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## Technical Report for

**AECOM, INC.**

**N6274223F0104 RH Fire Suppression System**

**60697810**

**SGS Job Number: FC5890**

**Sampling Date: 05/05/23**



### Report to:

**AECOM, Inc**  
**7595 Technology Way**  
**Denver, CO 80237**  
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**ATTN: Katie Abbott**

**Total number of pages in report: 1054**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

**Norm Farmer**  
**Technical Director**

**Client Service contact: Elvin Kumar 407-425-6700**

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)  
DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),  
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Test results relate only to samples analyzed.



May 17, 2023

Katie Abbott  
AECOM  
7595 Technology Way  
Denver, CO 80237

RE: SGS North America Inc. - Orlando job FC5890 Reissue

Dear Katie,

The results for samples FC5890-1 (AF-RHMW02-WGN01LF-2305W1) and FC5890-2 (AF-RHMW02-WGFD01LF-2305W1) changed as the interference moved when re-analyzed on the other instrument. The changes are incorporated in the revised report for sample delivery group FC5890

SGS North America Inc. - Orlando apologizes for any inconvenience this may have caused. Please feel free to contact us if we can be of further assistance.

Sincerely,

SGS North America, Inc. - Orlando



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## Sample Summary

AECOM, INC.

Job No: FC5890

N6274223F0104 RH Fire Suppression System  
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC5890-1	05/05/23	09:55	GAMY05/06/23	AQ	Ground Water	AF-RHMW02-WGN01LF-2305W1
FC5890-2	05/05/23	09:55	GAMY05/06/23	AQ	Ground Water	AF-RHMW02-WGFD01LF-2305W1
FC5890-3	05/05/23	11:25	GAMY05/06/23	AQ	Ground Water	AF-RHMW03-WGN01LF-2305W1

# SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** AECOM, INC.

**Job No:** FC5890

**Site:** N6274223F0104 RH Fire Suppression System

**Report Revised Date:** 5/17/2023 4:31:58 PM

On 05/06/2023, 3 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 2.6 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC5890 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:** OP96784

Sample(s) FC5890-1MS, FC5890-2DUP were used as the QC samples indicated.

RPD(s) for Duplicate for 6:2 Fluorotelomer sulfonate are outside control limits for sample OP96784-DUP. Probable cause is due to sample non-homogeneity.

FC5890-1: Confirmation run.

FC5890-2: Confirmation run.

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 revised May 17, 2023 by:

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

## Summary of Hits

**Job Number:** FC5890  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 05/05/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FC5890-1	AF-RHMW02-WGN01LF-2305W1					
Perfluoroheptanoic acid		0.56 J	3.6	1.8	ng/l	EPA DRAFT 1633
FC5890-2	AF-RHMW02-WGFD01LF-2305W1					
Perfluorohexanoic acid		0.57 J	3.6	1.8	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid		0.71 J	3.6	1.8	ng/l	EPA DRAFT 1633
FC5890-3	AF-RHMW03-WGN01LF-2305W1					
Perfluorobutanoic acid		1.8 J	15	3.8	ng/l	EPA DRAFT 1633
Perfluoropentanoic acid		3.3 J	7.5	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid		2.0 J	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid		1.6 J	3.8	1.9	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate		5.3 J	19	7.5	ng/l	EPA DRAFT 1633

**Sample Results**

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**Report of Analysis**

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SGS North America Inc.

## Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW02-WGN01LF-2305W1		
Lab Sample ID:	FC5890-1	Date Sampled:	05/05/23
Matrix:	AQ - Ground Water	Date Received:	05/06/23
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	6Q17752.D	1	05/12/23 15:38	MV	05/08/23 10:30	OP96784	S6Q268
Run #2 <sup>a</sup>	4Q44179.D	1	05/10/23 00:27	MV	05/08/23 10:30	OP96784	S4Q639

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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## PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	3.6 U	15	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.3	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	0.56	3.6	1.8	0.45	ng/l	J
335-67-1	Perfluorooctanoic acid	0.91 U	3.6	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	

## PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.6	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.6	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	

## FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	

## PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.8 U	3.6	1.8	0.61	ng/l	
31506-32-8	MeFOSA	3.6 U	7.3	3.6	0.91	ng/l	
4151-50-2	EtFOSA	3.6 U	7.3	3.6	0.91	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

# Report of Analysis

Client Sample ID:	AF-RHMW02-WGN01LF-2305W1		
Lab Sample ID:	FC5890-1	Date Sampled:	05/05/23
Matrix:	AQ - Ground Water	Date Received:	05/06/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No. Compound Result LOQ LOD DL Units Q

**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

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

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	18 U	36	18	4.0	ng/l
1691-99-2	EtFOSE	18 U	36	18	6.7	ng/l

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	1.8 U	3.6	1.8	0.91	ng/l
919005-14-4	ADONA	3.6 U	7.3	3.6	1.7	ng/l
377-73-1	PFMPA	1.8 U	7.3	1.8	0.91	ng/l
863090-89-5	PFMBA	3.6 U	7.3	3.6	1.0	ng/l
151772-58-6	NFDHA	3.6 U	7.3	3.6	1.1	ng/l

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	7.3	3.6	1.3	ng/l
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	7.3	3.6	1.6	ng/l
113507-82-7	PFEESA	1.8 U	7.3	1.8	0.71	ng/l

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	9.1 U	18	9.1	4.1	ng/l
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	91	18	7.9	ng/l
812-70-4	7:3 Fluorotelomer carboxylate	18 U	91	18	7.1	ng/l

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

13C4-PFBA	68%	66%	20-150%
13C5-PFPeA	95%	87%	20-150%
13C5-PFHxA	115%	114%	20-150%
13C4-PFHpA	115%	120%	20-150%
13C8-PFOA	107%	114%	20-150%
13C9-PFNA	120%	106%	20-150%
13C6-PFDA	110%	107%	20-150%
13C7-PFUnDA	103%	108%	20-150%
13C2-PFDoDA	88%	93%	20-150%
13C2-PFTeDA	69%	63%	20-150%
13C3-PFBS	113%	108%	20-150%
13C3-PFHxS	118%	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

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 4

## Report of Analysis

Client Sample ID:	AF-RHMW02-WGN01LF-2305W1		Date Sampled:	05/05/23
Lab Sample ID:	FC5890-1		Date Received:	05/06/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	100%	104%	20-150%
	13C8-FOSA	79%	83%	20-150%
	d3-MeFOSA	74%	72%	20-150%
	d5-EtFOSA	71%	71%	20-150%
	d3-MeFOSAA	104%	125%	20-150%
	d5-EtFOSAA	106%	125%	20-150%
	d7-MeFOSE	69%	59%	20-150%
	d9-EtFOSE	74%	61%	20-150%
	13C2-4:2FTS	161%	153%	20-180%
	13C2-6:2FTS	122%	141%	20-180%
	13C2-8:2FTS	105%	118%	20-180%
	13C3-HFPO-DA	90%	85%	20-150%

(a) Confirmation run.

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

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Client Sample ID:	AF-RHMW02-WGFD01LF-2305W1		
Lab Sample ID:	FC5890-2	Date Sampled:	05/05/23
Matrix:	AQ - Ground Water	Date Received:	05/06/23
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	6Q17755.D	1	05/12/23 16:21	MV	05/08/23 10:30	OP96784	S6Q268
Run #2 <sup>a</sup>	4Q44181.D	1	05/10/23 00:55	MV	05/08/23 10:30	OP96784	S4Q639

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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## PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	3.6 U	15	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.3	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	0.57	3.6	1.8	0.45	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.71	3.6	1.8	0.45	ng/l	J
335-67-1	Perfluorooctanoic acid	0.91 U	3.6	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	

## PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.6	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.6	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	

## FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	

## PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.8 U	3.6	1.8	0.61	ng/l	
31506-32-8	MeFOSA	3.6 U	7.3	3.6	0.91	ng/l	
4151-50-2	EtFOSA	3.6 U	7.3	3.6	0.91	ng/l	

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

# Report of Analysis

Client Sample ID:	AF-RHMW02-WGFD01LF-2305W1		Date Sampled:	05/05/23
Lab Sample ID:	FC5890-2	Date Received:	05/06/23	
Matrix:	AQ - Ground Water	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
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**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

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

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	18 U	36	18	4.0	ng/l	
1691-99-2	EtFOSE	18 U	36	18	6.7	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	1.8 U	3.6	1.8	0.91	ng/l	
919005-14-4	ADONA	3.6 U	7.3	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	7.3	1.8	0.91	ng/l	
863090-89-5	PFMBA	3.6 U	7.3	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	7.3	3.6	1.1	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	7.3	3.6	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	7.3	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	7.3	1.8	0.71	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	9.1 U	18	9.1	4.1	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	91	18	7.9	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	91	18	7.1	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	65%	63%	20-150%
	13C5-PFPeA	92%	81%	20-150%
	13C5-PFHxA	110%	107%	20-150%
	13C4-PFHpA	108%	107%	20-150%
	13C8-PFOA	105%	101%	20-150%
	13C9-PFNA	101%	102%	20-150%
	13C6-PFDA	97%	100%	20-150%
	13C7-PFUnDA	97%	102%	20-150%
	13C2-PFDoDA	89%	92%	20-150%
	13C2-PFTeDA	66%	62%	20-150%
	13C3-PFBS	110%	101%	20-150%
	13C3-PFHxS	109%	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

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## Report of Analysis

Client Sample ID:	AF-RHMW02-WGFD01LF-2305W1		Date Sampled:	05/05/23
Lab Sample ID:	FC5890-2		Date Received:	05/06/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	101%	101%	20-150%
	13C8-FOSA	78%	84%	20-150%
	d3-MeFOSA	76%	69%	20-150%
	d5-EtFOSA	70%	72%	20-150%
	d3-MeFOSAA	95%	118%	20-150%
	d5-EtFOSAA	104%	126%	20-150%
	d7-MeFOSE	68%	59%	20-150%
	d9-EtFOSE	78%	65%	20-150%
	13C2-4:2FTS	163%	168%	20-180%
	13C2-6:2FTS	122%	128%	20-180%
	13C2-8:2FTS	102%	114%	20-180%
	13C3-HFPO-DA	87%	79%	20-150%

(a) Confirmation run.

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-RHMW03-WGN01LF-2305W1		
Lab Sample ID:	FC5890-3	Date Sampled:	05/05/23
Matrix:	AQ - Ground Water	Date Received:	05/06/23
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	4Q44183.D	1	05/10/23 01:23	MV	05/08/23 10:30	OP96784	S4Q639
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	1.8	15	3.8	1.8	ng/l	J
2706-90-3	Perfluoropentanoic acid	3.3	7.5	1.9	0.89	ng/l	J
307-24-4	Perfluorohexanoic acid	2.0	3.8	1.9	0.47	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.6	3.8	1.9	0.47	ng/l	J
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	
<b>PERFLUOROALKYL SULFONIC ACIDS</b>							
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	
<b>FLUOROTELOMER SULFONIC ACIDS</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	5.3	19	7.5	3.3	ng/l	J
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	
<b>PERFLUOROOCCTANE SULFONAMIDES</b>							
754-91-6	PFOSA	1.9 U	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-RHMW03-WGN01LF-2305W1		Date Sampled:	05/05/23
Lab Sample ID:	FC5890-3	Date Received:	05/06/23	
Matrix:	AQ - Ground Water	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	4.7	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	92%		20-150%
	13C5-PFPeA	104%		20-150%
	13C5-PFHxA	109%		20-150%
	13C4-PFHpA	113%		20-150%
	13C8-PFOA	107%		20-150%
	13C9-PFNA	111%		20-150%
	13C6-PFDA	109%		20-150%
	13C7-PFUnDA	101%		20-150%
	13C2-PFDoDA	84%		20-150%
	13C2-PFTeDA	69%		20-150%
	13C3-PFBS	109%		20-150%
	13C3-PFHxS	97%		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

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 4

## Report of Analysis

Client Sample ID:	AF-RHMW03-WGN01LF-2305W1		Date Sampled:	05/05/23
Lab Sample ID:	FC5890-3		Date Received:	05/06/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	92%		20-150%
	13C8-FOSA	86%		20-150%
	d3-MeFOSA	75%		20-150%
	d5-EtFOSA	75%		20-150%
	d3-MeFOSAA	113%		20-150%
	d5-EtFOSAA	111%		20-150%
	d7-MeFOSE	62%		20-150%
	d9-EtFOSE	64%		20-150%
	13C2-4:2FTS	140%		20-180%
	13C2-6:2FTS	110%		20-180%
	13C2-8:2FTS	123%		20-180%
	13C3-HFPO-DA	92%		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**

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**Includes the following where applicable:**

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



SGS North America Inc - Orlando

Chain of Custody


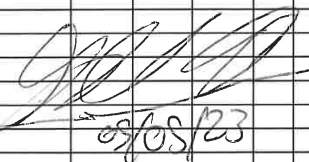
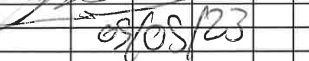
4405 Vineland Road, Suite C-15 Orlando, FL 32811  
TEL: 407-425-6700 FAX: 407-425-0707  
www.sgs.com

FC5890

COC #: 2305W1AFSG01

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														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
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 # 60697810														
Phone #: 303-796-4624 / 808-954-4512			Fax #										PFAS EPA Draft: 1633				
Sampler(s) Name(s) (Printed) Sampler 1: <i>ATB/CC/KR</i> Sampler 2: <i>WRC/YM</i>			Client Purchase Order #														
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	POME	PCD	NOSH	PAC3	PSS3A	MACH-ZNAC	DI WATER	MECH	LAB USE ONLY	
1	AF-RHMW02-WGN01LF-2305W1	5/15/23	0955	GA MY	GW	3		X								X	
2	AF-RHMW02-WGFD01LF-2305W1	5/15/23	0955	GA MY	GW	3		X								X	
																INITIAL ASSESSMENT <i>SP</i>	
																LABEL VERIFICATION <i>AK</i>	
Turnaround Time ( Business days)						Data Deliverable Information						Comments / Remarks					
10 Day (Business) _____ 7 Day _____ <input checked="" type="checkbox"/> 5 Day _____ 3 Day RUSH _____ 2 Day RUSH _____ 1 Day RUSH _____ Other _____			Approved By: / Date: _____			<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S						EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW <i>United AWB 016-92539145</i>					
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 1 <i>ATB/CC/KR</i>		Date Time: <i>5/15/23</i>		Received By/Affiliation 2 <i>Alex Edwards</i>		Date Time: <i>5/15/23</i>		Relinquished By/Affiliation 3 <i>Alex Edwards, AECOM</i>		Date Time: <i>5/15/23</i>		Received By/Affiliation 4 <i>United Cargo</i>		Date Time: _____			
Relinquished by/Affiliation 5 <i>United Cargo</i>		Date Time: _____		Received By/Affiliation 6 <i>ATB/CC/KR</i>		Date Time: <i>5/16/23</i>		Relinquished By/Affiliation 7 _____		Date Time: _____		Received By/Affiliation 8 _____		Date Time: _____			
Lab Use Only: Cooler Temperature (s) Celsius (corrected): <i>16.6 IRH1</i>																	

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FC5890: Chain of Custody

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SGS North America Inc - Orlando  
Chain of Custody


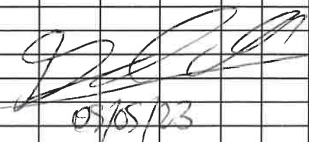
4405 Vineland Road, Suite C-15 Orlando, FL 32811  
TEL: 407-425-6700 FAX: 407-425-0717  
www.sgs.com

FC5890

COC #: 2305W1AFSG02

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																				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 Manager: Watson Tani Email: watson.tani@aecom.com			Project # 60697810																				
Phone #: 303-796-4624 / 808-954-4512			Fax #										PFAS EPA Draft 1633										
Sampler(s) Name(s) (Printed) Sampler 1: <u>GABRIEL ALEX</u> Sampler 2: <u>MATT YM</u>			Client Purchase Order #																				
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	PCB	PCP	NaOH	NaCl	NaNO3	NaNO2	NaOH-ZnAC	DI WATER	W/COH	LAB USE ONLY						
3	AF-RHMW03-WGN01LF-2305W1	05/03/23	1125	MY GA	GW	3		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 _____ Rush T/A Data Available VIA Email or Lablink				<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 AWR 016-92539145									
Sample Custody must be documented below each time samples change possession, including courier delivery.																							
Relinquished by/Sampler/Affiliation		Date Time: 05/03/23		Received By/Affiliation		Date Time: 05/06/23		Relinquished By/Affiliation		Date Time: 5/10/23		Received By/Affiliation		Date Time: 5/10/23		Received By/Affiliation							
1 Gabriel Alex/Aecom				2 Alex Edwards/AEcom				3 Alex Edwards				4 United Cargo				5 United Cargo							
Lab Use Only: Cooler Temperature (e) Celsius (corrected): _____																							

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<http://www.sgs.com/en/terms-and-conditions>

FC5890: Chain of Custody

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## SGS Sample Receipt Summary

Job Number: FC5890

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 5/6/2023 2:30:00 PM

Delivery Method: United Cargo/Airspace

Airbill #'s: United Cargo AWB #: 016-92539145

Therm ID: IR 1;

Therm CF: -0.1;

# of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (2.7);

Cooler Temps (Corrected) °C: Cooler 1: (2.6);

**Cooler Information**

Y or N

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

**Sample Information**

Y or N N/A

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

**Trip Blank Information**

Y or N N/A

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

W or S N/A

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

**Misc. Information**

Number of Encores: 25-Gram \_\_\_\_\_ 5-Gram \_\_\_\_\_ Number of 5035 Field Kits: \_\_\_\_\_ Number of Lab Filtered Metals: \_\_\_\_\_  
 Test Strip Lot #: pH 0-3 \_\_\_\_\_ 230320 \_\_\_\_\_ pH 10-12 \_\_\_\_\_ 25BDH07 \_\_\_\_\_ Other: (Specify) pH 1.0 - 12.0 \_\_\_\_\_ 222221 \_\_\_\_\_  
 Residual Chlorine Test Strip Lot #: \_\_\_\_\_

Comments

SM001  
Rev. Date 05/24/17

Technician: SHAYLAP

Date: 5/6/2023 2:30:00 PM

Reviewer: SP

Date: 5/7/2023

FC5890: Chain of Custody

Page 3 of 3

# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FC5890  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 05/05/23

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 FC5890

5.2  
5

## MS Semi-volatiles

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## QC Data Summaries

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### 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: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q639-IBLK	4Q44136.D	1	05/09/23	MV	n/a	n/a	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-3

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: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q639-IBLK	4Q44136.D	1	05/09/23	MV	n/a	n/a	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-3

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	105% 20-150%
	13C5-PFHxA	98% 20-150%
	13C4-PFHpA	103% 20-150%
	13C8-PFOA	102% 20-150%
	13C9-PFNA	107% 20-150%
	13C6-PFDA	97% 20-150%
	13C7-PFUnDA	99% 20-150%
	13C2-PFDoDA	97% 20-150%
	13C2-PFTeDA	93% 20-150%
	13C3-PFBS	100% 20-150%
	13C3-PFHxS	93% 20-150%
	13C8-PFOS	104% 20-150%
	13C8-FOSA	109% 20-150%
	d3-MeFOSA	94% 20-150%
	d5-EtFOSA	103% 20-150%
	d3-MeFOSAA	100% 20-150%
	d5-EtFOSAA	108% 20-150%
	d7-MeFOSE	85% 20-150%
	d9-EtFOSE	90% 20-150%
	13C2-4:2FTS	103% 20-180%
	13C2-6:2FTS	111% 20-180%
	13C2-8:2FTS	116% 20-180%
	13C3-HFPO-DA	93% 20-150%

**Instrument Blank**

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q268-IBLK	6Q17746.D	1	05/12/23	MV	n/a	n/a	S6Q268

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

# Instrument Blank

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q268-IBLK	6Q17746.D	1	05/12/23	MV	n/a	n/a	S6Q268

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	97% 20-150%
	13C5-PFHxA	99% 20-150%
	13C4-PFHpA	101% 20-150%
	13C8-PFOA	105% 20-150%
	13C9-PFNA	96% 20-150%
	13C6-PFDA	118% 20-150%
	13C7-PFUnDA	116% 20-150%
	13C2-PFDoDA	107% 20-150%
	13C2-PFTeDA	108% 20-150%
	13C3-PFBS	106% 20-150%
	13C3-PFHxS	103% 20-150%
	13C8-PFOS	104% 20-150%
	13C8-FOSA	110% 20-150%
	d3-MeFOSA	107% 20-150%
	d5-EtFOSA	102% 20-150%
	d3-MeFOSAA	107% 20-150%
	d5-EtFOSAA	114% 20-150%
	d7-MeFOSE	115% 20-150%
	d9-EtFOSE	103% 20-150%
	13C2-4:2FTS	99% 20-180%
	13C2-6:2FTS	106% 20-180%
	13C2-8:2FTS	100% 20-180%
	13C3-HFPO-DA	98% 20-150%



## Continuing Calibration Blank

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q639-ICCB	4Q44174.D	1	05/09/23	MV	n/a	n/a	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

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: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q639-ICCB	4Q44174.D	1	05/09/23	MV	n/a	n/a	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

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	102% 20-150%
	13C5-PFHxA	100% 20-150%
	13C4-PFHpA	101% 20-150%
	13C8-PFOA	102% 20-150%
	13C9-PFNA	106% 20-150%
	13C6-PFDA	99% 20-150%
	13C7-PFUnDA	108% 20-150%
	13C2-PFDoDA	103% 20-150%
	13C2-PFTeDA	102% 20-150%
	13C3-PFBS	94% 20-150%
	13C3-PFHxS	95% 20-150%
	13C8-PFOS	94% 20-150%
	13C8-FOSA	102% 20-150%
	d3-MeFOSA	88% 20-150%
	d5-EtFOSA	91% 20-150%
	d3-MeFOSAA	107% 20-150%
	d5-EtFOSAA	108% 20-150%
	d7-MeFOSE	76% 20-150%
	d9-EtFOSE	79% 20-150%
	13C2-4:2FTS	115% 20-180%
	13C2-6:2FTS	129% 20-180%
	13C2-8:2FTS	143% 20-180%
	13C3-HFPO-DA	89% 20-150%

6.1.3

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## Continuing Calibration Blank

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q639-ICCB	4Q44185.D	1	05/10/23	MV	n/a	n/a	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

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: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q639-ICCB	4Q44185.D	1	05/10/23	MV	n/a	n/a	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

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	103% 20-150%
	13C5-PFPeA	99% 20-150%
	13C5-PFHxA	100% 20-150%
	13C4-PFHpA	101% 20-150%
	13C8-PFOA	101% 20-150%
	13C9-PFNA	101% 20-150%
	13C6-PFDA	107% 20-150%
	13C7-PFUnDA	109% 20-150%
	13C2-PFDoDA	105% 20-150%
	13C2-PFTeDA	98% 20-150%
	13C3-PFBS	101% 20-150%
	13C3-PFHxS	104% 20-150%
	13C8-PFOS	91% 20-150%
	13C8-FOSA	95% 20-150%
	d3-MeFOSA	89% 20-150%
	d5-EtFOSA	87% 20-150%
	d3-MeFOSAA	106% 20-150%
	d5-EtFOSAA	114% 20-150%
	d7-MeFOSE	74% 20-150%
	d9-EtFOSE	77% 20-150%
	13C2-4:2FTS	148% 20-180%
	13C2-6:2FTS	146% 20-180%
	13C2-8:2FTS	153% 20-180%
	13C3-HFPO-DA	89% 20-150%

## Method Blank Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96784-MB	4Q44177.D	1	05/09/23	MV	05/08/23	OP96784	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

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: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96784-MB	4Q44177.D	1	05/09/23	MV	05/08/23	OP96784	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

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	113% 20-150%
	13C5-PFPeA	115% 20-150%
	13C5-PFHxA	113% 20-150%
	13C4-PFHpA	111% 20-150%
	13C8-PFOA	110% 20-150%
	13C9-PFNA	109% 20-150%
	13C6-PFDA	115% 20-150%
	13C7-PFUnDA	113% 20-150%
	13C2-PFDoDA	107% 20-150%
	13C2-PFTeDA	92% 20-150%
	13C3-PFBS	108% 20-150%
	13C3-PFHxS	105% 20-150%
	13C8-PFOS	110% 20-150%
	13C8-FOSA	92% 20-150%
	d3-MeFOSA	80% 20-150%
	d5-EtFOSA	85% 20-150%
	d3-MeFOSAA	128% 20-150%
	d5-EtFOSAA	117% 20-150%
	d7-MeFOSE	70% 20-150%
	d9-EtFOSE	75% 20-150%
	13C2-4:2FTS	154% 20-180%
	13C2-6:2FTS	147% 20-180%
	13C2-8:2FTS	153% 20-180%
	13C3-HFPO-DA	100% 20-150%

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## Method Blank Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96784-MB	6Q17751.D	1	05/12/23	MV	05/08/23	OP96784	S6Q268

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

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: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96784-MB	6Q17751.D	1	05/12/23	MV	05/08/23	OP96784	S6Q268

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

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	113% 20-150%
	13C5-PFPeA	118% 20-150%
	13C5-PFHxA	116% 20-150%
	13C4-PFHpA	114% 20-150%
	13C8-PFOA	108% 20-150%
	13C9-PFNA	108% 20-150%
	13C6-PFDA	116% 20-150%
	13C7-PFUnDA	114% 20-150%
	13C2-PFDoDA	105% 20-150%
	13C2-PFTeDA	103% 20-150%
	13C3-PFBS	118% 20-150%
	13C3-PFHxS	109% 20-150%
	13C8-PFOS	134% 20-150%
	13C8-FOSA	91% 20-150%
	d3-MeFOSA	93% 20-150%
	d5-EtFOSA	95% 20-150%
	d3-MeFOSAA	110% 20-150%
	d5-EtFOSAA	123% 20-150%
	d7-MeFOSE	90% 20-150%
	d9-EtFOSE	98% 20-150%
	13C2-4:2FTS	117% 20-180%
	13C2-6:2FTS	116% 20-180%
	13C2-8:2FTS	117% 20-180%
	13C3-HFPO-DA	113% 20-150%

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**Blank Spike Summary**

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96784-LLBS	4Q44176.D	1	05/09/23	MV	05/08/23	OP96784	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0268	89	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0131	87	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0067	89	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0067	89	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0063	84	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0067	89	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0067	89	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0077	103	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0064	85	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0068	91	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0065	87	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0058	87	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0061	86	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0065	95	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0063	88	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0064	92	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0064	89	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0062	86	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0061	84	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0238	85	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0259	91	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0298	103	40-150
754-91-6	PFOSA	0.0075	0.0072	96	40-150
31506-32-8	MeFOSA	0.015	0.0141	94	40-150
4151-50-2	EtFOSA	0.015	0.0141	94	40-150
2355-31-9	MeFOSAA	0.0075	0.0070	93	40-150
2991-50-6	EtFOSAA	0.0075	0.0061	81	40-150
24448-09-7	MeFOSE	0.0375	0.0356	95	40-150
1691-99-2	EtFOSE	0.0375	0.0289	77	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0138	92	40-150
919005-14-4	ADONA	0.0142	0.0139	98	40-150
377-73-1	PFMPA	0.015	0.0138	92	40-150
863090-89-5	PFMBA	0.015	0.0134	89	40-150
151772-58-6	NFDHA	0.015	0.0103	69	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0138	98	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0131	92	40-150

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96784-LLBS	4Q44176.D	1	05/09/23	MV	05/08/23	OP96784	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0121	91	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0251	67	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.164	87	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.187	100	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	112%	20-150%
	13C5-PFPeA	116%	20-150%
	13C5-PFHxA	113%	20-150%
	13C4-PFHpA	116%	20-150%
	13C8-PFOA	115%	20-150%
	13C9-PFNA	110%	20-150%
	13C6-PFDA	109%	20-150%
	13C7-PFUnDA	106%	20-150%
	13C2-PFDoDA	103%	20-150%
	13C2-PFTeDA	94%	20-150%
	13C3-PFBS	105%	20-150%
	13C3-PFHxS	104%	20-150%
	13C8-PFOS	108%	20-150%
	13C8-FOSA	73%	20-150%
	d3-MeFOSA	68%	20-150%
	d5-EtFOSA	72%	20-150%
	d3-MeFOSAA	114%	20-150%
	d5-EtFOSAA	112%	20-150%
	d7-MeFOSE	52%	20-150%
	d9-EtFOSE	59%	20-150%
	13C2-4:2FTS	144%	20-180%
	13C2-6:2FTS	145%	20-180%
	13C2-8:2FTS	132%	20-180%
	13C3-HFPO-DA	102%	20-150%

\* = Outside of Control Limits.

**Blank Spike Summary**

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96784-BS	4Q44175.D	1	05/09/23	MV	05/08/23	OP96784	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0895	90	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0456	91	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0223	89	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0232	93	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0218	87	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0230	92	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0229	92	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0231	92	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0226	90	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0219	88	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0236	94	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0197	89	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0206	88	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0222	97	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0219	92	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0223	96	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0219	91	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0215	89	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0197	81	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0879	94	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0866	91	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0939	98	40-150
754-91-6	PFOSA	0.025	0.0225	90	40-150
31506-32-8	MeFOSA	0.05	0.0496	99	40-150
4151-50-2	EtFOSA	0.05	0.0461	92	40-150
2355-31-9	MeFOSAA	0.025	0.0203	81	40-150
2991-50-6	EtFOSAA	0.025	0.0208	83	40-150
24448-09-7	MeFOSE	0.125	0.109	87	40-150
1691-99-2	EtFOSE	0.125	0.114	91	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0477	95	40-150
919005-14-4	ADONA	0.0473	0.0485	103	40-150
377-73-1	PFMPA	0.05	0.0469	94	40-150
863090-89-5	PFMBA	0.05	0.0452	90	40-150
151772-58-6	NFDHA	0.05	0.0381	76	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0495	106	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: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96784-BS	4Q44175.D	1	05/09/23	MV	05/08/23	OP96784	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0393	88	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0890	71	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.566	91	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.662	106	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	111%	20-150%
	13C5-PFPeA	113%	20-150%
	13C5-PFHxA	111%	20-150%
	13C4-PFHpA	109%	20-150%
	13C8-PFOA	106%	20-150%
	13C9-PFNA	103%	20-150%
	13C6-PFDA	108%	20-150%
	13C7-PFUnDA	112%	20-150%
	13C2-PFDoDA	106%	20-150%
	13C2-PFTeDA	89%	20-150%
	13C3-PFBS	101%	20-150%
	13C3-PFHxS	100%	20-150%
	13C8-PFOS	106%	20-150%
	13C8-FOSA	74%	20-150%
	d3-MeFOSA	63%	20-150%
	d5-EtFOSA	74%	20-150%
	d3-MeFOSAA	119%	20-150%
	d5-EtFOSAA	117%	20-150%
	d7-MeFOSE	53%	20-150%
	d9-EtFOSE	56%	20-150%
	13C2-4:2FTS	129%	20-180%
	13C2-6:2FTS	143%	20-180%
	13C2-8:2FTS	143%	20-180%
	13C3-HFPO-DA	97%	20-150%

\* = Outside of Control Limits.

## Matrix Spike Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96784-MS	4Q44180.D	1	05/10/23	MV	05/08/23	OP96784	S4Q639
FC5890-1 <sup>a</sup>	4Q44179.D	1	05/10/23	MV	05/08/23	OP96784	S4Q639
FC5890-1	6Q17752.D	1	05/12/23	MV	05/08/23	OP96784	S6Q268

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

CAS No.	Compound	FC5890-1 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.015 U <sup>b</sup>	0.0926	0.0859	93	40-150
2706-90-3	Perfluoropentanoic acid	0.0073 U <sup>b</sup>	0.0463	0.0544	118	40-150
307-24-4	Perfluorohexanoic acid	0.0036 U <sup>b</sup>	0.0231	0.0215	93	40-150
375-85-9	Perfluoroheptanoic acid	0.00056 U <sup>b</sup>	0.0231	0.0215	90	40-150
335-67-1	Perfluorooctanoic acid	0.0036 U <sup>b</sup>	0.0231	0.0214	92	40-150
375-95-1	Perfluorononanoic acid	0.0036 U <sup>b</sup>	0.0231	0.0195	84	40-150
335-76-2	Perfluorodecanoic acid	0.0036 U <sup>b</sup>	0.0231	0.0201	87	40-150
2058-94-8	Perfluoroundecanoic acid	0.0036 U <sup>b</sup>	0.0231	0.0214	92	40-150
307-55-1	Perfluorododecanoic acid	0.0036 U <sup>b</sup>	0.0231	0.0199	86	40-150
72629-94-8	Perfluorotridecanoic acid	0.0036 U <sup>b</sup>	0.0231	0.0173	75	40-150
376-06-7	Perfluorotetradecanoic acid	0.0036 U <sup>b</sup>	0.0231	0.0212	92	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0036 U <sup>b</sup>	0.0205	0.0177	86	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0045 U <sup>b</sup>	0.0218	0.0209	96	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0036 U <sup>b</sup>	0.0212	0.0210	99	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0036 U <sup>b</sup>	0.0221	0.0211	96	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0036 U <sup>b</sup>	0.0215	0.0213	99	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0036 U <sup>b</sup>	0.0223	0.0191	86	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0036 U <sup>b</sup>	0.0223	0.0177	79	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0045 U <sup>b</sup>	0.0225	0.0141	63	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.018 U <sup>b</sup>	0.0868	0.0817	94	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U <sup>b</sup>	0.088	0.0892	101	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U <sup>b</sup>	0.0889	0.0997	112	40-150
754-91-6	PFOSA	0.0036 U <sup>b</sup>	0.0231	0.0223	96	40-150
31506-32-8	MeFOSA	0.0073 U <sup>b</sup>	0.0463	0.0439	95	40-150
4151-50-2	EtFOSA	0.0073 U <sup>b</sup>	0.0463	0.0429	93	40-150
2355-31-9	MeFOSAA	0.0045 U <sup>b</sup>	0.0231	0.0188	81	40-150
2991-50-6	EtFOSAA	0.0045 U <sup>b</sup>	0.0231	0.0199	86	40-150
24448-09-7	MeFOSE	0.036 U <sup>b</sup>	0.116	0.108	93	40-150
1691-99-2	EtFOSE	0.036 U <sup>b</sup>	0.116	0.0976	84	40-150
13252-13-6	HFPO-DA (GenX)	0.0036 U <sup>b</sup>	0.0463	0.0437	94	40-150
919005-14-4	ADONA	0.0073 U <sup>b</sup>	0.0438	0.0520	119	40-150
377-73-1	PFMPA	0.0073 U <sup>b</sup>	0.0463	0.0320	69	40-150
863090-89-5	PFMBA	0.0073 U <sup>b</sup>	0.0463	0.0507	110	40-150
151772-58-6	NFDHA	0.0073 U <sup>b</sup>	0.0463	0.0192	41	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0073 U <sup>b</sup>	0.0433	0.0432	100	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0073 U <sup>b</sup>	0.0438	0.0398	91	40-150

\* = Outside of Control Limits.

# Matrix Spike Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96784-MS	4Q44180.D	1	05/10/23	MV	05/08/23	OP96784	S4Q639
FC5890-1 <sup>a</sup>	4Q44179.D	1	05/10/23	MV	05/08/23	OP96784	S4Q639
FC5890-1	6Q17752.D	1	05/12/23	MV	05/08/23	OP96784	S6Q268

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

CAS No.	Compound	FC5890-1 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0073 U <sup>b</sup>	0.0412	0.0357	87	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.018 U <sup>b</sup>	0.116	0.0606	52	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.091 U <sup>b</sup>	0.579	0.685	118	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.091 U <sup>b</sup>	0.579	0.782	135	40-150

CAS No.	ID Standard Recoveries	MS	FC5890-1	FC5890-1	Limits
	13C4-PFBA	76%	66%	68%	20-150%
	13C5-PFPeA	88%	87%	95%	20-150%
	13C5-PFHxA	113%	114%	115%	20-150%
	13C4-PFHpA	120%	120%	115%	20-150%
	13C8-PFOA	114%	114%	107%	20-150%
	13C9-PFNA	114%	106%	120%	20-150%
	13C6-PFDA	113%	107%	110%	20-150%
	13C7-PFUnDA	105%	108%	103%	20-150%
	13C2-PFDoDA	101%	93%	88%	20-150%
	13C2-PFTeDA	65%	63%	69%	20-150%
	13C3-PFBS	121%	108%	113%	20-150%
	13C3-PFHxS	106%	106%	118%	20-150%
	13C8-PFOS	100%	104%	100%	20-150%
	13C8-FOSA	104%	83%	79%	20-150%
	d3-MeFOSA	85%	72%	74%	20-150%
	d5-EtFOSA	86%	71%	71%	20-150%
	d3-MeFOSAA	130%	125%	104%	20-150%
	d5-EtFOSAA	127%	125%	106%	20-150%
	d7-MeFOSE	76%	59%	69%	20-150%
	d9-EtFOSE	77%	61%	74%	20-150%
	13C2-4:2FTS	181%* <sup>c</sup>	153%	161%	20-180%
	13C2-6:2FTS	161%	141%	122%	20-180%
	13C2-8:2FTS	127%	118%	105%	20-180%
	13C3-HFPO-DA	89%	85%	90%	20-150%

- (a) Confirmation run.
- (b) Result is from Run #2.
- (c) Outside control limits.

\* = Outside of Control Limits.

## Duplicate Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96784-DUP	6Q17757.D	1	05/12/23	MV	05/08/23	OP96784	S6Q268
FC5890-2 <sup>a</sup>	4Q44181.D	1	05/10/23	MV	05/08/23	OP96784	S4Q639
FC5890-2	6Q17755.D	1	05/12/23	MV	05/08/23	OP96784	S6Q268

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

CAS No.	Compound	FC5890-2 ug/l	DUP Q	ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.015 U <sup>b</sup>	ND		nc		30
2706-90-3	Perfluoropentanoic acid	0.0073 U <sup>b</sup>	ND		nc		30
307-24-4	Perfluorohexanoic acid	0.00057 U <sup>b</sup>	0.00058 J		2		30
375-85-9	Perfluoroheptanoic acid	0.00071 U <sup>b</sup>	0.00063 J		12		30
335-67-1	Perfluorooctanoic acid	0.0036 U <sup>b</sup>	ND		nc		30
375-95-1	Perfluorononanoic acid	0.0036 U <sup>b</sup>	ND		nc		30
335-76-2	Perfluorodecanoic acid	0.0036 U <sup>b</sup>	ND		nc		30
2058-94-8	Perfluoroundecanoic acid	0.0036 U <sup>b</sup>	ND		nc		30
307-55-1	Perfluorododecanoic acid	0.0036 U <sup>b</sup>	ND		nc		30
72629-94-8	Perfluorotridecanoic acid	0.0036 U <sup>b</sup>	ND		nc		30
376-06-7	Perfluorotetradecanoic acid	0.0036 U <sup>b</sup>	ND		nc		30
375-73-5	Perfluorobutanesulfonic acid	0.0036 U <sup>b</sup>	ND		nc		30
2706-91-4	Perfluoropentanesulfonic acid	0.0045 U <sup>b</sup>	ND		nc		30
355-46-4	Perfluorohexanesulfonic acid	0.0036 U <sup>b</sup>	ND		nc		30
375-92-8	Perfluoroheptanesulfonic acid	0.0036 U <sup>b</sup>	ND		nc		30
1763-23-1	Perfluorooctanesulfonic acid	0.0036 U <sup>b</sup>	ND		nc		30
68259-12-1	Perfluorononanesulfonic acid	0.0036 U <sup>b</sup>	ND		nc		30
335-77-3	Perfluorodecanesulfonic acid	0.0036 U <sup>b</sup>	ND		nc		30
79780-39-5	Perfluorododecanesulfonic aci	0.0045 U <sup>b</sup>	ND		nc		30
757124-72-44:2	Fluorotelomer sulfonate	0.018 U <sup>b</sup>	ND		nc		30
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U <sup>b</sup>	0.0032 J		200*		30
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U <sup>b</sup>	ND		nc		30
754-91-6	PFOSA	0.0036 U <sup>b</sup>	ND		nc		30
31506-32-8	MeFOSA	0.0073 U <sup>b</sup>	ND		nc		30
4151-50-2	EtFOSA	0.0073 U <sup>b</sup>	ND		nc		30
2355-31-9	MeFOSAA	0.0045 U <sup>b</sup>	ND		nc		30
2991-50-6	EtFOSAA	0.0045 U <sup>b</sup>	ND		nc		30
24448-09-7	MeFOSE	0.036 U <sup>b</sup>	ND		nc		30
1691-99-2	EtFOSE	0.036 U <sup>b</sup>	ND		nc		30
13252-13-6	HFPO-DA (GenX)	0.0036 U <sup>b</sup>	ND		nc		30
919005-14-4	ADONA	0.0073 U <sup>b</sup>	ND		nc		30
377-73-1	PFMPA	0.0073 U <sup>b</sup>	ND		nc		30
863090-89-5	PFMBA	0.0073 U <sup>b</sup>	ND		nc		30
151772-58-6	NFDHA	0.0073 U <sup>b</sup>	ND		nc		30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0073 U <sup>b</sup>	ND		nc		30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0073 U <sup>b</sup>	ND		nc		30

\* = Outside of Control Limits.



# Duplicate Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96784-DUP	6Q17757.D	1	05/12/23	MV	05/08/23	OP96784	S6Q268
FC5890-2 <sup>a</sup>	4Q44181.D	1	05/10/23	MV	05/08/23	OP96784	S4Q639
FC5890-2	6Q17755.D	1	05/12/23	MV	05/08/23	OP96784	S6Q268

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5890-1, FC5890-2, FC5890-3

CAS No.	Compound	FC5890-2 ug/l	DUP Q	ug/l	Q	RPD	Limits
113507-82-7PFEESA		0.0073 U <sup>b</sup>	ND			nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.018 U <sup>b</sup>	ND			nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.091 U <sup>b</sup>	ND			nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.091 U <sup>b</sup>	ND			nc	30

CAS No.	ID Standard Recoveries	DUP	FC5890-2	FC5890-2	Limits
	13C4-PFBA	66%	63%	65%	20-150%
	13C5-PFPeA	89%	81%	92%	20-150%
	13C5-PFHxA	109%	107%	110%	20-150%
	13C4-PFHpA	109%	107%	108%	20-150%
	13C8-PFOA	105%	101%	105%	20-150%
	13C9-PFNA	121%	102%	101%	20-150%
	13C6-PFDA	103%	100%	97%	20-150%
	13C7-PFUnDA	95%	102%	97%	20-150%
	13C2-PFDoDA	89%	92%	89%	20-150%
	13C2-PFTeDA	72%	62%	66%	20-150%
	13C3-PFBS	113%	101%	110%	20-150%
	13C3-PFHxS	122%	93%	109%	20-150%
	13C8-PFOS	91%	101%	101%	20-150%
	13C8-FOSA	89%	84%	78%	20-150%
	d3-MeFOSA	76%	69%	76%	20-150%
	d5-EtFOSA	81%	72%	70%	20-150%
	d3-MeFOSAA	99%	118%	95%	20-150%
	d5-EtFOSAA	94%	126%	104%	20-150%
	d7-MeFOSE	74%	59%	68%	20-150%
	d9-EtFOSE	80%	65%	78%	20-150%
	13C2-4:2FTS	166%	168%	163%	20-180%
	13C2-6:2FTS	117%	128%	122%	20-180%
	13C2-8:2FTS	98%	114%	102%	20-180%
	13C3-HFPO-DA	83%	79%	87%	20-150%

(a) Confirmation run.

(b) Result is from Run #2.

\* = Outside of Control Limits.



# Injection Standard Area Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q639-CC634	Injection Date:	05/09/23
Lab File ID:	4Q44172.D	Injection Time:	22:48
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal <sup>b</sup>	68618	2.93	45028	5.54	53770	7.12	24678	7.68	18492	8.18
Check Std <sup>c</sup>	76073	2.93	47242	5.56	57582	7.16	26686	7.71	19950	8.22
Upper Limit <sup>d</sup>	137236	3.33	90056	5.96	107540	7.56	49356	8.11	36984	8.62
Lower Limit <sup>e</sup>	20585	2.53	13508	5.16	16131	6.76	7403	7.31	5548	7.82

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF <sup>a</sup>
S4Q639-ICCB	65392	2.88	40232	5.56	49225	7.16	22561	7.71	16420	8.22	1
OP96784-BS	64239	2.93	39034	5.56	49121	7.16	23205	7.71	16339	8.22	1
OP96784-LLBS	62005	2.92	37437	5.56	45864	7.16	22901	7.71	16106	8.22	1
OP96784-MB	65634	2.93	39710	5.56	48691	7.16	24260	7.71	16125	8.22	1
ZZZZZZ	60277	2.93	36733	5.57	44723	7.16	20826	7.71	14685	8.22	1
FC5890-1 <sup>f</sup>	38459	2.92	39897	5.56	48461	7.16	25359	7.71	17658	8.22	1
OP96784-MS	35455	2.92	38041	5.56	46571	7.16	23305	7.71	16385	8.22	1
FC5890-2 <sup>f</sup>	40786	2.92	43148	5.55	52605	7.16	25303	7.71	18346	8.22	1
FC5890-3	59615	2.93	39893	5.56	47574	7.16	23291	7.71	16137	8.20	1
S4Q639-ECC634	77579	2.93	47284	5.56	59026	7.16	28140	7.71	19577	8.22	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: S4Q634-ICC634 4Q43887.D 05/03/23 11:54. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.
- (f) Confirmation run.

6.5.1  
6

# Injection Standard Area Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q639-CC634	Injection Date:	05/09/23
Lab File ID:	4Q44172.D	Injection Time:	22:48
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal <sup>b</sup>	5105	7.23	11432	8.33
Check Std <sup>c</sup>	5746	7.25	12493	8.37
Upper Limit <sup>d</sup>	10210	7.65	22864	8.77
Lower Limit <sup>e</sup>	1532	6.85	3430	7.97

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF <sup>a</sup>
S4Q639-ICCB	4801	7.25	10862	8.35	1
OP96784-BS	4713	7.25	10029	8.35	1
OP96784-LLBS	4548	7.25	10122	8.35	1
OP96784-MB	4713	7.25	10157	8.35	1
ZZZZZZ	4658	7.25	9852	8.35	1
FC5890-1 <sup>f</sup>	4531	7.25	10059	8.35	1
OP96784-MS	4144	7.25	9390	8.35	1
FC5890-2 <sup>f</sup>	4893	7.25	10375	8.35	1
FC5890-3	4589	7.25	10264	8.35	1
S4Q639-ECC634	5881	7.25	12026	8.35	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q634-ICC634 4Q43887.D 05/03/23 11:54. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.
- (f) Confirmation run.

6.5.1  
6

# Injection Standard Area Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q268-CC268	Injection Date:	05/12/23
Lab File ID:	6Q17749.D	Injection Time:	14:54
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 <sup>b</sup>	63276	2.90	46451	5.47	73935	7.07	24723	7.58	21248	8.06
Check Std <sup>c</sup>	66071	2.90	45307	5.47	76044	7.07	26492	7.60	20296	8.08
Upper Limit <sup>d</sup>	126552	3.30	92902	5.87	147870	7.47	49446	8.00	42496	8.48
Lower Limit <sup>e</sup>	18983	2.50	13935	5.07	22181	6.67	7417	7.20	6374	7.68

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF <sup>a</sup>
OP96784-MB	70990	2.90	49990	5.47	82742	7.07	28079	7.60	23105	8.08	1
FC5890-1	51435	2.90	42409	5.45	70439	7.07	20957	7.60	19563	8.06	1
FC5890-2	53304	2.90	43861	5.45	75845	7.07	23956	7.58	21081	8.06	1
OP96784-DUP	53190	2.90	46150	5.45	71291	7.07	22699	7.60	21441	8.06	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: S6Q268-ICC268 6Q17741.D 05/12/23 12:58. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.2  
6

# Injection Standard Area Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q268-CC268	Injection Date:	05/12/23
Lab File ID:	6Q17749.D	Injection Time:	14:54
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal <sup>b</sup>	8457	7.17	12749	8.23
Check Std <sup>c</sup>	7834	7.18	13675	8.23
Upper Limit <sup>d</sup>	16914	7.58	25498	8.63
Lower Limit <sup>e</sup>	2537	6.78	3825	7.83

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF <sup>a</sup>
OP96784-MB	8966	7.18	12779	8.23	1
FC5890-1	7328	7.18	11619	8.23	1
FC5890-2	7584	7.18	11893	8.23	1
OP96784-DUP	7677	7.18	12310	8.23	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q268-ICC268 6Q17741.D 05/12/23 12:58. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.2  
6

**TDCA Retention Time Check**

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.305	--	--
TDCA	6.847	1.458	1.000
TCDCA	6.686	1.619	1.000
TUDCA	5.842	2.463	1.000

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S4Q634-IC634	4Q43883.D	05/03/23	10:58	00:35	Mass Calibration Verification
S4Q634-IC634	4Q43884.D	05/03/23	11:12	00:49	Initial cal 1
S4Q634-IC634	4Q43885.D	05/03/23	11:26	01:03	Initial cal 2
S4Q634-IC634	4Q43886.D	05/03/23	11:40	01:17	Initial cal 3
S4Q634-ICC634	4Q43887.D	05/03/23	11:54	01:31	Initial cal 4
S4Q634-IC634	4Q43888.D	05/03/23	12:08	01:45	Initial cal 5
S4Q634-IC634	4Q43889.D	05/03/23	12:22	01:59	Initial cal 6
S4Q634-IC634	4Q43890.D	05/03/23	12:36	02:13	Initial cal 7
S4Q634-IC634	4Q43891.D	05/03/23	12:50	02:27	Initial cal 8
S4Q634-IBLK	4Q43892.D	05/03/23	13:04	02:41	Instrument Blank
S4Q634-IBLK	4Q43892.D	05/03/23	13:04	02:41	Instrument Blank
S4Q634-ICV634	4Q43894.D	05/03/23	13:20	02:57	Initial cal verification 20
S4Q634-ICV634	4Q43895.D	05/03/23	13:35	03:12	Initial cal verification 4
S4Q634-CC634	4Q43897.D	05/03/23	13:51	03:28	Continuing cal 1.0LL
OP96662-BS	4Q43898.D	05/03/23	14:05	03:42	Blank Spike
OP96662-LLBS	4Q43899.D	05/03/23	14:19	03:56	Blank Spike
OP96662-MB	4Q43900.D	05/03/23	14:33	04:10	Method Blank
ZZZZZZ	4Q43901.D	05/03/23	14:47	04:24	(unrelated sample)
ZZZZZZ	4Q43902.D	05/03/23	15:01	04:38	(unrelated sample)
ZZZZZZ	4Q43903.D	05/03/23	15:15	04:52	(unrelated sample)
ZZZZZZ	4Q43904.D	05/03/23	15:29	05:06	(unrelated sample)
FC5685-3	4Q43905.D	05/03/23	15:43	05:20	(used for QC only; not part of job FC5890)
OP96662-MS	4Q43906.D	05/03/23	15:57	05:34	Matrix Spike
S4Q634-CC634	4Q43907.D	05/03/23	16:11	05:48	Continuing cal 4
S4Q634-ICCB	4Q43908.D	05/03/23	16:25	06:02	Continuing Calibration Blank
FC5685-4	4Q43909.D	05/03/23	16:39	06:16	(used for QC only; not part of job FC5890)
OP96662-DUP	4Q43910.D	05/03/23	16:54	06:31	Duplicate
ZZZZZZ	4Q43911.D	05/03/23	17:08	06:45	(unrelated sample)
OP96659-BS	4Q43912.D	05/03/23	17:22	06:59	Blank Spike
OP96659-LLBS	4Q43913.D	05/03/23	17:36	07:13	Blank Spike
OP96659-MB	4Q43914.D	05/03/23	17:50	07:27	Method Blank
ZZZZZZ	4Q43916.D	05/03/23	18:18	07:55	(unrelated sample)
S4Q634-CC634	4Q43917.D	05/03/23	18:32	08:09	Continuing cal 4
S4Q634-ICCB	4Q43918.D	05/03/23	18:46	08:23	Continuing Calibration Blank

# TDCA Retention Time Check

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S4Q634-ICCB	4Q43918.D	05/03/23	18:46	08:23	Continuing Calibration Blank
ZZZZZZ	4Q43919.D	05/03/23	19:00	08:37	(unrelated sample)
ZZZZZZ	4Q43920.D	05/03/23	19:14	08:51	(unrelated sample)
ZZZZZZ	4Q43921.D	05/03/23	19:28	09:05	(unrelated sample)
ZZZZZZ	4Q43922.D	05/03/23	19:42	09:19	(unrelated sample)
OP96657-BS	4Q43923.D	05/03/23	19:56	09:33	Blank Spike
OP96657-LLBS	4Q43924.D	05/03/23	20:10	09:47	Blank Spike
OP96657-MB	4Q43925.D	05/03/23	20:24	10:01	Method Blank
ZZZZZZ	4Q43926.D	05/03/23	20:38	10:15	(unrelated sample)
S4Q634-CC634	4Q43927.D	05/03/23	20:53	10:30	Continuing cal 4
S4Q634-ICCB	4Q43928.D	05/03/23	21:07	10:44	Continuing Calibration Blank
S4Q634-ICCB	4Q43928.D	05/03/23	21:07	10:44	Continuing Calibration Blank
FC5371-11	4Q43929.D	05/03/23	21:21	10:58	(used for QC only; not part of job FC5890)
OP96657-MS	4Q43930.D	05/03/23	21:35	11:12	Matrix Spike
OP96657-MSD	4Q43931.D	05/03/23	21:49	11:26	Matrix Spike Duplicate
ZZZZZZ	4Q43932.D	05/03/23	22:03	11:40	(unrelated sample)
ZZZZZZ	4Q43933.D	05/03/23	22:17	11:54	(unrelated sample)
ZZZZZZ	4Q43935.D	05/03/23	22:45	12:22	(unrelated sample)
ZZZZZZ	4Q43936.D	05/03/23	22:59	12:36	(unrelated sample)
ZZZZZZ	4Q43938.D	05/03/23	23:27	13:04	(unrelated sample)
S4Q634-CC634	4Q43939.D	05/03/23	23:41	13:18	Continuing cal 4
S4Q634-ICCB	4Q43940.D	05/03/23	23:55	13:32	Continuing Calibration Blank
S4Q634-ICCB	4Q43940.D	05/03/23	23:55	13:32	Continuing Calibration Blank
ZZZZZZ	4Q43941.D	05/04/23	00:09	13:46	(unrelated sample)
FC5371-20	4Q43942.D	05/04/23	00:23	14:00	(used for QC only; not part of job FC5890)
OP96657-MS2	4Q43943.D	05/04/23	00:37	14:14	Matrix Spike
OP96657-MSD2	4Q43944.D	05/04/23	00:51	14:28	Matrix Spike Duplicate
ZZZZZZ	4Q43945.D	05/04/23	01:05	14:42	(unrelated sample)
S4Q634-ECC634	4Q43946.D	05/04/23	01:19	14:56	Ending cal 4
S4Q634-ICCB	4Q43947.D	05/04/23	01:34	15:11	Continuing Calibration Blank
S4Q634-ICCB	4Q43947.D	05/04/23	01:34	15:11	Continuing Calibration Blank

6.6.1

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# TDCA Retention Time Check

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q639-RT	Injection Date:	05/09/23
Lab File ID:	4Q44133.D	Injection Time:	13:28
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.343	--	--
TDCA	6.885	1.458	1.000
TCDCA	6.735	1.608	1.000
TUDCA	5.892	2.451	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
S4Q639-IBLK	4Q44136.D	05/09/23	14:10	00:42	Instrument Blank
S4Q639-IBLK	4Q44136.D	05/09/23	14:10	00:42	Instrument Blank
S4Q639-CC634	4Q44137.D	05/09/23	14:24	00:56	Continuing cal 4
S4Q639-CC634	4Q44138.D	05/09/23	14:38	01:10	Continuing cal 1.0LL
OP96746-BS	4Q44139.D	05/09/23	14:52	01:24	Blank Spike
OP96746-LLBS	4Q44140.D	05/09/23	15:06	01:38	Blank Spike
OP96746-MB	4Q44141.D	05/09/23	15:20	01:52	Method Blank
ZZZZZZ	4Q44144.D	05/09/23	16:02	02:34	(unrelated sample)
ZZZZZZ	4Q44145.D	05/09/23	16:26	02:58	(unrelated sample)
ZZZZZZ	4Q44146.D	05/09/23	16:40	03:12	(unrelated sample)
ZZZZZZ	4Q44148.D	05/09/23	17:11	03:43	(unrelated sample)
S4Q639-CC634	4Q44149.D	05/09/23	17:25	03:57	Continuing cal 4
S4Q639-ICCB	4Q44150.D	05/09/23	17:39	04:11	Continuing Calibration Blank
ZZZZZZ	4Q44151.D	05/09/23	17:53	04:25	(unrelated sample)
ZZZZZZ	4Q44152.D	05/09/23	18:07	04:39	(unrelated sample)
ZZZZZZ	4Q44153.D	05/09/23	18:21	04:53	(unrelated sample)
ZZZZZZ	4Q44154.D	05/09/23	18:35	05:07	(unrelated sample)
ZZZZZZ	4Q44155.D	05/09/23	18:49	05:21	(unrelated sample)
ZZZZZZ	4Q44156.D	05/09/23	19:03	05:35	(unrelated sample)
ZZZZZZ	4Q44157.D	05/09/23	19:17	05:49	(unrelated sample)
S4Q639-CC634	4Q44158.D	05/09/23	19:31	06:03	Continuing cal 4
S4Q639-ICCB	4Q44159.D	05/09/23	19:45	06:17	Continuing Calibration Blank
OP96747-BS	4Q44160.D	05/09/23	19:59	06:31	Blank Spike
OP96747-LLBS	4Q44161.D	05/09/23	20:13	06:45	Blank Spike
OP96747-MB	4Q44162.D	05/09/23	20:28	07:00	Method Blank
ZZZZZZ	4Q44163.D	05/09/23	20:42	07:14	(unrelated sample)
ZZZZZZ	4Q44164.D	05/09/23	20:56	07:28	(unrelated sample)
S4Q639-CC634	4Q44165.D	05/09/23	21:10	07:42	Continuing cal 4
S4Q639-ICCB	4Q44166.D	05/09/23	21:24	07:56	Continuing Calibration Blank
FC5818-3	4Q44167.D	05/09/23	21:38	08:10	(used for QC only; not part of job FC5890)
OP96747-MS	4Q44168.D	05/09/23	21:52	08:24	Matrix Spike
ZZZZZZ	4Q44169.D	05/09/23	22:06	08:38	(unrelated sample)
FC5818-5	4Q44170.D	05/09/23	22:20	08:52	(used for QC only; not part of job FC5890)
OP96747-DUP	4Q44171.D	05/09/23	22:34	09:06	Duplicate

# TDCA Retention Time Check

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q639-RT	Injection Date:	05/09/23
Lab File ID:	4Q44133.D	Injection Time:	13:28
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S4Q639-CC634	4Q44172.D	05/09/23	22:48	09:20	Continuing cal 4
S4Q639-CC634	4Q44173.D	05/09/23	23:02	09:34	Continuing cal 1.0LL
S4Q639-ICCB	4Q44174.D	05/09/23	23:16	09:48	Continuing Calibration Blank
OP96784-BS	4Q44175.D	05/09/23	23:30	10:02	Blank Spike
OP96784-LLBS	4Q44176.D	05/09/23	23:44	10:16	Blank Spike
OP96784-MB	4Q44177.D	05/09/23	23:58	10:30	Method Blank
ZZZZZZ	4Q44178.D	05/10/23	00:12	10:44	(unrelated sample)
FC5890-1	4Q44179.D	05/10/23	00:27	10:59	AF-RHMW02-WGN01LF-2305W1
OP96784-MS	4Q44180.D	05/10/23	00:41	11:13	Matrix Spike
FC5890-2	4Q44181.D	05/10/23	00:55	11:27	AF-RHMW02-WGFD01LF-2305W1
FC5890-3	4Q44183.D	05/10/23	01:23	11:55	AF-RHMW03-WGN01LF-2305W1
S4Q639-ECC634	4Q44184.D	05/10/23	01:37	12:09	Ending cal 4
S4Q639-ICCB	4Q44185.D	05/10/23	01:51	12:23	Continuing Calibration Blank

6.6.2  
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**TDCA Retention Time Check**

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q268-RT	Injection Date:	05/12/23
Lab File ID:	6Q17735.D	Injection Time:	11:31
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.228	--	--
TDCA	6.787	1.441	1.000
TCDCA	6.638	1.590	1.000
TUDCA	5.772	2.456	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
S6Q268-IC268	6Q17737.D	05/12/23	12:00	00:29	Mass Calibration Verification
S6Q268-IC268	6Q17738.D	05/12/23	12:15	00:44	Initial cal 1
S6Q268-IC268	6Q17739.D	05/12/23	12:29	00:58	Initial cal 2
S6Q268-IC268	6Q17740.D	05/12/23	12:44	01:13	Initial cal 3
S6Q268-ICC268	6Q17741.D	05/12/23	12:58	01:27	Initial cal 4
S6Q268-IC268	6Q17742.D	05/12/23	13:13	01:42	Initial cal 5
S6Q268-IC268	6Q17743.D	05/12/23	13:27	01:56	Initial cal 6
S6Q268-IC268	6Q17744.D	05/12/23	13:42	02:11	Initial cal 7
S6Q268-IC268	6Q17745.D	05/12/23	13:56	02:25	Initial cal 8
S6Q268-IBLK	6Q17746.D	05/12/23	14:11	02:40	Instrument Blank
S6Q268-IBLK	6Q17746.D	05/12/23	14:11	02:40	Instrument Blank
S6Q268-ICV268	6Q17747.D	05/12/23	14:25	02:54	Initial cal verification 4
S6Q268-ICV268	6Q17748.D	05/12/23	14:40	03:09	Initial cal verification 20
S6Q268-CC268	6Q17749.D	05/12/23	14:54	03:23	Continuing cal 4
S6Q268-CC268	6Q17750.D	05/12/23	15:09	03:38	Continuing cal 1.0LL
OP96784-MB	6Q17751.D	05/12/23	15:23	03:52	Method Blank
FC5890-1	6Q17752.D	05/12/23	15:38	04:07	AF-RHMW02-WGN01LF-2305W1
FC5890-2	6Q17755.D	05/12/23	16:21	04:50	AF-RHMW02-WGFD01LF-2305W1
OP96784-DUP	6Q17757.D	05/12/23	16:50	05:19	Duplicate
S6Q268-CC268	6Q17759.D	05/12/23	17:19	05:48	Continuing cal 4
S6Q268-ICCB	6Q17760.D	05/12/23	17:34	06:03	Continuing Calibration Blank
OP96723-MS	6Q17762.D	05/12/23	18:03	06:32	Matrix Spike
OP96723-MSD	6Q17763.D	05/12/23	18:17	06:46	Matrix Spike Duplicate
S6Q268-CC268	6Q17764.D	05/12/23	18:32	07:01	Continuing cal 4
S6Q268-ICCB	6Q17765.D	05/12/23	18:46	07:15	Continuing Calibration Blank
OP96842-MB	6Q17766.D	05/12/23	19:00	07:29	Method Blank
OP96842-BS	6Q17767.D	05/12/23	19:15	07:44	Blank Spike
OP96842-LLBS	6Q17768.D	05/12/23	19:29	07:58	Blank Spike
ZZZZZZ	6Q17769.D	05/12/23	19:44	08:13	(unrelated sample)
ZZZZZZ	6Q17770.D	05/12/23	19:58	08:27	(unrelated sample)
ZZZZZZ	6Q17771.D	05/12/23	20:13	08:42	(unrelated sample)
FC5443-4	6Q17772.D	05/12/23	20:27	08:56	(used for QC only; not part of job FC5890)
ZZZZZZ	6Q17775.D	05/12/23	21:11	09:40	(unrelated sample)
S6Q268-ECC268	6Q17777.D	05/12/23	21:40	10:09	Ending cal 4

# TDCA Retention Time Check

**Job Number:** FC5890  
**Account:** AECOMCOD AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System

<b>Sample:</b> S6Q268-RT	<b>Injection Date:</b> 05/12/23
<b>Lab File ID:</b> 6Q17735.D	<b>Injection Time:</b> 11:31
<b>Instrument ID:</b> GCMS6Q	

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q268-ICCB	6Q17778.D	05/12/23	21:54	10:23	Continuing Calibration Blank

6.6.3

6

# Ion Ratio Summary

Job Number: FC5890  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q639 Method: EPA DRAFT 1633

Lab Sample ID	Lab File ID	Ion Ratios				
		PFBA	PFPeA	PFHxA	PFHpA	6:2FTS
S4Q634-ICC634	4Q43887.D	0	0	2.9	17.8	42.1
FC5890-1	4Q44179.D					
FC5890-2	4Q44181.D					
FC5890-3	4Q44183.D	0	0	3.4	16.2	41.7

6.7.1

6

# Ion Ratio Summary

Job Number: FC5890  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q268	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios	
		PFHxA	PFHpA
S6Q268-ICC268	6Q17741.D	4.8	16.3
FC5890-1	6Q17752.D		15.3
FC5890-2	6Q17755.D	7	10.8

6.7.2

6

# Isotope Dilution Standard Recovery Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6	S7	S8
FC5890-1	6Q17752.D	68	95	115	115	107	120	110	103
FC5890-1	4Q44179.D	66	87	114	120	114	106	107	108
FC5890-2	6Q17755.D	65	92	110	108	105	101	97	97
FC5890-2	4Q44181.D	63	81	107	107	101	102	100	102
FC5890-3	4Q44183.D	92	104	109	113	107	111	109	101
OP96784-BS	4Q44175.D	111	113	111	109	106	103	108	112
OP96784-DUP	6Q17757.D	66	89	109	109	105	121	103	95
OP96784-LLBS	4Q44176.D	112	116	113	116	115	110	109	106
OP96784-MB	4Q44177.D	113	115	113	111	110	109	115	113
OP96784-MB	6Q17751.D	113	118	116	114	108	108	116	114
OP96784-MS	4Q44180.D	76	88	113	120	114	114	113	105
S4Q639-IBLK	4Q44136.D	101	105	98	103	102	107	97	99
S4Q639-ICCB	4Q44174.D	102	102	100	101	102	106	99	108
S4Q639-ICCB	4Q44185.D	103	99	100	101	101	101	107	109
S6Q268-IBLK	6Q17746.D	100	97	99	101	105	96	118	116

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

6.8.1

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# Isotope Dilution Standard Recovery Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S9	S10	S11	S12	S13	S14	S15	S16
FC5890-1	6Q17752.D	88	69	113	118	100	79	74	71
FC5890-1	4Q44179.D	93	63	108	106	104	83	72	71
FC5890-2	6Q17755.D	89	66	110	109	101	78	76	70
FC5890-2	4Q44181.D	92	62	101	93	101	84	69	72
FC5890-3	4Q44183.D	84	69	109	97	92	86	75	75
OP96784-BS	4Q44175.D	106	89	101	100	106	74	63	74
OP96784-DUP	6Q17757.D	89	72	113	122	91	89	76	81
OP96784-LLBS	4Q44176.D	103	94	105	104	108	73	68	72
OP96784-MB	4Q44177.D	107	92	108	105	110	92	80	85
OP96784-MB	6Q17751.D	105	103	118	109	134	91	93	95
OP96784-MS	4Q44180.D	101	65	121	106	100	104	85	86
S4Q639-IBLK	4Q44136.D	97	93	100	93	104	109	94	103
S4Q639-ICCB	4Q44174.D	103	102	94	95	94	102	88	91
S4Q639-ICCB	4Q44185.D	105	98	101	104	91	95	89	87
S6Q268-IBLK	6Q17746.D	107	108	106	103	104	110	107	102

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

6.8.1

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# Isotope Dilution Standard Recovery Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S17	S18	S19	S20	S21	S22	S23	S24
FC5890-1	6Q17752.D	104	106	69	74	161	122	105	90
FC5890-1	4Q44179.D	125	125	59	61	153	141	118	85
FC5890-2	6Q17755.D	95	104	68	78	163	122	102	87
FC5890-2	4Q44181.D	118	126	59	65	168	128	114	79
FC5890-3	4Q44183.D	113	111	62	64	140	110	123	92
OP96784-BS	4Q44175.D	119	117	53	56	129	143	143	97
OP96784-DUP	6Q17757.D	99	94	74	80	166	117	98	83
OP96784-LLBS	4Q44176.D	114	112	52	59	144	145	132	102
OP96784-MB	4Q44177.D	128	117	70	75	154	147	153	100
OP96784-MB	6Q17751.D	110	123	90	98	117	116	117	113
OP96784-MS	4Q44180.D	130	127	76	77	181* a	161	127	89
S4Q639-IBLK	4Q44136.D	100	108	85	90	103	111	116	93
S4Q639-ICCB	4Q44174.D	107	108	76	79	115	129	143	89
S4Q639-ICCB	4Q44185.D	106	114	74	77	148	146	153	89
S6Q268-IBLK	6Q17746.D	107	114	115	103	99	106	100	98

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

(a) Outside control limits.

6.8.1  
6

# Initial Calibration Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

## Initial Calibration Report

Method Path	D:\MassHunter\methods											
Method File	1633_050323_S4Q634.quantmethod.xml											
Batch Name	D:\MassHunter\Data\050323_1633_S4Q634\QuantResults\4q634.batch.bin											
Last Calib Update	5/3/2023 2:36:06 PM											
Level Name	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
1	D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d											
2	D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d											
3	D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d											
4	D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d											
5	D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d											
6	D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d											
7	D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d											
8	D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d											
Compound	Level Last Update Time	Acq. Date-Time	ISTD								Avg RF	%RSD
I M4-PFBA	5/3/2023 2:36:06 PM	5/3/2023 11:12:11 AM	ISTD								0.2538	6.711
T PFBA	5/3/2023 2:36:06 PM	5/3/2023 11:26:14 AM	ISTD								0.2537	0.2678
I M5-PFPeA	5/3/2023 2:36:06 PM	5/3/2023 11:40:17 AM	ISTD								0.2588	6.286
T 3:3FTCA	5/3/2023 2:36:06 PM	5/3/2023 12:08:27 PM	ISTD								0.6080	0.6288
T PFPeA	5/3/2023 2:36:06 PM	5/3/2023 12:22:30 PM	ISTD								0.6115	0.6288
T PFMBa	5/3/2023 2:36:06 PM	5/3/2023 12:36:33 PM	ISTD								0.0517	0.6288
I M5-PFHxA	5/3/2023 2:36:06 PM	5/3/2023 12:50:36 PM	ISTD								1.1688	9.003
T NFDHA	5/3/2023 2:36:06 PM		ISTD								1.491	6.035
T PFHxA	5/3/2023 2:36:06 PM		ISTD								0.6512	4.441
T PFEEsA	5/3/2023 2:36:06 PM		ISTD								0.0720	0.0699
T 5:3FTCA	5/3/2023 2:36:06 PM		ISTD								0.9479	6.279
T 7:3FTCA	5/3/2023 2:36:06 PM		ISTD								0.7124	0.9796
I M4-PFHpA	5/3/2023 2:36:06 PM		ISTD								0.6927	6.397
T PFHpA	5/3/2023 2:36:06 PM		ISTD								0.1300	0.7414
I M8-PFOA	5/3/2023 2:36:06 PM		ISTD								0.0665	6.915
T PFOA	5/3/2023 2:36:06 PM		ISTD								0.0702	7.359
I M9-PFNA	5/3/2023 2:36:06 PM		ISTD								1.5459	7.913
T PFNA	5/3/2023 2:36:06 PM		ISTD								1.5452	1.5801
I M6-PFDA	5/3/2023 2:36:06 PM		ISTD								1.3697	5.553
T PFDA	5/3/2023 2:36:06 PM		ISTD								1.5034	1.4423
I M7-PFUnDA	5/3/2023 2:36:06 PM		ISTD								0.8803	4.296
T PFUnDA	5/3/2023 2:36:06 PM		ISTD								0.8935	0.9264
I M2-PFDODA	5/3/2023 2:36:06 PM		ISTD								0.9454	6.852
T PFODA	5/3/2023 2:36:06 PM		ISTD								0.9120	0.9484
			ISTD								0.8195	8.072
			ISTD								0.8568	0.8490

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# Initial Calibration Summary

Job Number: FC5890  
 Account: AECOM AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

## Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	1.0517	0.9317	0.9713	0.9511	0.9772	1.0612	1.0552	1.0246	1.0030	5.111
T PFTfDA	Avg RF	1.5121	1.2188	1.3516	1.3026	1.3355	1.3884	1.3320	1.2823	1.3404	6.405
I M2-PFTeDA	Avg RF	1.0874	1.1761	1.1742	1.2028	1.2067	1.2859	1.3553	1.3005	1.2236	6.981
T PFTeDA						ISTD					
I M8-FOSA	Avg RF	1.0199	1.0337	1.0399	1.0094	0.9598	1.0939	1.0715	1.1528	1.0476	5.585
T FOSA						ISTD					
I M3-PFBS	Avg RF	0.9762	0.9895	0.9259	1.0263	0.9986	1.0891	1.0880	1.1104	1.0255	6.333
T PFBS						ISTD					
I M3-PFHxS	Avg RF	0.8228	0.9177	0.8171	0.8943	0.8276	0.8739	0.9197	0.9591	0.8790	5.998
T PFPeS	Avg RF	0.9489	0.9500	0.9507	1.0599	1.0278	1.0253	1.0789	1.1563	1.0247	7.219
T PFHxS						ISTD					
I M8-PFOS	Avg RF	0.9069	0.7781	0.9593	0.8466	0.8745	0.9619	0.8979	0.9794	0.9006	7.515
T PFHpS	Avg RF	1.3089	1.0233	1.2520	1.2364	1.1129	1.3196	1.3138	1.2207	1.2235	8.626
T PFOs	Avg RF	0.5375	0.5103	0.6127	0.5196	0.5189	0.5548	0.5302	0.5821	0.5488	6.514
T PFNS	Avg RF	0.5712	0.6140	0.6741	0.6171	0.5955	0.6407	0.5899	0.6518	0.6193	5.558
T PFDS	Avg RF	0.5744	0.4802	0.5883	0.5423	0.5478	0.5826	0.5373	0.5686	0.5527	6.308
T PFDoDS						ISTD					
I M2-4:2FTS	Avg RF	7.7011	8.0461	8.0228	8.3503	7.8109	7.4550	8.9479	8.0189	8.0441	5.620
T 4:2FTS						ISTD					
I M2-6:2FTS	Avg RF	4.5824	4.8856	4.7997	5.3724	4.4974	4.7330	5.1432	4.6215	4.8294	6.168
T 6:2FTS						ISTD					
I M2-8:2FTS	Avg RF	2.6507	2.3592	2.9342	3.0041	2.9492	2.7714	3.0994	2.5303	2.7873	9.201
T 8:2FTS						ISTD					
I M3-MeFOSAA	Avg RF	1.0154	0.8321	0.7942	0.7955	0.8322	0.9054	0.8576	0.9393	0.8715	8.835
T MeFOSAA						ISTD					
I M3-HFO-DA	Avg RF	0.9249	0.9004	0.9267	0.9394	0.9088	1.0230	1.0020	1.0195	0.9556	5.314
T HFO-DA	Avg RF	9.9265	9.9475	9.8908	10.01	9.7701	10.46	10.24	10.20	10.06	2.258
T ADONA	Avg RF	4.3417	4.5268	4.6403	4.5503	4.4417	4.8388	4.6559	4.6434	4.5799	3.302
T 9Cl-PF3ONS	Avg RF	3.2726	3.4845	3.4936	3.6619	3.6116	3.8301	3.7290	3.6859	3.5961	4.847
T 11Cl-PF3OUds						ISTD					
I M5-EFOSAA	Avg RF	0.9545	0.9537	0.9862	0.8150	0.9424	0.9961	1.0072	1.0294	0.9605	6.864
T EFOSAA						ISTD					
I M7-MeFOSE	Avg RF	1.1230	1.0416	0.9123	1.0158	0.8815	1.0215	1.0555	1.1636	1.0268	9.268
T MeFOSE						ISTD					
I M9-EFOSE	Avg RF	0.9071	0.9448	0.9234	0.9458	0.9337	0.9977	1.0397	1.0504	0.9678	5.623
T EFOSE						ISTD					

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

# Initial Calibration Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

## Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA											
T EtFOSA	Avg RF	0.8263	1.0054	1.0110	1.0788	0.9993	1.1318	1.1661	1.1600	1.0473	10.776
I M3-MeFOSA											
T MeFOSA	Avg RF	0.8291	0.8709	0.9209	0.9057	0.9259	1.0268	1.0333	1.0217	0.9418	8.196
I 13C4-PFOS											
S d3-MeFOSAA	Linear	0.5858	0.6032	0.6022	0.6539	0.6144	0.6079	0.6982	0.6828	0.6311	6.608
S 13C8-PFOS	Linear	0.8673	0.9865	0.8358	0.9730	0.9142	0.9282	1.0539	0.9710	0.9412	7.418
S d5-EFOSAA	Linear	0.4472	0.4981	0.4701	0.5664	0.5250	0.5192	0.5559	0.5754	0.5197	8.850
S 13C8-FOSA	Linear	1.4476	1.5207	1.4801	1.7116	1.7515	1.5014	1.5770	1.5524	1.5678	6.968
S d7-MeFOSE	Linear	0.6942	0.7871	0.8307	0.9697	0.9467	0.6923	0.6787	0.6234	0.7778	16.563
S d3-MeFOSA	Linear	0.9149	0.9977	0.9568	1.0593	0.9573	0.9404	0.9859	1.0311	0.9804	4.890
S d9-EFOSE	Linear	1.0482	1.1457	1.1884	1.3249	1.2785	0.9836	0.9499	0.8920	1.1014	14.328
S d5-EFOSA	Linear	1.0190	1.0393	1.0002	1.0300	1.0340	1.0444	1.0900	1.0808	1.0422	2.880
I 13C3-PFBA											
S 13C4-PFBA	Linear	0.9419	0.9424	0.9441	0.9489	0.9425	0.9416	0.9399	0.9258	0.9409	0.708
I 1802-PFHxS											
S 13C2-4:2FTS	Linear	0.1148	0.1010	0.1095	0.0977	0.1033	0.1072	0.0917	0.0877	0.1016	8.935
S 13C3-PFBS	Linear	2.4774	2.3246	2.6089	2.2592	2.3778	2.2863	2.3961	2.1298	2.3575	6.150
S 13C2-6:2FTS	Linear	0.2018	0.1846	0.1959	0.1742	0.1956	0.1866	0.1682	0.1585	0.1832	8.231
S 13C3-PFHxS	Linear	1.5780	1.5174	1.6873	1.4849	1.5504	1.5703	1.5824	1.4264	1.5496	4.979
S 13C2-8:2FTS	Linear	0.3000	0.2936	0.2924	0.2737	0.2876	0.2969	0.2645	0.2787	0.2859	4.357
I 13C4-PFOA											
S 13C8-PFOA	Linear	0.8048	0.8379	0.8309	0.8093	0.8265	0.8219	0.8063	0.8294	0.8209	1.528
I 13C2-PFDA											
S 13C6-PFDA	Linear	1.0744	1.0307	1.0830	1.0667	1.0646	1.0841	1.1362	1.0251	1.0706	3.228
S 13C7-PFUDA	Linear	1.1430	1.0538	1.1673	1.1173	1.1842	1.1414	1.0804	1.0247	1.1140	5.044
S 13C2-PFDODA	Linear	1.1355	1.1282	1.2168	1.2688	1.2865	1.2138	1.2274	1.2123	1.2112	4.621
S 13C2-PFTeDA	Linear	0.9810	0.9567	1.0416	1.0420	1.0806	0.9685	0.9062	0.9075	0.9855	6.520
I 13C5-PFNA											
S 13C9-PFNA	Linear	0.8245	0.8755	0.8324	0.8282	0.8204	0.8292	0.8848	0.9024	0.8497	3.812
I 13C2-PFHxA											
S 13C5-PPeA	Linear	0.7803	0.7635	0.7594	0.7761	0.7821	0.7803	0.7656	0.7531	0.7701	1.435
S 13C5-PFHxA	Linear	1.1387	1.0991	1.0961	1.0805	1.1224	1.1056	1.0817	1.0850	1.1011	1.874
S 13C3-HPOdA	Linear	0.1628	0.1588	0.1598	0.1632	0.1644	0.1655	0.1701	0.1711	0.1645	2.681
S 13C4-PFHpA	Linear	0.6701	0.6325	0.6289	0.6410	0.6353	0.6389	0.6604	0.6415	0.6436	2.218

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

# Initial Calibration Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

## Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PBBA	Linear	y = 0.940892 * x	
S 13C5-PFPeA	Linear	y = 0.770055 * x	
S 13C2-4:2FTS	Linear	y = 0.101613 * x	
S 13C3-PFBS	Linear	y = 2.357511 * x	
S 13C5-PFHxA	Linear	y = 1.101142 * x	
S 13C3-HFPO-DA	Linear	y = 0.164465 * x	
S 13C4-PFHpA	Linear	y = 0.643569 * x	
S 13C2-6:2FTS	Linear	y = 0.183170 * x	
S 13C8-PFOA	Linear	y = 0.820904 * x	
S 13C3-PFHxS	Linear	y = 1.549646 * x	
S 13C9-PFNA	Linear	y = 0.849685 * x	
S 13C2-8:2FTS	Linear	y = 0.285923 * x	
S 13C6-PEDA	Linear	y = 1.070585 * x	
S d3-MeFOSAA	Linear	y = 0.631061 * x	
S 13C8-PFOS	Linear	y = 0.941239 * x	
S d5-EFOSAA	Linear	y = 0.519656 * x	
S 13C7-PFUInDA	Linear	y = 1.114017 * x	
S 13C2-PFDODA	Linear	y = 1.211165 * x	
S 13C8-FOSA	Linear	y = 1.567785 * x	
S 13C2-PFTeDA	Linear	y = 0.985520 * x	
S d7-MeFOSE	Linear	y = 0.7777842 * x	
S d3-MeFOSA	Linear	y = 0.980410 * x	
S d9-EFOSE	Linear	y = 1.101380 * x	
S d5-EFOSA	Linear	y = 1.042215 * x	

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

**Initial Calibration Verification**

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

## Continuing Calibration Report

Batch: D:\MassHunter\Data\050323\_1633\_S4Q634\s4q634.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43884.d  
 2:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43885.d  
 3:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43886.d  
 4:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43887.d  
 5:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43888.d  
 6:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43889.d  
 7:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43890.d  
 8:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43891.d

Data File: 4Q43894  
 Type : QC  
 Level : 20

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

# Initial Calibration Verification

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

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

CC Criteria: +/- 30%

**Initial Calibration Verification**

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

## Continuing Calibration Report

Batch: D:\MassHunter\Data\050323\_1633\_S4Q634\s4q634.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43884.d  
 2:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43885.d  
 3:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43886.d  
 4:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43887.d  
 5:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43888.d  
 6:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43889.d  
 7:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43890.d  
 8:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43891.d

Data File: 4Q43895  
 Type : QC  
 Level : 4

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

# Initial Calibration Verification

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

PFPeA	5.000	4.862	-2.8	97.2
PFPeS	2.353	2.157	-8.3	91.7
PFTeDA	2.500	2.573	2.9	102.9
PFTTrDA	2.500	2.326	-6.9	93.1
PFUnDA	2.500	2.535	1.4	101.4
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.708	-0.4	99.6
13C3-HFPO-DA	10.000	9.782	-2.2	97.8
9C1-PF3ONS	4.675	4.643	-0.7	99.3
ADONA	4.725	4.705	-0.4	99.6
HFPO-DA	5.000	5.194	3.9	103.9
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.478	0.0	100.0
5:3FTCA	62.400	61.286	-1.8	98.2
7:3FTCA	62.400	63.299	1.4	101.4
d3-MeFOSA	2.500	2.227	-10.9	89.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.831	-3.4	96.6
EtFOSE	12.500	12.331	-1.3	98.7
MeFOSA	5.000	5.497	9.9	109.9
MeFOSE	12.500	11.966	-4.3	95.7
PFDoDS	2.425	2.184	-9.9	90.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.122	2.4	102.4
d7-MeFOSE	25.000	19.955	-20.2	79.8
d9-EtFOSE	25.000	19.264	-22.9	77.1
d5-EtFOSA	2.500	2.483	-0.7	99.3
NFDHA	5.000	4.925	-1.5	98.5
PFMBA	5.000	4.790	-4.2	95.8
PFMPA	5.000	4.814	-3.7	96.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.399	-1.1	98.9

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634  
 Lab FileID: 4Q44172.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\050923\_1633\_S4Q639\s4q639.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43884.d  
 2:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43885.d  
 3:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43886.d  
 4:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43887.d  
 5:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43888.d  
 6:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43889.d  
 7:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43890.d  
 8:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43891.d

Data File: 4Q44172  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.790	15.8	115.8
13C2-6:2FTS	5.000	6.174	23.5	123.5
13C2-8:2FTS	5.000	6.259	25.2	125.2
13C2-PFDoDA	1.250	1.269	1.5	101.5
13C2-PFTeDA	1.250	1.137	-9.0	91.0
13C3-PFBS	2.500	2.331	-6.8	93.2
13C3-PFHxS	2.500	2.223	-11.1	88.9
13C4-PFBA	10.000	10.164	1.6	101.6
13C4-PFHpA	2.500	2.548	1.9	101.9
13C5-PFHxA	2.500	2.492	-0.3	99.7
13C5-PFPeA	5.000	5.163	3.3	103.3
13C6-PFDA	1.250	1.209	-3.3	96.7
13C7-PFUnDA	1.250	1.290	3.2	103.2
13C8-FOSA	2.500	2.688	7.5	107.5
13C8-PFOA	2.500	2.493	-0.3	99.7
13C8-PFOS	2.500	2.306	-7.7	92.3
13C9-PFNA	1.250	1.323	5.8	105.8
4:2FTS	9.375	9.338	-0.4	99.6
6:2FTS	9.500	9.315	-1.9	98.1
8:2FTS	9.600	10.528	9.7	109.7
d3-MeFOSAA	5.000	5.307	6.1	106.1
EtFOSAA	2.500	2.450	-2.0	98.0
FOSA	2.500	2.450	-2.0	98.0
MeFOSAA	2.500	2.415	-3.4	96.6
PFBA	10.000	9.705	-3.0	97.0
PFBS	2.218	2.088	-5.9	94.1
PFDA	2.500	2.548	1.9	101.9
PFDoDA	2.500	2.434	-2.6	97.4
PFDS	2.413	2.544	5.4	105.4
PFHpA	2.500	2.420	-3.2	96.8
PFHpS	2.383	2.427	1.8	101.8
PFHxA	2.500	2.347	-6.1	93.9
PFHxS	2.285	2.285	0.0	100.0
PFNA	2.500	2.311	-7.5	92.5
PFNS	2.405	2.387	-0.7	99.3
PFOA	2.500	2.373	-5.1	94.9
PFOS	2.320	2.305	-0.6	99.4



# Continuing Calibration Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634  
 Lab FileID: 4Q44172.D

PFPeA	5.000	4.819	-3.6	96.4
PFPeS	2.353	2.355	0.1	100.1
PFTeDA	2.500	2.509	0.4	100.4
PFTTrDA	2.500	2.442	-2.3	97.7
PFUnDA	2.500	2.430	-2.8	97.2
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.331	12.8	112.8
13C3-HFPO-DA	10.000	8.794	-12.1	87.9
9C1-PF3ONS	4.675	5.343	14.3	114.3
ADONA	4.725	5.162	9.3	109.3
HFPO-DA	5.000	5.119	2.4	102.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.552	0.6	100.6
5:3FTCA	62.400	68.409	9.6	109.6
7:3FTCA	62.400	73.628	18.0	118.0
d3-MeFOSA	2.500	2.368	-5.3	94.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.889	-2.2	97.8
EtFOSE	12.500	11.642	-6.9	93.1
MeFOSA	5.000	4.928	-1.4	98.6
MeFOSE	12.500	12.092	-3.3	96.7
PFDoDS	2.425	2.403	-0.9	99.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.710	14.2	114.2
d7-MeFOSE	25.000	21.386	-14.5	85.5
d9-EtFOSE	25.000	20.413	-18.3	81.7
d5-EtFOSA	2.500	2.385	-4.6	95.4
NFDHA	5.000	3.767	-24.7	75.3
PFMBA	5.000	4.787	-4.3	95.7
PFMPA	5.000	4.853	-2.9	97.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.226	-5.0	95.0

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634  
 Lab FileID: 4Q44173.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\050923\_1633\_S4Q639\s4q639.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43884.d  
 2:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43885.d  
 3:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43886.d  
 4:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43887.d  
 5:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43888.d  
 6:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43889.d  
 7:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43890.d  
 8:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43891.d

Data File: 4Q44173  
 Type : QC  
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	6.340	26.8	126.8
13C2-6:2FTS	5.000	6.412	28.2	128.2
13C2-8:2FTS	5.000	7.548	# 51.0	151.0
13C2-PFDoDA	1.250	1.237	-1.1	98.9
13C2-PFTeDA	1.250	1.099	-12.0	88.0
13C3-PFBS	2.500	2.388	-4.5	95.5
13C3-PFHxS	2.500	2.592	3.7	103.7
13C4-PFBA	10.000	10.009	0.1	100.1
13C4-PFHpA	2.500	2.548	1.9	101.9
13C5-PFHxA	2.500	2.455	-1.8	98.2
13C5-PFPeA	5.000	4.988	-0.2	99.8
13C6-PFDA	1.250	1.253	0.3	100.3
13C7-PFUnDA	1.250	1.320	5.6	105.6
13C8-FOSA	2.500	2.695	7.8	107.8
13C8-PFOA	2.500	2.478	-0.9	99.1
13C8-PFOS	2.500	2.442	-2.3	97.7
13C9-PFNA	1.250	1.263	1.0	101.0
4:2FTS	0.750	0.774	3.2	103.2
6:2FTS	0.760	0.795	4.6	104.6
8:2FTS	0.768	0.646	-15.9	84.1
d3-MeFOSAA	5.000	5.307	6.1	106.1
EtFOSAA	0.200	0.173	-13.6	86.4
FOSA	0.200	0.219	9.5	109.5
MeFOSAA	0.200	0.165	-17.4	82.6
PFBA	0.800	0.751	-6.1	93.9
PFBS	0.177	0.203	14.7	114.7
PFDA	0.200	0.187	-6.4	93.6
PFDoDA	0.200	0.196	-2.0	98.0
PFDS	0.193	0.191	-0.8	99.2
PFHpA	0.200	0.163	-18.4	81.6
PFHpS	0.191	0.158	-17.3	82.7
PFHxA	0.200	0.181	-9.6	90.4
PFHxS	0.183	0.167	-8.7	91.3
PFNA	0.200	0.189	-5.7	94.3
PFNS	0.192	0.181	-5.8	94.2
PFOA	0.200	0.183	-8.4	91.6
PFOS	0.186	0.191	2.9	102.9

# Continuing Calibration Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634  
 Lab FileID: 4Q44173.D

PFPeA	0.400	0.387	-3.2	96.8
PFPeS	0.188	0.163	-13.5	86.5
PFTeDA	0.200	0.199	-0.6	99.4
PFTrDA	0.200	0.179	-10.4	89.6
PFUnDA	0.200	0.196	-2.1	97.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.410	8.5	108.5
13C3-HFPO-DA	10.000	8.747	-12.5	87.5
9C1-PF3ONS	0.367	0.393	7.1	107.1
ADONA	0.378	0.393	4.0	104.0
HFPO-DA	0.400	0.435	8.7	108.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.066	6.7	106.7
5:3FTCA	4.992	5.253	5.2	105.2
7:3FTCA	4.992	5.618	12.5	112.5
d3-MeFOSA	2.500	2.273	-9.1	90.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.390	-2.5	97.5
EtFOSE	1.000	0.998	-0.2	99.8
MeFOSA	0.400	0.406	1.6	101.6
MeFOSE	1.000	0.936	-6.4	93.6
PFDoDS	0.194	0.184	-4.9	95.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.824	16.5	116.5
d7-MeFOSE	25.000	19.913	-20.3	79.7
d9-EtFOSE	25.000	19.617	-21.5	78.5
d5-EtFOSA	2.500	2.324	-7.1	92.9
NFDHA	0.400	0.371	-7.3	92.7
PFMBA	0.400	0.373	-6.7	93.3
PFMPA	0.400	0.394	-1.4	98.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.322	-9.6	90.4

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-ECC634  
 Lab FileID: 4Q44184.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\050923\_1633\_S4Q639\s4q639.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43884.d  
 2:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43885.d  
 3:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43886.d  
 4:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43887.d  
 5:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43888.d  
 6:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43889.d  
 7:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43890.d  
 8:D:\MassHunter\Data\050323\_1633\_S4Q634\4Q43891.d

Data File: 4Q44184  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.707	14.1	114.1
13C2-6:2FTS	5.000	6.172	23.4	123.4
13C2-8:2FTS	5.000	5.924	18.5	118.5
13C2-PFDoDA	1.250	1.306	4.5	104.5
13C2-PFTeDA	1.250	1.139	-8.9	91.1
13C3-PFBS	2.500	2.243	-10.3	89.7
13C3-PFHxS	2.500	2.326	-6.9	93.1
13C4-PFBA	10.000	10.305	3.1	103.1
13C4-PFHpA	2.500	2.522	0.9	100.9
13C5-PFHxA	2.500	2.532	1.3	101.3
13C5-PFPeA	5.000	5.074	1.5	101.5
13C6-PFDA	1.250	1.252	0.2	100.2
13C7-PFUnDA	1.250	1.290	3.2	103.2
13C8-FOSA	2.500	2.649	6.0	106.0
13C8-PFOA	2.500	2.410	-3.6	96.4
13C8-PFOS	2.500	2.572	2.9	102.9
13C9-PFNA	1.250	1.226	-1.9	98.1
4:2FTS	9.375	9.477	1.1	101.1
6:2FTS	9.500	9.866	3.9	103.9
8:2FTS	9.600	10.967	14.2	114.2
d3-MeFOSAA	5.000	5.850	17.0	117.0
EtFOSAA	2.500	2.572	2.9	102.9
FOSA	2.500	2.525	1.0	101.0
MeFOSAA	2.500	2.259	-9.6	90.4
PFBA	10.000	9.540	-4.6	95.4
PFBS	2.218	2.178	-1.8	98.2
PFDA	2.500	2.501	0.1	100.1
PFDoDA	2.500	2.434	-2.6	97.4
PFDS	2.413	2.340	-3.0	97.0
PFHpA	2.500	2.514	0.5	100.5
PFHpS	2.383	2.443	2.5	102.5
PFHxA	2.500	2.327	-6.9	93.1
PFHxS	2.285	2.179	-4.6	95.4
PFNA	2.500	2.368	-5.3	94.7
PFNS	2.405	2.338	-2.8	97.2
PFOA	2.500	2.465	-1.4	98.6
PFOS	2.320	2.249	-3.0	97.0

# Continuing Calibration Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-ECC634  
 Lab FileID: 4Q44184.D

PFPeA	5.000	5.024	0.5	100.5
PFPeS	2.353	2.222	-5.6	94.4
PFTeDA	2.500	2.519	0.8	100.8
PFTTrDA	2.500	2.476	-0.9	99.1
PFUnDA	2.500	2.492	-0.3	99.7
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	5.348	13.2	113.2
13C3-HFPO-DA	10.000	8.994	-10.1	89.9
9C1-PF3ONS	4.675	5.274	12.8	112.8
ADONA	4.725	5.322	12.6	112.6
HFPO-DA	5.000	5.041	0.8	100.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	13.083	4.8	104.8
5:3FTCA	62.400	69.014	10.6	110.6
7:3FTCA	62.400	74.646	19.6	119.6
d3-MeFOSA	2.500	2.423	-3.1	96.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.151	3.0	103.0
EtFOSE	12.500	11.819	-5.4	94.6
MeFOSA	5.000	4.986	-0.3	99.7
MeFOSE	12.500	11.975	-4.2	95.8
PFDoDS	2.425	2.260	-6.8	93.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.568	11.4	111.4
d7-MeFOSE	25.000	21.331	-14.7	85.3
d9-EtFOSE	25.000	20.914	-16.3	83.7
d5-EtFOSA	2.500	2.437	-2.5	97.5
NFDHA	5.000	3.902	-22.0	78.0
PFMBA	5.000	4.996	-0.1	99.9
PFMPA	5.000	5.062	1.2	101.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.260	-4.3	95.7

CC Criteria: +/- 30%

# Initial Calibration Summary

Job Number: FC5890  
 Account: AECOM AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICC268  
 Lab FileID: 6Q17741.D

## Initial Calibration Report

Method Path	Method File	Batch Name	Last Calib Update	Calibration Files	Level Name	1	2	3	4	5	6	7	8	Avg RF	%RSD
D:\MassHunter\Methods	1633_051223_S6Q268.quantmethod.xml	D:\MassHunter\Data\051223_1633_S6Q268	5/15/2023 10:38:00 AM	D:\MassHunter\Data\051223_1633_S6Q268\6Q17738.d	1	0.3414	0.3414	0.3473	0.3457	0.3793	0.3767	0.3726	0.3656	0.3587	4.580
D:\MassHunter\Data\051223_1633_S6Q268	6Q17739.d	D:\MassHunter\Data\051223_1633_S6Q268	6Q17740.d	D:\MassHunter\Data\051223_1633_S6Q268	2	0.7045	0.7085	0.7136	0.7174	0.7918	0.7713	0.7879	0.7414	0.7421	4.932
D:\MassHunter>Data\051223_1633_S6Q268	6Q17741.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17742.d	D:\MassHunter>Data\051223_1633_S6Q268	3	0.0861	0.0849	0.0856	0.0851	0.0930	0.0919	0.0957	0.0934	0.0895	4.977
D:\MassHunter>Data\051223_1633_S6Q268	6Q17743.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17744.d	D:\MassHunter>Data\051223_1633_S6Q268	4	1.3776	1.3884	1.3956	1.4127	1.5345	1.4897	1.5349	1.4185	1.4440	4.534
D:\MassHunter>Data\051223_1633_S6Q268	6Q17745.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17746.d	D:\MassHunter>Data\051223_1633_S6Q268	5	0.9734	1.0051	0.9841	1.0055	1.0978	1.0782	1.0631	1.0356	1.0303	4.430
D:\MassHunter>Data\051223_1633_S6Q268	6Q17747.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17748.d	D:\MassHunter>Data\051223_1633_S6Q268	6	0.1090	0.1021	0.1070	0.1081	0.1128	0.1148	0.1119	0.1088	0.1093	3.588
D:\MassHunter>Data\051223_1633_S6Q268	6Q17749.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17750.d	D:\MassHunter>Data\051223_1633_S6Q268	7	0.9983	0.9239	0.9239	0.9177	0.9954	1.0056	1.0502	1.1006	0.9903	6.531
D:\MassHunter>Data\051223_1633_S6Q268	6Q17751.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17752.d	D:\MassHunter>Data\051223_1633_S6Q268	8	1.2675	1.2020	1.3313	1.2889	1.4255	1.3987	1.3603	1.3631	1.3297	5.529
D:\MassHunter>Data\051223_1633_S6Q268	6Q17753.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17754.d	D:\MassHunter>Data\051223_1633_S6Q268	9	0.1810	0.1593	0.1672	0.1675	0.1794	0.1718	0.1678	0.1787	0.1716	4.417
D:\MassHunter>Data\051223_1633_S6Q268	6Q17755.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17756.d	D:\MassHunter>Data\051223_1633_S6Q268	10	0.0762	0.0752	0.0790	0.0785	0.0788	0.0781	0.0784	0.0787	0.0778	1.793
D:\MassHunter>Data\051223_1633_S6Q268	6Q17757.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17758.d	D:\MassHunter>Data\051223_1633_S6Q268	11	1.2305	1.2547	1.1628	1.1869	1.3507	1.2992	1.2737	1.2370	1.2495	4.808
D:\MassHunter>Data\051223_1633_S6Q268	6Q17759.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17760.d	D:\MassHunter>Data\051223_1633_S6Q268	12	1.1979	1.4101	1.2713	1.1317	1.3008	1.2684	1.1651	1.2062	1.2439	7.097
D:\MassHunter>Data\051223_1633_S6Q268	6Q17761.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17762.d	D:\MassHunter>Data\051223_1633_S6Q268	13	0.9088	0.7976	0.9299	0.9173	1.0350	0.9545	0.9402	0.9457	0.9286	7.063
D:\MassHunter>Data\051223_1633_S6Q268	6Q17763.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17764.d	D:\MassHunter>Data\051223_1633_S6Q268	14	1.4944	1.2432	1.6199	1.3669	1.8264	1.4765	1.6275	1.7187	1.5467	12.262
D:\MassHunter>Data\051223_1633_S6Q268	6Q17765.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17766.d	D:\MassHunter>Data\051223_1633_S6Q268	15	0.8048	0.8877	0.9919	0.8347	0.9561	0.9551	0.8783	0.9544	0.9079	7.337
D:\MassHunter>Data\051223_1633_S6Q268	6Q17767.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17768.d	D:\MassHunter>Data\051223_1633_S6Q268	16										

# Initial Calibration Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICC268  
 Lab FileID: 6Q17741.D

## Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	1.0325	1.0023	1.0042	0.9417	1.0070	1.0577	0.9546	0.9654	0.9957	3.977
T PFTfDA	Avg RF	1.0722	1.1173	1.1929	1.1642	1.2716	1.2627	1.1072	1.0469	1.1544	7.244
I M2-PFTeDA	Avg RF	1.2629	1.2832	1.1925	1.1527	1.4295	1.3841	1.2789	1.2570	1.2801	7.102
T PFTeDA						ISTD					
I M8-FOSA	Avg RF	0.9201	0.8719	0.9052	0.9554	0.9686	0.9644	0.9789	0.9221	0.9358	3.955
T FOSA						ISTD					
I M3-PFBS	Avg RF	1.1842	1.1812	1.1979	1.2055	1.2522	1.2096	1.2719	1.2579	1.2200	2.899
T PFBS						ISTD					
I M3-PFHxS	Avg RF	1.2379	1.3617	1.4321	1.3173	1.3949	1.3445	1.4975	1.3919	1.3722	5.653
T PFPeS	Avg RF	1.3838	1.3765	1.4082	1.2534	1.4773	1.3501	1.4300	1.3908	1.3838	4.708
T PFHxS						ISTD					
I M8-PFOS	Avg RF	1.2889	1.4378	1.1981	1.2297	1.4115	1.4276	1.2499	1.4270	1.3338	7.638
T PFHpS	Avg RF	1.2705	1.3508	1.2391	1.2039	1.4472	1.4075	1.2378	1.3293	1.3108	6.665
T PFOS	Avg RF	1.2445	1.2972	1.1345	1.0683	1.2286	1.2934	1.1344	1.2710	1.2090	7.081
T PFNS	Avg RF	0.8519	0.8788	0.7349	0.7201	0.8616	0.8609	0.7678	0.8175	0.8117	7.692
T PFDS	Avg RF	0.3906	0.4760	0.4171	0.4032	0.4558	0.4403	0.4197	0.4299	0.4291	6.484
T PFDoDS						ISTD					
I M2-4:2FTS	Avg RF	7.0997	7.3295	7.4788	7.6060	7.6226	7.6647	7.6807	7.6536	7.5169	2.741
T 4:2FTS						ISTD					
I M2-6:2FTS	Avg RF	5.2815	5.4612	5.6074	5.1463	5.7396	5.8387	5.7881	4.6750	5.4422	7.267
T 6:2FTS						ISTD					
I M2-8:2FTS	Avg RF	3.2419	2.7408	2.6251	3.0807	3.0176	2.8086	3.0273	2.1853	2.8409	11.687
T 8:2FTS						ISTD					
I M3-MeFOSAA	Avg RF	0.8210	0.9035	1.0349	0.9505	1.0140	1.0189	0.9896	1.0073	0.9675	7.543
T MeFOSAA						ISTD					
I M3-HFO-DA	Avg RF	1.0129	0.9388	0.9489	0.9077	1.0434	0.9614	0.9991	0.9214	0.9667	4.901
T HFPO-DA	Avg RF	15.39	14.90	16.05	16.39	17.72	16.30	15.86	14.77	15.92	5.954
T ADONA	Avg RF	5.6537	5.6627	6.2009	6.3895	6.5828	6.2872	6.2154	5.2969	6.0361	7.351
T 9Cl-PF3ONS	Avg RF	3.5794	3.8276	3.7217	4.0079	4.0372	3.8744	3.6131	3.5692	3.7788	4.953
T 11Cl-PF3OUds						ISTD					
I M5-EFOSAA	Avg RF	1.1049	0.8169	0.9222	0.8995	0.9167	0.9565	0.9353	0.8960	0.9310	8.747
T EFOSAA						ISTD					
I M7-MeFOSE	Avg RF	1.1901	1.1008	1.1064	1.0819	1.1809	1.2100	1.2417	1.2441	1.1695	5.535
T MeFOSE						ISTD					
I M9-EFOSE	Avg RF	1.0298	1.0058	1.0581	1.0412	1.1200	1.1685	1.1424	1.1498	1.0894	5.753
T EFOSE						ISTD					

Page 2 of 4  
 Generated at 10:38 AM on 5/15/2023

# Initial Calibration Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICC268  
 Lab FileID: 6Q17741.D

## Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA											
T EFOSA	Avg RF	1.1049	1.1427	0.9891	1.0016	1.1522	1.0966	1.1428	1.0276	1.0822	6.160
I M3-MeFOSA											
T MeFOSA	Avg RF	1.2190	1.2124	1.0551	1.0738	1.2457	1.2345	1.1746	0.9943	1.1512	8.345
I 13C4-PFOS											
S d3-MeFOSAA	Linear	0.7703	0.8456	0.7443	0.8014	0.7919	0.7925	0.7641	0.7569	0.7834	4.073
S 13C8-PFOS	Linear	0.7133	0.7794	0.7757	0.8277	0.7744	0.7817	0.7935	0.7762	0.7777	4.048
S d5-EFOSAA	Linear	0.6083	0.6885	0.5529	0.6316	0.6170	0.6282	0.6117	0.6176	0.6195	5.983
S 13C8-FOSA	Linear	1.5500	1.7763	1.5505	1.6831	1.6532	1.7120	1.6017	1.7376	1.6587	5.056
S d7-MeFOSE	Linear	0.5697	0.6835	0.5887	0.6301	0.6385	0.6445	0.5938	0.5779	0.6158	6.406
S d3-MeFOSA	Linear	0.5215	0.6121	0.5884	0.6390	0.5953	0.5911	0.5938	0.6955	0.6046	8.164
S d9-EFOSE	Linear	0.7242	0.8500	0.7107	0.7859	0.7327	0.7477	0.7156	0.6857	0.7441	6.973
S d5-EFOSA	Linear	0.6800	0.7366	0.6998	0.7542	0.6959	0.7762	0.7103	0.7802	0.7292	5.246
I 13C3-PFBA											
S 13C4-PFBA	Linear	1.1861	1.1920	1.1834	1.2023	1.1961	1.1808	1.1763	1.1737	1.1863	0.832
I 18O2-PFHxS											
S 13C2-4:2FTS	Linear	0.0962	0.0939	0.0940	0.0958	0.0944	0.1019	0.1005	0.0853	0.0953	5.258
S 13C3-PBBS	Linear	2.1400	2.1440	2.2449	2.1862	2.1994	2.2884	2.2645	1.9538	2.1776	4.833
S 13C2-6:2FTS	Linear	0.1215	0.1209	0.1221	0.1309	0.1222	0.1260	0.1169	0.1212	0.1227	3.359
S 13C3-PFHxS	Linear	1.3333	1.2552	1.2661	1.3882	1.3218	1.4594	1.3469	1.2821	1.3316	5.113
S 13C2-8:2FTS	Linear	0.1249	0.1303	0.1347	0.1197	0.1282	0.1438	0.1323	0.1420	0.1320	6.185
I 13C4-PFOA											
S 13C8-PFOA	Linear	0.8598	0.9549	0.9200	0.9577	0.9895	0.9857	0.9733	0.9061	0.9434	4.755
I 13C2-PFDA											
S 13C6-PFDA	Linear	0.8225	0.8970	0.8909	0.8553	0.7606	0.7855	0.7645	0.7773	0.8192	6.816
S 13C7-PFUnDA	Linear	1.1403	1.0565	1.0819	1.1089	1.0602	0.9589	1.0814	0.9231	1.0514	7.021
S 13C2-PFDODA	Linear	1.0734	1.0747	1.1339	1.0549	1.0029	0.9410	1.0661	1.0160	1.0454	5.551
S 13C2-PFTeDA	Linear	0.7596	0.6753	0.8067	0.7162	0.6658	0.6255	0.7148	0.7065	0.7088	7.939
I 13C5-PFNA											
S 13C9-PFNA	Linear	0.8537	0.9703	0.8632	0.8985	0.8355	1.0052	1.0384	0.9283	0.9241	8.074
I 13C2-PFHxA											
S 13C5-PPeA	Linear	0.5477	0.5455	0.5377	0.4901	0.5467	0.5285	0.5105	0.4999	0.5258	4.332
S 13C5-PFHxA	Linear	1.2408	1.2989	1.1756	1.0829	1.2349	1.1870	1.1516	1.0852	1.1821	6.403
S 13C3-HPOD-A	Linear	0.1810	0.1874	0.1818	0.1654	0.1843	0.1846	0.1884	0.1908	0.1830	4.275
S 13C4-PFHpA	Linear	1.0678	1.0582	1.0661	0.9892	1.0529	1.0496	1.0353	0.9891	1.0385	3.092

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



# Initial Calibration Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICC268  
 Lab FileID: 6Q17741.D

## Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PBBA	Linear	y = 1.186335 * x	
S 13C5-PFPeA	Linear	y = 0.525834 * x	
S 13C2-4:2FTS	Linear	y = 0.095253 * x	
S 13C3-PFBS	Linear	y = 2.177640 * x	
S 13C5-PFHxA	Linear	y = 1.182127 * x	
S 13C3-HFPO-DA	Linear	y = 0.182964 * x	
S 13C4-PFHpA	Linear	y = 1.038521 * x	
S 13C8-PFOA	Linear	y = 0.122707 * x	
S 13C3-PFHxS	Linear	y = 0.943385 * x	
S 13C9-PFNA	Linear	y = 1.331627 * x	
S 13C2-8:2FTS	Linear	y = 0.924150 * x	
S 13C6-PEDA	Linear	y = 0.132008 * x	
S d3-MeFOSAA	Linear	y = 0.819193 * x	
S 13C8-PFOS	Linear	y = 0.783379 * x	
S d5-EFOSAA	Linear	y = 0.777742 * x	
S 13C7-PFUInDA	Linear	y = 0.619470 * x	
S 13C2-PFDODA	Linear	y = 1.051404 * x	
S 13C8-FOSA	Linear	y = 1.045358 * x	
S 13C2-PFTeDA	Linear	y = 1.658683 * x	
S d7-MeFOSE	Linear	y = 0.708815 * x	
S d3-MeFOSA	Linear	y = 0.615845 * x	
S d9-EFOSE	Linear	y = 0.604592 * x	
S d5-EFOSA	Linear	y = 0.744056 * x	
S d5-EFOSA	Linear	y = 0.729153 * x	

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

**Initial Calibration Verification**

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICV268  
 Lab FileID: 6Q17747.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\051223\_1633\_S6Q268\s6q268.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17738.d  
 2:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17739.d  
 3:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17740.d  
 4:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17741.d  
 5:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17742.d  
 6:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17743.d  
 7:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17744.d  
 8:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17745.d

Data File: 6Q17747  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.579	-8.4	91.6
13C2-6:2FTS	5.000	5.040	0.8	100.8
13C2-8:2FTS	5.000	4.644	-7.1	92.9
13C2-PFDoDA	1.250	1.272	1.7	101.7
13C2-PFTeDA	1.250	1.183	-5.4	94.6
13C3-PFBS	2.500	2.450	-2.0	98.0
13C3-PFHxS	2.500	2.455	-1.8	98.2
13C4-PFBA	10.000	9.971	-0.3	99.7
13C4-PFHpA	2.500	2.463	-1.5	98.5
13C5-PFHxA	2.500	2.542	1.7	101.7
13C5-PFPeA	5.000	4.942	-1.2	98.8
13C6-PFDA	1.250	1.141	-8.7	91.3
13C7-PFUnDA	1.250	1.301	4.0	104.0
13C8-FOSA	2.500	2.658	6.3	106.3
13C8-PFOA	2.500	2.401	-4.0	96.0
13C8-PFOS	2.500	2.647	5.9	105.9
13C9-PFNA	1.250	1.385	10.8	110.8
4:2FTS	9.375	10.106	7.8	107.8
6:2FTS	9.500	9.210	-3.1	96.9
8:2FTS	9.600	10.582	10.2	110.2
d3-MeFOSAA	5.000	5.320	6.4	106.4
EtFOSAA	2.500	2.508	0.3	100.3
FOSA	2.500	2.364	-5.4	94.6
MeFOSAA	2.500	2.440	-2.4	97.6
PFBA	10.000	9.770	-2.3	97.7
PFBS	2.218	2.197	-1.0	99.0
PFDA	2.500	2.752	10.1	110.1
PFDoDA	2.500	2.344	-6.3	93.7
PFDS	2.413	2.412	0.0	100.0
PFHpA	2.500	2.612	4.5	104.5
PFHpS	2.383	2.204	-7.5	92.5
PFHxA	2.500	2.491	-0.4	99.6
PFHxS	2.285	2.230	-2.4	97.6
PFNA	2.500	2.261	-9.5	90.5
PFNS	2.405	2.423	0.7	100.7
PFOA	2.500	2.477	-0.9	99.1
PFOS	2.320	2.403	3.6	103.6

# Initial Calibration Verification

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICV268  
 Lab FileID: 6Q17747.D

PFPeA	5.000	5.020	0.4	100.4
PFPeS	2.353	2.307	-1.9	98.1
PFTeDA	2.500	2.621	4.8	104.8
PFTTrDA	2.500	2.365	-5.4	94.6
PFUnDA	2.500	2.400	-4.0	96.0
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	4.586	-2.9	97.1
13C3-HFPO-DA	10.000	9.790	-2.1	97.9
9C1-PF3ONS	4.675	4.615	-1.3	98.7
ADONA	4.725	4.622	-2.2	97.8
HFPO-DA	5.000	5.172	3.4	103.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.284	-1.6	98.4
5:3FTCA	62.400	58.105	-6.9	93.1
7:3FTCA	62.400	61.457	-1.5	98.5
d3-MeFOSA	2.500	2.651	6.0	106.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.139	2.8	102.8
EtFOSE	12.500	11.880	-5.0	95.0
MeFOSA	5.000	4.865	-2.7	97.3
MeFOSE	12.500	12.535	0.3	100.3
PFDoDS	2.425	2.521	4.0	104.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.357	7.1	107.1
d7-MeFOSE	25.000	26.256	5.0	105.0
d9-EtFOSE	25.000	26.315	5.3	105.3
d5-EtFOSA	2.500	2.557	2.3	102.3
NFDHA	5.000	4.838	-3.2	96.8
PFMBA	5.000	5.013	0.3	100.3
PFMPA	5.000	4.998	0.0	100.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.284	-3.7	96.3

CC Criteria: +/- 30%

**Initial Calibration Verification**

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICV268  
 Lab FileID: 6Q17748.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\051223\_1633\_S6Q268\s6q268.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17738.d  
 2:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17739.d  
 3:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17740.d  
 4:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17741.d  
 5:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17742.d  
 6:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17743.d  
 7:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17744.d  
 8:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17745.d

Data File: 6Q17748  
 Type : QC  
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.653	13.1	113.1
13C2-6:2FTS	5.000	5.261	5.2	105.2
13C2-8:2FTS	5.000	4.859	-2.8	97.2
13C2-PFDoDA	1.250	1.332	6.5	106.5
13C2-PFTeDA	1.250	1.318	5.5	105.5
13C3-PFBS	2.500	2.724	8.9	108.9
13C3-PFHxS	2.500	2.472	-1.1	98.9
13C4-PFBA	10.000	9.972	-0.3	99.7
13C4-PFHpA	2.500	2.712	8.5	108.5
13C5-PFHxA	2.500	2.767	10.7	110.7
13C5-PFPeA	5.000	5.316	6.3	106.3
13C6-PFDA	1.250	1.384	10.7	110.7
13C7-PFUnDA	1.250	1.313	5.0	105.0
13C8-FOSA	2.500	2.559	2.4	102.4
13C8-PFOA	2.500	2.508	0.3	100.3
13C8-PFOS	2.500	2.732	9.3	109.3
13C9-PFNA	1.250	1.244	-0.4	99.6
4:2FTS	20.000	20.468	2.3	102.3
6:2FTS	20.000	21.758	8.8	108.8
8:2FTS	20.000	22.115	10.6	110.6
d3-MeFOSAA	5.000	5.272	5.4	105.4
EtFOSAA	20.000	18.879	-5.6	94.4
FOSA	20.000	22.974	14.9	114.9
MeFOSAA	20.000	23.036	15.2	115.2
PFBA	20.000	21.118	5.6	105.6
PFBS	20.000	21.200	6.0	106.0
PFDA	20.000	21.392	7.0	107.0
PFDoDA	20.000	20.090	0.5	100.5
PFDS	20.000	21.783	8.9	108.9
PFHpA	20.000	21.328	6.6	106.6
PFHpS	20.000	21.417	7.1	107.1
PFHxA	20.000	20.345	1.7	101.7
PFHxS	20.000	23.661	18.3	118.3
PFNA	20.000	24.840	24.2	124.2
PFNS	20.000	23.003	15.0	115.0
PFOA	20.000	20.006	0.0	100.0
PFOS	20.000	16.358	-18.2	81.8

# Initial Calibration Verification

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICV268  
 Lab FileID: 6Q17748.D

PFPeA	20.000	23.584	17.9	117.9
PFPeS	20.000	23.435	17.2	117.2
PFTeDA	20.000	22.462	12.3	112.3
PFTTrDA	20.000	18.430	-7.9	92.1
PFUnDA	20.000	20.848	4.2	104.2
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	22.839	14.2	114.2
13C3-HFPO-DA	10.000	10.936	9.4	109.4
9C1-PF3ONS	20.000	20.482	2.4	102.4
ADONA	20.000	20.786	3.9	103.9
HFPO-DA	20.000	20.810	4.1	104.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	21.207	6.0	106.0
5:3FTCA	20.000	21.452	7.3	107.3
7:3FTCA	20.000	20.114	0.6	100.6
d3-MeFOSA	2.500	2.682	7.3	107.3
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	21.073	5.4	105.4
EtFOSE	100.000	123.179	23.2	123.2
MeFOSA	20.000	20.763	3.8	103.8
MeFOSE	100.000	114.159	14.2	114.2
PFDoDS	20.000	19.657	-1.7	98.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.638	12.8	112.8
d7-MeFOSE	25.000	24.941	-0.2	99.8
d9-EtFOSE	25.000	26.187	4.7	104.7
d5-EtFOSA	2.500	2.505	0.2	100.2
NFDHA	20.000	21.072	5.4	105.4
PFMBA	20.000	21.935	9.7	109.7
PFMPA	20.000	22.214	11.1	111.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	18.322	-8.4	91.6

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-CC268  
 Lab FileID: 6Q17749.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\051223\_1633\_S6Q268\s6q268.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17738.d  
 2:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17739.d  
 3:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17740.d  
 4:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17741.d  
 5:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17742.d  
 6:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17743.d  
 7:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17744.d  
 8:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17745.d

Data File: 6Q17749  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.583	11.7	111.7
13C2-6:2FTS	5.000	6.057	21.1	121.1
13C2-8:2FTS	5.000	5.402	8.0	108.0
13C2-PFDoDA	1.250	1.191	-4.7	95.3
13C2-PFTeDA	1.250	1.209	-3.3	96.7
13C3-PFBS	2.500	2.771	10.8	110.8
13C3-PFHxS	2.500	2.808	12.3	112.3
13C4-PFBA	10.000	10.000	0.0	100.0
13C4-PFHpA	2.500	2.506	0.2	100.2
13C5-PFHxA	2.500	2.677	7.1	107.1
13C5-PFPeA	5.000	5.297	5.9	105.9
13C6-PFDA	1.250	1.378	10.3	110.3
13C7-PFUnDA	1.250	1.438	15.1	115.1
13C8-FOSA	2.500	2.387	-4.5	95.5
13C8-PFOA	2.500	2.498	-0.1	99.9
13C8-PFOS	2.500	2.471	-1.2	98.8
13C9-PFNA	1.250	1.240	-0.8	99.2
4:2FTS	9.375	8.705	-7.2	92.8
6:2FTS	9.500	8.427	-11.3	88.7
8:2FTS	9.600	9.688	0.9	100.9
d3-MeFOSAA	5.000	4.565	-8.7	91.3
EtFOSAA	2.500	2.170	-13.2	86.8
FOSA	2.500	2.419	-3.2	96.8
MeFOSAA	2.500	2.502	0.1	100.1
PFBA	10.000	9.724	-2.8	97.2
PFBS	2.218	2.140	-3.5	96.5
PFDA	2.500	2.374	-5.0	95.0
PFDoDA	2.500	2.503	0.1	100.1
PFDS	2.413	2.239	-7.2	92.8
PFHpA	2.500	2.586	3.5	103.5
PFHpS	2.383	2.180	-8.5	91.5
PFHxA	2.500	2.321	-7.2	92.8
PFHxS	2.285	2.096	-8.3	91.7
PFNA	2.500	2.361	-5.6	94.4
PFNS	2.405	2.267	-5.7	94.3
PFOA	2.500	2.342	-6.3	93.7
PFOS	2.320	2.086	-10.1	89.9

# Continuing Calibration Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-CC268  
 Lab FileID: 6Q17749.D

PFPeA	5.000	4.751	-5.0	95.0
PFPeS	2.353	2.266	-3.7	96.3
PFTeDA	2.500	2.670	6.8	106.8
PFTTrDA	2.500	2.669	6.8	106.8
PFUnDA	2.500	2.312	-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	4.284	-9.3	90.7
13C3-HFPO-DA	10.000	10.525	5.3	105.3
9C1-PF3ONS	4.675	4.530	-3.1	96.9
ADONA	4.725	4.413	-6.6	93.4
HFPO-DA	5.000	4.708	-5.8	94.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.538	-7.5	92.5
5:3FTCA	62.400	58.650	-6.0	94.0
7:3FTCA	62.400	59.879	-4.0	96.0
d3-MeFOSA	2.500	2.233	-10.7	89.3
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.164	3.3	103.3
EtFOSE	12.500	11.335	-9.3	90.7
MeFOSA	5.000	5.152	3.0	103.0
MeFOSE	12.500	11.746	-6.0	94.0
PFDODS	2.425	2.197	-9.4	90.6
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.950	-1.0	99.0
d7-MeFOSE	25.000	23.631	-5.5	94.5
d9-EtFOSE	25.000	24.382	-2.5	97.5
d5-EtFOSA	2.500	2.265	-9.4	90.6
NFDHA	5.000	4.820	-3.6	96.4
PFMBA	5.000	4.775	-4.5	95.5
PFMPA	5.000	4.778	-4.4	95.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.136	-7.0	93.0

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-CC268  
 Lab FileID: 6Q17750.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\051223\_1633\_S6Q268\s6q268.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17738.d  
 2:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17739.d  
 3:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17740.d  
 4:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17741.d  
 5:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17742.d  
 6:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17743.d  
 7:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17744.d  
 8:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17745.d

Data File: 6Q17750  
 Type : QC  
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.892	-2.2	97.8
13C2-6:2FTS	5.000	4.535	-9.3	90.7
13C2-8:2FTS	5.000	5.664	13.3	113.3
13C2-PFDoDA	1.250	1.215	-2.8	97.2
13C2-PFTeDA	1.250	1.240	-0.8	99.2
13C3-PFBS	2.500	2.502	0.1	100.1
13C3-PFHxS	2.500	2.432	-2.7	97.3
13C4-PFBA	10.000	10.045	0.5	100.5
13C4-PFHpA	2.500	2.505	0.2	100.2
13C5-PFHxA	2.500	2.610	4.4	104.4
13C5-PFPeA	5.000	4.995	-0.1	99.9
13C6-PFDA	1.250	1.283	2.6	102.6
13C7-PFUnDA	1.250	1.271	1.7	101.7
13C8-FOSA	2.500	2.502	0.1	100.1
13C8-PFOA	2.500	2.411	-3.6	96.4
13C8-PFOS	2.500	2.457	-1.7	98.3
13C9-PFNA	1.250	1.248	-0.2	99.8
4:2FTS	0.750	0.648	-13.6	86.4
6:2FTS	0.760	0.782	2.9	102.9
8:2FTS	0.768	0.708	-7.8	92.2
d3-MeFOSAA	5.000	5.372	7.4	107.4
EtFOSAA	0.200	0.161	-19.4	80.6
FOSA	0.200	0.195	-2.3	97.7
MeFOSAA	0.200	0.174	-13.0	87.0
PFBA	0.800	0.756	-5.5	94.5
PFBS	0.177	0.155	-12.7	87.3
PFDA	0.200	0.179	-10.4	89.6
PFDoDA	0.200	0.215	7.4	107.4
PFDS	0.193	0.197	2.1	102.1
PFHpA	0.200	0.188	-6.0	94.0
PFHpS	0.191	0.191	-0.2	99.8
PFHxA	0.200	0.190	-5.1	94.9
PFHxS	0.183	0.179	-2.3	97.7
PFNA	0.200	0.196	-1.9	98.1
PFNS	0.192	0.188	-2.3	97.7
PFOA	0.200	0.225	12.3	112.3
PFOS	0.186	0.193	3.5	103.5



# Continuing Calibration Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-CC268  
 Lab FileID: 6Q17750.D

PFPeA	0.400	0.390	-2.5	97.5
PFPeS	0.188	0.175	-6.7	93.3
PFTeDA	0.200	0.186	-7.1	92.9
PFTTrDA	0.200	0.187	-6.4	93.6
PFUnDA	0.200	0.195	-2.3	97.7
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	0.378	0.363	-3.9	96.1
13C3-HFPO-DA	10.000	9.708	-2.9	97.1
9C1-PF3ONS	0.367	0.371	0.9	100.9
ADONA	0.378	0.374	-1.0	99.0
HFPO-DA	0.400	0.399	-0.3	99.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.960	-3.9	96.1
5:3FTCA	4.992	5.025	0.7	100.7
7:3FTCA	4.992	5.203	4.2	104.2
d3-MeFOSA	2.500	2.467	-1.3	98.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.388	-2.9	97.1
EtFOSE	1.000	0.914	-8.6	91.4
MeFOSA	0.400	0.401	0.1	100.1
MeFOSE	1.000	0.892	-10.8	89.2
PFDoDS	0.194	0.216	11.1	111.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.507	10.1	110.1
d7-MeFOSE	25.000	27.069	8.3	108.3
d9-EtFOSE	25.000	25.733	2.9	102.9
d5-EtFOSA	2.500	2.351	-6.0	94.0
NFDHA	0.400	0.397	-0.8	99.2
PFMBA	0.400	0.377	-5.7	94.3
PFMPA	0.400	0.388	-3.0	97.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.331	-7.0	93.0

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-CC268  
 Lab FileID: 6Q17759.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\051223\_1633\_S6Q268\s6q268.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17738.d  
 2:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17739.d  
 3:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17740.d  
 4:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17741.d  
 5:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17742.d  
 6:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17743.d  
 7:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17744.d  
 8:D:\MassHunter\Data\051223\_1633\_S6Q268\6Q17745.d

Data File: 6Q17759  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.123	2.5	102.5
13C2-6:2FTS	5.000	4.853	-2.9	97.1
13C2-8:2FTS	5.000	4.909	-1.8	98.2
13C2-PFDoDA	1.250	1.263	1.0	101.0
13C2-PFTeDA	1.250	1.312	4.9	104.9
13C3-PFBS	2.500	2.330	-6.8	93.2
13C3-PFHxS	2.500	2.419	-3.2	96.8
13C4-PFBA	10.000	10.038	0.4	100.4
13C4-PFHpA	2.500	2.383	-4.7	95.3
13C5-PFHxA	2.500	2.418	-3.3	96.7
13C5-PFPeA	5.000	4.804	-3.9	96.1
13C6-PFDA	1.250	1.268	1.4	101.4
13C7-PFUnDA	1.250	1.321	5.7	105.7
13C8-FOSA	2.500	2.540	1.6	101.6
13C8-PFOA	2.500	2.684	7.4	107.4
13C8-PFOS	2.500	2.589	3.6	103.6
13C9-PFNA	1.250	1.443	15.4	115.4
4:2FTS	9.375	8.455	-9.8	90.2
6:2FTS	9.500	9.152	-3.7	96.3
8:2FTS	9.600	9.095	-5.3	94.7
d3-MeFOSAA	5.000	4.995	-0.1	99.9
EtFOSAA	2.500	2.168	-13.3	86.7
FOSA	2.500	2.360	-5.6	94.4
MeFOSAA	2.500	2.505	0.2	100.2
PFBA	10.000	9.704	-3.0	97.0
PFBS	2.218	2.207	-0.5	99.5
PFDA	2.500	2.349	-6.0	94.0
PFDoDA	2.500	2.467	-1.3	98.7
PFDS	2.413	2.279	-5.5	94.5
PFHpA	2.500	2.474	-1.0	99.0
PFHpS	2.383	2.261	-5.1	94.9
PFHxA	2.500	2.432	-2.7	97.3
PFHxS	2.285	2.034	-11.0	89.0
PFNA	2.500	2.270	-9.2	90.8
PFNS	2.405	2.439	1.4	101.4
PFOA	2.500	2.351	-6.0	94.0
PFOS	2.320	1.975	-14.9	85.1

# Continuing Calibration Summary

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-CC268  
 Lab FileID: 6Q17759.D

PFPeA	5.000	4.825	-3.5	96.5
PFPeS	2.353	2.291	-2.6	97.4
PFTeDA	2.500	2.230	-10.8	89.2
PFTrDA	2.500	2.378	-4.9	95.1
PFUnDA	2.500	2.333	-6.7	93.3
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	4.587	-2.9	97.1
13C3-HFPO-DA	10.000	9.461	-5.4	94.6
9C1-PF3ONS	4.675	4.361	-6.7	93.3
ADONA	4.725	4.669	-1.2	98.8
HFPO-DA	5.000	5.079	1.6	101.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.562	-7.4	92.6
5:3FTCA	62.400	57.278	-8.2	91.8
7:3FTCA	62.400	60.569	-2.9	97.1
d3-MeFOSA	2.500	2.471	-1.1	98.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.381	7.6	107.6
EtFOSE	12.500	11.379	-9.0	91.0
MeFOSA	5.000	5.125	2.5	102.5
MeFOSE	12.500	11.322	-9.4	90.6
PFDoDS	2.425	2.373	-2.1	97.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.321	6.4	106.4
d7-MeFOSE	25.000	26.187	4.7	104.7
d9-EtFOSE	25.000	25.813	3.3	103.3
d5-EtFOSA	2.500	2.273	-9.1	90.9
NFDHA	5.000	4.949	-1.0	99.0
PFMBA	5.000	4.789	-4.2	95.8
PFMPA	5.000	4.828	-3.4	96.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.292	-3.5	96.5

CC Criteria: +/- 30%

## Run Sequence Report

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q634	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q634-RT	4Q43881.D	05/03/23 10:23	n/a	Retention Time Marker
S4Q634-RT	4Q43882.D	05/03/23 10:37	n/a	Retention Time Marker
S4Q634-IC634	4Q43883.D	05/03/23 10:58	n/a	Mass Calibration Verification
S4Q634-IC634	4Q43884.D	05/03/23 11:12	n/a	Initial cal 1
S4Q634-IC634	4Q43885.D	05/03/23 11:26	n/a	Initial cal 2
S4Q634-IC634	4Q43886.D	05/03/23 11:40	n/a	Initial cal 3
S4Q634-ICC634	4Q43887.D	05/03/23 11:54	n/a	Initial cal 4
S4Q634-IC634	4Q43888.D	05/03/23 12:08	n/a	Initial cal 5
S4Q634-IC634	4Q43889.D	05/03/23 12:22	n/a	Initial cal 6
S4Q634-IC634	4Q43890.D	05/03/23 12:36	n/a	Initial cal 7
S4Q634-IC634	4Q43891.D	05/03/23 12:50	n/a	Initial cal 8
S4Q634-IBLK	4Q43892.D	05/03/23 13:04	n/a	Instrument Blank
S4Q634-IBLK	4Q43892.D	05/03/23 13:04	n/a	Instrument Blank
S4Q634-ICV634	4Q43894.D	05/03/23 13:20	n/a	Initial cal verification 20
S4Q634-ICV634	4Q43895.D	05/03/23 13:35	n/a	Initial cal verification 4
S4Q634-CC634	4Q43897.D	05/03/23 13:51	n/a	Continuing cal 1.0LL
OP96662-BS	4Q43898.D	05/03/23 14:05	OP96662	Blank Spike
OP96662-LLBS	4Q43899.D	05/03/23 14:19	OP96662	Blank Spike
OP96662-MB	4Q43900.D	05/03/23 14:33	OP96662	Method Blank
ZZZZZZ	4Q43901.D	05/03/23 14:47	OP96662	(unrelated sample)
ZZZZZZ	4Q43902.D	05/03/23 15:01	OP96662	(unrelated sample)
ZZZZZZ	4Q43903.D	05/03/23 15:15	OP96662	(unrelated sample)
ZZZZZZ	4Q43904.D	05/03/23 15:29	OP96662	(unrelated sample)
FC5685-3	4Q43905.D	05/03/23 15:43	OP96662	(used for QC only; not part of job FC5890)
OP96662-MS	4Q43906.D	05/03/23 15:57	OP96662	Matrix Spike
S4Q634-CC634	4Q43907.D	05/03/23 16:11	n/a	Continuing cal 4
S4Q634-ICCB	4Q43908.D	05/03/23 16:25	n/a	Continuing Calibration Blank
FC5685-4	4Q43909.D	05/03/23 16:39	OP96662	(used for QC only; not part of job FC5890)
OP96662-DUP	4Q43910.D	05/03/23 16:54	OP96662	Duplicate
ZZZZZZ	4Q43911.D	05/03/23 17:08	OP96662	(unrelated sample)
OP96659-BS	4Q43912.D	05/03/23 17:22	OP96659	Blank Spike
OP96659-LLBS	4Q43913.D	05/03/23 17:36	OP96659	Blank Spike
OP96659-MB	4Q43914.D	05/03/23 17:50	OP96659	Method Blank
ZZZZZZ	4Q43916.D	05/03/23 18:18	OP96659	(unrelated sample)
S4Q634-CC634	4Q43917.D	05/03/23 18:32	n/a	Continuing cal 4
S4Q634-ICCB	4Q43918.D	05/03/23 18:46	n/a	Continuing Calibration Blank
S4Q634-ICCB	4Q43918.D	05/03/23 18:46	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43919.D	05/03/23 19:00	OP96659	(unrelated sample)
ZZZZZZ	4Q43920.D	05/03/23 19:14	OP96659	(unrelated sample)
ZZZZZZ	4Q43921.D	05/03/23 19:28	OP96659	(unrelated sample)
ZZZZZZ	4Q43922.D	05/03/23 19:42	OP96659	(unrelated sample)
OP96657-BS	4Q43923.D	05/03/23 19:56	OP96657	Blank Spike
OP96657-LLBS	4Q43924.D	05/03/23 20:10	OP96657	Blank Spike
OP96657-MB	4Q43925.D	05/03/23 20:24	OP96657	Method Blank
ZZZZZZ	4Q43926.D	05/03/23 20:38	OP96657	(unrelated sample)
S4Q634-CC634	4Q43927.D	05/03/23 20:53	n/a	Continuing cal 4

# Run Sequence Report

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q634	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q634-ICCB	4Q43928.D	05/03/23 21:07	n/a	Continuing Calibration Blank
S4Q634-ICCB	4Q43928.D	05/03/23 21:07	n/a	Continuing Calibration Blank
FC5371-11	4Q43929.D	05/03/23 21:21	OP96657	(used for QC only; not part of job FC5890)
OP96657-MS	4Q43930.D	05/03/23 21:35	OP96657	Matrix Spike
OP96657-MSD	4Q43931.D	05/03/23 21:49	OP96657	Matrix Spike Duplicate
ZZZZZZ	4Q43932.D	05/03/23 22:03	OP96657	(unrelated sample)
ZZZZZZ	4Q43933.D	05/03/23 22:17	OP96657	(unrelated sample)
ZZZZZZ	4Q43935.D	05/03/23 22:45	OP96657	(unrelated sample)
ZZZZZZ	4Q43936.D	05/03/23 22:59	OP96657	(unrelated sample)
ZZZZZZ	4Q43938.D	05/03/23 23:27	OP96657	(unrelated sample)
S4Q634-CC634	4Q43939.D	05/03/23 23:41	n/a	Continuing cal 4
S4Q634-ICCB	4Q43940.D	05/03/23 23:55	n/a	Continuing Calibration Blank
S4Q634-ICCB	4Q43940.D	05/03/23 23:55	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43941.D	05/04/23 00:09	OP96657	(unrelated sample)
FC5371-20	4Q43942.D	05/04/23 00:23	OP96657	(used for QC only; not part of job FC5890)
OP96657-MS2	4Q43943.D	05/04/23 00:37	OP96657	Matrix Spike
OP96657-MSD2	4Q43944.D	05/04/23 00:51	OP96657	Matrix Spike Duplicate
ZZZZZZ	4Q43945.D	05/04/23 01:05	OP96657	(unrelated sample)
S4Q634-ECC634	4Q43946.D	05/04/23 01:19	n/a	Ending cal 4
S4Q634-ICCB	4Q43947.D	05/04/23 01:34	n/a	Continuing Calibration Blank
S4Q634-ICCB	4Q43947.D	05/04/23 01:34	n/a	Continuing Calibration Blank

6.10.1  
6

## Run Sequence Report

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q639	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q639-RT	4Q44133.D	05/09/23 13:28	n/a	Retention Time Marker
S4Q639-RT	4Q44134.D	05/09/23 13:42	n/a	Retention Time Marker
S4Q639-IBLK	4Q44136.D	05/09/23 14:10	n/a	Instrument Blank
S4Q639-IBLK	4Q44136.D	05/09/23 14:10	n/a	Instrument Blank
S4Q639-CC634	4Q44137.D	05/09/23 14:24	n/a	Continuing cal 4
S4Q639-CC634	4Q44138.D	05/09/23 14:38	n/a	Continuing cal 1.0LL
OP96746-BS	4Q44139.D	05/09/23 14:52	OP96746	Blank Spike
OP96746-LLBS	4Q44140.D	05/09/23 15:06	OP96746	Blank Spike
OP96746-MB	4Q44141.D	05/09/23 15:20	OP96746	Method Blank
ZZZZZZ	4Q44144.D	05/09/23 16:02	OP96746	(unrelated sample)
ZZZZZZ	4Q44145.D	05/09/23 16:26	OP96746	(unrelated sample)
ZZZZZZ	4Q44146.D	05/09/23 16:40	OP96746	(unrelated sample)
ZZZZZZ	4Q44148.D	05/09/23 17:11	OP96746	(unrelated sample)
S4Q639-CC634	4Q44149.D	05/09/23 17:25	n/a	Continuing cal 4
S4Q639-ICCB	4Q44150.D	05/09/23 17:39	n/a	Continuing Calibration Blank
ZZZZZZ	4Q44151.D	05/09/23 17:53	OP96746	(unrelated sample)
ZZZZZZ	4Q44152.D	05/09/23 18:07	OP96746	(unrelated sample)
ZZZZZZ	4Q44153.D	05/09/23 18:21	OP96746	(unrelated sample)
ZZZZZZ	4Q44154.D	05/09/23 18:35	OP96746	(unrelated sample)
ZZZZZZ	4Q44155.D	05/09/23 18:49	OP96746	(unrelated sample)
ZZZZZZ	4Q44156.D	05/09/23 19:03	OP96746	(unrelated sample)
ZZZZZZ	4Q44157.D	05/09/23 19:17	OP96746	(unrelated sample)
S4Q639-CC634	4Q44158.D	05/09/23 19:31	n/a	Continuing cal 4
S4Q639-ICCB	4Q44159.D	05/09/23 19:45	n/a	Continuing Calibration Blank
OP96747-BS	4Q44160.D	05/09/23 19:59	OP96747	Blank Spike
OP96747-LLBS	4Q44161.D	05/09/23 20:13	OP96747	Blank Spike
OP96747-MB	4Q44162.D	05/09/23 20:28	OP96747	Method Blank
ZZZZZZ	4Q44163.D	05/09/23 20:42	OP96747	(unrelated sample)
ZZZZZZ	4Q44164.D	05/09/23 20:56	OP96747	(unrelated sample)
S4Q639-CC634	4Q44165.D	05/09/23 21:10	n/a	Continuing cal 4
S4Q639-ICCB	4Q44166.D	05/09/23 21:24	n/a	Continuing Calibration Blank
FC5818-3	4Q44167.D	05/09/23 21:38	OP96747	(used for QC only; not part of job FC5890)
OP96747-MS	4Q44168.D	05/09/23 21:52	OP96747	Matrix Spike
ZZZZZZ	4Q44169.D	05/09/23 22:06	OP96747	(unrelated sample)
FC5818-5	4Q44170.D	05/09/23 22:20	OP96747	(used for QC only; not part of job FC5890)
OP96747-DUP	4Q44171.D	05/09/23 22:34	OP96747	Duplicate
S4Q639-CC634	4Q44172.D	05/09/23 22:48	n/a	Continuing cal 4
S4Q639-CC634	4Q44173.D	05/09/23 23:02	n/a	Continuing cal 1.0LL
S4Q639-ICCB	4Q44174.D	05/09/23 23:16	n/a	Continuing Calibration Blank
OP96784-BS	4Q44175.D	05/09/23 23:30	OP96784	Blank Spike
OP96784-LLBS	4Q44176.D	05/09/23 23:44	OP96784	Blank Spike
OP96784-MB	4Q44177.D	05/09/23 23:58	OP96784	Method Blank
ZZZZZZ	4Q44178.D	05/10/23 00:12	OP96784	(unrelated sample)
FC5890-1	4Q44179.D	05/10/23 00:27	OP96784	AF-RHMW02-WGN01LF-2305W1
OP96784-MS	4Q44180.D	05/10/23 00:41	OP96784	Matrix Spike
FC5890-2	4Q44181.D	05/10/23 00:55	OP96784	AF-RHMW02-WGFD01LF-2305W1

# Run Sequence Report

Job Number: FC5890  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q639	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
----------------	------------------------	-----------------------

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
FC5890-3	4Q44183.D	05/10/23 01:23	OP96784	AF-RHMW03-WGN01LF-2305W1
S4Q639-ECC634	4Q44184.D	05/10/23 01:37	n/a	Ending cal 4
S4Q639-ICCB	4Q44185.D	05/10/23 01:51	n/a	Continuing Calibration Blank

6.10.2

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## Run Sequence Report

Job Number: FC5890  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q268	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q268-RT	6Q17735.D	05/12/23 11:31	n/a	Retention Time Marker
S6Q268-RT	6Q17736.D	05/12/23 11:46	n/a	Retention Time Marker
S6Q268-IC268	6Q17737.D	05/12/23 12:00	n/a	Mass Calibration Verification
S6Q268-IC268	6Q17738.D	05/12/23 12:15	n/a	Initial cal 1
S6Q268-IC268	6Q17739.D	05/12/23 12:29	n/a	Initial cal 2
S6Q268-IC268	6Q17740.D	05/12/23 12:44	n/a	Initial cal 3
S6Q268-ICC268	6Q17741.D	05/12/23 12:58	n/a	Initial cal 4
S6Q268-IC268	6Q17742.D	05/12/23 13:13	n/a	Initial cal 5
S6Q268-IC268	6Q17743.D	05/12/23 13:27	n/a	Initial cal 6
S6Q268-IC268	6Q17744.D	05/12/23 13:42	n/a	Initial cal 7
S6Q268-IC268	6Q17745.D	05/12/23 13:56	n/a	Initial cal 8
S6Q268-IBLK	6Q17746.D	05/12/23 14:11	n/a	Instrument Blank
S6Q268-IBLK	6Q17746.D	05/12/23 14:11	n/a	Instrument Blank
S6Q268-ICV268	6Q17747.D	05/12/23 14:25	n/a	Initial cal verification 4
S6Q268-ICV268	6Q17748.D	05/12/23 14:40	n/a	Initial cal verification 20
S6Q268-CC268	6Q17749.D	05/12/23 14:54	n/a	Continuing cal 4
S6Q268-CC268	6Q17750.D	05/12/23 15:09	n/a	Continuing cal 1.0LL
OP96784-MB	6Q17751.D	05/12/23 15:23	OP96784	Method Blank
FC5890-1	6Q17752.D	05/12/23 15:38	OP96784	AF-RHMW02-WGN01LF-2305W1
FC5890-2	6Q17755.D	05/12/23 16:21	OP96784	AF-RHMW02-WGFD01LF-2305W1
OP96784-DUP	6Q17757.D	05/12/23 16:50	OP96784	Duplicate
S6Q268-CC268	6Q17759.D	05/12/23 17:19	n/a	Continuing cal 4
S6Q268-ICCB	6Q17760.D	05/12/23 17:34	n/a	Continuing Calibration Blank
OP96723-MS	6Q17762.D	05/12/23 18:03	OP96723	Matrix Spike
OP96723-MSD	6Q17763.D	05/12/23 18:17	OP96723	Matrix Spike Duplicate
S6Q268-CC268	6Q17764.D	05/12/23 18:32	n/a	Continuing cal 4
S6Q268-ICCB	6Q17765.D	05/12/23 18:46	n/a	Continuing Calibration Blank
OP96842-MB	6Q17766.D	05/12/23 19:00	OP96842	Method Blank
OP96842-BS	6Q17767.D	05/12/23 19:15	OP96842	Blank Spike
OP96842-LLBS	6Q17768.D	05/12/23 19:29	OP96842	Blank Spike
ZZZZZZ	6Q17769.D	05/12/23 19:44	OP96842	(unrelated sample)
ZZZZZZ	6Q17770.D	05/12/23 19:58	OP96842	(unrelated sample)
ZZZZZZ	6Q17771.D	05/12/23 20:13	OP96842	(unrelated sample)
FC5443-4	6Q17772.D	05/12/23 20:27	OP96842	(used for QC only; not part of job FC5890)
ZZZZZZ	6Q17775.D	05/12/23 21:11	OP96842	(unrelated sample)
S6Q268-ECC268	6Q17777.D	05/12/23 21:40	n/a	Ending cal 4
S6Q268-ICCB	6Q17778.D	05/12/23 21:54	n/a	Continuing Calibration Blank



**MS Semi-volatiles**

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**Raw Data**

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### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17752.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 3:38:13 PM  
 Sample Name : fc5890-1  
 Vial : P4-A2  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96784,S6Q268,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	82424	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	42353	5.00 µg/L	-0.012
M5-PFHxA	5.454	318.0 -> 273.0	57645	2.50 µg/L	-0.012
M4-PFHpA	6.420	367.1 -> 322.0	50804	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	71148	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	23303	1.25 µg/L	0.012
M6-PFDA	8.064	519.1 -> 474.1	17706	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	21111	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	18039	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	9627	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	15205	2.50 µg/L	0.000
M3-PFBS	5.384	302.1 -> 79.9	18057	2.50 µg/L	-0.013
M3-PFHxS	7.179	402.1 -> 79.9	11491	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9019	2.50 µg/L	0.000
M2-4:2FTS	5.131	329.1 -> 80.9	2253	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	2201	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2034	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	18898	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	28075	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	15286	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	49241	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	64063	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	5989	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	5195	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	11619	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	51435	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	7328	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	70439	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	19563	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	20957	1.25 µg/L	0.012
13C2-PFHxA	5.454	315.1 -> 270.0	42409	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.131	329.1 -> 80.9	2253	8.07 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 161.4%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2201	6.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2034	5.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C2-PFDoDA	8.949	615.1 -> 570.0	18039	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.2%		
13C2-PFTeDA	9.677	715.2 -> 670.0	9627	0.87 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 69.4%		
13C3-PFBS	5.384	302.1 -> 79.9	18057	2.83 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.2%		
13C3-PFHxS	7.179	402.1 -> 79.9	11491	2.94 µg/L	0.012

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.8%		
13C4-PFBA	2.901	216.8 -> 171.9	82424	6.75	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.5%		
13C4-PFHpA	6.420	367.1 -> 322.0	50804	2.88	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.4%		
13C5-PFHxA	5.454	318.0 -> 273.0	57645	2.87	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.0%		
13C5-PFPeA	4.259	268.3 -> 223.0	42353	4.75	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.0%		
13C6-PFDA	8.064	519.1 -> 474.1	17706	1.38	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.5%		
13C7-PFUnDA	8.518	570.0 -> 525.1	21111	1.28	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%		
13C8-FOSA	9.648	506.1 -> 77.8	15205	1.97	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.9%		
13C8-PFOA	7.064	421.1 -> 376.0	71148	2.68	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%		
13C8-PFOS	8.226	507.1 -> 79.9	9019	2.49	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C9-PFNA	7.595	472.1 -> 427.0	23303	1.50	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 120.3%		
d3-MeFOSAA	8.121	573.2 -> 419.0	18898	5.19	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.8%		
13C3-HFPO-DA	5.831	286.9 -> 168.9	28075	9.05	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.5%		
d3-MeFOSA	10.752	515.0 -> 219.0	5195	1.85	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.0%		
d5-EtFOSAA	8.329	589.2 -> 419.0	15286	5.31	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.2%		
d7-MeFOSE	10.672	623.2 -> 58.9	49241	17.20	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 68.8%		
d9-EtFOSE	10.907	639.2 -> 58.9	64063	18.53	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.1%		
d5-EtFOSA	10.984	531.1 -> 219.0	5989	1.77	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 70.7%		

Target Compounds

Target Compounds	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.		
6:2FTS	6.838	427.1 -> 407.0 427.1 -> 80.9	809 245	0.34	µg/L	96
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.		
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.		
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.		
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.		
PFBA	2.656	212.8 -> 168.9	0	µg/L	m	1
PFBS	5.275	298.7 -> 79.9 298.7 -> 98.8	0 0	µg/L	m	1
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	6.408	599.0 -> 98.8				
		363.1 -> 319.0	1570	0.06	µg/L	98
PFHpS	-	363.1 -> 169.0	240			
		449.0 -> 79.9	-	N.D.		
PFHxA	-	449.0 -> 98.9				
		313.0 -> 269.0	-	N.D.		
PFHxS	-	313.0 -> 118.9				
		398.7 -> 79.9	-	N.D.		
PFNA	8.044	398.7 -> 98.9				
		463.0 -> 419.0	0		µg/L	m
PFNS	-	463.0 -> 219.0	0			1
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	4.363	498.9 -> 98.8				
		263.0 -> 219.0	0		µg/L	m
PFPeS	-	263.0 -> 219.0				1
		349.1 -> 79.9	-	N.D.		
PFTeDA	-	349.1 -> 98.9				
		713.1 -> 669.0	-	N.D.		
PFTrDA	-	713.1 -> 168.9				
		663.0 -> 619.0	-	N.D.		
PFUnDA	-	663.0 -> 168.9				
		563.1 -> 519.0	-	N.D.		
11Cl-PF3OUdS	-	563.1 -> 269.1				
		630.9 -> 450.9	-	N.D.		
9Cl-PF3ONS	-	630.9 -> 450.9				
		632.9 -> 452.9				
ADONA	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
HFPO-DA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
3:3FTCA	3.621	284.9 -> 168.9				
		241.0 -> 177.0	0		µg/L	m
5:3FTCA	-	284.9 -> 184.9				1
		241.0 -> 117.0	0			
7:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
EtFOSA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSE	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
MeFOSA	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSE	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

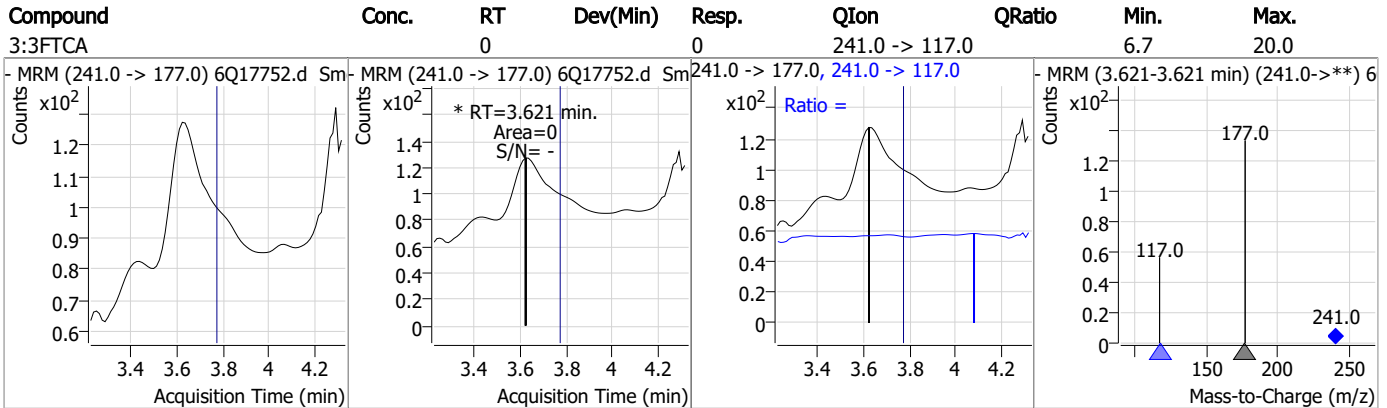
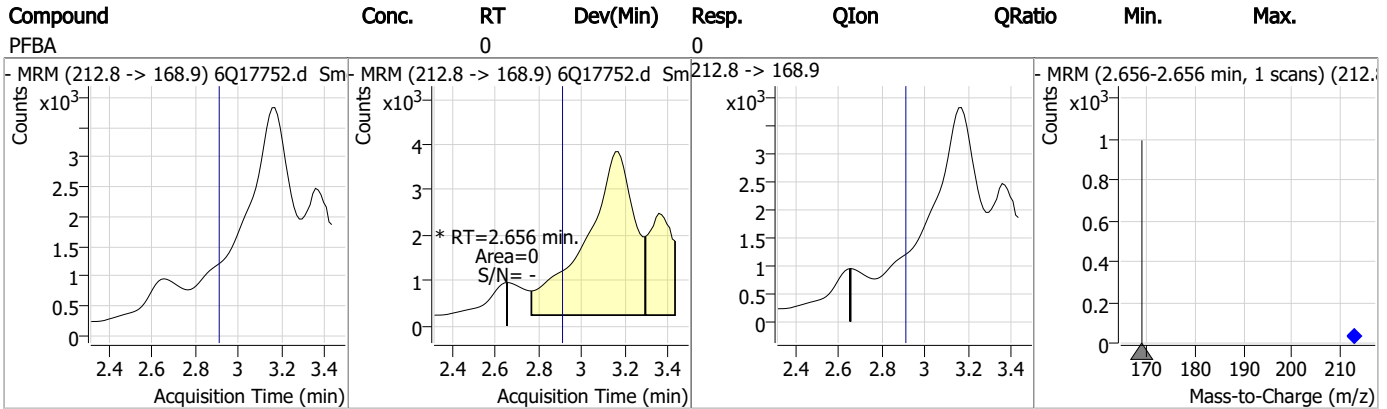
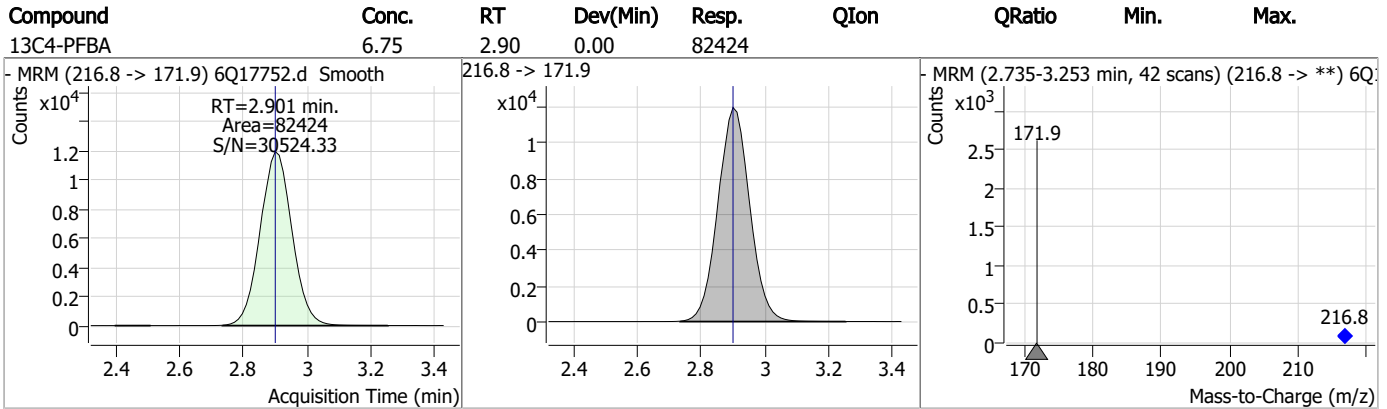
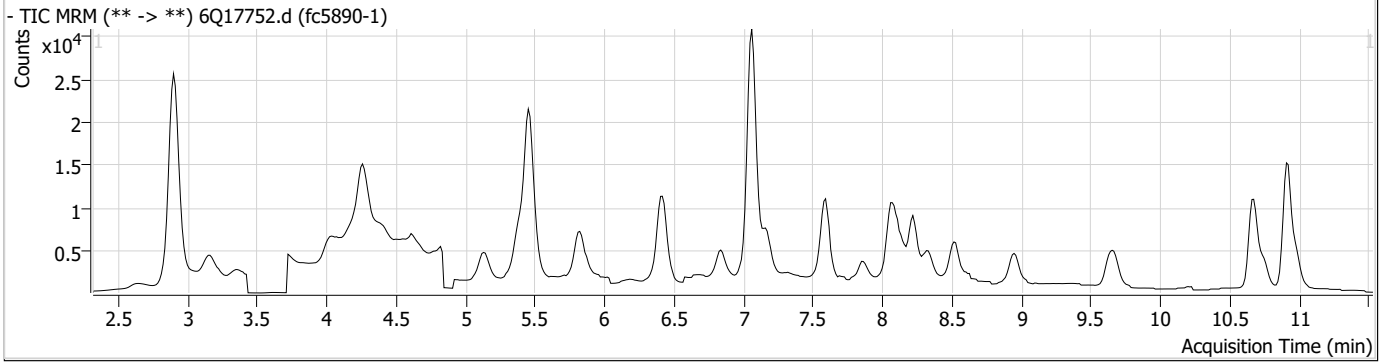
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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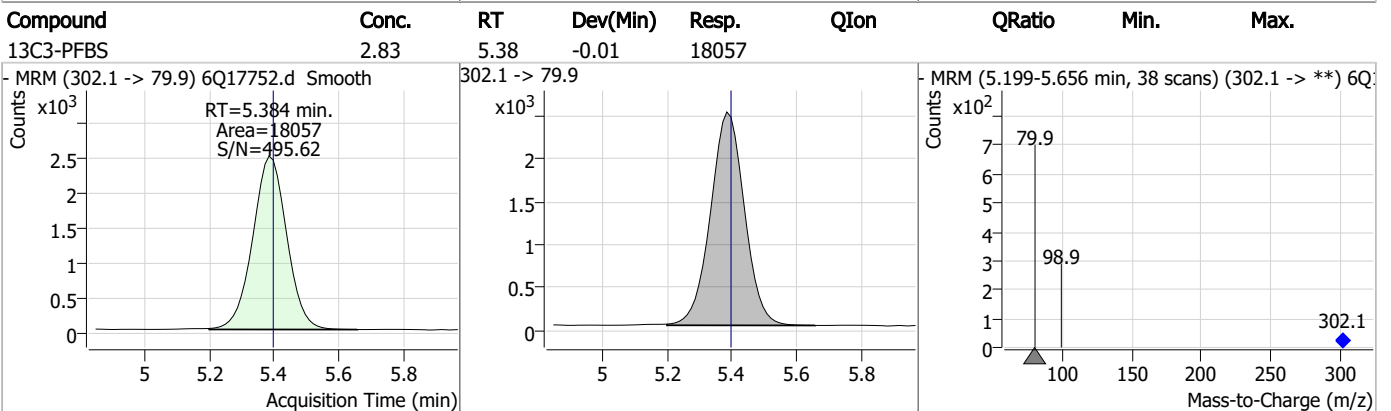
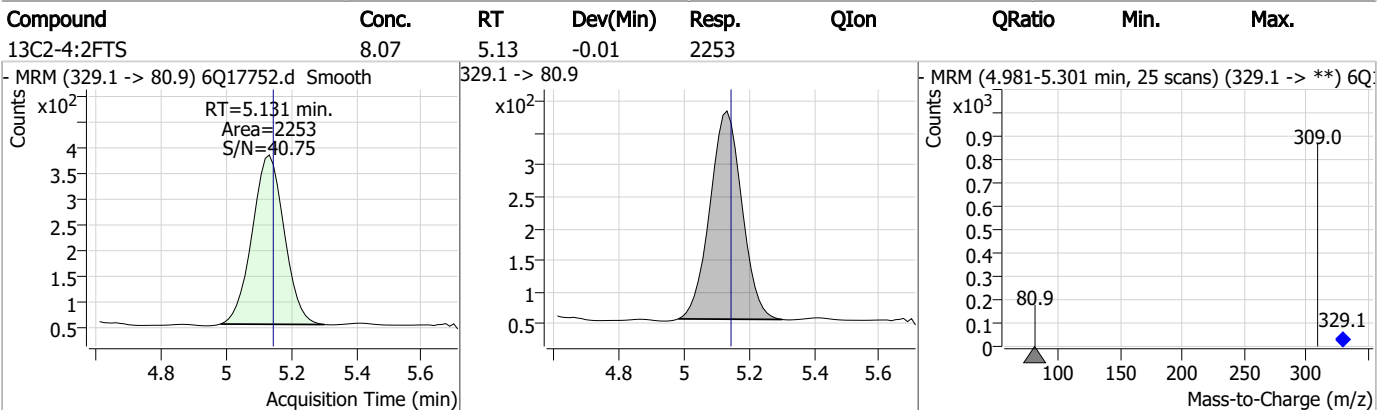
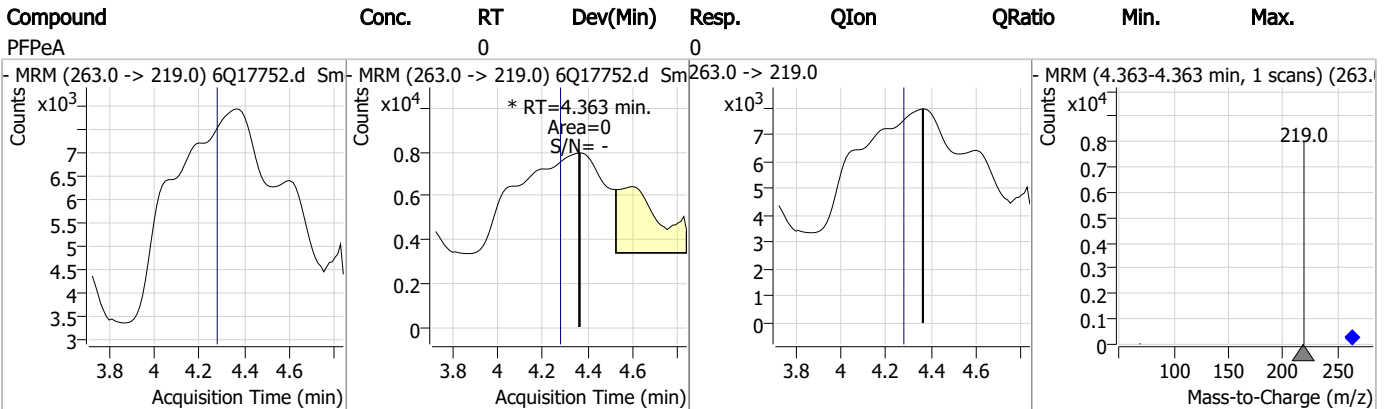
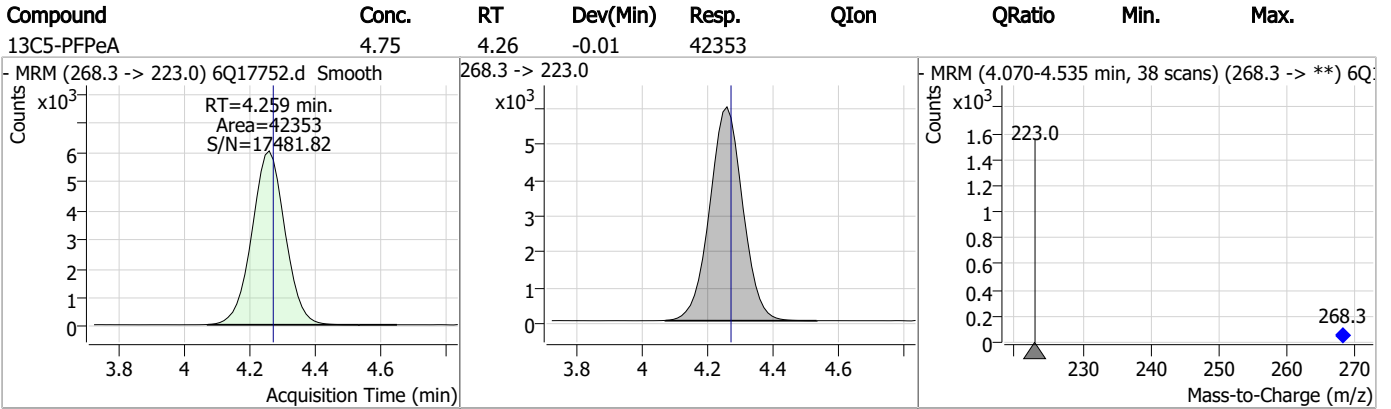
7.1.1  
7



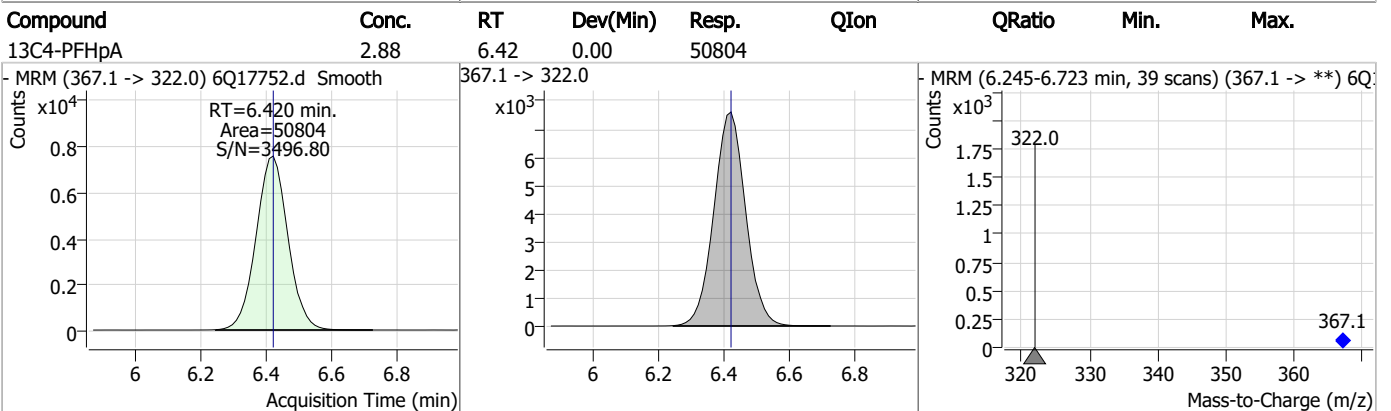
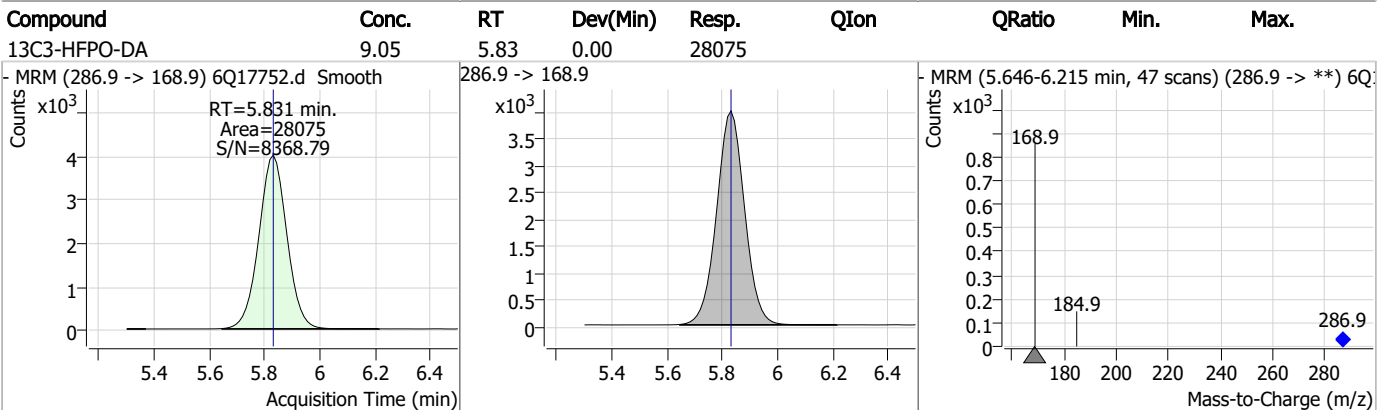
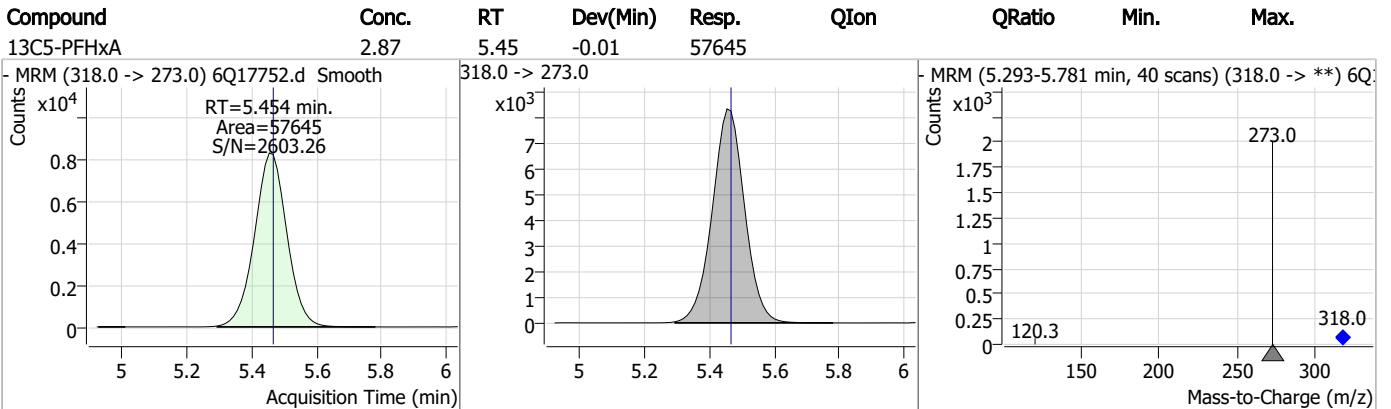
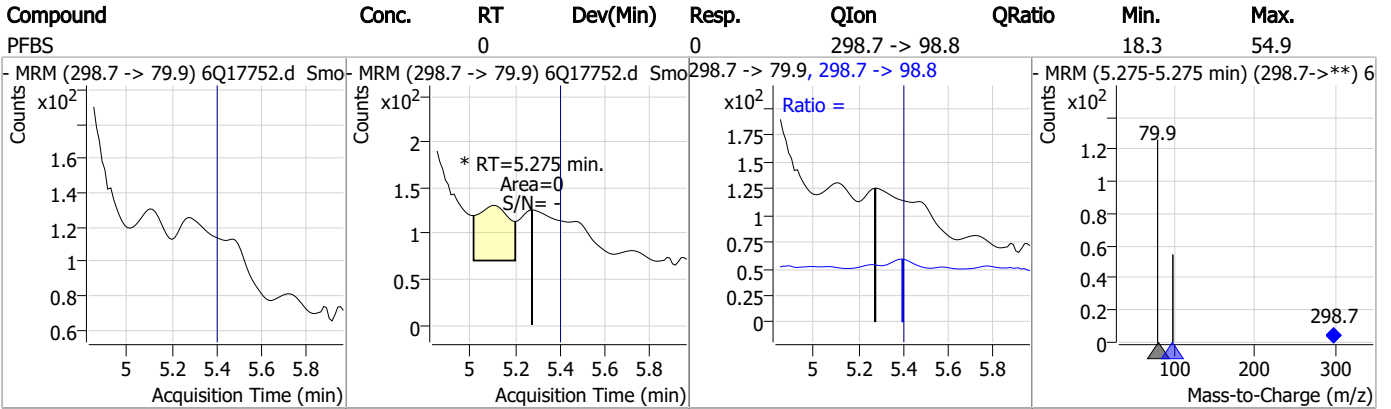
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

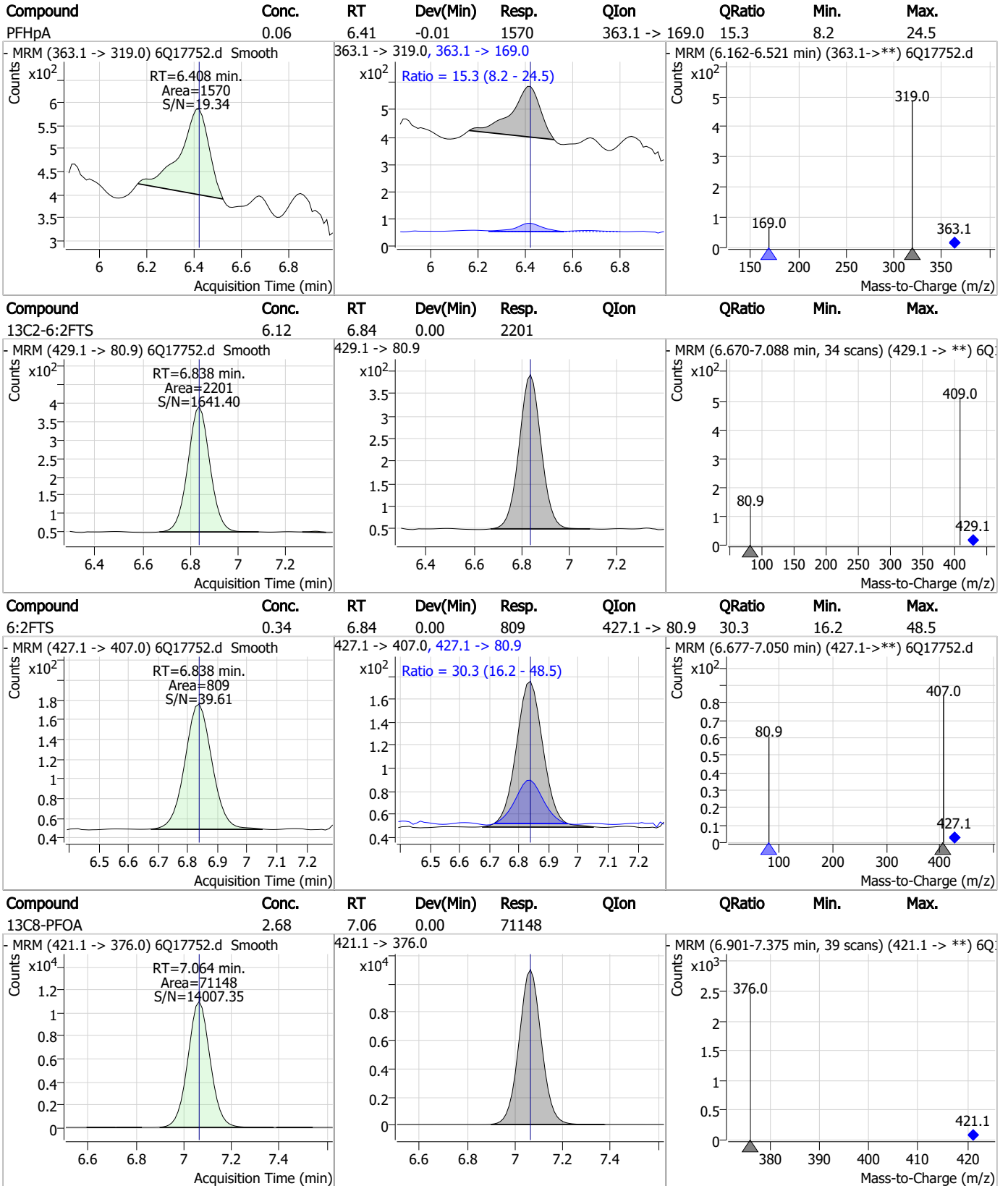


### Perfluorinated Compounds by LC/MS/MS



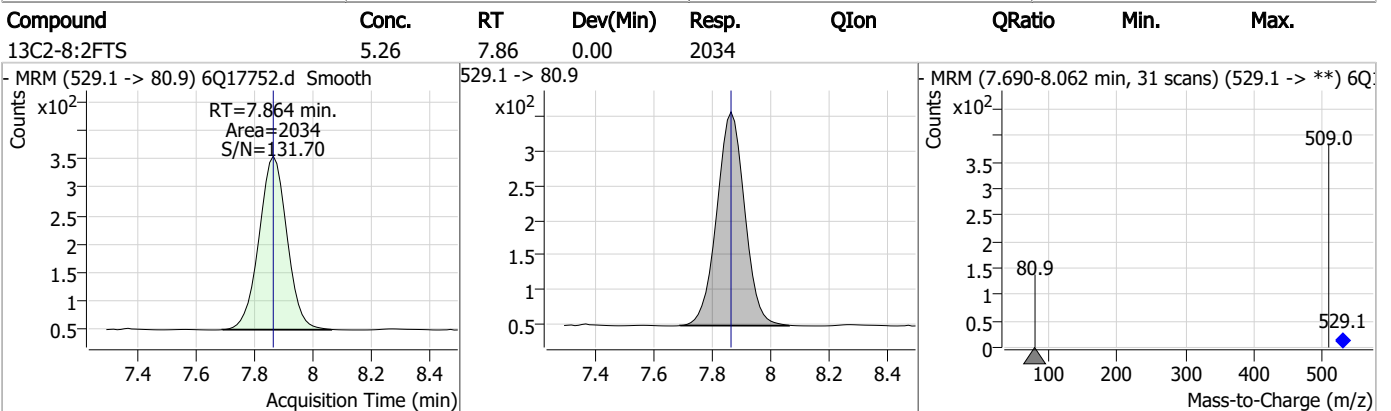
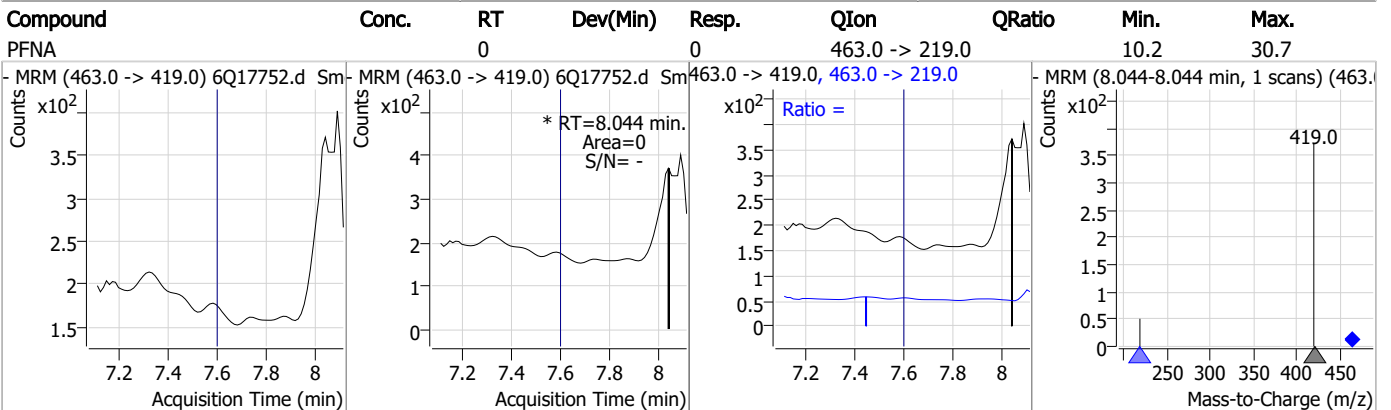
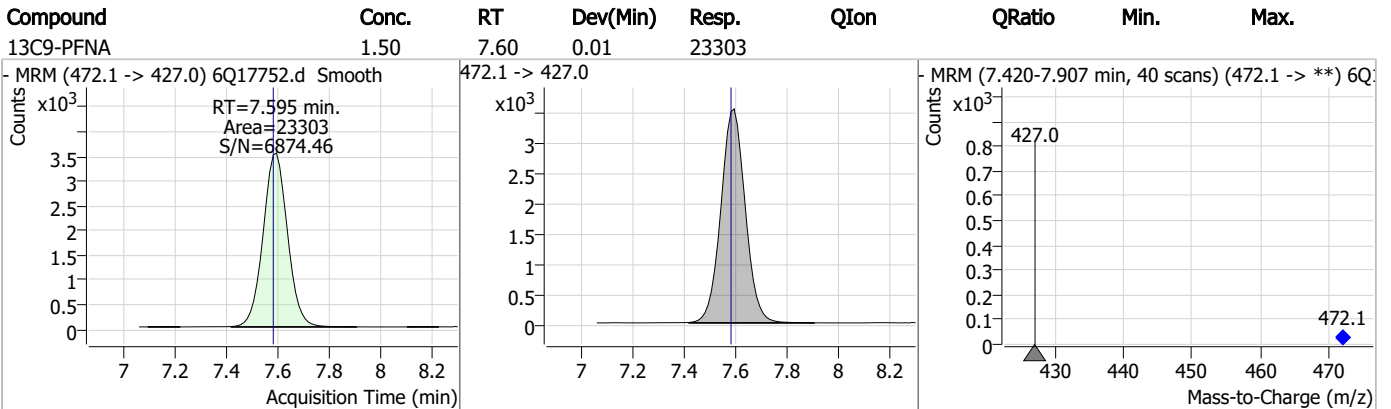
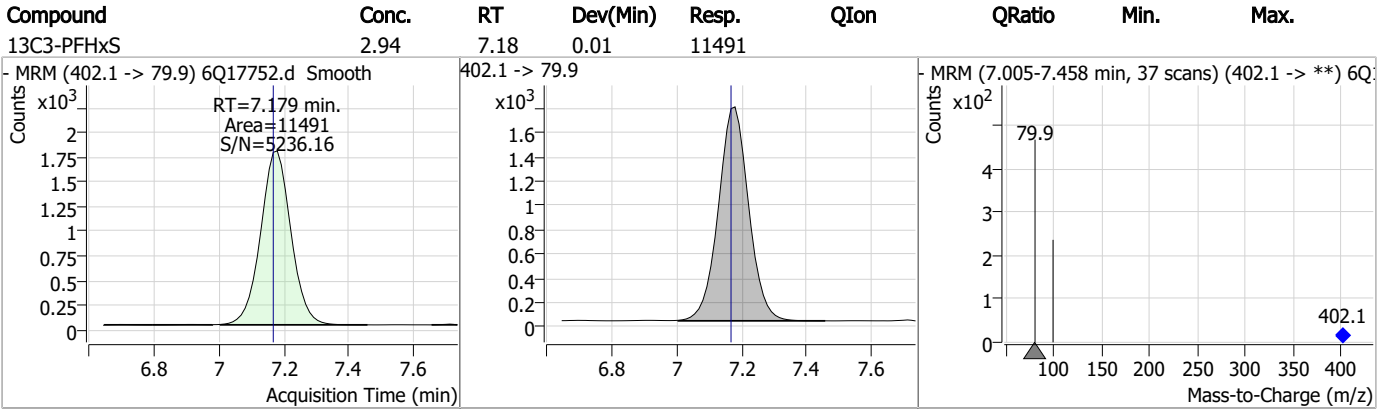


### Perfluorinated Compounds by LC/MS/MS



7.1.1  
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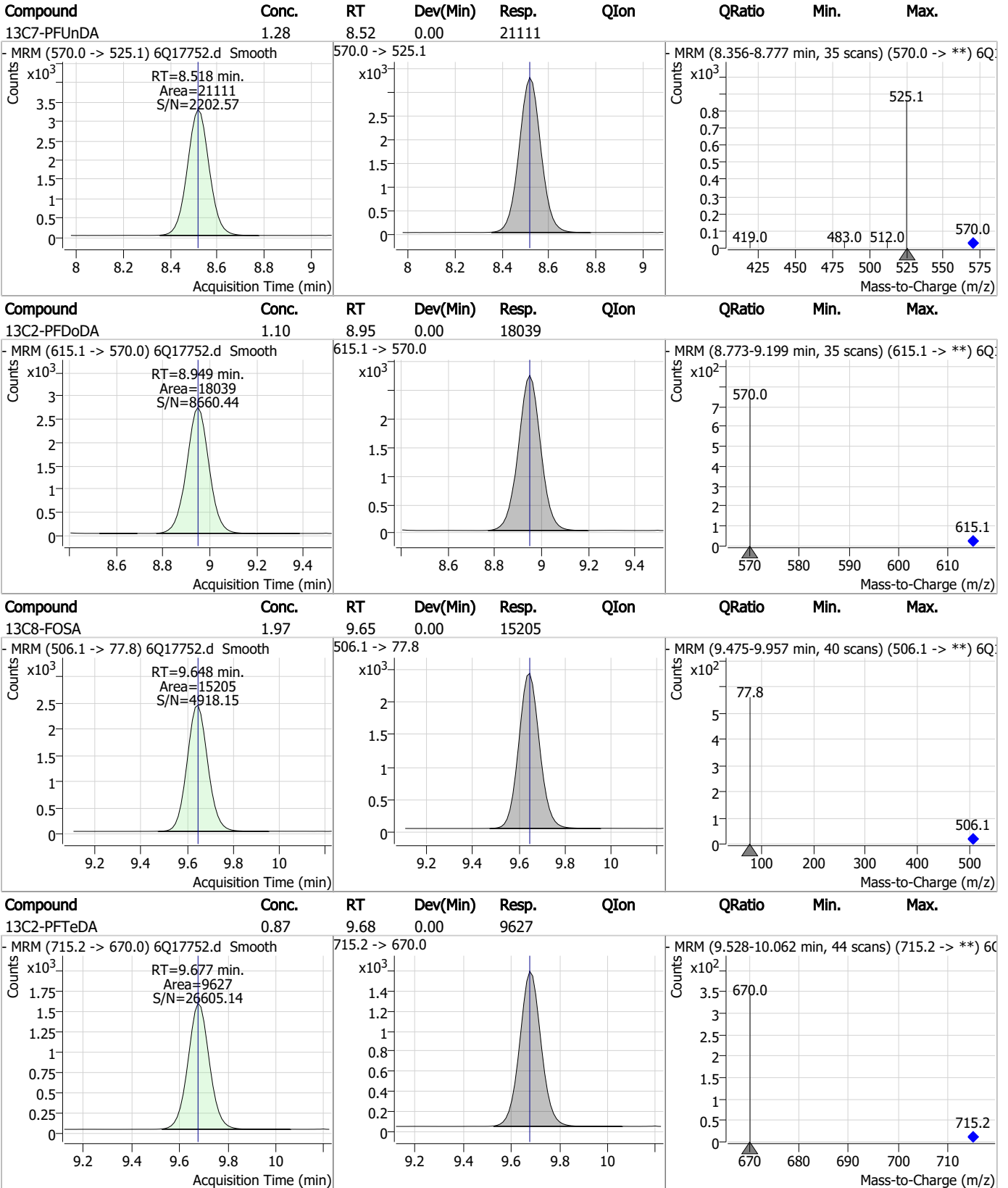
### Perfluorinated Compounds by LC/MS/MS



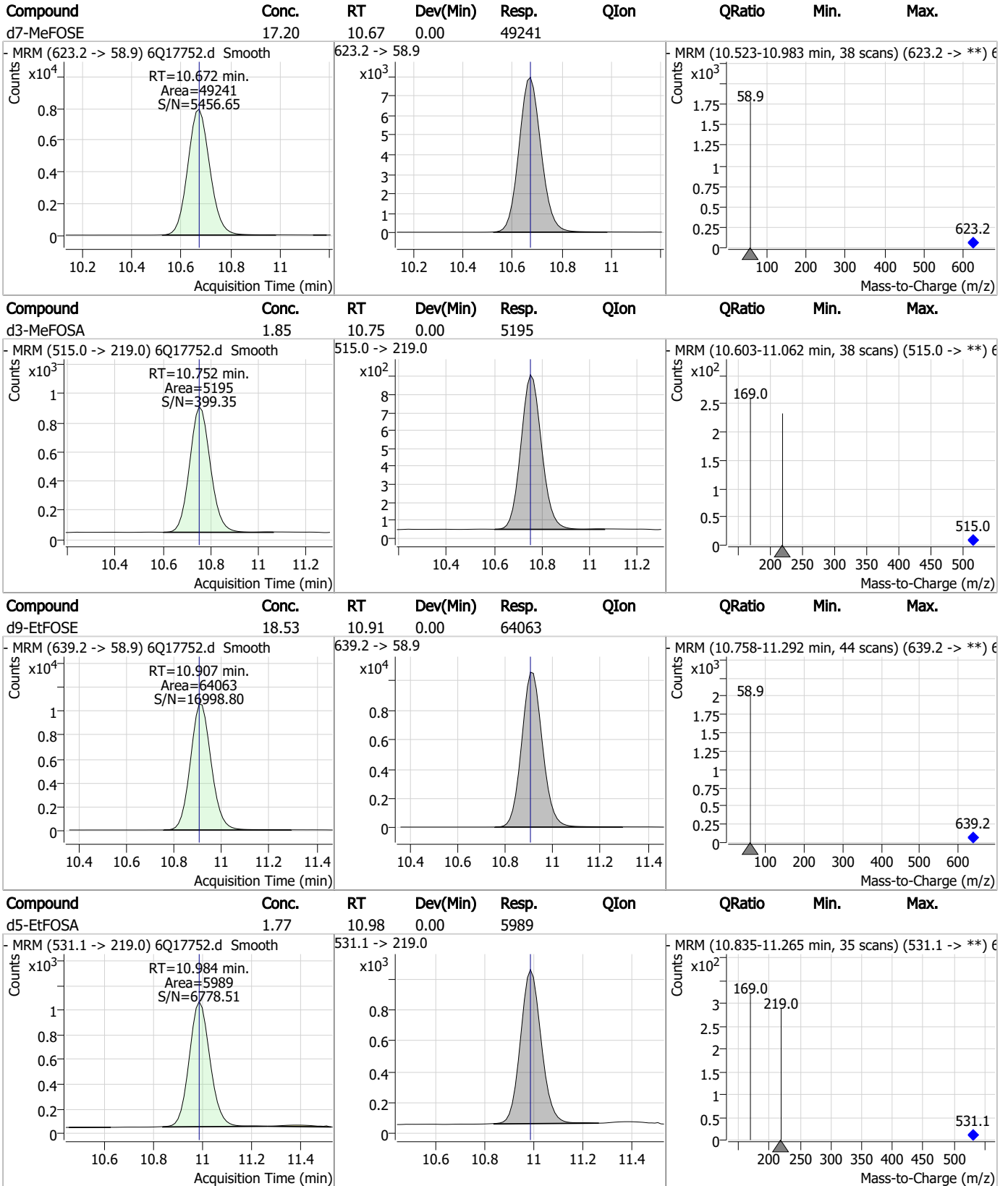
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.38	8.06	0.00	17706				
d3-MeFOSAA	5.19	8.12	-0.01	18898				
13C8-PFOS	2.49	8.23	0.00	9019				
d5-EtFOSAA	5.31	8.33	0.00	15286				

Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44179.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/10/2023 12:27:00 AM  
 Sample Name : FC5890-1  
 Vial : P3-D5  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q639.batch.bin  
 Sample Information : OP96784,S4Q639,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.911	216.8 -> 171.9	47594	10.00 µg/L	-0.012
M5-PFPeA	4.375	268.3 -> 223.0	53336	5.00 µg/L	-0.012
M5-PFHxA	5.559	318.0 -> 273.0	50023	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	30734	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	45235	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	22750	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	20180	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	21242	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	19954	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	11045	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	13089	2.50 µg/L	0.012
M3-PFBS	5.452	302.1 -> 79.9	11583	2.50 µg/L	0.000
M3-PFHxS	7.254	402.1 -> 79.9	7455	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	9856	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1411	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	2335	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	3056	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	15863	5.00 µg/L	0.012
M3-HFPO-DA	5.914	286.9 -> 168.9	22240	10.00 µg/L	0.000
M5-EtFOSAA	8.483	589.2 -> 419.0	13110	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	46471	25.00 µg/L	0.000
M9-EtFOSE	11.281	639.2 -> 58.9	67093	25.00 µg/L	0.012
M5-EtFOSA	11.373	531.1 -> 219.0	7453	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	7148	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	10059	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	38459	5.00 µg/L	-0.013
18O2-PFHxS	7.253	403.0 -> 83.9	4531	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	48461	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	17658	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	25359	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	39897	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.247	329.1 -> 80.9	1411	7.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 153.3%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2335	7.03 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 140.7%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3056	5.90 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.9%		
13C2-PFDoDA	9.130	615.1 -> 570.0	19954	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C2-PFTeDA	9.924	715.2 -> 670.0	11045	0.79 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 63.5%		
13C3-PFBS	5.452	302.1 -> 79.9	11583	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C3-PFHxS	7.254	402.1 -> 79.9	7455	2.65 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 = 106.2%		
13C4-PFBA	2.911	216.8 -> 171.9	47594	6.58 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 65.8%		
13C4-PFHpA	6.492	367.1 -> 322.0	30734	2.99 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 119.7%		
13C5-PFHxA	5.559	318.0 -> 273.0	50023	2.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.9%		
13C5-PFPeA	4.375	268.3 -> 223.0	53336	4.34 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.8%		
13C6-PFDA	8.216	519.1 -> 474.1	20180	1.33 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C7-PFUnDA	8.685	570.0 -> 525.1	21242	1.35 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C8-FOSA	9.796	506.1 -> 77.8	13089	2.08 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 83.0%		
13C8-PFOA	7.163	421.1 -> 376.0	45235	2.84 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.7%		
13C8-PFOS	8.354	507.1 -> 79.9	9856	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C9-PFNA	7.709	472.1 -> 427.0	22750	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.6%		
d3-MeFOSAA	8.273	573.2 -> 419.0	15863	6.25 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.0%		
13C3-HFPO-DA	5.914	286.9 -> 168.9	22240	8.47 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 84.7%		
d3-MeFOSA	11.089	515.0 -> 219.0	7148	1.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 72.5%		
d5-EtFOSAA	8.483	589.2 -> 419.0	13110	6.27 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.4%		
d7-MeFOSE	10.972	623.2 -> 58.9	46471	14.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 59.4%		
d9-EtFOSE	11.281	639.2 -> 58.9	67093	15.14 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 60.6%		
d5-EtFOSA	11.373	531.1 -> 219.0	7453	1.78 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 71.1%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	6.924	427.1 -> 407.0 427.1 -> 80.9	688 274	0.30 µg/L	95
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	3.171	212.8 -> 168.9	0	µg/L m	1
PFBS	5.205	298.7 -> 79.9 298.7 -> 98.8	0 0	µg/L m	1
PFDA	8.502	512.9 -> 469.0 512.9 -> 219.0	0 0	µg/L m	1
PFDODA	9.119	613.1 -> 569.0 613.1 -> 319.0	1092 20	0.07 µg/L #	70
PFDS	-	599.0 -> 79.9	-	N.D.	

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.493	599.0 -> 98.8				
		363.1 -> 319.0	807	0.04	µg/L	#
PFHpS	-	363.1 -> 169.0	243			72
		449.0 -> 79.9	-	N.D.		
PFHxA	5.550	449.0 -> 98.9				
		313.0 -> 269.0	0		µg/L	m
PFHxS	-	313.0 -> 118.9	0			1
		398.7 -> 79.9	-	N.D.		
PFNA	-	398.7 -> 98.9				
		463.0 -> 419.0	-	N.D.		
PFNS	-	463.0 -> 219.0				
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	4.439	498.9 -> 98.8				
		263.0 -> 219.0	14369	1.12	µg/L	
PFPeS	6.696	349.1 -> 79.9	0		µg/L	m
		349.1 -> 98.9	0			1
PFTeDA	9.439	713.1 -> 669.0	0		µg/L	m
		713.1 -> 168.9	0			1
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	8.361	563.1 -> 519.0	0		µg/L	m
		563.1 -> 269.1	0			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	3.573	241.0 -> 177.0	0		µg/L	m
		241.0 -> 117.0	0			1
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.644	630.0 -> 58.9	0		µg/L	m
		511.9 -> 219.0	-	N.D.		1
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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



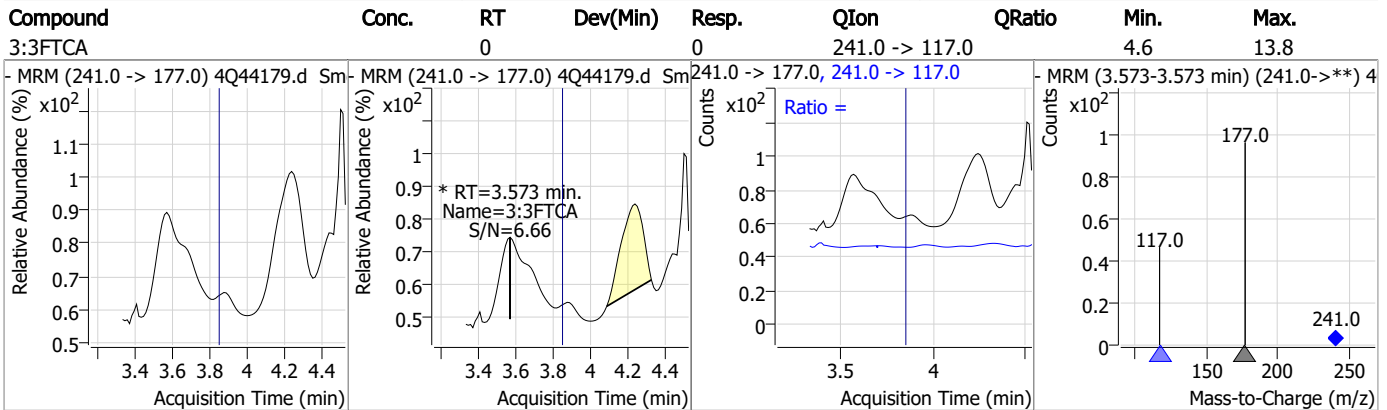
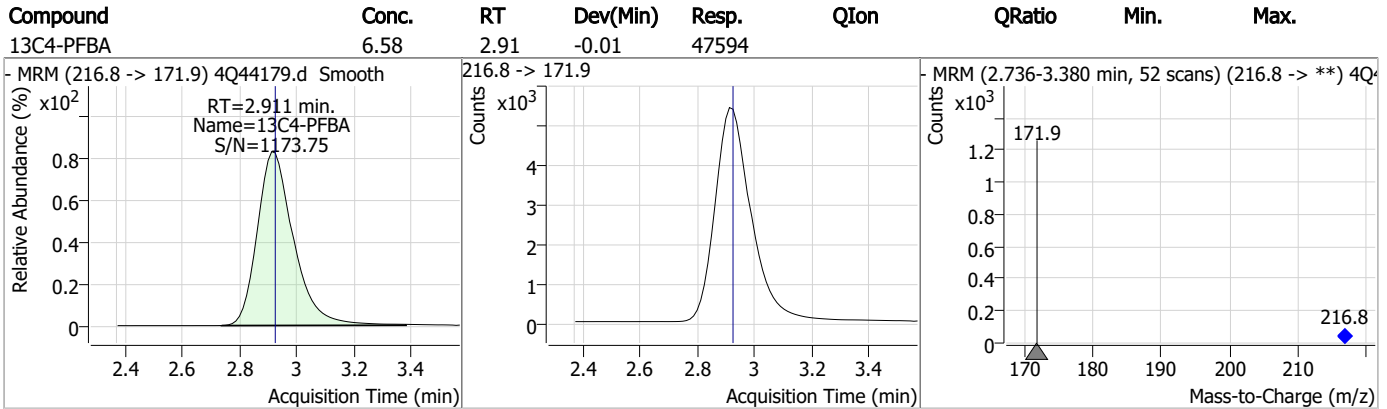
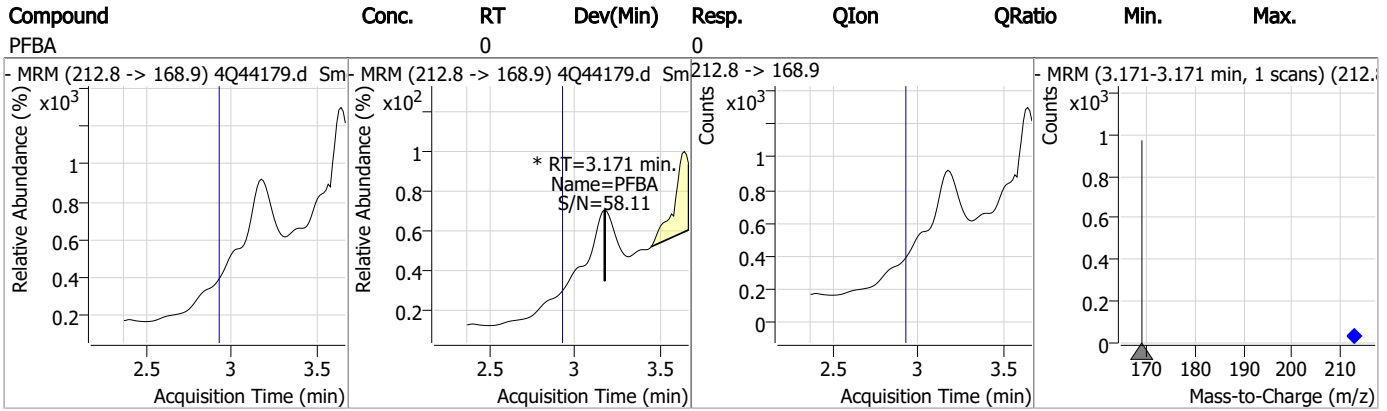
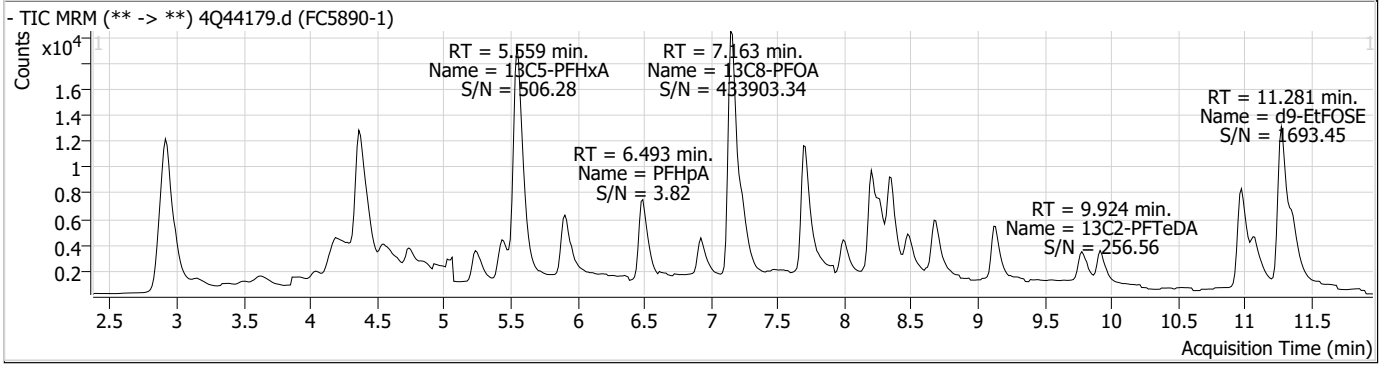
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.2  
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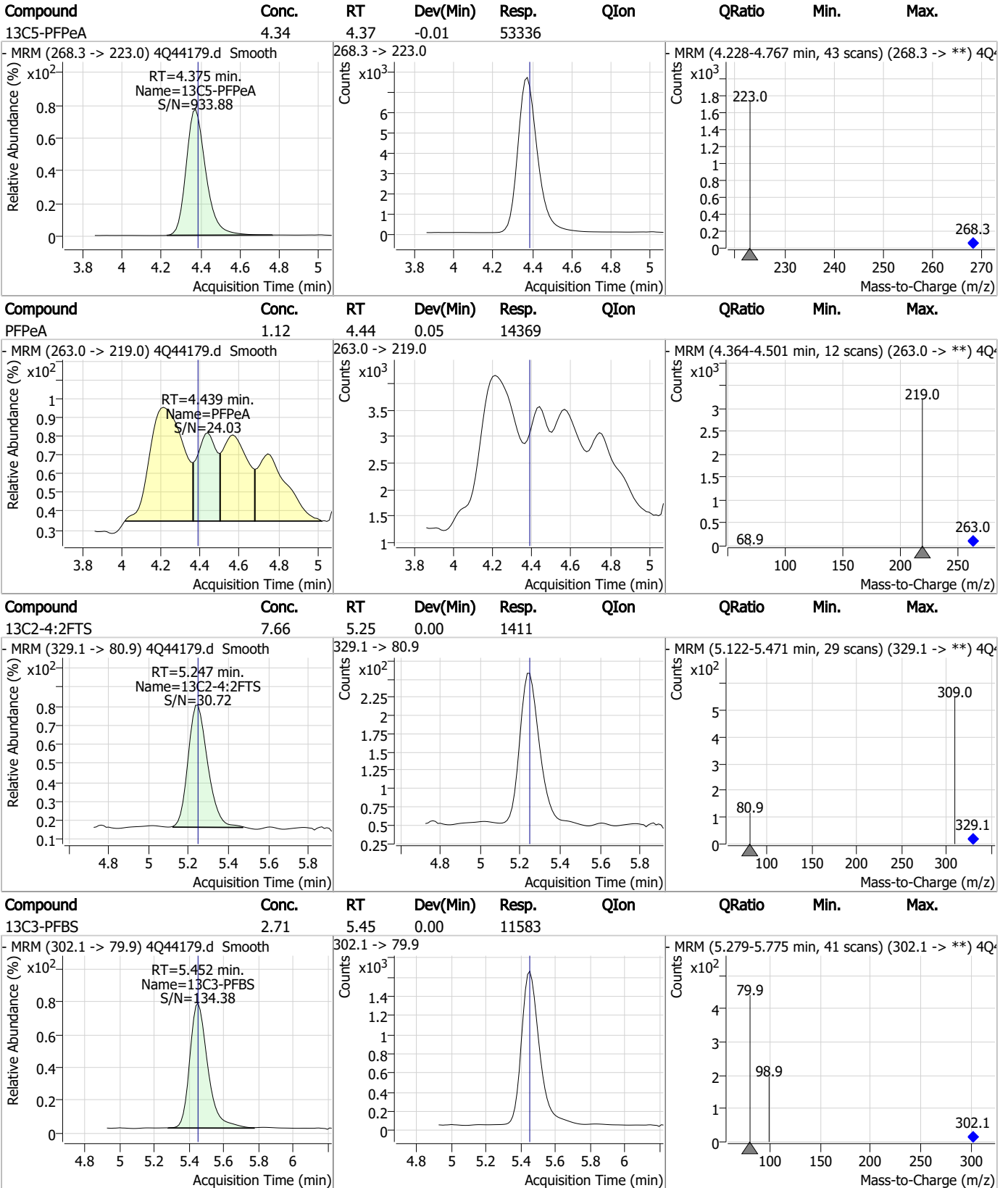


### Perfluorinated Compounds by LC/MS/MS

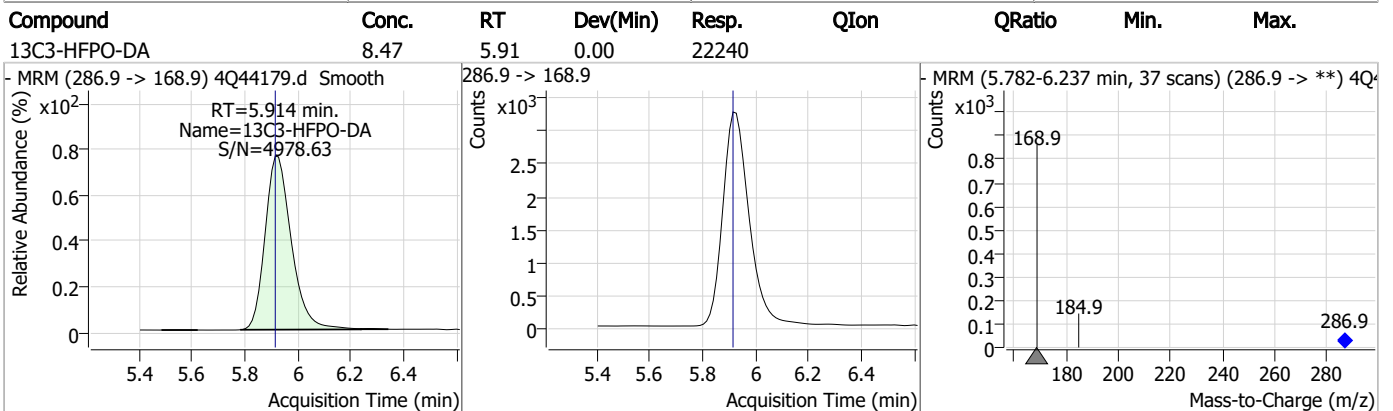
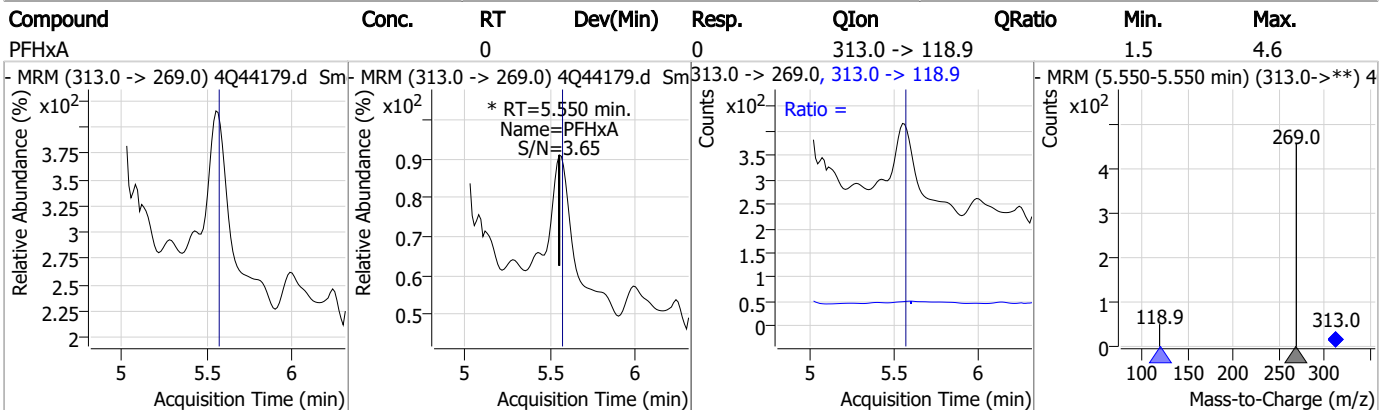
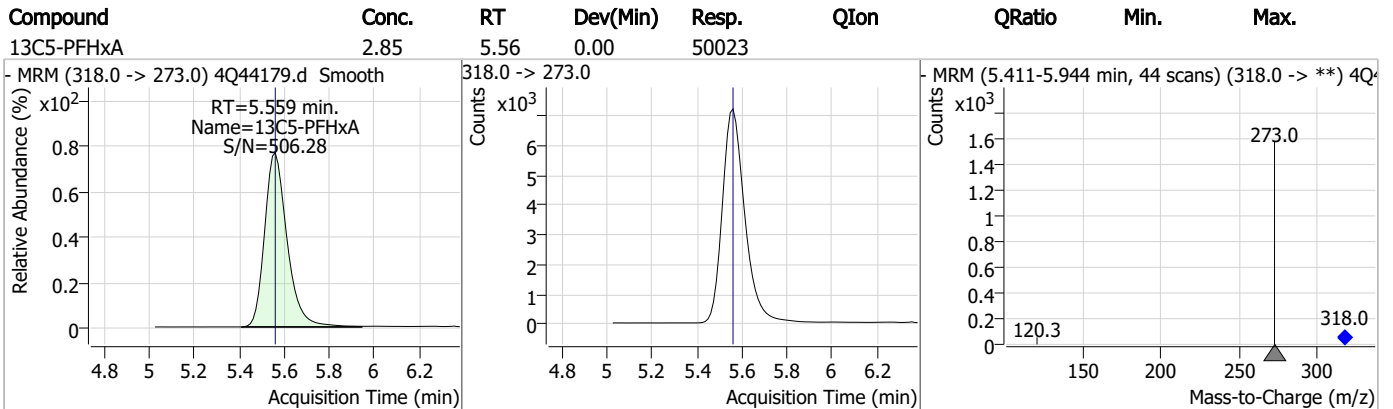
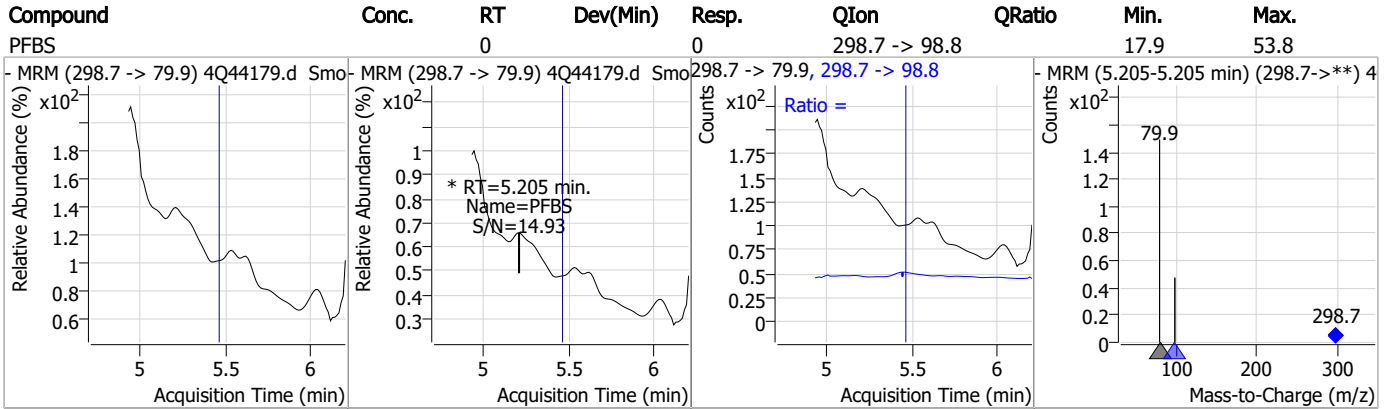


7.1.2  
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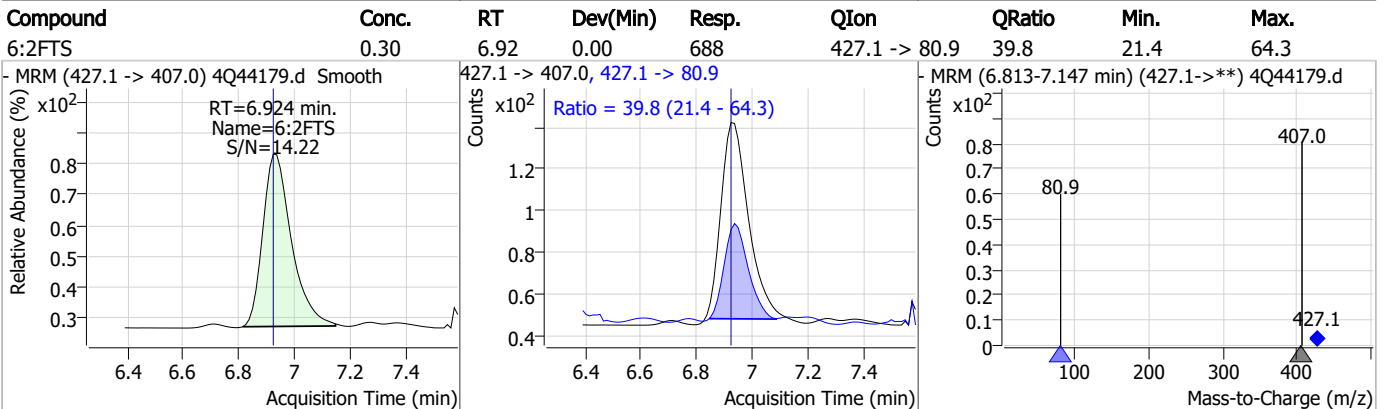
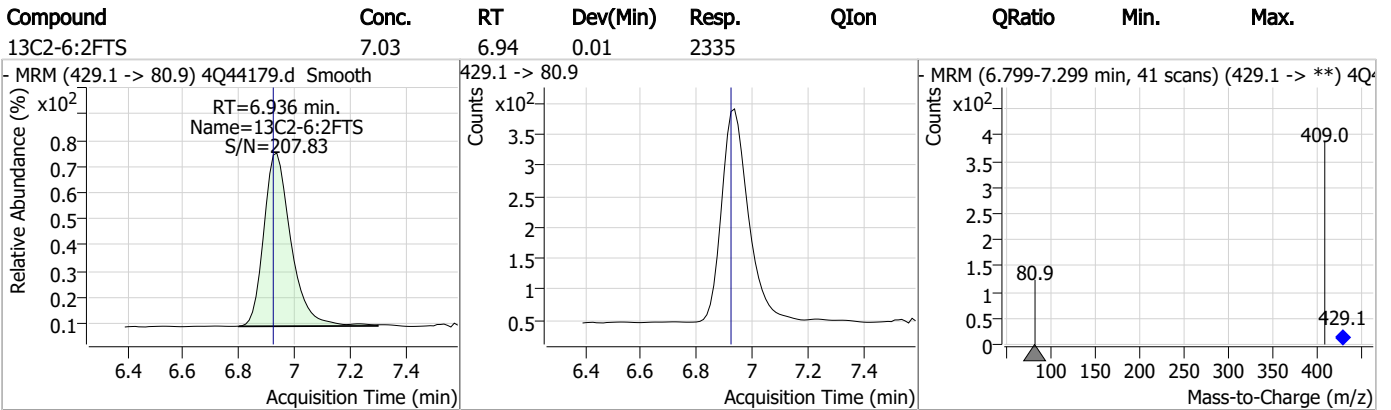
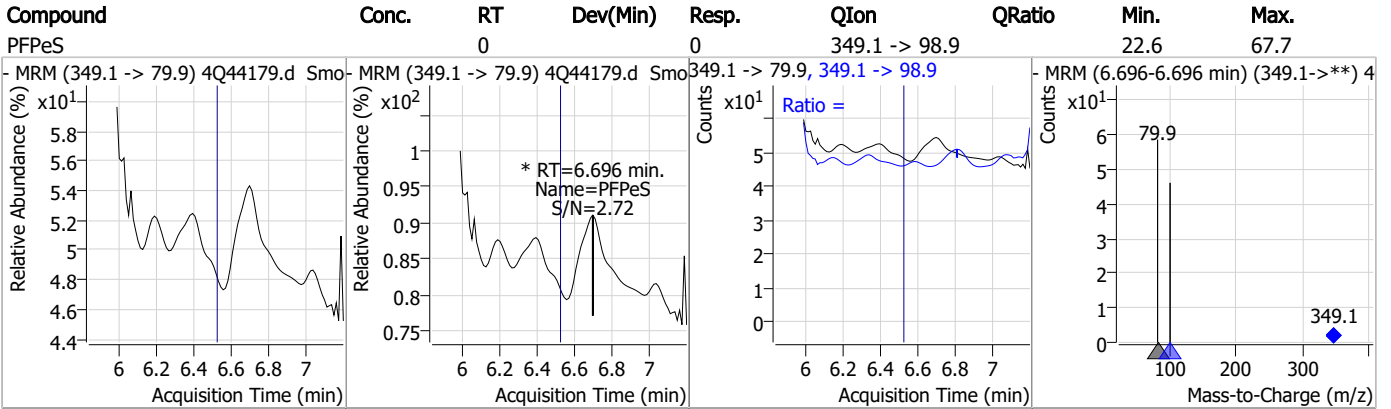
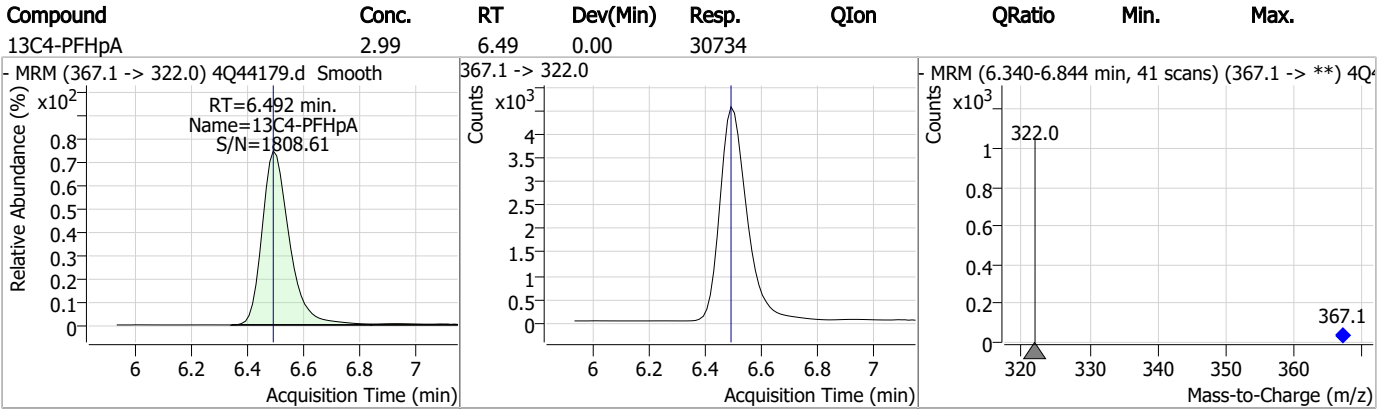
Perfluorinated Compounds by LC/MS/MS



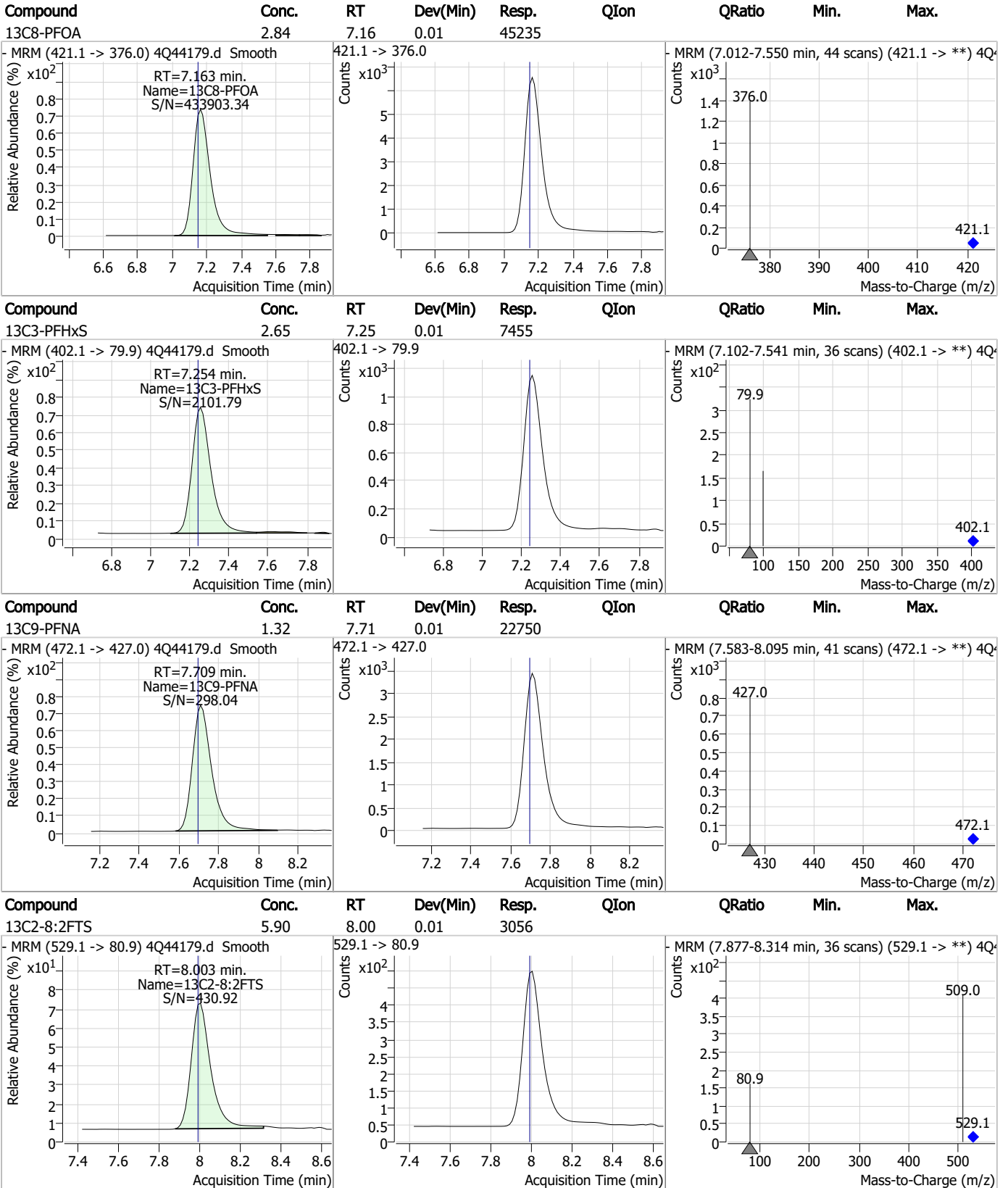
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

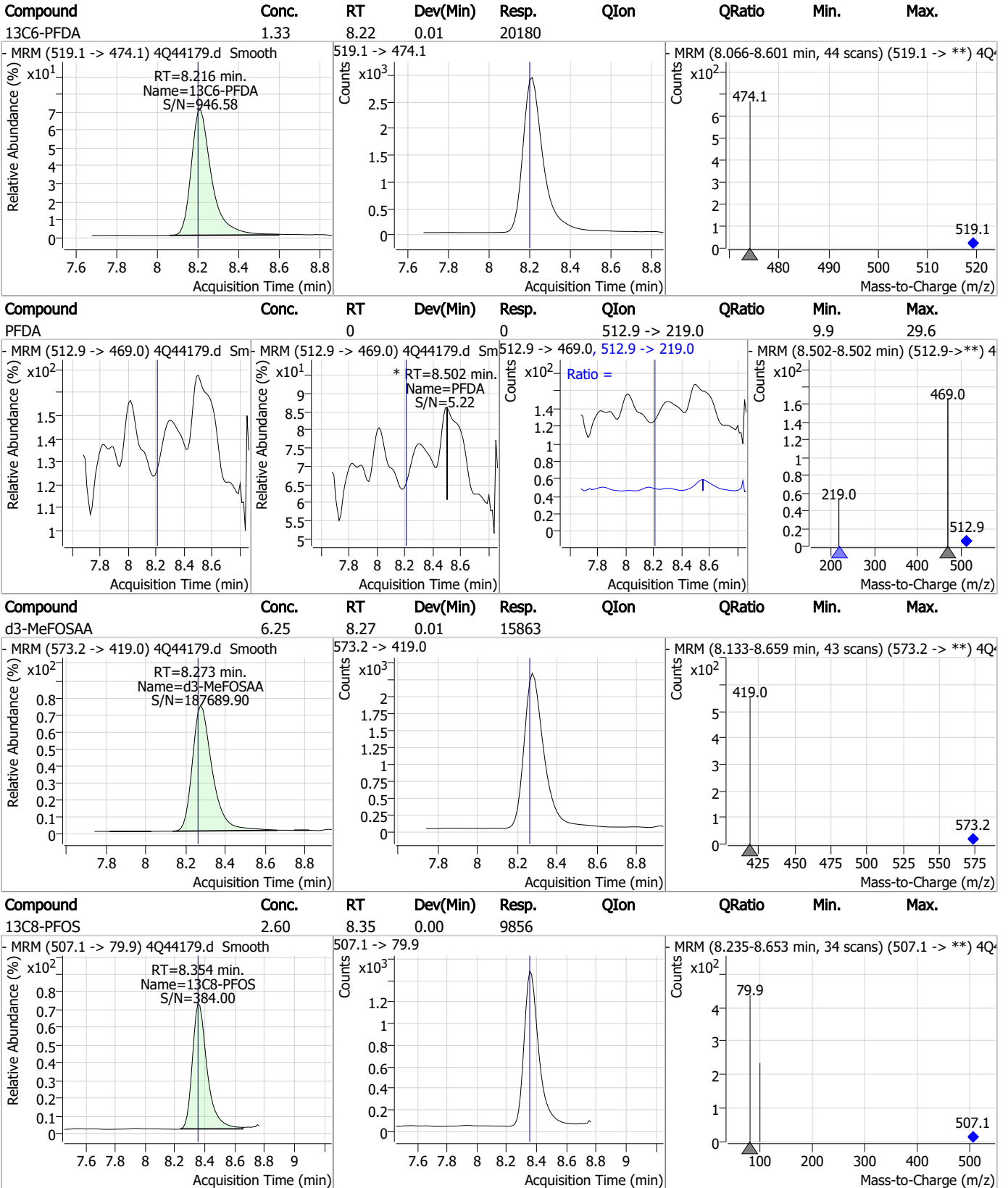


### Perfluorinated Compounds by LC/MS/MS

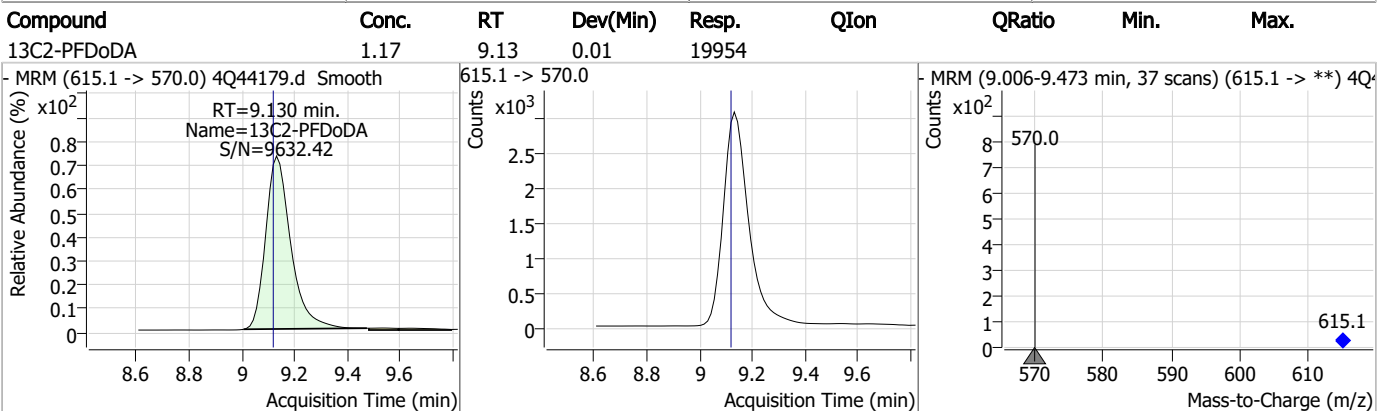
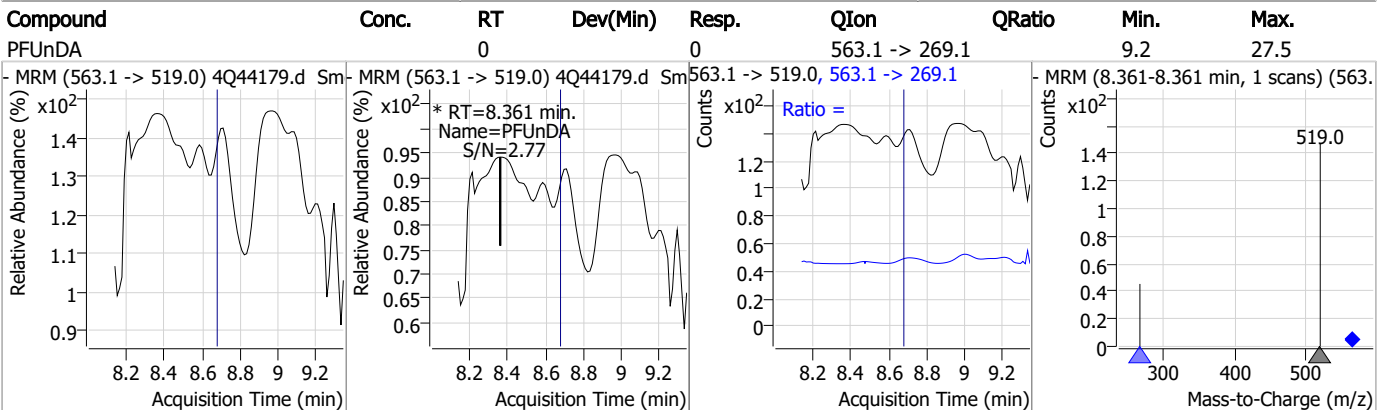
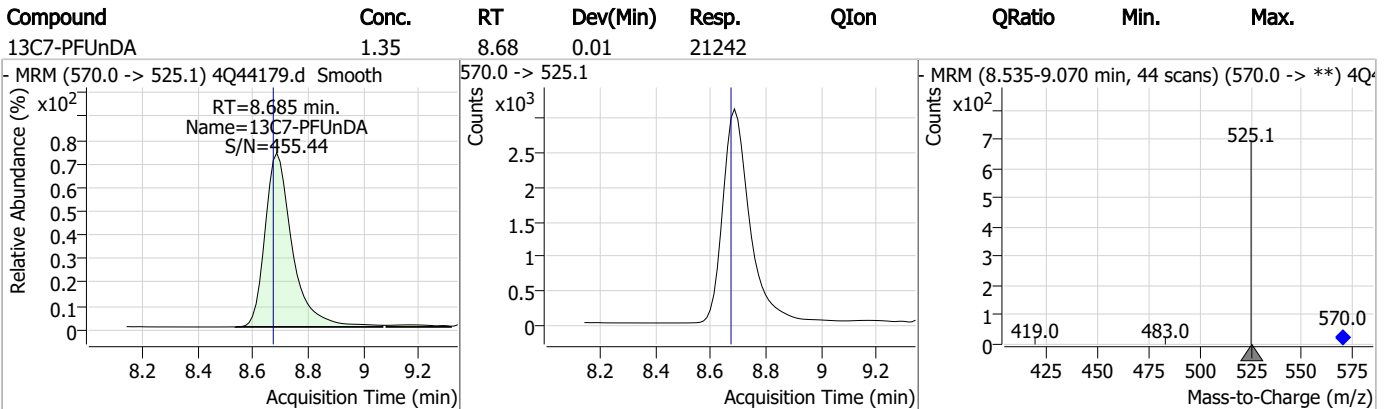
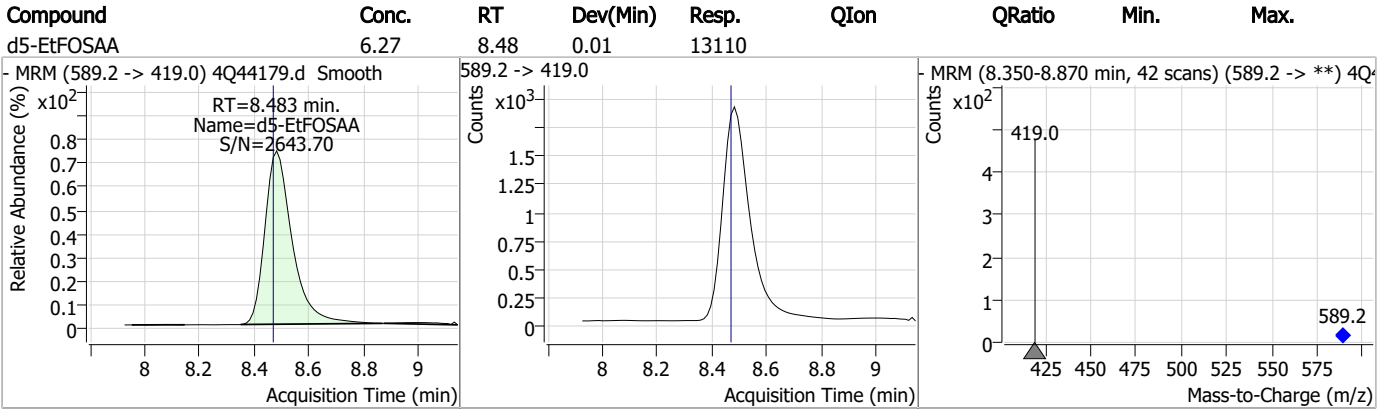


7.1.2  
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Perfluorinated Compounds by LC/MS/MS



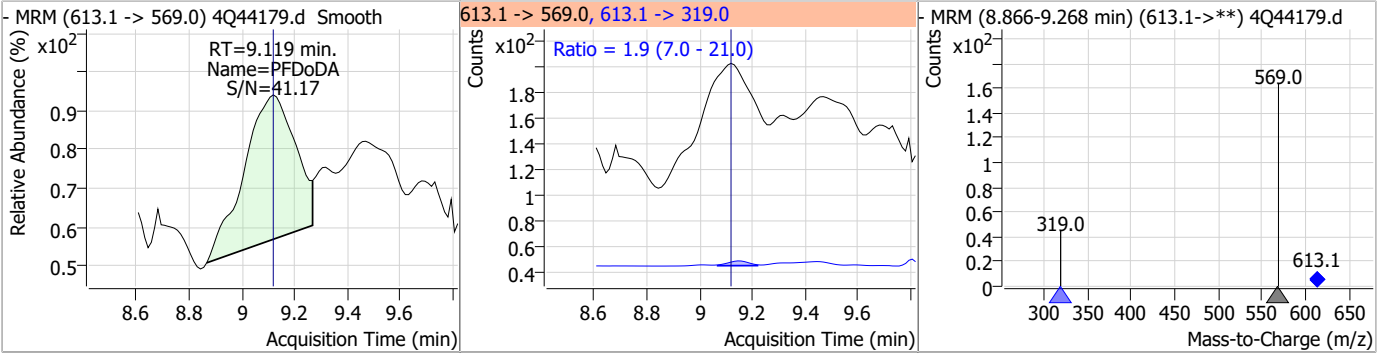
### Perfluorinated Compounds by LC/MS/MS



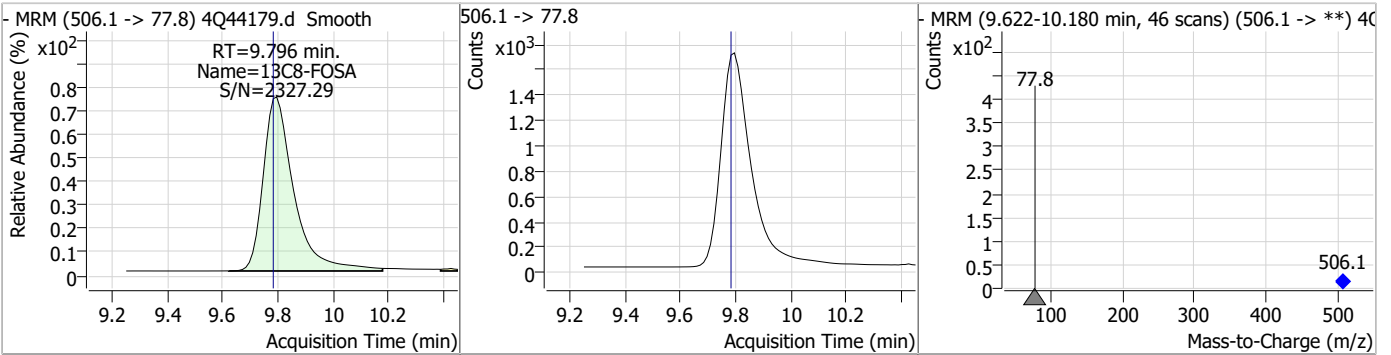


### Perfluorinated Compounds by LC/MS/MS

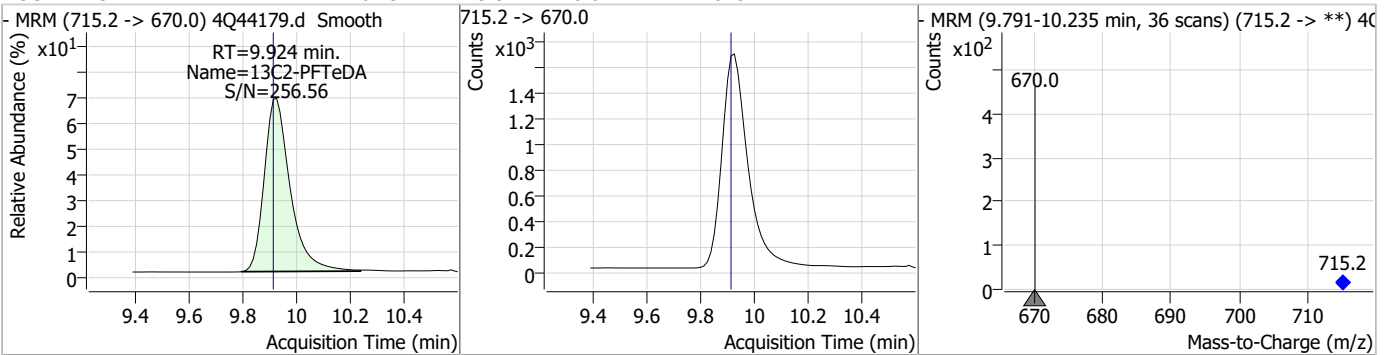
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.07	9.12	0.00	1092	613.1 -> 319.0	1.9	7.0	21.0



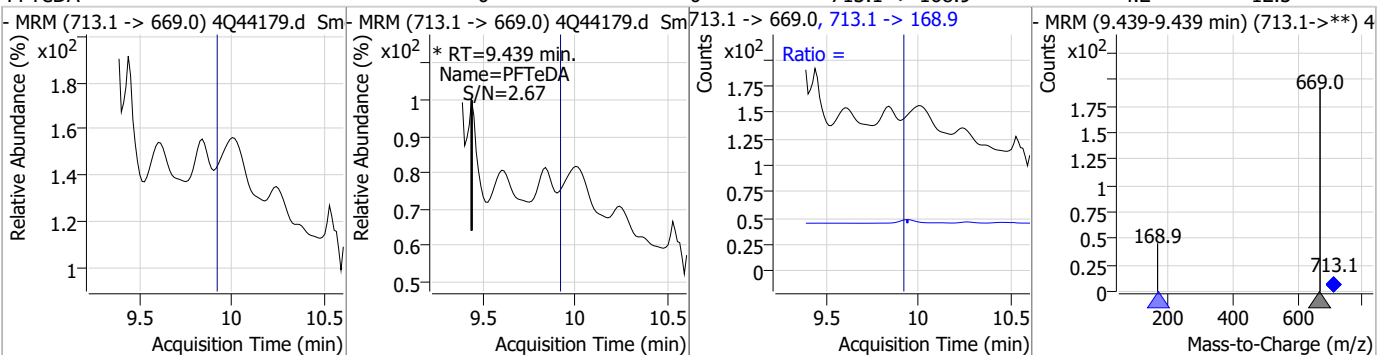
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.08	9.80	0.01	13089				



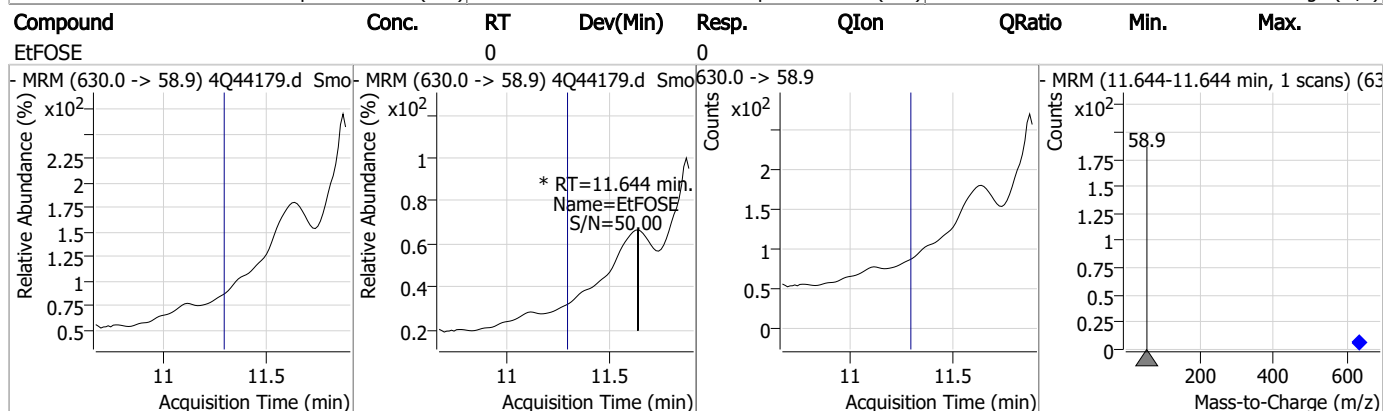
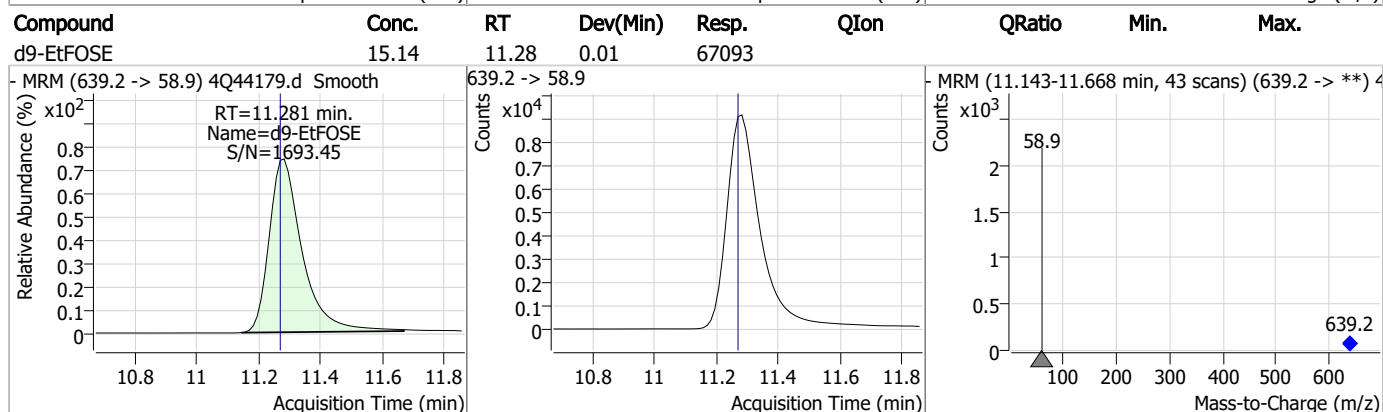
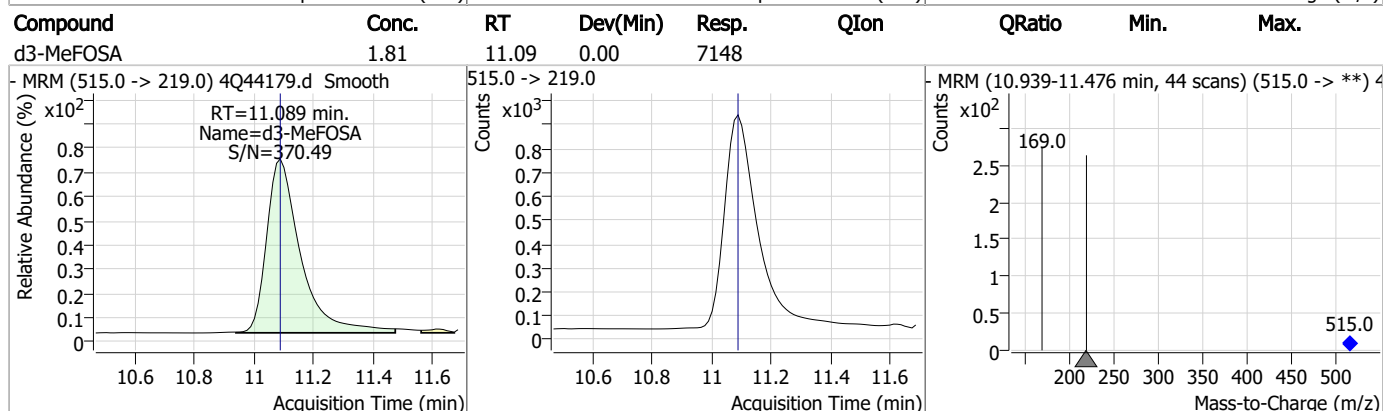
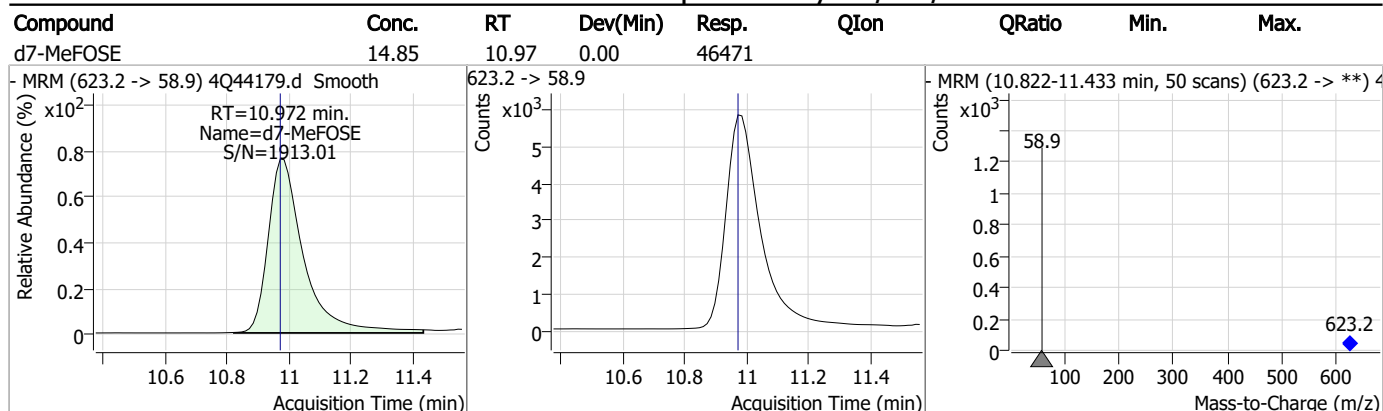
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.79	9.92	0.01	11045				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0	0	0	0	713.1 -> 168.9	4.2	4.2	12.5

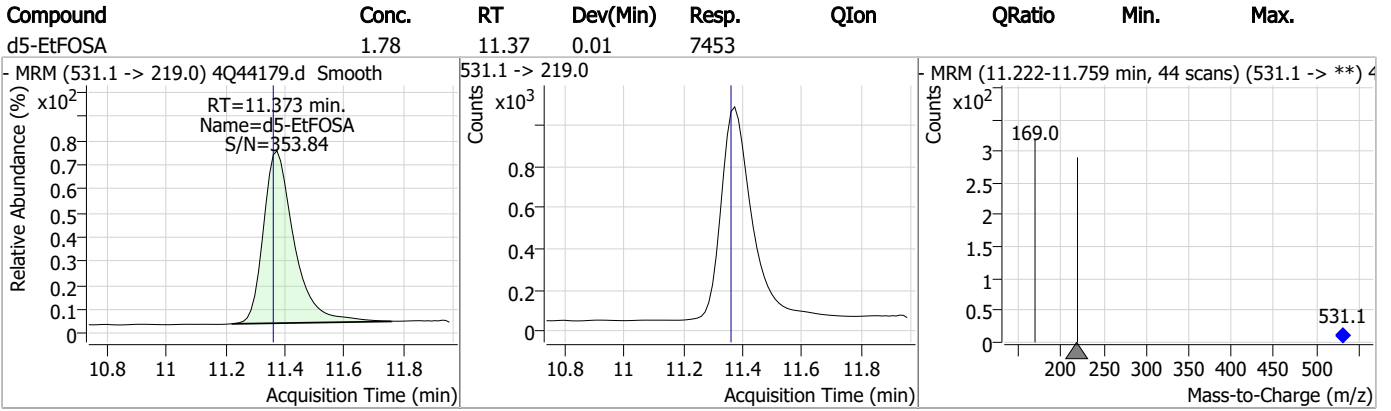


### Perfluorinated Compounds by LC/MS/MS



7.1.2  
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Perfluorinated Compounds by LC/MS/MS



7.1.2

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Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)  
 Norman Farmer  
 05/16/23 09:25

### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17755.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 4:21:39 PM  
 Sample Name : fc5890-2  
 Vial : P4-A5  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96784,S6Q268,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	81956	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	42369	5.00 µg/L	-0.012
M5-PFHxA	5.454	318.0 -> 273.0	56876	2.50 µg/L	-0.012
M4-PFHpA	6.407	367.1 -> 322.0	49374	2.50 µg/L	-0.012
M8-PFOA	7.064	421.1 -> 376.0	74929	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	22282	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	16825	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	21495	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	19608	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	9924	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	15445	2.50 µg/L	0.000
M3-PFBS	5.384	302.1 -> 79.9	18163	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	11055	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	9300	2.50 µg/L	0.000
M2-4:2FTS	5.131	329.1 -> 80.9	2360	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	2262	5.00 µg/L	0.000
M2-8:2FTS	7.852	529.1 -> 80.9	2048	5.00 µg/L	-0.012
M3-MeFOSAA	8.121	573.2 -> 419.0	17694	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	27899	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	15392	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	49931	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	69285	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	6092	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	5447	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	11893	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	53304	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	7584	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	75845	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	21081	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	23956	1.25 µg/L	0.000
13C2-PFHxA	5.454	315.1 -> 270.0	43861	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.131	329.1 -> 80.9	2360	8.17 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 163.4%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2262	6.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.5%		
13C2-8:2FTS	7.852	529.1 -> 80.9	2048	5.11 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C2-PFDoDA	8.949	615.1 -> 570.0	19608	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.0%		
13C2-PFTeDA	9.677	715.2 -> 670.0	9924	0.83 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 66.4%		
13C3-PFBS	5.384	302.1 -> 79.9	18163	2.75 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C3-PFHxS	7.167	402.1 -> 79.9	11055	2.74 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C4-PFBA	2.901	216.8 -> 171.9	81956	6.48 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 64.8%		
13C4-PFHpA	6.407	367.1 -> 322.0	49374	2.71 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C5-PFHxA	5.454	318.0 -> 273.0	56876	2.74 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C5-PFPeA	4.259	268.3 -> 223.0	42369	4.59 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C6-PFDA	8.064	519.1 -> 474.1	16825	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C7-PFUnDA	8.518	570.0 -> 525.1	21495	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C8-FOSA	9.648	506.1 -> 77.8	15445	1.96 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 78.3%		
13C8-PFOA	7.064	421.1 -> 376.0	74929	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C8-PFOS	8.226	507.1 -> 79.9	9300	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C9-PFNA	7.583	472.1 -> 427.0	22282	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
d3-MeFOSAA	8.121	573.2 -> 419.0	17694	4.75 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C3-HFPO-DA	5.831	286.9 -> 168.9	27899	8.69 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 86.9%		
d3-MeFOSA	10.752	515.0 -> 219.0	5447	1.89 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 75.8%		
d5-EtFOSAA	8.329	589.2 -> 419.0	15392	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
d7-MeFOSE	10.672	623.2 -> 58.9	49931	17.04 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 68.2%		
d9-EtFOSE	10.907	639.2 -> 58.9	69285	19.57 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 78.3%		
d5-EtFOSA	10.984	531.1 -> 219.0	6092	1.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 70.3%		

Target Compounds

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	6.838	427.1 -> 407.0 427.1 -> 80.9	848 298	0.34 µg/L	95
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	2.681	212.8 -> 168.9	0	µg/L m	1
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.	

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.408	599.0 -> 98.8				
		363.1 -> 319.0	1921	0.08 µg/L	m	87
PFHpS	-	363.1 -> 169.0	208			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.457	449.0 -> 98.9				
		313.0 -> 269.0	1418	0.06 µg/L		93
PFHxS	-	313.0 -> 118.9	99			
		398.7 -> 79.9	-	N.D.		
PFNA	8.093	398.7 -> 98.9				
		463.0 -> 419.0	0	µg/L	m	1
PFNS	-	463.0 -> 219.0				
		548.8 -> 79.9	-	N.D.		
PFOA	7.052	548.8 -> 98.9				
		413.0 -> 369.0	1765	0.05 µg/L	m	88
PFOS	-	413.0 -> 169.0	200			
		498.9 -> 79.9	-	N.D.		
PFPeA	4.363	498.9 -> 98.8				
		263.0 -> 219.0	0	µg/L	m	1
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	3.634	241.0 -> 177.0	0	µg/L	m	1
		241.0 -> 117.0	0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.1.3  
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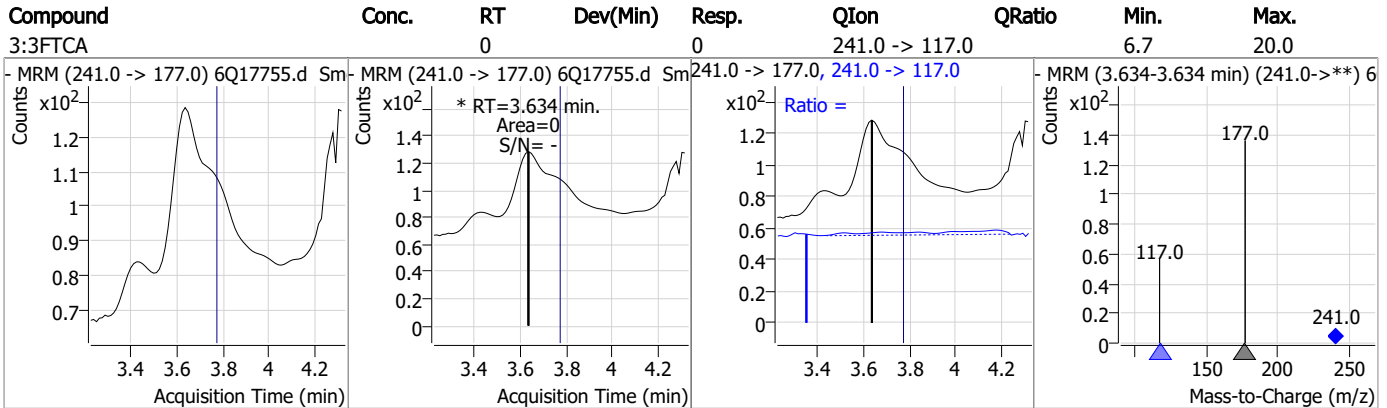
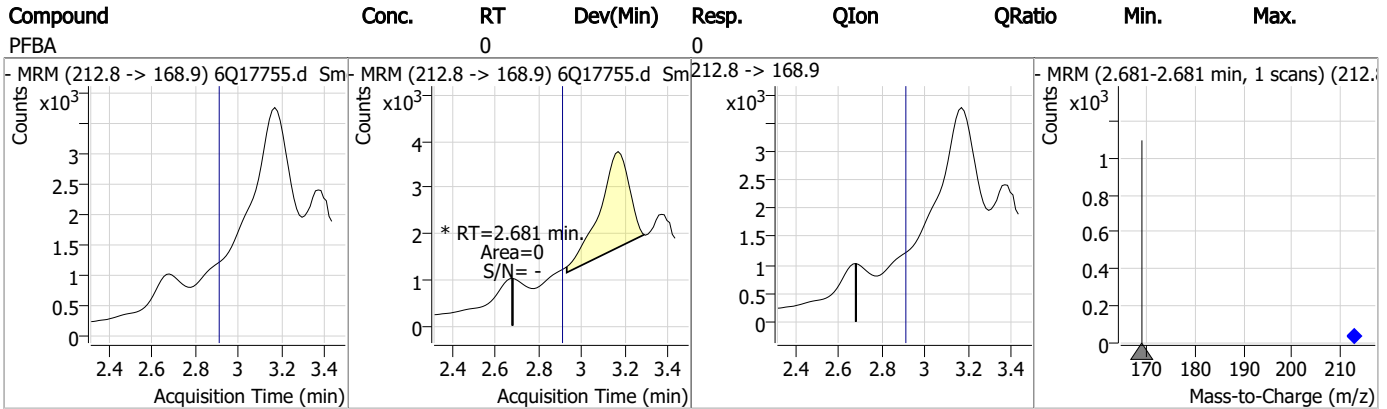
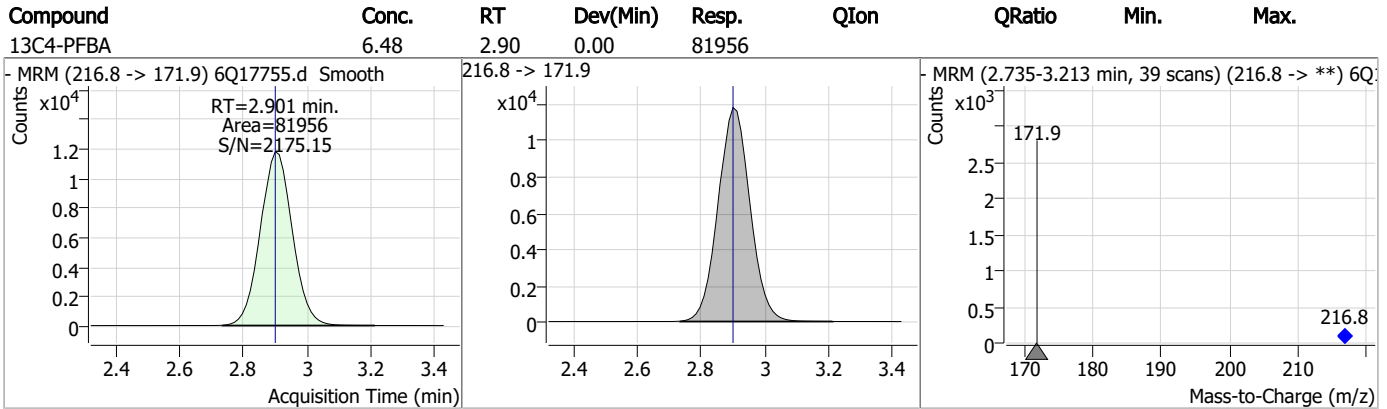
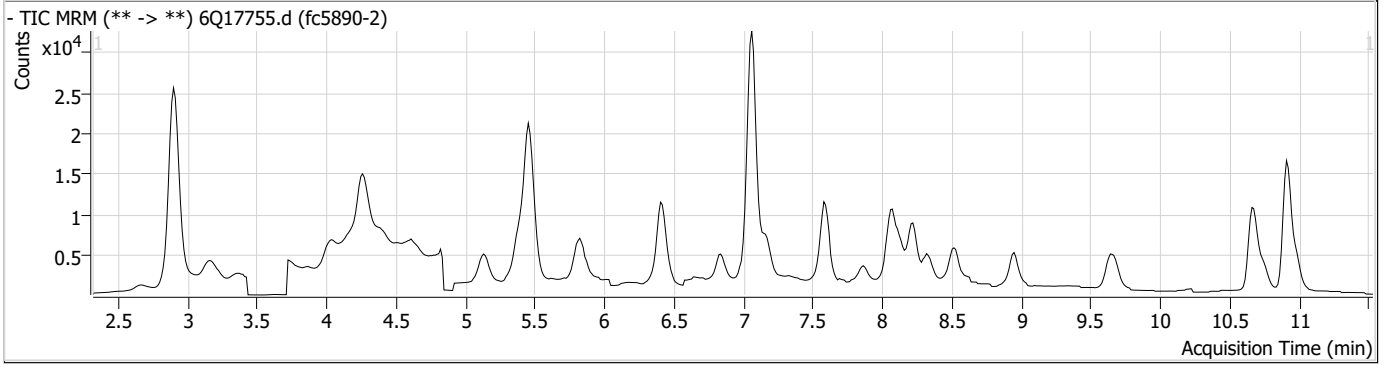
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.3  
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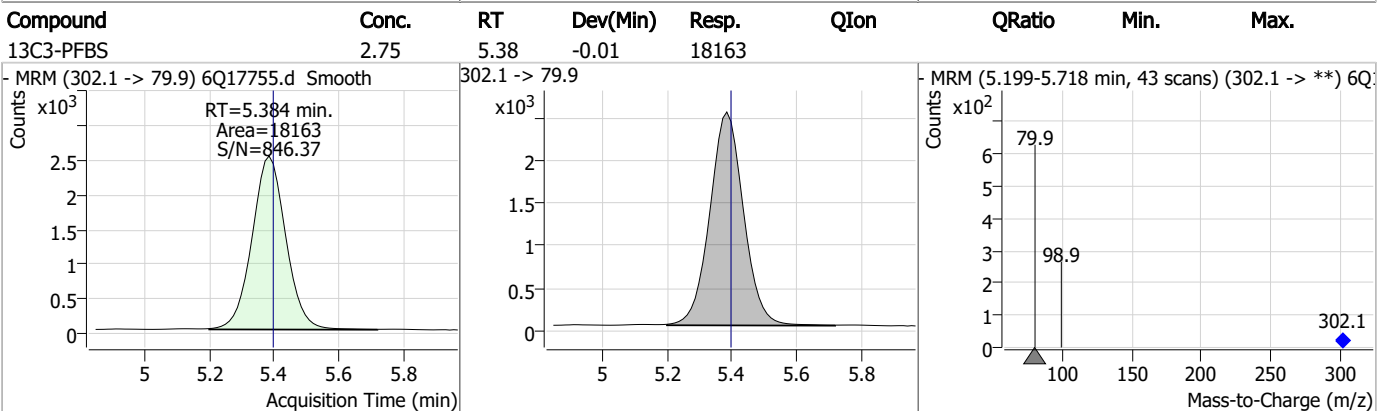
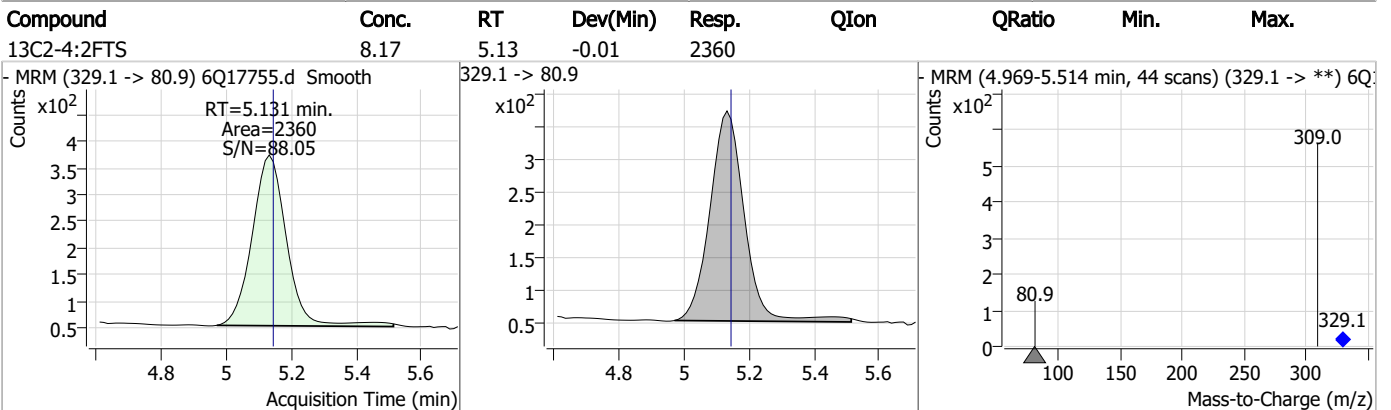
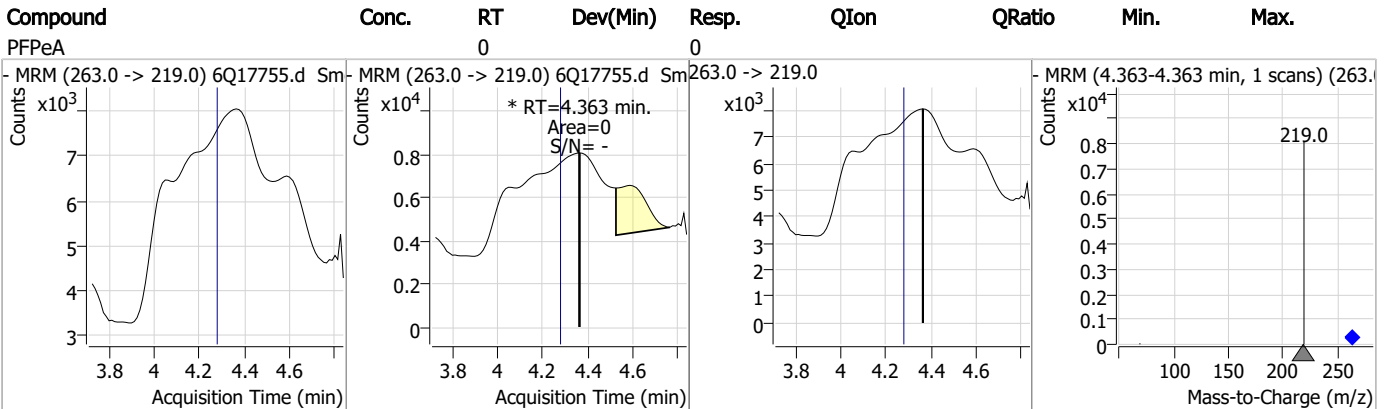
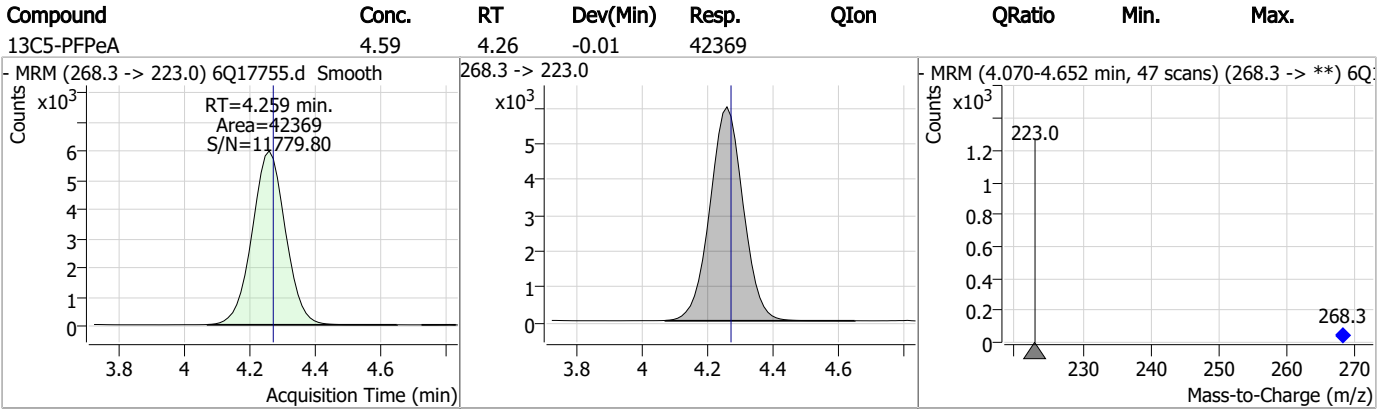


### Perfluorinated Compounds by LC/MS/MS

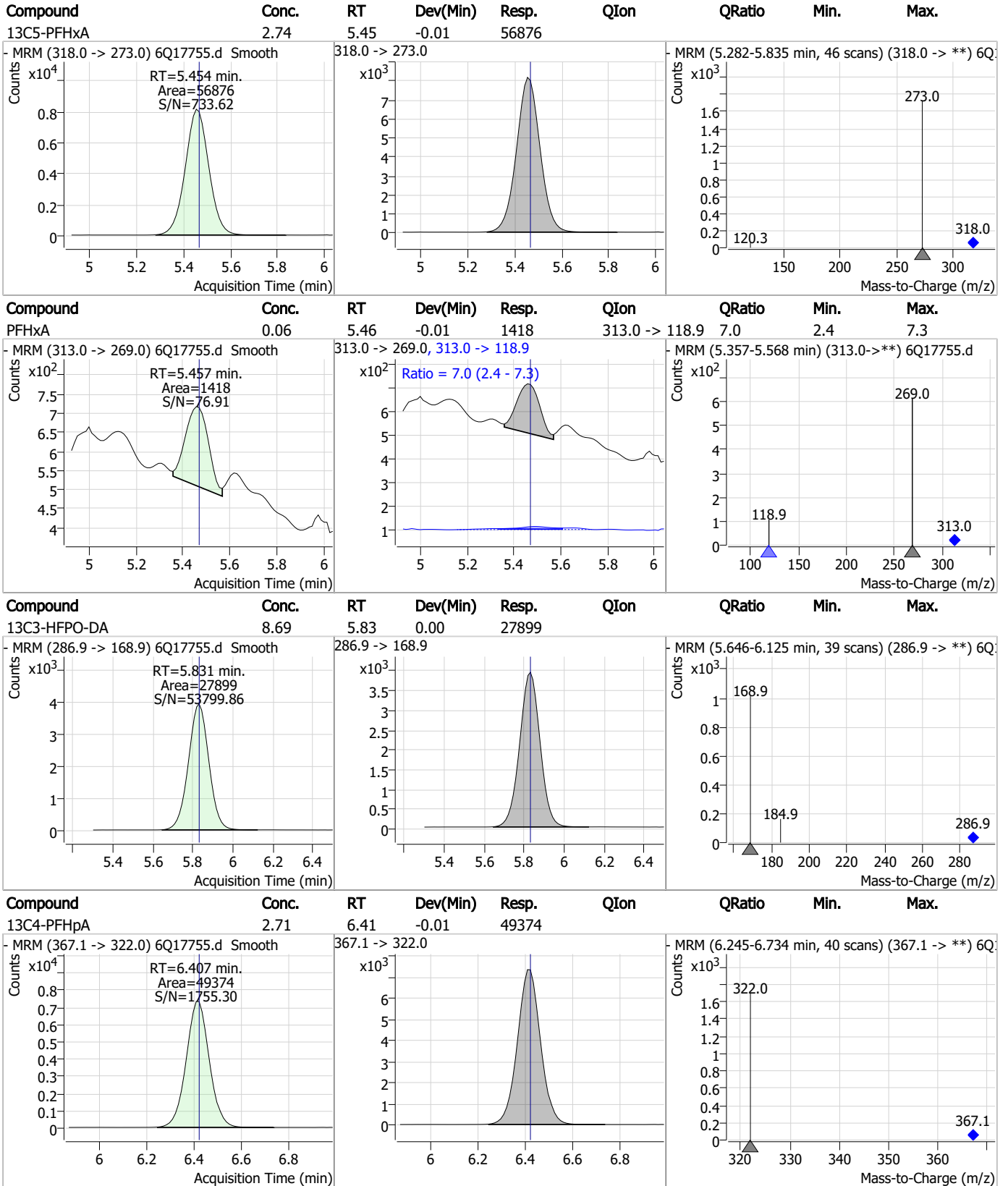




### Perfluorinated Compounds by LC/MS/MS



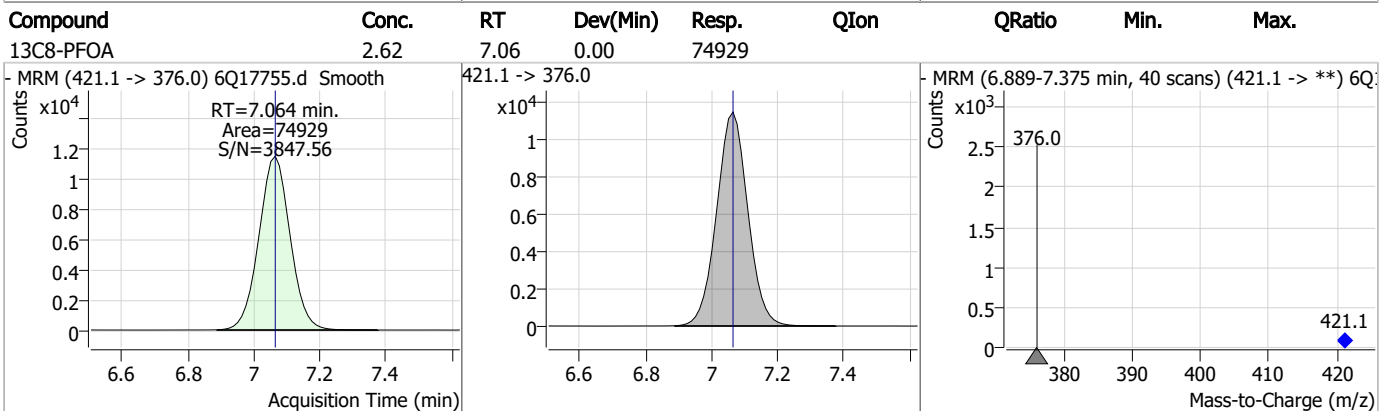
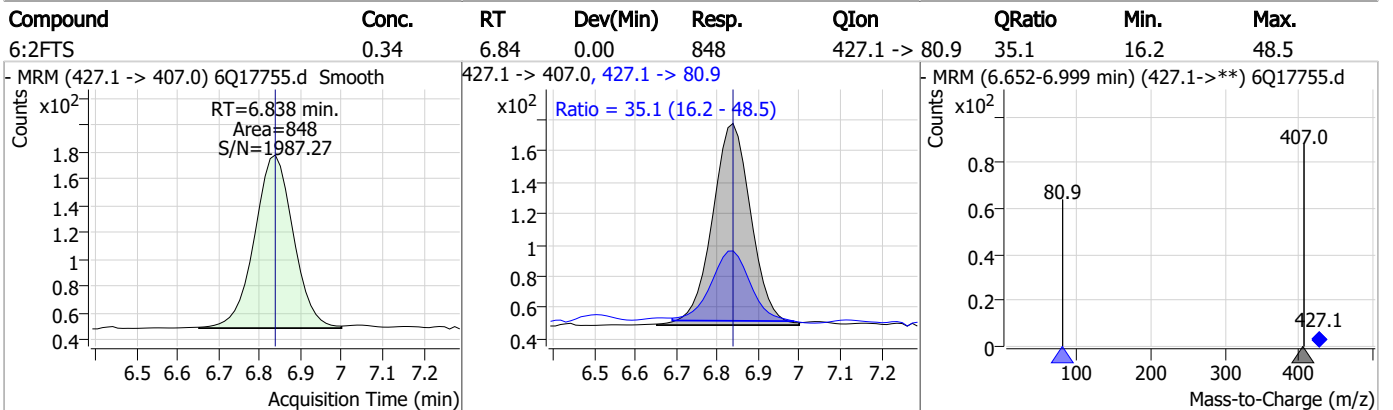
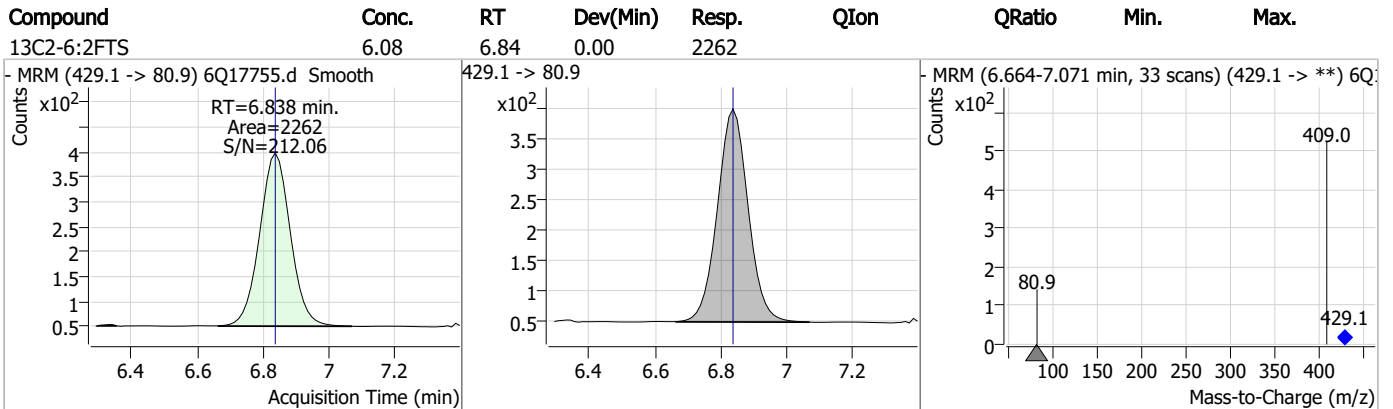
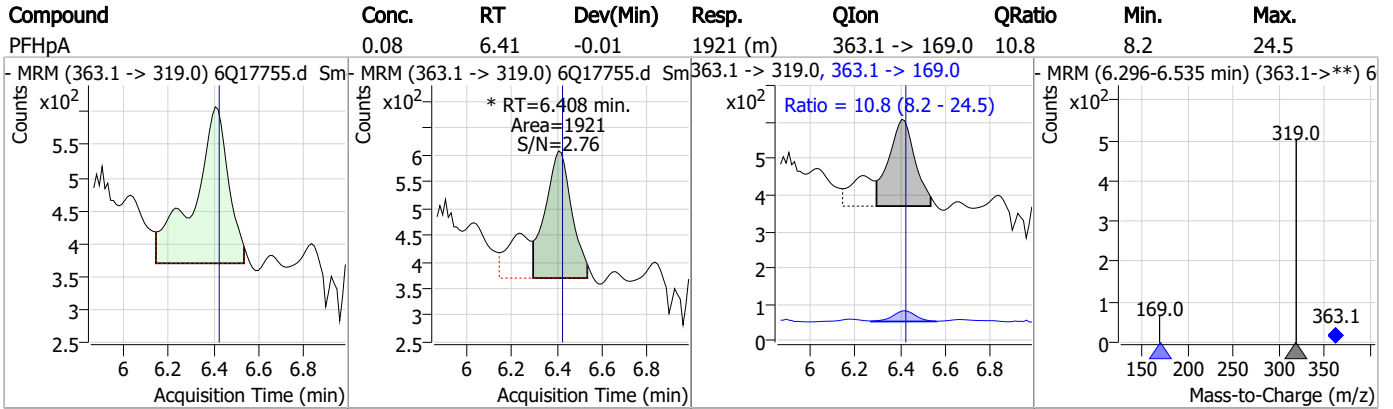
### Perfluorinated Compounds by LC/MS/MS



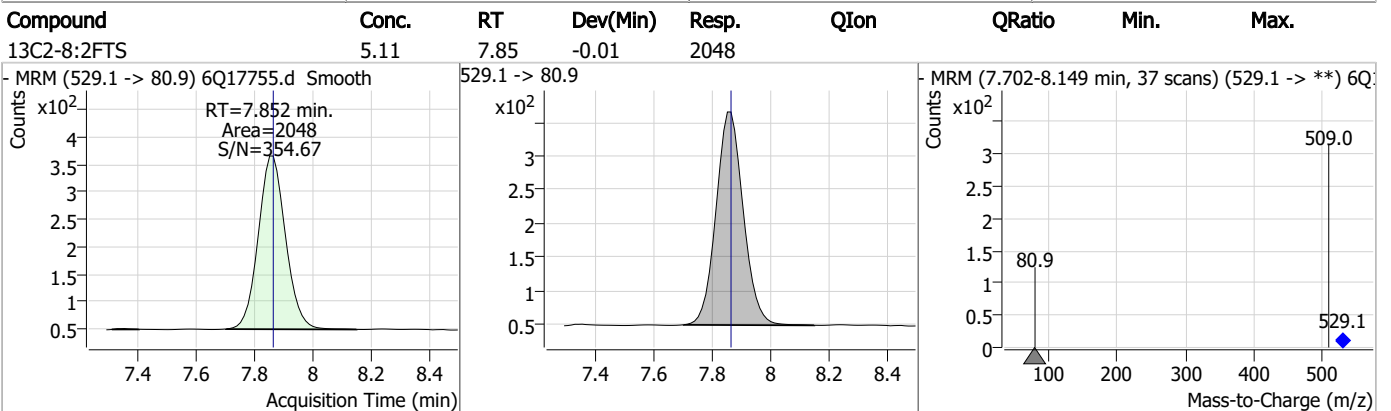
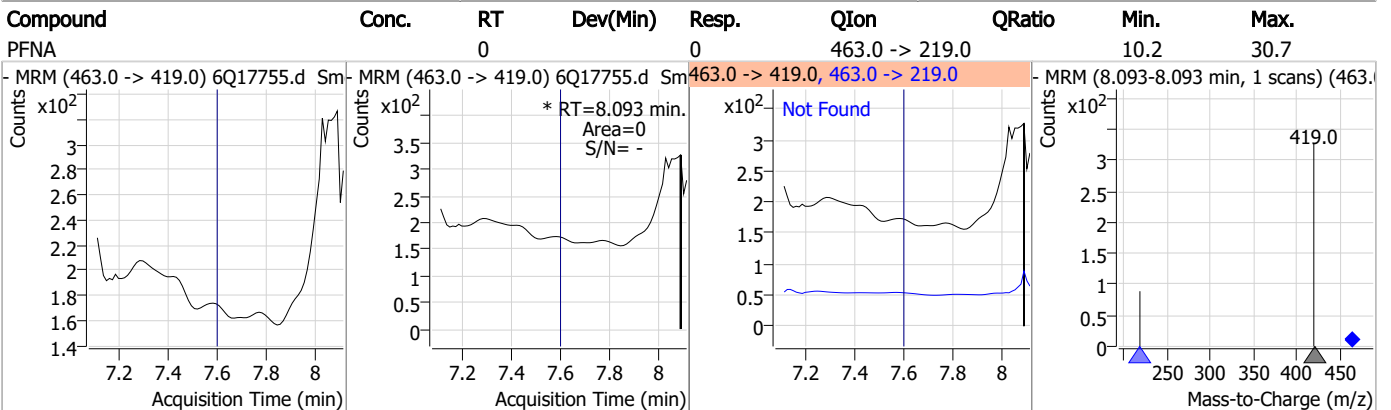
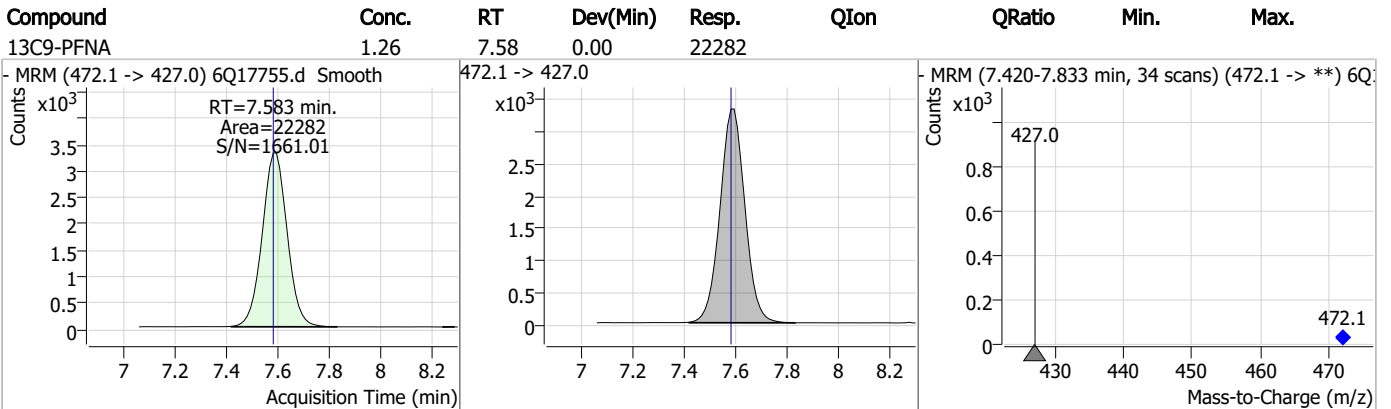
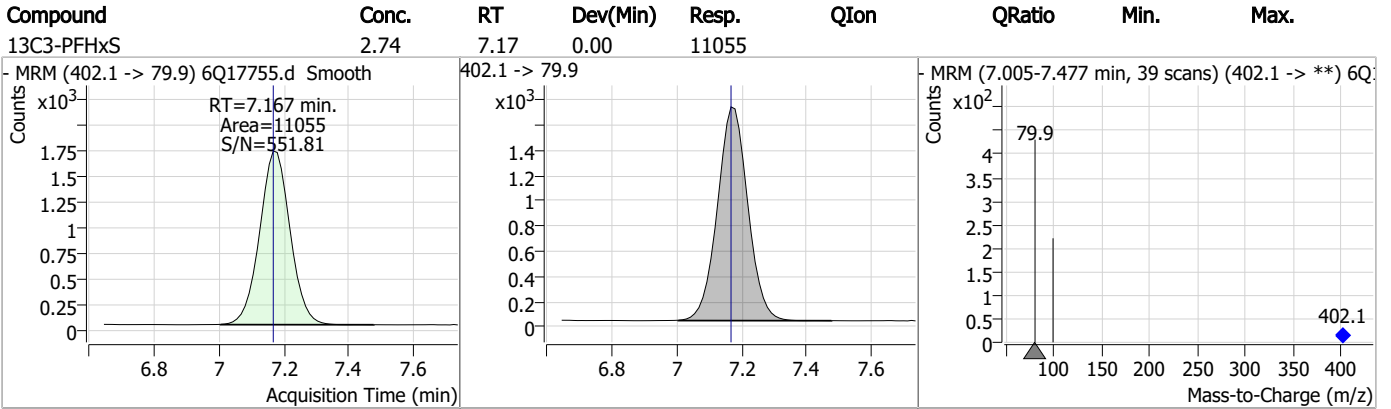
7.1.3

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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



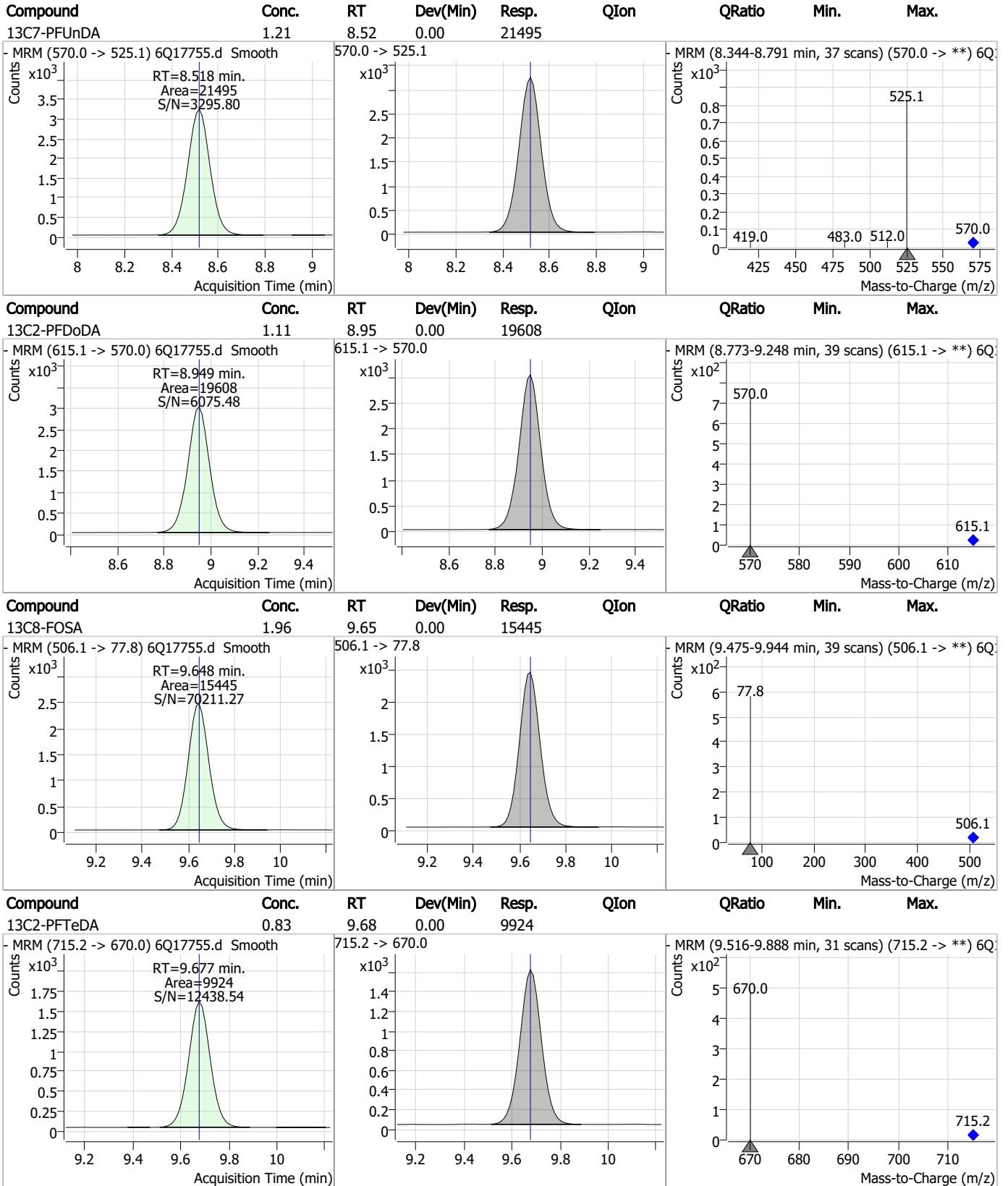
7.1.3

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### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.22	8.06	0.00	16825				
d3-MeFOSAA	4.75	8.12	-0.01	17694				
13C8-PFOS	2.51	8.23	0.00	9300				
d5-EtFOSAA	5.22	8.33	0.00	15392				

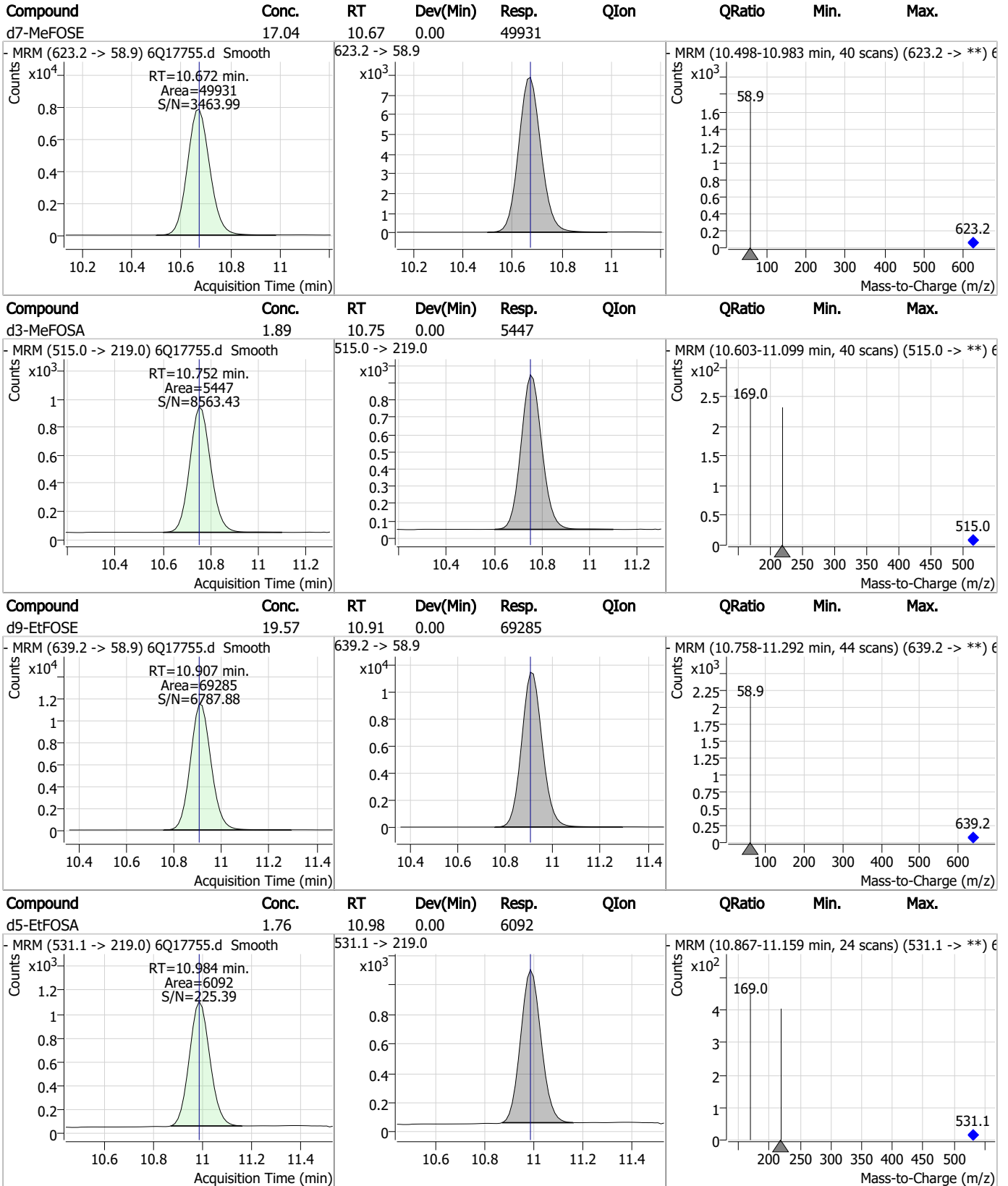
### Perfluorinated Compounds by LC/MS/MS



7.1.3

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### Perfluorinated Compounds by LC/MS/MS



# Manual Integration Approval Summary

Sample Number: FC5890-2                      Method: EPA DRAFT 1633  
Lab FileID: 6Q17755.D                      Analyst approved: 05/16/23 09:17 Norman Farmer  
Injection Time: 05/12/23 16:21                      Supervisor approved: 05/16/23 09:25 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		6.41	Poor instrument integration
Perfluorooctanoic acid	335-67-1		7.05	Split peak

7.1.3.1

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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44181.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/10/2023 12:55:05 AM  
 Sample Name : FC5890-2  
 Vial : P3-D7  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q639.batch.bin  
 Sample Information : OP96784,S4Q639,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.911	216.8 -> 171.9	48463	10.00 µg/L	-0.012
M5-PFPeA	4.375	268.3 -> 223.0	53670	5.00 µg/L	-0.012
M5-PFHxA	5.547	318.0 -> 273.0	50825	2.50 µg/L	-0.012
M4-PFHpA	6.492	367.1 -> 322.0	29704	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	43824	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	21871	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	19725	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	20923	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	20481	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	11243	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	13632	2.50 µg/L	0.012
M3-PFBS	5.452	302.1 -> 79.9	11687	2.50 µg/L	0.000
M3-PFHxS	7.254	402.1 -> 79.9	7036	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	9866	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1675	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	2297	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	3198	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	15399	5.00 µg/L	0.012
M3-HFPO-DA	5.914	286.9 -> 168.9	22519	10.00 µg/L	0.000
M5-EtFOSAA	8.483	589.2 -> 419.0	13560	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	47328	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	74759	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	7772	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	7039	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	10375	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	40786	5.00 µg/L	-0.013
18O2-PFHxS	7.253	403.0 -> 83.9	4893	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	52605	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	18346	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	25303	1.25 µg/L	0.012
13C2-PFHxA	5.548	315.1 -> 270.0	43148	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.247	329.1 -> 80.9	1675	8.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 168.5%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2297	6.41 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.1%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3198	5.71 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.3%		
13C2-PFDoDA	9.130	615.1 -> 570.0	20481	1.15 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.2%		
13C2-PFTeDA	9.924	715.2 -> 670.0	11243	0.78 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 62.2%		
13C3-PFBS	5.452	302.1 -> 79.9	11687	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C3-PFHxS	7.254	402.1 -> 79.9	7036	2.32 µg/L	0.012

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.8%		
13C4-PFBA	2.911	216.8 -> 171.9	48463	6.31	µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 63.1%		
13C4-PFHpA	6.492	367.1 -> 322.0	29704	2.67	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%		
13C5-PFHxA	5.547	318.0 -> 273.0	50825	2.67	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%		
13C5-PFPeA	4.375	268.3 -> 223.0	53670	4.04	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 80.8%		
13C6-PFDA	8.216	519.1 -> 474.1	19725	1.26	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C7-PFUnDA	8.685	570.0 -> 525.1	20923	1.28	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.4%		
13C8-FOSA	9.796	506.1 -> 77.8	13632	2.10	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.8%		
13C8-PFOA	7.163	421.1 -> 376.0	43824	2.54	µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C8-PFOS	8.354	507.1 -> 79.9	9866	2.53	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C9-PFNA	7.709	472.1 -> 427.0	21871	1.27	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.7%		
d3-MeFOSAA	8.273	573.2 -> 419.0	15399	5.88	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.6%		
13C3-HFPO-DA	5.914	286.9 -> 168.9	22519	7.93	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.3%		
d3-MeFOSA	11.089	515.0 -> 219.0	7039	1.73	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 69.2%		
d5-EtFOSAA	8.483	589.2 -> 419.0	13560	6.29	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 125.8%		
d7-MeFOSE	10.972	623.2 -> 58.9	47328	14.66	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 58.6%		
d9-EtFOSE	11.269	639.2 -> 58.9	74759	16.36	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 65.4%		
d5-EtFOSA	11.373	531.1 -> 219.0	7772	1.80	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 71.9%		

## Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.		
6:2FTS	6.924	427.1 -> 407.0 427.1 -> 80.9	809 329	0.36	µg/L	97
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	3.171	212.8 -> 168.9	0		µg/L	m 1
PFBS	5.205	298.7 -> 79.9 298.7 -> 98.8	0 0		µg/L	m 1
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	6.505	599.0 -> 98.8				
		363.1 -> 319.0	904	0.05	µg/L	#
PFHpS	-	363.1 -> 169.0	290			68
		449.0 -> 79.9	-	N.D.		
PFHxA	5.562	449.0 -> 98.9				
		313.0 -> 269.0	0		µg/L	m
PFHxS	-	313.0 -> 118.9	0			1
		398.7 -> 79.9	-	N.D.		
PFNA	-	398.7 -> 98.9				
		463.0 -> 419.0	-	N.D.		
PFNS	-	463.0 -> 219.0				
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	4.439	498.9 -> 98.8				
		263.0 -> 219.0	0		µg/L	m
PFPeS	-	349.1 -> 79.9	-	N.D.		1
		349.1 -> 98.9				
PFTeDA	9.738	713.1 -> 669.0	0		µg/L	m
		713.1 -> 168.9	0			1
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	8.349	563.1 -> 519.0	0		µg/L	m
		563.1 -> 269.1	0			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	3.548	241.0 -> 177.0	0		µg/L	m
		241.0 -> 117.0	0			1
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.669	630.0 -> 58.9	0		µg/L	m
		511.9 -> 219.0	-	N.D.		1
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

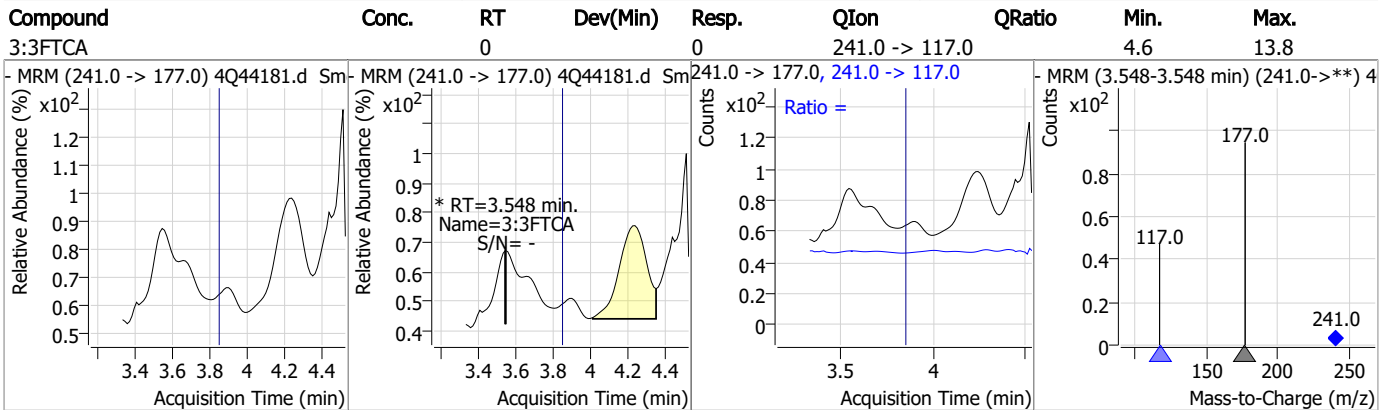
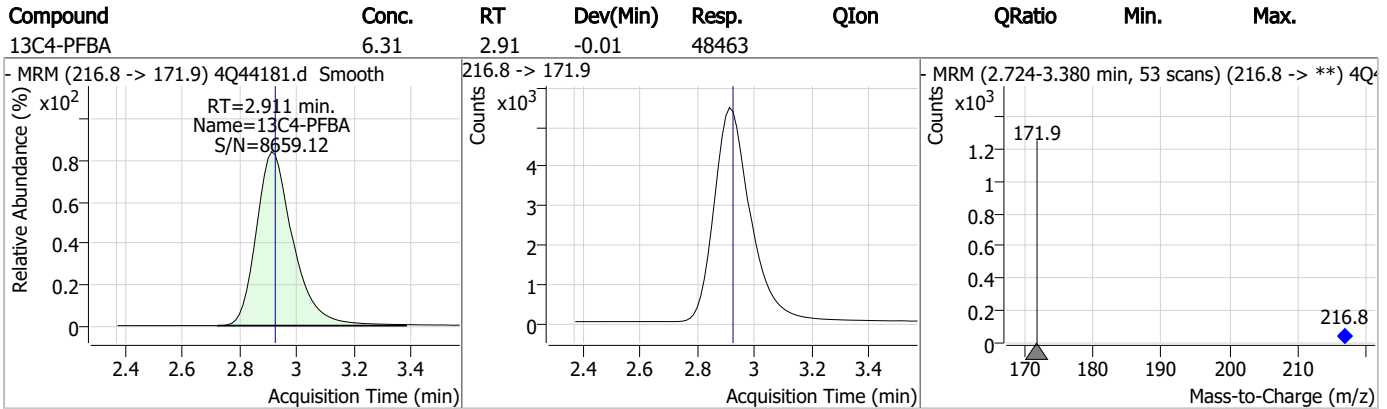
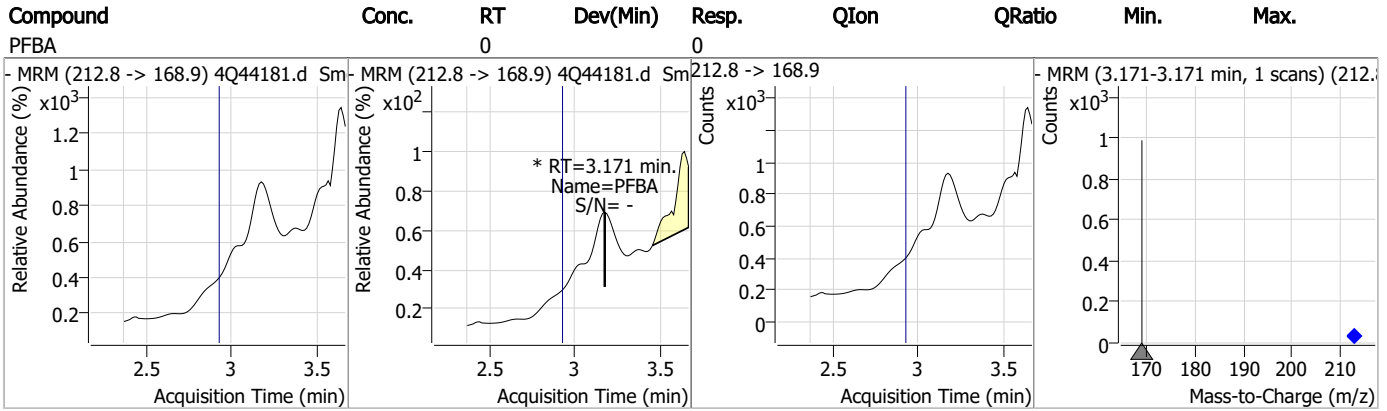
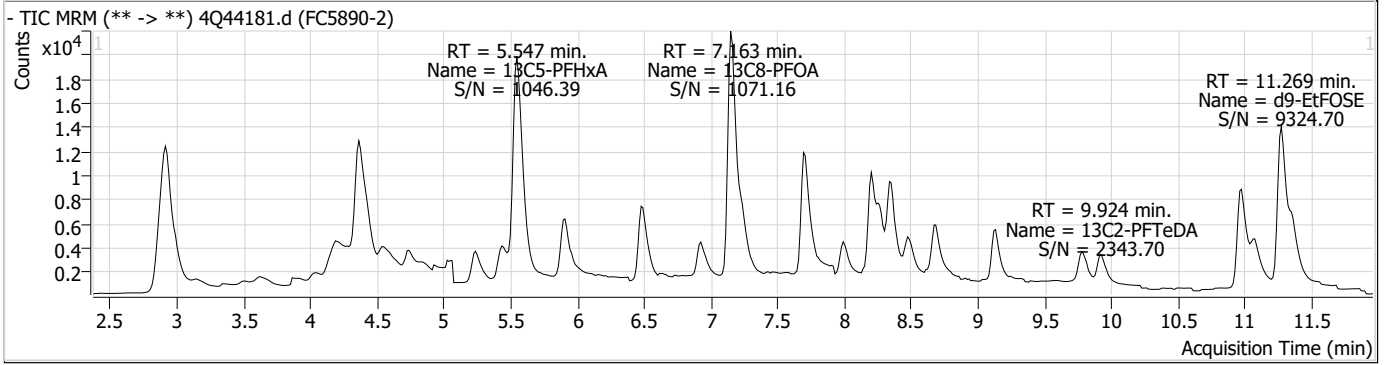
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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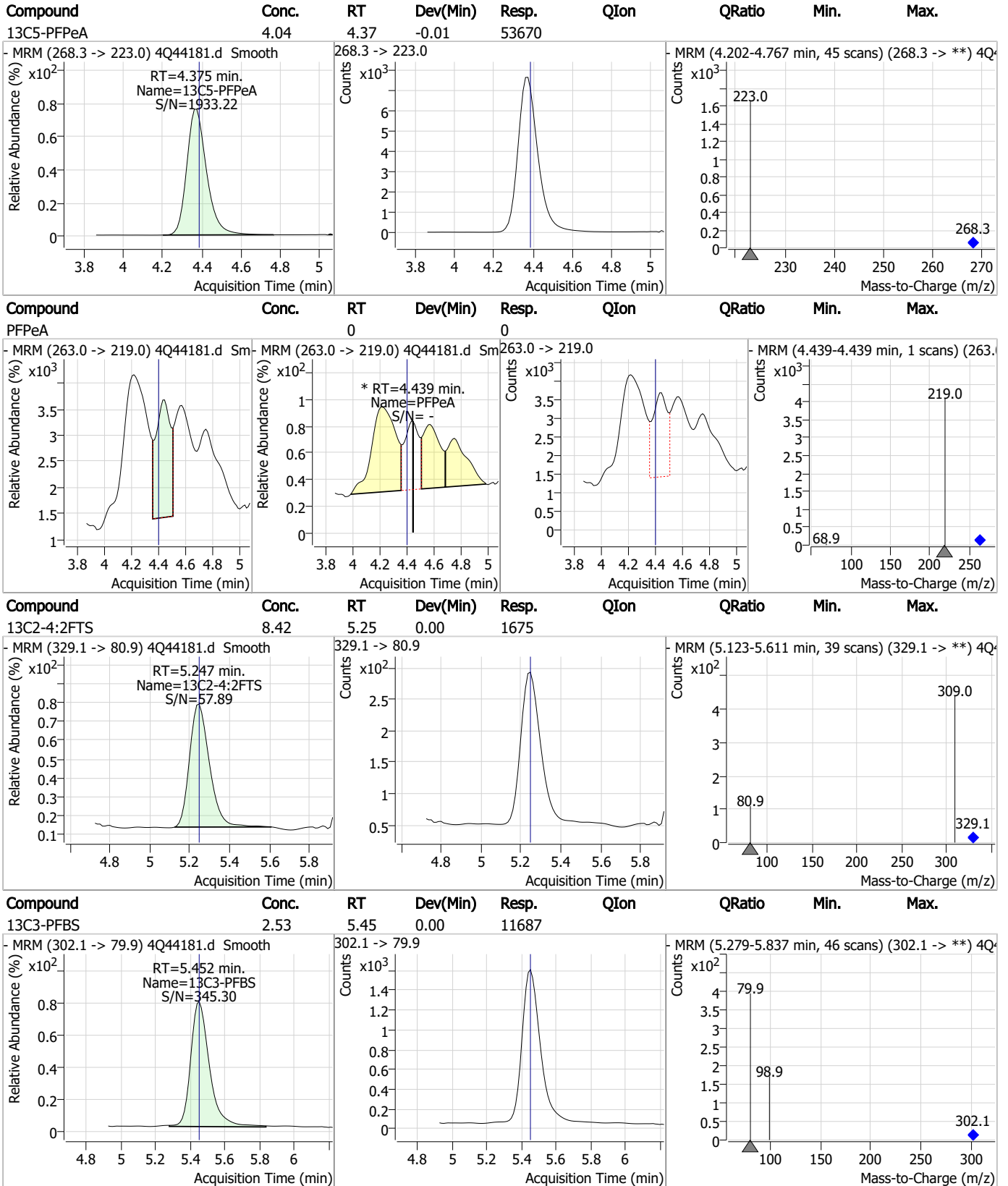
7.1.4  
7



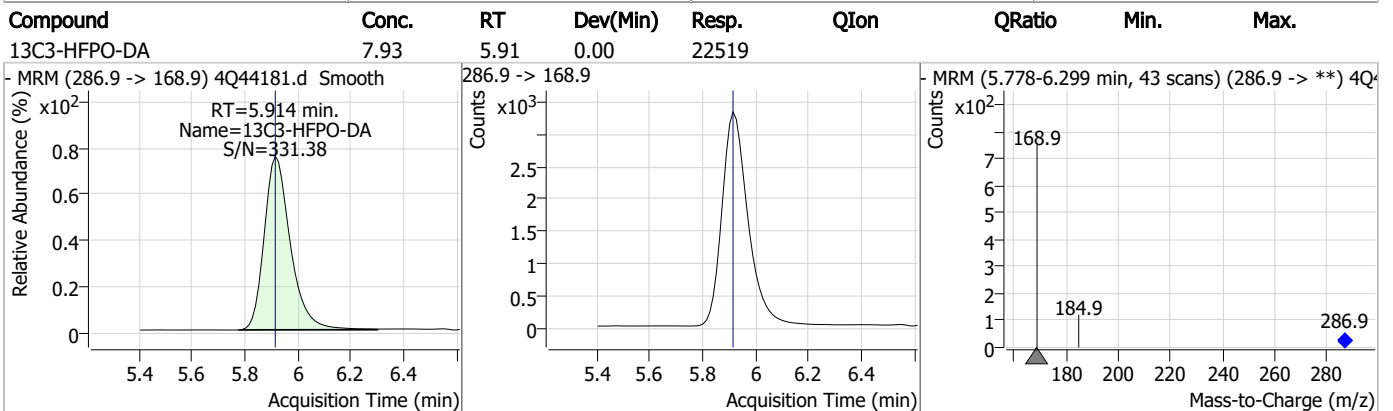
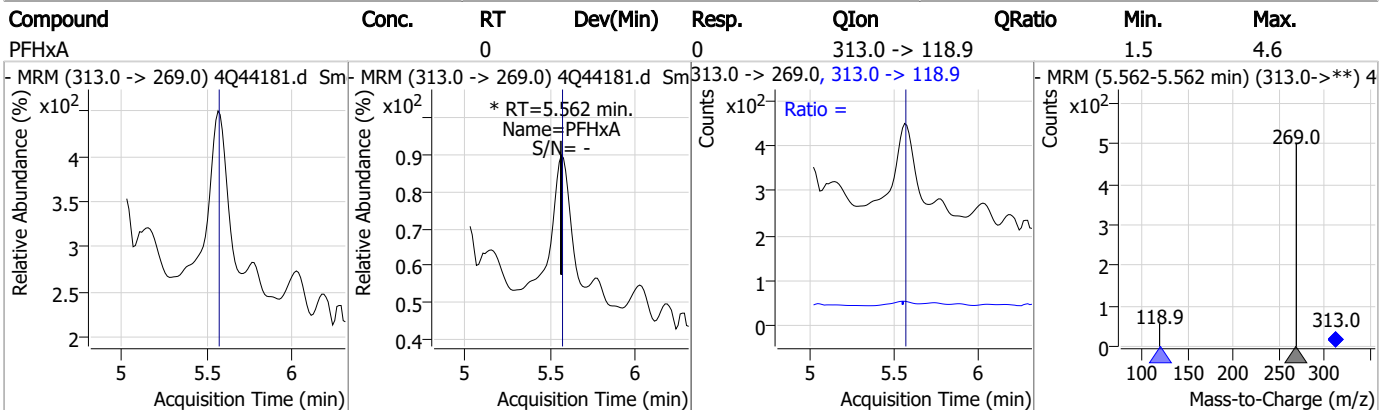
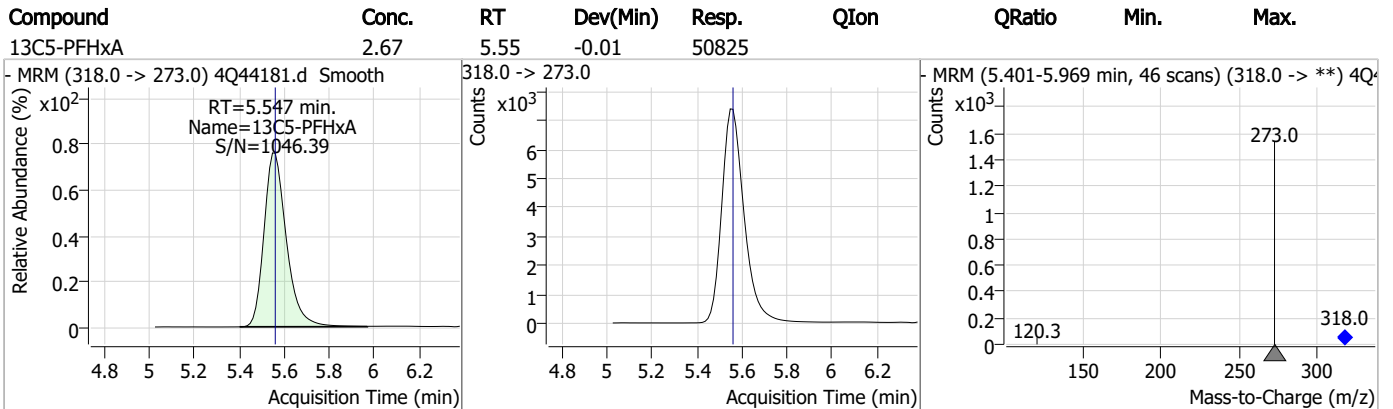
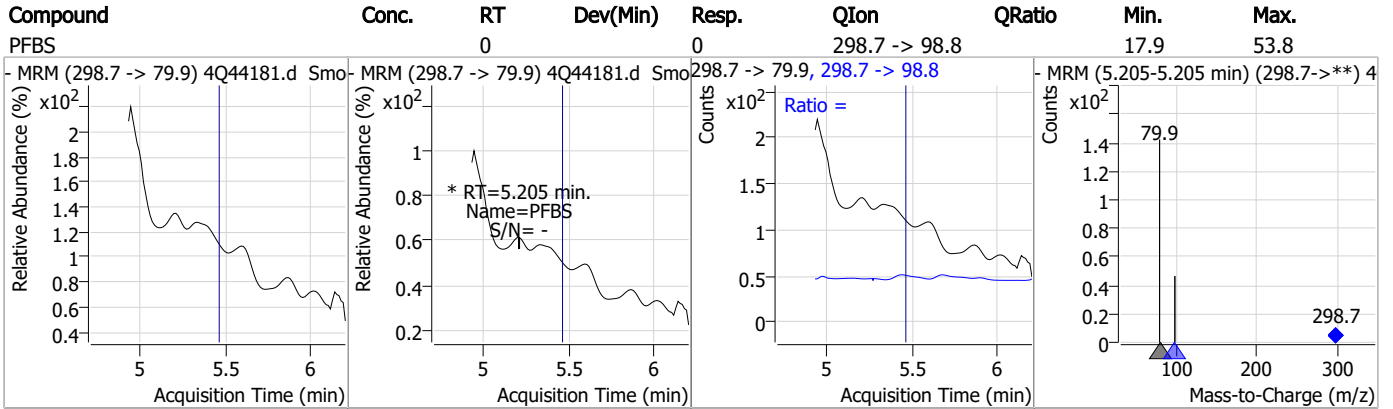
### Perfluorinated Compounds by LC/MS/MS



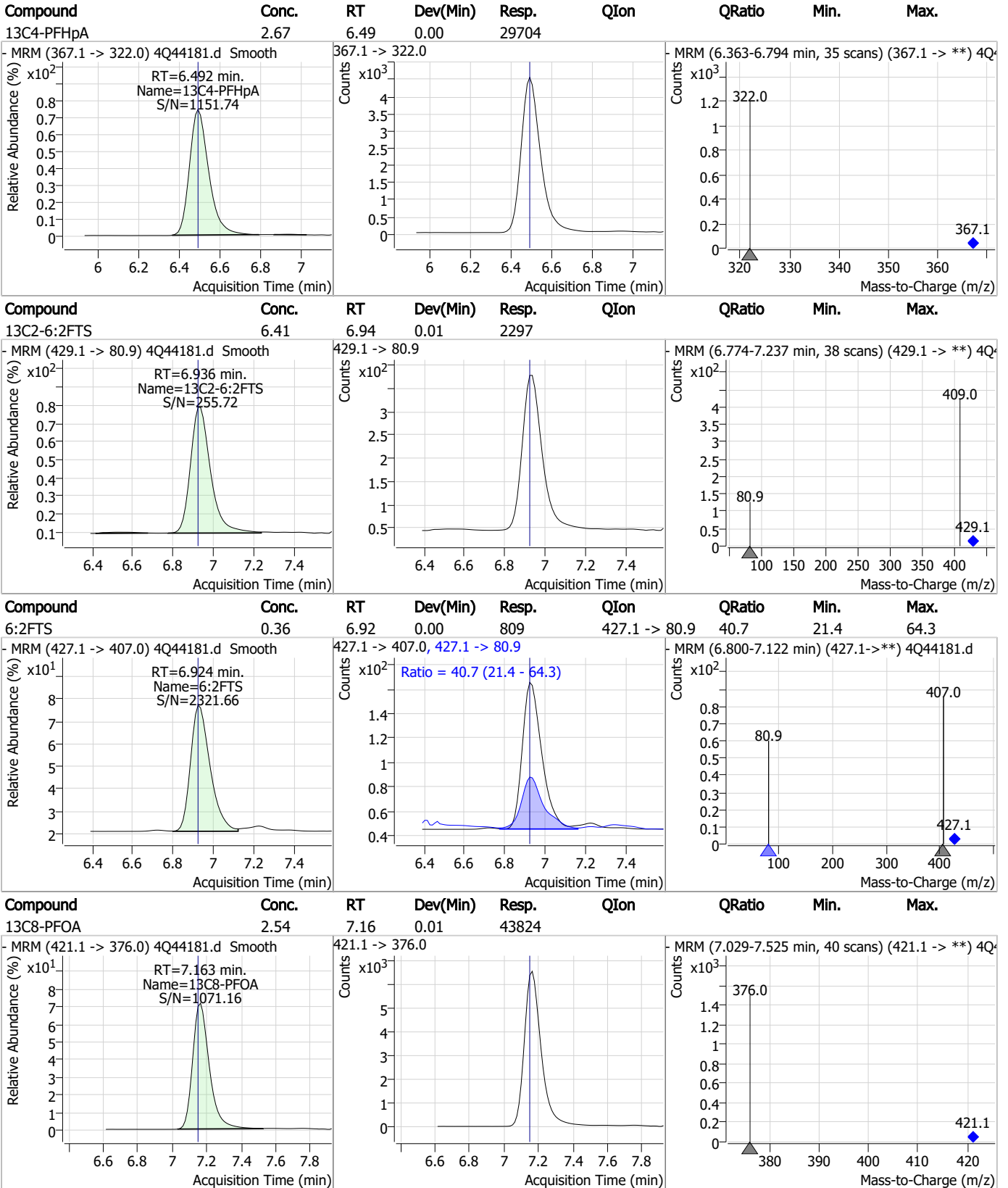
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

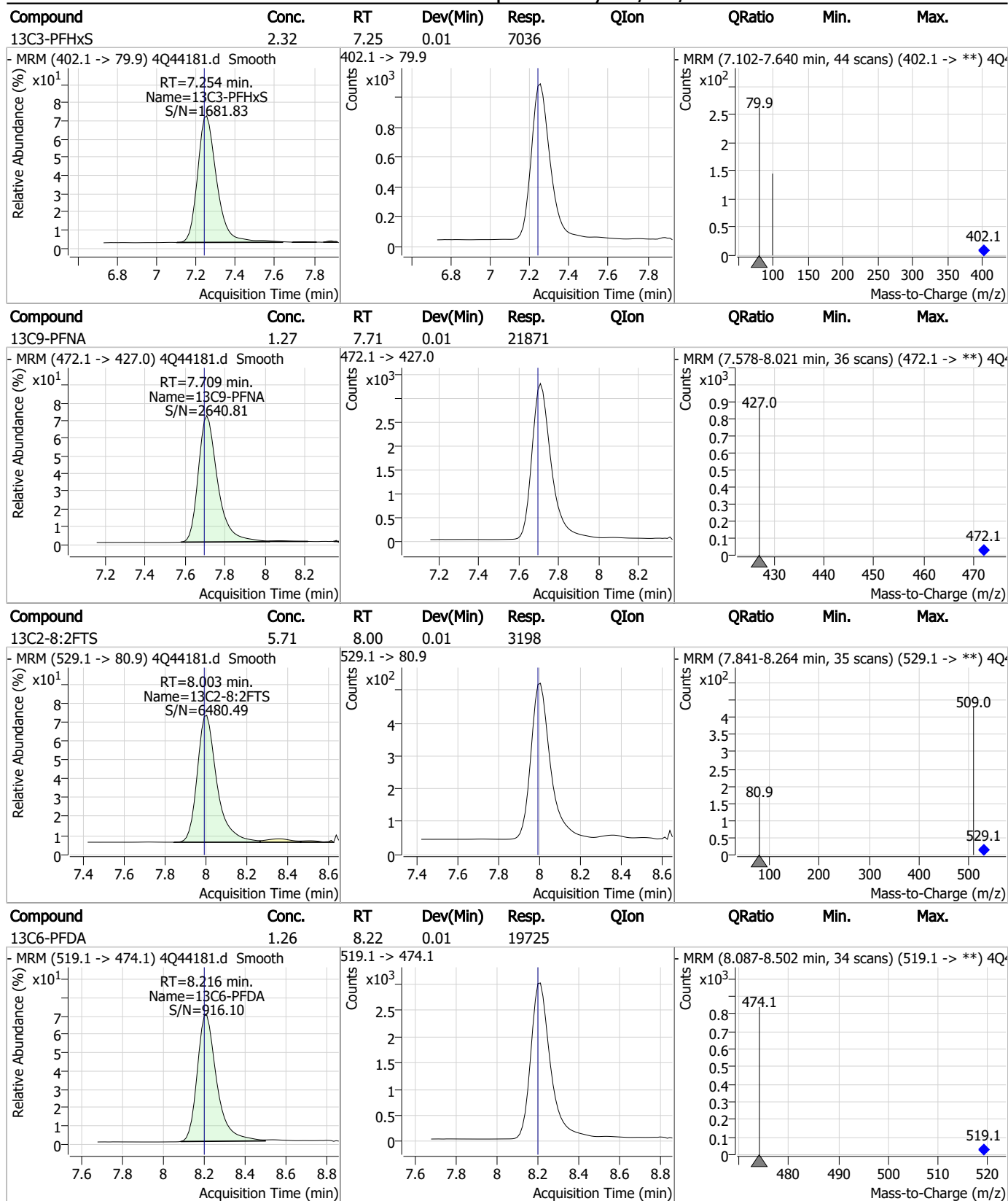


Perfluorinated Compounds by LC/MS/MS



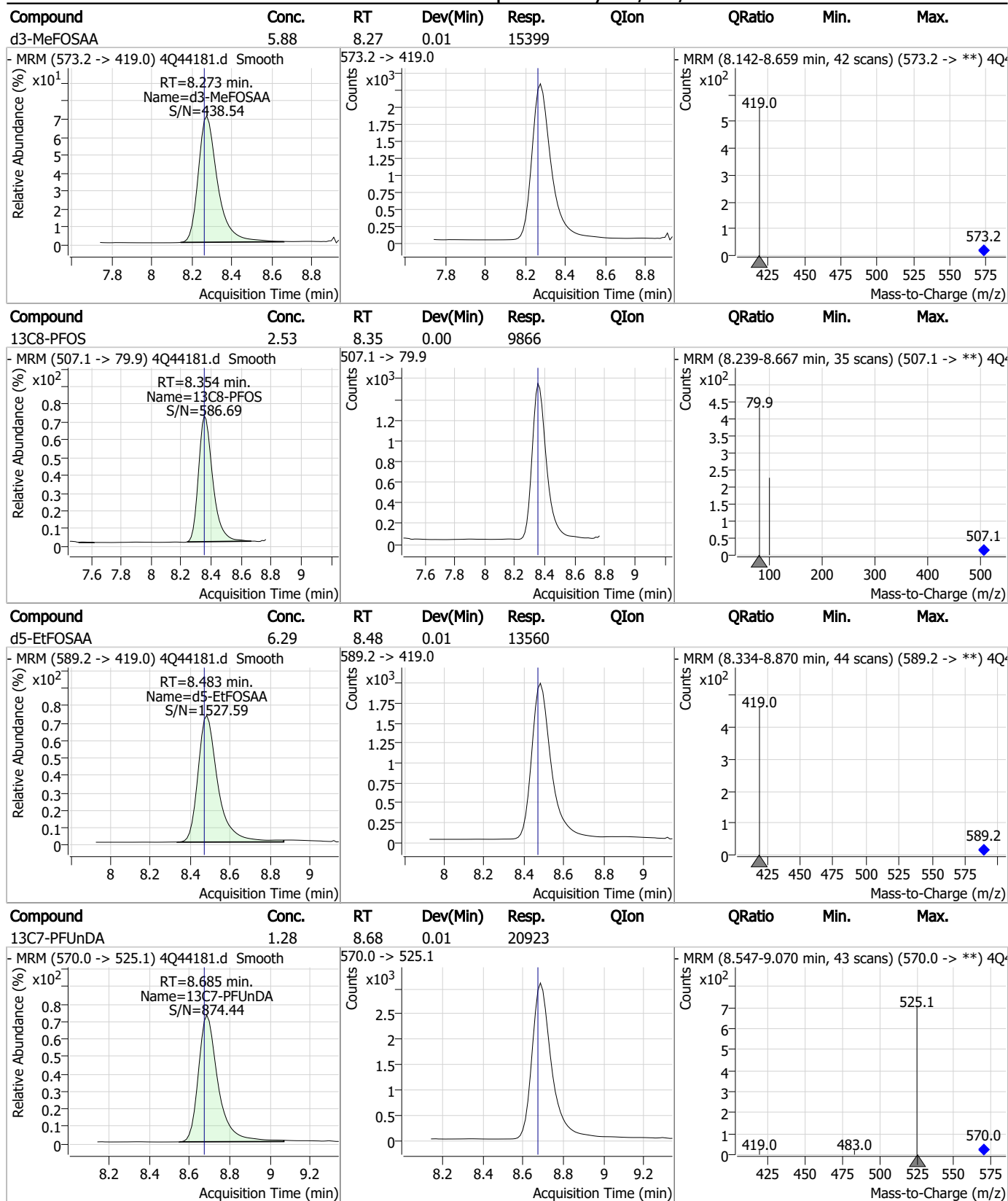


### Perfluorinated Compounds by LC/MS/MS



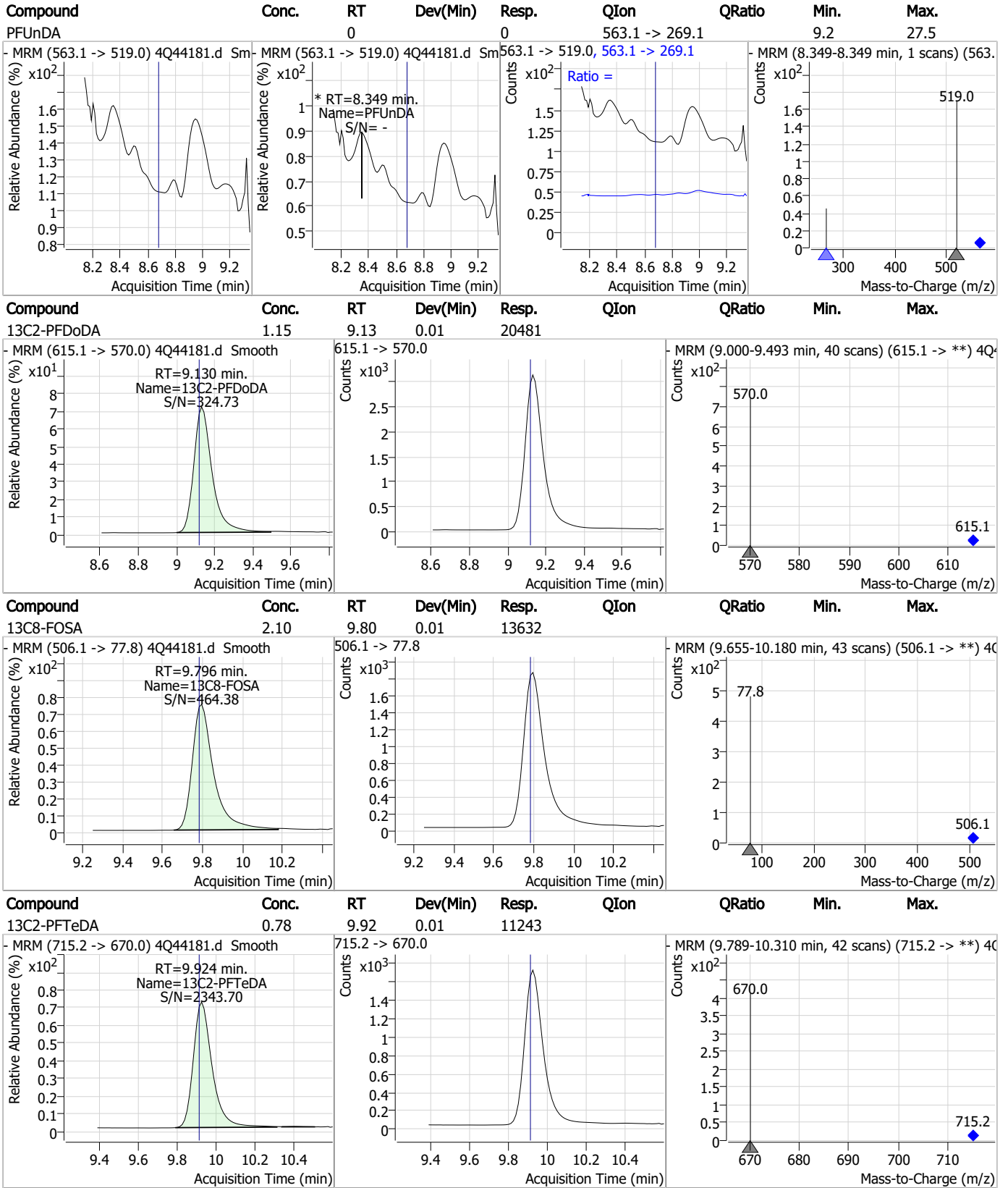
7.1.4  
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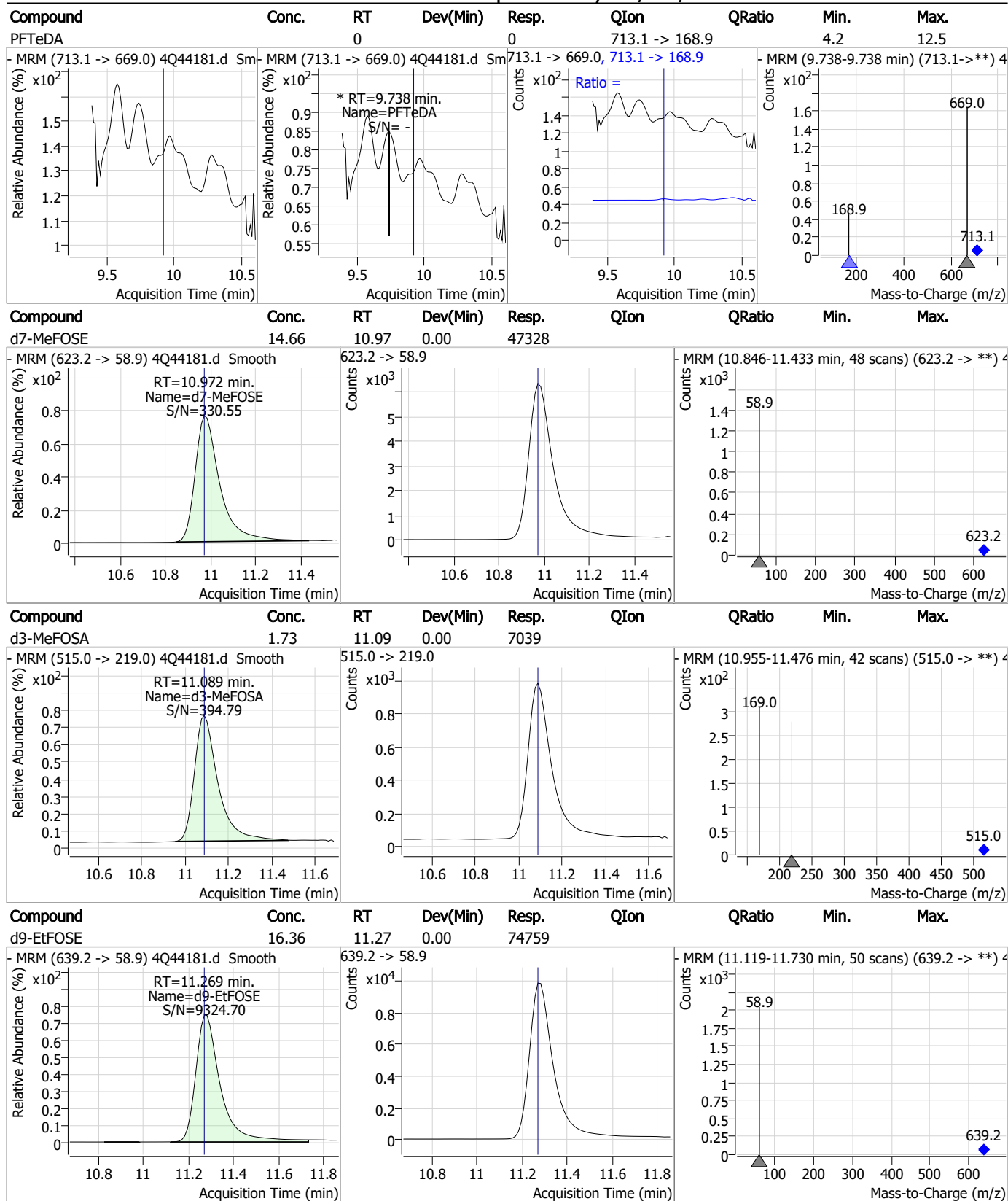


7.1.4  
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### Perfluorinated Compounds by LC/MS/MS

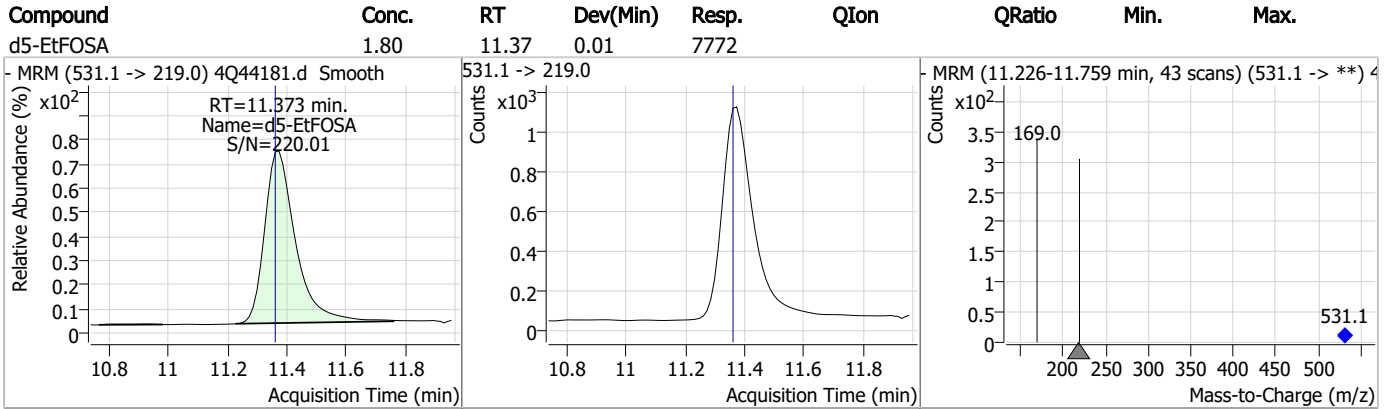
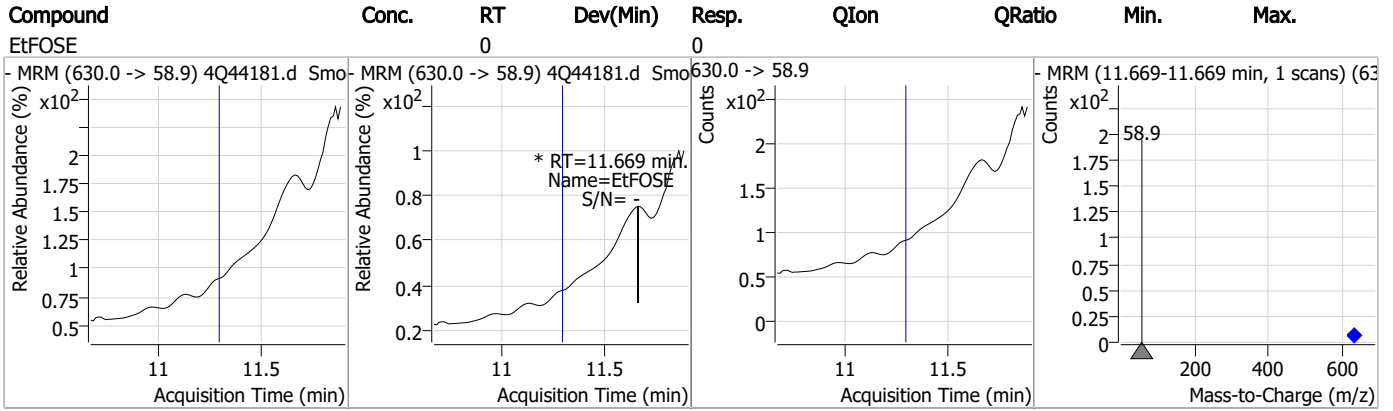


### Perfluorinated Compounds by LC/MS/MS



7.1.4  
7

Perfluorinated Compounds by LC/MS/MS



7.1.4  
7

### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44183.d  
Operator : marthav  
Acq. Method : 1633full\_4Q.m  
Acq. Date-Time : 5/10/2023 1:23:14 AM  
Sample Name : FC5890-3  
Vial : P3-D9  
DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
Batch Name : s4q639.batch.bin  
Sample Information : OP96784,S4Q639,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.924	216.8 -> 171.9	103742	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	64018	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	47740	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	28883	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	41651	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	22062	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	18788	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	18073	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	16393	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	11002	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	13790	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	11786	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	6909	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	8890	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1305	5.00 µg/L	0.000
M2-6:2FTS	6.923	429.1 -> 80.9	1850	5.00 µg/L	0.000
M2-8:2FTS	7.990	529.1 -> 80.9	3225	5.00 µg/L	0.000
M3-MeFOSAA	8.273	573.2 -> 419.0	14615	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	24188	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	11806	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	49858	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	71840	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	8040	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	7569	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	10264	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	59615	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	4589	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	47574	2.50 µg/L	0.014
13C2-PFDA	8.204	515.1 -> 470.1	16137	1.25 µg/L	0.000
13C5-PFNA	7.709	468.0 -> 423.0	23291	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	39893	2.50 µg/L	0.000

**System Monitoring Compounds**

13C2-4:2FTS	5.247	329.1 -> 80.9	1305	7.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 140.0%		
13C2-6:2FTS	6.923	429.1 -> 80.9	1850	5.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C2-8:2FTS	7.990	529.1 -> 80.9	3225	6.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.9%		
13C2-PFDoDA	9.130	615.1 -> 570.0	16393	1.05 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 83.9%		
13C2-PFTeDA	9.924	715.2 -> 670.0	11002	0.86 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 69.2%		
13C3-PFBS	5.464	302.1 -> 79.9	11786	2.72 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.0%		
13C3-PFHxS	7.254	402.1 -> 79.9	6909	2.43 µg/L	0.012

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%		
13C4-PFBA	2.924	216.8 -> 171.9	103742	9.25	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.5%		
13C4-PFHpA	6.492	367.1 -> 322.0	28883	2.81	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.5%		
13C5-PFHxA	5.559	318.0 -> 273.0	47740	2.72	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.7%		
13C5-PFPeA	4.387	268.3 -> 223.0	64018	5.21	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.2%		
13C6-PFDA	8.216	519.1 -> 474.1	18788	1.36	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.7%		
13C7-PFUnDA	8.685	570.0 -> 525.1	18073	1.26	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%		
13C8-FOSA	9.796	506.1 -> 77.8	13790	2.14	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.7%		
13C8-PFOA	7.163	421.1 -> 376.0	41651	2.67	µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.7%		
13C8-PFOS	8.354	507.1 -> 79.9	8890	2.30	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.0%		
13C9-PFNA	7.709	472.1 -> 427.0	22062	1.39	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.5%		
d3-MeFOSAA	8.273	573.2 -> 419.0	14615	5.64	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.8%		
13C3-HFPO-DA	5.927	286.9 -> 168.9	24188	9.22	µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.2%		
d3-MeFOSA	11.089	515.0 -> 219.0	7569	1.88	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.2%		
d5-EtFOSAA	8.483	589.2 -> 419.0	11806	5.53	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.7%		
d7-MeFOSE	10.972	623.2 -> 58.9	49858	15.61	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 62.5%		
d9-EtFOSE	11.269	639.2 -> 58.9	71840	15.89	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 63.6%		
d5-EtFOSA	11.373	531.1 -> 219.0	8040	1.88	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.2%		

Target Compounds

Compound	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	6.924	427.1 -> 407.0	1012	0.57	µg/L	98
		427.1 -> 80.9	422			
8:2FTS	-	527.1 -> 507.0	-	N.D.		
		527.1 -> 80.8				
EtFOSAA	-	584.2 -> 419.1	-	N.D.		
		584.2 -> 526.0				
FOSA	-	498.1 -> 77.9	-	N.D.		
		498.1 -> 478.0				
MeFOSAA	-	570.1 -> 419.0	-	N.D.		
		570.1 -> 483.0				
PFBA	2.932	212.8 -> 168.9	537	0.19	µg/L	m 100
PFBS	5.342	298.7 -> 79.9	0		µg/L	m 1
		298.7 -> 98.8	0			
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.		

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.505	599.0 -> 98.8				
		363.1 -> 319.0	3176	0.17	µg/L	96
PFHpS	-	363.1 -> 169.0	514			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.562	449.0 -> 98.9				
		313.0 -> 269.0	3915	0.21	µg/L	99
PFHxS	-	313.0 -> 118.9	135			
		398.7 -> 79.9	-	N.D.		
PFNA	8.121	398.7 -> 98.9				
		463.0 -> 419.0	0		µg/L	m
PFNS	-	463.0 -> 219.0	0			1
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	4.389	498.9 -> 98.8				
		263.0 -> 219.0	5376	0.35	µg/L	m
PFPeS	-	349.1 -> 79.9	-	N.D.		100
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.695	630.0 -> 58.9	0		µg/L	m
		511.9 -> 219.0	-	N.D.		1
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				
PFMPA	-					
PFEESA	-					

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

7.1.5  
7



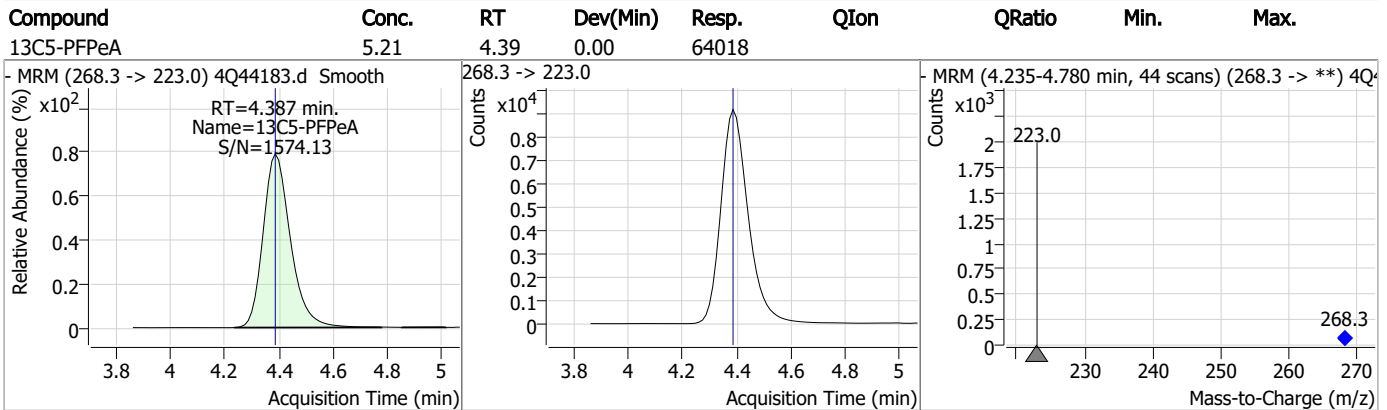
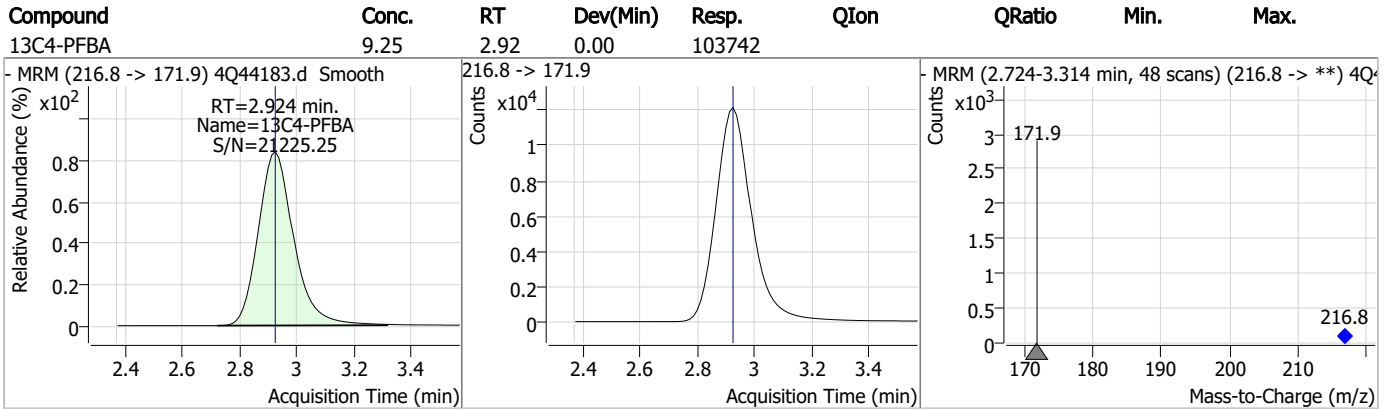
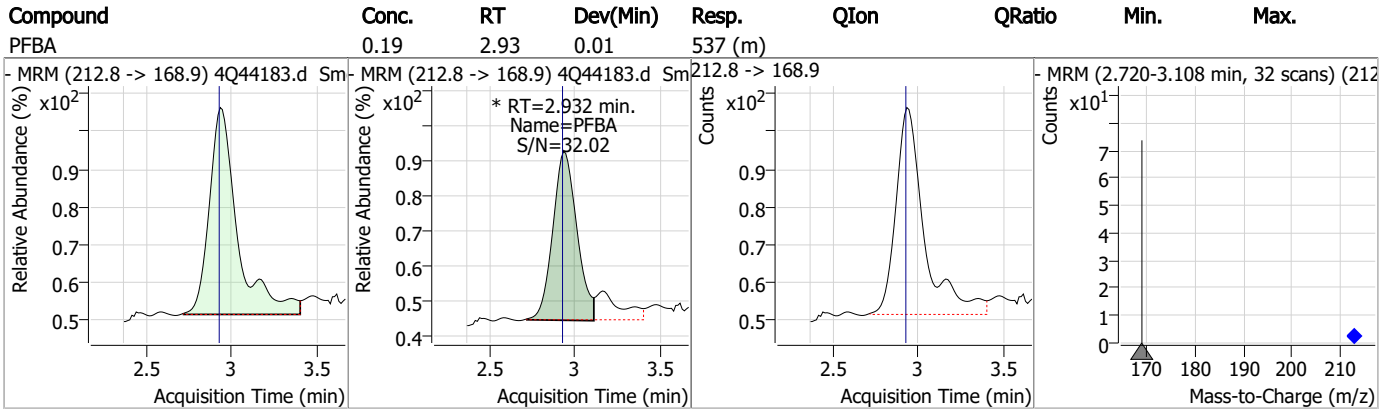
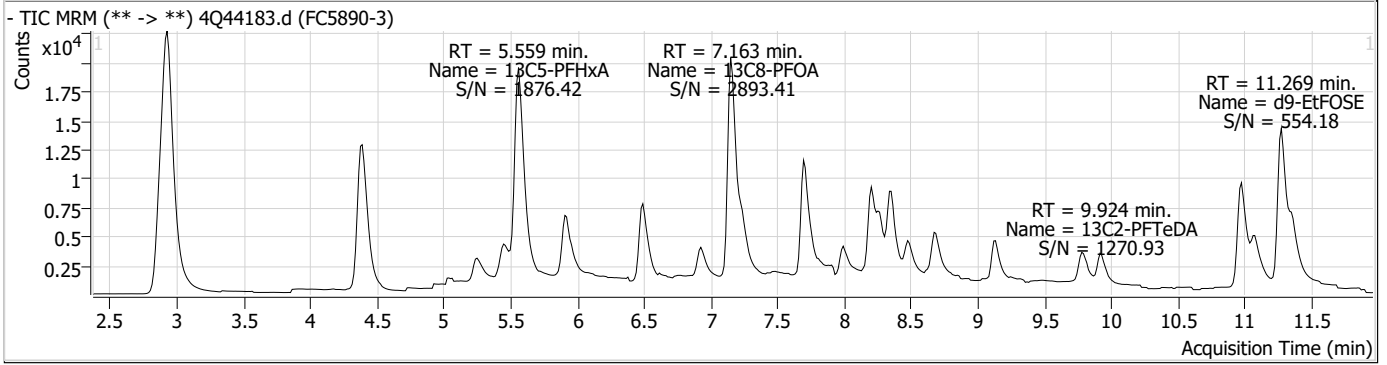
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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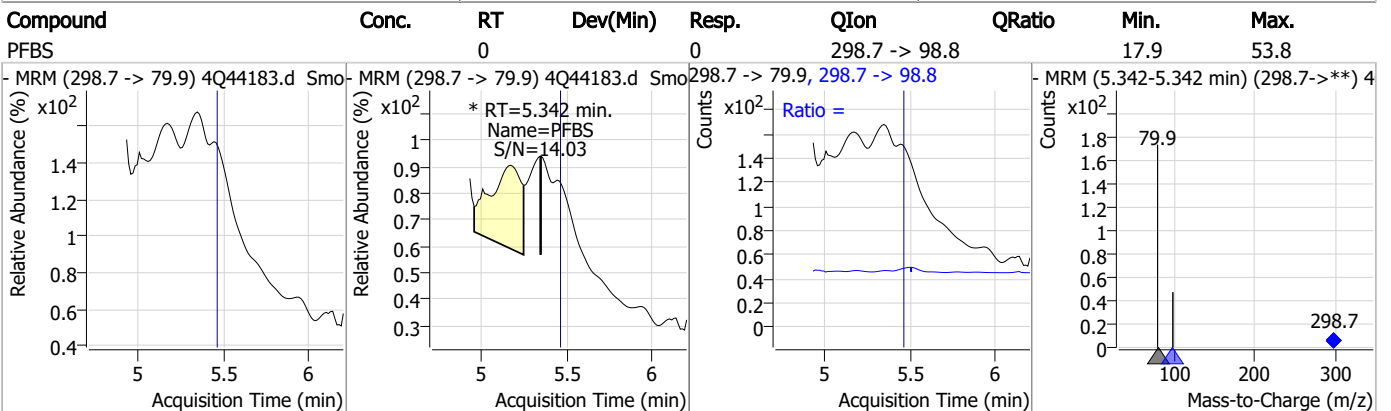
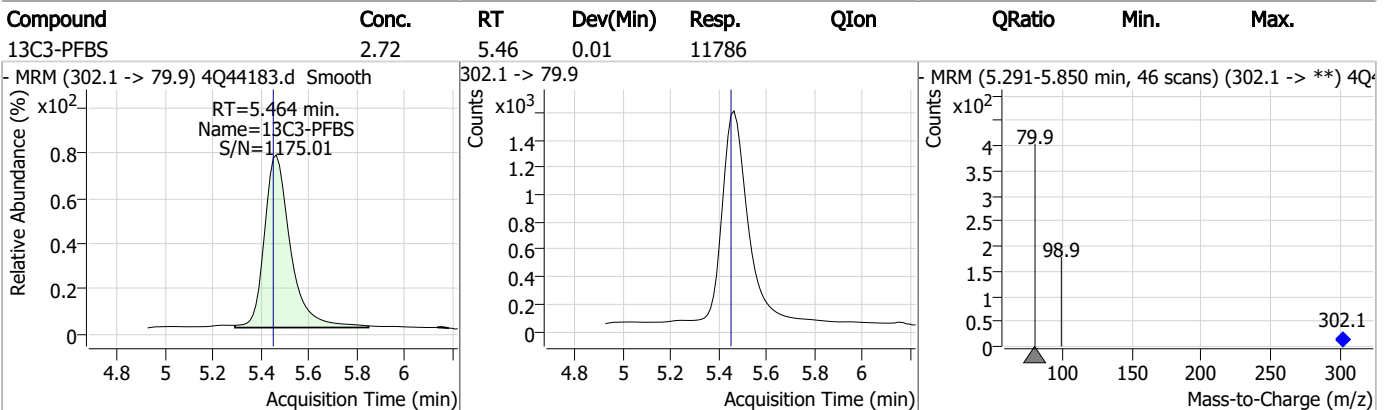
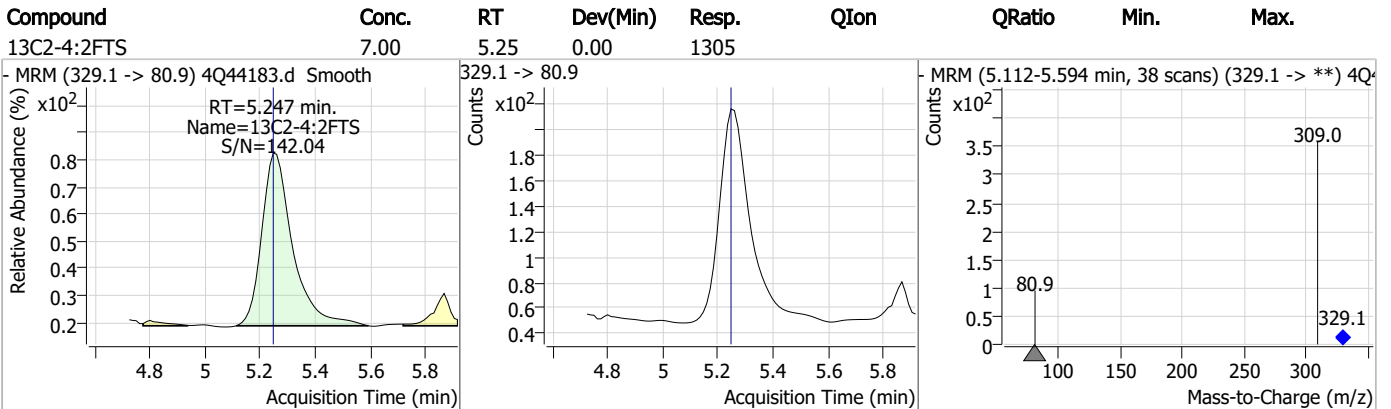
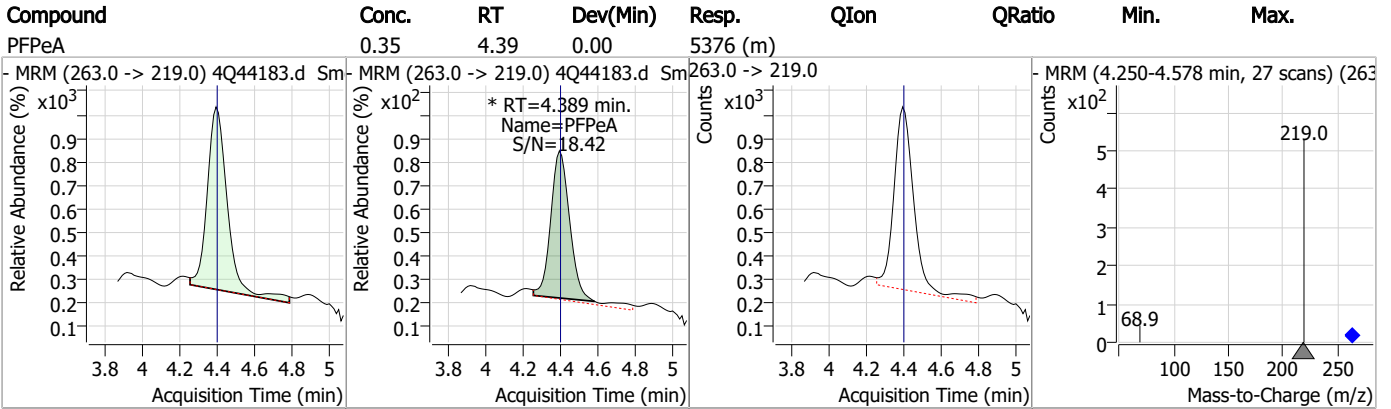
7.1.5  
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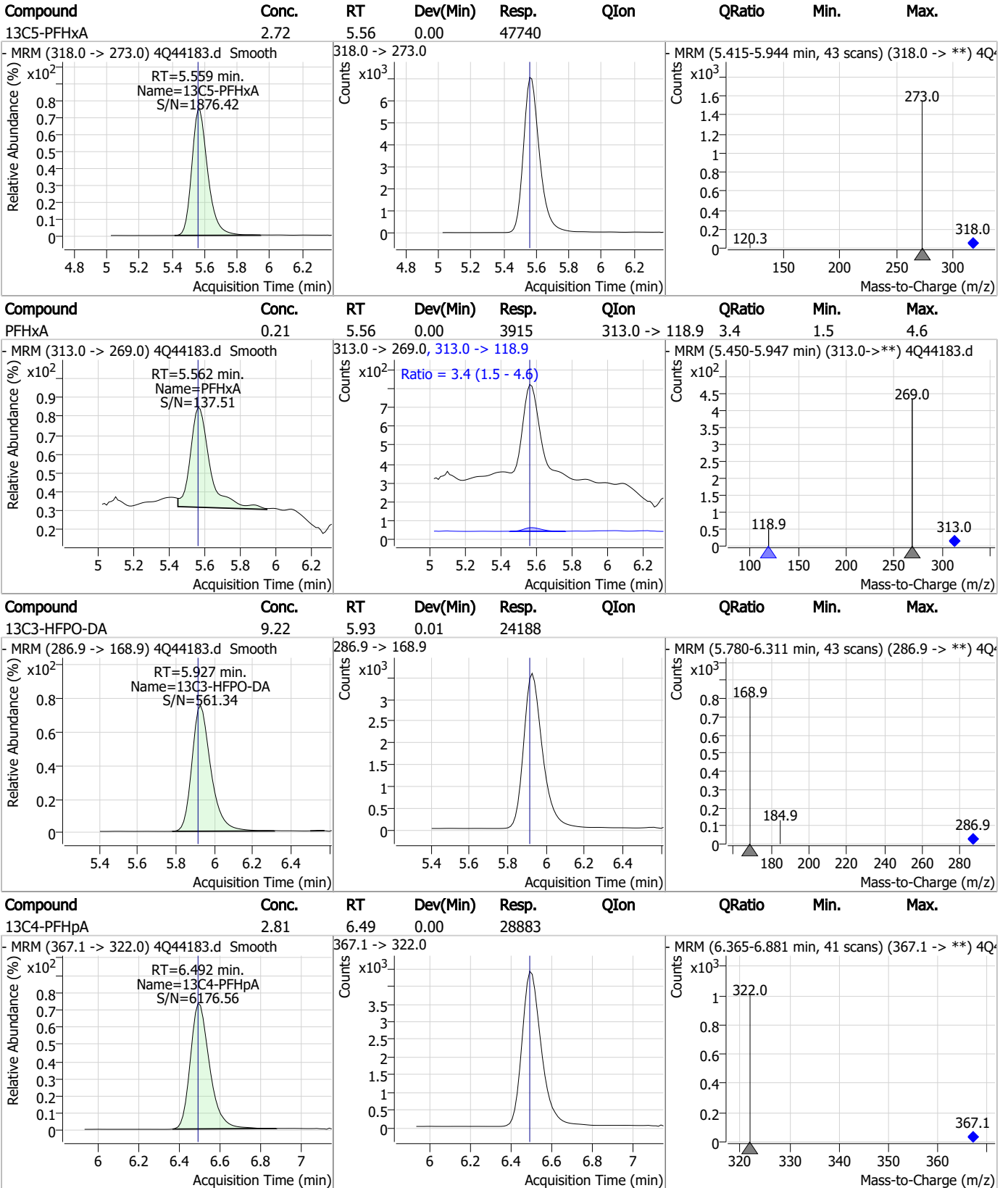
### Perfluorinated Compounds by LC/MS/MS



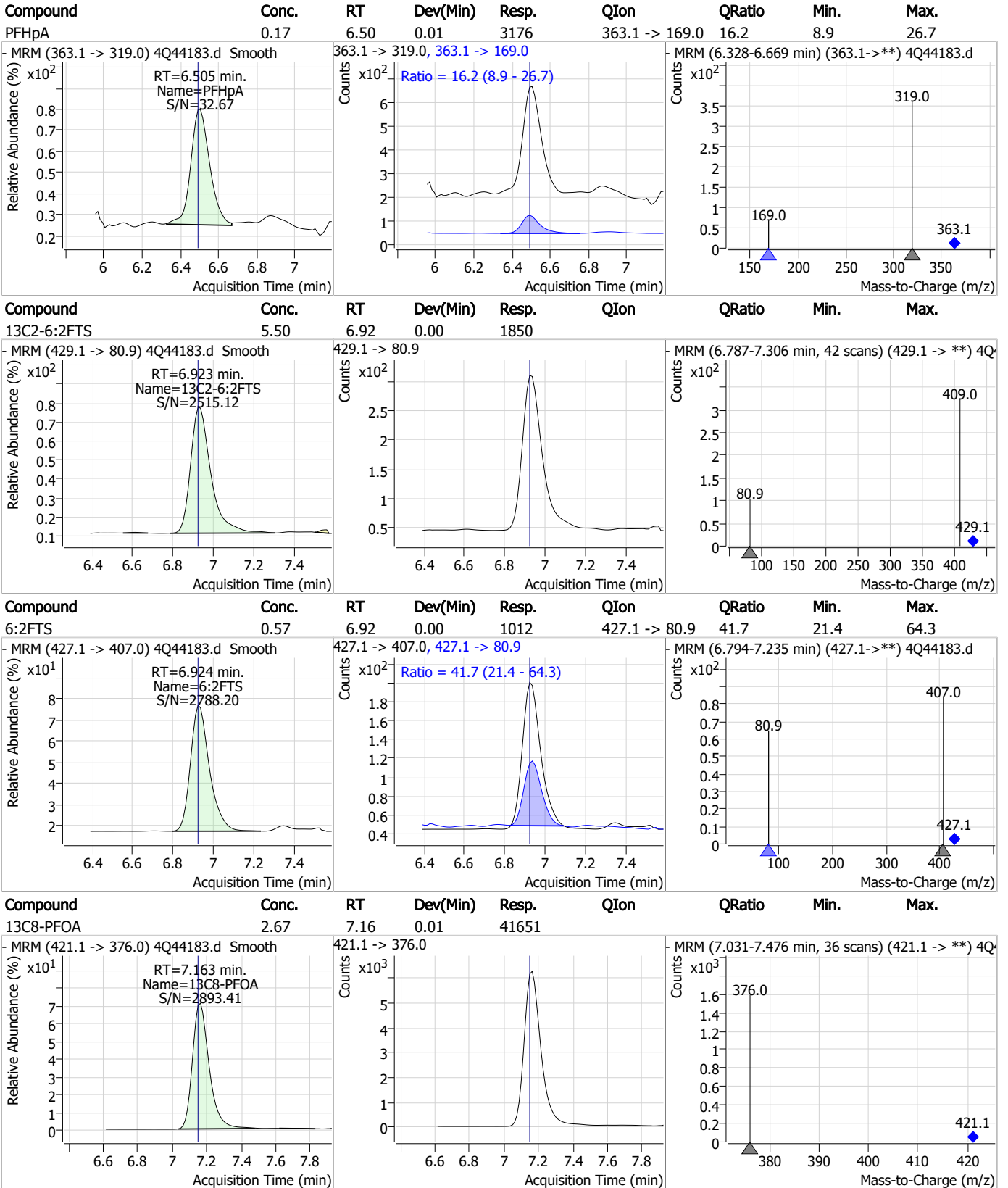
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

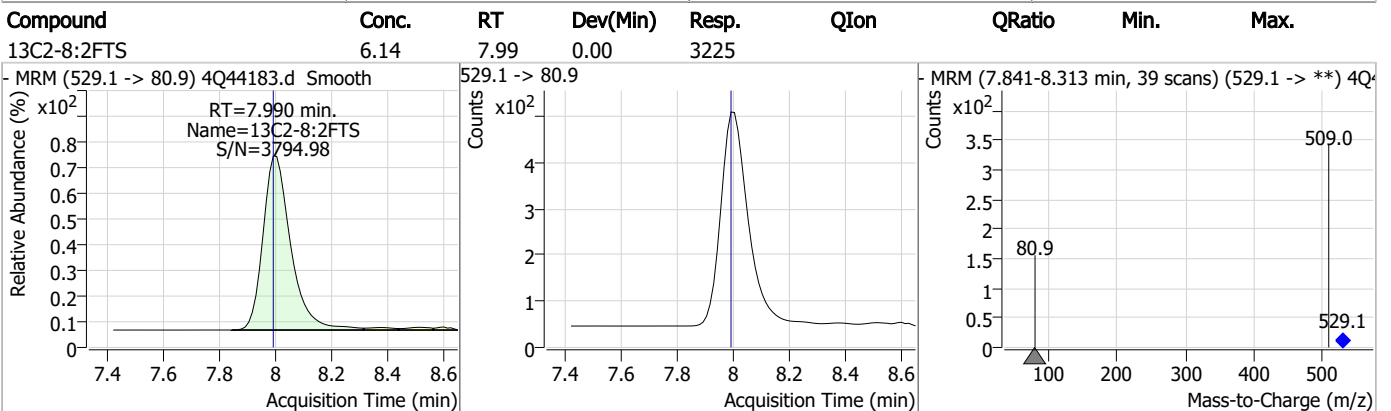
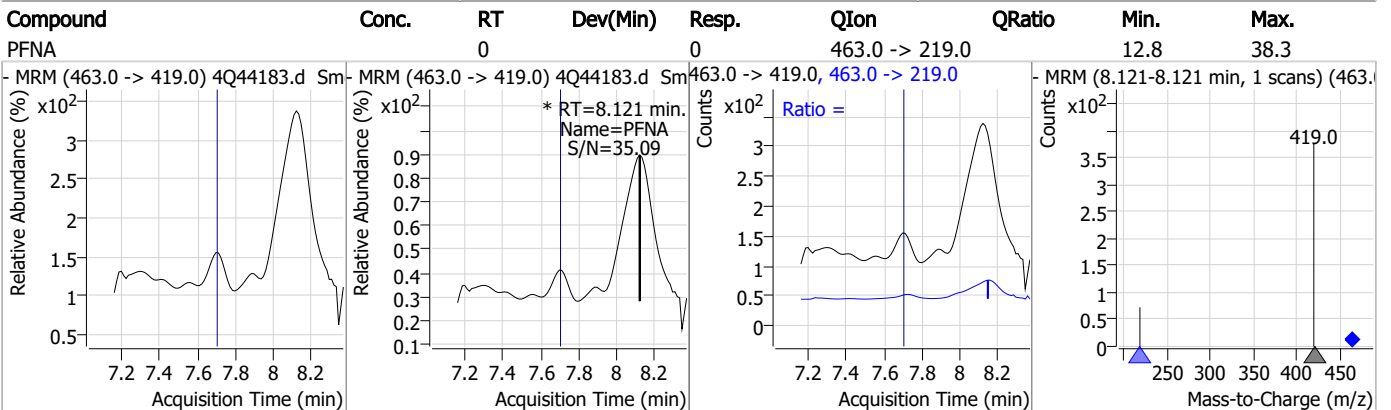
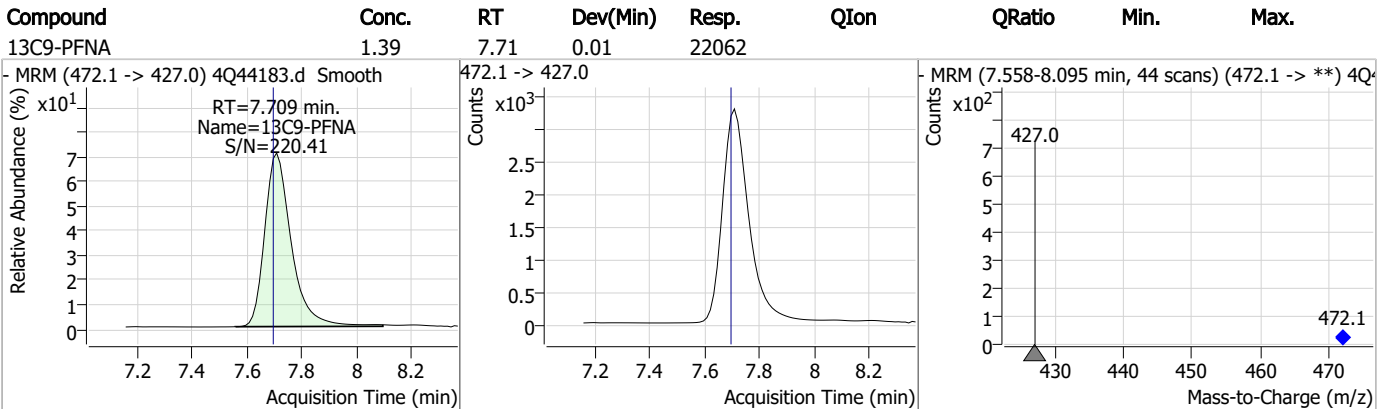
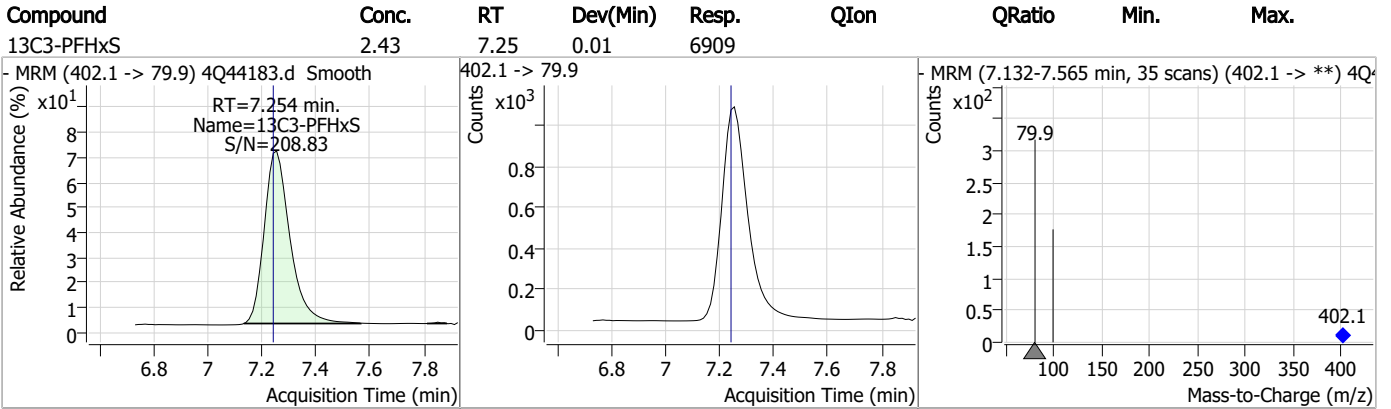


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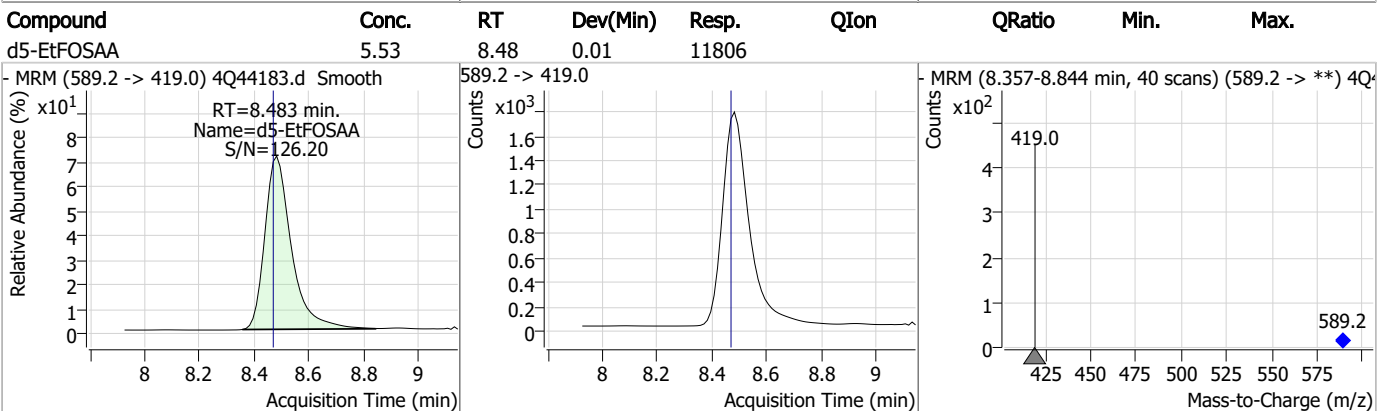
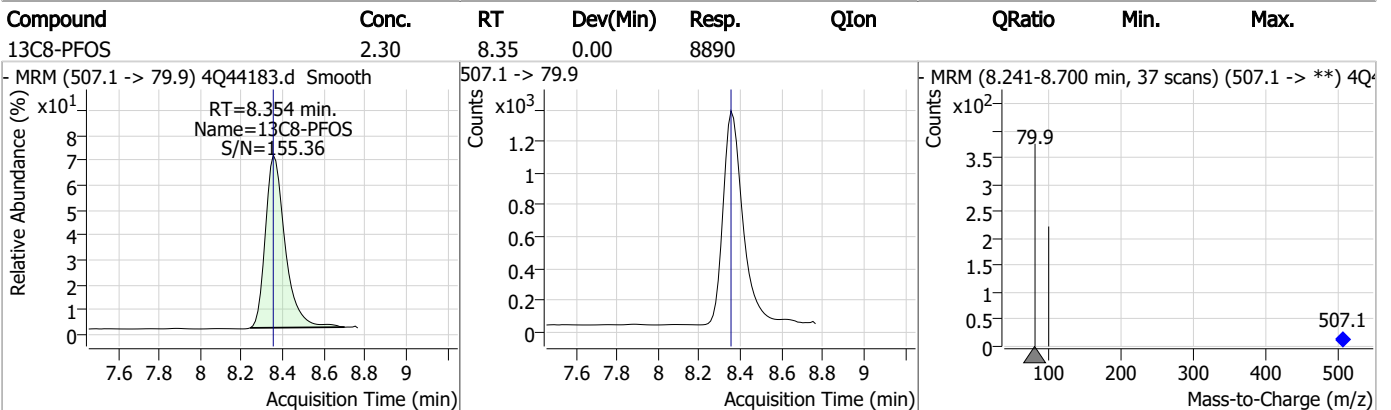
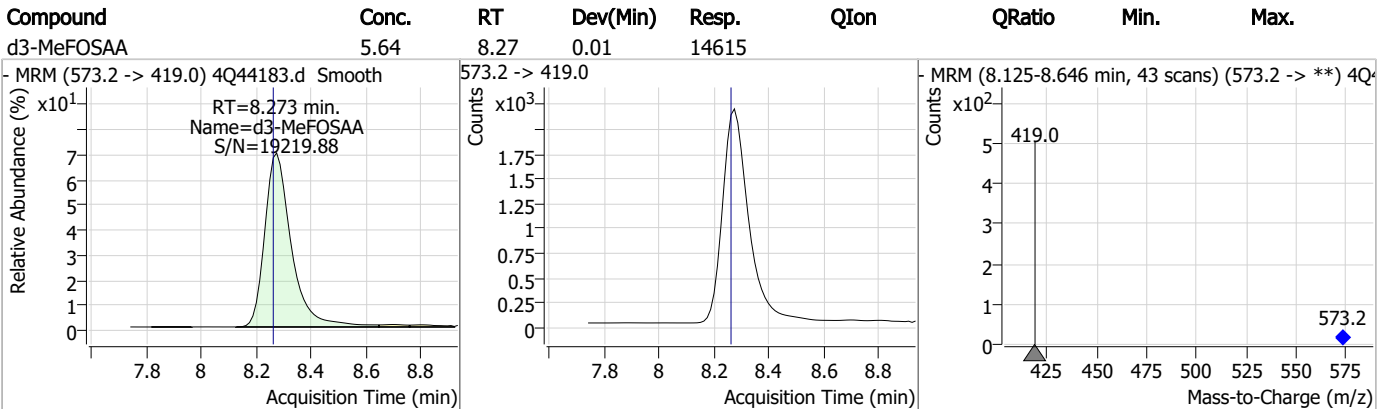
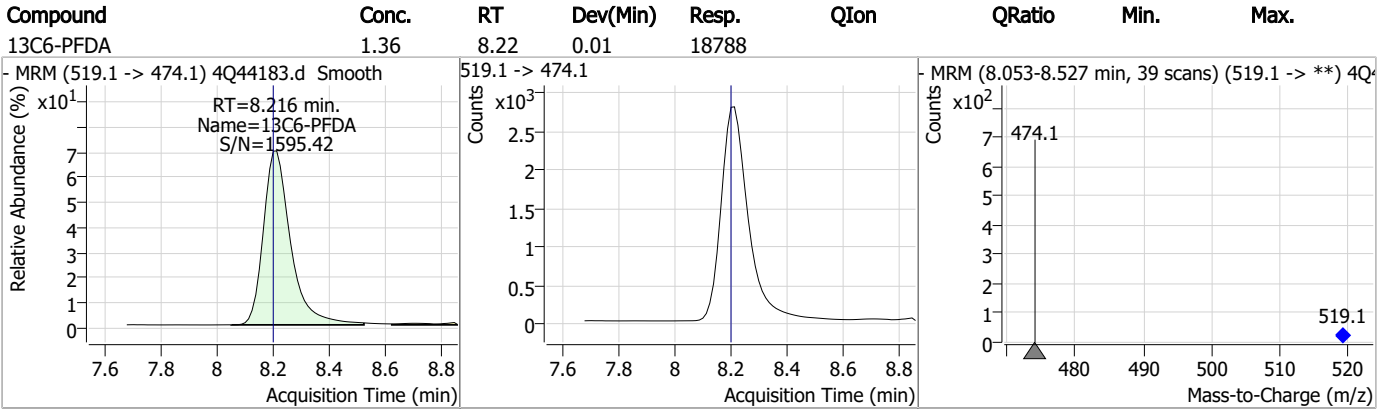
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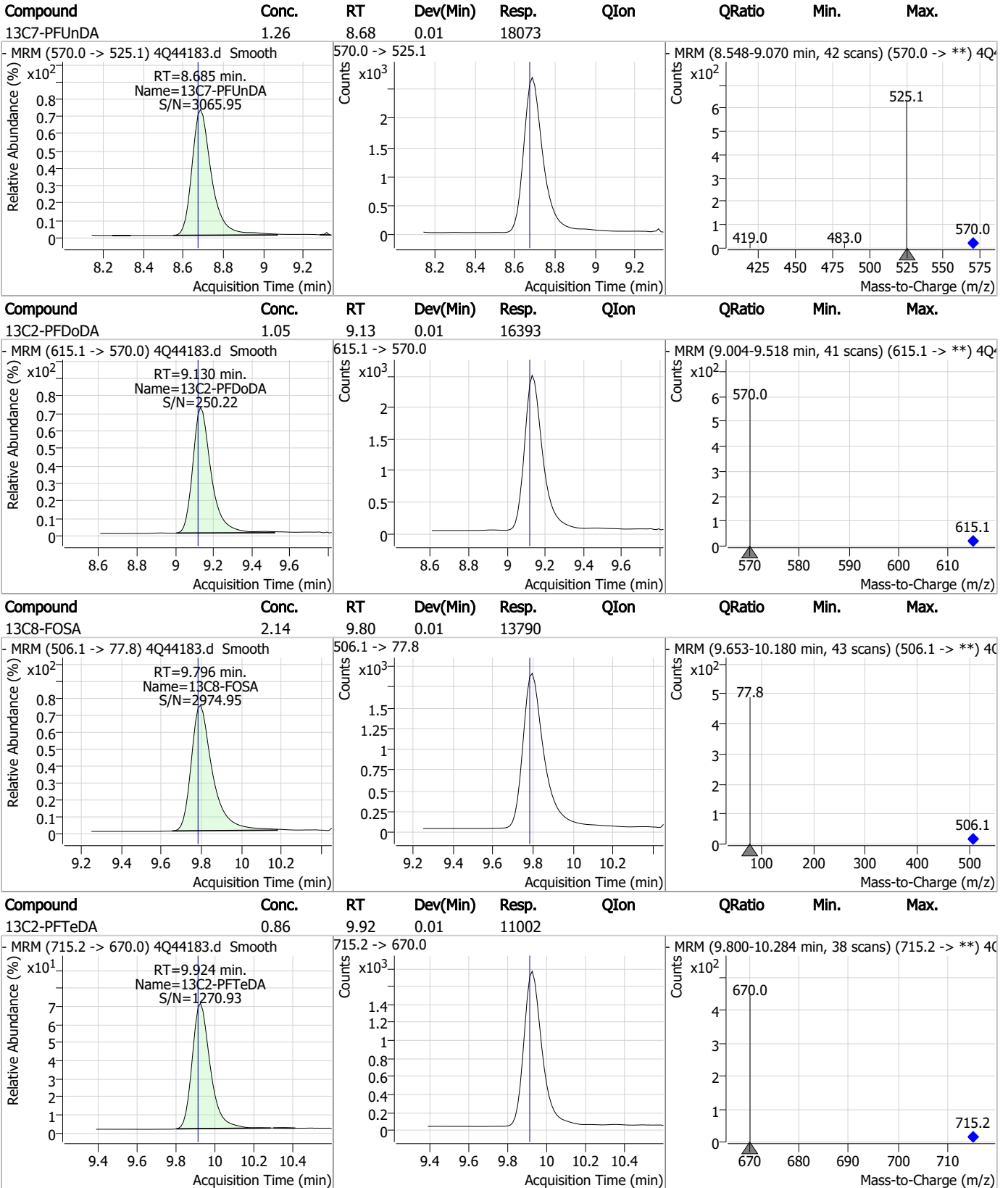
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

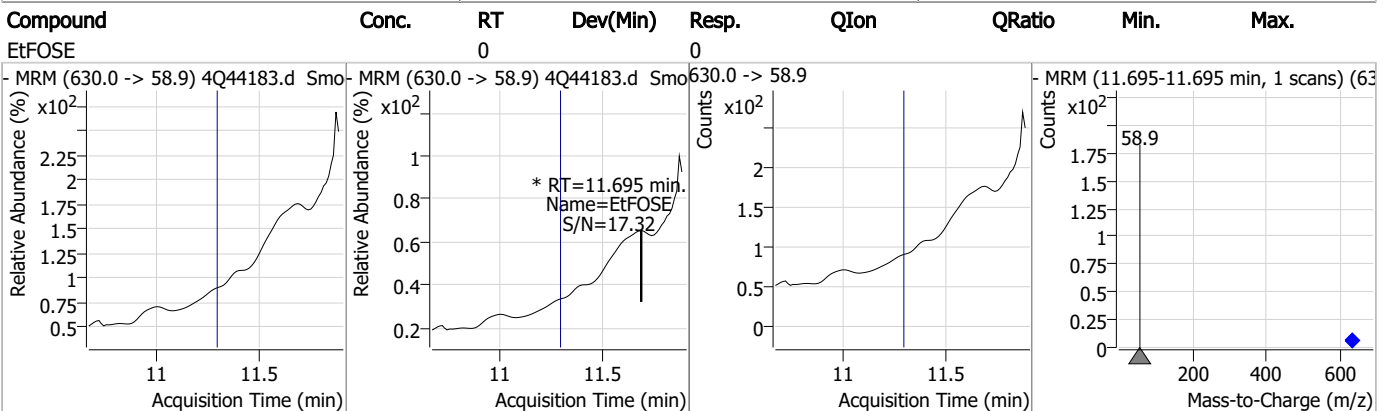
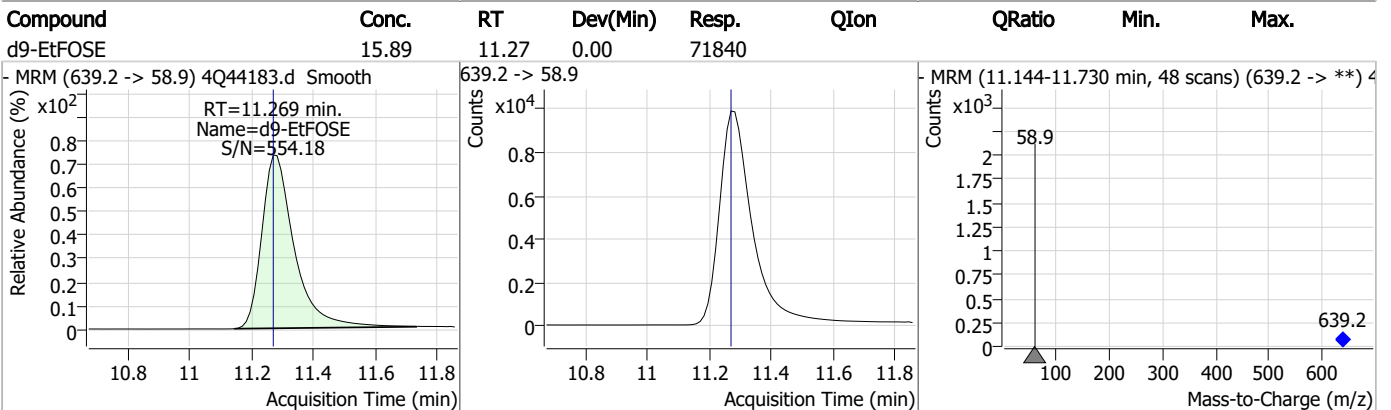
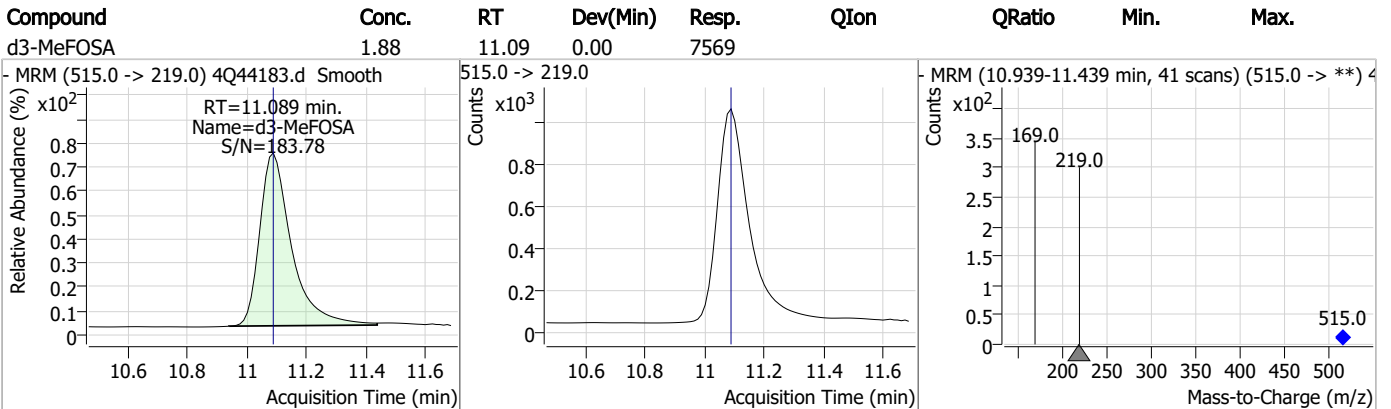
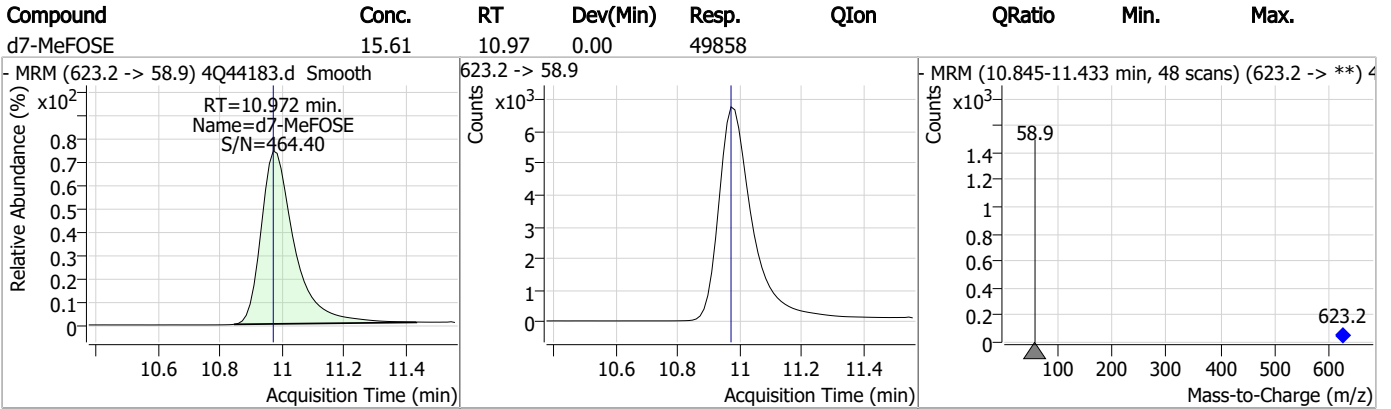


7.1.5

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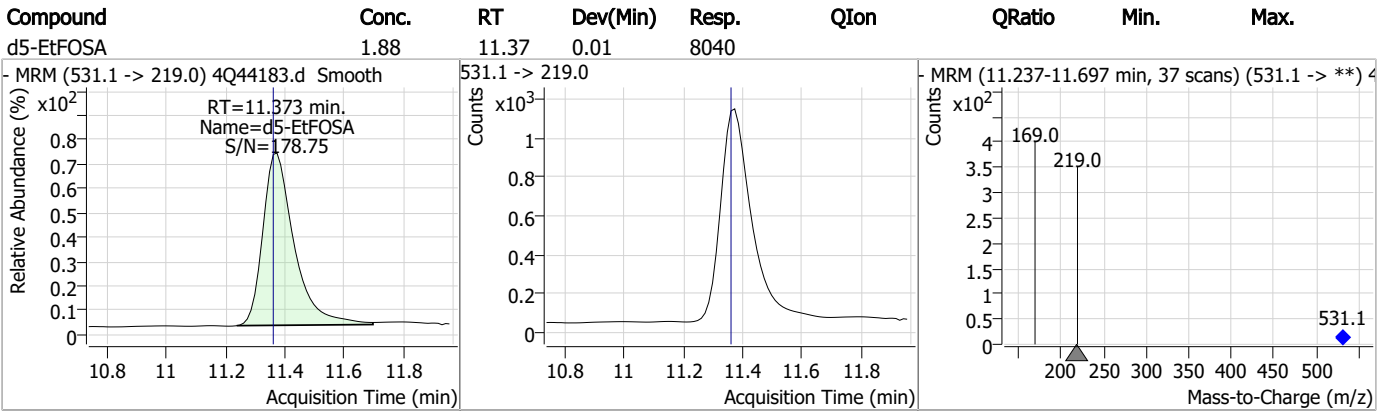


### Perfluorinated Compounds by LC/MS/MS



7.15  
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### Perfluorinated Compounds by LC/MS/MS



7.1.5  
7

# Manual Integration Approval Summary

Sample Number: FC5890-3                      Method: EPA DRAFT 1633  
Lab FileID: 4Q44183.D                      Analyst approved: 05/10/23 11:51 Martha Valls  
Injection Time: 05/10/23 01:23                      Supervisor approved: 05/10/23 17:32 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanoic acid	375-22-4		2.93	Poor instrument integration
Perfluoropentanoic acid	2706-90-3		4.39	Poor instrument integration

7.1.5.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44177.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/9/2023 11:58:54 PM  
 Sample Name : op96784-mb  
 Vial : P3-D3  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q639.batch.bin  
 Sample Information : OP96784,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.924	216.8 -> 171.9	139770	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	70044	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	49263	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	28370	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	43795	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	22403	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	19795	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	20295	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	20834	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	14547	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	14721	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	11947	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	7672	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	10489	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1476	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	2534	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	4112	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	16380	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	26151	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	12362	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	54919	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	83601	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	8975	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	7962	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	10157	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	65634	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	4713	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	48691	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	16125	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	24260	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	39710	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.247	329.1 -> 80.9	1476	7.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 154.0%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2534	7.34 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 146.7%		
13C2-8:2FTS	8.003	529.1 -> 80.9	4112	7.63 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 152.6%		
13C2-PFDoDA	9.130	615.1 -> 570.0	20834	1.33 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C2-PFTeDA	9.924	715.2 -> 670.0	14547	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.5%		
13C3-PFBS	5.464	302.1 -> 79.9	11947	2.69 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.5%		
13C3-PFHxS	7.254	402.1 -> 79.9	7672	2.63 µg/L	0.012

7.2.1  
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### 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	2.924	216.8 -> 171.9	139770	11.32 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.2%	
13C4-PFHpA	6.492	367.1 -> 322.0	28370	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.0%	
13C5-PFHxA	5.559	318.0 -> 273.0	49263	2.82 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.7%	
13C5-PFPeA	4.387	268.3 -> 223.0	70044	5.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.5%	
13C6-PFDA	8.216	519.1 -> 474.1	19795	1.43 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.7%	
13C7-PFUnDA	8.685	570.0 -> 525.1	20295	1.41 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.0%	
13C8-FOSA	9.796	506.1 -> 77.8	14721	2.31 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C8-PFOA	7.163	421.1 -> 376.0	43795	2.74 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C8-PFOS	8.354	507.1 -> 79.9	10489	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C9-PFNA	7.709	472.1 -> 427.0	22403	1.36 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.7%	
d3-MeFOSAA	8.273	573.2 -> 419.0	16380	6.39 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 127.8%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	26151	10.01 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
d3-MeFOSA	11.089	515.0 -> 219.0	7962	2.00 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.0%	
d5-EtFOSAA	8.483	589.2 -> 419.0	12362	5.86 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.1%	
d7-MeFOSE	10.972	623.2 -> 58.9	54919	17.38 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 69.5%	
d9-EtFOSE	11.269	639.2 -> 58.9	83601	18.68 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.7%	
d5-EtFOSA	11.373	531.1 -> 219.0	8975	2.12 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.8%	

**Target Compounds**

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

7.2.1  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.906	599.0 -> 98.8				
		363.1 -> 319.0	0	µg/L	m	1
PFHpS	-	363.1 -> 169.0	0			
		449.0 -> 79.9	-	N.D.		
PFHxA	-	449.0 -> 98.9				
		313.0 -> 269.0	-	N.D.		
PFHxS	-	313.0 -> 118.9				
		398.7 -> 79.9	-	N.D.		
PFNA	-	398.7 -> 98.9				
		463.0 -> 419.0	-	N.D.		
PFNS	-	463.0 -> 219.0				
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	-	498.9 -> 98.8				
		263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.681	630.0 -> 58.9	0	µg/L	m	1
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.1  
7

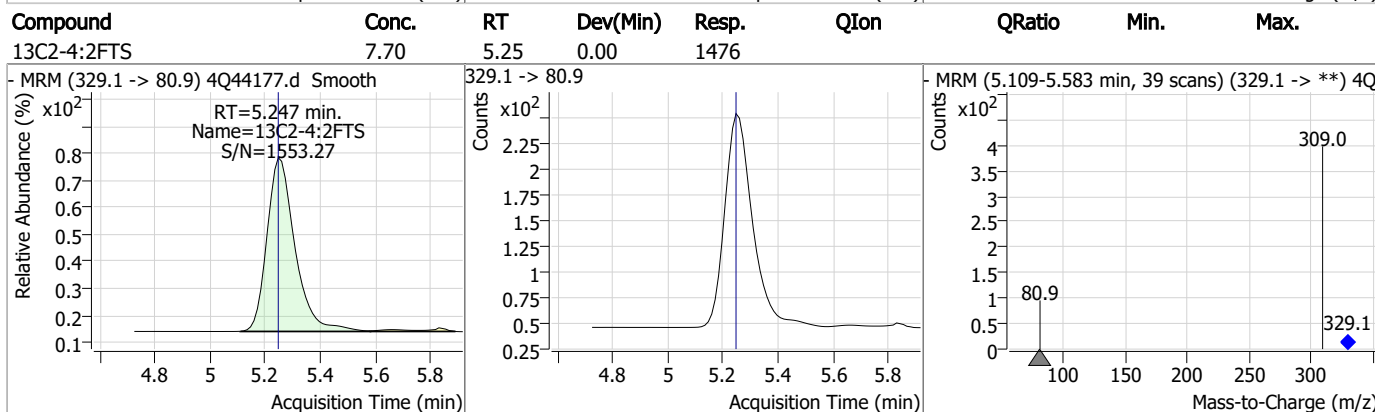
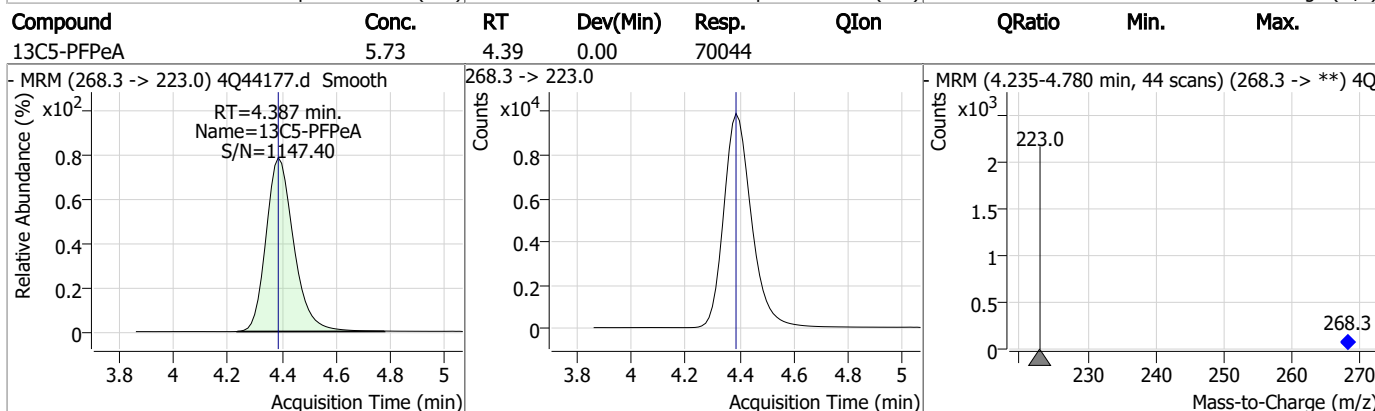
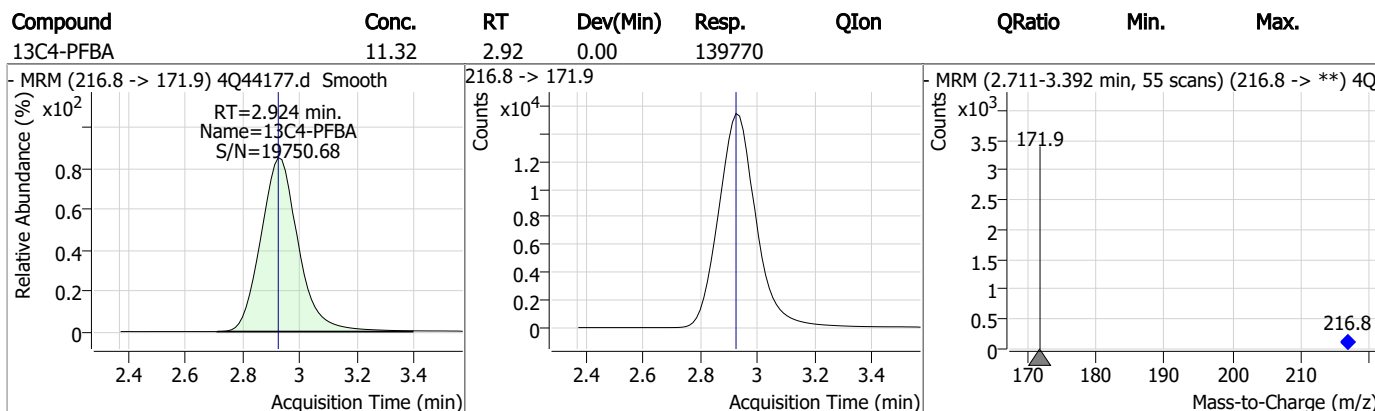
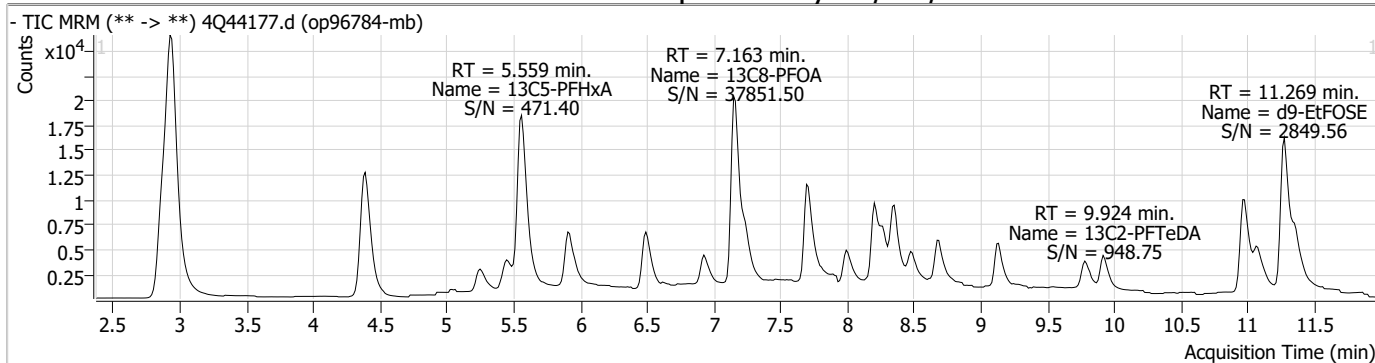
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.1

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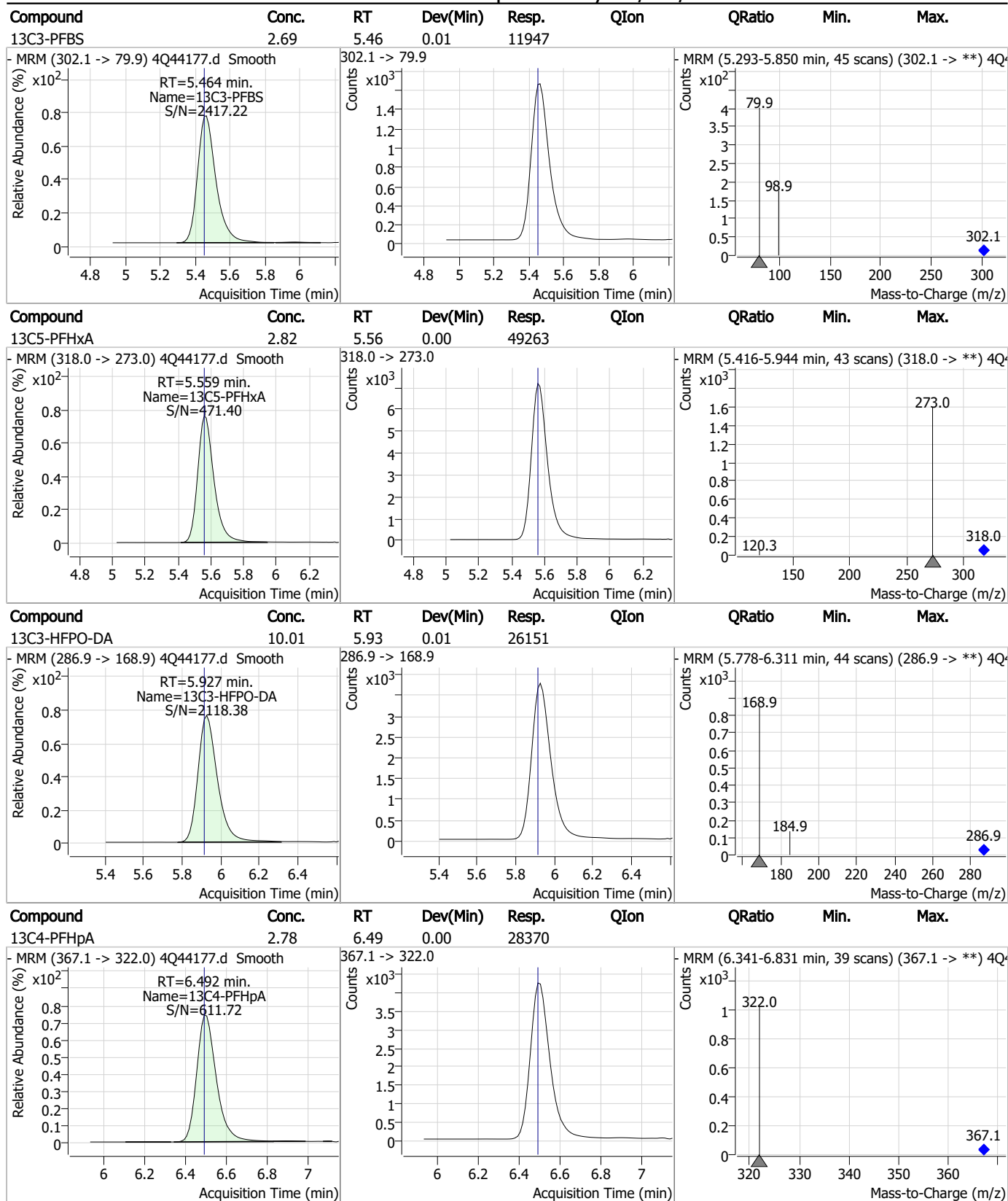
### Perfluorinated Compounds by LC/MS/MS



