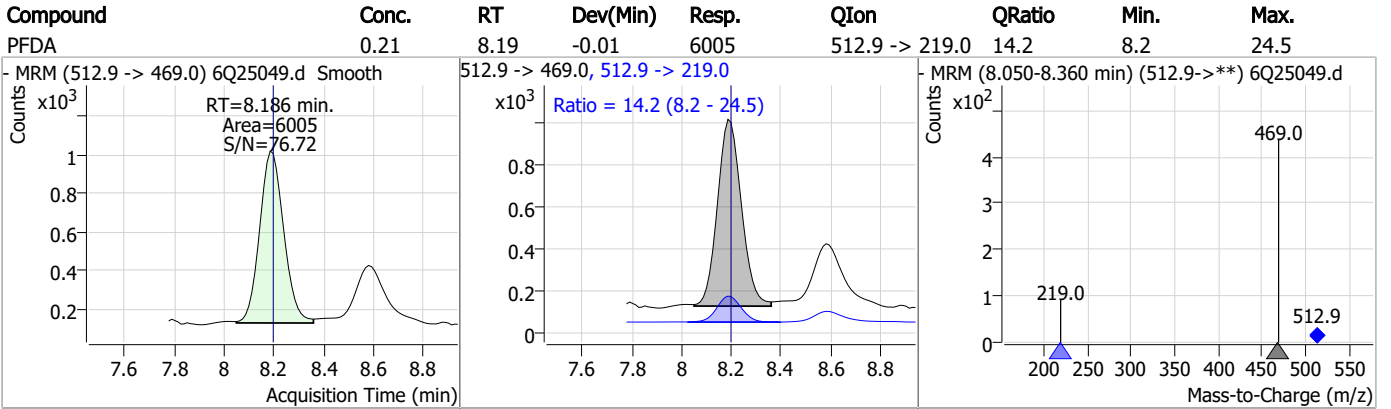
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.16	7.84	-0.01	1182	449.0 -> 98.9	45.8	21.0	62.9
- MRM (449.0 -> 79.9) 6Q25049.d Smooth			449.0 -> 79.9, 449.0 -> 98.9			- MRM (7.695-8.053 min) (449.0->**) 6Q25049.d		
13C2-8:2FTS	5.61	7.97	-0.01	4754				
- MRM (529.1 -> 80.9) 6Q25049.d Smooth			529.1 -> 80.9			- MRM (7.825-8.342 min, 42 scans) (529.1 -> **) 6Q25049.d		
8:2FTS	0.77	7.97	-0.01	2331	527.1 -> 80.8	37.3	17.6	52.8
- MRM (527.1 -> 507.0) 6Q25049.d Smooth			527.1 -> 507.0, 527.1 -> 80.8			- MRM (7.814-8.213 min) (527.1->**) 6Q25049.d		
13C6-PFDA	1.27	8.19	-0.01	37033				
- MRM (519.1 -> 474.1) 6Q25049.d Smooth			519.1 -> 474.1			- MRM (8.012-8.568 min, 46 scans) (519.1 -> **) 6Q25049.d		

7.7.28

7

Perfluorinated Compounds by LC/MS/MS

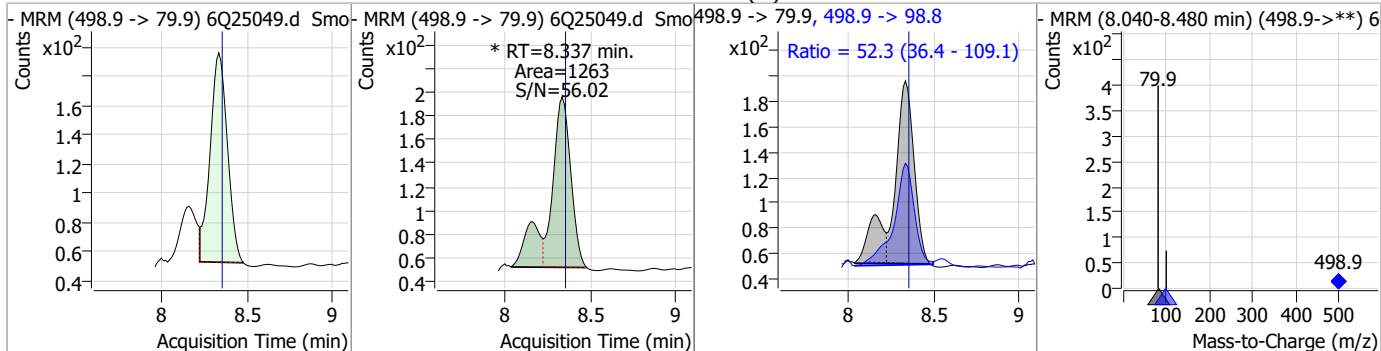


7.7.28
7

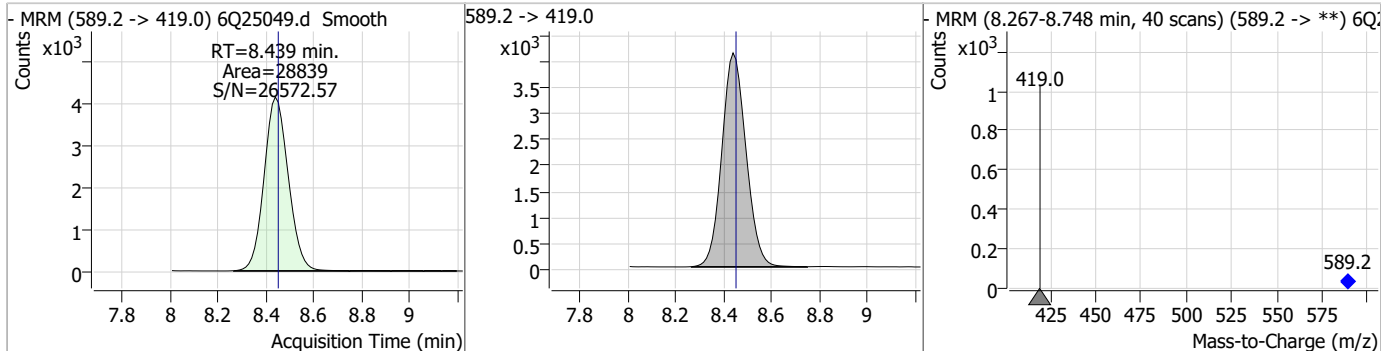


Perfluorinated Compounds by LC/MS/MS

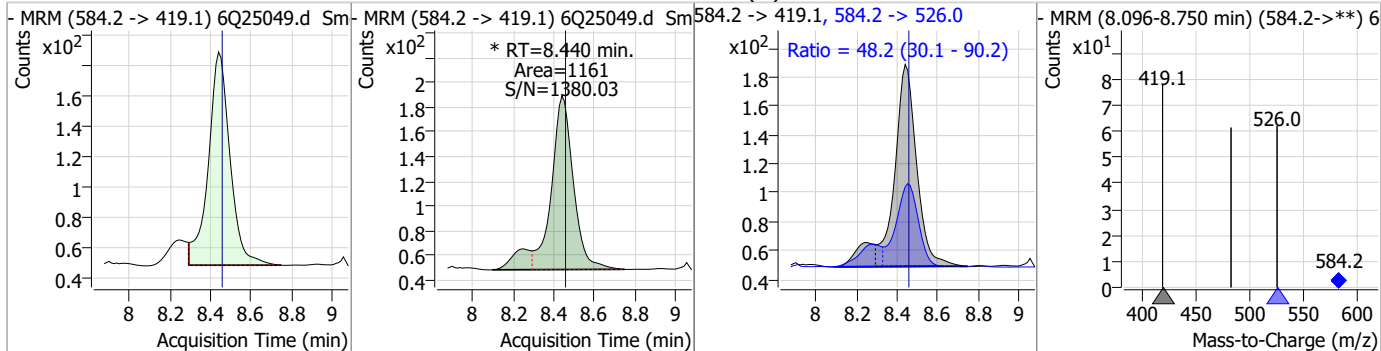
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.17	8.34	-0.01	1263 (m)	498.9 -> 98.8	52.3	36.4	109.1



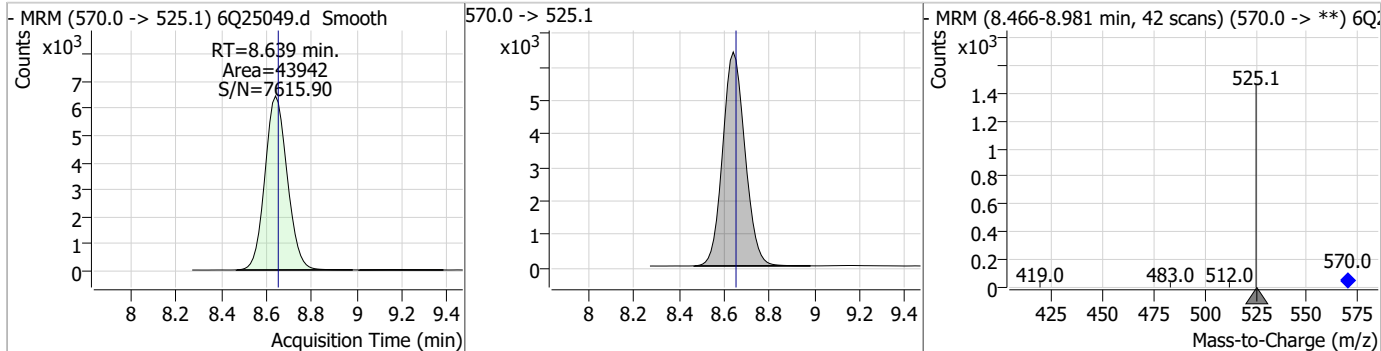
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.08	8.44	-0.01	28839				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.24	8.44	-0.01	1161 (m)	584.2 -> 526.0	48.2	30.1	90.2

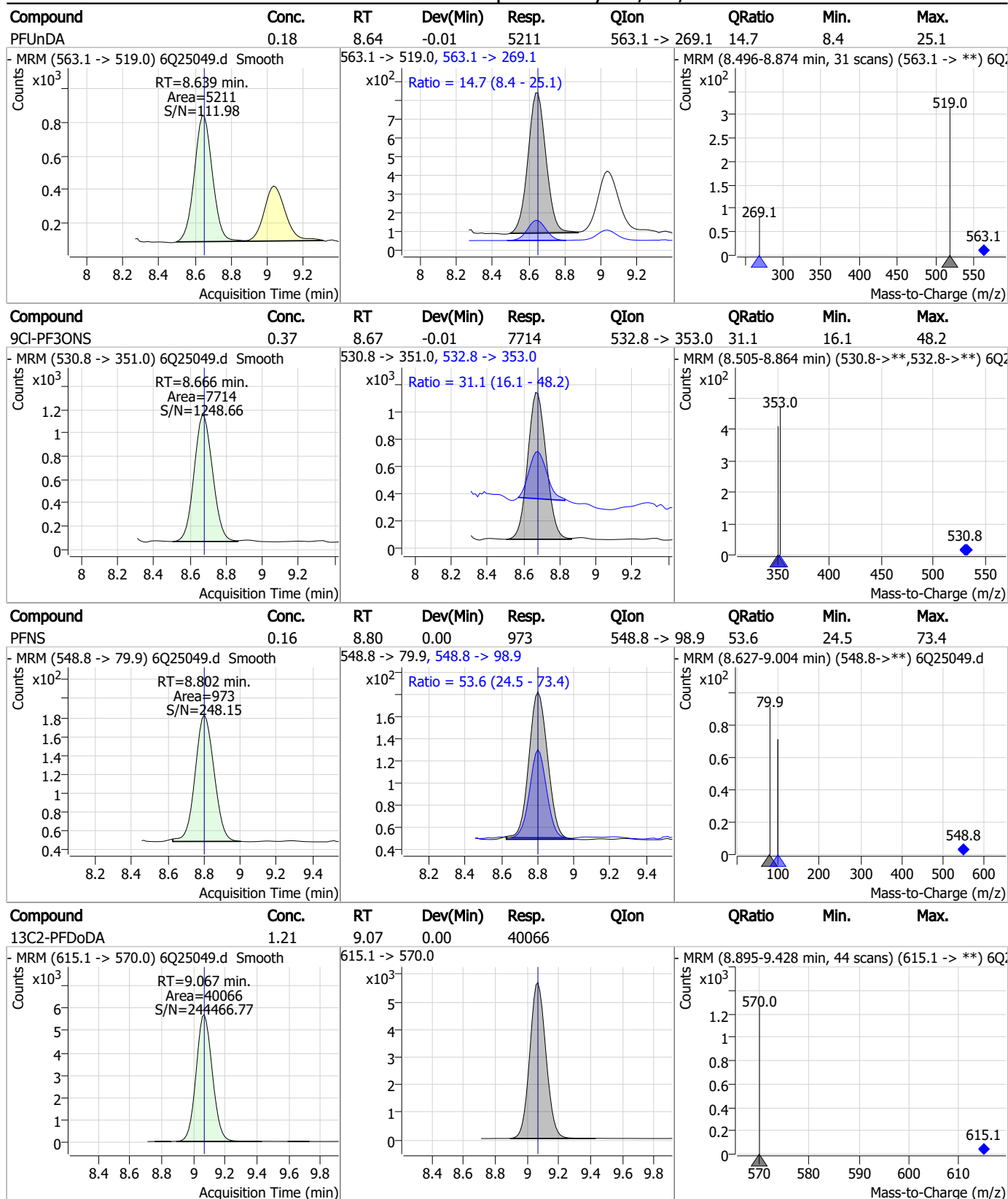


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.35	8.64	-0.01	43942				



7.7.28
7

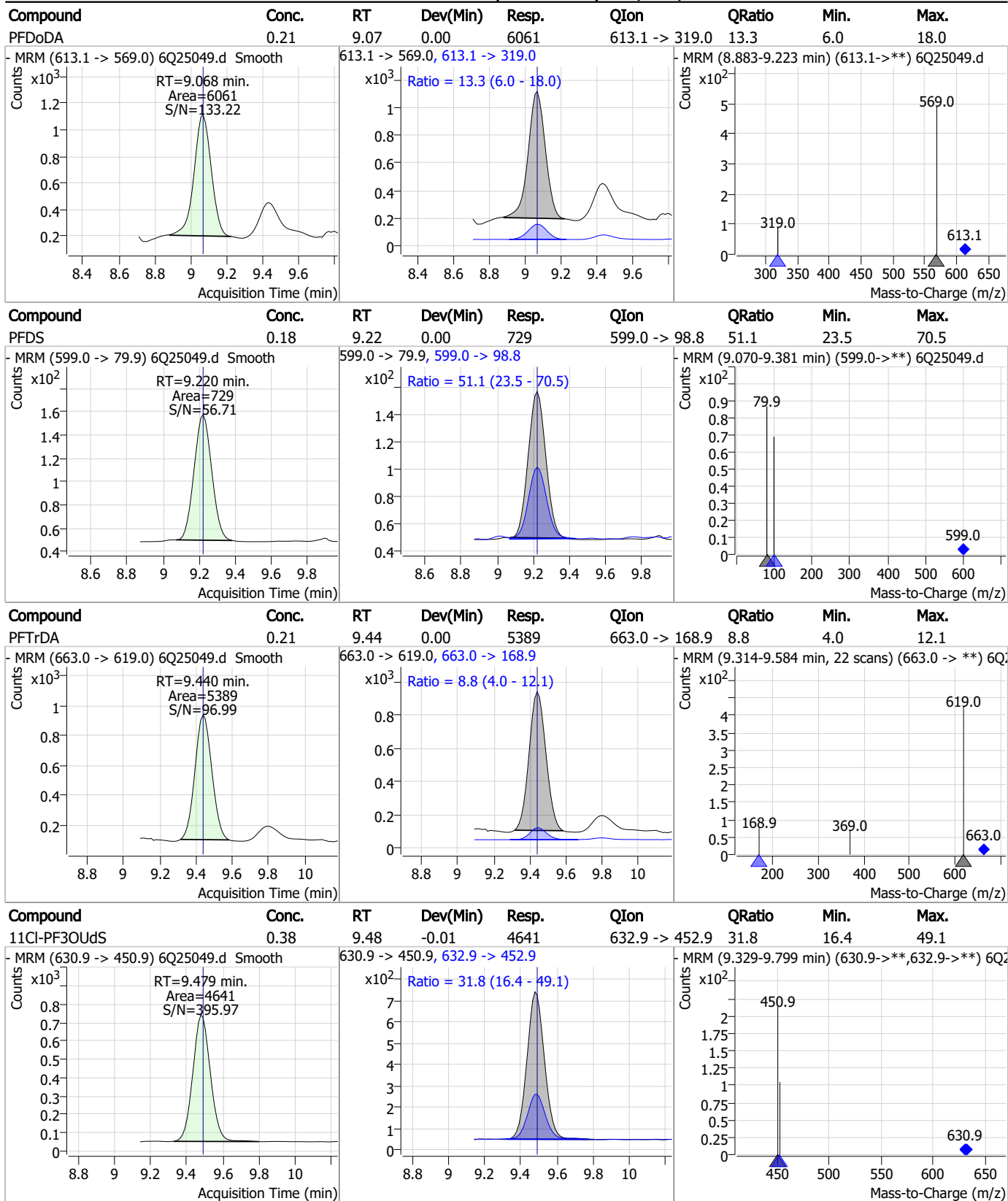
Perfluorinated Compounds by LC/MS/MS



7.7.28

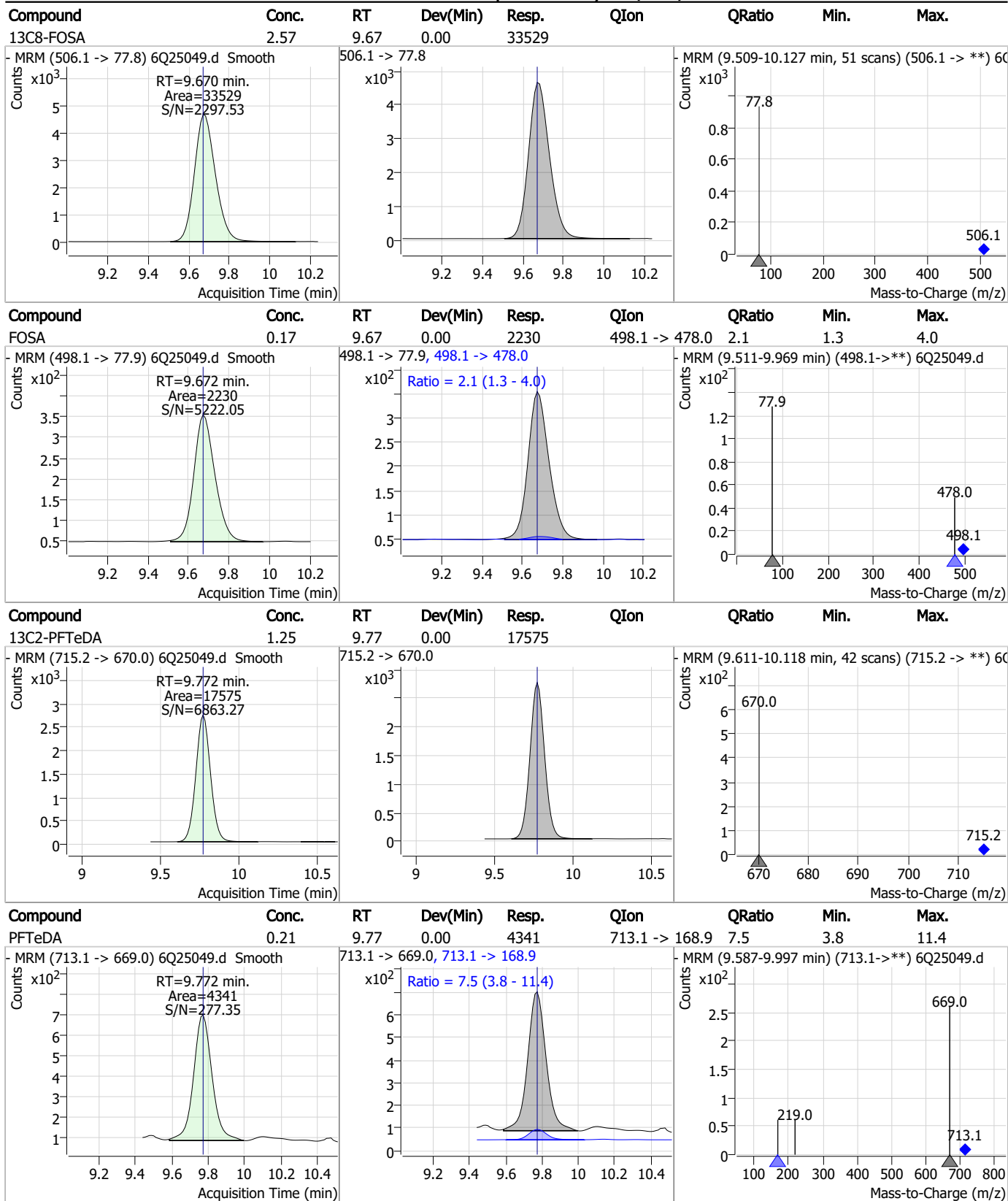
7

Perfluorinated Compounds by LC/MS/MS



7.7.28
7

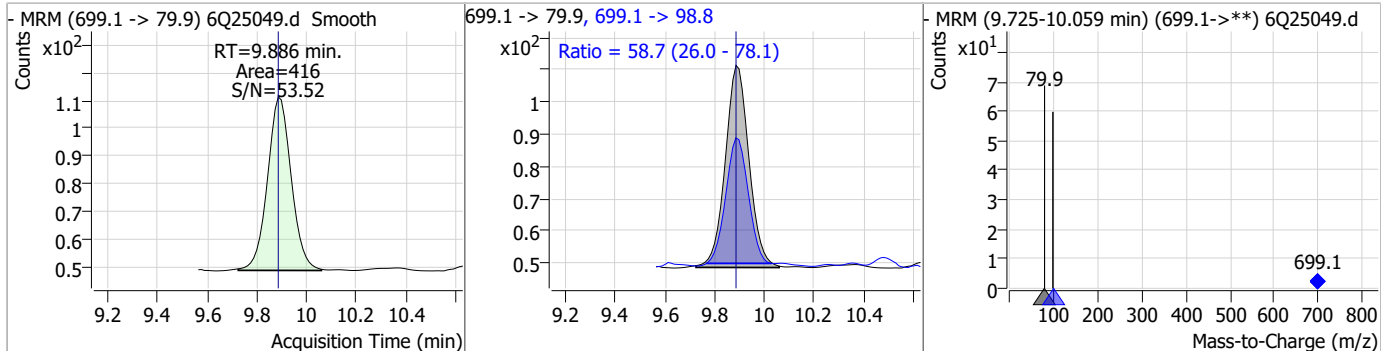
Perfluorinated Compounds by LC/MS/MS



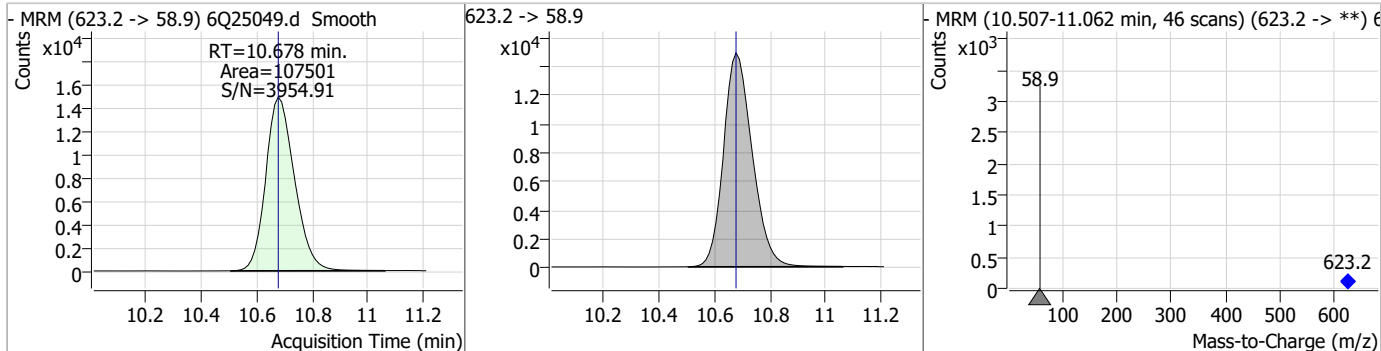
7.7.28
7

Perfluorinated Compounds by LC/MS/MS

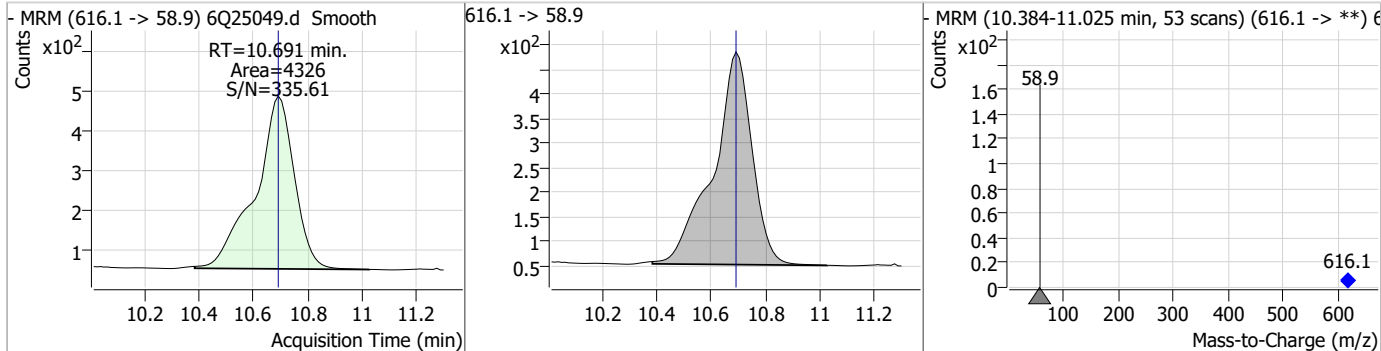
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	0.17	9.89	0.00	416	699.1 -> 98.8	58.7	26.0	78.1



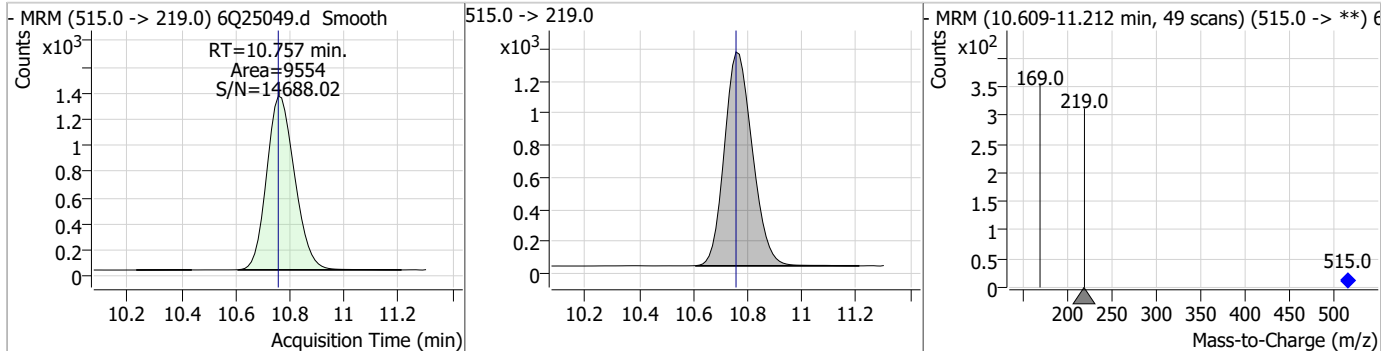
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.24	10.68	0.00	107501				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.91	10.69	0.00	4326				



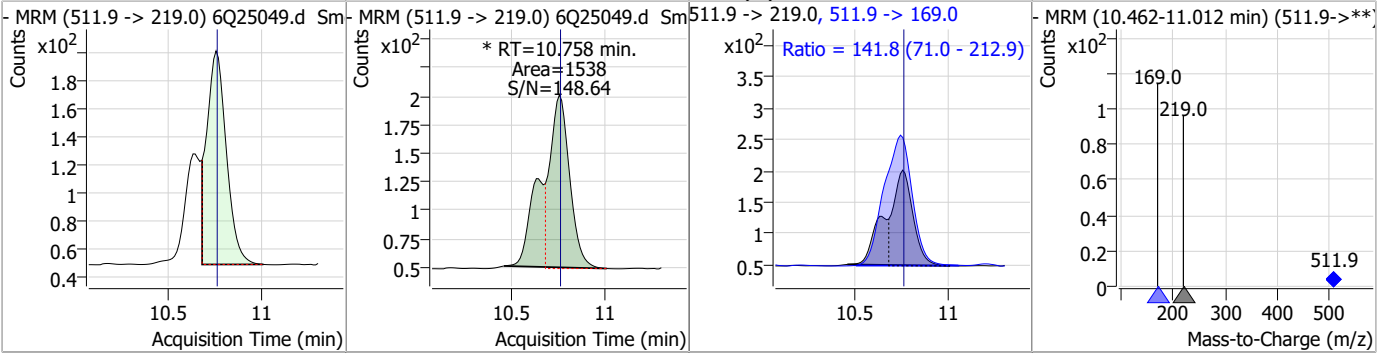
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.44	10.76	0.00	9554				