7.2.1  
7

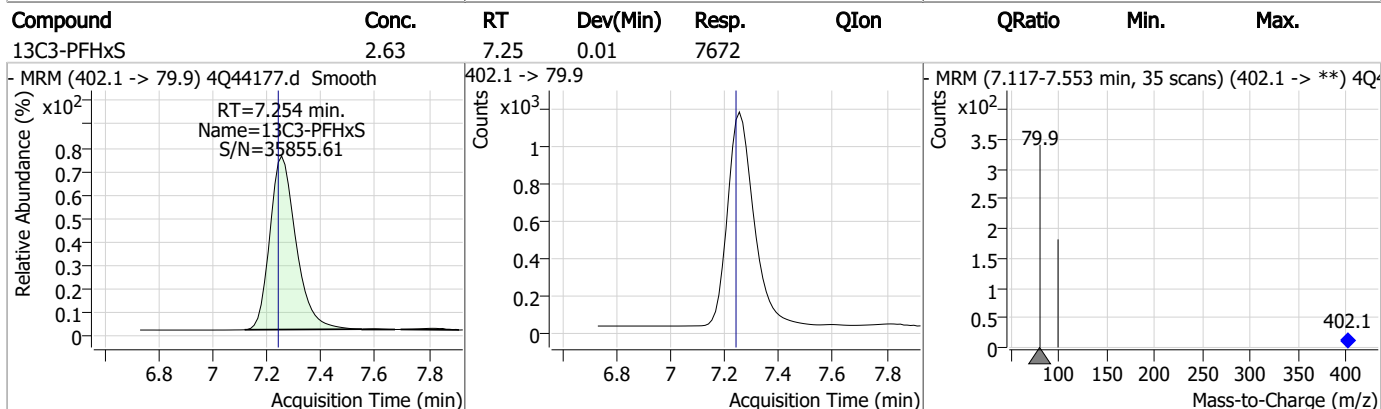
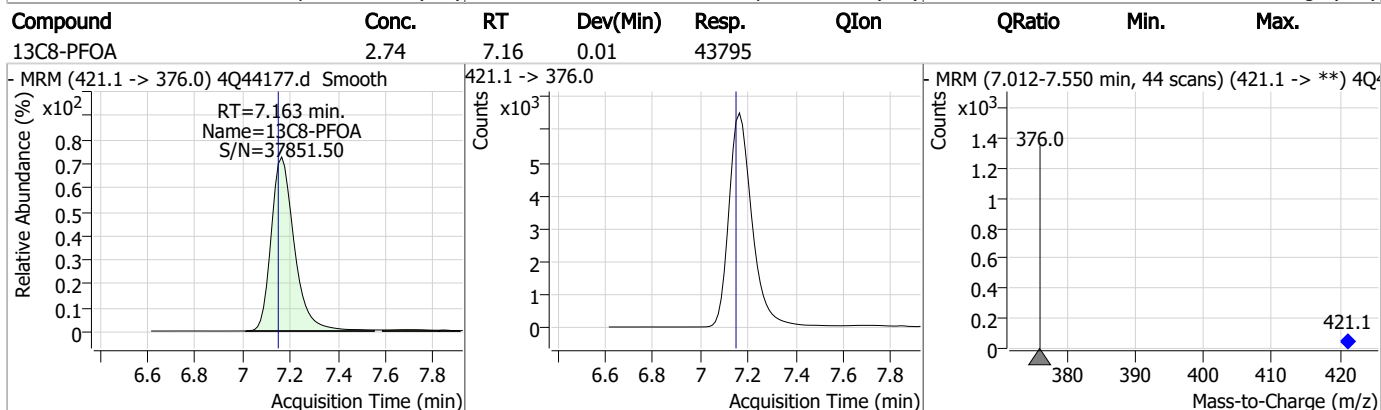
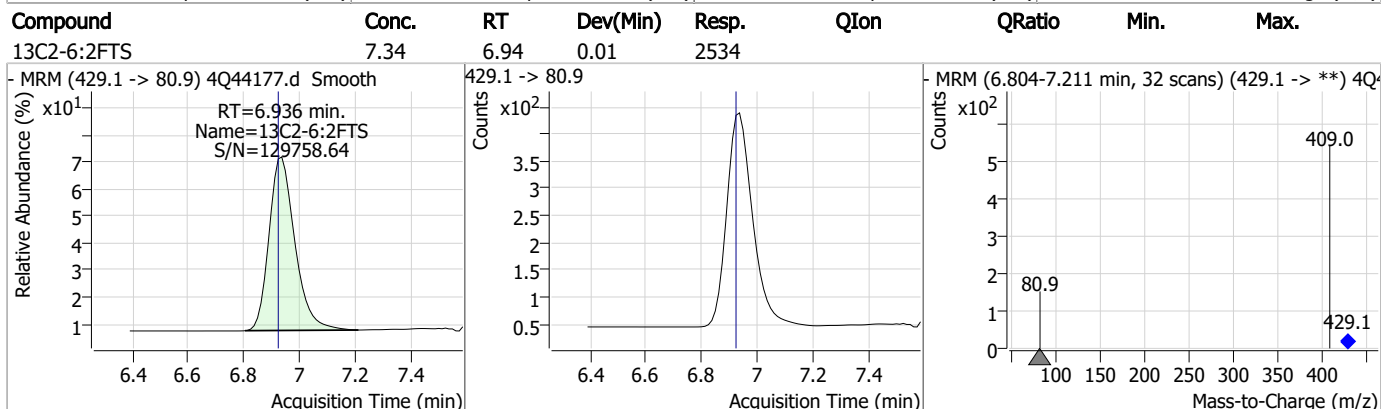
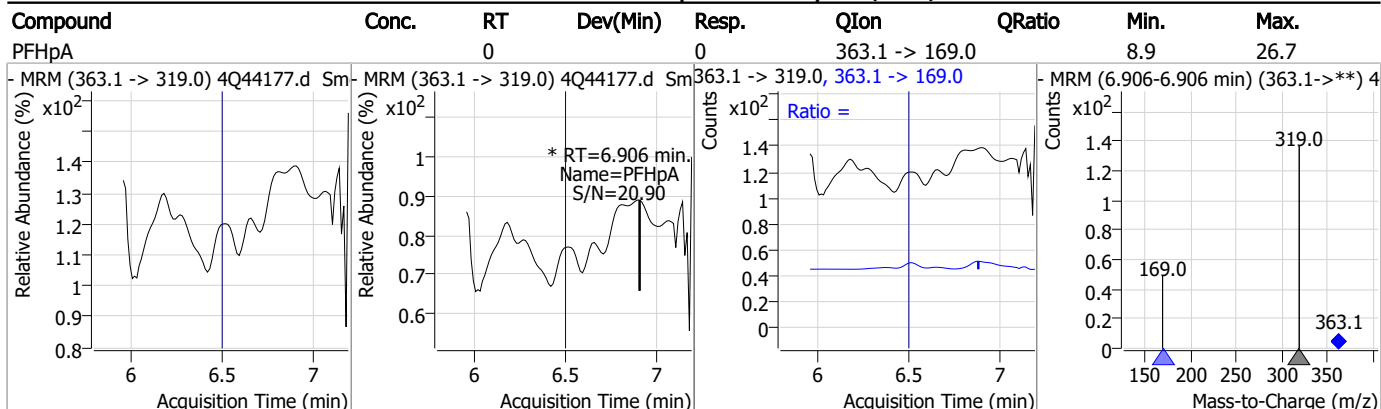


### Perfluorinated Compounds by LC/MS/MS



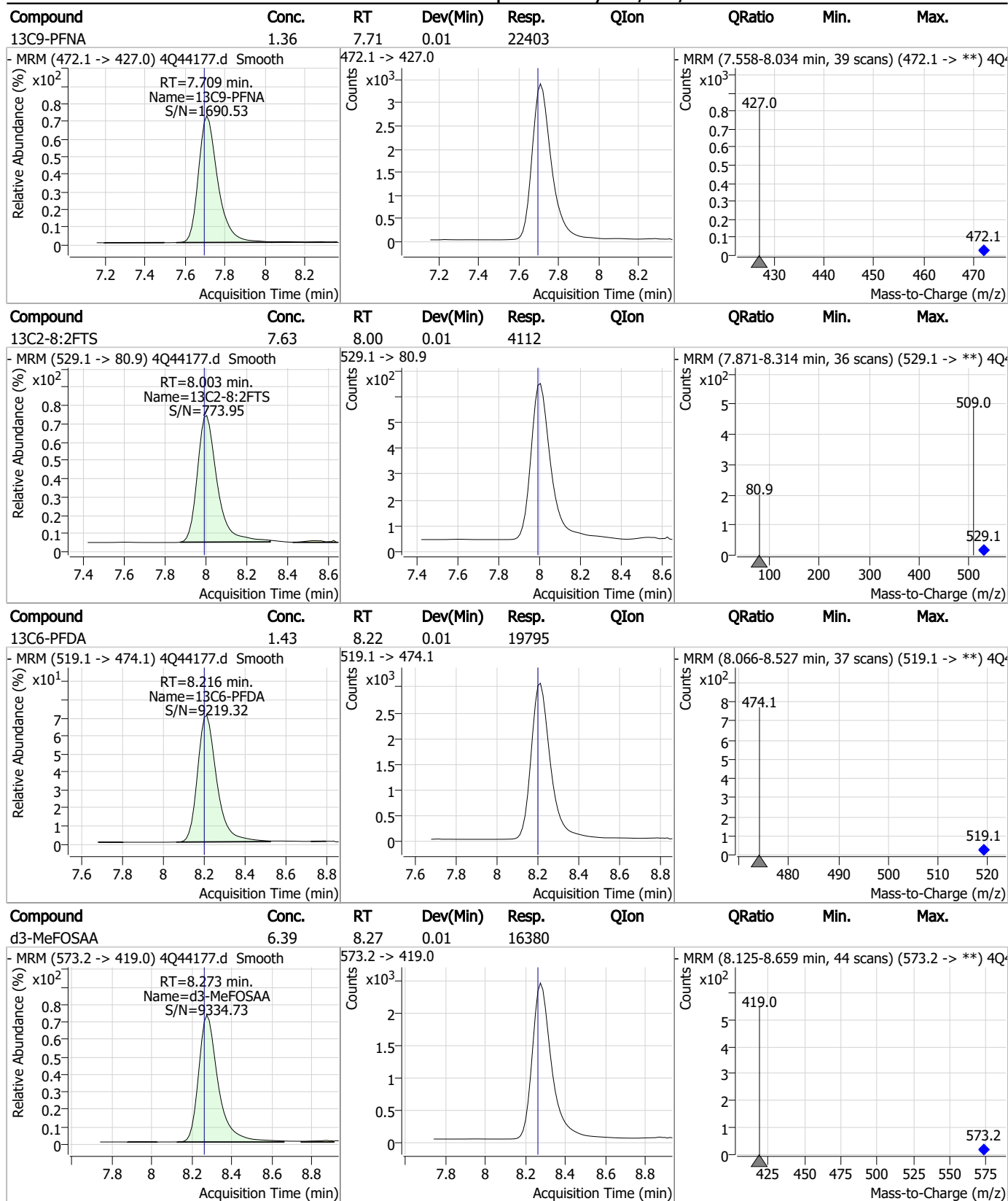
7.2.1  
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### Perfluorinated Compounds by LC/MS/MS



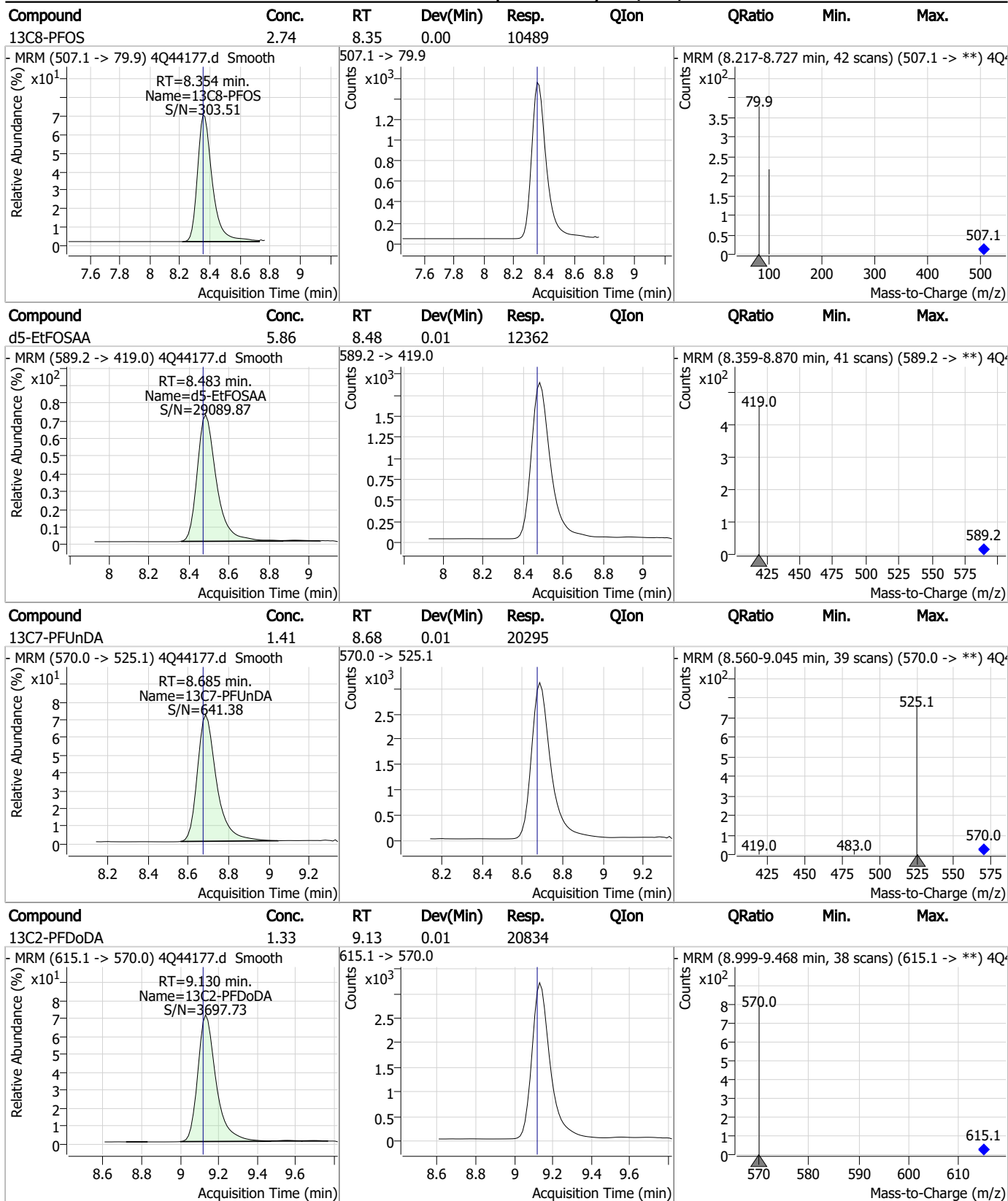
7.2.1  
7

### Perfluorinated Compounds by LC/MS/MS



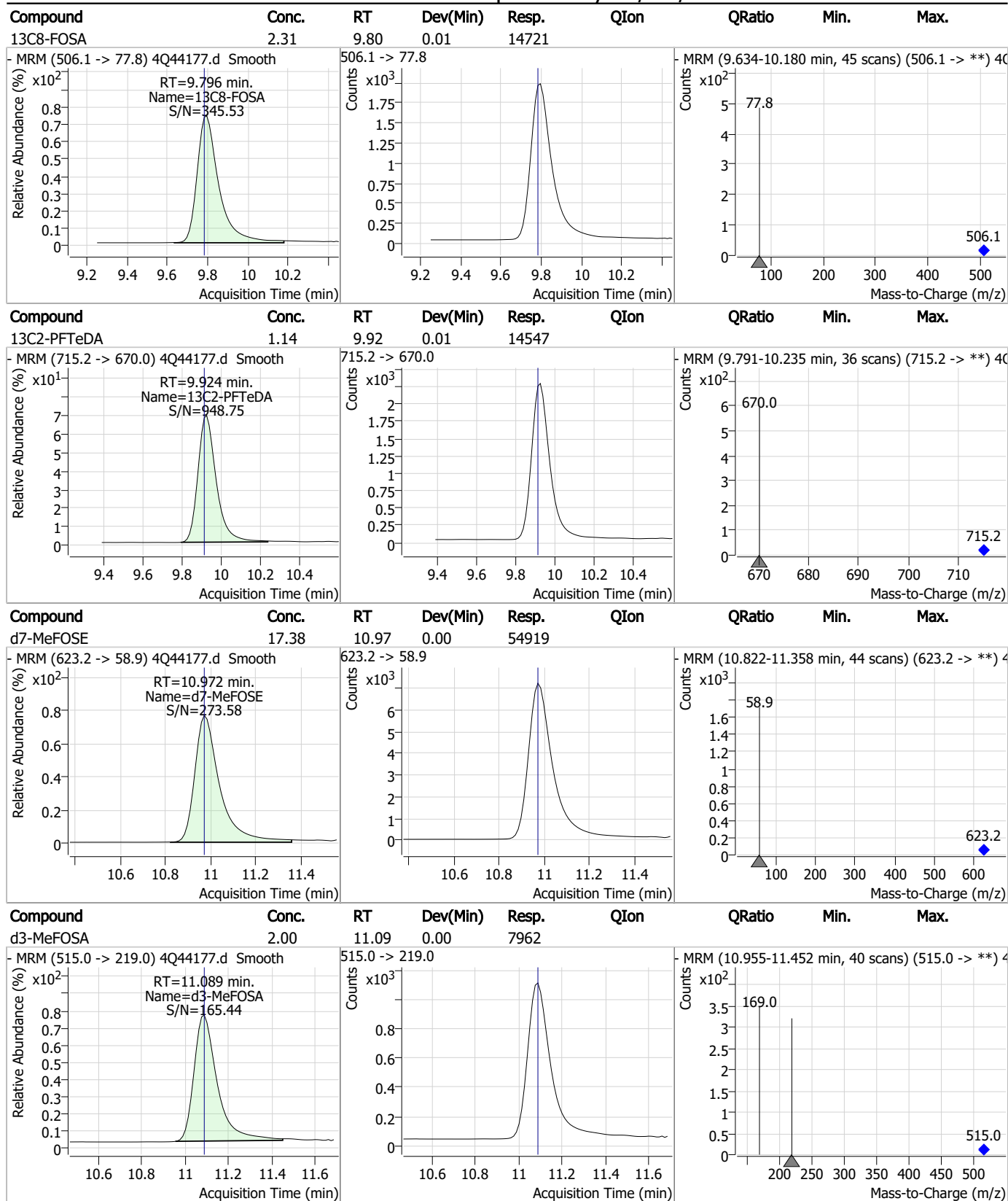
7.2.1  
7

### Perfluorinated Compounds by LC/MS/MS



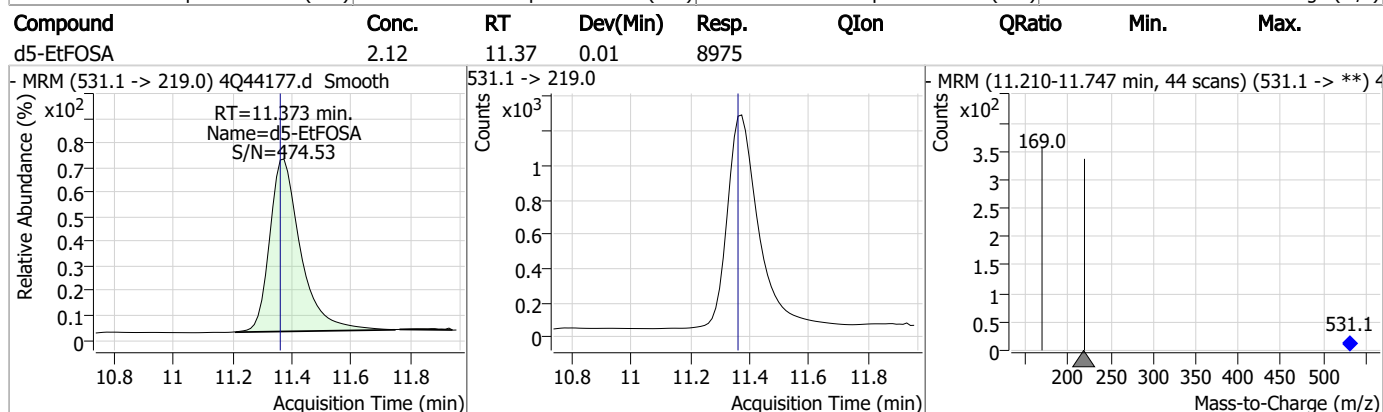
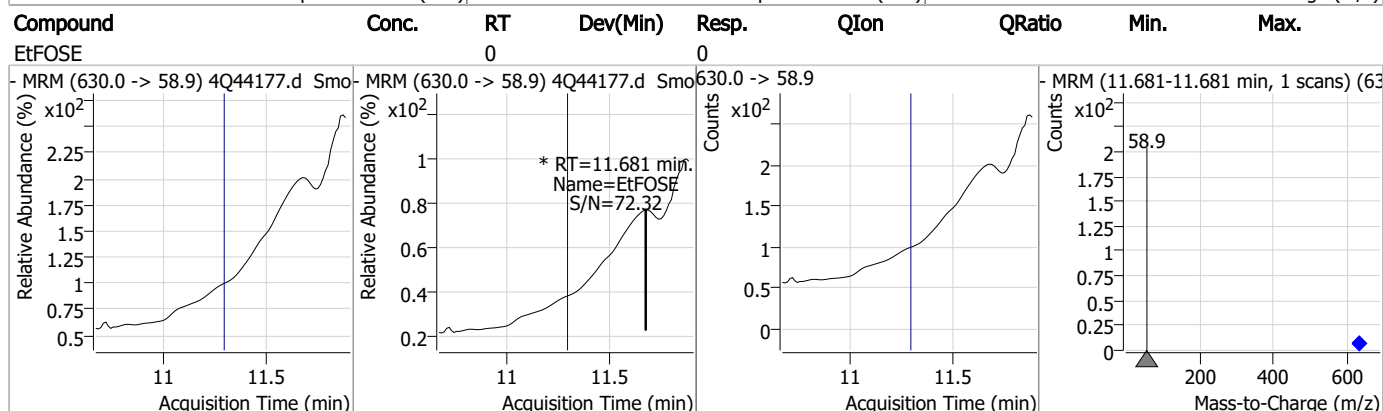
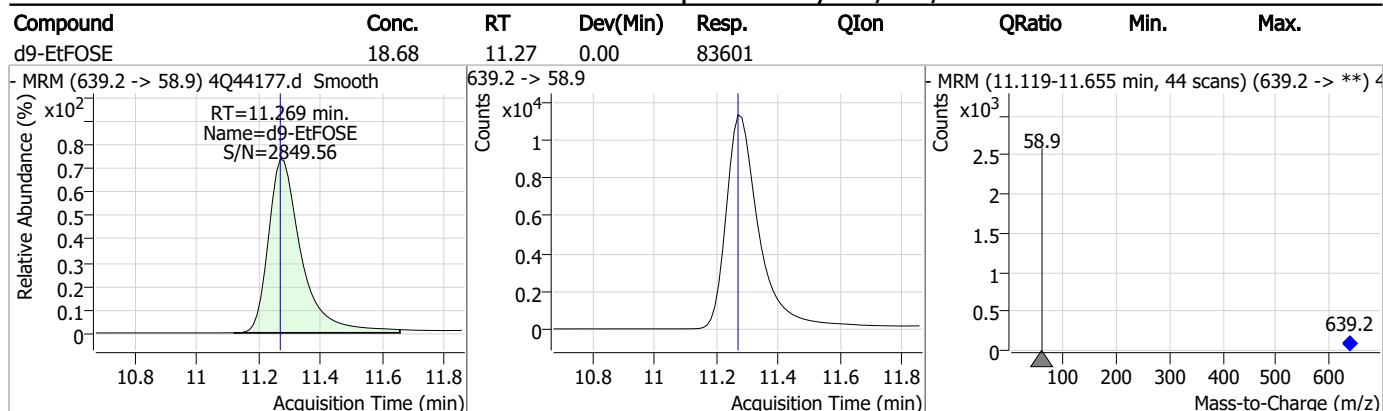
7.2.1  
7

### 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 : 6Q17751.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 3:23:45 PM  
 Sample Name : op96784-mb  
 Vial : P4-A1  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96784,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	191120	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	61890	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	68374	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	59321	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	84244	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	27983	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	21926	1.25 µg/L	0.012
M7-PFUnDA	8.518	570.0 -> 525.1	27680	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	25370	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	16828	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	19229	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	22950	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13056	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	13276	2.50 µg/L	0.000
M2-4:2FTS	5.131	329.1 -> 80.9	2000	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	2560	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2772	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	21951	5.00 µg/L	0.000
M3-HFPO-DA	5.831	286.9 -> 168.9	41475	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	19413	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	70841	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	93099	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8859	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7216	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12779	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	70990	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8966	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	82742	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	23105	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	28079	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	49990	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.131	329.1 -> 80.9	2000	5.85 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.1%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2560	5.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2772	5.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.1%		
13C2-PFDoDA	8.949	615.1 -> 570.0	25370	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C2-PFTeDA	9.677	715.2 -> 670.0	16828	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C3-PFBS	5.397	302.1 -> 79.9	22950	2.94 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	13056	2.73 µg/L	0.012

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.3%	
13C4-PFBA	2.901	216.8 -> 171.9	191120	11.35 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.5%	
13C4-PFHpA	6.420	367.1 -> 322.0	59321	2.86 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.3%	
13C5-PFHxA	5.466	318.0 -> 273.0	68374	2.89 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.7%	
13C5-PFPeA	4.272	268.3 -> 223.0	61890	5.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.7%	
13C6-PFDA	8.076	519.1 -> 474.1	21926	1.45 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.8%	
13C7-PFUnDA	8.518	570.0 -> 525.1	27680	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C8-FOSA	9.648	506.1 -> 77.8	19229	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C8-PFOA	7.064	421.1 -> 376.0	84244	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C8-PFOS	8.226	507.1 -> 79.9	13276	3.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 133.6%	
13C9-PFNA	7.595	472.1 -> 427.0	27983	1.35 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.8%	
d3-MeFOSAA	8.133	573.2 -> 419.0	21951	5.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	41475	11.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.4%	
d3-MeFOSA	10.752	515.0 -> 219.0	7216	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.4%	
d5-EtFOSAA	8.329	589.2 -> 419.0	19413	6.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 122.6%	
d7-MeFOSE	10.672	623.2 -> 58.9	70841	22.50 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.0%	
d9-EtFOSE	10.907	639.2 -> 58.9	93099	24.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
d5-EtFOSA	10.984	531.1 -> 219.0	8859	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	

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



Perfluorinated Compounds by LC/MS/MS

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

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



7.2.2  
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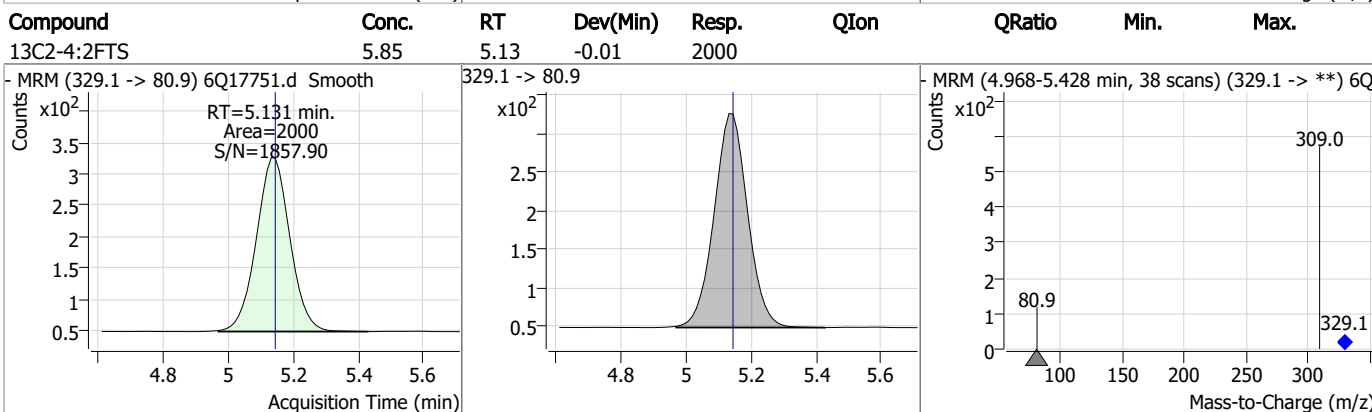
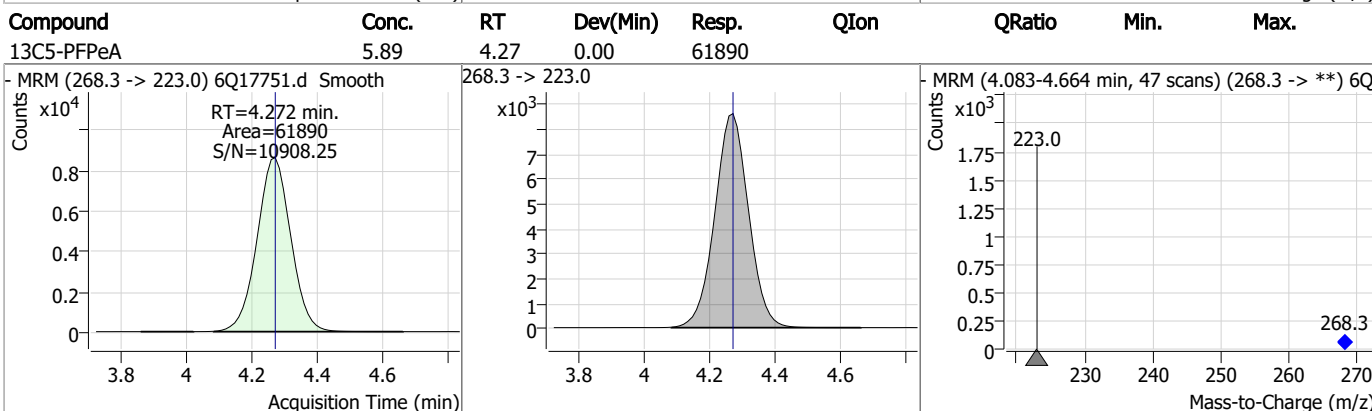
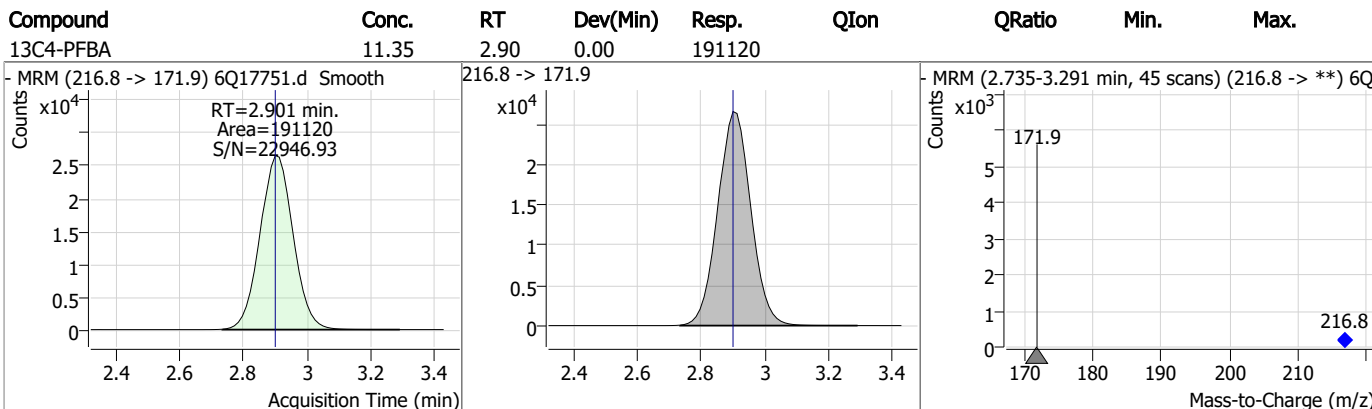
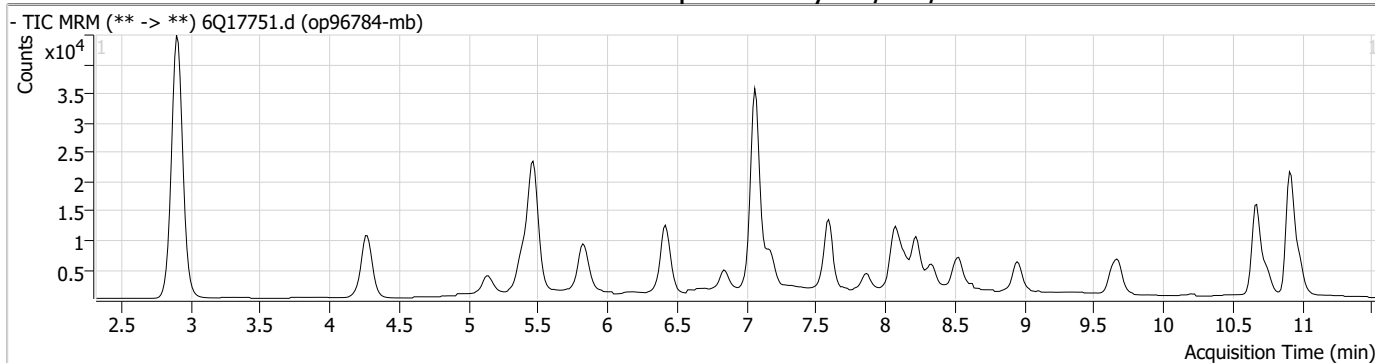
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.2

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### Perfluorinated Compounds by LC/MS/MS



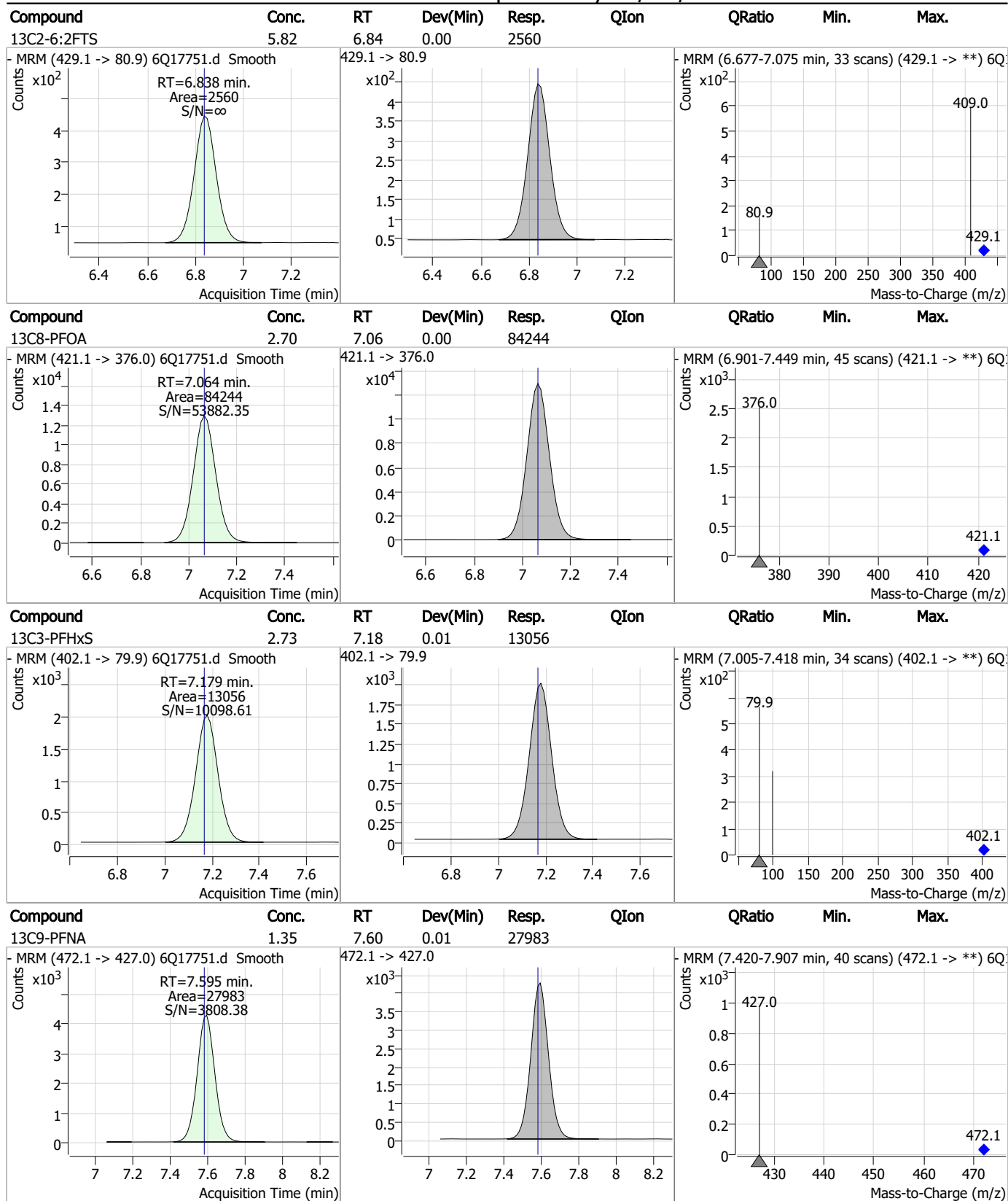
7.2.2  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.94	5.40	0.00	22950				
13C5-PFHxA	2.89	5.47	0.00	68374				
13C3-HFPO-DA	11.34	5.83	0.00	41475				
13C4-PFHpA	2.86	6.42	0.00	59321				

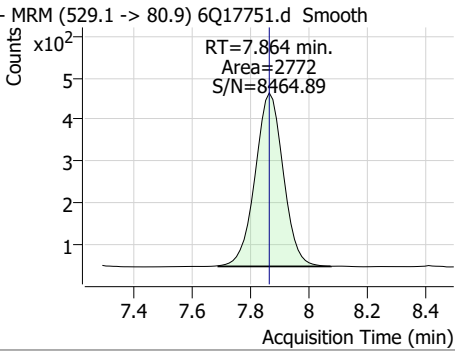
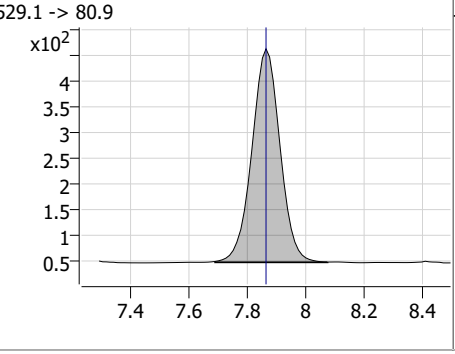
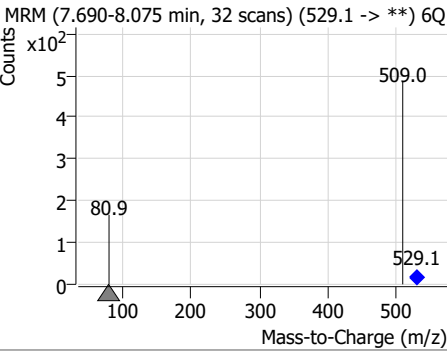
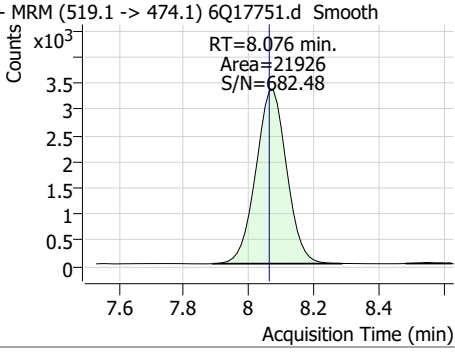
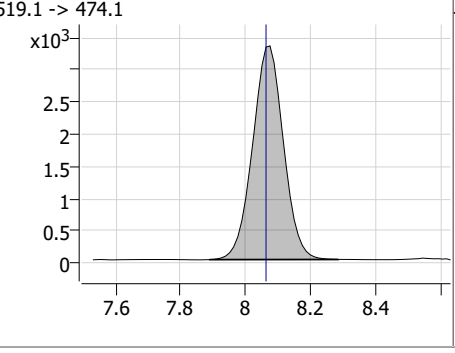
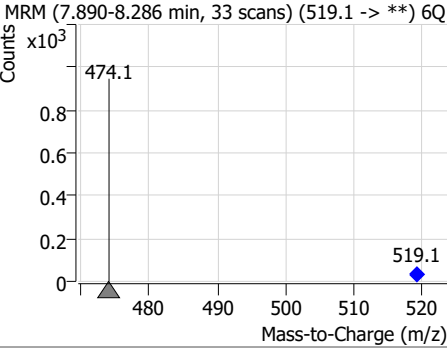
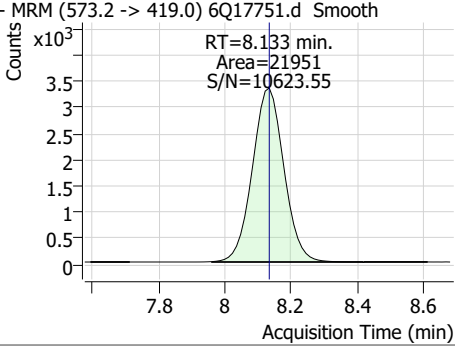
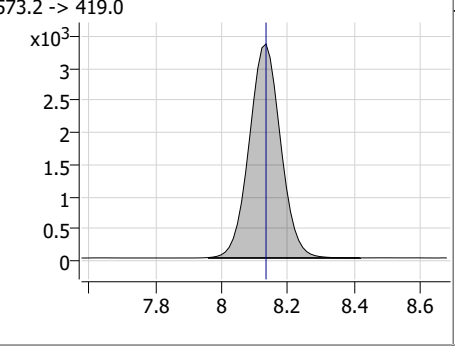
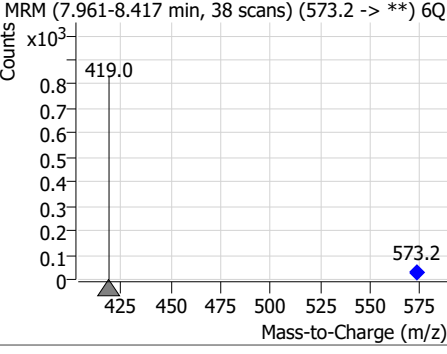
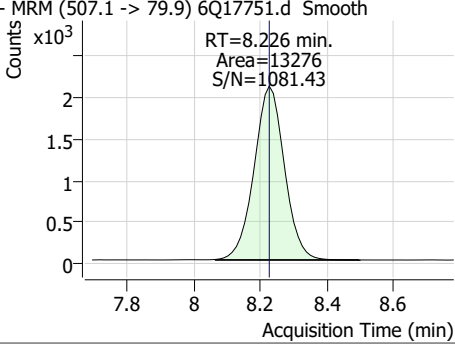
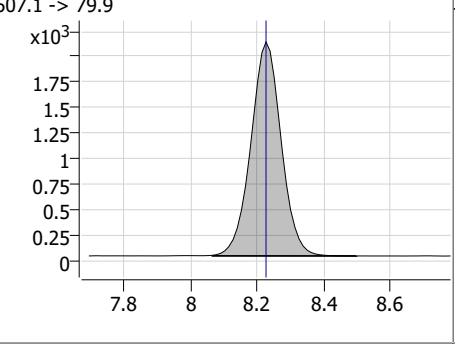
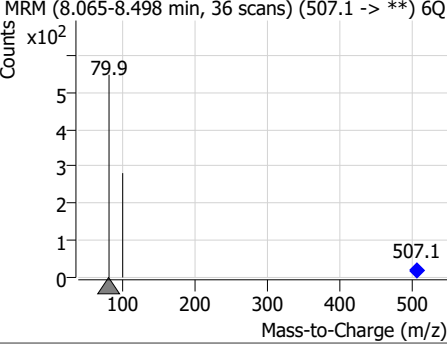
7.22  
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### Perfluorinated Compounds by LC/MS/MS



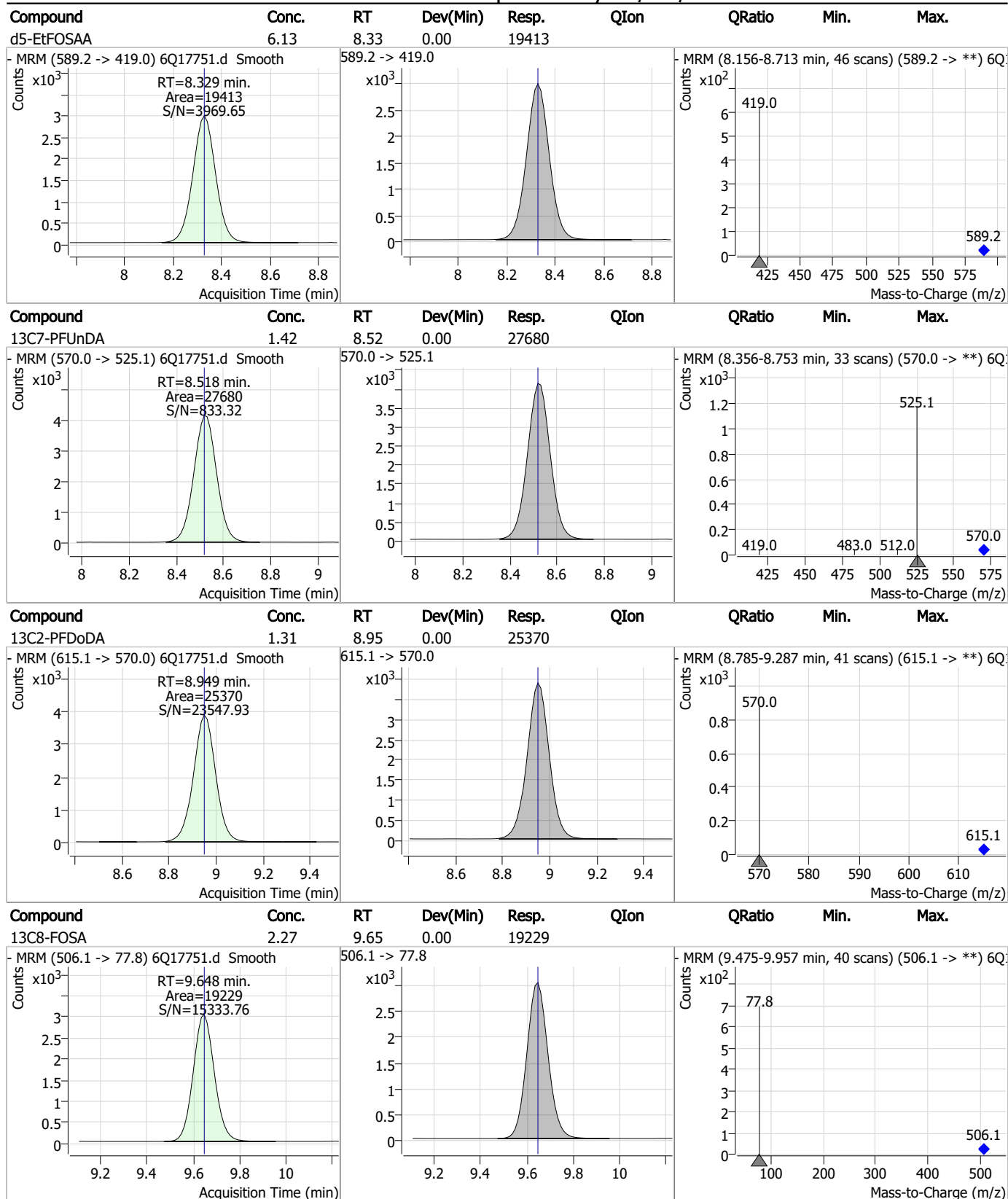
7.2.2  
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### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.86	7.86	0.00	2772				
- MRM (529.1 -> 80.9) 6Q17751.d Smooth Counts x10 <sup>2</sup> RT=7.864 min. Area=8464.89 S/N=8464.89 			529.1 -> 80.9 x10 <sup>2</sup> 			- MRM (7.690-8.075 min, 32 scans) (529.1 -> **) 6Q17751.d Counts x10 <sup>2</sup> 80.9 509.0 529.1 		
13C6-PFDA	1.45	8.08	0.01	21926				
- MRM (519.1 -> 474.1) 6Q17751.d Smooth Counts x10 <sup>3</sup> RT=8.076 min. Area=21926 S/N=682.48 			519.1 -> 474.1 x10 <sup>3</sup> 			- MRM (7.890-8.286 min, 33 scans) (519.1 -> **) 6Q17751.d Counts x10 <sup>3</sup> 474.1 519.1 		
d3-MeFOSAA	5.48	8.13	0.00	21951				
- MRM (573.2 -> 419.0) 6Q17751.d Smooth Counts x10 <sup>3</sup> RT=8.133 min. Area=21951 S/N=10623.55 			573.2 -> 419.0 x10 <sup>3</sup> 			- MRM (7.961-8.417 min, 38 scans) (573.2 -> **) 6Q17751.d Counts x10 <sup>3</sup> 419.0 573.2 		
13C8-PFOS	3.34	8.23	0.00	13276				
- MRM (507.1 -> 79.9) 6Q17751.d Smooth Counts x10 <sup>3</sup> RT=8.226 min. Area=13276 S/N=1081.43 			507.1 -> 79.9 x10 <sup>3</sup> 			- MRM (8.065-8.498 min, 36 scans) (507.1 -> **) 6Q17751.d Counts x10 <sup>2</sup> 79.9 507.1 		

7.2.2  
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### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

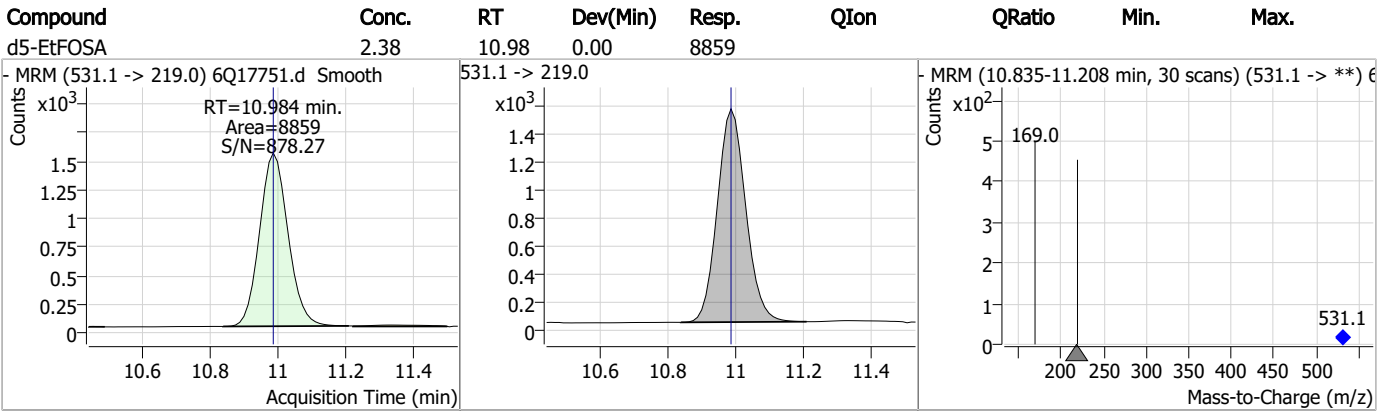
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.28	9.68	0.00	16828				
d7-MeFOSE	22.50	10.67	0.00	70841				
d3-MeFOSA	2.34	10.75	0.00	7216				
d9-EtFOSE	24.48	10.91	0.00	93099				

7.2.2

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### Perfluorinated Compounds by LC/MS/MS



7.2.2  
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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44136.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/9/2023 2:10:23 PM  
 Sample Name : iblk  
 Vial : P1-A1  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q639.batch.bin  
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.874	216.8 -> 171.9	117787	10.00 µg/L	-0.050
M5-PFPeA	4.375	268.3 -> 223.0	62360	5.00 µg/L	-0.012
M5-PFHxA	5.547	318.0 -> 273.0	41703	2.50 µg/L	-0.012
M4-PFHpA	6.479	367.1 -> 322.0	25609	2.50 µg/L	-0.012
M8-PFOA	7.148	421.1 -> 376.0	39325	2.50 µg/L	0.000
M9-PFNA	7.696	472.1 -> 427.0	19733	1.25 µg/L	0.000
M6-PFDA	8.203	519.1 -> 474.1	16408	1.25 µg/L	0.000
M7-PFUnDA	8.672	570.0 -> 525.1	17347	1.25 µg/L	0.000
M2-PFDoDA	9.118	615.1 -> 570.0	18464	1.25 µg/L	0.000
M2-PFTeDA	9.911	715.2 -> 670.0	14371	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	16283	2.50 µg/L	0.000
M3-PFBS	5.439	302.1 -> 79.9	10938	2.50 µg/L	-0.012
M3-PFHxS	7.242	402.1 -> 79.9	6676	2.50 µg/L	0.000
M8-PFOS	8.341	507.1 -> 79.9	9377	2.50 µg/L	-0.012
M2-4:2FTS	5.235	329.1 -> 80.9	968	5.00 µg/L	-0.012
M2-6:2FTS	6.911	429.1 -> 80.9	1885	5.00 µg/L	-0.012
M2-8:2FTS	7.990	529.1 -> 80.9	3068	5.00 µg/L	0.000
M3-MeFOSAA	8.261	573.2 -> 419.0	11992	5.00 µg/L	0.000
M3-HFPO-DA	5.914	286.9 -> 168.9	23487	10.00 µg/L	0.000
M5-EtFOSAA	8.470	589.2 -> 419.0	10749	5.00 µg/L	0.000
M7-MeFOSE	10.972	623.2 -> 58.9	63050	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	94920	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	10199	2.50 µg/L	0.000
M3-MeFOSA	11.076	515.0 -> 219.0	8769	2.50 µg/L	-0.012
13C4-PFOS	8.342	502.8 -> 79.9	9542	2.50 µg/L	-0.012
13C3-PFBA	2.878	216.0 -> 172.0	61944	5.00 µg/L	-0.050
18O2-PFHxS	7.241	403.0 -> 83.9	4619	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	47066	2.50 µg/L	0.000
13C2-PFDA	8.204	515.1 -> 470.1	15763	1.25 µg/L	0.000
13C5-PFNA	7.697	468.0 -> 423.0	21697	1.25 µg/L	0.000
13C2-PFHxA	5.548	315.1 -> 270.0	38534	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.235	329.1 -> 80.9	968	5.16 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-6:2FTS	6.911	429.1 -> 80.9	1885	5.57 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.4%		
13C2-8:2FTS	7.990	529.1 -> 80.9	3068	5.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.2%		
13C2-PFDoDA	9.118	615.1 -> 570.0	18464	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-PFTeDA	9.911	715.2 -> 670.0	14371	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.5%		
13C3-PFBS	5.439	302.1 -> 79.9	10938	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C3-PFHxS	7.242	402.1 -> 79.9	6676	2.33 µg/L	0.000

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C4-PFBA	2.874	216.8 -> 171.9	117787	10.10 µg/L	-0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.479	367.1 -> 322.0	25609	2.58 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C5-PFHxA	5.547	318.0 -> 273.0	41703	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFPeA	4.375	268.3 -> 223.0	62360	5.25 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C6-PFDA	8.203	519.1 -> 474.1	16408	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C7-PFUnDA	8.672	570.0 -> 525.1	17347	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-FOSA	9.783	506.1 -> 77.8	16283	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C8-PFOA	7.148	421.1 -> 376.0	39325	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C8-PFOS	8.341	507.1 -> 79.9	9377	2.61 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C9-PFNA	7.696	472.1 -> 427.0	19733	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.0%	
d3-MeFOSAA	8.261	573.2 -> 419.0	11992	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C3-HFPO-DA	5.914	286.9 -> 168.9	23487	9.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.7%	
d3-MeFOSA	11.076	515.0 -> 219.0	8769	2.34 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
d5-EtFOSAA	8.470	589.2 -> 419.0	10749	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
d7-MeFOSE	10.972	623.2 -> 58.9	63050	21.24 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.9%	
d9-EtFOSE	11.269	639.2 -> 58.9	94920	22.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.3%	
d5-EtFOSA	11.360	531.1 -> 219.0	10199	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	

**Target Compounds**

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

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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	7.539	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	11.295	630.0 -> 58.9	0	µg/L	m	1
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.3  
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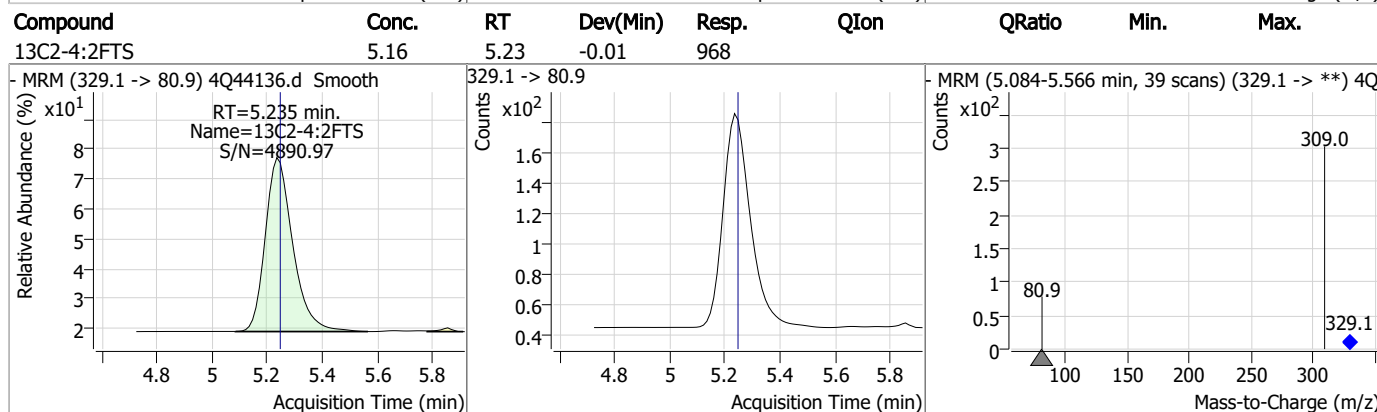
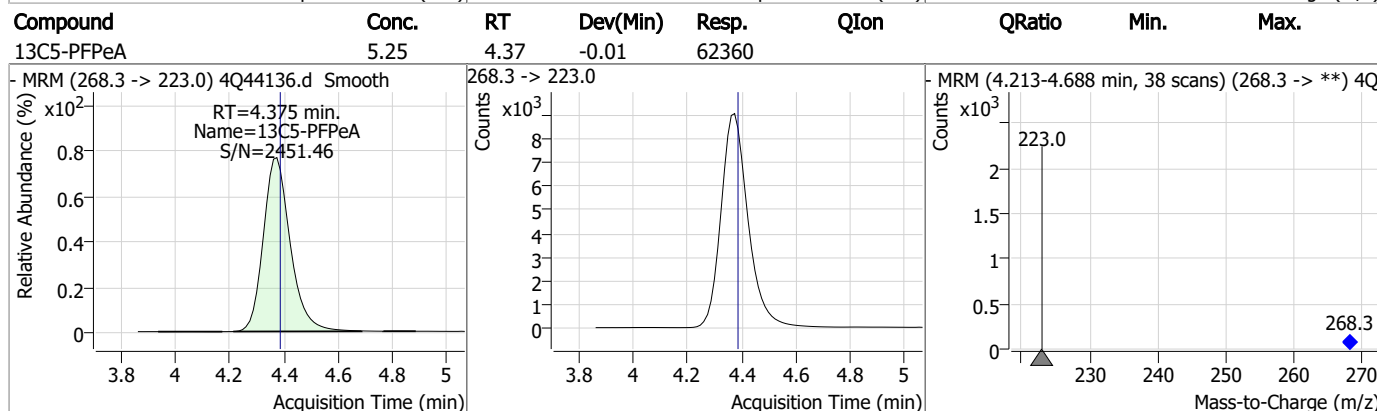
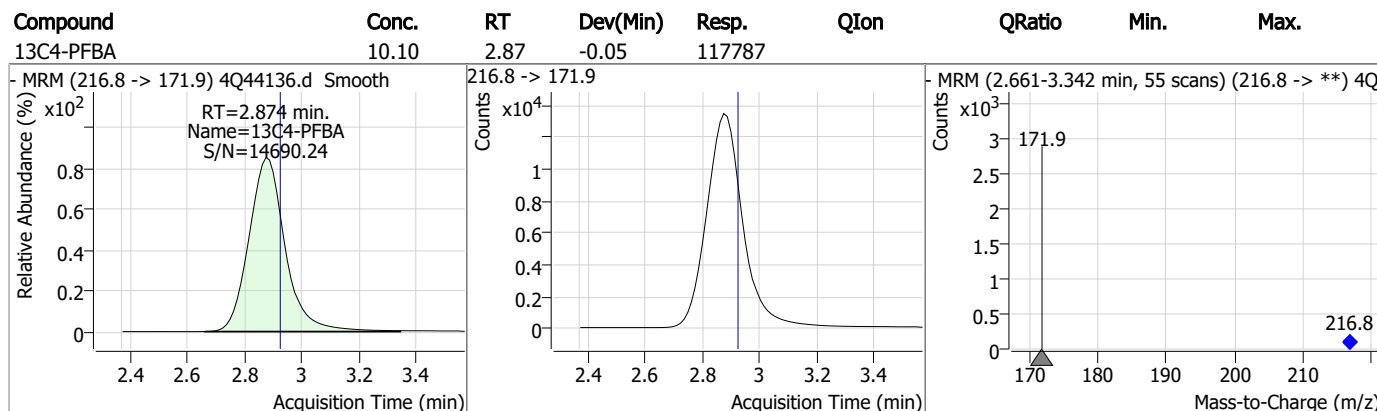
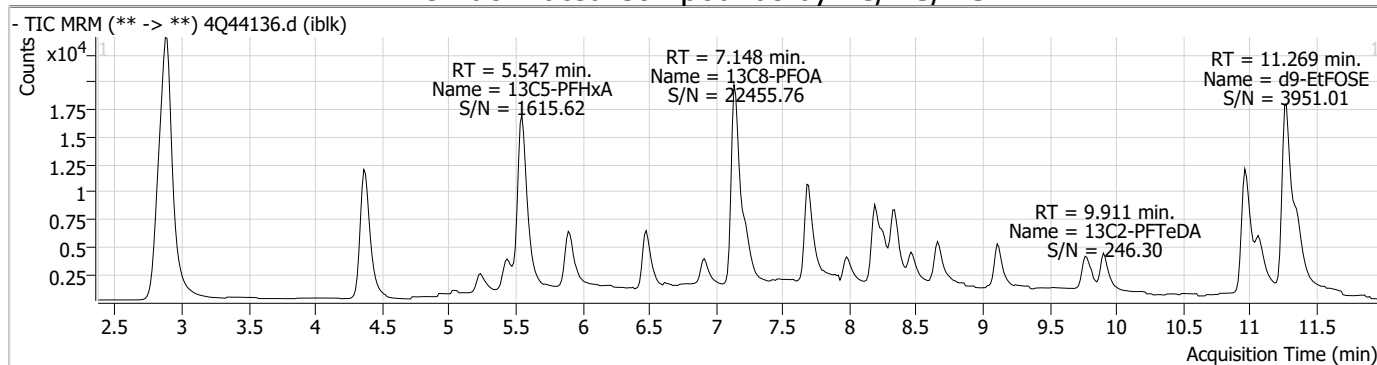
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.3

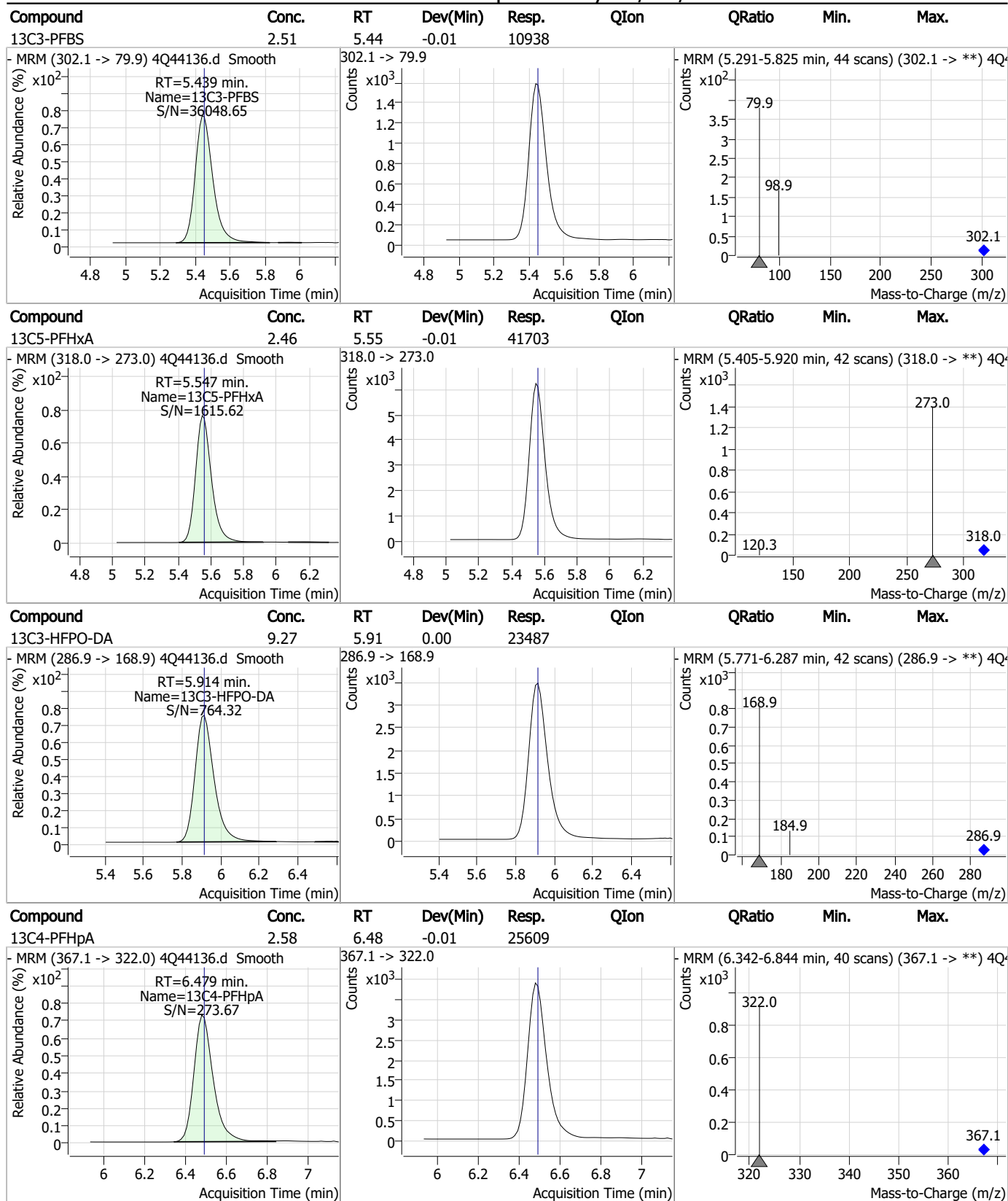
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### Perfluorinated Compounds by LC/MS/MS



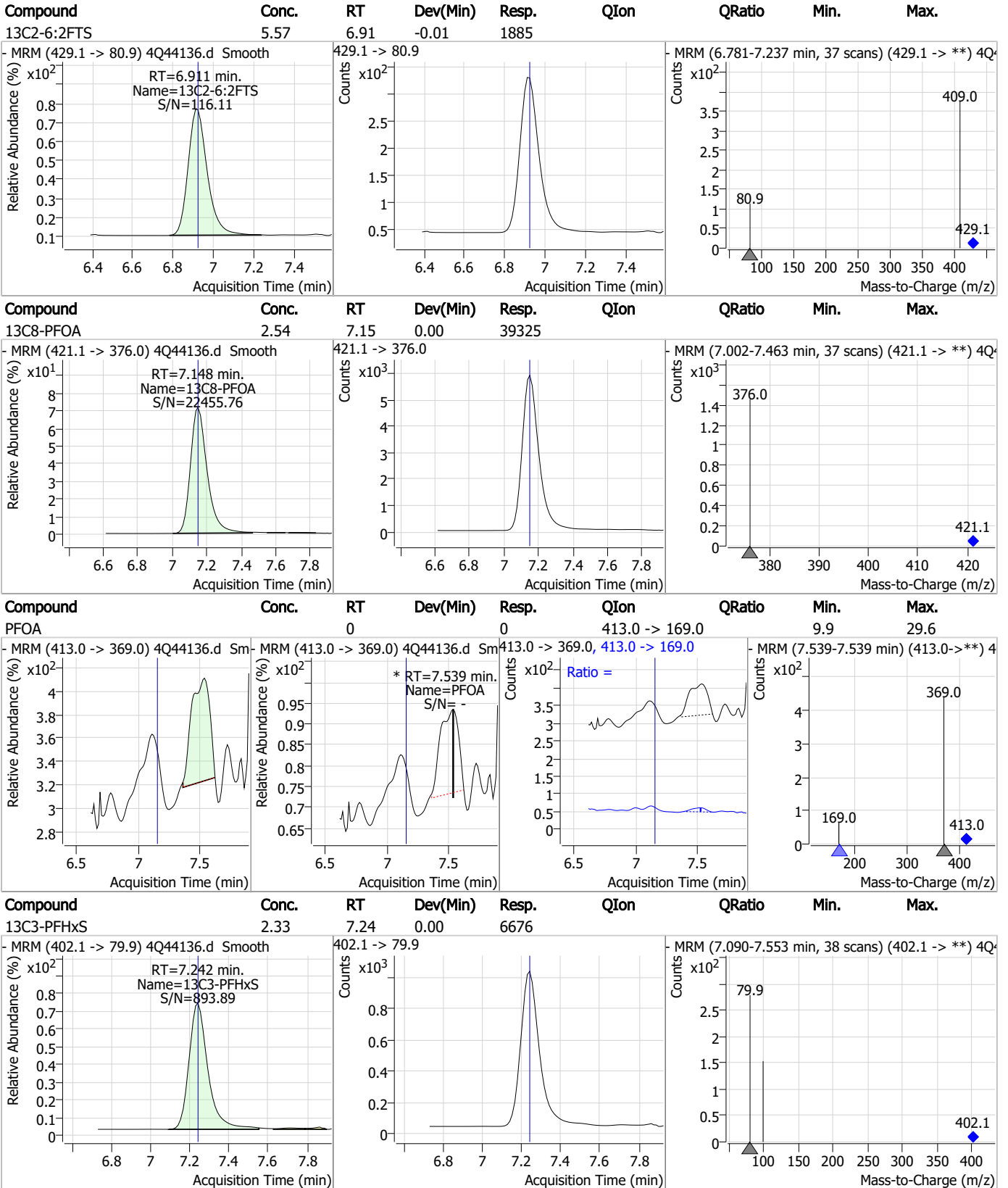
7.2.3  
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### Perfluorinated Compounds by LC/MS/MS



7.2.3  
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### Perfluorinated Compounds by LC/MS/MS



7.2.3

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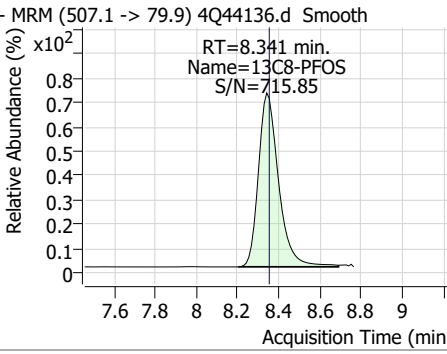
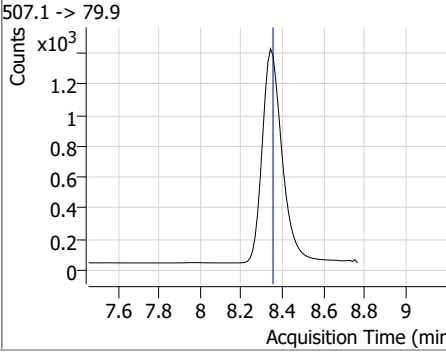
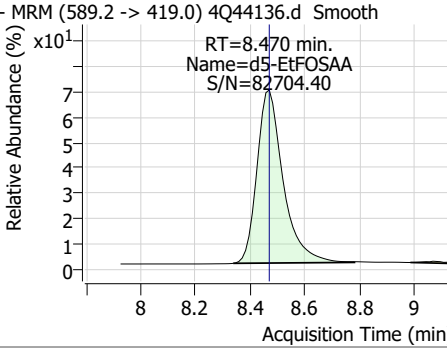
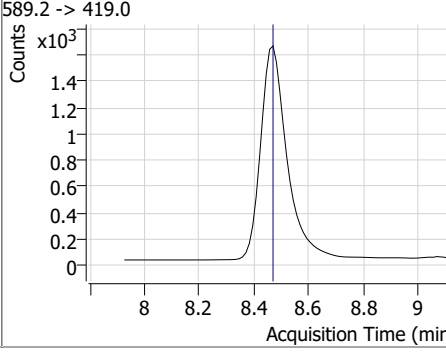
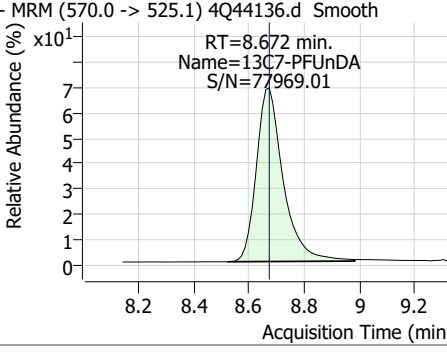
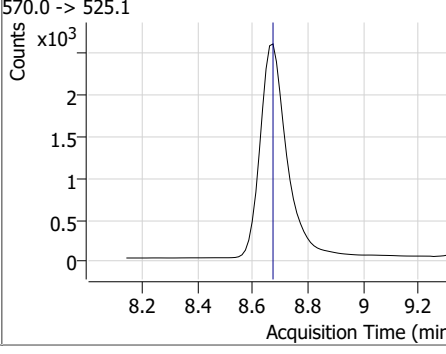
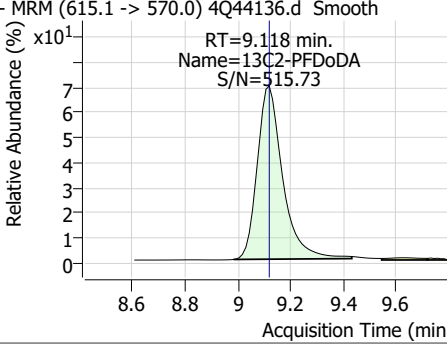
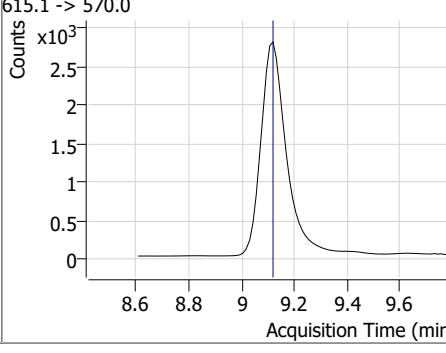


### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.34	7.70	0.00	19733				
<p>MRM (472.1 -&gt; 427.0) 4Q44136.d Smooth RT=7.696 min. Name=13C9-PFNA S/N=471.25</p>			<p>472.1 -&gt; 427.0</p>			<p>MRM (7.558-8.071 min, 41 scans) (472.1 -&gt; **) 4Q</p>		
13C2-8:2FTS	5.81	7.99	0.00	3068				
<p>MRM (529.1 -&gt; 80.9) 4Q44136.d Smooth RT=7.990 min. Name=13C2-8:2FTS S/N=127.87</p>			<p>529.1 -&gt; 80.9</p>			<p>MRM (7.844-8.363 min, 41 scans) (529.1 -&gt; **) 4Q</p>		
13C6-PFDA	1.22	8.20	0.00	16408				
<p>MRM (519.1 -&gt; 474.1) 4Q44136.d Smooth RT=8.203 min. Name=13C6-PFDA S/N=459.31</p>			<p>519.1 -&gt; 474.1</p>			<p>MRM (8.068-8.514 min, 36 scans) (519.1 -&gt; **) 4Q</p>		
d3-MeFOSAA	4.98	8.26	0.00	11992				
<p>MRM (573.2 -&gt; 419.0) 4Q44136.d Smooth RT=8.261 min. Name=d3-MeFOSAA S/N=∞</p>			<p>573.2 -&gt; 419.0</p>			<p>MRM (8.113-8.533 min, 35 scans) (573.2 -&gt; **) 4Q</p>		

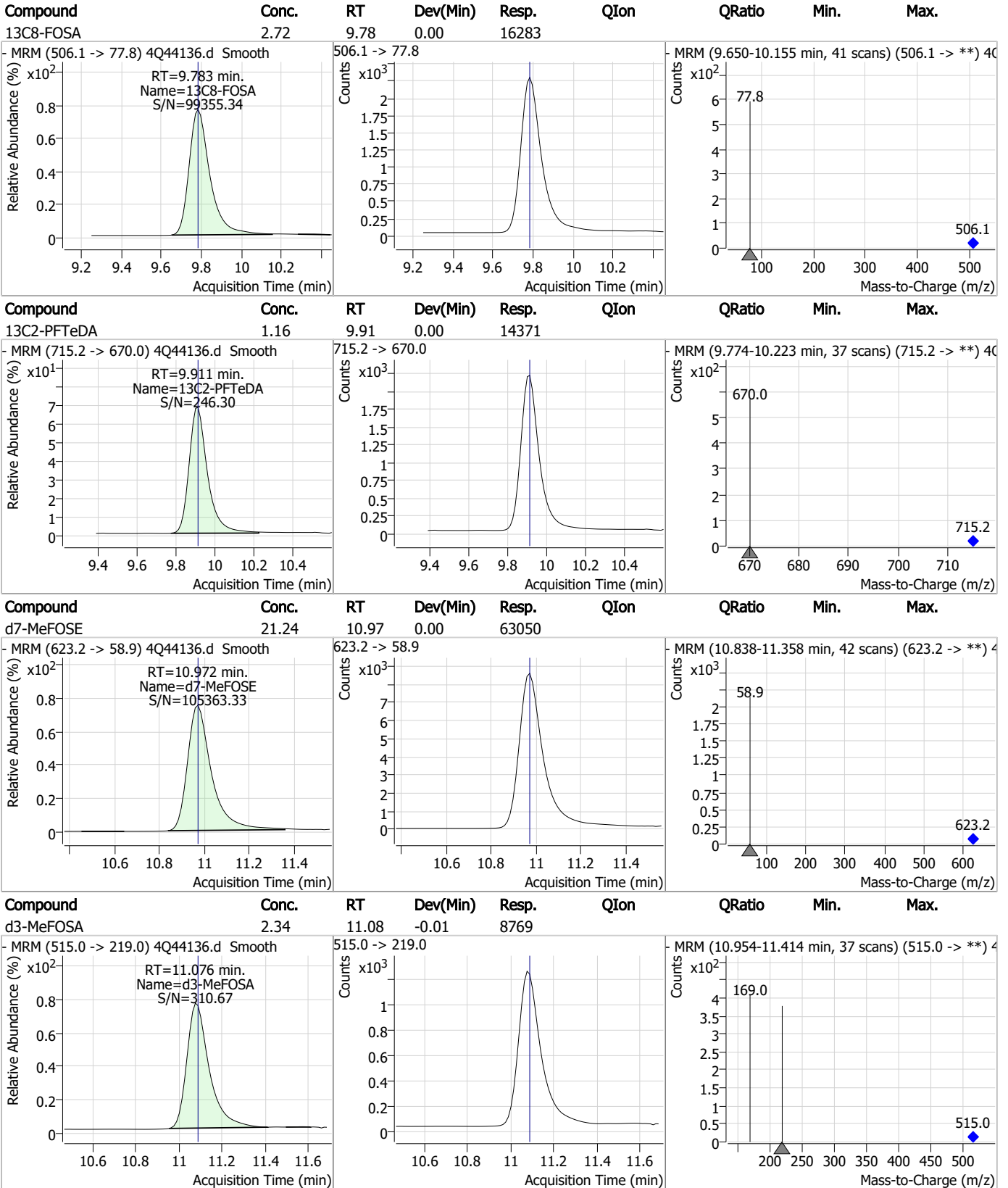
7.2.3  
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### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.61	8.34	-0.01	9377				
- MRM (507.1 -> 79.9) 4Q44136.d Smooth RT=8.341 min. Name=13C8-PFOS S/N=715.85			507.1 -> 79.9 		- MRM (8.205-8.690 min, 40 scans) (507.1 -> **) 4Q 			
d5-EtFOSAA	5.42	8.47	0.00	10749				
- MRM (589.2 -> 419.0) 4Q44136.d Smooth RT=8.470 min. Name=d5-EtFOSAA S/N=82704.40			589.2 -> 419.0 		- MRM (8.338-8.782 min, 36 scans) (589.2 -> **) 4Q 			
13C7-PFUnDA	1.23	8.67	0.00	17347				
- MRM (570.0 -> 525.1) 4Q44136.d Smooth RT=8.672 min. Name=13C7-PFUnDA S/N=77969.01			570.0 -> 525.1 		- MRM (8.522-8.983 min, 38 scans) (570.0 -> **) 4Q 			
13C2-PFDoDA	1.21	9.12	0.00	18464				
- MRM (615.1 -> 570.0) 4Q44136.d Smooth RT=9.118 min. Name=13C2-PFDoDA S/N=515.73			615.1 -> 570.0 		- MRM (8.982-9.431 min, 36 scans) (615.1 -> **) 4Q 			

7.2.3  
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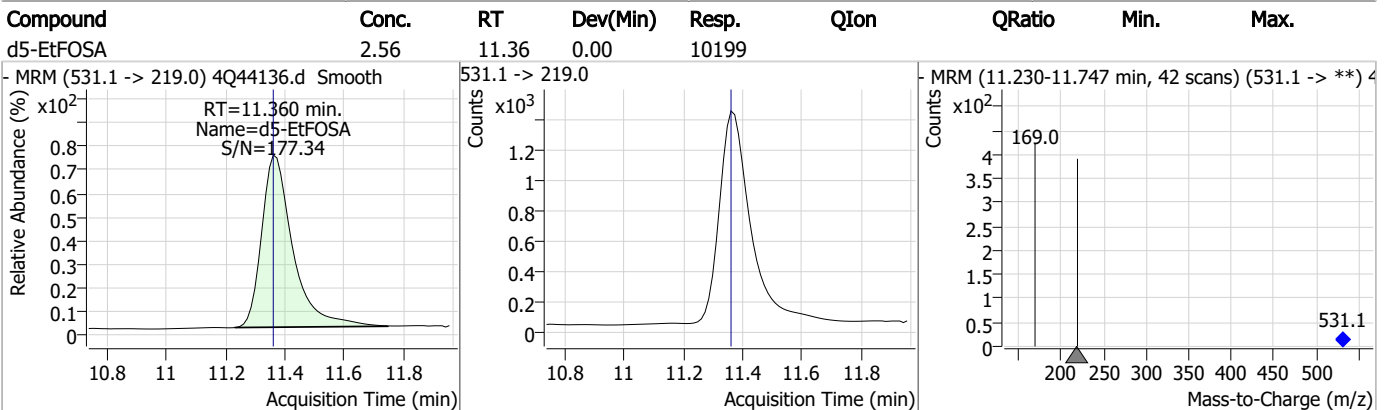
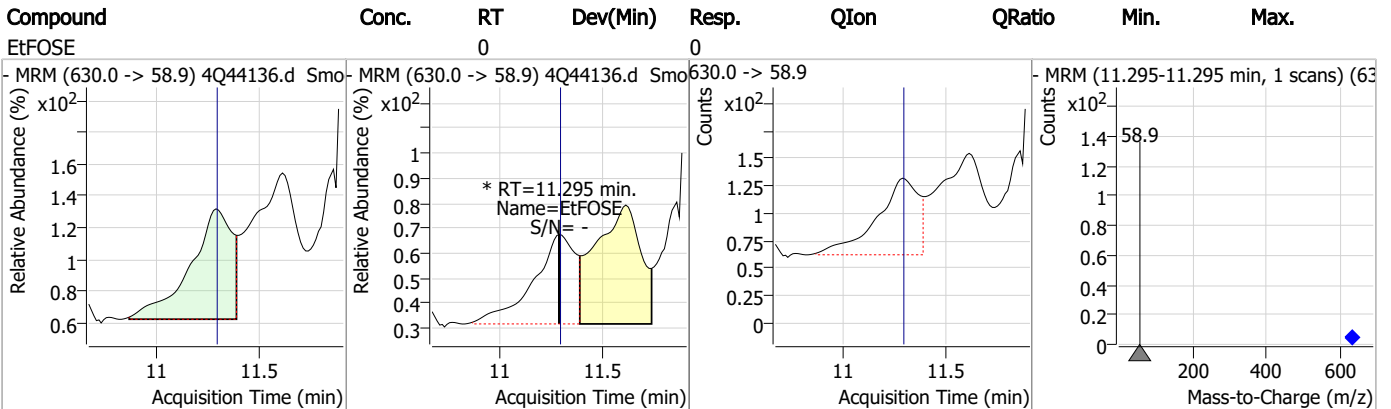
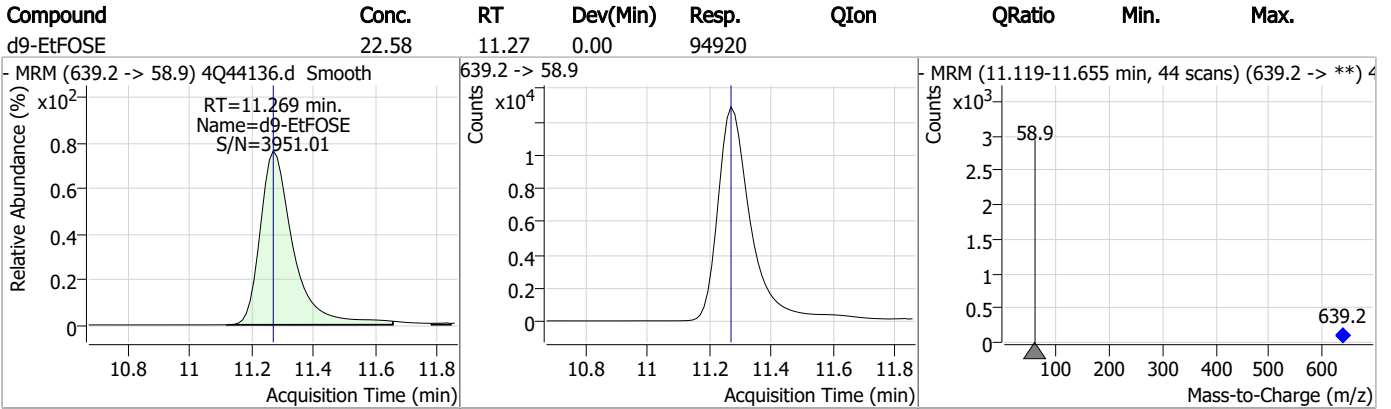
### Perfluorinated Compounds by LC/MS/MS



7.2.3

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### Perfluorinated Compounds by LC/MS/MS



7.2.3

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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44174.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/9/2023 11:16:45 PM  
 Sample Name : iccb  
 Vial : P1-A1  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q639.batch.bin  
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.886	216.8 -> 171.9	124983	10.00 µg/L	-0.037
M5-PFPeA	4.375	268.3 -> 223.0	63410	5.00 µg/L	-0.012
M5-PFHxA	5.559	318.0 -> 273.0	44201	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	26154	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	41343	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	20276	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	17379	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	19693	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	20441	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	16505	1.25 µg/L	0.012
M8-FOSA	9.783	506.1 -> 77.8	17444	2.50 µg/L	0.000
M3-PFBS	5.452	302.1 -> 79.9	10624	2.50 µg/L	0.000
M3-PFHxS	7.254	402.1 -> 79.9	7052	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	9646	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1122	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	2264	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	3925	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	14719	5.00 µg/L	0.012
M3-HFPO-DA	5.914	286.9 -> 168.9	23677	10.00 µg/L	0.000
M5-EtFOSAA	8.483	589.2 -> 419.0	12195	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	64370	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	94090	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	10280	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	9367	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	10862	2.50 µg/L	0.000
13C3-PFBA	2.878	216.0 -> 172.0	65392	5.00 µg/L	-0.050
18O2-PFHxS	7.253	403.0 -> 83.9	4801	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	49225	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	16420	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	22561	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	40232	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.247	329.1 -> 80.9	1122	5.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.0%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2264	6.44 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.7%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3925	7.15 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 142.9%		
13C2-PFDoDA	9.130	615.1 -> 570.0	20441	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-PFTeDA	9.924	715.2 -> 670.0	16505	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C3-PFBS	5.452	302.1 -> 79.9	10624	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C3-PFHxS	7.254	402.1 -> 79.9	7052	2.37 µg/L	0.012

7.2.4  
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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C4-PFBA	2.886	216.8 -> 171.9	124983	10.16 µg/L	-0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C4-PFHpA	6.492	367.1 -> 322.0	26154	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C5-PFHxA	5.559	318.0 -> 273.0	44201	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C5-PFPeA	4.375	268.3 -> 223.0	63410	5.12 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C6-PFDA	8.216	519.1 -> 474.1	17379	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C7-PFUnDA	8.685	570.0 -> 525.1	19693	1.35 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C8-FOSA	9.783	506.1 -> 77.8	17444	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C8-PFOA	7.163	421.1 -> 376.0	41343	2.56 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C8-PFOS	8.354	507.1 -> 79.9	9646	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C9-PFNA	7.709	472.1 -> 427.0	20276	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.8%	
d3-MeFOSAA	8.273	573.2 -> 419.0	14719	5.37 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C3-HFPO-DA	5.914	286.9 -> 168.9	23677	8.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.5%	
d3-MeFOSA	11.089	515.0 -> 219.0	9367	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.0%	
d5-EtFOSAA	8.483	589.2 -> 419.0	12195	5.40 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.0%	
d7-MeFOSE	10.972	623.2 -> 58.9	64370	19.05 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.2%	
d9-EtFOSE	11.269	639.2 -> 58.9	94090	19.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.7%	
d5-EtFOSA	11.373	531.1 -> 219.0	10280	2.27 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.8%	

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

7.2.4  
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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	11.594	630.0 -> 58.9	0		µg/L	1
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
		699.1 -> 79.9				
PFDoDS	-	699.1 -> 98.8	-	N.D.		
		295.0 -> 201.0				
NFDHA	-	295.0 -> 84.9	-	N.D.		
		279.0 -> 85.1				
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

7.2.4  
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### Perfluorinated Compounds by LC/MS/MS

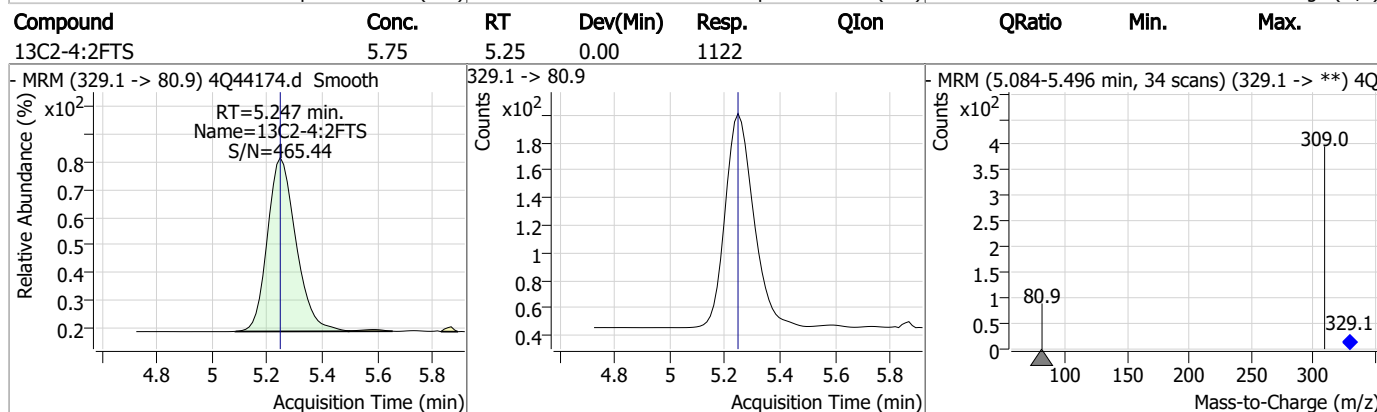
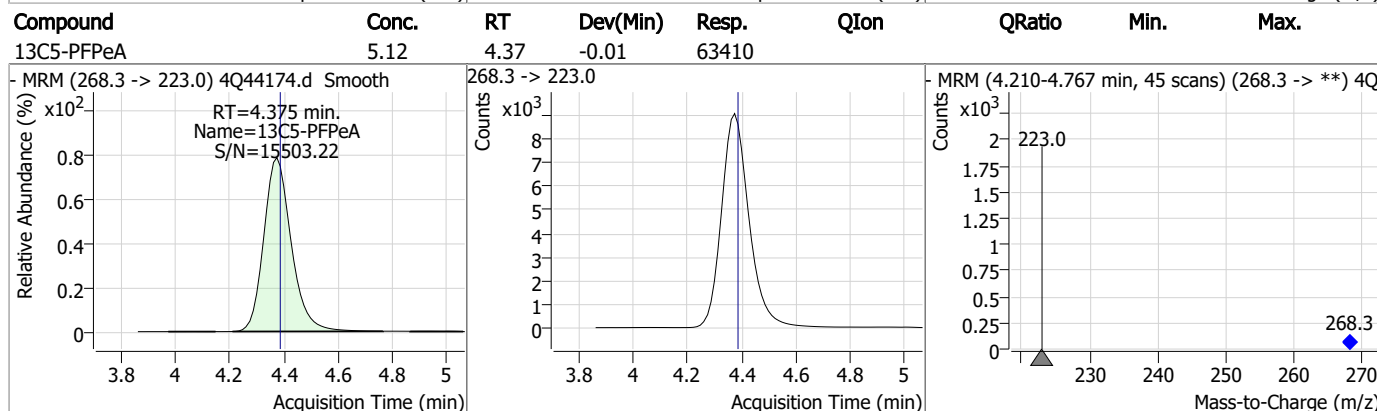
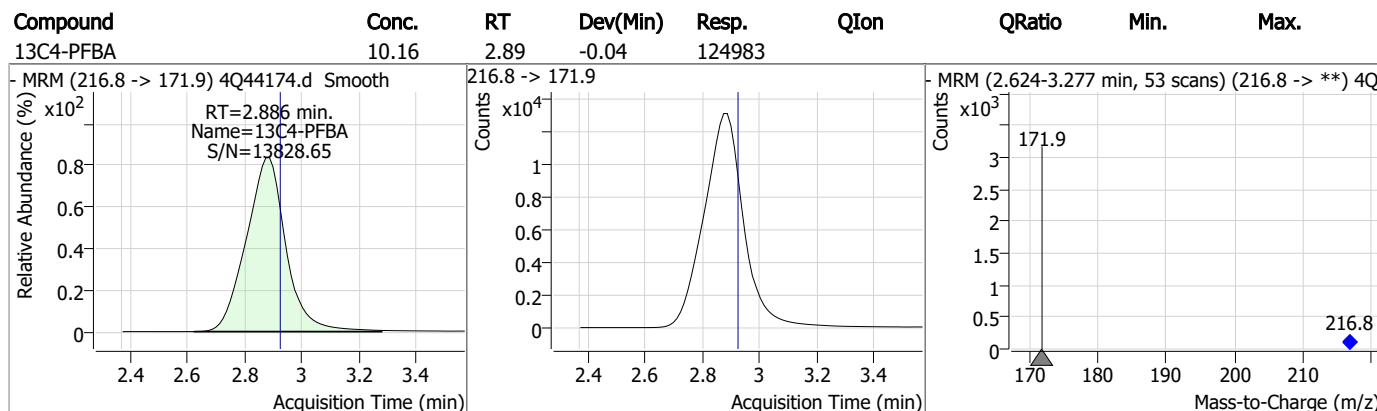
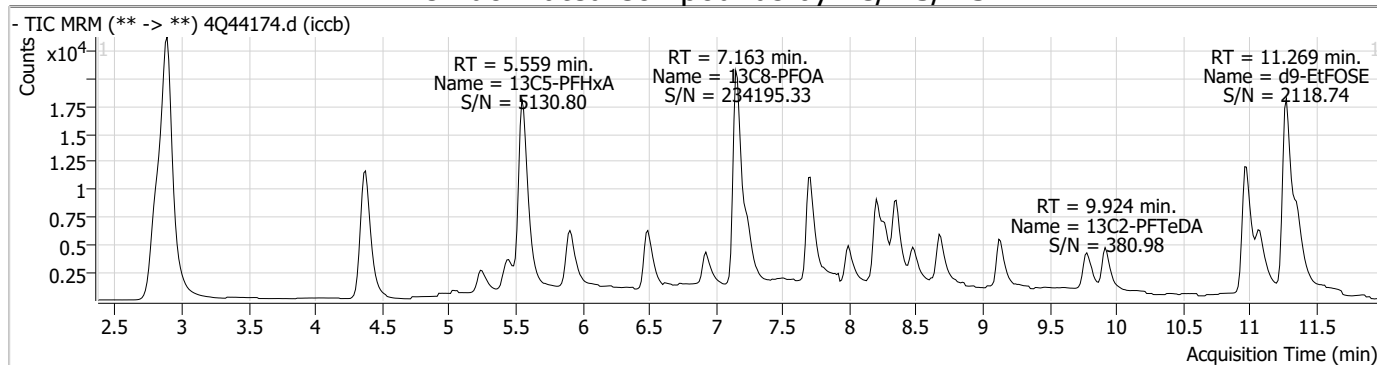
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.4

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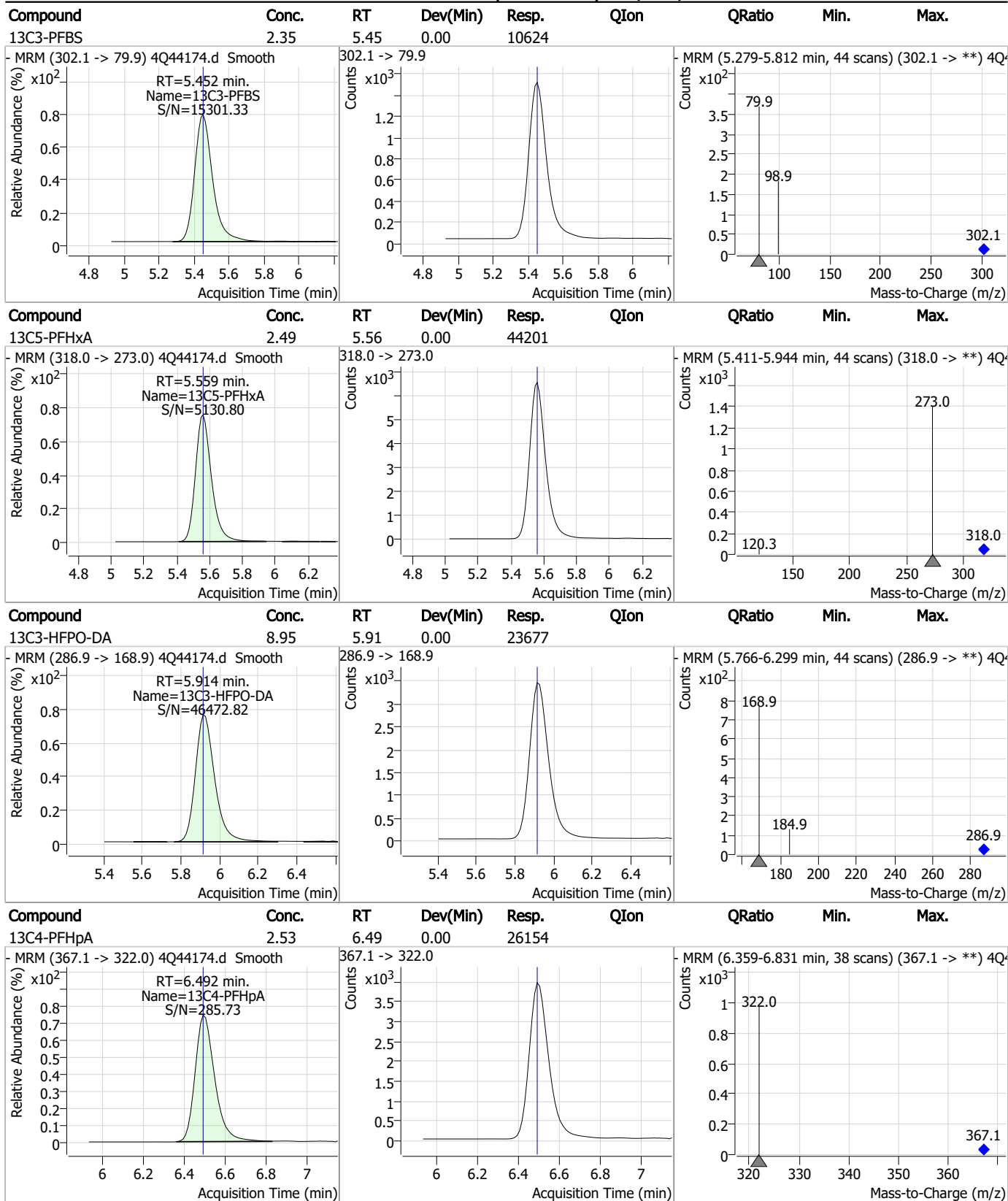


### Perfluorinated Compounds by LC/MS/MS



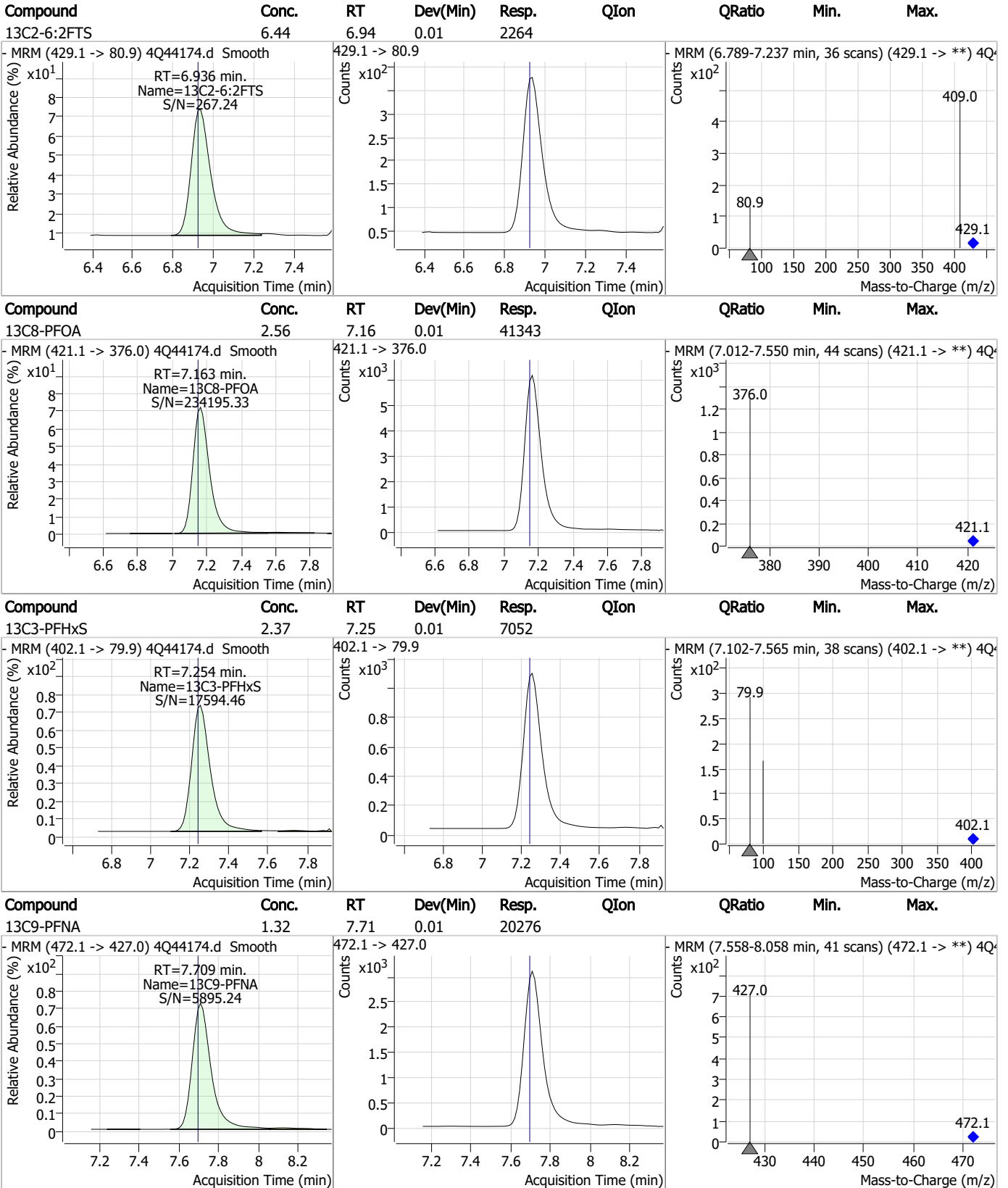
7.2.4  
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### Perfluorinated Compounds by LC/MS/MS



7.2.4  
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### Perfluorinated Compounds by LC/MS/MS

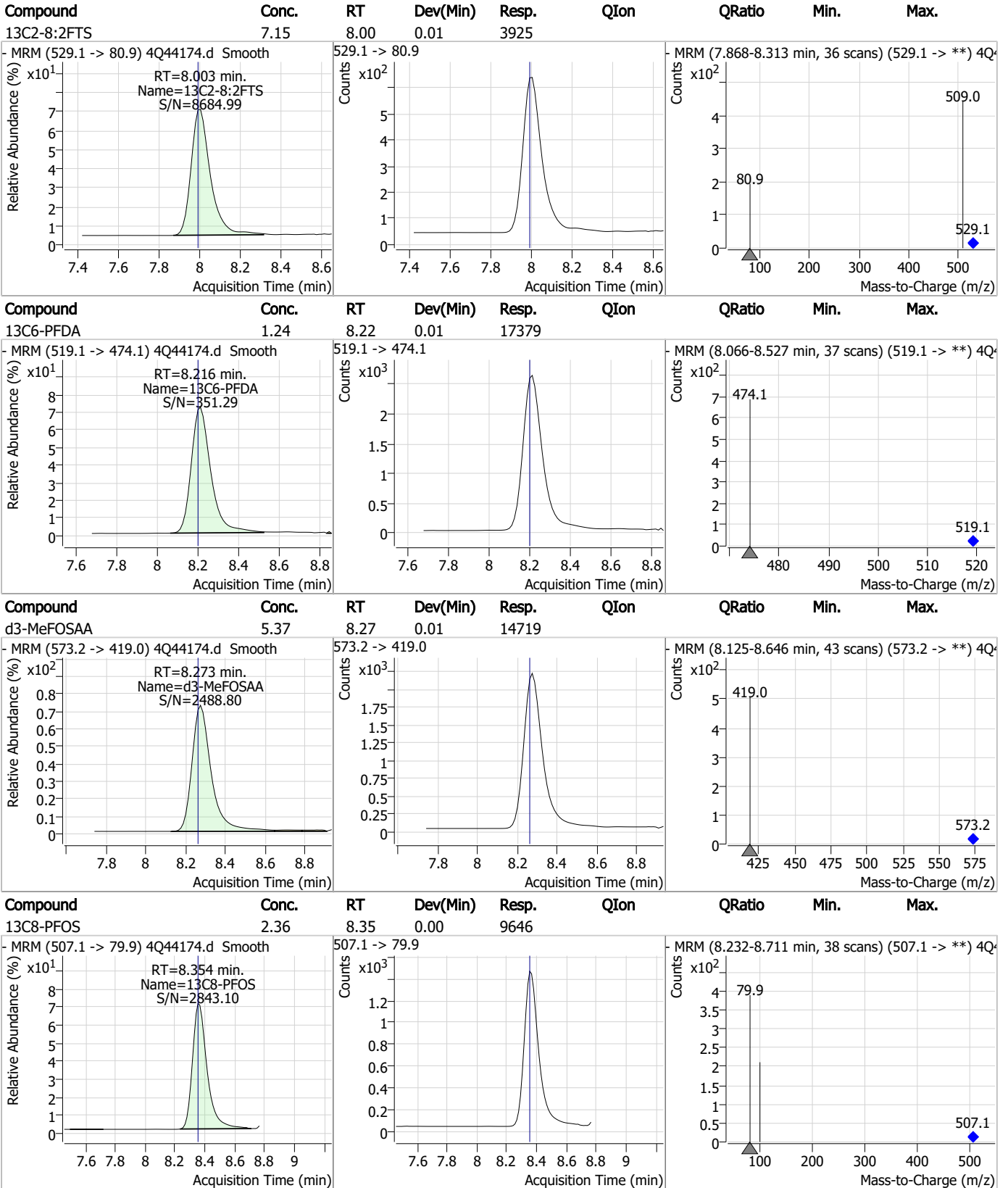


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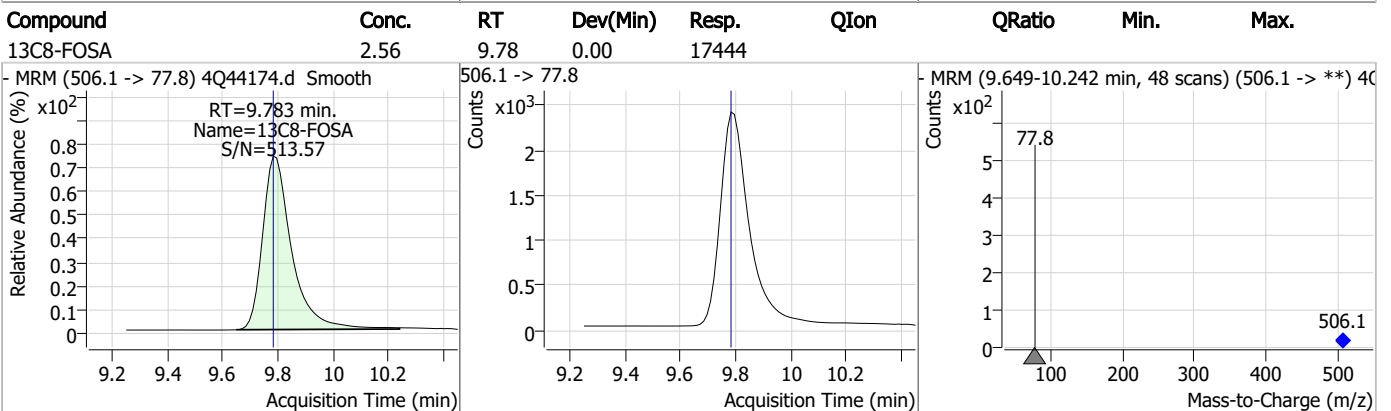
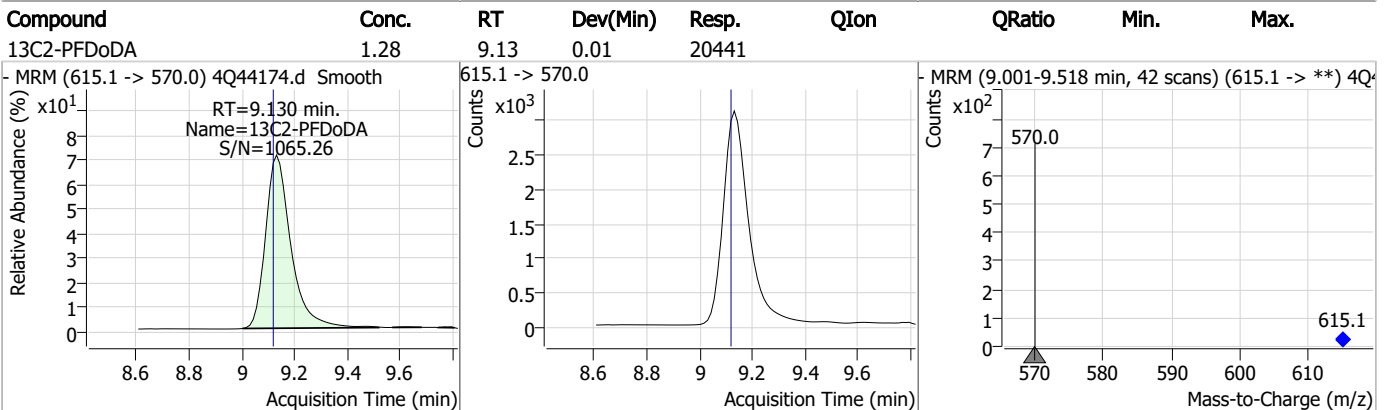
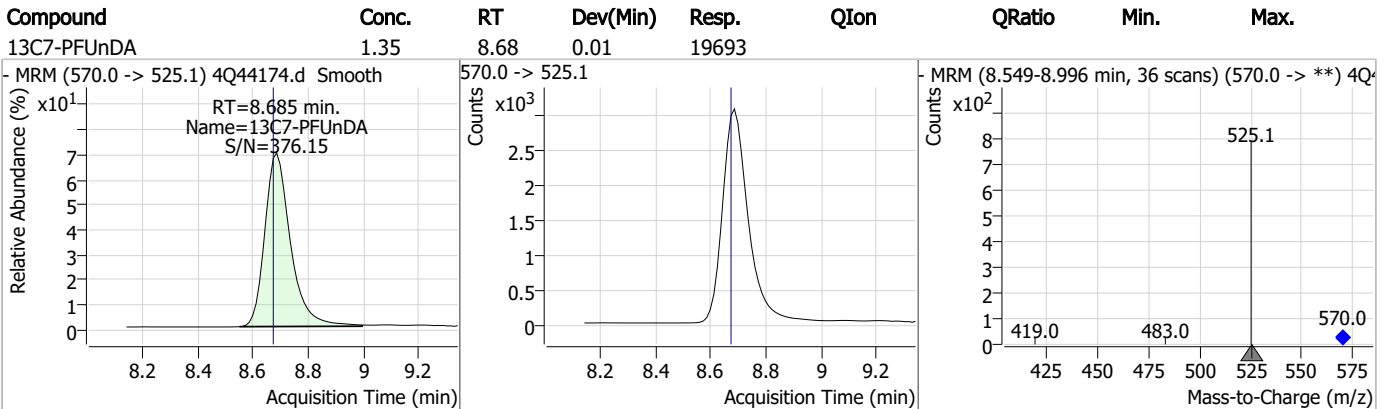
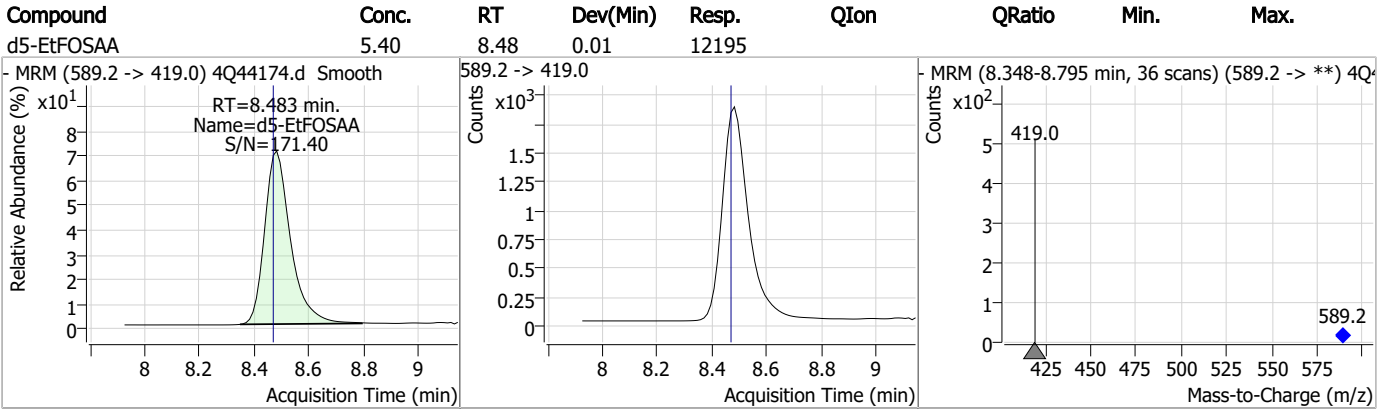
### Perfluorinated Compounds by LC/MS/MS



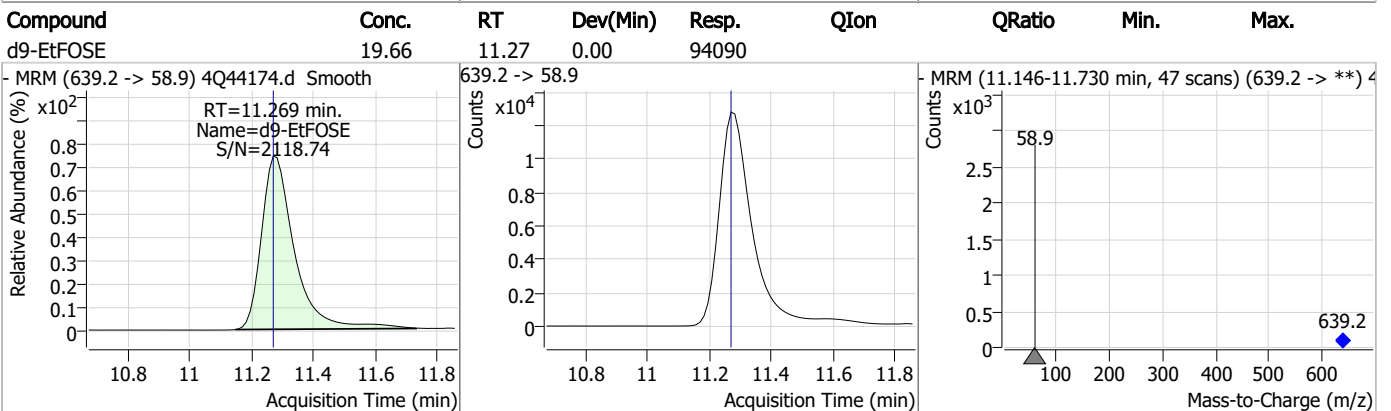
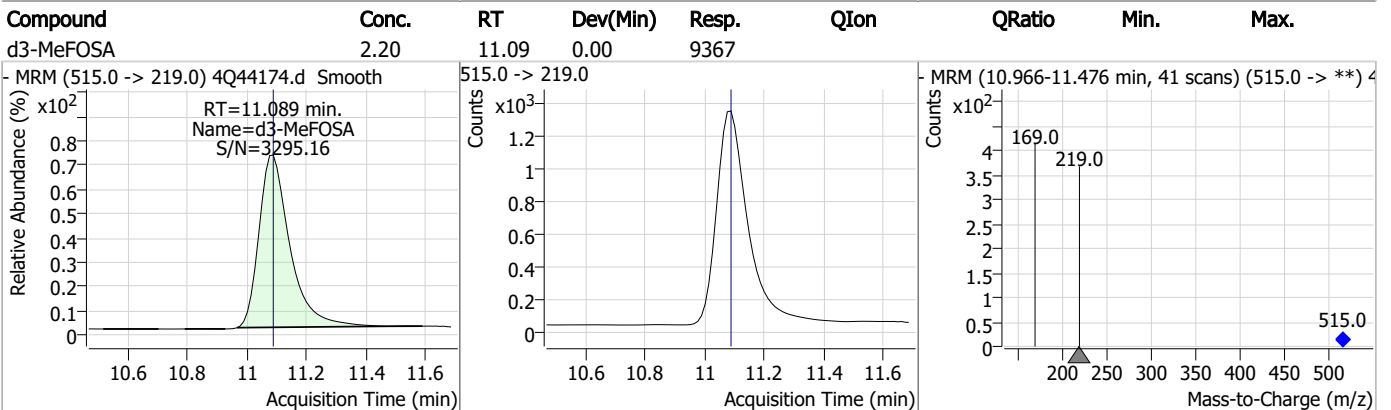
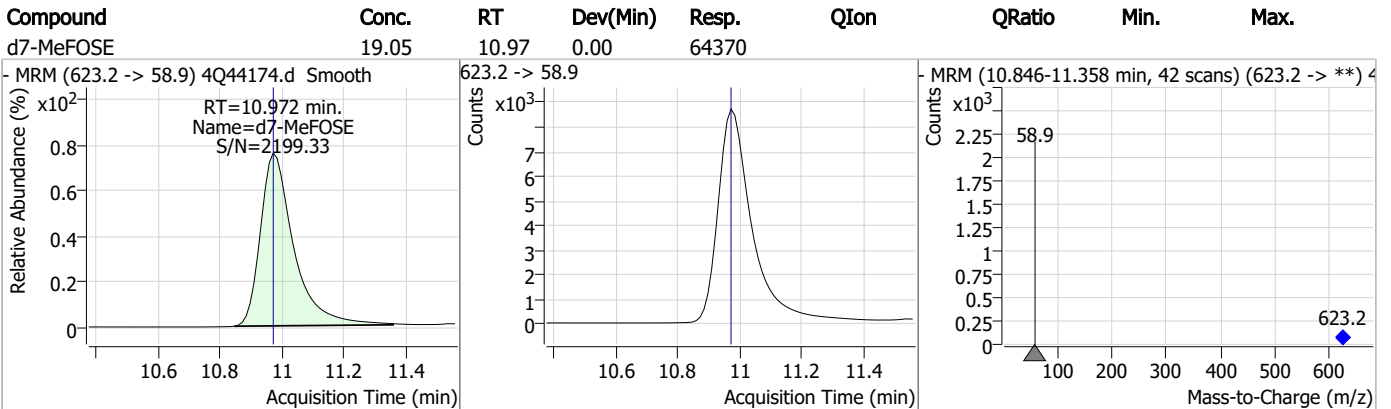
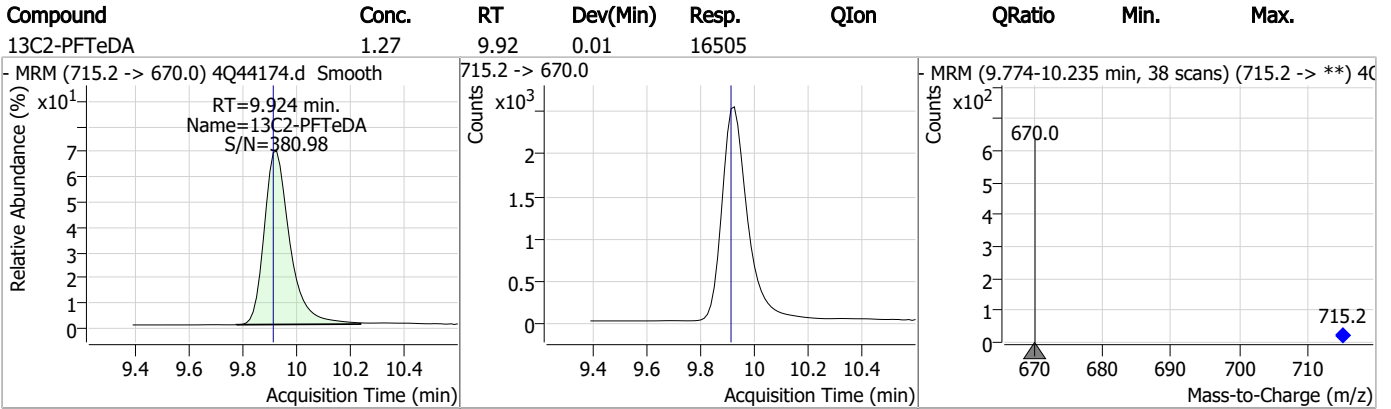
7.2.4

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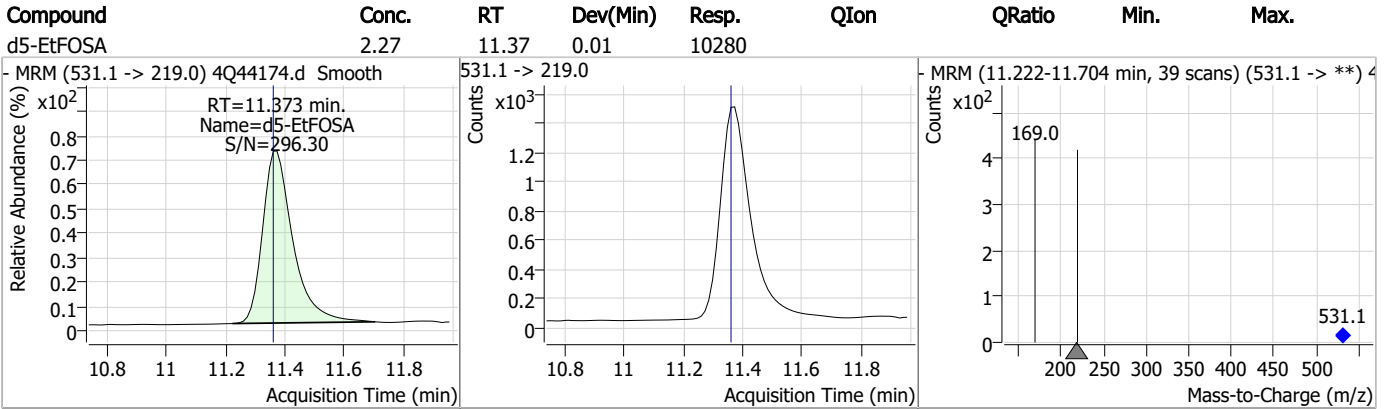
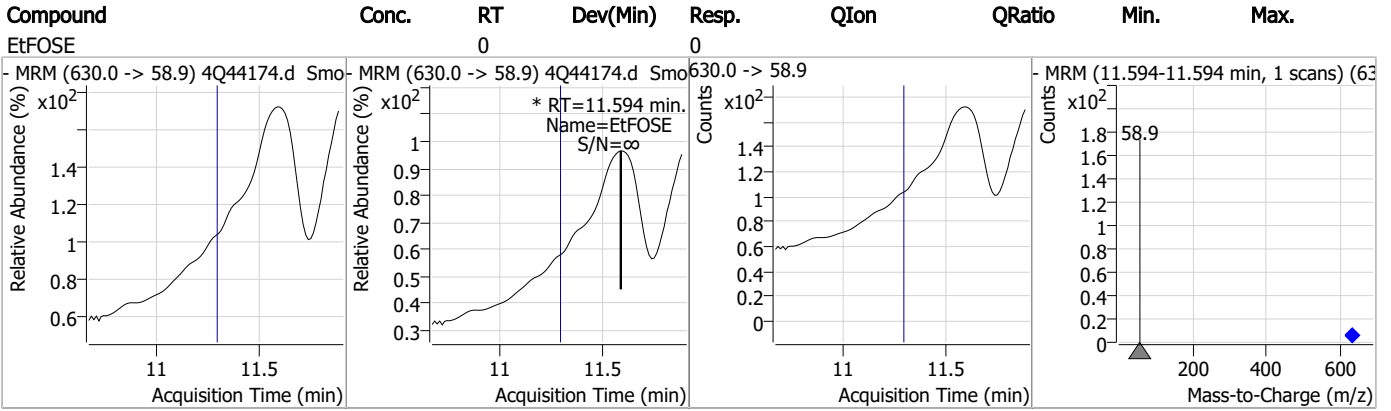
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.2.4

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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44185.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/10/2023 1:51:19 AM  
 Sample Name : iccb  
 Vial : P1-A1  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q639.batch.bin  
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.874	216.8 -> 171.9	126700	10.00 µg/L	-0.050
M5-PFPeA	4.375	268.3 -> 223.0	63029	5.00 µg/L	-0.012
M5-PFHxA	5.559	318.0 -> 273.0	45659	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	26880	2.50 µg/L	0.000
M8-PFOA	7.148	421.1 -> 376.0	41180	2.50 µg/L	0.000
M9-PFNA	7.709	472.1 -> 427.0	20058	1.25 µg/L	0.012
M6-PFDA	8.203	519.1 -> 474.1	18673	1.25 µg/L	0.000
M7-PFUnDA	8.672	570.0 -> 525.1	19797	1.25 µg/L	0.000
M2-PFDoDA	9.130	615.1 -> 570.0	20768	1.25 µg/L	0.012
M2-PFTeDA	9.911	715.2 -> 670.0	15754	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	16948	2.50 µg/L	0.000
M3-PFBS	5.452	302.1 -> 79.9	10645	2.50 µg/L	0.000
M3-PFHxS	7.242	402.1 -> 79.9	7187	2.50 µg/L	0.000
M8-PFOS	8.354	507.1 -> 79.9	9733	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1342	5.00 µg/L	0.000
M2-6:2FTS	6.923	429.1 -> 80.9	2387	5.00 µg/L	0.000
M2-8:2FTS	7.990	529.1 -> 80.9	3926	5.00 µg/L	0.000
M3-MeFOSAA	8.261	573.2 -> 419.0	15200	5.00 µg/L	0.000
M3-HFPO-DA	5.914	286.9 -> 168.9	24111	10.00 µg/L	0.000
M5-EtFOSAA	8.470	589.2 -> 419.0	13376	5.00 µg/L	0.000
M7-MeFOSE	10.972	623.2 -> 58.9	64823	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	96522	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	10286	2.50 µg/L	0.000
M3-MeFOSA	11.089	515.0 -> 219.0	9839	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	11337	2.50 µg/L	0.000
13C3-PFBA	2.878	216.0 -> 172.0	65182	5.00 µg/L	-0.050
18O2-PFHxS	7.253	403.0 -> 83.9	4474	2.50 µg/L	0.012
13C4-PFOA	7.149	417.1 -> 372.0	49839	2.50 µg/L	0.000
13C2-PFDA	8.204	515.1 -> 470.1	16275	1.25 µg/L	0.000
13C5-PFNA	7.709	468.0 -> 423.0	23305	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	41335	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.247	329.1 -> 80.9	1342	7.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 147.5%		
13C2-6:2FTS	6.923	429.1 -> 80.9	2387	7.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 145.6%		
13C2-8:2FTS	7.990	529.1 -> 80.9	3926	7.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 153.4%		
13C2-PFDoDA	9.130	615.1 -> 570.0	20768	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C2-PFTeDA	9.911	715.2 -> 670.0	15754	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C3-PFBS	5.452	302.1 -> 79.9	10645	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C3-PFHxS	7.242	402.1 -> 79.9	7187	2.59 µg/L	0.000

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### 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	2.874	216.8 -> 171.9	126700	10.33 µg/L	-0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C4-PFHpA	6.492	367.1 -> 322.0	26880	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C5-PFHxA	5.559	318.0 -> 273.0	45659	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFPeA	4.375	268.3 -> 223.0	63029	4.95 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C6-PFDA	8.203	519.1 -> 474.1	18673	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C7-PFUnDA	8.672	570.0 -> 525.1	19797	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C8-FOSA	9.783	506.1 -> 77.8	16948	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C8-PFOA	7.148	421.1 -> 376.0	41180	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C8-PFOS	8.354	507.1 -> 79.9	9733	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.2%	
13C9-PFNA	7.709	472.1 -> 427.0	20058	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
d3-MeFOSAA	8.261	573.2 -> 419.0	15200	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C3-HFPO-DA	5.914	286.9 -> 168.9	24111	8.87 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.7%	
d3-MeFOSA	11.089	515.0 -> 219.0	9839	2.21 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.5%	
d5-EtFOSAA	8.470	589.2 -> 419.0	13376	5.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.5%	
d7-MeFOSE	10.972	623.2 -> 58.9	64823	18.38 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.5%	
d9-EtFOSE	11.269	639.2 -> 58.9	96522	19.33 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.3%	
d5-EtFOSA	11.360	531.1 -> 219.0	10286	2.18 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.0%	

**Target Compounds**

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

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	7.168	599.0 -> 98.8				
		363.1 -> 319.0	0	µg/L	m	1
PFHpS	-	363.1 -> 169.0	0			
		449.0 -> 79.9	-	N.D.		
PFHxA	-	449.0 -> 98.9				
		313.0 -> 269.0	-	N.D.		
PFHxS	-	313.0 -> 118.9				
		398.7 -> 79.9	-	N.D.		
PFNA	-	398.7 -> 98.9				
		463.0 -> 419.0	-	N.D.		
PFNS	-	463.0 -> 219.0				
		548.8 -> 79.9	-	N.D.		
PFOA	7.150	548.8 -> 98.9				
		413.0 -> 369.0	0	µg/L	m	1
PFOS	-	413.0 -> 169.0	0			
		498.9 -> 79.9	-	N.D.		
PFPeA	-	498.9 -> 98.8				
		263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	8.947	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1	0			
11CI-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9CI-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.5  
7

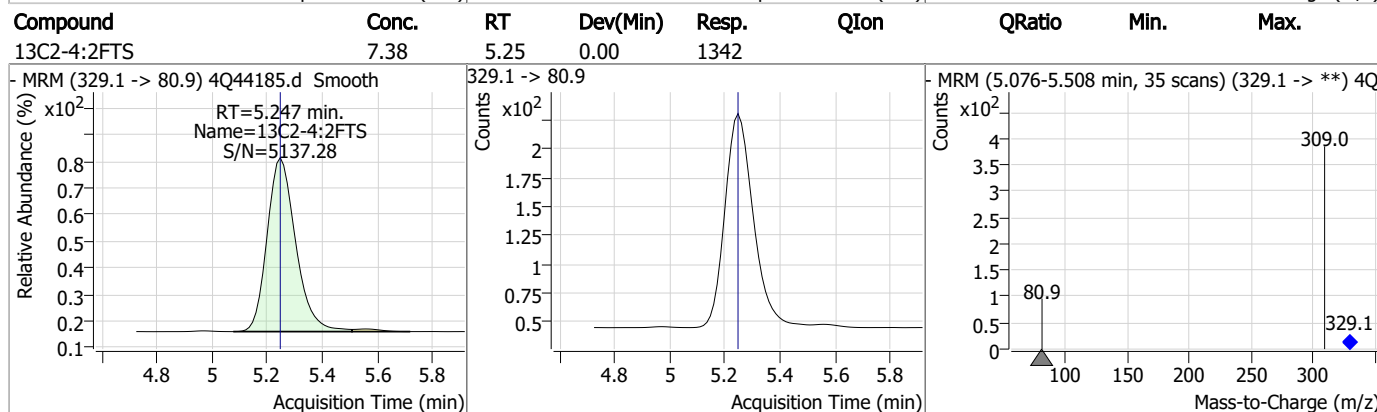
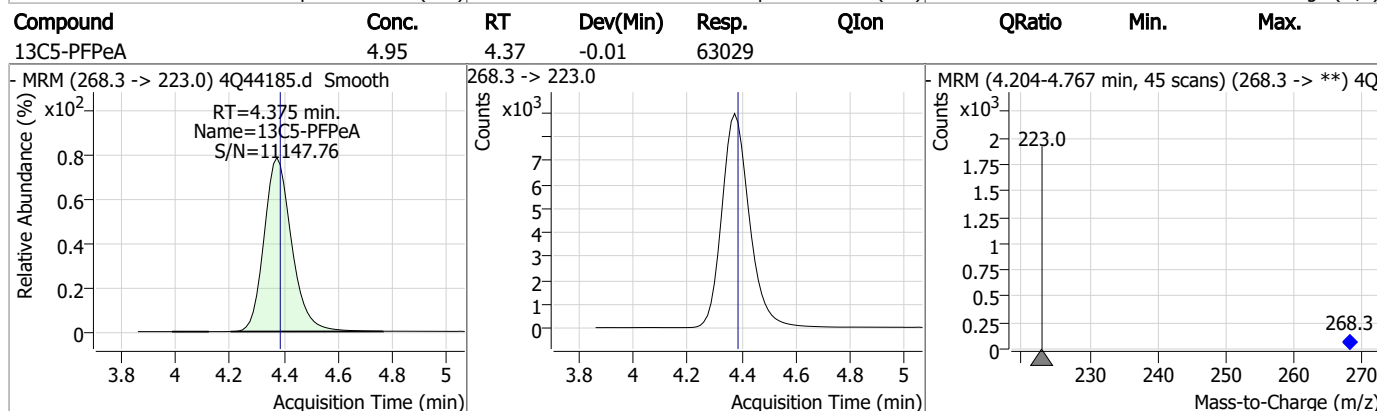
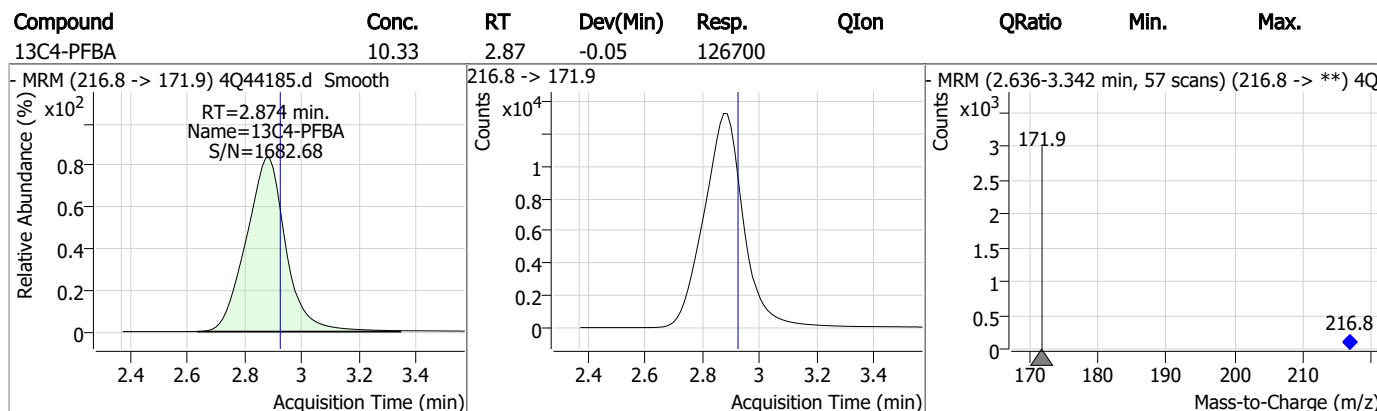
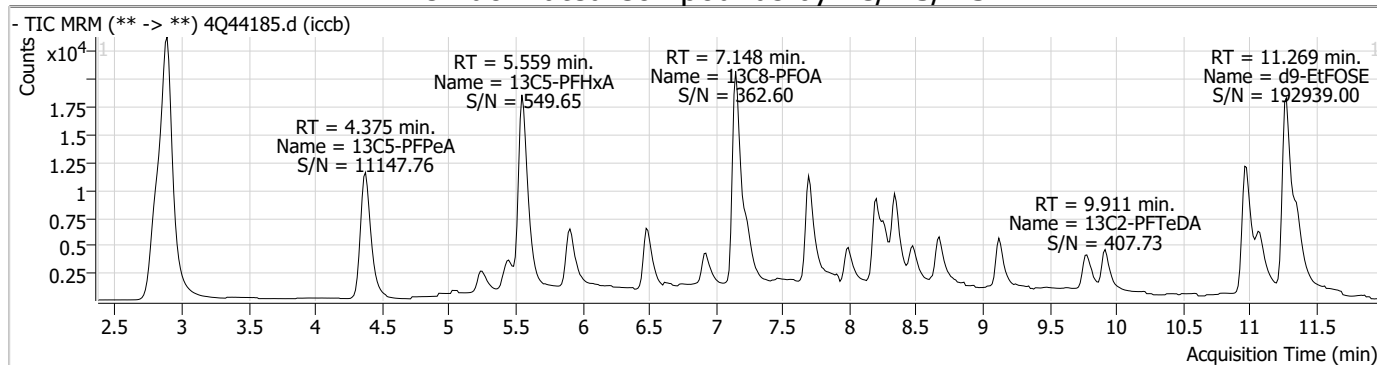
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.5

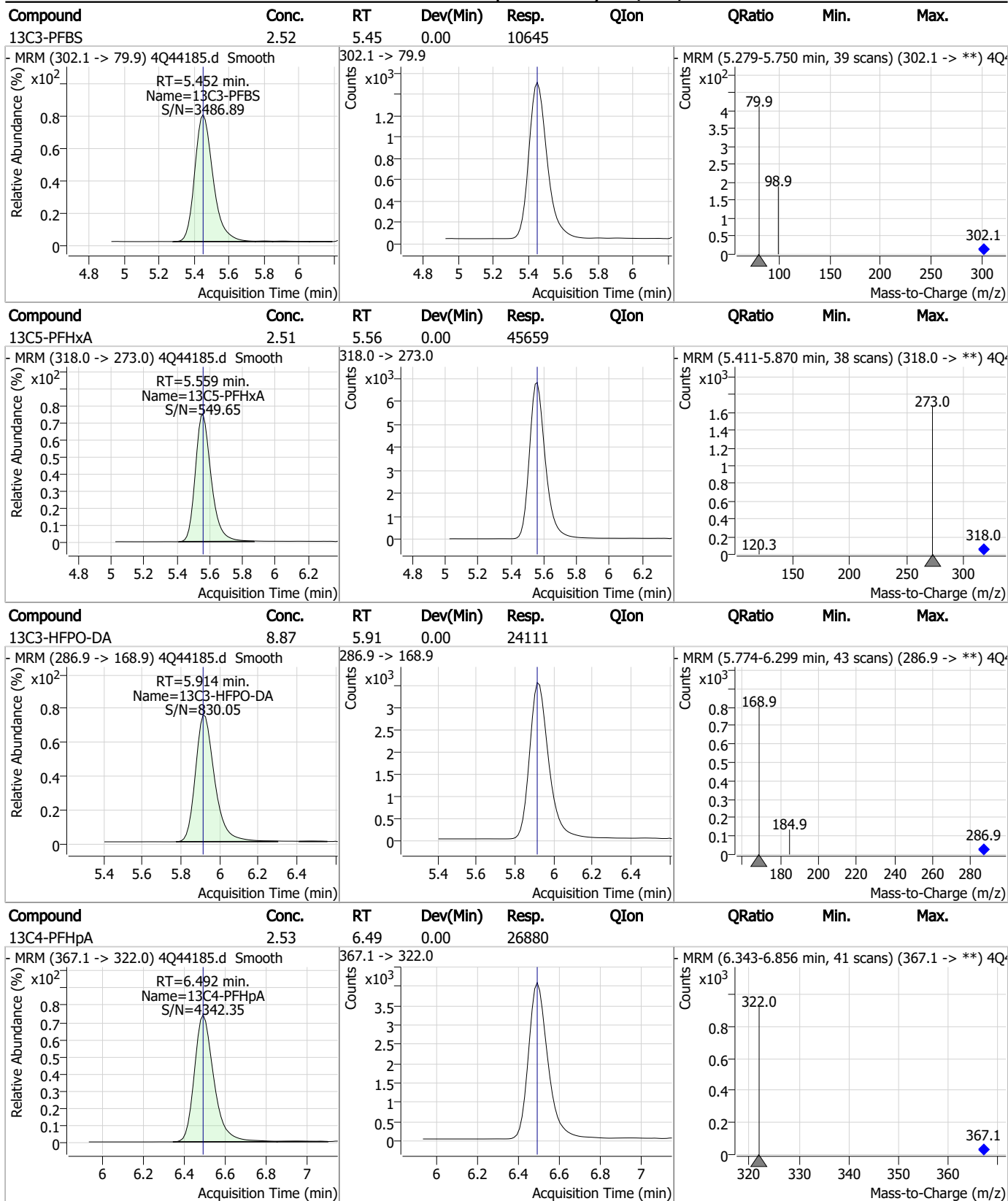
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### Perfluorinated Compounds by LC/MS/MS



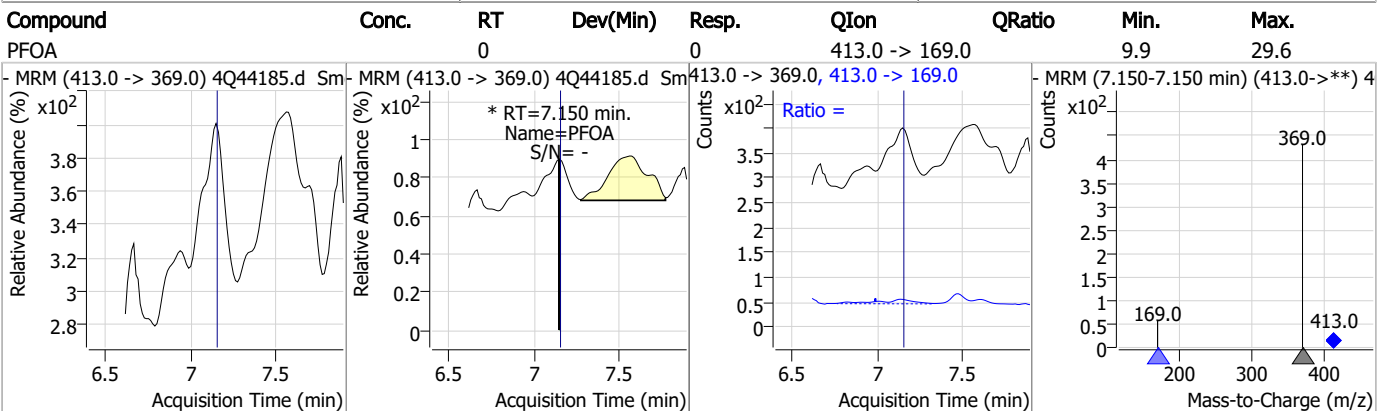
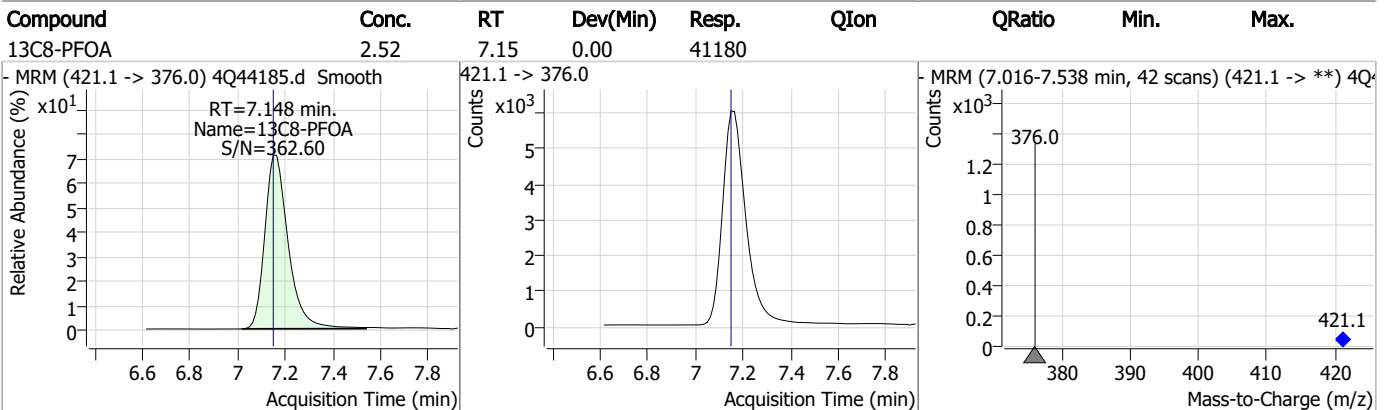
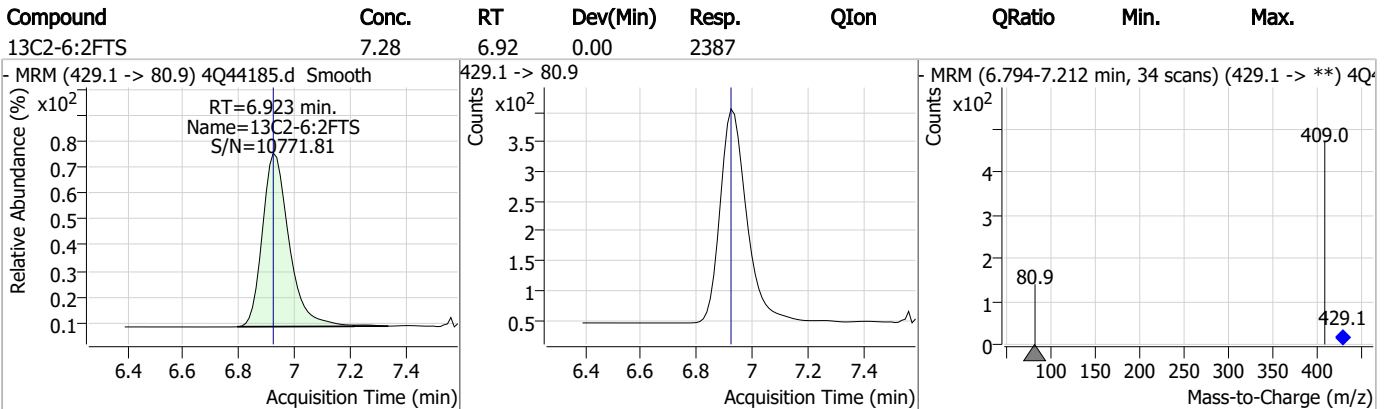
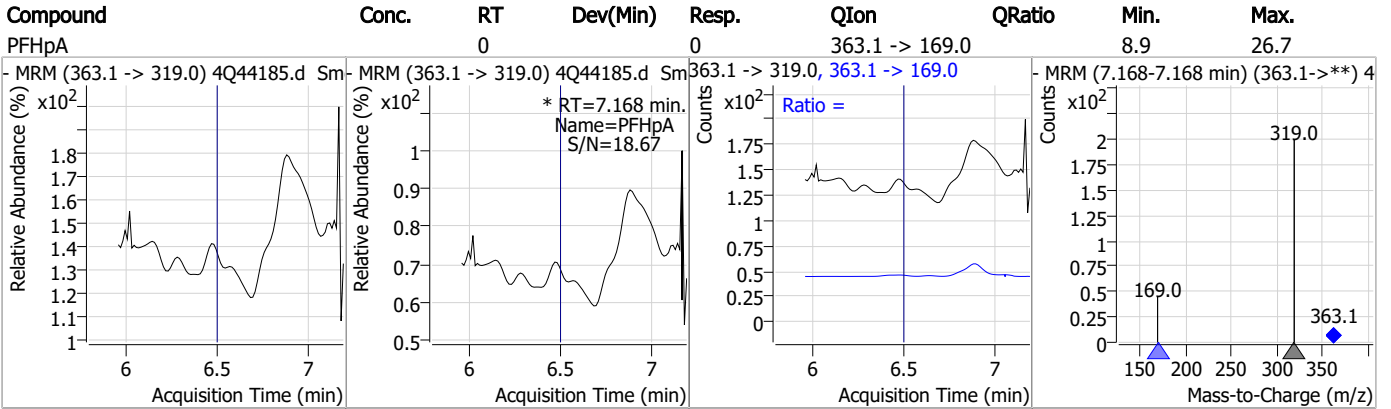
7.2.5  
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### Perfluorinated Compounds by LC/MS/MS



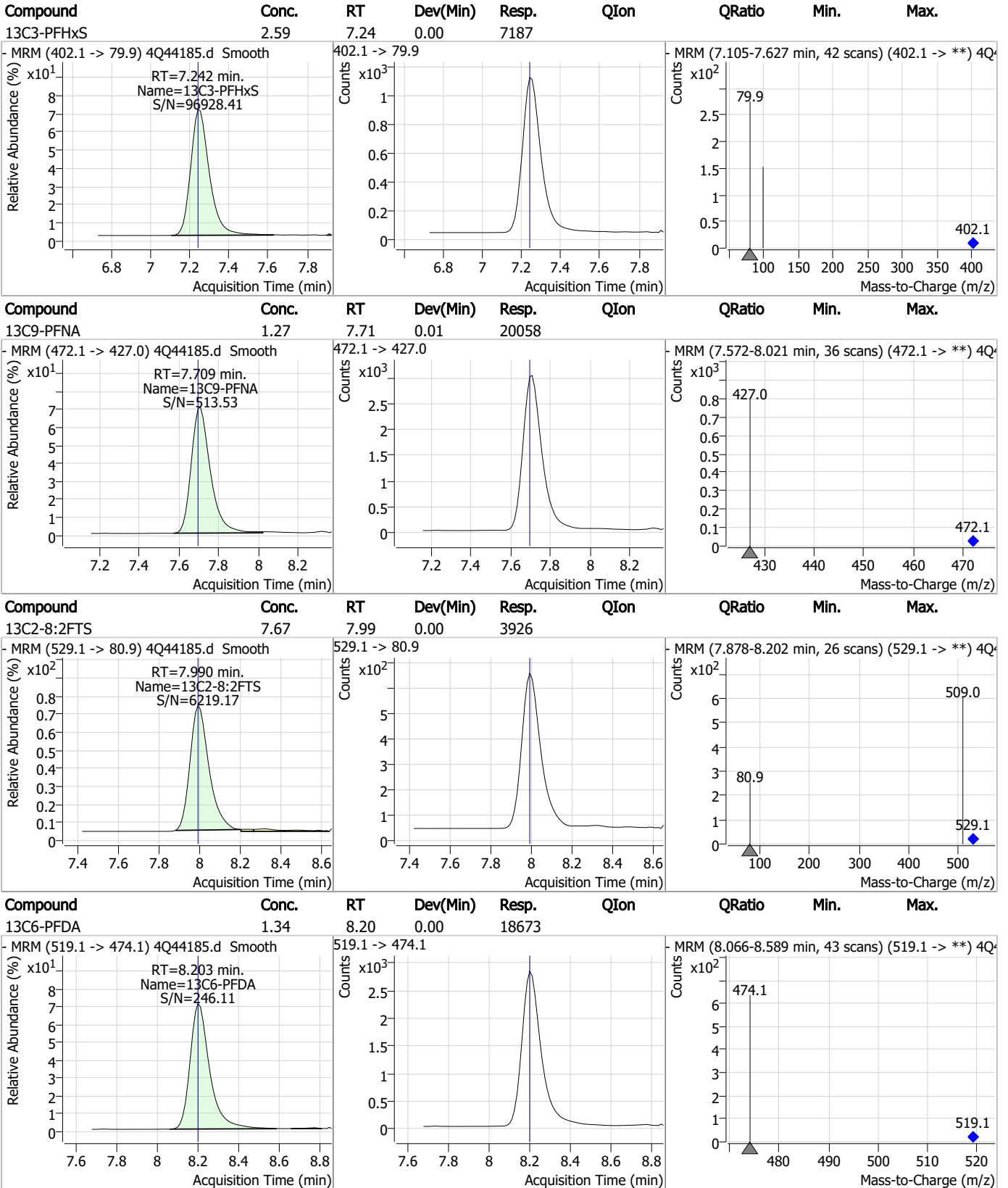
7.25  
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## Perfluorinated Compounds by LC/MS/MS



7.25  
7

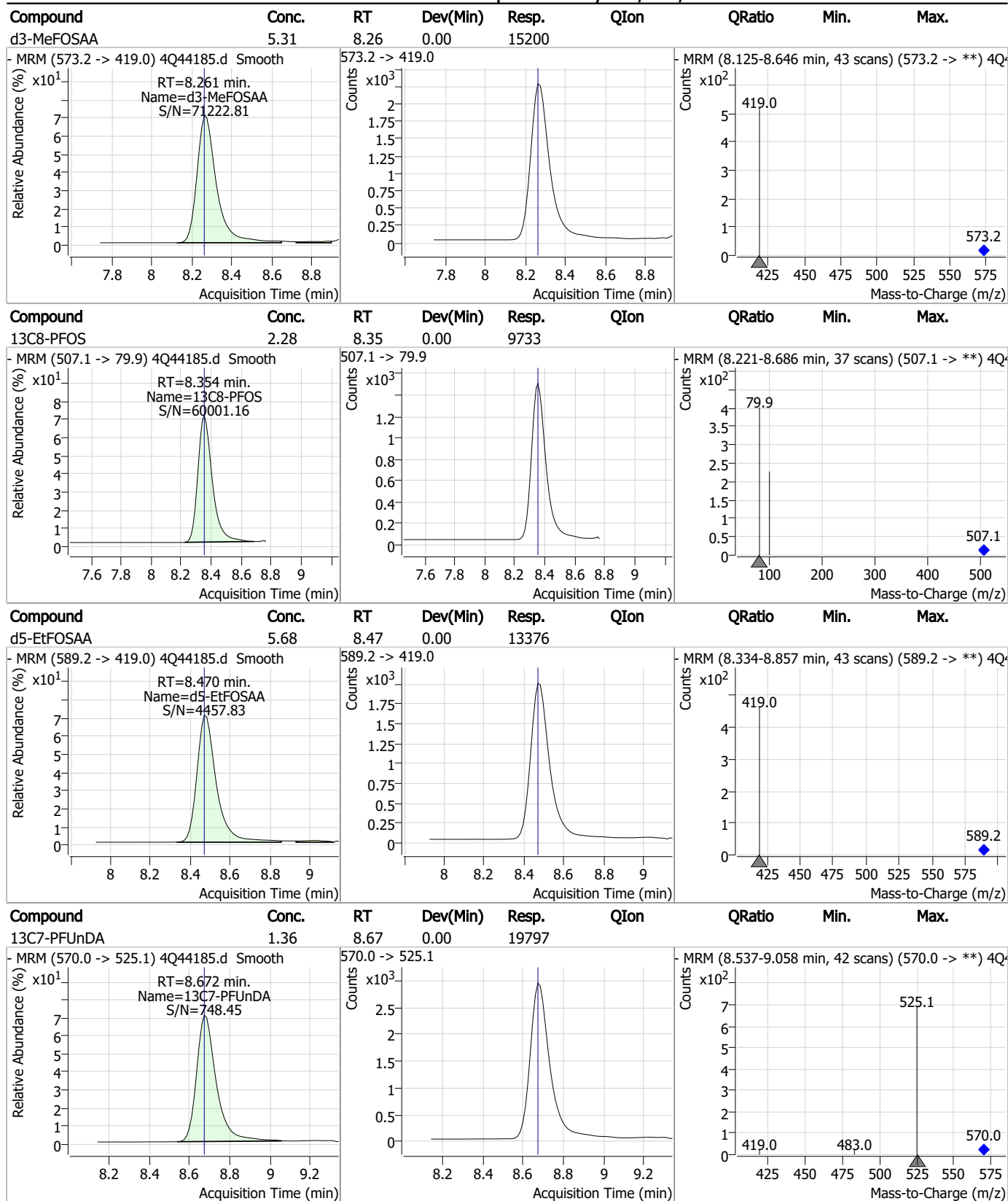
### Perfluorinated Compounds by LC/MS/MS



7.25

7

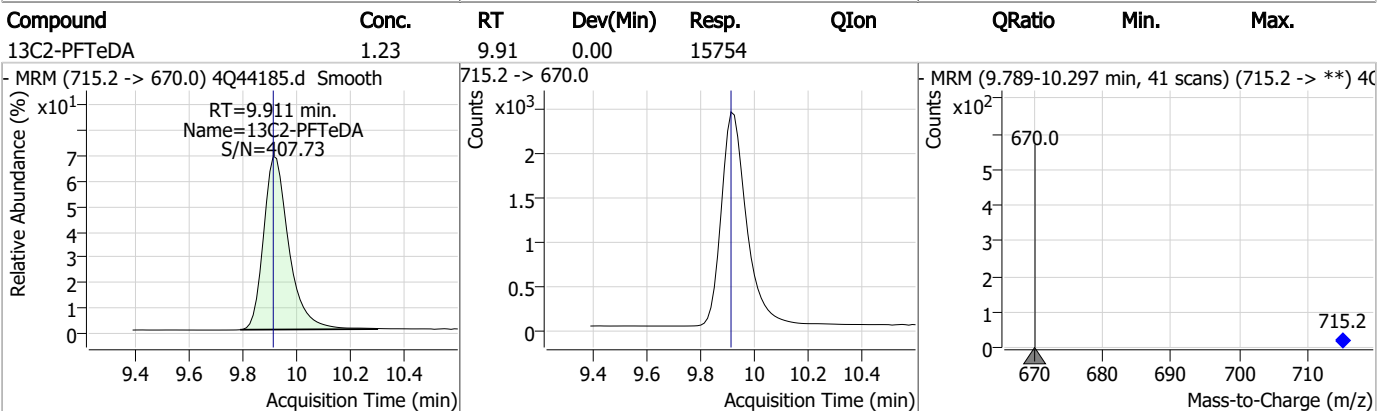
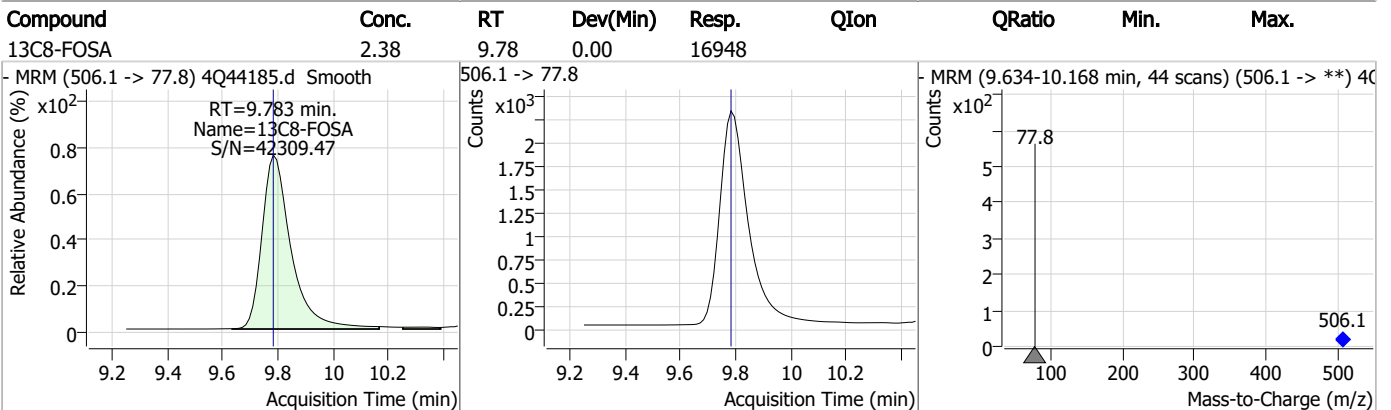
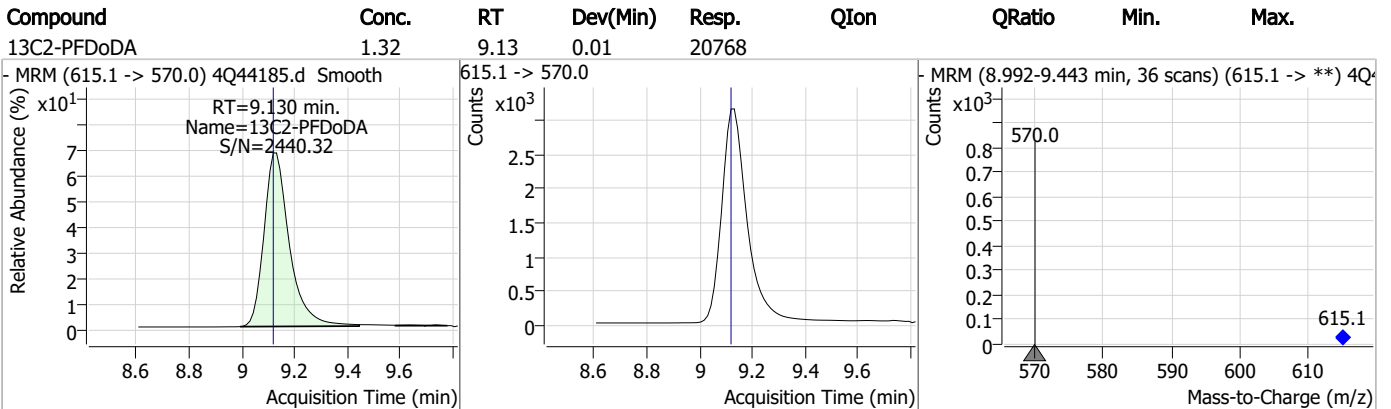
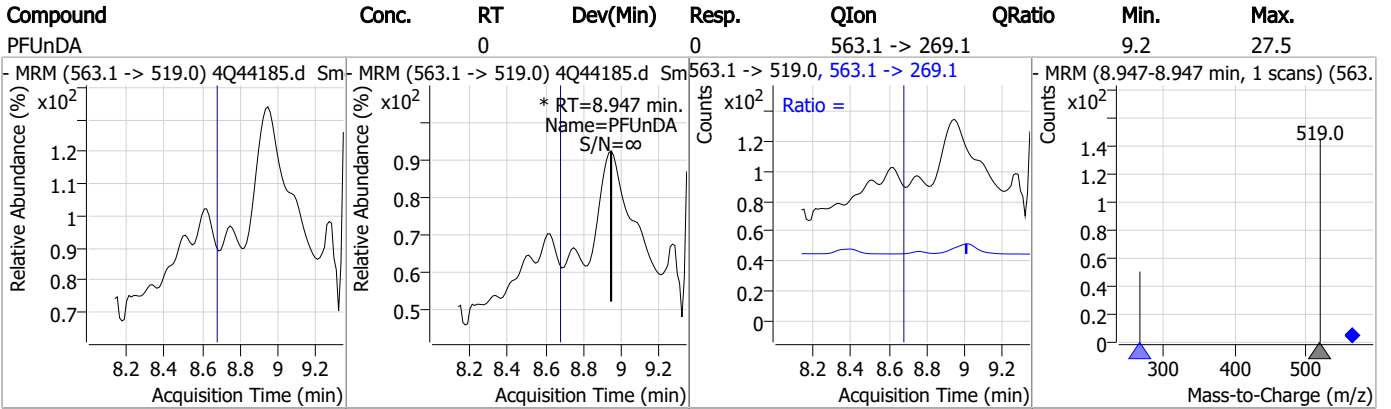
### Perfluorinated Compounds by LC/MS/MS



7.25  
7



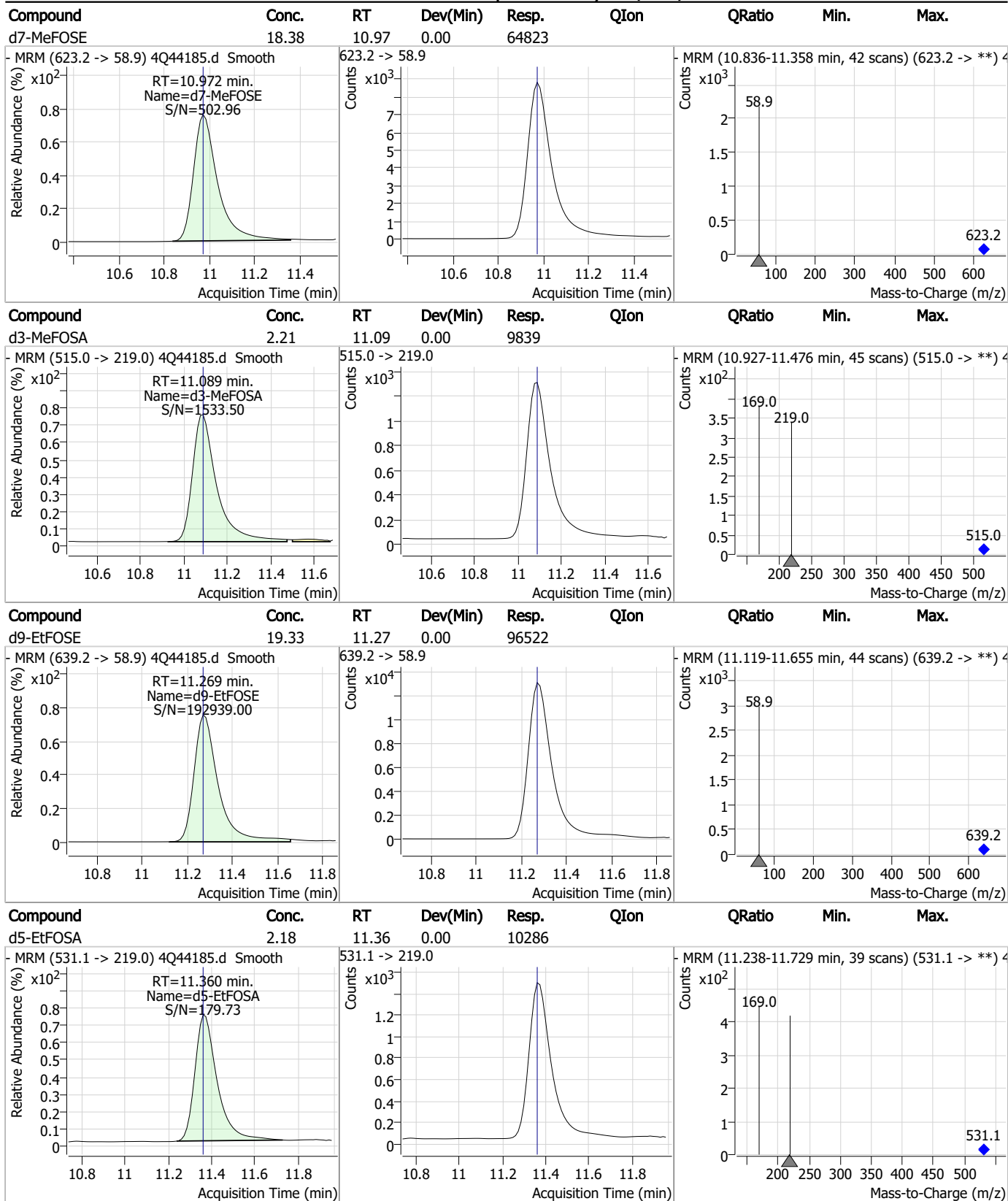
### Perfluorinated Compounds by LC/MS/MS



7.25

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### Perfluorinated Compounds by LC/MS/MS



7.25  
7

### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17746.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 2:11:20 PM  
 Sample Name : iblk  
 Vial : P1-A1  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	157492	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	49214	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	56241	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	50243	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	72689	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	23113	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	18311	1.25 µg/L	0.012
M7-PFUnDA	8.518	570.0 -> 525.1	23098	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	21134	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14460	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	21567	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	18771	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11144	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9508	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1527	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2122	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2148	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	19755	5.00 µg/L	0.000
M3-HFPO-DA	5.831	286.9 -> 168.9	34394	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	16668	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	83243	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	90706	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8794	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7645	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	11803	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	66332	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8126	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	73270	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	18966	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	26080	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	48109	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.143	329.1 -> 80.9	1527	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2122	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2148	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFDoDA	8.949	615.1 -> 570.0	21134	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14460	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C3-PFBS	5.397	302.1 -> 79.9	18771	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	11144	2.57 µg/L	0.012

7.2.6  
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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C4-PFBA	2.901	216.8 -> 171.9	157492	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.420	367.1 -> 322.0	50243	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C5-PFHxA	5.466	318.0 -> 273.0	56241	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C5-PFPeA	4.272	268.3 -> 223.0	49214	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C6-PFDA	8.076	519.1 -> 474.1	18311	1.47 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 117.9%	
13C7-PFUnDA	8.518	570.0 -> 525.1	23098	1.45 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.8%	
13C8-FOSA	9.648	506.1 -> 77.8	21567	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.2%	
13C8-PFOA	7.064	421.1 -> 376.0	72689	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C8-PFOS	8.226	507.1 -> 79.9	9508	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C9-PFNA	7.595	472.1 -> 427.0	23113	1.20 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.9%	
d3-MeFOSAA	8.133	573.2 -> 419.0	19755	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	34394	9.77 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d3-MeFOSA	10.752	515.0 -> 219.0	7645	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
d5-EtFOSAA	8.329	589.2 -> 419.0	16668	5.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.0%	
d7-MeFOSE	10.672	623.2 -> 58.9	83243	28.63 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 114.5%	
d9-EtFOSE	10.907	639.2 -> 58.9	90706	25.82 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
d5-EtFOSA	10.984	531.1 -> 219.0	8794	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	

7.2.6  
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Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

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

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

7.2.6  
7

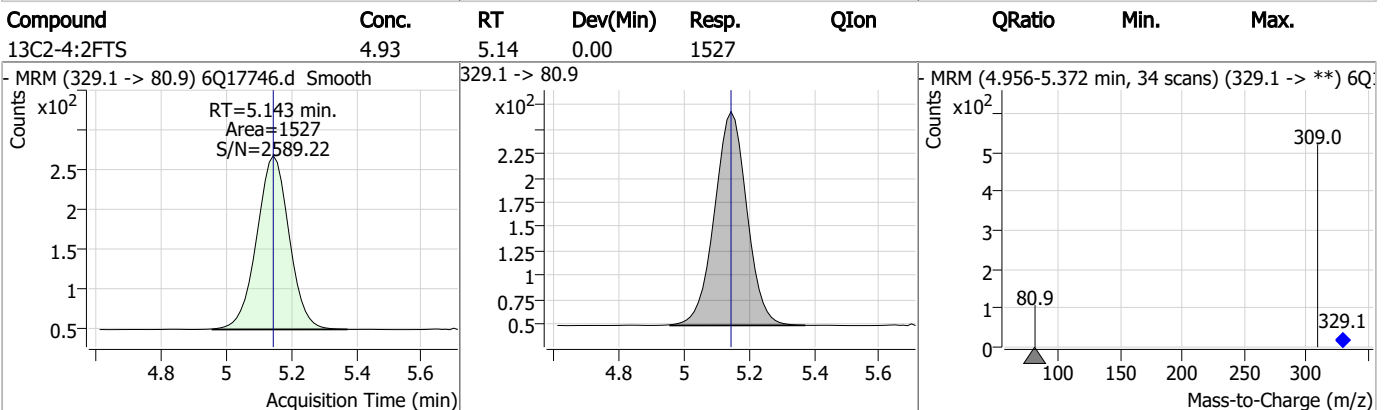
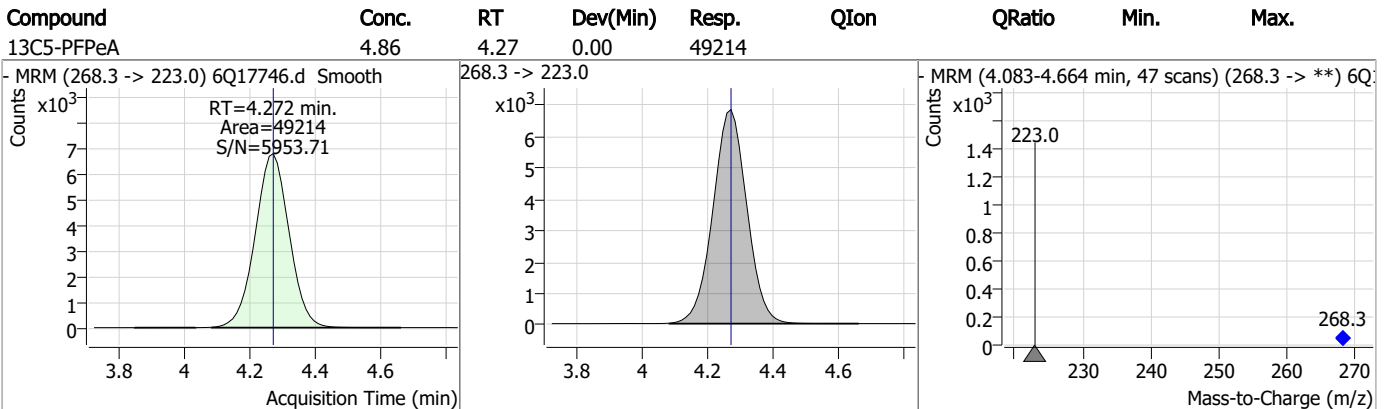
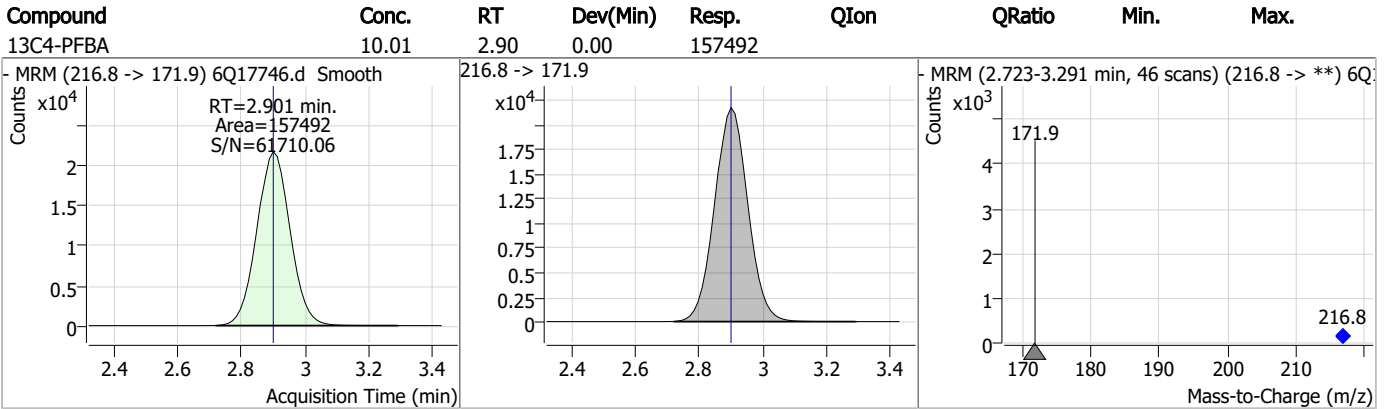
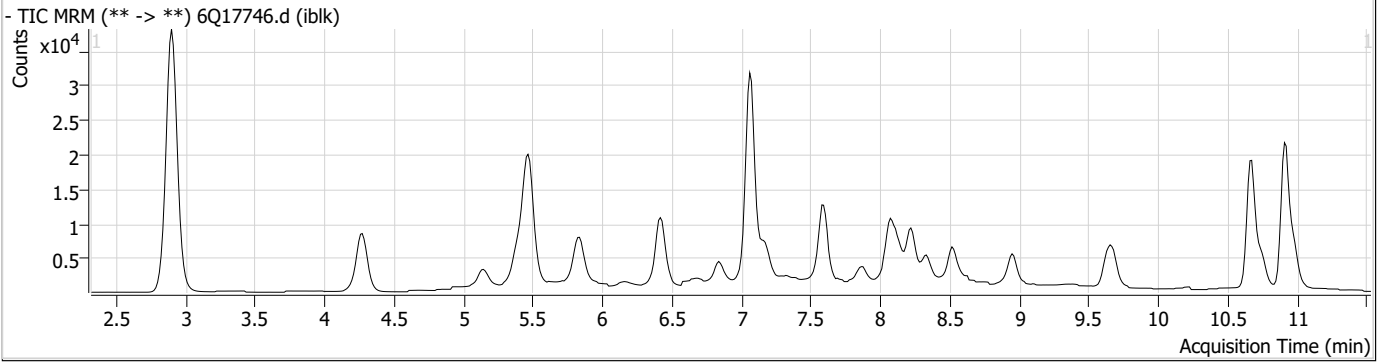
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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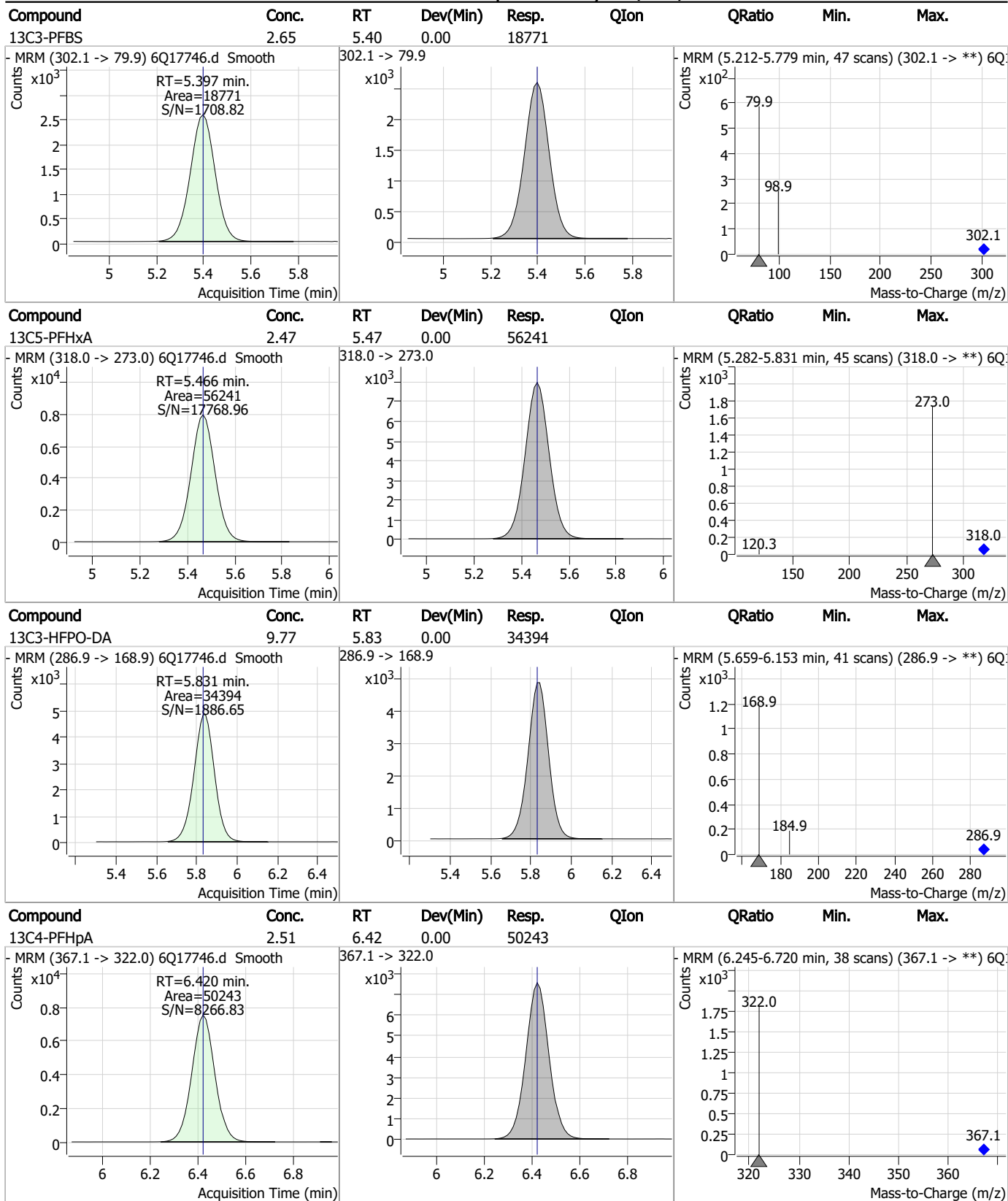
7.2.6

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### Perfluorinated Compounds by LC/MS/MS



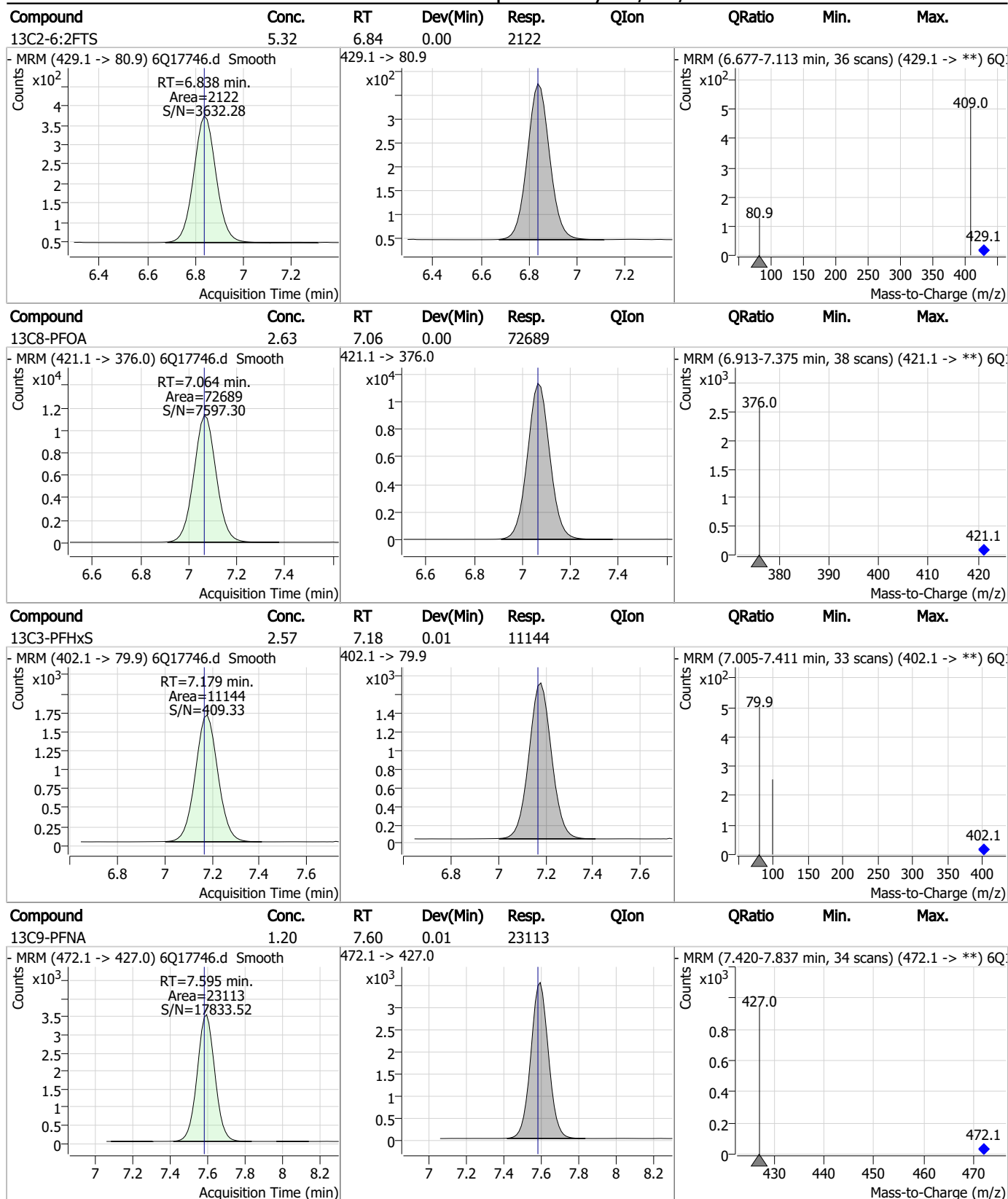
### Perfluorinated Compounds by LC/MS/MS



7.2.6  
7

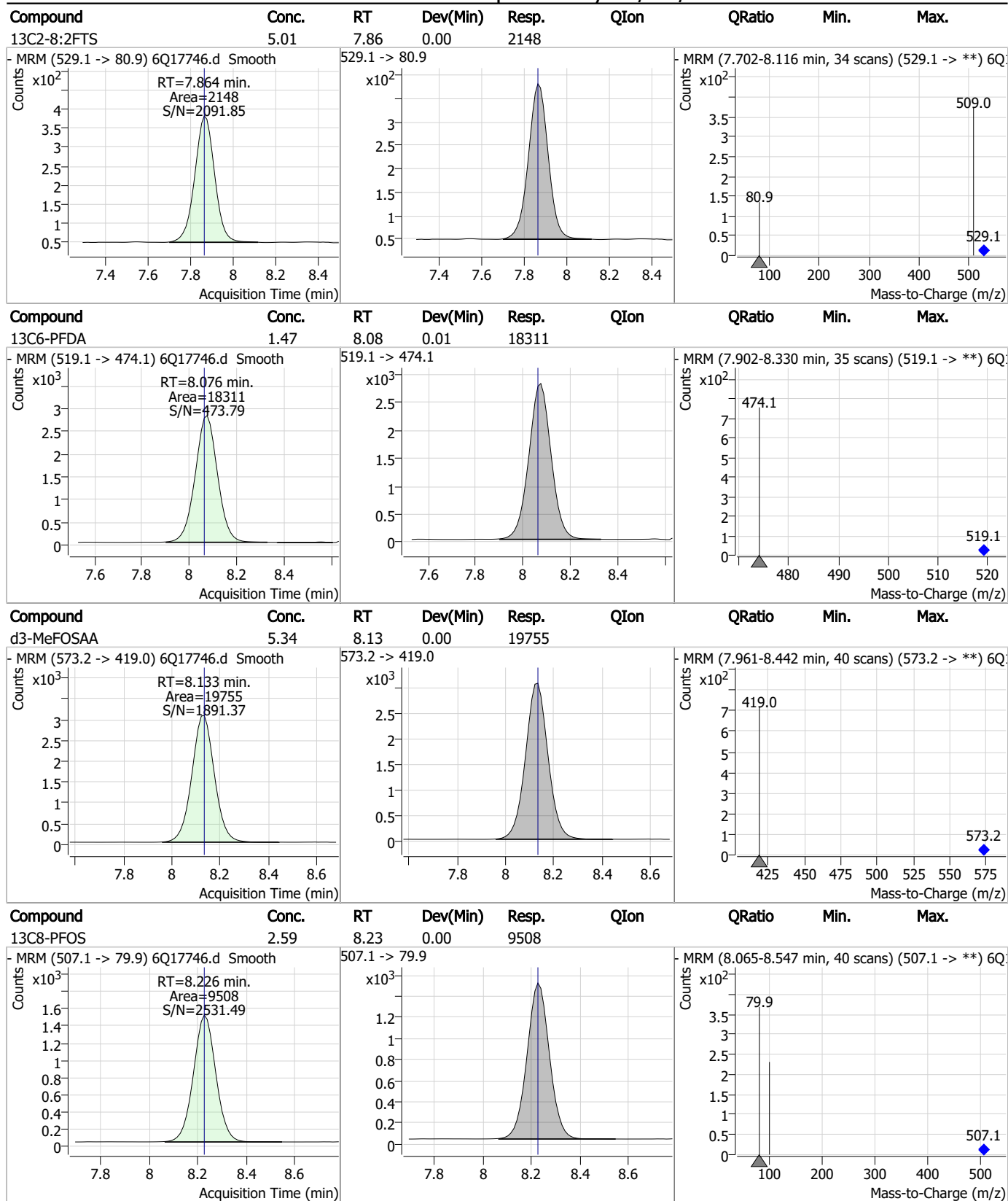


### Perfluorinated Compounds by LC/MS/MS



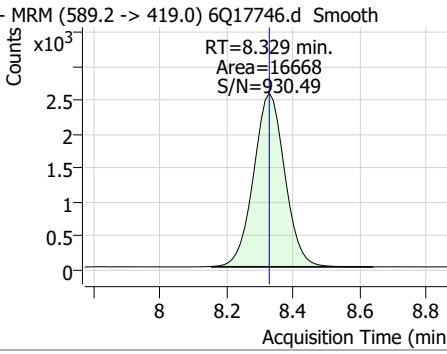
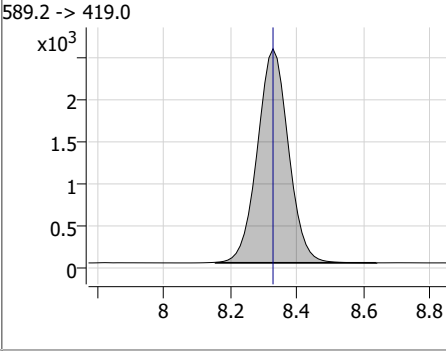
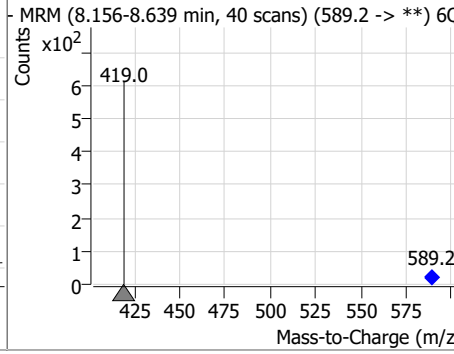
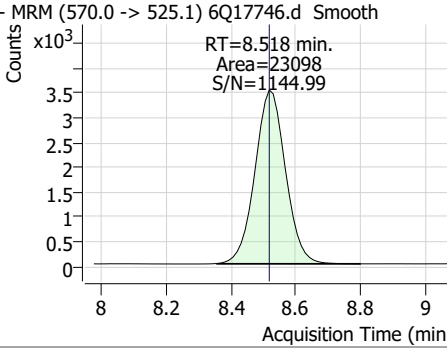
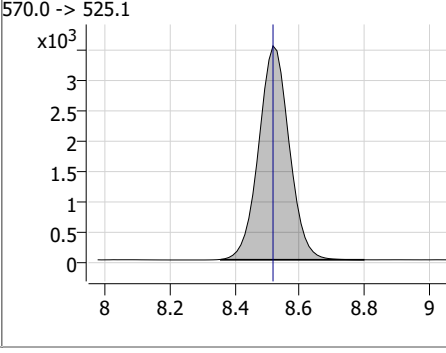
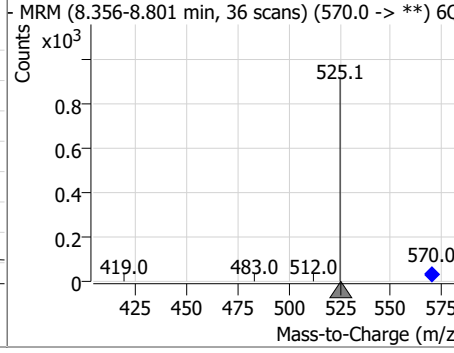
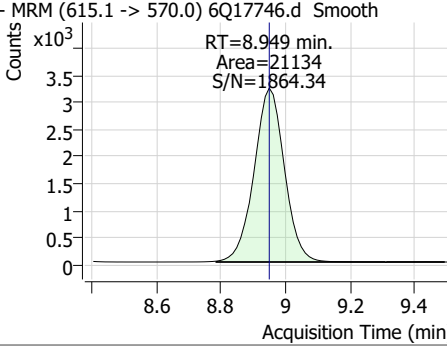
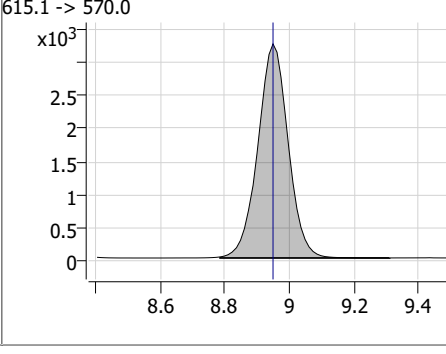
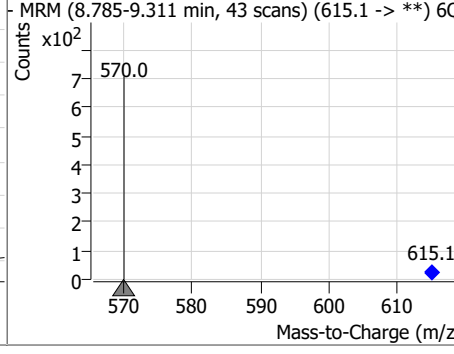
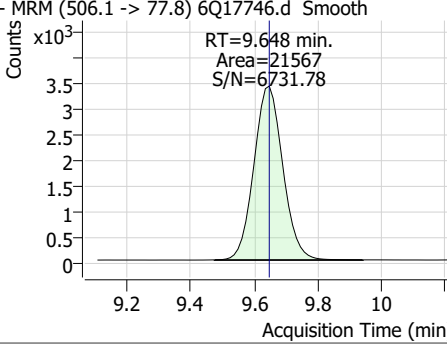
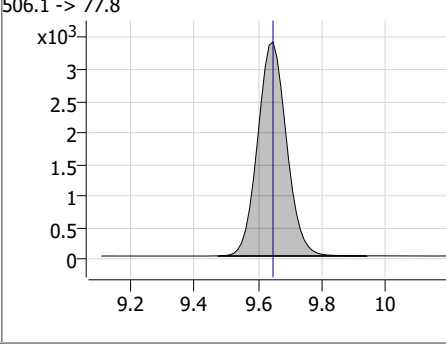
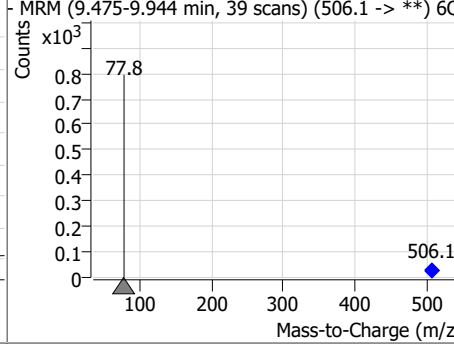
7.2.6  
7

### Perfluorinated Compounds by LC/MS/MS



7.2.6  
7

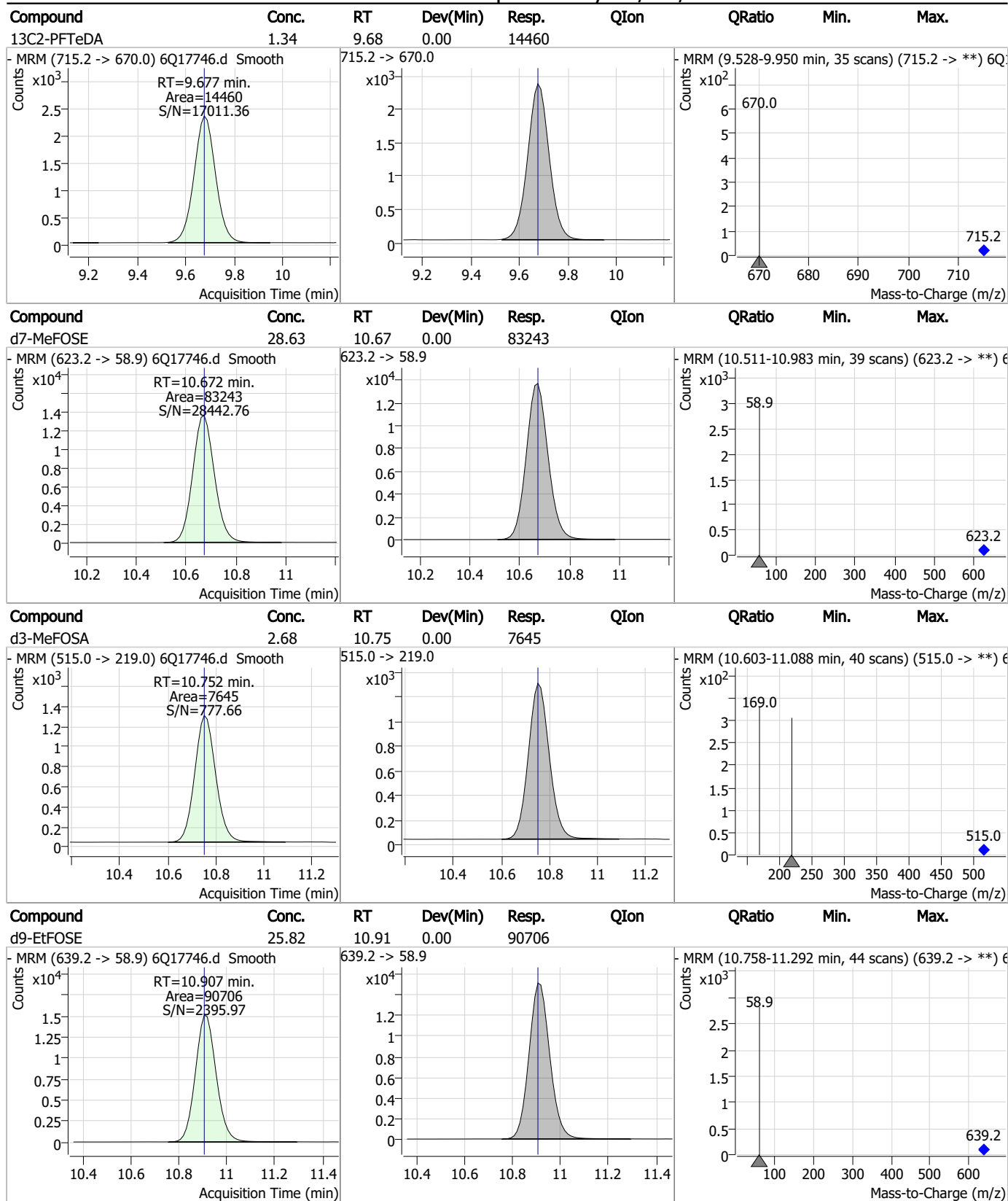
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.70	8.33	0.00	16668				
- MRM (589.2 -> 419.0) 6Q17746.d Smooth 			589.2 -> 419.0 			- MRM (8.156-8.639 min, 40 scans) (589.2 -> **) 6Q 		
13C7-PFUnDA	1.45	8.52	0.00	23098				
- MRM (570.0 -> 525.1) 6Q17746.d Smooth 			570.0 -> 525.1 			- MRM (8.356-8.801 min, 36 scans) (570.0 -> **) 6Q 		
13C2-PFDoDA	1.33	8.95	0.00	21134				
- MRM (615.1 -> 570.0) 6Q17746.d Smooth 			615.1 -> 570.0 			- MRM (8.785-9.311 min, 43 scans) (615.1 -> **) 6Q 		
13C8-FOSA	2.75	9.65	0.00	21567				
- MRM (506.1 -> 77.8) 6Q17746.d Smooth 			506.1 -> 77.8 			- MRM (9.475-9.944 min, 39 scans) (506.1 -> **) 6Q 		

7.2.6  
7

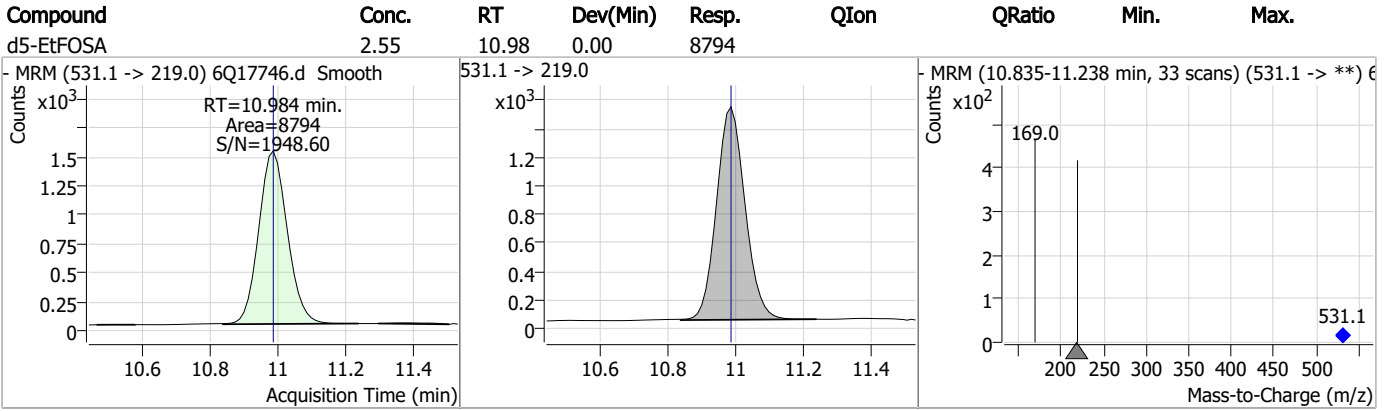


### Perfluorinated Compounds by LC/MS/MS



7.2.6  
7

Perfluorinated Compounds by LC/MS/MS



7.2.6

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44175.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/9/2023 11:30:48 PM  
 Sample Name : op96784-bs  
 Vial : P3-D1  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q639.batch.bin  
 Sample Information : OP96784,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.924	216.8 -> 171.9	133972	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	67667	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	47916	2.50 µg/L	0.000
M4-PFHpA	6.504	367.1 -> 322.0	27399	2.50 µg/L	0.012
M8-PFOA	7.163	421.1 -> 376.0	42911	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	20329	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	18917	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	20398	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	20983	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	14286	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	11695	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	11243	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	7284	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	10019	2.50 µg/L	0.000
M2-4:2FTS	5.260	329.1 -> 80.9	1236	5.00 µg/L	0.012
M2-6:2FTS	6.936	429.1 -> 80.9	2463	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	3854	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	15106	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	24981	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	12246	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	41367	25.00 µg/L	0.000
M9-EtFOSE	11.281	639.2 -> 58.9	61466	25.00 µg/L	0.012
M5-EtFOSA	11.373	531.1 -> 219.0	7753	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	6213	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	10029	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	64239	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	4713	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	49121	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	16339	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	23205	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	39034	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.260	329.1 -> 80.9	1236	6.45 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.0%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2463	7.13 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 142.6%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3854	7.15 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 143.0%		
13C2-PFDoDA	9.130	615.1 -> 570.0	20983	1.33 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-PFTeDA	9.924	715.2 -> 670.0	14286	1.11 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.7%		
13C3-PFBS	5.464	302.1 -> 79.9	11243	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C3-PFHxS	7.254	402.1 -> 79.9	7284	2.49 µg/L	0.012

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFBA	2.924	216.8 -> 171.9	133972	11.08 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.8%	
13C4-PFHpA	6.504	367.1 -> 322.0	27399	2.73 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C5-PFHxA	5.559	318.0 -> 273.0	47916	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.5%	
13C5-PFPeA	4.387	268.3 -> 223.0	67667	5.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.6%	
13C6-PFDA	8.216	519.1 -> 474.1	18917	1.35 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C7-PFUnDA	8.685	570.0 -> 525.1	20398	1.40 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.1%	
13C8-FOSA	9.796	506.1 -> 77.8	11695	1.86 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.4%	
13C8-PFOA	7.163	421.1 -> 376.0	42911	2.66 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C8-PFOS	8.354	507.1 -> 79.9	10019	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C9-PFNA	7.709	472.1 -> 427.0	20329	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.1%	
d3-MeFOSAA	8.273	573.2 -> 419.0	15106	5.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 119.3%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	24981	9.73 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
d3-MeFOSA	11.089	515.0 -> 219.0	6213	1.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 63.2%	
d5-EtFOSAA	8.483	589.2 -> 419.0	12246	5.87 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.5%	
d7-MeFOSE	10.972	623.2 -> 58.9	41367	13.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 53.0%	
d9-EtFOSE	11.281	639.2 -> 58.9	61466	13.91 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 55.6%	
d5-EtFOSA	11.373	531.1 -> 219.0	7753	1.85 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.2%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.248	327.1 -> 307.0	17472	8.79 µg/L	96
		327.1 -> 80.9	7790		
6:2FTS	6.936	427.1 -> 407.0	20589	8.66 µg/L	98
		427.1 -> 80.9	8602		
8:2FTS	8.003	527.1 -> 507.0	20163	9.39 µg/L	92
		527.1 -> 80.8	7715		
EtFOSAA	8.483	584.2 -> 419.1	4882	2.08 µg/L	89
		584.2 -> 526.0	2905		
FOSA	9.786	498.1 -> 77.9	11029	2.25 µg/L	99
		498.1 -> 478.0	313		
MeFOSAA	8.274	570.1 -> 419.0	5334	2.03 µg/L	87
		570.1 -> 483.0	1311		
PFBA	2.920	212.8 -> 168.9	32120	8.95 µg/L	100
PFBS	5.453	298.7 -> 79.9	9106	1.97 µg/L	95
		298.7 -> 98.8	3558		
PFDA	8.216	512.9 -> 469.0	32894	2.29 µg/L	97
		512.9 -> 219.0	6906		
PFDoDA	9.131	613.1 -> 569.0	38026	2.26 µg/L	98
		613.1 -> 319.0	5002		
PFDS	9.294	599.0 -> 79.9	5334	2.15 µg/L	99

7.3.1  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2733			
PFHpA	6.505	363.1 -> 319.0	40159	2.32	µg/L	99
		363.1 -> 169.0	6947			
PFHpS	7.836	449.0 -> 79.9	7906	2.19	µg/L	97
		449.0 -> 98.9	4295			
PFHxA	5.562	313.0 -> 269.0	41896	2.23	µg/L	99
		313.0 -> 118.9	1358			
PFHxS	7.255	398.7 -> 79.9	6641	2.22	µg/L	m 88
		398.7 -> 98.9	3260			
PFNA	7.709	463.0 -> 419.0	34718	2.30	µg/L	100
		463.0 -> 219.0	8780			
PFNS	8.848	548.8 -> 79.9	4788	2.19	µg/L	97
		548.8 -> 98.9	2218			
PFOA	7.164	413.0 -> 369.0	53900	2.18	µg/L	98
		413.0 -> 169.0	11043			
PFOS	8.355	498.9 -> 79.9	10921	2.23	µg/L	m 87
		498.9 -> 98.8	5514			
PFPeA	4.389	263.0 -> 219.0	74220	4.56	µg/L	100
PFPeS	6.531	349.1 -> 79.9	5273	2.06	µg/L	94
		349.1 -> 98.9	2600			
PFTeDA	9.924	713.1 -> 669.0	33068	2.36	µg/L	100
		713.1 -> 168.9	2790			
PFTrDA	9.541	663.0 -> 619.0	49308	2.19	µg/L	99
		663.0 -> 168.9	4712			
PFUnDA	8.685	563.1 -> 519.0	32006	2.31	µg/L	98
		563.1 -> 269.1	6086			
11CI-PF3OUdS	9.581	630.9 -> 450.9	41360	4.60	µg/L	98
		632.9 -> 452.9	12871			
9CI-PF3ONS	8.712	530.8 -> 351.0	56602	4.95	µg/L	100
		532.8 -> 353.0	16654			
ADONA	6.756	376.9 -> 250.9	121881	4.85	µg/L	100
		376.9 -> 84.8	32324			
HFPO-DA	5.928	284.9 -> 168.9	11389	4.77	µg/L	97
		284.9 -> 184.9	1304			
3:3FTCA	3.848	241.0 -> 177.0	6373	8.90	µg/L	98
		241.0 -> 117.0	631			
5:3FTCA	6.231	341.0 -> 237.1	144090	56.56	µg/L	100
		341.0 -> 217.0	98739			
7:3FTCA	7.686	441.0 -> 316.9	87685	66.24	µg/L	94
		441.0 -> 336.9	197866			
EtFOSA	11.375	526.0 -> 219.0	14959	4.61	µg/L	71
		526.0 -> 169.0	20990			
EtFOSE	11.295	630.0 -> 58.9	27135	11.40	µg/L	100
MeFOSA	11.090	511.9 -> 219.0	11602	4.96	µg/L	m 76
		511.9 -> 169.0	17749			
MeFOSE	10.997	616.1 -> 58.9	18466	10.87	µg/L	m 100
PFDoDS	10.064	699.1 -> 79.9	4363	1.97	µg/L	100
		699.1 -> 98.8	2479			
NFDHA	5.453	295.0 -> 201.0	5102	3.81	µg/L	95
		295.0 -> 84.9	1224			
PFMBA	4.791	279.0 -> 85.1	41096	4.52	µg/L	100
PFMPA	3.540	229.0 -> 84.9	39897	4.69	µg/L	100
PFEESA	5.997	314.8 -> 134.9	55837	3.93	µg/L	98
		314.8 -> 82.9	2018			

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

7.3.1  
7



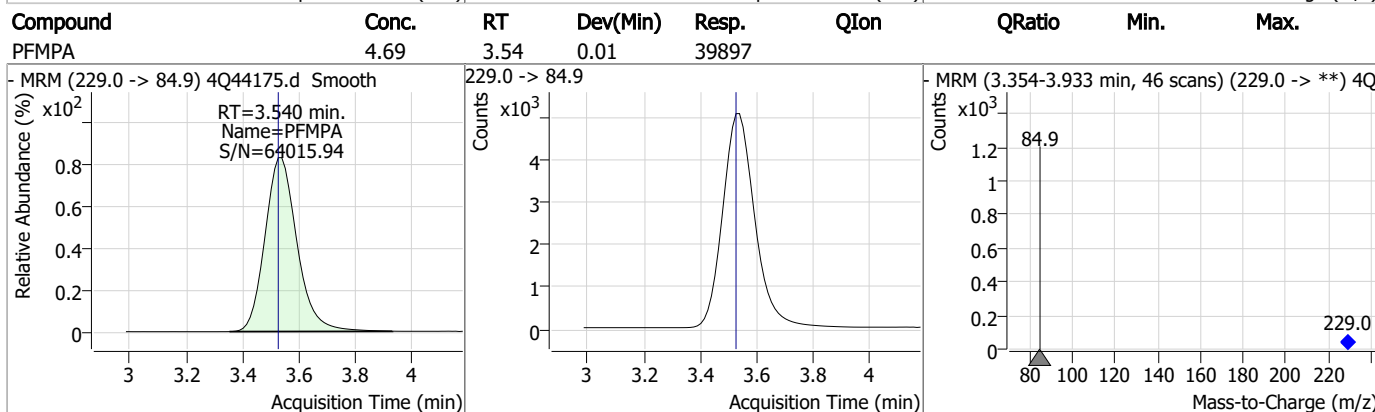
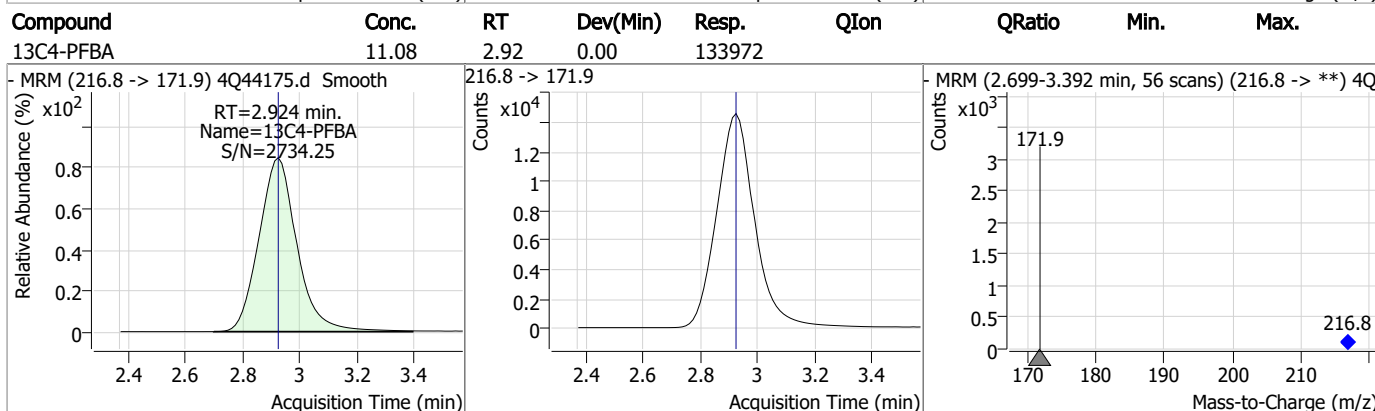
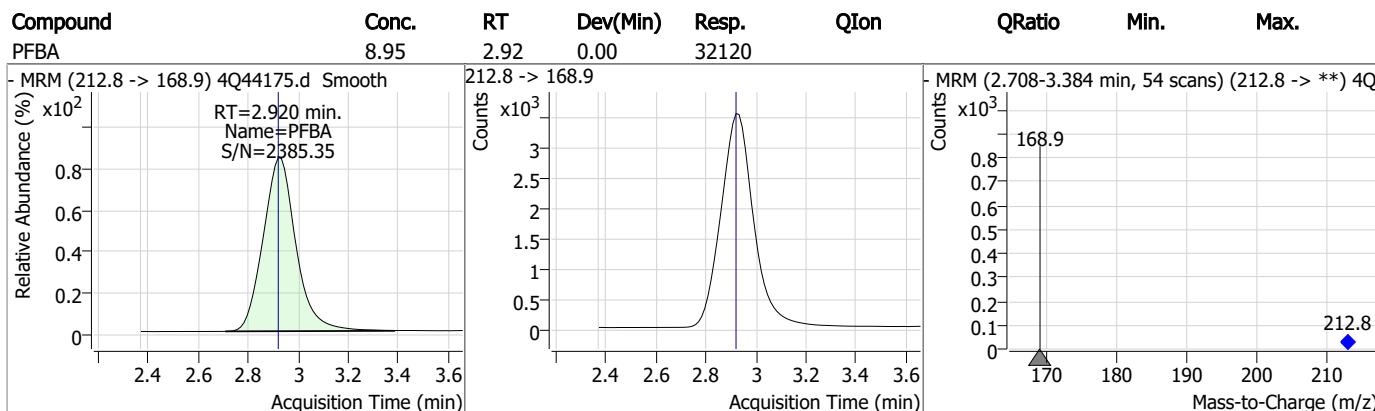
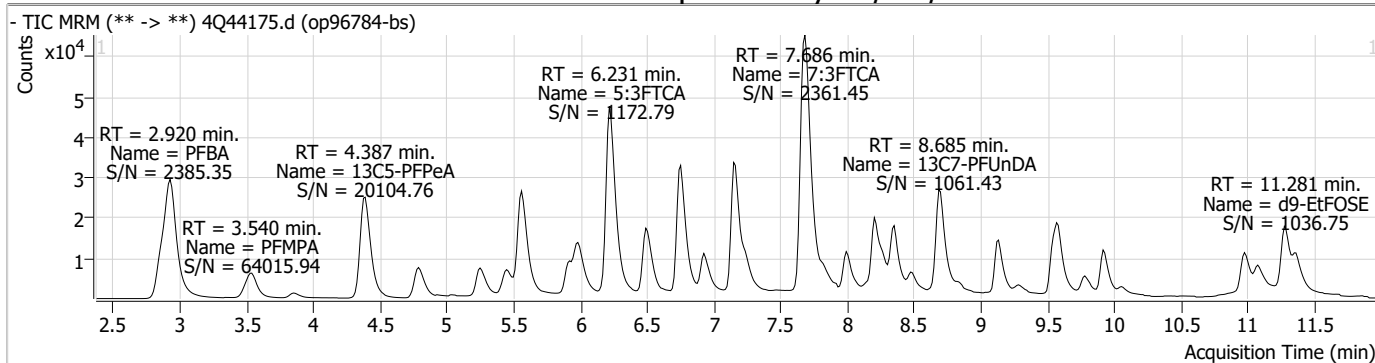
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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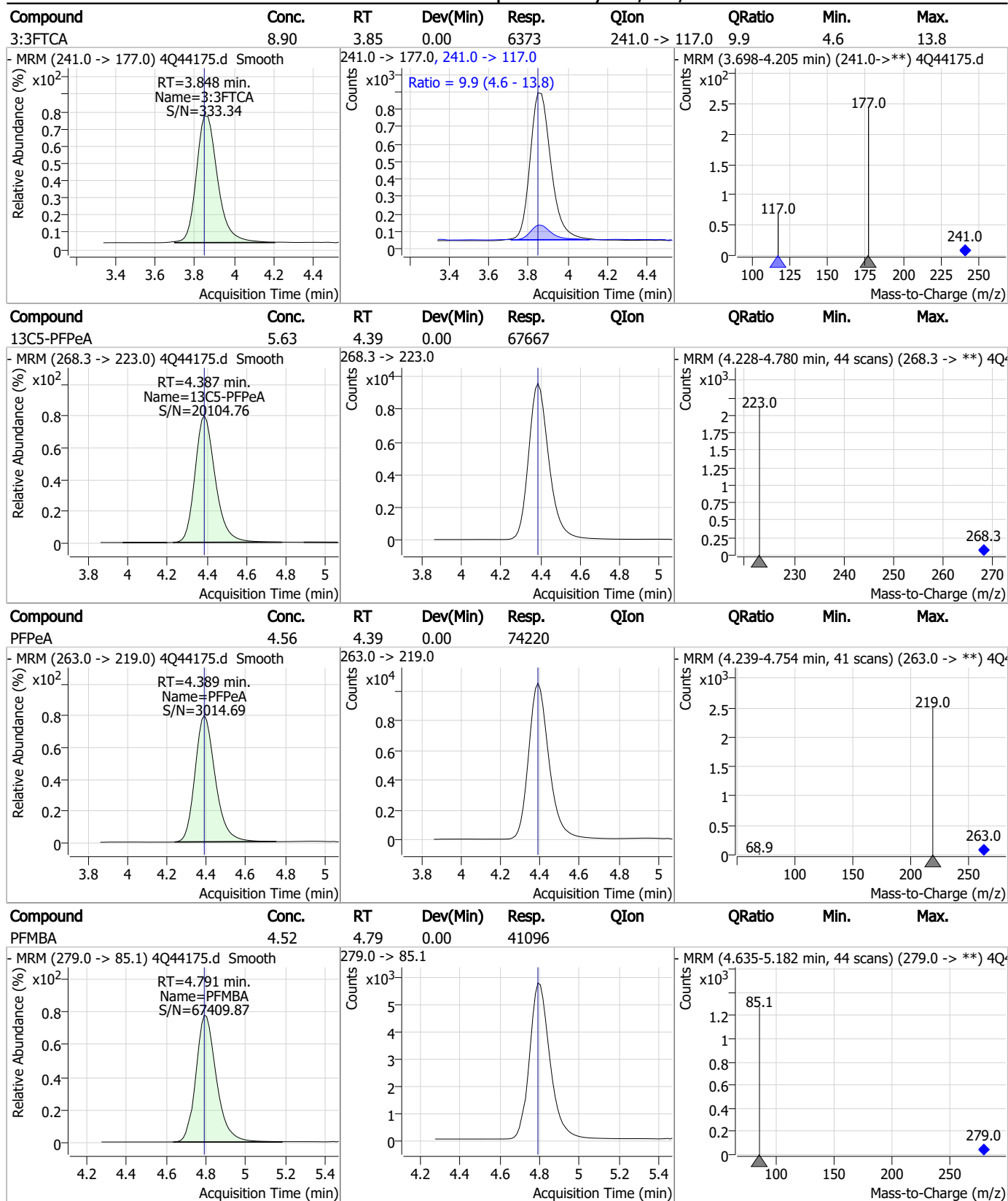
7.3.1

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### Perfluorinated Compounds by LC/MS/MS

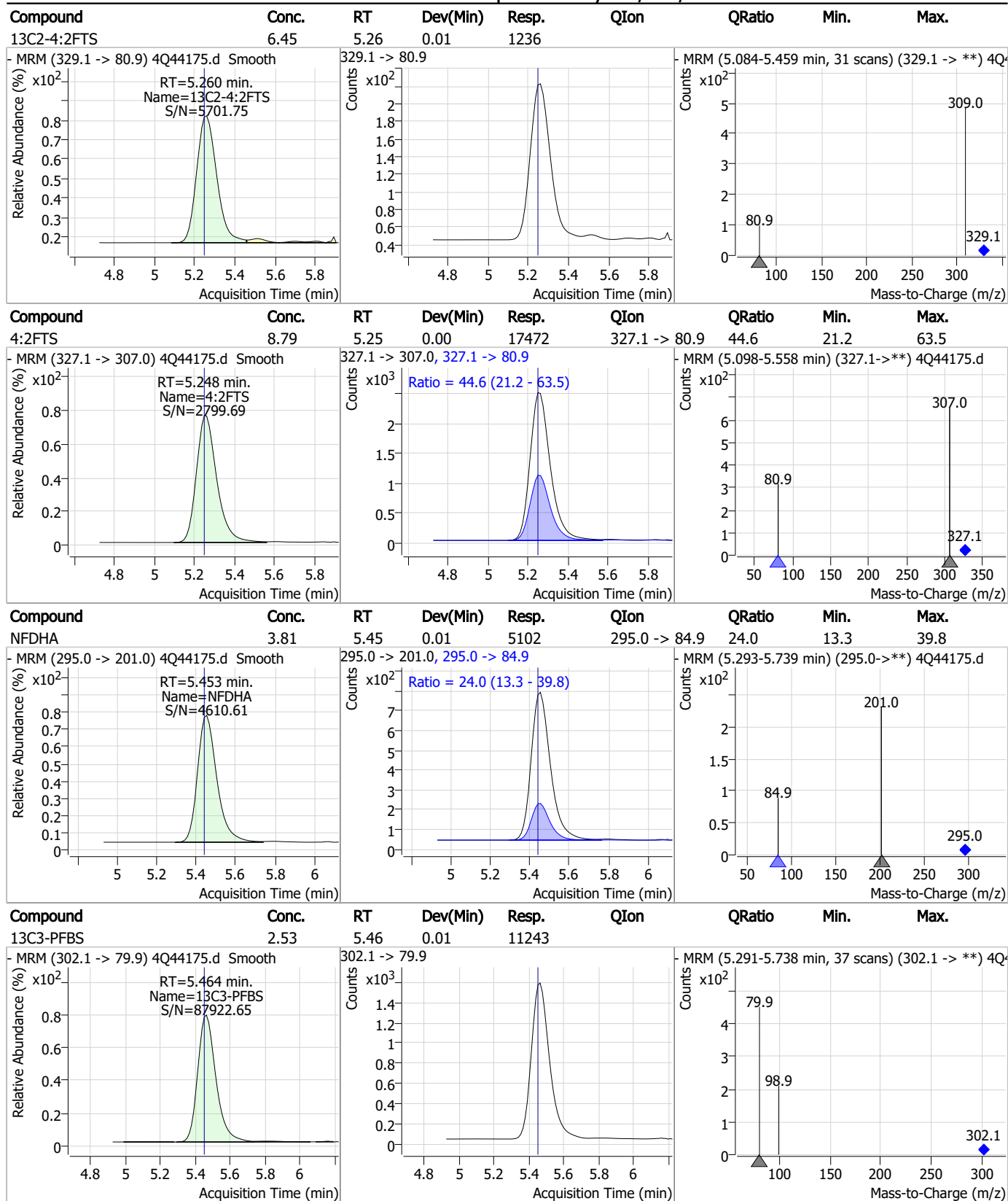


### Perfluorinated Compounds by LC/MS/MS



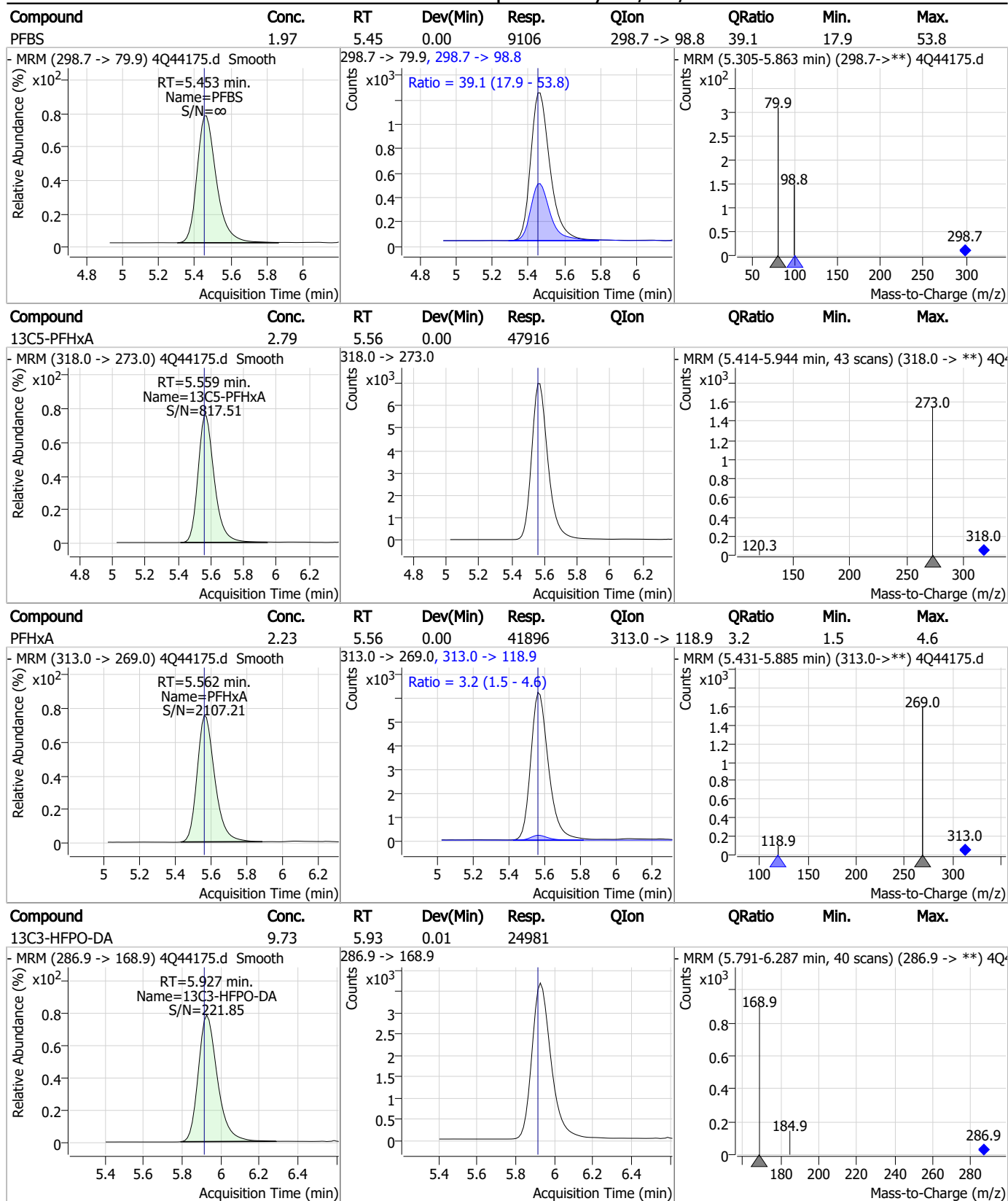
7.3.1  
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### Perfluorinated Compounds by LC/MS/MS



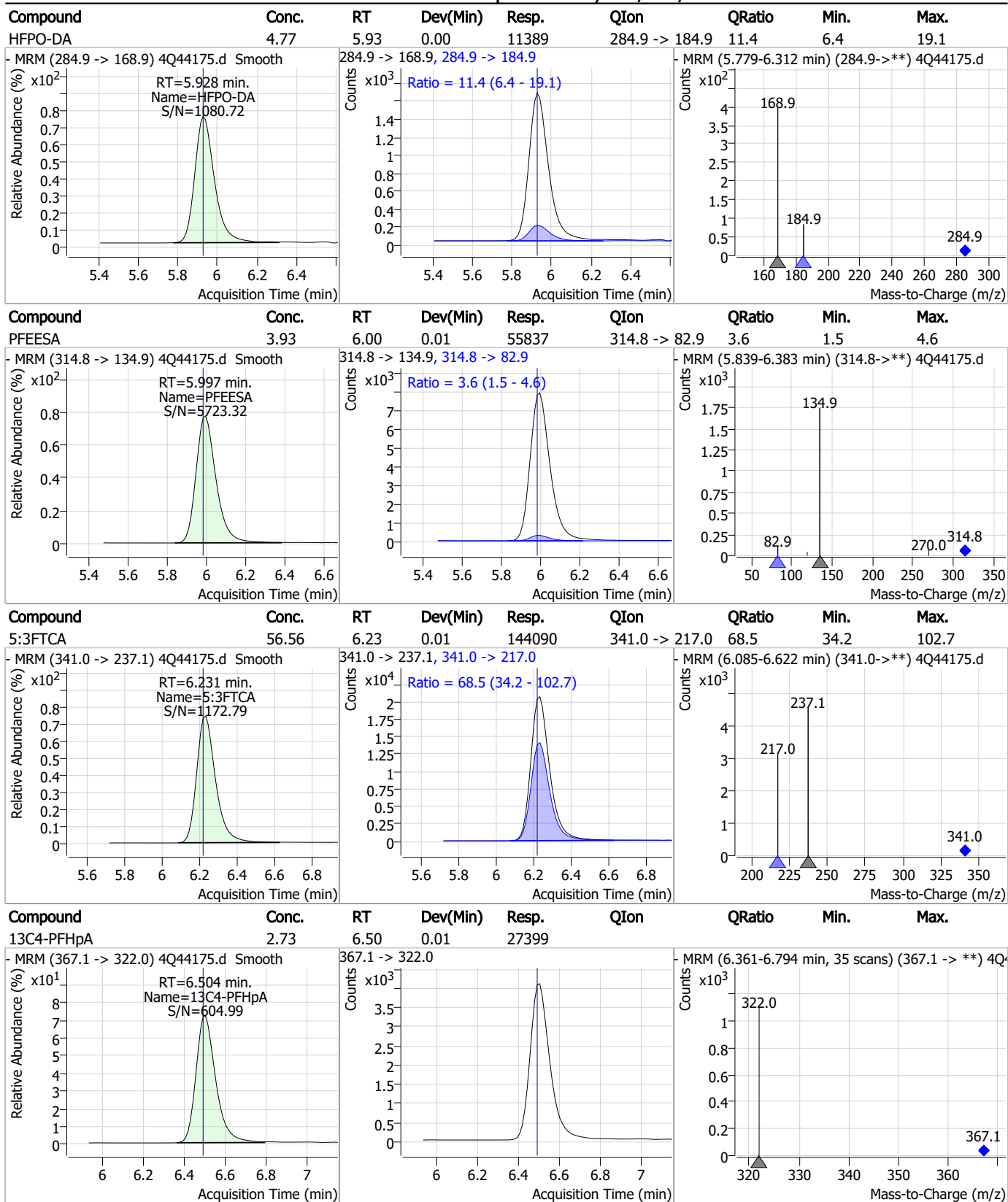
7.3.1  
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### Perfluorinated Compounds by LC/MS/MS



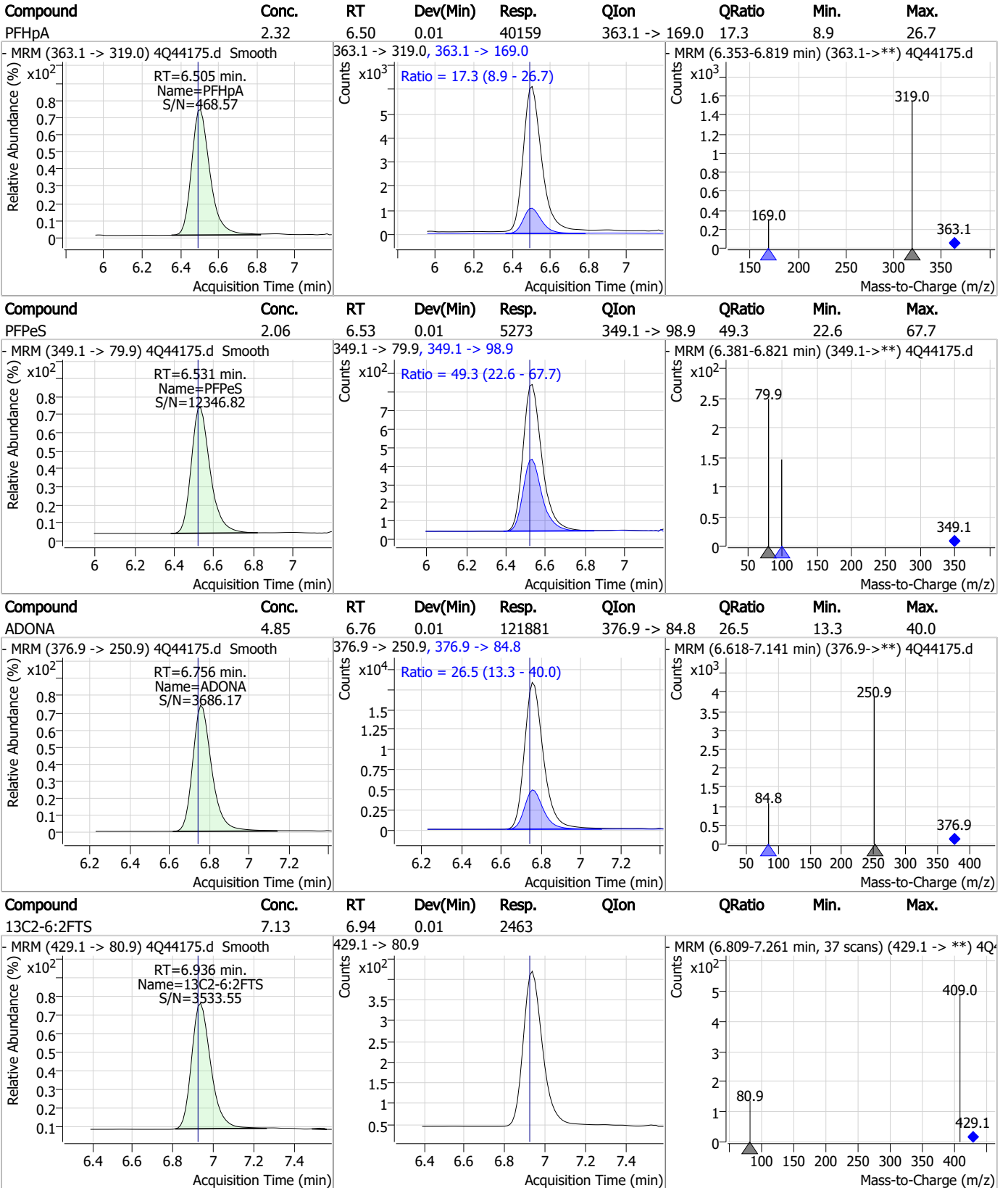
7.3.1  
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### Perfluorinated Compounds by LC/MS/MS



7.3.1  
7

### Perfluorinated Compounds by LC/MS/MS

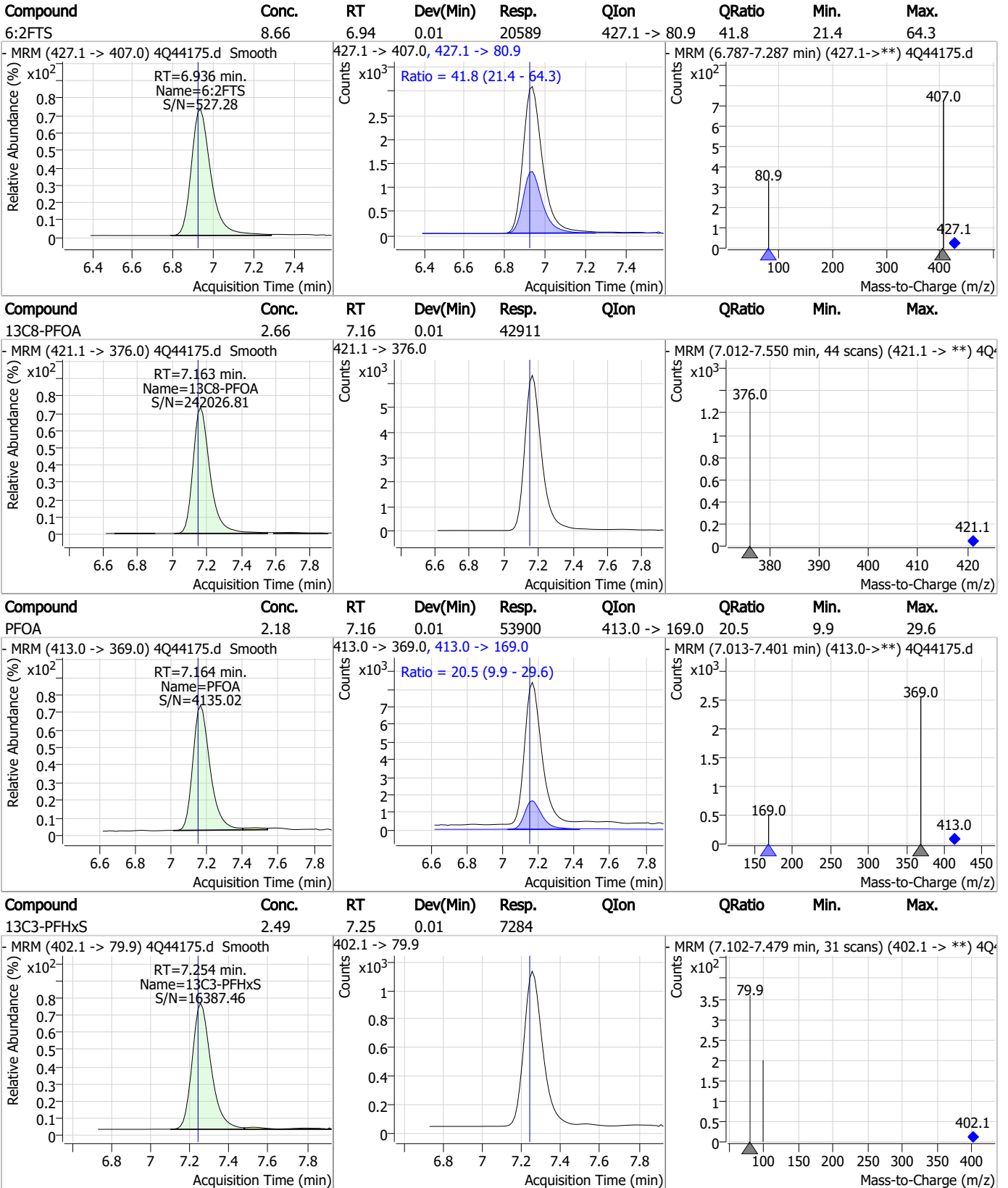


7.3.1

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### Perfluorinated Compounds by LC/MS/MS



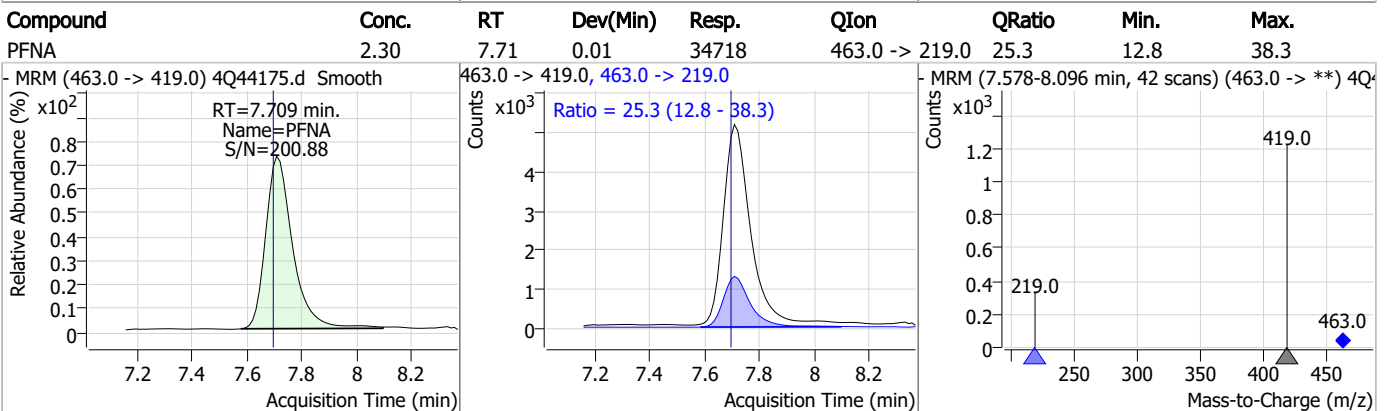
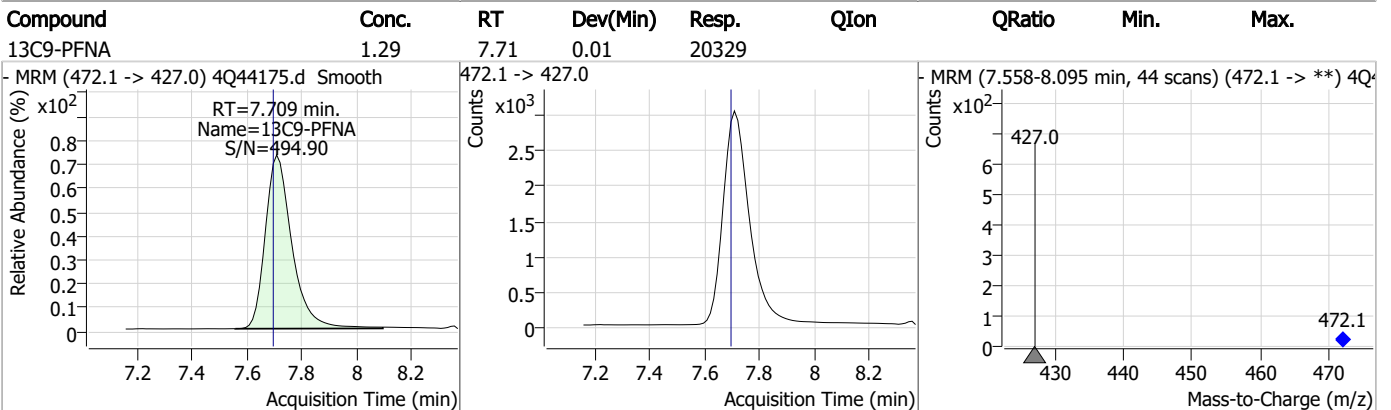
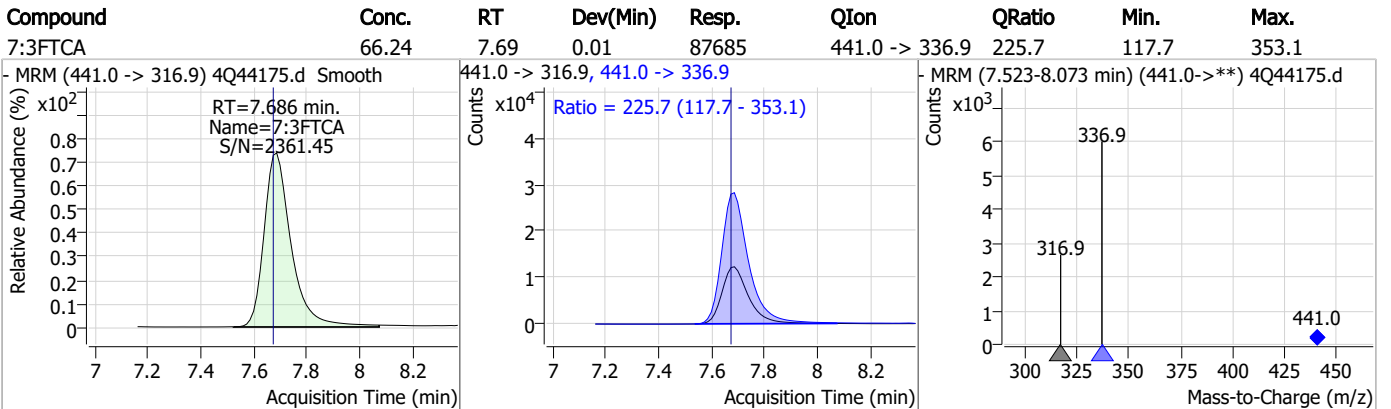
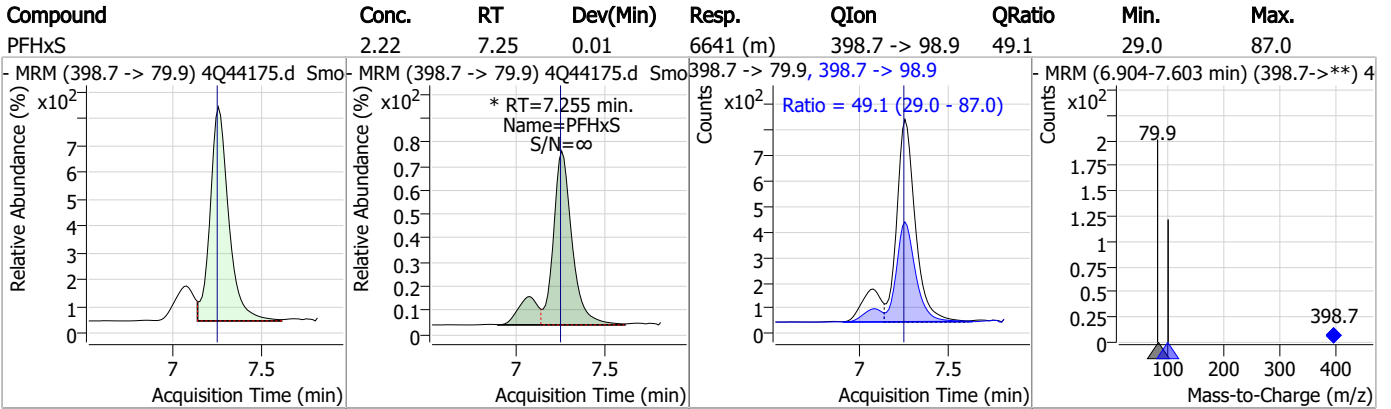
7.3.1

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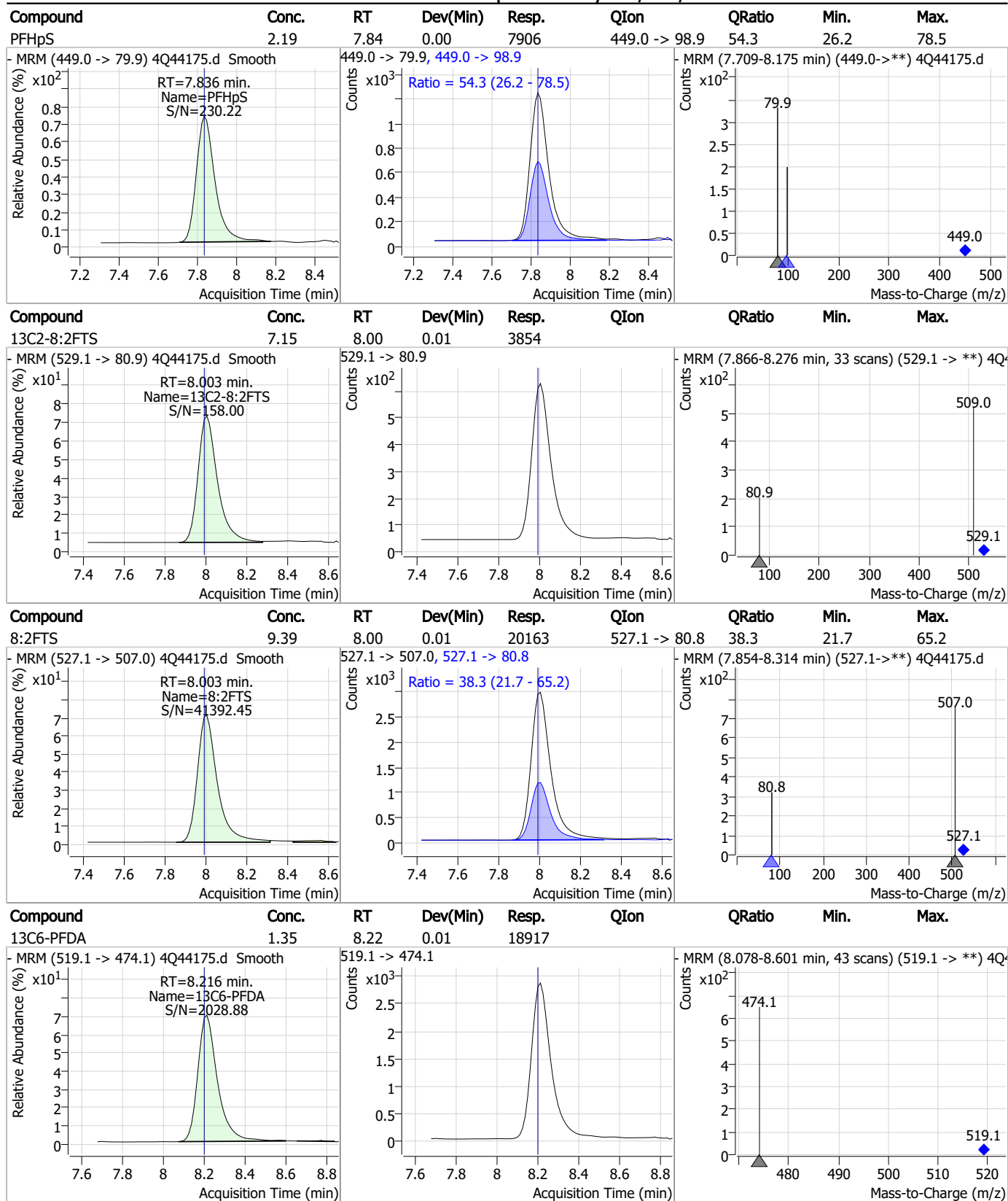




### Perfluorinated Compounds by LC/MS/MS

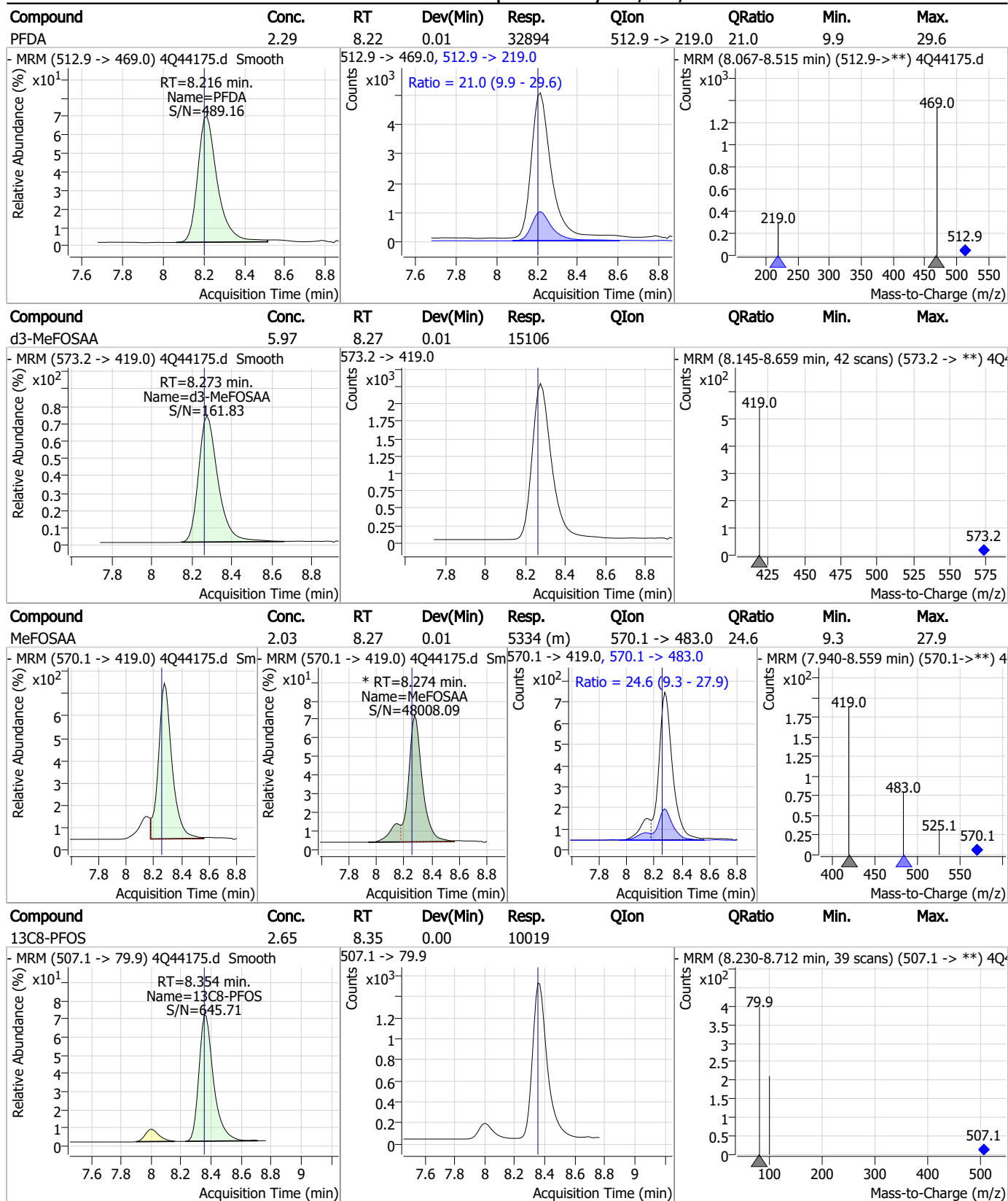


### Perfluorinated Compounds by LC/MS/MS



7.3.1  
7

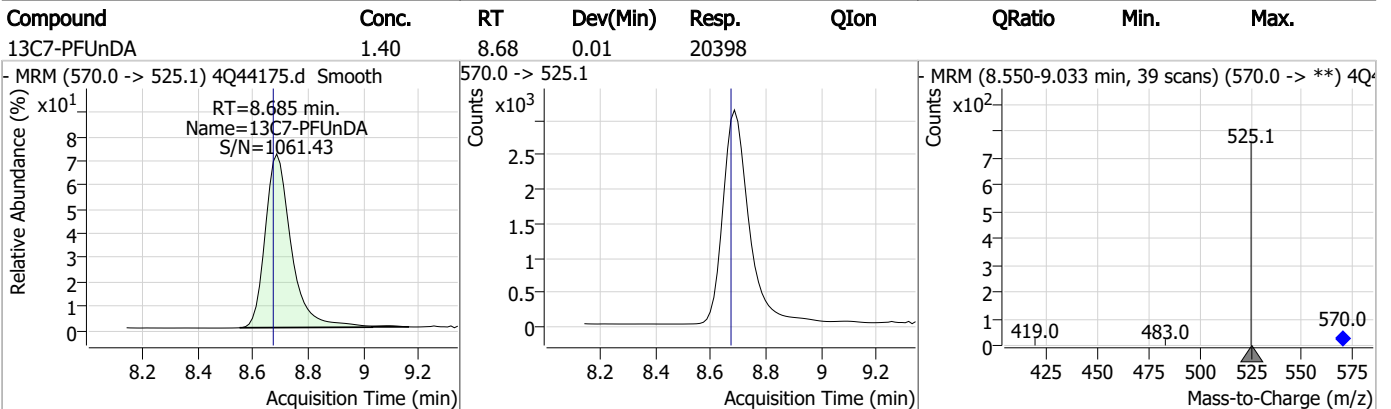
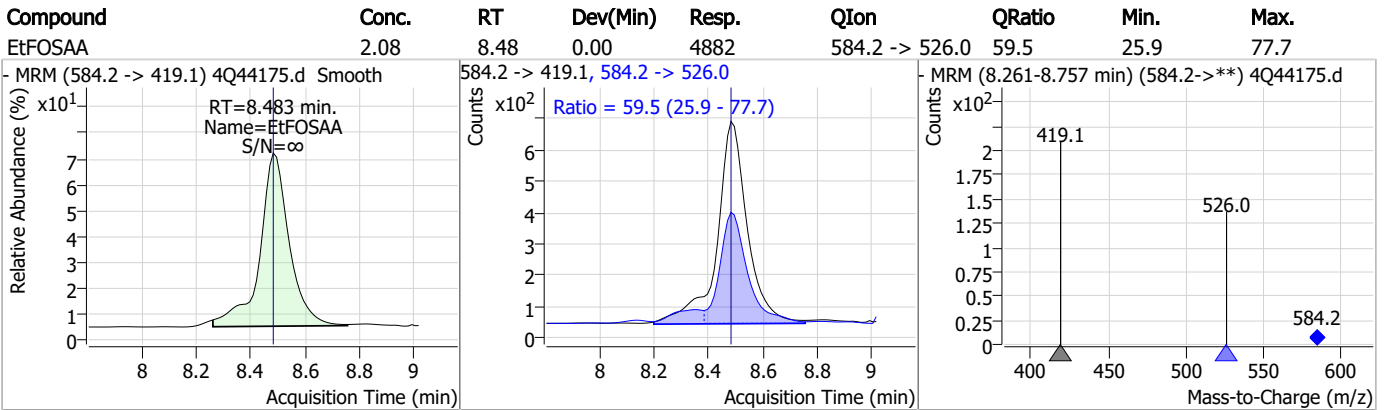
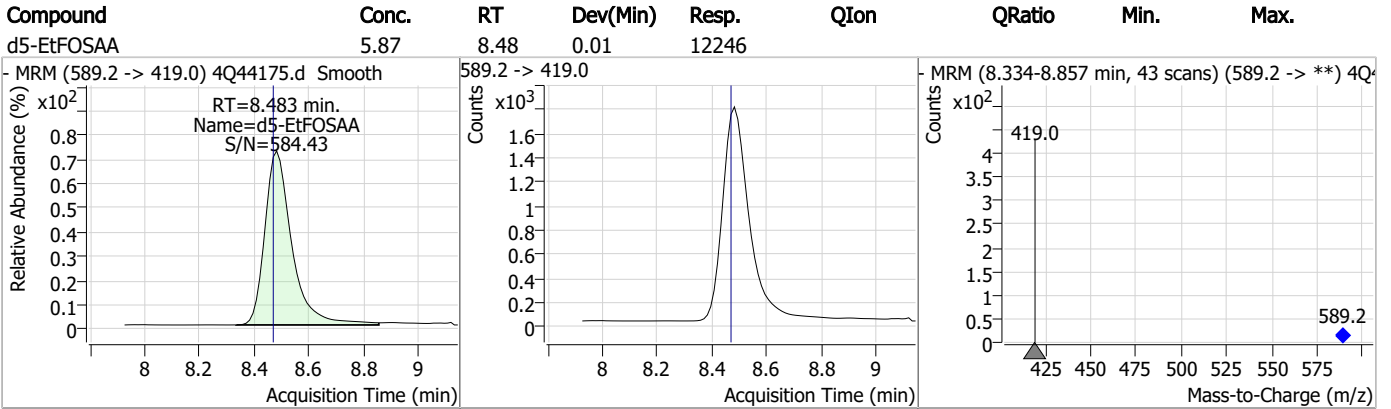
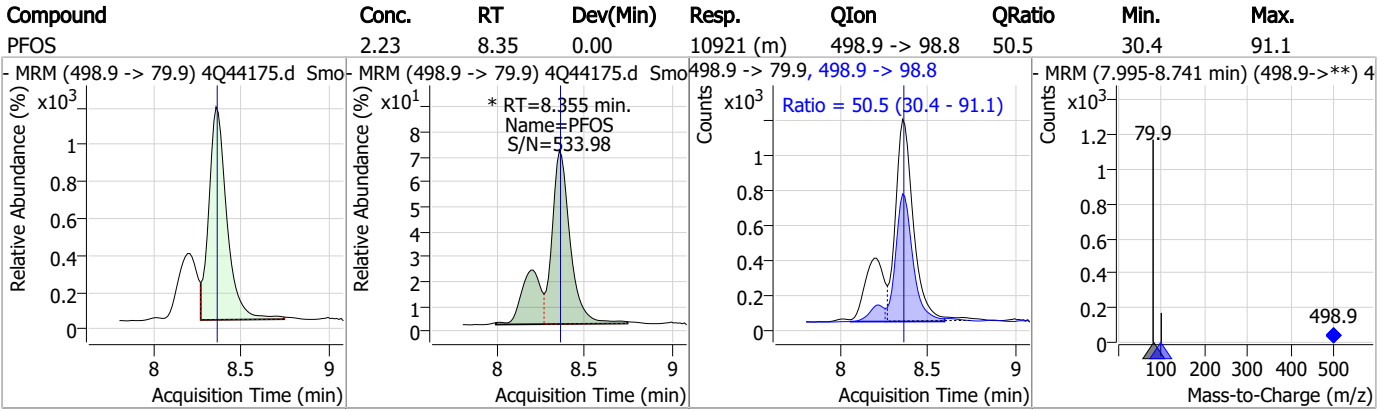
### Perfluorinated Compounds by LC/MS/MS



7.3.1

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### Perfluorinated Compounds by LC/MS/MS

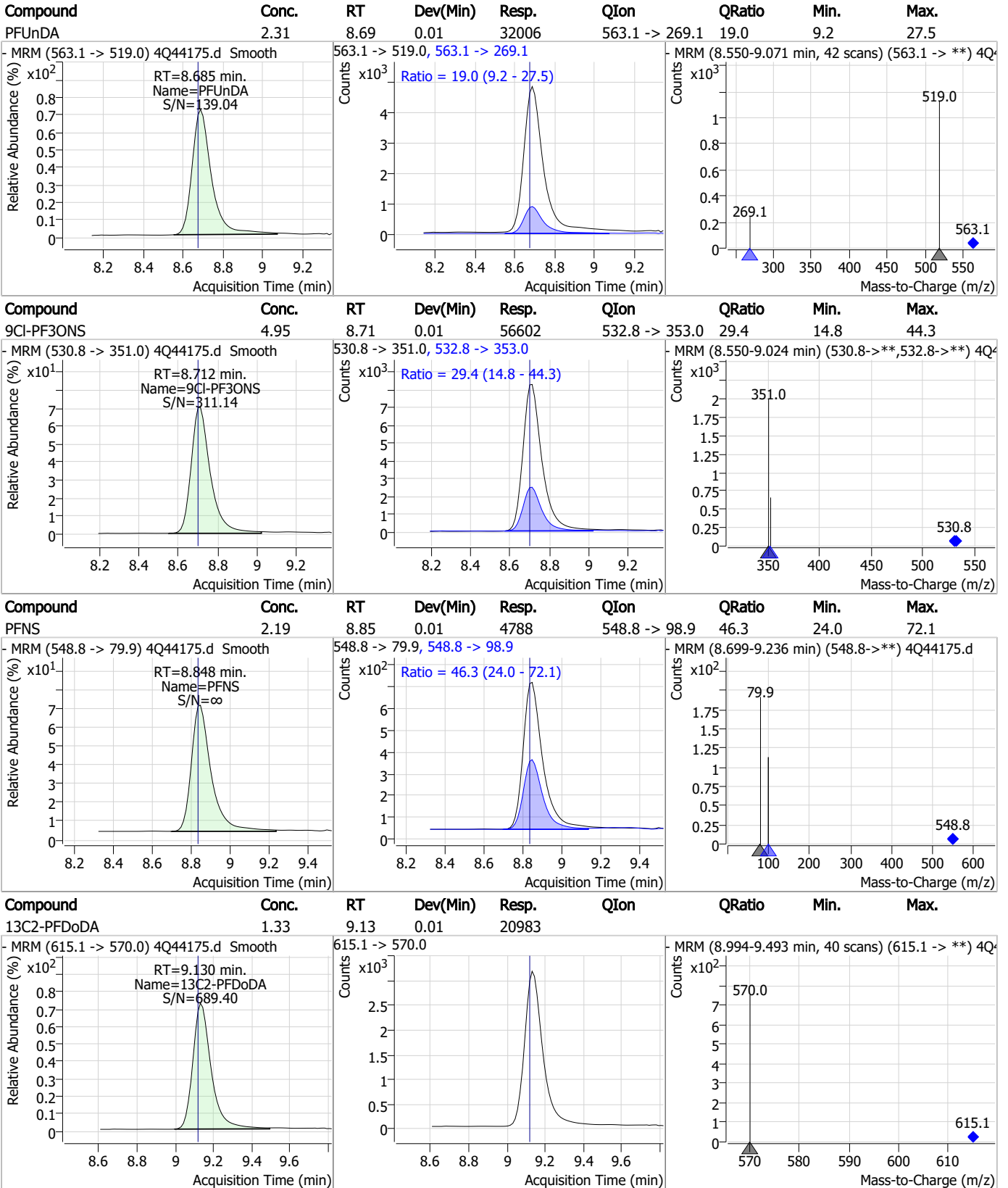


7.3.1

7



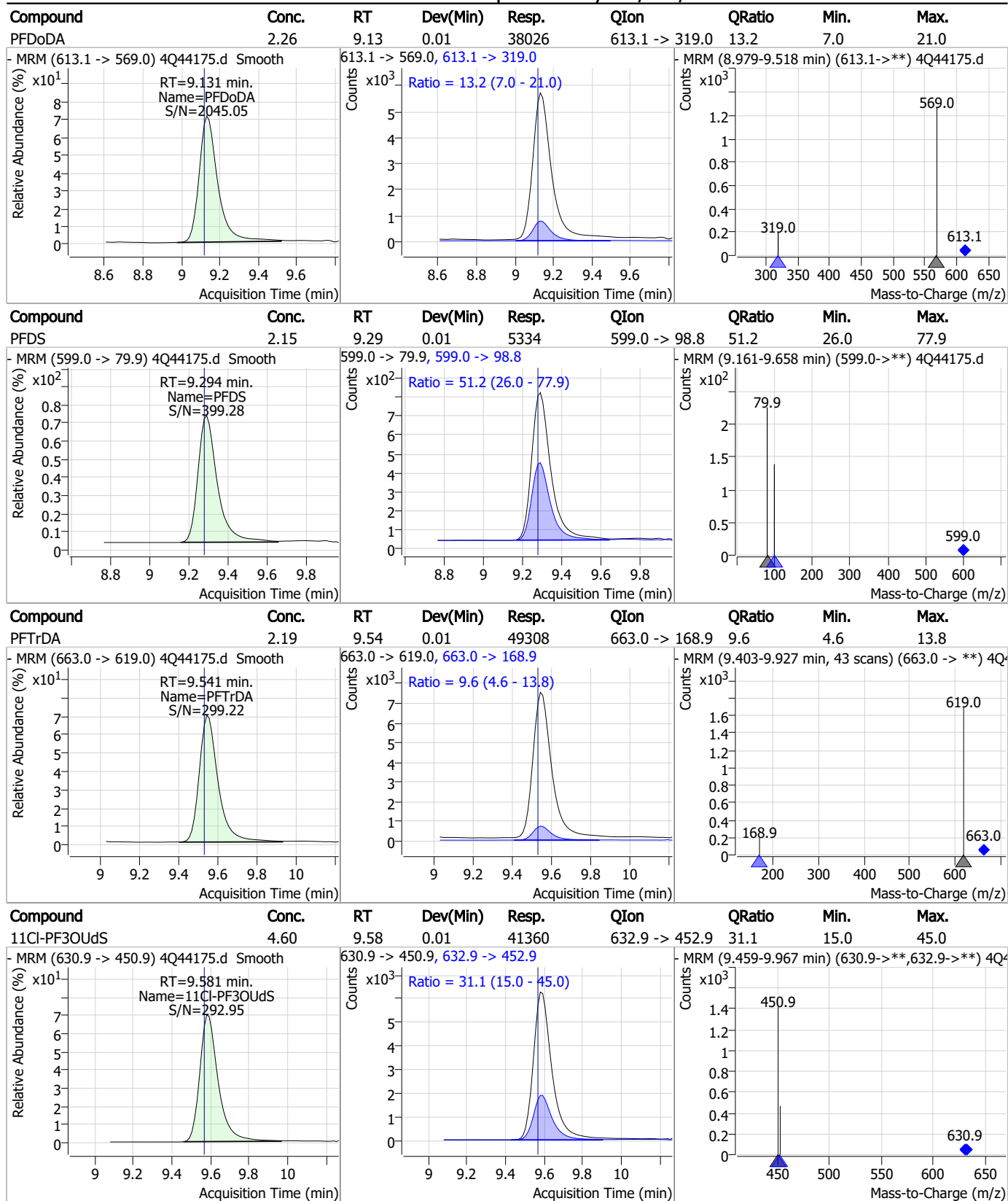
### Perfluorinated Compounds by LC/MS/MS



7.3.1

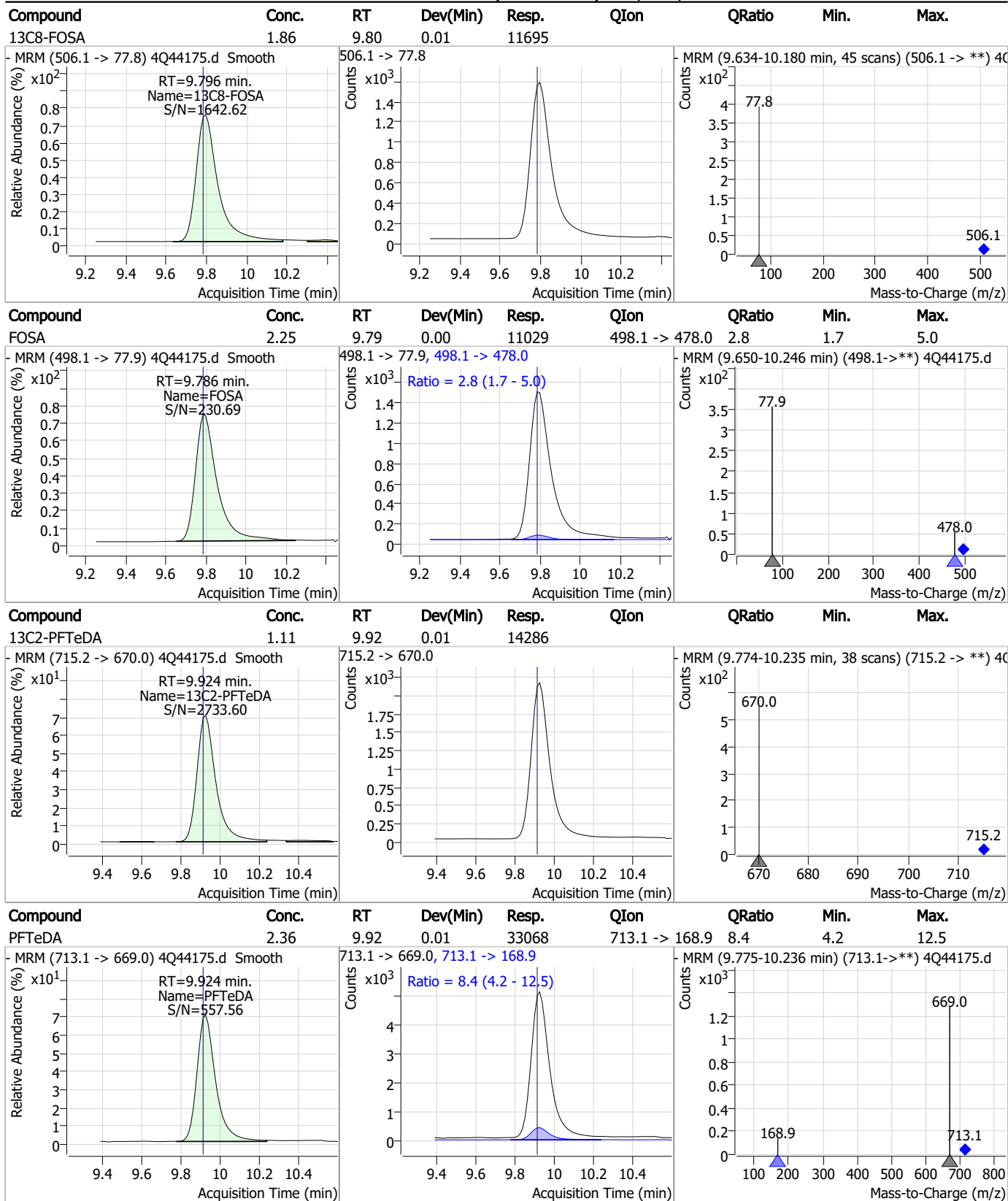
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### Perfluorinated Compounds by LC/MS/MS



7.3.1  
7

### Perfluorinated Compounds by LC/MS/MS

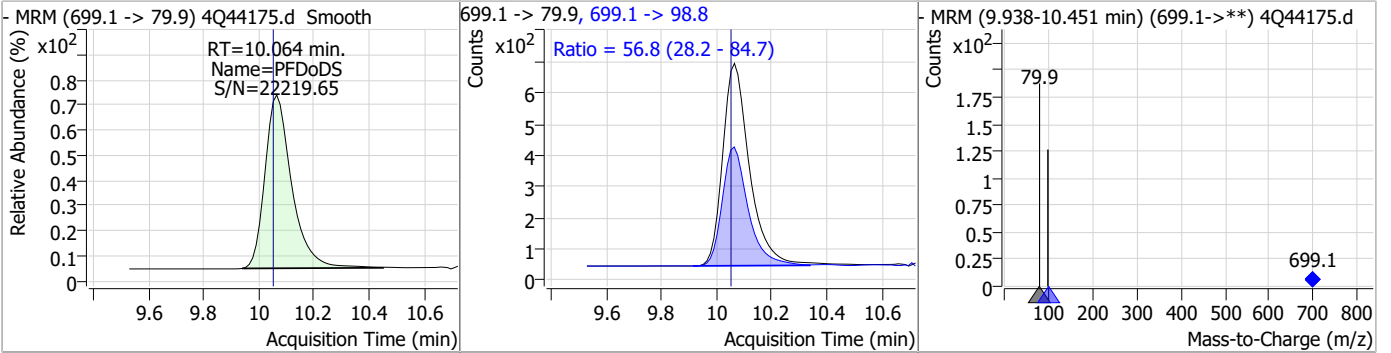


7.3.1  
7

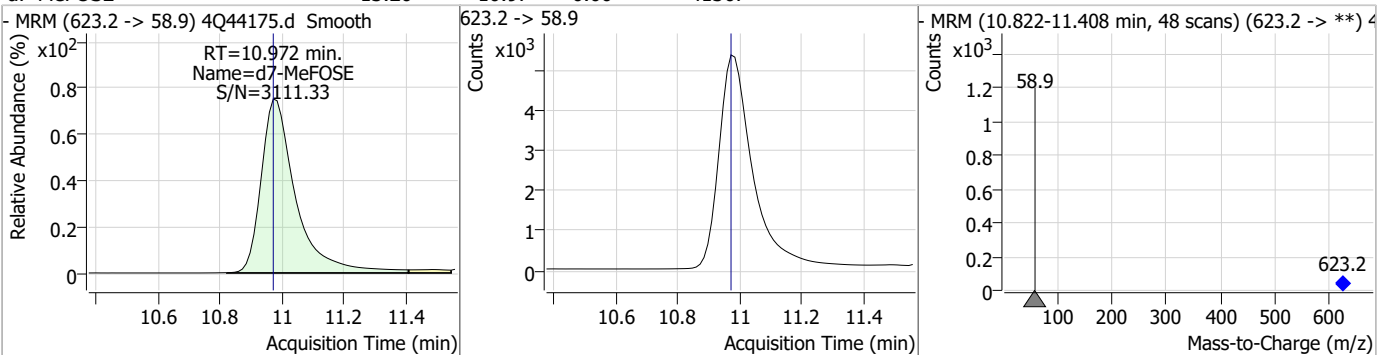


### Perfluorinated Compounds by LC/MS/MS

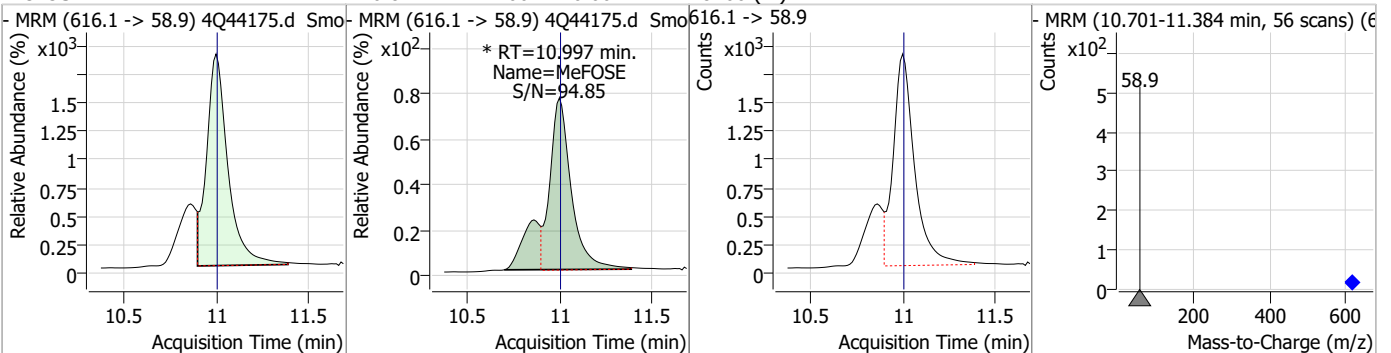
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.97	10.06	0.01	4363	699.1 -> 98.8	56.8	28.2	84.7



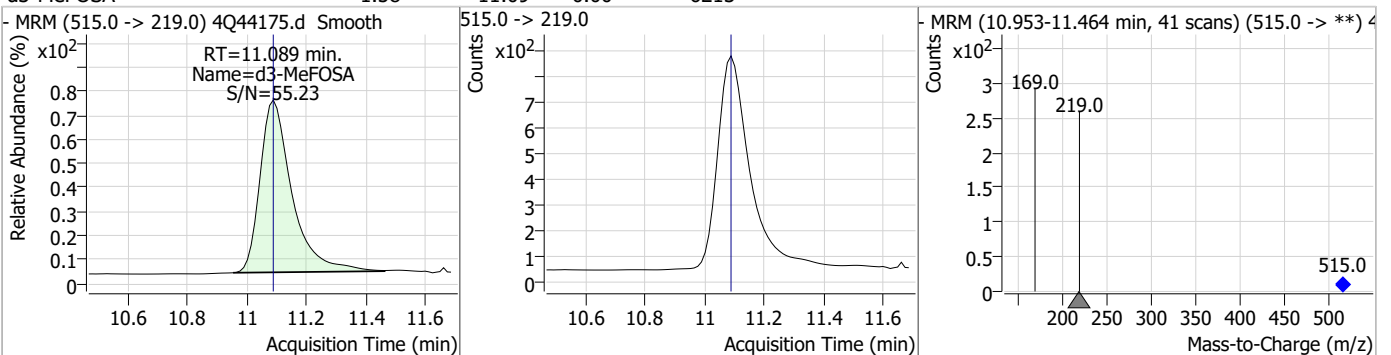
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	13.26	10.97	0.00	41367				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	10.87	11.00	0.00	18466 (m)				



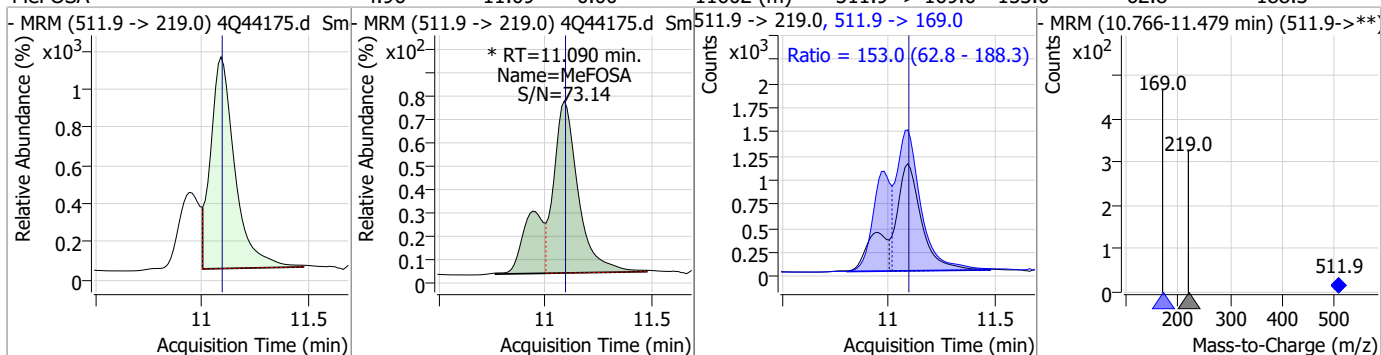
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.58	11.09	0.00	6213				



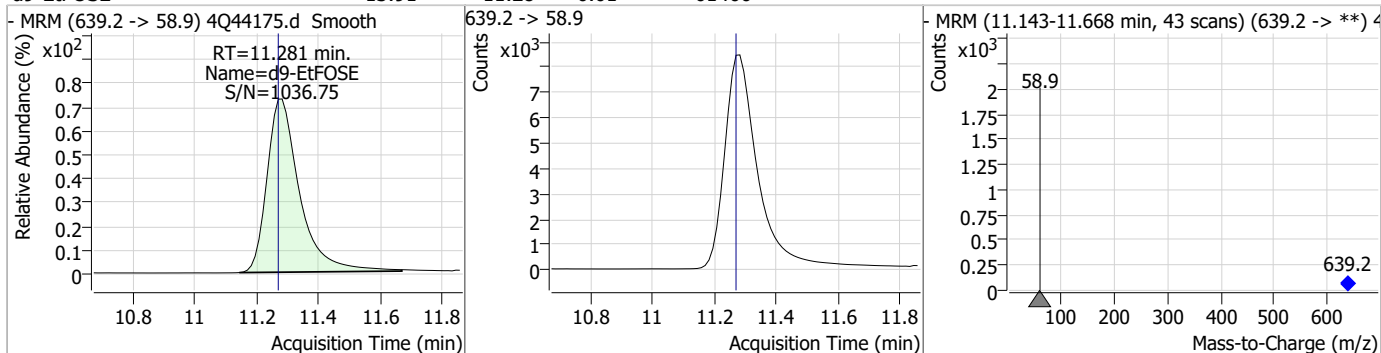


### Perfluorinated Compounds by LC/MS/MS

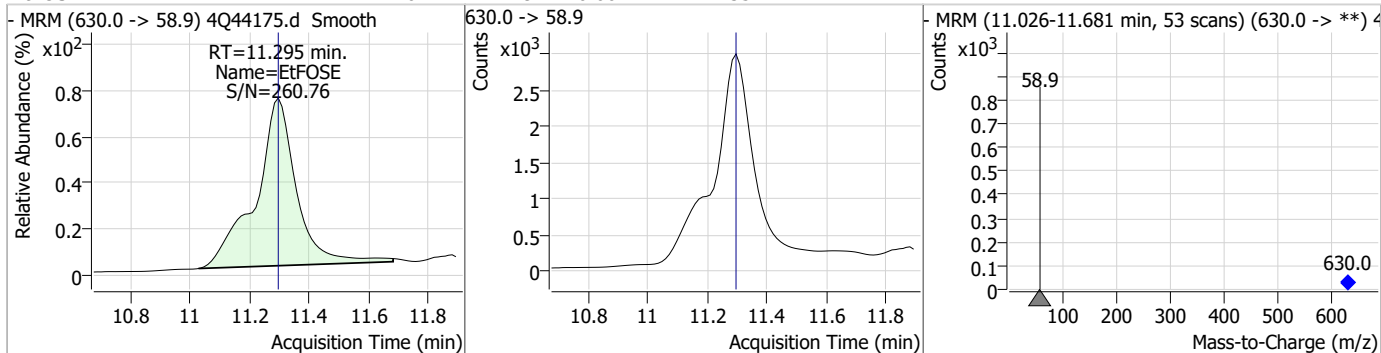
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.96	11.09	0.00	11602 (m)	511.9 -> 169.0	153.0	62.8	188.3



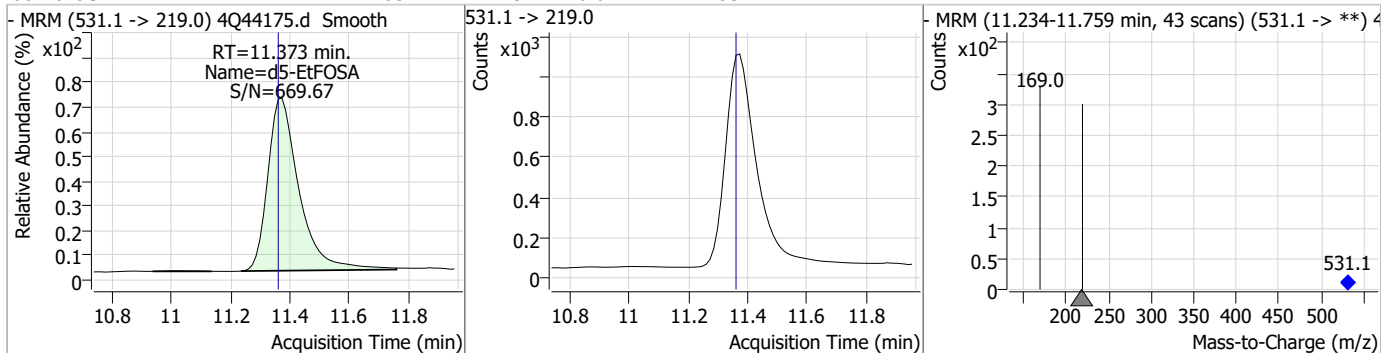
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	13.91	11.28	0.01	61466				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.40	11.29	0.00	27135				



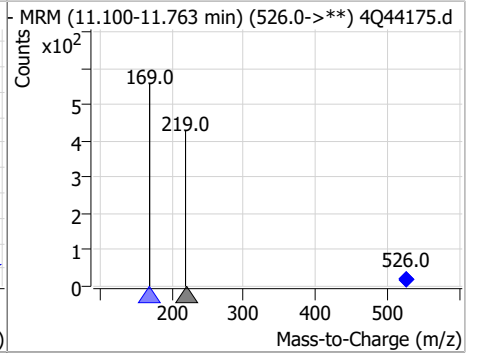
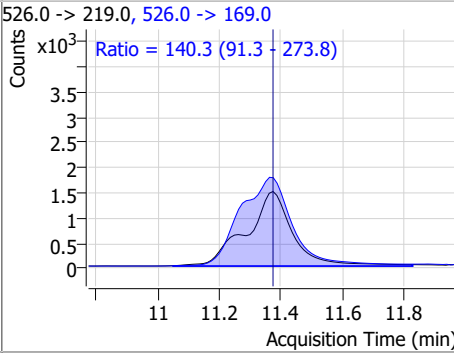
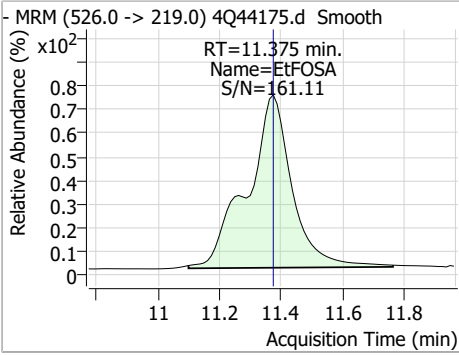
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.85	11.37	0.01	7753				



7.3.1  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	4.61	11.37	0.00	14959	526.0 -> 169.0	140.3	91.3	273.8



7.3.1  
7

# Manual Integration Approval Summary

Sample Number: OP96784-BS                      Method: EPA DRAFT 1633  
Lab FileID: 4Q44175.D                      Analyst approved: 05/10/23 11:10 Martha Valls  
Injection Time: 05/09/23 23:30                      Supervisor approved: 05/10/23 17:32 Norman Farmer

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

7.3.1.1  
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44176.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/9/2023 11:44:50 PM  
 Sample Name : op96784-llbs:3  
 Vial : P3-D2  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q639.batch.bin  
 Sample Information : OP96784,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.924	216.8 -> 171.9	131015	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	67151	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	46544	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	27948	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	43192	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	21448	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	18854	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	18973	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	20140	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	14856	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	11506	2.50 µg/L	0.012
M3-PFBS	5.452	302.1 -> 79.9	11300	2.50 µg/L	0.000
M3-PFHxS	7.254	402.1 -> 79.9	7343	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	10251	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1332	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	2409	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	3443	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	14501	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	25142	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	11740	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	41050	25.00 µg/L	0.000
M9-EtFOSE	11.281	639.2 -> 58.9	65998	25.00 µg/L	0.012
M5-EtFOSA	11.373	531.1 -> 219.0	7572	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	6702	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	10122	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	62005	5.00 µg/L	-0.013
18O2-PFHxS	7.253	403.0 -> 83.9	4548	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	45864	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	16106	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	22901	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	37437	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.247	329.1 -> 80.9	1332	7.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 144.1%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2409	7.23 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 144.6%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3443	6.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 132.4%		
13C2-PFDoDA	9.130	615.1 -> 570.0	20140	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C2-PFTeDA	9.924	715.2 -> 670.0	14856	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C3-PFBS	5.452	302.1 -> 79.9	11300	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C3-PFHxS	7.254	402.1 -> 79.9	7343	2.60 µg/L	0.012

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C4-PFBA	2.924	216.8 -> 171.9	131015	11.23 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C4-PFHpA	6.492	367.1 -> 322.0	27948	2.90 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.0%	
13C5-PFHxA	5.559	318.0 -> 273.0	46544	2.82 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.9%	
13C5-PFPeA	4.387	268.3 -> 223.0	67151	5.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.5%	
13C6-PFDA	8.216	519.1 -> 474.1	18854	1.37 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.3%	
13C7-PFUnDA	8.685	570.0 -> 525.1	18973	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C8-FOSA	9.796	506.1 -> 77.8	11506	1.81 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 72.5%	
13C8-PFOA	7.163	421.1 -> 376.0	43192	2.87 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.7%	
13C8-PFOS	8.354	507.1 -> 79.9	10251	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C9-PFNA	7.709	472.1 -> 427.0	21448	1.38 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.2%	
d3-MeFOSAA	8.273	573.2 -> 419.0	14501	5.68 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.5%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	25142	10.21 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
d3-MeFOSA	11.089	515.0 -> 219.0	6702	1.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 67.5%	
d5-EtFOSAA	8.483	589.2 -> 419.0	11740	5.58 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.6%	
d7-MeFOSE	10.972	623.2 -> 58.9	41050	13.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 52.1%	
d9-EtFOSE	11.281	639.2 -> 58.9	65998	14.80 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 59.2%	
d5-EtFOSA	11.373	531.1 -> 219.0	7572	1.79 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 71.8%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.260	327.1 -> 307.0	5090	2.38 µg/L	96
		327.1 -> 80.9	2292		
6:2FTS	6.936	427.1 -> 407.0	6023	2.59 µg/L	97
		427.1 -> 80.9	2717		
8:2FTS	8.003	527.1 -> 507.0	5723	2.98 µg/L	97
		527.1 -> 80.8	2582		
EtFOSAA	8.483	584.2 -> 419.1	1376	0.61 µg/L	m 95
		584.2 -> 526.0	760		
FOSA	9.786	498.1 -> 77.9	3471	0.72 µg/L	# 94
		498.1 -> 478.0	43		
MeFOSAA	8.274	570.1 -> 419.0	1772	0.70 µg/L	88
		570.1 -> 483.0	428		
PFBA	2.920	212.8 -> 168.9	9385	2.68 µg/L	100
PFBS	5.465	298.7 -> 79.9	2703	0.58 µg/L	88
		298.7 -> 98.8	1165		
PFDA	8.216	512.9 -> 469.0	9571	0.67 µg/L	98
		512.9 -> 219.0	1779		
PFDODA	9.131	613.1 -> 569.0	10421	0.64 µg/L	96
		613.1 -> 319.0	1649		
PFDS	9.294	599.0 -> 79.9	1577	0.62 µg/L	89

7.3.2  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	937			
PFHpA	6.505	363.1 -> 319.0	11857	0.67	µg/L	97
		363.1 -> 169.0	1952			
PFHpS	7.836	449.0 -> 79.9	2322	0.63	µg/L	97
		449.0 -> 98.9	1260			
PFHxA	5.562	313.0 -> 269.0	12197	0.67	µg/L	98
		313.0 -> 118.9	435			
PFHxS	7.255	398.7 -> 79.9	1943	0.65	µg/L	m 81
		398.7 -> 98.9	852			
PFNA	7.709	463.0 -> 419.0	10647	0.67	µg/L	94
		463.0 -> 219.0	2399			
PFNS	8.848	548.8 -> 79.9	1428	0.64	µg/L	99
		548.8 -> 98.9	672			
PFOA	7.164	413.0 -> 369.0	15666	0.63	µg/L	96
		413.0 -> 169.0	3366			
PFOS	8.355	498.9 -> 79.9	3220	0.64	µg/L	m 92
		498.9 -> 98.8	1761			
PFPeA	4.389	263.0 -> 219.0	21108	1.31	µg/L	100
PFPeS	6.531	349.1 -> 79.9	1563	0.61	µg/L	97
		349.1 -> 98.9	679			
PFTeDA	9.924	713.1 -> 669.0	9523	0.65	µg/L	99
		713.1 -> 168.9	831			
PFTrDA	9.541	663.0 -> 619.0	14673	0.68	µg/L	98
		663.0 -> 168.9	1432			
PFUnDA	8.685	563.1 -> 519.0	9953	0.77	µg/L	100
		563.1 -> 269.1	1820			
11CI-PF3OUdS	9.581	630.9 -> 450.9	11830	1.31	µg/L	97
		632.9 -> 452.9	3711			
9CI-PF3ONS	8.712	530.8 -> 351.0	15865	1.38	µg/L	99
		532.8 -> 353.0	4571			
ADONA	6.756	376.9 -> 250.9	35071	1.39	µg/L	99
		376.9 -> 84.8	9561			
HFPO-DA	5.928	284.9 -> 168.9	3306	1.38	µg/L	92
		284.9 -> 184.9	316			
3:3FTCA	3.848	241.0 -> 177.0	1784	2.51	µg/L	97
		241.0 -> 117.0	181			
5:3FTCA	6.231	341.0 -> 237.1	40645	16.43	µg/L	100
		341.0 -> 217.0	27868			
7:3FTCA	7.686	441.0 -> 316.9	24019	18.68	µg/L	92
		441.0 -> 336.9	59908			
EtFOSA	11.375	526.0 -> 219.0	4462	1.41	µg/L	m 63
		526.0 -> 169.0	5756			
EtFOSE	11.295	630.0 -> 58.9	7389	2.89	µg/L	100
MeFOSA	11.090	511.9 -> 219.0	3554	1.41	µg/L	m 87
		511.9 -> 169.0	4984			
MeFOSE	10.997	616.1 -> 58.9	5999	3.56	µg/L	m 100
PFDoDS	10.064	699.1 -> 79.9	1382	0.61	µg/L	98
		699.1 -> 98.8	756			
NFDHA	5.453	295.0 -> 201.0	1344	1.03	µg/L	99
		295.0 -> 84.9	348			
PFMBA	4.791	279.0 -> 85.1	12100	1.34	µg/L	100
PFMPA	3.528	229.0 -> 84.9	11679	1.38	µg/L	100
PFEESA	5.997	314.8 -> 134.9	16674	1.21	µg/L	96
		314.8 -> 82.9	712			

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

7.3.2  
7

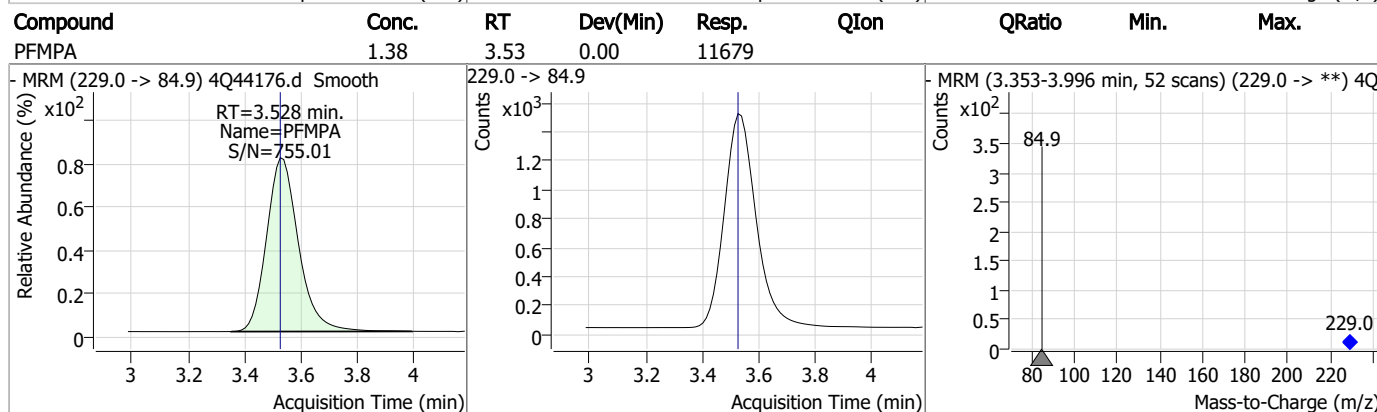
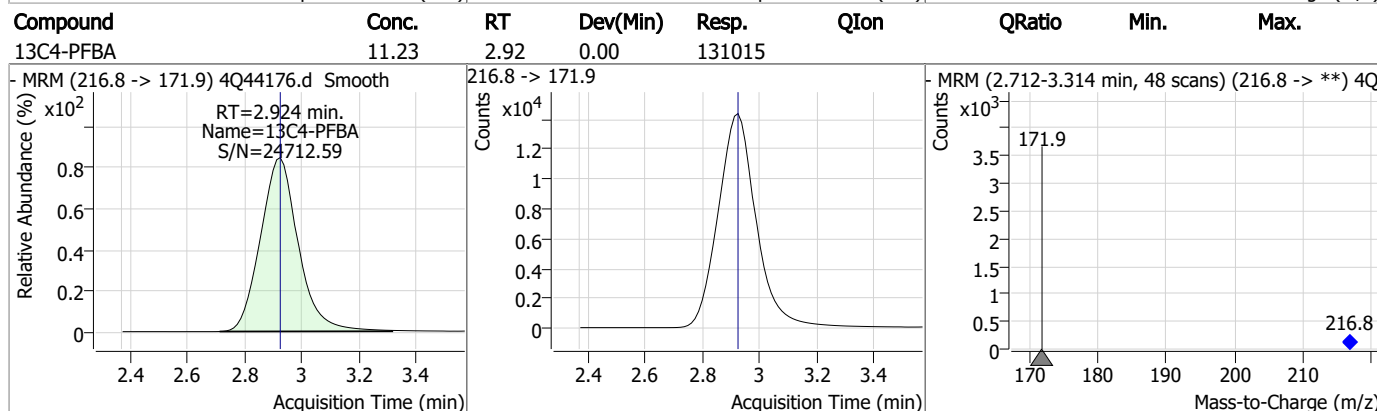
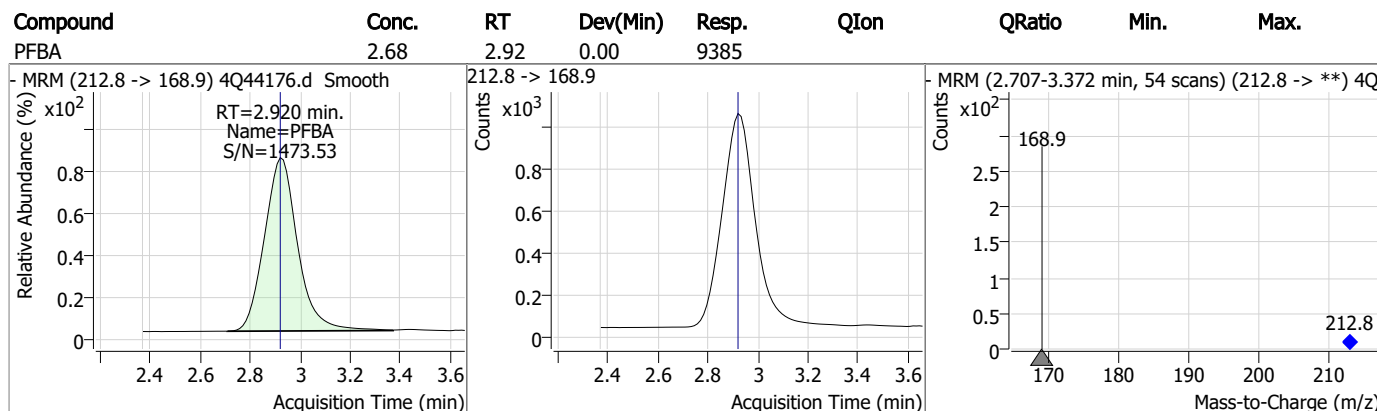
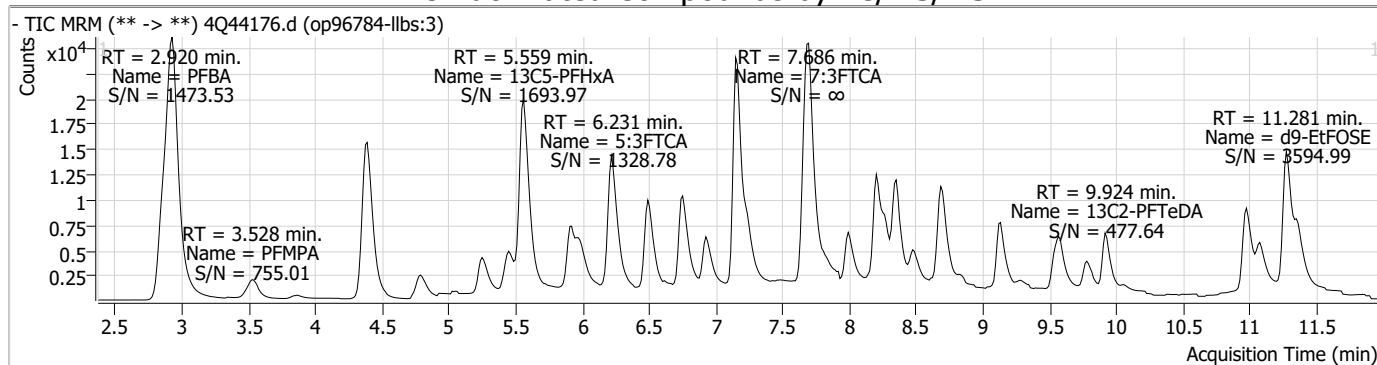
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.3.2

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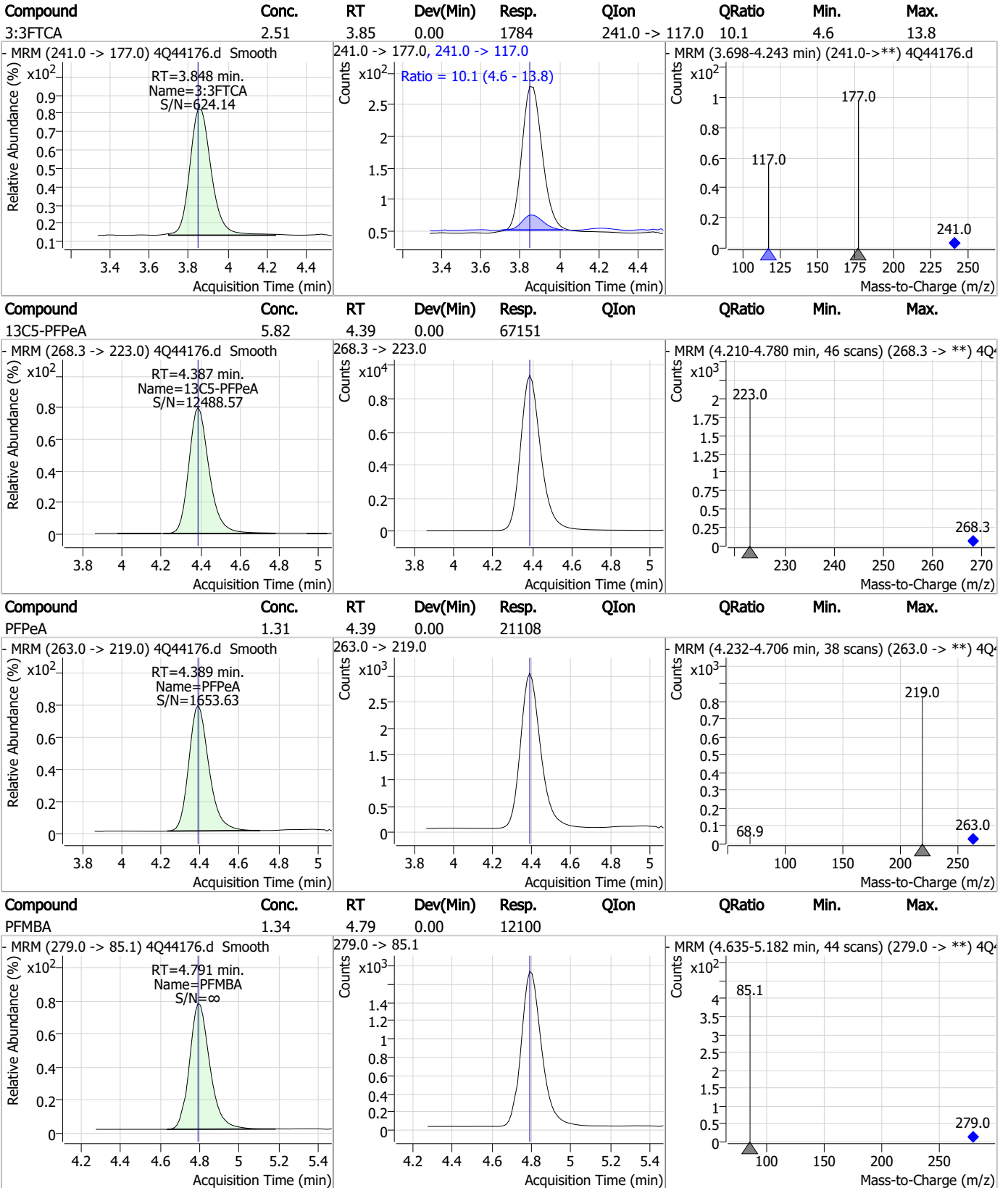
### Perfluorinated Compounds by LC/MS/MS



7.3.2  
7



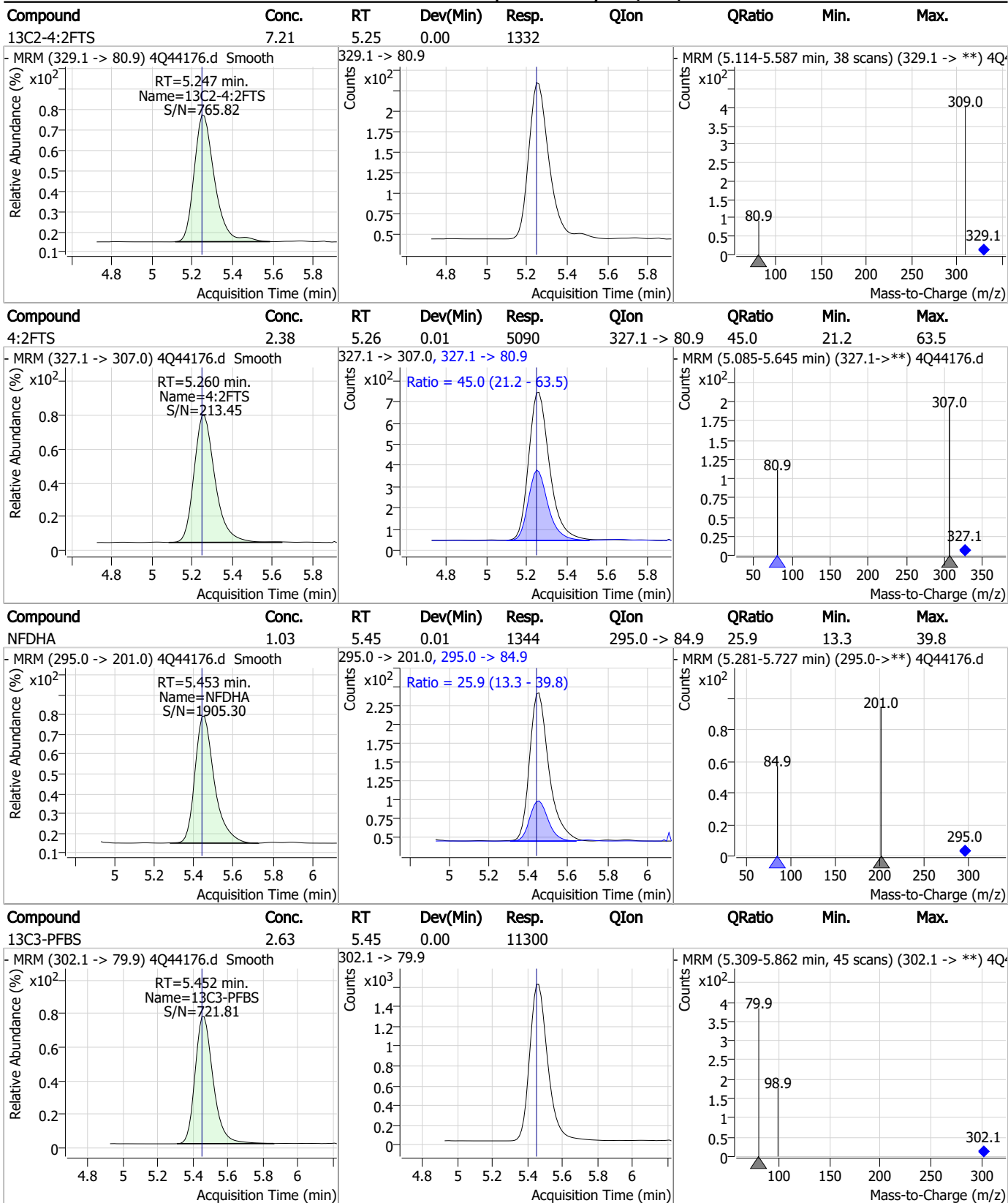
### Perfluorinated Compounds by LC/MS/MS



7.3.2

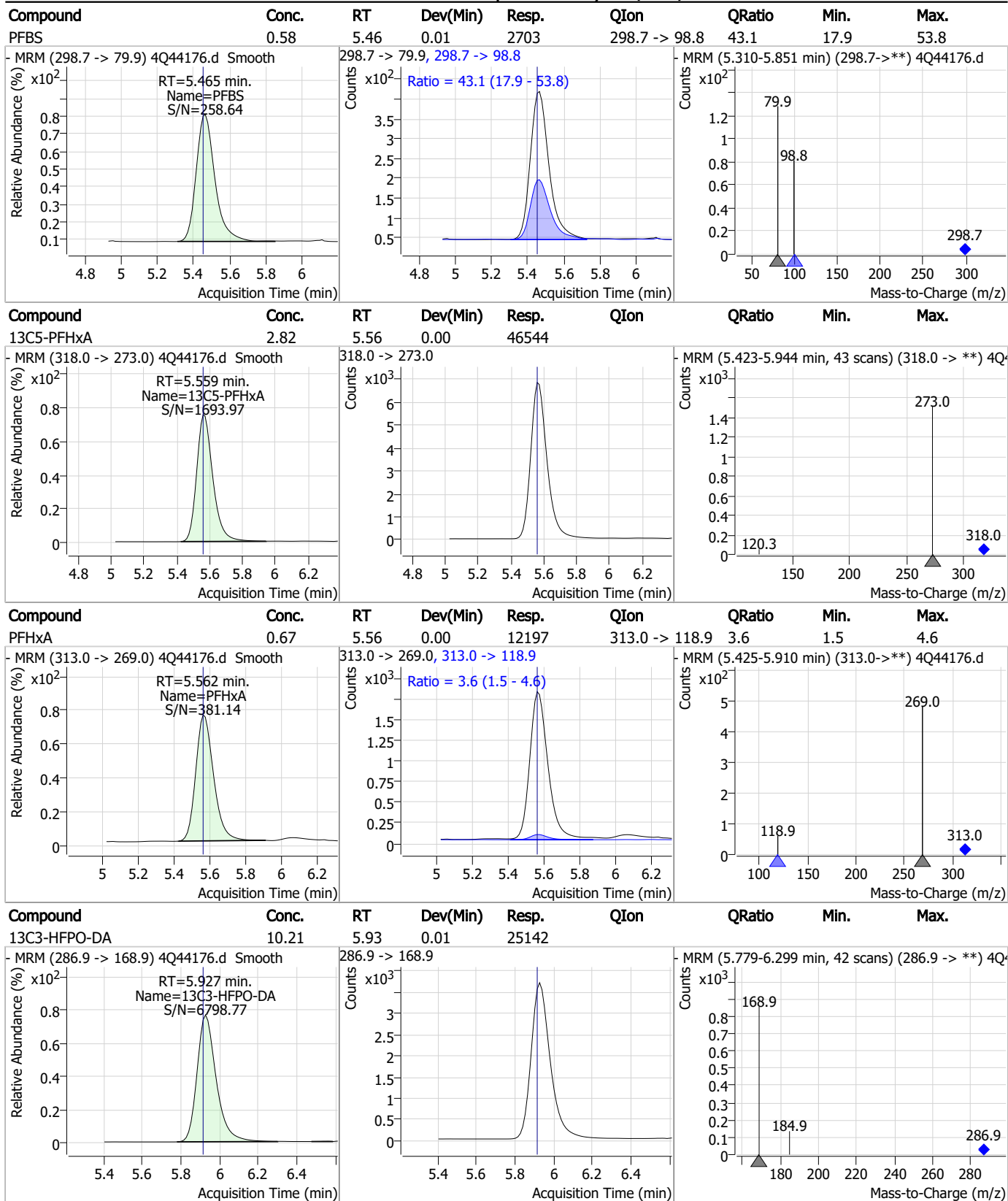
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### Perfluorinated Compounds by LC/MS/MS



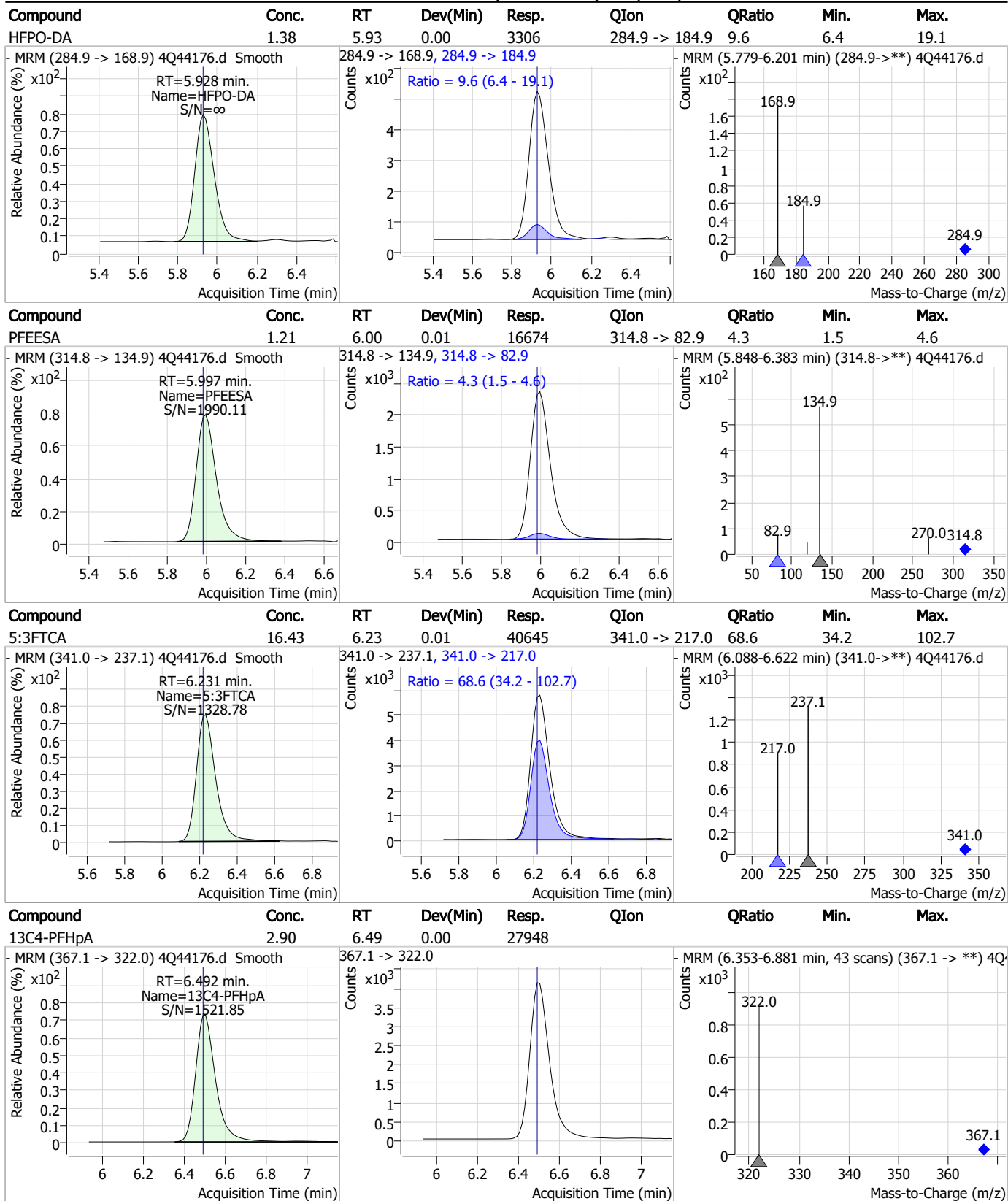
7.3.2  
7

### Perfluorinated Compounds by LC/MS/MS



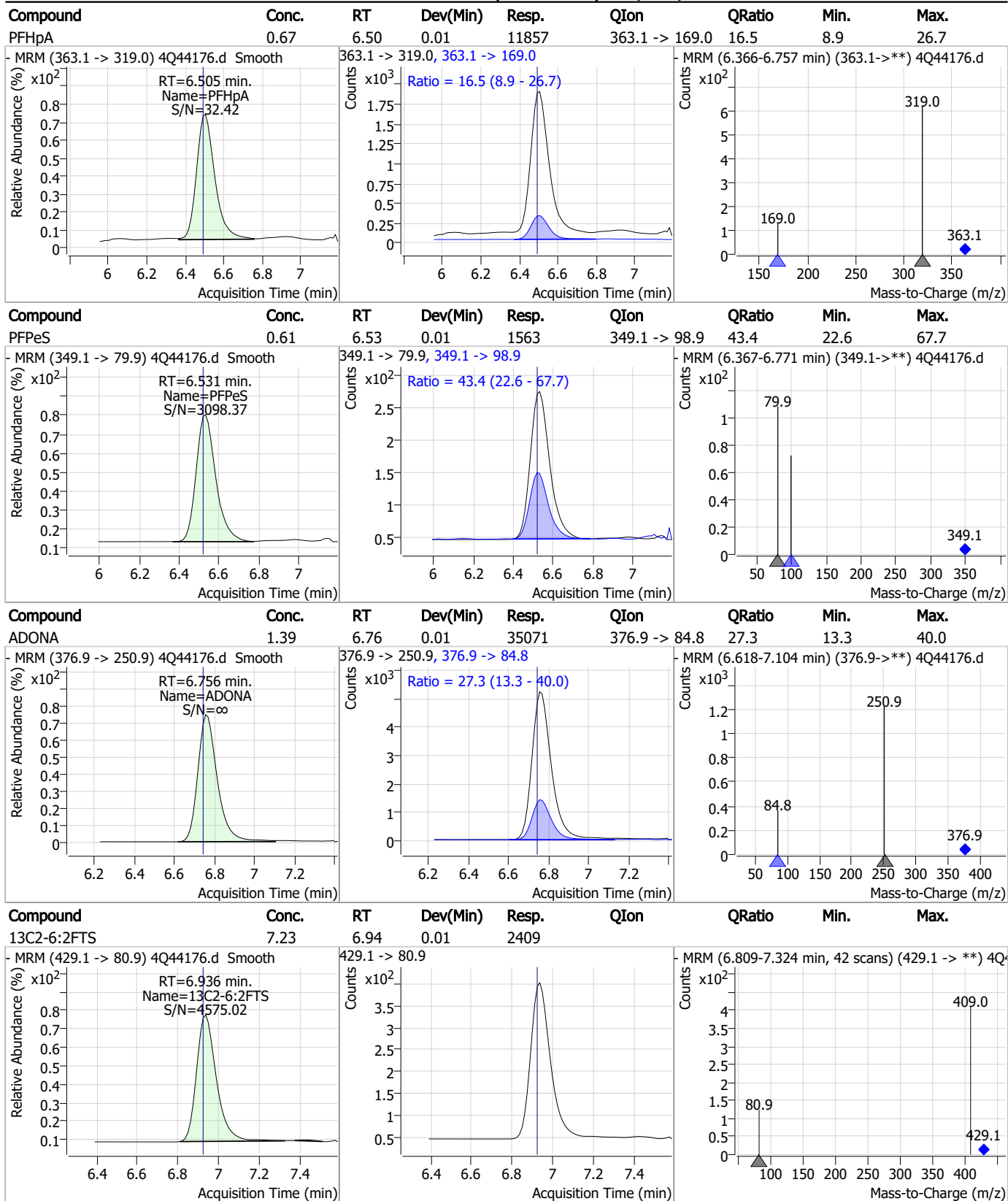
7.3.2  
7

### Perfluorinated Compounds by LC/MS/MS



7.3.2  
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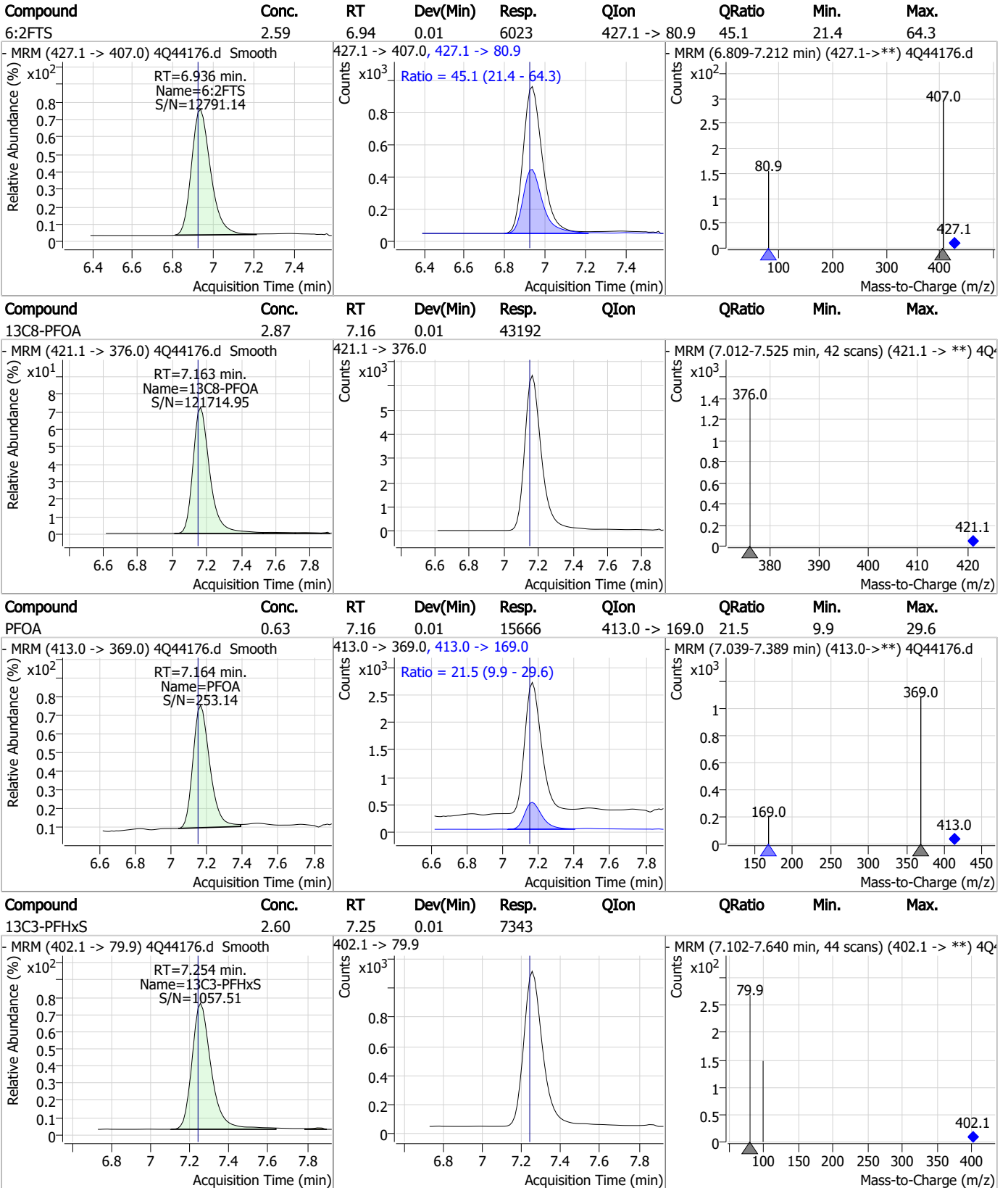
### Perfluorinated Compounds by LC/MS/MS



7.3.2  
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### Perfluorinated Compounds by LC/MS/MS

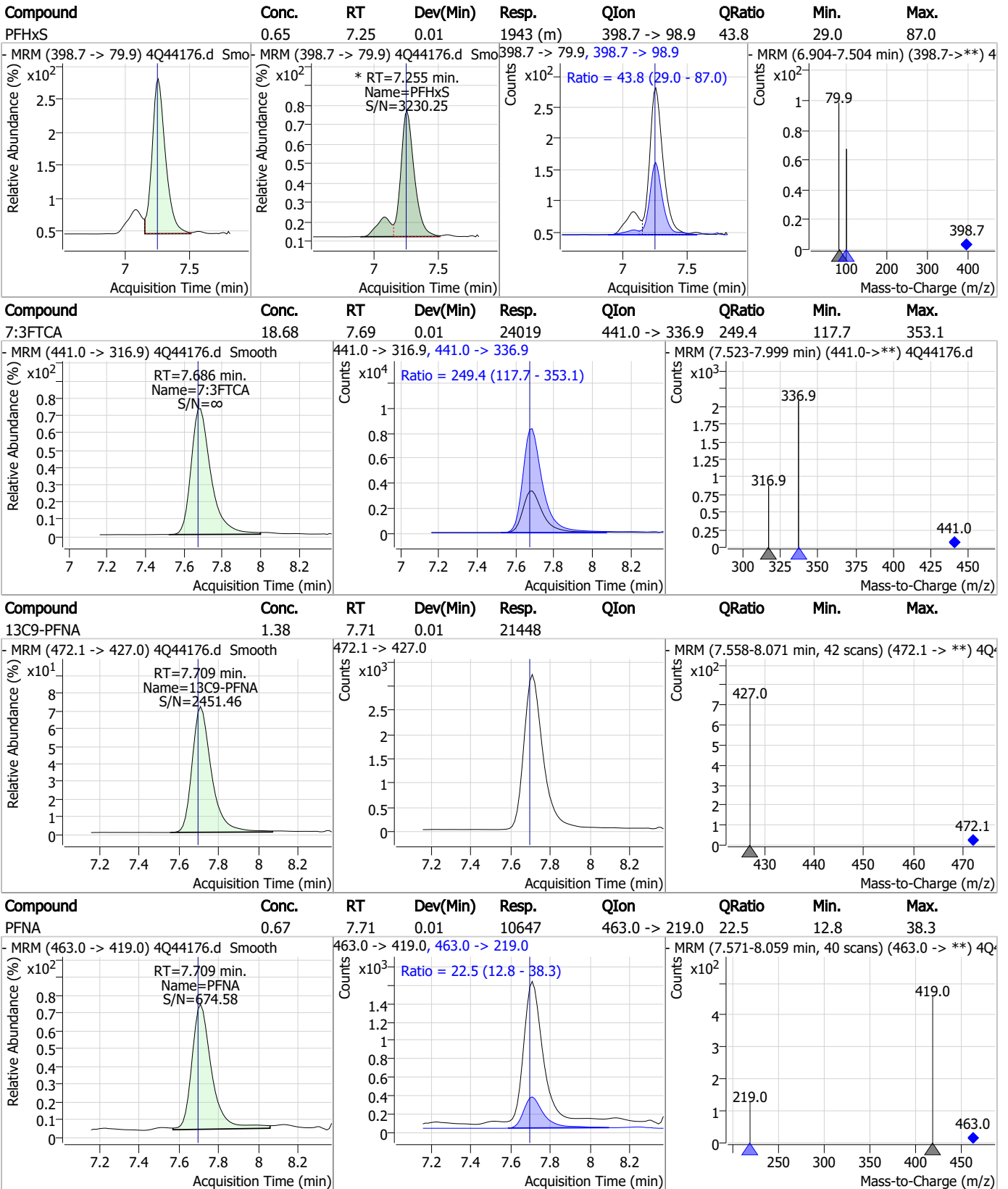


7.3.2

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### Perfluorinated Compounds by LC/MS/MS

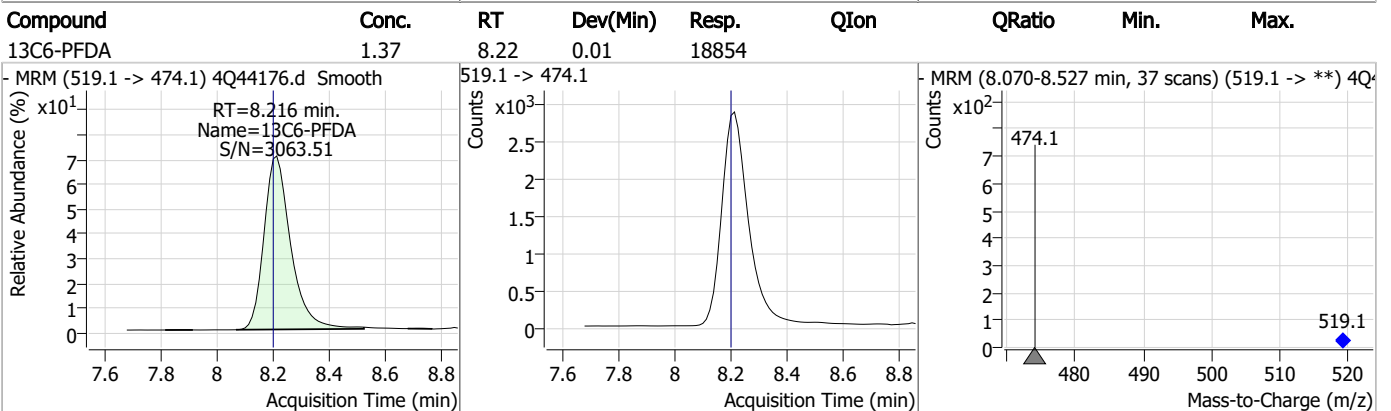
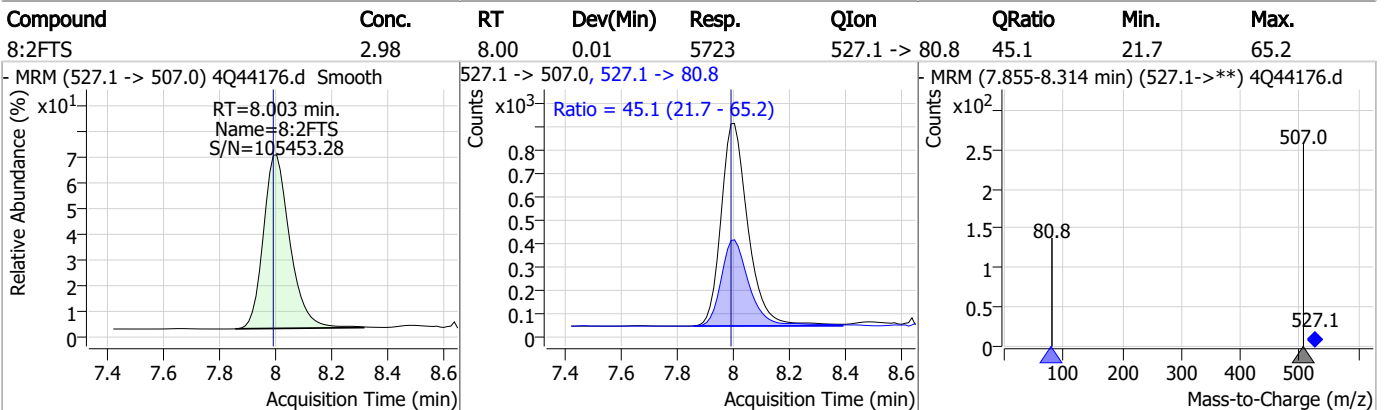
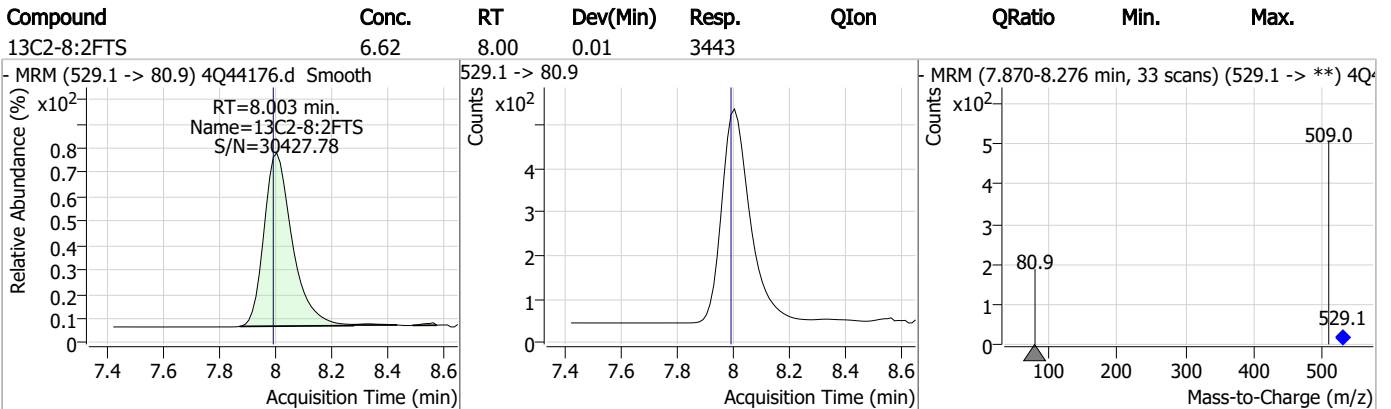
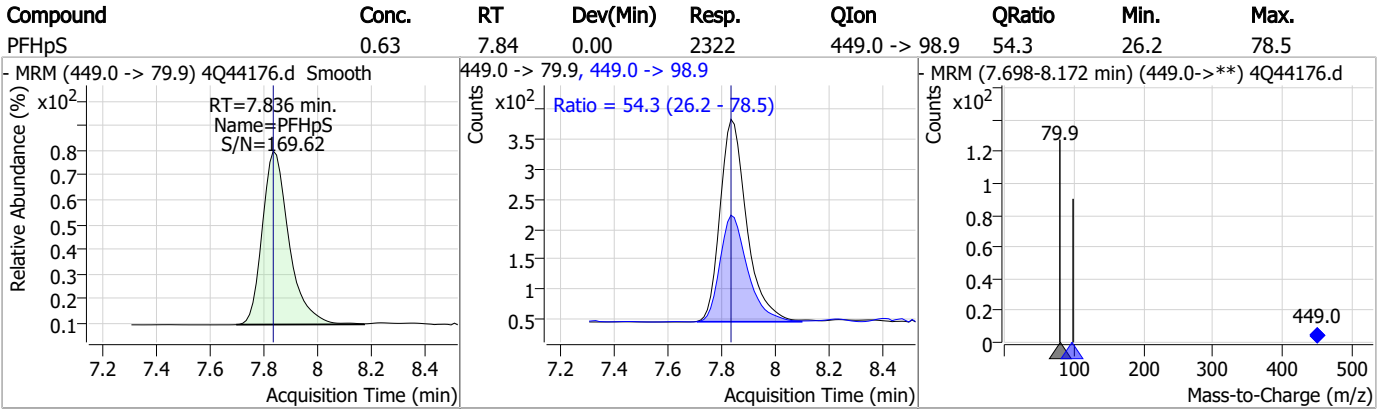


7.3.2

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### Perfluorinated Compounds by LC/MS/MS



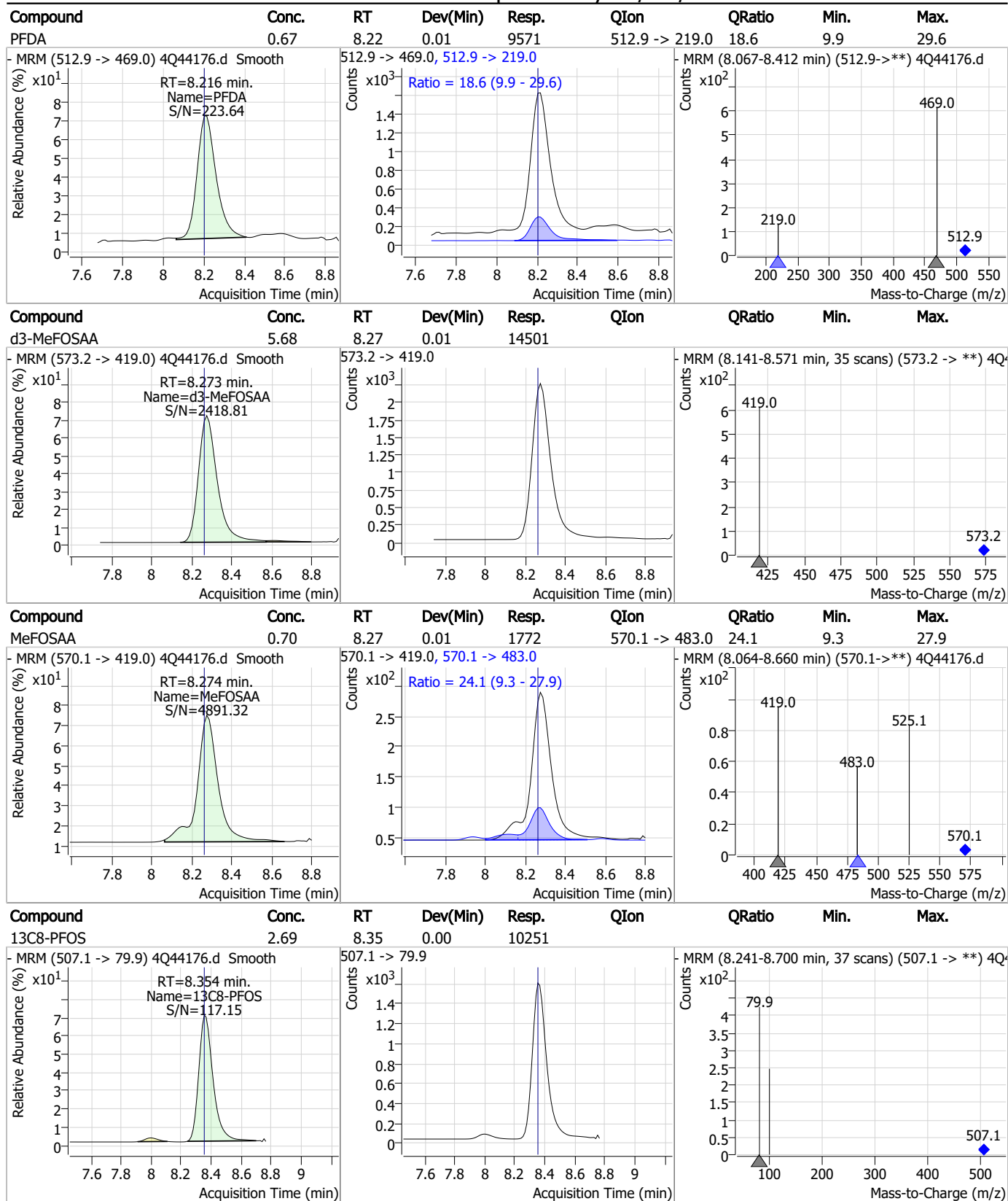
7.3.2

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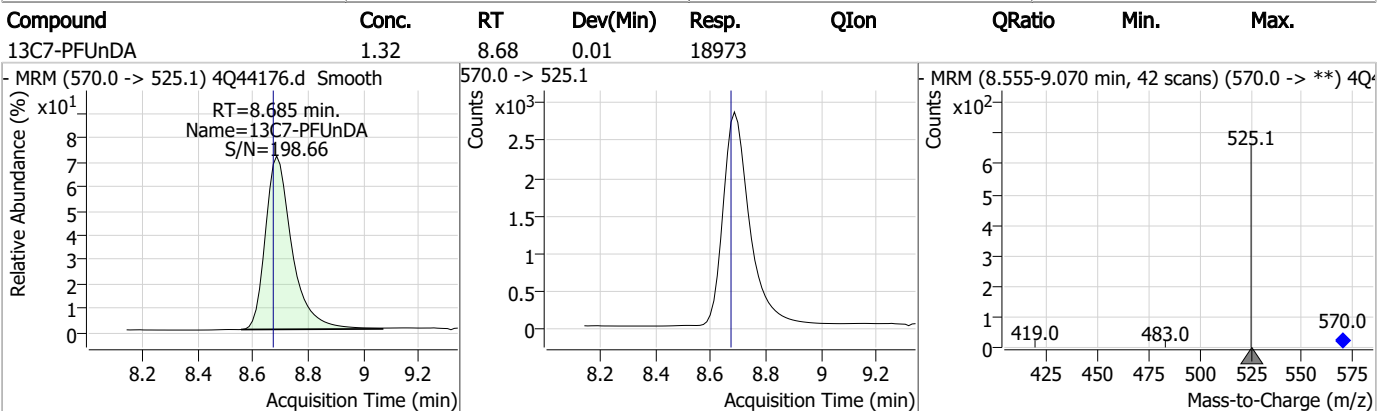
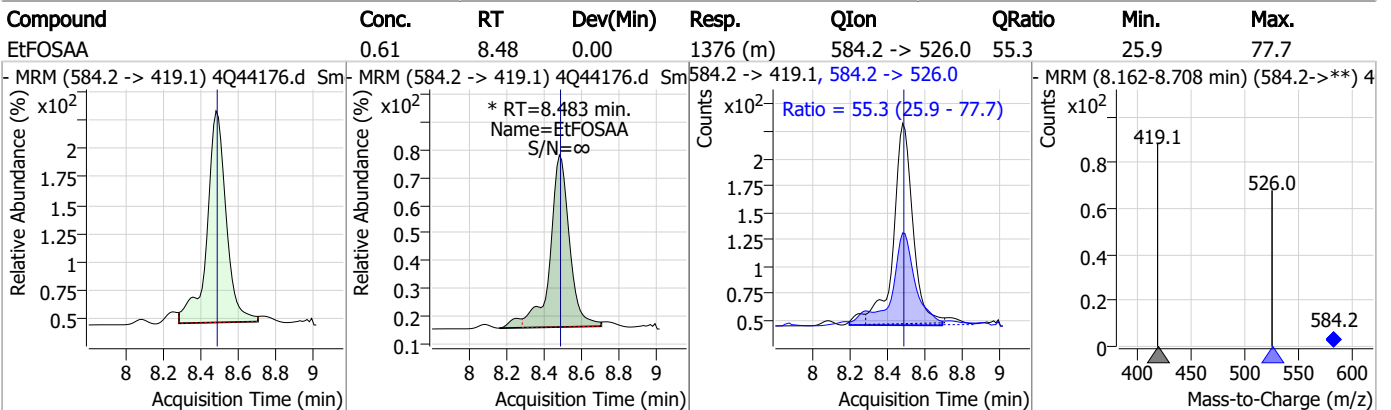
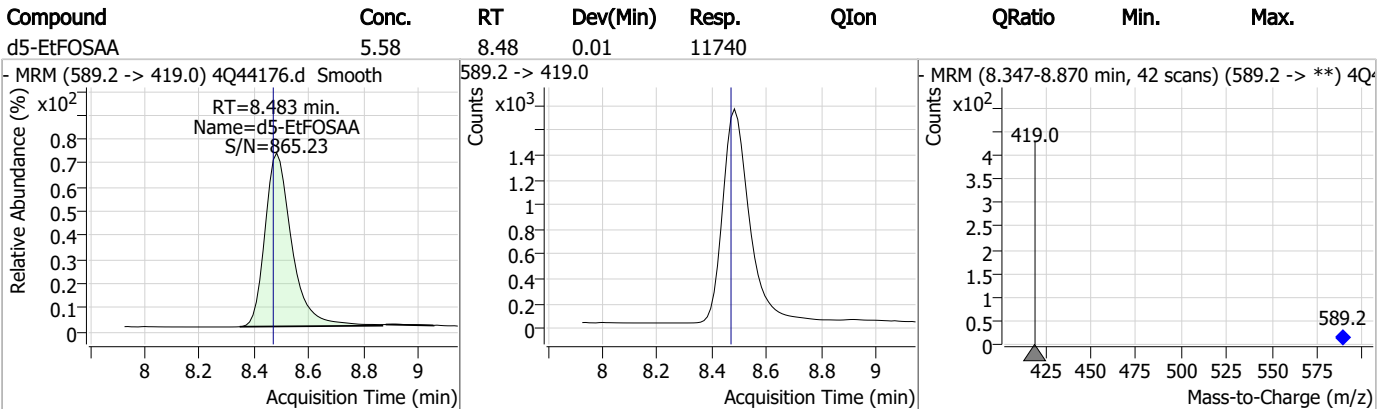
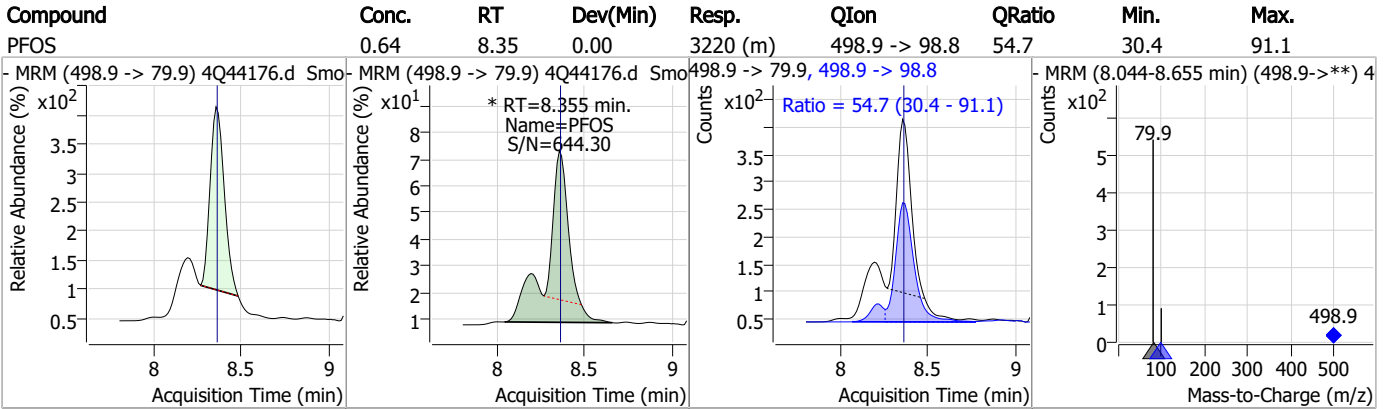


### Perfluorinated Compounds by LC/MS/MS

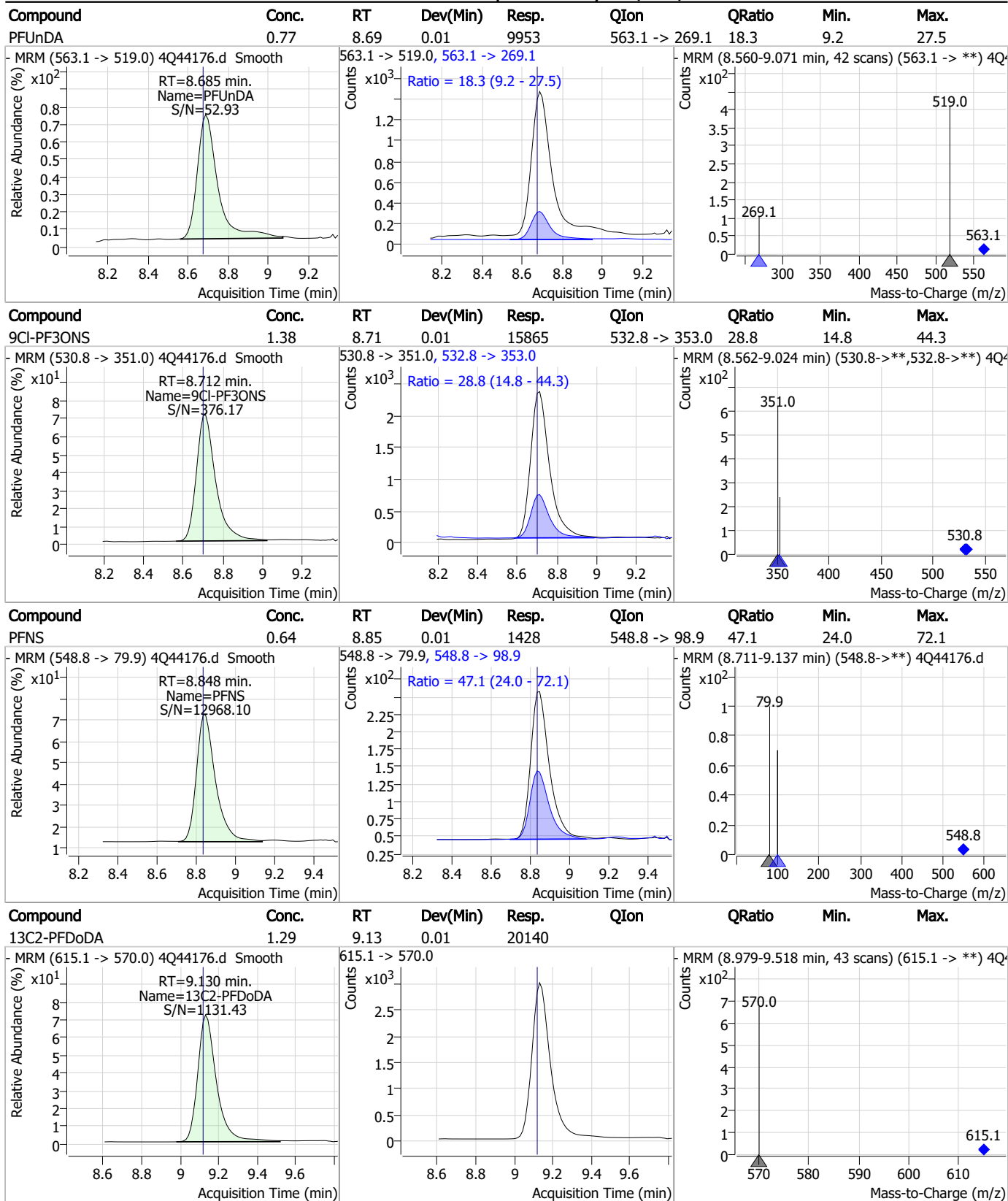


7.3.2  
7

### Perfluorinated Compounds by LC/MS/MS

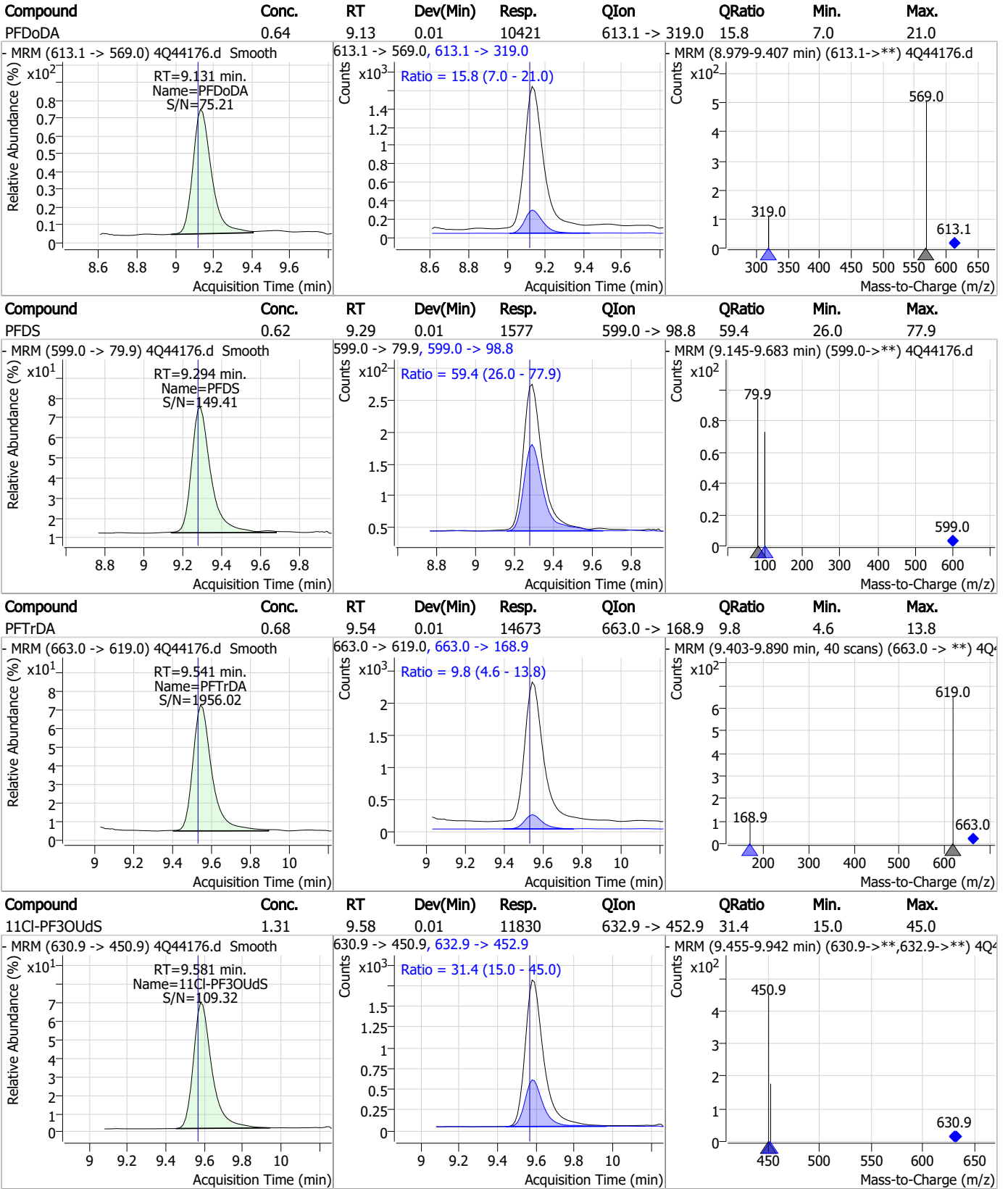


### Perfluorinated Compounds by LC/MS/MS



7.3.2  
7

### Perfluorinated Compounds by LC/MS/MS

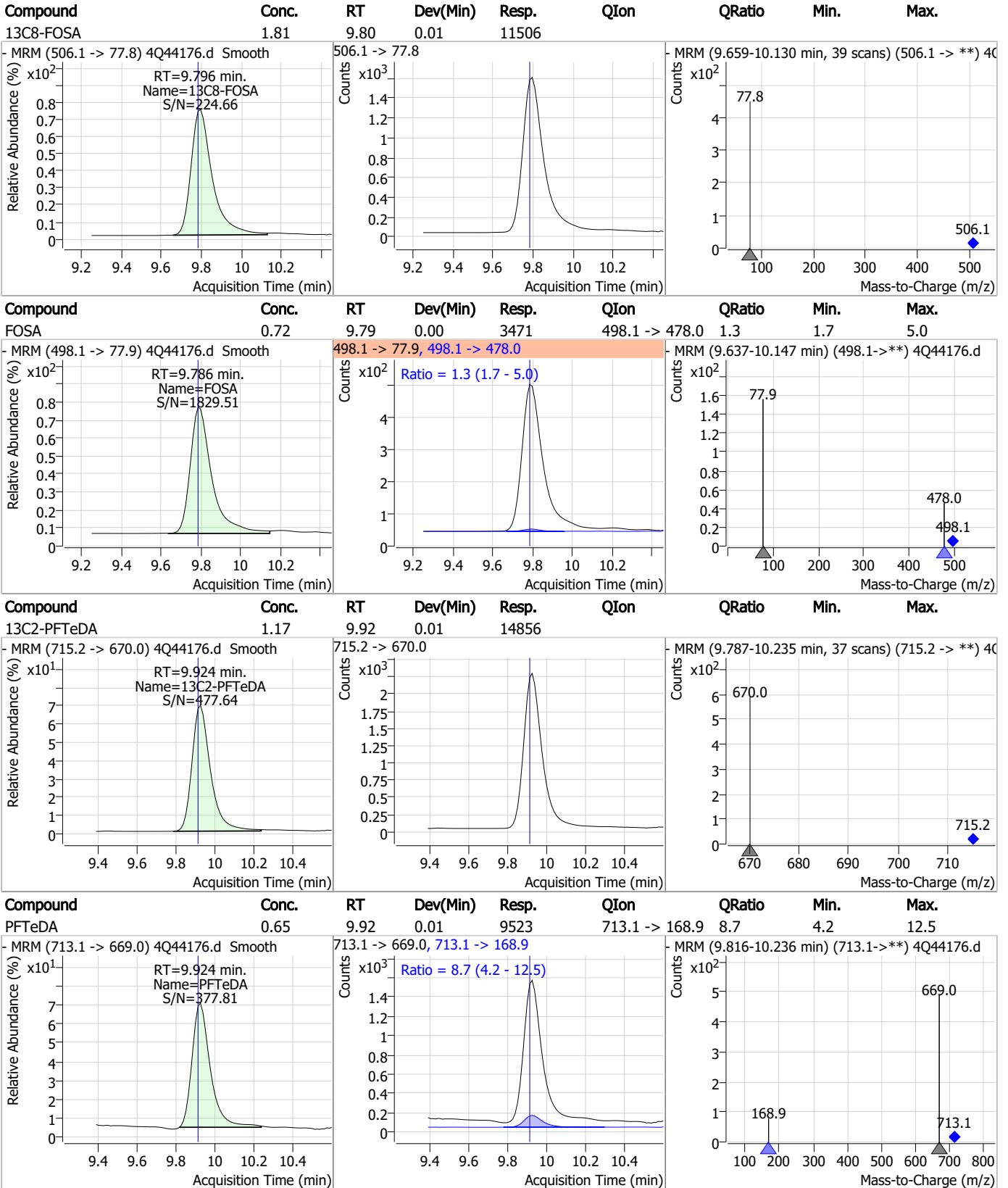


7.3.2

7



### Perfluorinated Compounds by LC/MS/MS



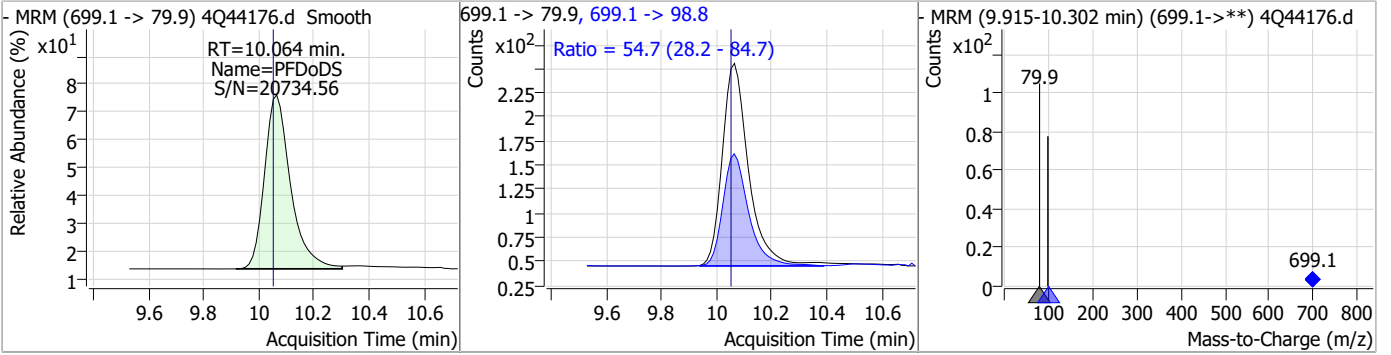
7.3.2

7

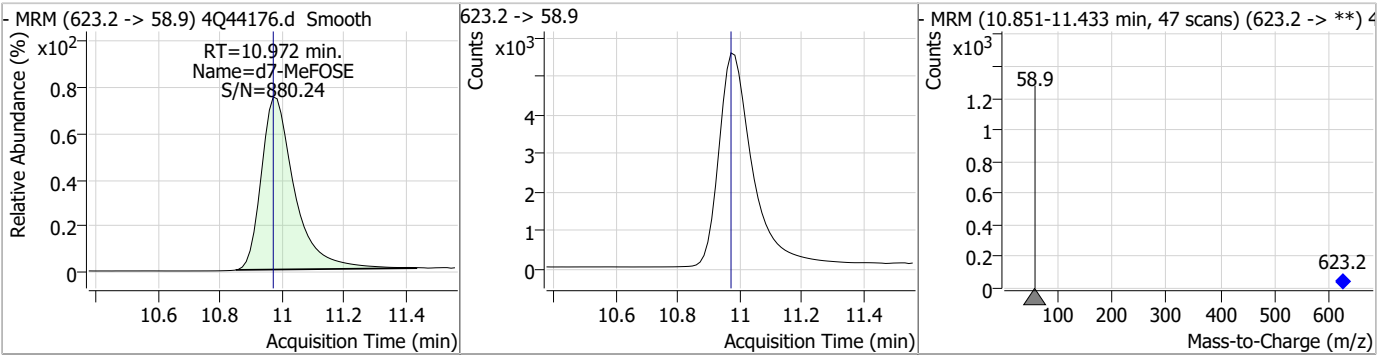


### Perfluorinated Compounds by LC/MS/MS

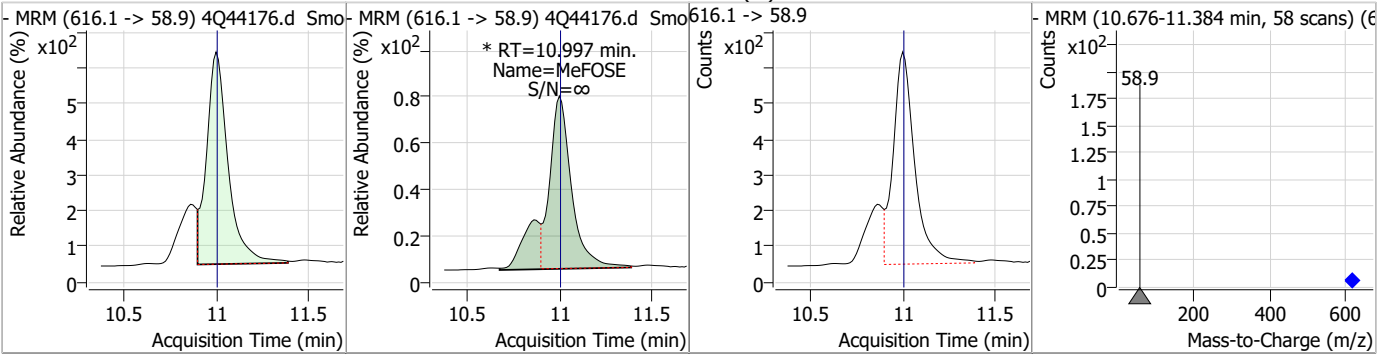
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.61	10.06	0.01	1382	699.1 -> 98.8	54.7	28.2	84.7



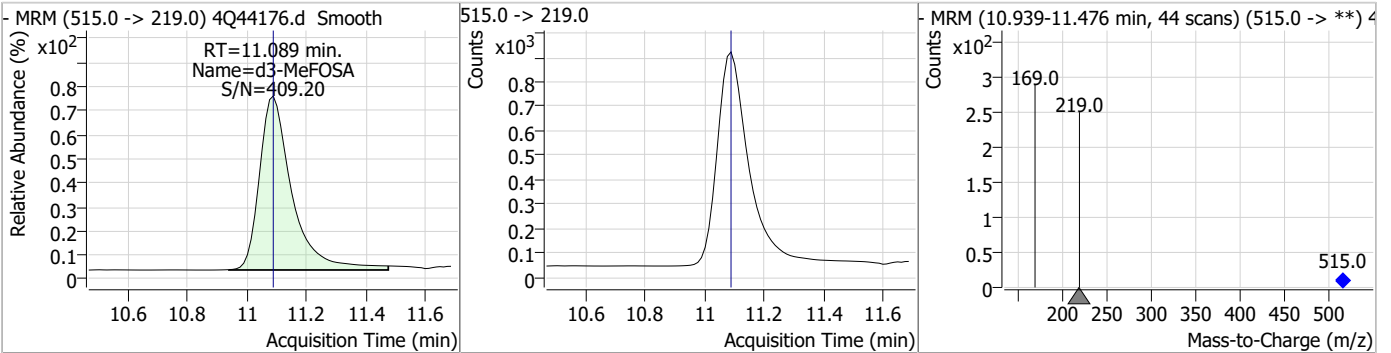
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	13.03	10.97	0.00	41050				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.56	11.00	0.00	5999 (m)				

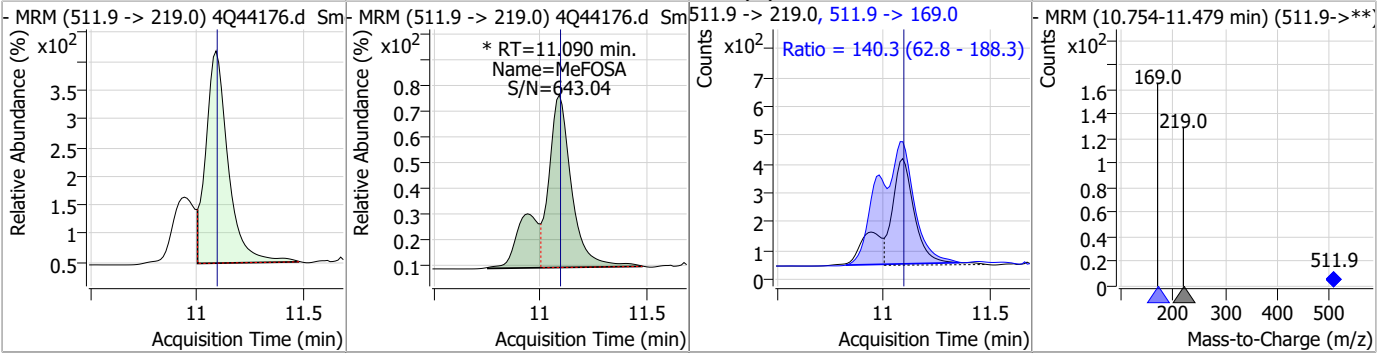


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.69	11.09	0.00	6702				

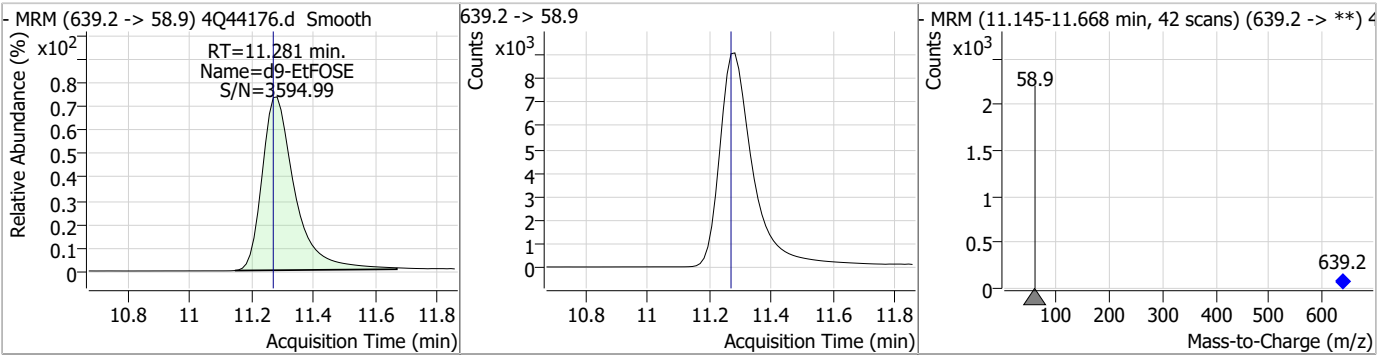


### Perfluorinated Compounds by LC/MS/MS

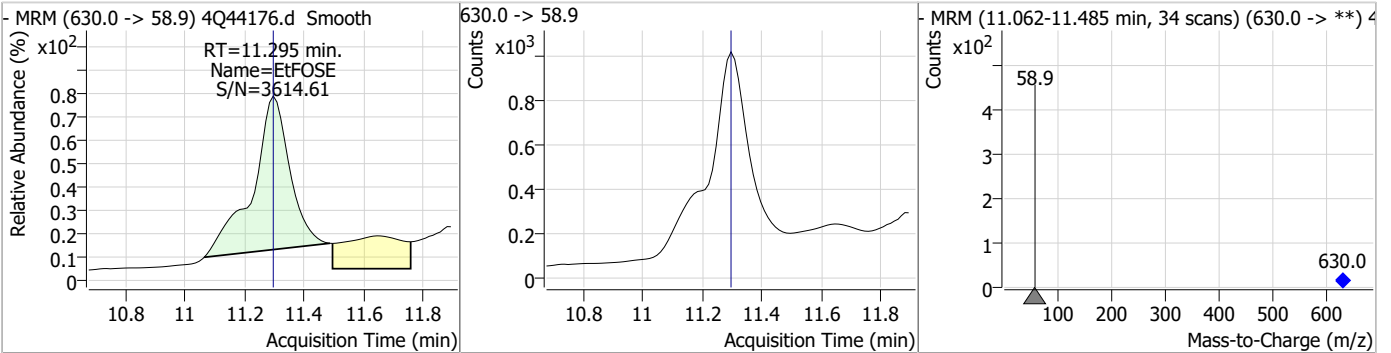
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	1.41	11.09	0.00	3554 (m)	511.9 -> 169.0	140.3	62.8	188.3



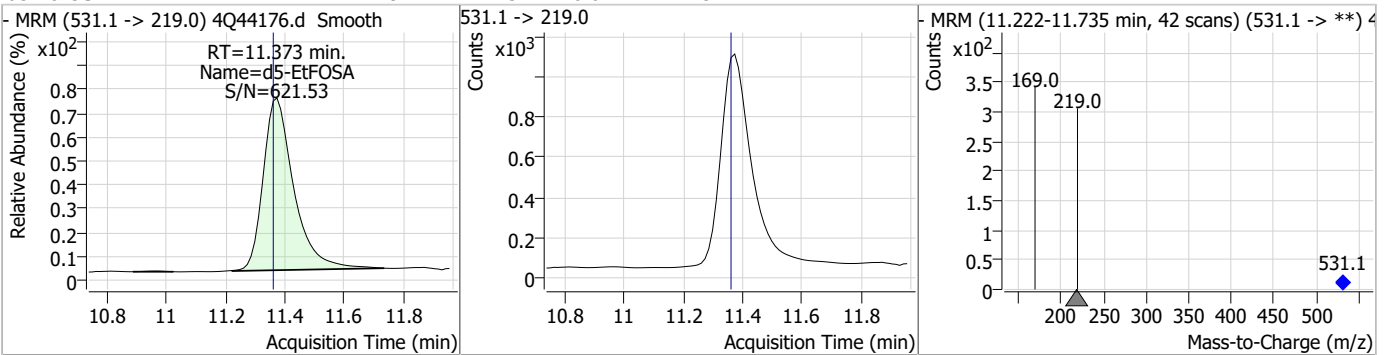
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	14.80	11.28	0.01	65998				



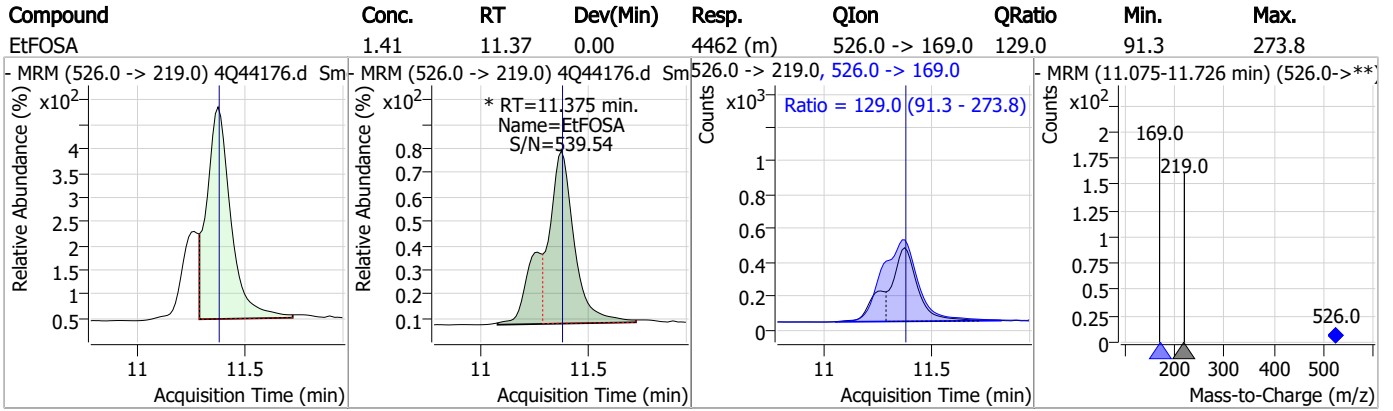
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	2.89	11.29	0.00	7389				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.79	11.37	0.01	7572				



### Perfluorinated Compounds by LC/MS/MS



7.3.2

7



# Manual Integration Approval Summary

Sample Number: OP96784-LLBS      Method: EPA DRAFT 1633  
Lab FileID: 4Q44176.D      Analyst approved: 05/10/23 11:10 Martha Valls  
Injection Time: 05/09/23 23:44      Supervisor approved: 05/10/23 17:32 Norman Farmer

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

7.3.2.1  
7

### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44180.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/10/2023 12:41:03 AM  
 Sample Name : op96784-ms  
 Vial : P3-D6  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q639.batch.bin  
 Sample Information : OP96784,S4Q639,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.911	216.8 -> 171.9	51027	10.00 µg/L	-0.012
M5-PFPeA	4.362	268.3 -> 223.0	51793	5.00 µg/L	-0.025
M5-PFHxA	5.559	318.0 -> 273.0	47529	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	29442	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	43562	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	22534	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	19781	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	19152	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	20003	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	10570	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	15343	2.50 µg/L	0.012
M3-PFBS	5.452	302.1 -> 79.9	11842	2.50 µg/L	0.000
M3-PFHxS	7.254	402.1 -> 79.9	6833	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	8842	2.50 µg/L	0.000
M2-4:2FTS	5.235	329.1 -> 80.9	1524	5.00 µg/L	-0.012
M2-6:2FTS	6.923	429.1 -> 80.9	2437	5.00 µg/L	0.000
M2-8:2FTS	8.003	529.1 -> 80.9	3005	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	15453	5.00 µg/L	0.012
M3-HFPO-DA	5.914	286.9 -> 168.9	22257	10.00 µg/L	0.000
M5-EtFOSAA	8.483	589.2 -> 419.0	12424	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	55531	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	79825	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	8404	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	7831	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	9390	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	35455	5.00 µg/L	-0.013
18O2-PFHxS	7.253	403.0 -> 83.9	4144	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	46571	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	16385	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	23305	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	38041	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.235	329.1 -> 80.9	1524	9.05 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 181.0%		
13C2-6:2FTS	6.923	429.1 -> 80.9	2437	8.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 160.5%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3005	6.34 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 126.8%		
13C2-PFDoDA	9.130	615.1 -> 570.0	20003	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C2-PFTeDA	9.924	715.2 -> 670.0	10570	0.82 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 65.5%		
13C3-PFBS	5.452	302.1 -> 79.9	11842	3.03 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 121.2%		
13C3-PFHxS	7.254	402.1 -> 79.9	6833	2.66 µg/L	0.012

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C4-PFBA	2.911	216.8 -> 171.9	51027	7.65 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.5%	
13C4-PFHpA	6.492	367.1 -> 322.0	29442	3.01 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.3%	
13C5-PFHxA	5.559	318.0 -> 273.0	47529	2.84 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.5%	
13C5-PFPeA	4.362	268.3 -> 223.0	51793	4.42 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.4%	
13C6-PFDA	8.216	519.1 -> 474.1	19781	1.41 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.8%	
13C7-PFUnDA	8.685	570.0 -> 525.1	19152	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C8-FOSA	9.796	506.1 -> 77.8	15343	2.61 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C8-PFOA	7.163	421.1 -> 376.0	43562	2.85 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C8-PFOS	8.354	507.1 -> 79.9	8842	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C9-PFNA	7.709	472.1 -> 427.0	22534	1.42 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.8%	
d3-MeFOSAA	8.273	573.2 -> 419.0	15453	6.52 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 130.4%	
13C3-HFPO-DA	5.914	286.9 -> 168.9	22257	8.89 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.9%	
d3-MeFOSA	11.089	515.0 -> 219.0	7831	2.13 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.1%	
d5-EtFOSAA	8.483	589.2 -> 419.0	12424	6.37 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 127.3%	
d7-MeFOSE	10.972	623.2 -> 58.9	55531	19.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.0%	
d9-EtFOSE	11.269	639.2 -> 58.9	79825	19.30 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.2%	
d5-EtFOSA	11.373	531.1 -> 219.0	8404	2.15 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.9%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.236	327.1 -> 307.0 327.1 -> 80.9	21643 9620	8.83 µg/L	97
6:2FTS	6.924	427.1 -> 407.0 427.1 -> 80.9	22685 8588	9.64 µg/L	92
8:2FTS	8.003	527.1 -> 507.0 527.1 -> 80.8	18031 7053	10.77 µg/L	93
EtFOSAA	8.483	584.2 -> 419.1 584.2 -> 526.0	5136 2938	2.15 µg/L	m 92
FOSA	9.786	498.1 -> 77.9 498.1 -> 478.0	15453 488	2.40 µg/L	100
MeFOSAA	8.274	570.1 -> 419.0 570.1 -> 483.0	5477 1395	2.03 µg/L	85
PFBA	2.920	212.8 -> 168.9	12676	9.28 µg/L	100
PFBS	5.453	298.7 -> 79.9 298.7 -> 98.8	9278 3424	1.91 µg/L	98
PFDA	8.216	512.9 -> 469.0 512.9 -> 219.0	32596 6619	2.17 µg/L	99
PFDODA	9.131	613.1 -> 569.0 613.1 -> 319.0	34564 5348	2.15 µg/L	96
PFDS	9.294	599.0 -> 79.9	4192	1.91 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2153			
PFHpA	6.492	363.1 -> 319.0	43247	2.32	µg/L	99
		363.1 -> 169.0	7934			
PFHpS	7.836	449.0 -> 79.9	7243	2.27	µg/L	91
		449.0 -> 98.9	4270			
PFHxA	5.550	313.0 -> 269.0	43230	2.32	µg/L	99
		313.0 -> 118.9	1426			
PFHxS	7.255	398.7 -> 79.9	6356	2.27	µg/L	m 88
		398.7 -> 98.9	3122			
PFNA	7.709	463.0 -> 419.0	35203	2.11	µg/L	100
		463.0 -> 219.0	9019			
PFNS	8.836	548.8 -> 79.9	3971	2.06	µg/L	90
		548.8 -> 98.9	2169			
PFOA	7.164	413.0 -> 369.0	58014	2.31	µg/L	100
		413.0 -> 169.0	11543			
PFOS	8.355	498.9 -> 79.9	9935	2.30	µg/L	m 81
		498.9 -> 98.8	4577			
PFPeA	4.377	263.0 -> 219.0	73164	5.87	µg/L	m 100
PFPeS	6.519	349.1 -> 79.9	5427	2.26	µg/L	96
		349.1 -> 98.9	2305			
PFTeDA	9.924	713.1 -> 669.0	23680	2.29	µg/L	97
		713.1 -> 168.9	2186			
PFTrDA	9.541	663.0 -> 619.0	39960	1.86	µg/L	99
		663.0 -> 168.9	3893			
PFUnDA	8.685	563.1 -> 519.0	30001	2.31	µg/L	93
		563.1 -> 269.1	6403			
11CI-PF3OUdS	9.581	630.9 -> 450.9	34434	4.30	µg/L	96
		632.9 -> 452.9	9663			
9CI-PF3ONS	8.700	530.8 -> 351.0	47518	4.66	µg/L	99
		532.8 -> 353.0	14277			
ADONA	6.756	376.9 -> 250.9	125619	5.61	µg/L	99
		376.9 -> 84.8	33008			
HFPO-DA	5.915	284.9 -> 168.9	10027	4.71	µg/L	96
		284.9 -> 184.9	1136			
3:3FTCA	3.867	241.0 -> 177.0	3588	6.55	µg/L	95
		241.0 -> 117.0	389			
5:3FTCA	6.217	341.0 -> 237.1	187004	74.01	µg/L	99
		341.0 -> 217.0	126920			
7:3FTCA	7.686	441.0 -> 316.9	110867	84.44	µg/L	98
		441.0 -> 336.9	264571			
EtFOSA	11.375	526.0 -> 219.0	16296	4.63	µg/L	m 72
		526.0 -> 169.0	23133			
EtFOSE	11.295	630.0 -> 58.9	32573	10.54	µg/L	100
MeFOSA	11.090	511.9 -> 219.0	14001	4.75	µg/L	m 83
		511.9 -> 169.0	20361			
MeFOSE	10.997	616.1 -> 58.9	26565	11.65	µg/L	m 100
PFDoDS	10.064	699.1 -> 79.9	2977	1.52	µg/L	100
		699.1 -> 98.8	1671			
NFDHA	5.441	295.0 -> 201.0	2762	2.08	µg/L	97
		295.0 -> 84.9	687			
PFMBA	4.778	279.0 -> 85.1	38068	5.47	µg/L	100
PFMPA	3.515	229.0 -> 84.9	22481	3.45	µg/L	100
PFEESA	5.984	314.8 -> 134.9	54350	3.86	µg/L	99
		314.8 -> 82.9	1876			

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

7.4.1  
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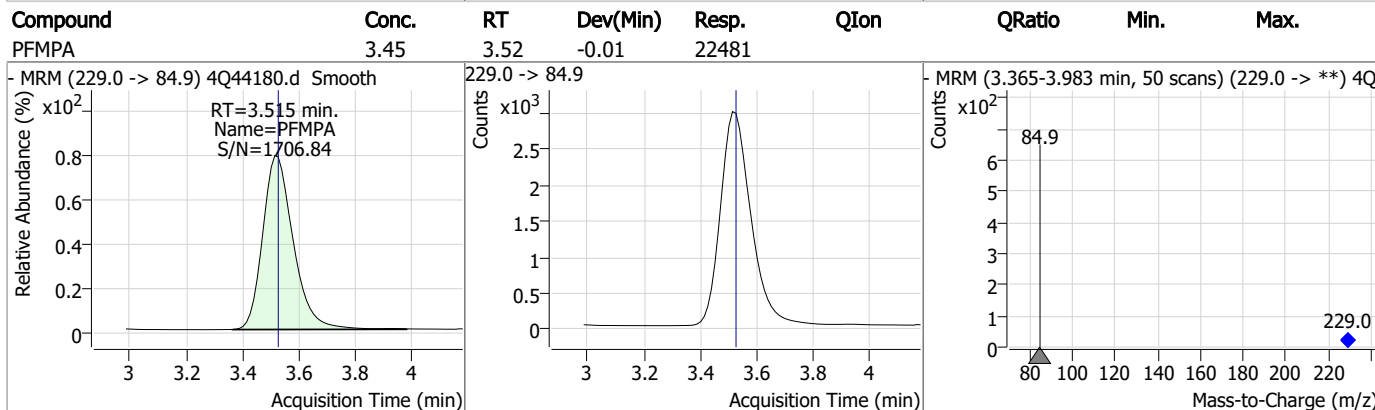
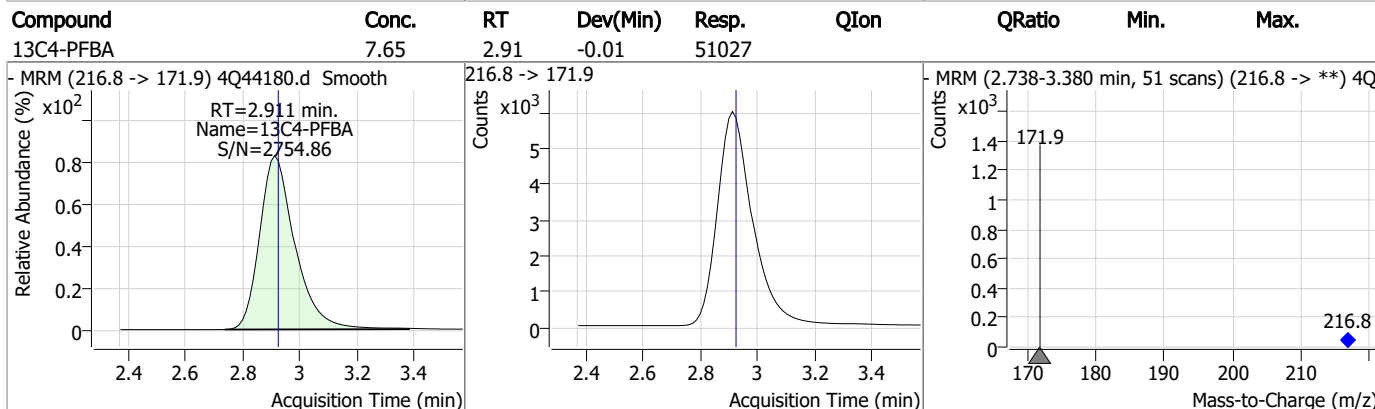
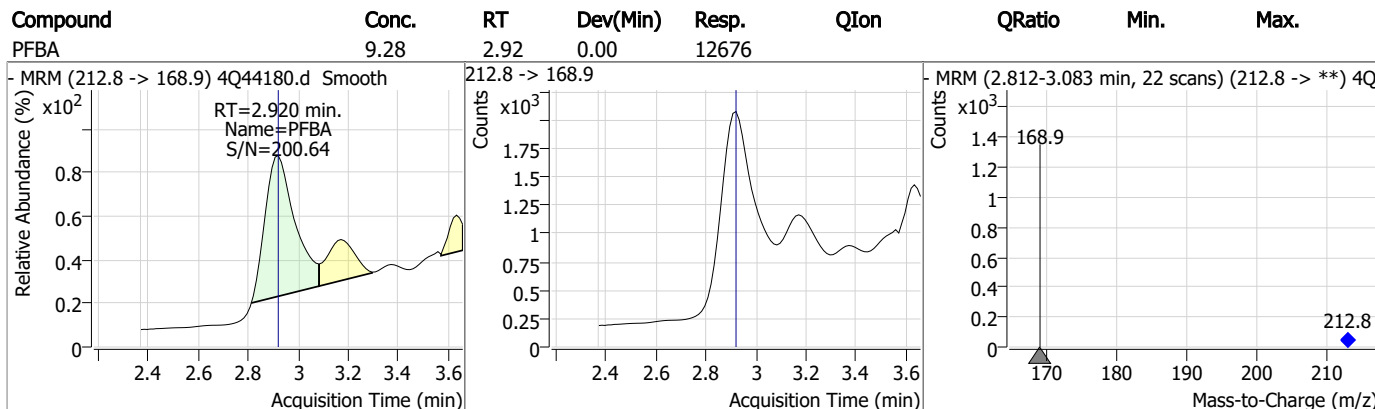
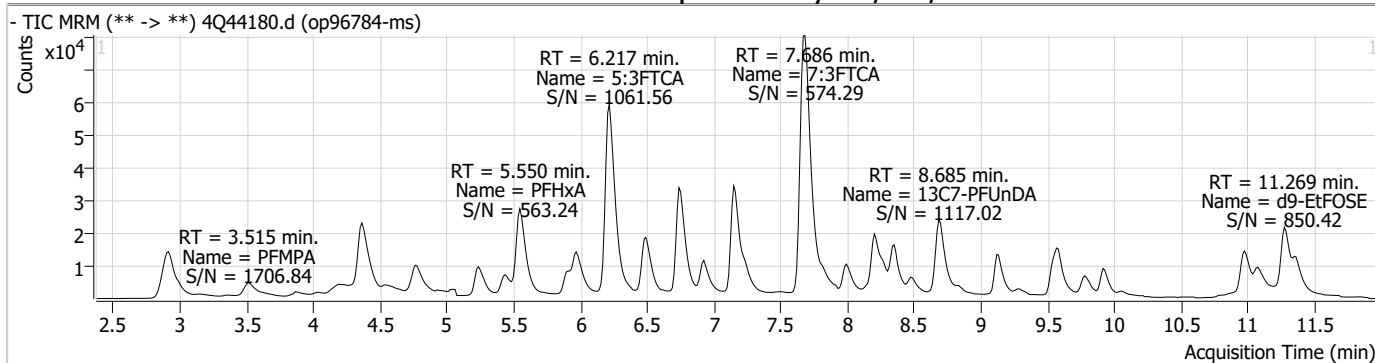
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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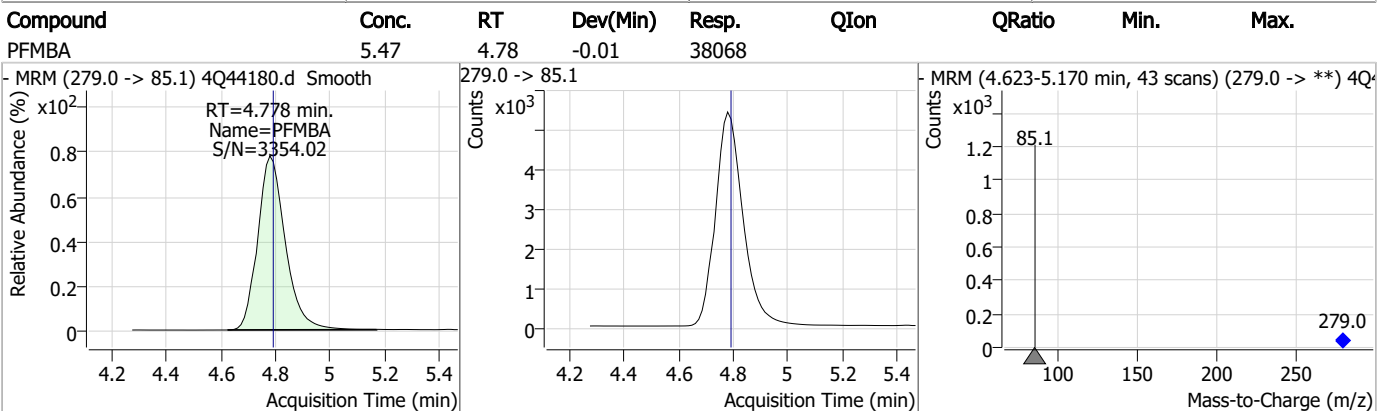
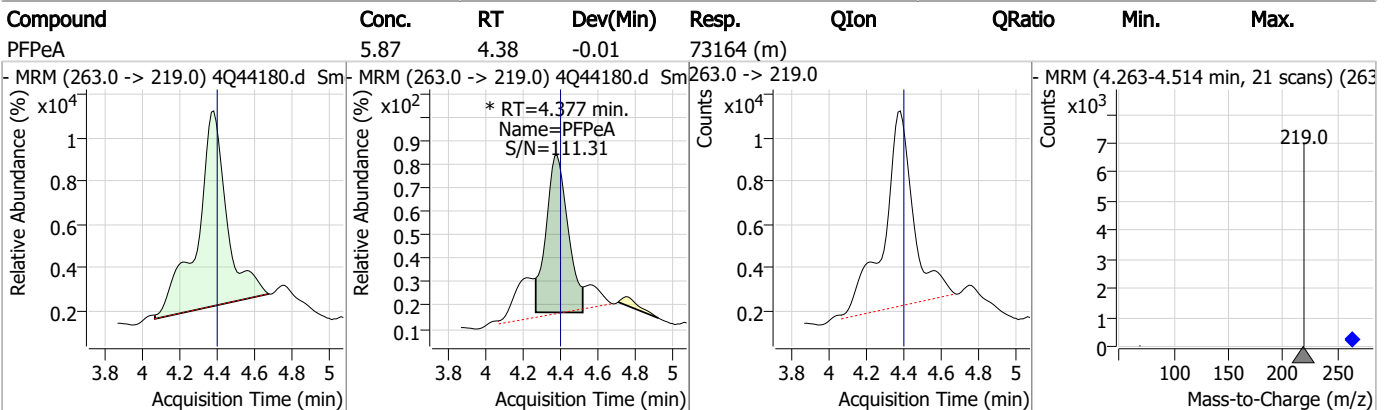
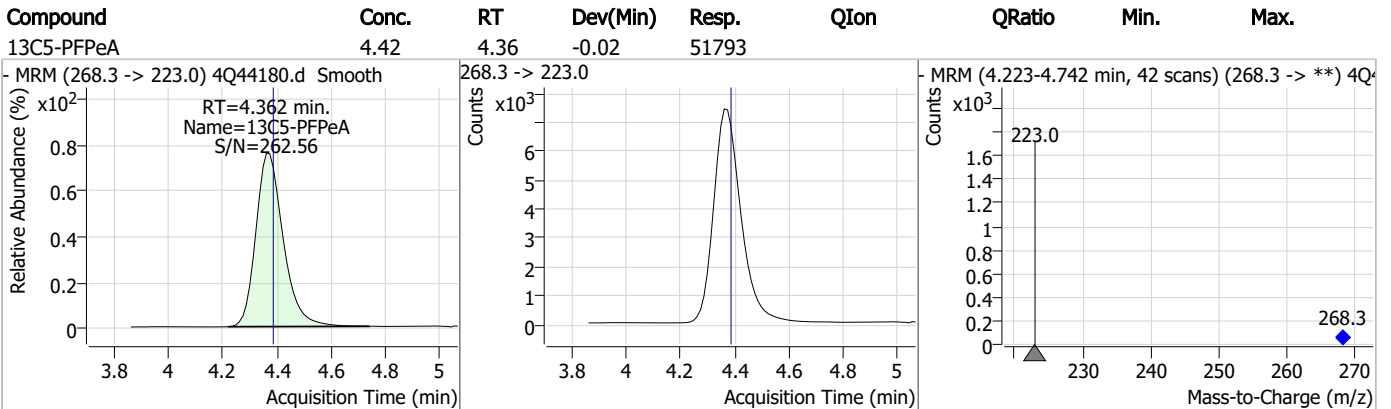
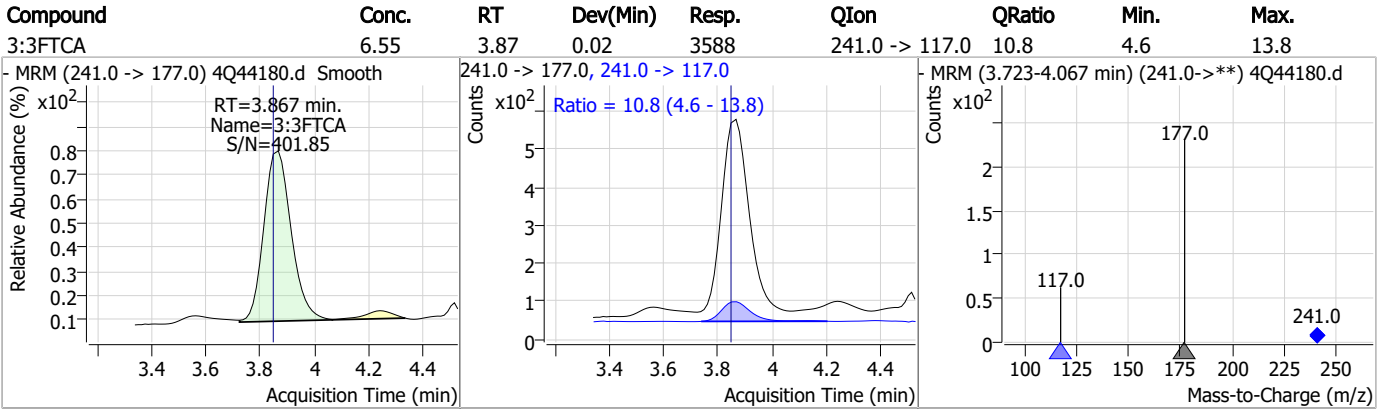
7.4.1

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### Perfluorinated Compounds by LC/MS/MS



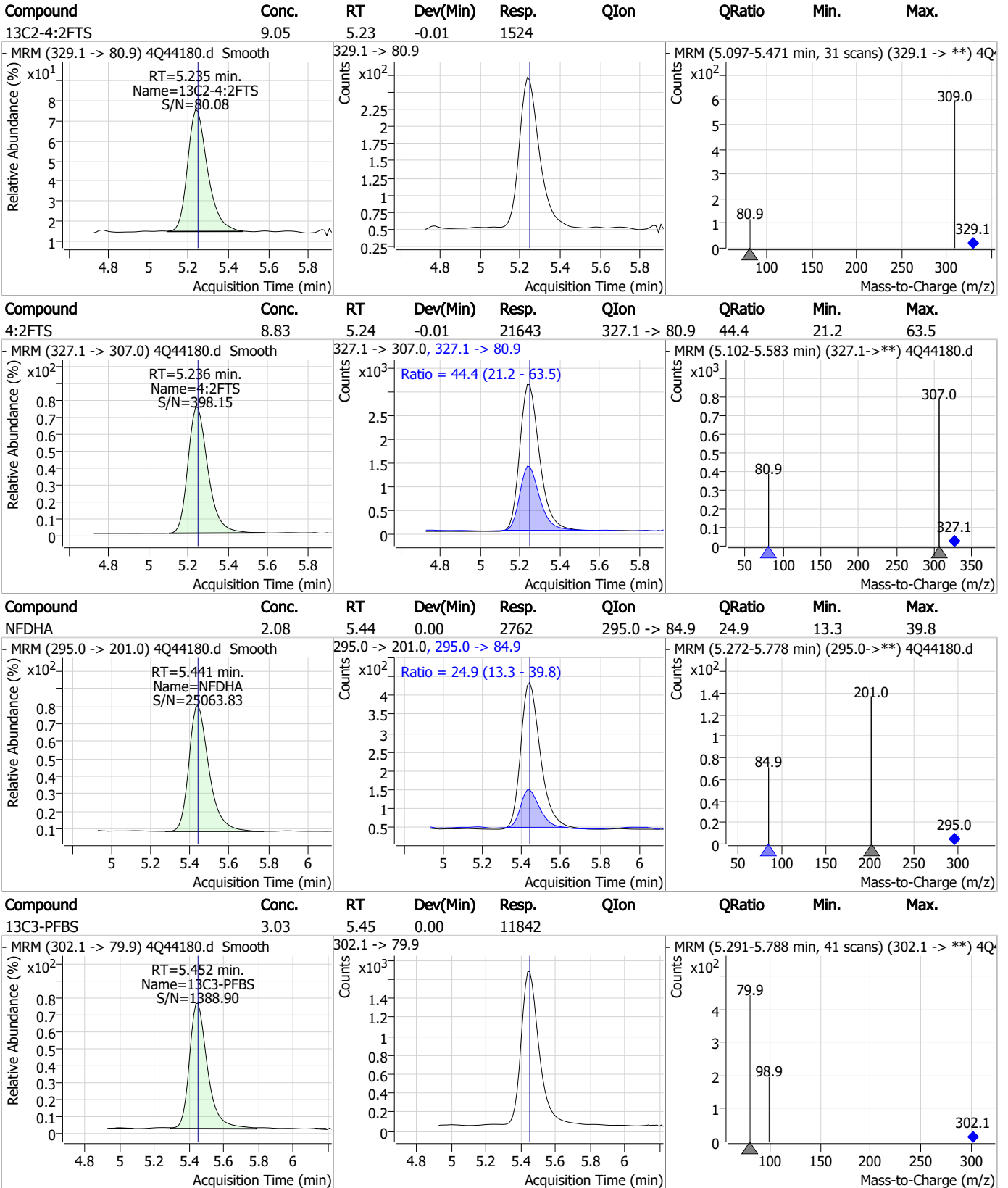
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

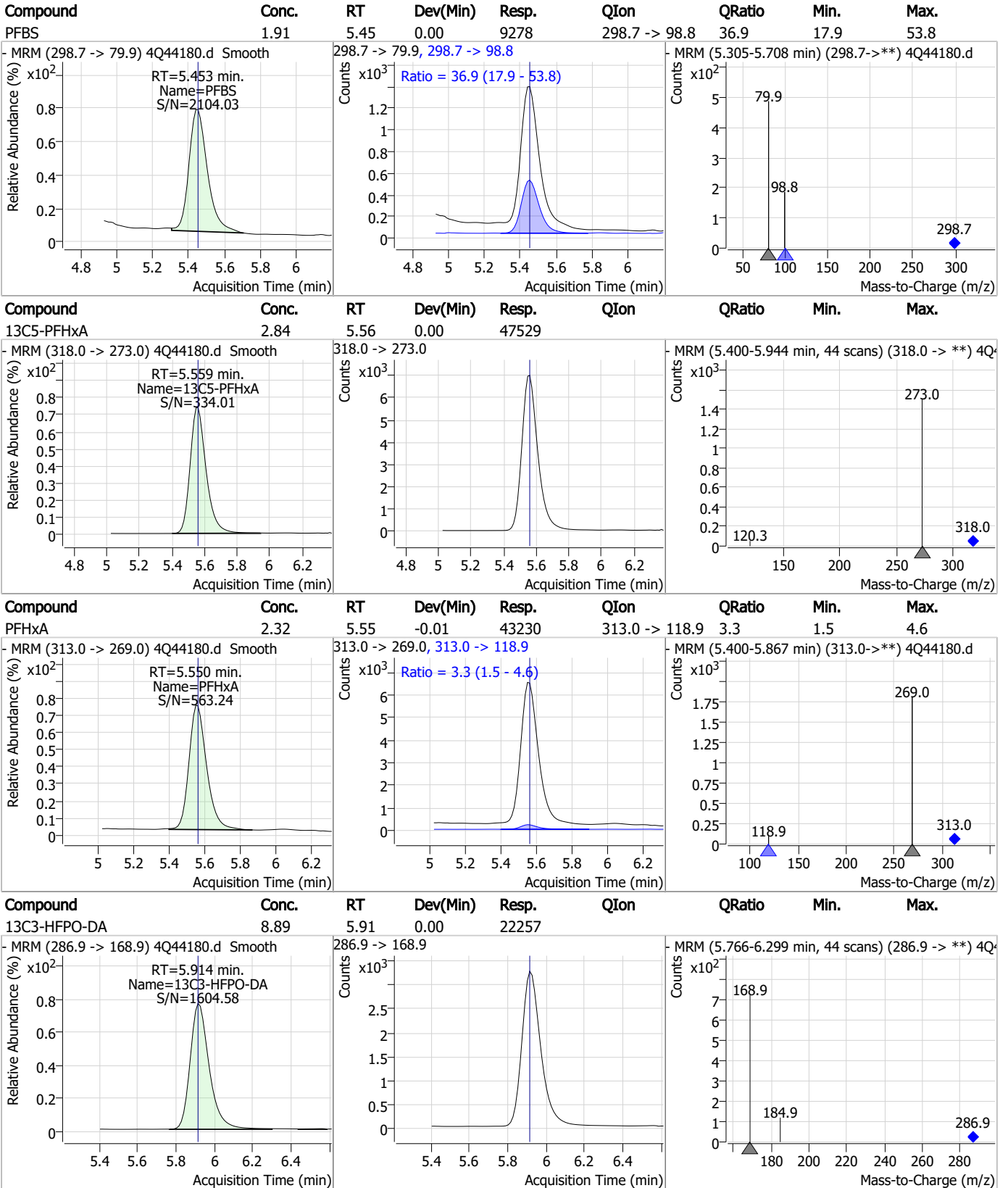


7.4.1

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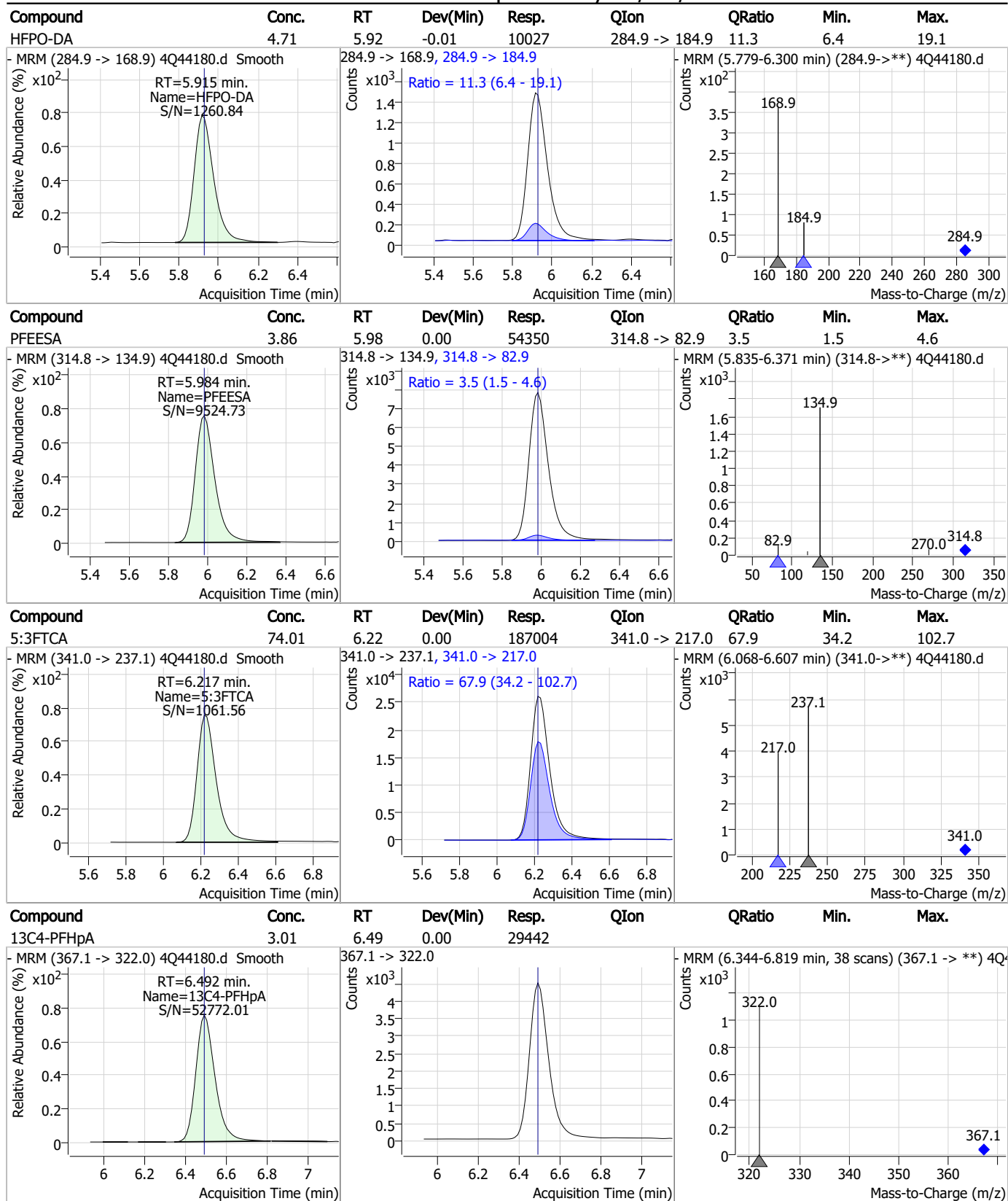
### Perfluorinated Compounds by LC/MS/MS



7.4.1

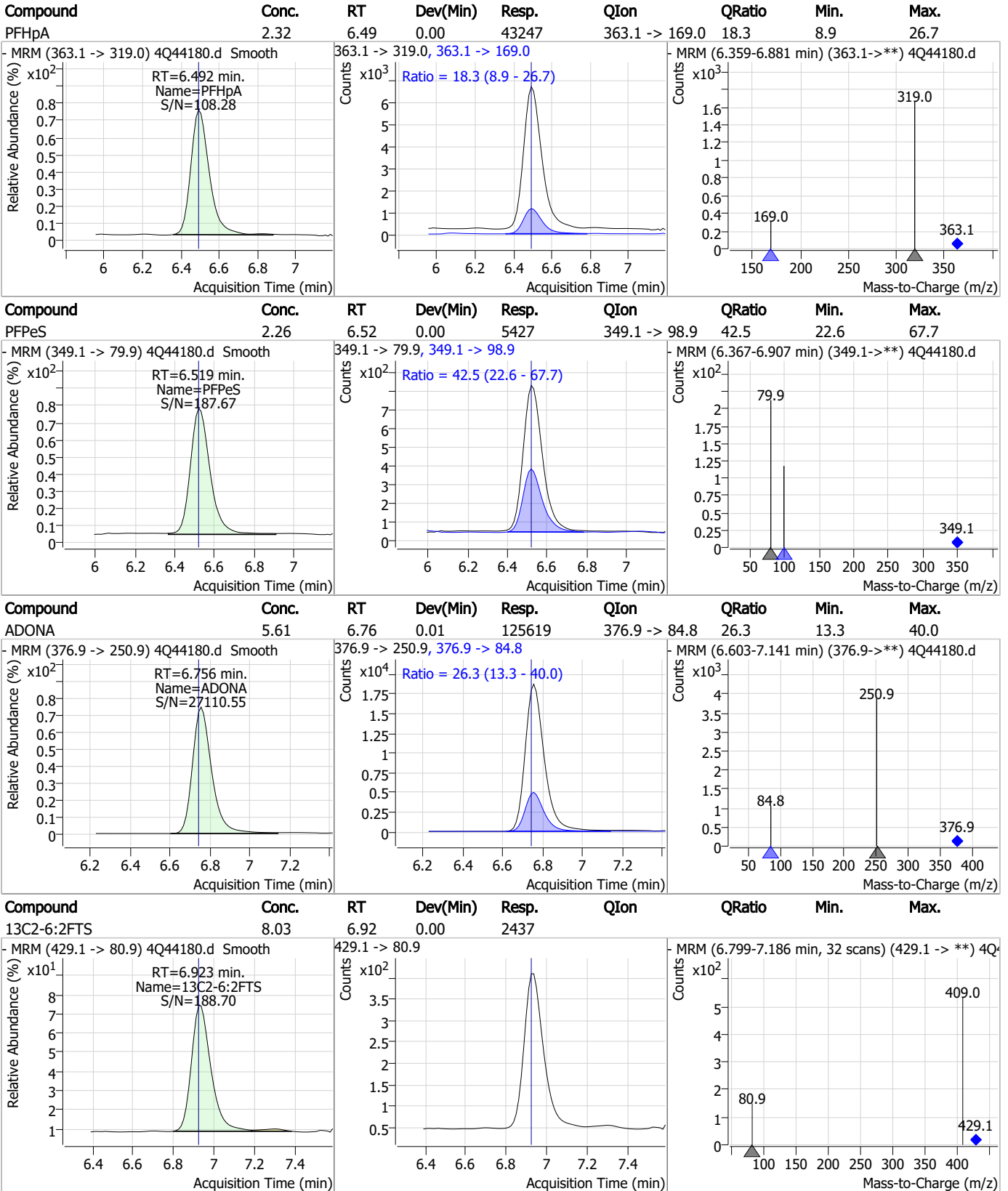
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### Perfluorinated Compounds by LC/MS/MS



7.4.1  
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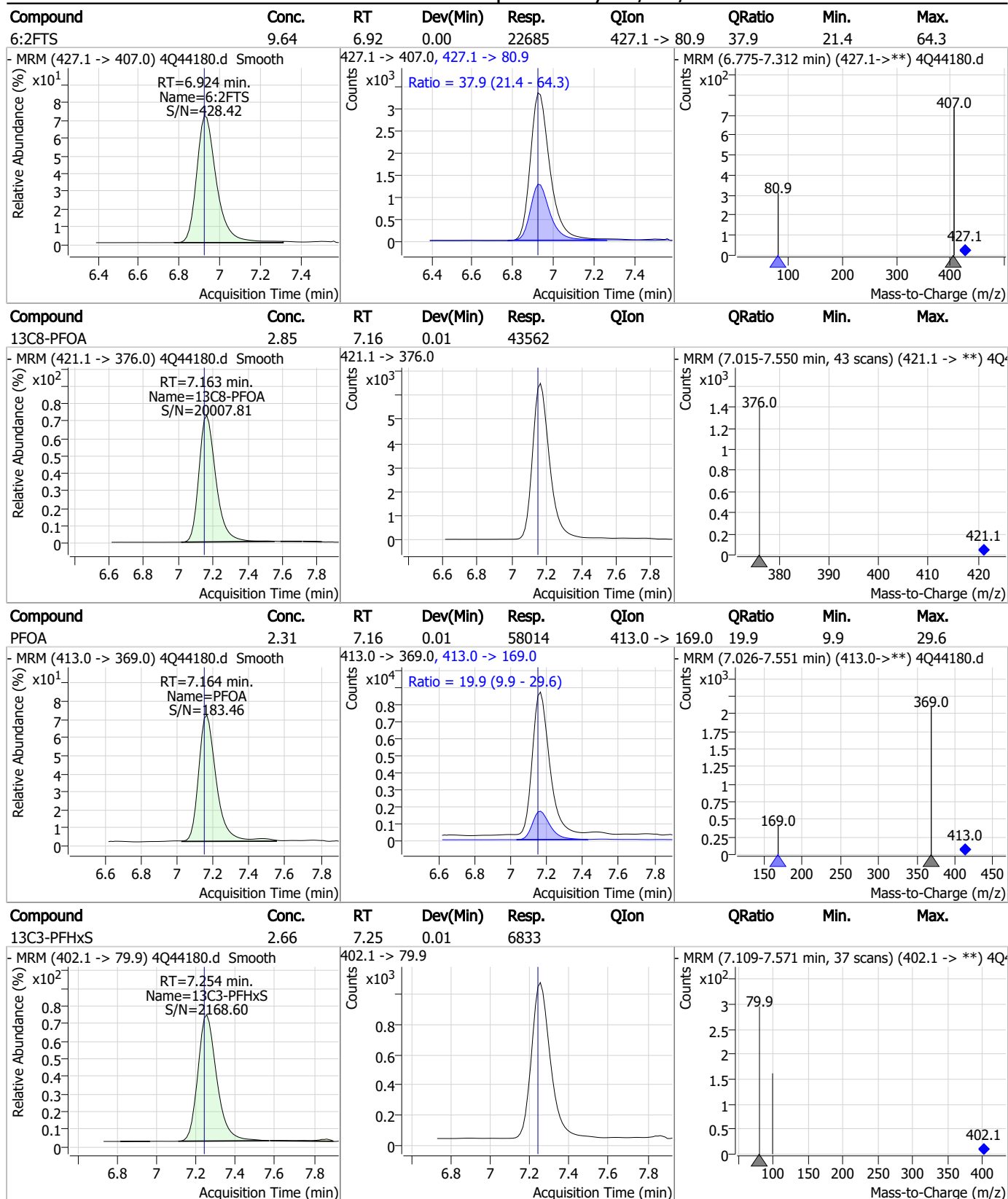
### Perfluorinated Compounds by LC/MS/MS



7.4.1

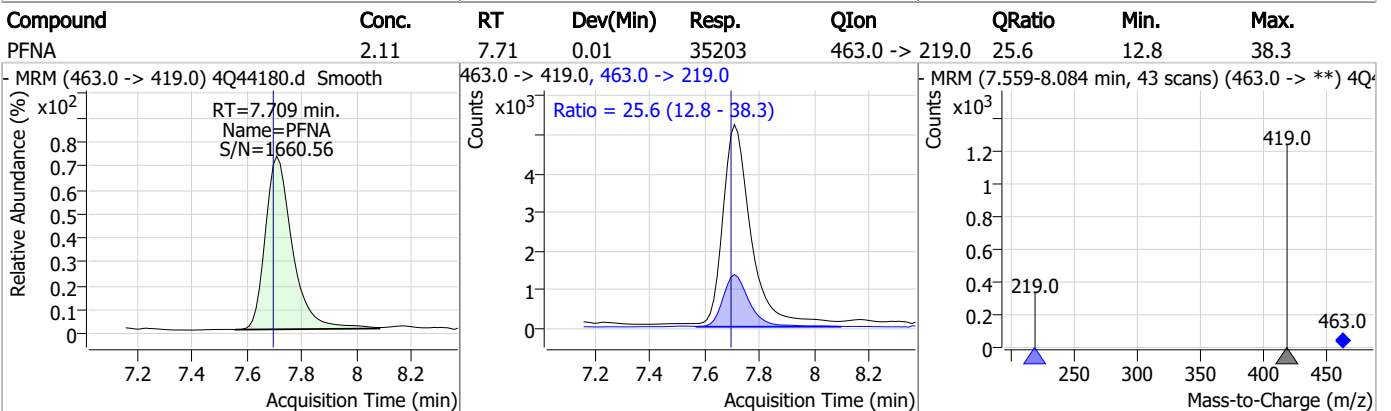
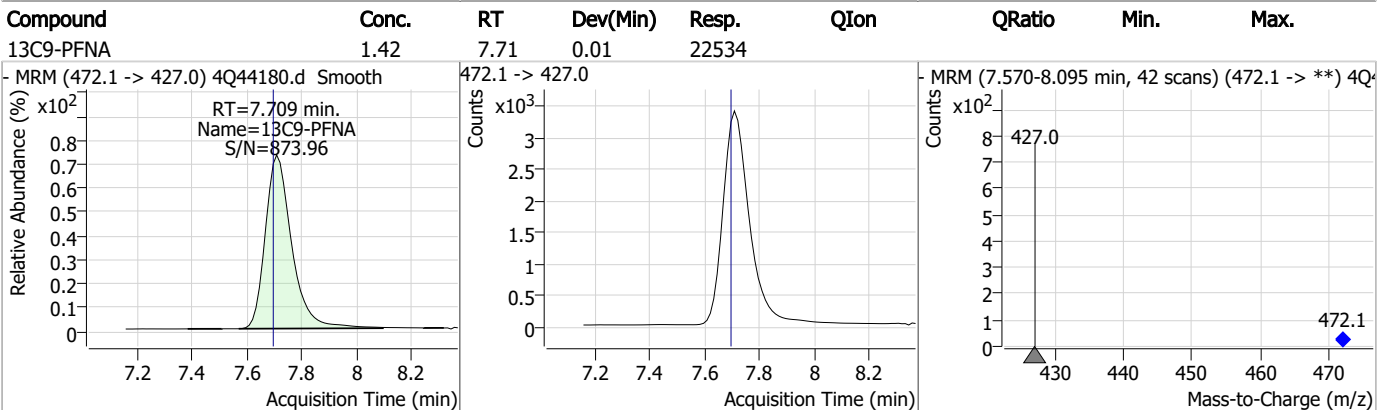
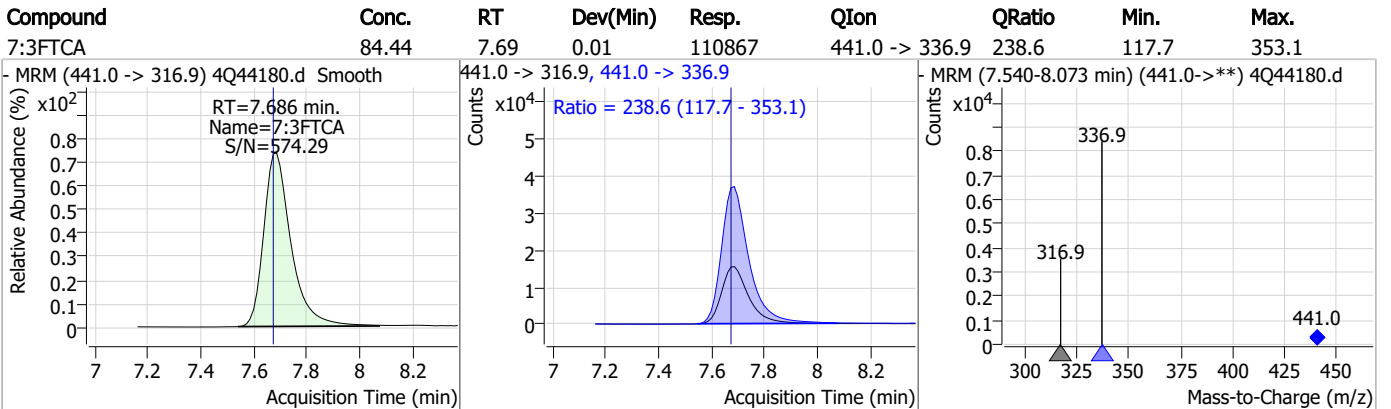
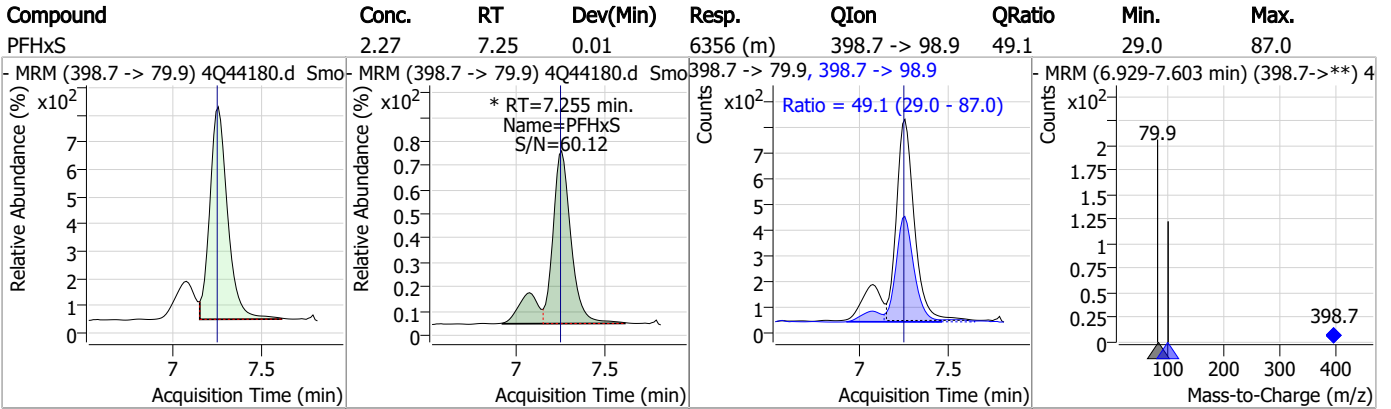
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### Perfluorinated Compounds by LC/MS/MS

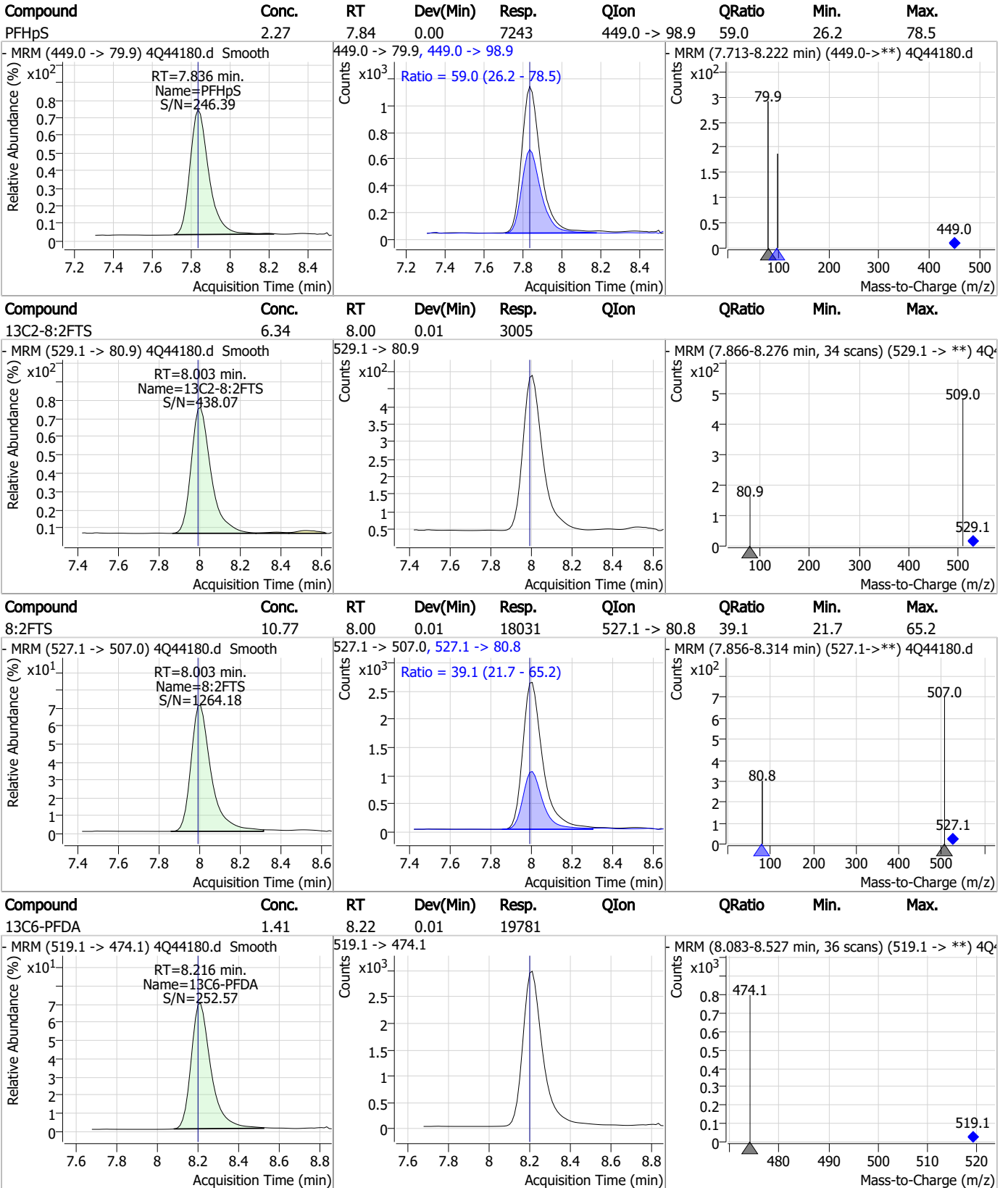


7.4.1  
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

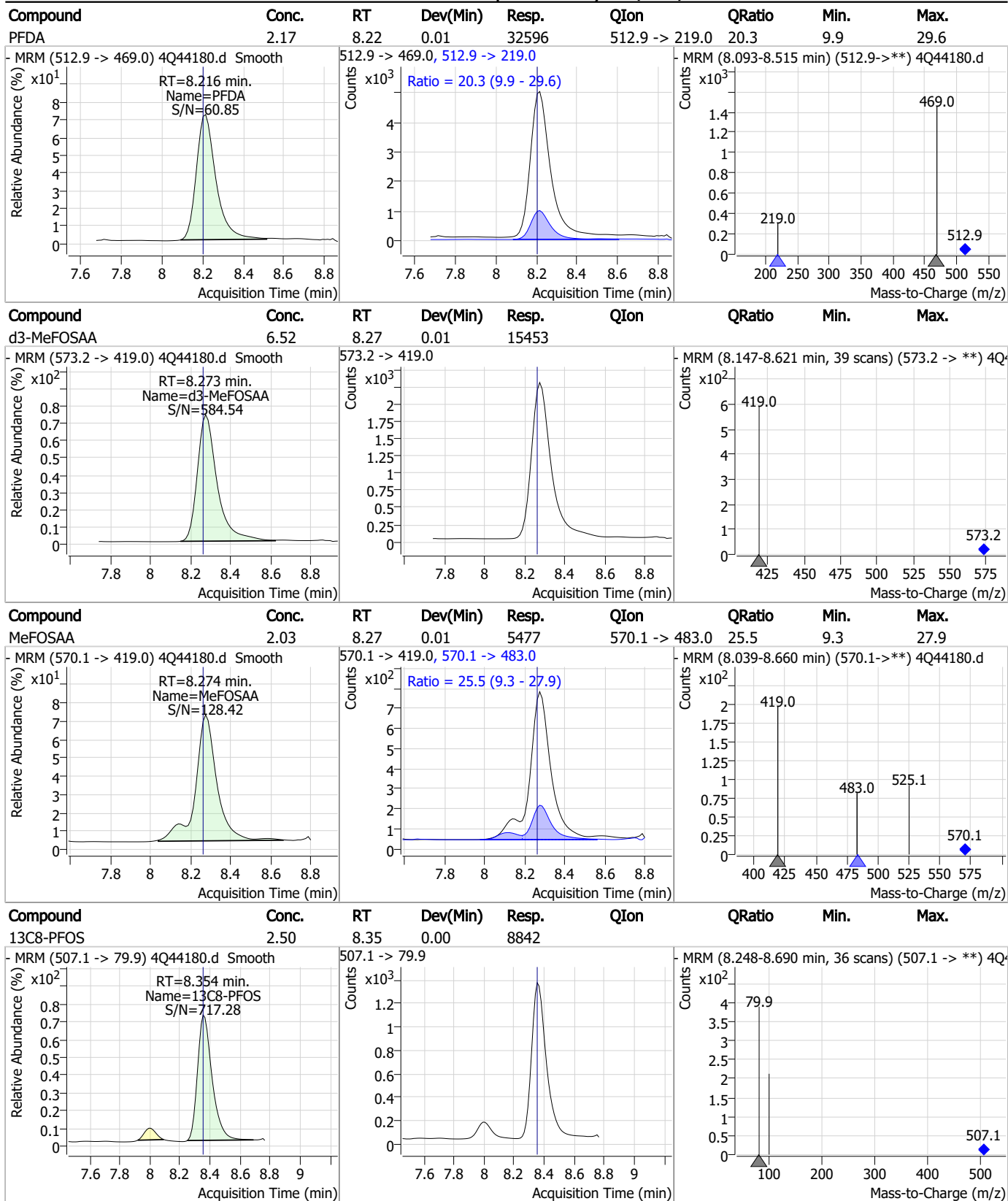


7.4.1

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### Perfluorinated Compounds by LC/MS/MS

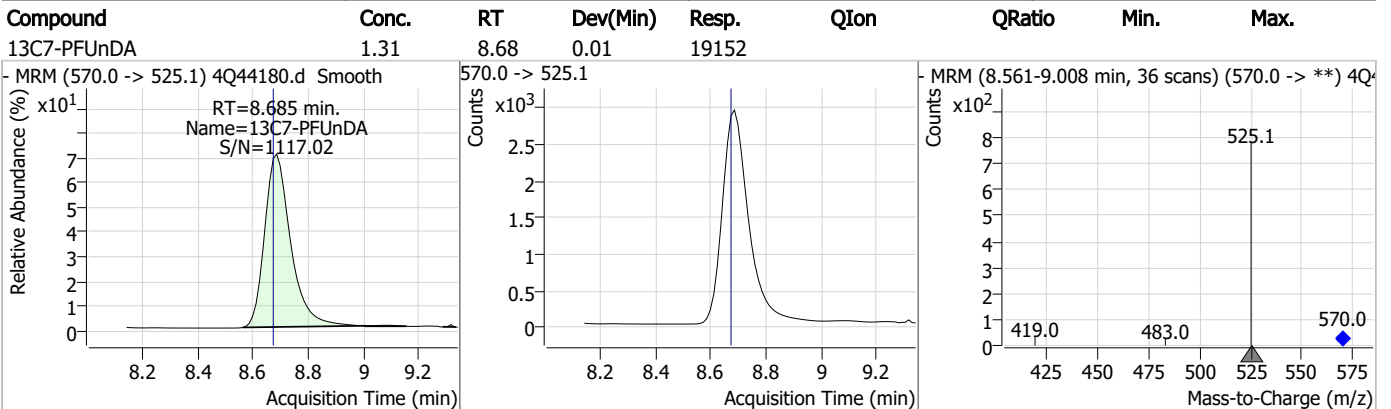
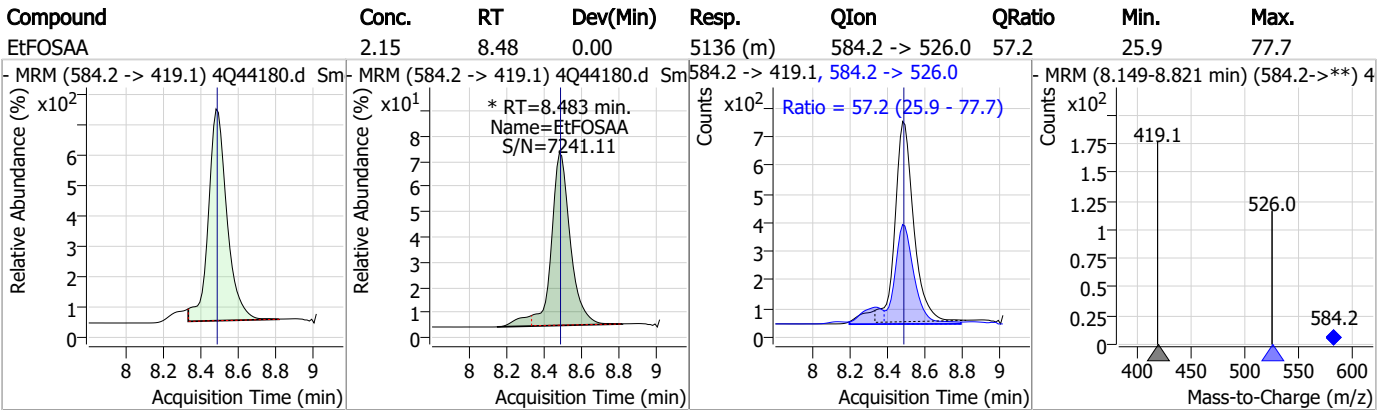
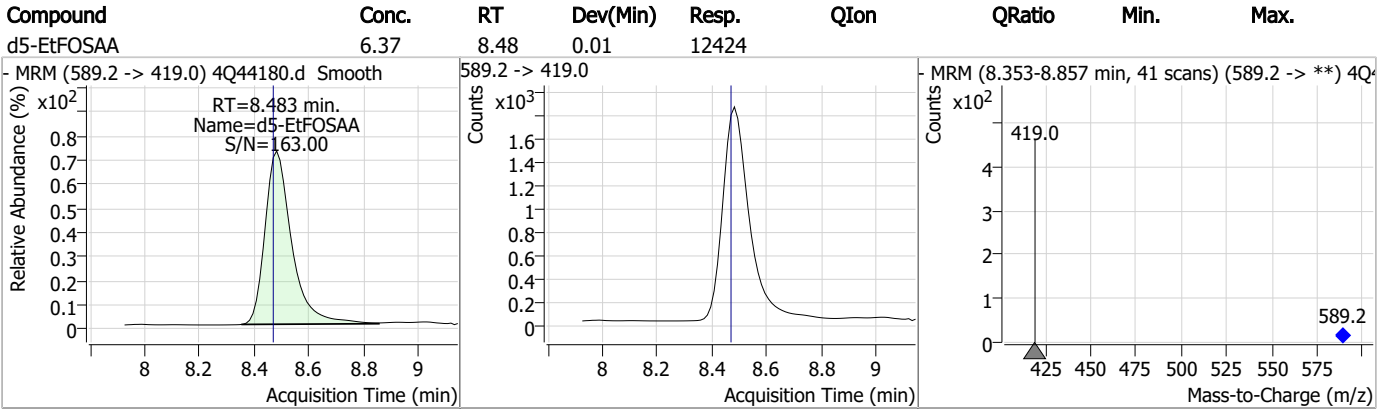
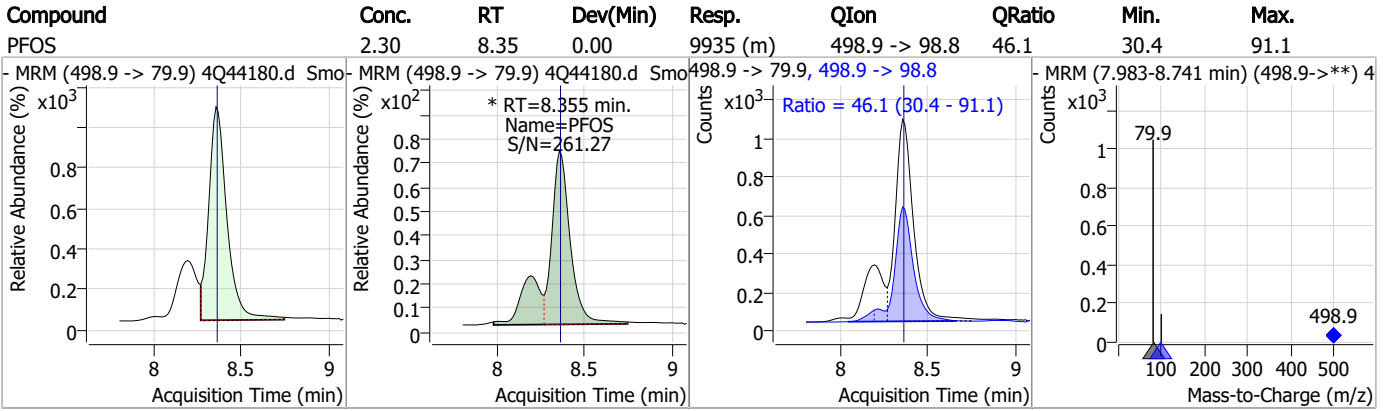


7.4.1

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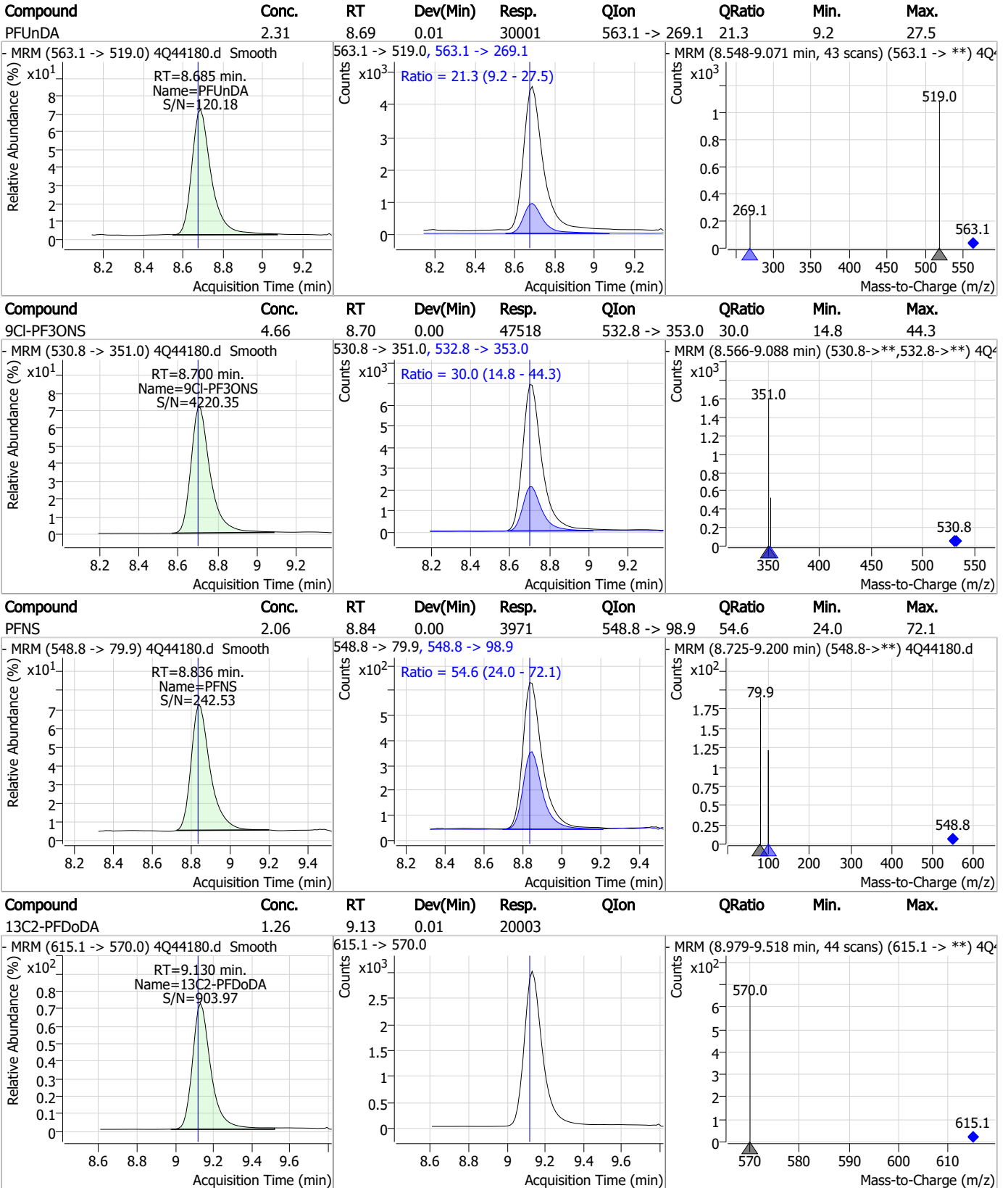


### Perfluorinated Compounds by LC/MS/MS





### Perfluorinated Compounds by LC/MS/MS

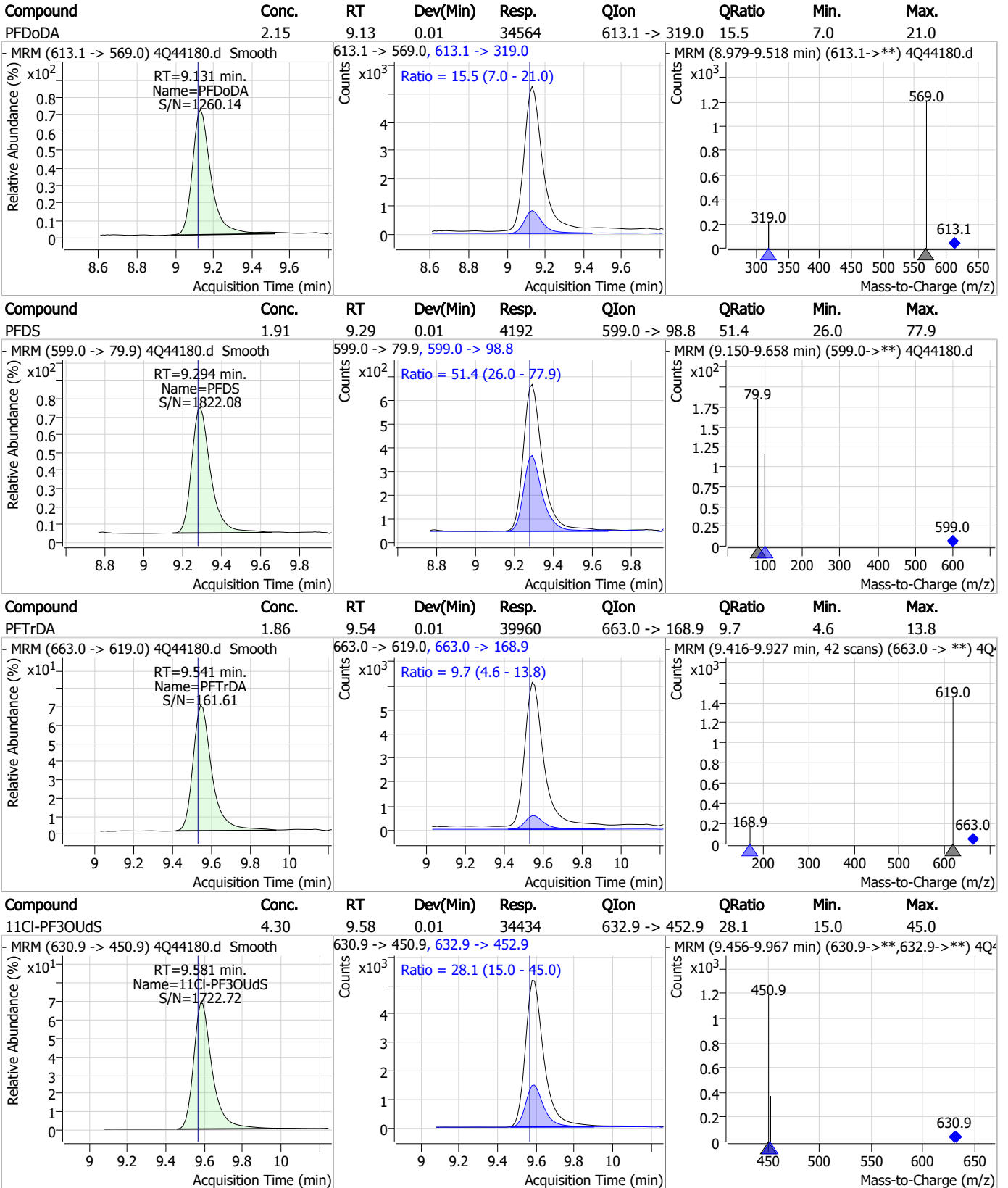


7.4.1

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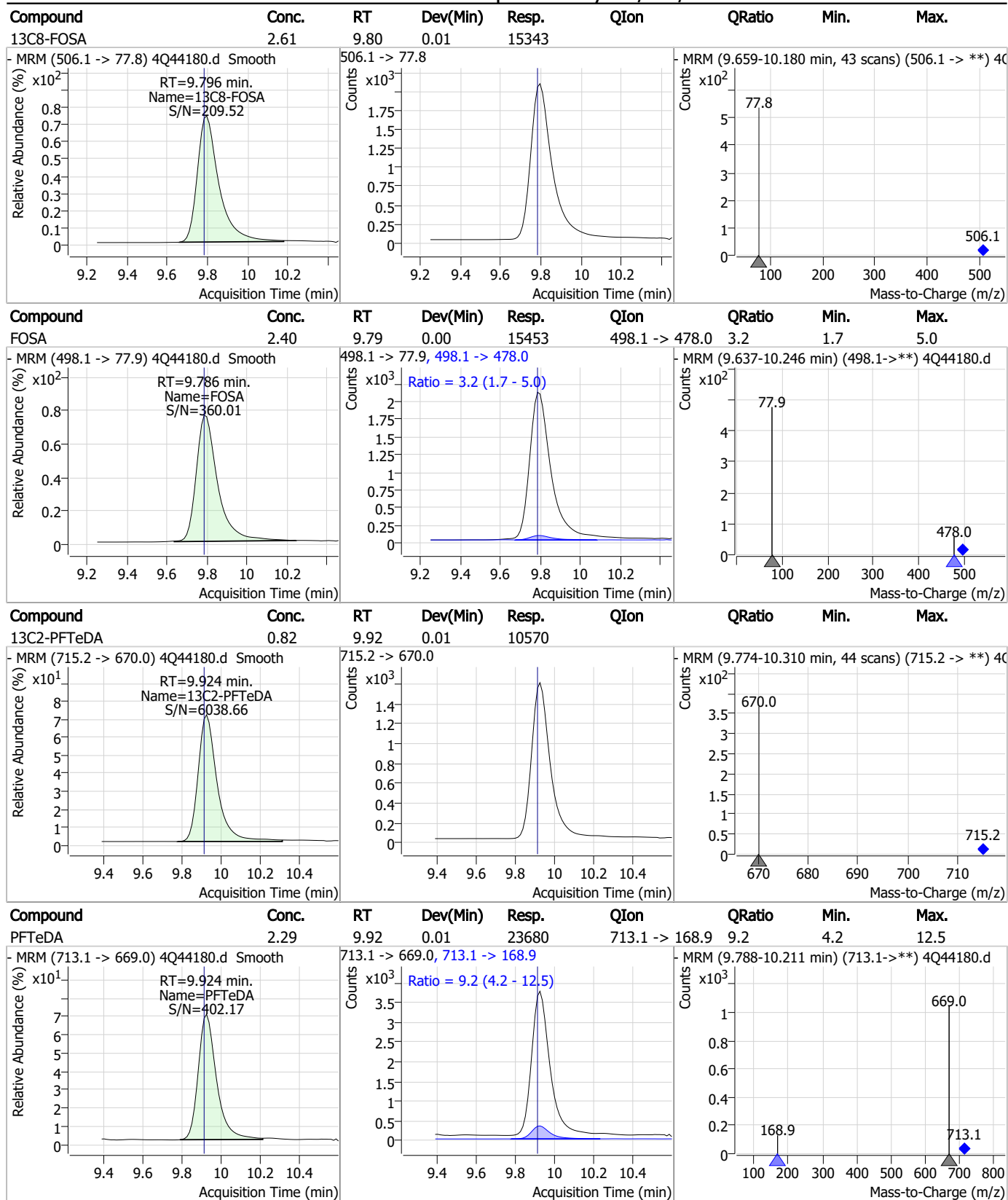
### Perfluorinated Compounds by LC/MS/MS



7.4.1

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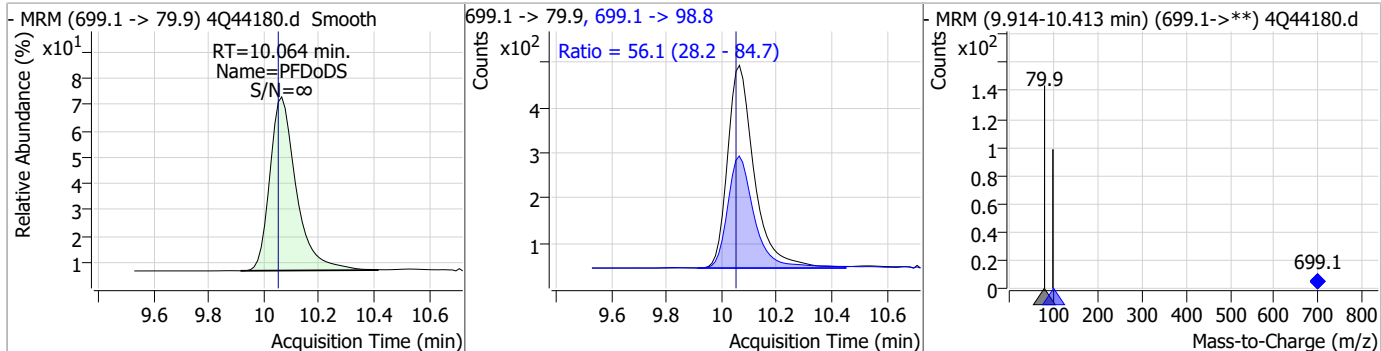
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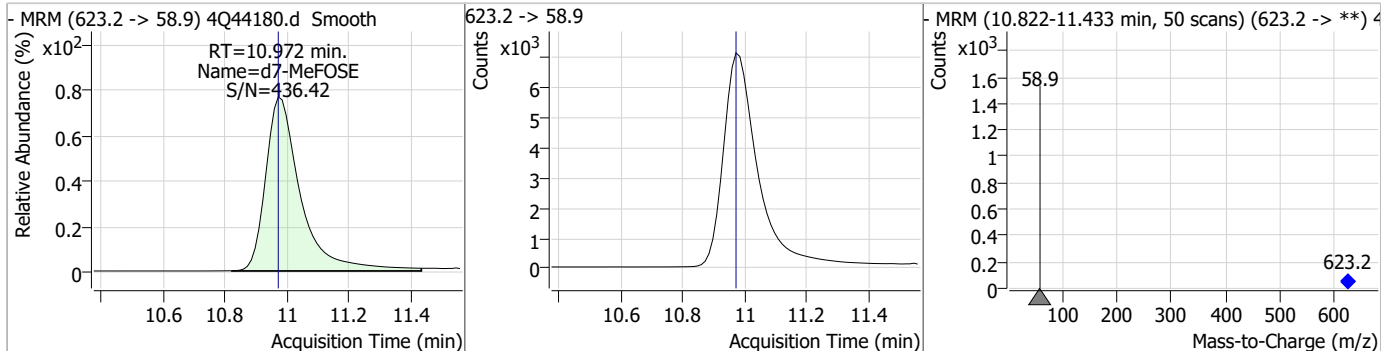
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### Perfluorinated Compounds by LC/MS/MS

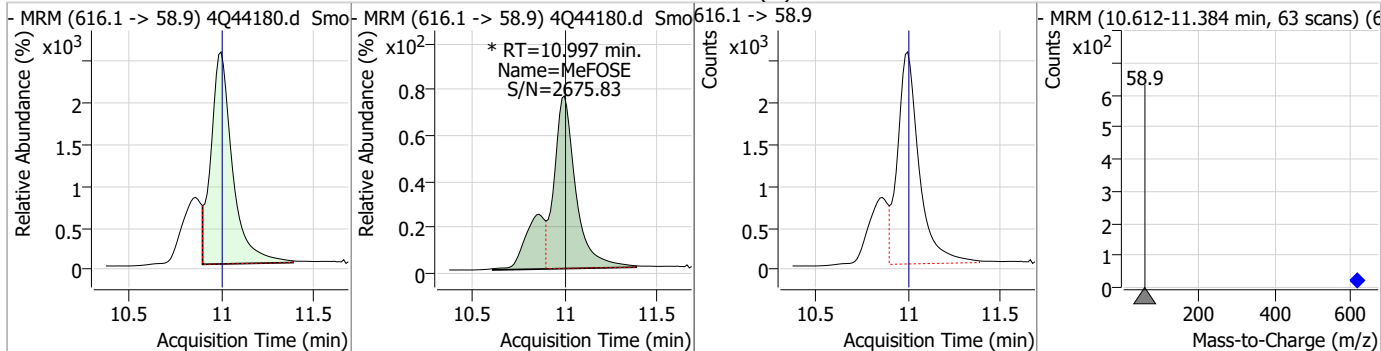
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD <sub>o</sub> DS	1.52	10.06	0.01	2977	699.1 -> 98.8	56.1	28.2	84.7



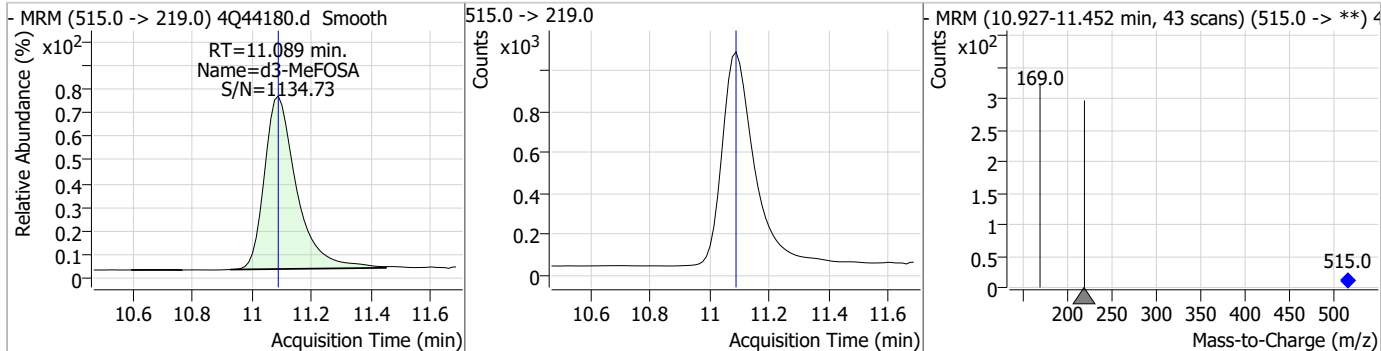
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.01	10.97	0.00	55531				



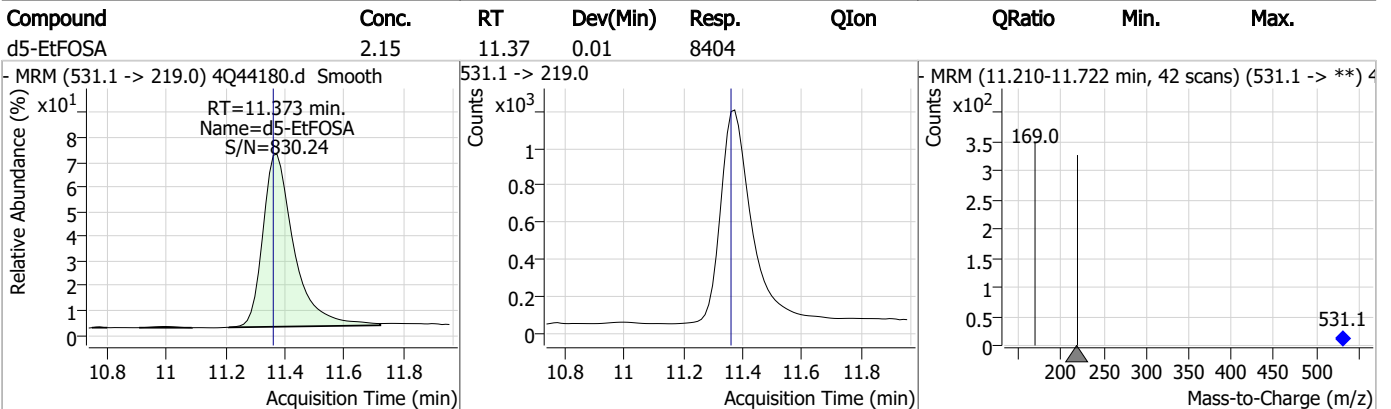
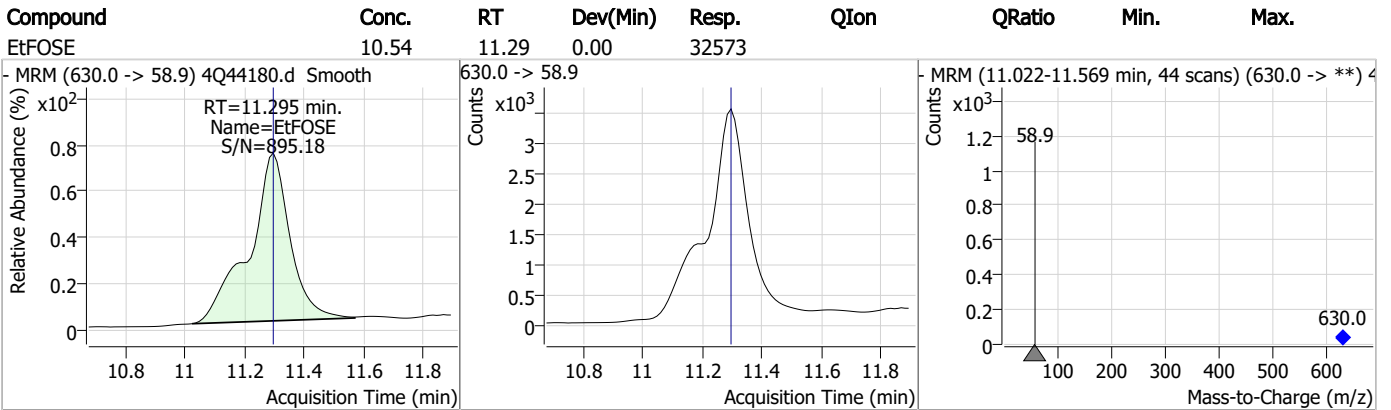
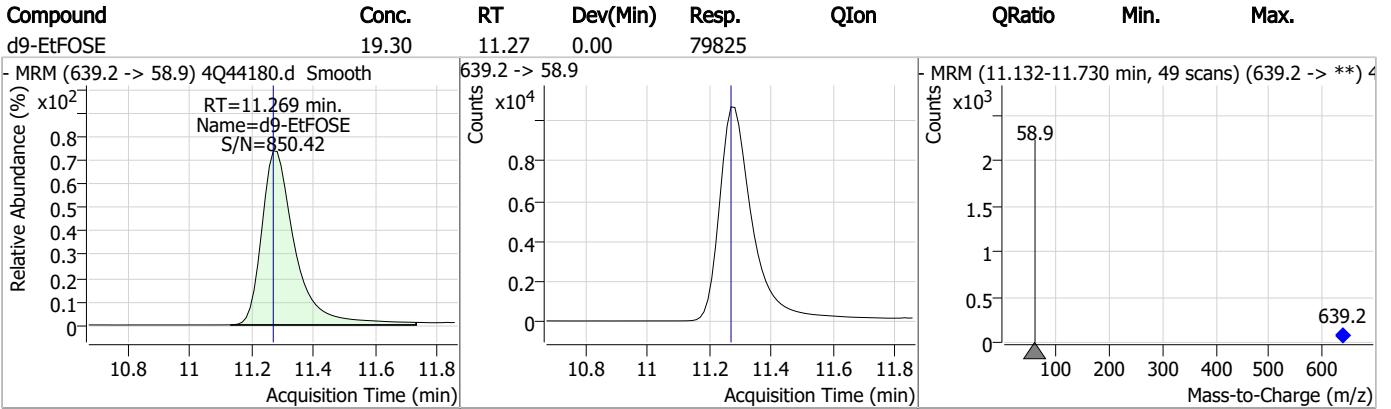
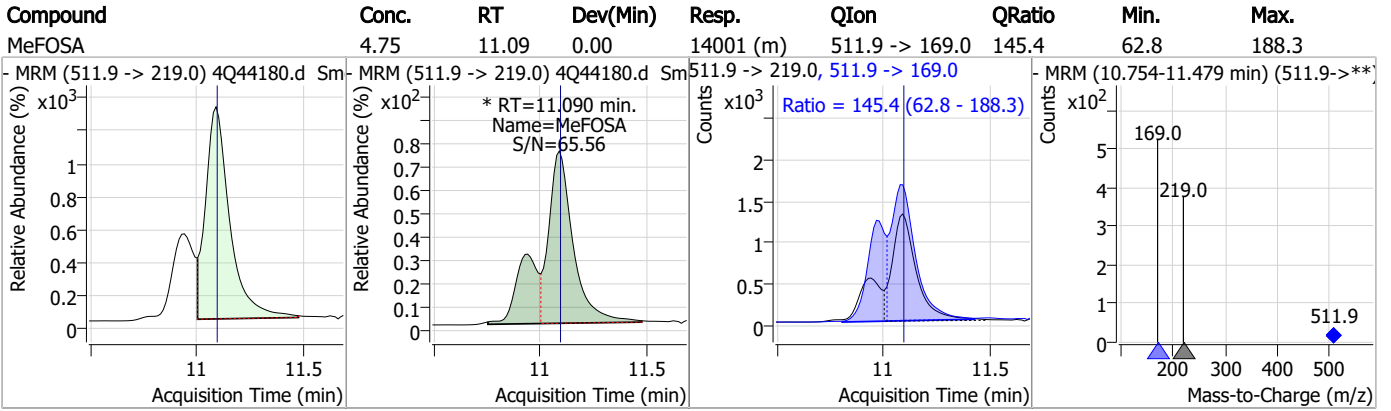
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.65	11.00	0.00	26565 (m)				



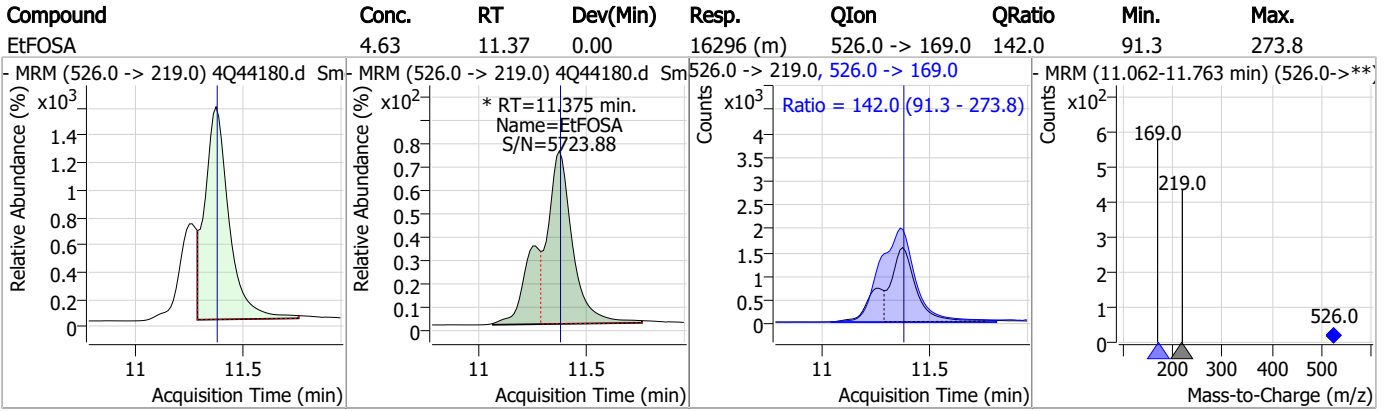
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.13	11.09	0.00	7831				



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.4.1

7

# Manual Integration Approval Summary

Sample Number: OP96784-MS                      Method: EPA DRAFT 1633  
Lab FileID: 4Q44180.D                      Analyst approved: 05/16/23 09:20 Norman Farmer  
Injection Time: 05/10/23 00:41                      Supervisor approved: 05/16/23 09:25 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoropentanoic acid	2706-90-3		4.38	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.4.1.1  
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17757.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 4:50:36 PM  
 Sample Name : op96784-dup  
 Vial : P4-A7  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96784,S6Q268,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	82675	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	43003	5.00 µg/L	-0.012
M5-PFHxA	5.454	318.0 -> 273.0	59355	2.50 µg/L	-0.012
M4-PFHpA	6.420	367.1 -> 322.0	52304	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	70359	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	25408	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	18036	1.25 µg/L	0.012
M7-PFUnDA	8.518	570.0 -> 525.1	21362	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	19859	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	10917	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	18199	2.50 µg/L	0.000
M3-PFBS	5.384	302.1 -> 79.9	18867	2.50 µg/L	-0.013
M3-PFHxS	7.179	402.1 -> 79.9	12497	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	8703	2.50 µg/L	0.000
M2-4:2FTS	5.131	329.1 -> 80.9	2430	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	2213	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	1995	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	19041	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	28184	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	14380	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	55915	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	72888	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	7232	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	5659	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12310	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	53190	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	7677	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	71291	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	21441	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	22699	1.25 µg/L	0.012
13C2-PFHxA	5.454	315.1 -> 270.0	46150	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.131	329.1 -> 80.9	2430	8.31 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 166.2%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2213	5.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.5%		
13C2-8:2FTS	7.864	529.1 -> 80.9	1995	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C2-PFDoDA	8.949	615.1 -> 570.0	19859	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.6%		
13C2-PFTeDA	9.677	715.2 -> 670.0	10917	0.90 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 71.8%		
13C3-PFBS	5.384	302.1 -> 79.9	18867	2.82 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.9%		
13C3-PFHxS	7.179	402.1 -> 79.9	12497	3.06 µg/L	0.012

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 122.2%	
13C4-PFBA	2.901	216.8 -> 171.9	82675	6.55 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.5%	
13C4-PFHpA	6.420	367.1 -> 322.0	52304	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C5-PFHxA	5.454	318.0 -> 273.0	59355	2.72 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C5-PFPeA	4.259	268.3 -> 223.0	43003	4.43 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.6%	
13C6-PFDA	8.076	519.1 -> 474.1	18036	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C7-PFUnDA	8.518	570.0 -> 525.1	21362	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C8-FOSA	9.648	506.1 -> 77.8	18199	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.1%	
13C8-PFOA	7.064	421.1 -> 376.0	70359	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C8-PFOS	8.226	507.1 -> 79.9	8703	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.9%	
13C9-PFNA	7.595	472.1 -> 427.0	25408	1.51 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 121.1%	
d3-MeFOSAA	8.121	573.2 -> 419.0	19041	4.94 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	28184	8.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.4%	
d3-MeFOSA	10.752	515.0 -> 219.0	5659	1.90 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.0%	
d5-EtFOSAA	8.329	589.2 -> 419.0	14380	4.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.3%	
d7-MeFOSE	10.672	623.2 -> 58.9	55915	18.44 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.8%	
d9-EtFOSE	10.907	639.2 -> 58.9	72888	19.89 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.6%	
d5-EtFOSA	10.984	531.1 -> 219.0	7232	2.01 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.6%	

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	6.838	427.1 -> 407.0 427.1 -> 80.9	857 319	0.36 µg/L	91
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	2.668	212.8 -> 168.9	0	µg/L m	1
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	6.420	599.0 -> 98.8				
		363.1 -> 319.0	1819	0.07 µg/L	m	81
PFHpS	-	363.1 -> 169.0	150			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.457	449.0 -> 98.9				
		313.0 -> 269.0	1505	0.06 µg/L	#	89
PFHxS	-	313.0 -> 118.9	127			
		398.7 -> 79.9	-	N.D.		
PFNA	8.056	398.7 -> 98.9				
		463.0 -> 419.0	0	µg/L	m	1
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	4.162	498.9 -> 98.8				
		263.0 -> 219.0	0	µg/L	m	1
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	3.646	241.0 -> 177.0	0	µg/L	m	1
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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



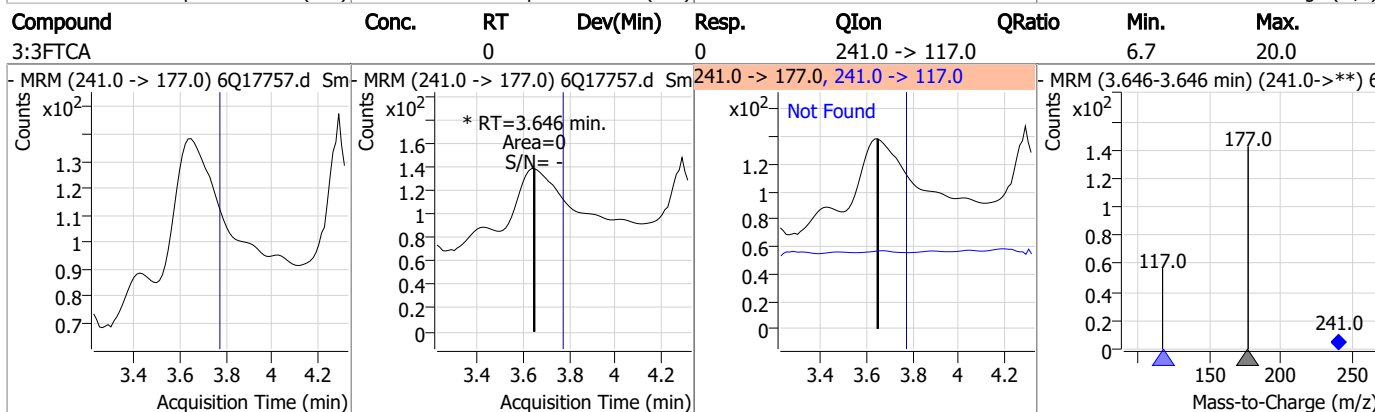
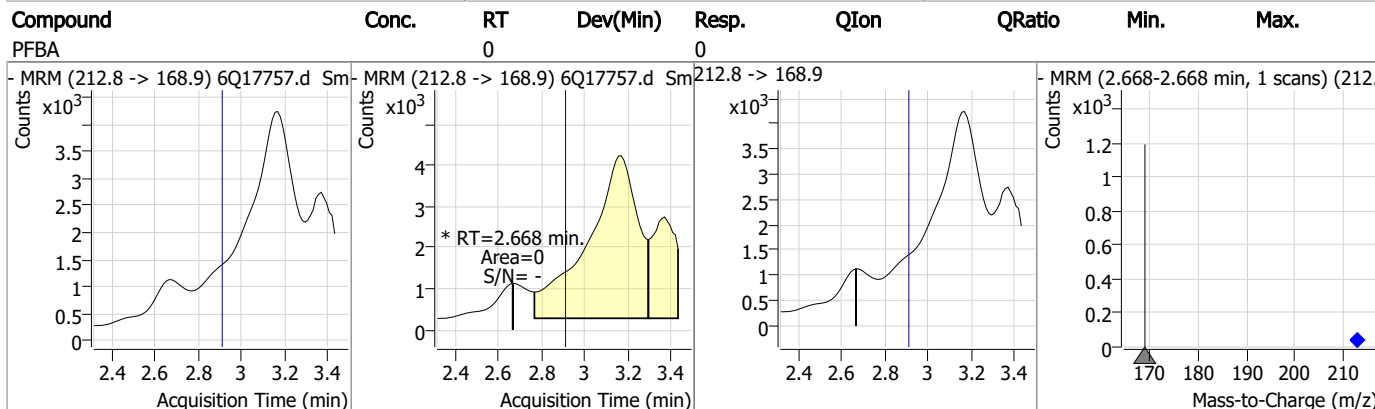
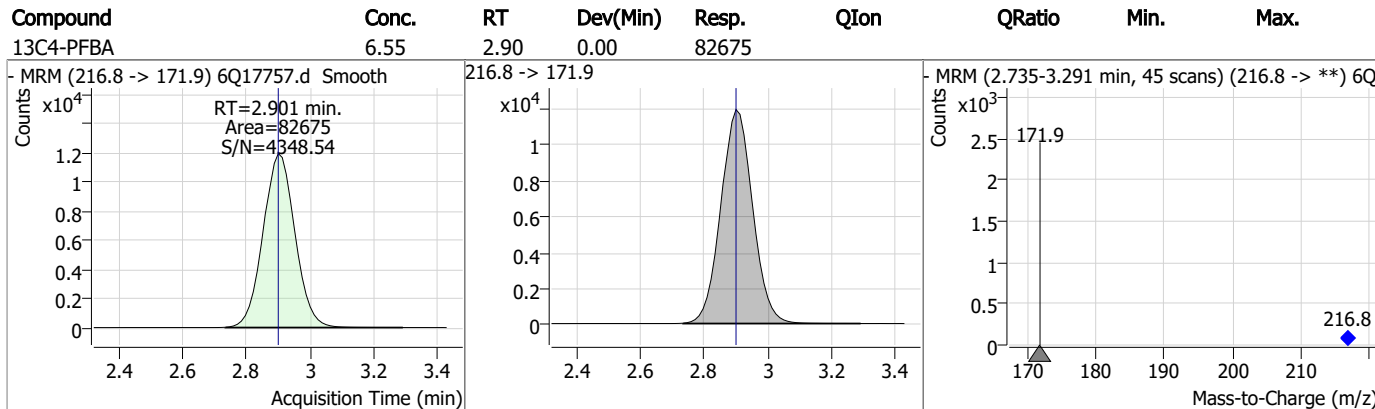
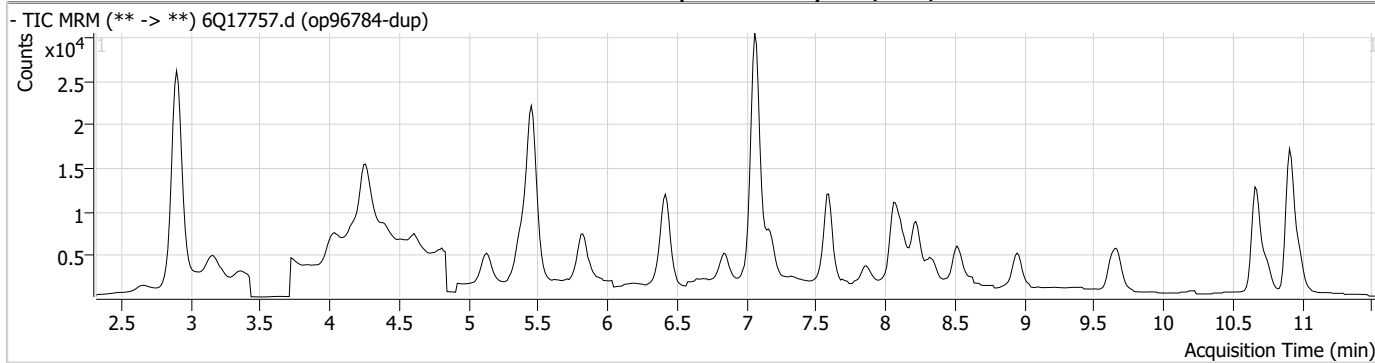
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.5.1

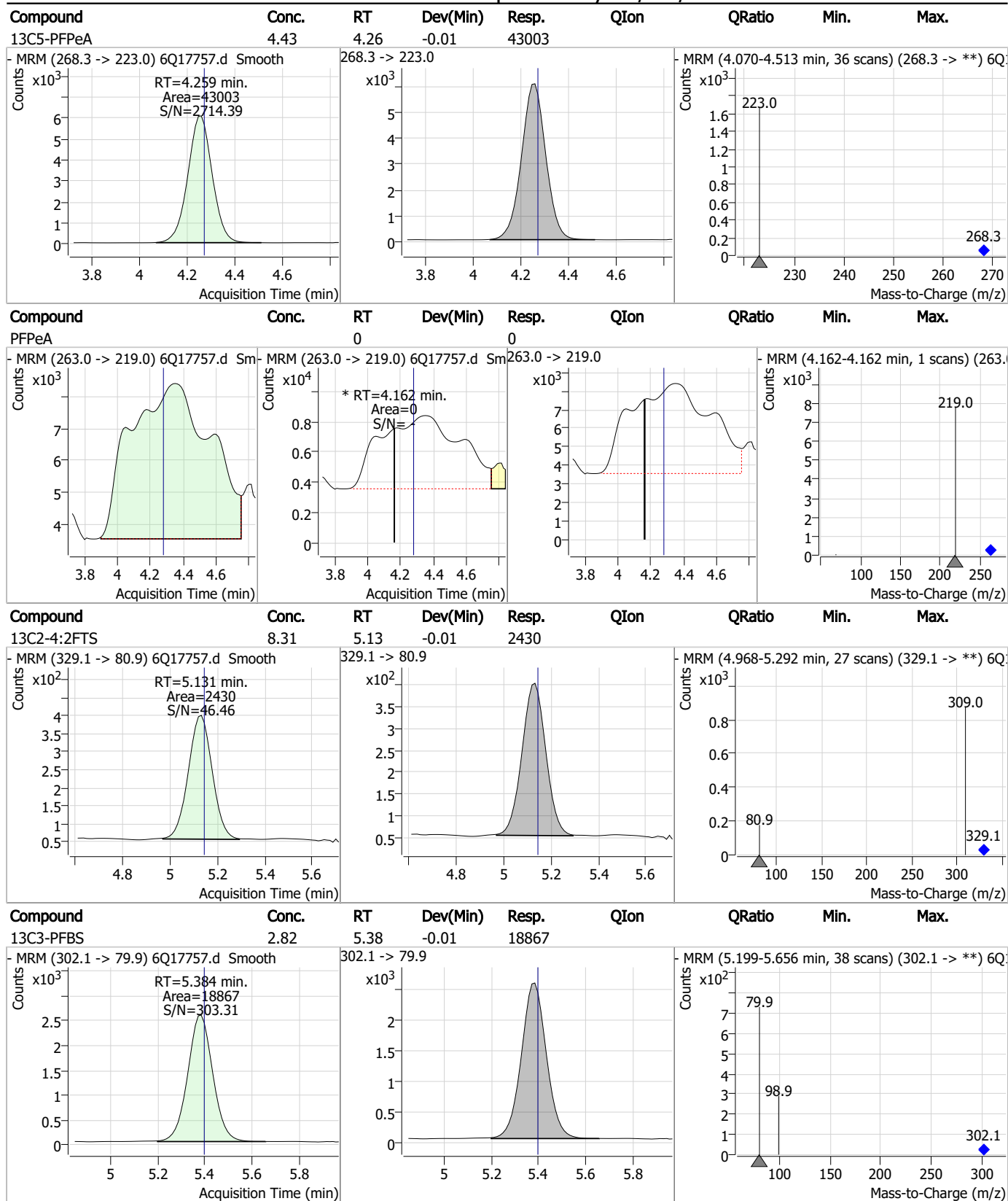
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### Perfluorinated Compounds by LC/MS/MS



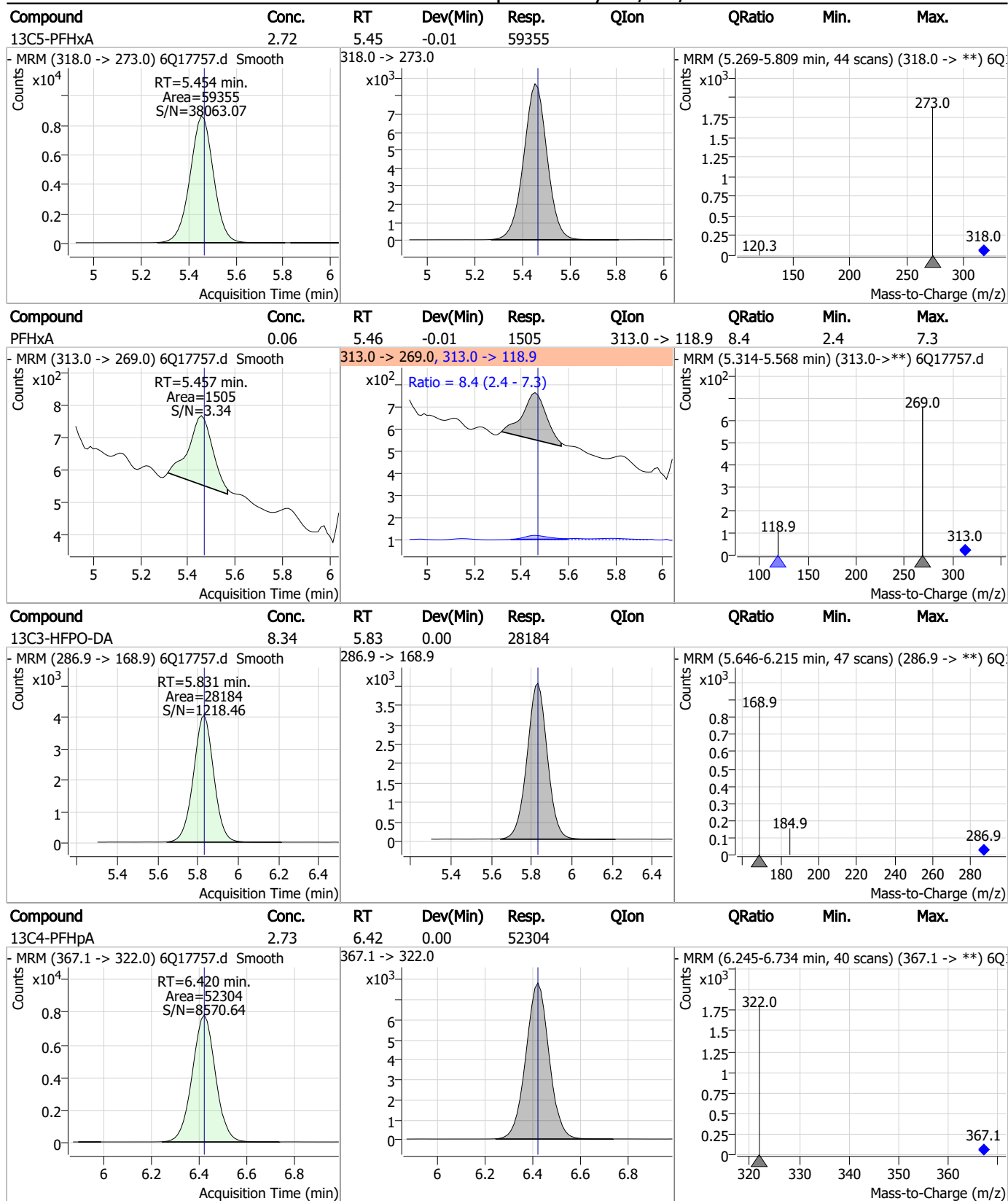
7.5.1  
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### Perfluorinated Compounds by LC/MS/MS



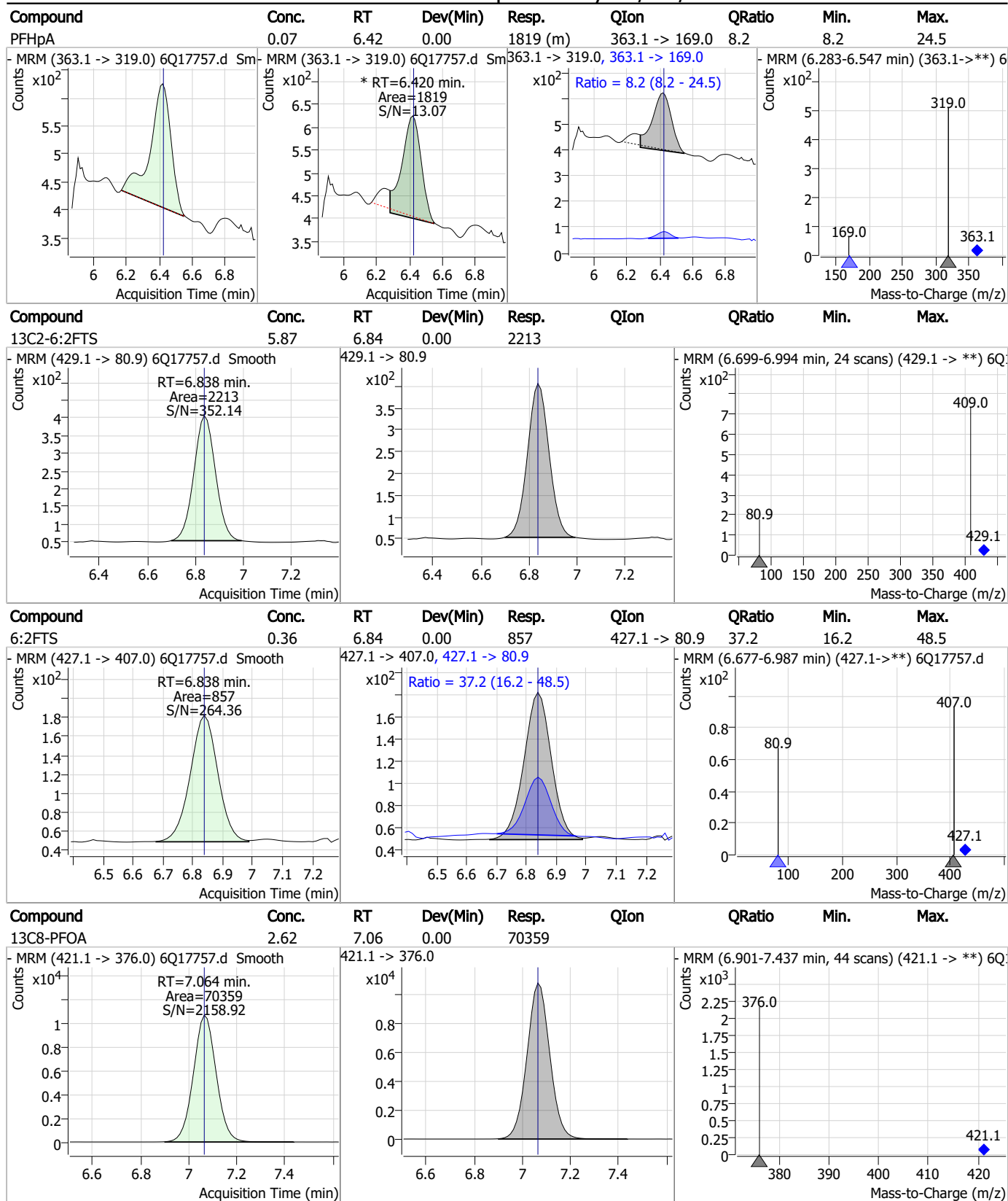
7.5.1  
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### Perfluorinated Compounds by LC/MS/MS



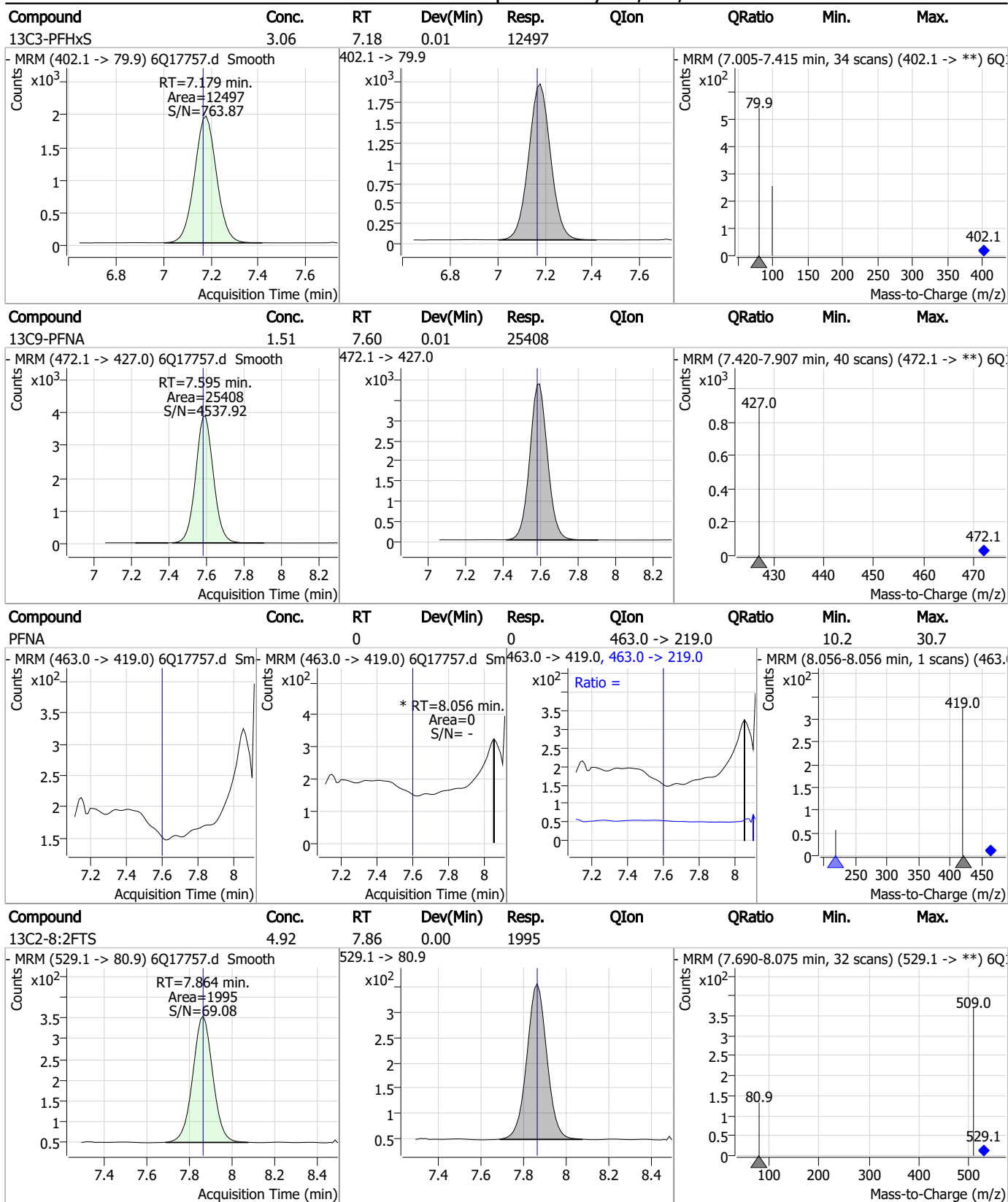
7.5.1  
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### Perfluorinated Compounds by LC/MS/MS



7.5.1  
7

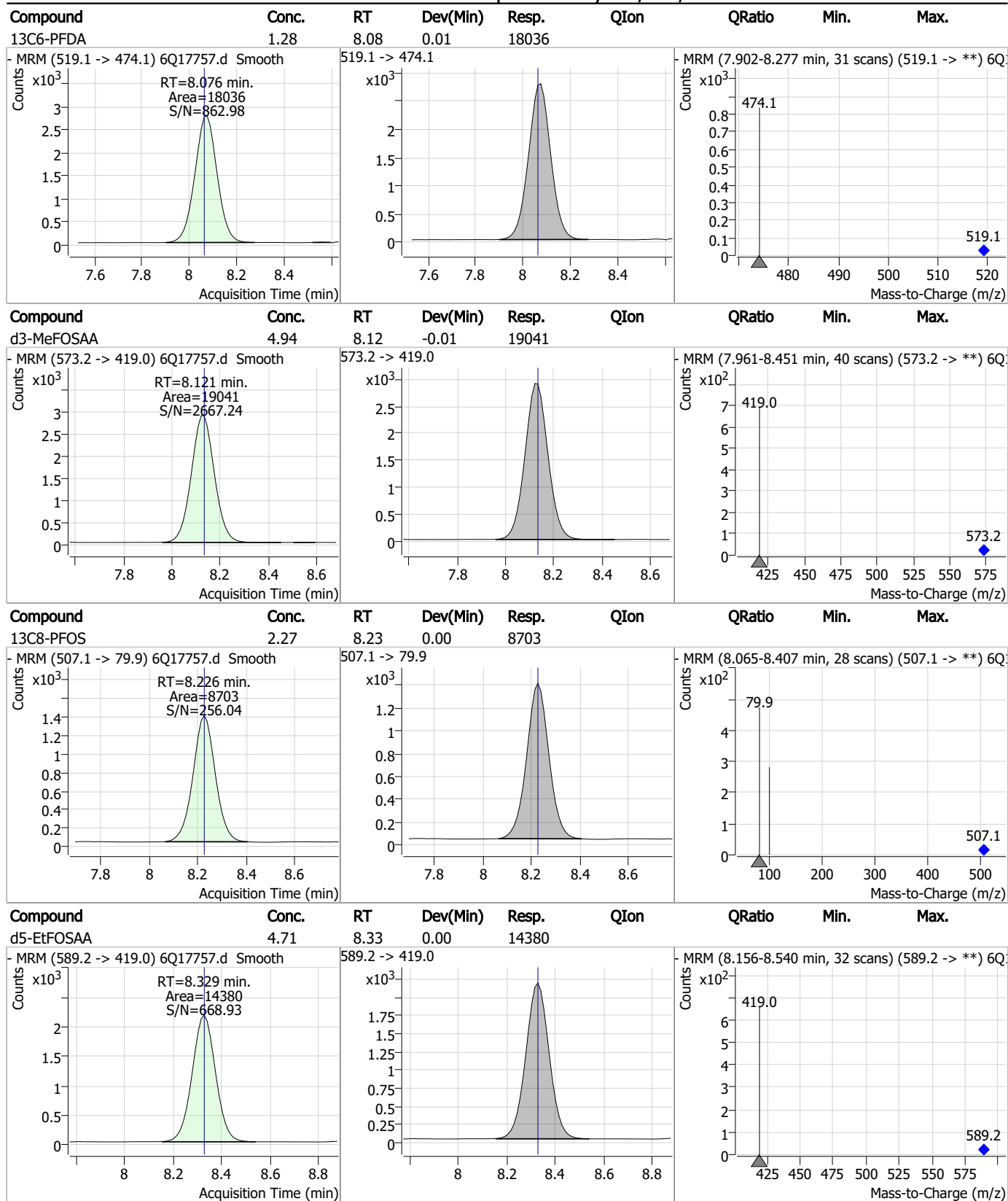
### Perfluorinated Compounds by LC/MS/MS



7.5.1  
7

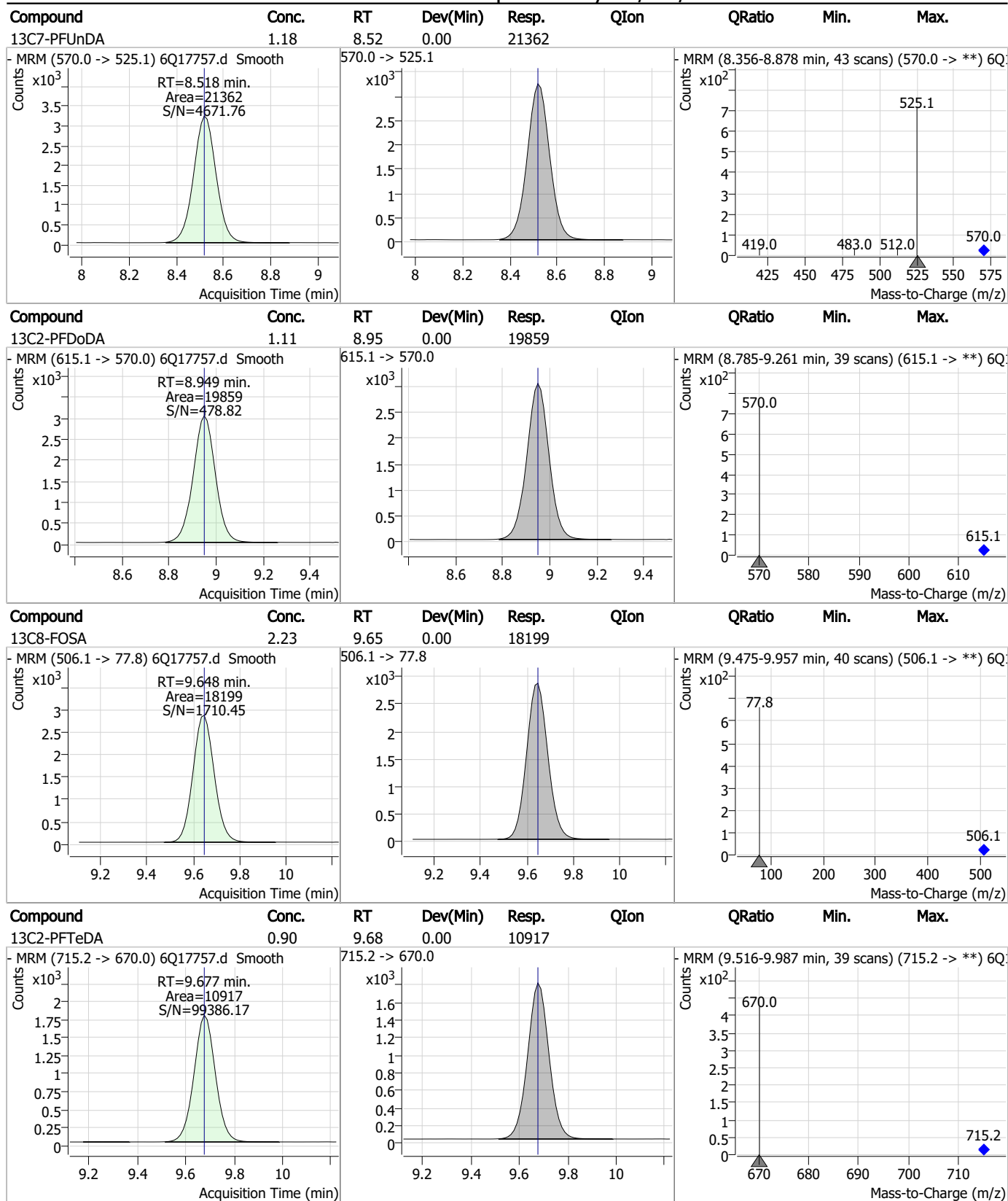


### Perfluorinated Compounds by LC/MS/MS



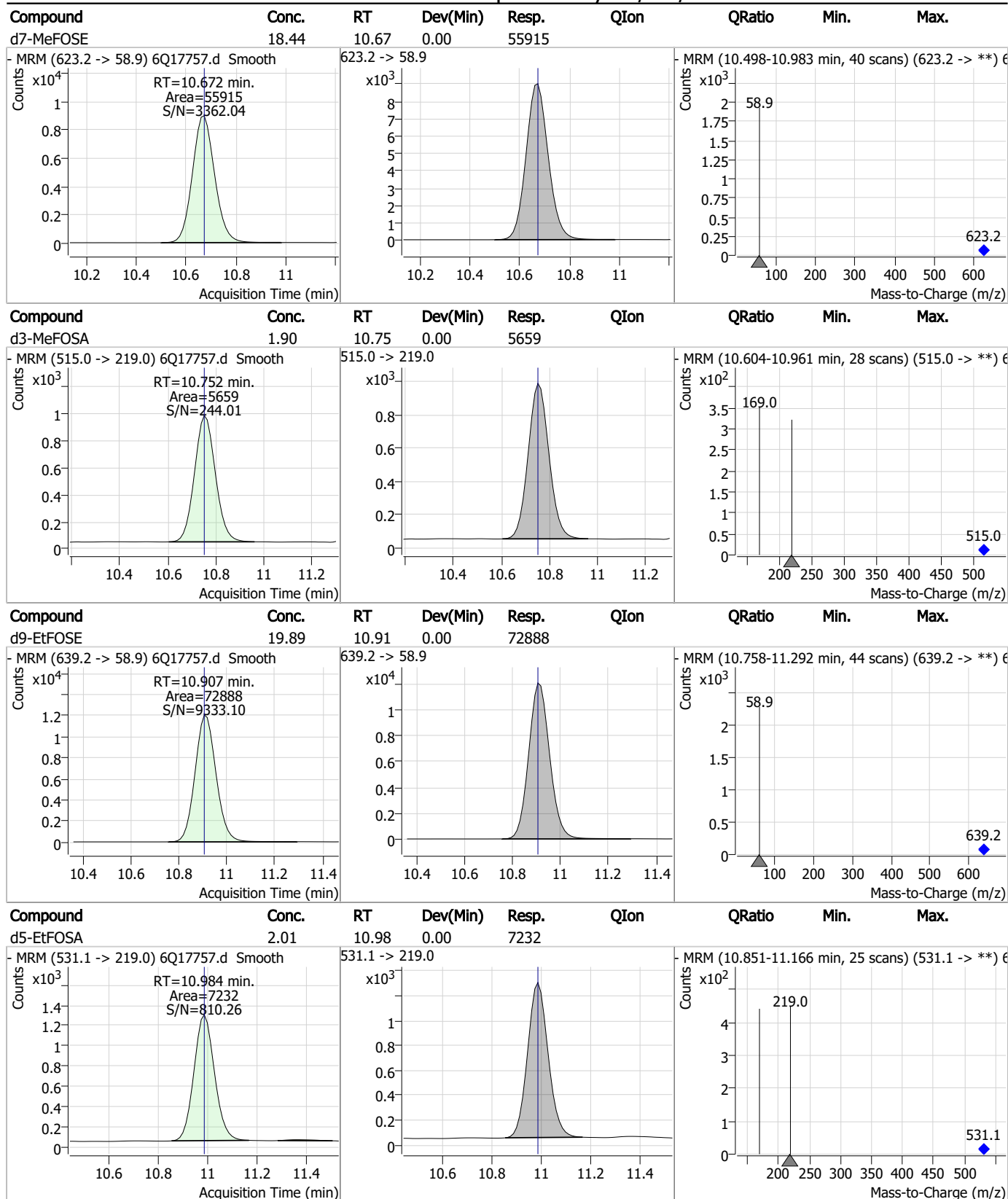
7.5.1  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.1  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.1  
7

# Manual Integration Approval Summary

Sample Number: OP96784-DUP                      Method: EPA DRAFT 1633  
Lab FileID: 6Q17757.D                      Analyst approved: 05/16/23 09:17 Norman Farmer  
Injection Time: 05/12/23 16:50                      Supervisor approved: 05/16/23 09:25 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		6.42	Poor instrument integration

7.5.1.1

7

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)  
 Norman Farmer  
 05/04/23 17:44

### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43881.d  
 Operator : natashag  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/3/2023 10:23:06 AM  
 Sample Name : RT TDCA  
 Vial : P1-B1  
 DA Method File : TDCA.quantmethod.xml  
 Batch Name : s4q634\_TDCA.batch.bin  
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

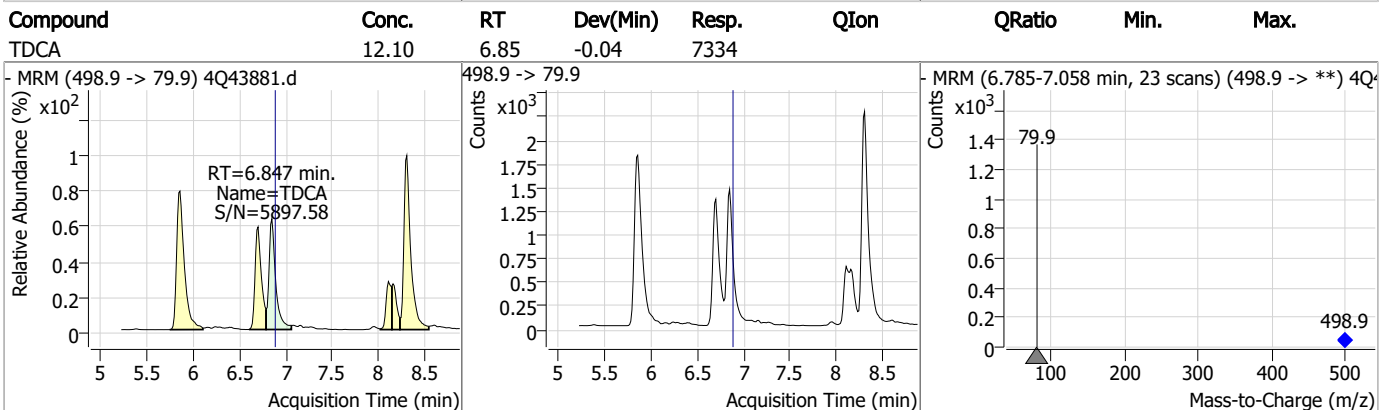
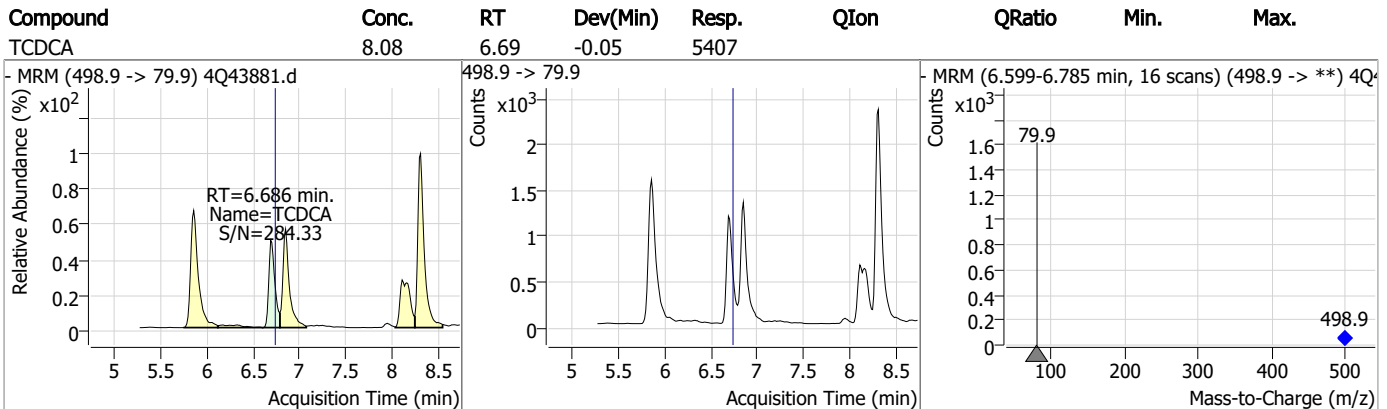
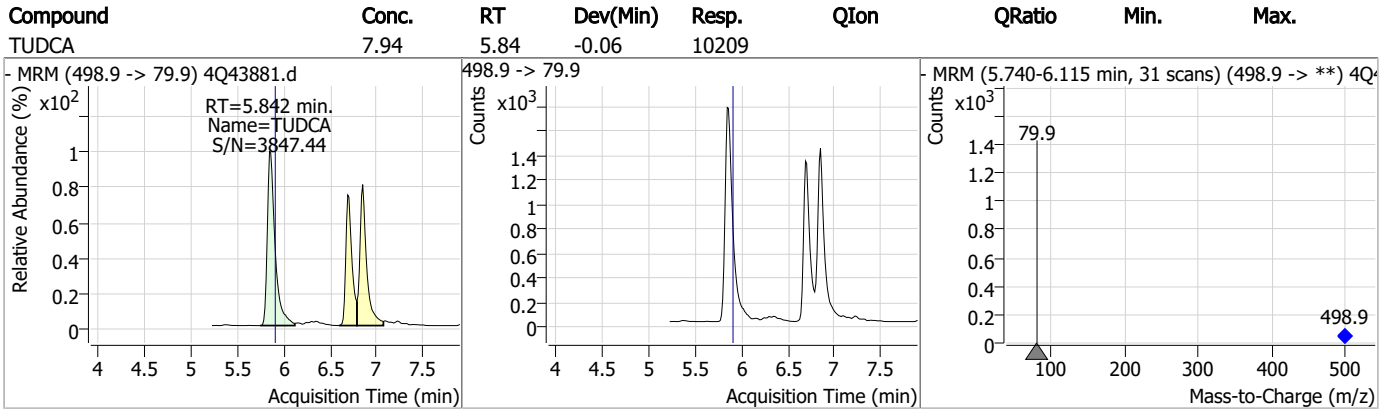
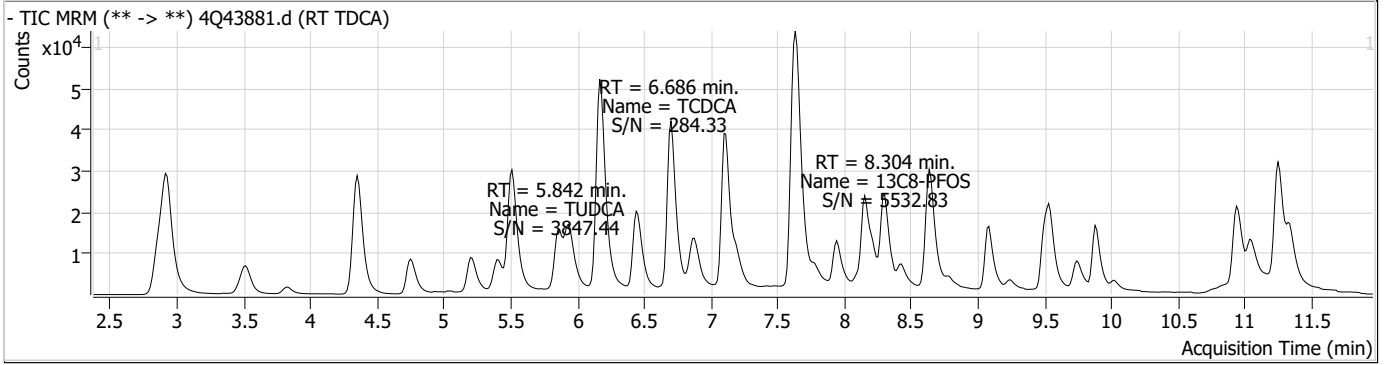
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
<b>Internal Standards</b>							
M8-PFOS	8.304	507.1 -> 79.9	14500	2.50	µg/L	-0.062	
13C4-PFOS	8.305	502.8 -> 79.9	17051	2.50	µg/L	-0.062	
<b>System Monitoring Compounds</b>							
13C8-PFOS	8.304	507.1 -> 79.9	14500	2.16	µg/L	-0.062	
Spiked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

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

7.6.1  
7

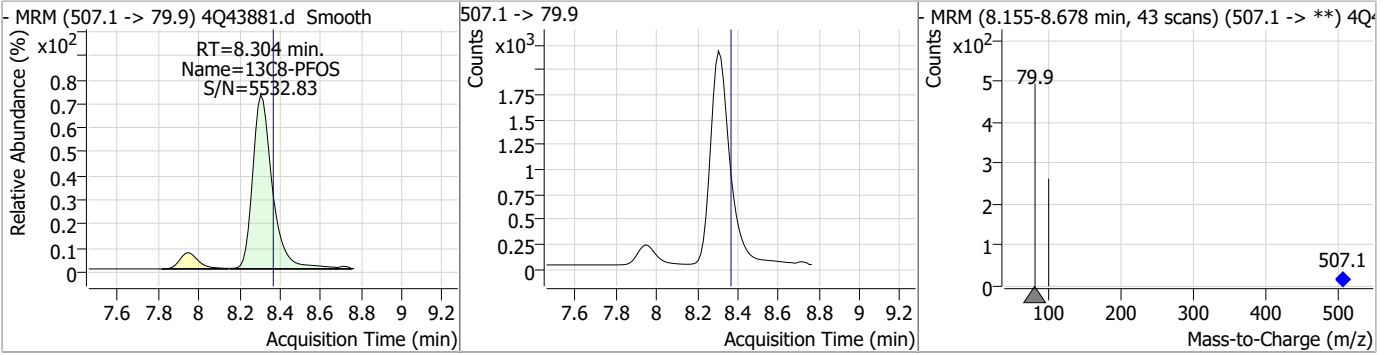


### Perfluorinated Compounds by LC/MS/MS

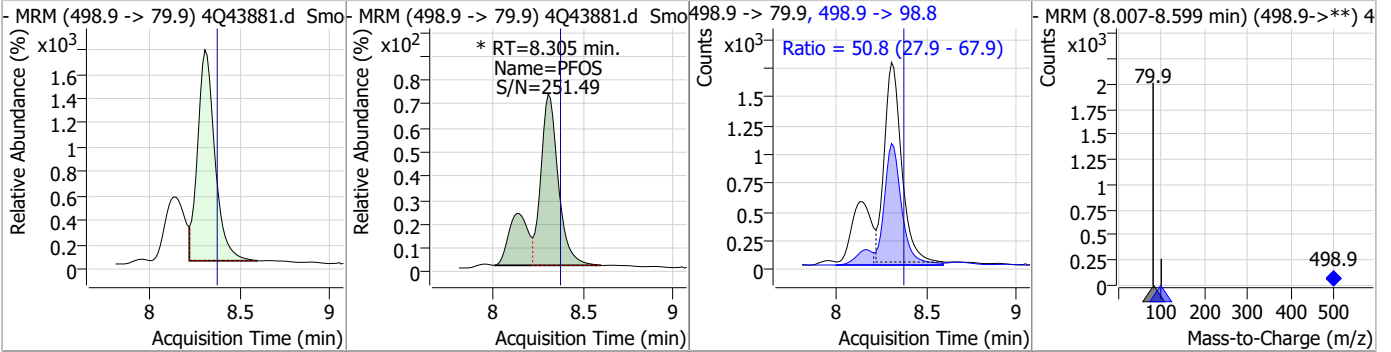


### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.16	8.30	-0.06	14500				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.13	8.31	-0.06	15511 (m)	498.9 -> 98.8	50.8	27.9	67.9



7.6.1

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# Manual Integration Approval Summary

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

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

7.6.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43882.d  
 Operator : natashag  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/3/2023 10:37:09 AM  
 Sample Name : RT br/lr  
 Vial : P1-B2  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q634.batch.bin  
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.911	216.8 -> 171.9	119654	10.00 µg/L	-0.012
M5-PFPeA	4.350	268.3 -> 223.0	67757	5.00 µg/L	-0.012
M5-PFHxA	5.510	318.0 -> 273.0	49354	2.50 µg/L	-0.025
M4-PFHpA	6.455	367.1 -> 322.0	29875	2.50 µg/L	-0.012
M8-PFOA	7.111	421.1 -> 376.0	43497	2.50 µg/L	-0.012
M9-PFNA	7.658	472.1 -> 427.0	20317	1.25 µg/L	-0.012
M6-PFDA	8.166	519.1 -> 474.1	20346	1.25 µg/L	-0.012
M7-PFUnDA	8.635	570.0 -> 525.1	21156	1.25 µg/L	-0.012
M2-PFDoDA	9.081	615.1 -> 570.0	22468	1.25 µg/L	-0.025
M2-PFTeDA	9.886	715.2 -> 670.0	18596	1.25 µg/L	-0.012
M8-FOSA	9.758	506.1 -> 77.8	16919	2.50 µg/L	-0.012
M3-PFBS	5.414	302.1 -> 79.9	11687	2.50 µg/L	-0.012
M3-PFHxS	7.217	402.1 -> 79.9	7599	2.50 µg/L	-0.012
M8-PFOS	8.316	507.1 -> 79.9	10335	2.50 µg/L	-0.013
M2-4:2FTS	5.209	329.1 -> 80.9	1135	5.00 µg/L	-0.014
M2-6:2FTS	6.886	429.1 -> 80.9	1876	5.00 µg/L	-0.012
M2-8:2FTS	7.953	529.1 -> 80.9	3057	5.00 µg/L	-0.012
M3-MeFOSAA	8.224	573.2 -> 419.0	15580	5.00 µg/L	-0.012
M3-HFPO-DA	5.877	286.9 -> 168.9	30253	10.00 µg/L	-0.012
M5-EtFOSAA	8.433	589.2 -> 419.0	12098	5.00 µg/L	-0.012
M7-MeFOSE	10.947	623.2 -> 58.9	80643	25.00 µg/L	0.000
M9-EtFOSE	11.244	639.2 -> 58.9	119872	25.00 µg/L	-0.012
M5-EtFOSA	11.348	531.1 -> 219.0	11379	2.50 µg/L	0.000
M3-MeFOSA	11.051	515.0 -> 219.0	10964	2.50 µg/L	-0.012
13C4-PFOS	8.317	502.8 -> 79.9	10254	2.50 µg/L	-0.013
13C3-PFBA	2.916	216.0 -> 172.0	63918	5.00 µg/L	-0.013
18O2-PFHxS	7.216	403.0 -> 83.9	5128	2.50 µg/L	-0.012
13C4-PFOA	7.112	417.1 -> 372.0	52496	2.50 µg/L	-0.012
13C2-PFDA	8.166	515.1 -> 470.1	18252	1.25 µg/L	-0.012
13C5-PFNA	7.658	468.0 -> 423.0	24666	1.25 µg/L	-0.026
13C2-PFHxA	5.511	315.1 -> 270.0	43755	2.50 µg/L	-0.025
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.209	329.1 -> 80.9	1135	5.44 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C2-6:2FTS	6.886	429.1 -> 80.9	1876	4.99 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C2-8:2FTS	7.953	529.1 -> 80.9	3057	5.21 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C2-PFDoDA	9.081	615.1 -> 570.0	22468	1.27 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-PFTeDA	9.886	715.2 -> 670.0	18596	1.29 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.4%		
13C3-PFBS	5.414	302.1 -> 79.9	11687	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C3-PFHxS	7.217	402.1 -> 79.9	7599	2.39 µg/L	-0.012

7.62  
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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C4-PFBA	2.911	216.8 -> 171.9	119654	9.95 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.455	367.1 -> 322.0	29875	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C5-PFHxA	5.510	318.0 -> 273.0	49354	2.56 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFPeA	4.350	268.3 -> 223.0	67757	5.03 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C6-PFDA	8.166	519.1 -> 474.1	20346	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C7-PFUnDA	8.635	570.0 -> 525.1	21156	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C8-FOSA	9.758	506.1 -> 77.8	16919	2.63 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C8-PFOA	7.111	421.1 -> 376.0	43497	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C8-PFOS	8.316	507.1 -> 79.9	10335	2.68 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C9-PFNA	7.658	472.1 -> 427.0	20317	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.9%	
d3-MeFOSAA	8.224	573.2 -> 419.0	15580	6.02 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 120.4%	
13C3-HFPO-DA	5.877	286.9 -> 168.9	30253	10.51 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
d3-MeFOSA	11.051	515.0 -> 219.0	10964	2.73 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.1%	
d5-EtFOSAA	8.433	589.2 -> 419.0	12098	5.68 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.5%	
d7-MeFOSE	10.947	623.2 -> 58.9	80643	25.28 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d9-EtFOSE	11.244	639.2 -> 58.9	119872	26.54 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
d5-EtFOSA	11.348	531.1 -> 219.0	11379	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.210	327.1 -> 307.0	91008	49.85 µg/L	93
		327.1 -> 80.9	38405		
6:2FTS	6.886	427.1 -> 407.0	96692	53.36 µg/L	97
		427.1 -> 80.9	39102		
8:2FTS	7.954	527.1 -> 507.0	91390	53.63 µg/L	95
		527.1 -> 80.8	35708		
EtFOSAA	8.434	584.2 -> 419.1	29724	12.79 µg/L	m 97
		584.2 -> 526.0	14584		
FOSA	9.761	498.1 -> 77.9	215824	30.44 µg/L	m 99
		498.1 -> 478.0	6518		
MeFOSAA	8.225	570.1 -> 419.0	32953	12.14 µg/L	m 94
		570.1 -> 483.0	6799		
PFBA	2.907	212.8 -> 168.9	172708	53.90 µg/L	100
PFBS	5.415	298.7 -> 79.9	57018	11.89 µg/L	97
		298.7 -> 98.8	22261		
PFDA	8.166	512.9 -> 469.0	205207	13.29 µg/L	97
		512.9 -> 219.0	41256		
PFDoDA	9.094	613.1 -> 569.0	229603	12.74 µg/L	100
		613.1 -> 319.0	33205		
PFDS	9.244	599.0 -> 79.9	32797	12.81 µg/L	93

7.6.2  
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## Perfluorinated Compounds by LC/MS/MS

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

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

7.6.2  
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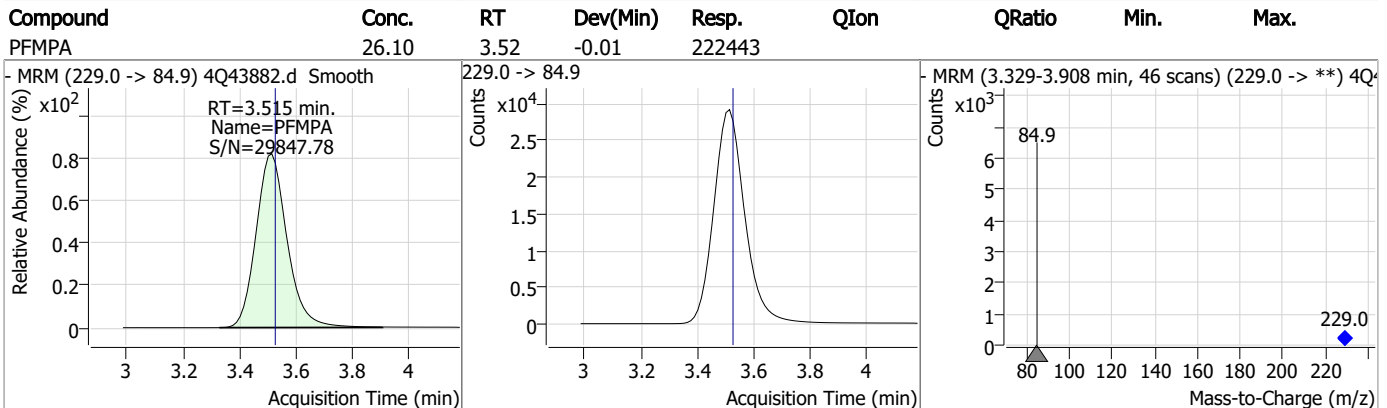
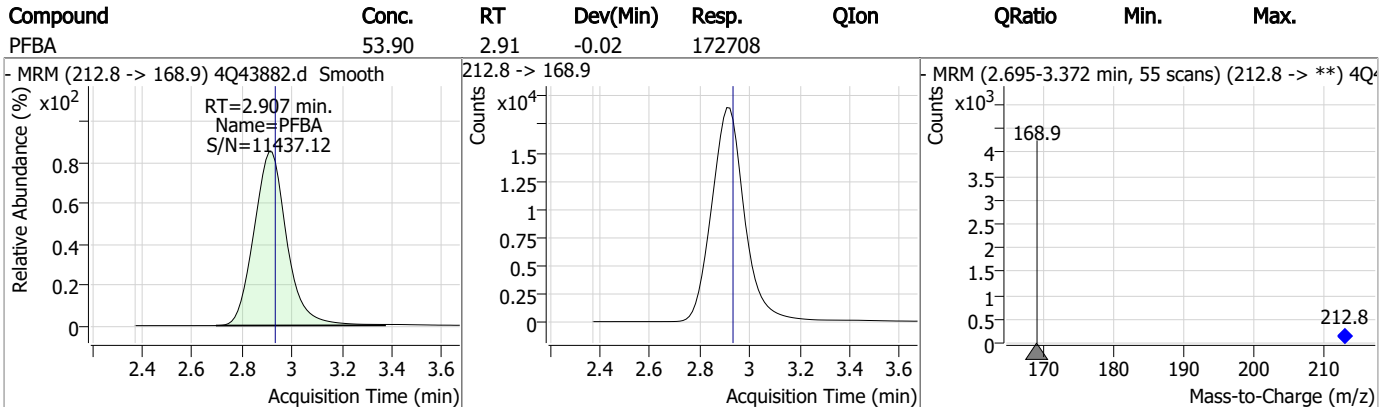
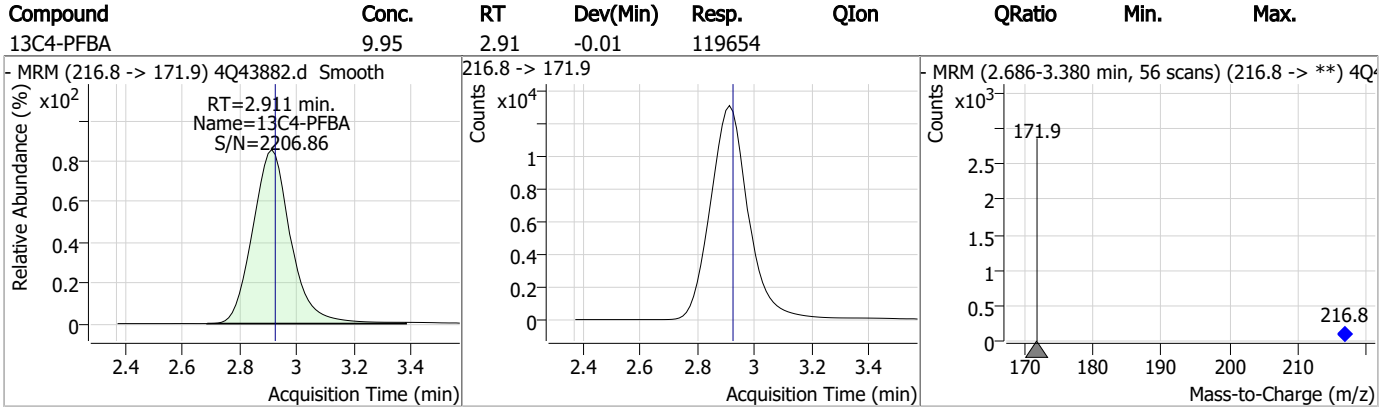
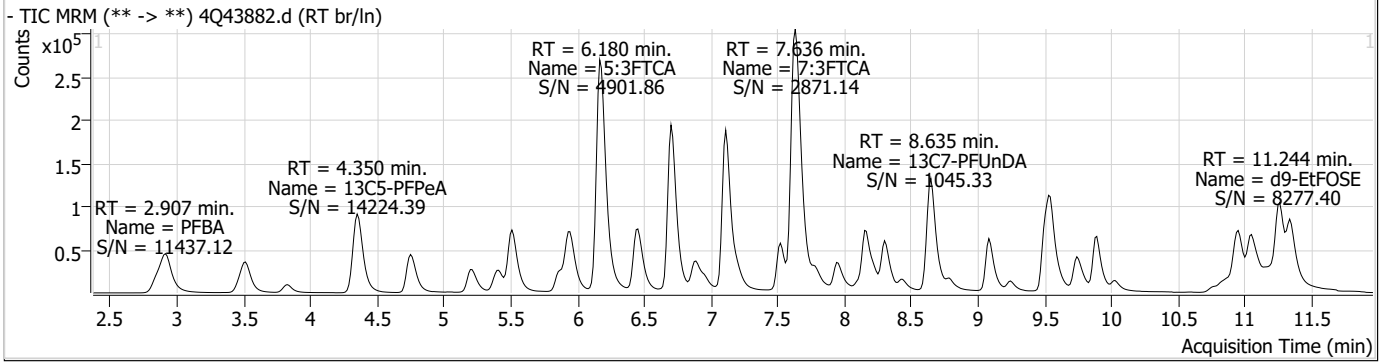
# Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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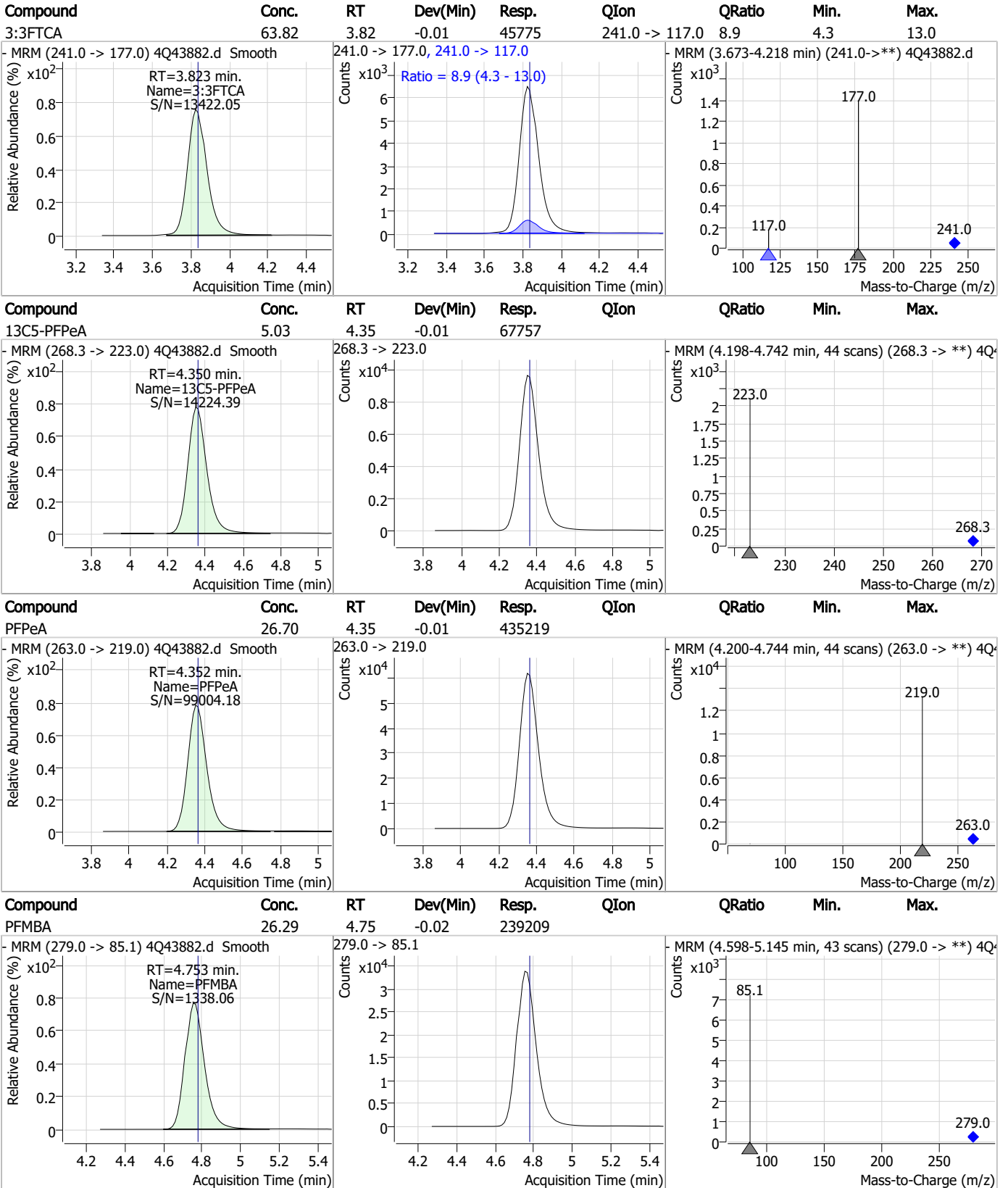
7.6.2

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# Perfluorinated Compounds by LC/MS/MS



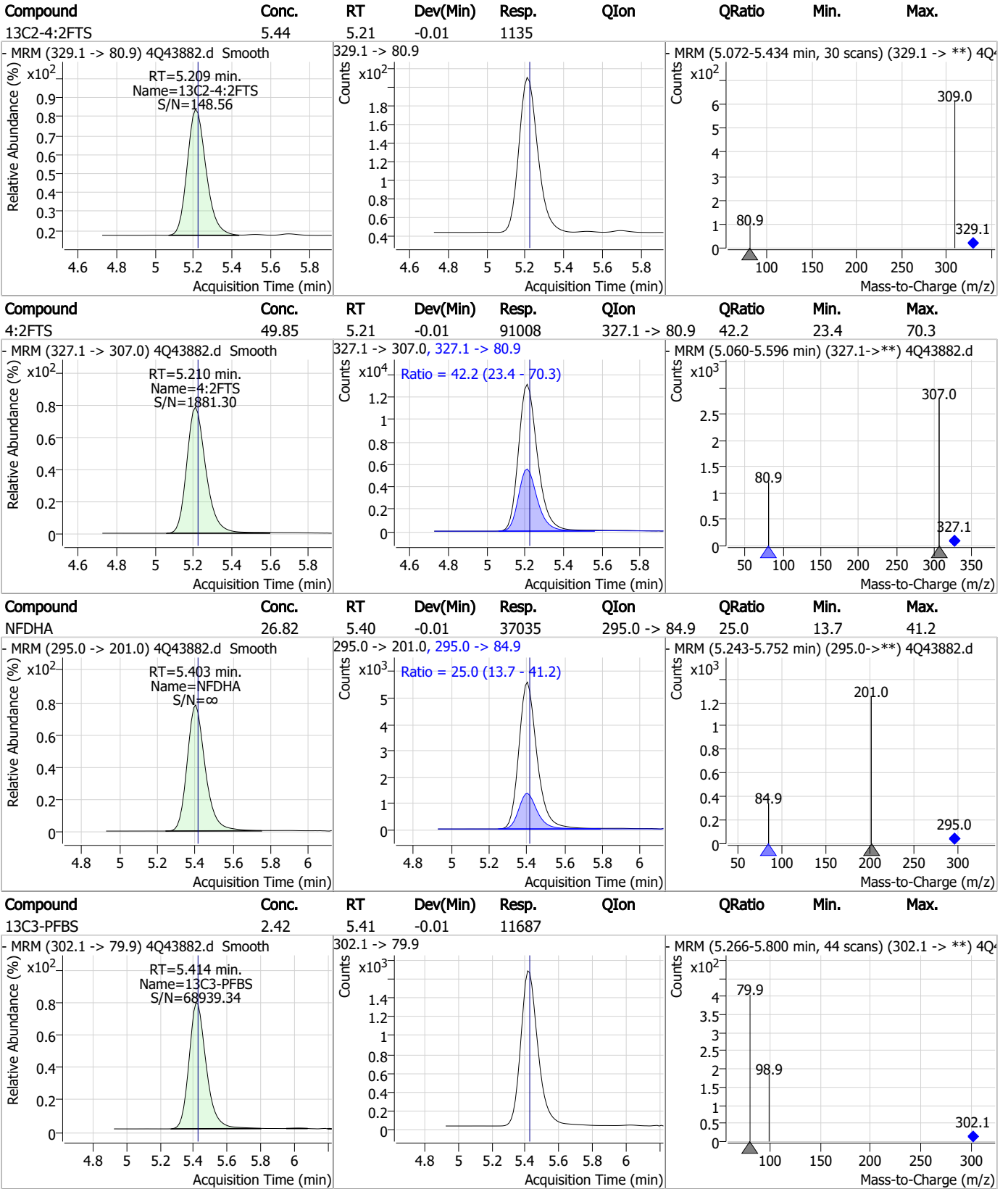
# Perfluorinated Compounds by LC/MS/MS



7.6.2

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# Perfluorinated Compounds by LC/MS/MS



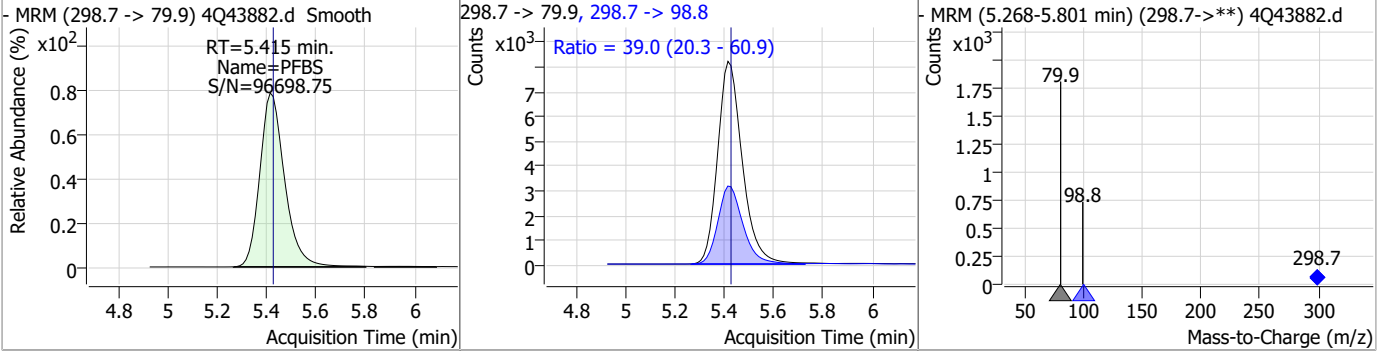
7.6.2

7

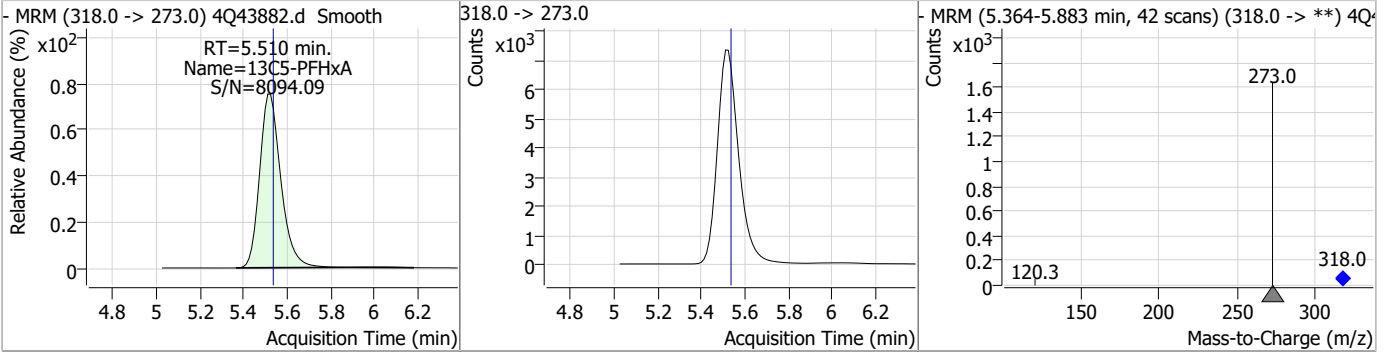


# Perfluorinated Compounds by LC/MS/MS

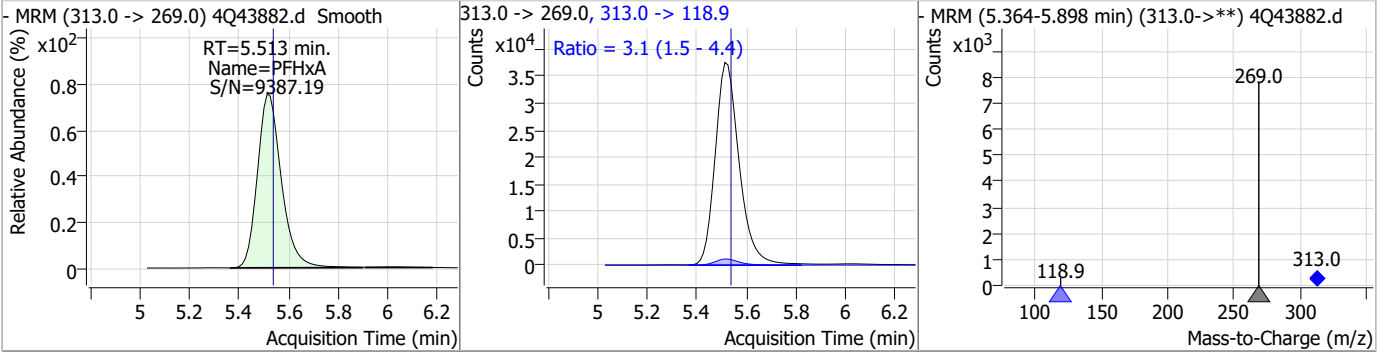
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.89	5.42	-0.01	57018	298.7 -> 98.8	39.0	20.3	60.9



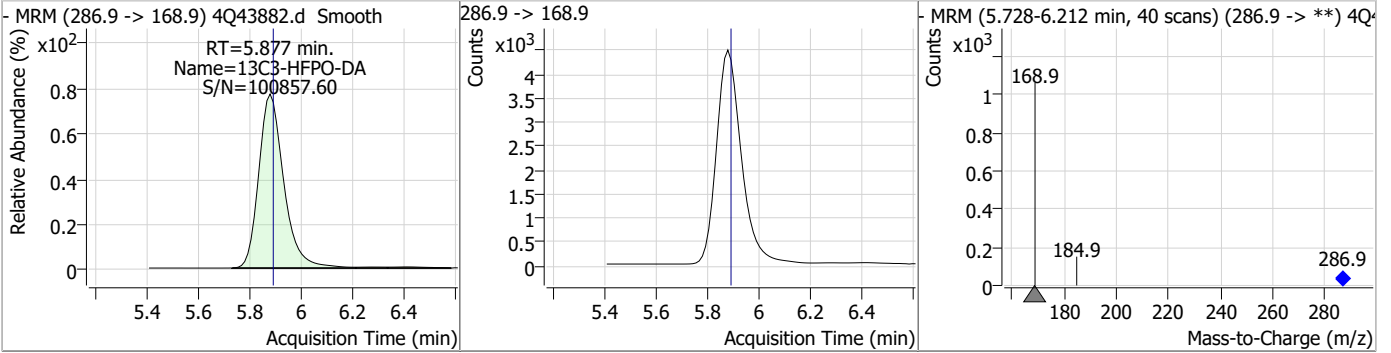
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.56	5.51	-0.02	49354				



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



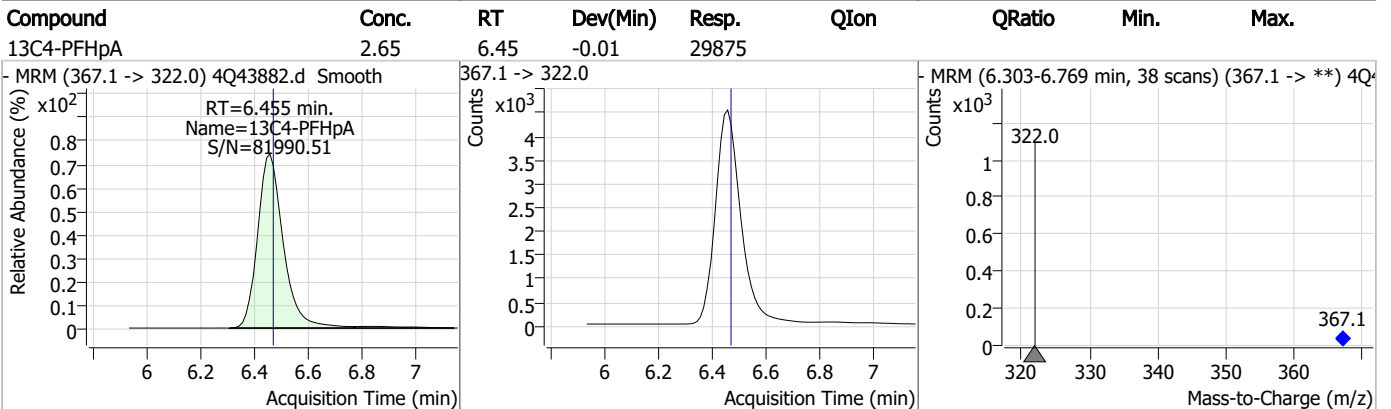
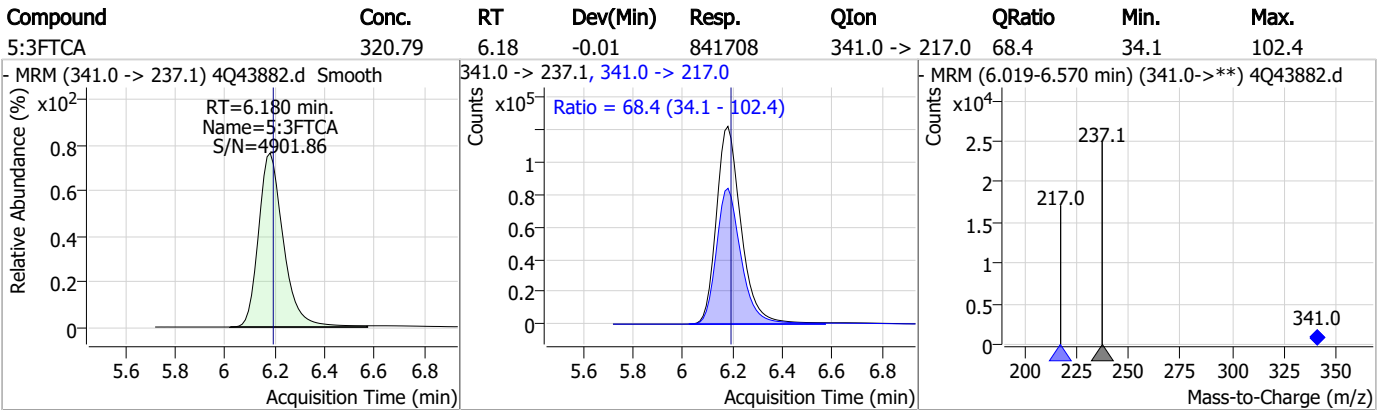
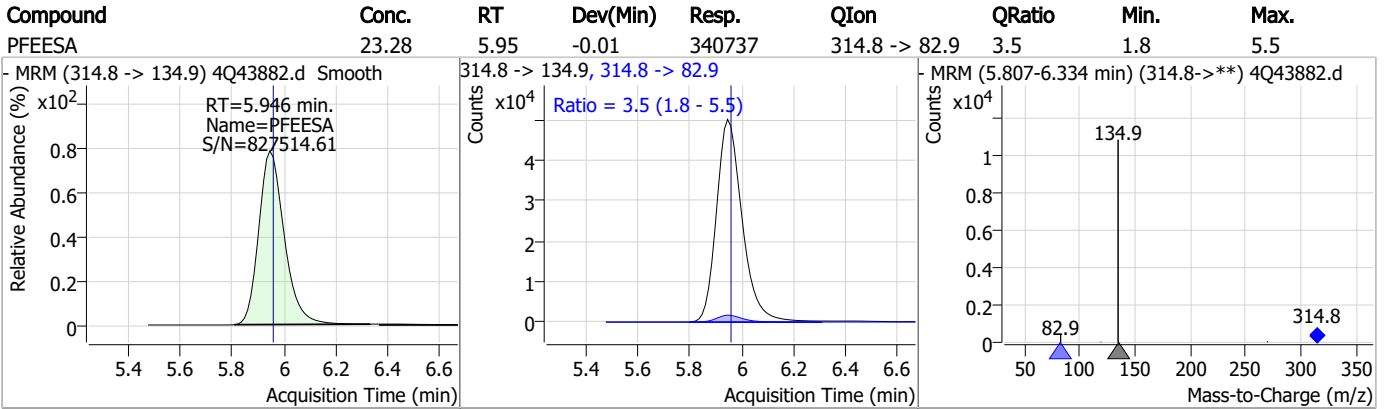
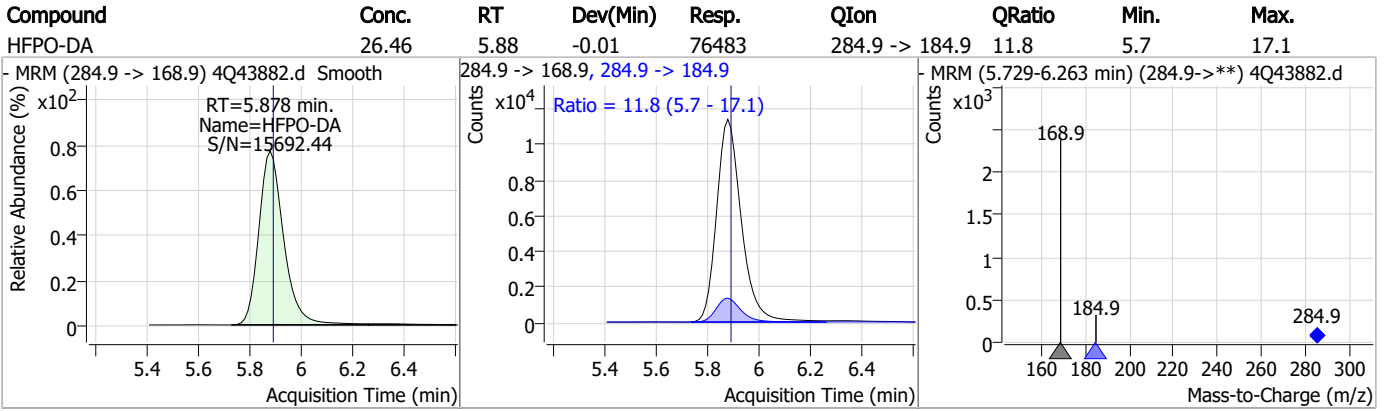
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.51	5.88	-0.01	30253				



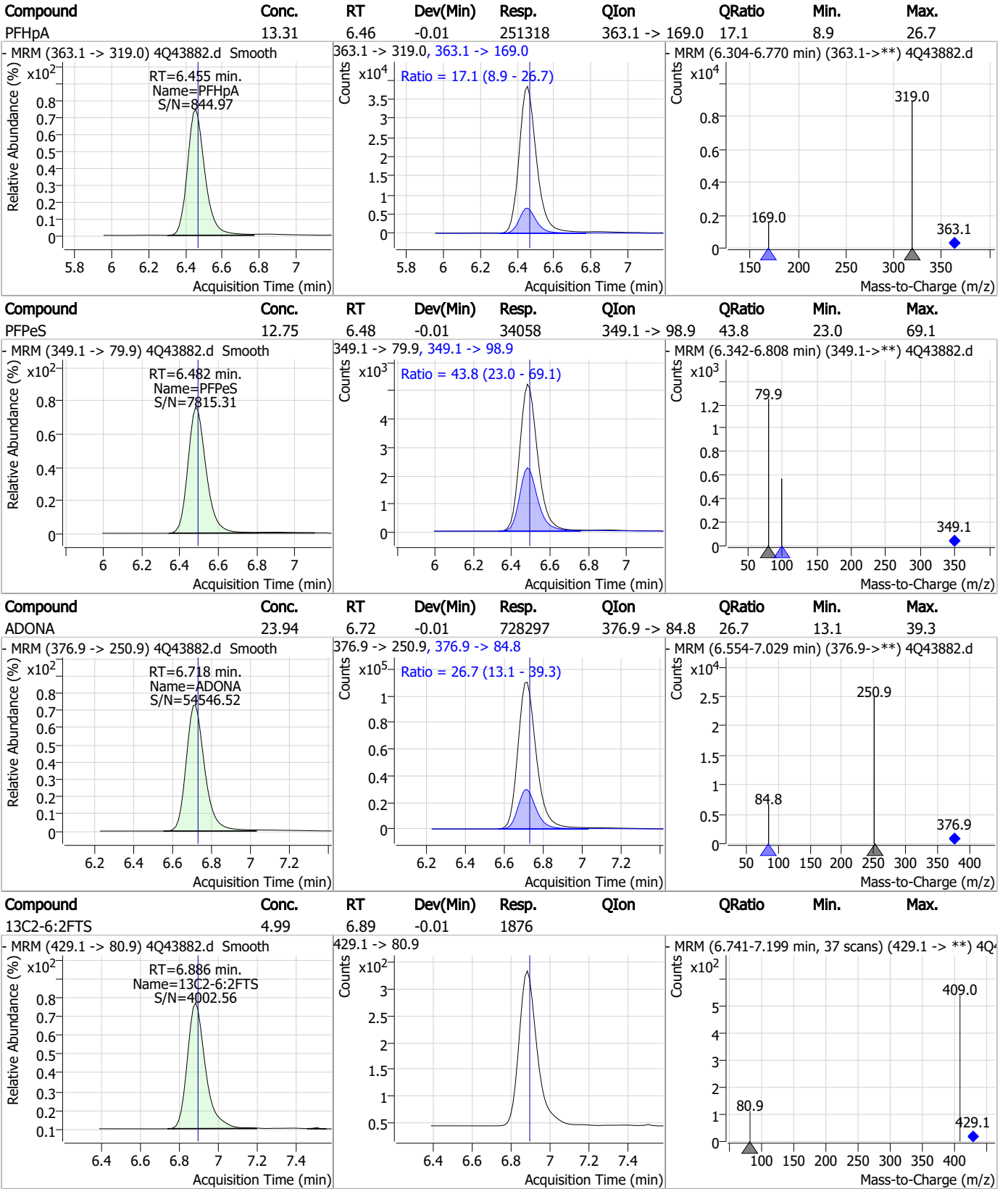
7.6.2  
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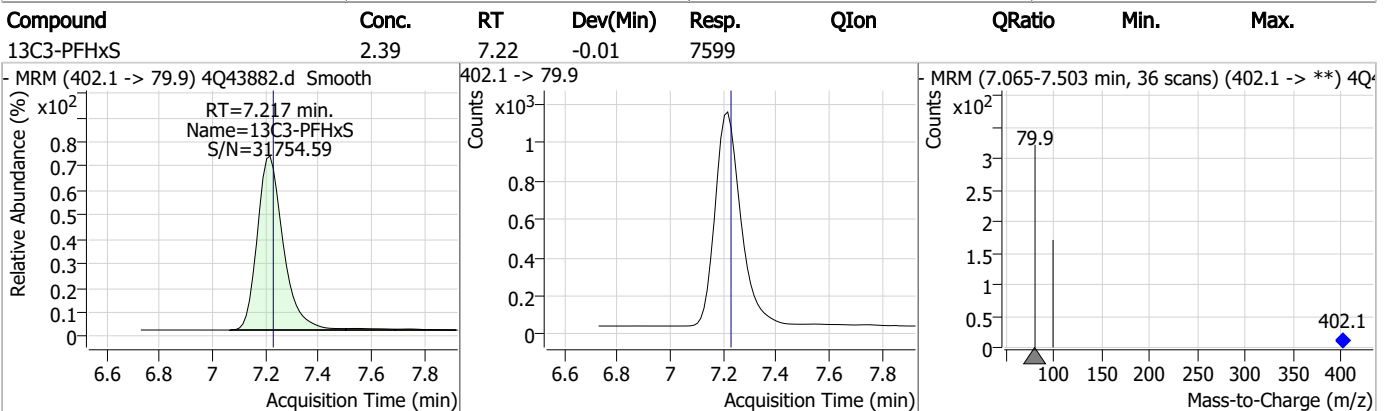
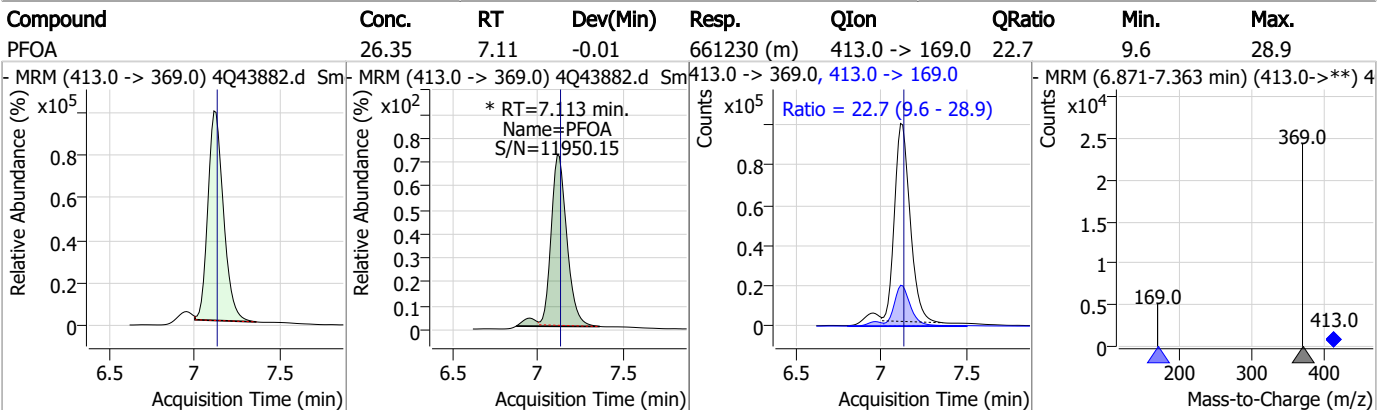
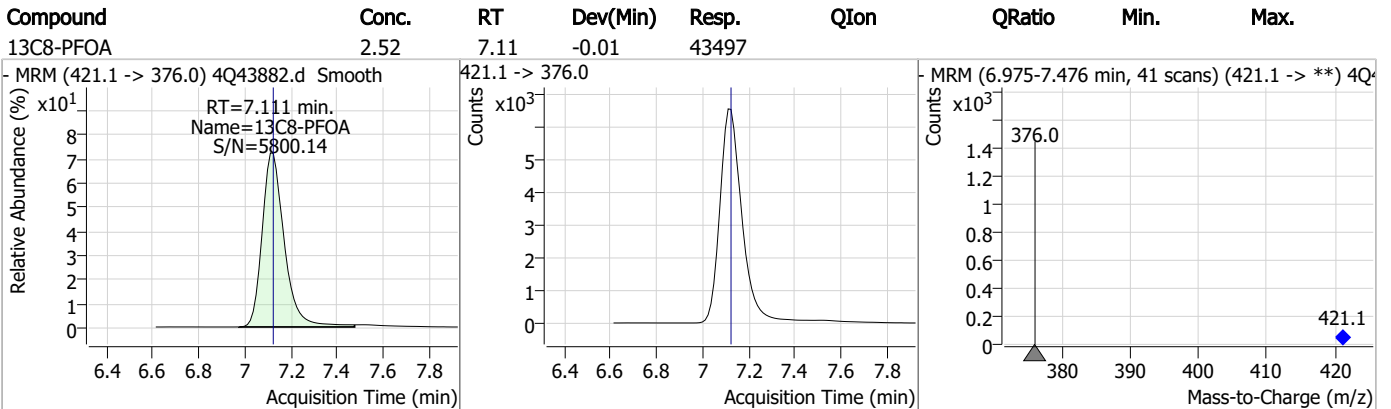
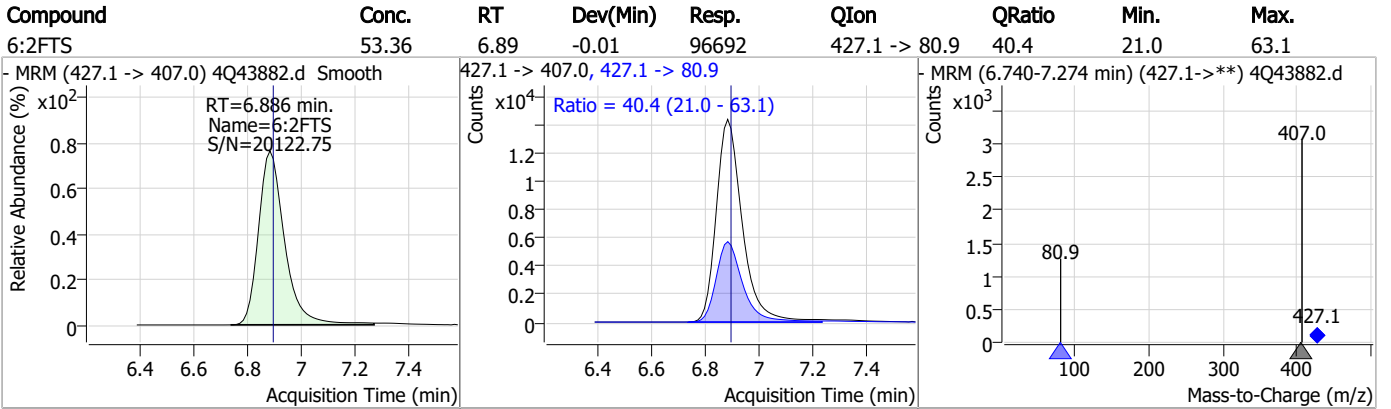
# Perfluorinated Compounds by LC/MS/MS



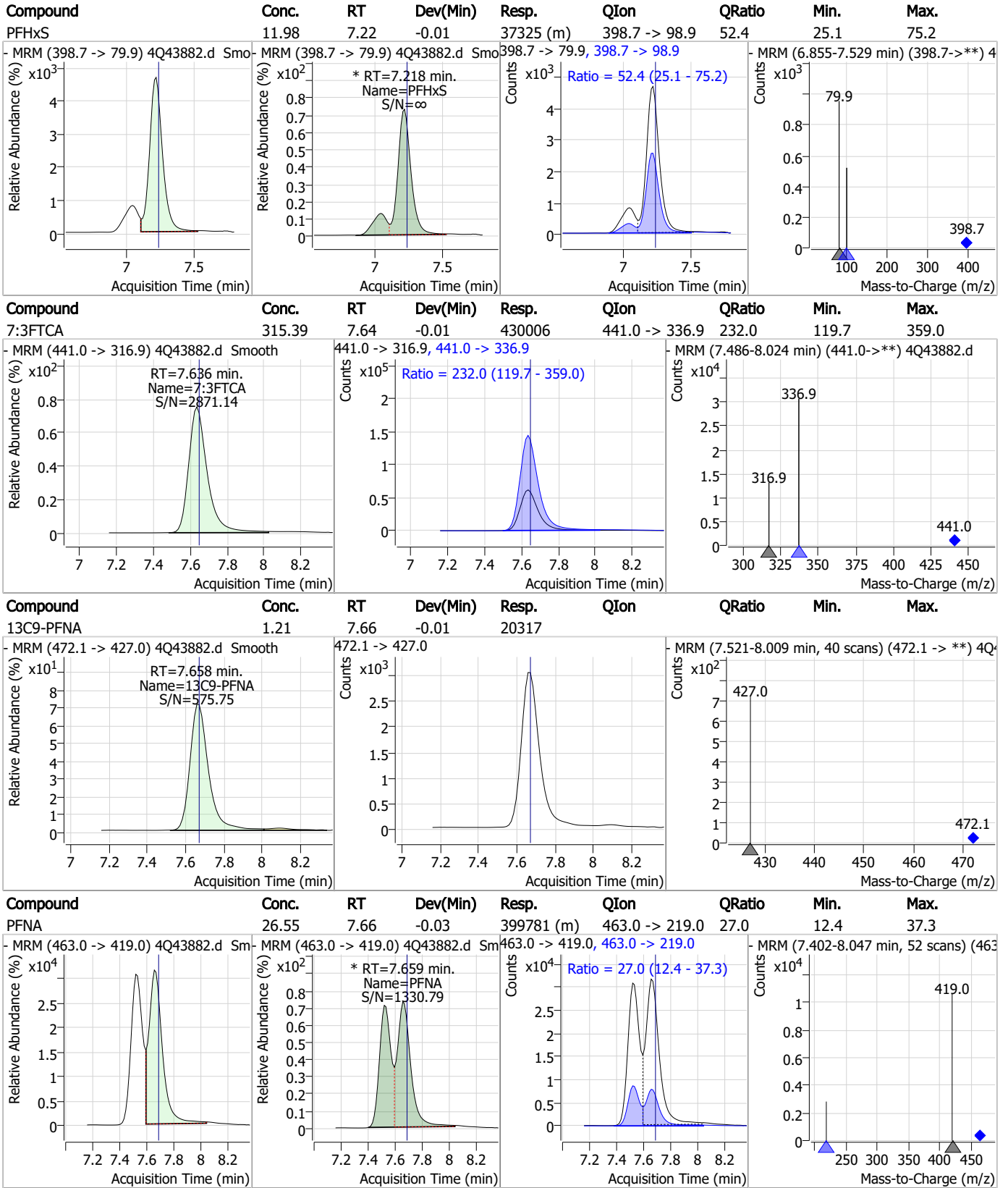
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



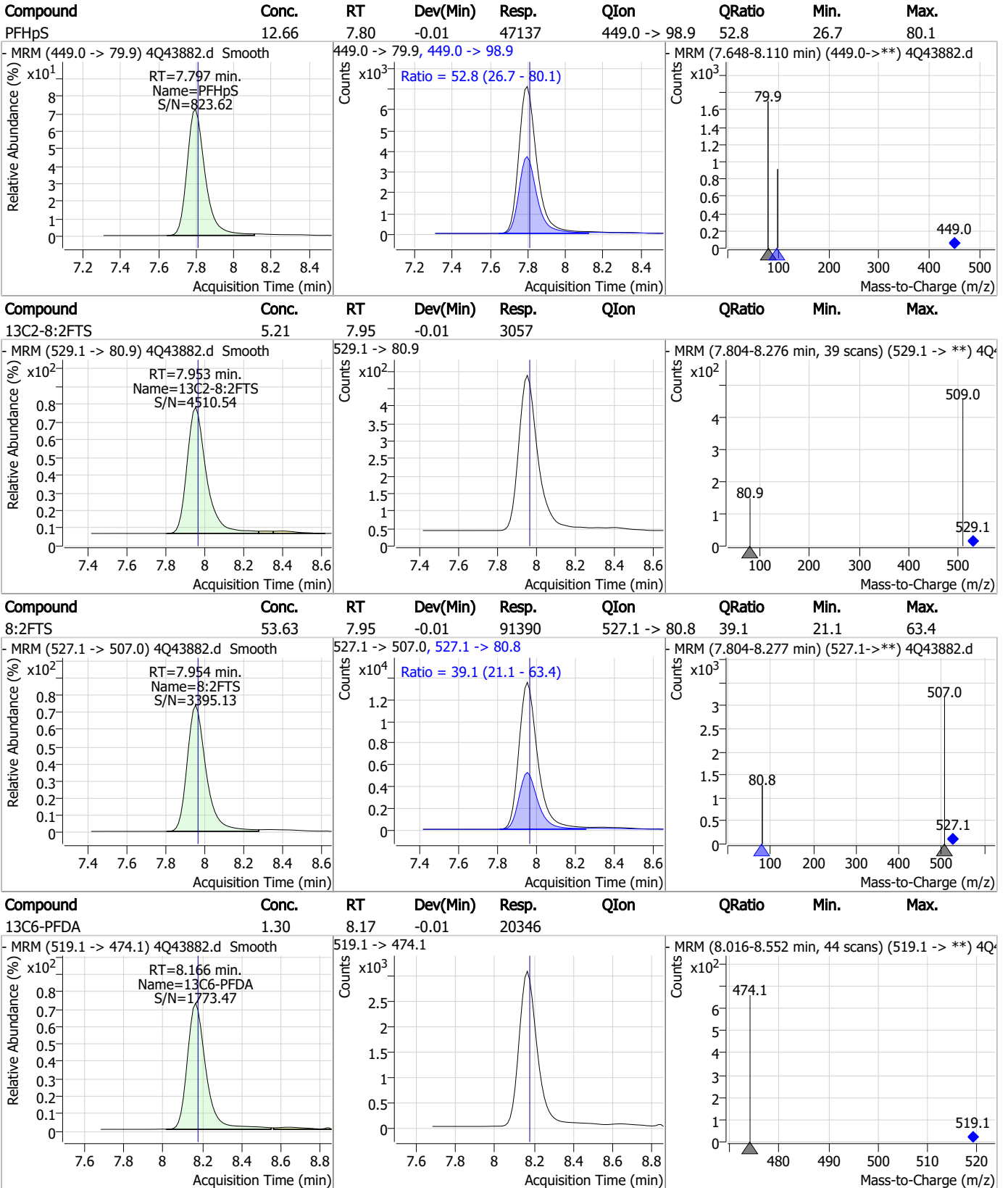
# Perfluorinated Compounds by LC/MS/MS



7.6.2

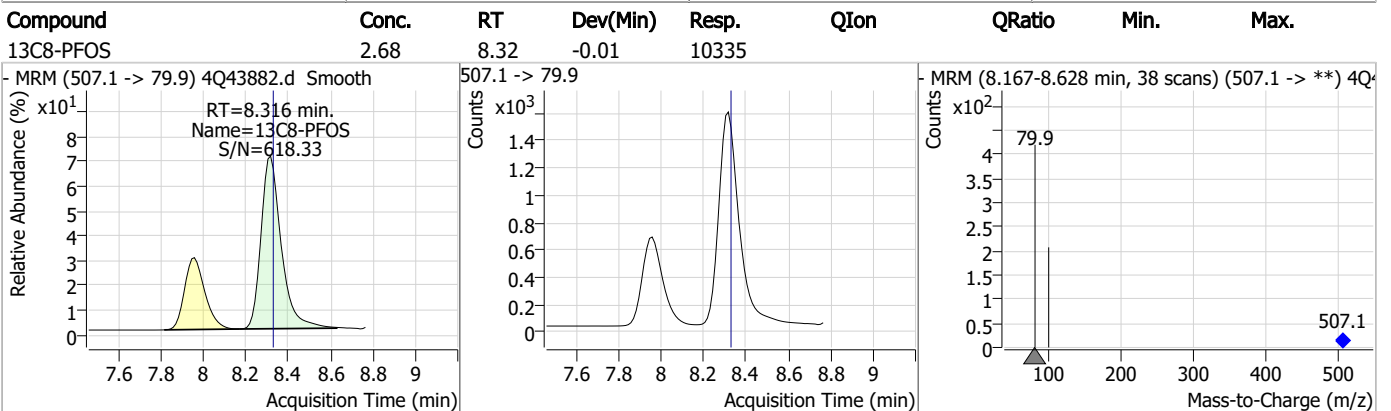
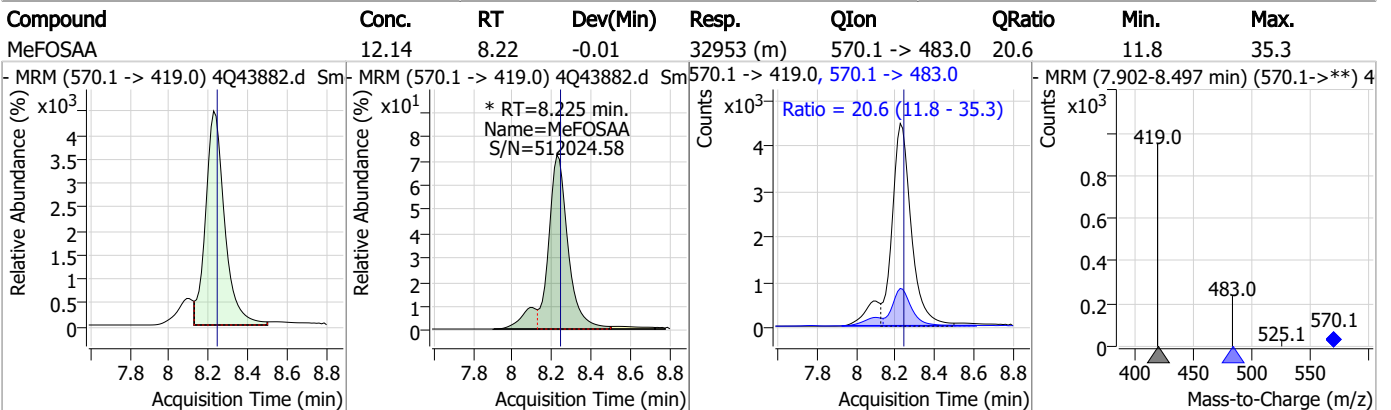
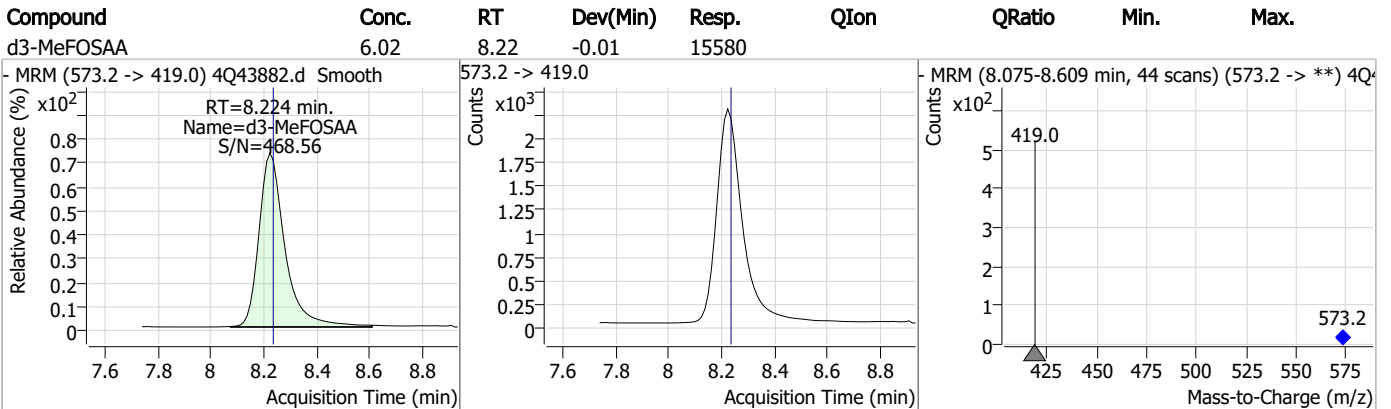
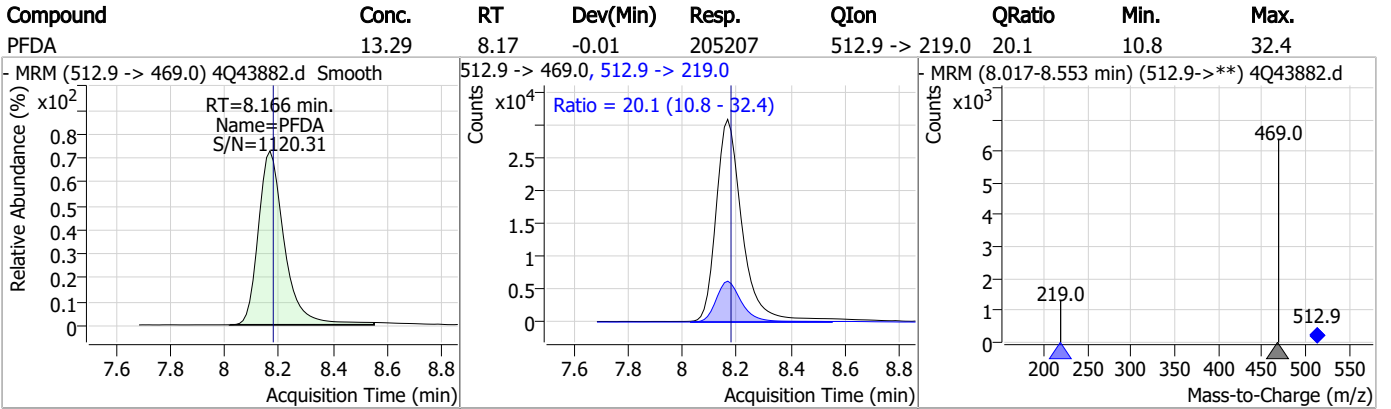
7

# Perfluorinated Compounds by LC/MS/MS

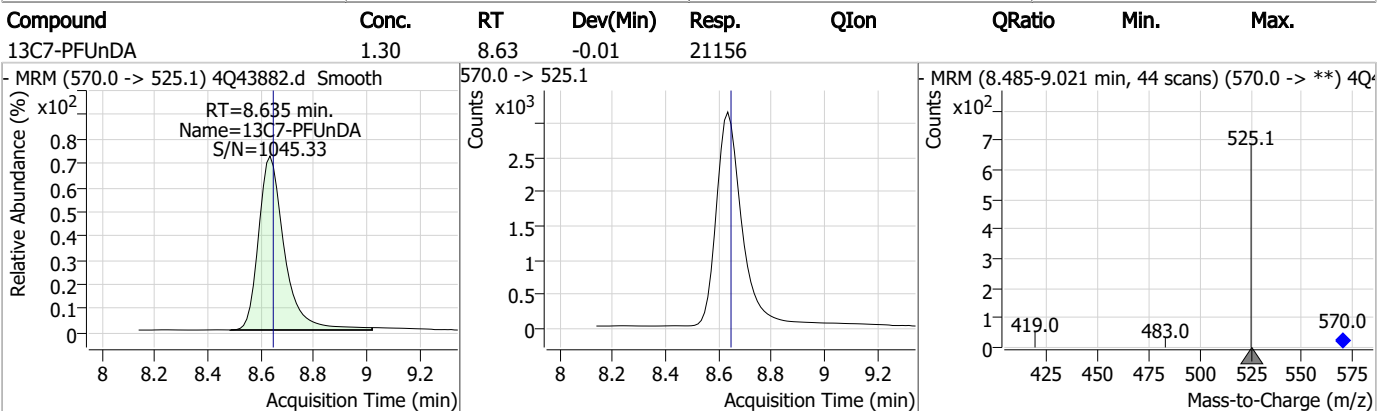
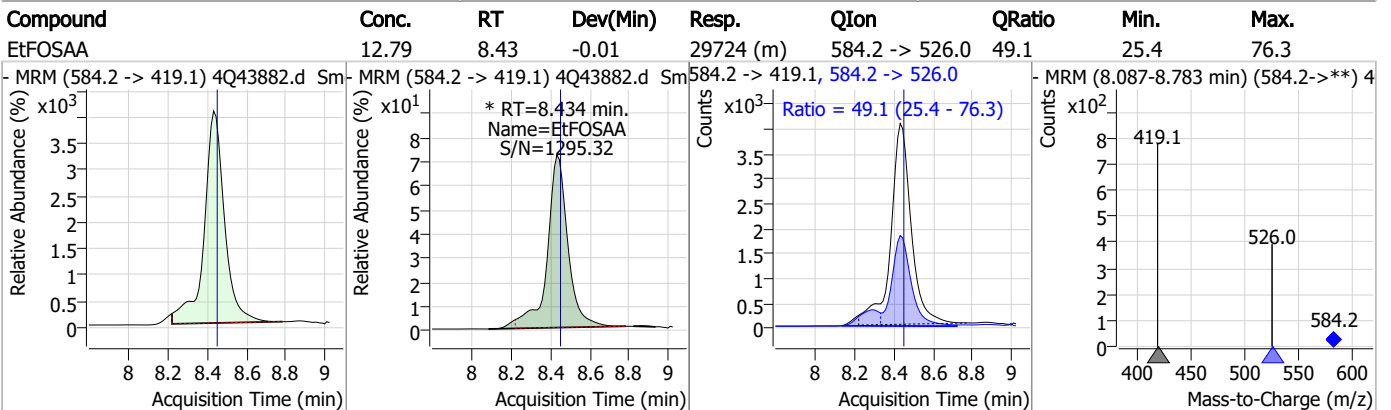
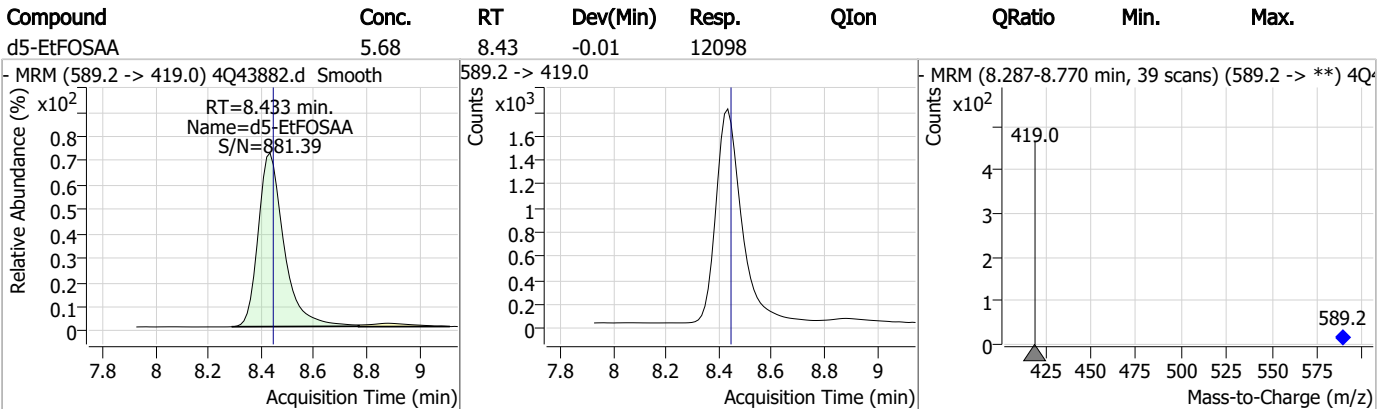
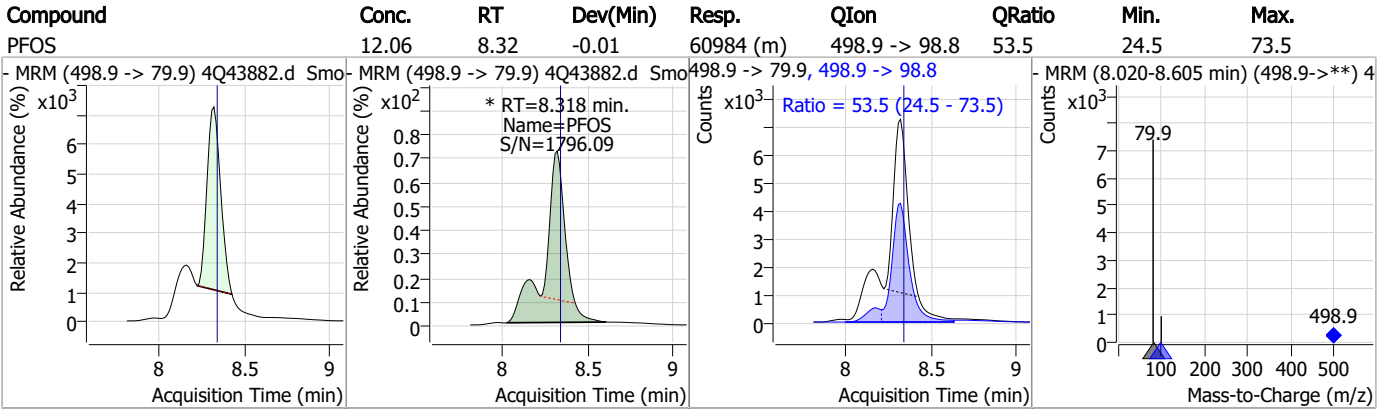


7.6.2  
7

# Perfluorinated Compounds by LC/MS/MS

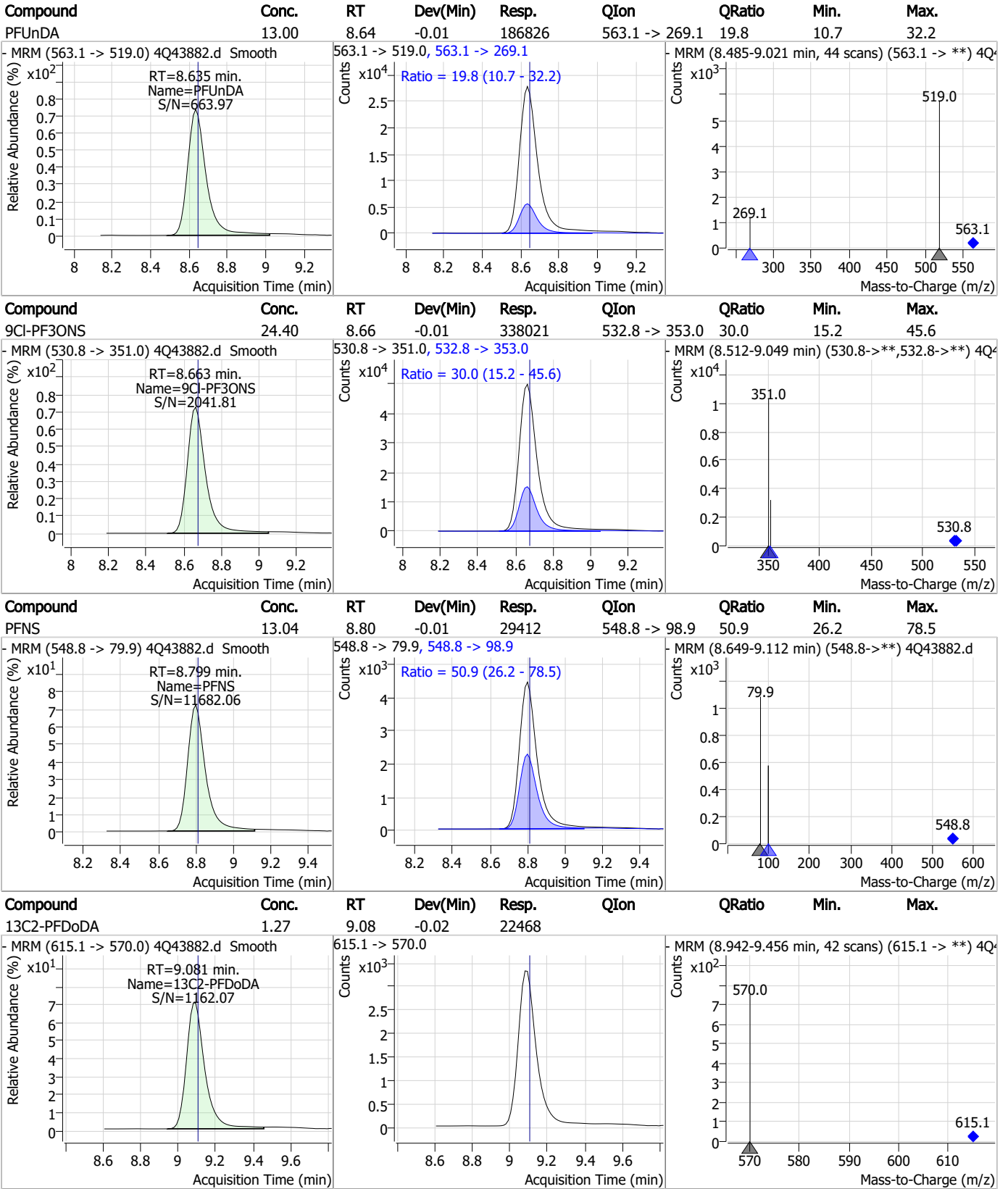


# Perfluorinated Compounds by LC/MS/MS





# Perfluorinated Compounds by LC/MS/MS



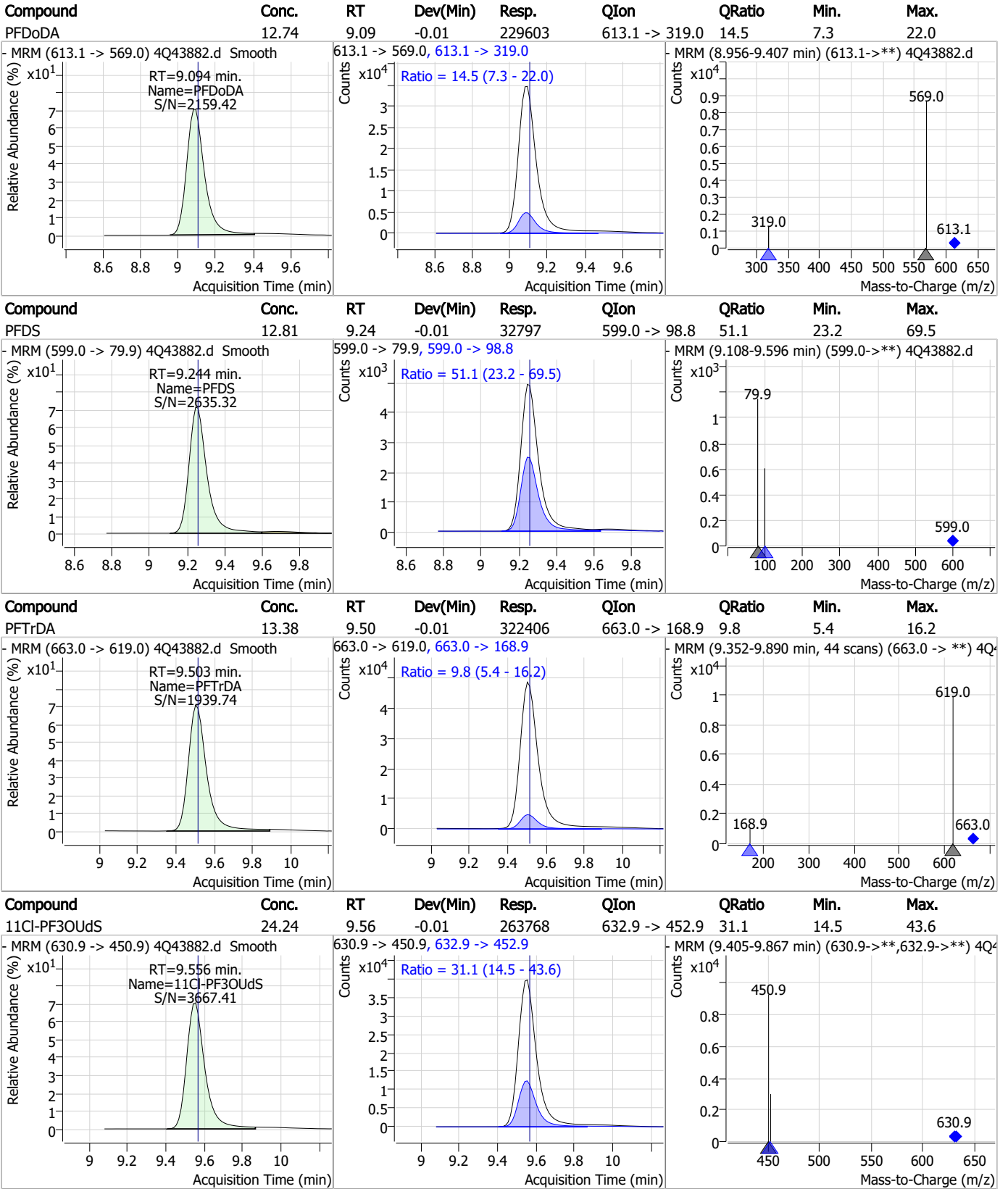
7.6.2

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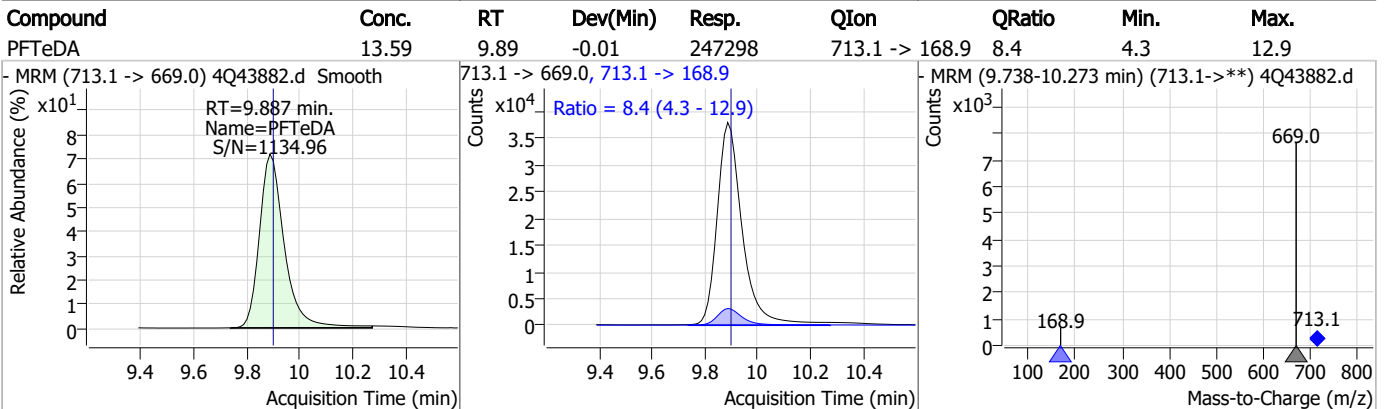
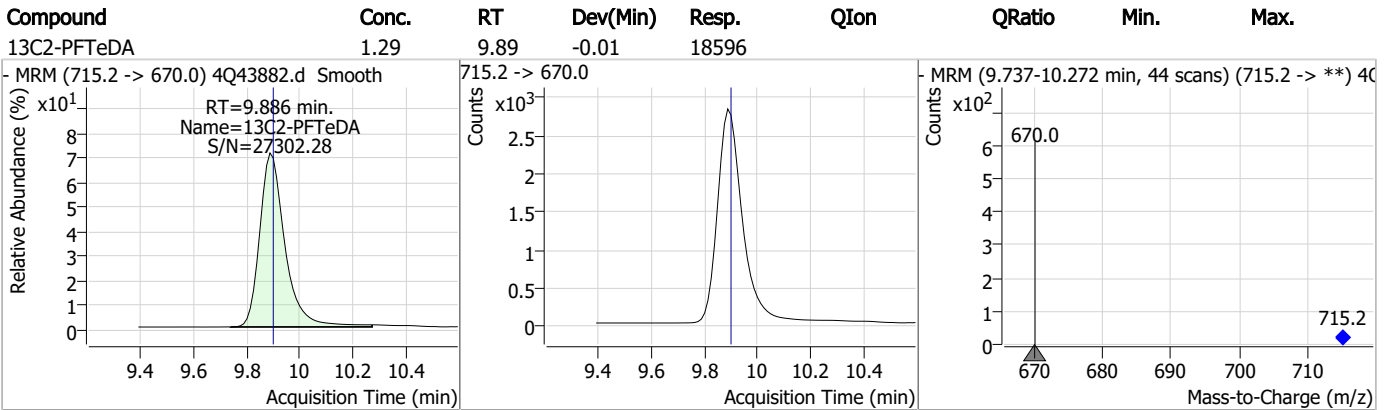
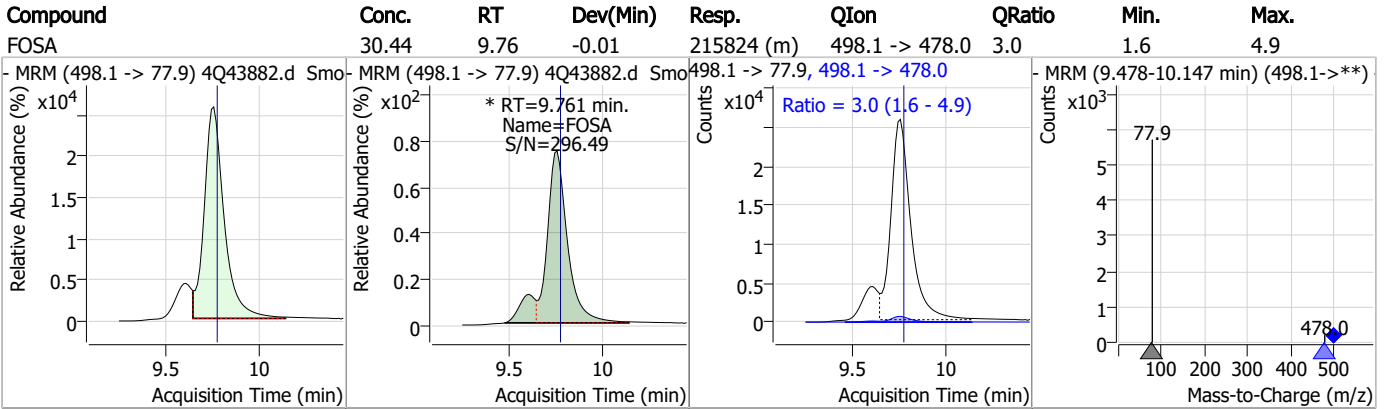
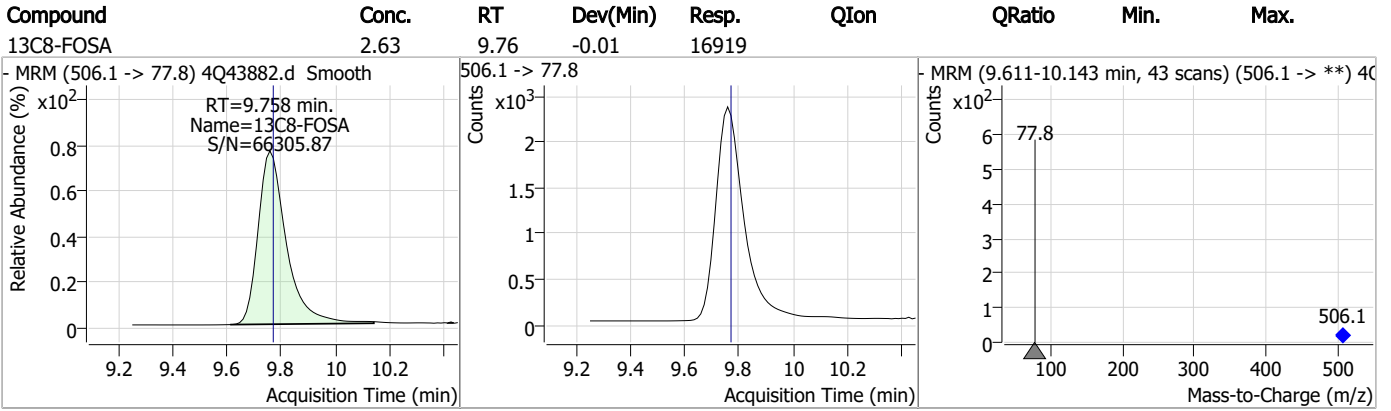
# Perfluorinated Compounds by LC/MS/MS



7.6.2

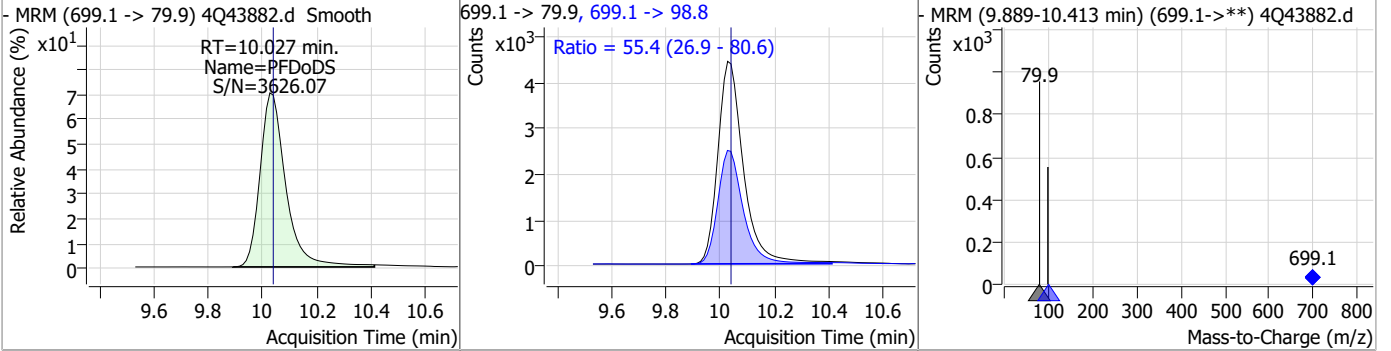
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# Perfluorinated Compounds by LC/MS/MS

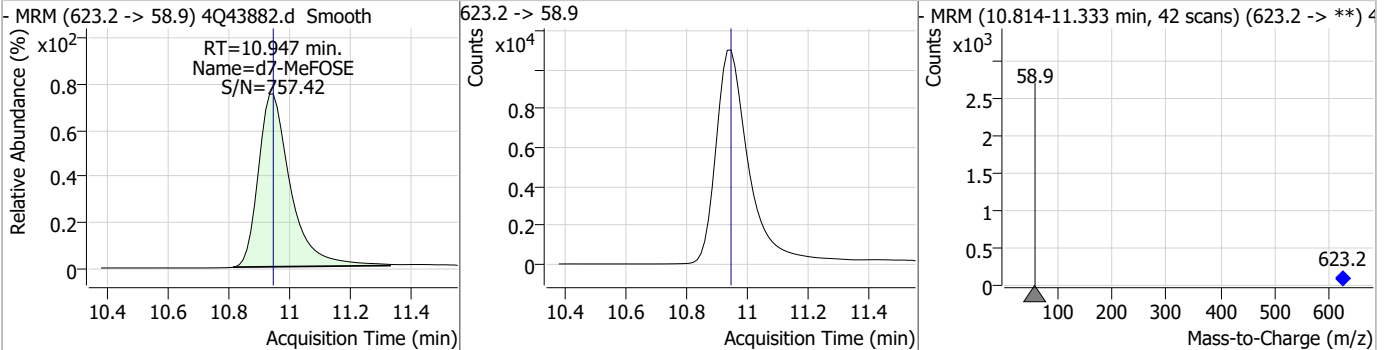


# Perfluorinated Compounds by LC/MS/MS

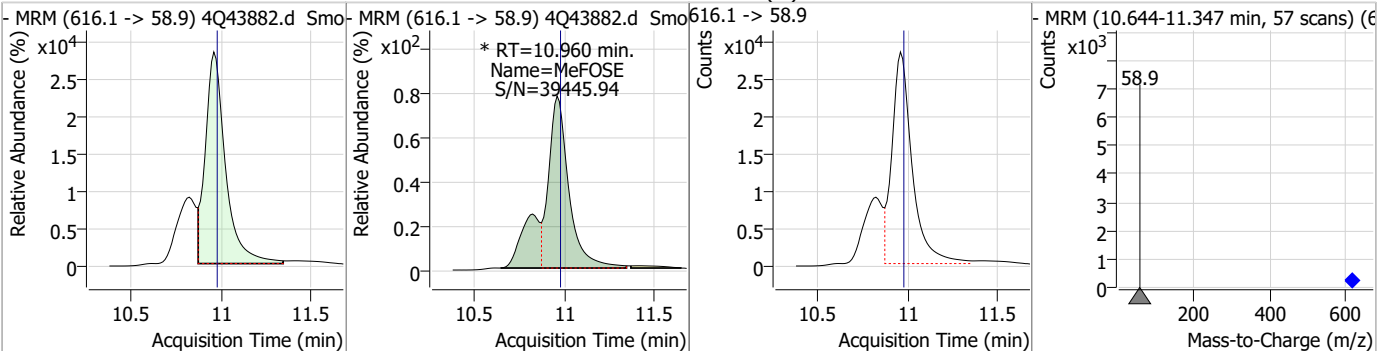
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	12.82	10.03	-0.01	29285	699.1 -> 98.8	55.4	26.9	80.6



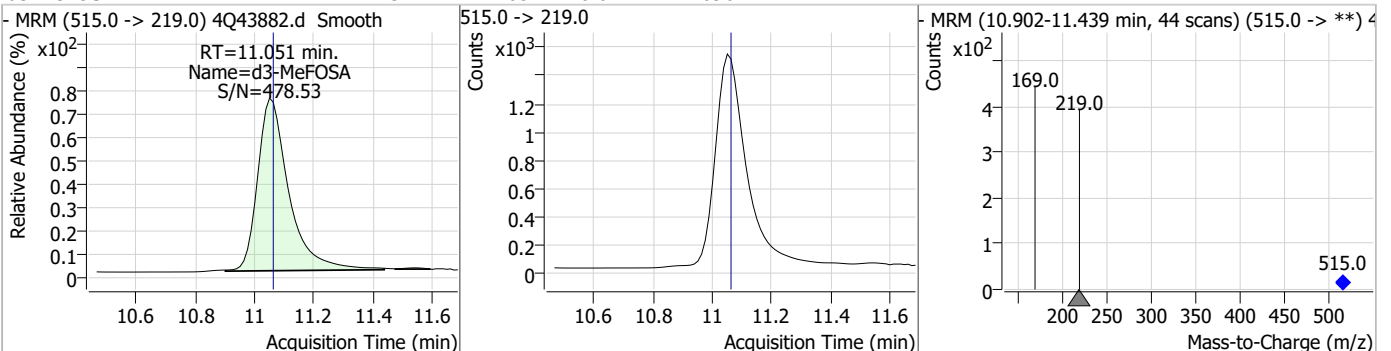
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.28	10.95	0.00	80643				



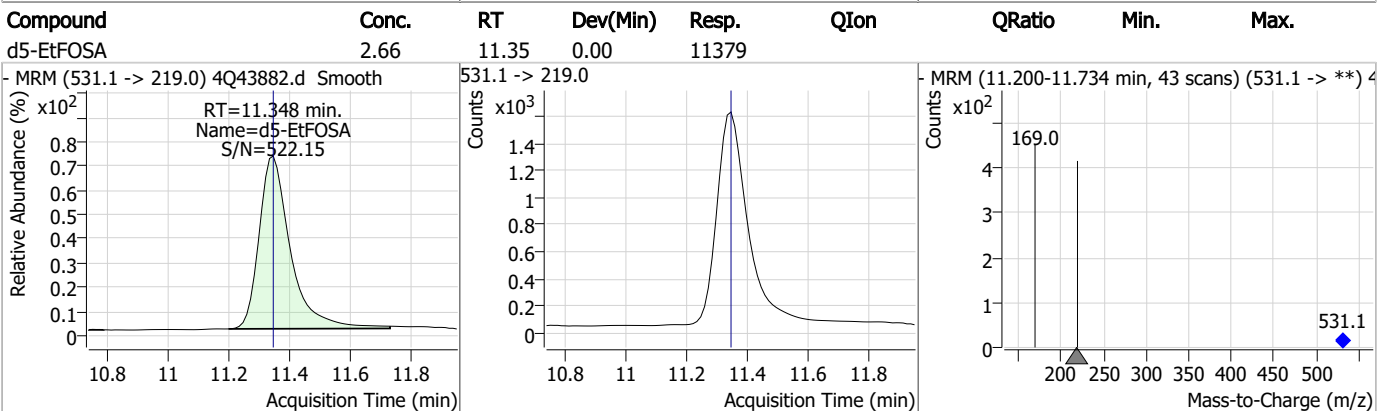
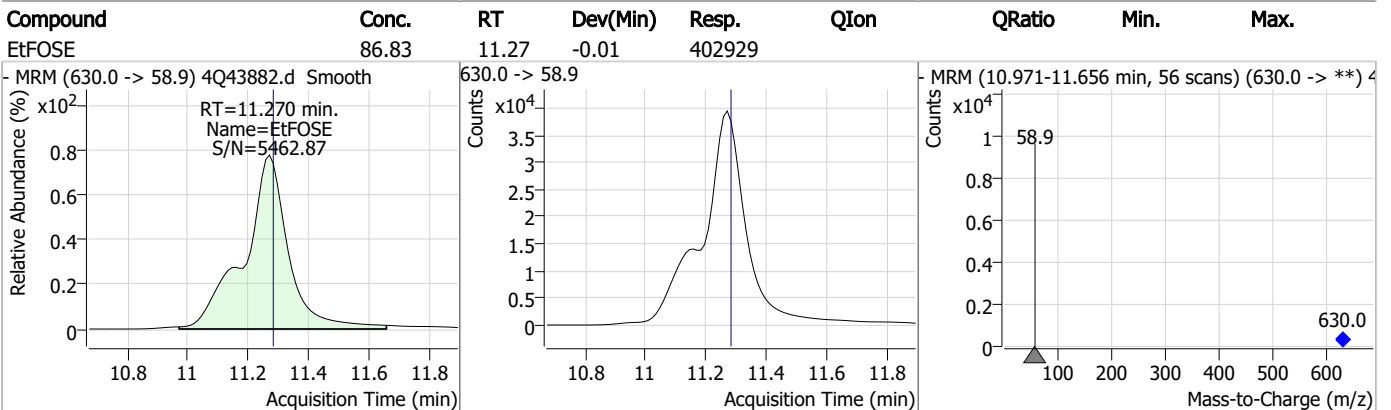
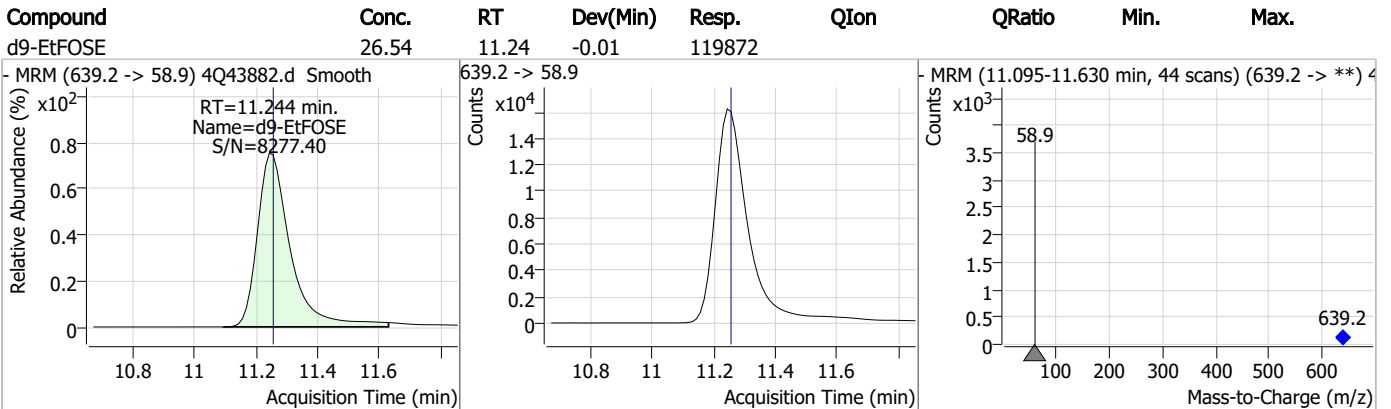
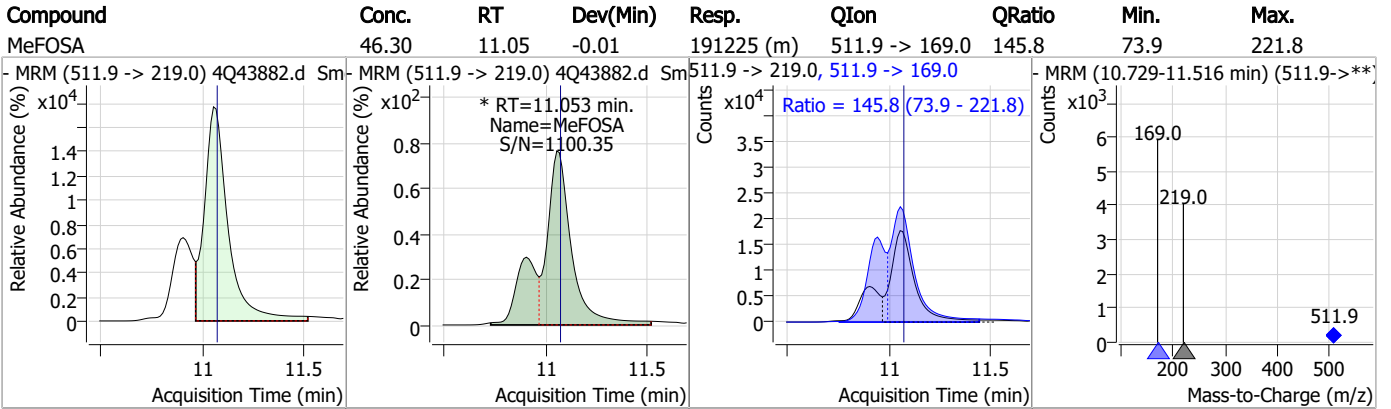
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	86.73	10.96	-0.01	287291 (m)				



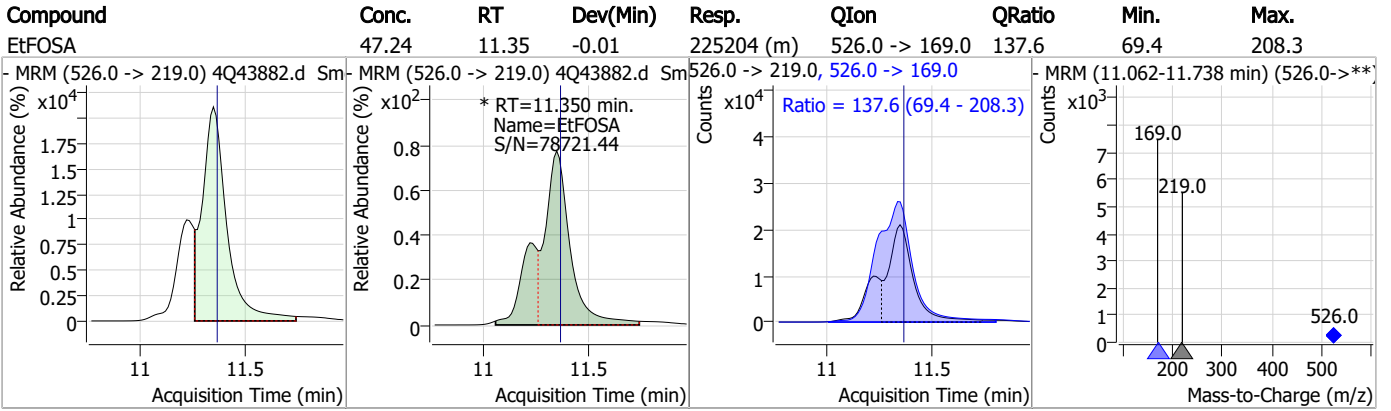
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.73	11.05	-0.01	10964				



# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



7.6.2

7

# Manual Integration Approval Summary

Sample Number: S4Q634-RT                      Method: EPA DRAFT 1633  
Lab FileID: 4Q43882.D                      Analyst approved: 05/04/23 11:23 Natasha Gumtie  
Injection Time: 05/03/23 10:37                      Supervisor approved: 05/04/23 17:44 Norman Farmer

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

7.6.2.1  
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44133.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/9/2023 1:28:14 PM  
 Sample Name : RT TDCA  
 Vial : P1-B1  
 DA Method File : TDCA.quantmethod.xml  
 Batch Name : s4q639 TDCA.batch.bin  
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

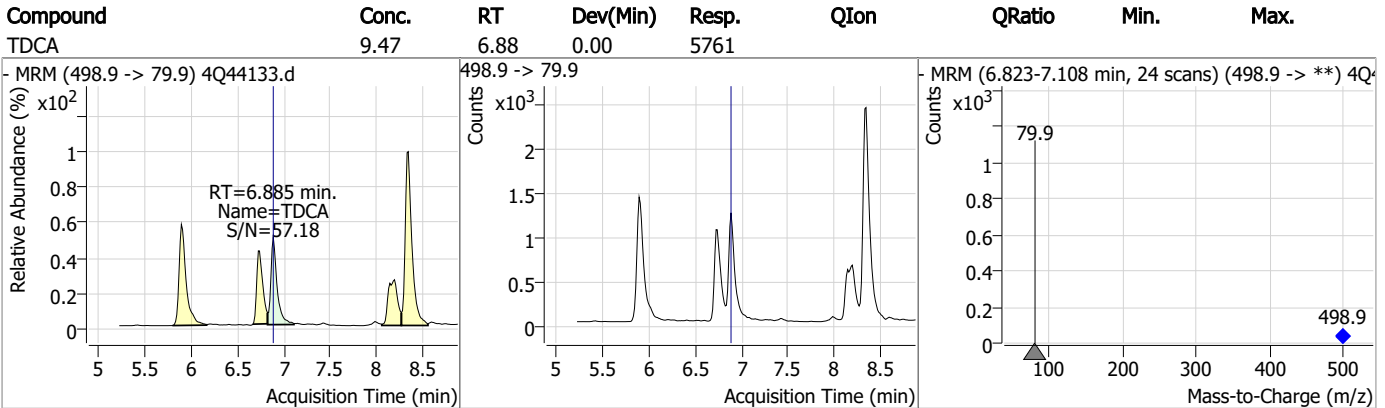
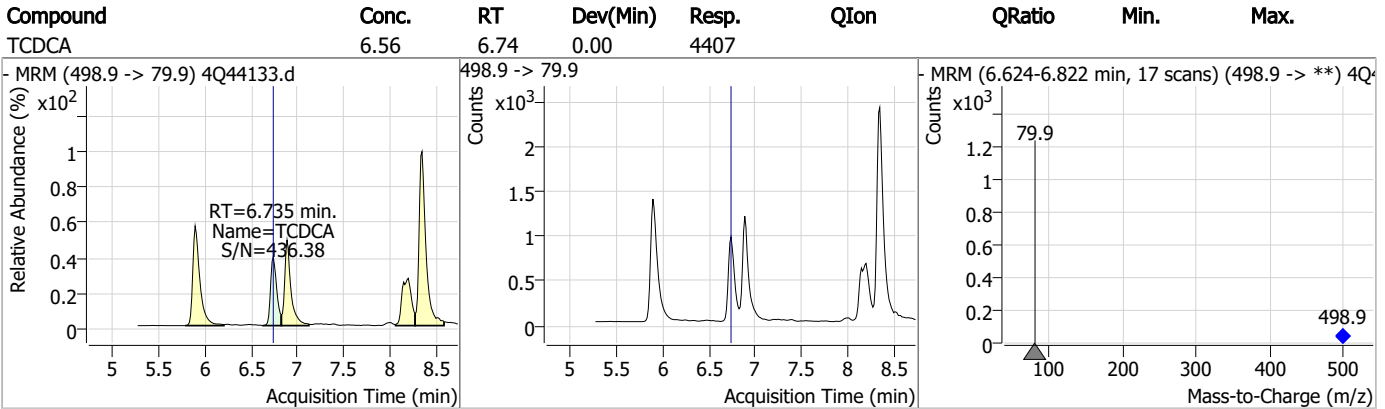
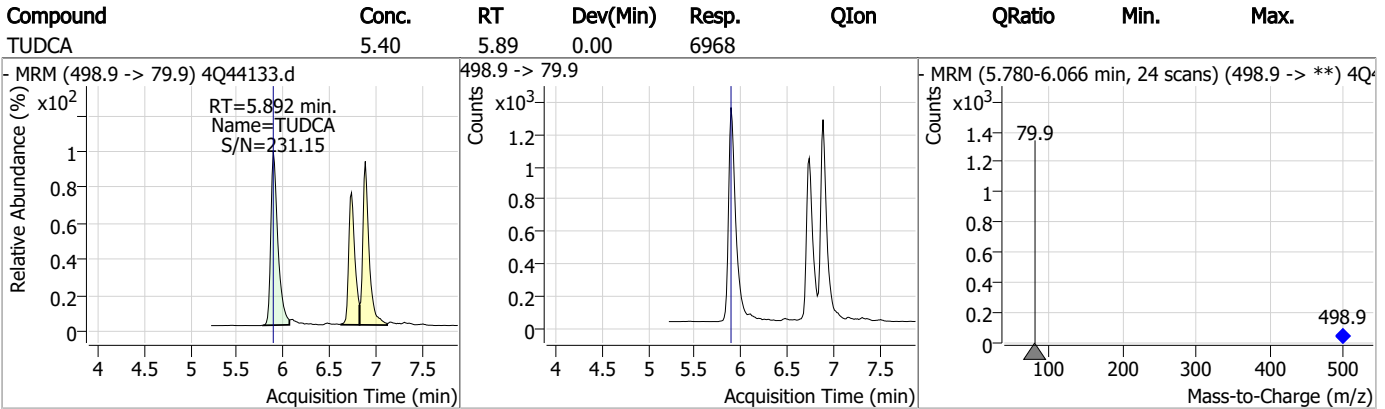
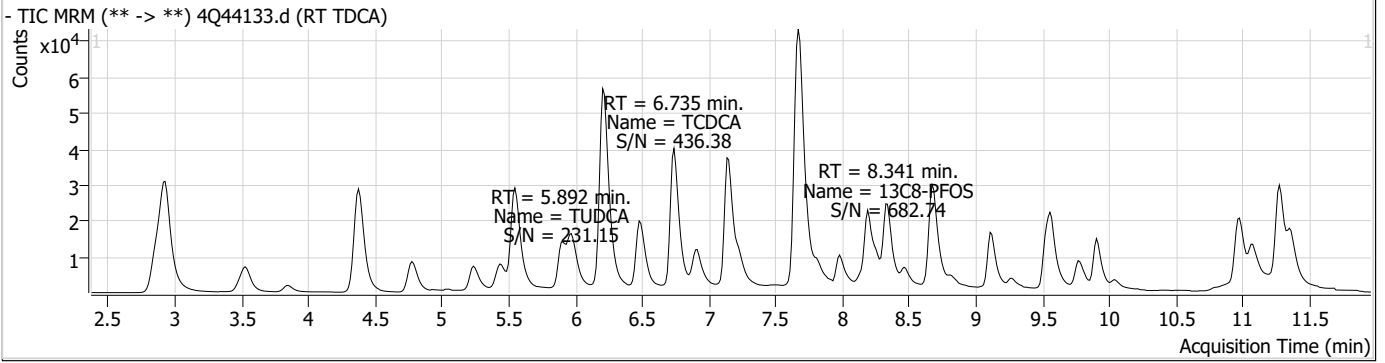
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
<b>Internal Standards</b>							
M8-PFOS	8.341	507.1 -> 79.9	14559	2.50	µg/L	0.000	
13C4-PFOS	8.342	502.8 -> 79.9	15675	2.50	µg/L	0.000	
<b>System Monitoring Compounds</b>							
13C8-PFOS	8.341	507.1 -> 79.9	14559	2.36	µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.2%				
<b>Target Compounds</b>							
PFOS	8.343	498.9 -> 79.9 498.9 -> 98.8	17216 8109	3.46	µg/L	m	100
TCDCa	6.735	498.9 -> 79.9	4407	6.56	ng/ml		100
TDCA	6.885	498.9 -> 79.9	5761	9.47	ng/ml		100
TUDCA	5.892	498.9 -> 79.9	6968	5.40	ng/ml		100

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

7.6.3

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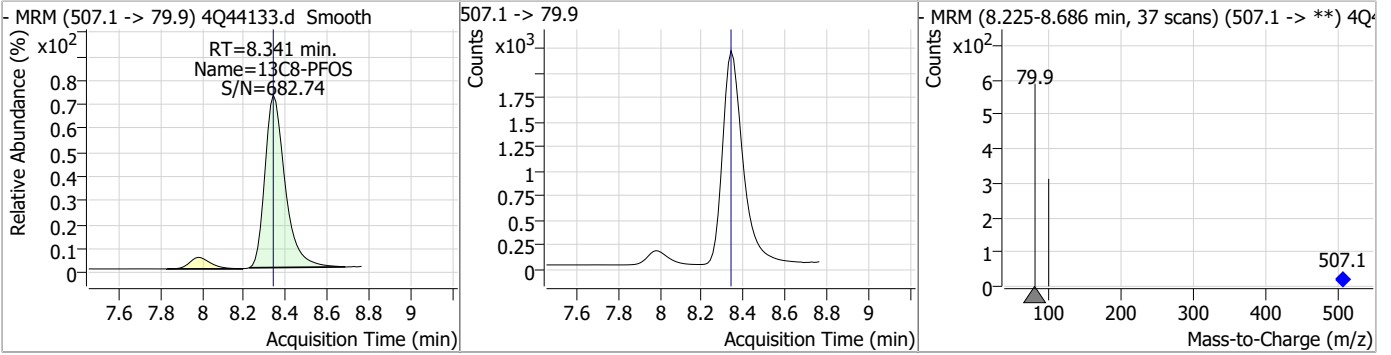
### Perfluorinated Compounds by LC/MS/MS



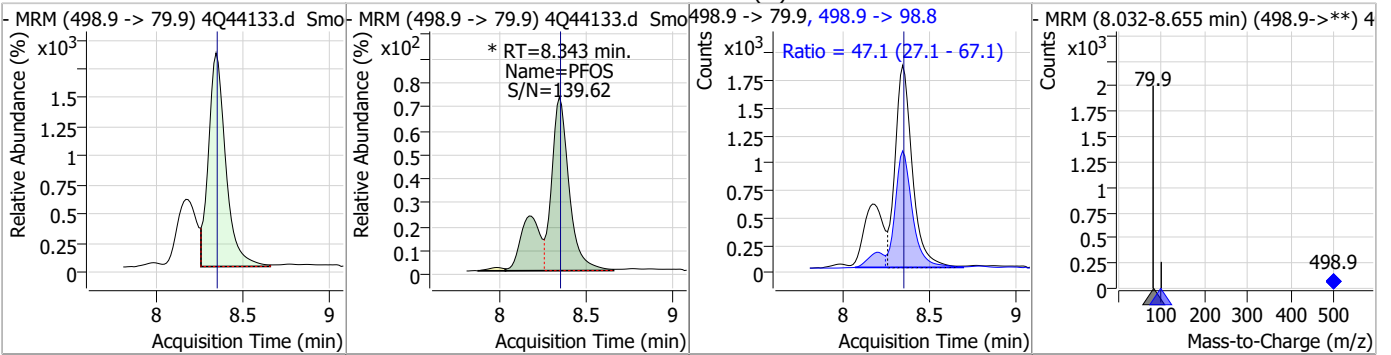


### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.36	8.34	0.00	14559				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.46	8.34	0.00	17216 (m)	498.9 -> 98.8	47.1	27.1	67.1



7.6.3

7



# Manual Integration Approval Summary

Sample Number: S4Q639-RT                      Method: EPA DRAFT 1633  
Lab FileID: 4Q44133.D                      Analyst approved: 05/10/23 11:10 Martha Valls  
Injection Time: 05/09/23 13:28                      Supervisor approved: 05/10/23 17:21 Norman Farmer

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

7.6.3.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44134.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/9/2023 1:42:17 PM  
 Sample Name : RT br/ln  
 Vial : P1-B2  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q639.batch.bin  
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.911	216.8 -> 171.9	126170	10.00 µg/L	-0.012
M5-PFPeA	4.375	268.3 -> 223.0	69483	5.00 µg/L	-0.012
M5-PFHxA	5.559	318.0 -> 273.0	47203	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	28669	2.50 µg/L	0.000
M8-PFOA	7.148	421.1 -> 376.0	41049	2.50 µg/L	0.000
M9-PFNA	7.696	472.1 -> 427.0	20558	1.25 µg/L	0.000
M6-PFDA	8.203	519.1 -> 474.1	20151	1.25 µg/L	0.000
M7-PFUnDA	8.672	570.0 -> 525.1	19570	1.25 µg/L	0.000
M2-PFDoDA	9.118	615.1 -> 570.0	21690	1.25 µg/L	0.000
M2-PFTeDA	9.911	715.2 -> 670.0	16079	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	18380	2.50 µg/L	0.000
M3-PFBS	5.452	302.1 -> 79.9	11512	2.50 µg/L	0.000
M3-PFHxS	7.242	402.1 -> 79.9	7517	2.50 µg/L	0.000
M8-PFOS	8.341	507.1 -> 79.9	10850	2.50 µg/L	-0.012
M2-4:2FTS	5.247	329.1 -> 80.9	1117	5.00 µg/L	0.000
M2-6:2FTS	6.923	429.1 -> 80.9	1749	5.00 µg/L	0.000
M2-8:2FTS	7.990	529.1 -> 80.9	2994	5.00 µg/L	0.000
M3-MeFOSAA	8.261	573.2 -> 419.0	13632	5.00 µg/L	0.000
M3-HFPO-DA	5.914	286.9 -> 168.9	26832	10.00 µg/L	0.000
M5-EtFOSAA	8.470	589.2 -> 419.0	11716	5.00 µg/L	0.000
M7-MeFOSE	10.972	623.2 -> 58.9	71352	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	102479	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11496	2.50 µg/L	0.000
M3-MeFOSA	11.076	515.0 -> 219.0	10806	2.50 µg/L	-0.012
13C4-PFOS	8.342	502.8 -> 79.9	11784	2.50 µg/L	-0.012
13C3-PFBA	2.916	216.0 -> 172.0	67561	5.00 µg/L	-0.013
18O2-PFHxS	7.241	403.0 -> 83.9	5329	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	50322	2.50 µg/L	0.000
13C2-PFDA	8.204	515.1 -> 470.1	17380	1.25 µg/L	0.000
13C5-PFNA	7.697	468.0 -> 423.0	23690	1.25 µg/L	0.000
13C2-PFHxA	5.560	315.1 -> 270.0	42830	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.247	329.1 -> 80.9	1117	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-6:2FTS	6.923	429.1 -> 80.9	1749	4.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.6%		
13C2-8:2FTS	7.990	529.1 -> 80.9	2994	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C2-PFDoDA	9.118	615.1 -> 570.0	21690	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-PFTeDA	9.911	715.2 -> 670.0	16079	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C3-PFBS	5.452	302.1 -> 79.9	11512	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C3-PFHxS	7.242	402.1 -> 79.9	7517	2.28 µg/L	0.000

7.64  
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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.0%	
13C4-PFBA	2.911	216.8 -> 171.9	126170	9.92 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C4-PFHpA	6.492	367.1 -> 322.0	28669	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C5-PFHxA	5.559	318.0 -> 273.0	47203	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C5-PFPeA	4.375	268.3 -> 223.0	69483	5.27 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C6-PFDA	8.203	519.1 -> 474.1	20151	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C7-PFUnDA	8.672	570.0 -> 525.1	19570	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-FOSA	9.783	506.1 -> 77.8	18380	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C8-PFOA	7.148	421.1 -> 376.0	41049	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C8-PFOS	8.341	507.1 -> 79.9	10850	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C9-PFNA	7.696	472.1 -> 427.0	20558	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.1%	
d3-MeFOSAA	8.261	573.2 -> 419.0	13632	4.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.7%	
13C3-HFPO-DA	5.914	286.9 -> 168.9	26832	9.52 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
d3-MeFOSA	11.076	515.0 -> 219.0	10806	2.34 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
d5-EtFOSAA	8.470	589.2 -> 419.0	11716	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
d7-MeFOSE	10.972	623.2 -> 58.9	71352	19.46 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.8%	
d9-EtFOSE	11.269	639.2 -> 58.9	102479	19.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.0%	
d5-EtFOSA	11.360	531.1 -> 219.0	11496	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.6%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.248	327.1 -> 307.0	81840	45.54 µg/L	99
		327.1 -> 80.9	33974		
6:2FTS	6.924	427.1 -> 407.0	89142	52.76 µg/L	96
		427.1 -> 80.9	36047		
8:2FTS	7.991	527.1 -> 507.0	83407	49.97 µg/L	98
		527.1 -> 80.8	35106		
EtFOSAA	8.471	584.2 -> 419.1	28676	12.74 µg/L	m 90
		584.2 -> 526.0	12905		
FOSA	9.786	498.1 -> 77.9	242817	31.53 µg/L	m 99
		498.1 -> 478.0	6996		
MeFOSAA	8.262	570.1 -> 419.0	29876	12.57 µg/L	m 94
		570.1 -> 483.0	6332		
PFBA	2.920	212.8 -> 168.9	180996	53.57 µg/L	100
PFBS	5.453	298.7 -> 79.9	53374	11.30 µg/L	96
		298.7 -> 98.8	20561		
PFDA	8.204	512.9 -> 469.0	188039	12.30 µg/L	99
		512.9 -> 219.0	38252		
PFDoDA	9.119	613.1 -> 569.0	225889	12.98 µg/L	100
		613.1 -> 319.0	31670		
PFDS	9.282	599.0 -> 79.9	31535	11.73 µg/L	98

7.6.4  
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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.492	599.0 -> 98.8	16858	13.09	µg/L	99
		363.1 -> 319.0	237258			
PFHpS	7.823	363.1 -> 169.0	41082	12.10	µg/L	98
		449.0 -> 79.9	47301			
PFHxA	5.550	449.0 -> 98.9	25377	13.10	µg/L	100
		313.0 -> 269.0	242218			
PFHxS	7.243	313.0 -> 118.9	7272	11.60	µg/L	m
		398.7 -> 79.9	35726			
PFNA	7.697	398.7 -> 98.9	18731	25.77	µg/L	m
		463.0 -> 419.0	392620			
PFNS	8.823	463.0 -> 219.0	104078	11.80	µg/L	94
		548.8 -> 79.9	27959			
PFOA	7.150	548.8 -> 98.9	14490	28.29	µg/L	m
		413.0 -> 369.0	670070			
PFOS	8.343	413.0 -> 169.0	141169	12.21	µg/L	m
		498.9 -> 79.9	64859			
PFPeA	4.377	498.9 -> 98.8	33145	25.64	µg/L	100
		263.0 -> 219.0	428622			
PFPeS	6.519	349.1 -> 79.9	33094	12.52	µg/L	96
		349.1 -> 98.9	14008			
PFTeDA	9.912	713.1 -> 669.0	215098	13.67	µg/L	100
		713.1 -> 168.9	17559			
PFTrDA	9.529	663.0 -> 619.0	293707	12.63	µg/L	98
		663.0 -> 168.9	29177			
PFUnDA	8.673	563.1 -> 519.0	179283	13.49	µg/L	99
		563.1 -> 269.1	33714			
11Cl-PF3OUdS	9.568	630.9 -> 450.9	263464	27.30	µg/L	99
		632.9 -> 452.9	80126			
9Cl-PF3ONS	8.687	530.8 -> 351.0	332037	27.02	µg/L	99
		532.8 -> 353.0	99748			
ADONA	6.743	376.9 -> 250.9	680078	25.20	µg/L	100
		376.9 -> 84.8	179974			
HFPO-DA	5.915	284.9 -> 168.9	68636	26.77	µg/L	97
		284.9 -> 184.9	7839			
3:3FTCA	3.848	241.0 -> 177.0	49717	67.59	µg/L	100
		241.0 -> 117.0	4646			
5:3FTCA	6.217	341.0 -> 237.1	904267	360.33	µg/L	99
		341.0 -> 217.0	627498			
7:3FTCA	7.673	441.0 -> 316.9	491619	377.02	µg/L	100
		441.0 -> 336.9	1160343			
EtFOSA	11.375	526.0 -> 219.0	215616	44.77	µg/L	m
		526.0 -> 169.0	307237			
EtFOSE	11.295	630.0 -> 58.9	322867	81.38	µg/L	100
		511.9 -> 219.0	180575			
MeFOSA	11.078	511.9 -> 169.0	268275	44.36	µg/L	m
		616.1 -> 58.9	251690			
MeFOSE	10.985	699.1 -> 79.9	28924	85.88	µg/L	m
		699.1 -> 98.8	16282			
PFDoDS	10.052	295.0 -> 201.0	27199	12.06	µg/L	100
		295.0 -> 84.9	6700			
NFDHA	5.441	279.0 -> 85.1	236941	20.60	µg/L	96
		229.0 -> 84.9	227706			
PFMBA	4.791	314.8 -> 134.9	325858	25.40	µg/L	100
		314.8 -> 82.9	11580			
PFMPA	3.528			26.06	µg/L	100
PFEESA	5.984			23.28	µg/L	99

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

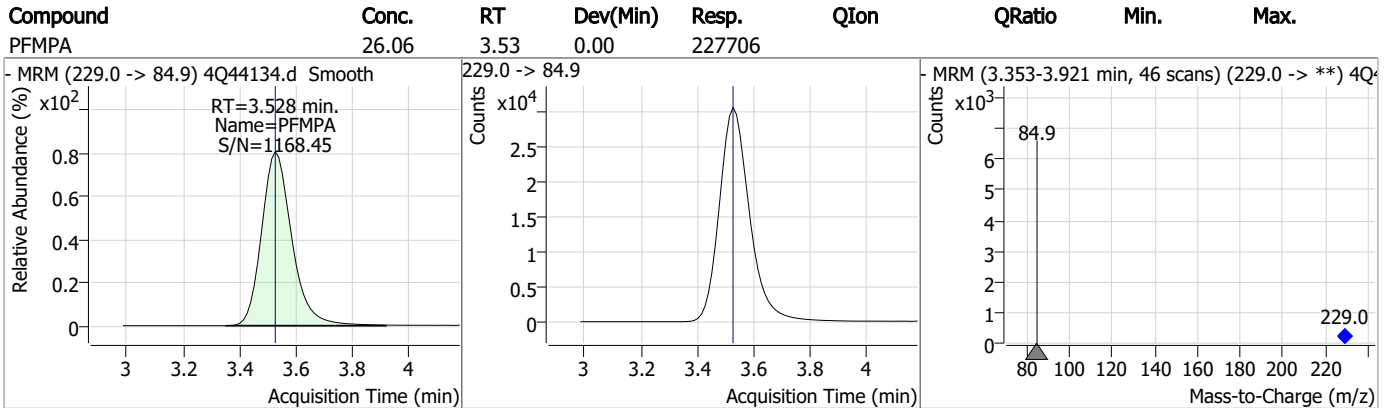
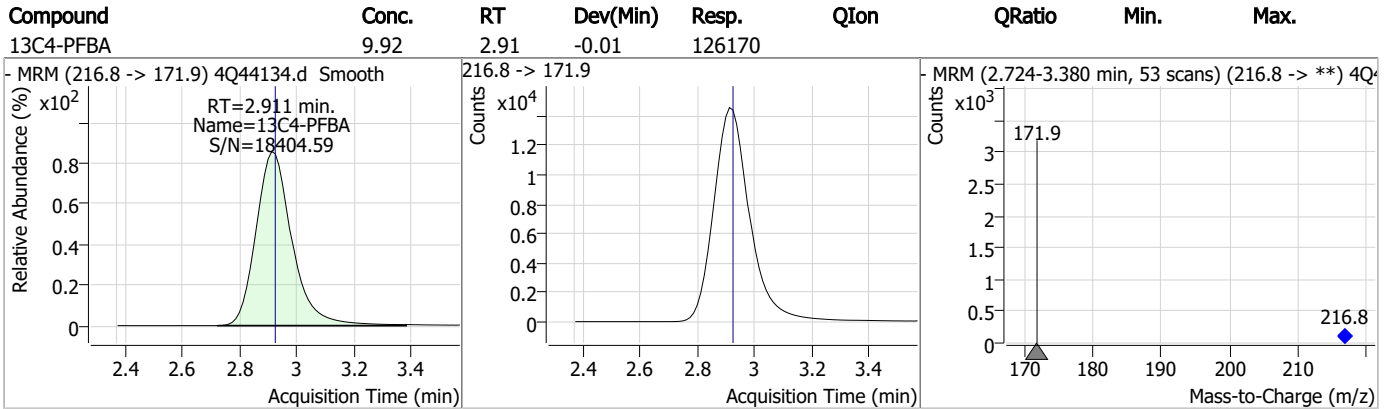
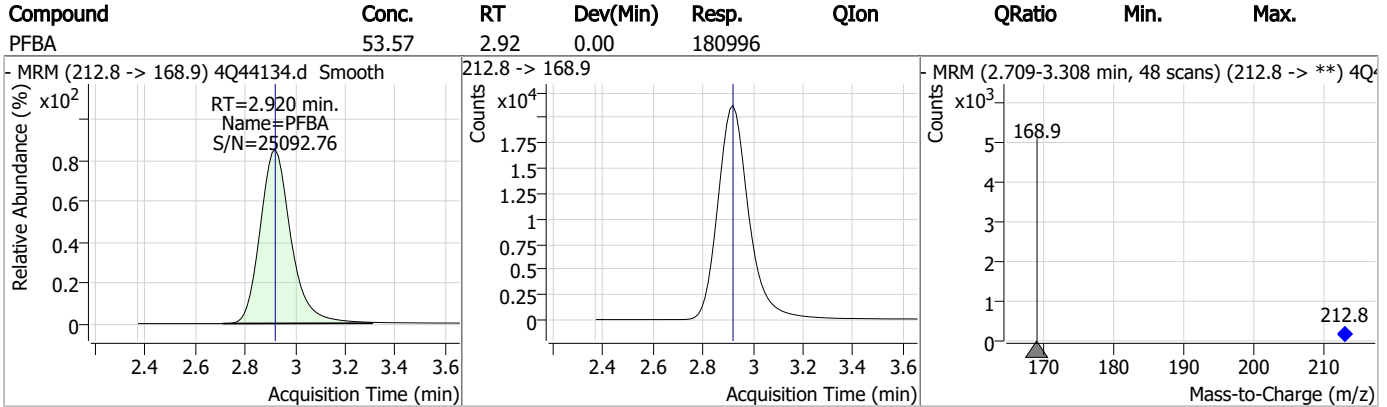
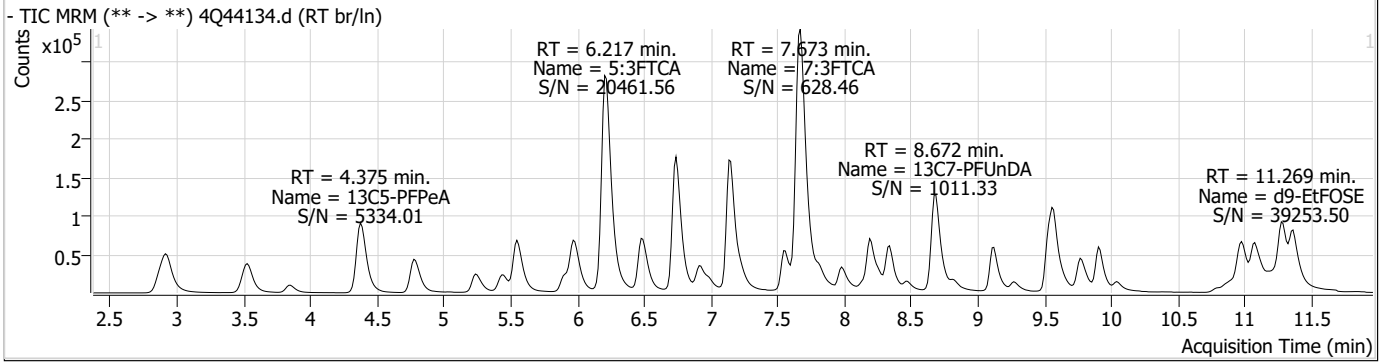
# Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.4

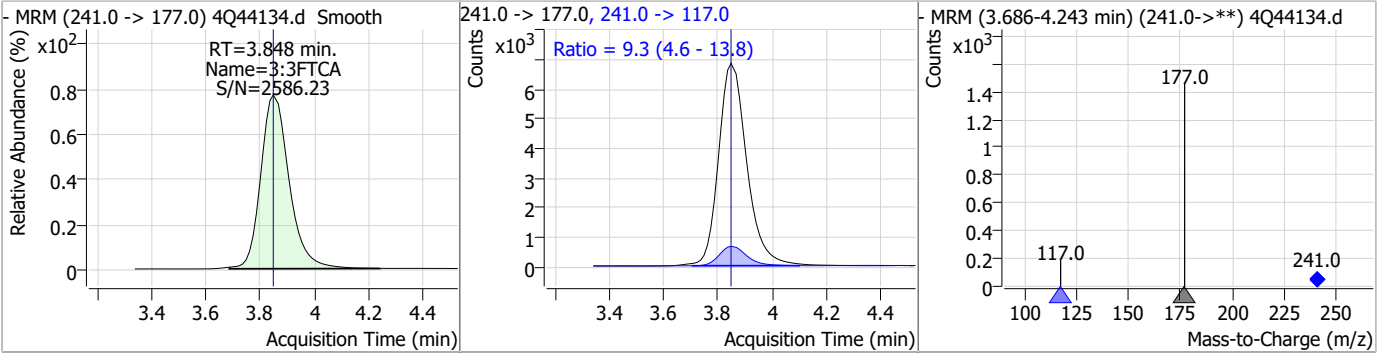
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# Perfluorinated Compounds by LC/MS/MS

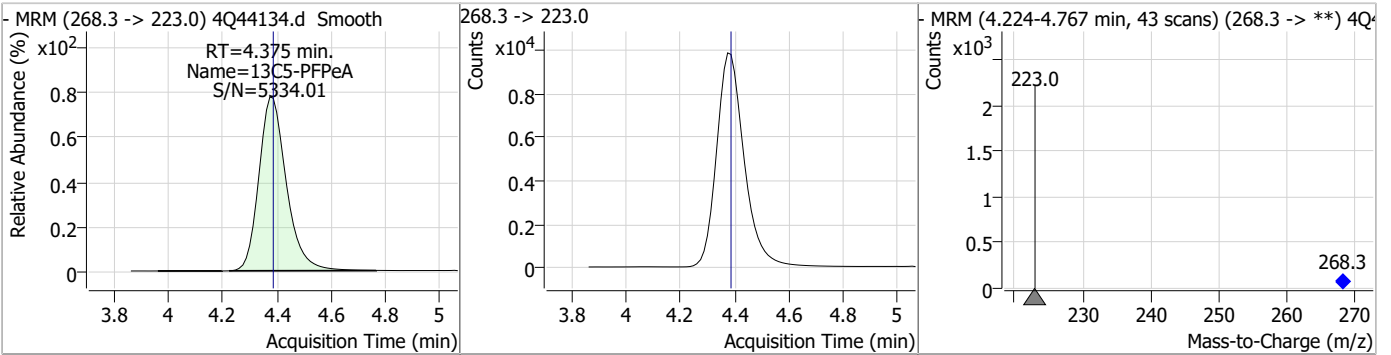


# Perfluorinated Compounds by LC/MS/MS

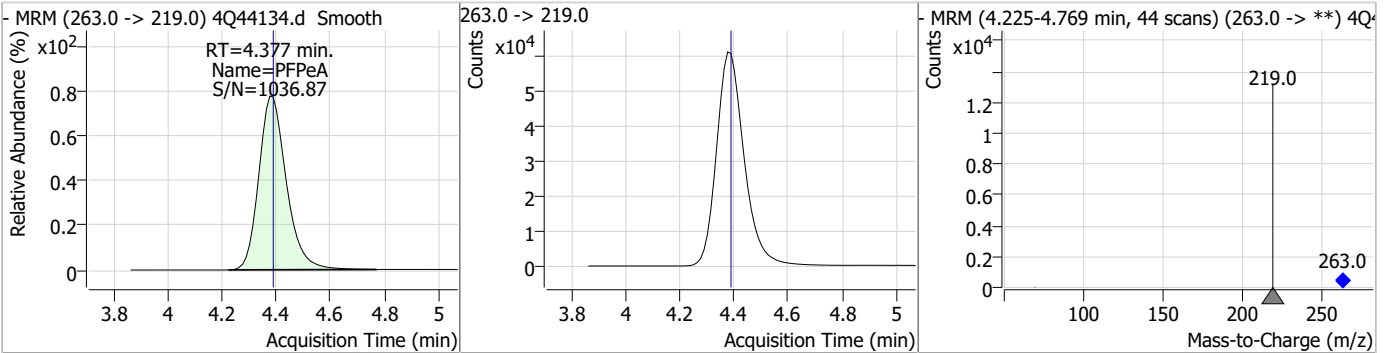
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	67.59	3.85	0.00	49717	241.0 -> 117.0	9.3	4.6	13.8



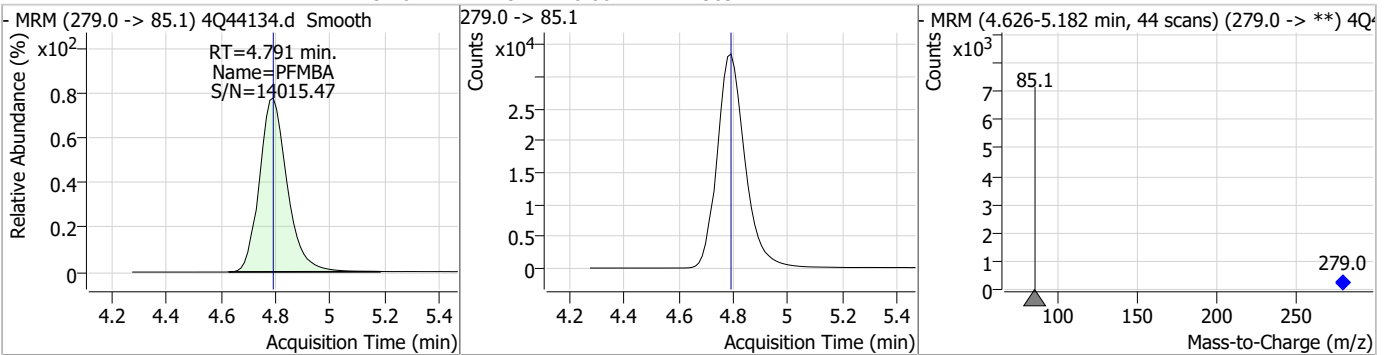
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.27	4.37	-0.01	69483				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	25.64	4.38	-0.01	428622				

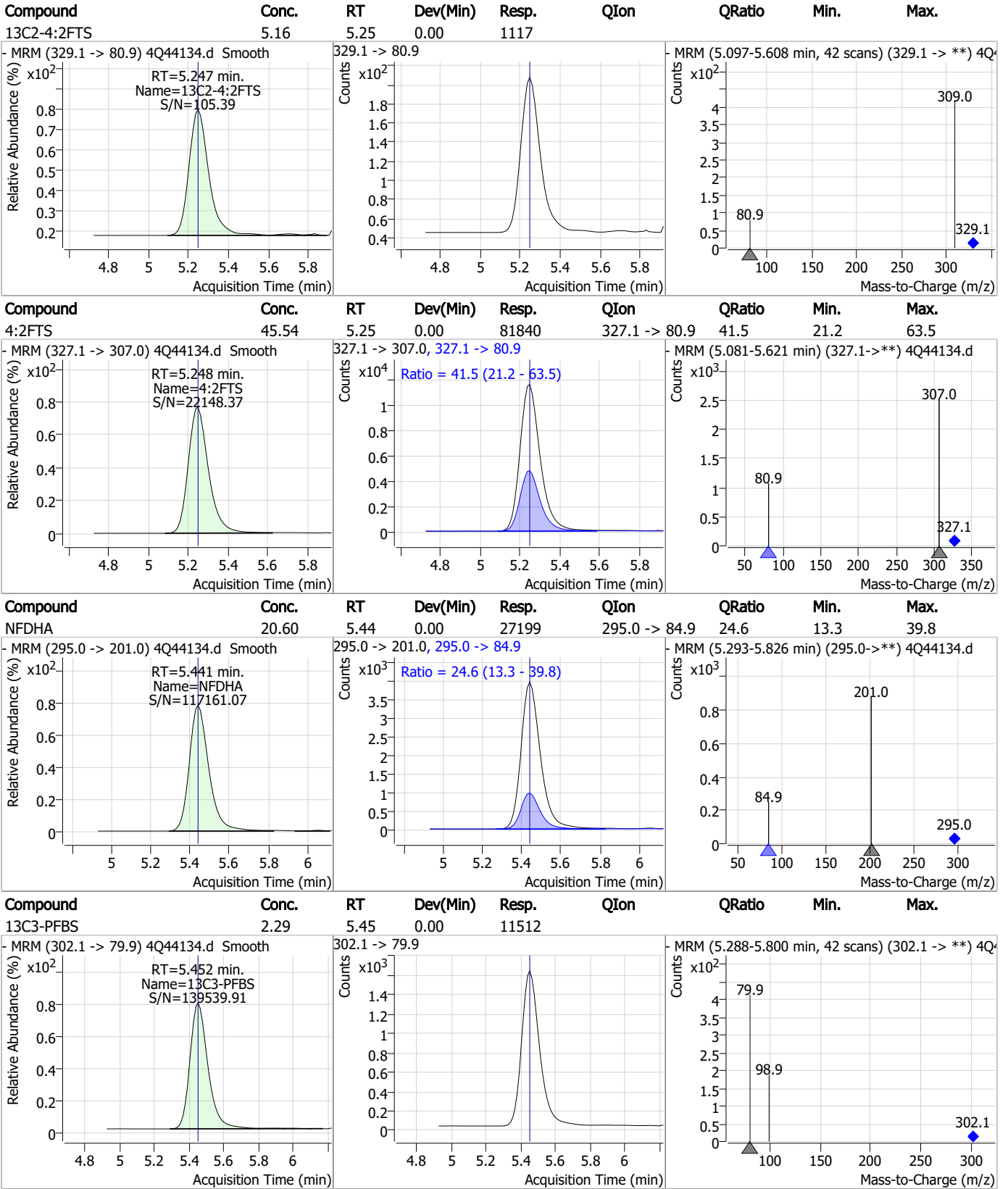


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	25.40	4.79	0.00	236941				





# Perfluorinated Compounds by LC/MS/MS

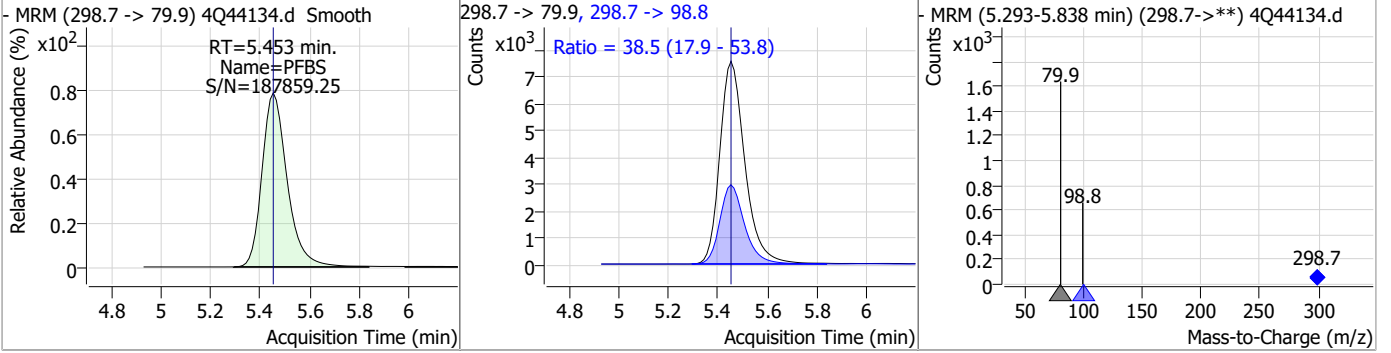


7.6.4

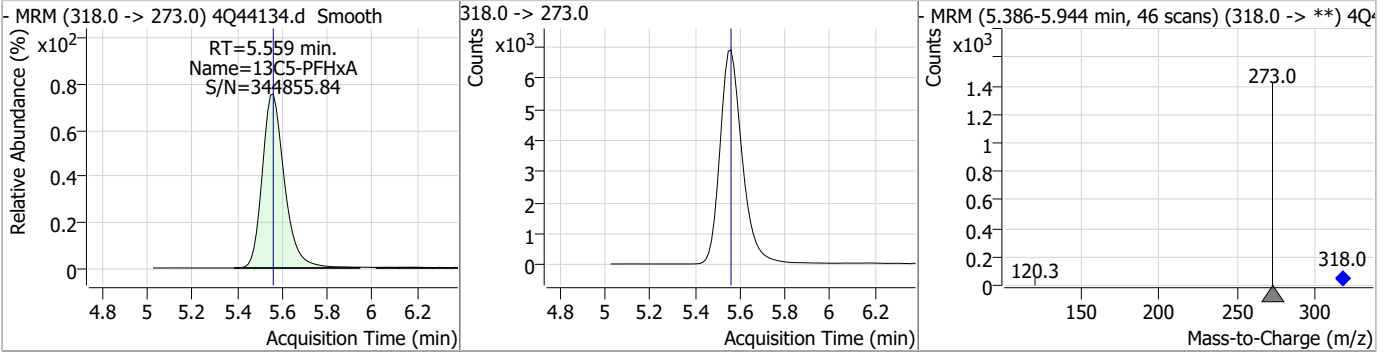
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# Perfluorinated Compounds by LC/MS/MS

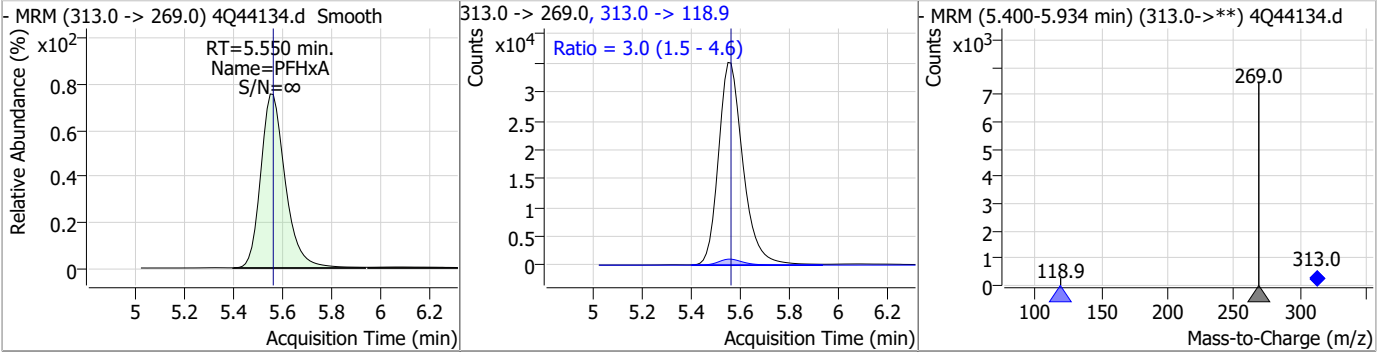
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.30	5.45	0.00	53374	298.7 -> 98.8	38.5	17.9	53.8



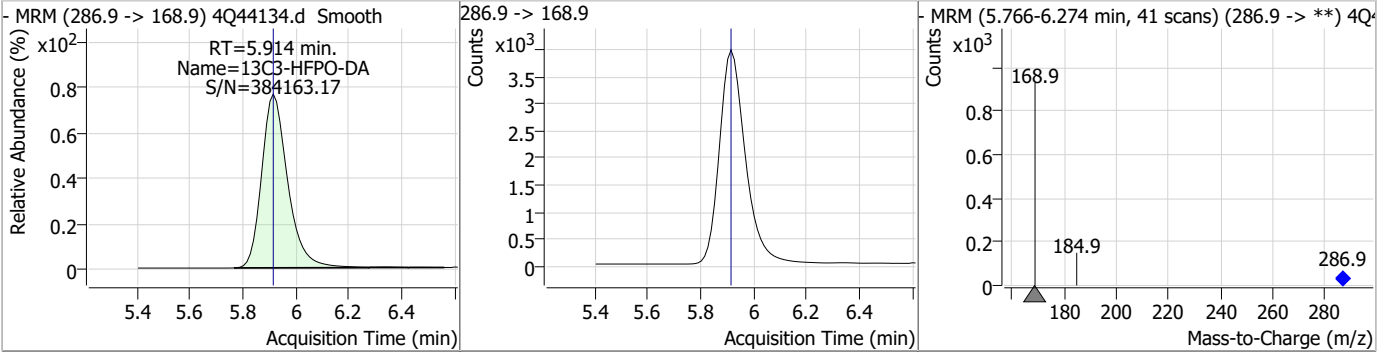
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.50	5.56	0.00	47203				



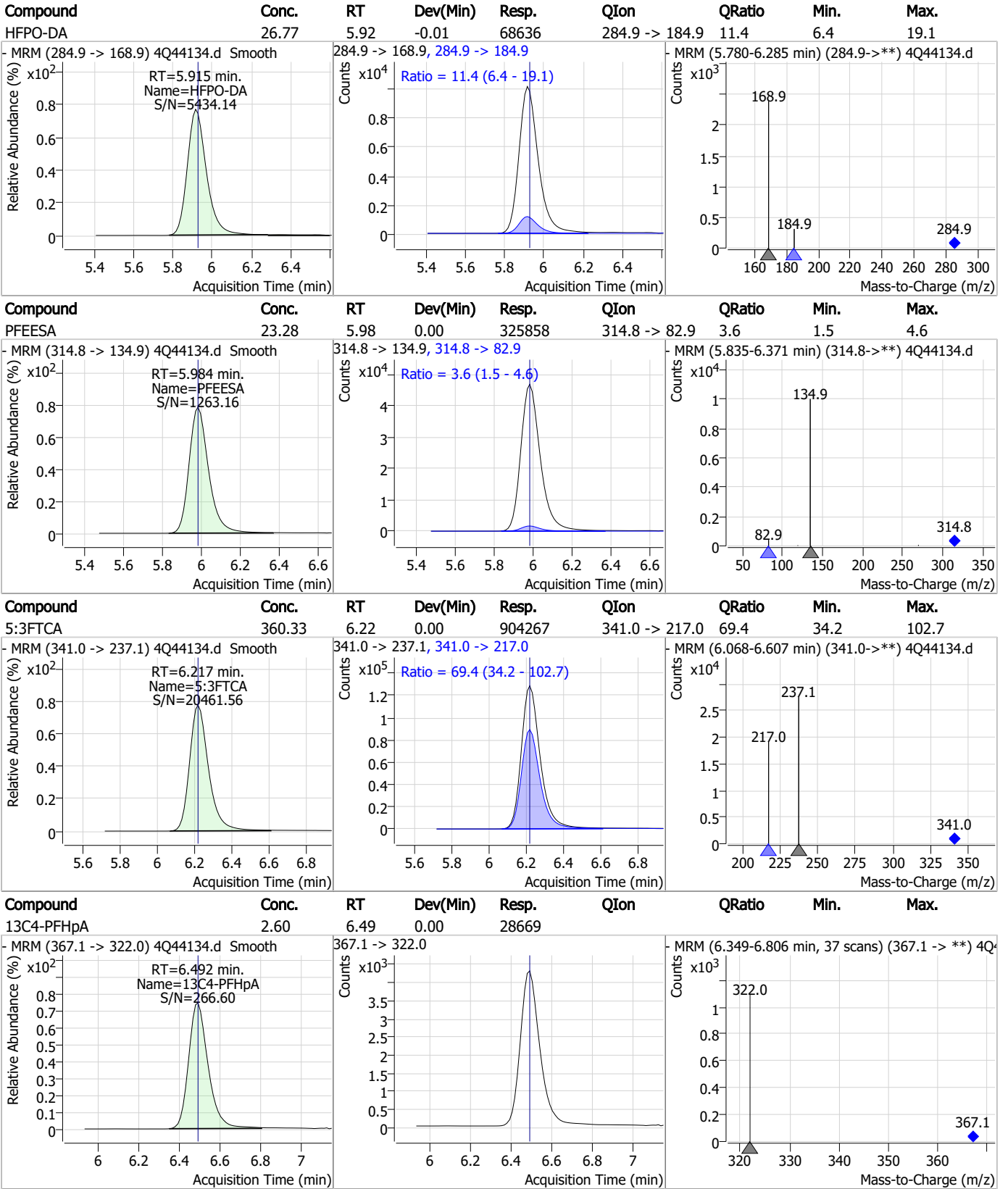
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	13.10	5.55	-0.01	242218	313.0 -> 118.9	3.0	1.5	4.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.52	5.91	0.00	26832				



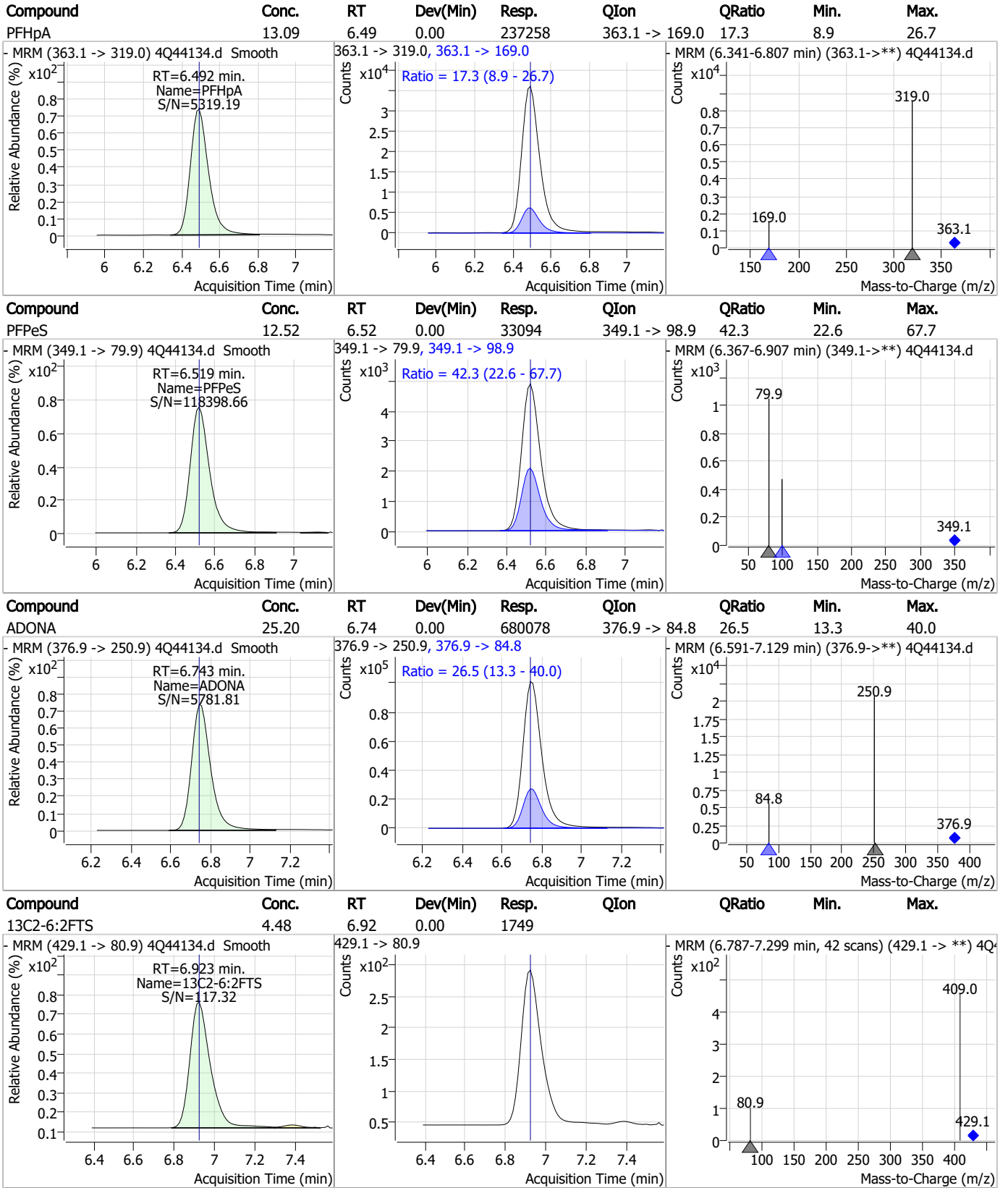
# Perfluorinated Compounds by LC/MS/MS



7.6.4

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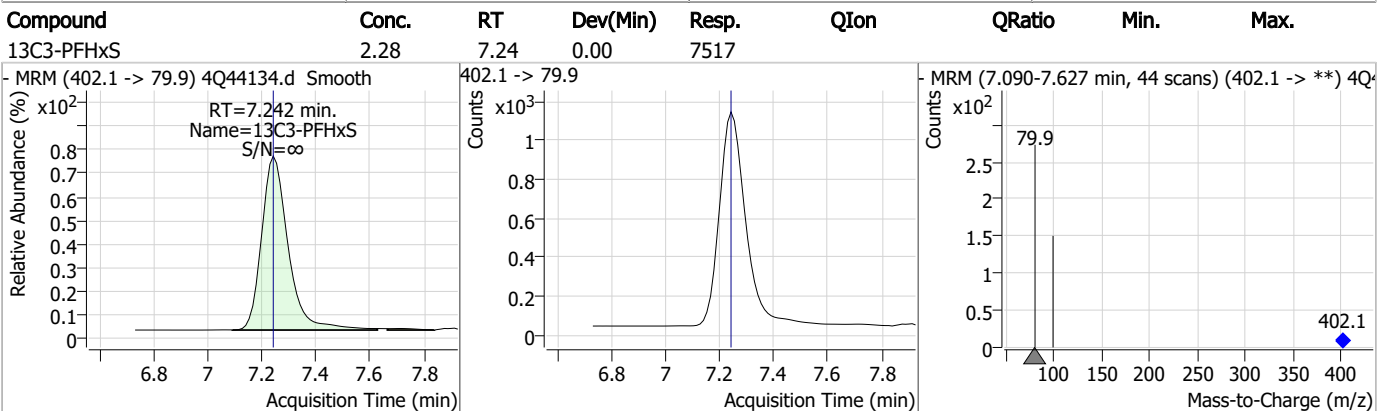
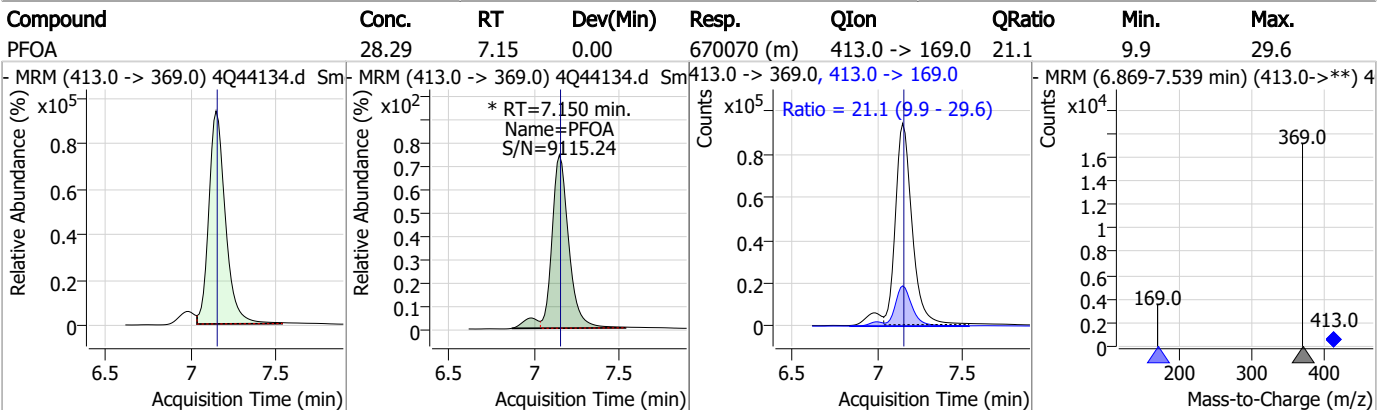
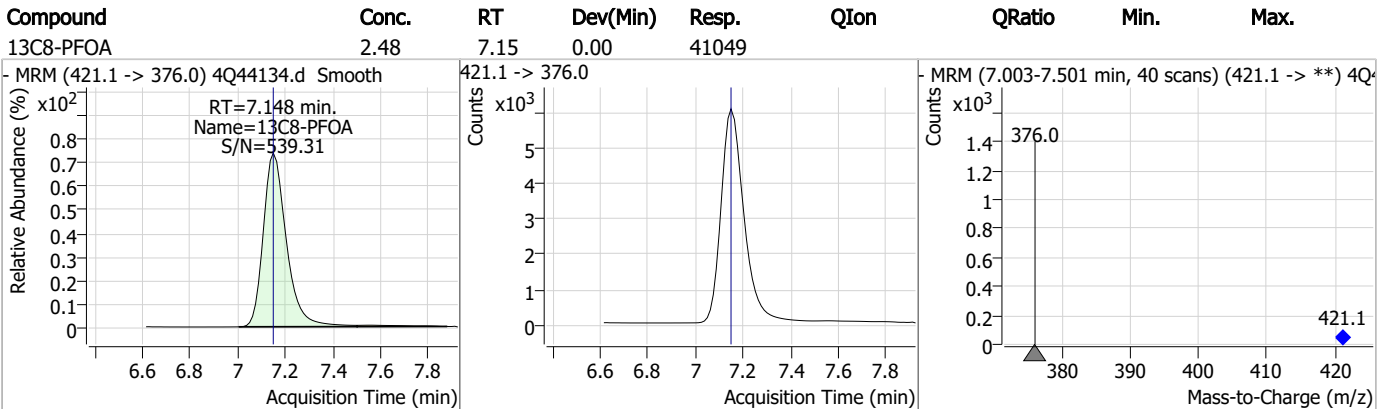
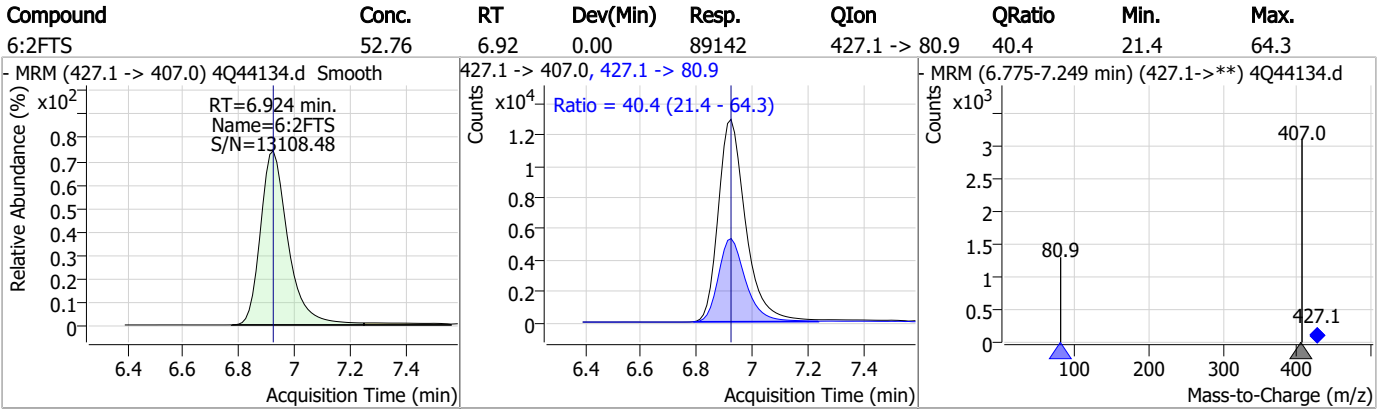
# Perfluorinated Compounds by LC/MS/MS



7.6.4

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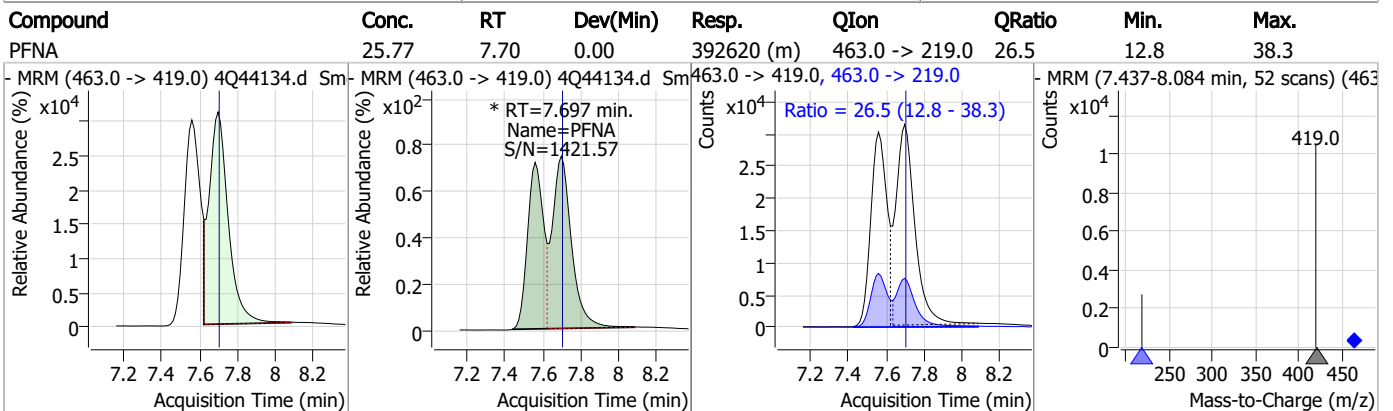
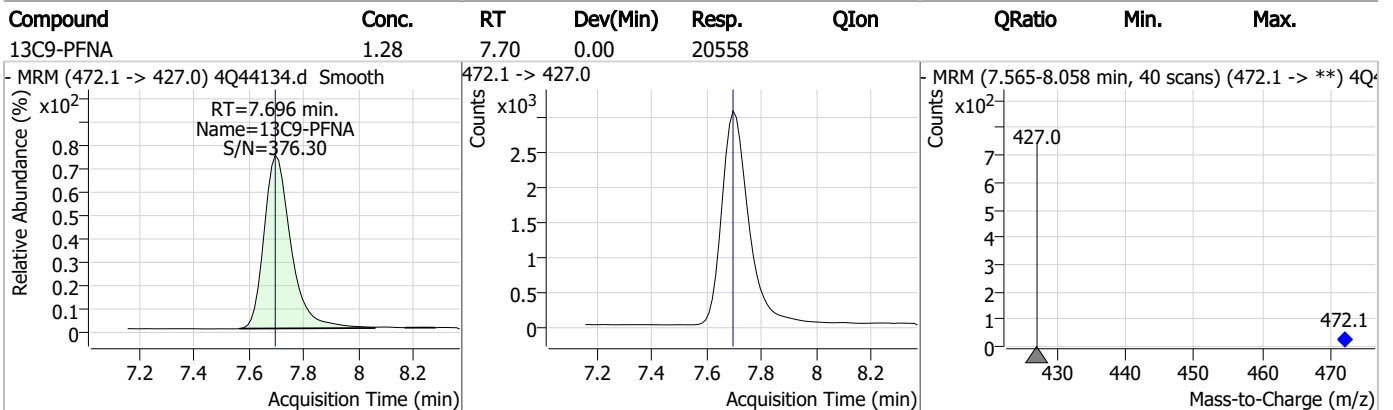
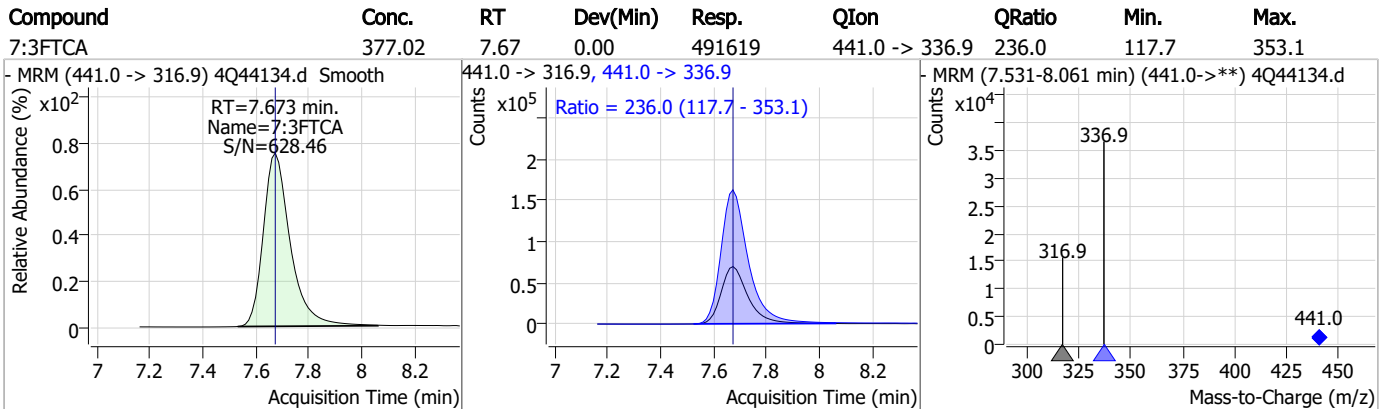
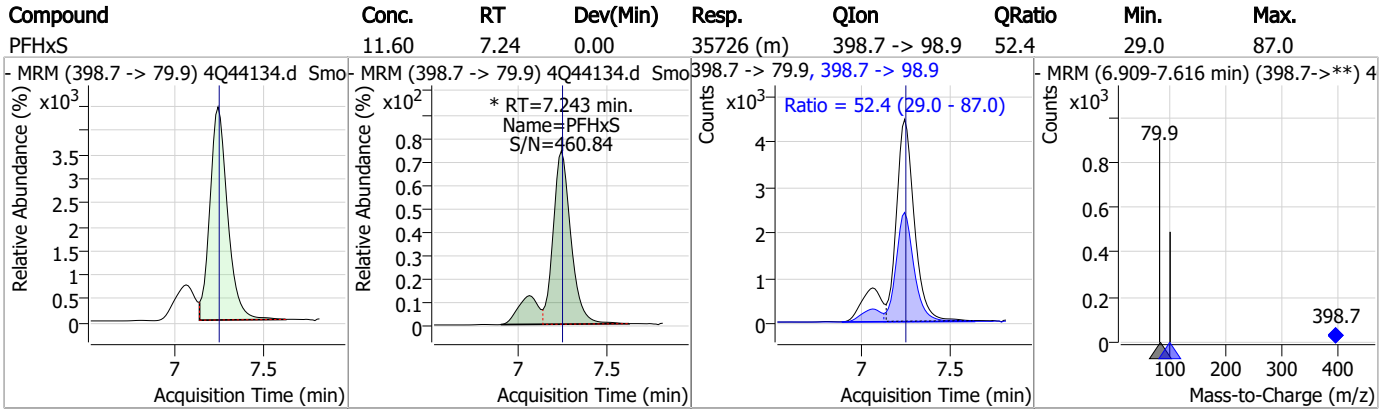
# Perfluorinated Compounds by LC/MS/MS



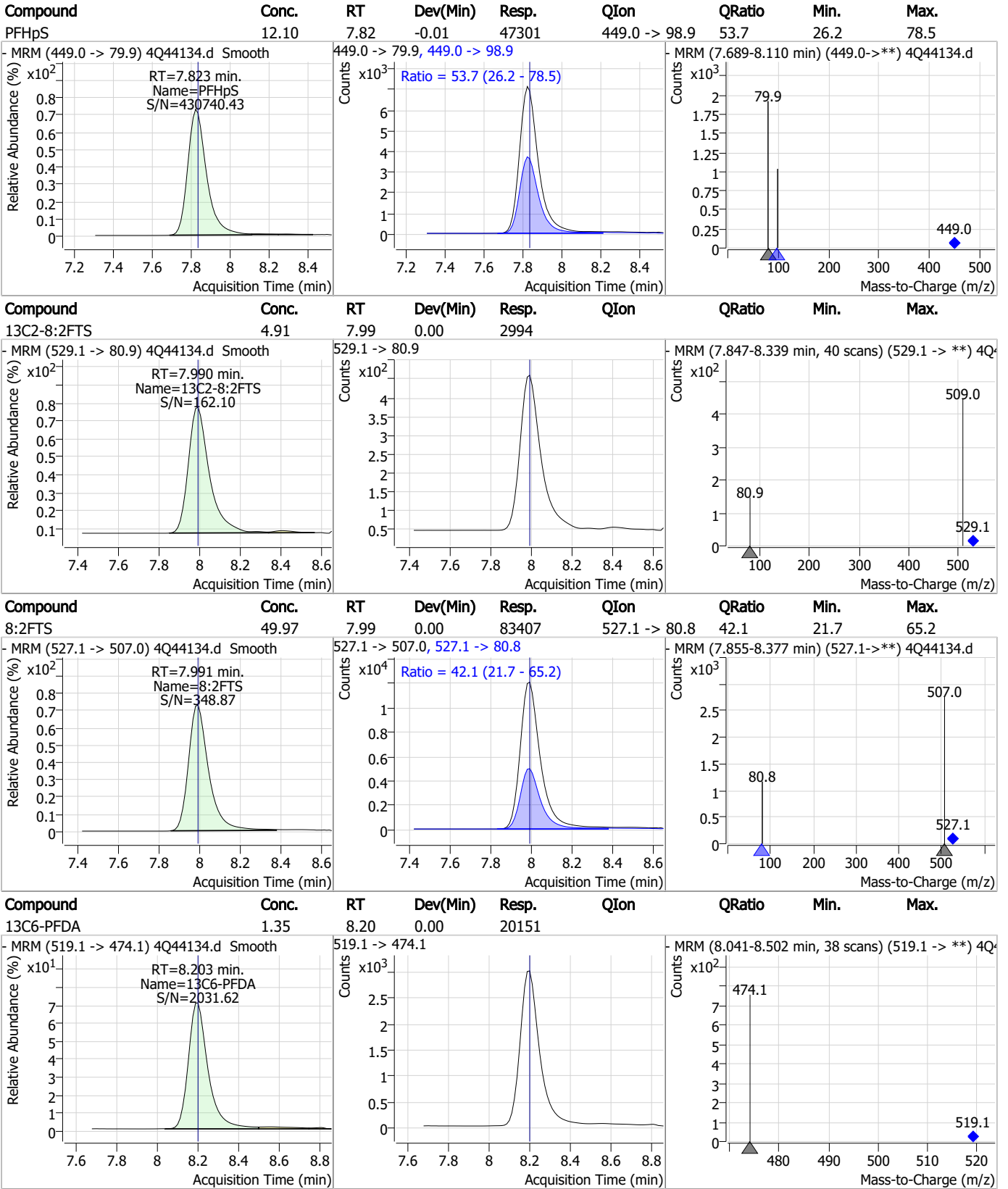
7.6.4

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# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS

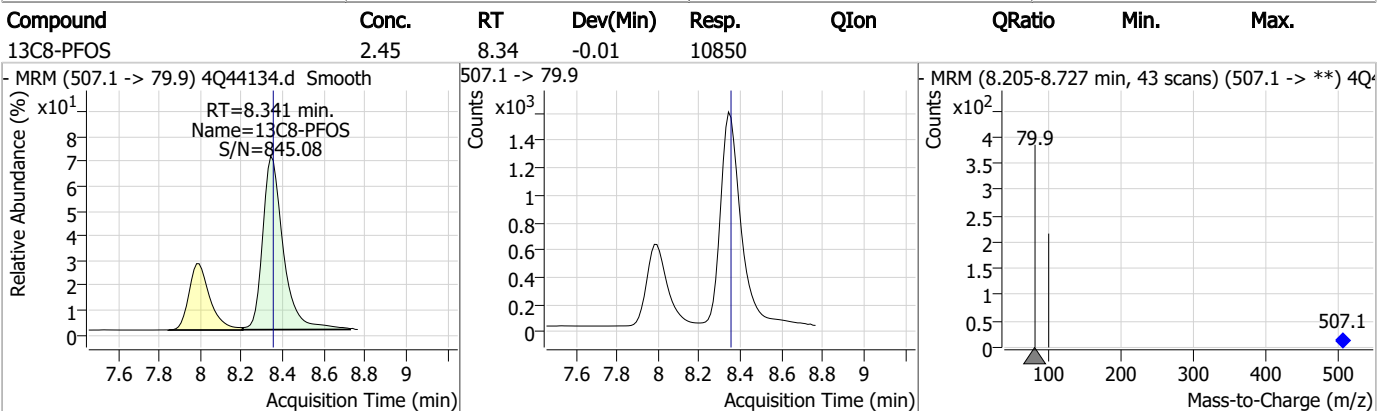
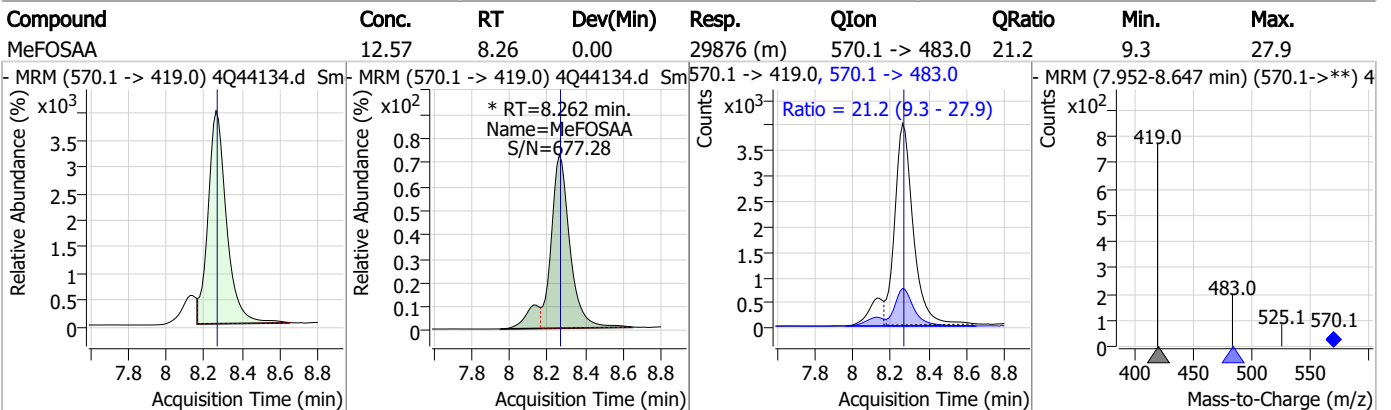
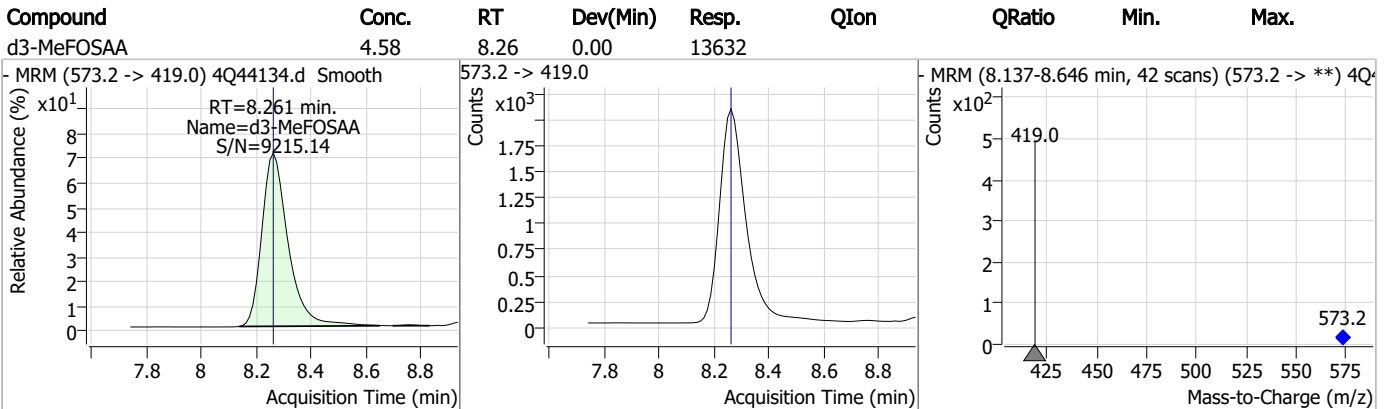
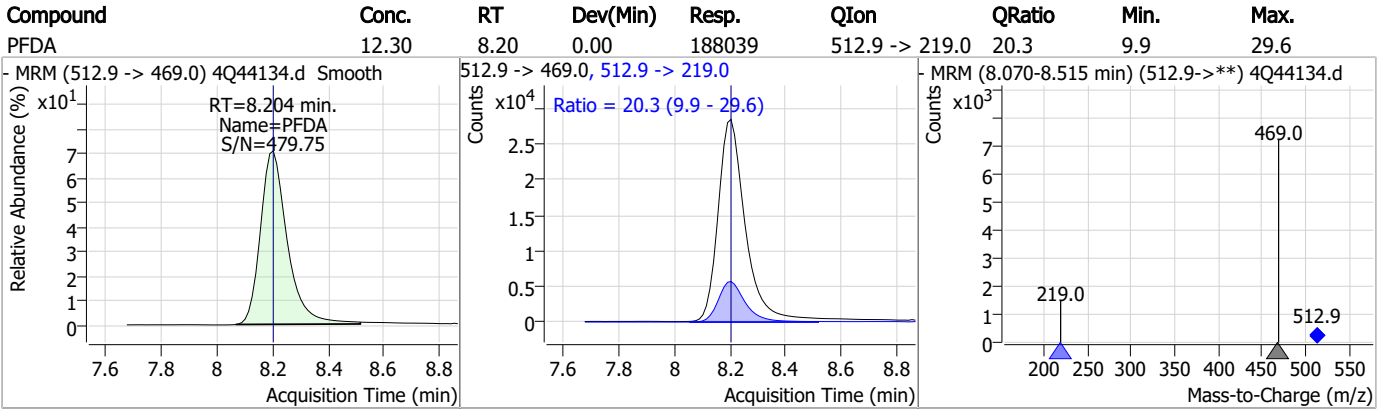


7.6.4

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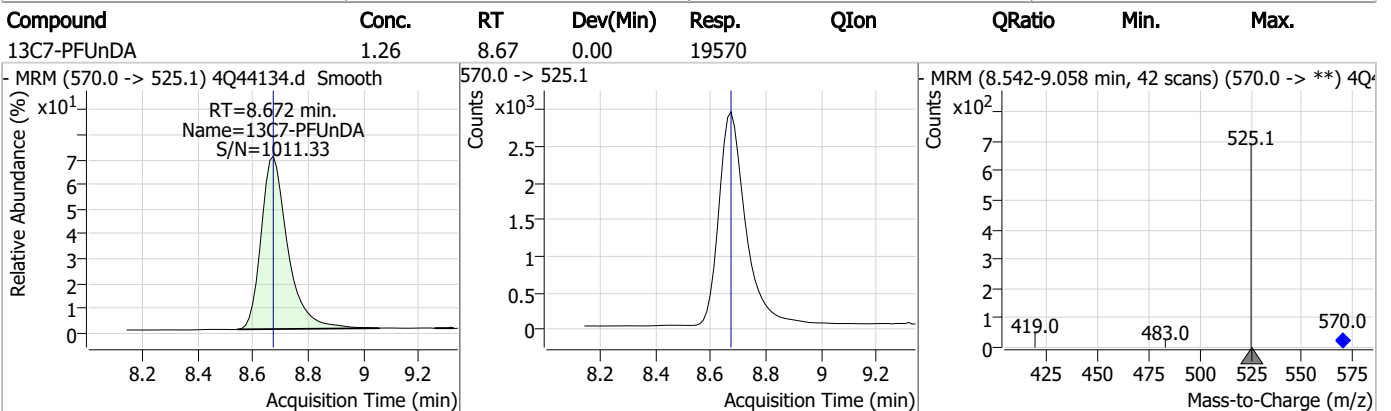
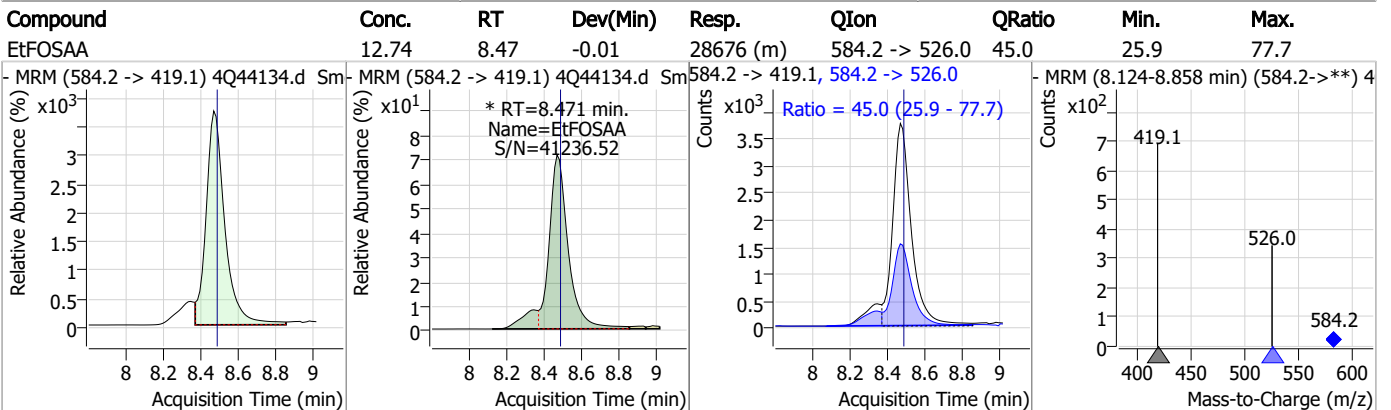
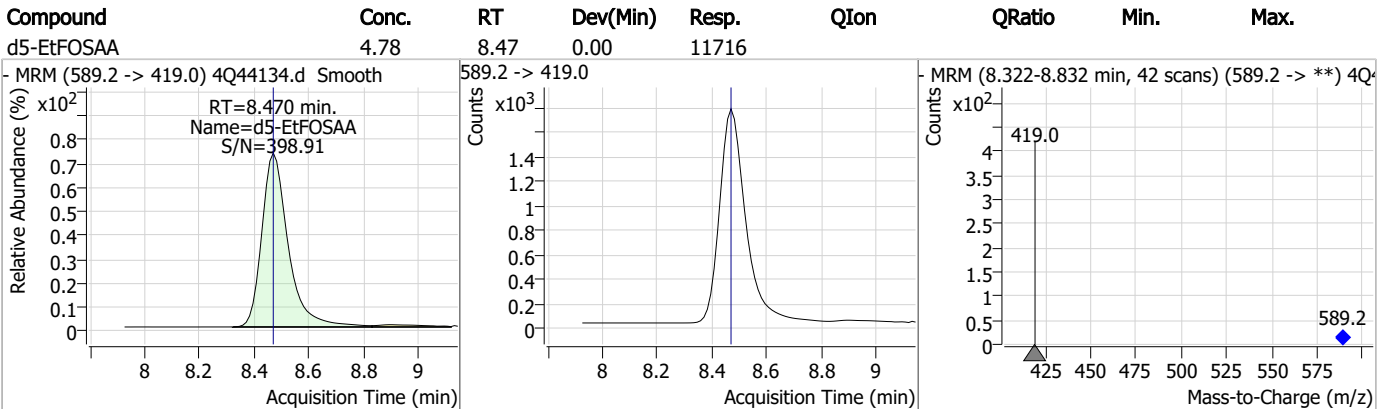
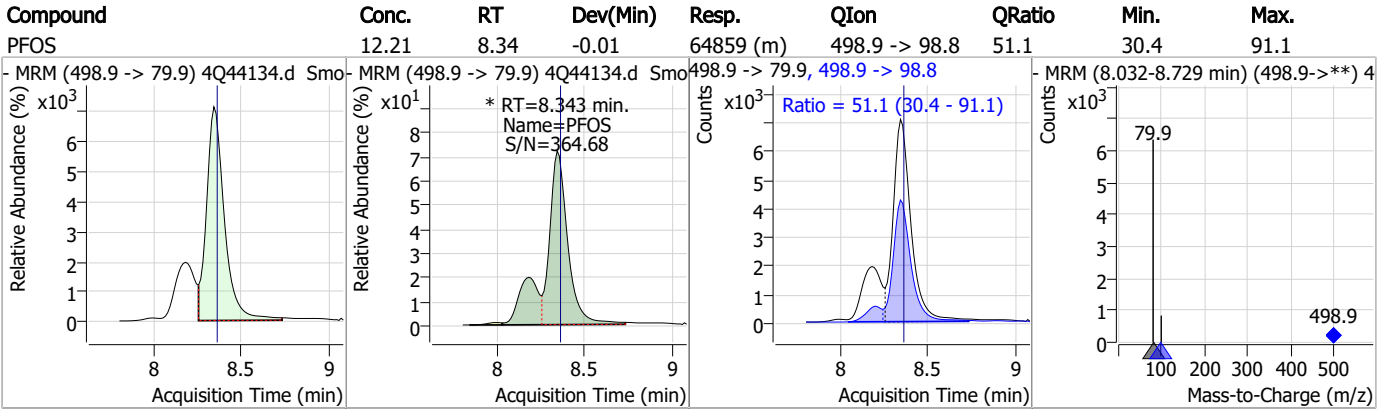


# Perfluorinated Compounds by LC/MS/MS



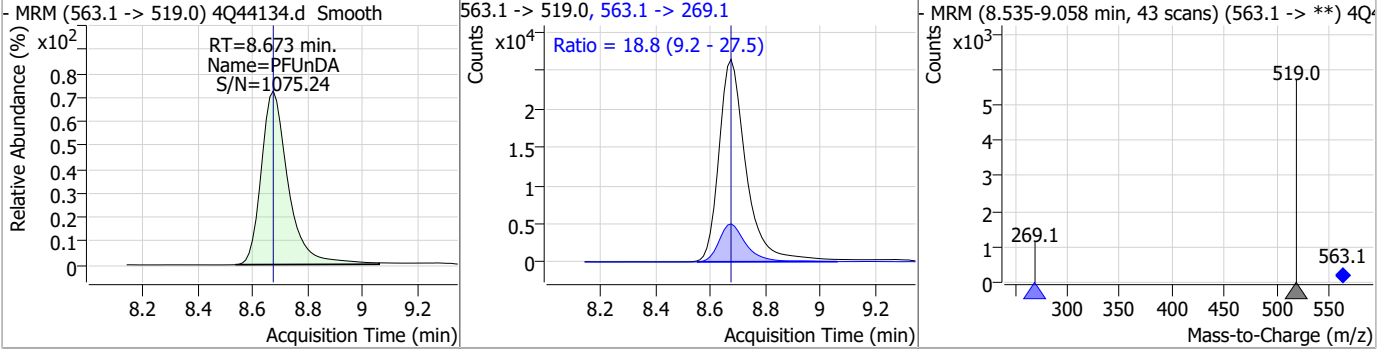


# Perfluorinated Compounds by LC/MS/MS

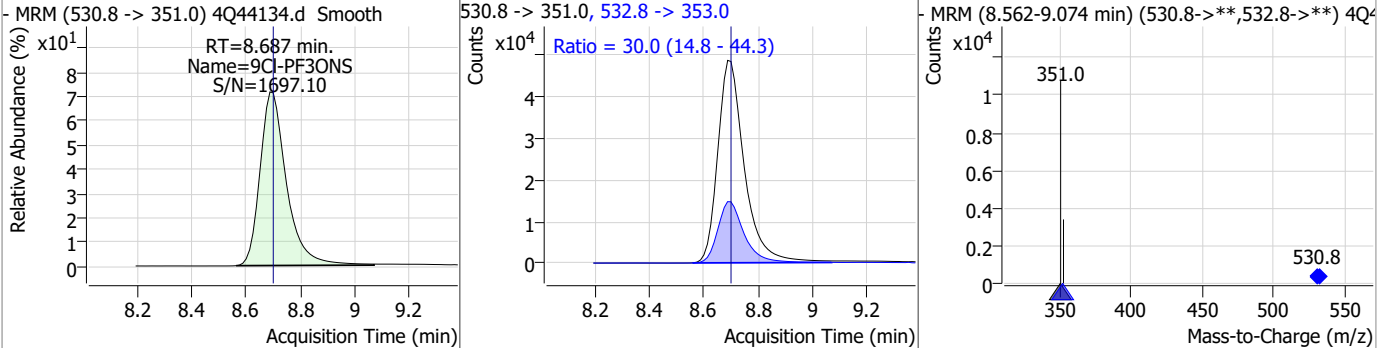


# Perfluorinated Compounds by LC/MS/MS

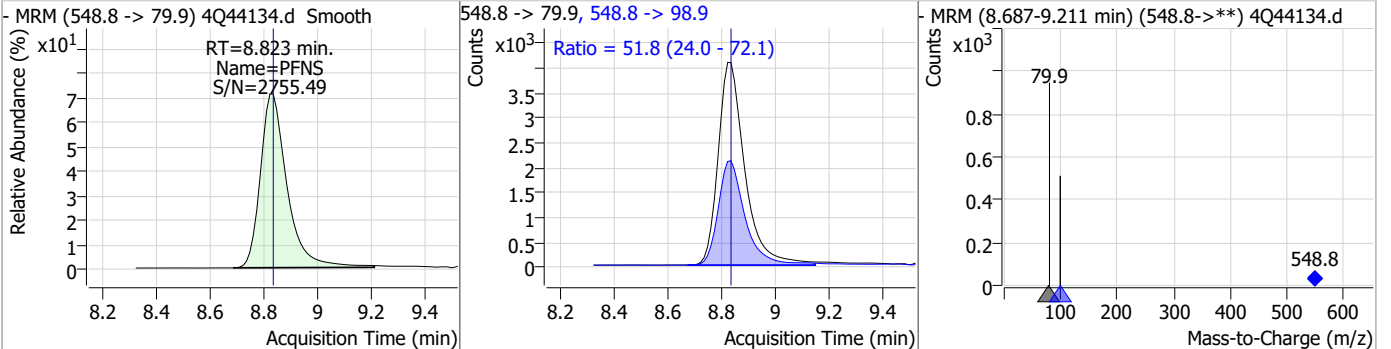
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	13.49	8.67	0.00	179283	563.1 -> 269.1	18.8	9.2	27.5



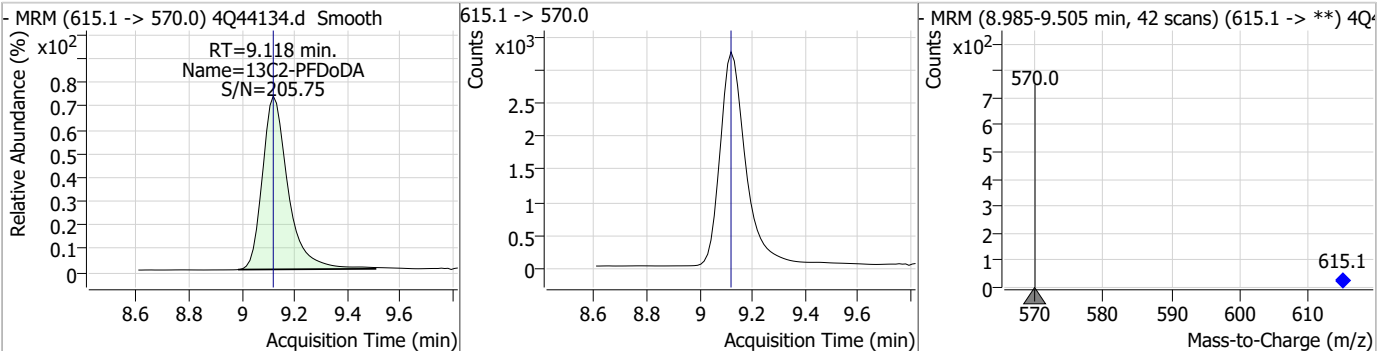
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	27.02	8.69	-0.01	332037	532.8 -> 353.0	30.0	14.8	44.3



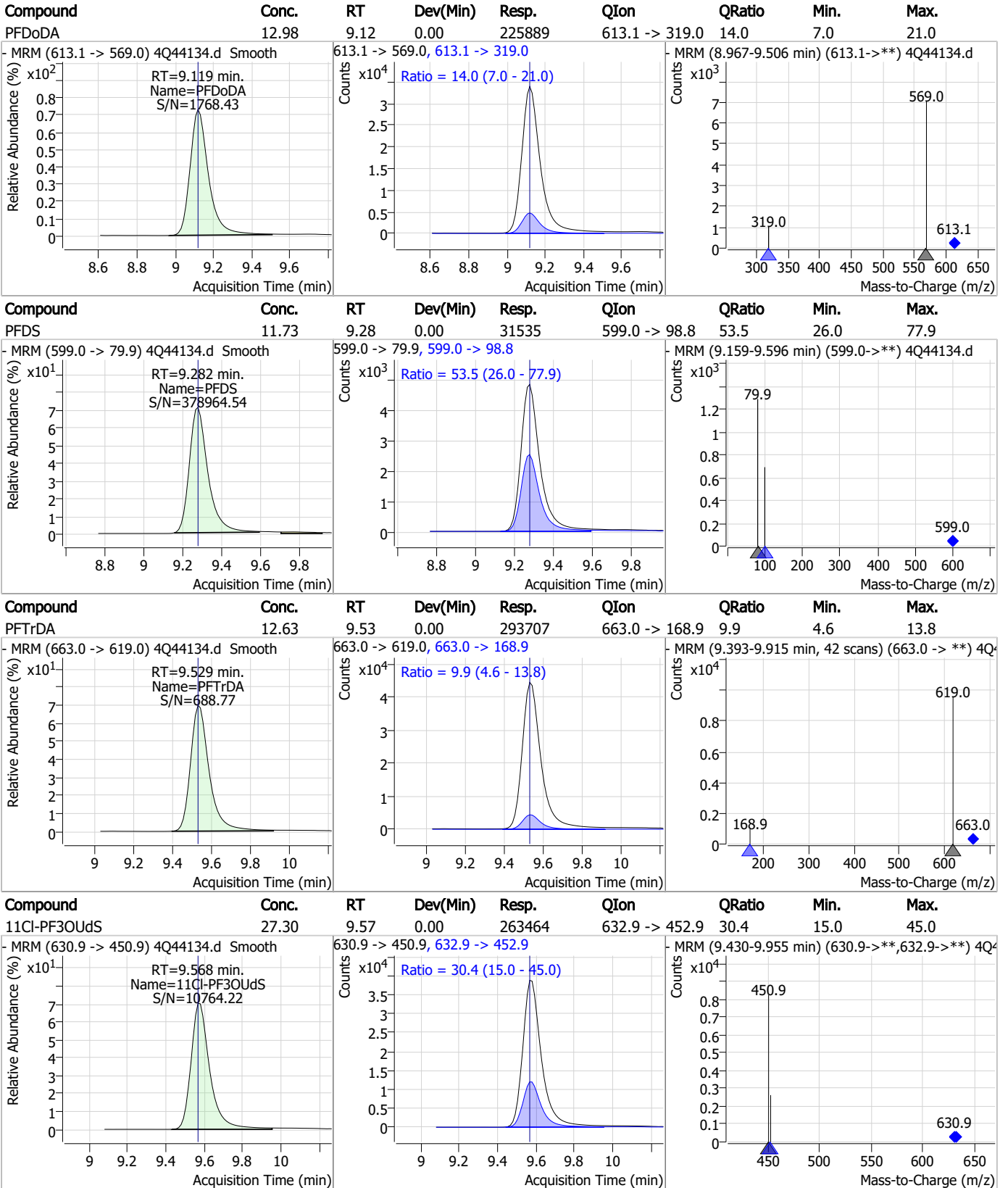
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	11.80	8.82	-0.01	27959	548.8 -> 98.9	51.8	24.0	72.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.29	9.12	0.00	21690	615.1 -> 570.0			



# Perfluorinated Compounds by LC/MS/MS

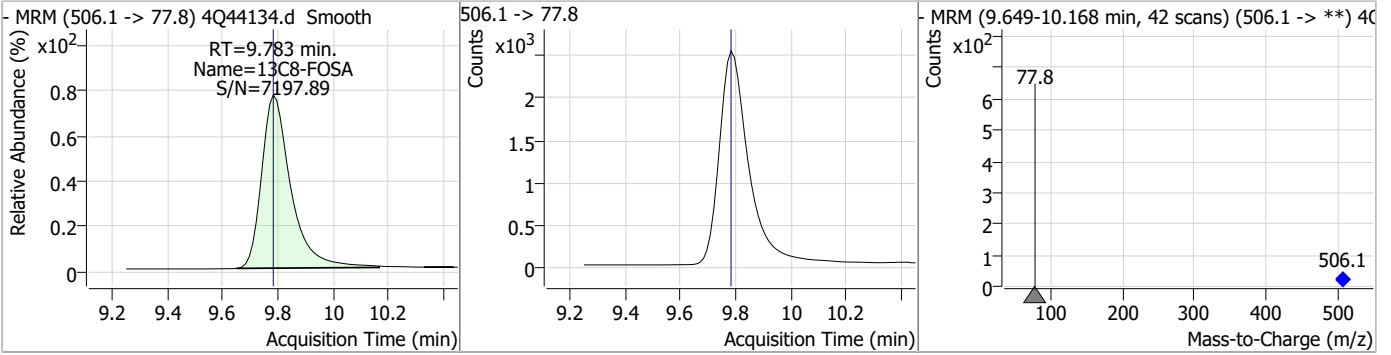


7.6.4

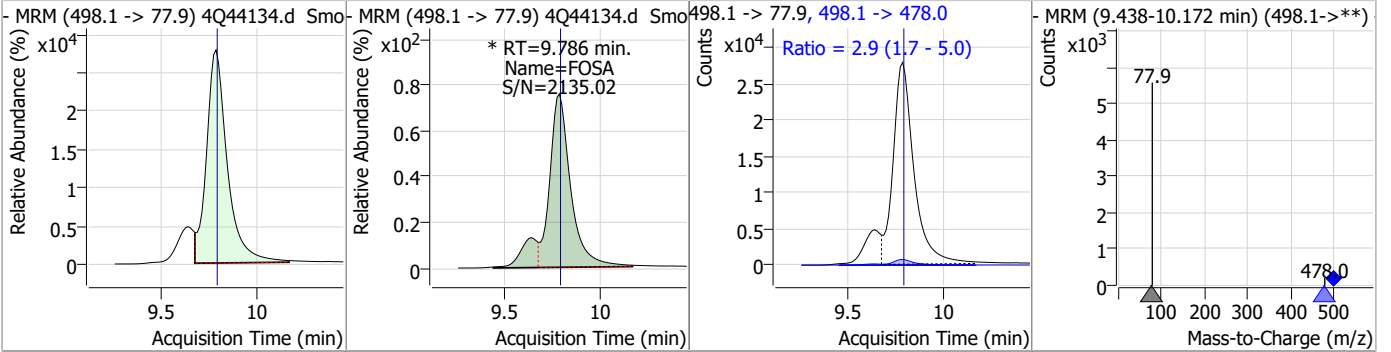
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# Perfluorinated Compounds by LC/MS/MS

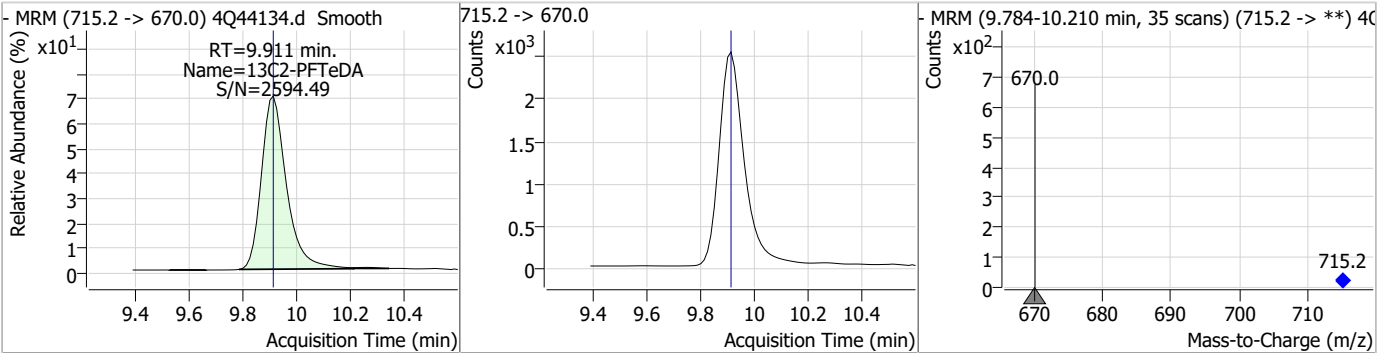
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.49	9.78	0.00	18380				



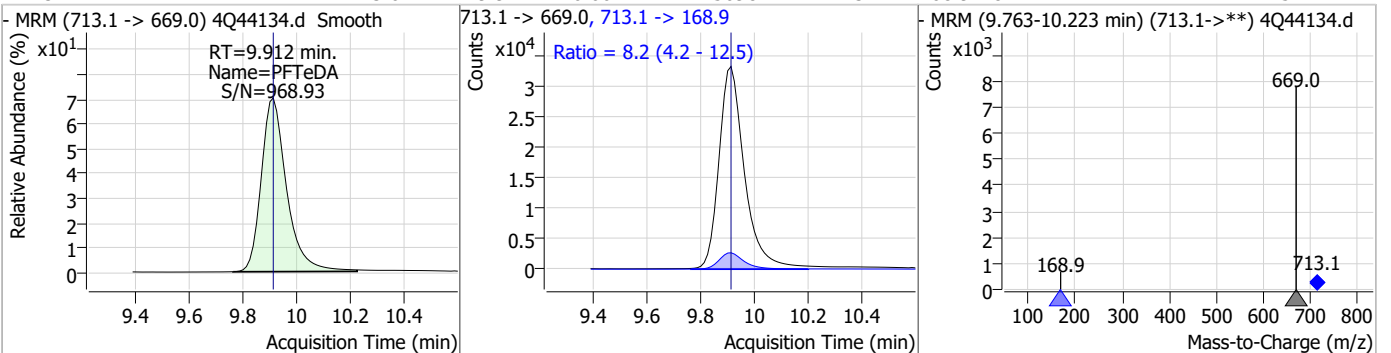
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	31.53	9.79	0.00	242817 (m)	498.1 -> 478.0	2.9	1.7	5.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.17	9.91	0.00	16079				

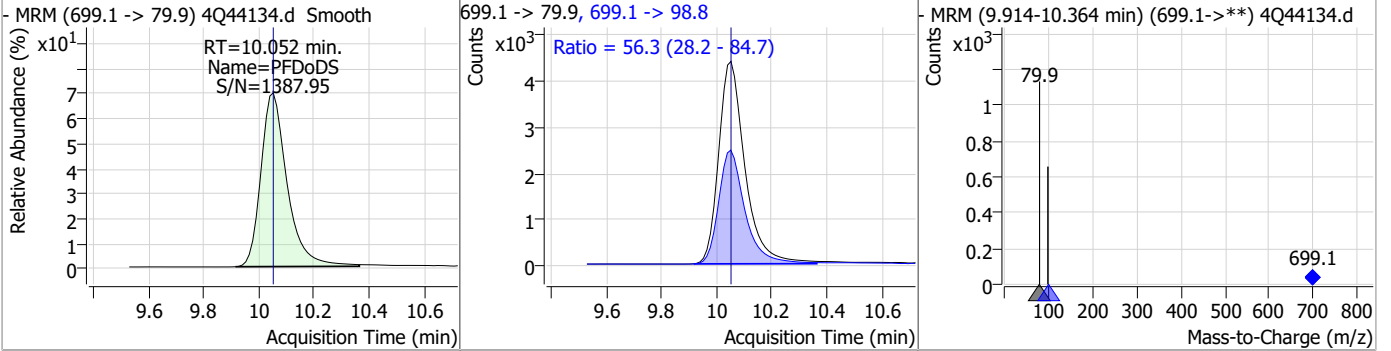


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.67	9.91	0.00	215098	713.1 -> 168.9	8.2	4.2	12.5

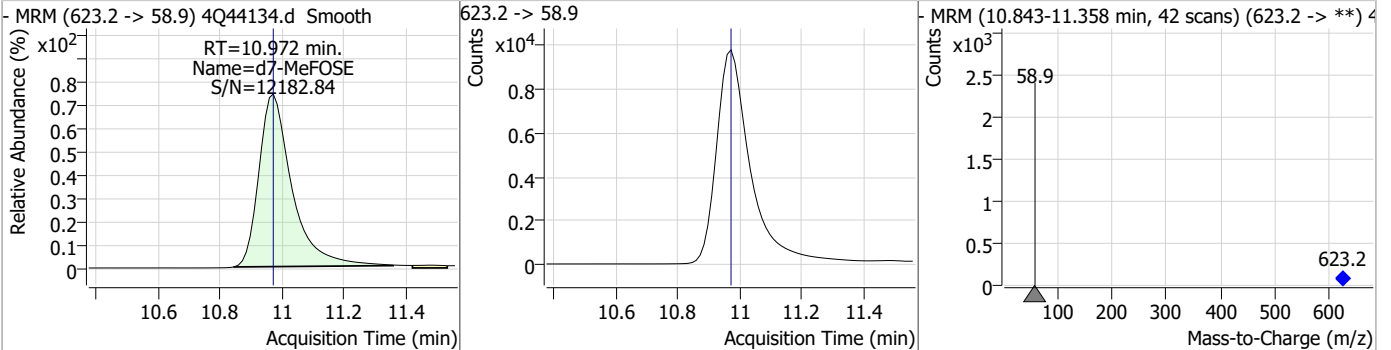


# Perfluorinated Compounds by LC/MS/MS

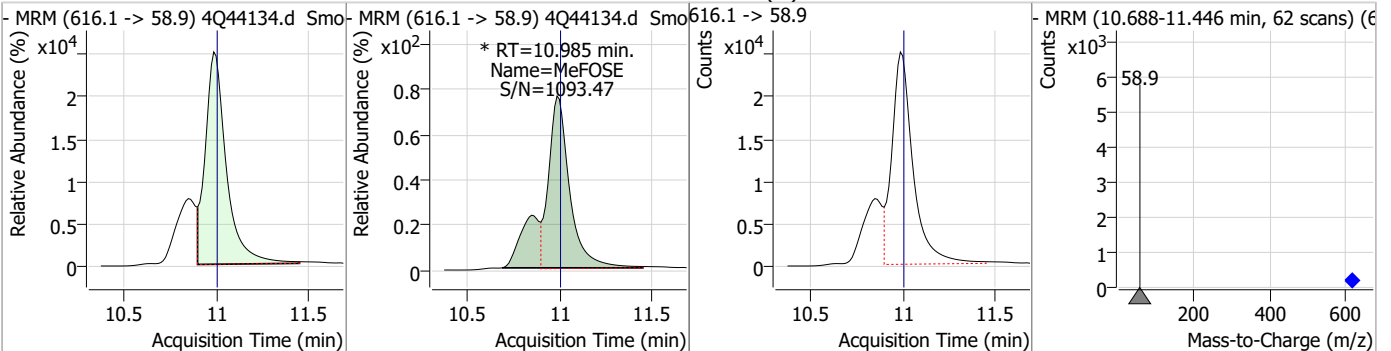
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	12.06	10.05	0.00	28924	699.1 -> 98.8	56.3	28.2	84.7



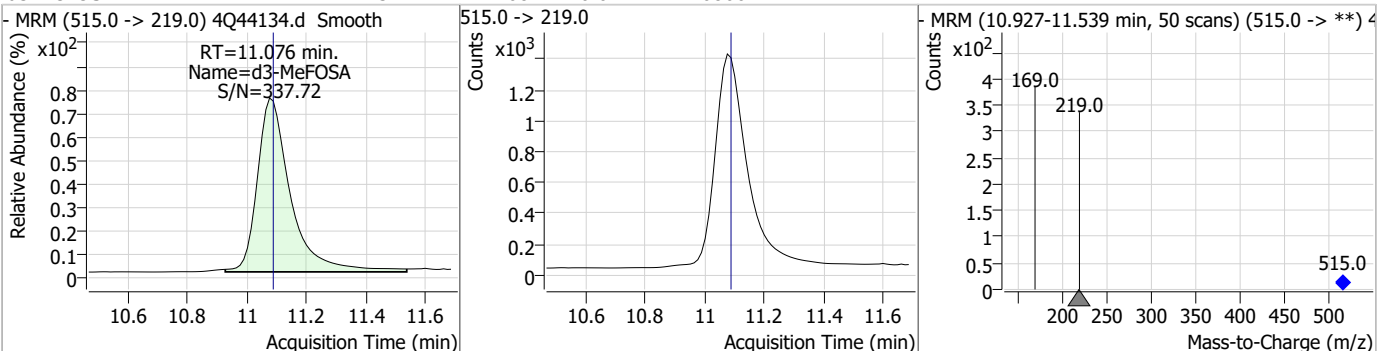
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.46	10.97	0.00	71352				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	85.88	10.99	-0.01	251690 (m)				

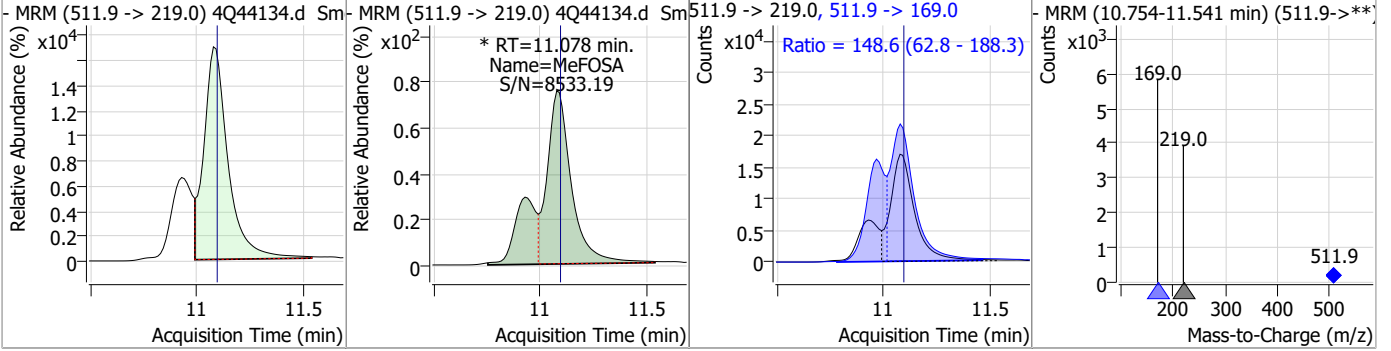


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.34	11.08	-0.01	10806				

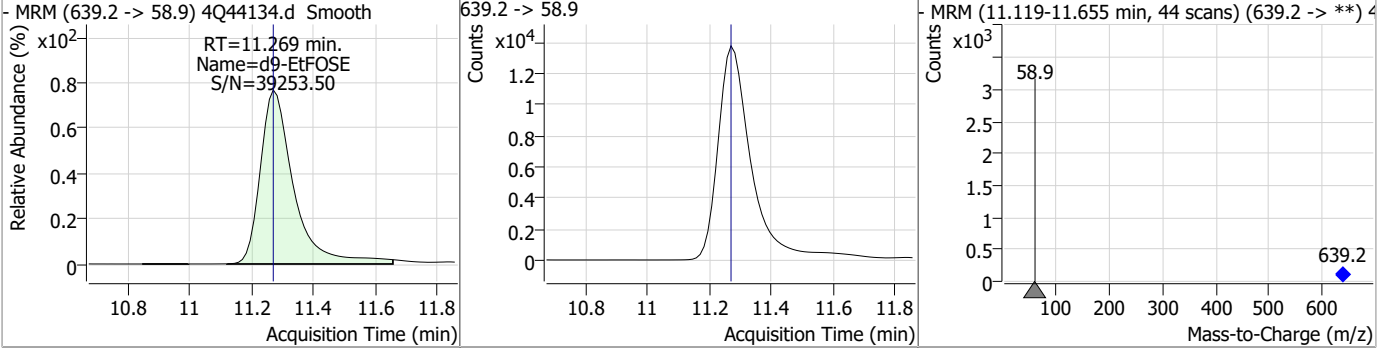


# Perfluorinated Compounds by LC/MS/MS

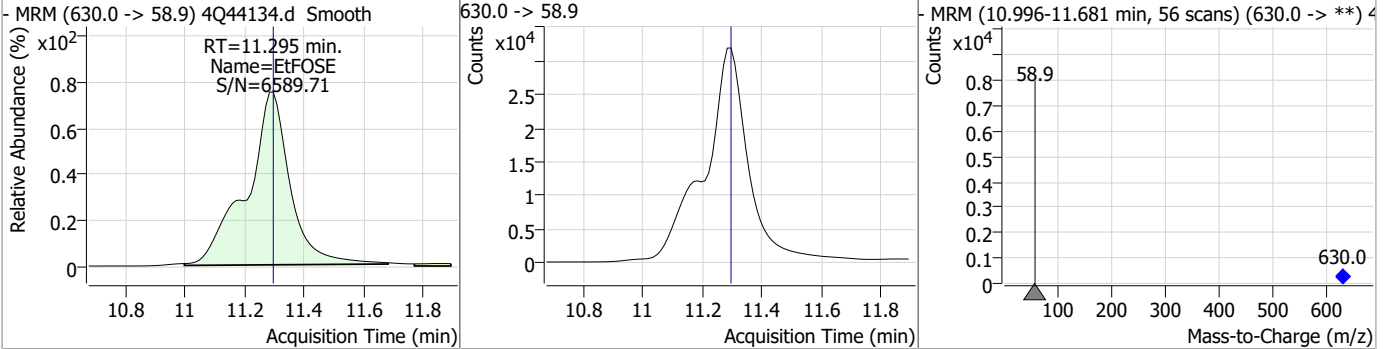
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	44.36	11.08	-0.01	180575 (m)	511.9 -> 169.0	148.6	62.8	188.3



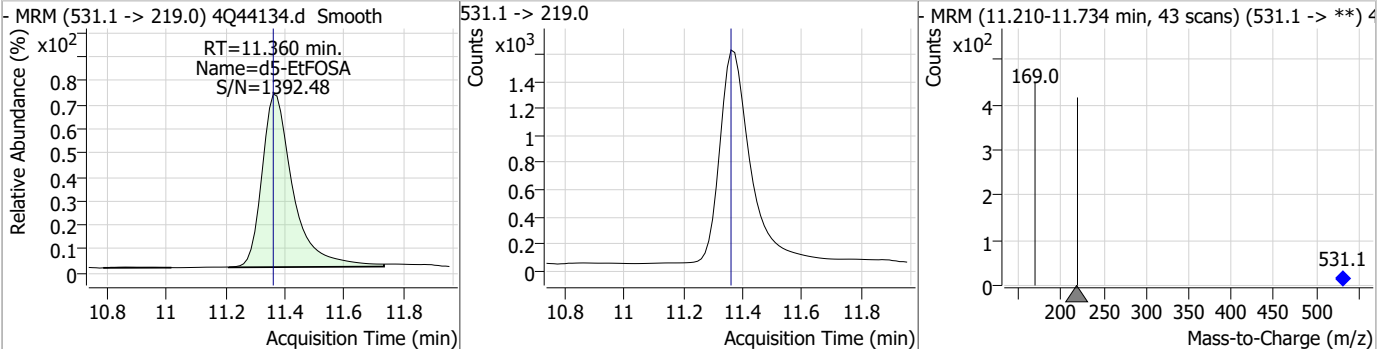
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.74	11.27	0.00	102479				



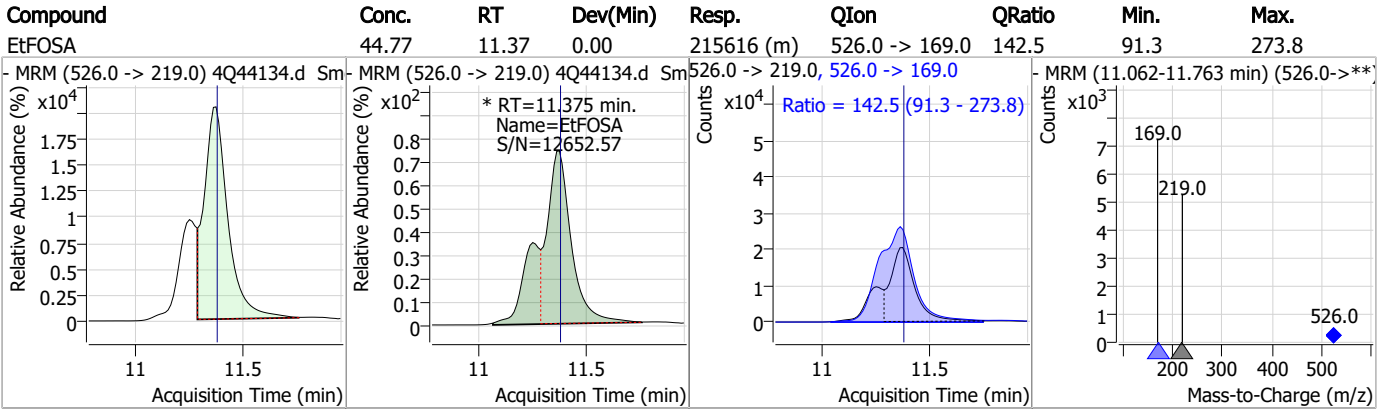
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	81.38	11.29	0.00	322867				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.34	11.36	0.00	11496				



# Perfluorinated Compounds by LC/MS/MS



7.6.4

7

# Manual Integration Approval Summary

Sample Number: S4Q639-RT                      Method: EPA DRAFT 1633  
Lab FileID: 4Q44134.D                      Analyst approved: 05/10/23 11:10 Martha Valls  
Injection Time: 05/09/23 13:42                      Supervisor approved: 05/10/23 17:21 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.15	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorononanoic acid	375-95-1		7.70	Split peak
MeFOSAA	2355-31-9		8.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
PFOSA	754-91-6		9.79	Split peak
MeFOSE	24448-09-7		10.98	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.6.4.1  
7



Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)  
 Norman Farmer  
 05/16/23 09:33

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17735.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 11:31:59 AM  
 Sample Name : RT TDCA  
 Vial : P1-B3  
 DA Method File : TDCA.quantmethod.xml  
 Batch Name : s6q268\_TDCA.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

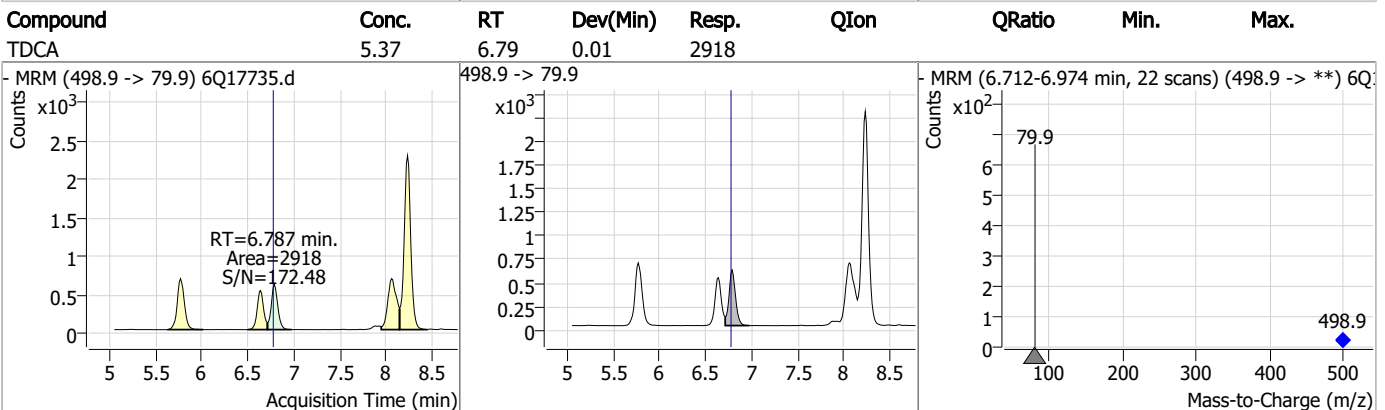
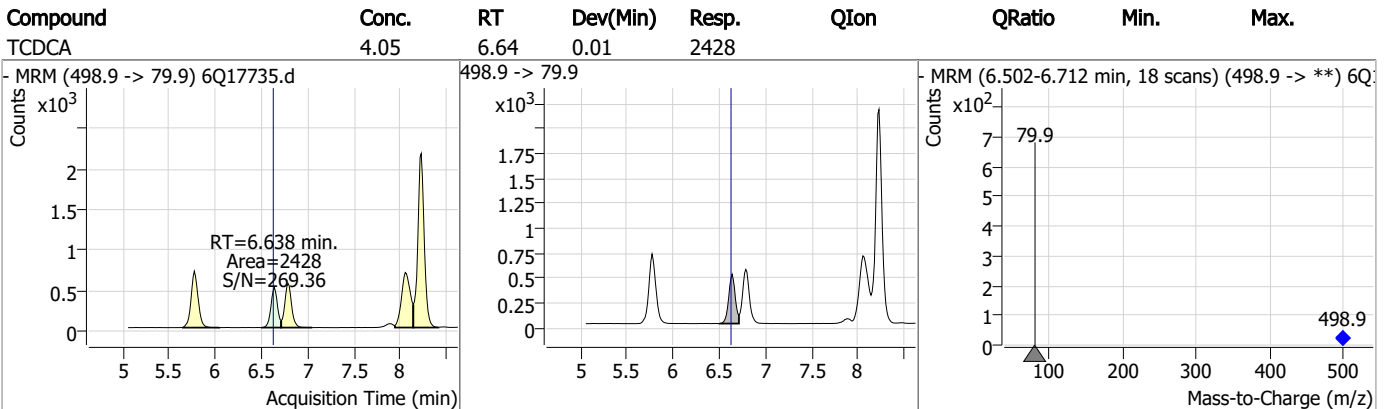
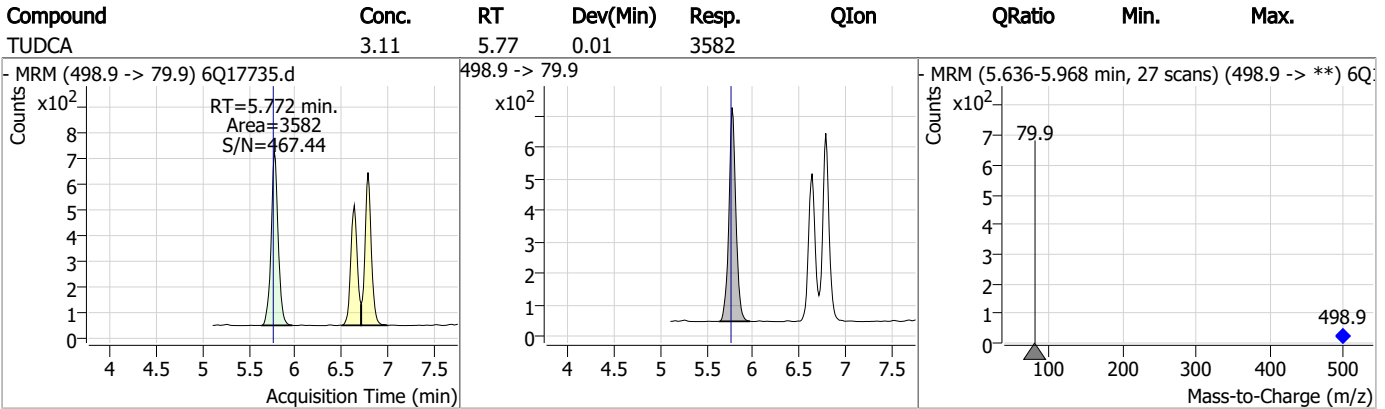
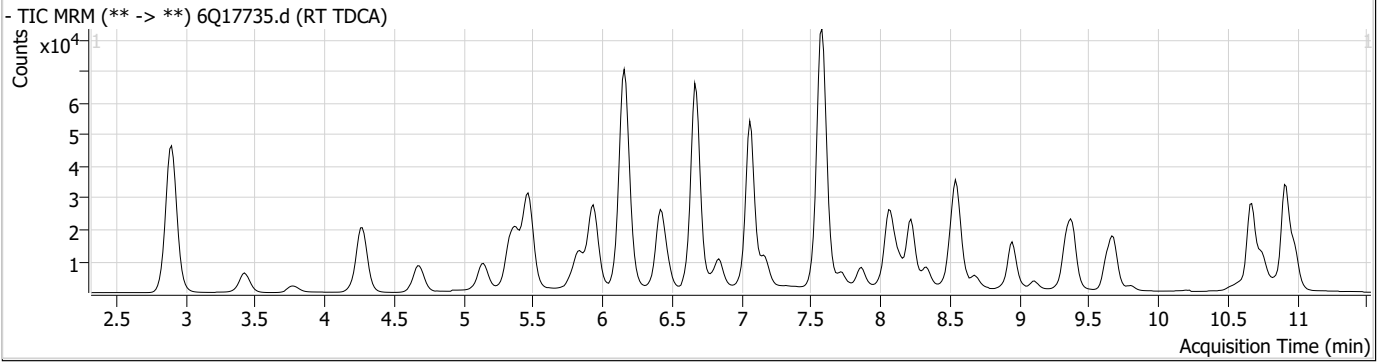
Compound	RT	Transition	Response	Conc. Units	Dev(Min)	QValue
<b>Internal Standards</b>						
M8-PFOS	8.226	507.1 -> 79.9	13002	2.50 µg/L	-0.012	
13C4-PFOS	8.227	502.8 -> 79.9	18368	2.50 µg/L	-0.012	
<b>System Monitoring Compounds</b>						
13C8-PFOS	8.226	507.1 -> 79.9	13002	1.80 µg/L	-0.012	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 71.8%			
<b>Target Compounds</b>						
PFOS	8.228	498.9 -> 79.9 498.9 -> 98.8	16353 7613	3.68 µg/L	m	76
TCDCa	6.638	498.9 -> 79.9	2428	4.05 ng/ml		100
TDCA	6.787	498.9 -> 79.9	2918	5.37 ng/ml		100
TUDCA	5.772	498.9 -> 79.9	3582	3.11 ng/ml		100

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

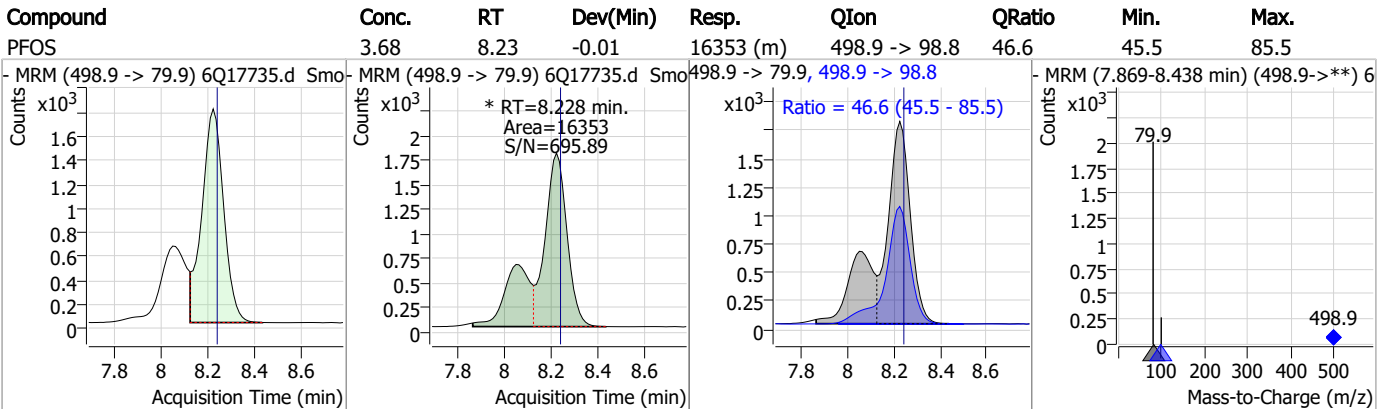
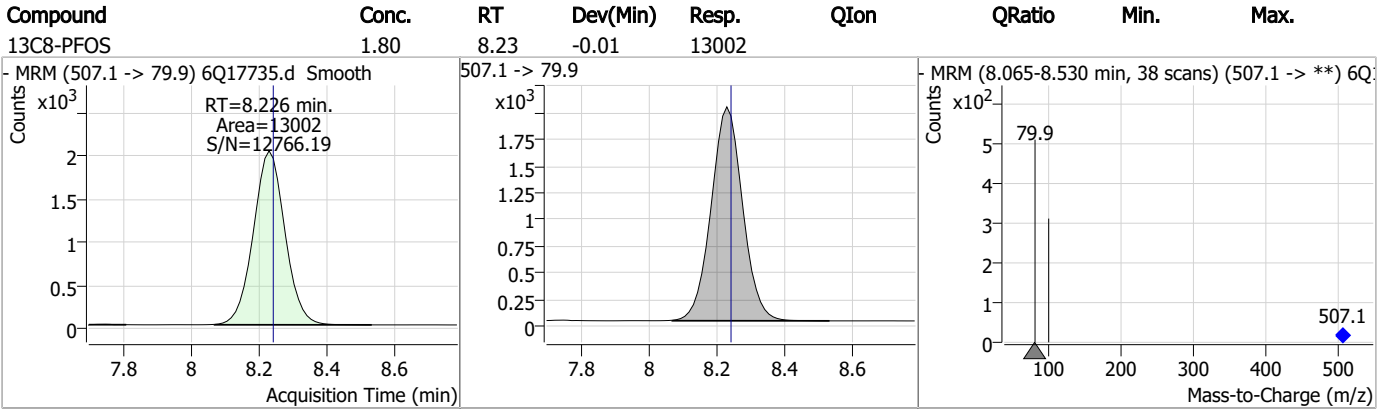
7.6.5

7

### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.6.5  
7



# Manual Integration Approval Summary

Sample Number: S6Q268-RT                      Method: EPA DRAFT 1633  
Lab FileID: 6Q17735.D                      Analyst approved: 05/15/23 12:43 Martha Valls  
Injection Time: 05/12/23 11:31                      Supervisor approved: 05/16/23 09:33 Norman Farmer

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

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17736.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 11:46:27 AM  
 Sample Name : RT BR-LN  
 Vial : P1-B4  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	151901	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	49292	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	55451	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	48149	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	73350	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	23791	1.25 µg/L	0.012
M6-PFDA	8.064	519.1 -> 474.1	17361	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	22333	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	22885	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14428	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	22123	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	17493	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10435	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9401	2.50 µg/L	0.000
M2-4:2FTS	5.131	329.1 -> 80.9	1651	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	1878	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2208	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	21077	5.00 µg/L	0.000
M3-HFPO-DA	5.831	286.9 -> 168.9	33282	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	17223	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	76265	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	85919	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8536	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7582	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	13190	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	64589	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8619	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	73511	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	20607	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	25781	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	46545	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.131	329.1 -> 80.9	1651	5.03 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1878	4.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.8%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2208	4.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFDoDA	8.949	615.1 -> 570.0	22885	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14428	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C3-PFBS	5.397	302.1 -> 79.9	17493	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C3-PFHxS	7.179	402.1 -> 79.9	10435	2.27 µg/L	0.012

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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.9%	
13C4-PFBA	2.901	216.8 -> 171.9	151901	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.420	367.1 -> 322.0	48149	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C5-PFHxA	5.466	318.0 -> 273.0	55451	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C5-PFPeA	4.272	268.3 -> 223.0	49292	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C6-PFDA	8.064	519.1 -> 474.1	17361	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C7-PFUnDA	8.518	570.0 -> 525.1	22333	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C8-FOSA	9.648	506.1 -> 77.8	22123	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-PFOA	7.064	421.1 -> 376.0	73350	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C8-PFOS	8.226	507.1 -> 79.9	9401	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.6%	
13C9-PFNA	7.595	472.1 -> 427.0	23791	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.9%	
d3-MeFOSAA	8.133	573.2 -> 419.0	21077	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	33282	9.77 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d3-MeFOSA	10.752	515.0 -> 219.0	7582	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
d5-EtFOSAA	8.329	589.2 -> 419.0	17223	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
d7-MeFOSE	10.672	623.2 -> 58.9	76265	23.47 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
d9-EtFOSE	10.907	639.2 -> 58.9	85919	21.89 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.5%	
d5-EtFOSA	10.984	531.1 -> 219.0	8536	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.8%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.144	327.1 -> 307.0	109960	44.30 µg/L	98
		327.1 -> 80.9	42286		
6:2FTS	6.838	427.1 -> 407.0	109261	53.46 µg/L	96
		427.1 -> 80.9	33178		
8:2FTS	7.865	527.1 -> 507.0	63822	50.86 µg/L	90
		527.1 -> 80.8	22101		
EtFOSAA	8.330	584.2 -> 419.1	33290	10.38 µg/L	97
		584.2 -> 526.0	18241		
FOSA	9.639	498.1 -> 77.9	221944	26.80 µg/L	99
		498.1 -> 478.0	6584		
MeFOSAA	8.134	570.1 -> 419.0	47731	11.70 µg/L	97
		570.1 -> 483.0	8714		
PFBA	2.907	212.8 -> 168.9	267191	49.03 µg/L	100
PFBS	5.398	298.7 -> 79.9	96371	11.29 µg/L	94
		298.7 -> 98.8	38421		
PFDA	8.076	512.9 -> 469.0	277451	12.92 µg/L	96
		512.9 -> 219.0	41380		
PFDoDA	8.950	613.1 -> 569.0	211358	11.59 µg/L	100
		613.1 -> 319.0	28972		
PFDS	9.113	599.0 -> 79.9	36226	11.87 µg/L	98

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	18185			
PFHpA	6.420	363.1 -> 319.0	308662	12.83	µg/L	97
		363.1 -> 169.0	45812			
PFHpS	7.735	449.0 -> 79.9	55966	11.16	µg/L	91
		449.0 -> 98.9	32838			
PFHxA	5.469	313.0 -> 269.0	271101	12.34	µg/L	99
		313.0 -> 118.9	12141			
PFHxS	7.180	398.7 -> 79.9	69332	12.00	µg/L	m 97
		398.7 -> 98.9	32923			
PFNA	7.458	463.0 -> 419.0	505392	28.59	µg/L	m 99
		463.0 -> 219.0	106848			
PFNS	8.693	548.8 -> 79.9	56617	12.45	µg/L	94
		548.8 -> 98.9	30333			
PFOA	7.066	413.0 -> 369.0	873695	23.94	µg/L	m 96
		413.0 -> 169.0	161757			
PFOS	8.228	498.9 -> 79.9	54356	11.03	µg/L	m 100
		498.9 -> 98.8	29145			
PFPeA	4.274	263.0 -> 219.0	353590	24.84	µg/L	100
PFPeS	6.471	349.1 -> 79.9	71332	12.45	µg/L	96
		349.1 -> 98.9	34051			
PFTeDA	9.677	713.1 -> 669.0	197921	13.40	µg/L	98
		713.1 -> 168.9	13431			
PFTrDA	9.333	663.0 -> 619.0	239049	11.31	µg/L	97
		663.0 -> 168.9	20831			
PFUnDA	8.518	563.1 -> 519.0	204895	12.63	µg/L	99
		563.1 -> 269.1	31124			
11CI-PF3OUdS	9.385	630.9 -> 450.9	301718	23.99	µg/L	96
		632.9 -> 452.9	90112			
9CI-PF3ONS	8.557	530.8 -> 351.0	481189	23.95	µg/L	97
		532.8 -> 353.0	145704			
ADONA	6.683	376.9 -> 250.9	1324425	24.99	µg/L	96
		376.9 -> 84.8	340401			
HFPO-DA	5.845	284.9 -> 168.9	79992	24.86	µg/L	99
		284.9 -> 184.9	10480			
3:3FTCA	3.777	241.0 -> 177.0	53627	60.80	µg/L	99
		241.0 -> 117.0	6872			
5:3FTCA	6.161	341.0 -> 237.1	1124444	295.46	µg/L	99
		341.0 -> 217.0	808988			
7:3FTCA	7.586	441.0 -> 316.9	530912	307.50	µg/L	97
		441.0 -> 336.9	1086300			
EtFOSA	10.986	526.0 -> 219.0	166534	45.07	µg/L	93
		526.0 -> 169.0	220424			
EtFOSE	10.932	630.0 -> 58.9	339000	90.54	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	149837	42.92	µg/L	m 99
		511.9 -> 169.0	197450			
MeFOSE	10.686	616.1 -> 58.9	291620	81.74	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	20588	12.76	µg/L	97
		699.1 -> 98.8	11201			
NFDHA	5.348	295.0 -> 201.0	59587	24.57	µg/L	97
		295.0 -> 84.9	15349			
PFMBA	4.675	279.0 -> 85.1	248378	24.45	µg/L	100
PFMPA	3.426	229.0 -> 84.9	180924	24.73	µg/L	100
PFEESA	5.938	314.8 -> 134.9	636876	21.59	µg/L	100
		314.8 -> 82.9	22478			

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

# Perfluorinated Compounds by LC/MS/MS

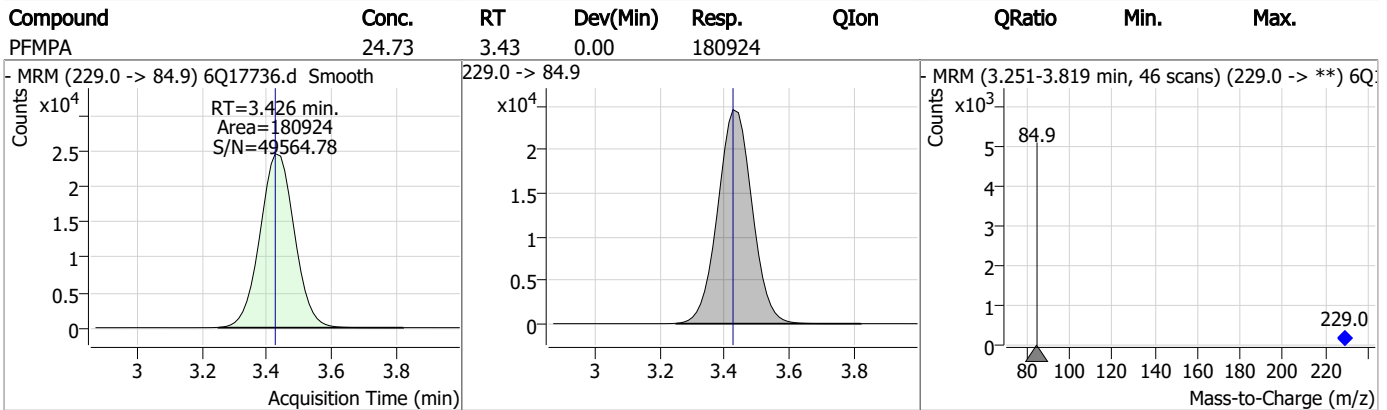
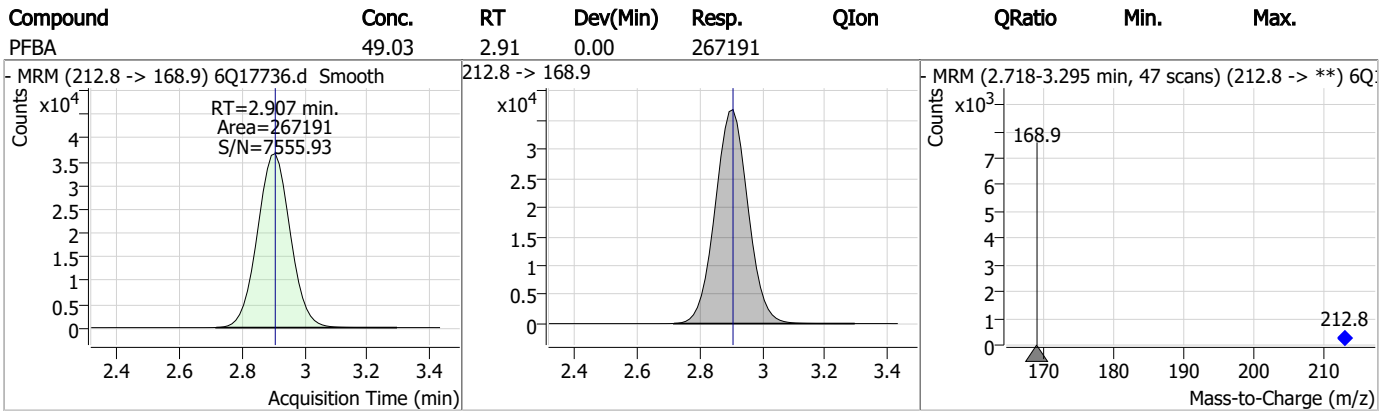
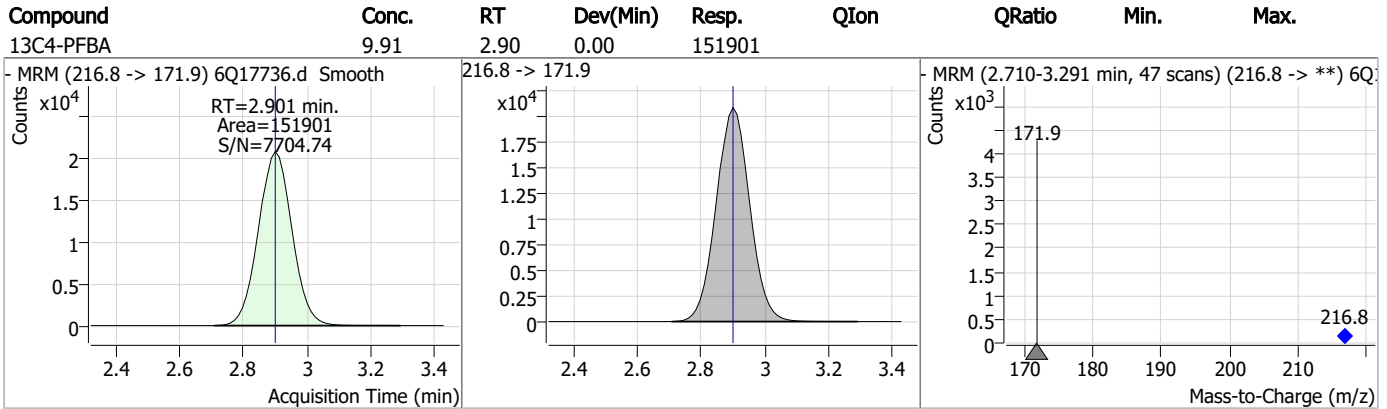
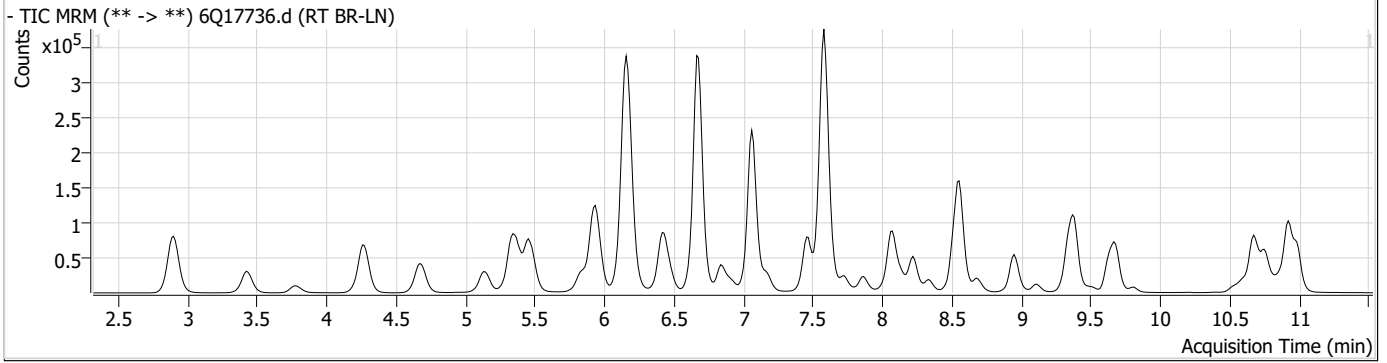
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.6

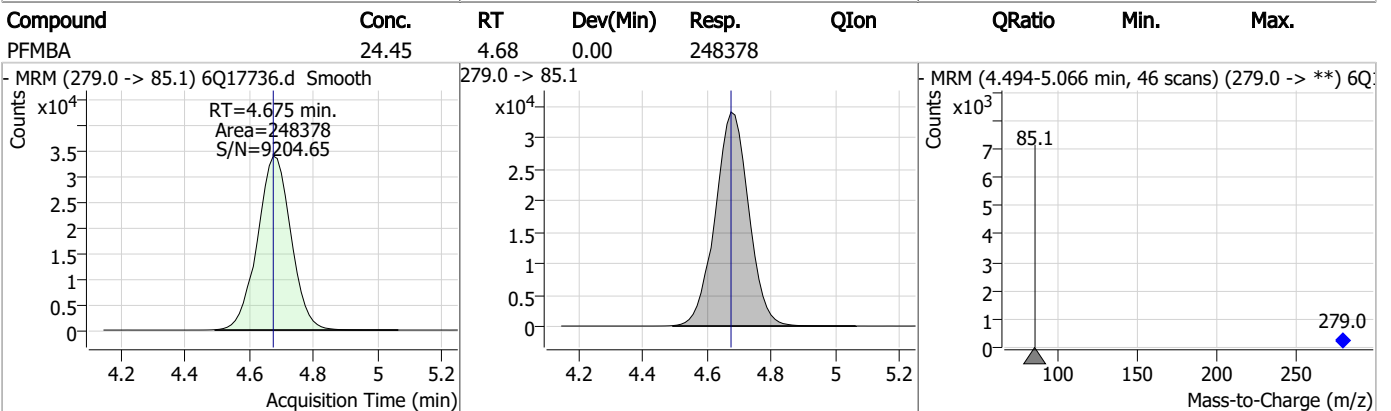
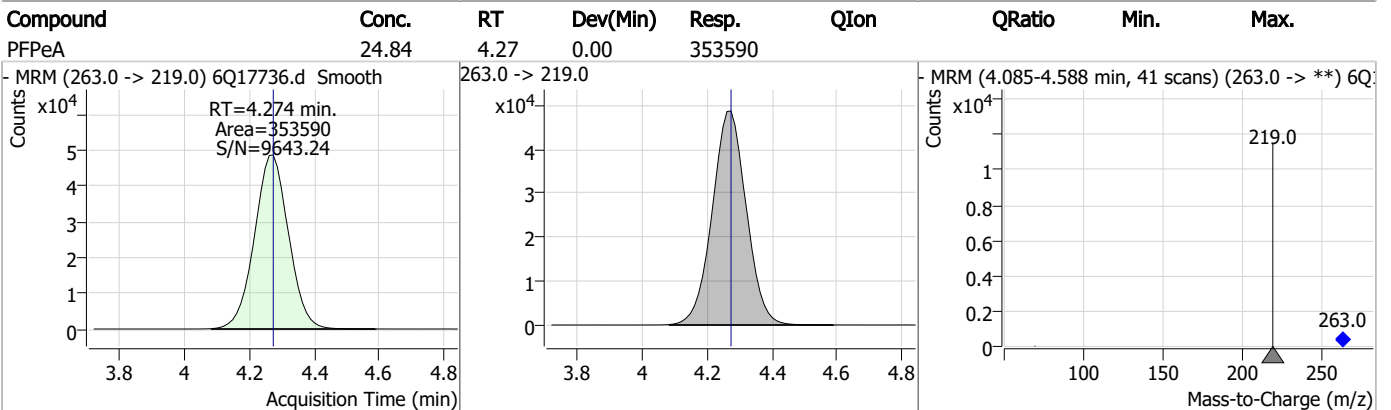
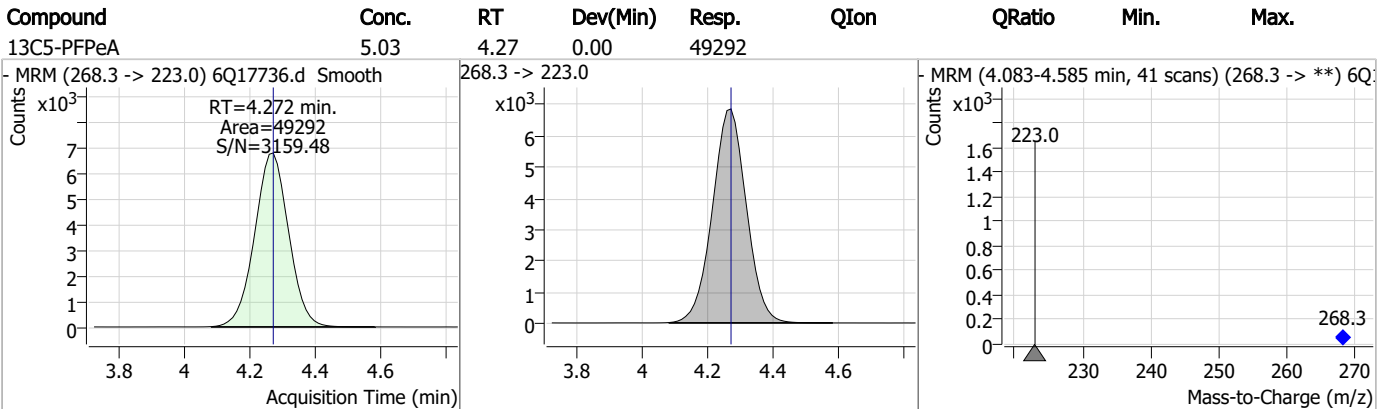
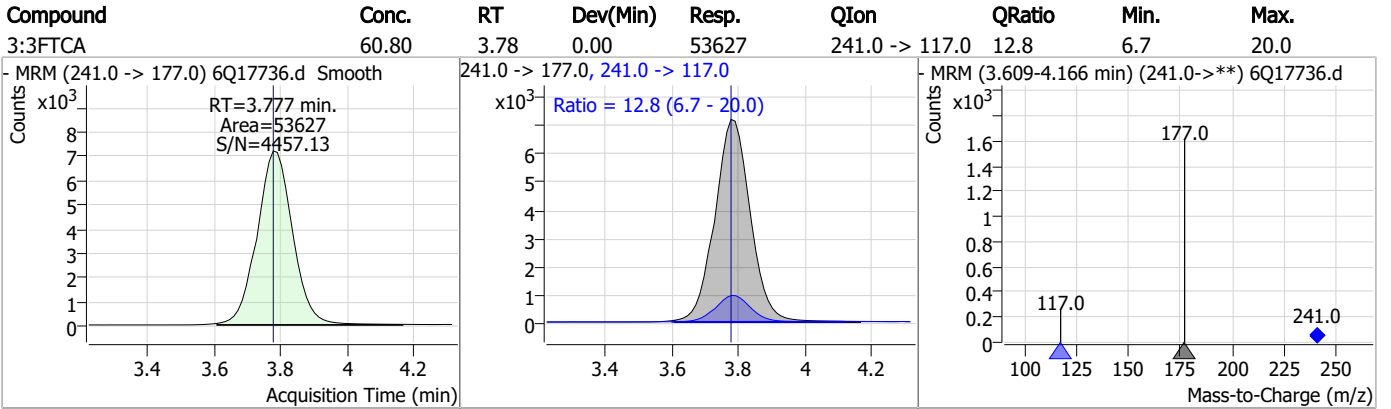
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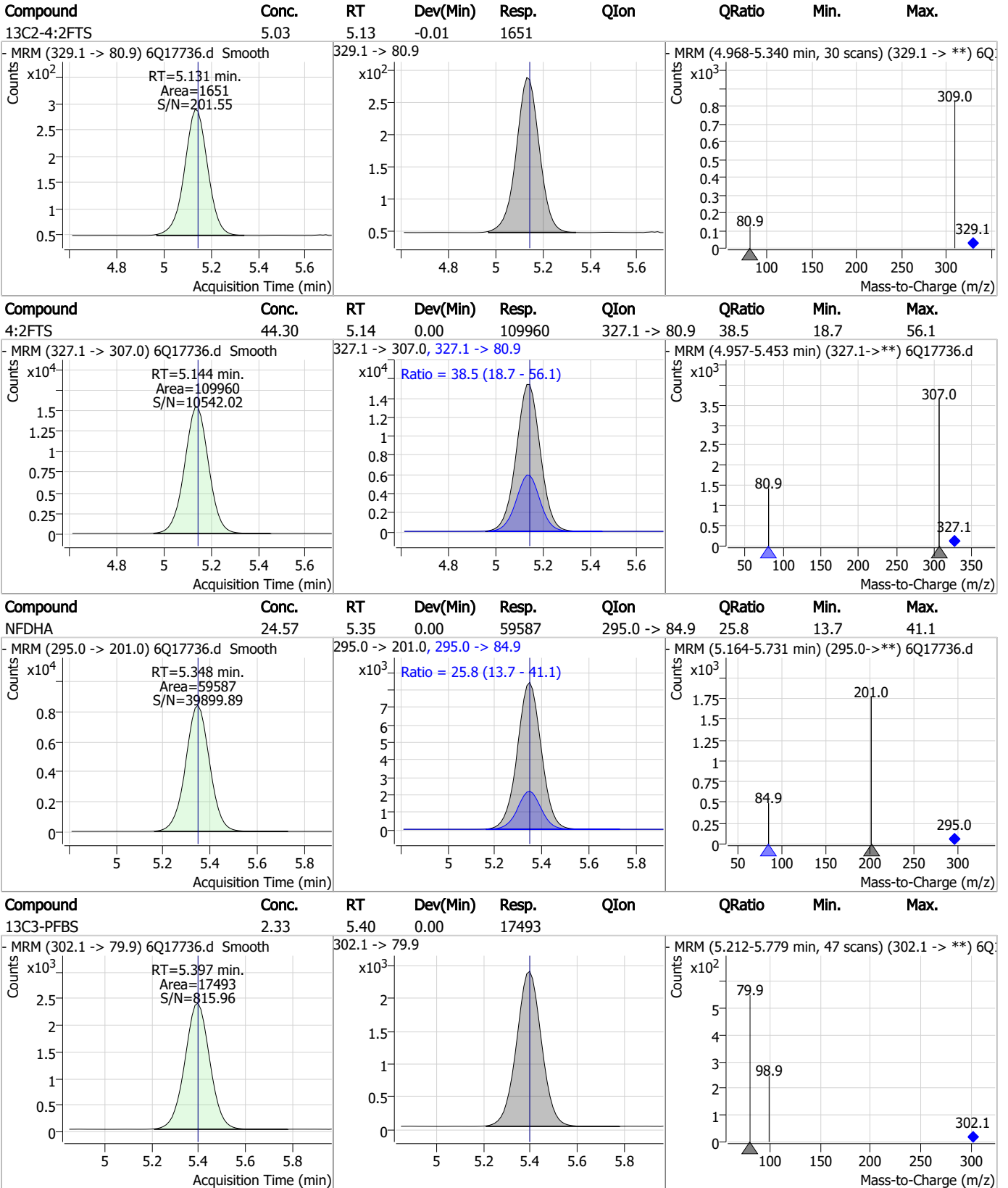
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



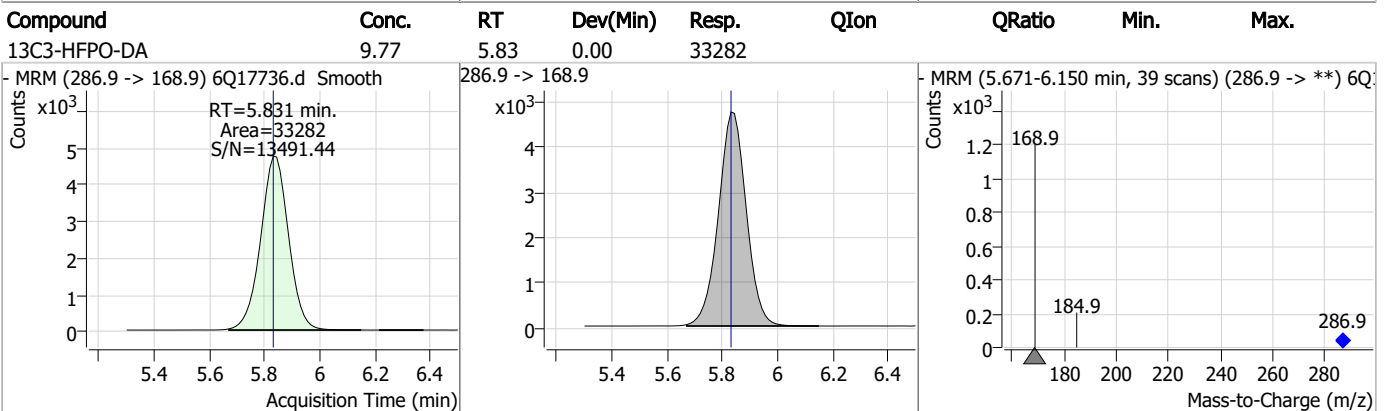
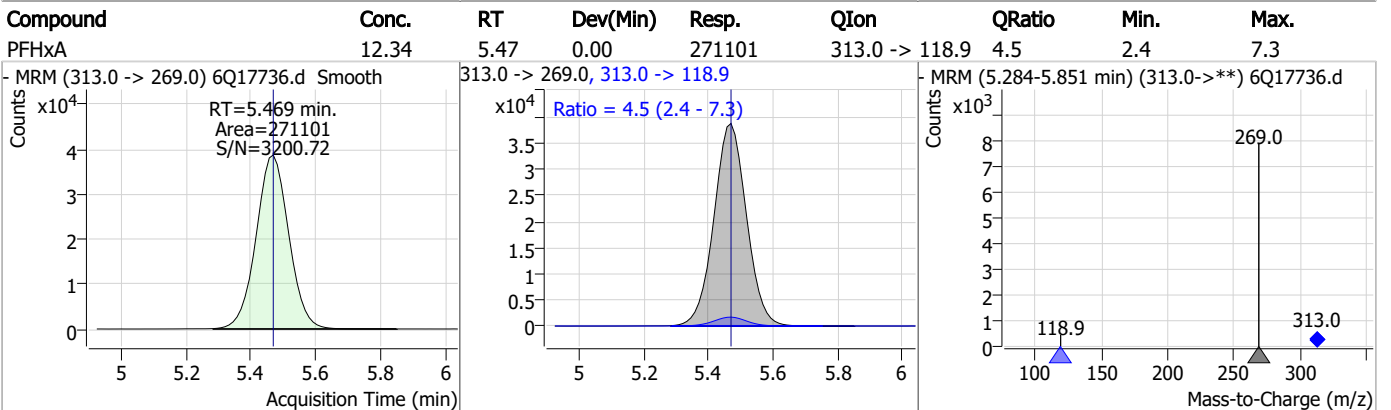
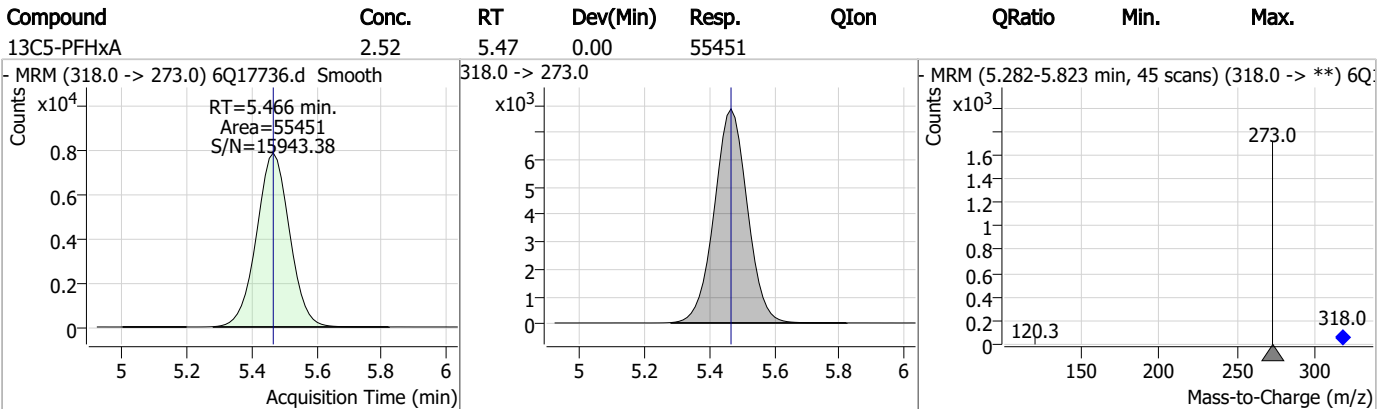
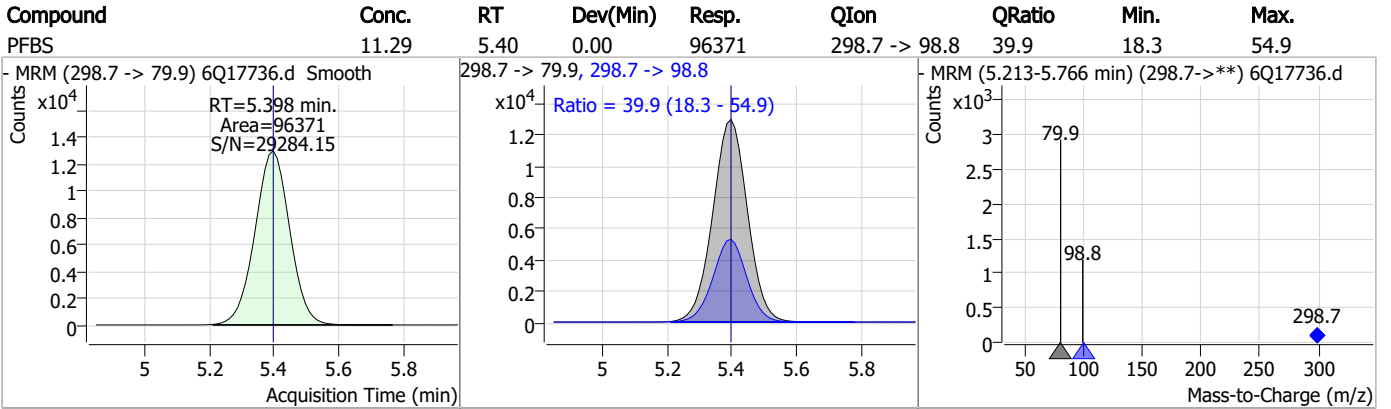
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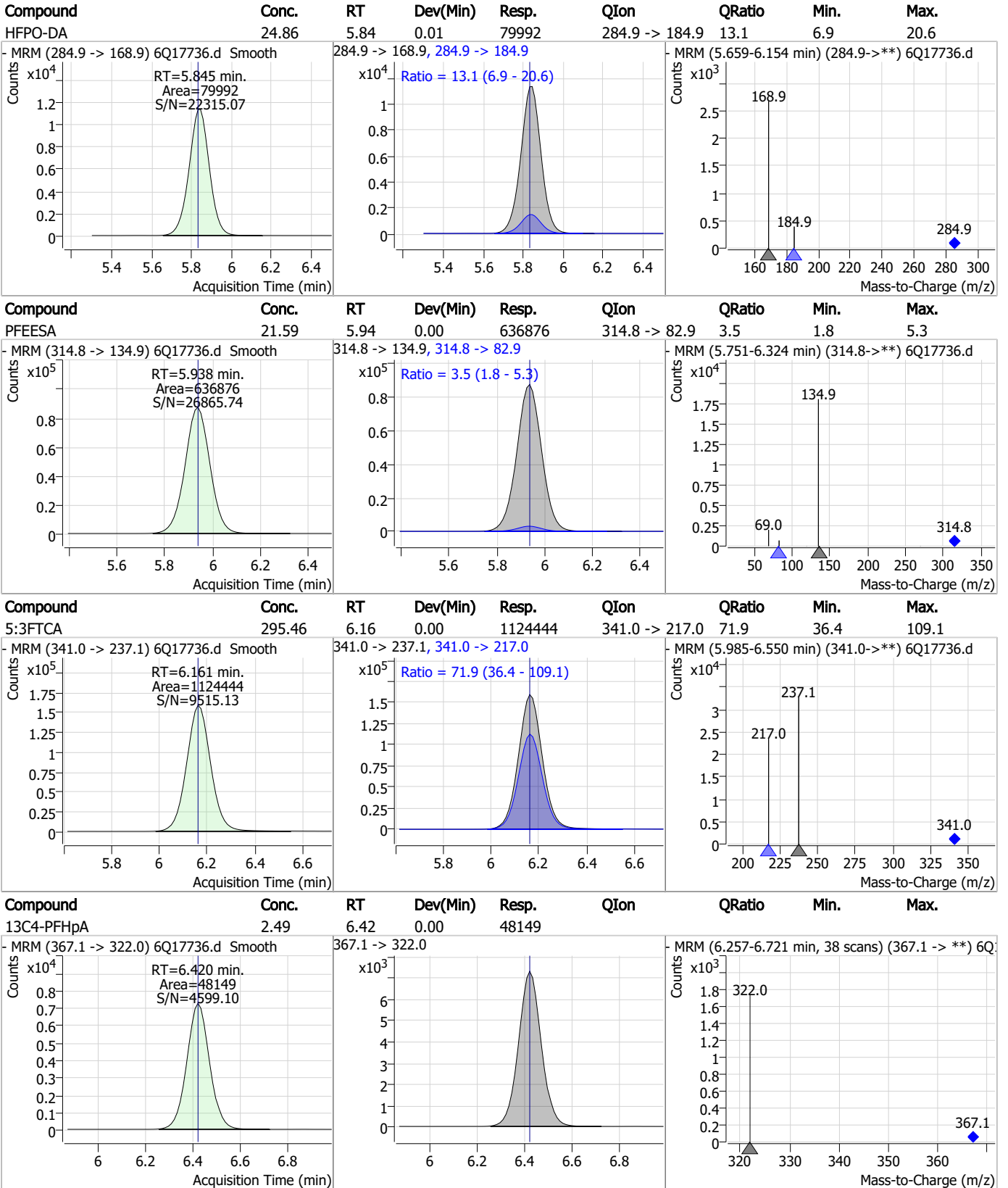
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# Perfluorinated Compounds by LC/MS/MS



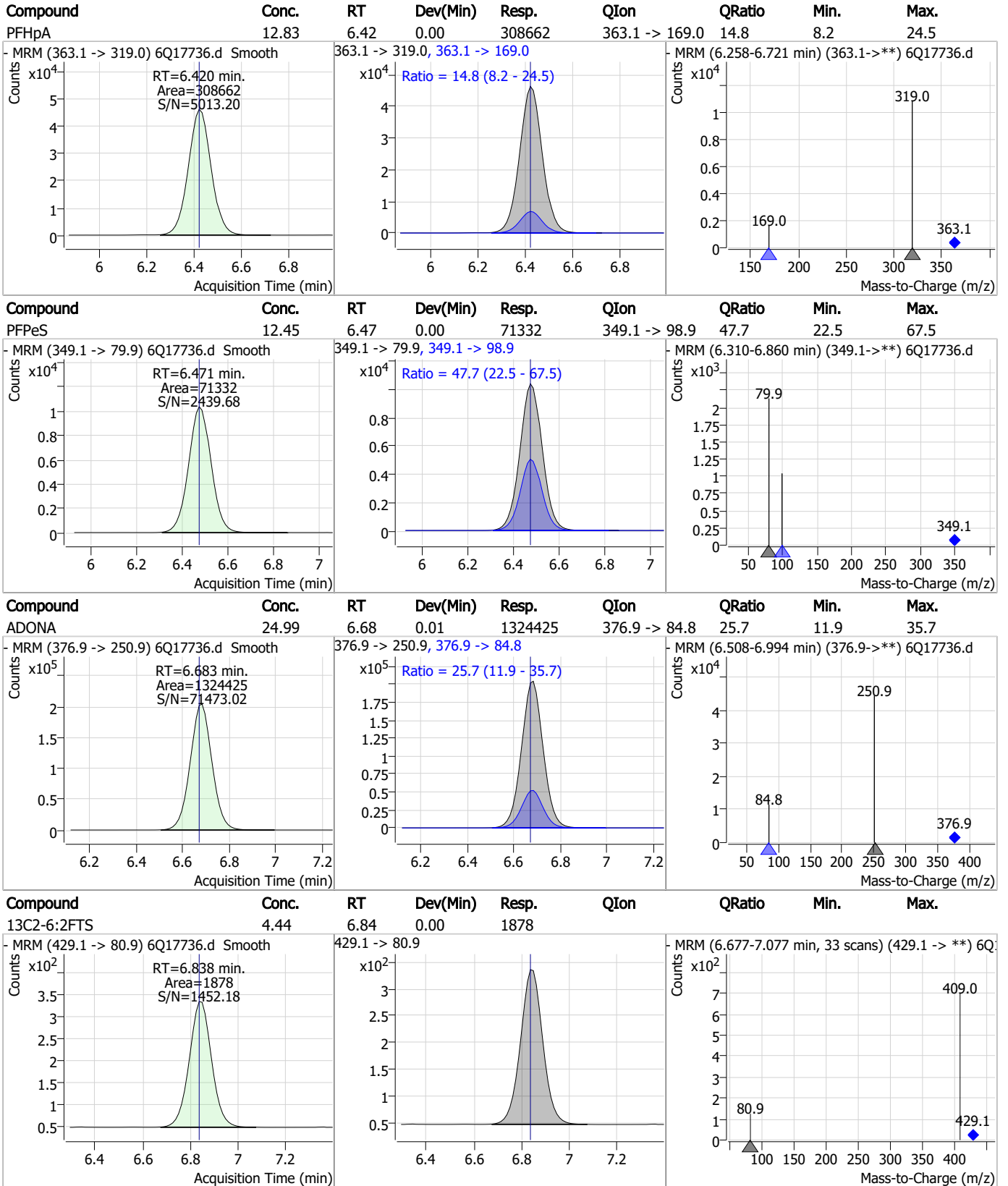
# Perfluorinated Compounds by LC/MS/MS



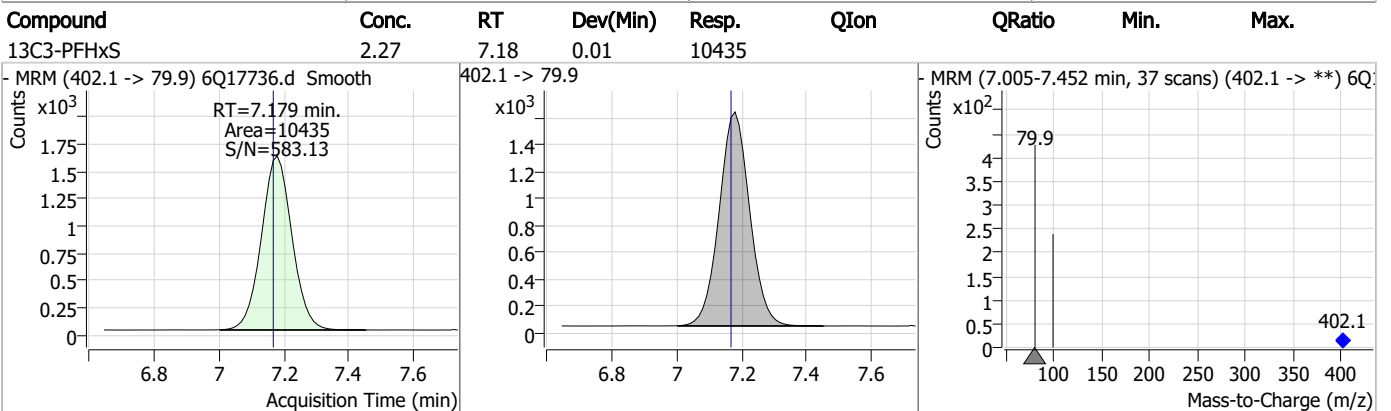
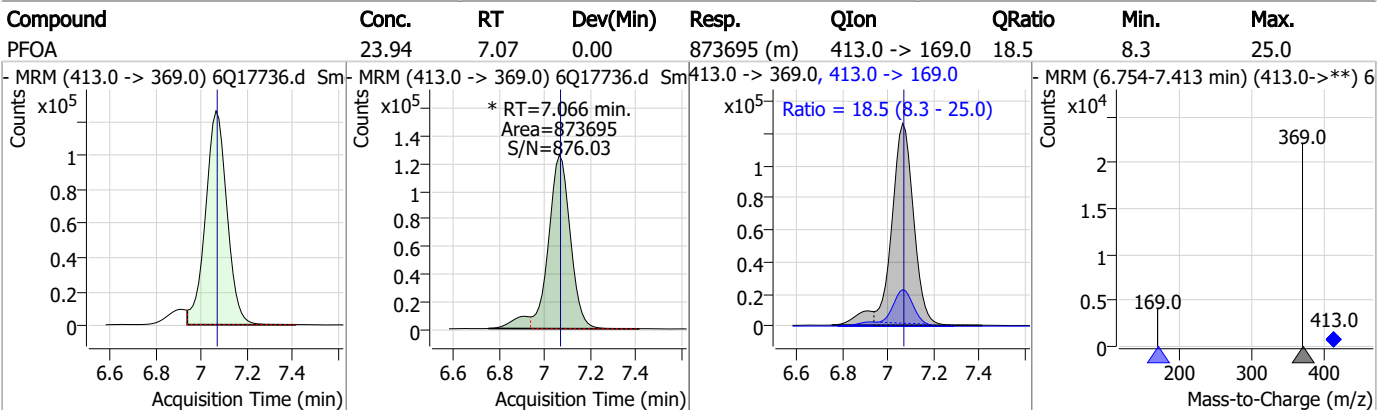
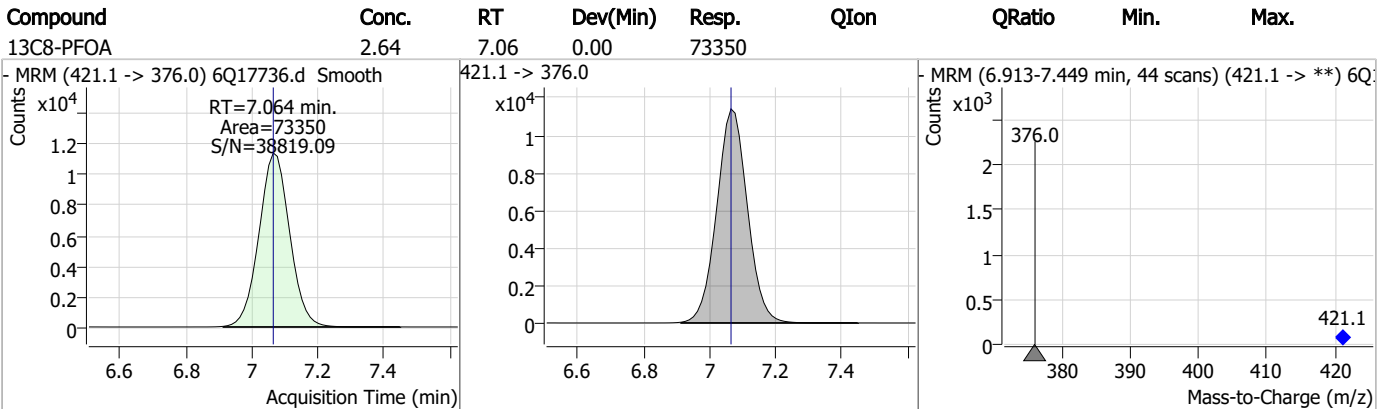
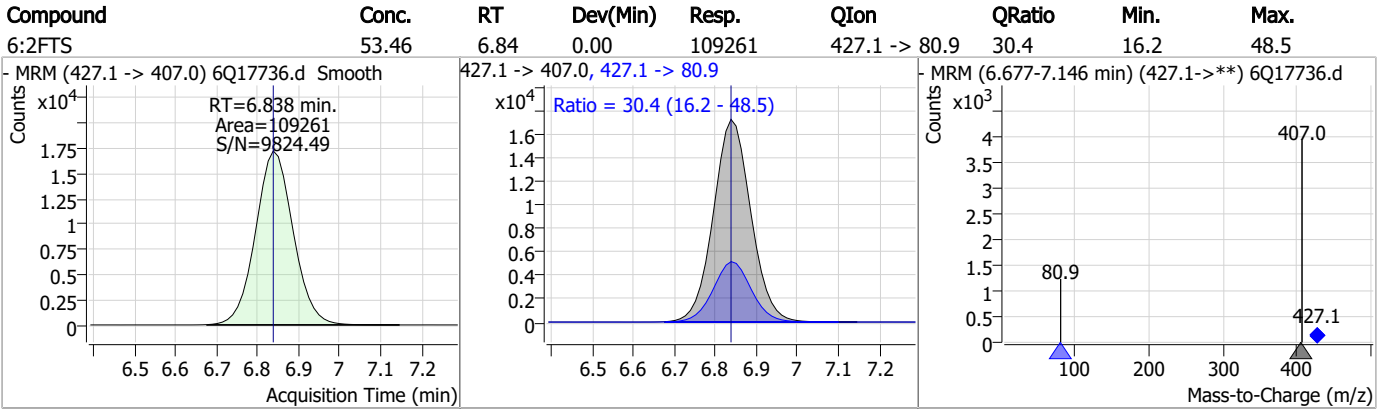
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# Perfluorinated Compounds by LC/MS/MS

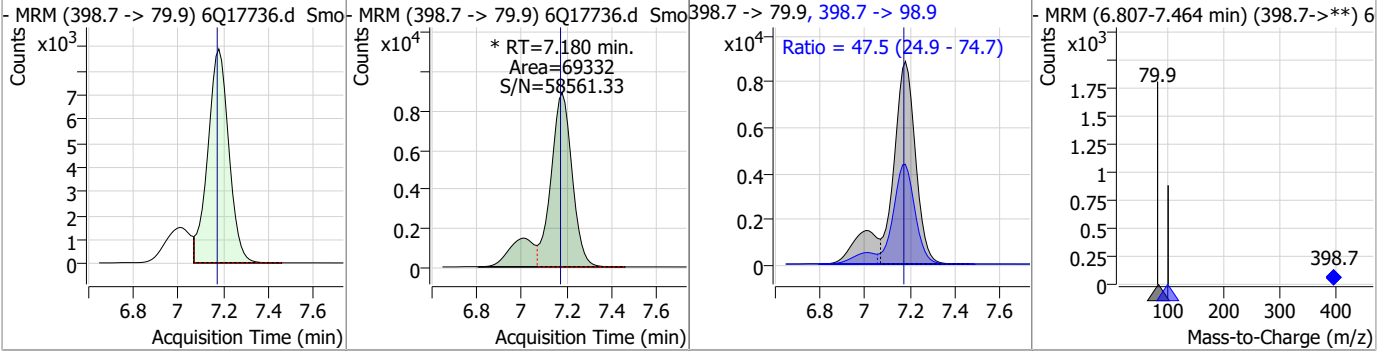


# Perfluorinated Compounds by LC/MS/MS

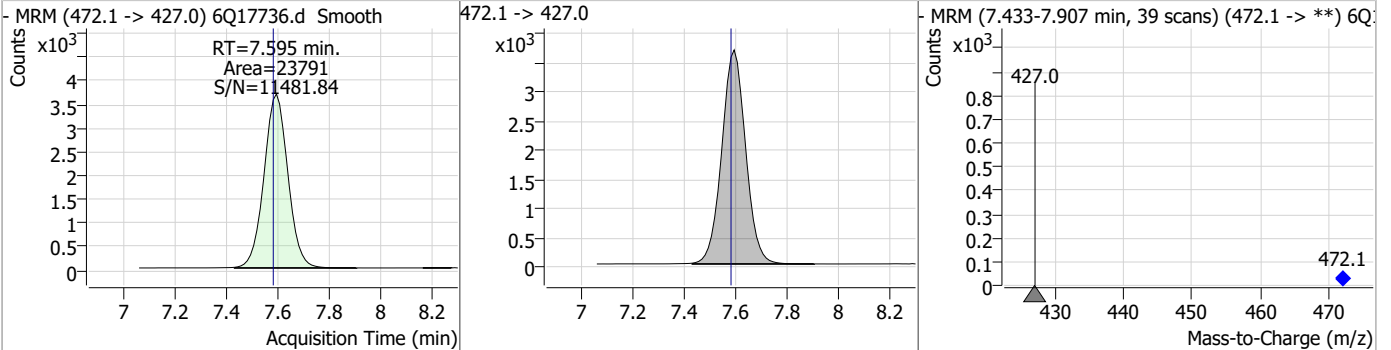


# Perfluorinated Compounds by LC/MS/MS

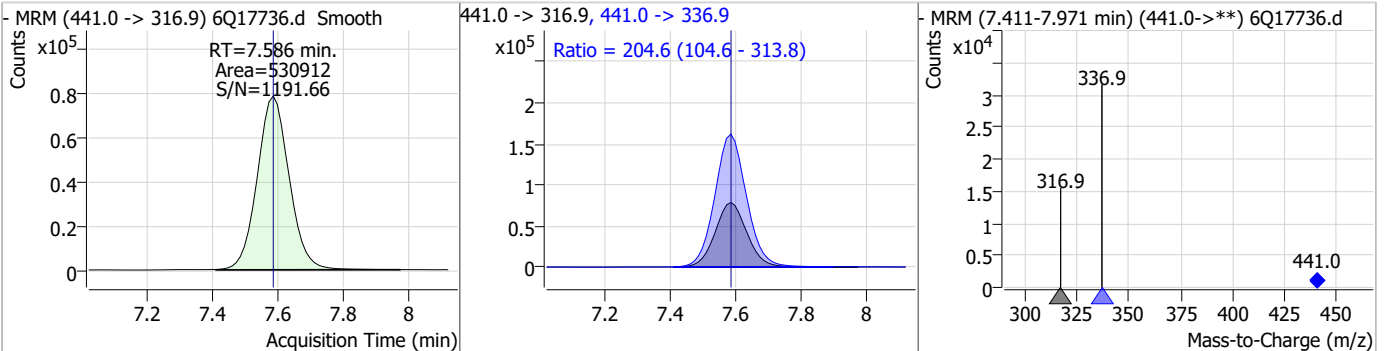
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	12.00	7.18	0.01	69332 (m)	398.7 -> 98.9	47.5	24.9	74.7



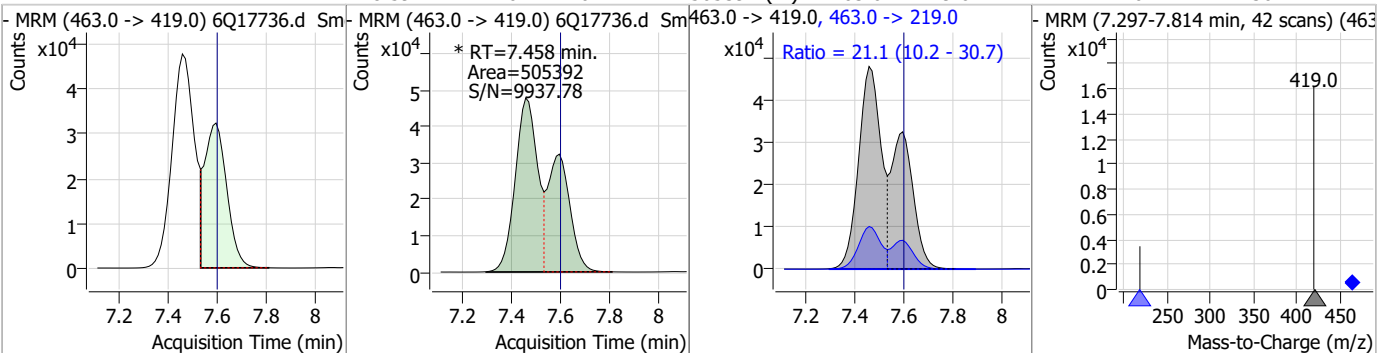
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.25	7.60	0.01	23791				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	307.50	7.59	0.00	530912	441.0 -> 336.9	204.6	104.6	313.8

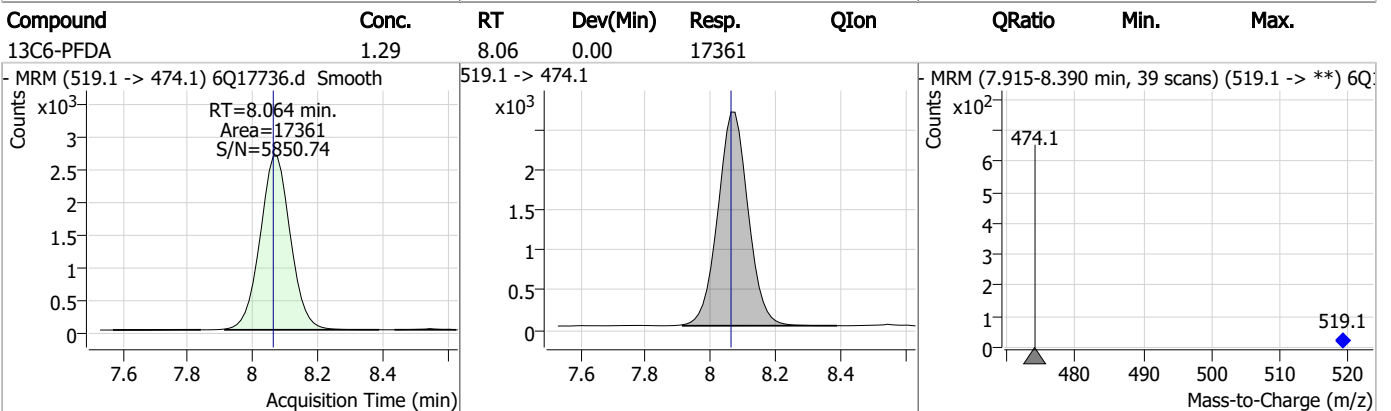
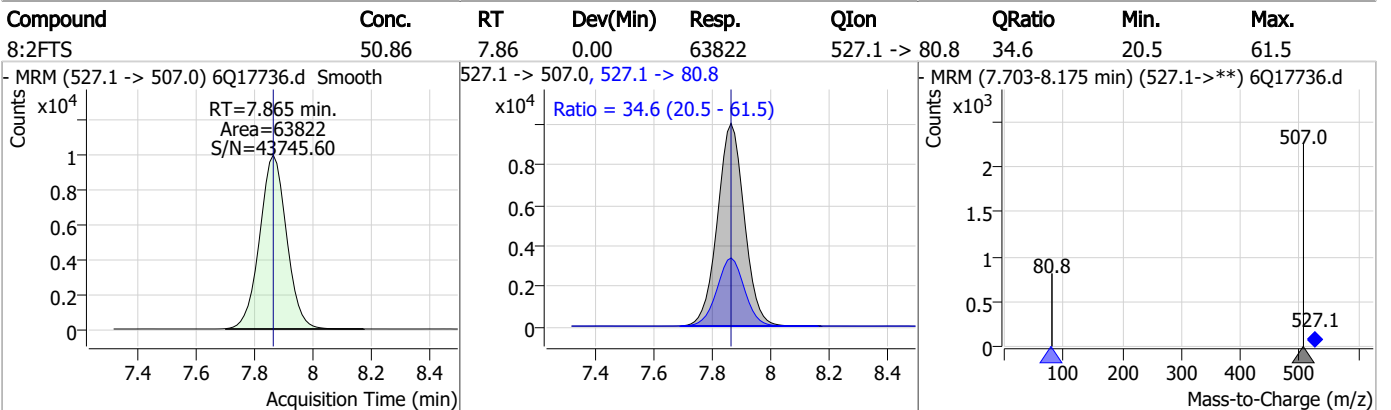
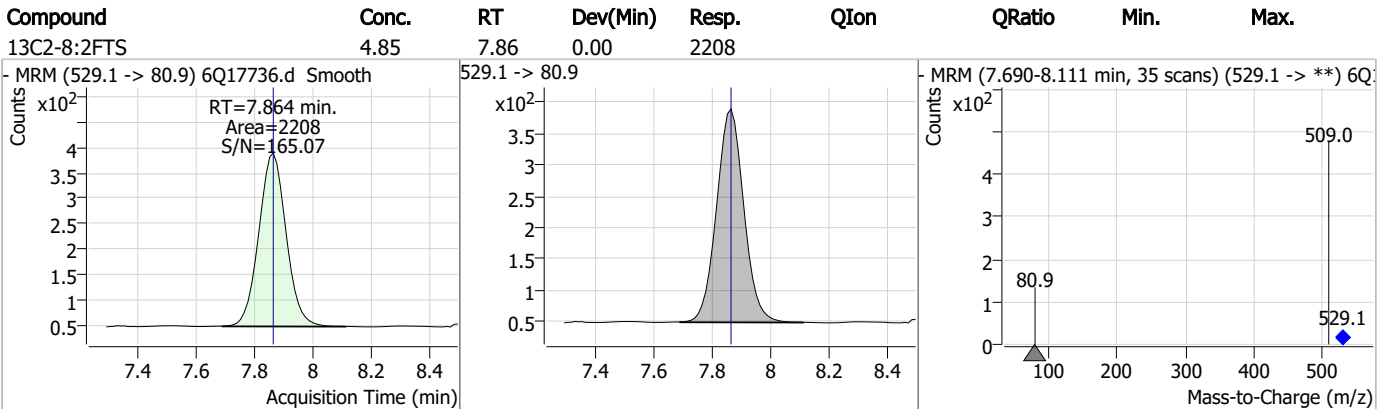
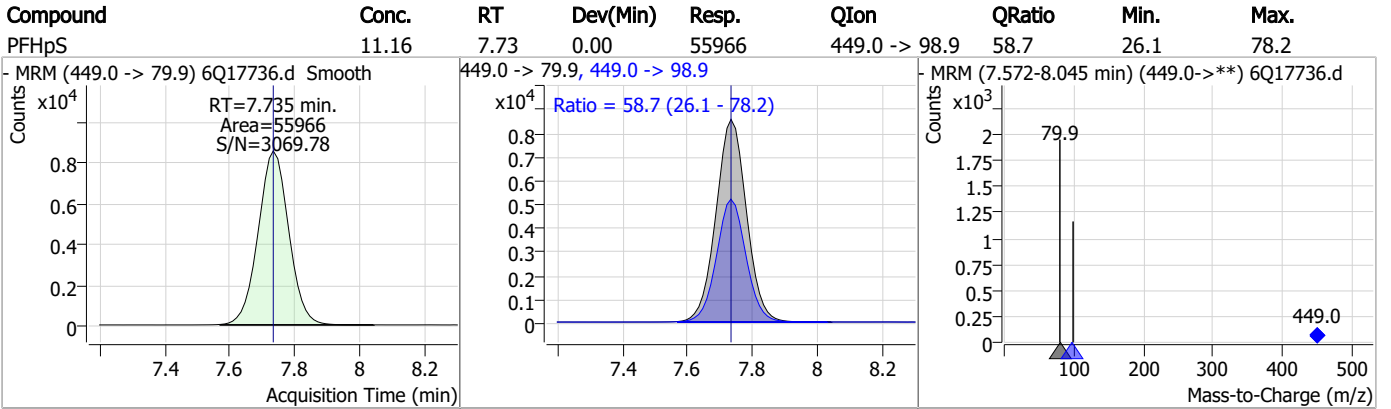


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	28.59	7.46	-0.14	505392 (m)	463.0 -> 219.0	21.1	10.2	30.7

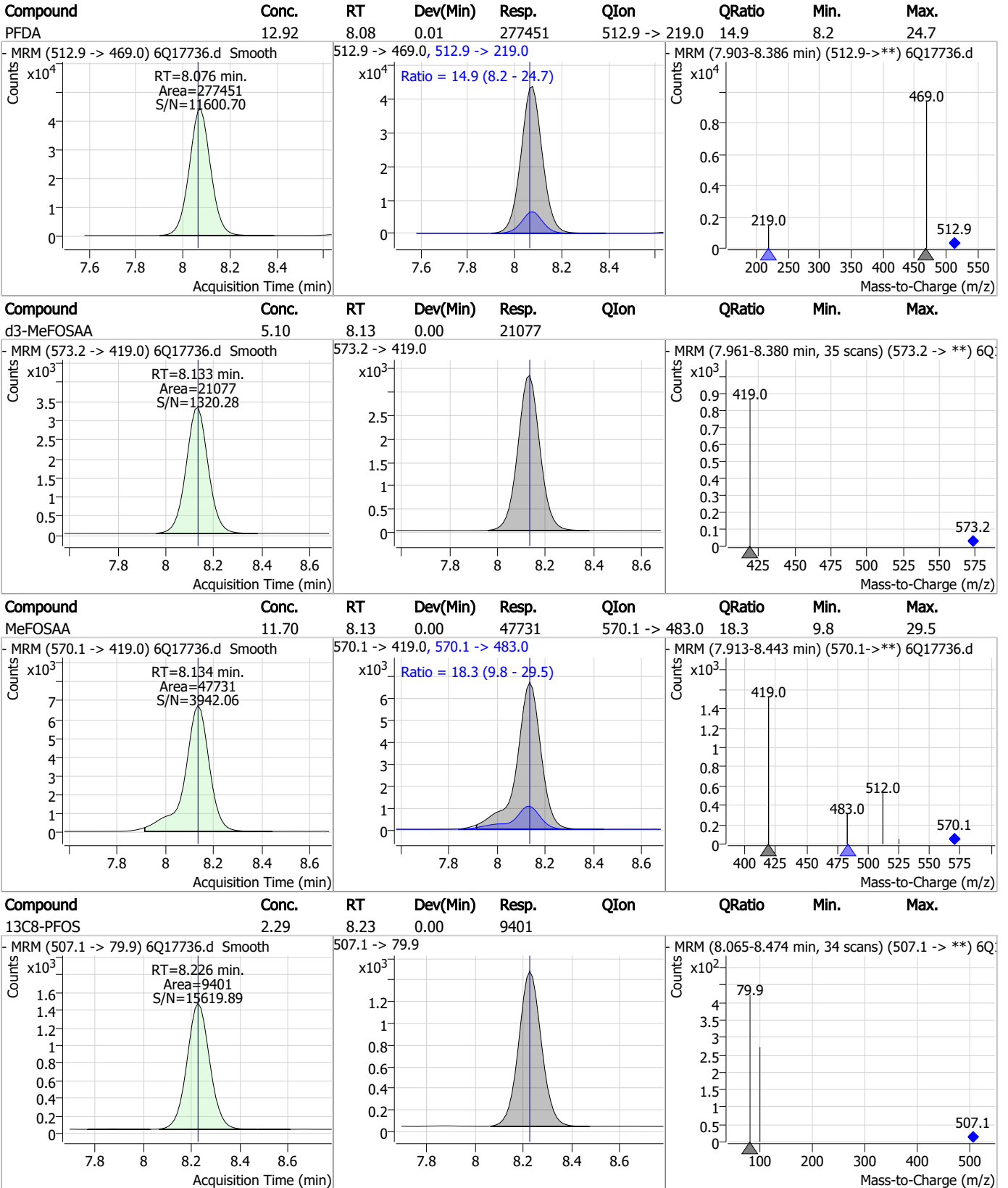




# Perfluorinated Compounds by LC/MS/MS



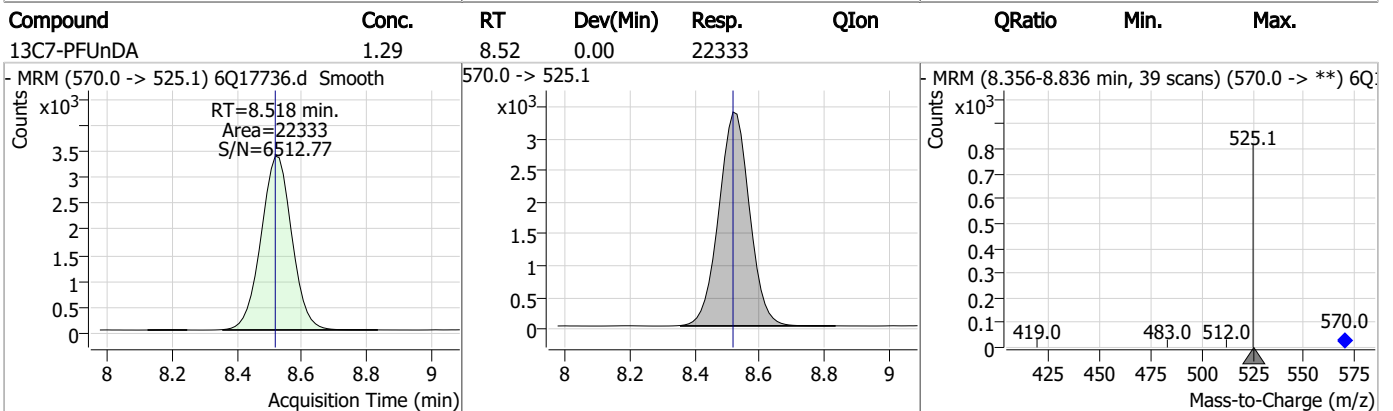
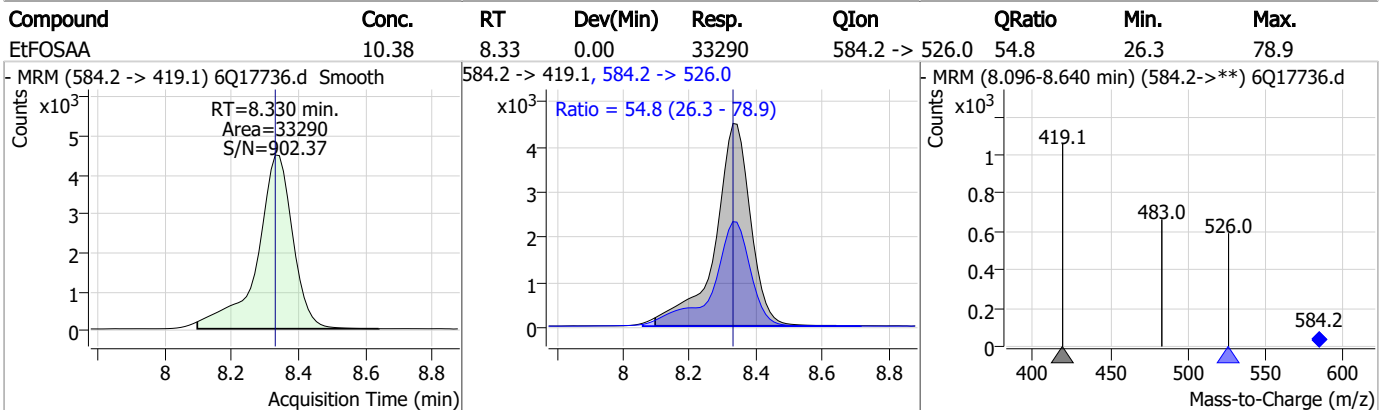
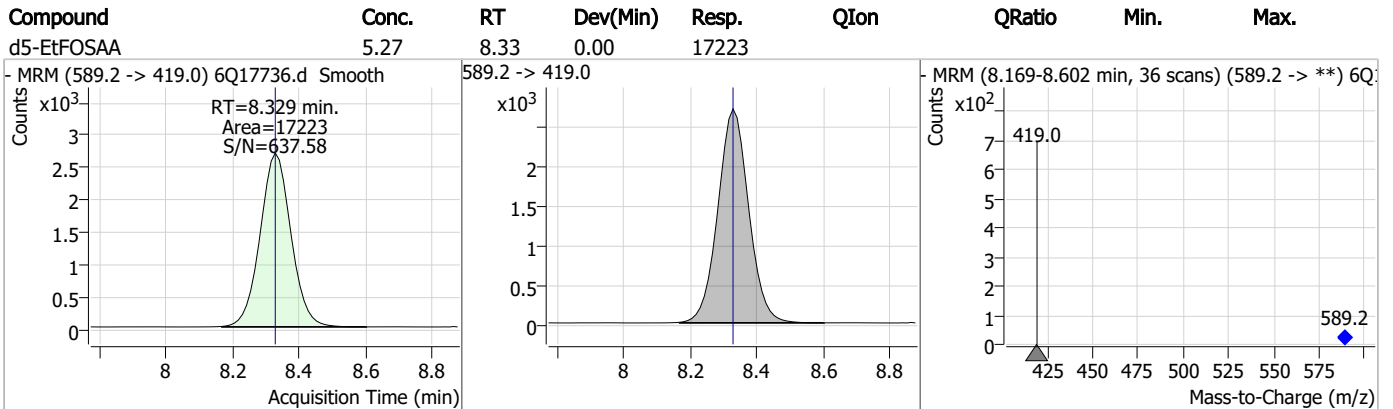
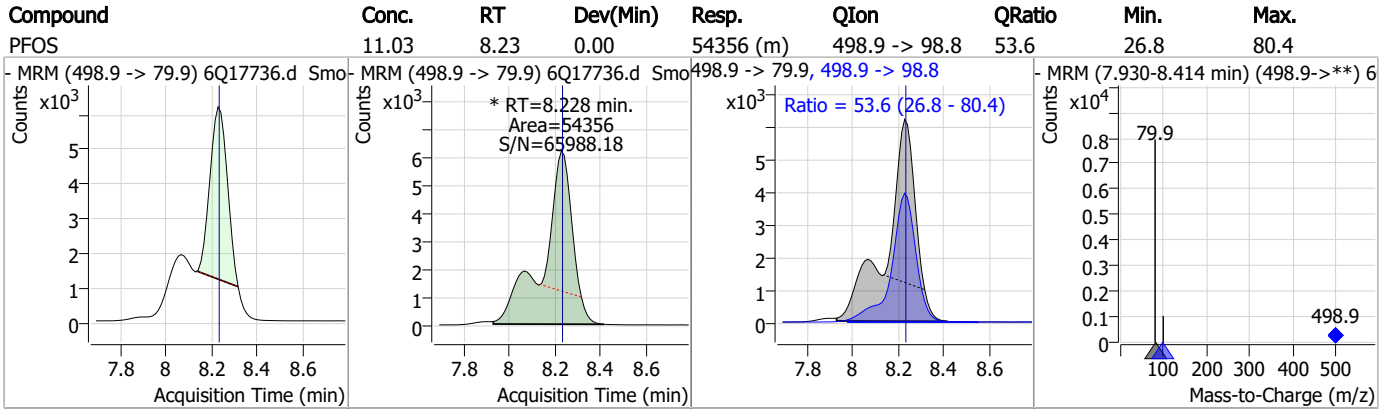
# Perfluorinated Compounds by LC/MS/MS



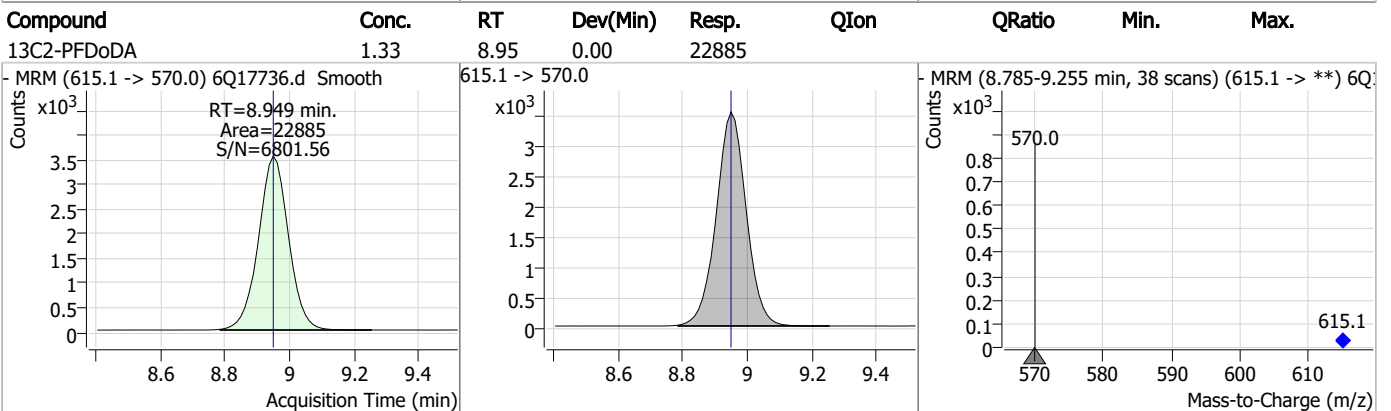
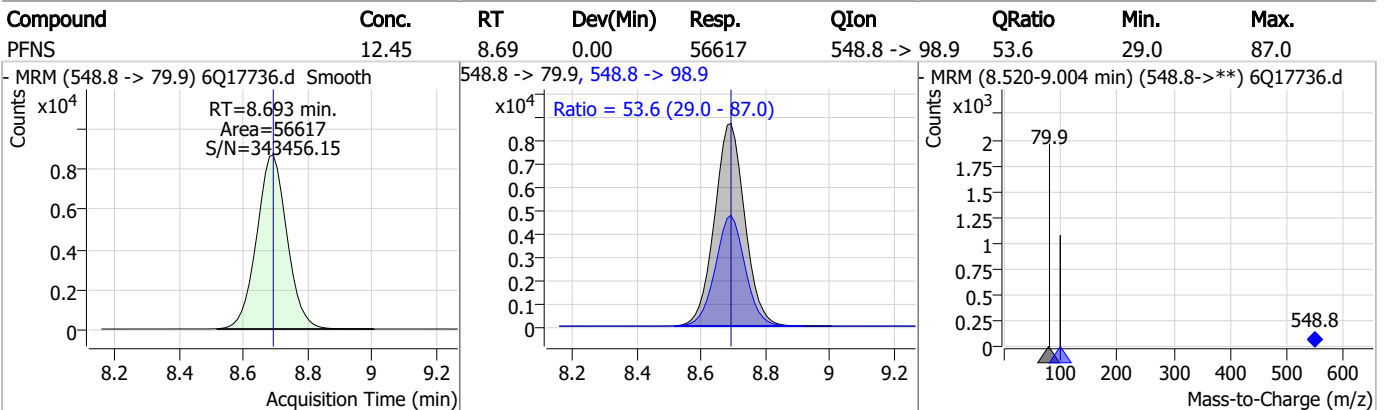
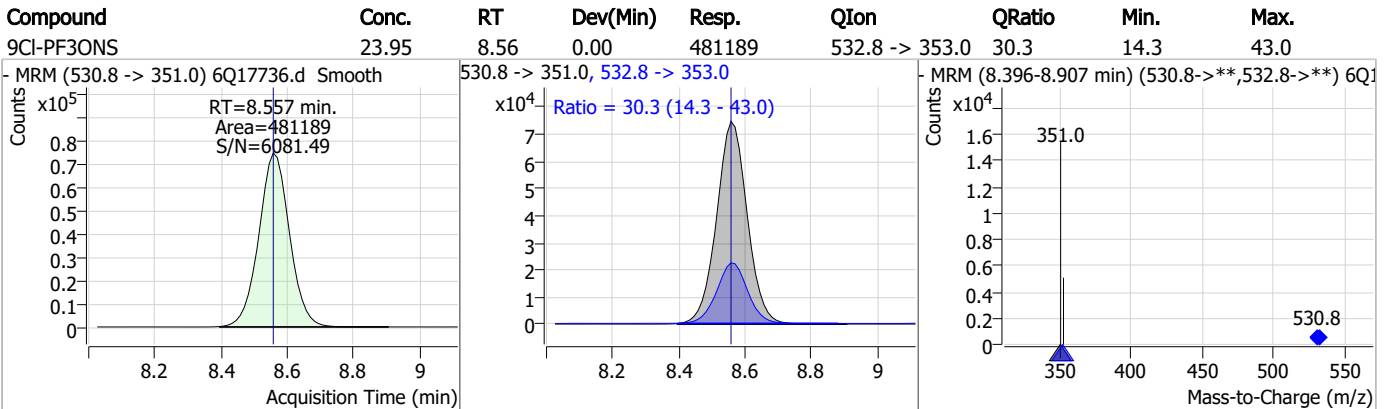
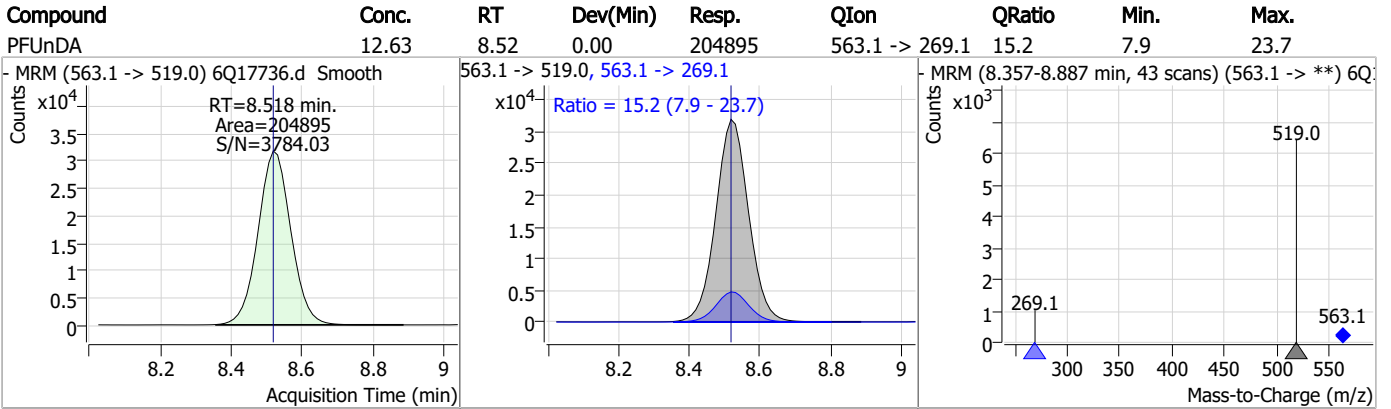
7.6.6

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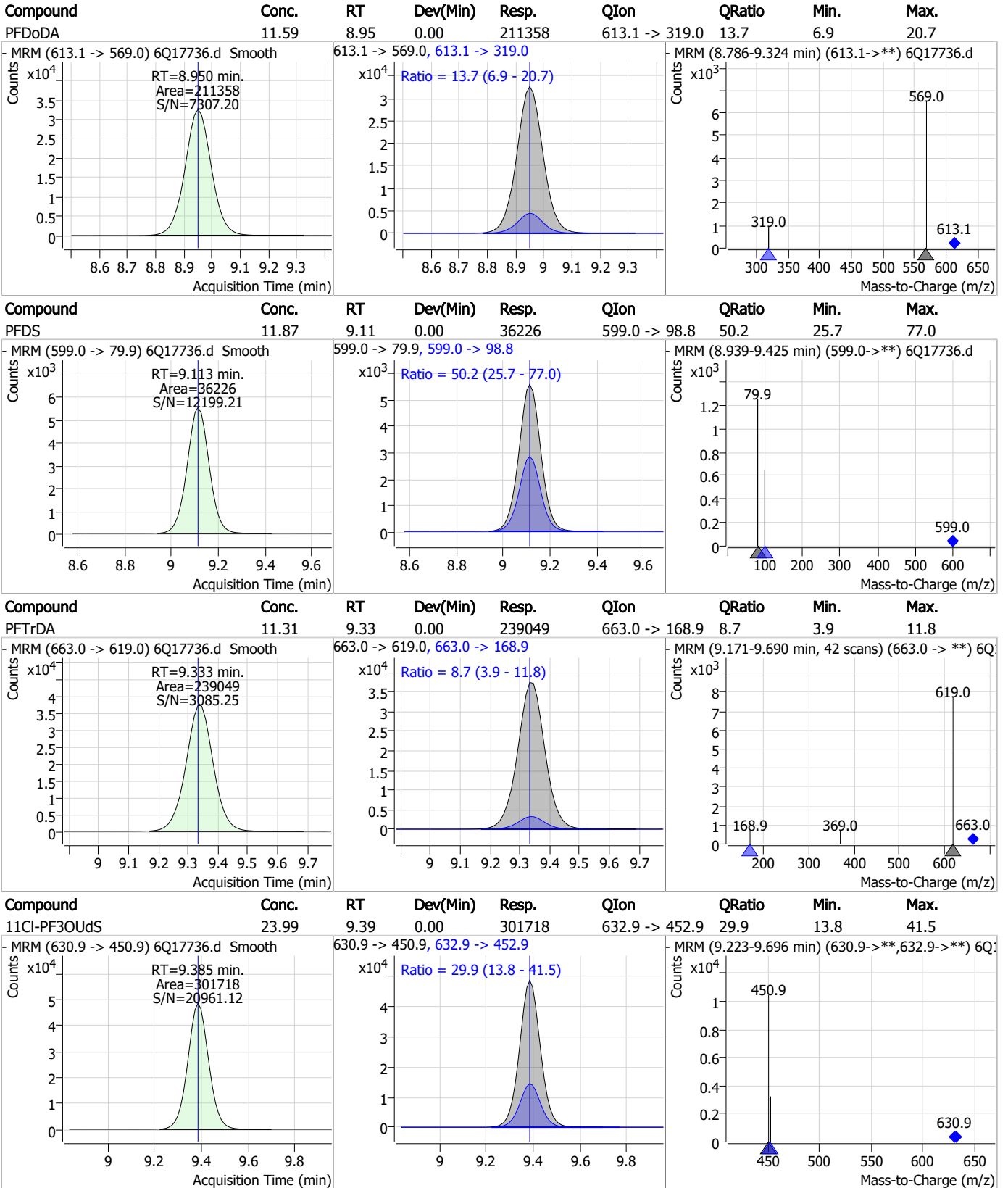
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS

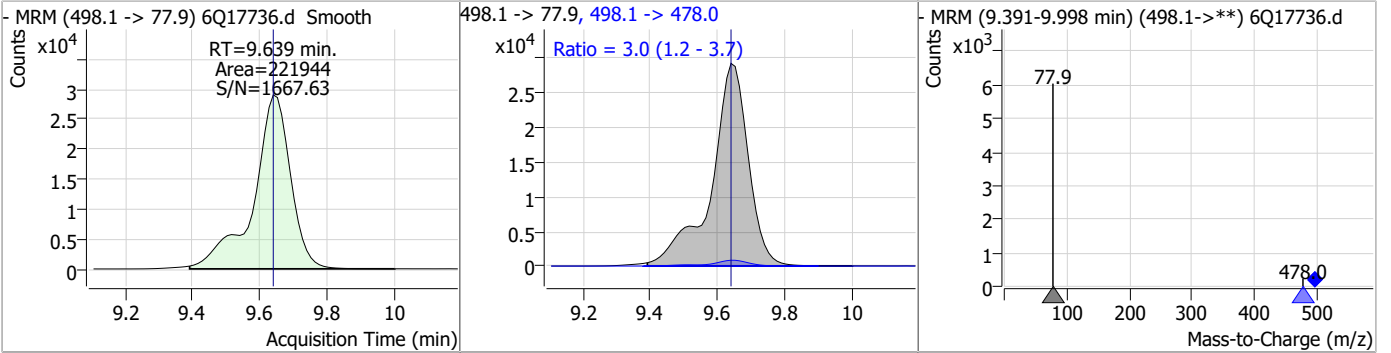


# Perfluorinated Compounds by LC/MS/MS

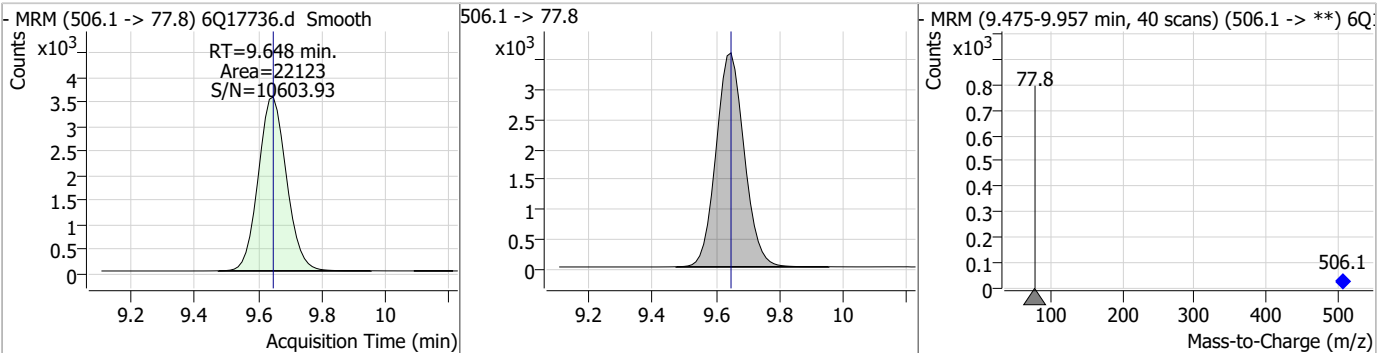


# Perfluorinated Compounds by LC/MS/MS

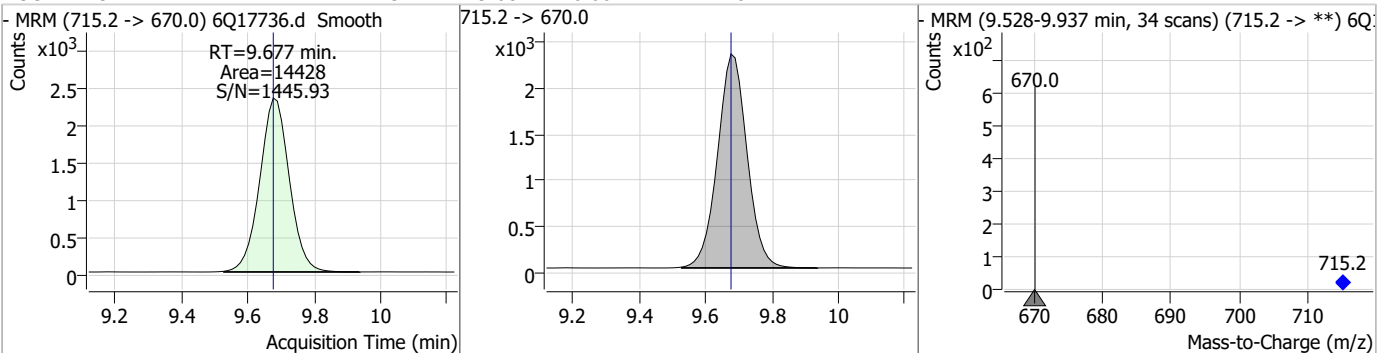
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	26.80	9.64	0.00	221944	498.1 -> 478.0	3.0	1.2	3.7



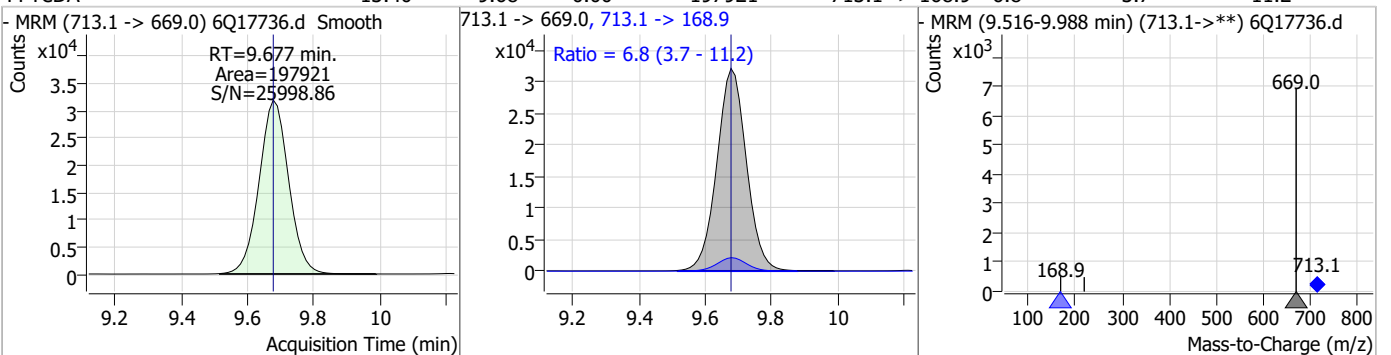
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.53	9.65	0.00	22123				