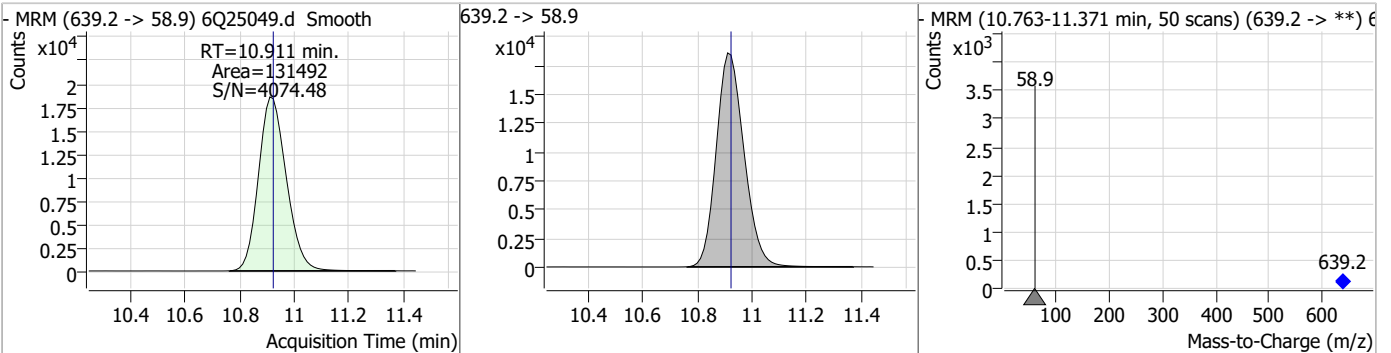
7.7.28
7

Perfluorinated Compounds by LC/MS/MS

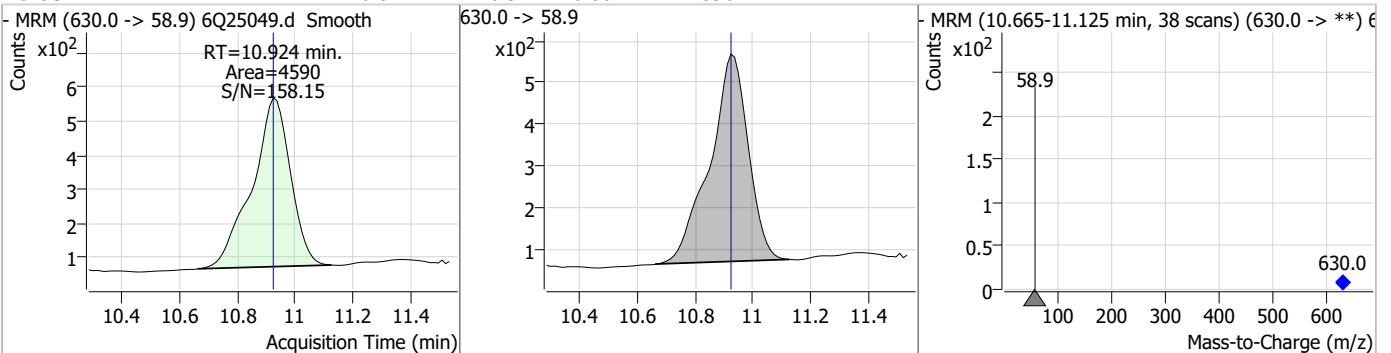
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.36	10.76	0.00	1538 (m)	511.9 -> 169.0	141.8	71.0	212.9



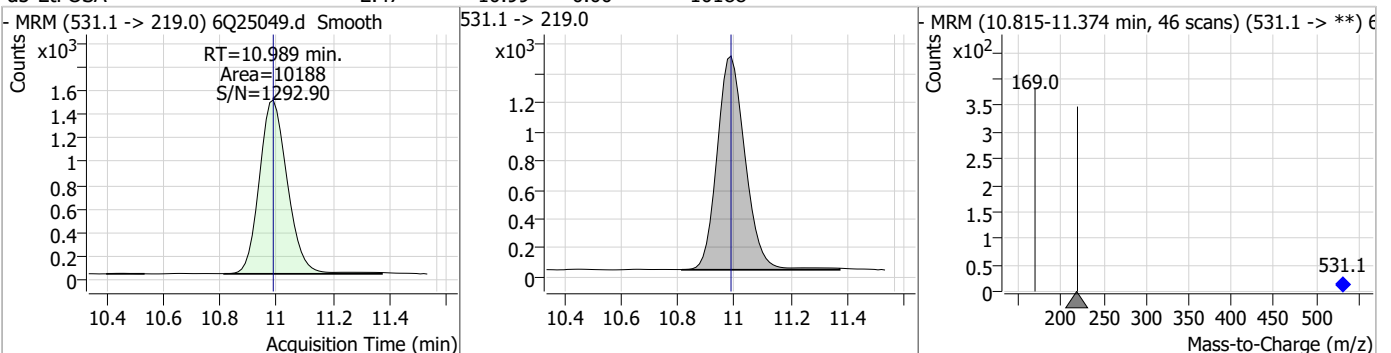
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.36	10.91	-0.01	131492				



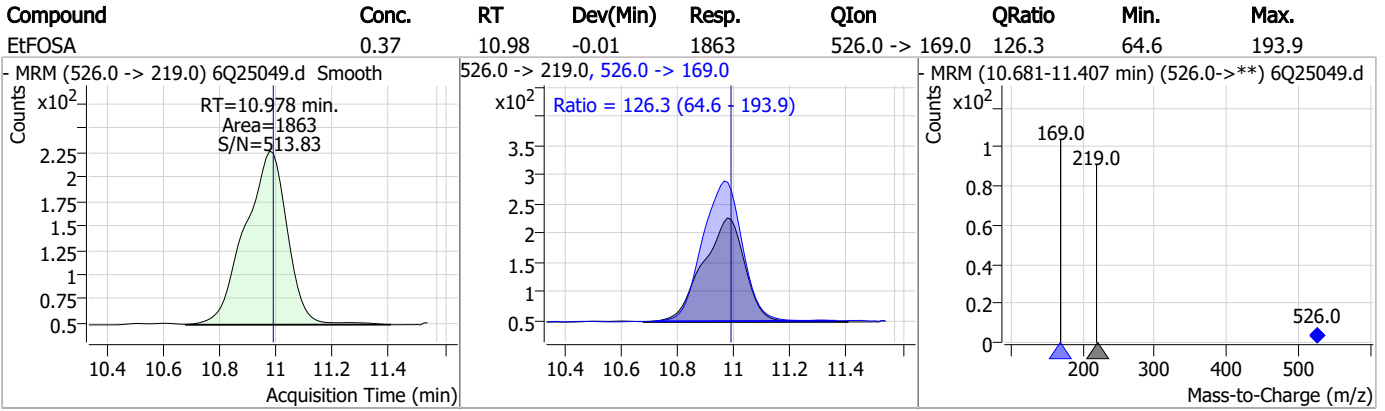
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.87	10.92	0.00	4590				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.47	10.99	0.00	10188				



Perfluorinated Compounds by LC/MS/MS



7.7.28

7

Manual Integration Approval Summary

Sample Number: S6Q357-CC356 Method: EPA DRAFT 1633
Lab FileID: 6Q25049.D Analyst approved: 09/26/23 15:45 Martha Valls
Injection Time: 09/25/23 21:53 Supervisor approved: 09/26/23 19:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.44	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.7.28.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25056.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 11:33:29 PM
 Sample Name : cc356-4
 Vial : P1-A5
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q357.batch.bin
 Sample Information : OP99081,S6Q357,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	180856	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	74531	5.00 µg/L	0.000
M5-PFHxA	5.617	318.0 -> 273.0	64182	2.50 µg/L	-0.012
M4-PFHpA	6.556	367.1 -> 322.0	65852	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	86939	2.50 µg/L	-0.012
M9-PFNA	7.704	472.1 -> 427.0	34985	1.25 µg/L	-0.012
M6-PFDA	8.185	519.1 -> 474.1	35758	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	40129	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	37796	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16333	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30157	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	27189	2.50 µg/L	-0.013
M3-PFHxS	7.289	402.1 -> 79.9	16186	2.50 µg/L	-0.012
M8-PFOS	8.336	507.1 -> 79.9	15829	2.50 µg/L	-0.013
M2-4:2FTS	5.292	329.1 -> 80.9	2916	5.00 µg/L	-0.012
M2-6:2FTS	6.961	429.1 -> 80.9	4429	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	4357	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	36235	5.00 µg/L	0.000
M3-HFPO-DA	5.994	286.9 -> 168.9	45897	10.00 µg/L	-0.012
M5-EtFOSAA	8.439	589.2 -> 419.0	28238	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	99143	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	126226	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9612	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9280	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	16052	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	75782	5.00 µg/L	0.000
18O2-PFHxS	7.288	403.0 -> 83.9	9985	2.50 µg/L	-0.012
13C4-PFOA	7.187	417.1 -> 372.0	105141	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	32854	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	36644	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	60084	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.292	329.1 -> 80.9	2916	5.71 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.2%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4429	5.45 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4357	5.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.8%		
13C2-PFDoDA	9.067	615.1 -> 570.0	37796	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16333	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C3-PFBS	5.546	302.1 -> 79.9	27189	2.59 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C3-PFHxS	7.289	402.1 -> 79.9	16186	2.56 µg/L	-0.012

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 = 102.5%		
13C4-PFBA	2.972	216.8 -> 171.9	180856	9.88 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C4-PFHpA	6.556	367.1 -> 322.0	65852	2.69 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C5-PFHxA	5.617	318.0 -> 273.0	64182	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C5-PFPeA	4.409	268.3 -> 223.0	74531	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C6-PFDA	8.185	519.1 -> 474.1	35758	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C7-PFUnDA	8.639	570.0 -> 525.1	40129	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C8-FOSA	9.670	506.1 -> 77.8	30157	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 88.9%		
13C8-PFOA	7.186	421.1 -> 376.0	86939	2.39 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C8-PFOS	8.336	507.1 -> 79.9	15829	2.28 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.3%		
13C9-PFNA	7.704	472.1 -> 427.0	34985	1.19 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.0%		
d3-MeFOSAA	8.244	573.2 -> 419.0	36235	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C3-HFPO-DA	5.994	286.9 -> 168.9	45897	10.14 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.4%		
d3-MeFOSA	10.757	515.0 -> 219.0	9280	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.9%		
d5-EtFOSAA	8.439	589.2 -> 419.0	28238	4.78 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.6%		
d7-MeFOSE	10.678	623.2 -> 58.9	99143	20.59 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 82.4%		
d9-EtFOSE	10.911	639.2 -> 58.9	126226	21.54 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 86.2%		
d5-EtFOSA	10.989	531.1 -> 219.0	9612	2.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 89.5%		
Target Compounds					QValue
4:2FTS	5.293	327.1 -> 307.0	47634	9.98 µg/L	96
		327.1 -> 80.9	19369		
6:2FTS	6.962	427.1 -> 407.0	38337	10.05 µg/L	97
		427.1 -> 80.9	16031		
8:2FTS	7.987	527.1 -> 507.0	28070	10.11 µg/L	94
		527.1 -> 80.8	10893		
EtFOSAA	8.440	584.2 -> 419.1	11777	2.51 µg/L	m 93
		584.2 -> 526.0	7714		
FOSA	9.672	498.1 -> 77.9	29746	2.59 µg/L	99
		498.1 -> 478.0	903		
MeFOSAA	8.245	570.1 -> 419.0	16017	2.53 µg/L	93
		570.1 -> 483.0	3224		
PFBA	2.968	212.8 -> 168.9	67631	10.47 µg/L	100
PFBS	5.547	298.7 -> 79.9	20186	2.28 µg/L	100
		298.7 -> 98.8	7489		
PFDA	8.186	512.9 -> 469.0	66423	2.35 µg/L	96
		512.9 -> 219.0	11846		
PFDODA	9.055	613.1 -> 569.0	76338	2.77 µg/L	100
		613.1 -> 319.0	9246		
PFDS	9.220	599.0 -> 79.9	9902	2.59 µg/L	99

7.7.29
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4718			
PFHpA	6.557	363.1 -> 319.0	92037	2.58	µg/L	99
		363.1 -> 169.0	12837			
PFHpS	7.843	449.0 -> 79.9	16440	2.36	µg/L	88
		449.0 -> 98.9	8179			
PFHxA	5.631	313.0 -> 269.0	61221	2.66	µg/L	99
		313.0 -> 118.9	2888			
PFHxS	7.290	398.7 -> 79.9	15402	2.45	µg/L	m 97
		398.7 -> 98.9	7099			
PFNA	7.705	463.0 -> 419.0	56601	2.50	µg/L	91
		463.0 -> 219.0	14146			
PFNS	8.802	548.8 -> 79.9	12918	2.34	µg/L	90
		548.8 -> 98.9	7192			
PFOA	7.187	413.0 -> 369.0	96955	2.60	µg/L	97
		413.0 -> 169.0	16331			
PFOS	8.337	498.9 -> 79.9	17149	2.51	µg/L	m 69
		498.9 -> 98.8	8054			
PFPeA	4.411	263.0 -> 219.0	76041	5.07	µg/L	100
PFPeS	6.608	349.1 -> 79.9	21188	2.41	µg/L	94
		349.1 -> 98.9	10085			
PFTeDA	9.772	713.1 -> 669.0	50123	2.60	µg/L	99
		713.1 -> 168.9	4010			
PFTrDA	9.440	663.0 -> 619.0	68196	2.83	µg/L	99
		663.0 -> 168.9	5777			
PFUnDA	8.639	563.1 -> 519.0	66537	2.50	µg/L	98
		563.1 -> 269.1	10488			
11Cl-PF3OUdS	9.479	630.9 -> 450.9	61332	5.11	µg/L	98
		632.9 -> 452.9	19480			
9Cl-PF3ONS	8.666	530.8 -> 351.0	103931	5.10	µg/L	98
		532.8 -> 353.0	32318			
ADONA	6.804	376.9 -> 250.9	295026	5.23	µg/L	95
		376.9 -> 84.8	77790			
HFPO-DA	5.995	284.9 -> 168.9	21841	4.84	µg/L	100
		284.9 -> 184.9	2273			
3:3FTCA	3.846	241.0 -> 177.0	13032	12.43	µg/L	99
		241.0 -> 117.0	1483			
5:3FTCA	6.271	341.0 -> 237.1	276149	63.76	µg/L	99
		341.0 -> 217.0	193846			
7:3FTCA	7.657	441.0 -> 316.9	166867	68.01	µg/L	94
		441.0 -> 336.9	351404			
EtFOSA	10.978	526.0 -> 219.0	23897	5.00	µg/L	99
		526.0 -> 169.0	31051			
EtFOSE	10.924	630.0 -> 58.9	63480	12.53	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	21303	5.10	µg/L	97
		511.9 -> 169.0	29451			
MeFOSE	10.691	616.1 -> 58.9	57844	13.17	µg/L	100
PFDoDS	9.886	699.1 -> 79.9	5738	2.51	µg/L	96
		699.1 -> 98.8	3165			
NFDHA	5.512	295.0 -> 201.0	15308	5.17	µg/L	99
		295.0 -> 84.9	4139			
PFMBA	4.838	279.0 -> 85.1	59375	4.92	µg/L	100
PFMPA	3.538	229.0 -> 84.9	43951	4.91	µg/L	100
PFEESA	6.088	314.8 -> 134.9	128109	4.47	µg/L	99
		314.8 -> 82.9	5171			

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

7.7.29
7

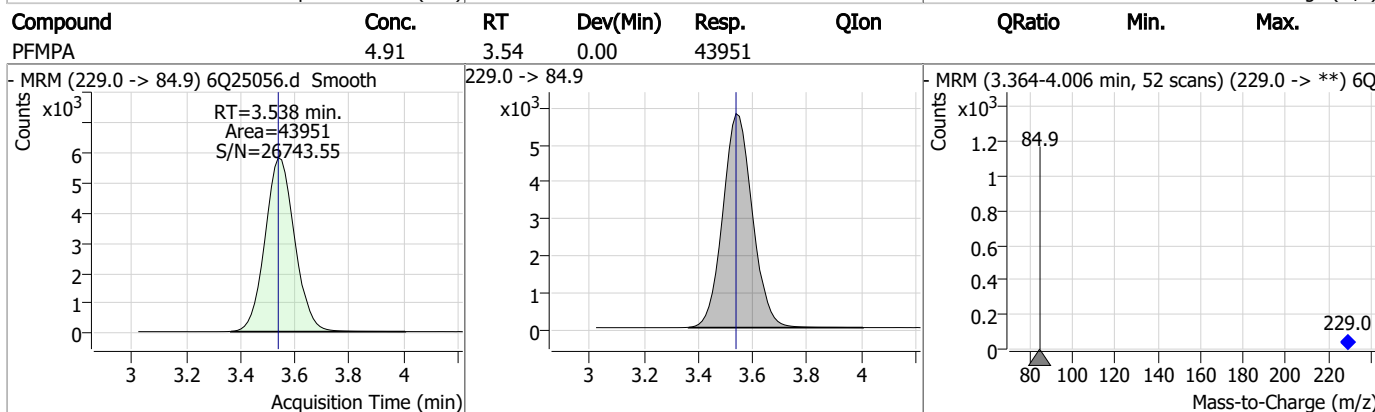
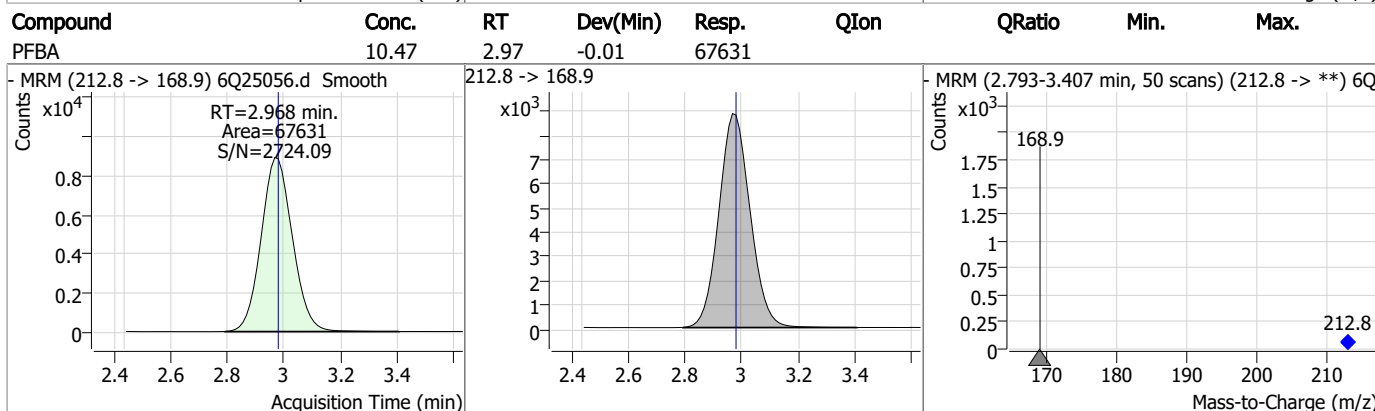
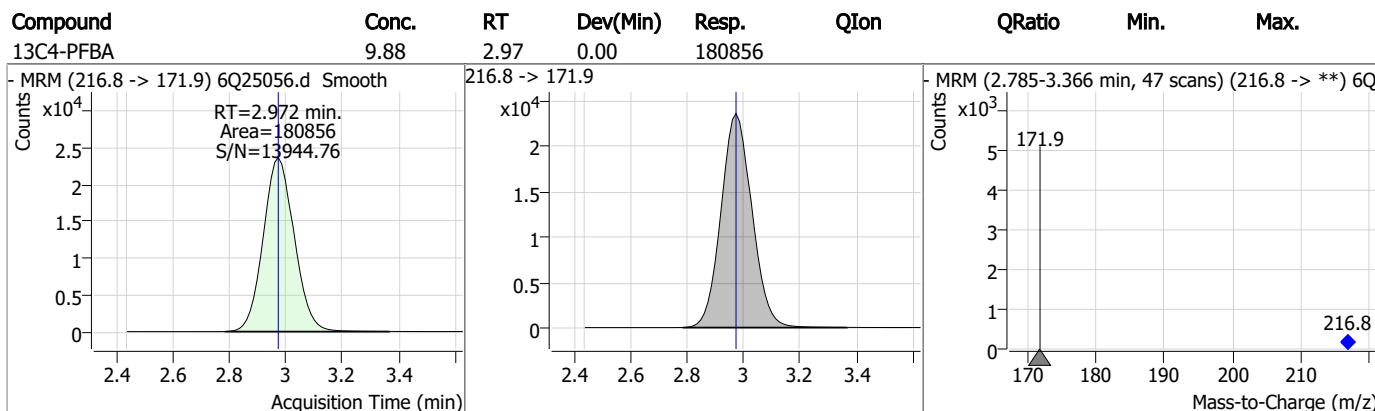
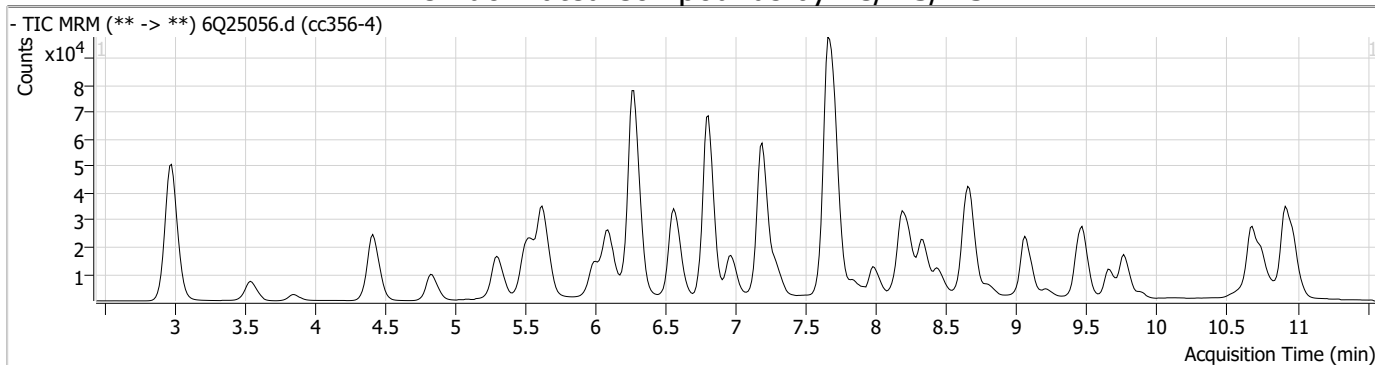
Perfluorinated Compounds by LC/MS/MS