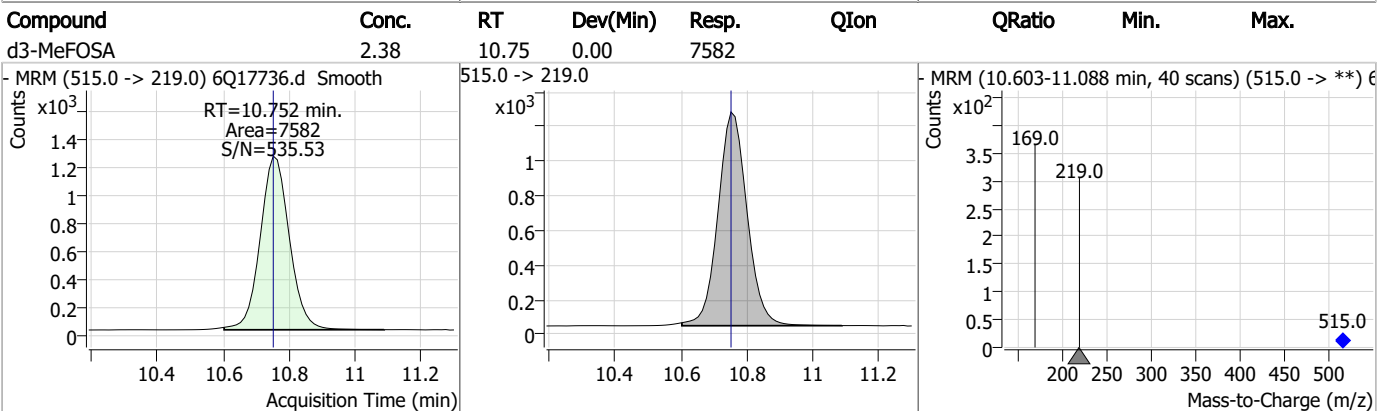
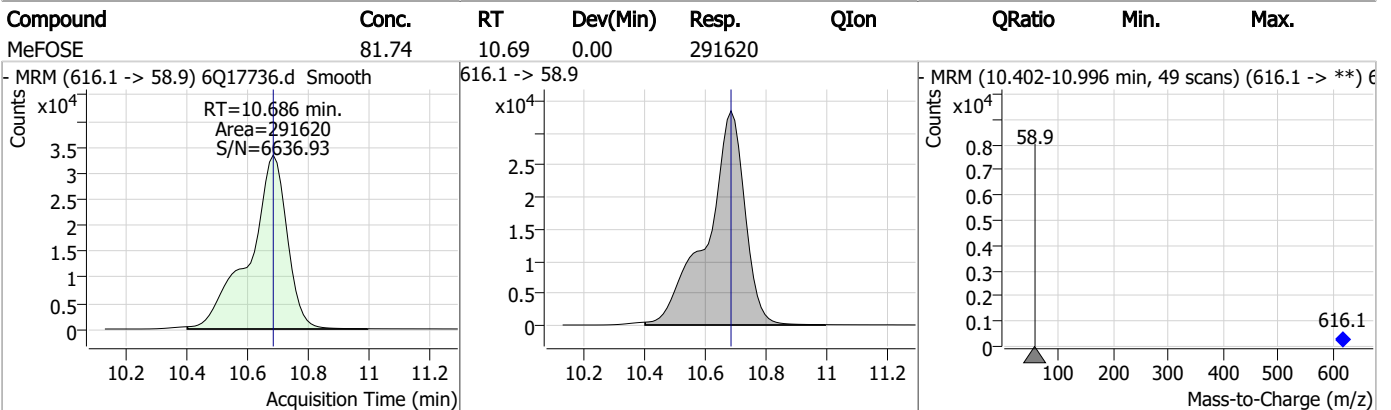
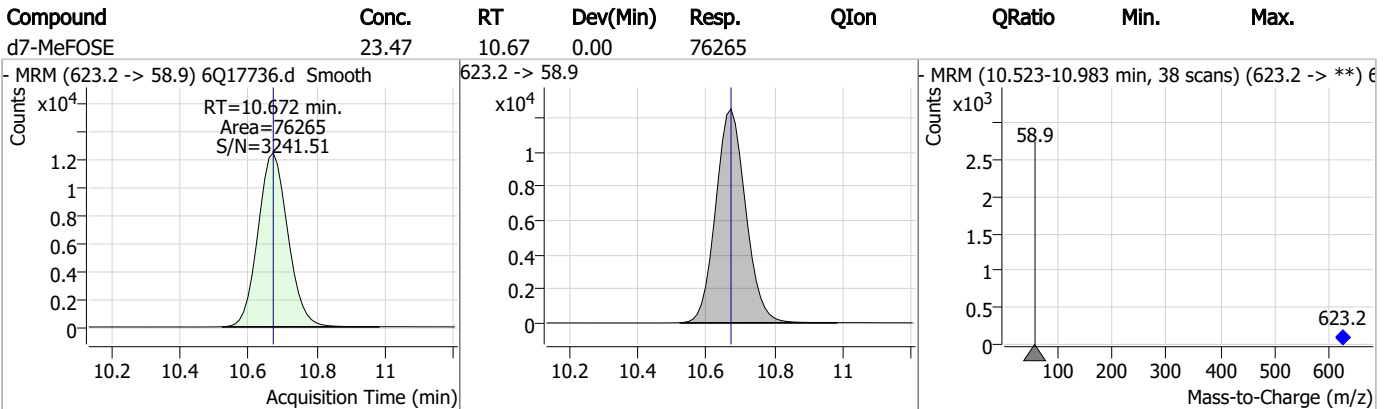
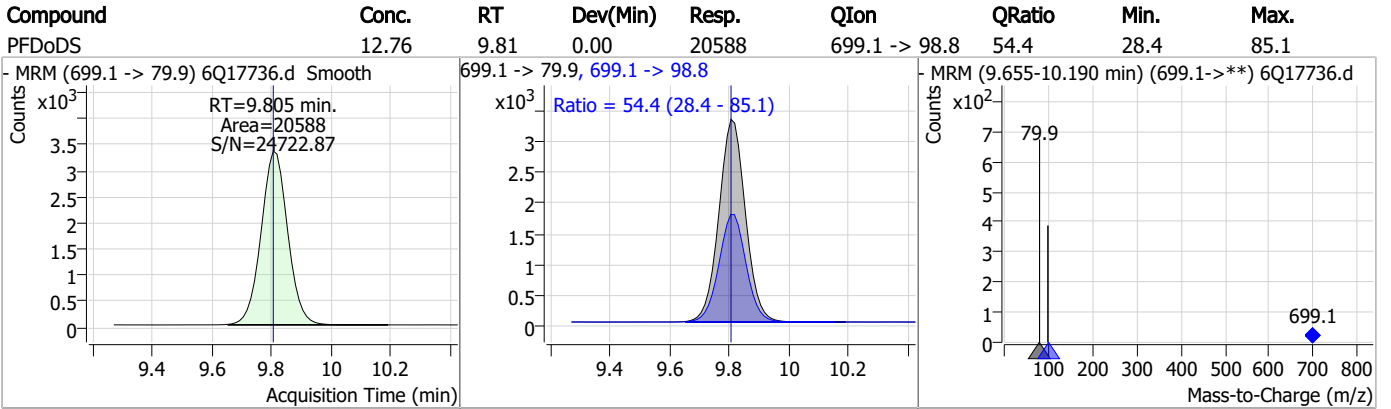
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.23	9.68	0.00	14428				



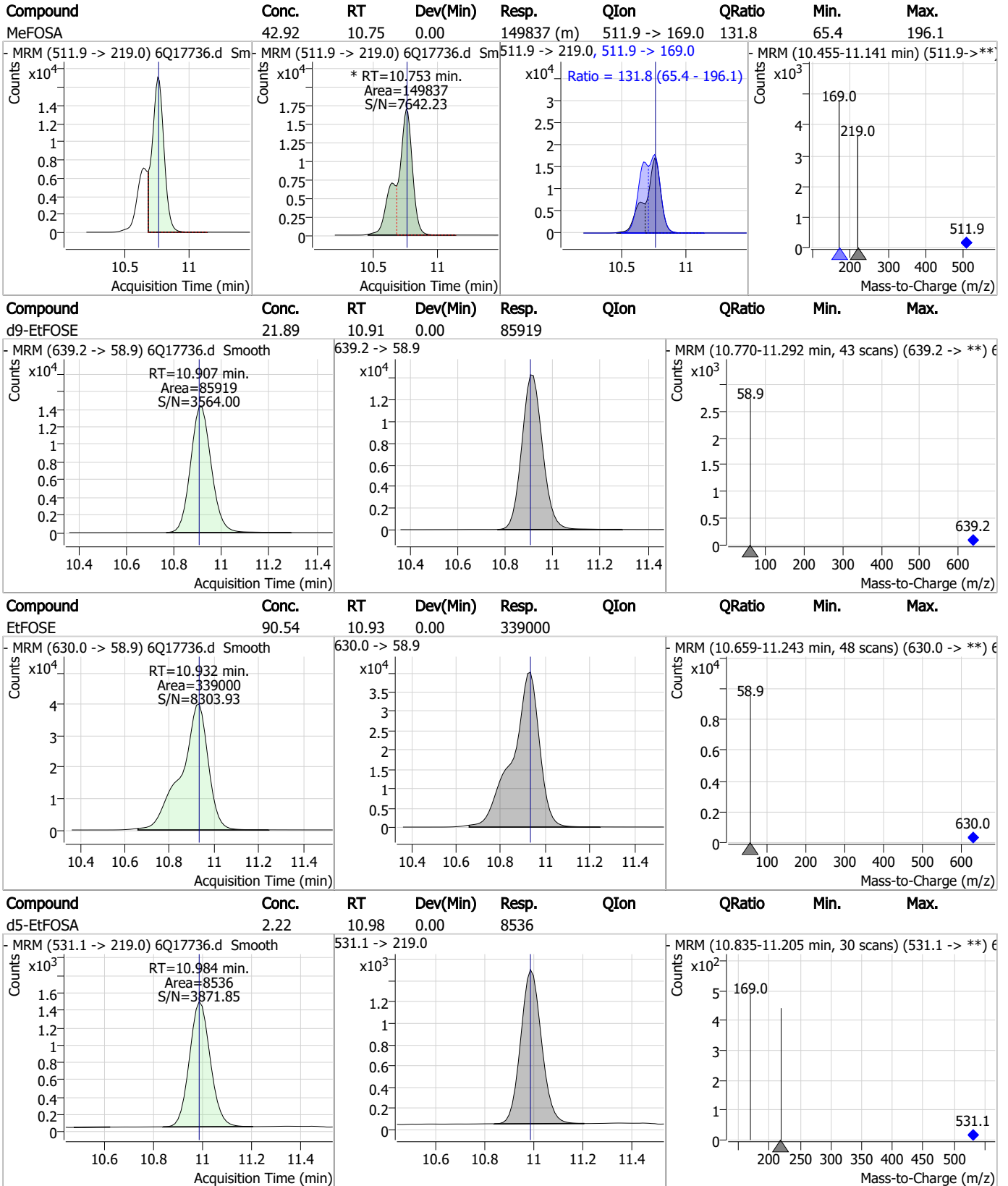
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.40	9.68	0.00	197921	713.1 -> 168.9	6.8	3.7	11.2



# Perfluorinated Compounds by LC/MS/MS

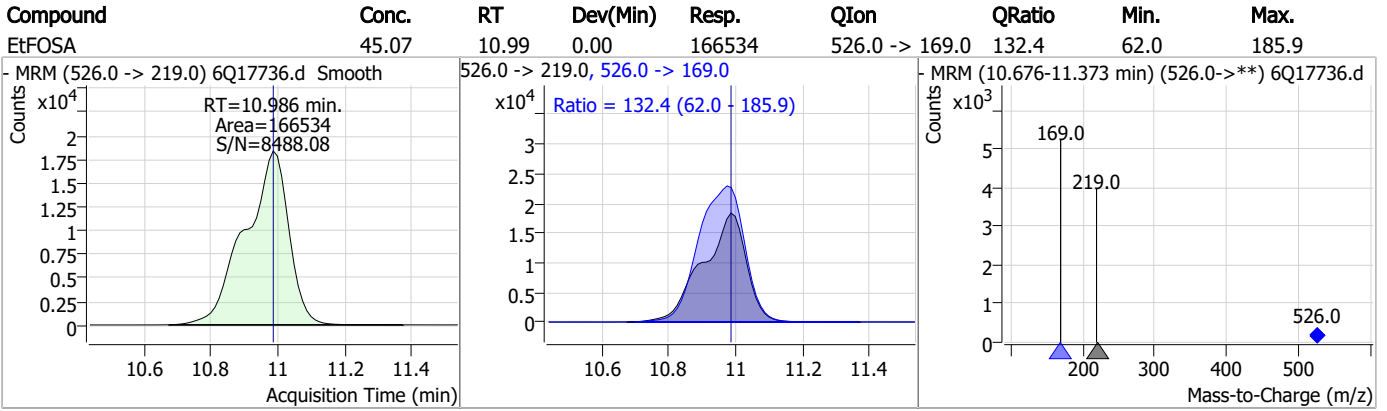


# Perfluorinated Compounds by LC/MS/MS





# Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S6Q268-RT                      Method: EPA DRAFT 1633  
Lab FileID: 6Q17736.D                      Analyst approved: 05/15/23 12:43 Martha Valls  
Injection Time: 05/12/23 11:46                      Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.07	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorononanoic acid	375-95-1		7.46	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.75	Split peak

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## QQQ Check Tune Report



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

**Source Parameters**

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	4000
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	7

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### QQQ Check Tune Report



#### Negative Results

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.98	-0.01	Pass	0.70	0.66	-0.04	Pass	201034
302.00	302.01	0.01	Pass	0.70	0.67	-0.03	Pass	310264
601.98	602.01	0.03	Pass	0.70	0.69	-0.01	Pass	444462
1033.99	1034.02	0.03	Pass	0.70	0.70	0.00	Pass	616104
1633.95	1633.95	0.00	Pass	0.70	0.68	-0.02	Pass	1304259
2233.91	2233.90	-0.01	Pass	0.70	0.72	0.02	Pass	724412

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

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

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

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

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

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

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

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

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.04	0.04	Pass	2.50	2.37	-0.13	Pass	76909
112.99	112.97	-0.02	Pass	2.50	2.50	0.00	Pass	286009
302.00	301.99	-0.01	Pass	2.50	2.68	0.18	Pass	456032
601.98	601.95	-0.03	Pass	2.50	2.79	0.29	Pass	609214
1033.99	1033.83	-0.16	Pass	2.50	2.85	0.35	Pass	451181
1633.95	1633.68	-0.27	Pass	2.50	2.72	0.22	Pass	1021433
2233.91	2233.59	-0.32	Pass	2.50	2.47	-0.03	Pass	789629

7.7.1  
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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43884.d  
 Operator : natashag  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/3/2023 11:12:11 AM  
 Sample Name : ic634-1  
 Vial : P1-A2  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q634.batch.bin  
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

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

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## Perfluorinated Compounds by LC/MS/MS

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

## Perfluorinated Compounds by LC/MS/MS

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

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

### Perfluorinated Compounds by LC/MS/MS

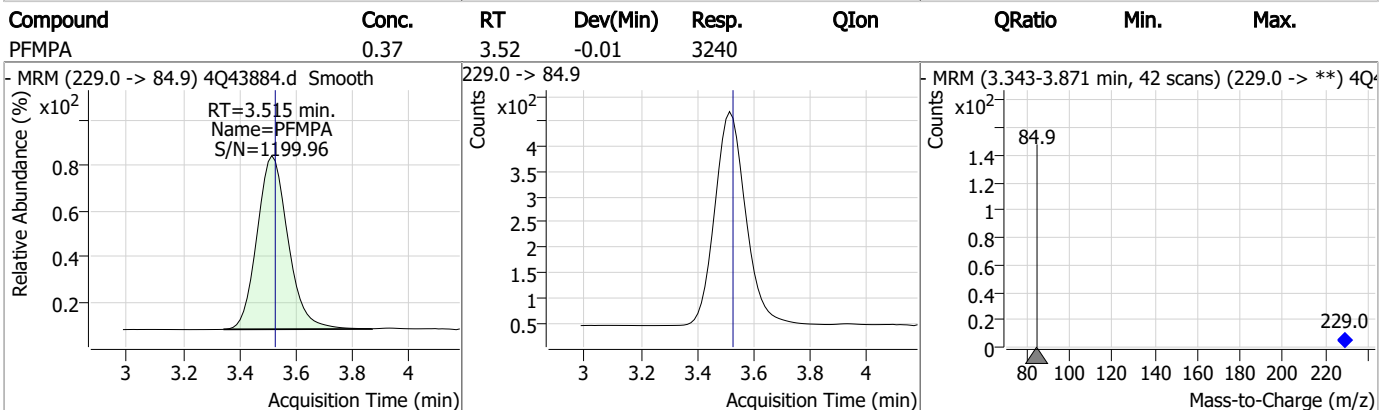
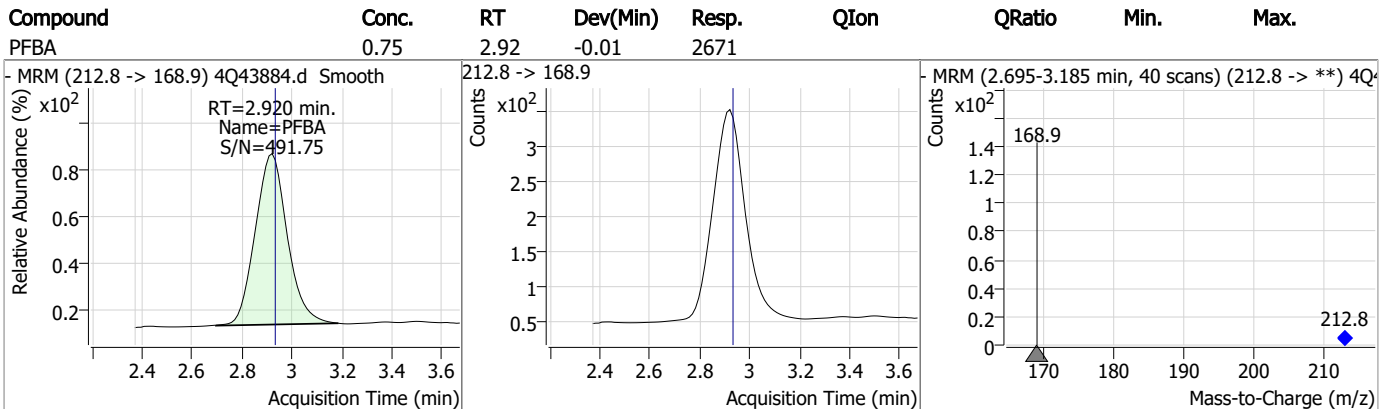
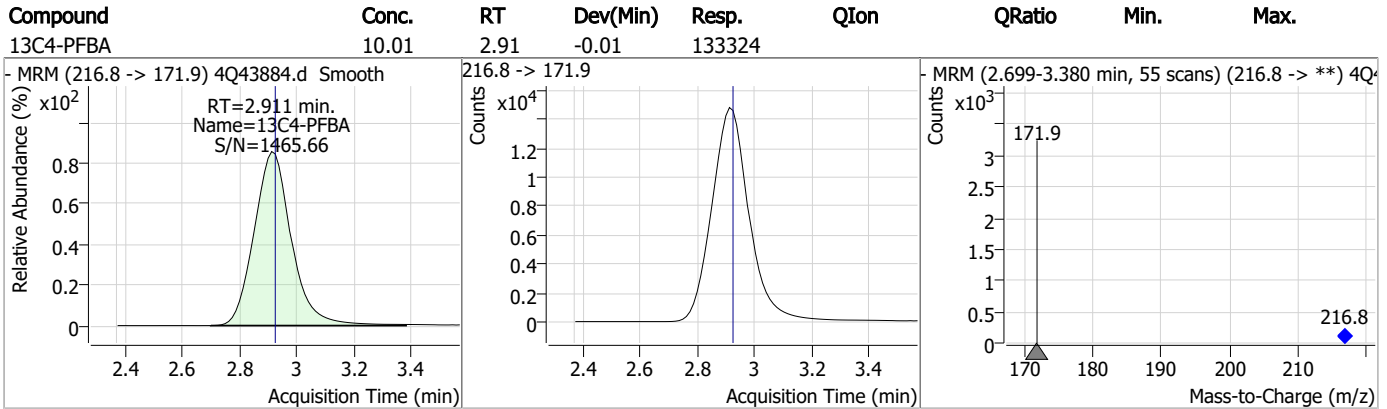
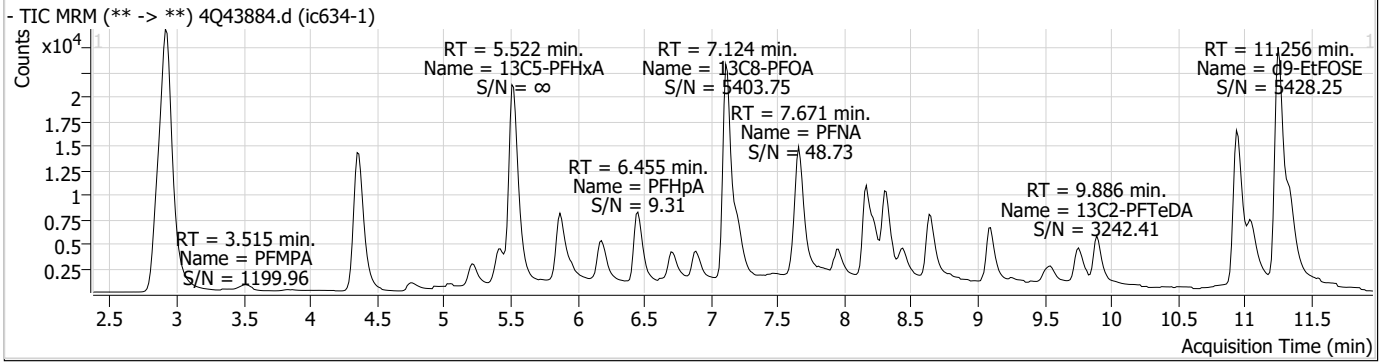
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.2  
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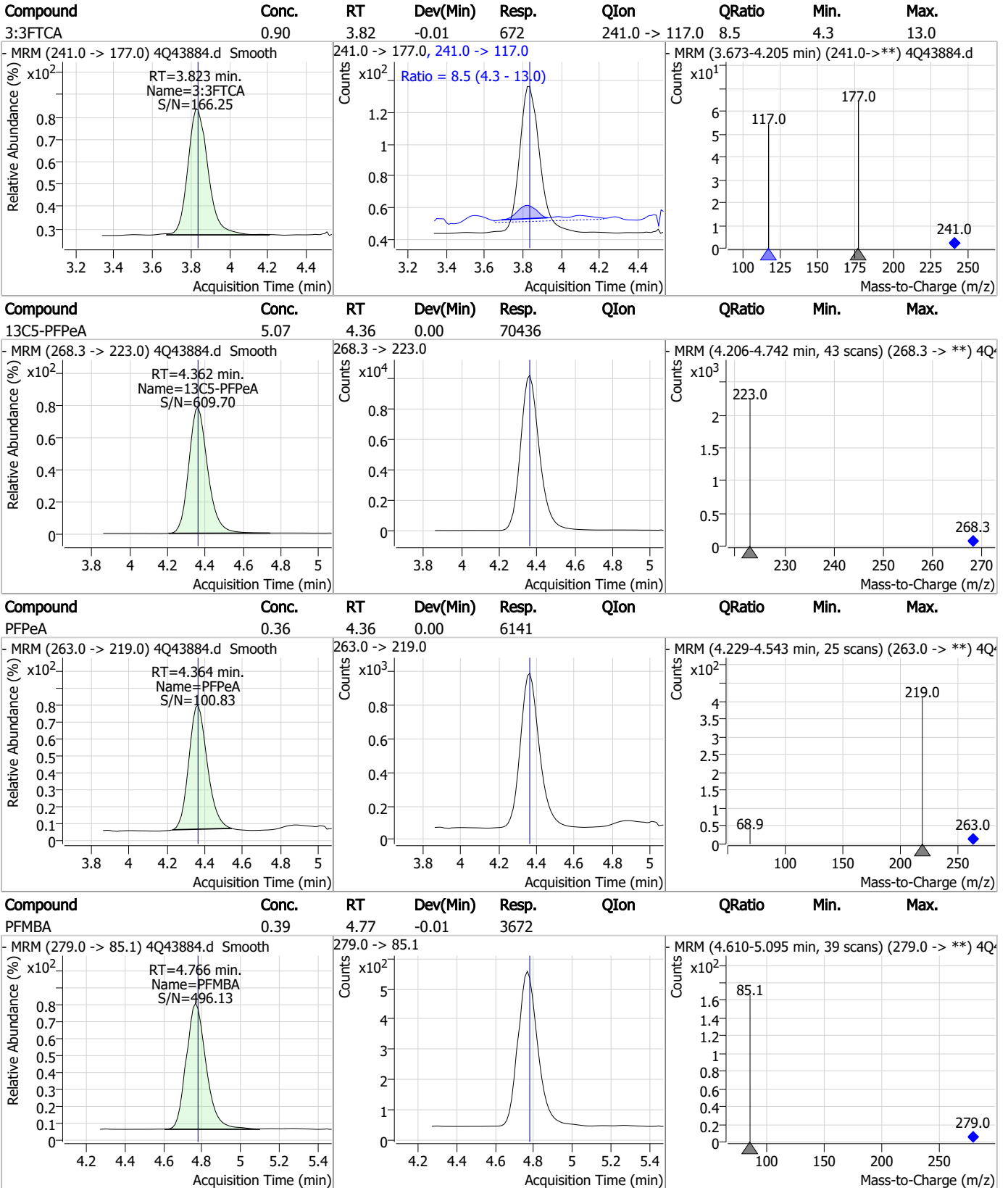
### Perfluorinated Compounds by LC/MS/MS



7.7.2

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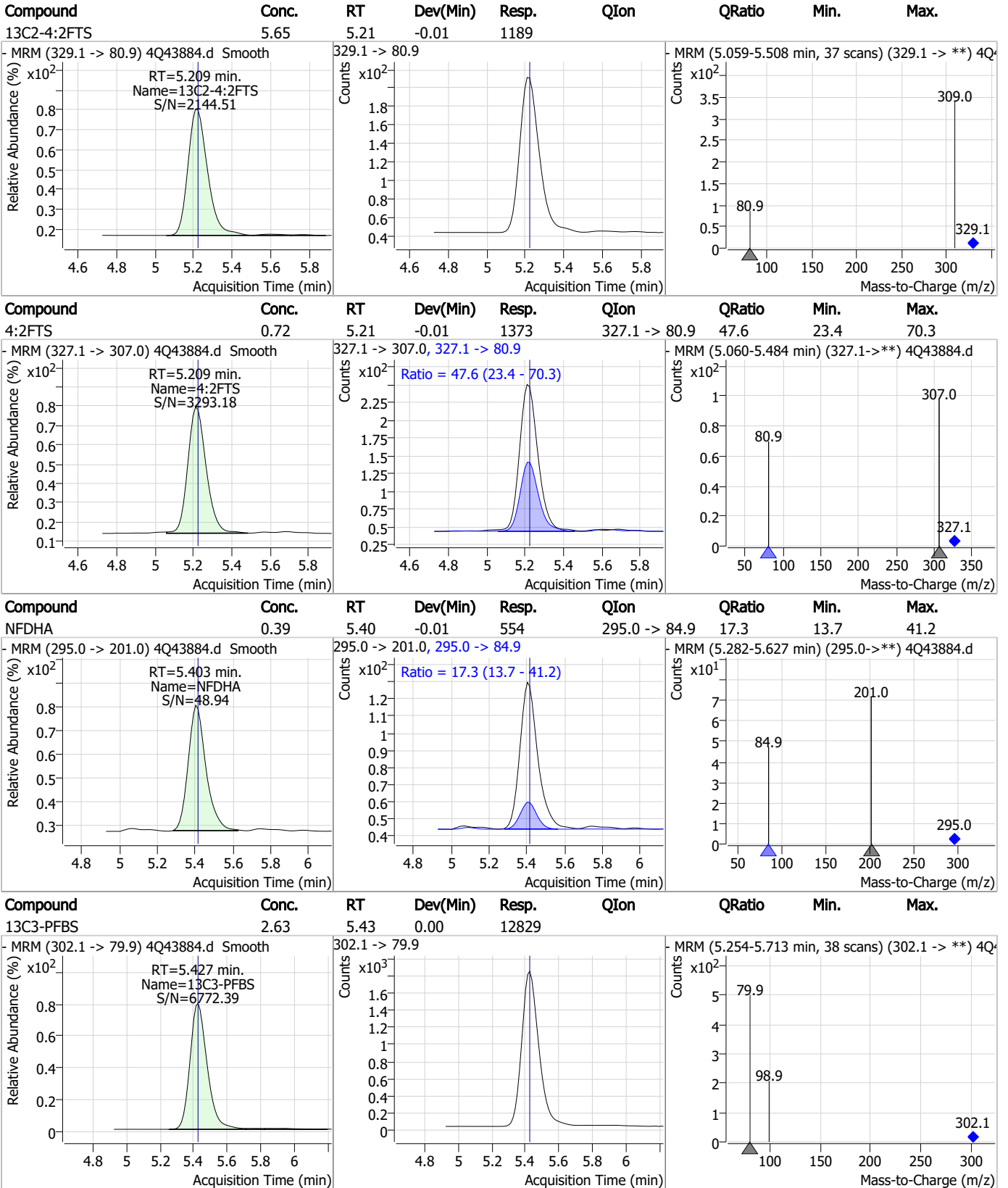
### Perfluorinated Compounds by LC/MS/MS



7.7.2

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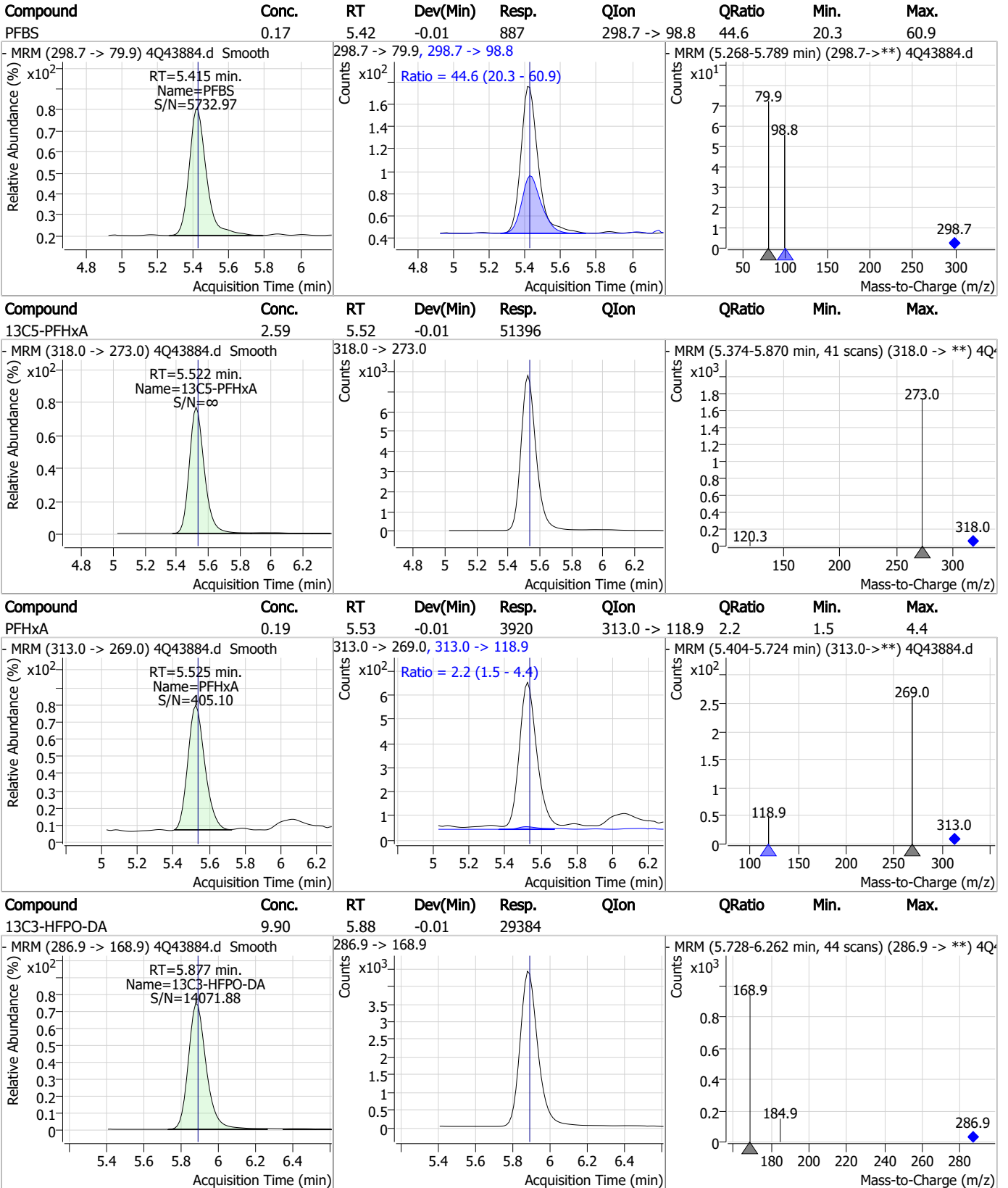
### Perfluorinated Compounds by LC/MS/MS



7.7.2

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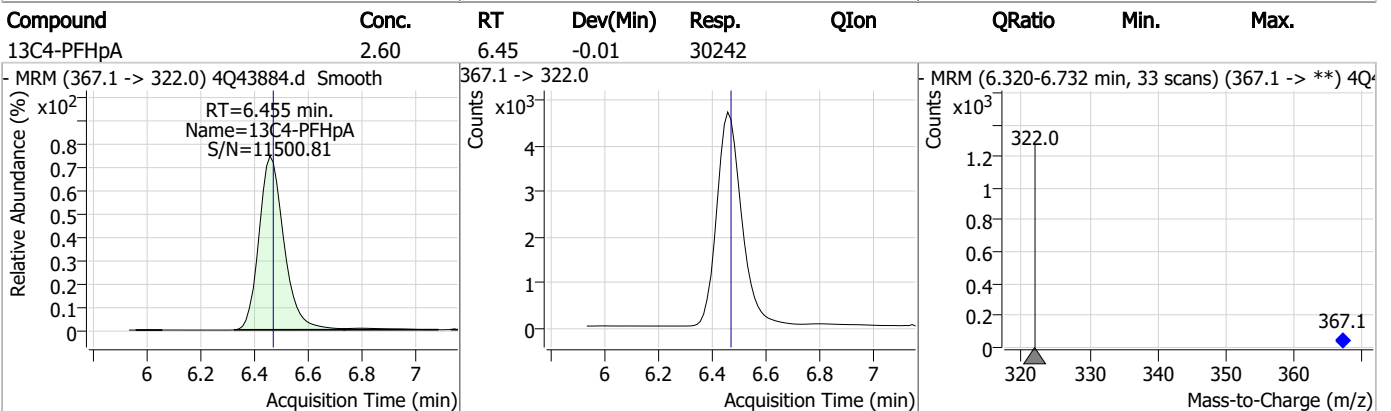
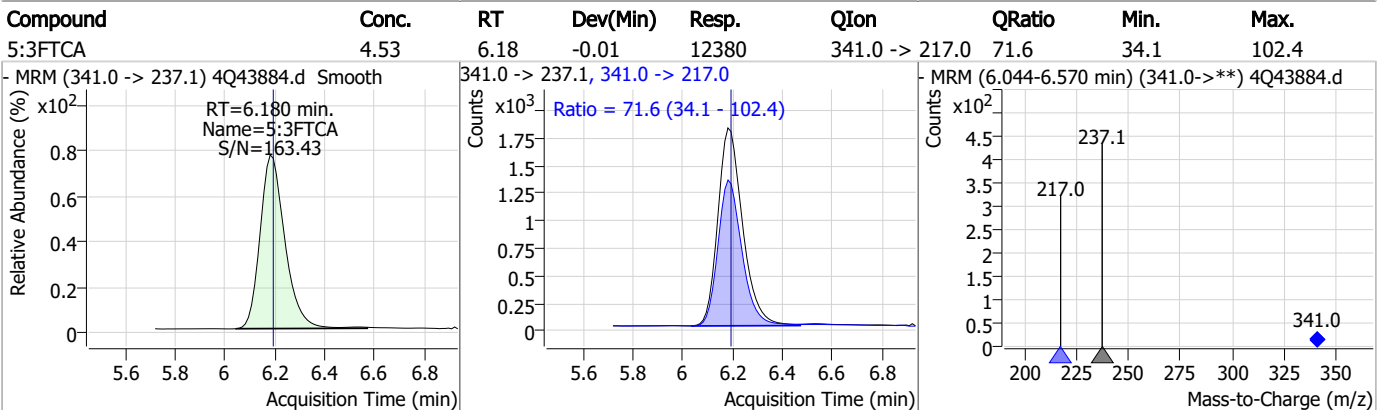
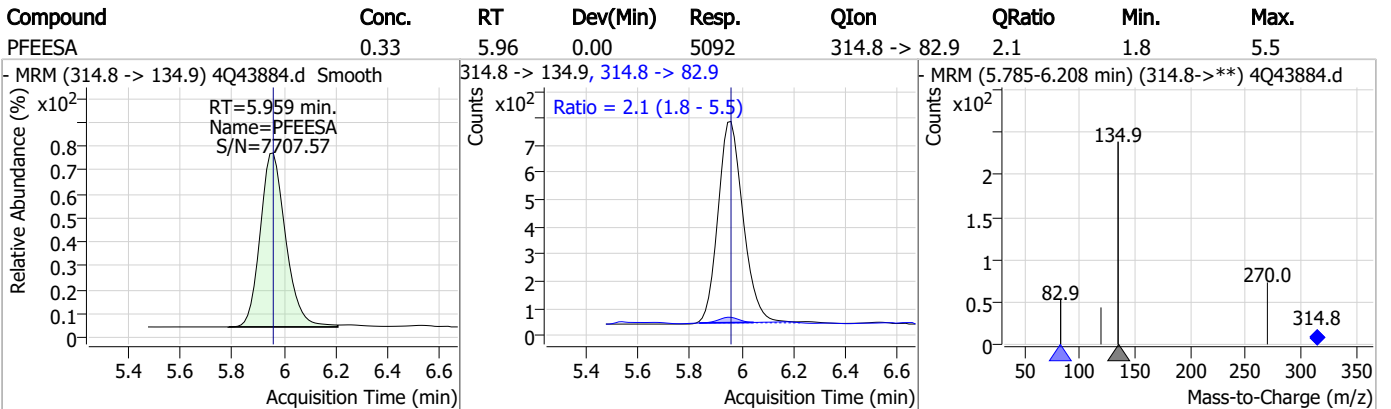
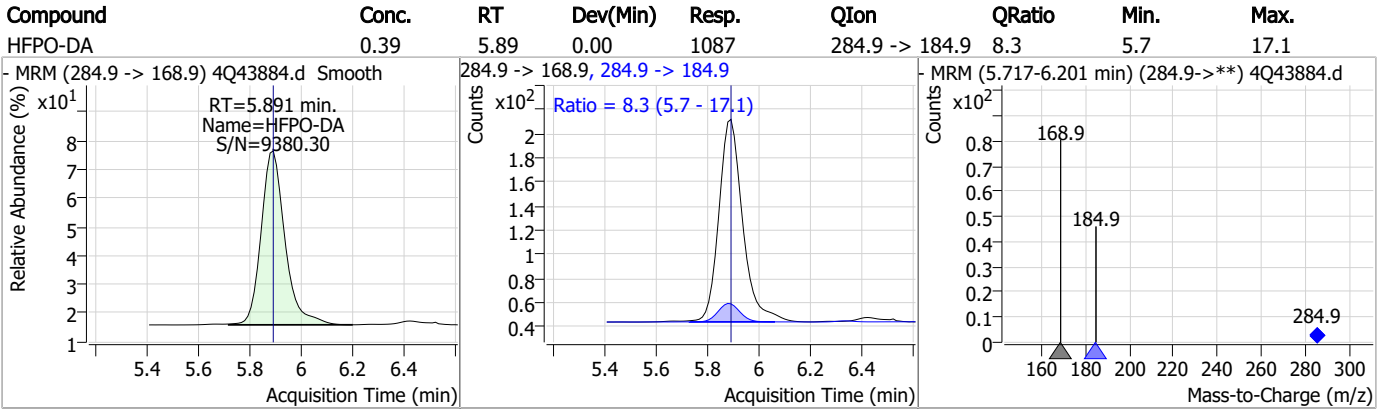
### Perfluorinated Compounds by LC/MS/MS



7.7.2

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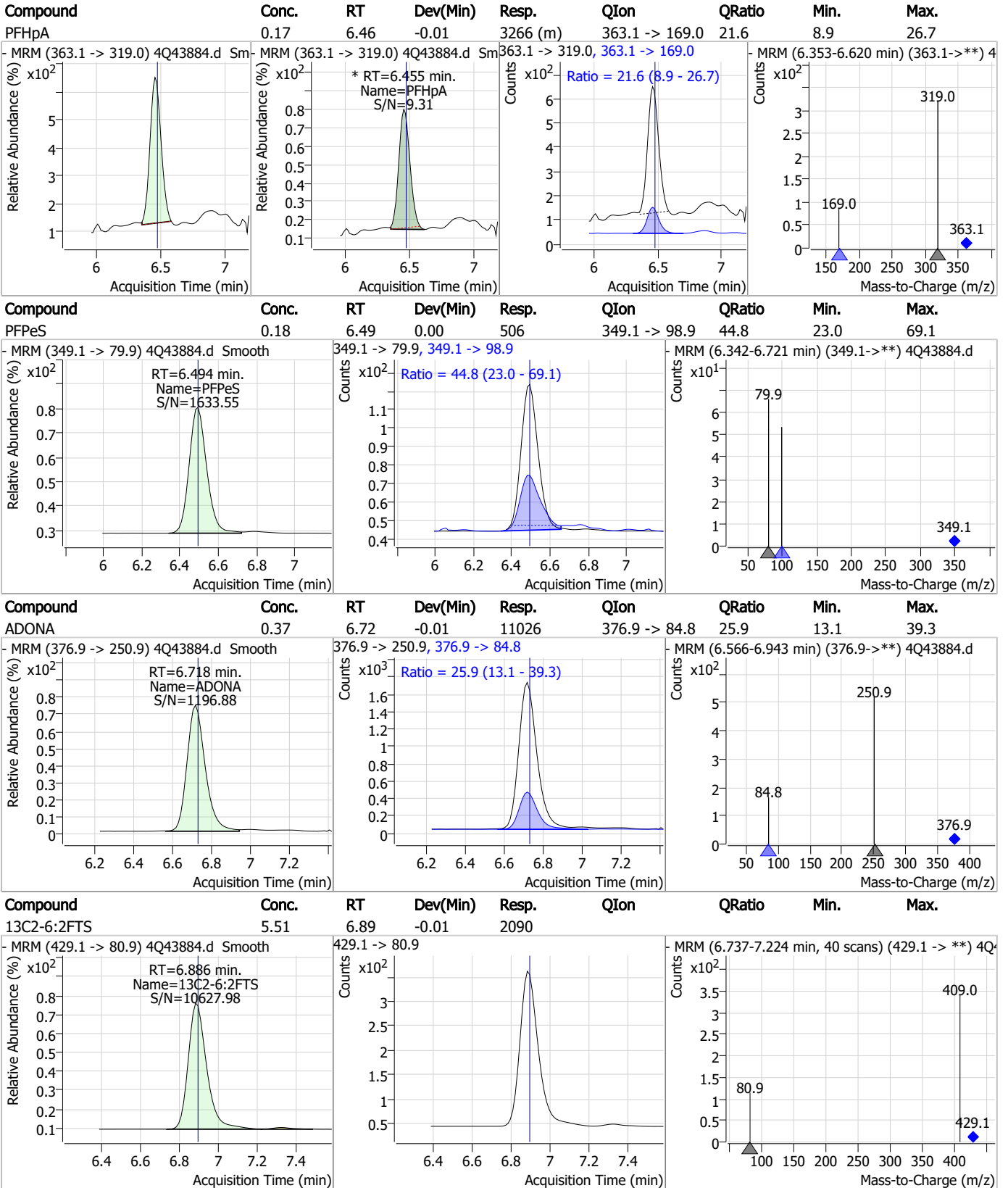
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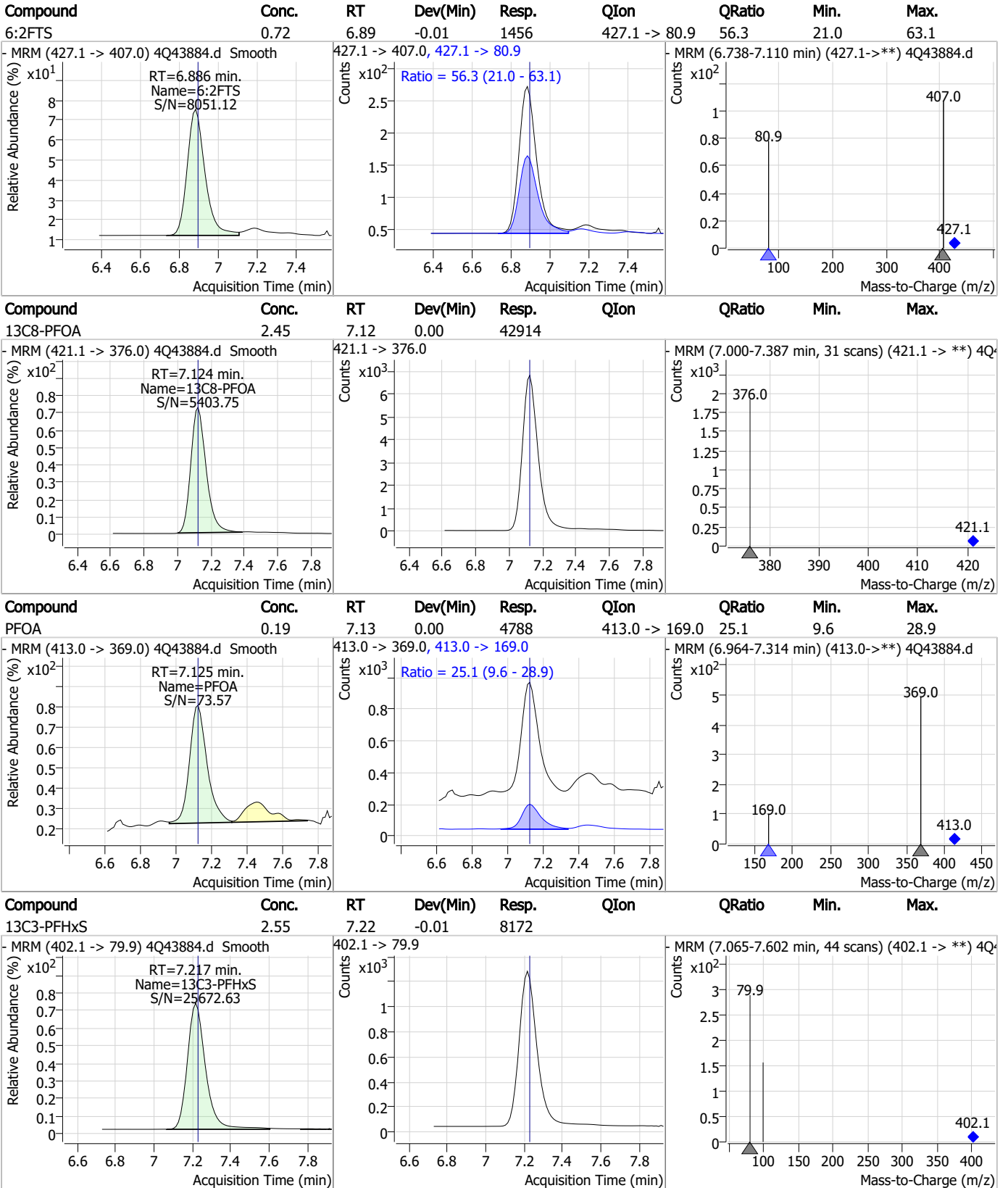
7.7.2

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### Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

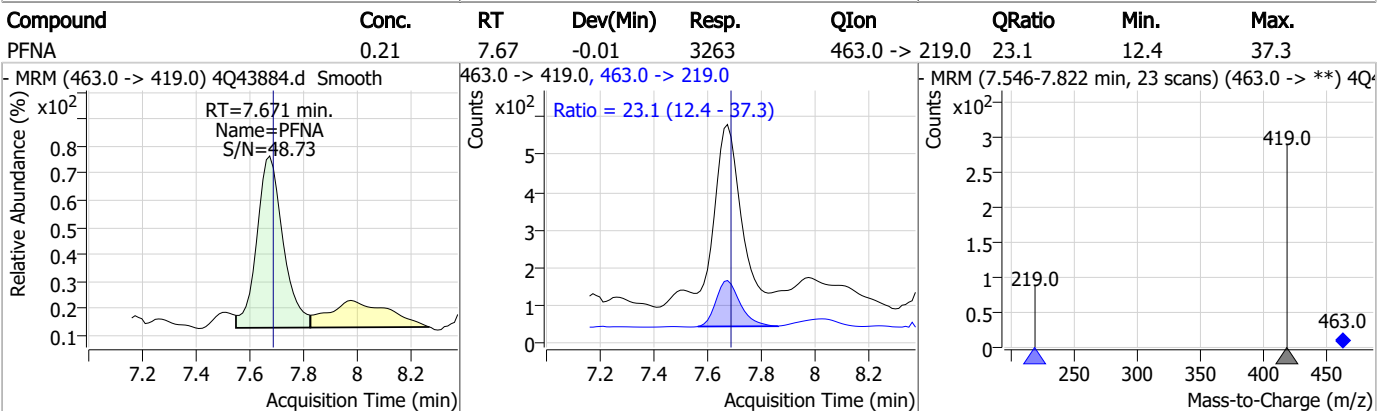
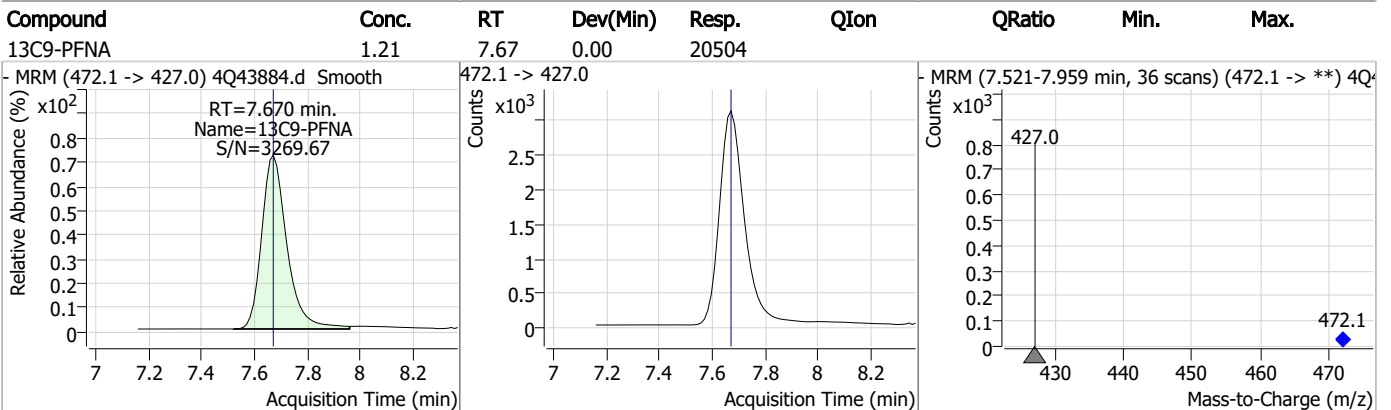
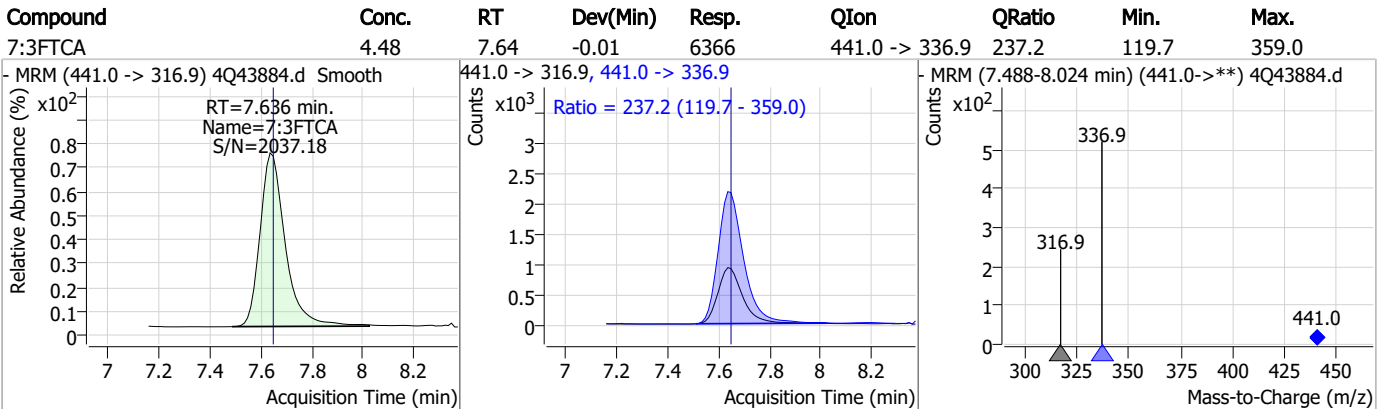
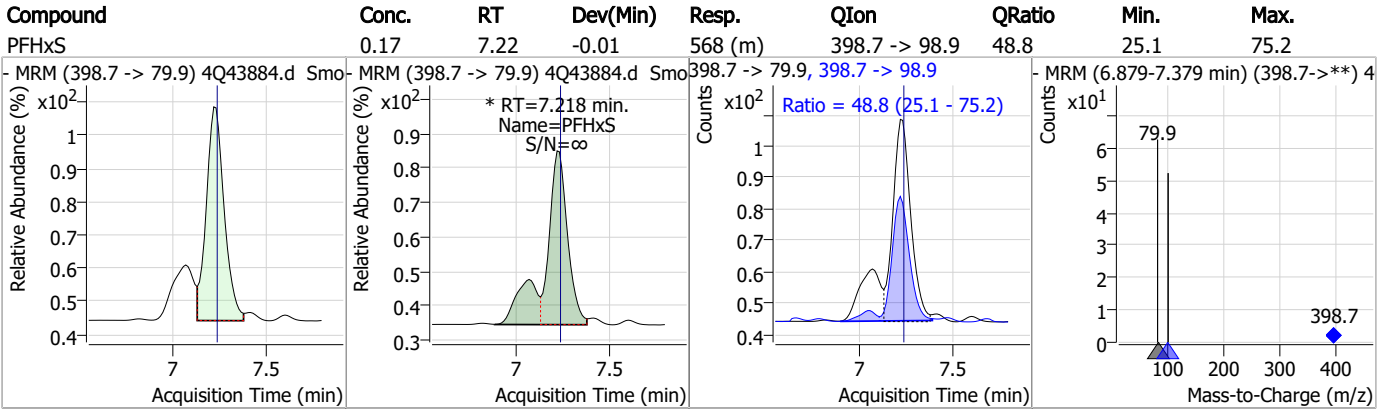


7.7.2

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### Perfluorinated Compounds by LC/MS/MS

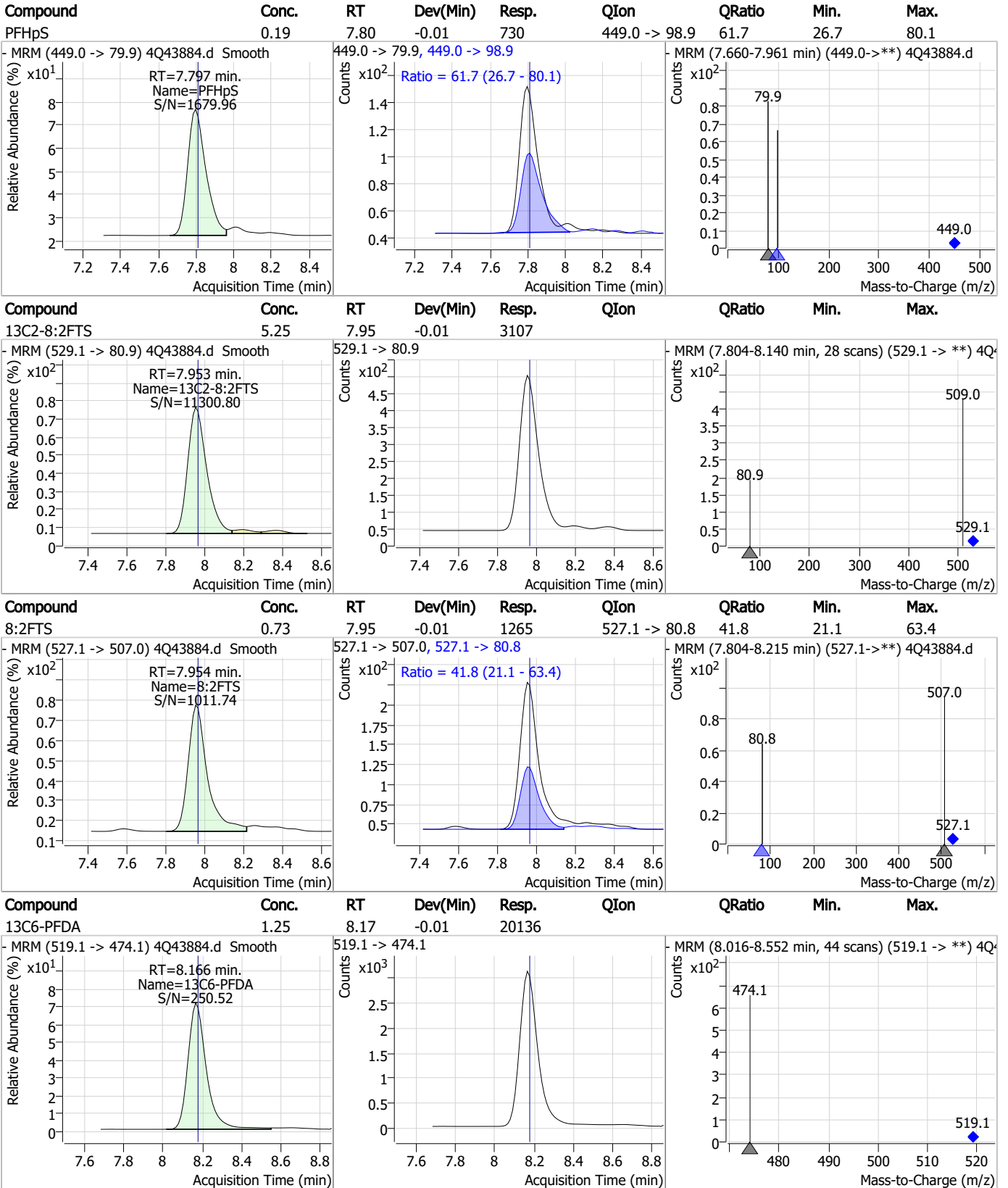


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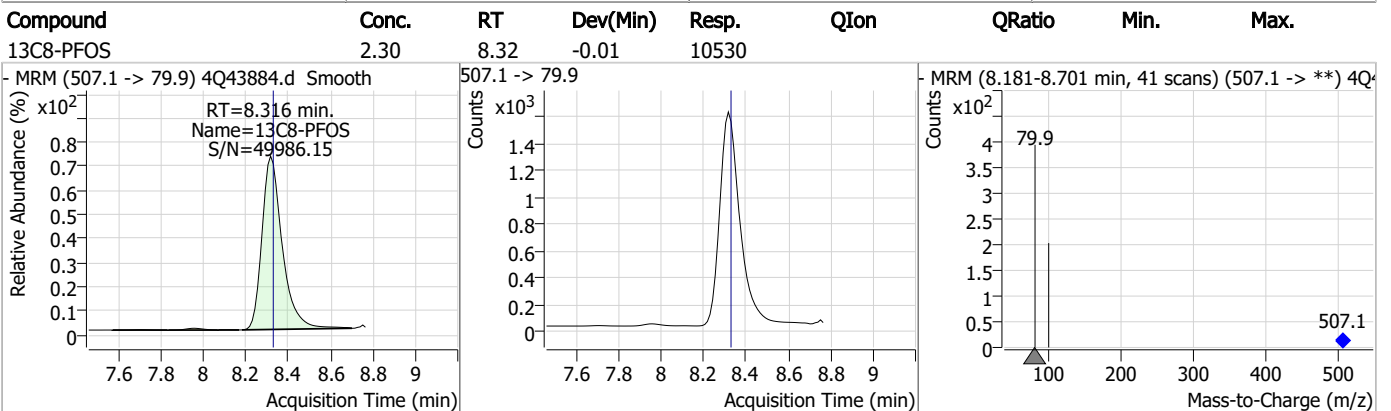
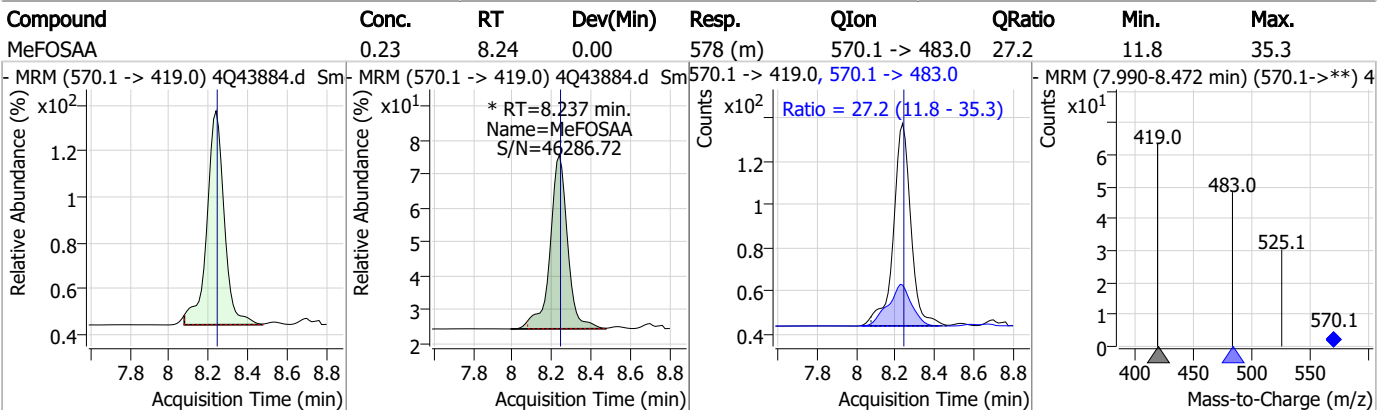
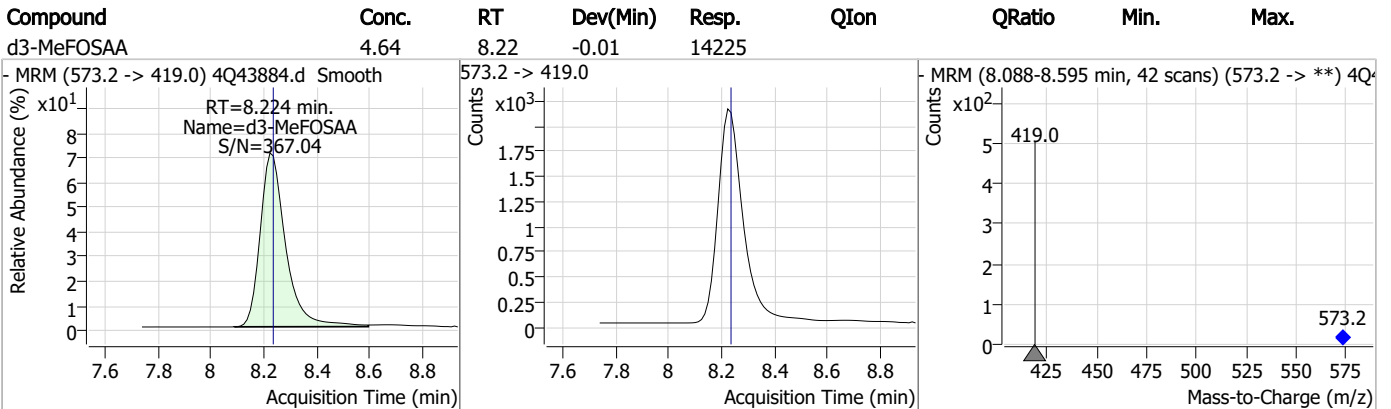
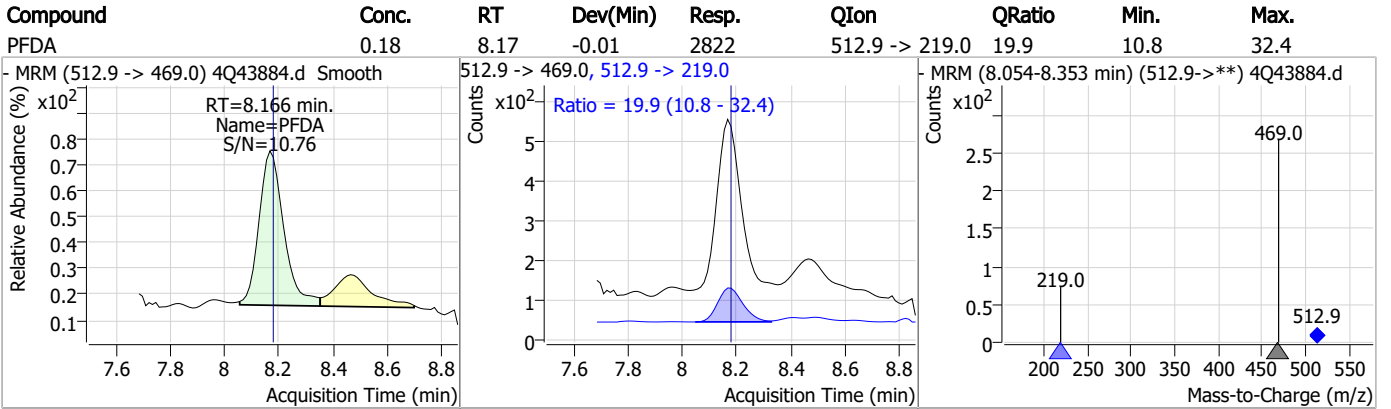
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### Perfluorinated Compounds by LC/MS/MS



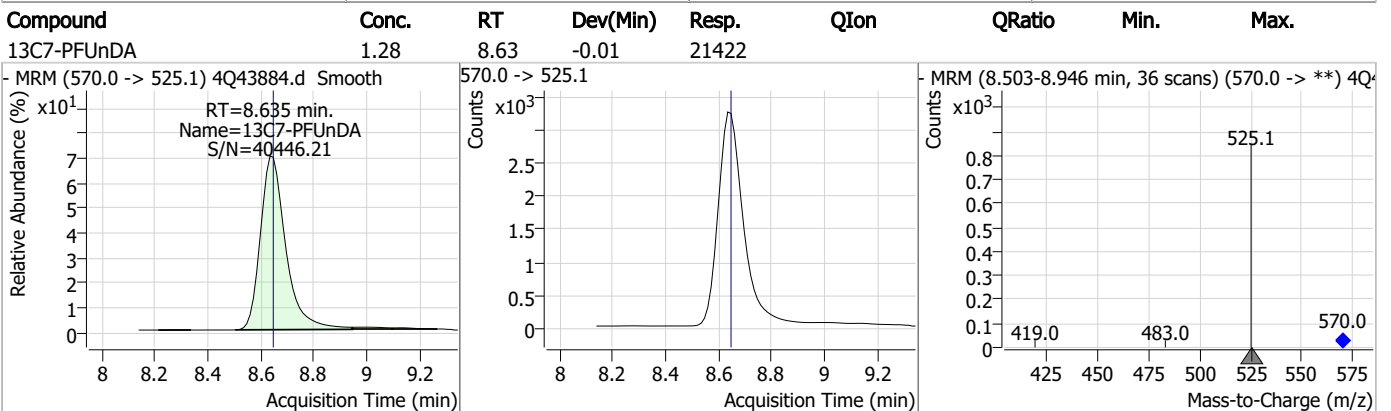
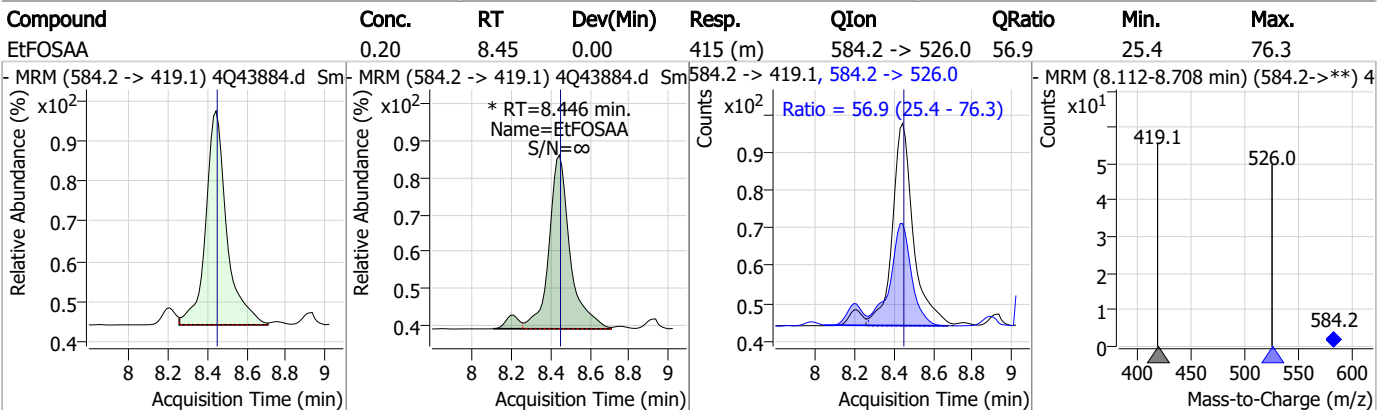
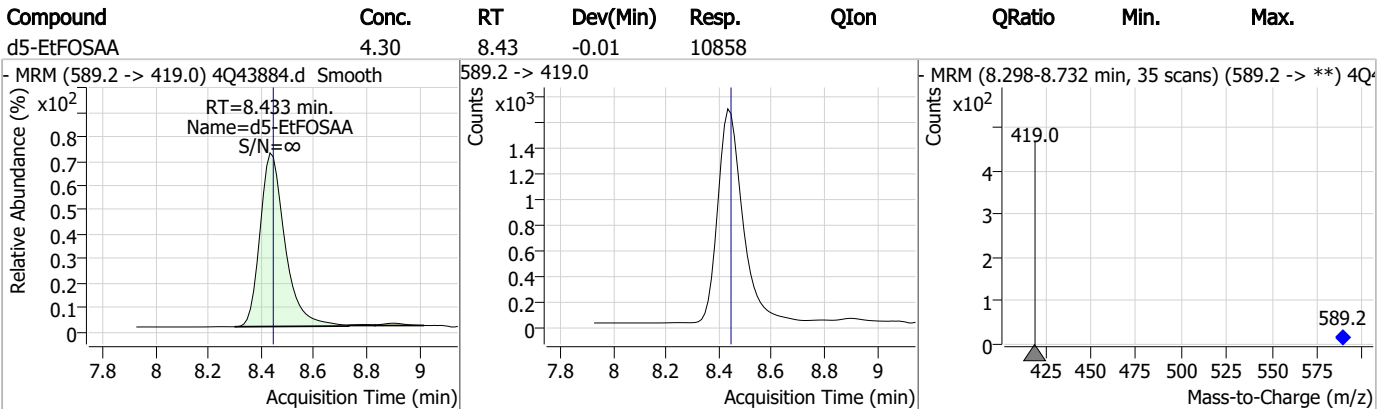
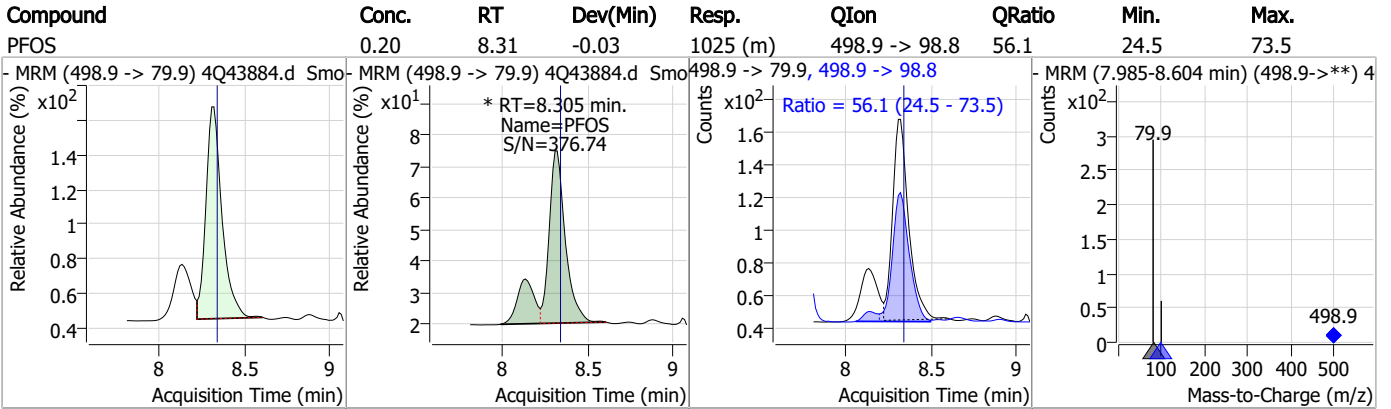
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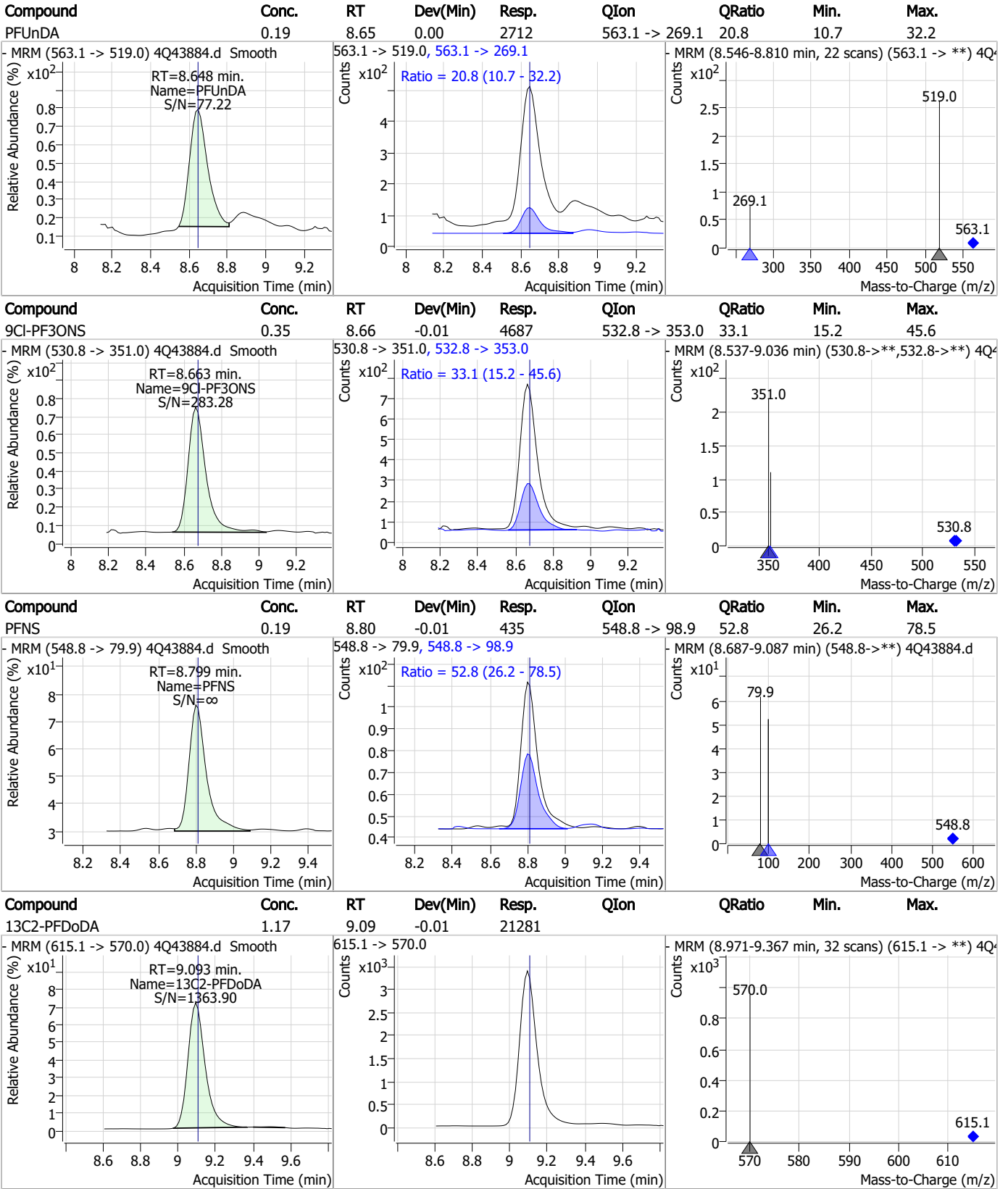
7.7.2

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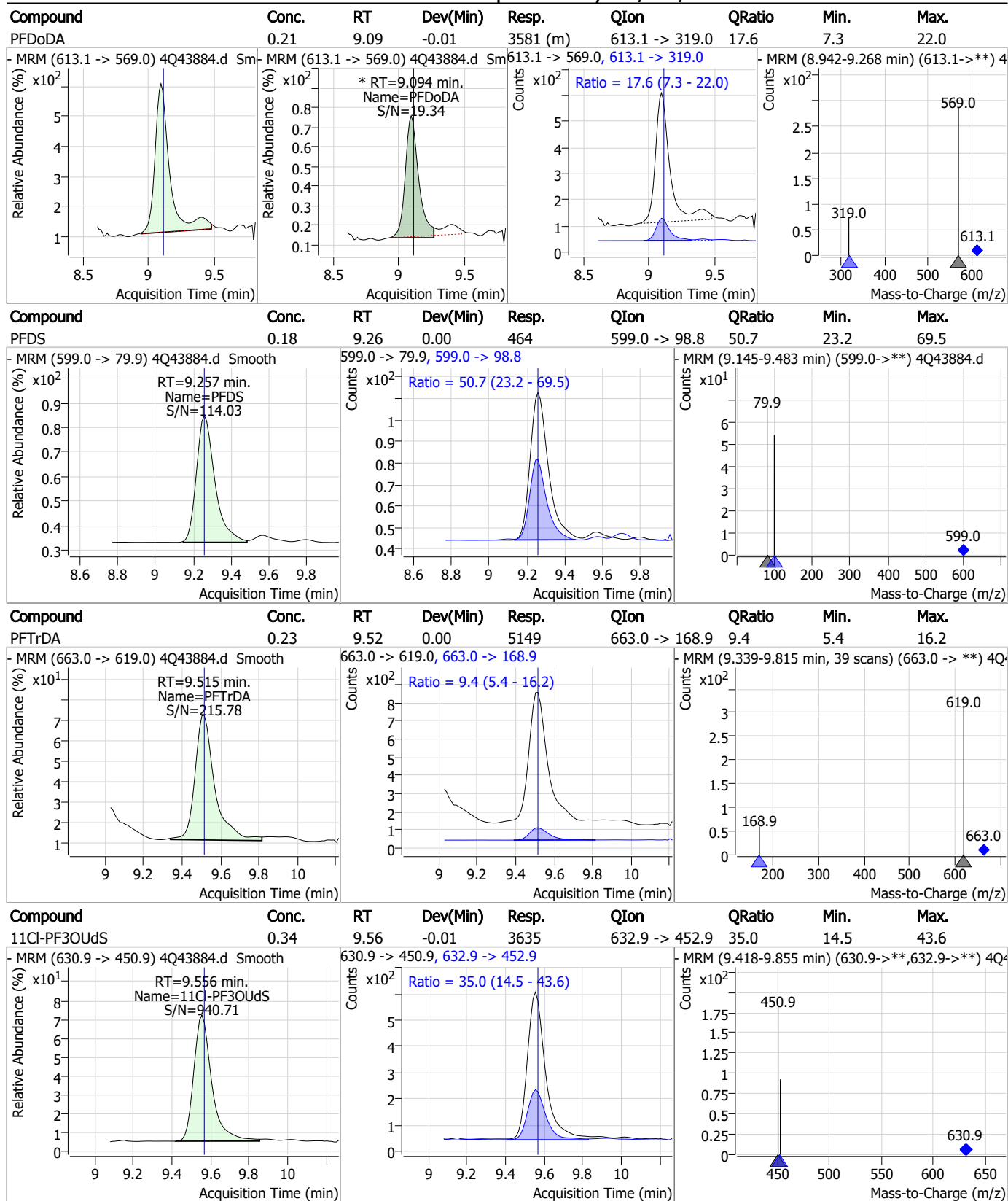
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

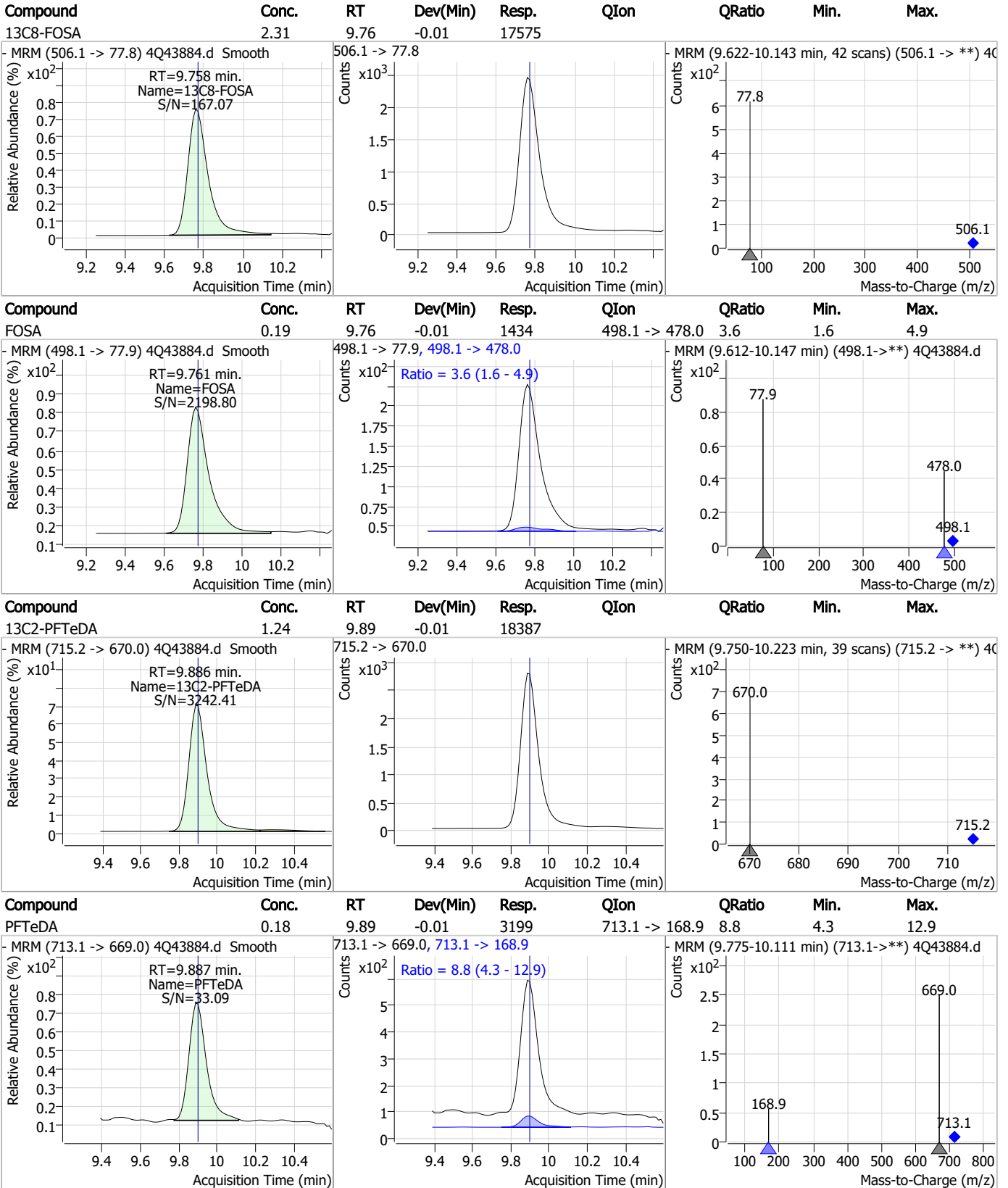


### Perfluorinated Compounds by LC/MS/MS



7.7.2  
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### Perfluorinated Compounds by LC/MS/MS

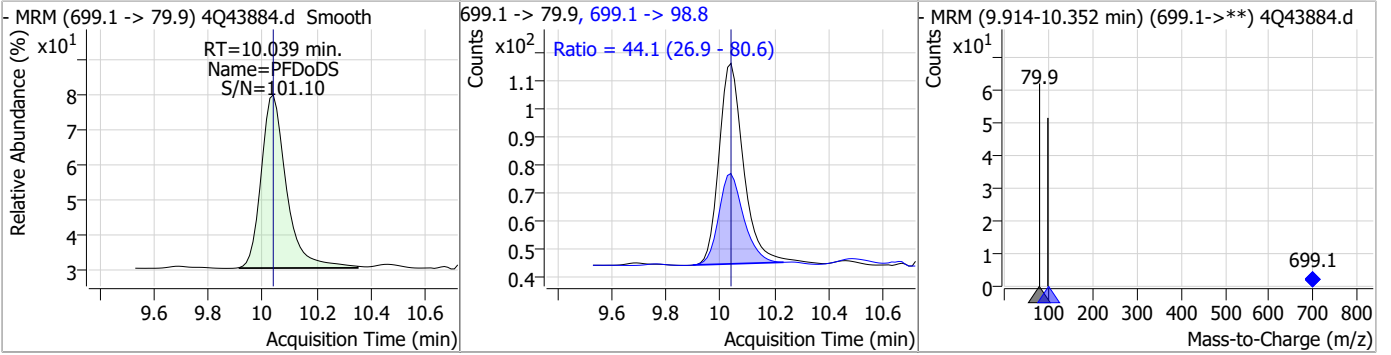


7.7.2

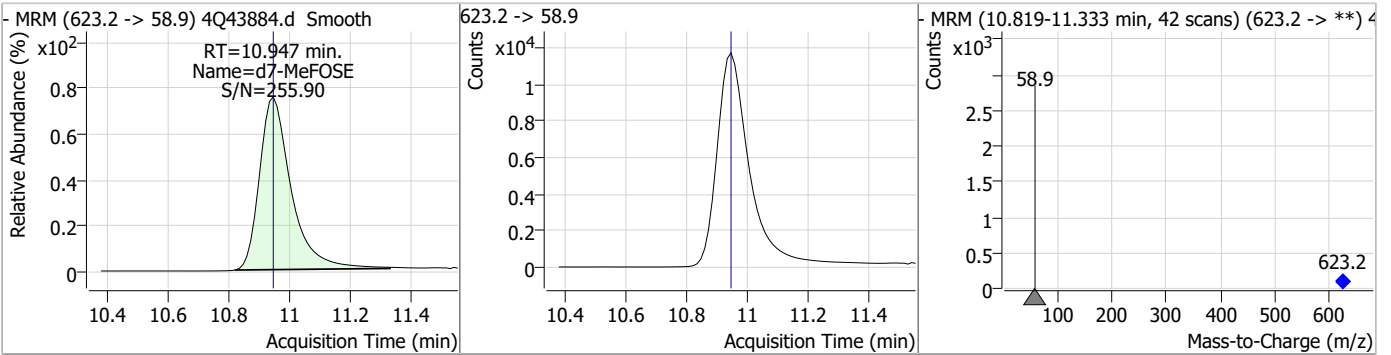
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### Perfluorinated Compounds by LC/MS/MS

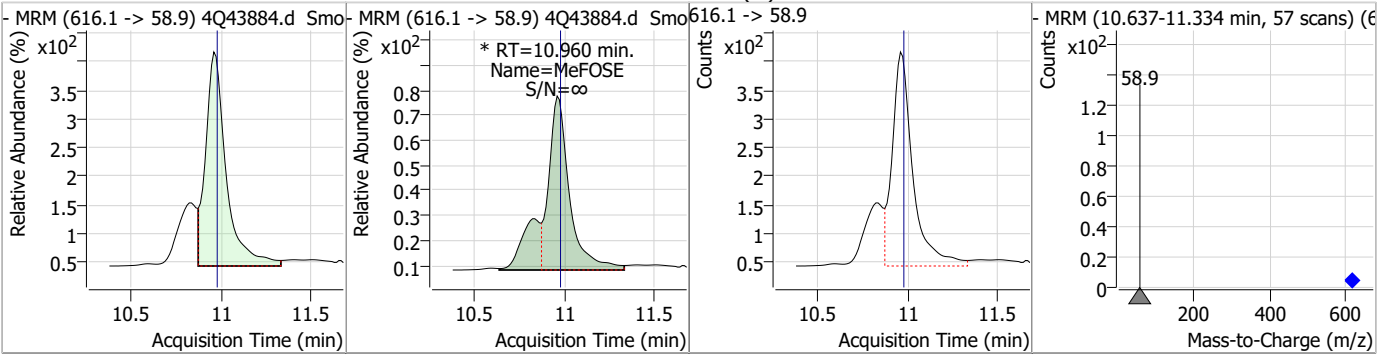
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.20	10.04	0.00	469	699.1 -> 98.8	44.1	26.9	80.6



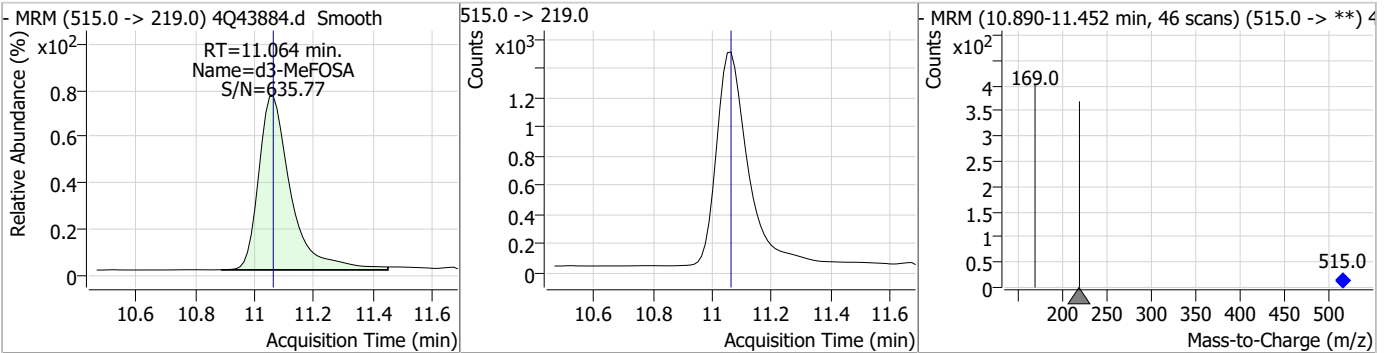
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.31	10.95	0.00	84284				



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

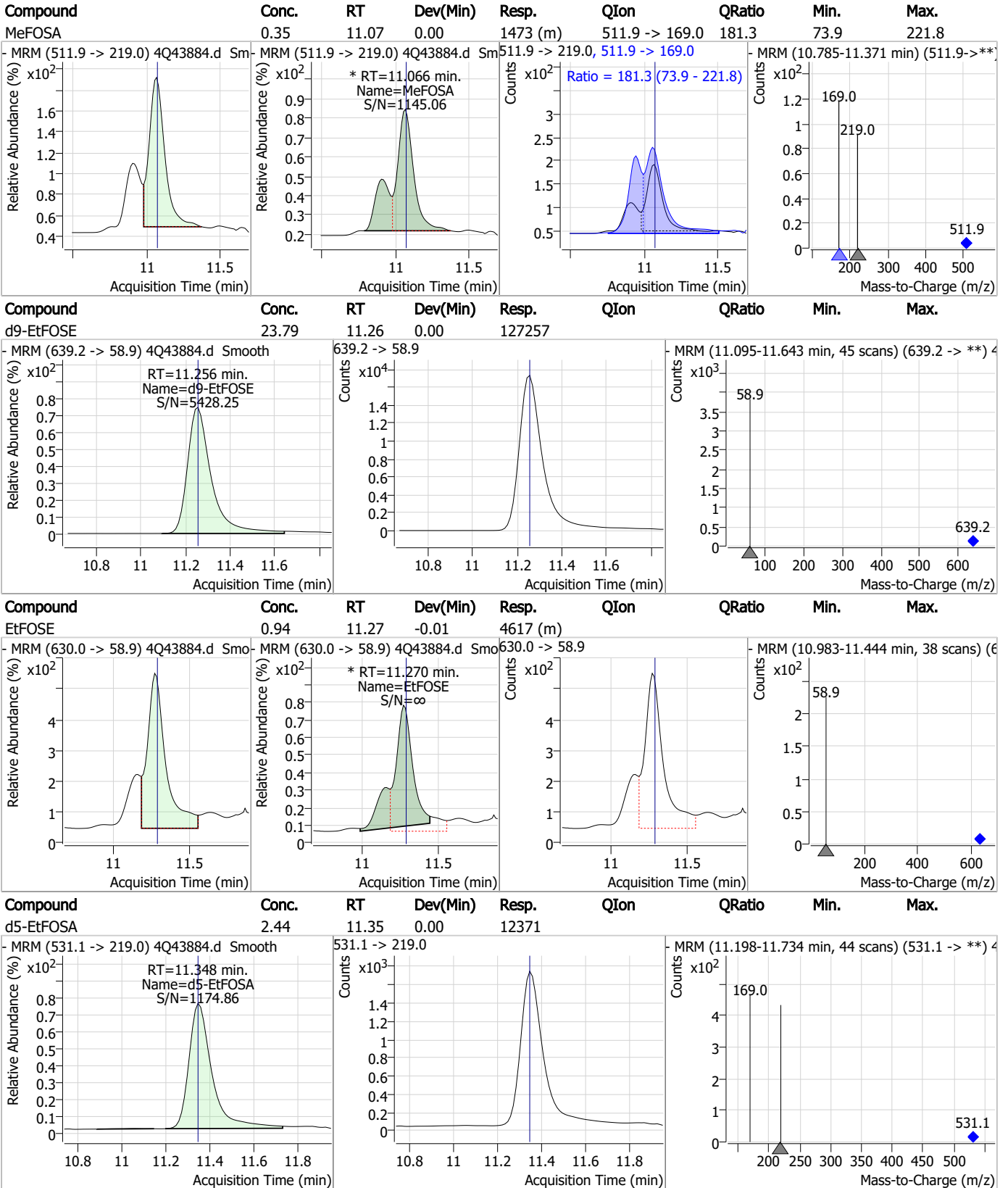


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.33	11.06	0.00	11108				





### Perfluorinated Compounds by LC/MS/MS



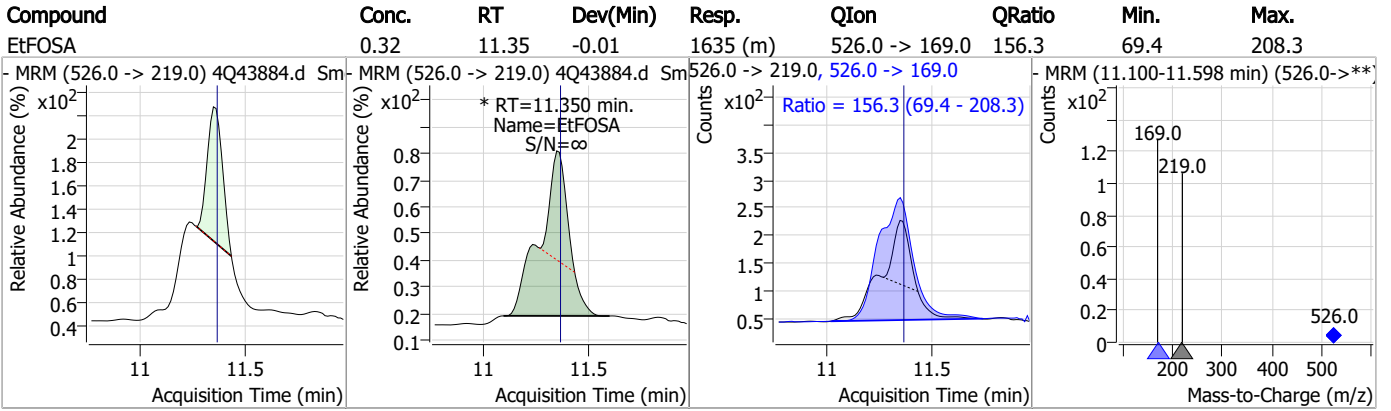
7.7.2

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### Perfluorinated Compounds by LC/MS/MS



7.7.2

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# Manual Integration Approval Summary

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

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

7.7.2.1  
7

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43885.d  
 Operator : natashag  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/3/2023 11:26:14 AM  
 Sample Name : ic634-2  
 Vial : P1-A3  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q634.batch.bin  
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

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

## Perfluorinated Compounds by LC/MS/MS

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

## Perfluorinated Compounds by LC/MS/MS

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

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

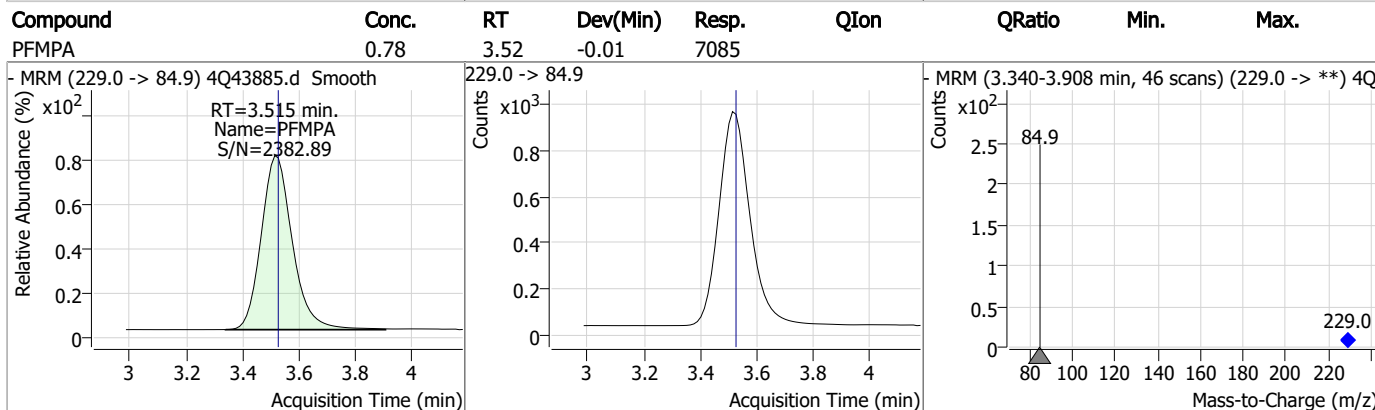
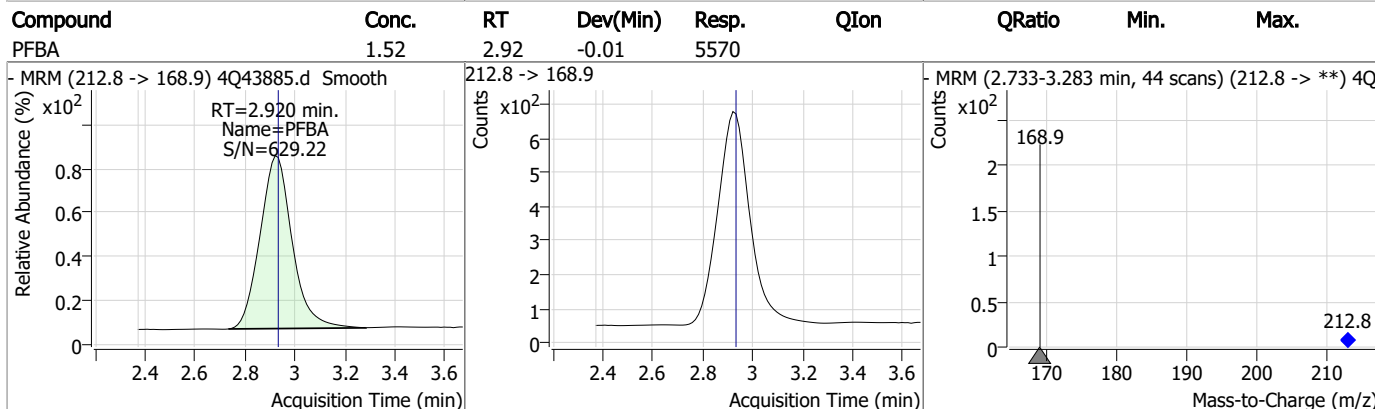
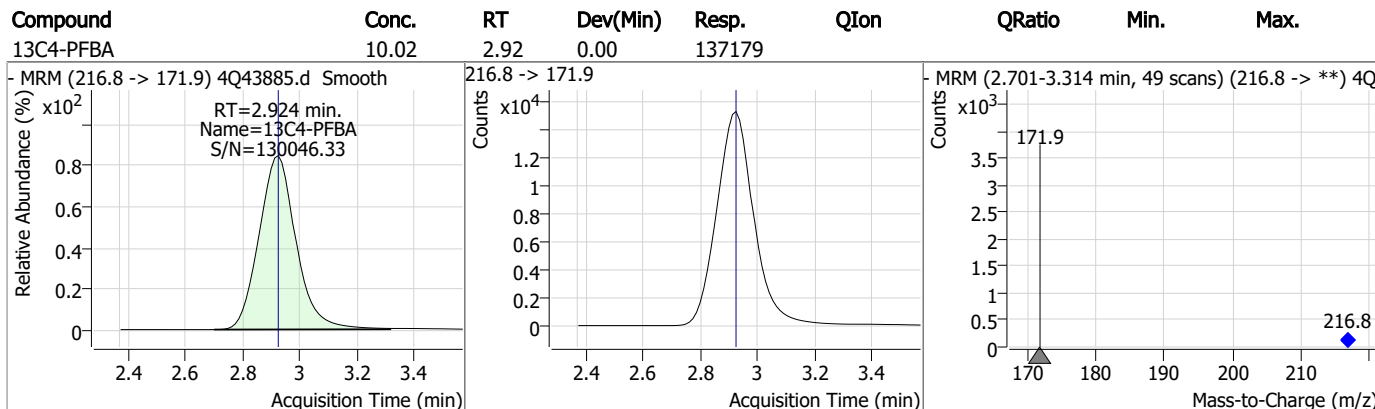
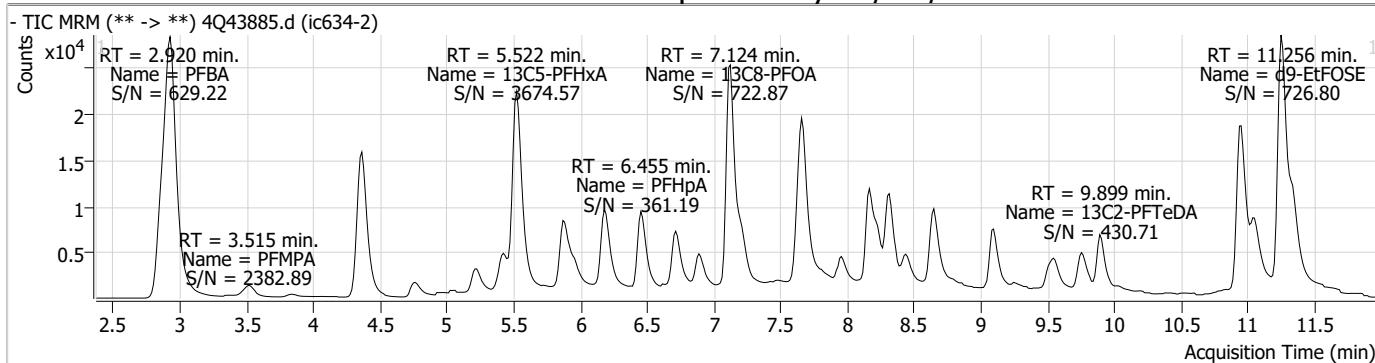
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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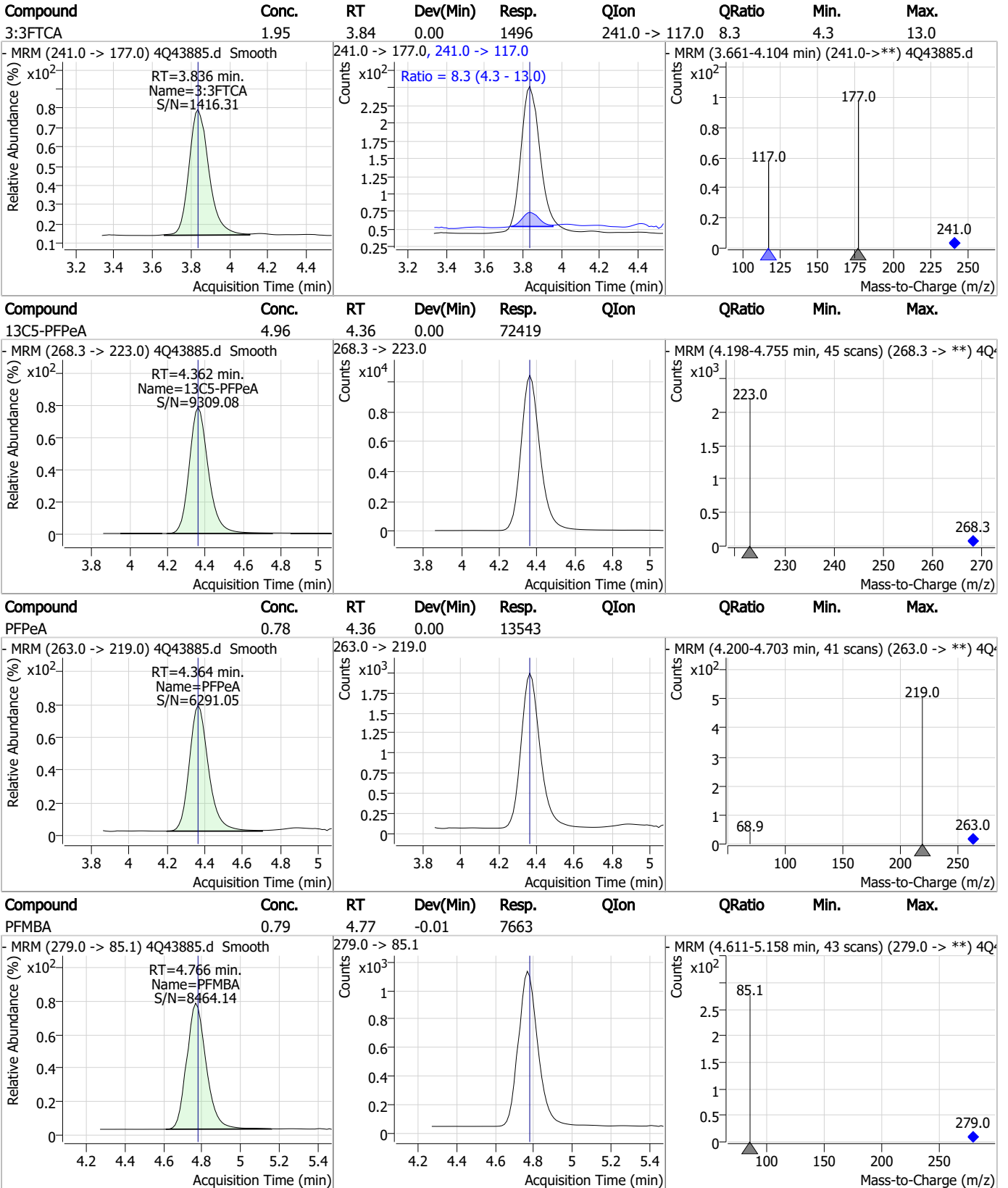
7.7.3

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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

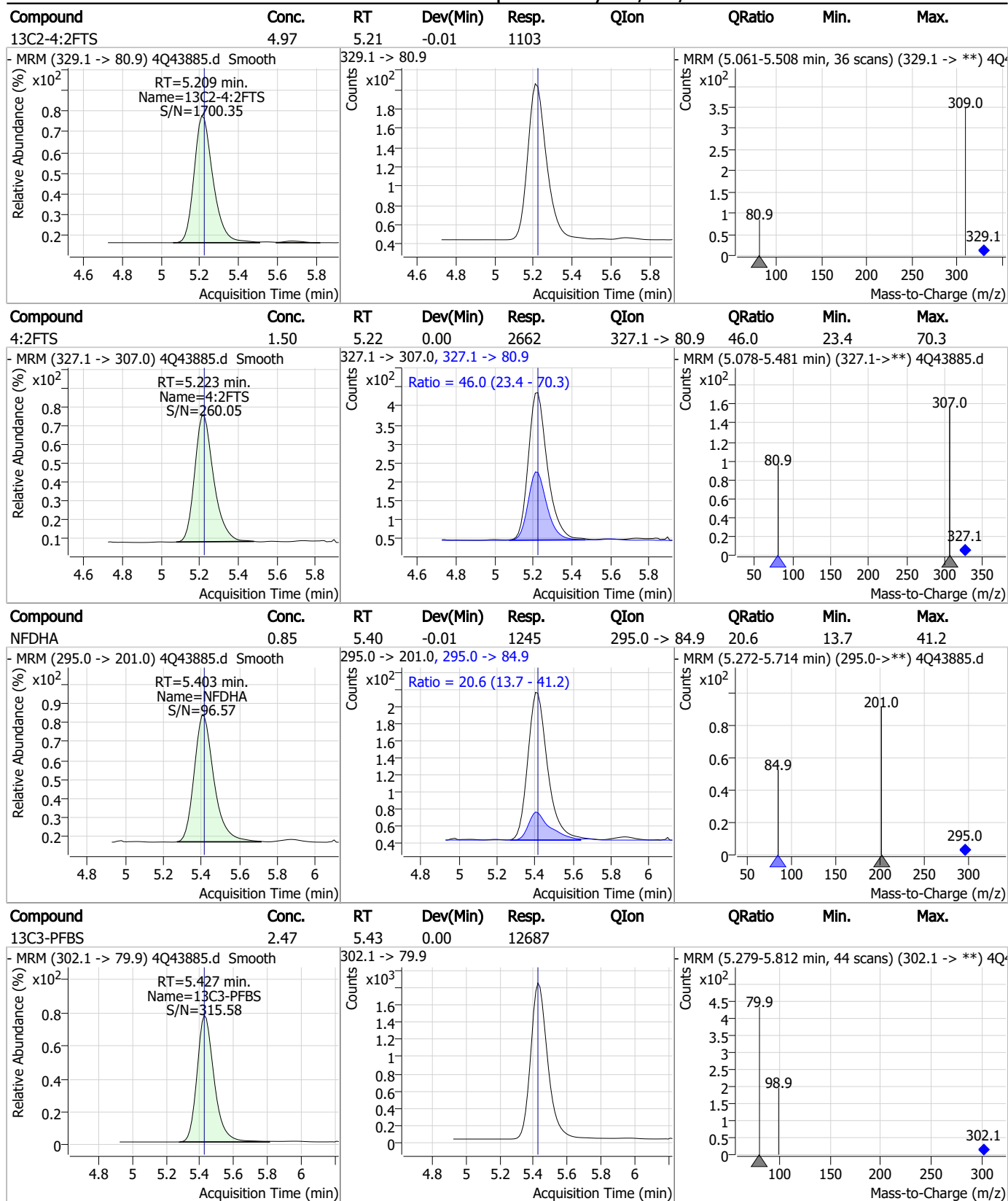


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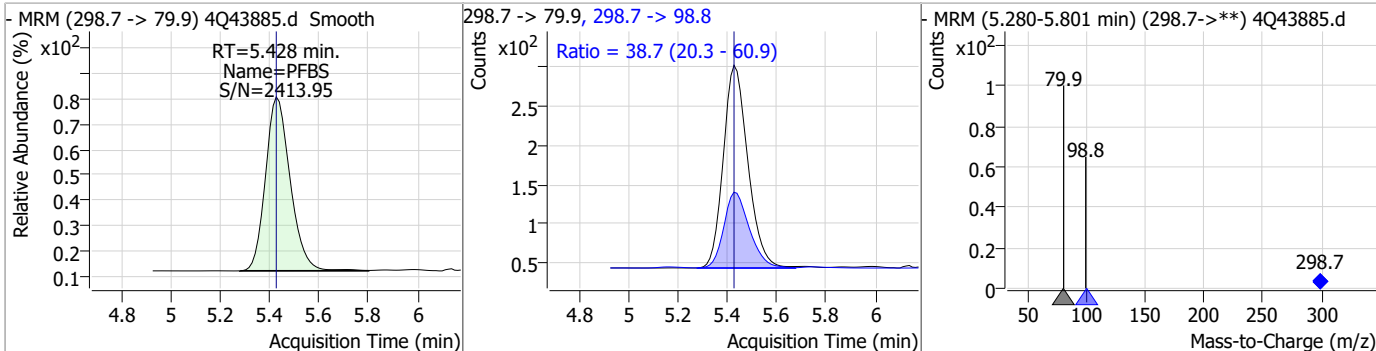
### Perfluorinated Compounds by LC/MS/MS



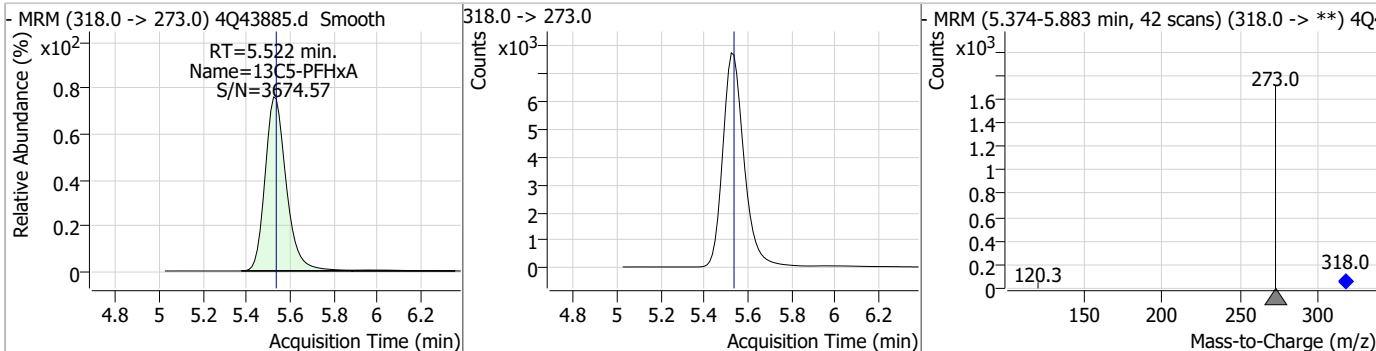
7.7.3  
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### Perfluorinated Compounds by LC/MS/MS

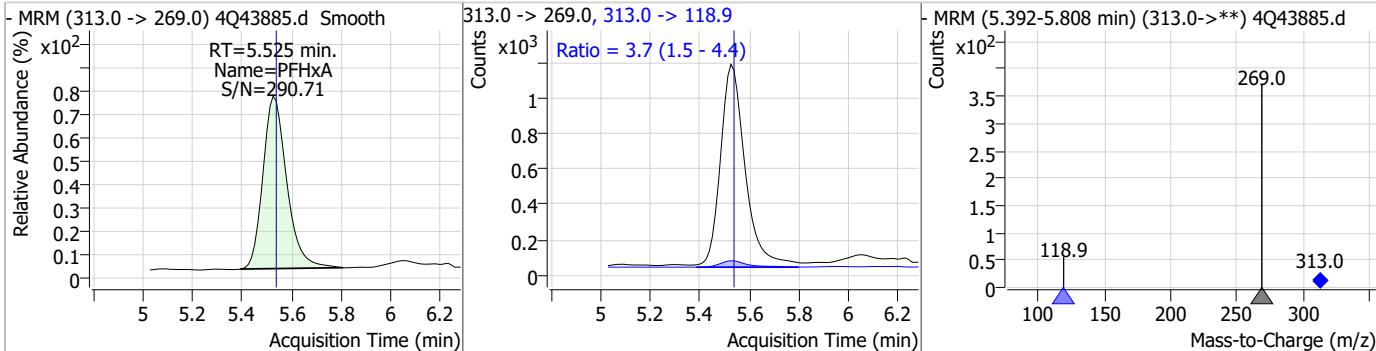
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.34	5.43	0.00	1783	298.7 -> 98.8	38.7	20.3	60.9



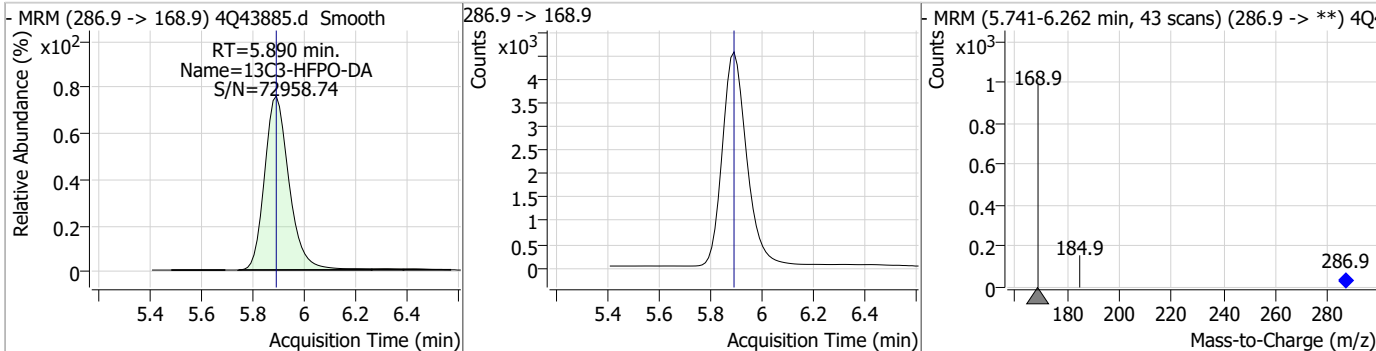
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.50	5.52	-0.01	52123				



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

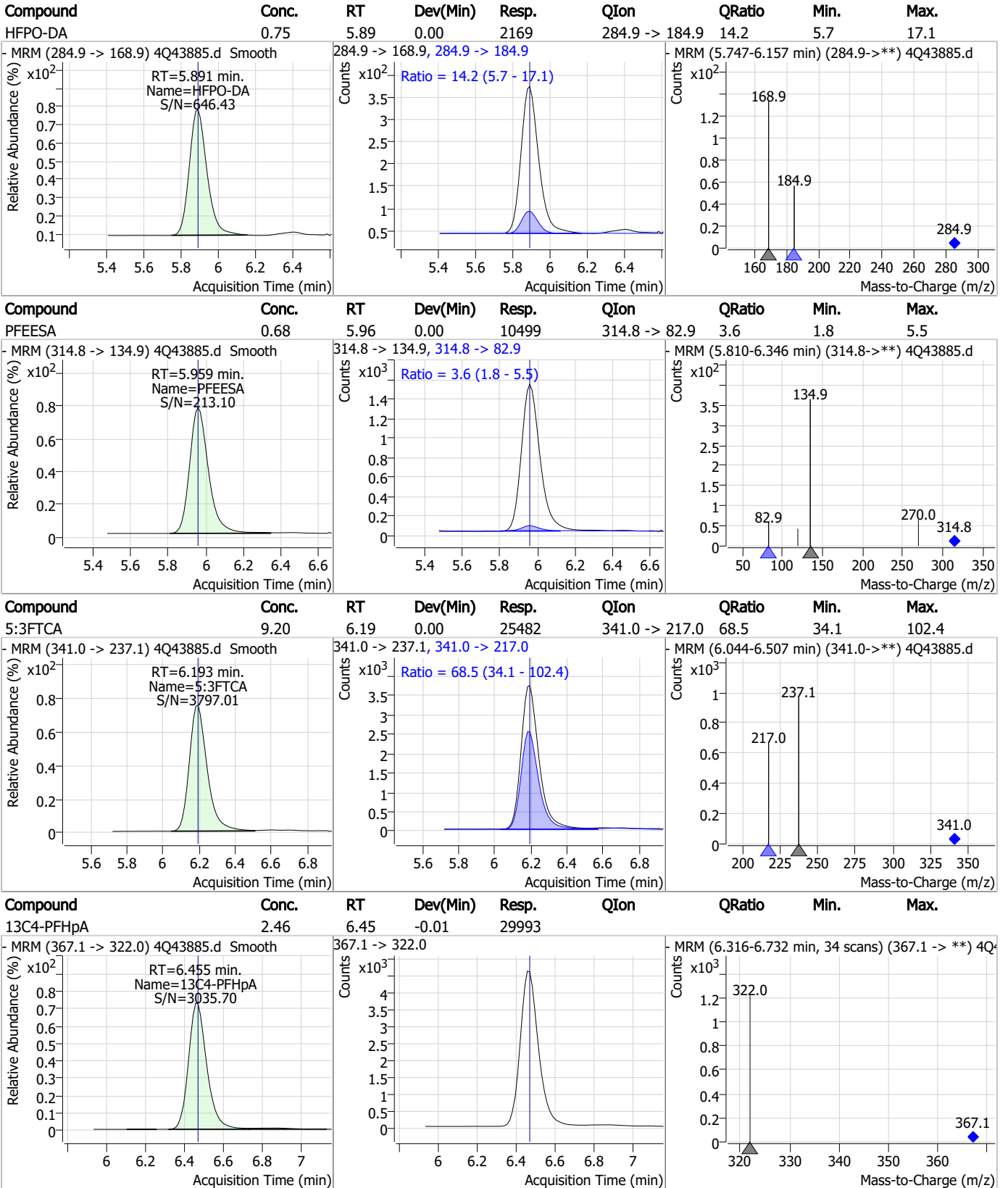


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.65	5.89	0.00	30118				



7.7.3  
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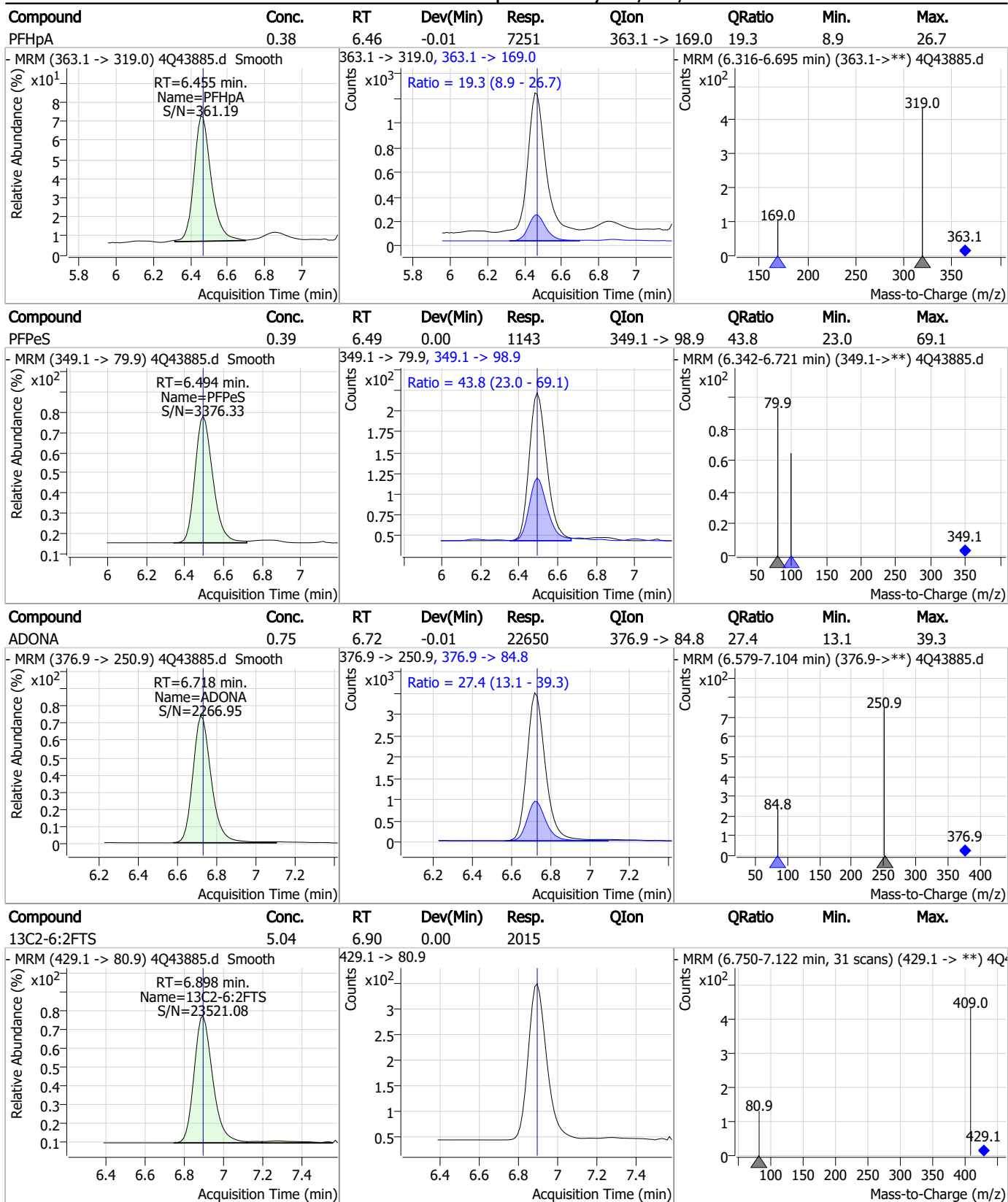
### Perfluorinated Compounds by LC/MS/MS



7.7.3

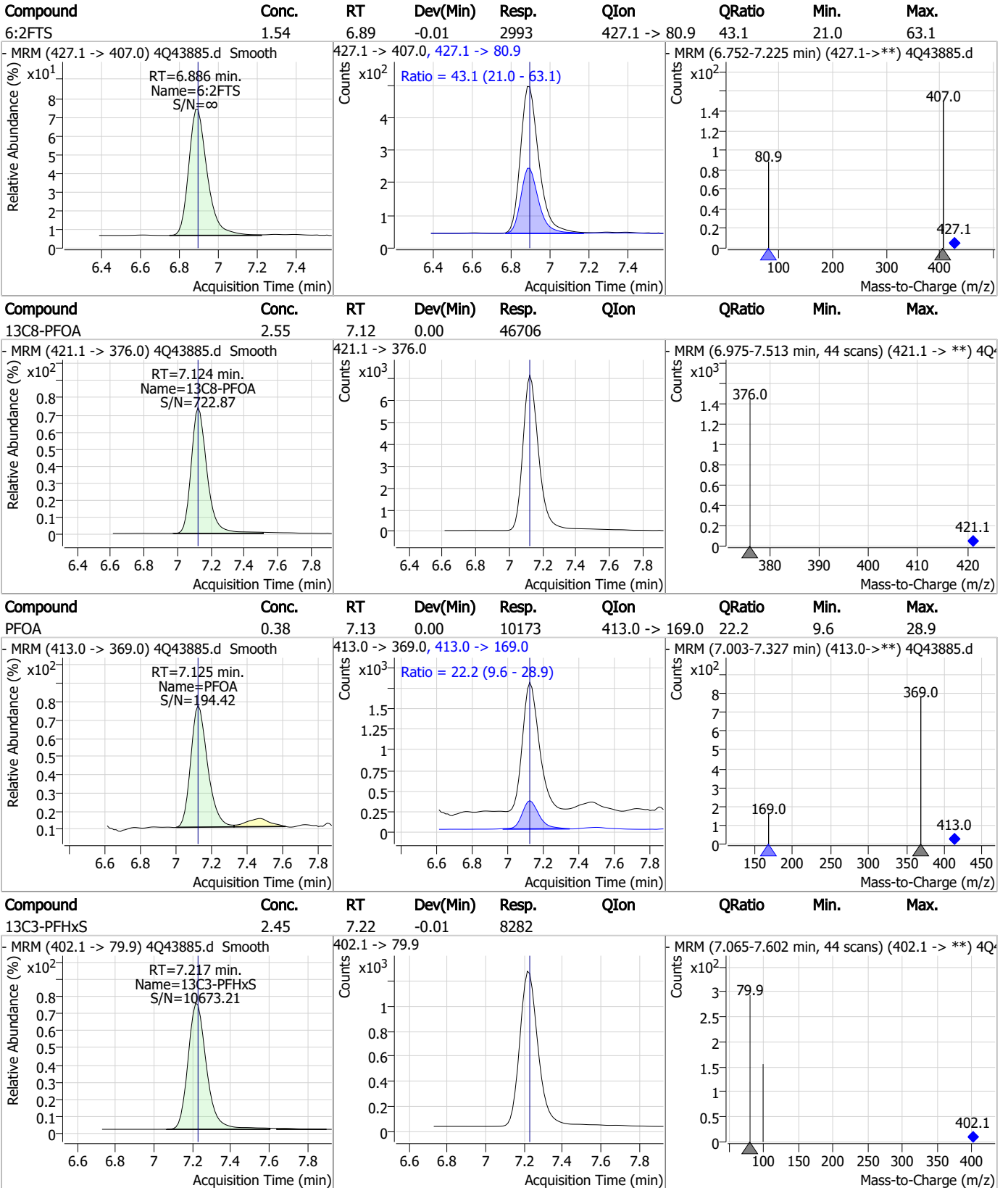
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### Perfluorinated Compounds by LC/MS/MS



7.7.3  
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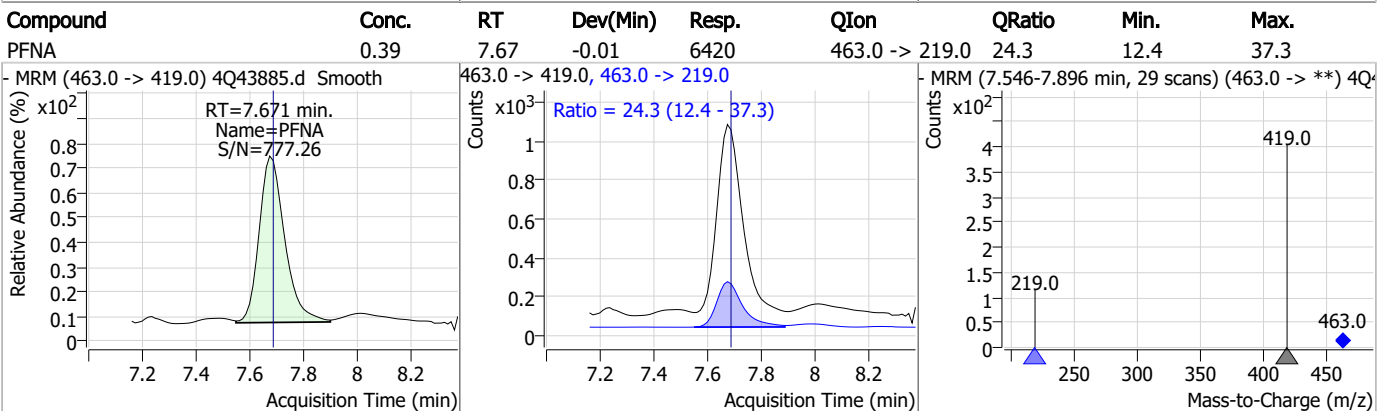
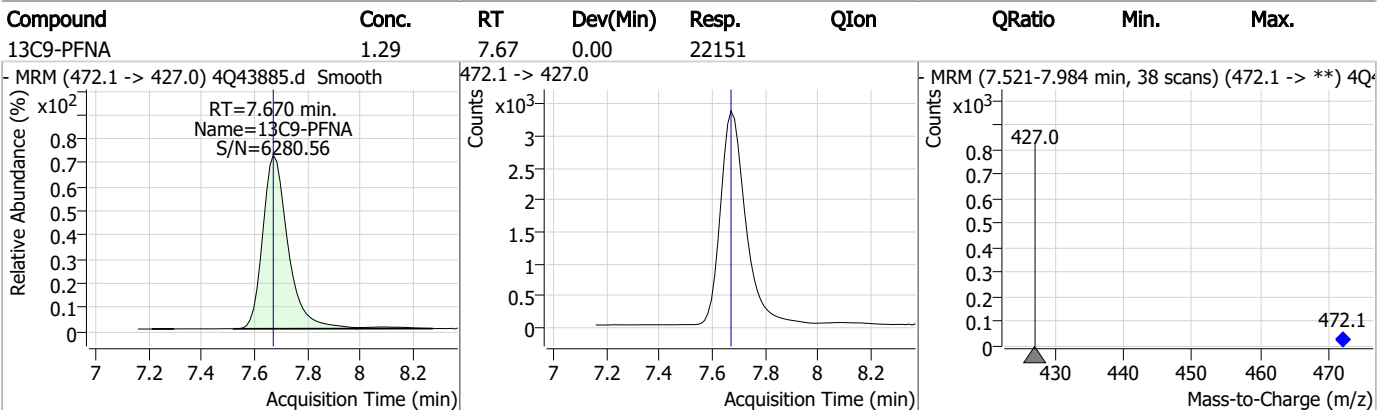
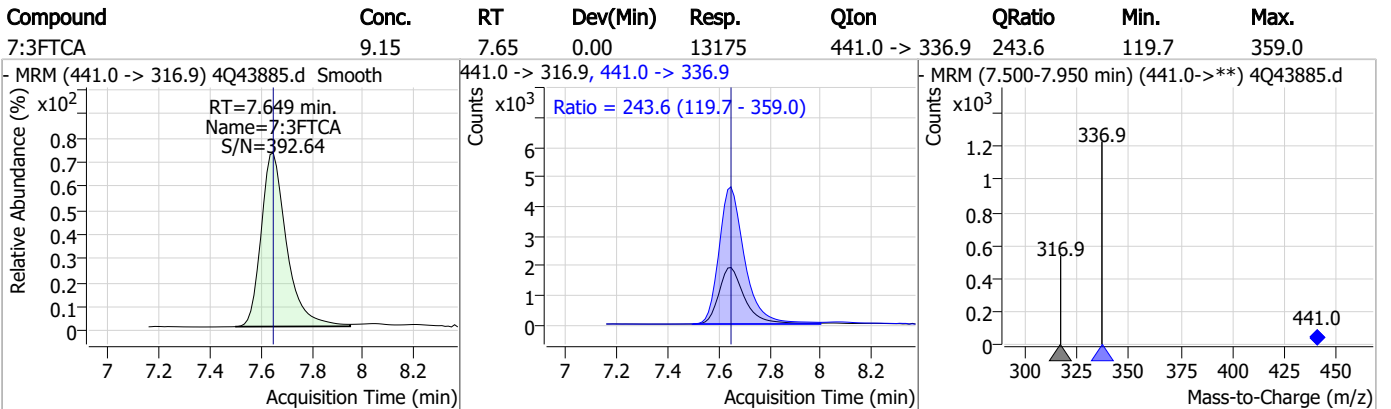
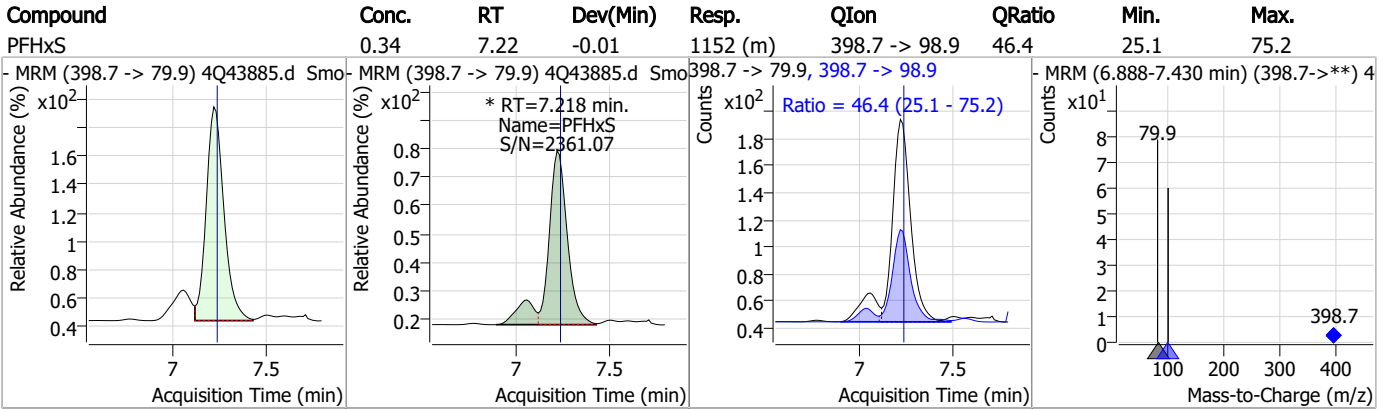
### Perfluorinated Compounds by LC/MS/MS



7.7.3

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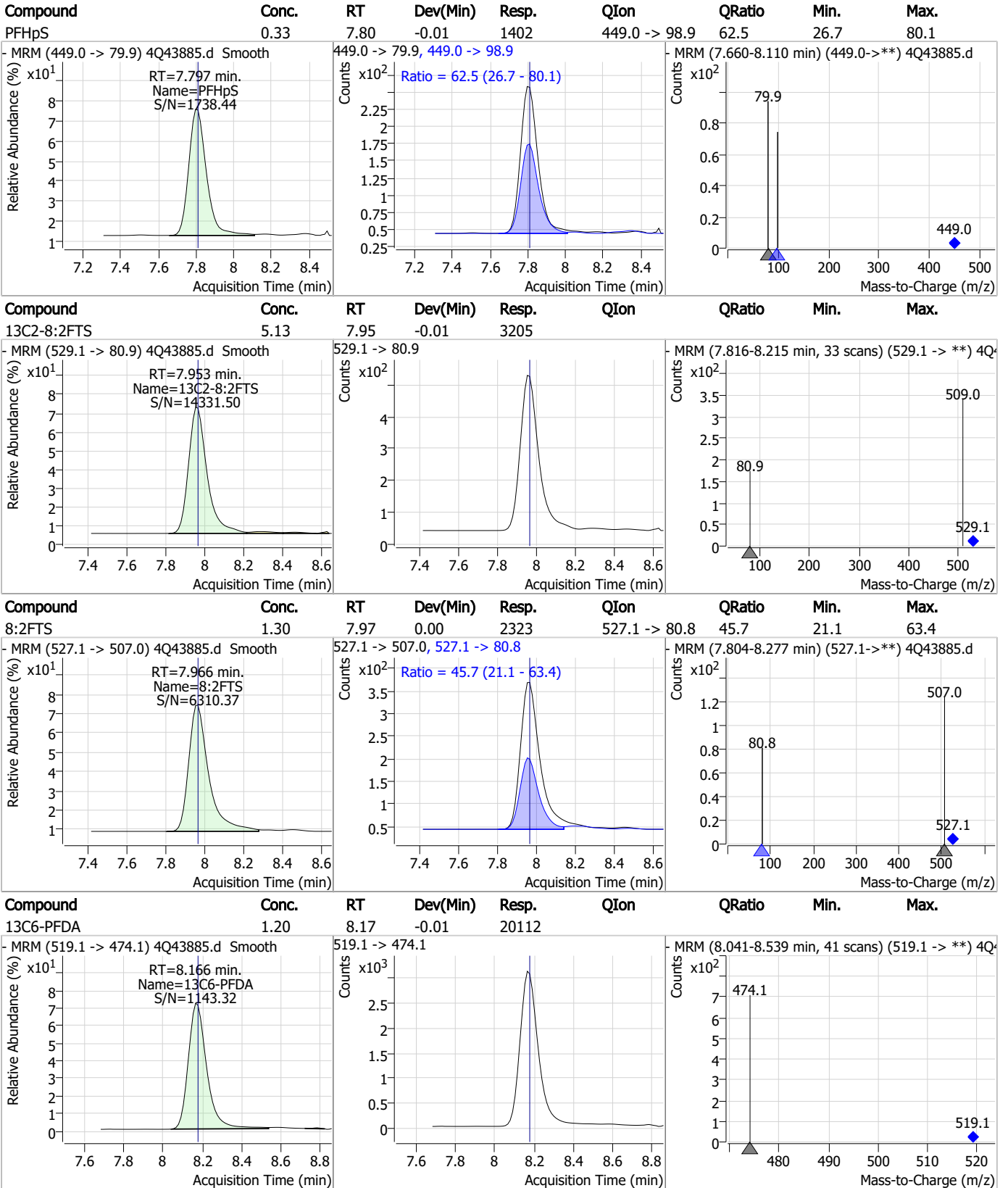
### Perfluorinated Compounds by LC/MS/MS



7.7.3

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### Perfluorinated Compounds by LC/MS/MS

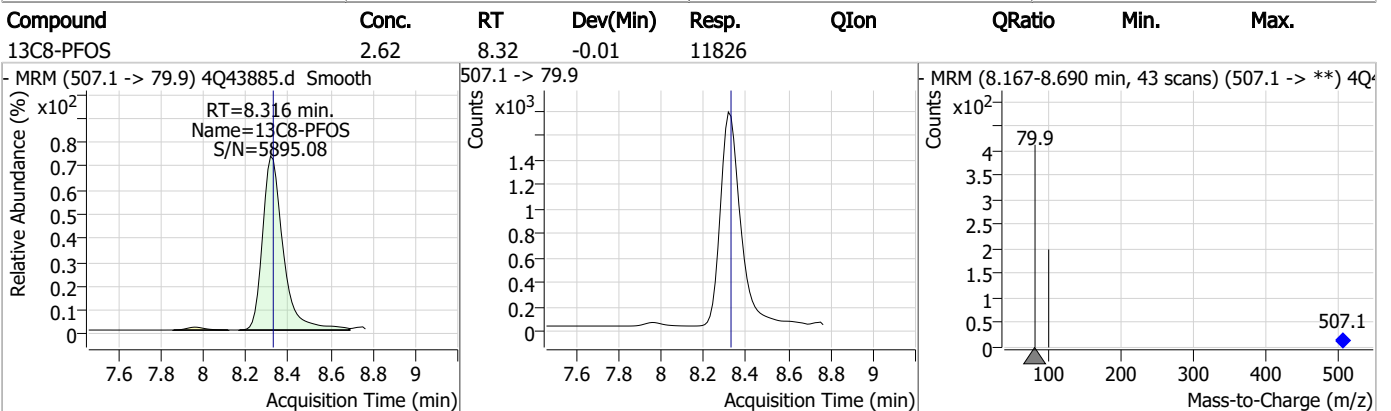
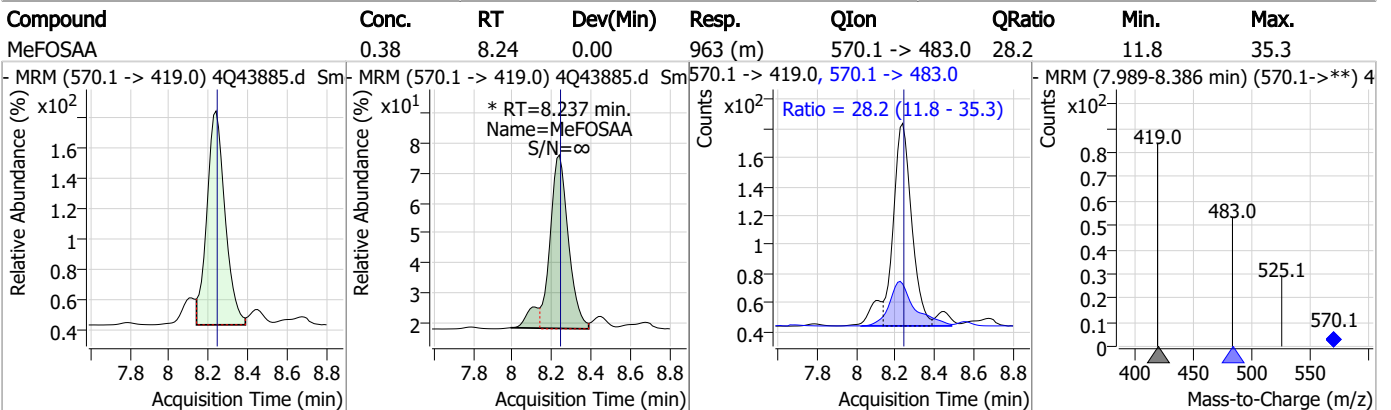
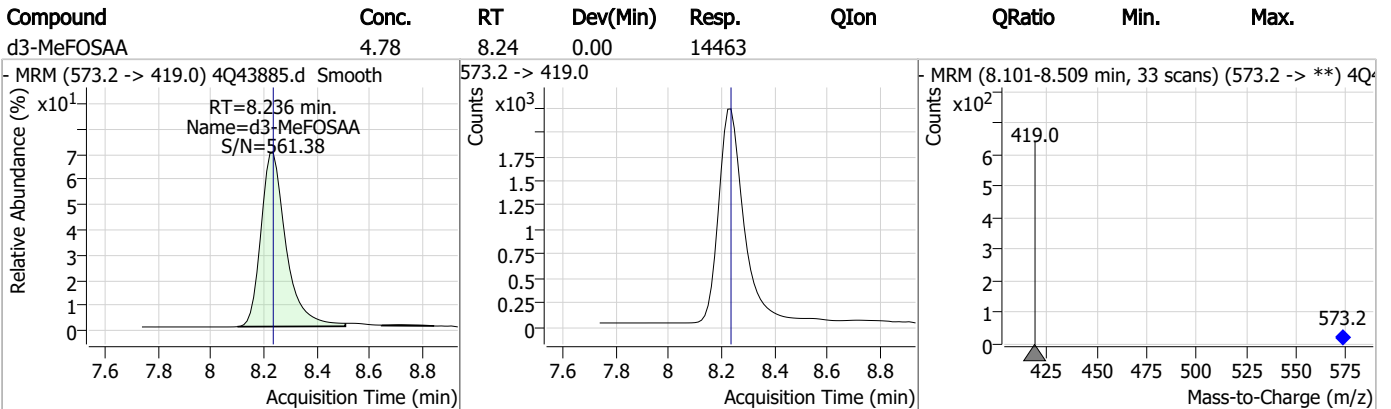
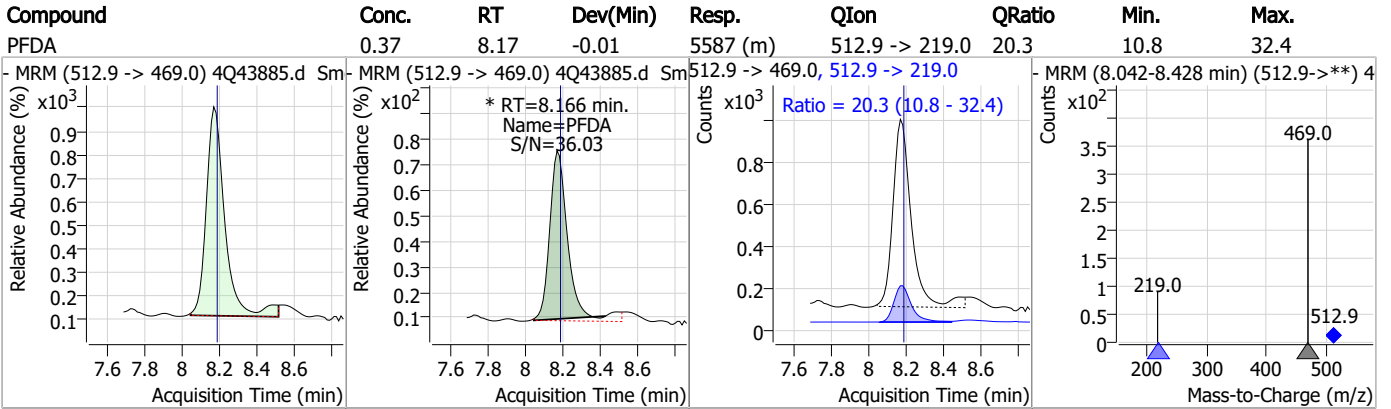


7.7.3

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### Perfluorinated Compounds by LC/MS/MS

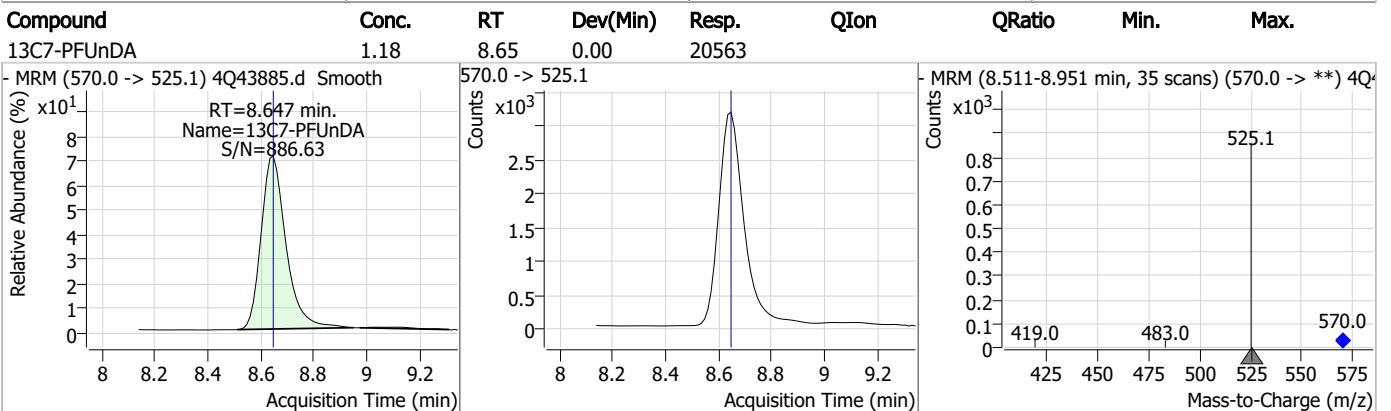
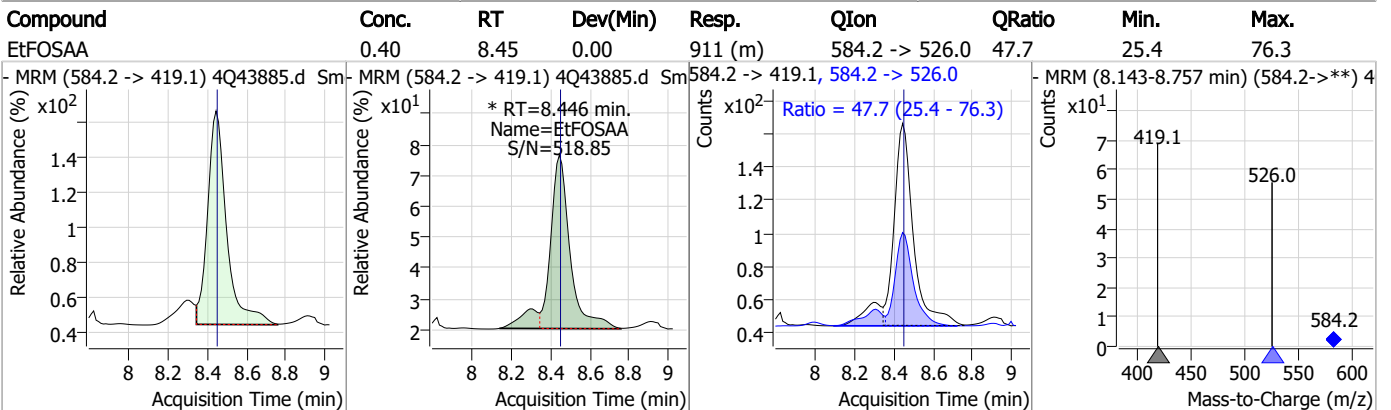
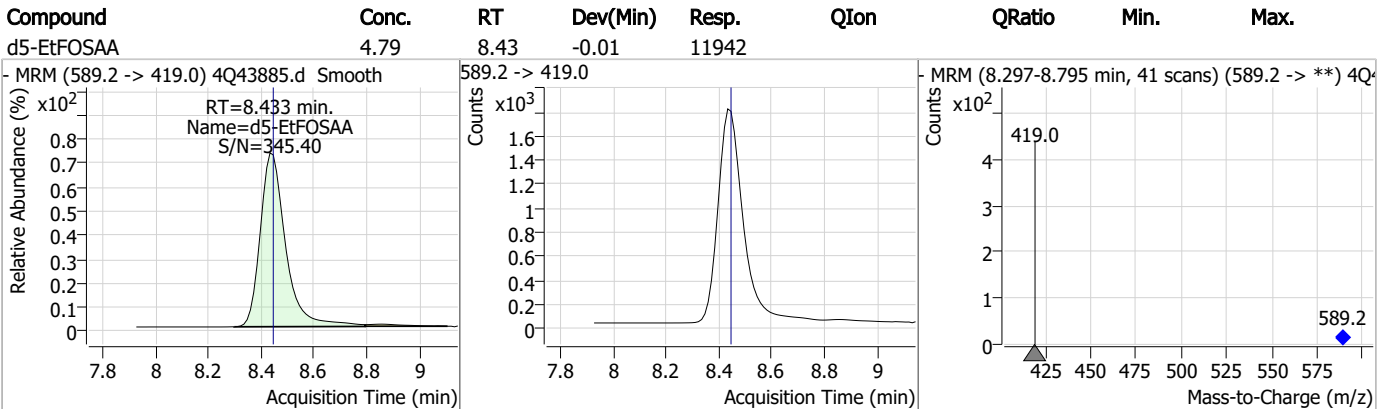
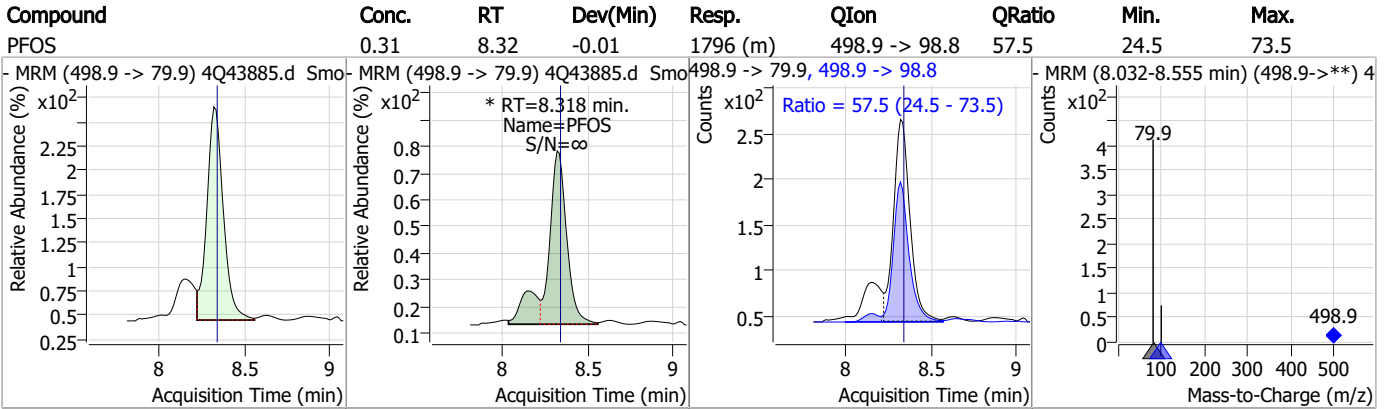


7.7.3

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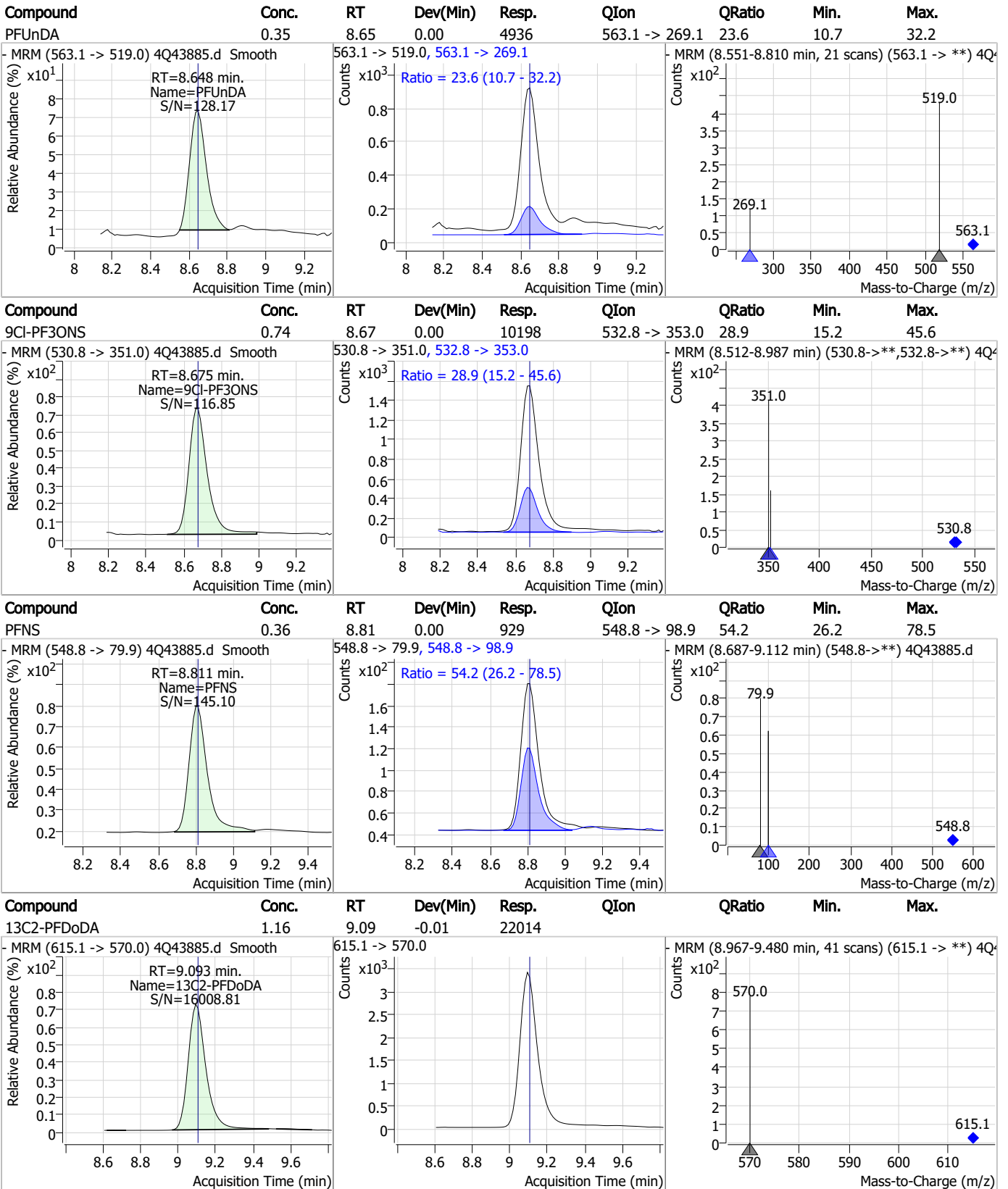
### Perfluorinated Compounds by LC/MS/MS



7.7.3

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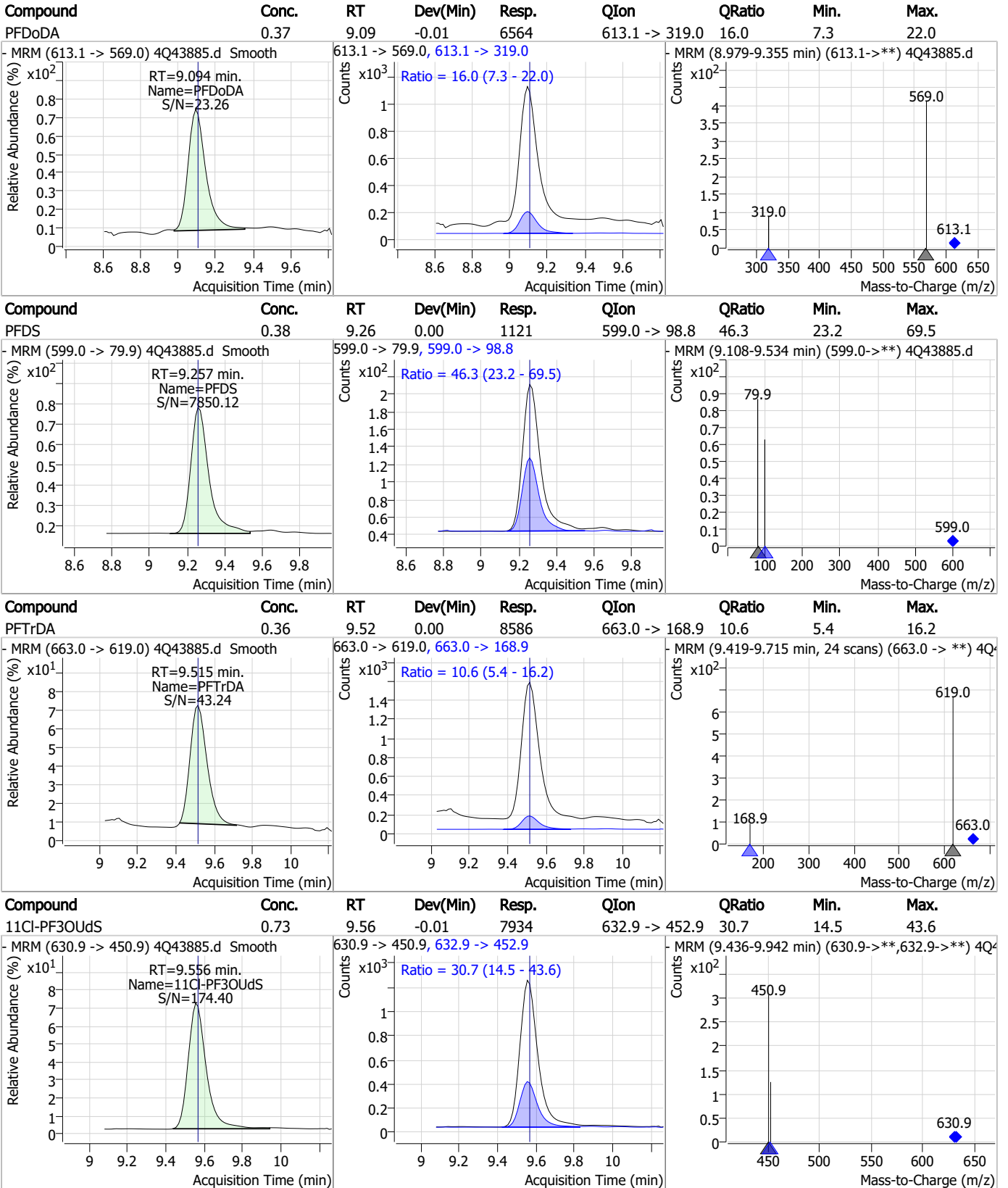
### Perfluorinated Compounds by LC/MS/MS



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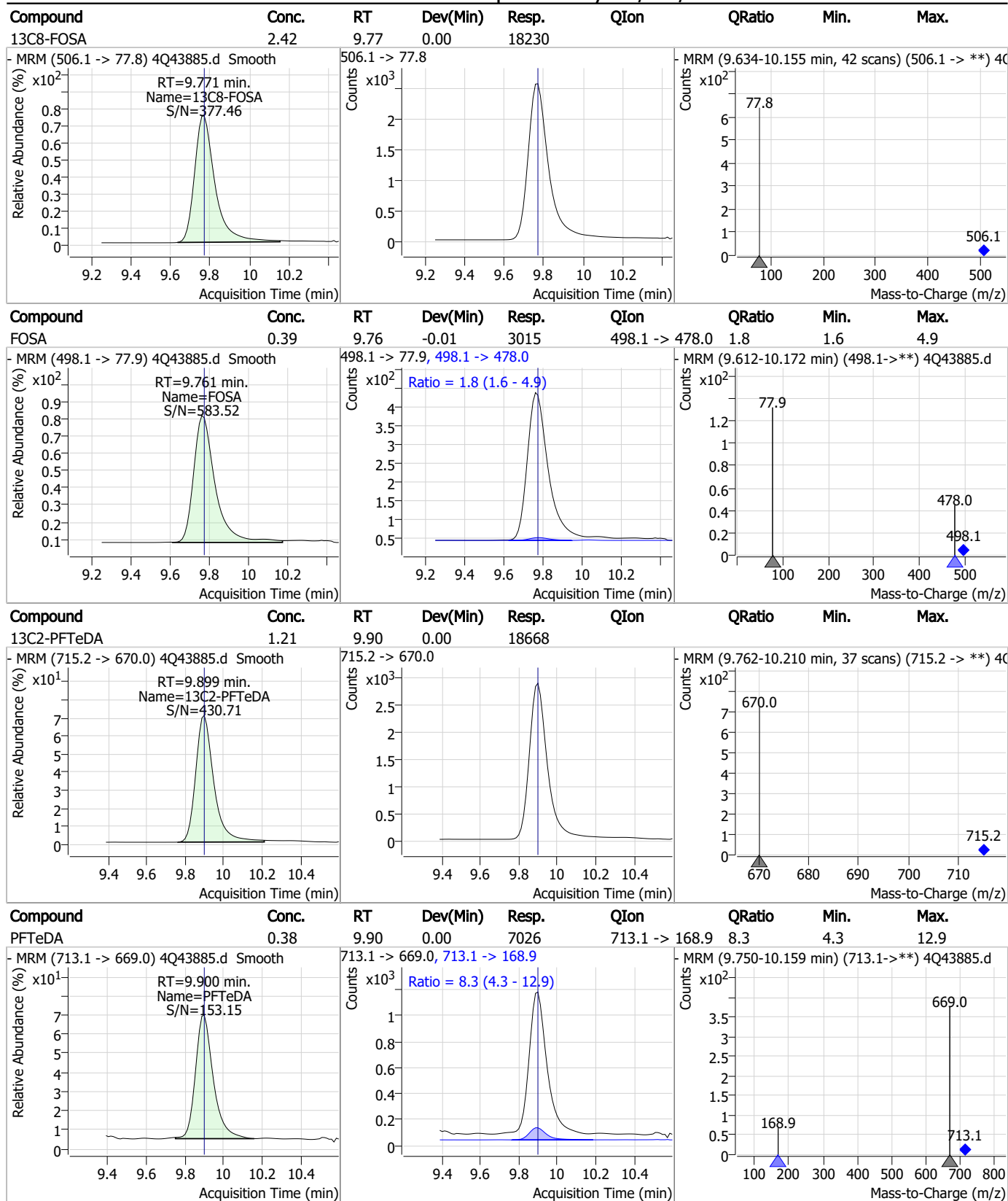
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

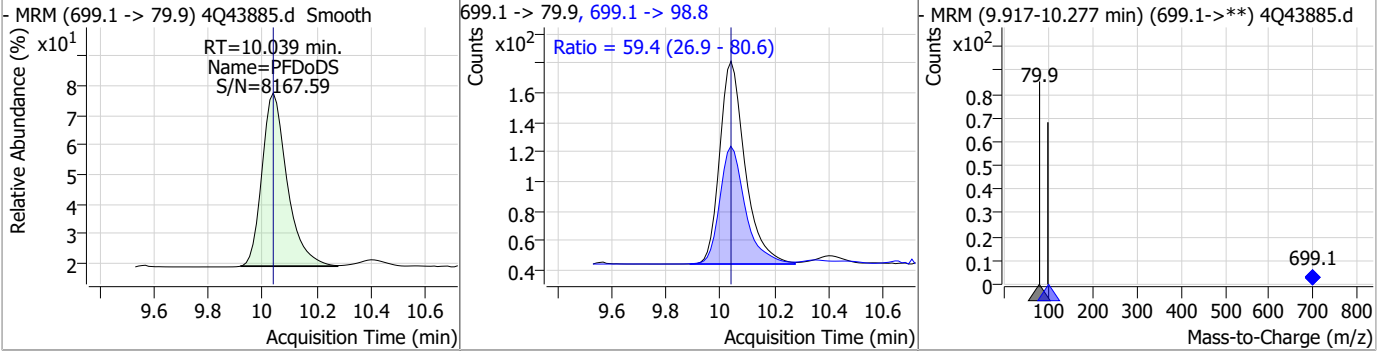


7.7.3

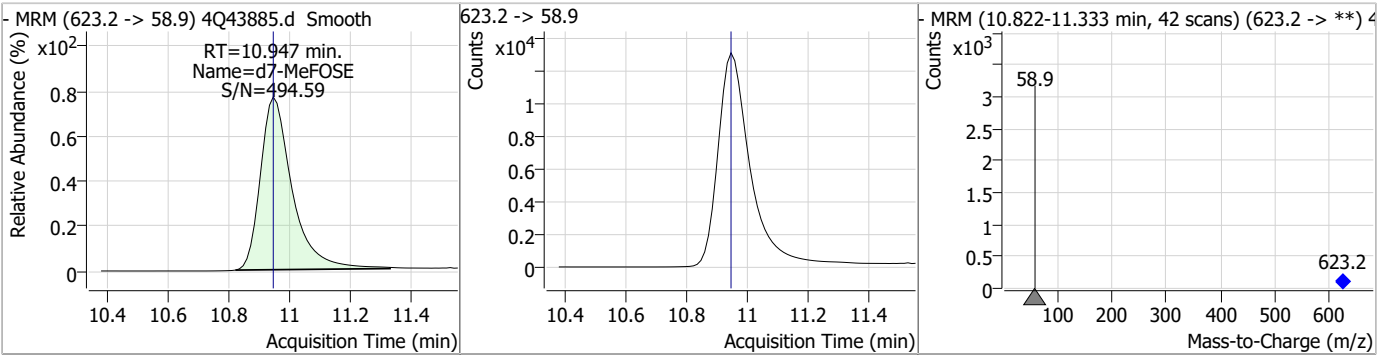
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### Perfluorinated Compounds by LC/MS/MS

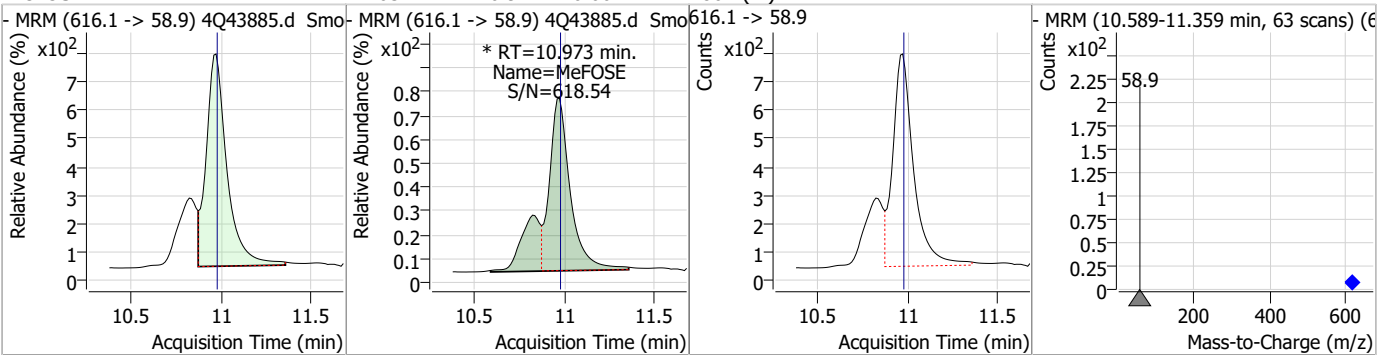
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.34	10.04	0.00	881	699.1 -> 98.8	59.4	26.9	80.6



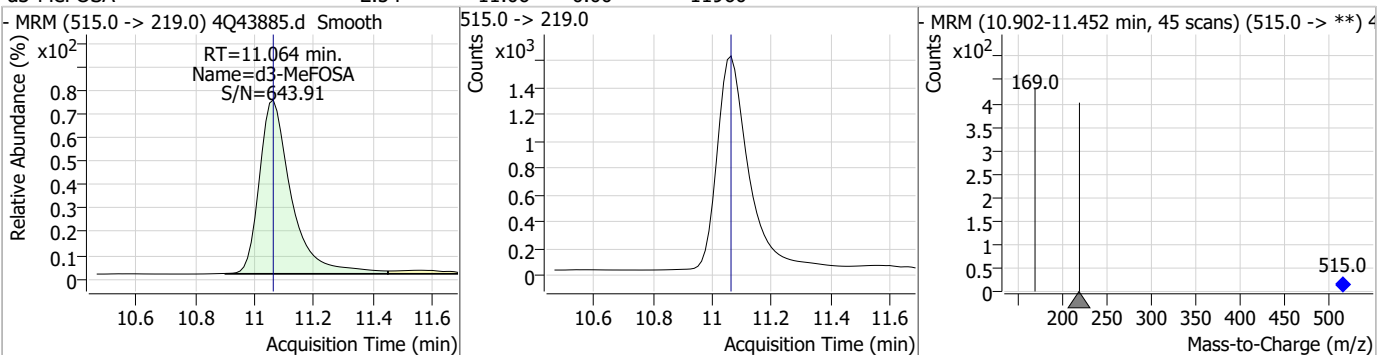
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.30	10.95	0.00	94353				



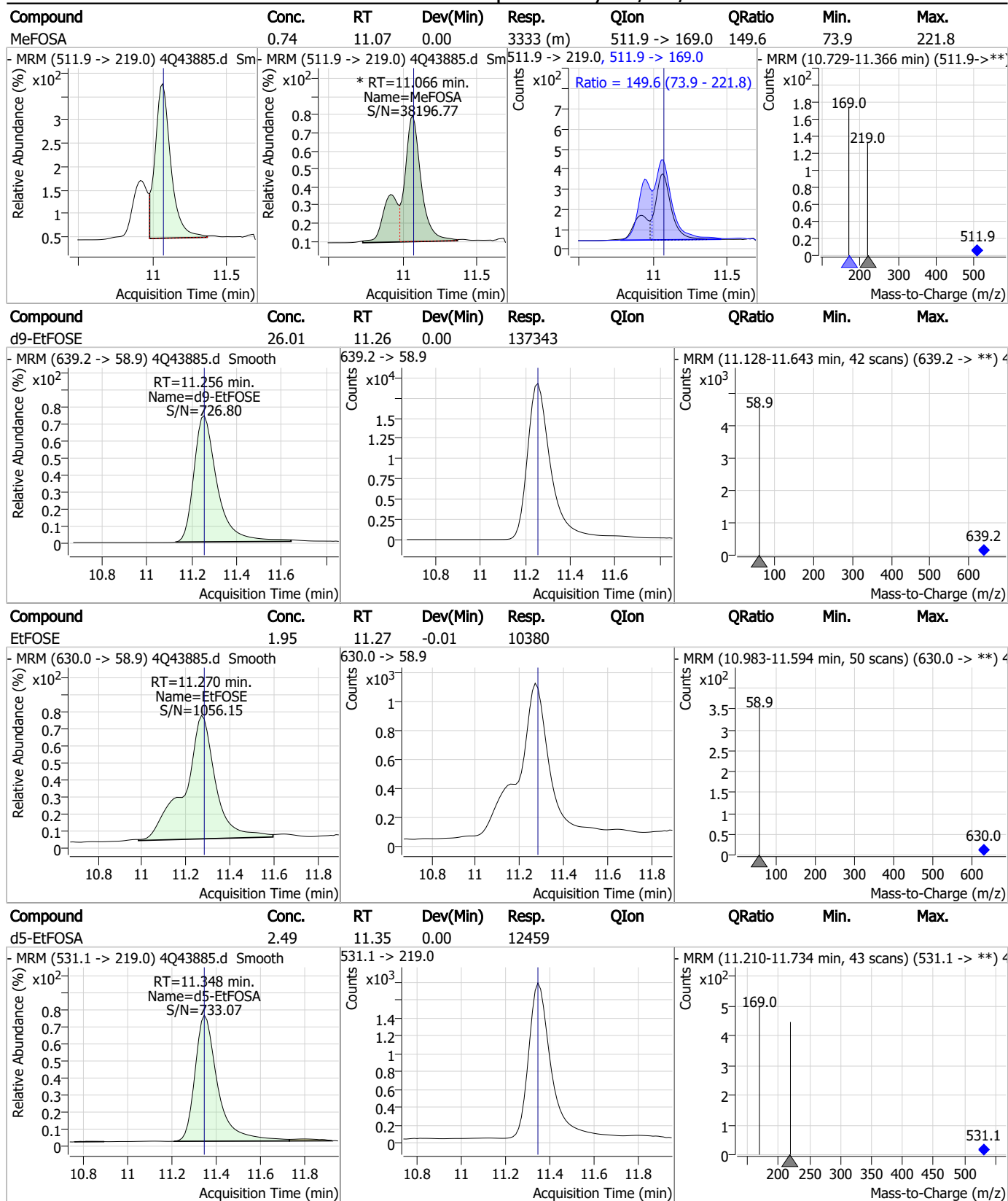
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	2.03	10.97	0.00	7862 (m)				



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

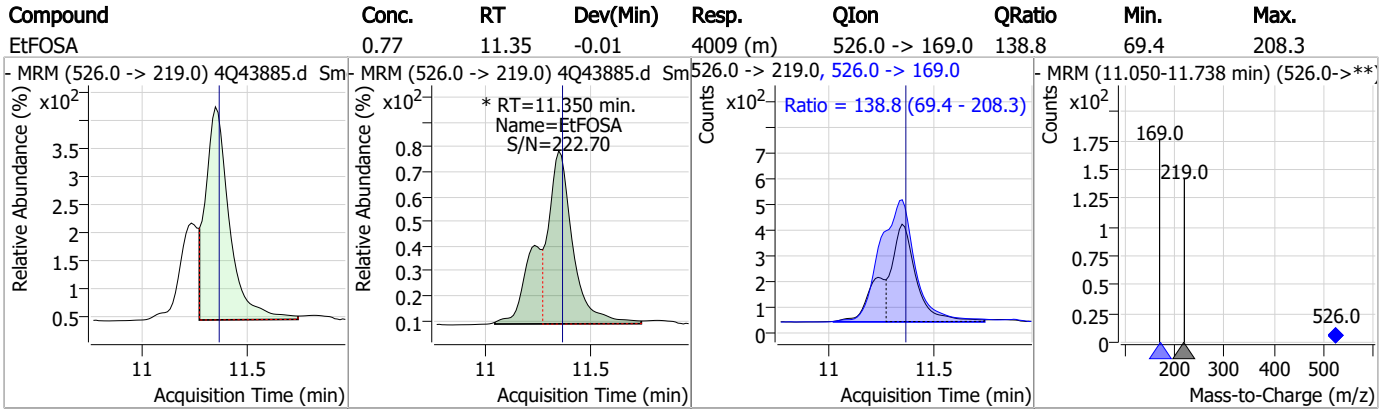


### Perfluorinated Compounds by LC/MS/MS



7.7.3  
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### Perfluorinated Compounds by LC/MS/MS



7.7.3

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# Manual Integration Approval Summary

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

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

7.7.3.1  
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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43886.d  
 Operator : natashag  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/3/2023 11:40:17 AM  
 Sample Name : ic634-3  
 Vial : P1-A4  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q634.batch.bin  
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

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

7.7.4  
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## Perfluorinated Compounds by LC/MS/MS

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

## Perfluorinated Compounds by LC/MS/MS

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

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

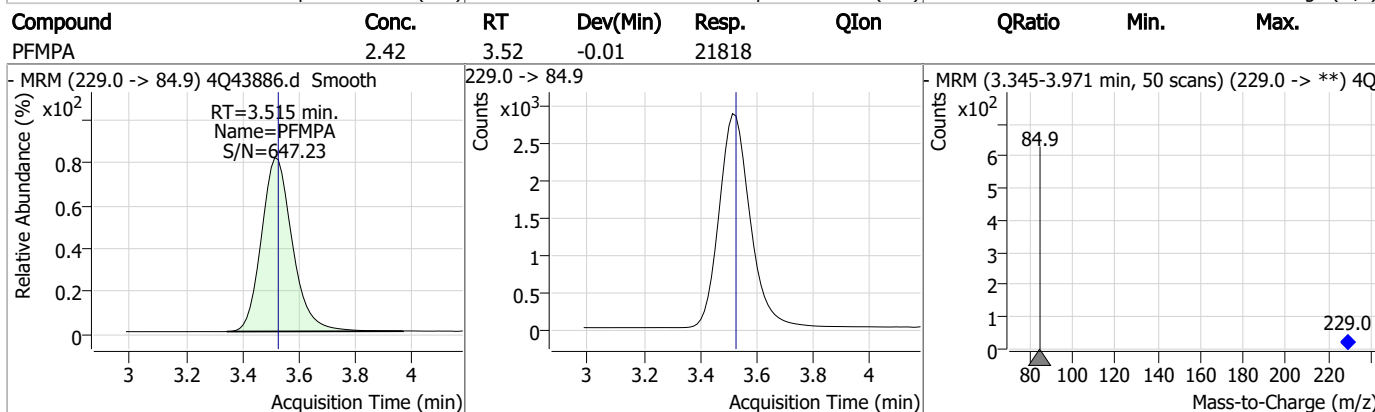
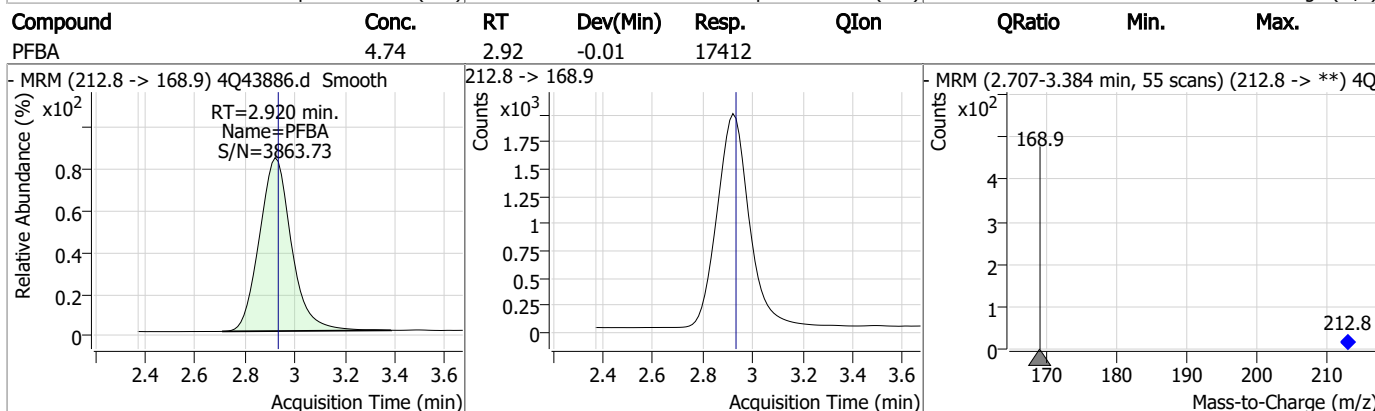
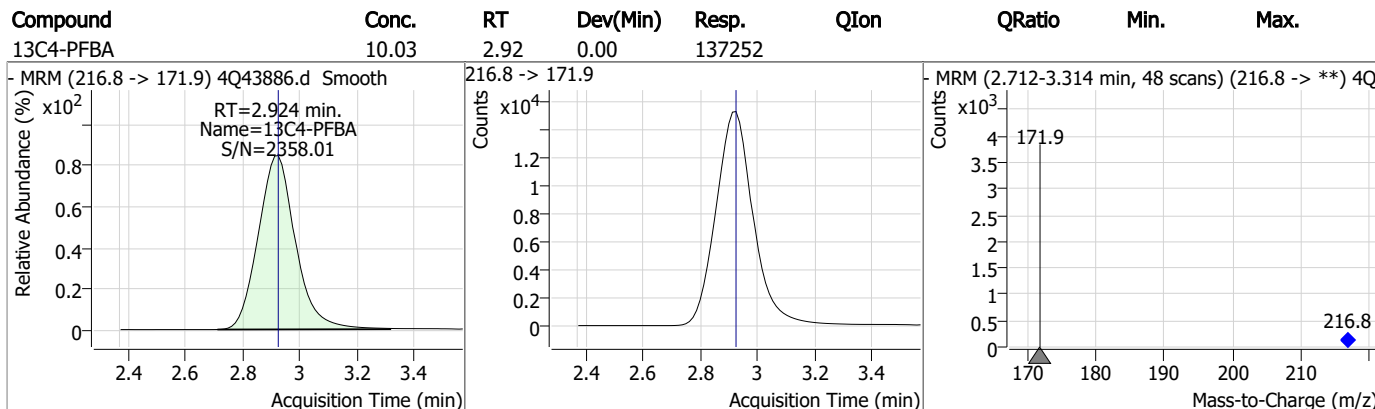
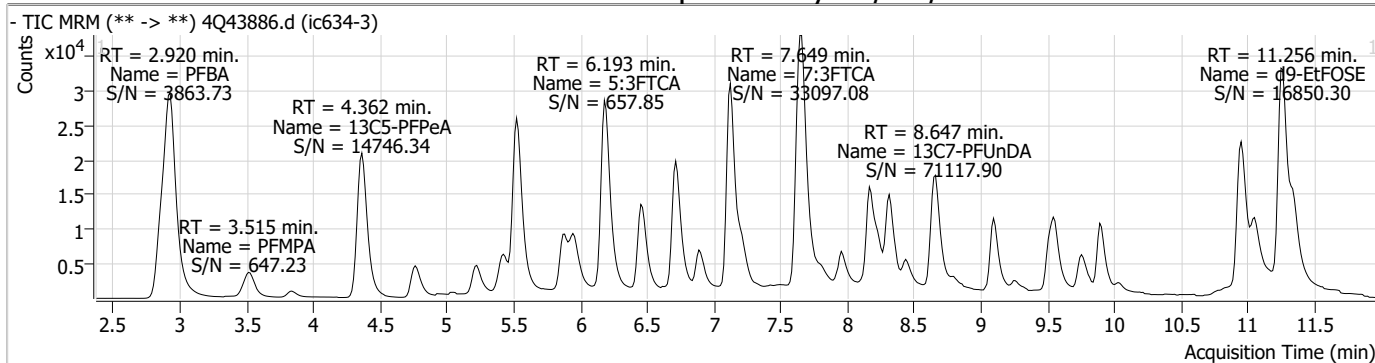
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.4

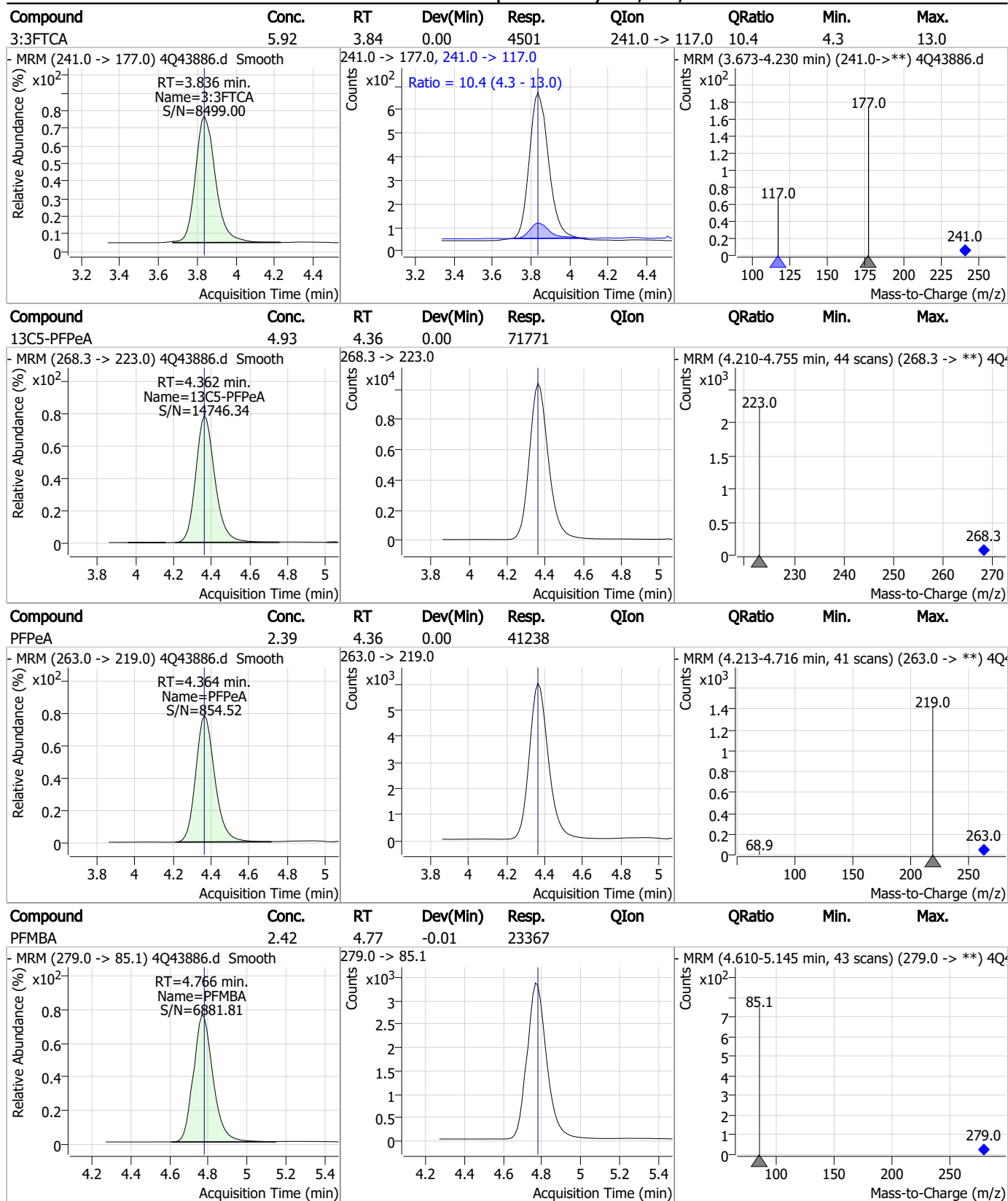
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### Perfluorinated Compounds by LC/MS/MS



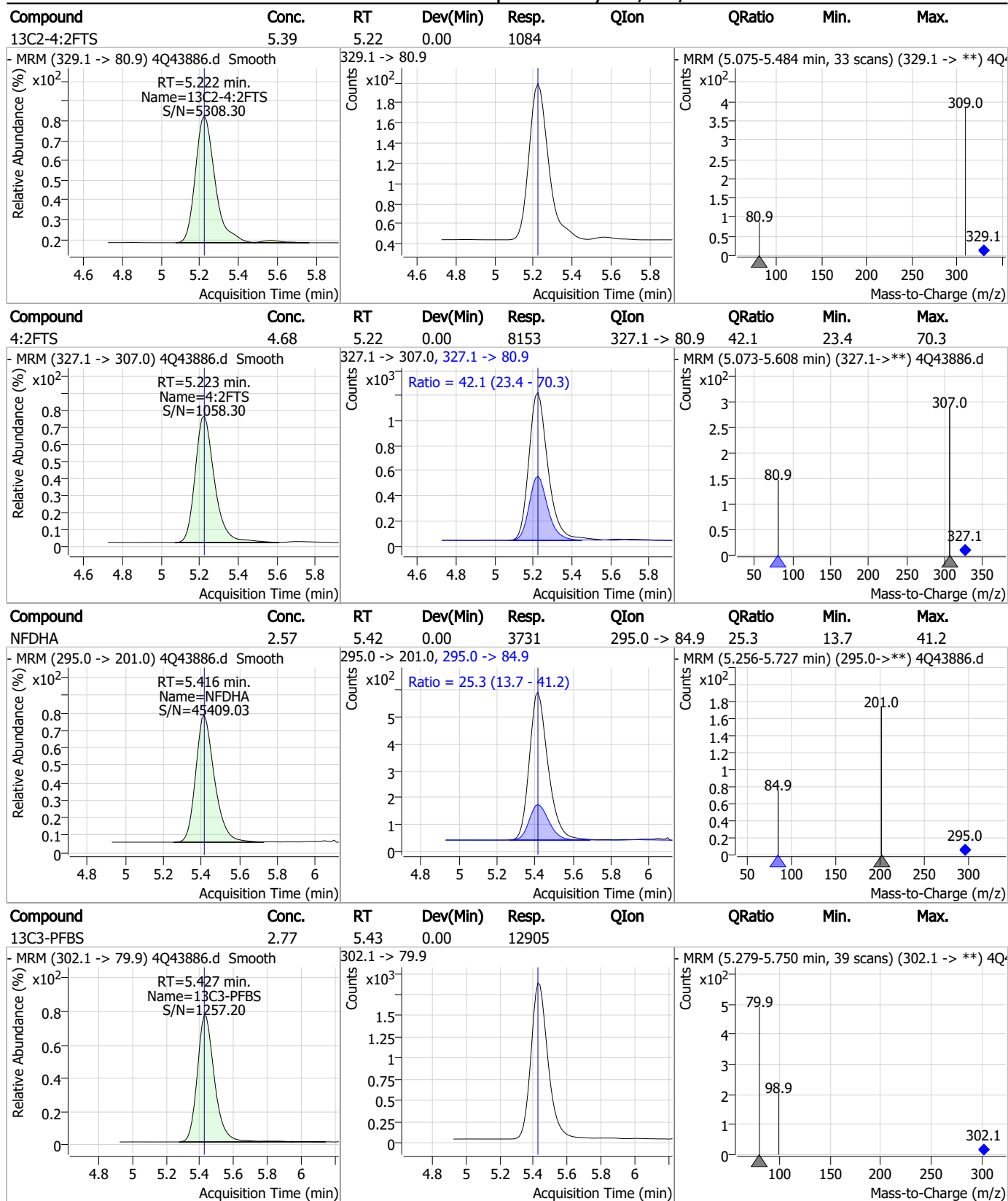
7.7.4  
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### Perfluorinated Compounds by LC/MS/MS



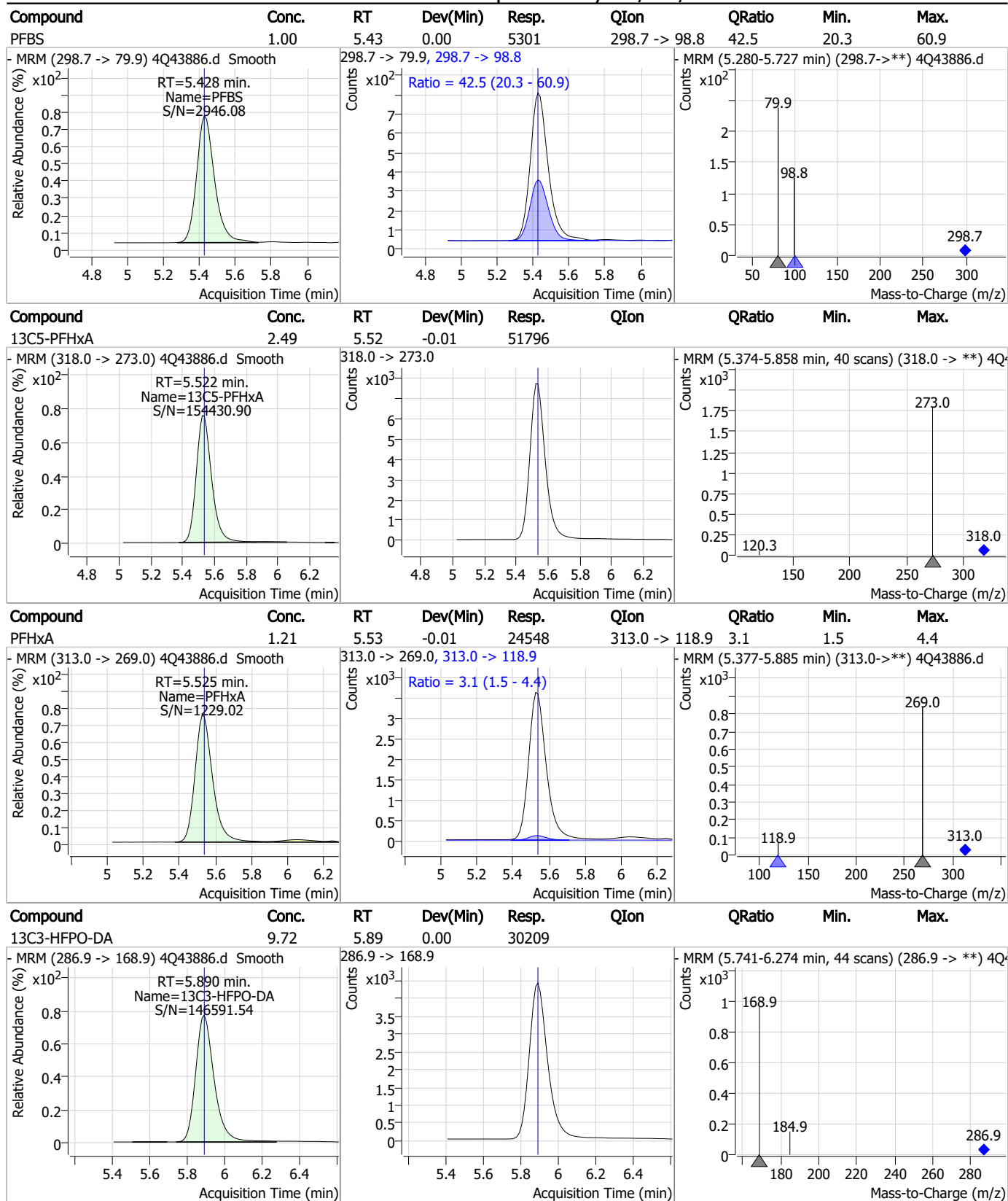
7.7.4  
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### Perfluorinated Compounds by LC/MS/MS



7.7.4

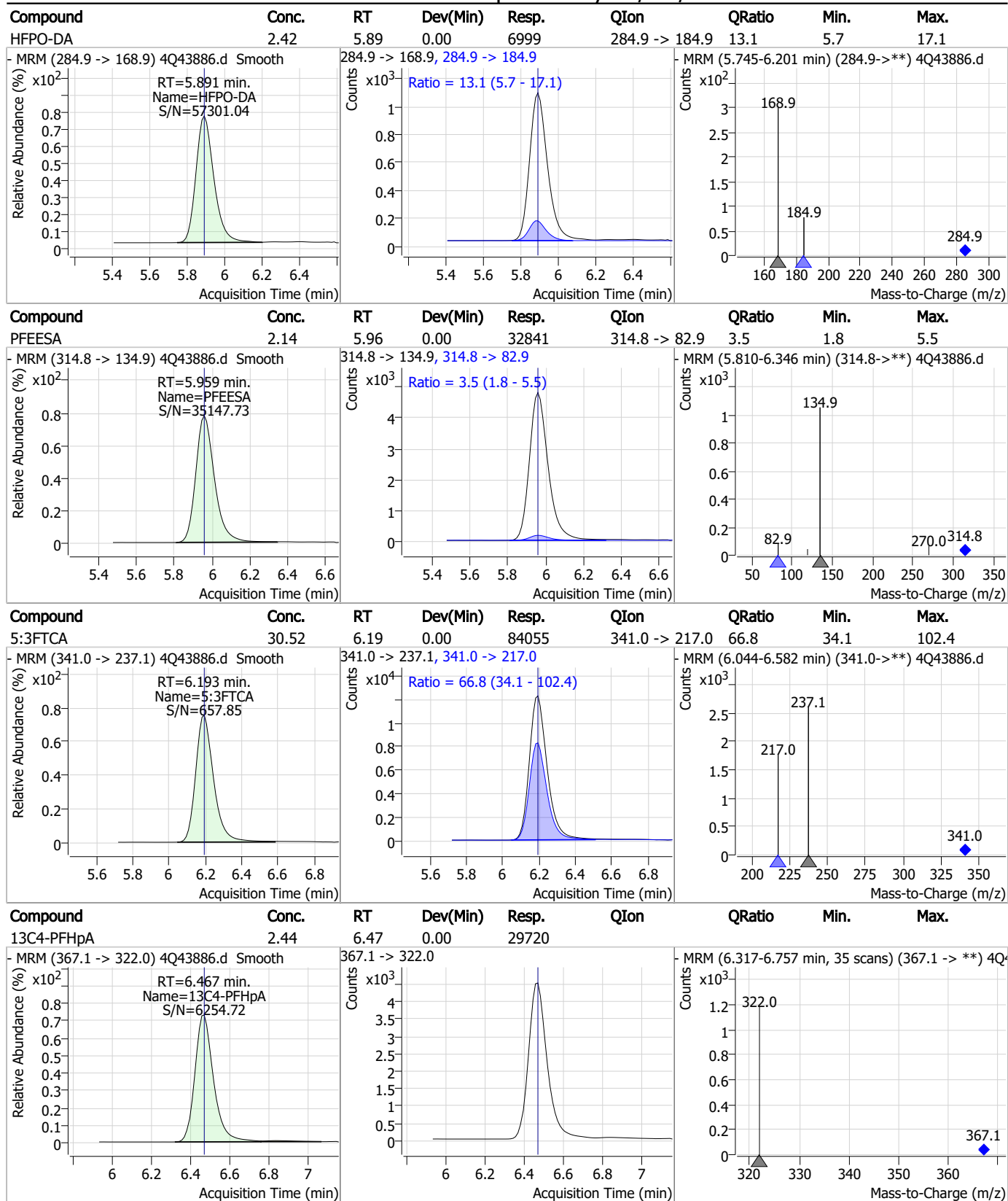
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7.7.4  
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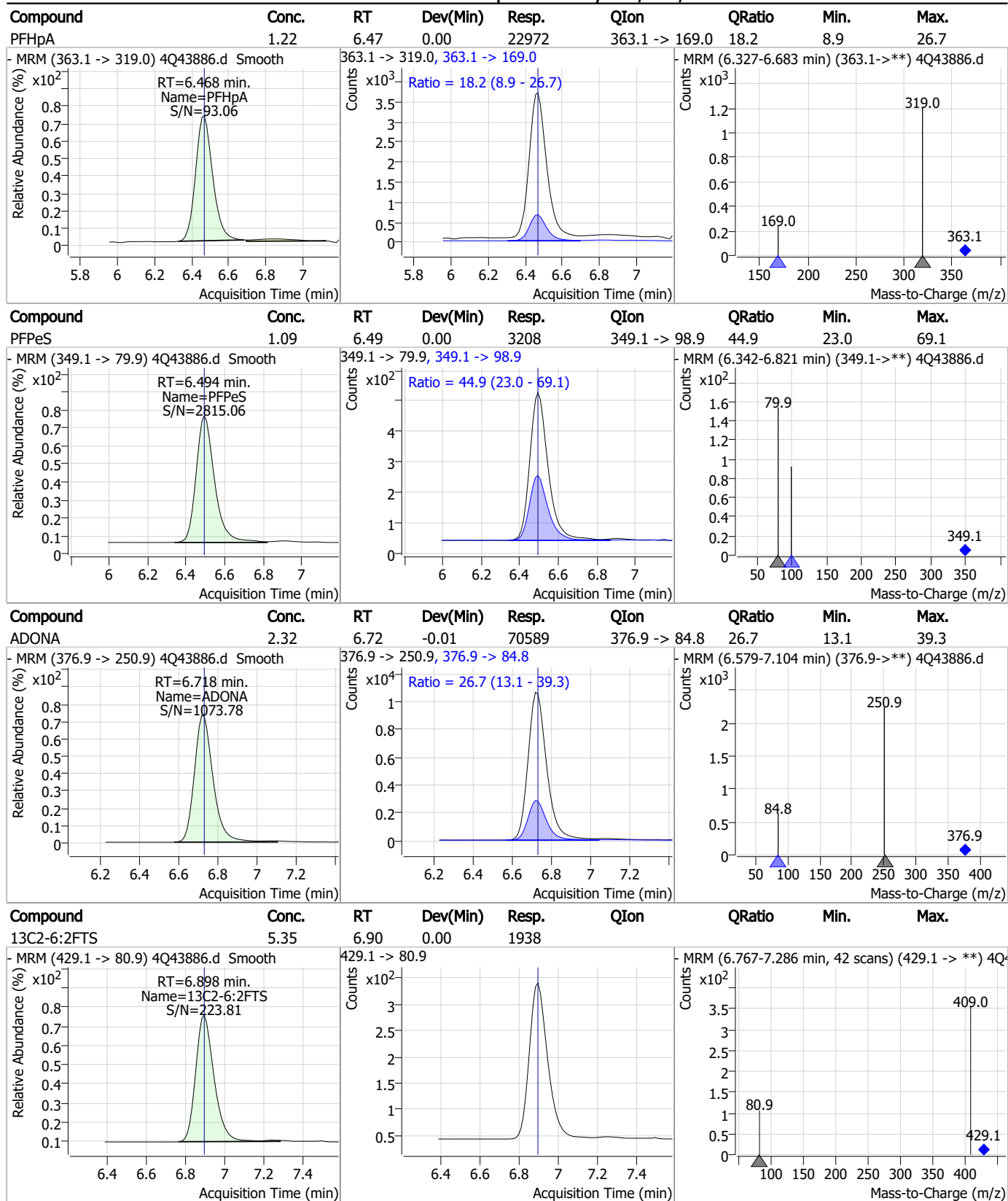


### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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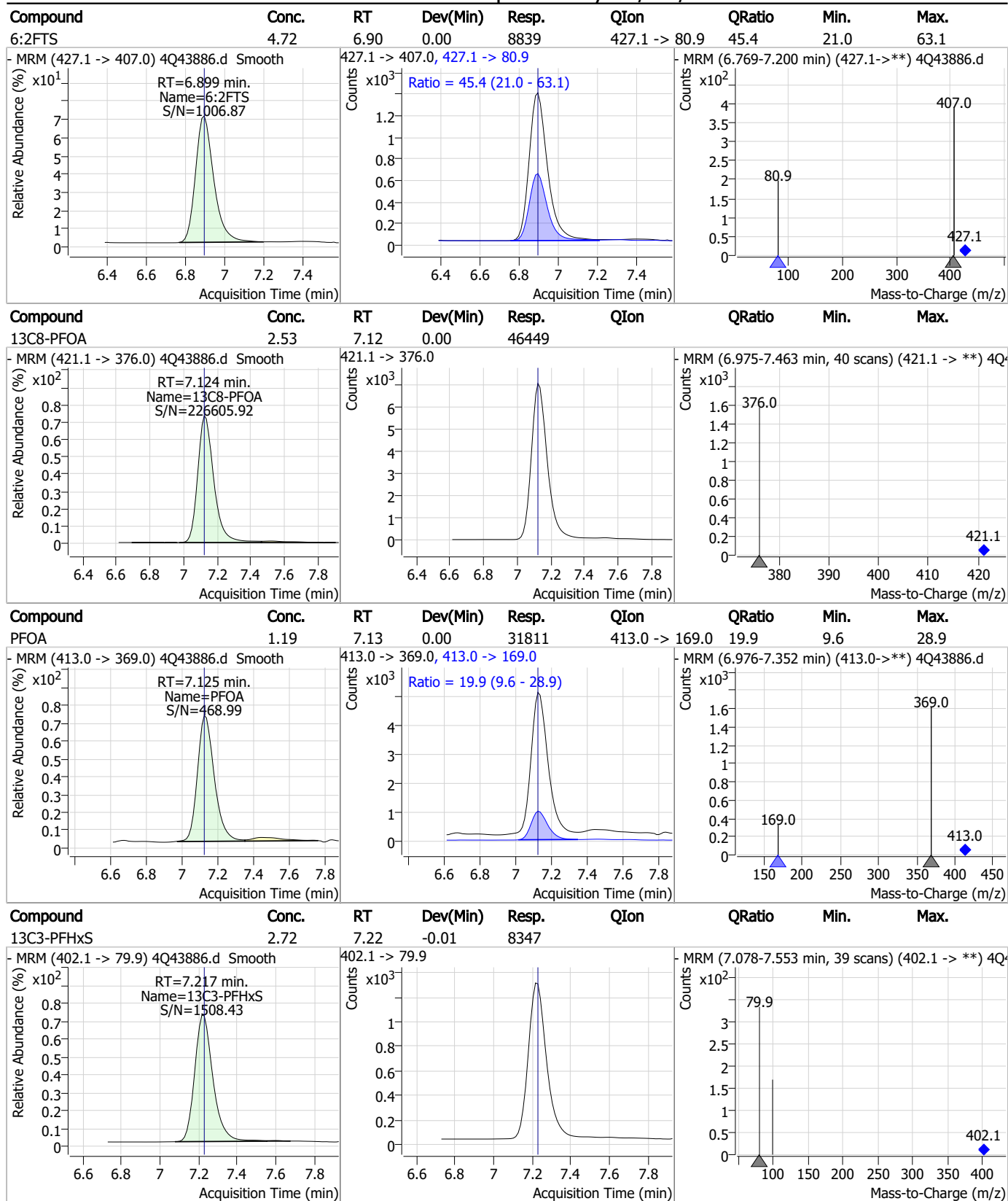
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7.7.4

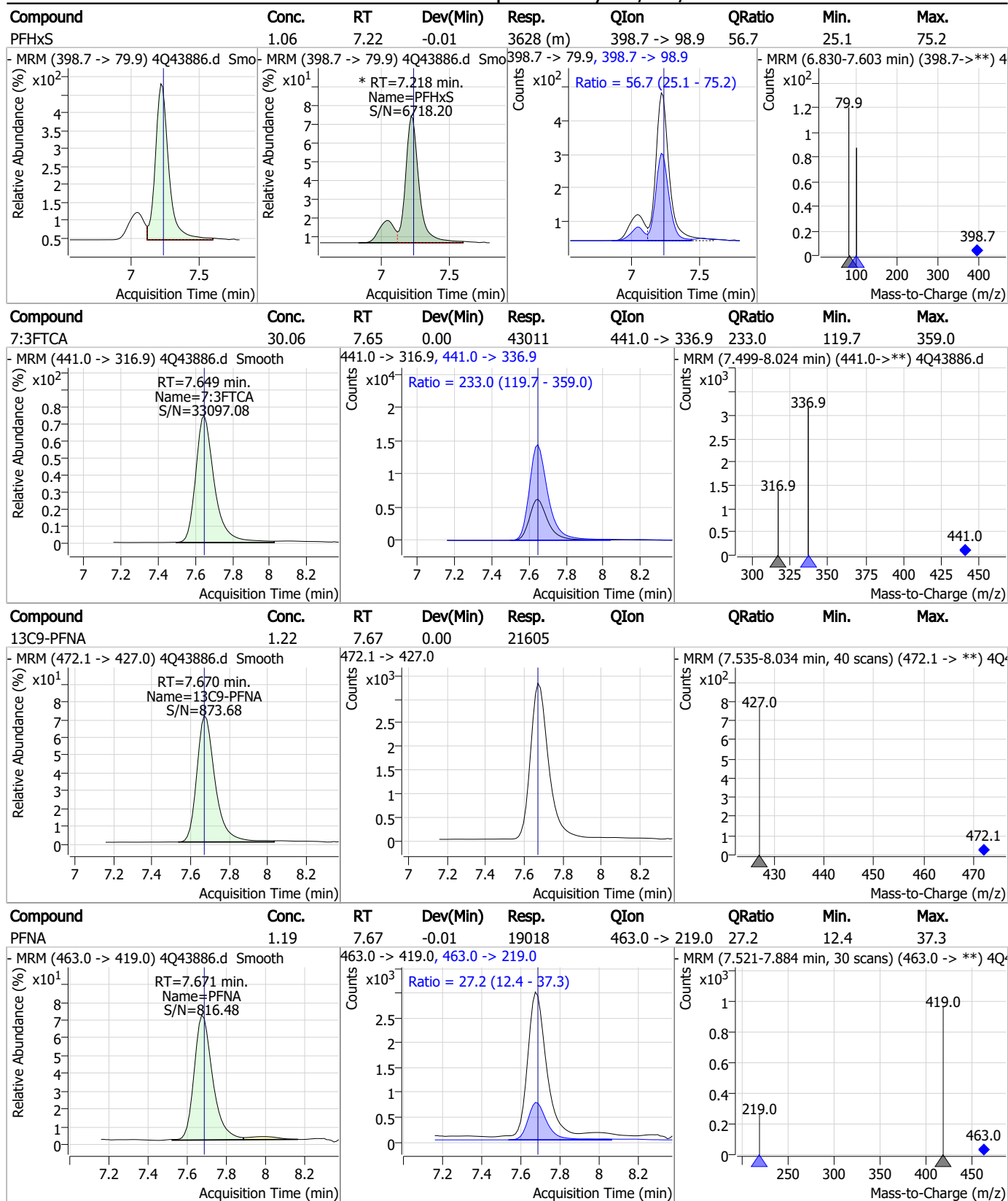
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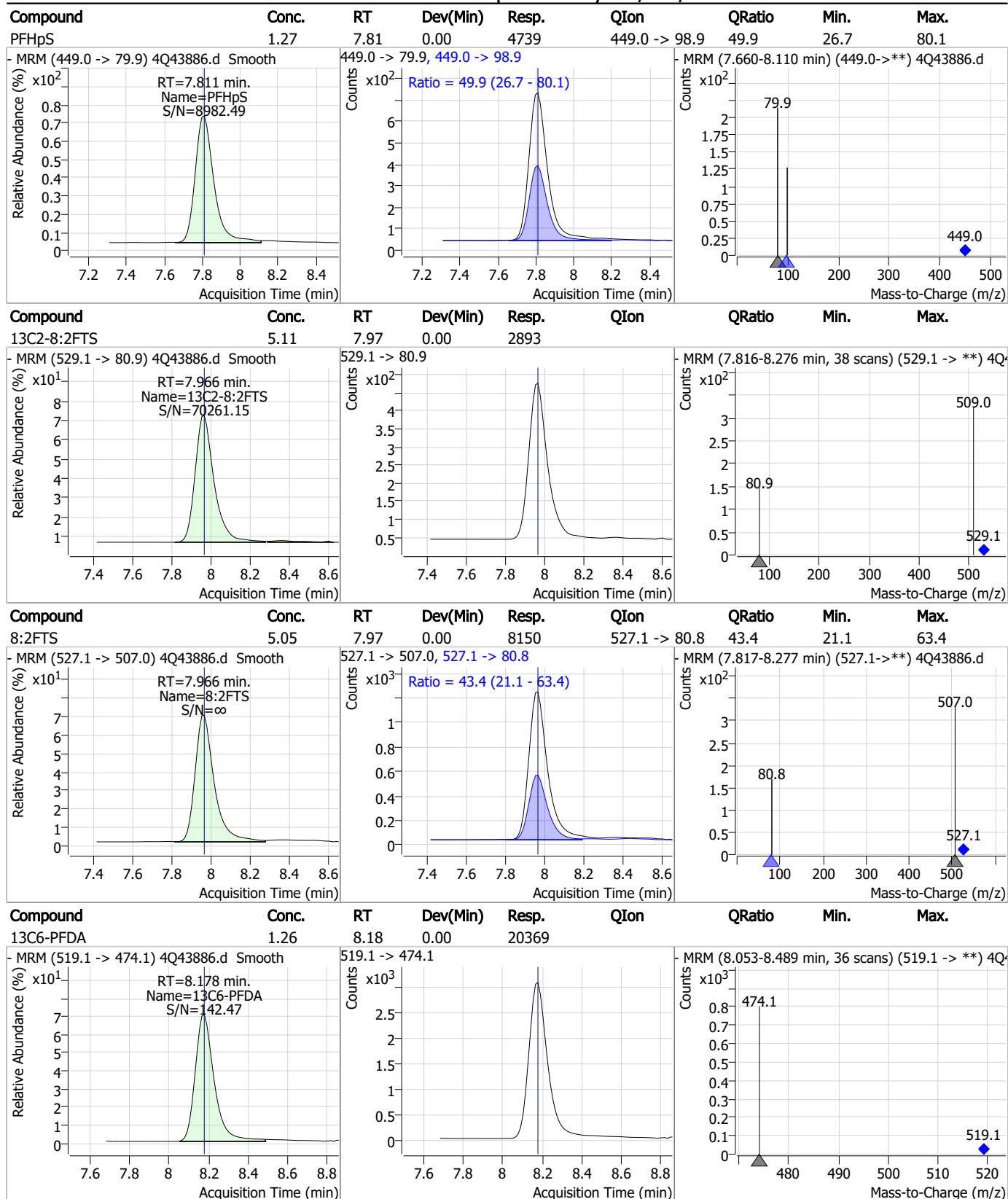
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### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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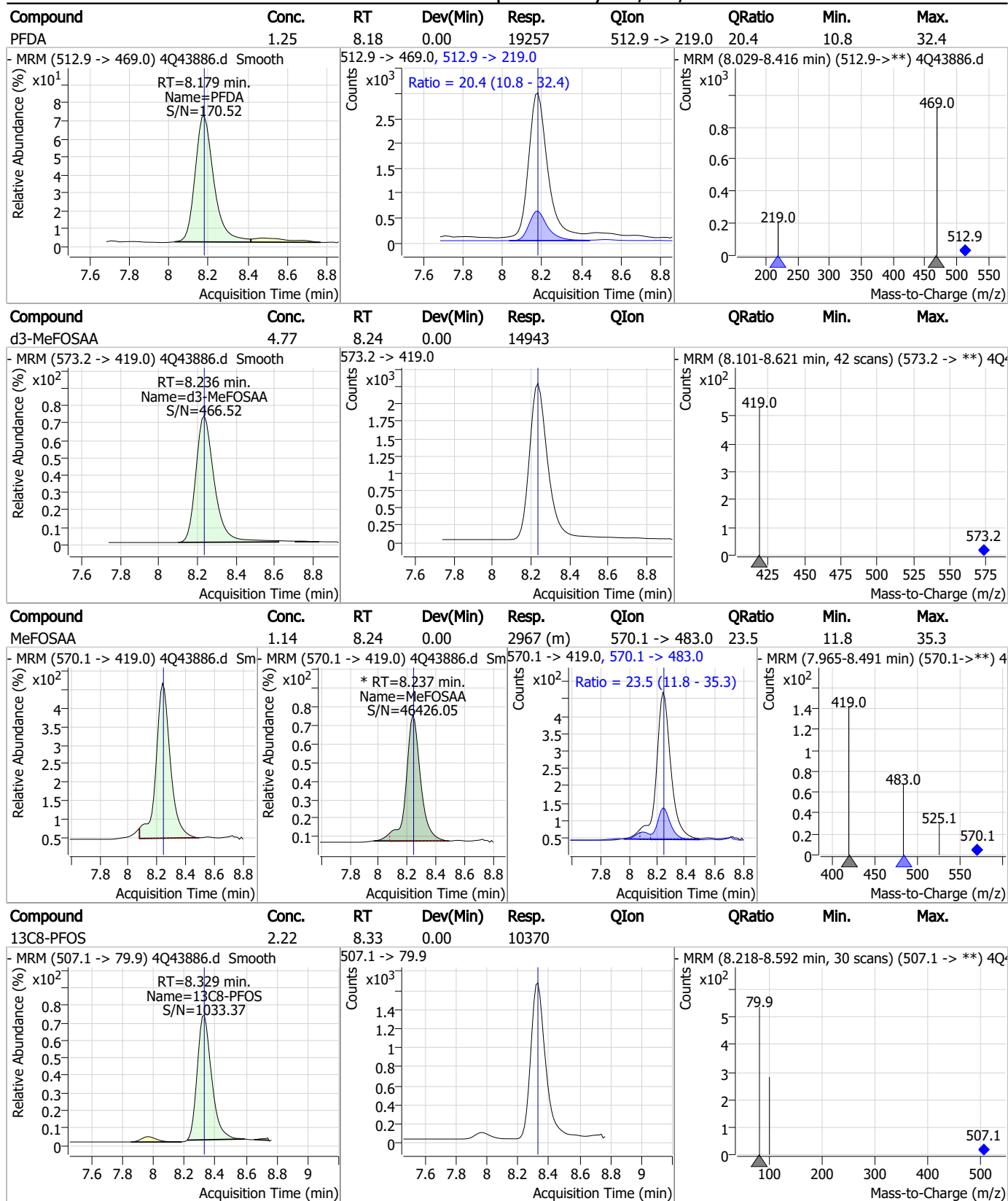
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7.7.4

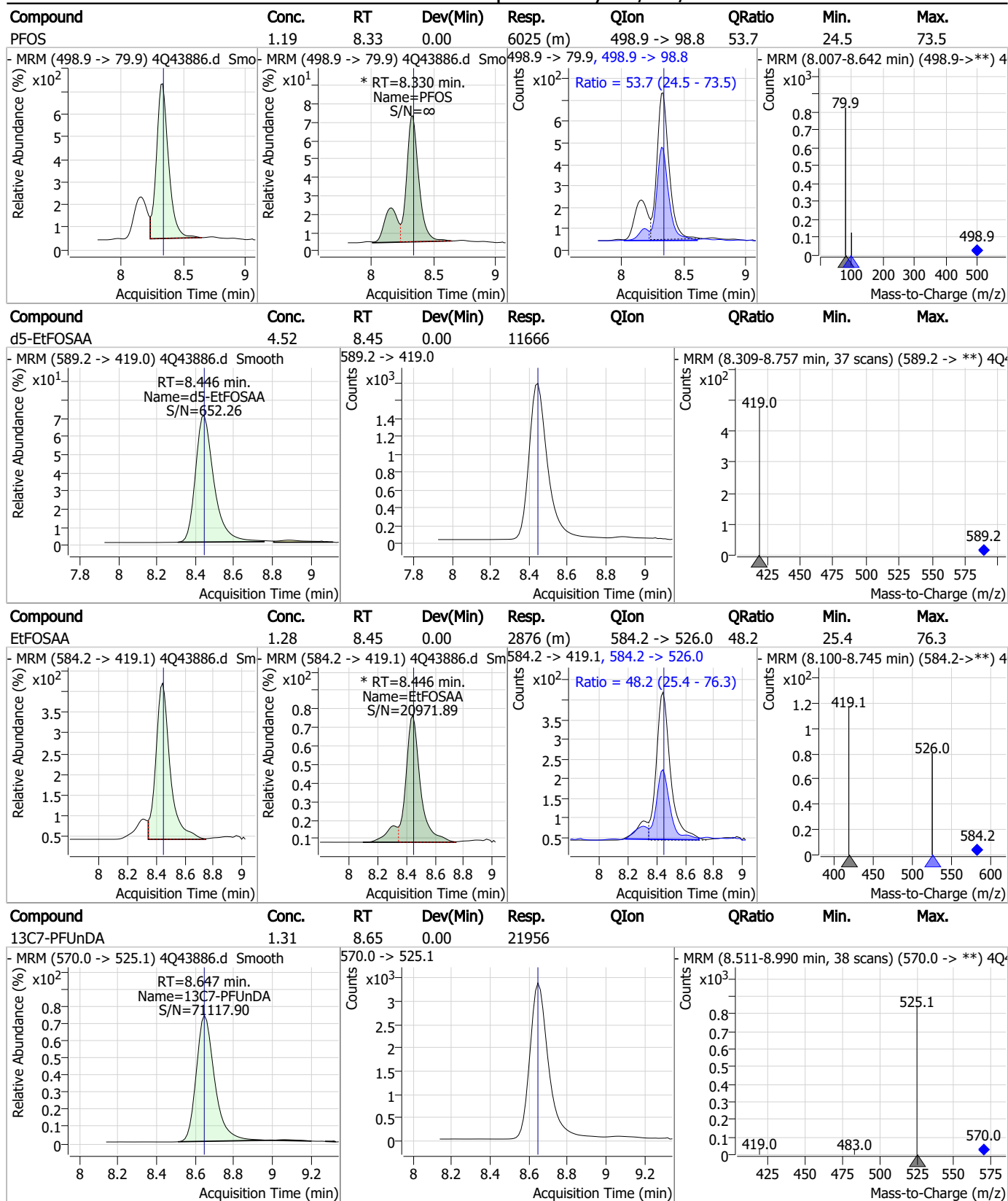
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7.7.4

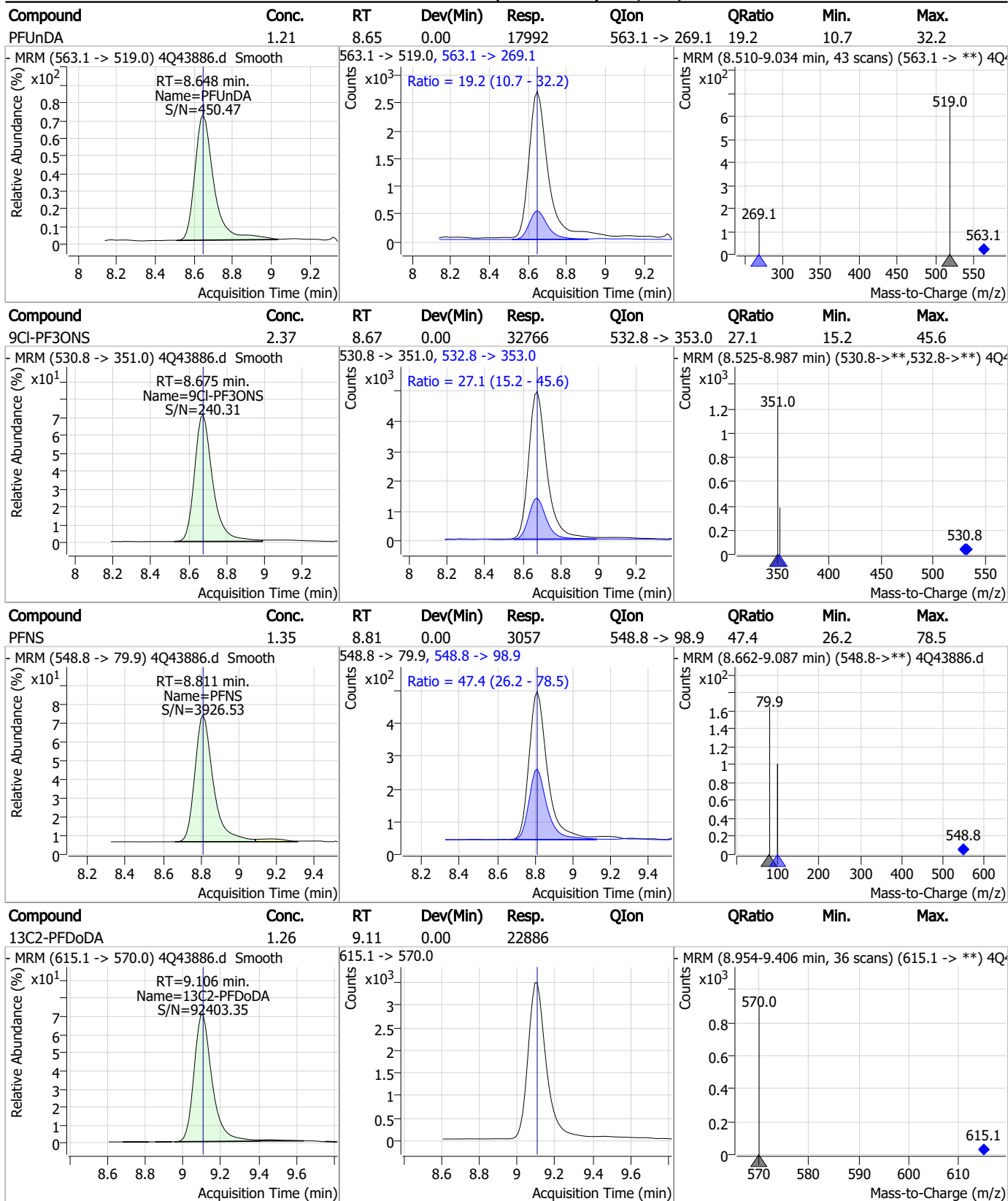
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7.7.4  
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### Perfluorinated Compounds by LC/MS/MS

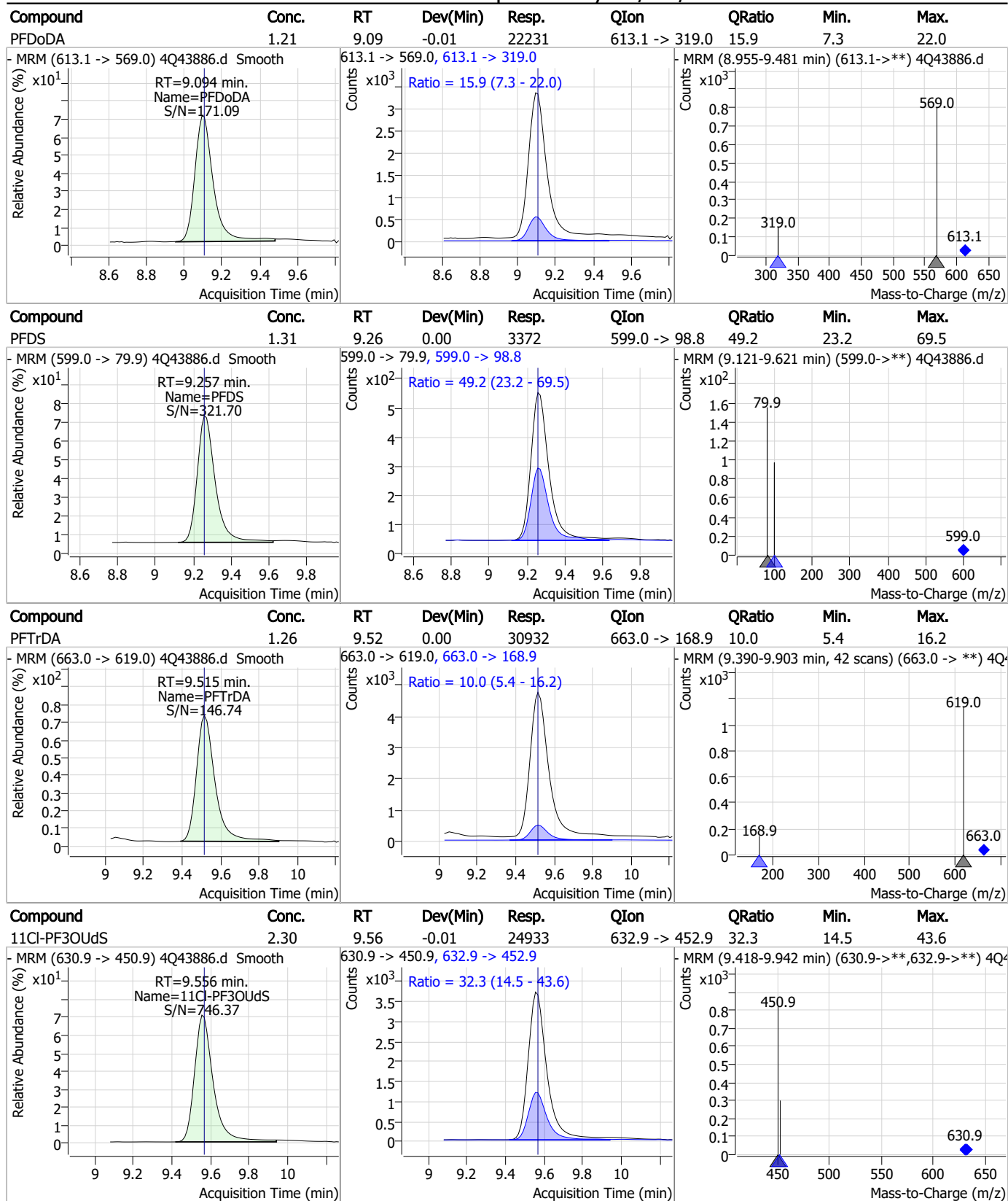


7.7.4

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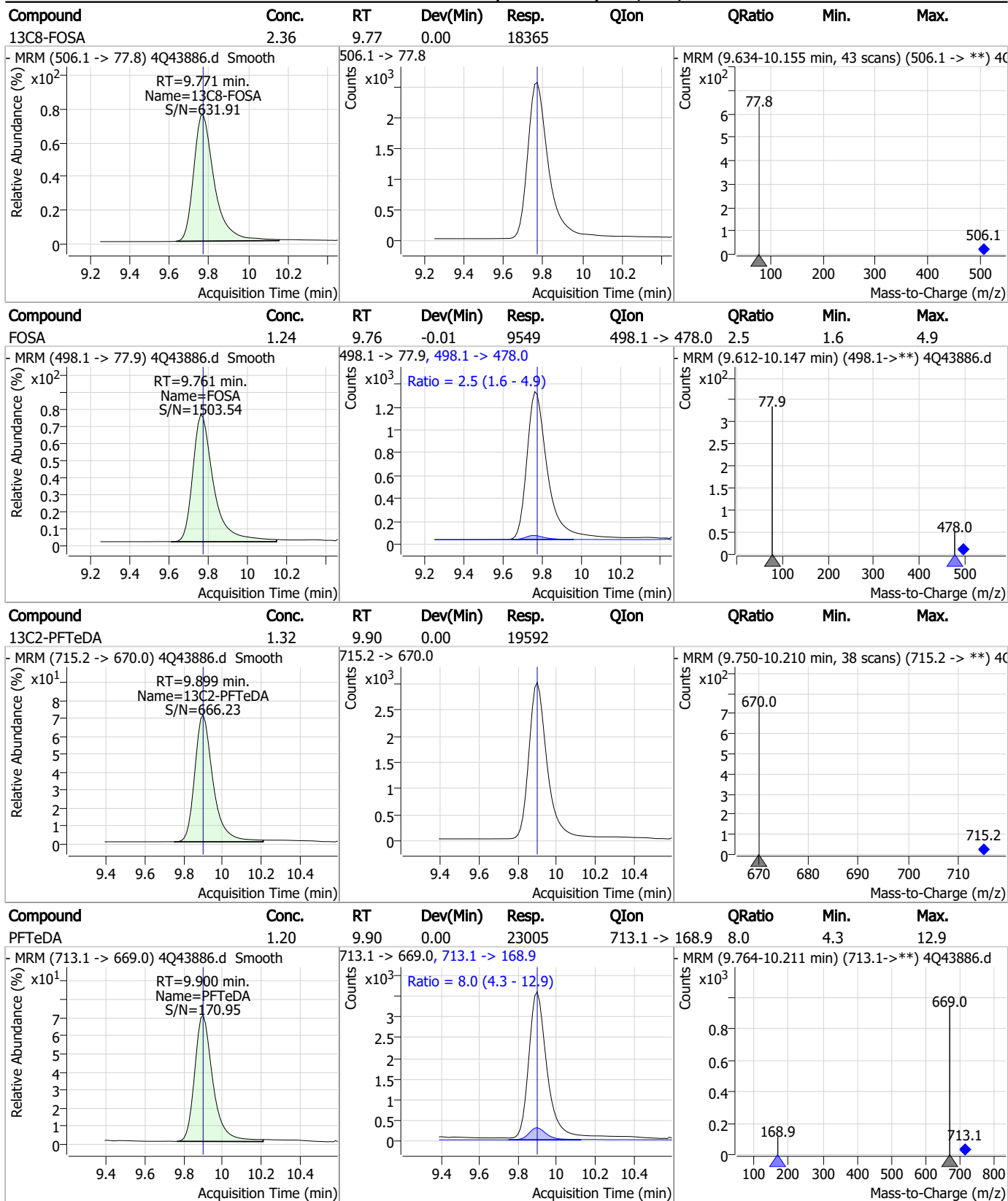


### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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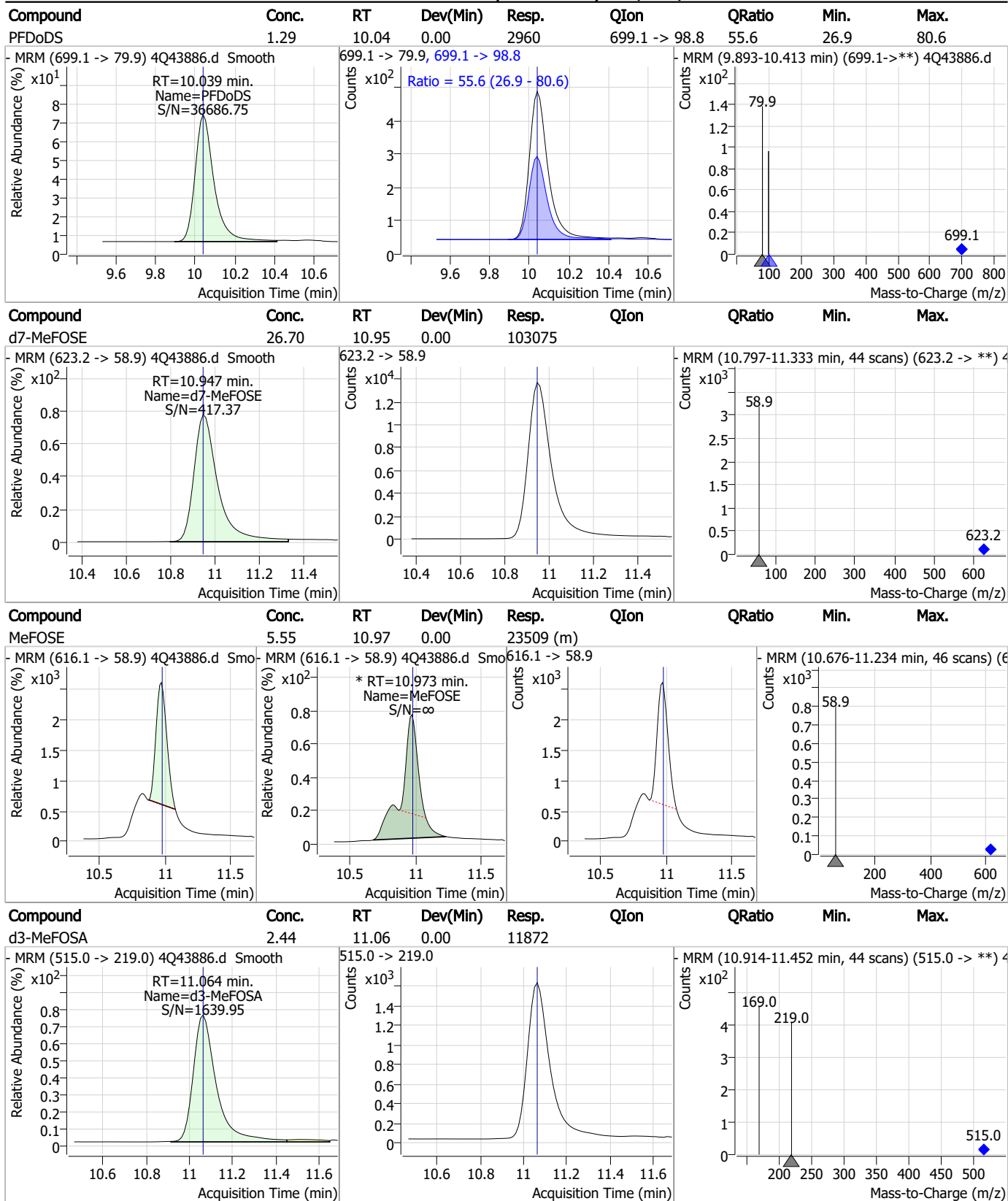
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7.7.4

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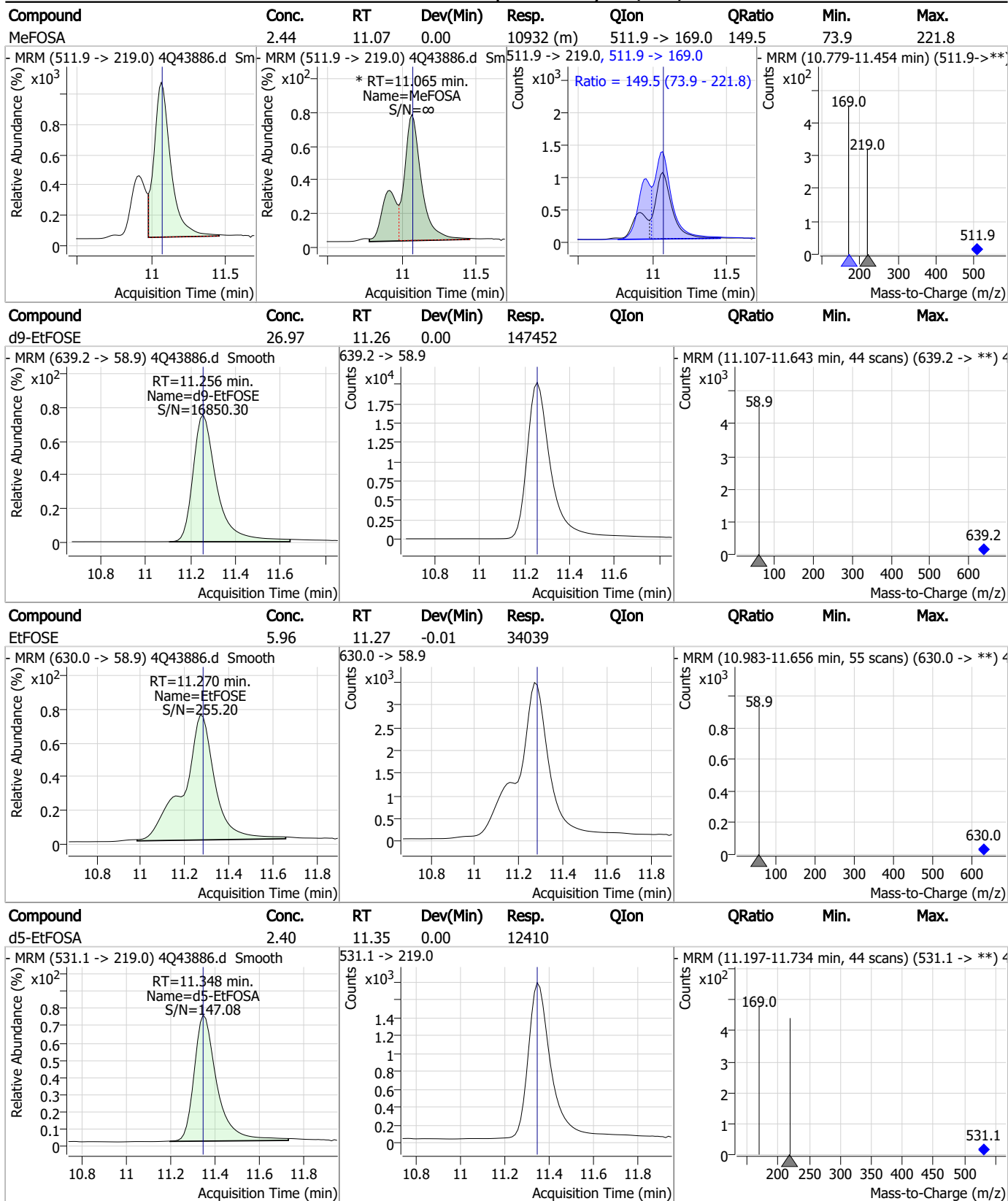
### Perfluorinated Compounds by LC/MS/MS



7.7.4

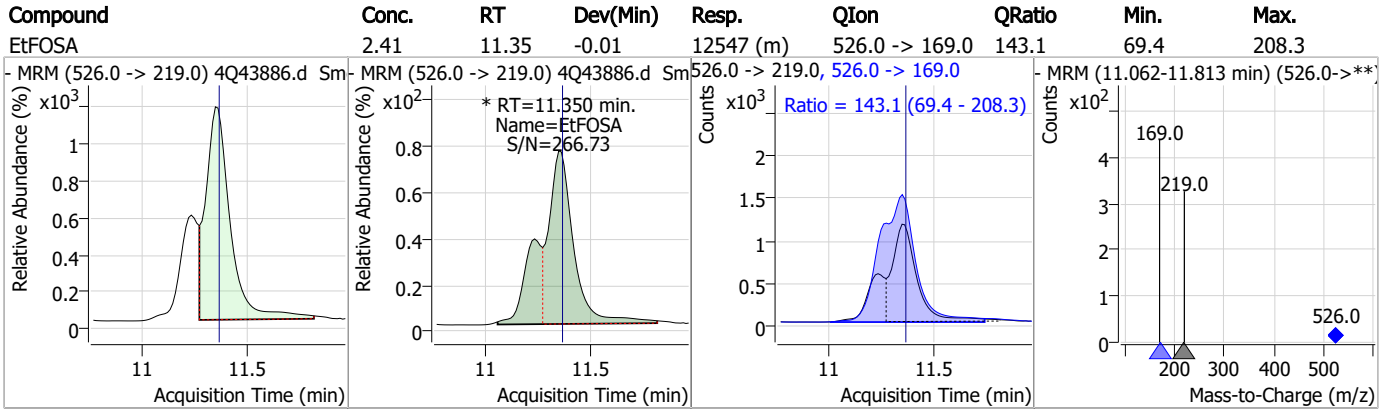
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### Perfluorinated Compounds by LC/MS/MS



7.7.4  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.4

7

# Manual Integration Approval Summary

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

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

7.7.4.1  
7

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43887.d  
 Operator : natashag  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/3/2023 11:54:24 AM  
 Sample Name : icc634-4  
 Vial : P1-A5  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q634.batch.bin  
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.924	216.8 -> 171.9	136945	10.00 µg/L	0.000
M5-PFPeA	4.362	268.3 -> 223.0	71702	5.00 µg/L	0.000
M5-PFHxA	5.535	318.0 -> 273.0	49910	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	29610	2.50 µg/L	0.000
M8-PFOA	7.124	421.1 -> 376.0	44424	2.50 µg/L	0.000
M9-PFNA	7.670	472.1 -> 427.0	21310	1.25 µg/L	0.000
M6-PFDA	8.178	519.1 -> 474.1	20739	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	21721	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	24668	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	20258	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	19470	2.50 µg/L	0.000
M3-PFBS	5.427	302.1 -> 79.9	12093	2.50 µg/L	0.000
M3-PFHxS	7.229	402.1 -> 79.9	7948	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	11069	2.50 µg/L	0.000
M2-4:2FTS	5.222	329.1 -> 80.9	1045	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	1865	5.00 µg/L	0.000
M2-8:2FTS	7.966	529.1 -> 80.9	2930	5.00 µg/L	0.000
M3-MeFOSAA	8.236	573.2 -> 419.0	14878	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	30150	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	12886	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	110308	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	150711	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	11717	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	12050	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	11376	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	72159	5.00 µg/L	0.000
18O2-PFHxS	7.228	403.0 -> 83.9	5353	2.50 µg/L	0.000
13C4-PFOA	7.124	417.1 -> 372.0	54891	2.50 µg/L	0.000
13C2-PFDA	8.178	515.1 -> 470.1	19442	1.25 µg/L	0.000
13C5-PFNA	7.684	468.0 -> 423.0	25730	1.25 µg/L	0.000
13C2-PFHxA	5.536	315.1 -> 270.0	46191	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.222	329.1 -> 80.9	1045	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1865	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C2-8:2FTS	7.966	529.1 -> 80.9	2930	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C2-PFDoDA	9.106	615.1 -> 570.0	24668	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C2-PFTeDA	9.899	715.2 -> 670.0	20258	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C3-PFBS	5.427	302.1 -> 79.9	12093	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C3-PFHxS	7.229	402.1 -> 79.9	7948	2.40 µg/L	0.000

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C4-PFBA	2.924	216.8 -> 171.9	136945	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C4-PFHpA	6.467	367.1 -> 322.0	29610	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C5-PFHxA	5.535	318.0 -> 273.0	49910	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C5-PFPeA	4.362	268.3 -> 223.0	71702	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C6-PFDA	8.178	519.1 -> 474.1	20739	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C7-PFUnDA	8.647	570.0 -> 525.1	21721	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C8-FOSA	9.771	506.1 -> 77.8	19470	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C8-PFOA	7.124	421.1 -> 376.0	44424	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C8-PFOS	8.329	507.1 -> 79.9	11069	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C9-PFNA	7.670	472.1 -> 427.0	21310	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.5%	
d3-MeFOSAA	8.236	573.2 -> 419.0	14878	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	30150	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d3-MeFOSA	11.064	515.0 -> 219.0	12050	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.0%	
d5-EtFOSAA	8.446	589.2 -> 419.0	12886	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
d7-MeFOSE	10.947	623.2 -> 58.9	110308	31.17 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 124.7%	
d9-EtFOSE	11.256	639.2 -> 58.9	150711	30.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 120.3%	
d5-EtFOSA	11.348	531.1 -> 219.0	11717	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.223	327.1 -> 307.0	16368	9.73 µg/L	100
		327.1 -> 80.9	7675		
6:2FTS	6.899	427.1 -> 407.0	19037	10.57 µg/L	100
		427.1 -> 80.9	8009		
8:2FTS	7.966	527.1 -> 507.0	16898	10.35 µg/L	100
		527.1 -> 80.8	7139		
EtFOSAA	8.446	584.2 -> 419.1	5251	2.12 µg/L	m 100
		584.2 -> 526.0	2672		
FOSA	9.774	498.1 -> 77.9	19654	2.41 µg/L	100
		498.1 -> 478.0	646		
MeFOSAA	8.237	570.1 -> 419.0	5917	2.28 µg/L	m 100
		570.1 -> 483.0	1394		
PFBA	2.932	212.8 -> 168.9	35630	9.72 µg/L	100
PFBS	5.428	298.7 -> 79.9	11011	2.22 µg/L	100
		298.7 -> 98.8	4473		
PFDA	8.179	512.9 -> 469.0	37828	2.40 µg/L	100
		512.9 -> 219.0	8158		
PFDoDA	9.106	613.1 -> 569.0	46925	2.37 µg/L	100
		613.1 -> 319.0	6874		
PFDS	9.257	599.0 -> 79.9	6593	2.40 µg/L	100



## Perfluorinated Compounds by LC/MS/MS

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

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

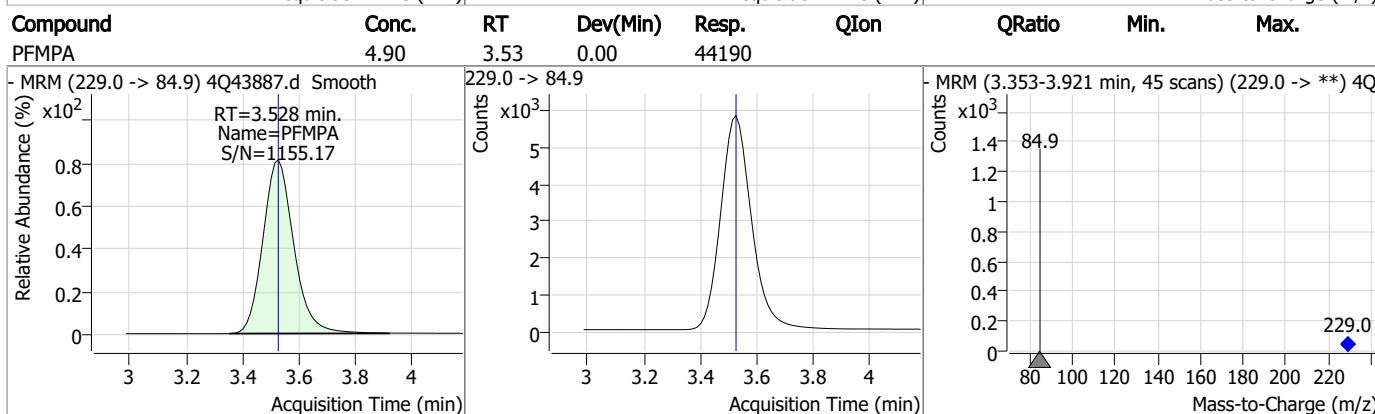
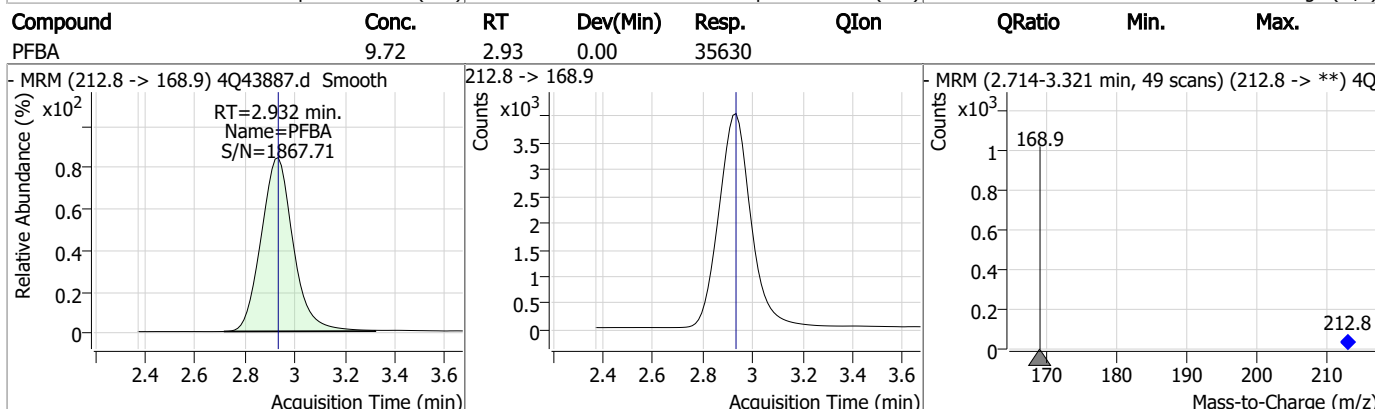
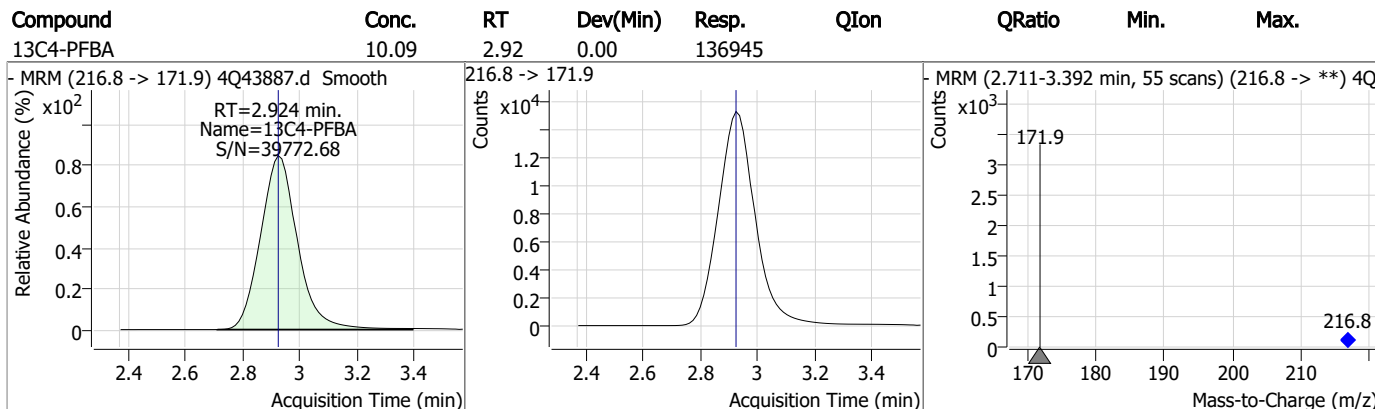
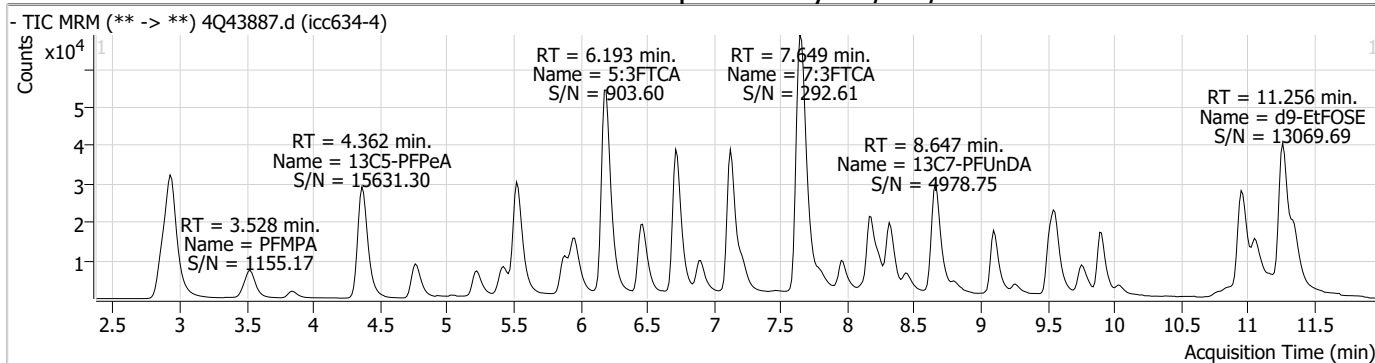
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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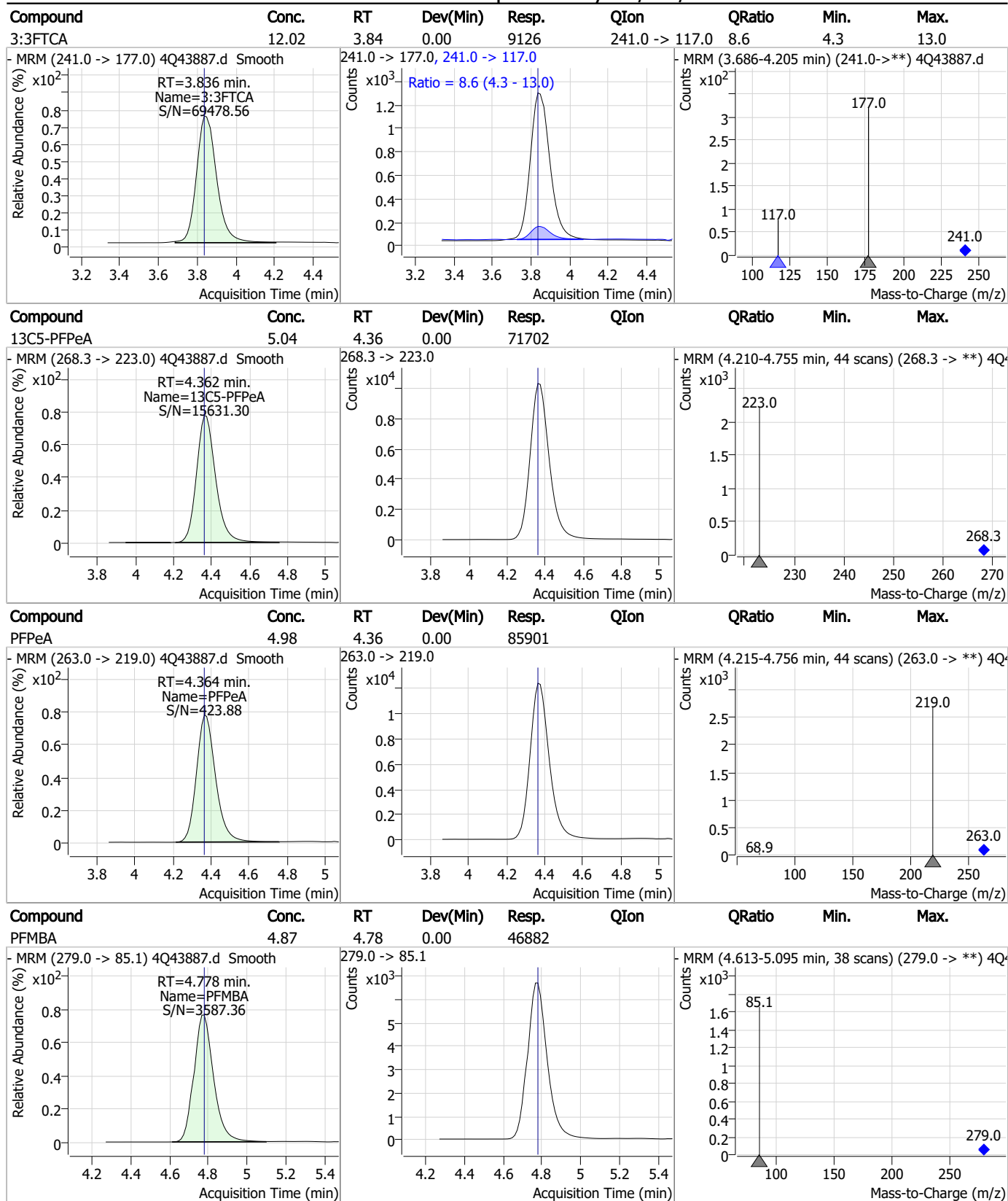
7.7.5

7

### Perfluorinated Compounds by LC/MS/MS

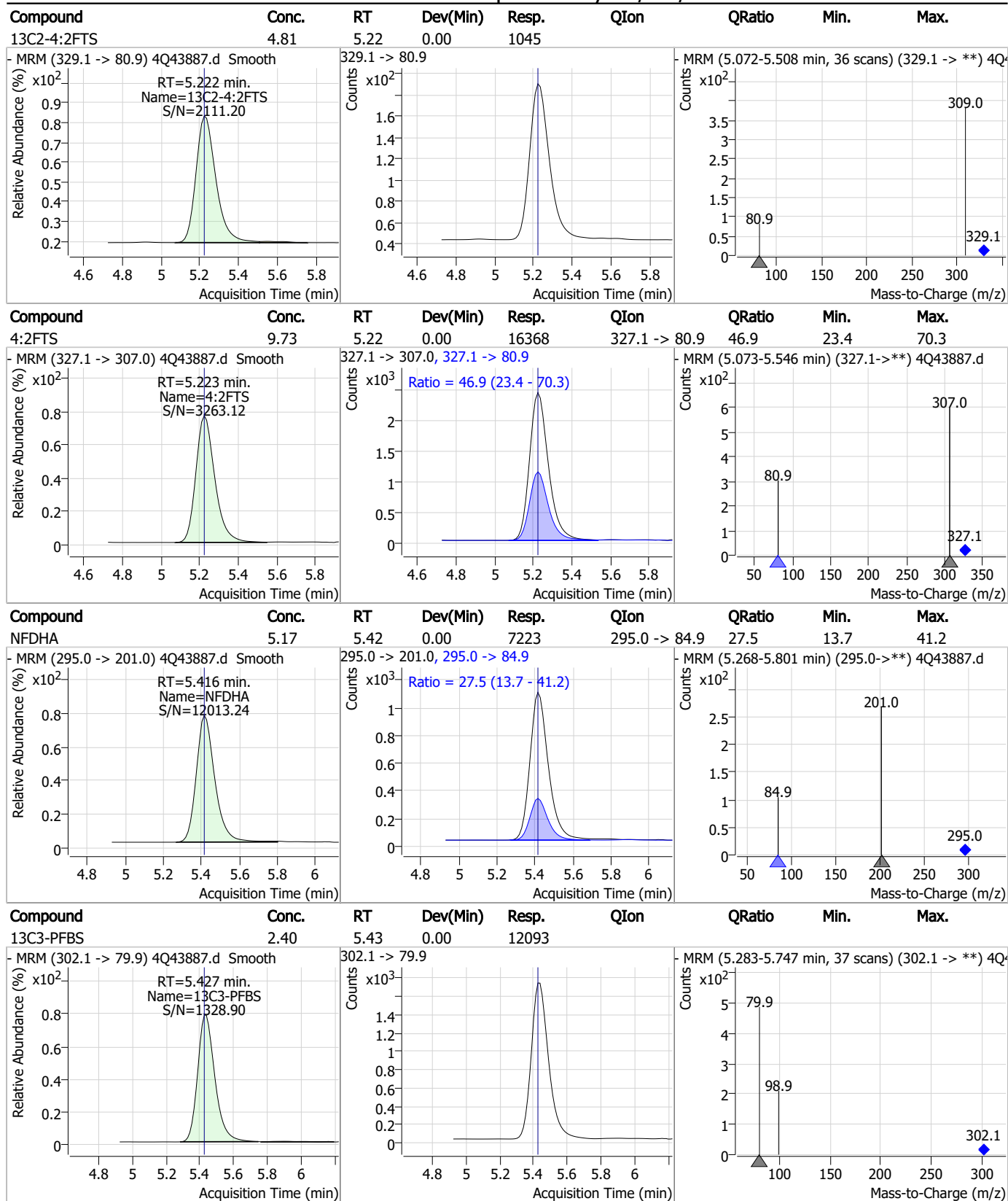


### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7

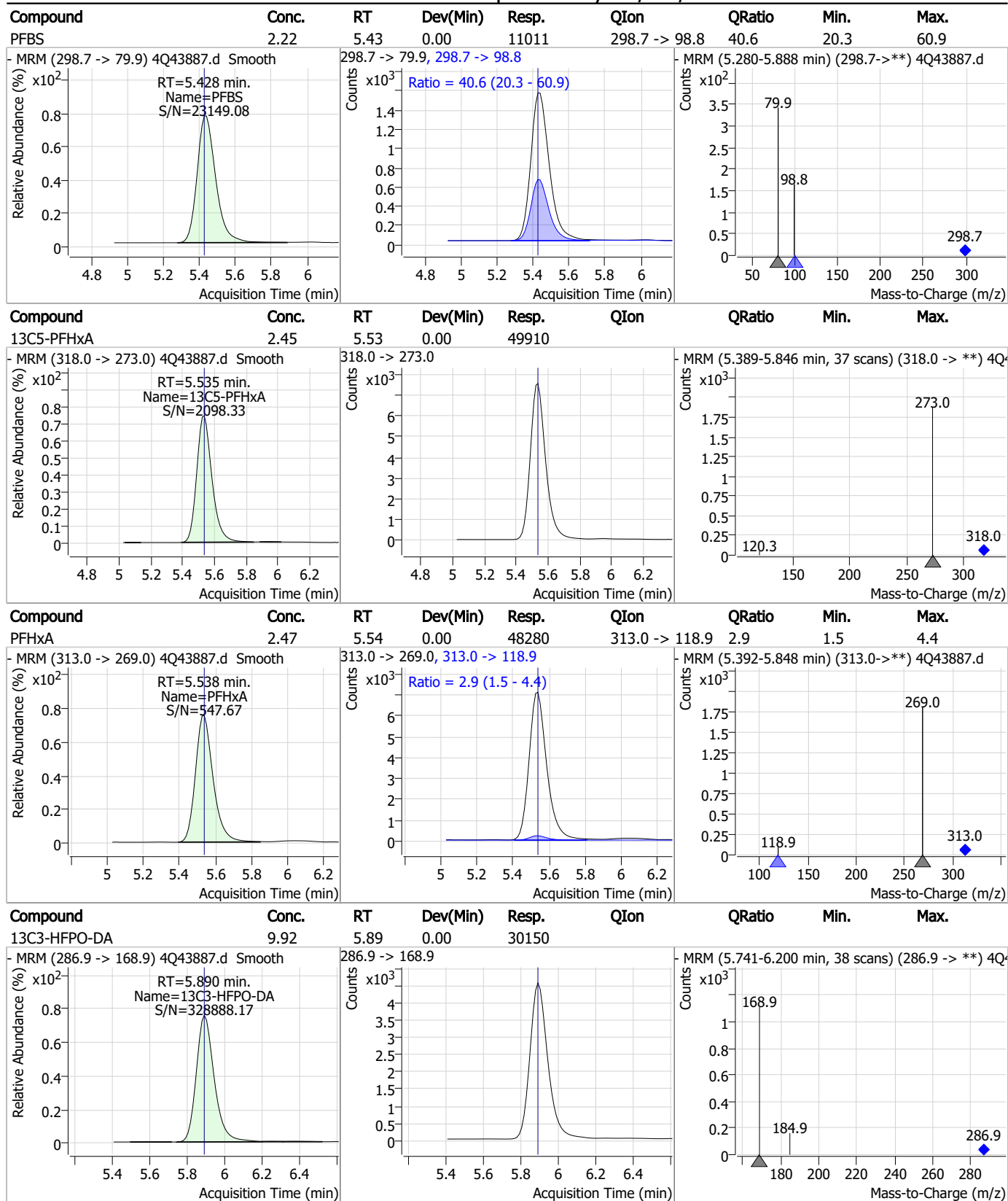
### Perfluorinated Compounds by LC/MS/MS



7.7.5

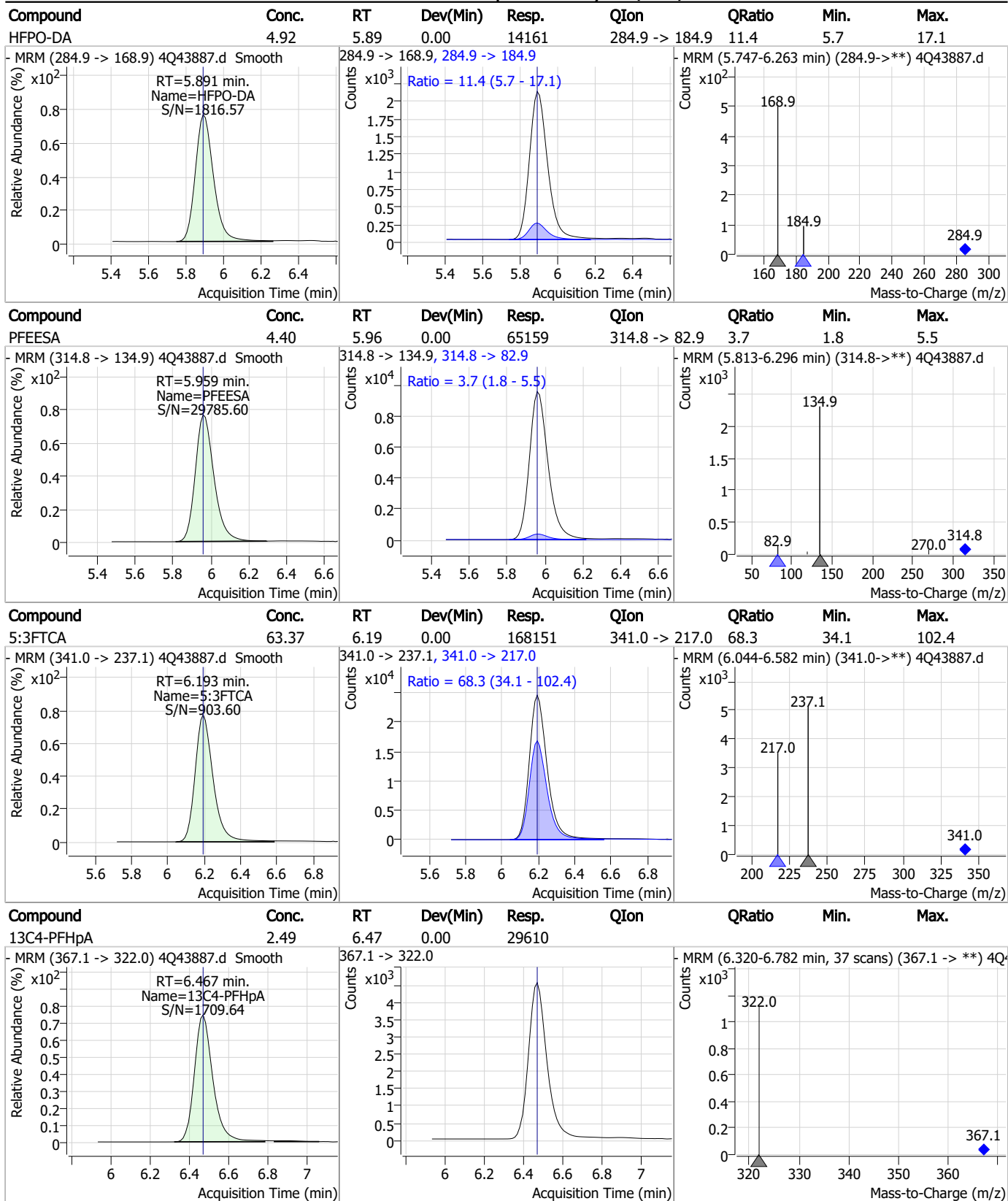
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### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7

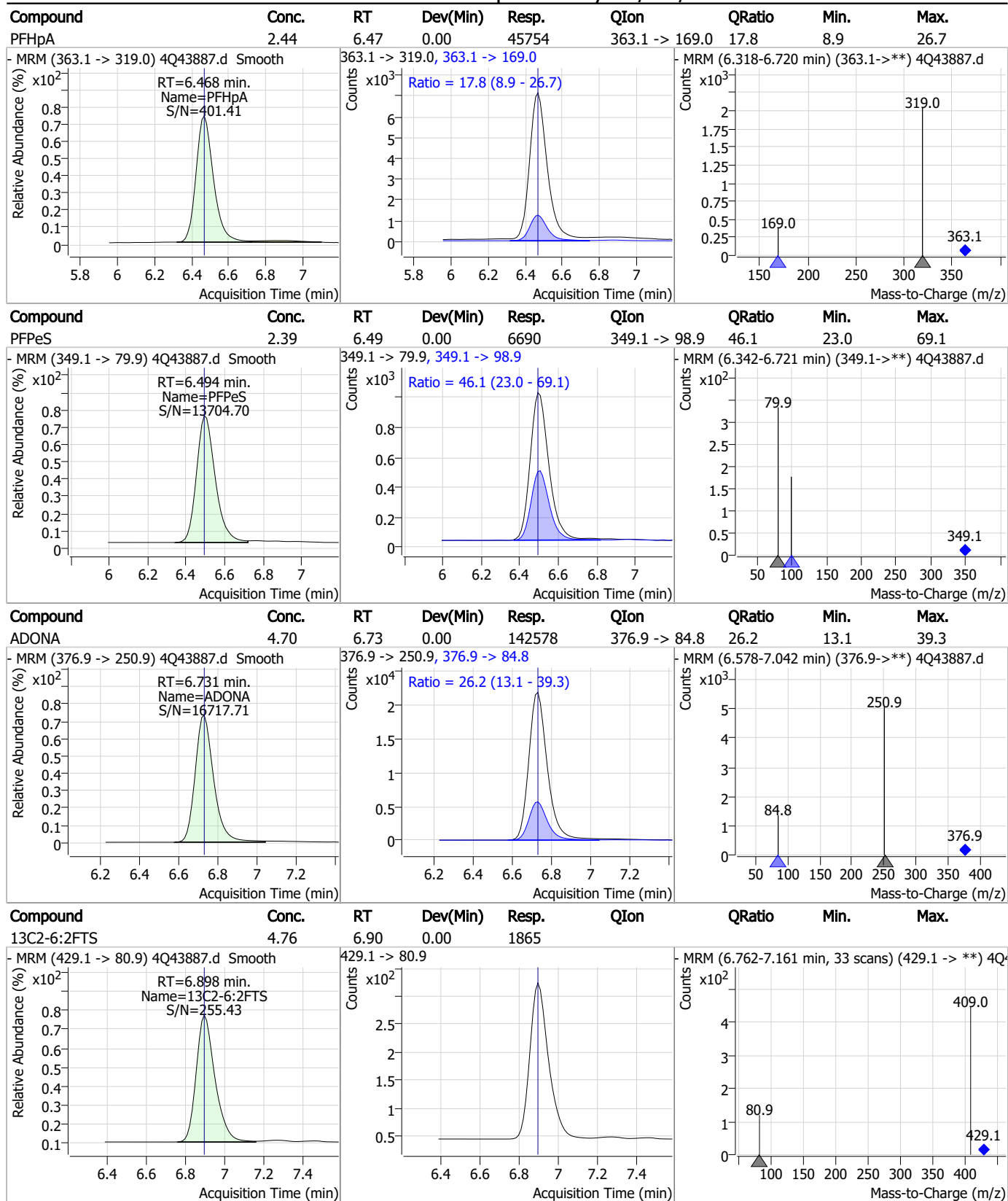
### Perfluorinated Compounds by LC/MS/MS



7.7.5

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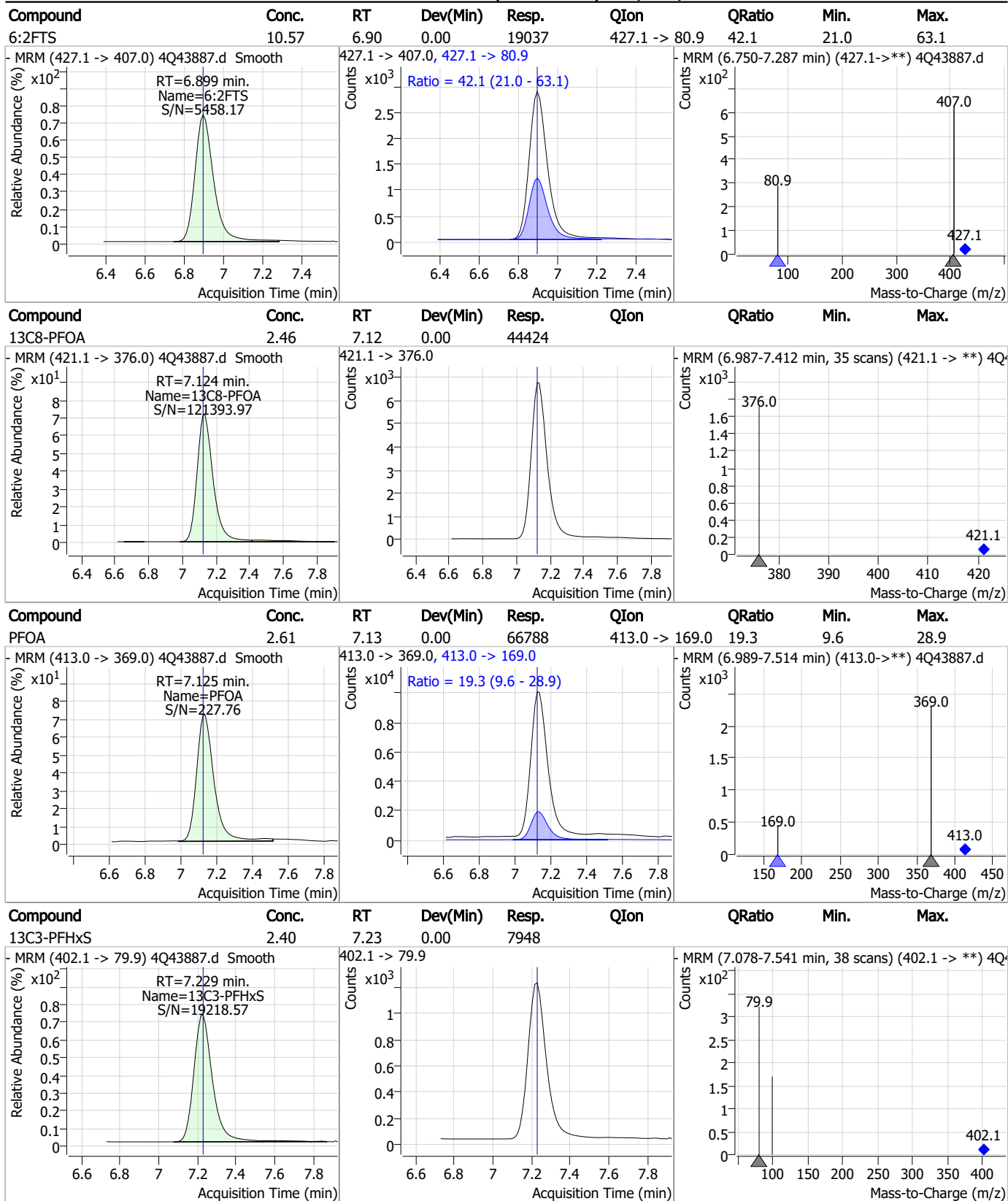
### Perfluorinated Compounds by LC/MS/MS



7.7.5  
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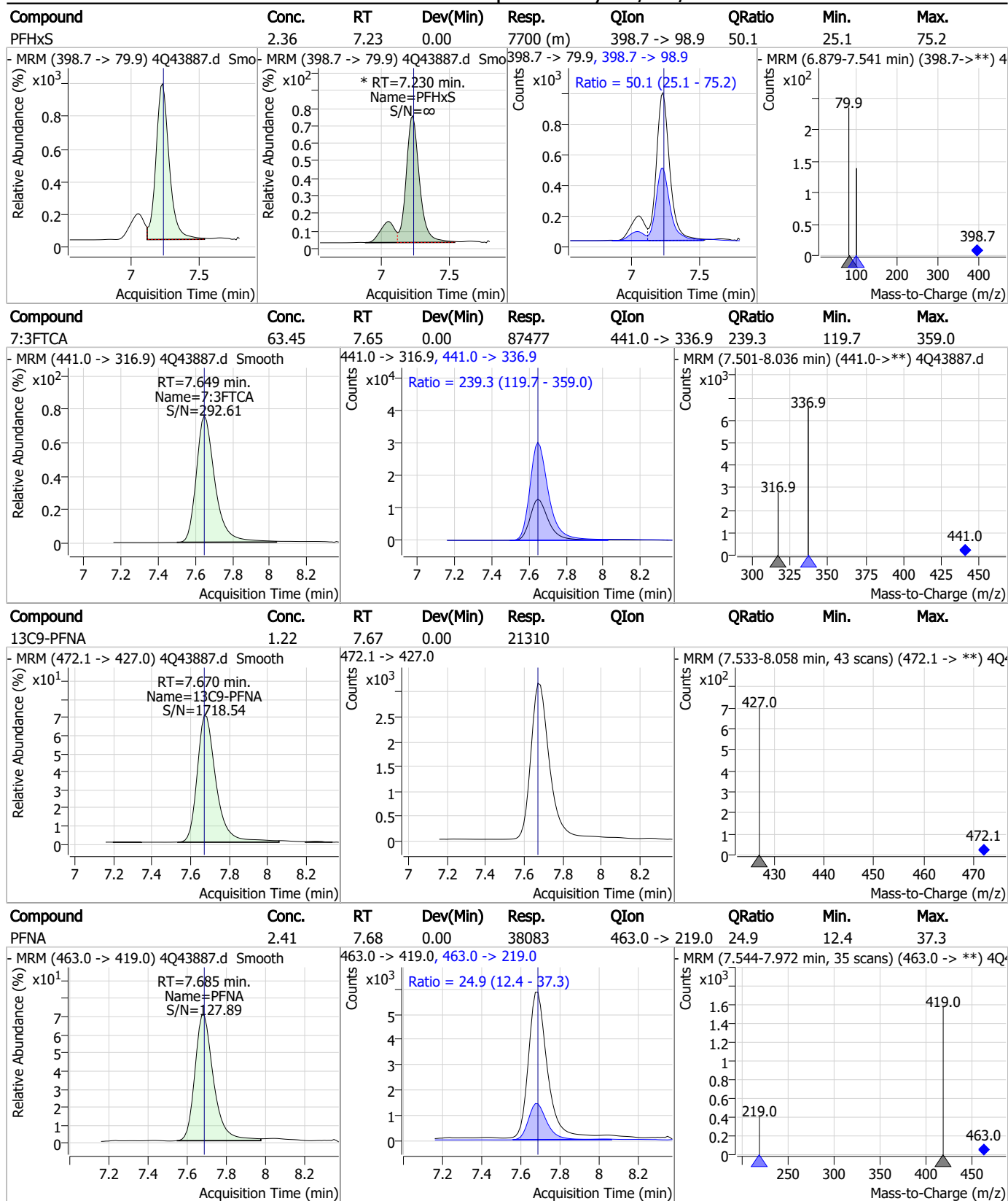


### Perfluorinated Compounds by LC/MS/MS



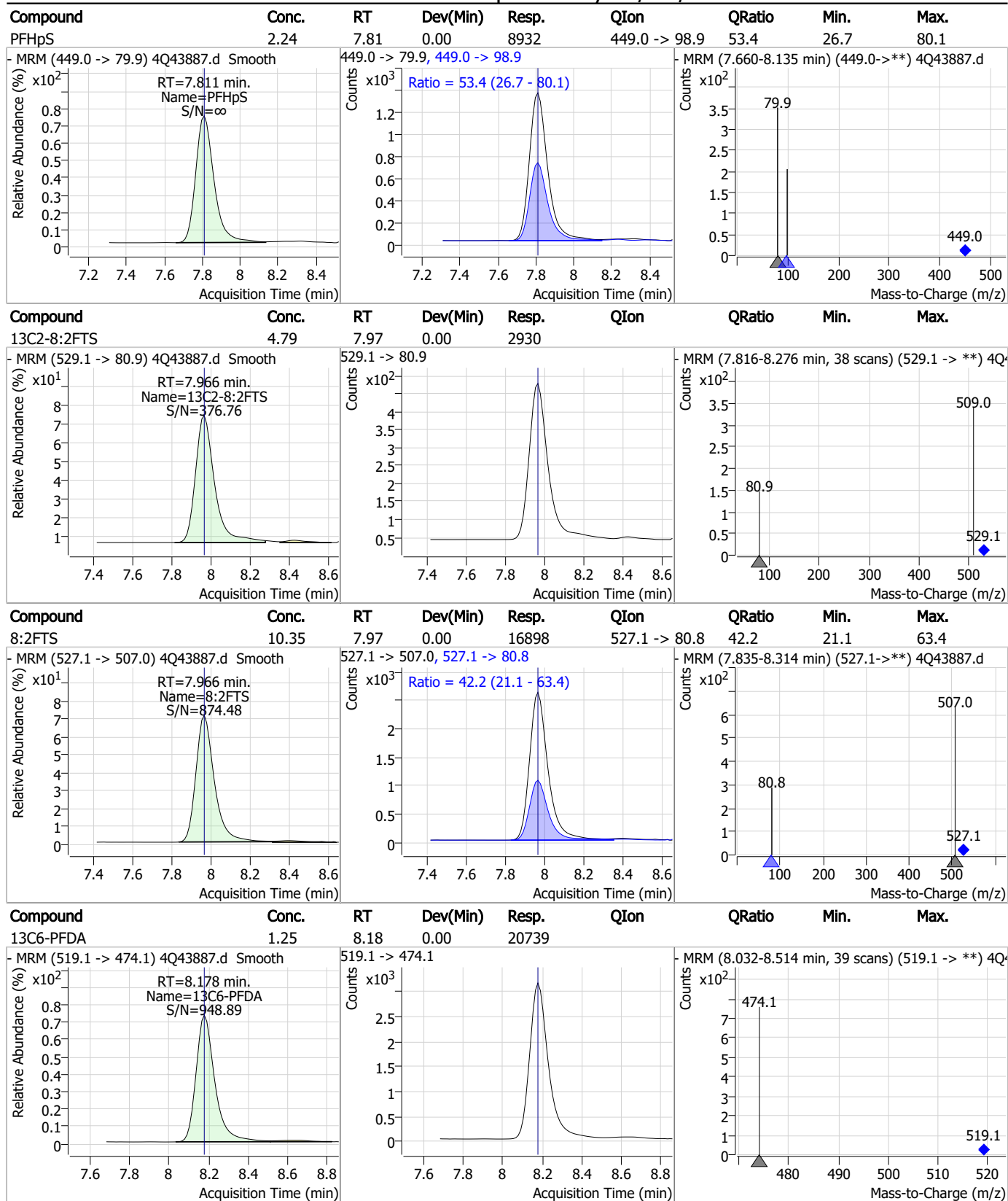
7.7.5  
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### Perfluorinated Compounds by LC/MS/MS



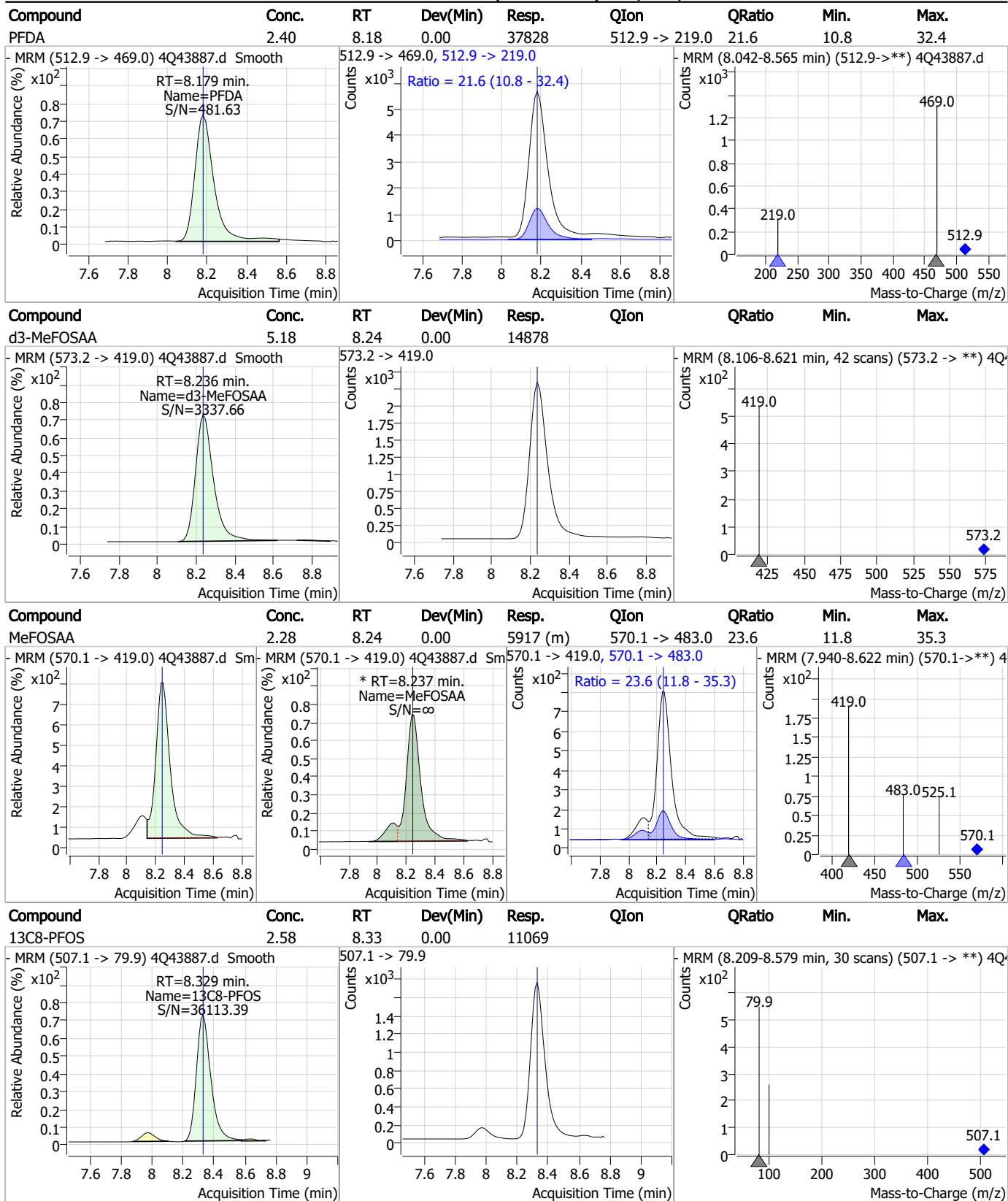
7.7.5  
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### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7

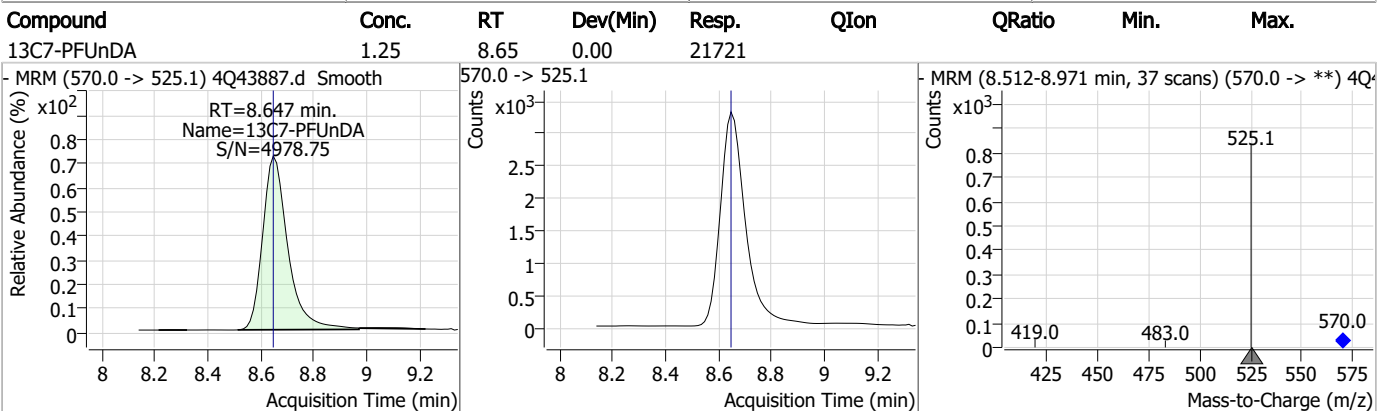
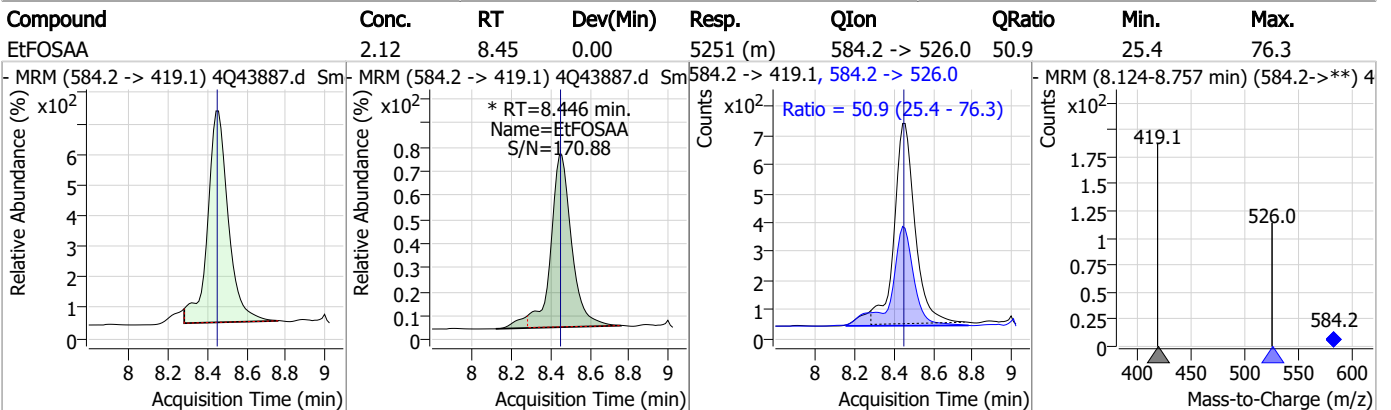
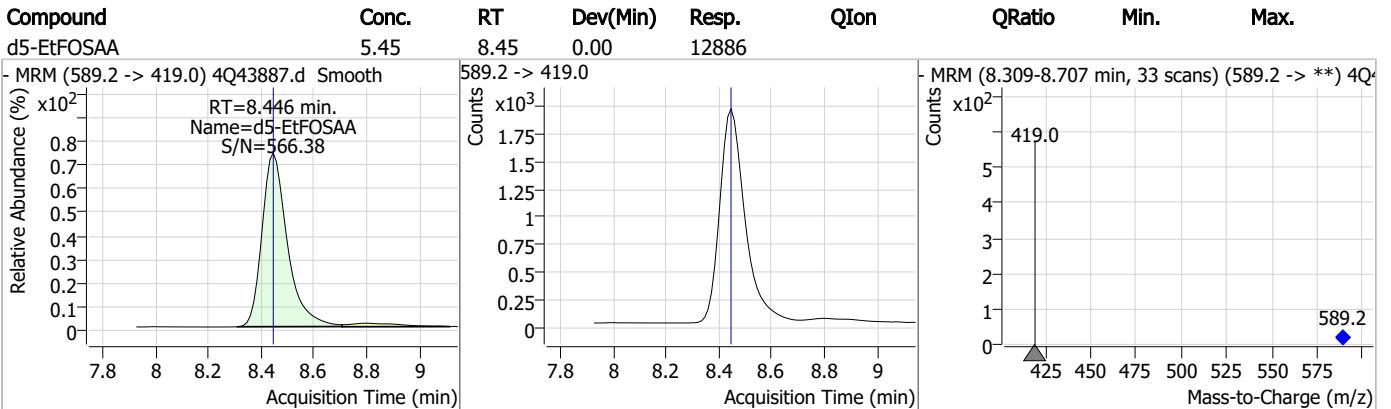
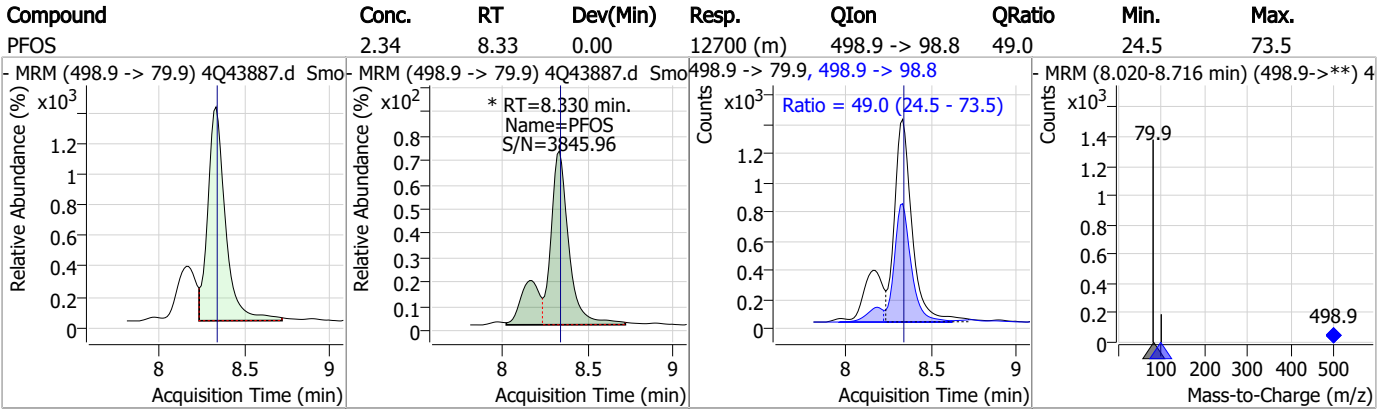
### Perfluorinated Compounds by LC/MS/MS



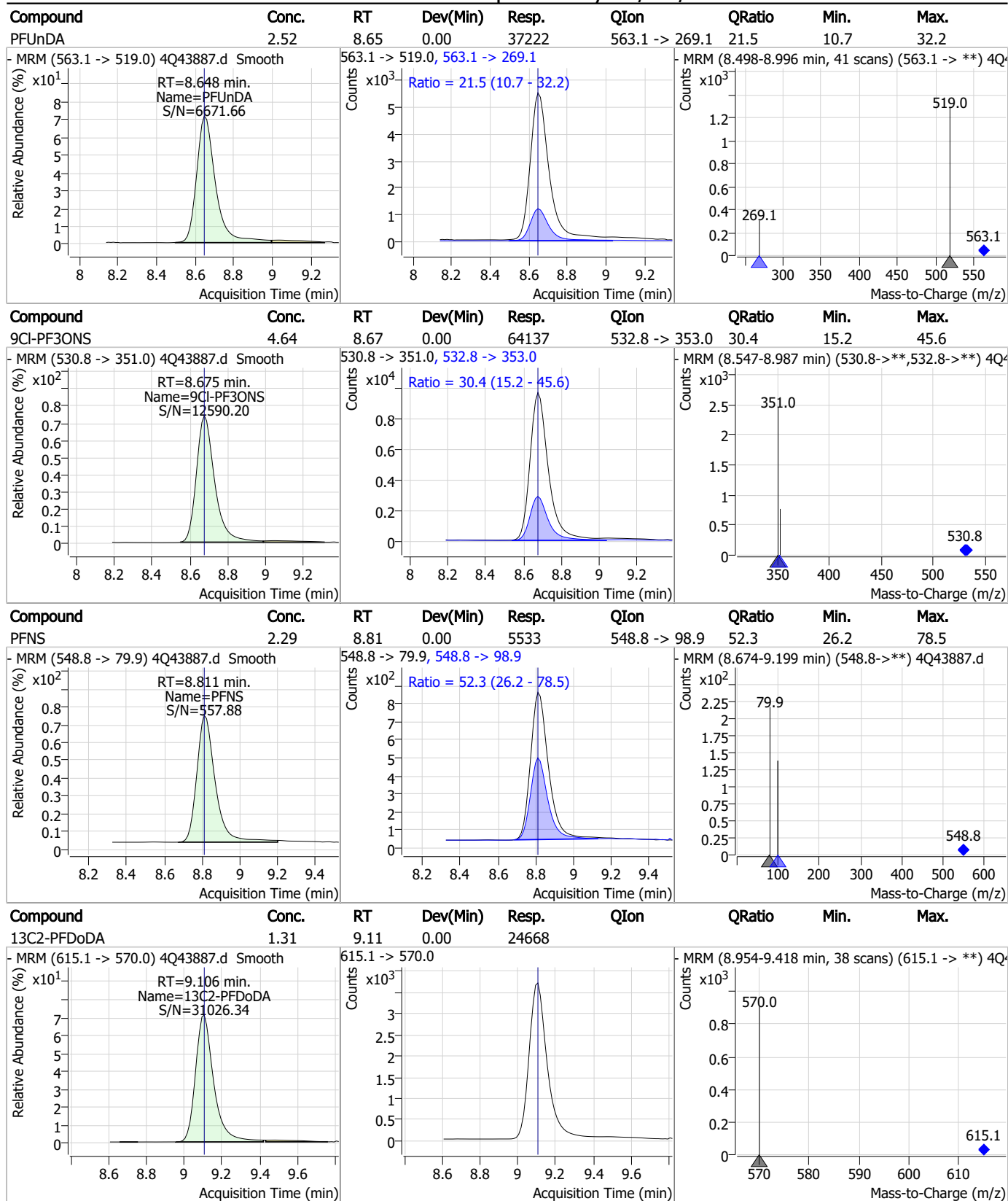
7.7.5

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### Perfluorinated Compounds by LC/MS/MS

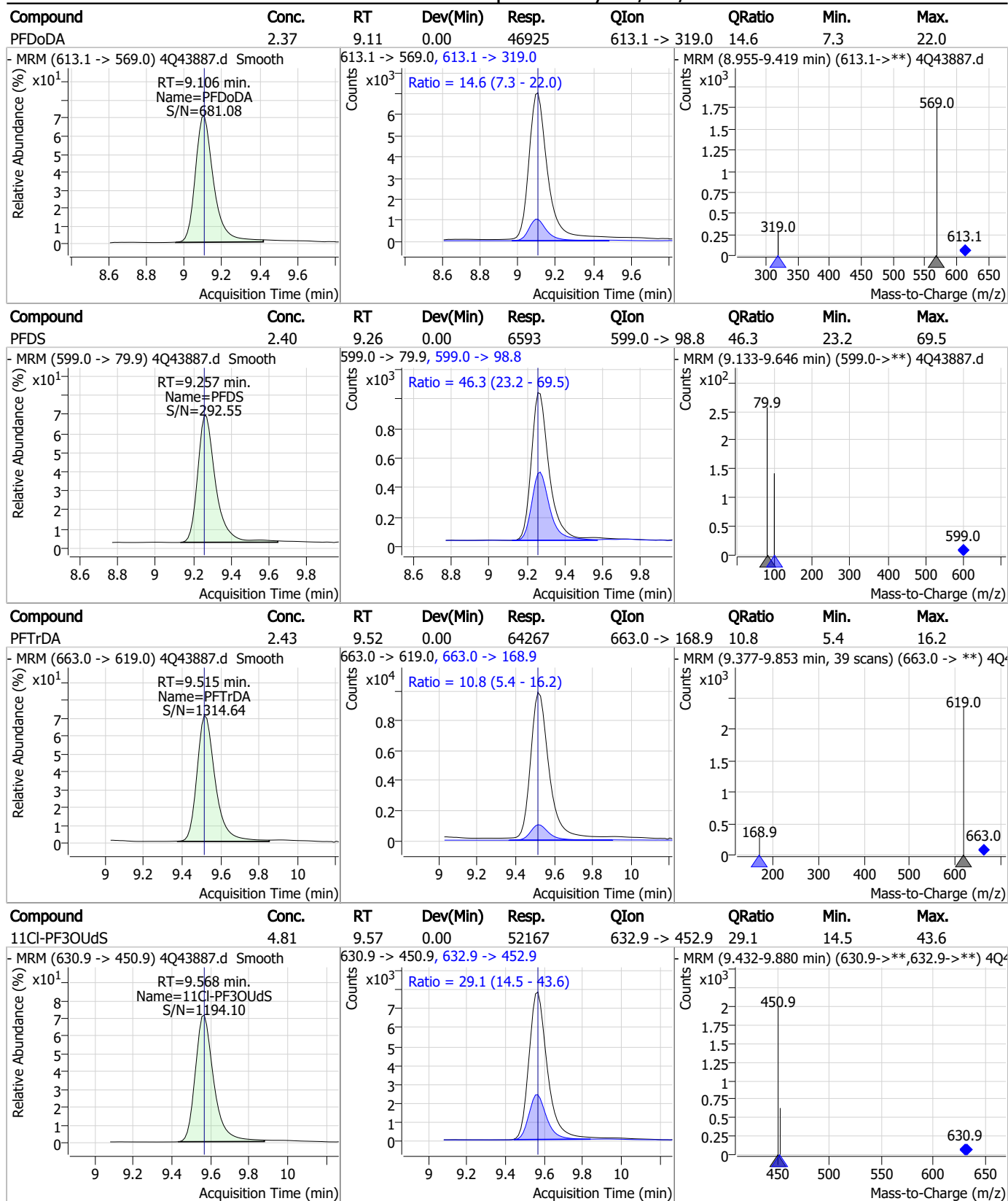


### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7

### Perfluorinated Compounds by LC/MS/MS

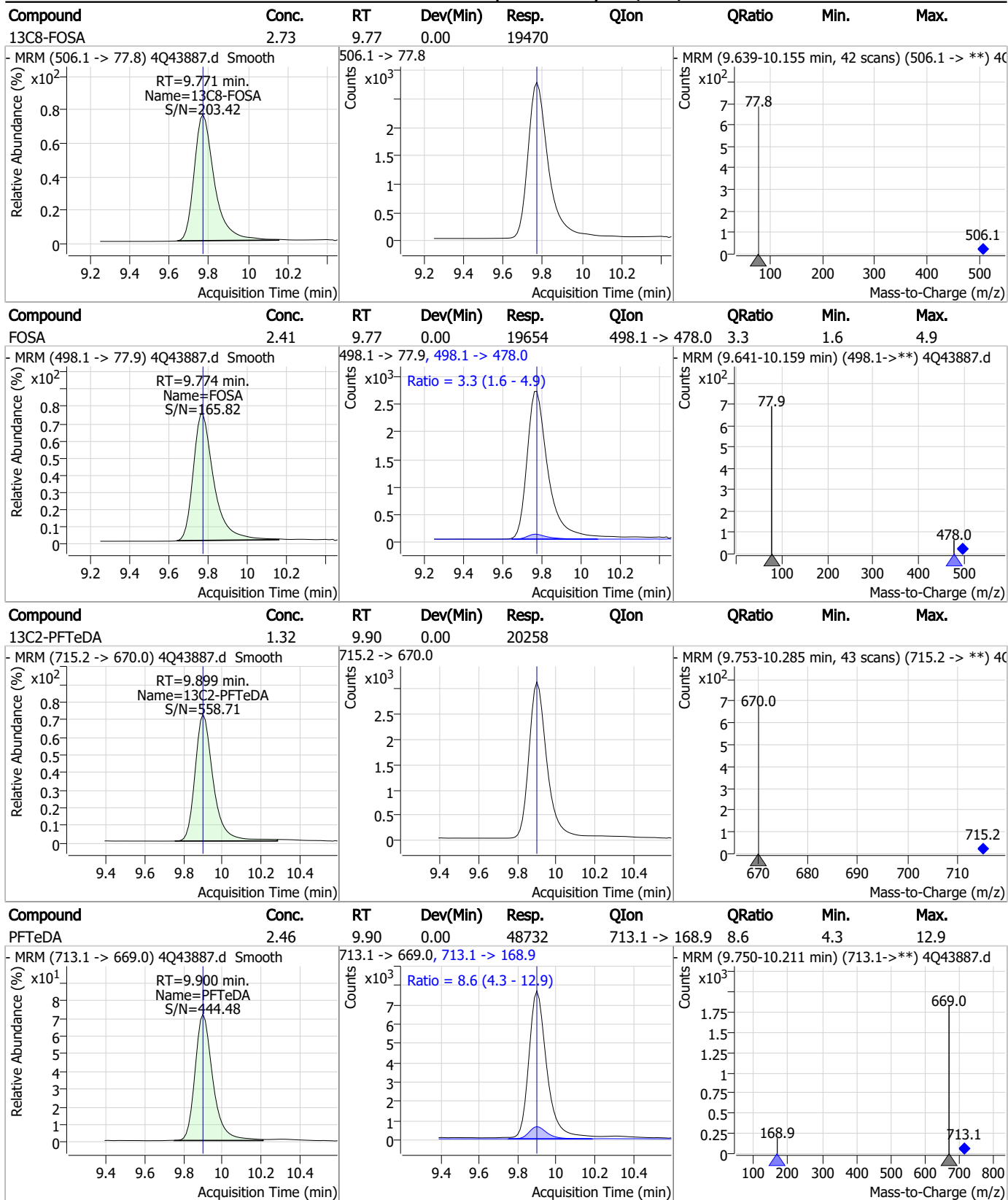


7.7.5

7



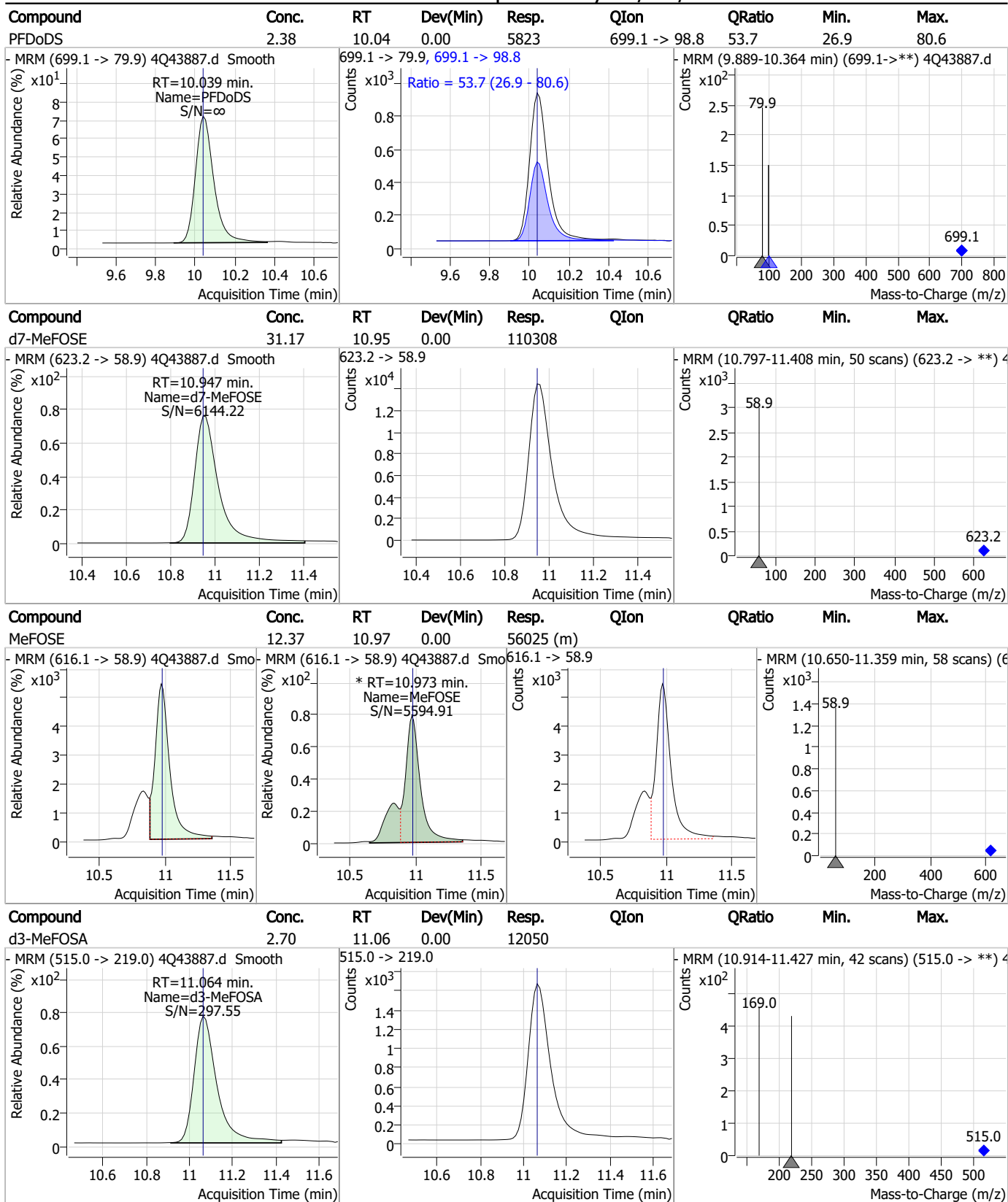
### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7



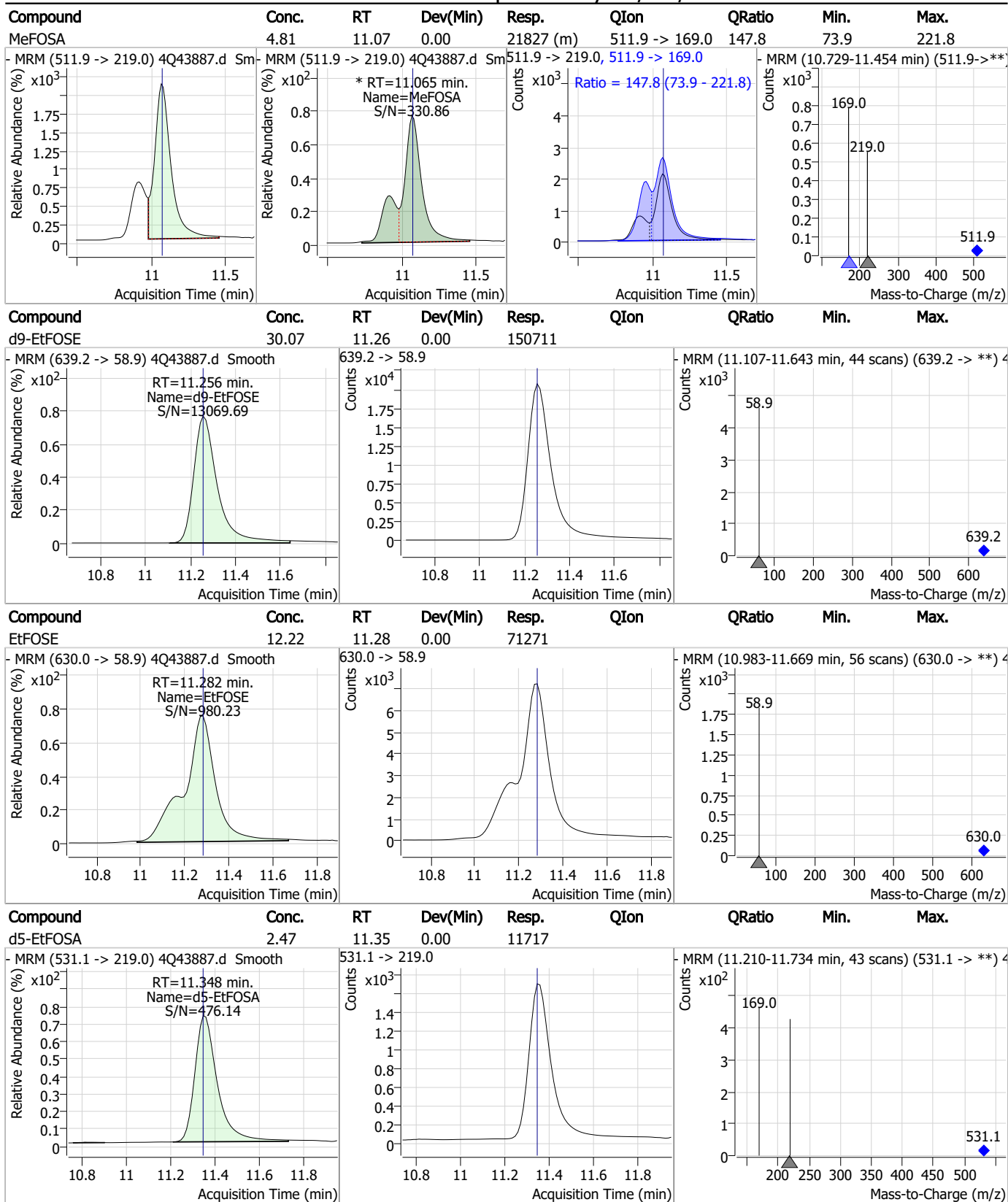
### Perfluorinated Compounds by LC/MS/MS



7.7.5

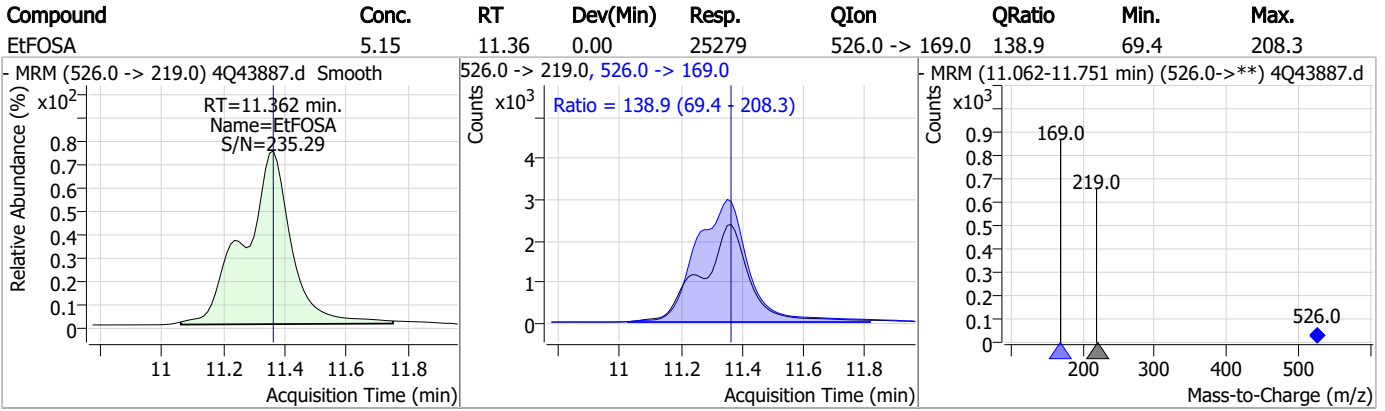
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### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.5

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# Manual Integration Approval Summary

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

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

7.7.5.1  
7

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

**Norman Farmer**  
 05/04/23 17:44

### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43888.d  
 Operator : natashag  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/3/2023 12:08:27 PM  
 Sample Name : ic634-5  
 Vial : P1-A6  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q634.batch.bin  
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.924	216.8 -> 171.9	134804	10.00 µg/L	0.000
M5-PFPeA	4.362	268.3 -> 223.0	72823	5.00 µg/L	0.000
M5-PFHxA	5.535	318.0 -> 273.0	52258	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	29578	2.50 µg/L	0.000
M8-PFOA	7.124	421.1 -> 376.0	47154	2.50 µg/L	0.000
M9-PFNA	7.684	472.1 -> 427.0	21268	1.25 µg/L	0.013
M6-PFDA	8.178	519.1 -> 474.1	20452	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	22750	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	24715	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	20759	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	21043	2.50 µg/L	0.000
M3-PFBS	5.427	302.1 -> 79.9	12398	2.50 µg/L	0.000
M3-PFHxS	7.229	402.1 -> 79.9	8084	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	10984	2.50 µg/L	0.000
M2-4:2FTS	5.222	329.1 -> 80.9	1077	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	2039	5.00 µg/L	0.000
M2-8:2FTS	7.966	529.1 -> 80.9	3000	5.00 µg/L	0.000
M3-MeFOSAA	8.236	573.2 -> 419.0	14764	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	30622	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	12616	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	113735	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	153598	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	12423	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	11501	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	12014	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	71515	5.00 µg/L	-0.012
18O2-PFHxS	7.228	403.0 -> 83.9	5214	2.50 µg/L	0.000
13C4-PFOA	7.124	417.1 -> 372.0	57051	2.50 µg/L	0.000
13C2-PFDA	8.178	515.1 -> 470.1	19211	1.25 µg/L	0.000
13C5-PFNA	7.684	468.0 -> 423.0	25924	1.25 µg/L	0.000
13C2-PFHxA	5.536	315.1 -> 270.0	46558	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.222	329.1 -> 80.9	1077	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2039	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C2-8:2FTS	7.966	529.1 -> 80.9	3000	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFDoDA	9.106	615.1 -> 570.0	24715	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-PFTeDA	9.899	715.2 -> 670.0	20759	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C3-PFBS	5.427	302.1 -> 79.9	12398	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C3-PFHxS	7.229	402.1 -> 79.9	8084	2.50 µg/L	0.000

7.7.6  
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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C4-PFBA	2.924	216.8 -> 171.9	134804	10.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C4-PFHpA	6.467	367.1 -> 322.0	29578	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C5-PFHxA	5.535	318.0 -> 273.0	52258	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C5-PFPeA	4.362	268.3 -> 223.0	72823	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C6-PFDA	8.178	519.1 -> 474.1	20452	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C7-PFUnDA	8.647	570.0 -> 525.1	22750	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C8-FOSA	9.771	506.1 -> 77.8	21043	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.7%		
13C8-PFOA	7.124	421.1 -> 376.0	47154	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C8-PFOS	8.329	507.1 -> 79.9	10984	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C9-PFNA	7.684	472.1 -> 427.0	21268	1.21 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
d3-MeFOSAA	8.236	573.2 -> 419.0	14764	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-HFPO-DA	5.890	286.9 -> 168.9	30622	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
d3-MeFOSA	11.064	515.0 -> 219.0	11501	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.6%		
d5-EtFOSAA	8.446	589.2 -> 419.0	12616	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
d7-MeFOSE	10.947	623.2 -> 58.9	113735	30.43 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 121.7%		
d9-EtFOSE	11.256	639.2 -> 58.9	153598	29.02 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 116.1%		
d5-EtFOSA	11.348	531.1 -> 219.0	12423	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.2%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.223	327.1 -> 307.0	31539	18.21 µg/L	93
		327.1 -> 80.9	13355		
6:2FTS	6.899	427.1 -> 407.0	34855	17.69 µg/L	97
		427.1 -> 80.9	15248		
8:2FTS	7.966	527.1 -> 507.0	33969	20.32 µg/L	96
		527.1 -> 80.8	13558		
EtFOSAA	8.459	584.2 -> 419.1	11889	4.91 µg/L	m 86
		584.2 -> 526.0	4874		
FOSA	9.774	498.1 -> 77.9	40395	4.58 µg/L	100
		498.1 -> 478.0	1299		
MeFOSAA	8.249	570.1 -> 419.0	12287	4.77 µg/L	m 94
		570.1 -> 483.0	2551		
PFBA	2.920	212.8 -> 168.9	69778	19.33 µg/L	100
PFBS	5.428	298.7 -> 79.9	21965	4.32 µg/L	95
		298.7 -> 98.8	8210		
PFDA	8.179	512.9 -> 469.0	76434	4.93 µg/L	96
		512.9 -> 219.0	15009		
PFDoDA	9.106	613.1 -> 569.0	96603	4.87 µg/L	98
		613.1 -> 319.0	13468		
PFDS	9.269	599.0 -> 79.9	12625	4.64 µg/L	96

## Perfluorinated Compounds by LC/MS/MS

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

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

### Perfluorinated Compounds by LC/MS/MS

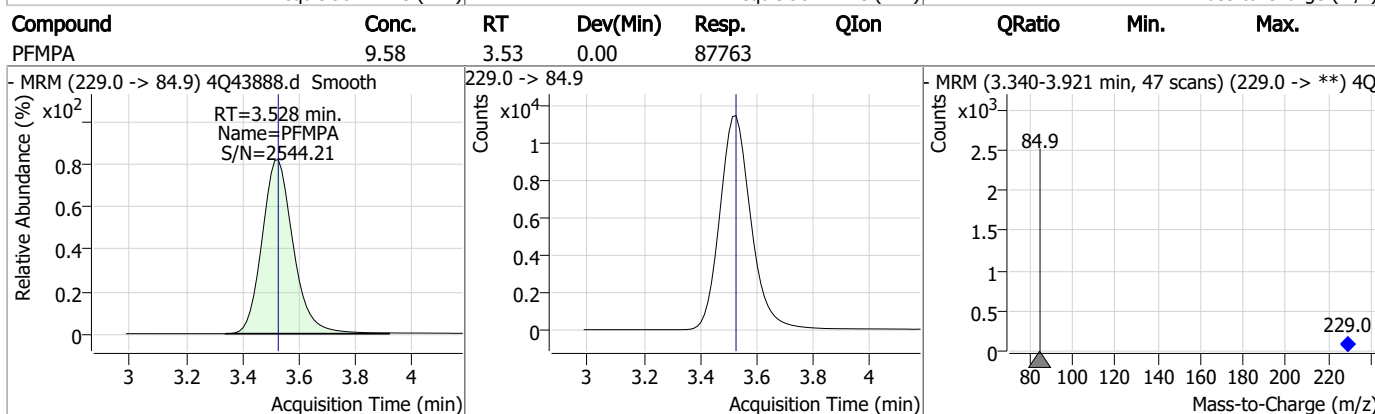
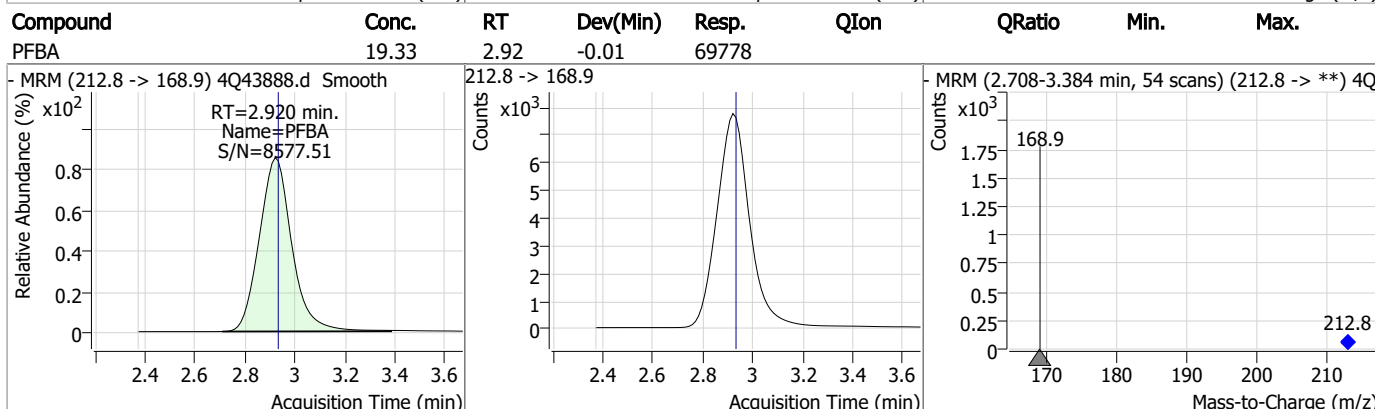
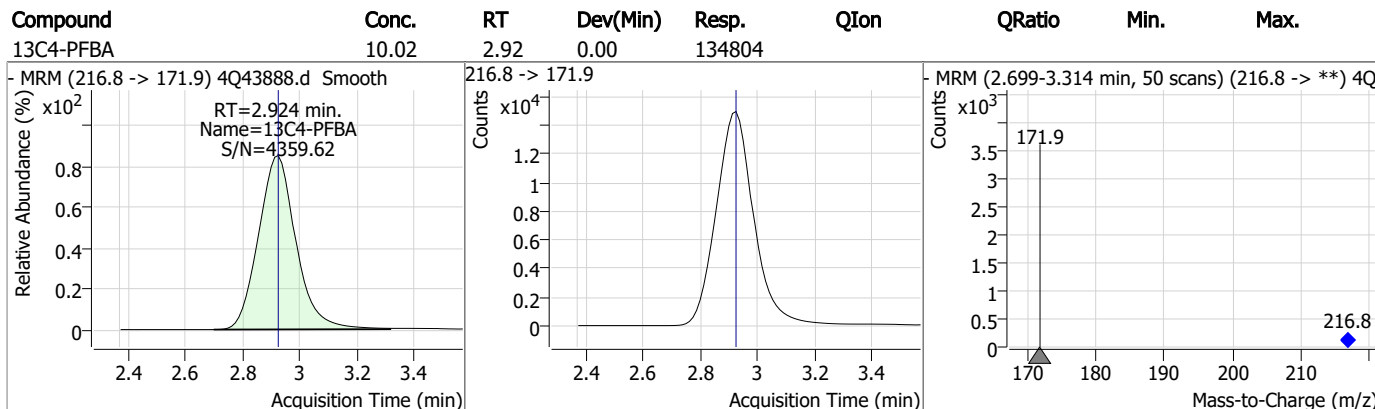
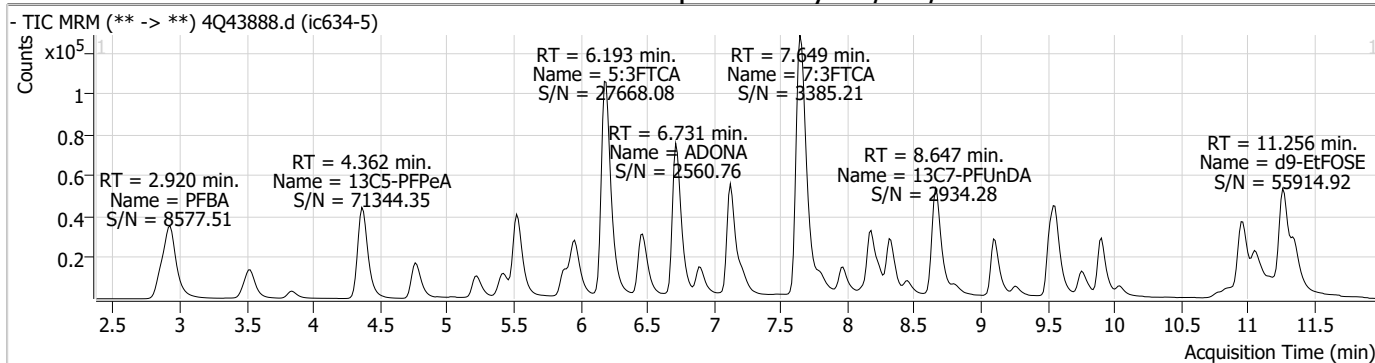
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.6

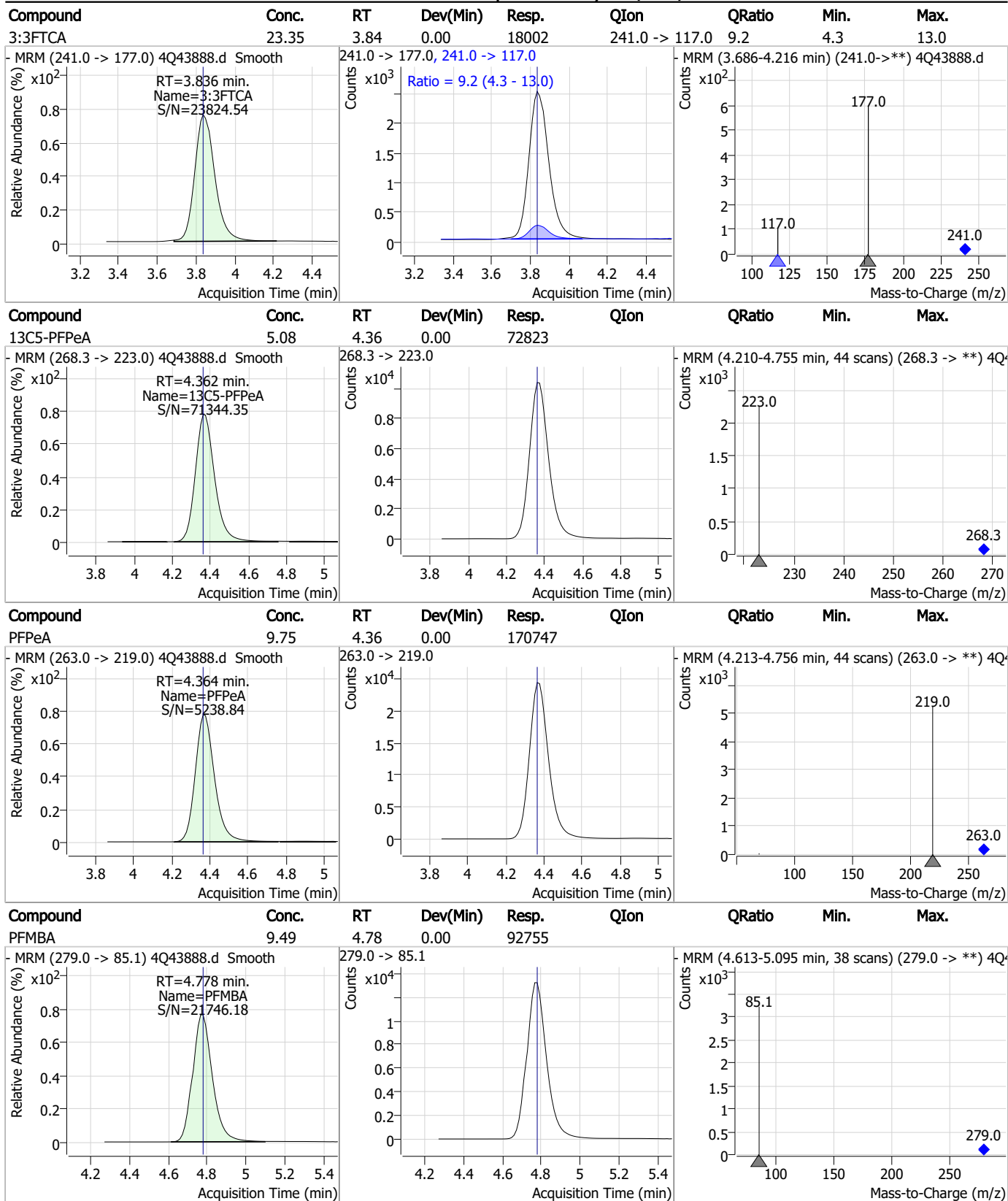
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### Perfluorinated Compounds by LC/MS/MS

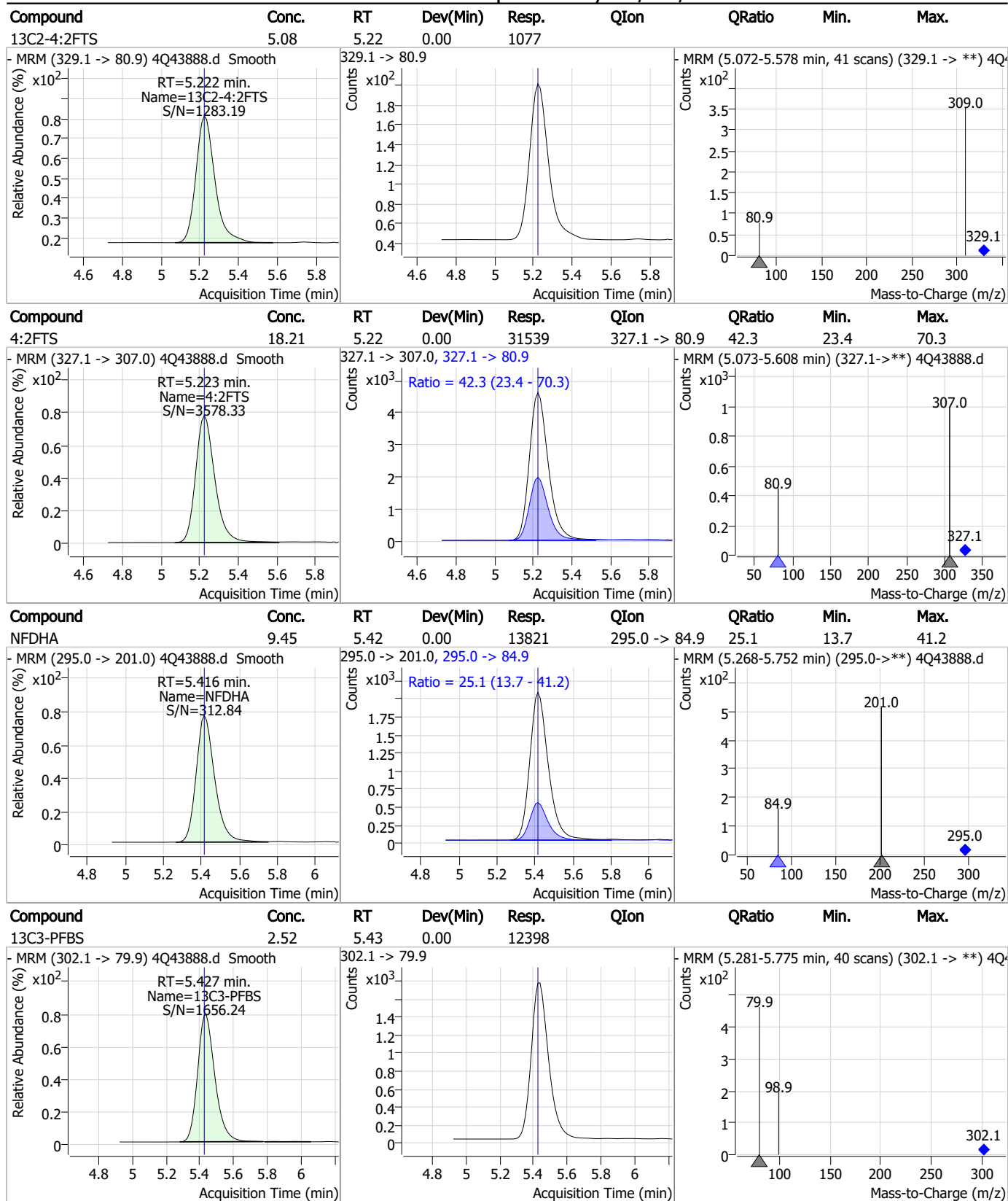


### Perfluorinated Compounds by LC/MS/MS



7.7.6  
7

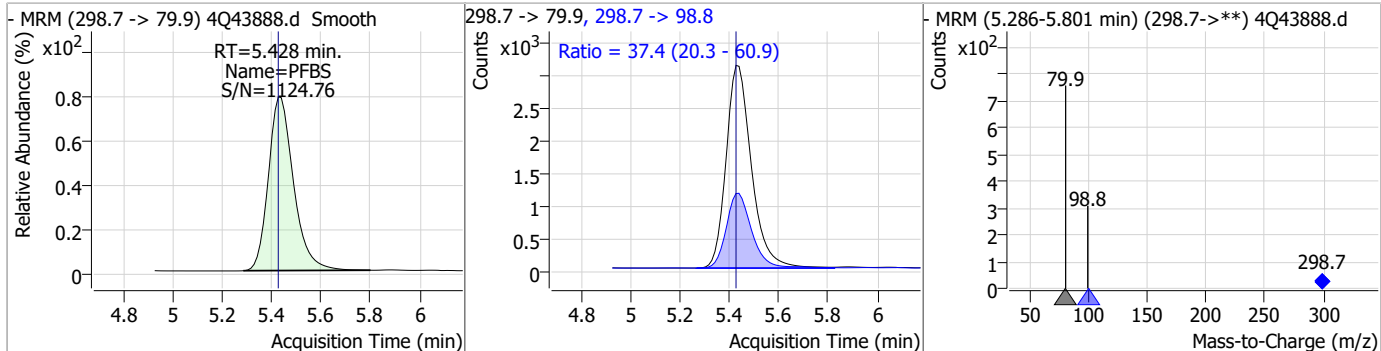
### Perfluorinated Compounds by LC/MS/MS



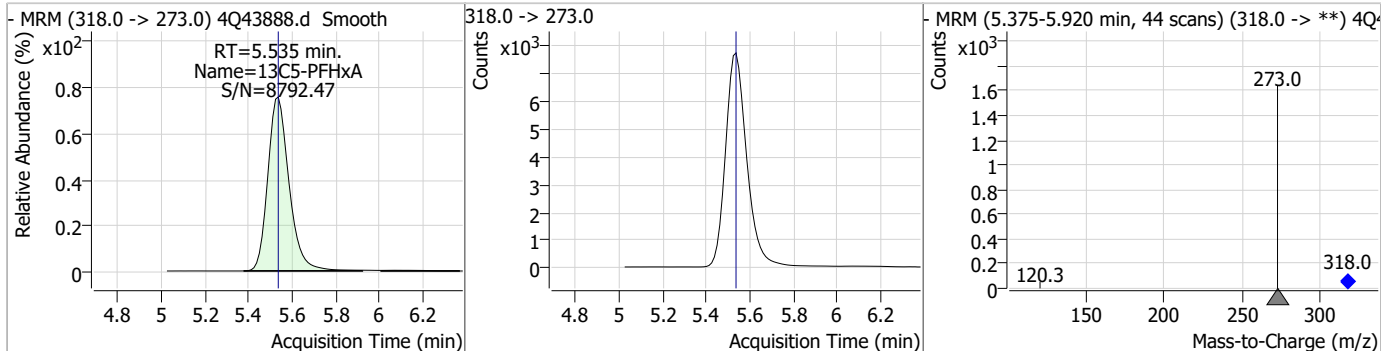
7.7.6  
7

### Perfluorinated Compounds by LC/MS/MS

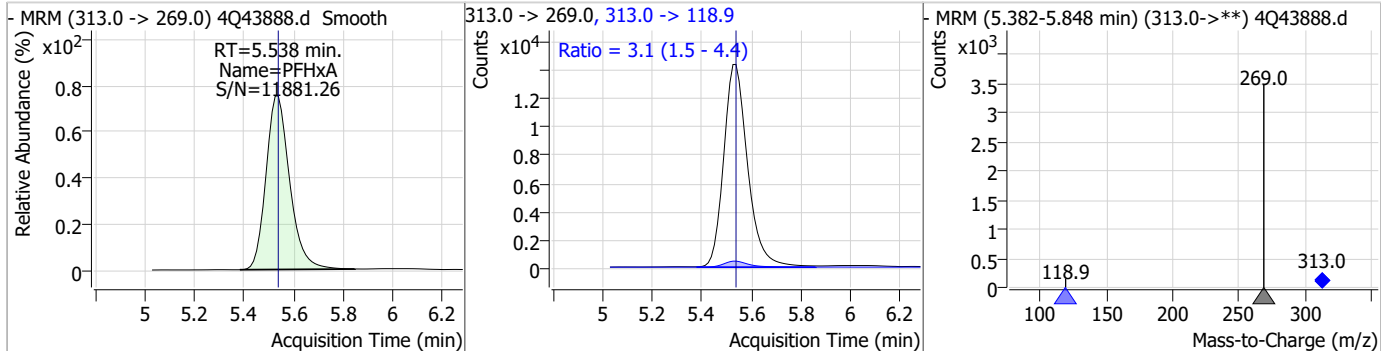
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.32	5.43	0.00	21965	298.7 -> 98.8	37.4	20.3	60.9



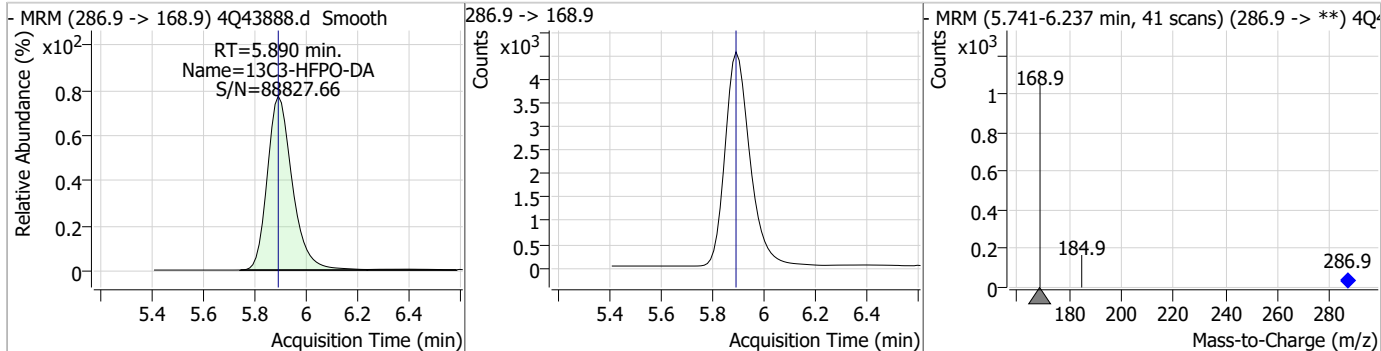
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.55	5.53	0.00	52258	318.0 -> 273.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.69	5.54	0.00	95984	313.0 -> 118.9	3.1	1.5	4.4

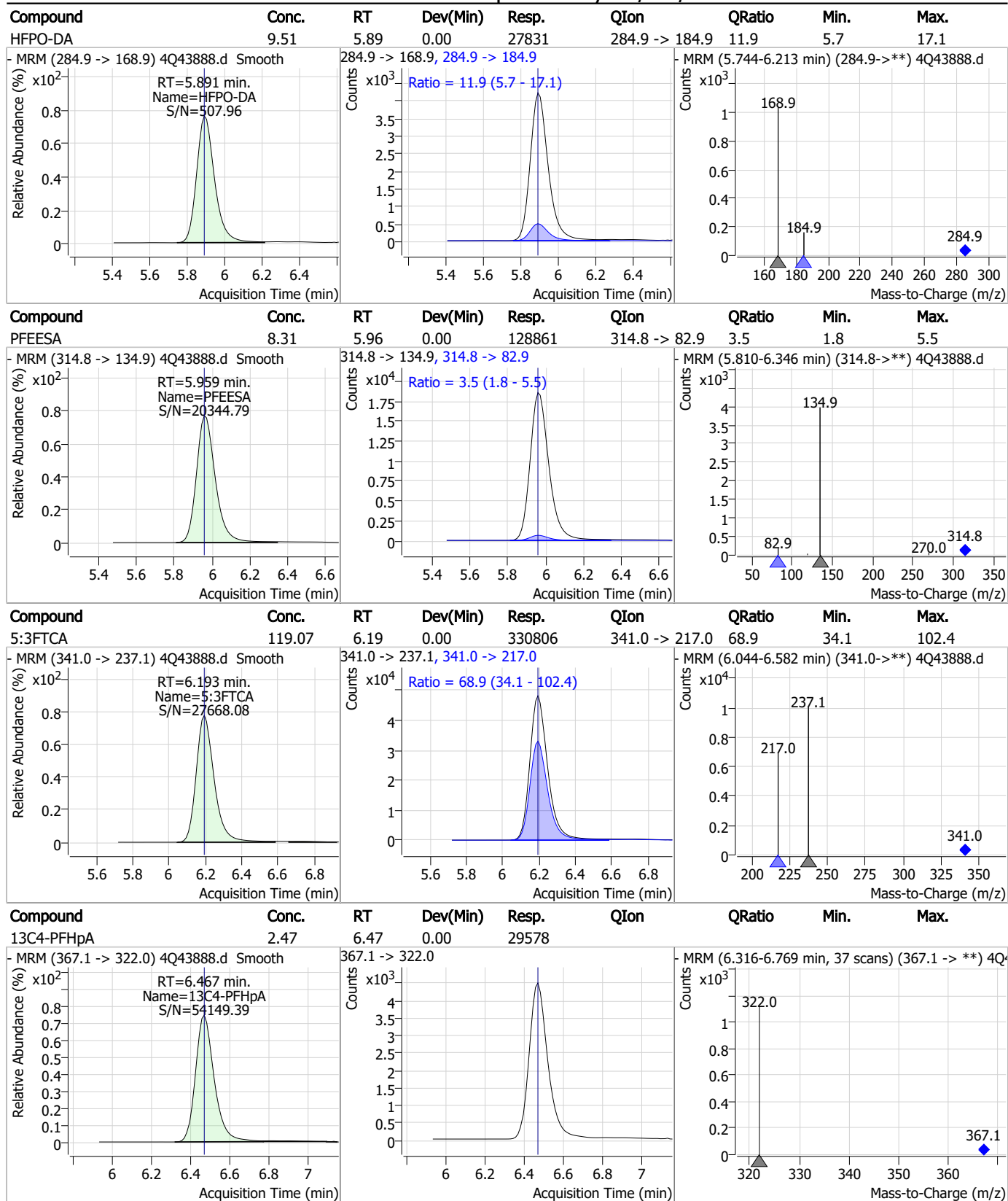


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.00	5.89	0.00	30622	286.9 -> 168.9			



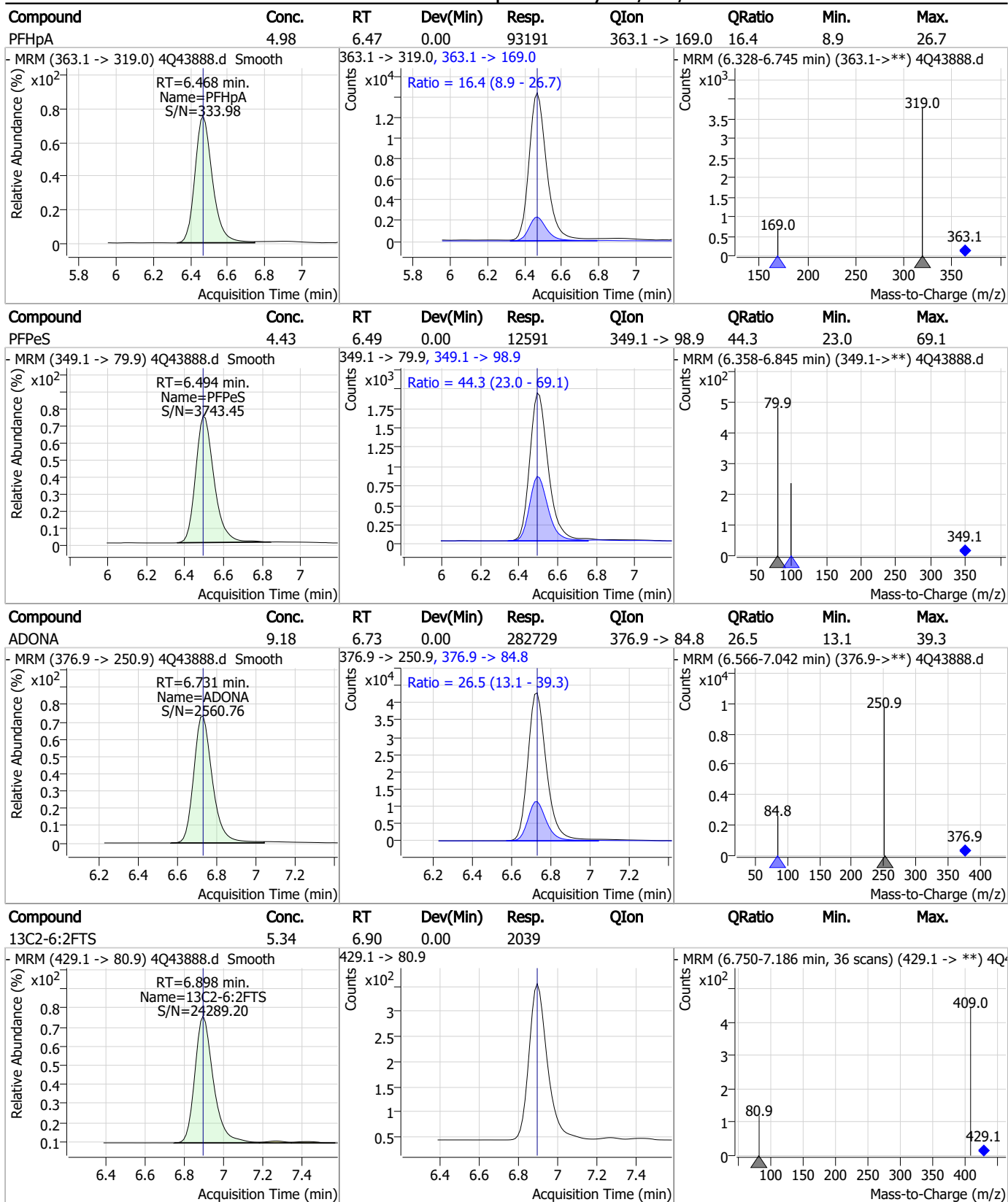
7.7.6  
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### Perfluorinated Compounds by LC/MS/MS



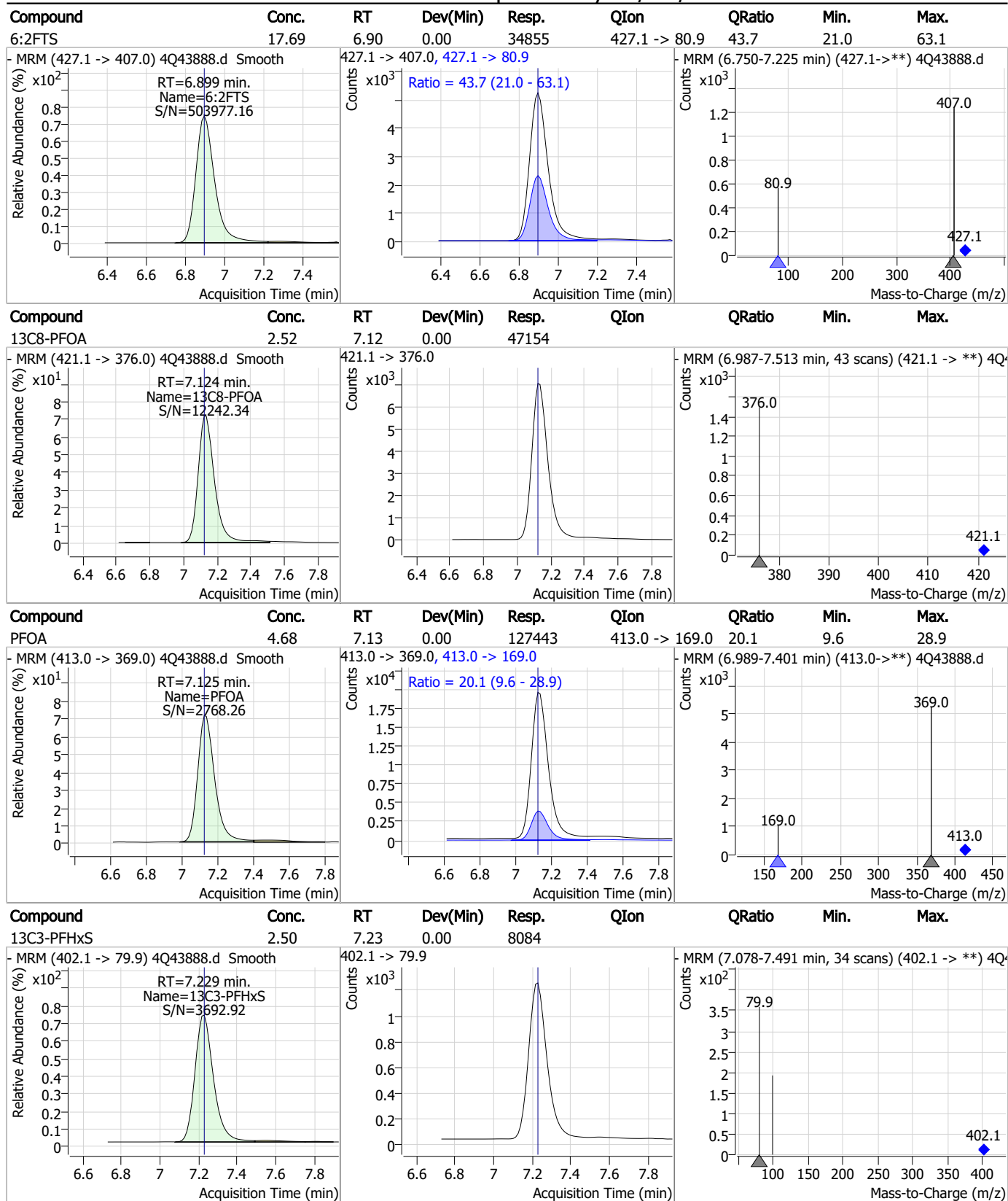
7.7.6  
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### Perfluorinated Compounds by LC/MS/MS



7.7.6  
7

### Perfluorinated Compounds by LC/MS/MS

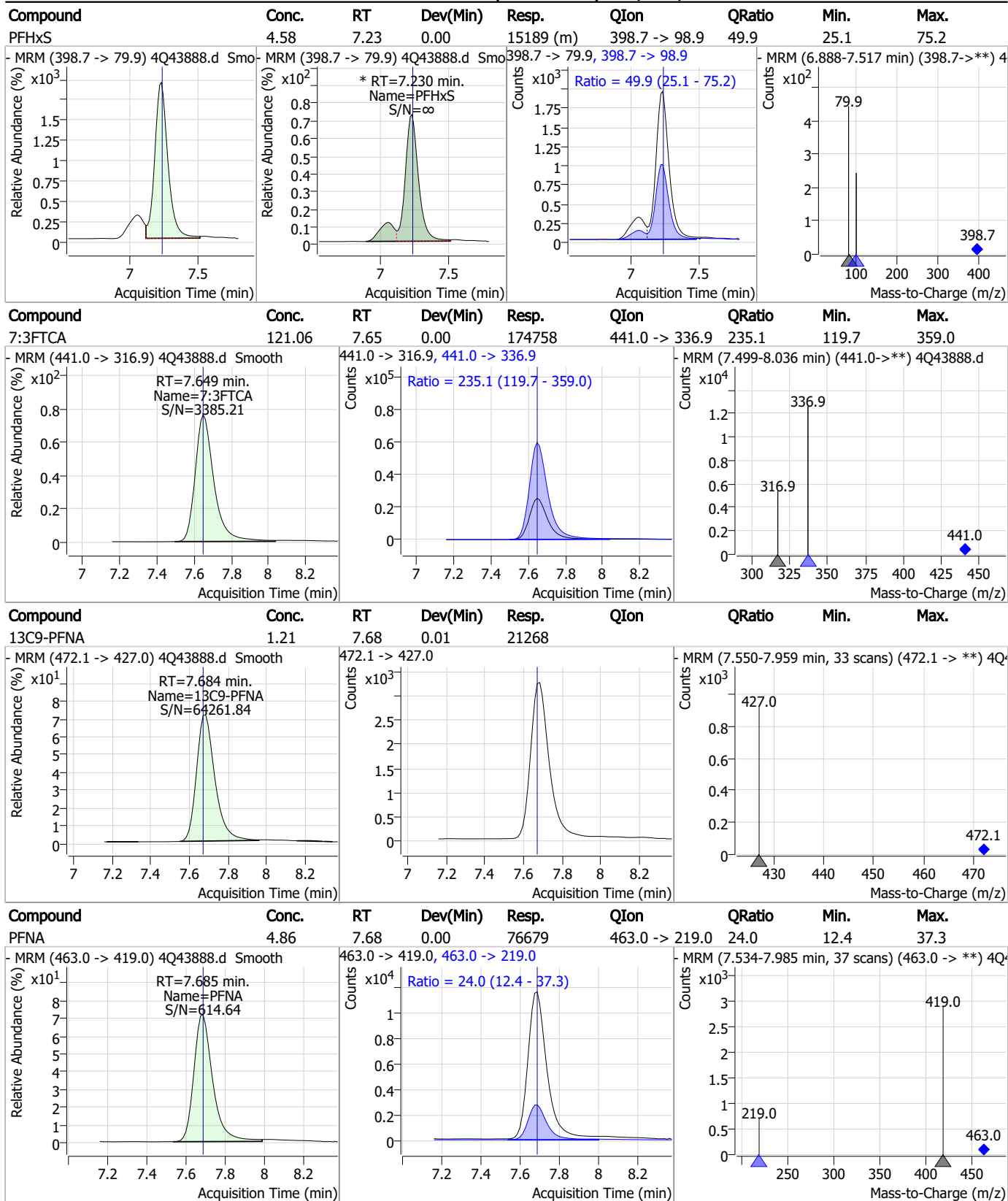


7.7.6

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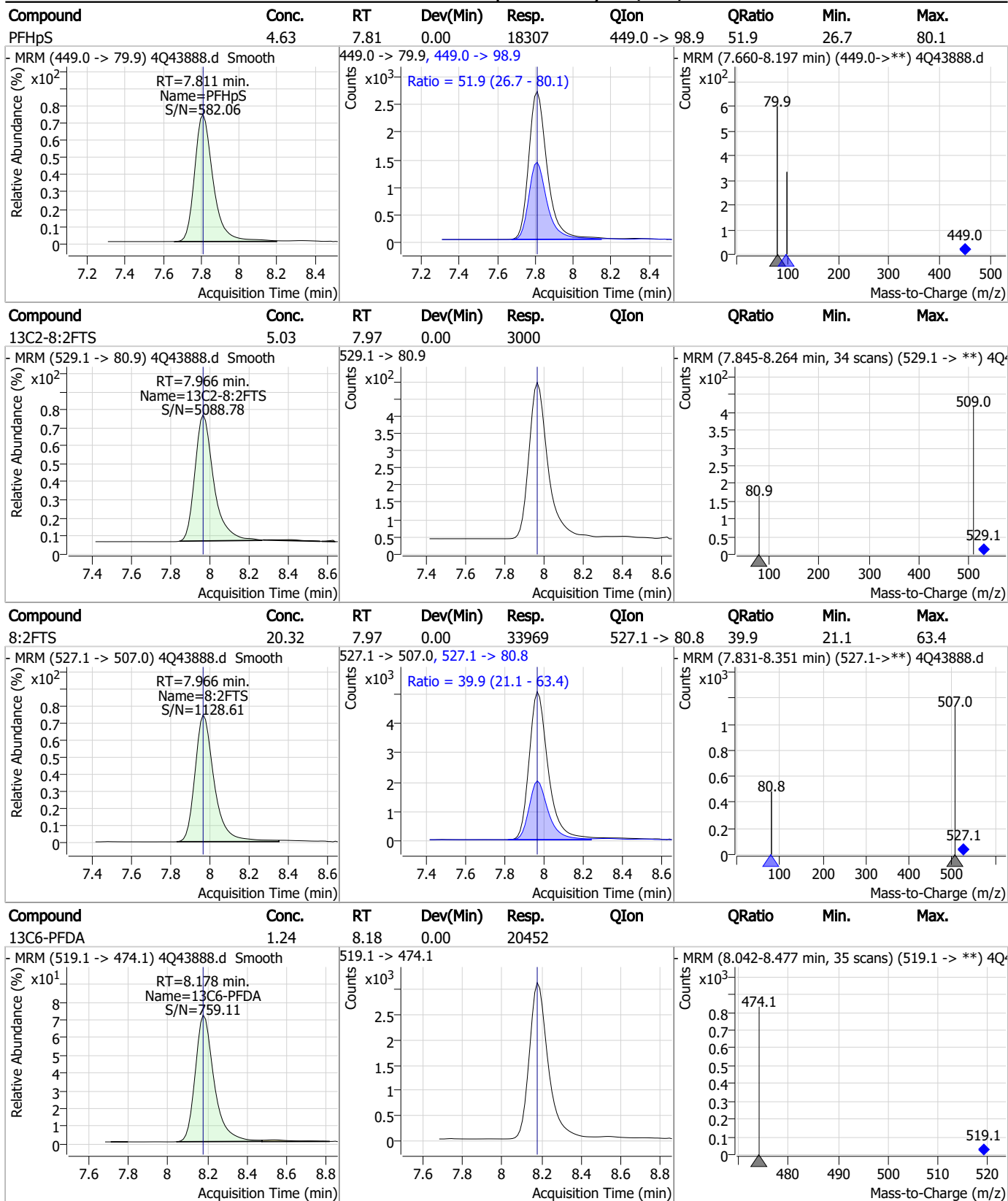
### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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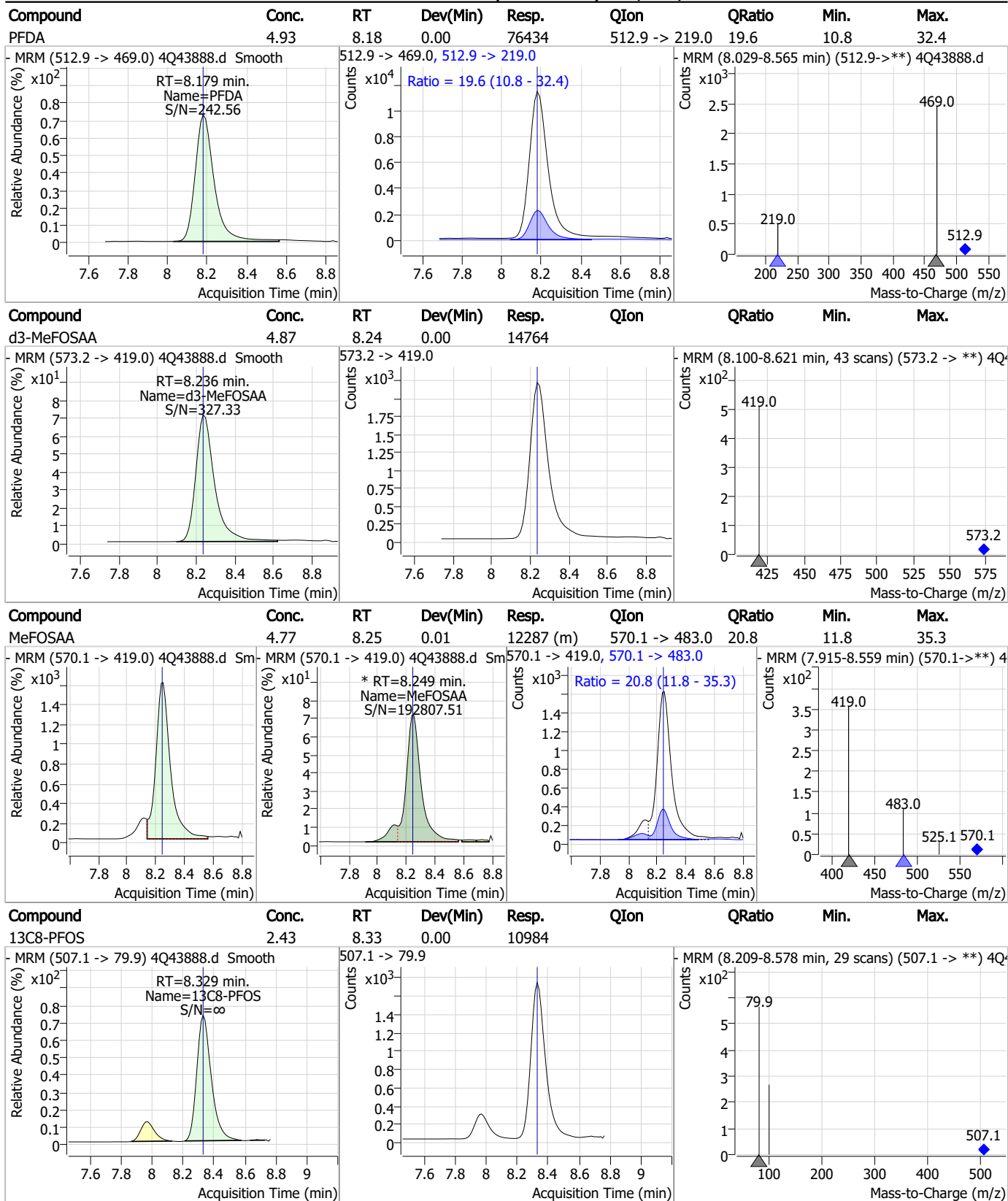


### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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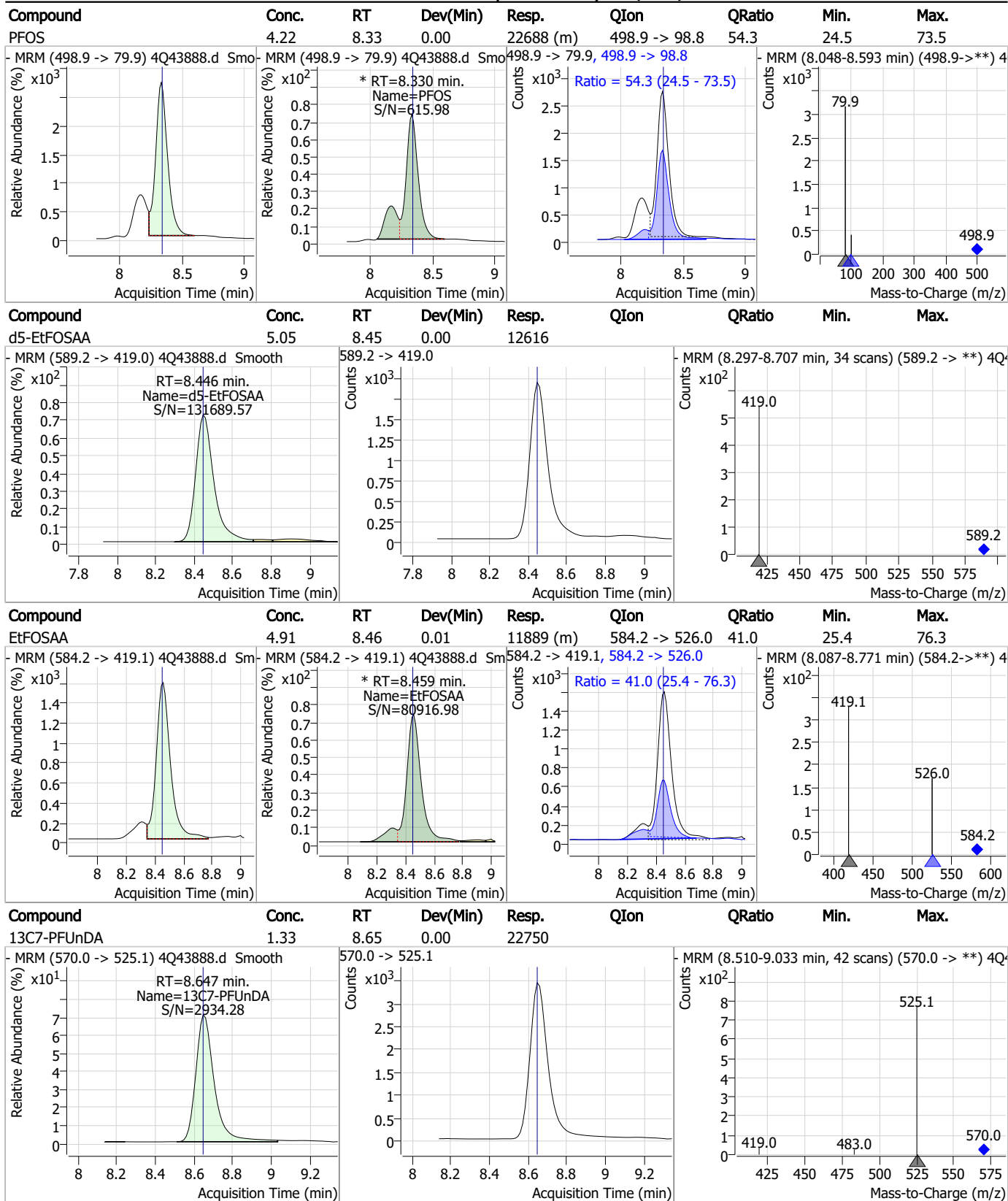
### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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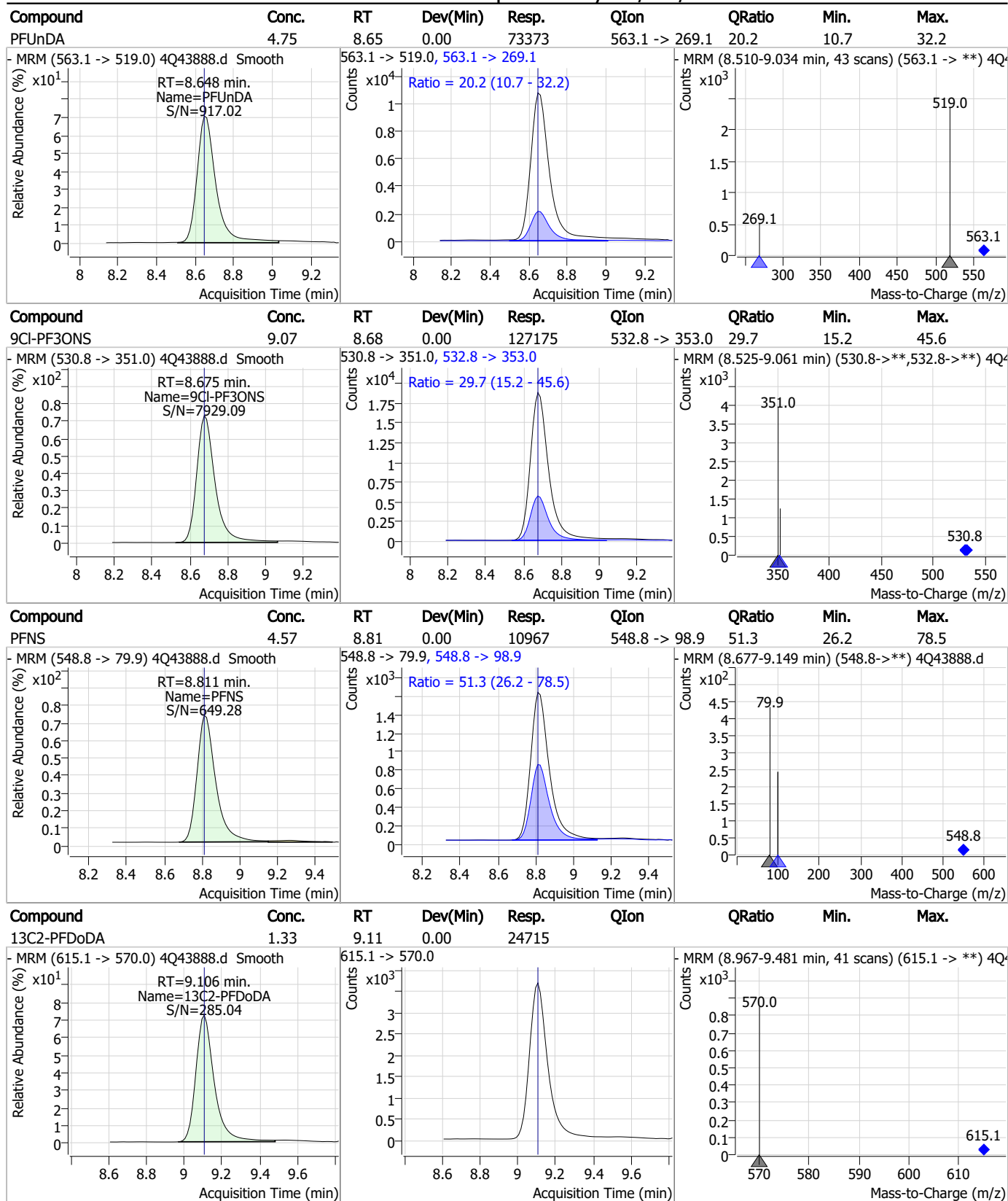


### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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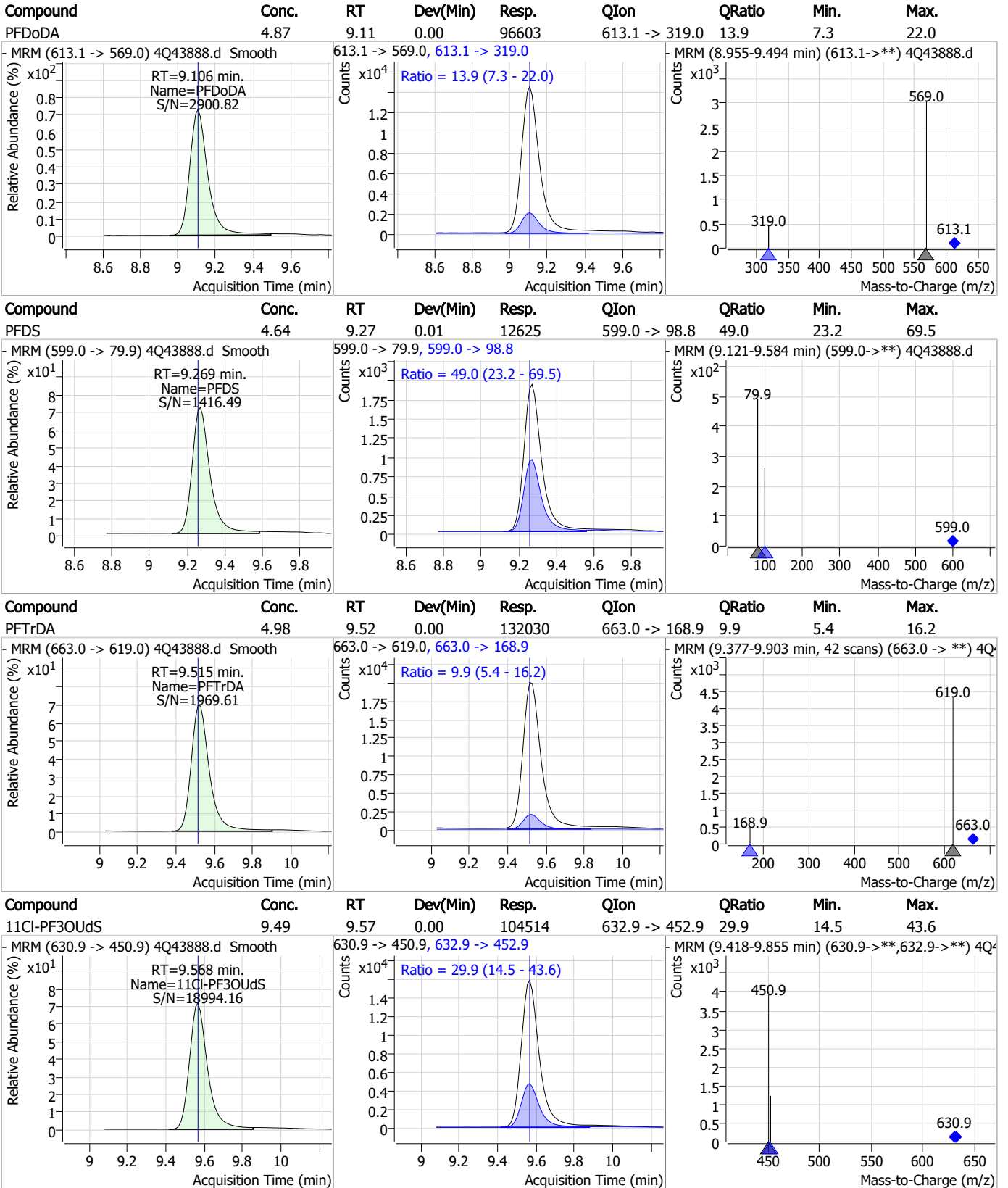
### Perfluorinated Compounds by LC/MS/MS



7.7.6

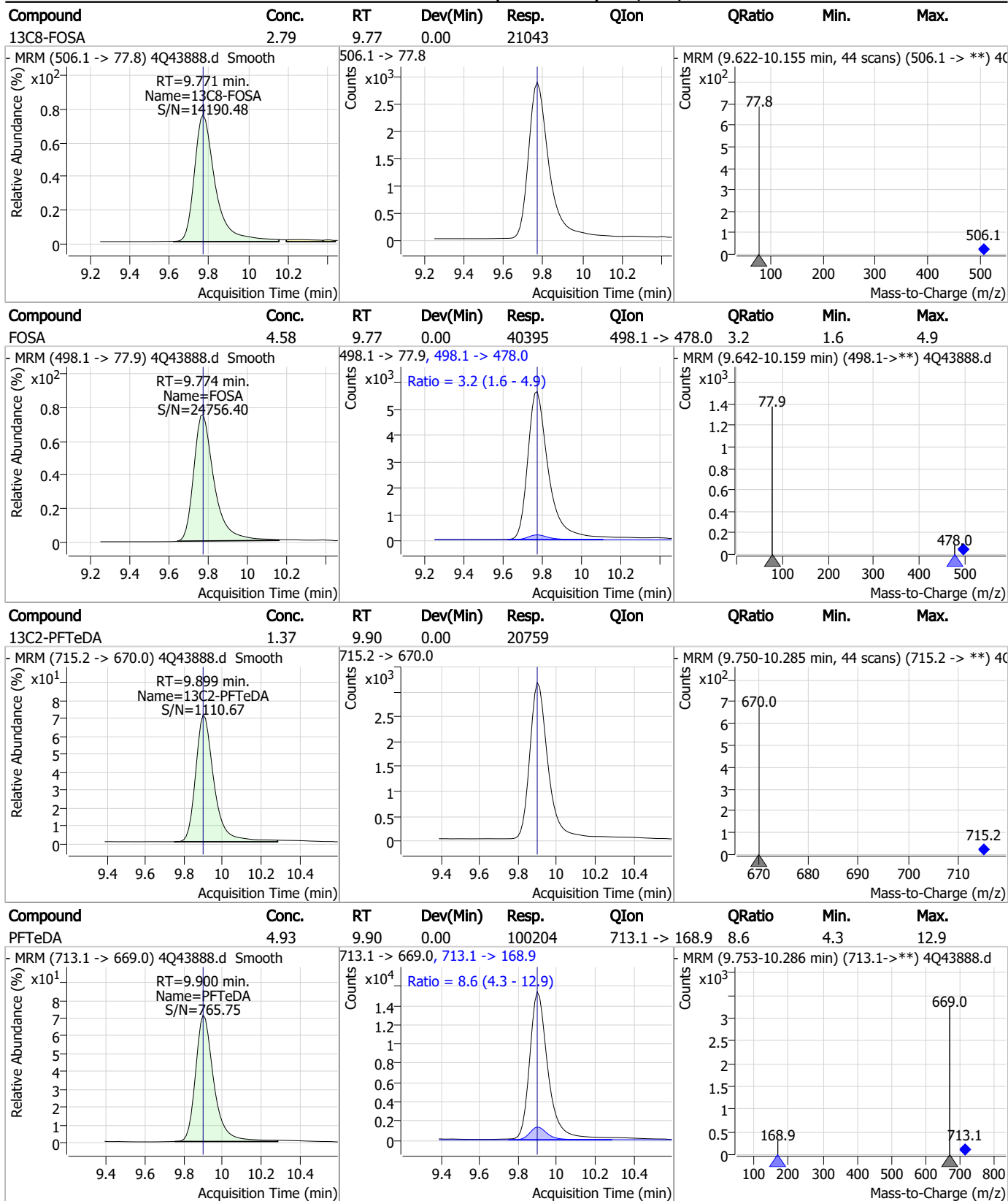
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### Perfluorinated Compounds by LC/MS/MS



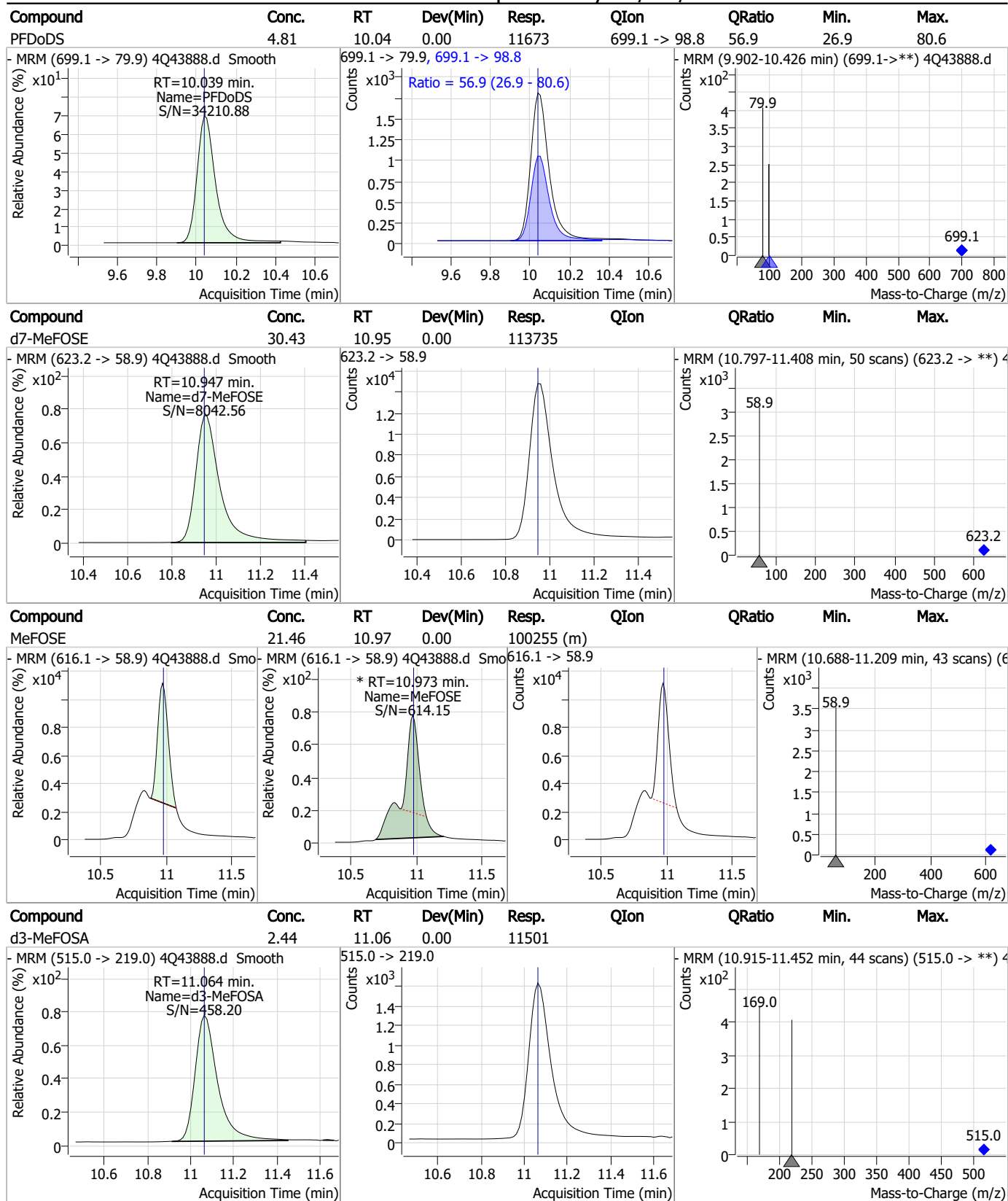
7.7.6  
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### Perfluorinated Compounds by LC/MS/MS



7.7.6  
7

### Perfluorinated Compounds by LC/MS/MS

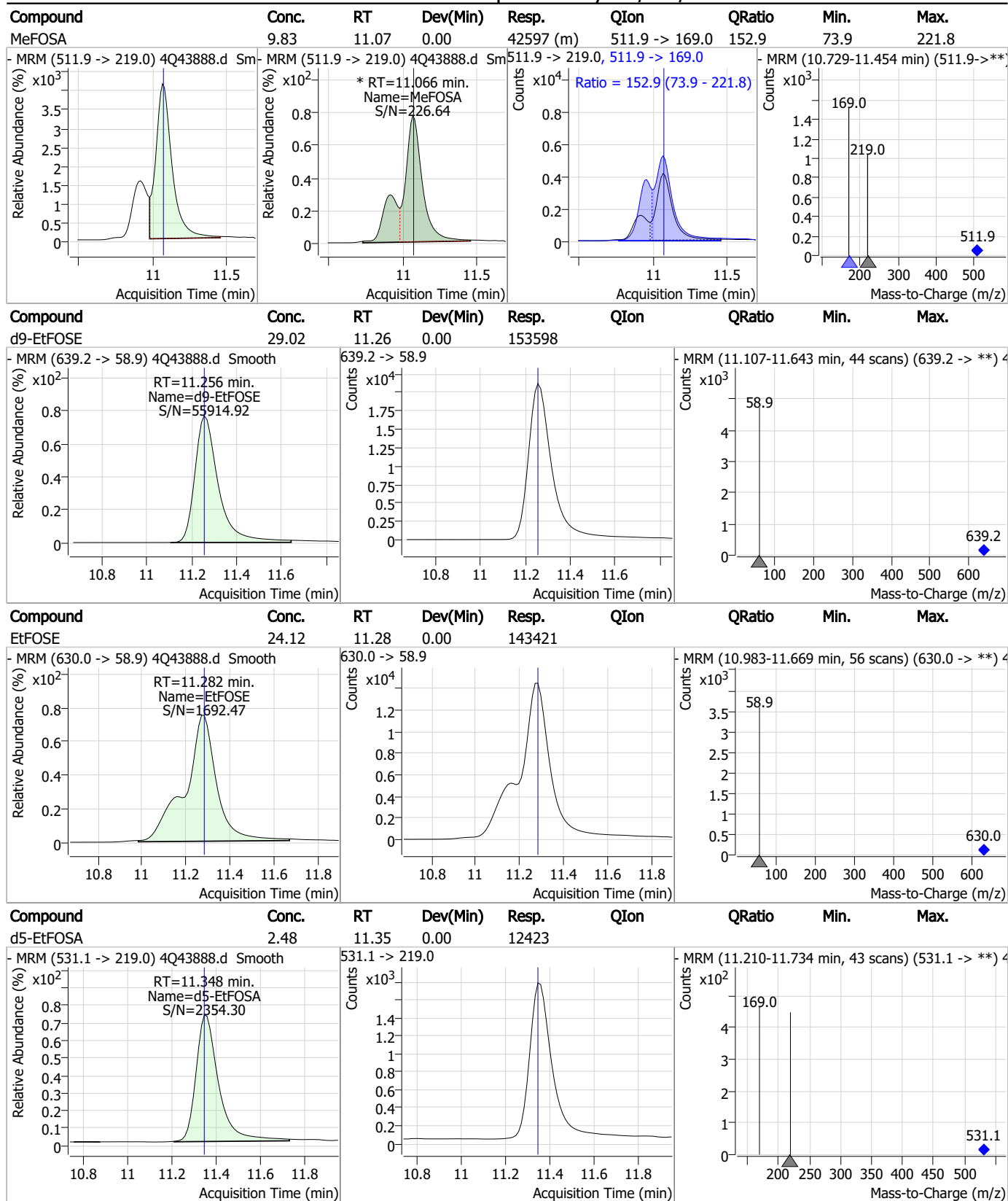


7.7.6

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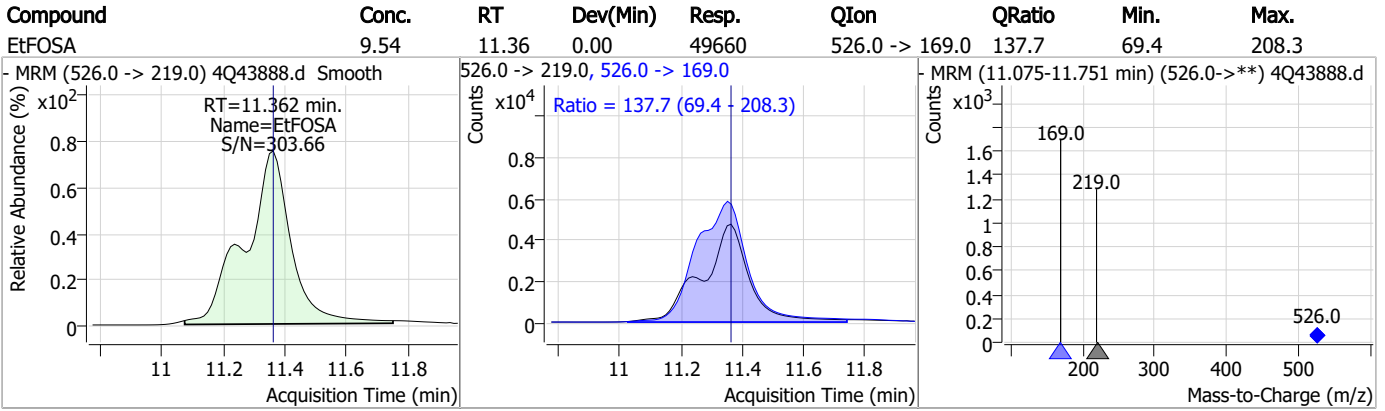
### Perfluorinated Compounds by LC/MS/MS



7.7.6  
7



### Perfluorinated Compounds by LC/MS/MS



7.7.6

7

# Manual Integration Approval Summary

Sample Number: S4Q634-IC634      Method: EPA DRAFT 1633  
Lab FileID: 4Q43888.D      Analyst approved: 05/04/23 11:23 Natasha Gumtie  
Injection Time: 05/03/23 12:08      Supervisor approved: 05/04/23 17:44 Norman Farmer

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

7.7.6.1  
7

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

Norman Farmer  
 05/04/23 17:44

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43889.d  
 Operator : natashag  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/3/2023 12:22:30 PM  
 Sample Name : ic634-6  
 Vial : P1-A7  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q634.batch.bin  
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.924	216.8 -> 171.9	128713	10.00 µg/L	0.000
M5-PFPeA	4.362	268.3 -> 223.0	69264	5.00 µg/L	0.000
M5-PFHxA	5.535	318.0 -> 273.0	49069	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	28355	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	44315	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	20413	1.25 µg/L	0.013
M6-PFDA	8.178	519.1 -> 474.1	19410	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	20436	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	21733	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	17340	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	17130	2.50 µg/L	0.000
M3-PFBS	5.439	302.1 -> 79.9	11741	2.50 µg/L	0.012
M3-PFHxS	7.229	402.1 -> 79.9	8064	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	10590	2.50 µg/L	0.000
M2-4:2FTS	5.222	329.1 -> 80.9	1101	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	1916	5.00 µg/L	0.000
M2-8:2FTS	7.966	529.1 -> 80.9	3050	5.00 µg/L	0.000
M3-MeFOSAA	8.236	573.2 -> 419.0	13872	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	29381	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	11848	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	78988	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	112230	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	11917	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	10730	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	11410	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	68345	5.00 µg/L	-0.013
18O2-PFHxS	7.228	403.0 -> 83.9	5135	2.50 µg/L	0.000
13C4-PFOA	7.136	417.1 -> 372.0	53915	2.50 µg/L	0.012
13C2-PFDA	8.178	515.1 -> 470.1	17904	1.25 µg/L	0.000
13C5-PFNA	7.684	468.0 -> 423.0	24617	1.25 µg/L	0.000
13C2-PFHxA	5.536	315.1 -> 270.0	44383	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.222	329.1 -> 80.9	1101	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1916	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C2-8:2FTS	7.966	529.1 -> 80.9	3050	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C2-PFDoDA	9.106	615.1 -> 570.0	21733	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C2-PFTeDA	9.899	715.2 -> 670.0	17340	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C3-PFBS	5.439	302.1 -> 79.9	11741	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFHxS	7.229	402.1 -> 79.9	8064	2.53 µg/L	0.000

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C4-PFBA	2.924	216.8 -> 171.9	128713	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.467	367.1 -> 322.0	28355	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFHxA	5.535	318.0 -> 273.0	49069	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFPeA	4.362	268.3 -> 223.0	69264	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.178	519.1 -> 474.1	19410	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C7-PFUnDA	8.647	570.0 -> 525.1	20436	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C8-FOSA	9.771	506.1 -> 77.8	17130	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-PFOA	7.136	421.1 -> 376.0	44315	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C8-PFOS	8.329	507.1 -> 79.9	10590	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C9-PFNA	7.684	472.1 -> 427.0	20413	1.22 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.6%	
d3-MeFOSAA	8.236	573.2 -> 419.0	13872	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	29381	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d3-MeFOSA	11.064	515.0 -> 219.0	10730	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
d5-EtFOSAA	8.446	589.2 -> 419.0	11848	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
d7-MeFOSE	10.947	623.2 -> 58.9	78988	22.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.0%	
d9-EtFOSE	11.256	639.2 -> 58.9	112230	22.33 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.3%	
d5-EtFOSA	11.348	531.1 -> 219.0	11917	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.223	327.1 -> 307.0	76961	43.44 µg/L	94
		327.1 -> 80.9	32830		
6:2FTS	6.899	427.1 -> 407.0	86158	46.55 µg/L	99
		427.1 -> 80.9	35567		
8:2FTS	7.966	527.1 -> 507.0	81135	47.73 µg/L	98
		527.1 -> 80.8	32973		
EtFOSAA	8.459	584.2 -> 419.1	29503	12.96 µg/L	m 95
		584.2 -> 526.0	14022		
FOSA	9.774	498.1 -> 77.9	93693	13.05 µg/L	98
		498.1 -> 478.0	2566		
MeFOSAA	8.249	570.1 -> 419.0	31400	12.99 µg/L	m 97
		570.1 -> 483.0	6893		
PFBA	2.920	212.8 -> 168.9	180069	52.24 µg/L	100
PFBS	5.440	298.7 -> 79.9	56713	11.78 µg/L	94
		298.7 -> 98.8	20771		
PFDA	8.179	512.9 -> 469.0	197729	13.43 µg/L	95
		512.9 -> 219.0	38436		
PFDoDA	9.106	613.1 -> 569.0	230624	13.22 µg/L	99
		613.1 -> 319.0	32458		
PFDS	9.269	599.0 -> 79.9	32741	12.48 µg/L	95

## Perfluorinated Compounds by LC/MS/MS

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

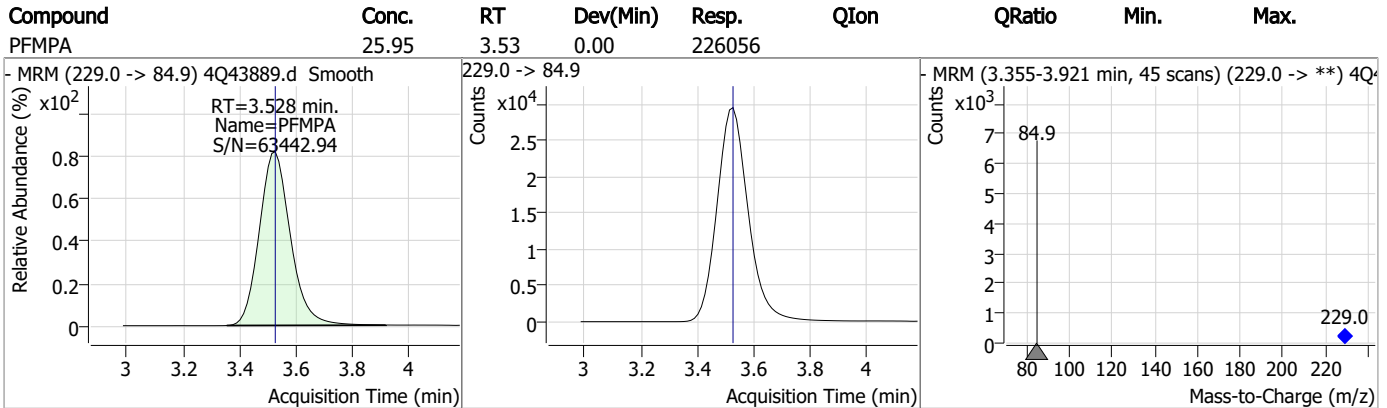
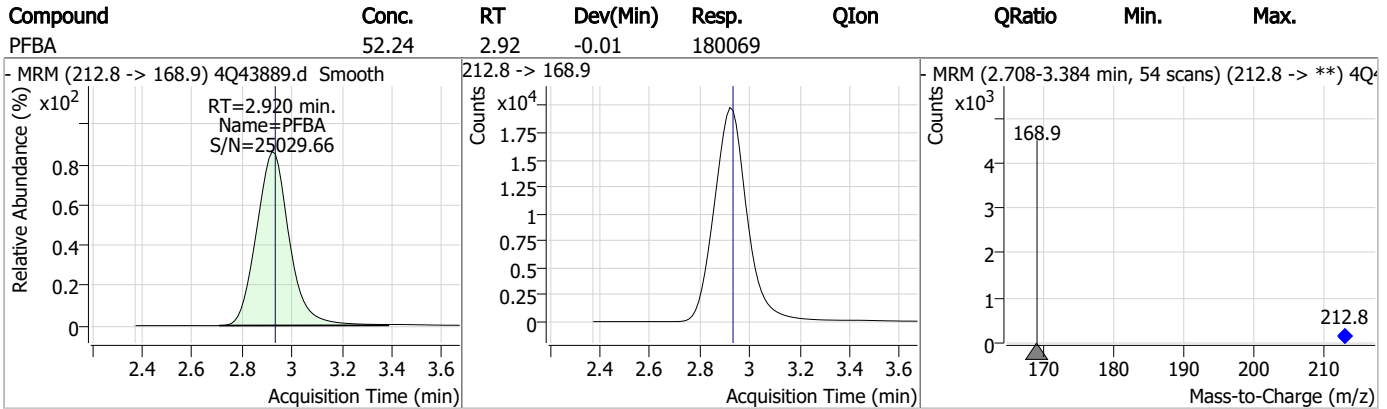
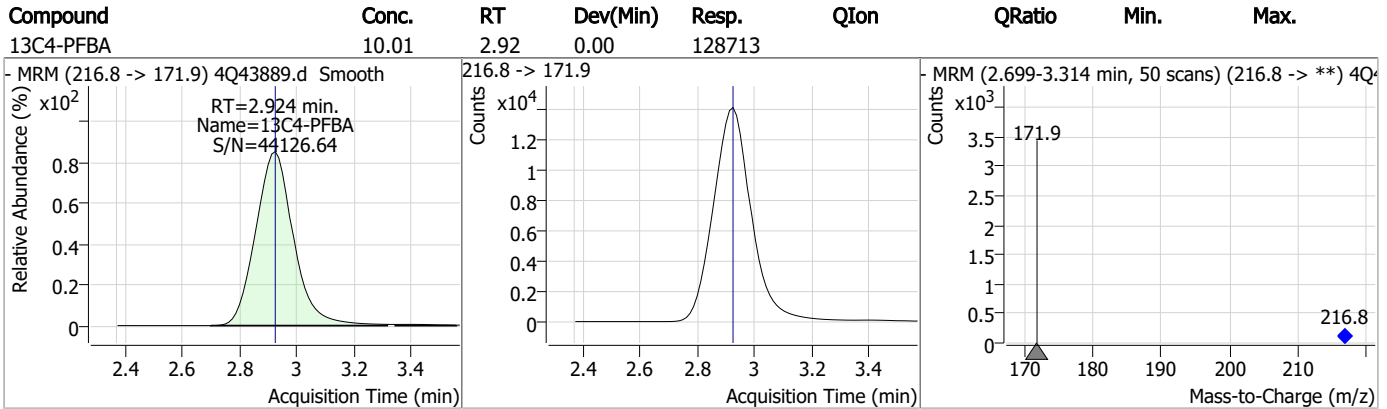
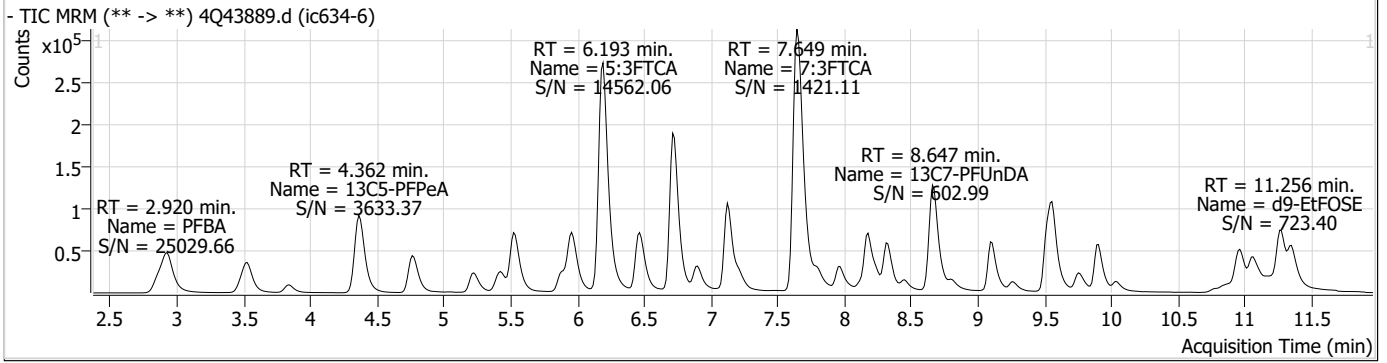
# = Qualifier out of range, m = manually integrated, + = Area summed

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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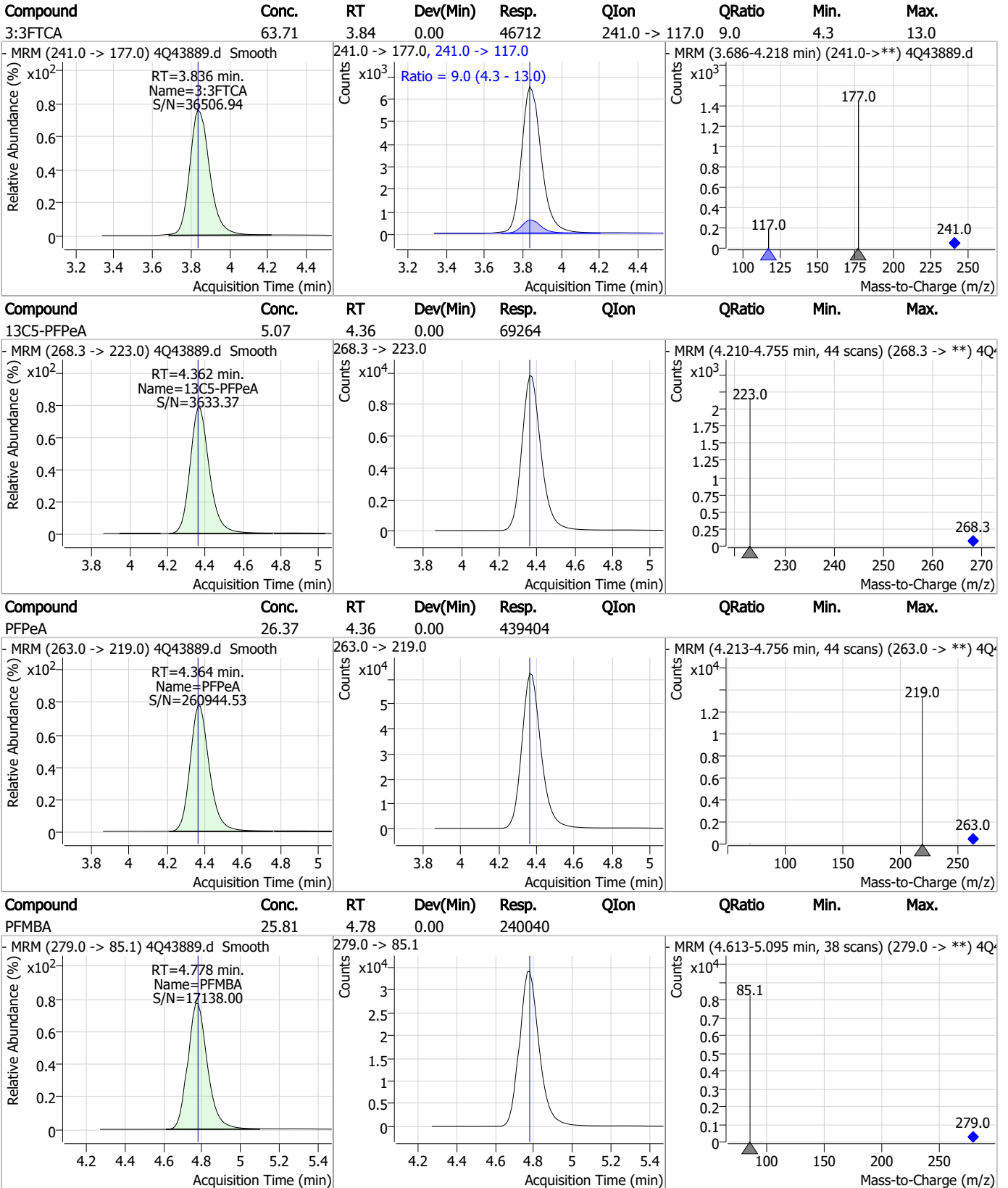
7.7.7  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.7  
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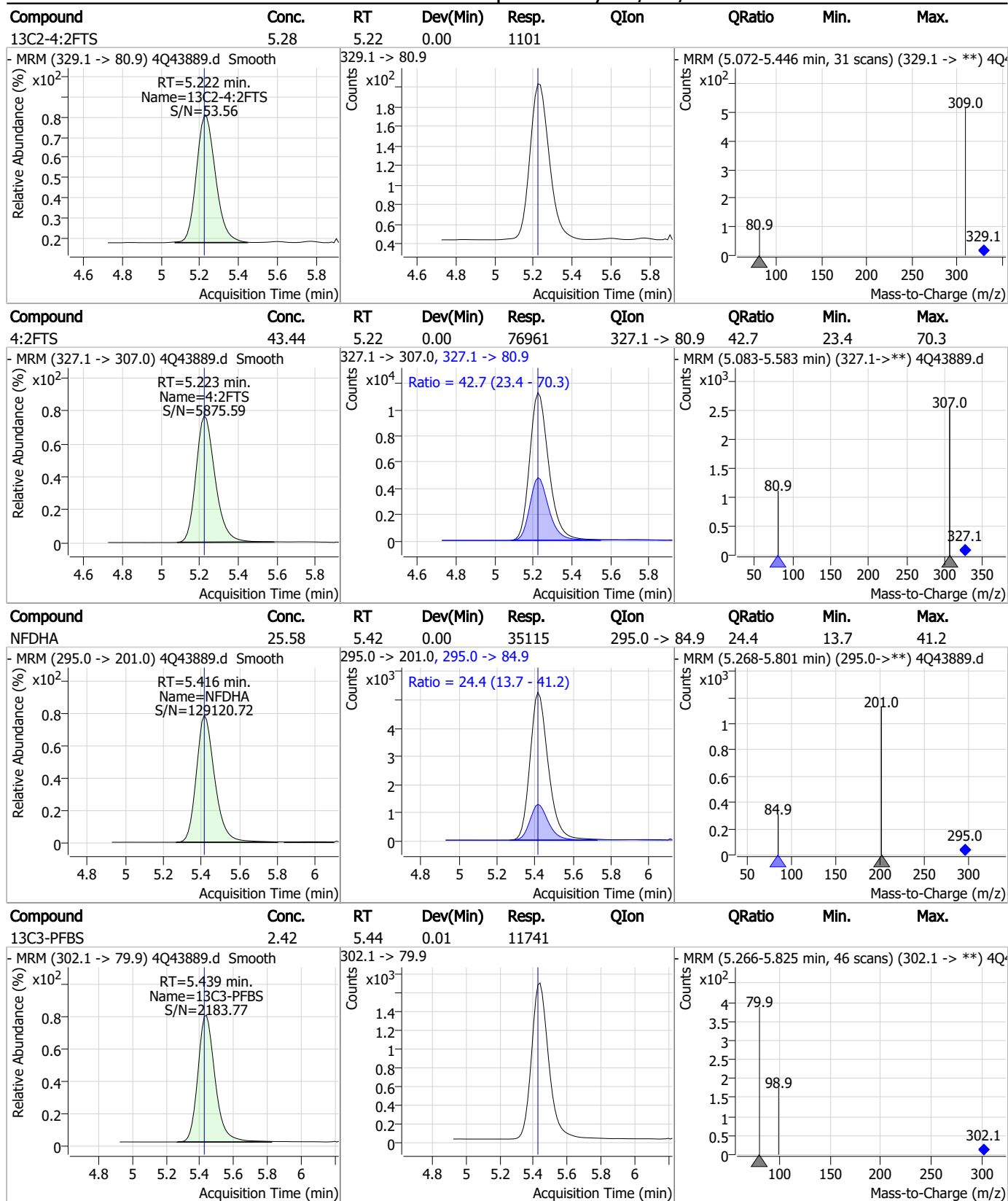
### Perfluorinated Compounds by LC/MS/MS



7.7.7  
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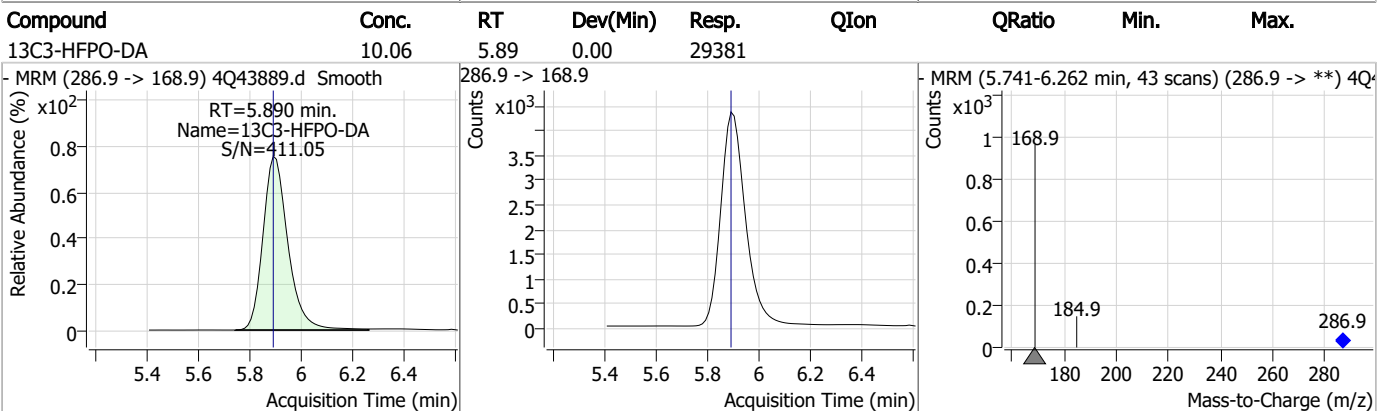
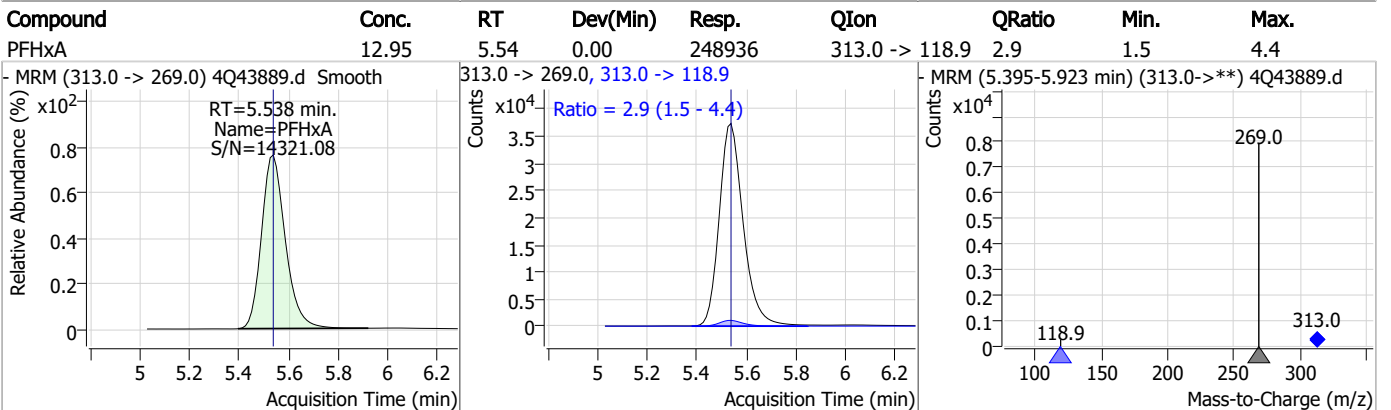
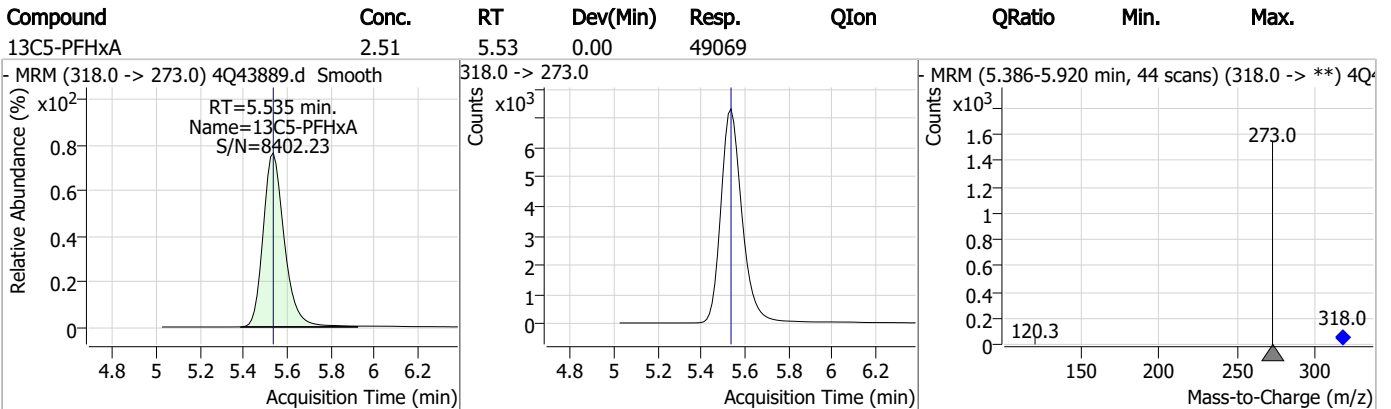
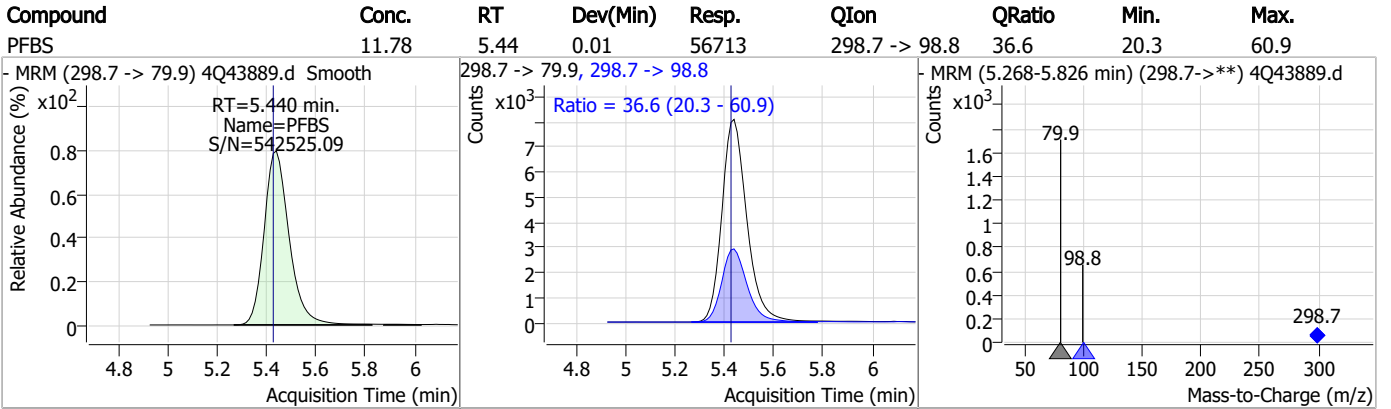