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

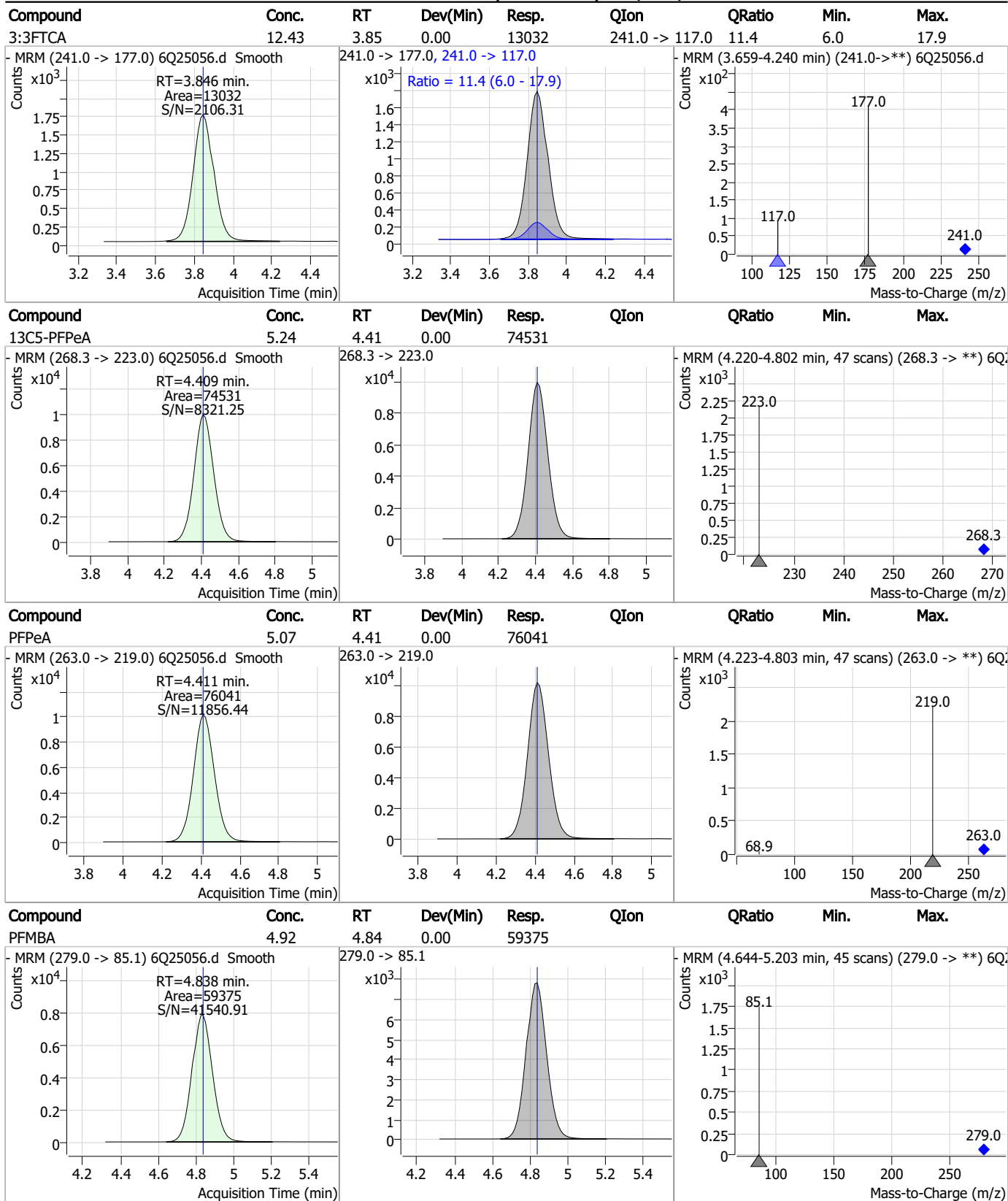
7.7.29

7

Perfluorinated Compounds by LC/MS/MS



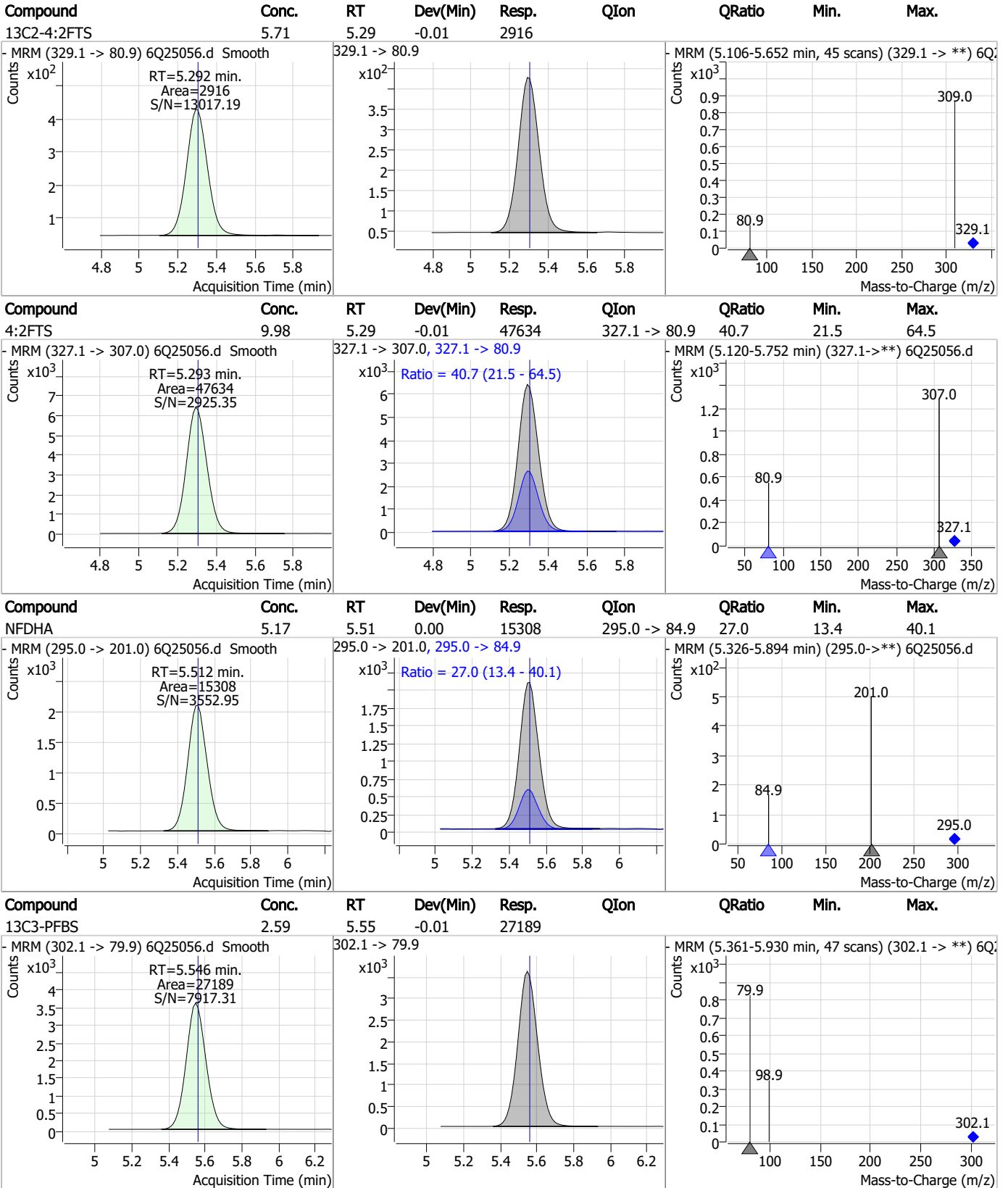
Perfluorinated Compounds by LC/MS/MS



7.7.29

7

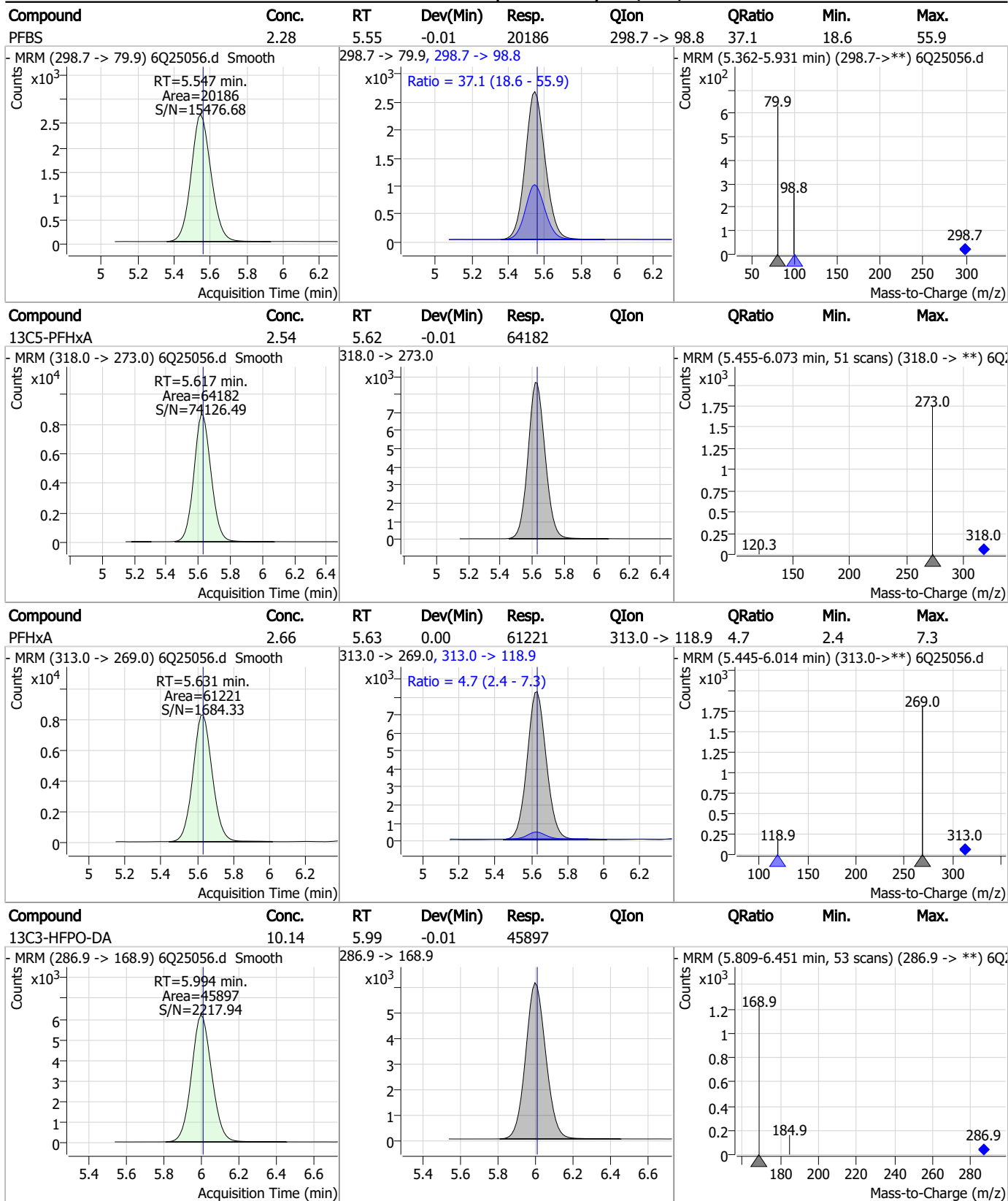
Perfluorinated Compounds by LC/MS/MS



7.7.29
7



Perfluorinated Compounds by LC/MS/MS

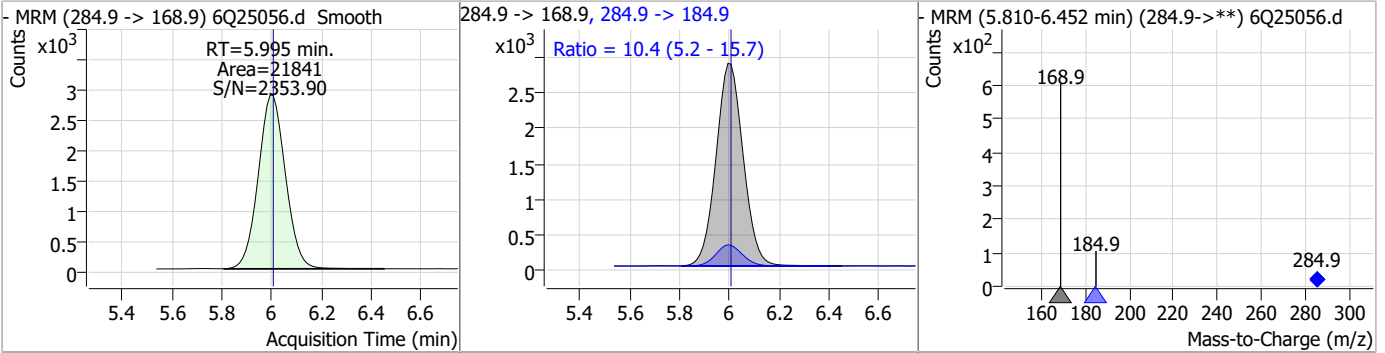


7.7.29

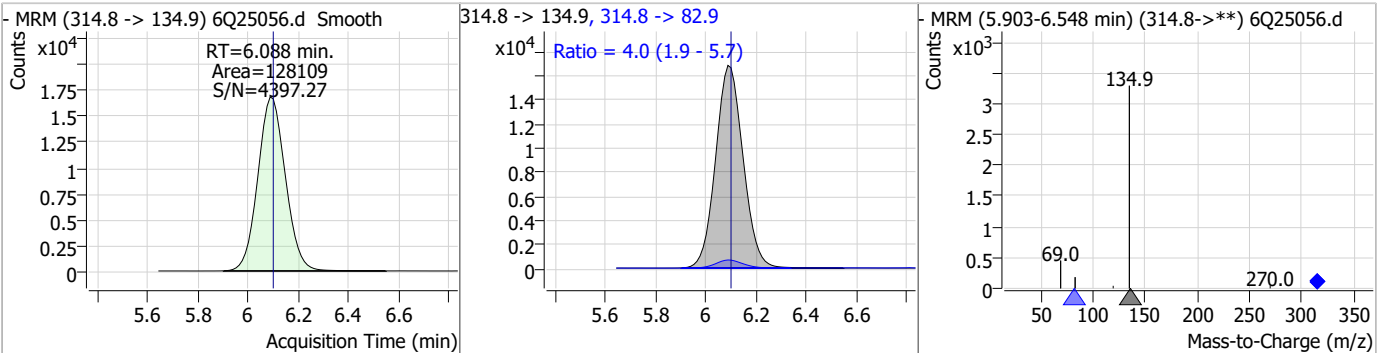
7

Perfluorinated Compounds by LC/MS/MS

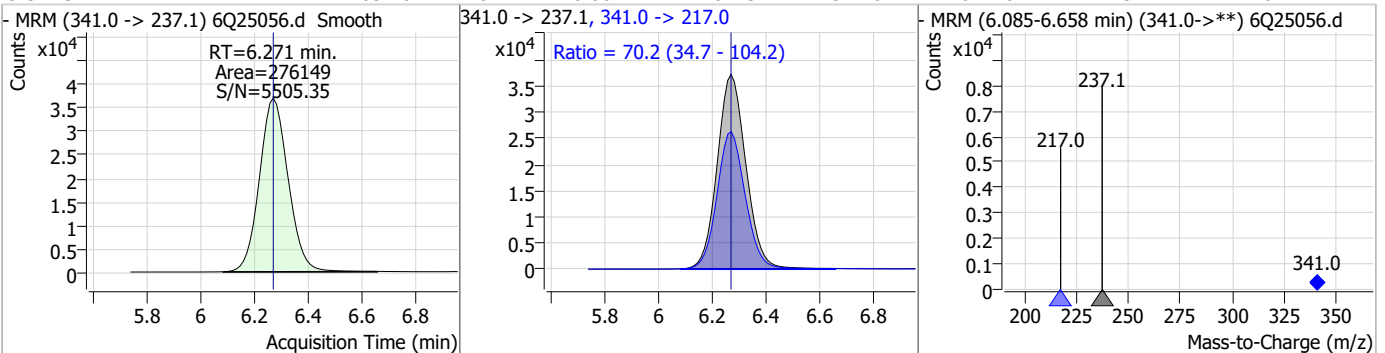
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.84	6.00	-0.01	21841	284.9 -> 184.9	10.4	5.2	15.7



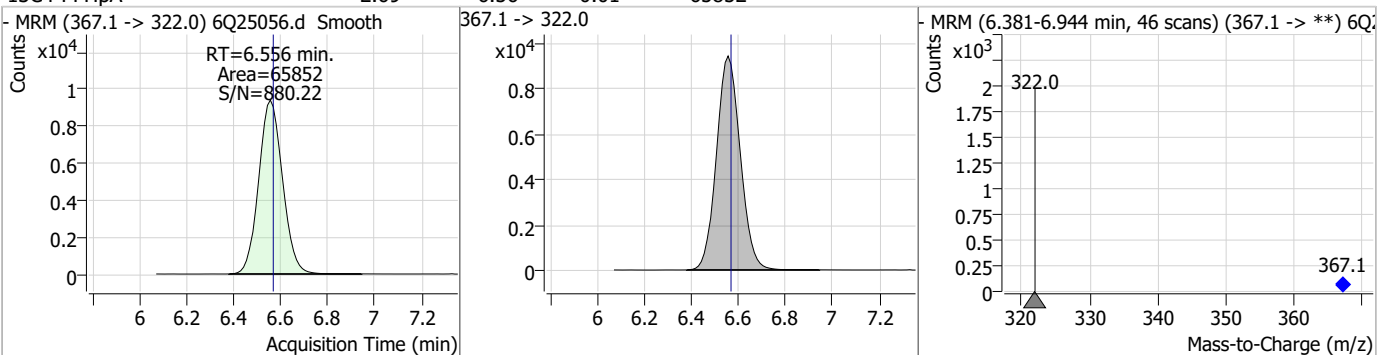
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.47	6.09	-0.01	128109	314.8 -> 82.9	4.0	1.9	5.7



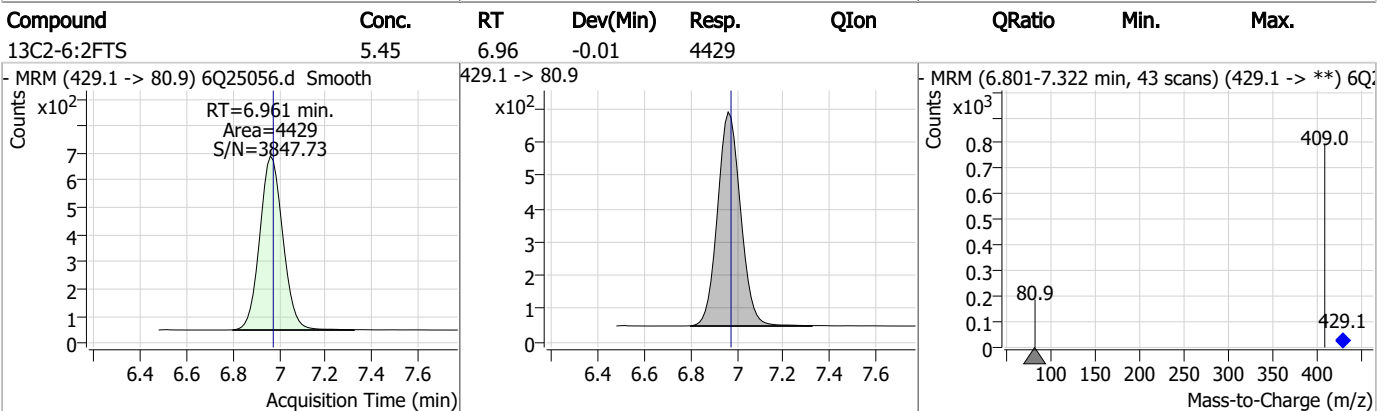
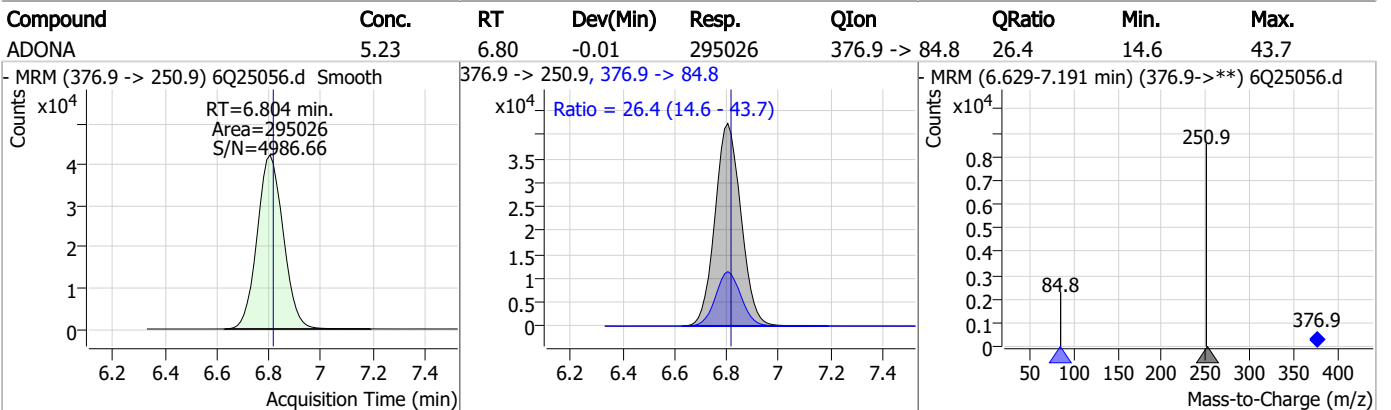
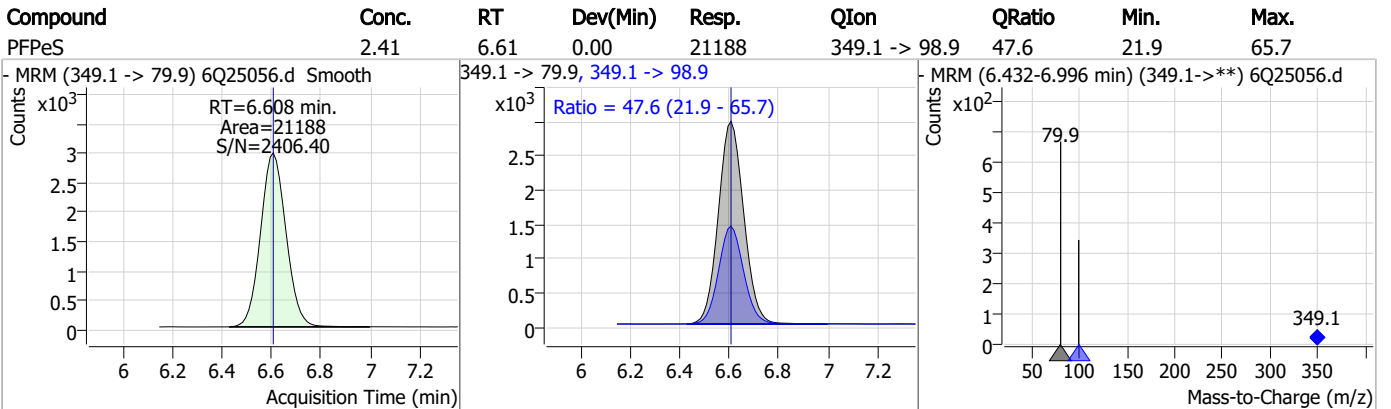
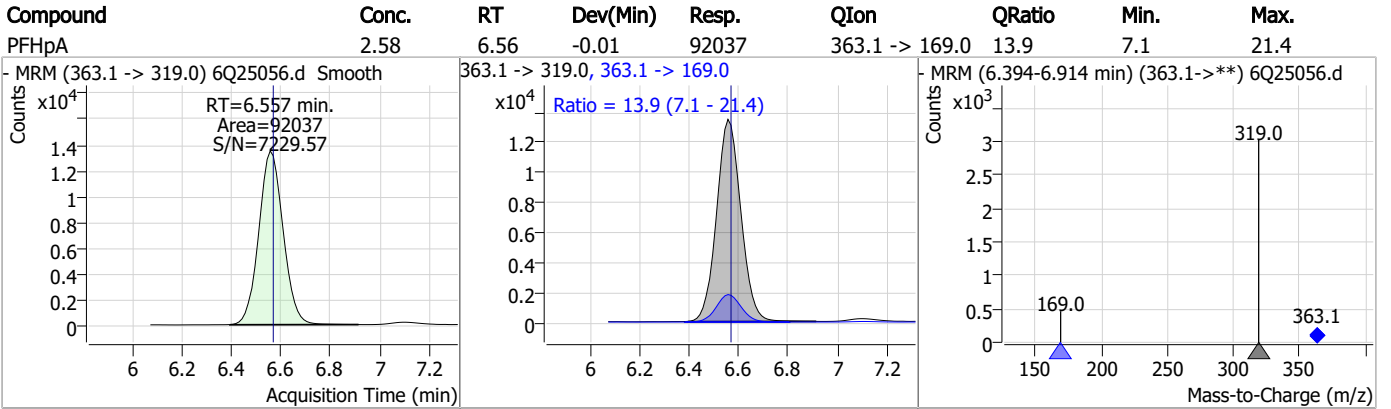
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	63.76	6.27	0.00	276149	341.0 -> 217.0	70.2	34.7	104.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.69	6.56	-0.01	65852	367.1 -> 322.0	-	-	-

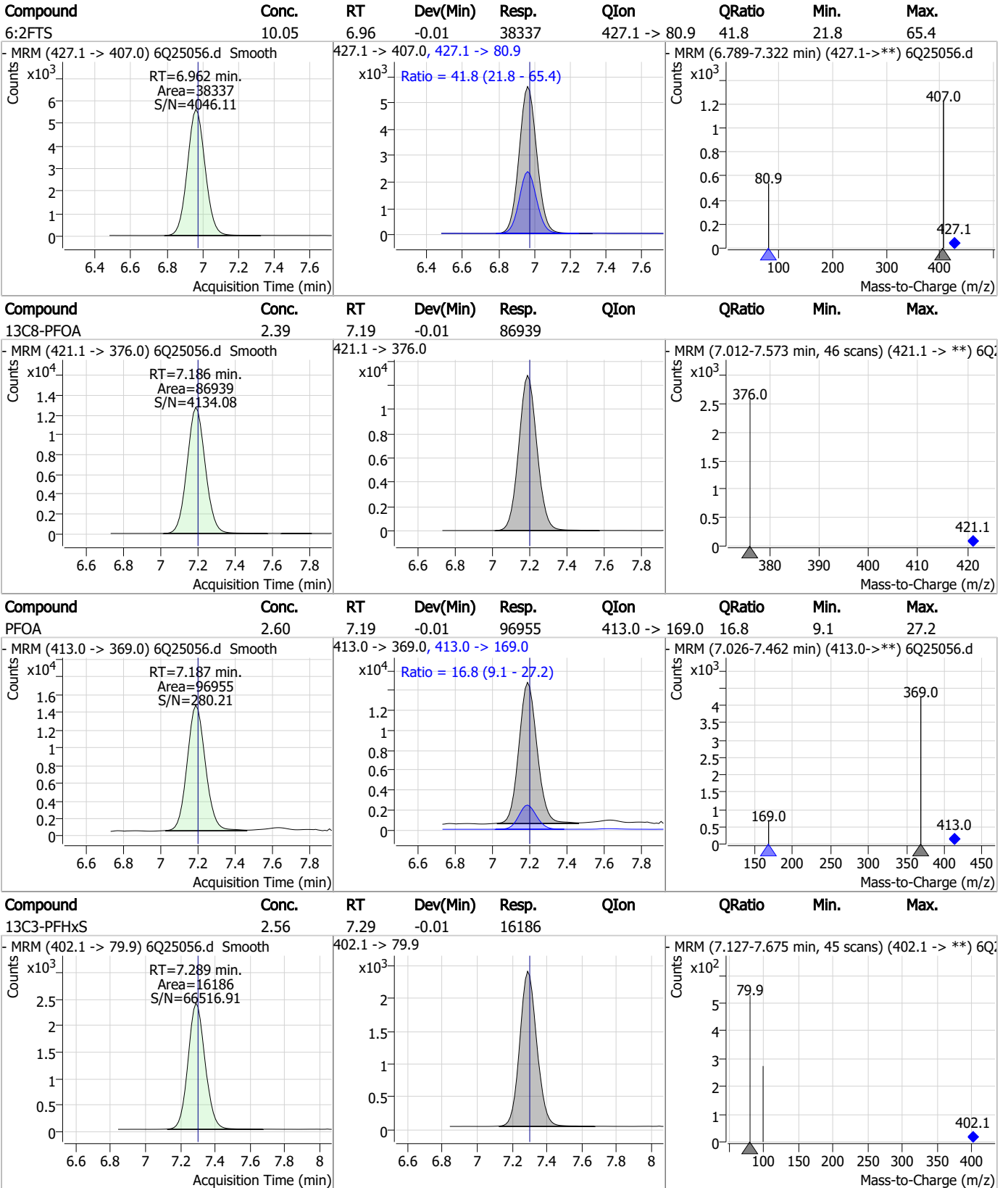


Perfluorinated Compounds by LC/MS/MS



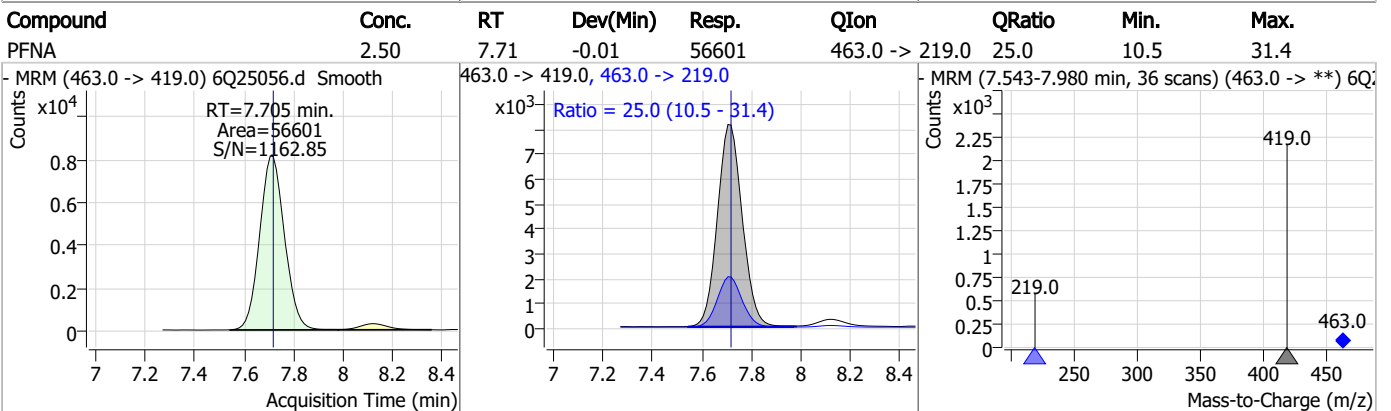
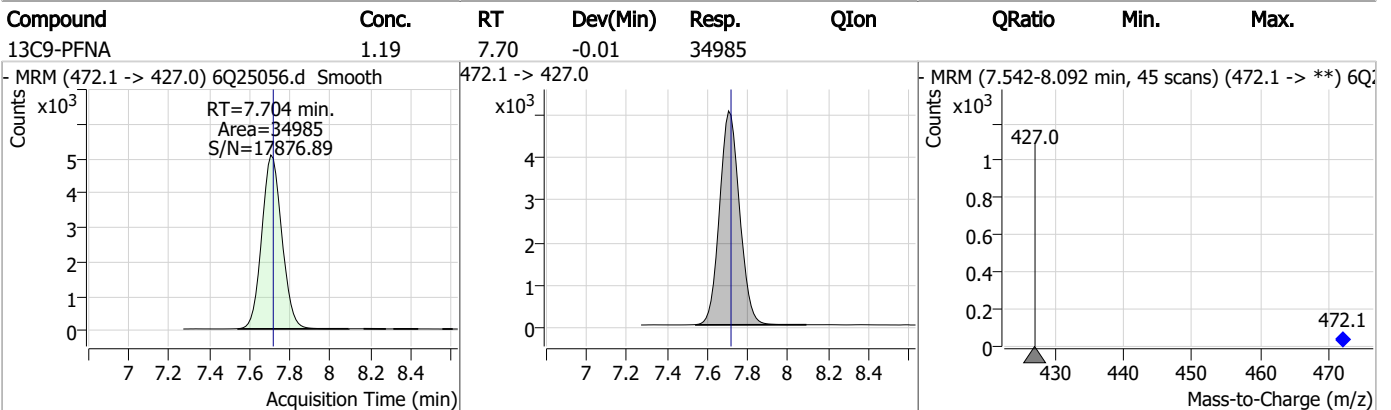
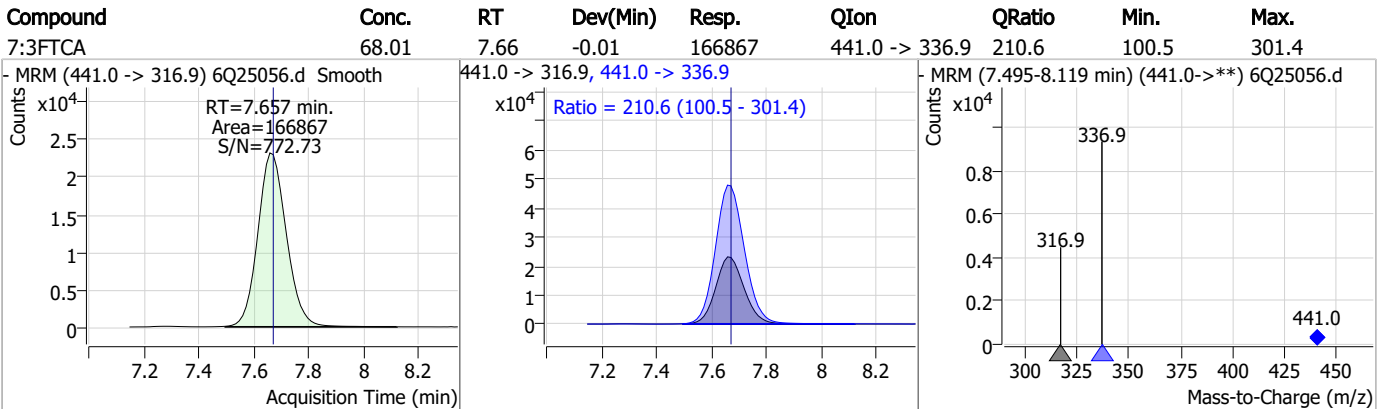
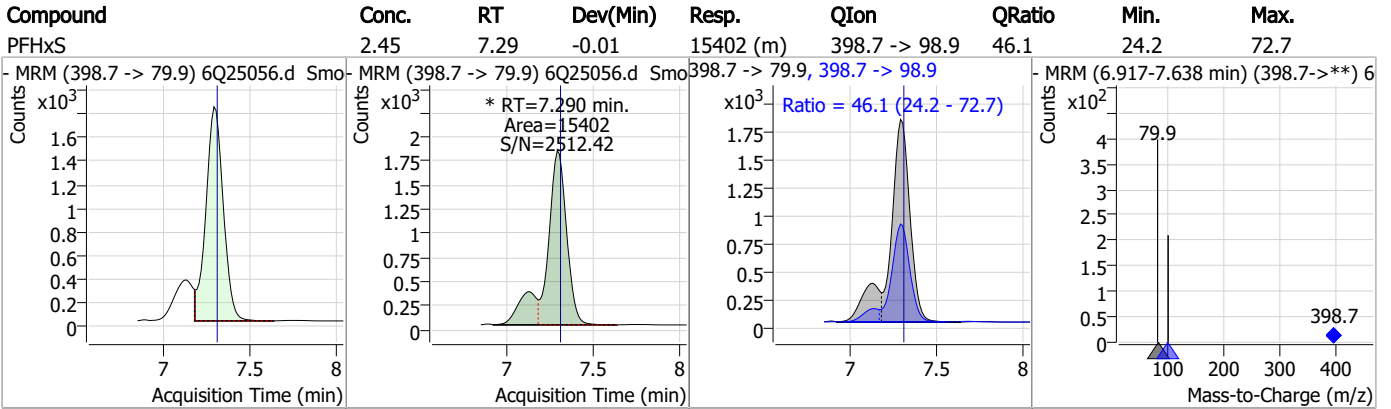
7.7.29
7

Perfluorinated Compounds by LC/MS/MS



7.7.29 7

Perfluorinated Compounds by LC/MS/MS



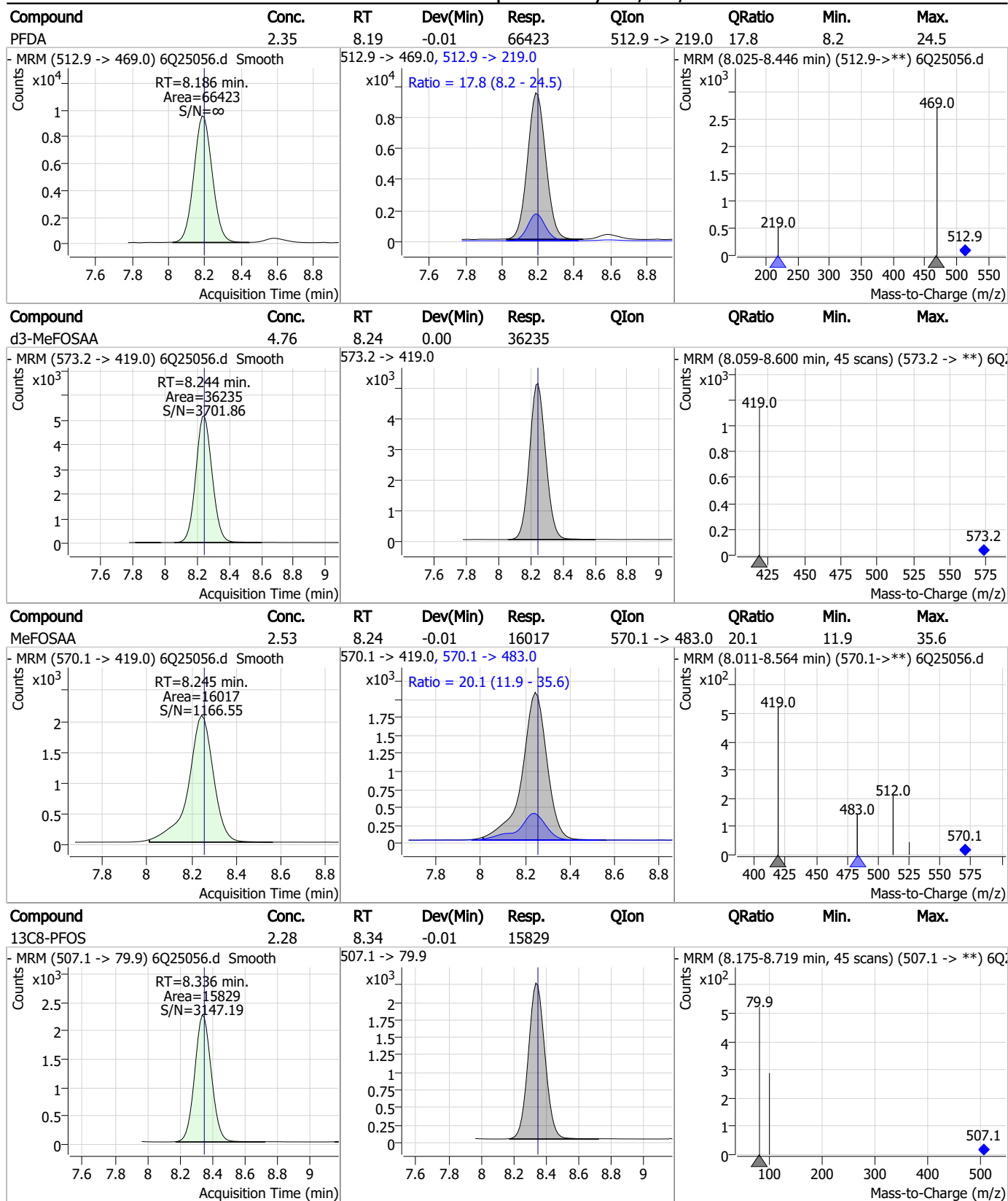
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.36	7.84	-0.01	16440	449.0 -> 98.9	49.8	21.0	62.9
13C2-8:2FTS	5.64	7.99	0.00	4357	529.1 -> 80.9			
8:2FTS	10.11	7.99	0.00	28070	527.1 -> 80.8	38.8	17.6	52.8
13C6-PFDA	1.30	8.19	-0.01	35758	519.1 -> 474.1			

7.7.29

7

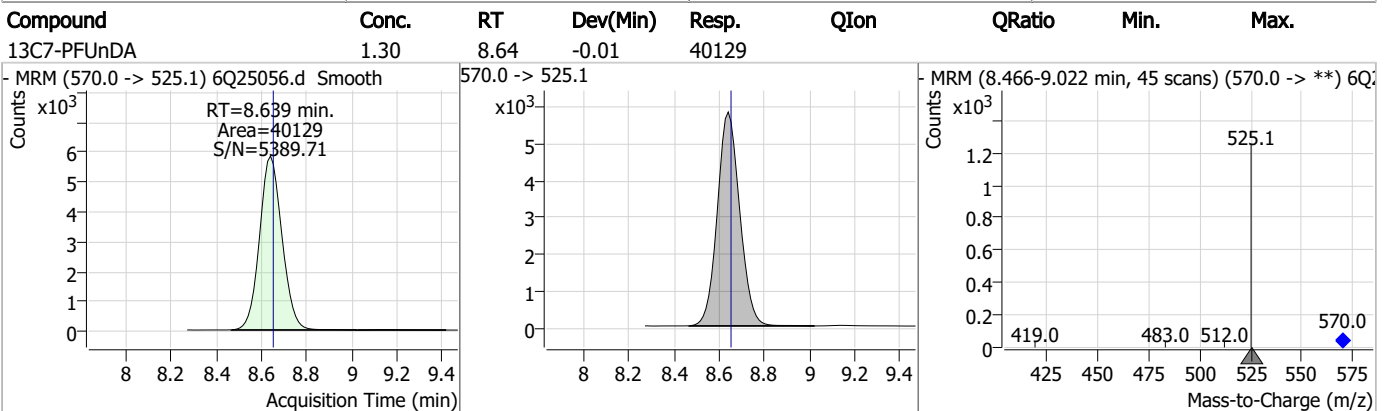
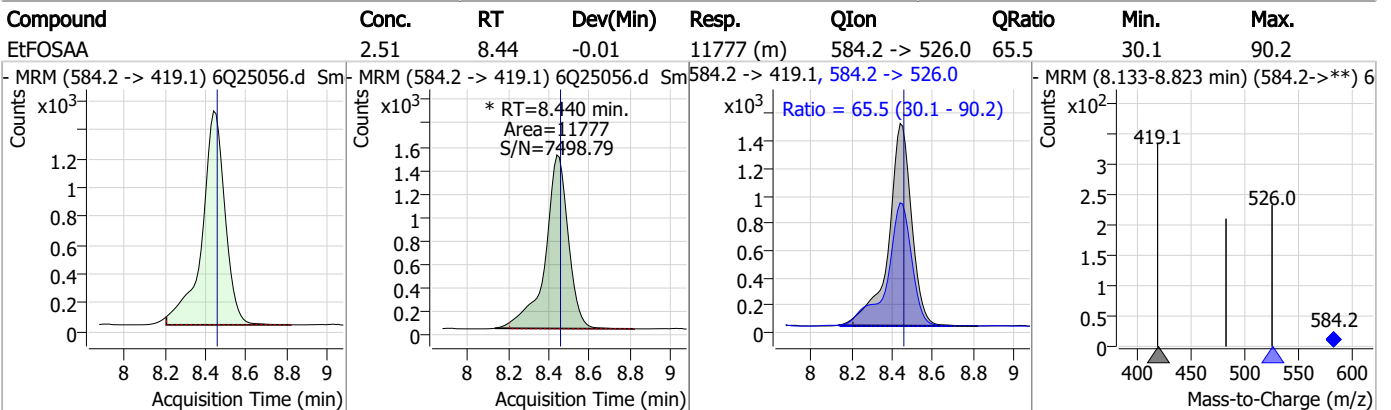
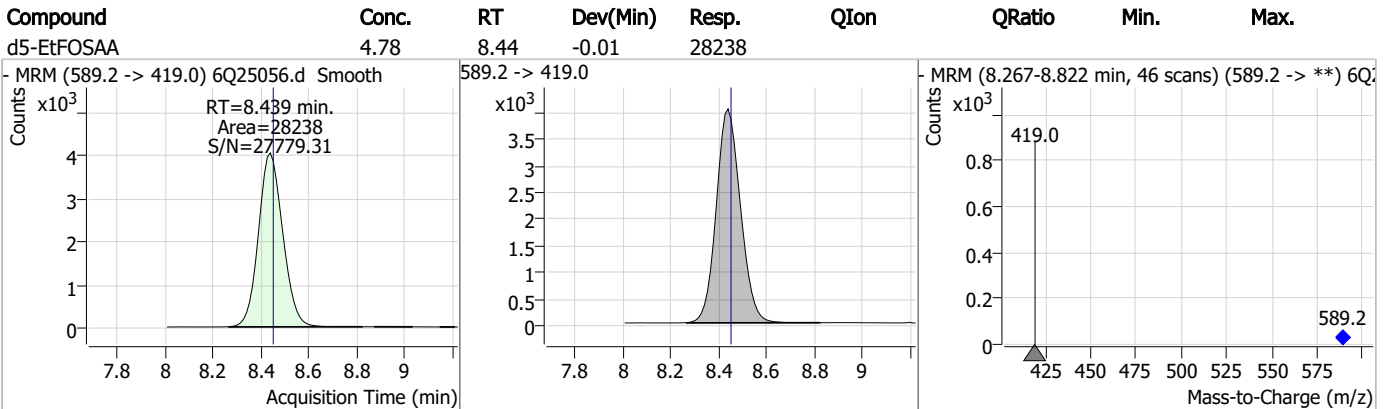
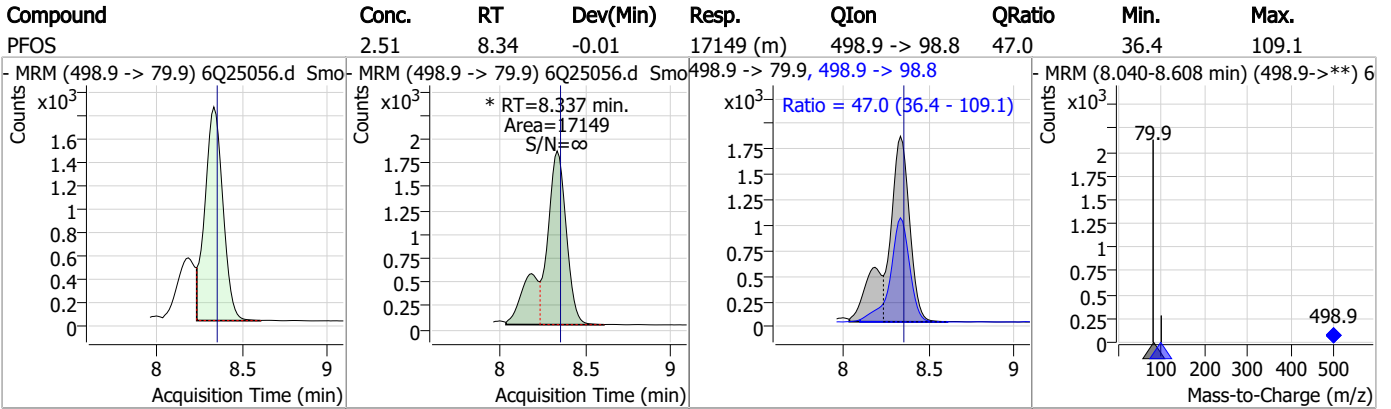
Perfluorinated Compounds by LC/MS/MS



7.7.29

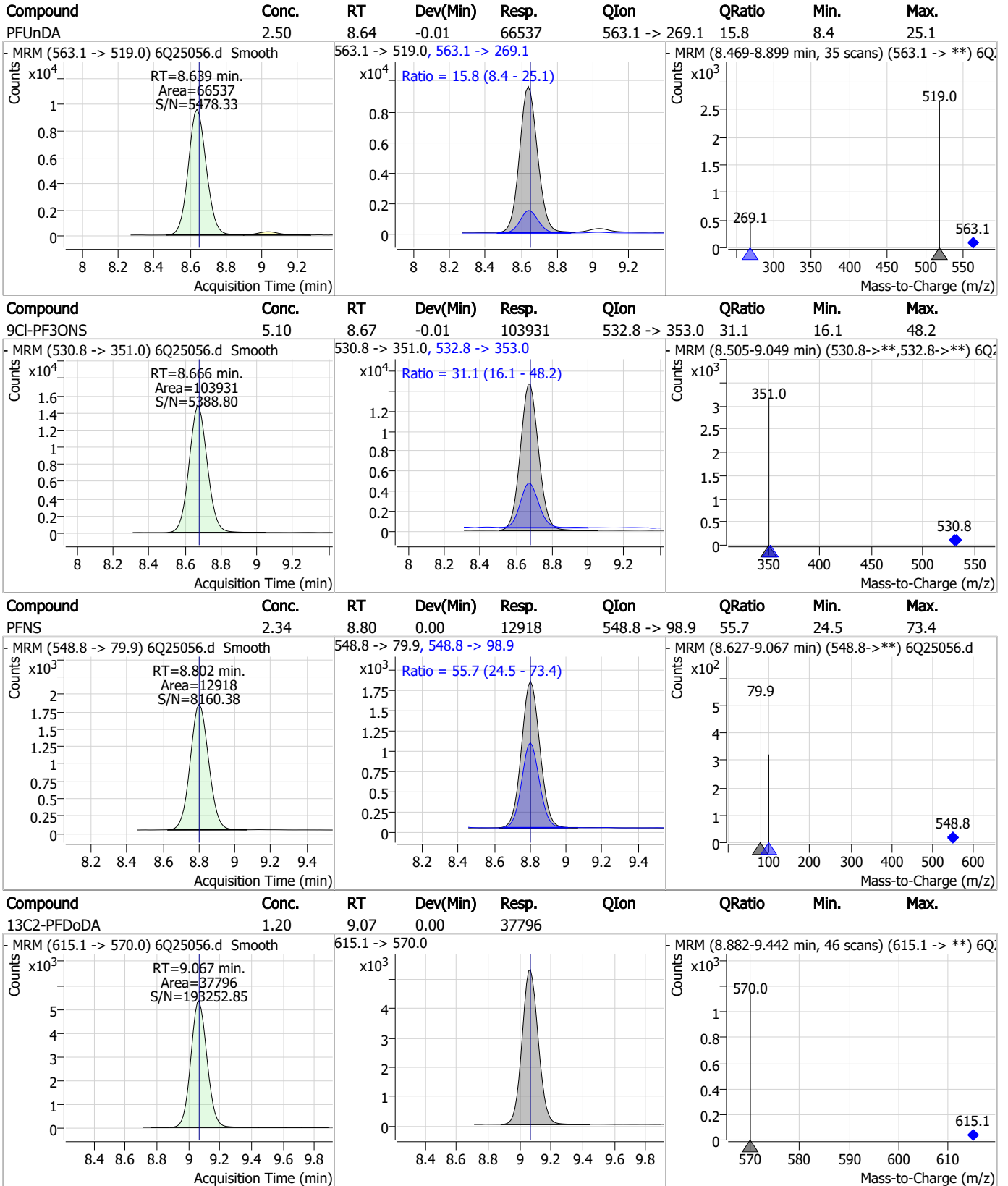
7

Perfluorinated Compounds by LC/MS/MS



7.7.29
7

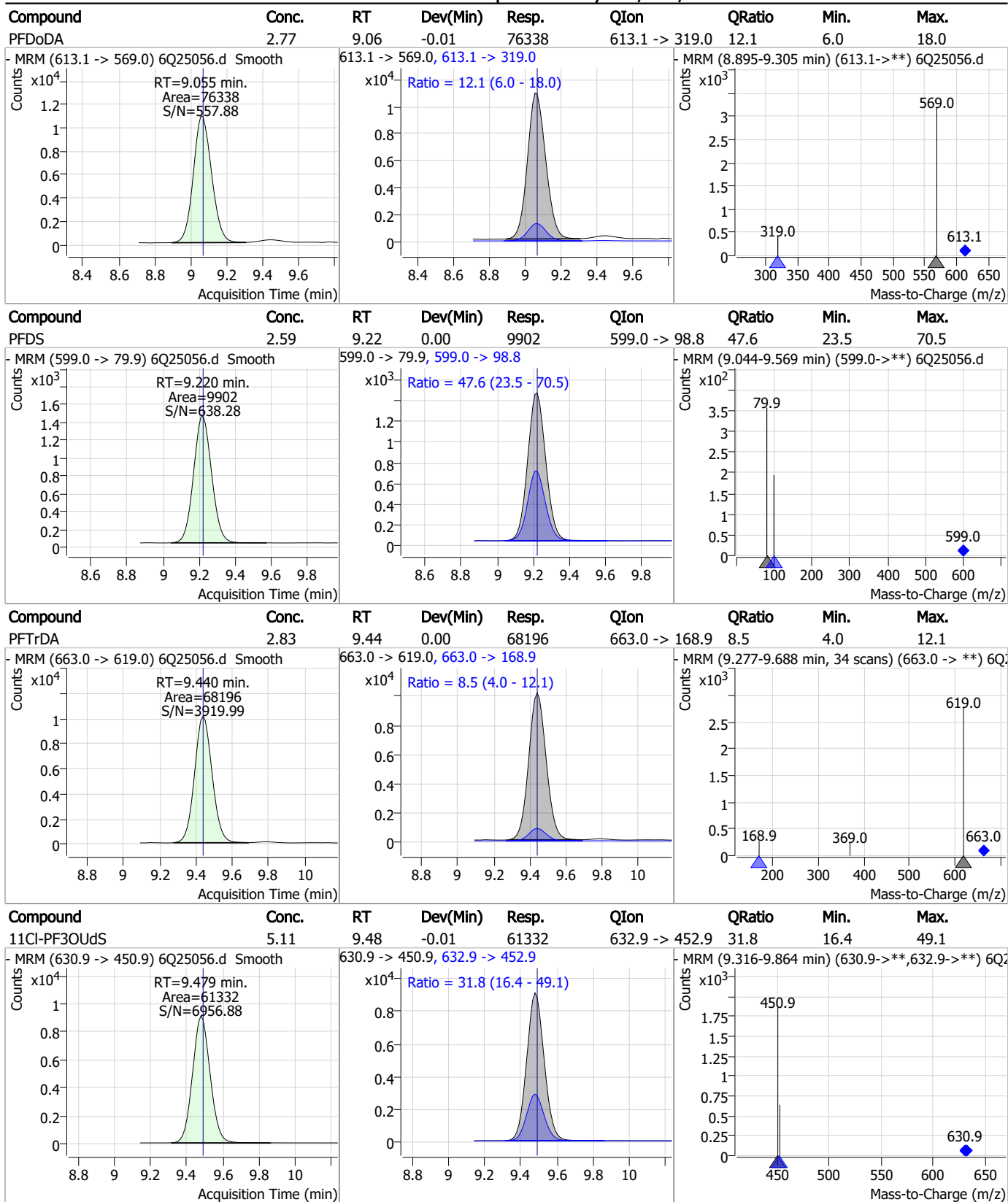
Perfluorinated Compounds by LC/MS/MS



7.7.29
7



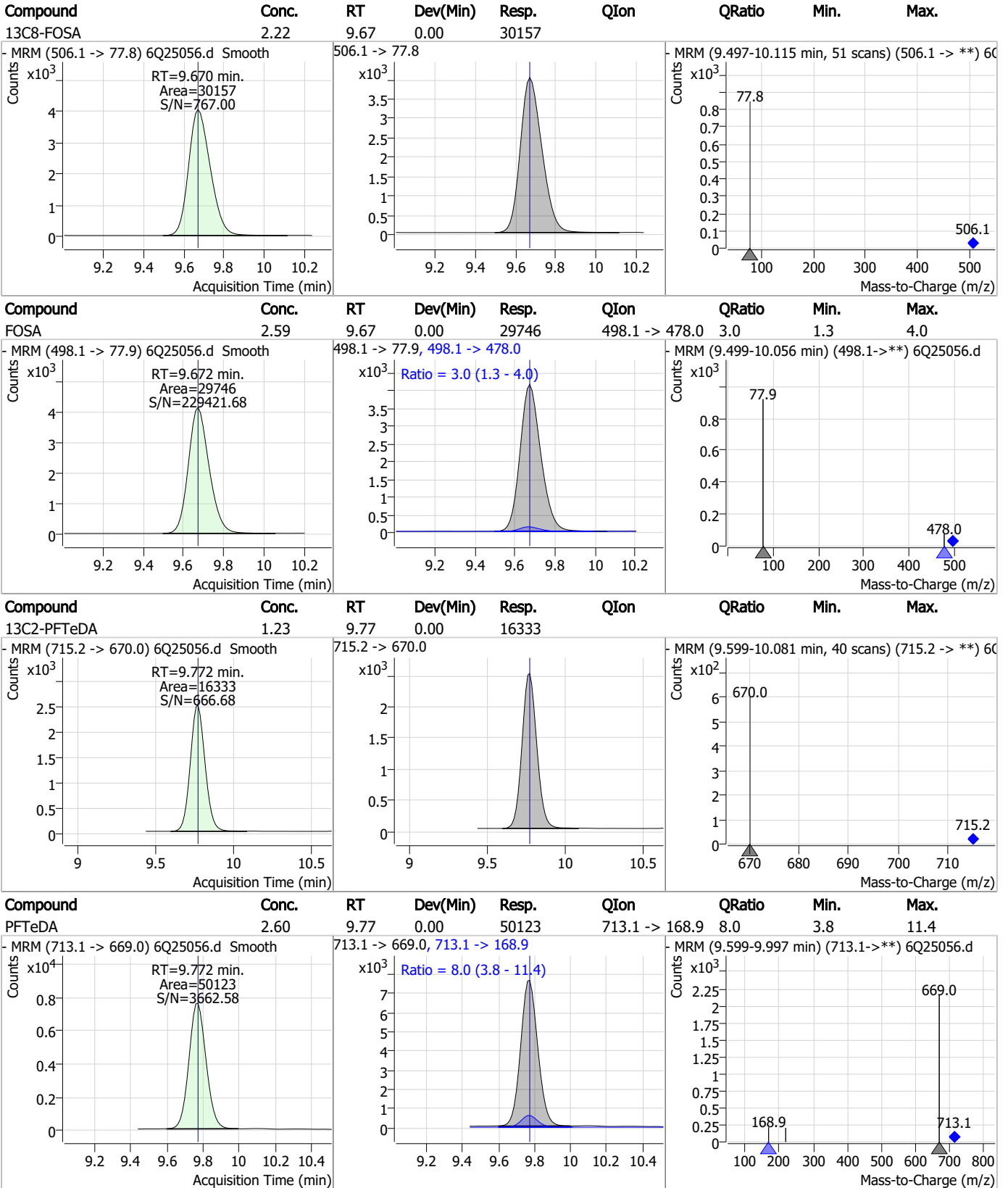
Perfluorinated Compounds by LC/MS/MS



7.7.29

7

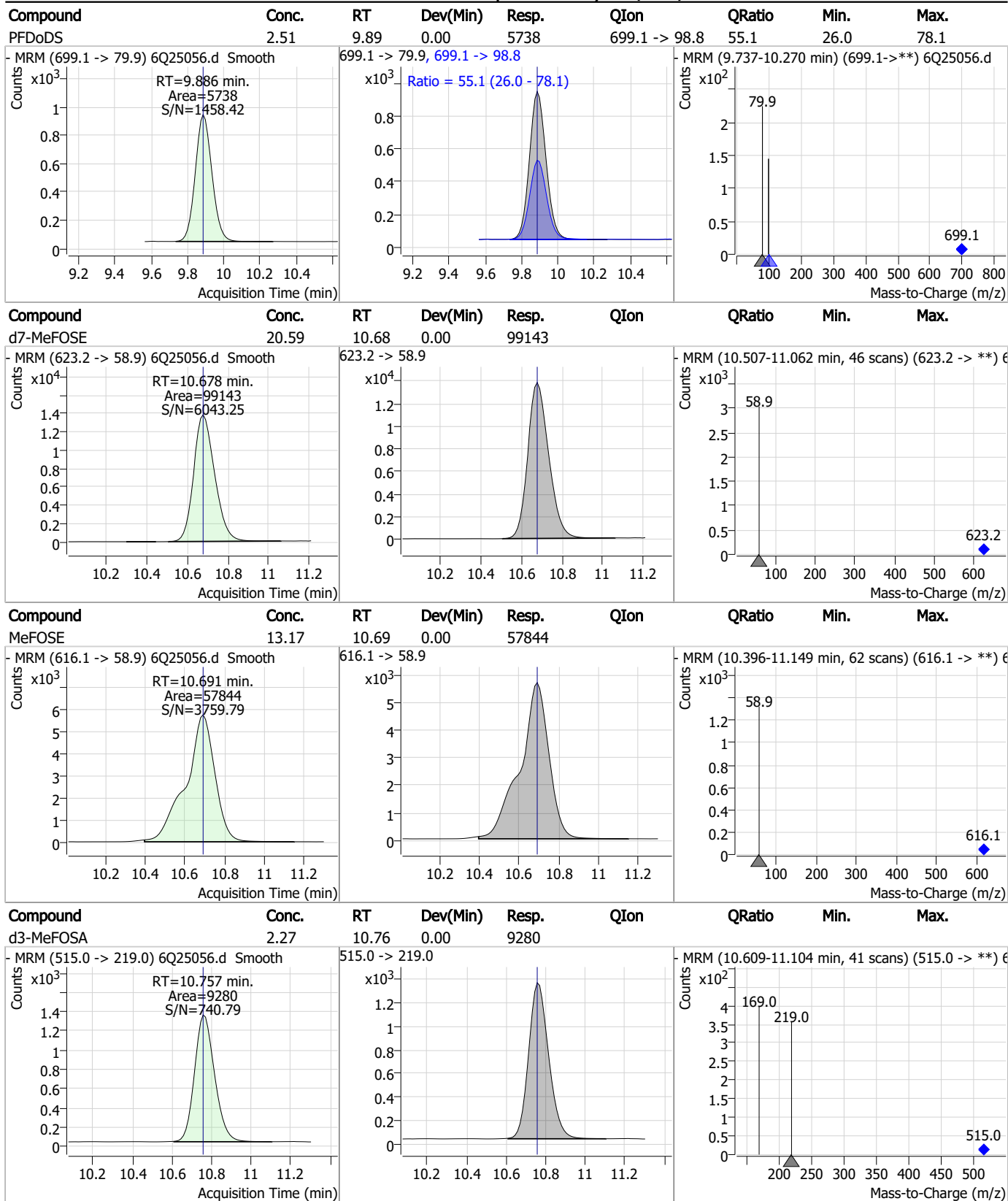
Perfluorinated Compounds by LC/MS/MS



7.7.29

7

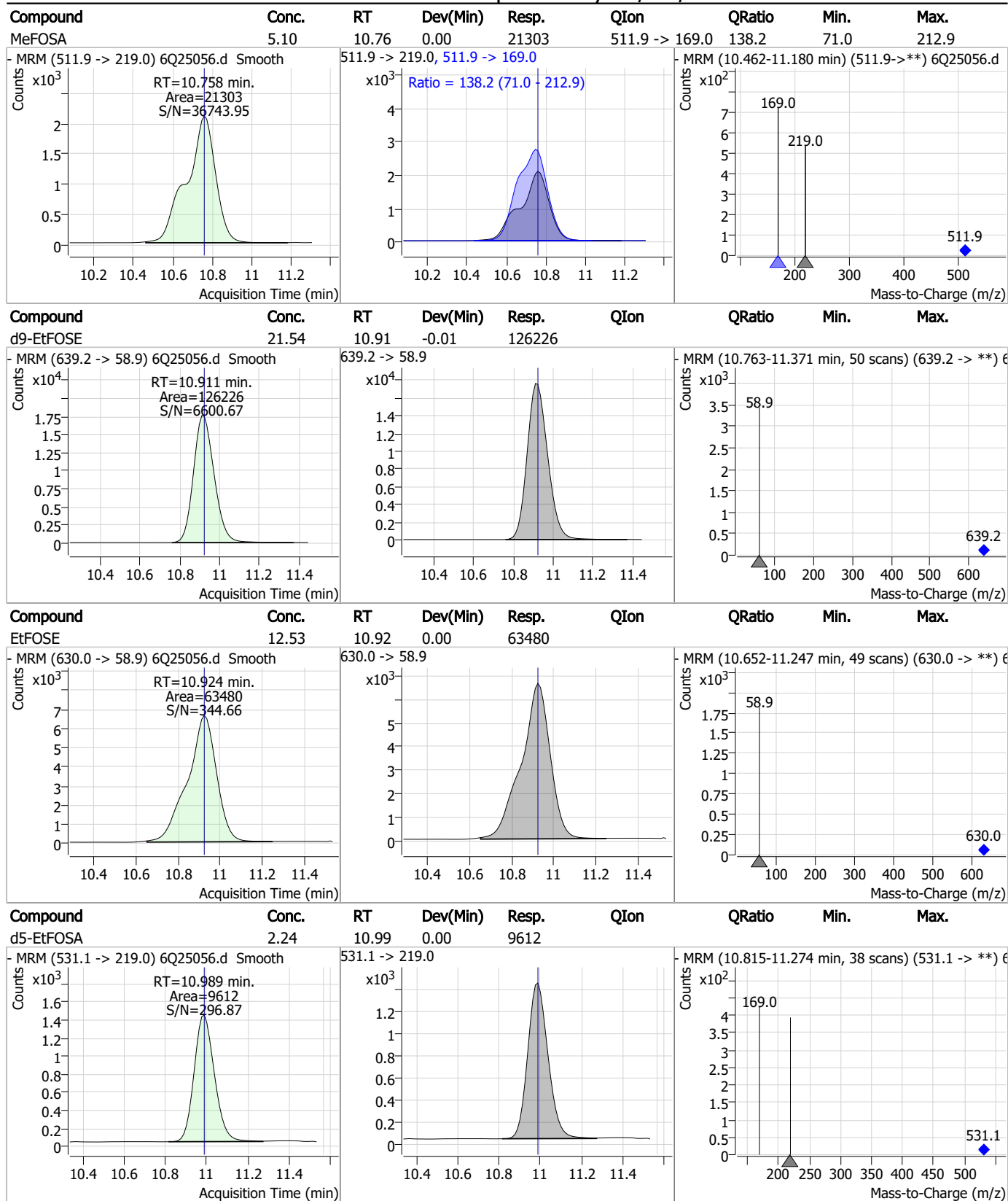
Perfluorinated Compounds by LC/MS/MS



7.7.29

7

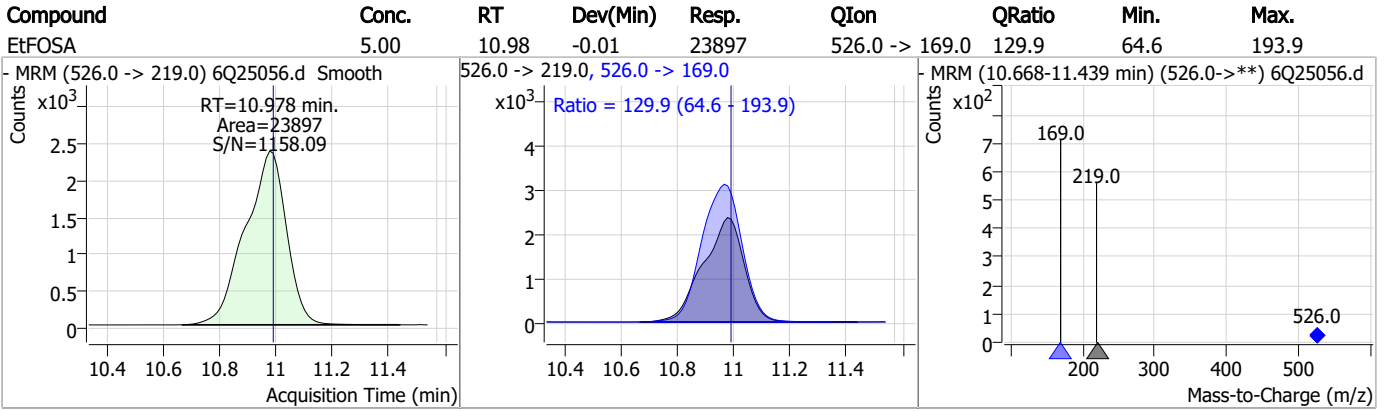
Perfluorinated Compounds by LC/MS/MS



7.7.29

7

Perfluorinated Compounds by LC/MS/MS



7.7.29

7

Manual Integration Approval Summary

Sample Number: S6Q357-CC356 Method: EPA DRAFT 1633
Lab FileID: 6Q25056.D Analyst approved: 09/26/23 15:45 Martha Valls
Injection Time: 09/25/23 23:33 Supervisor approved: 09/26/23 19:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.44	Split peak