### Perfluorinated Compounds by LC/MS/MS



7.7.7  
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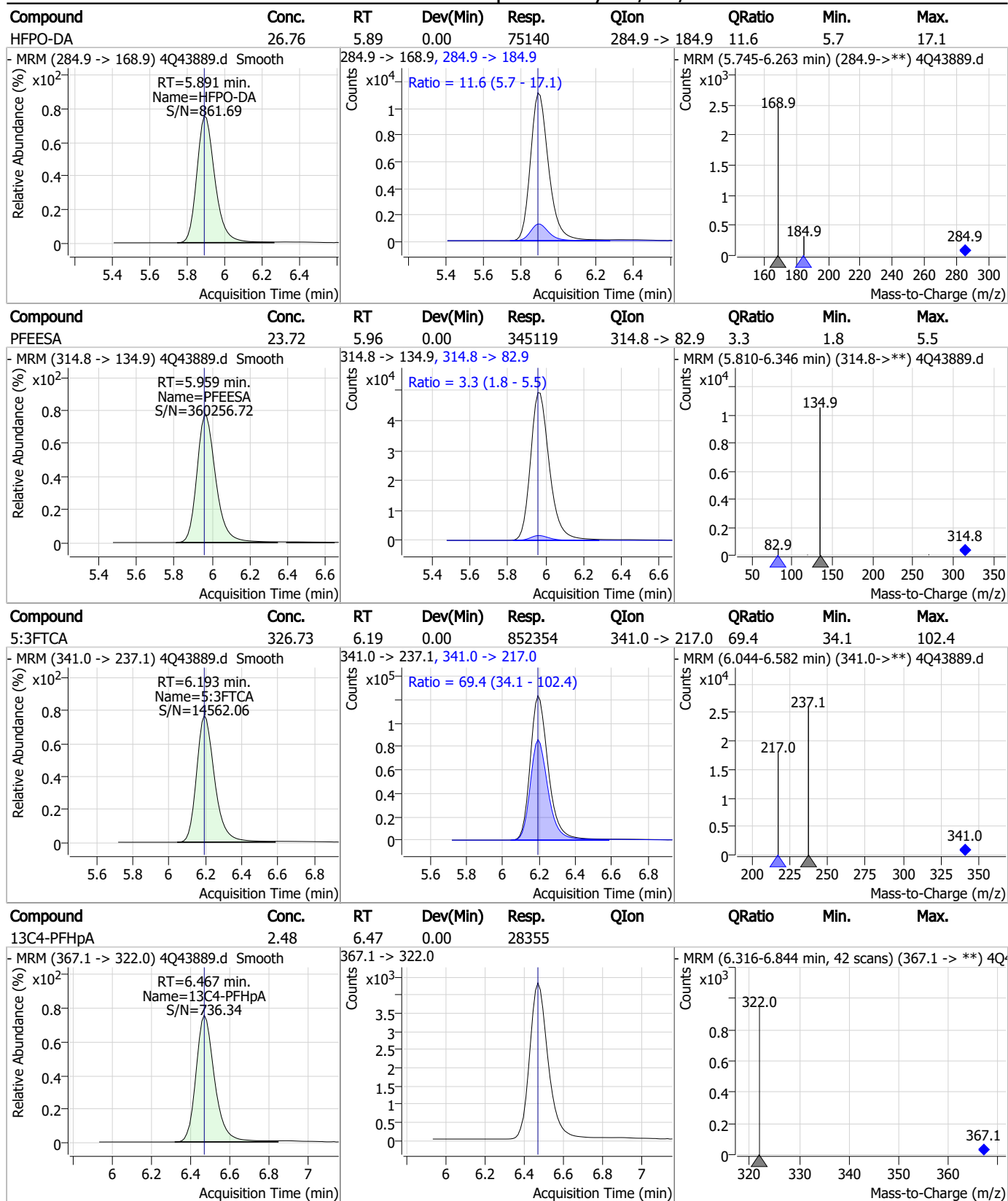
### Perfluorinated Compounds by LC/MS/MS



7.7.7

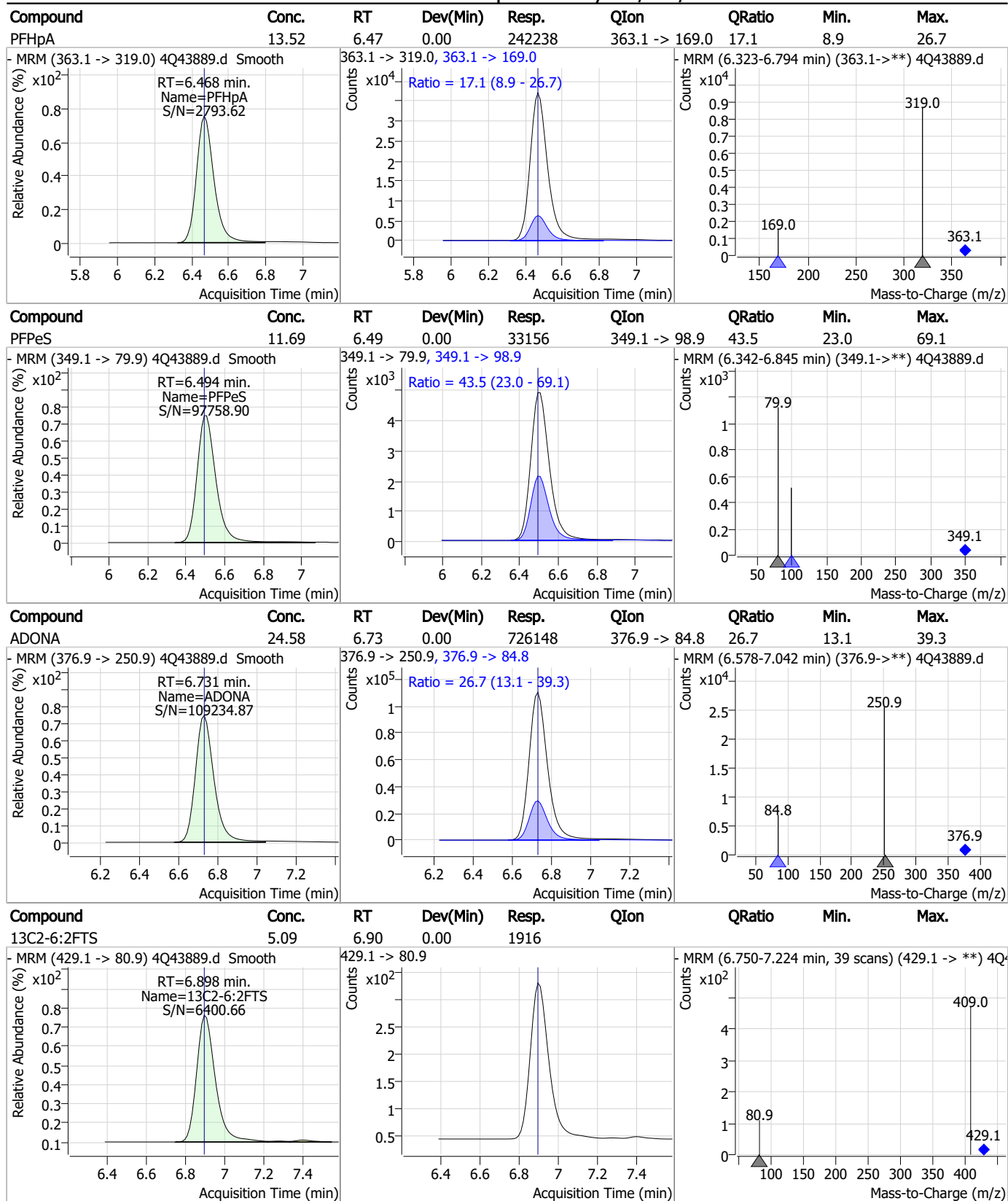
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### Perfluorinated Compounds by LC/MS/MS



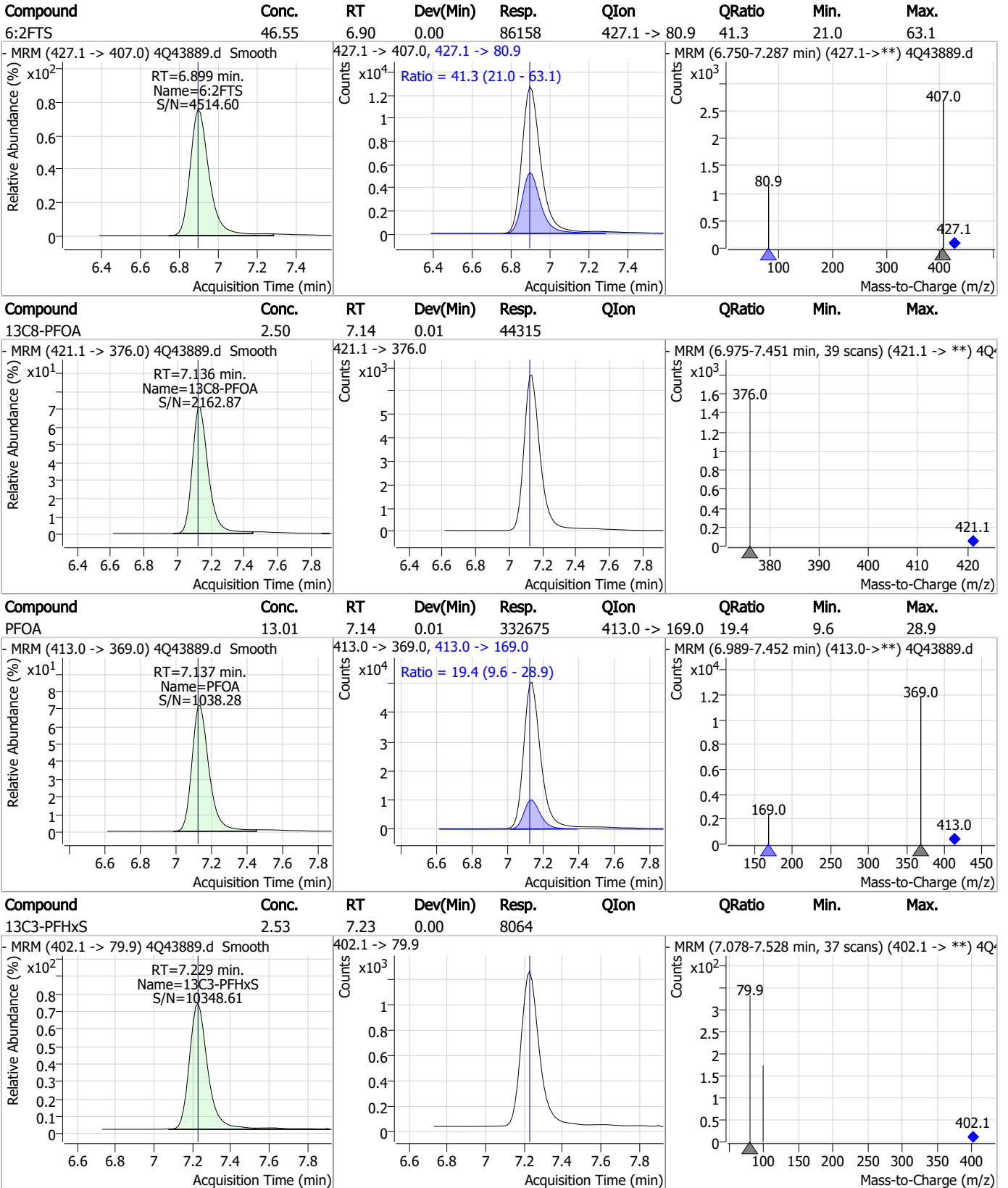
7.7.7  
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### Perfluorinated Compounds by LC/MS/MS



7.7.7  
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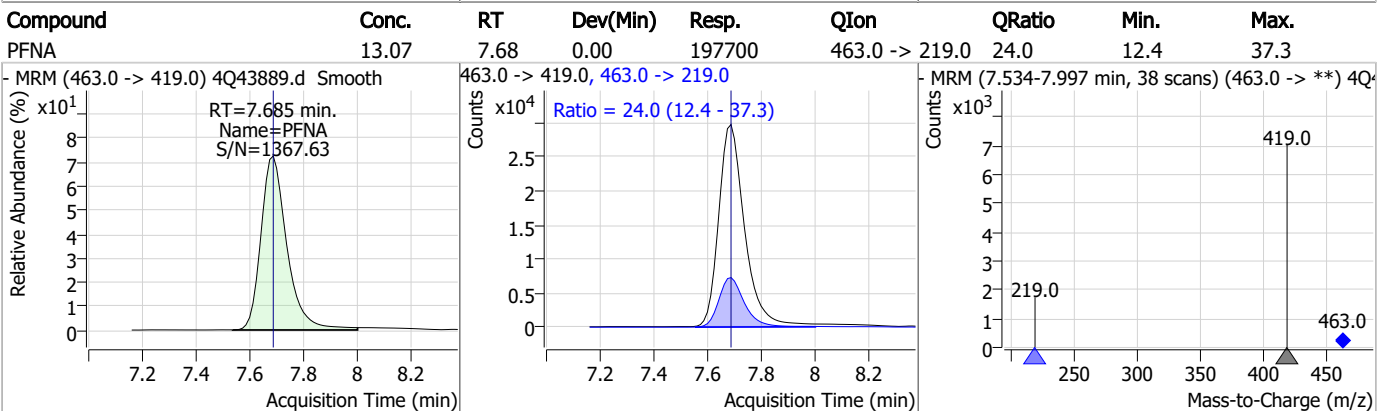
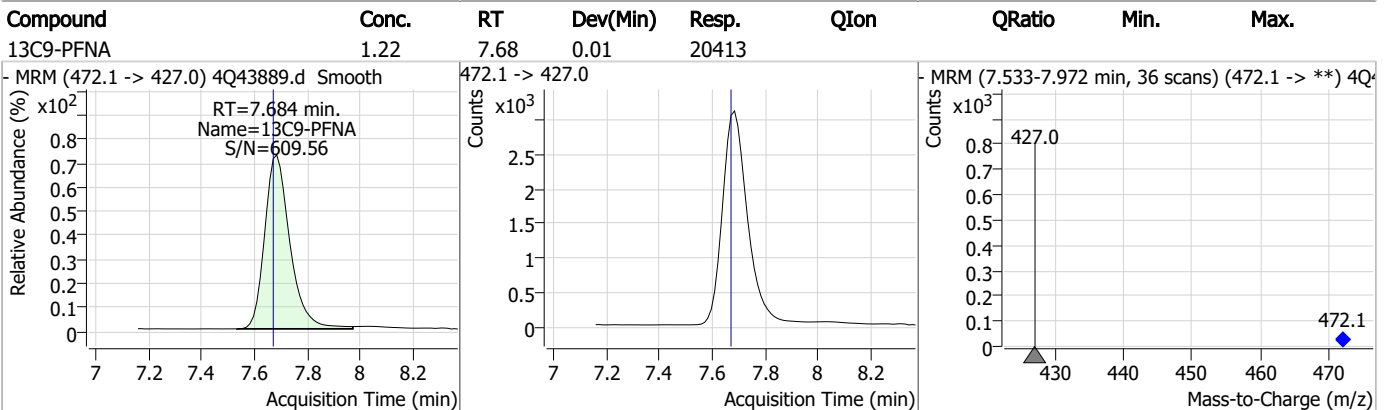
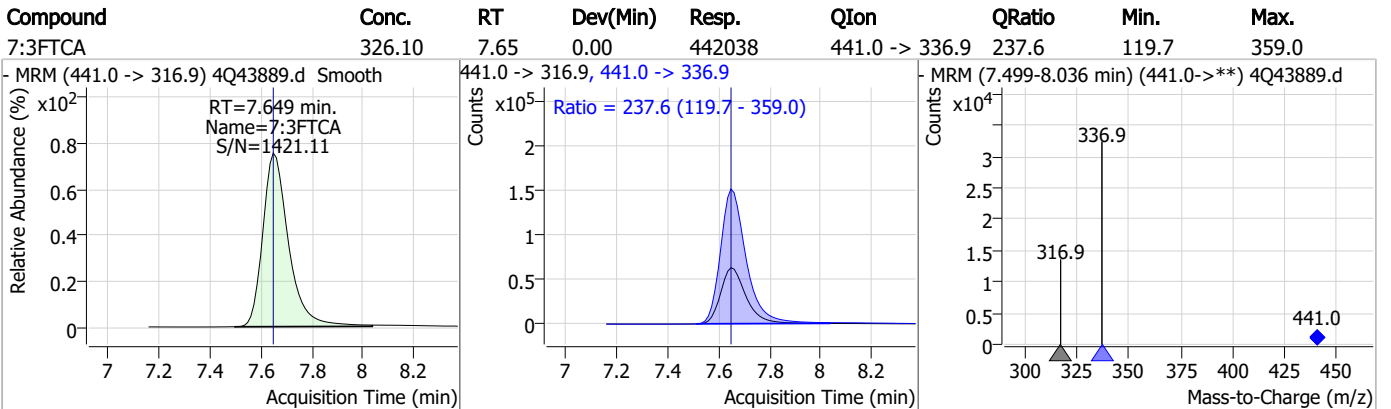
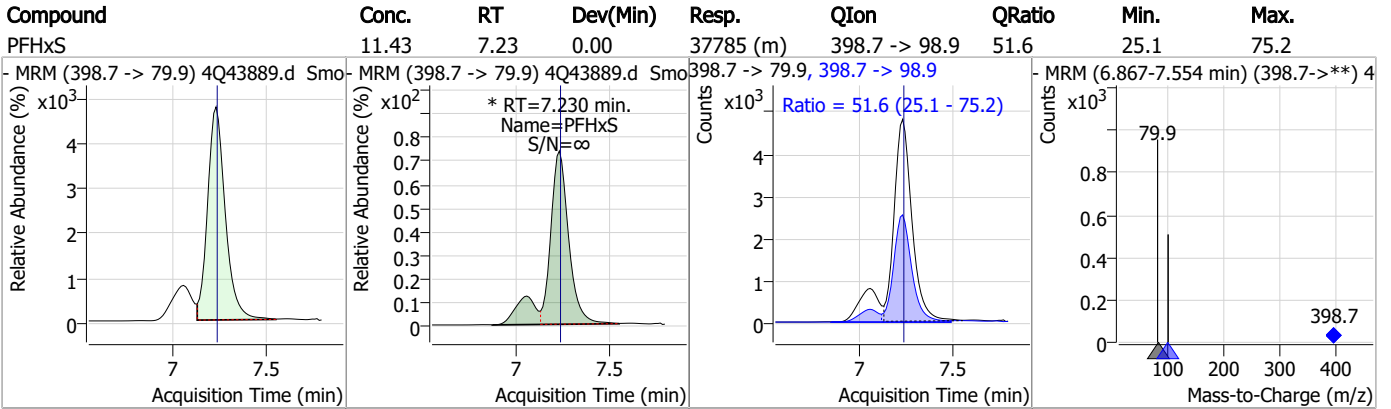
### Perfluorinated Compounds by LC/MS/MS



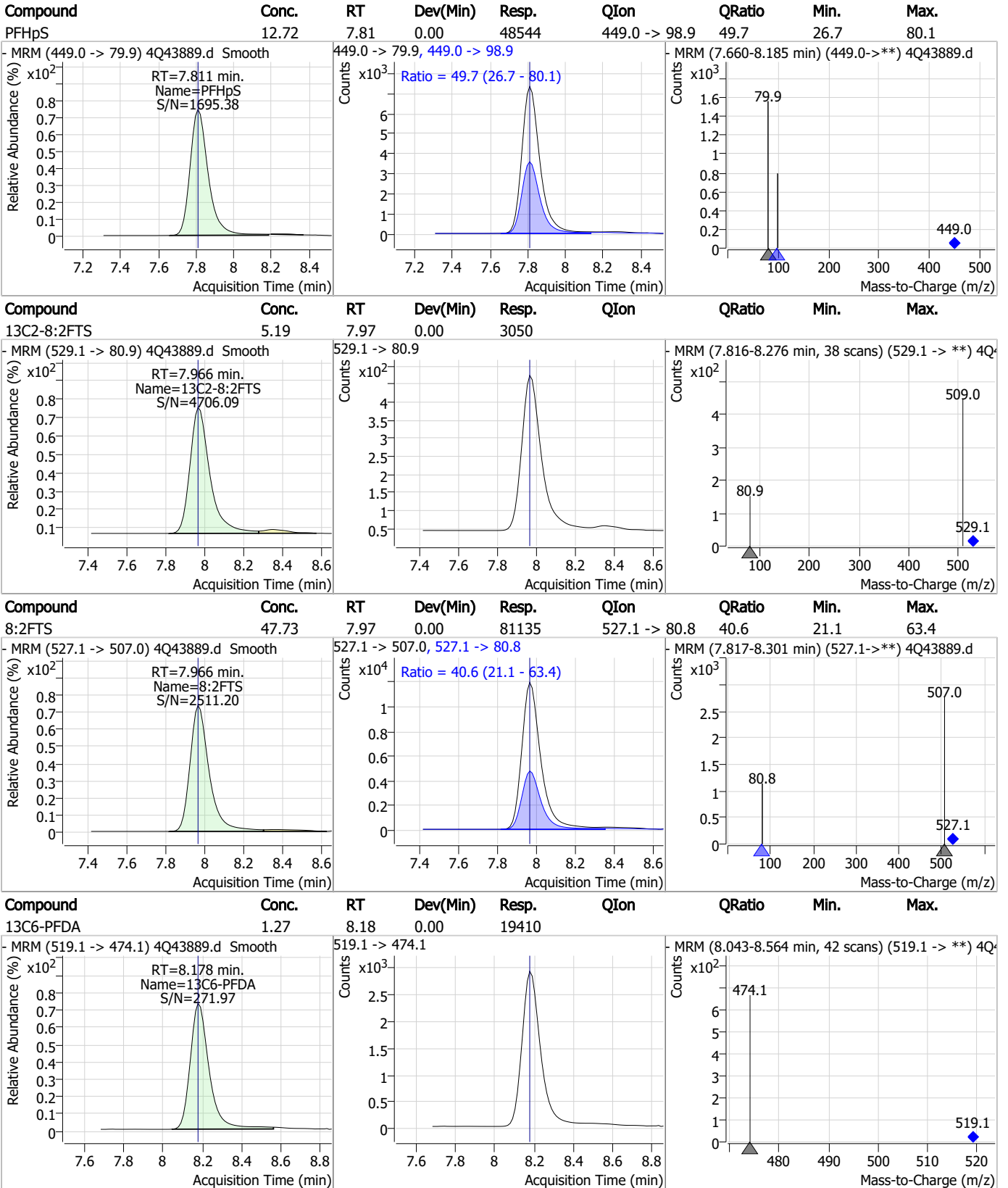
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

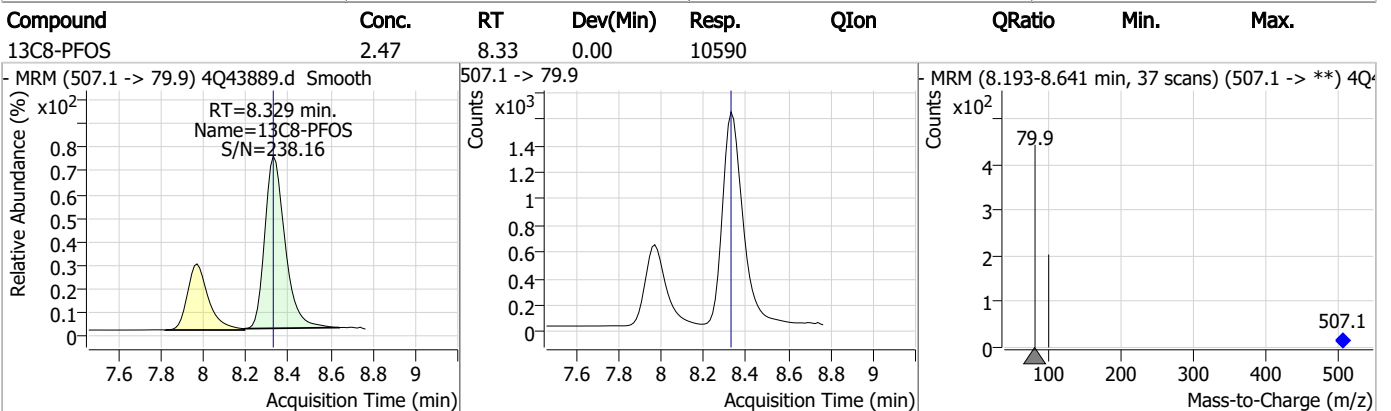
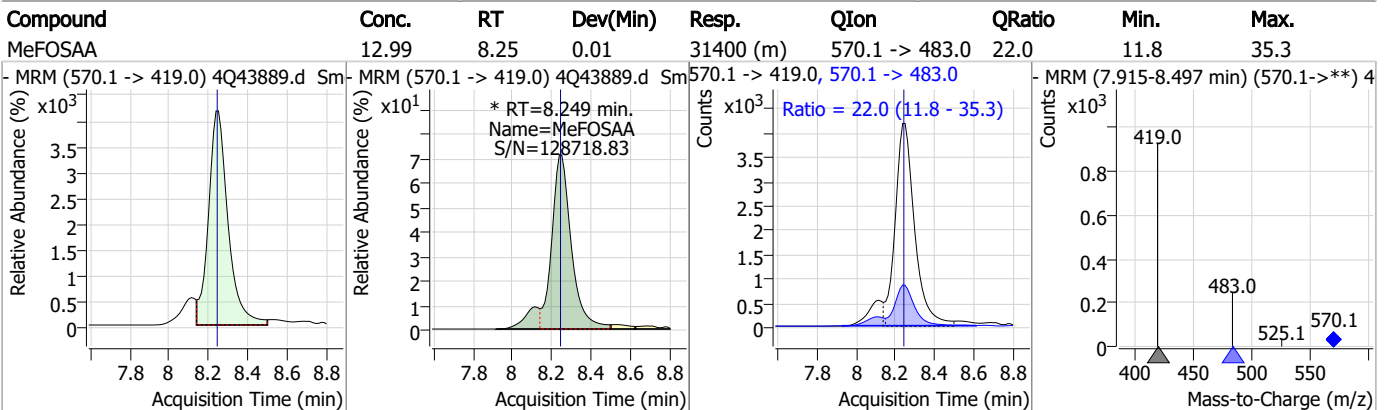
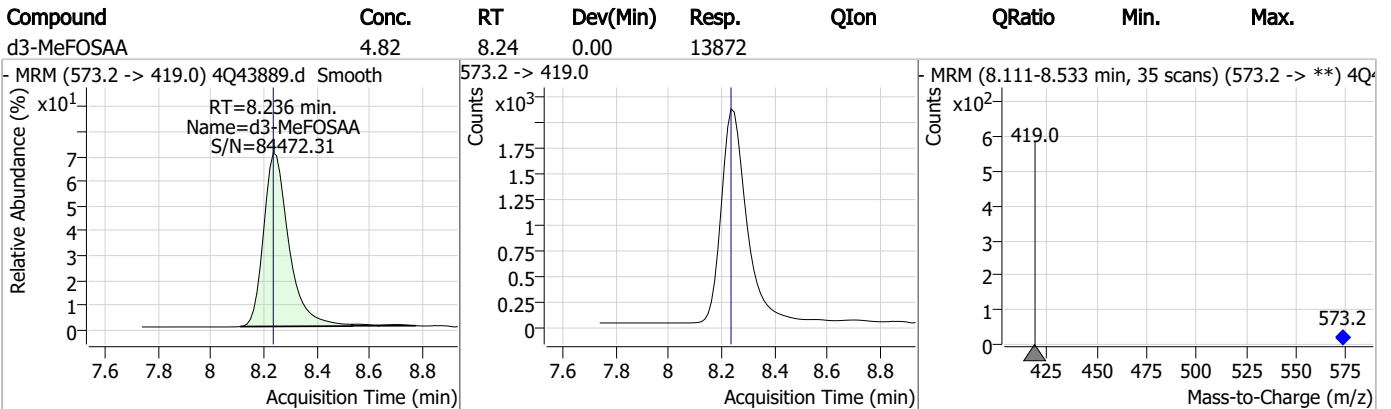
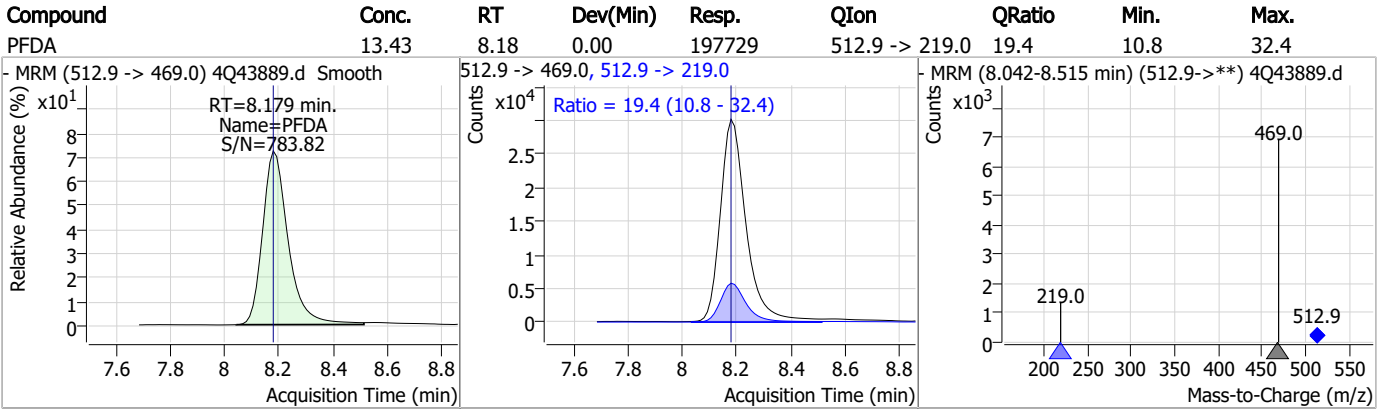


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### Perfluorinated Compounds by LC/MS/MS

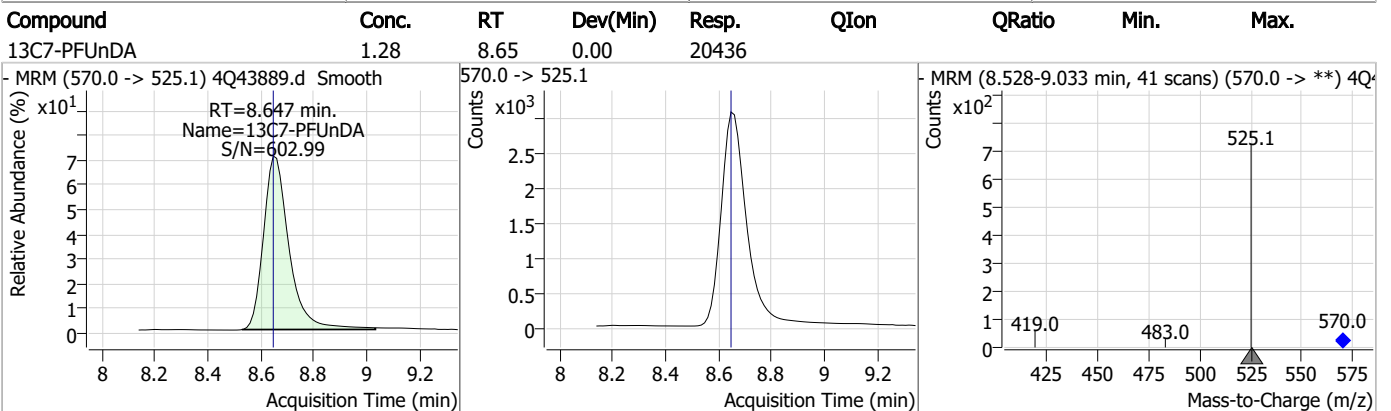
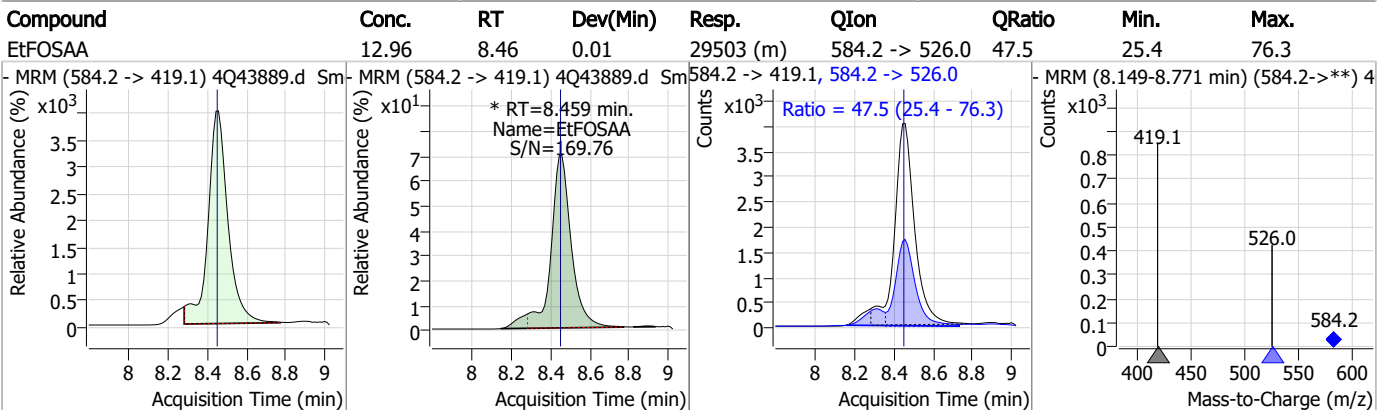
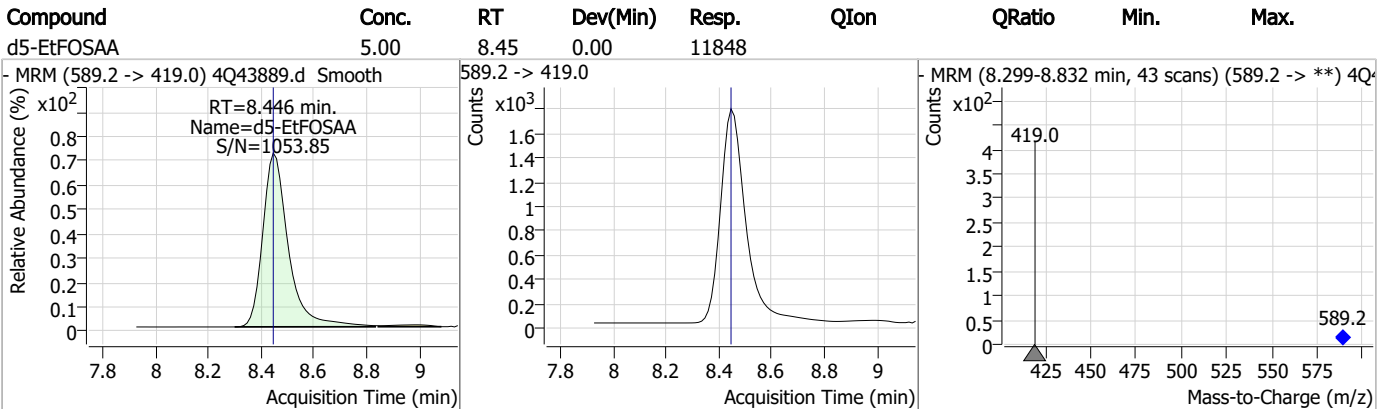
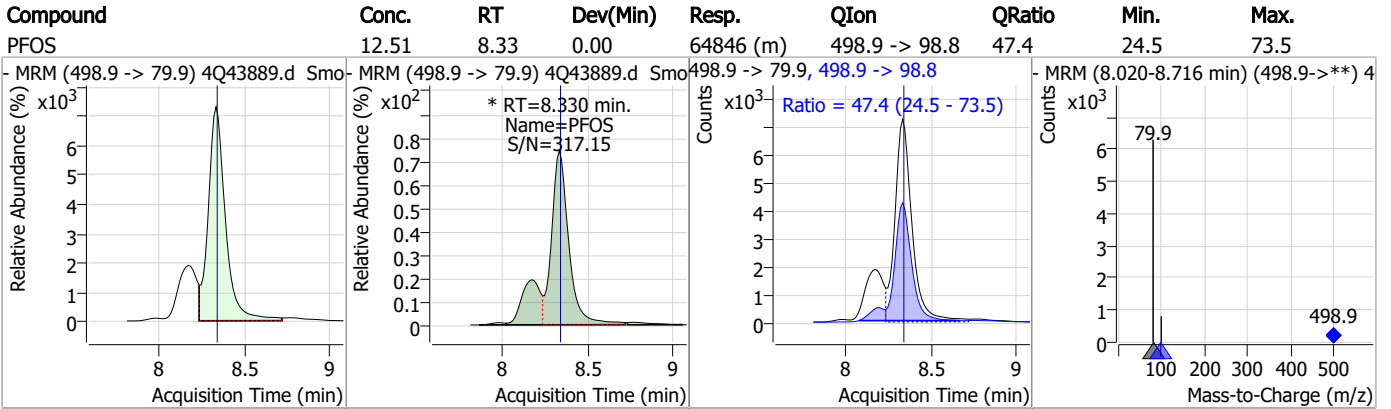


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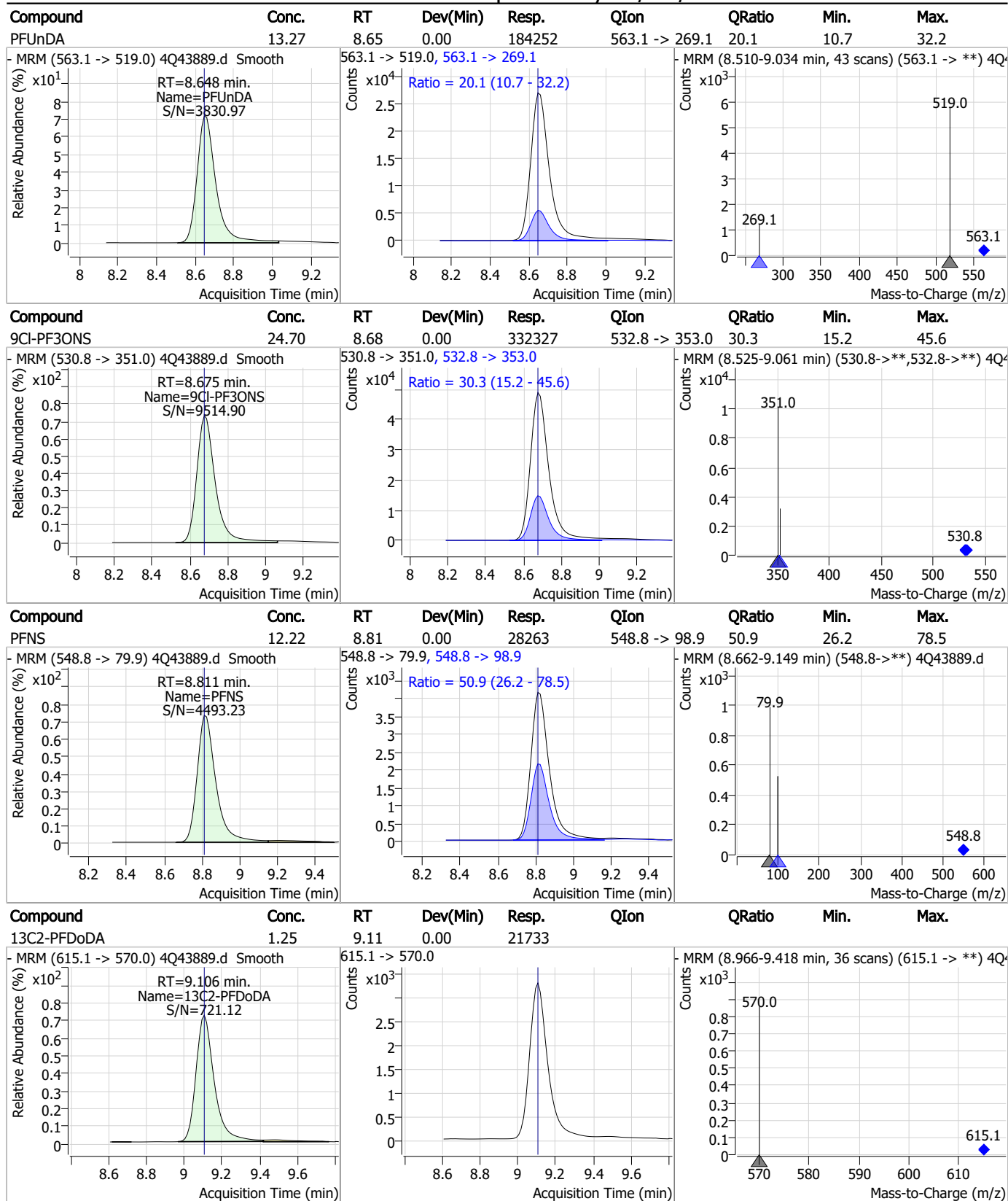
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.7.7  
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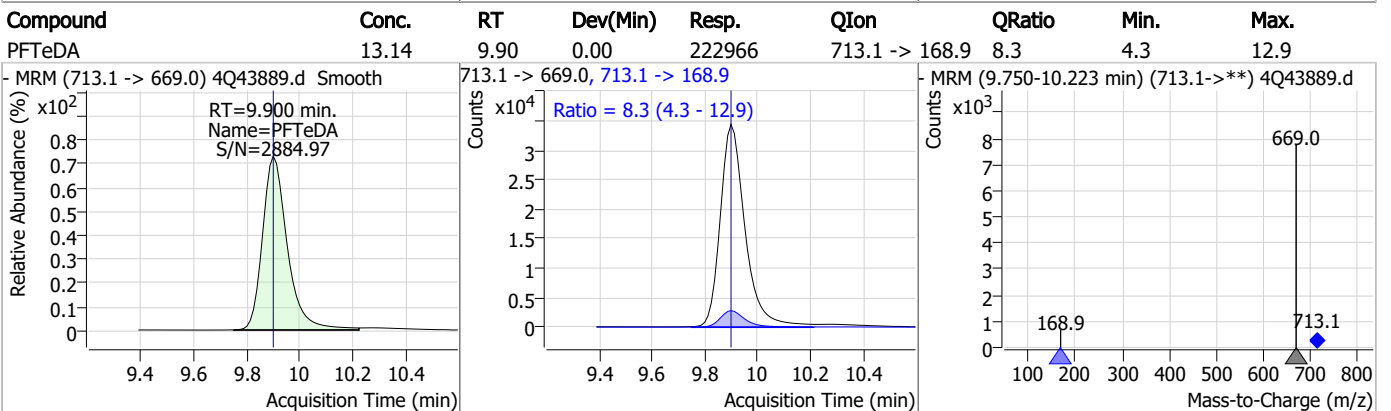
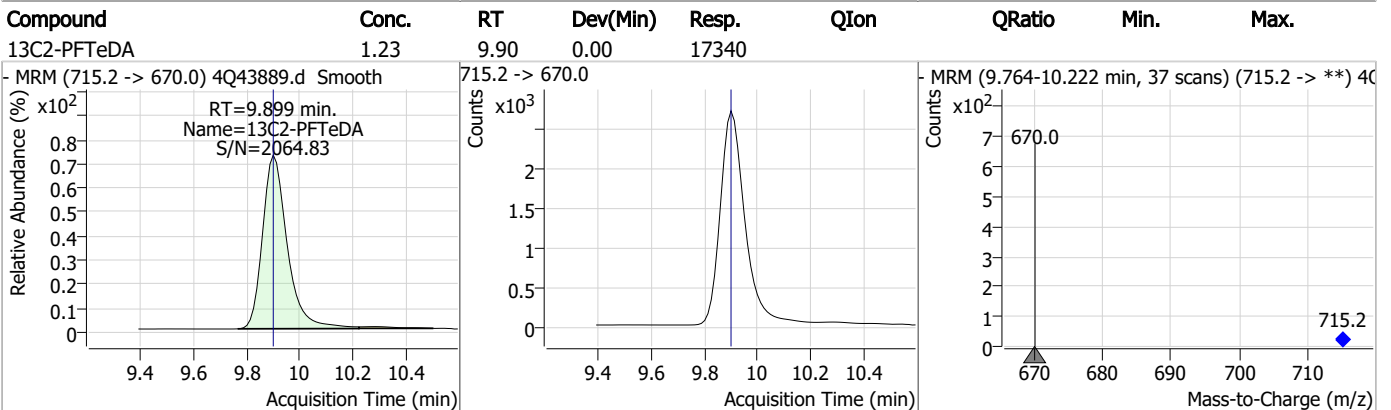
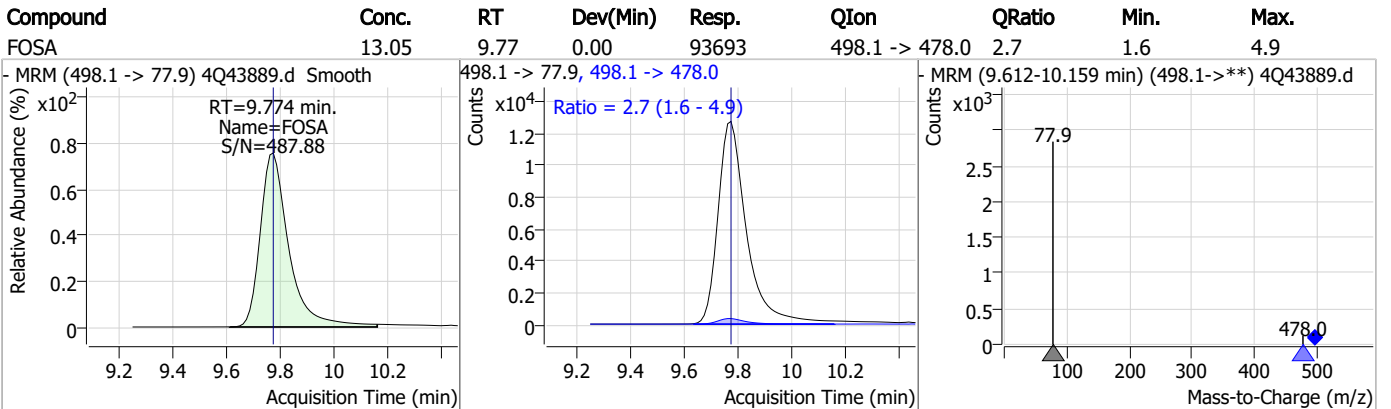
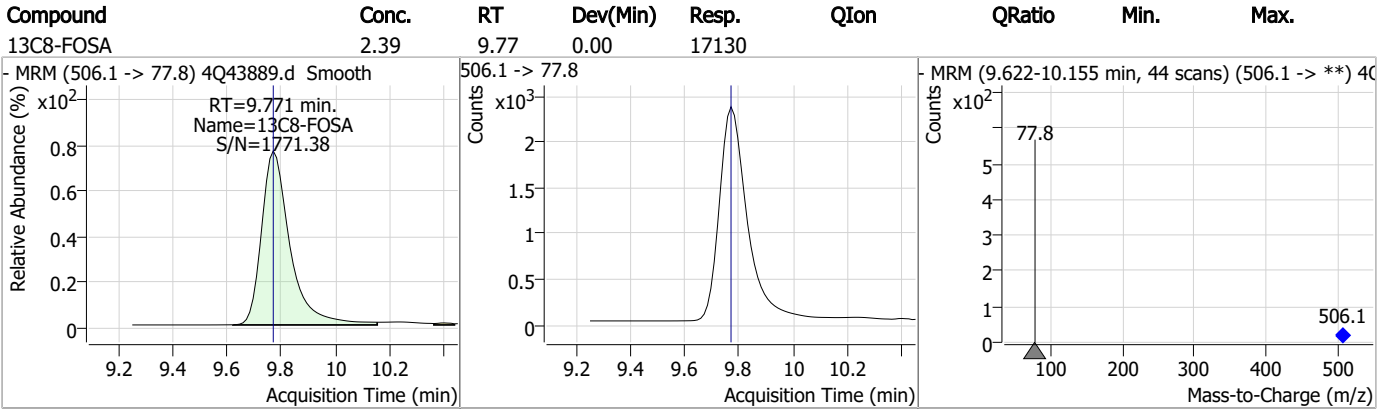
### Perfluorinated Compounds by LC/MS/MS

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

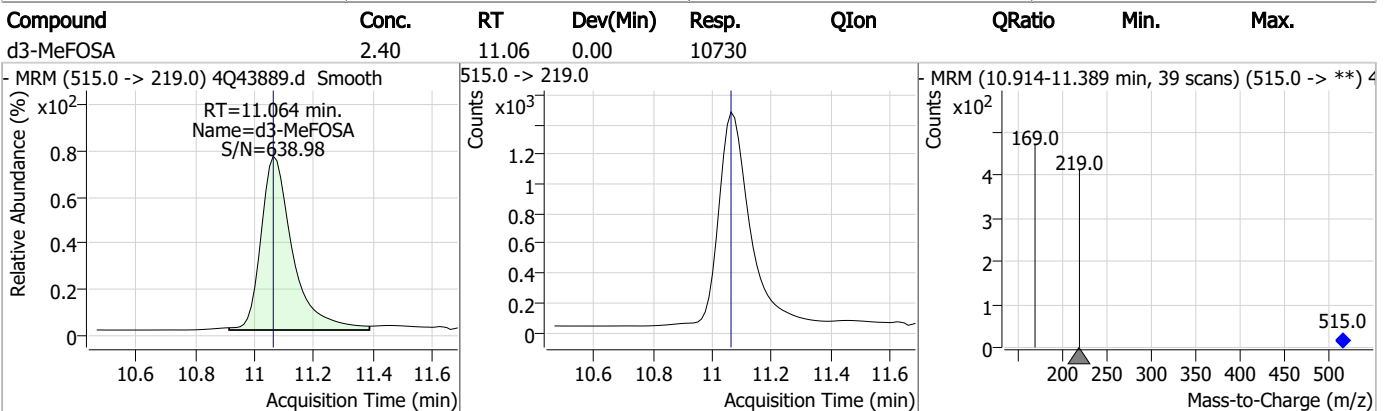
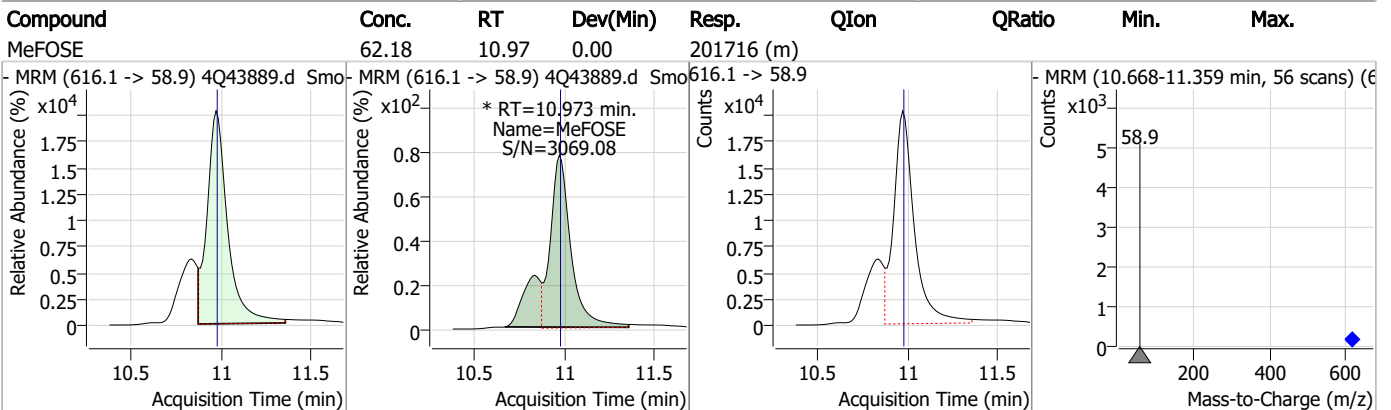
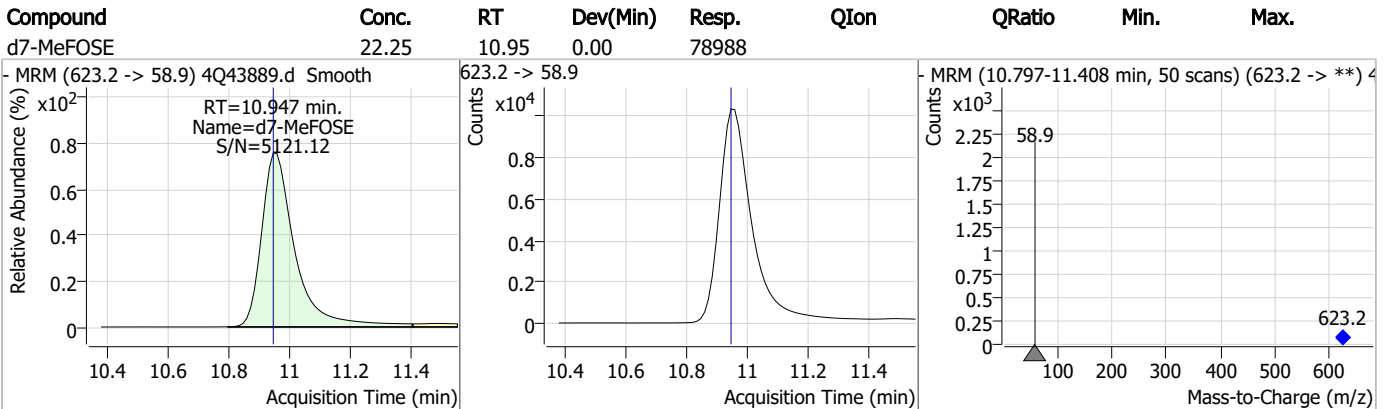
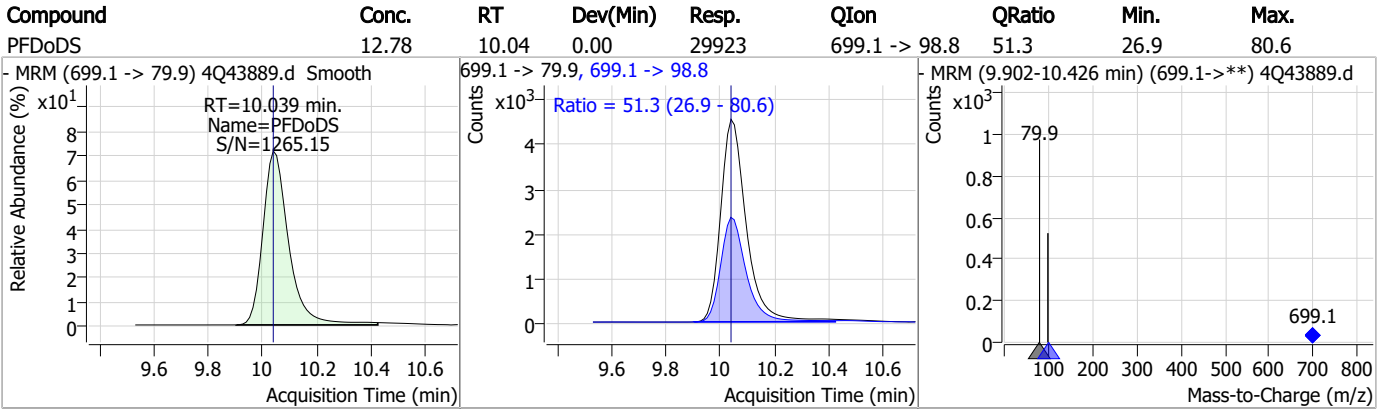
7.7.7

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### Perfluorinated Compounds by LC/MS/MS



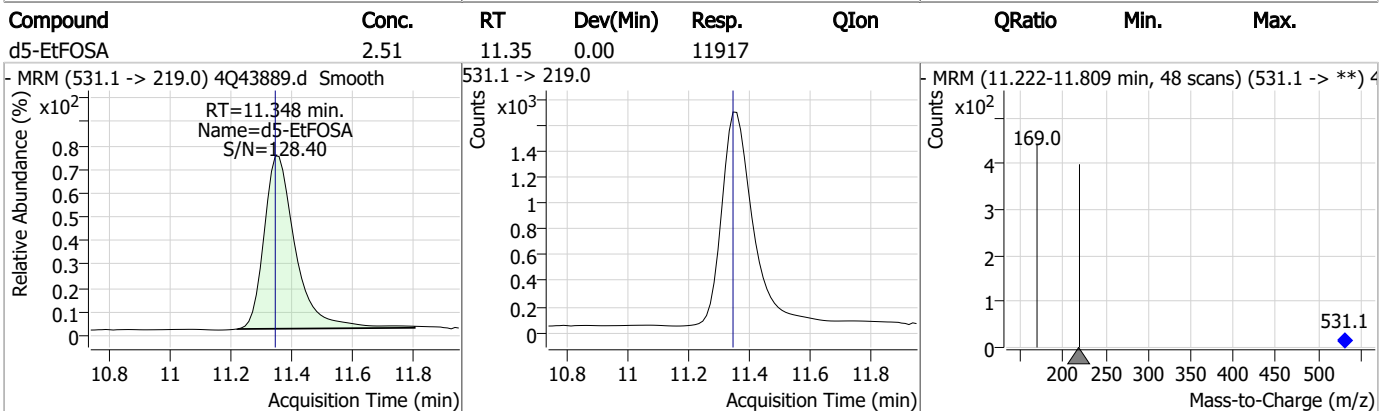
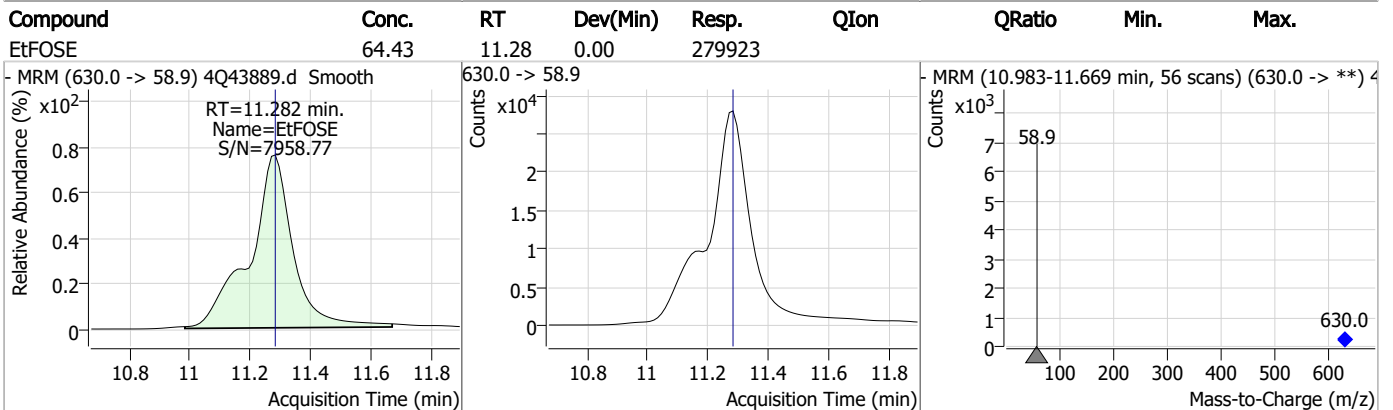
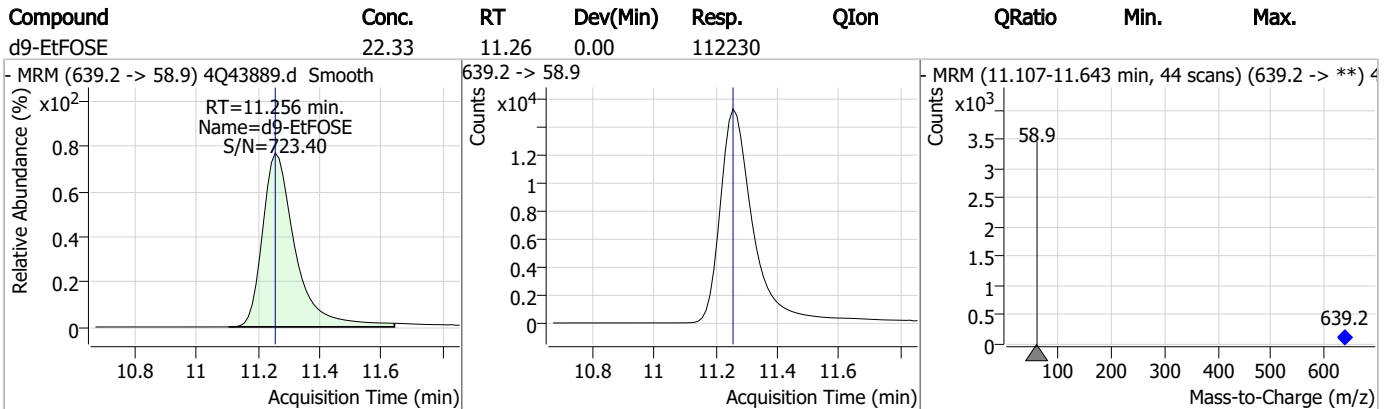
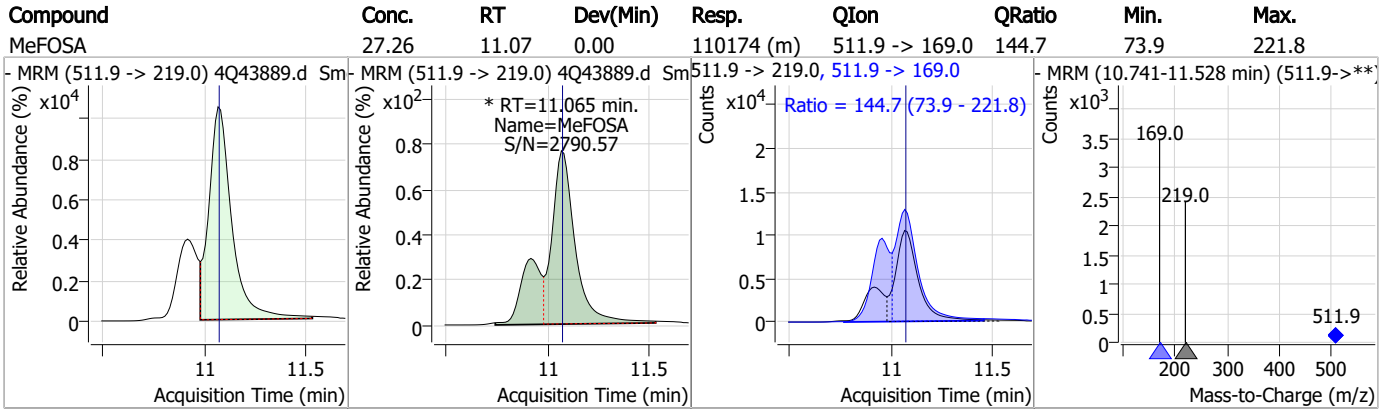
### Perfluorinated Compounds by LC/MS/MS



7.7.7

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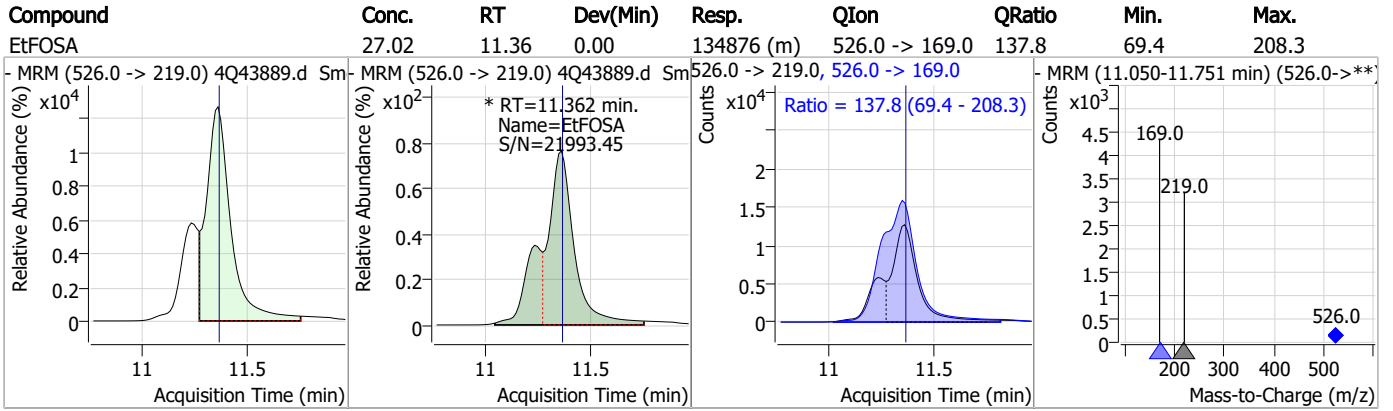
### Perfluorinated Compounds by LC/MS/MS



7.7.7

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### Perfluorinated Compounds by LC/MS/MS



7.7.7

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# Manual Integration Approval Summary

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

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

7.7.7.1  
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Manual Integrations  
APPROVED  
(compounds with "m" flag)

Norman Farmer  
05/04/23 17:44

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43890.d  
Operator : natashag  
Acq. Method : 1633full\_4Q.m  
Acq. Date-Time : 5/3/2023 12:36:33 PM  
Sample Name : ic634-7  
Vial : P1-A8  
DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
Batch Name : s4q634.batch.bin  
Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.911	216.8 -> 171.9	120121	10.00 µg/L	-0.012
M5-PFPeA	4.362	268.3 -> 223.0	66273	5.00 µg/L	0.000
M5-PFHxA	5.535	318.0 -> 273.0	46821	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	28586	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	41636	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	20543	1.25 µg/L	0.013
M6-PFDA	8.178	519.1 -> 474.1	19612	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	18650	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	21188	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	15643	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	16278	2.50 µg/L	0.000
M3-PFBS	5.439	302.1 -> 79.9	11395	2.50 µg/L	0.012
M3-PFHxS	7.229	402.1 -> 79.9	7525	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	10878	2.50 µg/L	0.000
M2-4:2FTS	5.235	329.1 -> 80.9	872	5.00 µg/L	0.012
M2-6:2FTS	6.898	429.1 -> 80.9	1599	5.00 µg/L	0.000
M2-8:2FTS	7.978	529.1 -> 80.9	2515	5.00 µg/L	0.012
M3-MeFOSAA	8.236	573.2 -> 419.0	14413	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	29456	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	11475	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	70051	25.00 µg/L	0.012
M9-EtFOSE	11.256	639.2 -> 58.9	98044	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	11250	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	10176	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	10322	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	63898	5.00 µg/L	-0.012
18O2-PFHxS	7.228	403.0 -> 83.9	4756	2.50 µg/L	0.000
13C4-PFOA	7.136	417.1 -> 372.0	51637	2.50 µg/L	0.012
13C2-PFDA	8.178	515.1 -> 470.1	17262	1.25 µg/L	0.000
13C5-PFNA	7.684	468.0 -> 423.0	23219	1.25 µg/L	0.000
13C2-PFHxA	5.536	315.1 -> 270.0	43283	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.235	329.1 -> 80.9	872	4.51 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1599	4.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.8%		
13C2-8:2FTS	7.978	529.1 -> 80.9	2515	4.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.5%		
13C2-PFDoDA	9.106	615.1 -> 570.0	21188	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C2-PFTeDA	9.899	715.2 -> 670.0	15643	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C3-PFBS	5.439	302.1 -> 79.9	11395	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C3-PFHxS	7.229	402.1 -> 79.9	7525	2.55 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C4-PFBA	2.911	216.8 -> 171.9	120121	9.99 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.467	367.1 -> 322.0	28586	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFHxA	5.535	318.0 -> 273.0	46821	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C5-PFPeA	4.362	268.3 -> 223.0	66273	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C6-PFDA	8.178	519.1 -> 474.1	19612	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C7-PFUnDA	8.647	570.0 -> 525.1	18650	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C8-FOSA	9.771	506.1 -> 77.8	16278	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C8-PFOA	7.136	421.1 -> 376.0	41636	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-PFOS	8.329	507.1 -> 79.9	10878	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.0%	
13C9-PFNA	7.684	472.1 -> 427.0	20543	1.30 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.1%	
d3-MeFOSAA	8.236	573.2 -> 419.0	14413	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.6%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	29456	10.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
d3-MeFOSA	11.064	515.0 -> 219.0	10176	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
d5-EtFOSAA	8.446	589.2 -> 419.0	11475	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
d7-MeFOSE	10.959	623.2 -> 58.9	70051	21.81 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.2%	
d9-EtFOSE	11.256	639.2 -> 58.9	98044	21.56 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.2%	
d5-EtFOSA	11.348	531.1 -> 219.0	11250	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.223	327.1 -> 307.0	146301	104.28 µg/L	92
		327.1 -> 80.9	60380		
6:2FTS	6.899	427.1 -> 407.0	156292	101.17 µg/L	98
		427.1 -> 80.9	64052		
8:2FTS	7.966	527.1 -> 507.0	149695	106.75 µg/L	95
		527.1 -> 80.8	58775		
EtFOSAA	8.459	584.2 -> 419.1	57787	26.21 µg/L	m 94
		584.2 -> 526.0	26926		
FOSA	9.774	498.1 -> 77.9	174421	25.57 µg/L	99
		498.1 -> 478.0	4957		
MeFOSAA	8.249	570.1 -> 419.0	61802	24.60 µg/L	m 99
		570.1 -> 483.0	14322		
PFBA	2.920	212.8 -> 168.9	346581	107.75 µg/L	100
PFBS	5.440	298.7 -> 79.9	109963	23.53 µg/L	95
		298.7 -> 98.8	41302		
PFDA	8.179	512.9 -> 469.0	385953	25.94 µg/L	97
		512.9 -> 219.0	77211		
PFDoDA	9.106	613.1 -> 569.0	447161	26.30 µg/L	100
		613.1 -> 319.0	64881		
PFDS	9.269	599.0 -> 79.9	61928	22.98 µg/L	95

7.7.8  
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## Perfluorinated Compounds by LC/MS/MS

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

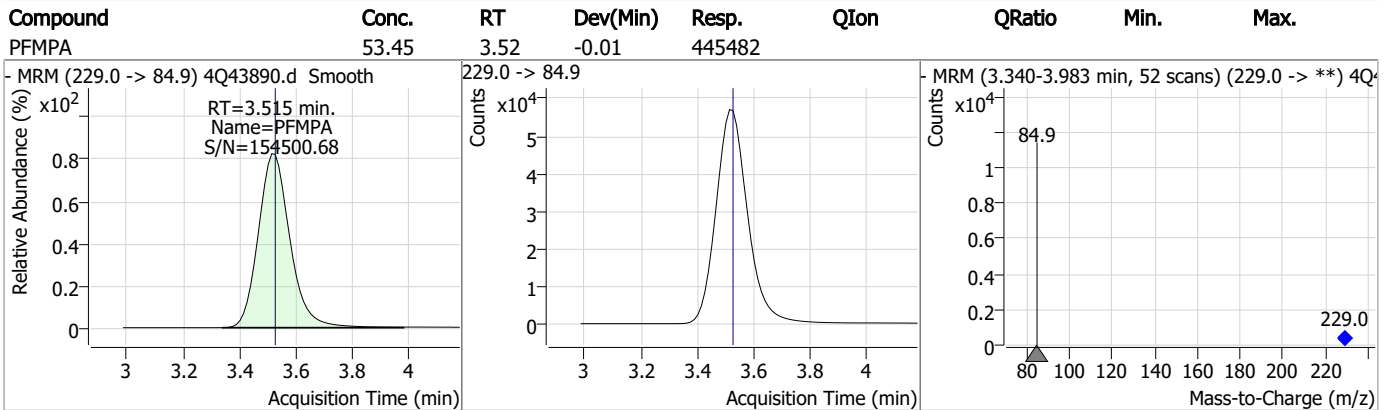
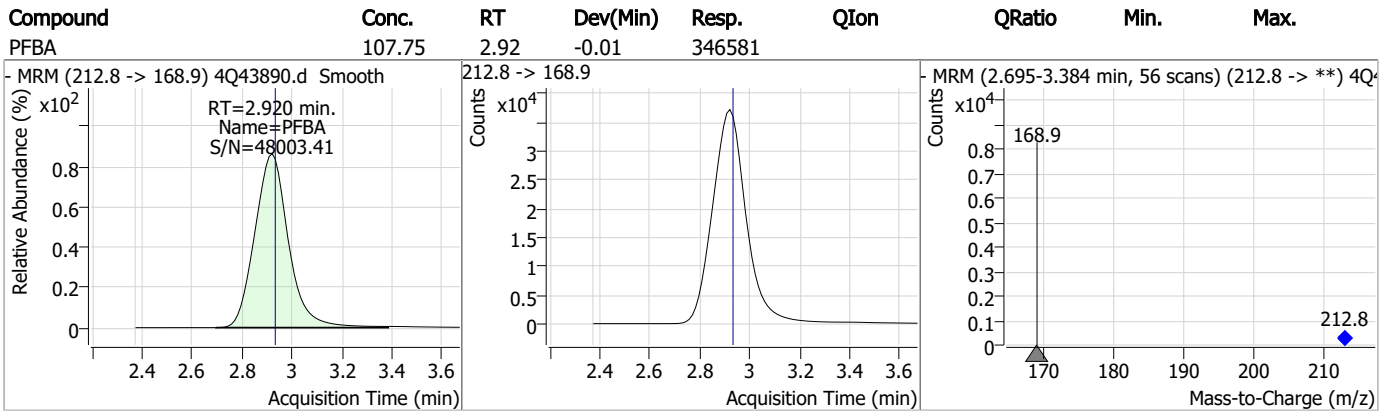
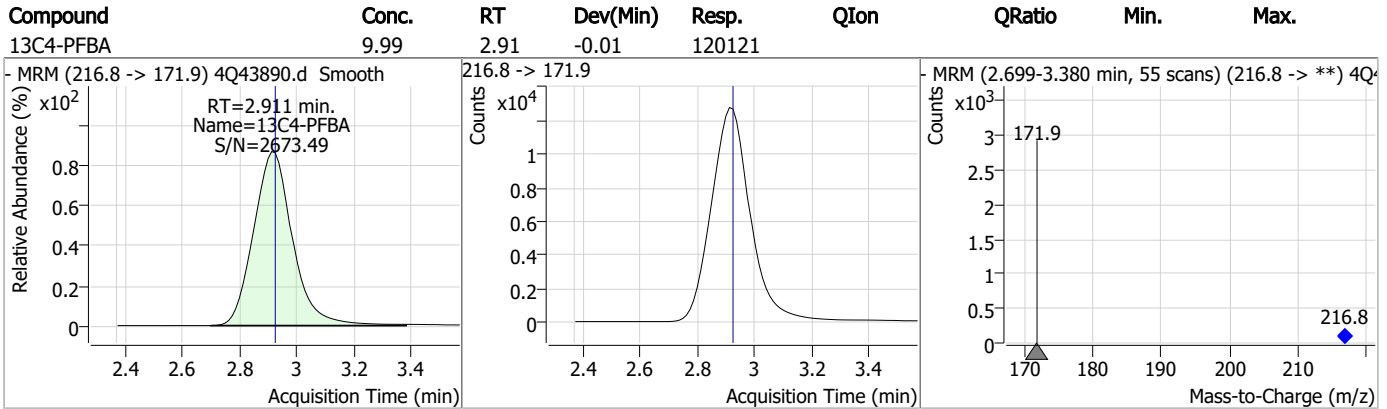
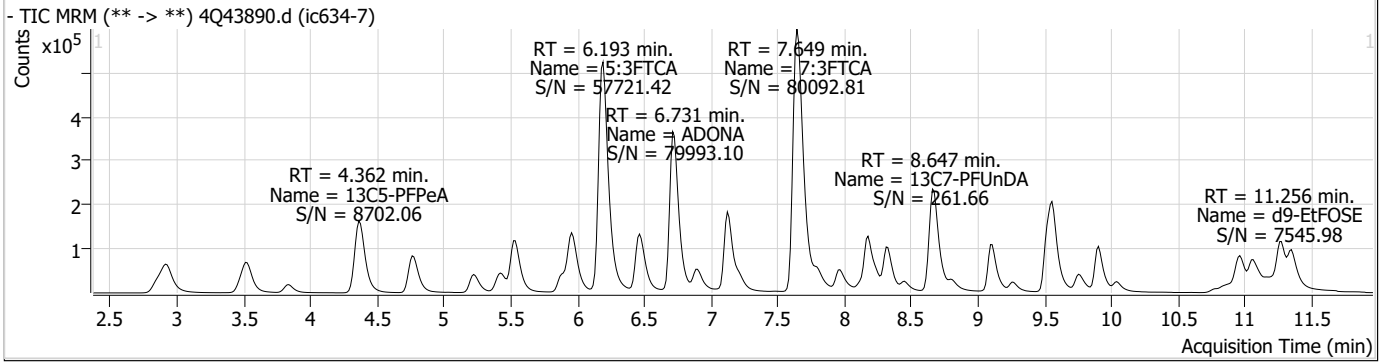
# = Qualifier out of range, m = manually integrated, + = Area summed

### Perfluorinated Compounds by LC/MS/MS

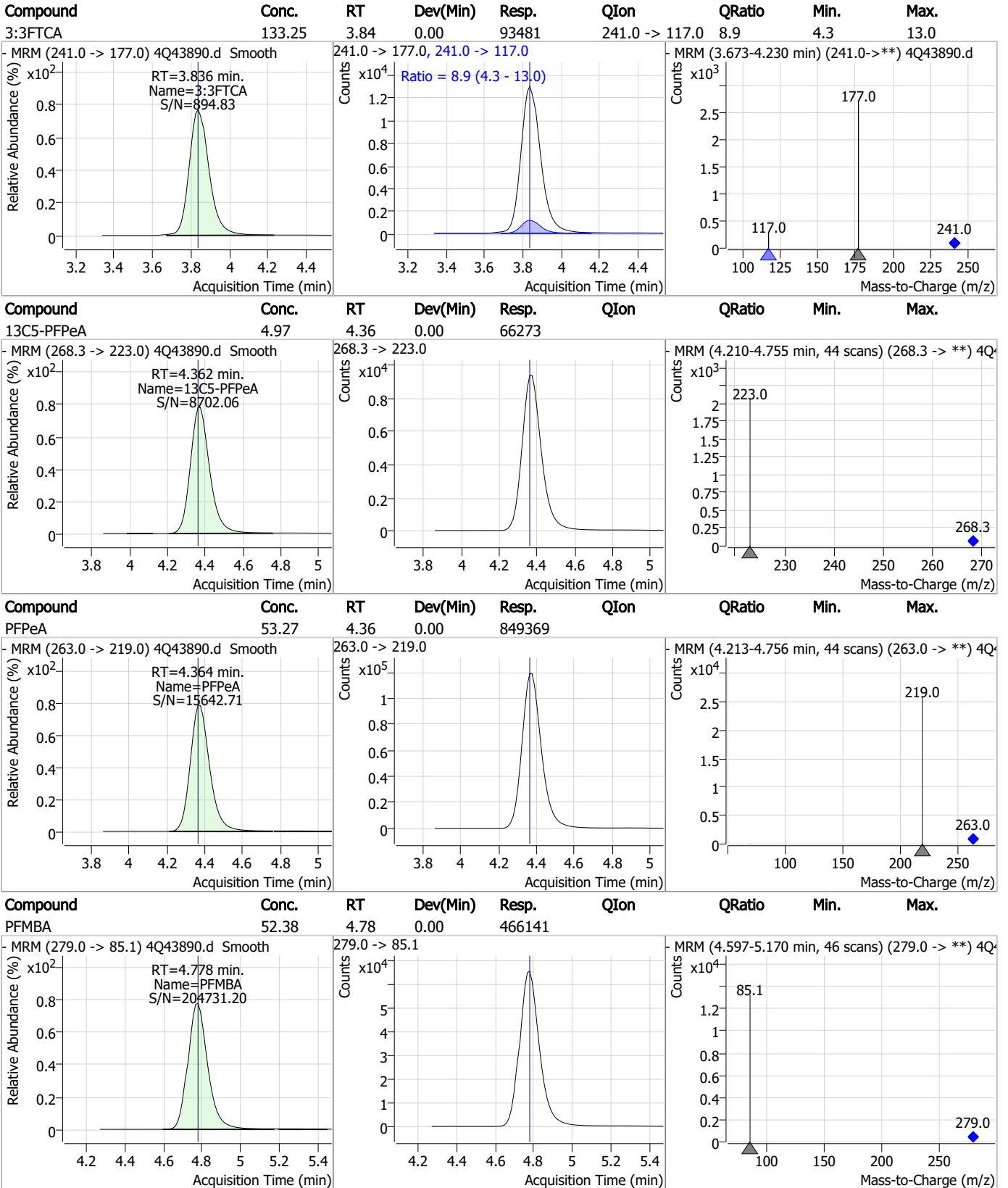
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.8  
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

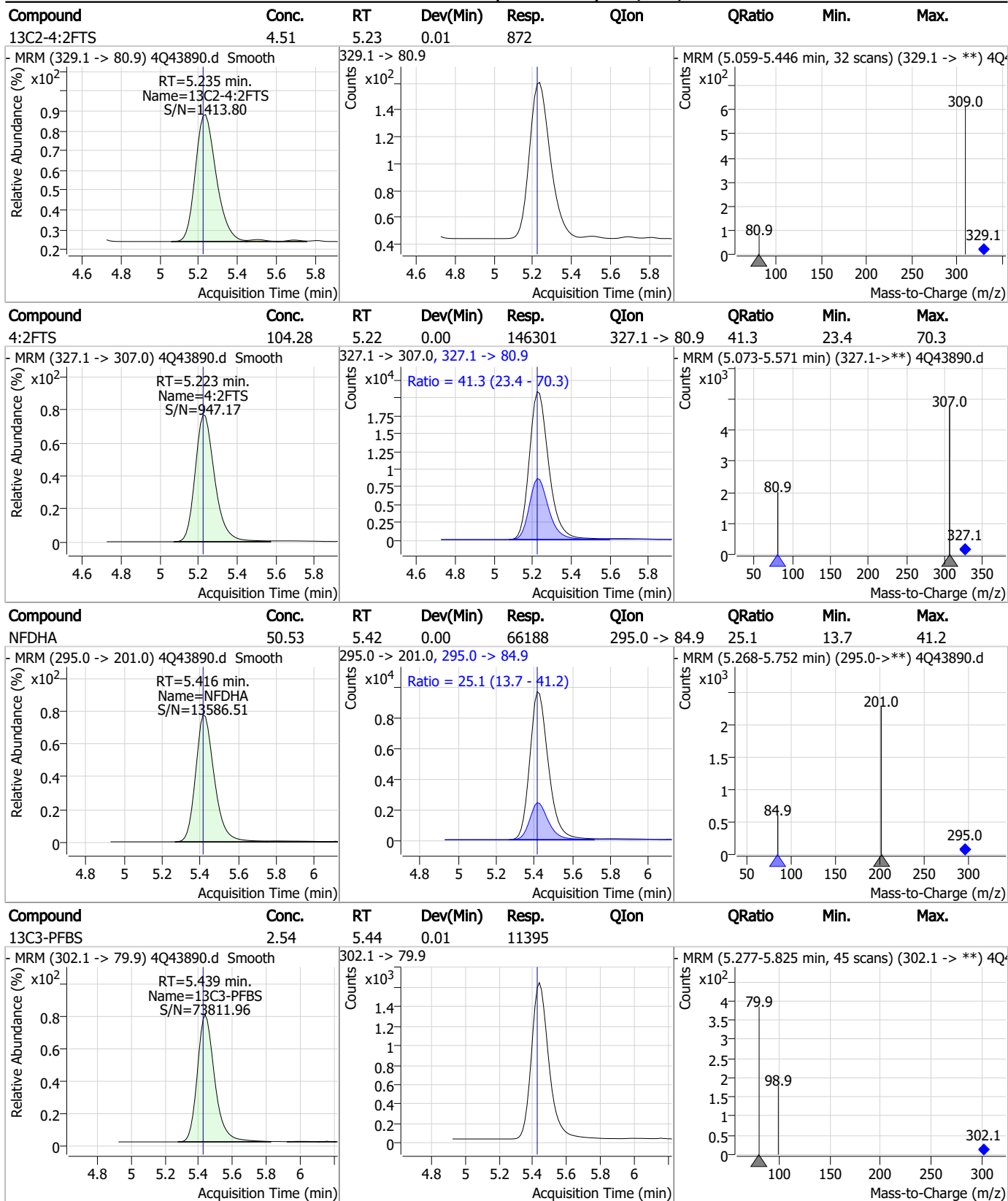


7.7.8

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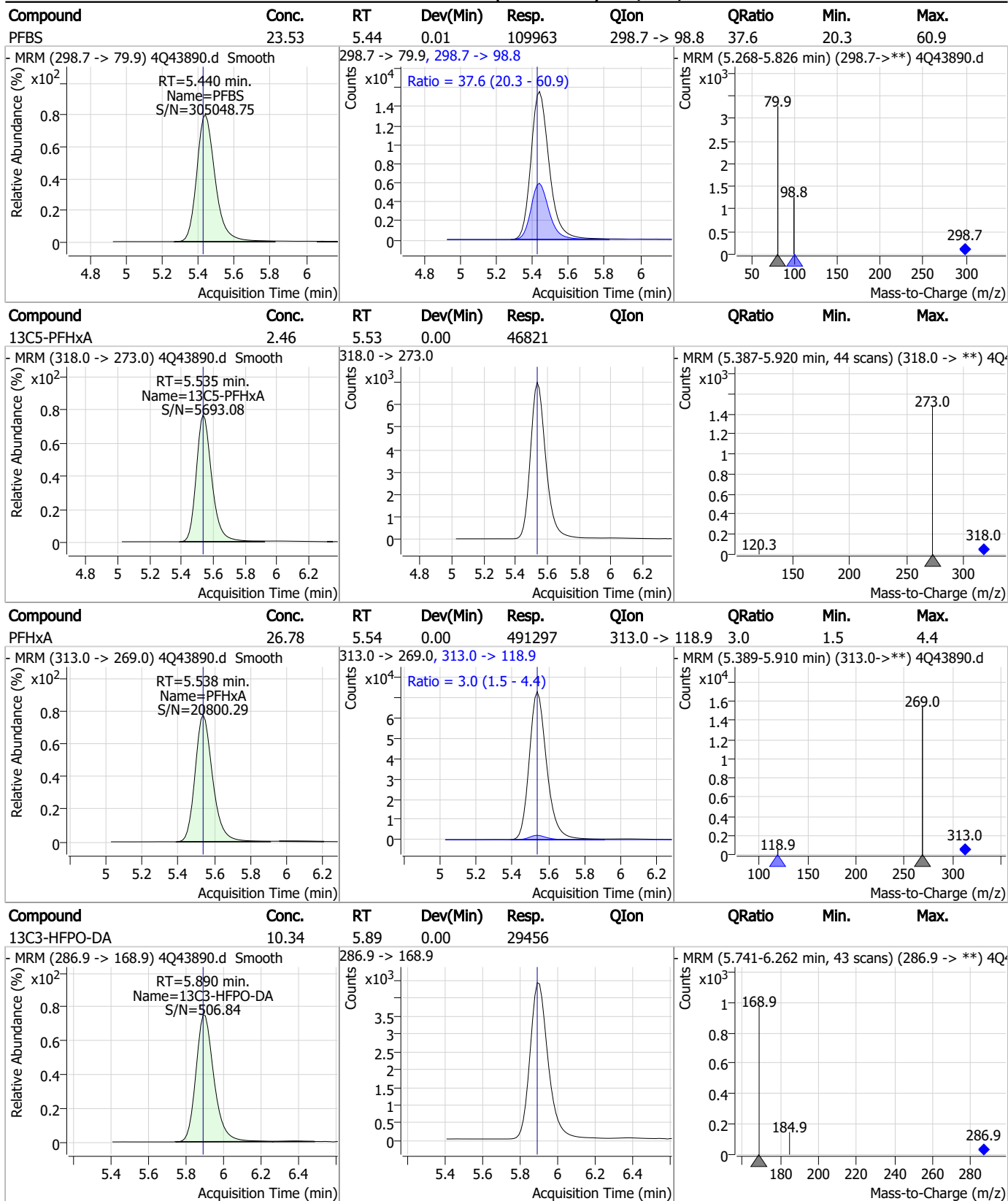


### Perfluorinated Compounds by LC/MS/MS



7.7.8  
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### Perfluorinated Compounds by LC/MS/MS

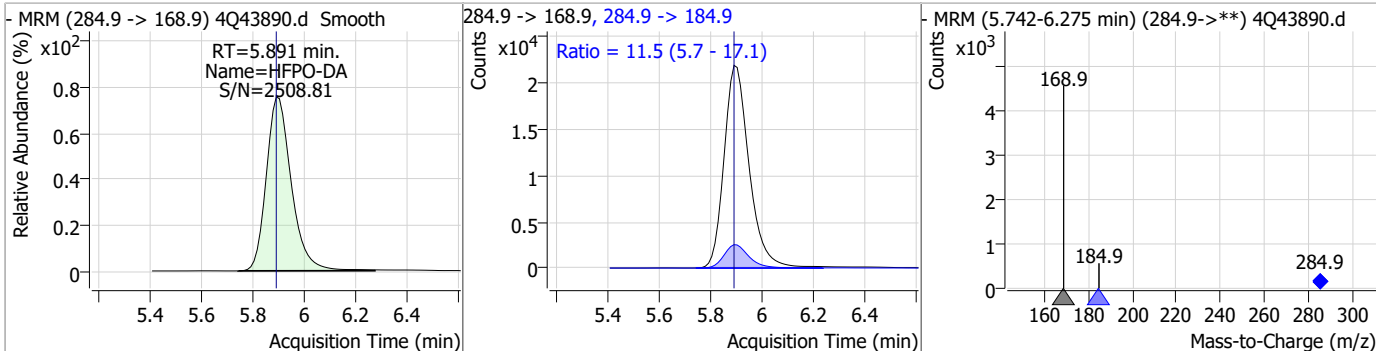


7.7.8  
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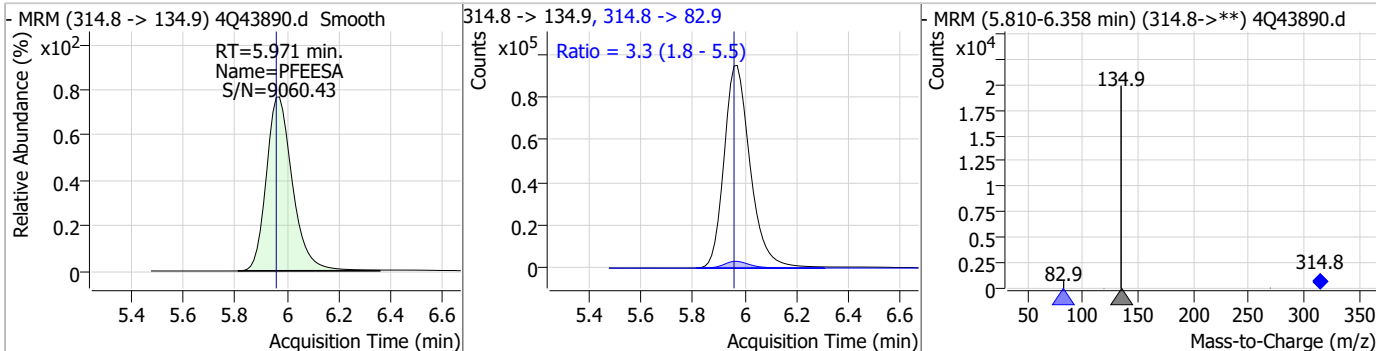


### Perfluorinated Compounds by LC/MS/MS

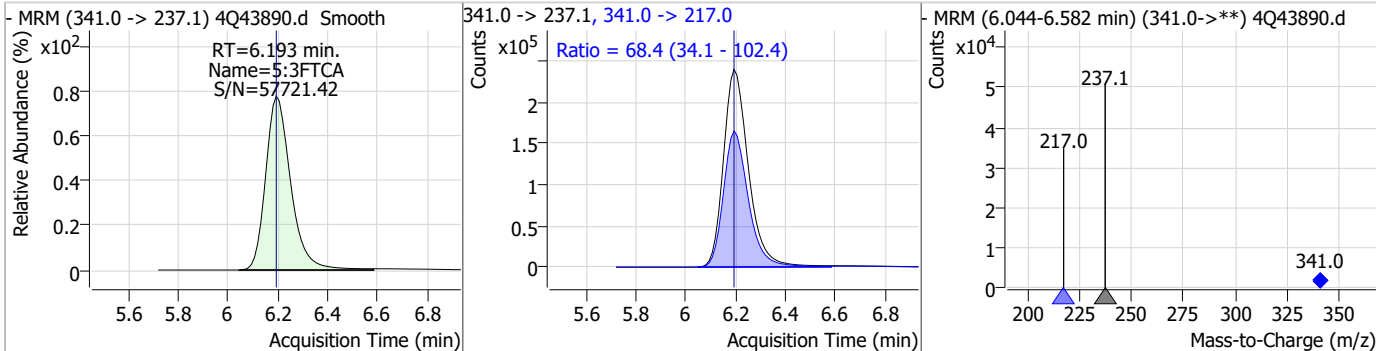
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	52.43	5.89	0.00	147577	284.9 -> 184.9	11.5	5.7	17.1



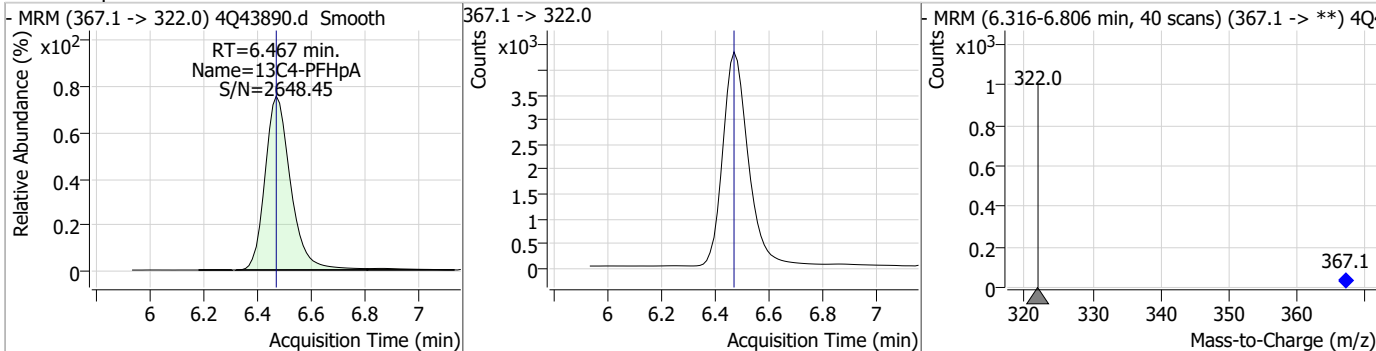
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	47.90	5.97	0.01	665147	314.8 -> 82.9	3.3	1.8	5.5



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

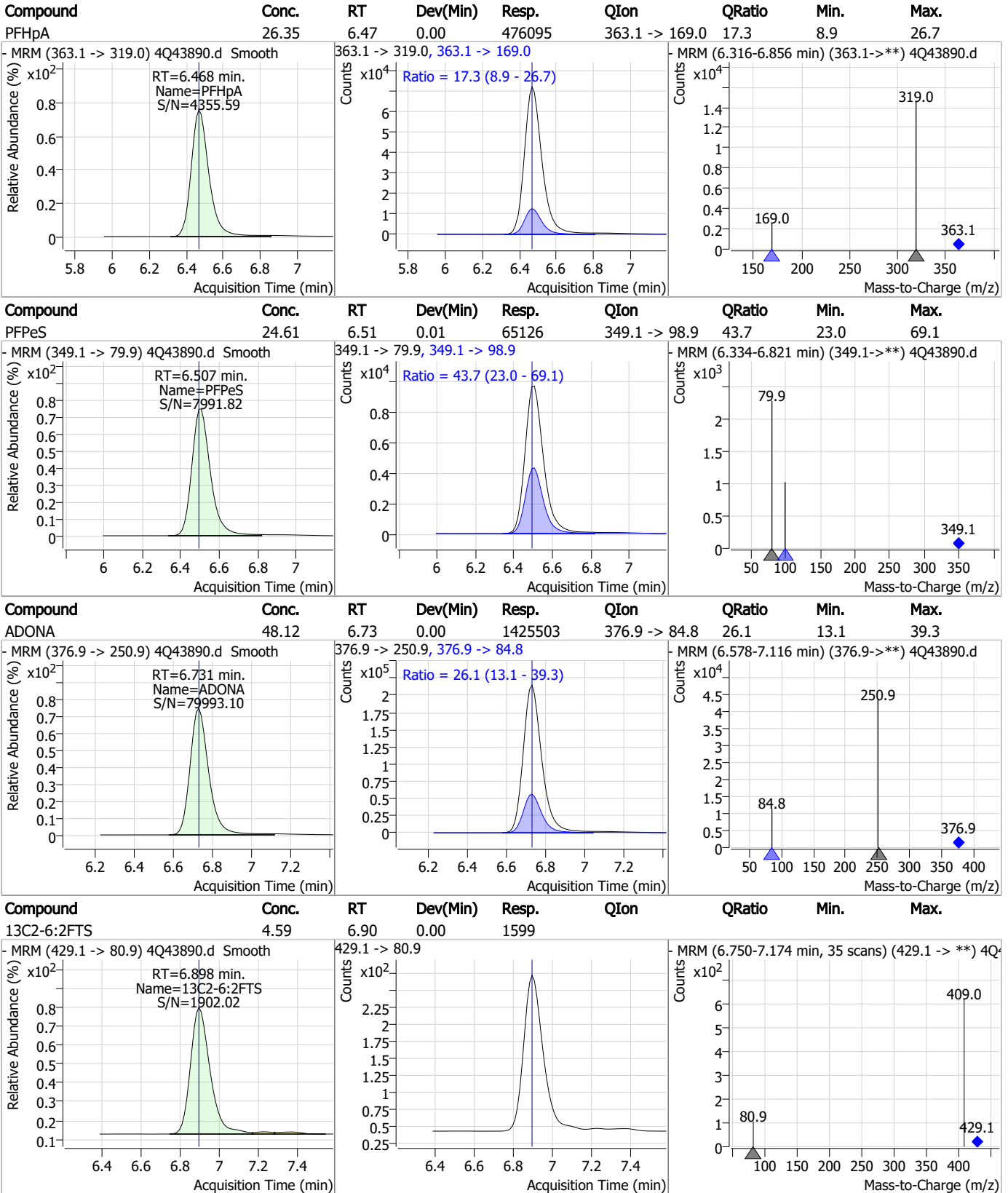


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.57	6.47	0.00	28586				



7.7.8  
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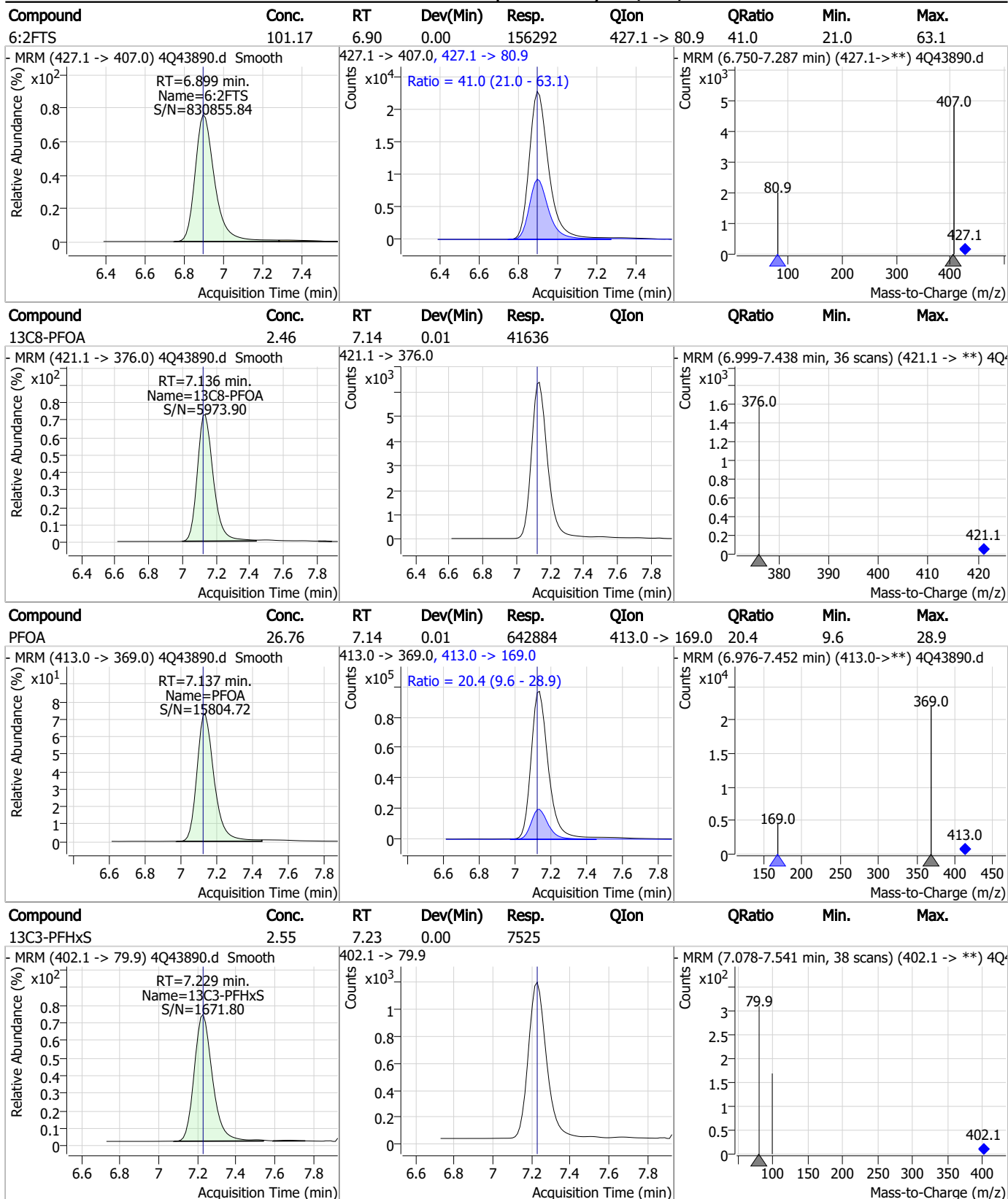
### Perfluorinated Compounds by LC/MS/MS



7.7.8

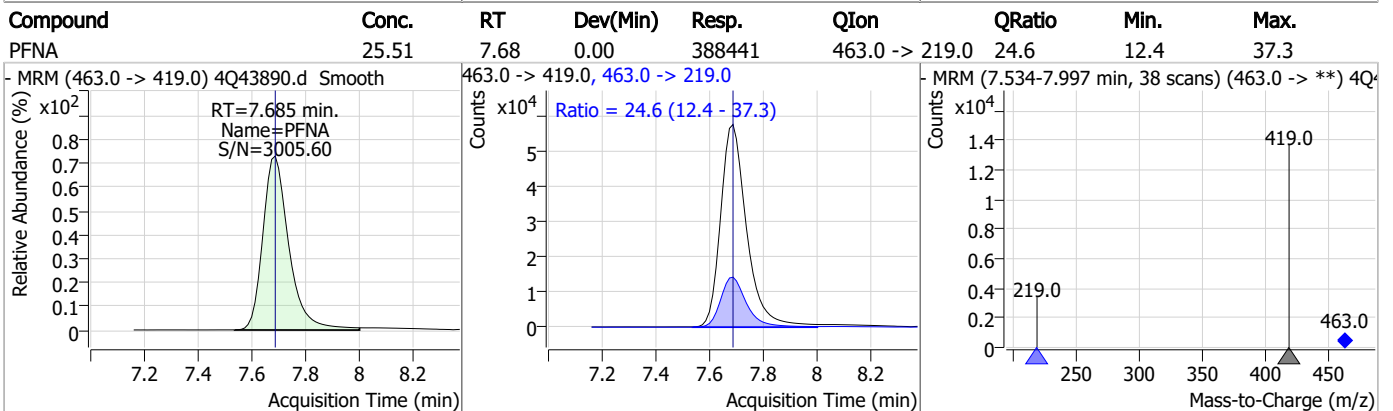
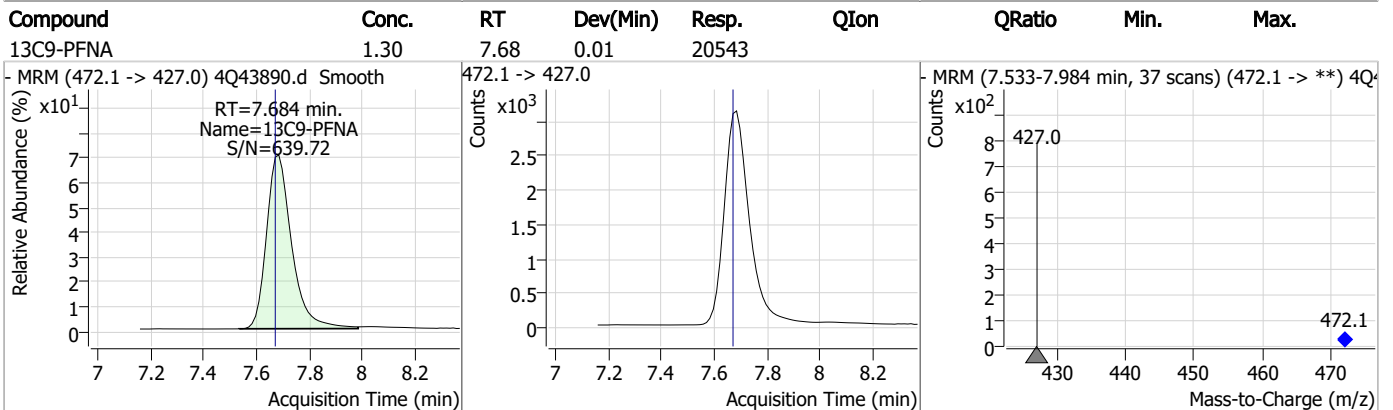
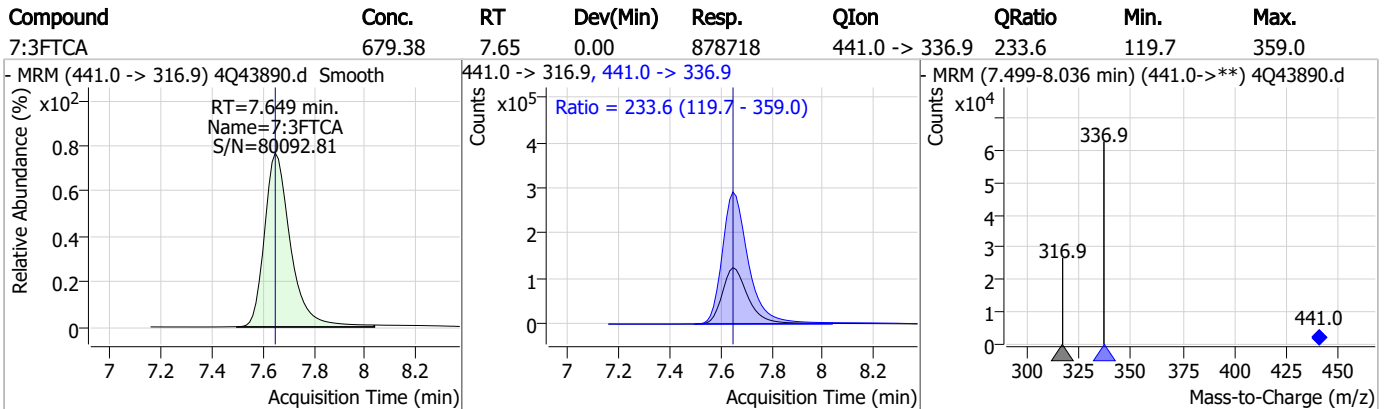
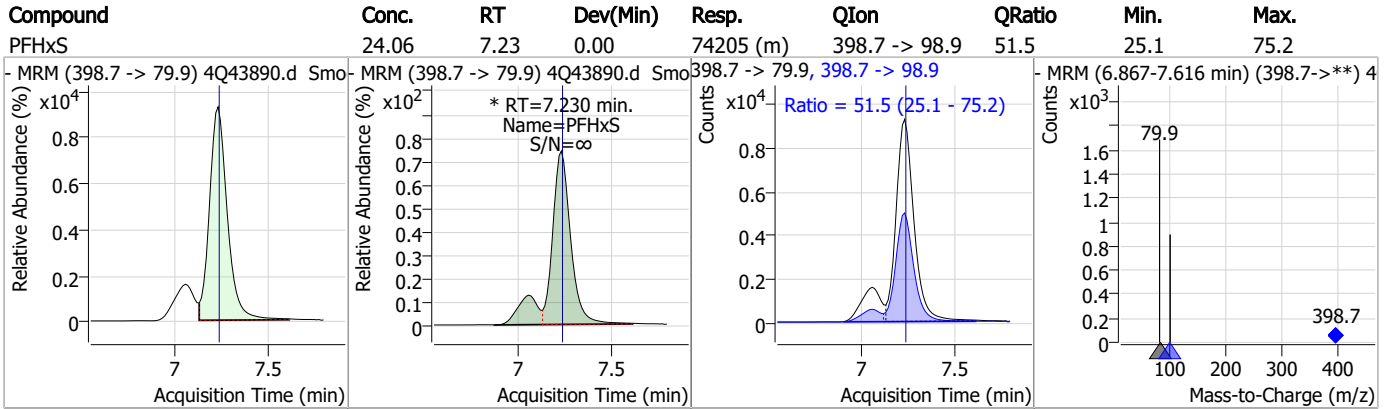
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### Perfluorinated Compounds by LC/MS/MS



7.7.8  
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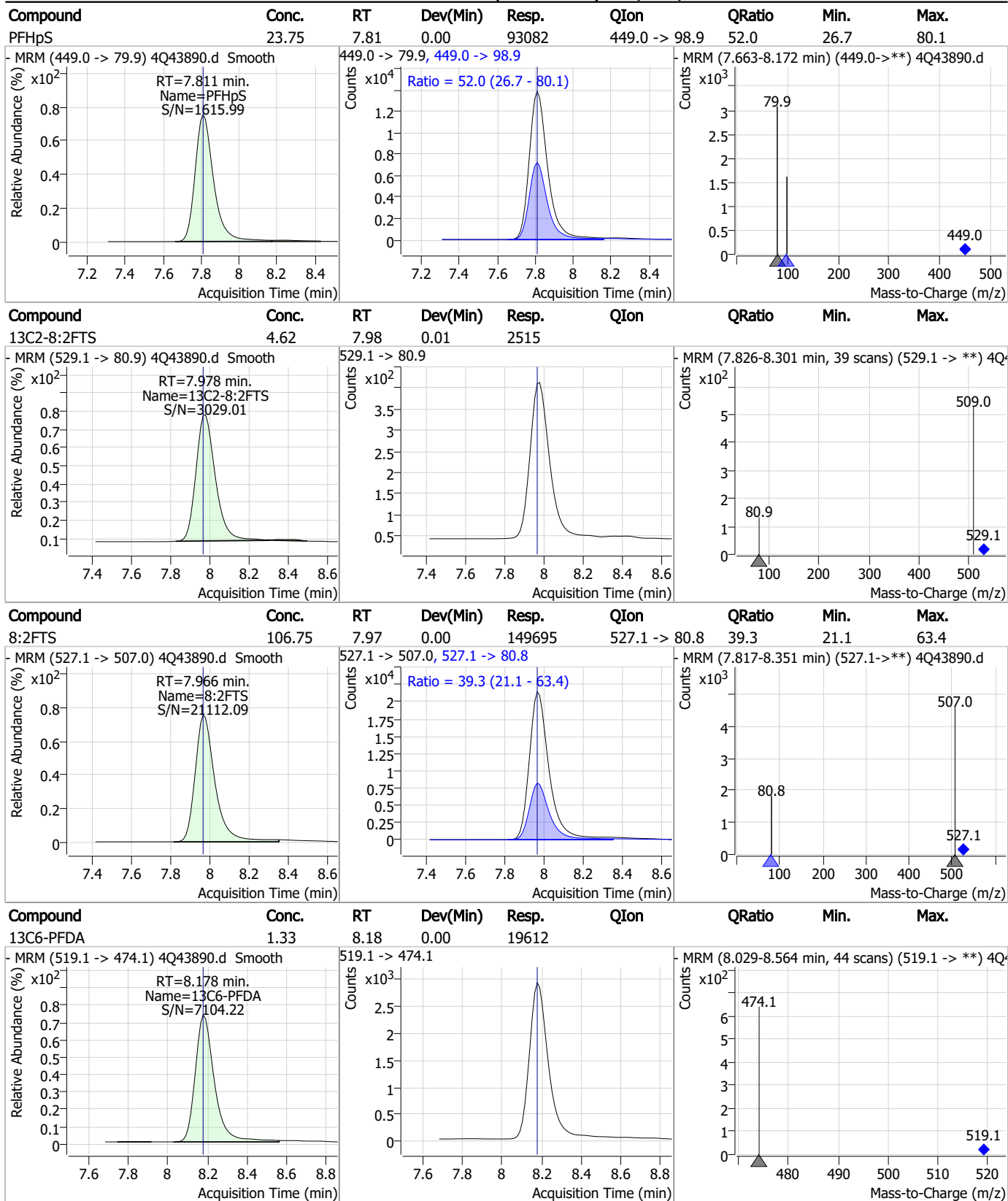
### Perfluorinated Compounds by LC/MS/MS



7.7.8

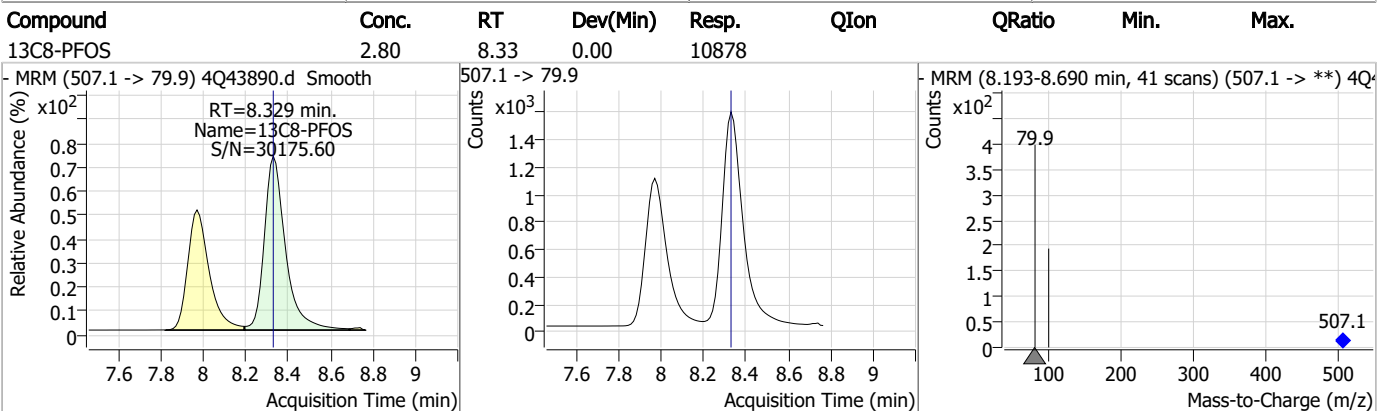
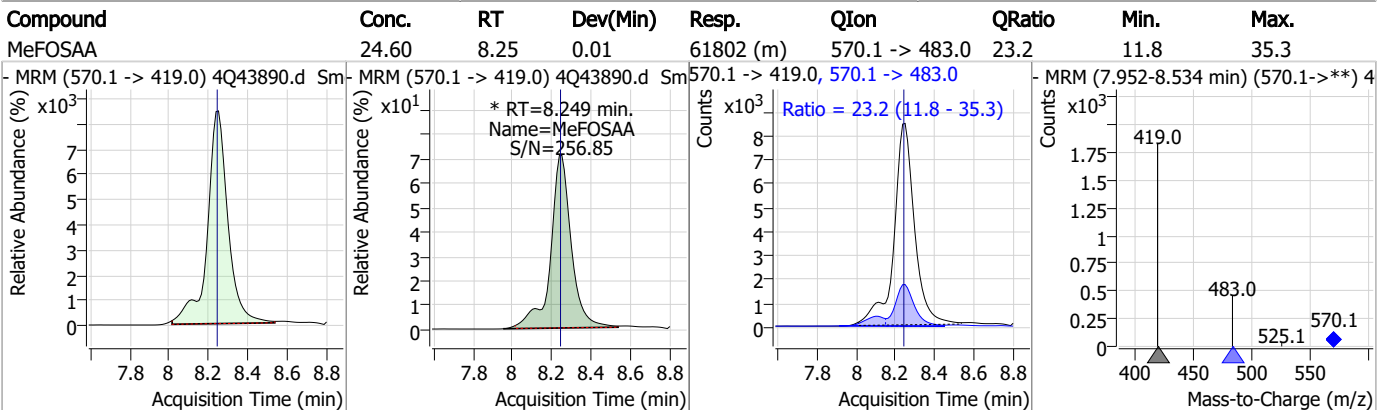
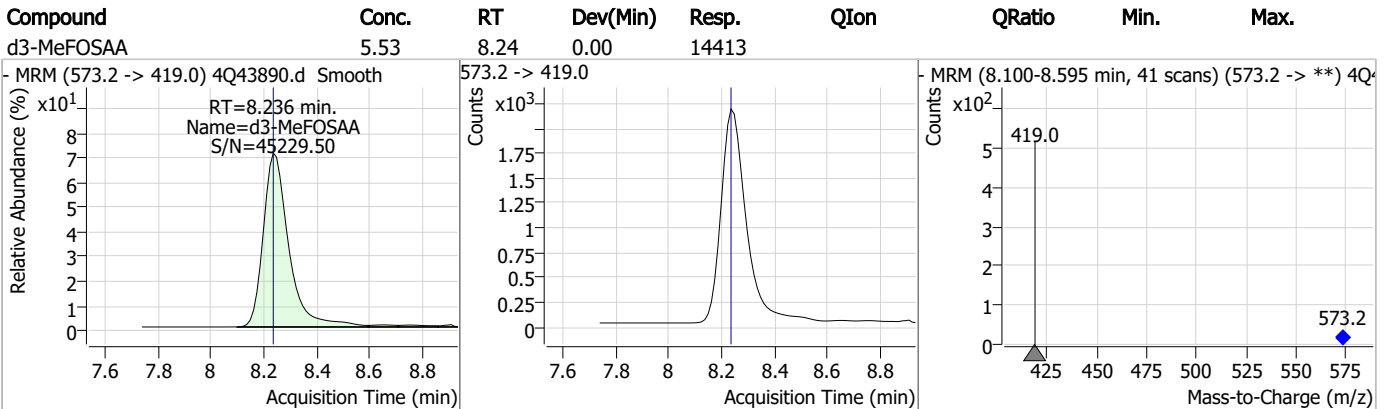
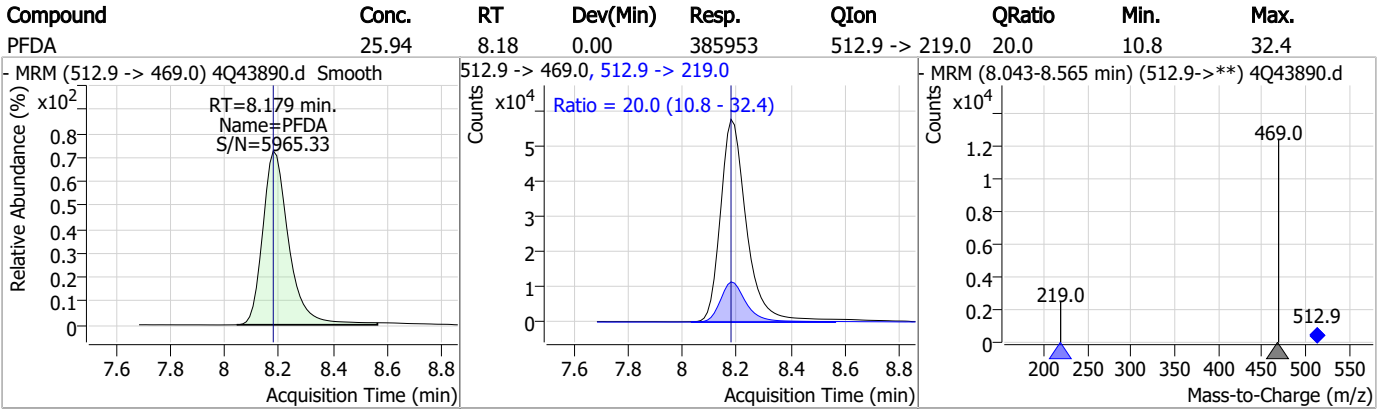
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### Perfluorinated Compounds by LC/MS/MS



7.7.8  
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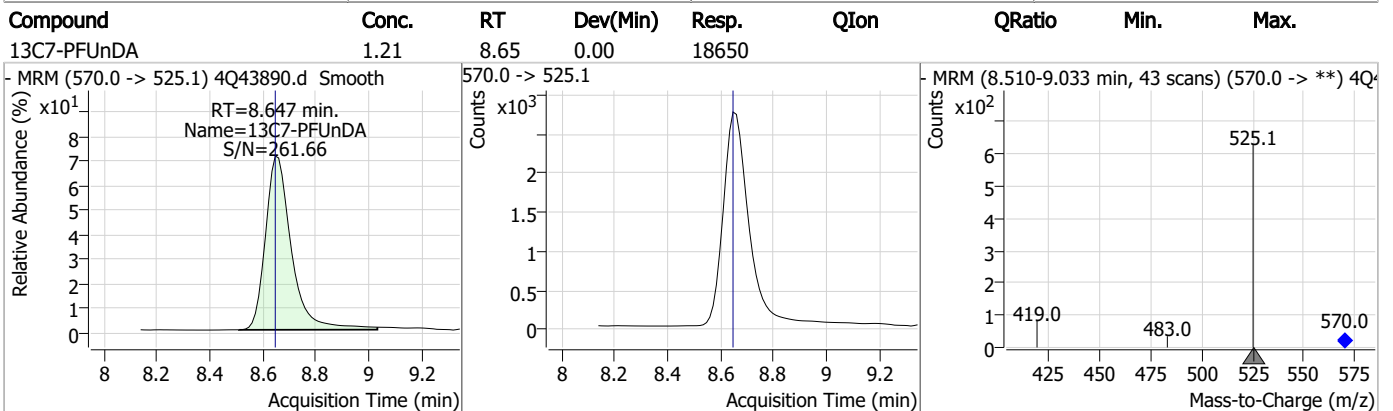
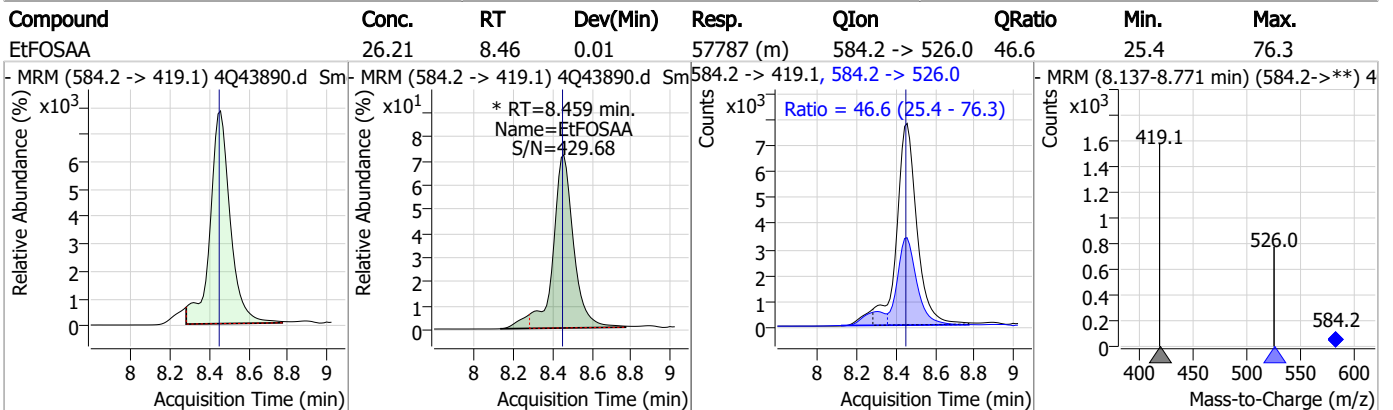
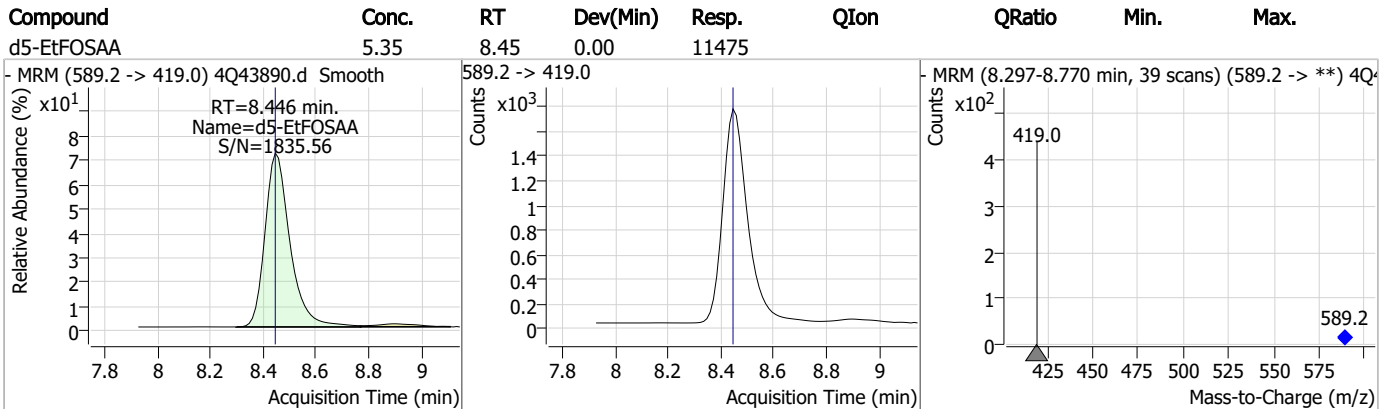
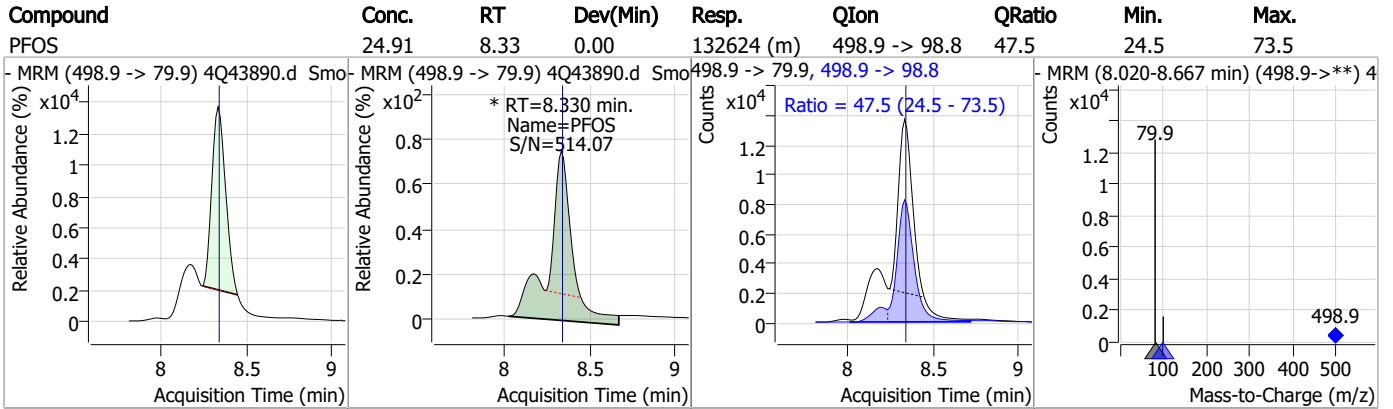
### Perfluorinated Compounds by LC/MS/MS



7.7.8

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### Perfluorinated Compounds by LC/MS/MS

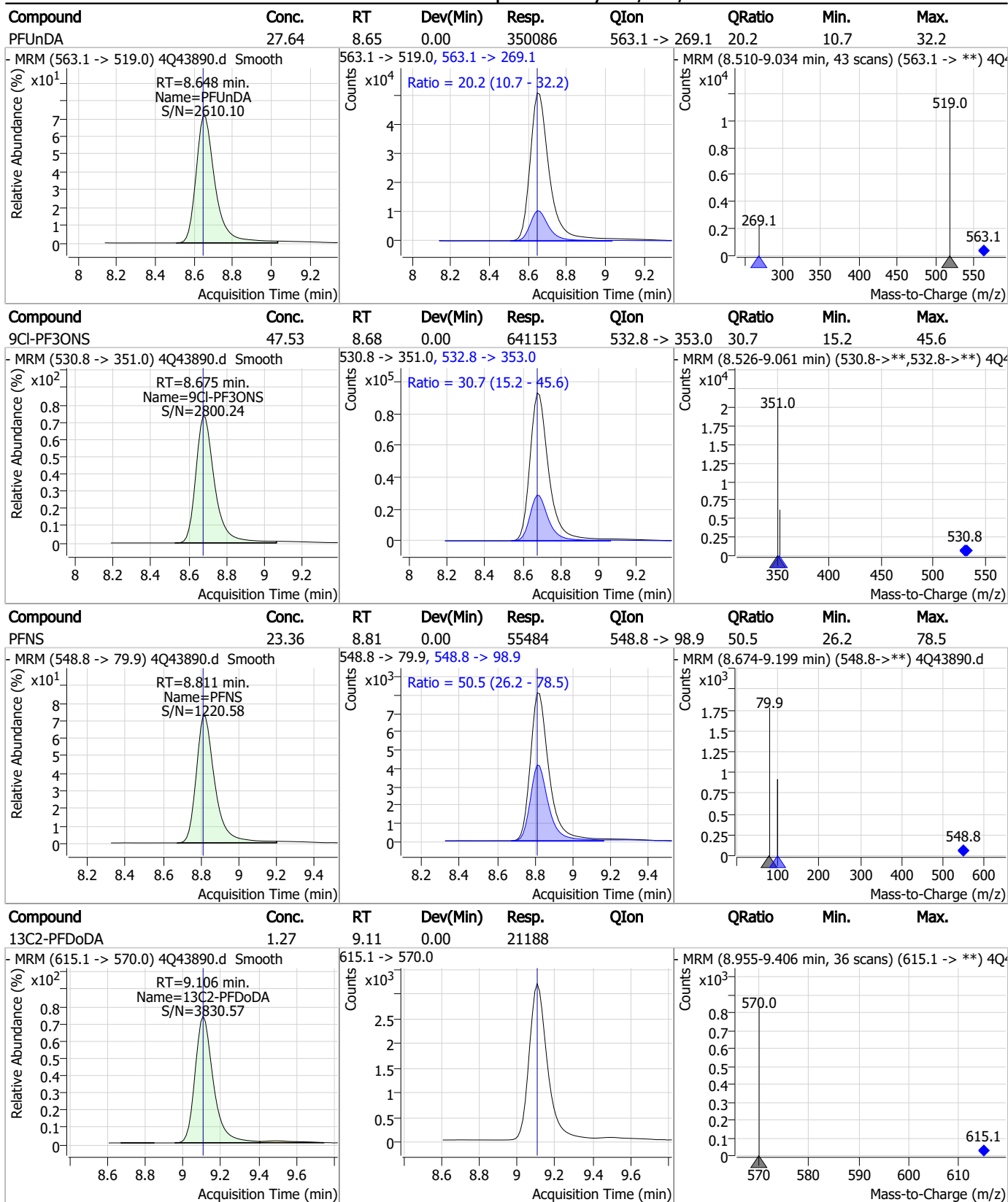


7.7.8

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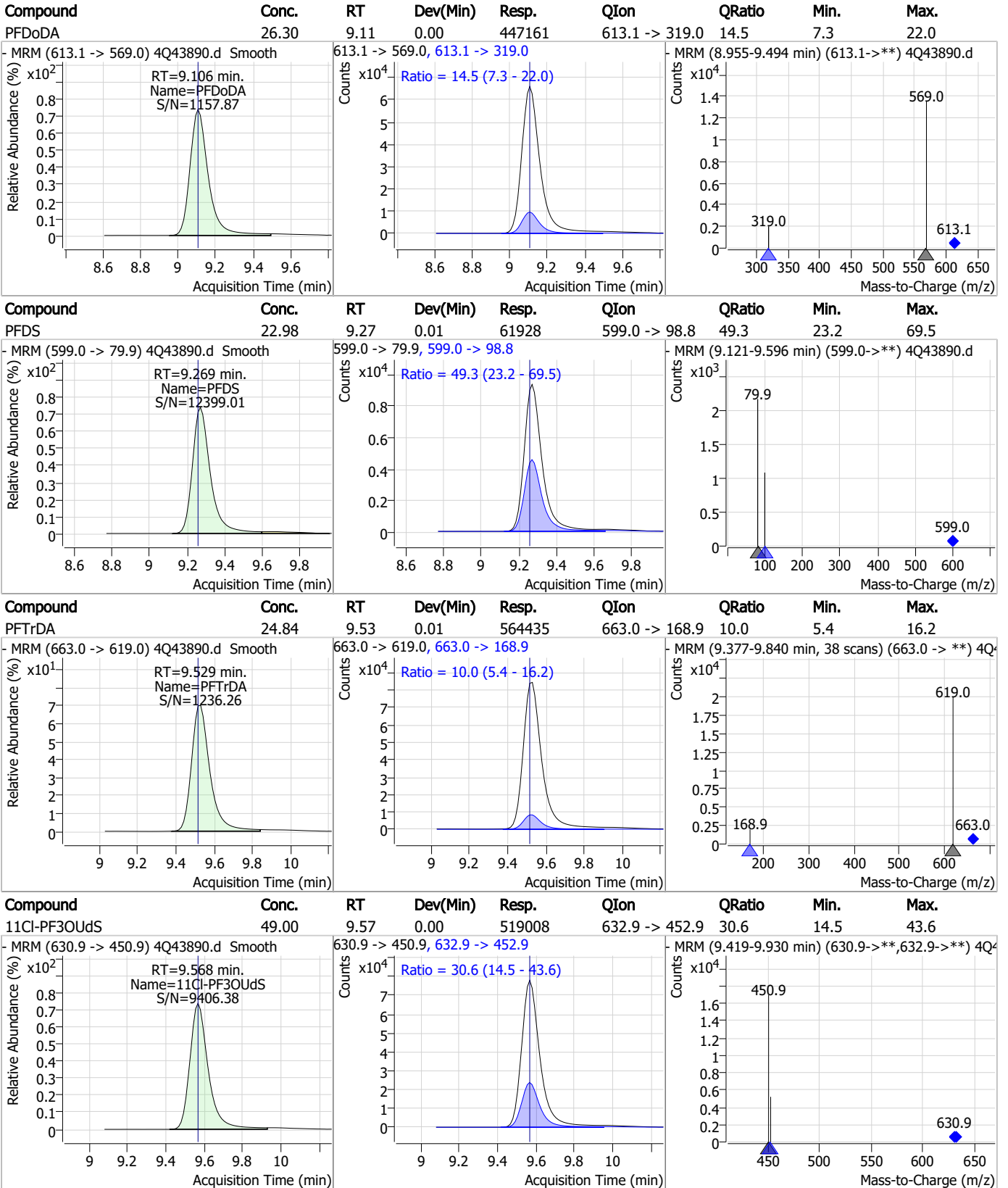
### Perfluorinated Compounds by LC/MS/MS



7.7.8  
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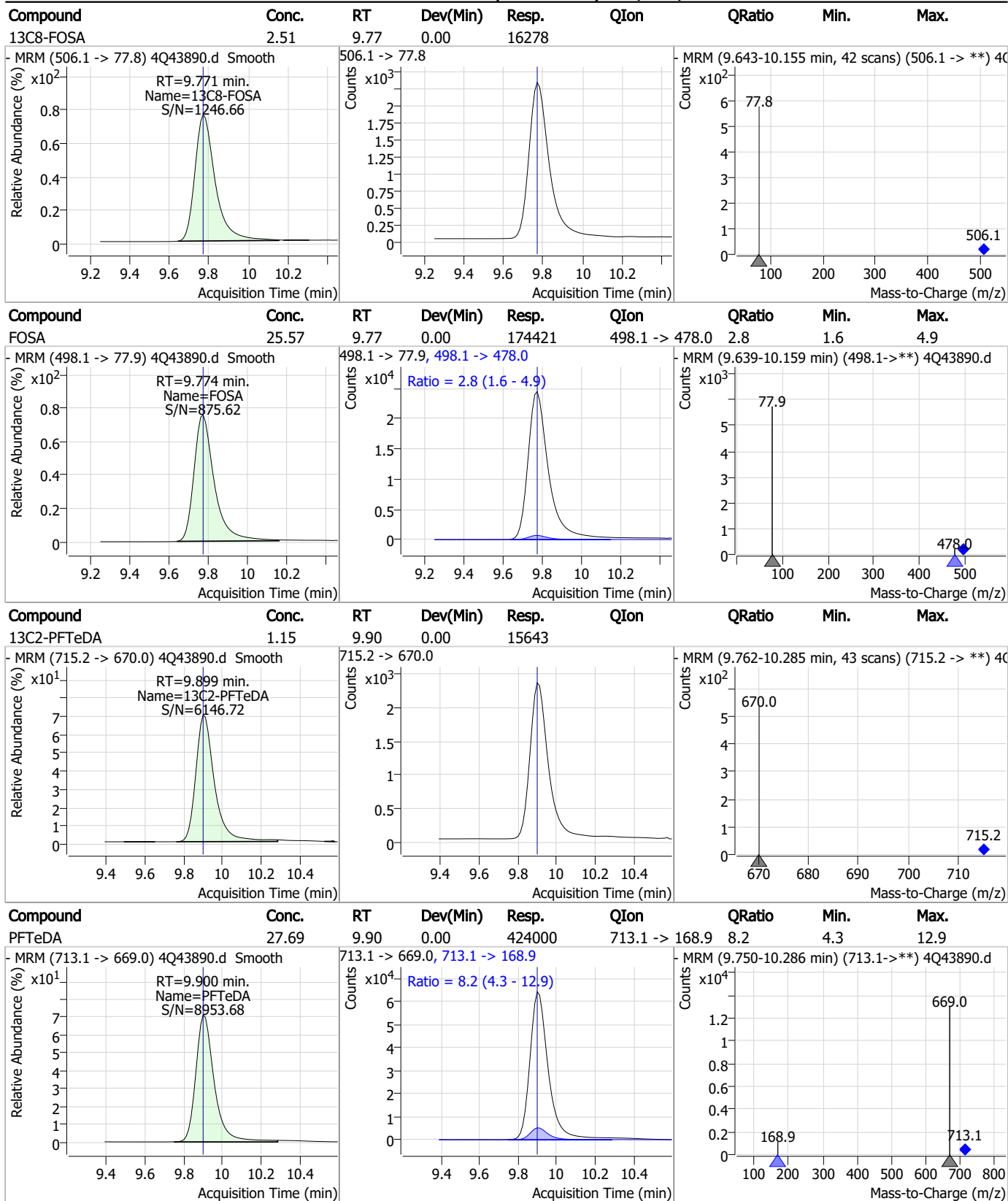


### Perfluorinated Compounds by LC/MS/MS



7.7.8  
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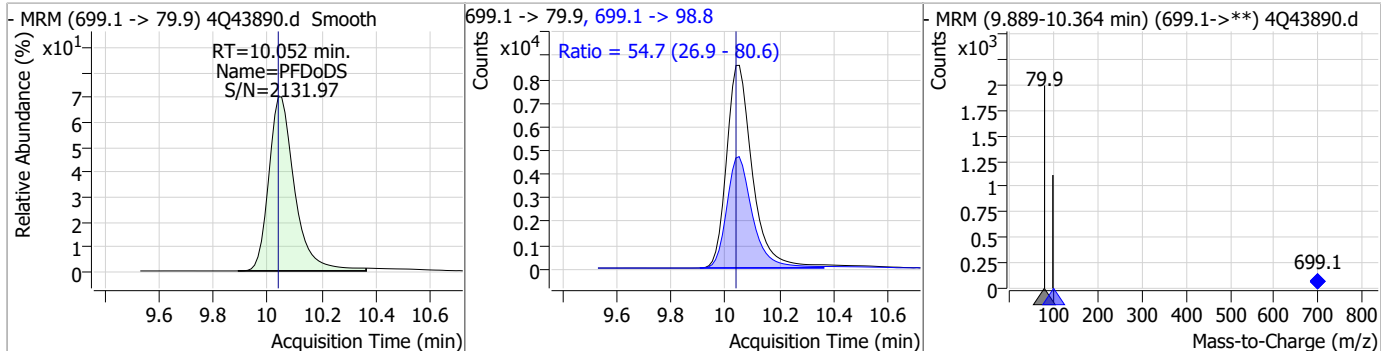
### Perfluorinated Compounds by LC/MS/MS



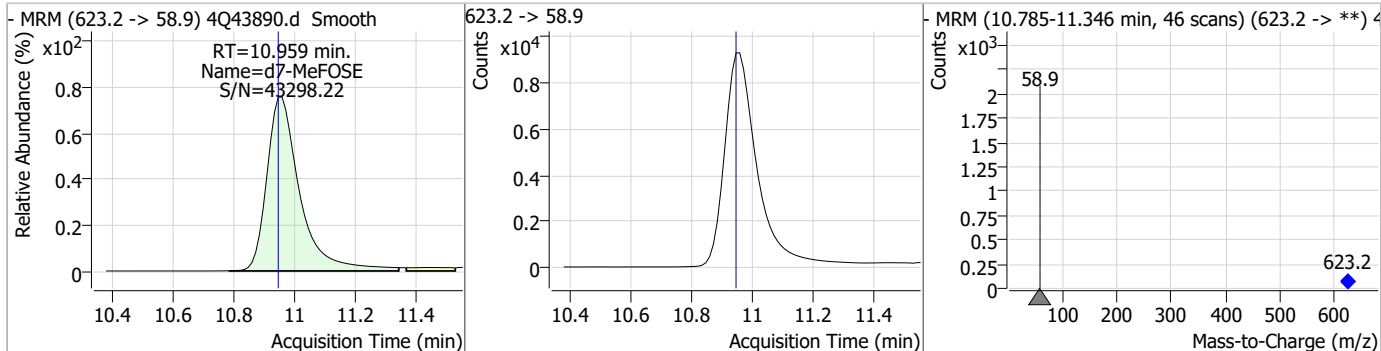
7.7.8  
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### Perfluorinated Compounds by LC/MS/MS

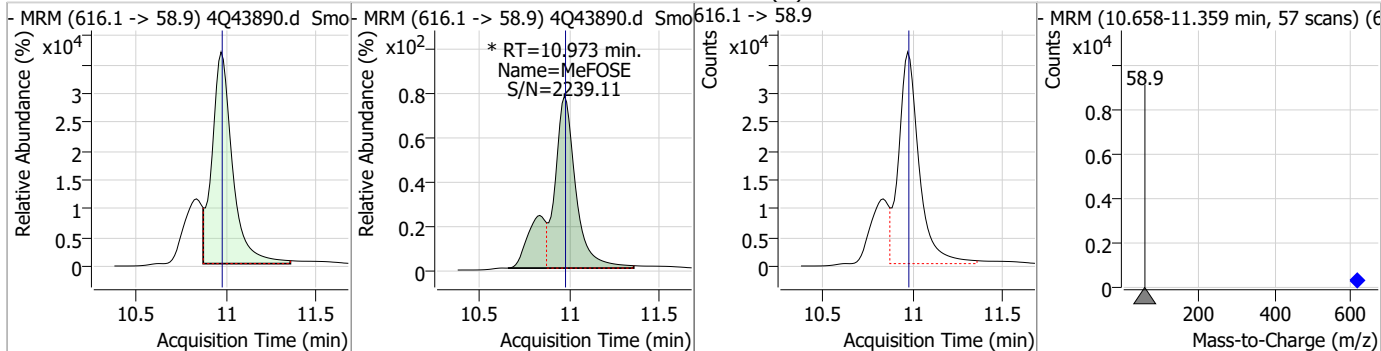
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	23.57	10.05	0.01	56691	699.1 -> 98.8	54.7	26.9	80.6



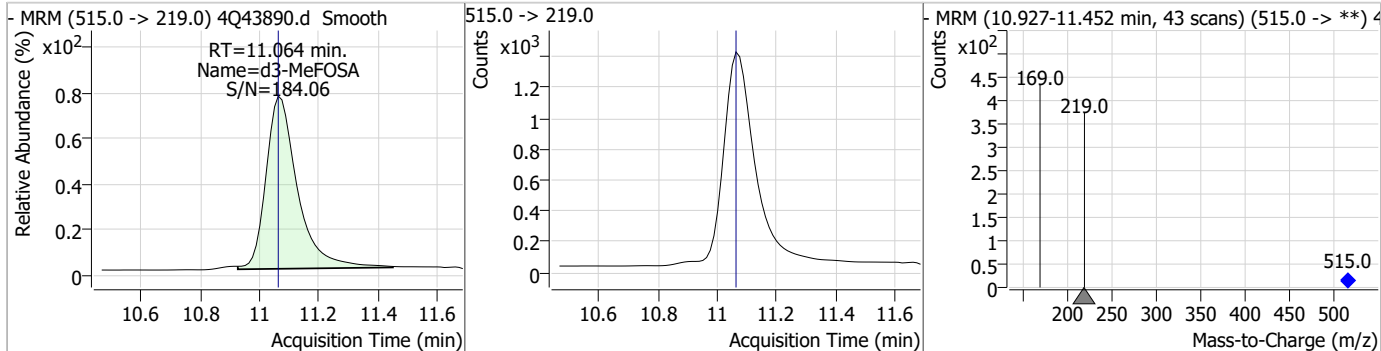
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.81	10.96	0.01	70051				



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

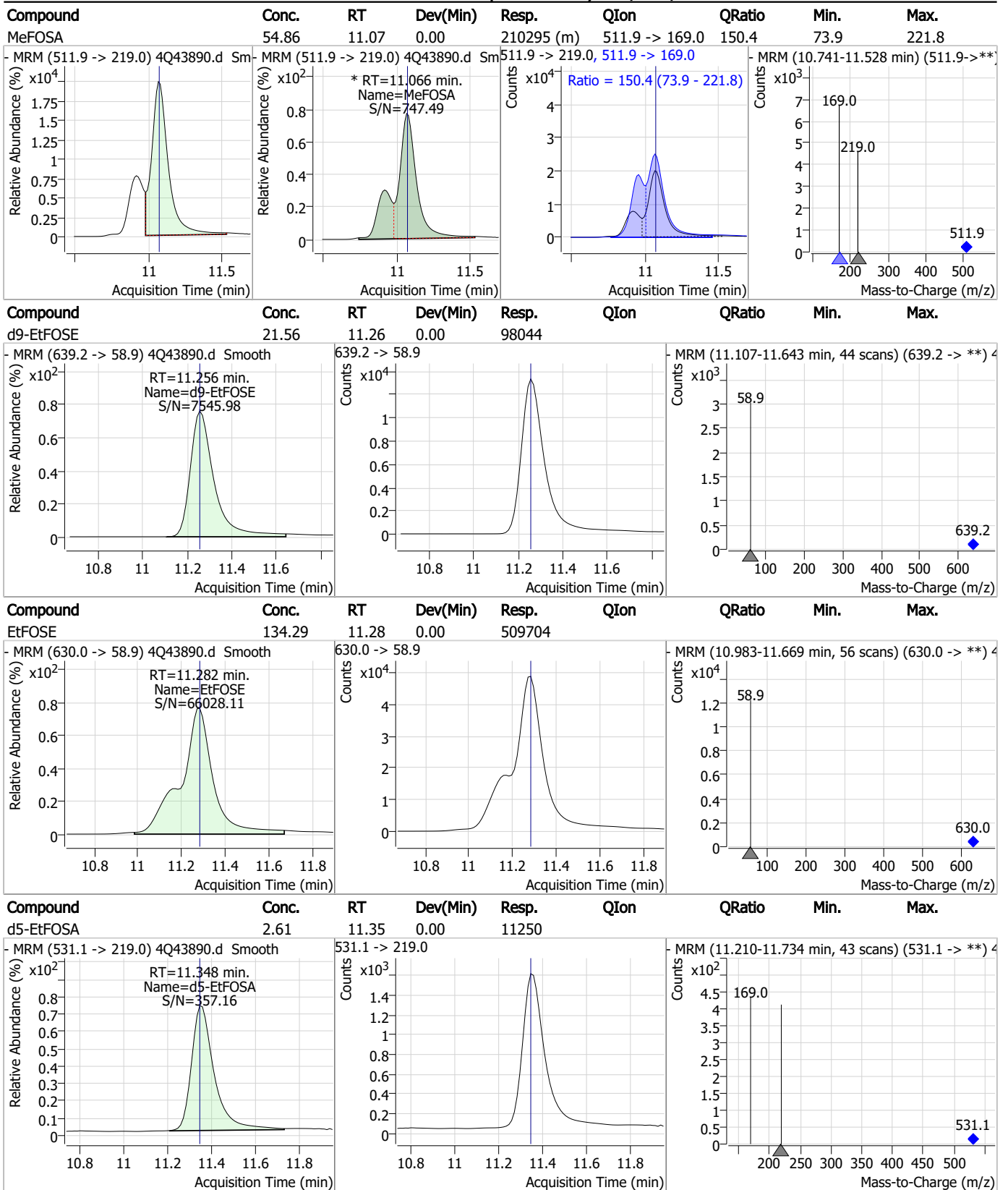


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.51	11.06	0.00	10176				



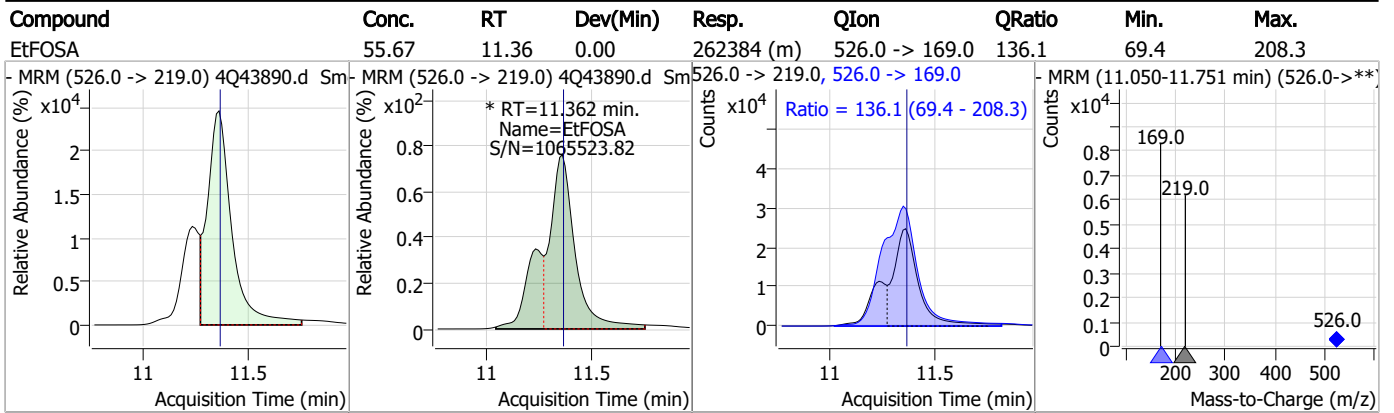
7.7.8  
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### Perfluorinated Compounds by LC/MS/MS



7.7.8  
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### Perfluorinated Compounds by LC/MS/MS



7.7.8

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# Manual Integration Approval Summary

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

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

7.7.8.1  
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43891.d  
 Operator : natashag  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/3/2023 12:50:36 PM  
 Sample Name : ic634-8  
 Vial : P1-A9  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q634.batch.bin  
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

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

7.7.9  
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### Perfluorinated Compounds by LC/MS/MS

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

7.7.9  
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Perfluorinated Compounds by LC/MS/MS

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

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

7.7.9  
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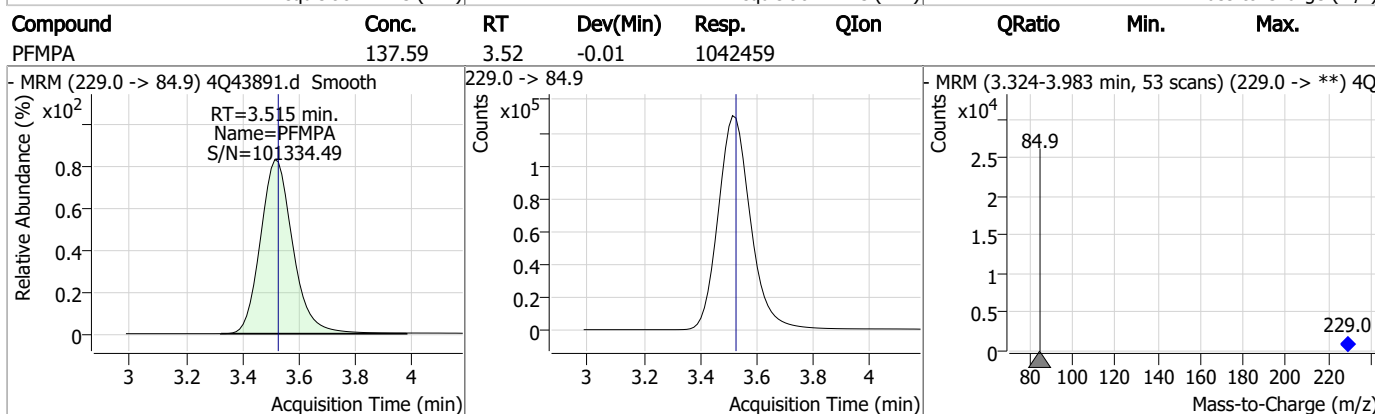
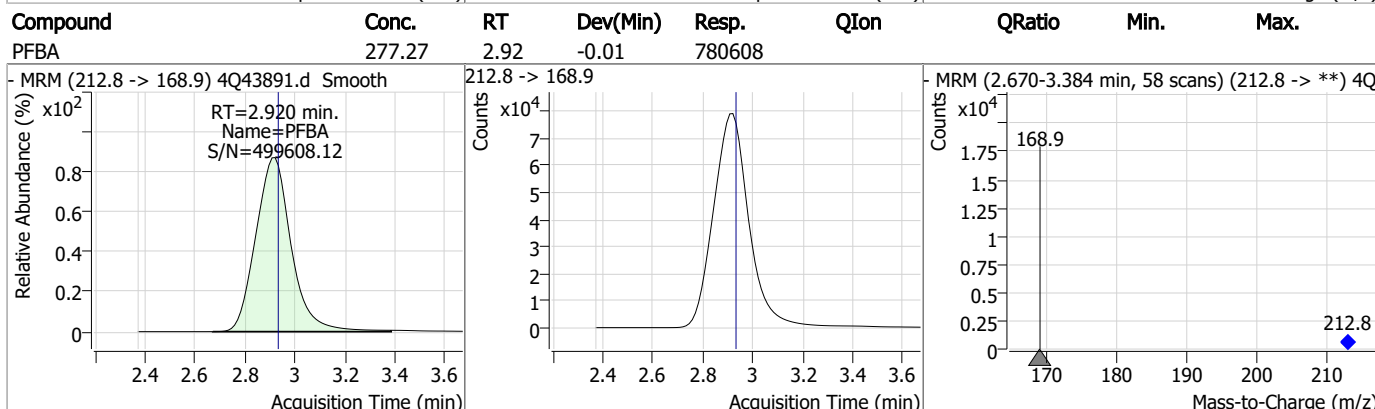
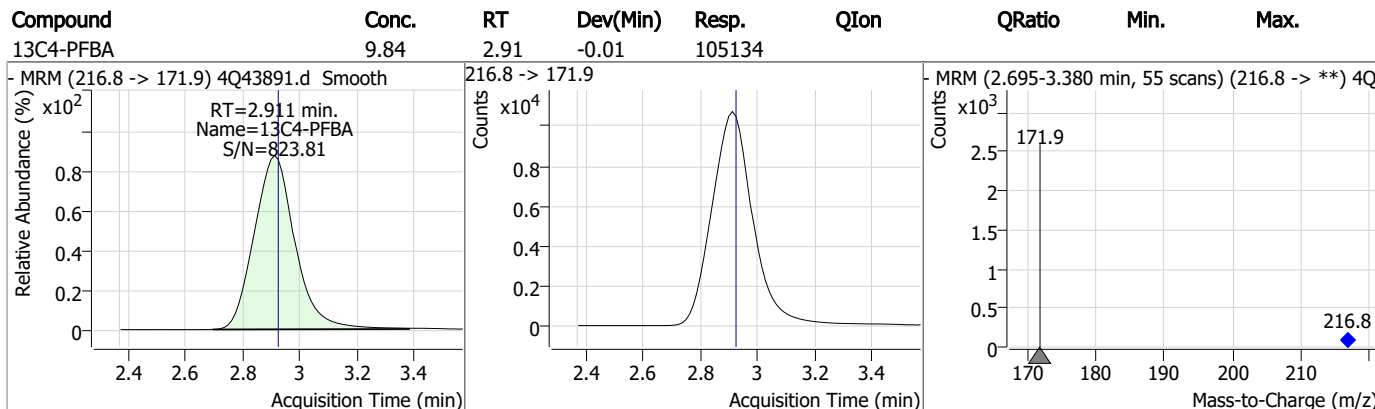
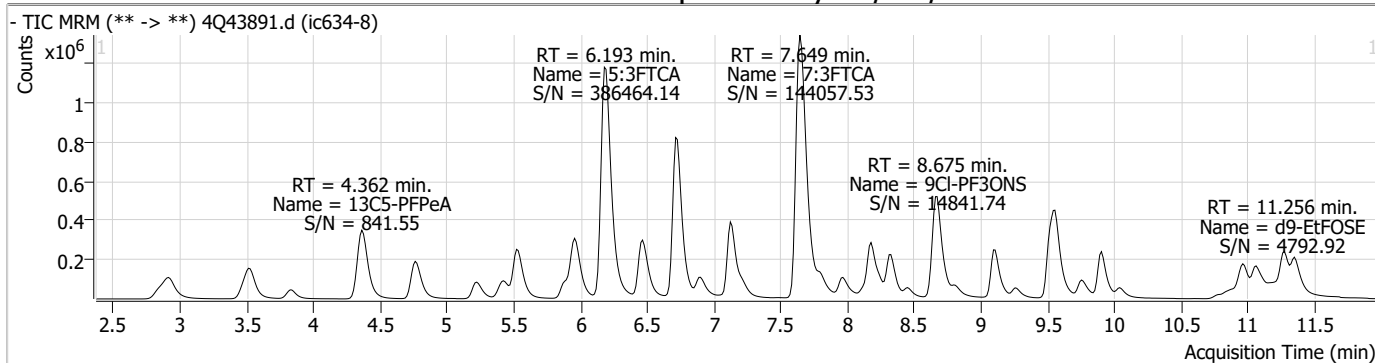
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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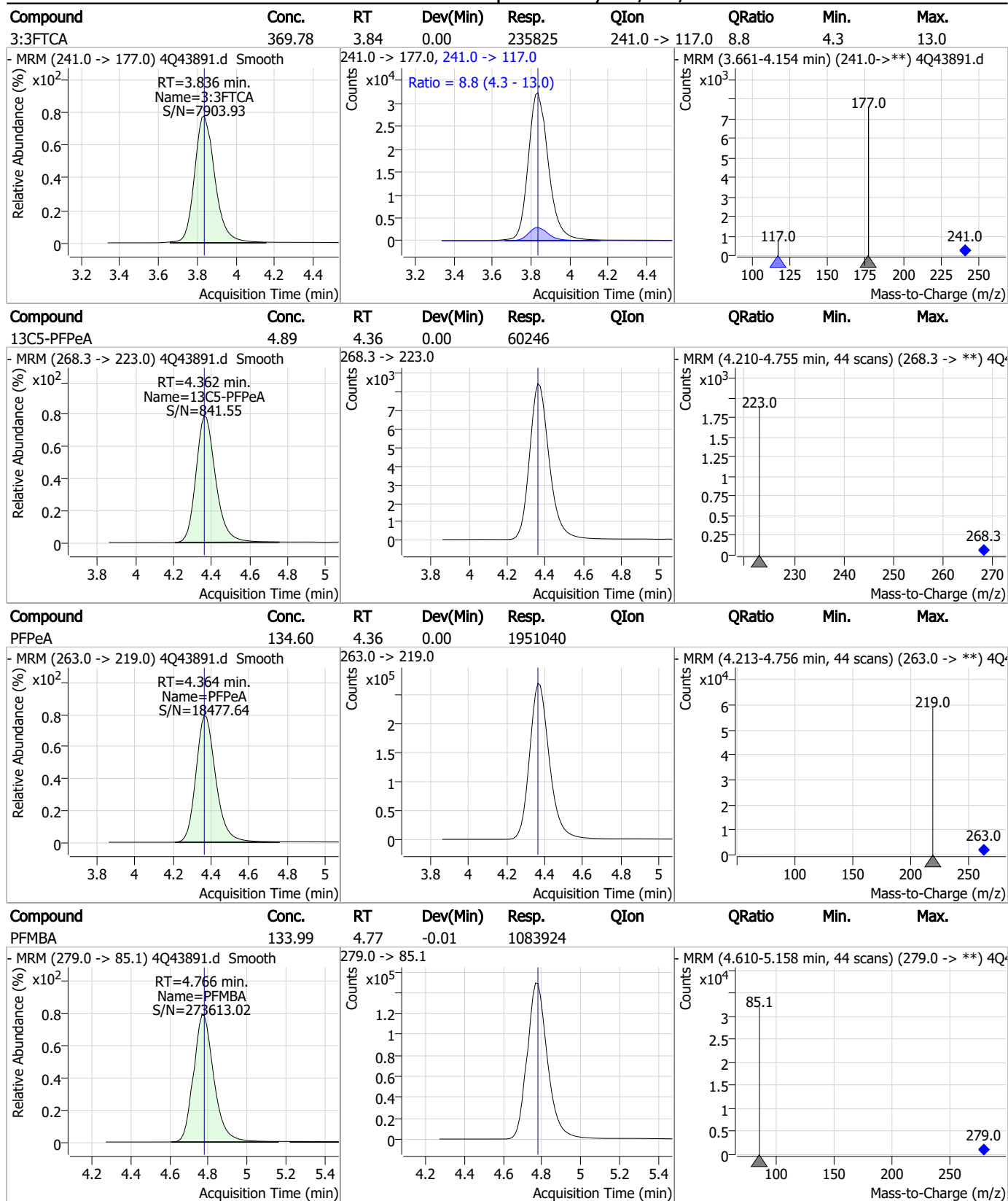
7.7.9

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### Perfluorinated Compounds by LC/MS/MS



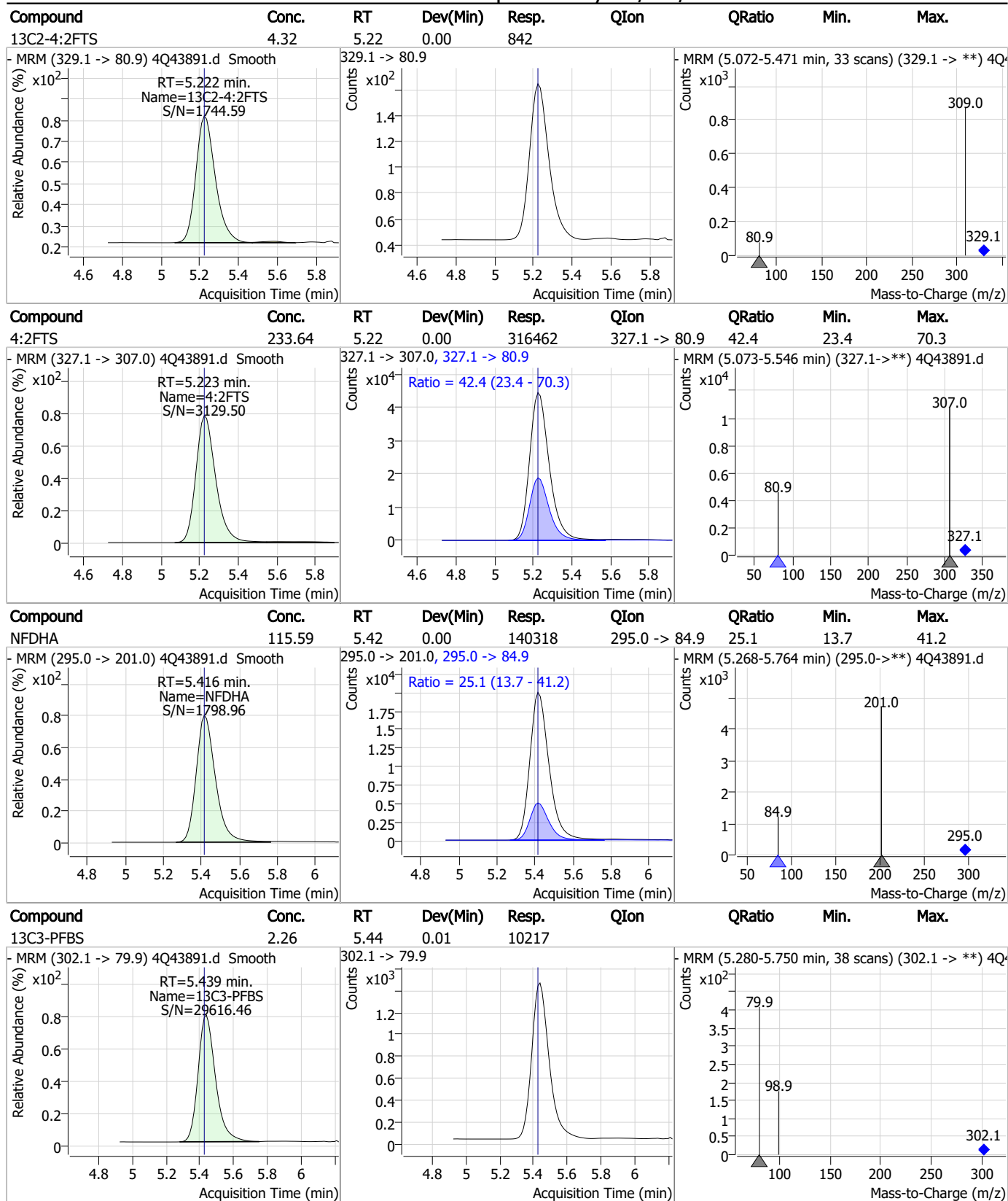
### Perfluorinated Compounds by LC/MS/MS



7.7.9

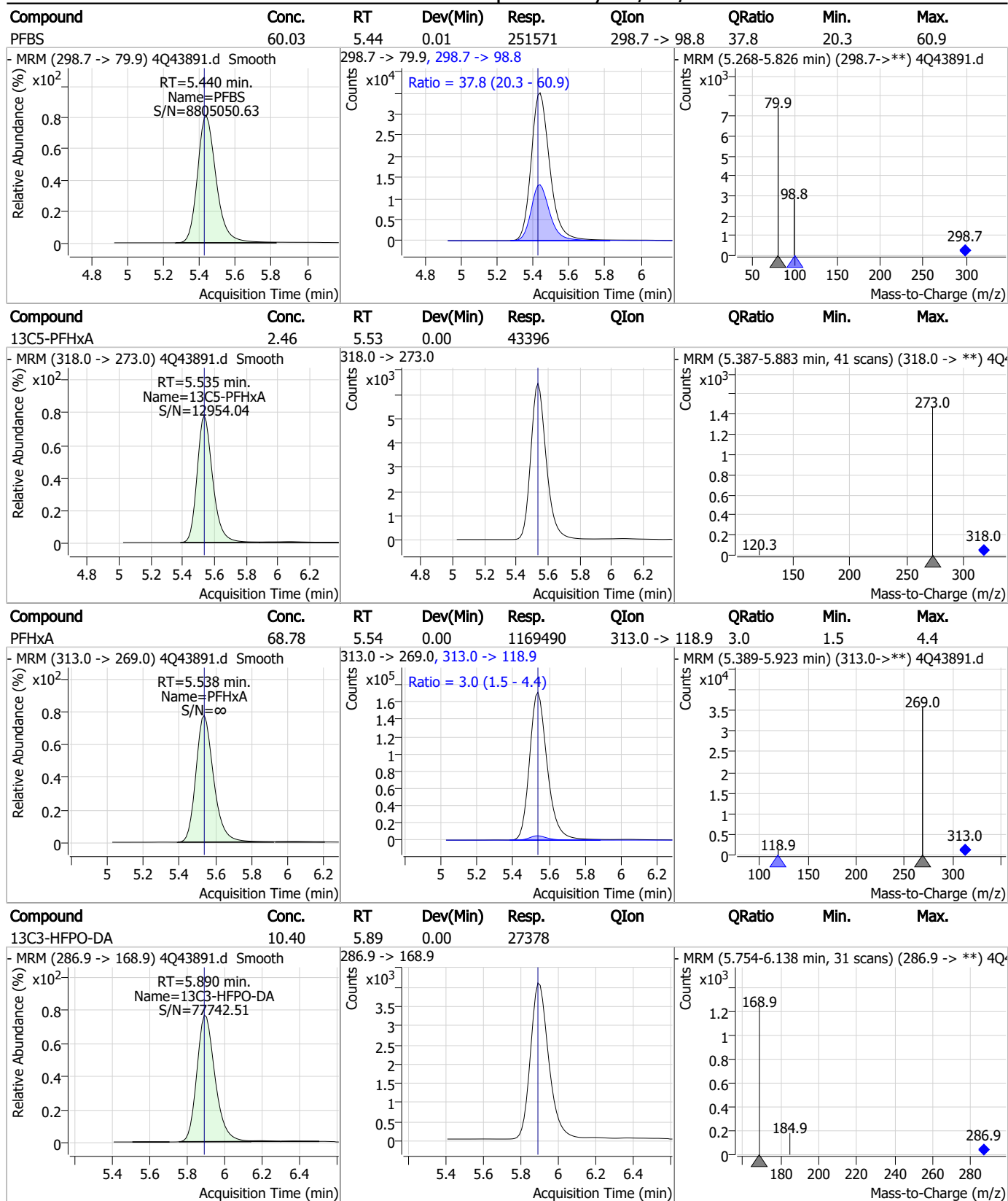
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### Perfluorinated Compounds by LC/MS/MS



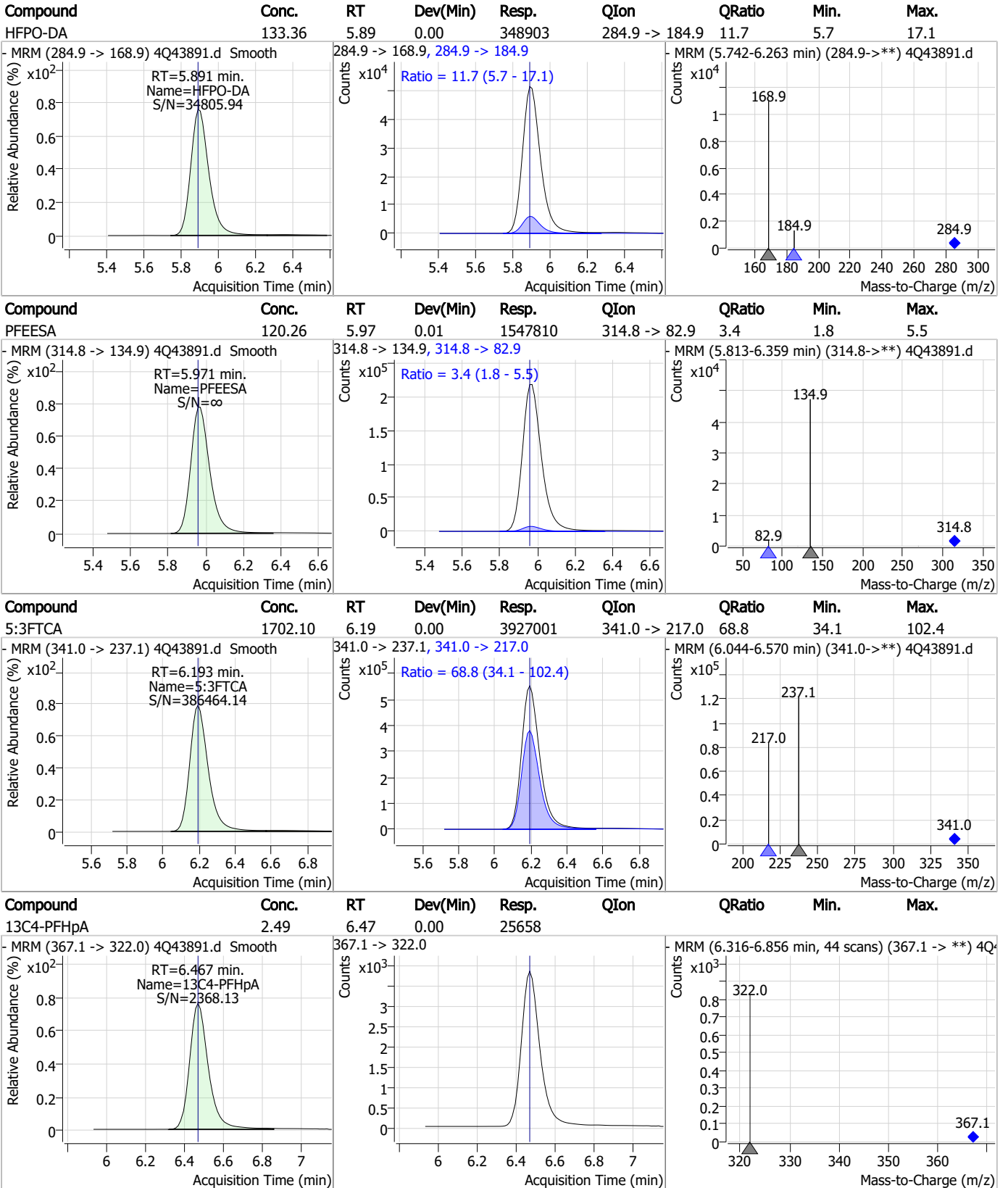
7.7.9  
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### Perfluorinated Compounds by LC/MS/MS



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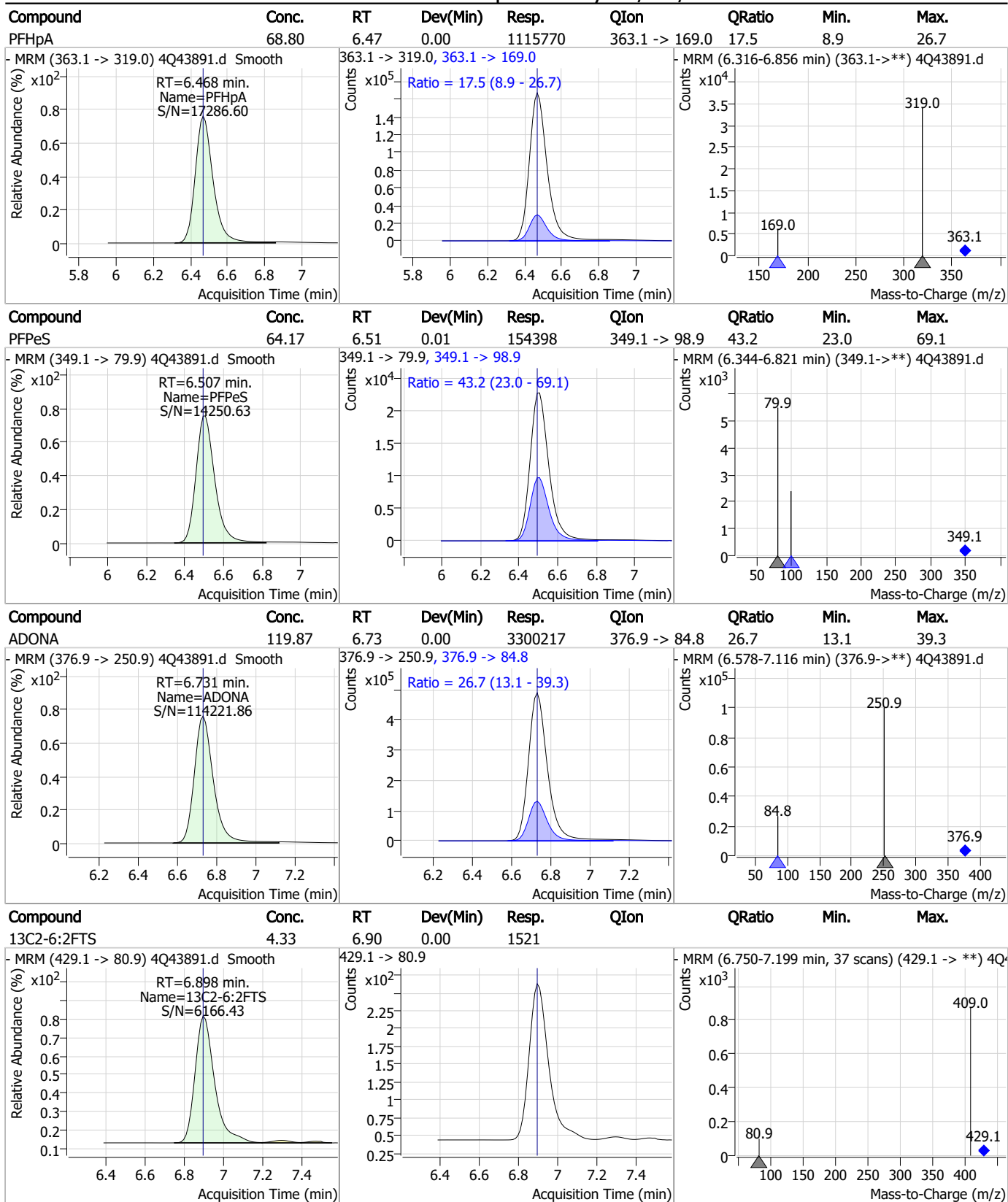
### Perfluorinated Compounds by LC/MS/MS



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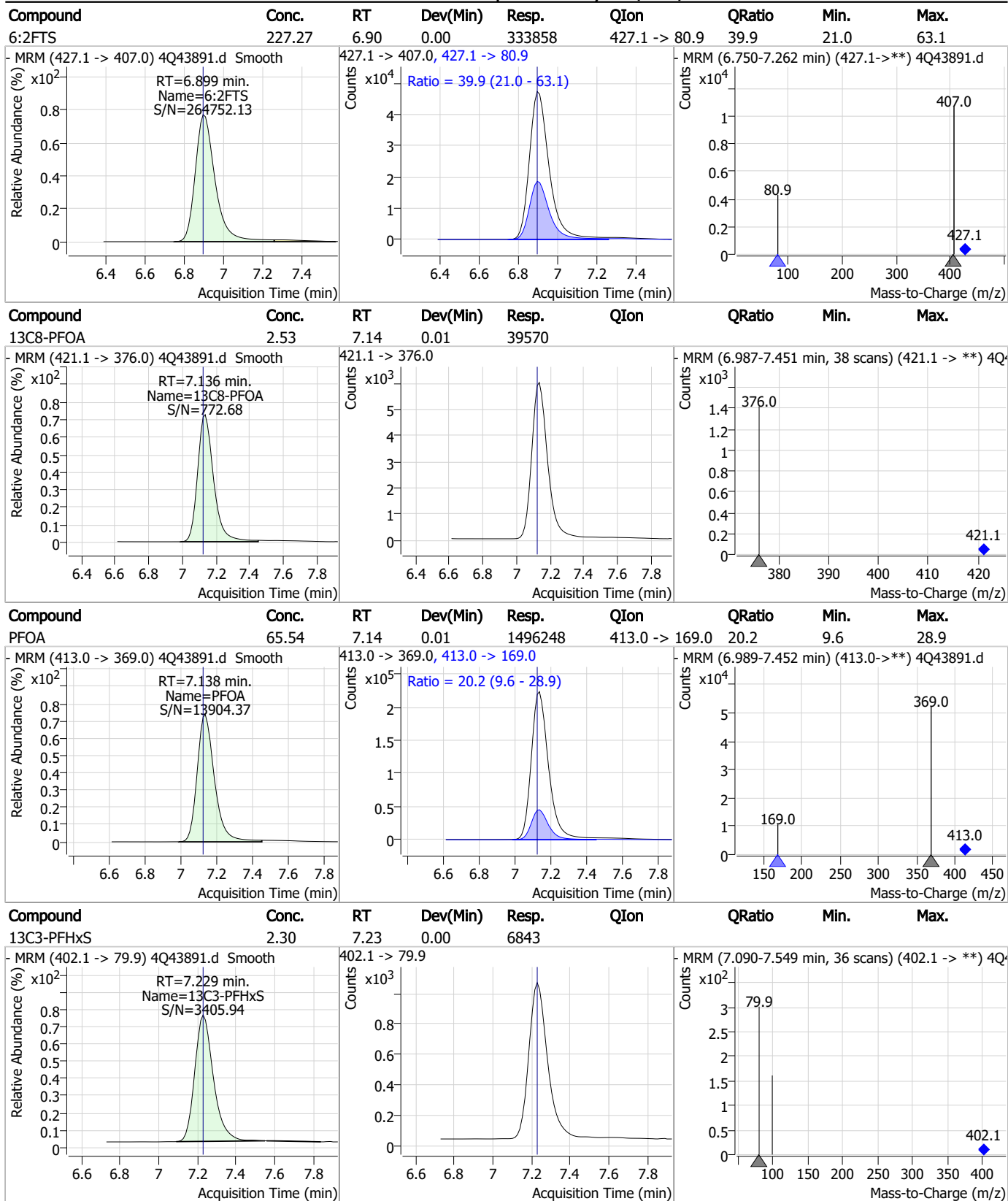
### Perfluorinated Compounds by LC/MS/MS



7.7.9  
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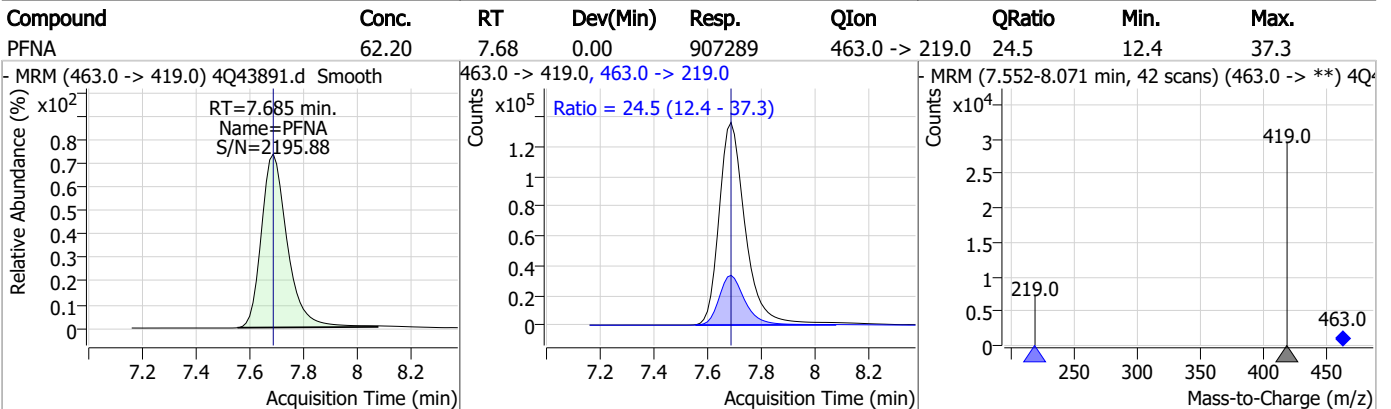
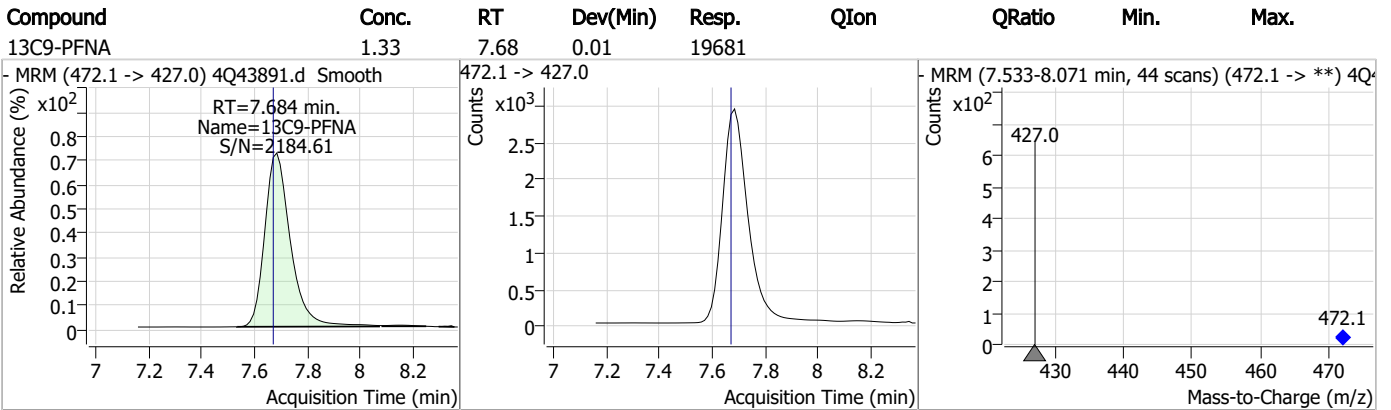
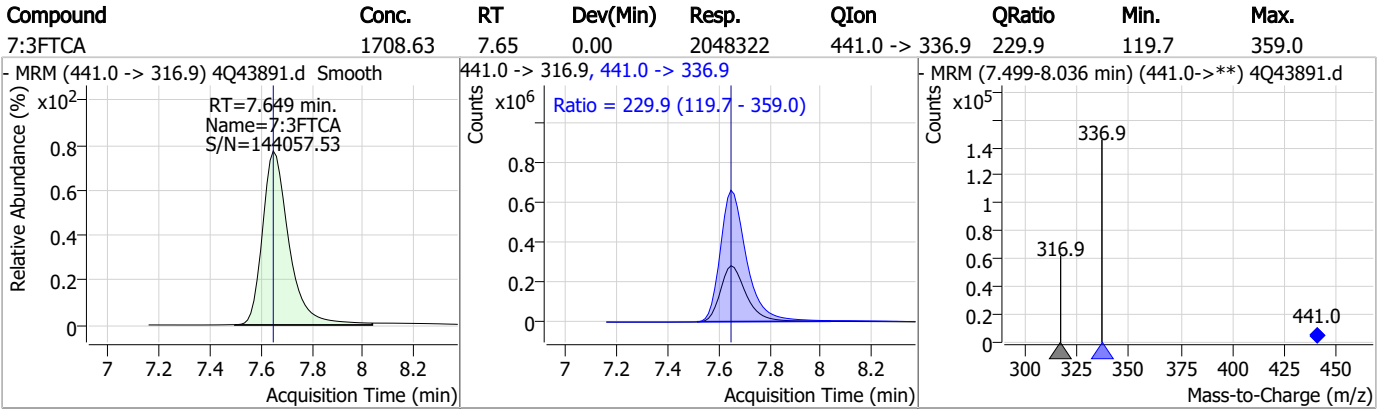
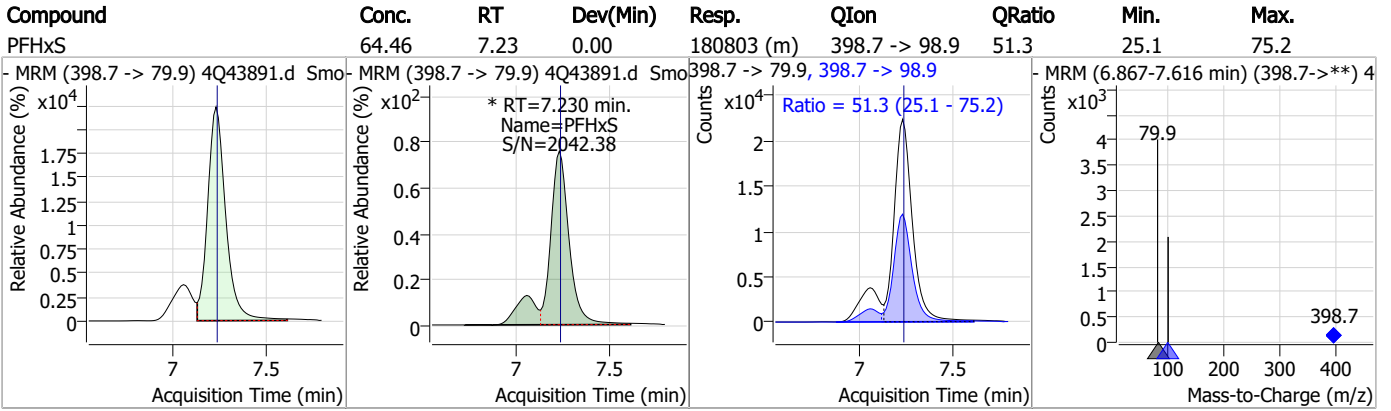


### Perfluorinated Compounds by LC/MS/MS



7.7.9  
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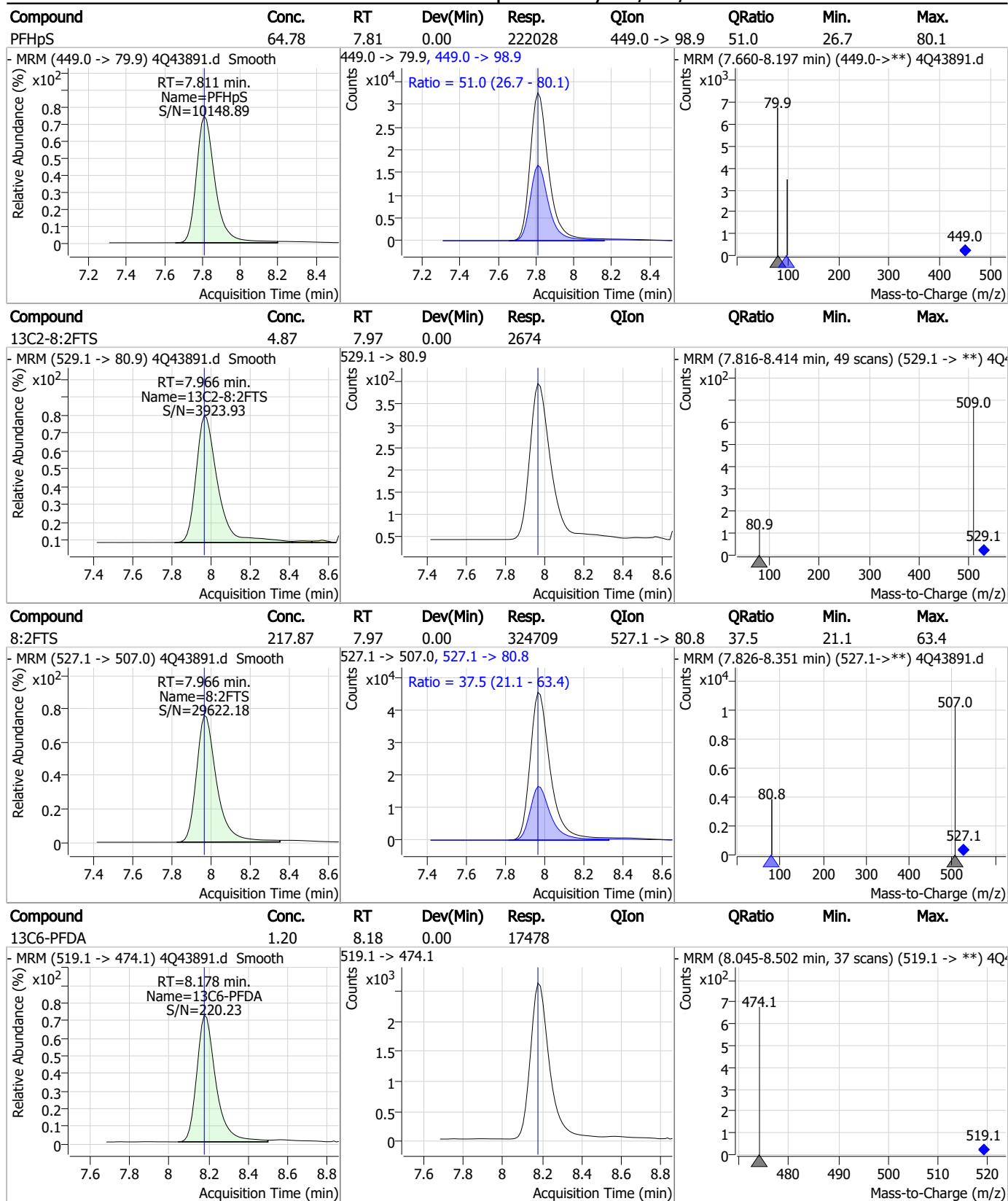
### Perfluorinated Compounds by LC/MS/MS



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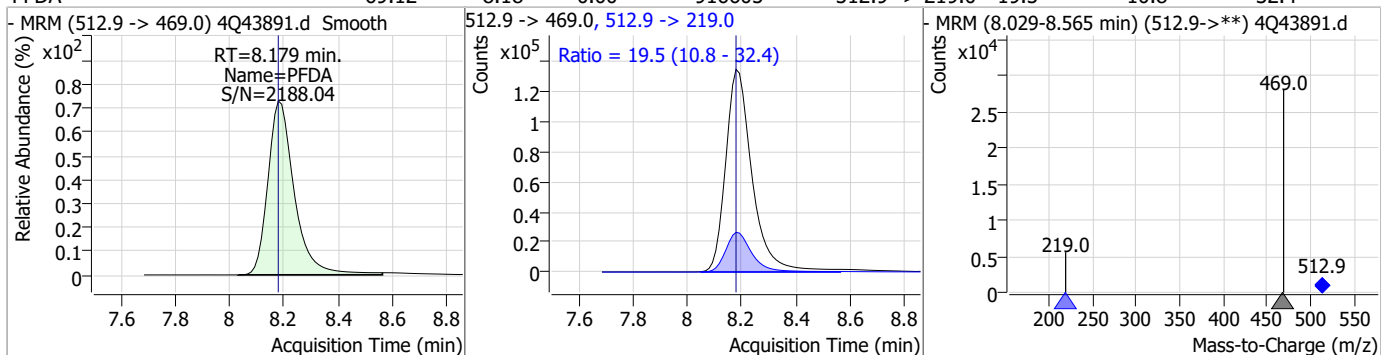
### Perfluorinated Compounds by LC/MS/MS



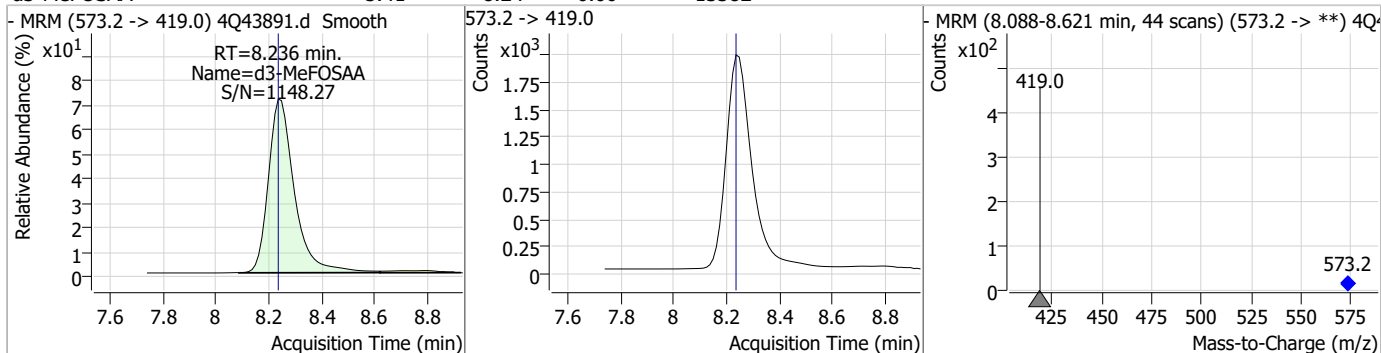
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### Perfluorinated Compounds by LC/MS/MS

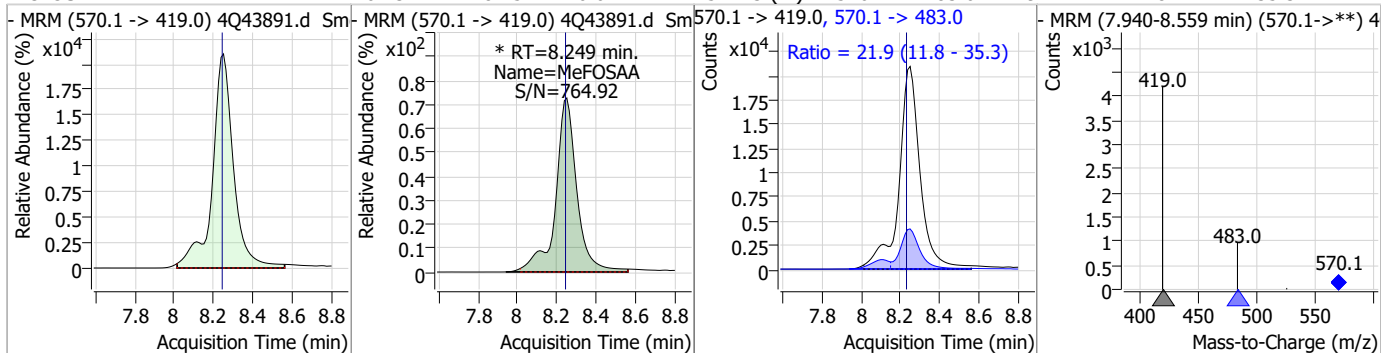
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	69.12	8.18	0.00	916605	512.9 -> 219.0	19.5	10.8	32.4



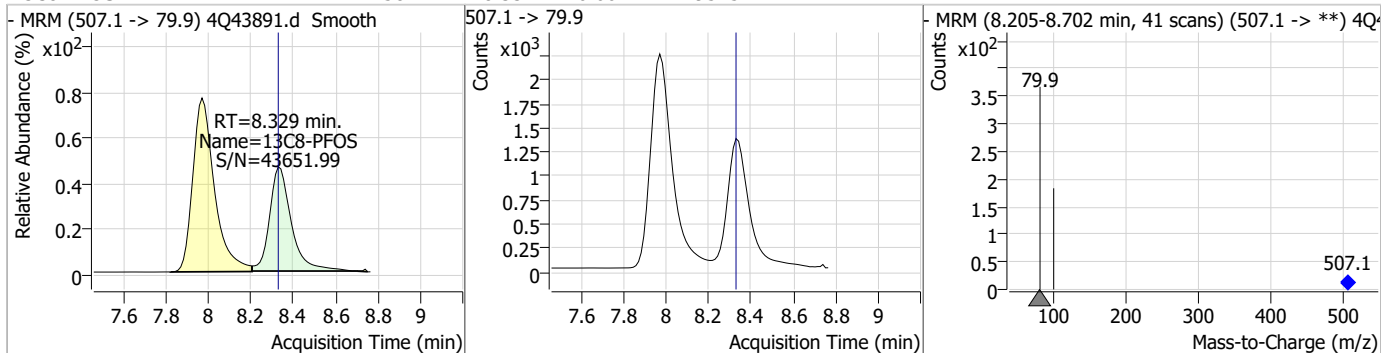
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.41	8.24	0.00	13382				



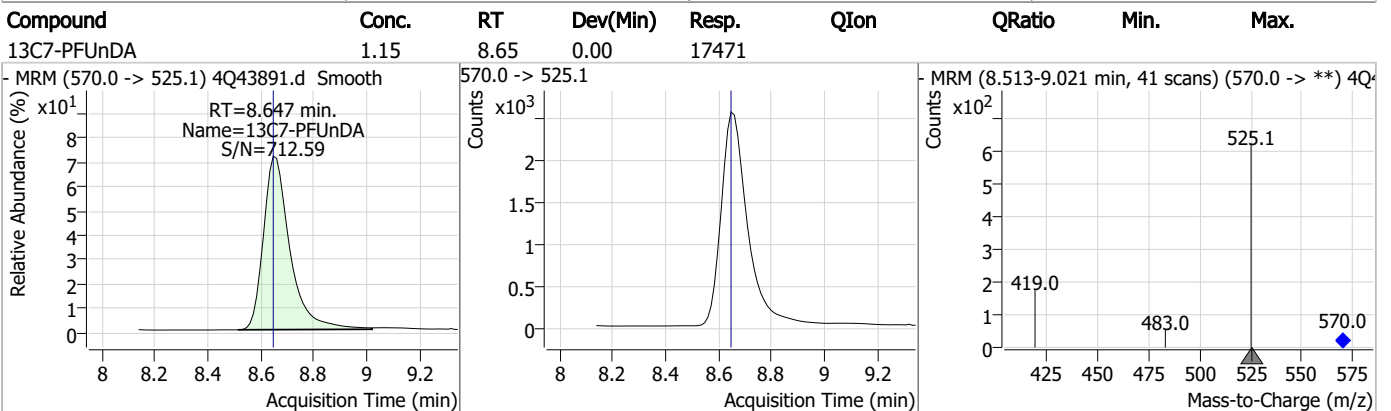
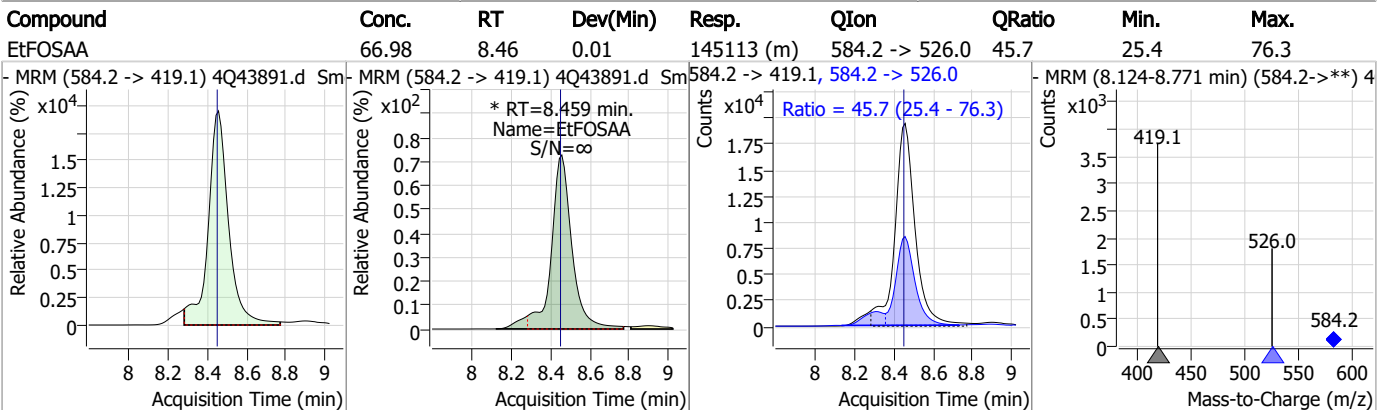
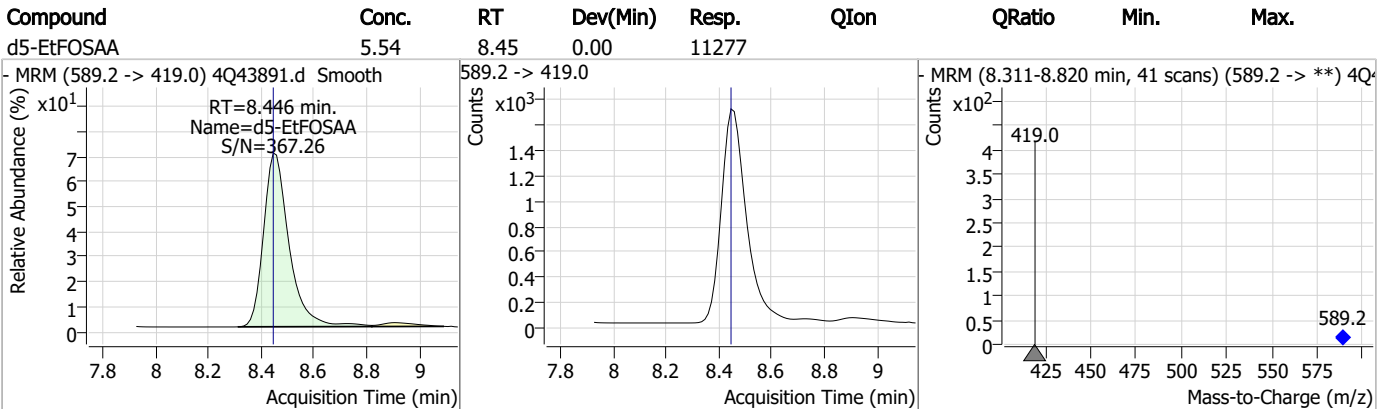
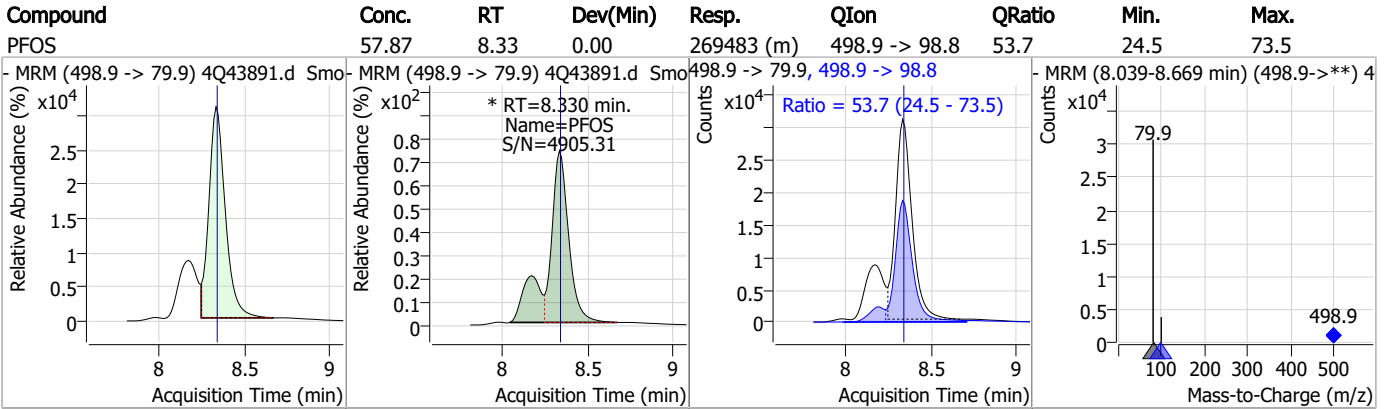
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	67.37	8.25	0.01	157123 (m)	570.1 -> 483.0	21.9	11.8	35.3



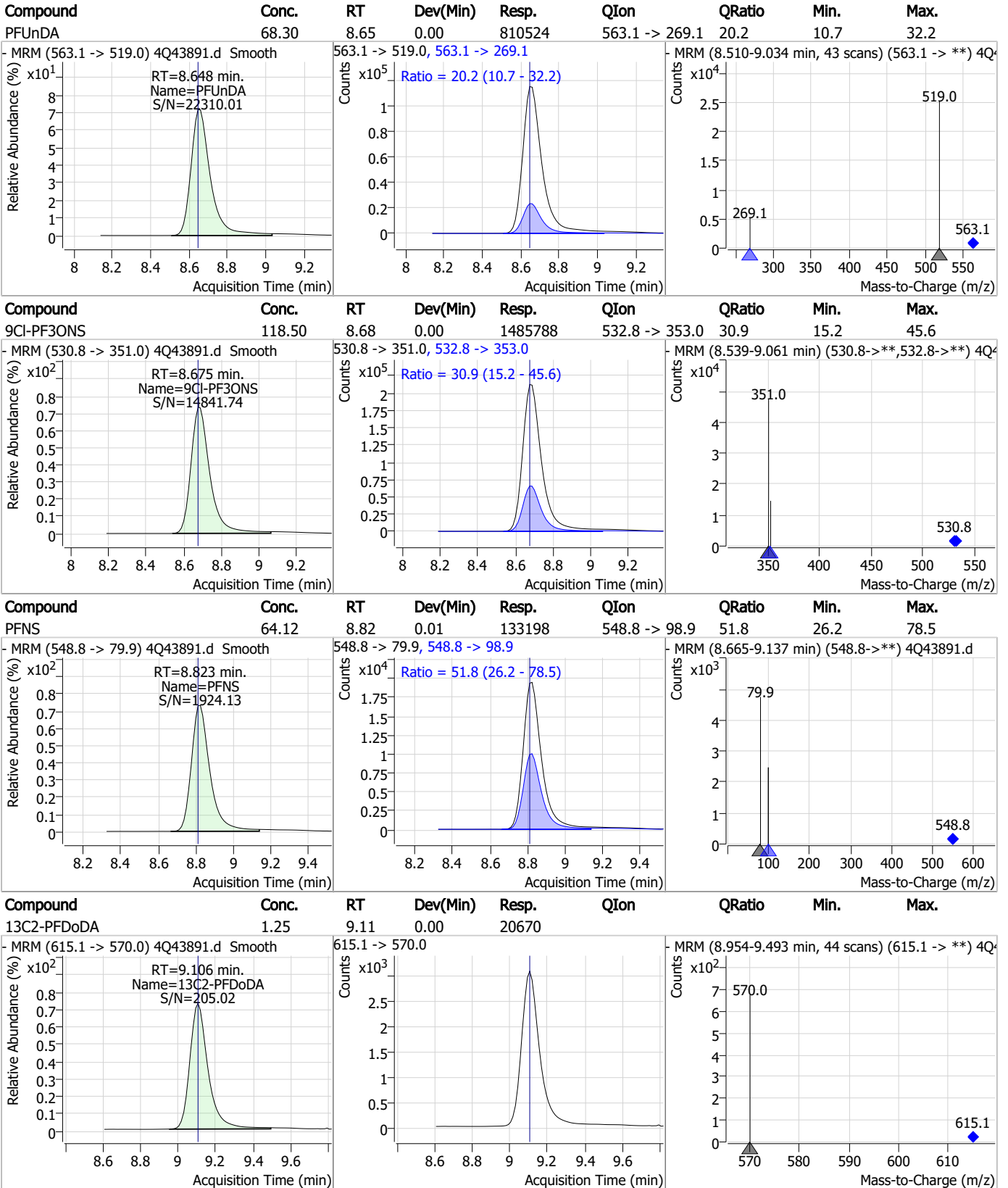
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.58	8.33	0.00	9515				



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

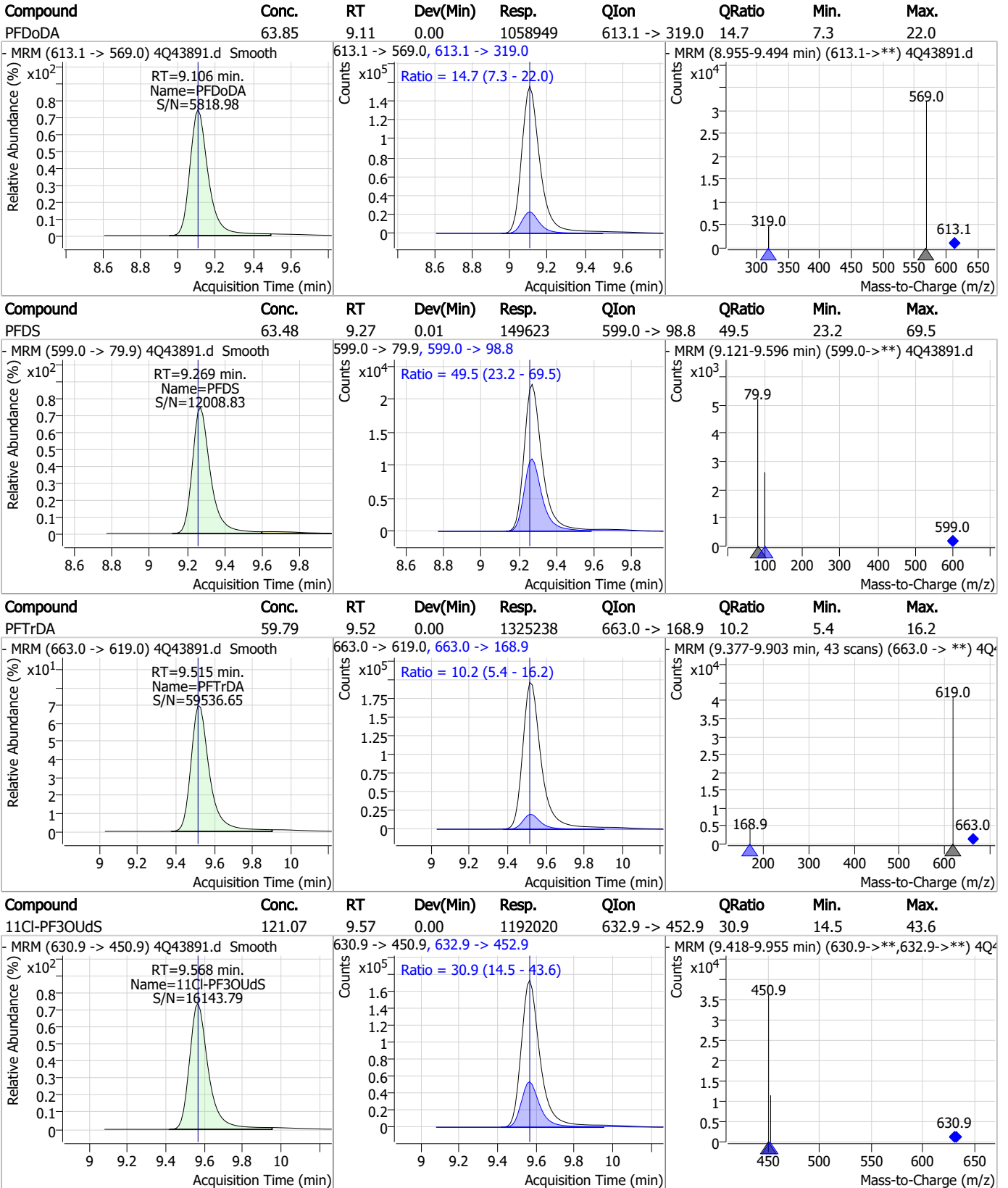


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### Perfluorinated Compounds by LC/MS/MS

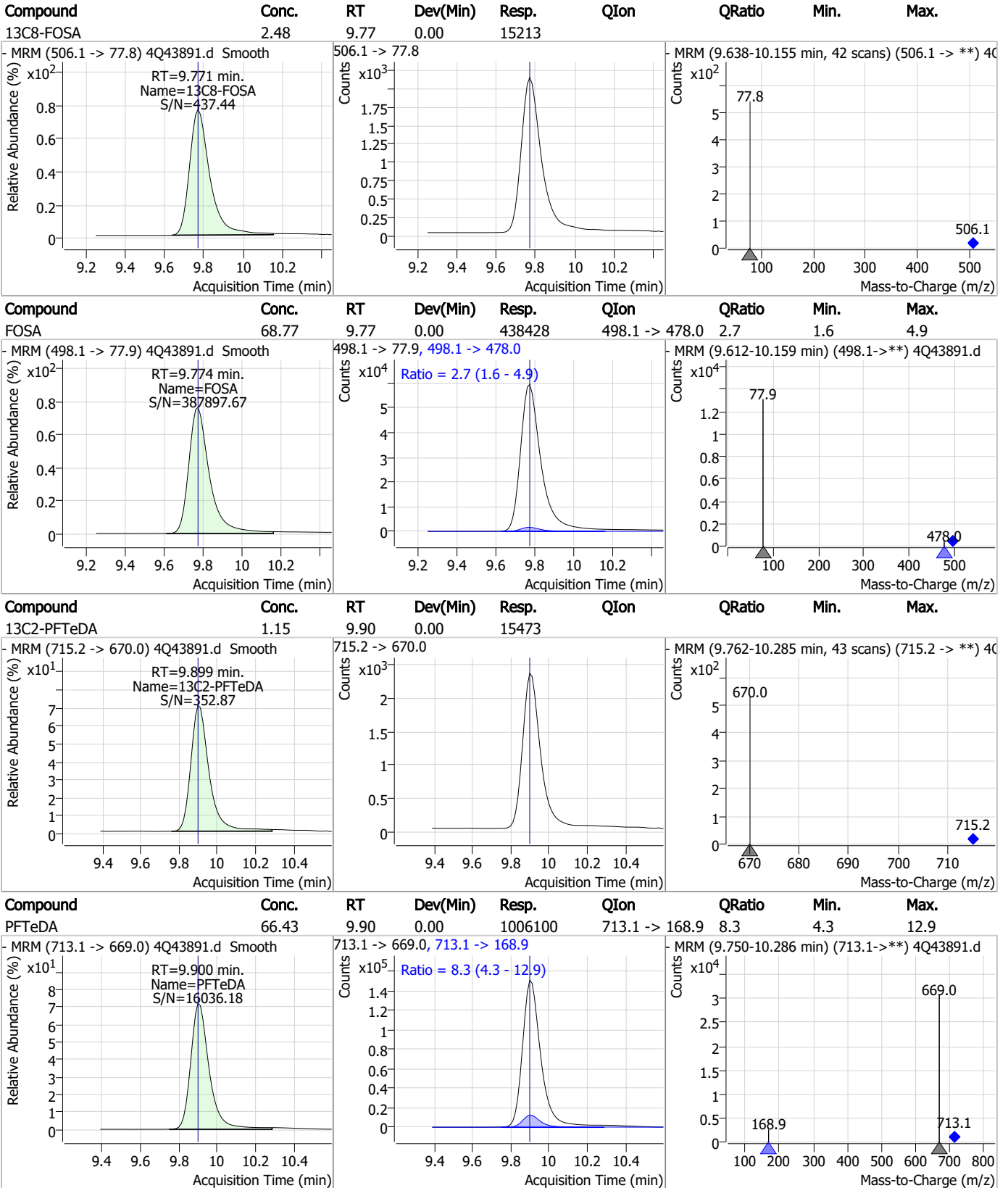


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### Perfluorinated Compounds by LC/MS/MS



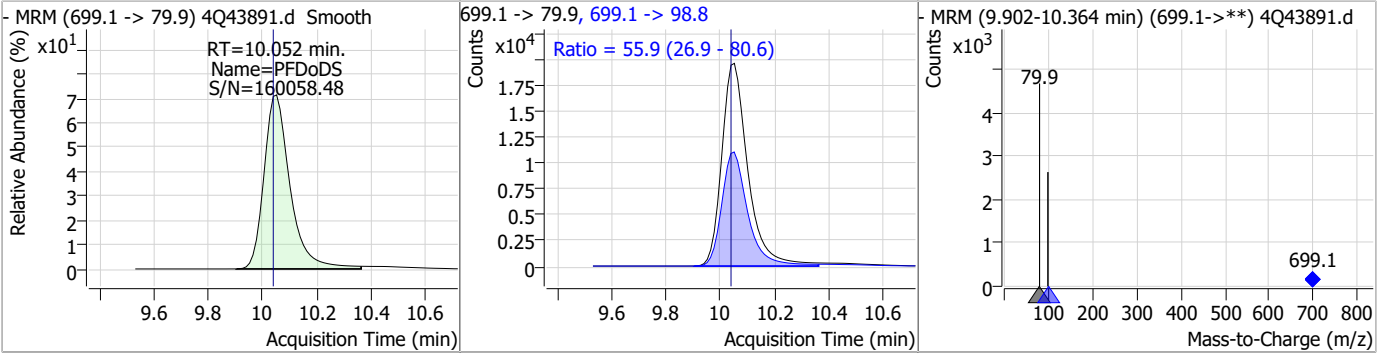
7.7.9

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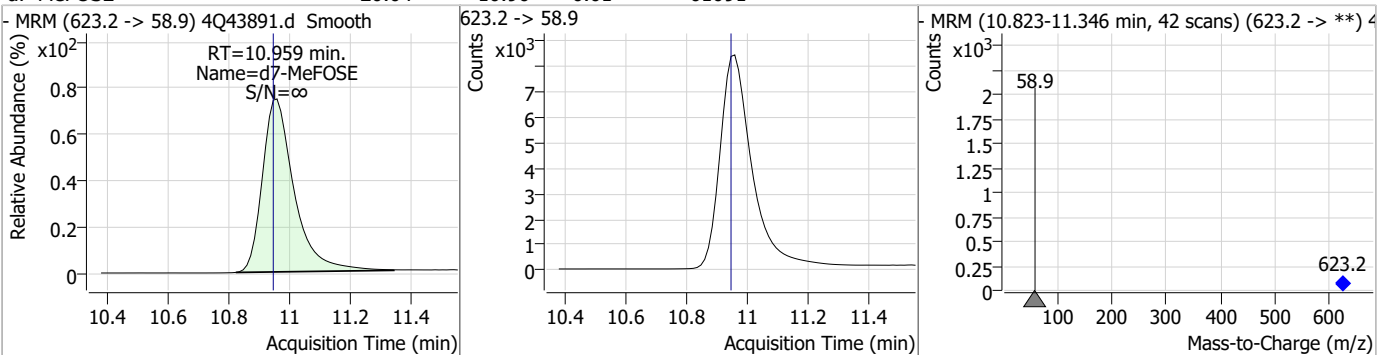


### Perfluorinated Compounds by LC/MS/MS

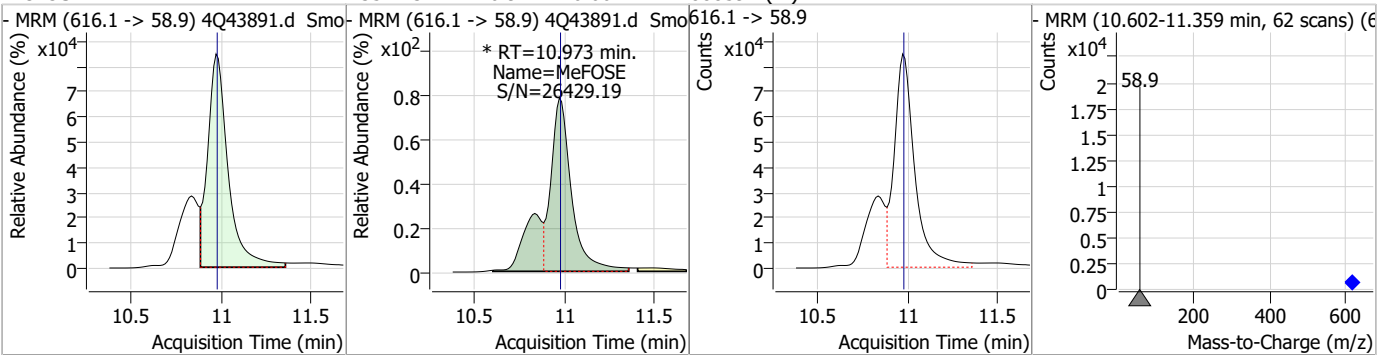
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	62.37	10.05	0.01	131199	699.1 -> 98.8	55.9	26.9	80.6



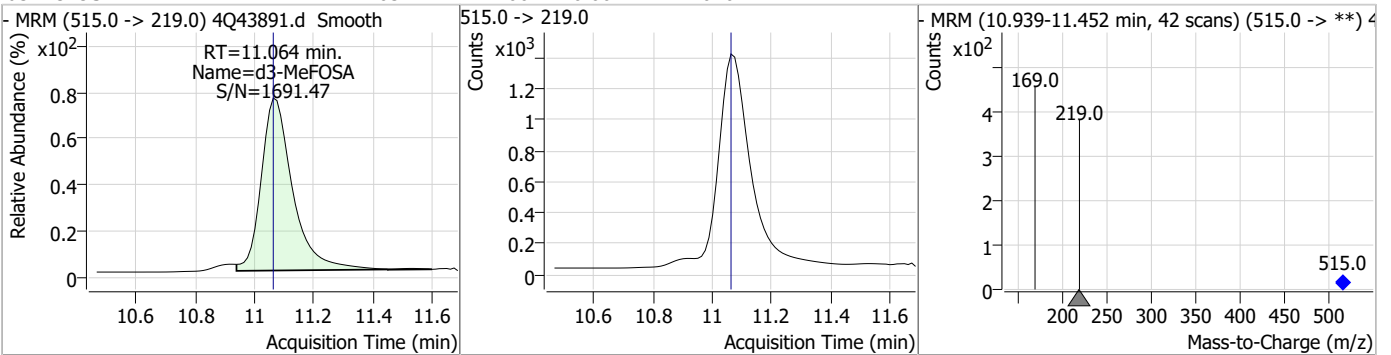
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.04	10.96	0.01	61091				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	354.13	10.97	0.00	888597 (m)				

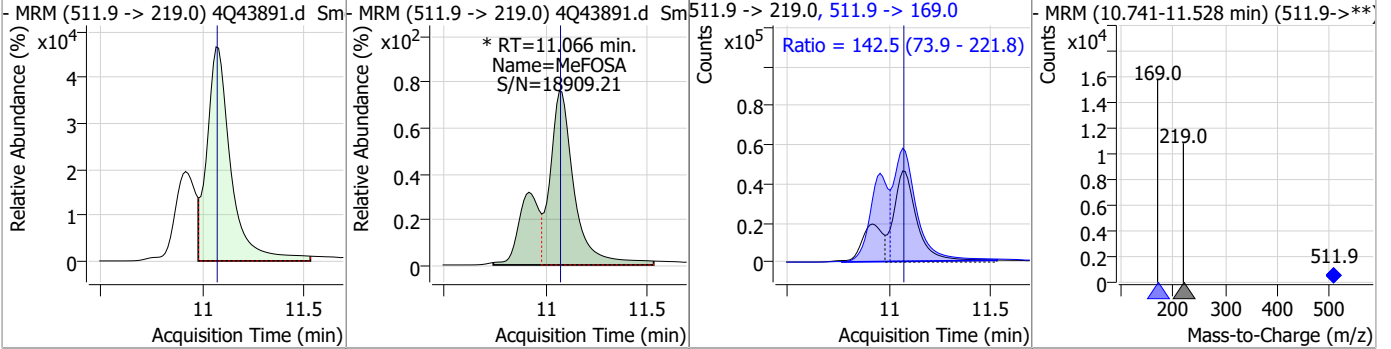


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.63	11.06	0.00	10104				

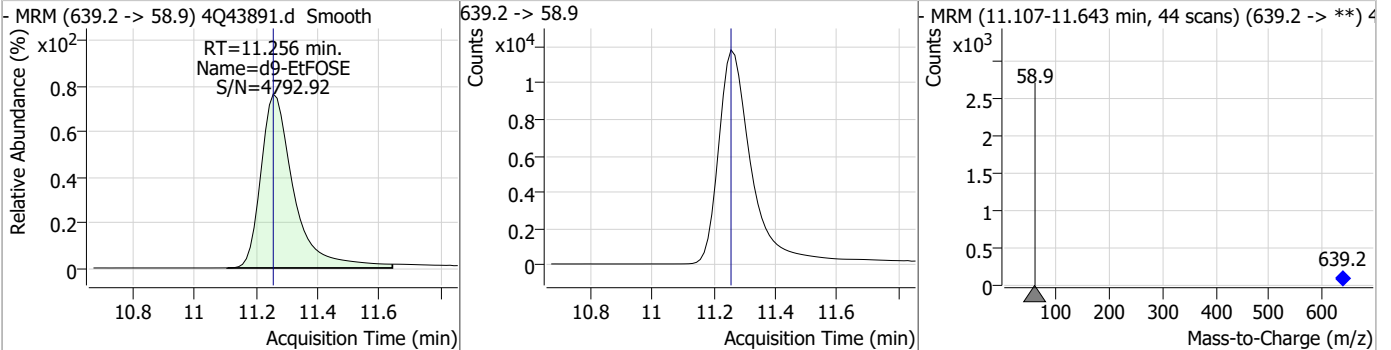


### Perfluorinated Compounds by LC/MS/MS

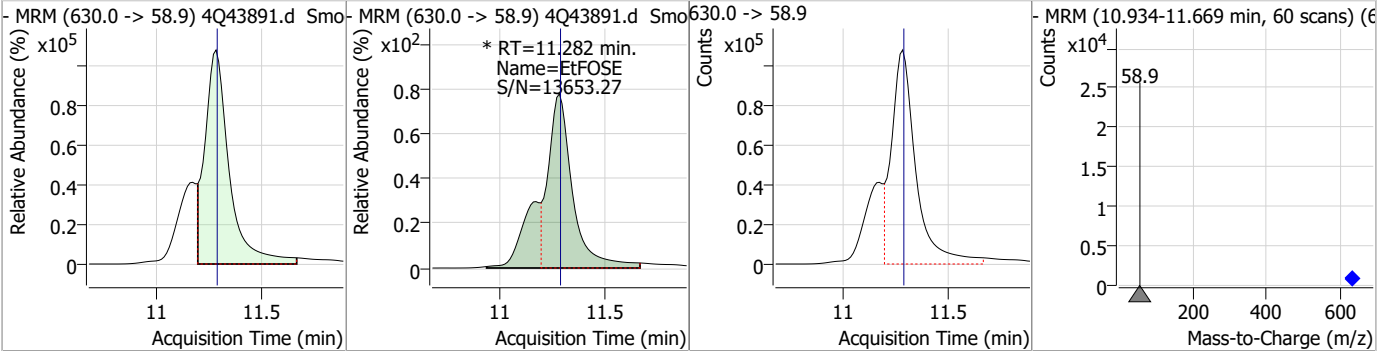
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	135.61	11.07	0.00	516182 (m)	511.9 -> 169.0	142.5	73.9	221.8



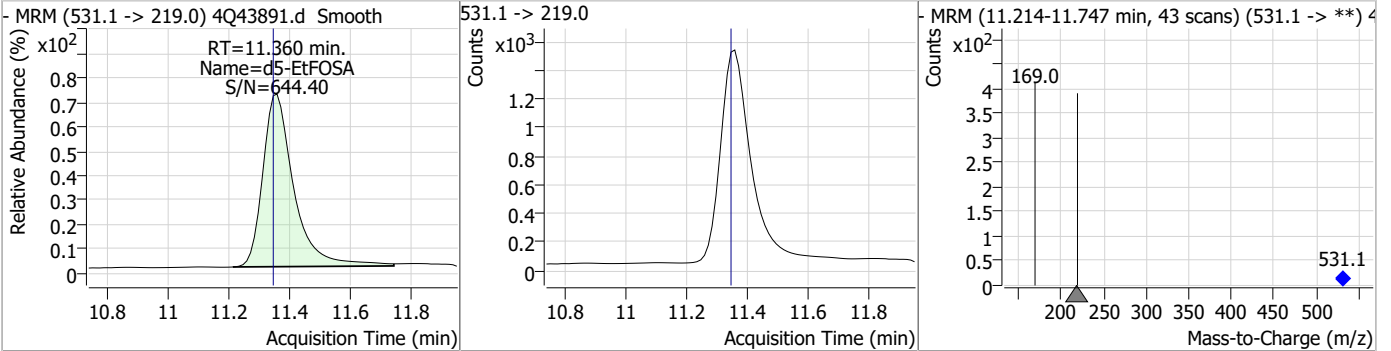
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.25	11.26	0.00	87409				



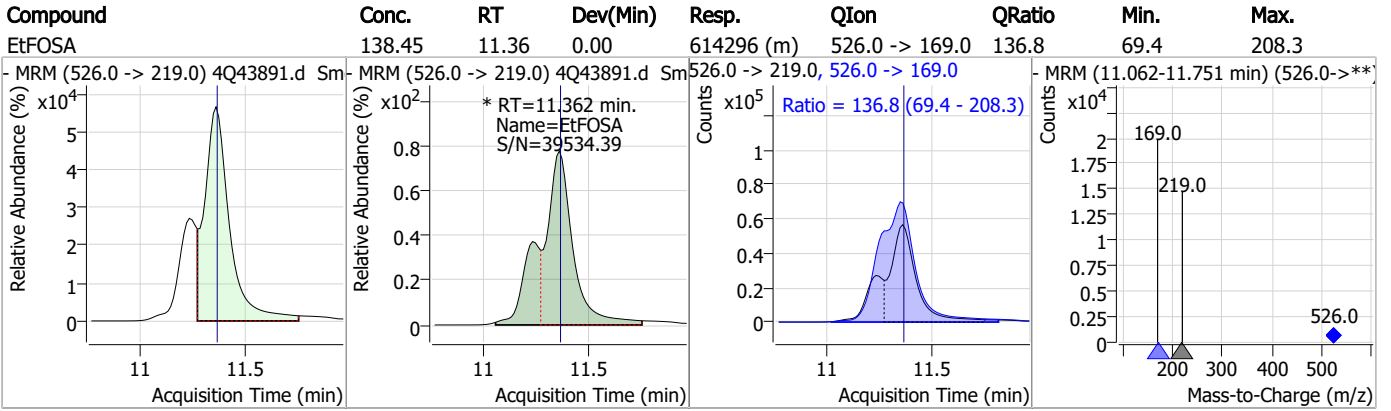
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	339.18	11.28	0.00	1147731 (m)				



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



### Perfluorinated Compounds by LC/MS/MS



7.7.9

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# Manual Integration Approval Summary

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

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

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

7.7.9.1  
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43894.d  
 Operator : natashag  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/3/2023 1:20:27 PM  
 Sample Name : icv634-20  
 Vial : P1-B4  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q634.batch.bin  
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.961	216.8 -> 171.9	130791	10.00 µg/L	0.037
M5-PFPeA	4.387	268.3 -> 223.0	66851	5.00 µg/L	0.025
M5-PFHxA	5.547	318.0 -> 273.0	46251	2.50 µg/L	0.012
M4-PFHpA	6.480	367.1 -> 322.0	27970	2.50 µg/L	0.012
M8-PFOA	7.136	421.1 -> 376.0	42684	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	20224	1.25 µg/L	0.013
M6-PFDA	8.191	519.1 -> 474.1	18744	1.25 µg/L	0.013
M7-PFUnDA	8.660	570.0 -> 525.1	18716	1.25 µg/L	0.013
M2-PFDoDA	9.106	615.1 -> 570.0	21397	1.25 µg/L	0.000
M2-PFTeDA	9.911	715.2 -> 670.0	15850	1.25 µg/L	0.012
M8-FOSA	9.783	506.1 -> 77.8	15950	2.50 µg/L	0.012
M3-PFBS	5.452	302.1 -> 79.9	11303	2.50 µg/L	0.025
M3-PFHxS	7.242	402.1 -> 79.9	7645	2.50 µg/L	0.012
M8-PFOS	8.341	507.1 -> 79.9	10355	2.50 µg/L	0.012
M2-4:2FTS	5.247	329.1 -> 80.9	1075	5.00 µg/L	0.025
M2-6:2FTS	6.911	429.1 -> 80.9	1967	5.00 µg/L	0.012
M2-8:2FTS	7.978	529.1 -> 80.9	3100	5.00 µg/L	0.012
M3-MeFOSAA	8.249	573.2 -> 419.0	13820	5.00 µg/L	0.012
M3-HFPO-DA	5.902	286.9 -> 168.9	28905	10.00 µg/L	0.012
M5-EtFOSAA	8.458	589.2 -> 419.0	11868	5.00 µg/L	0.012
M7-MeFOSE	10.959	623.2 -> 58.9	64121	25.00 µg/L	0.012
M9-EtFOSE	11.256	639.2 -> 58.9	90962	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11004	2.50 µg/L	0.012
M3-MeFOSA	11.064	515.0 -> 219.0	9720	2.50 µg/L	0.000
13C4-PFOS	8.342	502.8 -> 79.9	10619	2.50 µg/L	0.012
13C3-PFBA	2.966	216.0 -> 172.0	68812	5.00 µg/L	0.037
18O2-PFHxS	7.228	403.0 -> 83.9	5057	2.50 µg/L	0.000
13C4-PFOA	7.136	417.1 -> 372.0	50127	2.50 µg/L	0.012
13C2-PFDA	8.191	515.1 -> 470.1	16617	1.25 µg/L	0.013
13C5-PFNA	7.684	468.0 -> 423.0	23190	1.25 µg/L	0.000
13C2-PFHxA	5.548	315.1 -> 270.0	42103	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.247	329.1 -> 80.9	1075	5.23 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-6:2FTS	6.911	429.1 -> 80.9	1967	5.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-8:2FTS	7.978	529.1 -> 80.9	3100	5.36 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C2-PFDoDA	9.106	615.1 -> 570.0	21397	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-PFTeDA	9.911	715.2 -> 670.0	15850	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C3-PFBS	5.452	302.1 -> 79.9	11303	2.37 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C3-PFHxS	7.242	402.1 -> 79.9	7645	2.44 µg/L	0.012

7.7.10  
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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C4-PFBA	2.961	216.8 -> 171.9	130791	10.10 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.480	367.1 -> 322.0	27970	2.58 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C5-PFHxA	5.547	318.0 -> 273.0	46251	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C5-PFPeA	4.387	268.3 -> 223.0	66851	5.15 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C6-PFDA	8.191	519.1 -> 474.1	18744	1.32 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C7-PFUnDA	8.660	570.0 -> 525.1	18716	1.26 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-FOSA	9.783	506.1 -> 77.8	15950	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-PFOA	7.136	421.1 -> 376.0	42684	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C8-PFOS	8.341	507.1 -> 79.9	10355	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C9-PFNA	7.684	472.1 -> 427.0	20224	1.28 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
d3-MeFOSAA	8.249	573.2 -> 419.0	13820	5.16 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C3-HFPO-DA	5.902	286.9 -> 168.9	28905	10.44 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
d3-MeFOSA	11.064	515.0 -> 219.0	9720	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.4%	
d5-EtFOSAA	8.458	589.2 -> 419.0	11868	5.38 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.5%	
d7-MeFOSE	10.959	623.2 -> 58.9	64121	19.41 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.6%	
d9-EtFOSE	11.256	639.2 -> 58.9	90962	19.44 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.8%	
d5-EtFOSA	11.360	531.1 -> 219.0	11004	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.236	327.1 -> 307.0	36343	21.01 µg/L	93
		327.1 -> 80.9	15405		
6:2FTS	6.911	427.1 -> 407.0	37596	19.78 µg/L	98
		427.1 -> 80.9	15426		
8:2FTS	7.978	527.1 -> 507.0	34017	19.68 µg/L	99
		527.1 -> 80.8	14554		
EtFOSAA	8.459	584.2 -> 419.1	44738	19.62 µg/L	m 97
		584.2 -> 526.0	21689		
FOSA	9.774	498.1 -> 77.9	141624	21.19 µg/L	98
		498.1 -> 478.0	3779		
MeFOSAA	8.249	570.1 -> 419.0	51036	21.19 µg/L	m 95
		570.1 -> 483.0	10701		
PFBA	2.957	212.8 -> 168.9	67542	19.28 µg/L	100
PFBS	5.453	298.7 -> 79.9	100483	21.67 µg/L	95
		298.7 -> 98.8	37786		
PFDA	8.192	512.9 -> 469.0	305610	21.49 µg/L	96
		512.9 -> 219.0	60753		
PFDoDA	9.106	613.1 -> 569.0	317329	18.48 µg/L	96
		613.1 -> 319.0	41610		
PFDS	9.269	599.0 -> 79.9	52213	20.36 µg/L	96

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Perfluorinated Compounds by LC/MS/MS

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

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

### Perfluorinated Compounds by LC/MS/MS

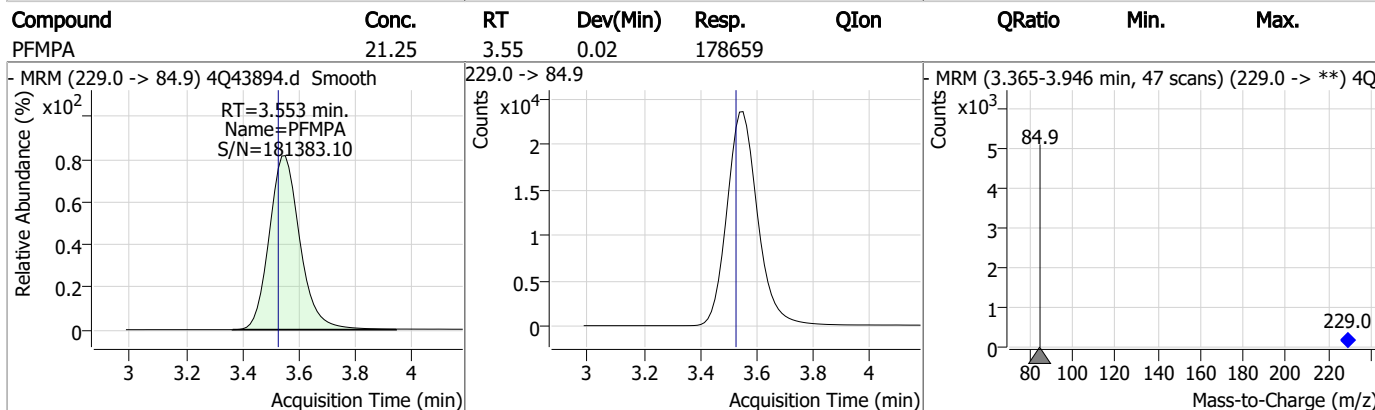
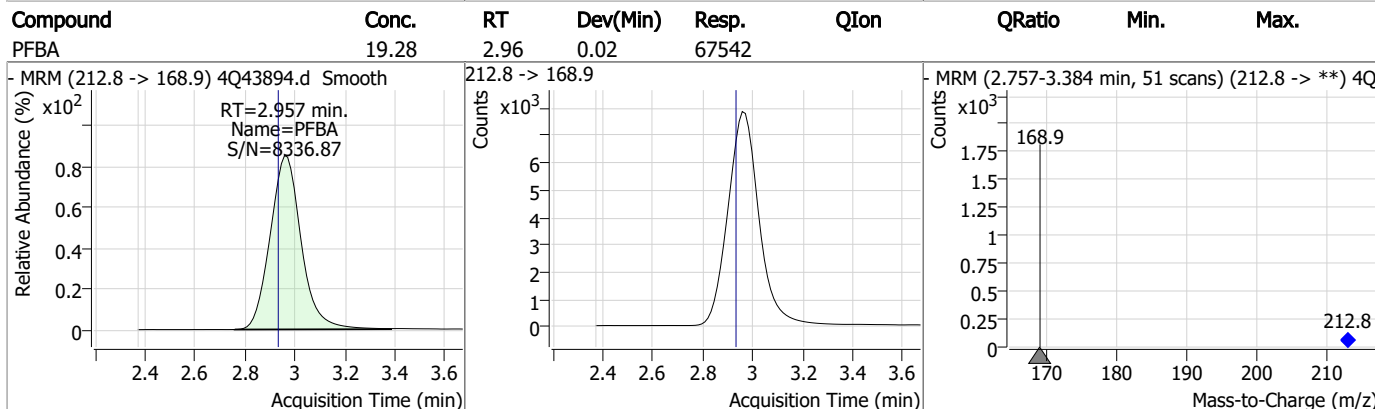
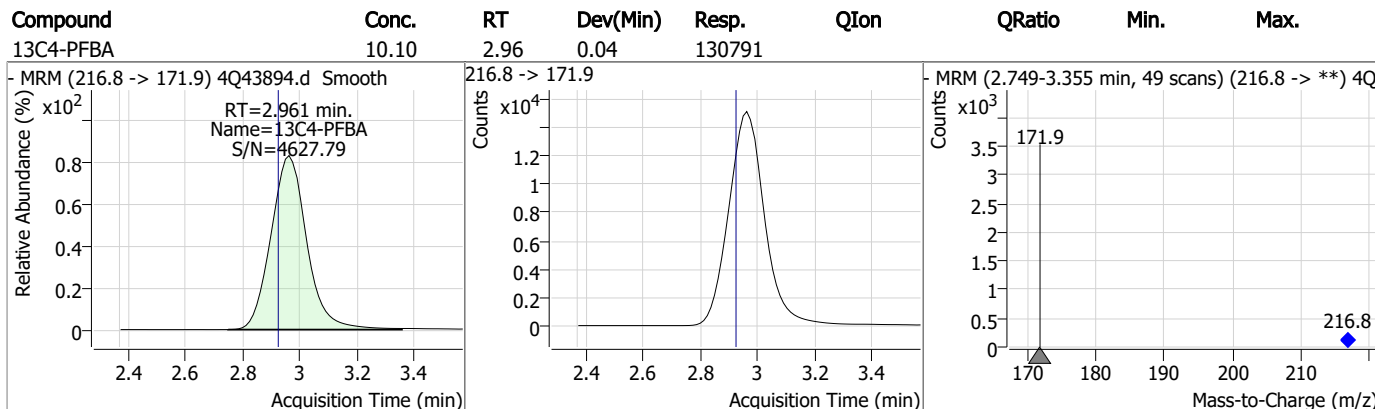
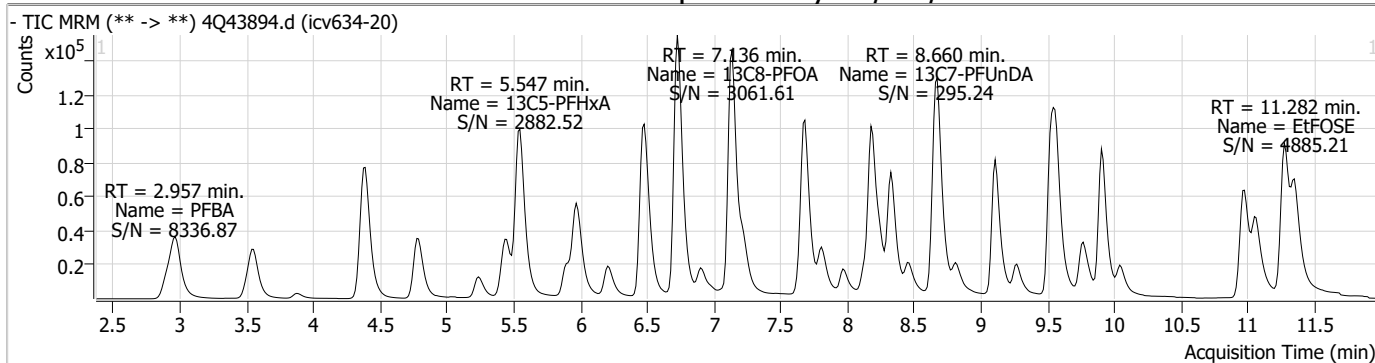
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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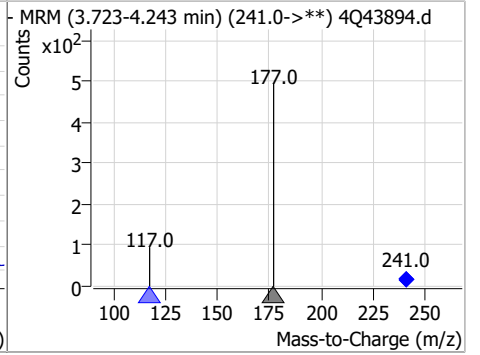
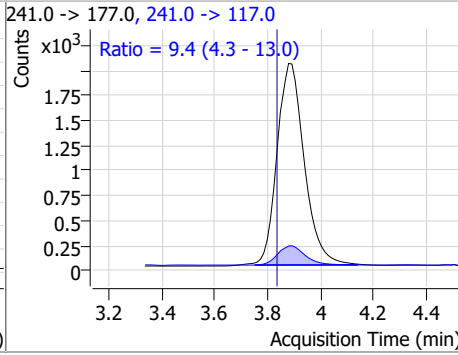
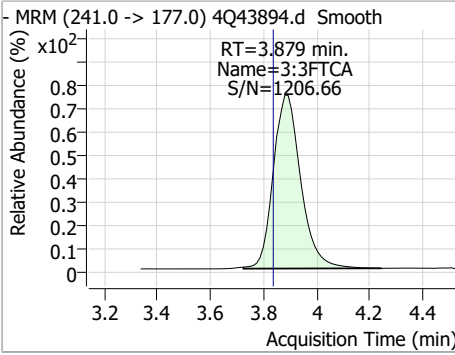


### Perfluorinated Compounds by LC/MS/MS

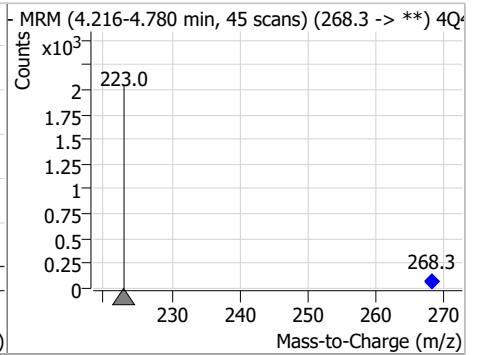
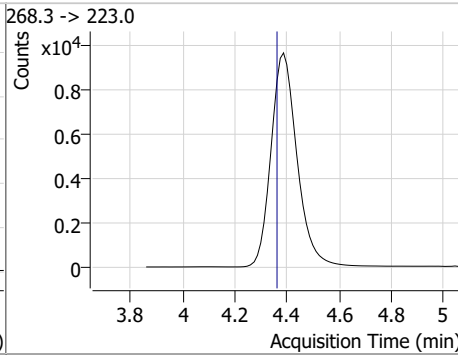
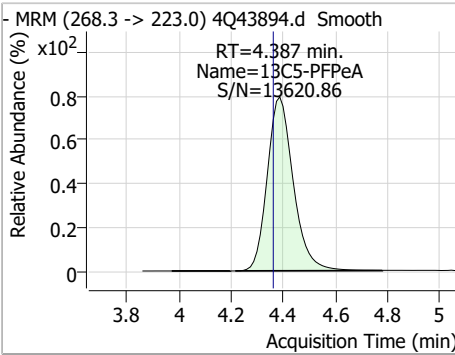


### Perfluorinated Compounds by LC/MS/MS

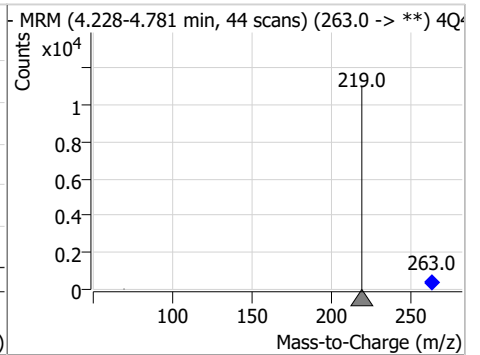
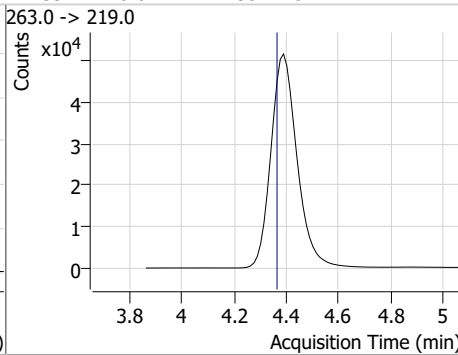
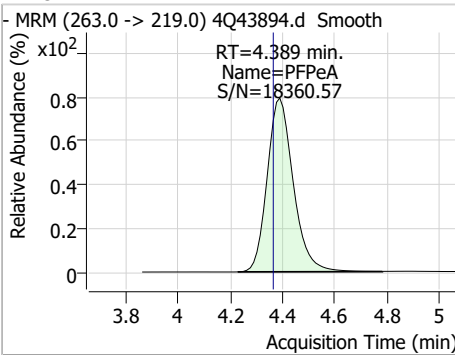
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	20.64	3.88	0.04	14608	241.0 -> 117.0	9.4	4.3	13.0



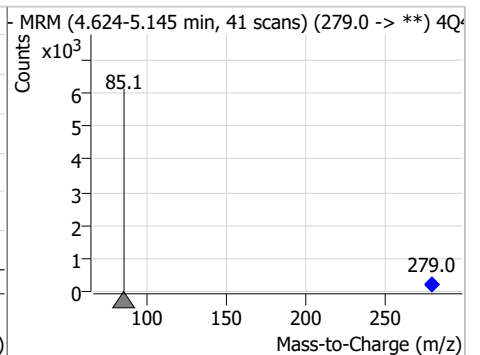
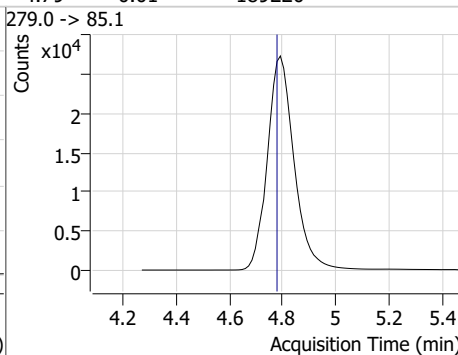
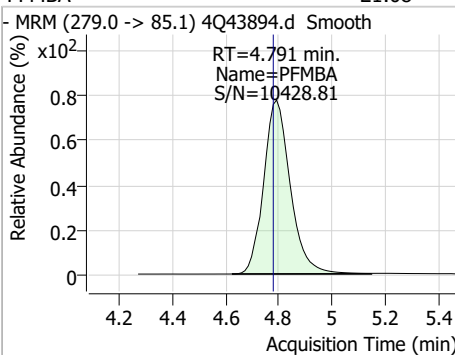
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.15	4.39	0.02	66851				



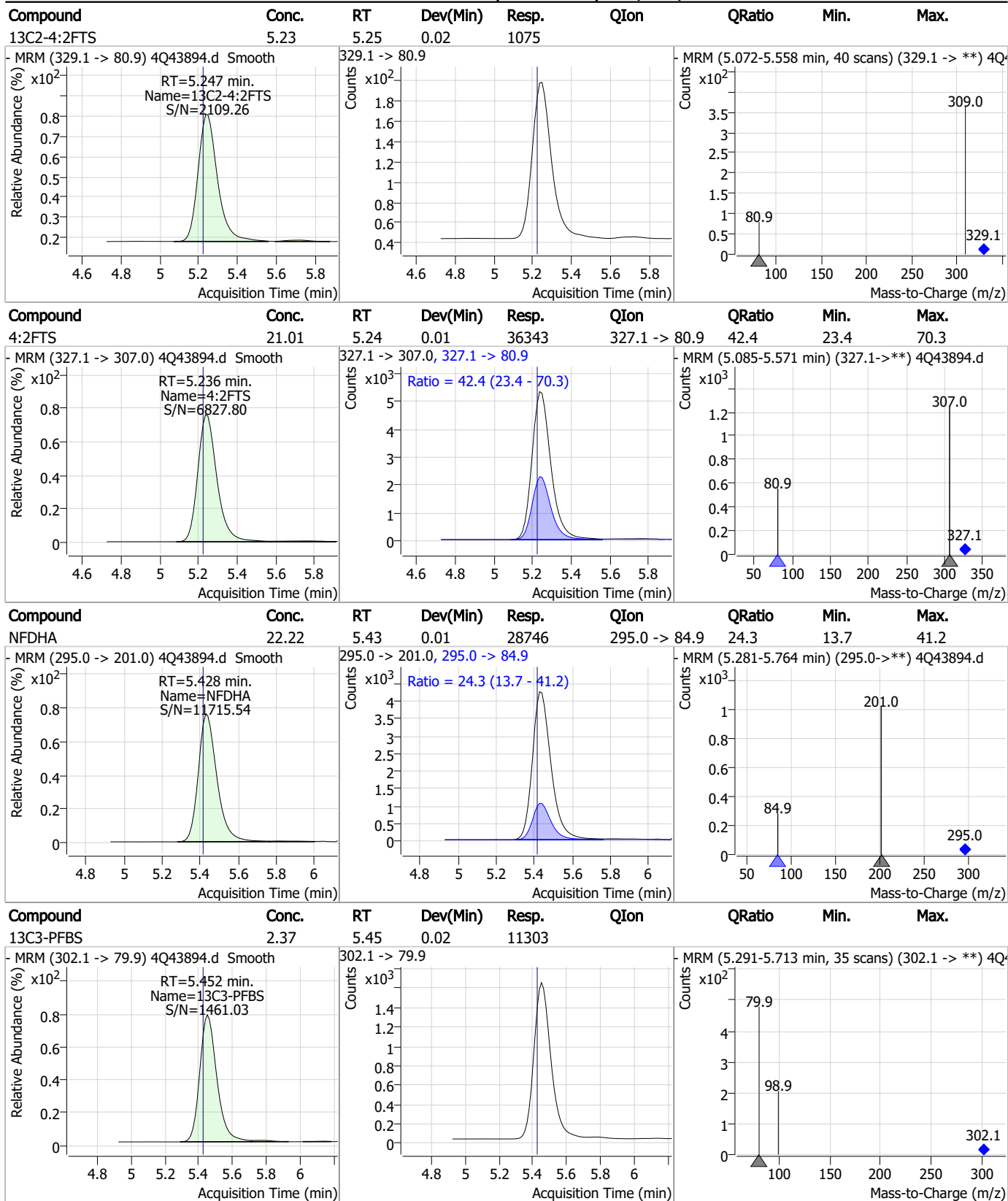
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	22.21	4.39	0.02	357175				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	21.08	4.79	0.01	189220				



### Perfluorinated Compounds by LC/MS/MS

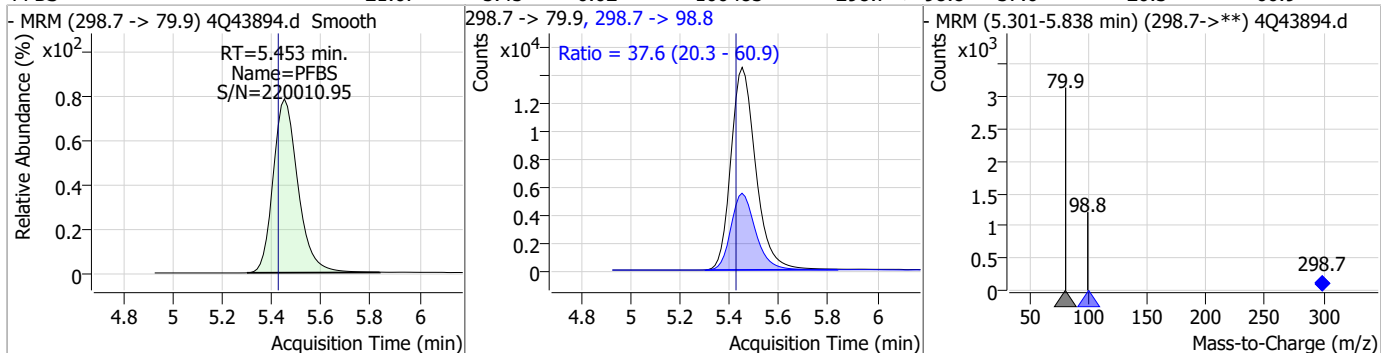


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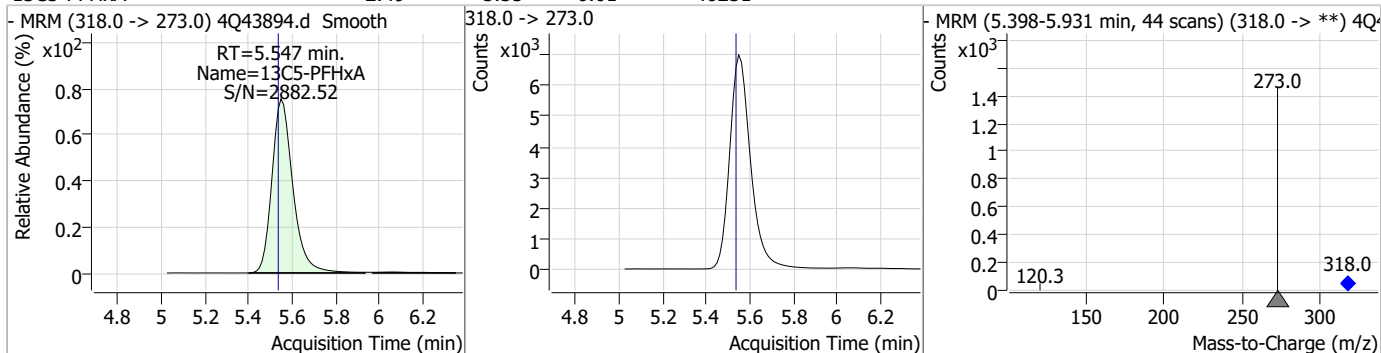


### Perfluorinated Compounds by LC/MS/MS

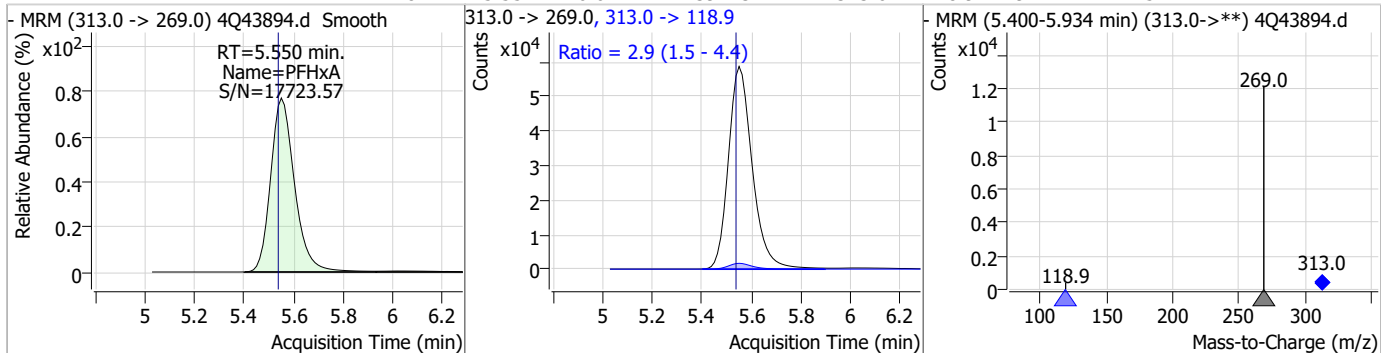
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.67	5.45	0.02	100483	298.7 -> 98.8	37.6	20.3	60.9



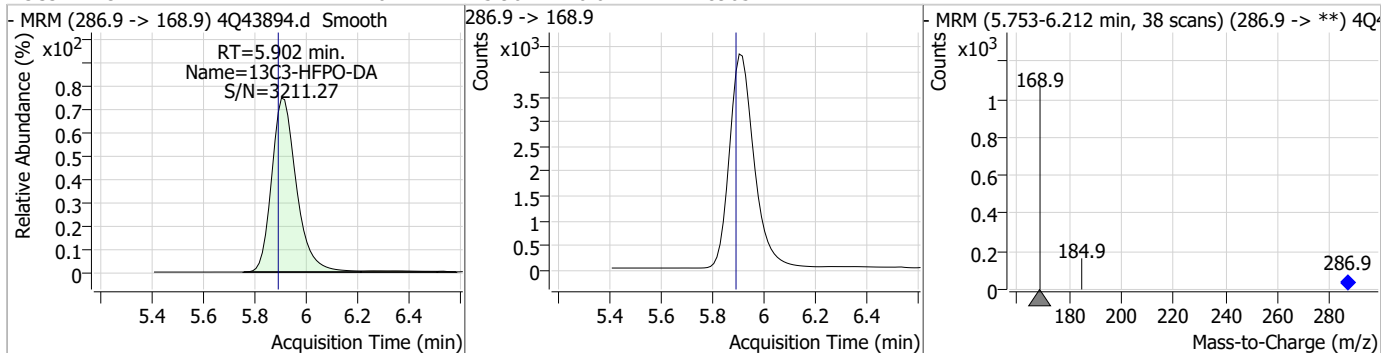
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.55	0.01	46251				



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



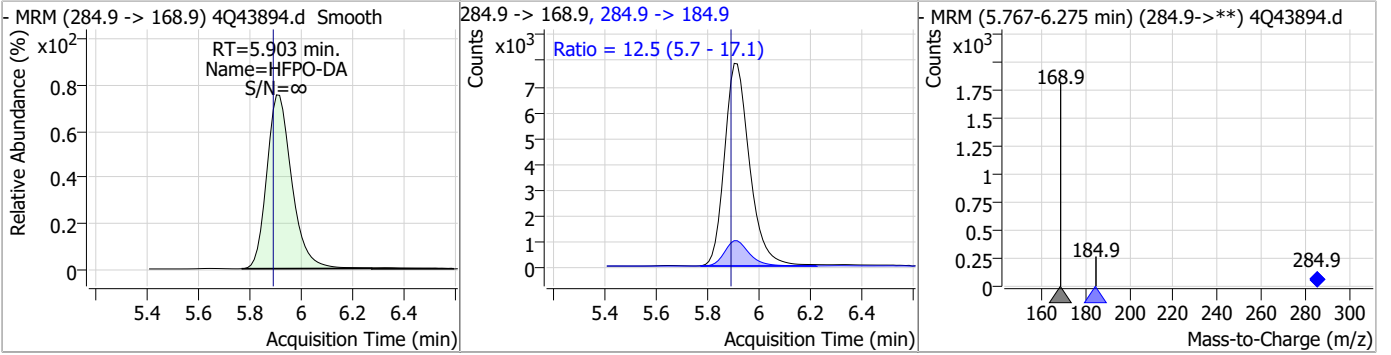
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.44	5.90	0.01	28905				



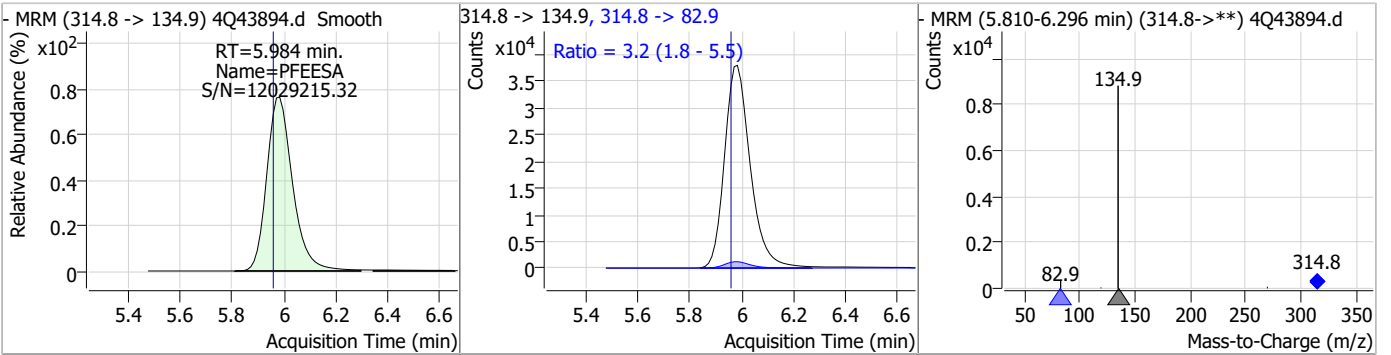
7.7.10 7

### Perfluorinated Compounds by LC/MS/MS

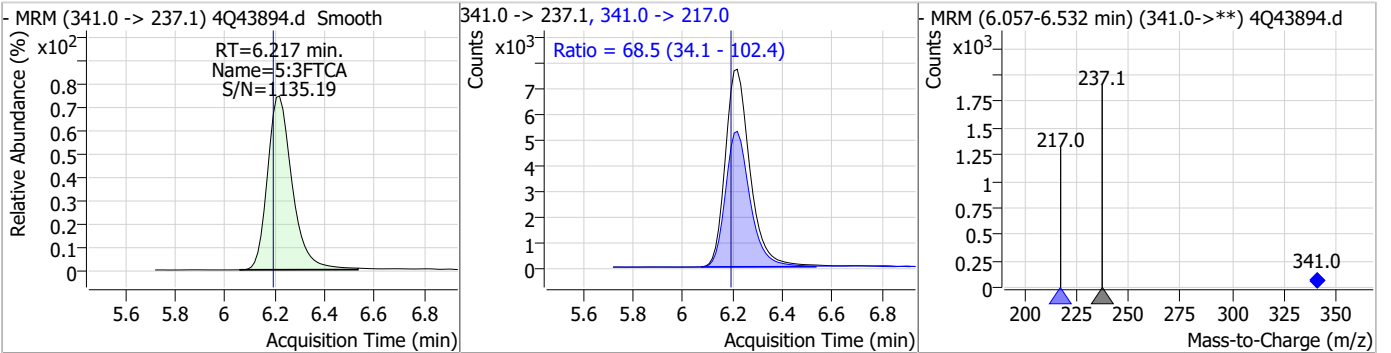
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.29	5.90	0.01	53279	284.9 -> 184.9	12.5	5.7	17.1



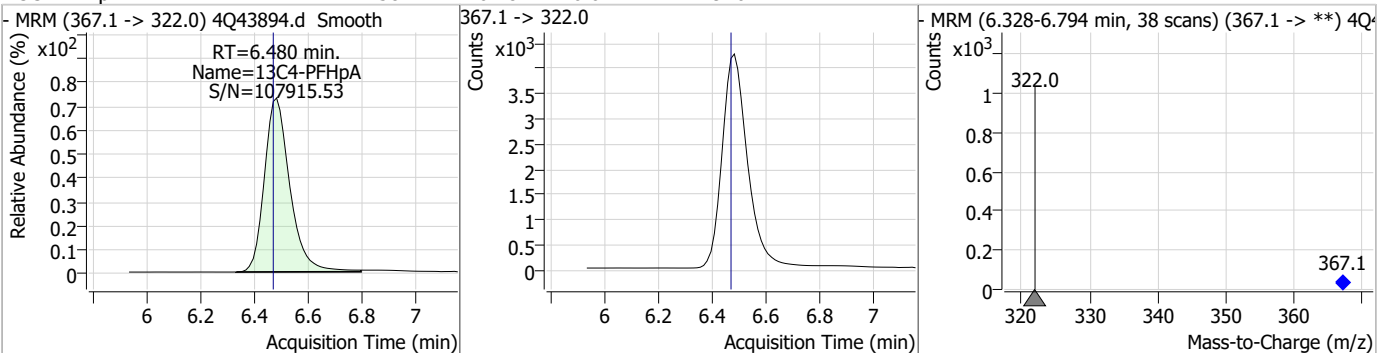
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	19.16	5.98	0.02	262758	314.8 -> 82.9	3.2	1.8	5.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	21.50	6.22	0.02	52878	341.0 -> 217.0	68.5	34.1	102.4

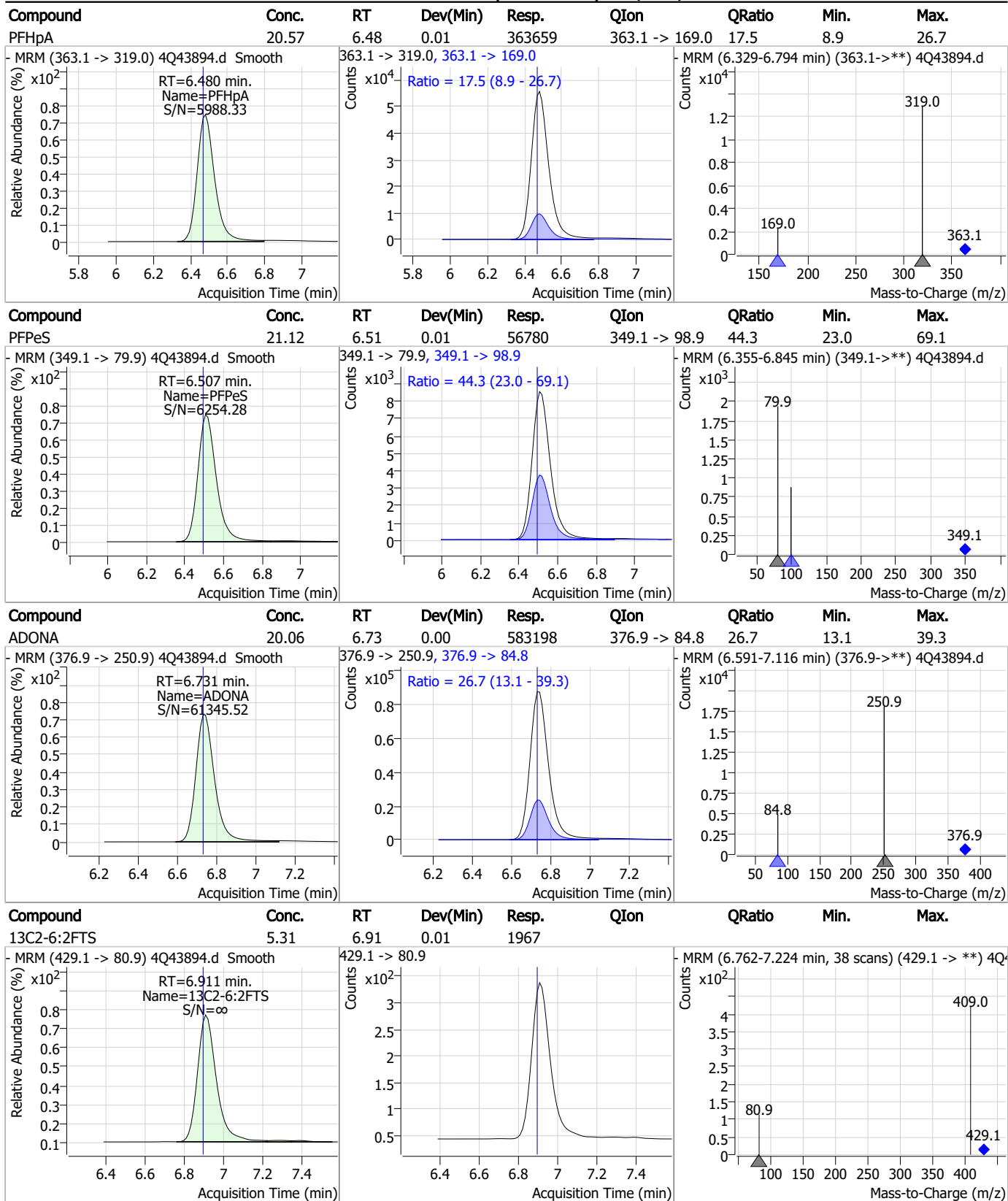


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.58	6.48	0.01	27970	367.1 -> 322.0			



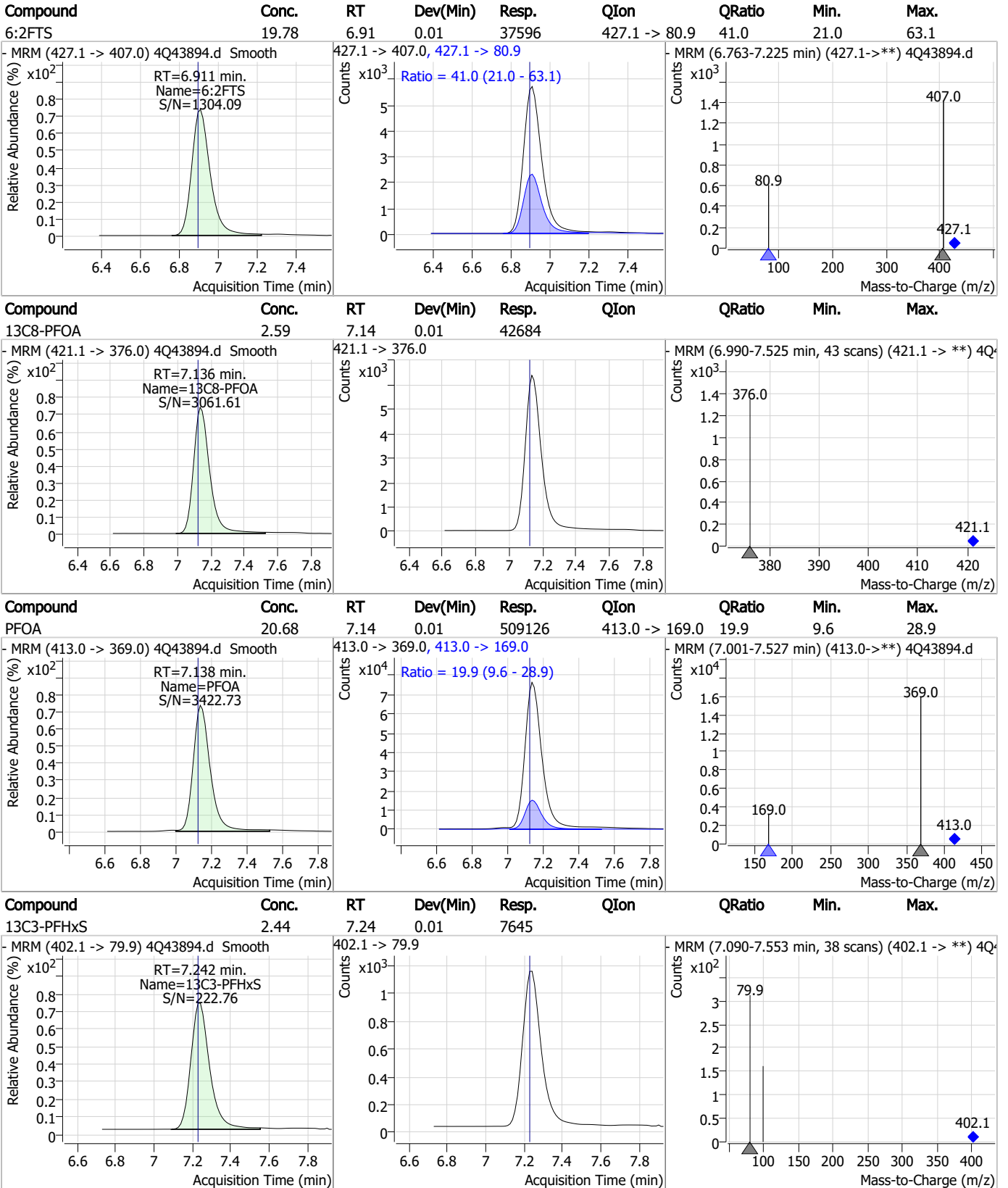
7.7.10 7

### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

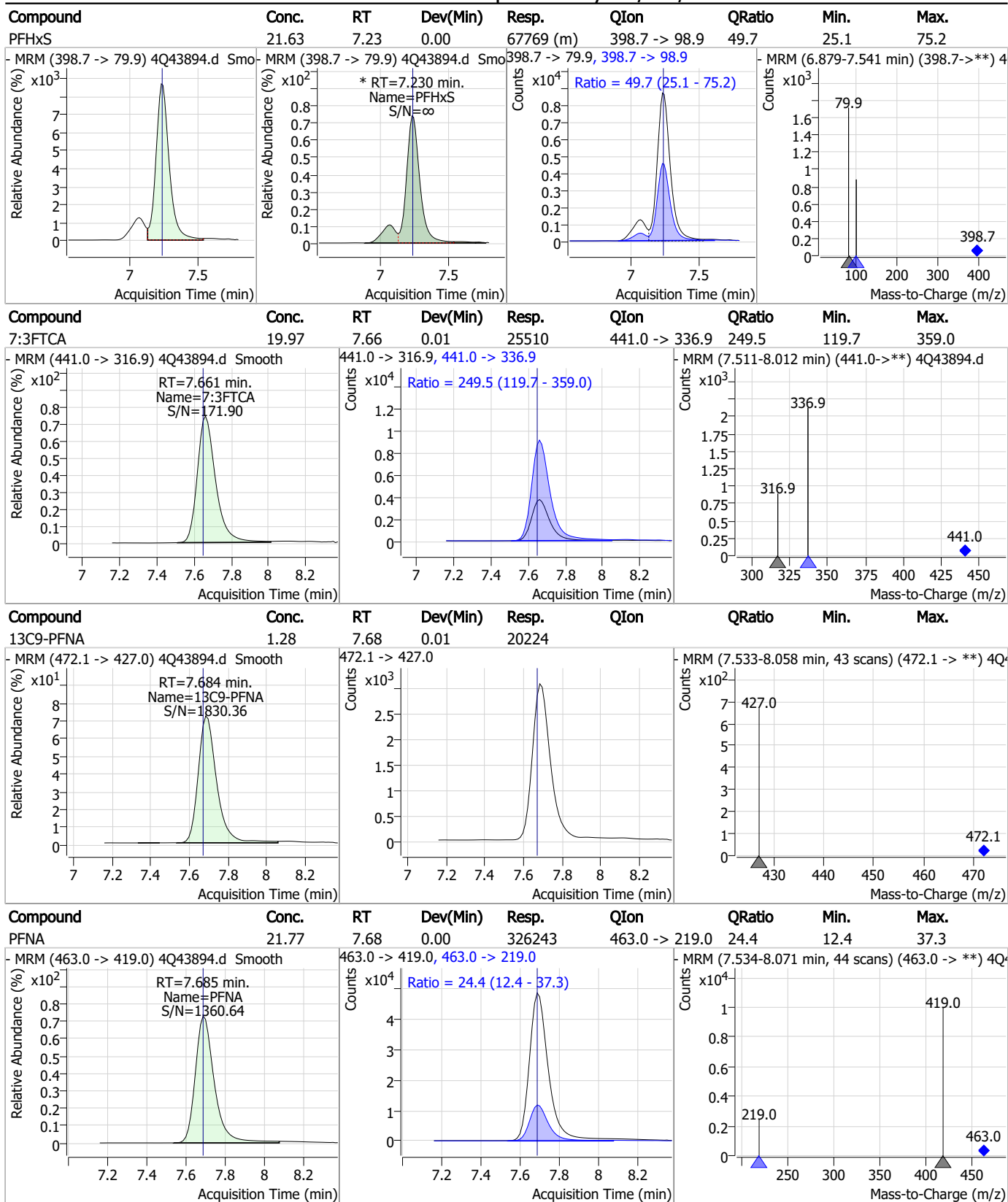


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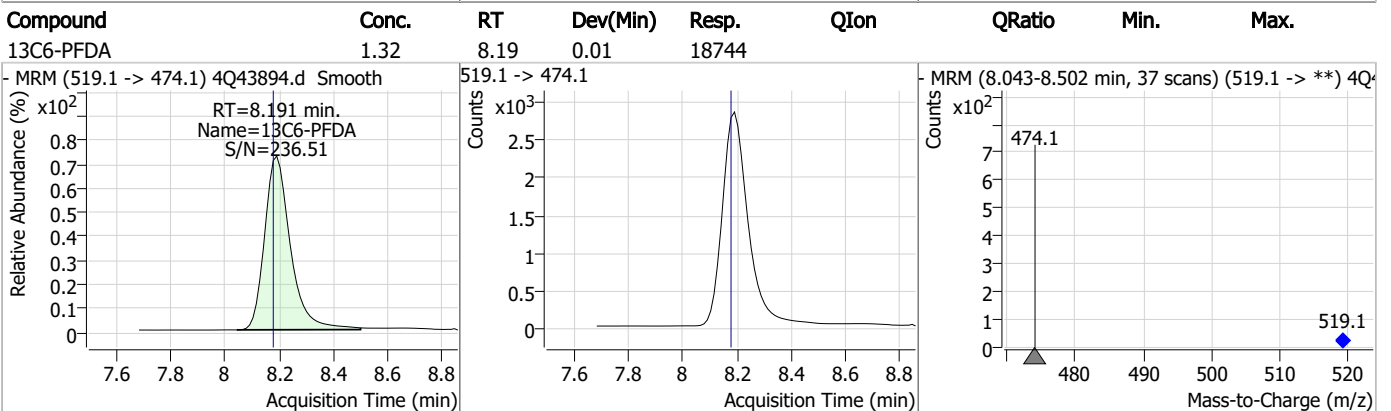
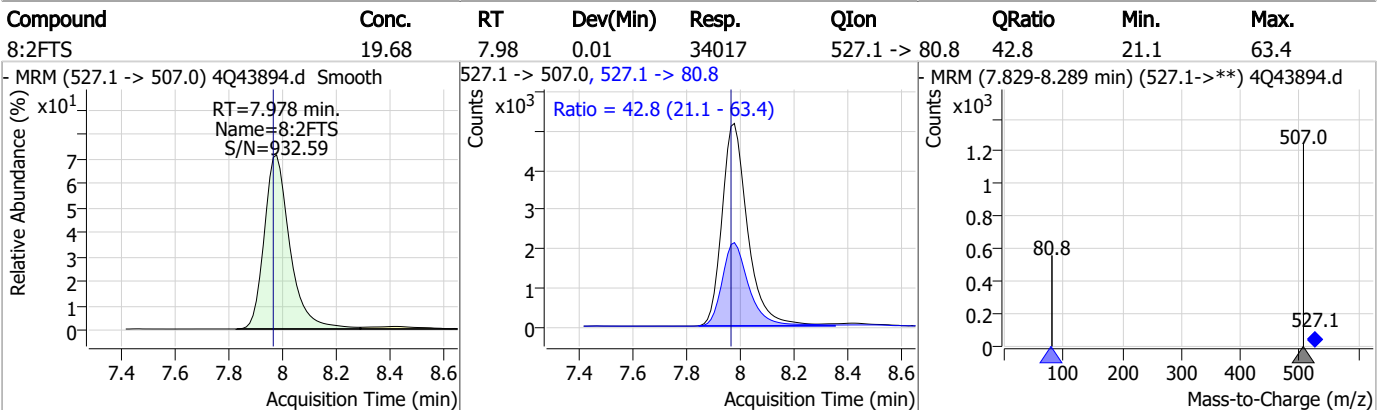
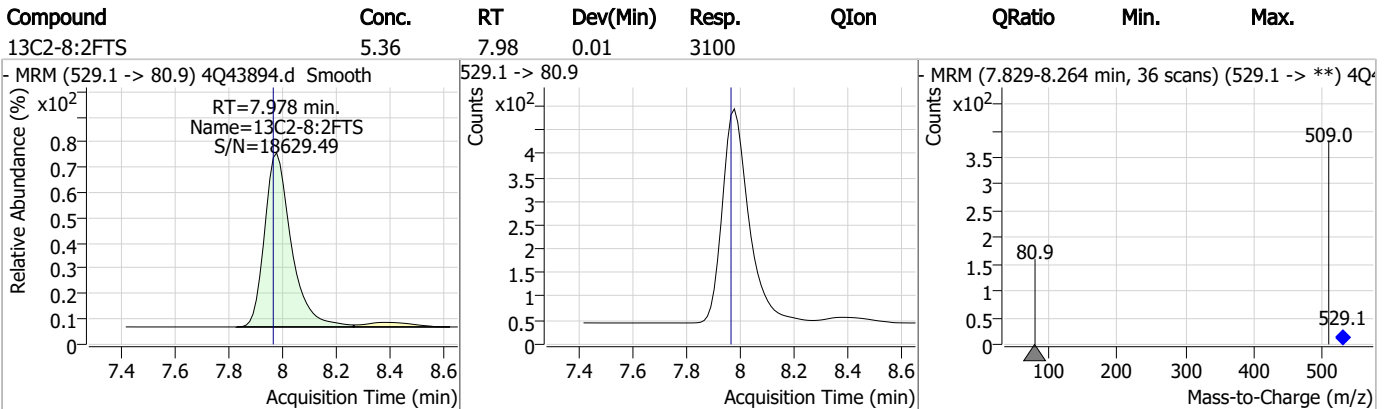
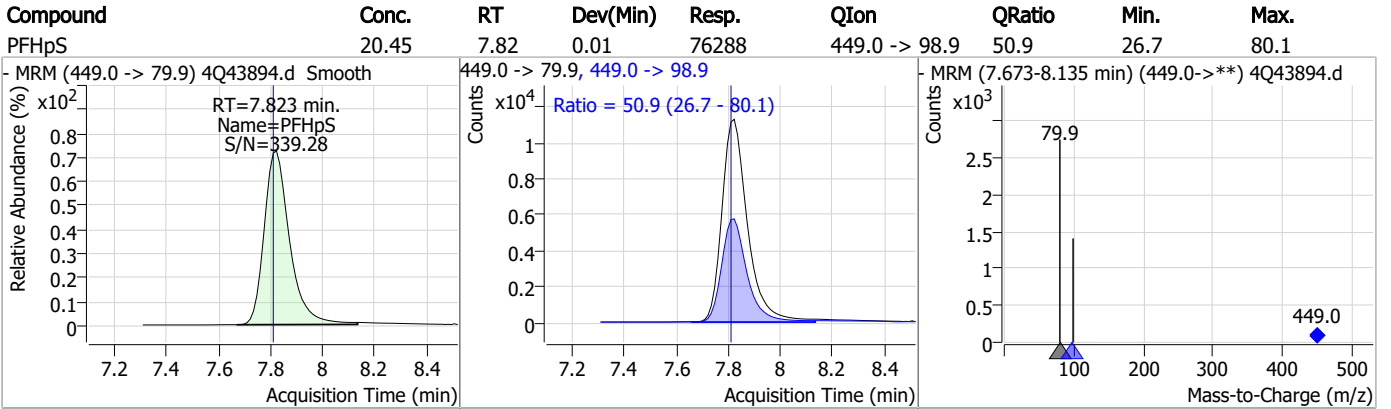
### Perfluorinated Compounds by LC/MS/MS



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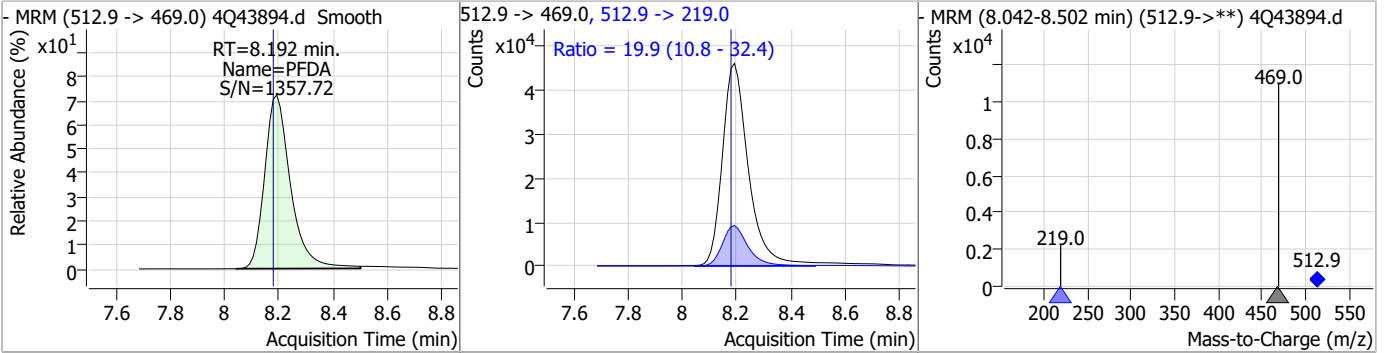


### Perfluorinated Compounds by LC/MS/MS

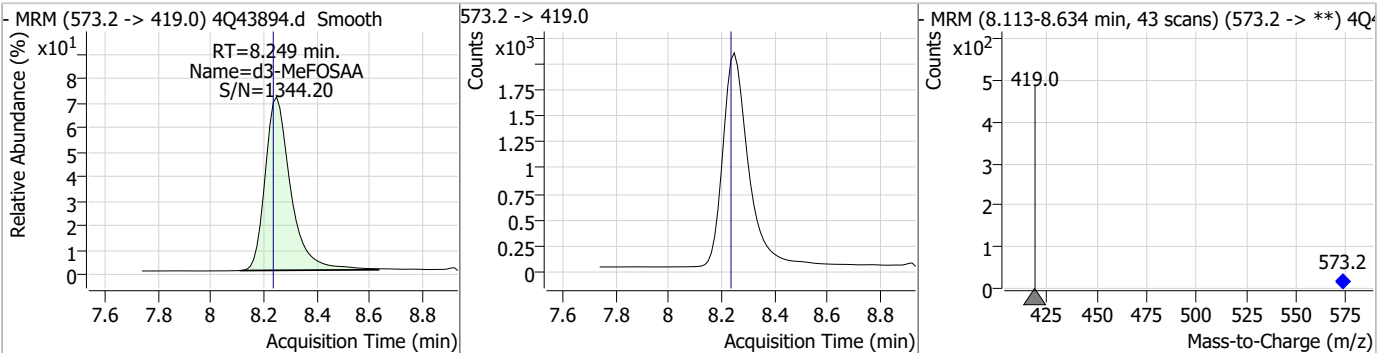


### Perfluorinated Compounds by LC/MS/MS

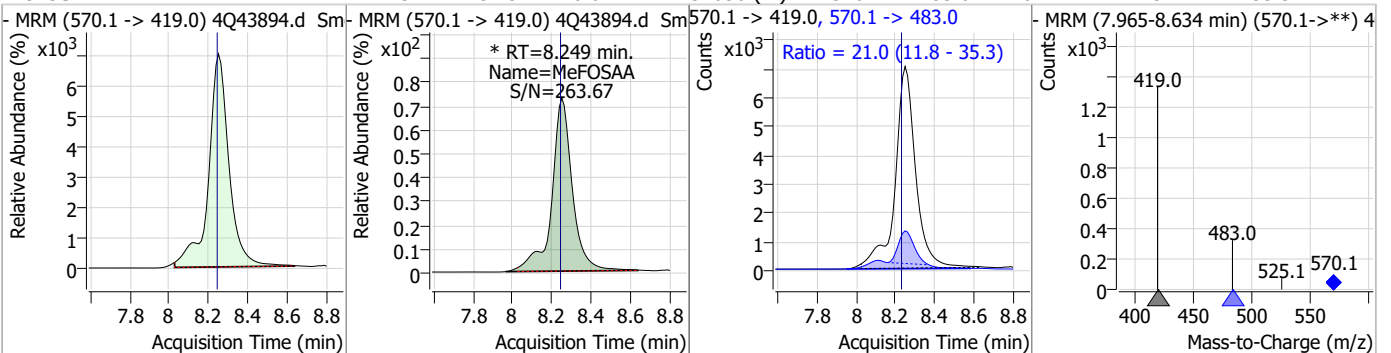
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	21.49	8.19	0.01	305610	512.9 -> 219.0	19.9	10.8	32.4



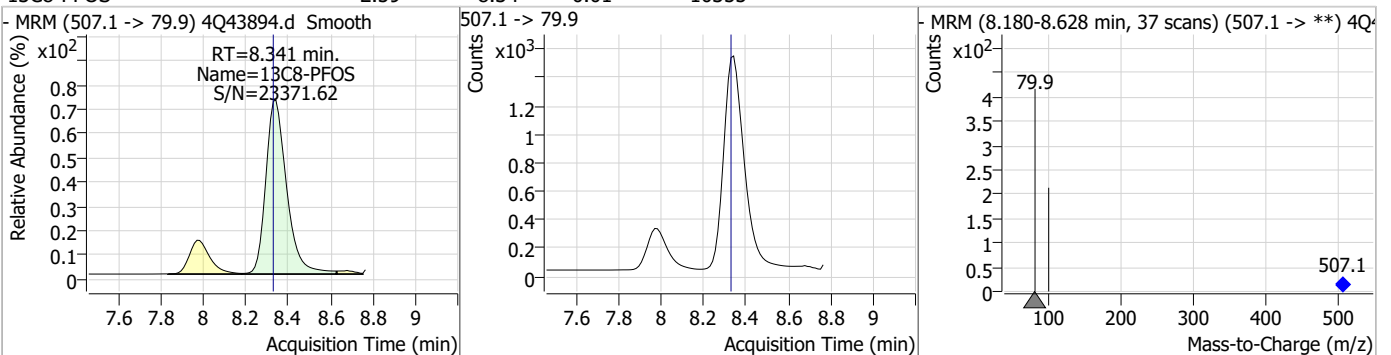
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.16	8.25	0.01	13820				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	21.19	8.25	0.01	51036 (m)	570.1 -> 483.0	21.0	11.8	35.3



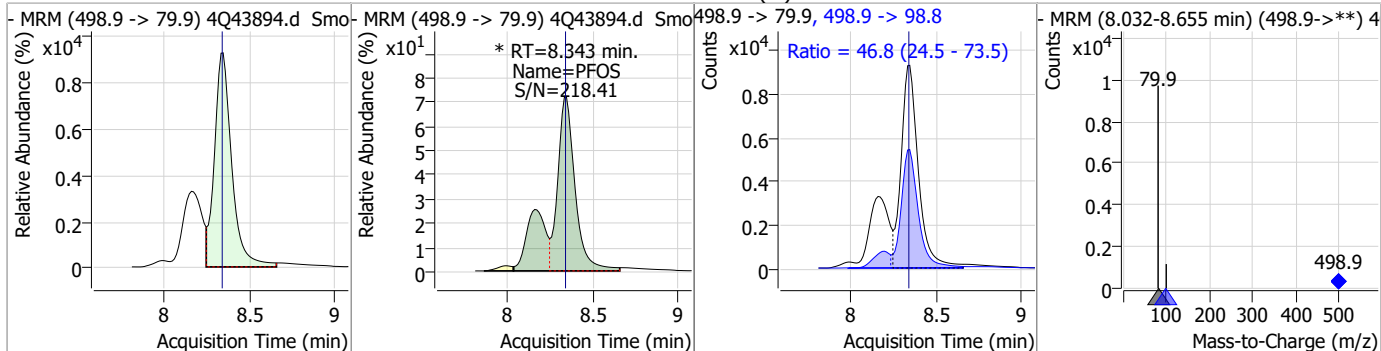
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.59	8.34	0.01	10355				



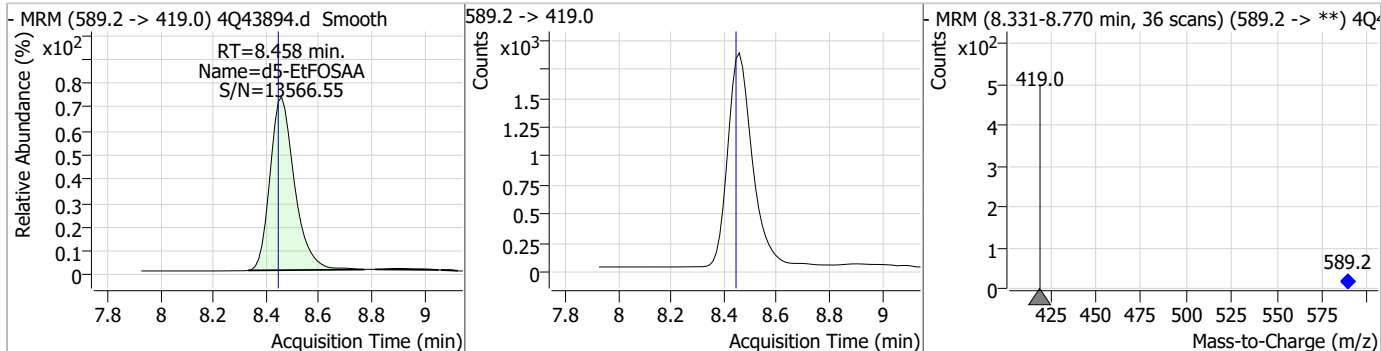
7.7.10 7

### Perfluorinated Compounds by LC/MS/MS

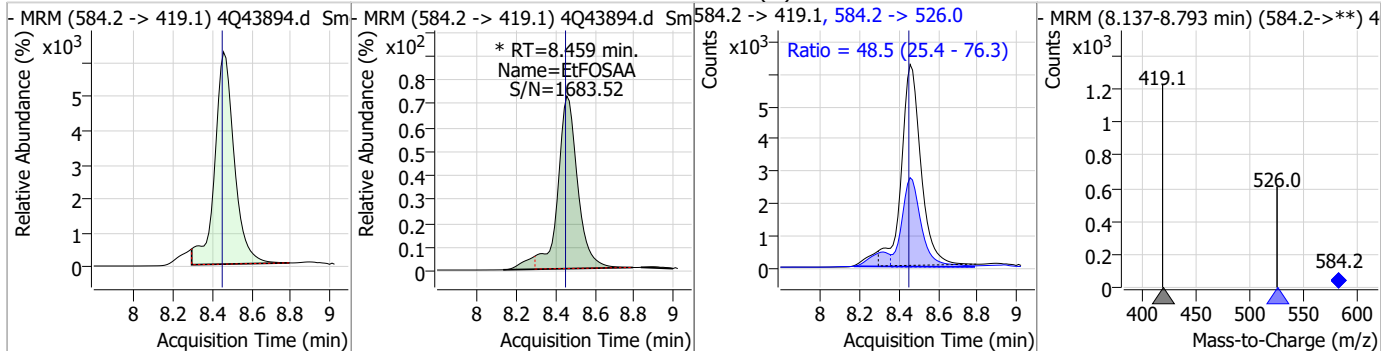
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	17.96	8.34	0.01	91001 (m)	498.9 -> 98.8	46.8	24.5	73.5



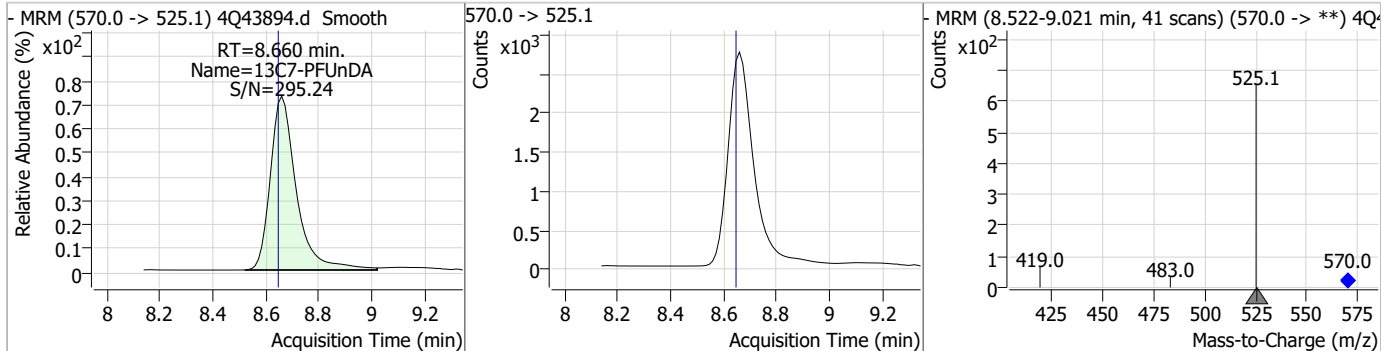
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.38	8.46	0.01	11868				



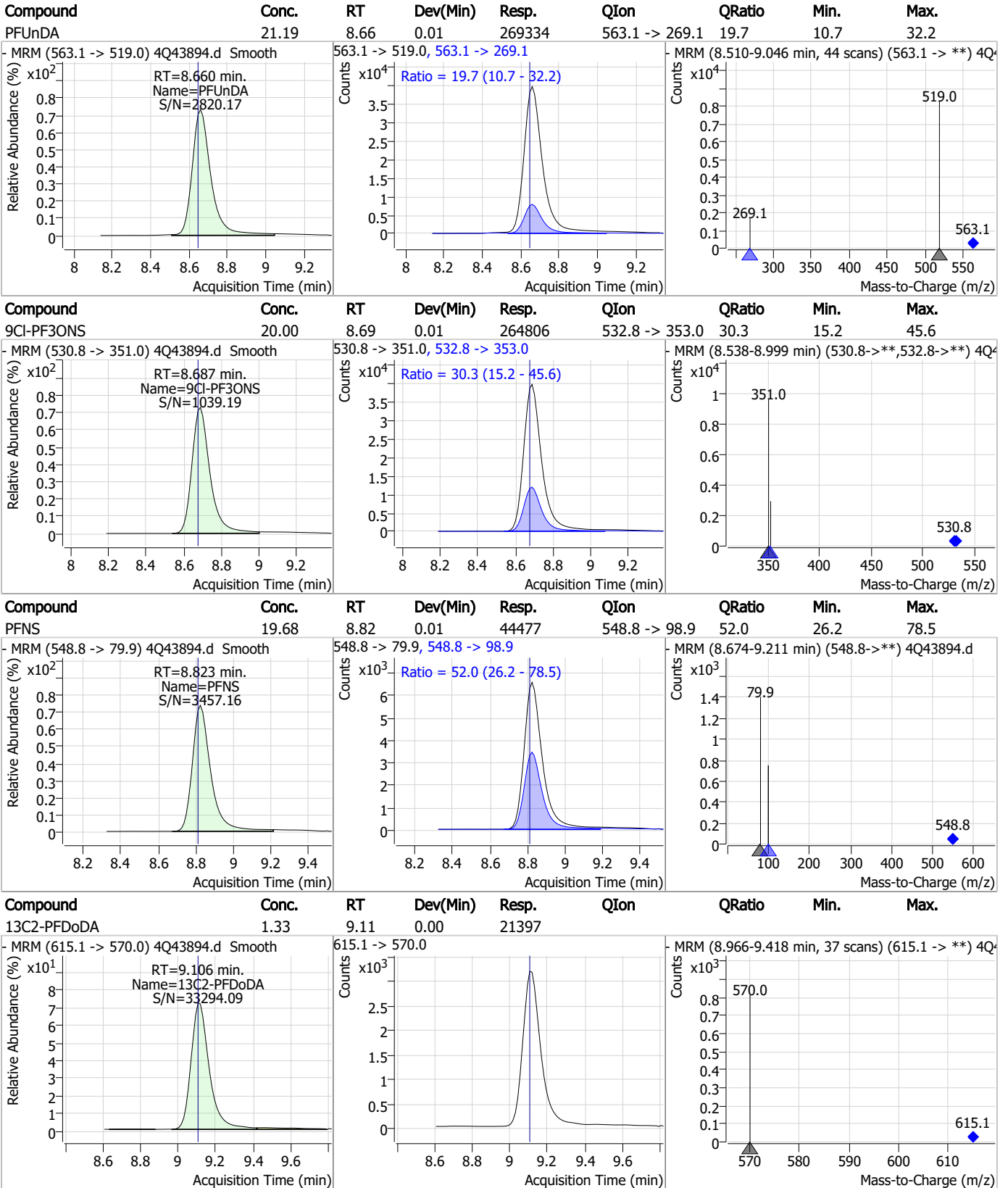
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.62	8.46	0.01	44738 (m)	584.2 -> 526.0	48.5	25.4	76.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.26	8.66	0.01	18716				



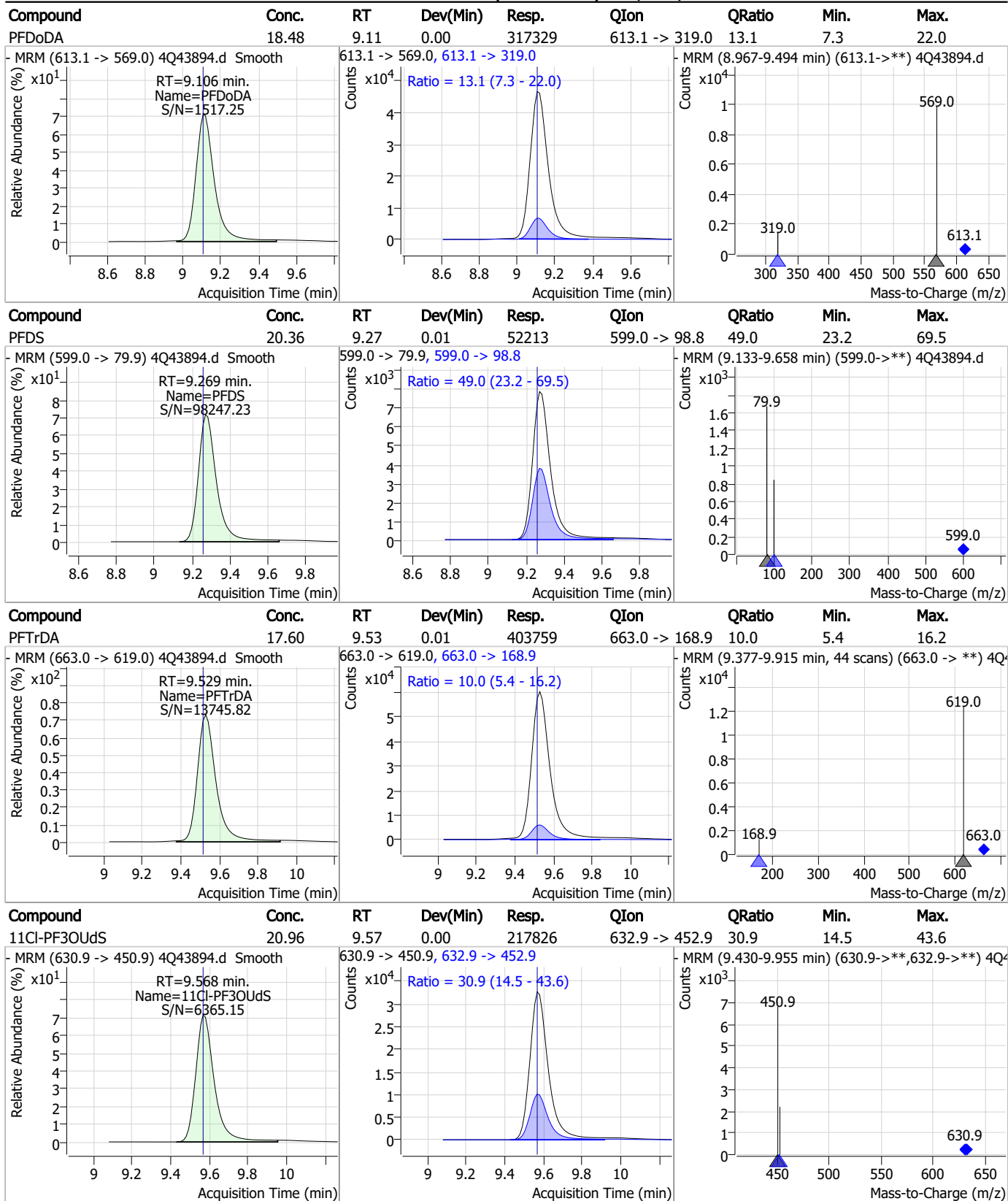
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

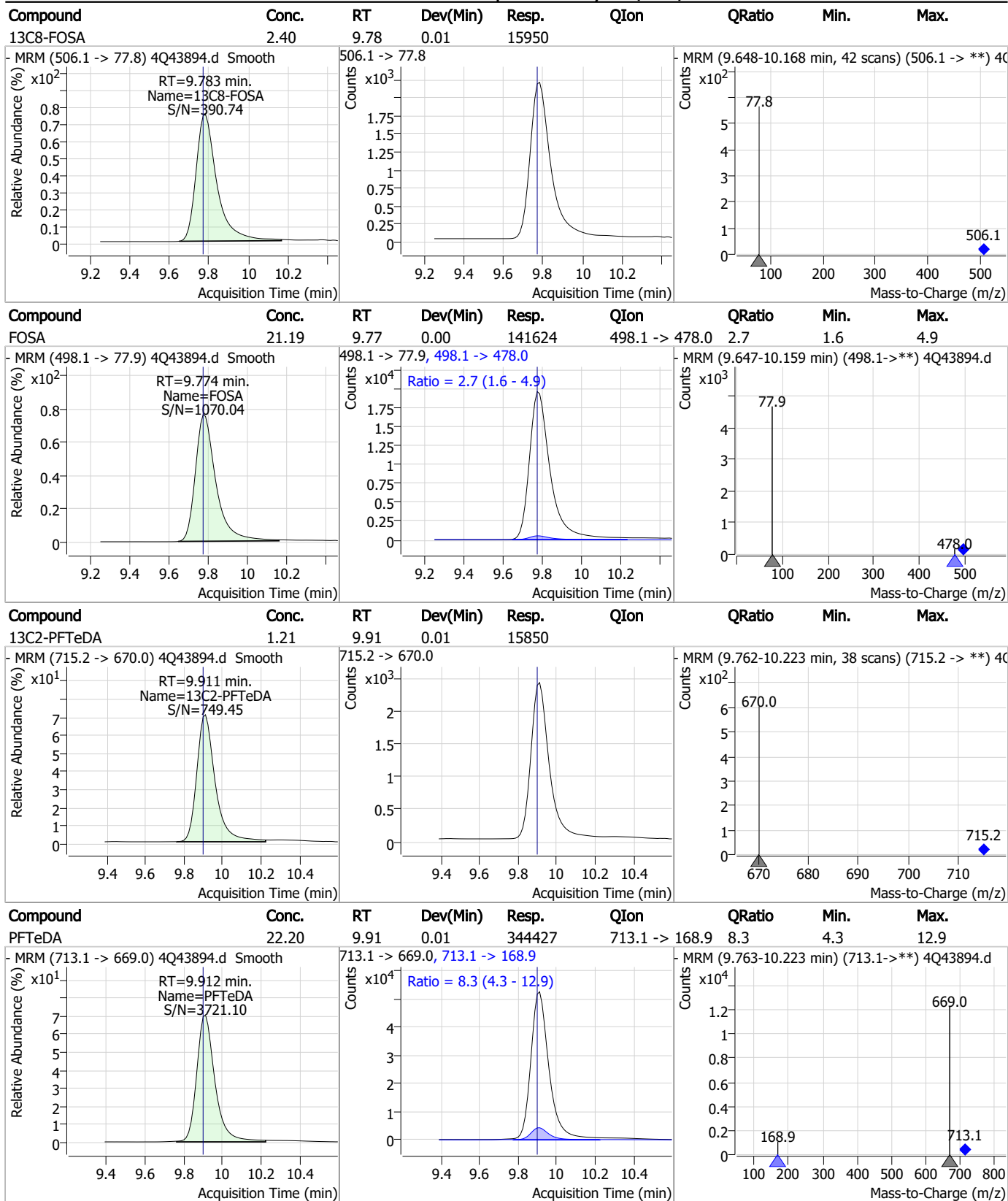


### Perfluorinated Compounds by LC/MS/MS



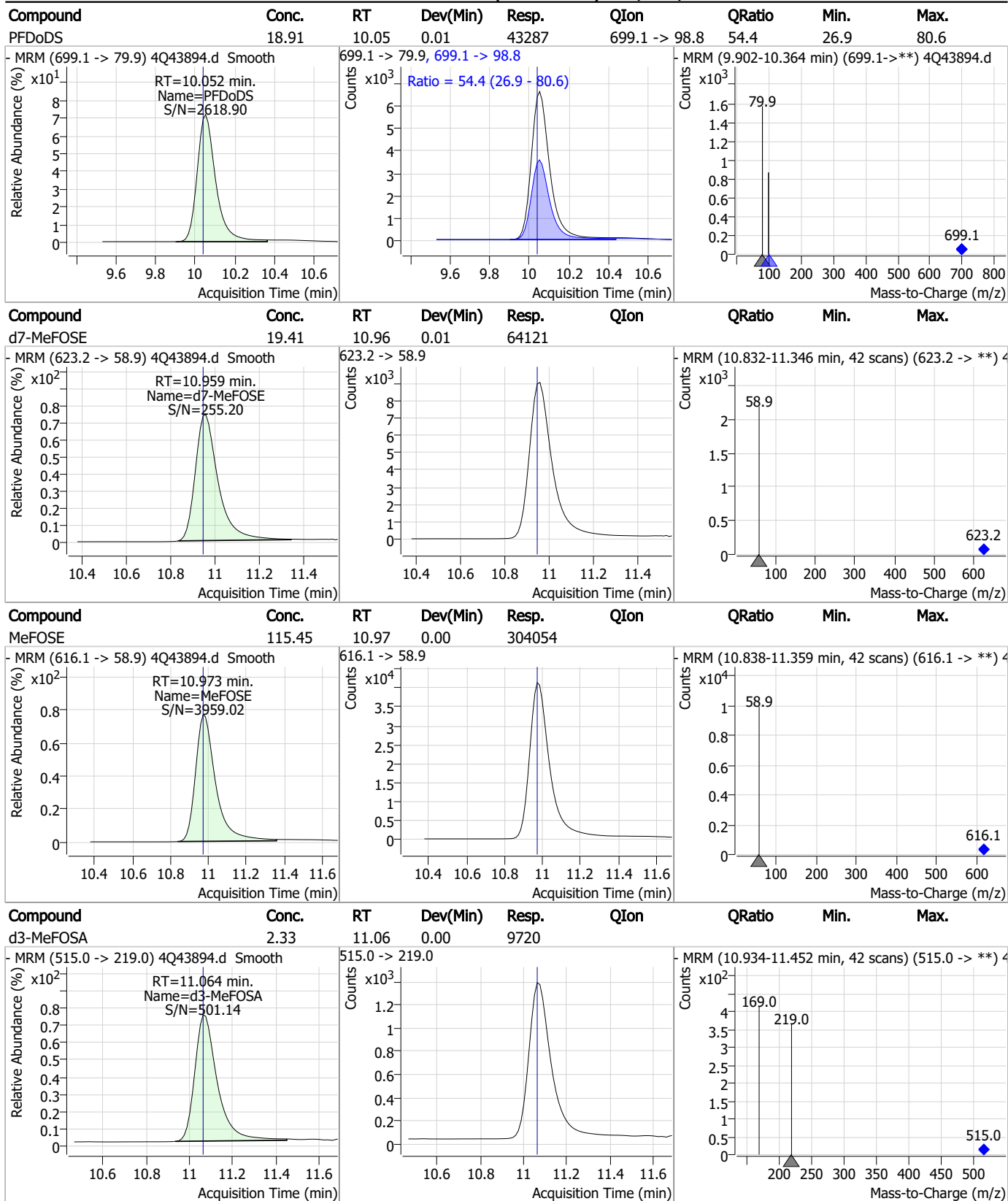
7.7.10 7

### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

### Perfluorinated Compounds by LC/MS/MS

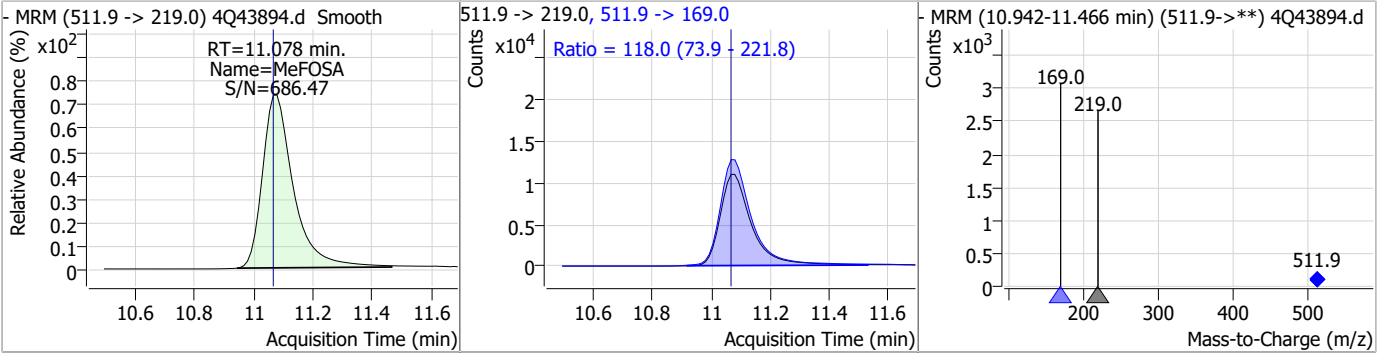


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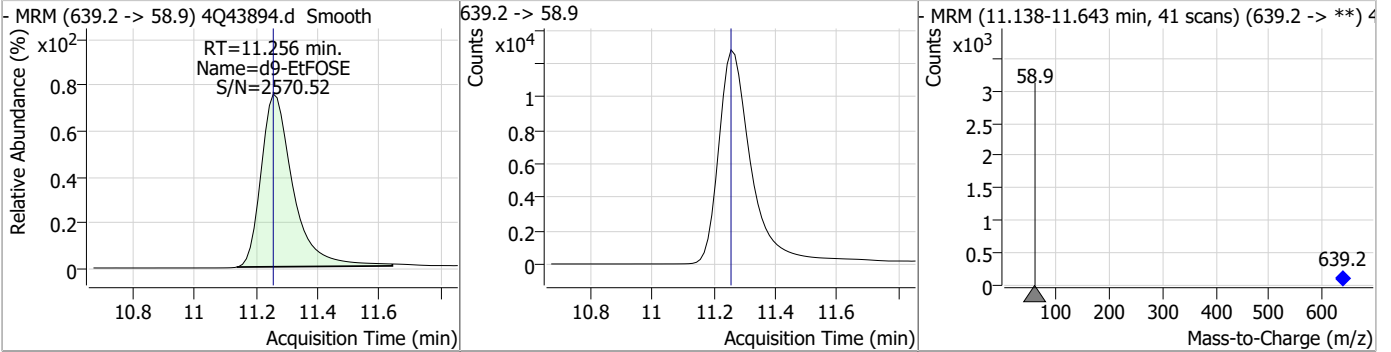


### Perfluorinated Compounds by LC/MS/MS

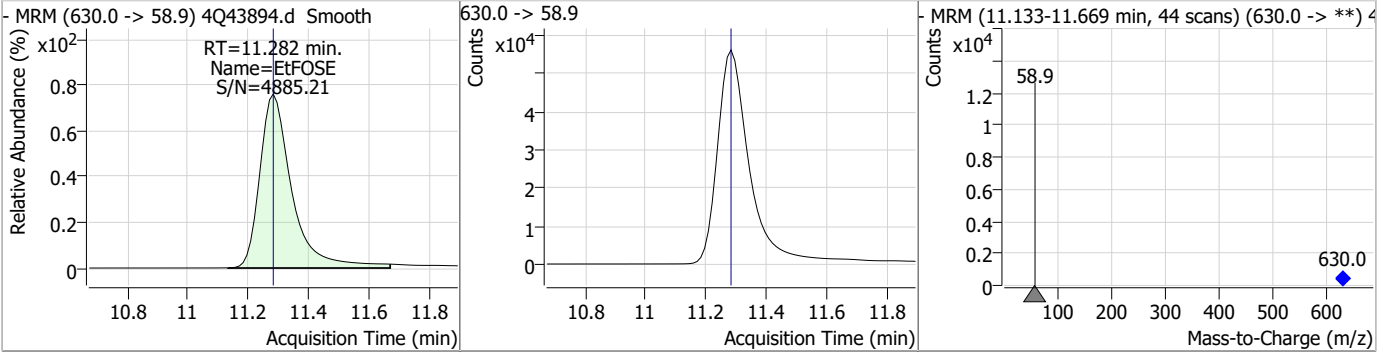
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	21.62	11.08	0.01	79178	511.9 -> 169.0	118.0	73.9	221.8



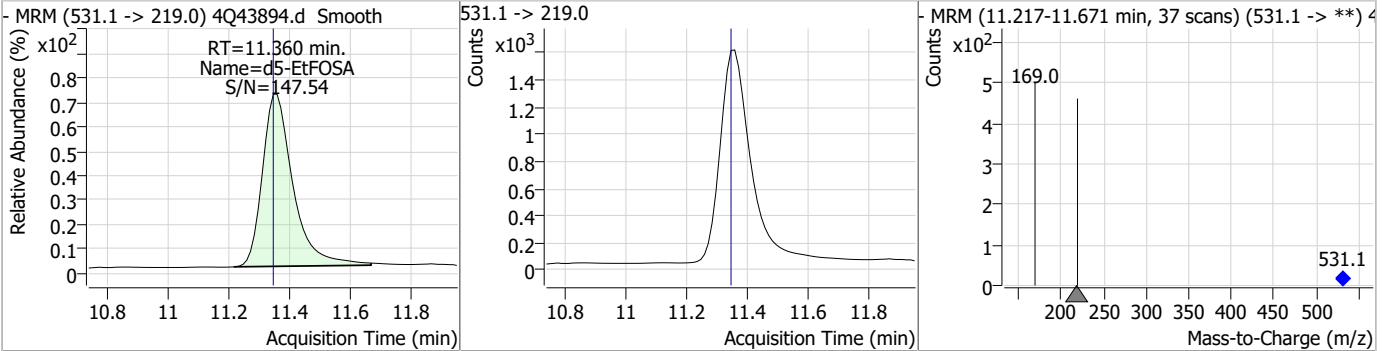
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.44	11.26	0.00	90962	639.2 -> 58.9			



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



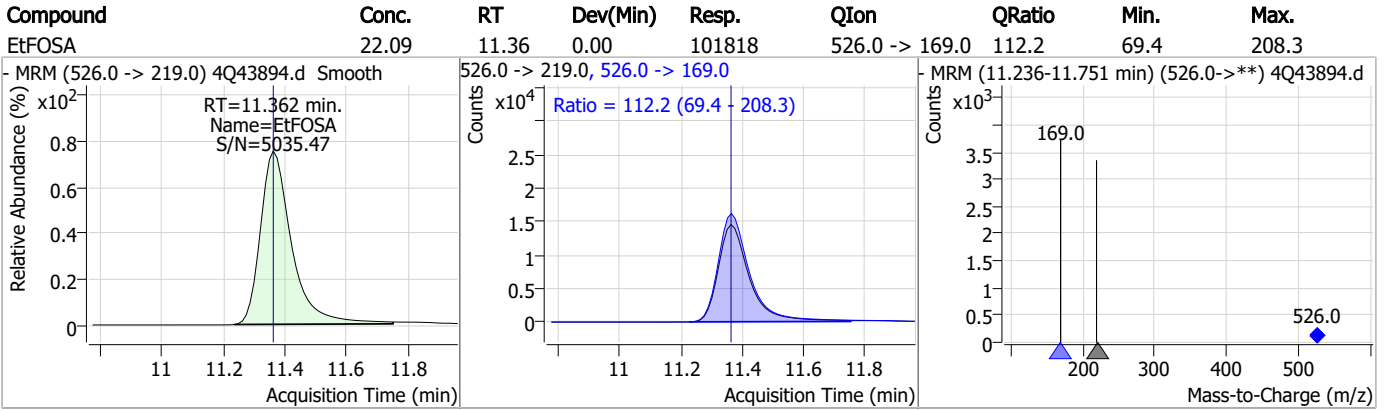
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.49	11.36	0.01	11004	531.1 -> 219.0			



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### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

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

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

7.7.10.1  
7

### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43895.d  
 Operator : natashag  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/3/2023 1:35:25 PM  
 Sample Name : icv634-4  
 Vial : P1-B3  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q634.batch.bin  
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.990	216.8 -> 171.9	136957	10.00 µg/L	0.066
M5-PFPeA	4.400	268.3 -> 223.0	70717	5.00 µg/L	0.037
M5-PFHxA	5.547	318.0 -> 273.0	48764	2.50 µg/L	0.012
M4-PFHpA	6.480	367.1 -> 322.0	29013	2.50 µg/L	0.012
M8-PFOA	7.136	421.1 -> 376.0	46078	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	21117	1.25 µg/L	0.013
M6-PFDA	8.191	519.1 -> 474.1	20281	1.25 µg/L	0.013
M7-PFUnDA	8.660	570.0 -> 525.1	20063	1.25 µg/L	0.013
M2-PFDoDA	9.106	615.1 -> 570.0	22329	1.25 µg/L	0.000
M2-PFTeDA	9.911	715.2 -> 670.0	15785	1.25 µg/L	0.012
M8-FOSA	9.783	506.1 -> 77.8	17104	2.50 µg/L	0.012
M3-PFBS	5.452	302.1 -> 79.9	11932	2.50 µg/L	0.025
M3-PFHxS	7.242	402.1 -> 79.9	8020	2.50 µg/L	0.012
M8-PFOS	8.341	507.1 -> 79.9	11596	2.50 µg/L	0.012
M2-4:2FTS	5.247	329.1 -> 80.9	1099	5.00 µg/L	0.025
M2-6:2FTS	6.911	429.1 -> 80.9	2057	5.00 µg/L	0.012
M2-8:2FTS	7.978	529.1 -> 80.9	3256	5.00 µg/L	0.012
M3-MeFOSAA	8.249	573.2 -> 419.0	14953	5.00 µg/L	0.012
M3-HFPO-DA	5.914	286.9 -> 168.9	28932	10.00 µg/L	0.025
M5-EtFOSAA	8.458	589.2 -> 419.0	12315	5.00 µg/L	0.012
M7-MeFOSE	10.959	623.2 -> 58.9	71810	25.00 µg/L	0.012
M9-EtFOSE	11.256	639.2 -> 58.9	98159	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11972	2.50 µg/L	0.012
M3-MeFOSA	11.064	515.0 -> 219.0	10103	2.50 µg/L	0.000
13C4-PFOS	8.342	502.8 -> 79.9	11566	2.50 µg/L	0.012
13C3-PFBA	2.993	216.0 -> 172.0	73121	5.00 µg/L	0.065
18O2-PFHxS	7.241	403.0 -> 83.9	5173	2.50 µg/L	0.012
13C4-PFOA	7.136	417.1 -> 372.0	54623	2.50 µg/L	0.012
13C2-PFDA	8.191	515.1 -> 470.1	17040	1.25 µg/L	0.013
13C5-PFNA	7.684	468.0 -> 423.0	24797	1.25 µg/L	0.000
13C2-PFHxA	5.548	315.1 -> 270.0	44958	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.247	329.1 -> 80.9	1099	5.23 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C2-6:2FTS	6.911	429.1 -> 80.9	2057	5.43 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C2-8:2FTS	7.978	529.1 -> 80.9	3256	5.50 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C2-PFDoDA	9.106	615.1 -> 570.0	22329	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-PFTeDA	9.911	715.2 -> 670.0	15785	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C3-PFBS	5.452	302.1 -> 79.9	11932	2.45 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFHxS	7.242	402.1 -> 79.9	8020	2.50 µg/L	0.012

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFBA	2.990	216.8 -> 171.9	136957	9.95 µg/L	0.066
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.480	367.1 -> 322.0	29013	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFHxA	5.547	318.0 -> 273.0	48764	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFPeA	4.400	268.3 -> 223.0	70717	5.11 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C6-PFDA	8.191	519.1 -> 474.1	20281	1.39 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C7-PFUnDA	8.660	570.0 -> 525.1	20063	1.32 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C8-FOSA	9.783	506.1 -> 77.8	17104	2.36 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-PFOA	7.136	421.1 -> 376.0	46078	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C8-PFOS	8.341	507.1 -> 79.9	11596	2.66 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C9-PFNA	7.684	472.1 -> 427.0	21117	1.25 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%	
d3-MeFOSAA	8.249	573.2 -> 419.0	14953	5.12 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C3-HFPO-DA	5.914	286.9 -> 168.9	28932	9.78 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
d3-MeFOSA	11.064	515.0 -> 219.0	10103	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.1%	
d5-EtFOSAA	8.458	589.2 -> 419.0	12315	5.12 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
d7-MeFOSE	10.959	623.2 -> 58.9	71810	19.96 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.8%	
d9-EtFOSE	11.256	639.2 -> 58.9	98159	19.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.1%	
d5-EtFOSA	11.360	531.1 -> 219.0	11972	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.248	327.1 -> 307.0	17022	9.63 µg/L	92
		327.1 -> 80.9	7103		
6:2FTS	6.911	427.1 -> 407.0	19013	9.57 µg/L	100
		427.1 -> 80.9	7983		
8:2FTS	7.978	527.1 -> 507.0	16889	9.30 µg/L	93
		527.1 -> 80.8	7840		
EtFOSAA	8.459	584.2 -> 419.1	5858	2.48 µg/L	m 90
		584.2 -> 526.0	2583		
FOSA	9.774	498.1 -> 77.9	17018	2.37 µg/L	99
		498.1 -> 478.0	486		
MeFOSAA	8.249	570.1 -> 419.0	6285	2.41 µg/L	m 90
		570.1 -> 483.0	1173		
PFBA	2.996	212.8 -> 168.9	35422	9.66 µg/L	100
PFBS	5.453	298.7 -> 79.9	10405	2.13 µg/L	98
		298.7 -> 98.8	4122		
PFDA	8.192	512.9 -> 469.0	36831	2.39 µg/L	97
		512.9 -> 219.0	7422		
PFDoDA	9.106	613.1 -> 569.0	43500	2.43 µg/L	99
		613.1 -> 319.0	6222		
PFDS	9.269	599.0 -> 79.9	6110	2.13 µg/L	97

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Perfluorinated Compounds by LC/MS/MS

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

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

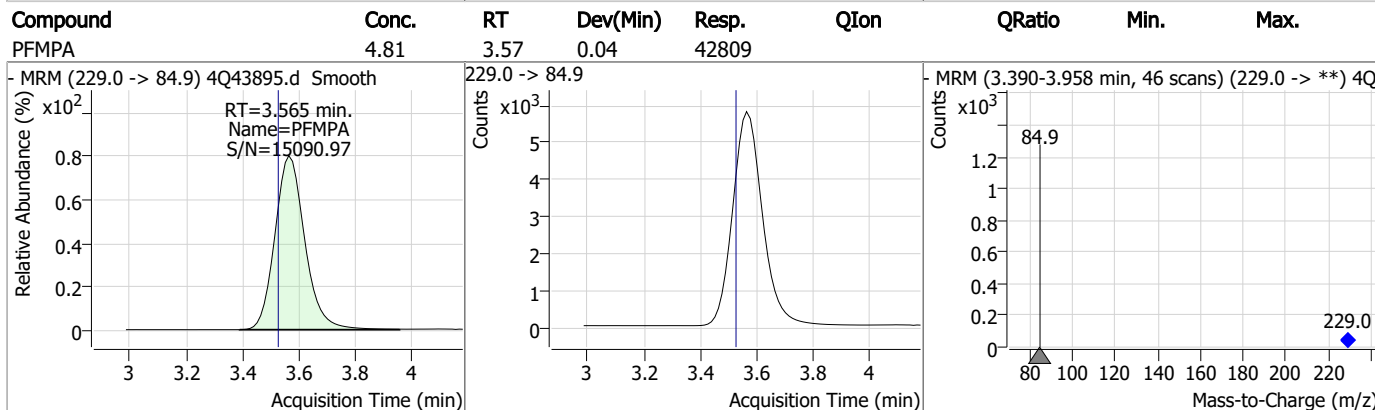
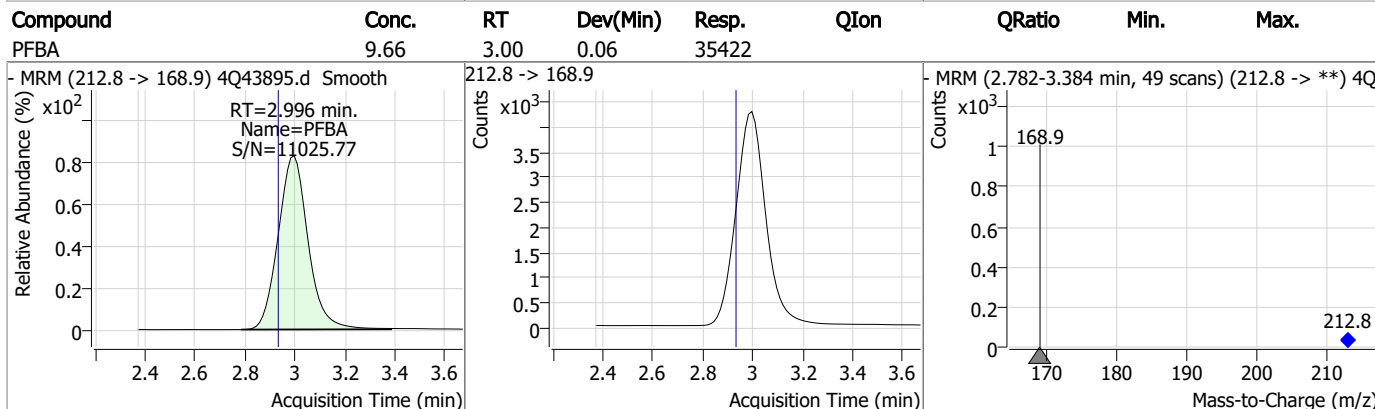
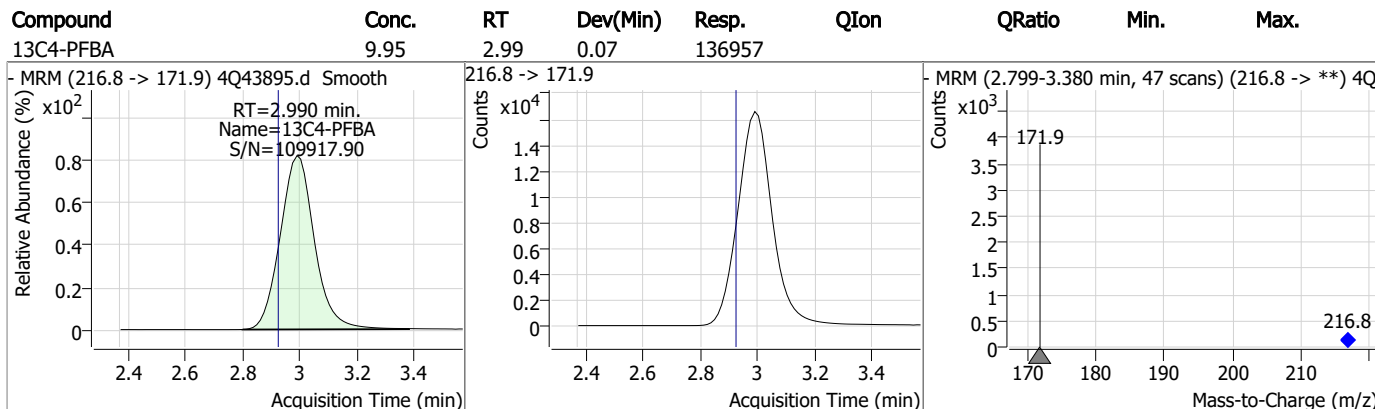
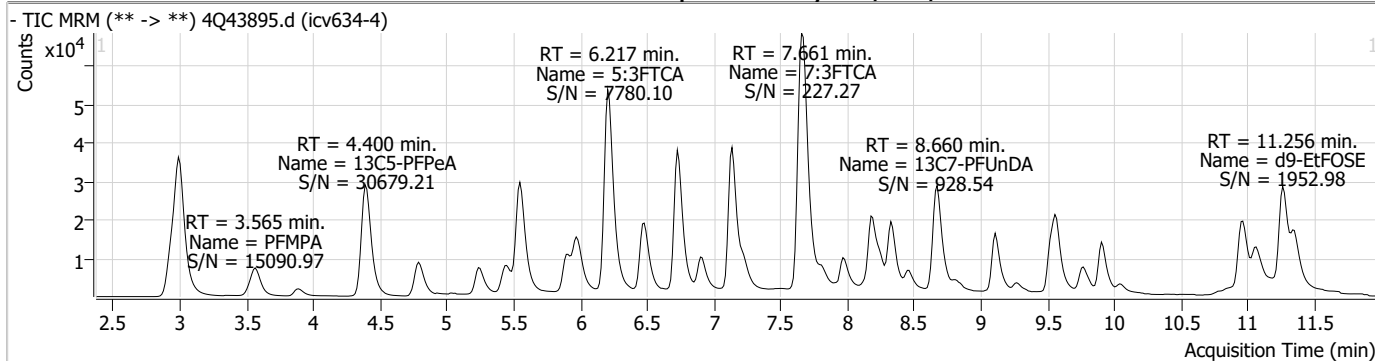
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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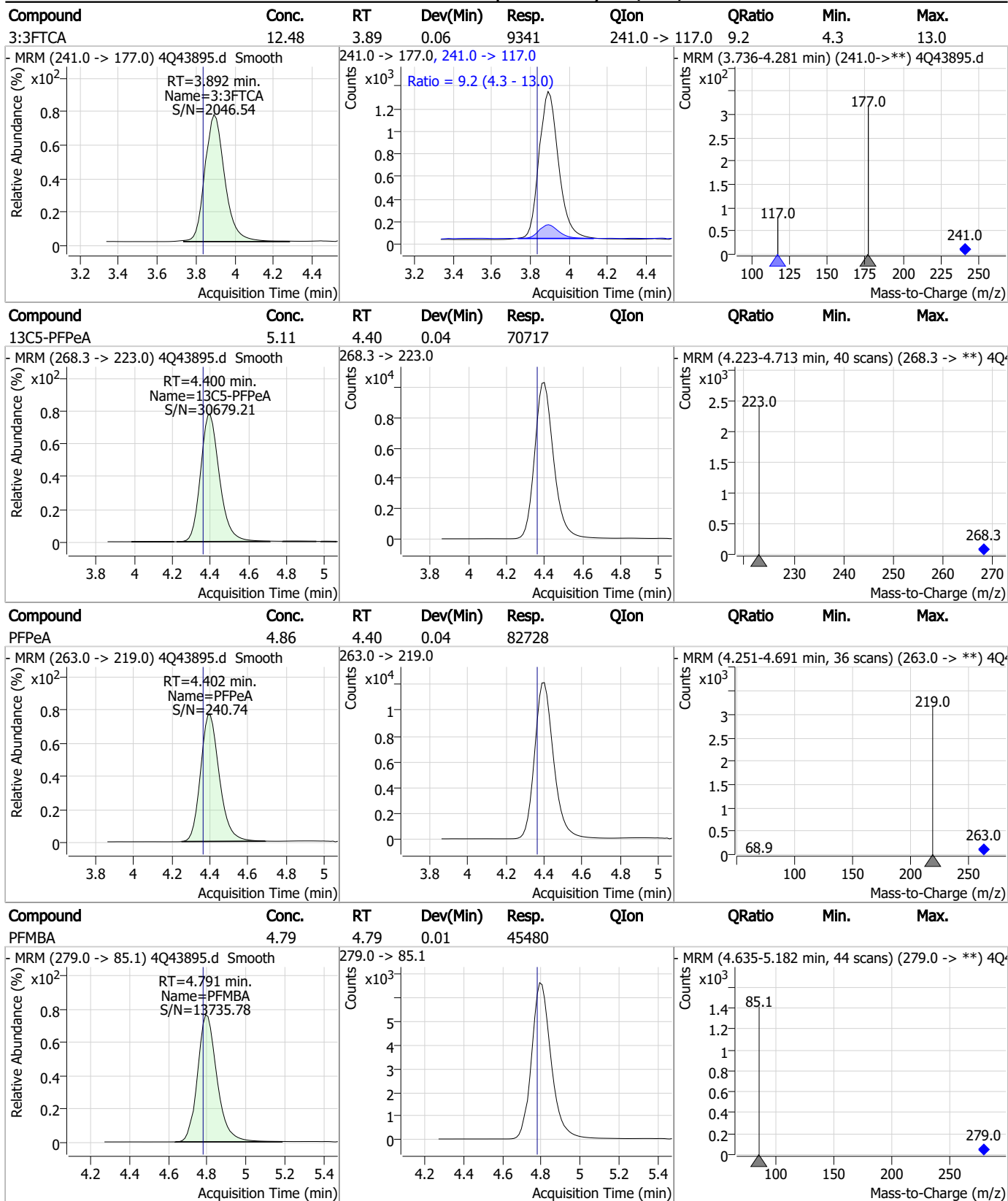
7.7.11

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### Perfluorinated Compounds by LC/MS/MS



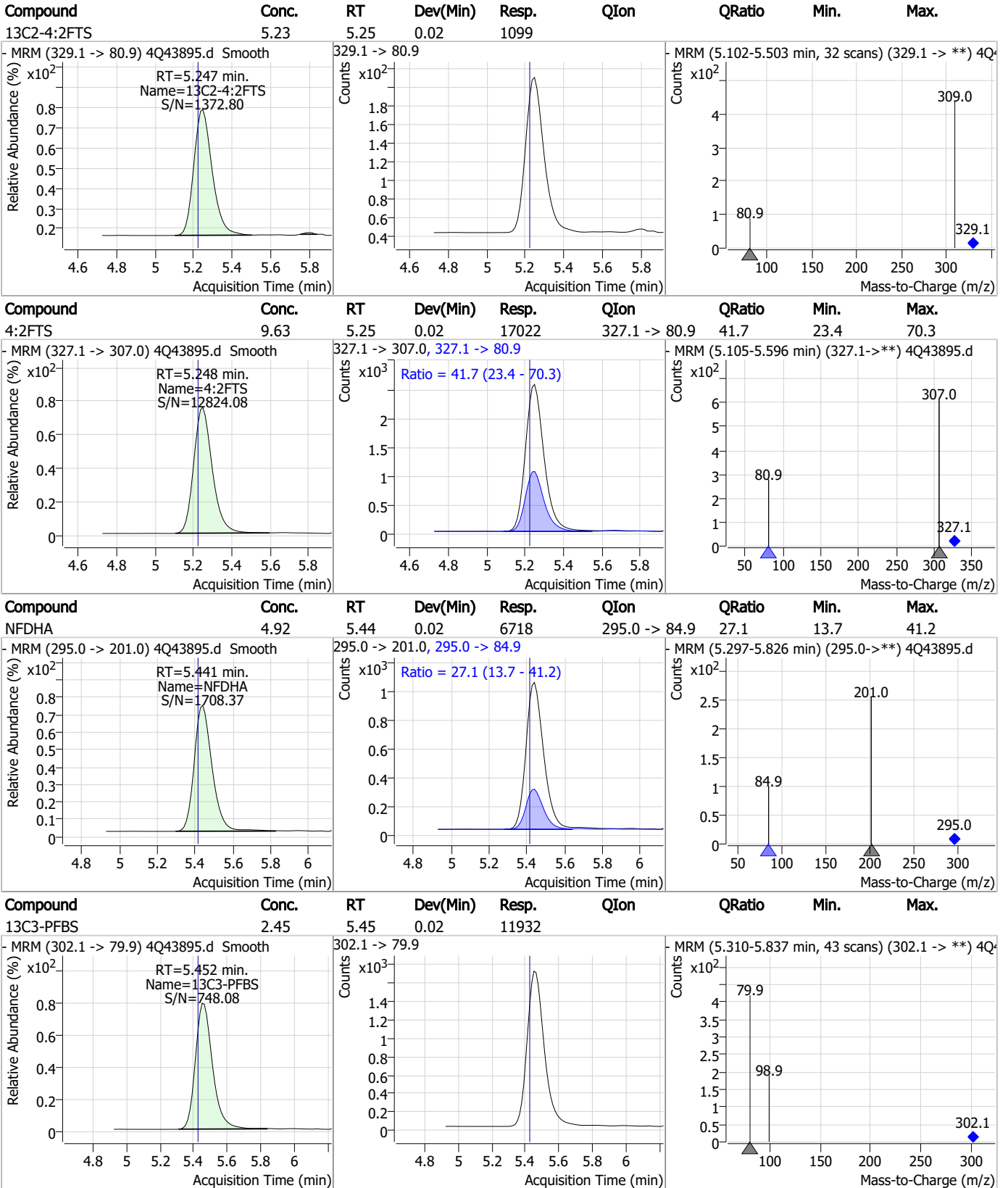
### Perfluorinated Compounds by LC/MS/MS



7.7.11  
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### Perfluorinated Compounds by LC/MS/MS

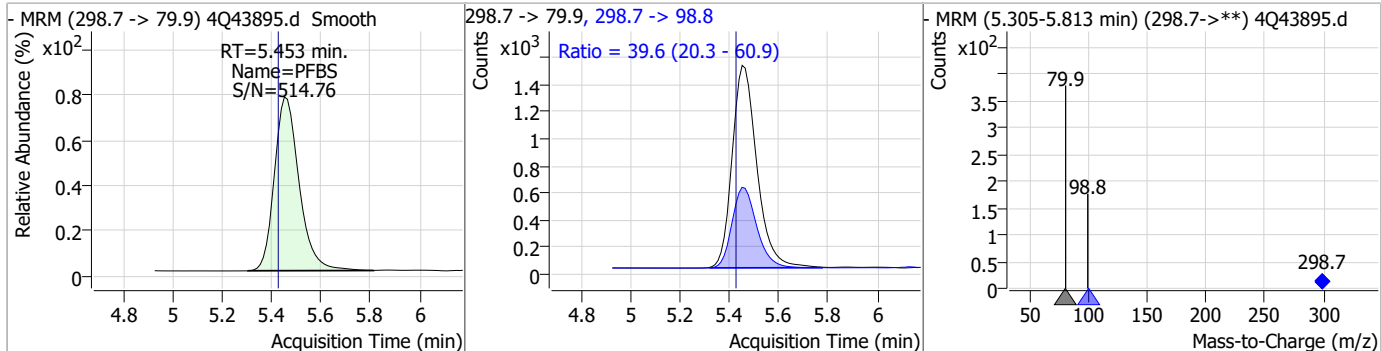


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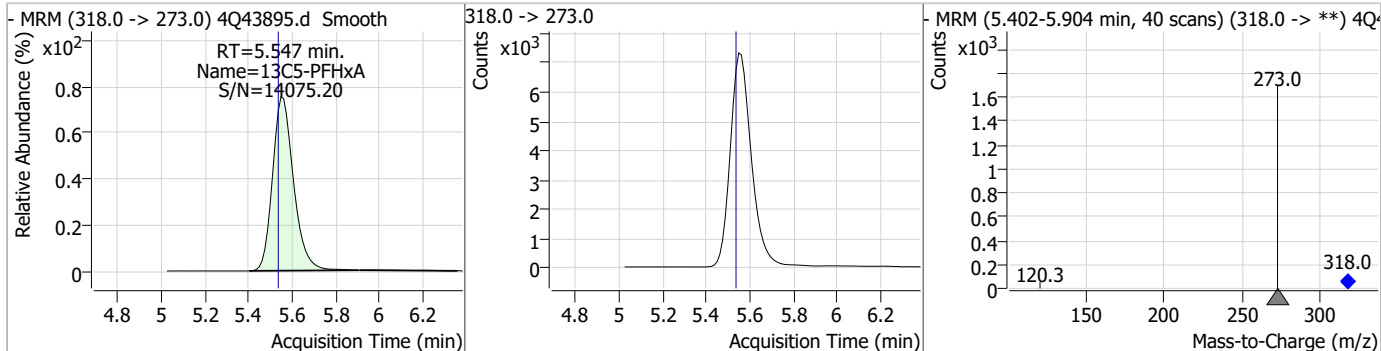
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### Perfluorinated Compounds by LC/MS/MS

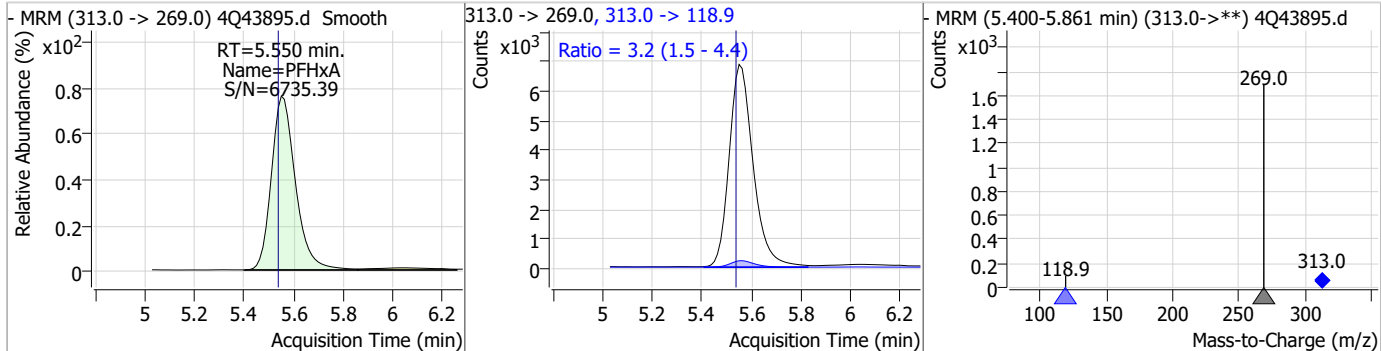
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.13	5.45	0.02	10405	298.7 -> 98.8	39.6	20.3	60.9



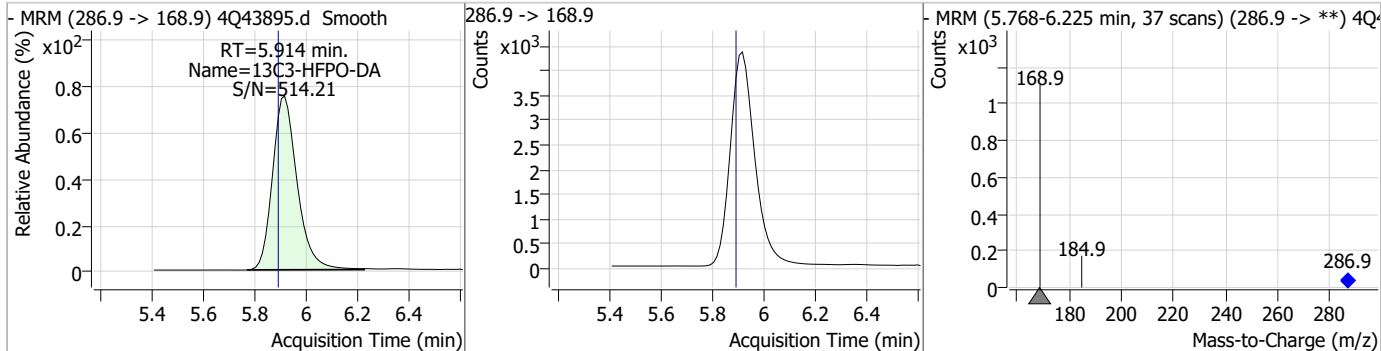
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.55	0.01	48764				



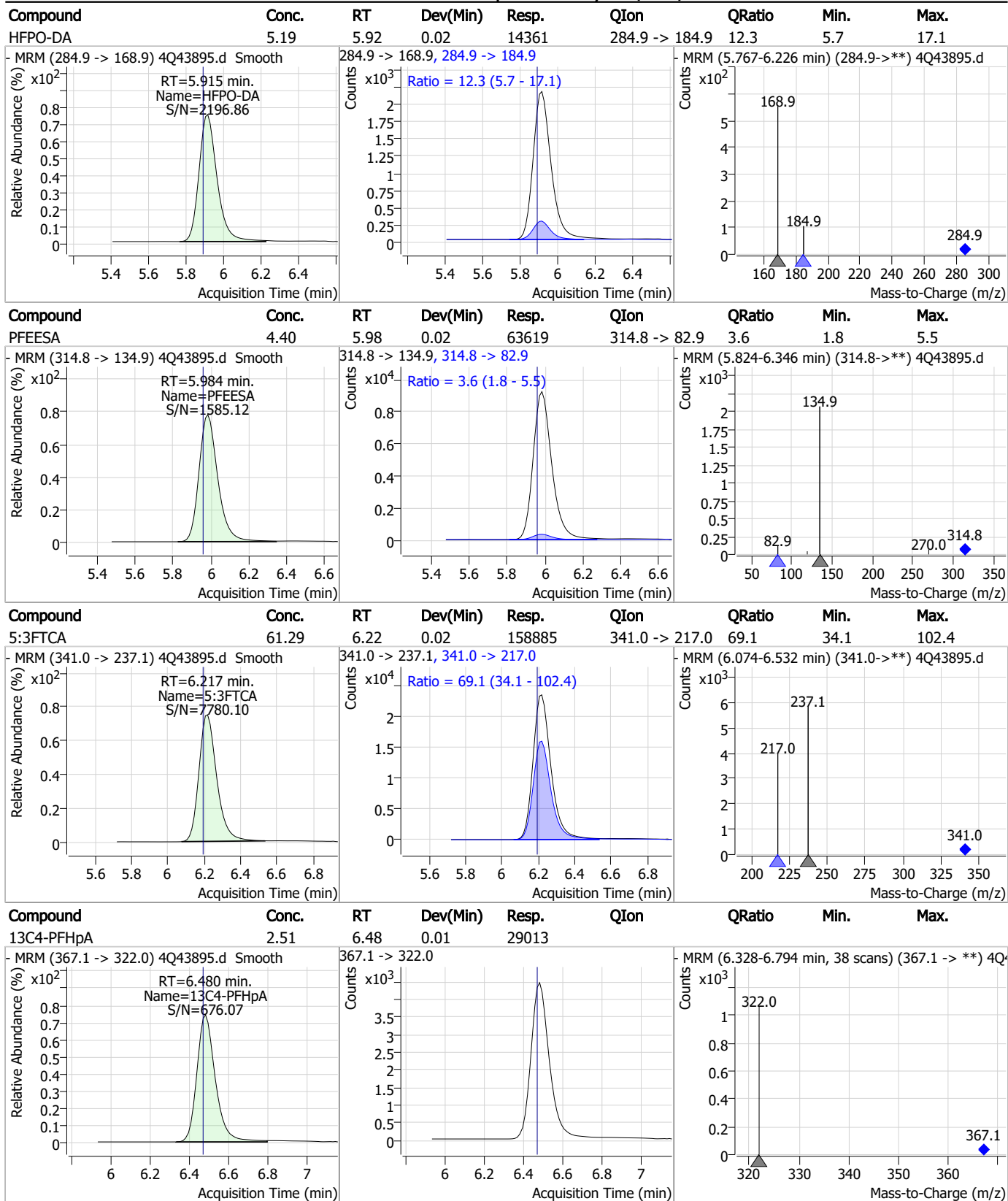
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.43	5.55	0.01	46362	313.0 -> 118.9	3.2	1.5	4.4



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

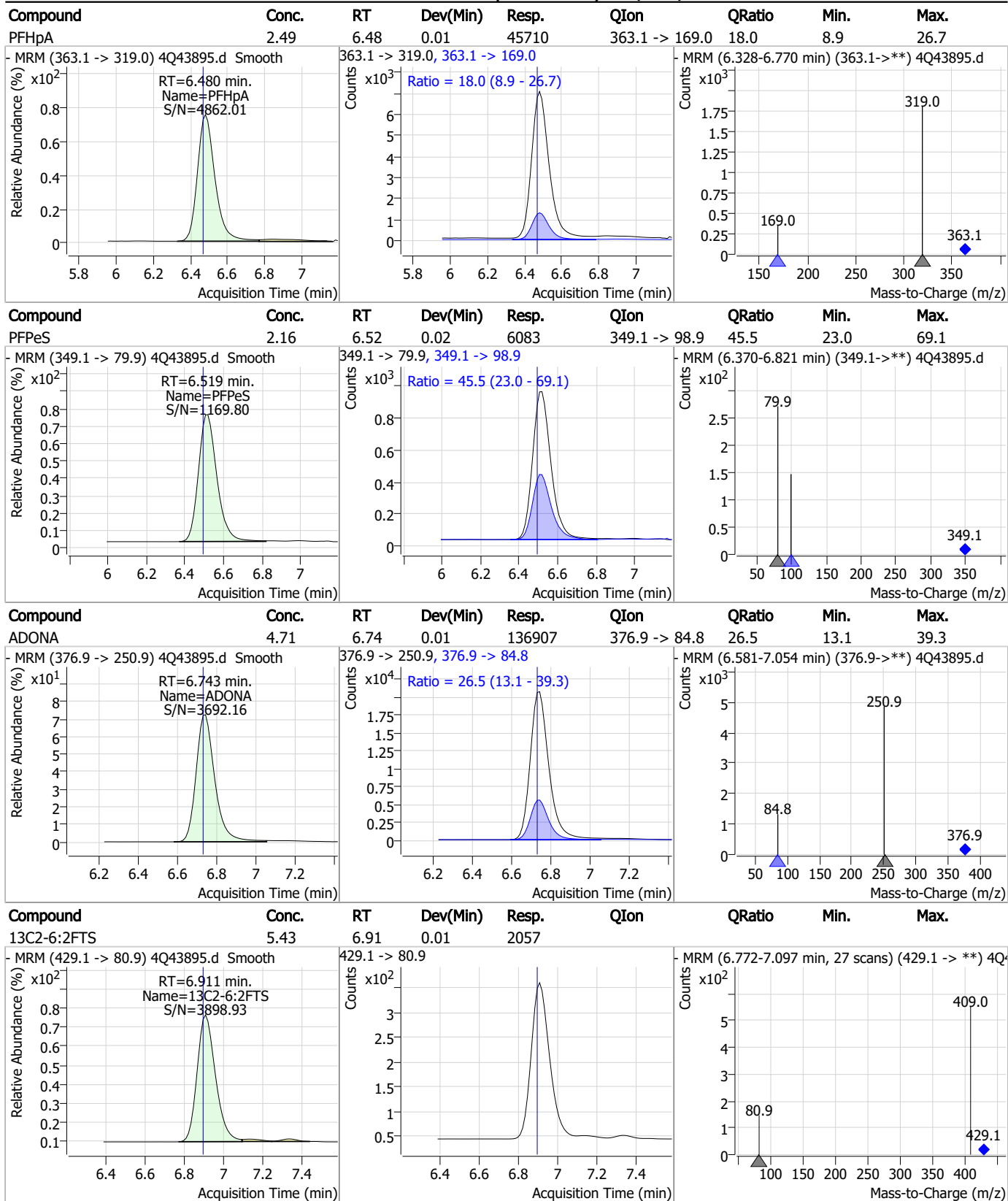


### Perfluorinated Compounds by LC/MS/MS



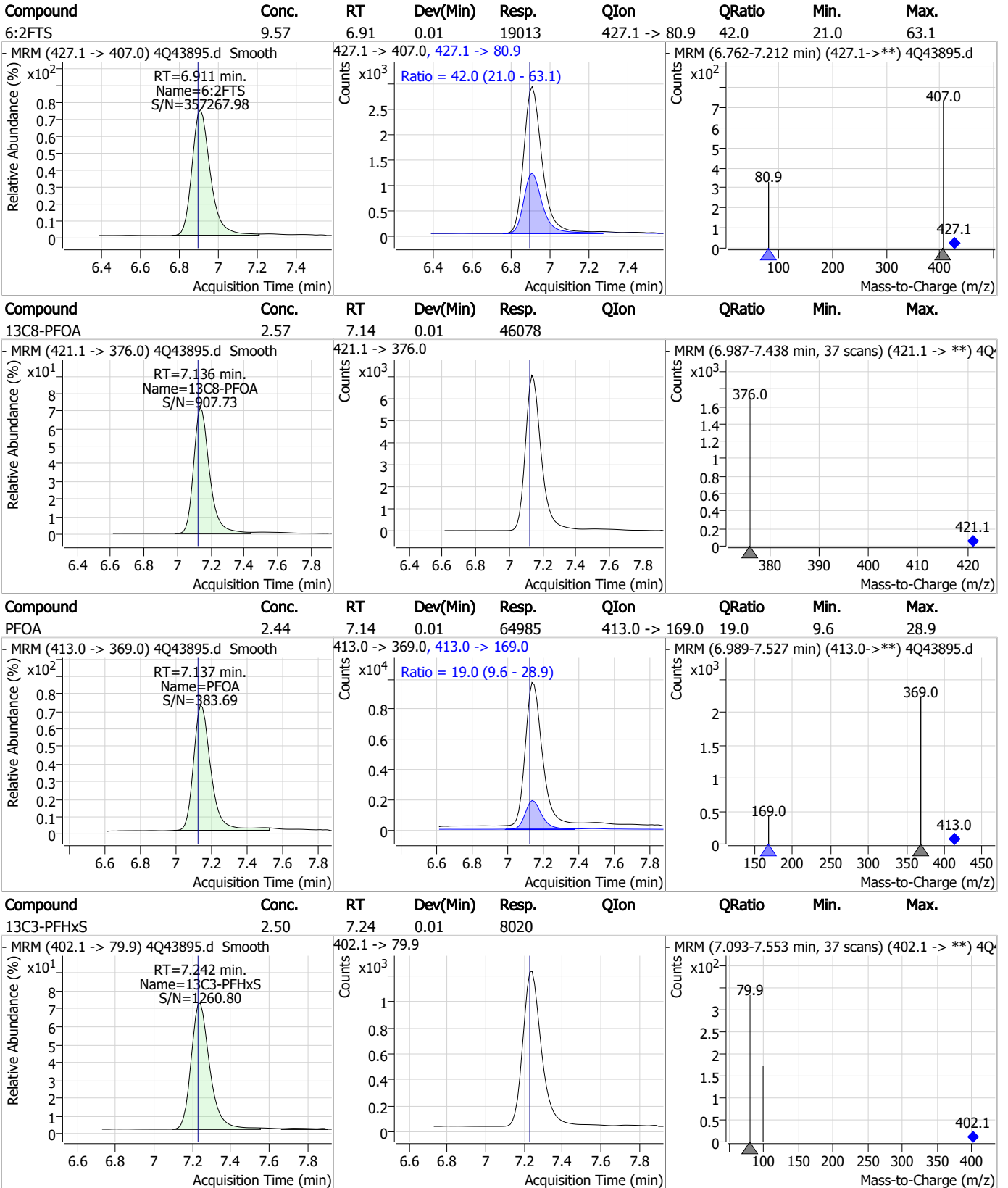
7.7.11  
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### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

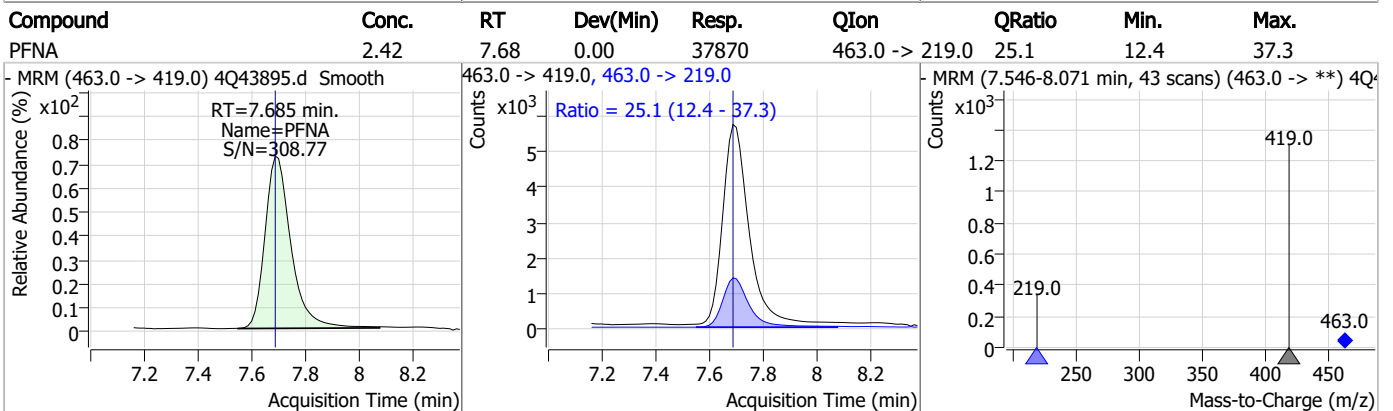
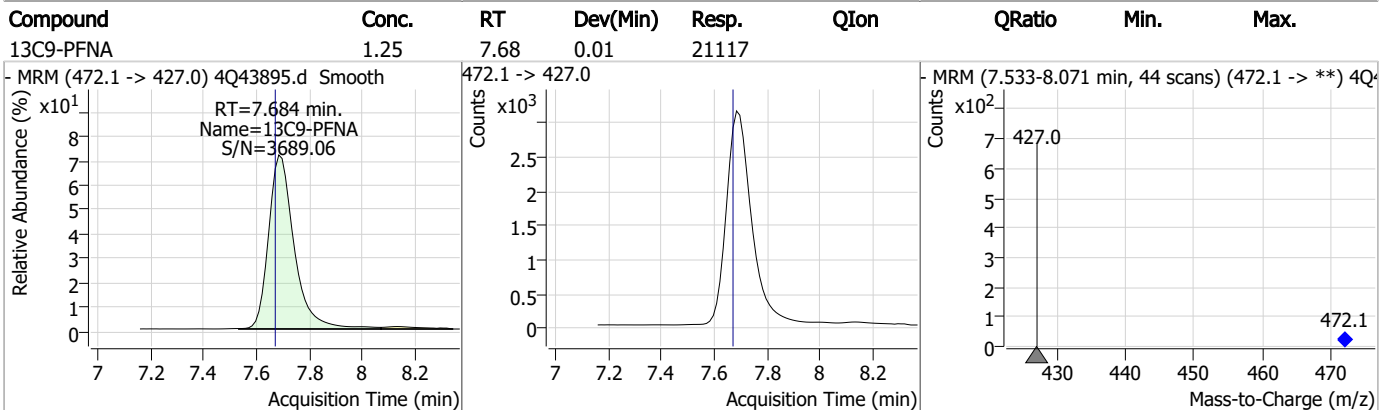
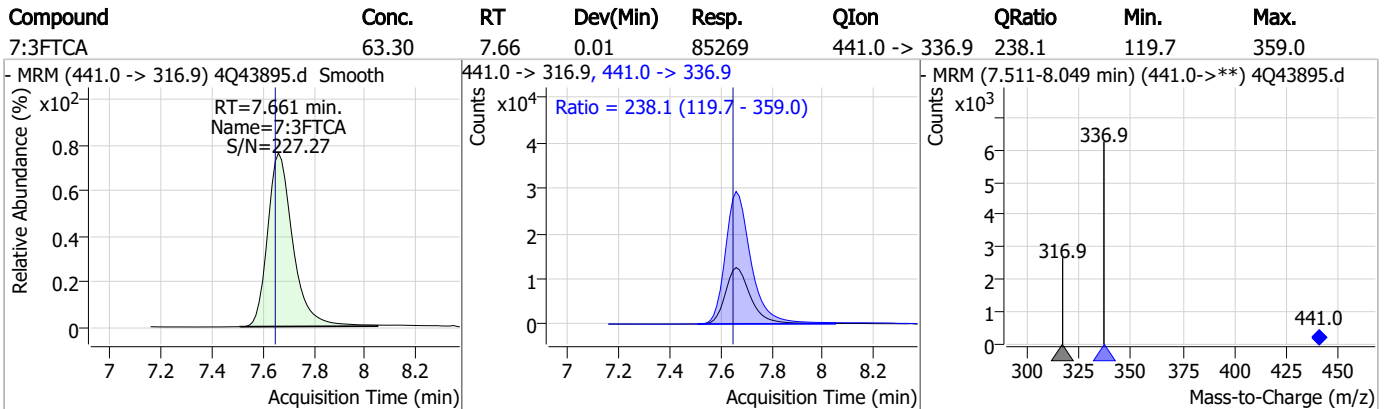
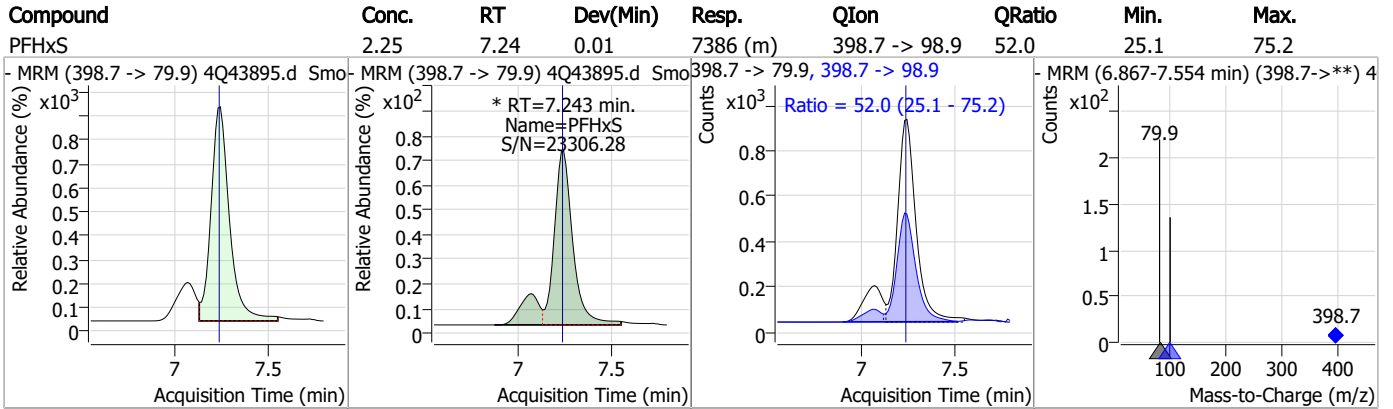


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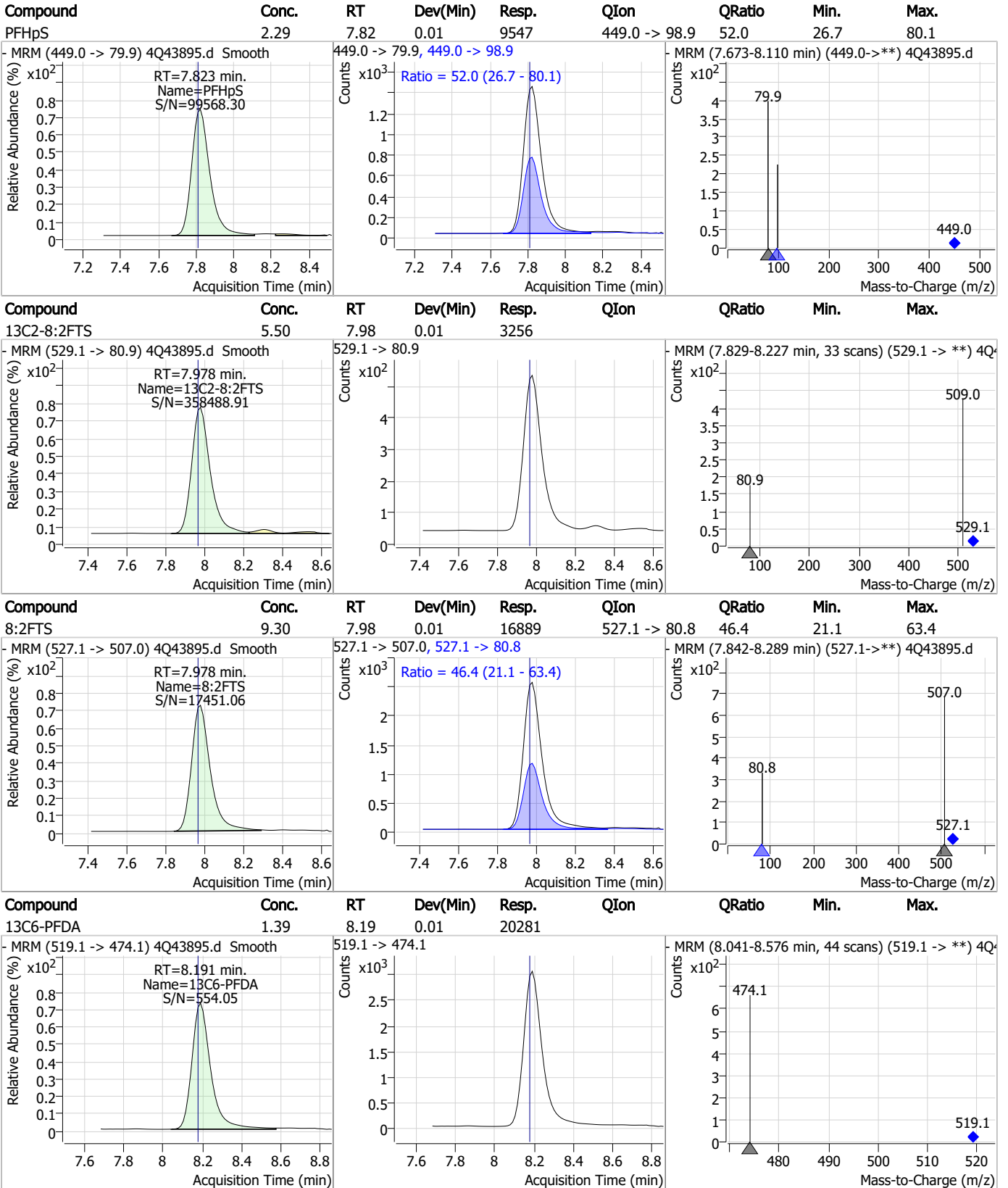
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

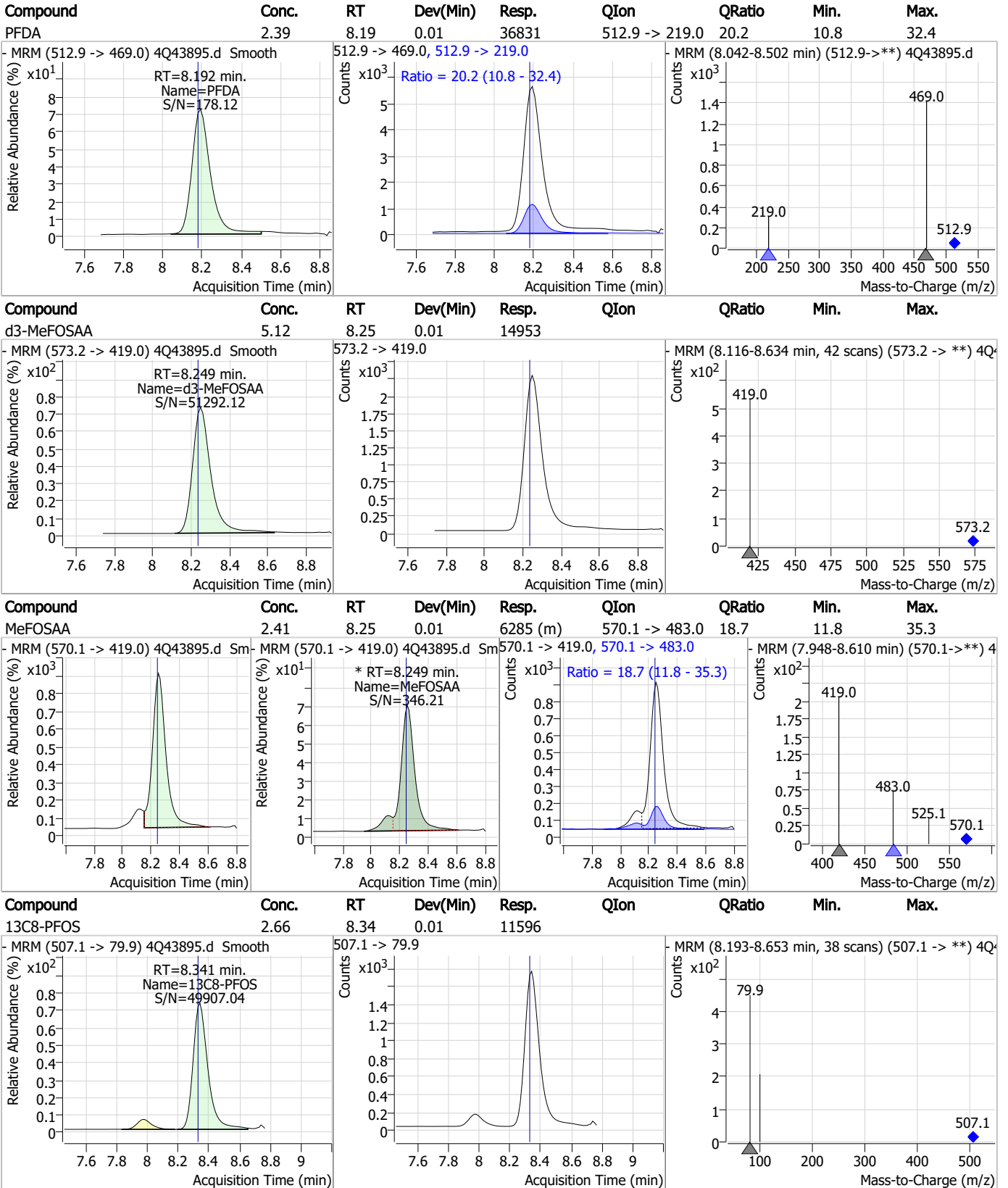


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### Perfluorinated Compounds by LC/MS/MS



7.7.11

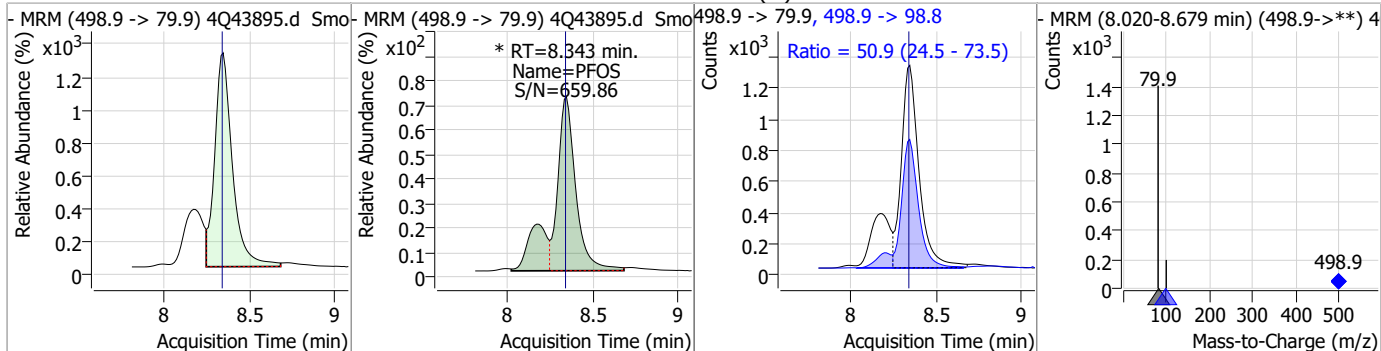
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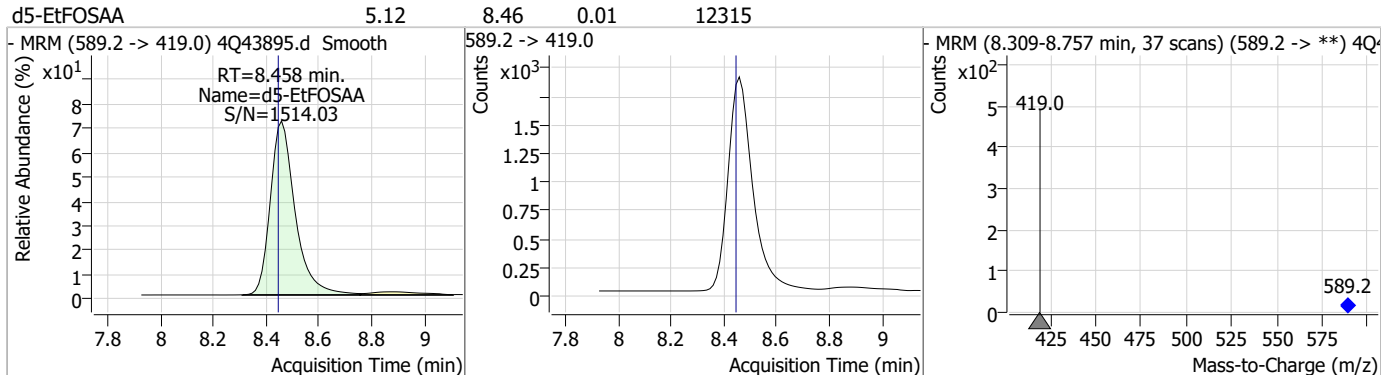


### Perfluorinated Compounds by LC/MS/MS

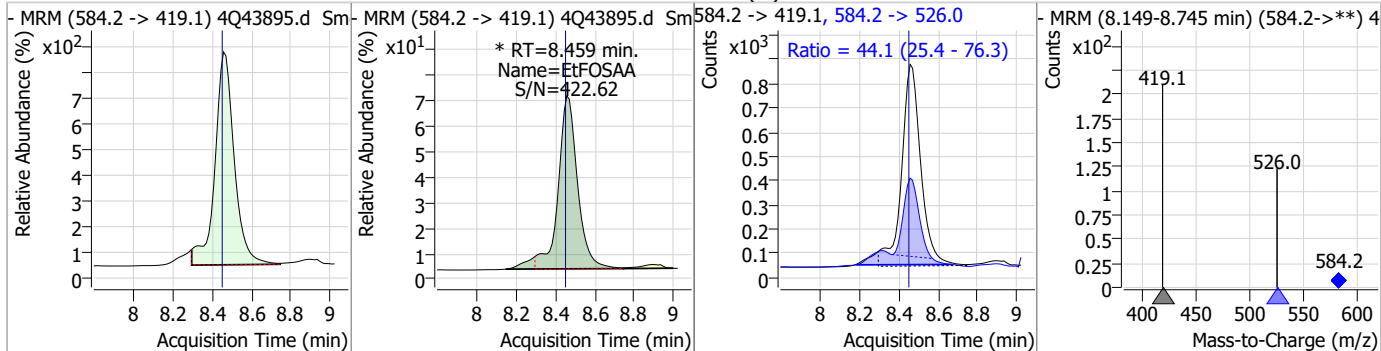
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.14	8.34	0.01	12171 (m)	498.9 -> 98.8	50.9	24.5	73.5



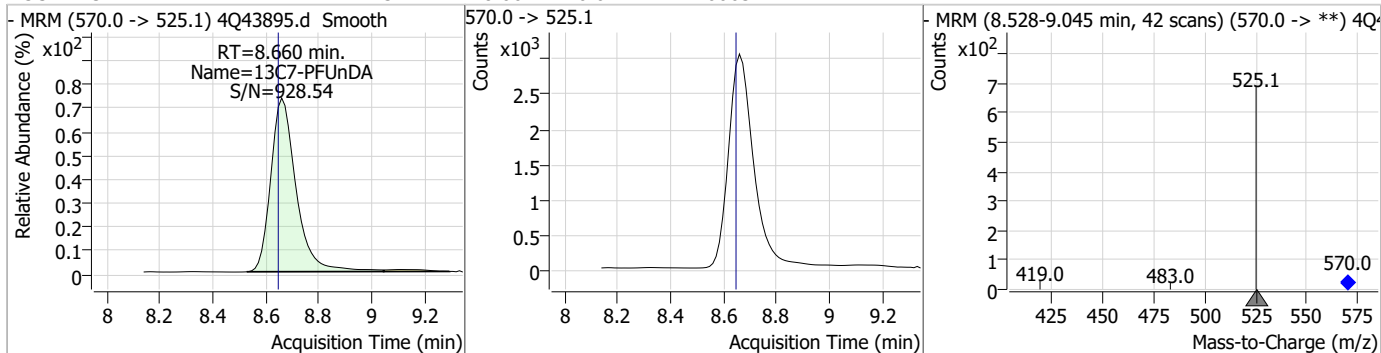
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.12	8.46	0.01	12315				



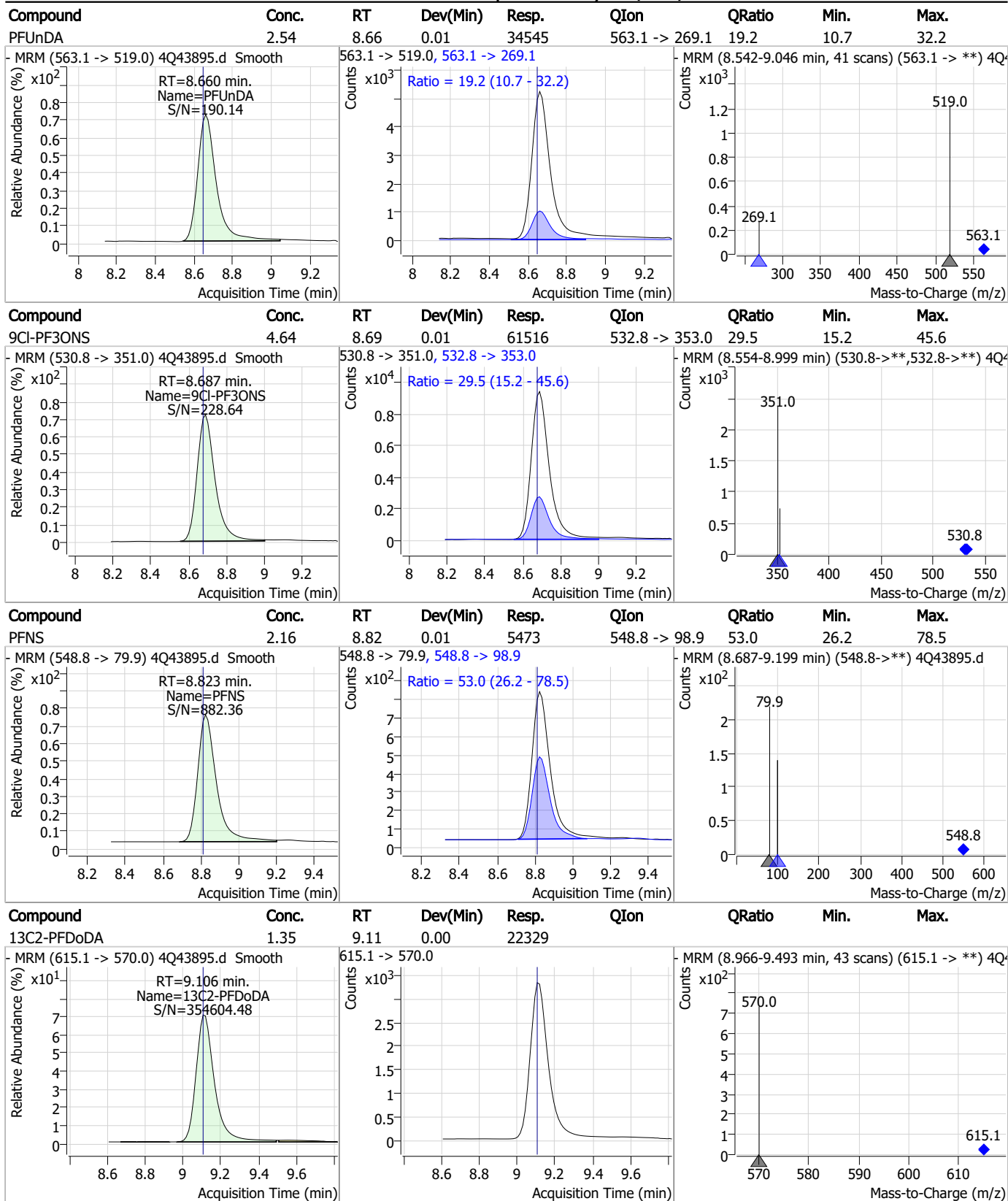
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.48	8.46	0.01	5858 (m)	584.2 -> 526.0	44.1	25.4	76.3



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



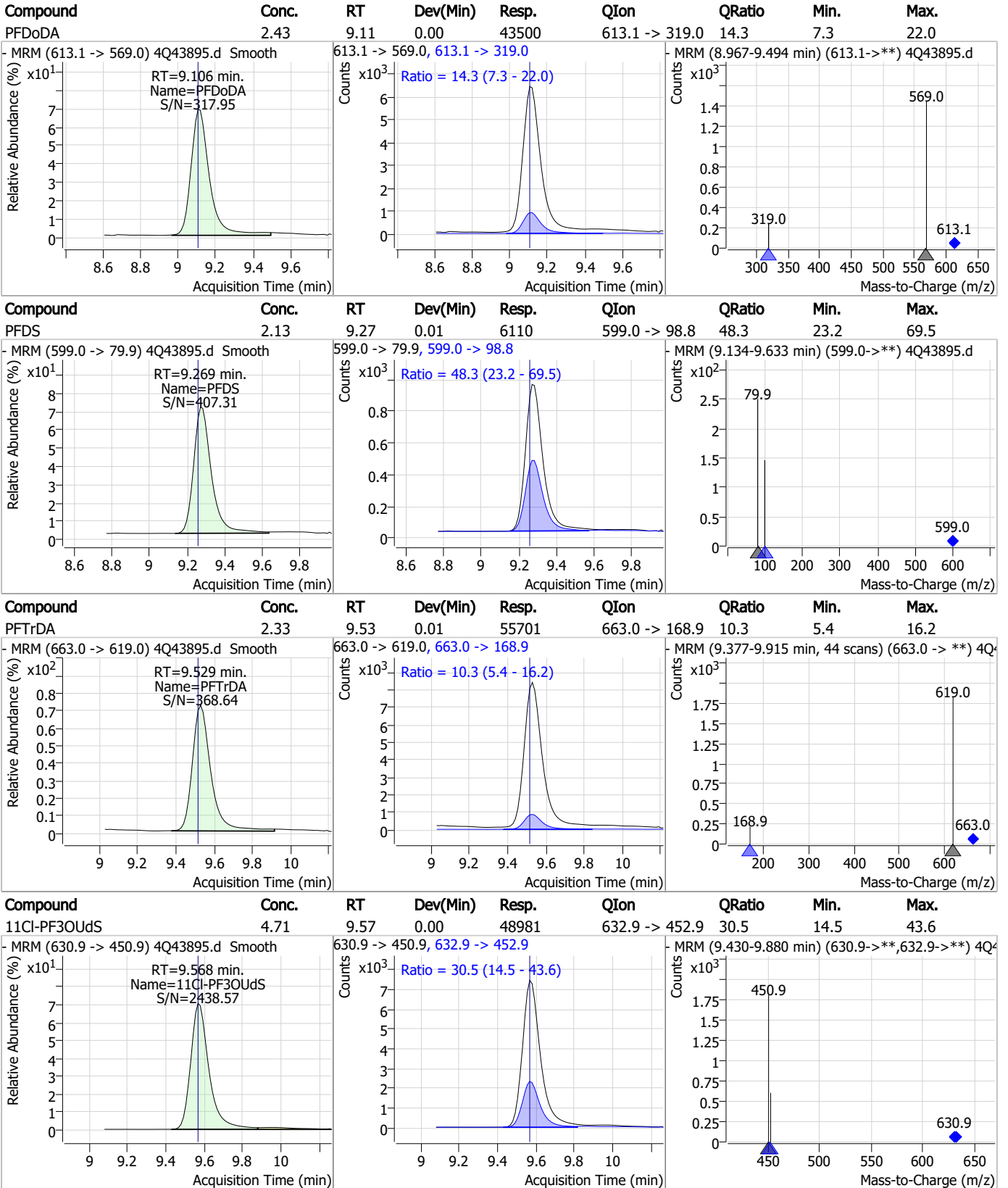
### Perfluorinated Compounds by LC/MS/MS



7.7.11  
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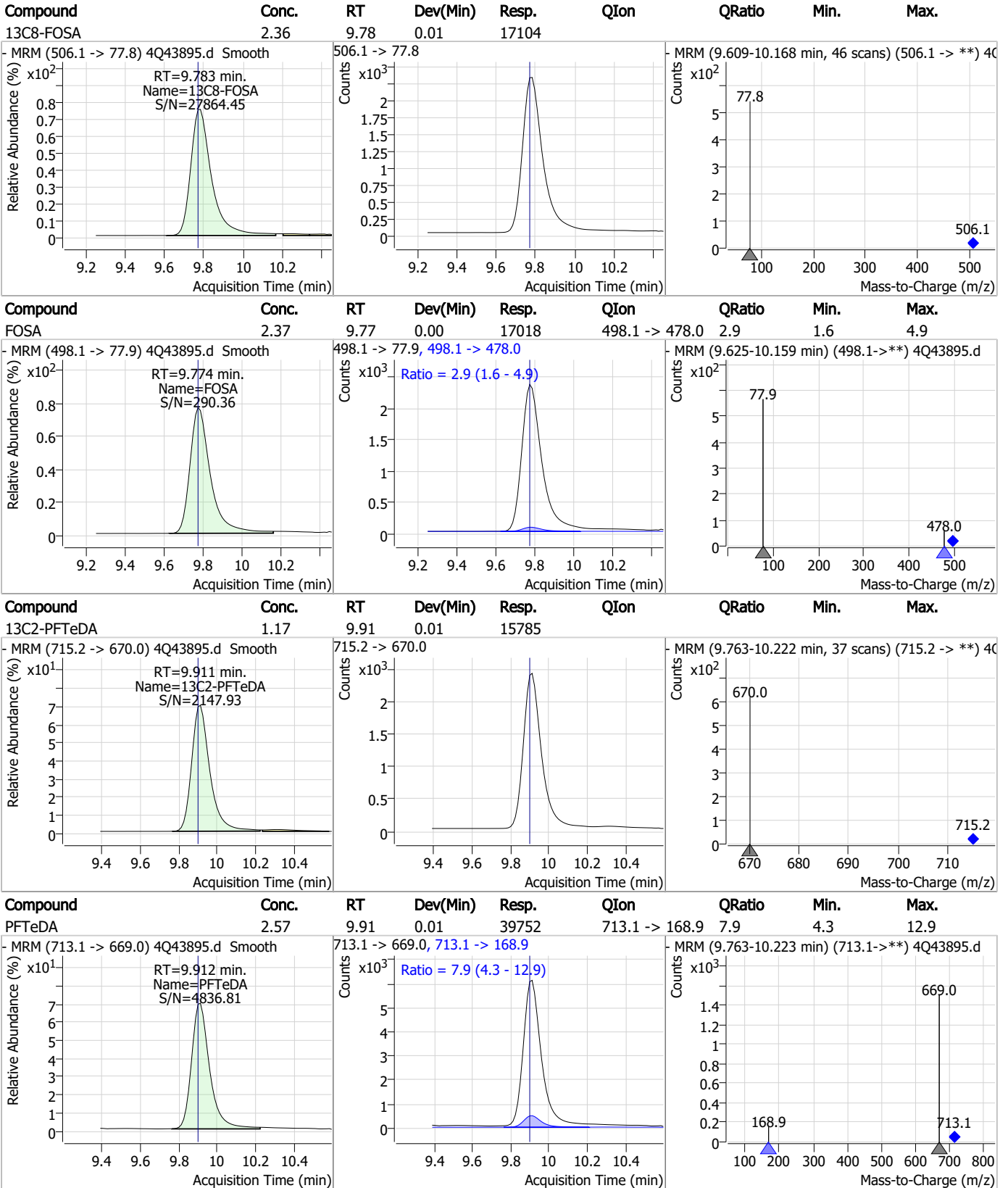
### Perfluorinated Compounds by LC/MS/MS



7.7.11

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### Perfluorinated Compounds by LC/MS/MS



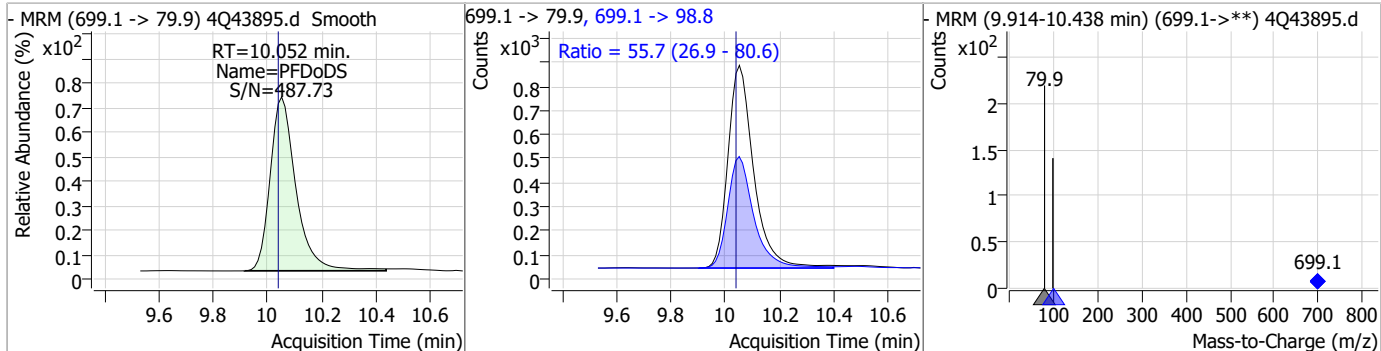
7.7.11

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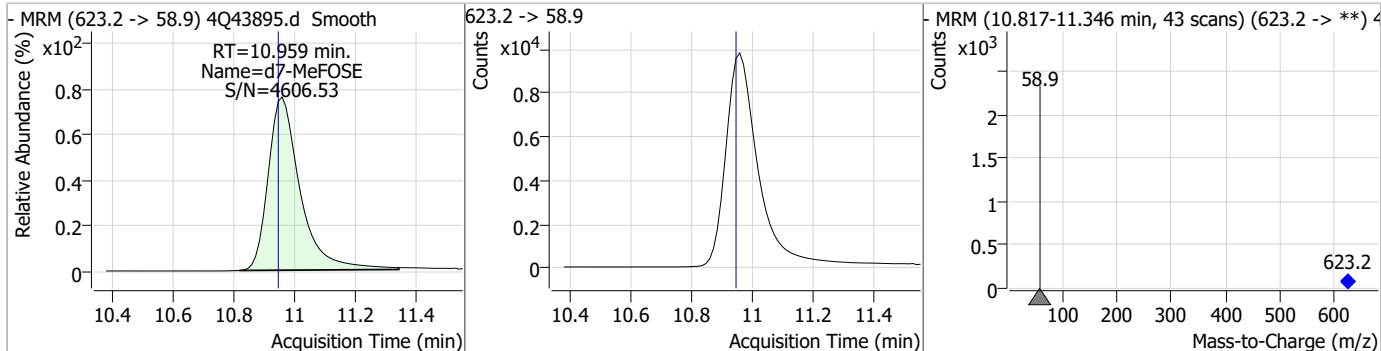


### Perfluorinated Compounds by LC/MS/MS

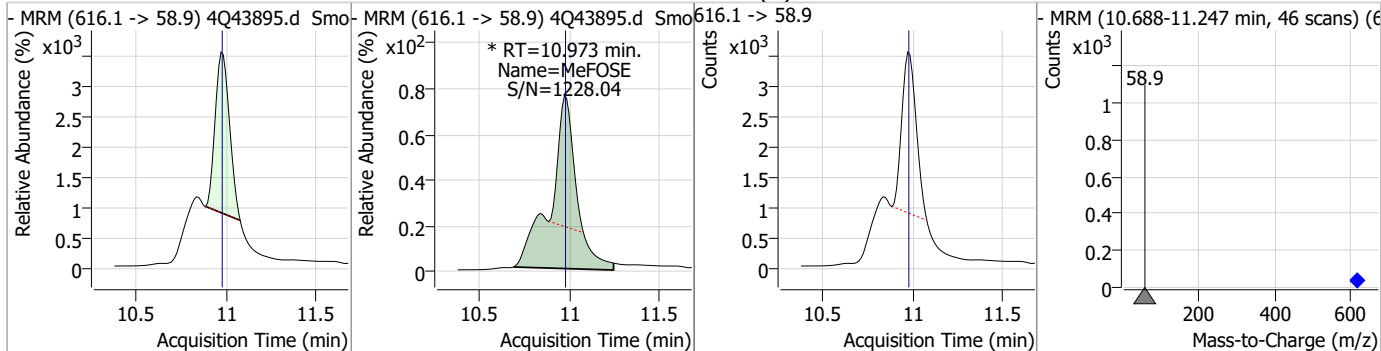
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.18	10.05	0.01	5598	699.1 -> 98.8	55.7	26.9	80.6



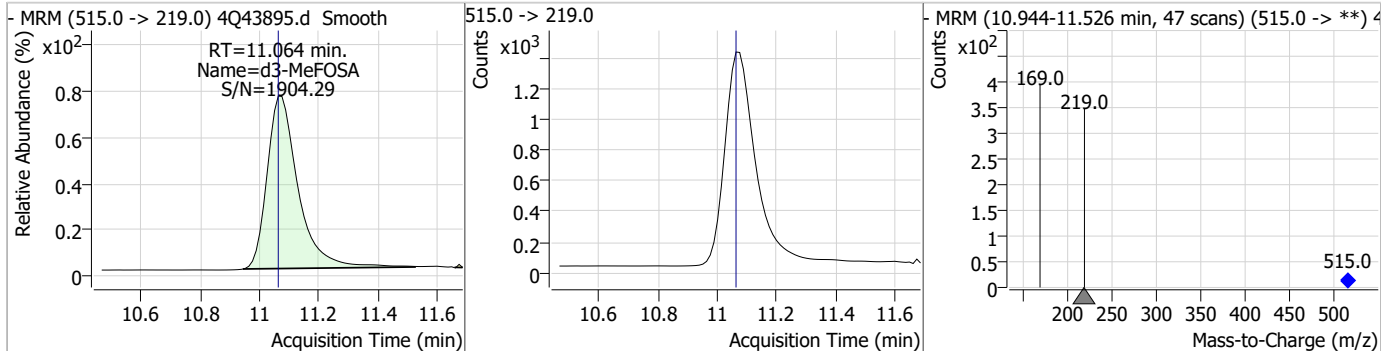
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.96	10.96	0.01	71810				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.97	10.97	0.00	35294 (m)				

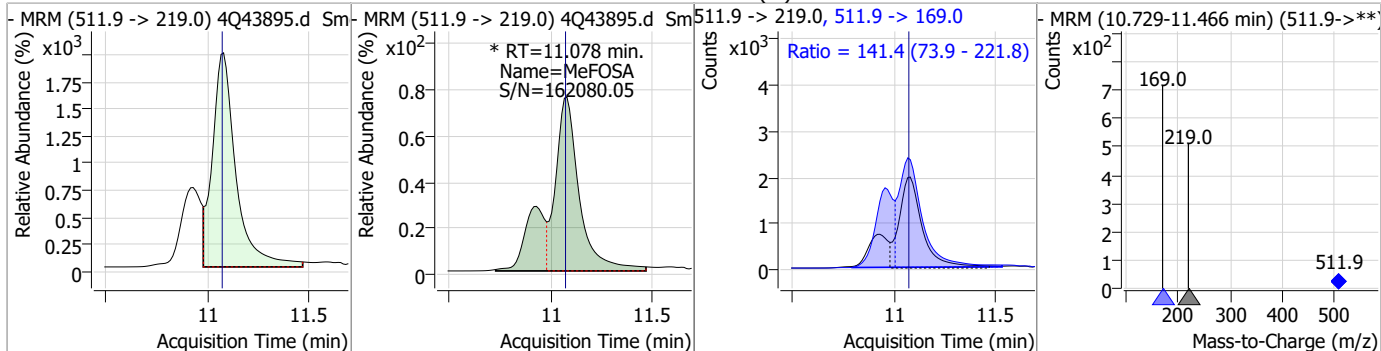


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.23	11.06	0.00	10103				

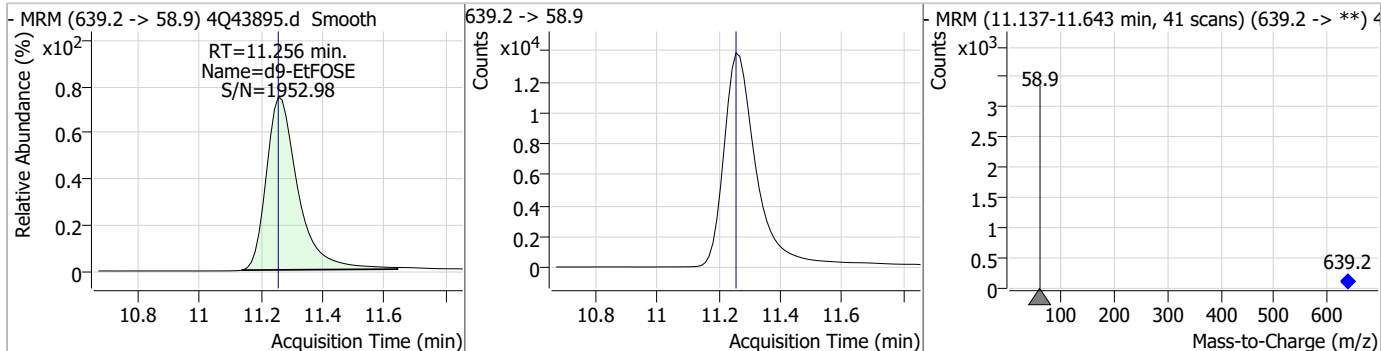


### Perfluorinated Compounds by LC/MS/MS

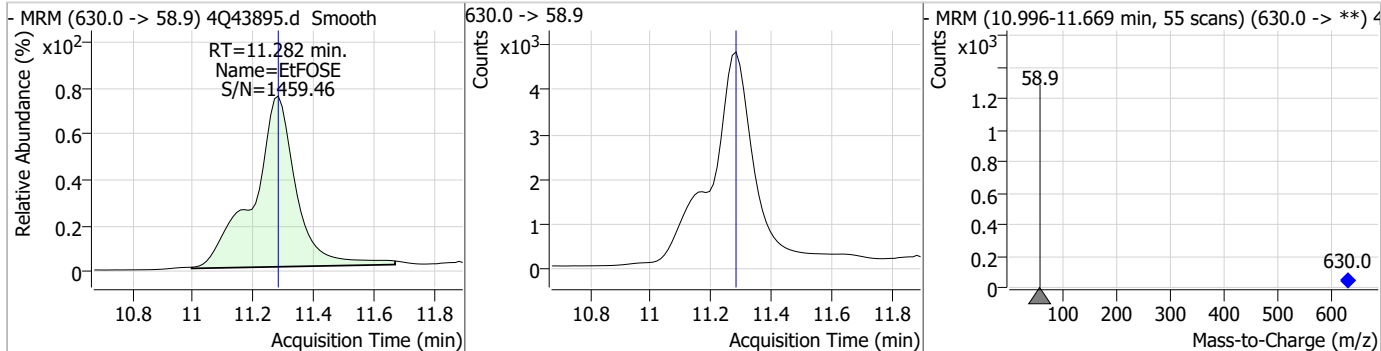
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.50	11.08	0.01	20921 (m)	511.9 -> 169.0	141.4	73.9	221.8



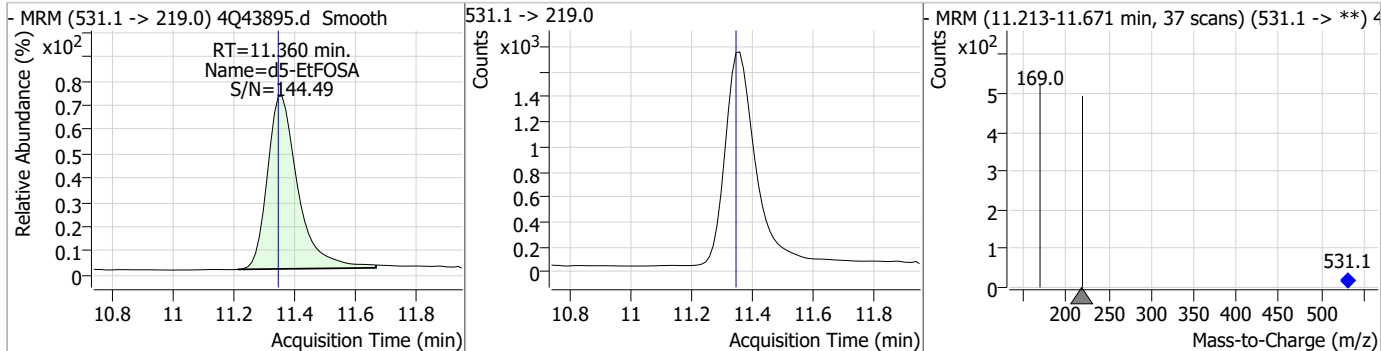
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.26	11.26	0.00	98159				



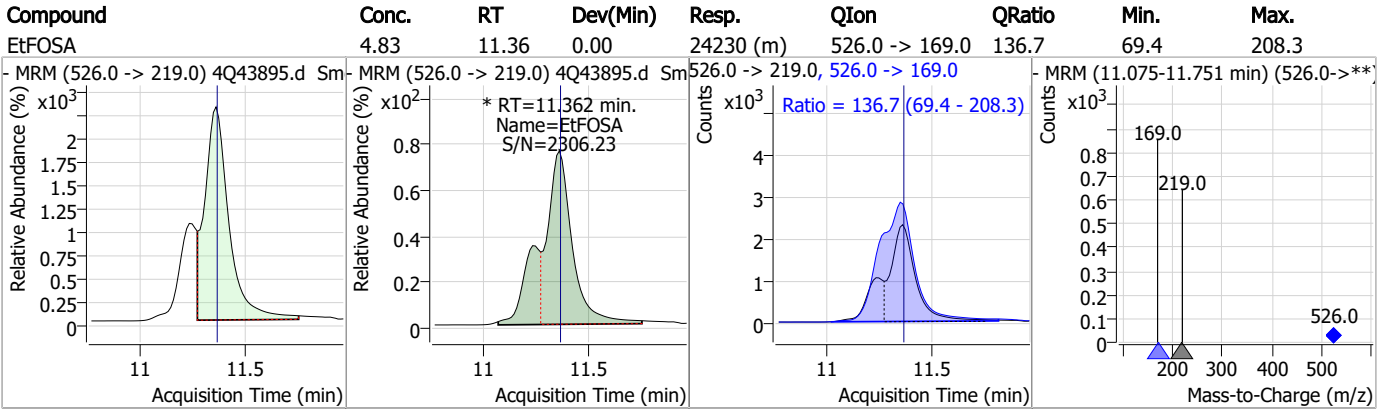
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.33	11.28	0.00	46860				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.48	11.36	0.01	11972				



### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

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

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

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44172.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/9/2023 10:48:37 PM  
 Sample Name : cc634-4  
 Vial : P1-A5  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q639.batch.bin  
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.924	216.8 -> 171.9	145502	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	75137	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	51844	2.50 µg/L	0.000
M4-PFHpA	6.504	367.1 -> 322.0	30984	2.50 µg/L	0.012
M8-PFOA	7.163	421.1 -> 376.0	47143	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	23990	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	20659	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	22931	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	24535	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	17882	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	21058	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	12632	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	7919	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	10848	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1352	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	2599	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	4113	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	16736	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	27330	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	14828	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	83126	25.00 µg/L	0.000
M9-EtFOSE	11.281	639.2 -> 58.9	112349	25.00 µg/L	0.012
M5-EtFOSA	11.373	531.1 -> 219.0	12423	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	11602	2.50 µg/L	0.000
13C4-PFOS	8.367	502.8 -> 79.9	12493	2.50 µg/L	0.012
13C3-PFBA	2.928	216.0 -> 172.0	76073	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	5746	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	57582	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	19950	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	26686	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	47242	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.247	329.1 -> 80.9	1352	5.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.8%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2599	6.17 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.5%		
13C2-8:2FTS	8.003	529.1 -> 80.9	4113	6.26 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.2%		
13C2-PFDoDA	9.130	615.1 -> 570.0	24535	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-PFTeDA	9.924	715.2 -> 670.0	17882	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.0%		
13C3-PFBS	5.464	302.1 -> 79.9	12632	2.33 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C3-PFHxS	7.254	402.1 -> 79.9	7919	2.22 µg/L	0.012

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.9%	
13C4-PFBA	2.924	216.8 -> 171.9	145502	10.16 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C4-PFHpA	6.504	367.1 -> 322.0	30984	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFHxA	5.559	318.0 -> 273.0	51844	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C5-PFPeA	4.387	268.3 -> 223.0	75137	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C6-PFDA	8.216	519.1 -> 474.1	20659	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C7-PFUnDA	8.685	570.0 -> 525.1	22931	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C8-FOSA	9.796	506.1 -> 77.8	21058	2.69 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C8-PFOA	7.163	421.1 -> 376.0	47143	2.49 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-PFOS	8.354	507.1 -> 79.9	10848	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C9-PFNA	7.709	472.1 -> 427.0	23990	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.8%	
d3-MeFOSAA	8.273	573.2 -> 419.0	16736	5.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	27330	8.79 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.9%	
d3-MeFOSA	11.089	515.0 -> 219.0	11602	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
d5-EtFOSAA	8.483	589.2 -> 419.0	14828	5.71 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.2%	
d7-MeFOSE	10.972	623.2 -> 58.9	83126	21.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.5%	
d9-EtFOSE	11.281	639.2 -> 58.9	112349	20.41 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.7%	
d5-EtFOSA	11.373	531.1 -> 219.0	12423	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.248	327.1 -> 307.0	20314	9.34 µg/L	97
		327.1 -> 80.9	8921		
6:2FTS	6.936	427.1 -> 407.0	23386	9.32 µg/L	100
		427.1 -> 80.9	10079		
8:2FTS	8.003	527.1 -> 507.0	24140	10.53 µg/L	94
		527.1 -> 80.8	9515		
EtFOSAA	8.483	584.2 -> 419.1	6980	2.45 µg/L	m 94
		584.2 -> 526.0	3344		
FOSA	9.786	498.1 -> 77.9	21619	2.45 µg/L	99
		498.1 -> 478.0	636		
MeFOSAA	8.274	570.1 -> 419.0	7044	2.41 µg/L	100
		570.1 -> 483.0	1323		
PFBA	2.932	212.8 -> 168.9	37812	9.70 µg/L	100
PFBS	5.465	298.7 -> 79.9	10819	2.09 µg/L	92
		298.7 -> 98.8	4376		
PFDA	8.216	512.9 -> 469.0	39935	2.55 µg/L	99
		512.9 -> 219.0	8129		
PFDoDA	9.131	613.1 -> 569.0	47916	2.43 µg/L	99
		613.1 -> 319.0	6514		
PFDS	9.294	599.0 -> 79.9	6835	2.54 µg/L	100

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3556			
PFHpA	6.505	363.1 -> 319.0	47386	2.42	µg/L	97
		363.1 -> 169.0	7796			
PFHpS	7.836	449.0 -> 79.9	9482	2.43	µg/L	98
		449.0 -> 98.9	5078			
PFHxA	5.562	313.0 -> 269.0	47677	2.35	µg/L	99
		313.0 -> 118.9	1645			
PFHxS	7.255	398.7 -> 79.9	7418	2.29	µg/L	m 94
		398.7 -> 98.9	3982			
PFNA	7.709	463.0 -> 419.0	41096	2.31	µg/L	99
		463.0 -> 219.0	10196			
PFNS	8.848	548.8 -> 79.9	5654	2.39	µg/L	92
		548.8 -> 98.9	3028			
PFOA	7.164	413.0 -> 369.0	64536	2.37	µg/L	98
		413.0 -> 169.0	13301			
PFOS	8.355	498.9 -> 79.9	12238	2.31	µg/L	m 92
		498.9 -> 98.8	6687			
PFPeA	4.389	263.0 -> 219.0	87124	4.82	µg/L	100
PFPeS	6.531	349.1 -> 79.9	6558	2.36	µg/L	99
		349.1 -> 98.9	2986			
PFTeDA	9.924	713.1 -> 669.0	43918	2.51	µg/L	100
		713.1 -> 168.9	3721			
PFTrDA	9.541	663.0 -> 619.0	64257	2.44	µg/L	99
		663.0 -> 168.9	6243			
PFUnDA	8.685	563.1 -> 519.0	37844	2.43	µg/L	95
		563.1 -> 269.1	7728			
11CI-PF3OUdS	9.593	630.9 -> 450.9	52398	5.33	µg/L	100
		632.9 -> 452.9	15813			
9CI-PF3ONS	8.712	530.8 -> 351.0	66873	5.34	µg/L	100
		532.8 -> 353.0	19807			
ADONA	6.756	376.9 -> 250.9	141880	5.16	µg/L	99
		376.9 -> 84.8	37506			
HFPO-DA	5.928	284.9 -> 168.9	13369	5.12	µg/L	97
		284.9 -> 184.9	1534			
3:3FTCA	3.867	241.0 -> 177.0	9983	12.55	µg/L	98
		241.0 -> 117.0	1002			
5:3FTCA	6.231	341.0 -> 237.1	188555	68.41	µg/L	99
		341.0 -> 217.0	127854			
7:3FTCA	7.686	441.0 -> 316.9	105449	73.63	µg/L	97
		441.0 -> 336.9	253736			
EtFOSA	11.375	526.0 -> 219.0	25444	4.89	µg/L	73
		526.0 -> 169.0	36708			
EtFOSE	11.295	630.0 -> 58.9	50636	11.64	µg/L	100
MeFOSA	11.090	511.9 -> 219.0	21539	4.93	µg/L	m 81
		511.9 -> 169.0	31620			
MeFOSE	10.997	616.1 -> 58.9	41287	12.09	µg/L	m 100
PFDoDS	10.064	699.1 -> 79.9	5764	2.40	µg/L	99
		699.1 -> 98.8	3292			
NFDHA	5.453	295.0 -> 201.0	5463	3.77	µg/L	98
		295.0 -> 84.9	1405			
PFMBA	4.791	279.0 -> 85.1	48299	4.79	µg/L	100
PFMPA	3.540	229.0 -> 84.9	45858	4.85	µg/L	100
PFEESA	5.997	314.8 -> 134.9	64982	4.23	µg/L	99
		314.8 -> 82.9	2181			

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

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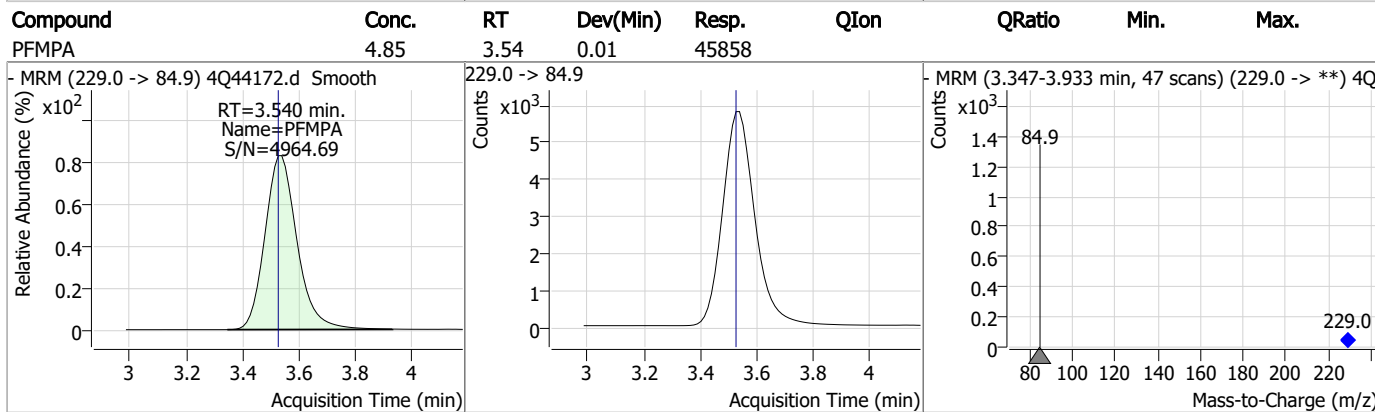
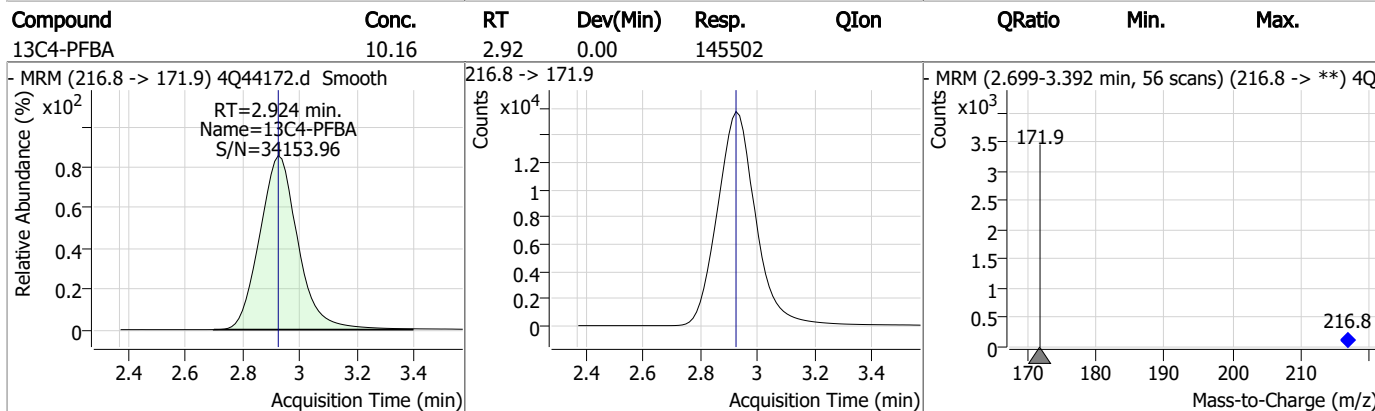
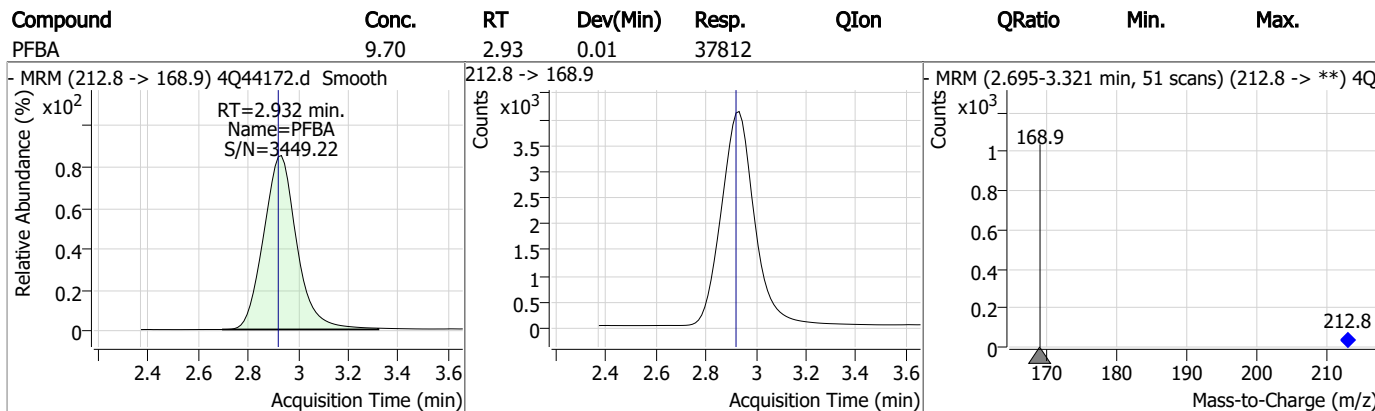
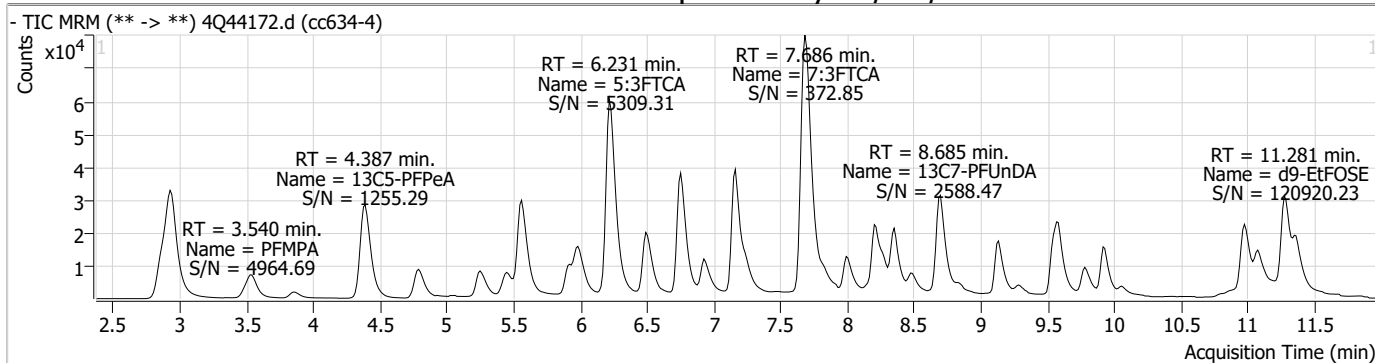
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.12

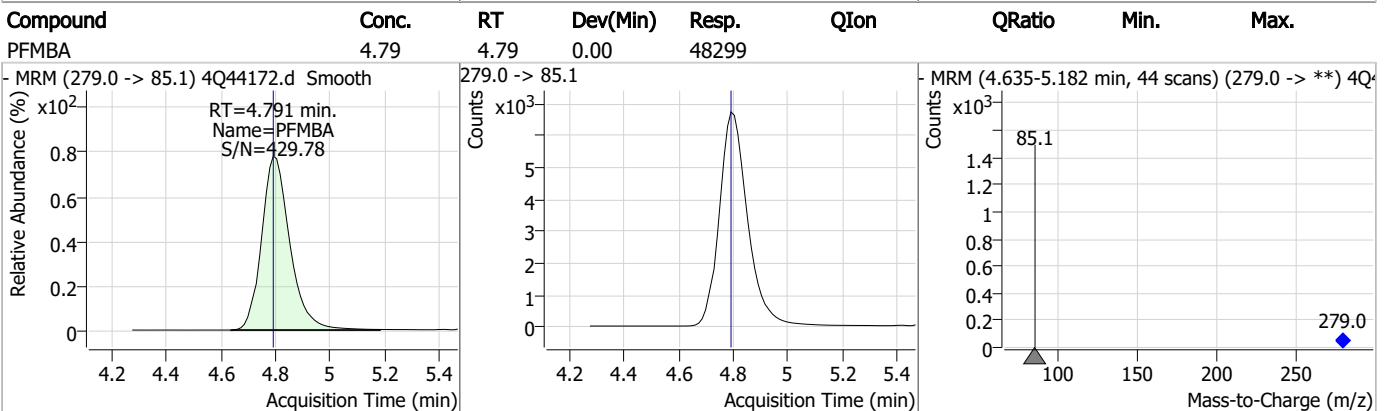
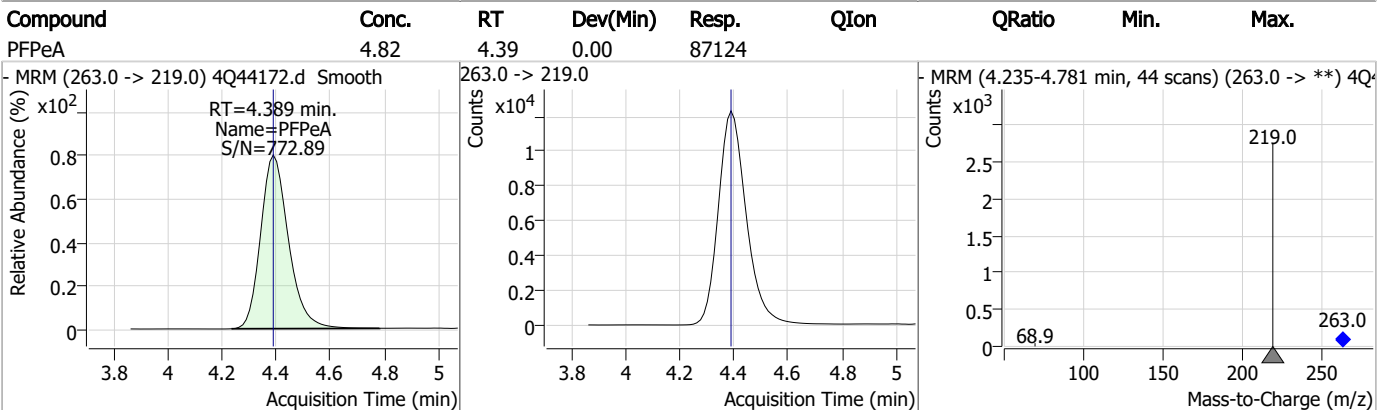
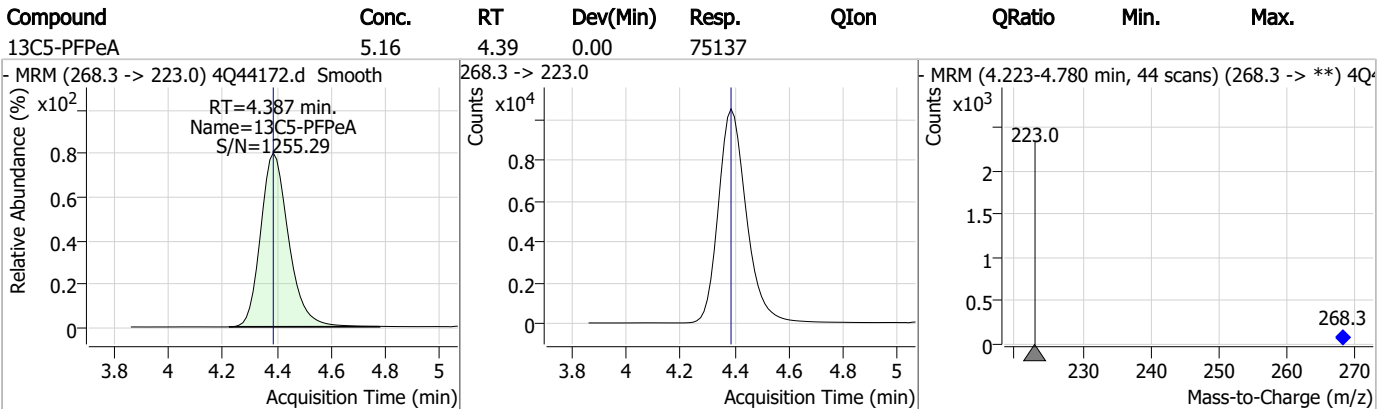
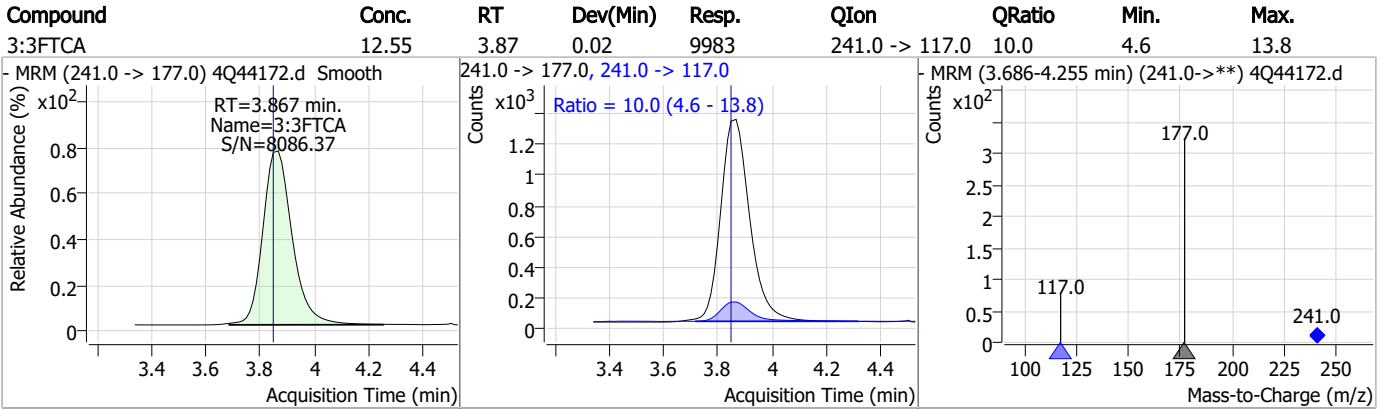
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### Perfluorinated Compounds by LC/MS/MS

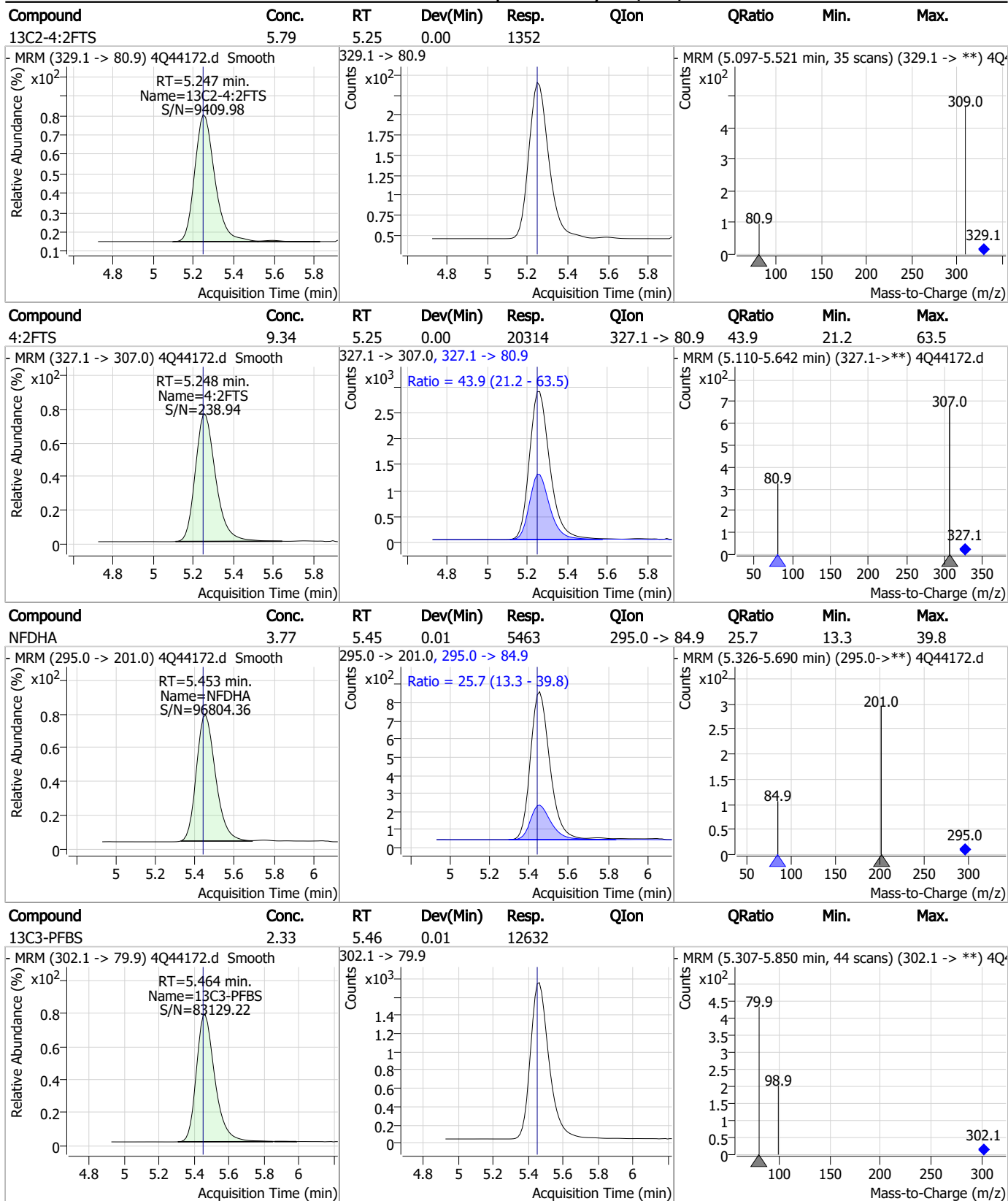


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### Perfluorinated Compounds by LC/MS/MS



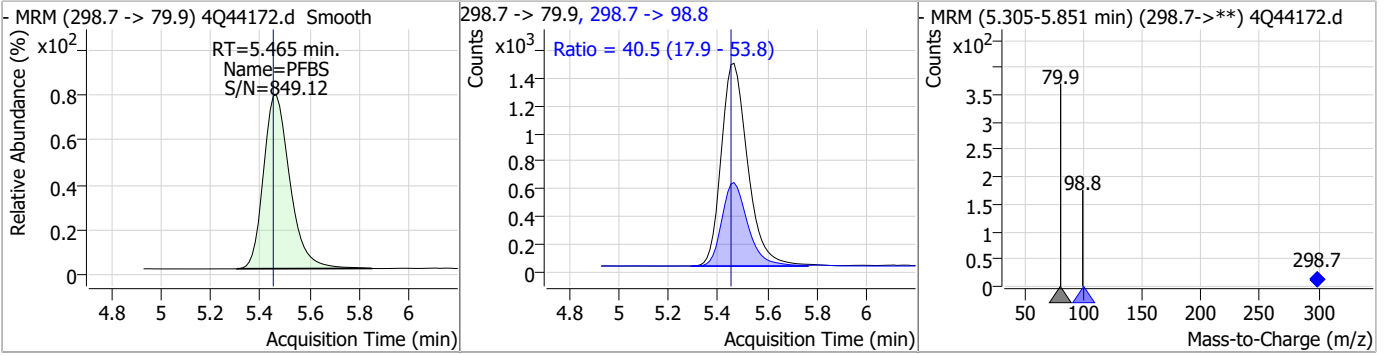
### Perfluorinated Compounds by LC/MS/MS



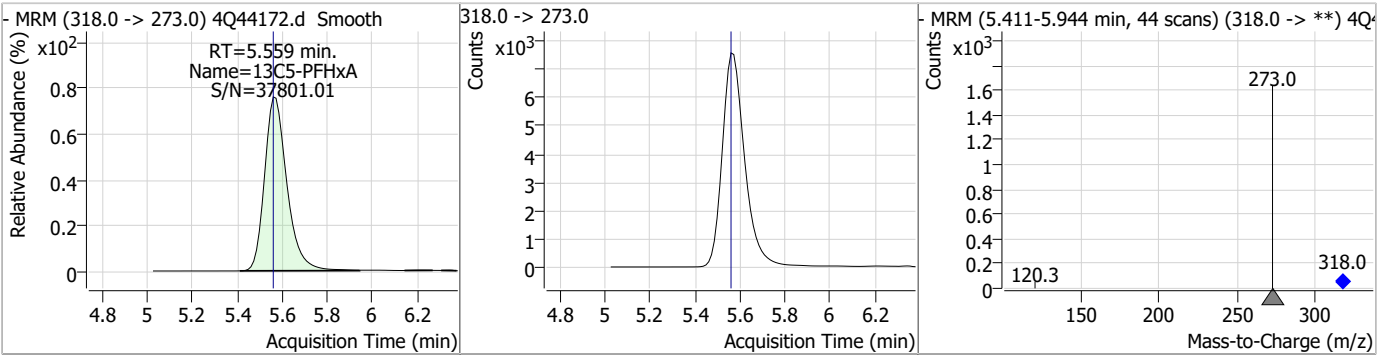
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### Perfluorinated Compounds by LC/MS/MS

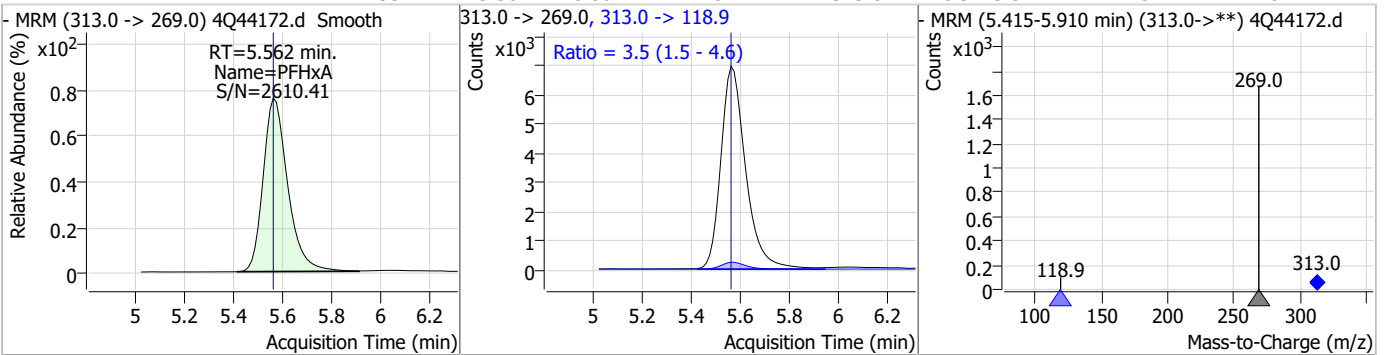
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.09	5.46	0.01	10819	298.7 -> 98.8	40.5	17.9	53.8



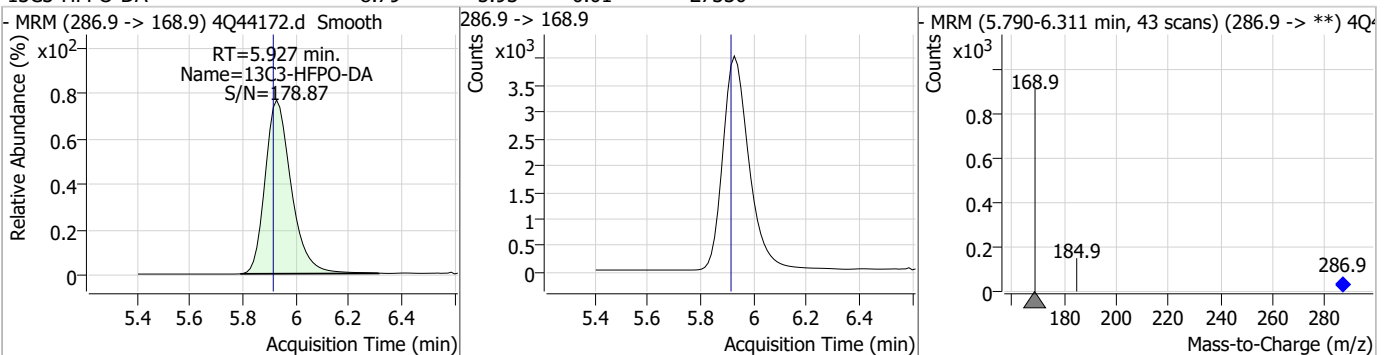
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.56	0.00	51844				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.35	5.56	0.00	47677	313.0 -> 118.9	3.5	1.5	4.6



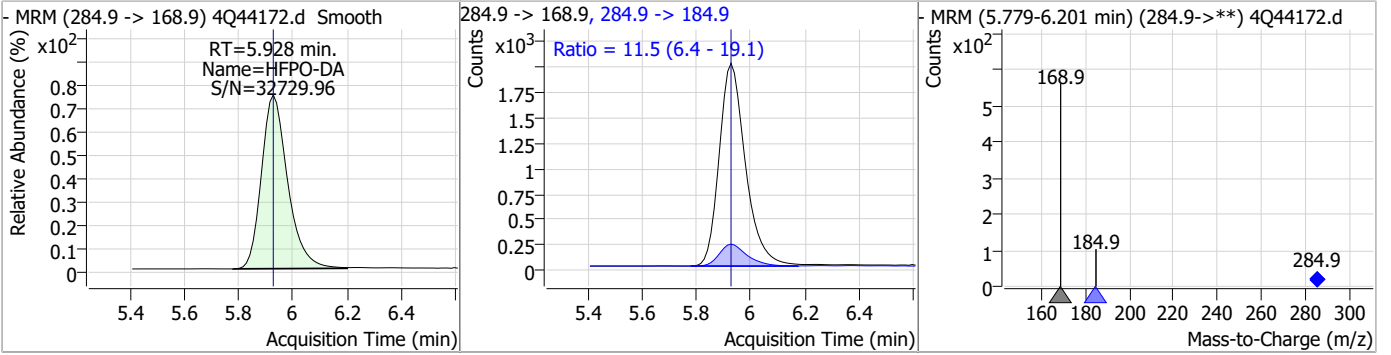
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.79	5.93	0.01	27330				



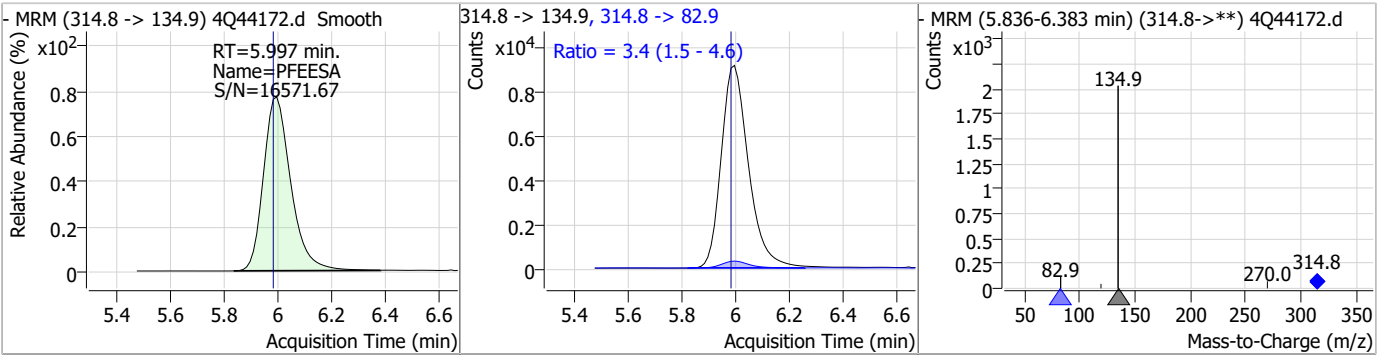


### Perfluorinated Compounds by LC/MS/MS

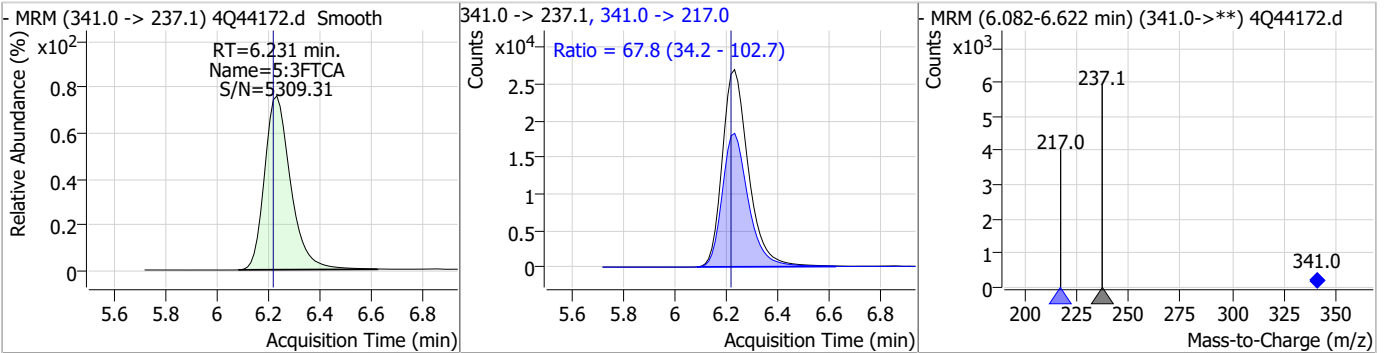
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.12	5.93	0.00	13369	284.9 -> 184.9	11.5	6.4	19.1



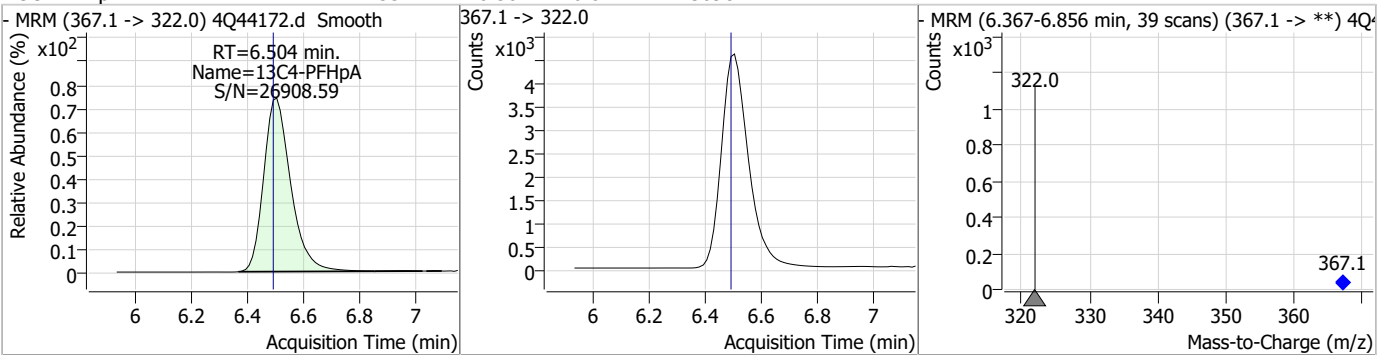
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.23	6.00	0.01	64982	314.8 -> 82.9	3.4	1.5	4.6



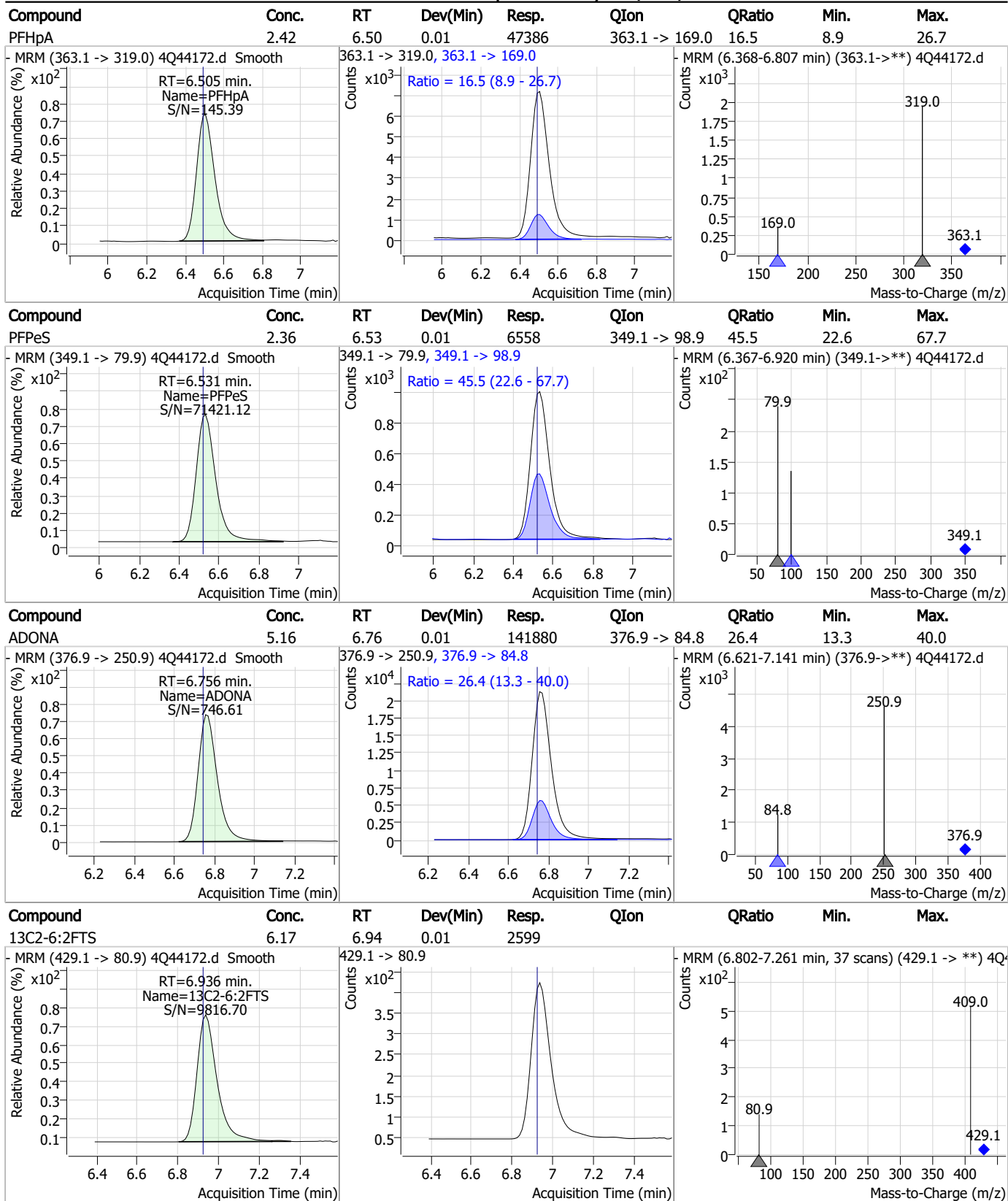
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	68.41	6.23	0.01	188555	341.0 -> 217.0	67.8	34.2	102.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.55	6.50	0.01	30984				

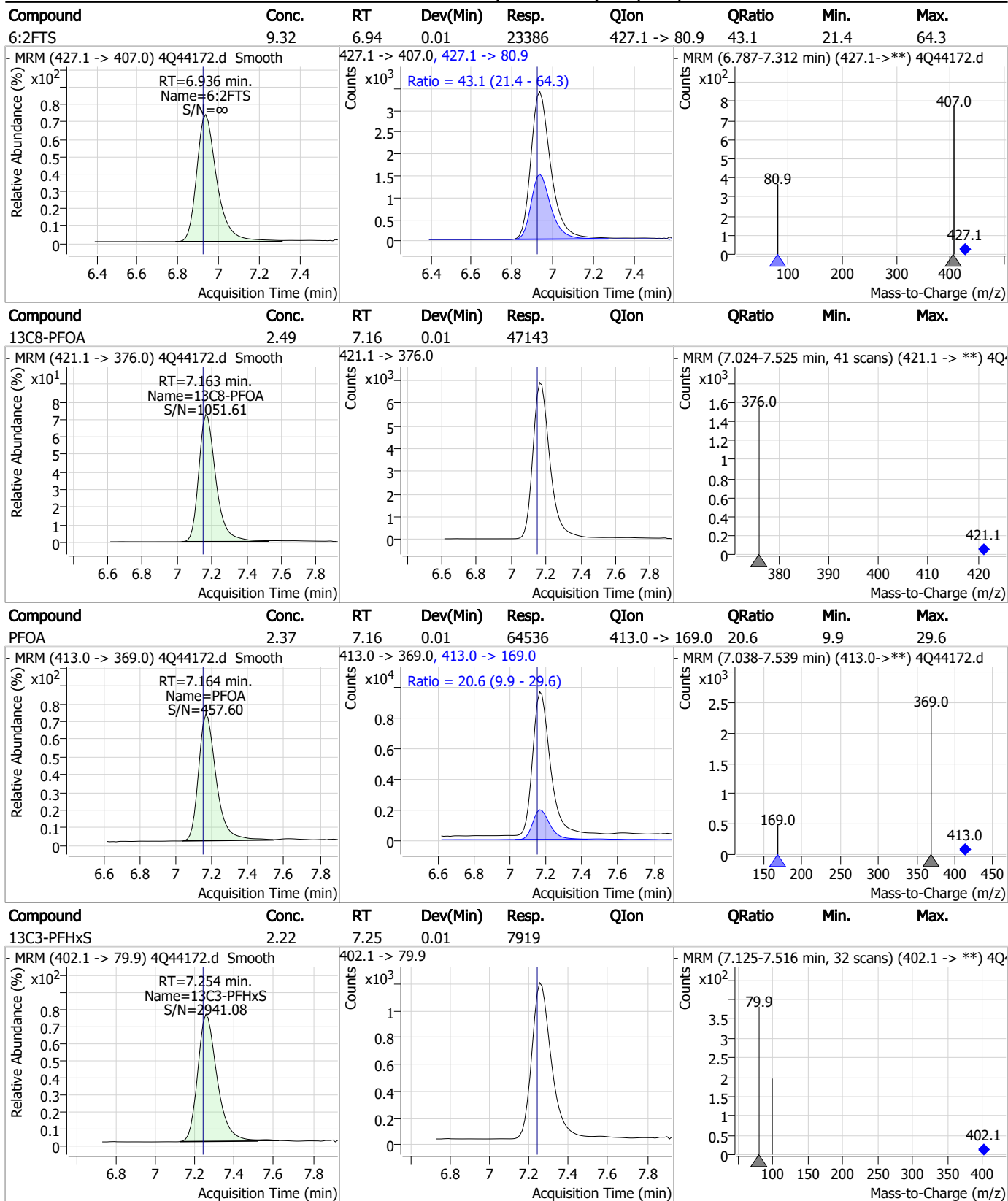


### Perfluorinated Compounds by LC/MS/MS



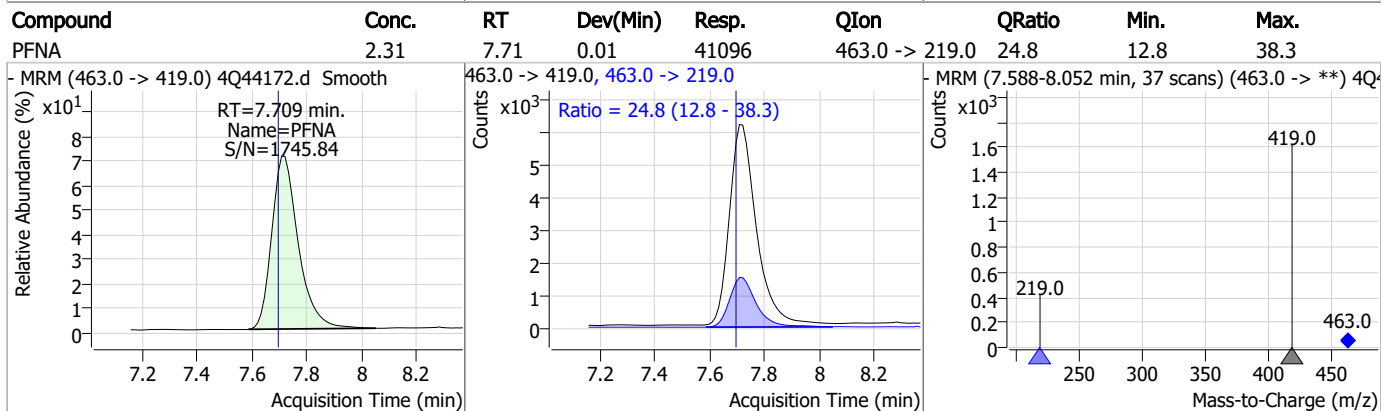
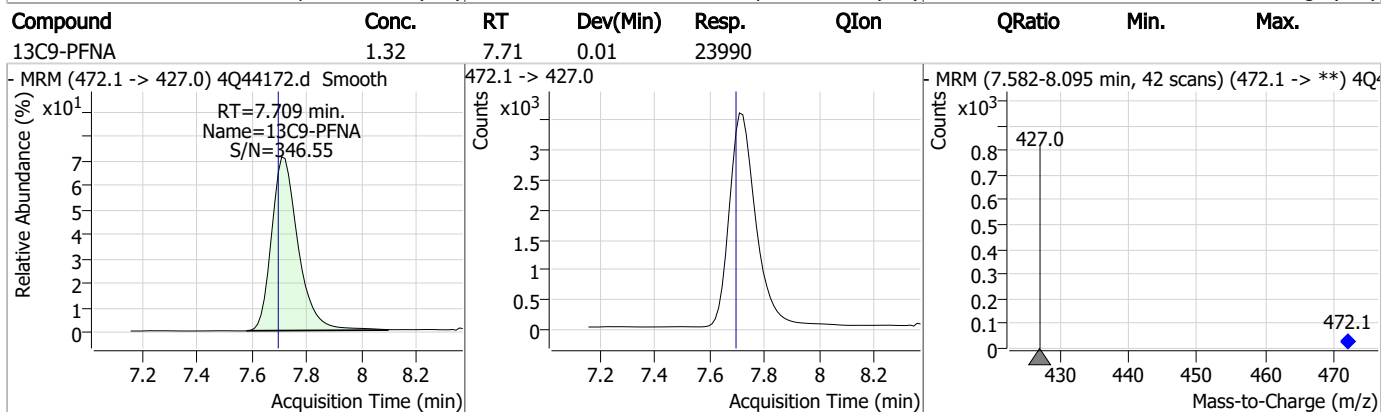
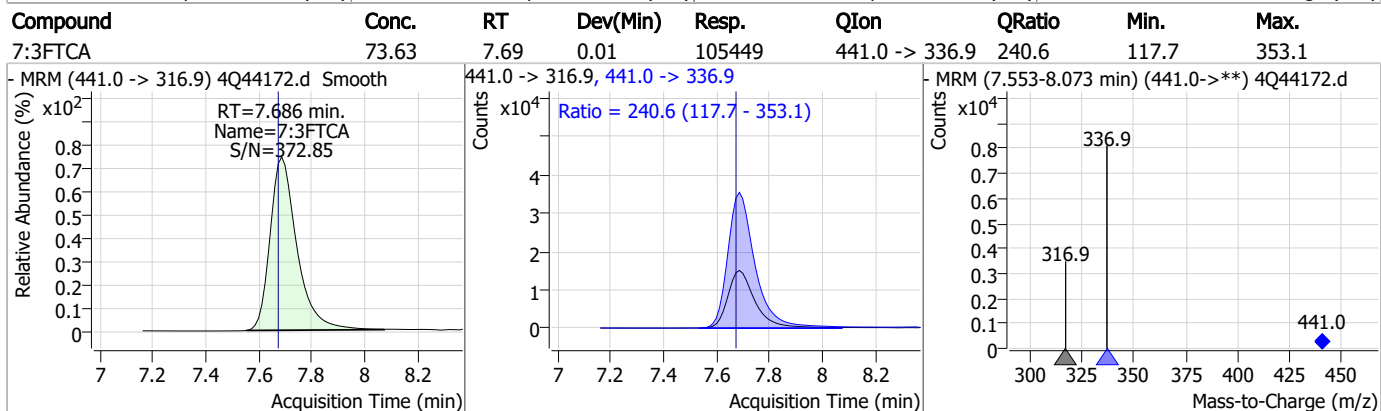
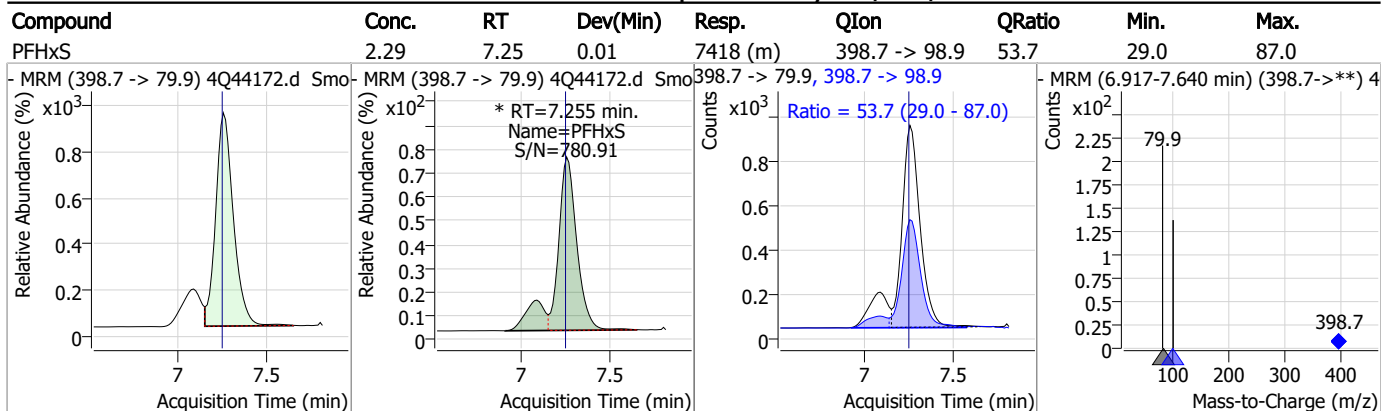
7.7.12  
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### Perfluorinated Compounds by LC/MS/MS



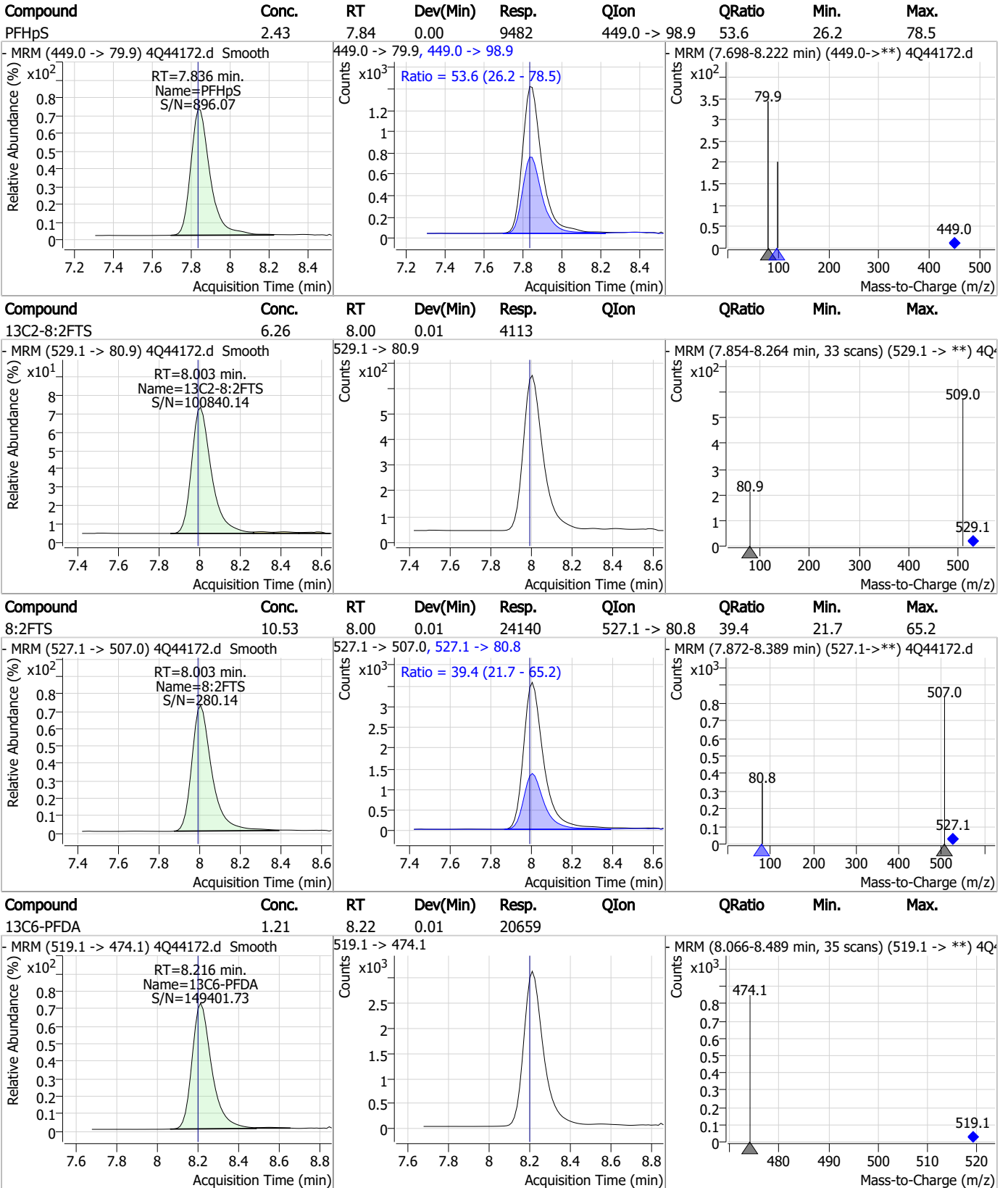
7.7.12

### Perfluorinated Compounds by LC/MS/MS



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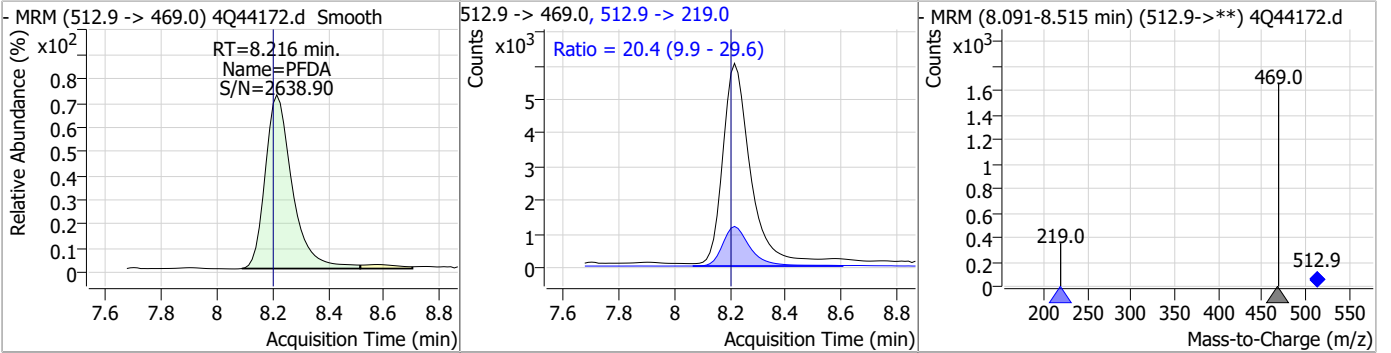
### Perfluorinated Compounds by LC/MS/MS



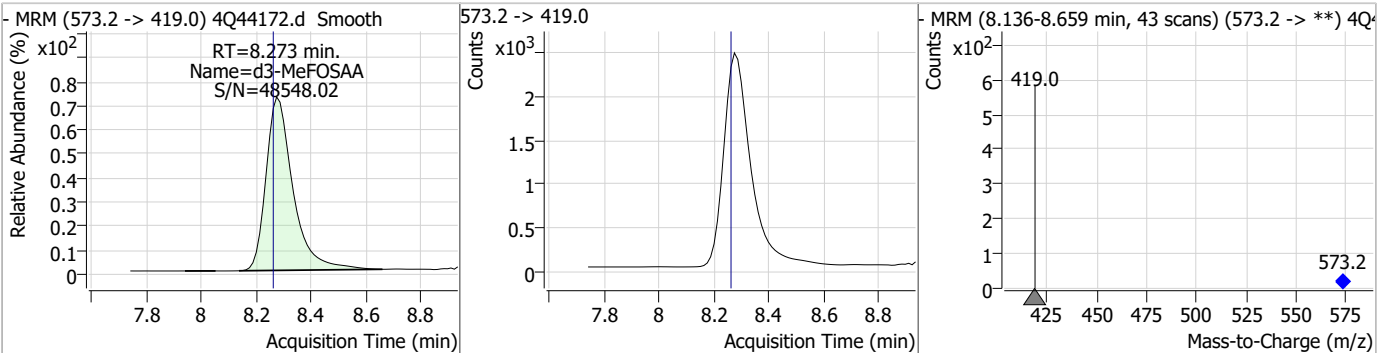
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### Perfluorinated Compounds by LC/MS/MS

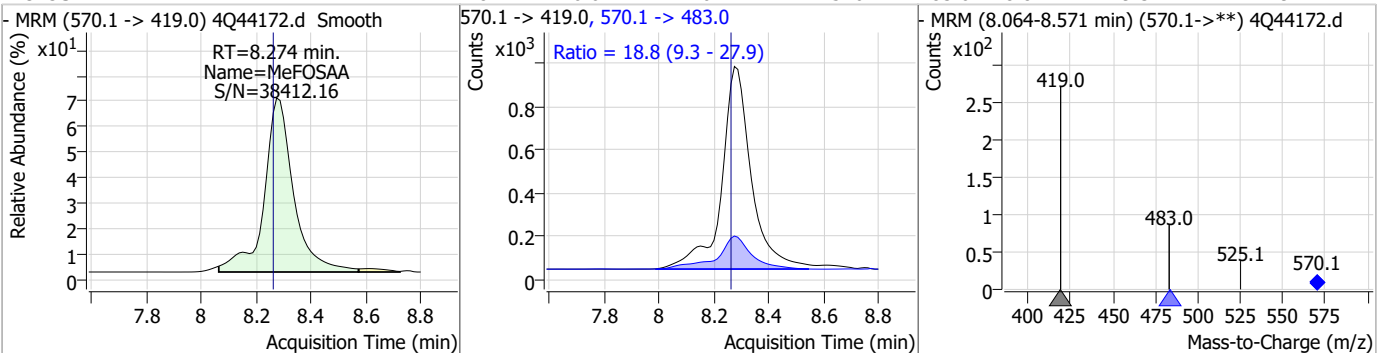
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.55	8.22	0.01	39935	512.9 -> 219.0	20.4	9.9	29.6



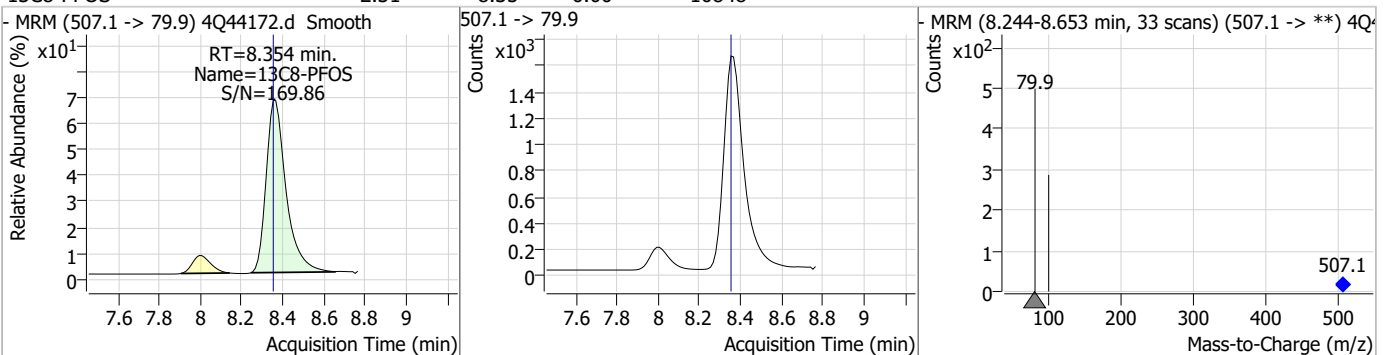
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.31	8.27	0.01	16736				



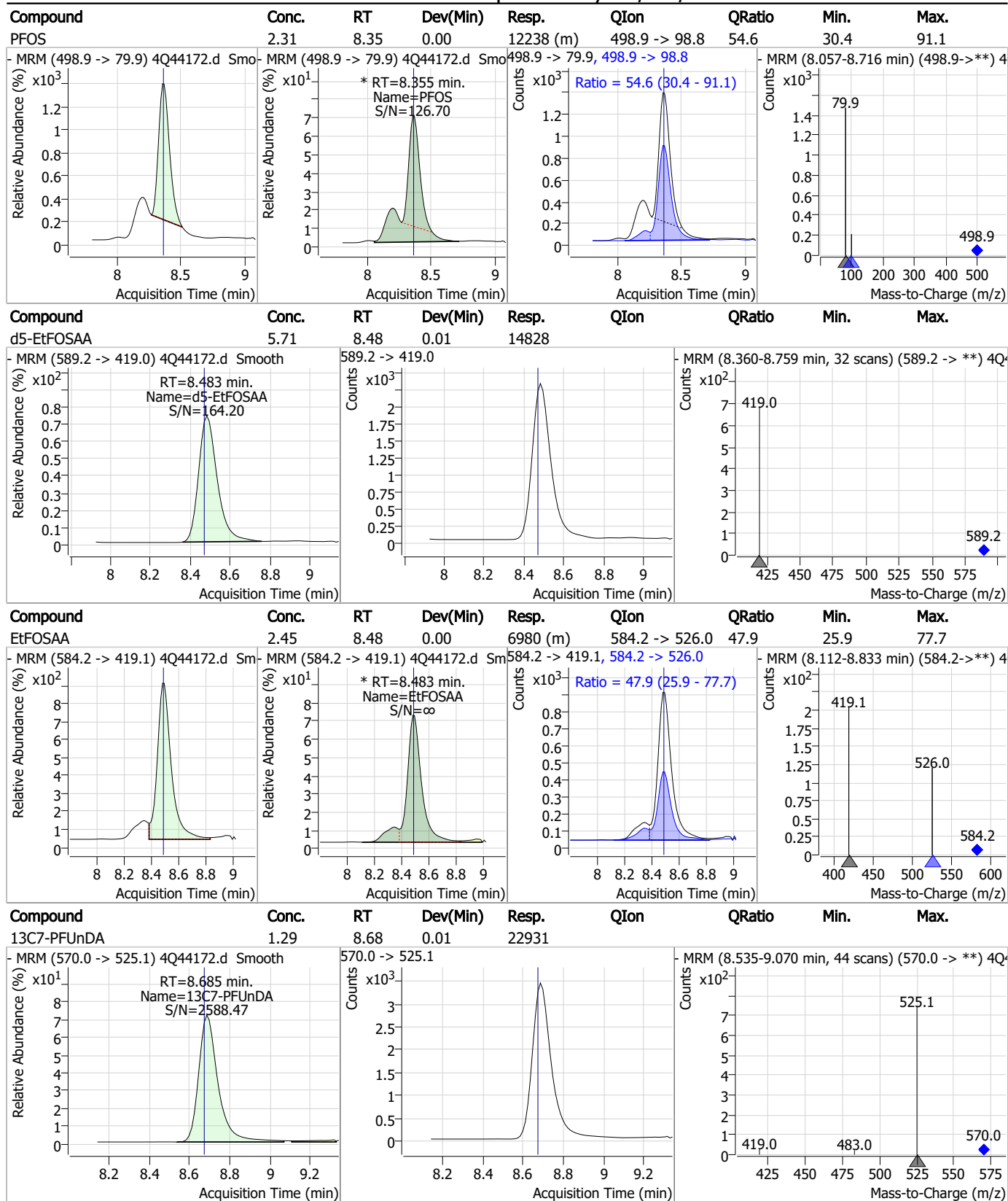
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.41	8.27	0.01	7044	570.1 -> 483.0	18.8	9.3	27.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.31	8.35	0.00	10848				



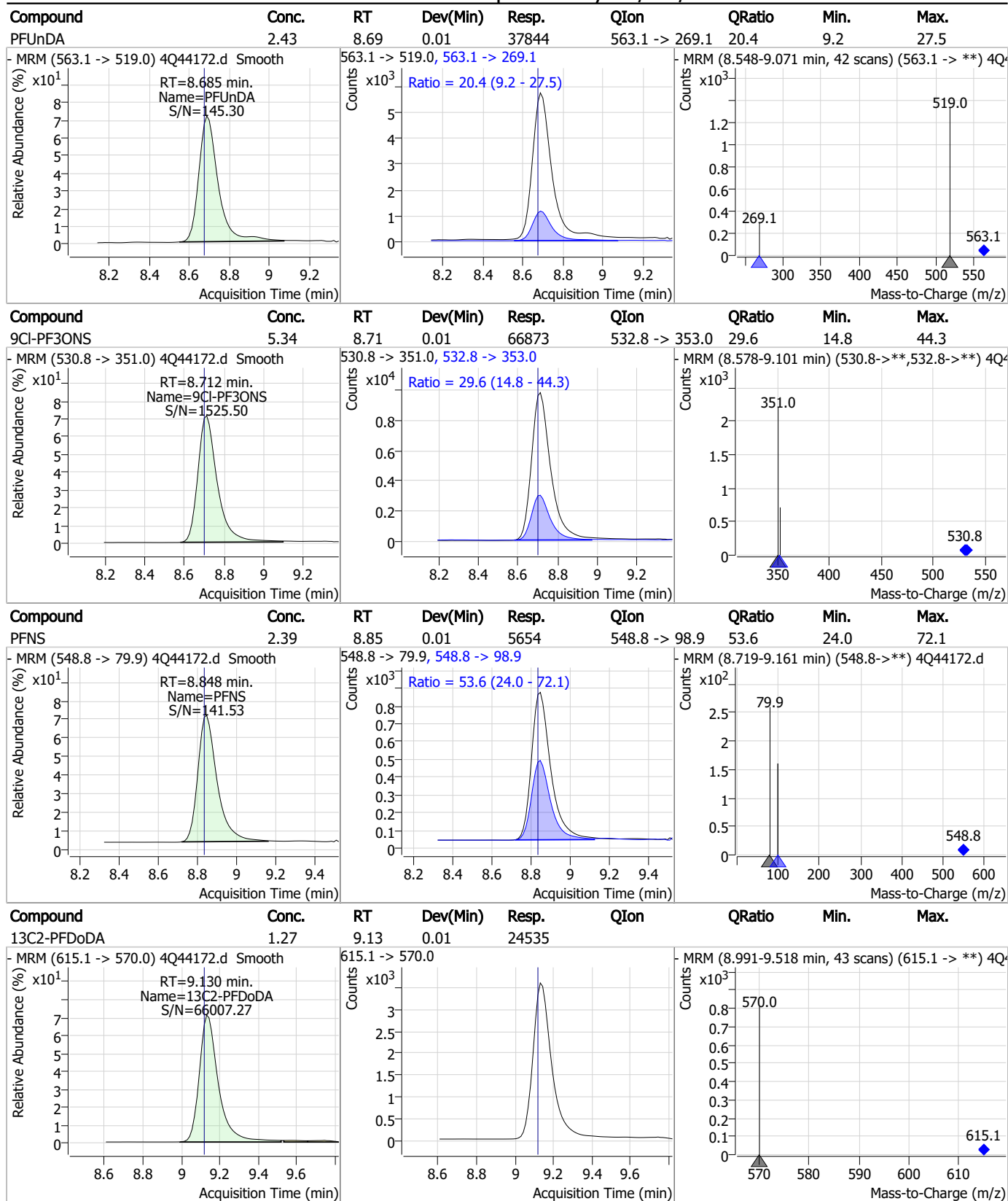
### Perfluorinated Compounds by LC/MS/MS



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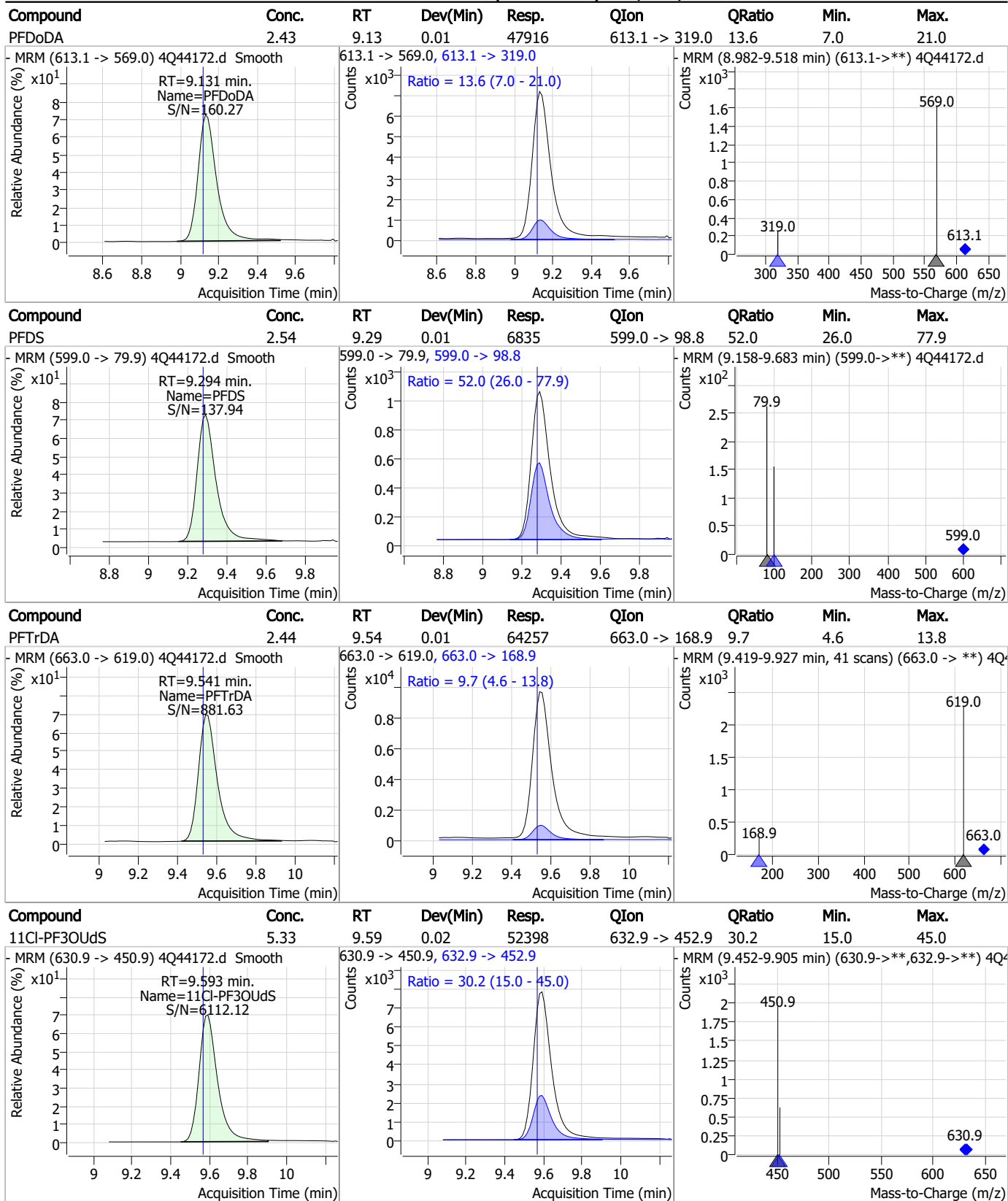
### Perfluorinated Compounds by LC/MS/MS



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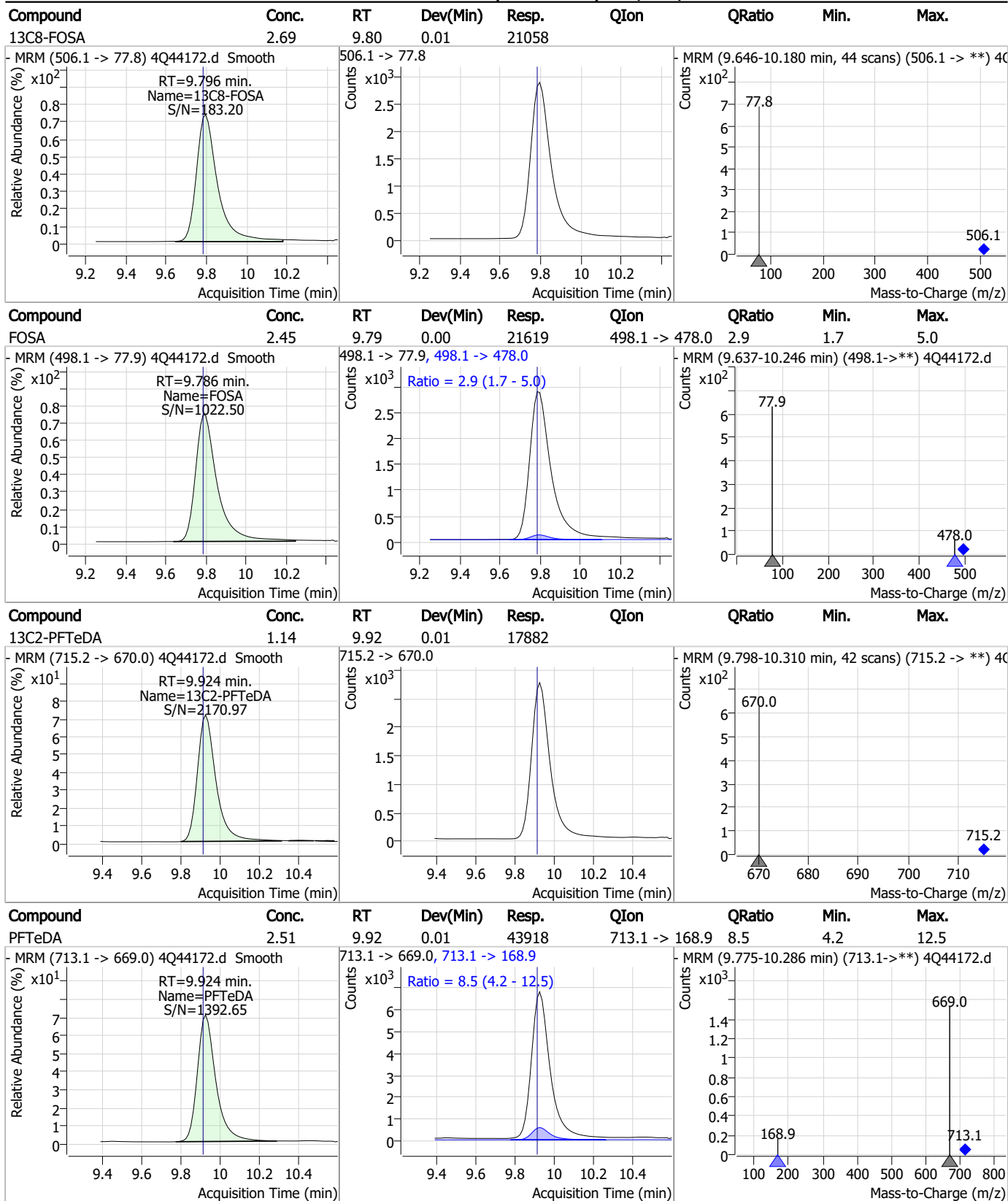
### Perfluorinated Compounds by LC/MS/MS



7.7.12  
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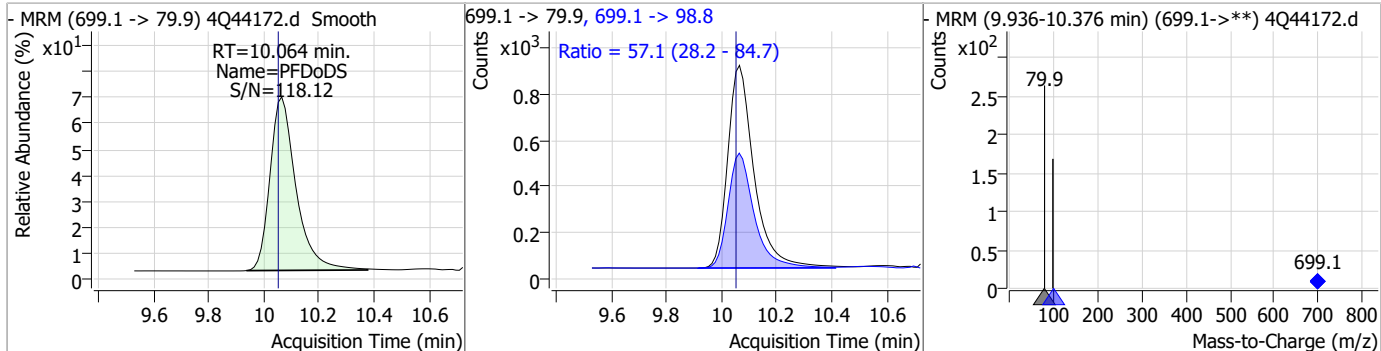
### Perfluorinated Compounds by LC/MS/MS



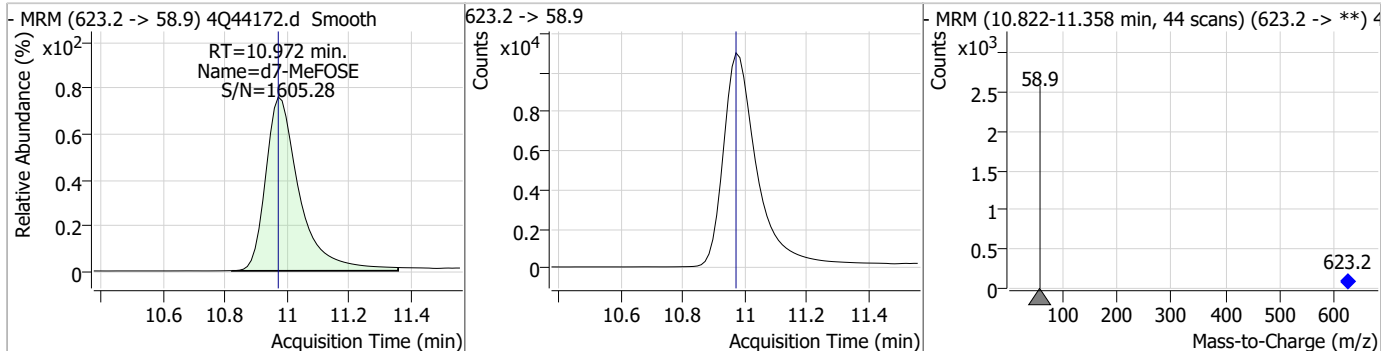
7.7.12  
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### Perfluorinated Compounds by LC/MS/MS

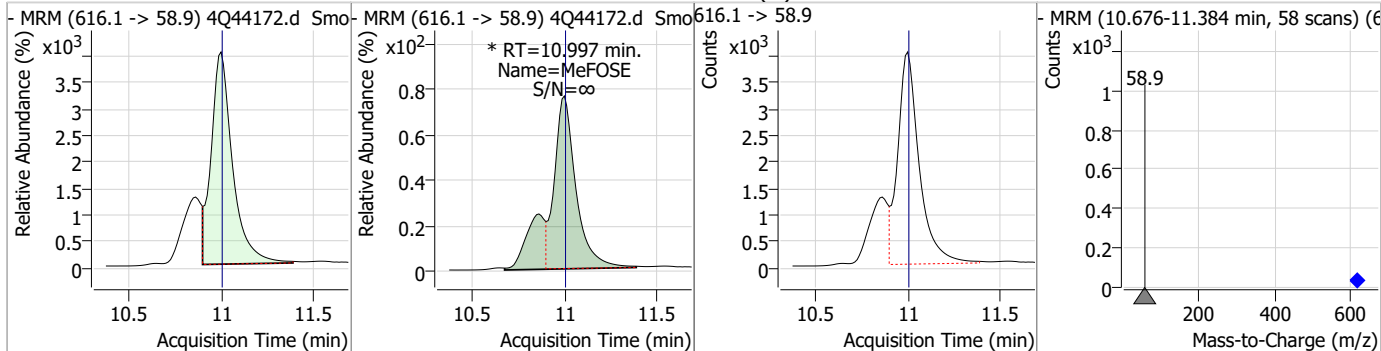
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.40	10.06	0.01	5764	699.1 -> 98.8	57.1	28.2	84.7



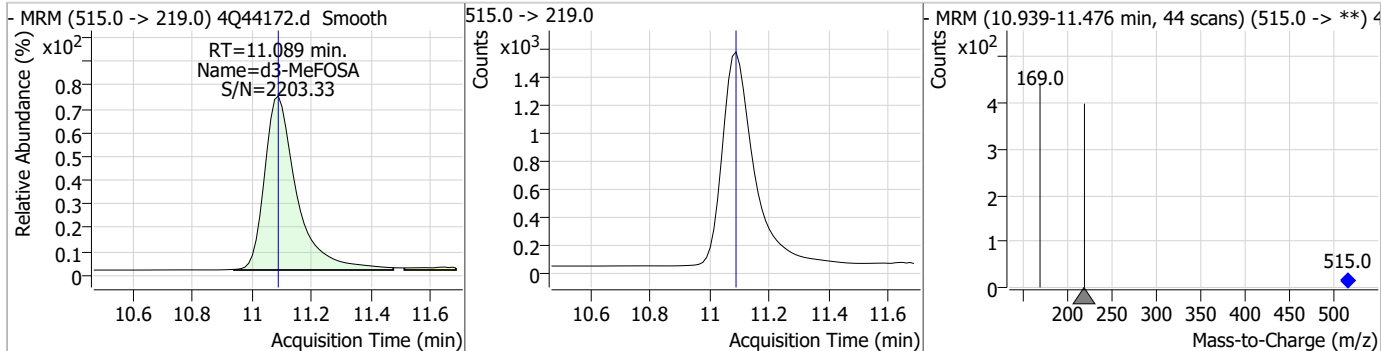
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.39	10.97	0.00	83126				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.09	11.00	0.00	41287 (m)				



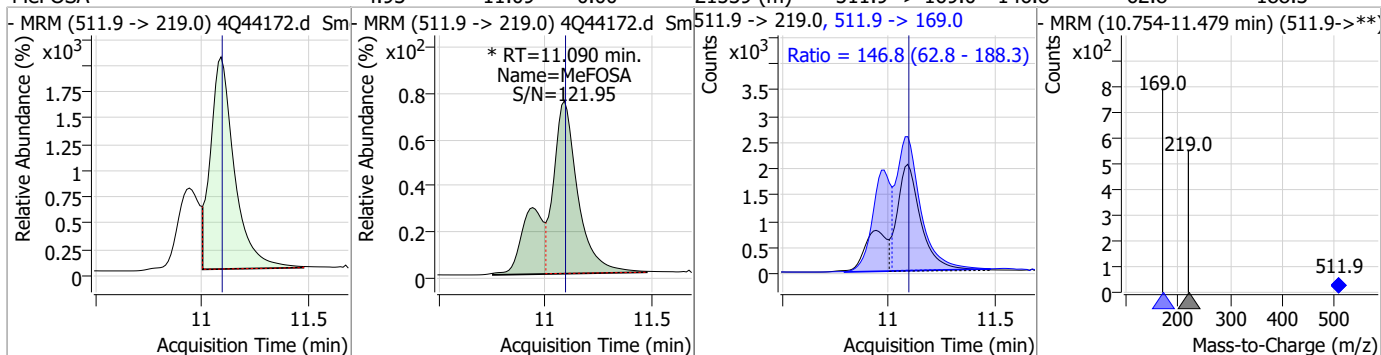
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.37	11.09	0.00	11602				



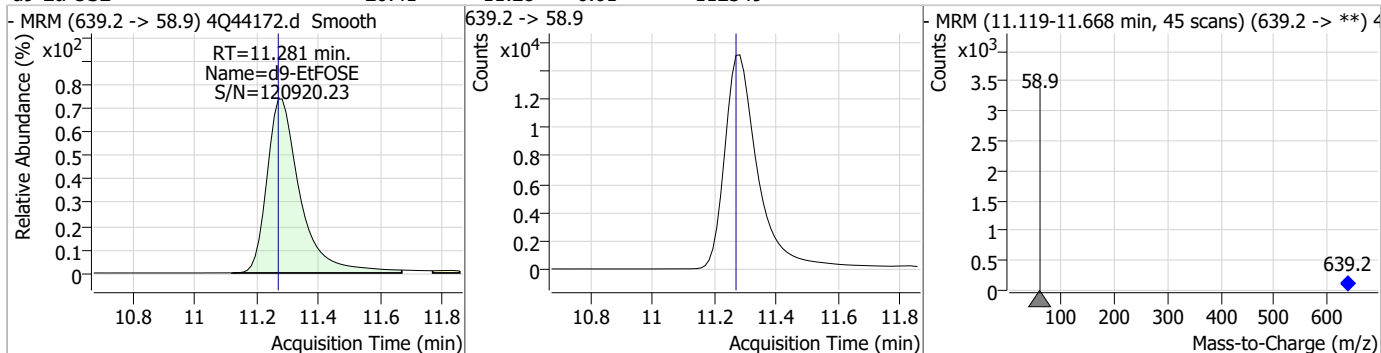
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### Perfluorinated Compounds by LC/MS/MS

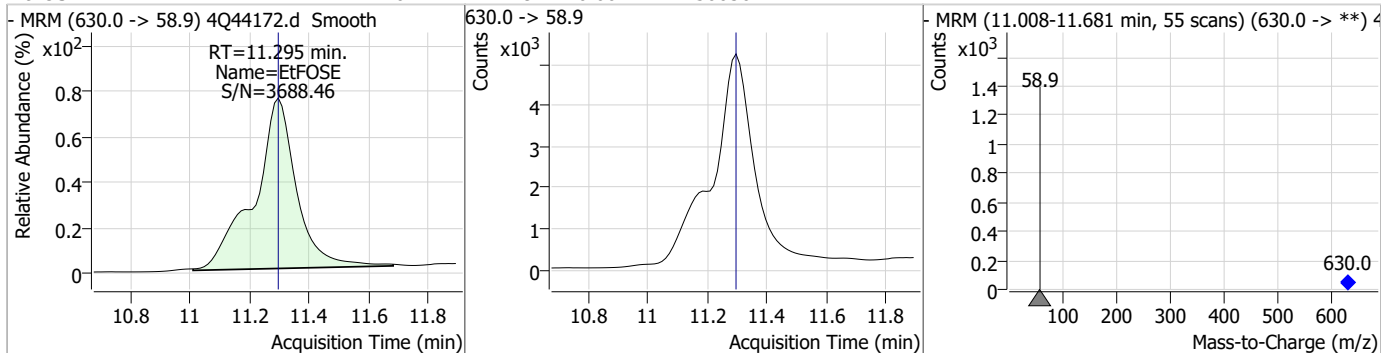
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.93	11.09	0.00	21539 (m)	511.9 -> 169.0	146.8	62.8	188.3



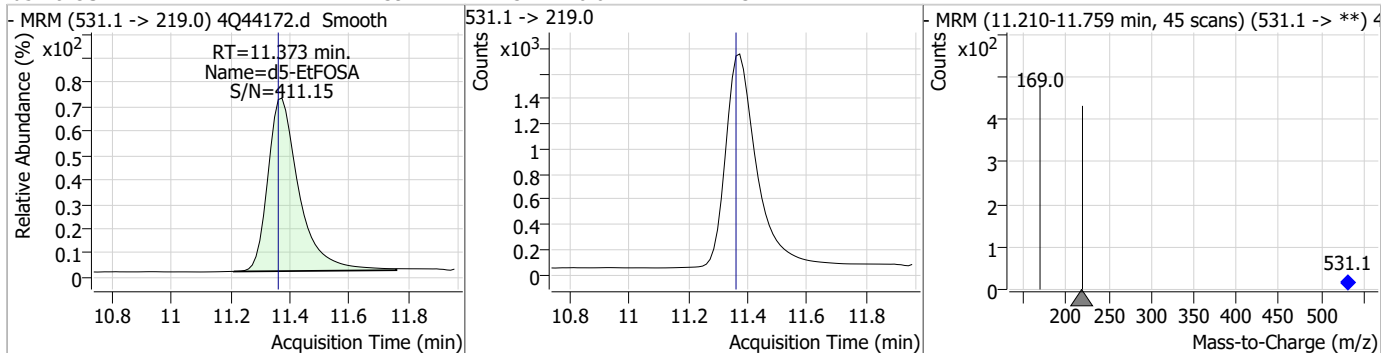
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.41	11.28	0.01	112349				



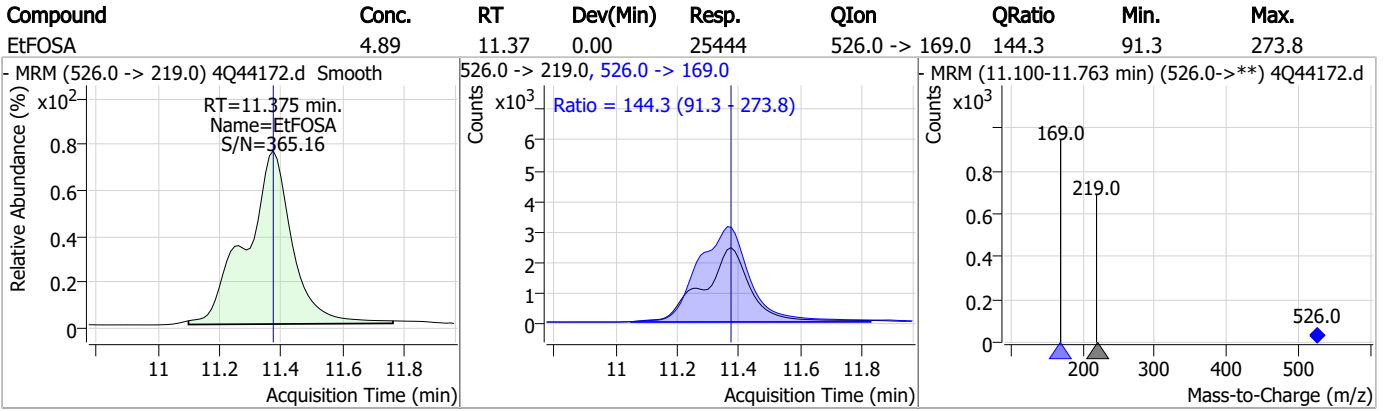
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.64	11.29	0.00	50636				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.39	11.37	0.01	12423				



### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S4Q639-CC634      Method: EPA DRAFT 1633  
Lab FileID: 4Q44172.D      Analyst approved: 05/10/23 11:10 Martha Valls  
Injection Time: 05/09/23 22:48      Supervisor approved: 05/10/23 17:27 Norman Farmer

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

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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44173.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/9/2023 11:02:41 PM  
 Sample Name : cc634-1.0LL  
 Vial : P1-A2  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q639.batch.bin  
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.924	216.8 -> 171.9	147942	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	73737	5.00 µg/L	0.000
M5-PFHxA	5.572	318.0 -> 273.0	51910	2.50 µg/L	0.012
M4-PFHpA	6.504	367.1 -> 322.0	31482	2.50 µg/L	0.012
M8-PFOA	7.163	421.1 -> 376.0	47536	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	23712	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	21274	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	23314	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	23753	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	17182	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	21178	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	12133	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	8655	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	11523	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1388	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	2531	5.00 µg/L	0.013
M2-8:2FTS	7.990	529.1 -> 80.9	4650	5.00 µg/L	0.000
M3-MeFOSAA	8.273	573.2 -> 419.0	16786	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	27619	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	15172	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	77640	25.00 µg/L	0.000
M9-EtFOSE	11.281	639.2 -> 58.9	108299	25.00 µg/L	0.012
M5-EtFOSA	11.373	531.1 -> 219.0	12139	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	11168	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	12531	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	78548	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	5387	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	58425	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	19821	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	27630	1.25 µg/L	0.012
13C2-PFHxA	5.573	315.1 -> 270.0	47997	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.247	329.1 -> 80.9	1388	6.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 126.8%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2531	6.41 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.2%		
13C2-8:2FTS	7.990	529.1 -> 80.9	4650	7.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 151.0%		
13C2-PFDoDA	9.130	615.1 -> 570.0	23753	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-PFTeDA	9.924	715.2 -> 670.0	17182	1.10 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.0%		
13C3-PFBS	5.464	302.1 -> 79.9	12133	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C3-PFHxS	7.254	402.1 -> 79.9	8655	2.59 µg/L	0.012

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### 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	2.924	216.8 -> 171.9	147942	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.504	367.1 -> 322.0	31482	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFHxA	5.572	318.0 -> 273.0	51910	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C5-PFPeA	4.387	268.3 -> 223.0	73737	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C6-PFDA	8.216	519.1 -> 474.1	21274	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C7-PFUnDA	8.685	570.0 -> 525.1	23314	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C8-FOSA	9.796	506.1 -> 77.8	21178	2.69 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C8-PFOA	7.163	421.1 -> 376.0	47536	2.48 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C8-PFOS	8.354	507.1 -> 79.9	11523	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C9-PFNA	7.709	472.1 -> 427.0	23712	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSAA	8.273	573.2 -> 419.0	16786	5.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	27619	8.75 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.5%	
d3-MeFOSA	11.089	515.0 -> 219.0	11168	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.9%	
d5-EtFOSAA	8.483	589.2 -> 419.0	15172	5.82 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.5%	
d7-MeFOSE	10.972	623.2 -> 58.9	77640	19.91 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.7%	
d9-EtFOSE	11.281	639.2 -> 58.9	108299	19.62 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.5%	
d5-EtFOSA	11.373	531.1 -> 219.0	12139	2.32 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.9%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.248	327.1 -> 307.0	1728	0.77 µg/L	100
		327.1 -> 80.9	736		
6:2FTS	6.936	427.1 -> 407.0	1944	0.80 µg/L	99
		427.1 -> 80.9	825		
8:2FTS	7.991	527.1 -> 507.0	1674	0.65 µg/L	89
		527.1 -> 80.8	845		
EtFOSAA	8.483	584.2 -> 419.1	503	0.17 µg/L	m 82
		584.2 -> 526.0	323		
FOSA	9.786	498.1 -> 77.9	1943	0.22 µg/L	100
		498.1 -> 478.0	66		
MeFOSAA	8.274	570.1 -> 419.0	483	0.17 µg/L	#m 58
		570.1 -> 483.0	180		
PFBA	2.932	212.8 -> 168.9	2975	0.75 µg/L	100
PFBS	5.465	298.7 -> 79.9	1011	0.20 µg/L	96
		298.7 -> 98.8	341		
PFDA	8.216	512.9 -> 469.0	3023	0.19 µg/L	96
		512.9 -> 219.0	653		
PFDODA	9.131	613.1 -> 569.0	3736	0.20 µg/L	96
		613.1 -> 319.0	591		
PFDS	9.294	599.0 -> 79.9	546	0.19 µg/L	100

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.505	599.0 -> 98.8	284	0.16	µg/L	97
		363.1 -> 319.0	3249			
PFHpS	7.836	363.1 -> 169.0	620	0.16	µg/L	71
		449.0 -> 79.9	656			
PFHxA	5.575	449.0 -> 98.9	477	0.18	µg/L	98
		313.0 -> 269.0	3676			
PFHxS	7.255	313.0 -> 118.9	139	0.17	µg/L	m
		398.7 -> 79.9	593			
PFNA	7.709	398.7 -> 98.9	344	0.19	µg/L	93
		463.0 -> 419.0	3314			
PFNS	8.848	463.0 -> 219.0	722	0.18	µg/L	86
		548.8 -> 79.9	455			
PFOA	7.164	548.8 -> 98.9	261	0.18	µg/L	97
		413.0 -> 369.0	5026			
PFOS	8.355	413.0 -> 169.0	1060	0.19	µg/L	m
		498.9 -> 79.9	1079			
PFPeA	4.389	498.9 -> 98.8	545	0.39	µg/L	100
		263.0 -> 219.0	6870			
PFPeS	6.531	349.1 -> 79.9	495	0.16	µg/L	92
		349.1 -> 98.9	250			
PFTeDA	9.924	713.1 -> 669.0	3343	0.20	µg/L	94
		713.1 -> 168.9	353			
PFTrDA	9.541	663.0 -> 619.0	4563	0.18	µg/L	95
		663.0 -> 168.9	506			
PFUnDA	8.685	563.1 -> 519.0	3100	0.20	µg/L	95
		563.1 -> 269.1	638			
11Cl-PF3OUdS	9.593	630.9 -> 450.9	4075	0.41	µg/L	98
		632.9 -> 452.9	1176			
9Cl-PF3ONS	8.700	530.8 -> 351.0	4975	0.39	µg/L	88
		532.8 -> 353.0	1784			
ADONA	6.756	376.9 -> 250.9	10919	0.39	µg/L	99
		376.9 -> 84.8	2978			
HFPO-DA	5.928	284.9 -> 168.9	1147	0.43	µg/L	92
		284.9 -> 184.9	109			
3:3FTCA	3.867	241.0 -> 177.0	832	1.07	µg/L	99
		241.0 -> 117.0	81			
5:3FTCA	6.231	341.0 -> 237.1	14497	5.25	µg/L	95
		341.0 -> 217.0	9319			
7:3FTCA	7.686	441.0 -> 316.9	8056	5.62	µg/L	94
		441.0 -> 336.9	19820			
EtFOSA	11.375	526.0 -> 219.0	1984	0.39	µg/L	70
		526.0 -> 169.0	2779			
EtFOSE	11.295	630.0 -> 58.9	4186	1.00	µg/L	m
		511.9 -> 219.0	1710			
MeFOSA	11.090	511.9 -> 169.0	2622	0.41	µg/L	m
		616.1 -> 58.9	2986			
MeFOSE	10.997	699.1 -> 79.9	470	0.94	µg/L	m
		699.1 -> 98.8	267			
PFDoDS	10.064	295.0 -> 201.0	538	0.18	µg/L	100
		295.0 -> 84.9	82			
NFDHA	5.453	279.0 -> 85.1	3695	0.37	µg/L	100
		229.0 -> 84.9	3656			
PFMBA	3.540	314.8 -> 134.9	4952	0.39	µg/L	100
		314.8 -> 82.9	239			
PFEESA	5.997			0.32	µg/L	#

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

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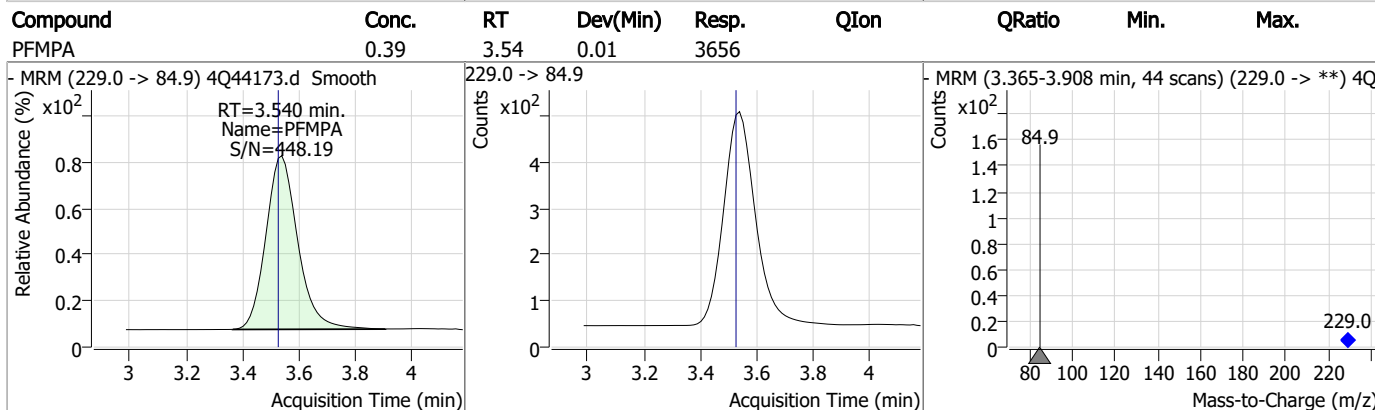
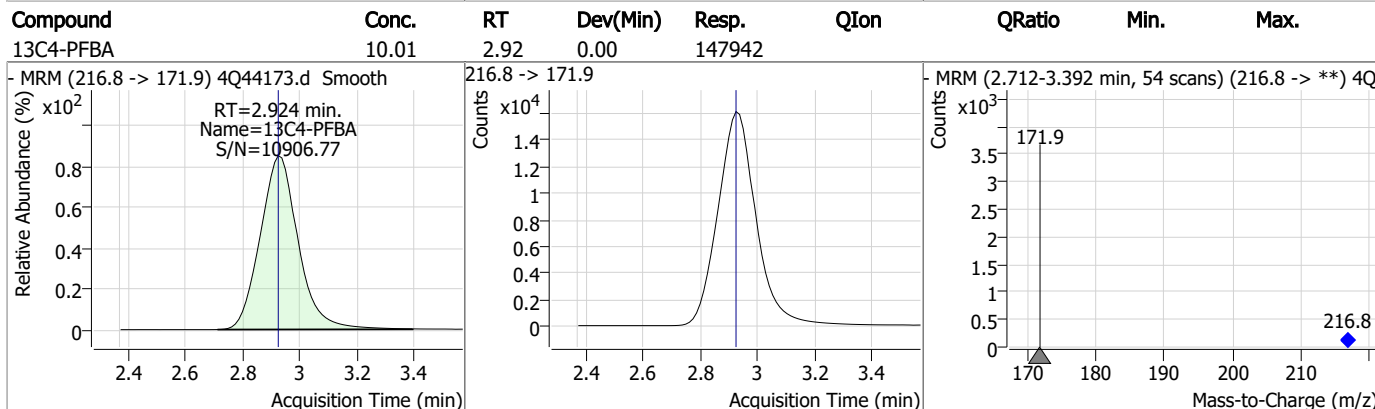
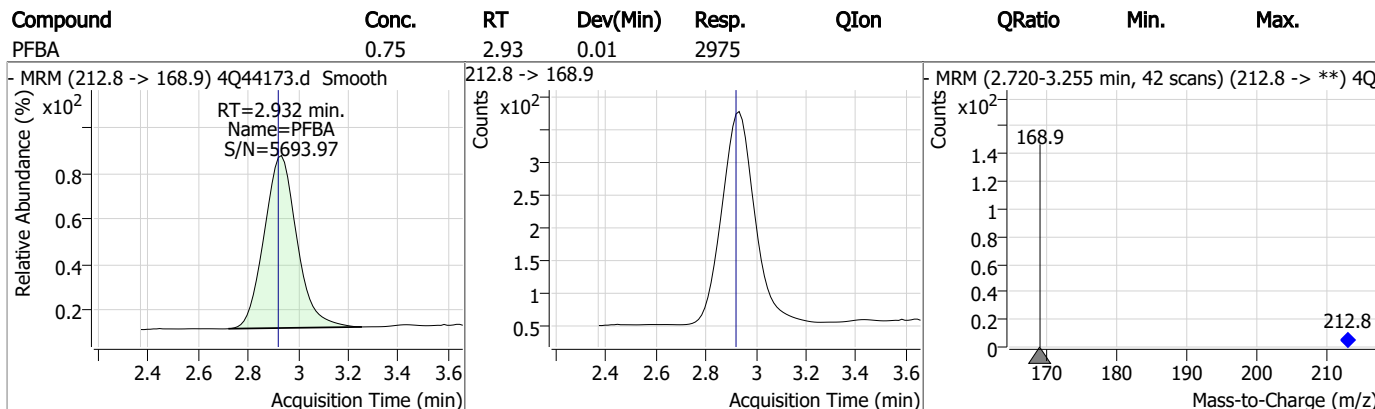
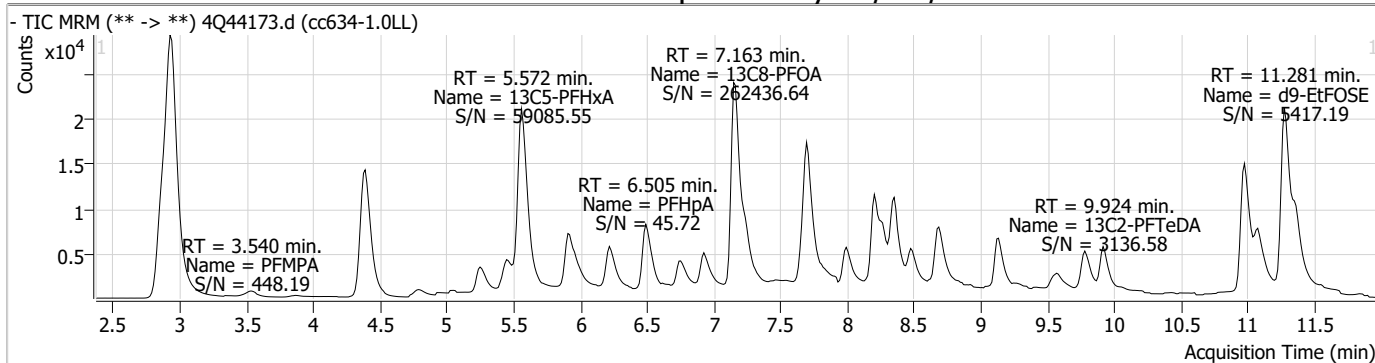
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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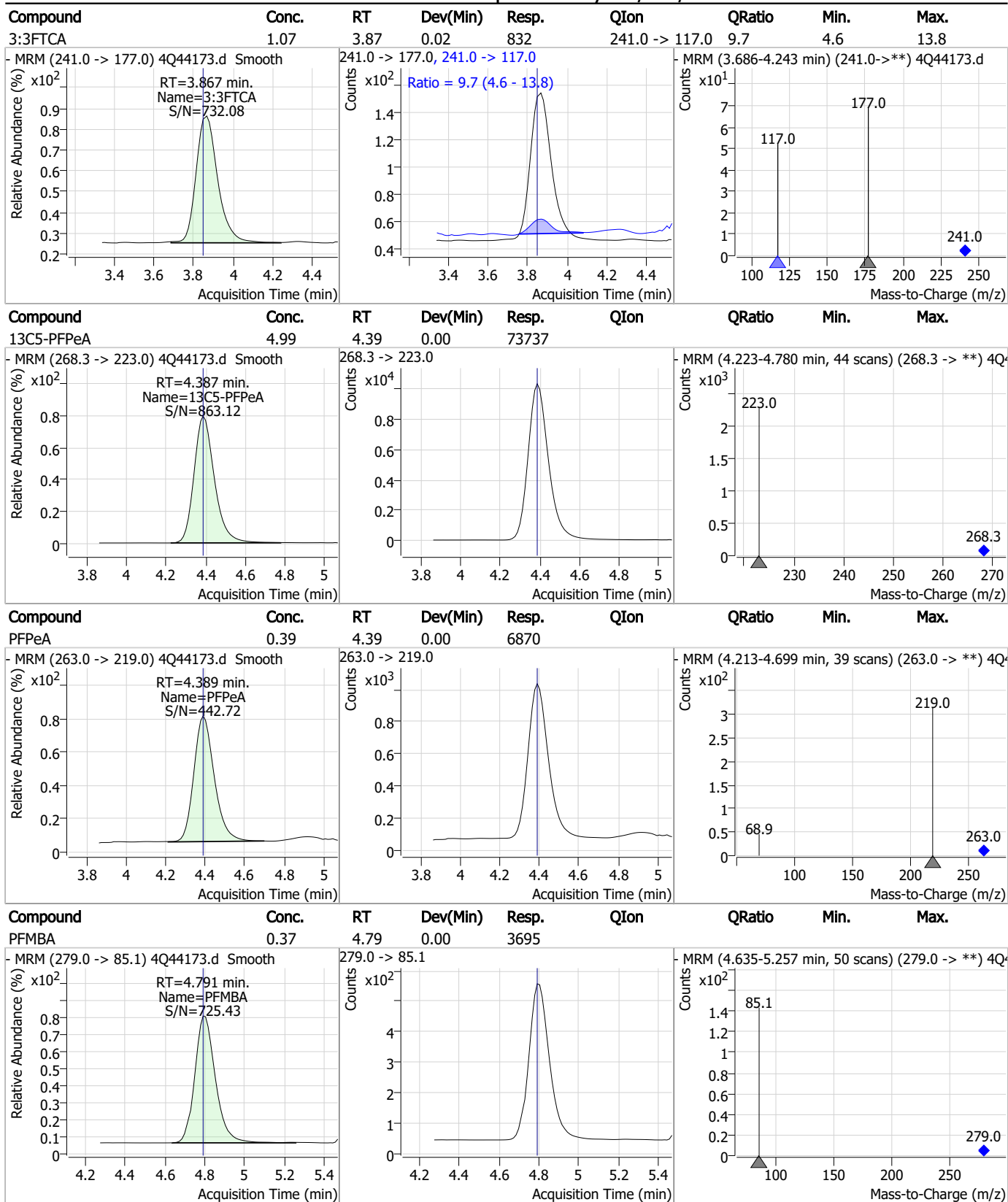
7.7.13

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### Perfluorinated Compounds by LC/MS/MS



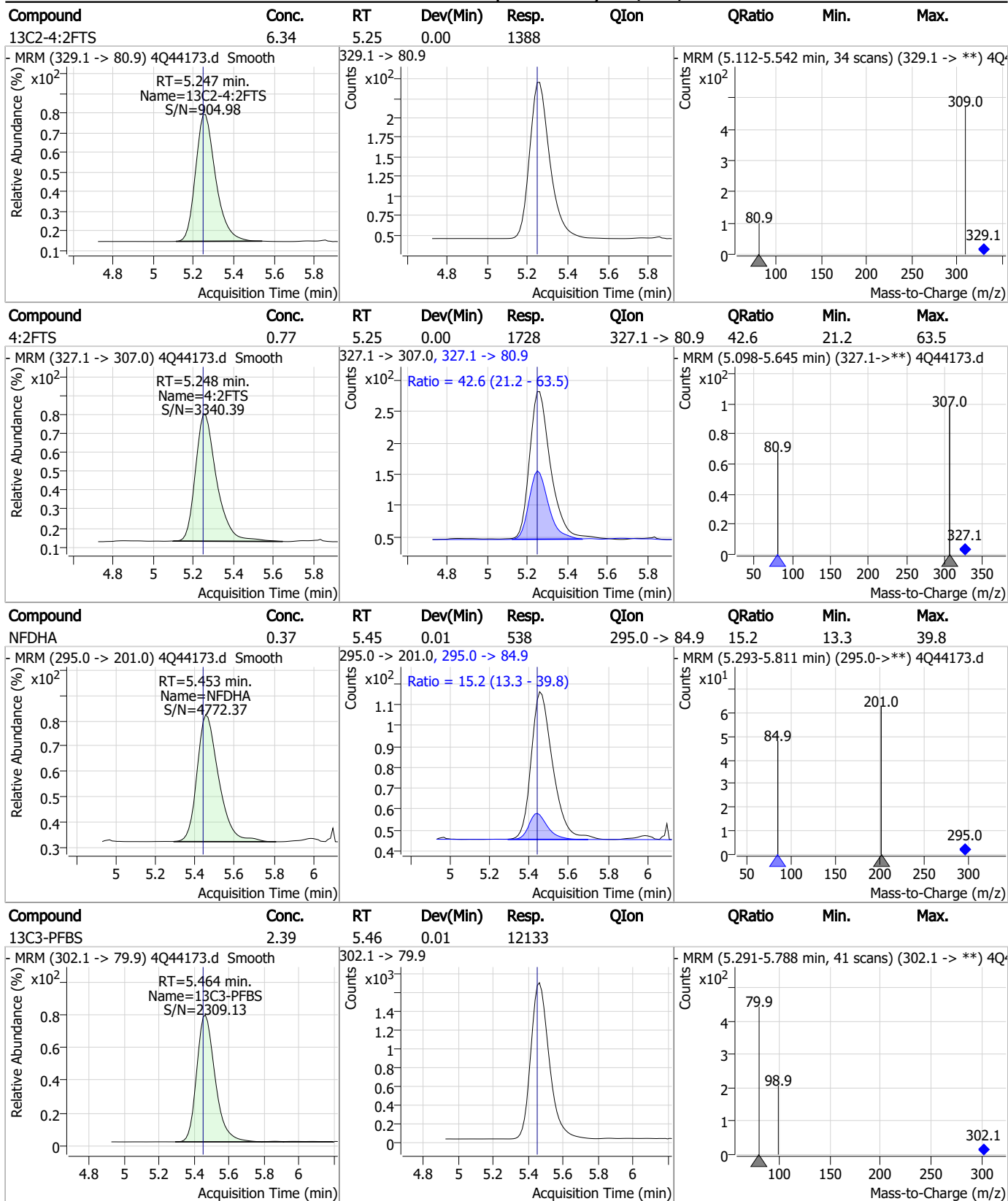
### Perfluorinated Compounds by LC/MS/MS



7.7.13

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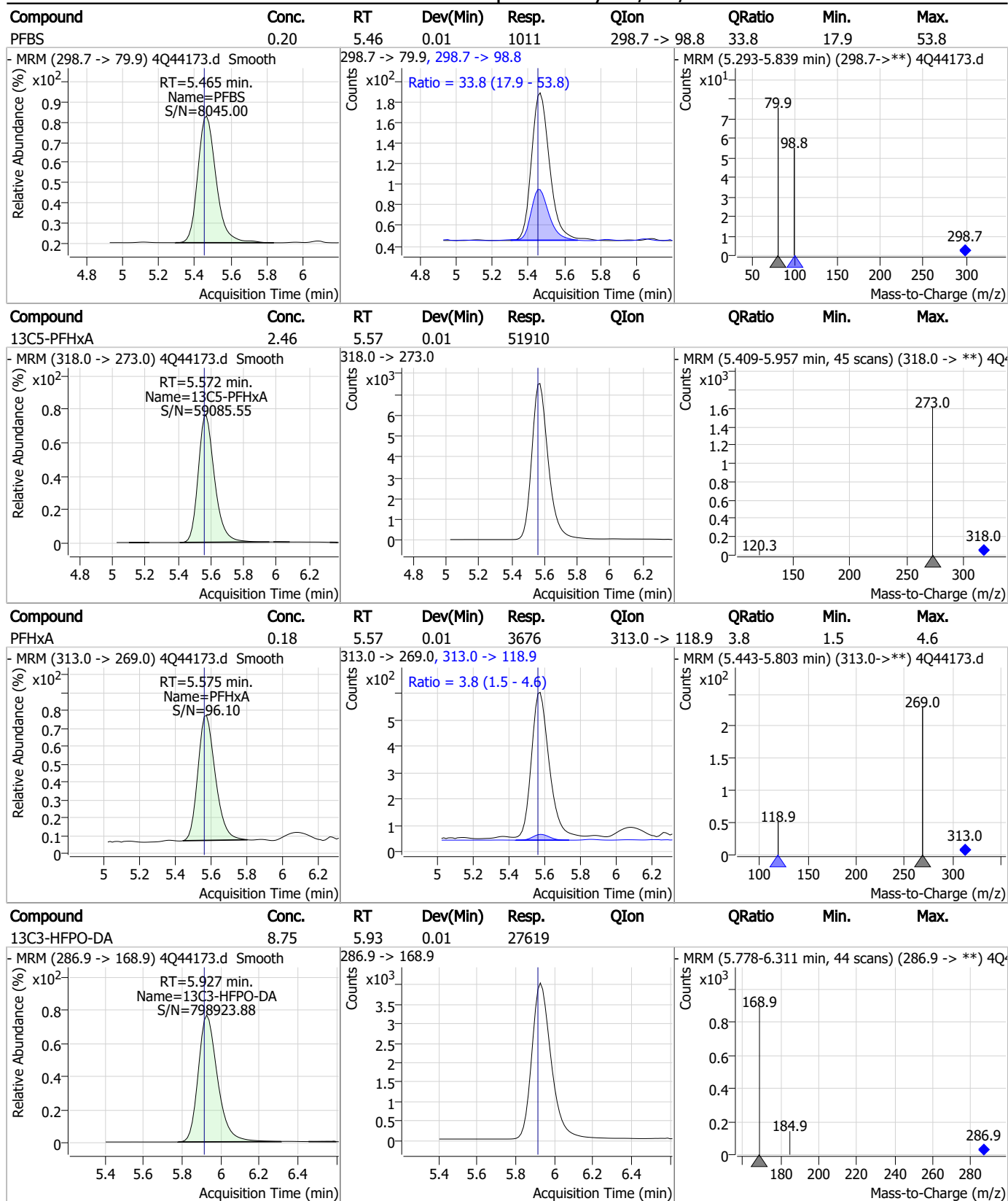
### Perfluorinated Compounds by LC/MS/MS



7.7.13

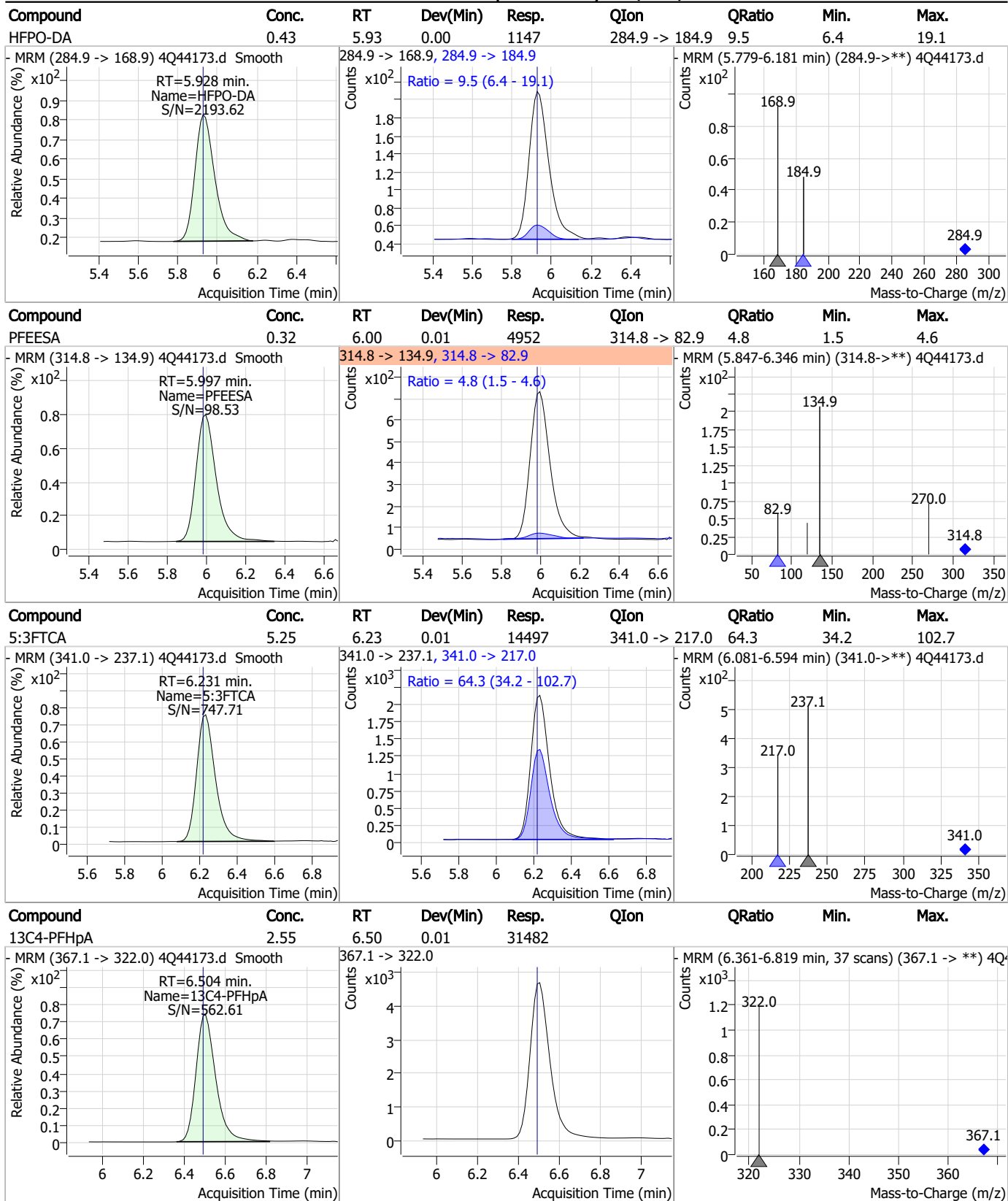
7

### Perfluorinated Compounds by LC/MS/MS



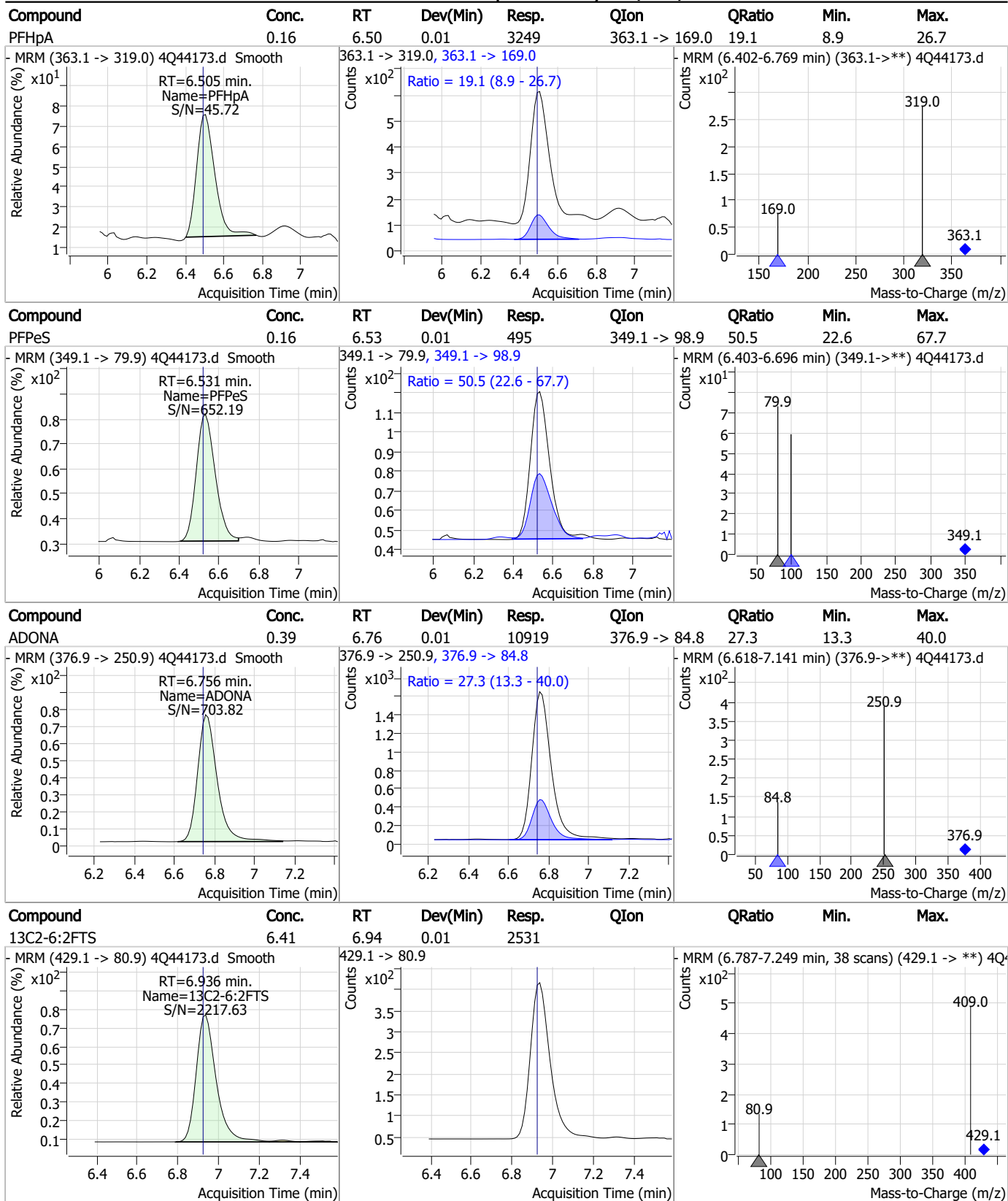
7.7.13  
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### Perfluorinated Compounds by LC/MS/MS



7.7.13  
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### Perfluorinated Compounds by LC/MS/MS

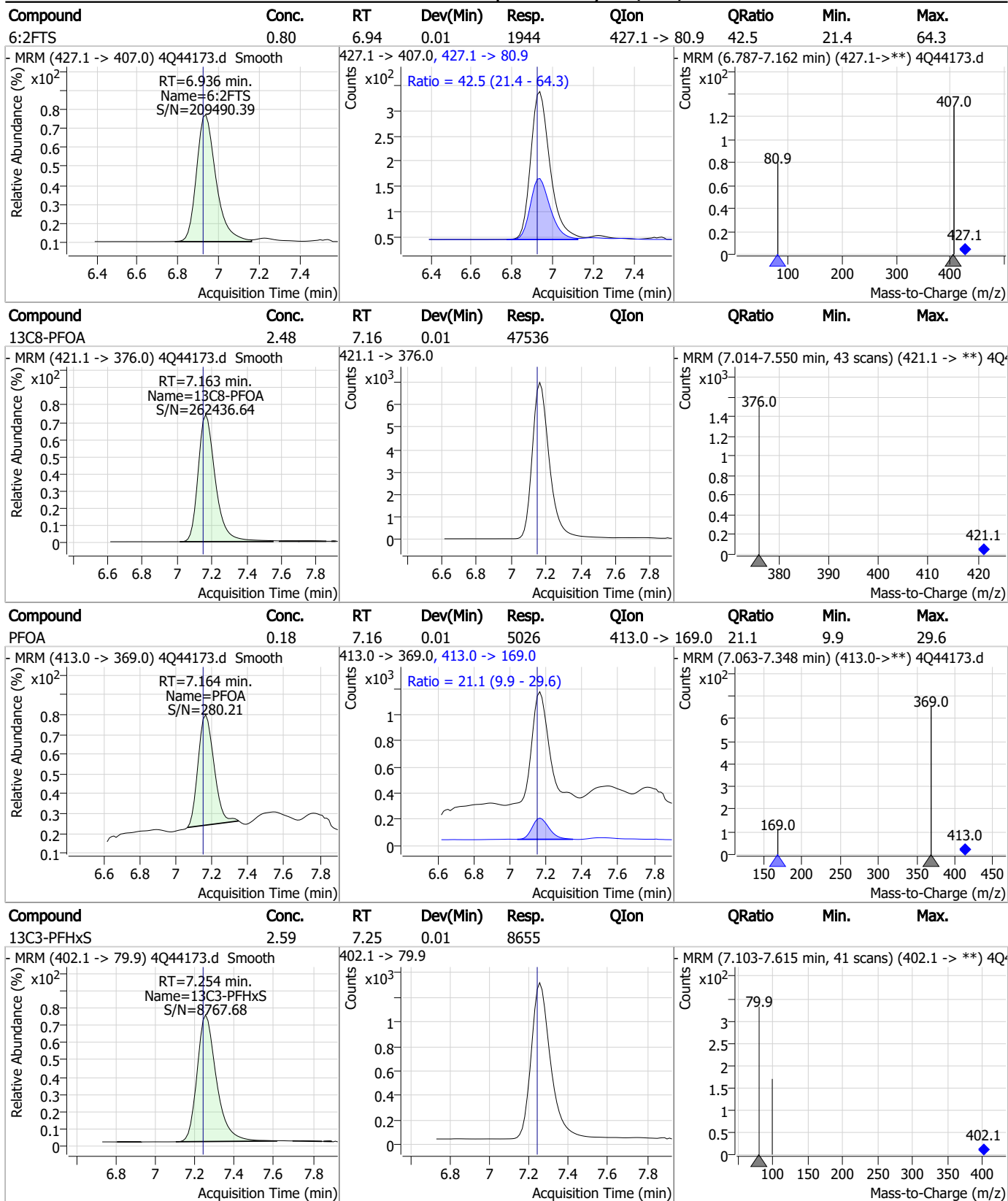


7.7.13

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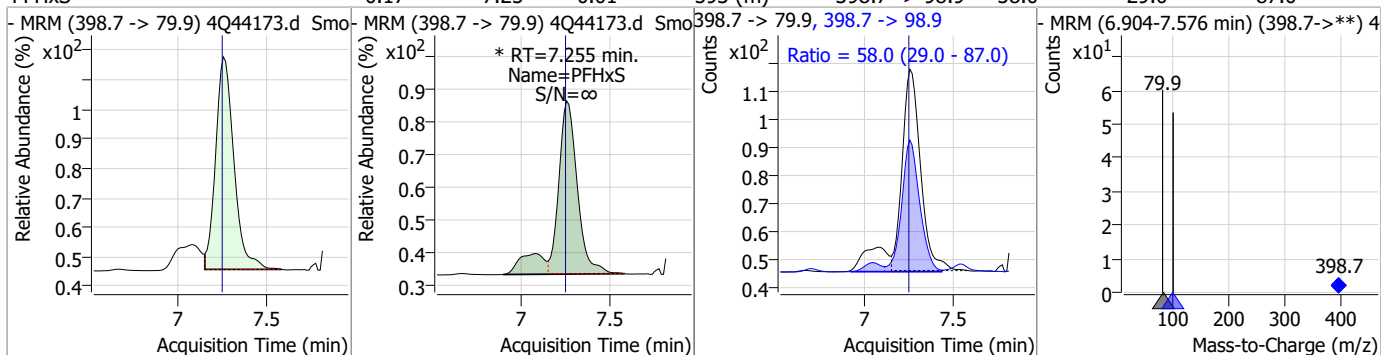
### Perfluorinated Compounds by LC/MS/MS



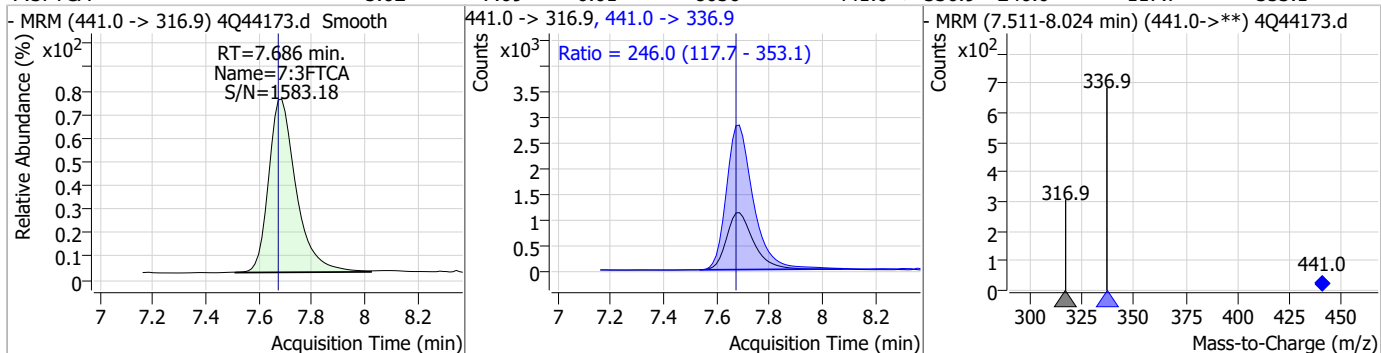
7.7.13  
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### Perfluorinated Compounds by LC/MS/MS

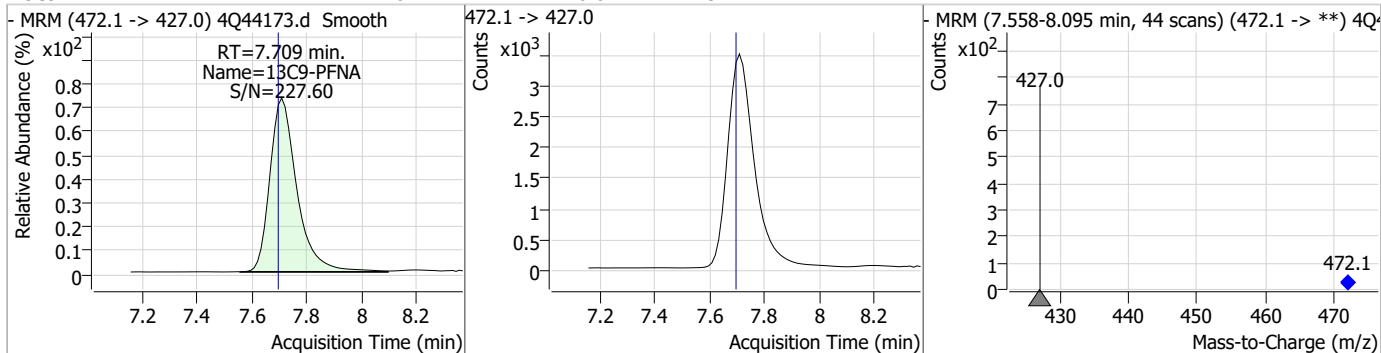
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.17	7.25	0.01	593 (m)	398.7 -> 98.9	58.0	29.0	87.0



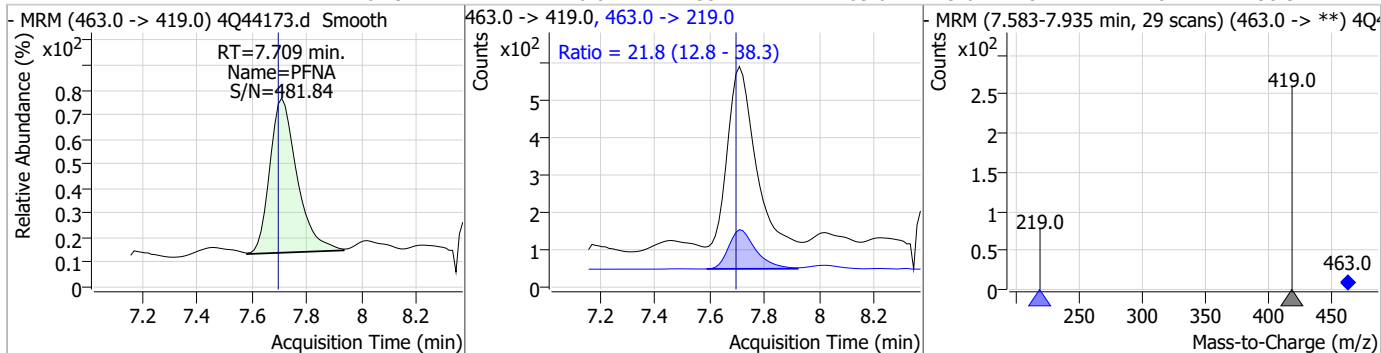
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	5.62	7.69	0.01	8056	441.0 -> 336.9	246.0	117.7	353.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.26	7.71	0.01	23712				

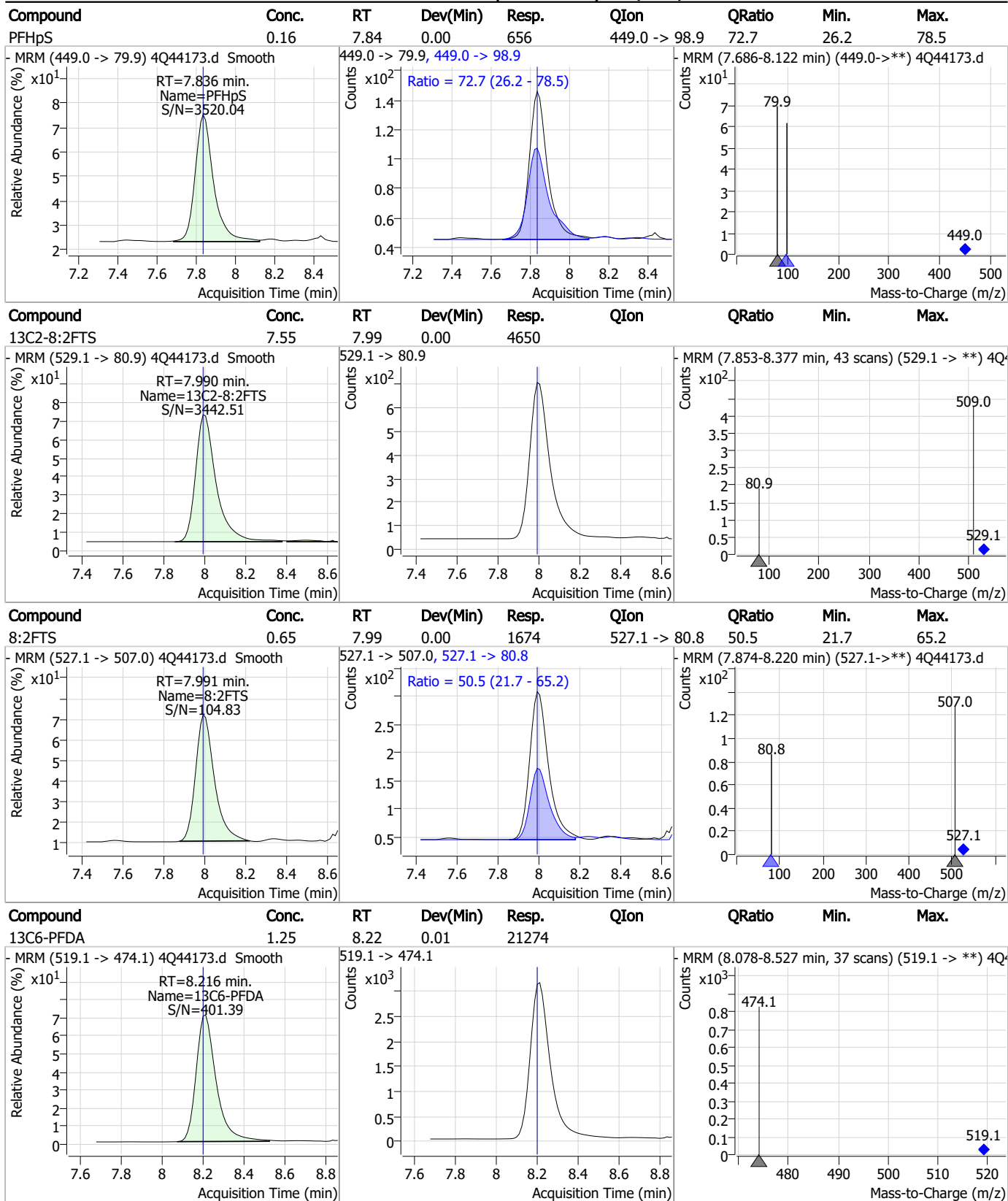


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.19	7.71	0.01	3314	463.0 -> 219.0	21.8	12.8	38.3



7.7.13  
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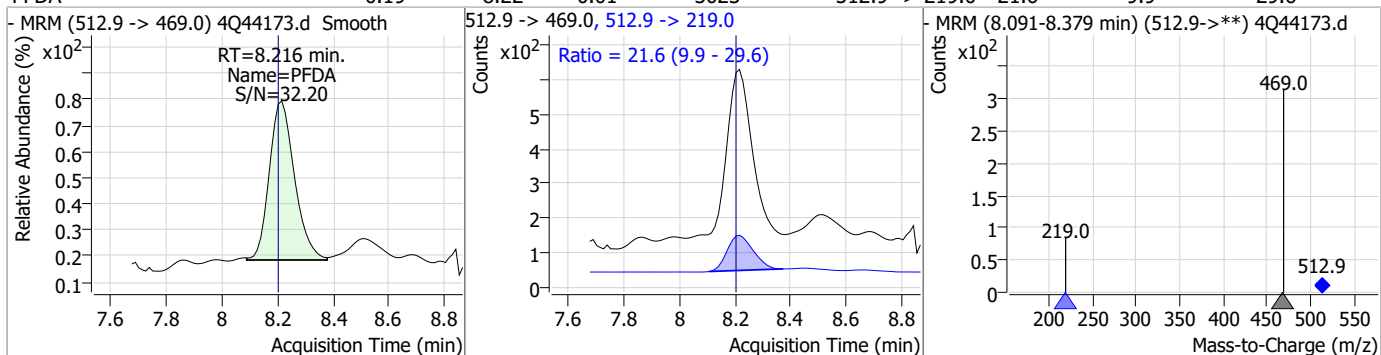
### Perfluorinated Compounds by LC/MS/MS



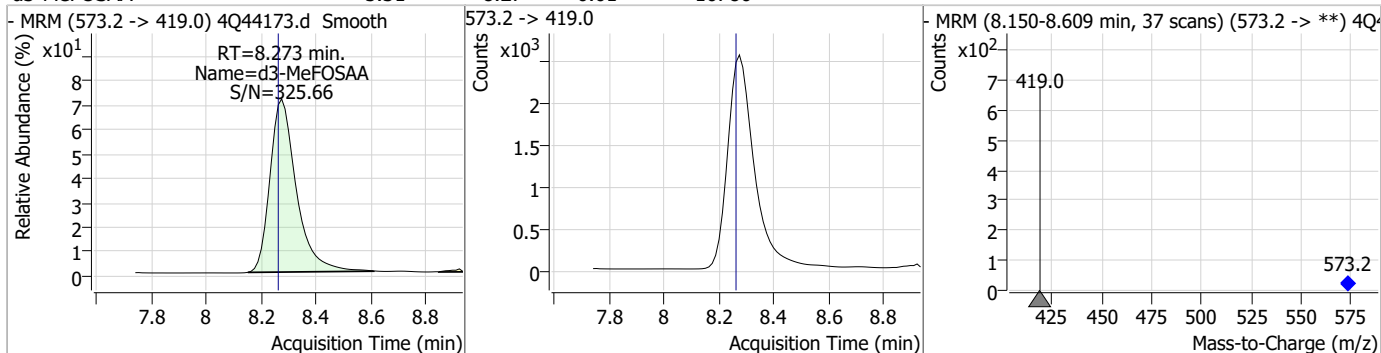
7.7.13  
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### Perfluorinated Compounds by LC/MS/MS

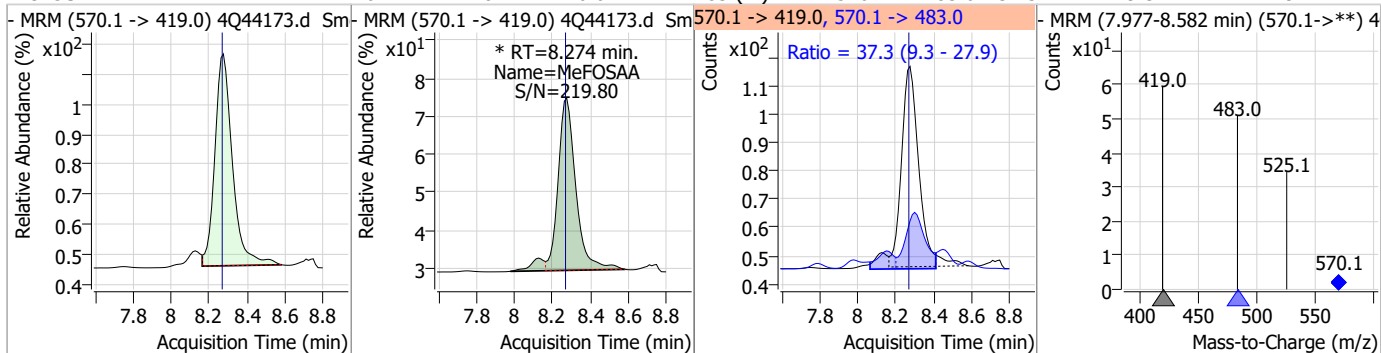
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.19	8.22	0.01	3023	512.9 -> 219.0	21.6	9.9	29.6



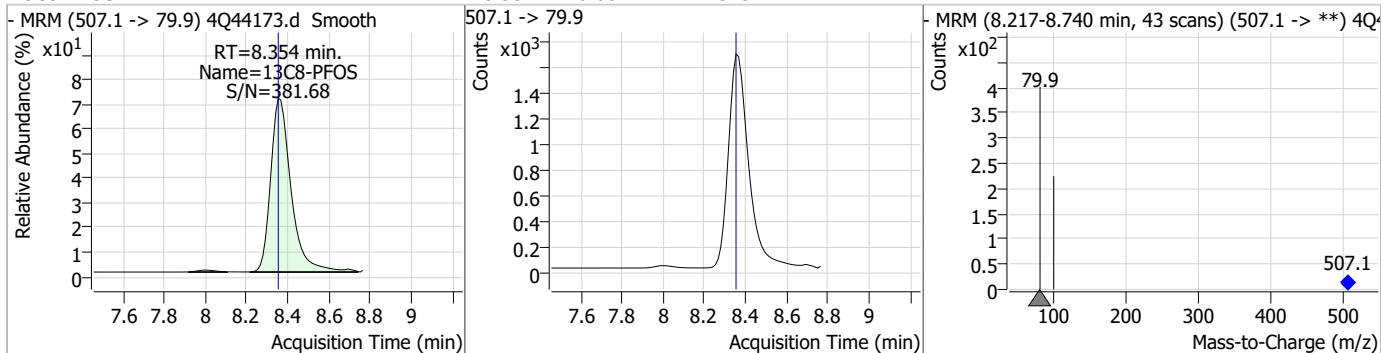
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.31	8.27	0.01	16786				



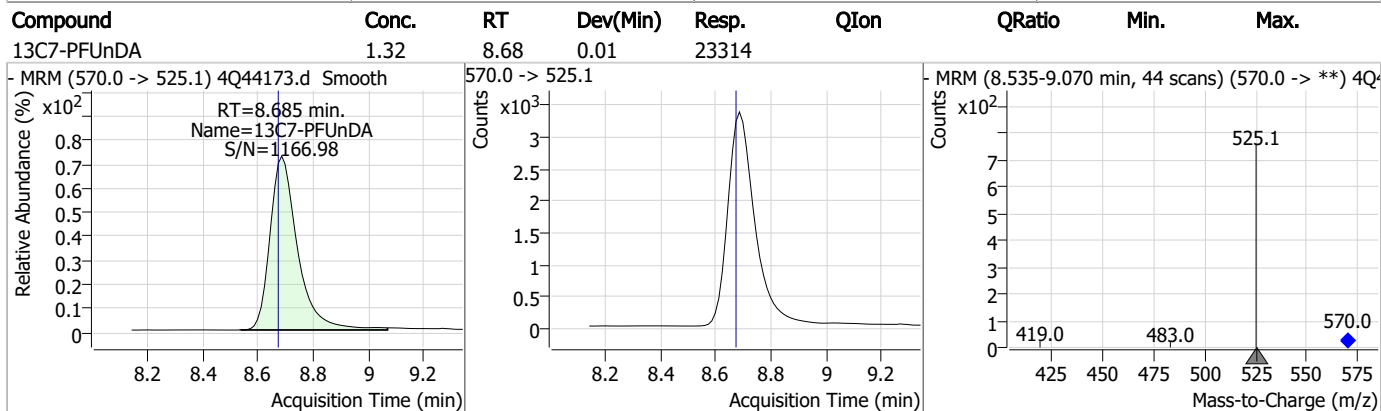
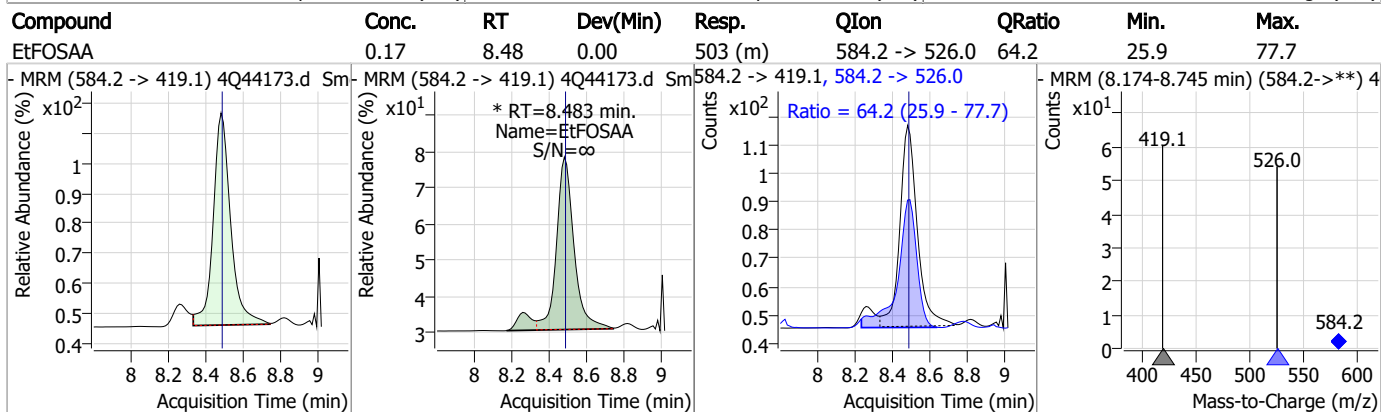
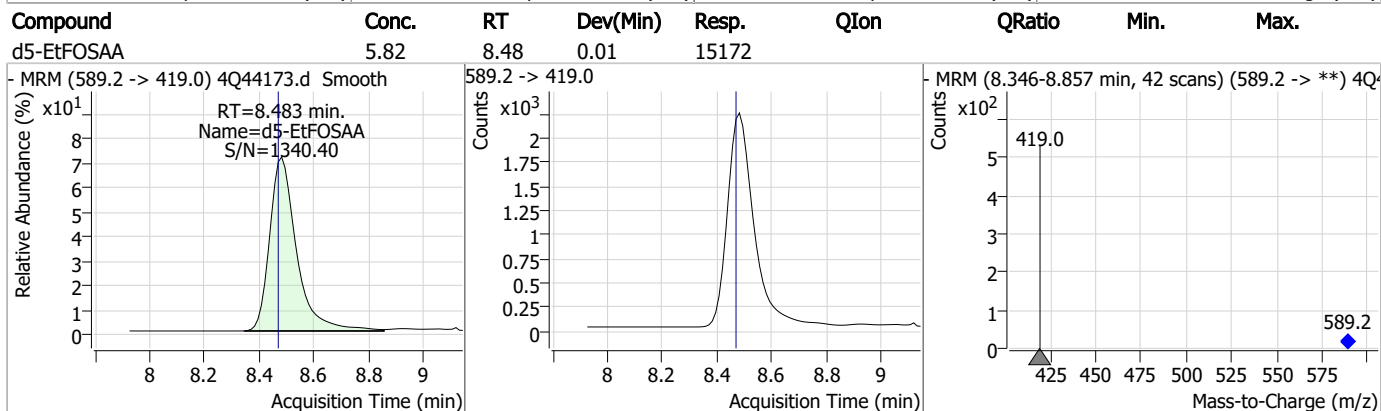
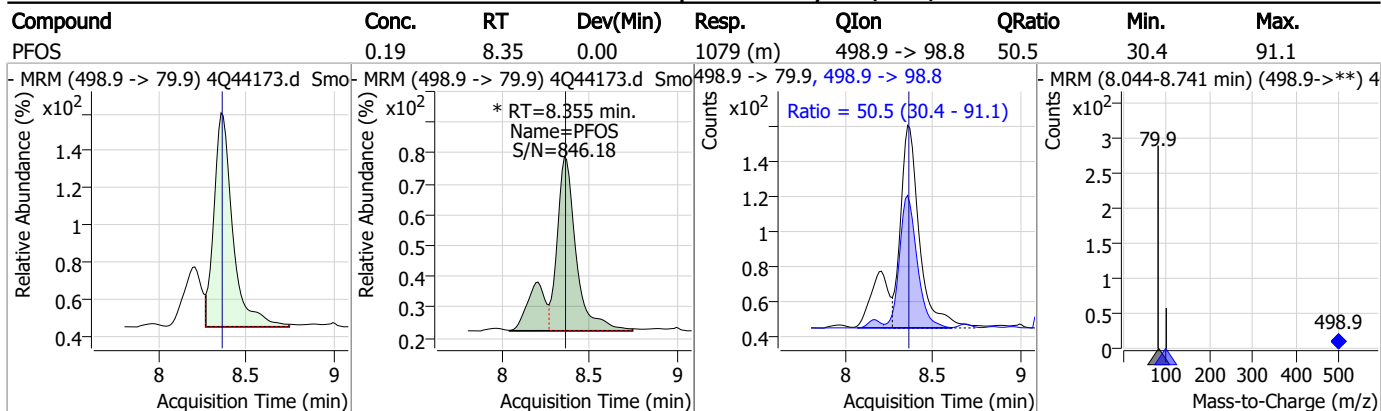
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.17	8.27	0.01	483 (m)	570.1 -> 483.0	37.3	9.3	27.9



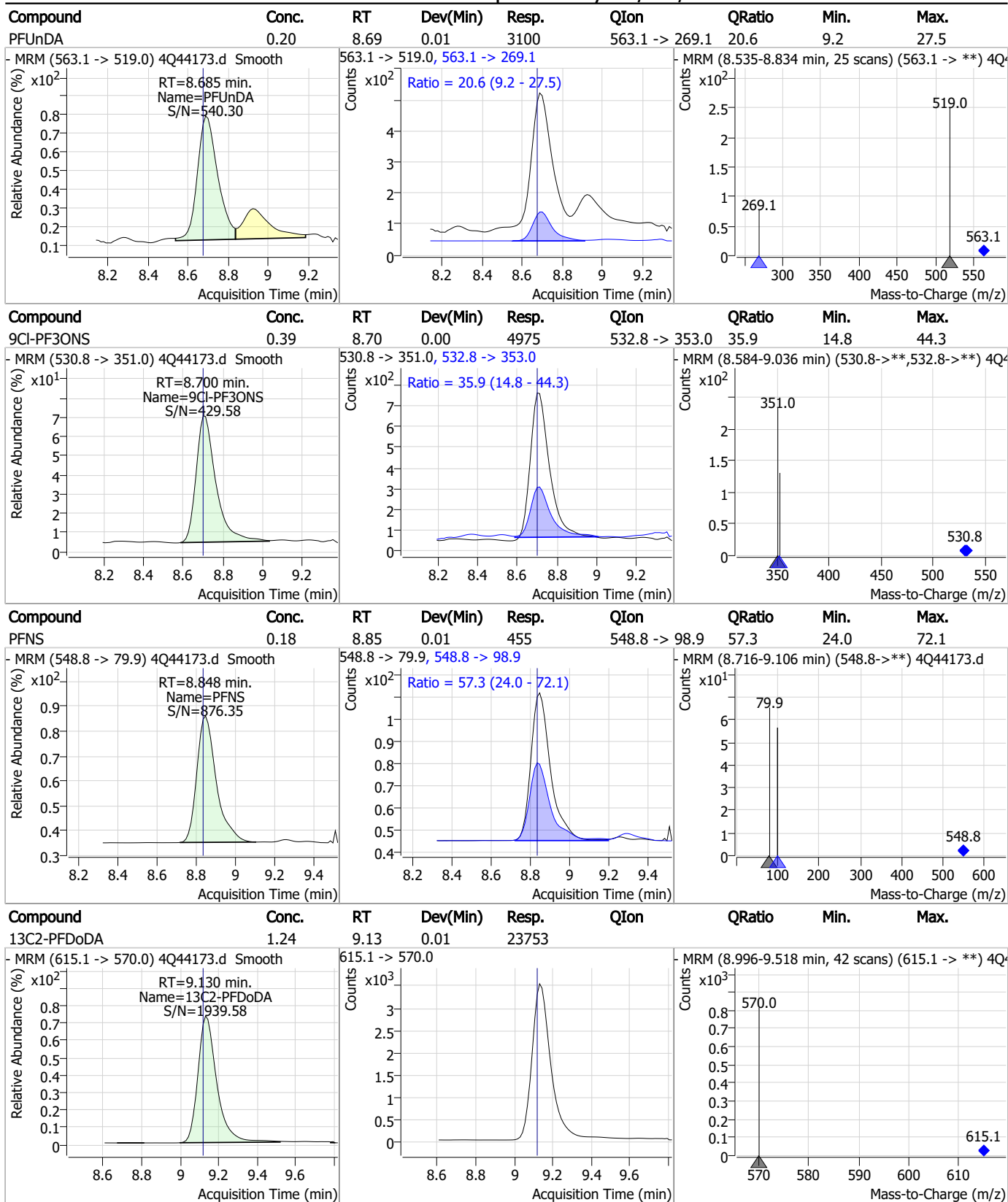
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.44	8.35	0.00	11523				



### Perfluorinated Compounds by LC/MS/MS



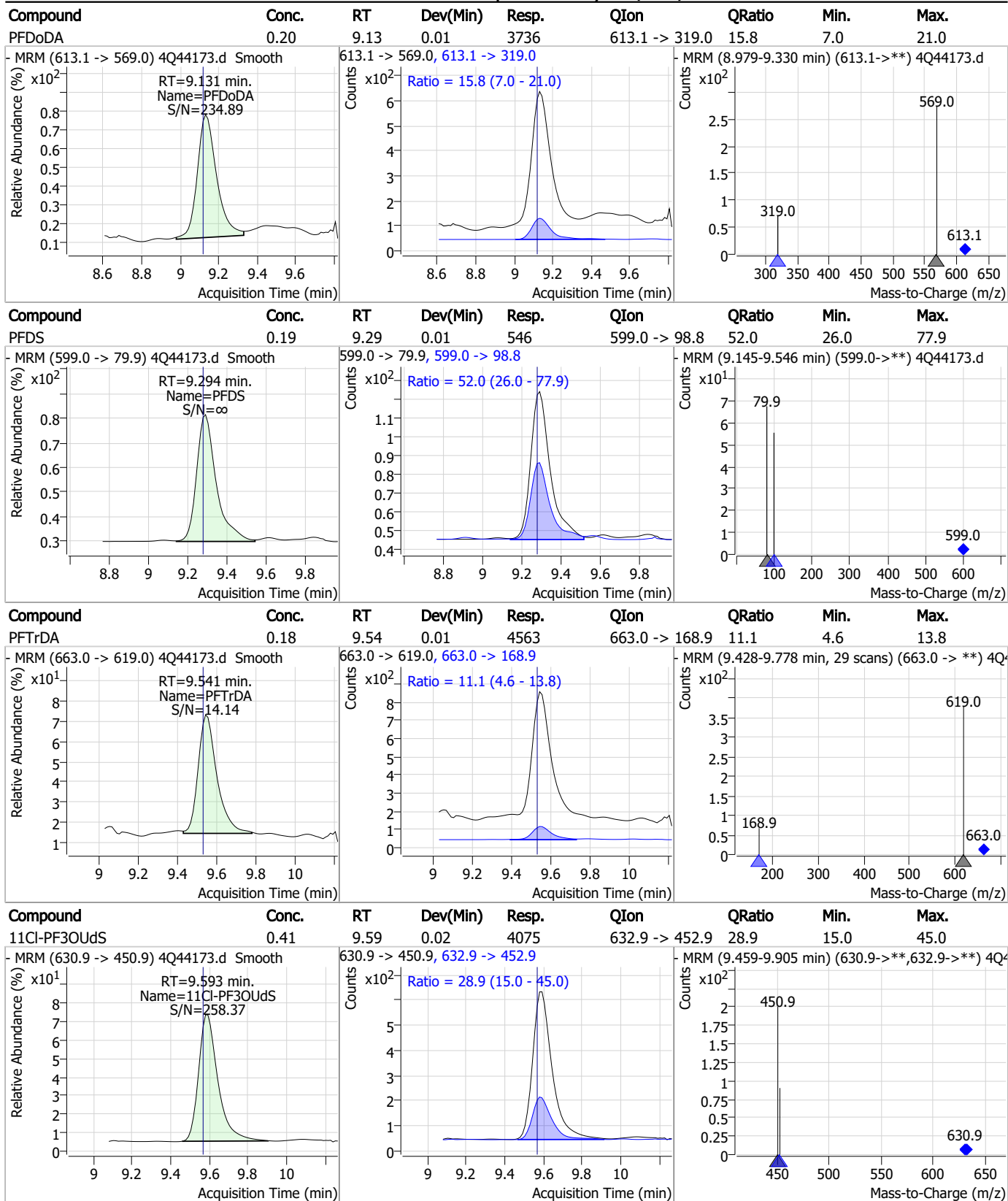
### Perfluorinated Compounds by LC/MS/MS



7.7.13

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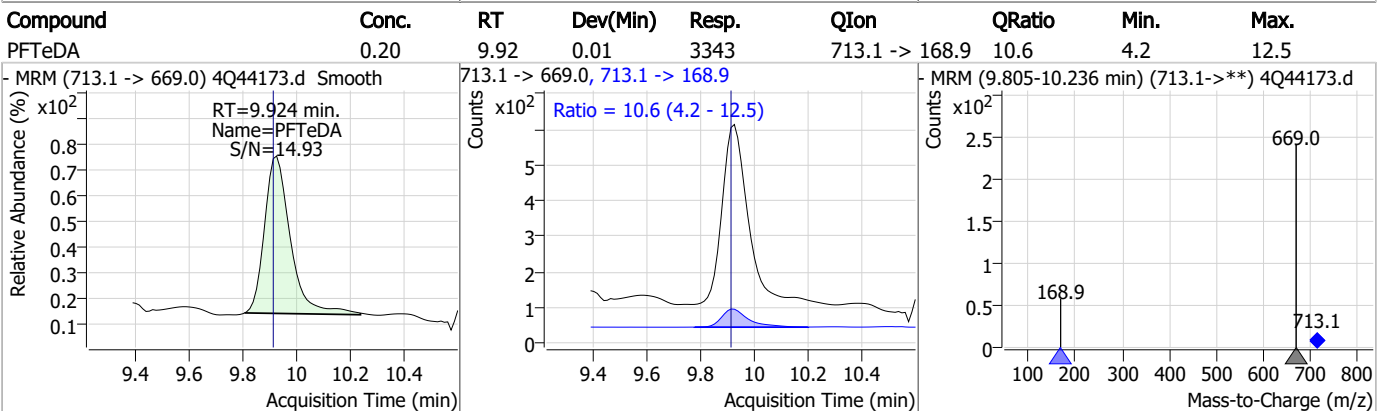
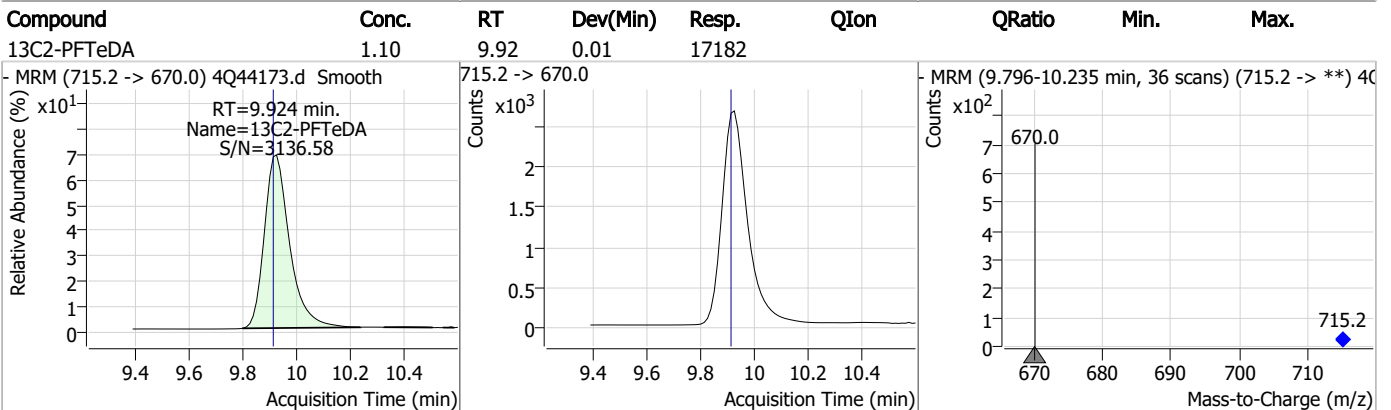
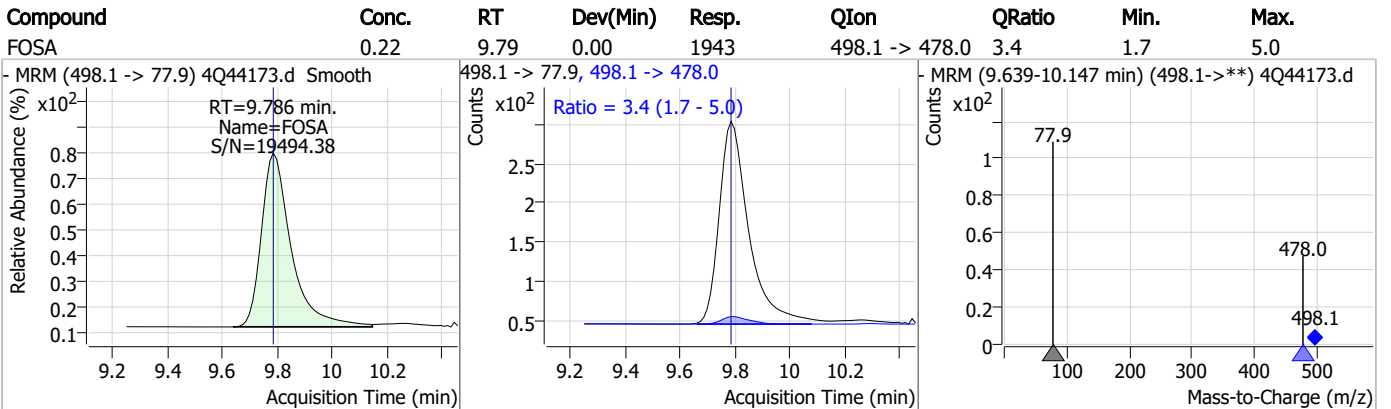
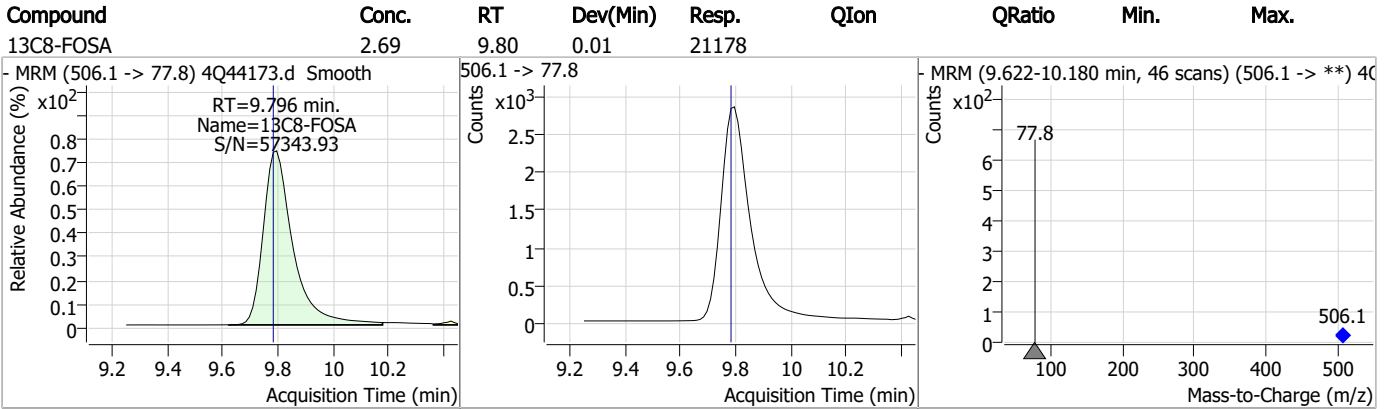
### Perfluorinated Compounds by LC/MS/MS



7.7.13 7



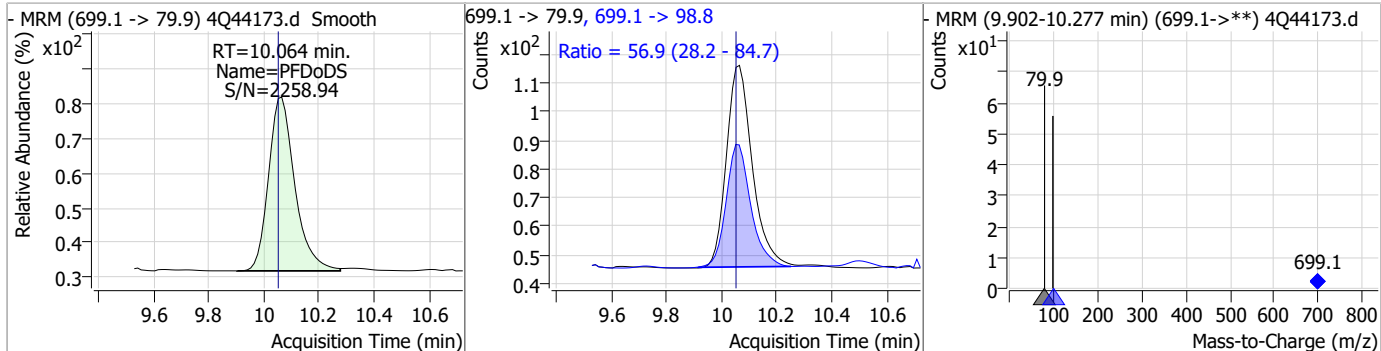
### Perfluorinated Compounds by LC/MS/MS



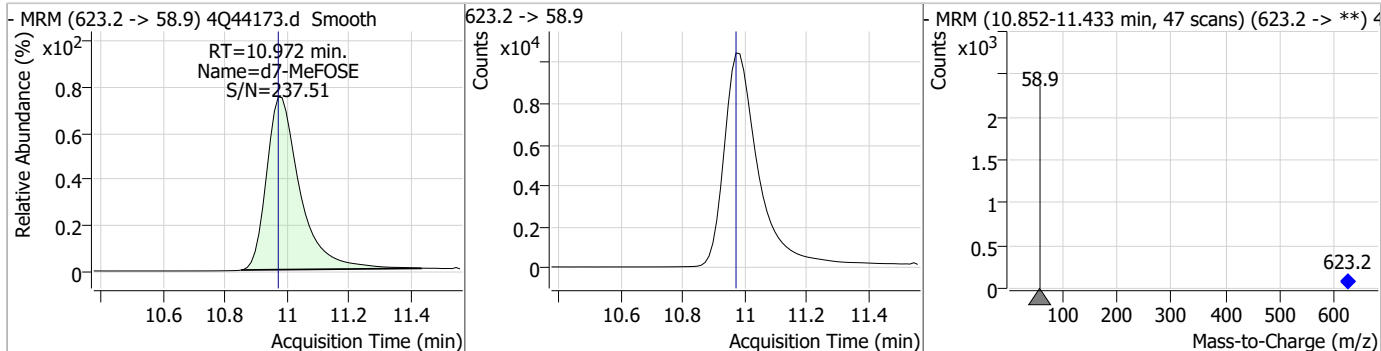


### Perfluorinated Compounds by LC/MS/MS

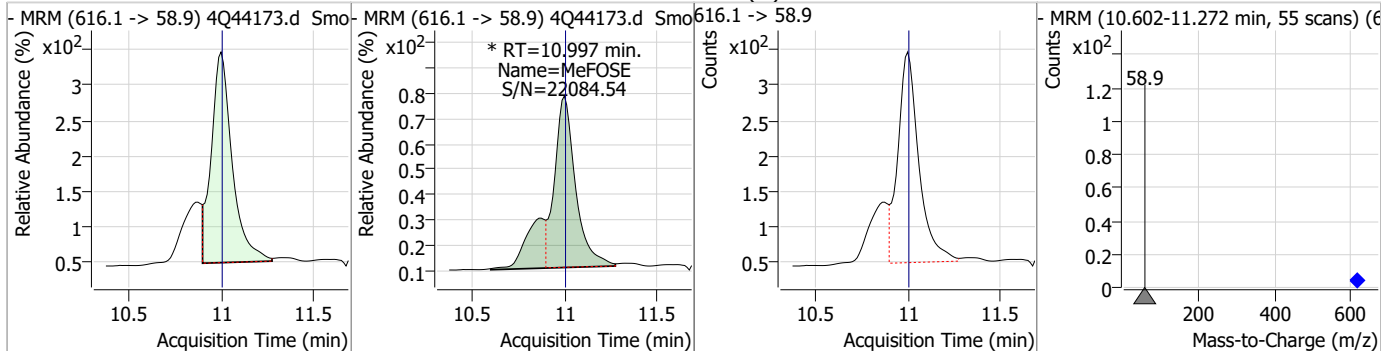
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD <sub>o</sub> DS	0.18	10.06	0.01	470	699.1 -> 98.8	56.9	28.2	84.7



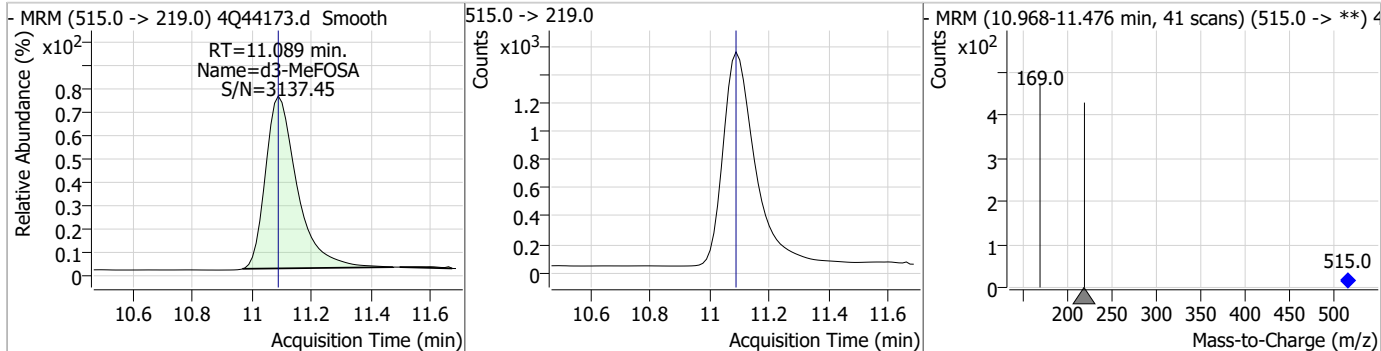
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.91	10.97	0.00	77640				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.94	11.00	0.00	2986 (m)				



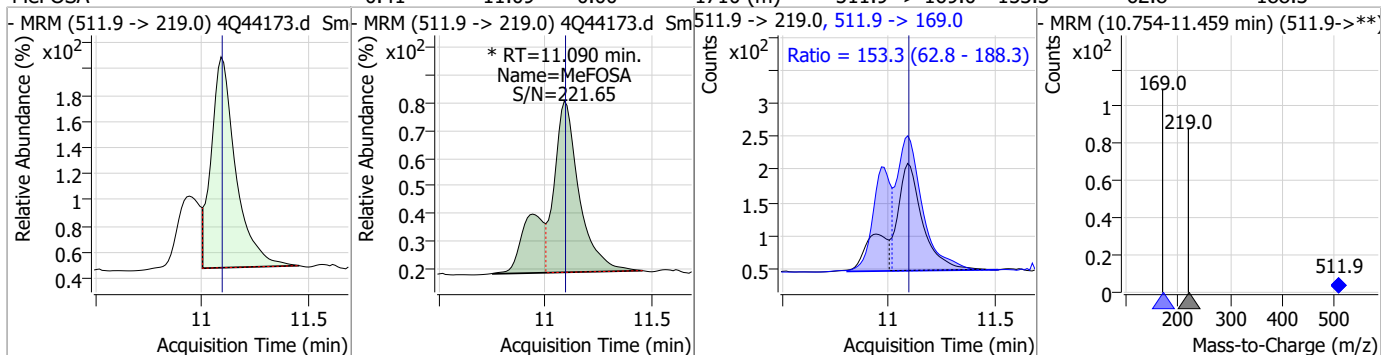
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.27	11.09	0.00	11168				



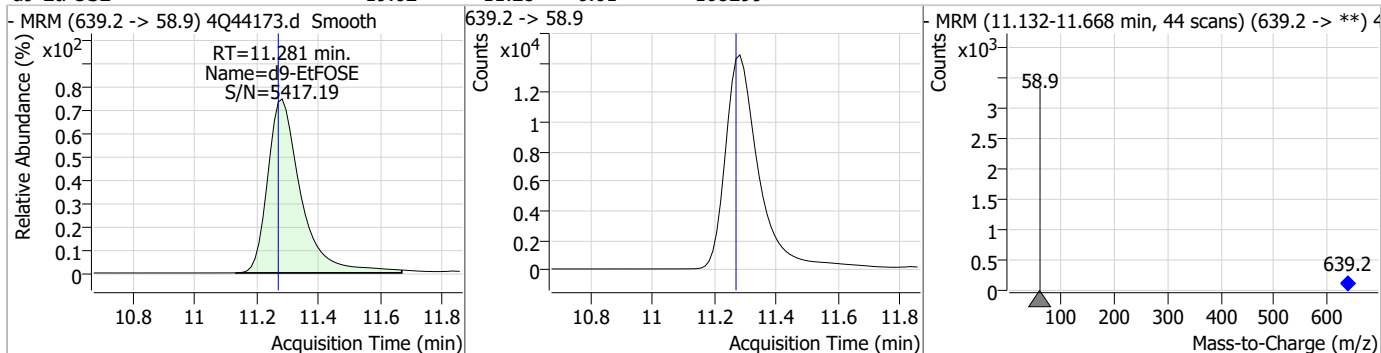
7.7.13  
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### Perfluorinated Compounds by LC/MS/MS

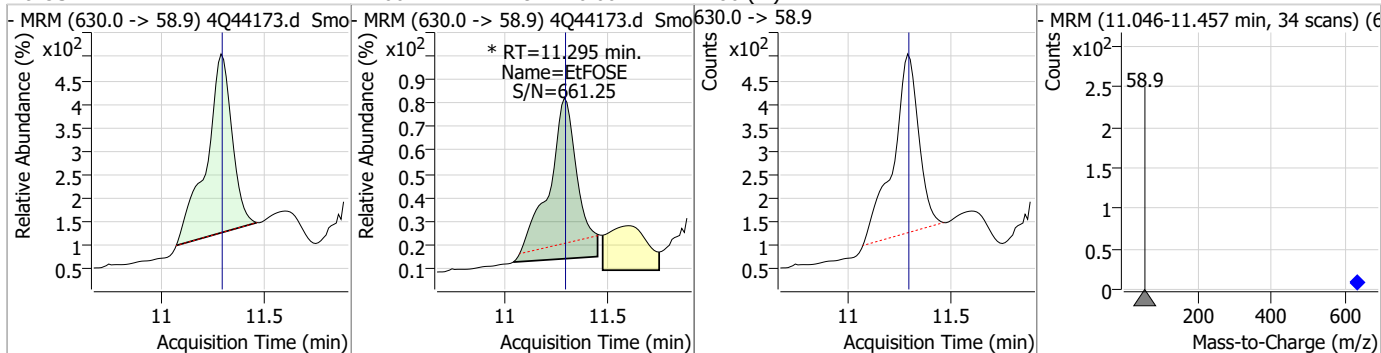
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.41	11.09	0.00	1710 (m)	511.9 -> 169.0	153.3	62.8	188.3



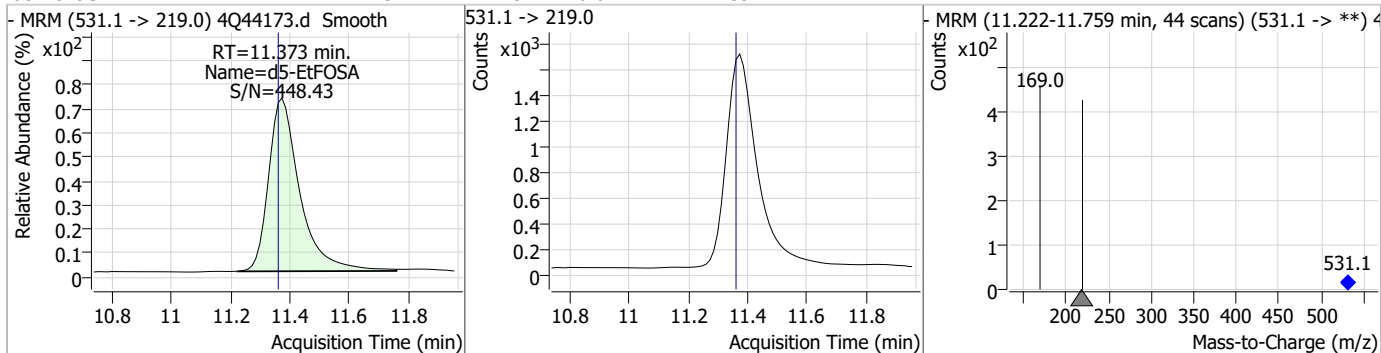
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.62	11.28	0.01	108299				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	1.00	11.29	0.00	4186 (m)				

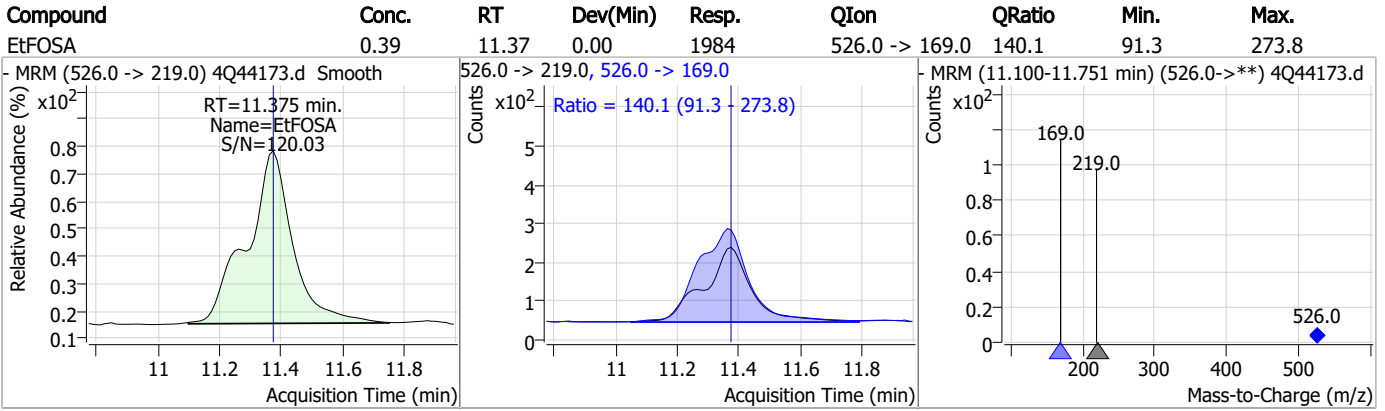


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.32	11.37	0.01	12139				



7.7.13  
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### Perfluorinated Compounds by LC/MS/MS



7.7.13

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# Manual Integration Approval Summary

Sample Number: S4Q639-CC634      Method: EPA DRAFT 1633  
Lab FileID: 4Q44173.D      Analyst approved: 05/10/23 11:10 Martha Valls  
Injection Time: 05/09/23 23:02      Supervisor approved: 05/10/23 17:27 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.25	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSE	1691-99-2		11.29	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44184.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 5/10/2023 1:37:17 AM  
 Sample Name : Ecc634-4  
 Vial : P1-A5  
 DA Method File : 1633\_050323\_S4Q634.quantmethod.xml  
 Batch Name : s4q639.batch.bin  
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.924	216.8 -> 171.9	150446	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	73905	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	52735	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	30698	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	46712	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	23446	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	20991	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	22501	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	24781	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	17581	1.25 µg/L	0.012
M8-FOSA	9.783	506.1 -> 77.8	19978	2.50 µg/L	0.000
M3-PFBS	5.464	302.1 -> 79.9	12438	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	8480	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	11647	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1364	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	2659	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	3984	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	17759	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	27977	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	13918	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	79813	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	110802	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	12217	2.50 µg/L	0.000
M3-MeFOSA	11.089	515.0 -> 219.0	11427	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	12026	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	77579	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	5881	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	59026	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	19577	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	28140	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	47284	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.247	329.1 -> 80.9	1364	5.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.1%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2659	6.17 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.4%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3984	5.92 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.5%		
13C2-PFDoDA	9.130	615.1 -> 570.0	24781	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C2-PFTeDA	9.924	715.2 -> 670.0	17581	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.1%		
13C3-PFBS	5.464	302.1 -> 79.9	12438	2.24 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 89.7%		
13C3-PFHxS	7.254	402.1 -> 79.9	8480	2.33 µg/L	0.012

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C4-PFBA	2.924	216.8 -> 171.9	150446	10.31 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C4-PFHpA	6.492	367.1 -> 322.0	30698	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFHxA	5.559	318.0 -> 273.0	52735	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C5-PFPeA	4.387	268.3 -> 223.0	73905	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C6-PFDA	8.216	519.1 -> 474.1	20991	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C7-PFUnDA	8.685	570.0 -> 525.1	22501	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C8-FOSA	9.783	506.1 -> 77.8	19978	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C8-PFOA	7.163	421.1 -> 376.0	46712	2.41 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C8-PFOS	8.354	507.1 -> 79.9	11647	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C9-PFNA	7.709	472.1 -> 427.0	23446	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%	
d3-MeFOSAA	8.273	573.2 -> 419.0	17759	5.85 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.0%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	27977	8.99 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.9%	
d3-MeFOSA	11.089	515.0 -> 219.0	11427	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
d5-EtFOSAA	8.483	589.2 -> 419.0	13918	5.57 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.4%	
d7-MeFOSE	10.972	623.2 -> 58.9	79813	21.33 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.3%	
d9-EtFOSE	11.269	639.2 -> 58.9	110802	20.91 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.7%	
d5-EtFOSA	11.360	531.1 -> 219.0	12217	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.248	327.1 -> 307.0	20799	9.48 µg/L	99
		327.1 -> 80.9	8886		
6:2FTS	6.936	427.1 -> 407.0	25341	9.87 µg/L	95
		427.1 -> 80.9	10021		
8:2FTS	8.003	527.1 -> 507.0	24358	10.97 µg/L	91
		527.1 -> 80.8	9165		
EtFOSAA	8.483	584.2 -> 419.1	6877	2.57 µg/L	97
		584.2 -> 526.0	3406		
FOSA	9.786	498.1 -> 77.9	21136	2.52 µg/L	100
		498.1 -> 478.0	685		
MeFOSAA	8.274	570.1 -> 419.0	6992	2.26 µg/L	87
		570.1 -> 483.0	1721		
PFBA	2.920	212.8 -> 168.9	38432	9.54 µg/L	100
PFBS	5.453	298.7 -> 79.9	11113	2.18 µg/L	91
		298.7 -> 98.8	4555		
PFDA	8.216	512.9 -> 469.0	39839	2.50 µg/L	99
		512.9 -> 219.0	7629		
PFDoDA	9.131	613.1 -> 569.0	48409	2.43 µg/L	100
		613.1 -> 319.0	6702		
PFDS	9.282	599.0 -> 79.9	6752	2.34 µg/L	96

7.7.14  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.492	599.0 -> 98.8	3315	2.51	µg/L	100
		363.1 -> 319.0	48767			
PFHpS	7.836	363.1 -> 169.0	8641	2.44	µg/L	98
		449.0 -> 79.9	10251			
PFHxA	5.562	449.0 -> 98.9	5218	2.33	µg/L	99
		313.0 -> 269.0	48078			
PFHxS	7.255	313.0 -> 118.9	1533	2.18	µg/L	m
		398.7 -> 79.9	7574			
PFNA	7.709	398.7 -> 98.9	4148	2.37	µg/L	97
		463.0 -> 419.0	41143			
PFNS	8.836	463.0 -> 219.0	9914	2.34	µg/L	93
		548.8 -> 79.9	5945			
PFOA	7.164	548.8 -> 98.9	3129	2.46	µg/L	99
		413.0 -> 369.0	66419			
PFOS	8.355	413.0 -> 169.0	13308	2.25	µg/L	m
		498.9 -> 79.9	12821			
PFPeA	4.389	498.9 -> 98.8	6204	5.02	µg/L	100
		263.0 -> 219.0	89329			
PFPeS	6.519	349.1 -> 79.9	6625	2.22	µg/L	98
		349.1 -> 98.9	2892			
PFTeDA	9.924	713.1 -> 669.0	43354	2.52	µg/L	99
		713.1 -> 168.9	3748			
PFTrDA	9.541	663.0 -> 619.0	65803	2.48	µg/L	98
		663.0 -> 168.9	6481			
PFUnDA	8.685	563.1 -> 519.0	38086	2.49	µg/L	96
		563.1 -> 269.1	7651			
11CI-PF3OUdS	9.581	630.9 -> 450.9	53809	5.35	µg/L	98
		632.9 -> 452.9	16666			
9CI-PF3ONS	8.700	530.8 -> 351.0	67580	5.27	µg/L	97
		532.8 -> 353.0	21001			
ADONA	6.756	376.9 -> 250.9	149722	5.32	µg/L	99
		376.9 -> 84.8	38977			
HFPO-DA	5.928	284.9 -> 168.9	13478	5.04	µg/L	99
		284.9 -> 184.9	1687			
3:3FTCA	3.848	241.0 -> 177.0	10235	13.08	µg/L	100
		241.0 -> 117.0	942			
5:3FTCA	6.231	341.0 -> 237.1	193491	69.01	µg/L	99
		341.0 -> 217.0	130328			
7:3FTCA	7.686	441.0 -> 316.9	108743	74.65	µg/L	100
		441.0 -> 336.9	255894			
EtFOSA	11.375	526.0 -> 219.0	26361	5.15	µg/L	m
		526.0 -> 169.0	35592			
EtFOSE	11.295	630.0 -> 58.9	50697	11.82	µg/L	100
		511.9 -> 219.0	21463			
MeFOSA	11.090	511.9 -> 169.0	31685	4.99	µg/L	m
		616.1 -> 58.9	39258			
MeFOSE	10.997	699.1 -> 79.9	5820	11.98	µg/L	m
		699.1 -> 98.8	3290			
PFDoDS	10.064	295.0 -> 201.0	5756	2.26	µg/L	100
		295.0 -> 84.9	1516			
NFDHA	5.441	279.0 -> 85.1	49583	3.90	µg/L	100
		229.0 -> 84.9	47049			
PFMBA	4.791	314.8 -> 134.9	66632	5.06	µg/L	100
		314.8 -> 82.9	2196			
PFMPA	3.528			4.26	µg/L	99
PFEESA	5.997					

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

7.7.14  
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### Perfluorinated Compounds by LC/MS/MS

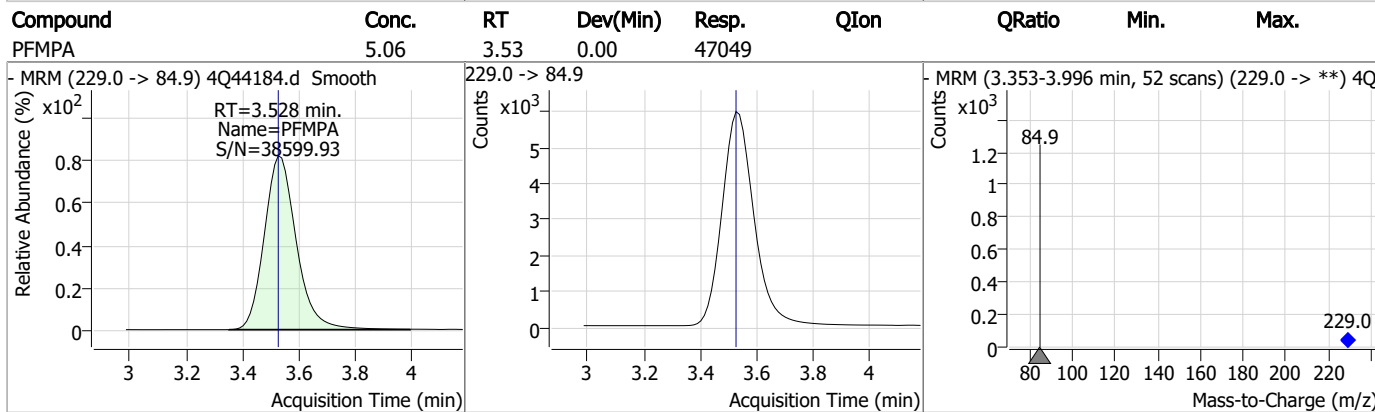
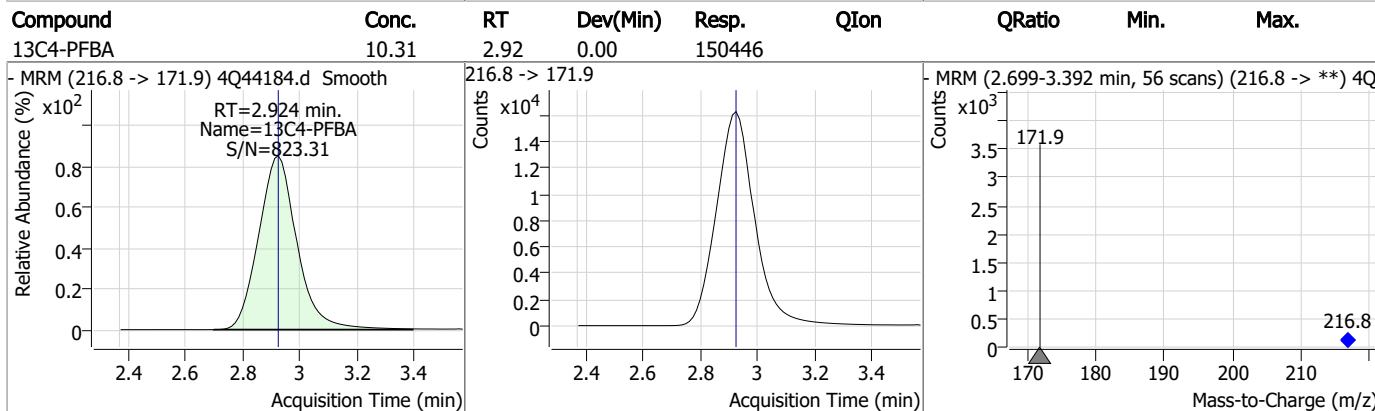
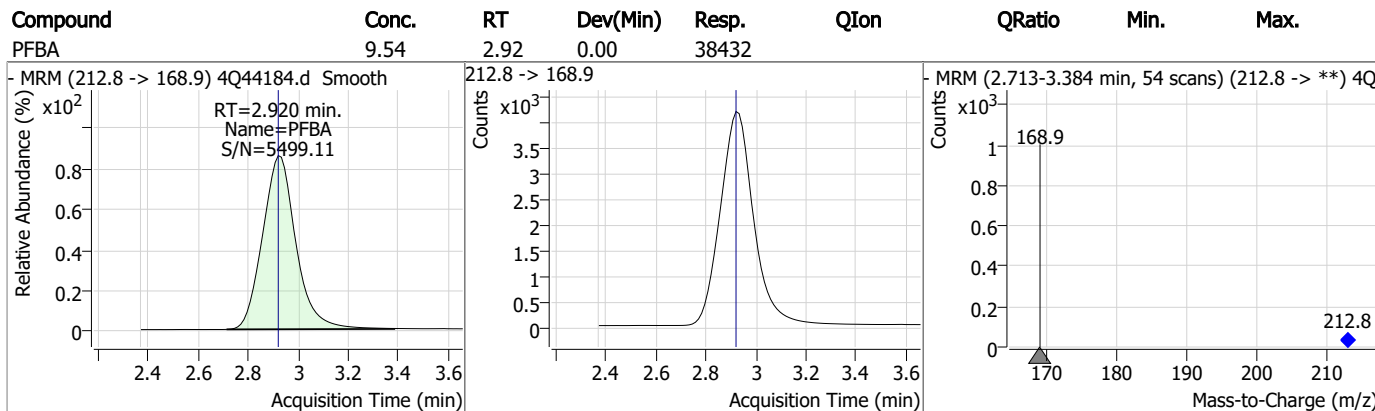
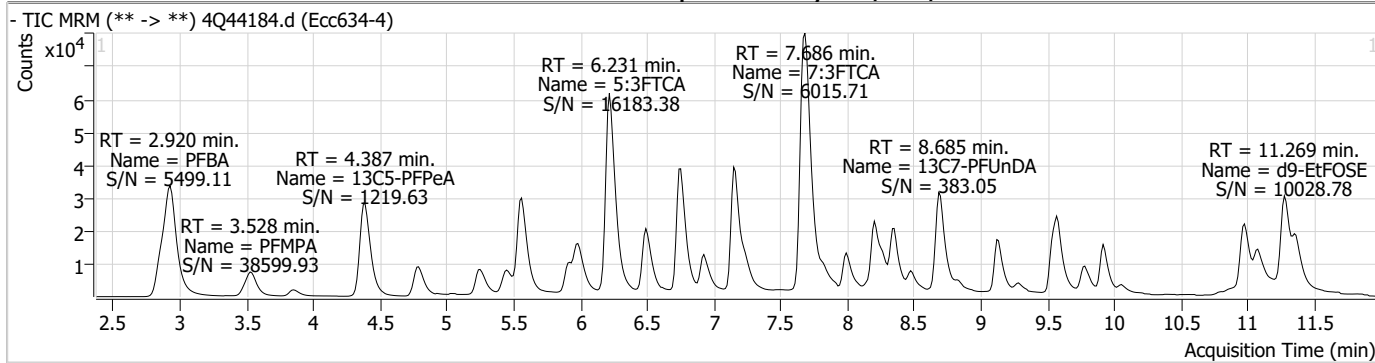
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.14

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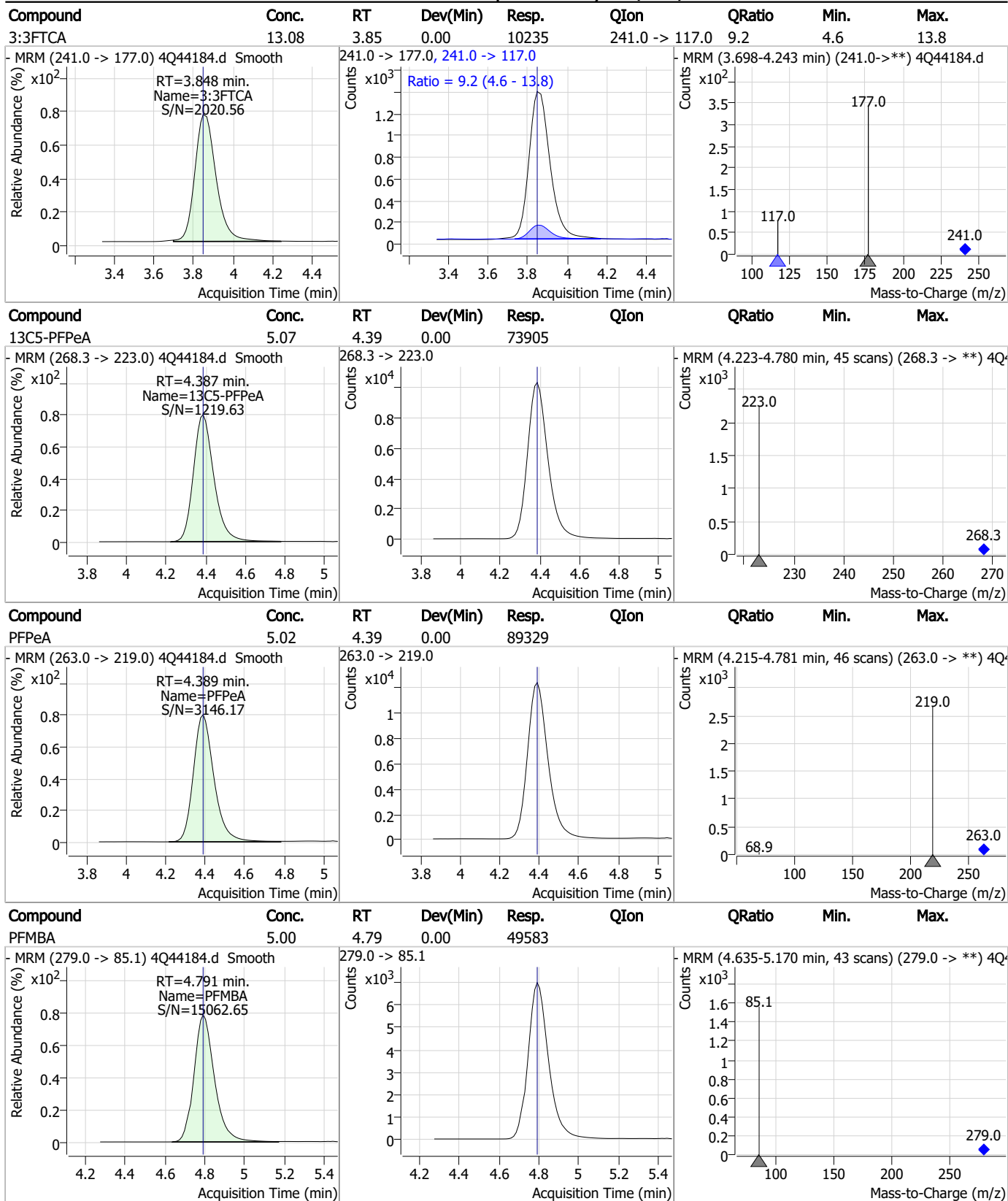


### Perfluorinated Compounds by LC/MS/MS



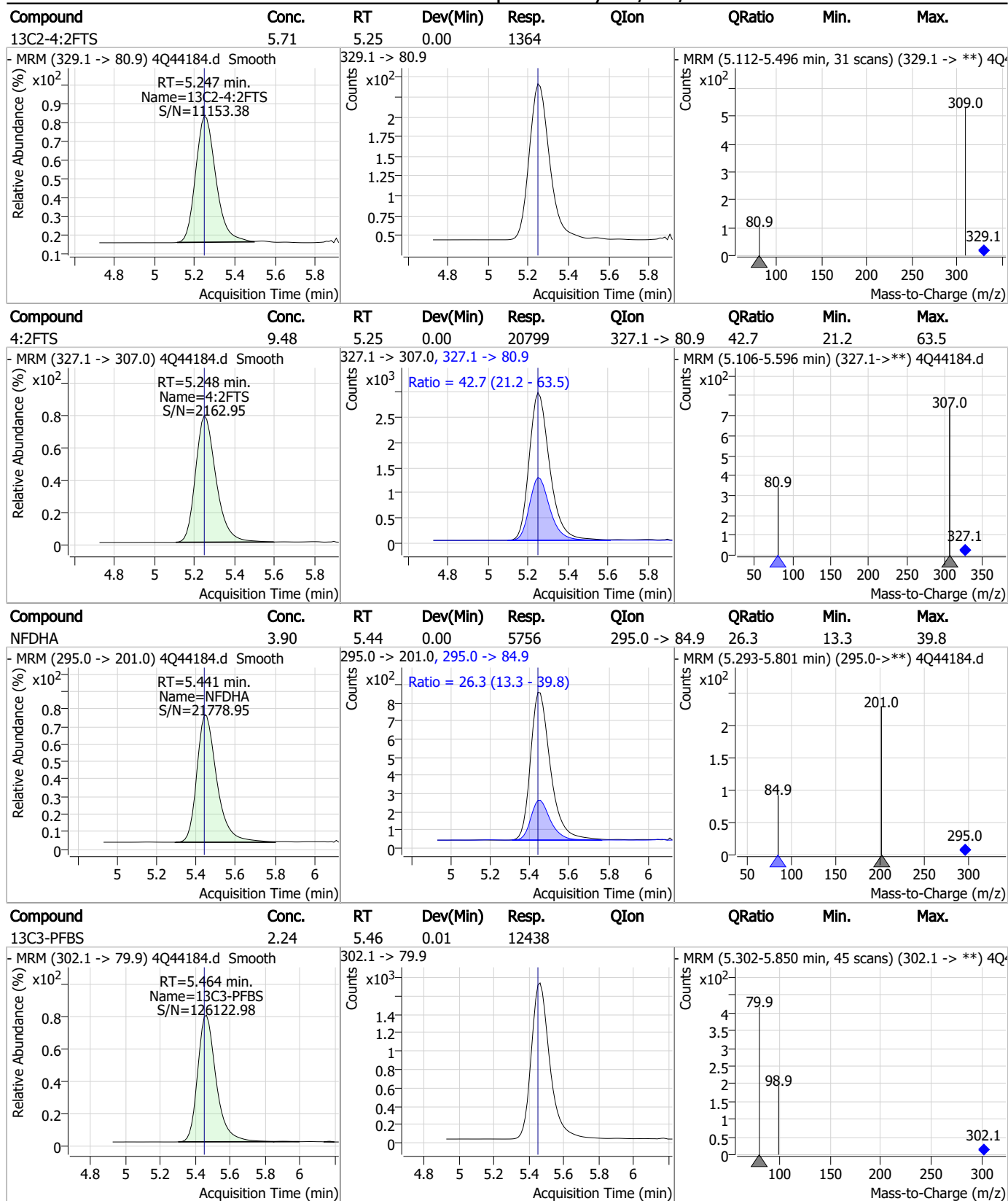
7.7.14  
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### Perfluorinated Compounds by LC/MS/MS



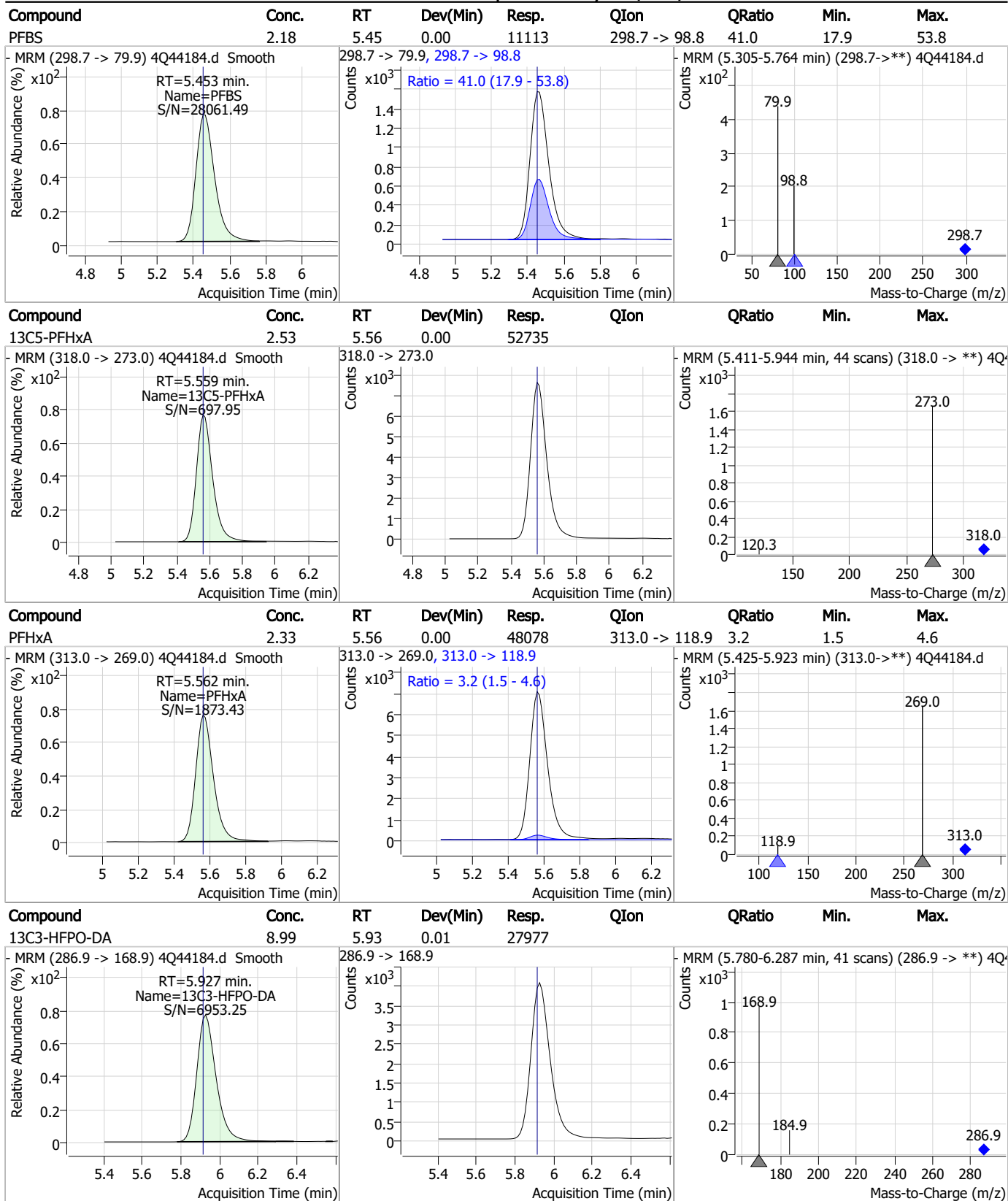
7.7.14  
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### Perfluorinated Compounds by LC/MS/MS



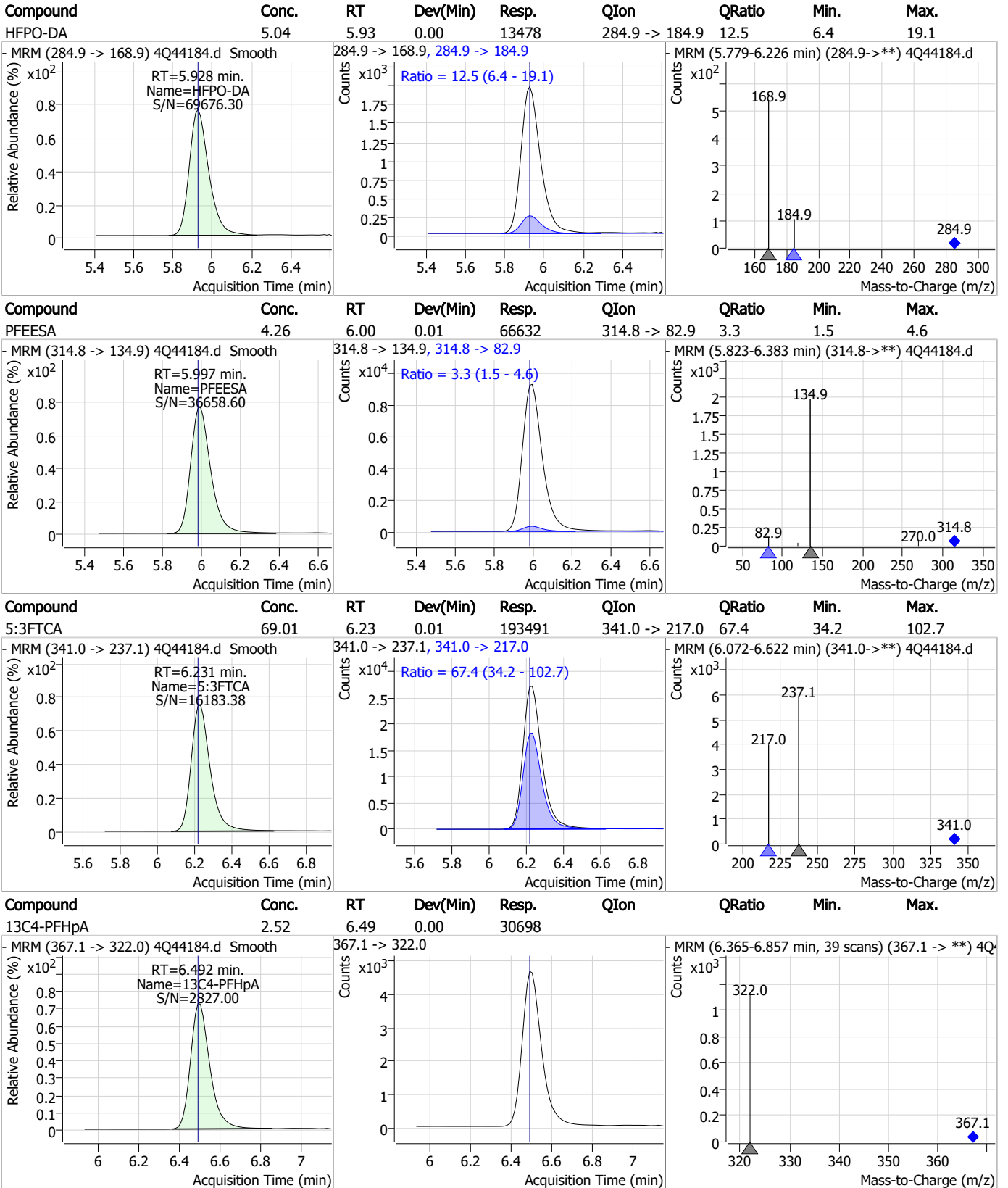
7.7.14  
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### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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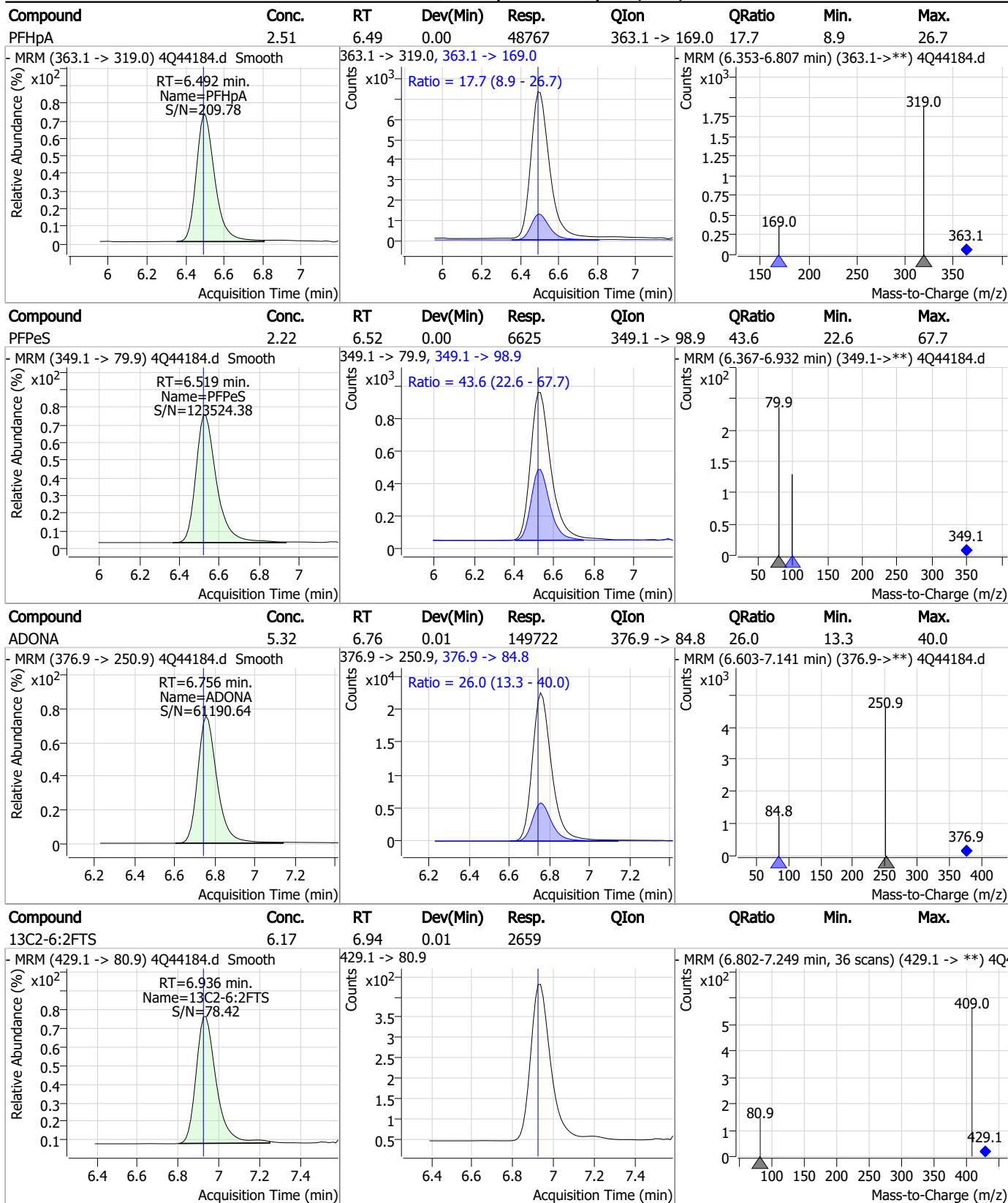
### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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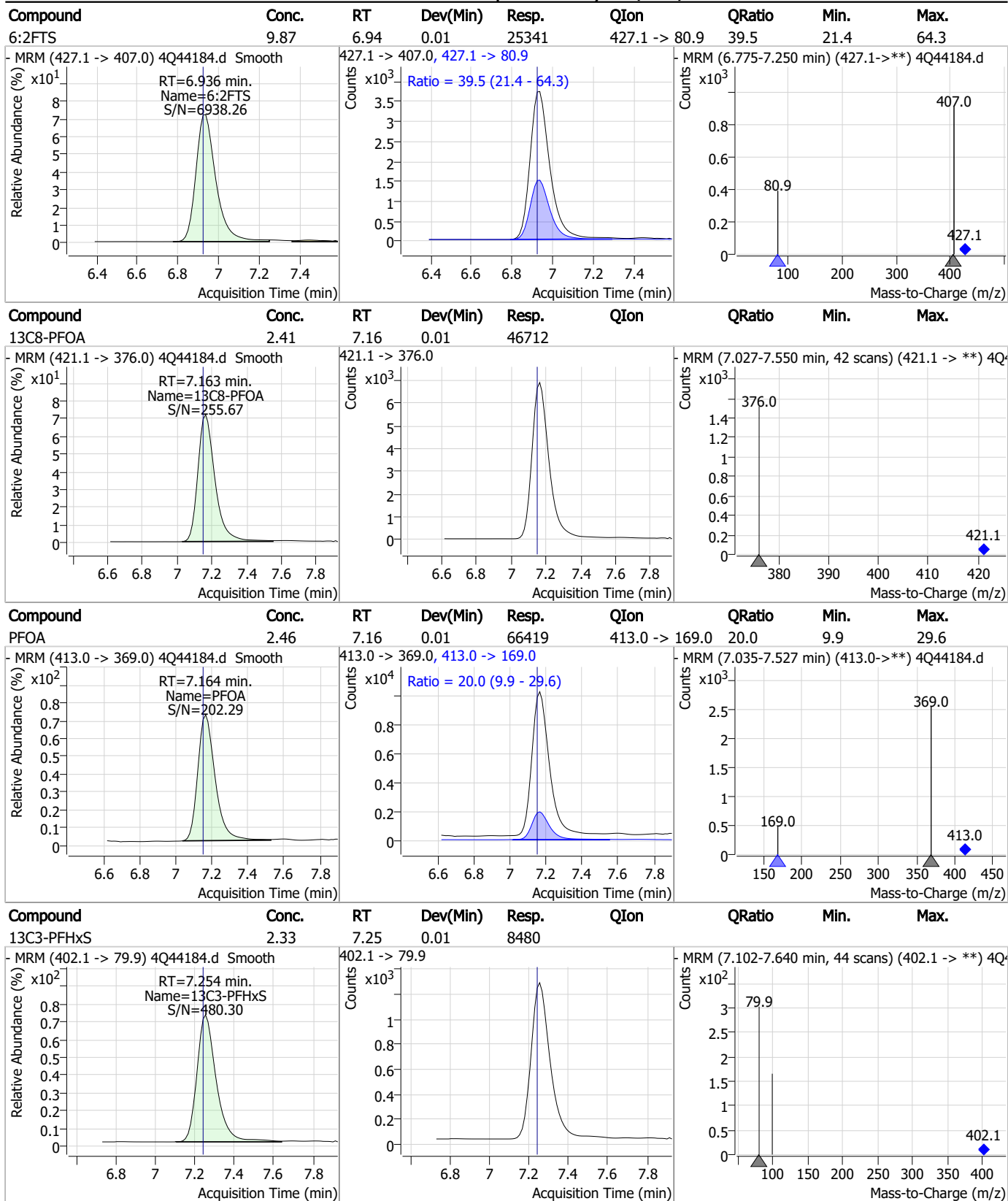


### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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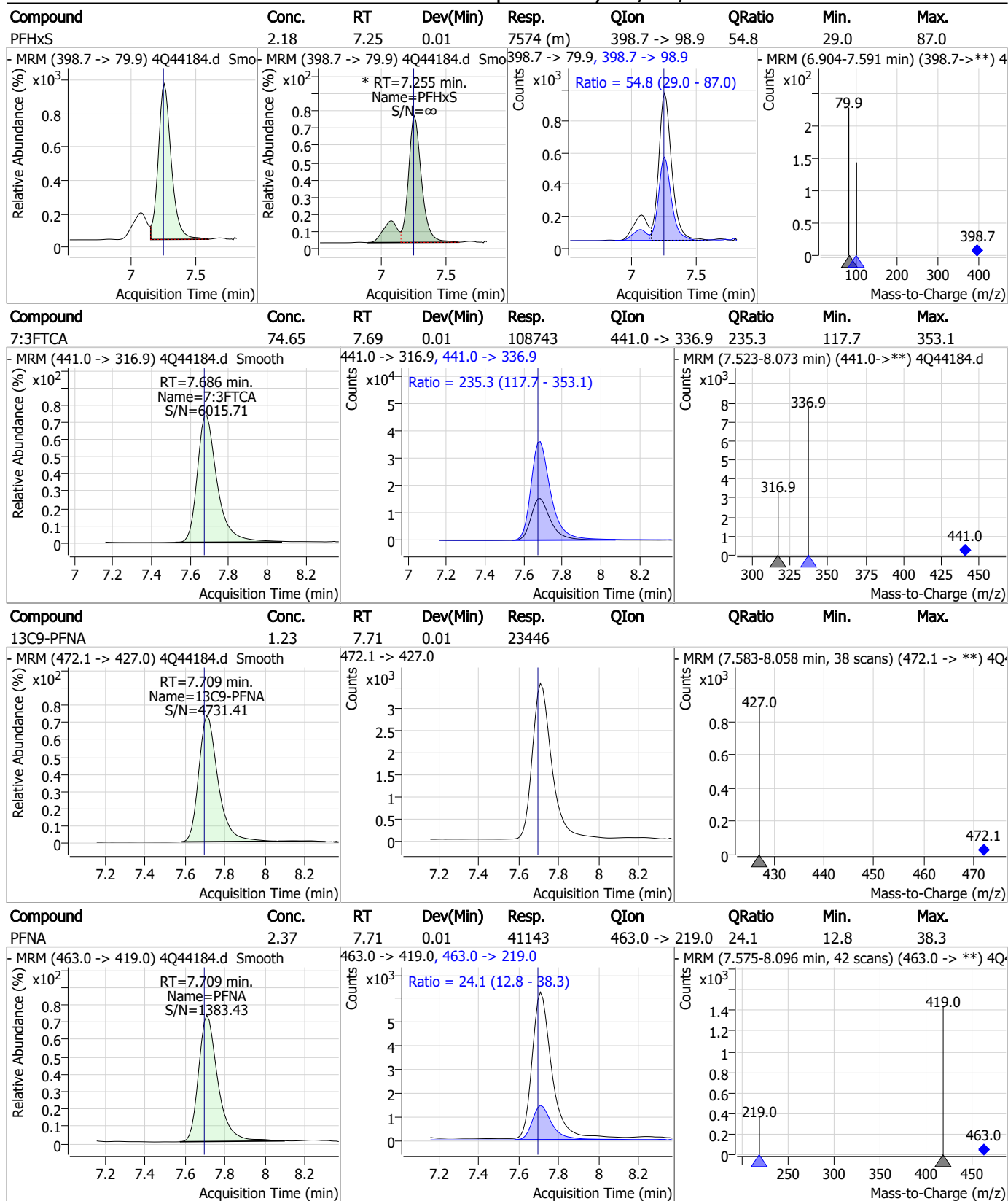
### Perfluorinated Compounds by LC/MS/MS



7.7.14



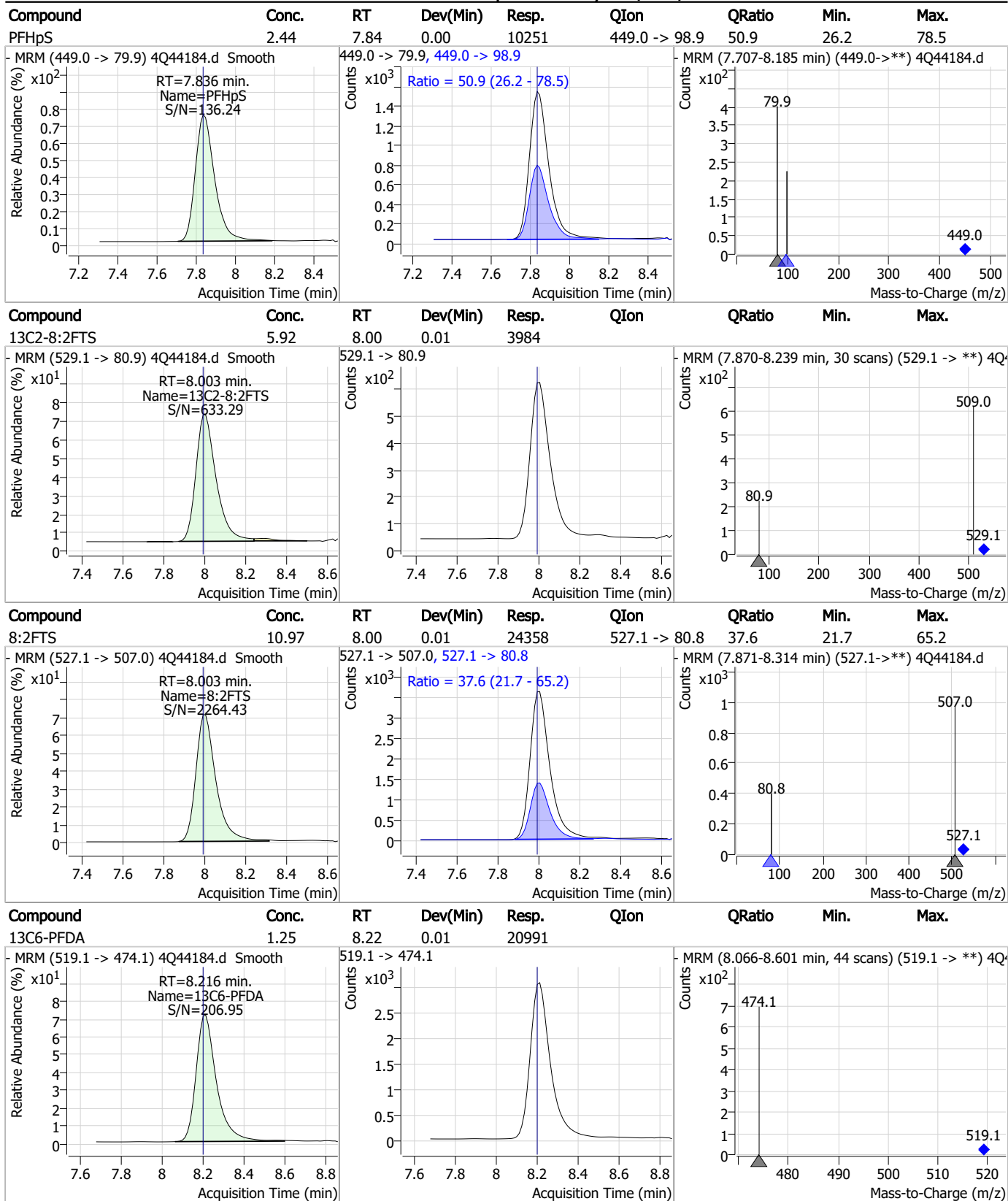
### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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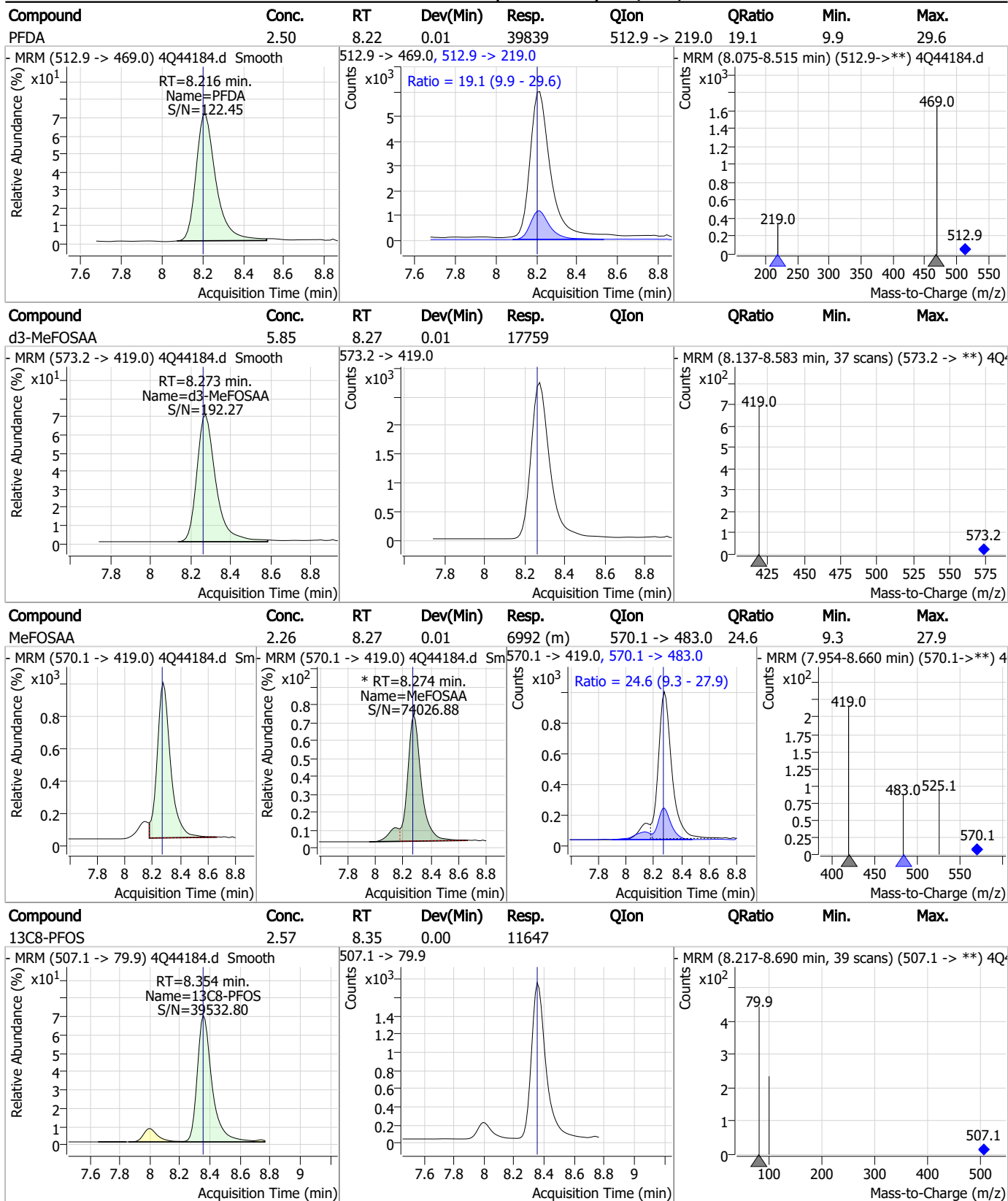


### Perfluorinated Compounds by LC/MS/MS



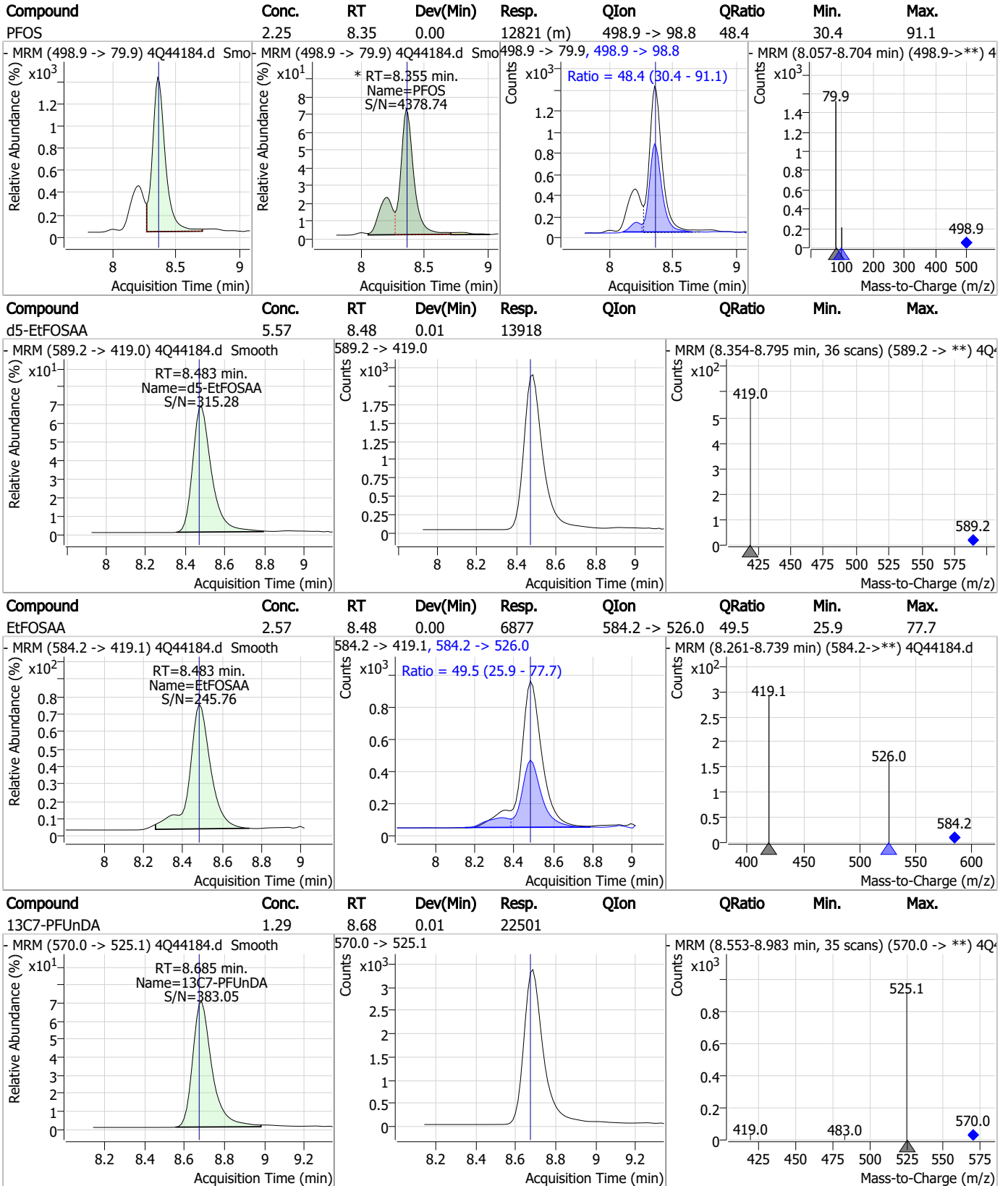
7.7.14

### Perfluorinated Compounds by LC/MS/MS



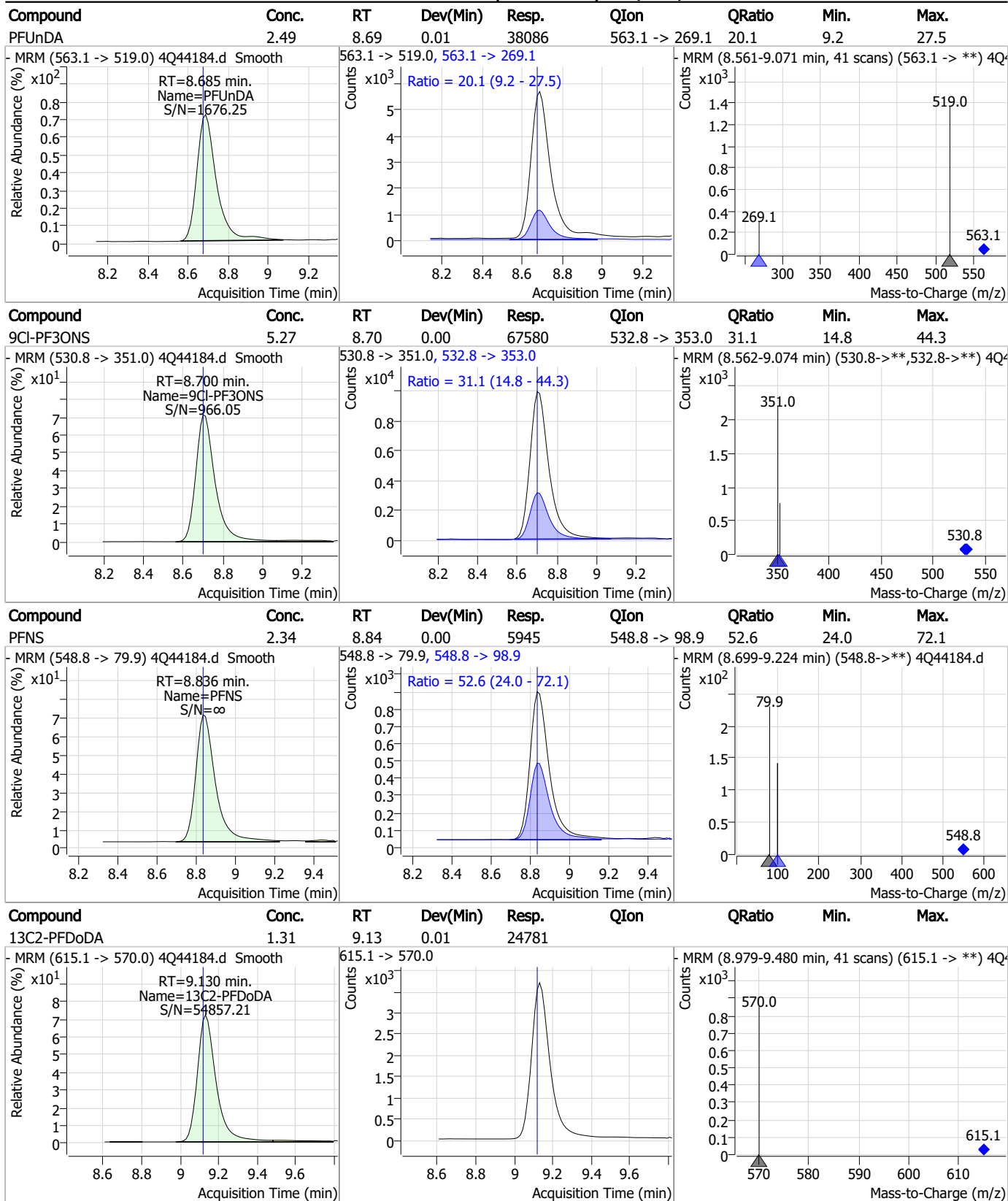
7.7.14  
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### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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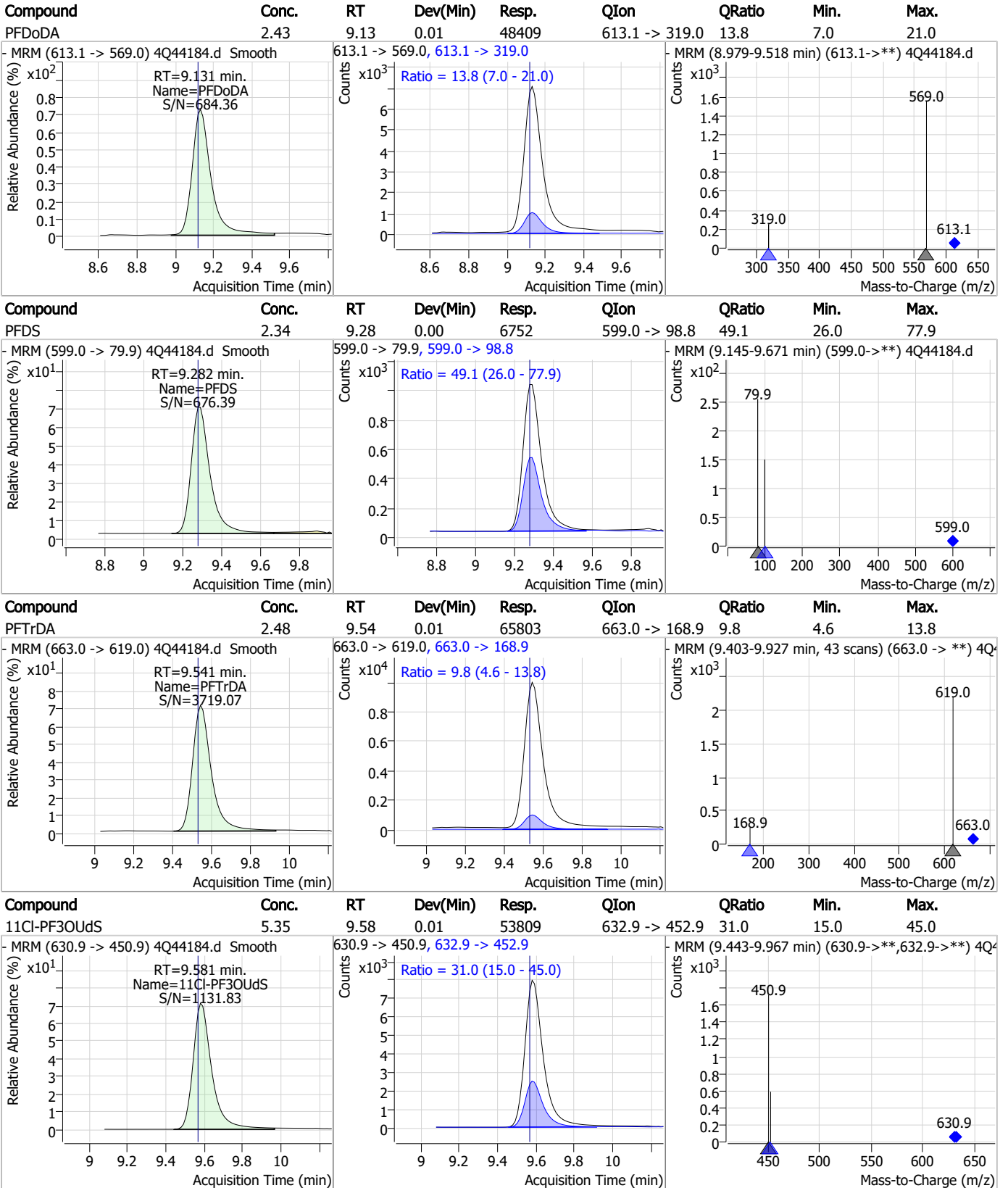
### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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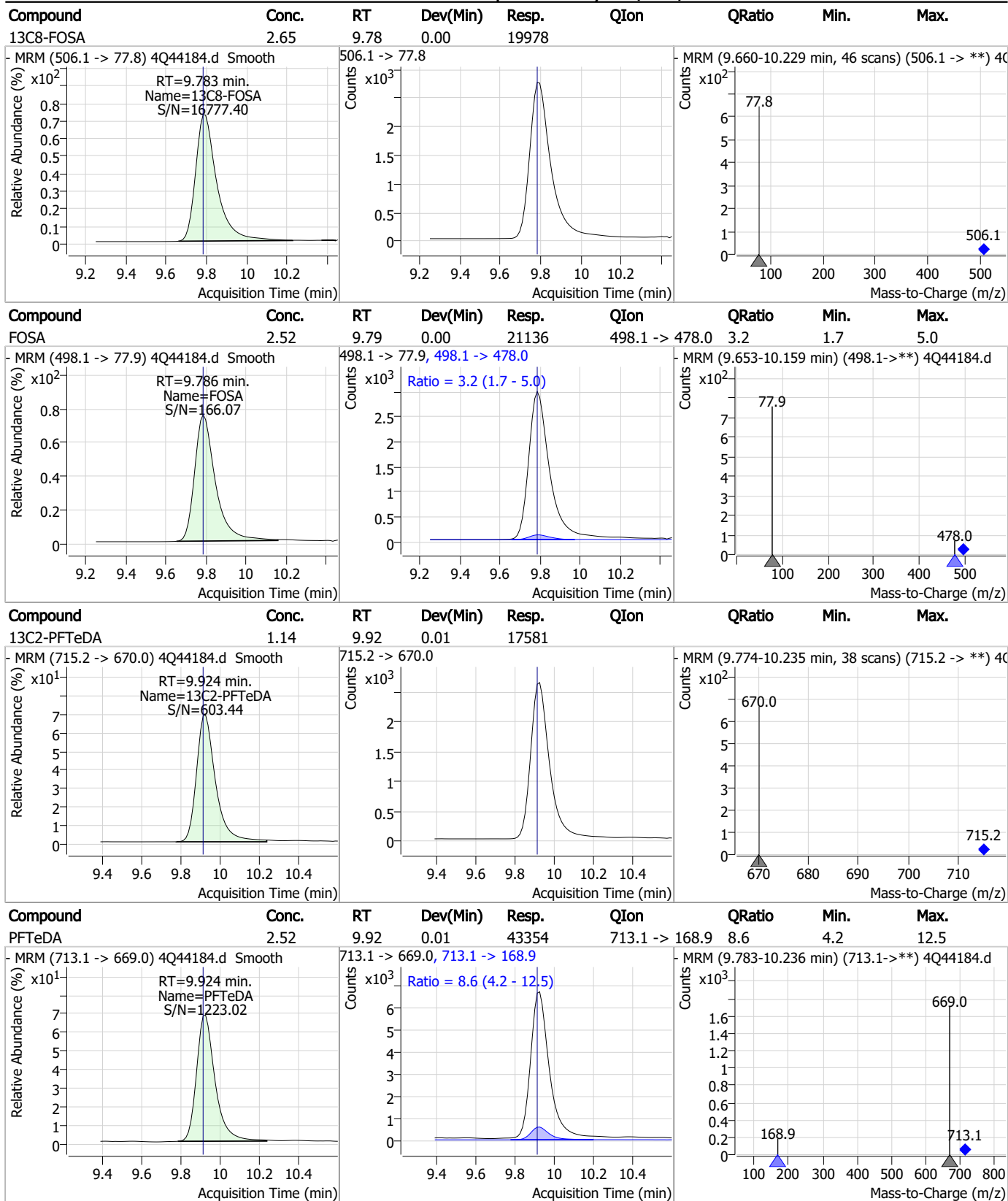


### Perfluorinated Compounds by LC/MS/MS



7.7.14

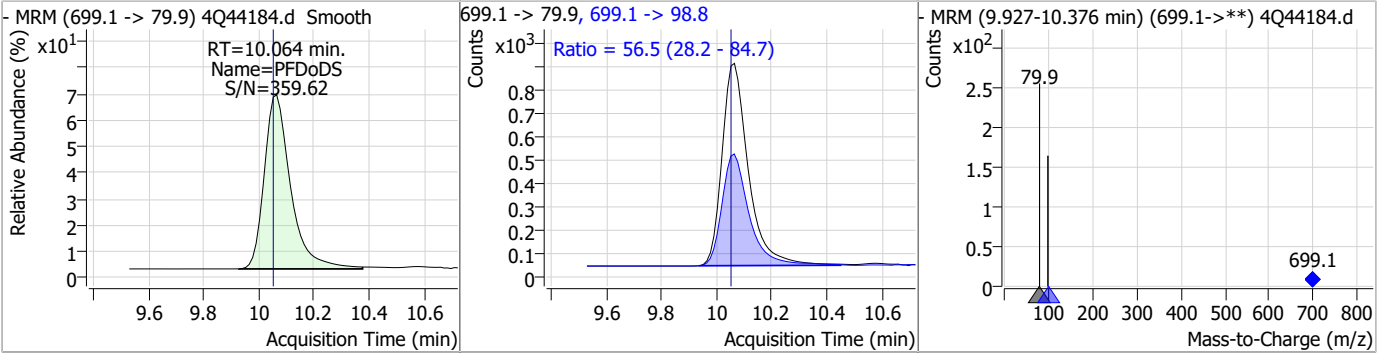
### Perfluorinated Compounds by LC/MS/MS



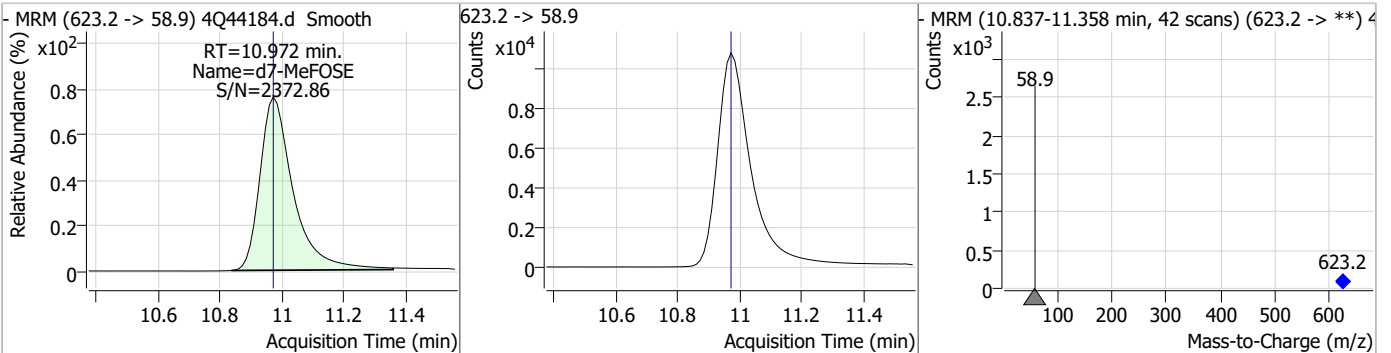
7.7.14

### Perfluorinated Compounds by LC/MS/MS

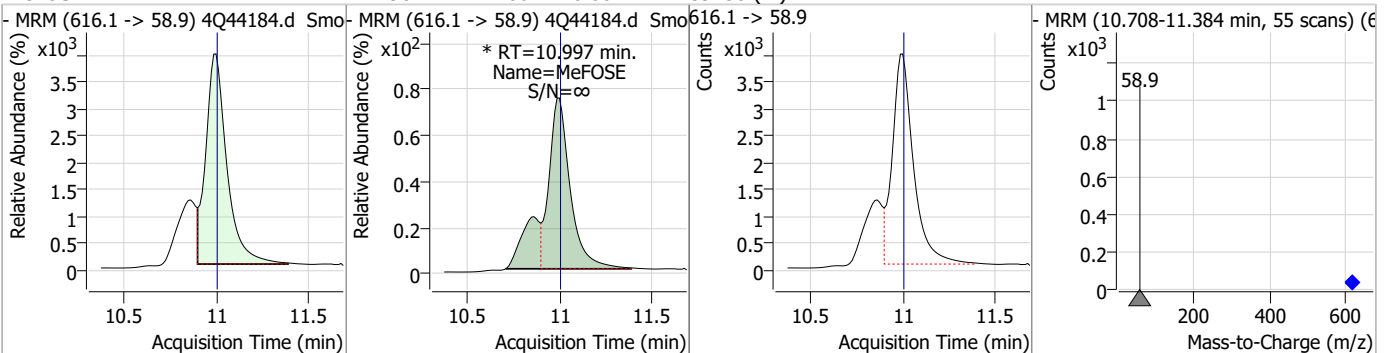
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.26	10.06	0.01	5820	699.1 -> 98.8	56.5	28.2	84.7



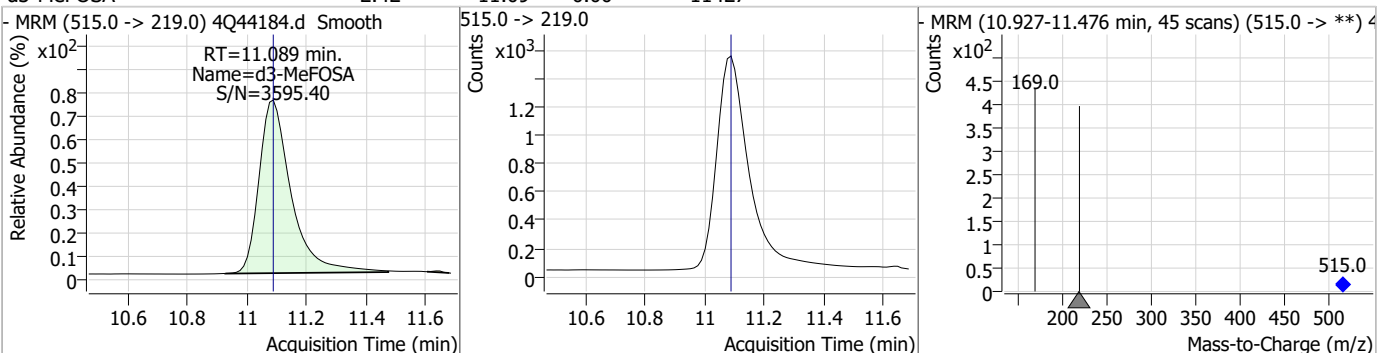
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.33	10.97	0.00	79813				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.98	11.00	0.00	39258 (m)				



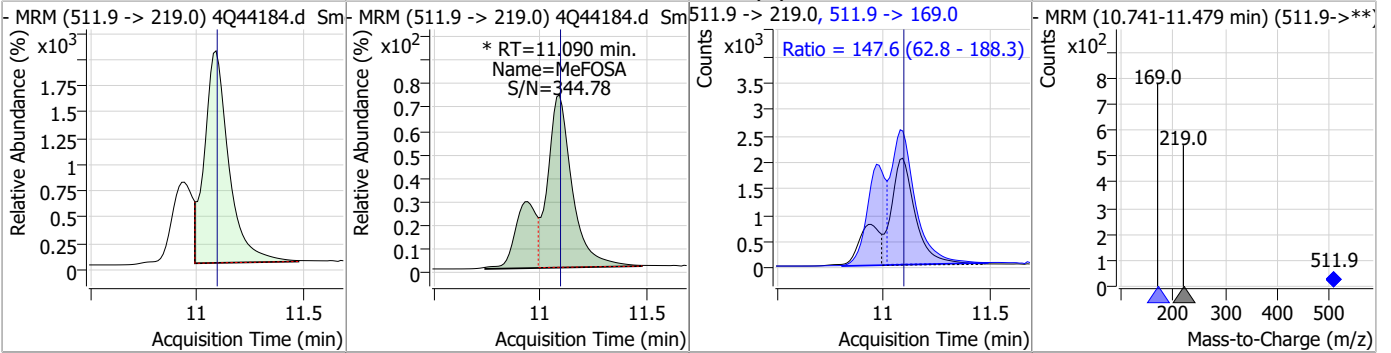
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.42	11.09	0.00	11427				



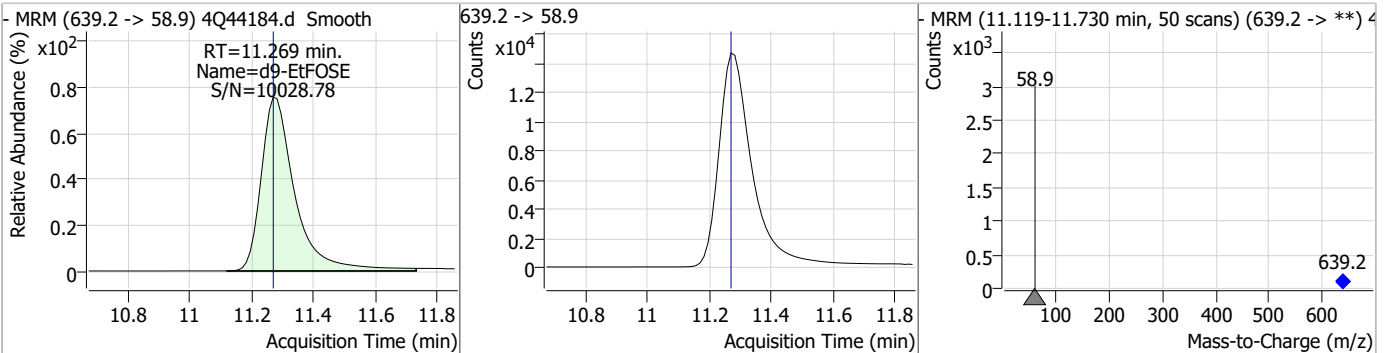


### Perfluorinated Compounds by LC/MS/MS

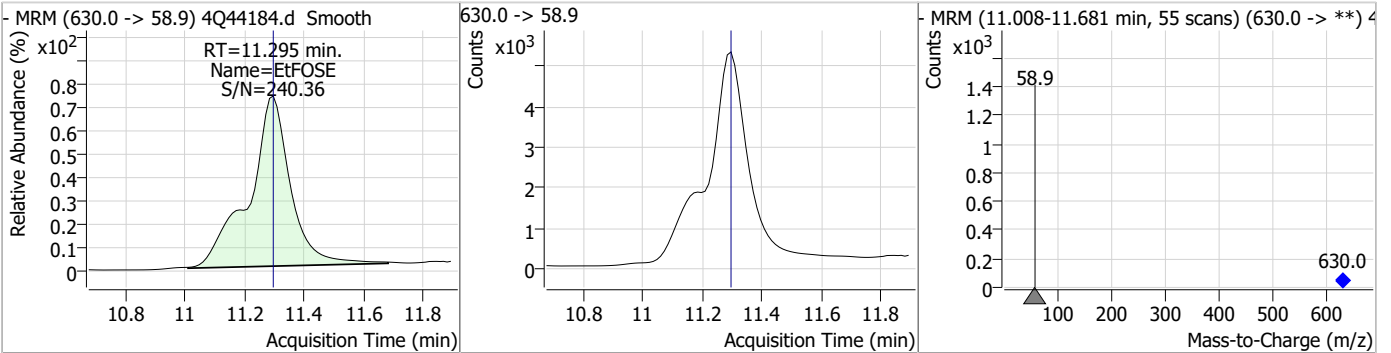
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.99	11.09	0.00	21463 (m)	511.9 -> 169.0	147.6	62.8	188.3



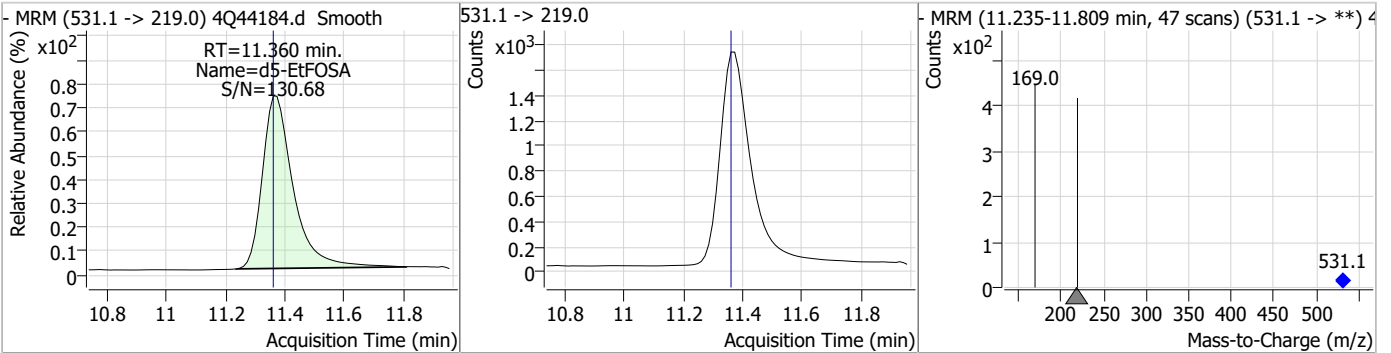
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.91	11.27	0.00	110802				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.82	11.29	0.00	50697				

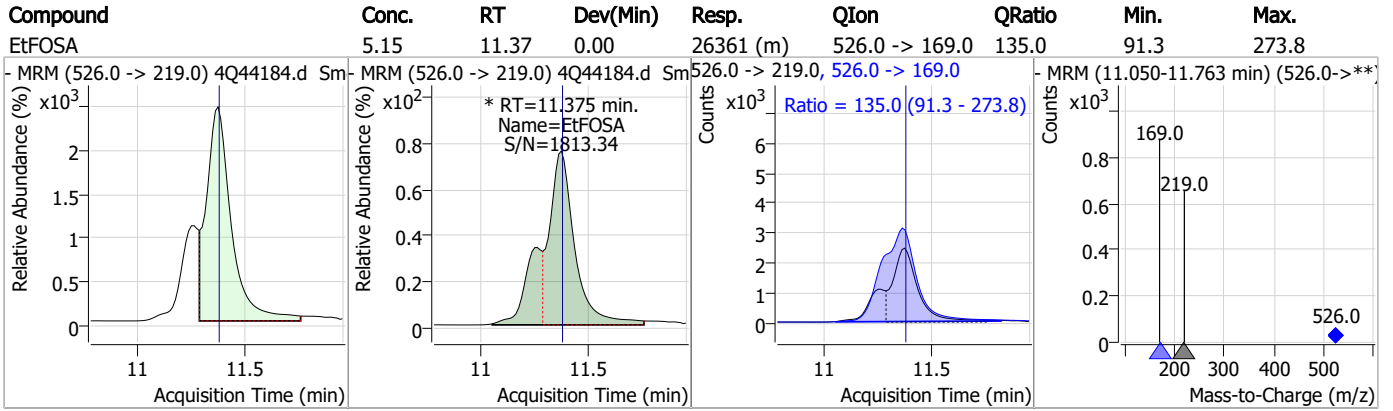


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.44	11.36	0.00	12217				





### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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# Manual Integration Approval Summary

Sample Number: S4Q639-ECC634      Method: EPA DRAFT 1633  
Lab FileID: 4Q44184.D      Analyst approved: 05/10/23 11:10 Martha Valls  
Injection Time: 05/10/23 01:37      Supervisor approved: 05/10/23 17:32 Norman Farmer

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

7.7.14.1  
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## 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 May 2023 11:20:06  
**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); 2.89E-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	112.91	-0.08	Pass	0.70	0.72	0.02	Pass	516372
302.00	301.93	-0.07	Pass	0.70	0.70	0.00	Pass	1505403
601.98	601.91	-0.07	Pass	0.70	0.70	0.00	Pass	3546345
1033.99	1033.91	-0.08	Pass	0.70	0.67	-0.03	Pass	1119463
1633.95	1633.76	-0.19	Pass	0.70	0.66	-0.04	Pass	945818
2233.91	2233.62	-0.29	Pass	0.70	0.70	0.00	Pass	381101

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.02	0.02	Pass	0.70	0.72	0.02	Pass	135245
112.99	112.97	-0.02	Pass	0.70	0.75	0.05	Pass	523602
302.00	301.94	-0.06	Pass	0.70	0.65	-0.05	Pass	1126783
601.98	601.94	-0.04	Pass	0.70	0.62	-0.08	Pass	2605917
1033.99	1033.85	-0.14	Pass	0.70	0.76	0.06	Pass	662914
1633.95	1633.75	-0.20	Pass	0.70	0.77	0.07	Pass	773365
2233.91	2233.63	-0.28	Pass	0.70	0.79	0.09	Pass	309345

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.97	-0.02	Pass	1.20	1.32	0.12	Pass	599995
302.00	301.91	-0.09	Pass	1.20	1.48	0.28	Pass	1925067
601.98	601.92	-0.06	Pass	1.20	1.66	0.46	Pass	4768833
1033.99	1033.90	-0.09	Pass	1.20	1.53	0.33	Pass	1976669
1633.95	1633.66	-0.29	Pass	1.20	1.45	0.25	Pass	2196261
2233.91	2233.81	-0.10	Pass	1.20	1.63	0.43	Pass	1010126

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.06	0.06	Pass	1.20	1.15	-0.05	Pass	177581
112.99	113.01	0.02	Pass	1.20	1.23	0.03	Pass	689078
302.00	301.97	-0.03	Pass	1.20	1.24	0.04	Pass	1407633
601.98	601.98	0.00	Pass	1.20	1.43	0.23	Pass	4109819
1033.99	1033.91	-0.08	Pass	1.20	1.27	0.07	Pass	1290979
1633.95	1633.84	-0.11	Pass	1.20	1.31	0.11	Pass	1324536
2233.91	2233.64	-0.27	Pass	1.20	1.11	-0.09	Pass	557784

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.06	0.07	Pass	2.50	2.35	-0.15	Pass	635850
302.00	301.94	-0.06	Pass	2.50	2.42	-0.08	Pass	2094027
601.98	601.91	-0.07	Pass	2.50	2.45	-0.05	Pass	5897513
1033.99	1033.93	-0.06	Pass	2.50	2.26	-0.24	Pass	2763390
1633.95	1633.83	-0.12	Pass	2.50	2.06	-0.44	Pass	3082145
2233.91	2233.42	-0.49	Pass	2.50	1.78	-0.72	Pass	1770384

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.92	-0.08	Pass	2.50	2.48	-0.02	Pass	223632
112.99	112.90	-0.09	Pass	2.50	2.61	0.11	Pass	937832
302.00	301.95	-0.05	Pass	2.50	2.45	-0.05	Pass	2259618
601.98	601.93	-0.05	Pass	2.50	2.50	0.00	Pass	5449902
1033.99	1033.78	-0.21	Pass	2.50	2.36	-0.14	Pass	2075378
1633.95	1633.72	-0.23	Pass	2.50	2.40	-0.10	Pass	3128484
2233.91	2233.40	-0.51	Pass	2.50	2.09	-0.41	Pass	1513389

7.7.15  
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### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17738.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 12:15:25 PM  
 Sample Name : ic268-1  
 Vial : P1-A2  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	161464	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	52007	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	58906	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	50693	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	68777	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	24320	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	17806	1.25 µg/L	0.012
M7-PFUnDA	8.518	570.0 -> 525.1	24685	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	23238	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	16444	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	22033	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	19040	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11863	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	10107	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1711	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2162	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2222	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	21829	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	34363	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	17237	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	80728	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	102609	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9635	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7390	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	14169	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	68065	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8897	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	79996	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	21648	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	28487	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	47474	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.143	329.1 -> 80.9	1711	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2162	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2222	4.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C2-PFDoDA	8.949	615.1 -> 570.0	23238	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C2-PFTeDA	9.677	715.2 -> 670.0	16444	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C3-PFBS	5.397	302.1 -> 79.9	19040	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C3-PFHxS	7.179	402.1 -> 79.9	11863	2.50 µg/L	0.012

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFBA	2.901	216.8 -> 171.9	161464	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.420	367.1 -> 322.0	50693	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C5-PFHxA	5.466	318.0 -> 273.0	58906	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C5-PFPeA	4.272	268.3 -> 223.0	52007	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C6-PFDA	8.076	519.1 -> 474.1	17806	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C7-PFUnDA	8.518	570.0 -> 525.1	24685	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C8-FOSA	9.648	506.1 -> 77.8	22033	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C8-PFOA	7.064	421.1 -> 376.0	68777	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.1%	
13C8-PFOS	8.226	507.1 -> 79.9	10107	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.7%	
13C9-PFNA	7.595	472.1 -> 427.0	24320	1.15 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.4%	
d3-MeFOSAA	8.121	573.2 -> 419.0	21829	4.92 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	34363	9.89 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
d3-MeFOSA	10.752	515.0 -> 219.0	7390	2.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.3%	
d5-EtFOSAA	8.329	589.2 -> 419.0	17237	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d7-MeFOSE	10.672	623.2 -> 58.9	80728	23.13 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.5%	
d9-EtFOSE	10.907	639.2 -> 58.9	102609	24.33 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
d5-EtFOSA	10.984	531.1 -> 219.0	9635	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.3%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.144	327.1 -> 307.0	1822	0.71 µg/L	99
		327.1 -> 80.9	695		
6:2FTS	6.838	427.1 -> 407.0	1735	0.74 µg/L	98
		427.1 -> 80.9	579		
8:2FTS	7.865	527.1 -> 507.0	1107	0.88 µg/L	95
		527.1 -> 80.8	417		
EtFOSAA	8.330	584.2 -> 419.1	762	0.24 µg/L	m 87
		584.2 -> 526.0	333		
FOSA	9.639	498.1 -> 77.9	1622	0.20 µg/L	# 96
		498.1 -> 478.0	61		
MeFOSAA	8.134	570.1 -> 419.0	717	0.17 µg/L	96
		570.1 -> 483.0	154		
PFBA	2.907	212.8 -> 168.9	4409	0.76 µg/L	100
PFBS	5.398	298.7 -> 79.9	1596	0.17 µg/L	95
		298.7 -> 98.8	633		
PFDA	8.064	512.9 -> 469.0	4257	0.19 µg/L	96
		512.9 -> 219.0	626		
PFDODA	8.950	613.1 -> 569.0	3839	0.21 µg/L	98
		613.1 -> 319.0	495		
PFDS	9.113	599.0 -> 79.9	665	0.20 µg/L	95

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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	320			
PFHpA	6.420	363.1 -> 319.0	4990	0.20	µg/L	100
		363.1 -> 169.0	822			
PFHpS	7.735	449.0 -> 79.9	995	0.18	µg/L	88
		449.0 -> 98.9	602			
PFHxA	5.469	313.0 -> 269.0	4704	0.20	µg/L	100
		313.0 -> 118.9	231			
PFHxS	7.180	398.7 -> 79.9	1202	0.18	µg/L	m 94
		398.7 -> 98.9	545			
PFNA	7.584	463.0 -> 419.0	3536	0.20	µg/L	98
		463.0 -> 219.0	750			
PFNS	8.693	548.8 -> 79.9	966	0.20	µg/L	88
		548.8 -> 98.9	478			
PFOA	7.066	413.0 -> 369.0	6591	0.19	µg/L	99
		413.0 -> 169.0	1074			
PFOS	8.228	498.9 -> 79.9	955	0.18	µg/L	m 91
		498.9 -> 98.8	450			
PFPeA	4.274	263.0 -> 219.0	5732	0.38	µg/L	100
PFPeS	6.471	349.1 -> 79.9	1104	0.17	µg/L	99
		349.1 -> 98.9	506			
PFTeDA	9.677	713.1 -> 669.0	3323	0.20	µg/L	98
		713.1 -> 168.9	269			
PFTrDA	9.333	663.0 -> 619.0	3986	0.19	µg/L	95
		663.0 -> 168.9	385			
PFUnDA	8.518	563.1 -> 519.0	3179	0.18	µg/L	95
		563.1 -> 269.1	574			
11Cl-PF3OUdS	9.385	630.9 -> 450.9	4649	0.36	µg/L	85
		632.9 -> 452.9	1650			
9Cl-PF3ONS	8.557	530.8 -> 351.0	7138	0.34	µg/L	84
		532.8 -> 353.0	2652			
ADONA	6.671	376.9 -> 250.9	19995	0.37	µg/L	94
		376.9 -> 84.8	5300			
HFPO-DA	5.845	284.9 -> 168.9	1392	0.42	µg/L	98
		284.9 -> 184.9	204			
3:3FTCA	3.777	241.0 -> 177.0	894	0.96	µg/L	m 99
		241.0 -> 117.0	118			
5:3FTCA	6.161	341.0 -> 237.1	21287	5.27	µg/L	87
		341.0 -> 217.0	13178			
7:3FTCA	7.586	441.0 -> 316.9	8962	4.89	µg/L	97
		441.0 -> 336.9	19170			
EtFOSA	10.986	526.0 -> 219.0	1703	0.41	µg/L	98
		526.0 -> 169.0	2072			
EtFOSE	10.932	630.0 -> 58.9	4227	0.95	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	1441	0.42	µg/L	m 99
		511.9 -> 169.0	1907			
MeFOSE	10.686	616.1 -> 58.9	3843	1.02	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	306	0.18	µg/L	78
		699.1 -> 98.8	223			
NFDHA	5.348	295.0 -> 201.0	1028	0.40	µg/L	96
		295.0 -> 84.9	306			
PFMBA	4.688	279.0 -> 85.1	4050	0.38	µg/L	100
PFMPA	3.442	229.0 -> 84.9	2931	0.38	µg/L	100
PFEESA	5.938	314.8 -> 134.9	10632	0.34	µg/L	98
		314.8 -> 82.9	319			

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

### Perfluorinated Compounds by LC/MS/MS

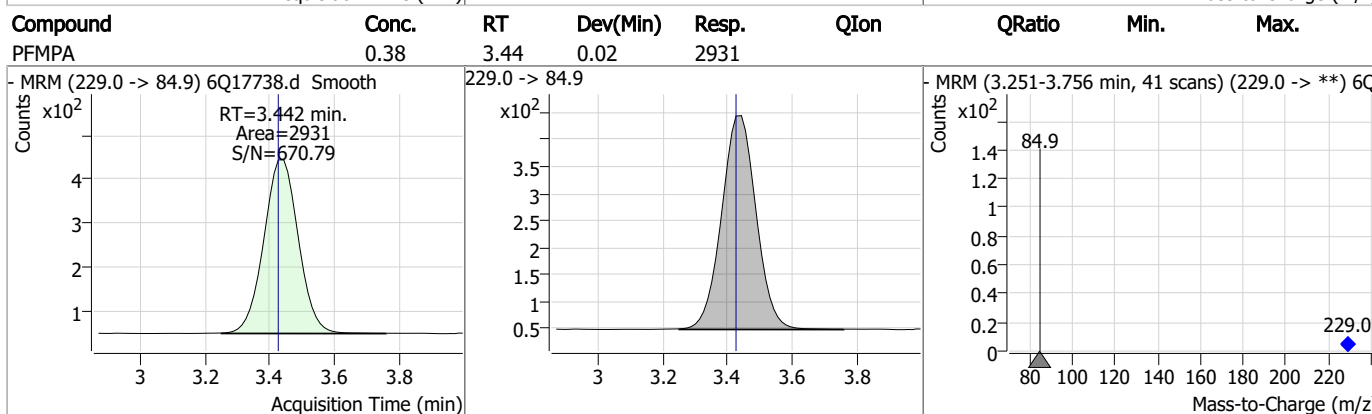
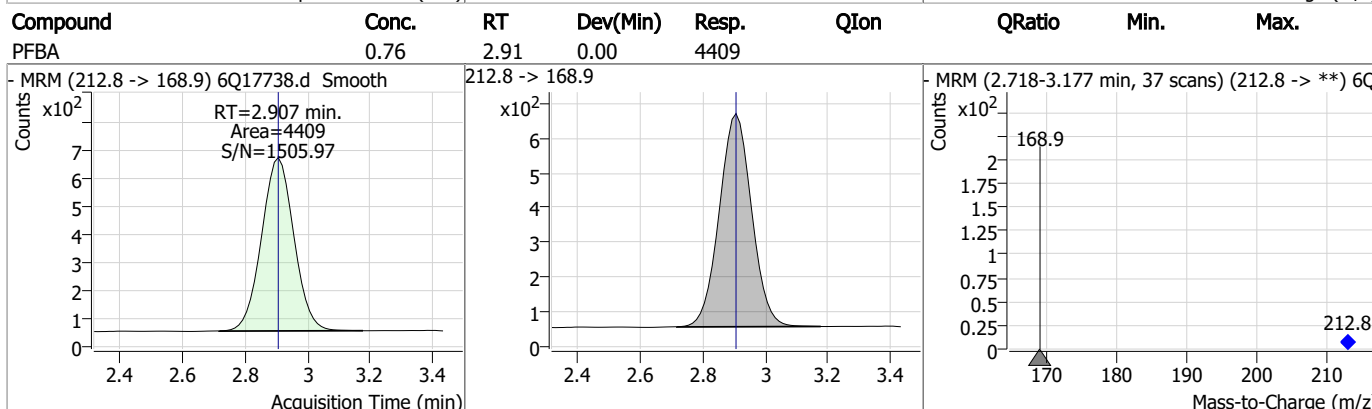
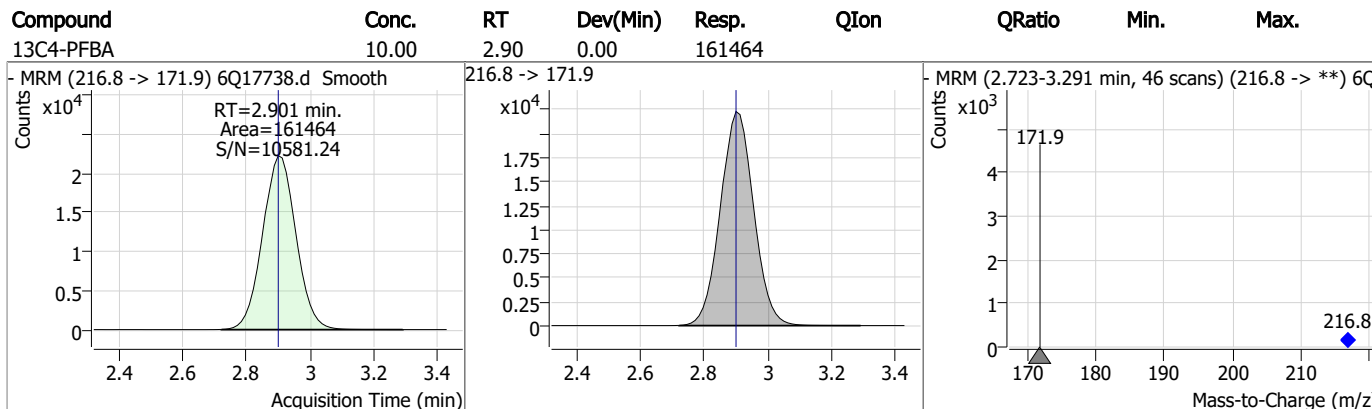
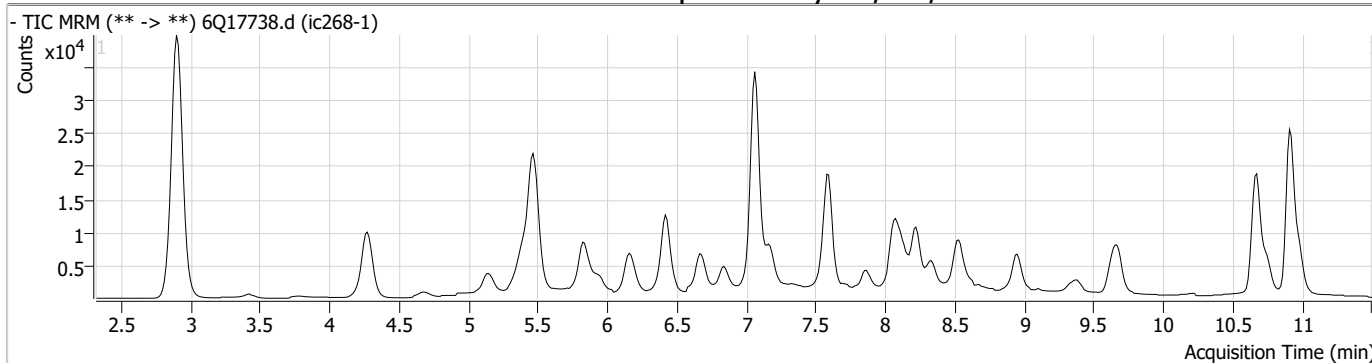
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.16  
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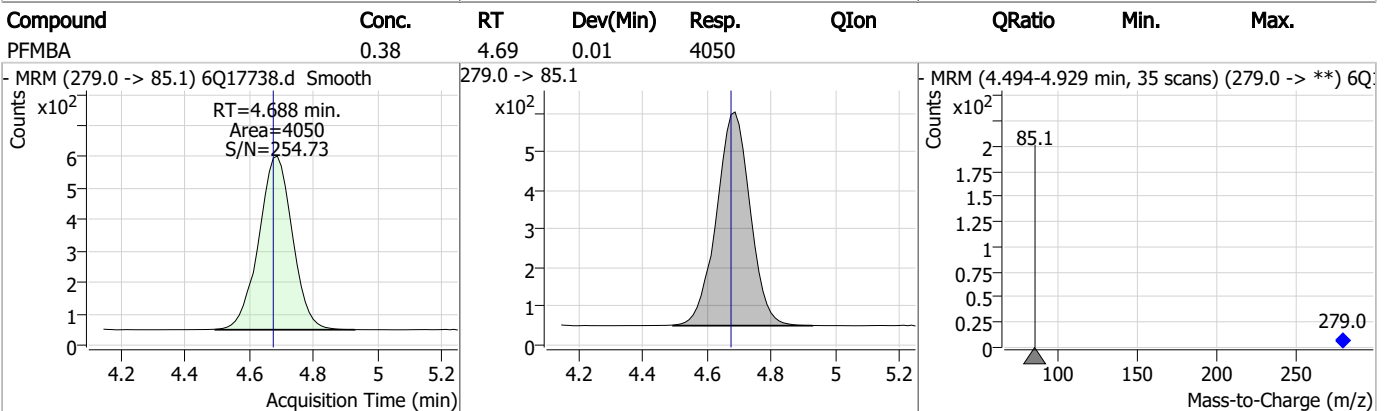
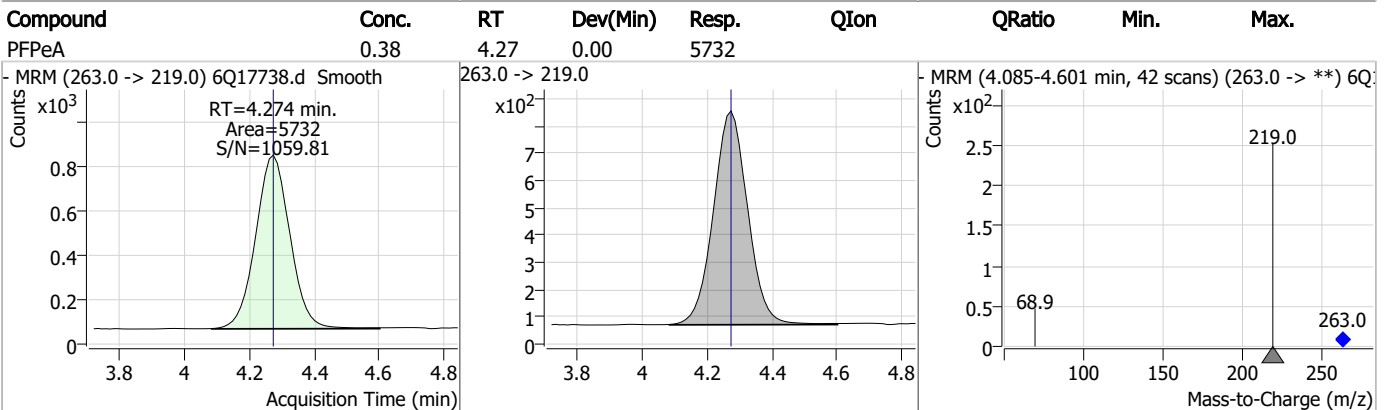
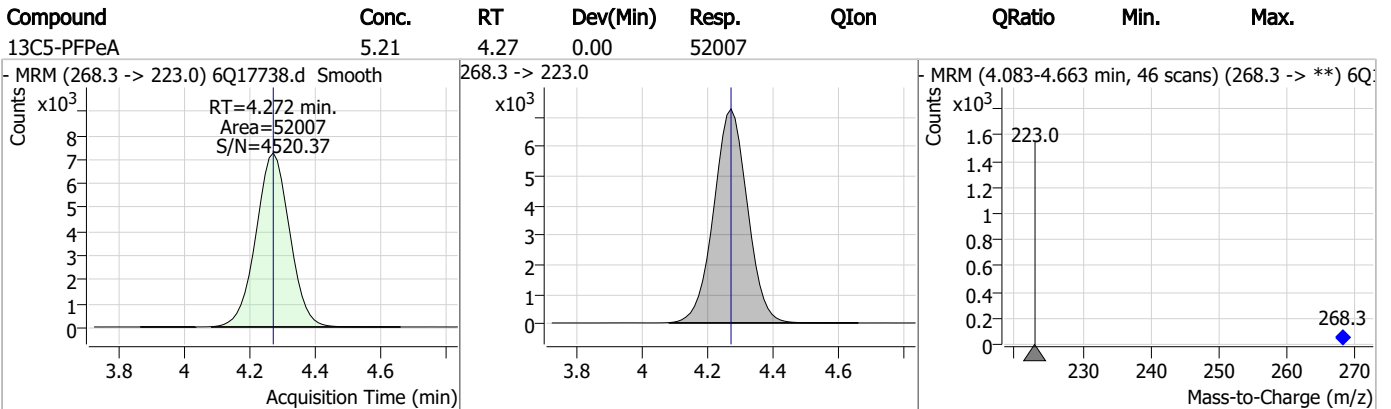
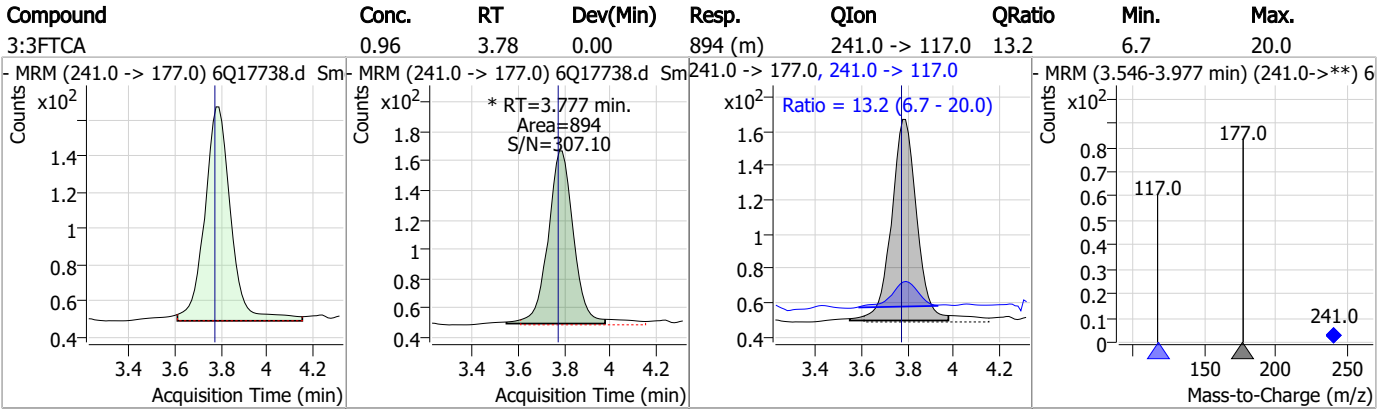




### Perfluorinated Compounds by LC/MS/MS

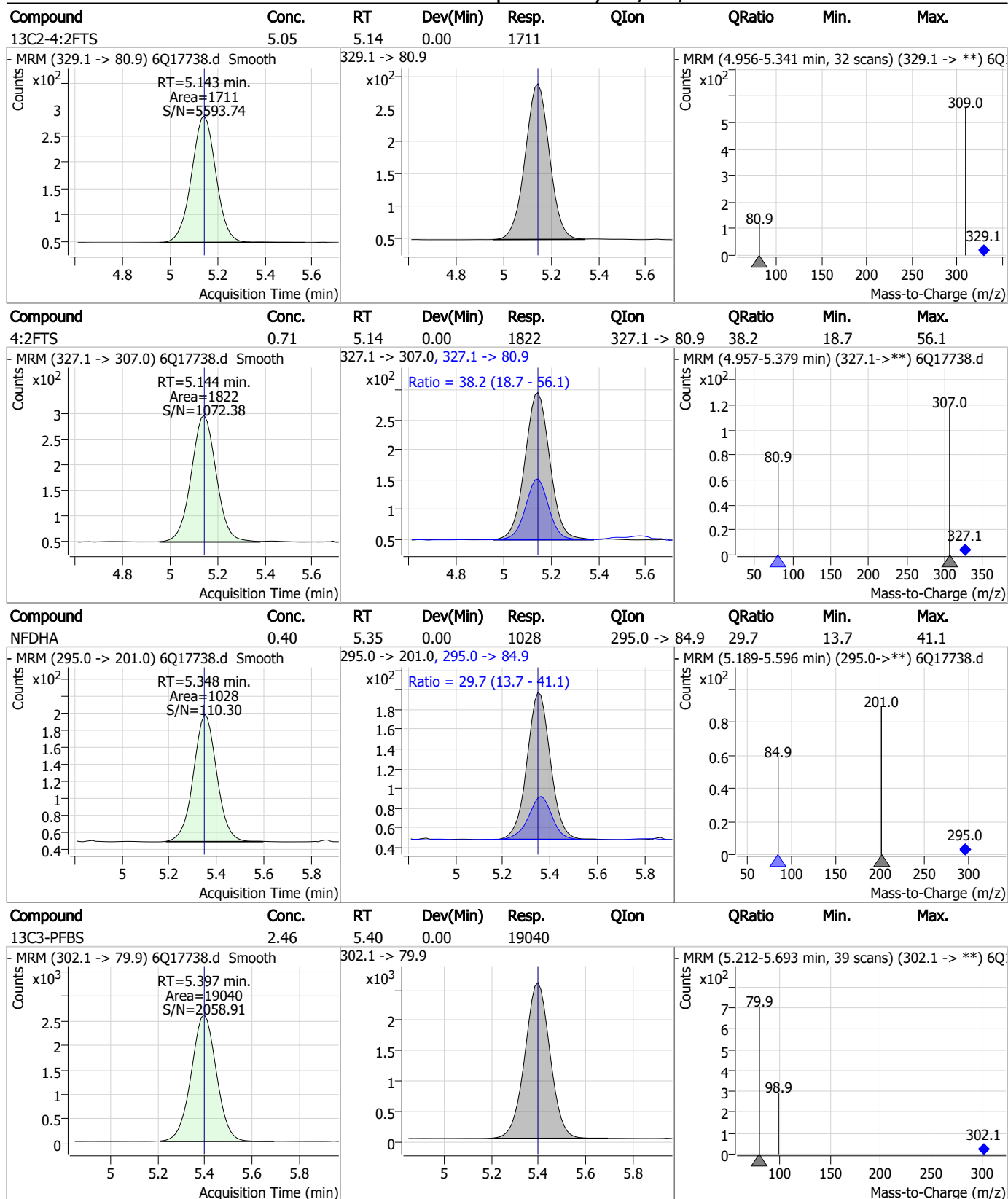


### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



7.7.16

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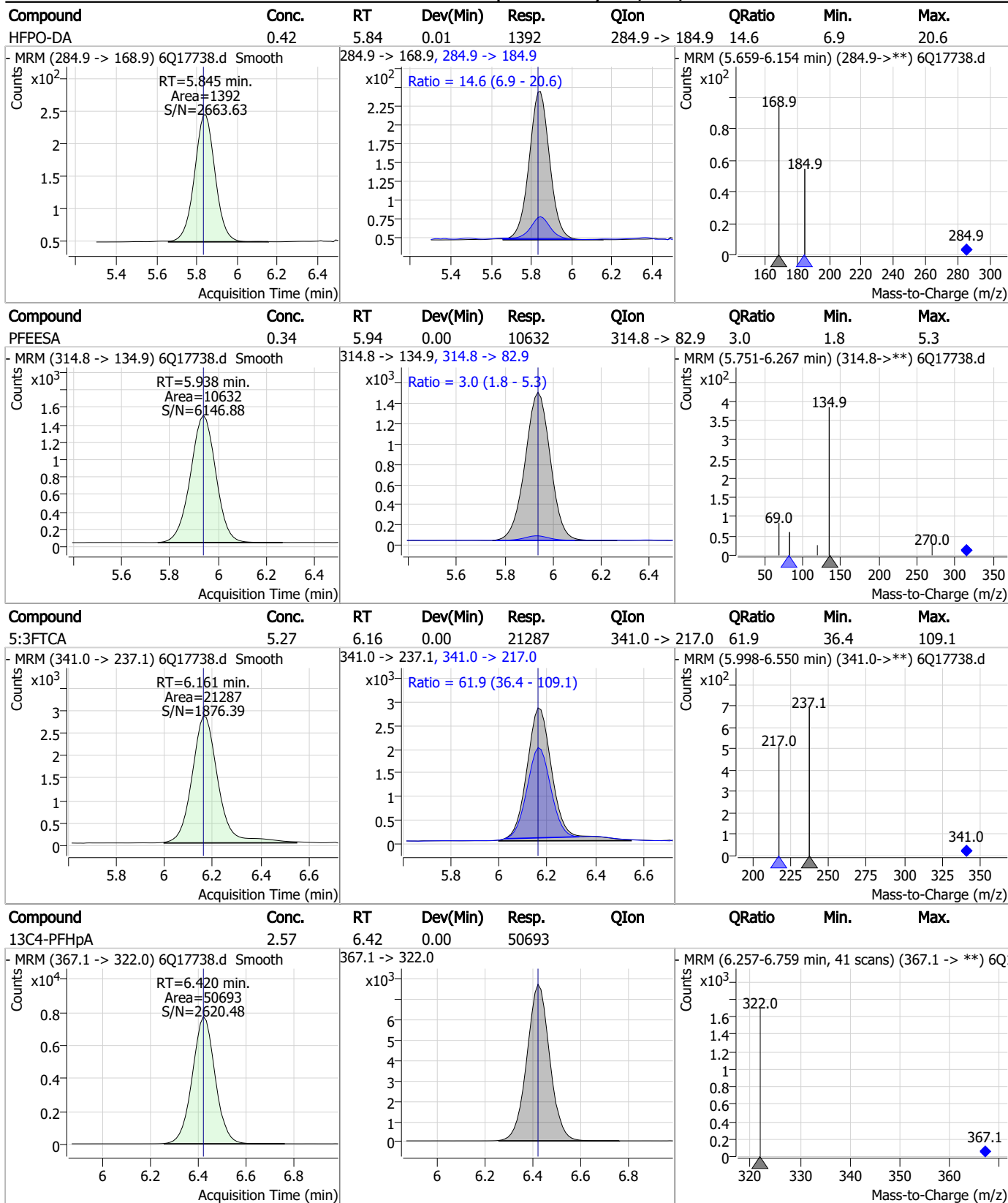
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.17	5.40	0.00	1596	298.7 -> 98.8	39.7	18.3	54.9
13C5-PFHxA	2.62	5.47	0.00	58906				
PFHxA	0.20	5.47	0.00	4704	313.0 -> 118.9	4.9	2.4	7.3
13C3-HFPO-DA	9.89	5.83	0.00	34363				

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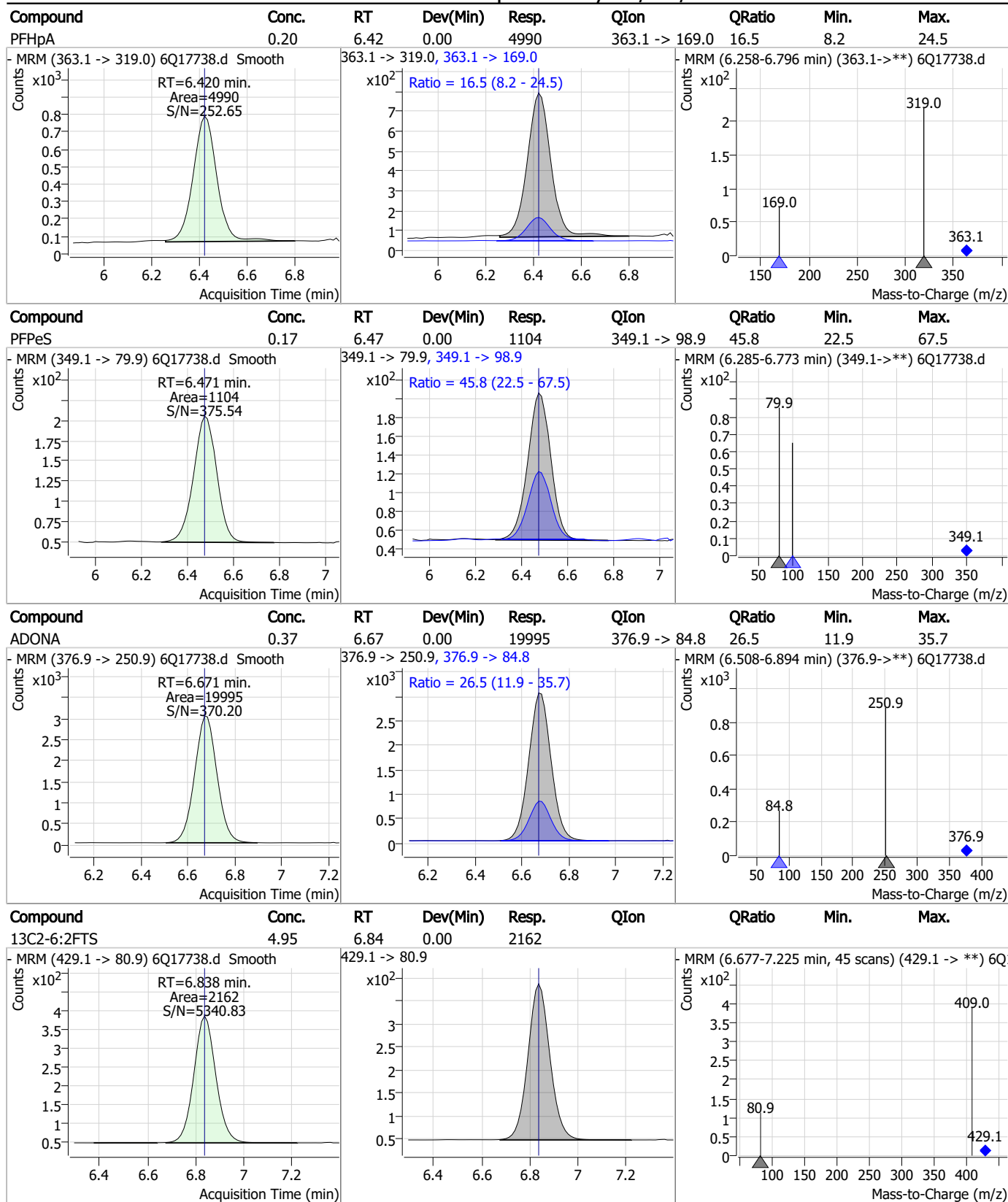
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7.7.16

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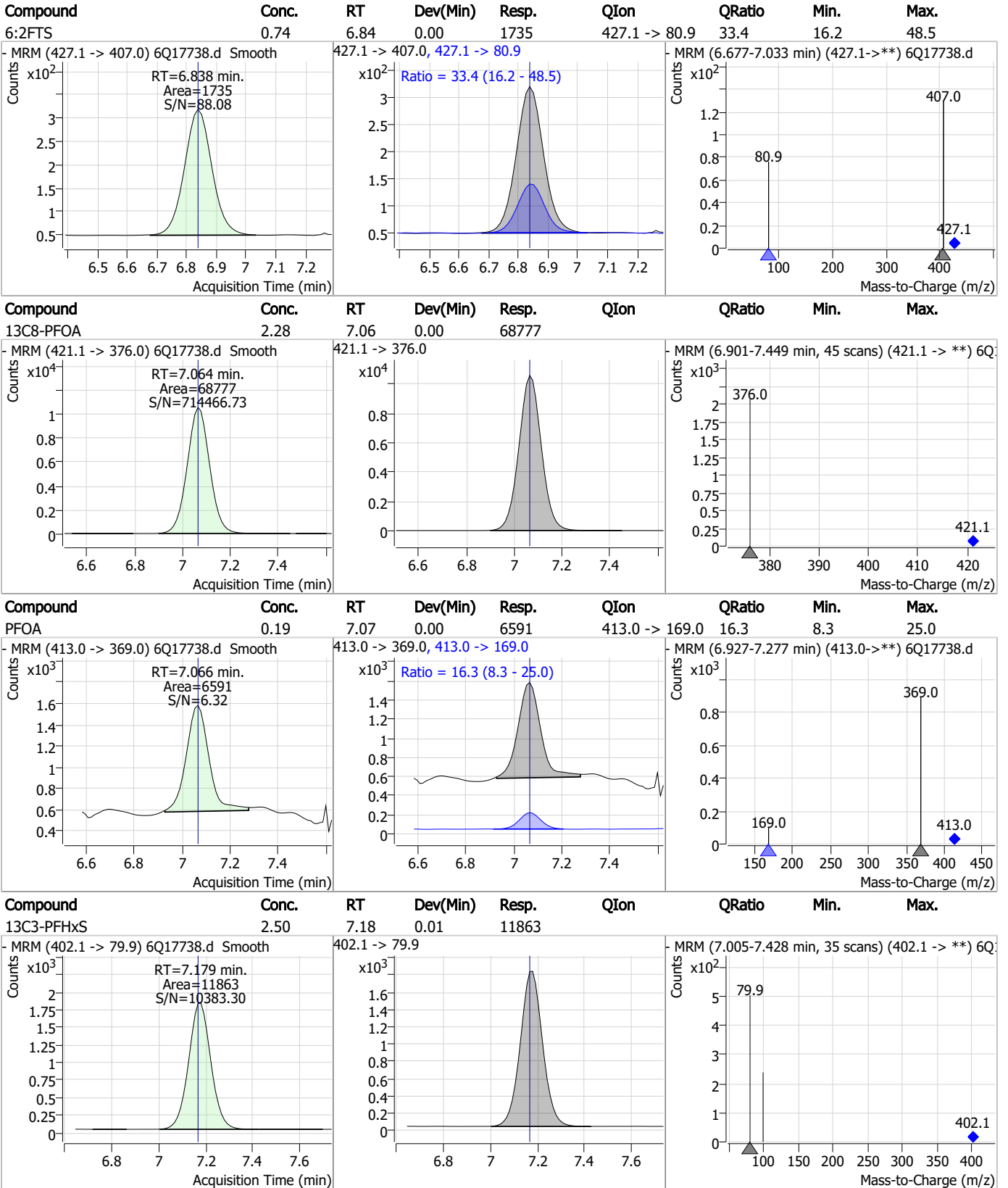
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7.7.16

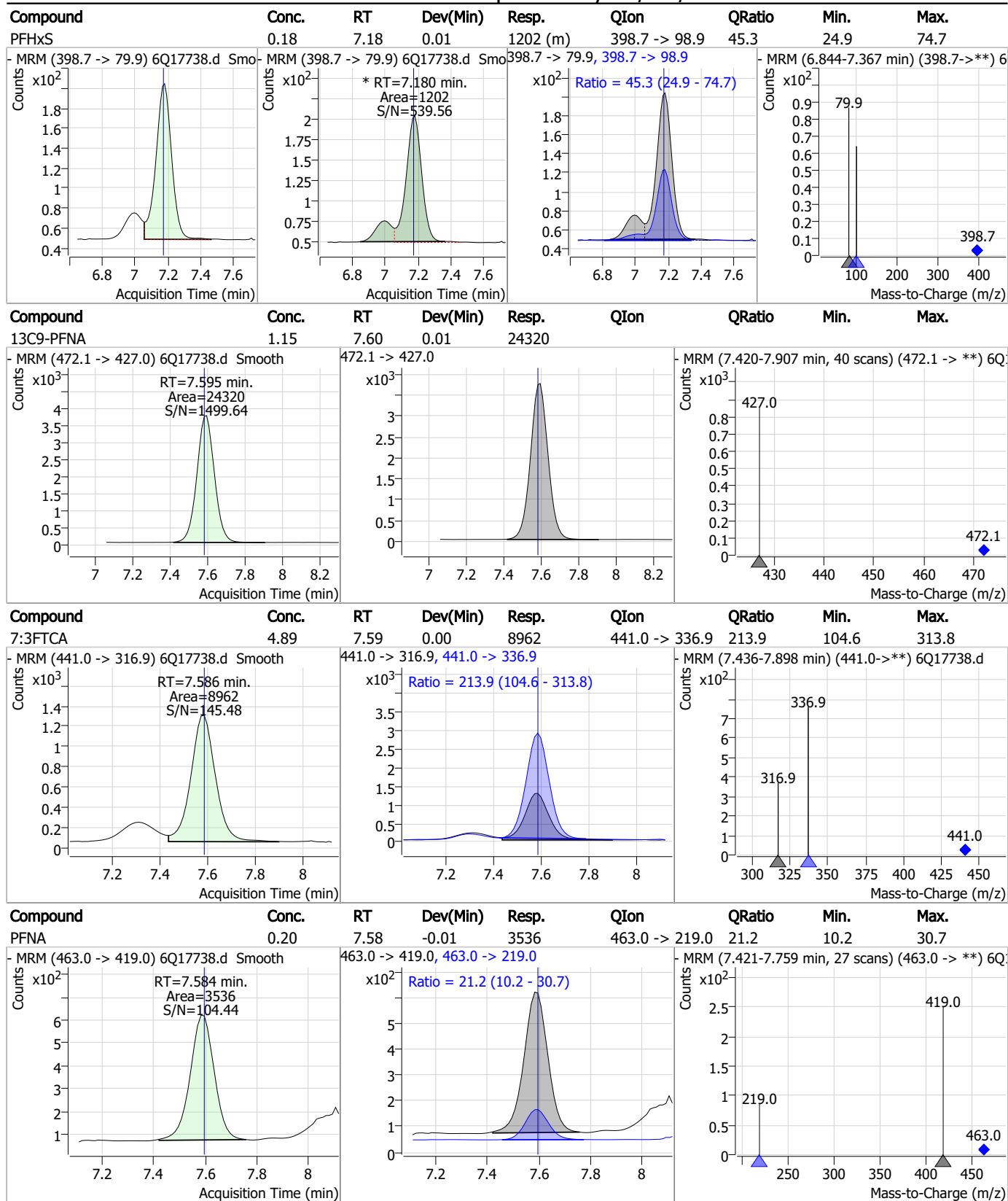
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### Perfluorinated Compounds by LC/MS/MS



7.7.16 7

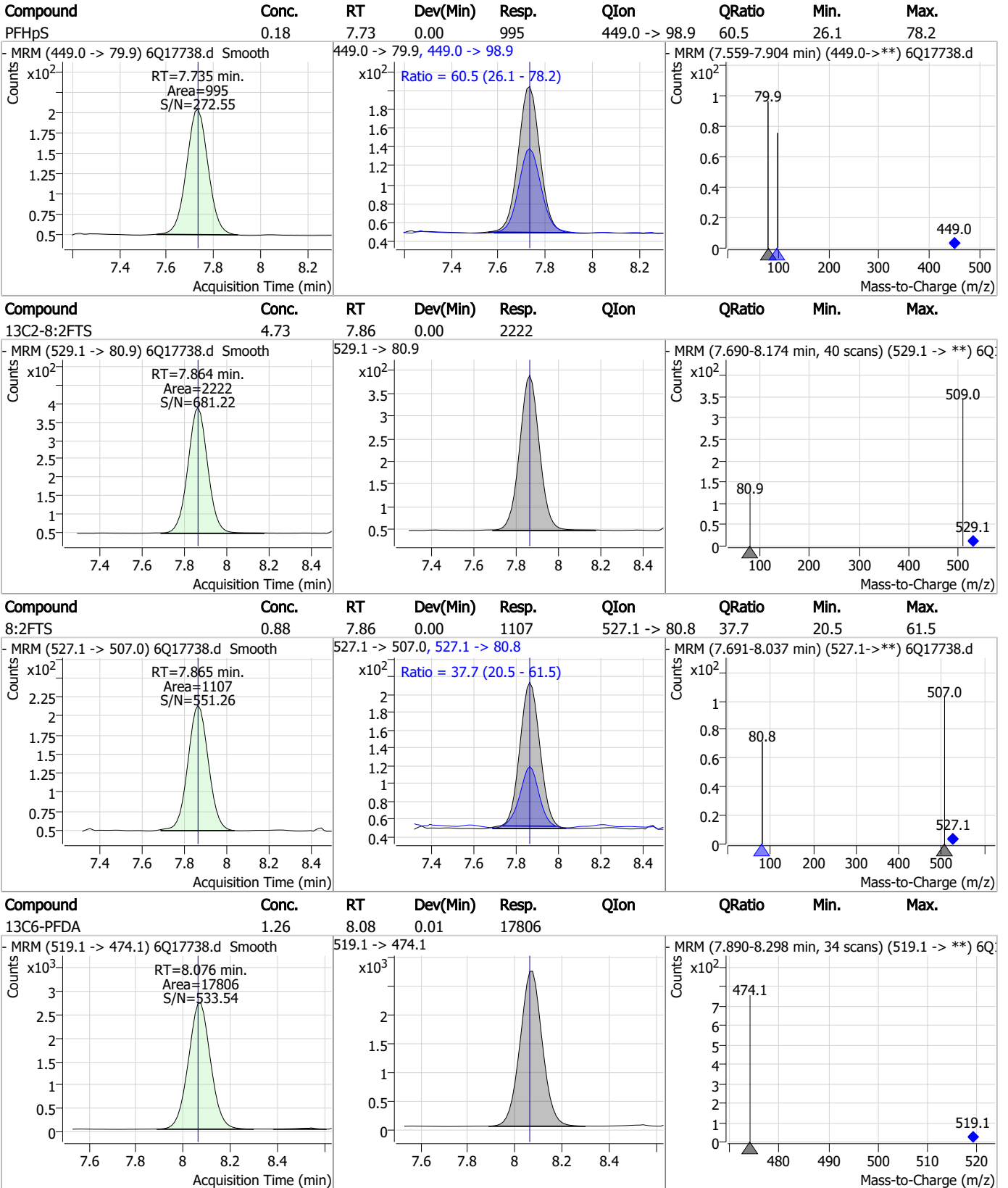
### Perfluorinated Compounds by LC/MS/MS



7.7.16 7



### Perfluorinated Compounds by LC/MS/MS

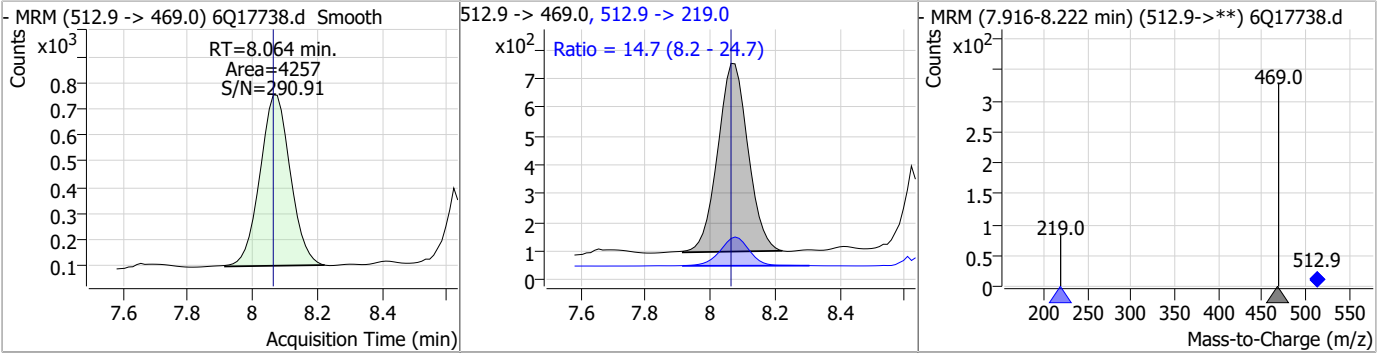


7.7.16 7

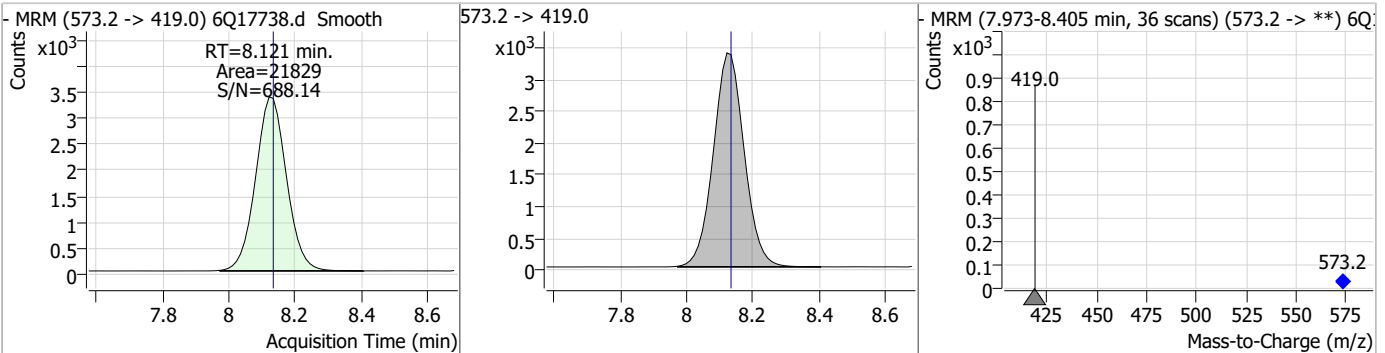


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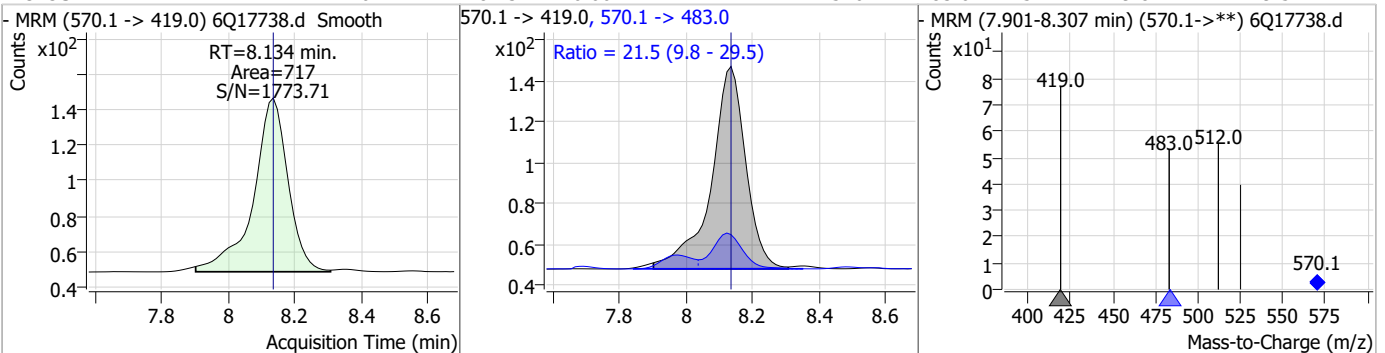
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.19	8.06	0.00	4257	512.9 -> 219.0	14.7	8.2	24.7



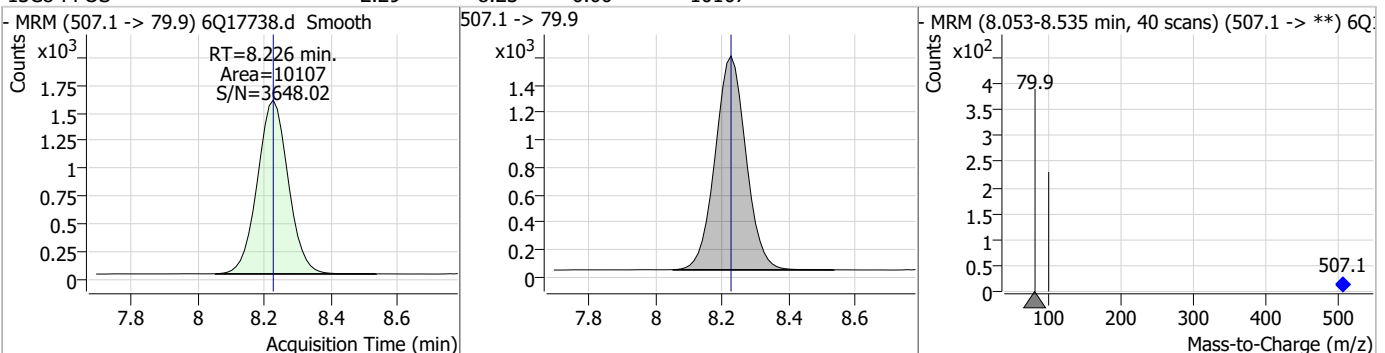
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.92	8.12	-0.01	21829				



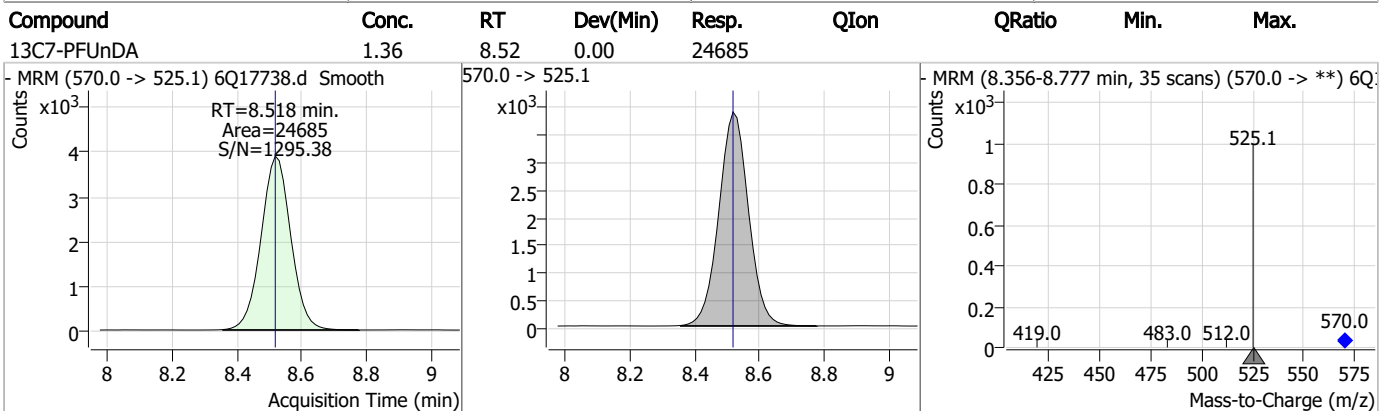
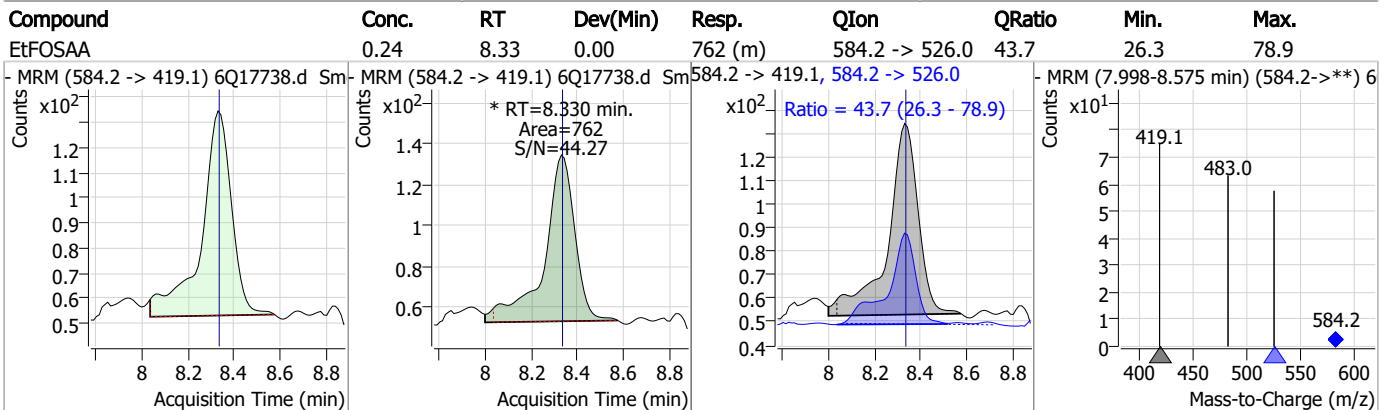
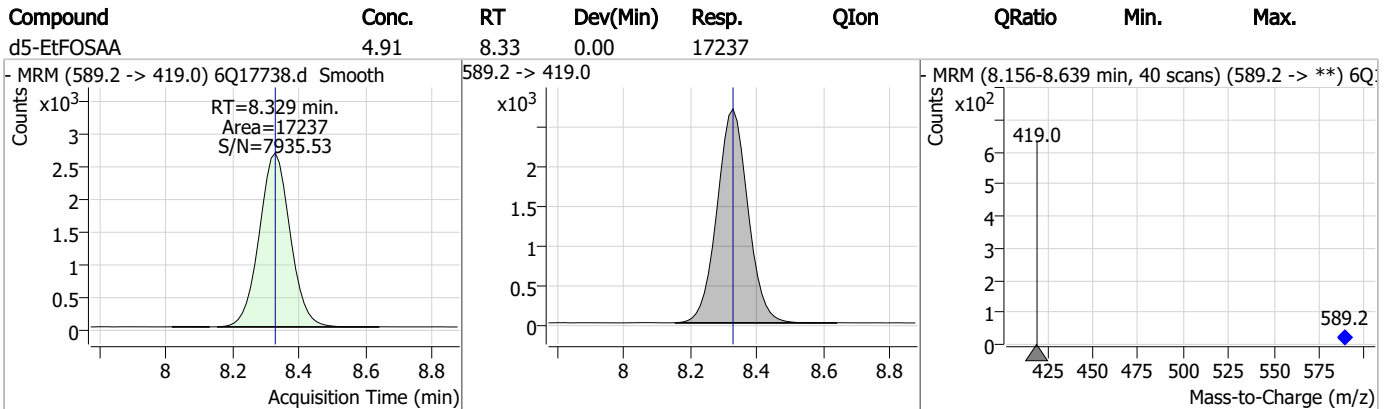
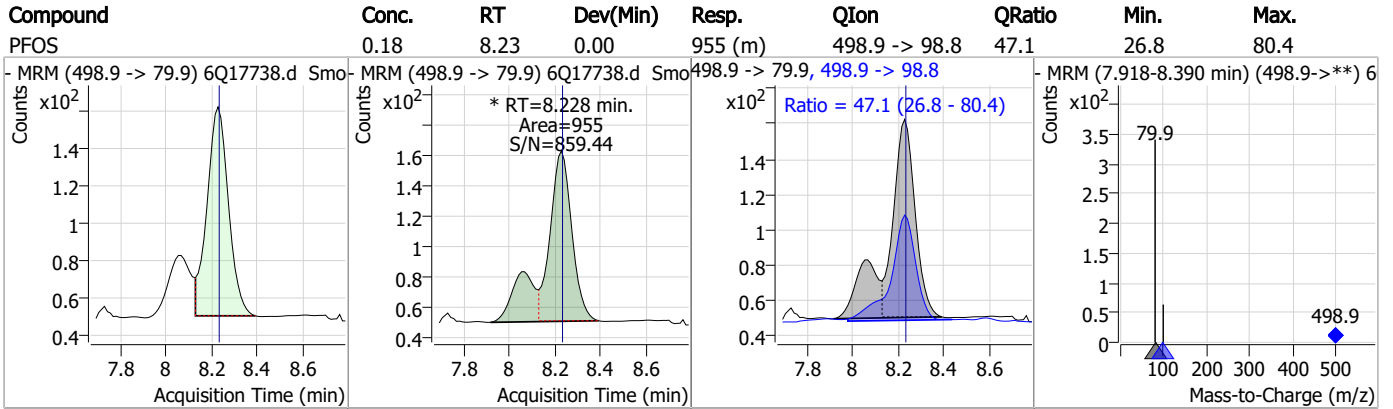
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.17	8.13	0.00	717	570.1 -> 483.0	21.5	9.8	29.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.29	8.23	0.00	10107				

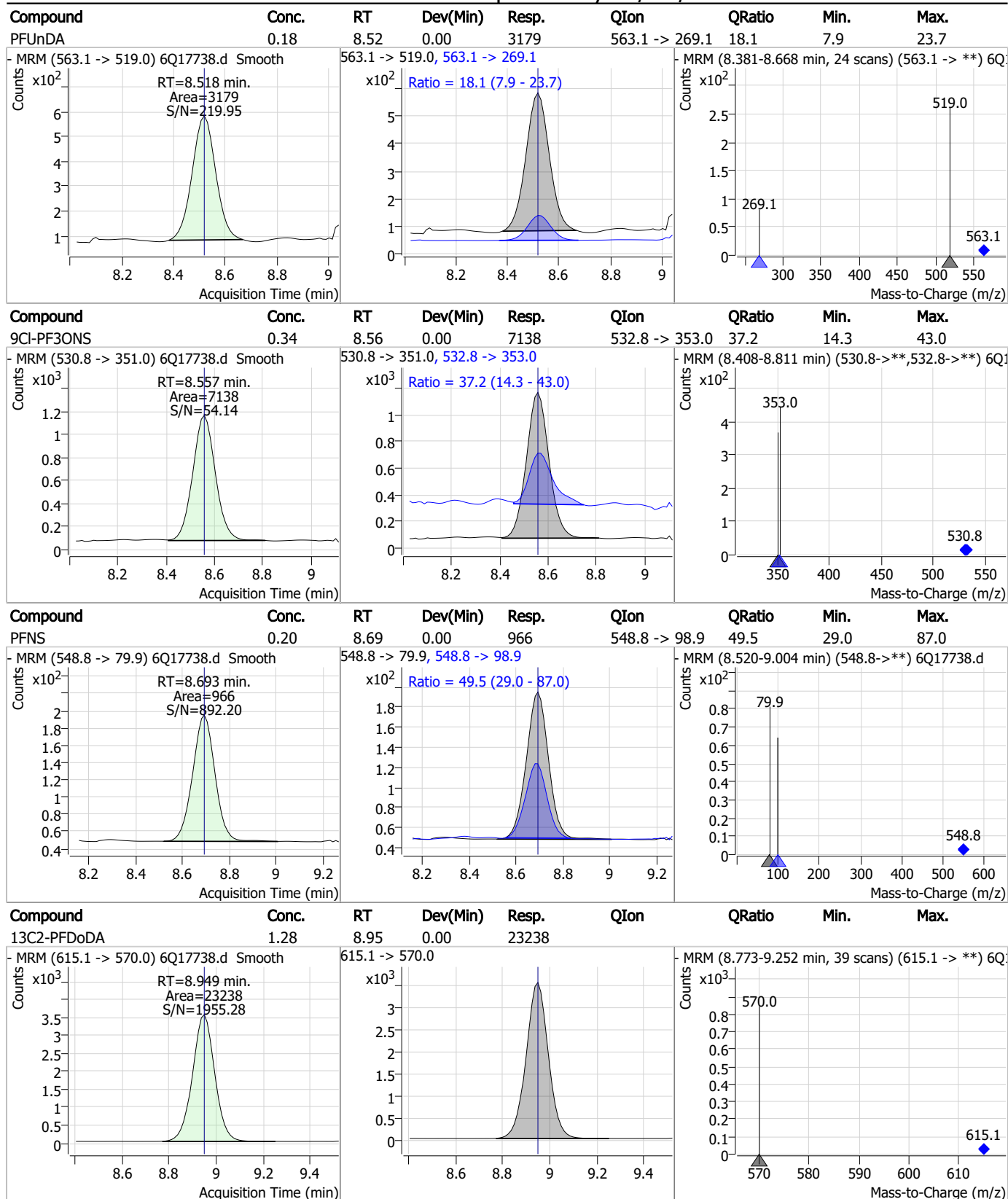


### Perfluorinated Compounds by LC/MS/MS



7.7.16 7

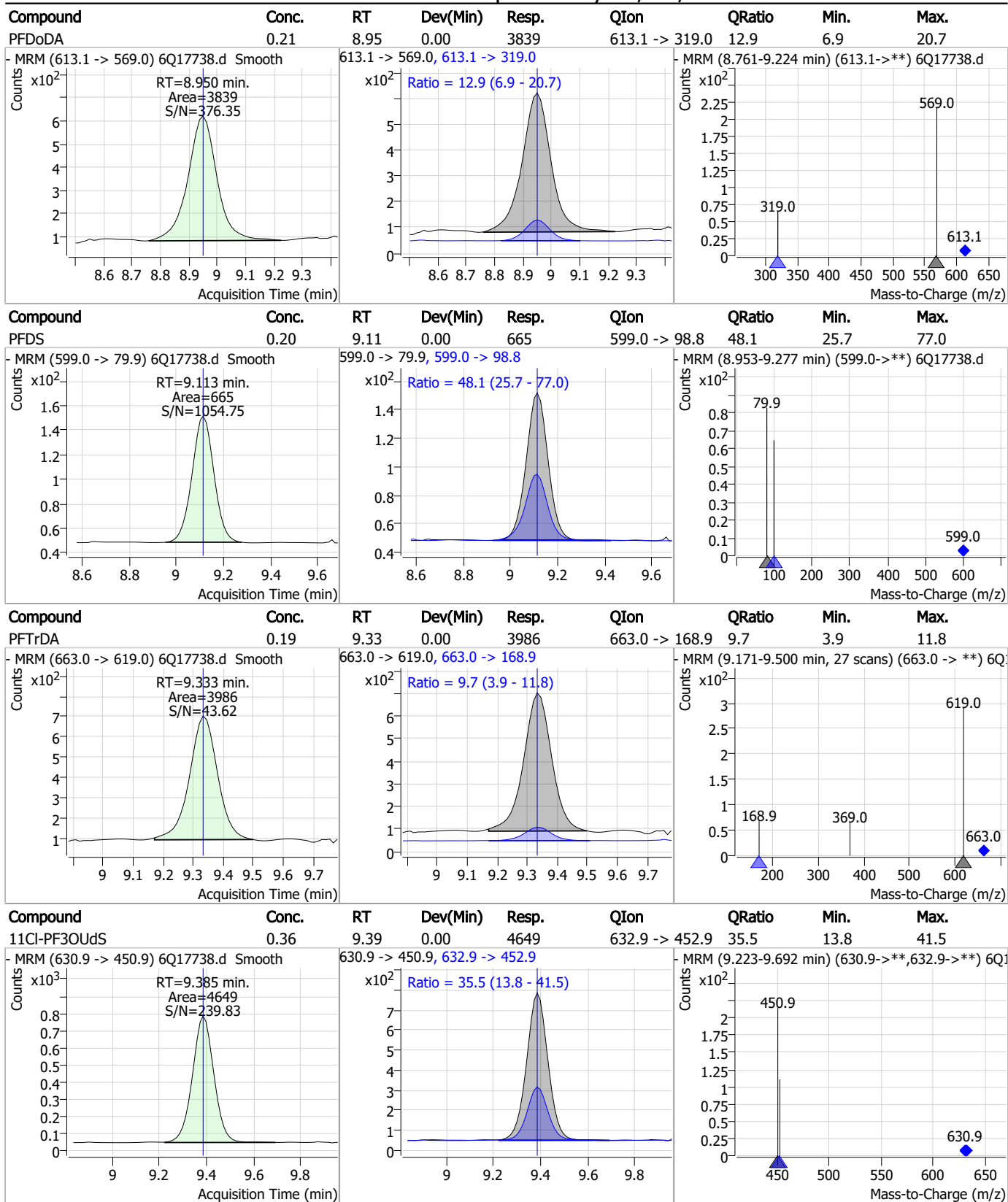
### Perfluorinated Compounds by LC/MS/MS



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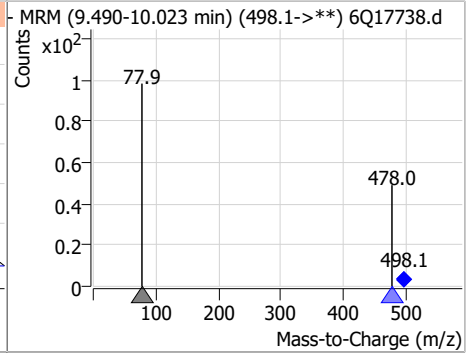
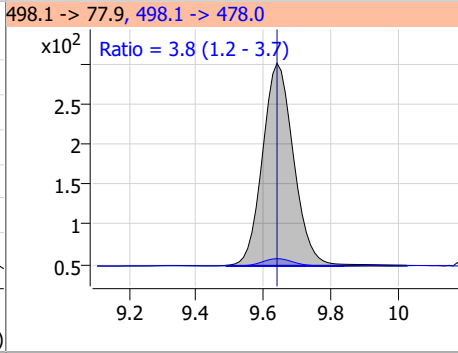
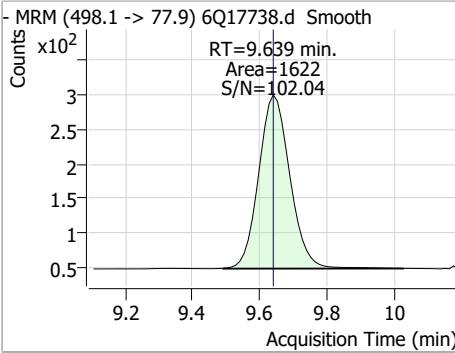
### Perfluorinated Compounds by LC/MS/MS



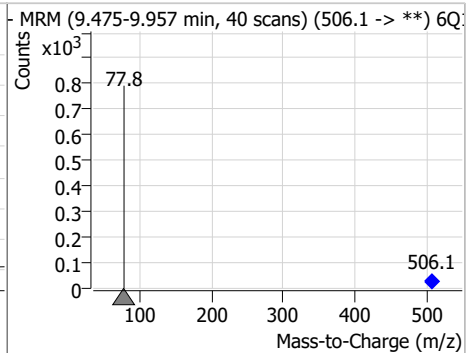
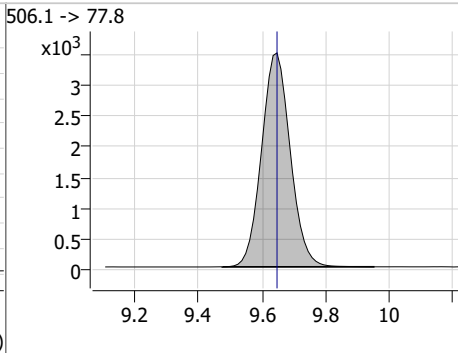
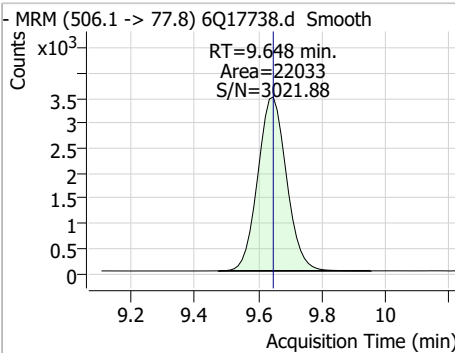
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### Perfluorinated Compounds by LC/MS/MS

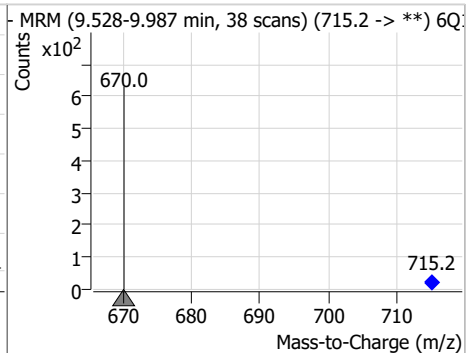
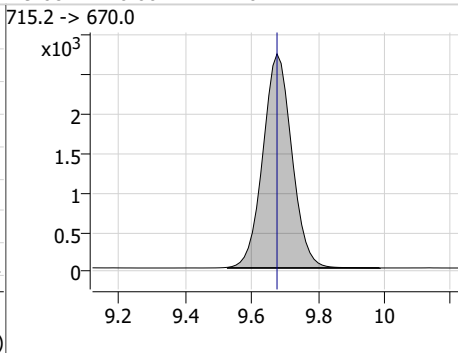
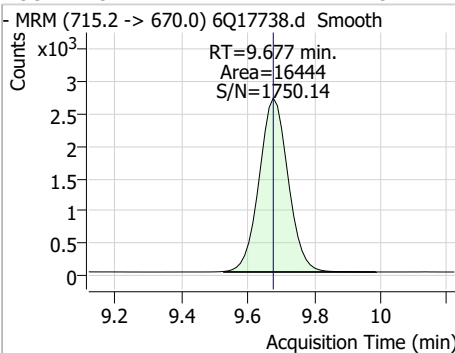
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.20	9.64	0.00	1622	498.1 -> 478.0	3.8	1.2	3.7



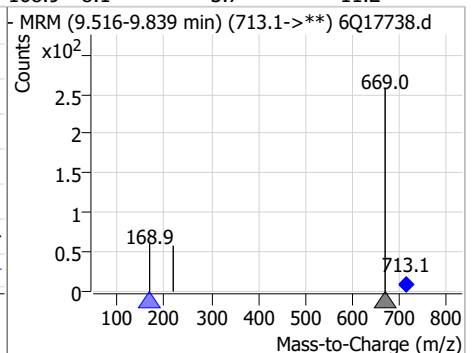
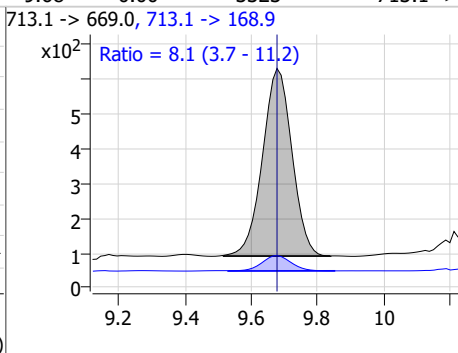
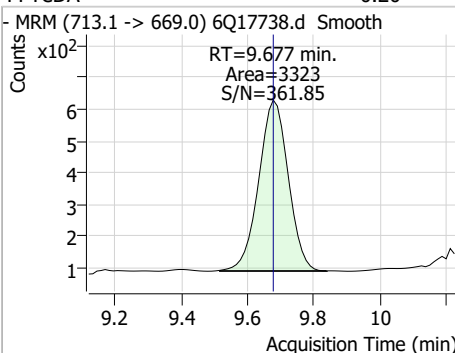
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.34	9.65	0.00	22033				



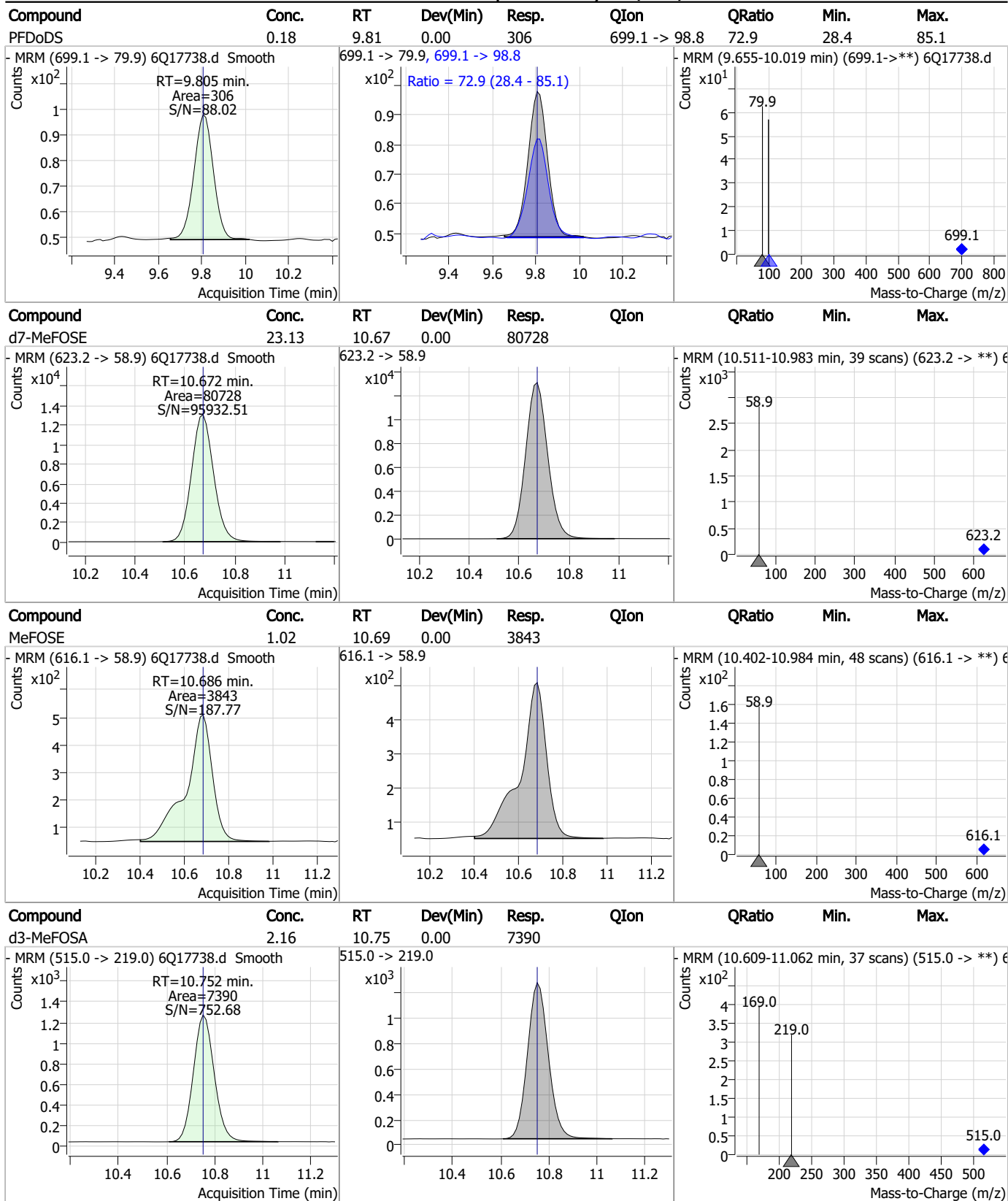
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.34	9.68	0.00	16444				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.20	9.68	0.00	3323	713.1 -> 168.9	8.1	3.7	11.2



### Perfluorinated Compounds by LC/MS/MS

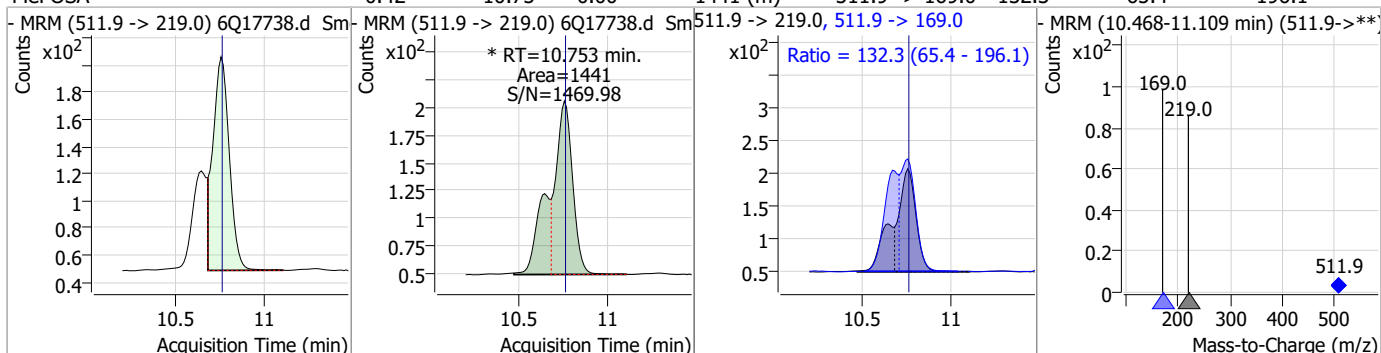


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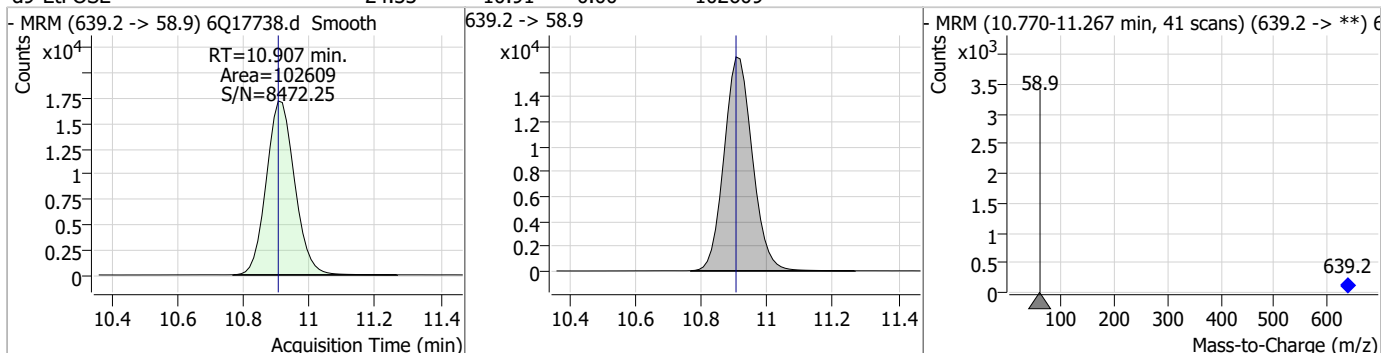
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### Perfluorinated Compounds by LC/MS/MS

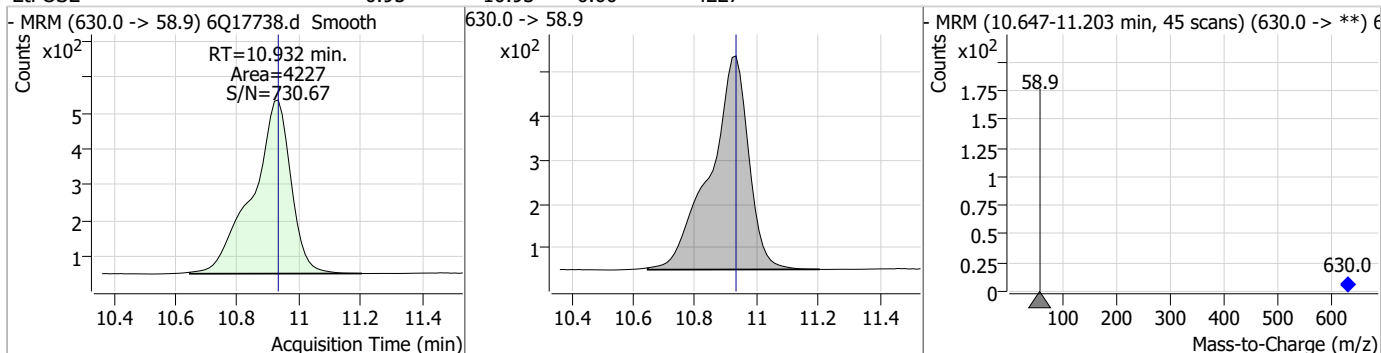
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.42	10.75	0.00	1441 (m)	511.9 -> 169.0	132.3	65.4	196.1



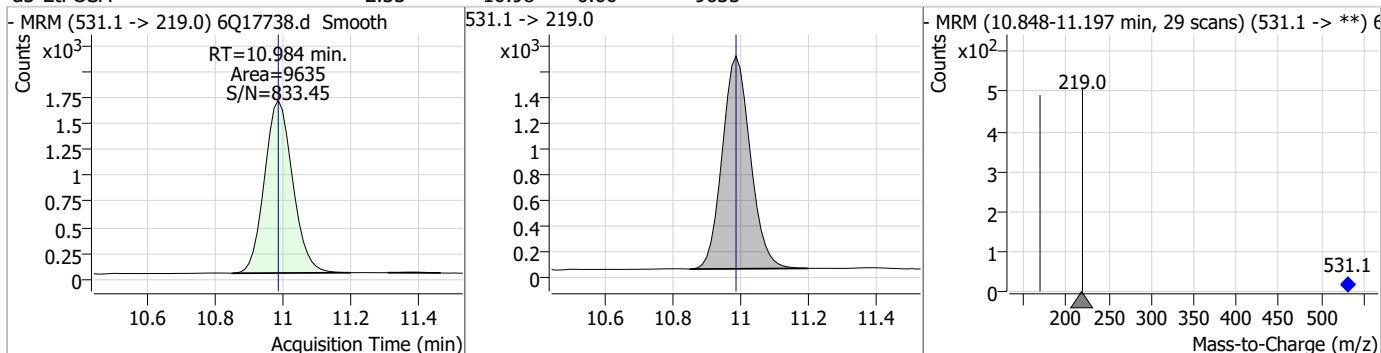
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.33	10.91	0.00	102609				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.95	10.93	0.00	4227				

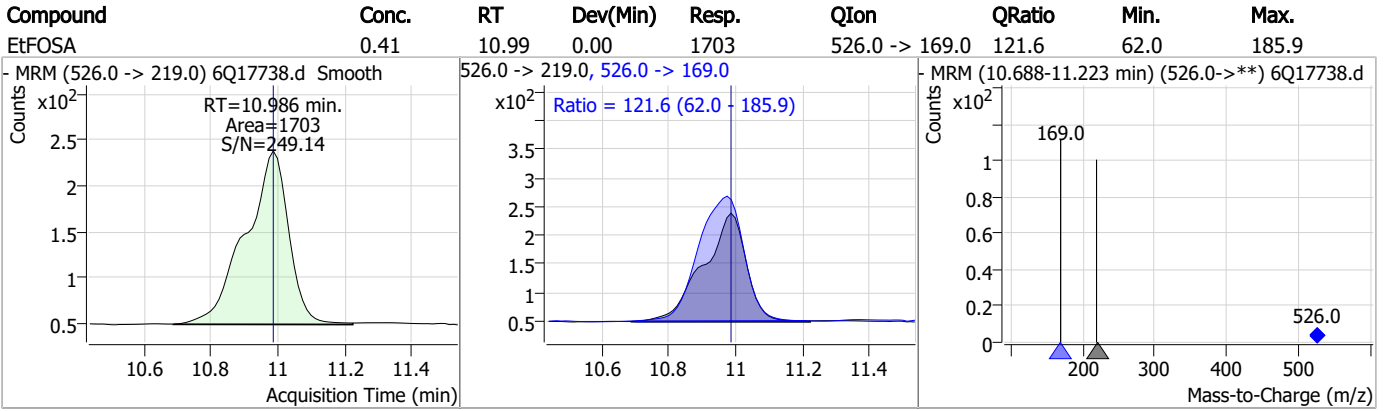


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.33	10.98	0.00	9635				





Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S6Q268-IC268      Method: EPA DRAFT 1633  
Lab FileID: 6Q17738.D      Analyst approved: 05/15/23 12:43 Martha Valls  
Injection Time: 05/12/23 12:15      Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
3:3 Fluorotelomer carboxylate	356-02-5		3.78	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSA	31506-32-8		10.75	Split peak

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## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17739.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 12:29:54 PM  
 Sample Name : ic268-2  
 Vial : P1-A3  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	161988	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	51716	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	61571	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	50162	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	74494	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	25597	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	19626	1.25 µg/L	0.012
M7-PFUnDA	8.518	570.0 -> 525.1	23117	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	23515	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14776	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	22164	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	19763	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11570	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9725	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1732	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2229	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2402	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	21103	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	35535	10.00 µg/L	0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	17181	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	85281	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	106065	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9191	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7638	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12478	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	67951	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	9218	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	78010	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	21881	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	26380	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	47402	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.143	329.1 -> 80.9	1732	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2229	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2402	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C2-PFDoDA	8.949	615.1 -> 570.0	23515	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14776	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C3-PFBS	5.397	302.1 -> 79.9	19763	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	11570	2.36 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 = 94.3%		
13C4-PFBA	2.901	216.8 -> 171.9	161988	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C4-PFHpA	6.420	367.1 -> 322.0	50162	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C5-PFHxA	5.466	318.0 -> 273.0	61571	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C5-PFPeA	4.272	268.3 -> 223.0	51716	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C6-PFDA	8.076	519.1 -> 474.1	19626	1.37 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C7-PFUnDA	8.518	570.0 -> 525.1	23117	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C8-FOSA	9.648	506.1 -> 77.8	22164	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.1%		
13C8-PFOA	7.064	421.1 -> 376.0	74494	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C8-PFOS	8.226	507.1 -> 79.9	9725	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C9-PFNA	7.595	472.1 -> 427.0	25597	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.0%		
d3-MeFOSAA	8.133	573.2 -> 419.0	21103	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C3-HFPO-DA	5.844	286.9 -> 168.9	35535	10.24 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
d3-MeFOSA	10.752	515.0 -> 219.0	7638	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
d5-EtFOSAA	8.329	589.2 -> 419.0	17181	5.56 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.1%		
d7-MeFOSE	10.672	623.2 -> 58.9	85281	27.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 111.0%		
d9-EtFOSE	10.907	639.2 -> 58.9	106065	28.56 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 114.2%		
d5-EtFOSA	10.984	531.1 -> 219.0	9191	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.144	327.1 -> 307.0	3807	1.46 µg/L	91
		327.1 -> 80.9	1633		
6:2FTS	6.838	427.1 -> 407.0	3700	1.53 µg/L	95
		427.1 -> 80.9	1295		
8:2FTS	7.865	527.1 -> 507.0	2023	1.48 µg/L	94
		527.1 -> 80.8	755		
EtFOSAA	8.330	584.2 -> 419.1	1123	0.35 µg/L	99
		584.2 -> 526.0	600		
FOSA	9.639	498.1 -> 77.9	3092	0.37 µg/L	98
		498.1 -> 478.0	99		
MeFOSAA	8.134	570.1 -> 419.0	1525	0.37 µg/L	97
		570.1 -> 483.0	321		
PFBA	2.907	212.8 -> 168.9	8849	1.52 µg/L	100
PFBS	5.398	298.7 -> 79.9	3315	0.34 µg/L	92
		298.7 -> 98.8	1365		
PFDA	8.076	512.9 -> 469.0	7808	0.32 µg/L	99
		512.9 -> 219.0	1244		
PFDODA	8.950	613.1 -> 569.0	7542	0.40 µg/L	97
		613.1 -> 319.0	942		
PFDS	9.113	599.0 -> 79.9	1320	0.42 µg/L	88

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	567			
PFHpA	6.420	363.1 -> 319.0	10070	0.40	µg/L	97
		363.1 -> 169.0	1508			
PFHpS	7.735	449.0 -> 79.9	2131	0.41	µg/L	95
		449.0 -> 98.9	1028			
PFHxA	5.469	313.0 -> 269.0	9102	0.37	µg/L	99
		313.0 -> 118.9	480			
PFHxS	7.180	398.7 -> 79.9	2332	0.36	µg/L	m 98
		398.7 -> 98.9	1123			
PFNA	7.596	463.0 -> 419.0	6533	0.34	µg/L	100
		463.0 -> 219.0	1343			
PFNS	8.693	548.8 -> 79.9	1943	0.41	µg/L	92
		548.8 -> 98.9	1009			
PFOA	7.066	413.0 -> 369.0	16807	0.45	µg/L	95
		413.0 -> 169.0	2479			
PFOS	8.228	498.9 -> 79.9	1949	0.38	µg/L	m 94
		498.9 -> 98.8	1130			
PFPeA	4.274	263.0 -> 219.0	11488	0.77	µg/L	100
PFPeS	6.471	349.1 -> 79.9	2370	0.37	µg/L	92
		349.1 -> 98.9	1189			
PFTeDA	9.677	713.1 -> 669.0	6067	0.40	µg/L	97
		713.1 -> 168.9	521			
PFTrDA	9.346	663.0 -> 619.0	8408	0.39	µg/L	99
		663.0 -> 168.9	697			
PFUnDA	8.518	563.1 -> 519.0	6566	0.39	µg/L	99
		563.1 -> 269.1	1053			
11Cl-PF3OUdS	9.385	630.9 -> 450.9	10283	0.77	µg/L	96
		632.9 -> 452.9	3057			
9Cl-PF3ONS	8.557	530.8 -> 351.0	15052	0.70	µg/L	90
		532.8 -> 353.0	5090			
ADONA	6.683	376.9 -> 250.9	40018	0.71	µg/L	92
		376.9 -> 84.8	11196			
HFPO-DA	5.845	284.9 -> 168.9	2669	0.78	µg/L	97
		284.9 -> 184.9	335			
3:3FTCA	3.790	241.0 -> 177.0	1754	1.90	µg/L	100
		241.0 -> 117.0	235			
5:3FTCA	6.161	341.0 -> 237.1	38920	9.21	µg/L	97
		341.0 -> 217.0	29283			
7:3FTCA	7.586	441.0 -> 316.9	18360	9.58	µg/L	100
		441.0 -> 336.9	38417			
EtFOSA	10.986	526.0 -> 219.0	3361	0.84	µg/L	100
		526.0 -> 169.0	4168			
EtFOSE	10.932	630.0 -> 58.9	8534	1.85	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	2963	0.84	µg/L	m 94
		511.9 -> 169.0	4087			
MeFOSE	10.686	616.1 -> 58.9	7510	1.88	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	718	0.43	µg/L	93
		699.1 -> 98.8	369			
NFDHA	5.348	295.0 -> 201.0	2012	0.75	µg/L	97
		295.0 -> 84.9	519			
PFMBA	4.675	279.0 -> 85.1	8317	0.78	µg/L	100
PFMPA	3.426	229.0 -> 84.9	5863	0.76	µg/L	100
PFEESA	5.938	314.8 -> 134.9	21078	0.64	µg/L	100
		314.8 -> 82.9	752			

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

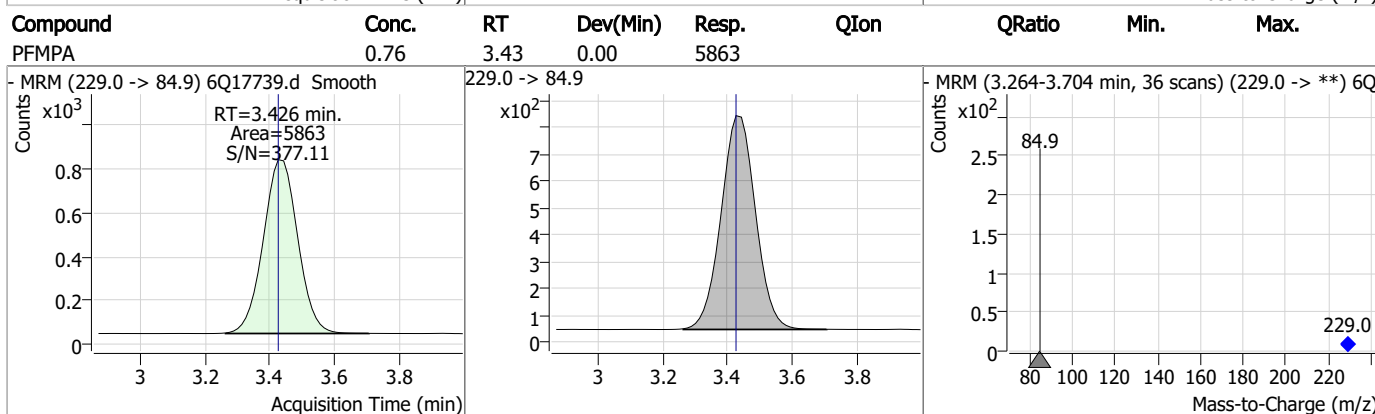
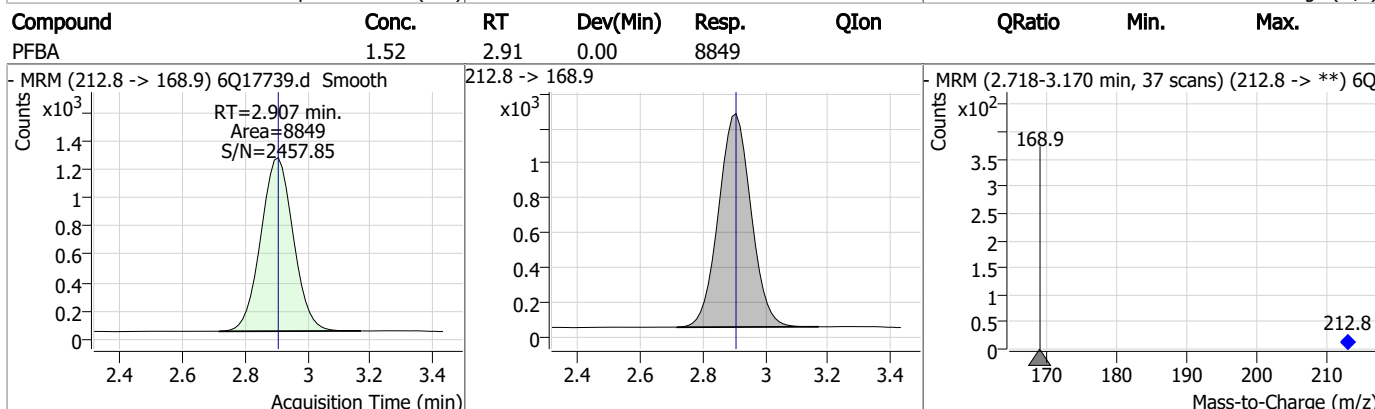
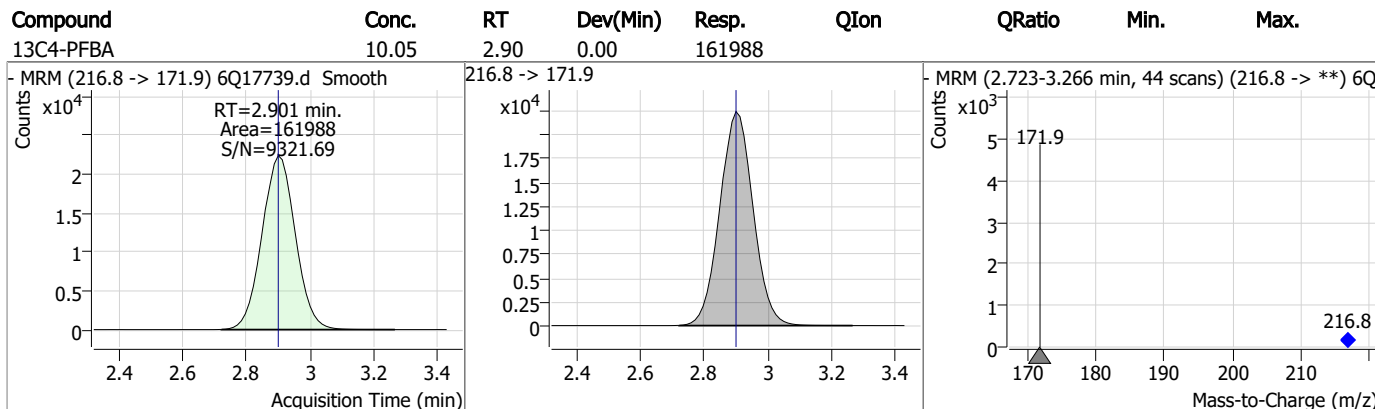
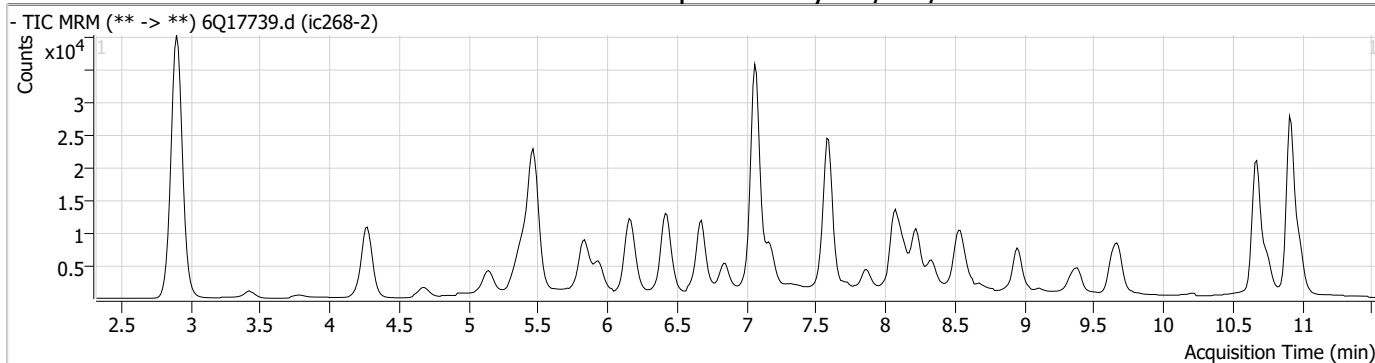
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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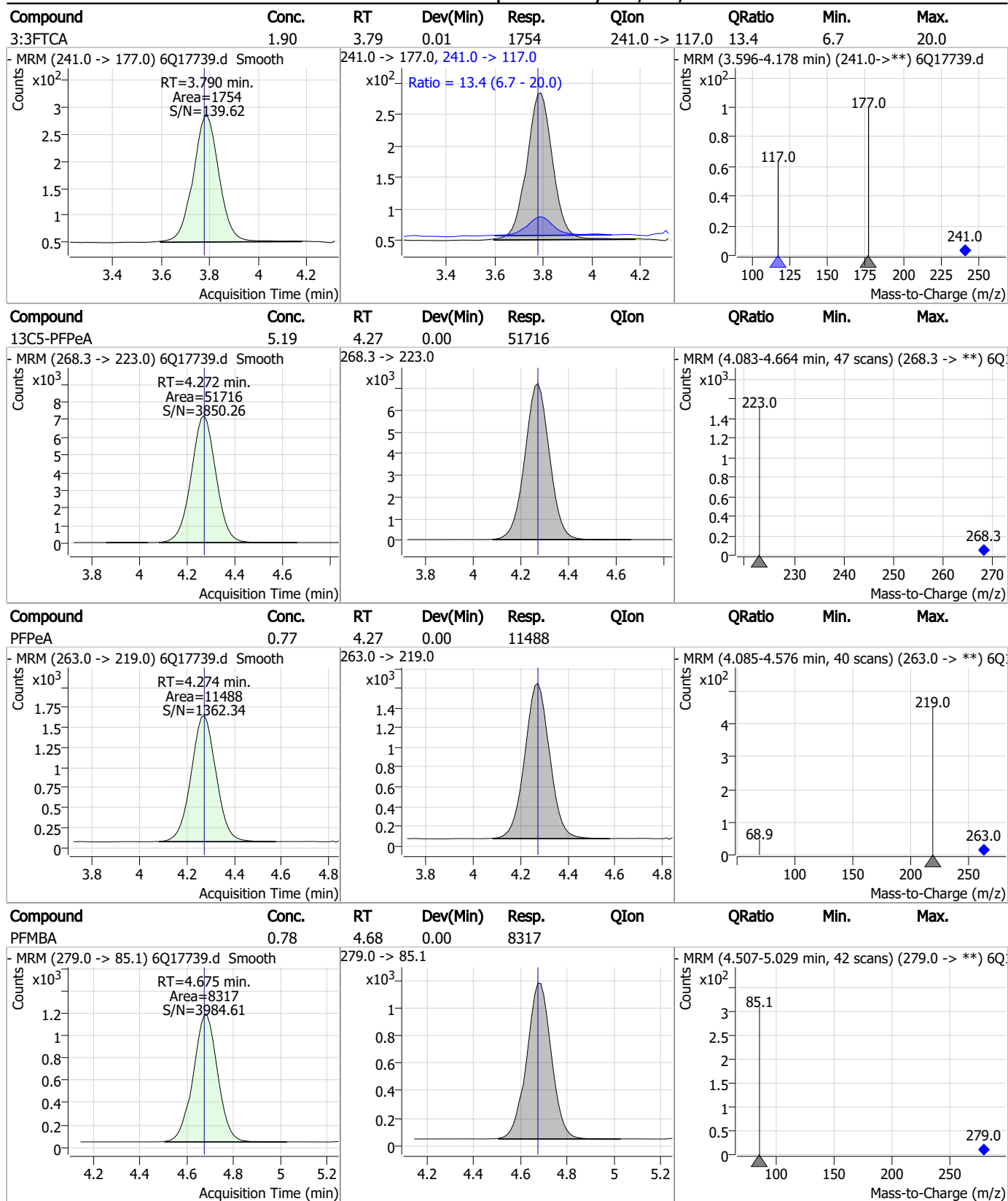
7.7.17  
7



### Perfluorinated Compounds by LC/MS/MS



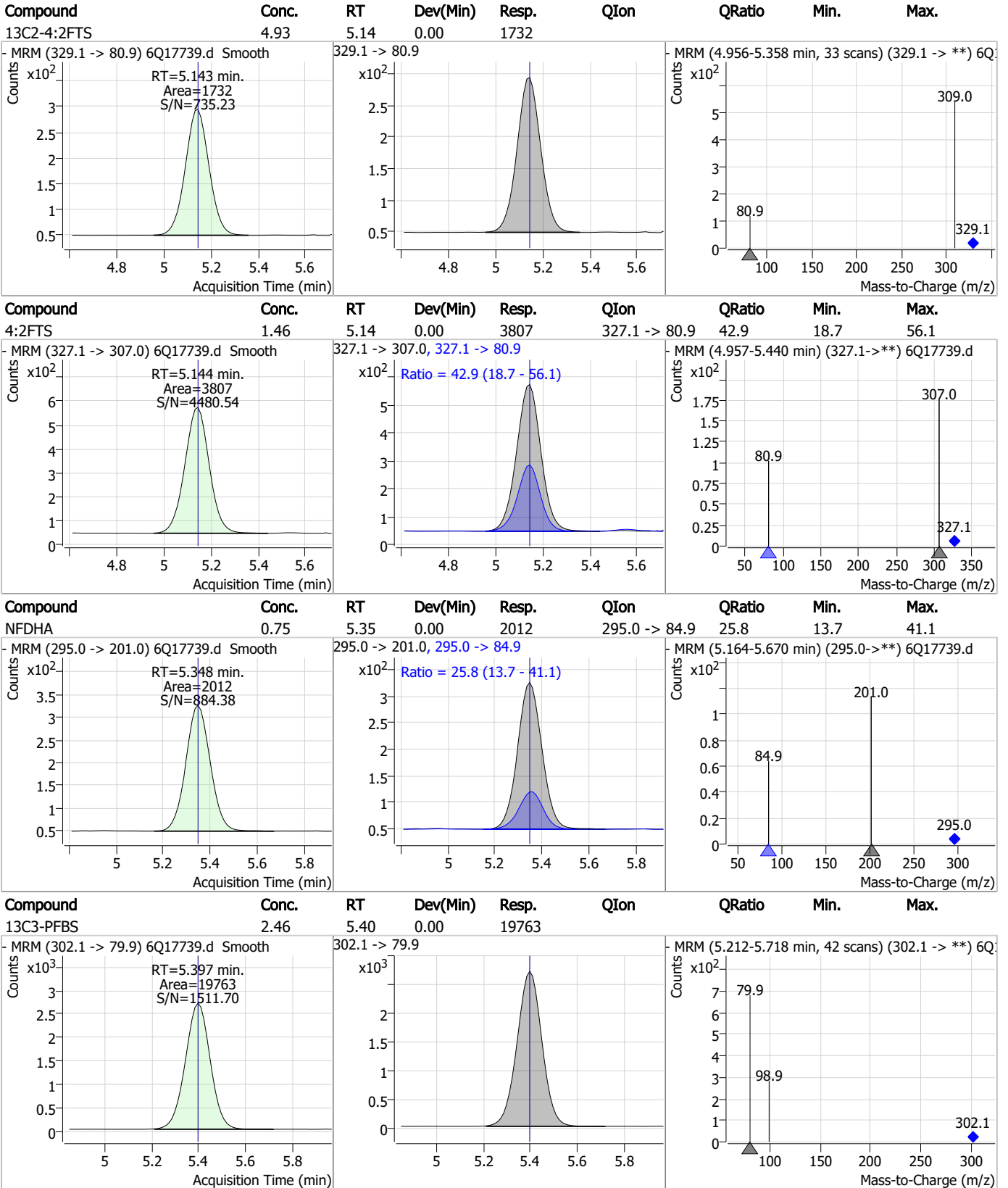
### Perfluorinated Compounds by LC/MS/MS



7.7.17

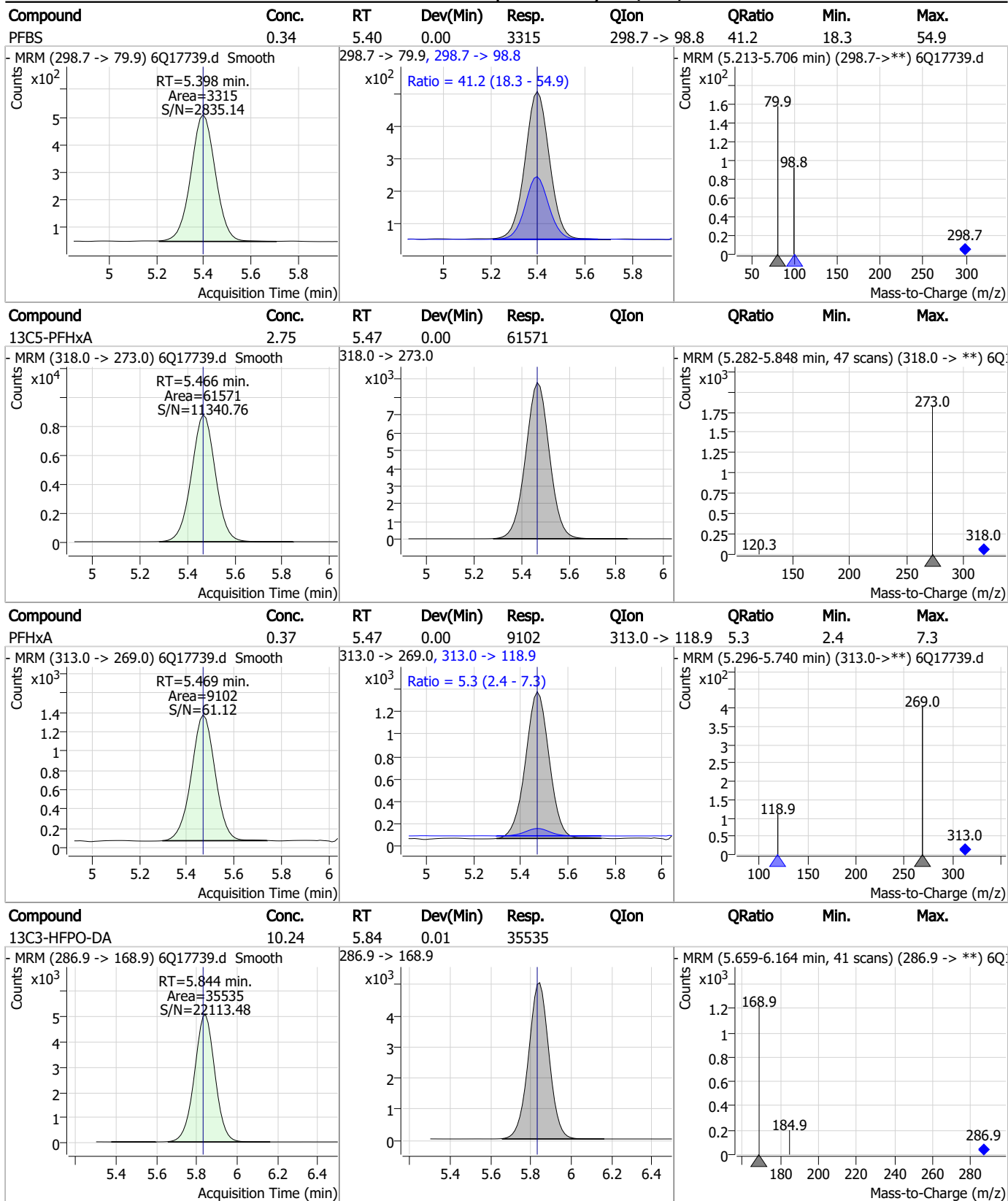


### Perfluorinated Compounds by LC/MS/MS



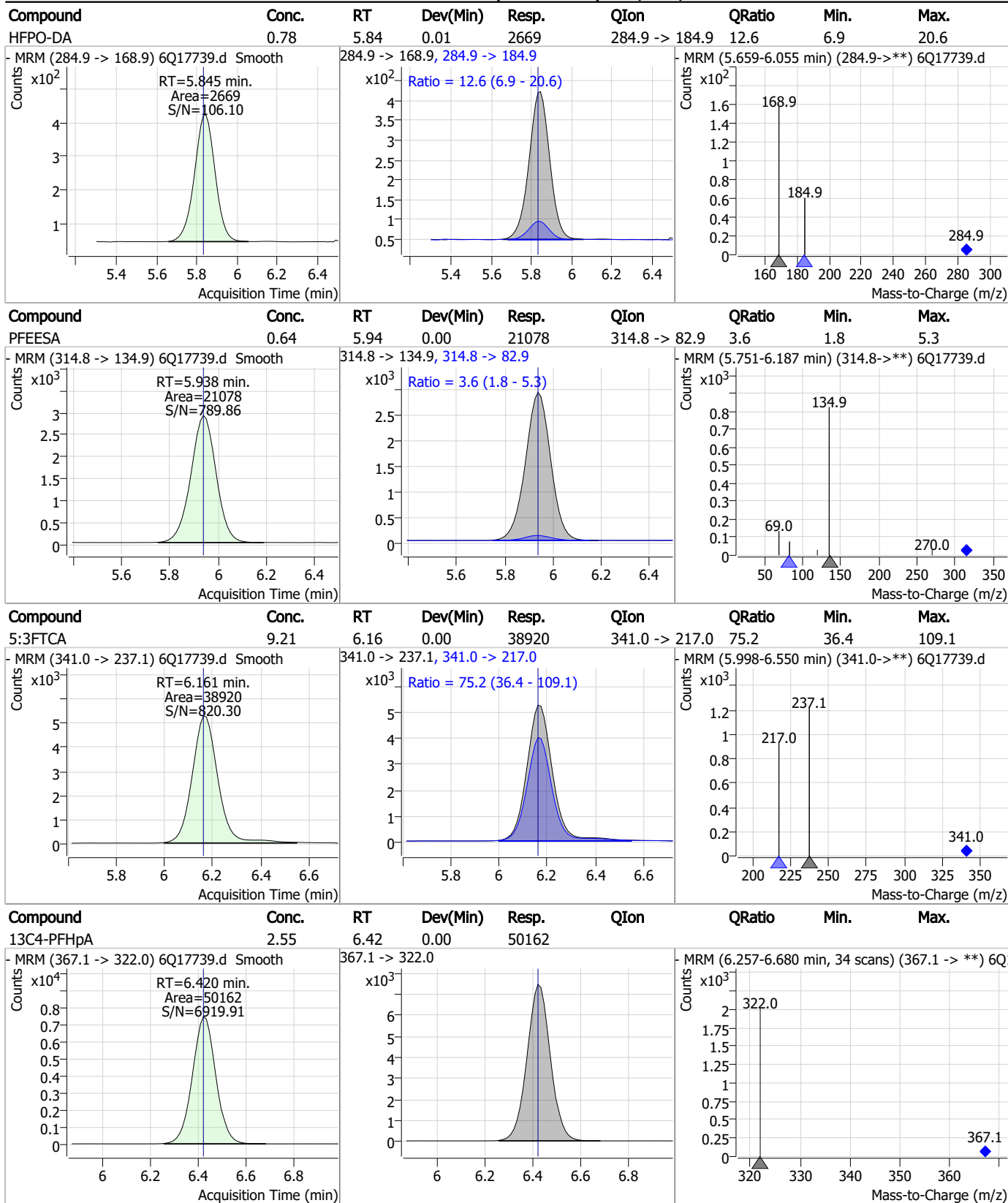
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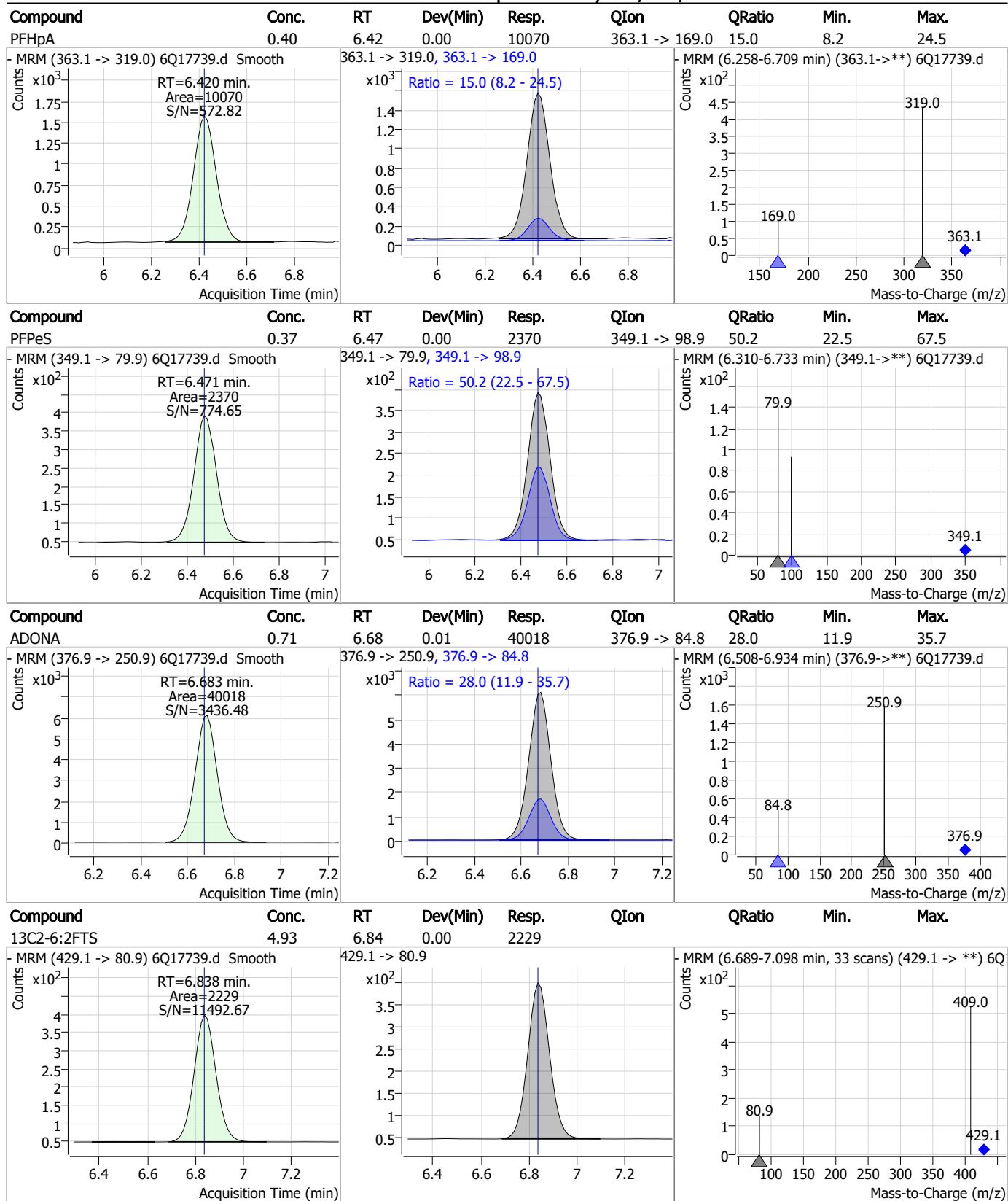
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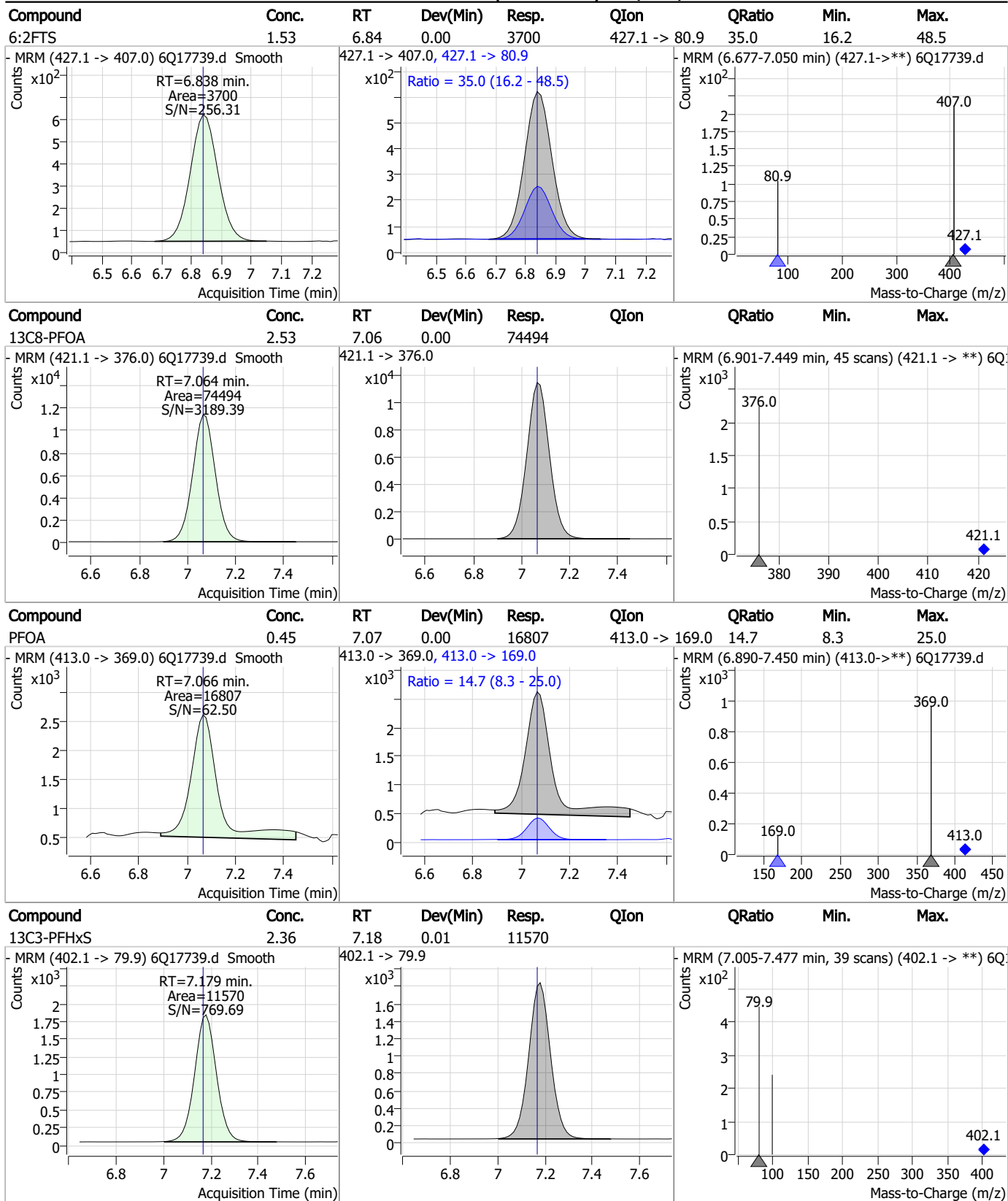
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7.7.17

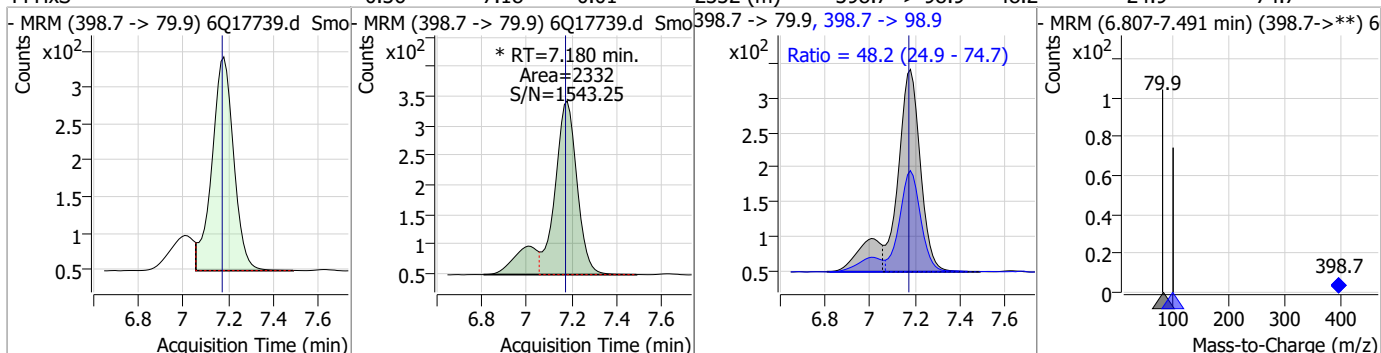
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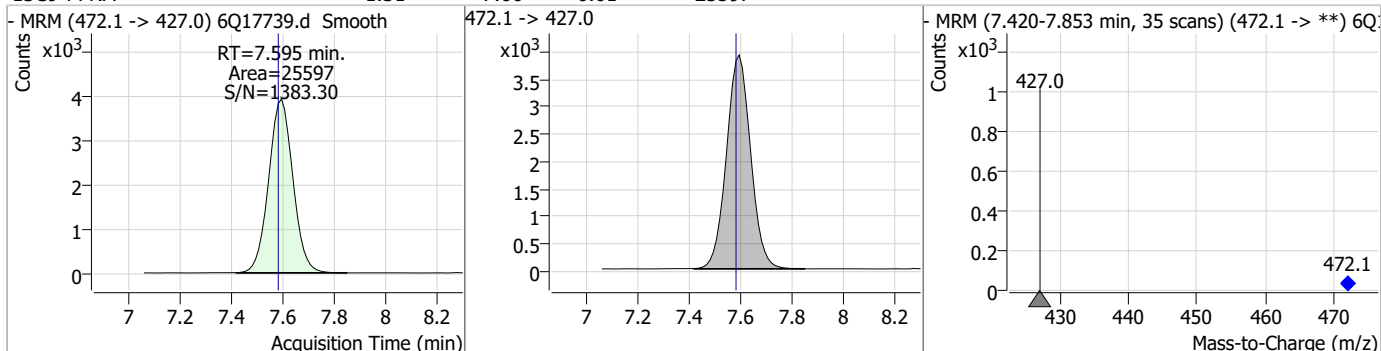
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### Perfluorinated Compounds by LC/MS/MS

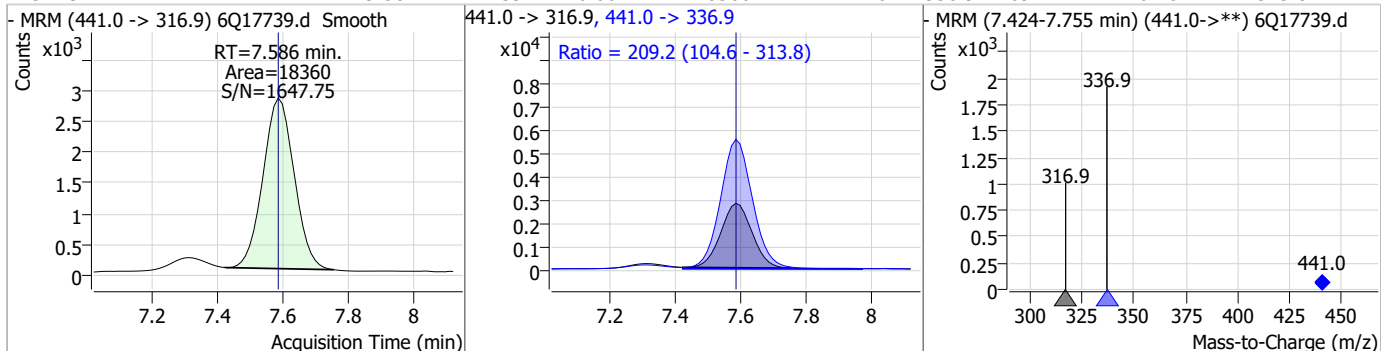
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.36	7.18	0.01	2332 (m)	398.7 -> 98.9	48.2	24.9	74.7



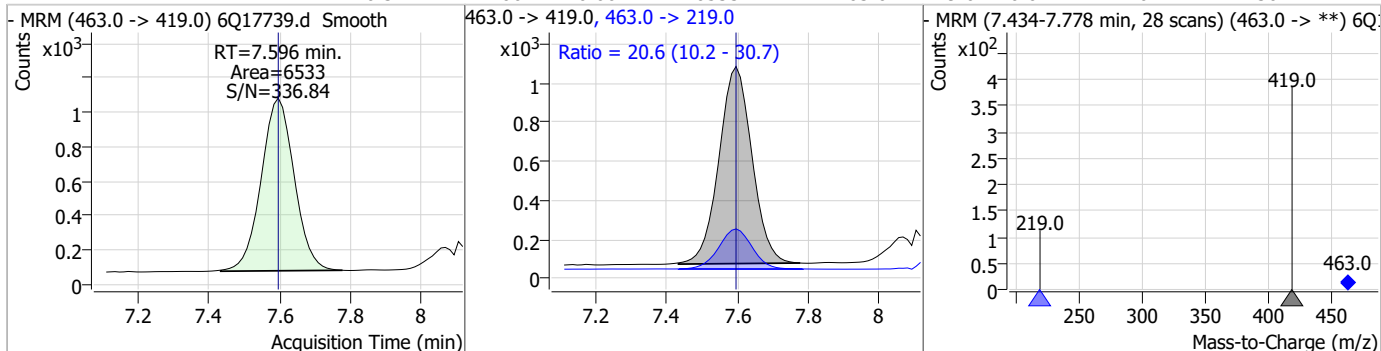
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.31	7.60	0.01	25597				



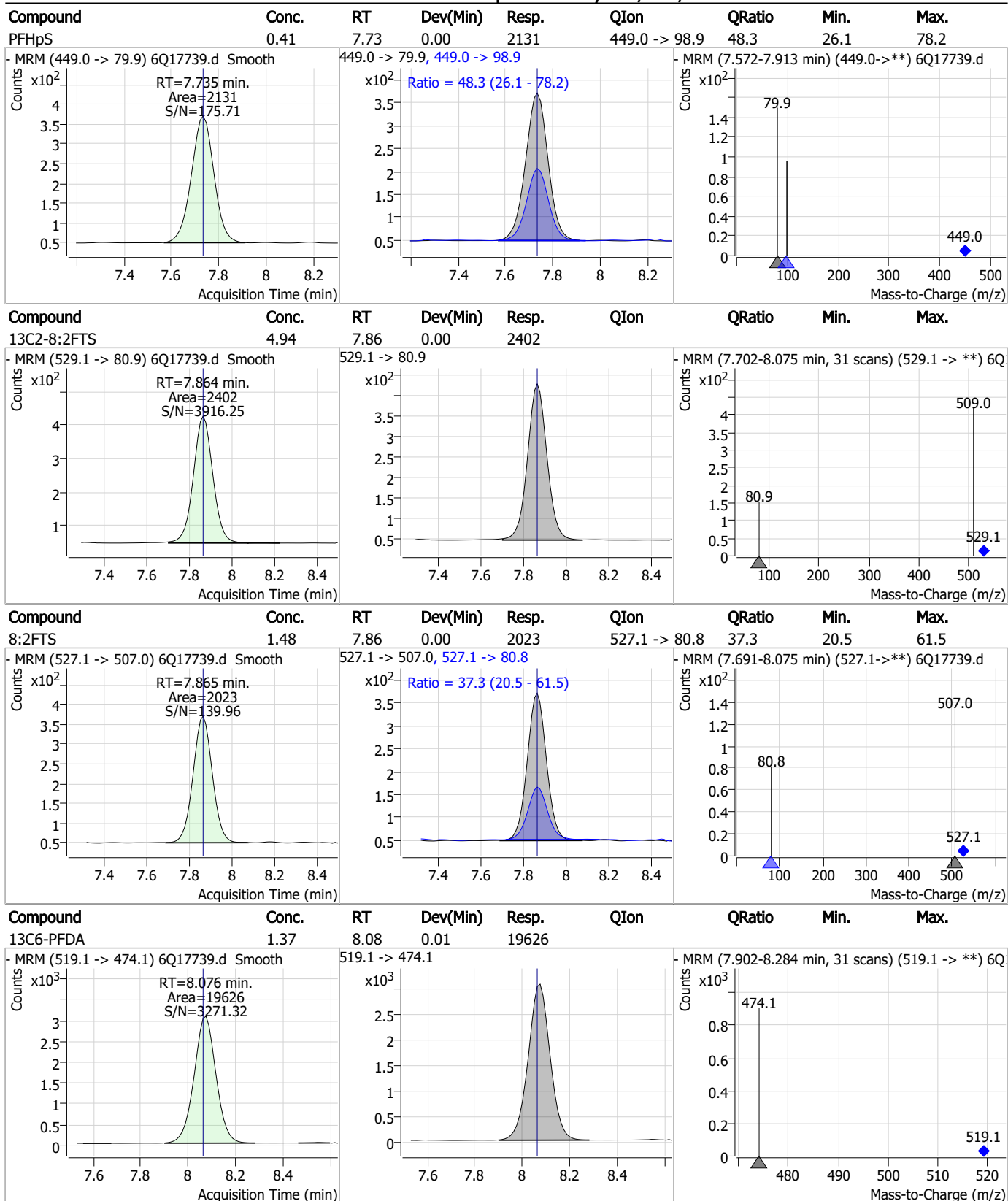
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	9.58	7.59	0.00	18360	441.0 -> 336.9	209.2	104.6	313.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.34	7.60	0.00	6533	463.0 -> 219.0	20.6	10.2	30.7



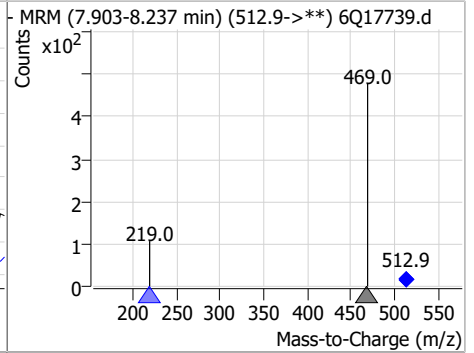
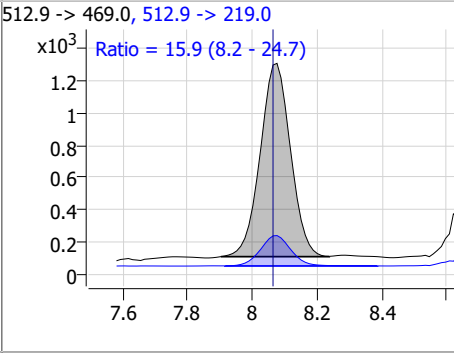
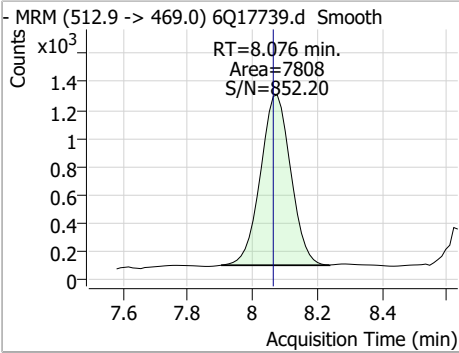
### Perfluorinated Compounds by LC/MS/MS



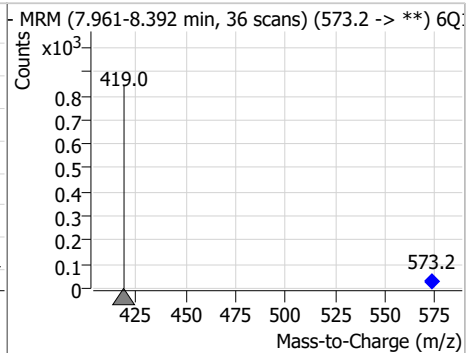
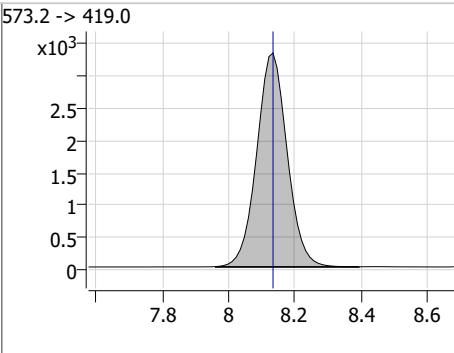
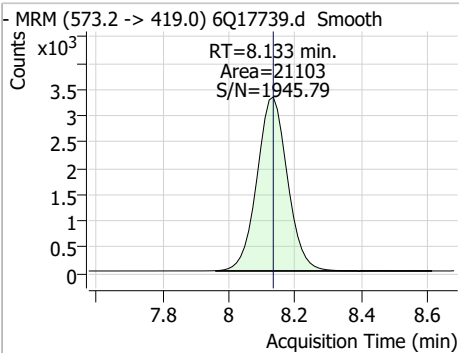
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### Perfluorinated Compounds by LC/MS/MS

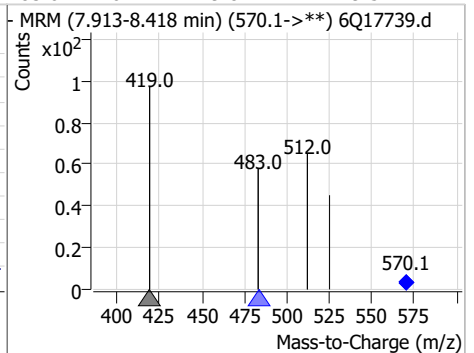
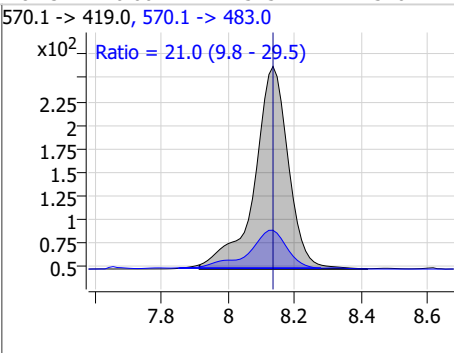
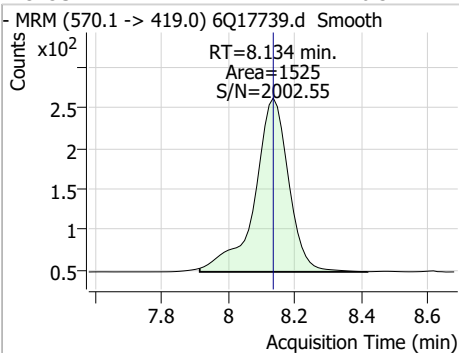
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.32	8.08	0.01	7808	512.9 -> 219.0	15.9	8.2	24.7



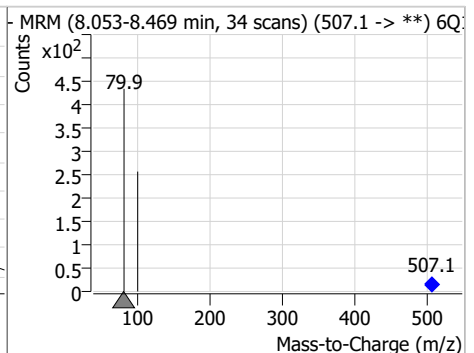
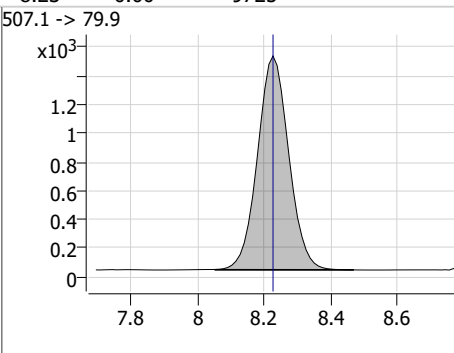
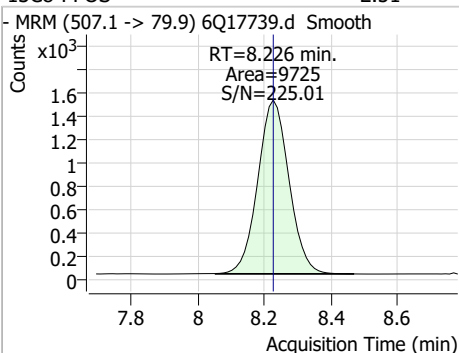
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.40	8.13	0.00	21103				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.37	8.13	0.00	1525	570.1 -> 483.0	21.0	9.8	29.5



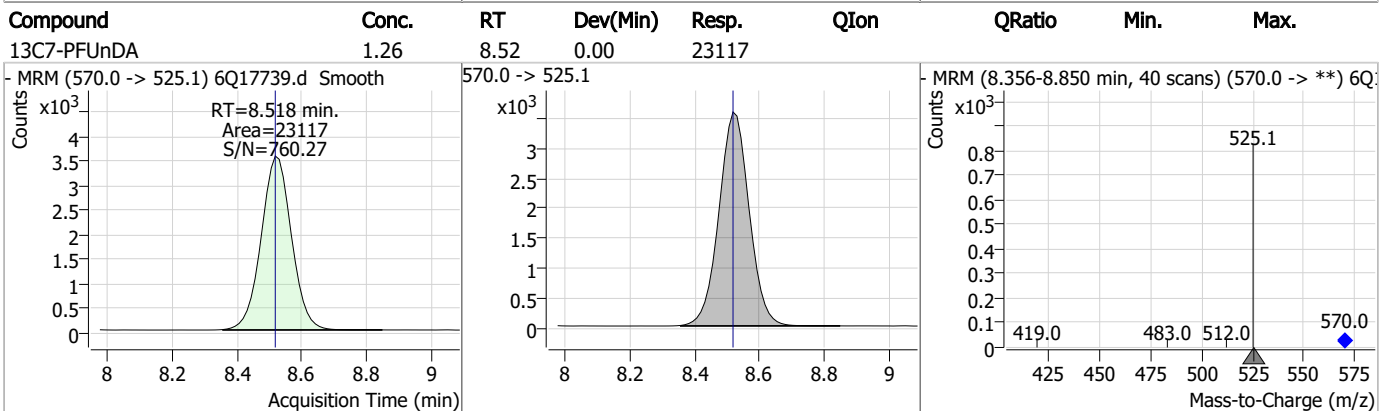
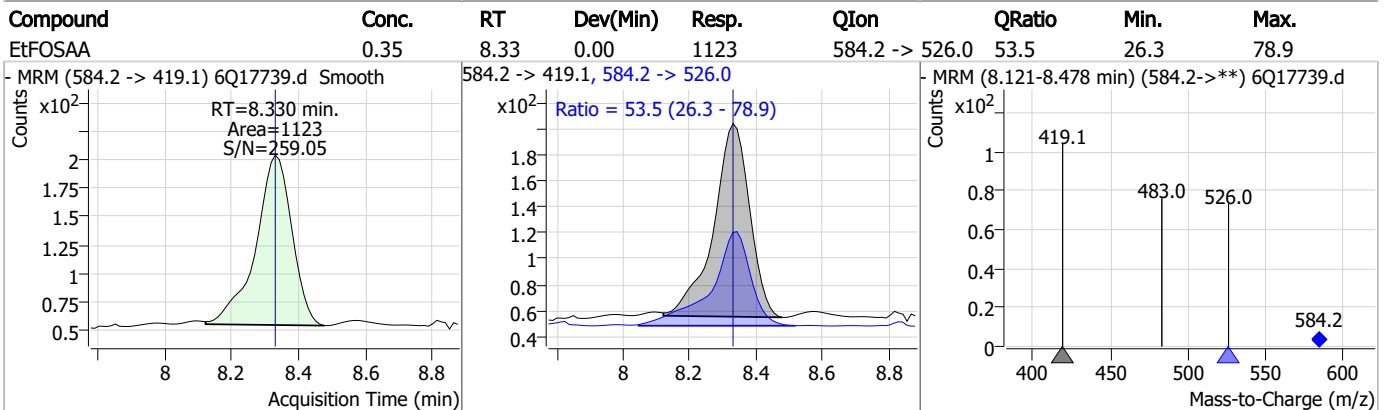
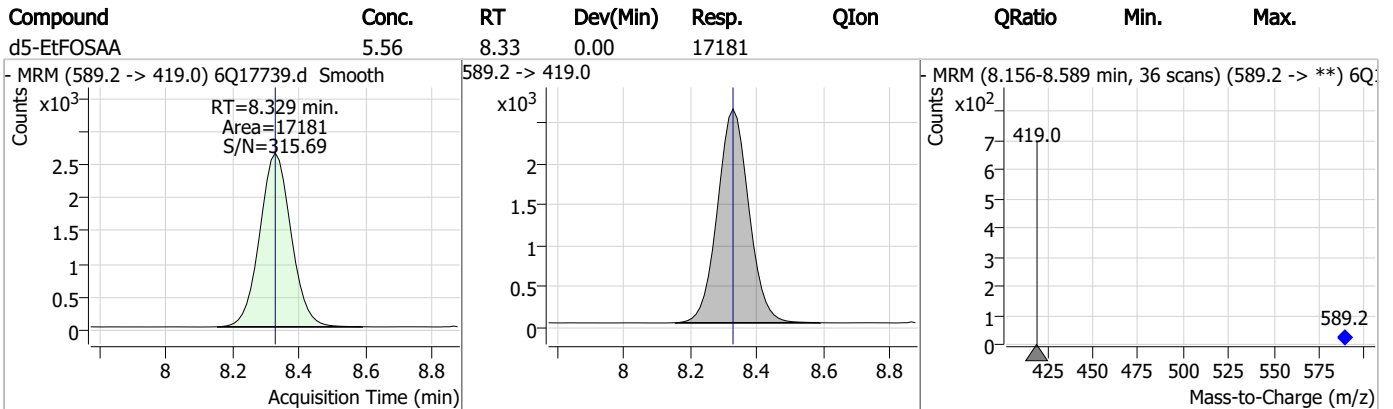
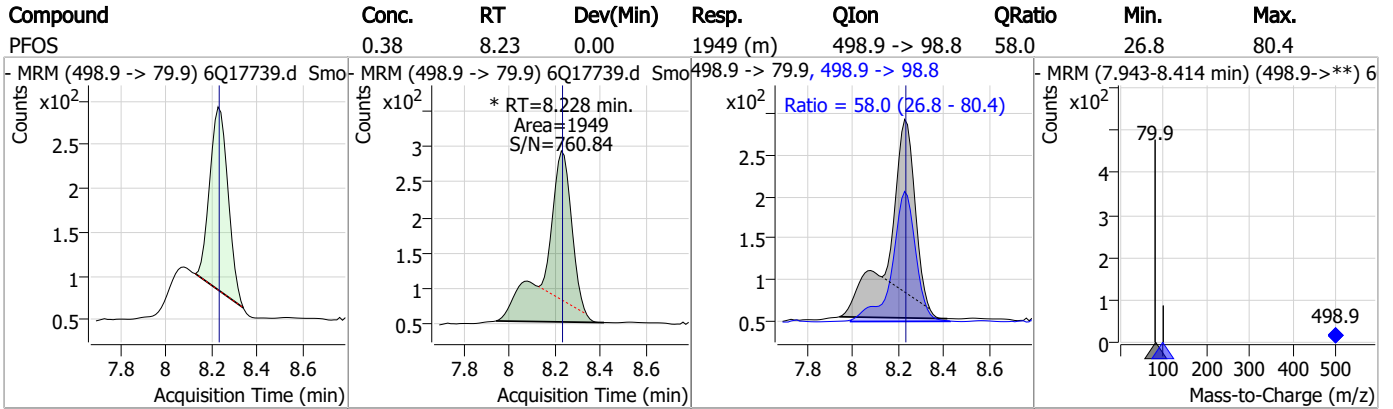
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.51	8.23	0.00	9725				



7.7.17

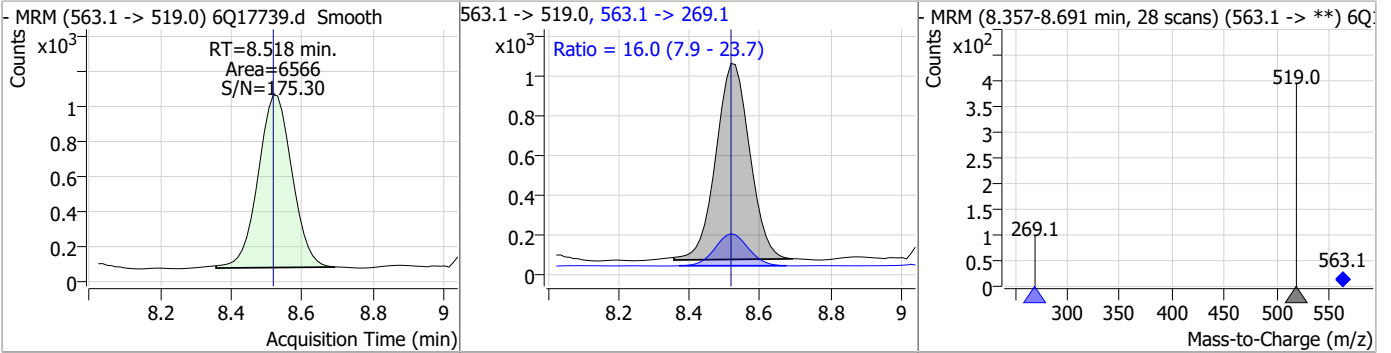


### Perfluorinated Compounds by LC/MS/MS

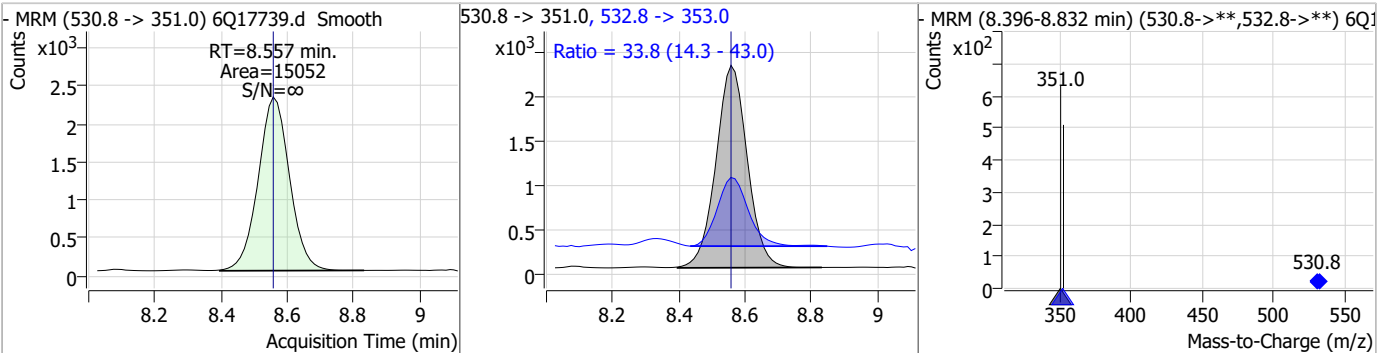


### Perfluorinated Compounds by LC/MS/MS

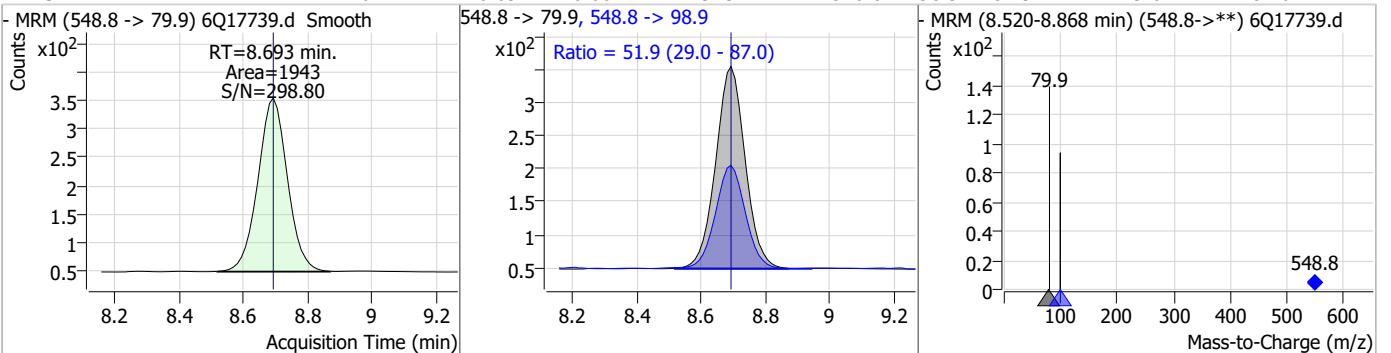
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.39	8.52	0.00	6566	563.1 -> 269.1	16.0	7.9	23.7