7.7.29.1

7

SGS ORLANDO

DATE:	09/21/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_092123_S6Q355
CAL DATE:	09/21/23
ANALYST:	M. Valls AL
RUN BATCH:	S6Q355

ELUENT A LOT #:	ACN 232980
ELUENT B LOT #:	HPLC WATER:231331 W5% Acetonitrile: 232980 2mM AMAC.
IC/CC STD LOT #:	LCMS 2151-E
ICV STD LOT #:	LCMS 2151B/2159
ISTD/ID STD LOT #:	11966A/11967A

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q24772.d	P1-B9	CCB	1633full.m	Sample		OP99081.S6Q355.500,,,5.0,1,water	instrument shut off - recal
2	6Q24773.d	P1-B9	CCB	1633full.m	Sample		OP99081.S6Q355.500,,,5.0,1,water	instrument shut off - recal
3	6Q24774.d	P1-B3	RT TDCA	1633full.m	Sample		OP99081.S6Q355.500,,,5.0,1,water	instrument shut off - recal
4	6Q24775.d	P1-B4	RT BR-LN	1633full.m	Sample		OP99081.S6Q355.500,,,5.0,1,water	instrument shut off - recal
5	6Q24776.d	P1-A9	High Std	1633full.m	Sample		OP99081.S6Q355.500,,,5.0,1,water	instrument shut off - recal
6	6Q24777.d	P1-A1	IBLK	1633full.m	Sample		OP99081.S6Q355.500,,,5.0,1,water	instrument shut off - recal
7	6Q24778.d	P1-A5	cc347-4	1633full.m	QC	20/500	OP99081.S6Q355.500,,,5.0,1,water	instrument shut off - recal
8	6Q24779.d	P1-A2	cc347-1.0LL	1633full.m	QC	1.6/500	OP99081.S6Q355.500,,,5.0,1,water	instrument shut off - recal
9	6Q24780.d	P2-A1	OP99077-BS	1633full.m	Sample		OP99077.S6Q355.500,,,5.0,1,water	instrument shut off - recal
10	6Q24781.d	P2-A2	OP99077-LLBS:3	1633full.m	Sample		OP99077.S6Q355.500,,,5.0,1,water	instrument shut off - recal
11	6Q24782.d	P2-A3	OP99077-MB	1633full.m	Sample		OP99077.S6Q355.500,,,5.0,1,water	instrument shut off - recal
12	6Q24783.d	P2-A4	FC9604-1	1633full.m	Sample		OP99077.S6Q355.530,,,5.0,1,water	instrument shut off - recal
13	6Q24784.d	P2-A5	FC9604-2	1633full.m	Sample		OP99077.S6Q355.560,,,5.0,1,water	instrument shut off - recal
14	6Q24785.d	P2-A6	FC9604-3	1633full.m	Sample		OP99077.S6Q355.510,,,5.0,1,water	instrument shut off - recal
15	6Q24786.d	P2-A7	FC9604-4	1633full.m	Sample		OP99077.S6Q355.540,,,5.0,1,water	instrument shut off - recal
16	6Q24787.d	P2-A8	FC9604-5	1633full.m	Sample		OP99077.S6Q355.520,,,5.0,1,water	instrument shut off - recal
17	6Q24788.d	P2-A9	FC9604-6	1633full.m	Sample		OP99077.S6Q355.510,,,5.0,1,water	instrument shut off - recal
18	6Q24789.d	P2-B1	FC9604-7	1633full.m	Sample		OP99077.S6Q355.530,,,5.0,1,water	instrument shut off - recal
19	6Q24790.d	P1-A5	cc347-4	1633full.m	QC	20/500	OP99081.S6Q355.500,,,5.0,1,water	instrument shut off - recal
20	6Q24791.d	P1-A1	iccb	1633full.m	Sample		OP99081.S6Q355.500,,,5.0,1,water	instrument shut off - recal
21	6Q24792.d	P2-B2	FC9640-1	1633full.m	Sample		OP99077.S6Q355.570,,,5.0,1,water	instrument shut off - recal
22	6Q24793.d	P1-B9	CCB	1633full.m	Sample		OP99081.S6Q355.500,,,5.0,1,water	instrument shut off - recal
23	6Q24794.d	P1-B9	CCB	1633full.m	Sample		OP99081.S6Q355.500,,,5.0,1,water	instrument shut off - recal
24	6Q24795.d	P2-B3	OP99077-MS	1633full.m	Sample		OP99077.S6Q355.530,,,5.0,1,water	instrument shut off - recal
25	6Q24796.d	P2-B4	FC9640-2	1633full.m	Sample		OP99077.S6Q355.560,,,5.0,1,water	instrument shut off - recal
26	6Q24797.d	P2-B5	OP99077-DUP	1633full.m	Sample		OP99077.S6Q355.520,,,5.0,1,water	instrument shut off - recal
27	6Q24798.d	P2-B6	FC9666-1	1633full.m	Sample		OP99077.S6Q355.520,,,5.0,1,water	instrument shut off - recal
28	6Q24799.d	P2-B7	FC9666-2	1633full.m	Sample		OP99077.S6Q355.520,,,5.0,1,water	instrument shut off - recal
29	6Q24800.d	P2-B8	FC9666-3	1633full.m	Sample		OP99077.S6Q355.530,,,5.0,1,water	instrument shut off - recal
30	6Q24801.d	P2-B9	OP99032-MS	1633full.m	Sample		OP99077.S6Q355.520,,,5.0,1,water	instrument shut off - recal
31	6Q24802.d	P2-C1	OP99032-MSD	1633full.m	Sample		OP99032.S6Q355.4.95,,,5.0,1,SOIL	instrument shut off - recal
32	6Q24803.d	P1-A5	cc347-4	1633full.m	QC	20/500	OP99081.S6Q355.500,,,5.0,1,water	instrument shut off - recal
33	6Q24804.d	P1-A1	iccb	1633full.m	Sample		OP99081.S6Q355.500,,,5.0,1,water	instrument shut off - recal
34	6Q24805.d	P2-C2	OP99058-BS	1633full.m	Sample		OP99068.S6Q355.5.00,,,5.0,1,soil	instrument shut off - recal
35	6Q24806.d	P1-B9	CCB	1633full.m	Sample		OP99081.S6Q355.500,,,5.0,1,water	nd



SGS ORLANDO LCMS6-6Q ANALYSIS LOG

36	6Q24807.d	P1-B9	CCB	1633full.m	Sample	OP99081,S6Q355,500,,,5.0,1,water	nd
37	6Q24808.d	P1-B3	RT TDCA	1633full.m	Sample	OP99081,S6Q355,500,,,5.0,1,water	pass
38	6Q24809.d	P1-B4	RT BR-LN	1633full.m	Sample	OP99081,S6Q355,500,,,5.0,1,water	pass
39	6Q24810.d	P1-A1	ic355-0	1633full.m	Sample	OP99081,S6Q355,500,,,5.0,1,water	check tune file
40	6Q24811.d	P1-A2	ic355-1	1633full.m	Calibration	1.6/500	pass
41	6Q24812.d	P1-A3	ic355-2	1633full.m	Calibration	3.2/500	pass
42	6Q24813.d	P1-A4	ic355-3	1633full.m	Calibration	10/500	pass
43	6Q24814.d	P1-A5	icc355-4	1633full.m	Calibration	20/500	pass
44	6Q24815.d	P1-A6	ic355-5	1633full.m	Calibration	40/500	pass
45	6Q24816.d	P1-A7	ic355-6	1633full.m	Calibration	100/500	pass
46	6Q24817.d	P1-A8	ic355-7	1633full.m	Calibration	200/500	pass
47	6Q24818.d	P1-A9	ic355-8	1633full.m	Calibration	1x	pass
48	6Q24819.d	P1-A1	IBLK	1633full.m	Sample	OP99081,S6Q355,500,,,5.0,1,water	nd
49	6Q24820.d	P1-B1	icv355-4	1633full.m	QC	20/500	pass
50	6Q24821.d	P1-B2	icv355-20	1633full.m	QC	100/500	pass
51	6Q24822.d	P1-A5	cc355-4	1633full.m	QC	20/500	pass
52	6Q24823.d	P1-A2	cc355-1,0LL	1633full.m	QC	1.6/500	pass
53	6Q24824.d	P2-A1	OP99077-BS	1633full.m	Sample	OP99077,S6Q355,500,,,5.0,1,water	✓
54	6Q24825.d	P2-A2	OP99077-LLBS:3	1633full.m	Sample	OP99077,S6Q355,500,,,5.0,1,water	✓
55	6Q24826.d	P2-A3	OP99077-MB	1633full.m	Sample	OP99077,S6Q355,500,,,5.0,1,water	✓
56	6Q24827.d	P2-A4	FC9604-1	1633full.m	Sample	OP99077,S6Q355,530,,,5.0,1,water	✓
57	6Q24828.d	P2-A5	FC9604-2	1633full.m	Sample	OP99077,S6Q355,550,,,5.0,1,water	Redo to confirm
58	6Q24829.d	P2-A6	FC9604-3	1633full.m	Sample	OP99077,S6Q355,510,,,5.0,1,water	Redo to confirm
59	6Q24830.d	P2-A7	FC9604-4	1633full.m	Sample	OP99077,S6Q355,540,,,5.0,1,water	✓
60	6Q24831.d	P2-A8	FC9604-5	1633full.m	Sample	OP99077,S6Q355,520,,,5.0,1,water	✓
61	6Q24832.d	P2-A9	FC9604-6	1633full.m	Sample	OP99077,S6Q355,510,,,5.0,1,water	Redo to confirm
62	6Q24833.d	P2-B1	FC9604-7	1633full.m	Sample	OP99077,S6Q355,530,,,5.0,1,water	✓
63	6Q24834.d	P1-A5	cc355-4	1633full.m	QC	20/500	pass
64	6Q24835.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q355,500,,,5.0,1,water	nd
65	6Q24836.d	P2-B2	FC9640-1	1633full.m	Sample	OP99077,S6Q355,570,,,5.0,1,water	✓
66	6Q24837.d	P2-B3	OP99077-MS	1633full.m	Sample	OP99077,S6Q355,530,,,5.0,1,water	✓
67	6Q24838.d	P2-B4	FC9640-2	1633full.m	Sample	OP99077,S6Q355,550,,,5.0,1,water	✓
68	6Q24839.d	P2-B5	OP99077-DUP	1633full.m	Sample	OP99077,S6Q355,520,,,5.0,1,water	✓
69	6Q24840.d	P2-B6	FC9666-1	1633full.m	Sample	OP99077,S6Q355,520,,,5.0,1,water	✓
70	6Q24841.d	P2-B7	FC9666-2	1633full.m	Sample	OP99077,S6Q355,530,,,5.0,1,water	✓
71	6Q24842.d	P2-B8	FC9666-3	1633full.m	Sample	OP99077,S6Q355,520,,,5.0,1,water	✓
72	6Q24843.d	P2-B9	OP99032-MS	1633full.m	Sample	OP99032,S6Q355,4.95,,,5.0,1,SOIL	✓
73	6Q24844.d	P2-C1	OP99032-MSD	1633full.m	Sample	OP99032,S6Q355,5.03,,,5.0,1,SOIL	✓
74	6Q24845.d	P1-A5	cc355-4	1633full.m	QC	20/500	pass
75	6Q24846.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q355,500,,,5.0,1,water	nd
76	6Q24847.d	P2-C2	OP99058-BS	1633full.m	Sample	OP99058,S6Q355,500,,,5.0,1,water	✓
77	6Q24848.d	P2-C3	OP99058-LLBS:3	1633full.m	Sample	OP99058,S6Q355,5.00,,,5.0,1,soil	✓
78	6Q24849.d	P2-C4	OP99058-MB	1633full.m	Sample	OP99058,S6Q355,5.00,,,5.0,1,soil	✓



SGS ORLANDO LCMS6-6Q ANALYSIS LOG

79	6Q24850.d	P2-C5	FC9419-1	1633full.m	Sample	OP99058,S6Q355,5.01,,5.0,1,soil	✓
80	6Q24851.d	P2-C6	OP99058-MS	1633full.m	Sample	OP99058,S6Q355,5.00,,5.0,1,soil	✓
81	6Q24852.d	P2-C7	OP99058-MSD	1633full.m	Sample	OP99058,S6Q355,4.96,,5.0,1,soil	✓
82	6Q24853.d	P2-C8	FC9419-2	1633full.m	Sample	OP99058,S6Q355,5.04,,5.0,1,soil	✓
83	6Q24854.d	P2-C9	FC9419-2	1633full.m	Sample	OP99058,S6Q355,5.04,,5.0,5,soil	✓
84	6Q24855.d	P2-D1	FC9419-3	1633full.m	Sample	OP99058,S6Q355,5.03,,5.0,1,soil	✓
85	6Q24856.d	P2-D2	FC9419-4	1633full.m	Sample	OP99058,S6Q355,5.04,,5.0,1,soil	✓
86	6Q24857.d	P1-A5	cc355-4	1633full.m	QC	OP99081,S6Q355,5.00,,5.0,1,water	pass
87	6Q24858.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q355,5.00,,5.0,1,water	nd
88	6Q24859.d	P2-D3	FC9419-5	1633full.m	Sample	OP99058,S6Q355,4.95,,5.0,1,soil	✓
89	6Q24860.d	P2-D4	FC9419-5	1633full.m	Sample	OP99058,S6Q355,4.95,,5.0,2,soil	✓
90	6Q24861.d	P2-D5	FC9419-6	1633full.m	Sample	OP99058,S6Q355,4.99,,5.0,1,soil	✓
91	6Q24862.d	P2-D6	FC9419-7	1633full.m	Sample	OP99058,S6Q355,5.01,,5.0,1,soil	✓
92	6Q24863.d	P2-D7	FC9419-7	1633full.m	Sample	OP99058,S6Q355,5.01,,5.0,10,soil	✓
93	6Q24864.d	P2-D8	FC9419-8	1633full.m	Sample	OP99058,S6Q355,5.03,,5.0,1,soil	✓
94	6Q24865.d	P2-D9	FC9419-8	1633full.m	Sample	OP99058,S6Q355,5.03,,5.0,5,soil	✓
95	6Q24866.d	P2-E1	FC9419-9	1633full.m	Sample	OP99058,S6Q355,5.01,,5.0,1,soil	✓
96	6Q24867.d	P2-E2	FC9419-10	1633full.m	Sample	OP99058,S6Q355,4.95,,5.0,1,soil	✓
97	6Q24868.d	P2-E3	FC9419-10	1633full.m	Sample	OP99058,S6Q355,4.95,,5.0,10,soil	✓
98	6Q24869.d	P1-A5	cc355-4	1633full.m	QC	OP99081,S6Q355,5.00,,5.0,1,water	pass
99	6Q24870.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q355,5.00,,5.0,1,water	nd
100	6Q24871.d	P2-E4	FC9419-11	1633full.m	Sample	OP99058,S6Q355,0.98,,5.0,1,soil	✓
101	6Q24872.d	P2-E5	FC9419-11	1633full.m	Sample	OP99058,S6Q355,0.98,,5.0,10,soil	✓
102	6Q24873.d	P2-E6	FC9419-12	1633full.m	Sample	OP99058,S6Q355,5.05,,5.0,1,soil	✓
103	6Q24874.d	P2-E7	FC9419-13	1633full.m	Sample	OP99058,S6Q355,0.98,,5.0,1,soil	✓
104	6Q24875.d	P2-E8	FC9419-13	1633full.m	Sample	OP99058,S6Q355,0.98,,5.0,10,soil	✓
105	6Q24876.d	P2-E9	FC9419-14	1633full.m	Sample	OP99058,S6Q355,4.98,,5.0,1,soil	✓
106	6Q24877.d	P2-F1	FC9419-14	1633full.m	Sample	OP99058,S6Q355,4.98,,5.0,5,soil	✓
107	6Q24878.d	P2-F2	FC9419-15	1633full.m	Sample	OP99058,S6Q355,4.98,,5.0,1,soil	✓
108	6Q24879.d	P5-D1	op99081-mb	1633full.m	Sample	OP99081,S6Q355,5.00,,5.0,1,soil	✓
109	6Q24880.d	P1-A5	cc355-4	1633full.m	QC	OP99081,S6Q355,5.00,,5.0,1,water	pass
110	6Q24881.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q355,5.00,,5.0,1,water	nd
111	6Q24882.d	P2-F3	OP99102-BS	1633full.m	Sample	OP99102,S6Q355,5.00,,5.0,1,water	✓
112	6Q24883.d	P2-F4	OP99102-LLBS:3	1633full.m	Sample	OP99102,S6Q355,5.00,,5.0,1,water	✓
113	6Q24884.d	P2-F5	OP99102-MB	1633full.m	Sample	OP99102,S6Q355,5.00,,5.0,1,water	✓
114	6Q24885.d	P2-F6	FC9579-7	1633full.m	Sample	OP99102,S6Q355,5.20,,5.0,1,water	✓
115	6Q24886.d	P2-F7	FC9579-8	1633full.m	Sample	OP99102,S6Q355,4.70,,5.0,1,water	✓
116	6Q24887.d	P2-F8	FC9579-9	1633full.m	Sample	OP99102,S6Q355,5.20,,5.0,1,water	✓
117	6Q24888.d	P2-F9	FC9580-1	1633full.m	Sample	OP99102,S6Q355,4.70,,5.0,1,water	✓
118	6Q24889.d	P3-A1	FC9580-2	1633full.m	Sample	OP99102,S6Q355,4.70,,5.0,1,water	✓
119	6Q24890.d	P3-A2	OP99102-MS	1633full.m	Sample	OP99102,S6Q355,5.00,,5.0,1,water	✓
120	6Q24891.d	P3-A5	FC9580-4	1633full.m	Sample	OP99102,S6Q355,5.05,,5.0,1,water	lst fail high, r110x + Redo lower volume
121	6Q24892.d	P1-A5	cc355-4	1633full.m	QC	OP99081,S6Q355,5.00,,5.0,1,water	pass



SGS ORLANDO LCMS6-6Q ANALYSIS LOG

122	6Q24893.d	P1-A1	iccb	1633full.m	Sample	OP99081.S6Q355.500,,,5.0,1,water	nd
123	6Q24894.d	P3-A3	FC9580-3	1633full.m	Sample	OP99102.S6Q355.475,,,5.0,1,water	rr10x + Redo lower volume
124	6Q24895.d	P3-A4	OP99102-DUP	1633full.m	Sample	OP99102.S6Q355.480,,,5.0,1,water	rr10x
125	6Q24896.d	P3-A6	FC9580-5	1633full.m	Sample	OP99102.S6Q355.510,,,5.0,1,water	rr1x co
126	6Q24897.d	P3-A7	FC9580-6	1633full.m	Sample	OP99102.S6Q355.480,,,5.0,1,water	rr10x
127	6Q24898.d	P3-A8	FC9580-7	1633full.m	Sample	OP99102.S6Q355.480,,,5.0,1,water	rr1x co
128	6Q24899.d	P3-A9	FC9642-1	1633full.m	Sample	OP99102.S6Q355.530,,,5.0,1,water	✓
129	6Q24900.d	P3-B1	FC9642-2	1633full.m	Sample	OP99102.S6Q355.520,,,5.0,1,water	✓
130	6Q24901.d	P3-B2	FC9642-3	1633full.m	Sample	OP99102.S6Q355.510,,,5.0,1,water	✓
131	6Q24902.d	P3-B3	FC9642-4	1633full.m	Sample	OP99102.S6Q355.525,,,5.0,1,water	✓
132	6Q24903.d	P3-B4	FC9642-5	1633full.m	Sample	OP99102.S6Q355.490,,,5.0,1,water	✓
133	6Q24904.d	P1-A5	Ecc355-4	1633full.m	QC	20/500	pass
134	6Q24905.d	P1-A1	iccb	1633full.m	Sample	OP99081.S6Q355.500,,,5.0,1,water	nd



SGS ORLANDO

DATE:	09/24/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_092423_S6Q356
CAL DATE:	09/24/23
ANALYST:	M. Valls
RUN BATCH:	S6Q356

ELUENT A LOT #:	ACN 232980
ELUENT B LOT #:	HPLC WATER: 232305 W5% Acetonitrile: 232980 2mM AMAC
IC/CC STD LOT #:	LCMS 2192-E
ICV STD LOT #:	LCMS 2192E/2180
ISTD/ID STD LOT #:	11987F/11988-I

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q24906.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
2	6Q24907.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
3	6Q24908.d	P1-B3	RT TDCA	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
4	6Q24909.d	P1-B4	RT BR-LN	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
5	6Q24910.d	P1-A9	High Std	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
6	6Q24911.d	P1-A1	IBLK	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
7	6Q24912.d	P1-A5	cc355-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	HIGH, Recalibrate
8	6Q24913.d	P1-A2	cc355-1.0LL	1633full.m	QC	1.6/500	OP99081,S6Q356,500,,,5.0,1,water	↓
9	6Q24914.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
10	6Q24915.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
11	6Q24916.d	P1-B3	RT TDCA	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
12	6Q24917.d	P1-B4	RT BR-LN	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
13	6Q24918.d	P1-A1	ic356-0	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
14	6Q24919.d	P1-A2	ic356-1	1633full.m	Calibration	1.6/500	OP99081,S6Q356,500,,,5.0,1,water	✓
15	6Q24920.d	P1-A3	ic356-2	1633full.m	Calibration	3.2/500	OP99081,S6Q356,500,,,5.0,1,water	✓
16	6Q24921.d	P1-A4	ic356-3	1633full.m	Calibration	10/500	OP99081,S6Q356,500,,,5.0,1,water	✓
17	6Q24922.d	P1-A5	ic356-4	1633full.m	Calibration	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
18	6Q24923.d	P1-A6	ic356-5	1633full.m	Calibration	40/500	OP99081,S6Q356,500,,,5.0,1,water	✓
19	6Q24924.d	P1-A7	ic356-6	1633full.m	Calibration	100/500	OP99081,S6Q356,500,,,5.0,1,water	✓
20	6Q24925.d	P1-A8	ic356-7	1633full.m	Calibration	200/500	OP99081,S6Q356,500,,,5.0,1,water	✓
21	6Q24926.d	P1-A9	ic356-8	1633full.m	Calibration	1x	OP99081,S6Q356,500,,,5.0,1,water	✓
22	6Q24927.d	P1-A1	IBLK	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
23	6Q24928.d	P1-B1	icv356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
24	6Q24929.d	P1-B2	icv356-20	1633full.m	QC	100/500	OP99081,S6Q356,500,,,5.0,1,water	✓
25	6Q24930.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
26	6Q24931.d	P1-A2	cc356-1.0LL	1633full.m	QC	1.6/500	OP99081,S6Q356,500,,,5.0,1,water	✓
27	6Q24932.d	P3-C1	FC9580-5	1633full.m	Sample		OP99102,S6Q356,510,,,5.0,1,water	✓
28	6Q24933.d	P3-C2	FC9580-7	1633full.m	Sample		OP99102,S6Q356,480,,,5.0,1,water	✓
29	6Q24934.d	P3-C3	FC9580-6	1633full.m	Sample	50/500	OP99102,S6Q356,480,,,5.0,10,water	✓
30	6Q24935.d	P3-C4	FC9580-4	1633full.m	Sample	50/500	OP99102,S6Q356,505,,,5.0,10,water	redc lower volume
31	6Q24936.d	P3-C5	FC9580-3	1633full.m	Sample	50/500	OP99102,S6Q356,475,,,5.0,10,water	redc lower volume
32	6Q24937.d	P3-C6	OP99102-DUP	1633full.m	Sample	50/500	OP99102,S6Q356,480,,,5.0,10,water	✓
33	6Q24938.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
34	6Q24939.d	P1-A1	iccb	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
35	6Q24940.d	P3-C7	op99134-bs	1633full.m	Sample		OP99134,S6Q356,5.00,,,5.0,1,soil	✓

LCMS6-6Q ANALYSIS LOG

SGS ORLANDO

36	6Q24941.d	P3-C8	op99134-llbs:3	1633full.m	Sample	OP99134,S6Q356,5.00,,,5.0,1,soil	✓
37	6Q24942.d	P3-C9	op99134-MB	1633full.m	Sample	OP99134,S6Q356,5.00,,,5.0,1,soil	✓
38	6Q24943.d	P3-D1	FC9131-8	1633full.m	Sample	OP99134,S6Q356,0.96,,,5.0,1,soil	✓ + RR5X pfos
39	6Q24944.d	P4-F8	op99134-MS	1633full.m	Sample	OP99134,S6Q356,1.02,,,5.0,1,soil	RR5X
40	6Q24945.d	P4-F9	op99134-MSD	1633full.m	Sample	OP99134,S6Q356,1.02,,,5.0,1,soil	RR5X
41	6Q24946.d	P3-D2	FC9131-9	1633full.m	Sample	OP99134,S6Q356,0.98,,,5.0,1,soil	✓ + RR5X pfos
42	6Q24947.d	P3-D3	FC9222-9	1633full.m	Sample	OP99134,S6Q356,0.98,,,5.0,1,soil	✓ + RR5X pfos
43	6Q24948.d	P3-D4	FC9222-10	1633full.m	Sample	OP99134,S6Q356,1.04,,,5.0,1,soil	✓ + RR10X pfos
44	6Q24949.d	P3-D5	FC9222-11	1633full.m	Sample	OP99134,S6Q356,0.98,,,5.0,1,soil	✓ + RR5X pfos
45	6Q24950.d	P1-A5	cc356-4	1633full.m	QC	OP99081,S6Q356,500,,,5.0,1,water	✓
46	6Q24951.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q356,500,,,5.0,1,water	✓
47	6Q24952.d	P3-D6	OP99155-BS	1633full.m	Sample	OP99155,S6Q356,500,,,5.0,1,water	✓
48	6Q24953.d	P3-D7	OP99155-Llbs:3	1633full.m	Sample	OP99155,S6Q356,500,,,5.0,1,water	✓
49	6Q24954.d	P3-D8	OP99155-MB	1633full.m	Sample	OP99155,S6Q356,500,,,5.0,1,water	✓
50	6Q24955.d	P3-D9	FC9406-4	1633full.m	Sample	OP99155,S6Q356,510,,,5.0,1,water	✓ + RR5X HxS
51	6Q24956.d	P3-E1	FC9406-5	1633full.m	Sample	OP99155,S6Q356,515,,,5.0,1,water	✓ + RR2X HxS
52	6Q24957.d	P3-E2	FC9440-2	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,1,water	✓
53	6Q24958.d	P3-E3	FC9440-2	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,10,water	✓
54	6Q24959.d	P3-E4	FC9440-6	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,1,water	✓
55	6Q24960.d	P3-E5	FC9440-6	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,10,water	✓
56	6Q24961.d	P1-A5	cc356-4	1633full.m	QC	OP99081,S6Q356,500,,,5.0,1,water	✓
57	6Q24962.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q356,500,,,5.0,1,water	✓
58	6Q24963.d	P3-E6	FC9440-7	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,1,water	✓
59	6Q24964.d	P3-E7	FC9440-7	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,10,water	✓
60	6Q24965.d	P3-E8	FC9440-8	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,1,water	✓
61	6Q24966.d	P3-E9	FC9440-8	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,10,water	✓
62	6Q24967.d	P3-F1	FC9440-9	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,1,water	✓
63	6Q24968.d	P3-F2	FC9440-9	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,10,water	✓
64	6Q24969.d	P1-A5	cc356-4	1633full.m	QC	OP99081,S6Q356,500,,,5.0,1,water	✓
65	6Q24970.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q356,500,,,5.0,1,water	✓
66	6Q24971.d	P3-F3	OP99128-BS	1633full.m	Sample	OP99128,S6Q356,500,,,5.0,1,water	✓
67	6Q24972.d	P3-F4	OP99128-Llbs:3	1633full.m	Sample	OP99128,S6Q356,500,,,5.0,1,water	✓
68	6Q24973.d	P3-F5	OP99128-MB	1633full.m	Sample	OP99128,S6Q356,500,,,5.0,1,water	✓
69	6Q24974.d	P3-F6	FC9163-5	1633full.m	Sample	OP99128,S6Q356,540,,,5.0,1,water	✓
70	6Q24975.d	P3-F7	FC9720-1	1633full.m	Sample	OP99128,S6Q356,530,,,5.0,1,water	✓
71	6Q24976.d	P3-F8	OP99128-MS	1633full.m	Sample	OP99128,S6Q356,520,,,5.0,1,water	✓
72	6Q24977.d	P3-F9	FC9720-2	1633full.m	Sample	OP99128,S6Q356,520,,,5.0,1,water	✓
73	6Q24978.d	P4-A1	OP99128-DUP	1633full.m	Sample	OP99128,S6Q356,560,,,5.0,1,water	✓
74	6Q24979.d	P1-A5	cc356-4	1633full.m	QC	OP99081,S6Q356,500,,,5.0,1,water	✓
75	6Q24980.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q356,500,,,5.0,1,water	✓
76	6Q24981.d	P4-A2	OP99106-BS	1633full.m	Sample	OP99106,S6Q356,500,,,5.0,1,water	✓
77	6Q24982.d	P4-A3	OP99106-Llbs:2	1633full.m	Sample	OP99106,S6Q356,500,,,5.0,1,water	✓
78	6Q24983.d	P4-A4	OP99106-MB	1633full.m	Sample	OP99106,S6Q356,500,,,5.0,1,water	✓