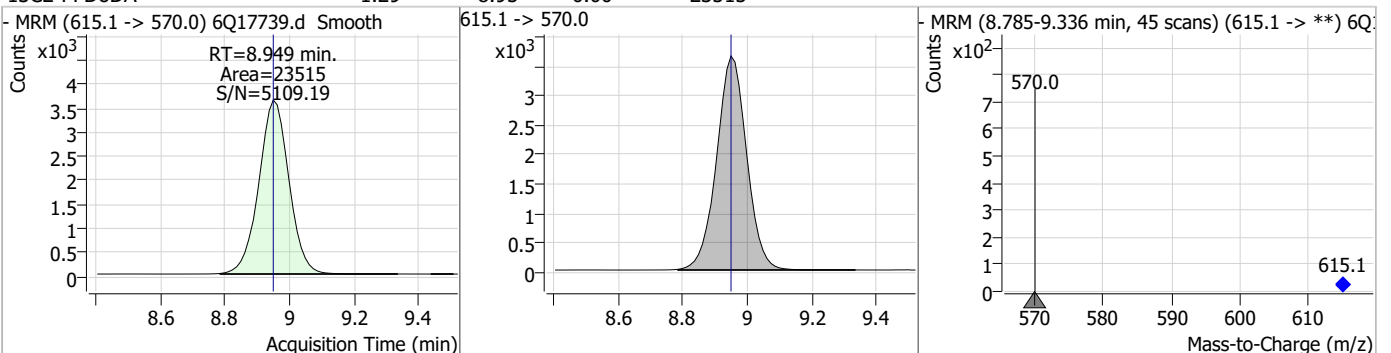
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	0.70	8.56	0.00	15052	532.8 -> 353.0	33.8	14.3	43.0



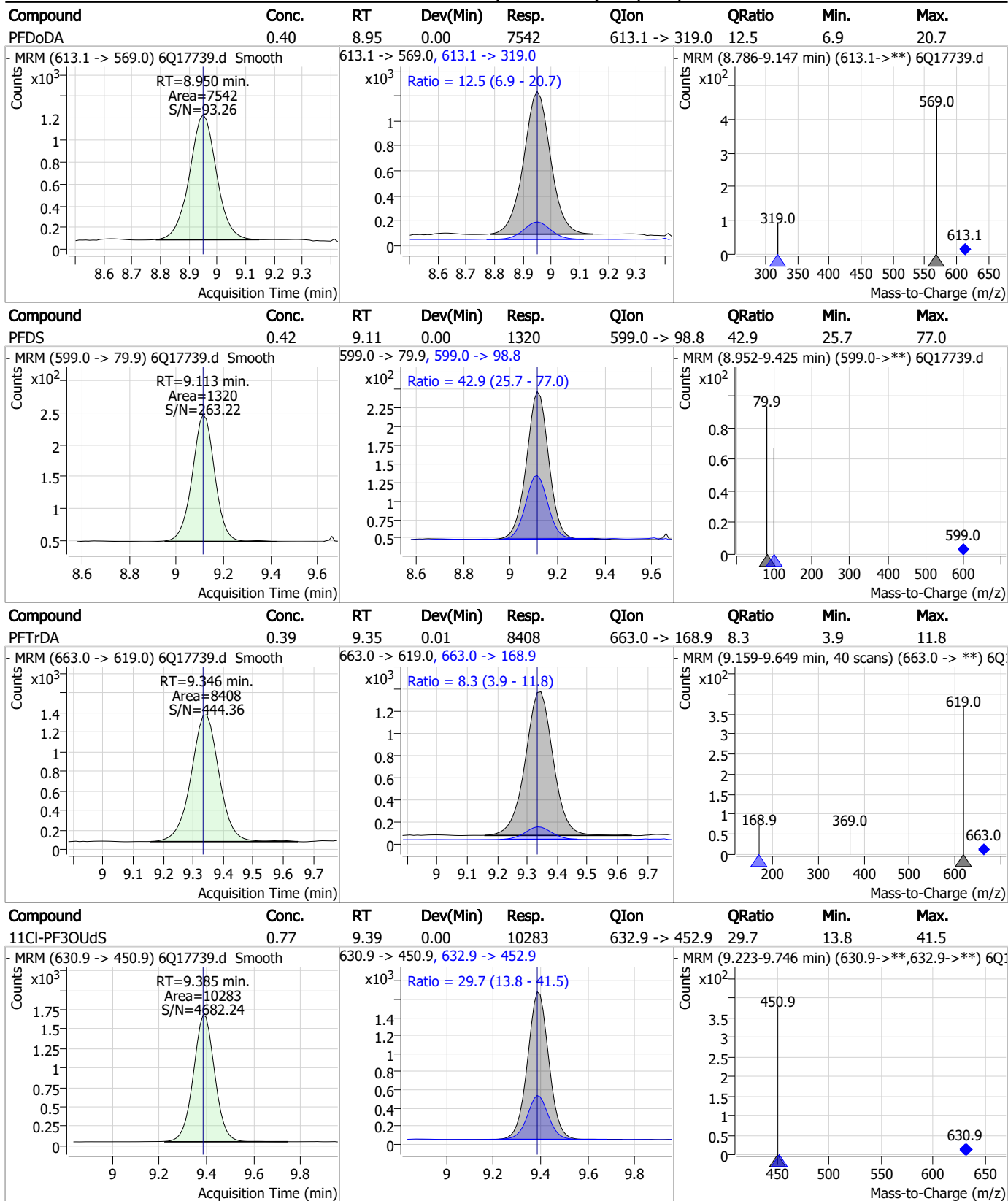
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.41	8.69	0.00	1943	548.8 -> 98.9	51.9	29.0	87.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.29	8.95	0.00	23515	615.1 -> 570.0			



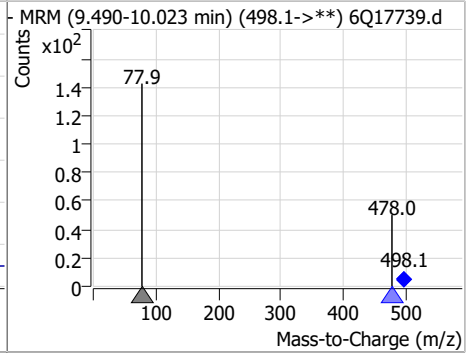
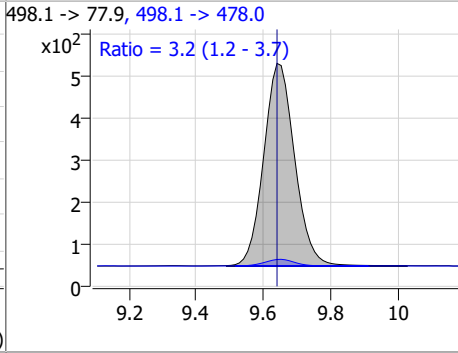
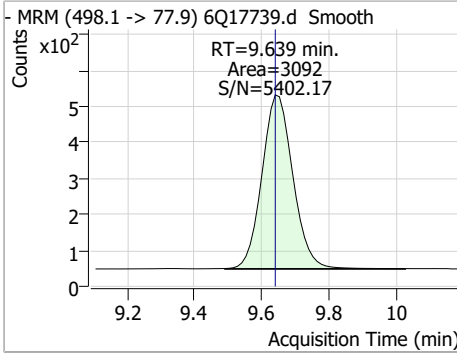
### Perfluorinated Compounds by LC/MS/MS



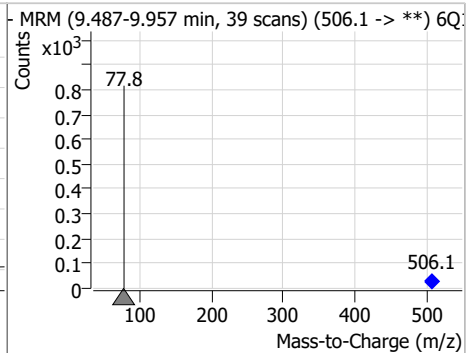
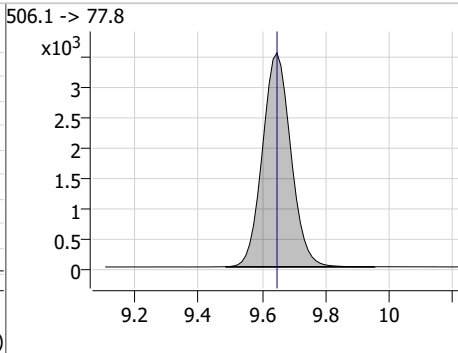
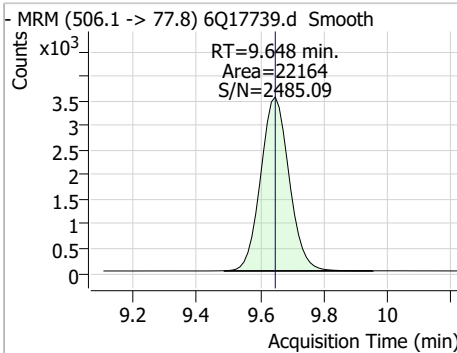
7.7.17

### Perfluorinated Compounds by LC/MS/MS

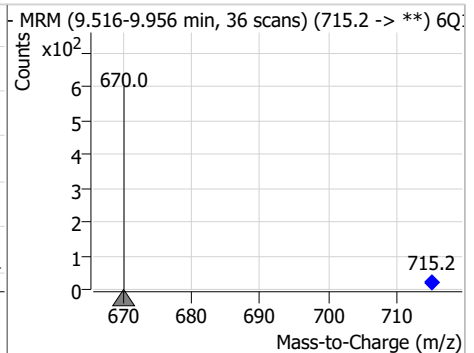
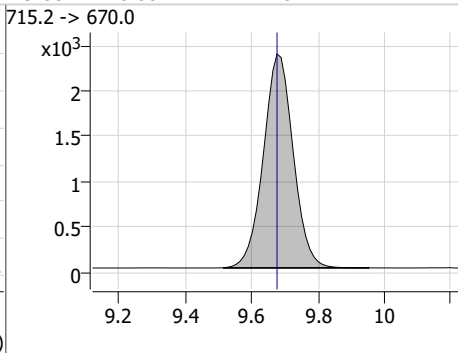
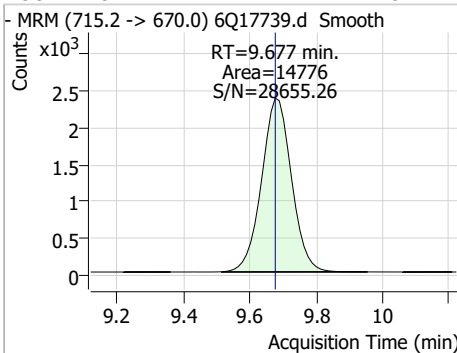
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.37	9.64	0.00	3092	498.1 -> 478.0	3.2	1.2	3.7



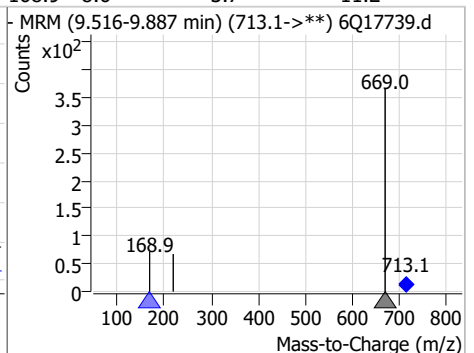
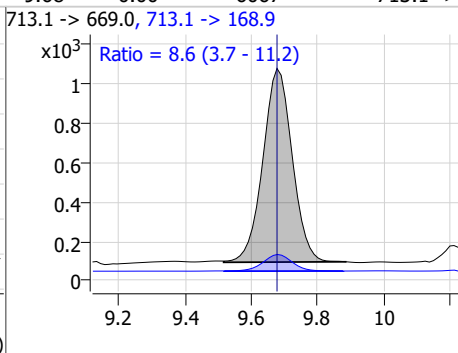
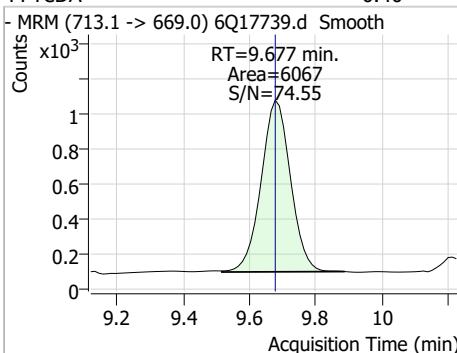
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.68	9.65	0.00	22164				



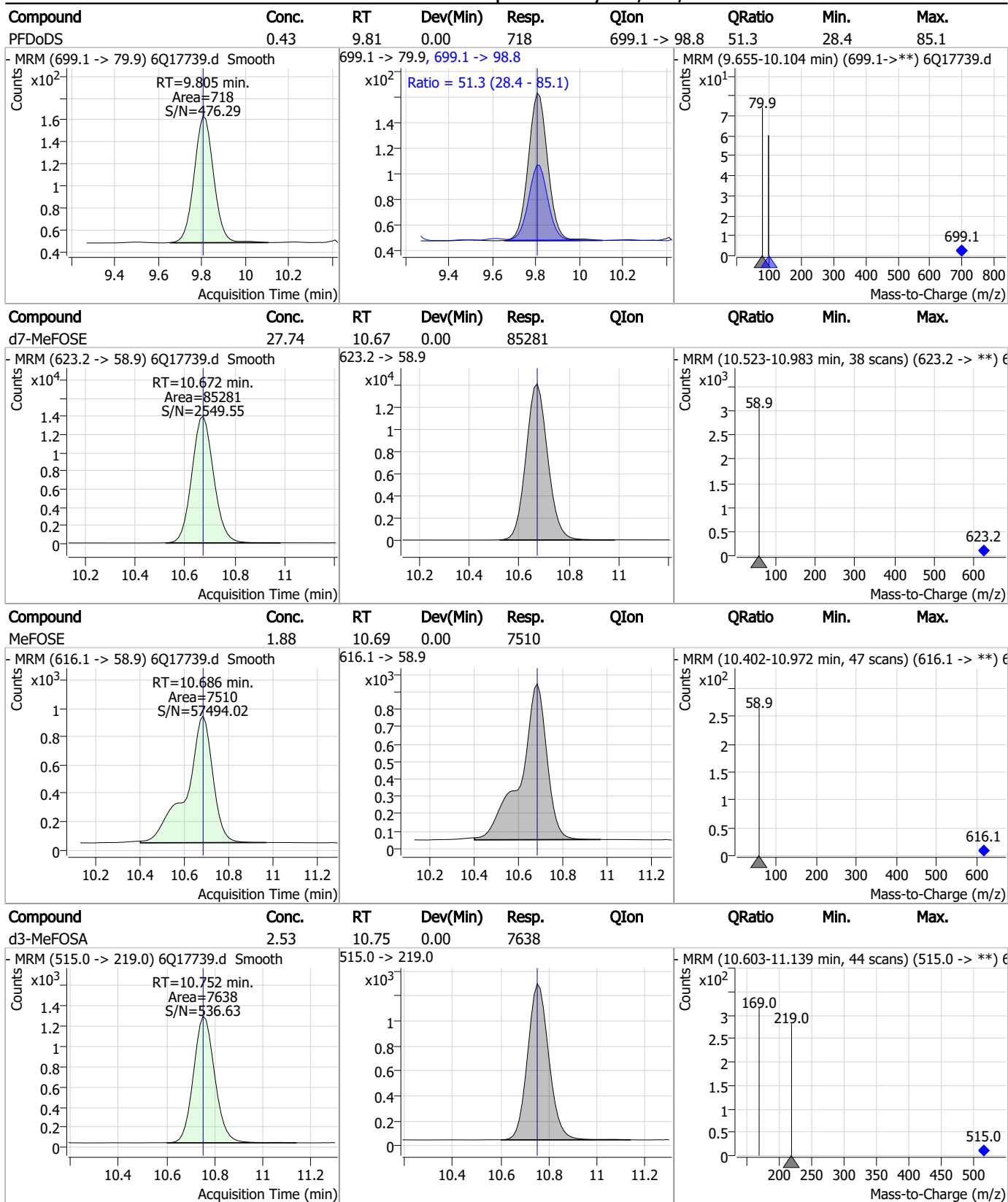
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.19	9.68	0.00	14776				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.40	9.68	0.00	6067	713.1 -> 168.9	8.6	3.7	11.2

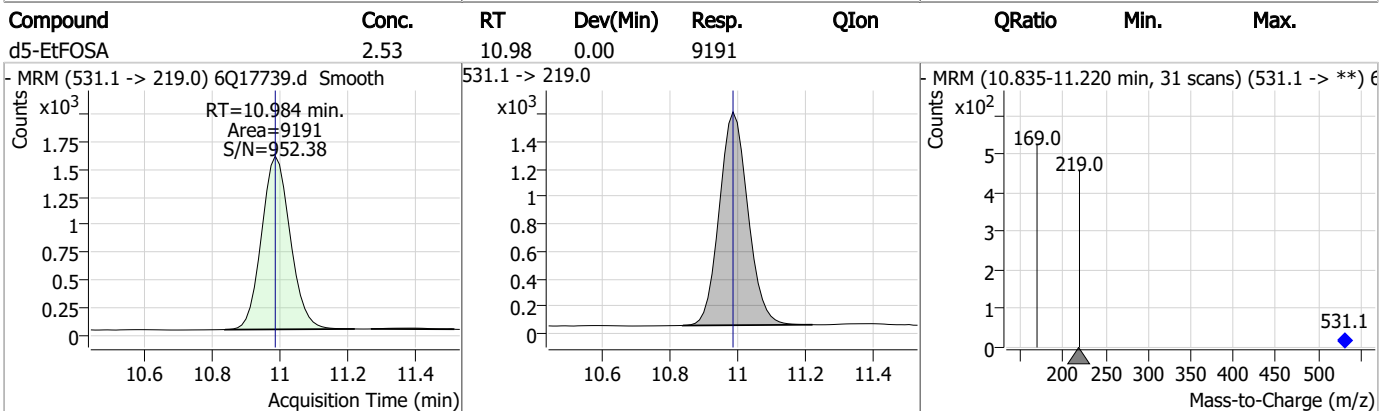
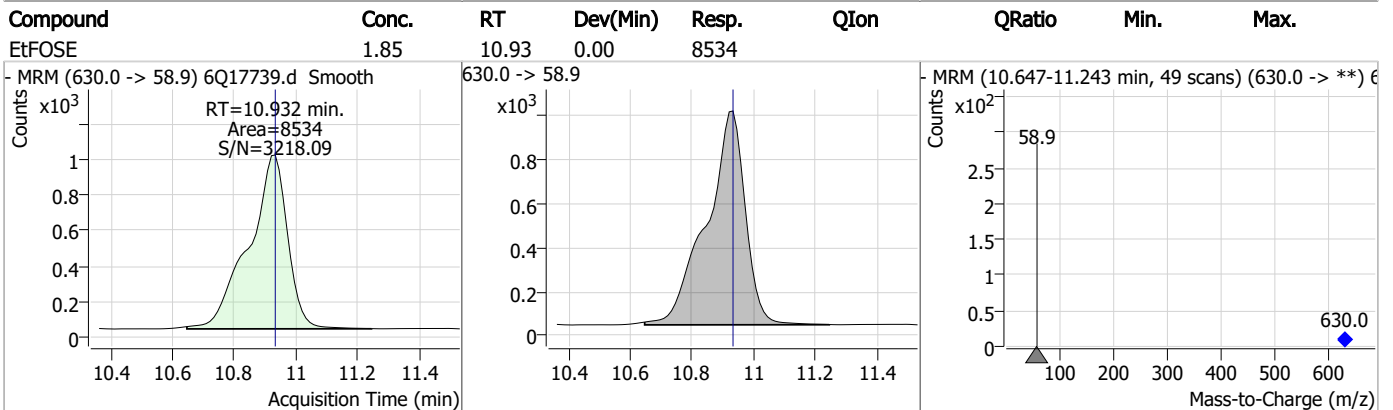
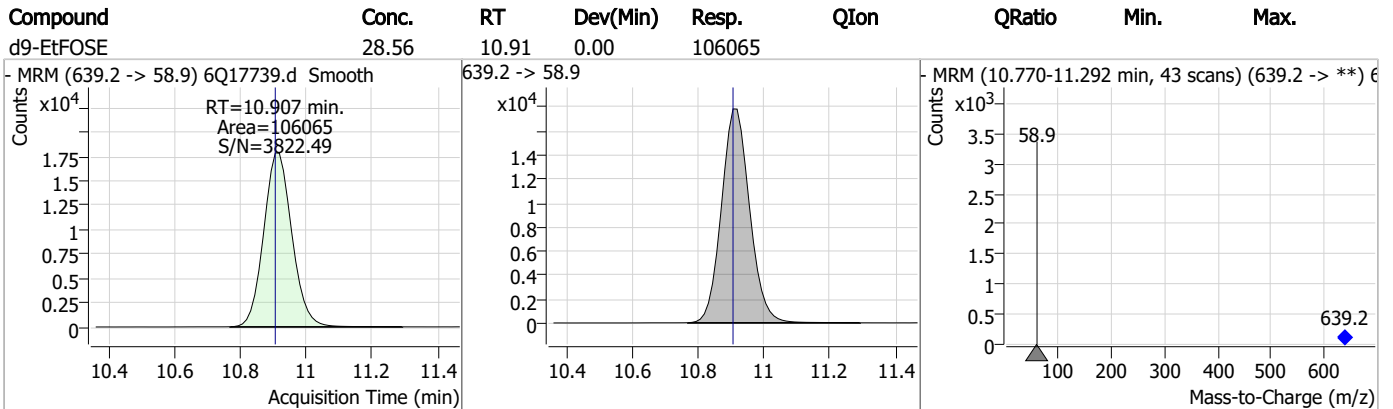
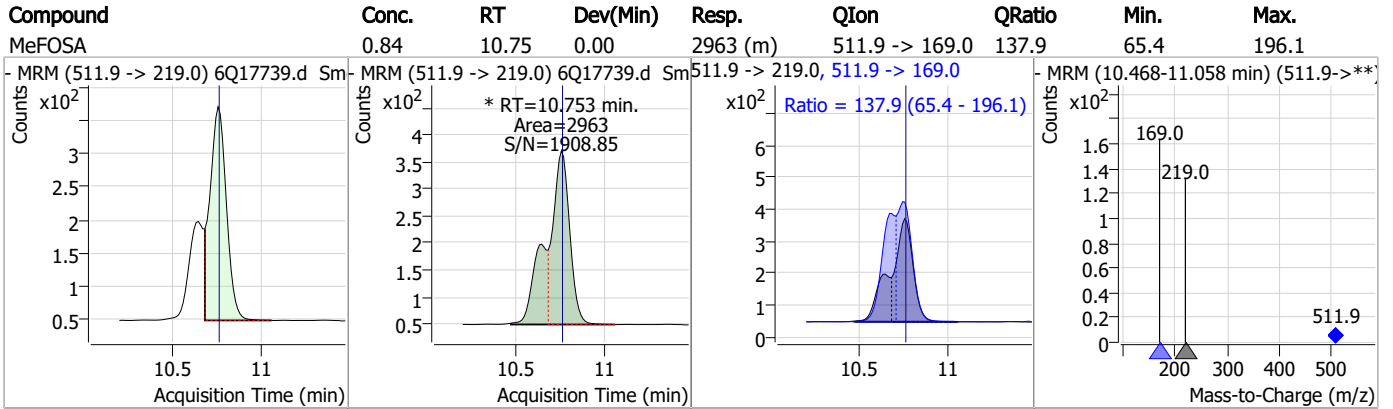


### Perfluorinated Compounds by LC/MS/MS



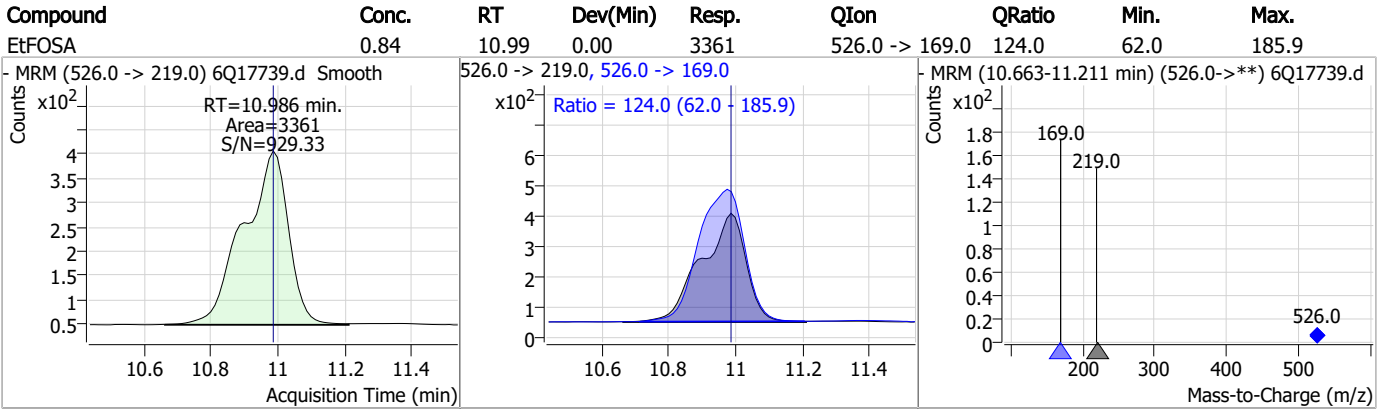
7.7.17  
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### Perfluorinated Compounds by LC/MS/MS



7.7.17

Perfluorinated Compounds by LC/MS/MS



7.7.17  
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# Manual Integration Approval Summary

Sample Number: S6Q268-IC268      Method: EPA DRAFT 1633  
Lab FileID: 6Q17739.D      Analyst approved: 05/15/23 12:43 Martha Valls  
Injection Time: 05/12/23 12:29      Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.7.17.1

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## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17740.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 12:44:26 PM  
 Sample Name : ic268-3  
 Vial : P1-A4  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	160561	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	51573	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	56374	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	51124	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	70967	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	22586	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	17688	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	21481	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	22513	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	16017	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	21589	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	19483	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10989	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	10801	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1632	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2120	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2338	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	20728	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	34873	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	15397	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	81971	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	98955	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9744	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	8192	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	13924	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	67840	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8679	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	77139	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	19854	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	26164	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	47955	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.143	329.1 -> 80.9	1632	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2120	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2338	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-PFDoDA	8.949	615.1 -> 570.0	22513	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C2-PFTeDA	9.677	715.2 -> 670.0	16017	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 113.8%		
13C3-PFBS	5.397	302.1 -> 79.9	19483	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	10989	2.38 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 = 95.1%	
13C4-PFBA	2.901	216.8 -> 171.9	160561	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.420	367.1 -> 322.0	51124	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C5-PFHxA	5.466	318.0 -> 273.0	56374	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C5-PFPeA	4.272	268.3 -> 223.0	51573	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C6-PFDA	8.064	519.1 -> 474.1	17688	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C7-PFUnDA	8.518	570.0 -> 525.1	21481	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-FOSA	9.648	506.1 -> 77.8	21589	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C8-PFOA	7.064	421.1 -> 376.0	70967	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-PFOS	8.226	507.1 -> 79.9	10801	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C9-PFNA	7.583	472.1 -> 427.0	22586	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.4%	
d3-MeFOSAA	8.121	573.2 -> 419.0	20728	4.75 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	34873	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
d3-MeFOSA	10.752	515.0 -> 219.0	8192	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
d5-EtFOSAA	8.329	589.2 -> 419.0	15397	4.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.3%	
d7-MeFOSE	10.672	623.2 -> 58.9	81971	23.90 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
d9-EtFOSE	10.907	639.2 -> 58.9	98955	23.88 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
d5-EtFOSA	10.984	531.1 -> 219.0	9744	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.144	327.1 -> 307.0	11443	4.66 µg/L	93
		327.1 -> 80.9	4755		
6:2FTS	6.838	427.1 -> 407.0	11291	4.89 µg/L	97
		427.1 -> 80.9	3866		
8:2FTS	7.865	527.1 -> 507.0	5893	4.44 µg/L	91
		527.1 -> 80.8	2753		
EtFOSAA	8.330	584.2 -> 419.1	3550	1.24 µg/L	93
		584.2 -> 526.0	2042		
FOSA	9.639	498.1 -> 77.9	9772	1.21 µg/L	98
		498.1 -> 478.0	305		
MeFOSAA	8.134	570.1 -> 419.0	5363	1.34 µg/L	95
		570.1 -> 483.0	944		
PFBA	2.907	212.8 -> 168.9	27878	4.84 µg/L	100
PFBS	5.398	298.7 -> 79.9	10353	1.09 µg/L	99
		298.7 -> 98.8	3723		
PFDA	8.064	512.9 -> 469.0	28654	1.31 µg/L	97
		512.9 -> 219.0	4337		
PFDODA	8.950	613.1 -> 569.0	22608	1.26 µg/L	99
		613.1 -> 319.0	3042		
PFDS	9.113	599.0 -> 79.9	3829	1.09 µg/L	96

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2059			
PFHpA	6.420	363.1 -> 319.0	29724	1.16	µg/L	99
		363.1 -> 169.0	5019			
PFHpS	7.735	449.0 -> 79.9	6165	1.07	µg/L	99
		449.0 -> 98.9	3250			
PFHxA	5.469	313.0 -> 269.0	26239	1.17	µg/L	99
		313.0 -> 118.9	1317			
PFHxS	7.168	398.7 -> 79.9	7075	1.16	µg/L	m 98
		398.7 -> 98.9	3633			
PFNA	7.584	463.0 -> 419.0	21002	1.25	µg/L	100
		463.0 -> 219.0	4315			
PFNS	8.693	548.8 -> 79.9	5897	1.13	µg/L	93
		548.8 -> 98.9	3092			
PFOA	7.066	413.0 -> 369.0	45111	1.28	µg/L	99
		413.0 -> 169.0	7401			
PFOS	8.228	498.9 -> 79.9	6210	1.10	µg/L	m 94
		498.9 -> 98.8	3066			
PFPeA	4.274	263.0 -> 219.0	35988	2.42	µg/L	100
PFPeS	6.471	349.1 -> 79.9	7402	1.23	µg/L	97
		349.1 -> 98.9	3480			
PFTeDA	9.677	713.1 -> 669.0	19101	1.16	µg/L	100
		713.1 -> 168.9	1426			
PFTrDA	9.333	663.0 -> 619.0	26856	1.29	µg/L	98
		663.0 -> 168.9	2289			
PFUnDA	8.518	563.1 -> 519.0	21308	1.37	µg/L	98
		563.1 -> 269.1	3197			
11CI-PF3OUdS	9.385	630.9 -> 450.9	30662	2.33	µg/L	91
		632.9 -> 452.9	9976			
9CI-PF3ONS	8.557	530.8 -> 351.0	50546	2.40	µg/L	95
		532.8 -> 353.0	15818			
ADONA	6.671	376.9 -> 250.9	132264	2.38	µg/L	95
		376.9 -> 84.8	34712			
HFPO-DA	5.832	284.9 -> 168.9	8273	2.45	µg/L	97
		284.9 -> 184.9	1220			
3:3FTCA	3.790	241.0 -> 177.0	5511	5.97	µg/L	99
		241.0 -> 117.0	722			
5:3FTCA	6.161	341.0 -> 237.1	117640	30.40	µg/L	98
		341.0 -> 217.0	83266			
7:3FTCA	7.586	441.0 -> 316.9	55568	31.66	µg/L	97
		441.0 -> 336.9	113851			
EtFOSA	10.986	526.0 -> 219.0	9637	2.28	µg/L	86
		526.0 -> 169.0	13426			
EtFOSE	10.920	630.0 -> 58.9	26175	6.07	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	8644	2.29	µg/L	m 87
		511.9 -> 169.0	12581			
MeFOSE	10.686	616.1 -> 58.9	22674	5.91	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	2186	1.18	µg/L	99
		699.1 -> 98.8	1227			
NFDHA	5.348	295.0 -> 201.0	6034	2.45	µg/L	99
		295.0 -> 84.9	1684			
PFMBA	4.675	279.0 -> 85.1	25376	2.39	µg/L	100
PFMPA	3.426	229.0 -> 84.9	18401	2.40	µg/L	100
PFEESA	5.938	314.8 -> 134.9	66798	2.23	µg/L	100
		314.8 -> 82.9	2263			

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

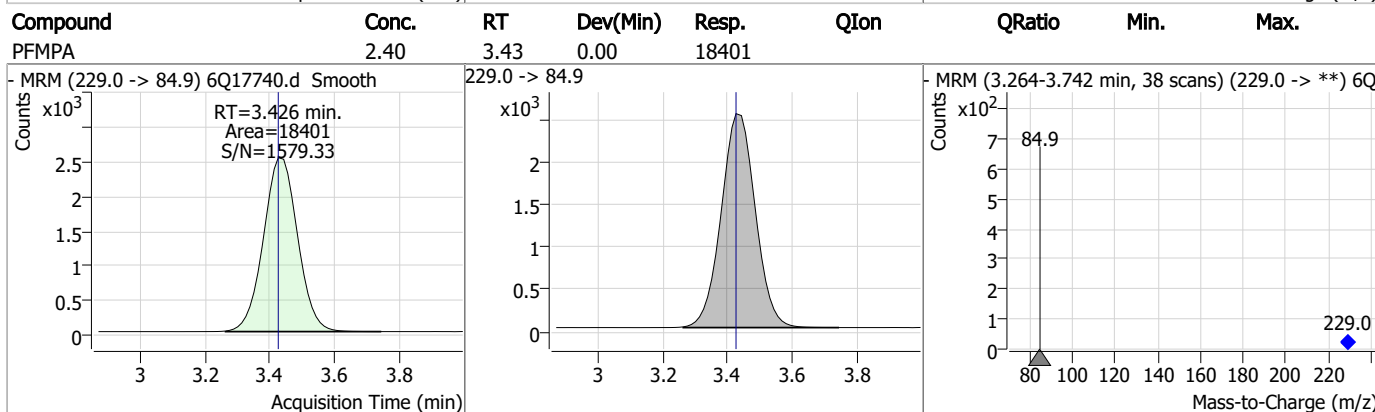
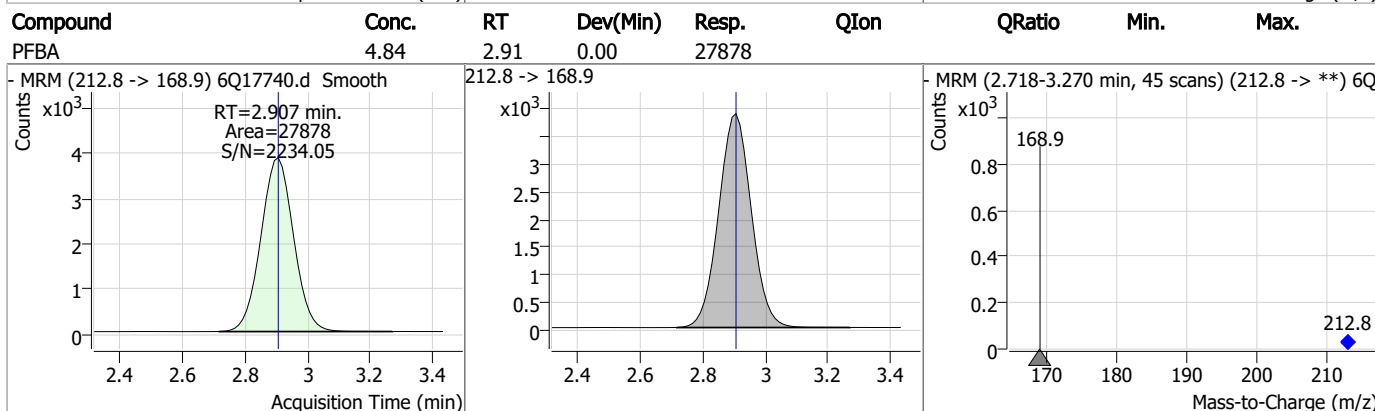
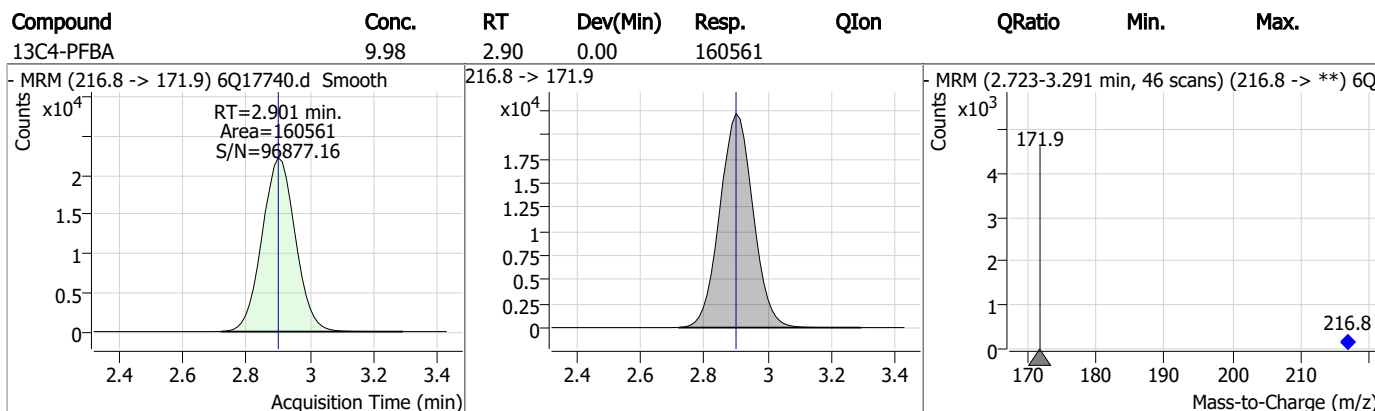
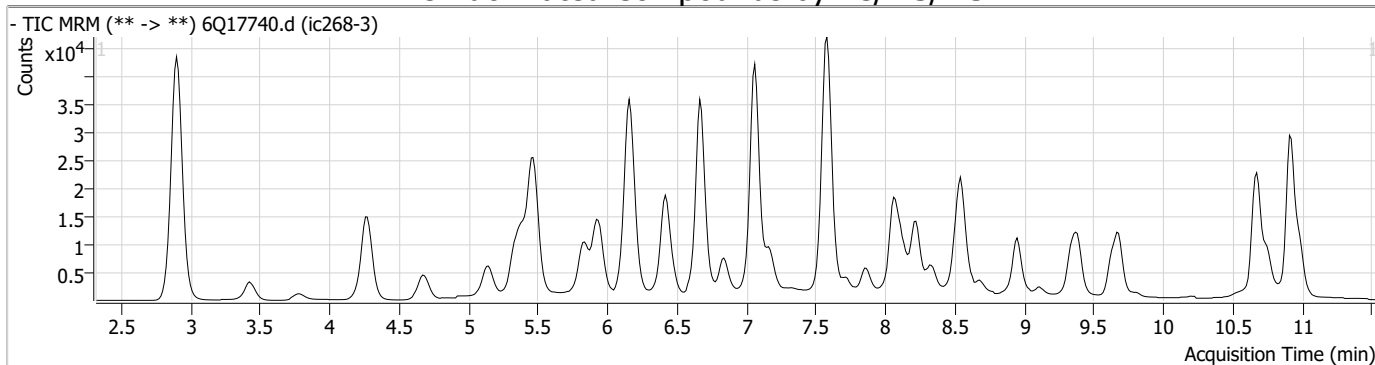
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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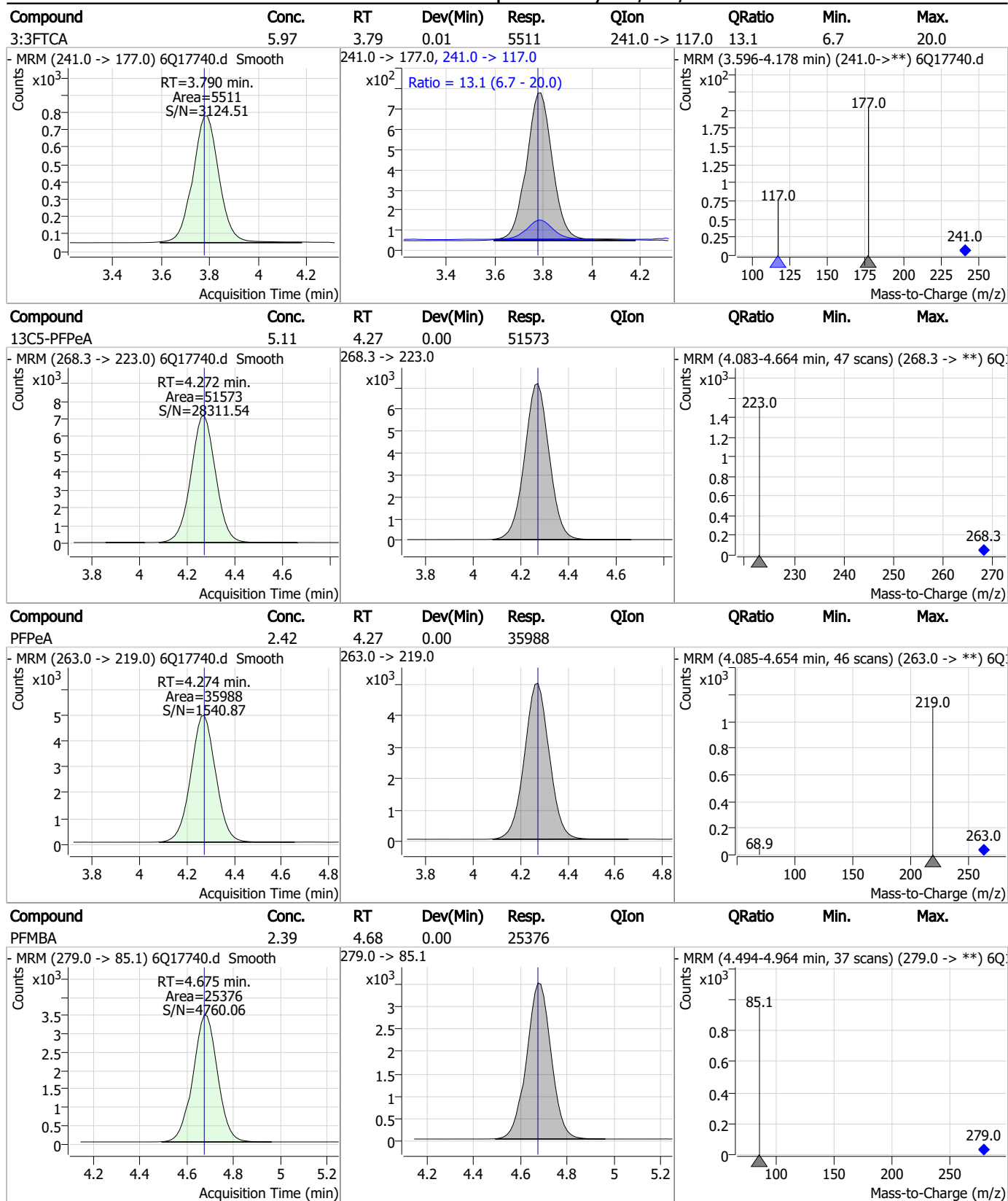
7.7.18

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### Perfluorinated Compounds by LC/MS/MS



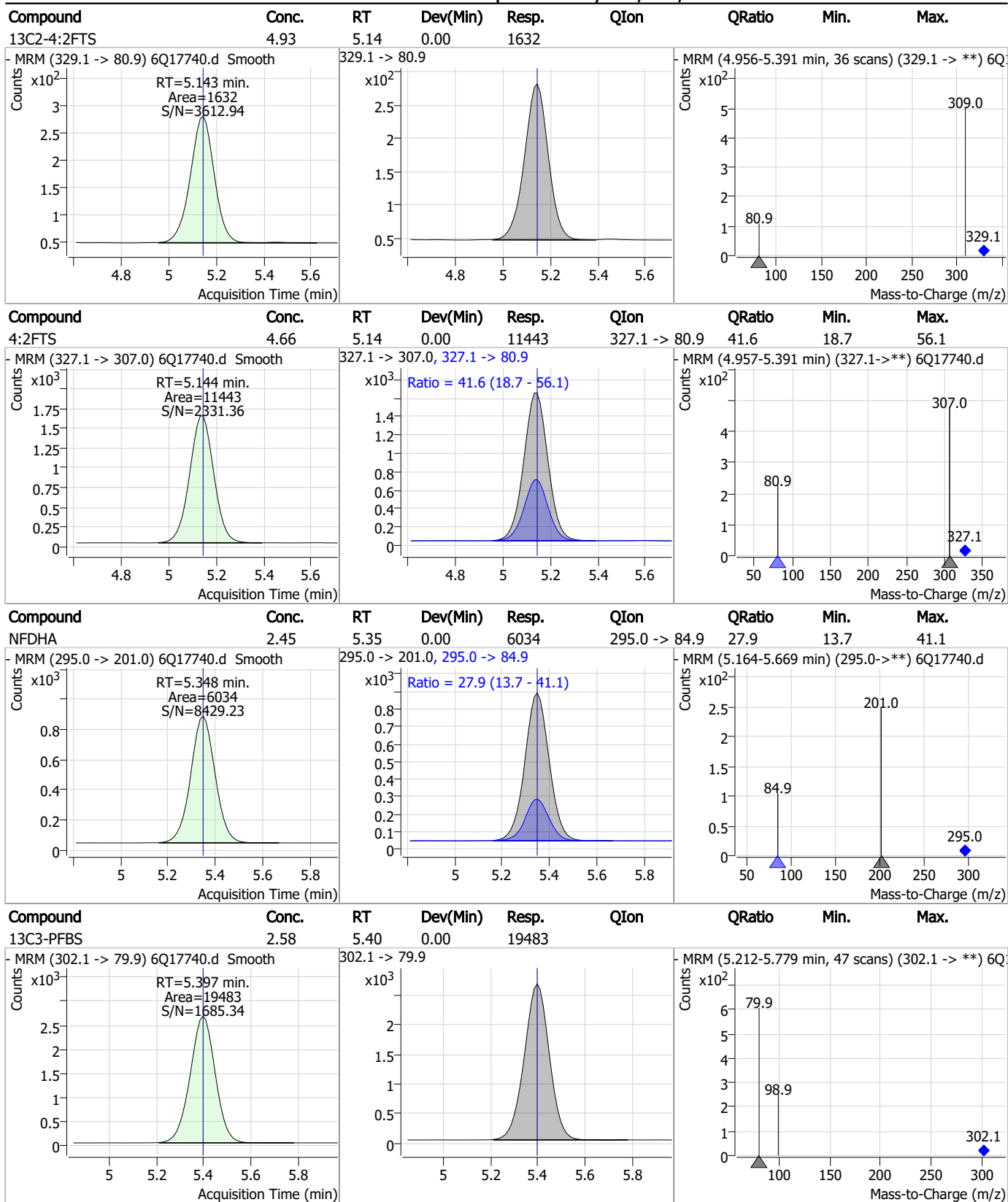
### Perfluorinated Compounds by LC/MS/MS



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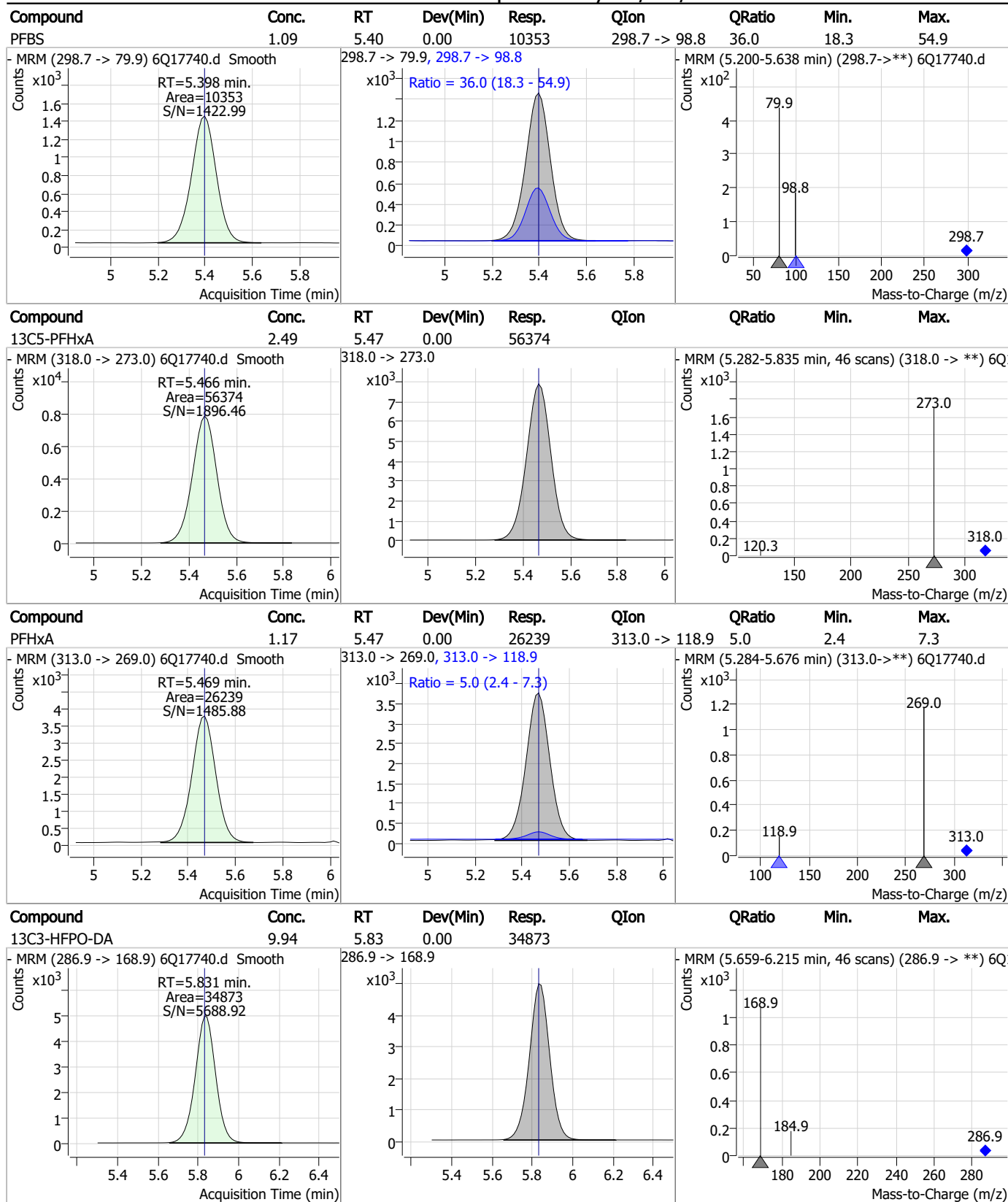
### Perfluorinated Compounds by LC/MS/MS



7.7.18

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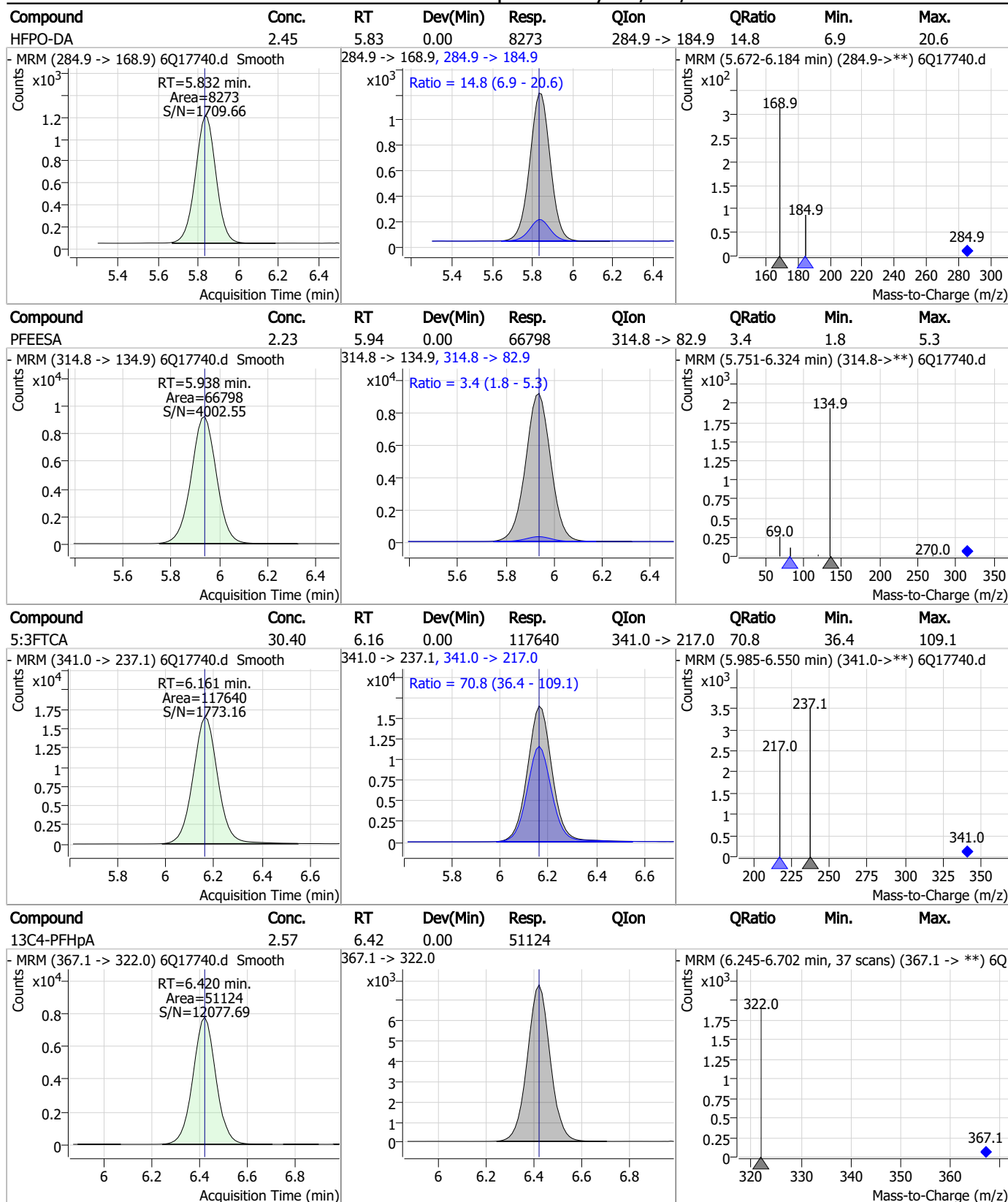
### Perfluorinated Compounds by LC/MS/MS



7.7.18



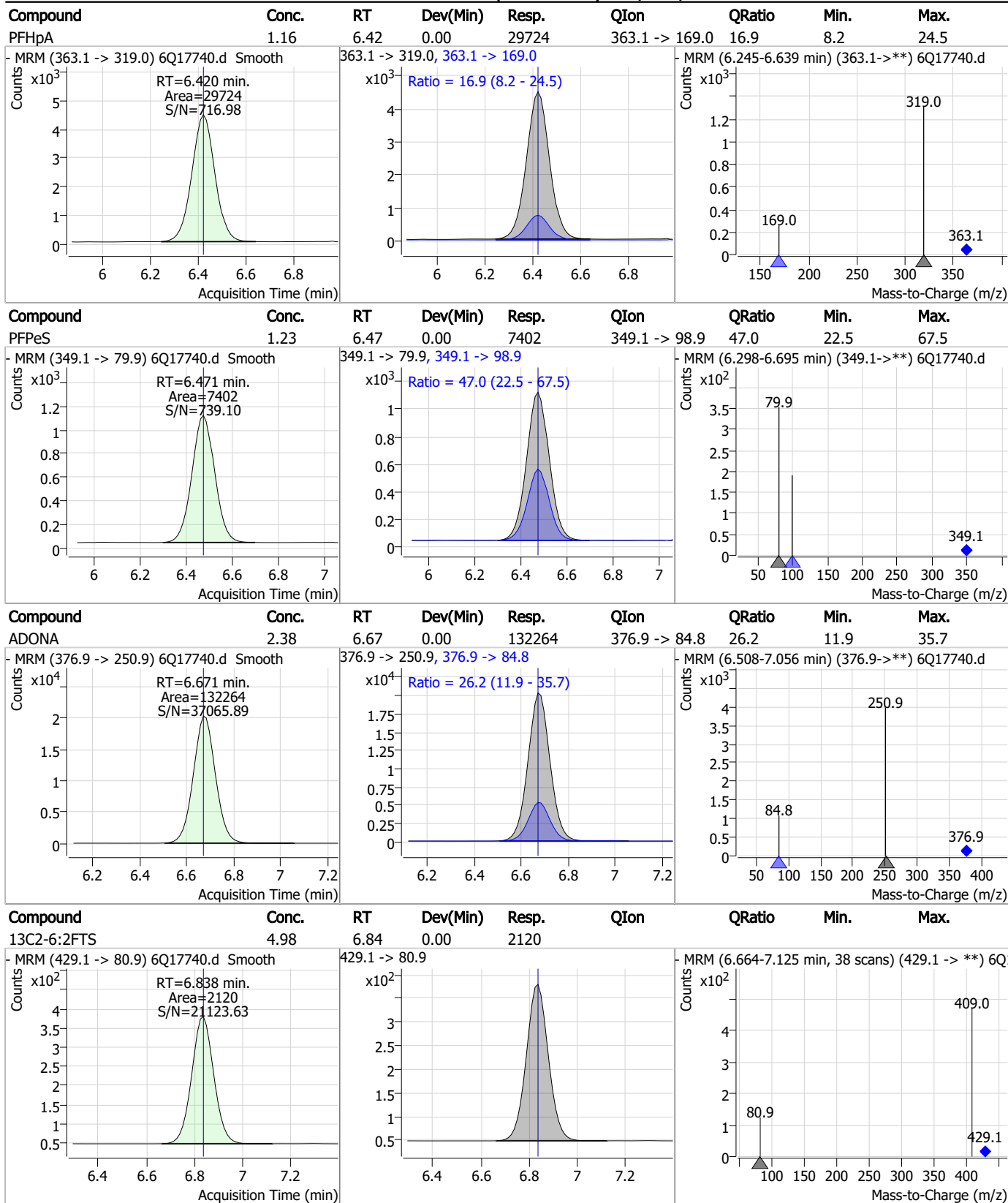
### Perfluorinated Compounds by LC/MS/MS



7.7.18

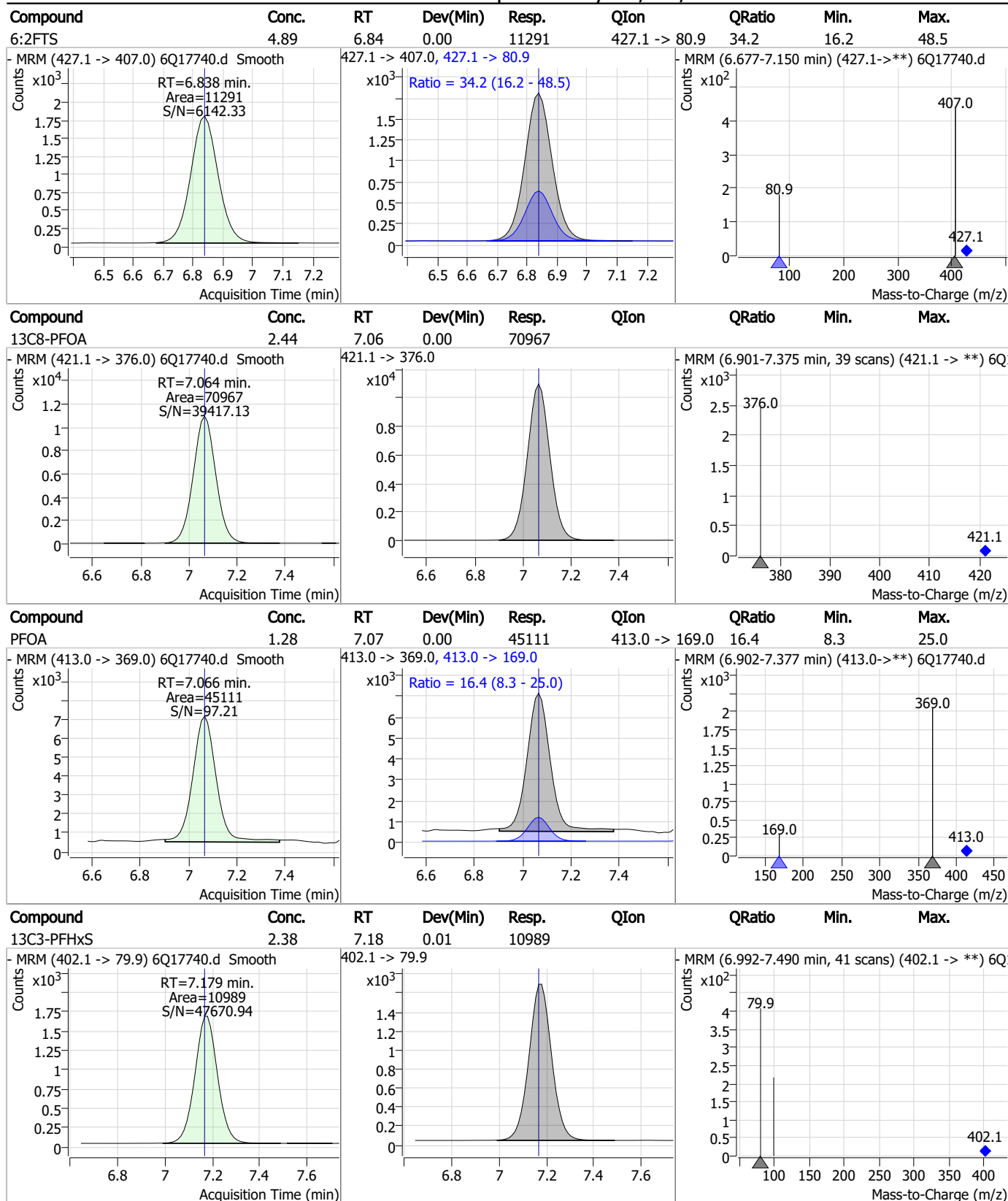
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### Perfluorinated Compounds by LC/MS/MS



7.7.18 7

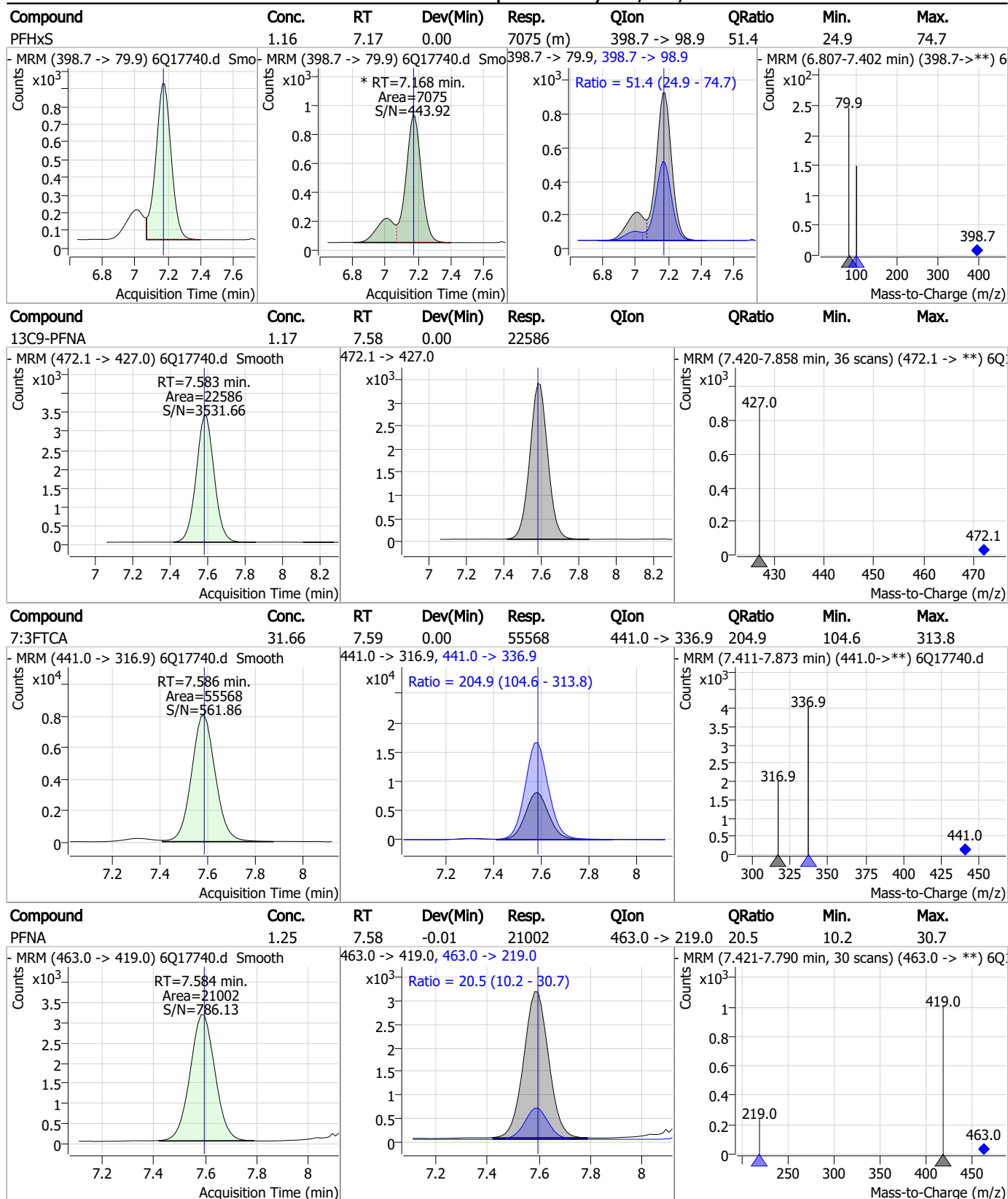
### Perfluorinated Compounds by LC/MS/MS



7.7.18

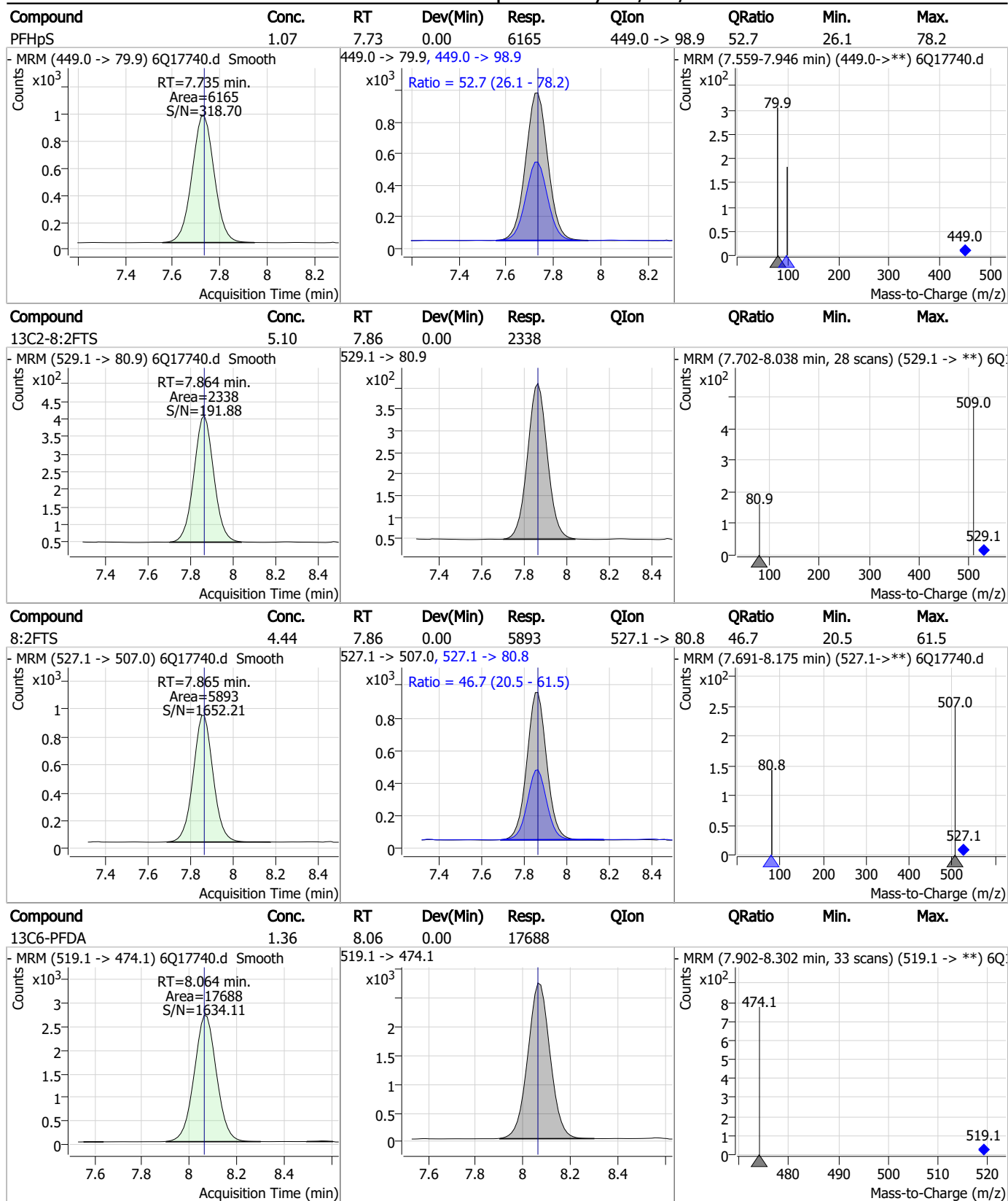
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### Perfluorinated Compounds by LC/MS/MS



7.7.18

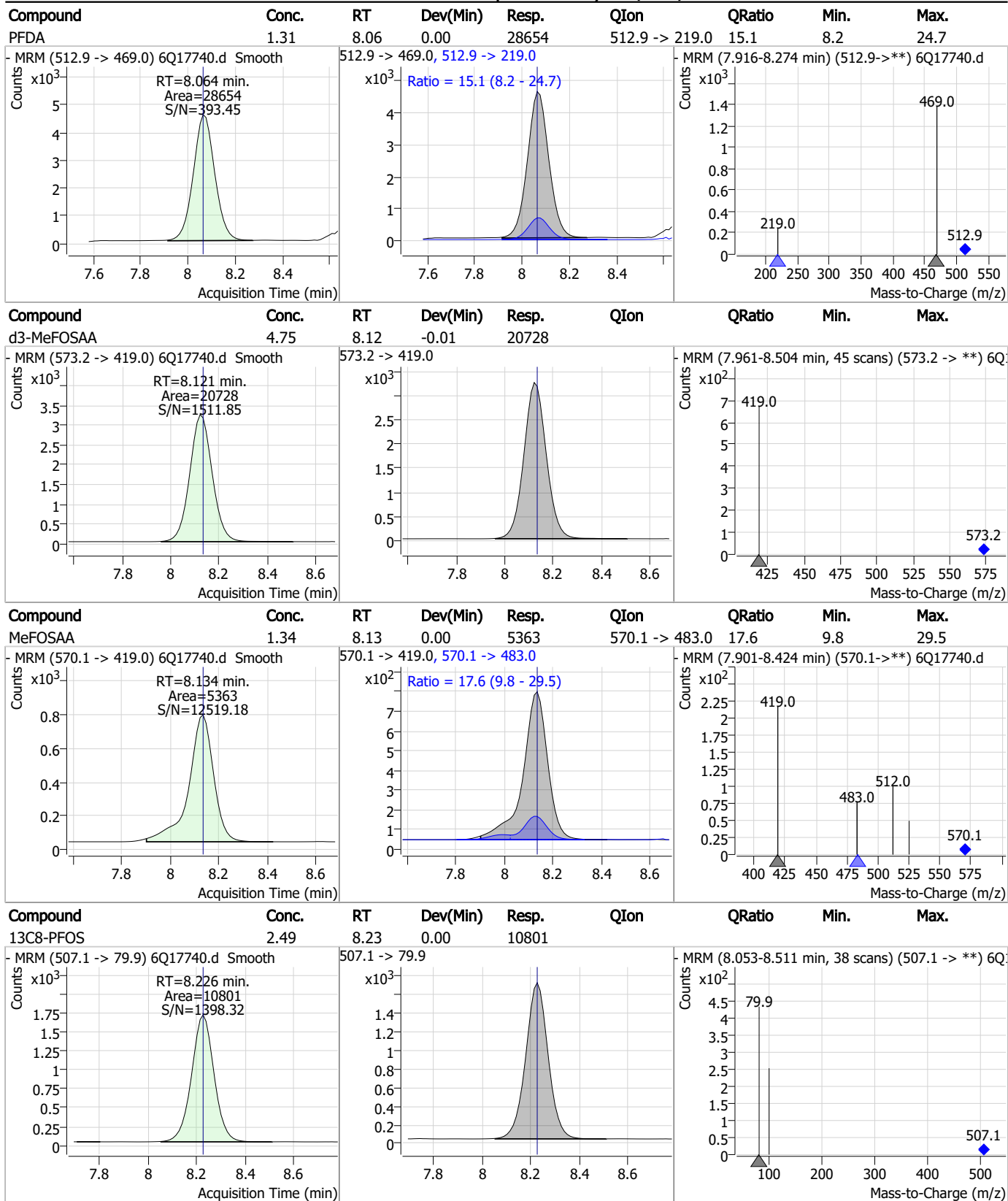
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

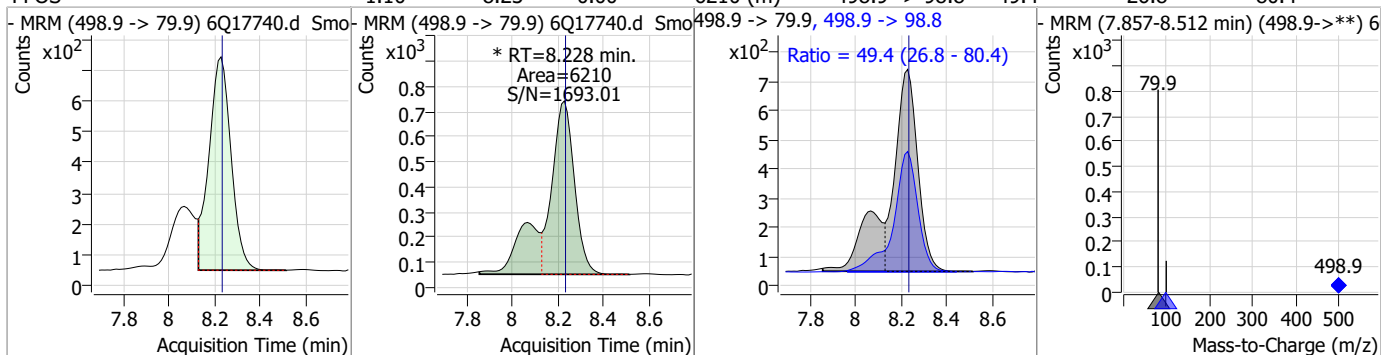


7.7.18

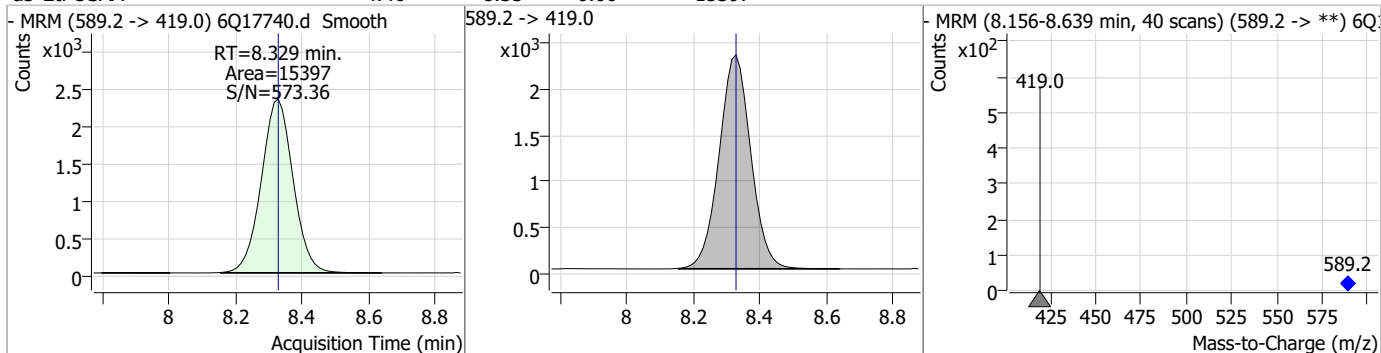
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### Perfluorinated Compounds by LC/MS/MS

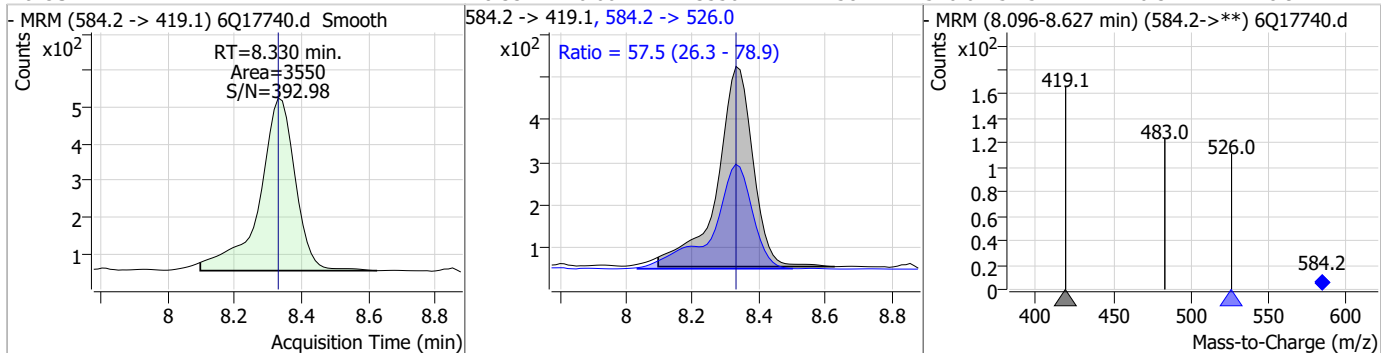
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.10	8.23	0.00	6210 (m)	498.9 -> 98.8	49.4	26.8	80.4



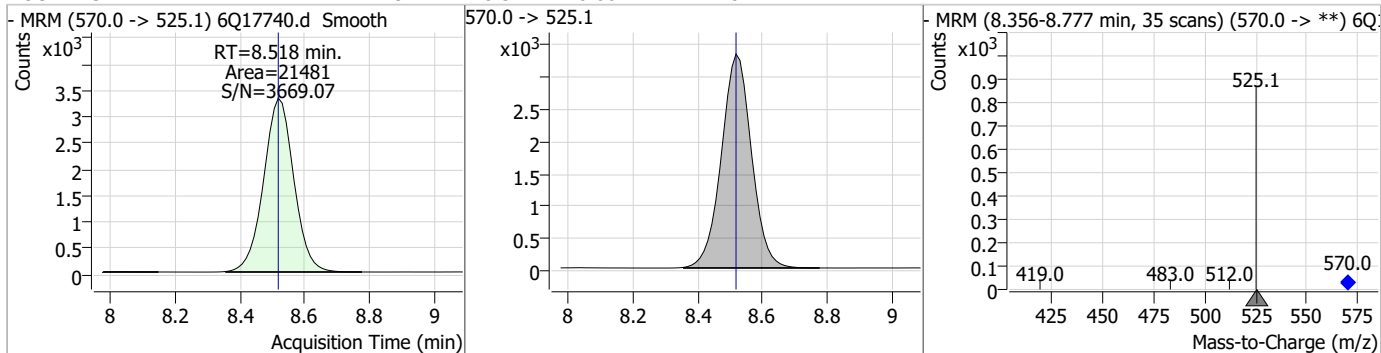
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.46	8.33	0.00	15397				



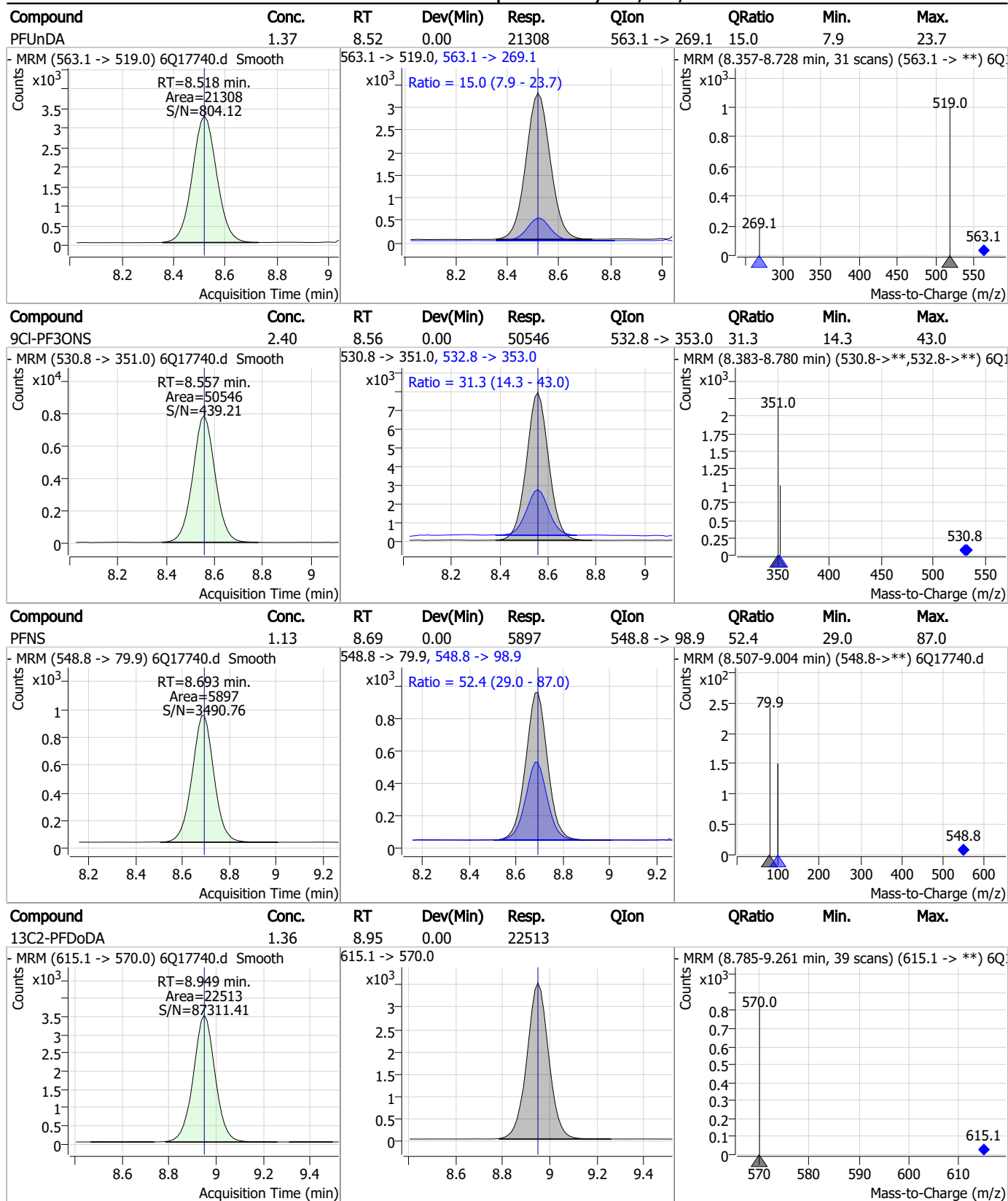
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.24	8.33	0.00	3550	584.2 -> 526.0	57.5	26.3	78.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C-PFUnDA	1.29	8.52	0.00	21481				



### Perfluorinated Compounds by LC/MS/MS

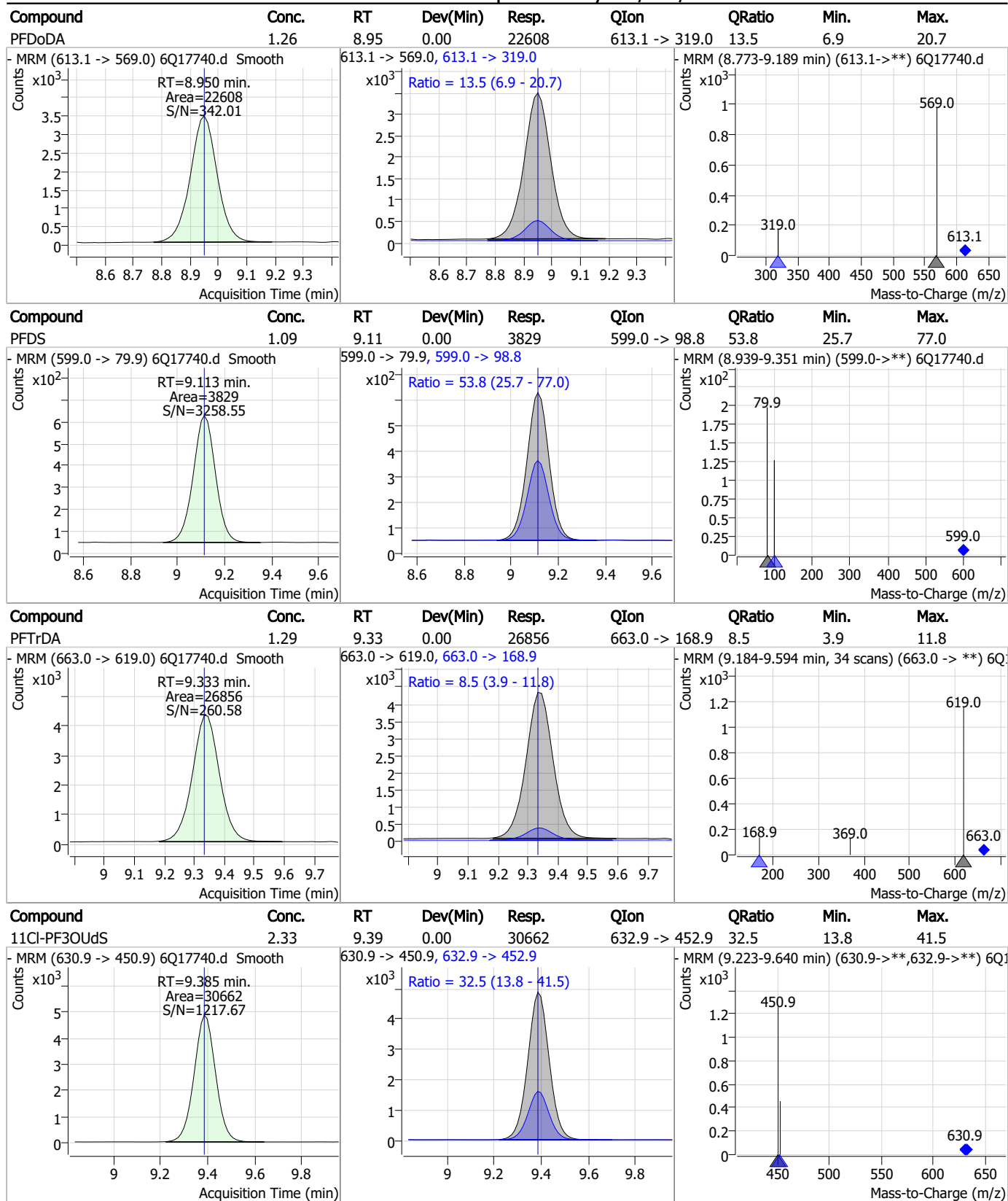


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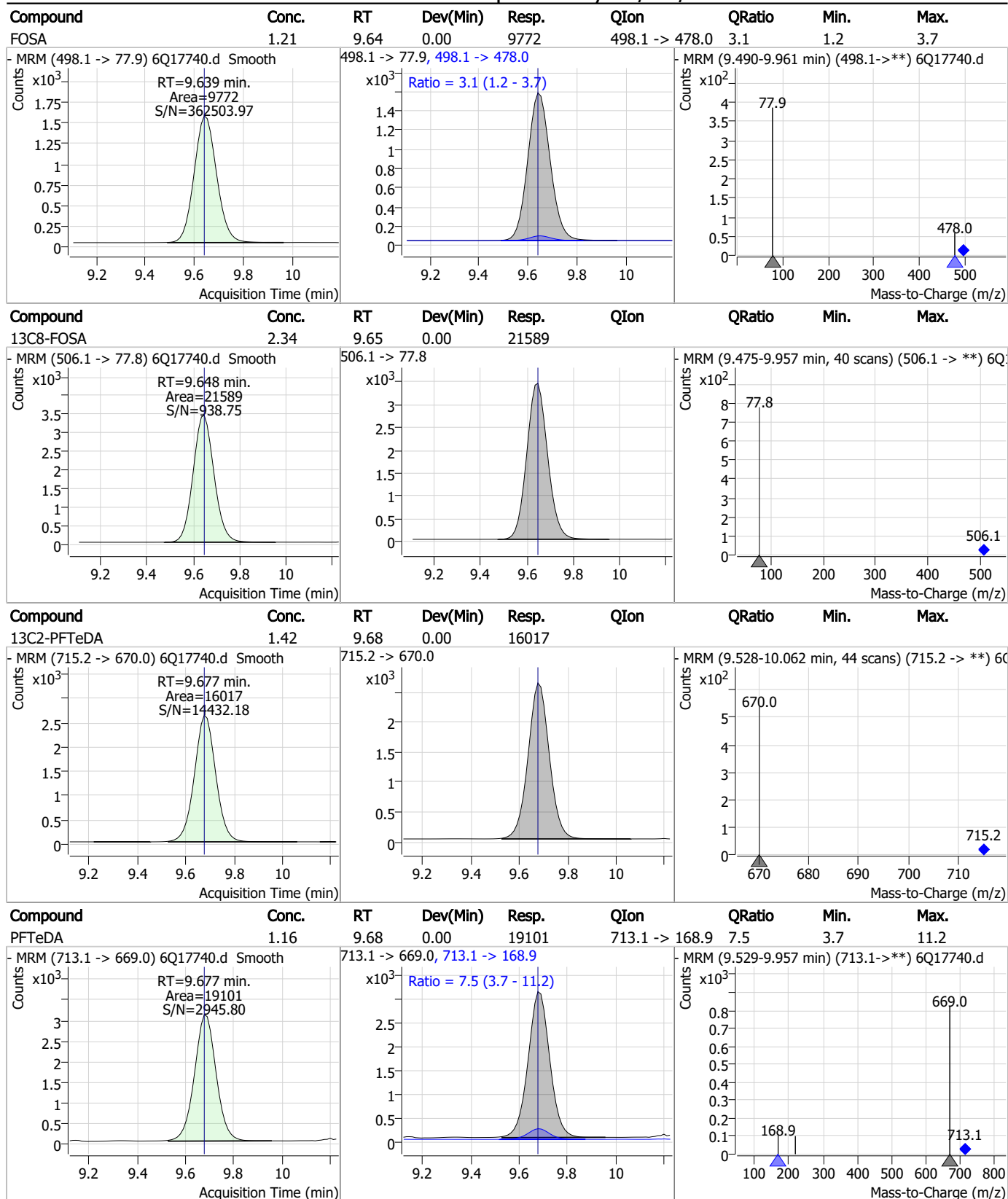


### Perfluorinated Compounds by LC/MS/MS



7.7.18 7

### Perfluorinated Compounds by LC/MS/MS

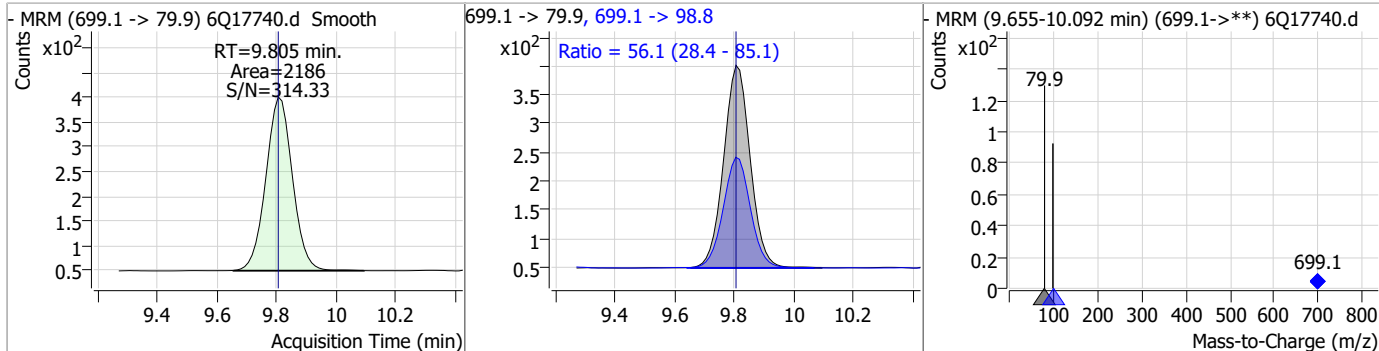


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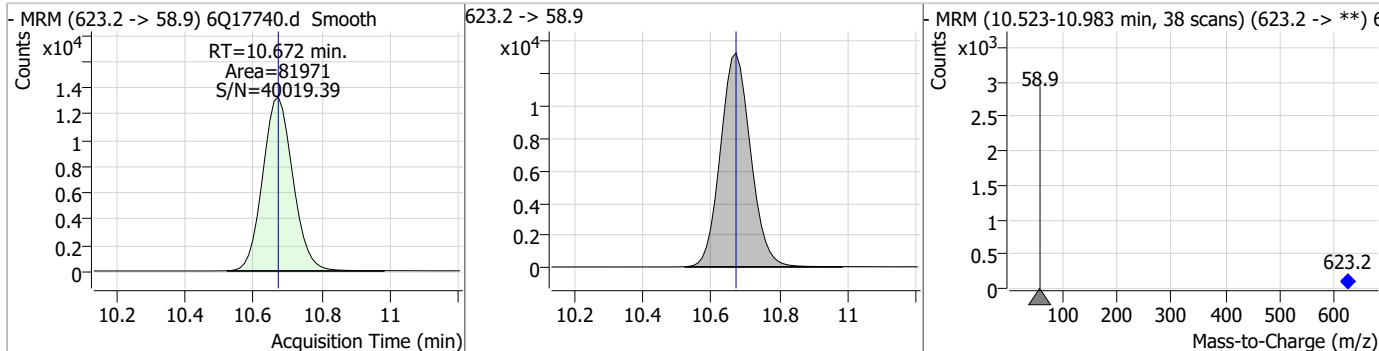
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### Perfluorinated Compounds by LC/MS/MS

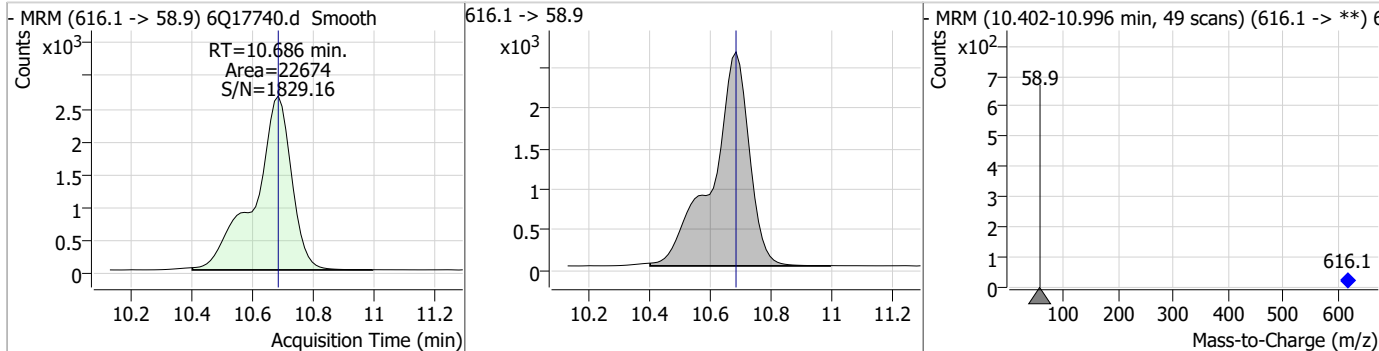
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.18	9.81	0.00	2186	699.1 -> 98.8	56.1	28.4	85.1



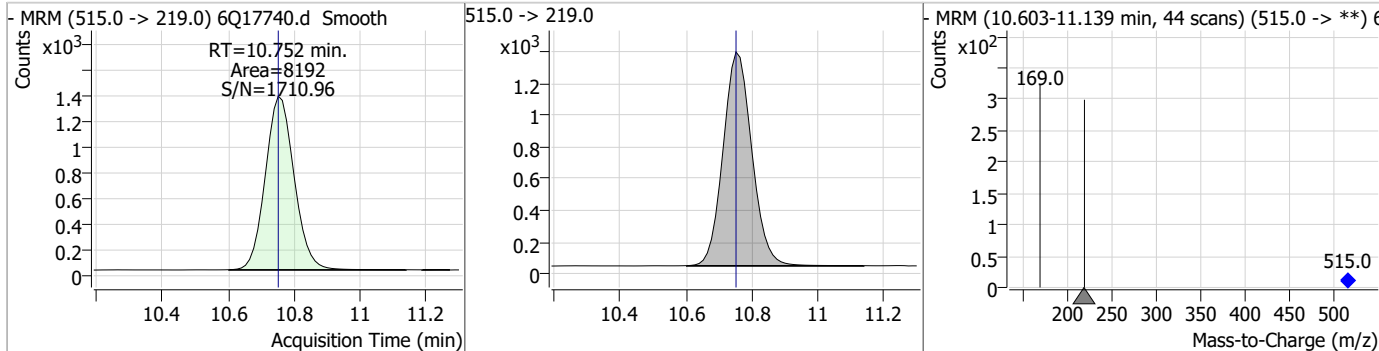
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.90	10.67	0.00	81971				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	5.91	10.69	0.00	22674				

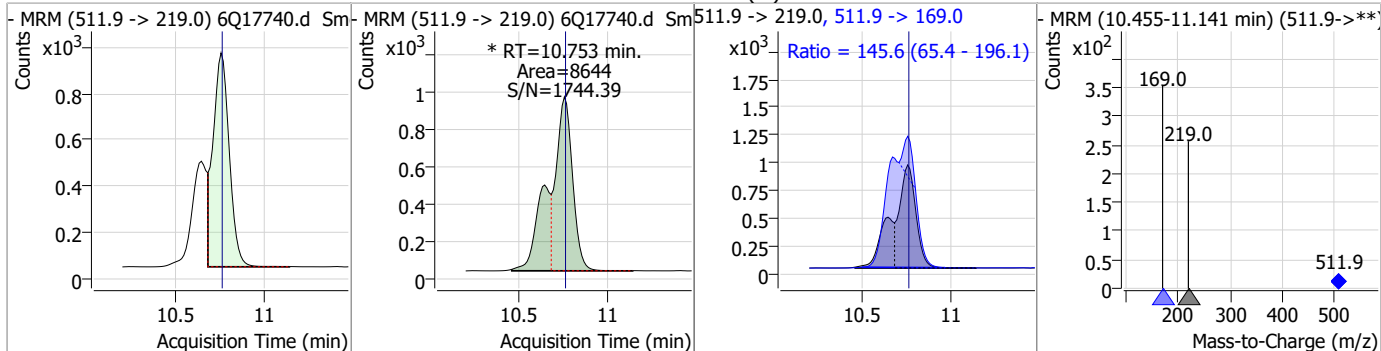


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.43	10.75	0.00	8192				

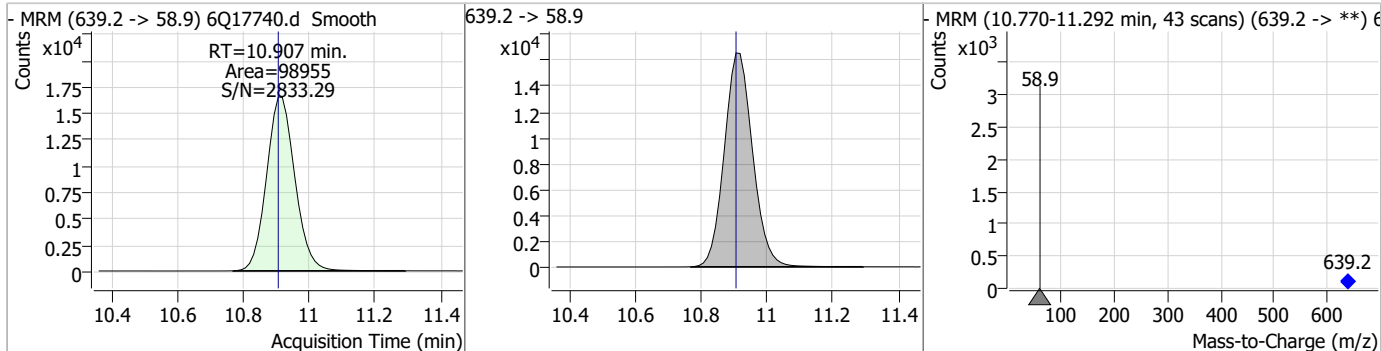


### Perfluorinated Compounds by LC/MS/MS

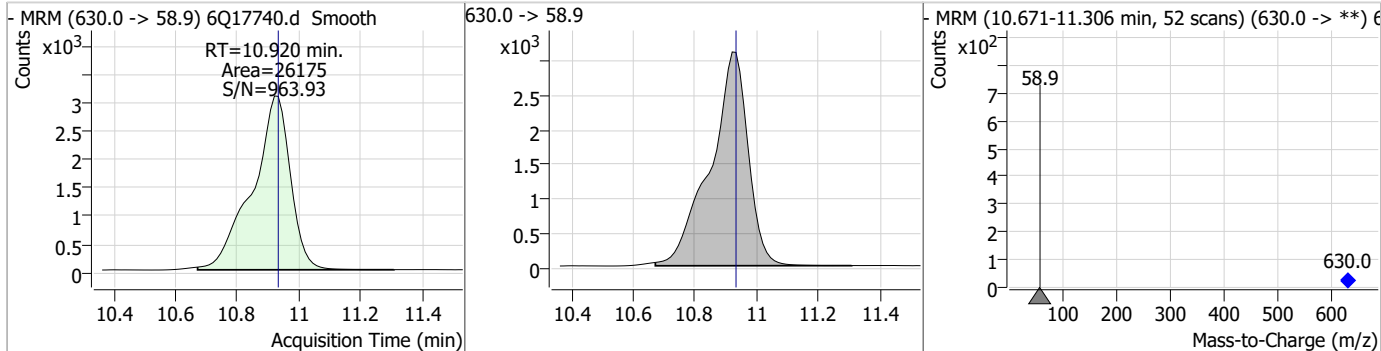
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.29	10.75	0.00	8644 (m)	511.9 -> 169.0	145.6	65.4	196.1



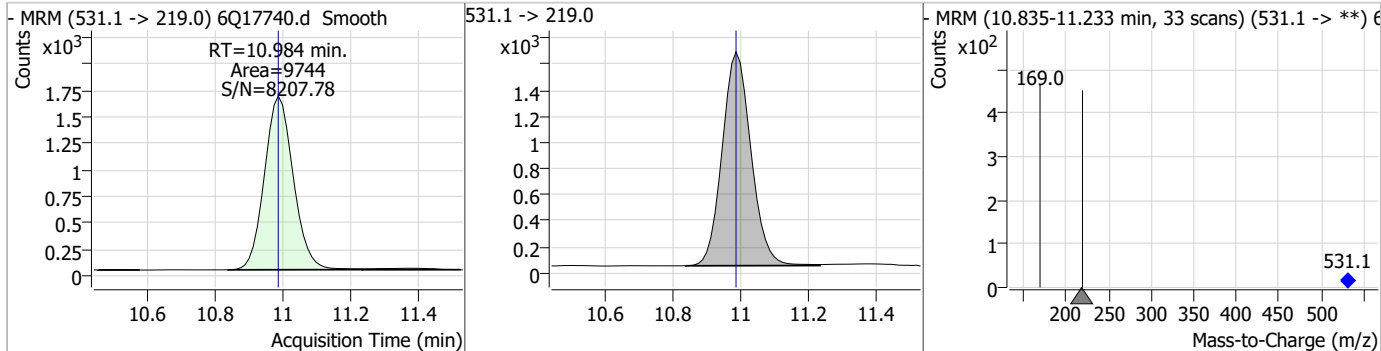
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.88	10.91	0.00	98955				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	6.07	10.92	-0.01	26175				

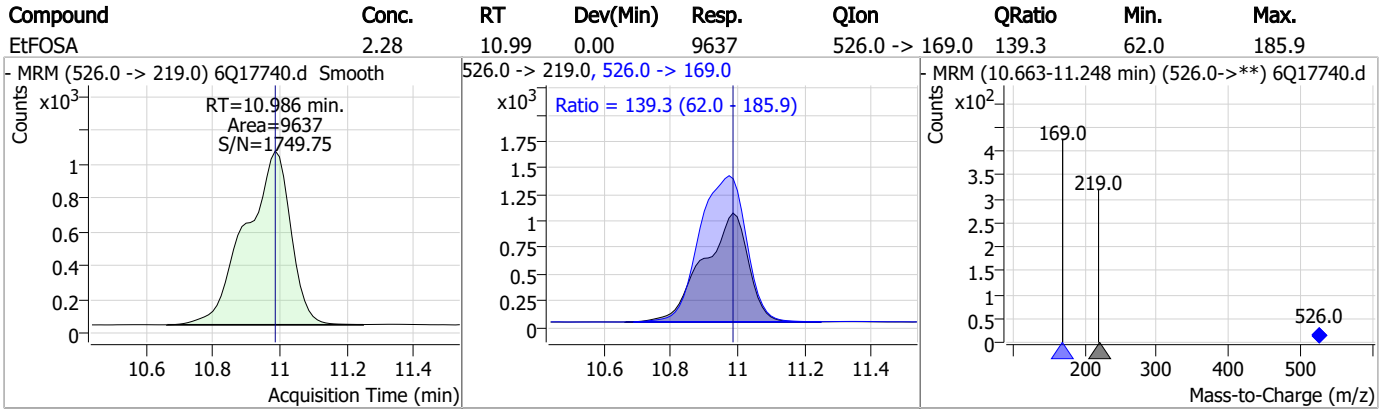


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.40	10.98	0.00	9744				



7.7.18  
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Perfluorinated Compounds by LC/MS/MS



7.7.18

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# Manual Integration Approval Summary

Sample Number: S6Q268-IC268      Method: EPA DRAFT 1633  
Lab FileID: 6Q17740.D      Analyst approved: 05/15/23 12:43 Martha Valls  
Injection Time: 05/12/23 12:44      Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.7.18.1

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## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17741.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 12:58:55 PM  
 Sample Name : icc268-4  
 Vial : P1-A5  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	159107	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	50197	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	55453	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	50653	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	73845	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	22325	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	18873	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	24468	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	23277	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	15804	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	21412	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	18722	2.50 µg/L	0.000
M3-PFHxS	7.167	402.1 -> 79.9	11888	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	10531	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1640	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2242	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2051	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	20391	5.00 µg/L	0.000
M3-HFPO-DA	5.831	286.9 -> 168.9	33885	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	16070	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	80163	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	99980	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9595	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	8130	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12722	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	66168	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	8564	2.50 µg/L	0.000
13C4-PFOA	7.065	417.1 -> 372.0	77104	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	22066	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	24847	1.25 µg/L	0.000
13C2-PFHxA	5.467	315.1 -> 270.0	51206	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.143	329.1 -> 80.9	1640	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2242	5.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2051	4.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.7%		
13C2-PFDoDA	8.949	615.1 -> 570.0	23277	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-PFTeDA	9.677	715.2 -> 670.0	15804	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-PFBS	5.397	302.1 -> 79.9	18722	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C3-PFHxS	7.167	402.1 -> 79.9	11888	2.61 µg/L	0.000

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C4-PFBA	2.901	216.8 -> 171.9	159107	10.13 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C4-PFHpA	6.420	367.1 -> 322.0	50653	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C5-PFHxA	5.466	318.0 -> 273.0	55453	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.6%	
13C5-PFPeA	4.272	268.3 -> 223.0	50197	4.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C6-PFDA	8.064	519.1 -> 474.1	18873	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C7-PFUnDA	8.518	570.0 -> 525.1	24468	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C8-FOSA	9.648	506.1 -> 77.8	21412	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-PFOA	7.064	421.1 -> 376.0	73845	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-PFOS	8.226	507.1 -> 79.9	10531	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C9-PFNA	7.583	472.1 -> 427.0	22325	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.2%	
d3-MeFOSAA	8.133	573.2 -> 419.0	20391	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	33885	9.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.4%	
d3-MeFOSA	10.752	515.0 -> 219.0	8130	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
d5-EtFOSAA	8.329	589.2 -> 419.0	16070	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d7-MeFOSE	10.672	623.2 -> 58.9	80163	25.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
d9-EtFOSE	10.907	639.2 -> 58.9	99980	26.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
d5-EtFOSA	10.984	531.1 -> 219.0	9595	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.144	327.1 -> 307.0	23394	9.49 µg/L	100
		327.1 -> 80.9	8755		
6:2FTS	6.838	427.1 -> 407.0	21921	8.98 µg/L	100
		427.1 -> 80.9	7092		
8:2FTS	7.865	527.1 -> 507.0	12129	10.41 µg/L	100
		527.1 -> 80.8	4971		
EtFOSAA	8.330	584.2 -> 419.1	7227	2.42 µg/L	100
		584.2 -> 526.0	3804		
FOSA	9.639	498.1 -> 77.9	20458	2.55 µg/L	100
		498.1 -> 478.0	510		
MeFOSAA	8.134	570.1 -> 419.0	9691	2.46 µg/L	100
		570.1 -> 483.0	1908		
PFBA	2.907	212.8 -> 168.9	54996	9.64 µg/L	100
PFBS	5.398	298.7 -> 79.9	20024	2.19 µg/L	100
		298.7 -> 98.8	7331		
PFDA	8.064	512.9 -> 469.0	51596	2.21 µg/L	100
		512.9 -> 219.0	8498		
PFDODA	8.950	613.1 -> 569.0	43839	2.36 µg/L	100
		613.1 -> 319.0	6062		
PFDS	9.113	599.0 -> 79.9	7319	2.14 µg/L	100



## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	3755	2.37	µg/L	100
		363.1 -> 319.0	60123			
PFHpS	7.735	363.1 -> 169.0	9818	2.20	µg/L	100
		449.0 -> 79.9	12344			
PFHxA	5.469	449.0 -> 98.9	6434	2.32	µg/L	100
		313.0 -> 269.0	50888			
PFHxS	7.168	313.0 -> 118.9	2461	2.07	µg/L	100
		398.7 -> 79.9	13619			
PFNA	7.596	398.7 -> 98.9	6780	2.47	µg/L	100
		463.0 -> 419.0	40955			
PFNS	8.693	463.0 -> 219.0	8388	2.13	µg/L	100
		548.8 -> 79.9	10822			
PFOA	7.066	548.8 -> 98.9	6278	2.27	µg/L	100
		413.0 -> 369.0	83569			
PFOS	8.228	413.0 -> 169.0	13951	2.13	µg/L	100
		498.9 -> 79.9	11765			
PFPeA	4.274	498.9 -> 98.8	6303	4.89	µg/L	100
		263.0 -> 219.0	70914			
PFPeS	6.471	349.1 -> 79.9	14740	2.26	µg/L	100
		349.1 -> 98.9	6632			
PFTeDA	9.677	713.1 -> 669.0	36435	2.25	µg/L	100
		713.1 -> 168.9	2721			
PFTrDA	9.333	663.0 -> 619.0	54198	2.52	µg/L	100
		663.0 -> 168.9	4252			
PFUnDA	8.518	563.1 -> 519.0	40846	2.30	µg/L	100
		563.1 -> 269.1	6449			
11CI-PF3OUdS	9.385	630.9 -> 450.9	64170	5.01	µg/L	100
		632.9 -> 452.9	17748			
9CI-PF3ONS	8.557	530.8 -> 351.0	101218	4.95	µg/L	100
		532.8 -> 353.0	29000			
ADONA	6.671	376.9 -> 250.9	262341	4.86	µg/L	100
		376.9 -> 84.8	62519			
HFPO-DA	5.832	284.9 -> 168.9	15379	4.69	µg/L	100
		284.9 -> 184.9	2108			
3:3FTCA	3.777	241.0 -> 177.0	10659	11.87	µg/L	100
		241.0 -> 117.0	1424			
5:3FTCA	6.161	341.0 -> 237.1	231848	60.92	µg/L	100
		341.0 -> 217.0	168573			
7:3FTCA	7.586	441.0 -> 316.9	108613	62.91	µg/L	100
		441.0 -> 336.9	227192			
EtFOSA	10.986	526.0 -> 219.0	19221	4.63	µg/L	100
		526.0 -> 169.0	23822			
EtFOSE	10.932	630.0 -> 58.9	52051	11.95	µg/L	100
		511.9 -> 219.0	17460			
MeFOSA	10.753	511.9 -> 169.0	22823	4.66	µg/L	100
		616.1 -> 58.9	43365			
MeFOSE	10.686	699.1 -> 79.9	4119	11.56	µg/L	100
		699.1 -> 98.8	2337			
PFDoDS	9.805	295.0 -> 201.0	11990	2.28	µg/L	100
		295.0 -> 84.9	3289			
NFDHA	5.348	279.0 -> 85.1	50472	4.94	µg/L	100
		229.0 -> 84.9	36012			
PFMBA	4.675	314.8 -> 134.9	127223	4.83	µg/L	100
		314.8 -> 82.9	4504			
PFMPA	3.426			4.31	µg/L	100
PFEESA	5.938			4.31	µg/L	100

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

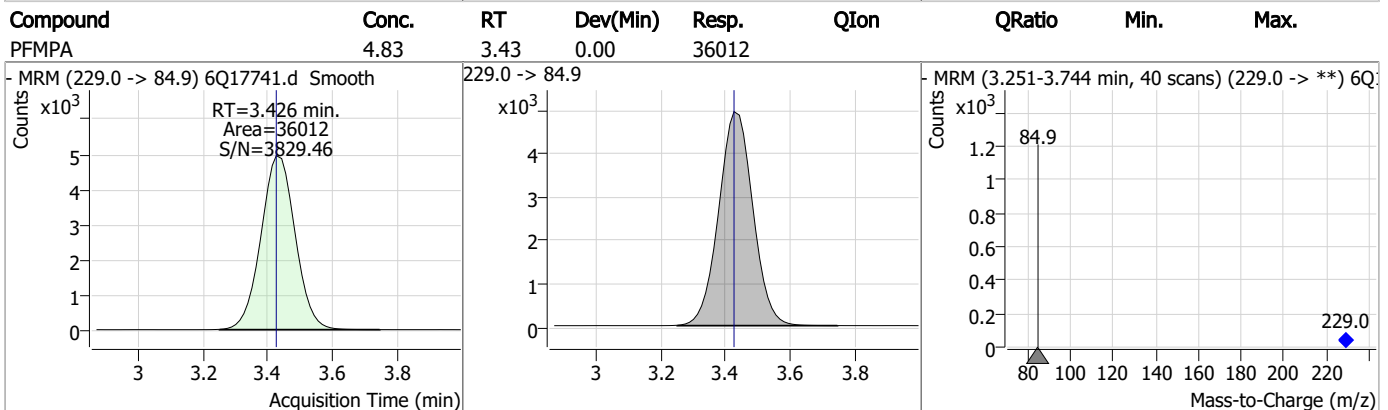
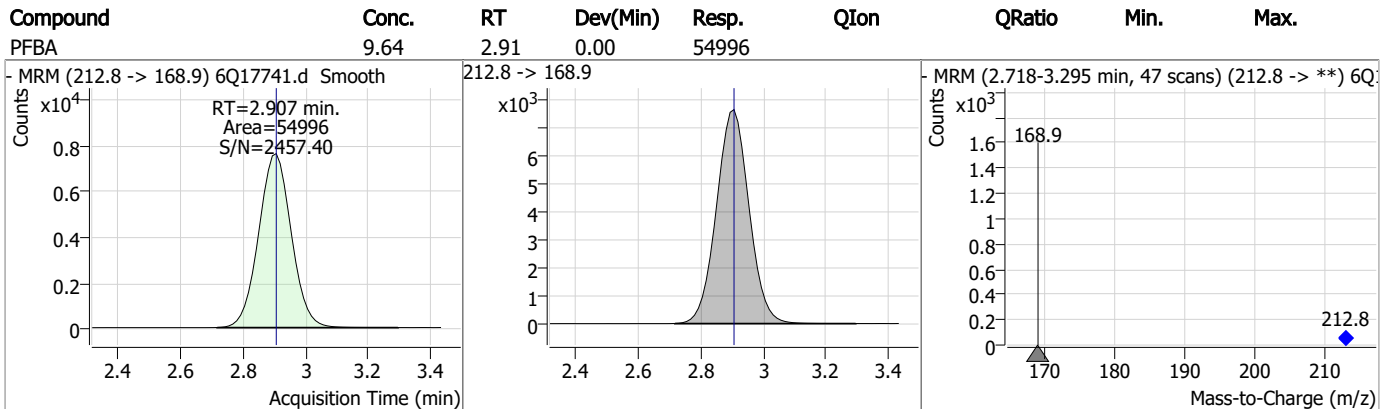
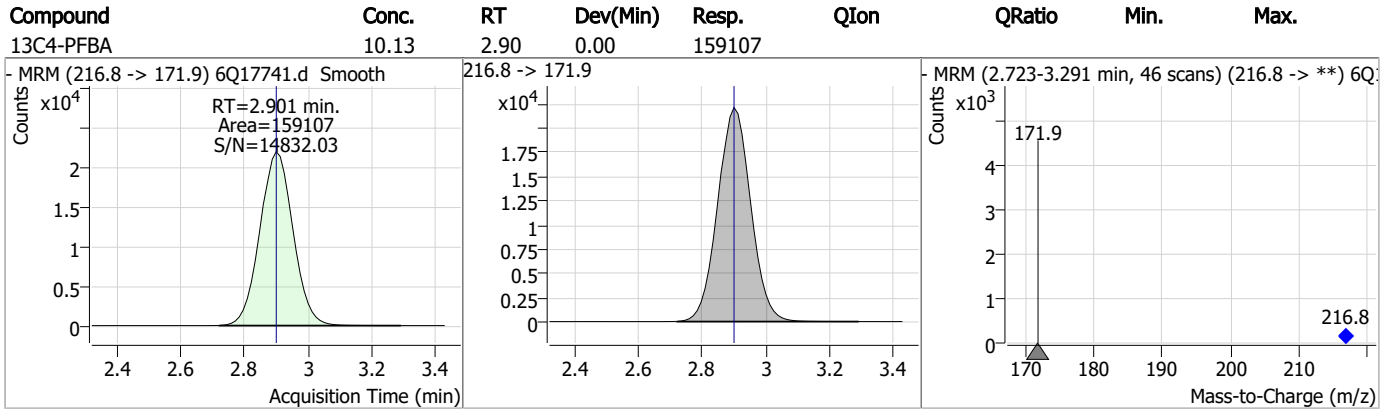
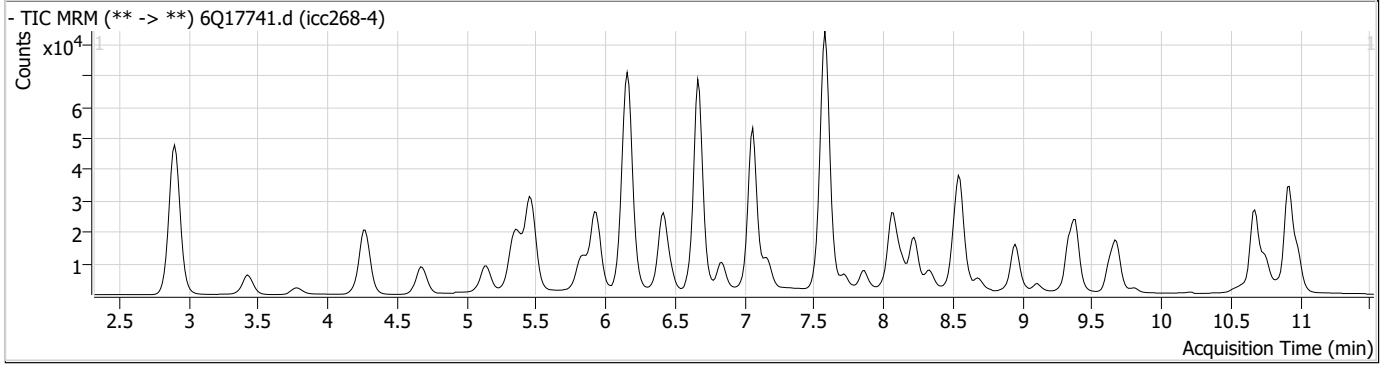
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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7.7.19  
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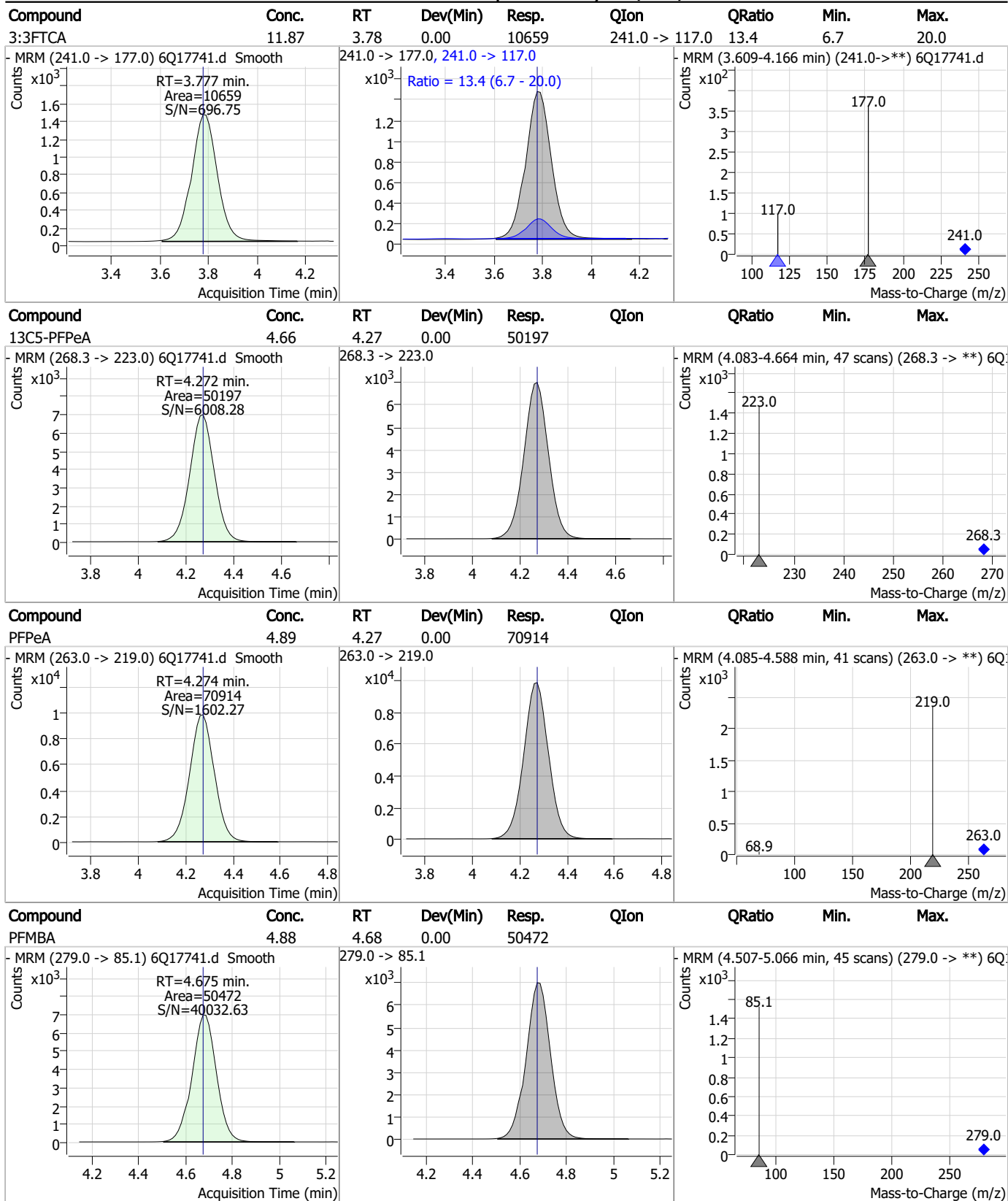
### Perfluorinated Compounds by LC/MS/MS



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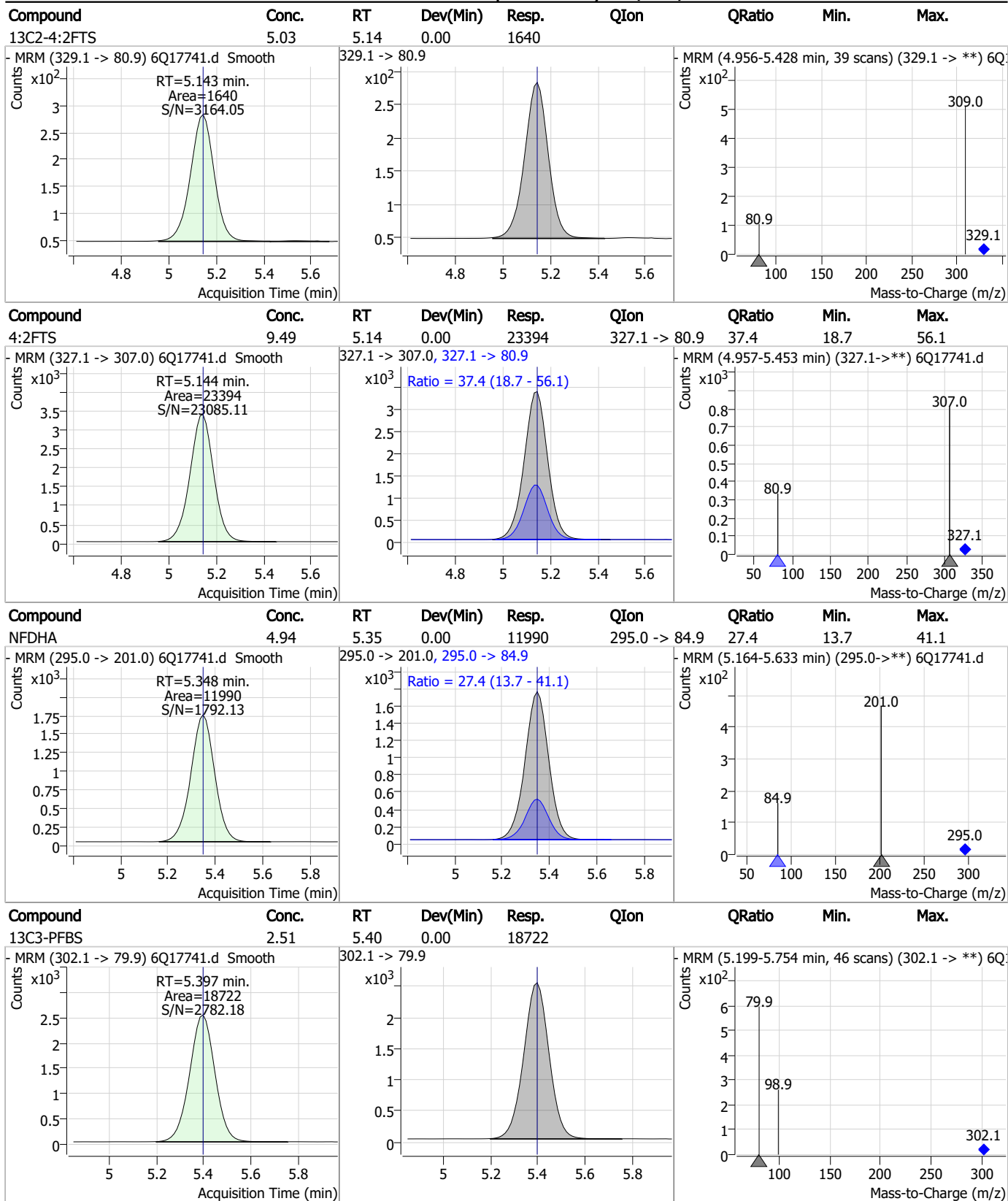
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### Perfluorinated Compounds by LC/MS/MS



7.7.19

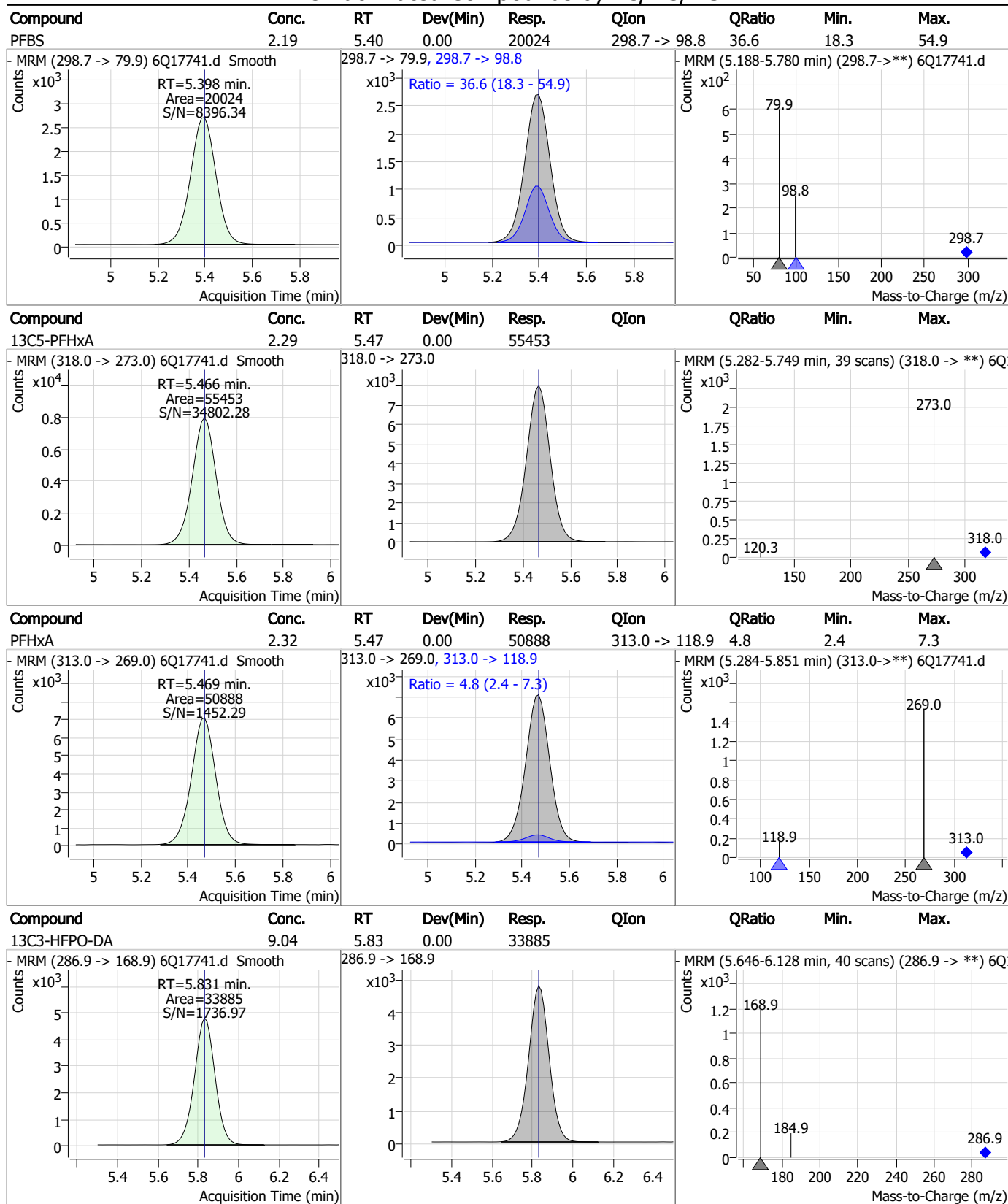
### Perfluorinated Compounds by LC/MS/MS



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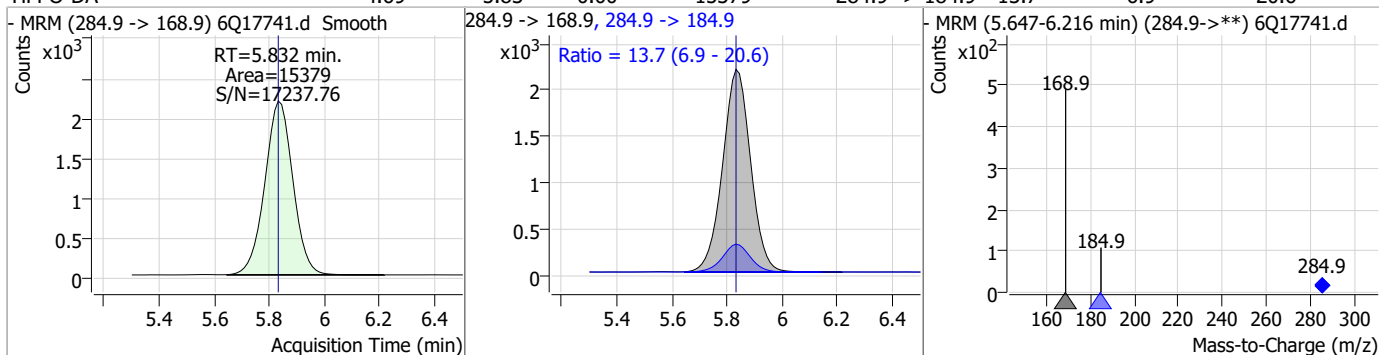
### Perfluorinated Compounds by LC/MS/MS



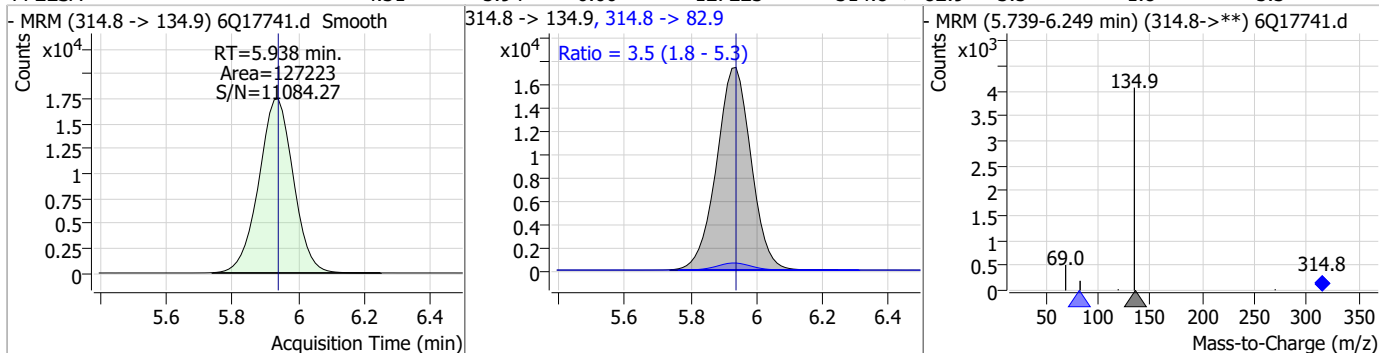
7.7.19

### Perfluorinated Compounds by LC/MS/MS

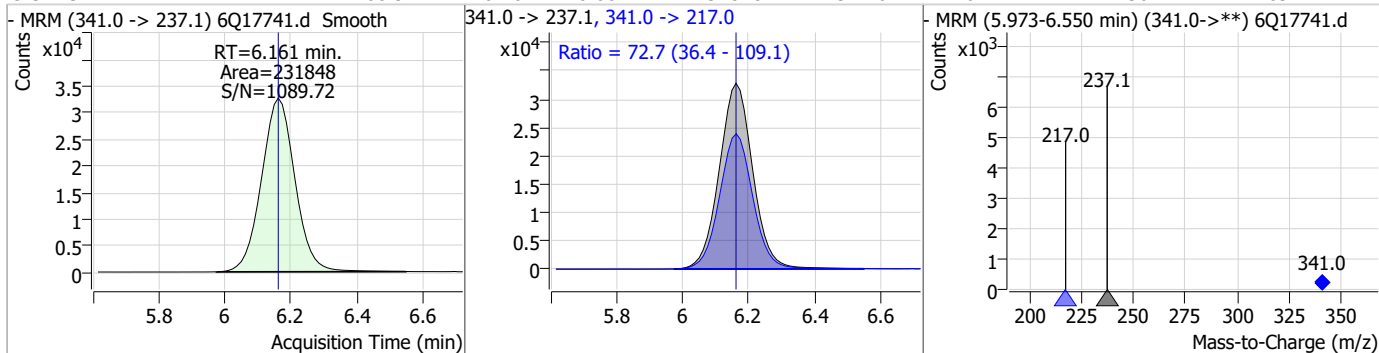
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.69	5.83	0.00	15379	284.9 -> 184.9	13.7	6.9	20.6



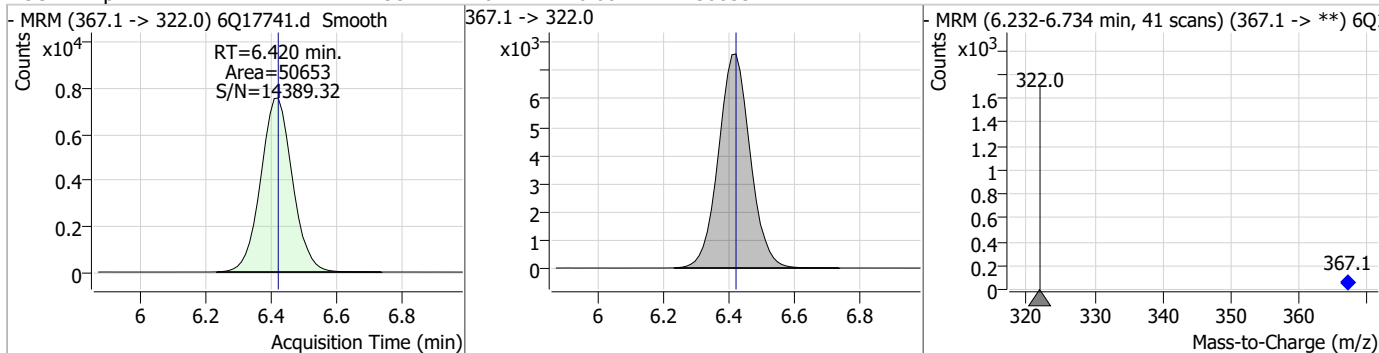
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.31	5.94	0.00	127223	314.8 -> 82.9	3.5	1.8	5.3



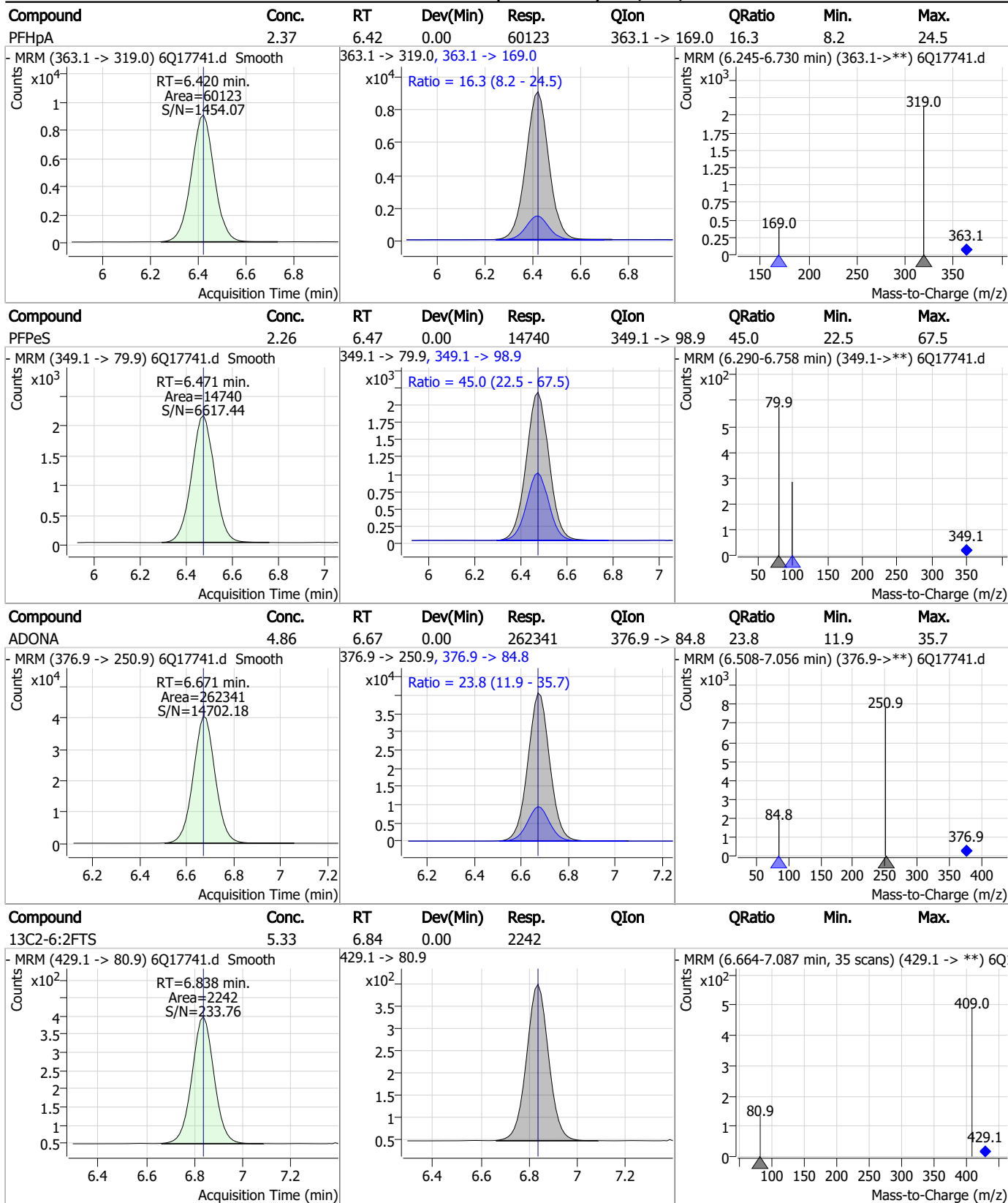
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	60.92	6.16	0.00	231848	341.0 -> 217.0	72.7	36.4	109.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.38	6.42	0.00	50653	367.1 -> 322.0			



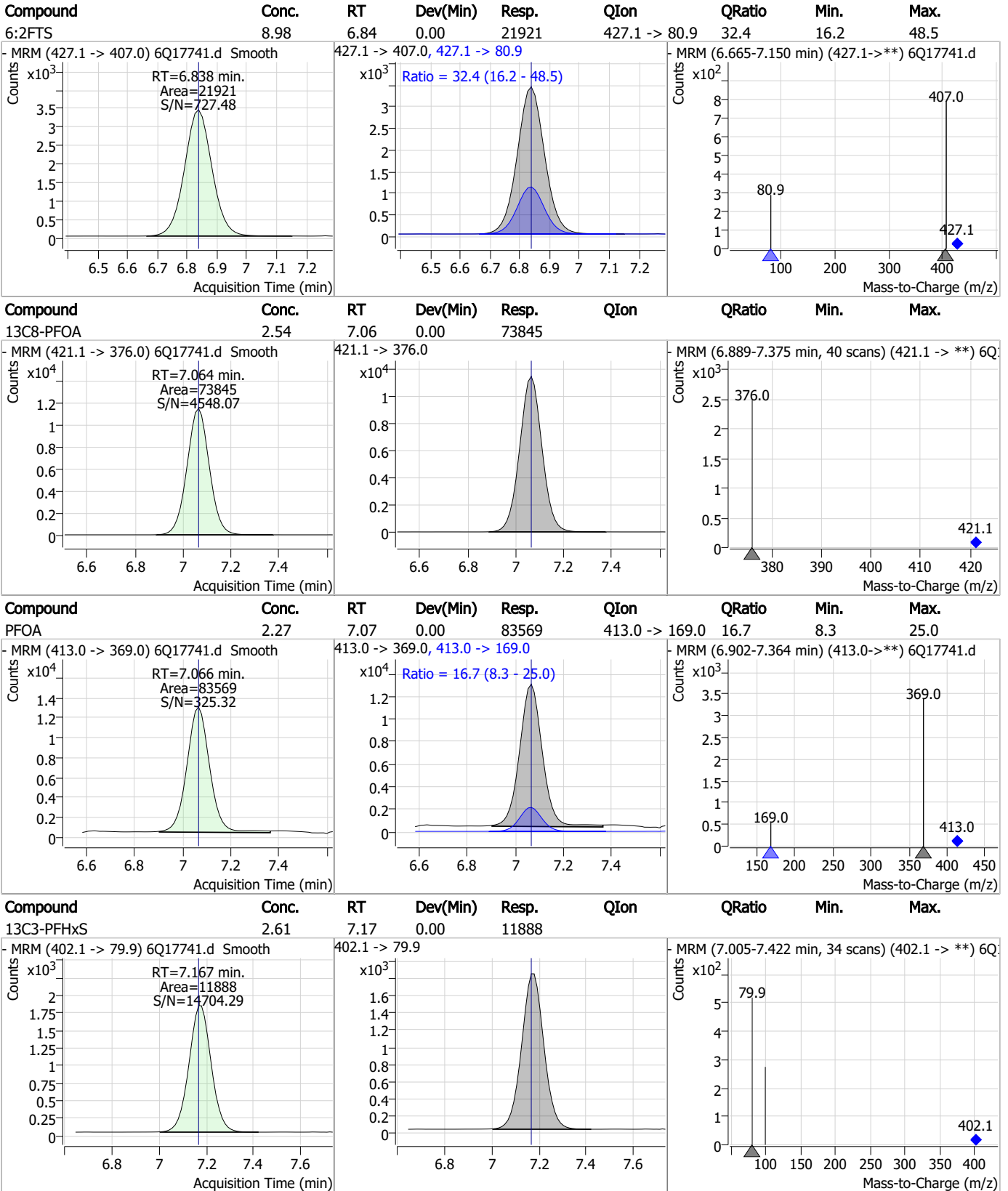
### Perfluorinated Compounds by LC/MS/MS



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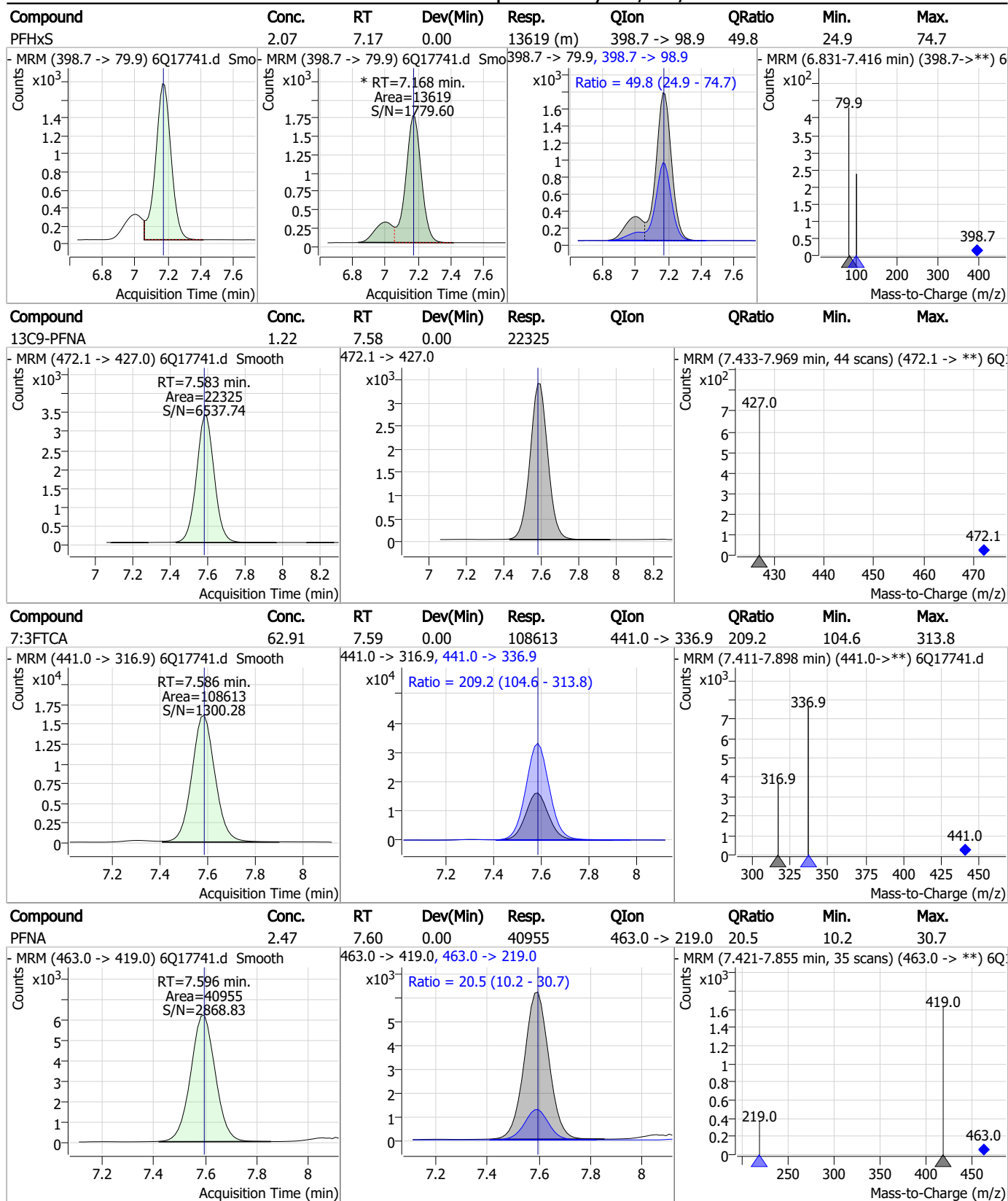


### Perfluorinated Compounds by LC/MS/MS



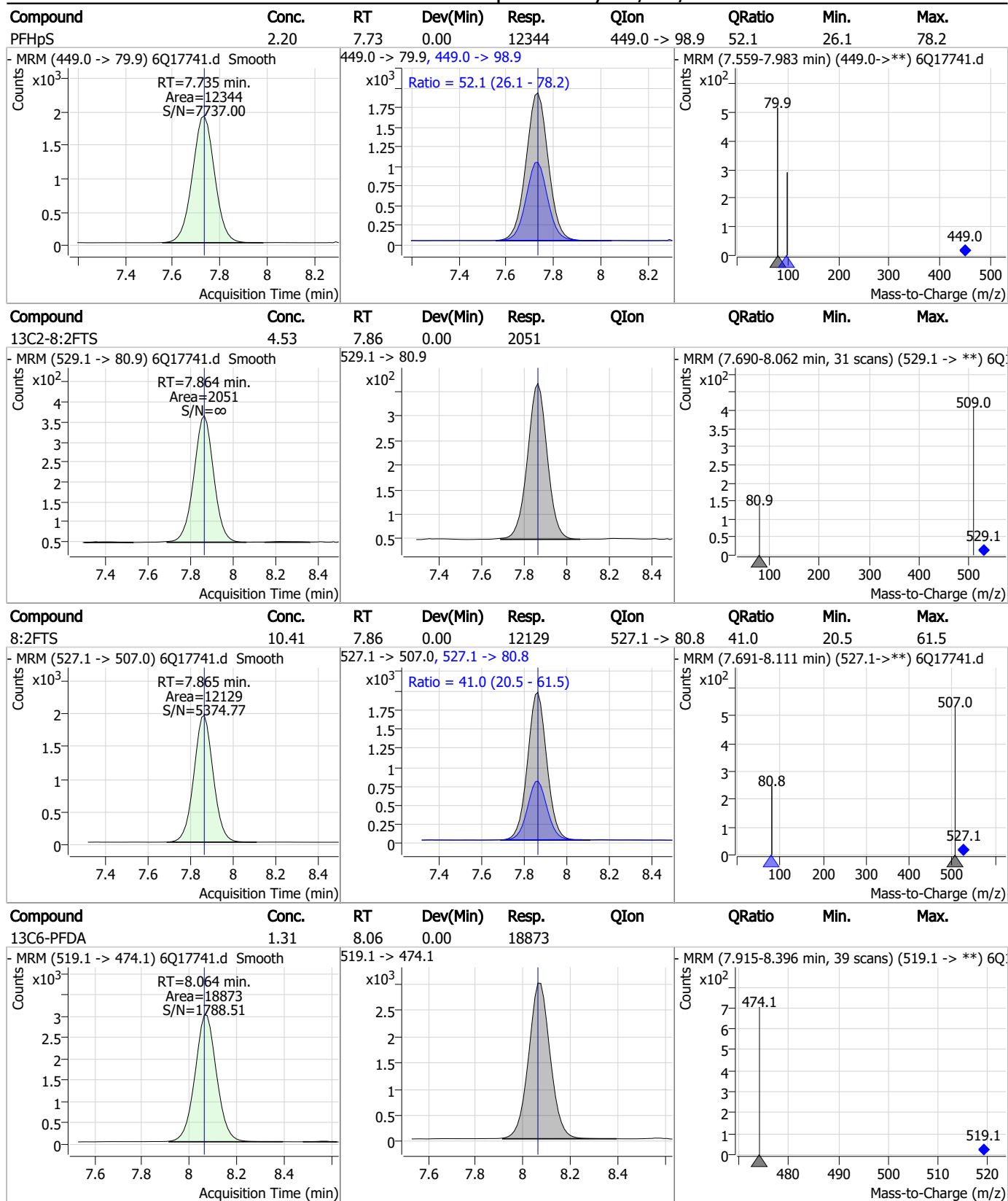
7.7.19 7

### Perfluorinated Compounds by LC/MS/MS



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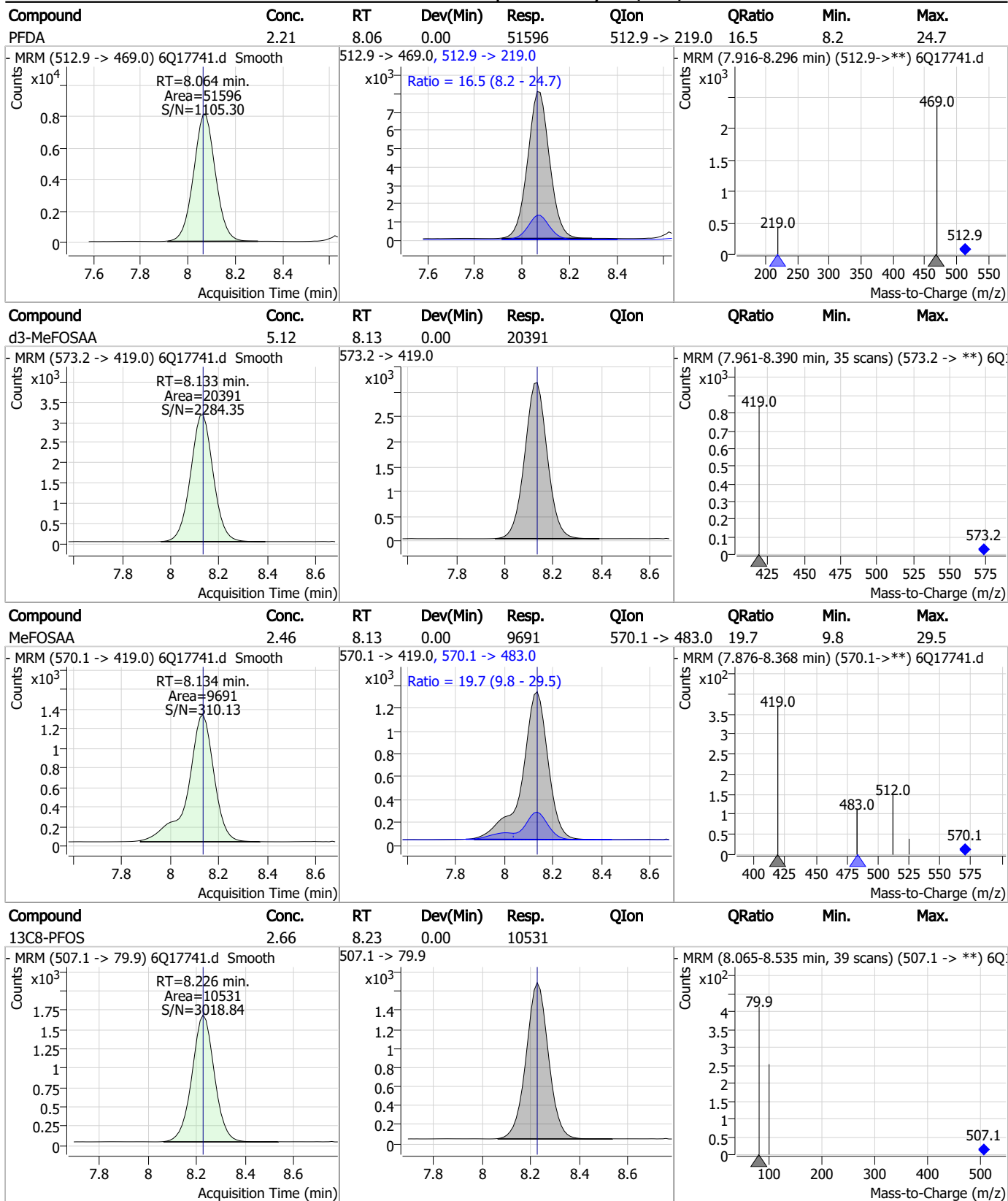
### Perfluorinated Compounds by LC/MS/MS



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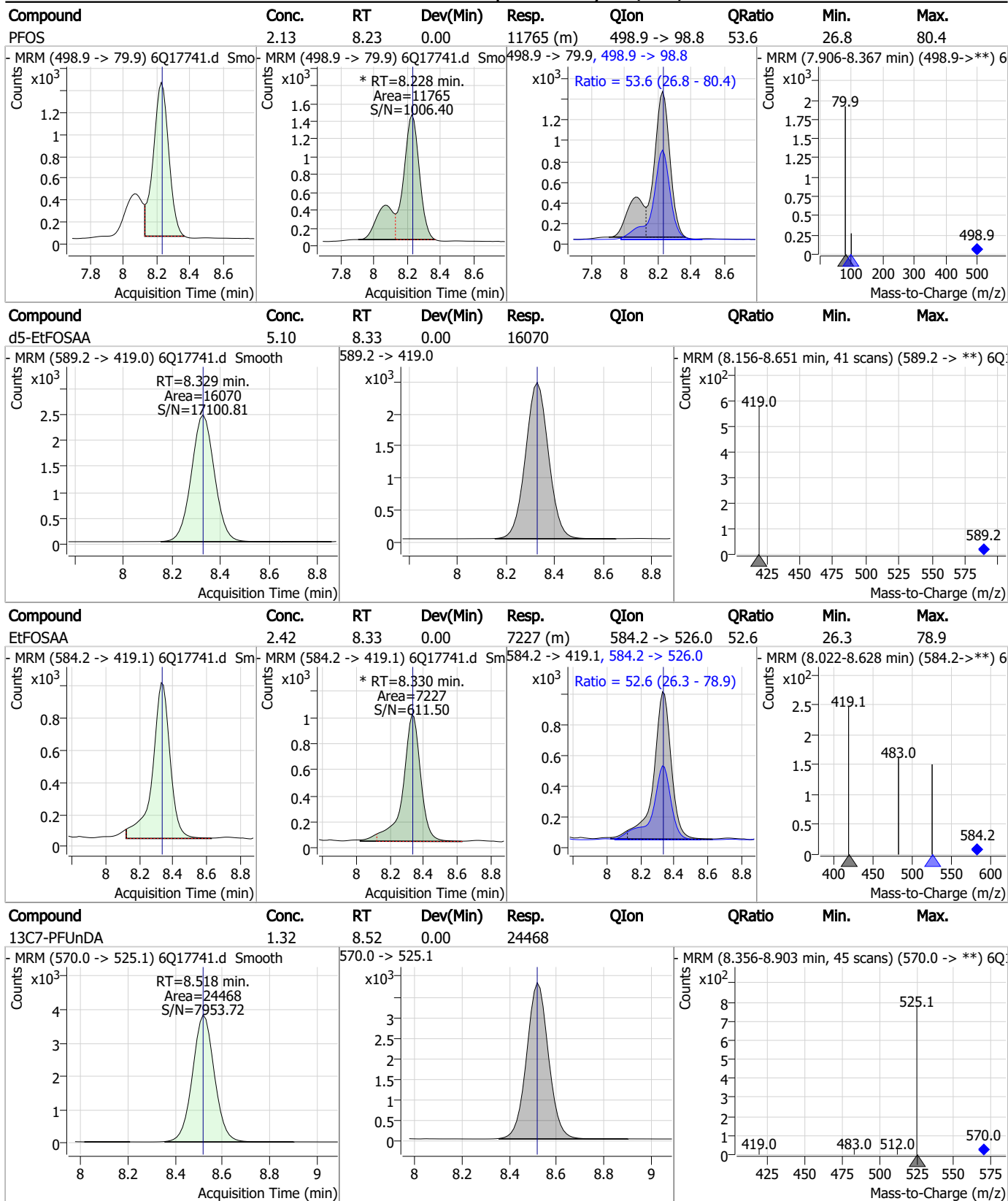
### Perfluorinated Compounds by LC/MS/MS



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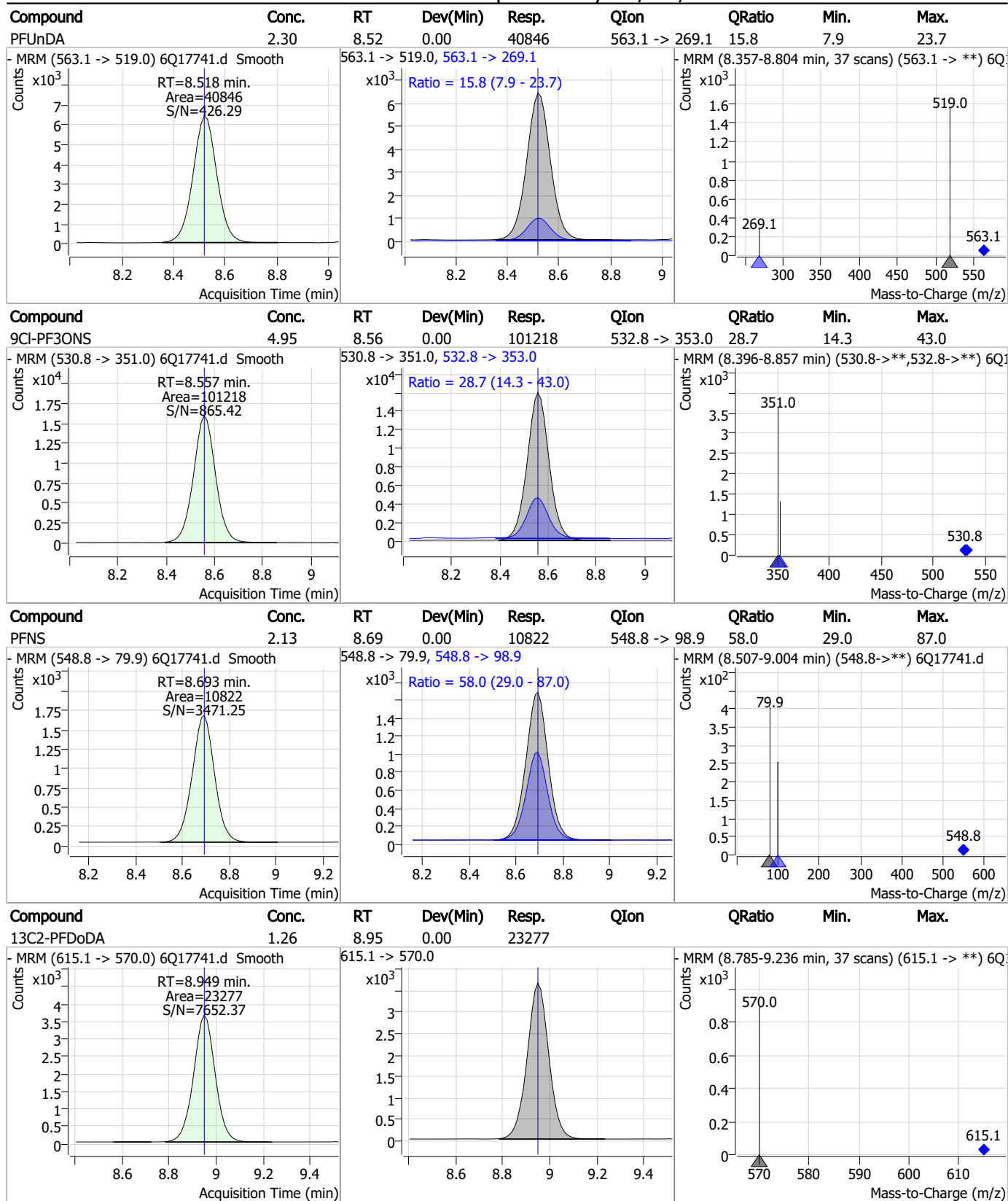
### Perfluorinated Compounds by LC/MS/MS



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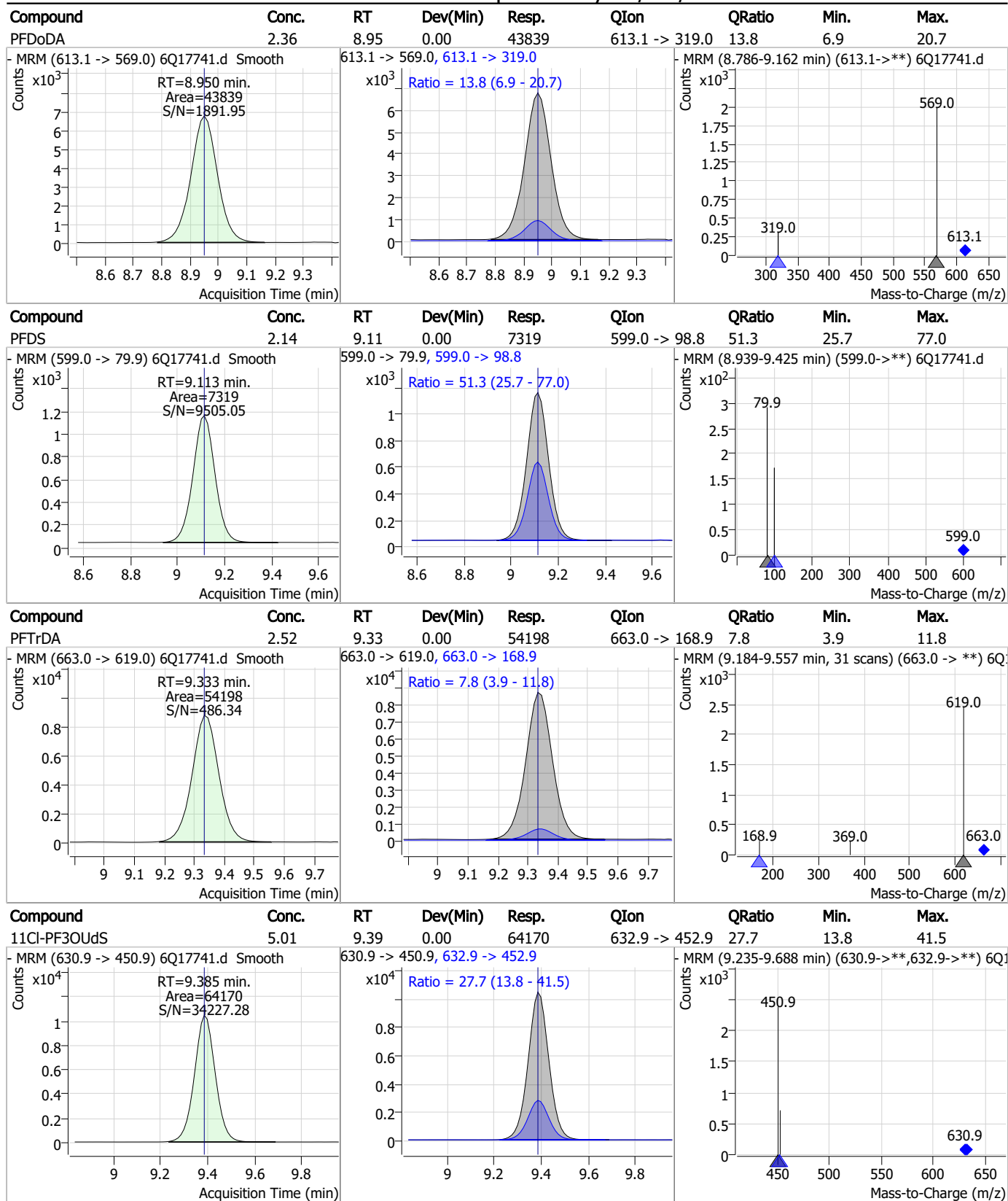
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

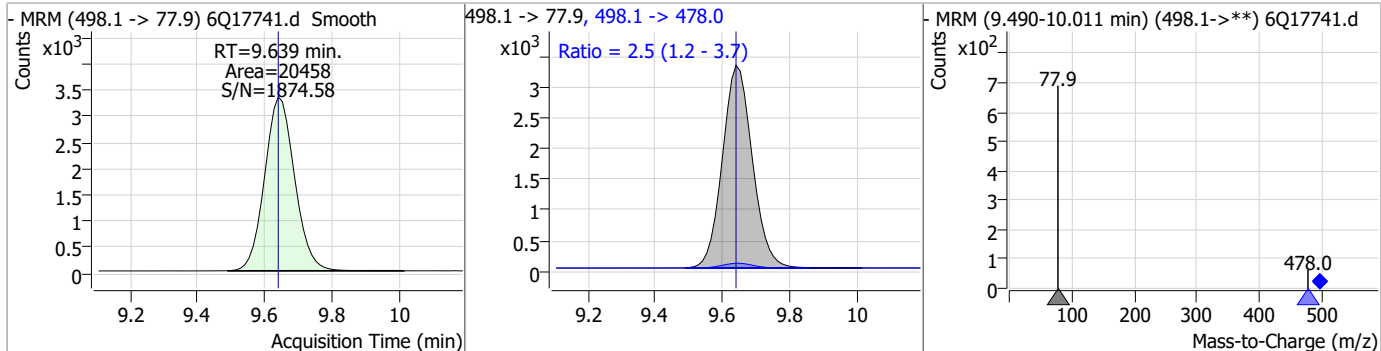


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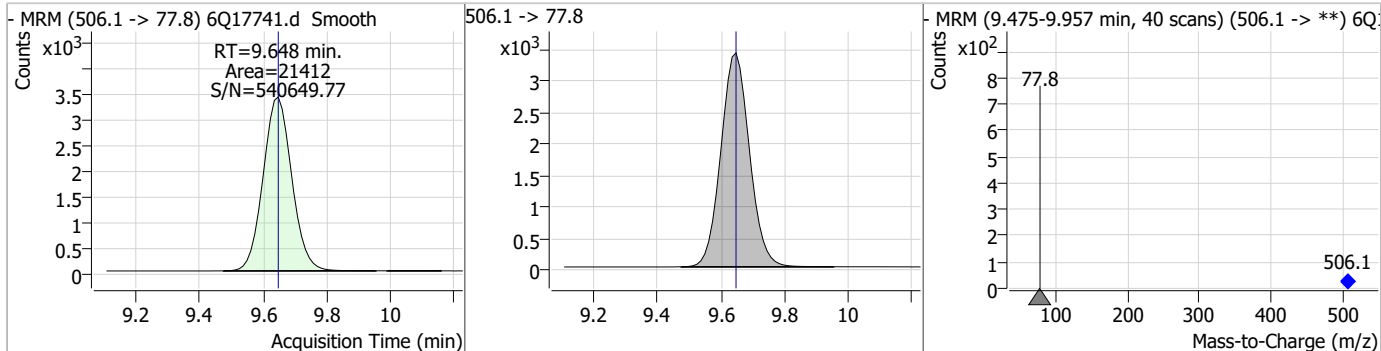
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### Perfluorinated Compounds by LC/MS/MS

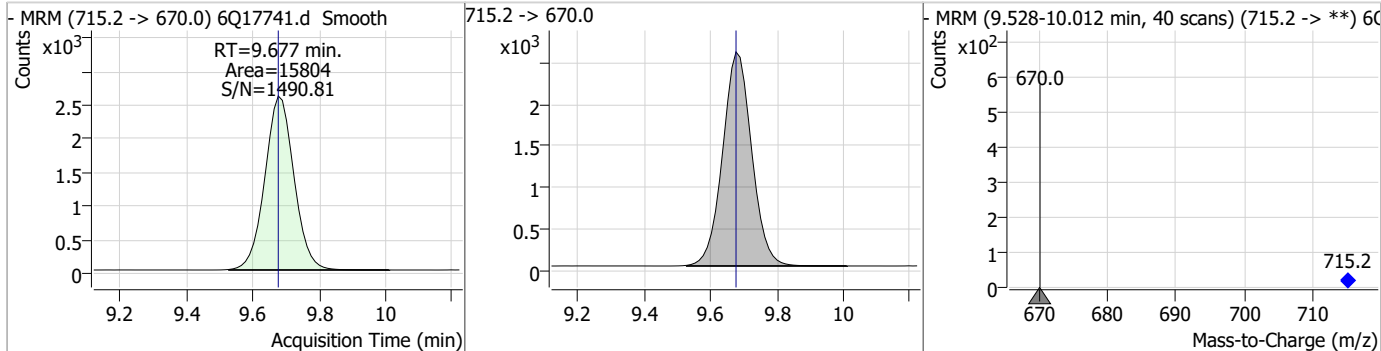
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.55	9.64	0.00	20458	498.1 -> 478.0	2.5	1.2	3.7



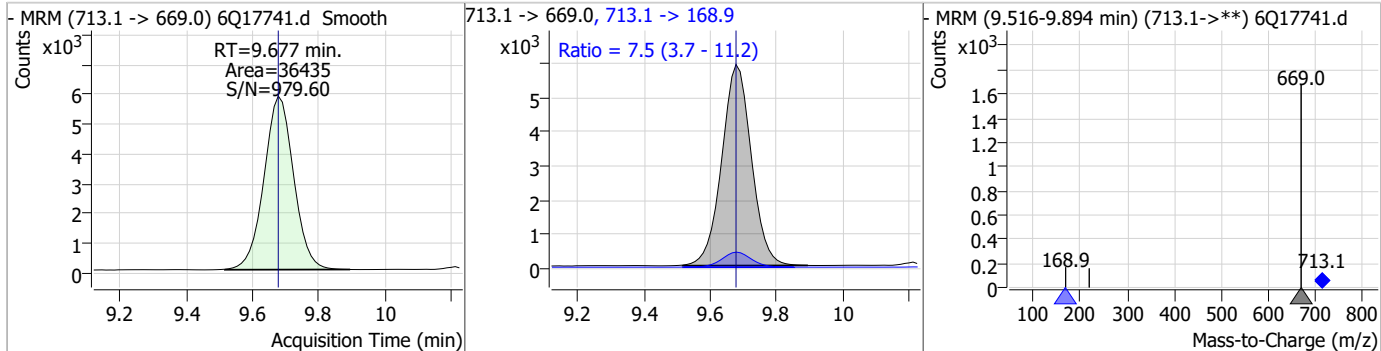
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.54	9.65	0.00	21412				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.26	9.68	0.00	15804				



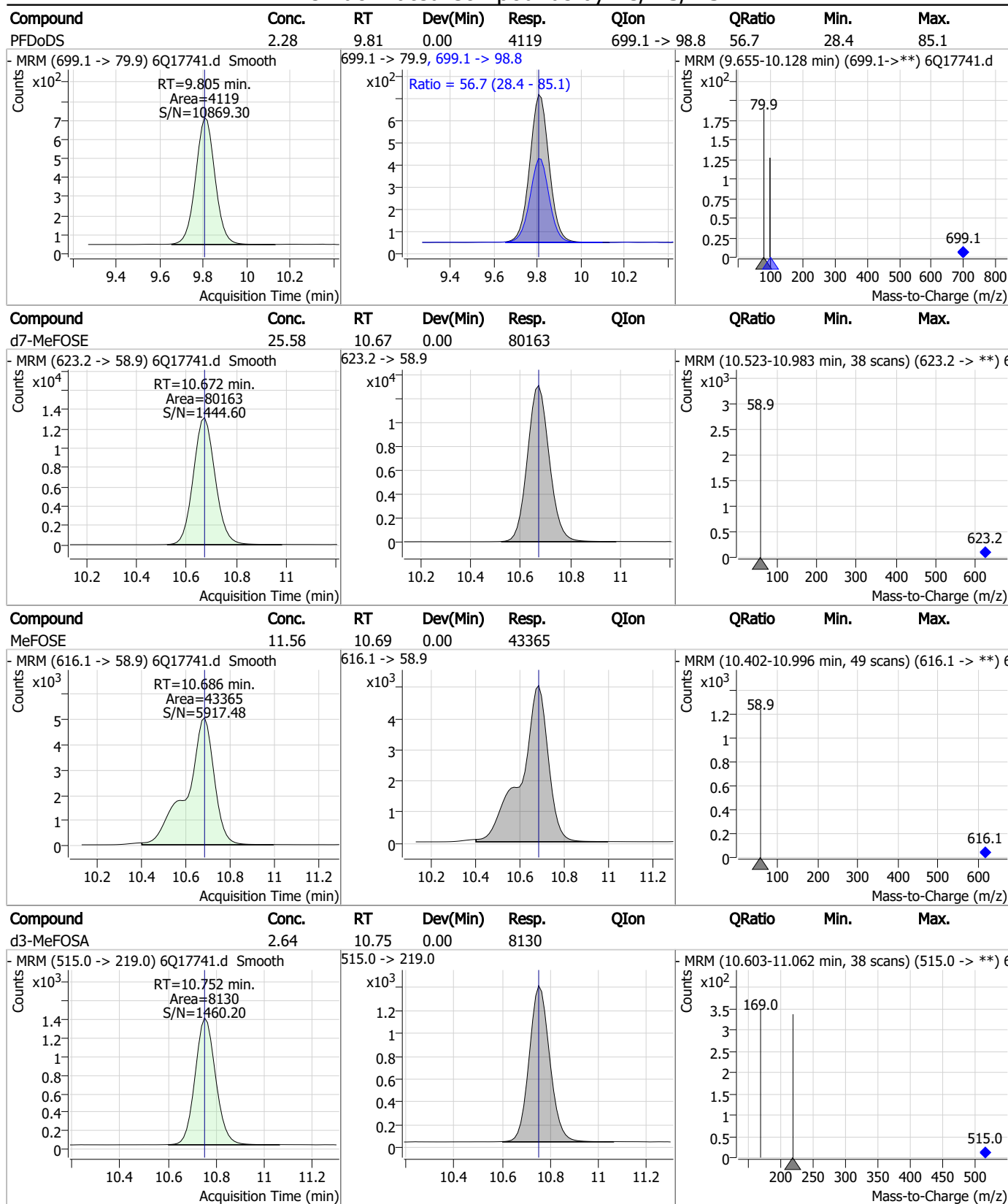
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.25	9.68	0.00	36435	713.1 -> 168.9	7.5	3.7	11.2



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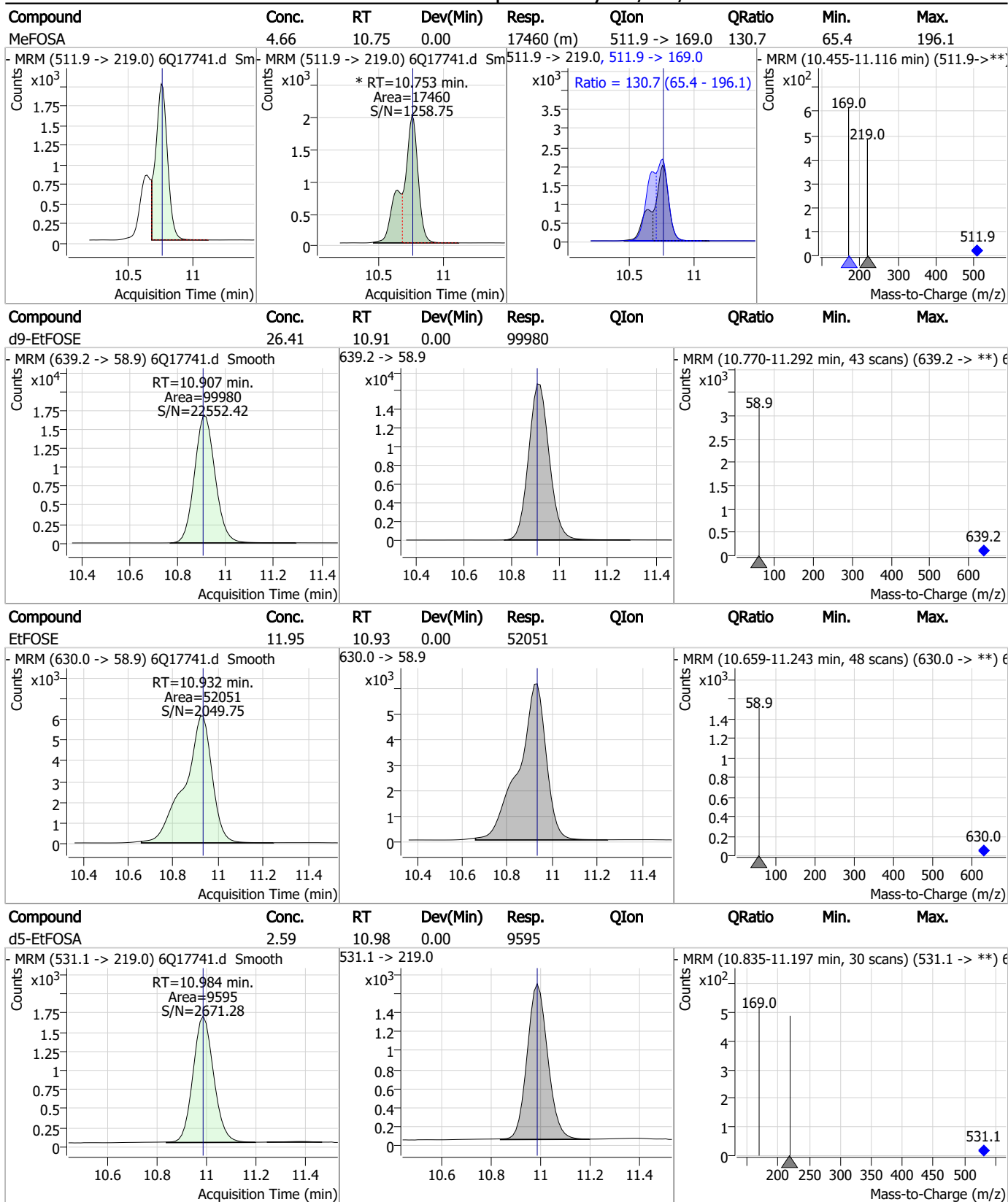
### Perfluorinated Compounds by LC/MS/MS



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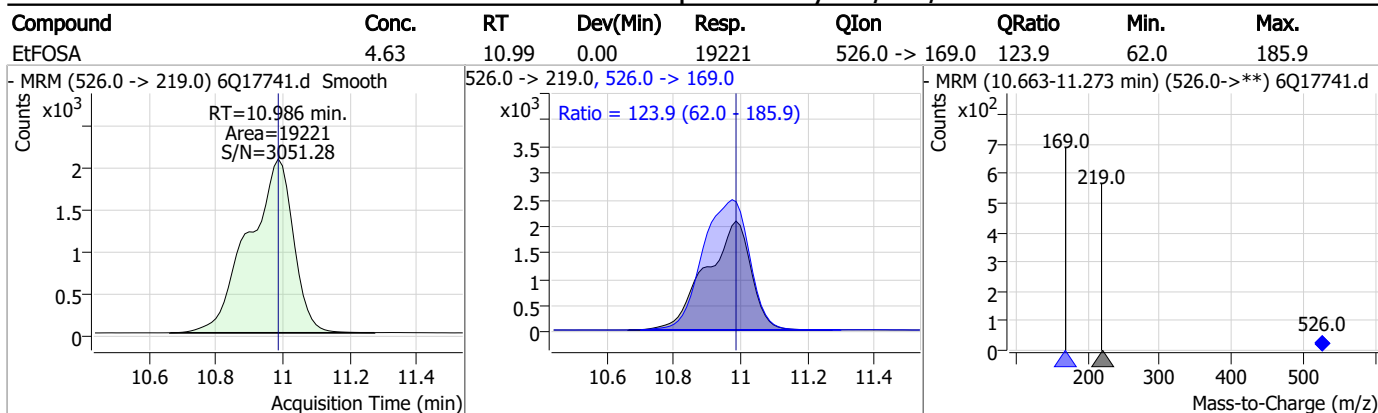
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S6Q268-ICC268      Method: EPA DRAFT 1633  
Lab FileID: 6Q17741.D      Analyst approved: 05/15/23 12:43 Martha Valls  
Injection Time: 05/12/23 12:58      Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSA	31506-32-8		10.75	Split peak

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

**Norman Farmer**  
 05/16/23 09:33

### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17742.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 1:13:23 PM  
 Sample Name : ic268-5  
 Vial : P1-A6  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	154979	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	49652	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	56080	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	47814	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	70761	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	22087	1.25 µg/L	0.012
M6-PFDA	8.064	519.1 -> 474.1	16704	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	23286	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	22026	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14624	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	21051	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	18944	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11385	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9861	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1625	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2105	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2209	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	20168	5.00 µg/L	-0.012
M3-HFPO-DA	5.844	286.9 -> 168.9	33470	10.00 µg/L	0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	15713	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	81306	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	93296	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8862	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7580	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12734	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	64783	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8613	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	71510	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	21963	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	26438	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	45411	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.143	329.1 -> 80.9	1625	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2105	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2209	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFDoDA	8.949	615.1 -> 570.0	22026	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14624	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C3-PFBS	5.397	302.1 -> 79.9	18944	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	11385	2.48 µg/L	0.012

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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C4-PFBA	2.901	216.8 -> 171.9	154979	10.08 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C4-PFHpA	6.420	367.1 -> 322.0	47814	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C5-PFHxA	5.466	318.0 -> 273.0	56080	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C5-PFPeA	4.272	268.3 -> 223.0	49652	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C6-PFDA	8.064	519.1 -> 474.1	16704	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C7-PFUnDA	8.518	570.0 -> 525.1	23286	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C8-FOSA	9.648	506.1 -> 77.8	21051	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-PFOA	7.064	421.1 -> 376.0	70761	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C8-PFOS	8.226	507.1 -> 79.9	9861	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C9-PFNA	7.595	472.1 -> 427.0	22087	1.13 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.4%	
d3-MeFOSAA	8.121	573.2 -> 419.0	20168	5.05 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	33470	10.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d3-MeFOSA	10.752	515.0 -> 219.0	7580	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
d5-EtFOSAA	8.329	589.2 -> 419.0	15713	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d7-MeFOSE	10.672	623.2 -> 58.9	81306	25.92 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
d9-EtFOSE	10.907	639.2 -> 58.9	93296	24.62 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
d5-EtFOSA	10.984	531.1 -> 219.0	8862	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.144	327.1 -> 307.0	46464	19.01 µg/L	96
		327.1 -> 80.9	18442		
6:2FTS	6.838	427.1 -> 407.0	45907	20.04 µg/L	98
		427.1 -> 80.9	15427		
8:2FTS	7.865	527.1 -> 507.0	25595	20.39 µg/L	97
		527.1 -> 80.8	10085		
EtFOSAA	8.330	584.2 -> 419.1	14404	4.92 µg/L	98
		584.2 -> 526.0	7826		
FOSA	9.639	498.1 -> 77.9	40782	5.18 µg/L	99
		498.1 -> 478.0	1202		
MeFOSAA	8.134	570.1 -> 419.0	20449	5.24 µg/L	94
		570.1 -> 483.0	3498		
PFBA	2.907	212.8 -> 168.9	117567	21.15 µg/L	100
PFBS	5.398	298.7 -> 79.9	42082	4.55 µg/L	99
		298.7 -> 98.8	15763		
PFDA	8.064	512.9 -> 469.0	122031	5.90 µg/L	94
		512.9 -> 219.0	17166		
PFDODA	8.950	613.1 -> 569.0	88721	5.06 µg/L	99
		613.1 -> 319.0	12530		
PFDS	9.113	599.0 -> 79.9	16397	5.12 µg/L	94

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	7725			
PFHpA	6.420	363.1 -> 319.0	129162	5.41	µg/L	99
		363.1 -> 169.0	21414			
PFHpS	7.735	449.0 -> 79.9	26529	5.04	µg/L	91
		449.0 -> 98.9	12200			
PFHxA	5.469	313.0 -> 269.0	111647	5.03	µg/L	99
		313.0 -> 118.9	5629			
PFHxS	7.168	398.7 -> 79.9	30746	4.88	µg/L	m 93
		398.7 -> 98.9	13867			
PFNA	7.596	463.0 -> 419.0	91442	5.57	µg/L	99
		463.0 -> 219.0	18250			
PFNS	8.693	548.8 -> 79.9	23308	4.89	µg/L	97
		548.8 -> 98.9	13048			
PFOA	7.066	413.0 -> 369.0	184090	5.23	µg/L	100
		413.0 -> 169.0	30371			
PFOS	8.228	498.9 -> 79.9	26487	5.12	µg/L	m 93
		498.9 -> 98.8	12809			
PFPeA	4.274	263.0 -> 219.0	152376	10.63	µg/L	100
PFPeS	6.471	349.1 -> 79.9	29887	4.78	µg/L	95
		349.1 -> 98.9	14517			
PFTeDA	9.677	713.1 -> 669.0	83618	5.58	µg/L	99
		713.1 -> 168.9	5857			
PFTrDA	9.333	663.0 -> 619.0	112031	5.51	µg/L	98
		663.0 -> 168.9	9557			
PFUnDA	8.518	563.1 -> 519.0	89058	5.27	µg/L	97
		563.1 -> 269.1	12942			
11CI-PF3OUdS	9.385	630.9 -> 450.9	127693	10.10	µg/L	93
		632.9 -> 452.9	40305			
9CI-PF3ONS	8.557	530.8 -> 351.0	206005	10.20	µg/L	98
		532.8 -> 353.0	61324			
ADONA	6.671	376.9 -> 250.9	560569	10.52	µg/L	98
		376.9 -> 84.8	138528			
HFPO-DA	5.845	284.9 -> 168.9	34922	10.79	µg/L	100
		284.9 -> 184.9	4757			
3:3FTCA	3.790	241.0 -> 177.0	23041	25.93	µg/L	100
		241.0 -> 117.0	3048			
5:3FTCA	6.161	341.0 -> 237.1	502344	130.51	µg/L	96
		341.0 -> 217.0	346578			
7:3FTCA	7.586	441.0 -> 316.9	220712	126.40	µg/L	95
		441.0 -> 336.9	479959			
EtFOSA	10.986	526.0 -> 219.0	40843	10.65	µg/L	94
		526.0 -> 169.0	53457			
EtFOSE	10.920	630.0 -> 58.9	104491	25.70	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	37768	10.82	µg/L	m 96
		511.9 -> 169.0	50953			
MeFOSE	10.686	616.1 -> 58.9	96015	25.24	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	8719	5.15	µg/L	96
		699.1 -> 98.8	4713			
NFDHA	5.348	295.0 -> 201.0	25308	10.32	µg/L	99
		295.0 -> 84.9	6739			
PFMBA	4.675	279.0 -> 85.1	109014	10.65	µg/L	100
PFMPA	3.426	229.0 -> 84.9	78625	10.67	µg/L	100
PFEESA	5.938	314.8 -> 134.9	284595	9.54	µg/L	100
		314.8 -> 82.9	9680			

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

### Perfluorinated Compounds by LC/MS/MS

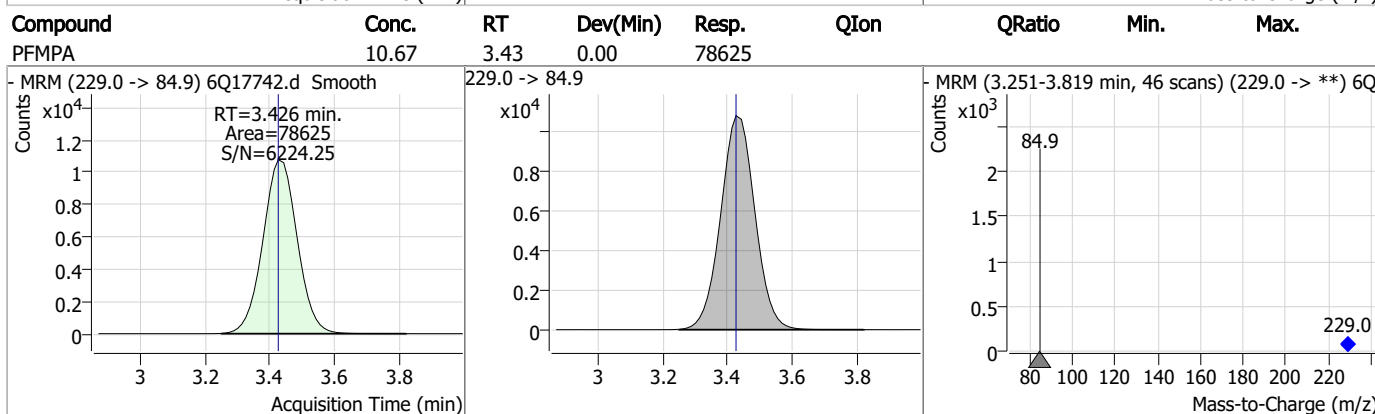
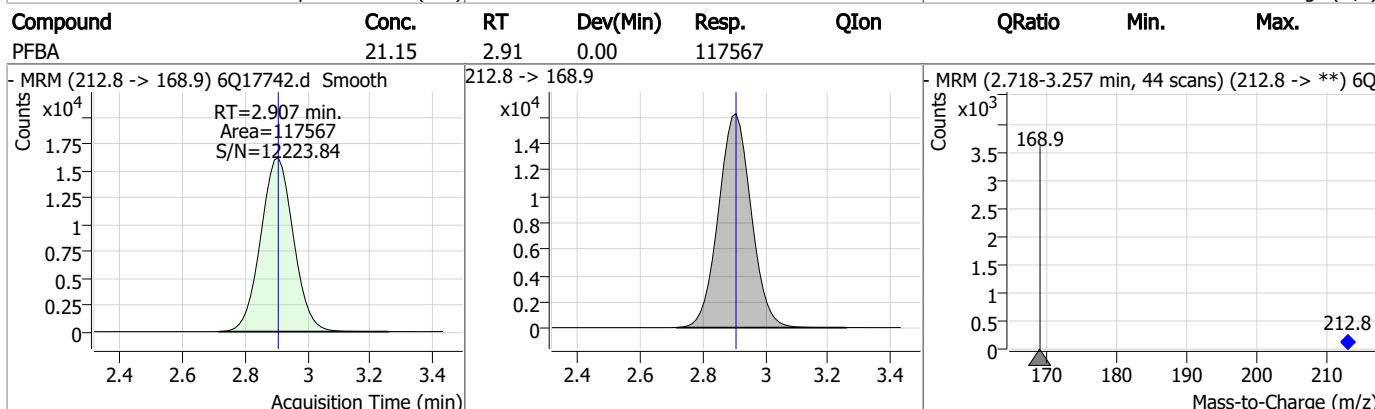
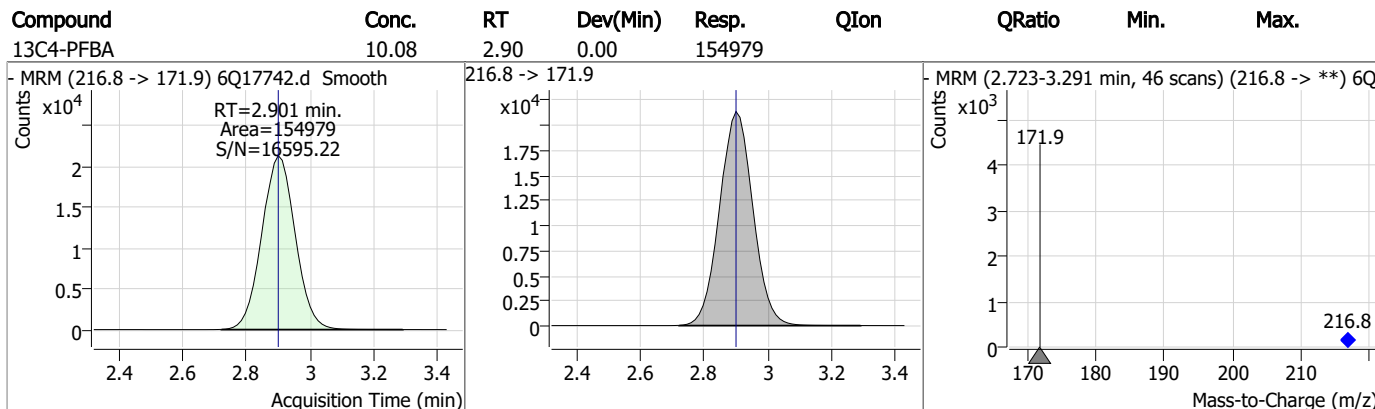
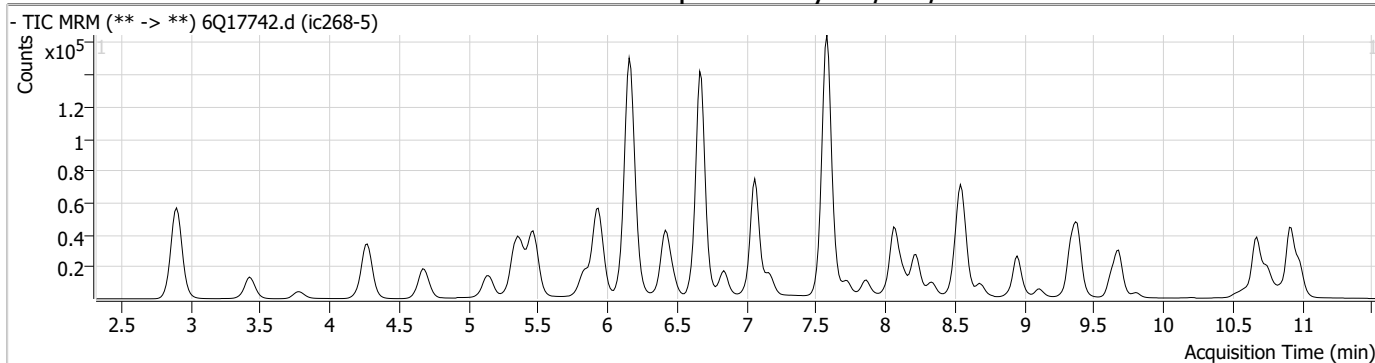
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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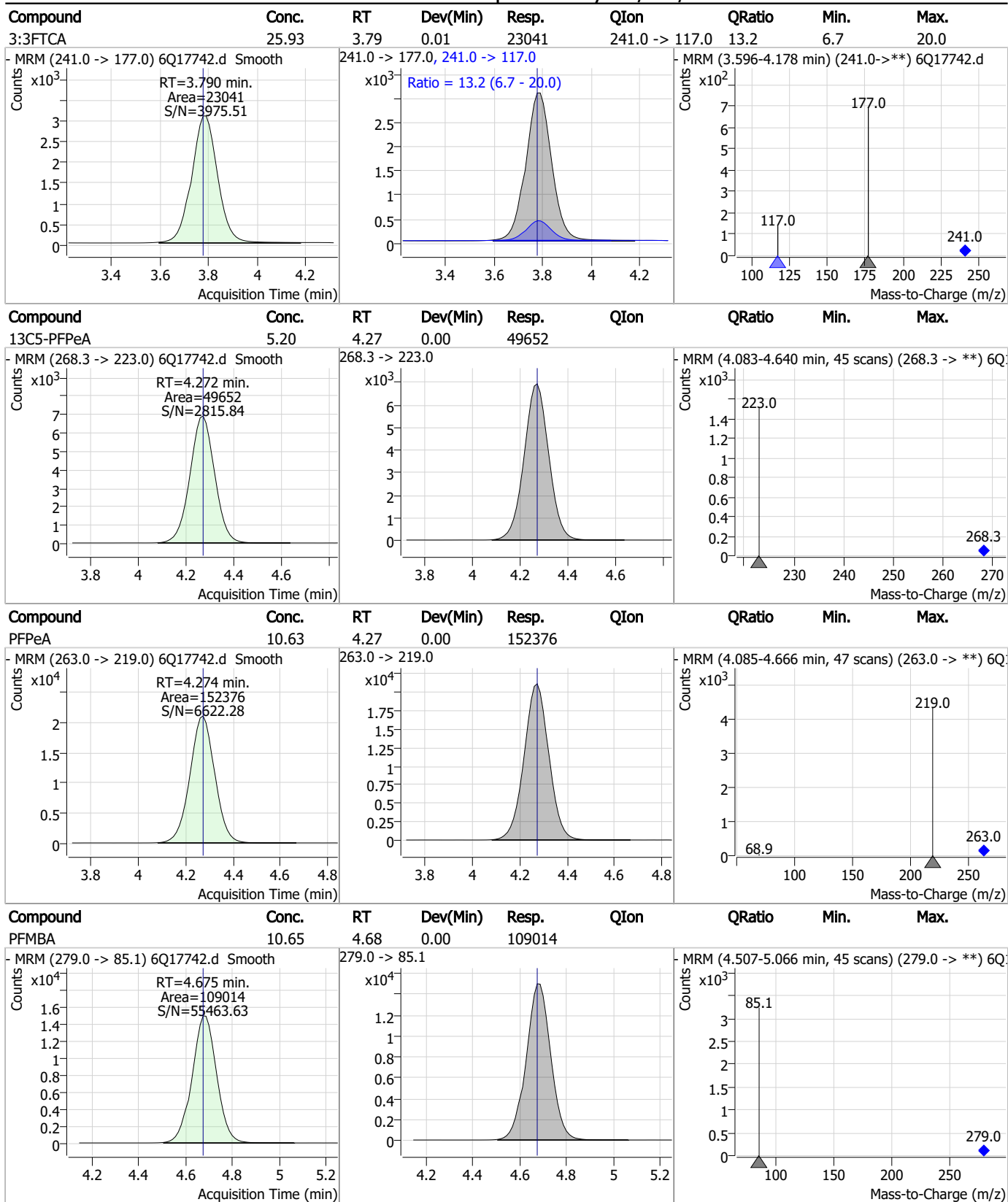


### Perfluorinated Compounds by LC/MS/MS



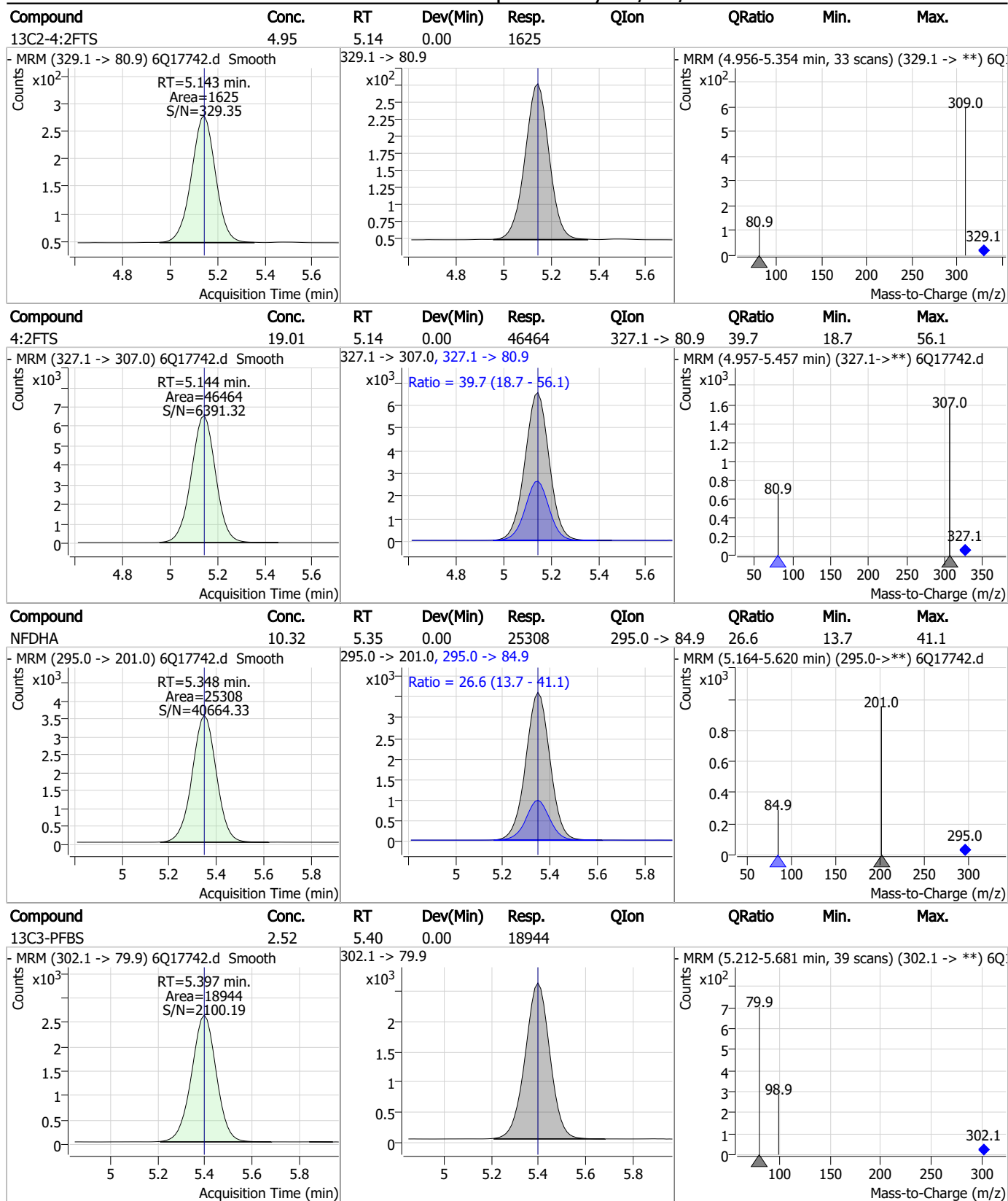
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### Perfluorinated Compounds by LC/MS/MS



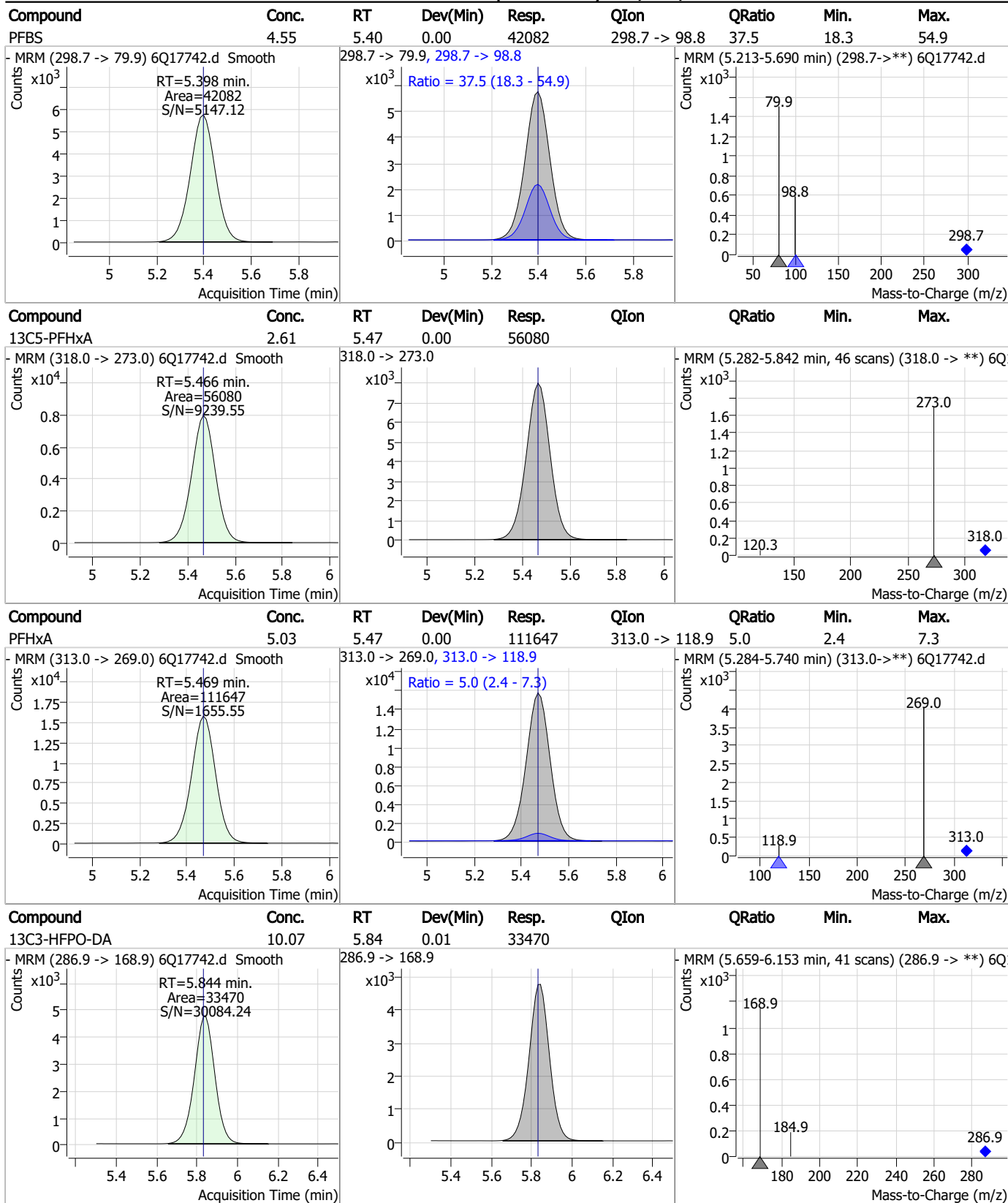
7.7.20 7

### Perfluorinated Compounds by LC/MS/MS



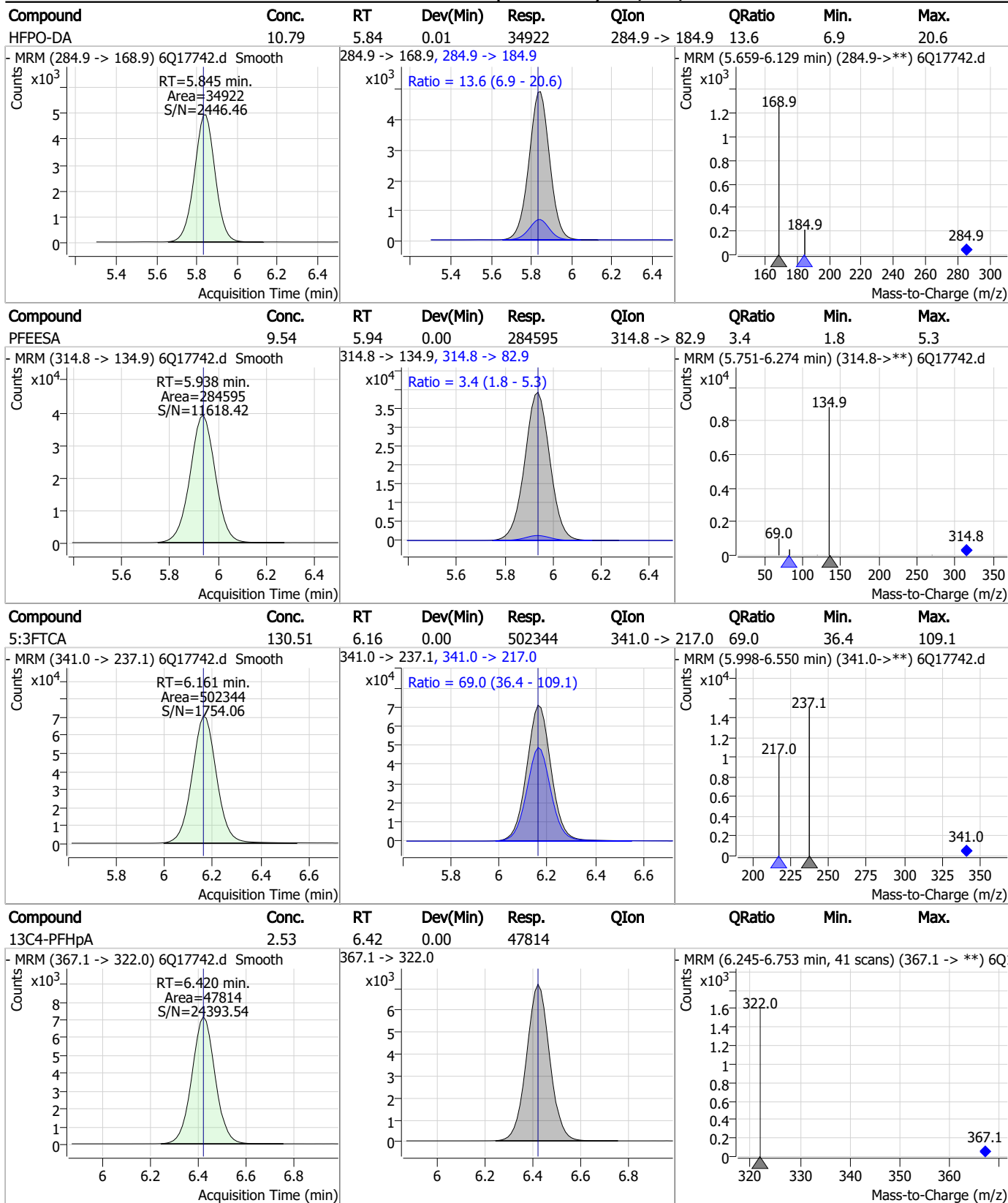
7.7.20 7

### Perfluorinated Compounds by LC/MS/MS



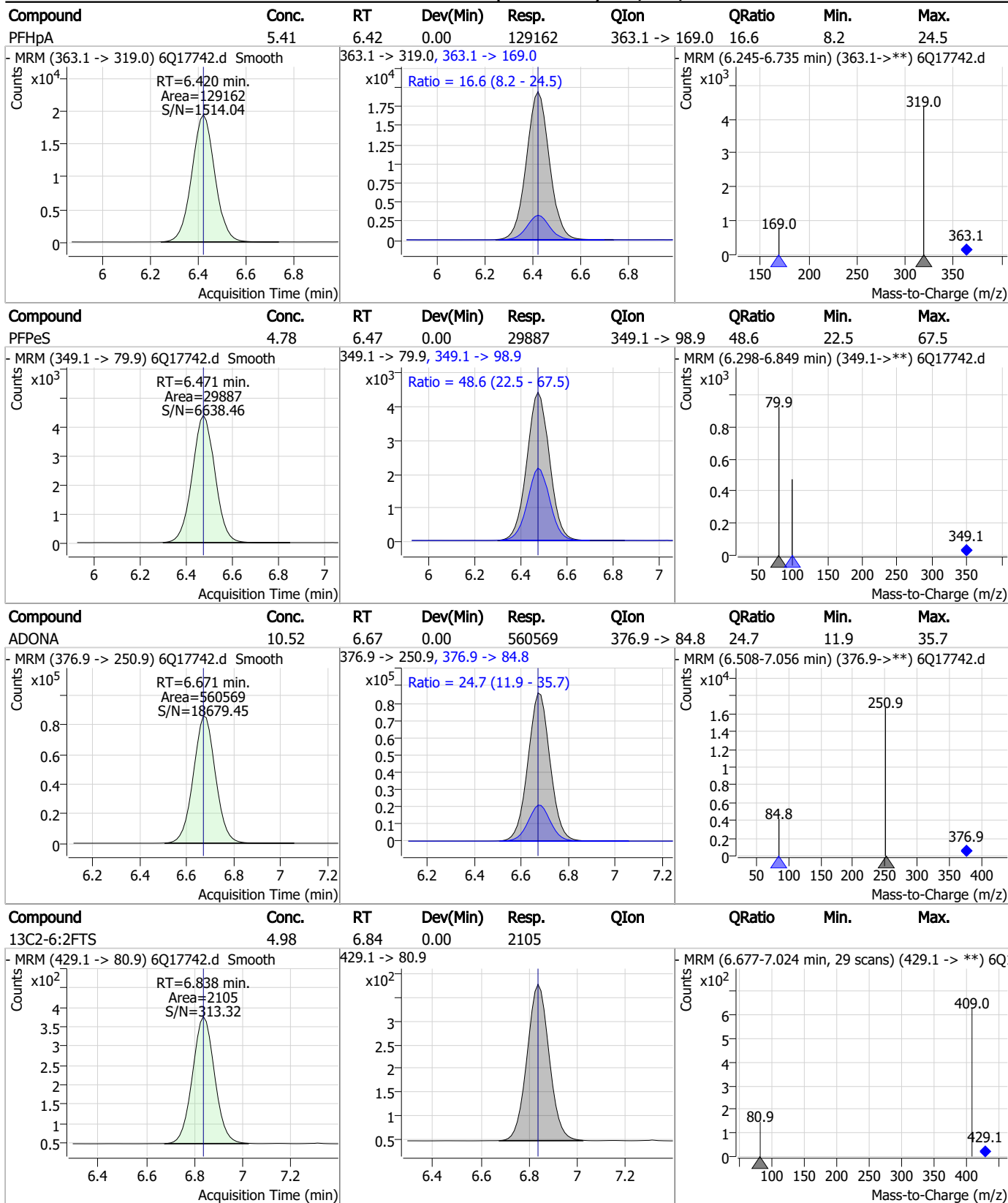
7.7.20 7

### Perfluorinated Compounds by LC/MS/MS



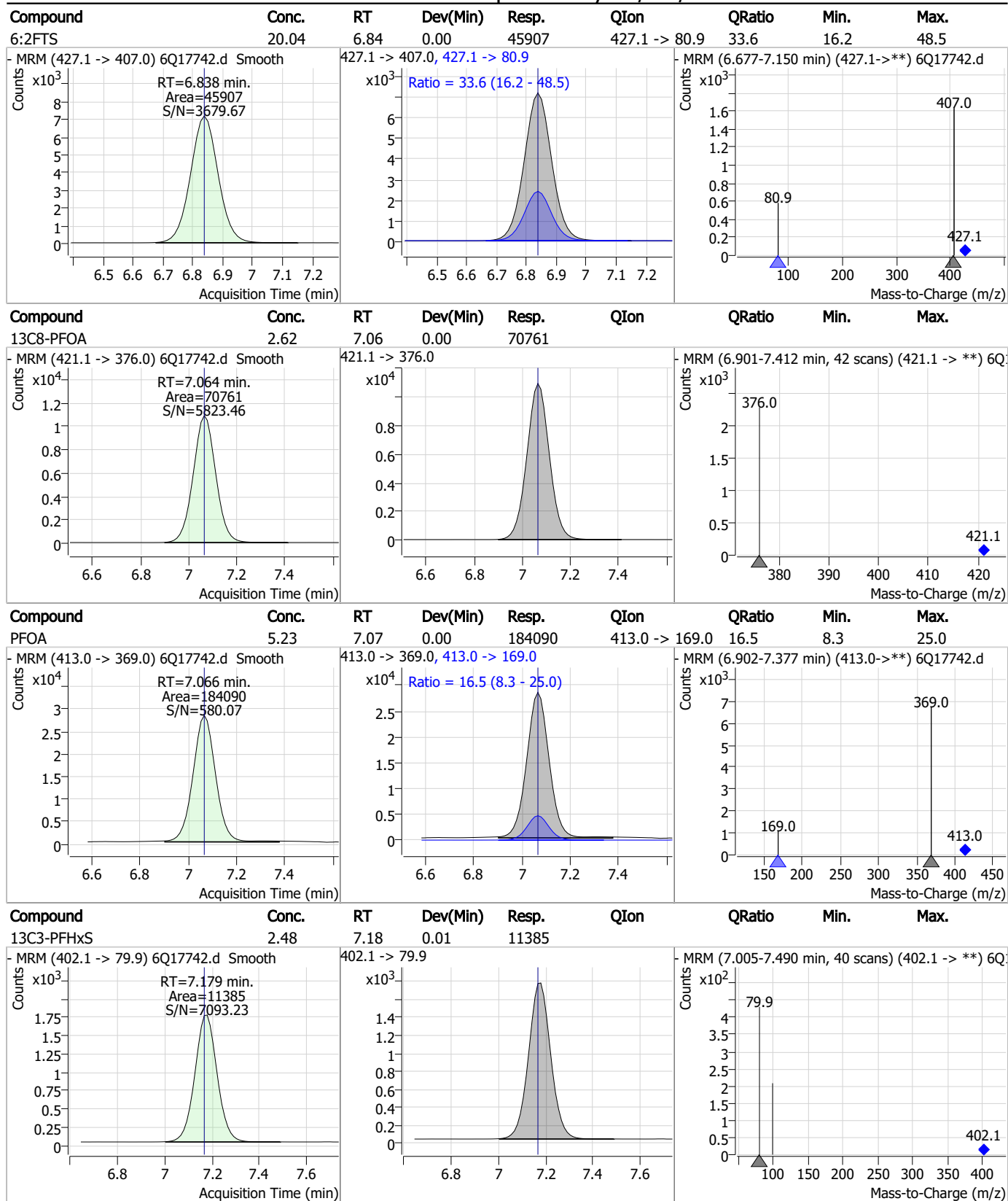
7.7.20 7

### Perfluorinated Compounds by LC/MS/MS



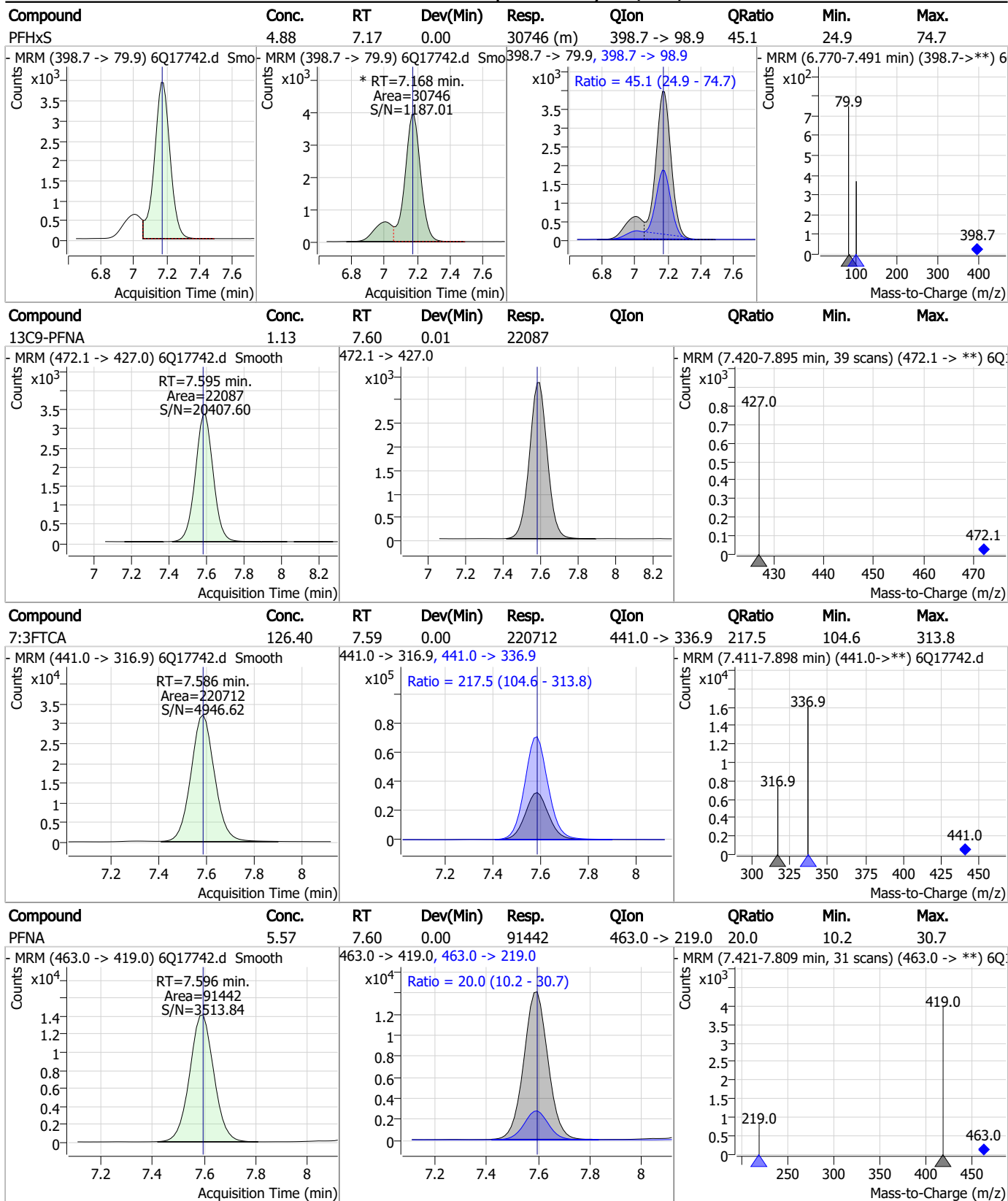
7.7.20 7

### Perfluorinated Compounds by LC/MS/MS



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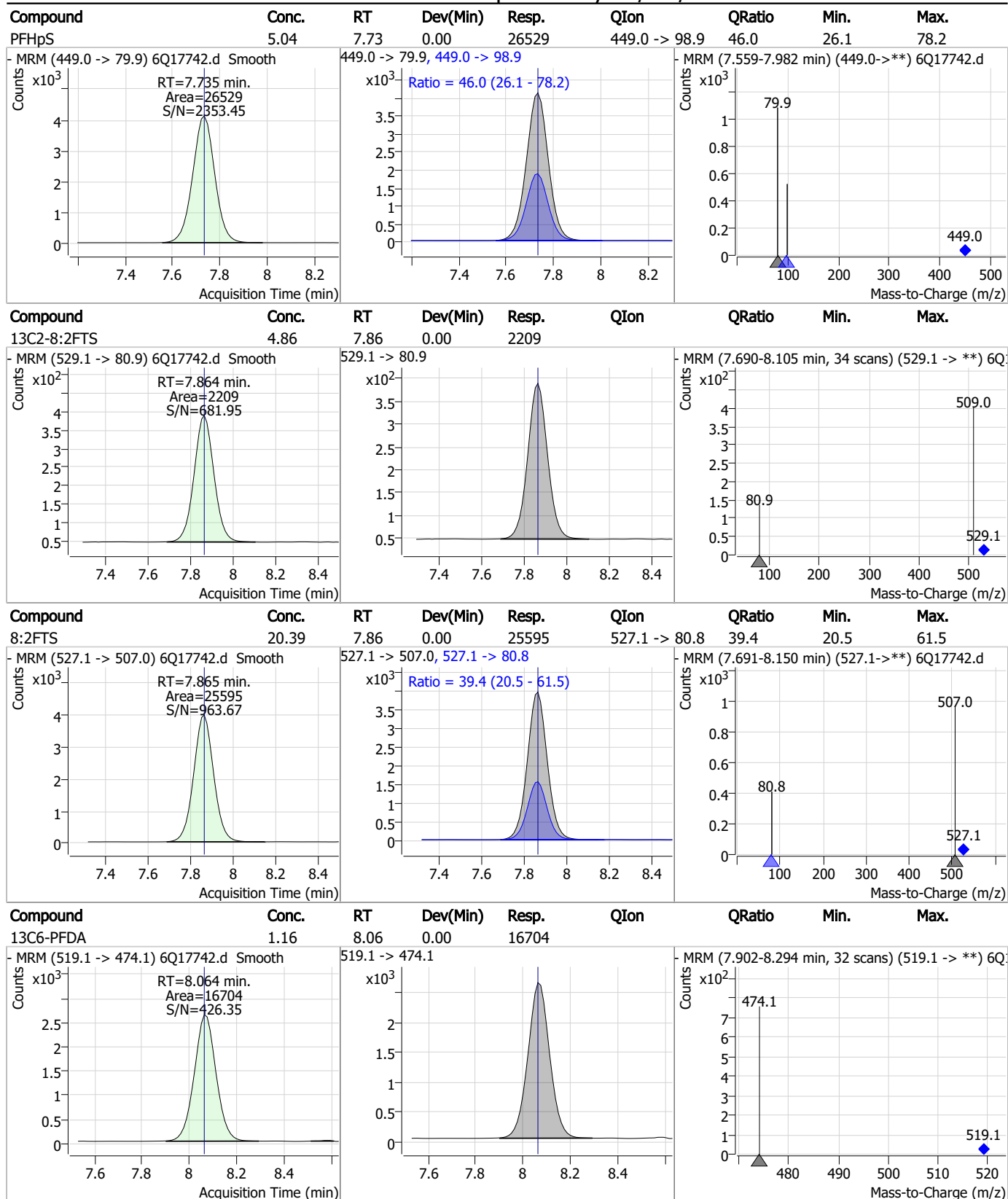
### Perfluorinated Compounds by LC/MS/MS



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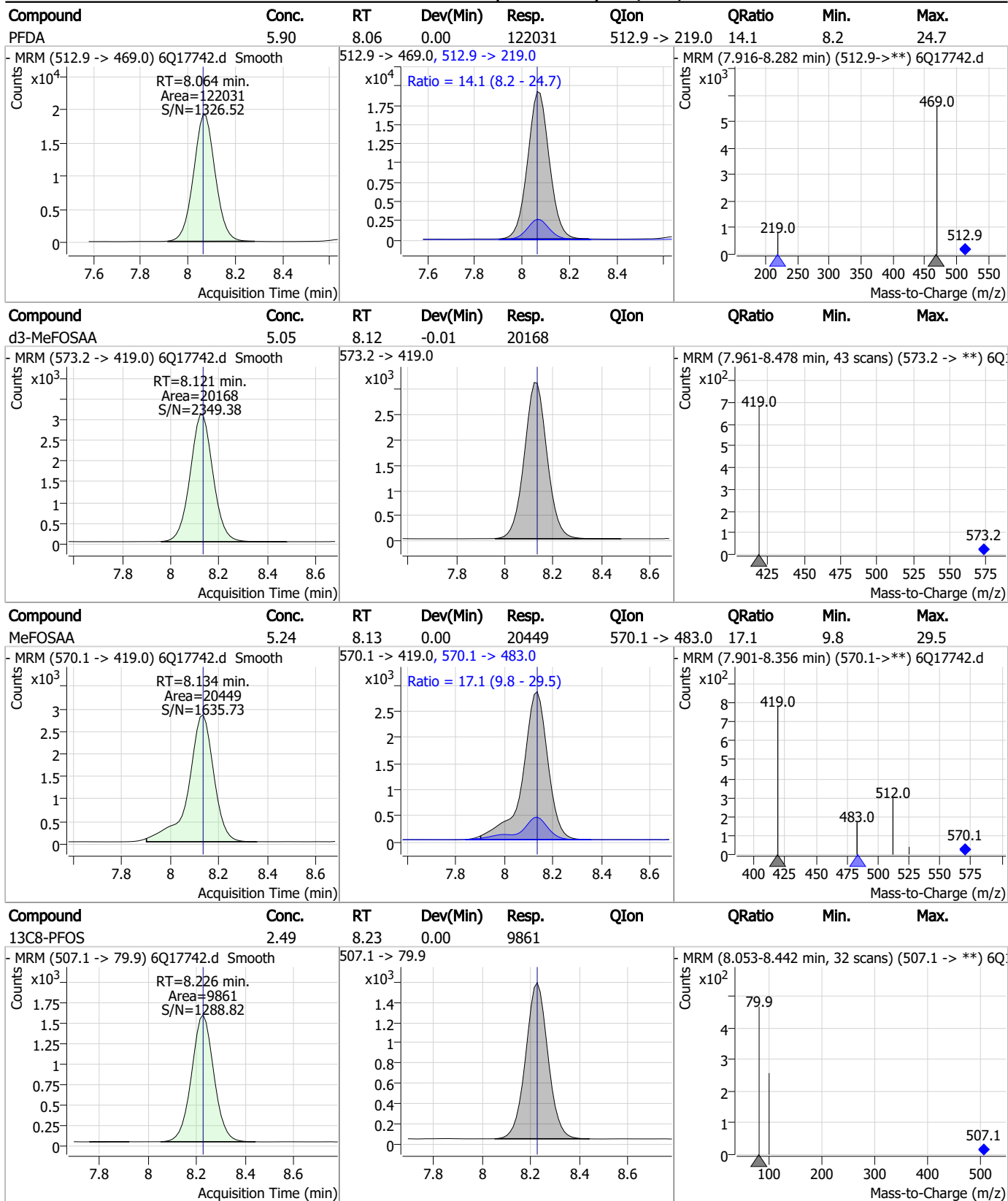
### Perfluorinated Compounds by LC/MS/MS



7.7.20

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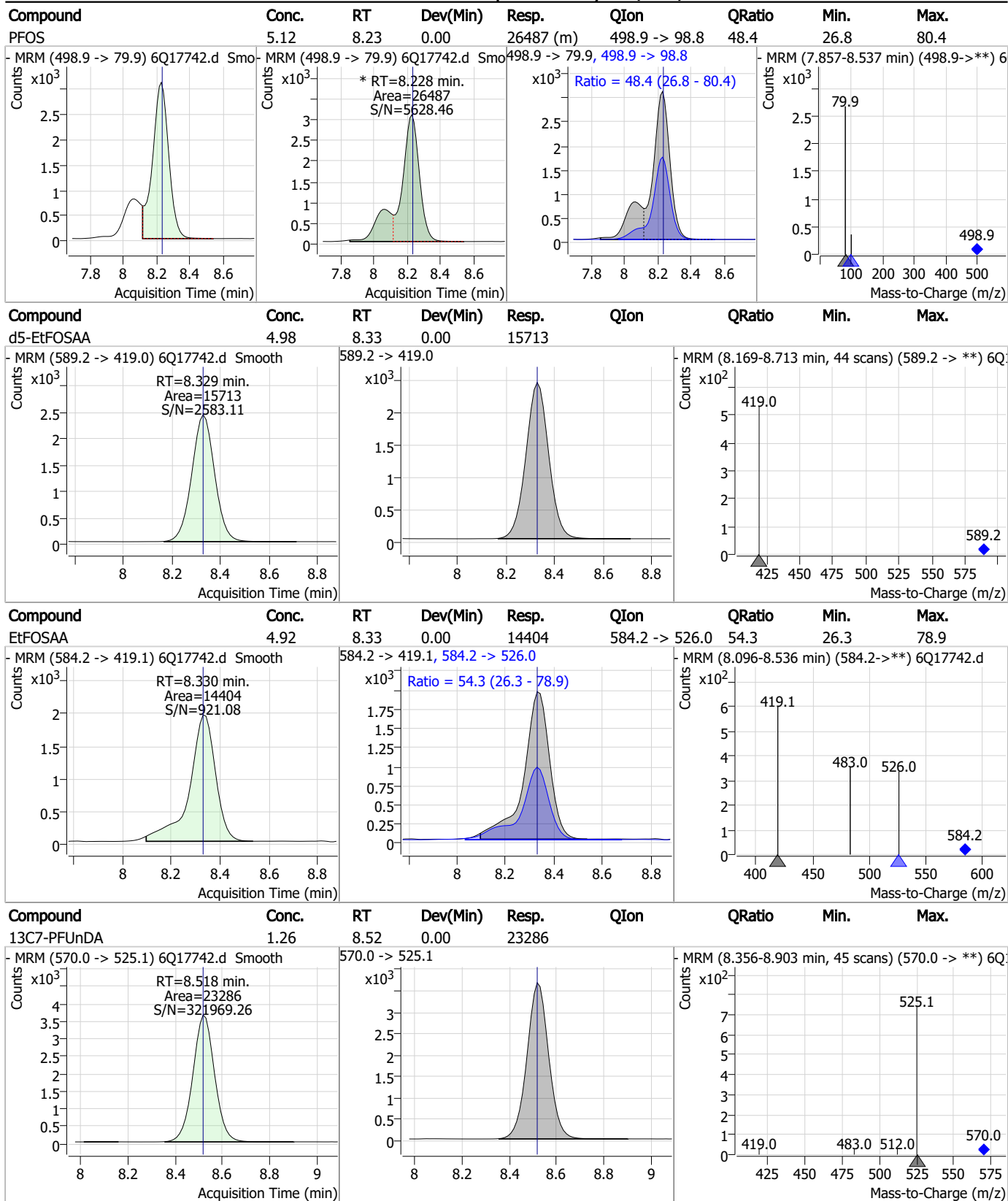
### Perfluorinated Compounds by LC/MS/MS



7.7.20

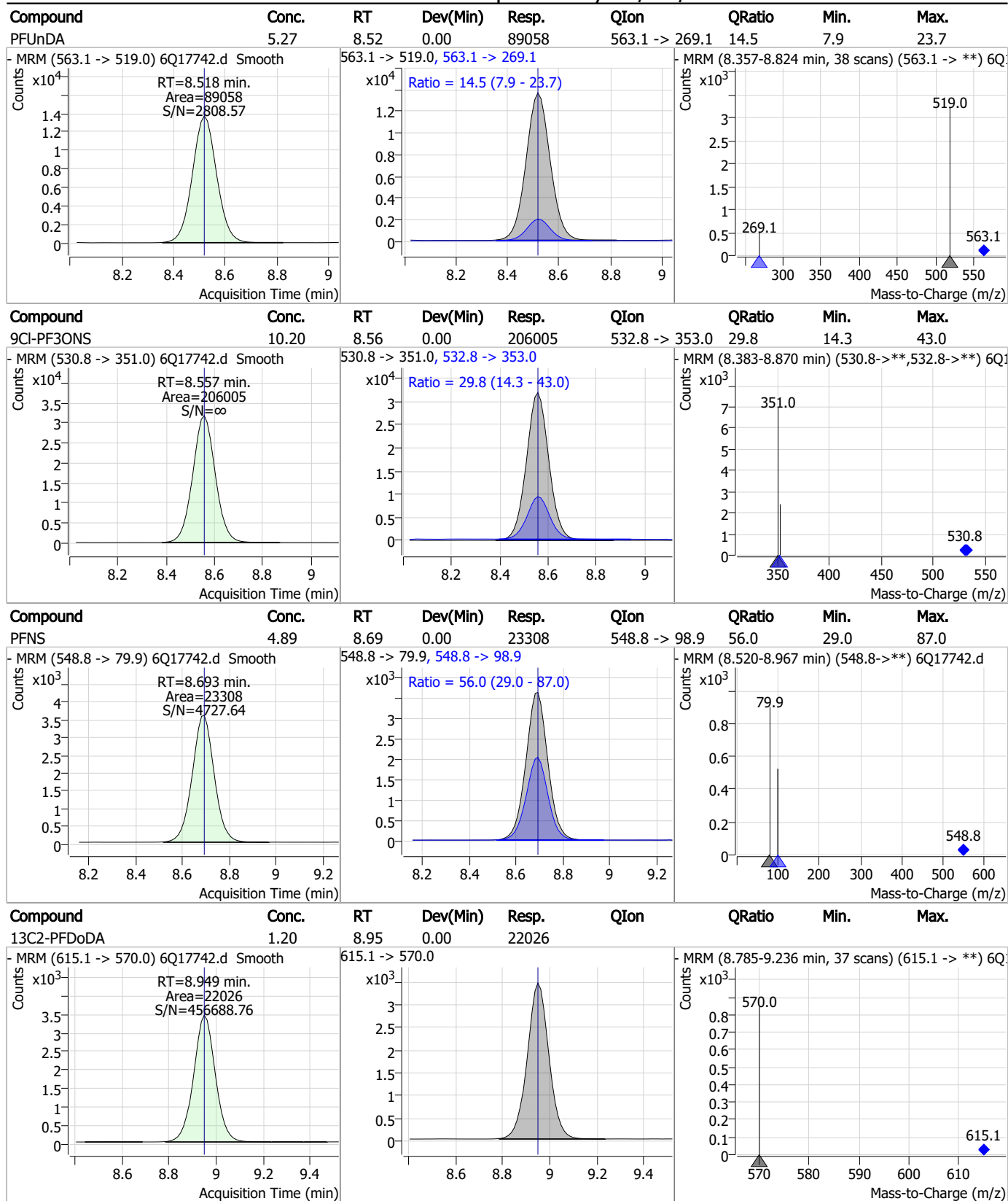
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### Perfluorinated Compounds by LC/MS/MS



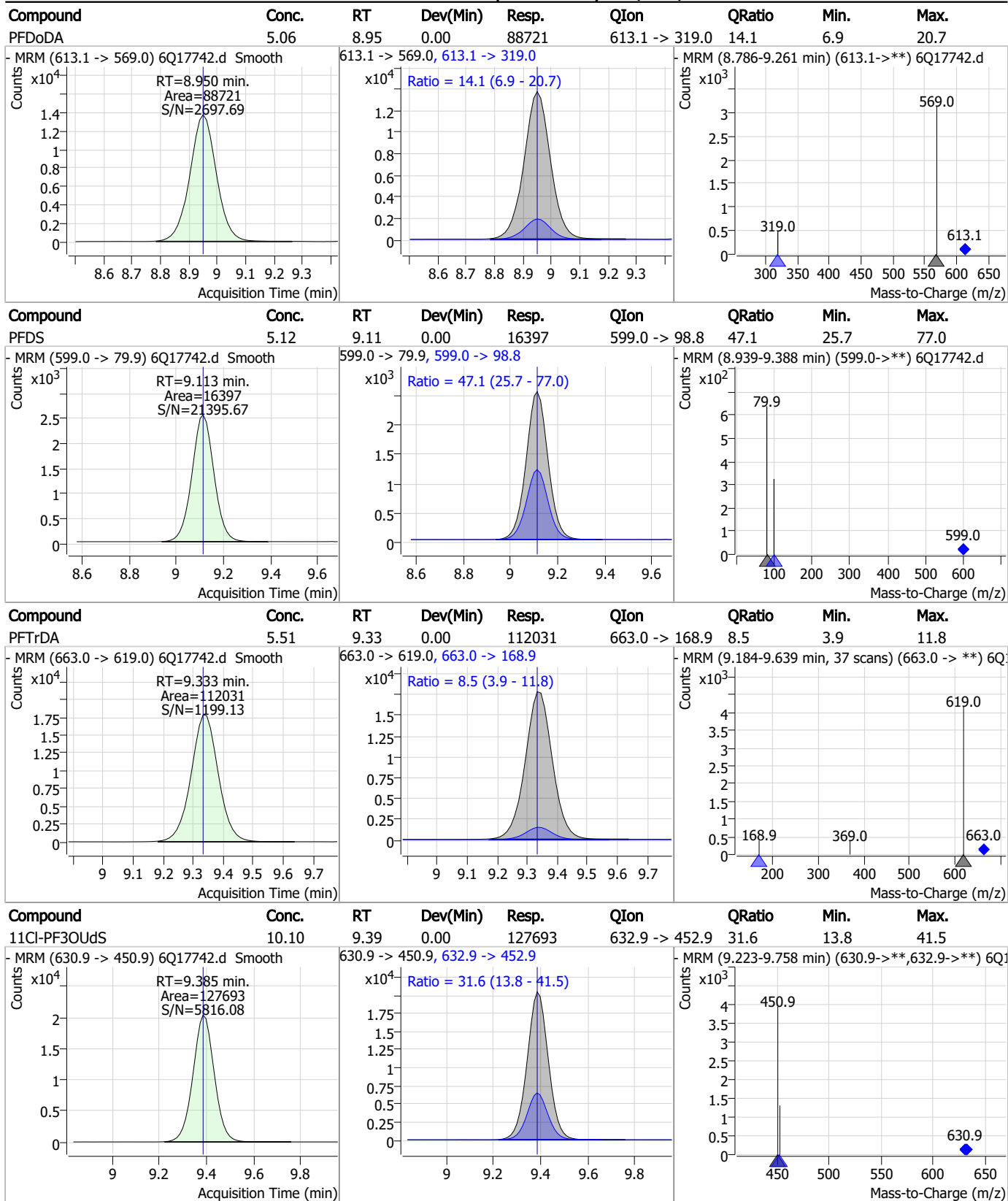
7.7.20  
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### Perfluorinated Compounds by LC/MS/MS



7.7.20 7

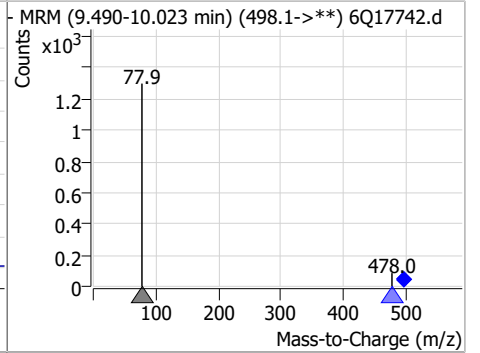
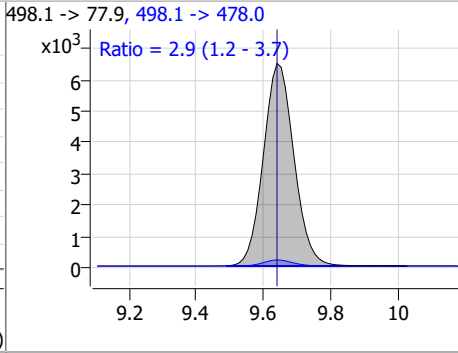
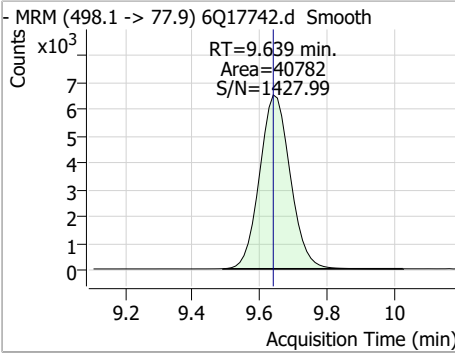
### Perfluorinated Compounds by LC/MS/MS



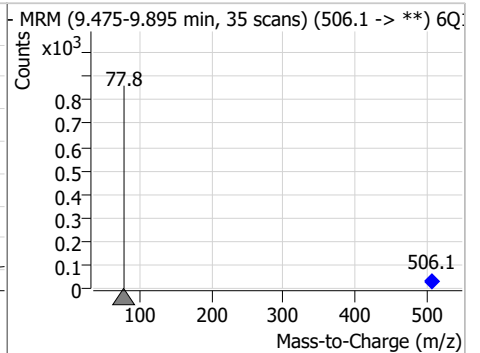
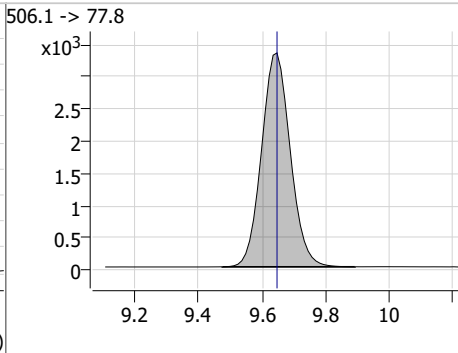
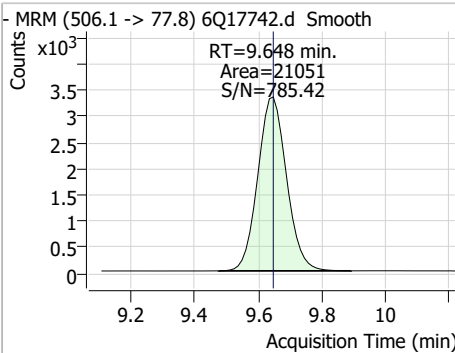
7.7.20 7

### Perfluorinated Compounds by LC/MS/MS

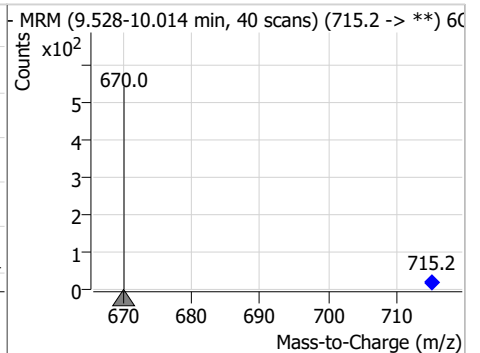
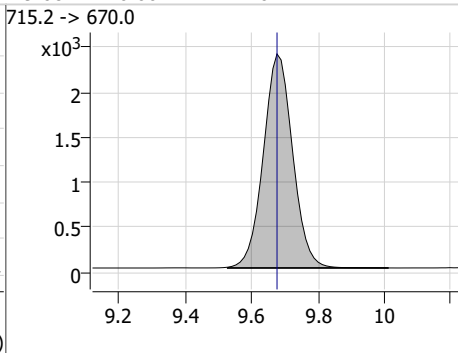
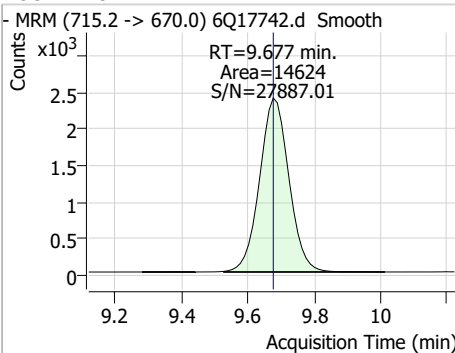
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	5.18	9.64	0.00	40782	498.1 -> 478.0	2.9	1.2	3.7



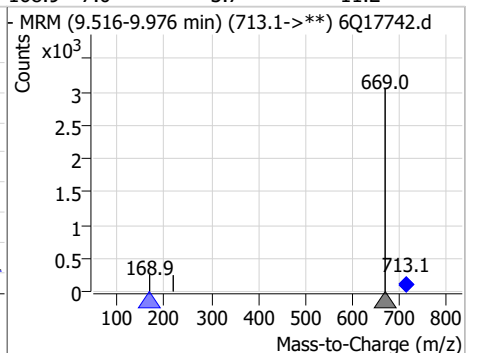
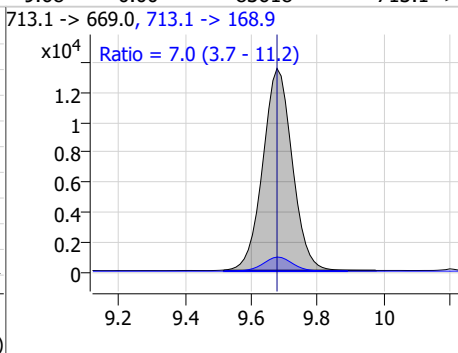
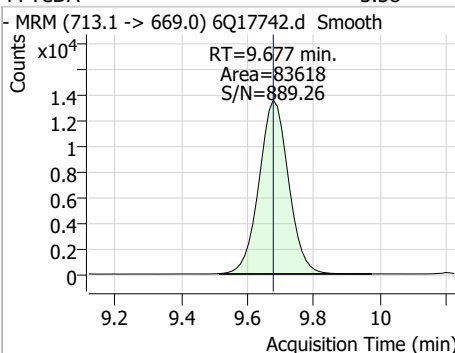
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.49	9.65	0.00	21051				



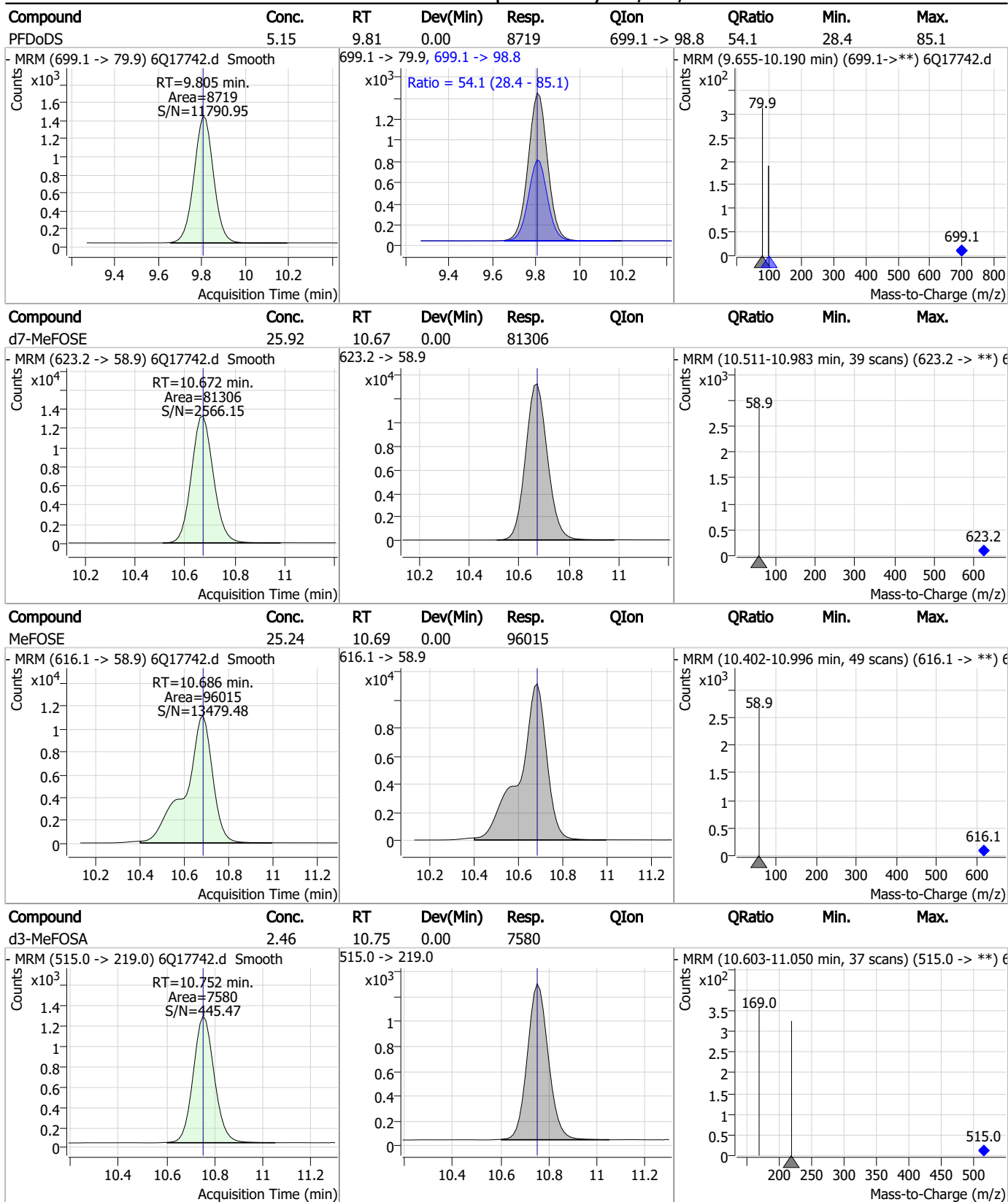
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.17	9.68	0.00	14624				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	5.58	9.68	0.00	83618	713.1 -> 168.9	7.0	3.7	11.2

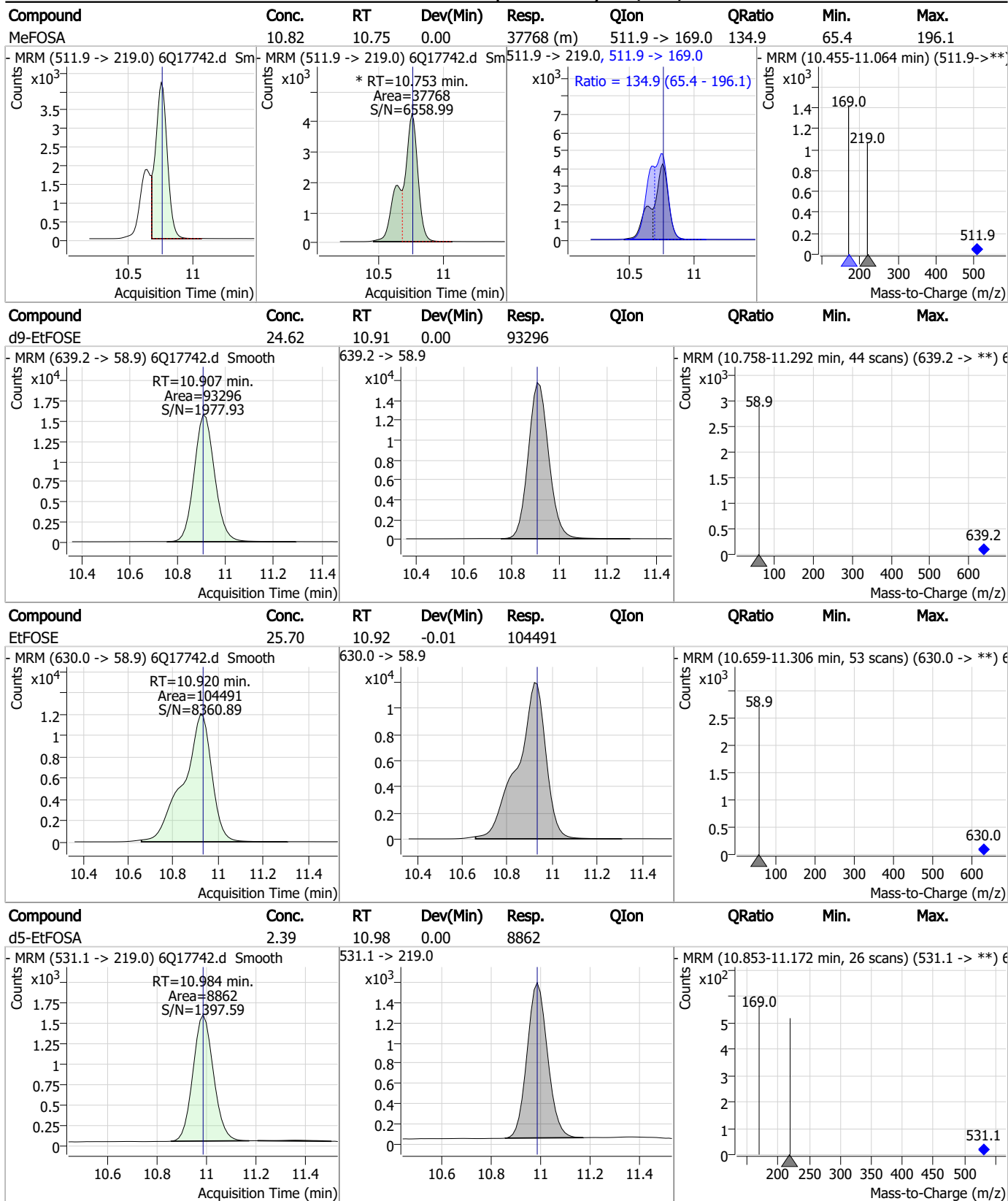


### Perfluorinated Compounds by LC/MS/MS



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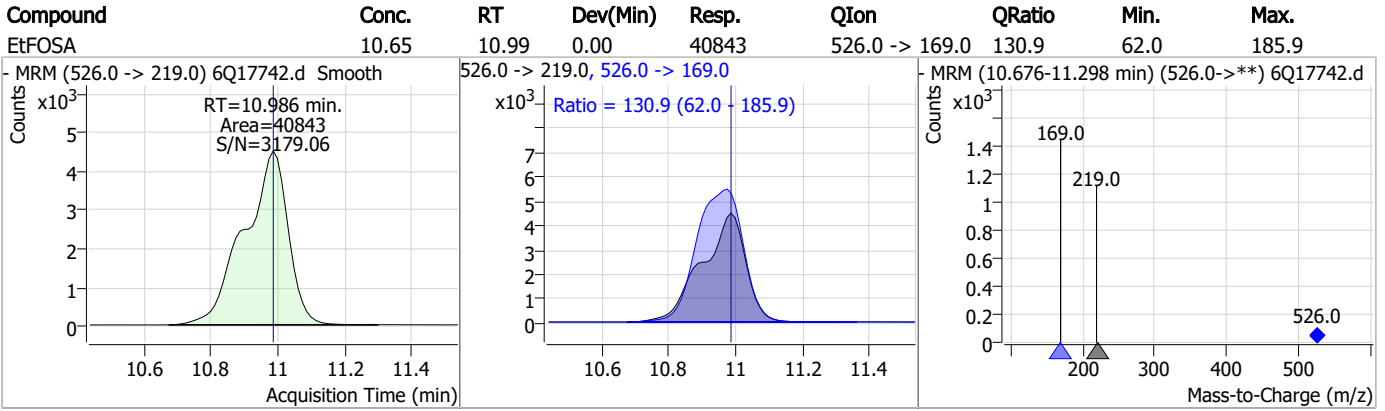
### Perfluorinated Compounds by LC/MS/MS



7.7.20  
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### Perfluorinated Compounds by LC/MS/MS



7.7.20  
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# Manual Integration Approval Summary

Sample Number: S6Q268-IC268      Method: EPA DRAFT 1633  
Lab FileID: 6Q17742.D      Analyst approved: 05/15/23 12:43 Martha Valls  
Injection Time: 05/12/23 13:13      Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.75	Split peak

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

**Norman Farmer**  
 05/16/23 09:33

### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17743.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 1:27:52 PM  
 Sample Name : ic268-6  
 Vial : P1-A7  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	144328	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	46920	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	52694	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	46592	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	66712	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	22402	1.25 µg/L	0.012
M6-PFDA	8.064	519.1 -> 474.1	16992	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	20744	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	20356	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	13532	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	20157	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	17779	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11339	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9204	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1583	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	1958	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2235	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	18661	5.00 µg/L	0.000
M3-HFPO-DA	5.831	286.9 -> 168.9	32779	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	14793	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	75882	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	88028	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9139	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	6959	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	11774	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	61115	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	7769	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	67677	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	21632	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	22287	1.25 µg/L	0.000
13C2-PFHxA	5.467	315.1 -> 270.0	44392	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.143	329.1 -> 80.9	1583	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1958	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2235	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.0%		
13C2-PFDoDA	8.949	615.1 -> 570.0	20356	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.0%		
13C2-PFTeDA	9.677	715.2 -> 670.0	13532	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.2%		
13C3-PFBS	5.397	302.1 -> 79.9	17779	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	11339	2.74 µg/L	0.012

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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C4-PFBA	2.901	216.8 -> 171.9	144328	9.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.420	367.1 -> 322.0	46592	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C5-PFHxA	5.466	318.0 -> 273.0	52694	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFPeA	4.272	268.3 -> 223.0	46920	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C6-PFDA	8.064	519.1 -> 474.1	16992	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C7-PFUnDA	8.518	570.0 -> 525.1	20744	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.2%	
13C8-FOSA	9.648	506.1 -> 77.8	20157	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C8-PFOA	7.064	421.1 -> 376.0	66712	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C8-PFOS	8.226	507.1 -> 79.9	9204	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C9-PFNA	7.595	472.1 -> 427.0	22402	1.36 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.8%	
d3-MeFOSAA	8.133	573.2 -> 419.0	18661	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	32779	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
d3-MeFOSA	10.752	515.0 -> 219.0	6959	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
d5-EtFOSAA	8.329	589.2 -> 419.0	14793	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d7-MeFOSE	10.672	623.2 -> 58.9	75882	26.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d9-EtFOSE	10.907	639.2 -> 58.9	88028	25.12 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d5-EtFOSA	10.984	531.1 -> 219.0	9139	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.144	327.1 -> 307.0	113779	47.80 µg/L	98
		327.1 -> 80.9	41057		
6:2FTS	6.838	427.1 -> 407.0	108590	50.96 µg/L	100
		427.1 -> 80.9	35396		
8:2FTS	7.865	527.1 -> 507.0	60260	47.45 µg/L	96
		527.1 -> 80.8	26164		
EtFOSAA	8.330	584.2 -> 419.1	35373	12.84 µg/L	97
		584.2 -> 526.0	19332		
FOSA	9.639	498.1 -> 77.9	97191	12.88 µg/L	99
		498.1 -> 478.0	2890		
MeFOSAA	8.134	570.1 -> 419.0	47536	13.16 µg/L	96
		570.1 -> 483.0	8463		
PFBA	2.907	212.8 -> 168.9	271819	52.50 µg/L	100
PFBS	5.398	298.7 -> 79.9	95381	10.99 µg/L	95
		298.7 -> 98.8	37505		
PFDA	8.064	512.9 -> 469.0	250887	11.93 µg/L	100
		512.9 -> 219.0	41119		
PFDoDA	8.950	613.1 -> 569.0	215309	13.28 µg/L	98
		613.1 -> 319.0	31127		
PFDS	9.113	599.0 -> 79.9	38234	12.79 µg/L	96

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	18657			
PFHpA	6.420	363.1 -> 319.0	302664	13.00	µg/L	99
		363.1 -> 169.0	47461			
PFHpS	7.723	449.0 -> 79.9	62613	12.75	µg/L	94
		449.0 -> 98.9	30195			
PFHxA	5.469	313.0 -> 269.0	264948	12.69	µg/L	100
		313.0 -> 118.9	12368			
PFHxS	7.180	398.7 -> 79.9	69961	11.15	µg/L	m 95
		398.7 -> 98.9	32563			
PFNA	7.596	463.0 -> 419.0	213821	12.85	µg/L	96
		463.0 -> 219.0	39829			
PFNS	8.693	548.8 -> 79.9	57259	12.86	µg/L	91
		548.8 -> 98.9	29324			
PFOA	7.066	413.0 -> 369.0	423077	12.75	µg/L	100
		413.0 -> 169.0	71366			
PFOS	8.228	498.9 -> 79.9	60109	12.46	µg/L	m 95
		498.9 -> 98.8	30220			
PFPeA	4.274	263.0 -> 219.0	349471	25.79	µg/L	100
PFPeS	6.471	349.1 -> 79.9	71730	11.53	µg/L	97
		349.1 -> 98.9	33565			
PFTeDA	9.677	713.1 -> 669.0	187285	13.52	µg/L	99
		713.1 -> 168.9	13652			
PFTrDA	9.333	663.0 -> 619.0	257028	13.67	µg/L	98
		663.0 -> 168.9	21614			
PFUnDA	8.518	563.1 -> 519.0	198126	13.15	µg/L	98
		563.1 -> 269.1	32749			
11Cl-PF3OUdS	9.385	630.9 -> 450.9	300037	24.22	µg/L	88
		632.9 -> 452.9	102145			
9Cl-PF3ONS	8.557	530.8 -> 351.0	481733	24.35	µg/L	97
		532.8 -> 353.0	146642			
ADONA	6.671	376.9 -> 250.9	1262550	24.19	µg/L	95
		376.9 -> 84.8	330623			
HFPO-DA	5.832	284.9 -> 168.9	78784	24.86	µg/L	99
		284.9 -> 184.9	10994			
3:3FTCA	3.777	241.0 -> 177.0	53826	64.11	µg/L	98
		241.0 -> 117.0	6786			
5:3FTCA	6.161	341.0 -> 237.1	1129573	312.33	µg/L	100
		341.0 -> 217.0	824681			
7:3FTCA	7.573	441.0 -> 316.9	513398	312.91	µg/L	94
		441.0 -> 336.9	1124128			
EtFOSA	10.986	526.0 -> 219.0	100215	25.33	µg/L	98
		526.0 -> 169.0	122290			
EtFOSE	10.920	630.0 -> 58.9	257156	67.04	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	85915	26.81	µg/L	m 93
		511.9 -> 169.0	119466			
MeFOSE	10.686	616.1 -> 58.9	229541	64.66	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	19656	12.44	µg/L	98
		699.1 -> 98.8	10843			
NFDHA	5.348	295.0 -> 201.0	60493	26.25	µg/L	96
		295.0 -> 84.9	15215			
PFMBA	4.675	279.0 -> 85.1	252941	26.16	µg/L	100
PFMPA	3.426	229.0 -> 84.9	180948	25.99	µg/L	100
PFEESA	5.938	314.8 -> 134.9	655961	23.41	µg/L	100
		314.8 -> 82.9	22549			

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

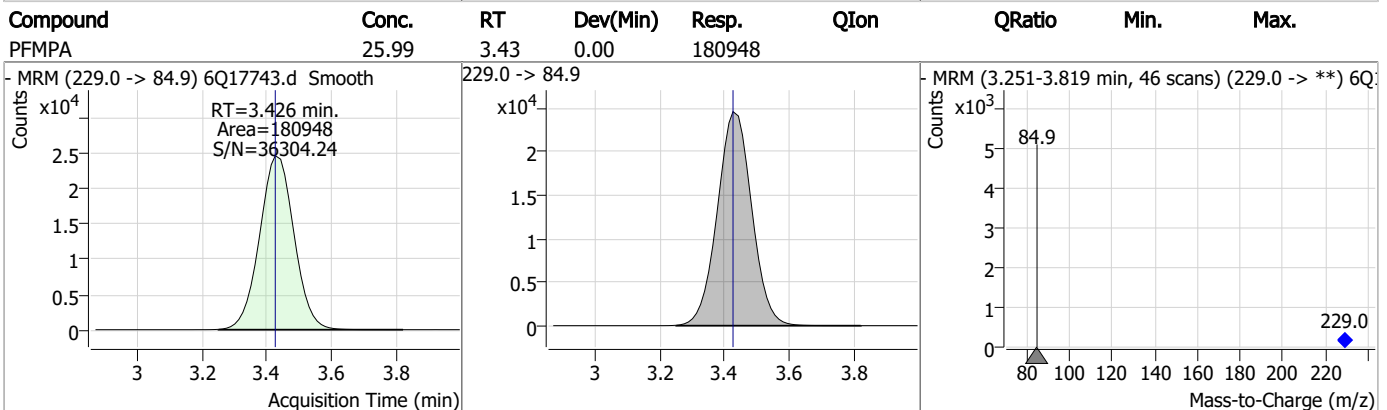
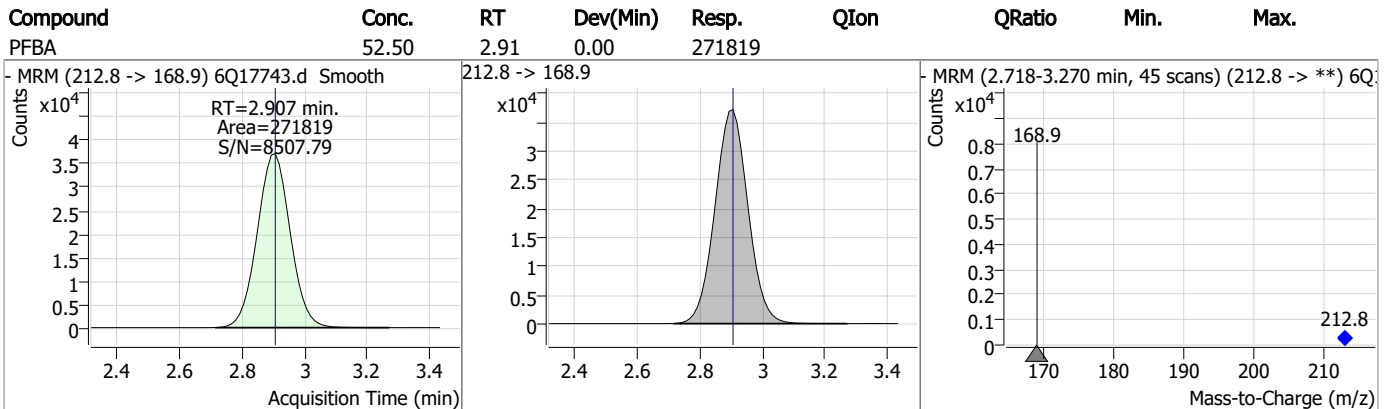
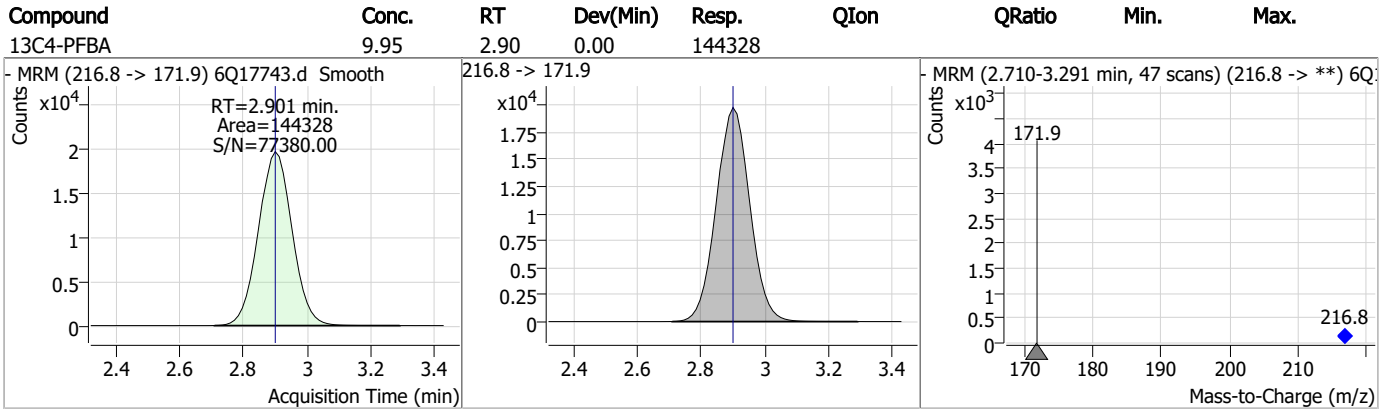
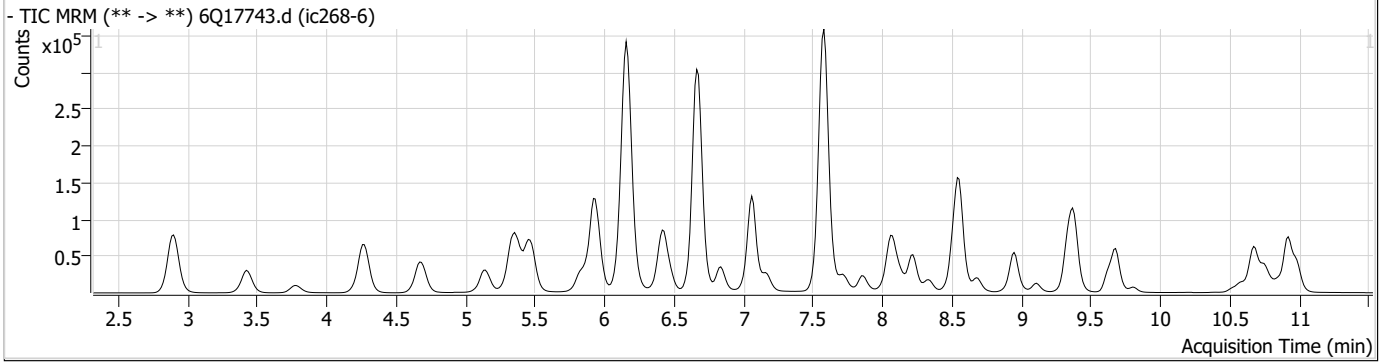
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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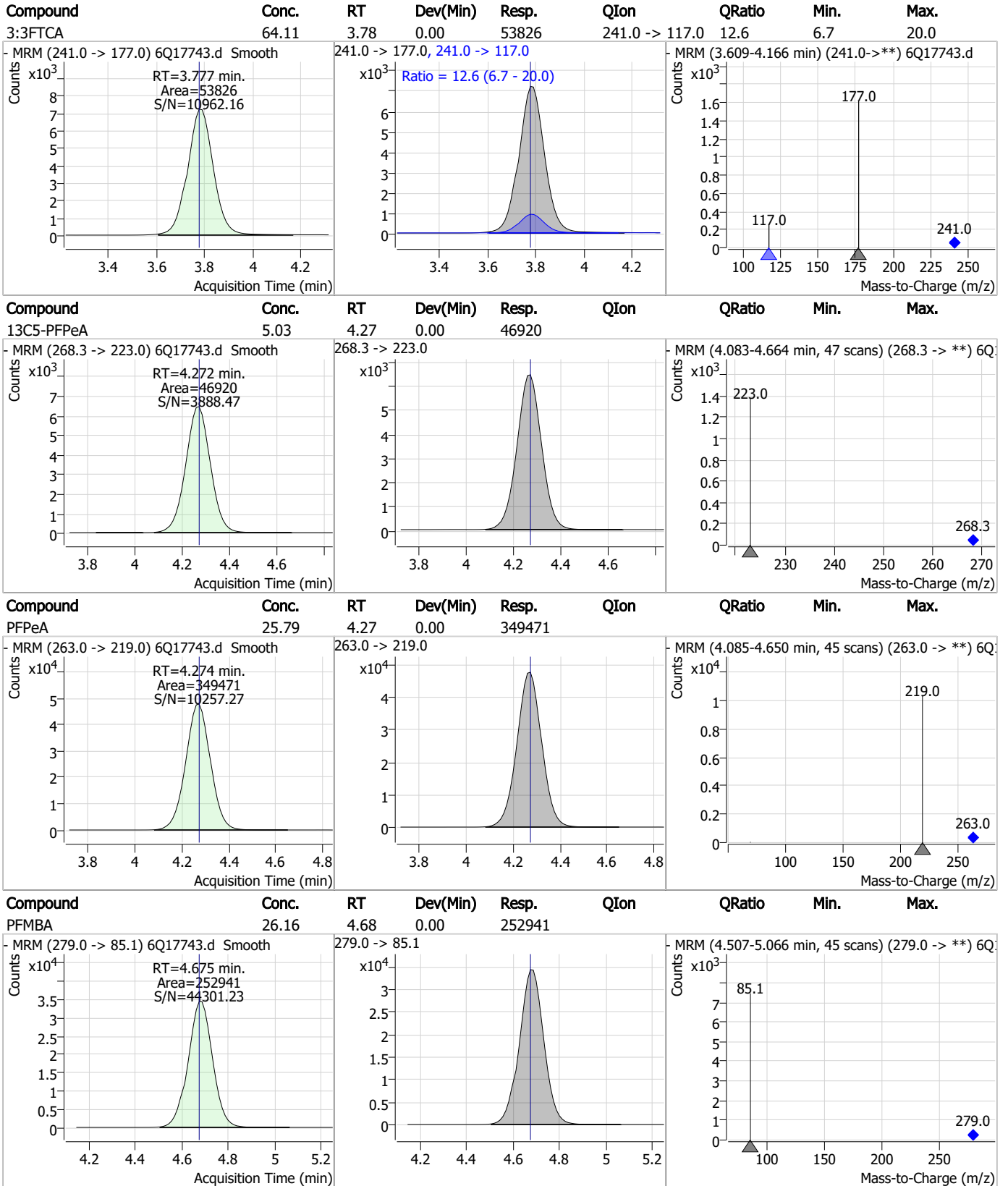
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

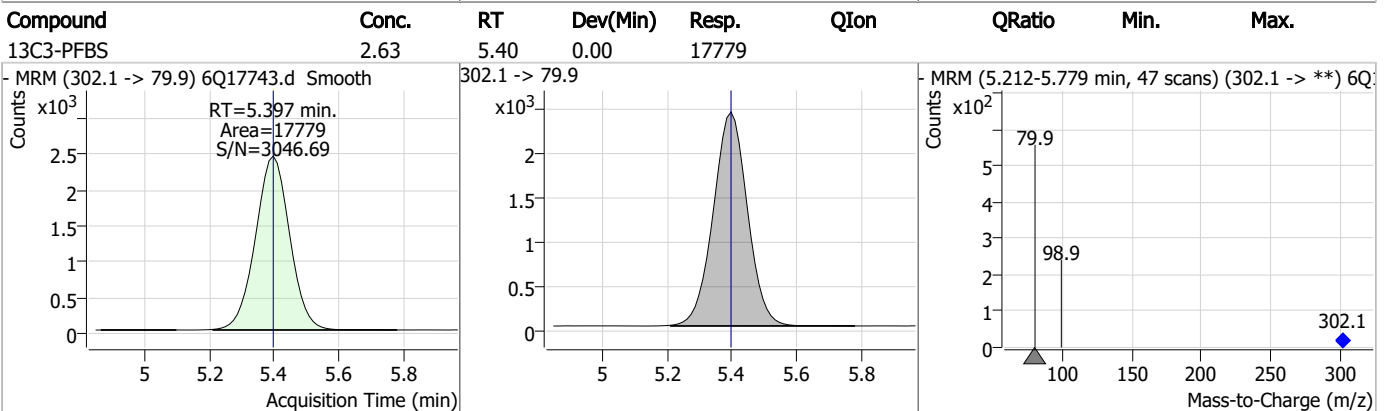
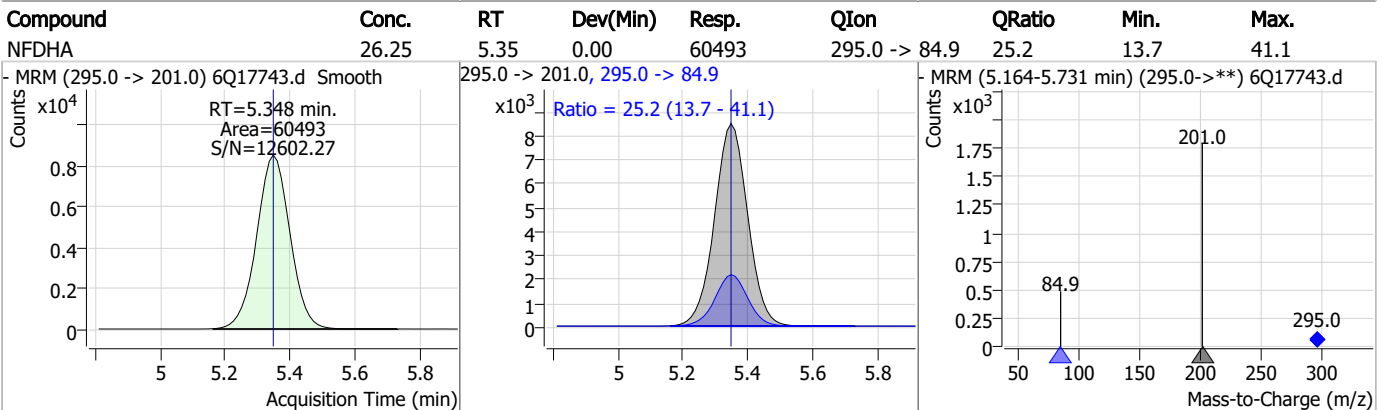
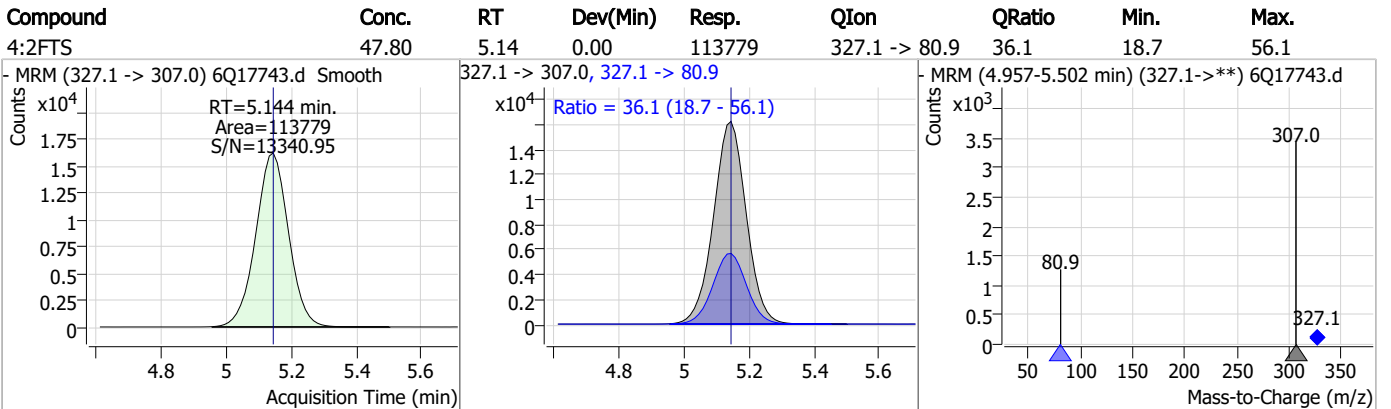
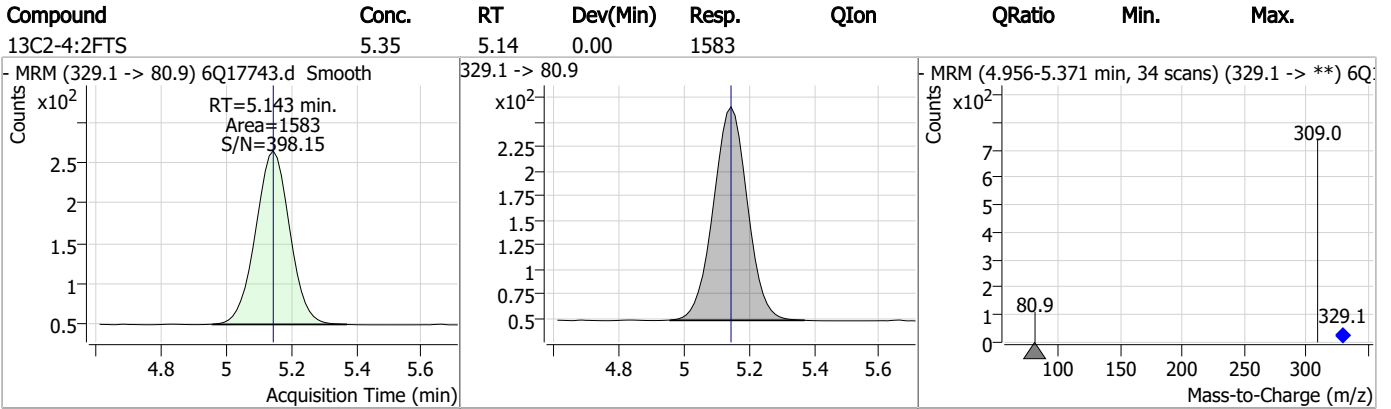


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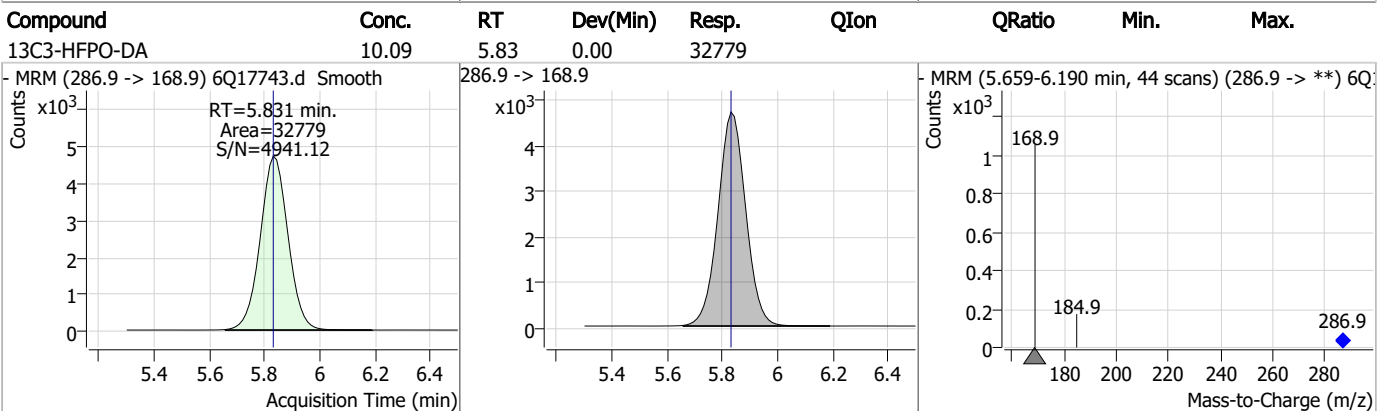
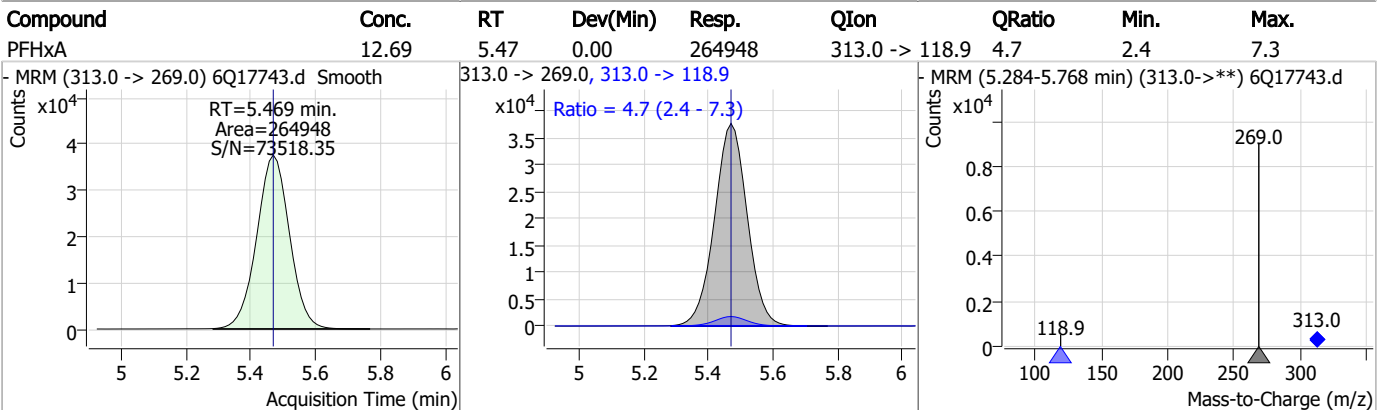
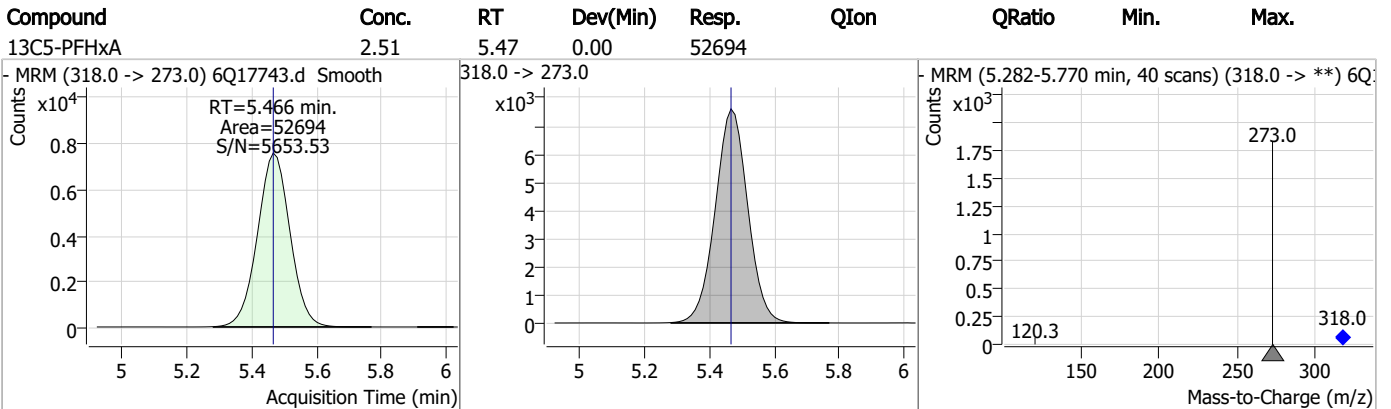
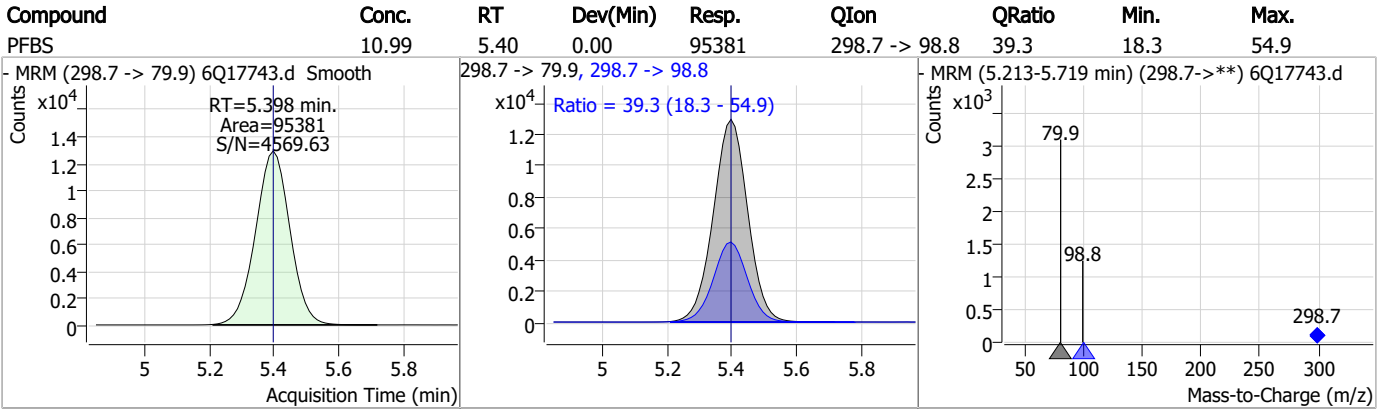


### Perfluorinated Compounds by LC/MS/MS



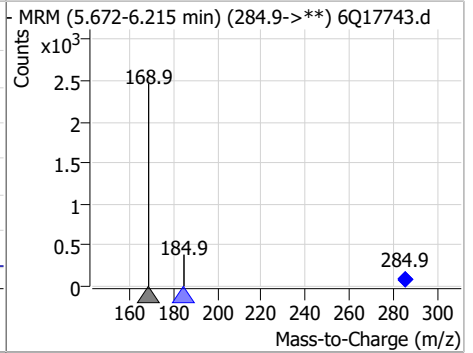
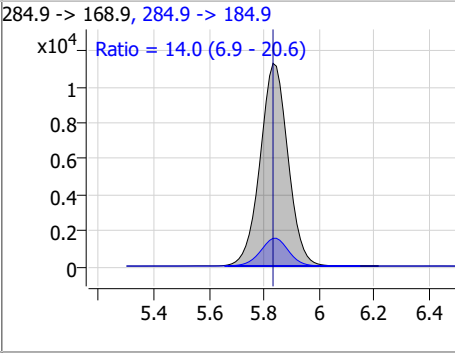
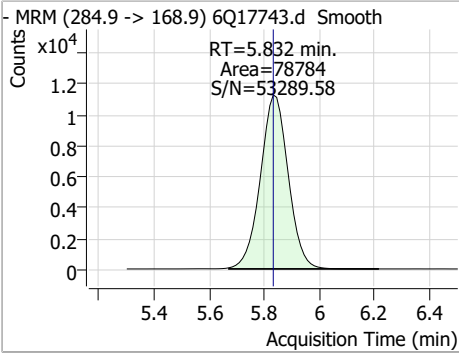
7.7.21  
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### Perfluorinated Compounds by LC/MS/MS

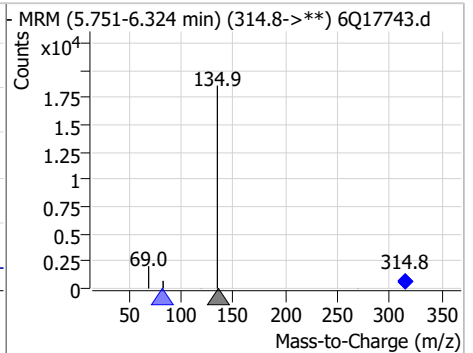
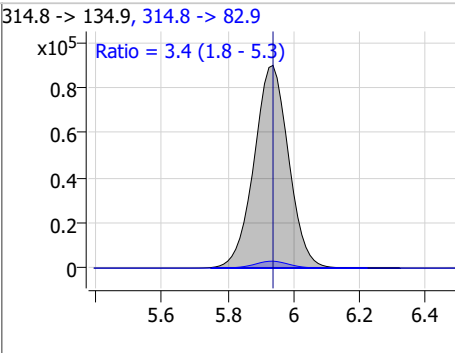
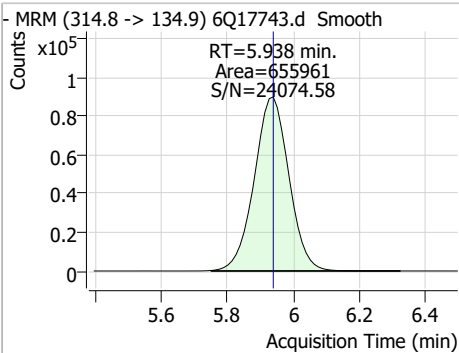


### Perfluorinated Compounds by LC/MS/MS

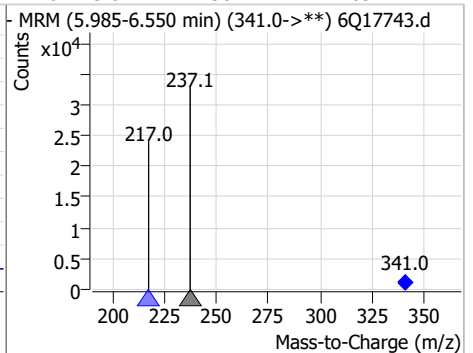
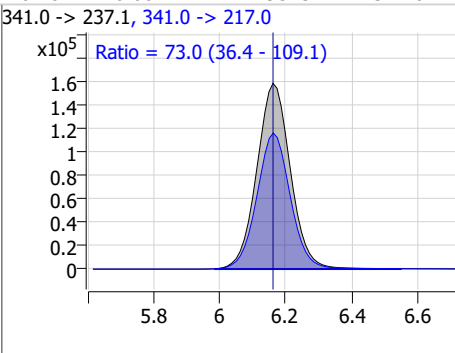
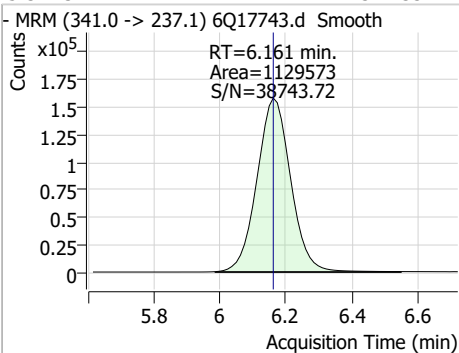
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	24.86	5.83	0.00	78784	284.9 -> 184.9	14.0	6.9	20.6



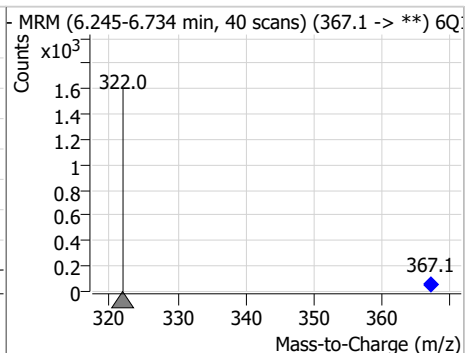
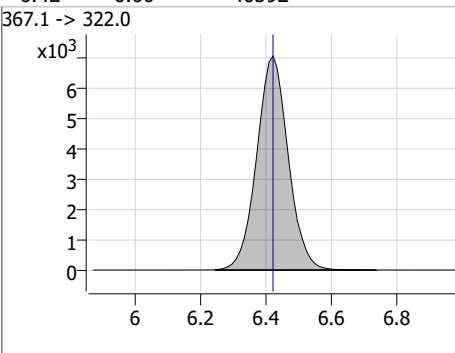
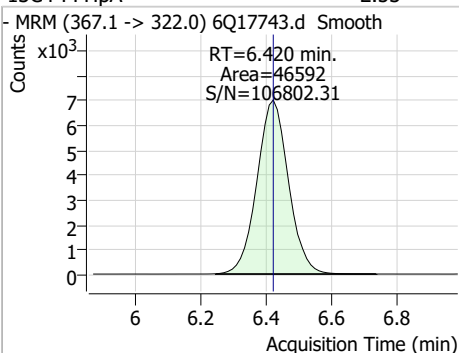
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	23.41	5.94	0.00	655961	314.8 -> 82.9	3.4	1.8	5.3



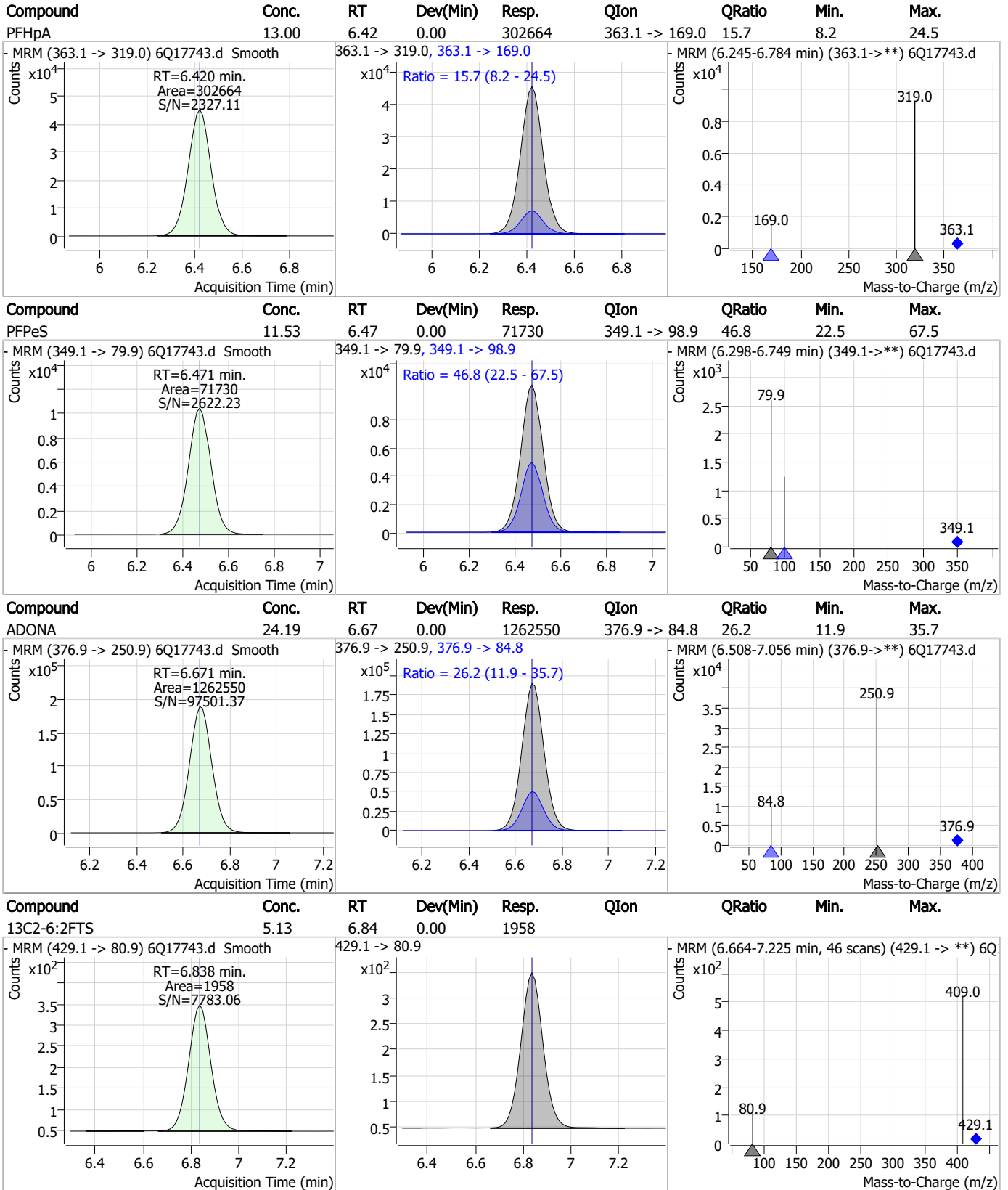
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	312.33	6.16	0.00	1129573	341.0 -> 217.0	73.0	36.4	109.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.53	6.42	0.00	46592	367.1 -> 322.0			

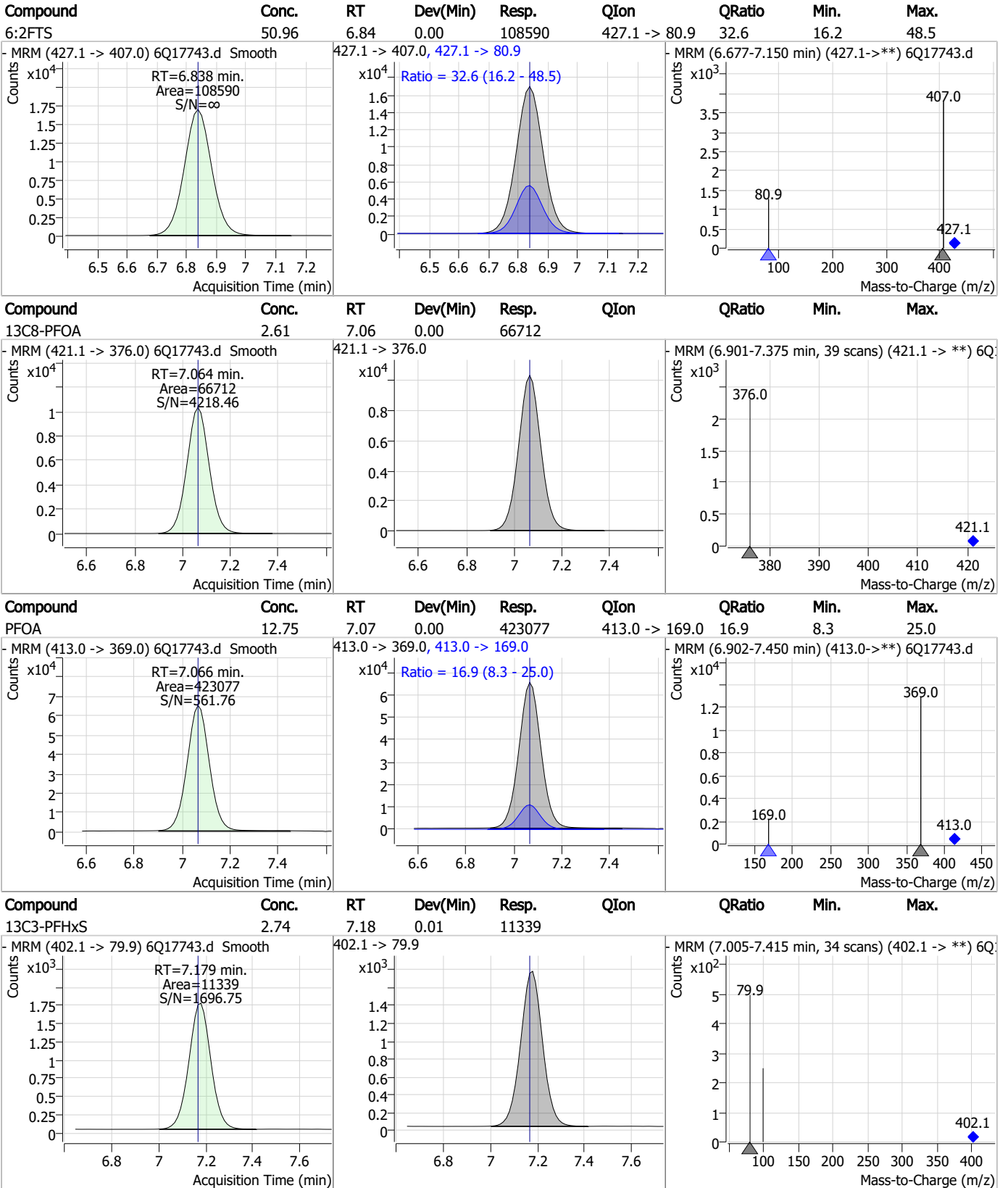


### Perfluorinated Compounds by LC/MS/MS



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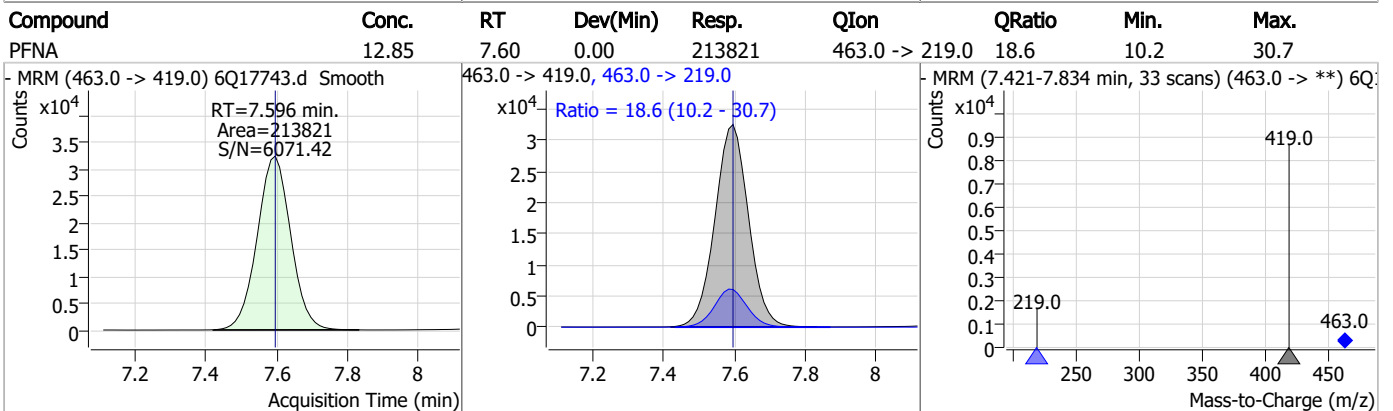
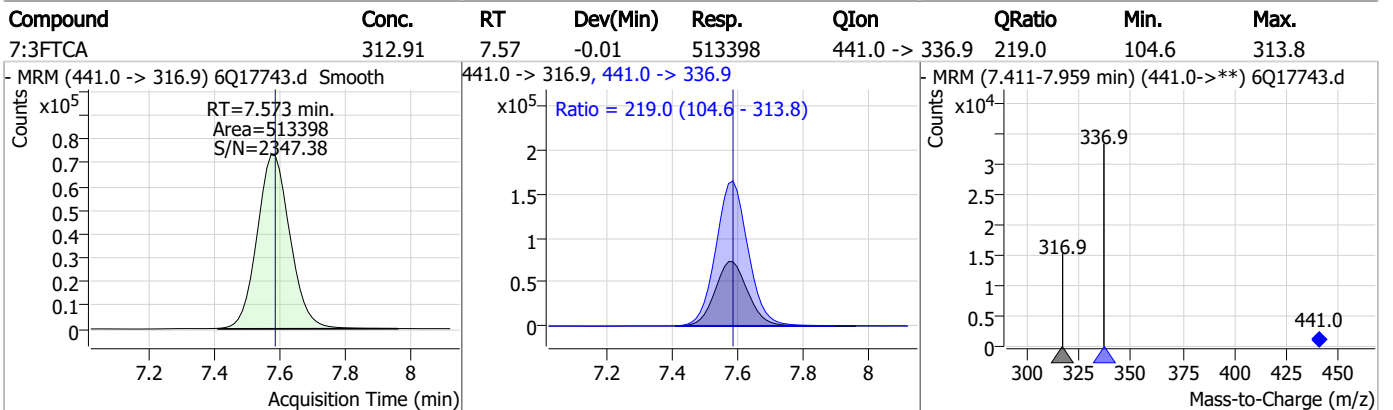
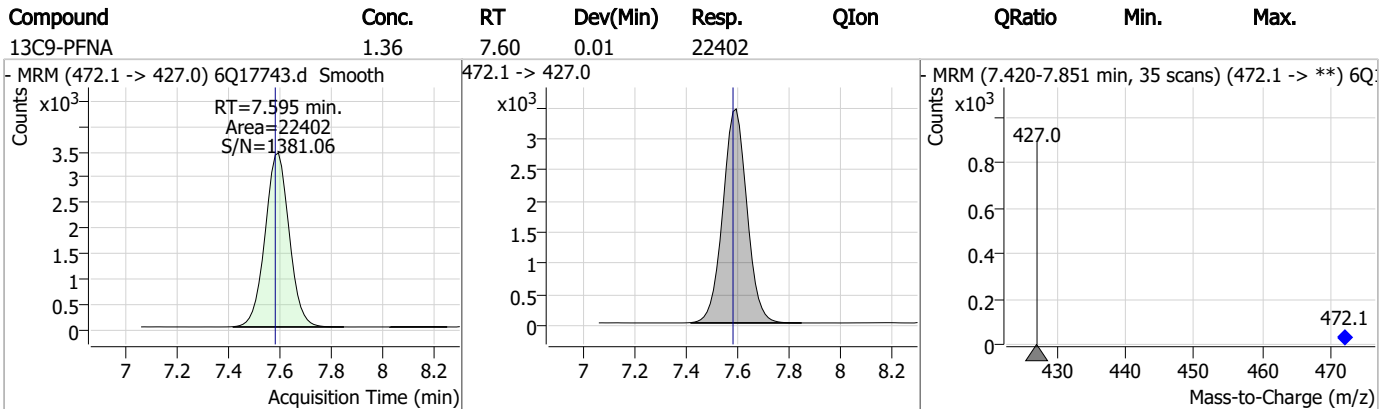
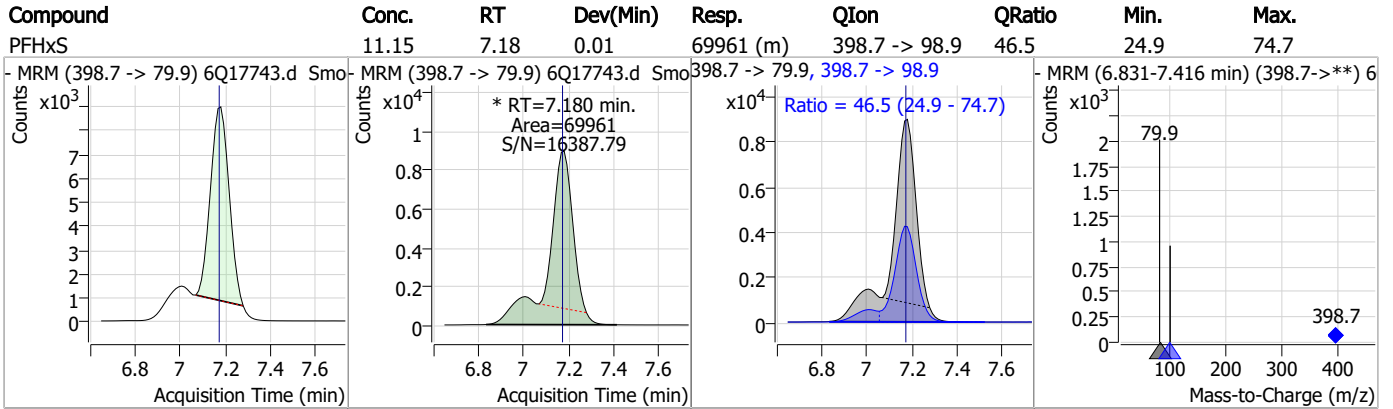
### Perfluorinated Compounds by LC/MS/MS



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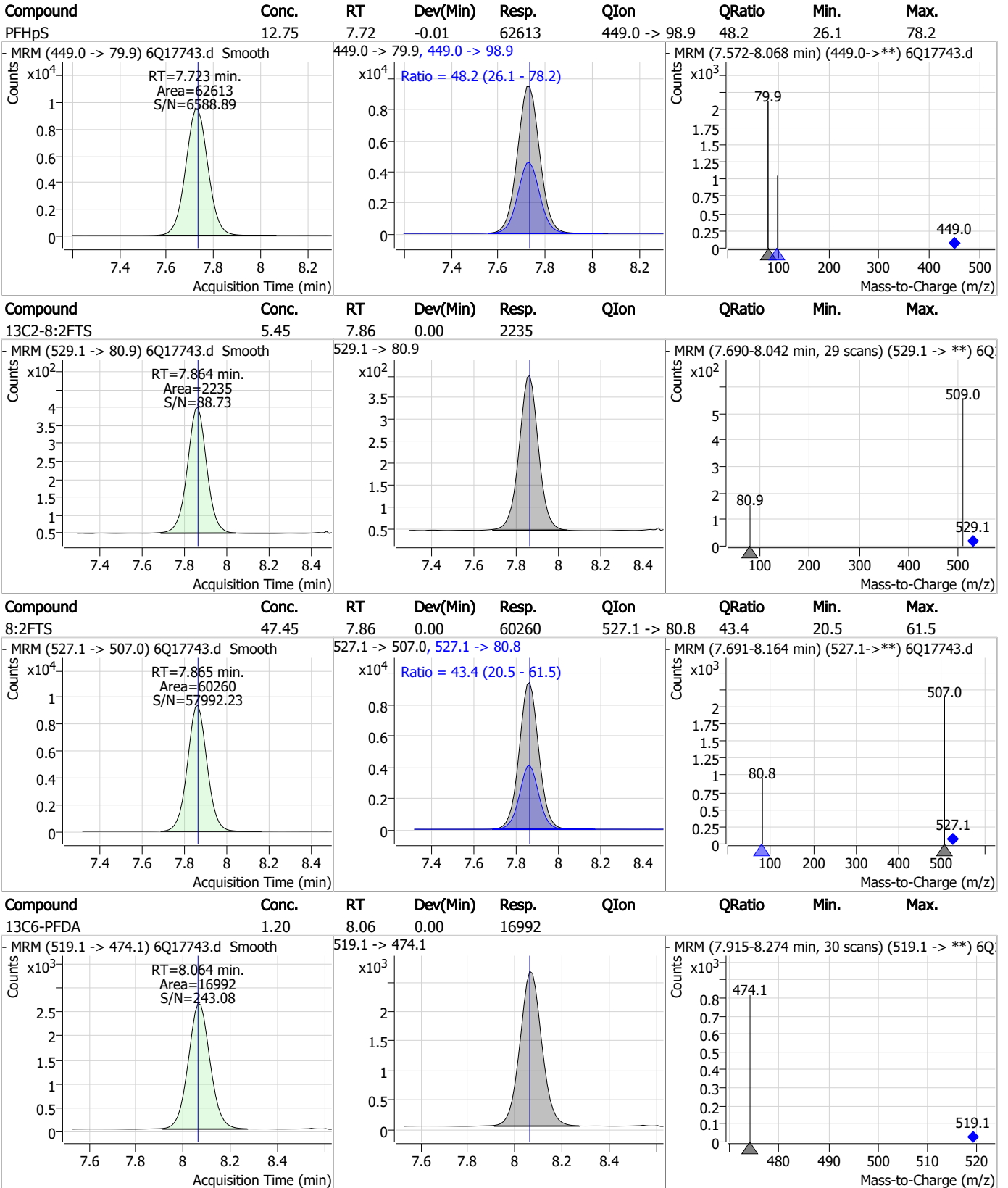
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### Perfluorinated Compounds by LC/MS/MS



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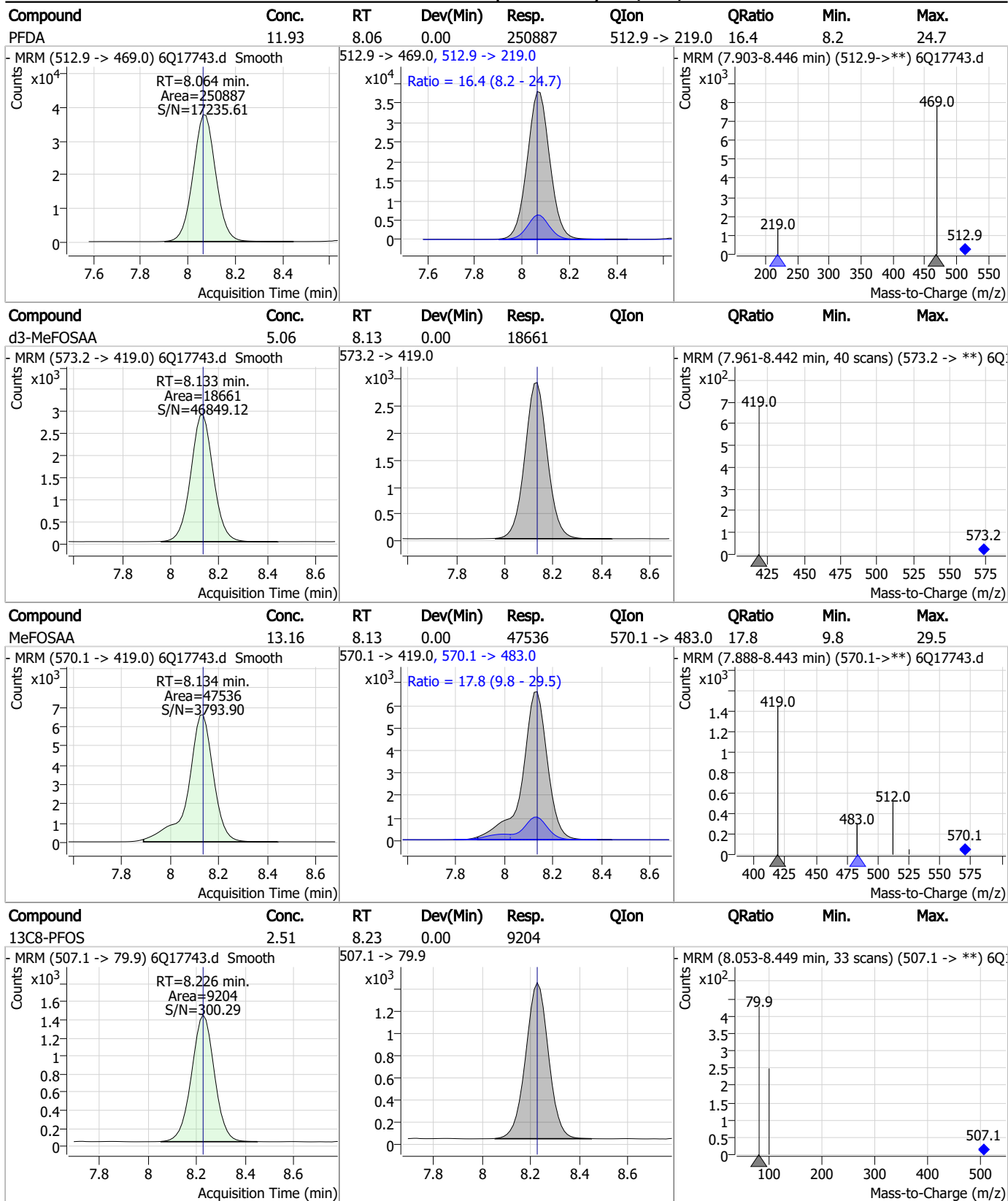
### Perfluorinated Compounds by LC/MS/MS



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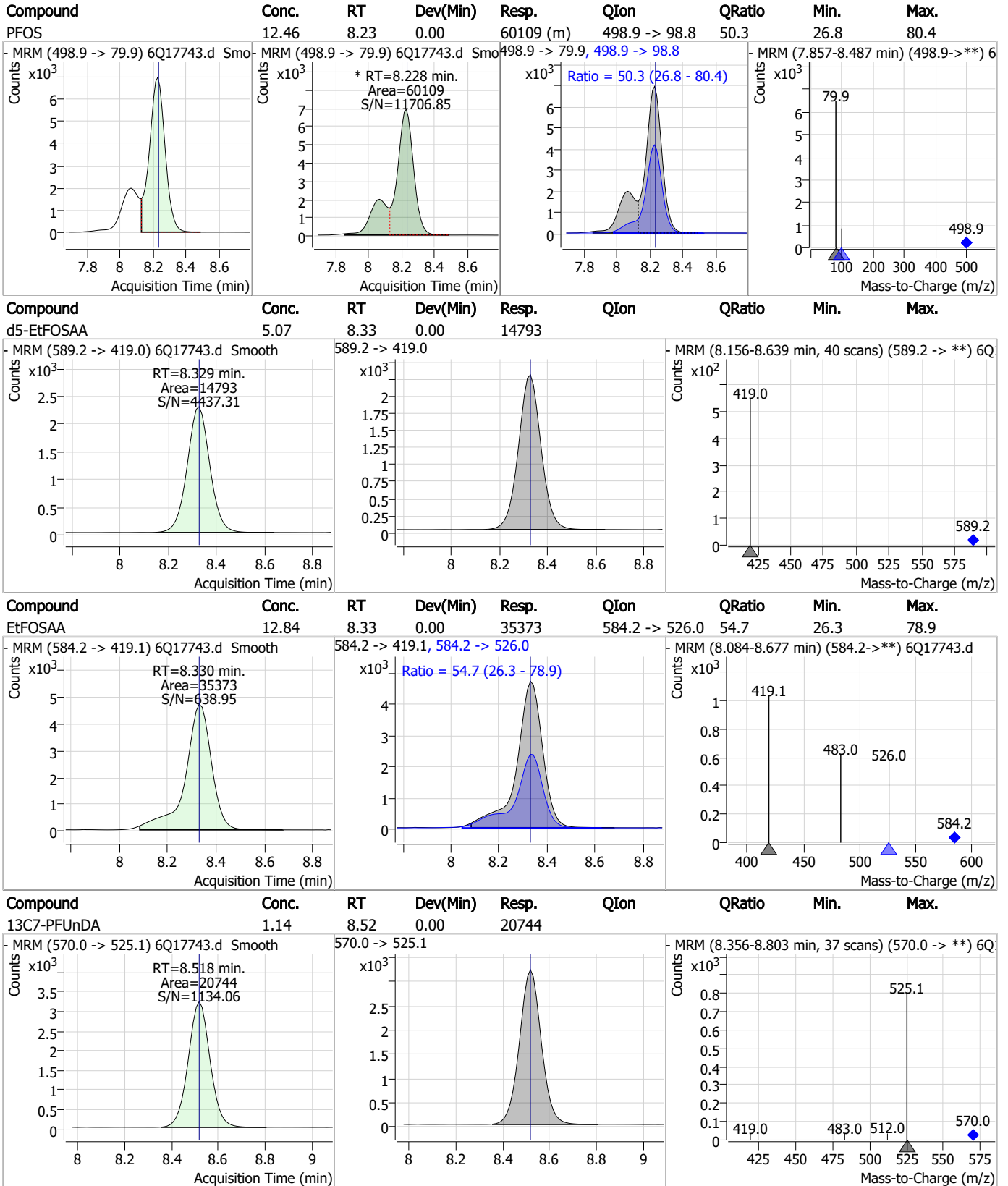
### Perfluorinated Compounds by LC/MS/MS



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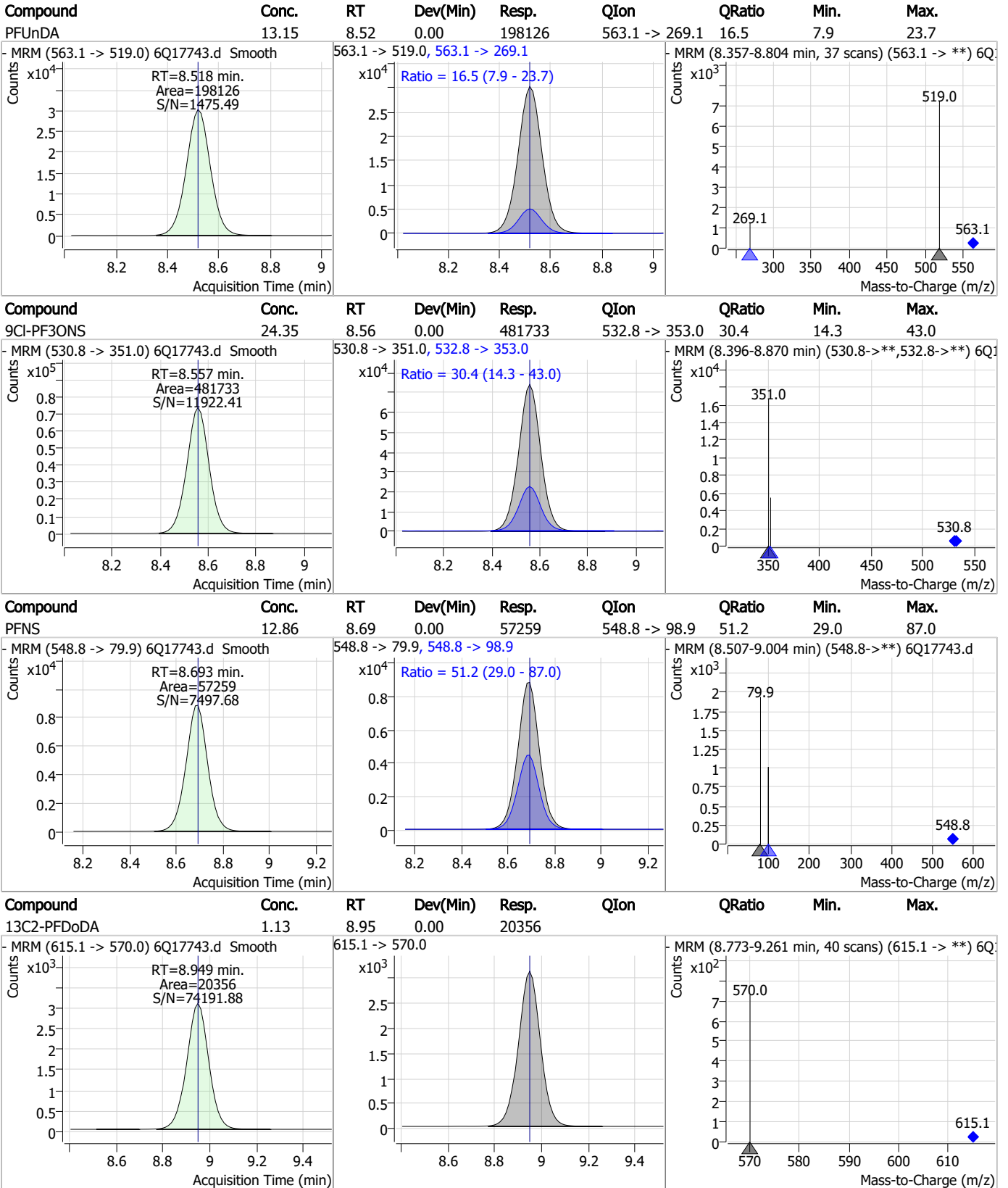
### Perfluorinated Compounds by LC/MS/MS



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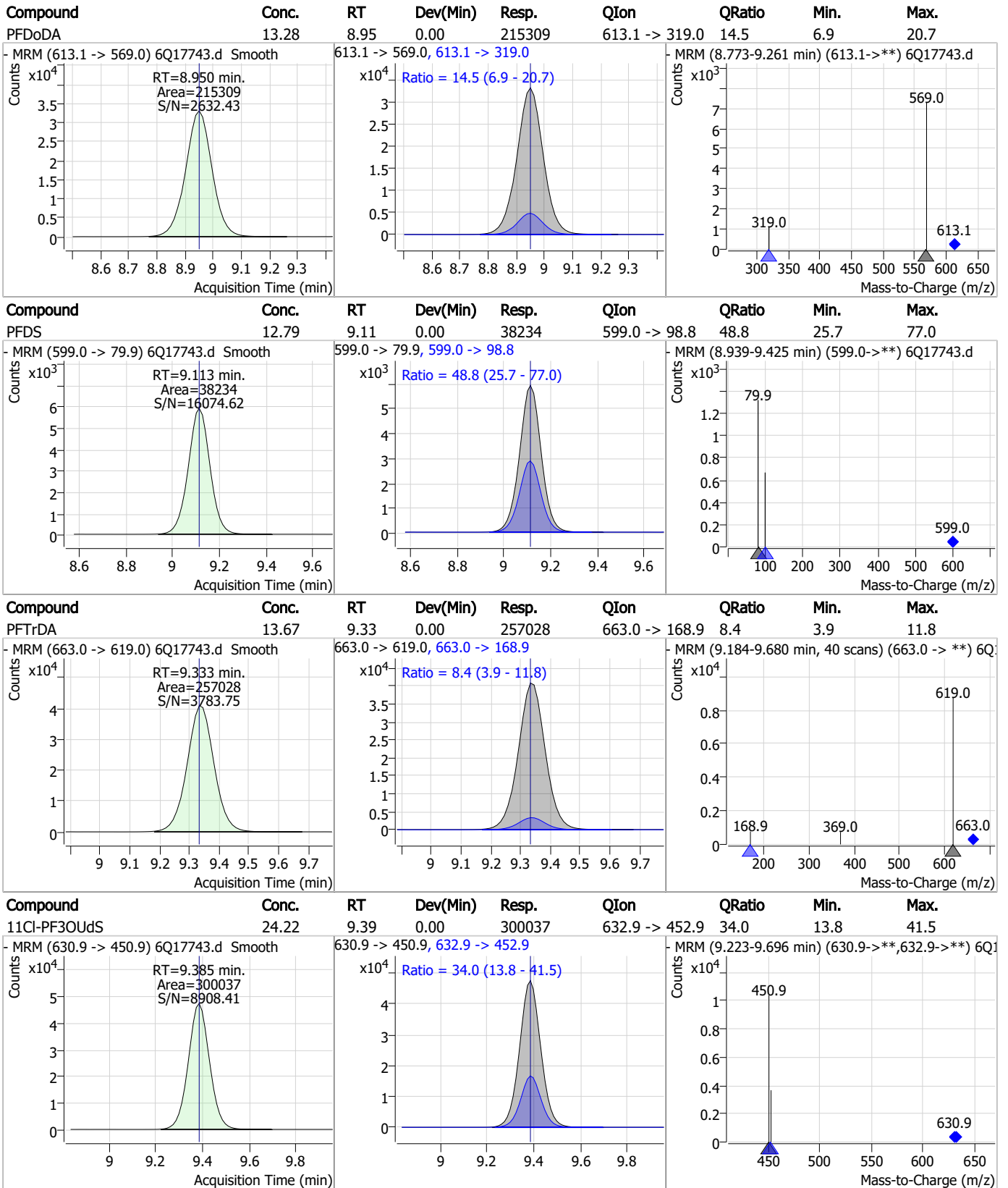
### Perfluorinated Compounds by LC/MS/MS



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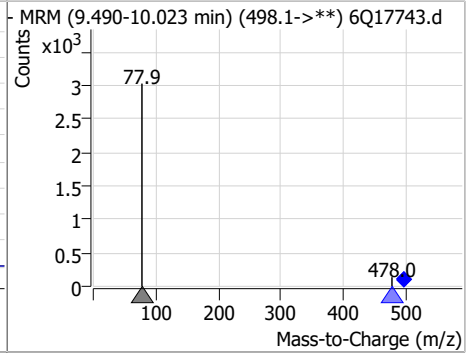
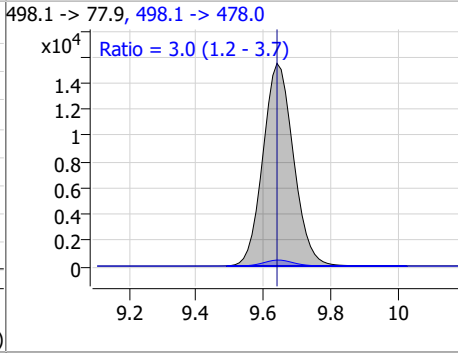
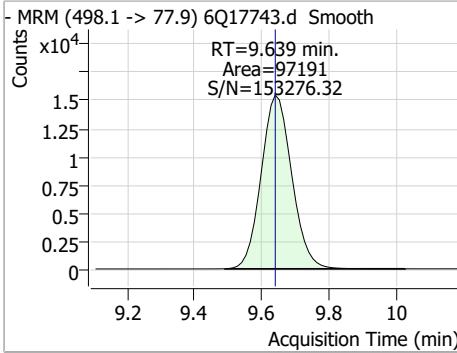
### Perfluorinated Compounds by LC/MS/MS



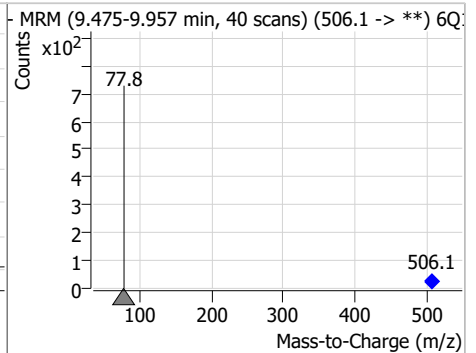
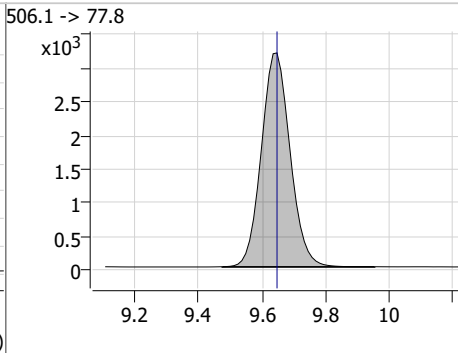
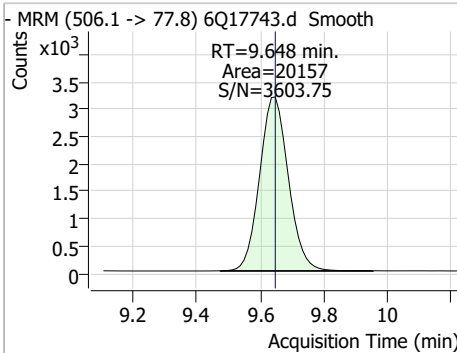
7.7.21  
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### Perfluorinated Compounds by LC/MS/MS

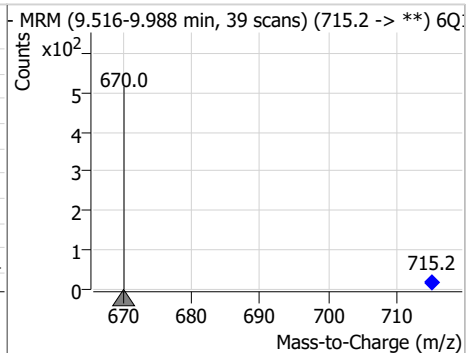
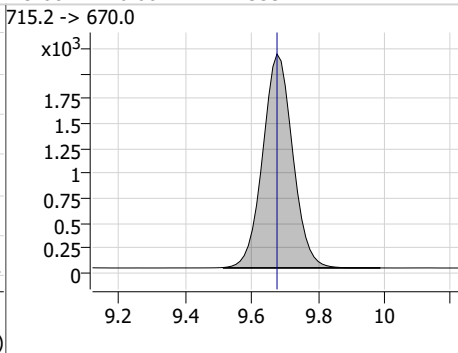
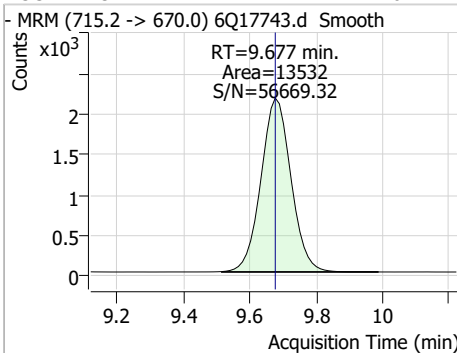
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	12.88	9.64	0.00	97191	498.1 -> 478.0	3.0	1.2	3.7



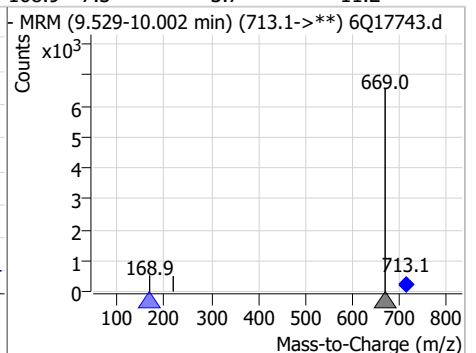
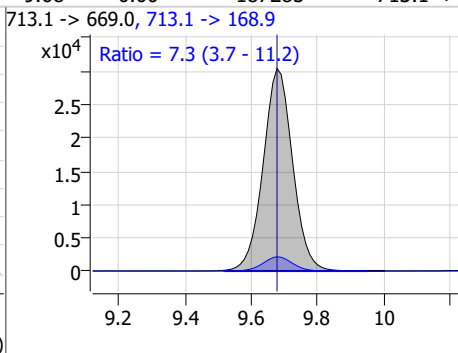
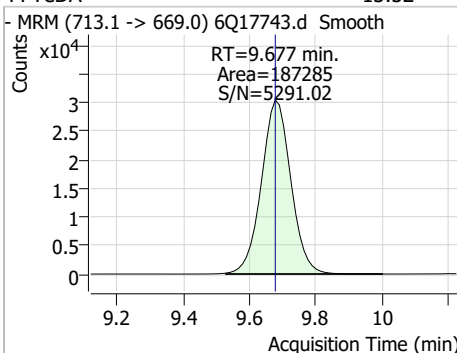
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.58	9.65	0.00	20157				



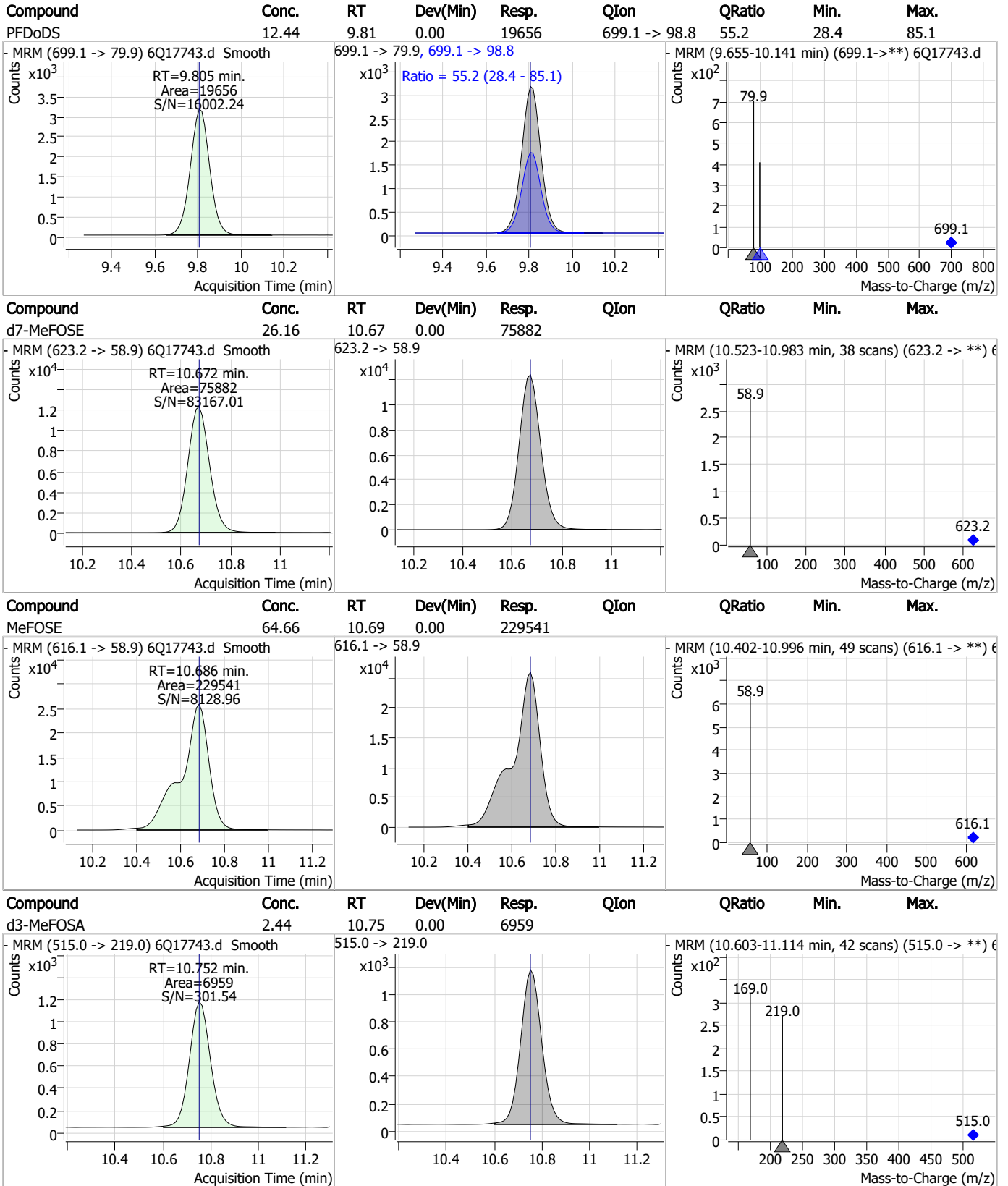
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.10	9.68	0.00	13532				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.52	9.68	0.00	187285	713.1 -> 168.9	7.3	3.7	11.2



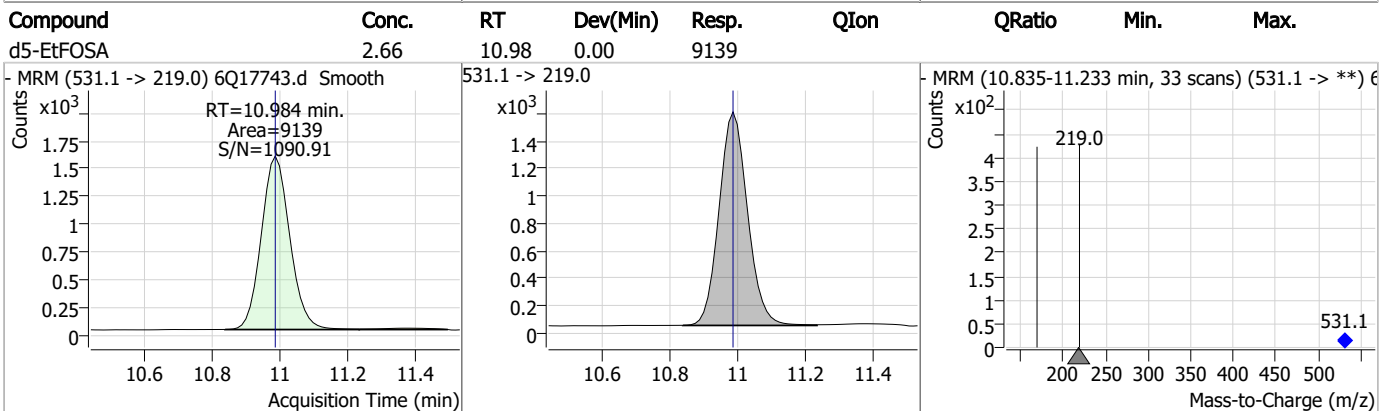
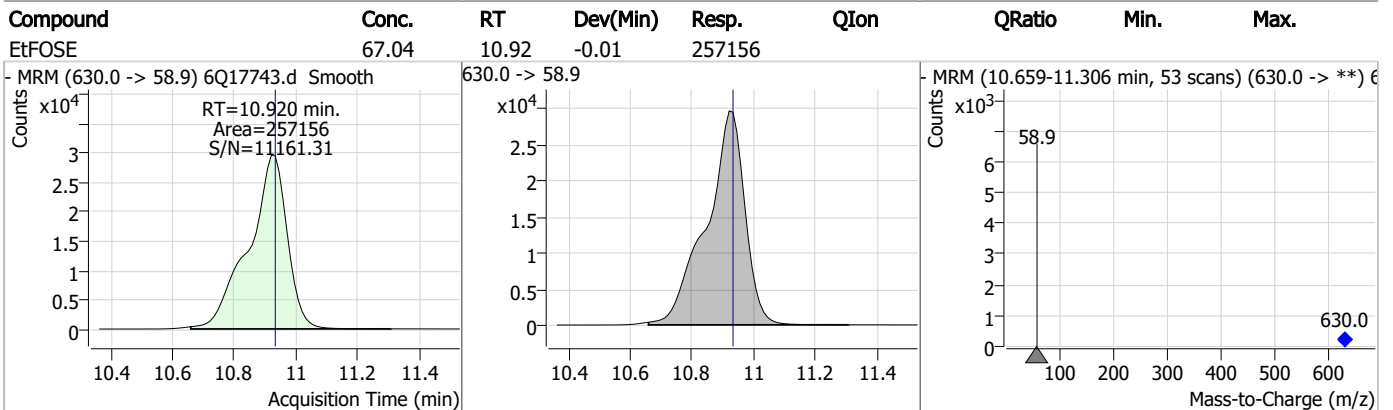
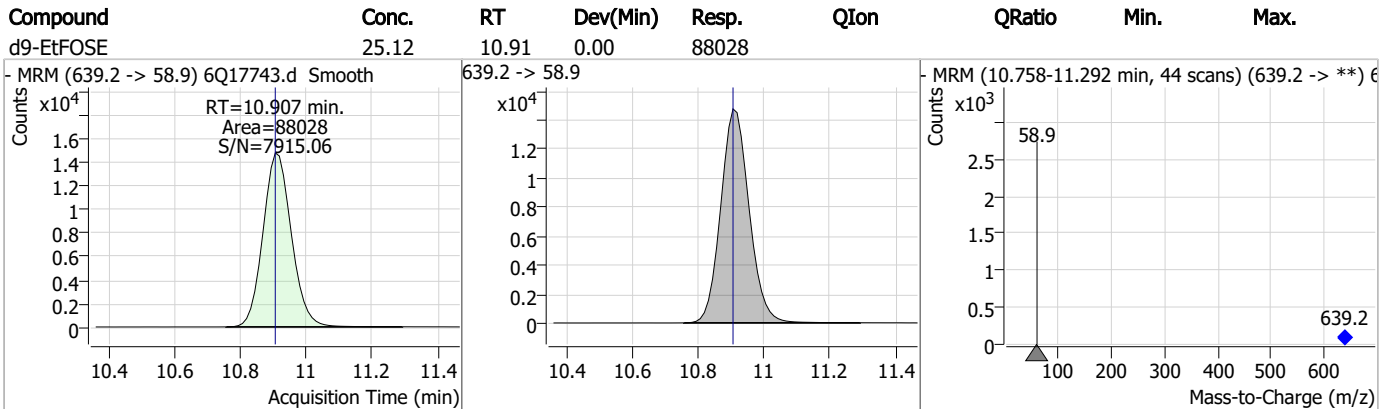
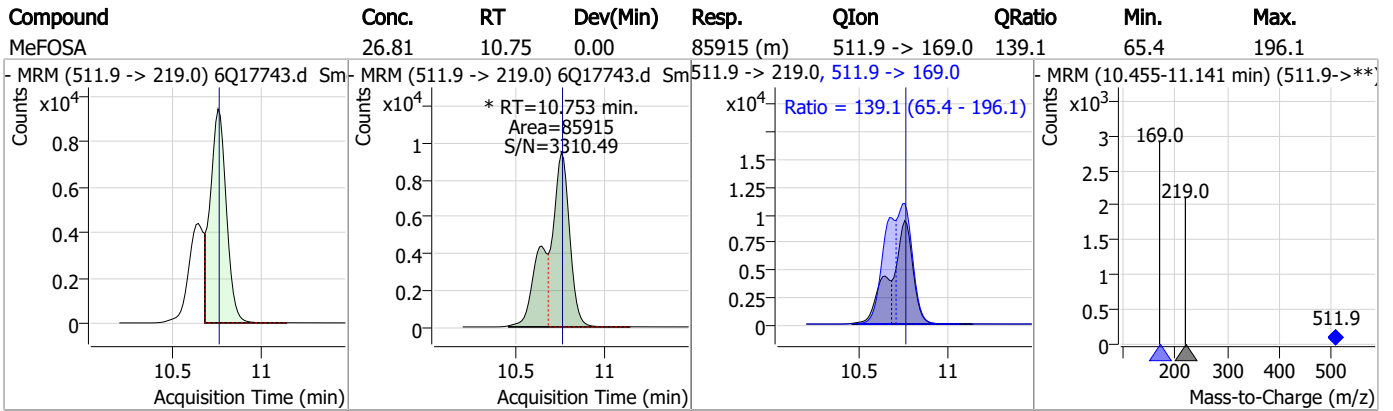
### Perfluorinated Compounds by LC/MS/MS



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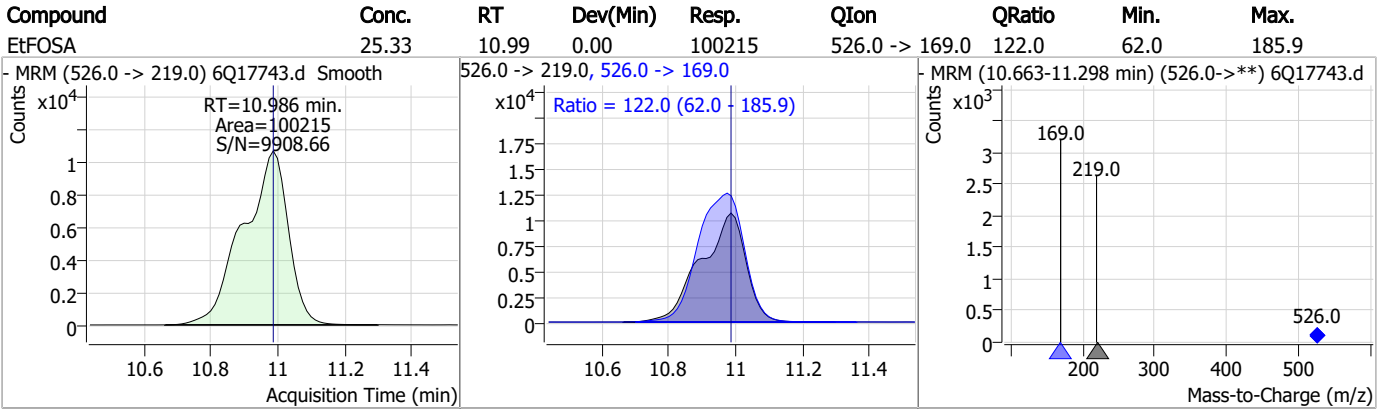
### Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S6Q268-IC268      Method: EPA DRAFT 1633  
Lab FileID: 6Q17743.D      Analyst approved: 05/15/23 12:43 Martha Valls  
Injection Time: 05/12/23 13:27      Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.75	Split peak

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

**Norman Farmer**  
 05/16/23 09:33

### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17744.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 1:42:21 PM  
 Sample Name : ic268-7  
 Vial : P1-A8  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	137182	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	44819	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	50550	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	45443	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	69241	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	22152	1.25 µg/L	0.012
M6-PFDA	8.064	519.1 -> 474.1	15553	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	21998	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	21688	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14541	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	19986	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	17585	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10459	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9901	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1562	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	1816	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2056	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	19068	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	33086	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	15266	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	74091	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	89291	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8863	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7410	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12478	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	58309	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	7766	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	71142	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	20343	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	21332	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	43894	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.143	329.1 -> 80.9	1562	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1816	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2056	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C2-PFDoDA	8.949	615.1 -> 570.0	21688	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14541	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C3-PFBS	5.397	302.1 -> 79.9	17585	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	10459	2.53 µg/L	0.012

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## 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	2.901	216.8 -> 171.9	137182	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C4-PFHpA	6.420	367.1 -> 322.0	45443	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C5-PFHxA	5.466	318.0 -> 273.0	50550	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C5-PFPeA	4.272	268.3 -> 223.0	44819	4.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C6-PFDA	8.064	519.1 -> 474.1	15553	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C7-PFUnDA	8.518	570.0 -> 525.1	21998	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-FOSA	9.648	506.1 -> 77.8	19986	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C8-PFOA	7.064	421.1 -> 376.0	69241	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C8-PFOS	8.226	507.1 -> 79.9	9901	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C9-PFNA	7.595	472.1 -> 427.0	22152	1.40 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.4%	
d3-MeFOSAA	8.121	573.2 -> 419.0	19068	4.88 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	33086	10.30 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
d3-MeFOSA	10.752	515.0 -> 219.0	7410	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
d5-EtFOSAA	8.329	589.2 -> 419.0	15266	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
d7-MeFOSE	10.672	623.2 -> 58.9	74091	24.10 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
d9-EtFOSE	10.907	639.2 -> 58.9	89291	24.04 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
d5-EtFOSA	10.984	531.1 -> 219.0	8863	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.144	327.1 -> 307.0	224885	95.79 µg/L	96
		327.1 -> 80.9	79093		
6:2FTS	6.838	427.1 -> 407.0	199712	101.04 µg/L	97
		427.1 -> 80.9	67791		
8:2FTS	7.865	527.1 -> 507.0	119478	102.30 µg/L	97
		527.1 -> 80.8	46818		
EtFOSAA	8.330	584.2 -> 419.1	71393	25.12 µg/L	m 97
		584.2 -> 526.0	36019		
FOSA	9.639	498.1 -> 77.9	195651	26.15 µg/L	99
		498.1 -> 478.0	5405		
MeFOSAA	8.134	570.1 -> 419.0	94349	25.57 µg/L	97
		570.1 -> 483.0	17376		
PFBA	2.907	212.8 -> 168.9	511180	103.87 µg/L	100
PFBS	5.398	298.7 -> 79.9	198391	23.12 µg/L	96
		298.7 -> 98.8	76841		
PFDA	8.064	512.9 -> 469.0	506238	26.31 µg/L	99
		512.9 -> 219.0	80664		
PFDoDA	8.950	613.1 -> 569.0	414049	23.97 µg/L	97
		613.1 -> 319.0	62812		
PFDS	9.113	599.0 -> 79.9	73360	22.82 µg/L	97

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	36042			
PFHpA	6.420	363.1 -> 319.0	578802	25.48	µg/L	99
		363.1 -> 169.0	96366			
PFHpS	7.735	449.0 -> 79.9	117935	22.33	µg/L	94
		449.0 -> 98.9	66804			
PFHxA	5.469	313.0 -> 269.0	530861	26.51	µg/L	99
		313.0 -> 118.9	24120			
PFHxS	7.180	398.7 -> 79.9	136702	23.61	µg/L	m 98
		398.7 -> 98.9	66009			
PFNA	7.596	463.0 -> 419.0	416537	25.31	µg/L	100
		463.0 -> 219.0	85704			
PFNS	8.693	548.8 -> 79.9	108047	22.57	µg/L	96
		548.8 -> 98.9	59142			
PFOA	7.066	413.0 -> 369.0	806699	23.41	µg/L	99
		413.0 -> 169.0	139830			
PFOS	8.228	498.9 -> 79.9	113729	21.91	µg/L	m 97
		498.9 -> 98.8	58374			
PFPeA	4.274	263.0 -> 219.0	687931	53.15	µg/L	100
PFPeS	6.471	349.1 -> 79.9	147387	25.67	µg/L	96
		349.1 -> 98.9	62680			
PFTeDA	9.677	713.1 -> 669.0	371936	24.98	µg/L	99
		713.1 -> 168.9	26426			
PFTrDA	9.333	663.0 -> 619.0	480250	23.98	µg/L	96
		663.0 -> 168.9	43633			
PFUnDA	8.518	563.1 -> 519.0	386419	24.19	µg/L	99
		563.1 -> 269.1	62457			
11Cl-PF3OUdS	9.385	630.9 -> 450.9	564837	45.18	µg/L	90
		632.9 -> 452.9	185837			
9Cl-PF3ONS	8.557	530.8 -> 351.0	961377	48.14	µg/L	100
		532.8 -> 353.0	273734			
ADONA	6.671	376.9 -> 250.9	2480089	47.07	µg/L	96
		376.9 -> 84.8	640339			
HFPO-DA	5.832	284.9 -> 168.9	165277	51.67	µg/L	98
		284.9 -> 184.9	21400			
3:3FTCA	3.777	241.0 -> 177.0	107068	133.50	µg/L	98
		241.0 -> 117.0	13439			
5:3FTCA	6.161	341.0 -> 237.1	2116542	610.06	µg/L	95
		341.0 -> 217.0	1631222			
7:3FTCA	7.586	441.0 -> 316.9	988688	628.17	µg/L	92
		441.0 -> 336.9	2194148			
EtFOSA	10.986	526.0 -> 219.0	202563	52.80	µg/L	98
		526.0 -> 169.0	247317			
EtFOSE	10.932	630.0 -> 58.9	510030	131.08	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	174067	51.02	µg/L	m 89
		511.9 -> 169.0	249004			
MeFOSE	10.686	616.1 -> 58.9	459983	132.71	µg/L	100
PFDoS	9.805	699.1 -> 79.9	40306	23.72	µg/L	100
		699.1 -> 98.8	22918			
NFDHA	5.348	295.0 -> 201.0	113127	51.17	µg/L	98
		295.0 -> 84.9	30010			
PFMBA	4.675	279.0 -> 85.1	476472	51.59	µg/L	100
PFMPA	3.426	229.0 -> 84.9	353125	53.09	µg/L	100
PFEESA	5.938	314.8 -> 134.9	1223978	45.53	µg/L	100
		314.8 -> 82.9	43766			

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

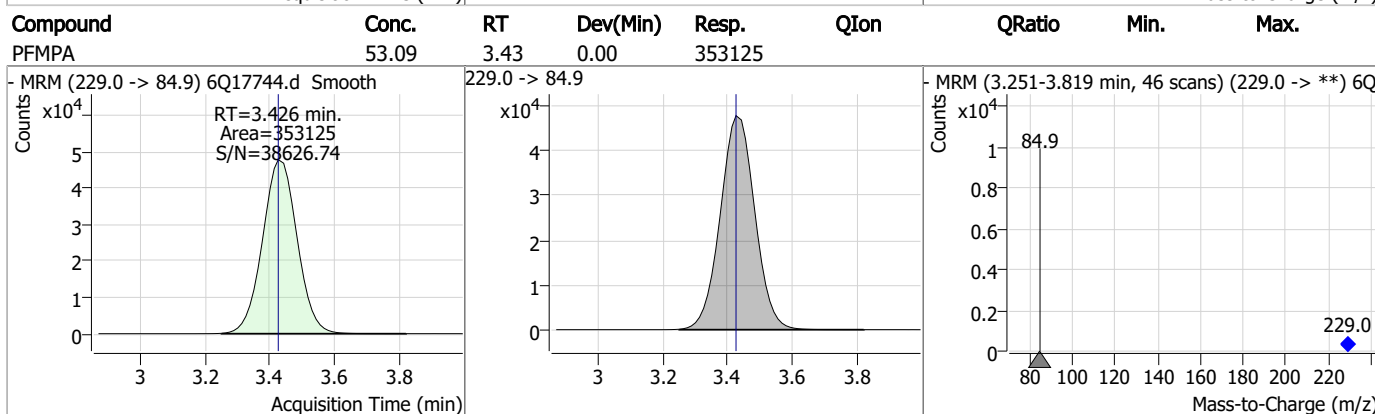
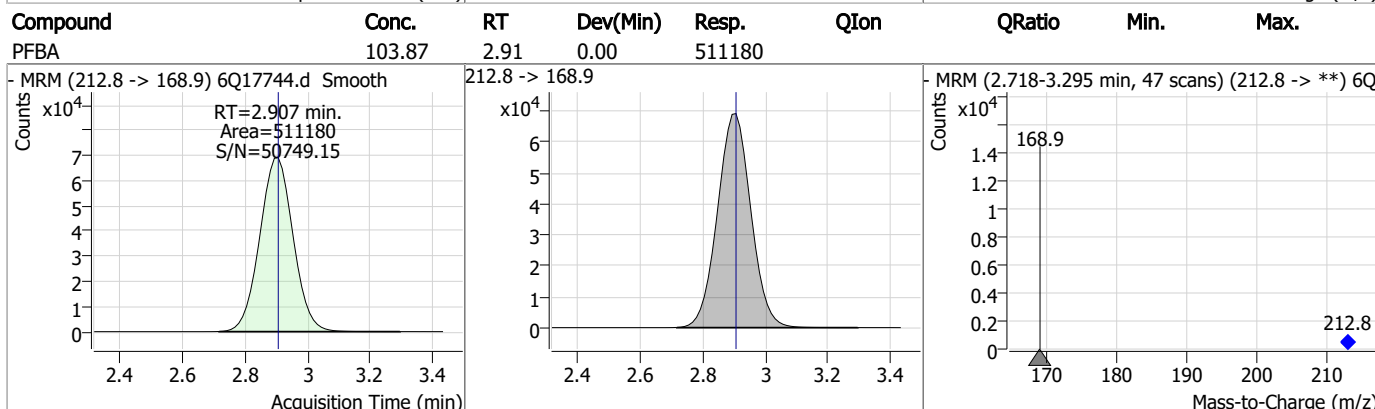
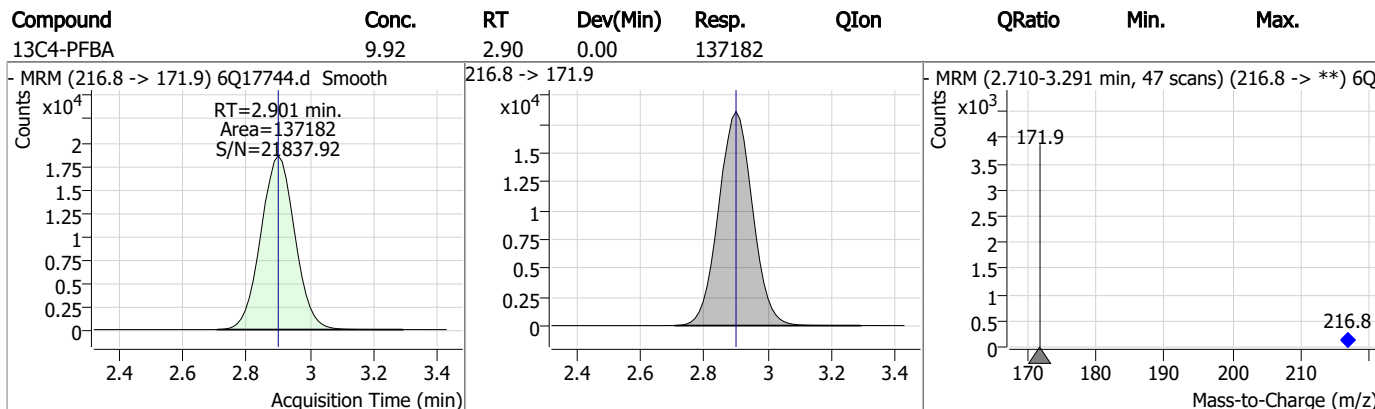
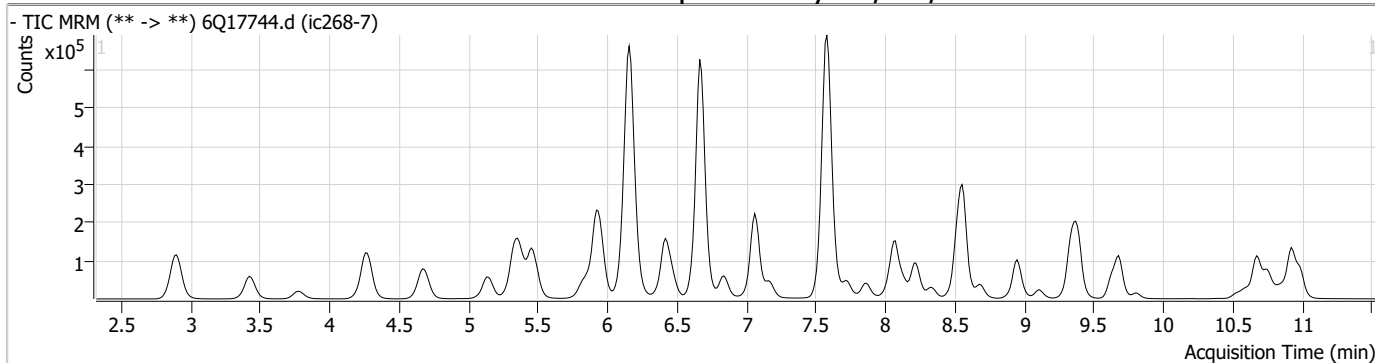
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.22  
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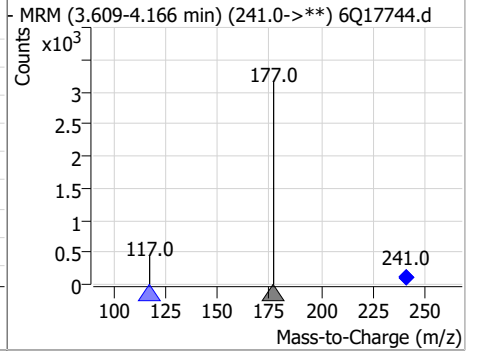
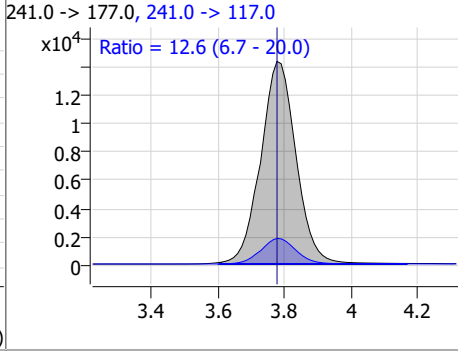
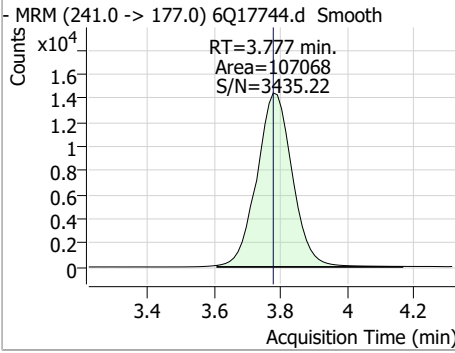


### Perfluorinated Compounds by LC/MS/MS

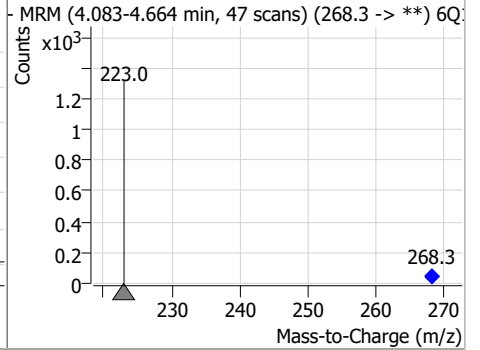
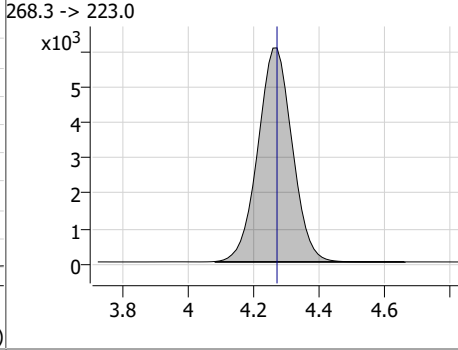
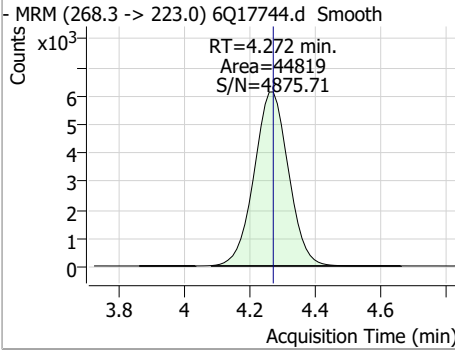


### Perfluorinated Compounds by LC/MS/MS

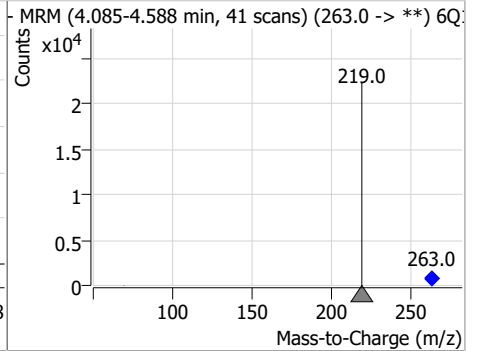
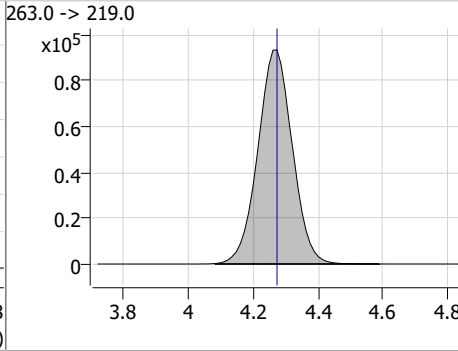
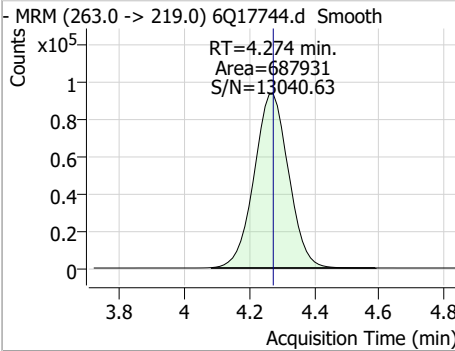
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	133.50	3.78	0.00	107068	241.0 -> 117.0	12.6	6.7	20.0



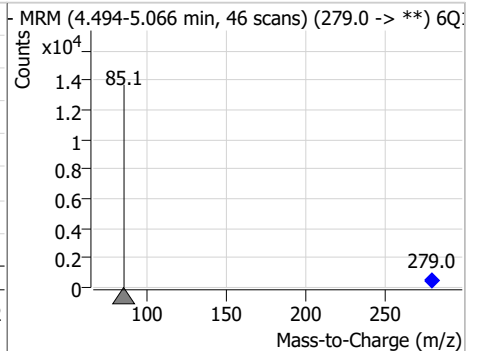
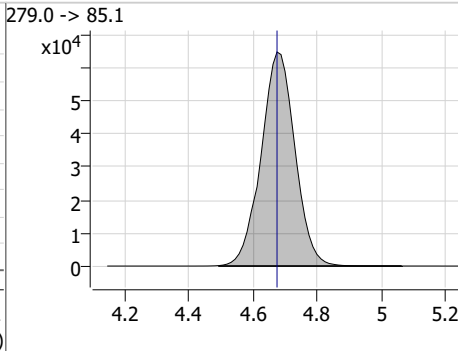
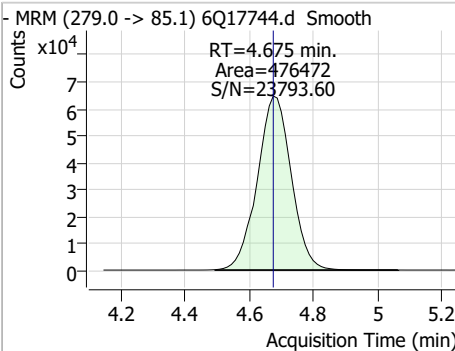
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.85	4.27	0.00	44819				



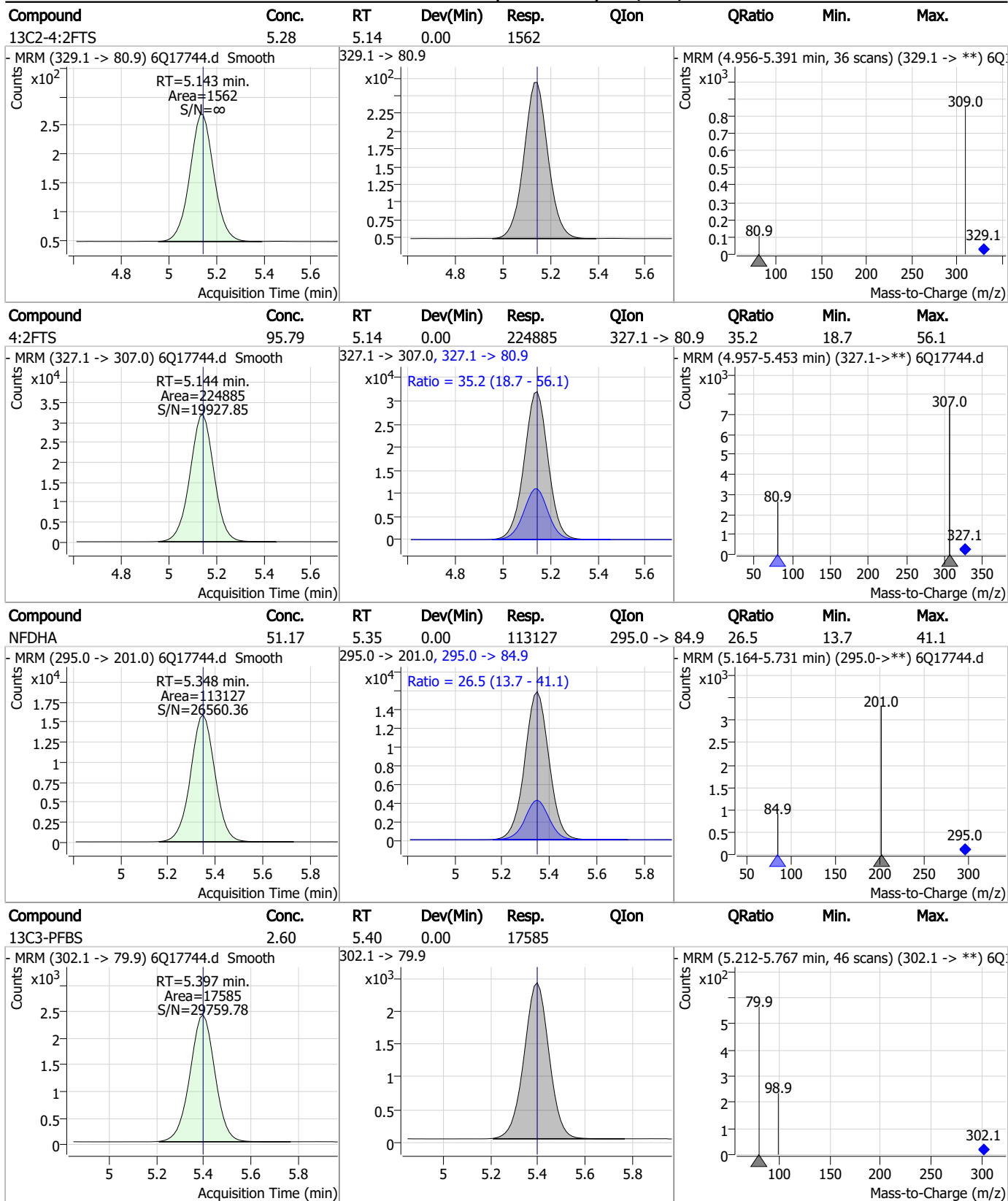
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	53.15	4.27	0.00	687931				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	51.59	4.68	0.00	476472				

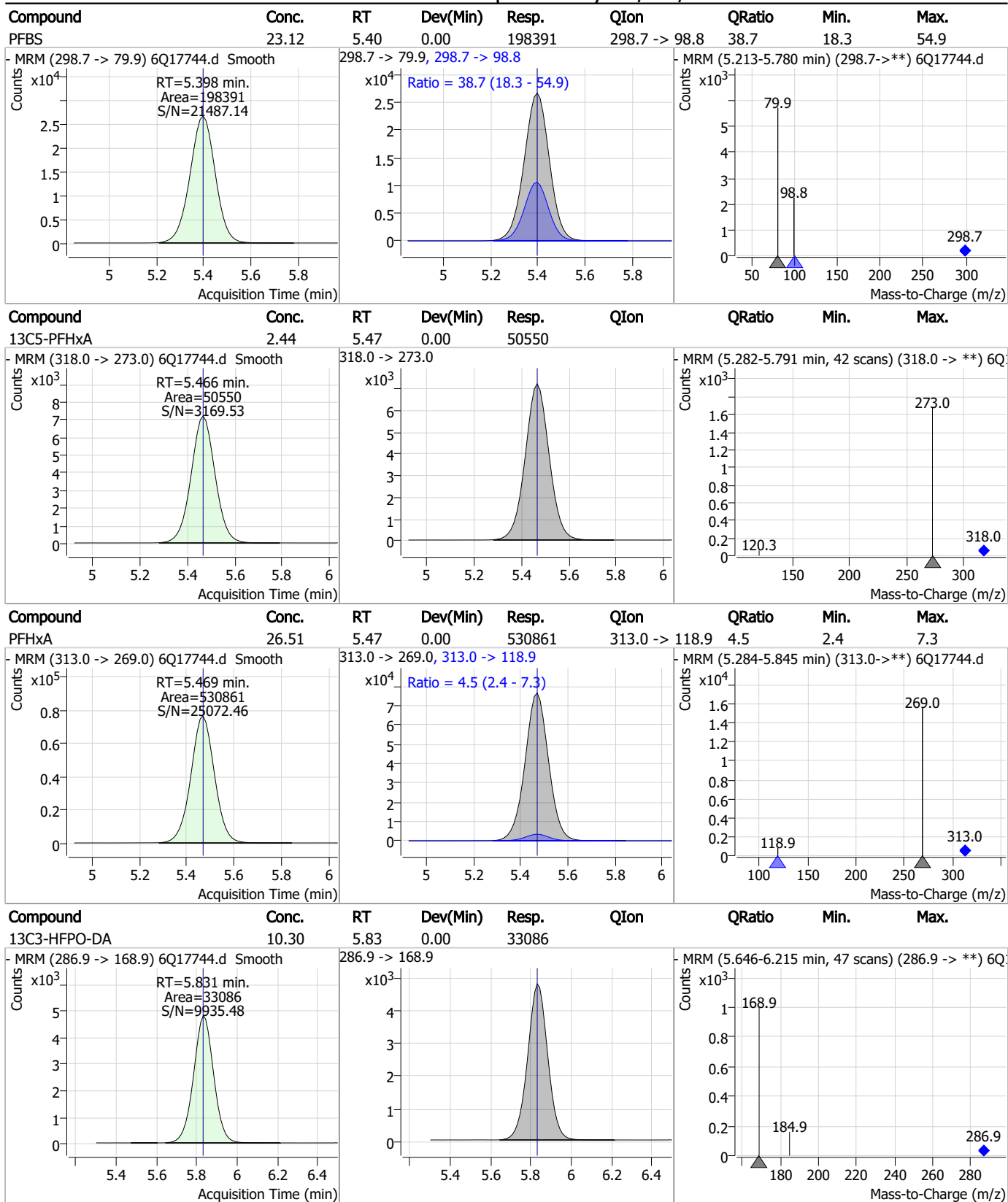


### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



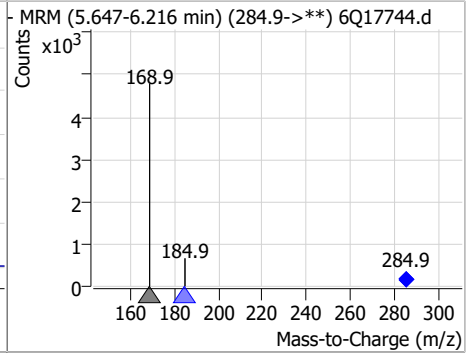
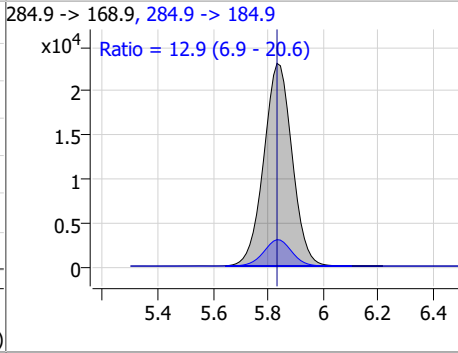
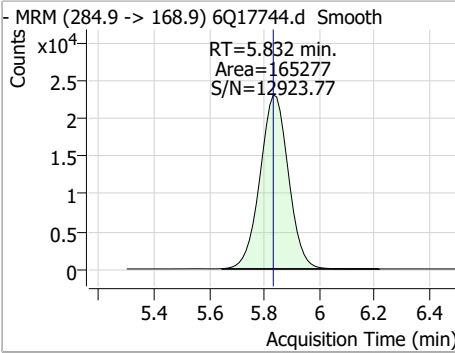
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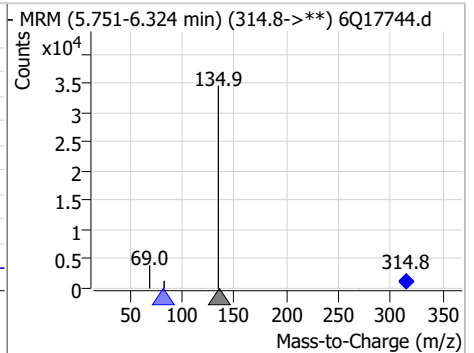
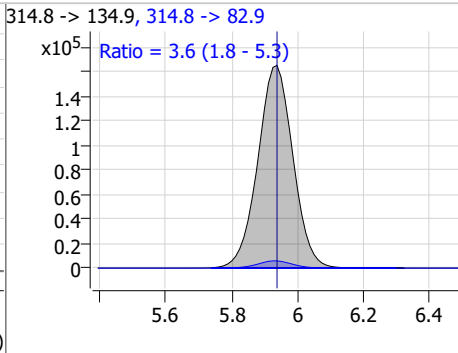
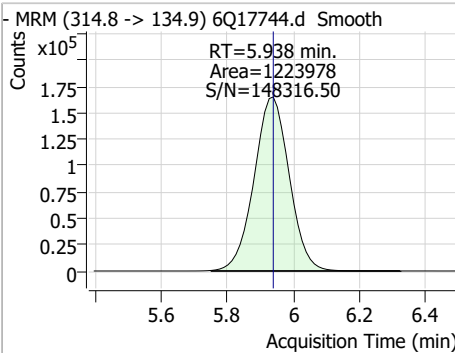


### Perfluorinated Compounds by LC/MS/MS

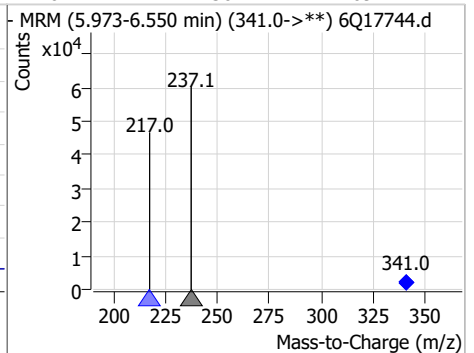
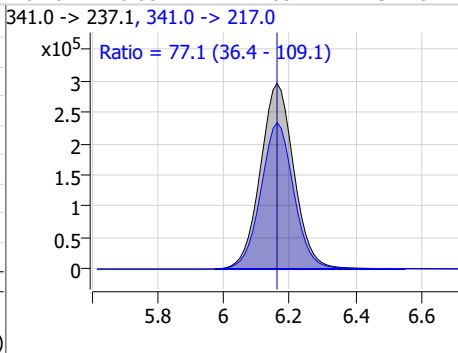
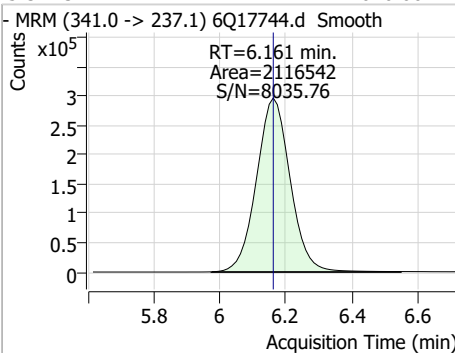
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	51.67	5.83	0.00	165277	284.9 -> 184.9	12.9	6.9	20.6



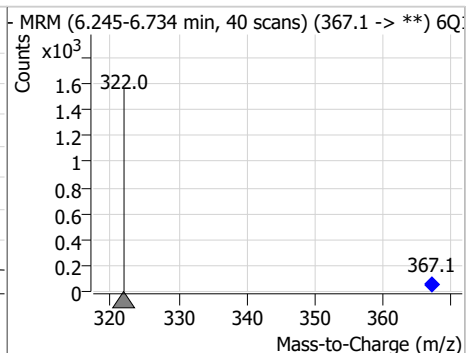
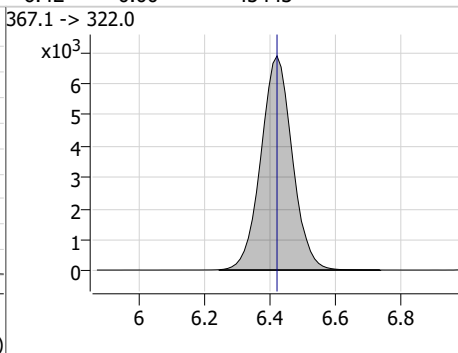
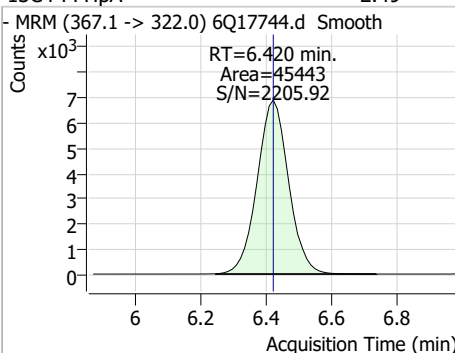
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	45.53	5.94	0.00	1223978	314.8 -> 82.9	3.6	1.8	5.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	610.06	6.16	0.00	2116542	341.0 -> 217.0	77.1	36.4	109.1

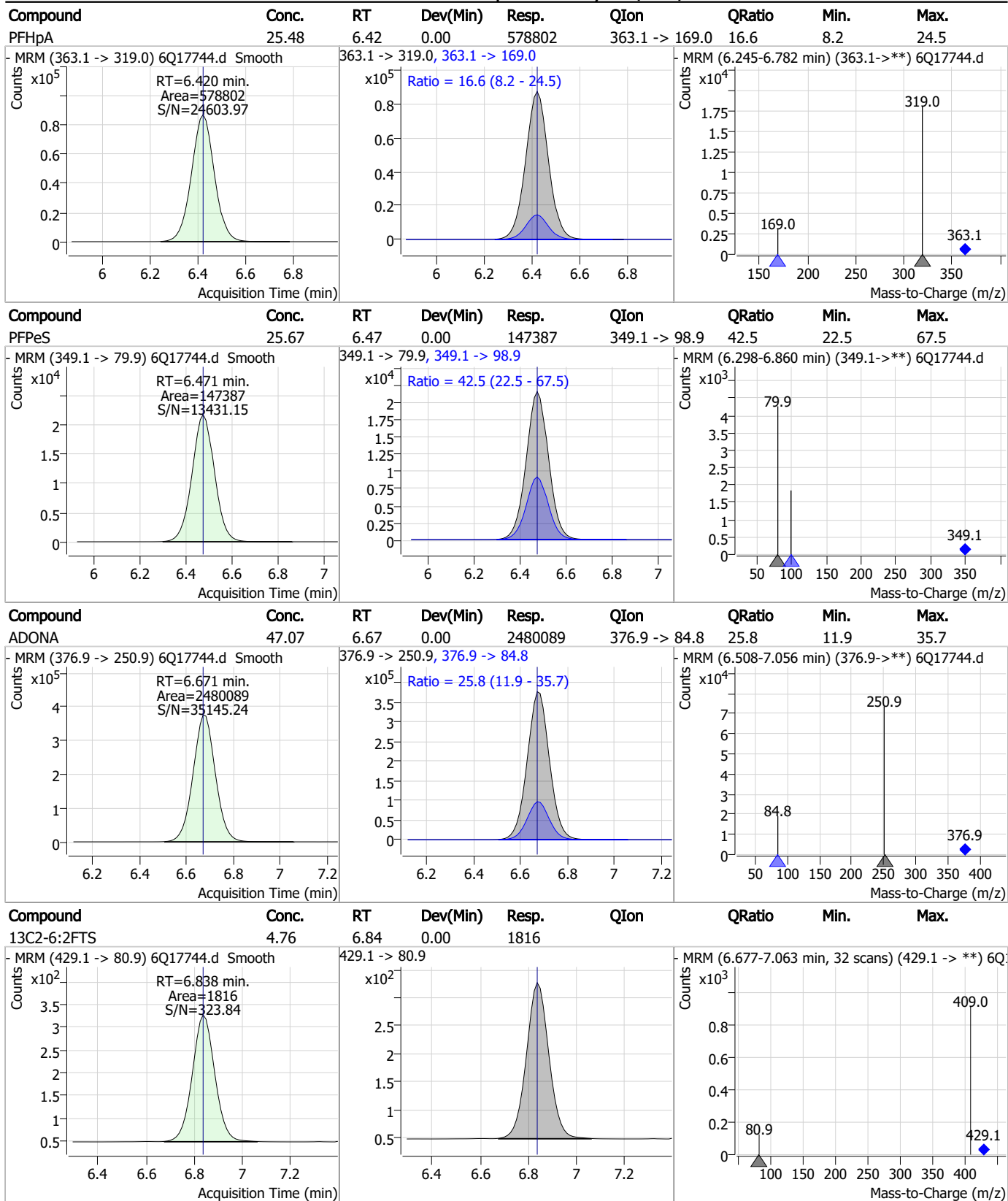


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.49	6.42	0.00	45443	367.1 -> 322.0			



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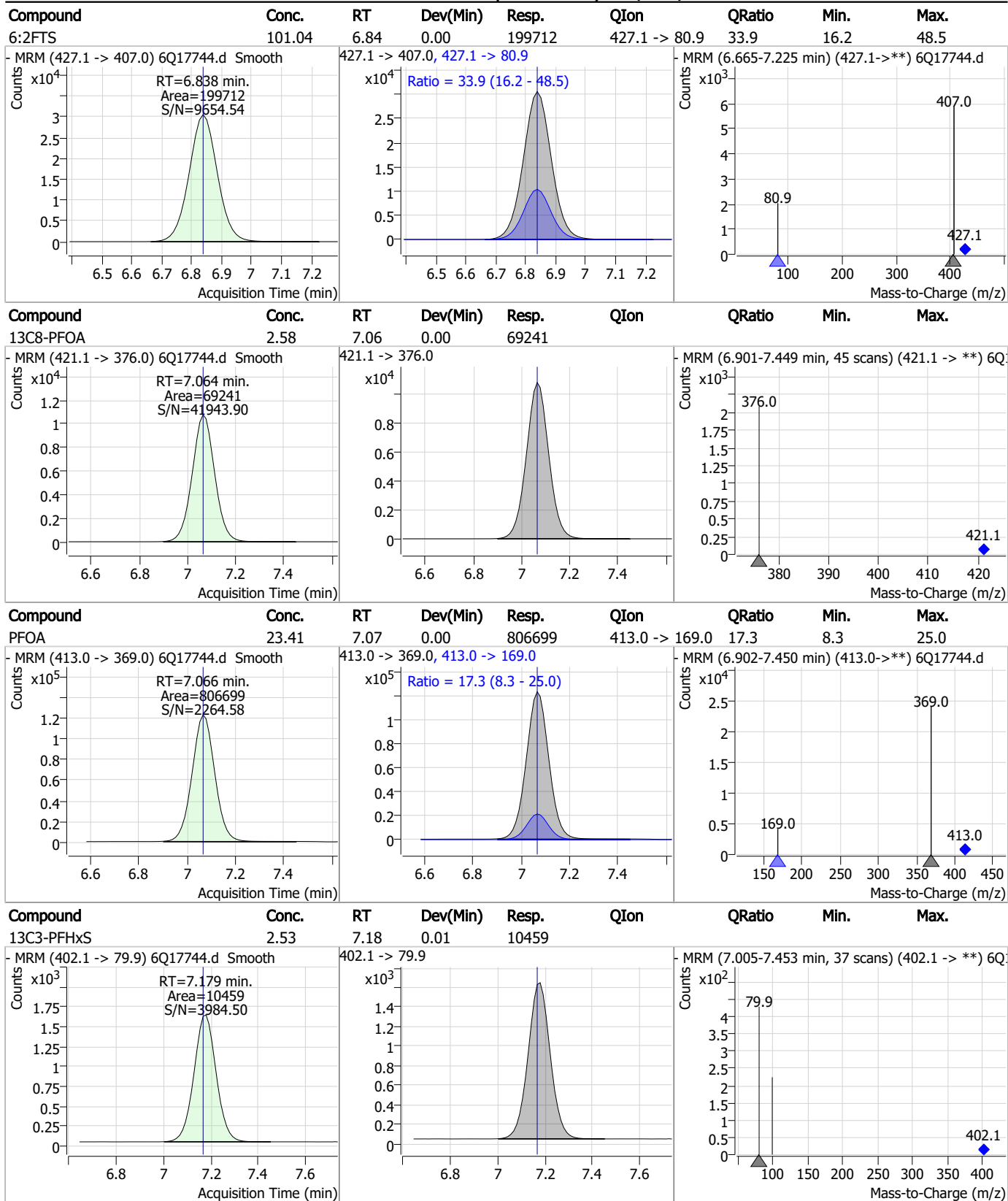
### Perfluorinated Compounds by LC/MS/MS



7.7.22



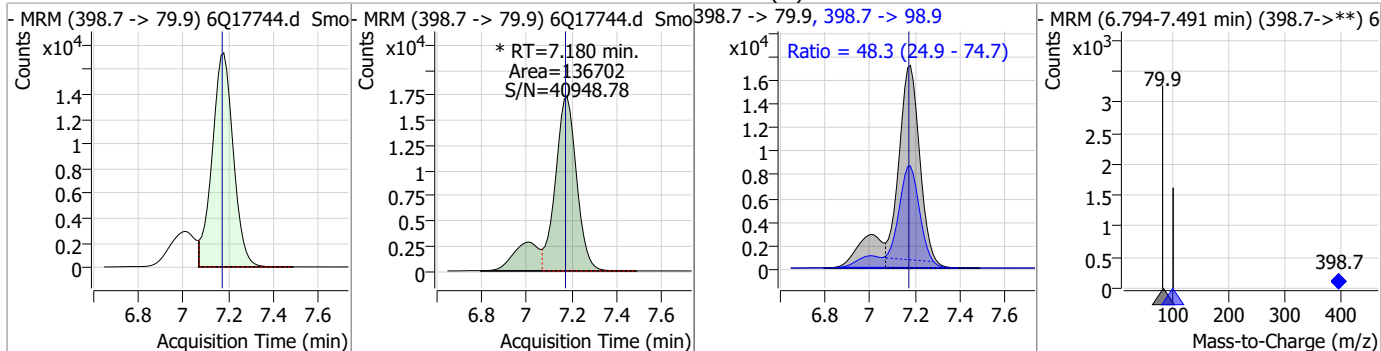
### Perfluorinated Compounds by LC/MS/MS



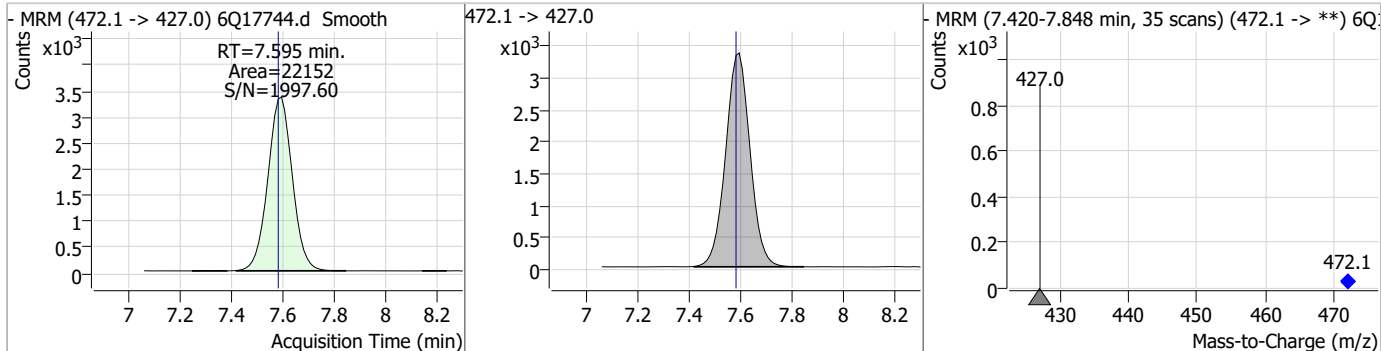
7.7.22

### Perfluorinated Compounds by LC/MS/MS

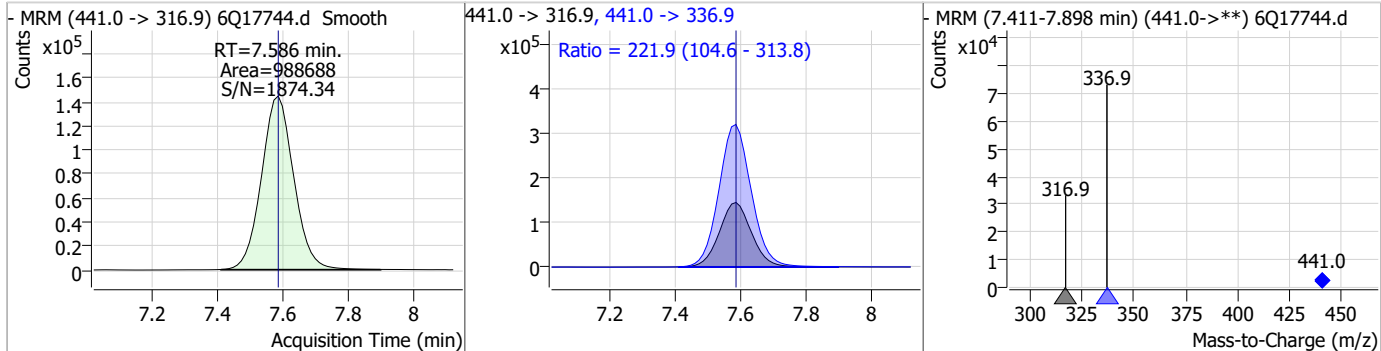
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	23.61	7.18	0.01	136702 (m)	398.7 -> 98.9	48.3	24.9	74.7



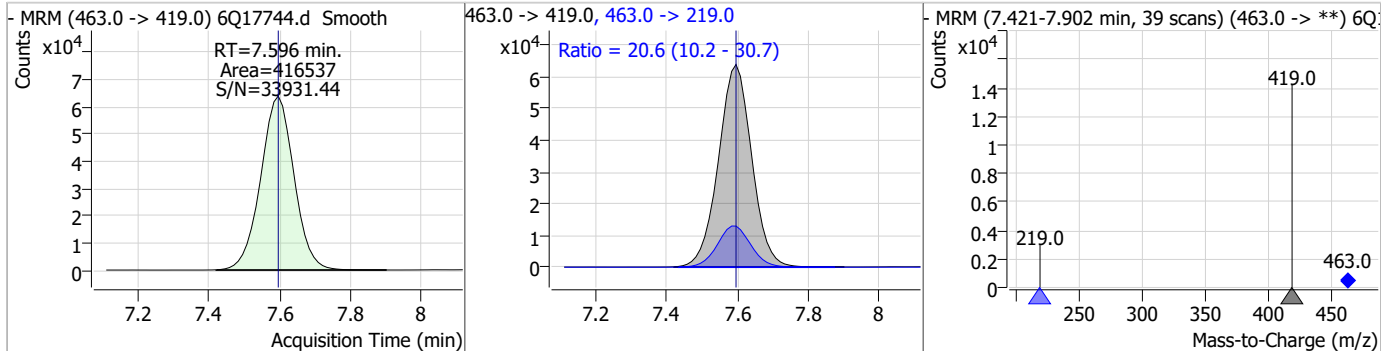
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.40	7.60	0.01	22152				



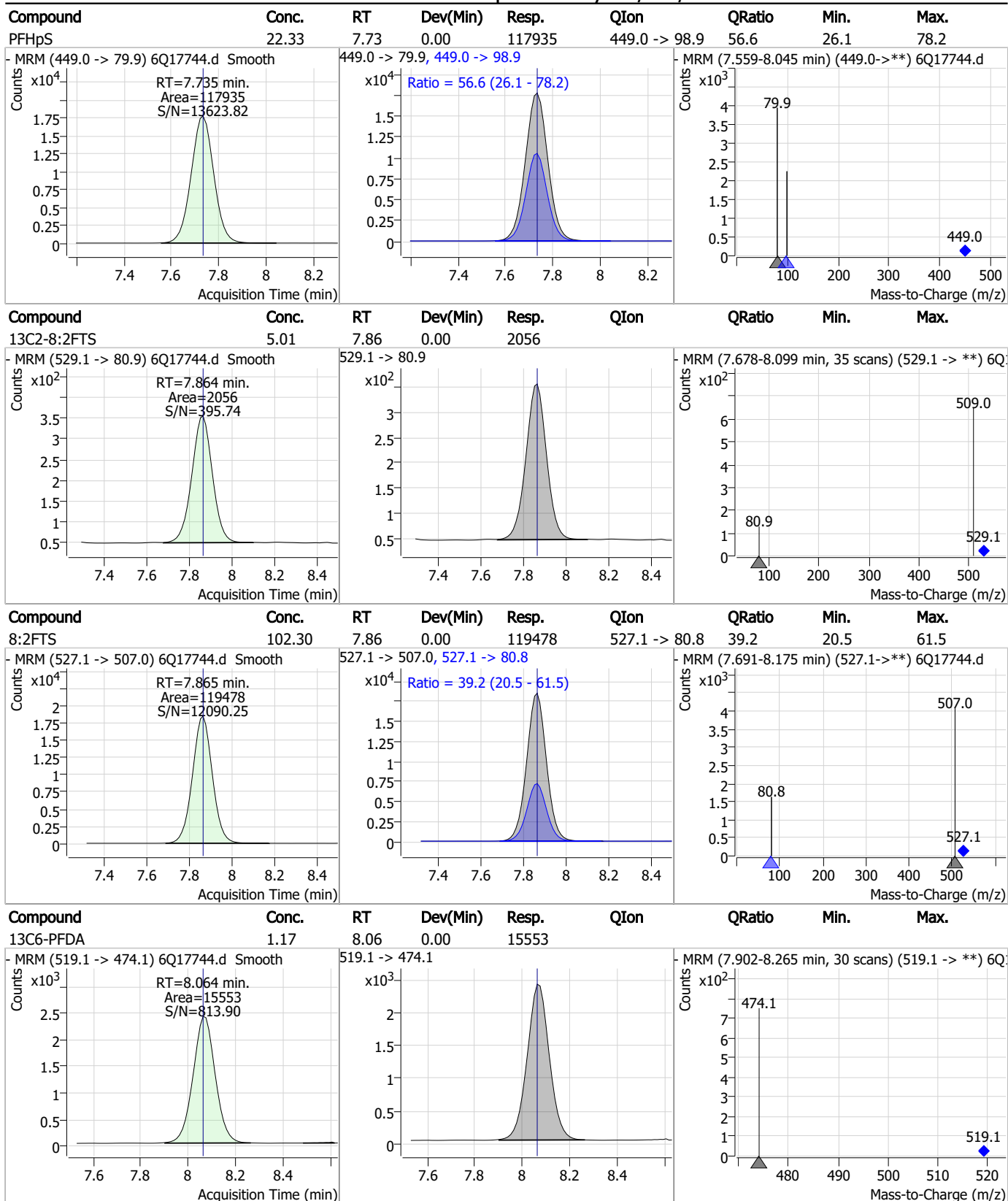
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	628.17	7.59	0.00	988688	441.0 -> 336.9	221.9	104.6	313.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	25.31	7.60	0.00	416537	463.0 -> 219.0	20.6	10.2	30.7



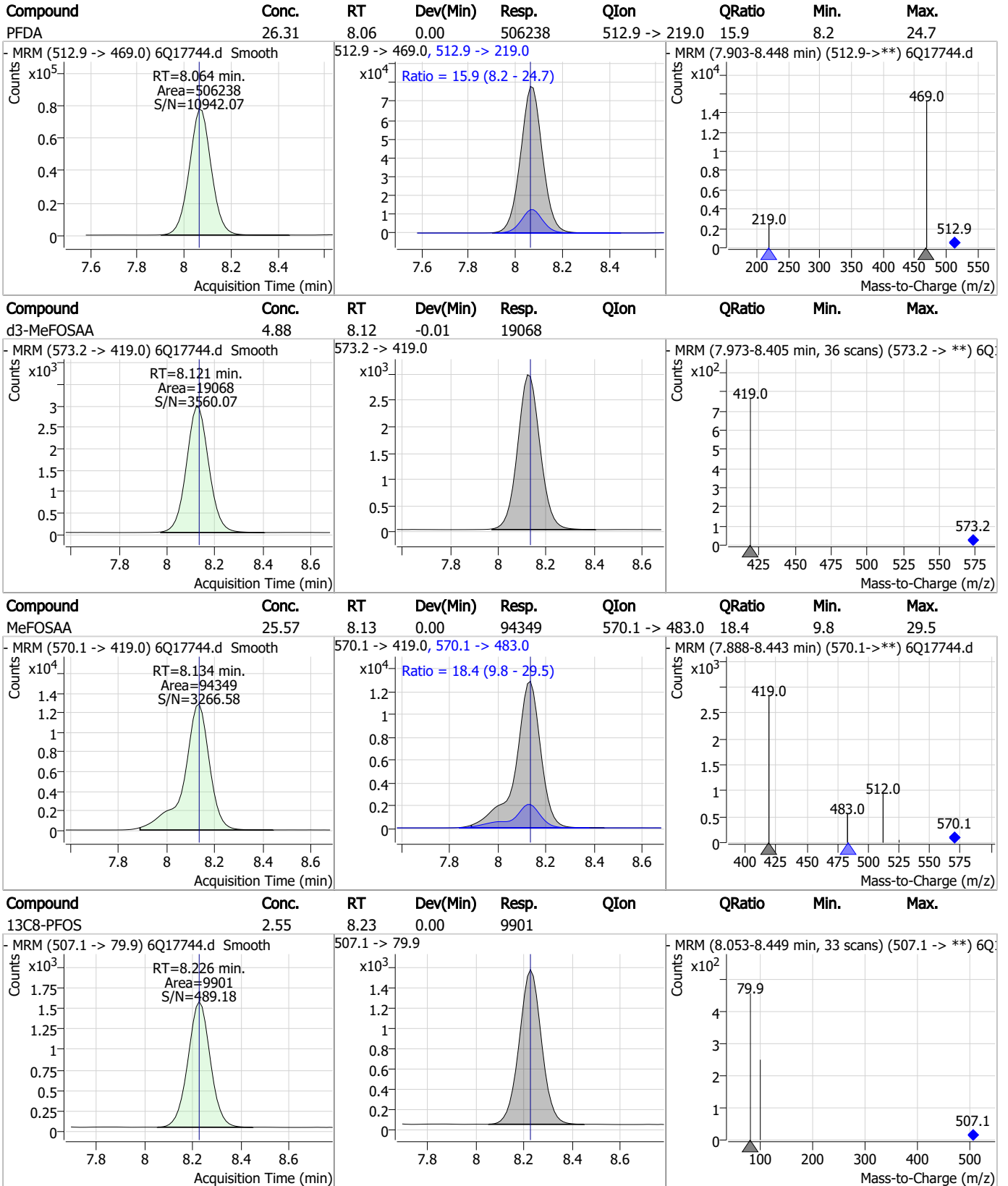
### Perfluorinated Compounds by LC/MS/MS



7.7.22

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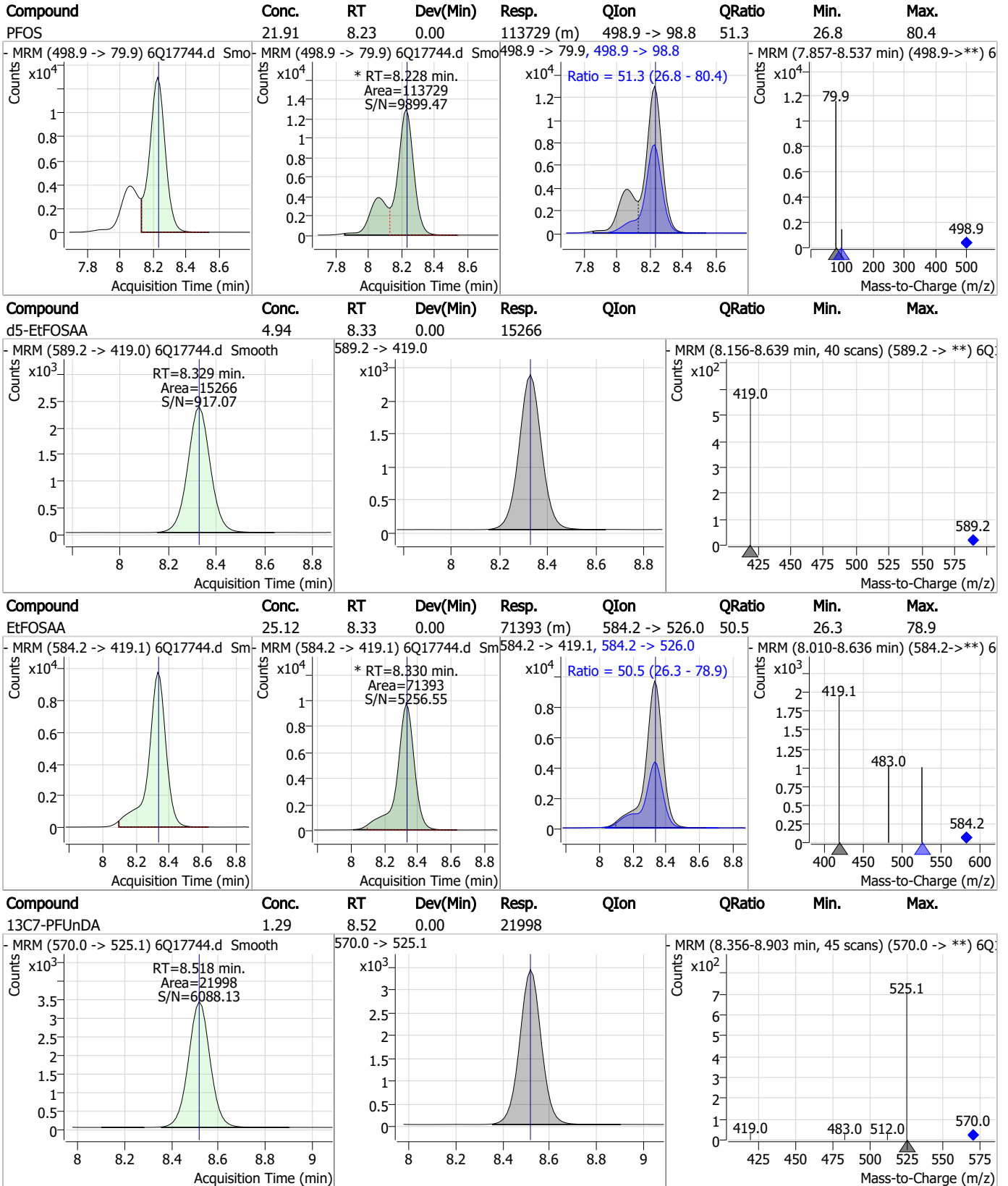
### Perfluorinated Compounds by LC/MS/MS



7.7.22 7



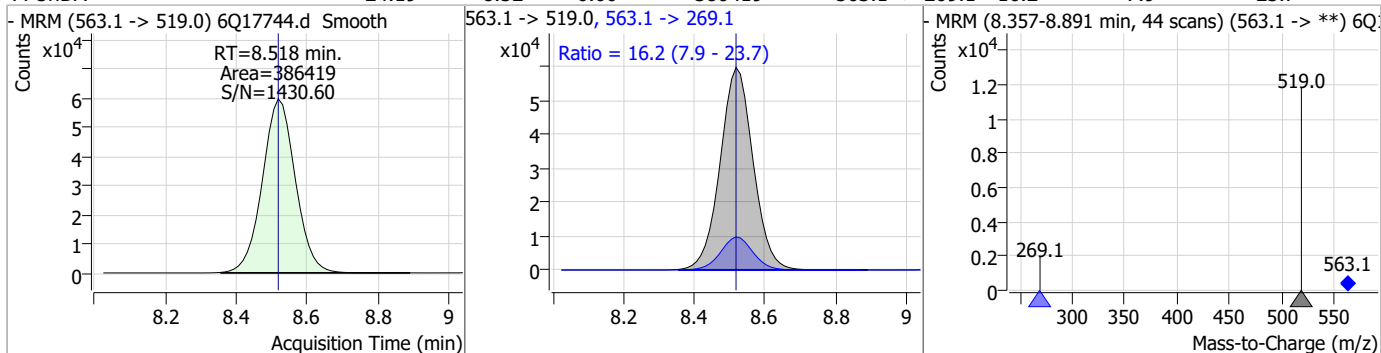
### Perfluorinated Compounds by LC/MS/MS