SGS ORLANDO LCMS6-6Q ANALYSIS LOG

79	6Q24984.d	P4-A5	FC9487-1	1633full.m	Sample	50/500	OP99106,S6Q356,515,,,5.0,1,water	✓
80	6Q24985.d	P4-A6	FC9487-1	1633full.m	Sample	50/500	OP99106,S6Q356,515,,,5.0,10,water	✓
81	6Q24986.d	P4-A7	FC9487-2	1633full.m	Sample		OP99106,S6Q356,505,,,5.0,1,water	✓
82	6Q24987.d	P4-A8	FC9487-2	1633full.m	Sample	50/500	OP99106,S6Q356,505,,,5.0,10,water	✓
83	6Q24988.d	P4-A9	FC9639-2	1633full.m	Sample		OP99106,S6Q356,515,,,5.0,1,water	✓
84	6Q24989.d	P4-B1	FC9639-2	1633full.m	Sample	50/500	OP99106,S6Q356,515,,,5.0,10,water	✓
85	6Q24990.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
86	6Q24991.d	P1-A1	iccb	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
87	6Q24992.d	P4-B2	FC9639-3	1633full.m	Sample		OP99106,S6Q356,535,,,5.0,1,water	Surr fail low. Redo
88	6Q24993.d	P4-B3	FC9639-3	1633full.m	Sample	50/500	OP99106,S6Q356,535,,,5.0,10,water	↓
89	6Q24994.d	P4-B4	FC9639-4	1633full.m	Sample		OP99106,S6Q356,505,,,5.0,1,water	↓
90	6Q24995.d	P4-B5	FC9639-4	1633full.m	Sample	50/500	OP99106,S6Q356,505,,,5.0,10,water	↓
91	6Q24996.d	P4-B6	FC9639-5	1633full.m	Sample		OP99106,S6Q356,495,,,5.0,1,water	✓
92	6Q24997.d	P4-B7	FC9639-5	1633full.m	Sample	50/500	OP99106,S6Q356,495,,,5.0,10,water	✓
93	6Q24998.d	P4-B8	OP99106-MS	1633full.m	Sample	50/500	OP99106,S6Q356,505,,,5.0,10,water	✓
94	6Q24999.d	P4-B9	OP99106-MSD	1633full.m	Sample	50/500	OP99106,S6Q356,505,,,5.0,10,water	✓
95	6Q25000.d	P4-C1	FC9639-6	1633full.m	Sample		OP99106,S6Q356,520,,,5.0,1,water	✓
96	6Q25001.d	P4-C2	FC9610-1	1633full.m	Sample		OP99106,S6Q356,515,,,5.0,1,water	Surr fail low. Redo
97	6Q25002.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
98	6Q25003.d	P1-A1	iccb	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
99	6Q25004.d	P4-C3	OP99084-BS	1633full.m	Sample		OP99084,S6Q356,5.00,,,5.0,1,soil	✓
100	6Q25005.d	P4-C4	OP99084-LLBS:2	1633full.m	Sample		OP99084,S6Q356,5.00,,,5.0,1,soil	✓
101	6Q25006.d	P4-C5	OP99084-MB	1633full.m	Sample		OP99084,S6Q356,5.00,,,5.0,1,soil	✓
102	6Q25007.d	P4-C6	FC9462-1	1633full.m	Sample		OP99084,S6Q356,5.01,,,5.0,1,soil	✓
103	6Q25008.d	P4-C7	FC9462-2	1633full.m	Sample		OP99084,S6Q356,4.98,,,5.0,1,soil	✓
104	6Q25009.d	P4-C8	FC9462-3	1633full.m	Sample		OP99084,S6Q356,5.01,,,5.0,1,soil	✓
105	6Q25010.d	P4-C9	FC9462-4	1633full.m	Sample		OP99084,S6Q356,5.00,,,5.0,1,soil	✓
106	6Q25011.d	P4-D1	OP99084-MS	1633full.m	Sample		OP99084,S6Q356,5.02,,,5.0,1,soil	✓
107	6Q25012.d	P4-D2	OP99084-MSD	1633full.m	Sample		OP99084,S6Q356,5.00,,,5.0,1,soil	✓
108	6Q25013.d	P4-D3	FC9462-5	1633full.m	Sample		OP99084,S6Q356,4.95,,,5.0,1,soil	✓
109	6Q25014.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
110	6Q25015.d	P1-A1	iccb	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
111	6Q25016.d	P3-B5	FC9131-8	1633full.m	Sample	100/500	OP99134,S6Q356,0.96,,,5.0,5,soil	> than 24 hr. RR
112	6Q25017.d	P3-B6	op99134-MS	1633full.m	Sample	100/500	OP99134,S6Q356,1.02,,,5.0,5,soil	↓
113	6Q25018.d	P3-B7	op99134-MSD	1633full.m	Sample	100/500	OP99134,S6Q356,1.02,,,5.0,5,soil	↓
114	6Q25019.d	P3-B8	FC9131-9	1633full.m	Sample	100/500	OP99134,S6Q356,1.01,,,5.0,5,soil	↓
115	6Q25020.d	P1-B3	RT TDCA	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
116	6Q25021.d	P1-B4	RT BR-LN	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
117	6Q25022.d	P1-A9	High Std	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
118	6Q25023.d	P1-A1	IBLK	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
119	6Q25024.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
120	6Q25025.d	P1-A2	cc356-1.0LL	1633full.m	QC	1.6/500	OP99081,S6Q356,500,,,5.0,1,water	✓
121	6Q25026.d	P3-B5	FC9131-8	1633full.m	Sample	100/500	OP99134,S6Q356,0.96,,,5.0,5,soil	✓

SGS ORLANDO LCMS6-6Q ANALYSIS LOG

122	6Q25027.d	P3-B6	op99134-MS	1633full.m	Sample	100/500	OP99134,S6Q356,1.02,,,5.0,5.soil	✓
123	6Q25028.d	P3-B7	op99134-MSD	1633full.m	Sample	100/500	OP99134,S6Q356,1.02,,,5.0,5.soil	✓
124	6Q25029.d	P3-B8	FC9131-9	1633full.m	Sample	100/500	OP99134,S6Q356,1.01,,,5.0,5.soil	✓
125	6Q25030.d	P3-B9	FC9222-9	1633full.m	Sample	100/500	OP99134,S6Q356,0.98,,,5.0,5.soil	✓
126	6Q25031.d	P1-A8	FC9222-10	1633full.m	Sample	50/500	OP99134,S6Q356,1.04,,,5.0,10.soil	RR wrong position
127	6Q25032.d	P4-E3	FC9222-11	1633full.m	Sample	100/500	OP99134,S6Q356,0.96,,,5.0,5.soil	RR wrong position
128	6Q25033.d	P3-B5	FC9131-8	1633full.m	Sample	100/500	OP99134,S6Q356,0.96,,,5.0,5.soil	not use.
129	6Q25034.d	P4-D4	FC9406-4	1633full.m	Sample	100/500	OP99155,S6Q356,5.10,,,5.0,5.water	✓
130	6Q25035.d	P4-D5	FC9406-5	1633full.m	Sample	250/500	OP99155,S6Q356,5.15,,,5.0,2.water	✓
131	6Q25036.d	P1-A5	Ecc356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1.water	✓
132	6Q25037.d	P1-A1	iccb	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1.water	✓
133	6Q25038.d	P1-C1	Test new spike	1633full.m	Sample	20/500	OP99081,S6Q356,500,,,5.0,1.water	LCMS 2192-A
134	6Q25039.d	P1-C2	Test new spike	1633full.m	Sample	20/500	OP99081,S6Q356,500,,,5.0,1.water	LCMS 2192-B
135	6Q25040.d	P1-C3	Test new spike	1633full.m	Sample	20/500	OP99081,S6Q356,500,,,5.0,1.water	LCMS 2192-C
136	6Q25041.d	P1-C4	Test new spike	1633full.m	Sample	20/500	OP99081,S6Q356,500,,,5.0,1.water	LCMS 2192-E

SGS ORLANDO

DATE:	09/25/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_092423_S6Q356
CAL DATE:	09/24/23
ANALYST:	M. Valls
RUN BATCH:	S6Q357

ELUENT A LOT #:	ACN 232980
ELUENT B LOT #:	HPLC WATER: 232305 W5% Acetonitrile: 232980 2mM AMAC.
IC/CC STD LOT #:	LCMS 2192-E
ICV STD LOT #:	LCMS 2192E/2180
ISTD/ID STD LOT #:	11987F/11988-I

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
137	6Q25042.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q357,500,,,5.0,1,water	✓
138	6Q25043.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q357,500,,,5.0,1,water	✓
139	6Q25044.d	P1-B3	RT TDCA	1633full.m	Sample		OP99081,S6Q357,500,,,5.0,1,water	✓
140	6Q25045.d	P1-B4	RT BR-LN	1633full.m	Sample		OP99081,S6Q357,500,,,5.0,1,water	✓
141	6Q25046.d	P1-A9	High Std	1633full.m	Sample		OP99081,S6Q357,500,,,5.0,1,water	✓
142	6Q25047.d	P1-A1	IBLK	1633full.m	Sample		OP99081,S6Q357,500,,,5.0,1,water	✓
143	6Q25048.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q357,500,,,5.0,1,water	✓
144	6Q25049.d	P1-A2	cc356-1.0LL	1633full.m	QC	1.6/500	OP99081,S6Q357,500,,,5.0,1,water	✓
145	6Q25050.d	P5-E4	OP99174-BS	1633full.m	Sample		OP99174,S6Q357,500,,,5.0,1,water	✓
146	6Q25051.d	P5-E5	OP99174-LLBS:3	1633full.m	Sample		OP99174,S6Q357,500,,,5.0,1,water	✓
147	6Q25052.d	P5-E6	OP99174-MB	1633full.m	Sample		OP99174,S6Q357,500,,,5.0,1,water	✓
148	6Q25053.d	P5-E7	FC9604-2	1633full.m	Sample		OP99174,S6Q357,520,,,5.0,1,water	✓
149	6Q25054.d	P5-E8	FC9604-3	1633full.m	Sample		OP99174,S6Q357,490,,,5.0,1,water	✓
150	6Q25055.d	P5-E9	FC9604-6	1633full.m	Sample		OP99174,S6Q357,520,,,5.0,1,water	✓
151	6Q25056.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q357,500,,,5.0,1,water	✓
152	6Q25057.d	P1-A1	iccb	1633full.m	Sample		OP99081,S6Q357,500,,,5.0,1,water	✓
153	6Q25058.d	P5-A1	OP99135-BS	1633full.m	Sample		OP99135,S6Q357,5.00,,,5.0,1,soil	✓
154	6Q25059.d	P5-A2	OP99135-LLBS:3	1633full.m	Sample		OP99135,S6Q357,5.00,,,5.0,1,soil	✓
155	6Q25060.d	P5-A3	OP99135-MB	1633full.m	Sample		OP99135,S6Q357,5.00,,,5.0,1,soil	✓
156	6Q25061.d	P5-A4	FC9414-1	1633full.m	Sample		OP99135,S6Q357,5.03,,,5.0,1,soil	✓ + r1x pfos
157	6Q25062.d	P5-A5	OP99135-MS	1633full.m	Sample		OP99135,S6Q357,4.96,,,5.0,1,soil	r1x
158	6Q25063.d	P5-A6	OP99135-MSD	1633full.m	Sample		OP99135,S6Q357,5.02,,,5.0,1,soil	r1x
159	6Q25064.d	P5-A7	FC9414-2	1633full.m	Sample		OP99135,S6Q357,4.96,,,5.0,1,soil	✓ + r15x pfos
160	6Q25065.d	P5-A8	FC9414-3	1633full.m	Sample		OP99135,S6Q357,5.02,,,5.0,1,soil	r1x co
161	6Q25066.d	P5-A9	FC9414-4	1633full.m	Sample		OP99135,S6Q357,5.02,,,5.0,1,soil	✓
162	6Q25067.d	P5-B1	FC9414-5	1633full.m	Sample		OP99135,S6Q357,5.02,,,5.0,1,soil	✓
163	6Q25068.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q357,500,,,5.0,1,water	✓
164	6Q25069.d	P1-A1	iccb	1633full.m	Sample		OP99081,S6Q357,500,,,5.0,1,water	✓
165	6Q25070.d	P5-B2	FC9414-6	1633full.m	Sample		OP99135,S6Q357,5.03,,,5.0,1,soil	✓
166	6Q25071.d	P5-B3	FC9737-1	1633full.m	Sample		OP99135,S6Q357,5.04,,,5.0,1,soil	✓
167	6Q25072.d	P5-B4	FC9737-2	1633full.m	Sample		OP99135,S6Q357,5.03,,,5.0,1,soil	✓
168	6Q25073.d	P5-B5	FC9737-3	1633full.m	Sample		OP99135,S6Q357,4.96,,,5.0,1,soil	✓
169	6Q25074.d	P5-B6	FC9737-4	1633full.m	Sample		OP99135,S6Q357,5.02,,,5.0,1,soil	✓
170	6Q25075.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q357,500,,,5.0,1,water	✓
171	6Q25076.d	P1-A1	iccb	1633full.m	Sample		OP99081,S6Q357,500,,,5.0,1,water	✓



SGS ORLANDO LCMS6-6Q ANALYSIS LOG

172	6Q25077.d	P5-B7	OP99100-BS	1633full.m	Sample	OP99100,S6Q357,500,,,5.0,1,water	✓
173	6Q25078.d	P5-B8	OP99100-LLBS:3	1633full.m	Sample	OP99100,S6Q357,500,,,5.0,1,water	✓
174	6Q25079.d	P5-B9	OP99100-MB	1633full.m	Sample	OP99100,S6Q357,500,,,5.0,1,water	✓
175	6Q25080.d	P5-C1	FC9469-1	1633full.m	Sample	OP99100,S6Q357,520,,,5.0,1,water	✓
176	6Q25081.d	P5-C2	FC9469-2	1633full.m	Sample	OP99100,S6Q357,540,,,5.0,1,water	✓
177	6Q25082.d	P5-C3	FC9469-3	1633full.m	Sample	OP99100,S6Q357,520,,,5.0,1,water	✓
178	6Q25083.d	P5-C4	FC9469-4	1633full.m	Sample	OP99100,S6Q357,540,,,5.0,1,water	✓
179	6Q25084.d	P5-C5	FC9469-5	1633full.m	Sample	OP99100,S6Q357,540,,,5.0,1,water	✓
180	6Q25085.d	P5-C6	FC9469-6	1633full.m	Sample	OP99100,S6Q357,530,,,5.0,1,water	✓
181	6Q25086.d	P1-A5	cc356-4	1633full.m	QC	OP99081,S6Q357,500,,,5.0,1,water	✓
182	6Q25087.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q357,500,,,5.0,1,water	✓
183	6Q25088.d	P5-C7	FC9469-7	1633full.m	Sample	OP99100,S6Q357,540,,,5.0,1,water	✓
184	6Q25089.d	P5-C8	OP99100-MS	1633full.m	Sample	OP99100,S6Q357,540,,,5.0,1,water	✓
185	6Q25090.d	P5-C9	OP99100-MSD	1633full.m	Sample	OP99100,S6Q357,540,,,5.0,1,water	✓
186	6Q25091.d	P5-D1	FC9469-8	1633full.m	Sample	OP99100,S6Q357,540,,,5.0,1,water	✓
187	6Q25092.d	P5-D2	FC9469-9	1633full.m	Sample	OP99100,S6Q357,540,,,5.0,1,water	✓
188	6Q25093.d	P5-D3	FC9469-10	1633full.m	Sample	OP99100,S6Q357,510,,,5.0,1,water	✓
189	6Q25094.d	P5-D4	FC9469-11	1633full.m	Sample	OP99100,S6Q357,520,,,5.0,1,water	✓
190	6Q25095.d	P5-D5	FC9469-12	1633full.m	Sample	OP99100,S6Q357,530,,,5.0,1,water	✓
191	6Q25096.d	P5-D6	FC9469-13	1633full.m	Sample	OP99100,S6Q357,540,,,5.0,1,water	✓
192	6Q25097.d	P5-D7	FC9469-14	1633full.m	Sample	OP99100,S6Q357,540,,,5.0,1,water	✓
193	6Q25098.d	P1-A5	cc356-4	1633full.m	QC	OP99081,S6Q357,500,,,5.0,1,water	✓
194	6Q25099.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q357,500,,,5.0,1,water	✓
200	6Q25105.d	P3-A8	FC9222-10	1633full.m	Sample	OP99134,S6Q357,1,04,,,5.0,10,soil	✓
201	6Q25106.d	P3-A9	FC9222-11	1633full.m	Sample	OP99134,S6Q357,0,98,,,5.0,5,soil	✓
202	6Q25107.d	P4-D6	FC9414-1	1633full.m	Sample	OP99135,S6Q357,5,03,,,5.0,2,soil	✓
203	6Q25108.d	P4-D7	OP99135-MS	1633full.m	Sample	OP99135,S6Q357,4,96,,,5.0,2,soil	✓
204	6Q25109.d	P4-D8	OP99135-MSD	1633full.m	Sample	OP99135,S6Q357,5,02,,,5.0,2,soil	✓
205	6Q25110.d	P1-A5	cc356-4	1633full.m	QC	OP99081,S6Q357,500,,,5.0,1,water	✓
206	6Q25111.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q357,500,,,5.0,1,water	✓
207	6Q25112.d	P5-A7	FC9414-2	1633full.m	Sample	OP99135,S6Q357,4,95,,,5.0,2,soil	RR, wrong position
208	6Q25113.d	P5-A8	FC9414-3	1633full.m	Sample	OP99135,S6Q357,5,02,,,5.0,1,soil	✓
209	6Q25114.d	P4-D9	FC9414-2	1633full.m	Sample	OP99135,S6Q357,4,95,,,5.0,5,soil	✓
210	6Q25115.d	P1-A5	Ecc356-4	1633full.m	QC	OP99081,S6Q357,500,,,5.0,1,water	✓
211	6Q25116.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q357,500,,,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 2154	1033 Cal std. (epike)	LCMS 2140	BR-LN Et-Me	SGS LABS	M/A	12/28/23	2 ppm	250uL	4 mL	125	1033 mix	7/31/23	12/28/23	MV
		11899	PFAC MXH	Wellington	4/9/28	7/31/24	1-4 ppm			62.5	(210884)			
		11930A	PFAC MXH		3/24/26	7/19/24	2 ppm			125				
		11900	PFAC MXF		3/24/26	7/31/24	2 ppm			250ppb				
		11931A	PFAC MXF		12/1/27	7/19/24	2 ppm			125ppb				
		11892	PFAC MXG		3-28-28	7/31/24	4-20 ppm			312				
		11901	PFAC MXG		3-28-28	7/31/24	4-20 ppm	3/2NL		1100ppb				
		11893	PFAC MXJ		3-28-28	7/31/24	4-20 ppm							
		11902	PFAC MXJ		3-28-28	7/31/24	4-20 ppm							
		11933A	PFAC MXJ		3-28-28	7/31/24	4-20 ppm							
LCMS 2152	Full List 40 Spike (cal std)	11849/11872	PFAC (28comp)	Absolute	3/13/28	8/1/24	1.0ppm	400uL	4.0mL	100ppb	95% MeOH 5% H2O	8/6/23	8/23/23	JR
		LCMS 2047	40 List Add-on #1	SGS Std	-	8/23/25	1.0ppm			100ppb				JR
		LCMS 2117	40 List Add-on #2		-	11/05/25	1.0ppm			100ppb				JR
		LCMS 2101	FOSE Std		-	9/19/25	5.0ppm	200uL*		500ppb				JR
		LCMS 2153	FOSE Std		-	9/19/25	5.0ppm	200uL*		500ppb				JR
LCMS 2153	FOSE std.	11336	N-Me-FOSE	SGS Std	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	8/6/23	9/19/23	JR
		11338	N-Me-FOSE	Wellington Labs	5/13/27	7/19/23								JR
LCMS 2154	1033 BR-LN Me + Et (fosa)	11497	BR-N Et-fosa	Wellington LABS	8/23/27	12/28/23	50ppm	200uL	5mL	2ppm	1033 mix (3000uL)	8/7/23	12/28/23	MV
		11795	BR-N MeFOSE		10/7/27	6/28/24		500uL		5ppm				
		11498	BR-N Et-fosa		10/7/27	12/28/23		200uL		2ppm				
		11796	BR-N Et-fosa		10/7/27	6/28/24		500uL		5ppm				

* based on date opened as specified in each SGS - Orlando SOP. * JR 8/11/25

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 2139	1033 RT BR-LN	11496	br-Fosa	Wellington Labs	10/7/27	12/28/23	50ppm	5uL	2.5mL	100ppb	1033 mix	6/28/23	12/28/23	MU
		11497	br-N-MeFosa		8/23/27									
		11498	bc		10/7/27									
		11494	br-N-MeFosa		10/7/27									
		11495	br-N-MeFosa		10/7/27									
		11502	7-PTFA		01/27/27									
		11527	IP PFNA		01/10/27									
LCMS 2140	1033 BR-LN Me + Et	11497	br-N MeFosa	Wellington Labs	8/23/27	12/28/23	50ppm	200mL	5mL	2ppm	1033 mix (3000mL)	6/28/23	12/28/23	MU
		11498	br-N EtFosa		10/7/27	12/28/23		200mL		2ppm				
		11795	br-N MeFosa		10/7/27	6/28/24		500mL		5ppm				
		11796	br-N EtFosa		10/7/27	6/28/24		500mL		5ppm				
LCMS 2141	List 40 Sum ADD-ON Isotope	11523	dt-N-MeFosa	Wellington Labs	1/27/27	5/9/24	50ppm	400mL	4mL	5ppm	95% MeOH 5% H2O	7/11/23	01/11/24	MU
		11537	dt-N EtFosa		1/27/27	6/1/24		400mL		5ppm				
		11334	M2-PFHDA		11/23/26	6/1/24		80mL		1ppm				
		11335	dt-N EtFosa		3/7/27	6/1/24		80mL		1ppm				
						PR 7/12/23								

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

11336

PRODUCT CODE:

N-EtFOSE-M

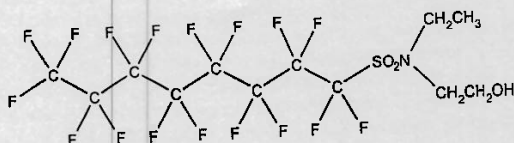
LOT NUMBER: NEtFOSE0622M

COMPOUND:

2-(N-ethylperfluoro-1-octanesulfonamido)ethanol

CAS #: 1691-99-2

STRUCTURE:



MOLECULAR FORMULA:

C₁₂H₁₀F₁₇NO₃S

MOLECULAR WEIGHT: 571.25

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: 07/13/2022
(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

NEtFOSE0622M (1 of 5)
rev0

Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

11338



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

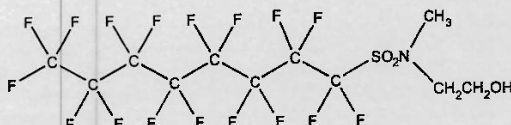
NMeFOSE0522M

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

11892
rec'd: 06/09/23



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


7.9.1
7

Table A:

PFAC-MVG: 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-OPFHxA	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)

11893
rec'd: 06/29/23



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>	PFACMXJ0323
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	03/27/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	03/28/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	03/28/2028
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

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

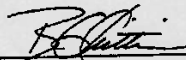
PFACMXJ0323 (1 of 5)
rev0

7.9.1
7

Table A:

PFAC-MXJ; Components and Concentrations ($\mu\text{g/mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g/mL}$)
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: 04/12/2023
(mm/dd/yyyy)

11899
rec'd: 07/11/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0423
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 04/06/2023
LAST TESTED: (mm/dd/yyyy) 04/19/2023
EXPIRY DATE: (mm/dd/yyyy) 04/19/2028
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. 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

PFACMXH0423 (1 of 11)
rev1

7.9.1
7

Title 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		23
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		24
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-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNs	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4000	3840	16

^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: 05/11/2023
(mm/dd/yyyy)

11900
rec'd: 07/11/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0323
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 03/23/2023
LAST TESTED: (mm/dd/yyyy) 03/24/2023
EXPIRY DATE: (mm/dd/yyyy) 03/24/2026
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 (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). 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
- 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#:9, Revised 2020-12-23

PFACMXF0323 (1 of 5)
rev0

7.9.1
7

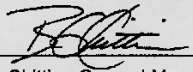


Table A:

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: 
B.G. Chittim, General Manager

Date: 03/29/2023
(mm/dd/yyyy)

1190)
rec'd: 07/11/23



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

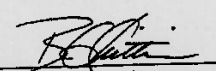
PFACMXG1122 (1 of 5)
rev0

7.9.1
7

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)

7.9.1
7

11902
rec'd: 07/11/23



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>	PFACMXJ0323
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	03/27/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	03/28/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	03/28/2028
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

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

PFACMXJ0323 (1 of 5)
rev0

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: 04/12/2023
(mm/dd/yyyy)

11930A-B
Rec #126/23
mw



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0423
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 04/06/2023
LAST TESTED: (mm/dd/yyyy) 04/19/2023
EXPIRY DATE: (mm/dd/yyyy) 04/19/2028
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; C₅ and C₆ 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. 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		23
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		24
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-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4000	3840	16

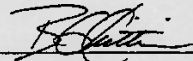
^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.

^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: 05/11/2023
(mm/dd/yyyy)

11931 A-B
Rec 7/26/23 MW



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0323
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 03/23/2023
LAST TESTED: (mm/dd/yyyy) 03/24/2023
EXPIRY DATE: (mm/dd/yyyy) 03/24/2026
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 (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). 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
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

PFACMXF0323 (1 of 5)
rev0

7.9.1

7

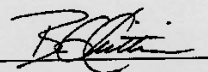
Table A:

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-chloroicosafafluoro-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: 03/29/2023

(mm/dd/yyyy)

11933 A-B
Rec 7/26/23
mw



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE: PFAC-MXJ
LOT NUMBER: PFACMXJ0323
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 03/27/2023
LAST TESTED: (mm/dd/yyyy) 03/28/2023
EXPIRY DATE: (mm/dd/yyyy) 03/28/2028
RECOMMENDED STORAGE: Refrigerate ampoule

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

PFACMXJ0323 (1 of 5)
rev0

Table A: PFAC-MXJ; Components and Concentrations ($\mu\text{g/mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g/mL}$)
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: 04/12/2023
(mm/dd/yyyy)

11966 A-J
rec'd 08/22/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

**Mass-Labelled PFAS Injection
Standard Solution/Mixture**

PRODUCT CODE: MPFAC-HIF-IS
LOT NUMBER: MPFACHIFIS0723
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 07/05/2023
LAST TESTED: (mm/dd/yyyy) 07/05/2023
EXPIRY DATE: (mm/dd/yyyy) 07/05/2028
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 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

MPFACHIFIS0723 (1 of 5)
rev0

7.9.1
7



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: 07/07/2023
(mm/dd/yyyy)

11967 A-J
rec'd: 08/22/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-ES
LOT NUMBER: MPFACHIFES0623
SOLVENT(S): Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 06/19/2023
LAST TESTED: (mm/dd/yyyy) 06/20/2023
EXPIRY DATE: (mm/dd/yyyy) 06/20/2026
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4 - C_{12} , C_{14}), three mass-labelled (^{13}C) perfluoroalkanesulfonates (C_4 , C_6 , and C_8), three mass-labelled (one ^{13}C and two ^2H) perfluoro-1-octanesulfonamides, three mass-labelled (^{13}C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (^2H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (^2H) perfluorooctanesulfonamidoethanols, and mass-labelled (^{13}C) hexafluoropropylene oxide dimer acid ($^{13}\text{C}_3$ -GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ^{13}C -labelled components all have chemical purities >98% and isotopic purities of $\geq 99\%$. The individual ^2H -labelled components all have chemical purities >98% and isotopic purities of $\geq 98\%$.

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

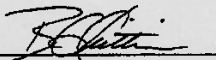
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

1. e 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 ₇)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	MPFD _o A	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		24
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		16
N-Methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-Ethyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		23
N-Methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-Ethyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		17
2-(N-Methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₂ -ol	d7-N-MeFOSE	5000		20
2-(N-Ethyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₂ -ol	d9-N-EtFOSE	5000		22
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: 06/22/2023
(mm/dd/yyyy)



CERTIFIED WEIGHT REPORT

Part Number: 64029A
Lot Number: 031323
Description: PFOA-DOD
26 components
Expiration Date: 03/1323
Recommended Storage: Freezer (0 °C)
1.0
Net Weight Concentration (µg/mL): 1.0
NIST Test ID: 64029A

Solvent(s): Methanol (1 mL KOH)
2-Propanol
Lot# 107722 (86%)
32600 (2%)

Formulated By: Prashant Chauhan
Reviewed By: Pedro L. Rencas

11872
rec'd: 06/19/23

Volume(s) shown below were combined and diluted to (mL):
Note: All assigned values are sodium concentrations.

Compound	Part Number	Lot Number	Division Factor	Initial Volume (mL)	Final Volume (mL)	Initial Concentration (µg/mL)	Final Concentration (µg/mL)	Expanded Uncertainty (k=2)	Free Acid CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (PFBA)	99542	110422	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-pentanoic acid (PFPA)	99543	011723	0.02	2.00	0.017	50.3	1.01	0.02	2706-80-3	N/A	N/A
3. Perfluoro-hexanoic acid (PFHA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid (PFHnA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-585-9	N/A	N/A
5. Perfluorooctanoic acid (br-PFOA)*	99202	086522	0.02	2.00	0.017	50.2	1.00	0.02	335-87-1 (L)	N/A	spec. tabling/9
6. Perfluorononanoic acid (br-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	335-78-2	N/A	N/A
8. Perfluoroundecanoic acid (PFUAnA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2068-84-8	N/A	N/A
9. Perfluorododecanoic acid (PFDDnA)	99198	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PFTrDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	27839-84-9	N/A	N/A
11. Perfluorotetradecanoic acid (PFTrDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	375-08-7	N/A	N/A
12. Perfluoro-1-iodooctadecanoic acid (br-PFOIA)*	3677	FQSA0221	0.02	2.00	0.017	50.0	1.00	0.05	744-81-8	N/A	N/A
13. N-ethylperfluorooctadecanamide and (br-NPFOA)*	4162	BNMFOA0422	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
14. N-ethylperfluorotetradecanamide and (br-NPFOA)*	4163	BNMFOA0421	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-8 (L)	N/A	N/A
15. Perfluorobutanoic acid (PFBS)	99194	086522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A
16. Perfluoro-1-pentanoic acid (PFPA5)	99544	091822	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A
17. Perfluorohexanoic acid (br-PFHnA5)	99198	030923	0.02	2.00	0.017	50.0	1.00	0.02	355-48-4 (L)	N/A	N/A
18. Perfluoro-1-heptanoic acid (br-PFHnA5)	3672	LFFH050622	0.021	2.10	0.017	47.8	1.00	0.05	375-52-8	N/A	N/A
19. Heptafluorooctanoic acid (br-PFO5)*	99201	030923	0.02	2.00	0.017	50.1	1.00	0.02	1783-23-1 (L)	N/A	N/A
20. Perfluoro-1-nonanoic acid (PFNS)	3957	LFFNS1122	0.021	2.10	0.017	48.0	1.01	0.05	8259-12-1	N/A	N/A
21. Perfluoro-1-decanoic acid (PFDS)	3671	086522	0.021	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A
22. 1H,1H,2H,2H-Perfluorodecanoic sulfonic acid (br-PFDS)	65271	086522	0.02	2.00	0.017	50.2	1.00	0.05	787124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluoroundecanoic sulfonic acid (br-PFDS)	65272	031023	0.02	2.00	0.017	50.2	1.00	0.05	278109-87-2	N/A	N/A
24. 1H,1H,2H,2H-Perfluorododecanoic sulfonic acid (br-PFDS)	3662	BF150622	0.021	2.10	0.017	47.9	1.01	0.05	81108-34-4	N/A	N/A
25. 2-Heptafluoropropyl-2,3,3,3-tetrafluorodecanoic sulfonic acid (PFPO-DA)	99669	086522	0.02	2.00	0.017	50.1	1.00	0.02	53232-13-5	N/A	N/A
26. 11-Chloroheptafluoro-3-oxoheptanoic sulfonic acid (11C-HPFO-DA)	4165	11CFFPOA0502	0.021	2.12	0.017	47.1	1.00	0.05	783051-82-9	N/A	N/A
27. 3-Chlorooctafluoro-3-oxooctanoic sulfonic acid (3C-OPFO-DA)	4164	9CFFPOA1022	0.021	2.14	0.017	46.6	1.00	0.05	796429-56-1	N/A	N/A
28. Dodecafluoro-3H,4-B-dioxanoneic acid (ADONA)	4103	NADONA0922	0.021	2.12	0.017	47.1	1.00	0.05	818035-14-4	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	086522	0.02	2.00	0.004	49.8	0.99	0.010	335-67-1 (L)	N/A	spec. tabling/9
Perfluorooctanoic acid (branched isomer)*	99202	086522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	spec. tabling/9
Perfluorohexanoic acid (linear)*	99198	030923	0.02	2.00	0.017	44.0	0.95	0.02	355-48-4 (L)	N/A	N/A
Perfluorohexanoic acid (branched isomer)*	99198	030923	0.02	2.00	0.017	0.0	0.12	0.000	355-48-4 (L)	N/A	N/A
Heptafluorooctanoic acid (linear)*	99201	030923	0.02	2.00	0.017	38.1	0.76	0.02	1783-23-1 (L)	N/A	N/A
Heptafluorooctanoic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	7.5	0.15	0.003	1783-23-1 (L)	N/A	N/A
Heptafluorodecanoic acid (linear)*	99203	030923	0.02	2.00	0.017	4.0	0.08	0.002	1783-23-1 (L)	N/A	N/A
Heptafluorodecanoic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	0.5	0.010	0.0002	1783-23-1 (L)	N/A	N/A
N-ethylperfluoro-1-octadecanamide (linear)*	4162	BNMFOA0422	0.02	2.00	0.017	38.0	0.72	0.04	2355-31-9 (L)	N/A	N/A
N-ethylperfluoro-1-octadecanamide (branched)*	4162	BNMFOA0422	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L)	N/A	N/A
N-ethylperfluoro-1-tetradecanamide (linear)*	4162	BNMFOA0422	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L)	N/A	N/A
N-ethylperfluoro-1-tetradecanamide (branched)*	4162	BNMFOA0422	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L)	N/A	N/A
N-ethylperfluoro-1-octanoic acid (linear)*	4163	BNMFOA0421	0.02	2.00	0.017	38.6	0.73	0.04	2991-50-8 (L)	N/A	N/A
N-ethylperfluoro-1-octanoic acid (branched)*	4163	BNMFOA0421	0.02	2.00	0.017	7.7	0.15	0.008	2991-50-8 (L)	N/A	N/A
N-ethylperfluoro-1-tetradecanoic acid (linear)*	4163	BNMFOA0421	0.02	2.00	0.017	5.3	0.11	0.005	2991-50-8 (L)	N/A	N/A
N-ethylperfluoro-1-tetradecanoic acid (branched)*	4163	BNMFOA0421	0.02	2.00	0.017	0.4	0.007	0.0005	2991-50-8 (L)	N/A	N/A

*Concentrations for branched and linear isomers are based on LC/MS 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).
 * All measurements are performed in triplicate and the standard deviation is reported.
 * All measurements are performed in triplicate and the standard deviation is reported.
 * University Reference: Taylor, K.N., and Kuyat, C.E., "Guidelines for Preparing and Expanding the Uncertainty of NIST Measurement Bank," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

11796
rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

2-(N-Ethylperfluorooctanesulfonamido)ethanol
Isomeric Mix

PRODUCT CODE:	br-NEtFOSE
LOT NUMBER:	brNEtFOSE1022
CONCENTRATION:	50.0 ± 2.5 µg/mL
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/12/2022
LAST TESTED: (mm/dd/yyyy)	09/12/2022 (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-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

11795
rec'd 10/15/23



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

7.9.1
7

11794
rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

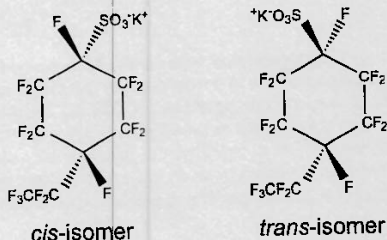
PFECHS

LOT NUMBER: PFECHS0223

COMPOUND:

Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE:



CAS #: 335-24-0

MOLECULAR FORMULA:

C₉F₁₅SO₃K

MOLECULAR WEIGHT: 500.22

CONCENTRATION:

50.0 ± 2.5 µg/mL (K salt)
46.2 ± 2.3 µg/mL (PFECHS acid)
46.1 ± 2.3 µg/mL (PFECHS anion)

SOLVENT(S): Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/14/2023

EXPIRY DATE: (mm/dd/yyyy)

03/14/2028

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*, by ¹⁹F NMR).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 03/16/2023
(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

PRODUCT CODE:

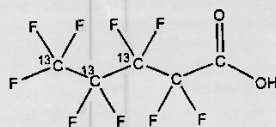
M3PFPeA

LOT NUMBER:

M3PFPeA0720

COMPOUND:Perfluoro-n-[3,4,5-¹³C₃]pentanoic acid**CAS #:**

Not available

STRUCTURE:**MOLECULAR FORMULA:**¹³C₃¹²C₂HF₉O₂**MOLECULAR WEIGHT:**

267.02

CONCENTRATION:

50.0 ± 2.5 µg/ml

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:≥99% ¹³C
(3,4,5-¹³C₃)**LAST TESTED:** (mm/dd/yyyy)

07/22/2020

EXPIRY DATE: (mm/dd/yyyy)

07/22/2025

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.
- Contains ~ 0.95% of perfluoro-n-[¹³C₃]butanoic acid and 0.05% of perfluoro-1-pentanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 08/04/2020

(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

11710
rec'd: 03/17/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSA-M

LOT NUMBER:

NMeFOSA1122M

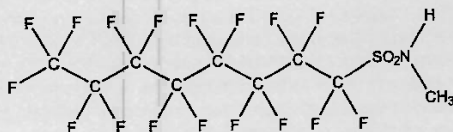
COMPOUND:

N-Methylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #:

31506-32-8



MOLECULAR FORMULA:

C₉H₄F₁₇NO₂S

MOLECULAR WEIGHT:

513.17

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/11/2022

EXPIRY DATE: (mm/dd/yyyy)

11/11/2027

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 11/25/2022
(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

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

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

7.9.1

7

11140



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

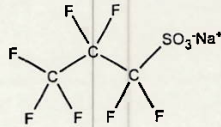
COMPOUND:

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

Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

LPFPrS0721 (1 of 4)
rev0

FPrPA(3:3FTEA) 1116 B



WELLINGTON
LABORATORIES

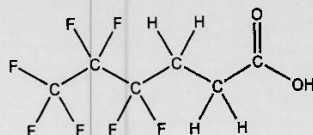
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

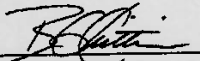
DOCUMENTATION/ DATA ATTACHED:

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

1116 A.B NW

1116B on the back NW



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

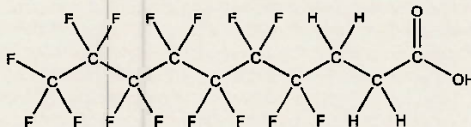
COMPOUND:

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

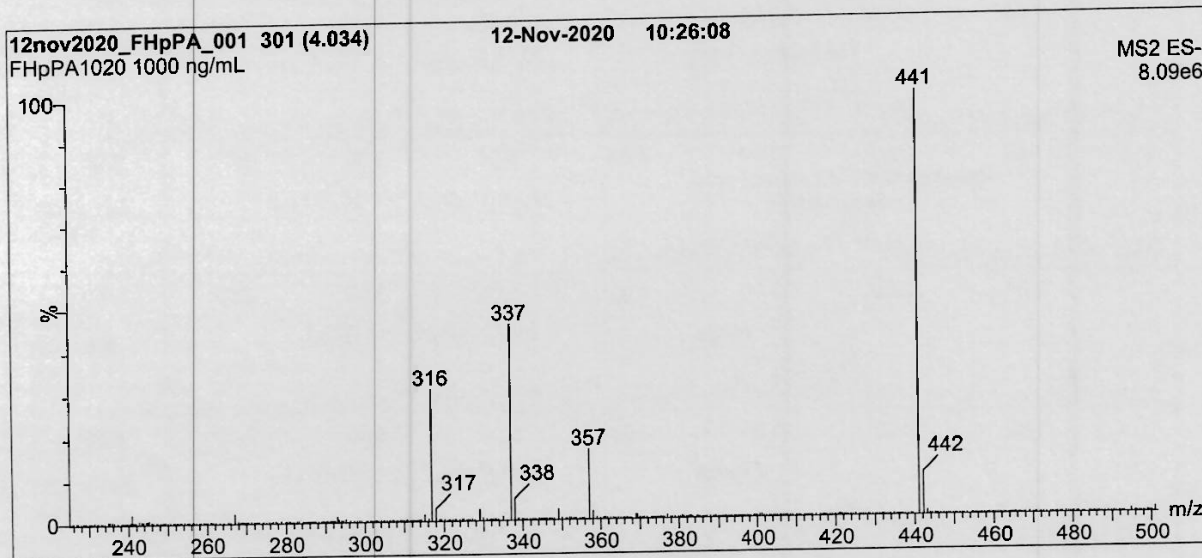
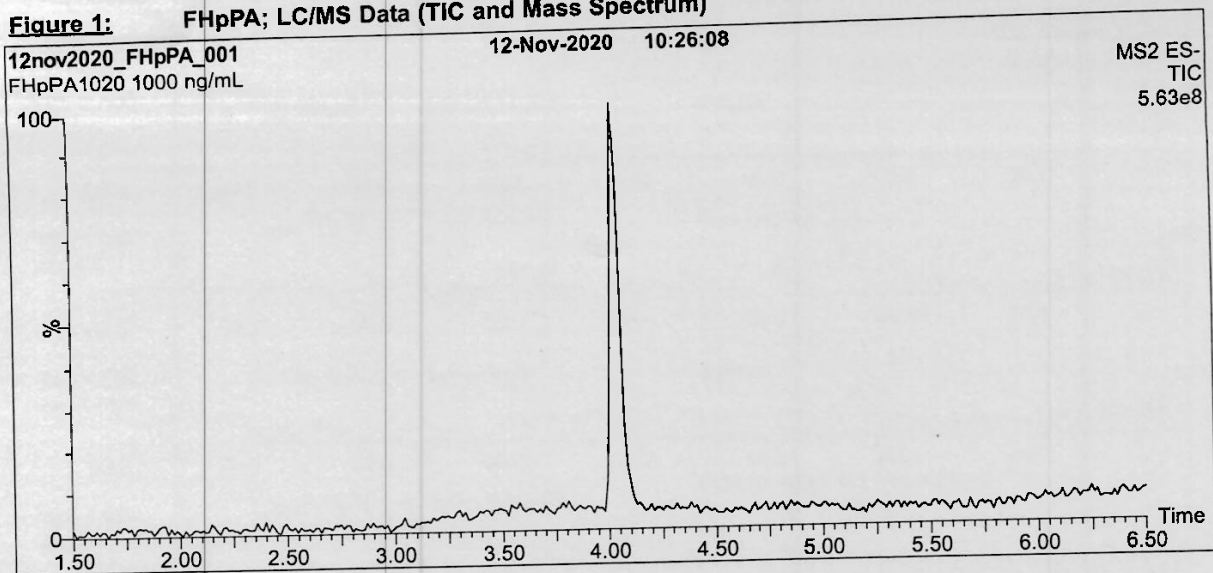
(mm/dd/yyyy)

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

Form#:27, Issued 2004-11-10
Revision#:8, Revised 2020-09-10



WELLINGTON LABORATORIES

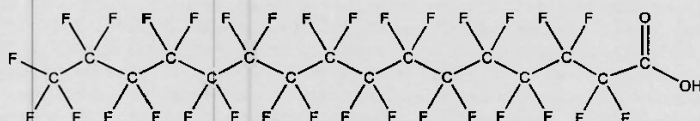
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

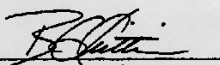
DOCUMENTATION/ DATA ATTACHED:

- 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: 
 B.G. Chittim, General Manager **Date:** 05/25/2021
 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
 519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#:27, Issued 2004-11-10
 Revision#:9, Revised 2020-12-23

PFHxDA0421 (1 of 4)
 rev0

7.9.1
7



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

10847 NG 01/18/23

PRODUCT CODE:

PFODA

LOT NUMBER:

PFODA0821

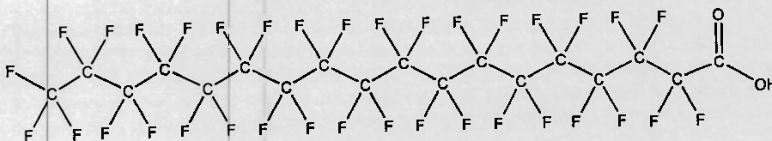
COMPOUND:

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

7.9.1
7



10

WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

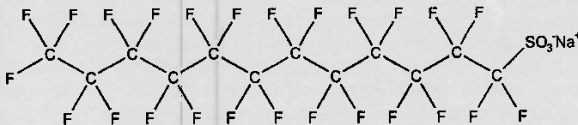
10840

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

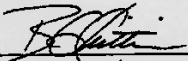
DOCUMENTATION/ DATA ATTACHED:

- 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



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

10837

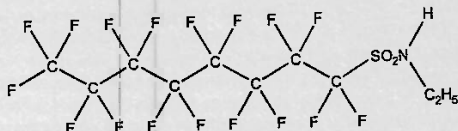
LOT NUMBER: NEtFOSA0821M

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)

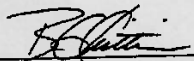
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

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

10765 A-13



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

*rec'd
WPH
8/20/21*

LOT NUMBER:

36OPFHpA0320

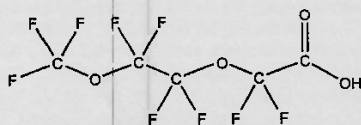
COMPOUND:

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

10764A-B



WELLINGTON LABORATORIES

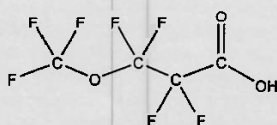
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

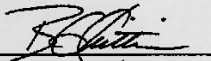
DOCUMENTATION/ DATA ATTACHED:

- 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

7.9.1

7

10763 A-B



WELLINGTON LABORATORIES

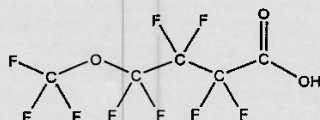
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

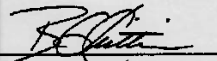
DOCUMENTATION/ DATA ATTACHED:

- 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

10762 A-B



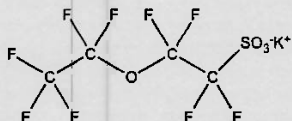
WELLINGTON LABORATORIES

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:

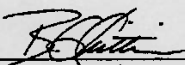
Figure 1: LC/MS Data (TIC and Mass Spectrum)

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

11514 rec'd 11/14/22

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

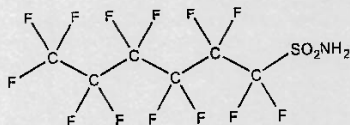
LOT NUMBER: FHxSA1221I

COMPOUND:

Perfluoro-1-hexanesulfonamide

CAS #: 41997-13-1

STRUCTURE:



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

FHxSA1221I (1 of 4)

11649 Rec. 02/13/23

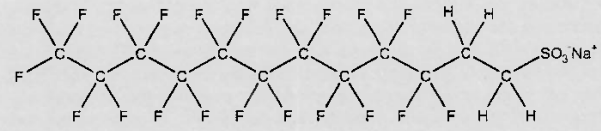


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS1122
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) 12/01/2022
EXPIRY DATE: (mm/dd/yyyy) 12/01/2027
RECOMMENDED STORAGE: Refrigerate ampoule

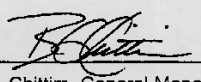
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  Date: 12/09/2022
 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

102FTS1122 (1 of 4)
rev0

7.9.1
7

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 2192A-E	1033 Cal. Std. (SPIKE)	LCMS 2191	PFAC Bx-Me	Sgs Labs	M/A	12/28/23	2ppm	250uL	4 mL	125	1033	9/29/23	12/28/23	MW
		11940	PFAC	Wellington	4-19-28	9/24/23	1-4 ppm	250uL		312.5ppb	1033			
		11908	MXH			9/24/23				250ppb				
		11947B	PFAC		3-24-26	9/15/24	2ppm	250uL		125ppb				
		11943A	MXF		12-1-27	9/24/24	2ppm	250uL		125ppb				
		11948A	PFAC		3-28-28	9/15/24	4-20 ppm	312 uL		312				
		11948B	MXG			9/24/24				1100ppb				
		11971	PFAC		05/13/27	09/25/24	50ppm	200 uL	2.0 mL	5ppb	95% MeOH	09/25/23	03/25/24	JR
		11992	MXJ			09/25/24					5% H ₂ O			
LCMS 2193	FOSE Std	11409	N-ET-FOSE	Wellington Labs										
		11410	N-Me-FOSE		05/13/27	09/25/24								
LCMS 2194	Full List 40 Spike (cal std)	11904/12006	PF0A-DOB (28 comp)	Absolute	03/13/28	09/11/24	1.0 ppm	400 uL	4.0 mL	100ppb	95% MeOH	09/25/23	10/16/23	JR
		LCMS 2179	40 List Add-on#1	Sgs Std	-	10/18/23								
		LCMS 2156	40 List Add-on#2		-	02/07/24								
		LCMS 2193	FOSE Std.		-	03/25/24	5.0 ppm			500ppb				

* 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	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2180	List 40 Spike (Cal Std)	11940	PFA-POP (25 Comp)	Absolute	03/13/28	1.0 ppm	400 uL	4.0 mL	100 ppb	95% MeOH 5% H2O	07/09/23	07/19/23	JR
		LCMS 2179	40 list Add-on #1	-	10/18/23								
		LCMS 2156	40 list Add-on #2	-	02/07/24								
		LCMS 2176	PGE Std	-	07/19/23	5.0 ppm							
LCMS 2181	537.1 DW Spike	11811	MCHPPO DA	Wellington Labs	04/03/26 09/16/24	50 ppm	200 uL	5 mL	2.0 ppm	96% MeOH 4% H2O	09/16/23 03/16/24		NG
		11337	05-EA-N R55AA		05/11/27 09/16/24		200 uL						NG
		99926	MPFDA		09/05/24 03/16/24		100 uL		1.0 ppm				NG
		99938	MPFAA		10/11/24 03/16/24		100 uL						NG
LCMS 2182	537.1 DW Spike	11940	PFA-DND (25 Comp)	Absolute	03/13/28 08/29/24	1.0 ppm	1 mL	5 mL	200 ppb	96% MeOH 4% H2O	09/16/23 03/16/24		NG
LCMS 2183	537.1 DW Std.	11940	PFA-DND (25 Comp)	Absolute	03/13/28 08/29/24	1.0 ppm	400 uL	4 mL	100 ppb	96% MeOH 4% H2O	09/16/23 03/16/24		NG
		LCMS 2181	DW Spike	-	03/16/24	10/20 ppm	400 uL		100 ppb				NG
LCMS 2184	PFC Spike	11940/11964	PFA-POP (25 Comp)	Absolute	03/13/28	1.0 ppm	2 mL	5 mL	400 ppb	95% MeOH 5% H2O	07/11/23	05/11/24	JR
		11432	-MA	Wellington Labs	02/28/24	50 ppm	40 uL						
		11793	FBSA-1		08/01/28								
		11792	FHSA-1		12/01/27								
		11332	PFECHS		03/29/27								

* based on date opened as specified in each SGS - Orlando SOP.

ORL D OAC 0017 6 03 EODM form old man for vic 030810

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 2156	L15440 ADD ON #2	11513	FBSA-1	Wellington	11/10/26	4/18/24	50 ppm	80NL	4.0mL	1ppm	95% methanol 5% H2O (3760)	8/7/23	2/7/24	MW
↓	↓	11514	FHSA1	↓	12/29/26	4/18/24	↓	↓	↓	↓	↓	↓	↓	↓
↓	↓	11140B	L-PFAS	↓	7/12/26	5/9/24	↓	↓	↓	↓	↓	↓	↓	↓
LCMS 2157	1033 RT BR-LN	11496	br-Fosa	Wellington	10/7/27	12/28/23	50 ppm	10NL 5ppm	5mL	100ppb	1033 mix (4930)	8/7/23	12/28/23	MW
↓	↓	11497	br-N mefosa	↓	8/23/27	↓	↓	10NL	↓	↓	↓	↓	↓	↓
↓	↓	11498	br-N Etfosa	↓	10/7/27	↓	↓	↓	↓	↓	↓	↓	↓	↓
↓	↓	11494	br-N mefose	↓	10/7/27	↓	↓	↓	↓	↓	↓	↓	↓	↓
↓	↓	11495	br-N Etfose	↓	10/7/27	↓	↓	↓	↓	↓	↓	↓	↓	↓
↓	↓	11502	T-PFOA	↓	01/27/27	↓	↓	↓	↓	↓	↓	↓	↓	↓
↓	↓	11527	IP PFNA	↓	01/10/27	↓	↓	↓	↓	↓	↓	↓	↓	↓
LCMS 2158 A-E	1033 Cal std. Spike	LCMS 2159A (2190)	Br-LN ET-ME LABO	SGS	N/A	12/28/23	2ppm 5ppm	250NL	4mL	125 912.5ppb	1033 mix 2088NL	8/7/23	12/28/23	MW
↓	↓	11930	PFAC MXH	Wellington	4/19/28	7/31/24 8/7/24	1-4 ppm	↓	↓	62.5 125 250ppb	↓	↓	↓	↓
↓	↓	11931A	PFAC MXF	↓	3/24/26	7-31-24 8-7-24	2ppm	↓	↓	125ppb	↓	↓	↓	↓
↓	↓	11907	PFAC MXG	↓	12/1/27	7-31-24 8-7-24	2ppm	↓	↓	125ppb	↓	↓	↓	↓
↓	↓	11933A	PFAC MXJ	↓	3-28-28	7-31-24 8-7-24	4-20 ppm	312NL	↓	312 1160ppb	↓	↓	↓	↓
↓	↓					MA Continue next page 8/9/23								

* 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. #	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 2175 A-F	LCMS 2154	Br-LW EtMe	SGS LABS	NA	12/28/23	2ppm	250uL	400L	125 312.5ppb	1033 MIX (2000uL)	9/5/23	12/18/23	MJ
	11953	PFAC	Wellington	4/19/28	8/20/24	1-4 ppm			62.5 125 250ppb				
	11947A	PFAC		3/24/26	8/31/24	2ppm			125ppb				
	11947B	MXF		12/1/27	9/15/24	2ppm			125ppb				
	11955	PFAC		12/1/27	8/31/24	2ppm			125ppb				
	11948A	MXG		5/28/28	9/15/24	4-20 ppm	312uL		312 1100ppb				
	11949B	PFAC		5/28/28	9/15/24	4-20 ppm			312 1100ppb				
	11971	MXJ		5/28/28	9/15/24	4-20 ppm			312 1100ppb				
LCMS 2176	11330	N-Et-FOSE Std	Wellington Labs	5/13/27	9/19/23	50ppm	100 200uL	2.0mL	5 ppm	95% MeOH 5% H2O	9/05/23	9/19/23	JR
	11338	N-Me-FOSE											
LCMS 2177	11940	PFA-DND (28comp)	Absolute	3/13/28	8/29/24	1.0 ppm	400 mL	4.0 mL	100 ppb	95% MeOH 5% H2O	9/05/23	03/05/24	JR
	11432	N-Me-OSA-M	Wellington Labs	02/28/27	3/13/24	50 ppm	8 mL						
	11793	FBGA-1		02/01/28	8/08/24								
	11792	PHISA-1		12/01/27	8/08/24								
	11332	PFECHS		3/28/27	4/18/24								
LCMS 2178 A-J	11965 A-J	MPAC-2MES	Wellington Labs	9/08/28	8/06/24	1.0 ppm	1.2 mL	~2.5 mL	0.5 ppm	75% MeOH 5% H2O	8/06/23	03/06/24	JR
	11811	H3HFO-DA		4/03/26	9/00/24	50 ppm	24 mL						
	11709	d-N-Me POSA-M		11/1/27	8/12/24								

Ended 09/06/23

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-CAC-0017-6-03-FORM-lcms std prep log.xls 030819

10762 A-B



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFEESA

LOT NUMBER:

PFEESA0520

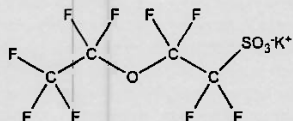
COMPOUND:

Potassium perfluoro(2-ethoxyethane)sulfonate

STRUCTURE:

CAS #:

117205-07-9



MOLECULAR FORMULA:

C₄F₉SO₄K

MOLECULAR WEIGHT:

354.19

CONCENTRATION:

50.0 ± 2.5 µg/ml (K salt)
44.6 ± 2.2 µg/ml (PFEESA acid)
44.5 ± 2.2 µg/ml (PFEESA anion)

SOLVENT(S):

Methanol

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:

B.G. Chittim, General Manager

Date: 05/29/2020
(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#:7, Revised 2020-01-09

PFEESA0520 (1 of 4)
rev0

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

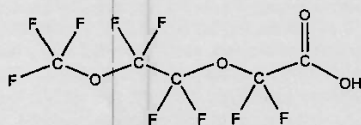
COMPOUND:

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

7.9.2
7



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

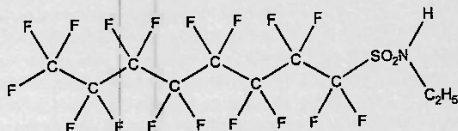
10837

LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:



CAS #: 4151-50-2

MOLECULAR FORMULA:

$C_{10}H_9F_{17}NO_2S$

MOLECULAR WEIGHT:

527.20

CONCENTRATION:

$50.0 \pm 2.5 \mu\text{g/mL}$

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/12/2021

EXPIRY DATE: (mm/dd/yyyy)

08/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 08/16/2021
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA

10



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

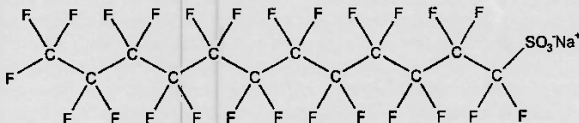
10840

PRODUCT CODE: L-PFDoS
COMPOUND: Sodium perfluoro-1-dodecanesulfonate

LOT NUMBER: LPFDoS0721

STRUCTURE:

CAS #: 1260224-54-1



MOLECULAR FORMULA: 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 NS 01/18/23

LOT NUMBER:

PFODA0821

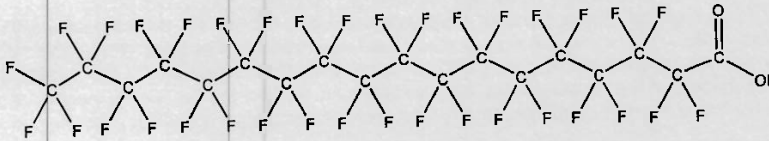
COMPOUND:

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

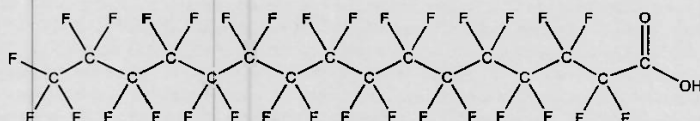
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

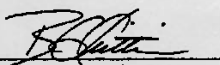
DOCUMENTATION/ DATA ATTACHED:

- 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

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

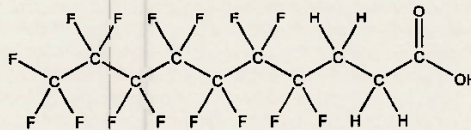
COMPOUND:

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)

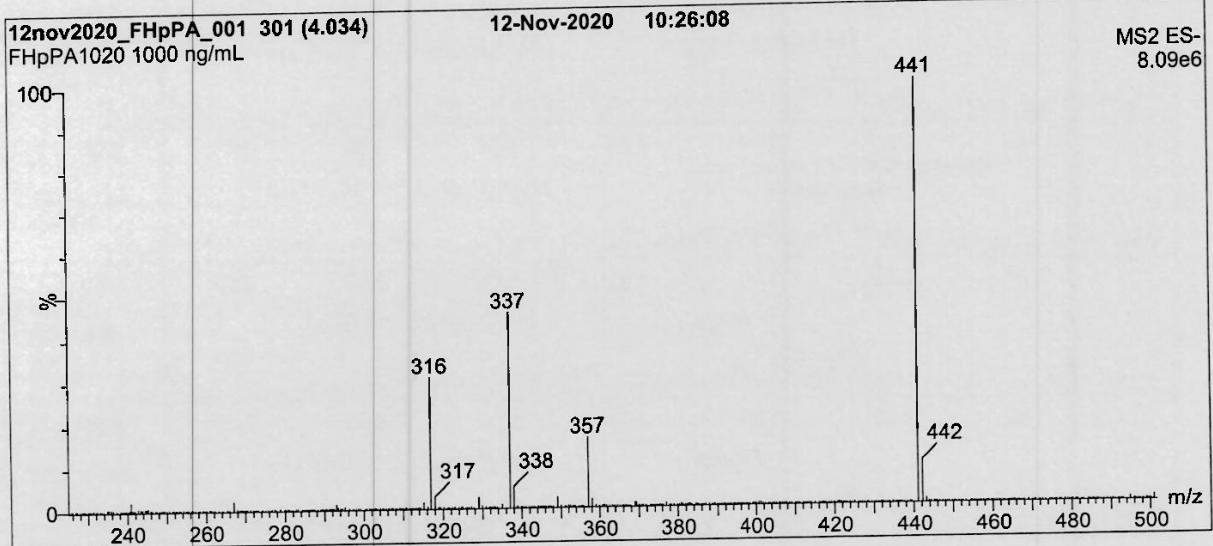
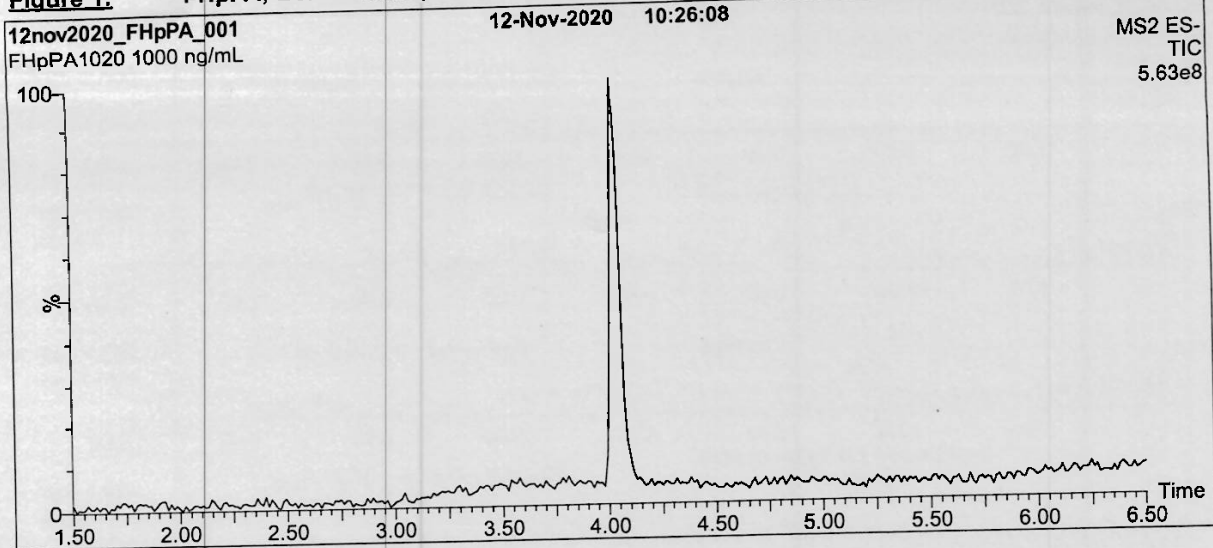
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

FHpPA1020 (1 of 4)
rev0

7.9.2

7

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

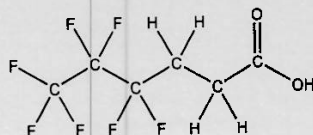
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

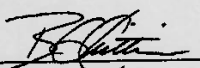
DOCUMENTATION/ DATA ATTACHED:

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

11140



WELLINGTON LABORATORIES

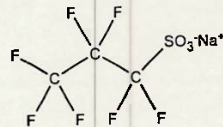
CERTIFICATE OF ANALYSIS DOCUMENTATION

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)
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

MOLECULAR WEIGHT: 272.07
SOLVENT(S): Methanol

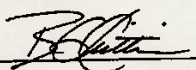
DOCUMENTATION/ DATA ATTACHED:

- 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

LPFPrS0721 (1 of 4)
rev0

7.9.2

7

11336



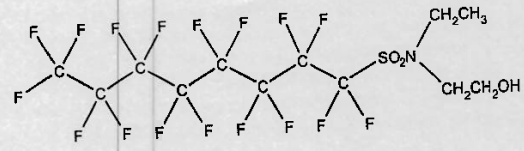
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:
COMPOUND:
STRUCTURE:

N-EtFOSE-M
2-(N-ethylperfluoro-1-octanesulfonamido)ethanol

LOT NUMBER: NEtFOSE0622M
CAS #: 1691-99-2



MOLECULAR FORMULA:
CONCENTRATION:
CHEMICAL PURITY:
LAST TESTED: (mm/dd/yyyy)
EXPIRY DATE: (mm/dd/yyyy)
RECOMMENDED STORAGE:

C₁₂H₁₀F₁₇NO₃S
50.0 ± 2.5 µg/mL
>98%
05/13/2022 (HRGC/LRMS)
05/13/2022 (LC/MS)
05/13/2027
Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 571.25
SOLVENT(S): Methanol

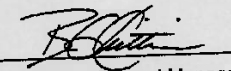
DOCUMENTATION/ DATA ATTACHED:

- 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:  Date: 07/13/2022 (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

NEtFOSE0622M (1 of 5)
rev0

7.9.2
7

11338



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

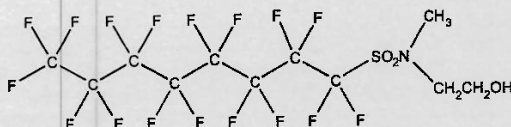
NMeFOSE0522M

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

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

1513 rec'd 11/14/22



WELLINGTON LABORATORIES

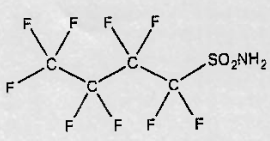
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FBSA-I
COMPOUND: Perfluoro-1-butanefulfonamide

LOT NUMBER: FBSA11211

STRUCTURE:

CAS #: 30334-69-1



MOLECULAR FORMULA: C₄H₂F₉NO₂S
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/10/2021
EXPIRY DATE: (mm/dd/yyyy) 11/10/2026
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 299.11
SOLVENT(S): Isopropanol

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

7.9.2
7

11514 rec'd 11/14/22

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

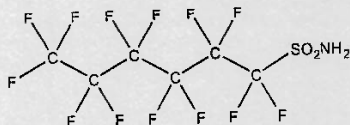
LOT NUMBER: FHxSA1221I

COMPOUND:

Perfluoro-1-hexanesulfonamide

CAS #: 41997-13-1

STRUCTURE:



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

FHxSA1221I (1 of 4)

11649 Rec. 02/13/23

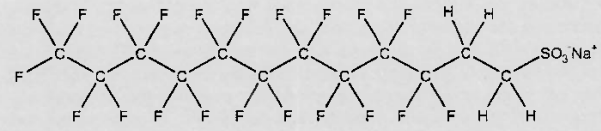


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS1122
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) 12/01/2022
EXPIRY DATE: (mm/dd/yyyy) 12/01/2027
RECOMMENDED STORAGE: Refrigerate ampoule

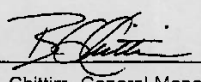
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  Date: 12/09/2022
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

102FTS1122 (1 of 4)
rev0

7.9.2
7

11794
rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

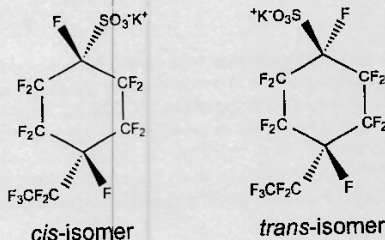
PFECHS

LOT NUMBER: PFECHS0223

COMPOUND:

Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE:



CAS #: 335-24-0

MOLECULAR FORMULA:

C₉F₁₅SO₃K

MOLECULAR WEIGHT: 500.22

CONCENTRATION:

50.0 ± 2.5 µg/mL (K salt)
46.2 ± 2.3 µg/mL (PFECHS acid)
46.1 ± 2.3 µg/mL (PFECHS anion)

SOLVENT(S): Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/14/2023

EXPIRY DATE: (mm/dd/yyyy)

03/14/2028

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*, by ¹⁹F NMR).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 03/16/2023
(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

11795
rec'd 10/15/23



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

11796
rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

2-(N-Ethylperfluorooctanesulfonamido)ethanol
Isomeric Mix

PRODUCT CODE:	br-NEtFOSE
LOT NUMBER:	brNEtFOSE1022
CONCENTRATION:	50.0 ± 2.5 µg/mL
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/12/2022
LAST TESTED: (mm/dd/yyyy)	09/12/2022 (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-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

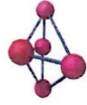
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#: 13, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

brNEtFOSE1022 (1 of 7)
rev1

7.9.2

7



Certified Reference Material CRM

11940
rec'd: 08/07/23

Part Number: 64029A	Lot Number: 102722	Exp. Date: 03/13/23
Lot Number: 031323	Material: Methanol (1 mM KOH) 2-Propanol	Formulated By: Prashant Chauhan
Lot Number: 031326	Material: Methanol (1 mM KOH) 2-Propanol	Reviewed By: Pedro L. Rentes
Lot Number: 64029A	Material: Methanol (1 mM KOH) 2-Propanol	Material: Methanol (1 mM KOH) 2-Propanol

Part Number	Lot Number	Concentration (µg/mL)	Uncertainty (%)	Final Conc. (µg/mL)	Final Uncertainty (%)	SDS Information (Solute Name, CAS#, OSHA PEL, TWA)
1. Perfluorobutanoic acid (PFBA)	99242	110.0	0.021	100.0	0.021	N/A
2. Perfluoropentanoic acid (PFPA)	99243	101.22	0.02	2.00	0.017	375-92-4
3. Perfluorohexanoic acid (PFHxA)	99244	011723	0.02	2.00	0.017	2709-90-3
4. Perfluoroheptanoic acid (PFHpA)	99186	071122	0.02	2.00	0.017	307-94-4
5. Perfluorooctanoic acid (PFnOxA)	99187	110922	0.02	2.00	0.017	375-65-8
6. Perfluorononanoic acid (PFnNA)	99202	080522	0.02	2.00	0.017	335-87-1 (L)
7. Perfluorodecanoic acid (PFnDA)	99203	110922	0.02	2.00	0.017	375-95-1
8. Perfluorododecanoic acid (PFnDA)	99185	110922	0.02	2.00	0.017	307-76-2
9. Perfluorotridecanoic acid (PFnTA)	99205	071522	0.02	2.00	0.017	2069-94-8
10. Perfluorotetradecanoic acid (PFnTA)	99204	110922	0.02	2.00	0.017	307-55-1
11. Perfluorohexadecanoic acid (PFnDA)	99203	030322	0.02	2.00	0.017	375-96-7
12. Perfluorooctadecanoic acid (PFnDA)	3677	FC5A1321	0.02	2.00	0.017	744-91-4
13. Methylperfluorooctadecanoic acid (PFnMCOA)*	4162	IMHPFC5A1429	0.02	2.00	0.017	2555-51-9 (L)
14. Methylperfluorododecanoic acid (PFnMFOA)*	4163	IMHPFC5A1121	0.02	2.00	0.017	2981-60-8 (L)
15. Perfluorooctanoic acid (PFOS)	99184	080522	0.02	2.00	0.017	375-24-3
16. Perfluorodecanoic acid (PFDS)	99244	081522	0.02	2.00	0.017	2709-91-4
17. Perfluorododecanoic acid (PFHxS)	99188	030523	0.02	2.00	0.017	355-46-1 (L)
18. Perfluorotridecanoic acid (PFHxS)	3672	LFPIF050622	0.021	2.10	0.017	375-92-3
19. Heptafluorooctanoic acid (PFOS)*	99201	030623	0.02	2.00	0.017	1783-28-1 (L)
20. Perfluoro-1-octansulfonic acid (PFOS)	3957	LPFNS1122	0.021	2.10	0.017	86296-18-1
21. Perfluoro-1-dodecansulfonic acid (PFDS)	3671	LPFNS1122	0.021	2.10	0.017	335-77-3
22. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (PFOS)	65271	060522	0.02	2.00	0.017	257134-72-4
23. 1H,1H,2H,2H-Perfluorododecane sulfonic acid (PFDS)	65272	031123	0.02	2.00	0.017	27119-97-2
24. 1H,1H,2H,2H-Perfluorotridecane sulfonic acid (PFDS)	3682	RF150822	0.021	2.10	0.017	381096-24-4
25. 2-(2-chloroethyl)-2,2,3,3-tetrafluoropropionic acid (PFCEPA)	99266	060522	0.02	2.00	0.017	132325-12-8
26. 1-Chloro-2-(2-chloroethyl)-2,2,3,3-tetrafluoropropanoic acid (1C2-PFCEPA)	4165	11CFEPL0622	0.021	2.12	0.017	758251-92-9
27. 2-(2-chloroethyl)-2,2,3,3-tetrafluoropropanoic acid (2C2-PFCEPA)	4164	RCFPE051022	0.021	2.14	0.017	758248-58-1
28. Dodecafluoro-1H-1H-2,2,3,3-tetrafluoropropionic acid (ADONA)	4103	NIDON0622	0.021	2.12	0.017	618005-14-4

Volume(s) shown below were combined and diluted to (mL):
Notes: All assigned values are carbon concentrations.

Compound	Part Number	Lot Number	Concentration (µg/mL)	Uncertainty (%)	Final Conc. (µg/mL)	Final Uncertainty (%)	SDS Information (Solute Name, CAS#, OSHA PEL, TWA)
Perfluorooctanoic acid (linear)*	99202	080522	0.02	2.00	0.004	0.99	335-67-1 (L)
Perfluorodecanoic acid (branched isomer)*	99202	080522	0.02	2.00	0.004	0.6	335-67-1 (L)
Perfluorooctanoic acid (linear)*	99186	030623	0.02	2.00	0.017	44.0	355-46-4 (L)
Perfluorodecanoic acid (branched isomer)*	99186	030623	0.02	2.00	0.017	6.0	355-46-4 (L)
Heptafluorooctanoic acid (linear)*	99201	030623	0.02	2.00	0.017	36.1	1783-28-1 (L)
Heptafluorodecanoic acid (branched isomer)*	99201	030623	0.02	2.00	0.017	7.5	1783-28-1 (L)
Heptafluorooctanoic acid (branched isomer)*	99201	030623	0.02	2.00	0.017	4.0	1783-28-1 (L)
Heptafluorodecanoic acid (branched isomer)*	99201	030623	0.02	2.00	0.017	0.5	1783-28-1 (L)
Methylperfluorooctadecanoic acid (linear)*	4162	IMHPFC5A1429	0.02	2.00	0.017	36.0	2355-51-9 (L)
Methylperfluorododecanoic acid (branched)*	4163	IMHPFC5A1121	0.02	2.00	0.017	8.5	2355-51-9 (L)
Methylperfluorooctadecanoic acid (branched)*	4162	IMHPFC5A1429	0.02	2.00	0.017	5.0	2355-51-9 (L)
Methylperfluorododecanoic acid (branched)*	4163	IMHPFC5A1121	0.02	2.00	0.017	2.5	2355-51-9 (L)
Methylperfluorooctadecanoic acid (linear)*	4163	IMHPFC5A1121	0.02	2.00	0.017	36.6	2981-50-8 (L)
Methylperfluorododecanoic acid (branched)*	4163	IMHPFC5A1121	0.02	2.00	0.017	7.7	2981-50-8 (L)
Methylperfluorooctadecanoic acid (branched)*	4163	IMHPFC5A1121	0.02	2.00	0.017	5.3	2981-50-8 (L)
Methylperfluorododecanoic acid (branched)*	4163	IMHPFC5A1121	0.02	2.00	0.017	0.4	2981-50-8 (L)

*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 to ±0.16% of the stated value, unless otherwise stated.
* Uncertainty is based on the stated value and includes the uncertainty of the supporting laboratory facilities.
* Uncertainty Information: Taylor, K.N. and Kuyil, C.B., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results", NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

11946 A-B
rec'd: 08/09/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0423
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 04/06/2023
LAST TESTED: (mm/dd/yyyy) 04/19/2023
EXPIRY DATE: (mm/dd/yyyy) 04/19/2028
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₆, C₇, C₈, 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. 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

PFACMXH0423 (1 of 11)
rev1

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		23
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		24
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
Potassium perfluoro-1-butanedisulfonate	L-PFBS	1000	887	
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: 05/11/2023
(mm/dd/yyyy)

11947A-B
rec'd: 08/09/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0323
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 03/23/2023
LAST TESTED: (mm/dd/yyyy) 03/24/2023
EXPIRY DATE: (mm/dd/yyyy) 03/24/2026
RECOMMENDED STORAGE: 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 hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). 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
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#: 9, Revised 2020-12-23

PFACMXF0323 (1 of 5)
rev0

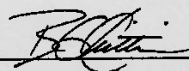
7.9.2

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-chloroicosadecafluoro-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: 03/29/2023
(mm/dd/yyyy)

7.9.2
 7

11948 A-B
rec'd: 08/09/23



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-dioxahexanoic acid	3,6-OPFHxA	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

11968
rec'd 08/22/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

**Native PFAS
Solution/Mixture**

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0423
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 04/06/2023
LAST TESTED: (mm/dd/yyyy) 04/19/2023
EXPIRY DATE: (mm/dd/yyyy) 04/19/2028
RECOMMENDED STORAGE: 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. 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

PFACMXH0423 (1 of 11)
rev1

7.9.2
7

e 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		23
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		24
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: 05/11/2023
(mm/dd/yyyy)

11971
rec'd: 08/22/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE: PFAC-MXJ
LOT NUMBER: PFACMXJ0323
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 03/27/2023
LAST TESTED: (mm/dd/yyyy) 03/28/2023
EXPIRY DATE: (mm/dd/yyyy) 03/28/2028
RECOMMENDED STORAGE: Refrigerate ampoule

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

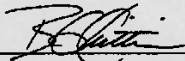
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

7.9.2
7

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: 04/12/2023
(mm/dd/yyyy)

11992
rec'd 08/13/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE: PFAC-MXJ
LOT NUMBER: PFACMXJ0323
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 03/27/2023
LAST TESTED: (mm/dd/yyyy) 03/28/2023
EXPIRY DATE: (mm/dd/yyyy) 03/28/2028
RECOMMENDED STORAGE: Refrigerate ampoule

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 ($\mu\text{g}/\text{mL}$; $\pm 5\%$ 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: 04/12/2023
(mm/dd/yyyy)

11994
rec'd: 08/13/22



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPePA (5:3)

LOT NUMBER:

FPePA0722

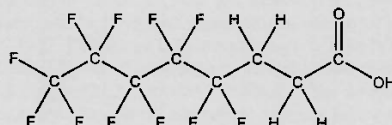
COMPOUND:

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)

08/02/2022

EXPIRY DATE: (mm/dd/yyyy)

08/02/2027

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <0.5% of the unsaturated 5:3 telomer acid (C₈H₃F₁₁O₂) as an impurity determined by ¹H NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 08/10/2022

(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

12016 A-B
rec'd: 09/11/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE: PFAC-MXJ
LOT NUMBER: PFACMXJ0323
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 03/27/2023
LAST TESTED: (mm/dd/yyyy) 03/28/2023
EXPIRY DATE: (mm/dd/yyyy) 03/28/2028
RECOMMENDED STORAGE: Refrigerate ampoule

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

PFACMXJ0323 (1 of 5)
rev0

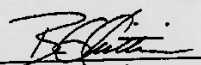
7.9.2
7

A:

PFAC-MXJ; Components and Concentrations ($\mu\text{g/mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g/mL}$)
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: 04/12/2023
(mm/dd/yyyy)

Form#: 13, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

PFACMXJ0323 (3 of 5)
rev0

7.9.2

7

11988 A-5
rec'd: 08/13/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

<u>PRODUCT CODE:</u>	MPFAC-HIF-ES
<u>LOT NUMBER:</u>	MPFACHIFES0623
<u>SOLVENT(S):</u>	Methanol/Isopropanol (1%)/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	06/19/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	06/20/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	06/20/2026
<u>RECOMMENDED STORAGE:</u>	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 (¹³C₃-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

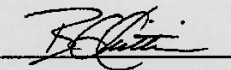
MPFACHIFES0623 (1 of 7)
rev0

7.9.2
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 ₅)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 ₆)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₇)undecanoic acid	M7PFUdA	250		18
Perfluoro-n-(1,2- ¹³ C ₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₂)tetradecanoic acid	M2PFTeDA	250		24
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		16
N-Methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-Ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		23
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		17
2-(N-Methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₄ -ol	d7-N-MeFOSE	5000		20
2-(N-Ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₄ -ol	d9-N-EtFOSE	5000		22
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: 06/22/2023
(mm/dd/yyyy)

11987A-J
rec'd: 08/13/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

Mass-Labelled PFAS Injection
Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-IS
LOT NUMBER: MPFACHIFIS0723
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 07/05/2023
LAST TESTED: (mm/dd/yyyy) 07/05/2023
EXPIRY DATE: (mm/dd/yyyy) 07/05/2028
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4 , C_6 , C_8 - C_{10}) and two mass-labelled (^{18}O and ^{13}C) perfluoroalkanesulfonates (C_6 and C_8). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of $\geq 99\%$ per ^{13}C or >94% per ^{18}O .

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#: 13, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

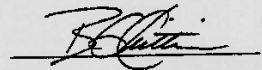
MPFACHIFIS0723 (1 of 5)
rev0

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: 
B.G. Chittim, General Manager

Date: 07/07/2023
(mm/dd/yyyy)

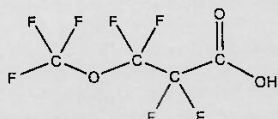
11648 Rec. 02/13/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF4OPeA **LOT NUMBER:** PF4OPeA0722
COMPOUND: Perfluoro-4-oxapentanoic acid
SYNONYM: Perfluoro-3-methoxypropanoic acid (PFMPA) **CAS #:** 377-73-1
STRUCTURE:



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) 08/02/2022
EXPIRY DATE: (mm/dd/yyyy) 08/02/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

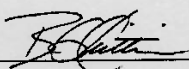
DOCUMENTATION/ DATA ATTACHED:

- 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 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:** 08/15/2022
(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

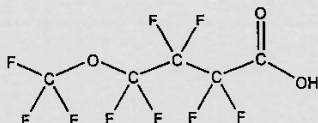
11465



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF5OHxA **LOT NUMBER:** PF5OHxA0722
COMPOUND: Perfluoro-5-oxahexanoic acid
SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)
STRUCTURE: **CAS #:** 863090-89-5



MOLECULAR FORMULA: C₆H₉F₉O₃ **MOLECULAR WEIGHT:** 280.05
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
 Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/02/2022
EXPIRY DATE: (mm/dd/yyyy) 08/02/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

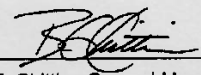
DOCUMENTATION/ DATA ATTACHED:

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 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: 08/26/2022
 (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

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 09/19/23 10:30
 Started (mm/dd/yy 24:00)

Method: EPA 1633 Draft (OSM) L5940

Date/Time: 9/20/23 14:30
 Finished (mm/dd/yy 24:00)

Balance ID: _____

Batch#: OP99077 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 99077 MB	/	500	7	N/A	25		5	A4	
OP 99077 BS	/	500	7			200			
OP 99077 LLBS	/	500	7			60			
FC9604-1	2	530	7						
	2	550							
	3	510							
	4	540							
	5	520							
	6	510							
	7	530							
FC9640-1	2	570						A4	
	2	550						A6	
FC9666-1	2	520							
	2	530							
	3	520	7	N/A	25		5	A6	
GH 09/19/23									
OPFC9640-1MS	3	530	7	N/A	25	200	5	A4	
OP MSD									
OPFC9640-2DUP	3	530	7	N/A	25		5	A4	

Comments:

EIS (SURR) ID: 119675-J Conc: 250-5000ng/ml Exp. Date: 09/07/24 Inj. By: GH Ver. By: Jca
 SPIKE.1 ID: LCM82175C Conc: VARIED Exp. Date: 12/28/23 Inj. By: GH Ver. By: Jca
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 119666-J-J Conc: 250-1000 Exp. Date: 9/18/24 Inj. By: MW Ver. By: NG

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot# 232031 1% NH4OH MeOH PF604 SPE Lot# 6744688-01
 Water Lot# OP98930 0.3M Formic Acid PF585 Syringe filter Lot# _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 205423
 0.1M Formic PF605 5% Formic Acid _____ Carbon Lot# 99687

Relinquished By: Gabriella Ford
 Accepted By: MW

Date: 09/19/23
 Date: 9/20/23

7.10.1
7

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 9/25/23
Started (mm/dd/yyyy 24:00)

9:45

Method: EPA 1633 Draft QSM 1u40

Date/Time: 9/25/23 17:00
Finished (mm/dd/yyyy 24:00)

Balance ID: _____

Batch#: 0P99174 Ext. By: JCR

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 99174 MB		500	7	NA	25		5	H	
OP 99174 BS		500							
OP 99174 LLBS		500				200			
FC 9604-2	3	520				60			
-3	3	490							
-6	3	530	7	NA	25		5	H	
JCR 9/25/23									
OP MA → MS									
OP MA → MSD									
OP MA → DUP									

Comments:

EIS (SURR) ID: 1002 D-E Conc: 250-surry/ml Exp. Date: 9/13/24 Inj. By: JCR Ver. By: KG
 SPIKE.1 ID: LCMS 2190 Conc: urled Exp. Date: 12/28/23 Inj. By: JCR Ver. By: KG
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 11987A-C Conc: 250-1000 Exp. Date: 9/18/24 Inj. By: MW Ver. By: NS

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot # 232031 1% NH4OH MeOH PF619 SPE Lot # 6752453-01
 Water Lot# DZ H2O 0.3M Formic Acid PF613 Syringe filter Lot # _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 205423
 0.1M Formic PF605 5% Formic Acid _____ Carbon Lot# 99687

Relinquished By: JCR
 Accepted By: MW

Date: 9/25/23
 Date: 9/25/23

1633 AQ extraction 042222 xls NF

7.102
7