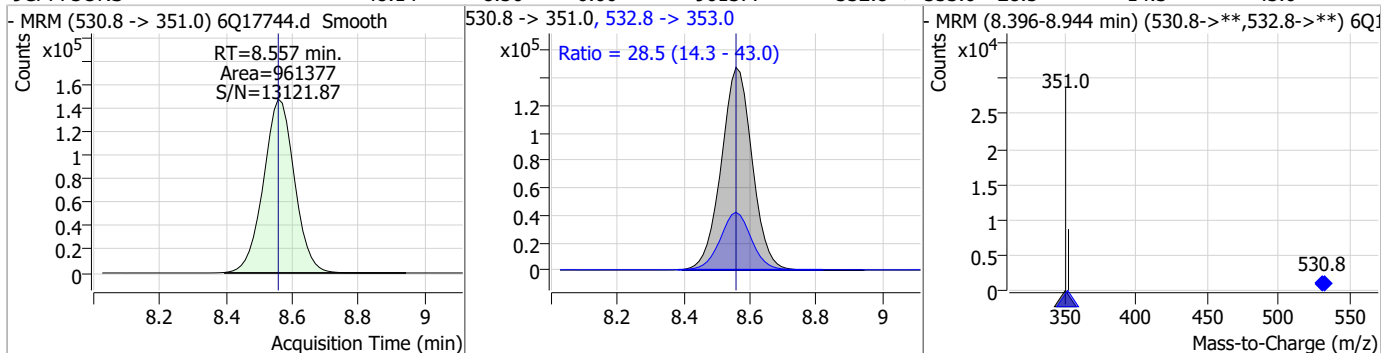
7.7.22 7

### Perfluorinated Compounds by LC/MS/MS

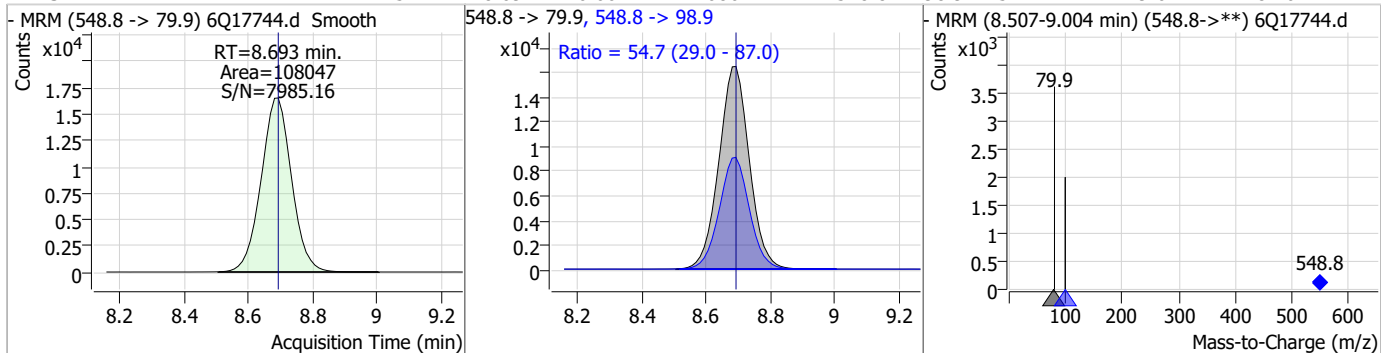
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	24.19	8.52	0.00	386419	563.1 -> 269.1	16.2	7.9	23.7



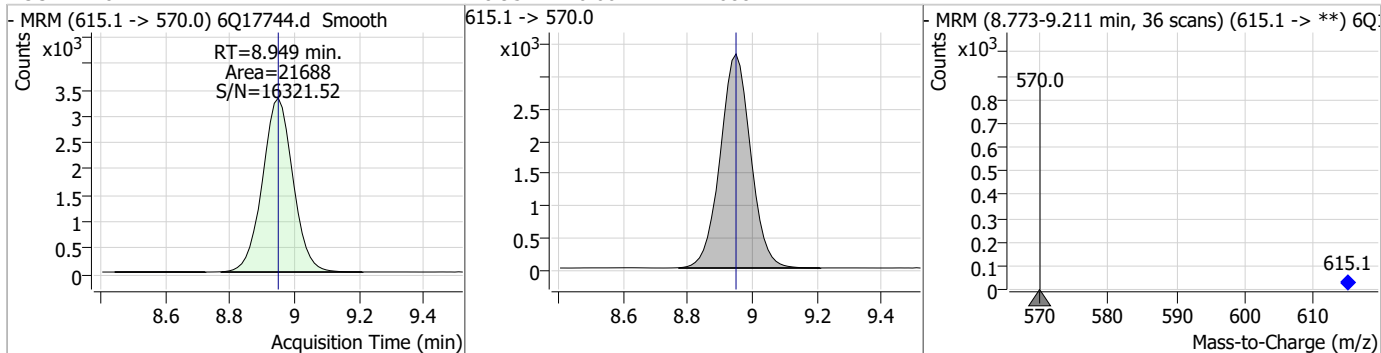
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	48.14	8.56	0.00	961377	532.8 -> 353.0	28.5	14.3	43.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	22.57	8.69	0.00	108047	548.8 -> 98.9	54.7	29.0	87.0



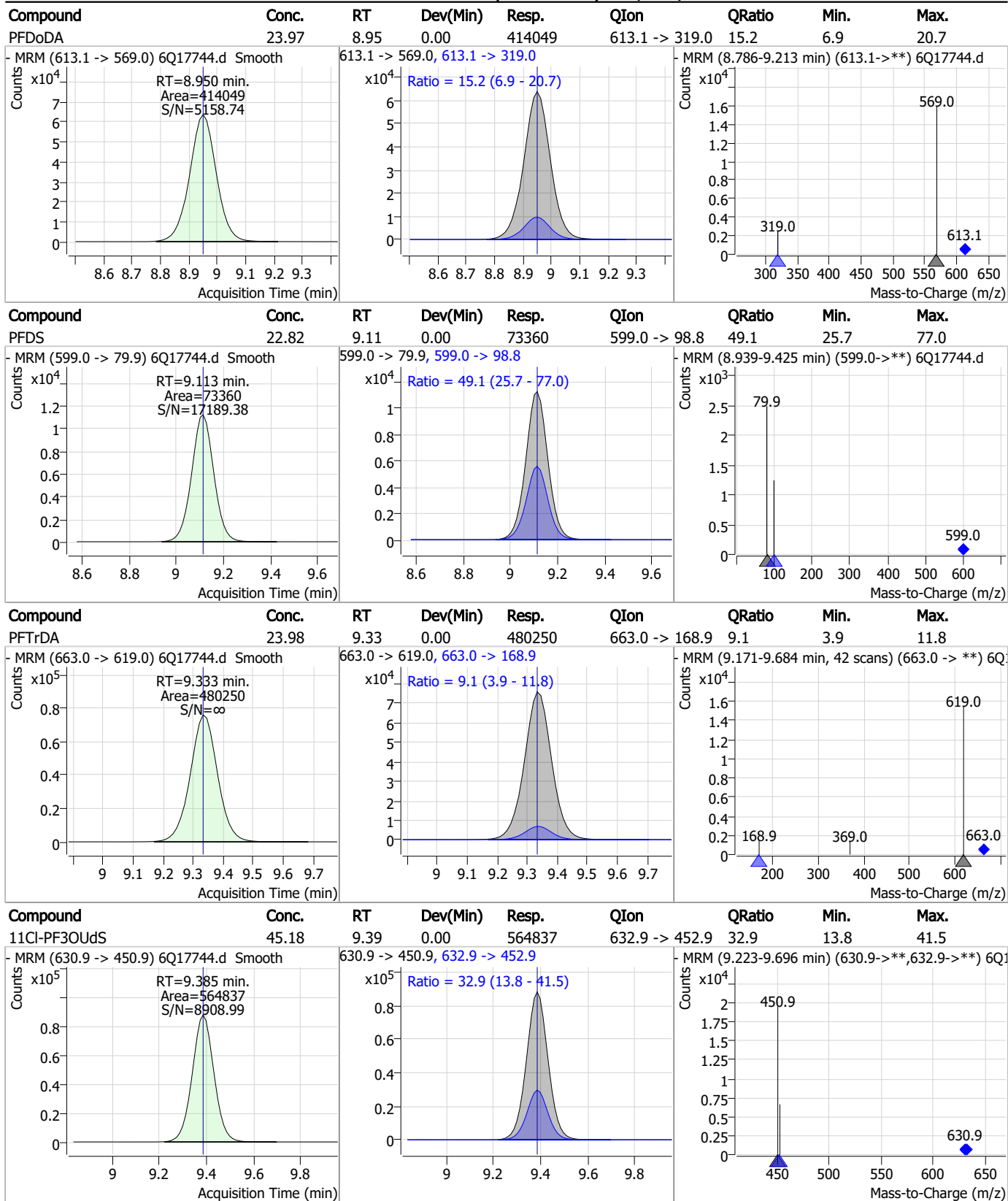
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.27	8.95	0.00	21688	615.1 -> 570.0			



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### Perfluorinated Compounds by LC/MS/MS

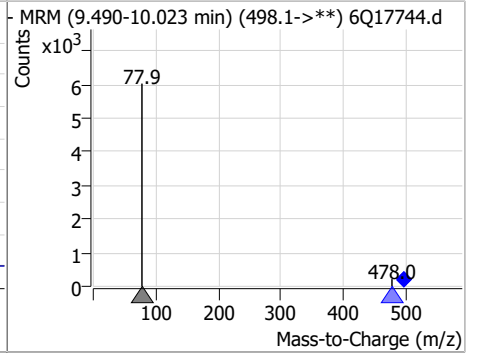
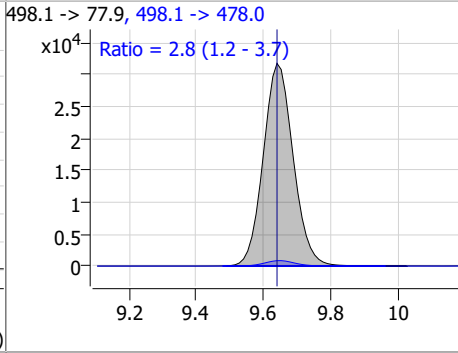
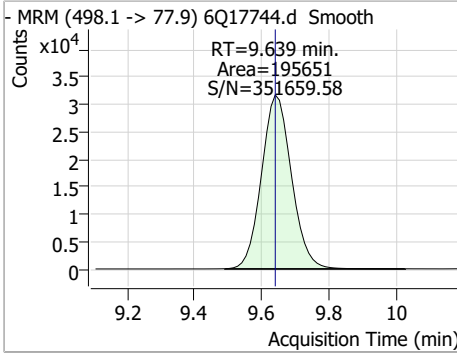


7.7.22 7

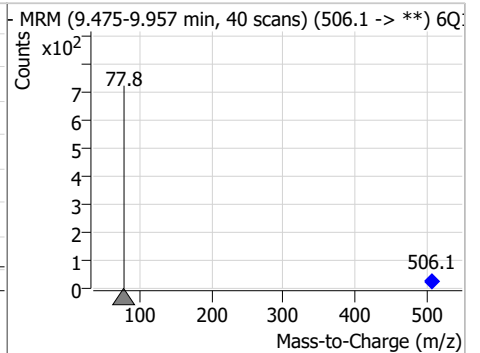
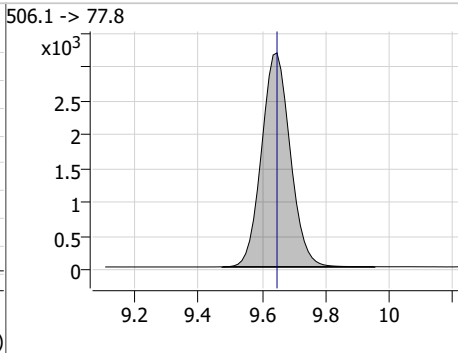
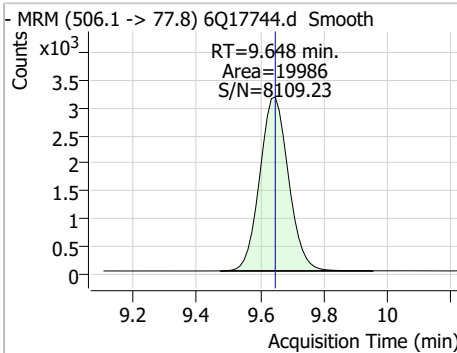


### Perfluorinated Compounds by LC/MS/MS

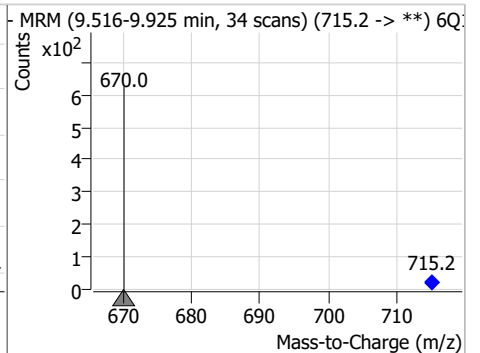
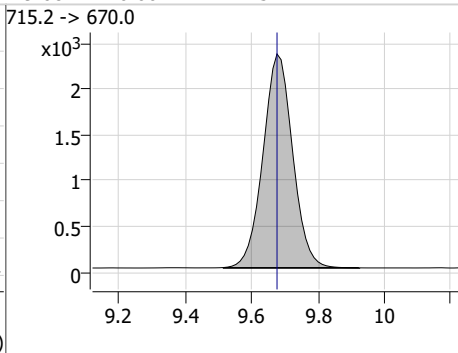
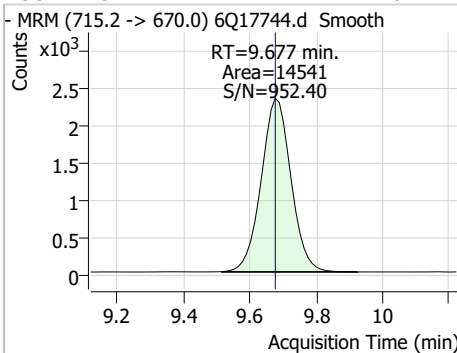
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	26.15	9.64	0.00	195651	498.1 -> 478.0	2.8	1.2	3.7



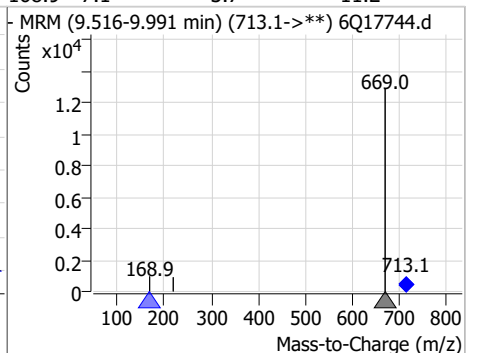
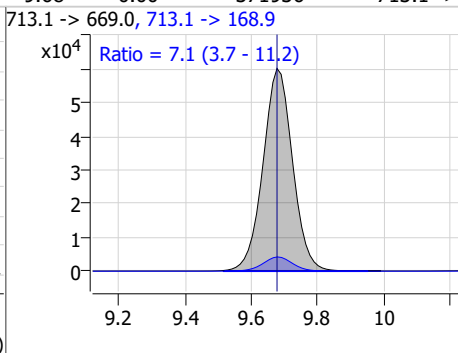
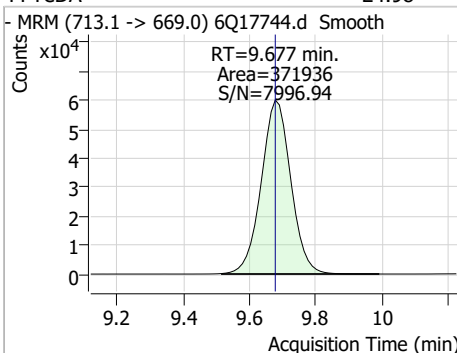
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.41	9.65	0.00	19986	506.1 -> 77.8			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.26	9.68	0.00	14541	715.2 -> 670.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	24.98	9.68	0.00	371936	713.1 -> 168.9	7.1	3.7	11.2

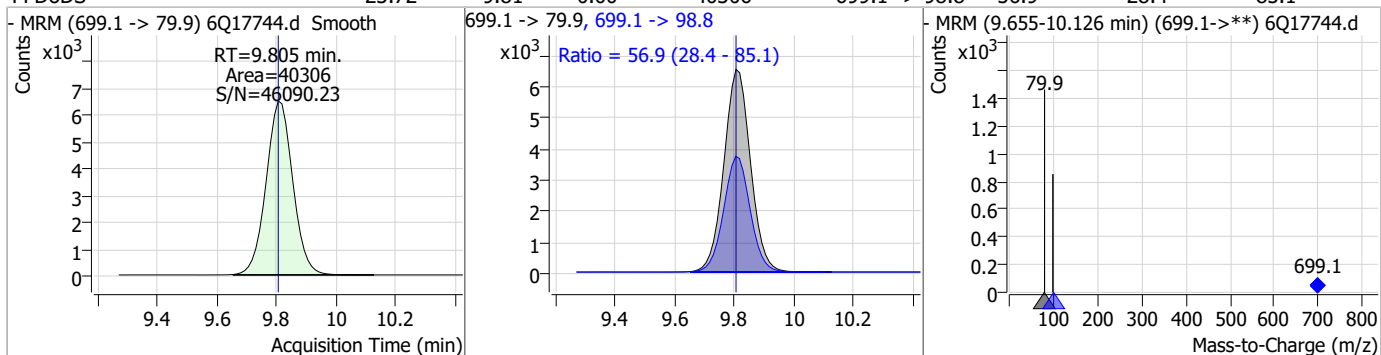


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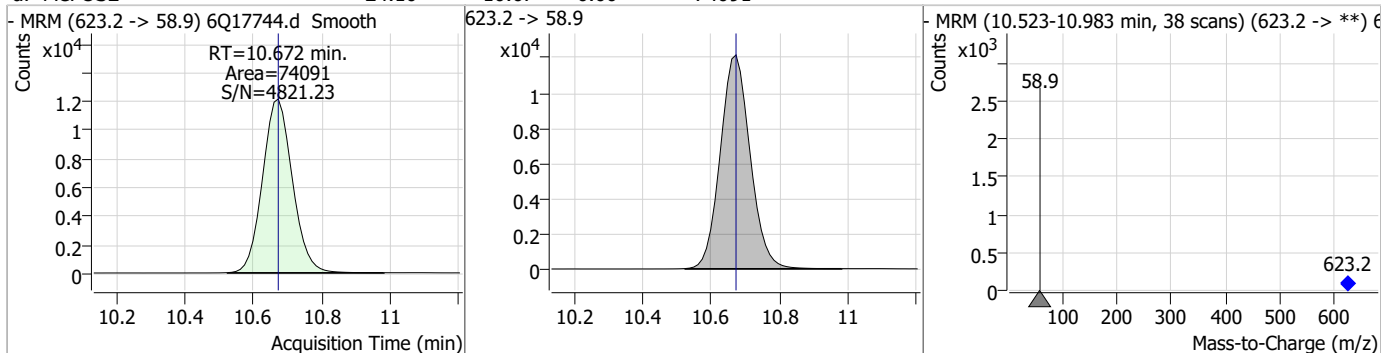
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### Perfluorinated Compounds by LC/MS/MS

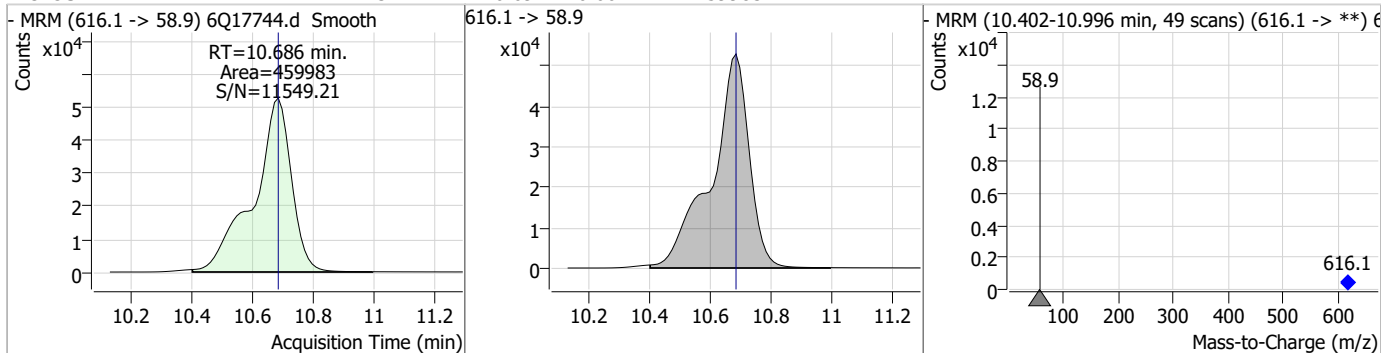
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	23.72	9.81	0.00	40306	699.1 -> 98.8	56.9	28.4	85.1



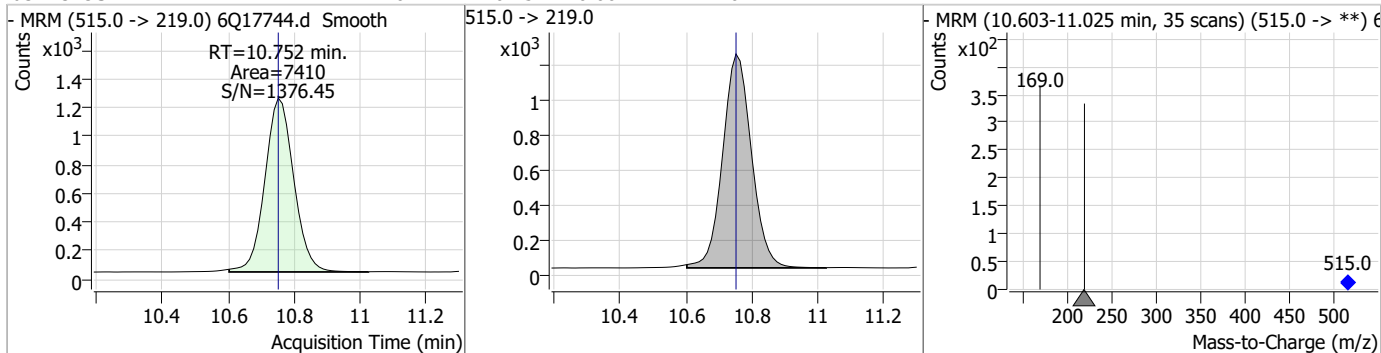
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.10	10.67	0.00	74091				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	132.71	10.69	0.00	459983				

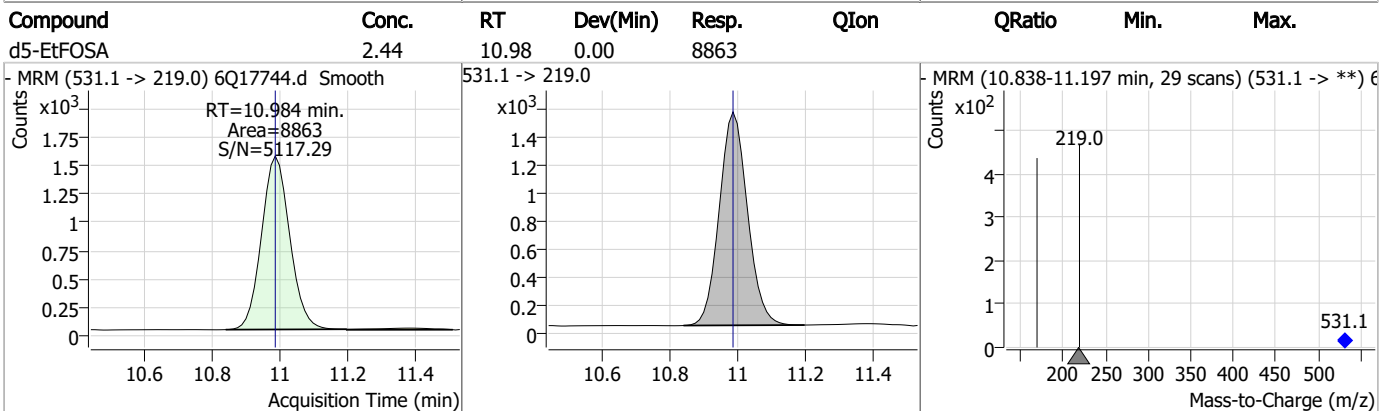
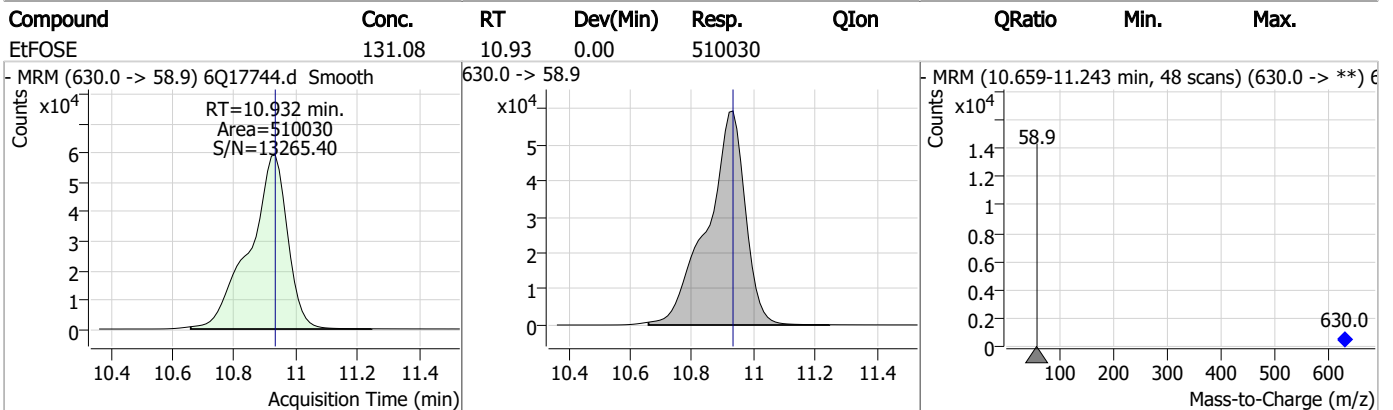
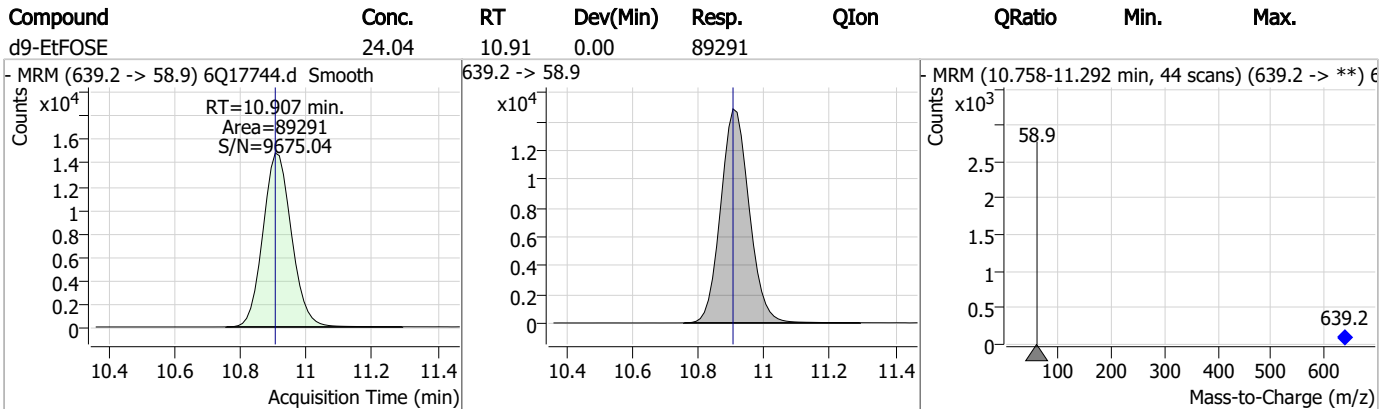
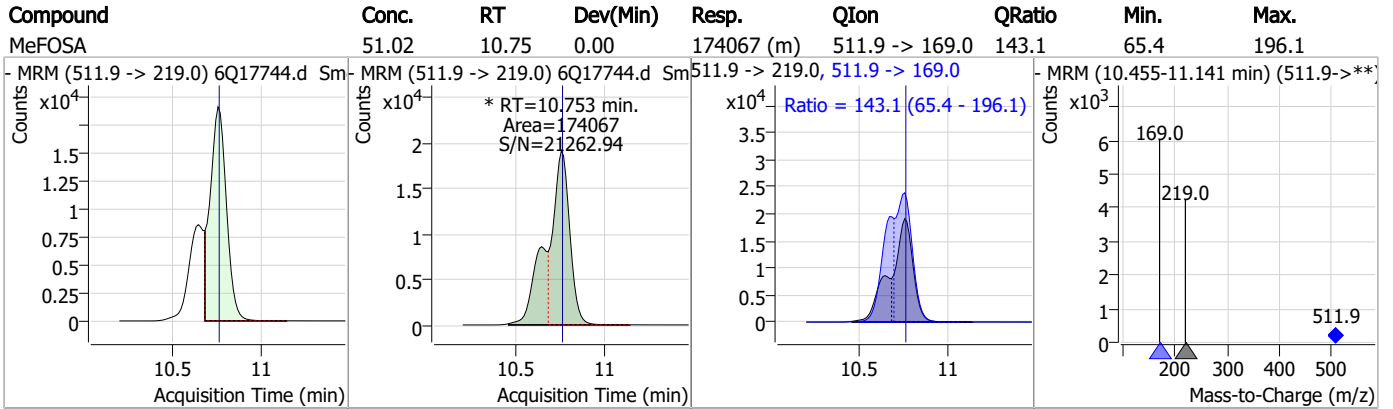


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	10.75	0.00	7410				



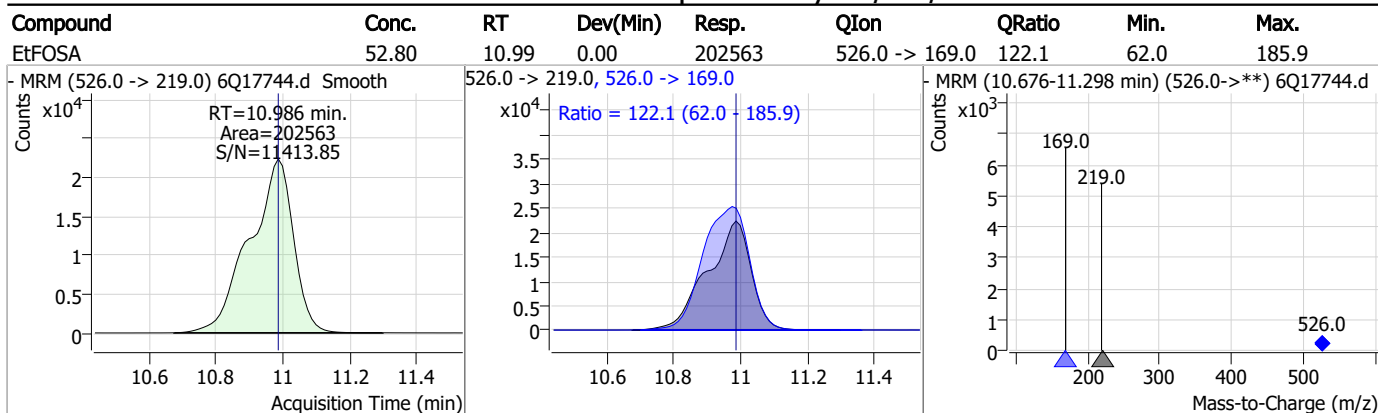
7.7.22 7

### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S6Q268-IC268      Method: EPA DRAFT 1633  
Lab FileID: 6Q17744.D      Analyst approved: 05/15/23 12:43 Martha Valls  
Injection Time: 05/12/23 13:42      Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSA	31506-32-8		10.75	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17745.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 1:56:51 PM  
 Sample Name : ic268-8  
 Vial : P1-A9  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.888	216.8 -> 171.9	122002	10.00 µg/L	-0.012
M5-PFPeA	4.272	268.3 -> 223.0	43862	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	47612	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	43396	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	62434	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	20280	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	16011	1.25 µg/L	0.012
M7-PFUnDA	8.518	570.0 -> 525.1	19016	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	20928	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14554	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	20351	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	15923	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10449	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9091	2.50 µg/L	0.000
M2-4:2FTS	5.131	329.1 -> 80.9	1391	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	1975	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2315	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	17730	5.00 µg/L	0.000
M3-HFPO-DA	5.831	286.9 -> 168.9	33485	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	14467	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	67690	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	80315	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	9138	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	8146	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	11712	2.50 µg/L	0.000
13C3-PFBA	2.891	216.0 -> 172.0	51974	5.00 µg/L	-0.012
18O2-PFHxS	7.178	403.0 -> 83.9	8150	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	68901	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	20599	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	21845	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	43874	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.131	329.1 -> 80.9	1391	4.48 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.6%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1975	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2315	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C2-PFDoDA	8.949	615.1 -> 570.0	20928	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14554	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C3-PFBS	5.397	302.1 -> 79.9	15923	2.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 89.7%		
13C3-PFHxS	7.179	402.1 -> 79.9	10449	2.41 µg/L	0.012

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C4-PFBA	2.888	216.8 -> 171.9	122002	9.89 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C4-PFHpA	6.420	367.1 -> 322.0	43396	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C5-PFHxA	5.466	318.0 -> 273.0	47612	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.8%	
13C5-PFPeA	4.272	268.3 -> 223.0	43862	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C6-PFDA	8.076	519.1 -> 474.1	16011	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C7-PFUnDA	8.518	570.0 -> 525.1	19016	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 87.8%	
13C8-FOSA	9.648	506.1 -> 77.8	20351	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C8-PFOA	7.064	421.1 -> 376.0	62434	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C8-PFOS	8.226	507.1 -> 79.9	9091	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C9-PFNA	7.595	472.1 -> 427.0	20280	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%	
d3-MeFOSAA	8.133	573.2 -> 419.0	17730	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	33485	10.43 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
d3-MeFOSA	10.752	515.0 -> 219.0	8146	2.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.0%	
d5-EtFOSAA	8.329	589.2 -> 419.0	14467	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
d7-MeFOSE	10.672	623.2 -> 58.9	67690	23.46 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
d9-EtFOSE	10.907	639.2 -> 58.9	80315	23.04 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.2%	
d5-EtFOSA	10.985	531.1 -> 219.0	9138	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.144	327.1 -> 307.0	499063	238.63 µg/L	98
		327.1 -> 80.9	181220		
6:2FTS	6.838	427.1 -> 407.0	438658	204.02 µg/L	99
		427.1 -> 80.9	145739		
8:2FTS	7.865	527.1 -> 507.0	242846	184.61 µg/L	99
		527.1 -> 80.8	98583		
EtFOSAA	8.330	584.2 -> 419.1	162035	60.15 µg/L	99
		584.2 -> 526.0	86241		
FOSA	9.639	498.1 -> 77.9	469173	61.59 µg/L	99
		498.1 -> 478.0	12926		
MeFOSAA	8.134	570.1 -> 419.0	223254	65.08 µg/L	96
		570.1 -> 483.0	40199		
PFBA	2.894	212.8 -> 168.9	1115112	254.79 µg/L	100
PFBS	5.398	298.7 -> 79.9	444156	57.16 µg/L	95
		298.7 -> 98.8	174835		
PFDA	8.076	512.9 -> 469.0	1375915	69.45 µg/L	93
		512.9 -> 219.0	184224		
PFDoDA	8.950	613.1 -> 569.0	1010195	60.60 µg/L	99
		613.1 -> 319.0	142616		
PFDS	9.113	599.0 -> 79.9	179294	60.74 µg/L	94

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	84157	61.88	µg/L	100
		363.1 -> 319.0	1342085			
PFHpS	7.735	363.1 -> 169.0	218427	63.72	µg/L	88
		449.0 -> 79.9	309088			
PFHxA	5.469	449.0 -> 98.9	134109	69.46	µg/L	99
		313.0 -> 269.0	1310023			
PFHxS	7.180	313.0 -> 118.9	57308	57.41	µg/L	96
		398.7 -> 79.9	332050			
PFNA	7.596	398.7 -> 98.9	156323	63.65	µg/L	94
		463.0 -> 419.0	958944			
PFNS	8.693	463.0 -> 219.0	170841	63.21	µg/L	89
		548.8 -> 79.9	277903			
PFOA	7.066	548.8 -> 98.9	139491	60.61	µg/L	98
		413.0 -> 369.0	1882721			
PFOS	8.228	413.0 -> 169.0	329213	58.82	µg/L	98
		498.9 -> 79.9	280382			
PFPeA	4.274	498.9 -> 98.8	145333	122.79	µg/L	100
		263.0 -> 219.0	1555403			
PFPeS	6.471	349.1 -> 79.9	342152	59.66	µg/L	94
		349.1 -> 98.9	140603			
PFTeDA	9.677	713.1 -> 669.0	914711	61.37	µg/L	99
		713.1 -> 168.9	64885			
PFTrDA	9.333	663.0 -> 619.0	1095527	56.68	µg/L	95
		663.0 -> 168.9	103206			
PFUnDA	8.518	563.1 -> 519.0	907437	65.70	µg/L	100
		563.1 -> 269.1	142513			
11Cl-PF3OUdS	9.385	630.9 -> 450.9	1411767	111.57	µg/L	96
		632.9 -> 452.9	422811			
9Cl-PF3ONS	8.557	530.8 -> 351.0	2072978	102.56	µg/L	93
		532.8 -> 353.0	676656			
ADONA	6.683	376.9 -> 250.9	5840896	109.55	µg/L	97
		376.9 -> 84.8	1468837			
HFPO-DA	5.832	284.9 -> 168.9	385658	119.14	µg/L	98
		284.9 -> 184.9	49494			
3:3FTCA	3.777	241.0 -> 177.0	256127	326.34	µg/L	98
		241.0 -> 117.0	32563			
5:3FTCA	6.161	341.0 -> 237.1	5309644	1624.84	µg/L	93
		341.0 -> 217.0	3541835			
7:3FTCA	7.586	441.0 -> 316.9	2336953	1576.39	µg/L	95
		441.0 -> 336.9	4716304			
EtFOSA	10.986	526.0 -> 219.0	469501	118.69	µg/L	100
		526.0 -> 169.0	581549			
EtFOSE	10.920	630.0 -> 58.9	1154315	329.81	µg/L	100
		511.9 -> 219.0	404958			
MeFOSA	10.753	511.9 -> 169.0	541497	107.96	µg/L	97
		616.1 -> 58.9	1052658			
MeFOSE	10.686	699.1 -> 79.9	94773	332.43	µg/L	100
		699.1 -> 98.8	55425			
PFDoDS	9.805	295.0 -> 201.0	259065	60.74	µg/L	98
		295.0 -> 84.9	67988			
NFDHA	5.348	279.0 -> 85.1	1135631	124.42	µg/L	98
		229.0 -> 84.9	812979			
PFMBA	4.675	314.8 -> 134.9	2888050	125.64	µg/L	100
PFMPA	3.426	314.8 -> 82.9	102105	124.89	µg/L	100
PFEESA	5.938			114.05	µg/L	100

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

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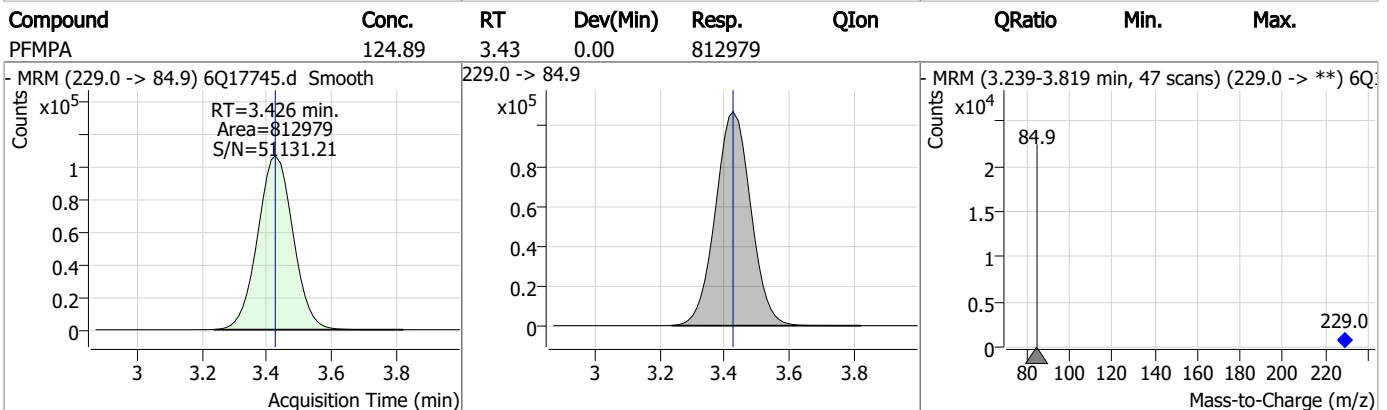
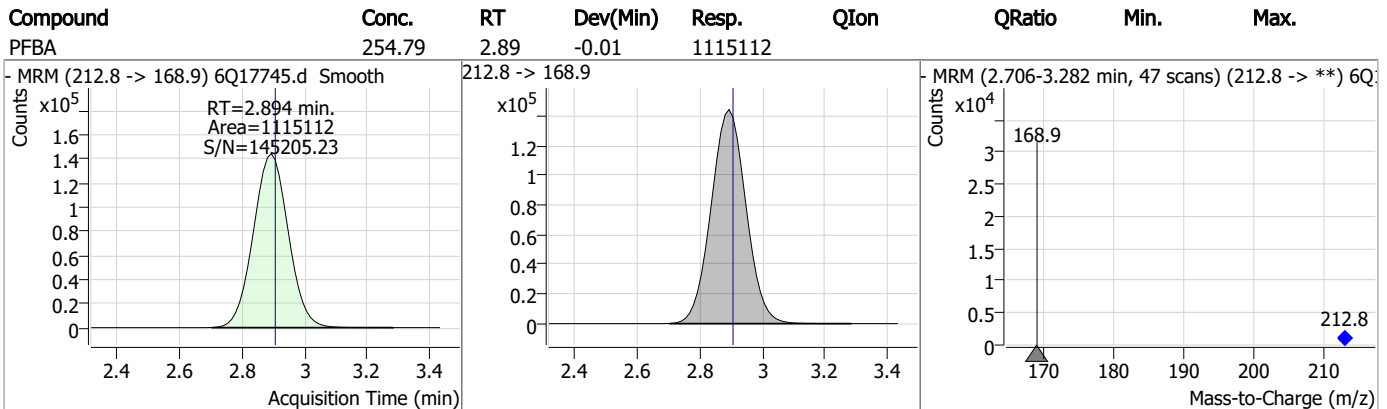
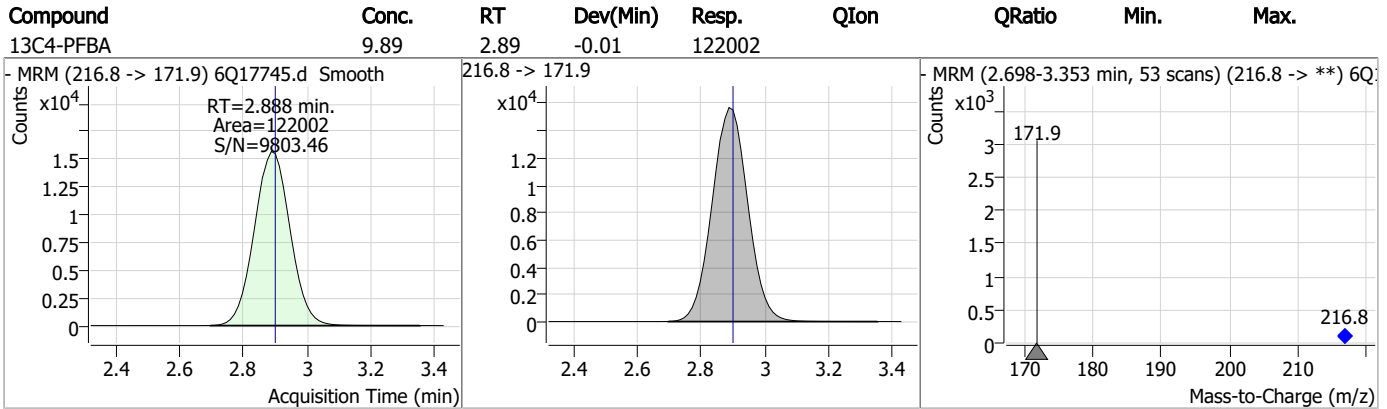
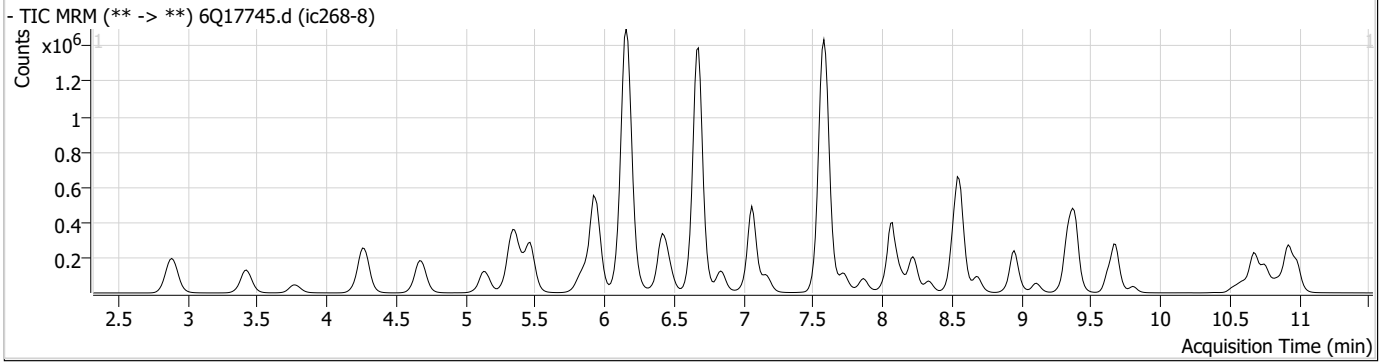
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.23

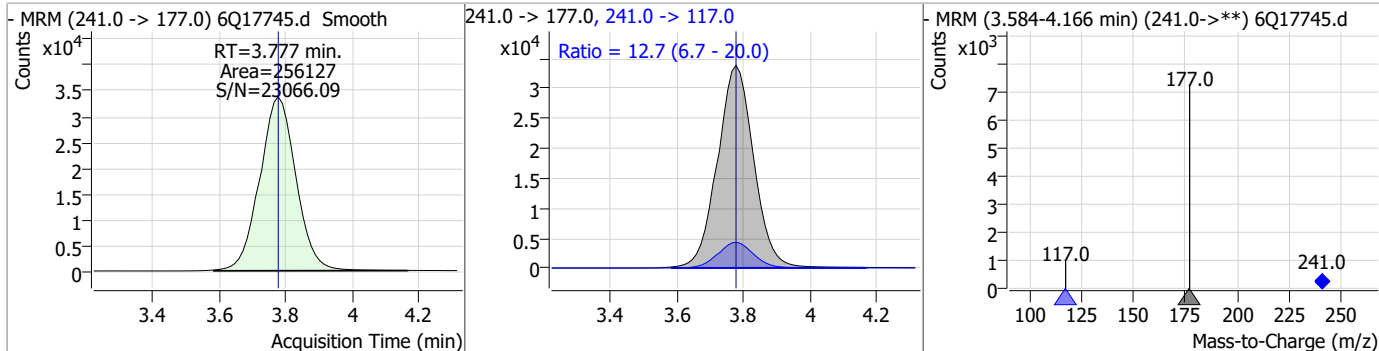
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### Perfluorinated Compounds by LC/MS/MS

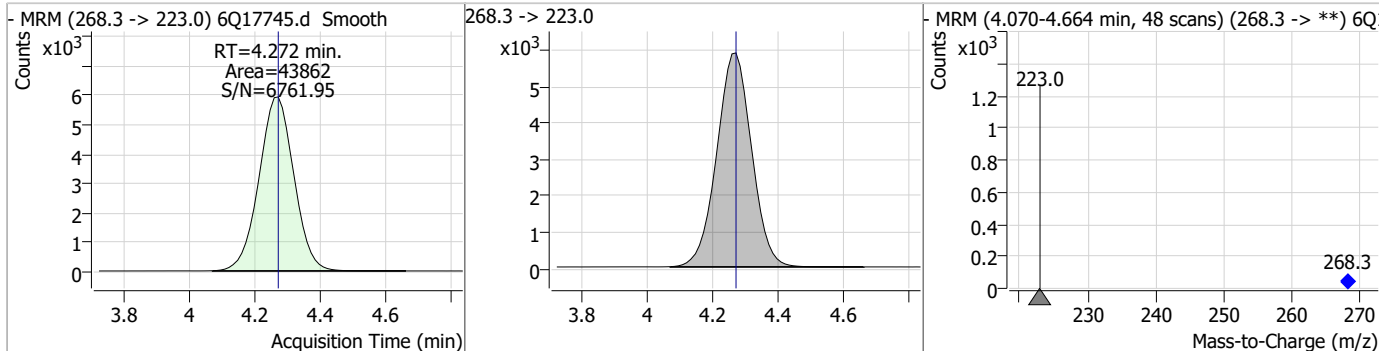


### Perfluorinated Compounds by LC/MS/MS

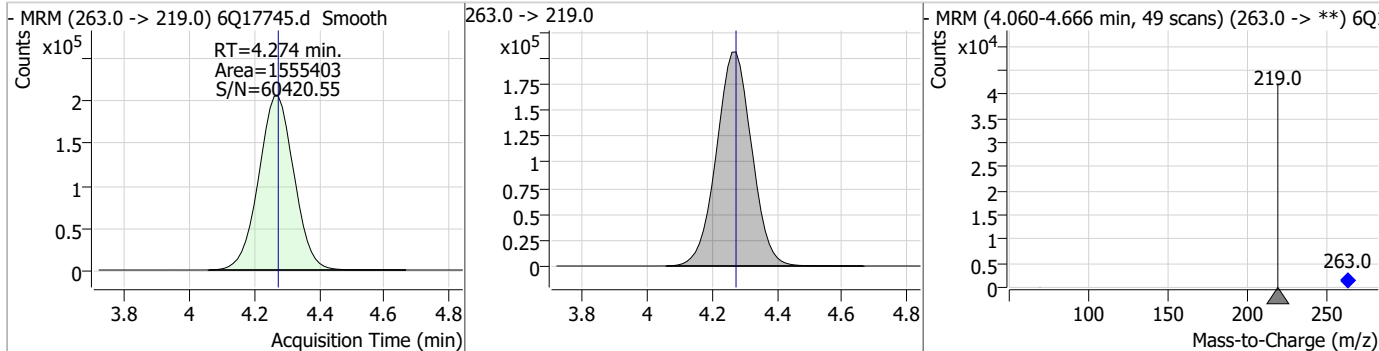
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	326.34	3.78	0.00	256127	241.0 -> 117.0	12.7	6.7	20.0



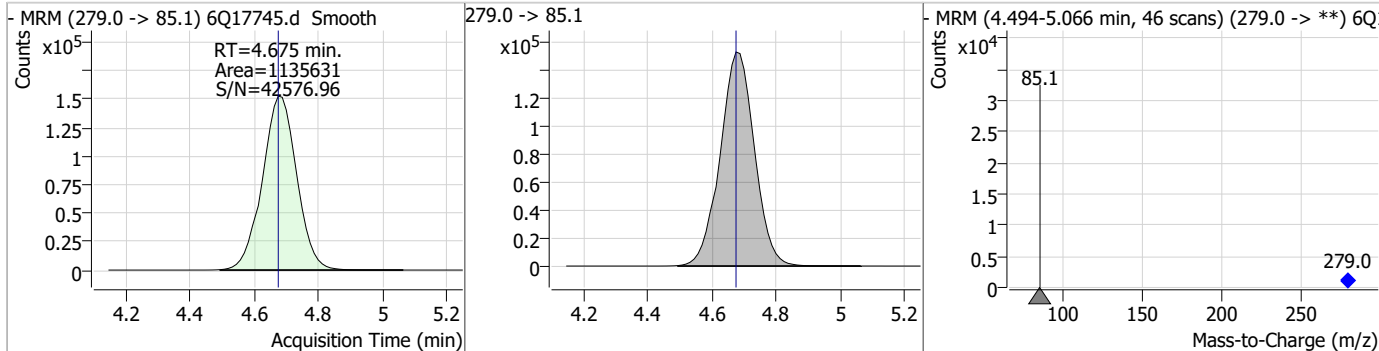
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.75	4.27	0.00	43862				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	122.79	4.27	0.00	1555403				

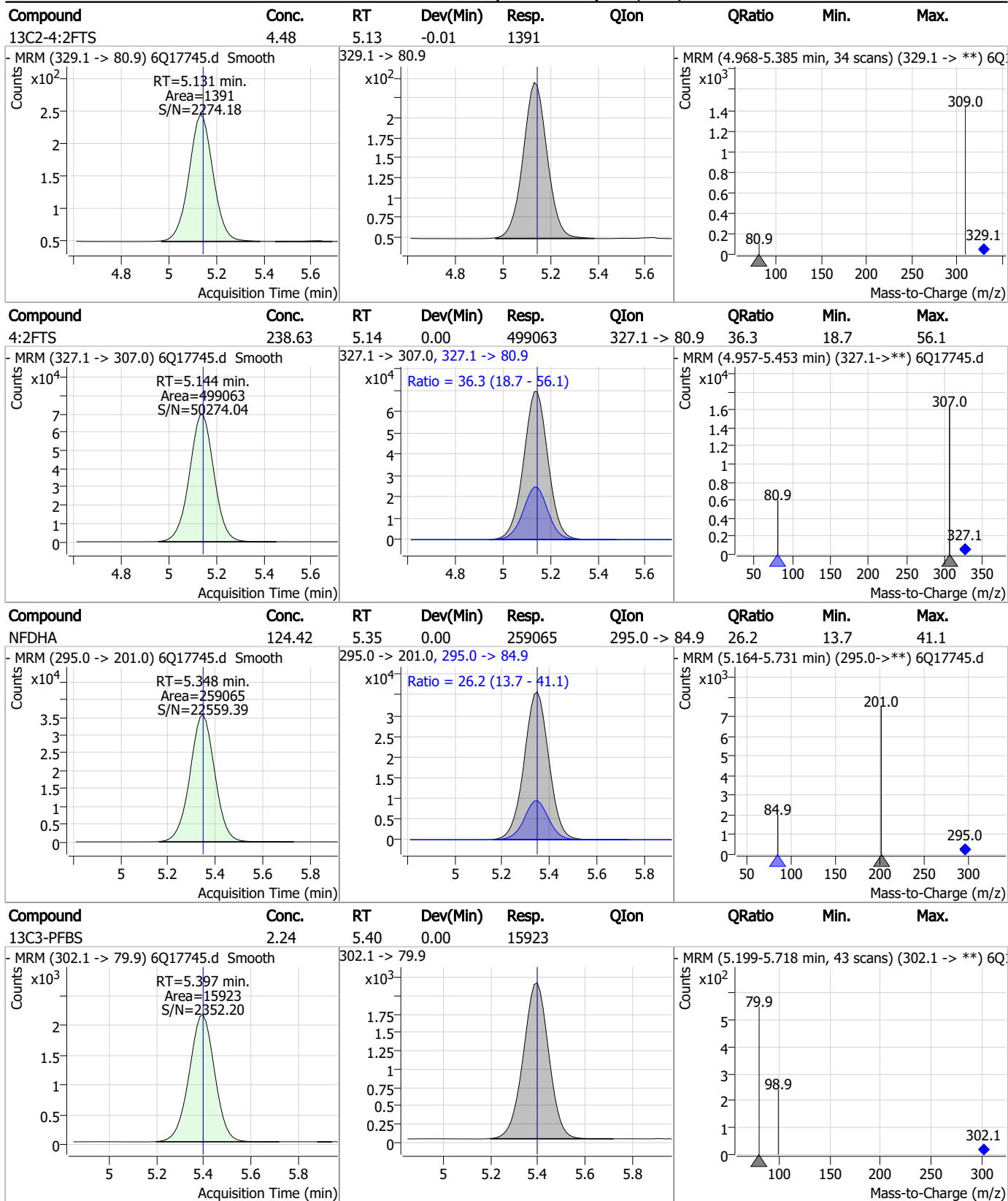


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	125.64	4.68	0.00	1135631				



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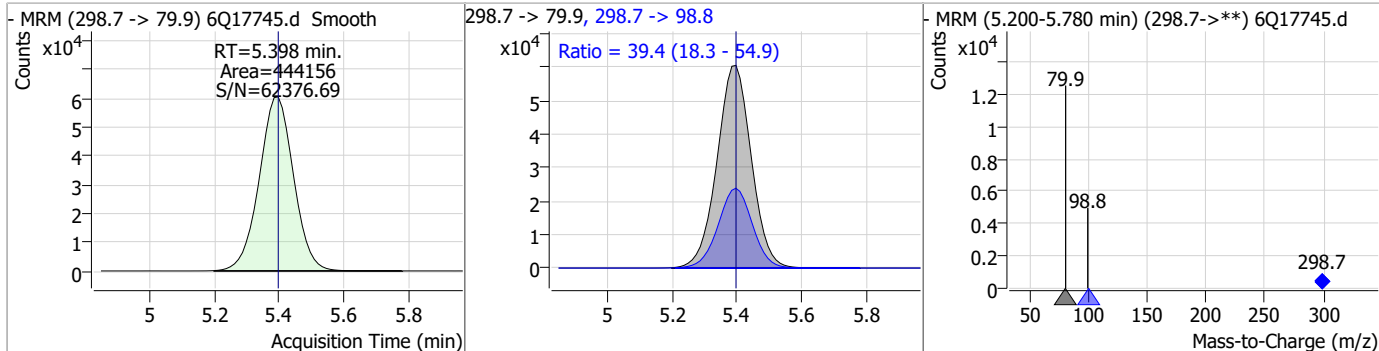
### Perfluorinated Compounds by LC/MS/MS



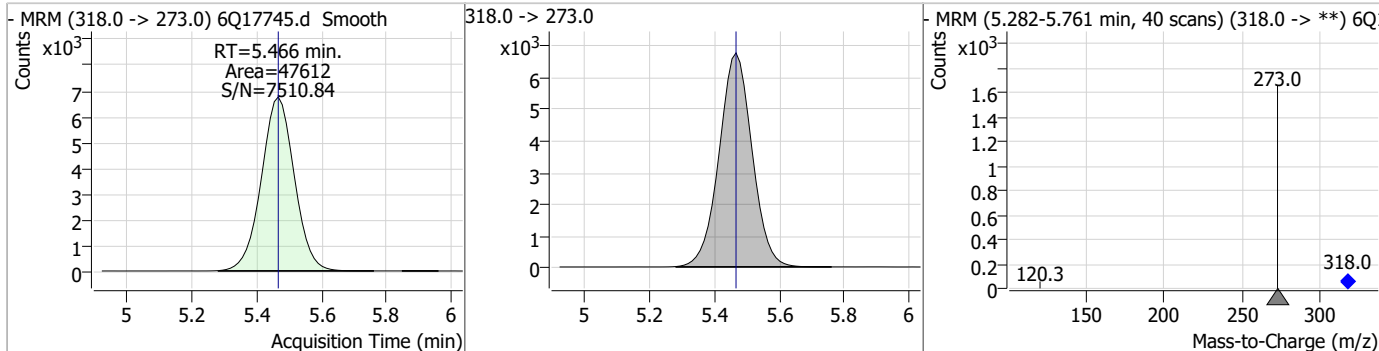
7.7.23  
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### Perfluorinated Compounds by LC/MS/MS

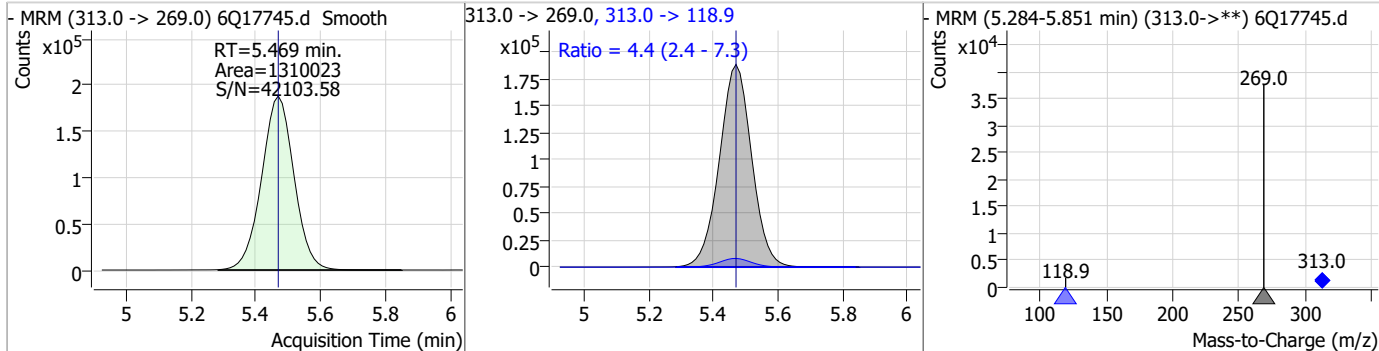
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	57.16	5.40	0.00	444156	298.7 -> 98.8	39.4	18.3	54.9



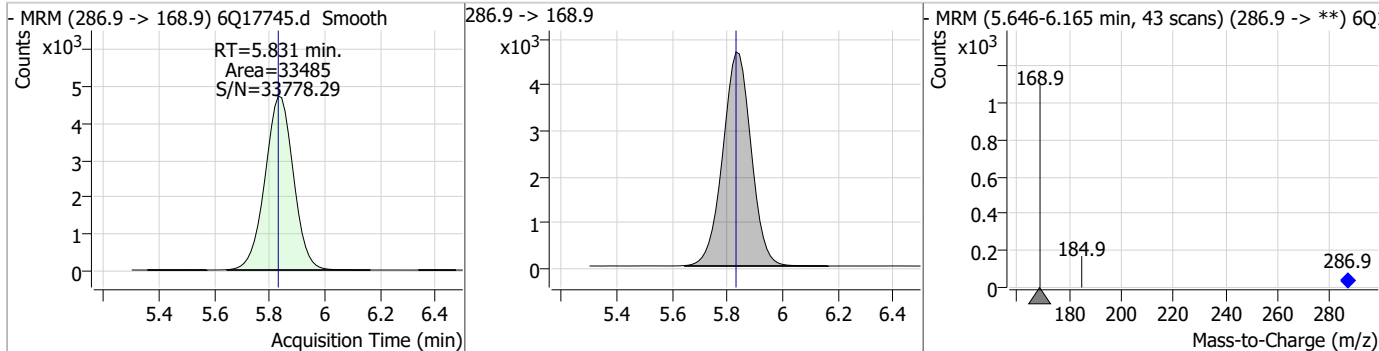
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.30	5.47	0.00	47612				



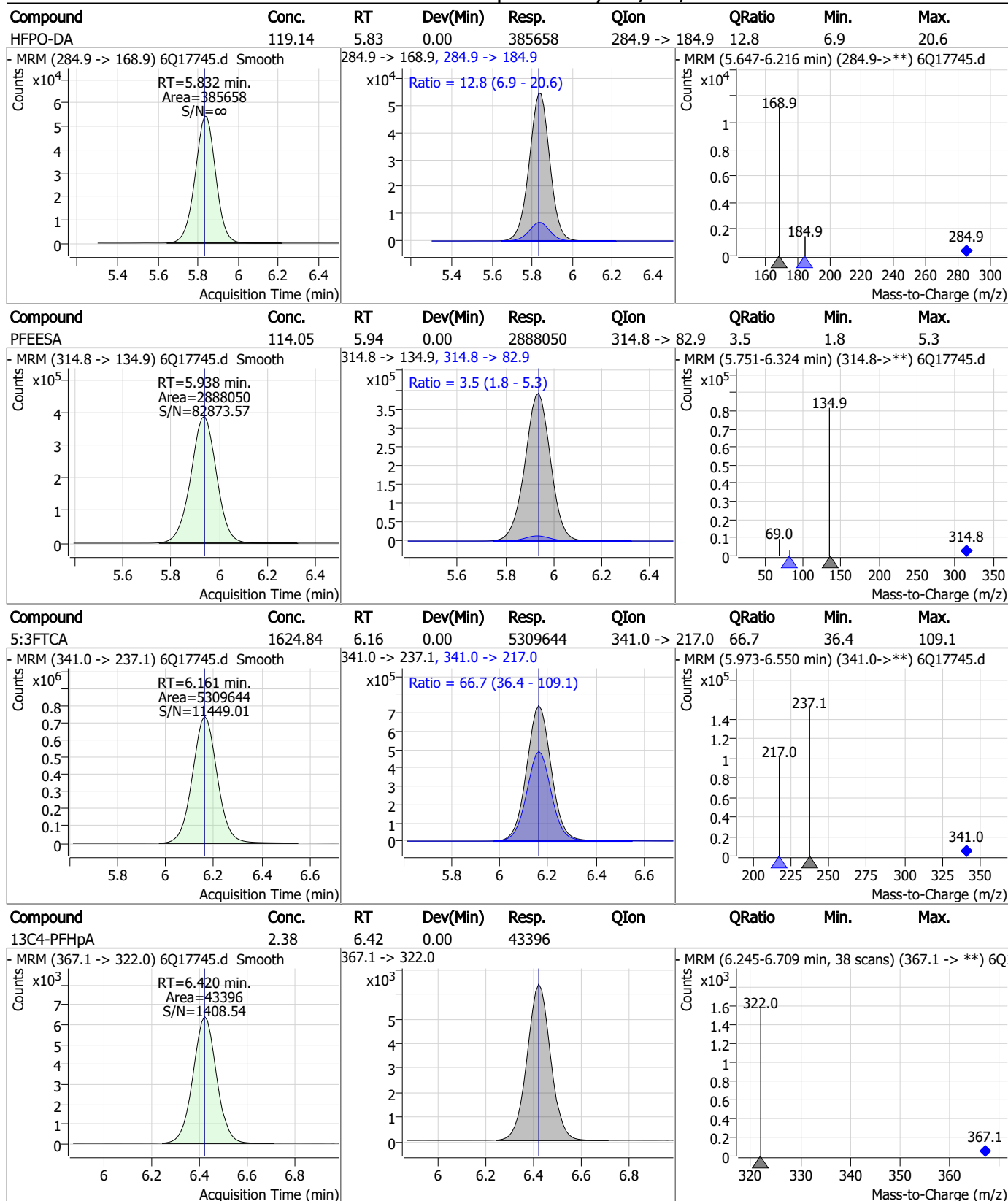
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	69.46	5.47	0.00	1310023	313.0 -> 118.9	4.4	2.4	7.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.43	5.83	0.00	33485				



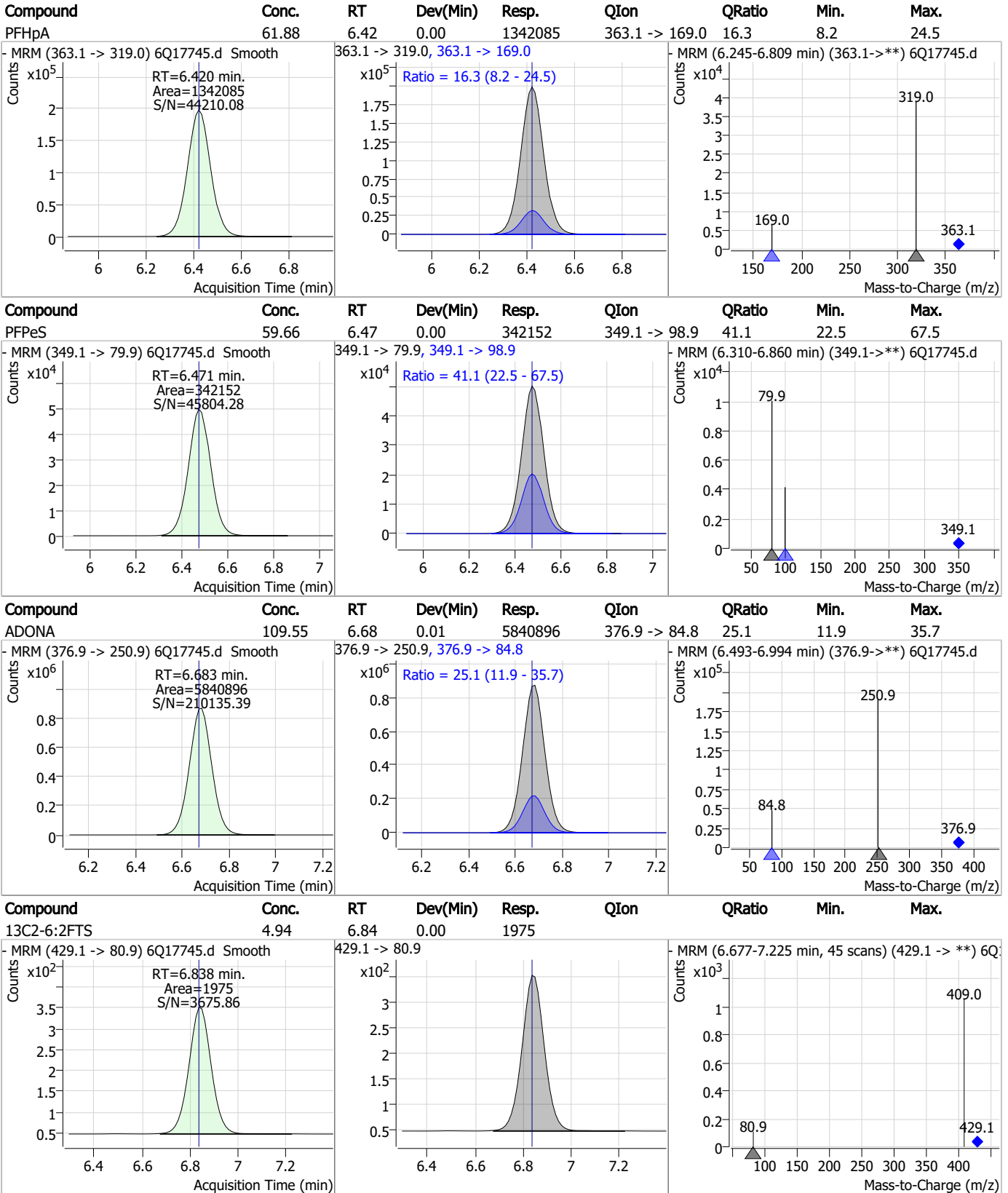
### Perfluorinated Compounds by LC/MS/MS



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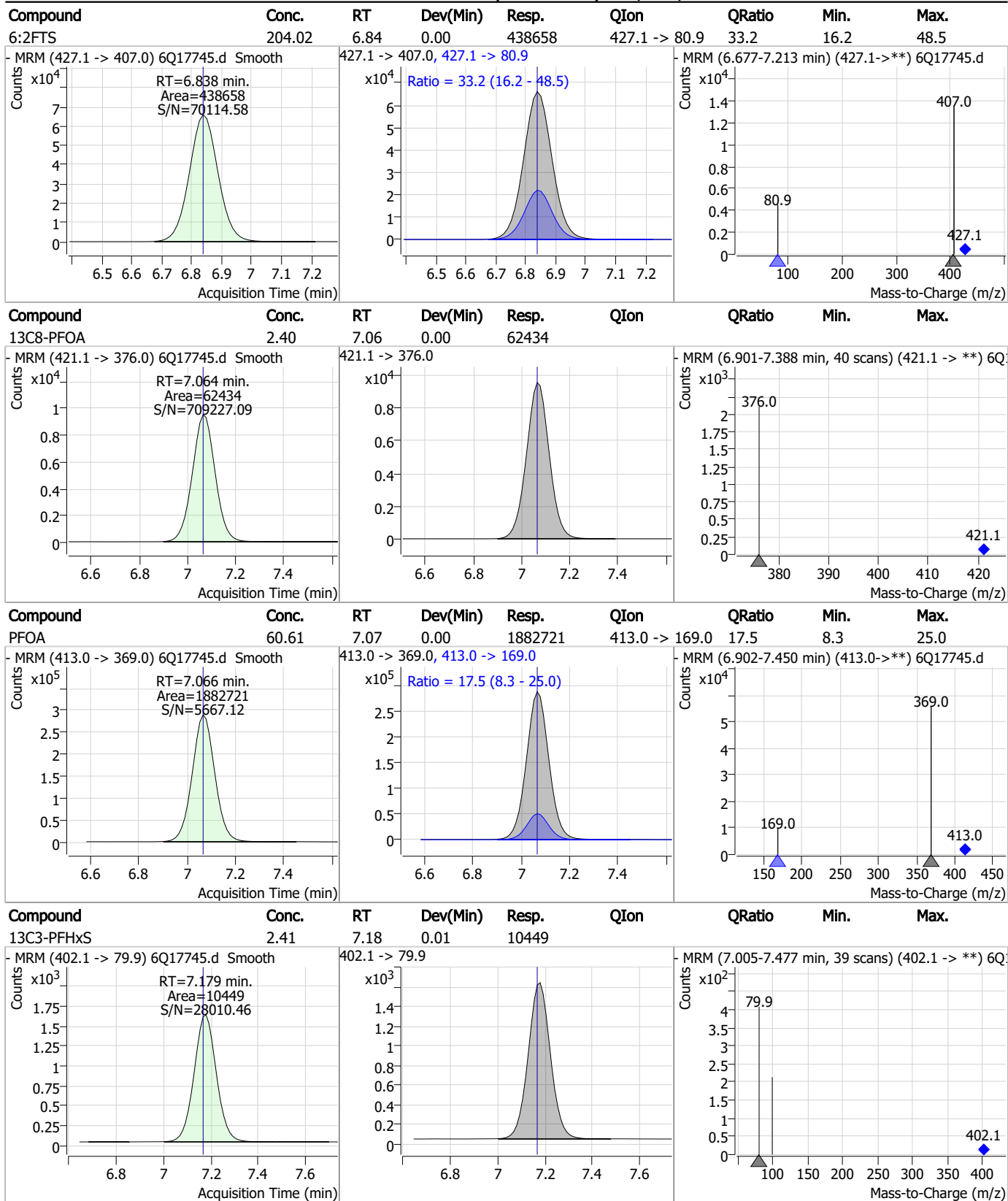
### Perfluorinated Compounds by LC/MS/MS



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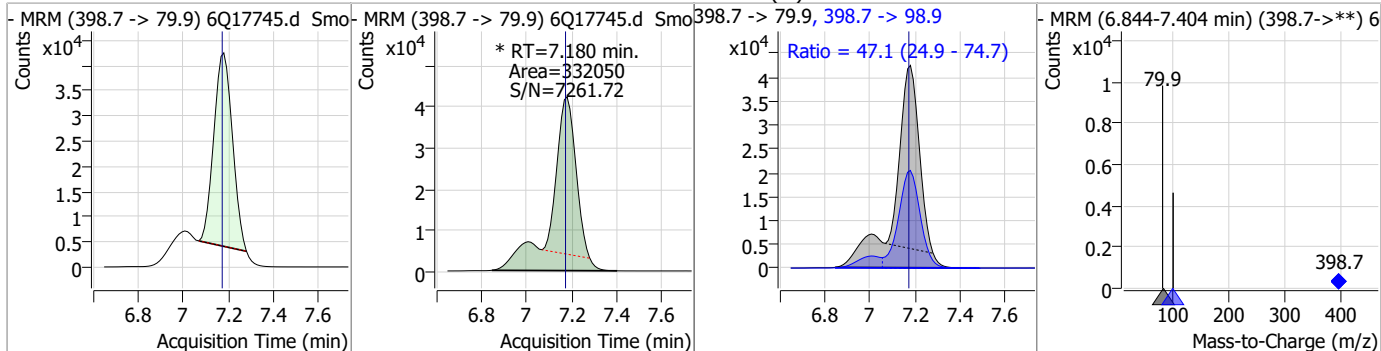
### Perfluorinated Compounds by LC/MS/MS



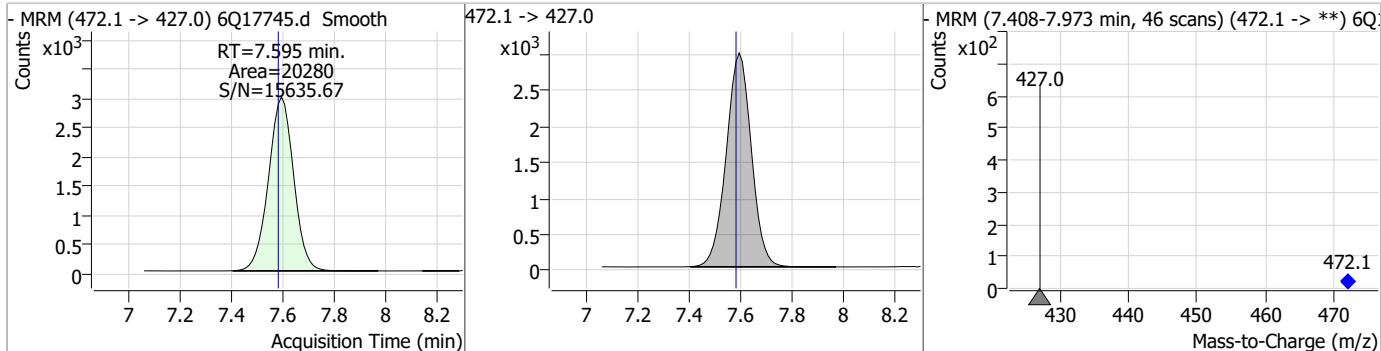
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### Perfluorinated Compounds by LC/MS/MS

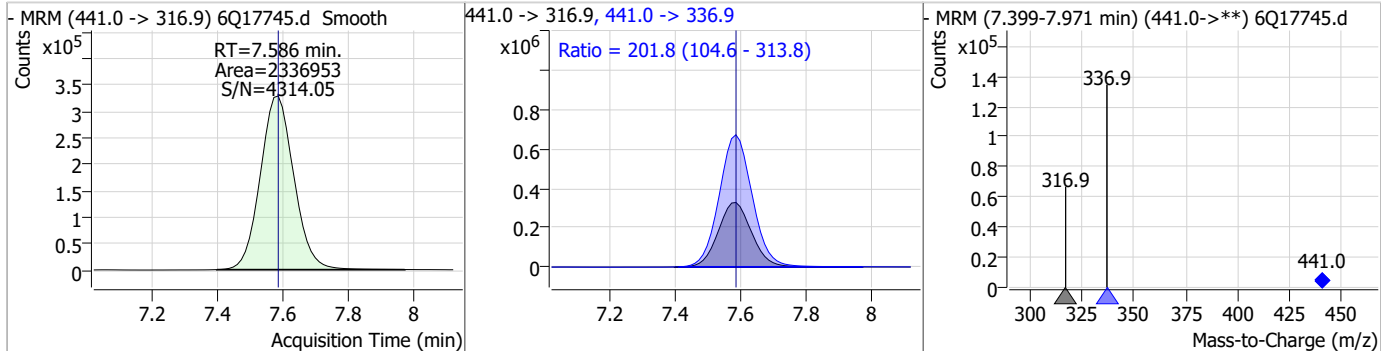
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	57.41	7.18	0.01	332050 (m)	398.7 -> 98.9	47.1	24.9	74.7



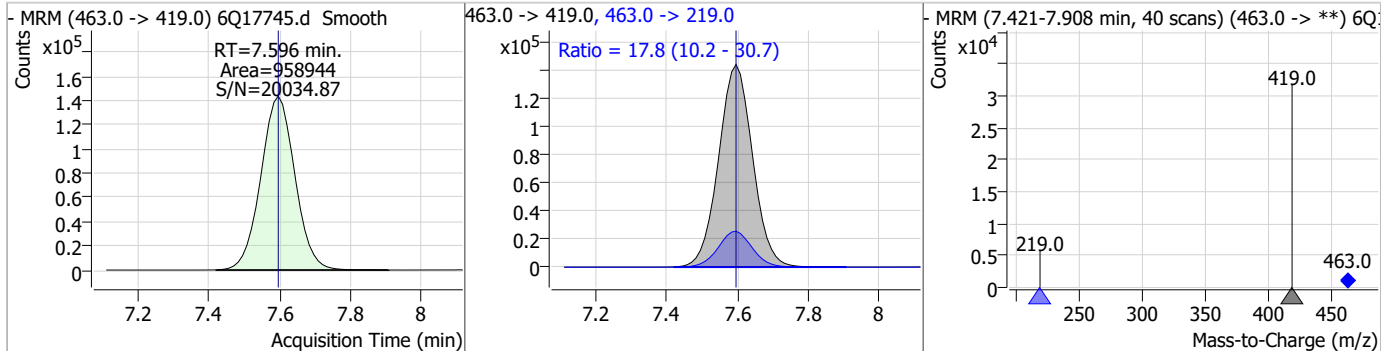
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.26	7.60	0.01	20280				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	1576.39	7.59	0.00	2336953	441.0 -> 336.9	201.8	104.6	313.8

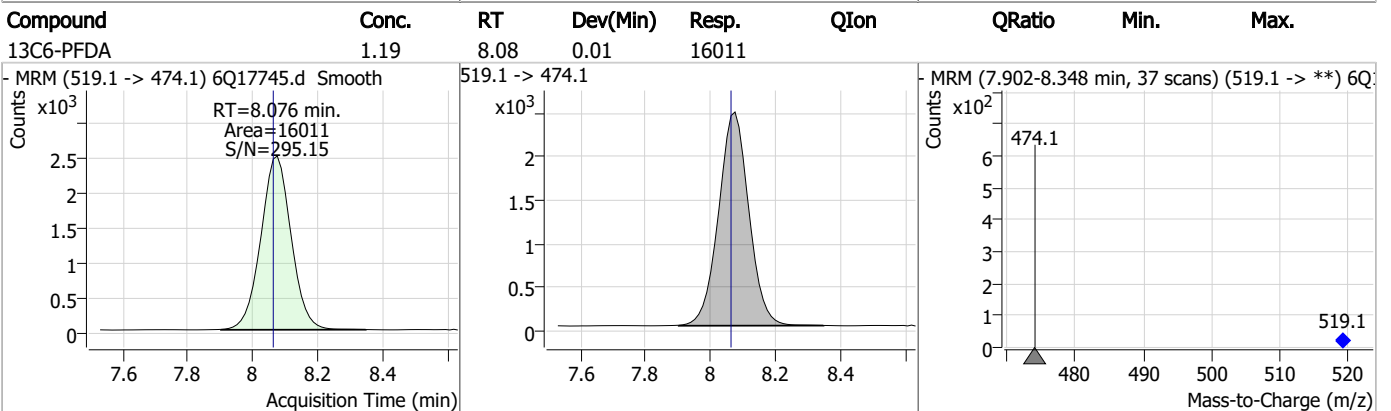
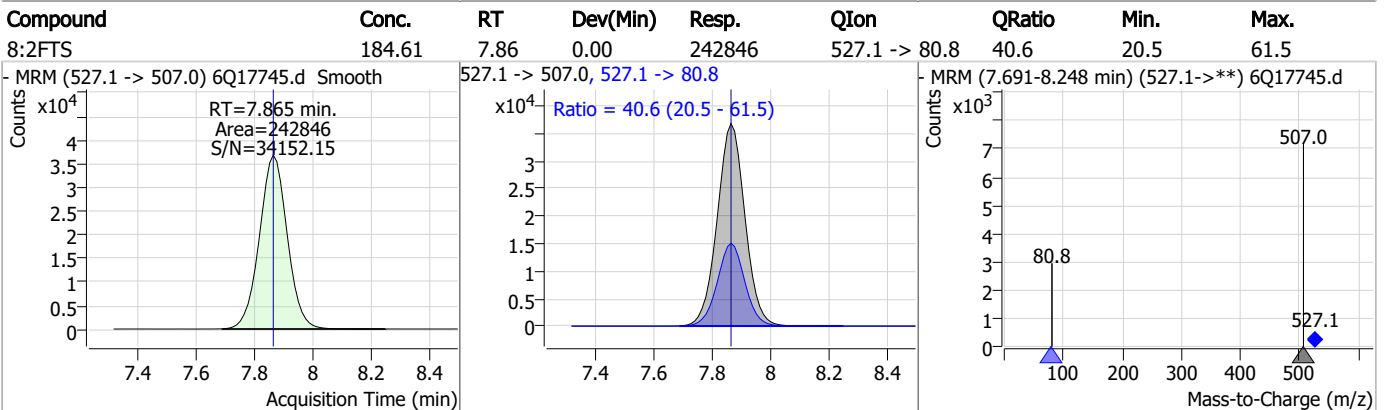
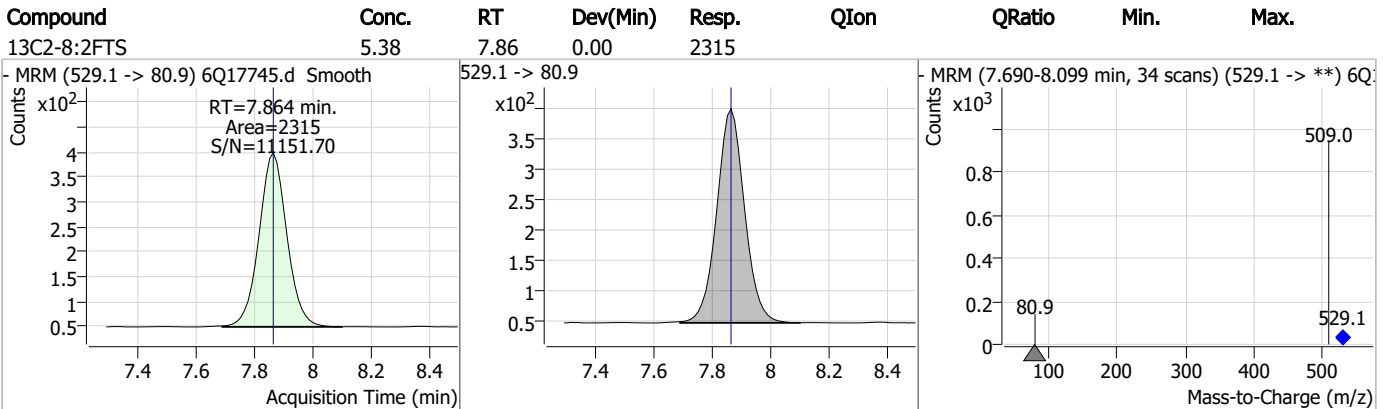
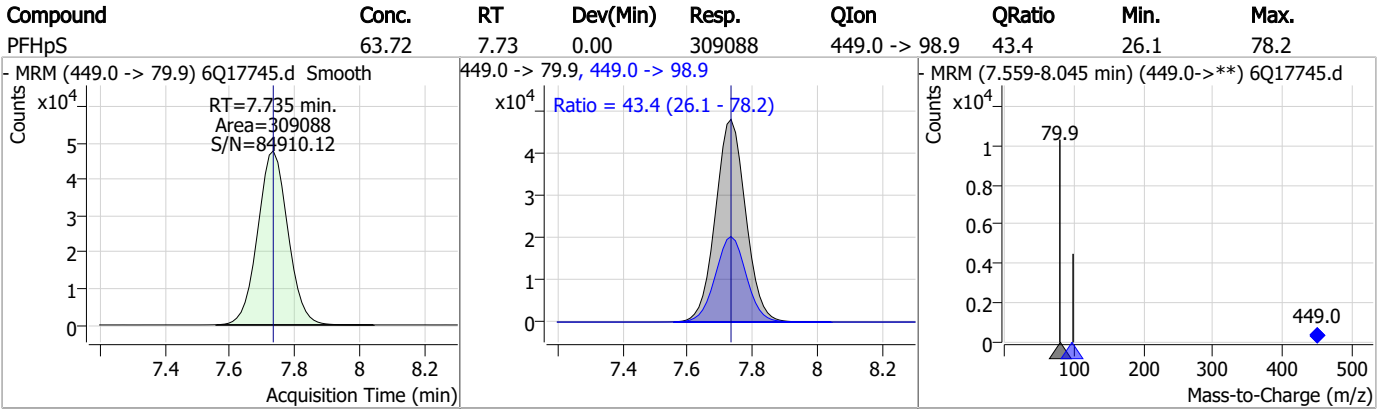


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	63.65	7.60	0.00	958944	463.0 -> 219.0	17.8	10.2	30.7

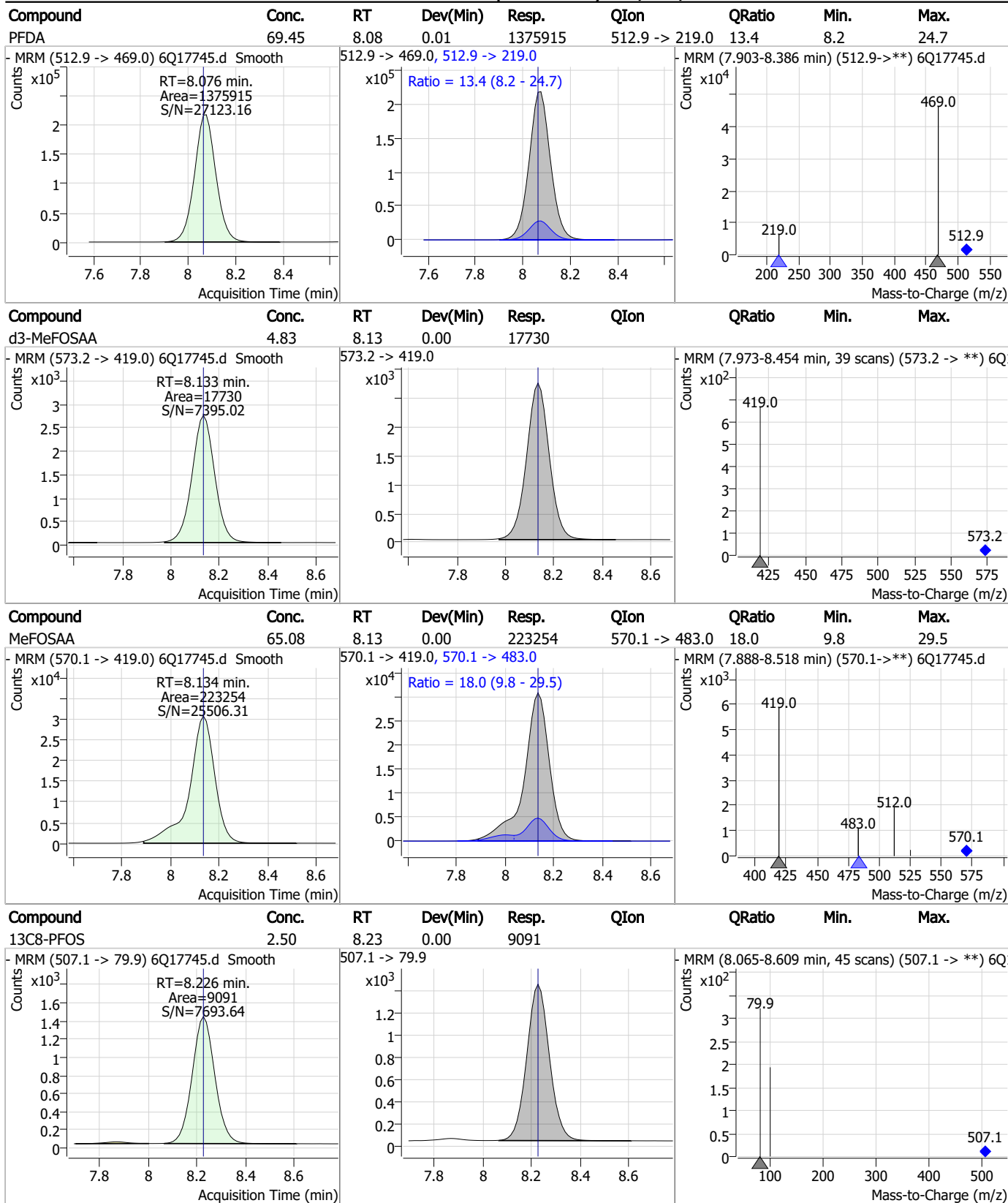


7.7.23  
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### Perfluorinated Compounds by LC/MS/MS

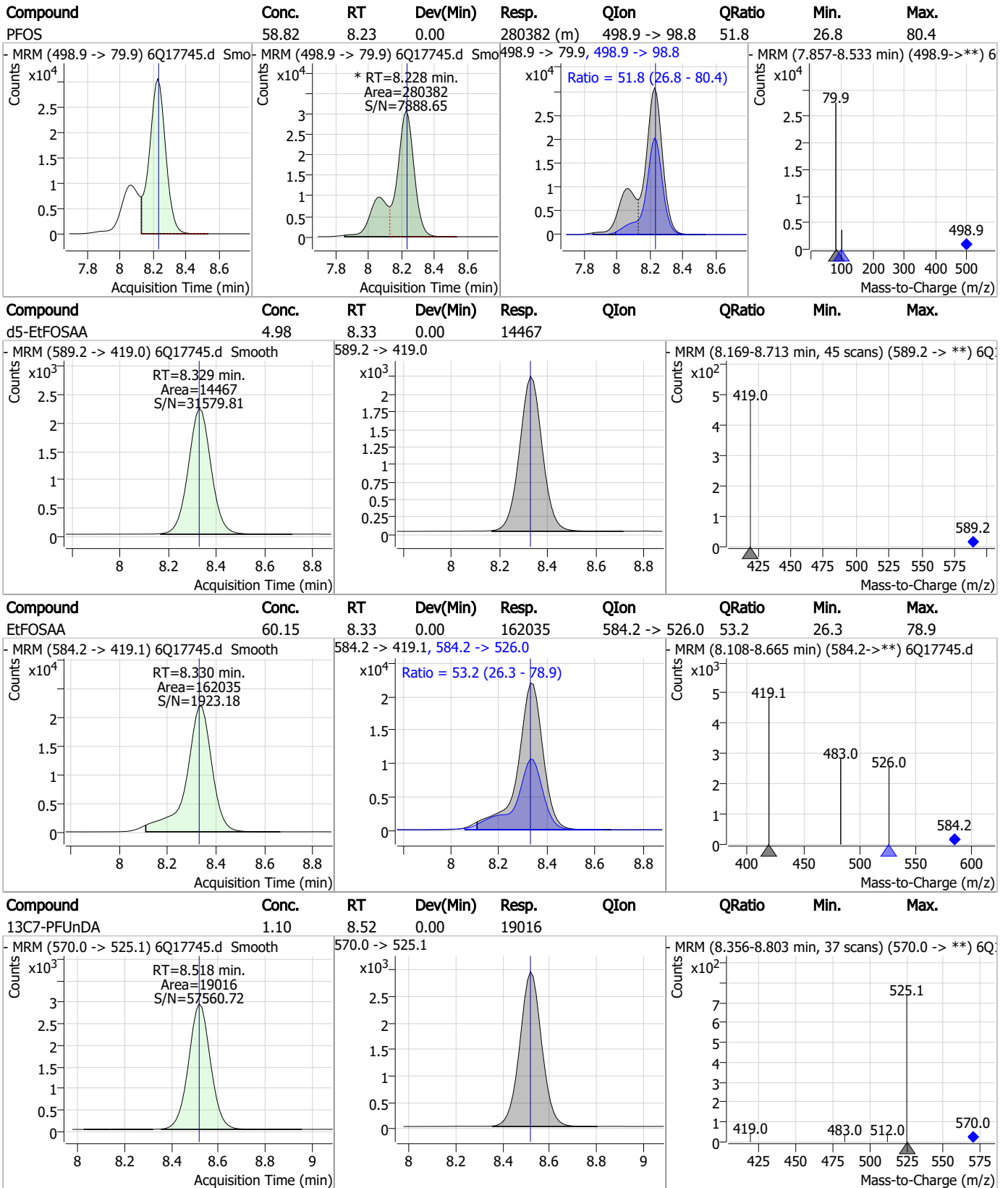


### Perfluorinated Compounds by LC/MS/MS



7.7.23  
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### Perfluorinated Compounds by LC/MS/MS

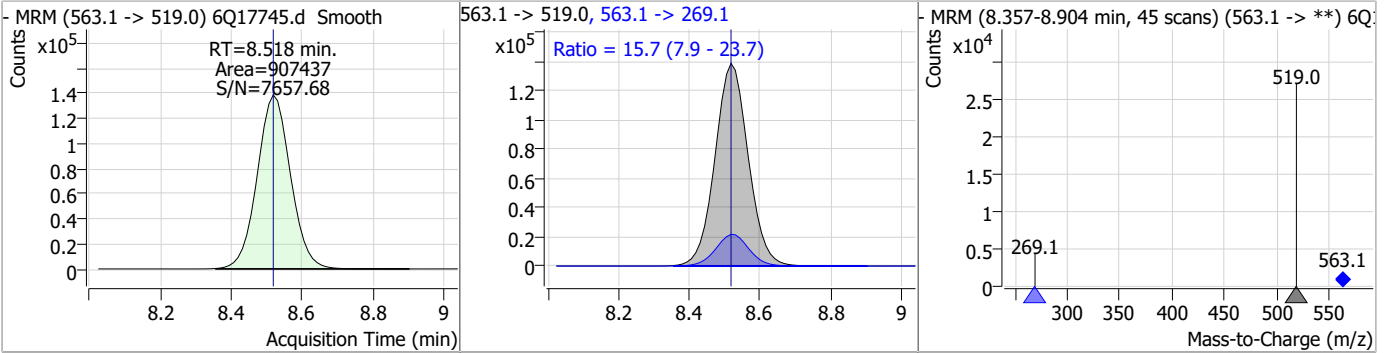


7.7.23

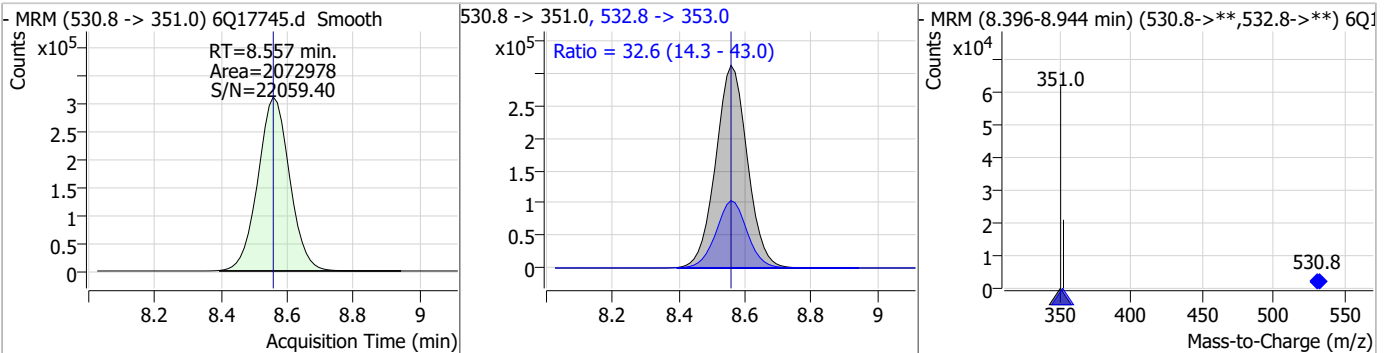
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### Perfluorinated Compounds by LC/MS/MS

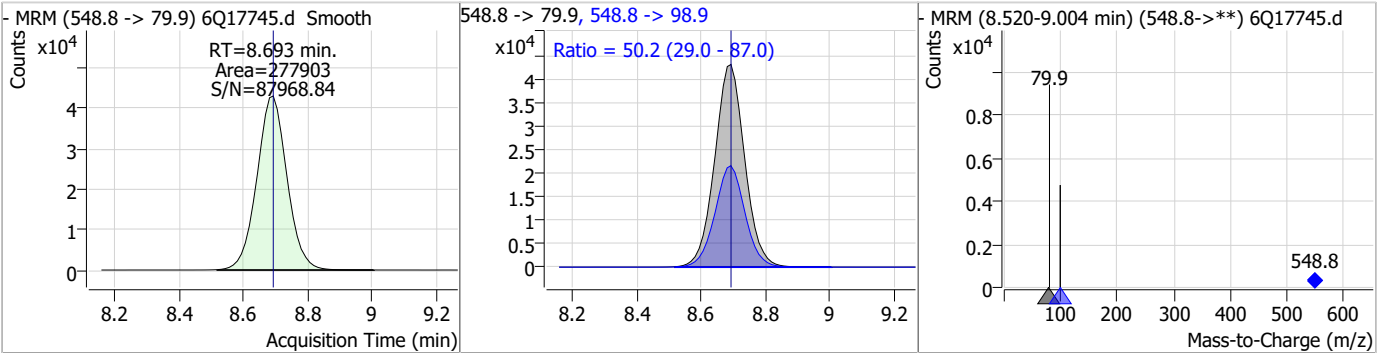
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	65.70	8.52	0.00	907437	563.1 -> 269.1	15.7	7.9	23.7



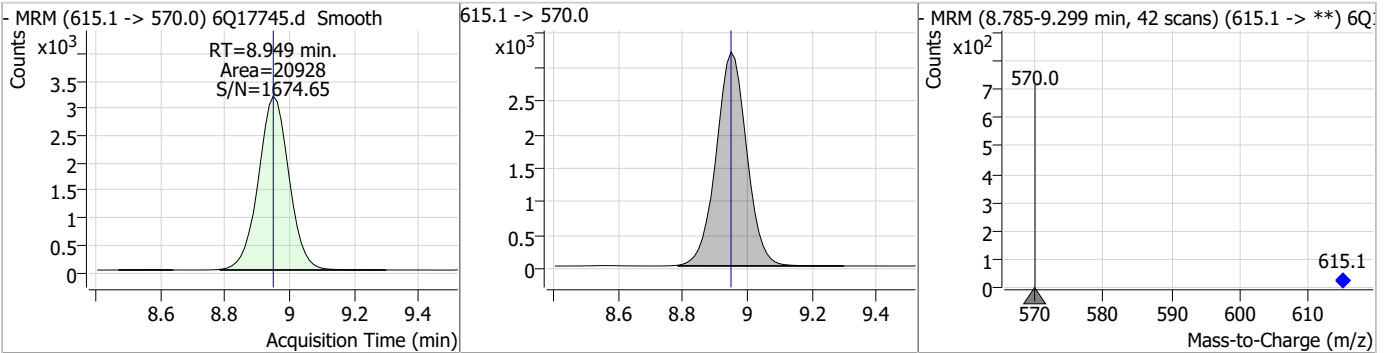
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	102.56	8.56	0.00	2072978	532.8 -> 353.0	32.6	14.3	43.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	63.21	8.69	0.00	277903	548.8 -> 98.9	50.2	29.0	87.0

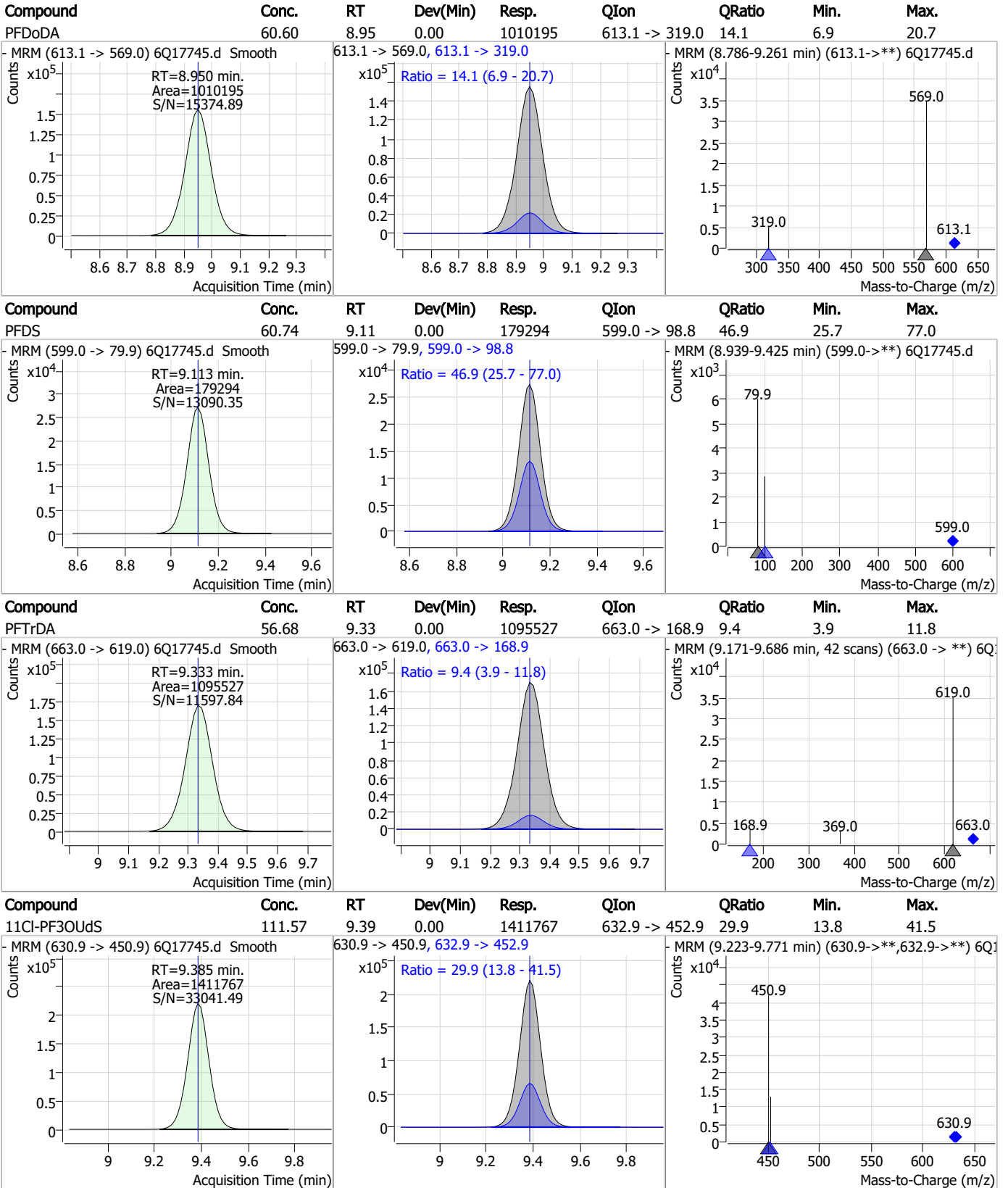


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.21	8.95	0.00	20928	615.1 -> 570.0	-	-	-



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### Perfluorinated Compounds by LC/MS/MS

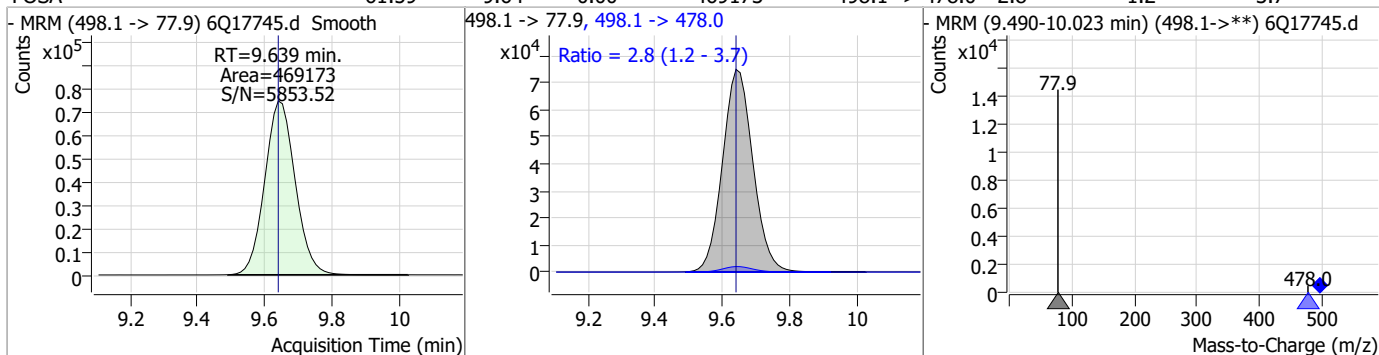


7.7.23 7

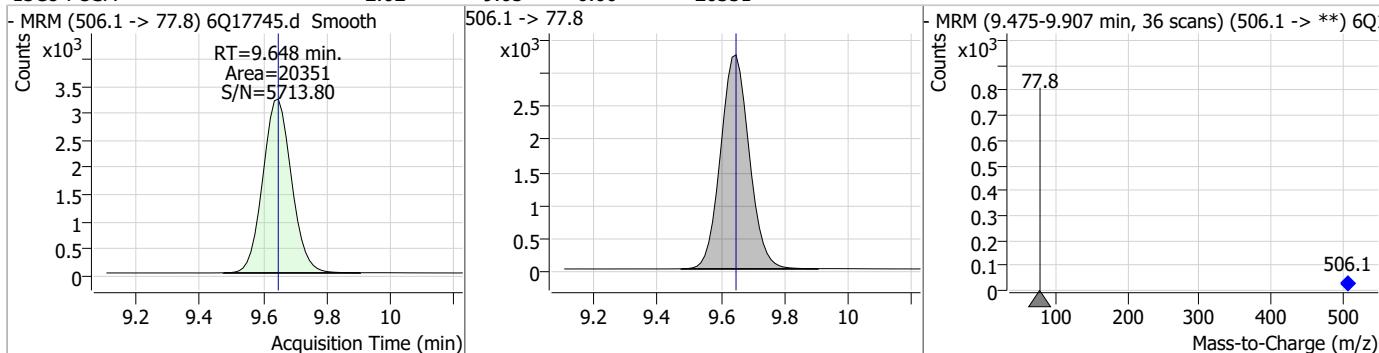


### Perfluorinated Compounds by LC/MS/MS

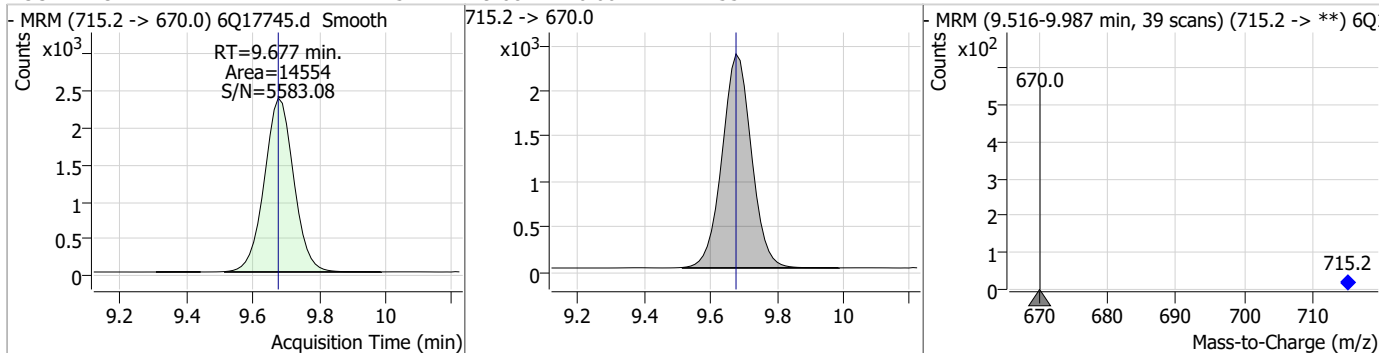
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	61.59	9.64	0.00	469173	498.1 -> 478.0	2.8	1.2	3.7



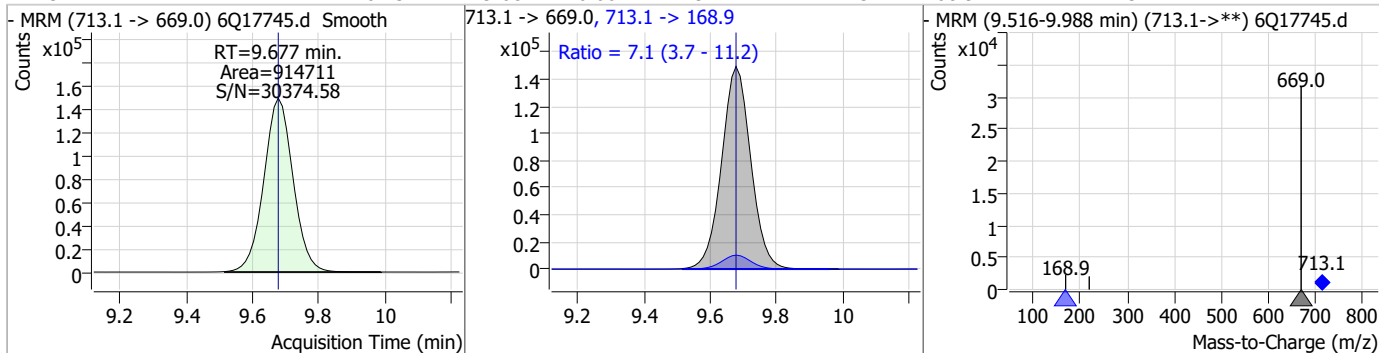
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.62	9.65	0.00	20351				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.25	9.68	0.00	14554				

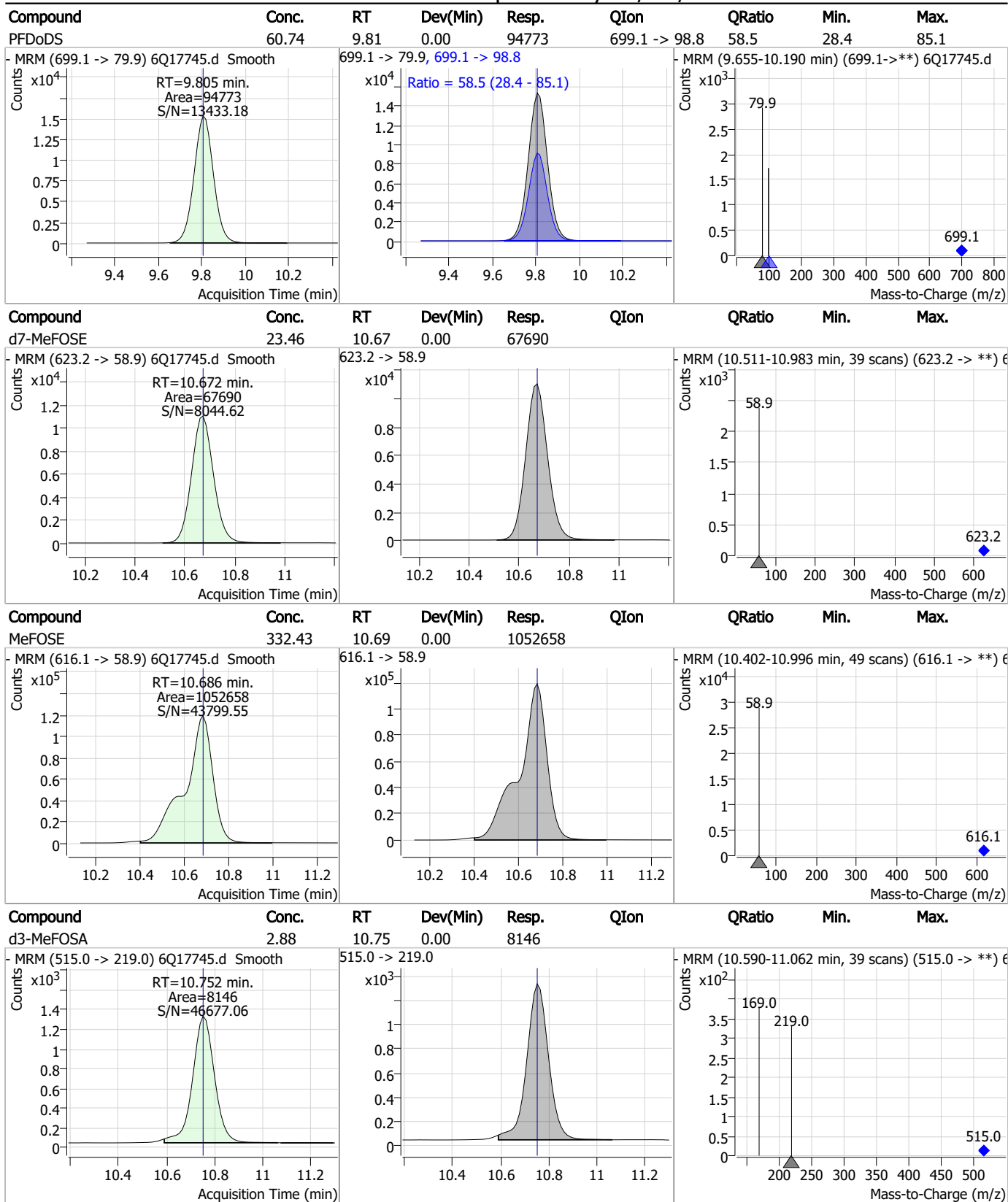


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	61.37	9.68	0.00	914711	713.1 -> 168.9	7.1	3.7	11.2





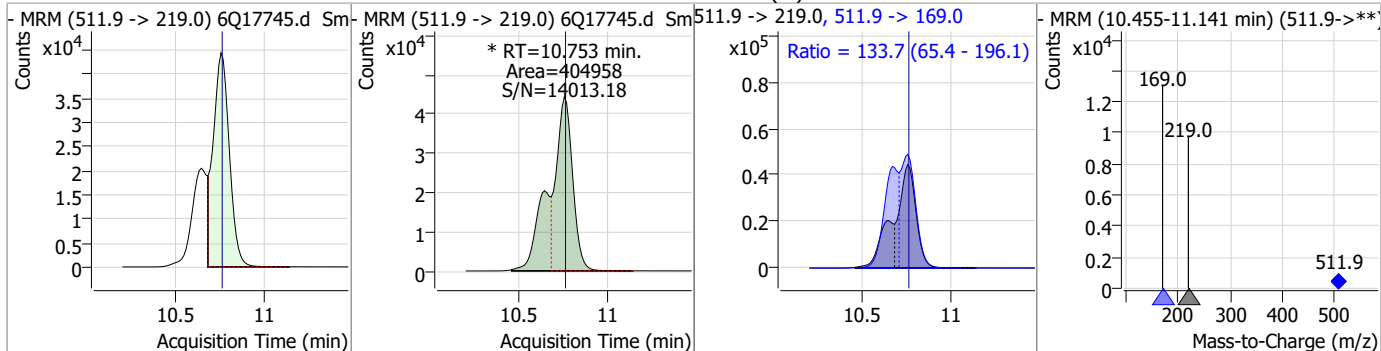
### Perfluorinated Compounds by LC/MS/MS



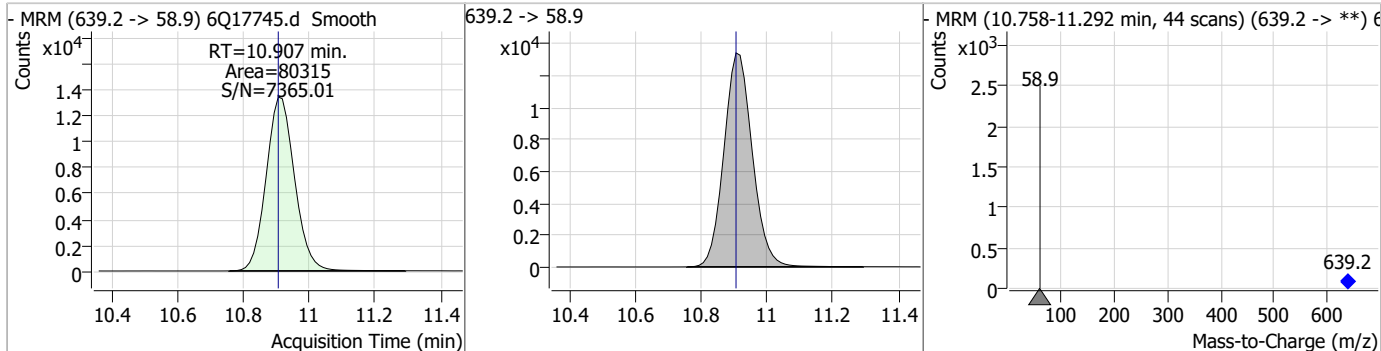
7.7.23  
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### Perfluorinated Compounds by LC/MS/MS

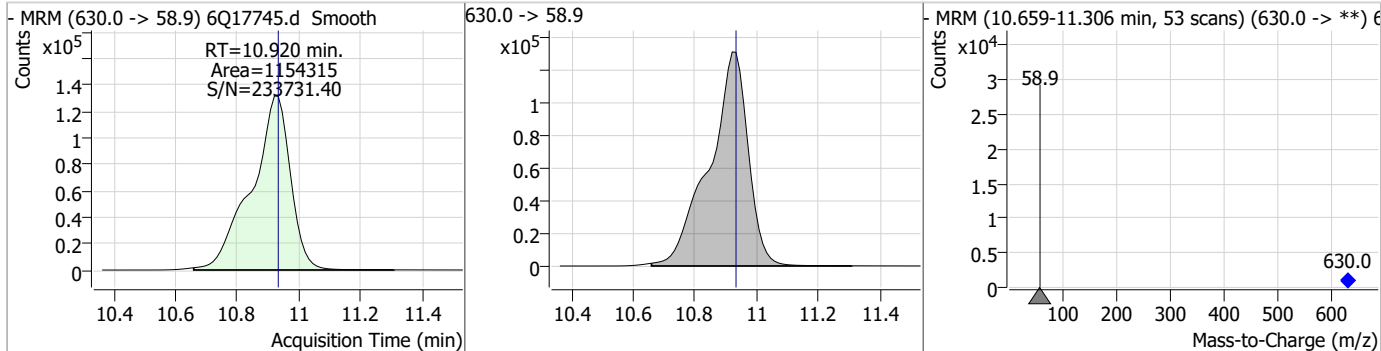
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	107.96	10.75	0.00	404958 (m)	511.9 -> 169.0	133.7	65.4	196.1



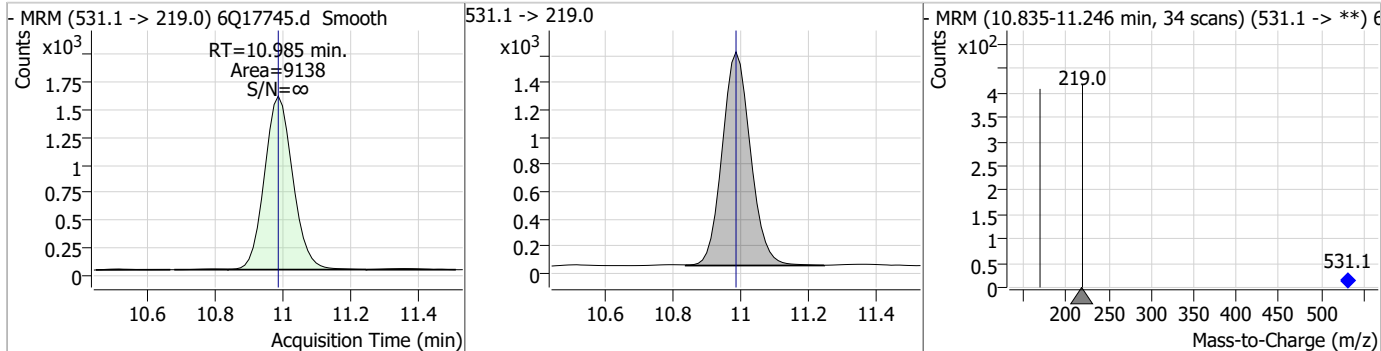
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.04	10.91	0.00	80315				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	329.81	10.92	-0.01	1154315				

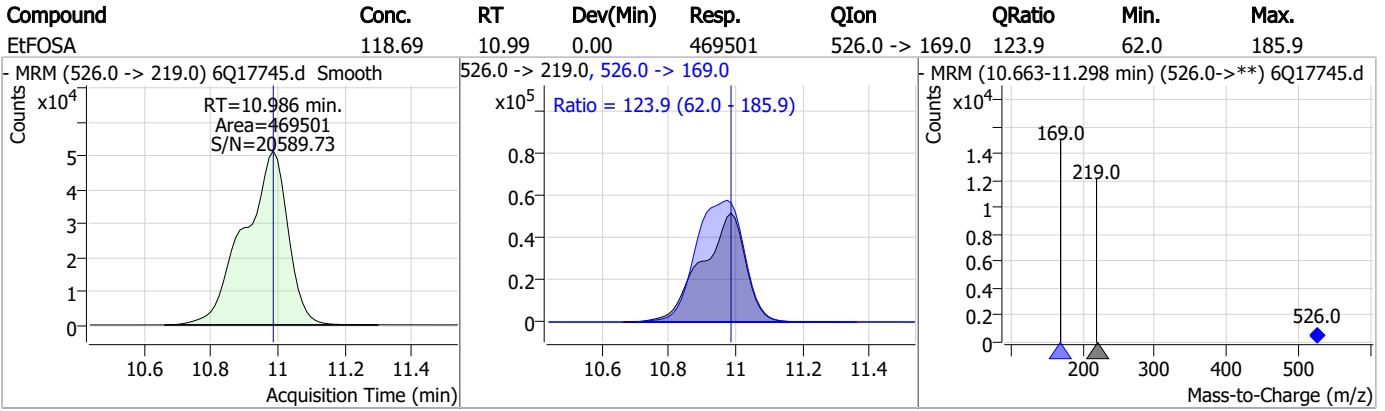


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.68	10.98	0.00	9138				



7.7.23  
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Perfluorinated Compounds by LC/MS/MS



7.7.23

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# Manual Integration Approval Summary

Sample Number: S6Q268-IC268      Method: EPA DRAFT 1633  
Lab FileID: 6Q17745.D      Analyst approved: 05/15/23 12:43 Martha Valls  
Injection Time: 05/12/23 13:56      Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.7.23.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17747.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 2:25:48 PM  
 Sample Name : icv268-4  
 Vial : P1-B1  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	157793	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	49124	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	56815	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	48361	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	70593	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	25116	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	16036	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	23458	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	22805	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14383	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	21336	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	18481	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11322	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9961	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1510	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2142	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2123	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	20167	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	33862	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	16059	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	78245	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	94746	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9021	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7755	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12097	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	66700	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8658	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	77916	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	21444	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	24536	1.25 µg/L	0.000
13C2-PFHxA	5.467	315.1 -> 270.0	47258	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.143	329.1 -> 80.9	1510	4.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2142	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2123	4.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C2-PFDoDA	8.949	615.1 -> 570.0	22805	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14383	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C3-PFBS	5.397	302.1 -> 79.9	18481	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	11322	2.45 µg/L	0.012

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C4-PFBA	2.901	216.8 -> 171.9	157793	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.420	367.1 -> 322.0	48361	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFHxA	5.466	318.0 -> 273.0	56815	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C5-PFPeA	4.272	268.3 -> 223.0	49124	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C6-PFDA	8.064	519.1 -> 474.1	16036	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.3%	
13C7-PFUnDA	8.518	570.0 -> 525.1	23458	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C8-FOSA	9.648	506.1 -> 77.8	21336	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C8-PFOA	7.064	421.1 -> 376.0	70593	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C8-PFOS	8.226	507.1 -> 79.9	9961	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C9-PFNA	7.583	472.1 -> 427.0	25116	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.8%	
d3-MeFOSAA	8.121	573.2 -> 419.0	20167	5.32 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	33862	9.79 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
d3-MeFOSA	10.752	515.0 -> 219.0	7755	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
d5-EtFOSAA	8.329	589.2 -> 419.0	16059	5.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.1%	
d7-MeFOSE	10.672	623.2 -> 58.9	78245	26.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
d9-EtFOSE	10.907	639.2 -> 58.9	94746	26.31 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d5-EtFOSA	10.984	531.1 -> 219.0	9021	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.144	327.1 -> 307.0	22950	10.11 µg/L	98
		327.1 -> 80.9	8288		
6:2FTS	6.838	427.1 -> 407.0	21472	9.21 µg/L	98
		427.1 -> 80.9	7176		
8:2FTS	7.865	527.1 -> 507.0	12764	10.58 µg/L	99
		527.1 -> 80.8	5168		
EtFOSAA	8.330	584.2 -> 419.1	7500	2.51 µg/L	92
		584.2 -> 526.0	3499		
FOSA	9.639	498.1 -> 77.9	18882	2.36 µg/L	99
		498.1 -> 478.0	540		
MeFOSAA	8.134	570.1 -> 419.0	9520	2.44 µg/L	94
		570.1 -> 483.0	1632		
PFBA	2.907	212.8 -> 168.9	55301	9.77 µg/L	100
PFBS	5.398	298.7 -> 79.9	19811	2.20 µg/L	94
		298.7 -> 98.8	7987		
PFDA	8.064	512.9 -> 469.0	54604	2.75 µg/L	97
		512.9 -> 219.0	8340		
PFDODA	8.950	613.1 -> 569.0	42572	2.34 µg/L	97
		613.1 -> 319.0	6421		
PFDS	9.113	599.0 -> 79.9	7802	2.41 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3720			
PFHpA	6.420	363.1 -> 319.0	63119	2.61	µg/L	97
		363.1 -> 169.0	9413			
PFHpS	7.735	449.0 -> 79.9	11714	2.20	µg/L	94
		449.0 -> 98.9	5632			
PFHxA	5.469	313.0 -> 269.0	56061	2.49	µg/L	99
		313.0 -> 118.9	2596			
PFHxS	7.180	398.7 -> 79.9	13974	2.23	µg/L	m 98
		398.7 -> 98.9	6739			
PFNA	7.596	463.0 -> 419.0	42196	2.26	µg/L	99
		463.0 -> 219.0	8543			
PFNS	8.681	548.8 -> 79.9	11671	2.42	µg/L	94
		548.8 -> 98.9	6247			
PFOA	7.066	413.0 -> 369.0	87008	2.48	µg/L	99
		413.0 -> 169.0	14291			
PFOS	8.228	498.9 -> 79.9	12550	2.40	µg/L	m 92
		498.9 -> 98.8	6054			
PFPeA	4.274	263.0 -> 219.0	71212	5.02	µg/L	100
PFPeS	6.471	349.1 -> 79.9	14338	2.31	µg/L	98
		349.1 -> 98.9	6598			
PFTeDA	9.677	713.1 -> 669.0	38604	2.62	µg/L	98
		713.1 -> 168.9	2639			
PFTrDA	9.333	663.0 -> 619.0	49815	2.37	µg/L	97
		663.0 -> 168.9	4406			
PFUnDA	8.518	563.1 -> 519.0	40894	2.40	µg/L	97
		563.1 -> 269.1	6014			
11CI-PF3OUdS	9.385	630.9 -> 450.9	58683	4.59	µg/L	87
		632.9 -> 452.9	20290			
9CI-PF3ONS	8.557	530.8 -> 351.0	94320	4.61	µg/L	97
		532.8 -> 353.0	28382			
ADONA	6.671	376.9 -> 250.9	249225	4.62	µg/L	93
		376.9 -> 84.8	67794			
HFPO-DA	5.832	284.9 -> 168.9	16929	5.17	µg/L	97
		284.9 -> 184.9	2081			
3:3FTCA	3.777	241.0 -> 177.0	10798	12.28	µg/L	100
		241.0 -> 117.0	1440			
5:3FTCA	6.161	341.0 -> 237.1	226576	58.11	µg/L	97
		341.0 -> 217.0	171261			
7:3FTCA	7.586	441.0 -> 316.9	108717	61.46	µg/L	95
		441.0 -> 336.9	236679			
EtFOSA	10.986	526.0 -> 219.0	20068	5.14	µg/L	97
		526.0 -> 169.0	24143			
EtFOSE	10.920	630.0 -> 58.9	49050	11.88	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	17371	4.86	µg/L	m 92
		511.9 -> 169.0	24234			
MeFOSE	10.686	616.1 -> 58.9	45883	12.54	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	4310	2.52	µg/L	95
		699.1 -> 98.8	2301			
NFDHA	5.348	295.0 -> 201.0	12022	4.84	µg/L	98
		295.0 -> 84.9	3190			
PFMBA	4.675	279.0 -> 85.1	50744	5.01	µg/L	100
PFMPA	3.426	229.0 -> 84.9	36440	5.00	µg/L	100
PFEESA	5.938	314.8 -> 134.9	129453	4.28	µg/L	100
		314.8 -> 82.9	4721			

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

### Perfluorinated Compounds by LC/MS/MS

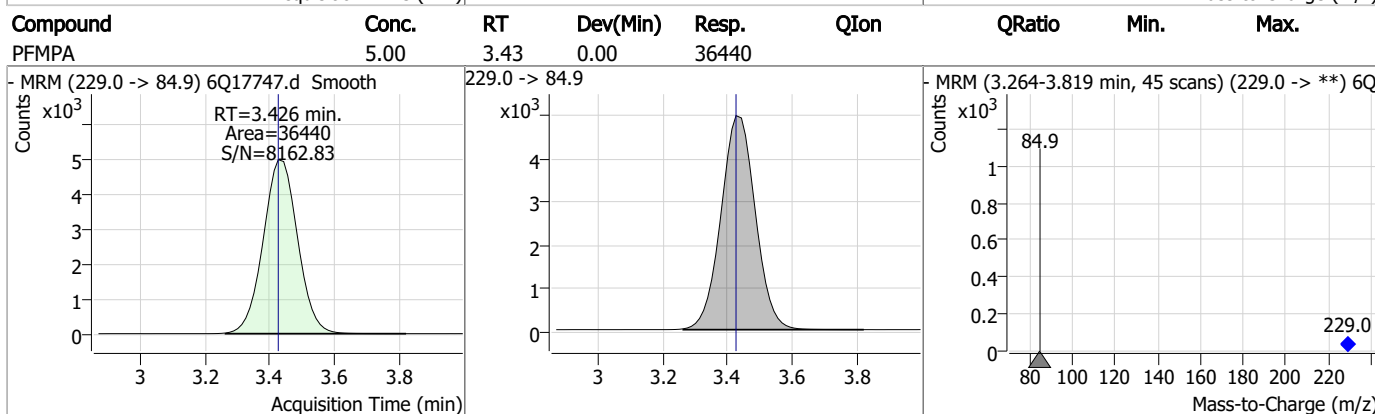
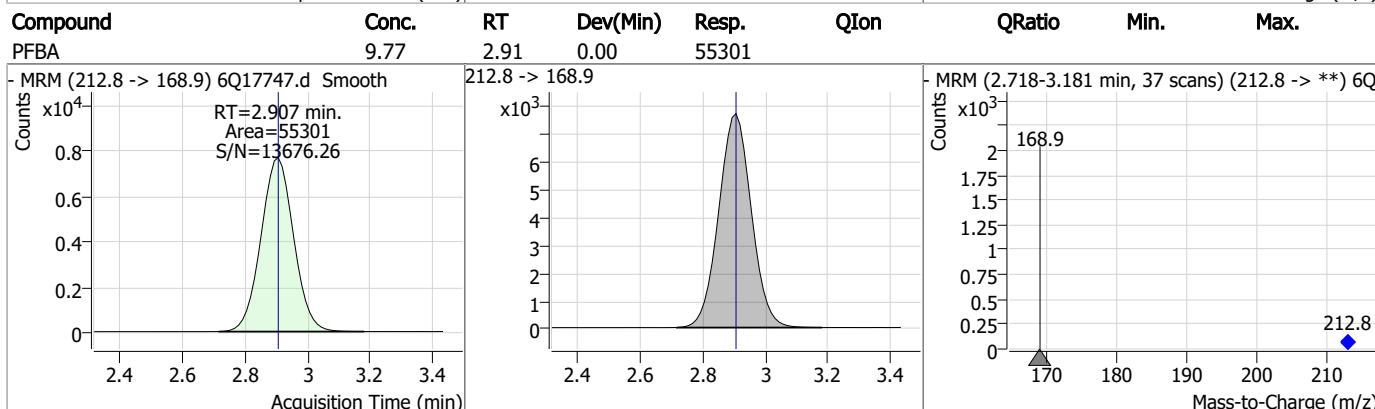
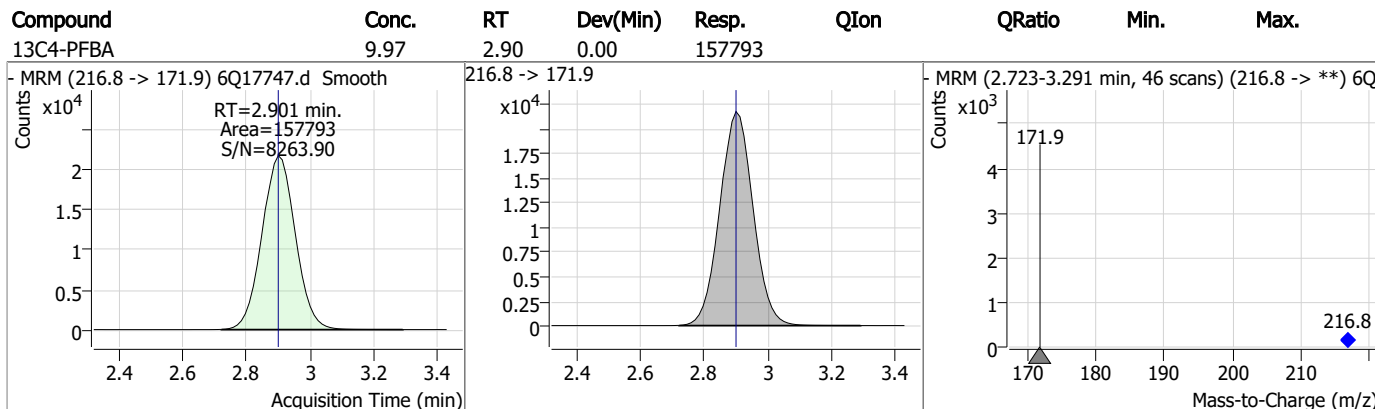
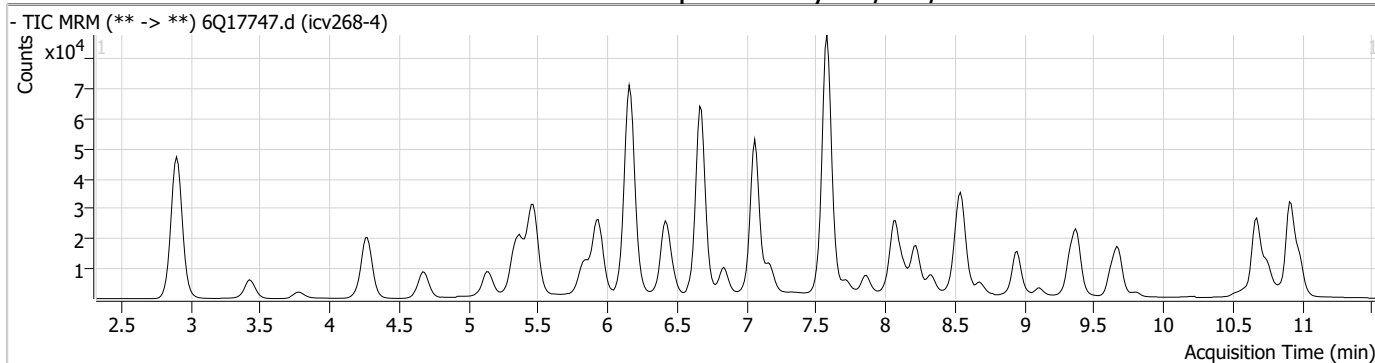
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.24

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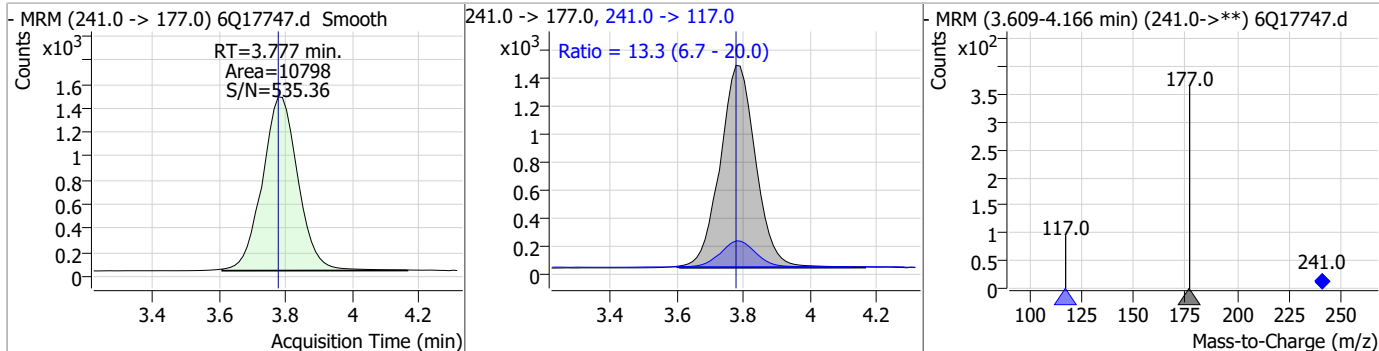


### Perfluorinated Compounds by LC/MS/MS

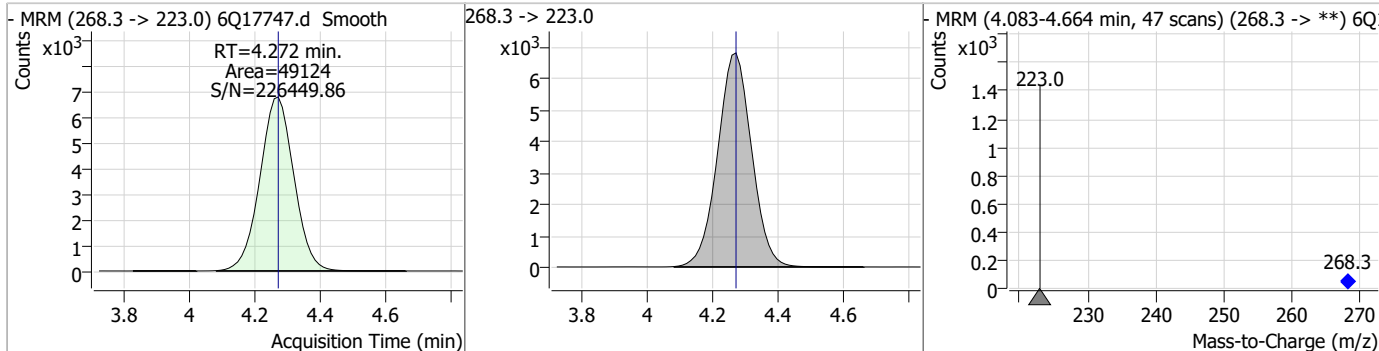


### Perfluorinated Compounds by LC/MS/MS

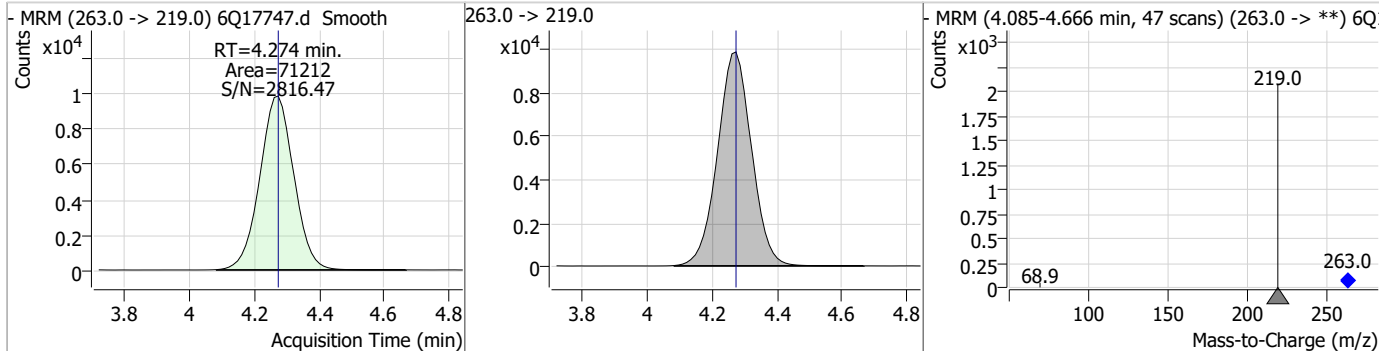
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.28	3.78	0.00	10798	241.0 -> 117.0	13.3	6.7	20.0



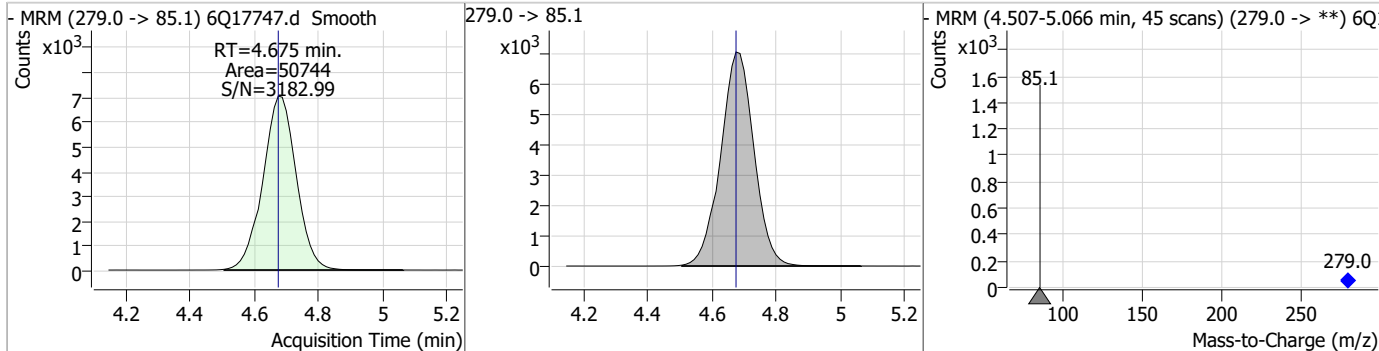
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.94	4.27	0.00	49124				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.02	4.27	0.00	71212				

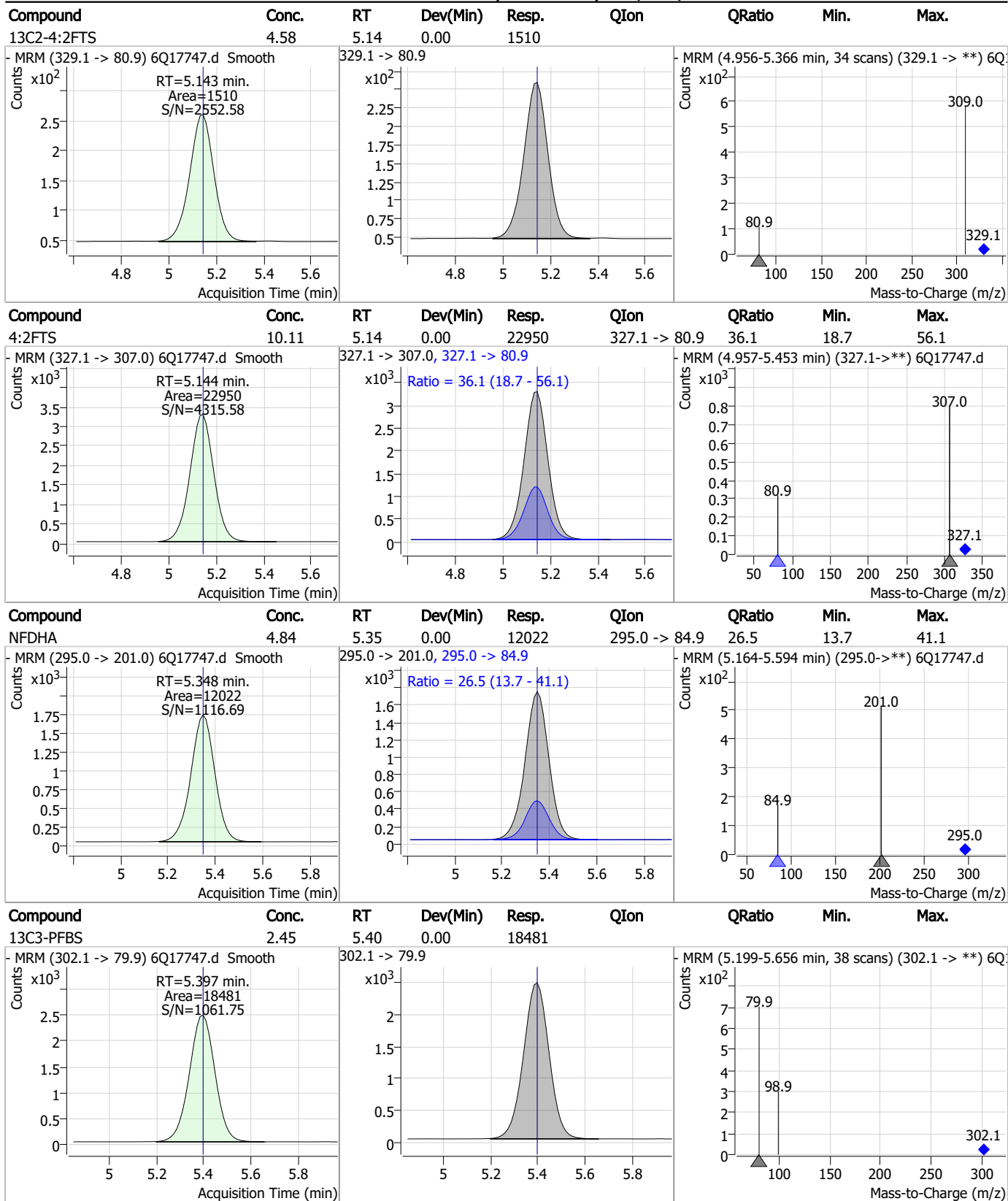


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.01	4.68	0.00	50744				



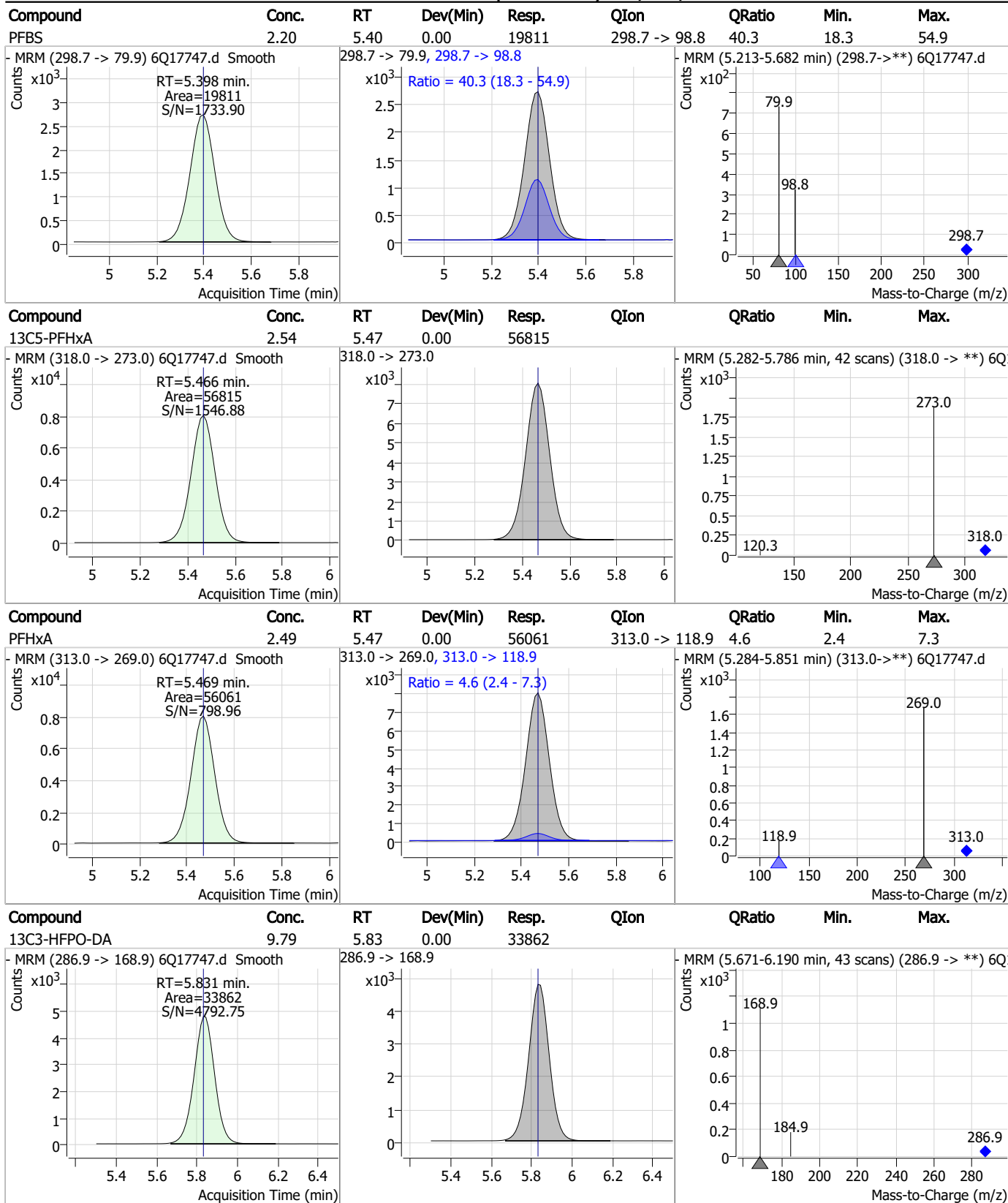
7.7.24 7

### Perfluorinated Compounds by LC/MS/MS



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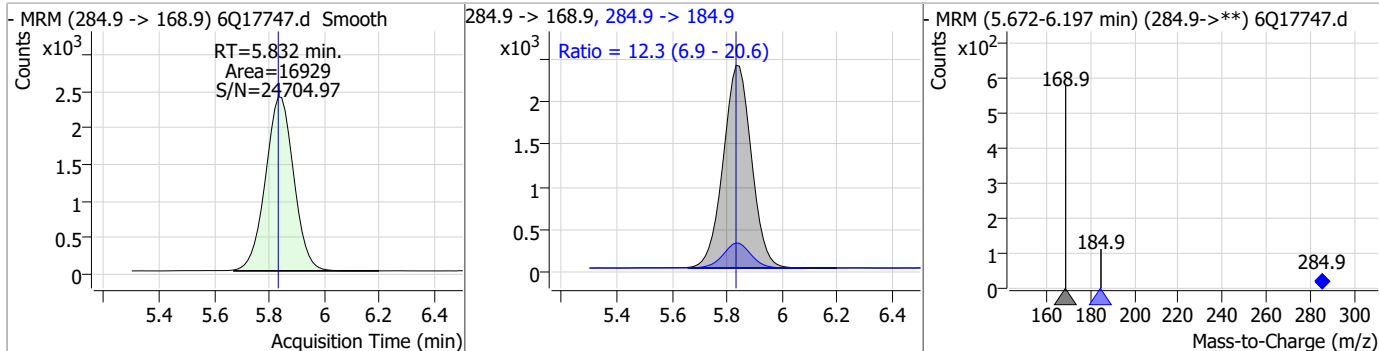
### Perfluorinated Compounds by LC/MS/MS



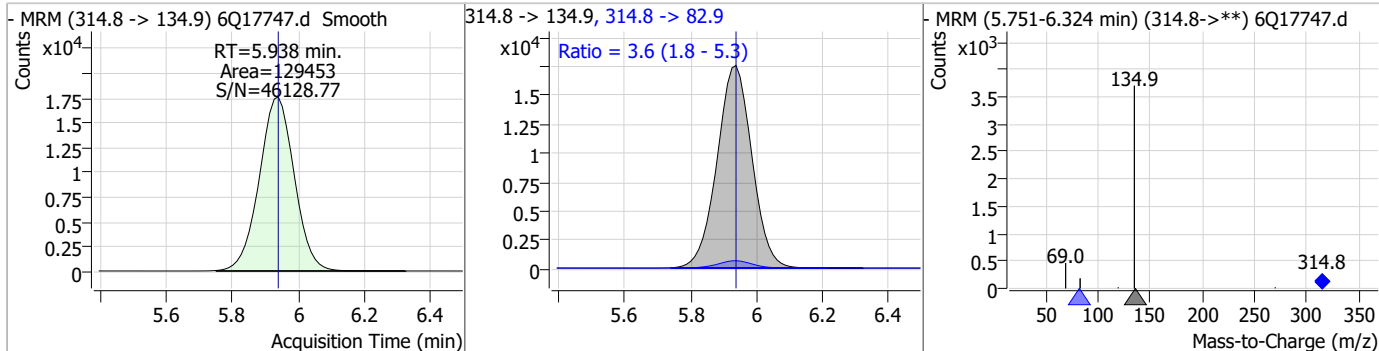
7.7.24  
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### Perfluorinated Compounds by LC/MS/MS

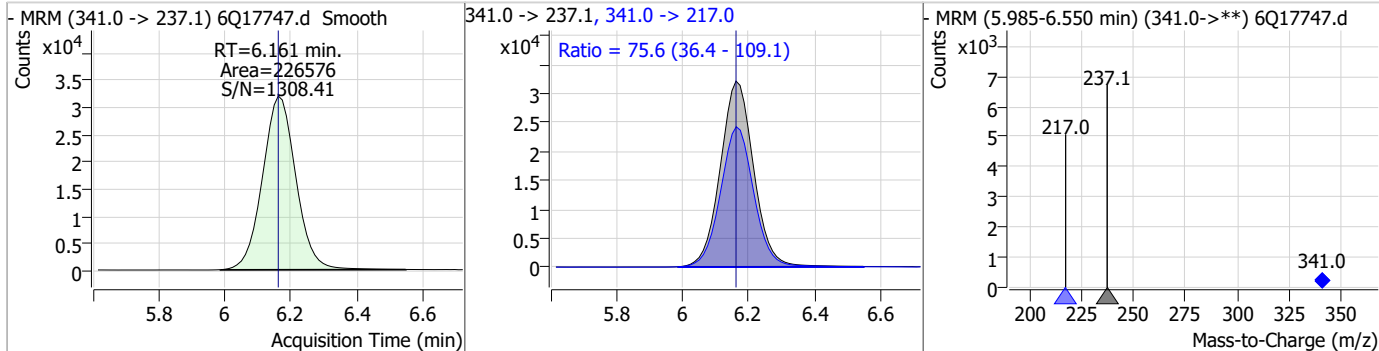
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.17	5.83	0.00	16929	284.9 -> 184.9	12.3	6.9	20.6



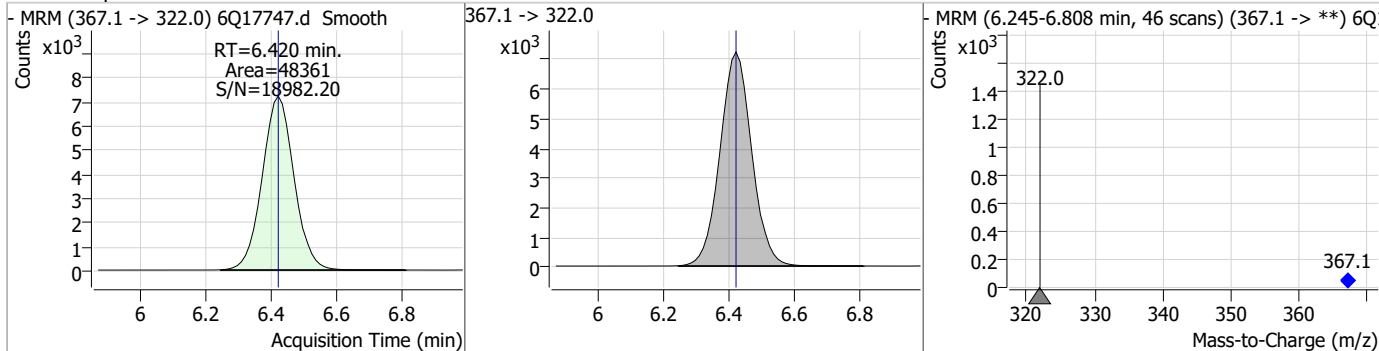
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.28	5.94	0.00	129453	314.8 -> 82.9	3.6	1.8	5.3



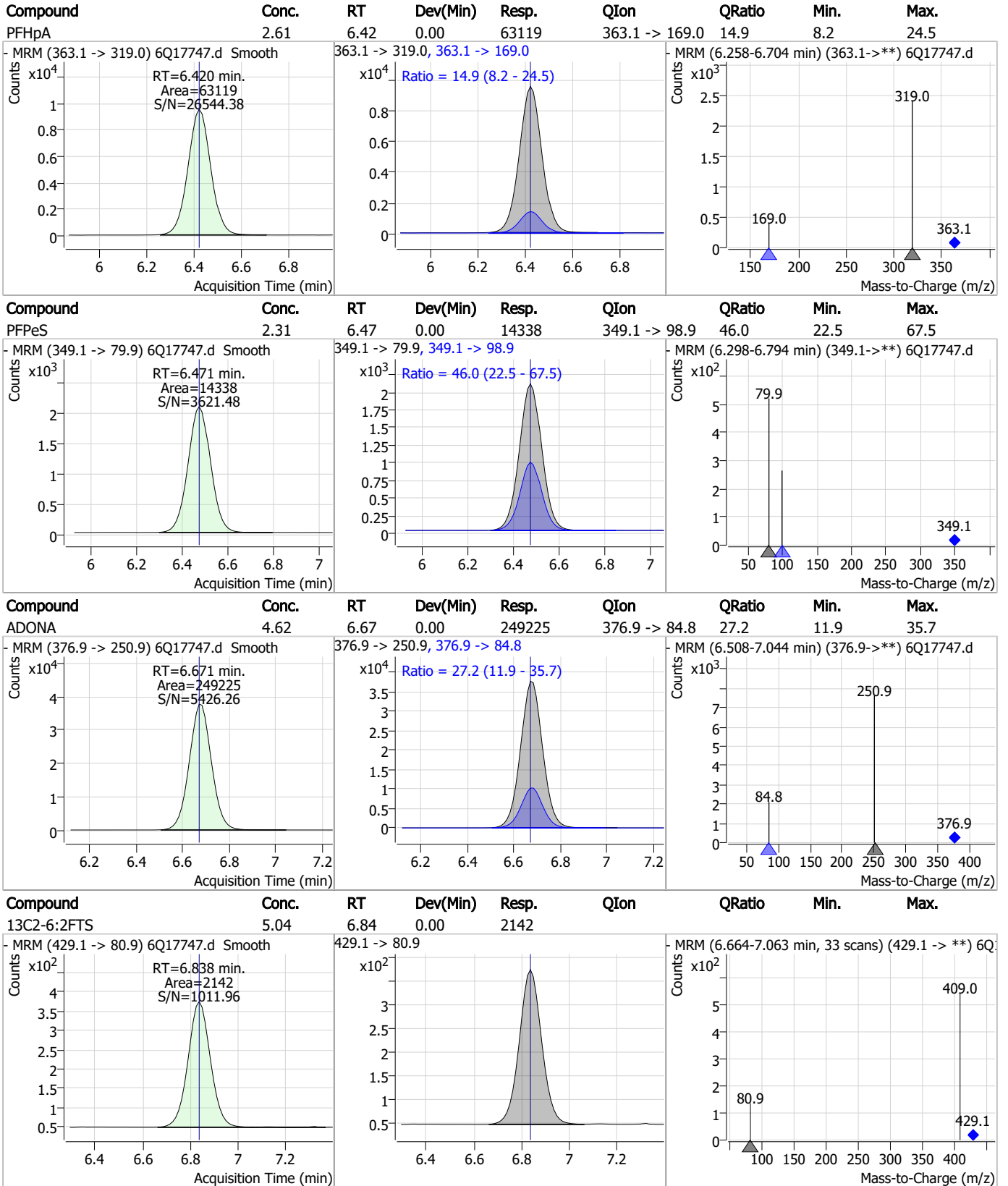
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	58.11	6.16	0.00	226576	341.0 -> 217.0	75.6	36.4	109.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.46	6.42	0.00	48361	367.1 -> 322.0			



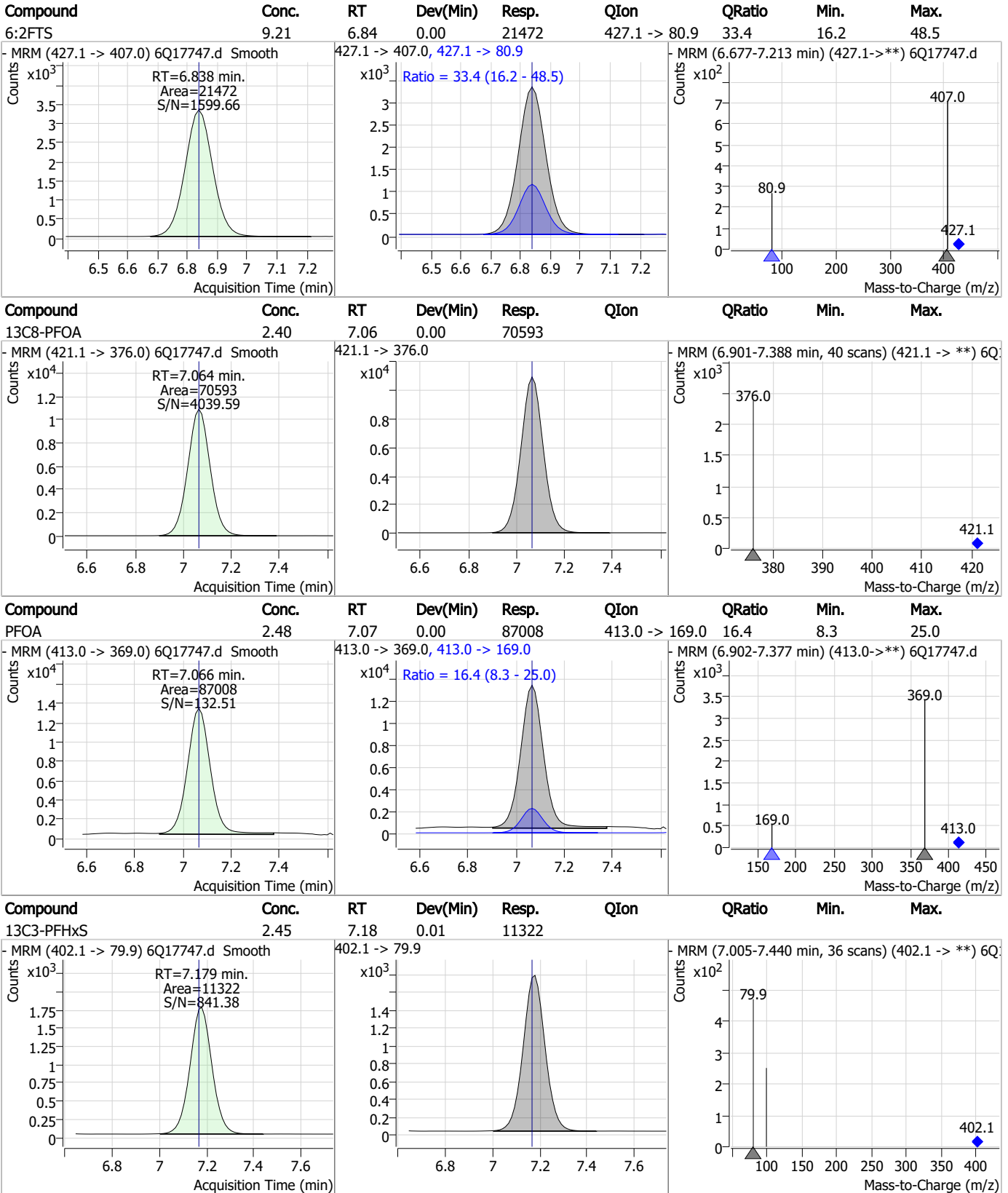
### Perfluorinated Compounds by LC/MS/MS



7.7.24 7



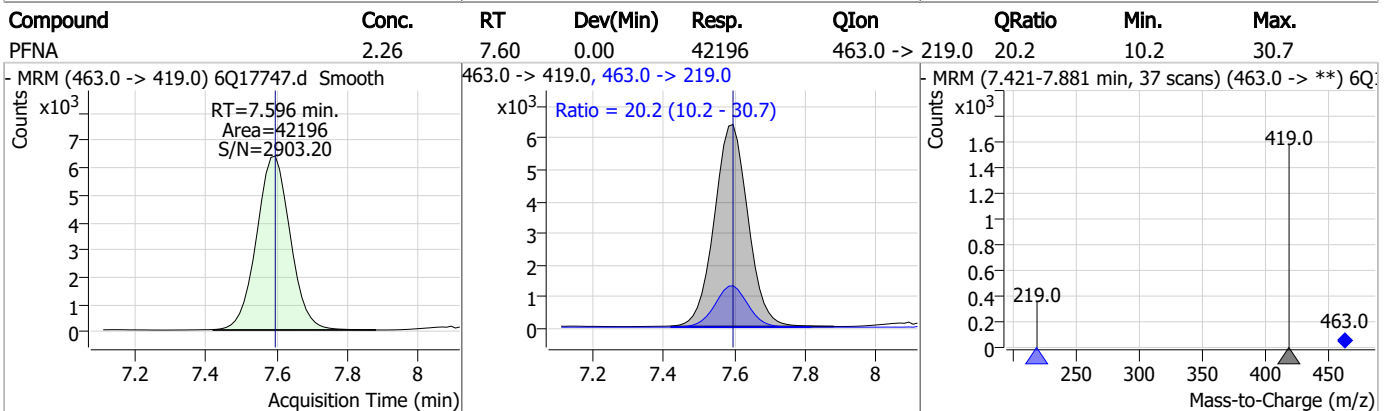
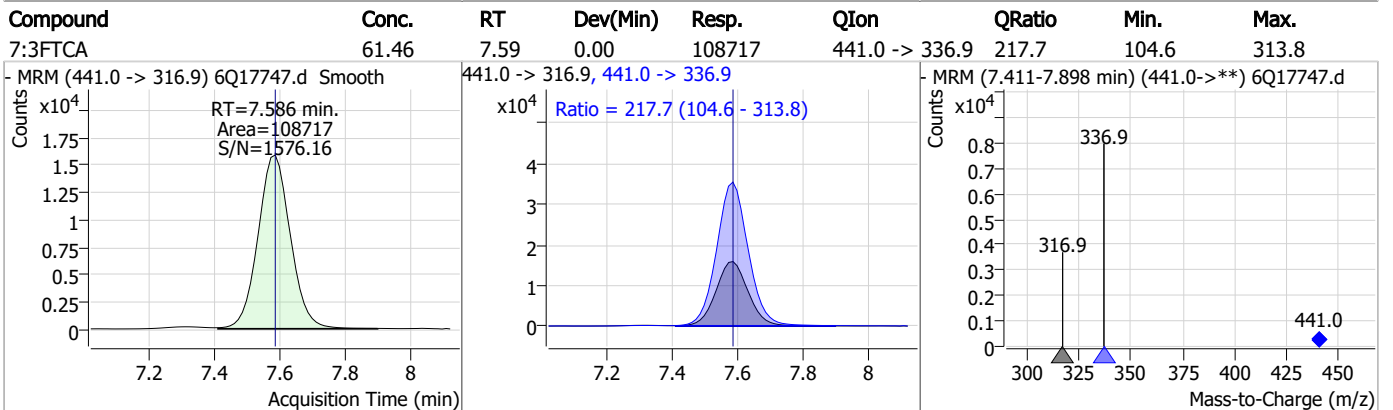
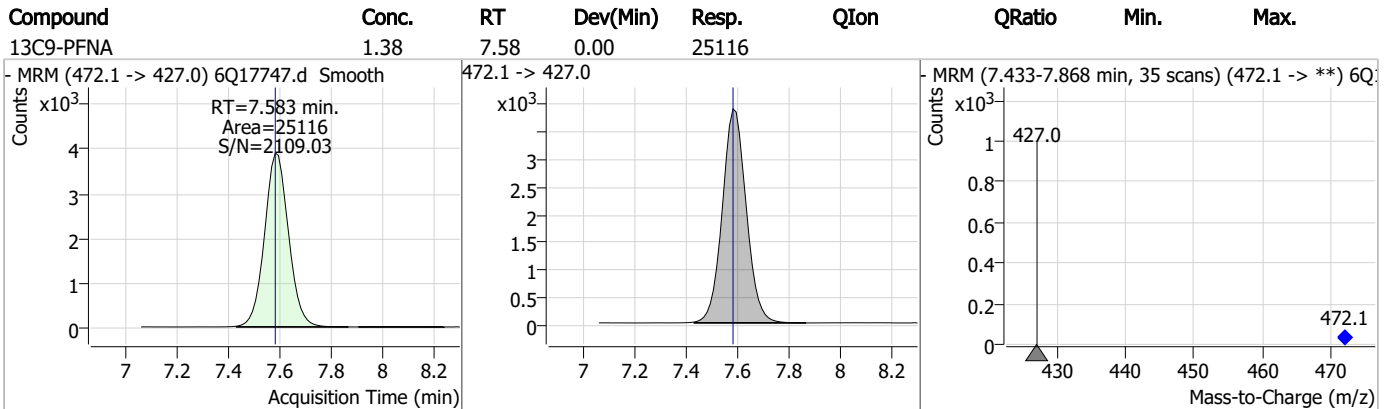
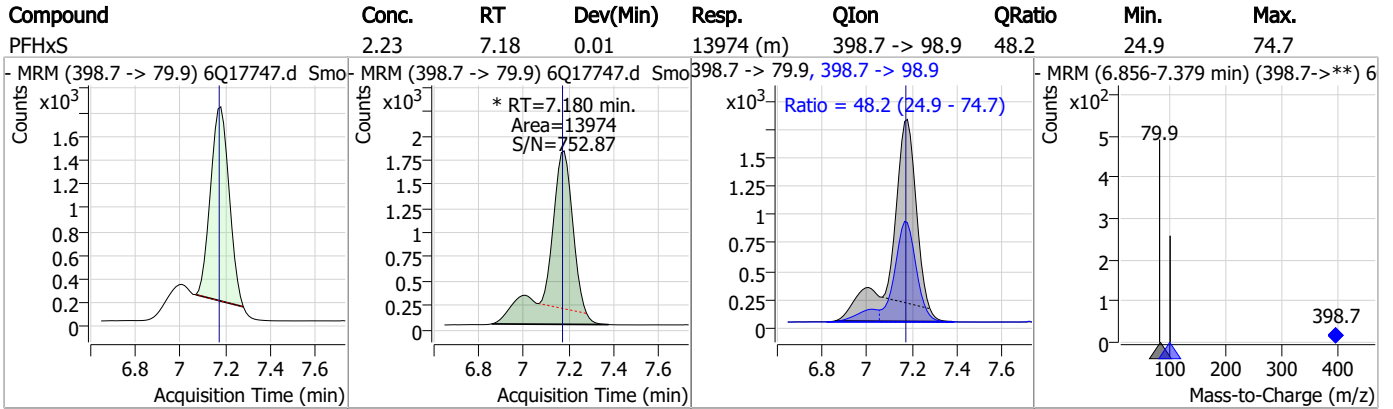
### Perfluorinated Compounds by LC/MS/MS



7.7.24 7

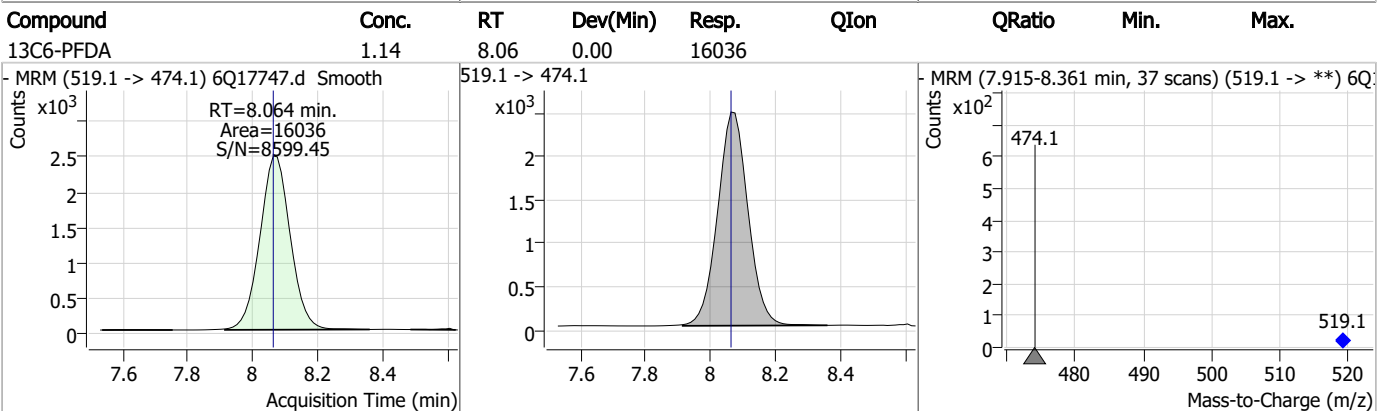
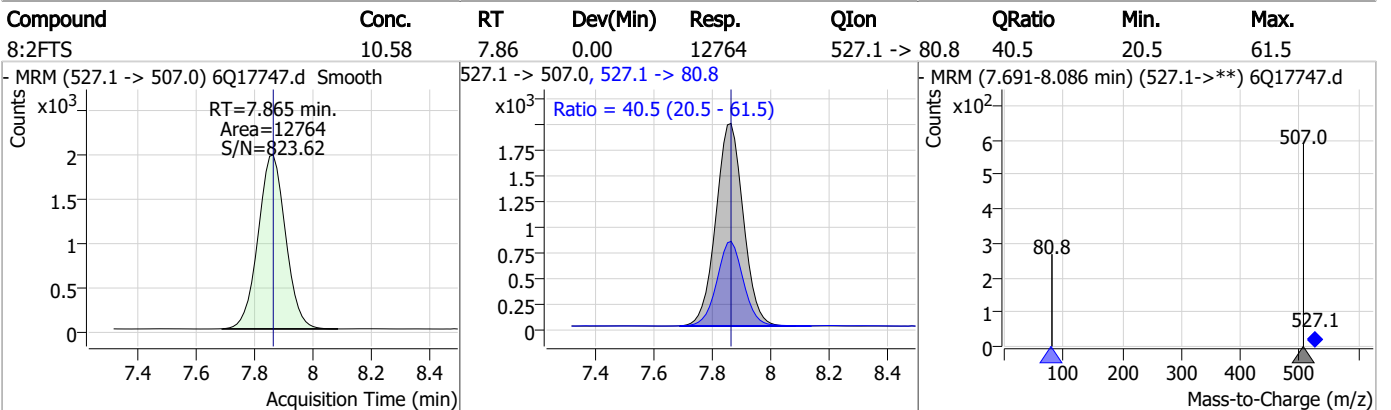
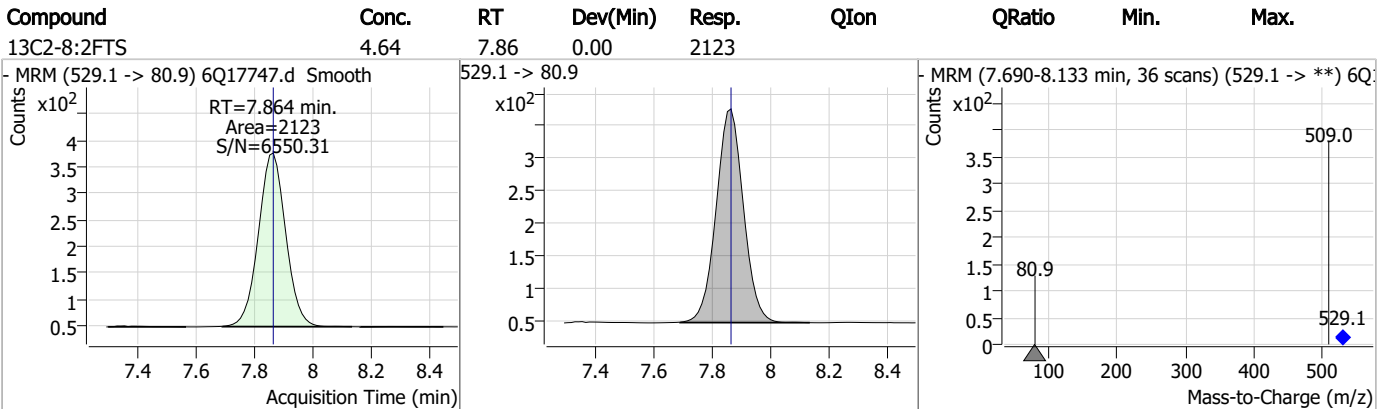
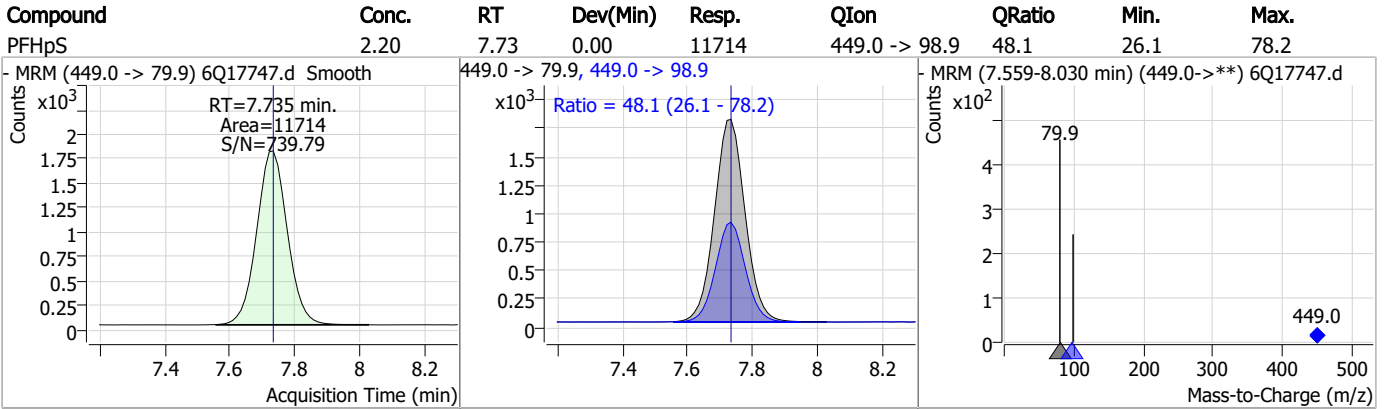


### Perfluorinated Compounds by LC/MS/MS

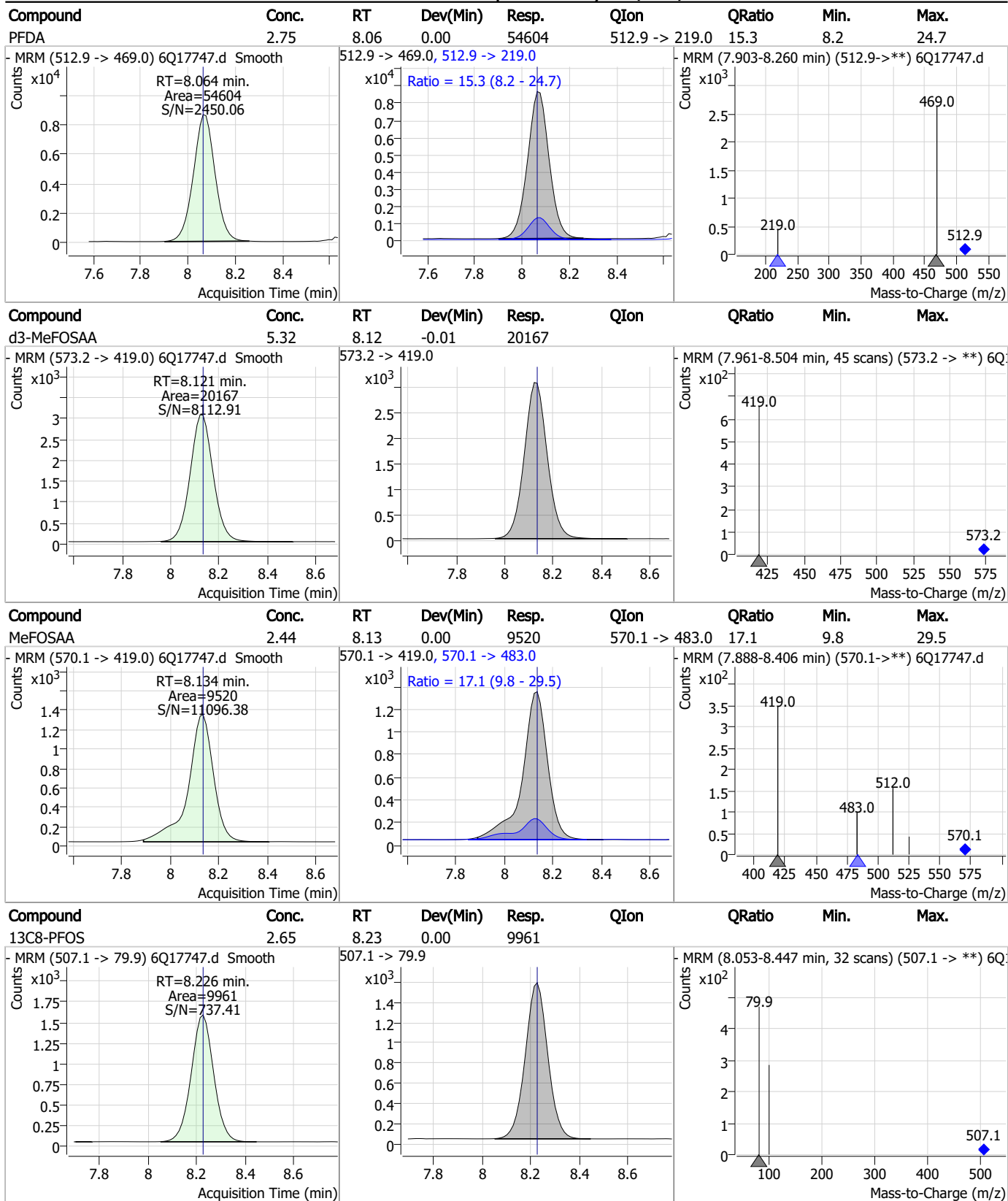




### Perfluorinated Compounds by LC/MS/MS



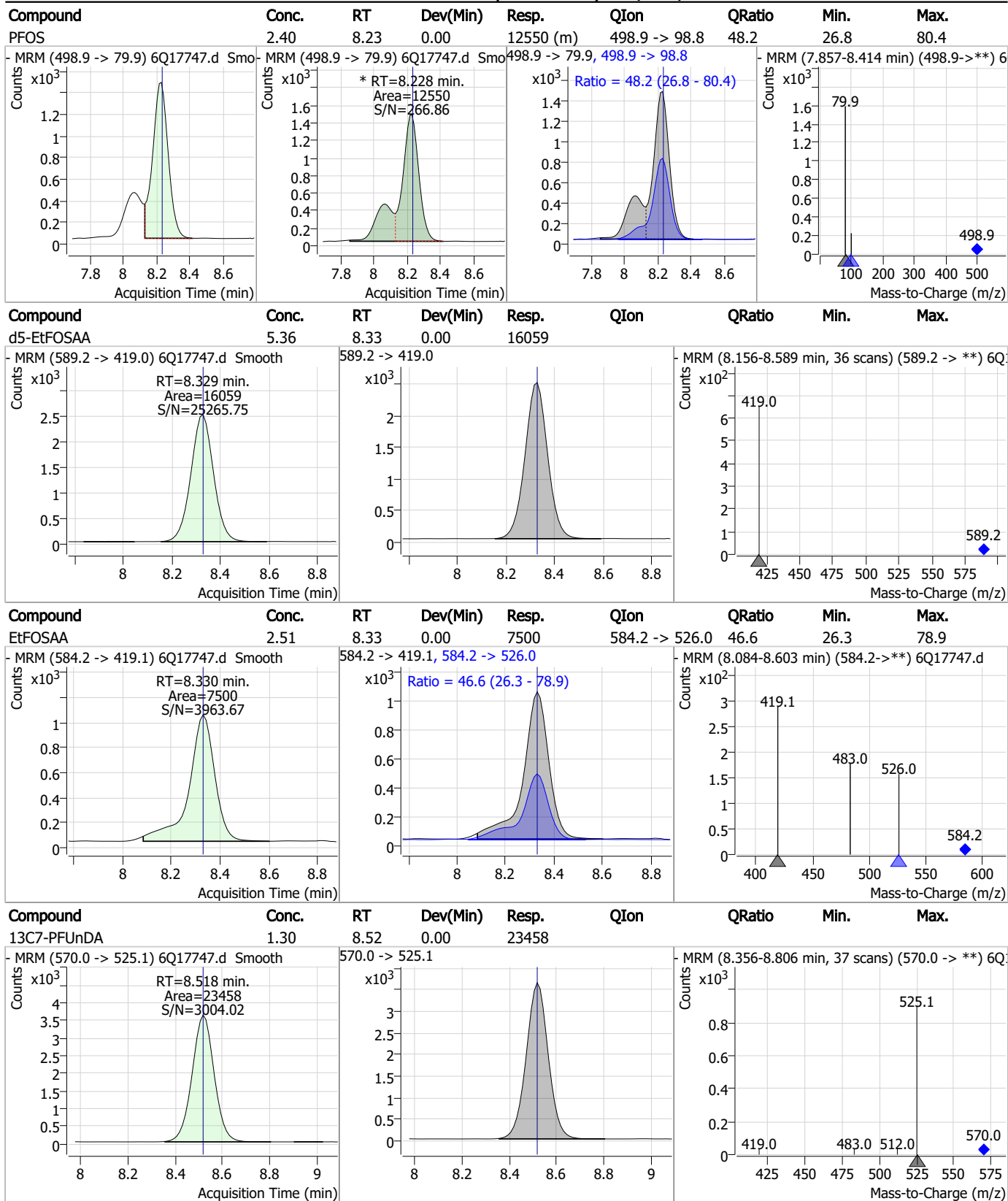
### Perfluorinated Compounds by LC/MS/MS



7.7.24

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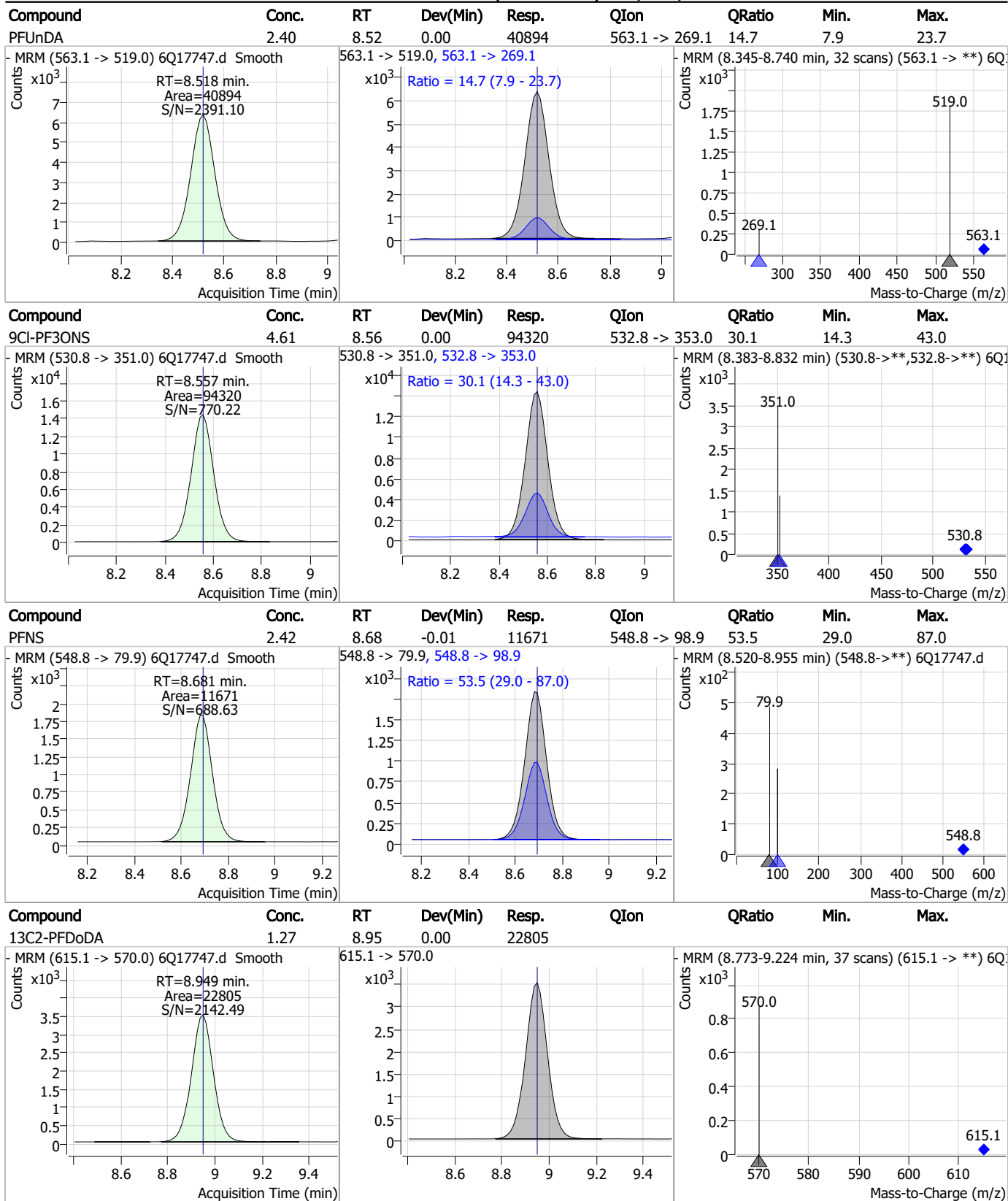
### Perfluorinated Compounds by LC/MS/MS



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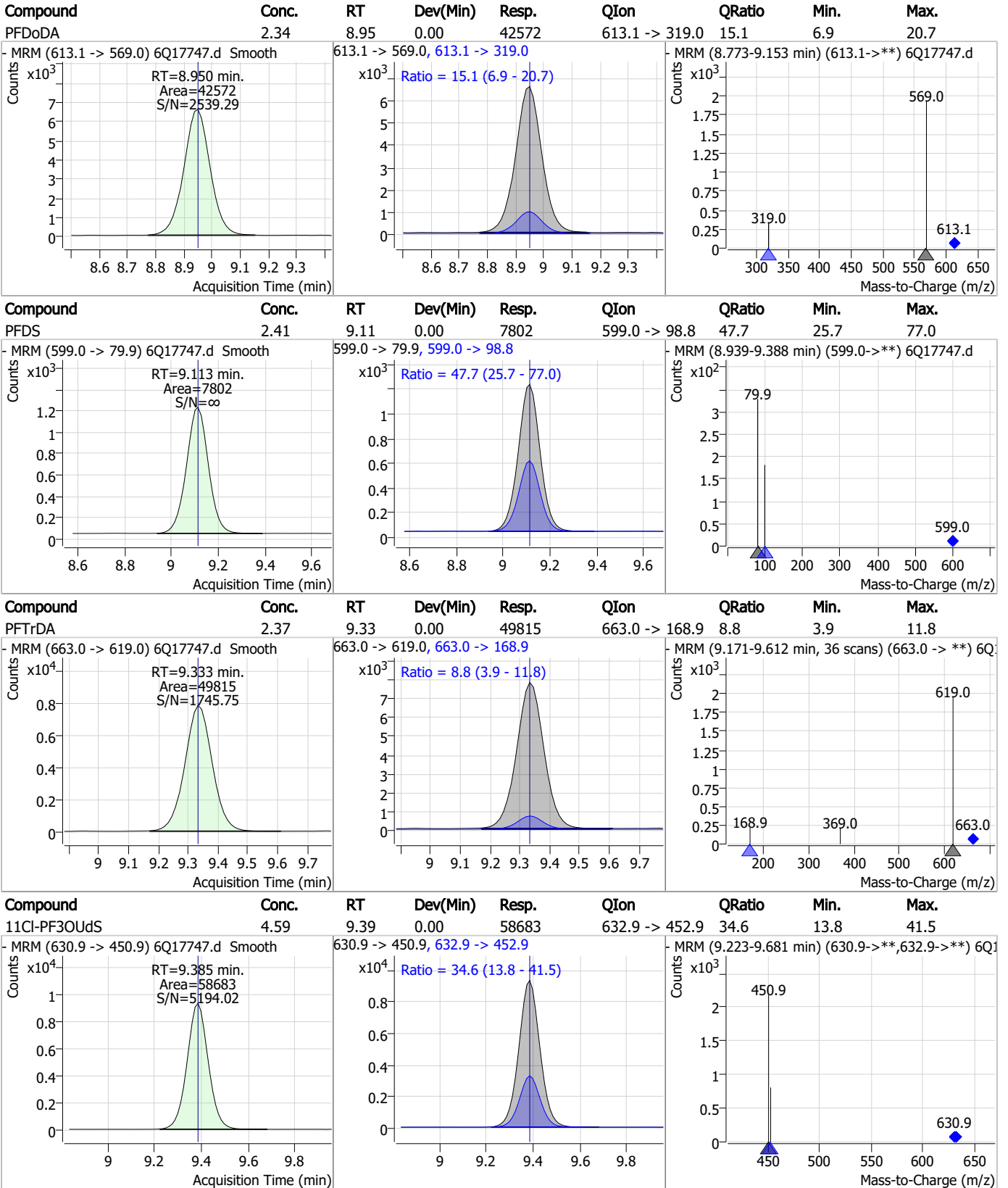
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

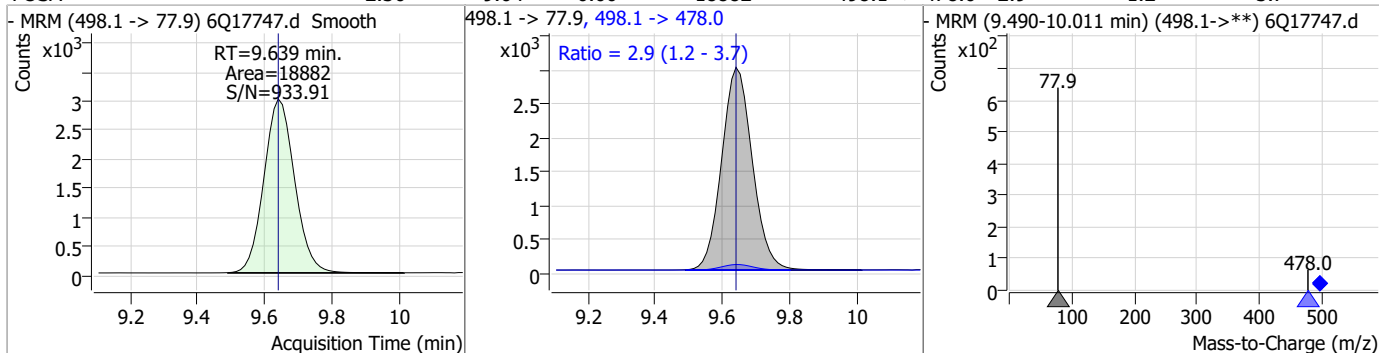


7.7.24

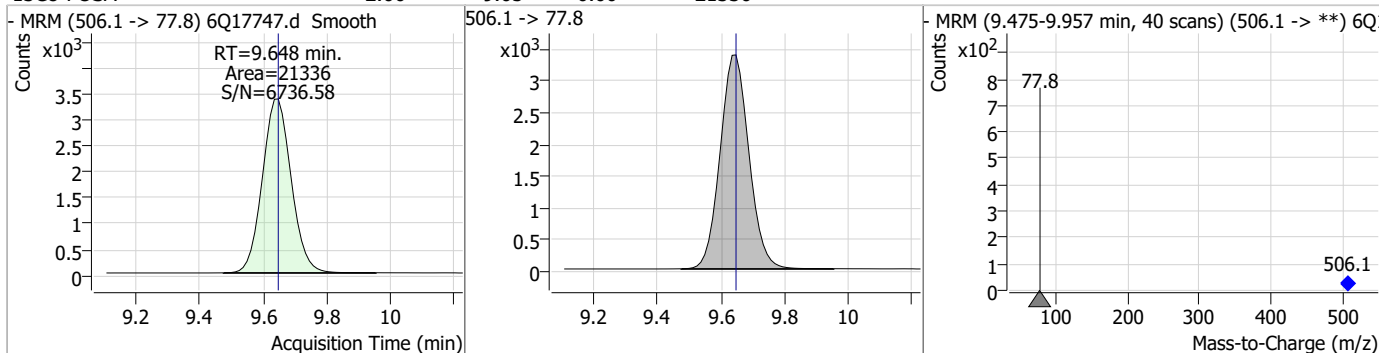
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### Perfluorinated Compounds by LC/MS/MS

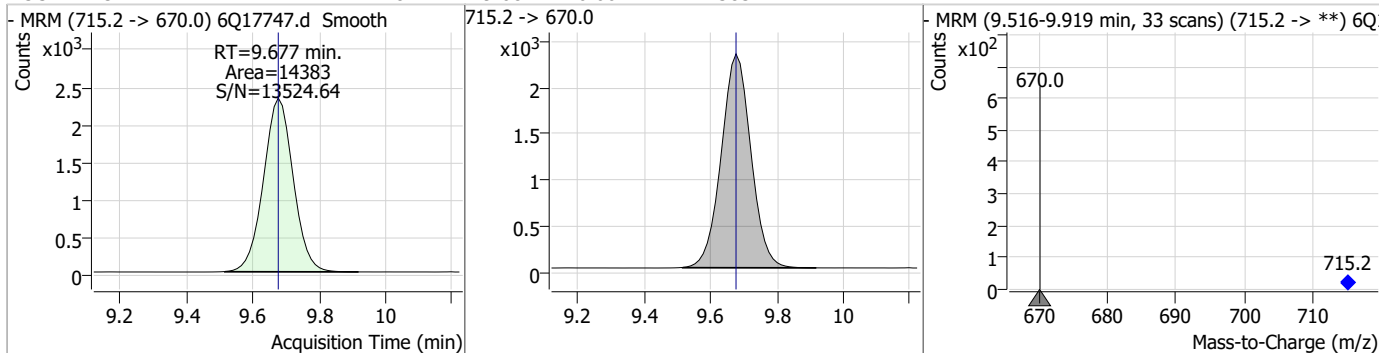
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.36	9.64	0.00	18882	498.1 -> 478.0	2.9	1.2	3.7



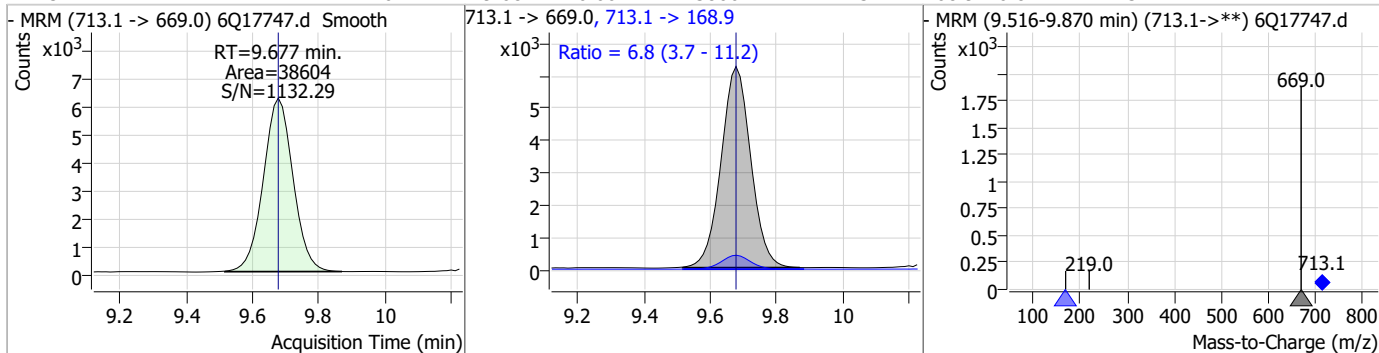
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.66	9.65	0.00	21336				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.18	9.68	0.00	14383				



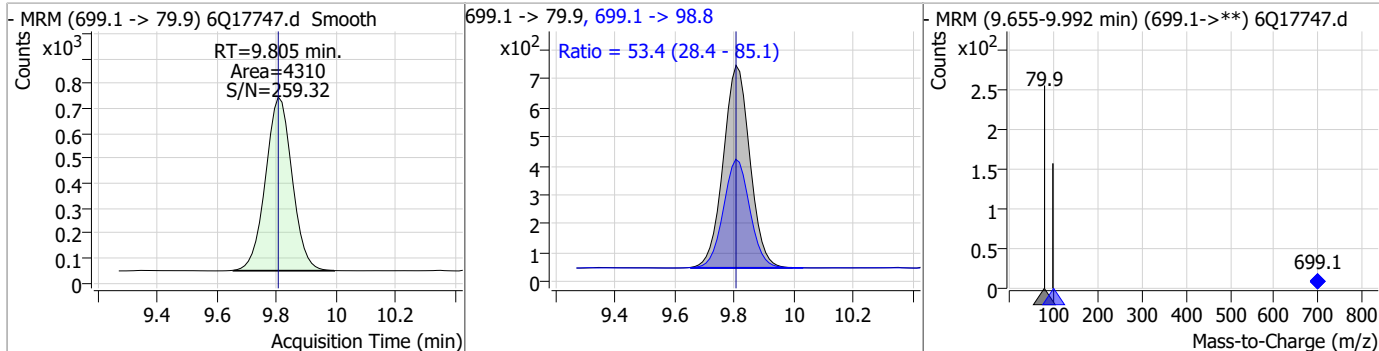
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.62	9.68	0.00	38604	713.1 -> 168.9	6.8	3.7	11.2



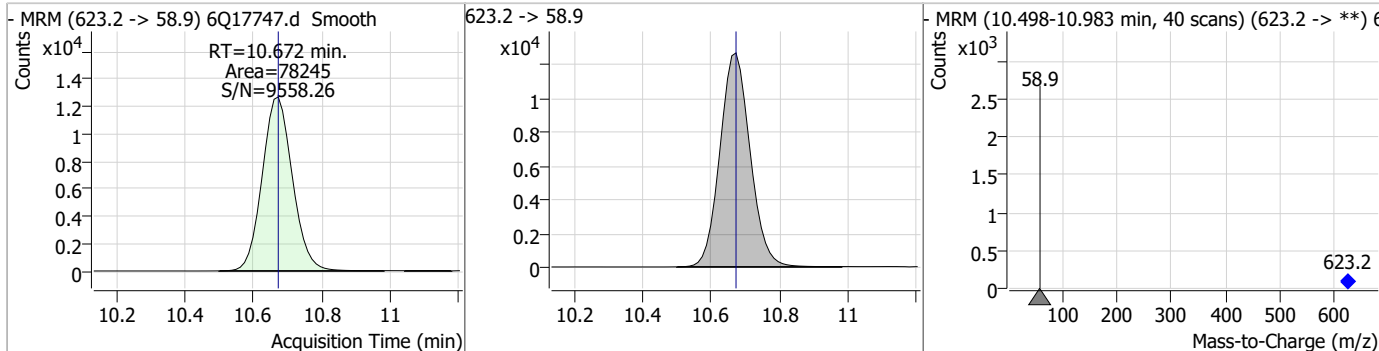
7.7.24  
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### Perfluorinated Compounds by LC/MS/MS

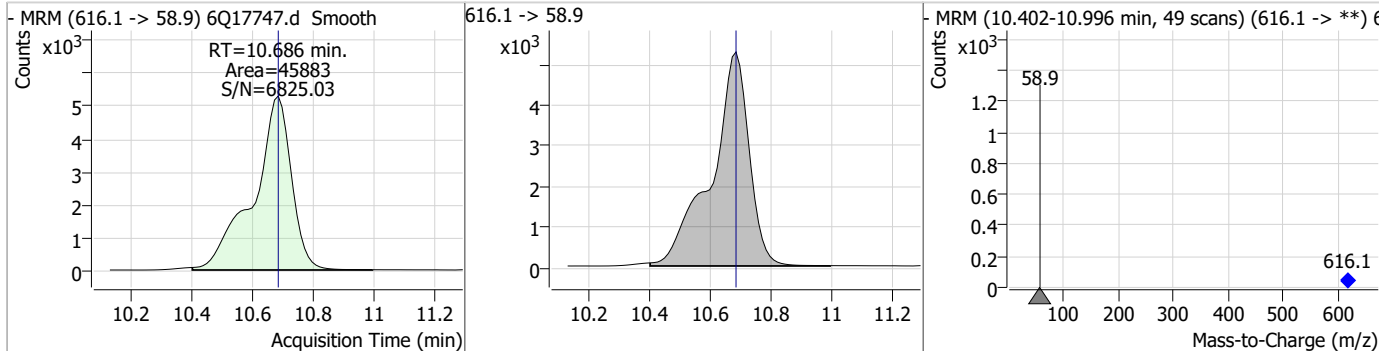
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.52	9.81	0.00	4310	699.1 -> 98.8	53.4	28.4	85.1



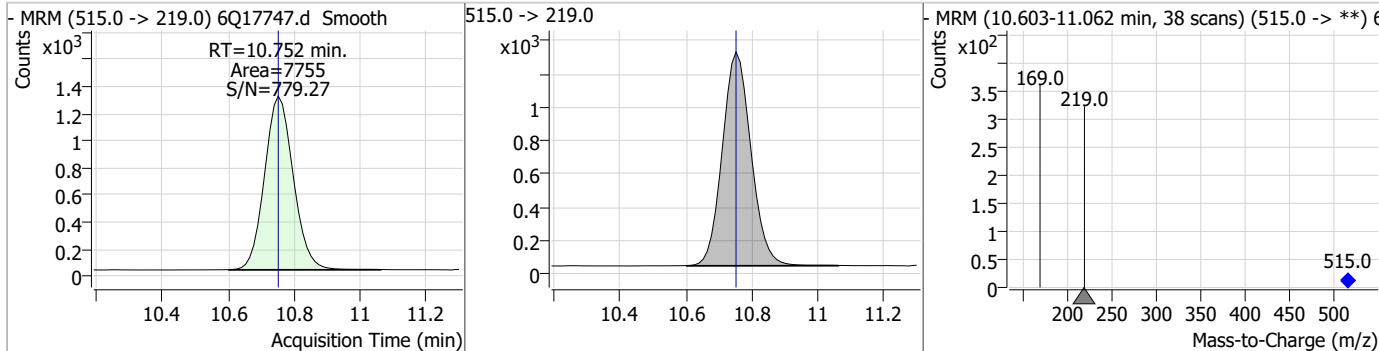
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.26	10.67	0.00	78245				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.54	10.69	0.00	45883				



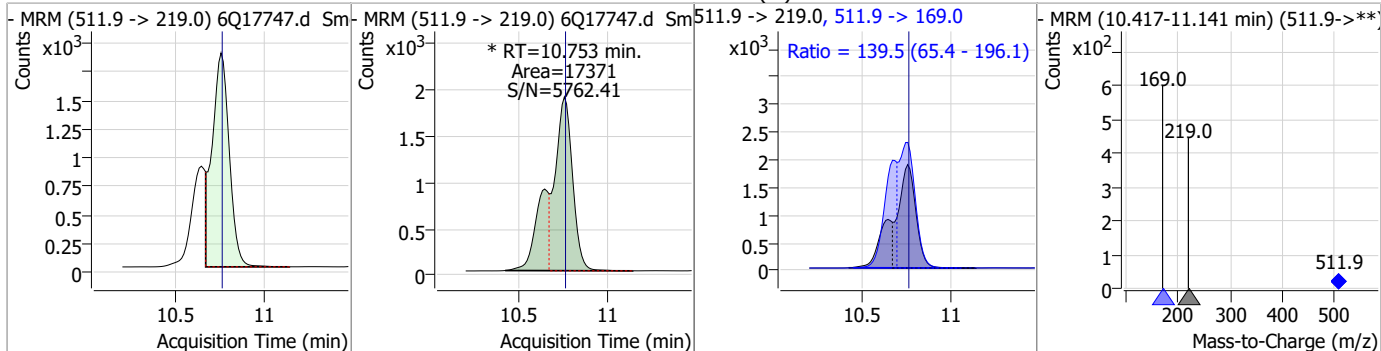
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.65	10.75	0.00	7755				



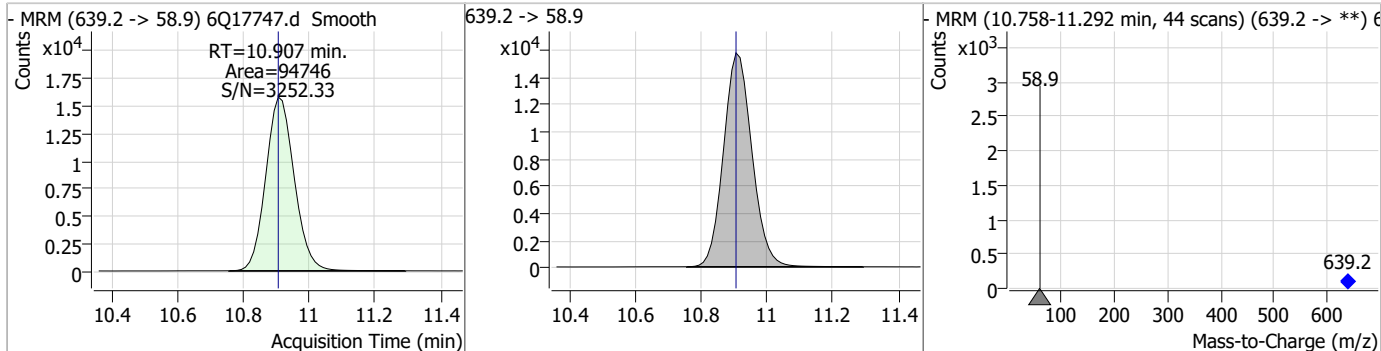
7.7.24  
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### Perfluorinated Compounds by LC/MS/MS

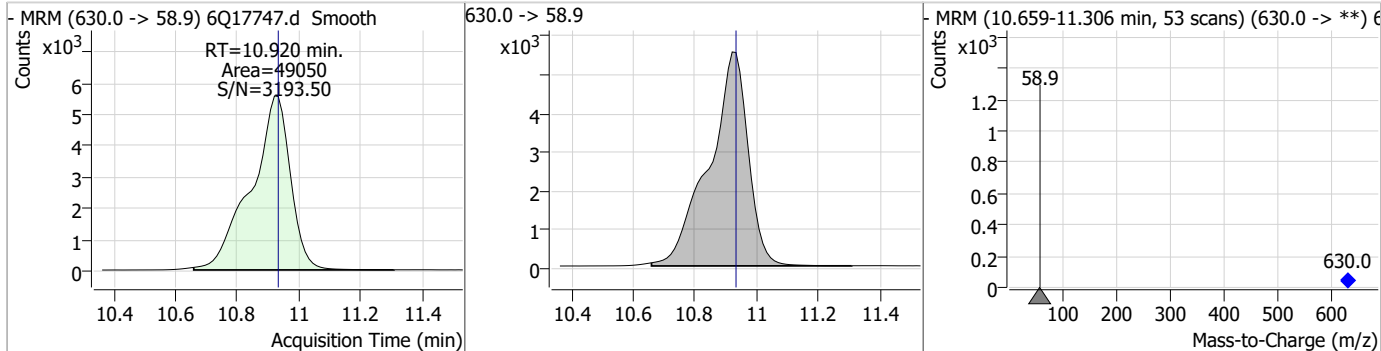
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.86	10.75	0.00	17371 (m)	511.9 -> 169.0	139.5	65.4	196.1



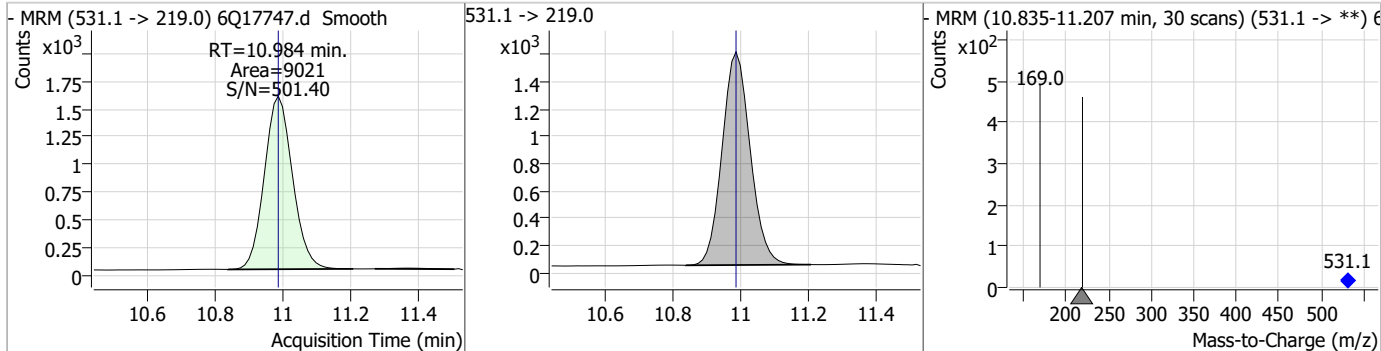
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.31	10.91	0.00	94746				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.88	10.92	-0.01	49050				

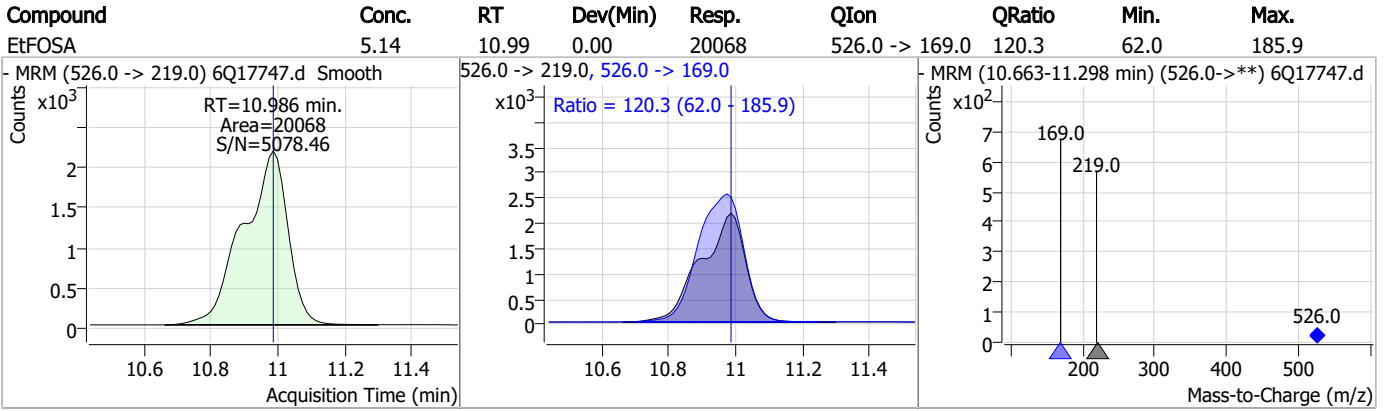


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.56	10.98	0.00	9021				





### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S6Q268-ICV268      Method: EPA DRAFT 1633  
Lab FileID: 6Q17747.D      Analyst approved: 05/15/23 12:43 Martha Valls  
Injection Time: 05/12/23 14:25      Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.75	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17748.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 2:40:17 PM  
 Sample Name : icv268-20  
 Vial : P1-B2  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	134228	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	41658	5.00 µg/L	-0.012
M5-PFHxA	5.466	318.0 -> 273.0	48748	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	41967	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	60991	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	20539	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	15727	1.25 µg/L	0.012
M7-PFUnDA	8.518	570.0 -> 525.1	19149	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	19311	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	12965	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	17056	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	16809	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	9328	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	8539	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1526	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	1830	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	1818	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	16595	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	29817	10.00 µg/L	0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	14034	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	61723	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	78299	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	7340	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	6515	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	10046	2.50 µg/L	0.000
13C3-PFBA	2.891	216.0 -> 172.0	56729	5.00 µg/L	-0.012
18O2-PFHxS	7.178	403.0 -> 83.9	7085	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	64436	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	17341	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	22326	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	37254	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.143	329.1 -> 80.9	1526	5.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1830	5.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C2-8:2FTS	7.864	529.1 -> 80.9	1818	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-PFDoDA	8.949	615.1 -> 570.0	19311	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.5%		
13C2-PFTeDA	9.677	715.2 -> 670.0	12965	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C3-PFBS	5.397	302.1 -> 79.9	16809	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C3-PFHxS	7.179	402.1 -> 79.9	9328	2.47 µg/L	0.012

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C4-PFBA	2.901	216.8 -> 171.9	134228	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.420	367.1 -> 322.0	41967	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C5-PFHxA	5.466	318.0 -> 273.0	48748	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.7%	
13C5-PFPeA	4.259	268.3 -> 223.0	41658	5.32 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C6-PFDA	8.076	519.1 -> 474.1	15727	1.38 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.7%	
13C7-PFUnDA	8.518	570.0 -> 525.1	19149	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C8-FOSA	9.648	506.1 -> 77.8	17056	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C8-PFOA	7.064	421.1 -> 376.0	60991	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C8-PFOS	8.226	507.1 -> 79.9	8539	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.3%	
13C9-PFNA	7.595	472.1 -> 427.0	20539	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.6%	
d3-MeFOSAA	8.133	573.2 -> 419.0	16595	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	29817	10.94 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
d3-MeFOSA	10.752	515.0 -> 219.0	6515	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.3%	
d5-EtFOSAA	8.329	589.2 -> 419.0	14034	5.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.8%	
d7-MeFOSE	10.672	623.2 -> 58.9	61723	24.94 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
d9-EtFOSE	10.907	639.2 -> 58.9	78299	26.19 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d5-EtFOSA	10.984	531.1 -> 219.0	7340	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.144	327.1 -> 307.0	46955	20.47 µg/L	99
		327.1 -> 80.9	17359		
6:2FTS	6.838	427.1 -> 407.0	43329	21.76 µg/L	97
		427.1 -> 80.9	13273		
8:2FTS	7.865	527.1 -> 507.0	22843	22.12 µg/L	97
		527.1 -> 80.8	9727		
EtFOSAA	8.330	584.2 -> 419.1	49331	18.88 µg/L	95
		584.2 -> 526.0	27704		
FOSA	9.639	498.1 -> 77.9	146681	22.97 µg/L	99
		498.1 -> 478.0	4288		
MeFOSAA	8.134	570.1 -> 419.0	73972	23.04 µg/L	95
		570.1 -> 483.0	13034		
PFBA	2.894	212.8 -> 168.9	101686	21.12 µg/L	100
PFBS	5.398	298.7 -> 79.9	173909	21.20 µg/L	99
		298.7 -> 98.8	64979		
PFDA	8.076	512.9 -> 469.0	416281	21.39 µg/L	96
		512.9 -> 219.0	61482		
PFDoDA	8.950	613.1 -> 569.0	309033	20.09 µg/L	98
		613.1 -> 319.0	39520		
PFDS	9.113	599.0 -> 79.9	60387	21.78 µg/L	92

7.7.25  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	27733	21.33	µg/L	98
		363.1 -> 319.0	447334			
PFHpS	7.735	363.1 -> 169.0	69085	21.42	µg/L	97
		449.0 -> 79.9	97568			
PFHxA	5.469	449.0 -> 98.9	48905	20.34	µg/L	100
		313.0 -> 269.0	392860			
PFHxS	7.180	313.0 -> 118.9	19063	23.66	µg/L	92
		398.7 -> 79.9	122164			
PFNA	7.596	398.7 -> 98.9	53968	24.84	µg/L	91
		463.0 -> 419.0	379013			
PFNS	8.681	463.0 -> 219.0	61428	23.00	µg/L	88
		548.8 -> 79.9	94985			
PFOA	7.066	548.8 -> 98.9	46685	20.01	µg/L	98
		413.0 -> 369.0	607139			
PFOS	8.228	413.0 -> 169.0	106004	16.36	µg/L	97
		498.9 -> 79.9	73233			
PFPeA	4.262	498.9 -> 98.8	40594	23.58	µg/L	100
		263.0 -> 219.0	283724			
PFPeS	6.471	349.1 -> 79.9	119990	23.44	µg/L	97
		349.1 -> 98.9	56205			
PFTeDA	9.677	713.1 -> 669.0	298228	22.46	µg/L	99
		713.1 -> 168.9	21389			
PFTrDA	9.333	663.0 -> 619.0	328675	18.43	µg/L	97
		663.0 -> 168.9	29298			
PFUnDA	8.518	563.1 -> 519.0	289958	20.85	µg/L	97
		563.1 -> 269.1	41676			
11Cl-PF3OUdS	9.385	630.9 -> 450.9	257330	22.84	µg/L	99
		632.9 -> 452.9	73270			
9Cl-PF3ONS	8.557	530.8 -> 351.0	368637	20.48	µg/L	92
		532.8 -> 353.0	121331			
ADONA	6.683	376.9 -> 250.9	986876	20.79	µg/L	93
		376.9 -> 84.8	266947			
HFPO-DA	5.845	284.9 -> 168.9	59984	20.81	µg/L	99
		284.9 -> 184.9	8440			
3:3FTCA	3.790	241.0 -> 177.0	15808	21.21	µg/L	99
		241.0 -> 117.0	2062			
5:3FTCA	6.161	341.0 -> 237.1	71771	21.45	µg/L	99
		341.0 -> 217.0	52629			
7:3FTCA	7.586	441.0 -> 316.9	30530	20.11	µg/L	95
		441.0 -> 336.9	66281			
EtFOSA	10.986	526.0 -> 219.0	66958	21.07	µg/L	91
		526.0 -> 169.0	75827			
EtFOSE	10.932	630.0 -> 58.9	420300	123.18	µg/L	100
		511.9 -> 219.0	62290			
MeFOSA	10.753	511.9 -> 169.0	65153	20.76	µg/L	78
		616.1 -> 58.9	329621			
MeFOSE	10.686	699.1 -> 79.9	28807	114.16	µg/L	100
		699.1 -> 98.8	15636			
PFDoDS	9.805	295.0 -> 201.0	44922	19.66	µg/L	97
		295.0 -> 84.9	11491			
NFDHA	5.348	279.0 -> 85.1	188295	21.07	µg/L	97
		229.0 -> 84.9	137337			
PFMBA	4.675	314.8 -> 134.9	475035	21.93	µg/L	100
		314.8 -> 82.9	17118			
PFMPA	3.426			22.21	µg/L	100
PFEESA	5.938			18.32	µg/L	100

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



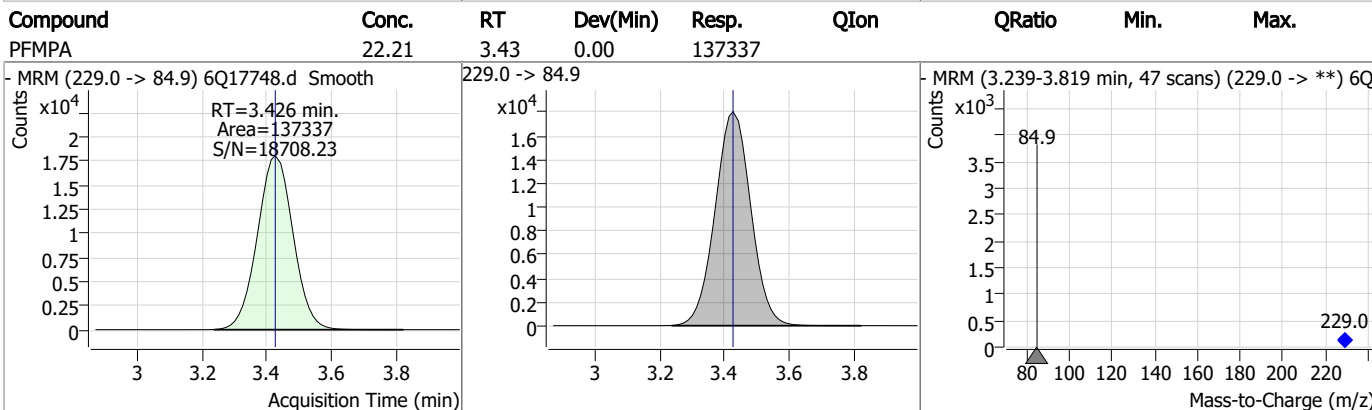
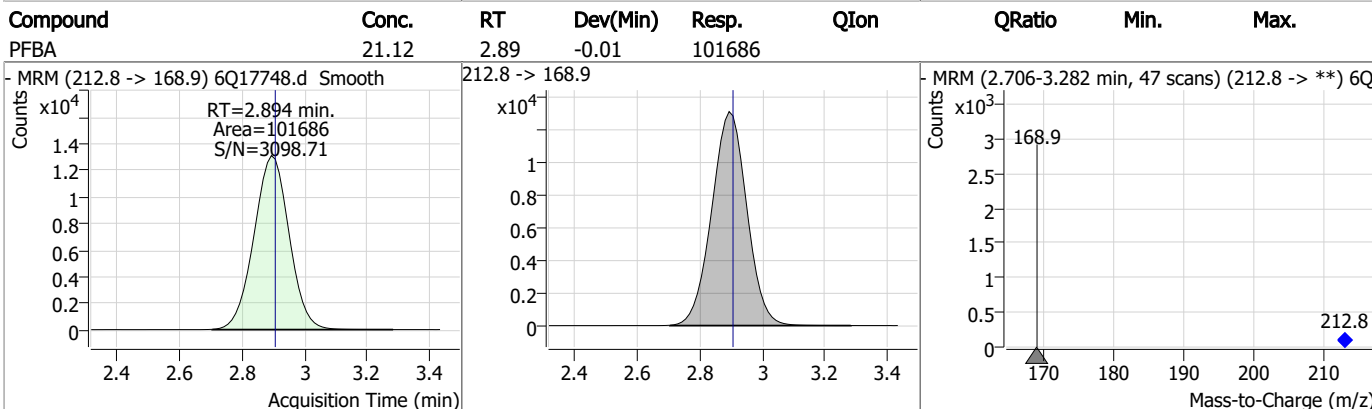
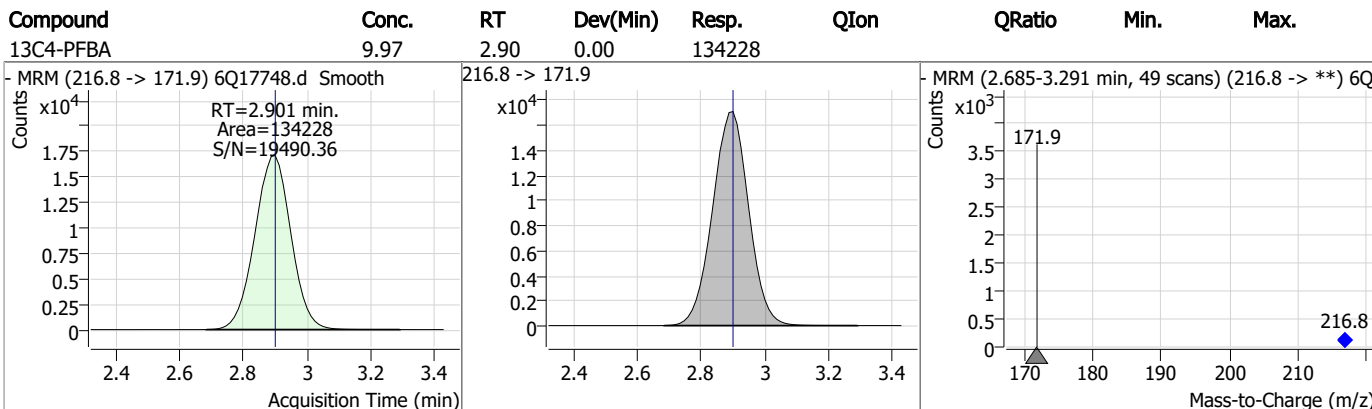
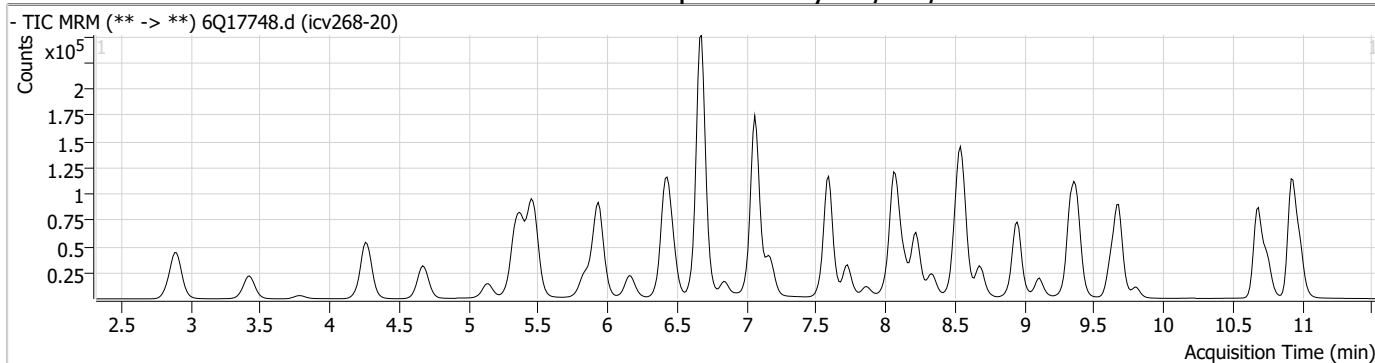
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.25

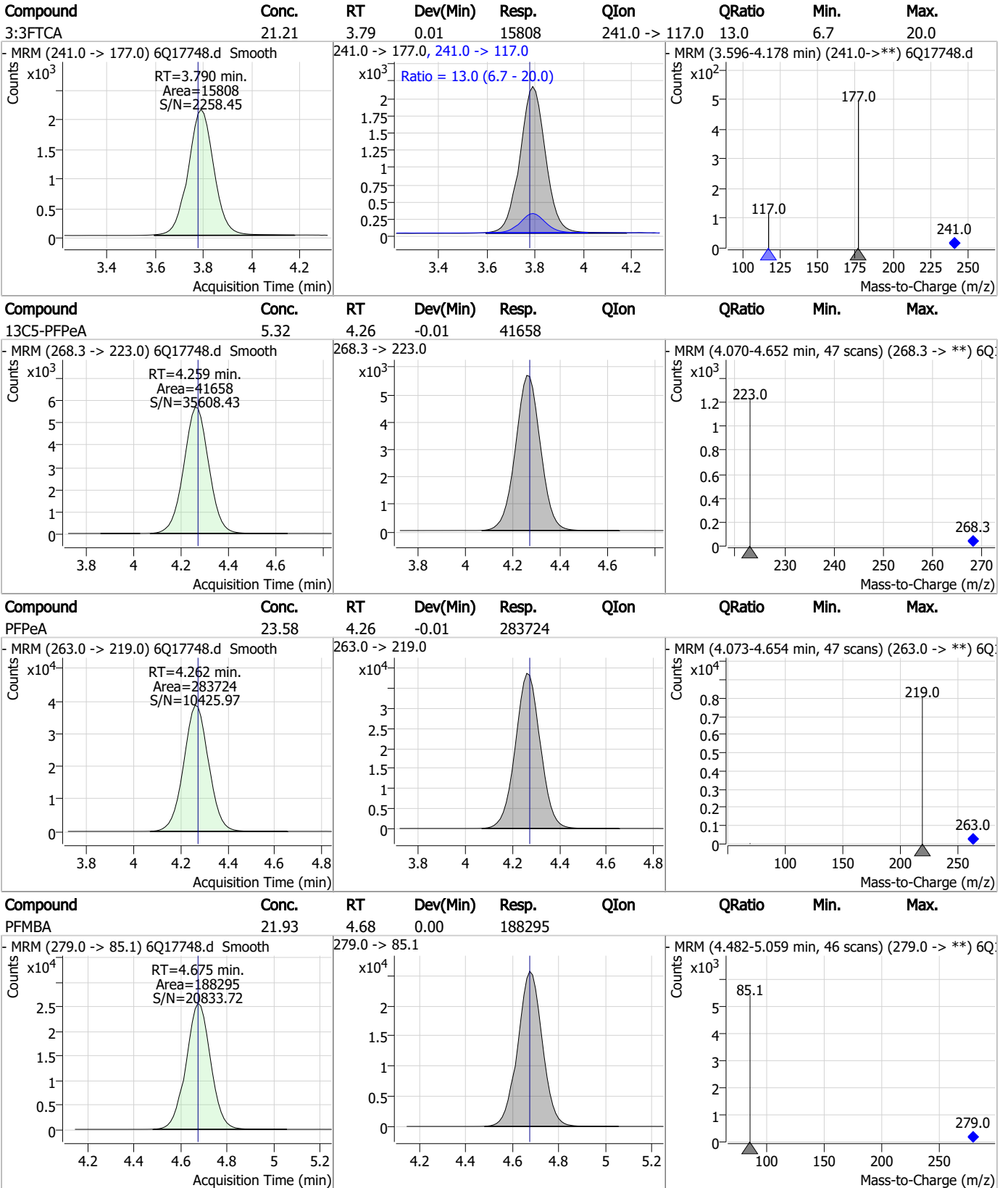
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### Perfluorinated Compounds by LC/MS/MS



7.7.25  
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### Perfluorinated Compounds by LC/MS/MS

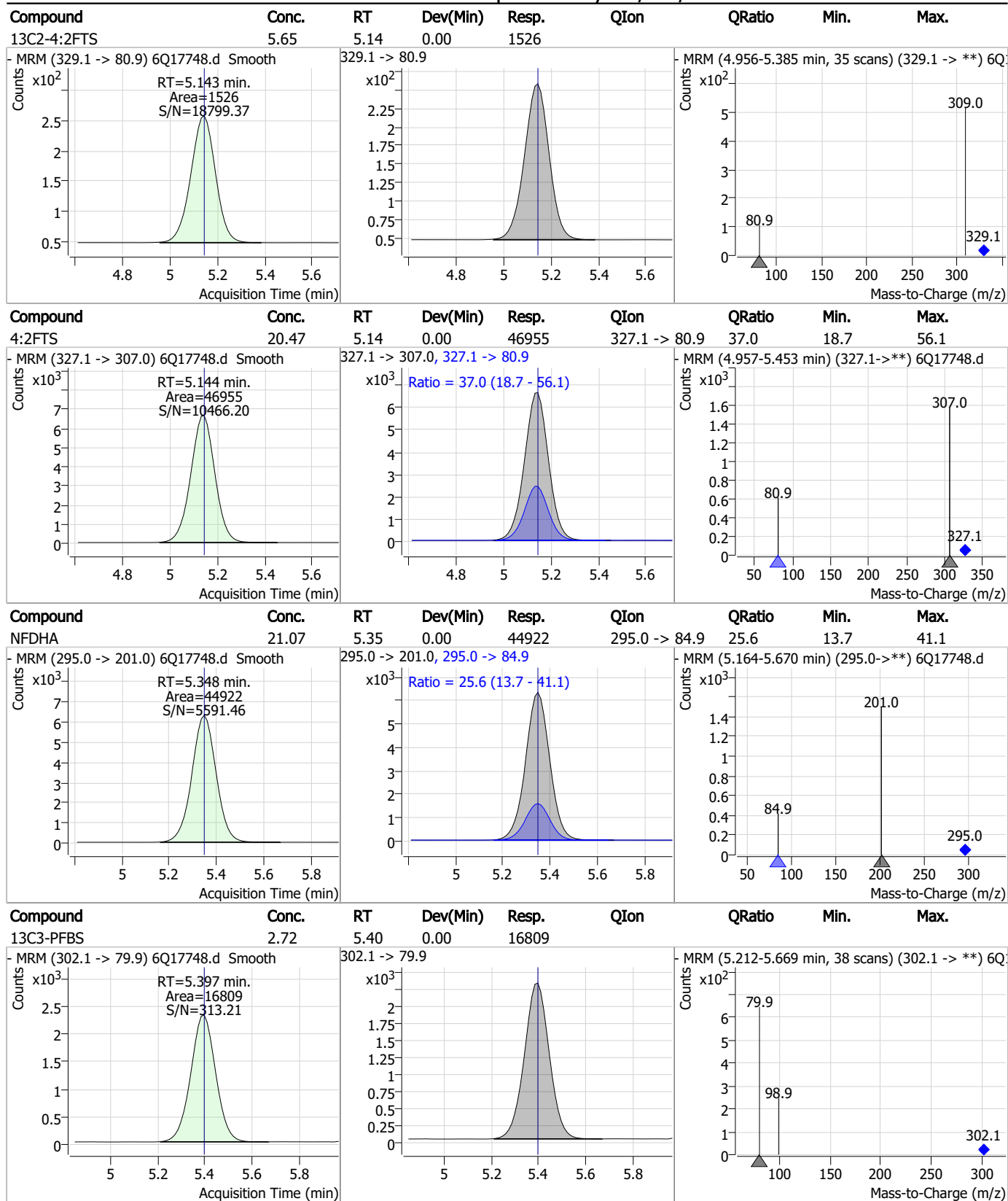


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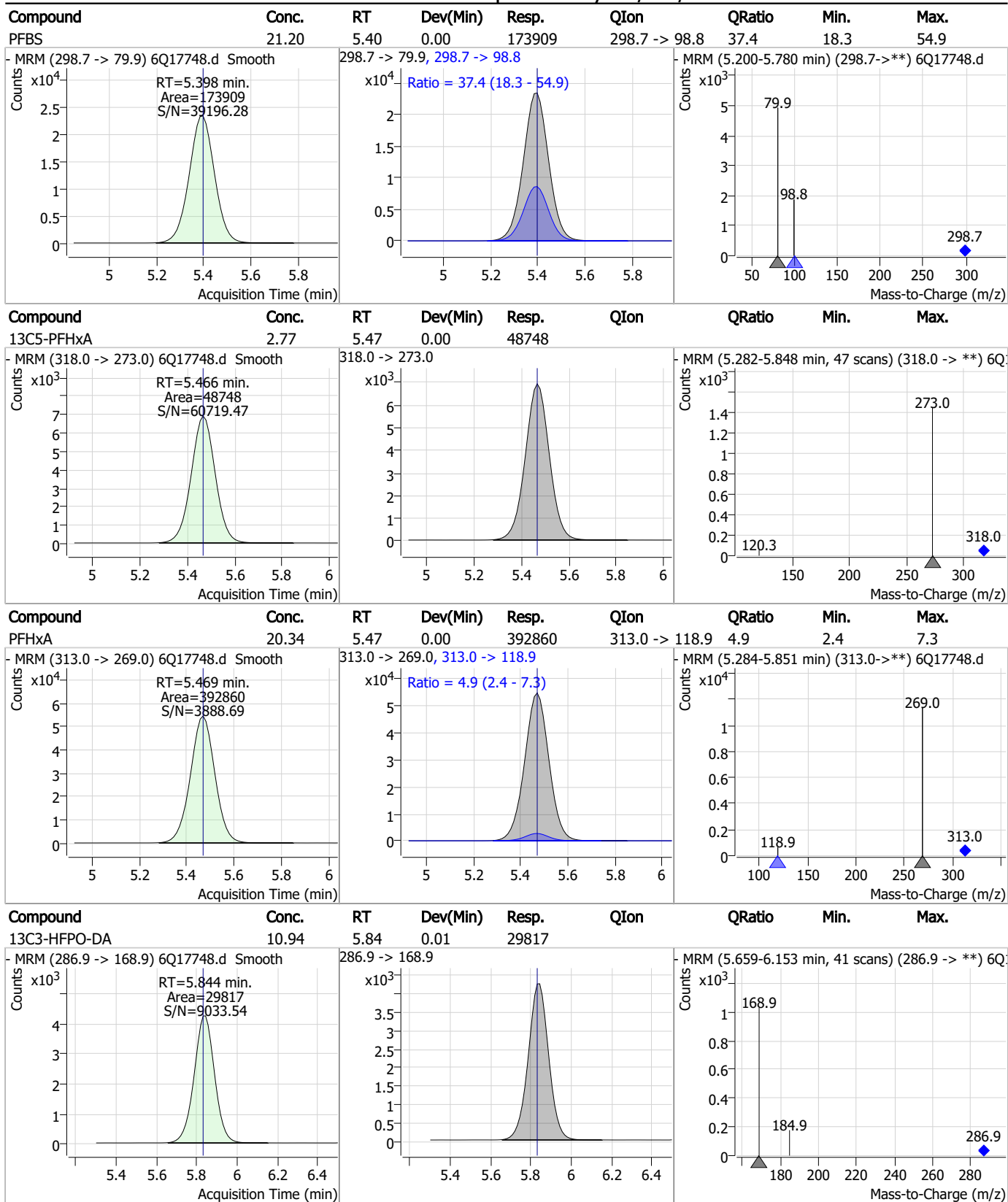
### Perfluorinated Compounds by LC/MS/MS



7.7.25

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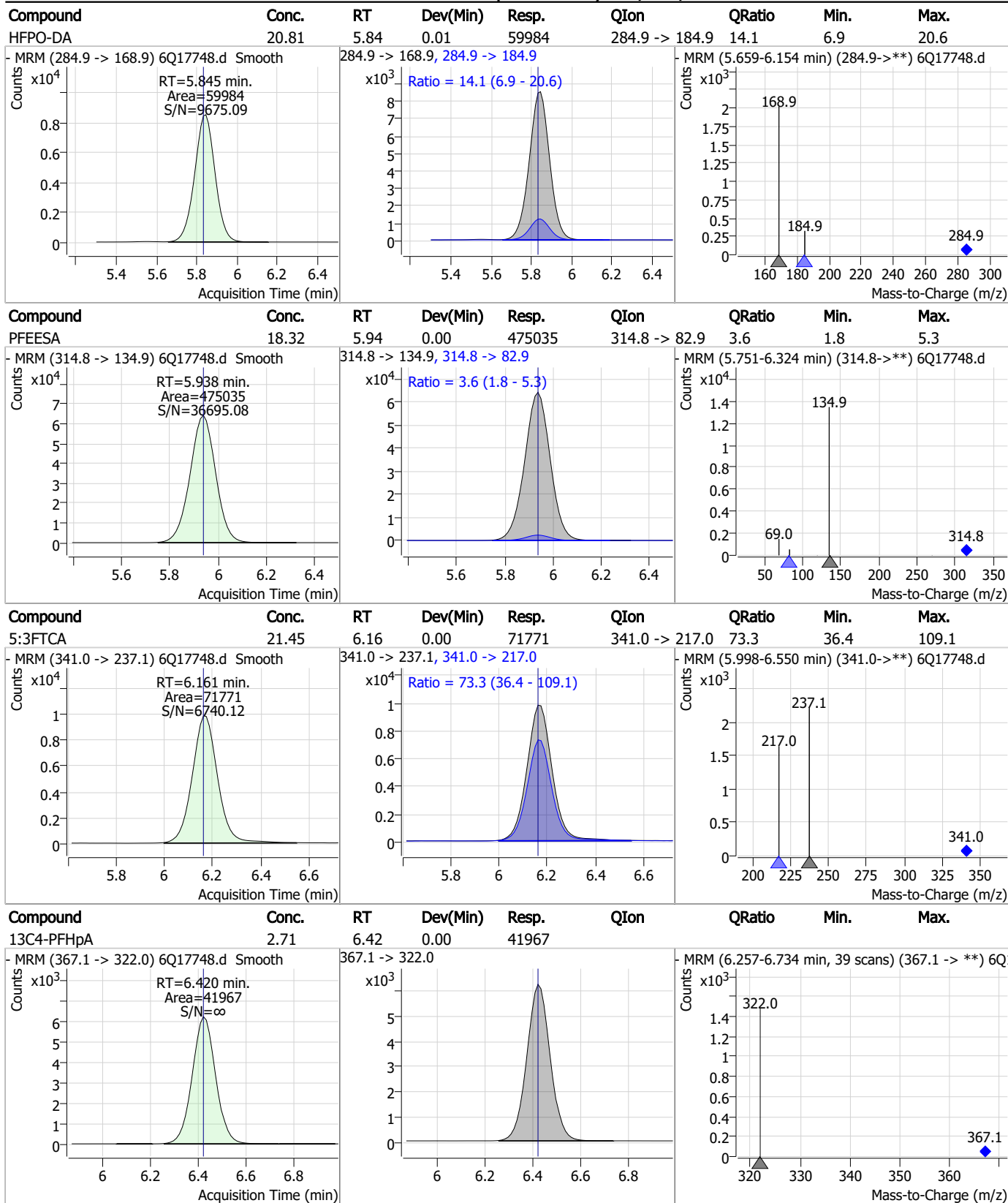
### Perfluorinated Compounds by LC/MS/MS



7.7.25

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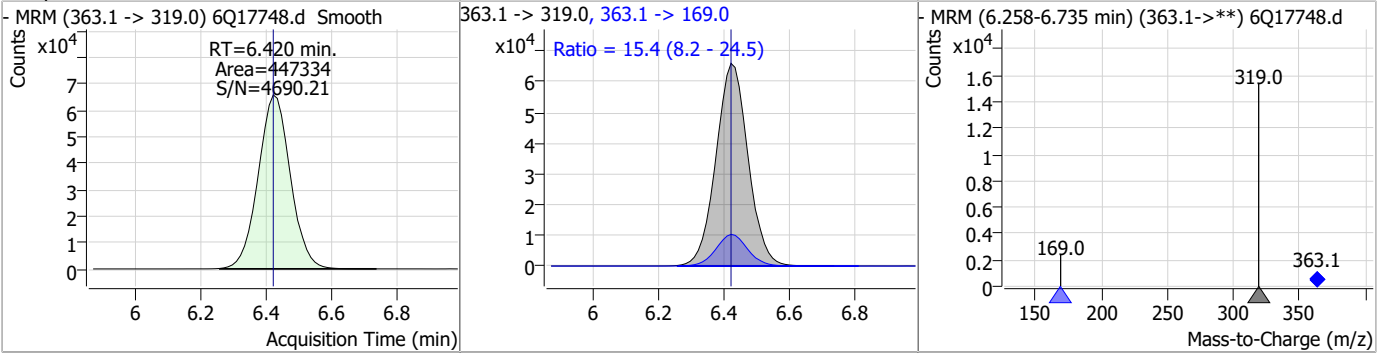
### Perfluorinated Compounds by LC/MS/MS



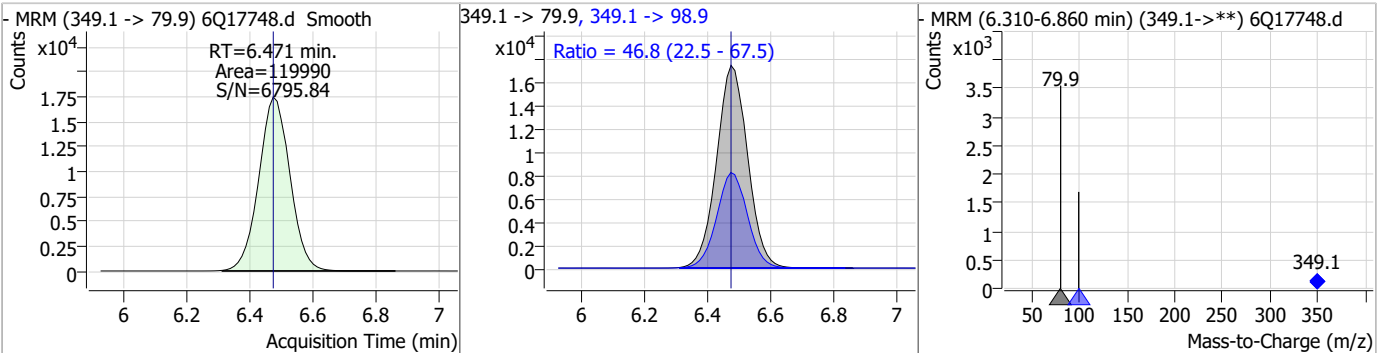
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### Perfluorinated Compounds by LC/MS/MS

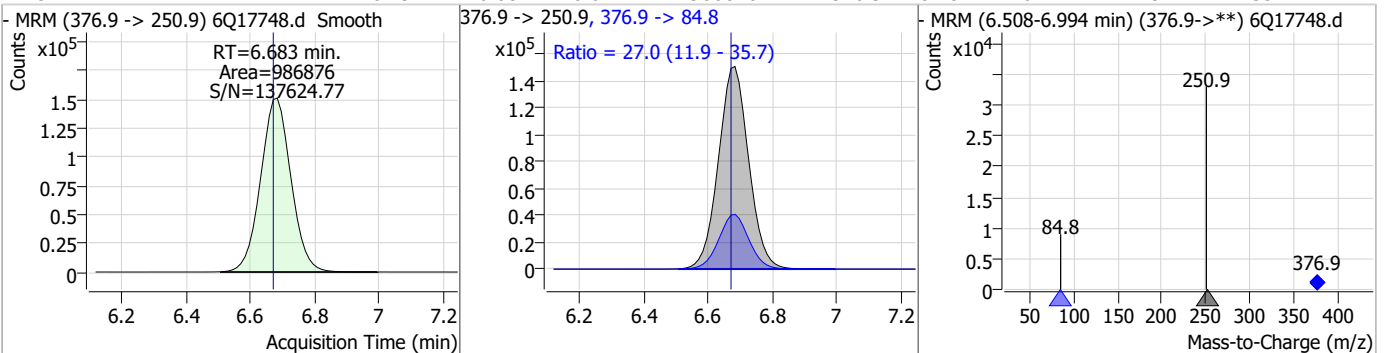
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	21.33	6.42	0.00	447334	363.1 -> 169.0	15.4	8.2	24.5



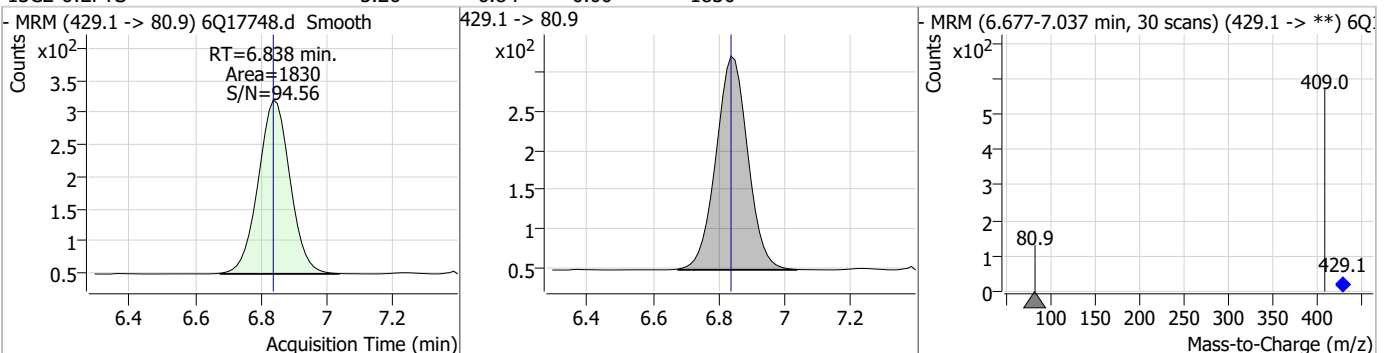
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	23.44	6.47	0.00	119990	349.1 -> 98.9	46.8	22.5	67.5



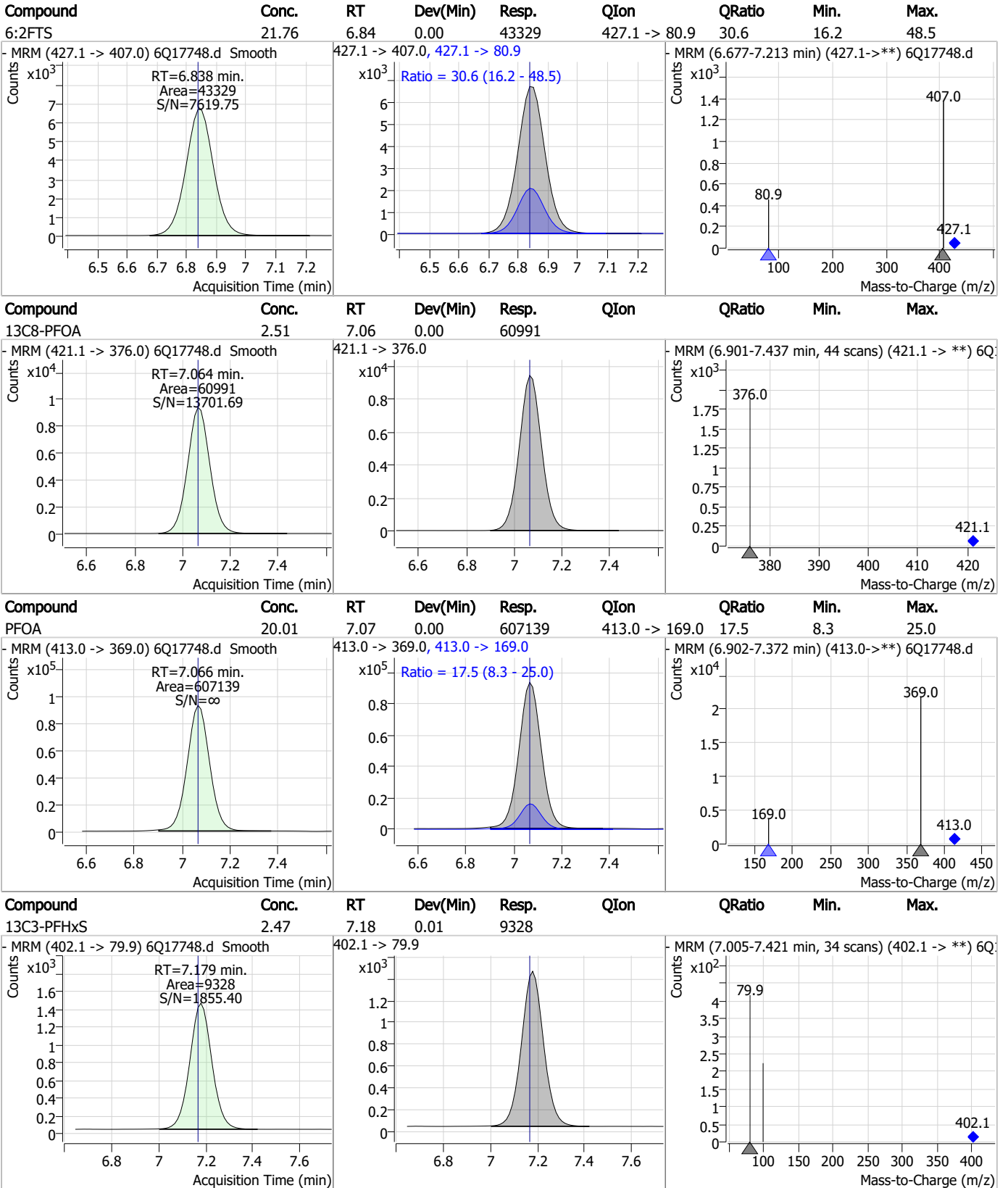
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.79	6.68	0.01	986876	376.9 -> 84.8	27.0	11.9	35.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.26	6.84	0.00	1830	429.1 -> 80.9	-	-	-



### Perfluorinated Compounds by LC/MS/MS

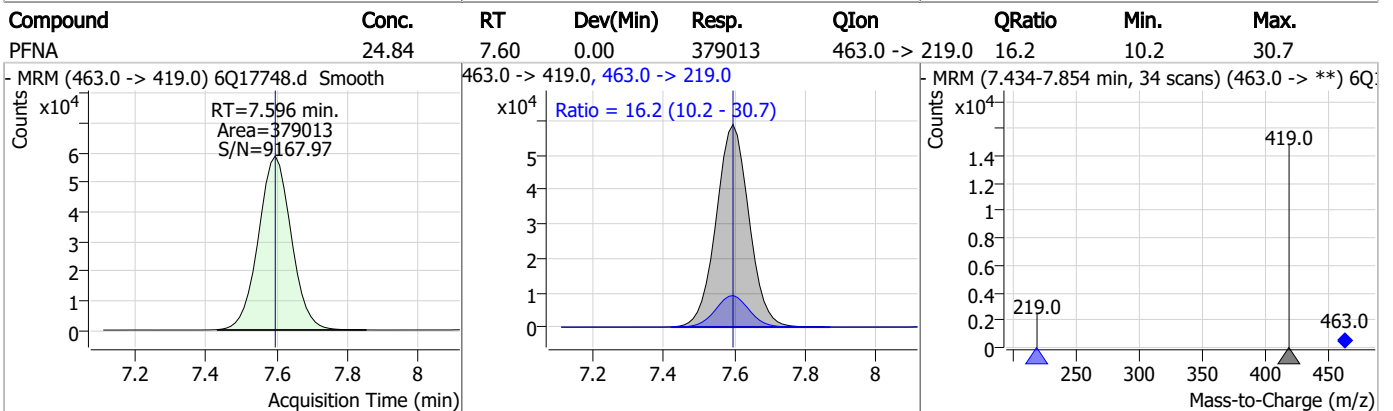
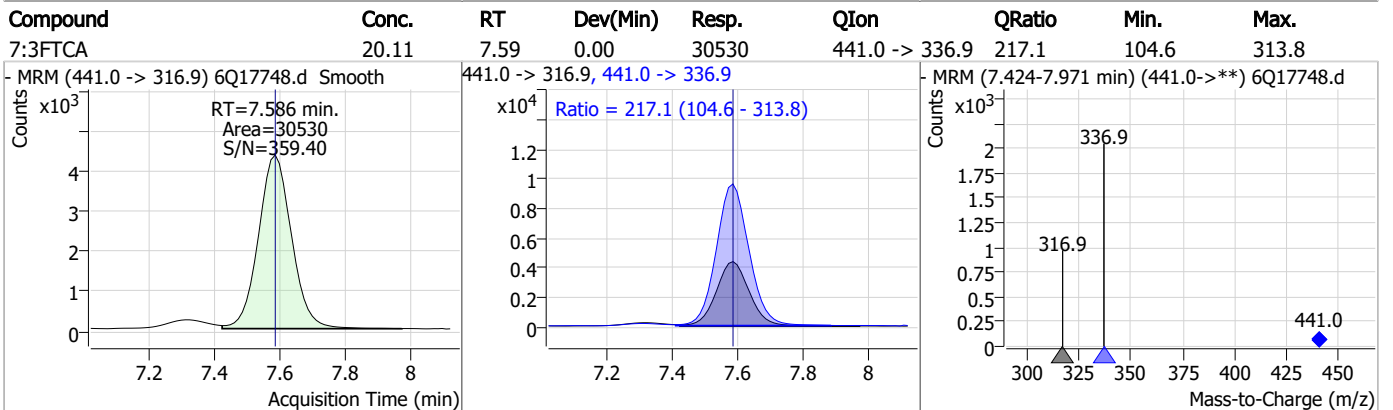
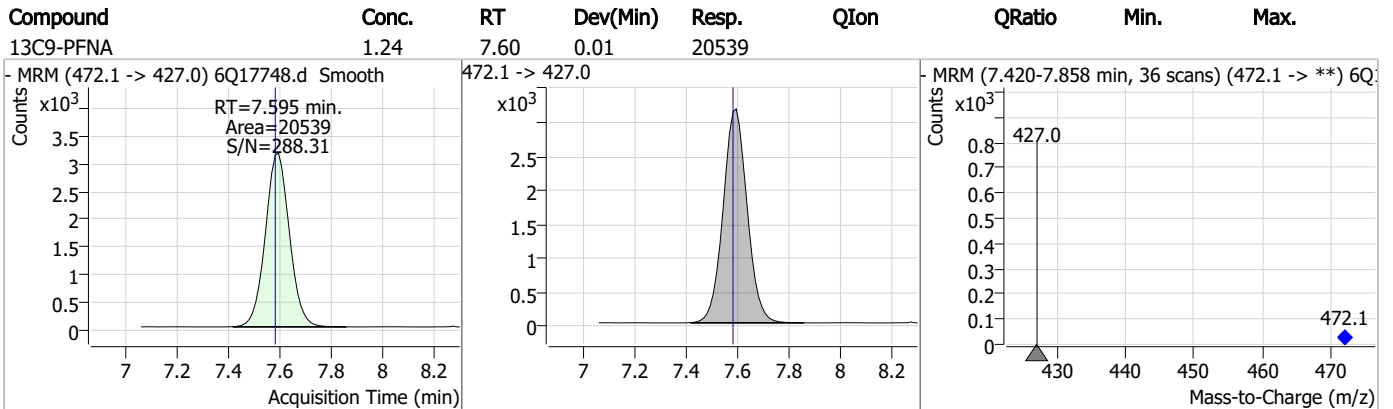
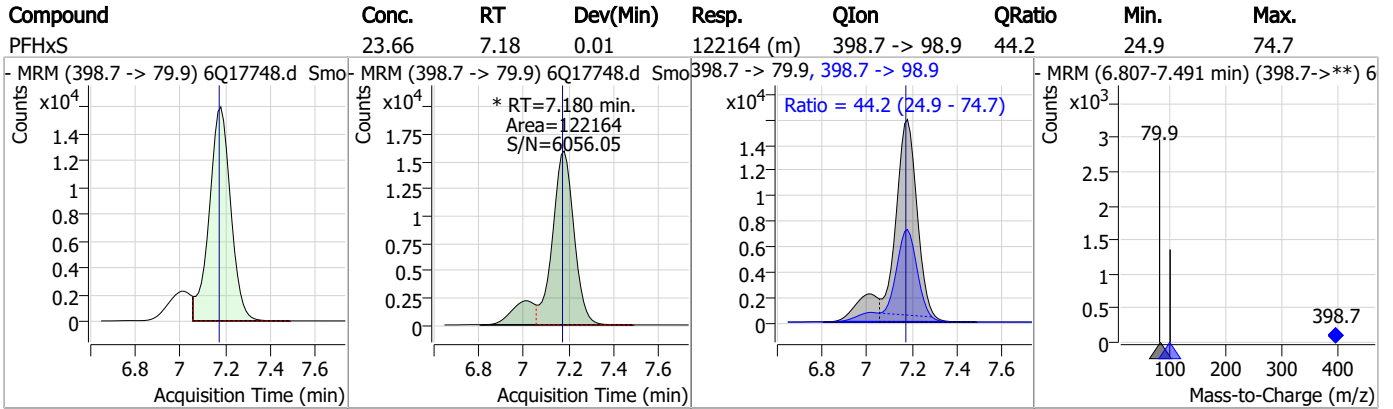


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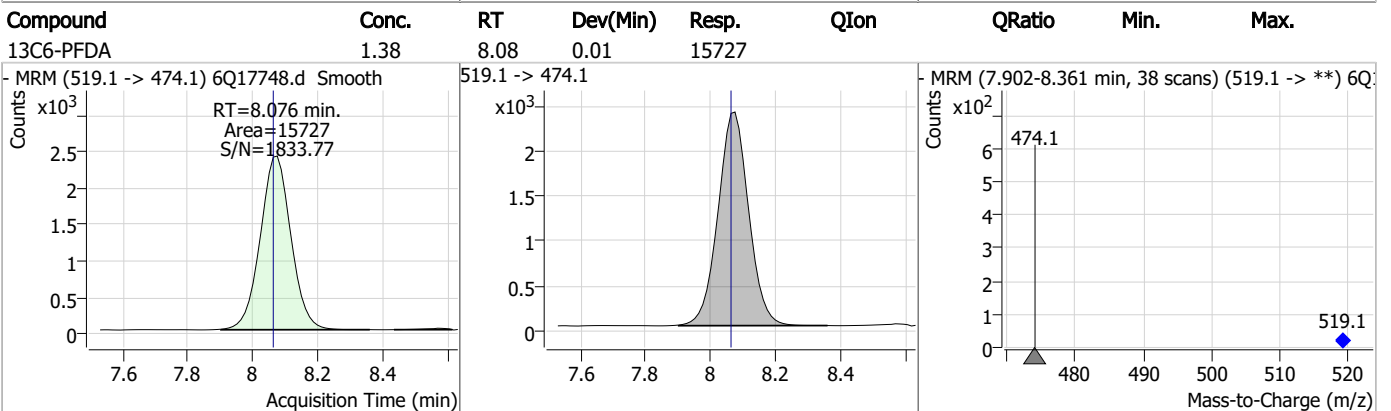
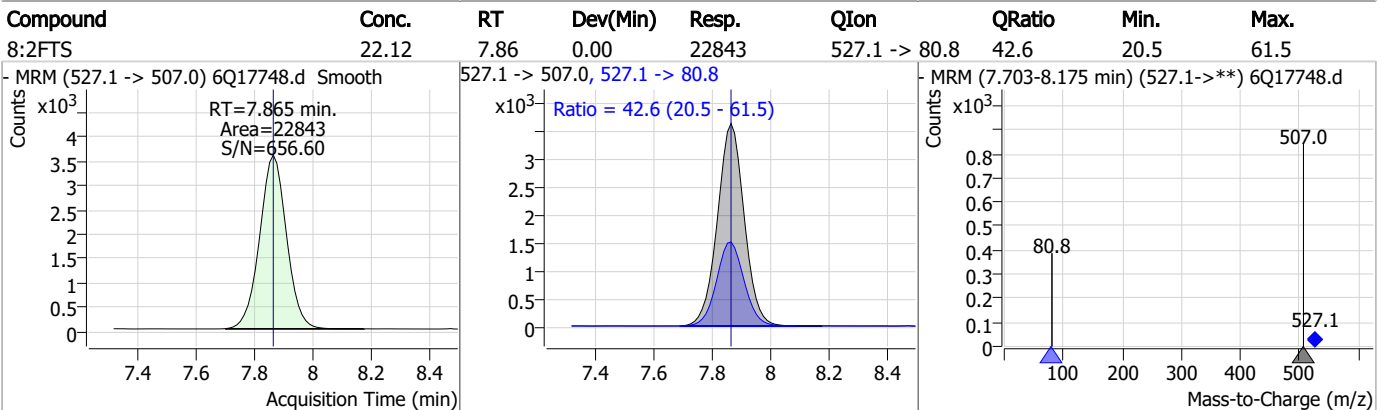
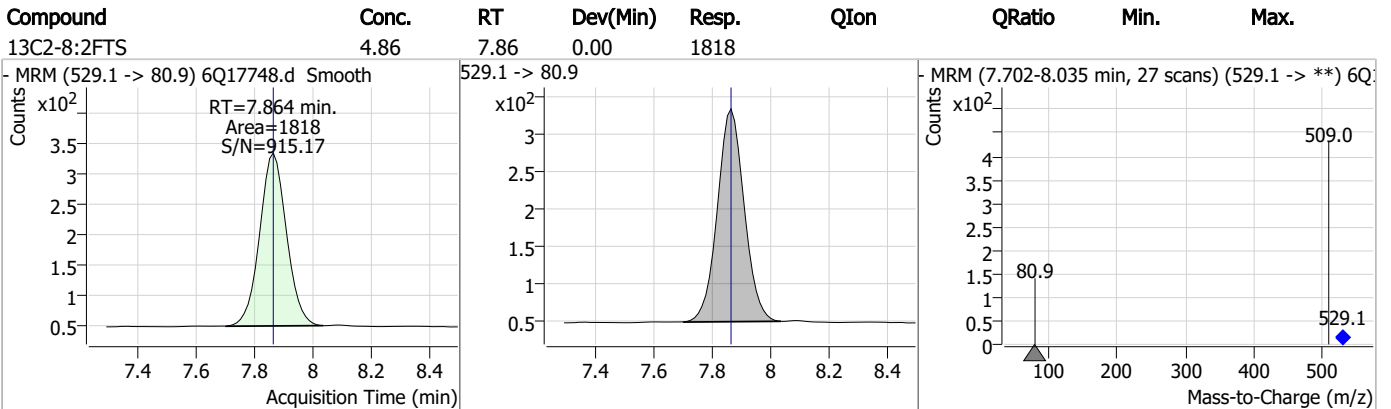
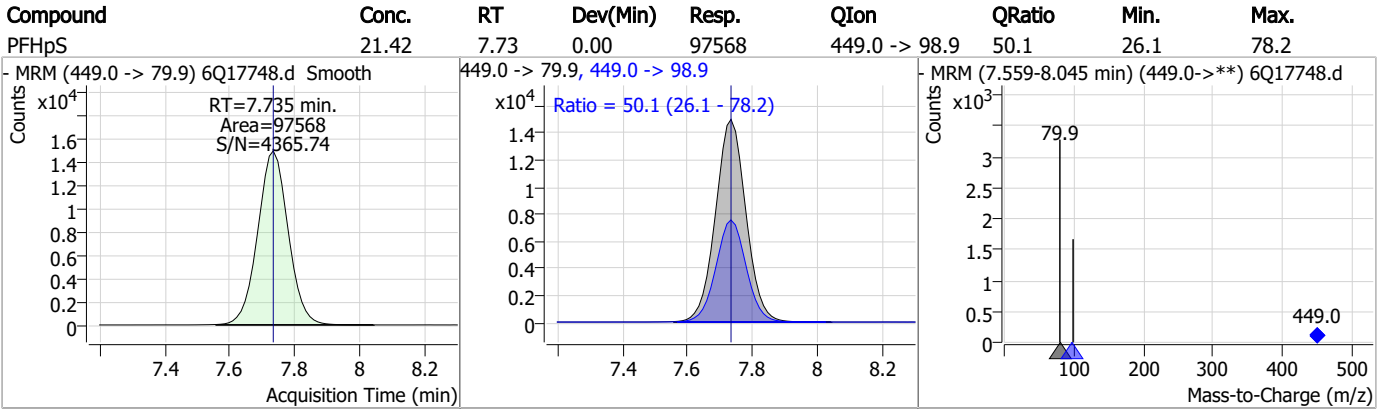


### Perfluorinated Compounds by LC/MS/MS



7.7.25 7

### Perfluorinated Compounds by LC/MS/MS

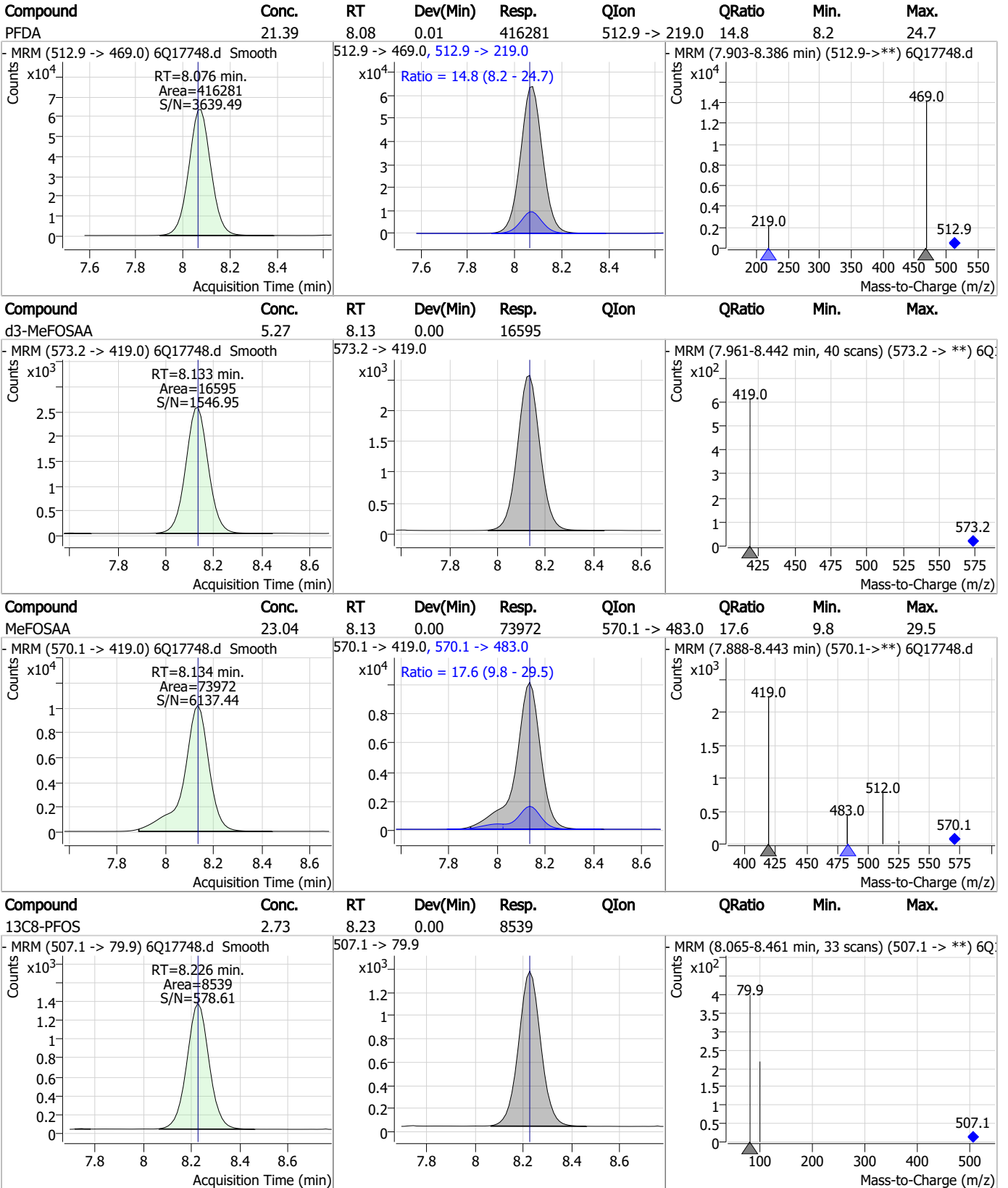


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### Perfluorinated Compounds by LC/MS/MS



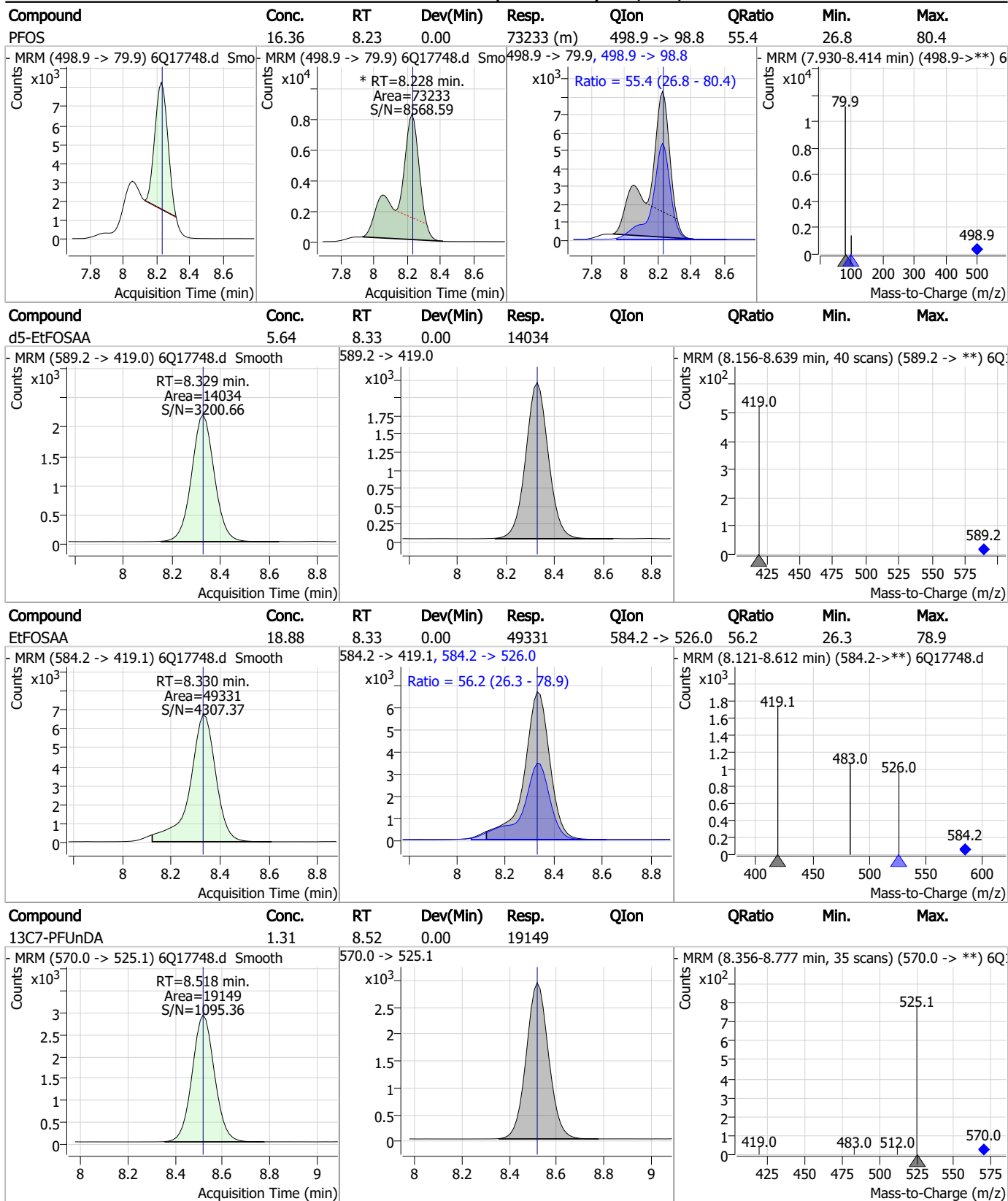
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### Perfluorinated Compounds by LC/MS/MS

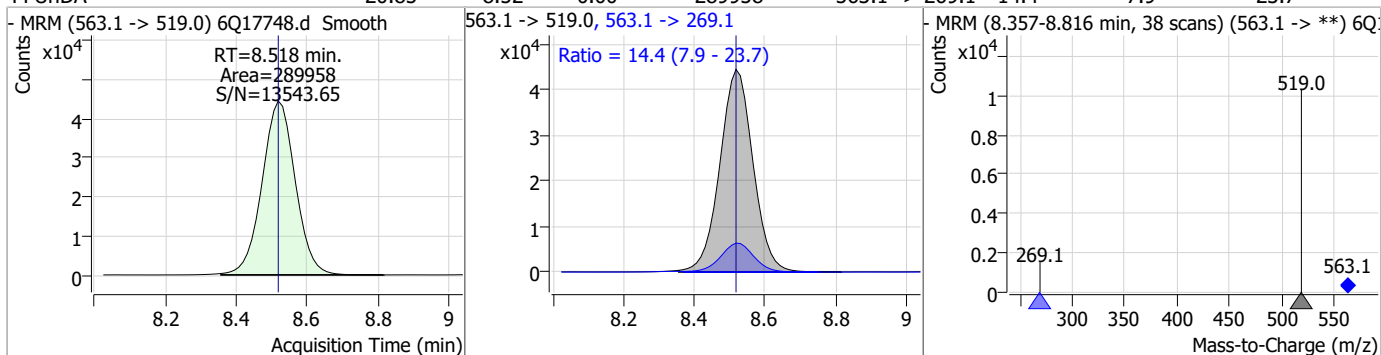


7.7.25  
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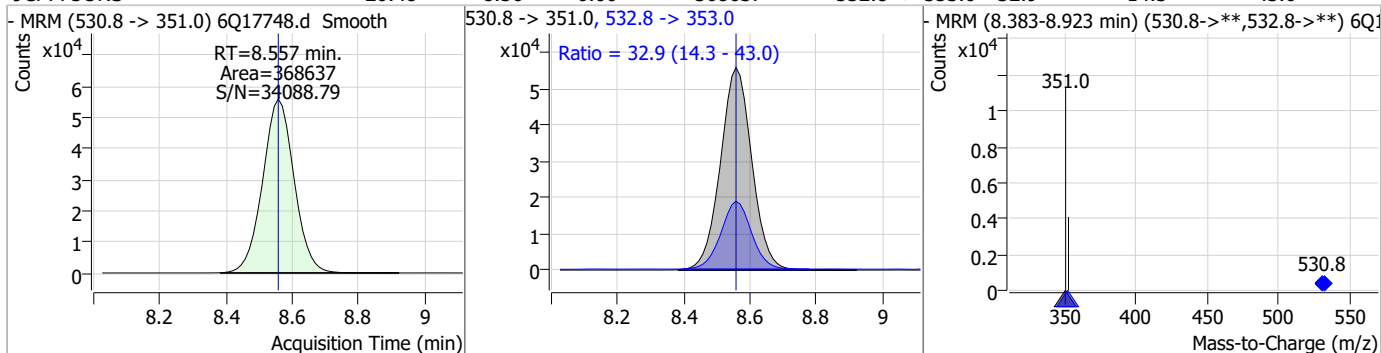


### Perfluorinated Compounds by LC/MS/MS

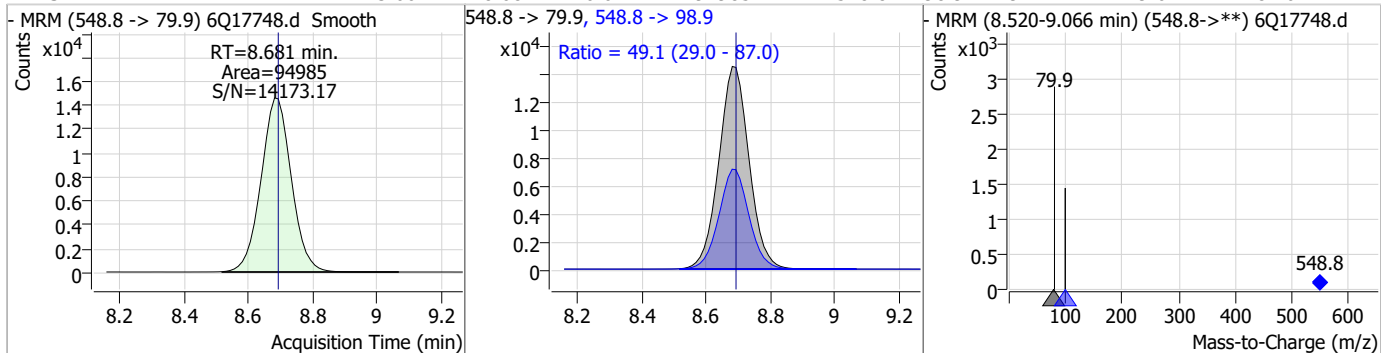
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.85	8.52	0.00	289958	563.1 -> 269.1	14.4	7.9	23.7



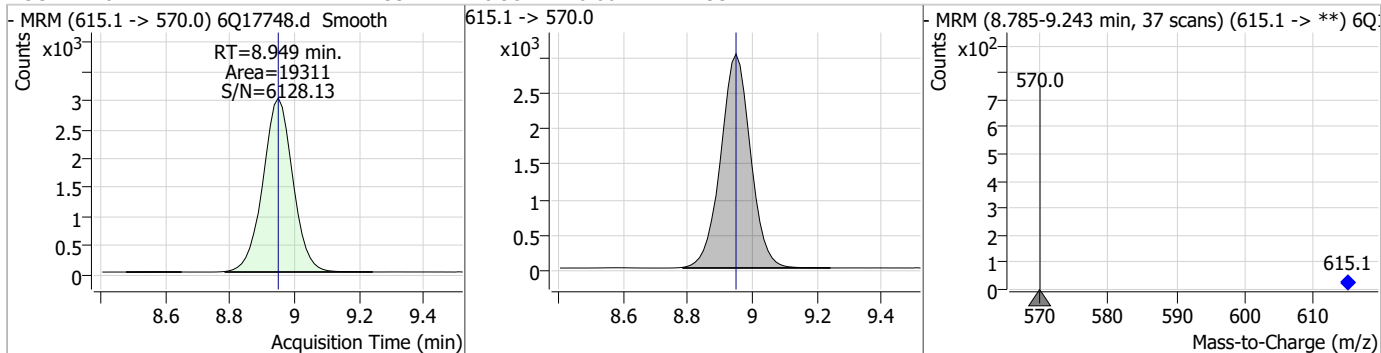
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	20.48	8.56	0.00	368637	532.8 -> 353.0	32.9	14.3	43.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	23.00	8.68	-0.01	94985	548.8 -> 98.9	49.1	29.0	87.0

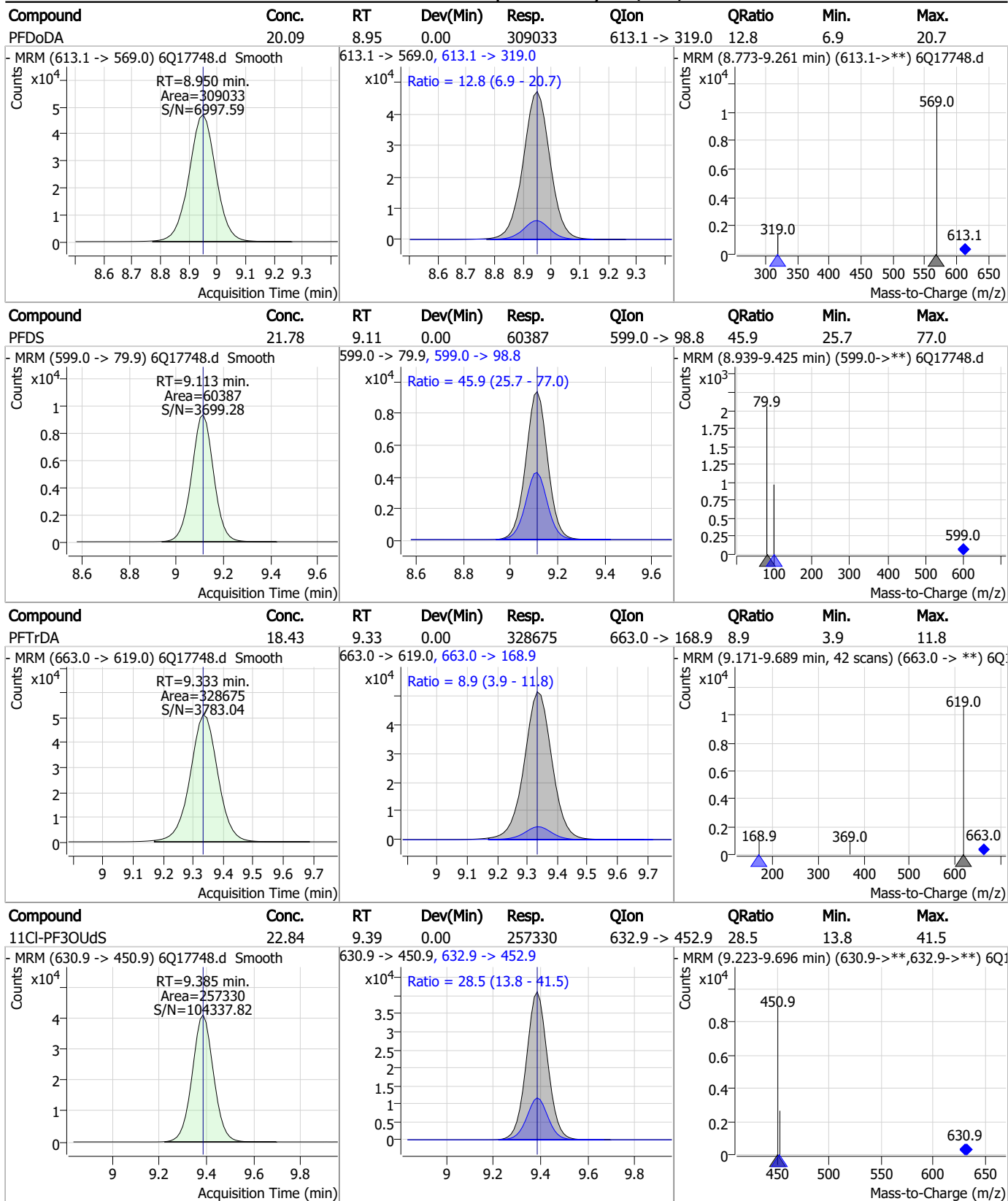


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.33	8.95	0.00	19311	615.1 -> 570.0			



7.7.25  
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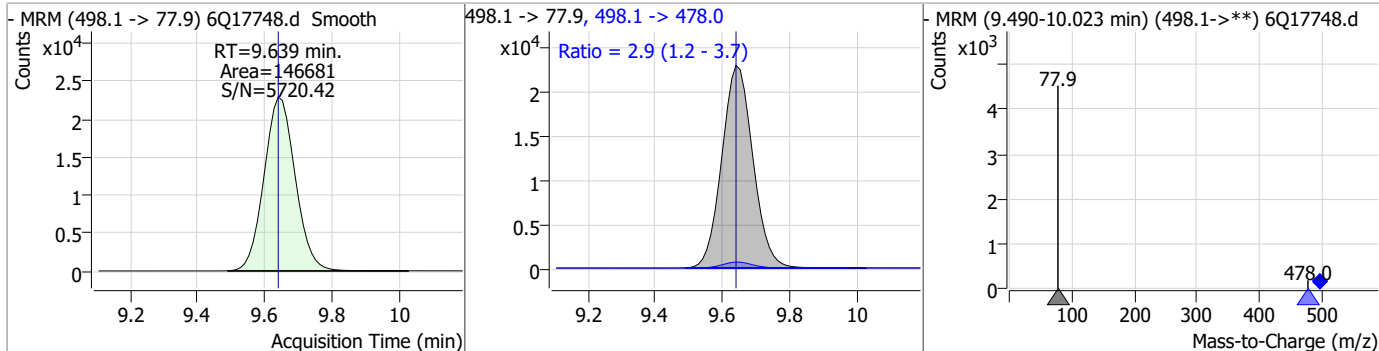
### Perfluorinated Compounds by LC/MS/MS



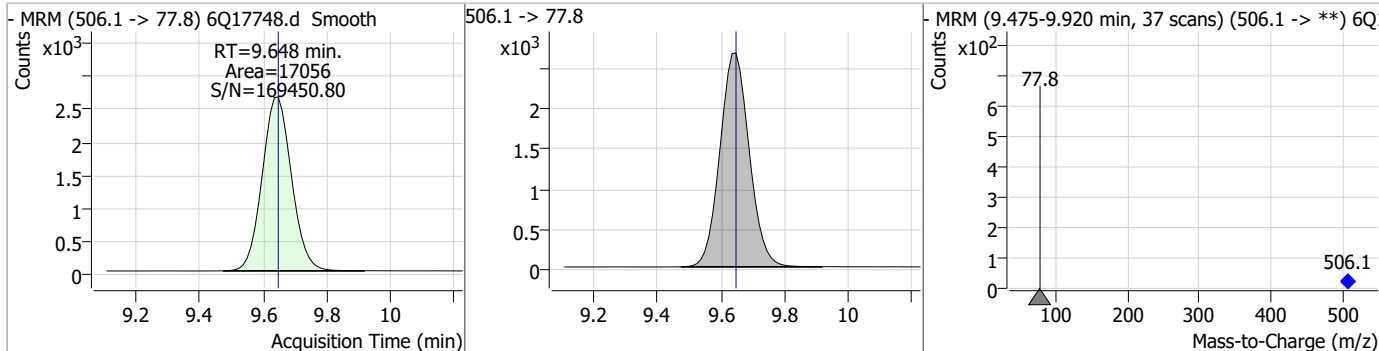
7.7.25 7

### Perfluorinated Compounds by LC/MS/MS

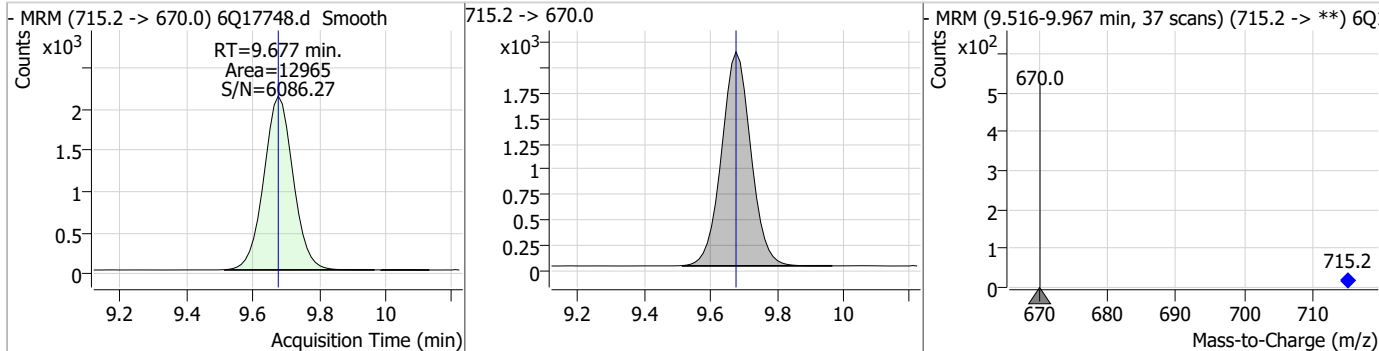
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	22.97	9.64	0.00	146681	498.1 -> 478.0	2.9	1.2	3.7



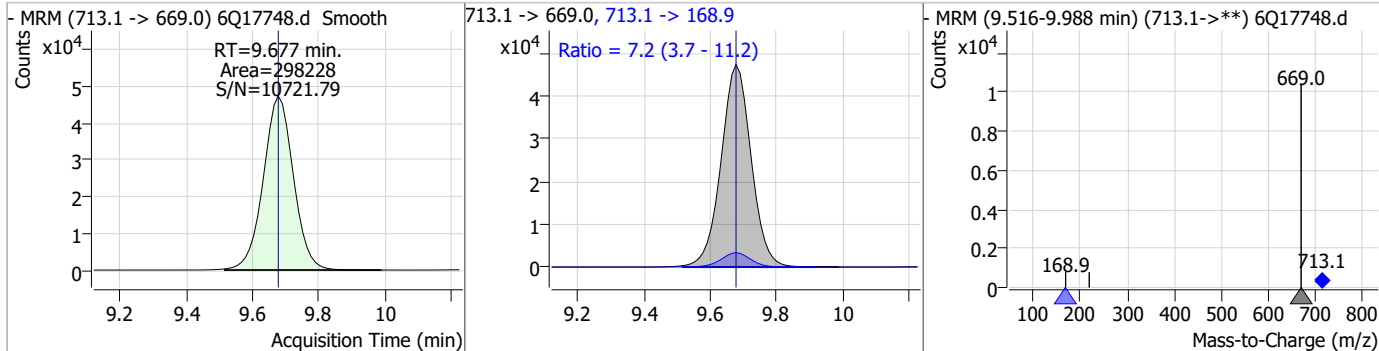
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.56	9.65	0.00	17056	506.1 -> 77.8			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.32	9.68	0.00	12965	715.2 -> 670.0			



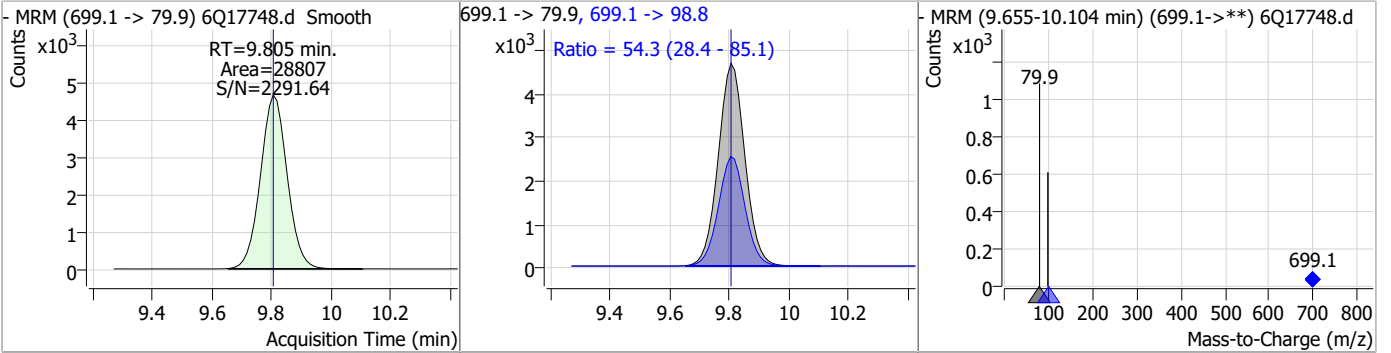
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	22.46	9.68	0.00	298228	713.1 -> 168.9	7.2	3.7	11.2



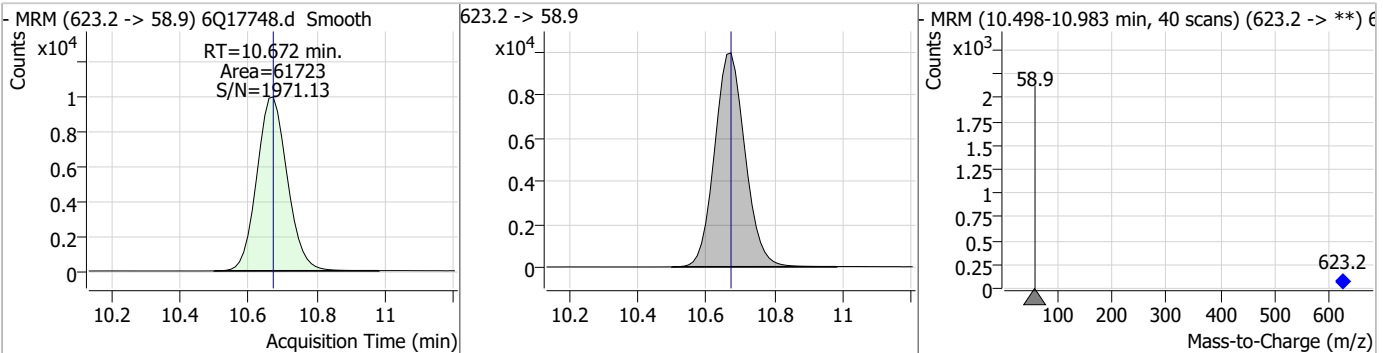
7.7.25  
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### Perfluorinated Compounds by LC/MS/MS

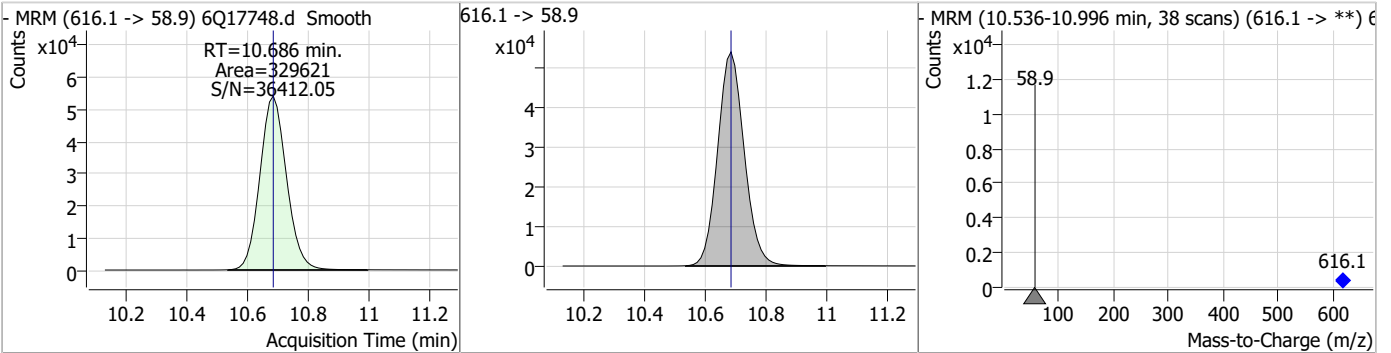
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	19.66	9.81	0.00	28807	699.1 -> 98.8	54.3	28.4	85.1



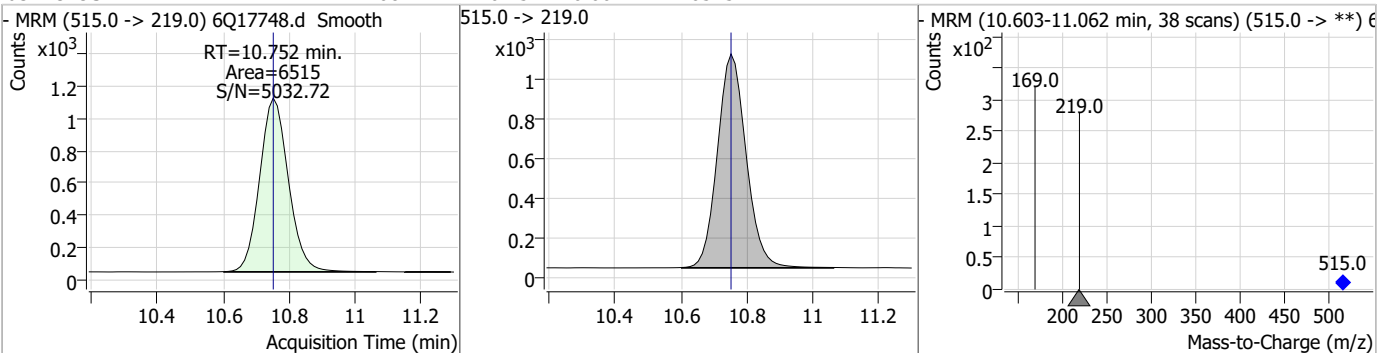
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.94	10.67	0.00	61723				



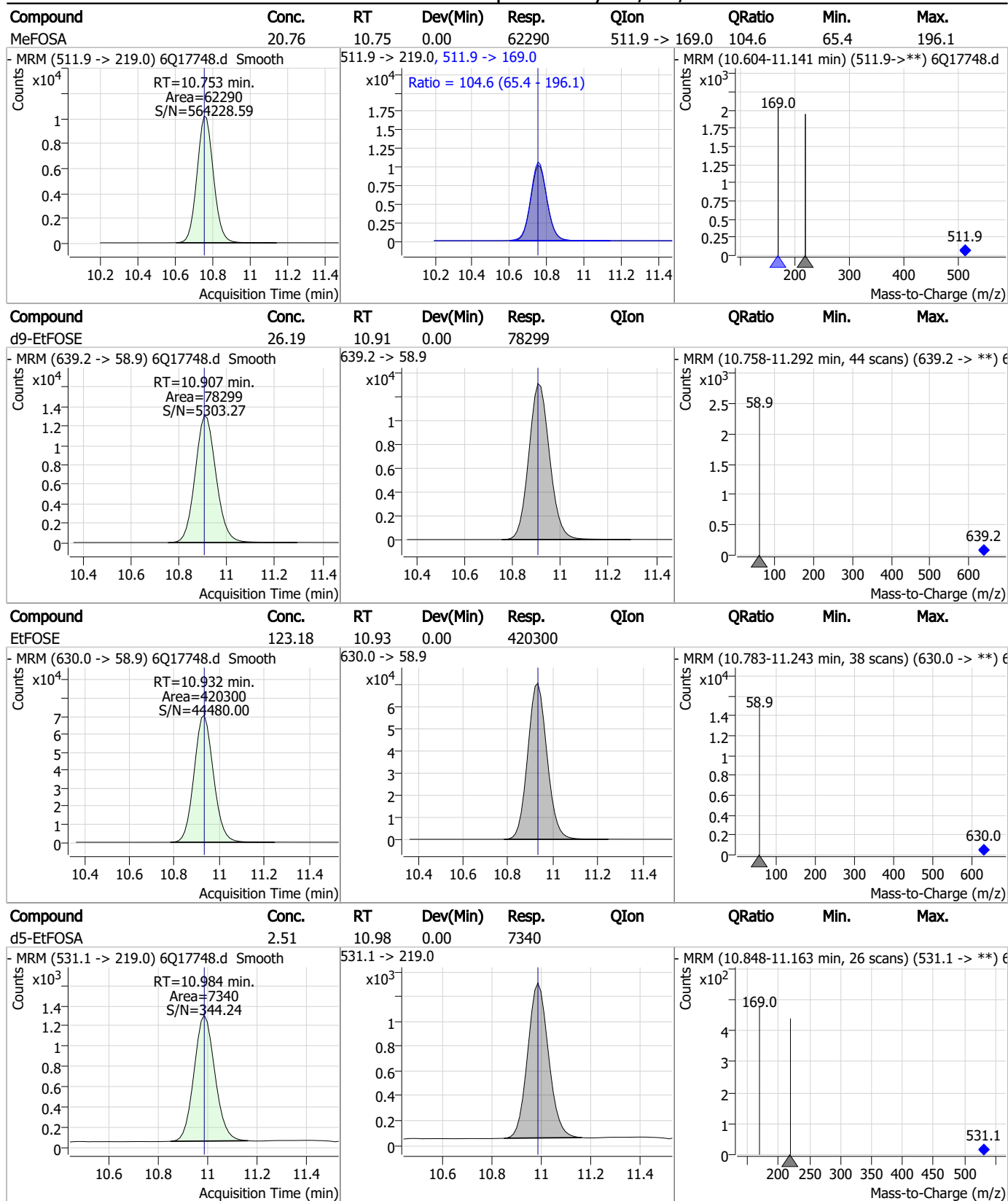
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	114.16	10.69	0.00	329621				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.68	10.75	0.00	6515				



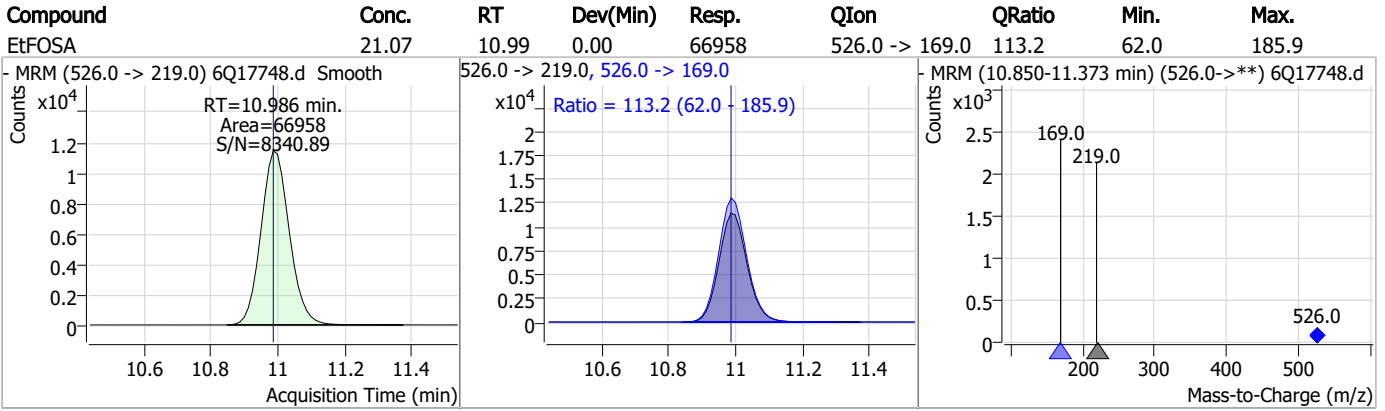
### Perfluorinated Compounds by LC/MS/MS



7.7.25  
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Perfluorinated Compounds by LC/MS/MS



7.7.25  
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# Manual Integration Approval Summary

Sample Number: S6Q268-ICV268      Method: EPA DRAFT 1633  
Lab FileID: 6Q17748.D      Analyst approved: 05/15/23 12:43 Martha Valls  
Injection Time: 05/12/23 14:40      Supervisor approved: 05/16/23 09:33 Norman Farmer

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

7.7.25.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17749.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 2:54:45 PM  
 Sample Name : cc268-4  
 Vial : P1-A5  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	156768	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	50478	5.00 µg/L	-0.012
M5-PFHxA	5.466	318.0 -> 273.0	57361	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	47168	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	71692	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	24277	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	18331	1.25 µg/L	0.012
M7-PFUnDA	8.518	570.0 -> 525.1	24552	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	20224	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	13915	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	21659	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	18908	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11718	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	10512	2.50 µg/L	0.000
M2-4:2FTS	5.131	329.1 -> 80.9	1666	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	2329	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2235	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	19560	5.00 µg/L	0.000
M3-HFPO-DA	5.831	286.9 -> 168.9	34900	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	16773	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	79601	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	99233	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9032	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7384	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	13675	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	66071	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	7834	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	76044	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	20296	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	26492	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	45307	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.131	329.1 -> 80.9	1666	5.58 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.7%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2329	6.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.1%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2235	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C2-PFDoDA	8.949	615.1 -> 570.0	20224	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C2-PFTeDA	9.677	715.2 -> 670.0	13915	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C3-PFBS	5.397	302.1 -> 79.9	18908	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.8%		
13C3-PFHxS	7.179	402.1 -> 79.9	11718	2.81 µg/L	0.012

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C4-PFBA	2.901	216.8 -> 171.9	156768	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.420	367.1 -> 322.0	47168	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C5-PFHxA	5.466	318.0 -> 273.0	57361	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C5-PFPeA	4.259	268.3 -> 223.0	50478	5.30 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C6-PFDA	8.076	519.1 -> 474.1	18331	1.38 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C7-PFUnDA	8.518	570.0 -> 525.1	24552	1.44 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.1%	
13C8-FOSA	9.648	506.1 -> 77.8	21659	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C8-PFOA	7.064	421.1 -> 376.0	71692	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C8-PFOS	8.226	507.1 -> 79.9	10512	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C9-PFNA	7.595	472.1 -> 427.0	24277	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.2%	
d3-MeFOSAA	8.133	573.2 -> 419.0	19560	4.56 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.3%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	34900	10.53 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d3-MeFOSA	10.752	515.0 -> 219.0	7384	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.3%	
d5-EtFOSAA	8.329	589.2 -> 419.0	16773	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d7-MeFOSE	10.672	623.2 -> 58.9	79601	23.63 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
d9-EtFOSE	10.907	639.2 -> 58.9	99233	24.38 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
d5-EtFOSA	10.984	531.1 -> 219.0	9032	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.6%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.132	327.1 -> 307.0	21808	8.70 µg/L	98
		327.1 -> 80.9	8413		
6:2FTS	6.838	427.1 -> 407.0	21364	8.43 µg/L	98
		427.1 -> 80.9	7209		
8:2FTS	7.865	527.1 -> 507.0	12302	9.69 µg/L	99
		527.1 -> 80.8	5149		
EtFOSAA	8.330	584.2 -> 419.1	6778	2.17 µg/L	m 97
		584.2 -> 526.0	3709		
FOSA	9.639	498.1 -> 77.9	19612	2.42 µg/L	99
		498.1 -> 478.0	567		
MeFOSAA	8.134	570.1 -> 419.0	9471	2.50 µg/L	99
		570.1 -> 483.0	1824		
PFBA	2.907	212.8 -> 168.9	54689	9.72 µg/L	100
PFBS	5.385	298.7 -> 79.9	19744	2.14 µg/L	99
		298.7 -> 98.8	7316		
PFDA	8.076	512.9 -> 469.0	53842	2.37 µg/L	96
		512.9 -> 219.0	8072		
PFDoDA	8.950	613.1 -> 569.0	40321	2.50 µg/L	98
		613.1 -> 319.0	5910		
PFDS	9.113	599.0 -> 79.9	7641	2.24 µg/L	96

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3707			
PFHpA	6.420	363.1 -> 319.0	60973	2.59	µg/L	98
		363.1 -> 169.0	9460			
PFHpS	7.735	449.0 -> 79.9	12227	2.18	µg/L	99
		449.0 -> 98.9	6288			
PFHxA	5.469	313.0 -> 269.0	52735	2.32	µg/L	100
		313.0 -> 118.9	2461			
PFHxS	7.180	398.7 -> 79.9	13595	2.10	µg/L	m 98
		398.7 -> 98.9	6613			
PFNA	7.596	463.0 -> 419.0	42579	2.36	µg/L	96
		463.0 -> 219.0	7847			
PFNS	8.693	548.8 -> 79.9	11524	2.27	µg/L	90
		548.8 -> 98.9	5829			
PFOA	7.066	413.0 -> 369.0	83543	2.34	µg/L	99
		413.0 -> 169.0	14184			
PFOS	8.228	498.9 -> 79.9	11499	2.09	µg/L	m 99
		498.9 -> 98.8	6227			
PFPeA	4.262	263.0 -> 219.0	69255	4.75	µg/L	100
PFPeS	6.471	349.1 -> 79.9	14577	2.27	µg/L	100
		349.1 -> 98.9	6554			
PFTeDA	9.677	713.1 -> 669.0	38049	2.67	µg/L	98
		713.1 -> 168.9	2566			
PFTrDA	9.333	663.0 -> 619.0	49856	2.67	µg/L	96
		663.0 -> 168.9	4514			
PFUnDA	8.518	563.1 -> 519.0	41224	2.31	µg/L	96
		563.1 -> 269.1	5821			
11CI-PF3OUdS	9.385	630.9 -> 450.9	56494	4.28	µg/L	89
		632.9 -> 452.9	18939			
9CI-PF3ONS	8.557	530.8 -> 351.0	95436	4.53	µg/L	98
		532.8 -> 353.0	28297			
ADONA	6.683	376.9 -> 250.9	245264	4.41	µg/L	94
		376.9 -> 84.8	66200			
HFPO-DA	5.832	284.9 -> 168.9	15885	4.71	µg/L	100
		284.9 -> 184.9	2172			
3:3FTCA	3.777	241.0 -> 177.0	10422	11.54	µg/L	99
		241.0 -> 117.0	1446			
5:3FTCA	6.161	341.0 -> 237.1	230900	58.65	µg/L	99
		341.0 -> 217.0	165570			
7:3FTCA	7.586	441.0 -> 316.9	106945	59.88	µg/L	98
		441.0 -> 336.9	221036			
EtFOSA	10.986	526.0 -> 219.0	20190	5.16	µg/L	96
		526.0 -> 169.0	24059			
EtFOSE	10.920	630.0 -> 58.9	49018	11.34	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	17518	5.15	µg/L	m 94
		511.9 -> 169.0	24109			
MeFOSE	10.686	616.1 -> 58.9	43738	11.75	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	3964	2.20	µg/L	100
		699.1 -> 98.8	2259			
NFDHA	5.348	295.0 -> 201.0	12091	4.82	µg/L	94
		295.0 -> 84.9	2908			
PFMBA	4.675	279.0 -> 85.1	49668	4.77	µg/L	100
PFMPA	3.426	229.0 -> 84.9	35793	4.78	µg/L	100
PFEESA	5.938	314.8 -> 134.9	126196	4.14	µg/L	100
		314.8 -> 82.9	4469			

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



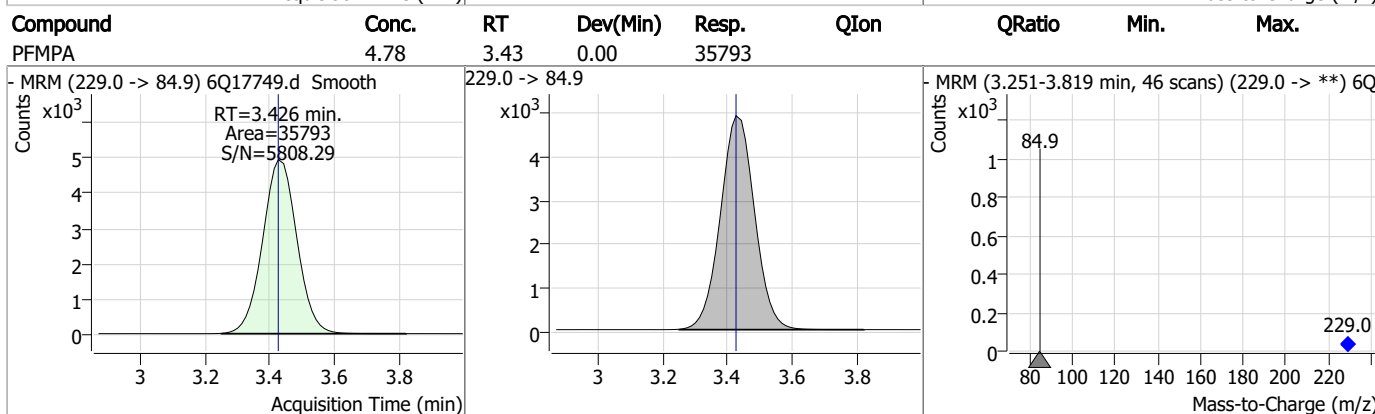
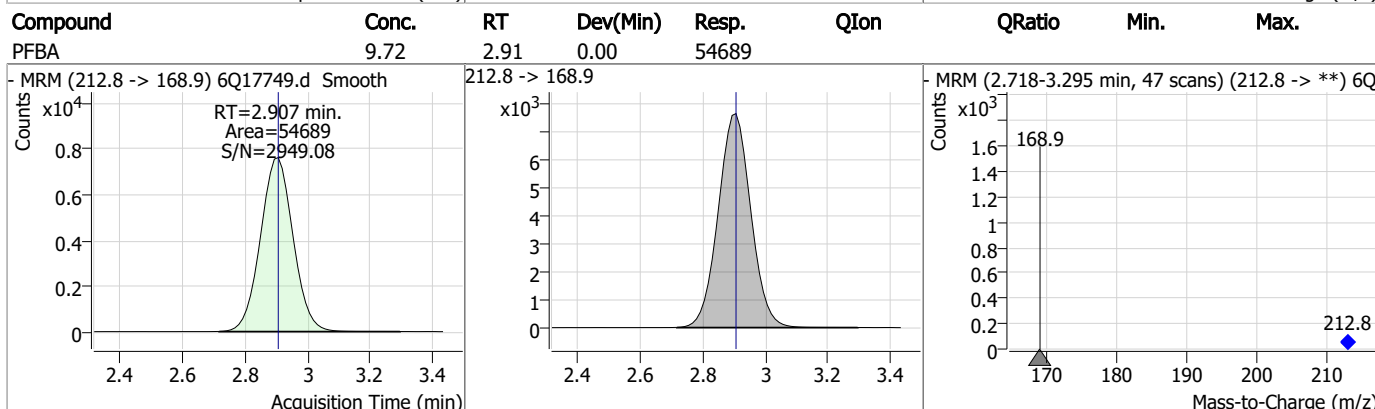
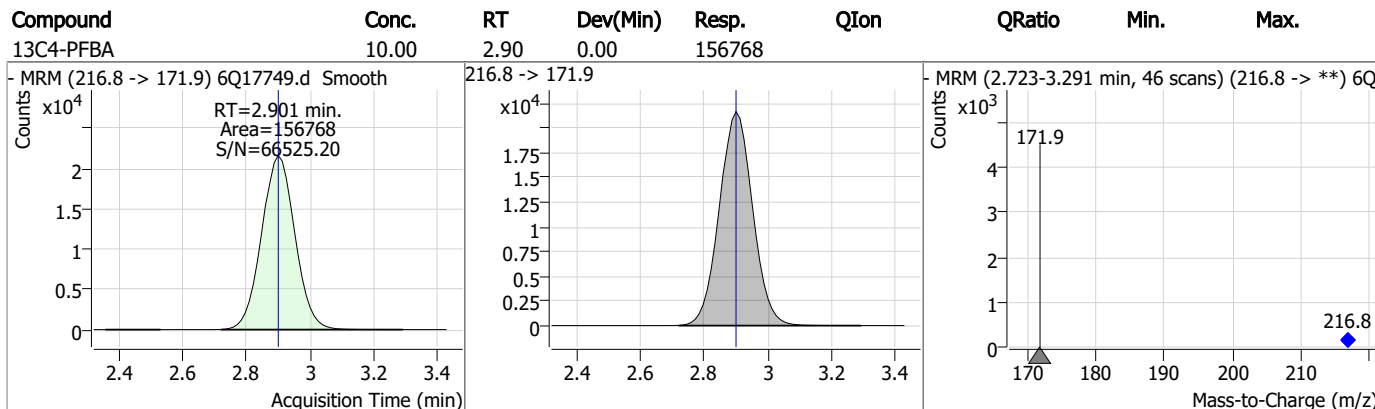
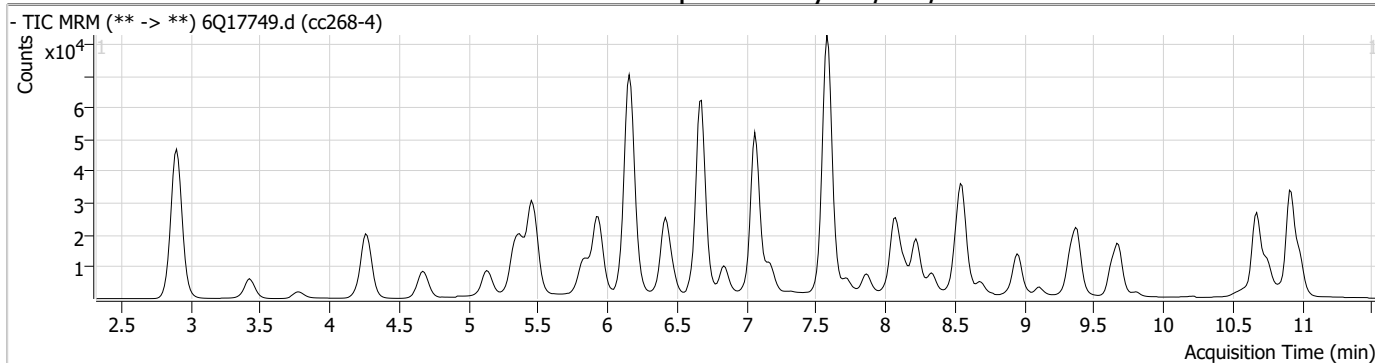
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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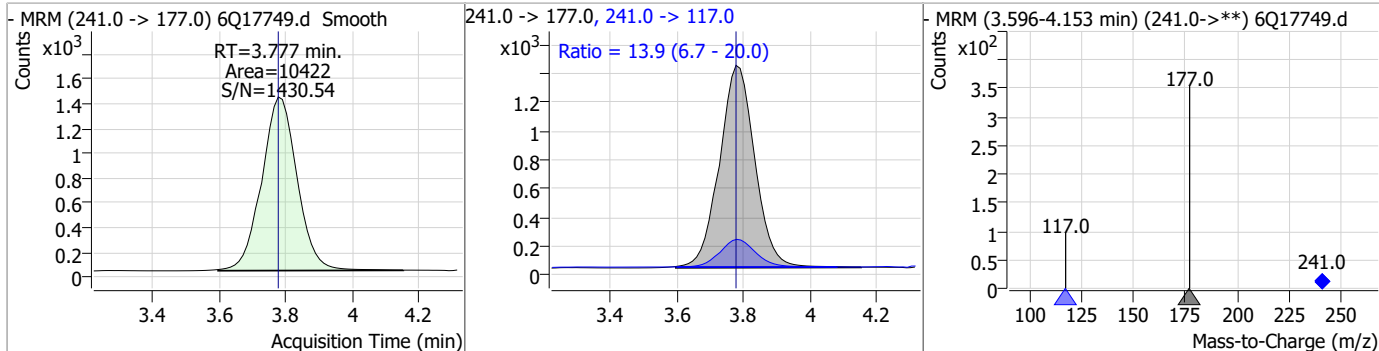
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### Perfluorinated Compounds by LC/MS/MS

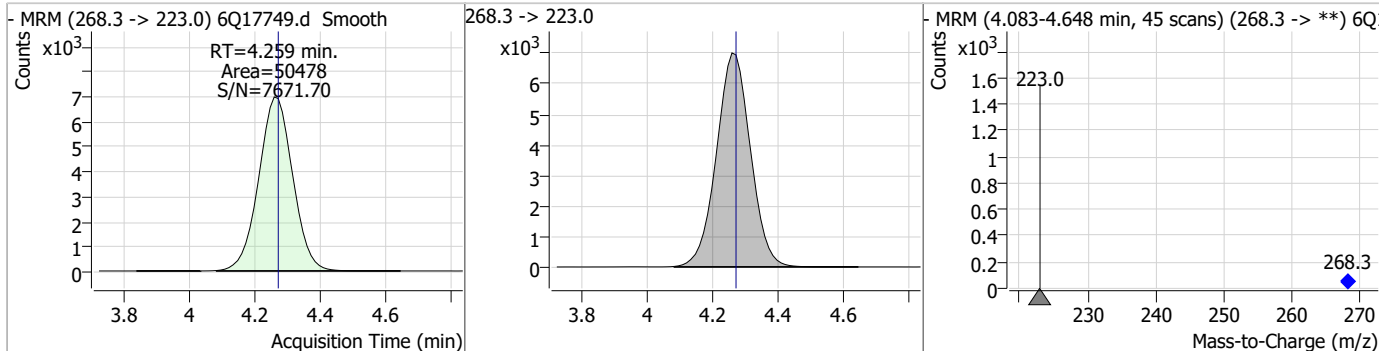


### Perfluorinated Compounds by LC/MS/MS

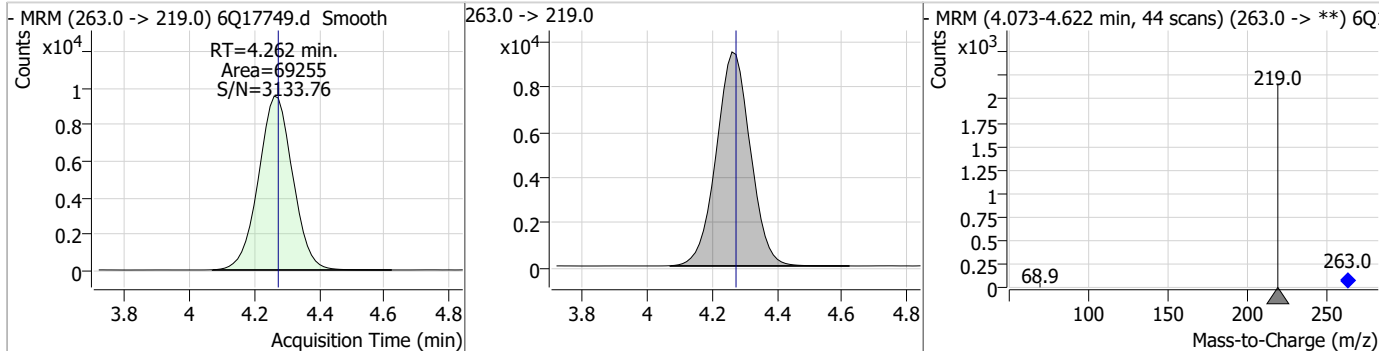
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.54	3.78	0.00	10422	241.0 -> 117.0	13.9	6.7	20.0



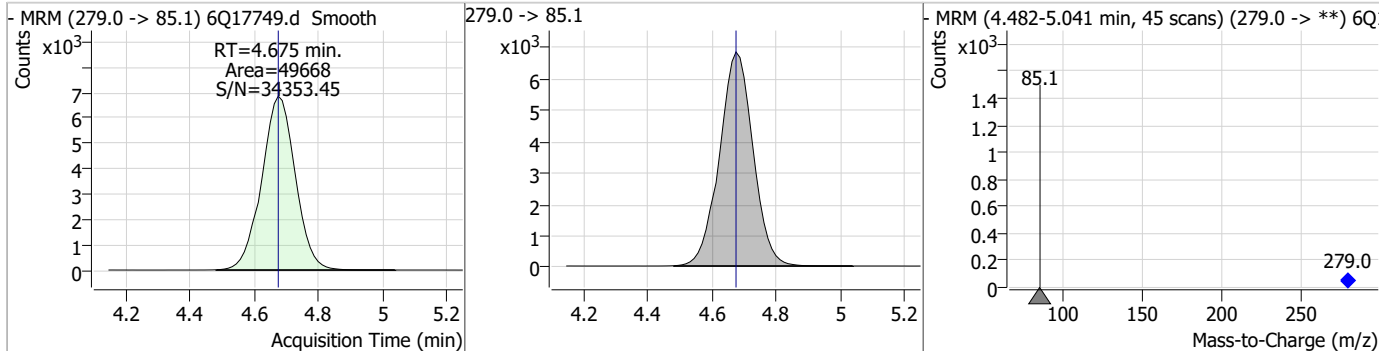
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.30	4.26	-0.01	50478				



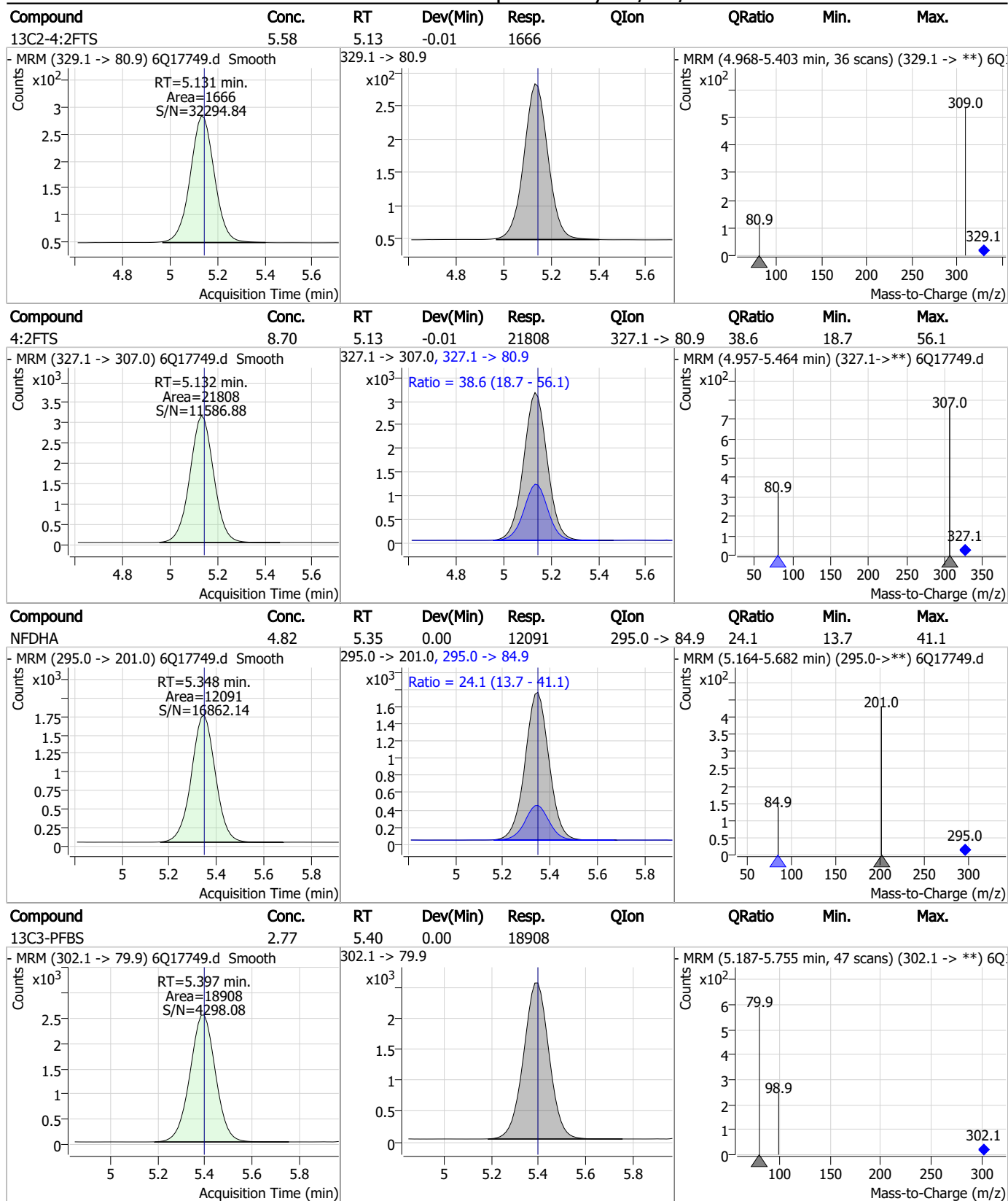
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.75	4.26	-0.01	69255				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.77	4.68	0.00	49668				



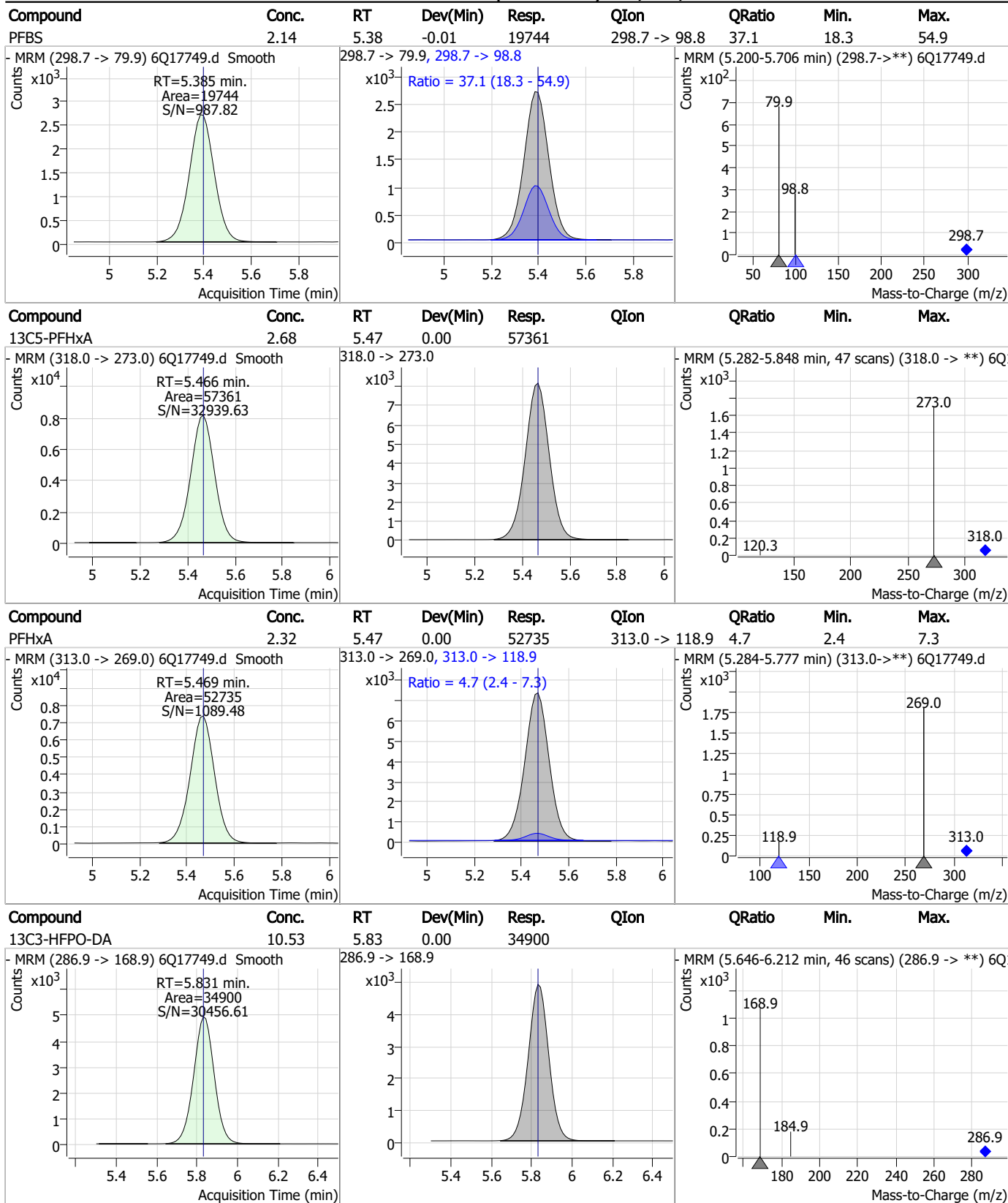
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

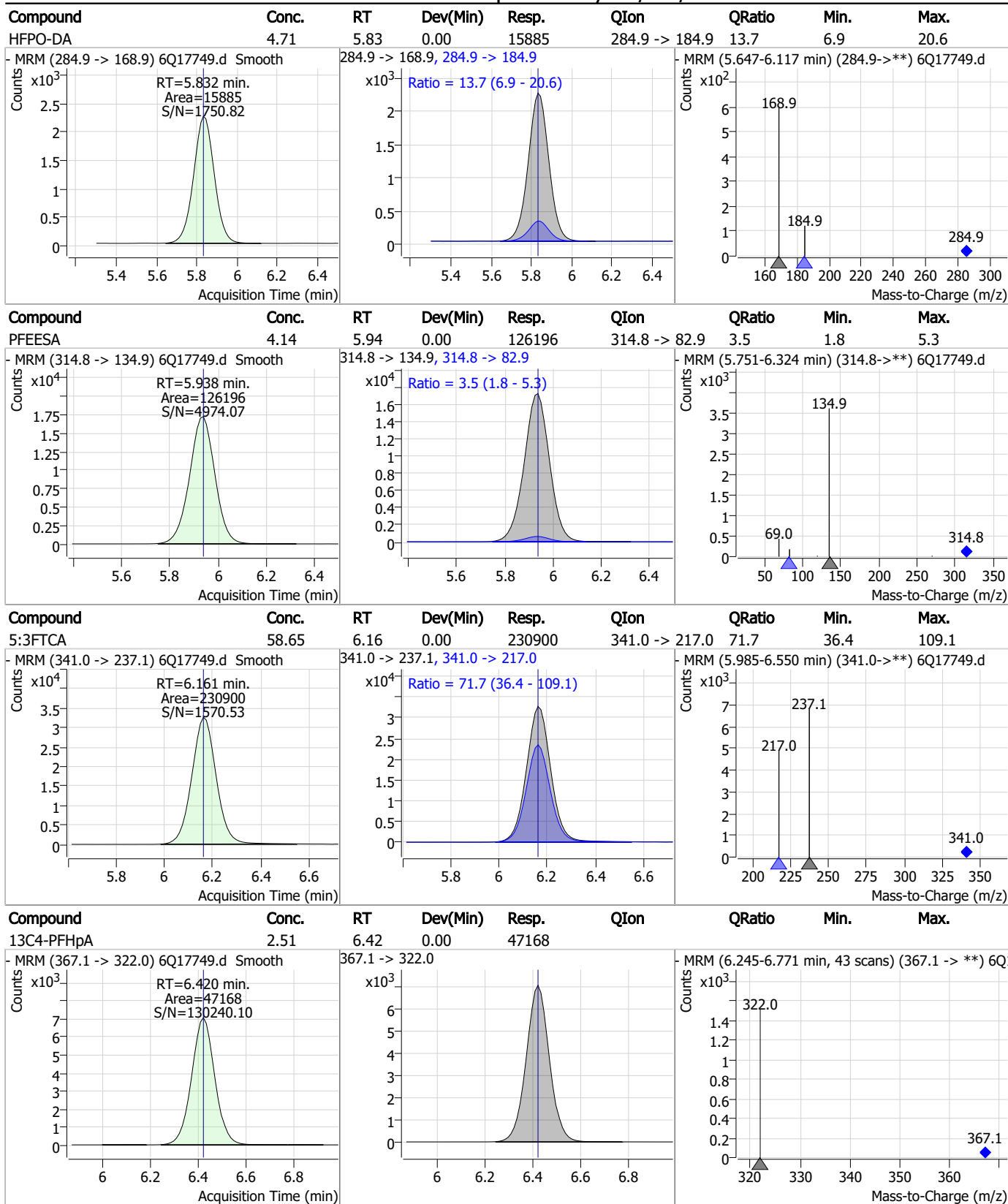


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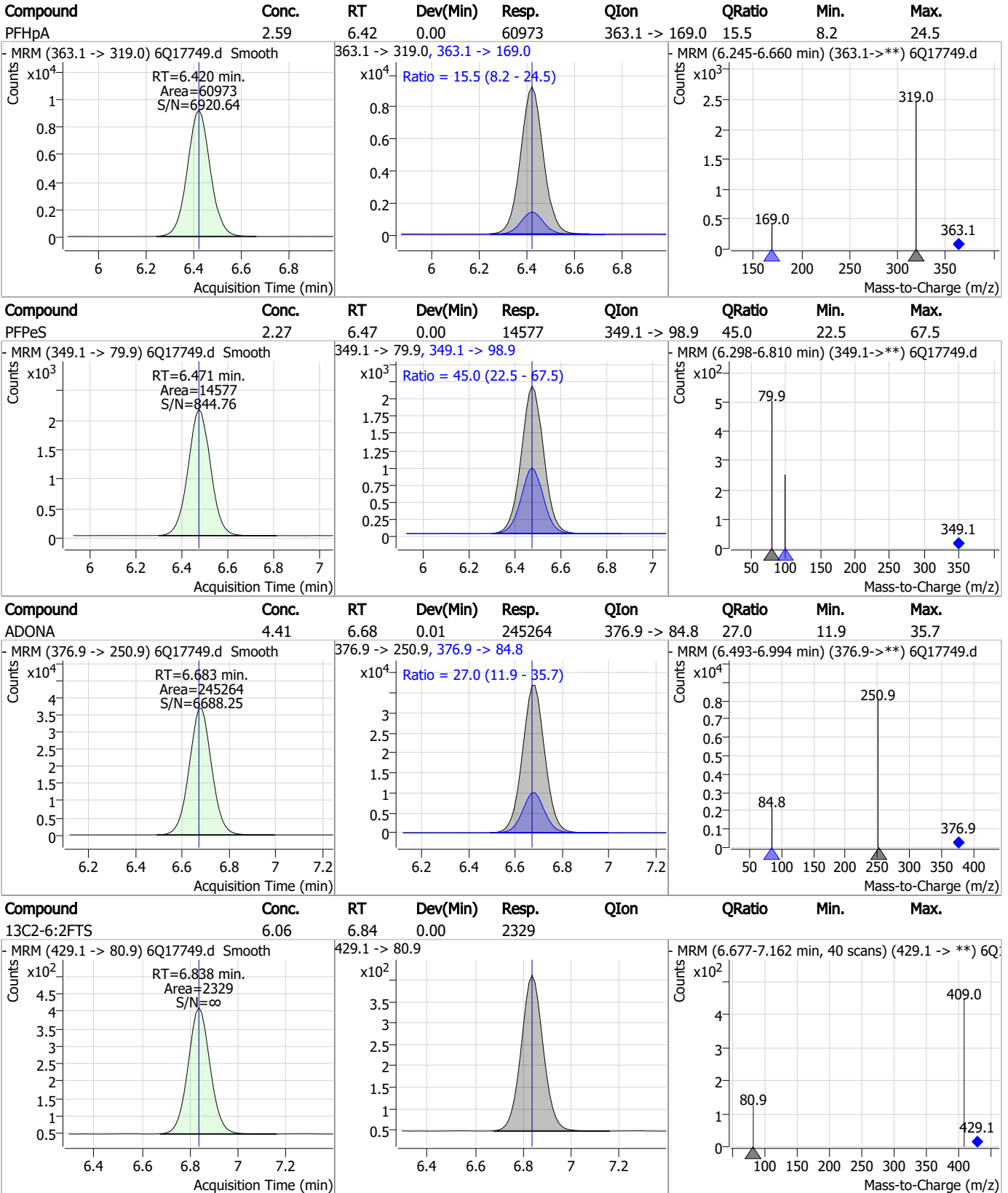


### Perfluorinated Compounds by LC/MS/MS



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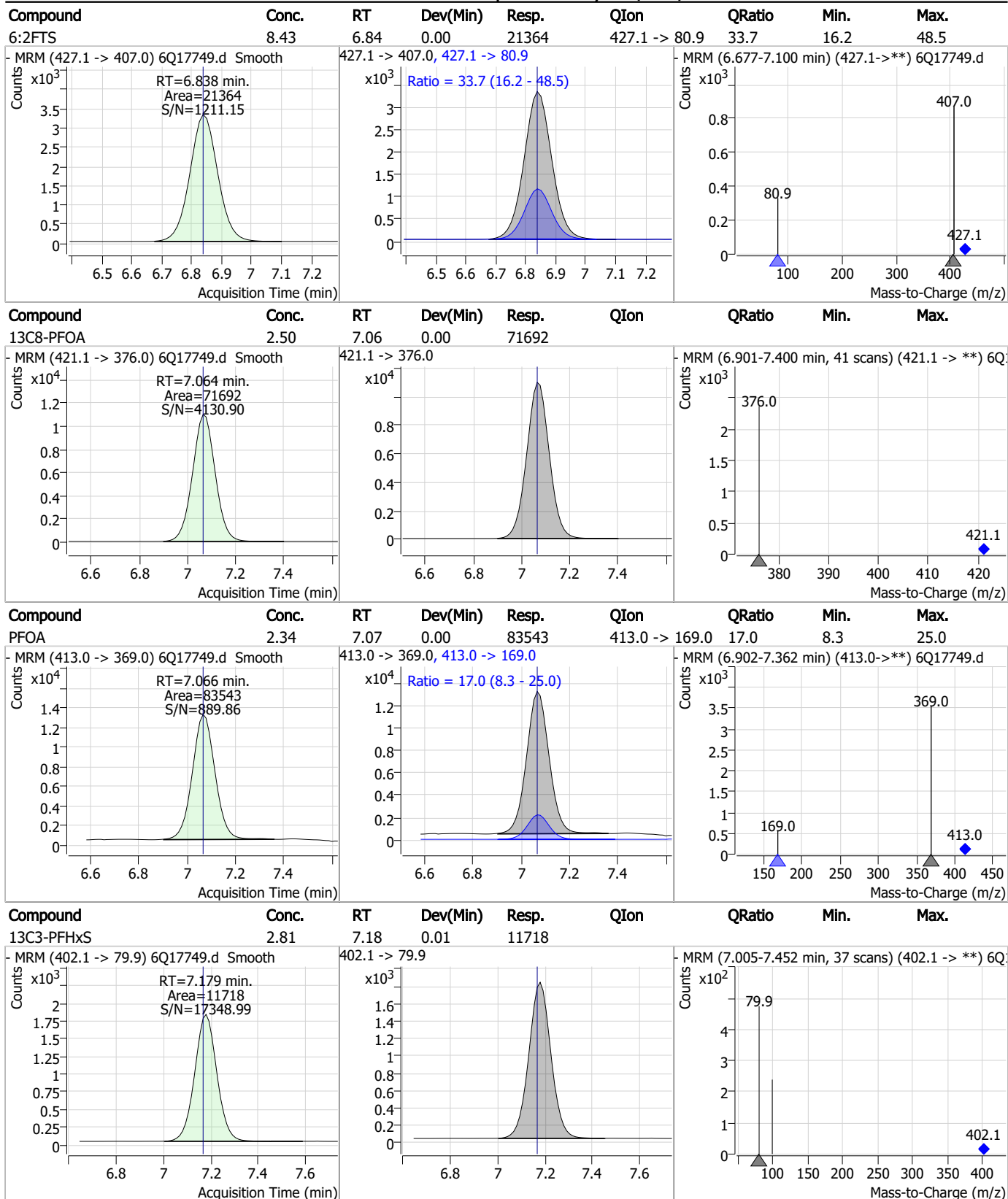
### Perfluorinated Compounds by LC/MS/MS



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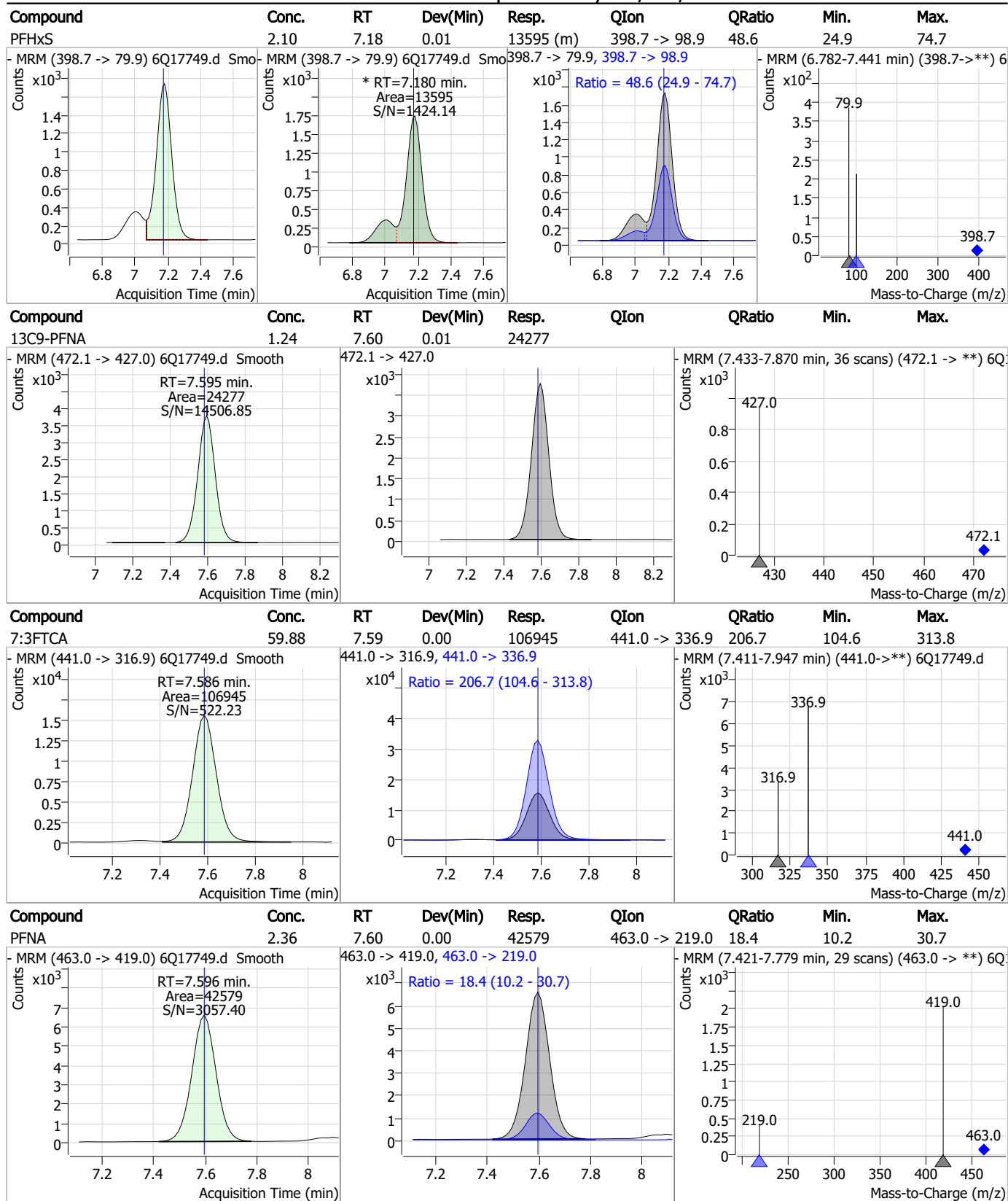


### Perfluorinated Compounds by LC/MS/MS



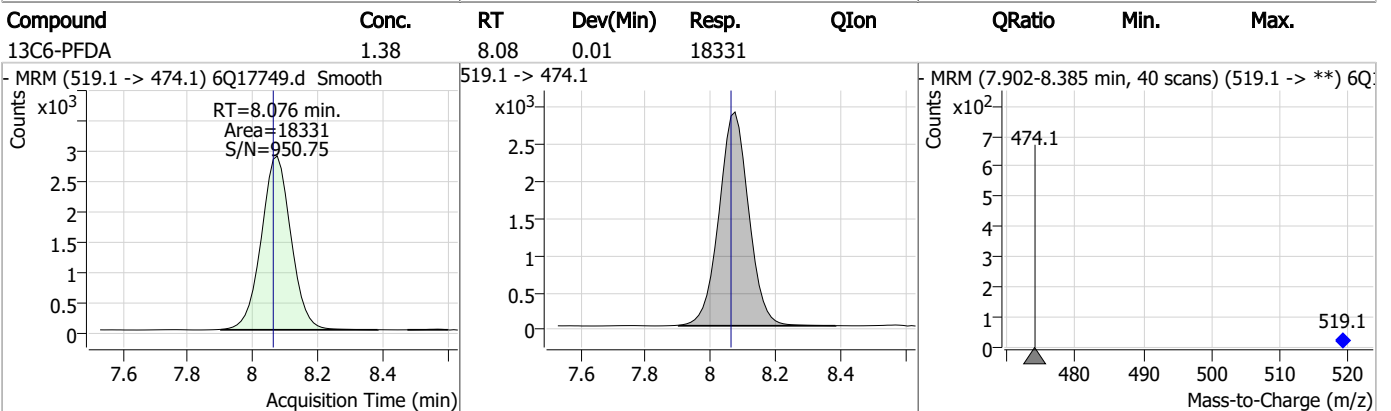
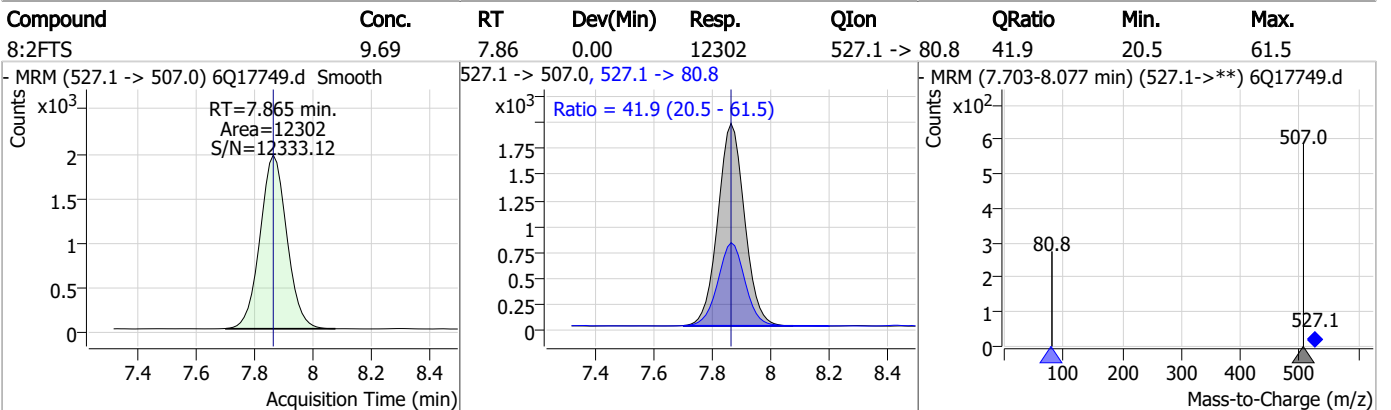
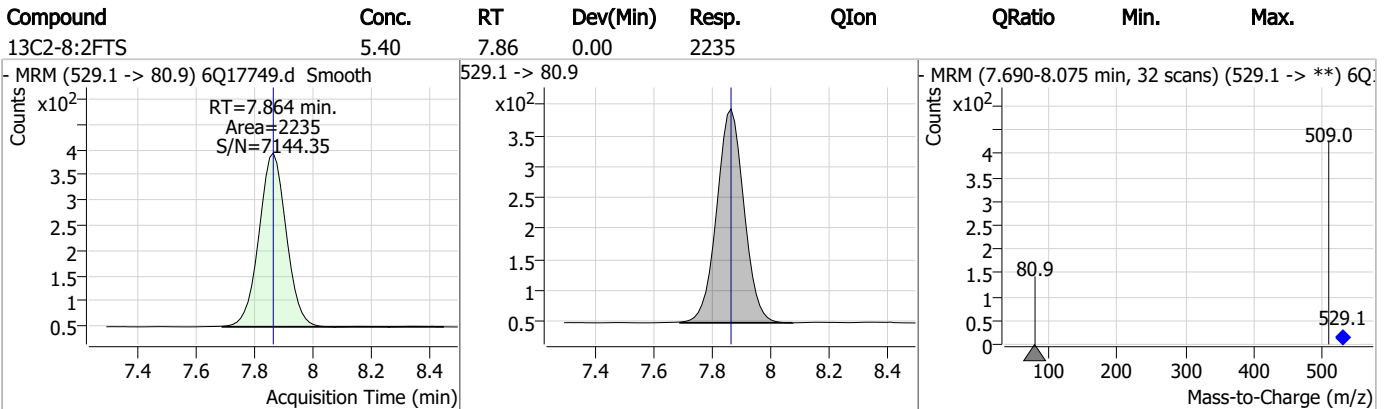
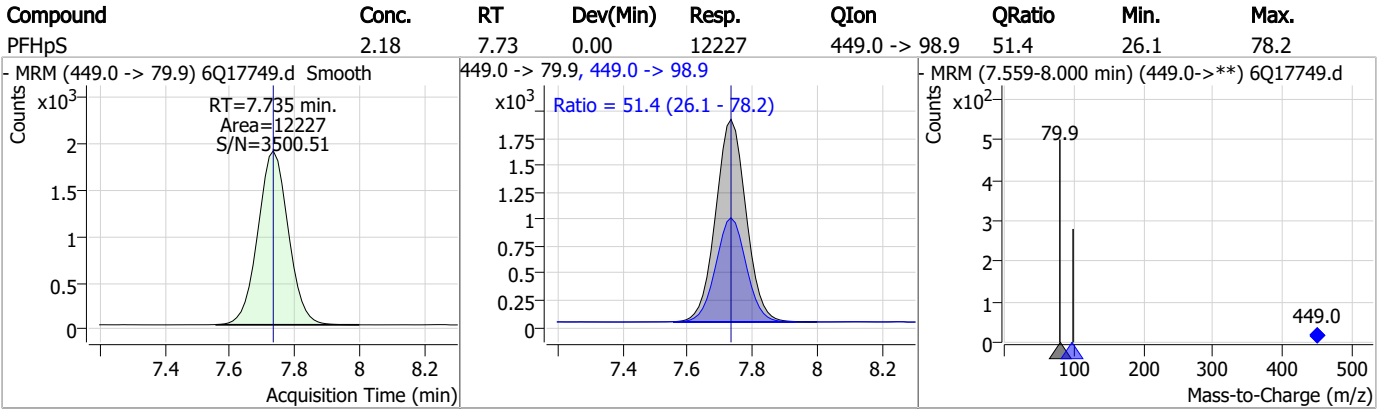
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### Perfluorinated Compounds by LC/MS/MS

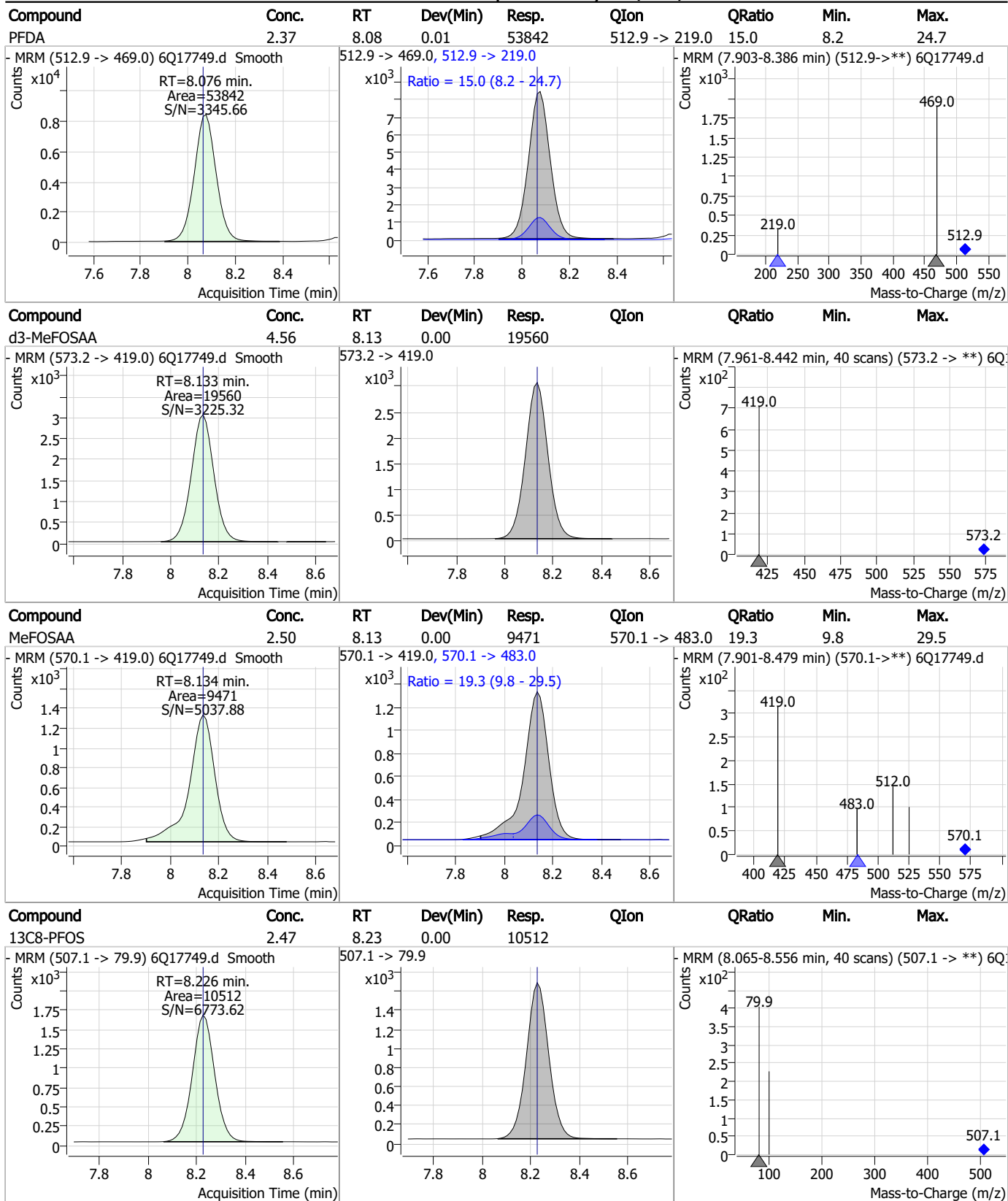


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### Perfluorinated Compounds by LC/MS/MS



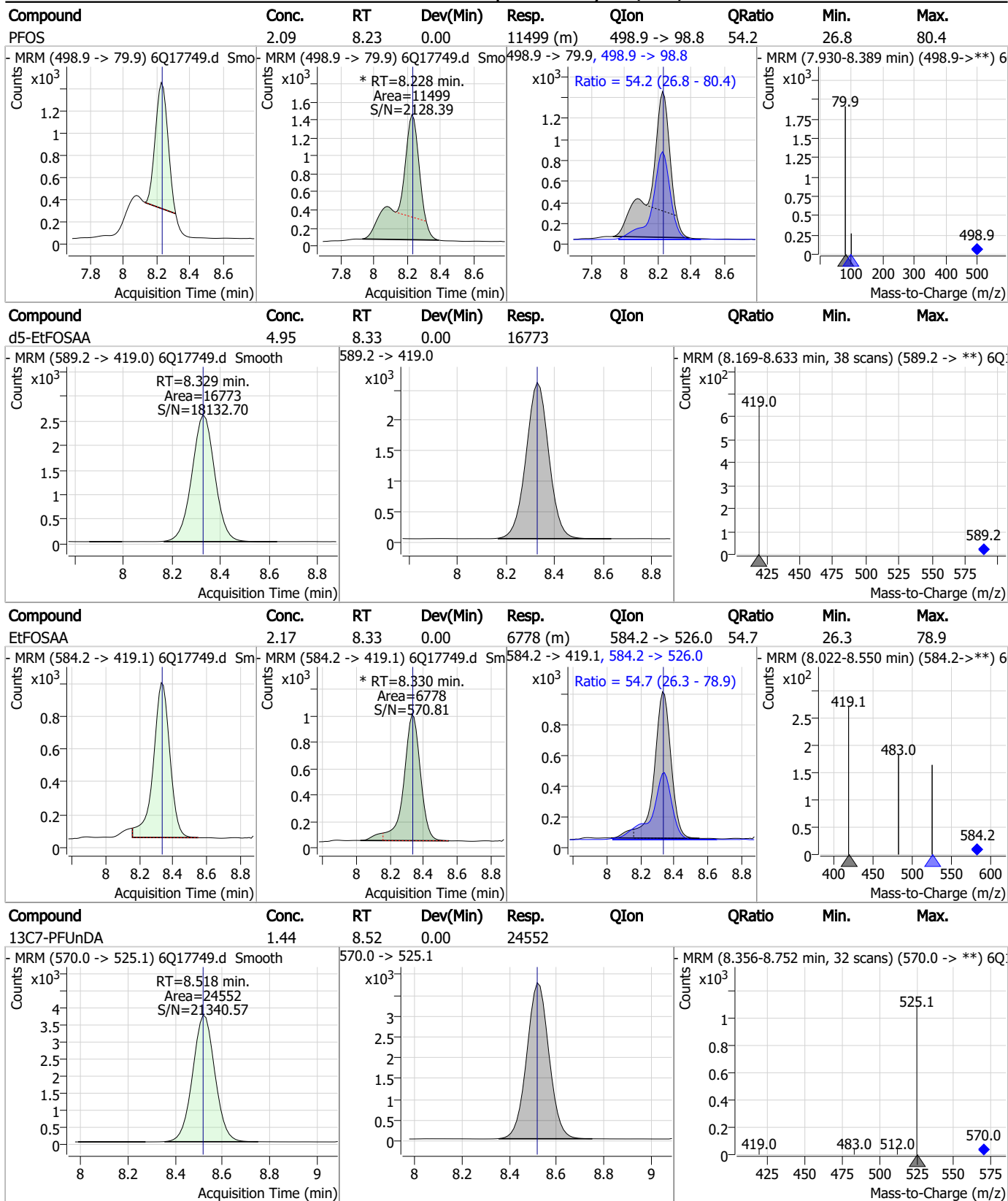
### Perfluorinated Compounds by LC/MS/MS



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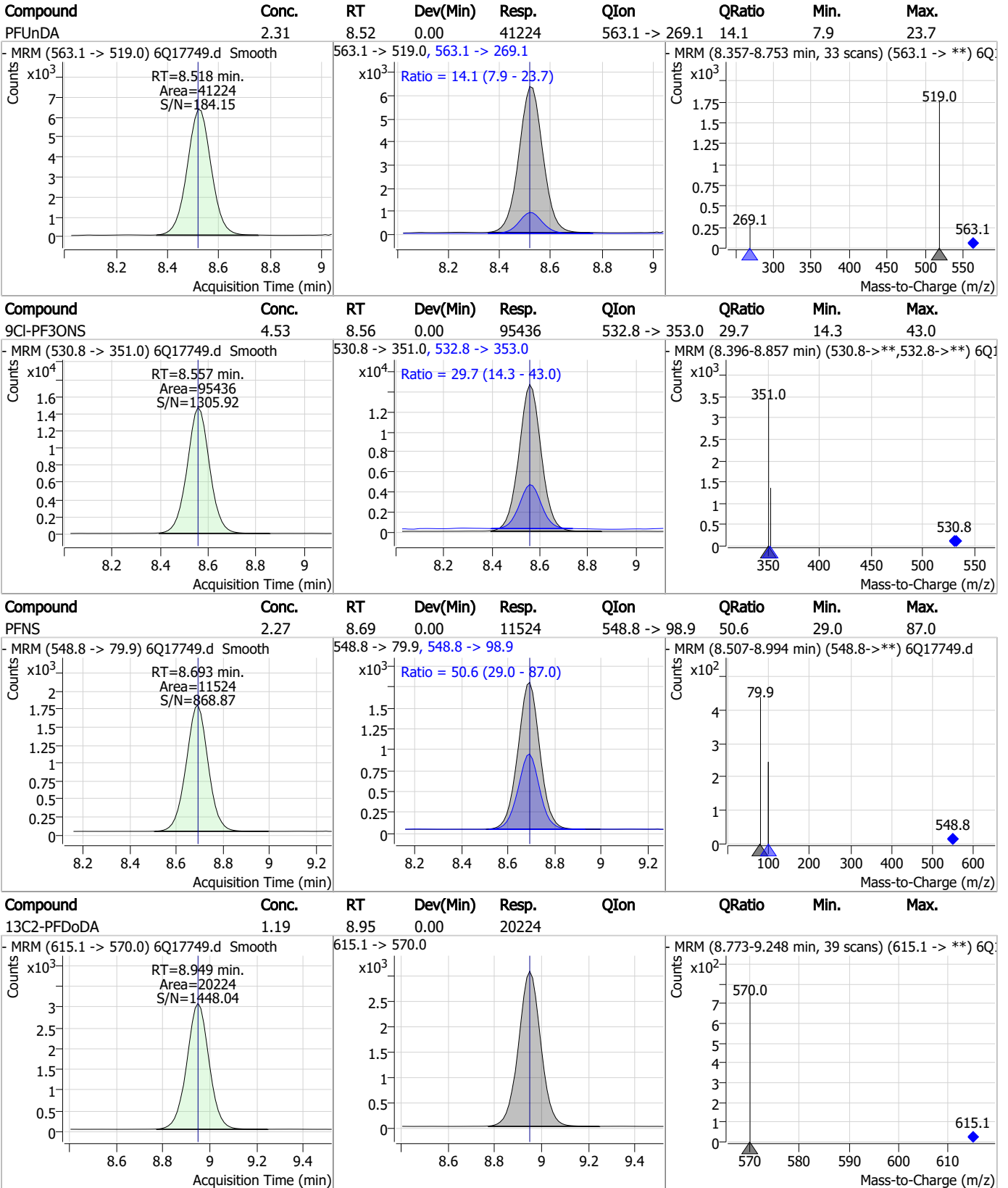
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

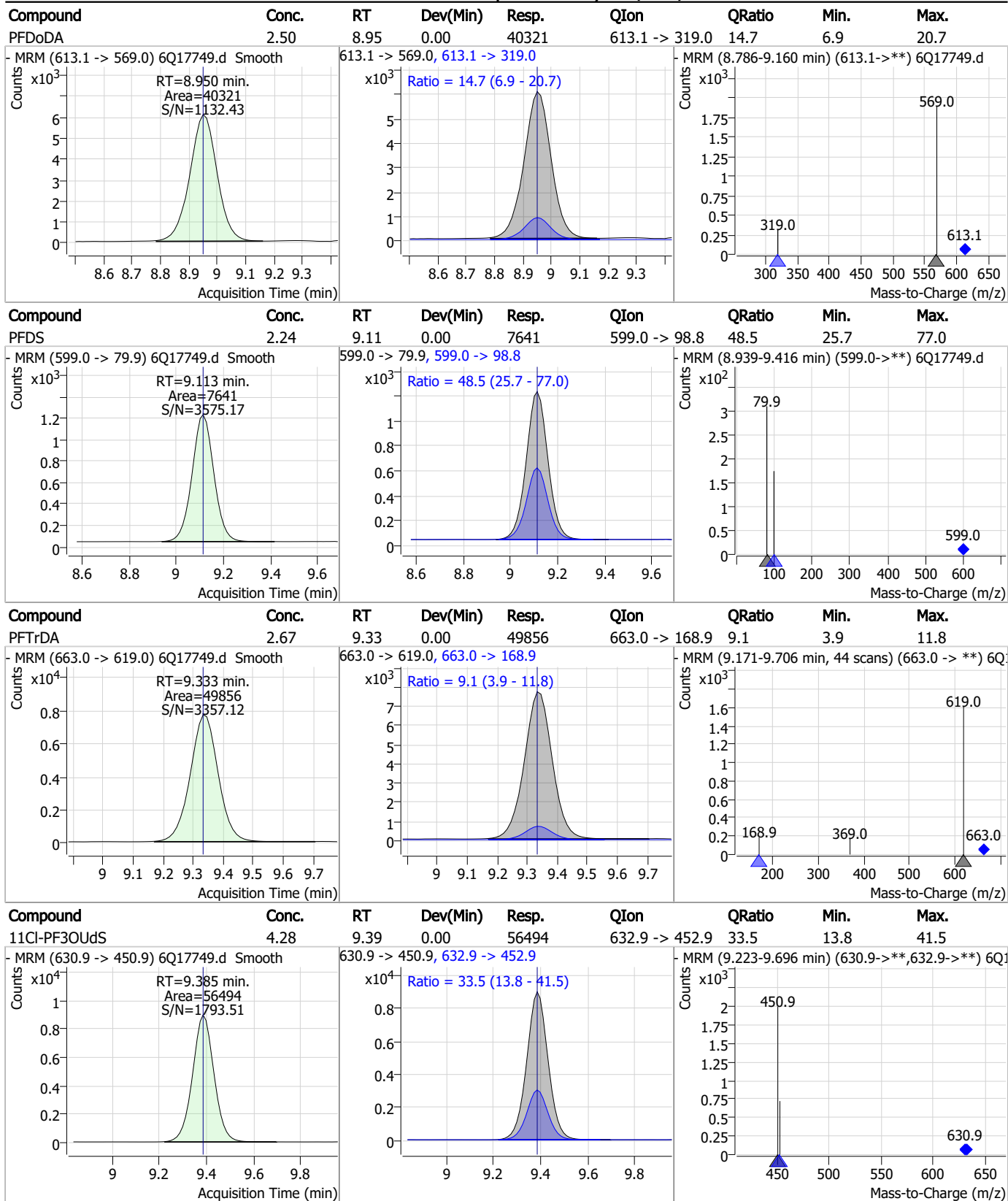


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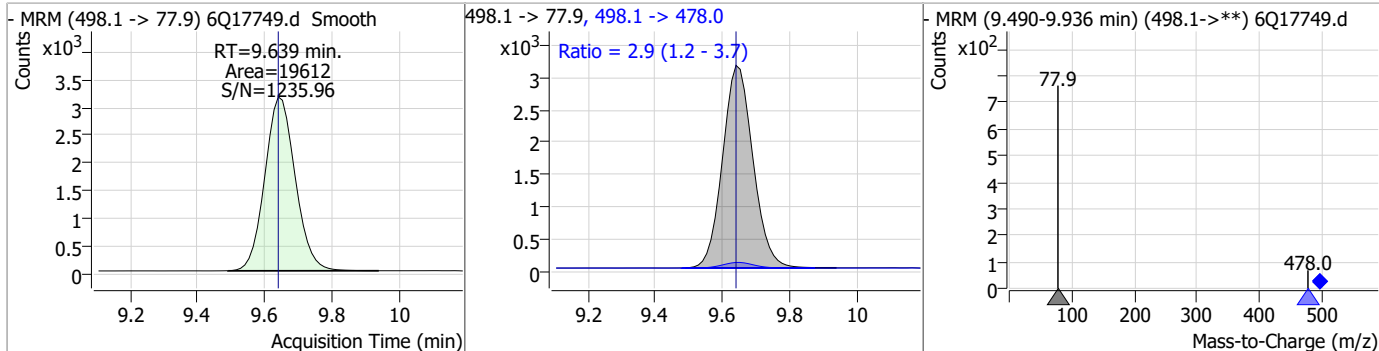
### Perfluorinated Compounds by LC/MS/MS



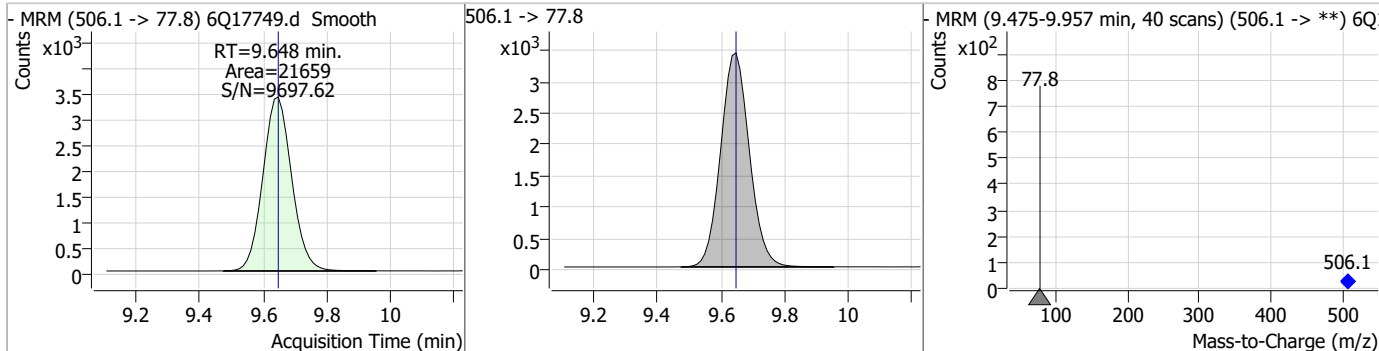
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### Perfluorinated Compounds by LC/MS/MS

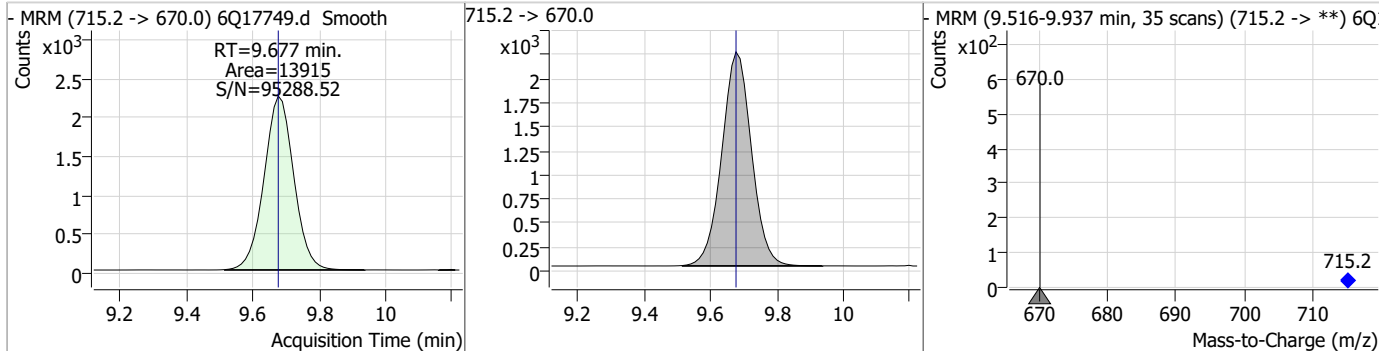
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.42	9.64	0.00	19612	498.1 -> 478.0	2.9	1.2	3.7



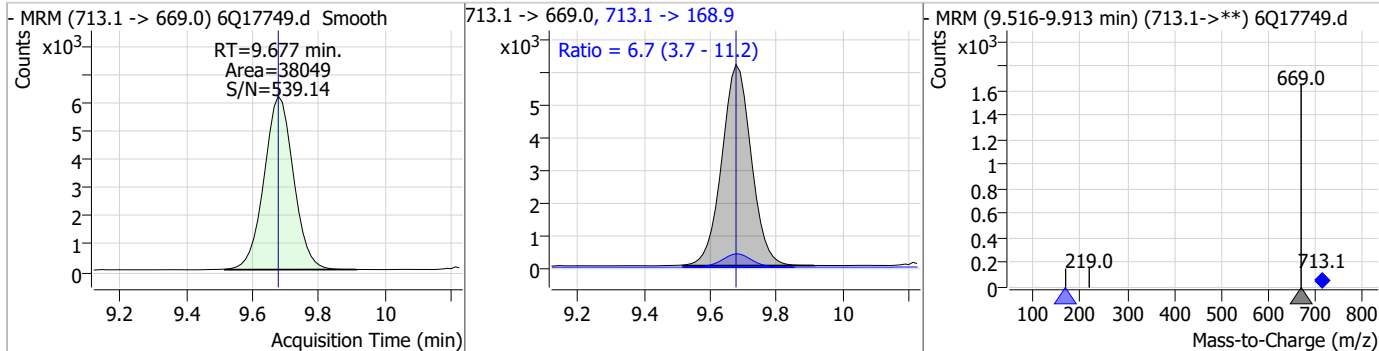
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.39	9.65	0.00	21659				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	9.68	0.00	13915				

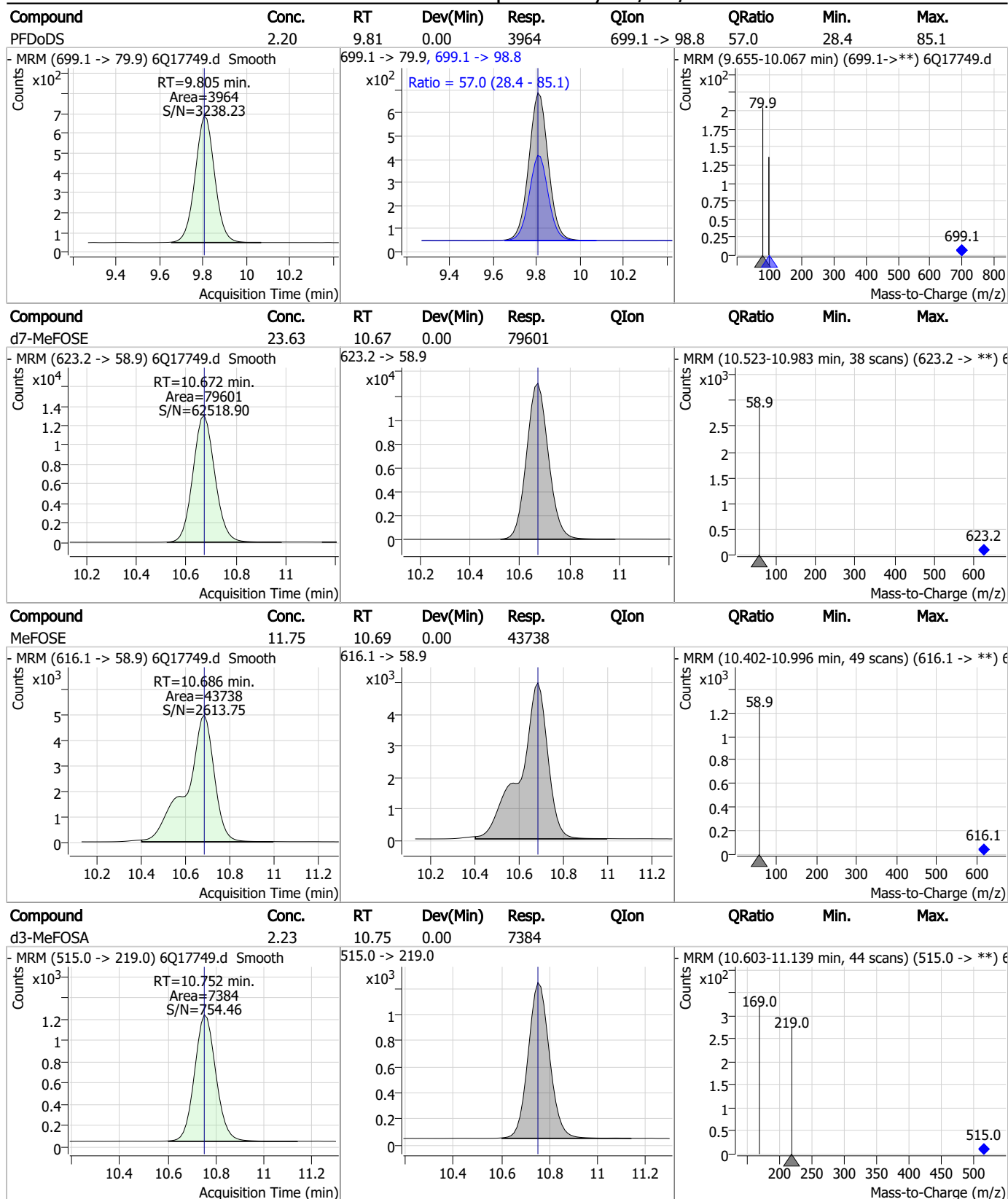


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.67	9.68	0.00	38049	713.1 -> 168.9	6.7	3.7	11.2



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### Perfluorinated Compounds by LC/MS/MS

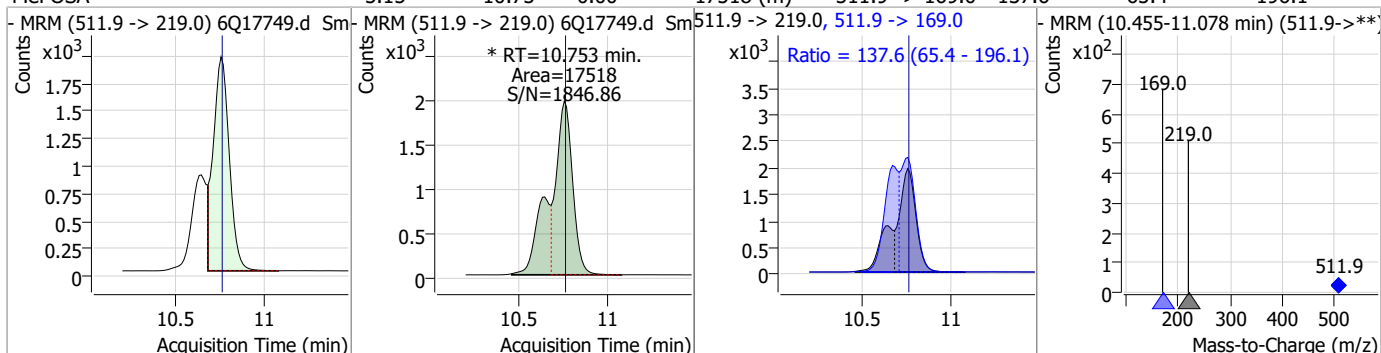


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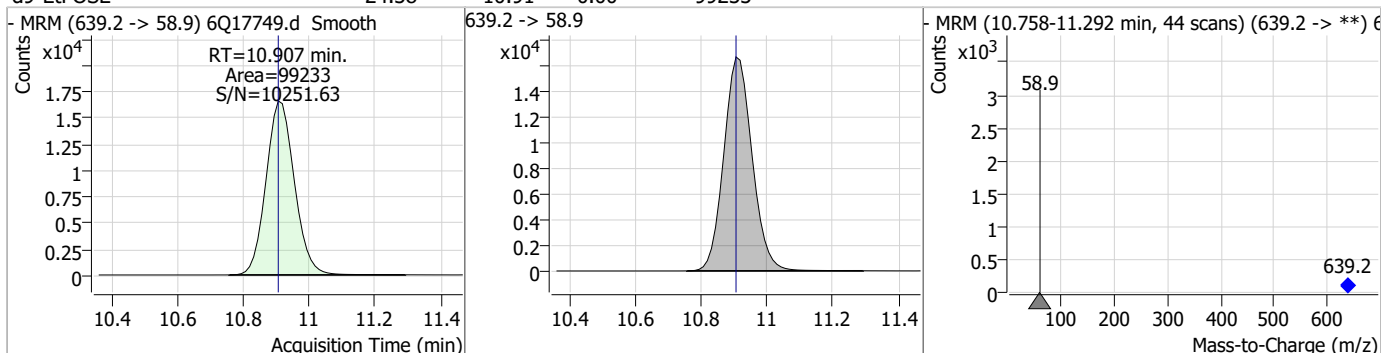


### Perfluorinated Compounds by LC/MS/MS

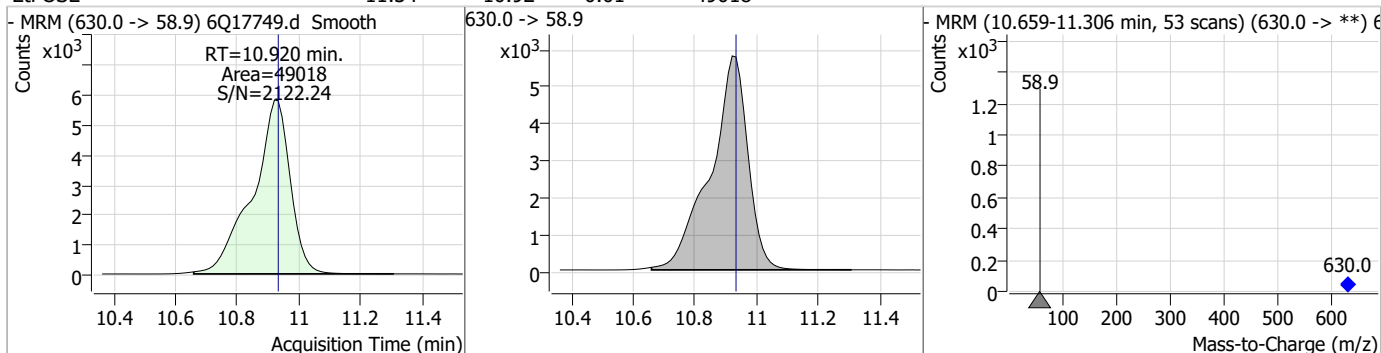
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.15	10.75	0.00	17518 (m)	511.9 -> 169.0	137.6	65.4	196.1



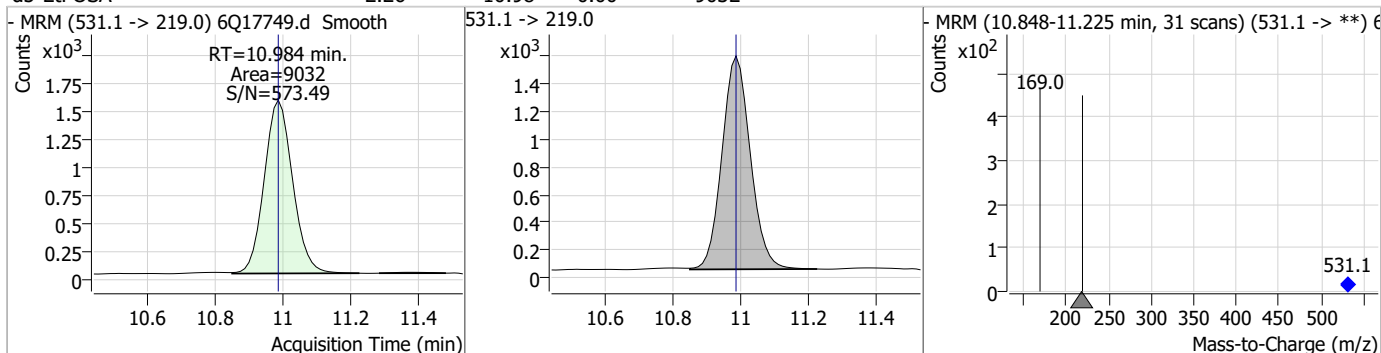
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.38	10.91	0.00	99233				



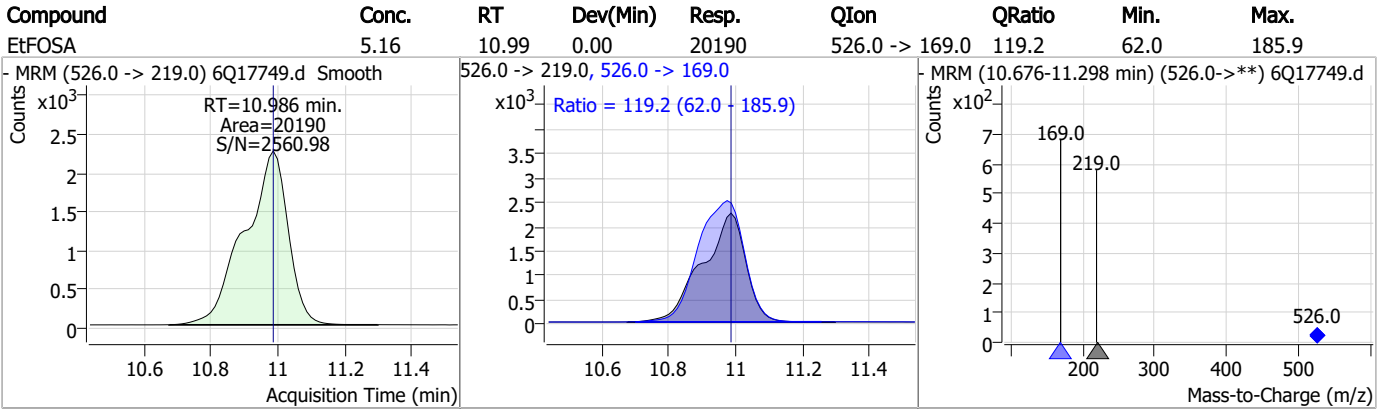
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.34	10.92	-0.01	49018				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.26	10.98	0.00	9032				



### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S6Q268-CC268      Method: EPA DRAFT 1633  
Lab FileID: 6Q17749.D      Analyst approved: 05/15/23 12:43 Martha Valls  
Injection Time: 05/12/23 14:54      Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSA	31506-32-8		10.75	Split peak

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## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17750.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 3:09:17 PM  
 Sample Name : cc268-1.0LL  
 Vial : P1-A2  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	159611	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	50373	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	59171	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	49895	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	69711	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	24755	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	18086	1.25 µg/L	0.012
M7-PFUnDA	8.518	570.0 -> 525.1	22994	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	21847	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	15126	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	21324	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	19454	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11565	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9819	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1664	5.00 µg/L	0.000
M2-6:2FTS	6.850	429.1 -> 80.9	1987	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2670	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	21619	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	34068	10.00 µg/L	0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	17528	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	85645	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	98371	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8807	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7664	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12844	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	66966	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8927	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	76618	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	21509	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	26829	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	47950	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.143	329.1 -> 80.9	1664	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-6:2FTS	6.850	429.1 -> 80.9	1987	4.54 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2670	5.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.3%		
13C2-PFDoDA	8.949	615.1 -> 570.0	21847	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-PFTeDA	9.677	715.2 -> 670.0	15126	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C3-PFBS	5.397	302.1 -> 79.9	19454	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	11565	2.43 µg/L	0.012

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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	2.901	216.8 -> 171.9	159611	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C4-PFHpA	6.420	367.1 -> 322.0	49895	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C5-PFHxA	5.466	318.0 -> 273.0	59171	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C5-PFPeA	4.272	268.3 -> 223.0	50373	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C6-PFDA	8.076	519.1 -> 474.1	18086	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C7-PFUnDA	8.518	570.0 -> 525.1	22994	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C8-FOSA	9.648	506.1 -> 77.8	21324	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C8-PFOA	7.064	421.1 -> 376.0	69711	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C8-PFOS	8.226	507.1 -> 79.9	9819	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C9-PFNA	7.595	472.1 -> 427.0	24755	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.8%		
d3-MeFOSAA	8.133	573.2 -> 419.0	21619	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C3-HFPO-DA	5.844	286.9 -> 168.9	34068	9.71 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.1%		
d3-MeFOSA	10.752	515.0 -> 219.0	7664	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
d5-EtFOSAA	8.329	589.2 -> 419.0	17528	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.1%		
d7-MeFOSE	10.672	623.2 -> 58.9	85645	27.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 108.3%		
d9-EtFOSE	10.907	639.2 -> 58.9	98371	25.73 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 102.9%		
d5-EtFOSA	10.984	531.1 -> 219.0	8807	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.0%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.144	327.1 -> 307.0	1620	0.65 µg/L	92
		327.1 -> 80.9	685		
6:2FTS	6.838	427.1 -> 407.0	1692	0.78 µg/L	93
		427.1 -> 80.9	616		
8:2FTS	7.865	527.1 -> 507.0	1074	0.71 µg/L	92
		527.1 -> 80.8	390		
EtFOSAA	8.330	584.2 -> 419.1	526	0.16 µg/L	99
		584.2 -> 526.0	281		
FOSA	9.639	498.1 -> 77.9	1560	0.20 µg/L	100
		498.1 -> 478.0	41		
MeFOSAA	8.134	570.1 -> 419.0	728	0.17 µg/L	m 90
		570.1 -> 483.0	112		
PFBA	2.907	212.8 -> 168.9	4329	0.76 µg/L	100
PFBS	5.398	298.7 -> 79.9	1468	0.15 µg/L	94
		298.7 -> 98.8	587		
PFDA	8.076	512.9 -> 469.0	4011	0.18 µg/L	95
		512.9 -> 219.0	583		
PFDODA	8.950	613.1 -> 569.0	3739	0.21 µg/L	95
		613.1 -> 319.0	434		
PFDS	9.113	599.0 -> 79.9	628	0.20 µg/L	93

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	291			
PFHpA	6.433	363.1 -> 319.0	4690	0.19	µg/L	98
		363.1 -> 169.0	802			
PFHpS	7.735	449.0 -> 79.9	998	0.19	µg/L	91
		449.0 -> 98.9	457			
PFHxA	5.469	313.0 -> 269.0	4450	0.19	µg/L	99
		313.0 -> 118.9	229			
PFHxS	7.180	398.7 -> 79.9	1145	0.18	µg/L	m 95
		398.7 -> 98.9	609			
PFNA	7.596	463.0 -> 419.0	3607	0.20	µg/L	93
		463.0 -> 219.0	622			
PFNS	8.693	548.8 -> 79.9	891	0.19	µg/L	93
		548.8 -> 98.9	471			
PFOA	7.066	413.0 -> 369.0	7790	0.22	µg/L	m 99
		413.0 -> 169.0	1269			
PFOS	8.228	498.9 -> 79.9	992	0.19	µg/L	m 83
		498.9 -> 98.8	415			
PFPeA	4.274	263.0 -> 219.0	5676	0.39	µg/L	100
PFPeS	6.471	349.1 -> 79.9	1113	0.18	µg/L	99
		349.1 -> 98.9	508			
PFTeDA	9.677	713.1 -> 669.0	2879	0.19	µg/L	99
		713.1 -> 168.9	228			
PFTrDA	9.333	663.0 -> 619.0	3776	0.19	µg/L	98
		663.0 -> 168.9	324			
PFUnDA	8.518	563.1 -> 519.0	3263	0.20	µg/L	99
		563.1 -> 269.1	501			
11CI-PF3OUdS	9.385	630.9 -> 450.9	4677	0.36	µg/L	88
		632.9 -> 452.9	1587			
9CI-PF3ONS	8.557	530.8 -> 351.0	7620	0.37	µg/L	84
		532.8 -> 353.0	2837			
ADONA	6.683	376.9 -> 250.9	20300	0.37	µg/L	93
		376.9 -> 84.8	5519			
HFPO-DA	5.845	284.9 -> 168.9	1313	0.40	µg/L	100
		284.9 -> 184.9	181			
3:3FTCA	3.790	241.0 -> 177.0	865	0.96	µg/L	93
		241.0 -> 117.0	142			
5:3FTCA	6.174	341.0 -> 237.1	20406	5.02	µg/L	99
		341.0 -> 217.0	14989			
7:3FTCA	7.586	441.0 -> 316.9	9586	5.20	µg/L	85
		441.0 -> 336.9	17830			
EtFOSA	10.986	526.0 -> 219.0	1480	0.39	µg/L	88
		526.0 -> 169.0	2028			
EtFOSE	10.920	630.0 -> 58.9	3919	0.91	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	1414	0.40	µg/L	99
		511.9 -> 169.0	1832			
MeFOSE	10.686	616.1 -> 58.9	3574	0.89	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	363	0.22	µg/L	98
		699.1 -> 98.8	199			
NFDHA	5.348	295.0 -> 201.0	1027	0.40	µg/L	100
		295.0 -> 84.9	283			
PFMBA	4.688	279.0 -> 85.1	3914	0.38	µg/L	100
PFMPA	3.426	229.0 -> 84.9	2900	0.39	µg/L	100
PFEESA	5.938	314.8 -> 134.9	10420	0.33	µg/L	99
		314.8 -> 82.9	409			

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

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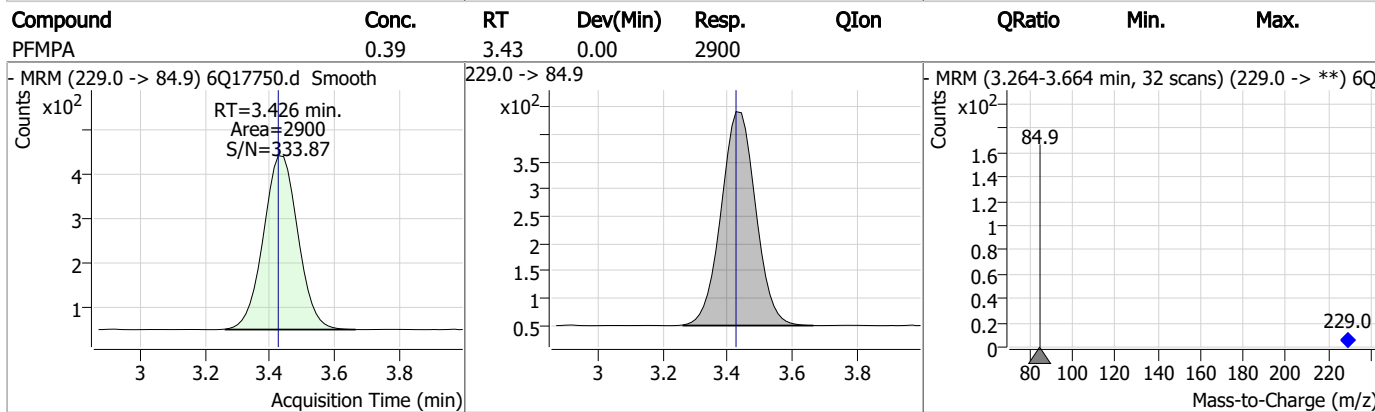
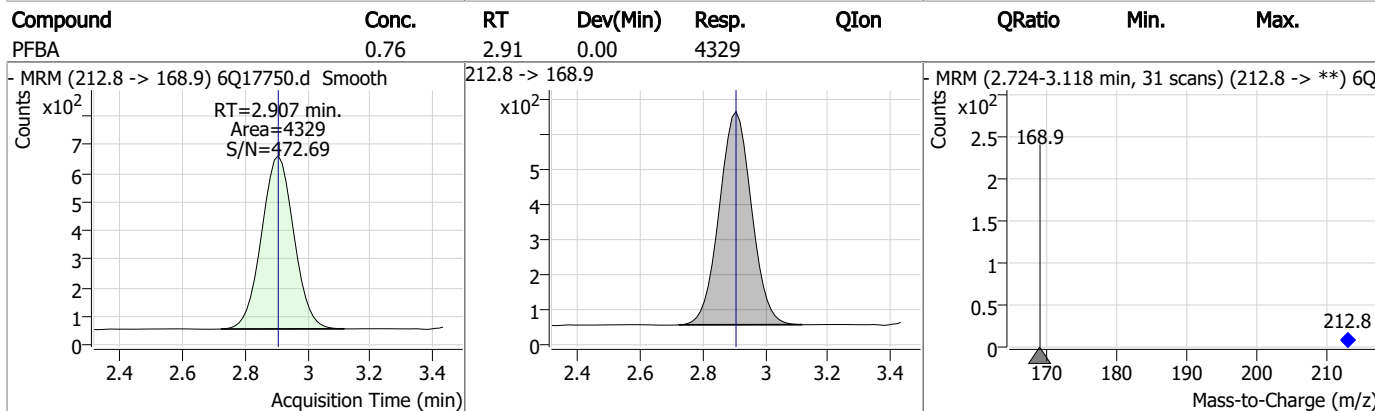
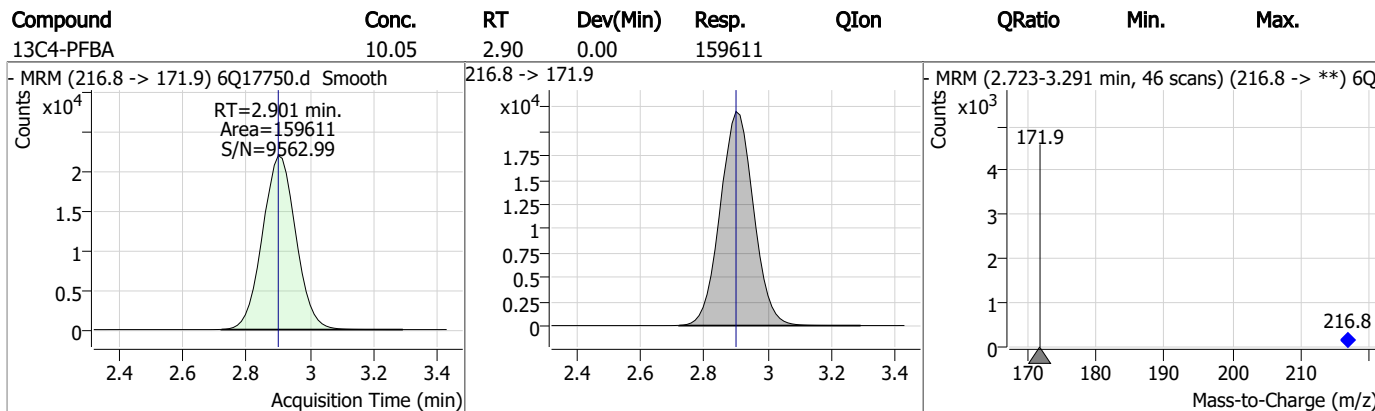
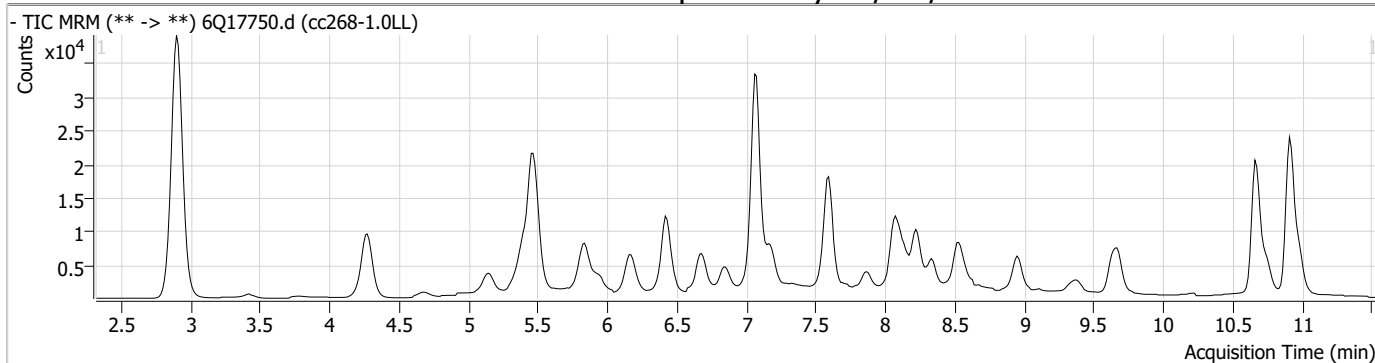
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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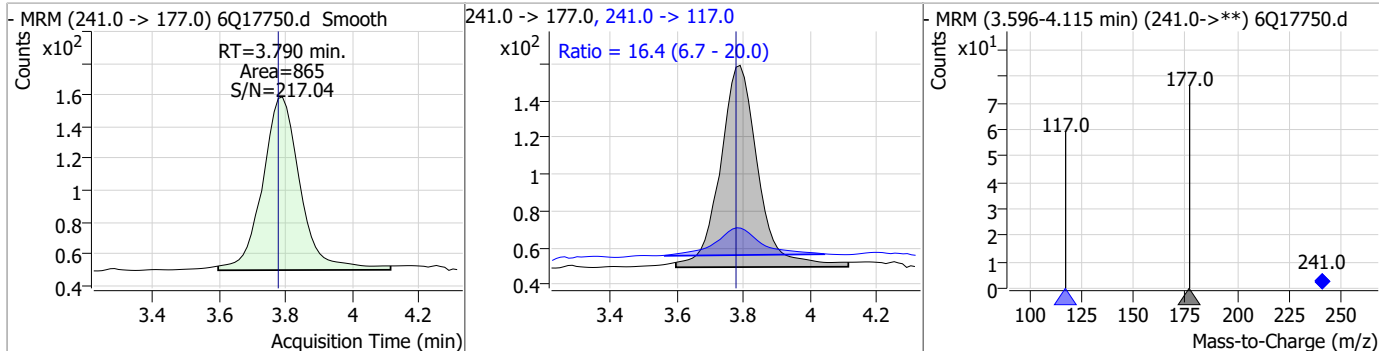
### Perfluorinated Compounds by LC/MS/MS



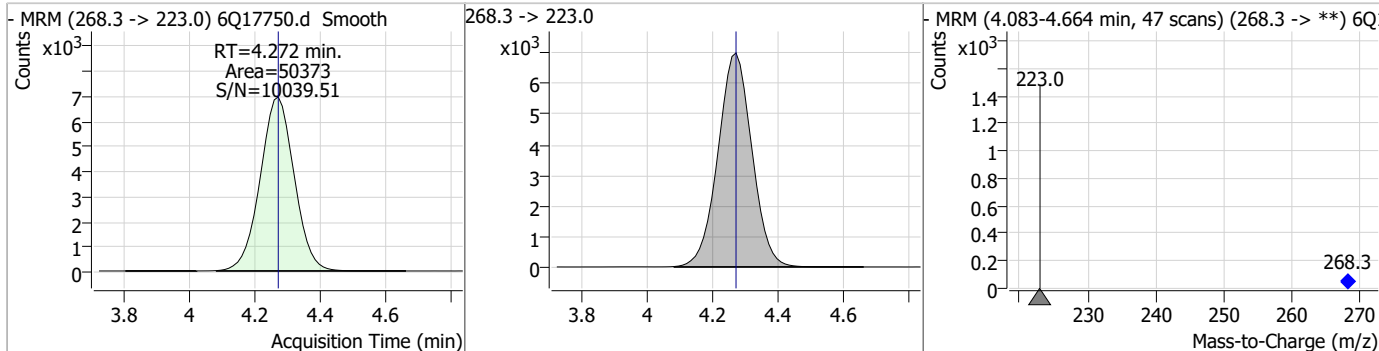
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### Perfluorinated Compounds by LC/MS/MS

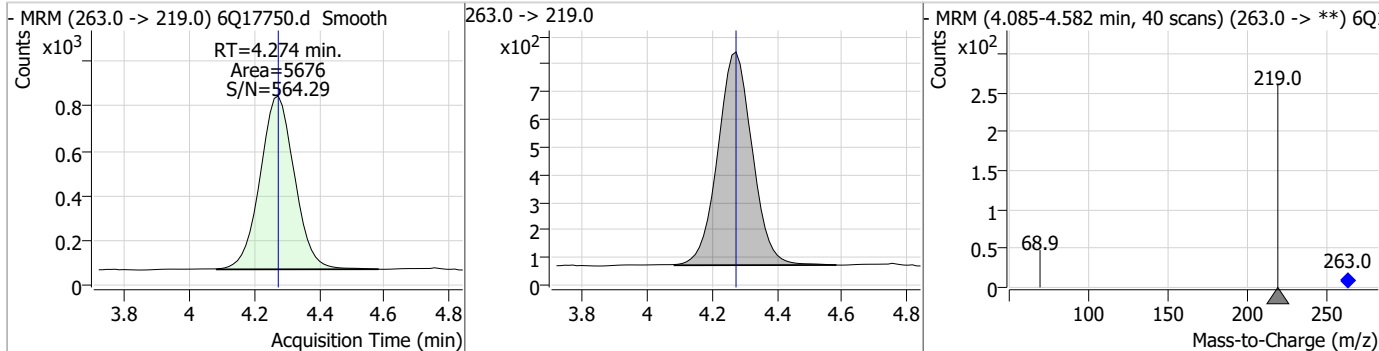
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	0.96	3.79	0.01	865	241.0 -> 117.0	16.4	6.7	20.0



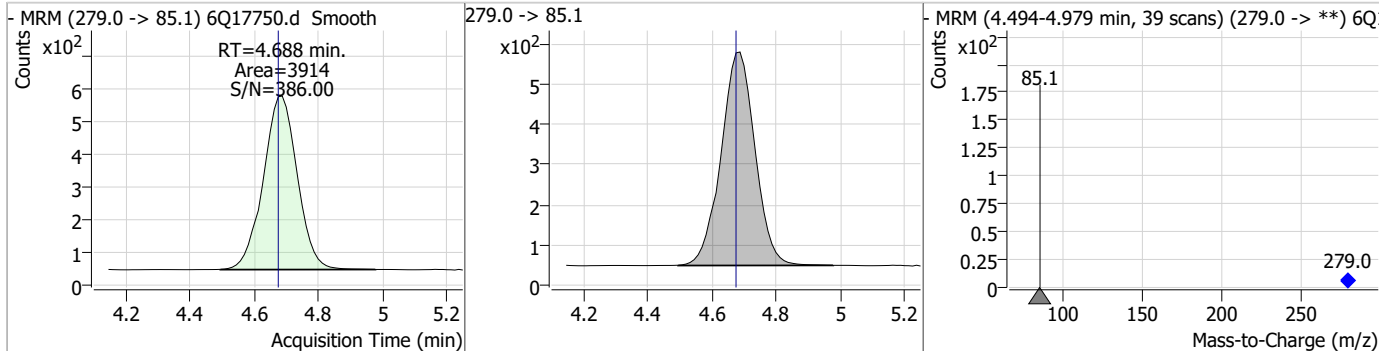
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.99	4.27	0.00	50373				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.39	4.27	0.00	5676				

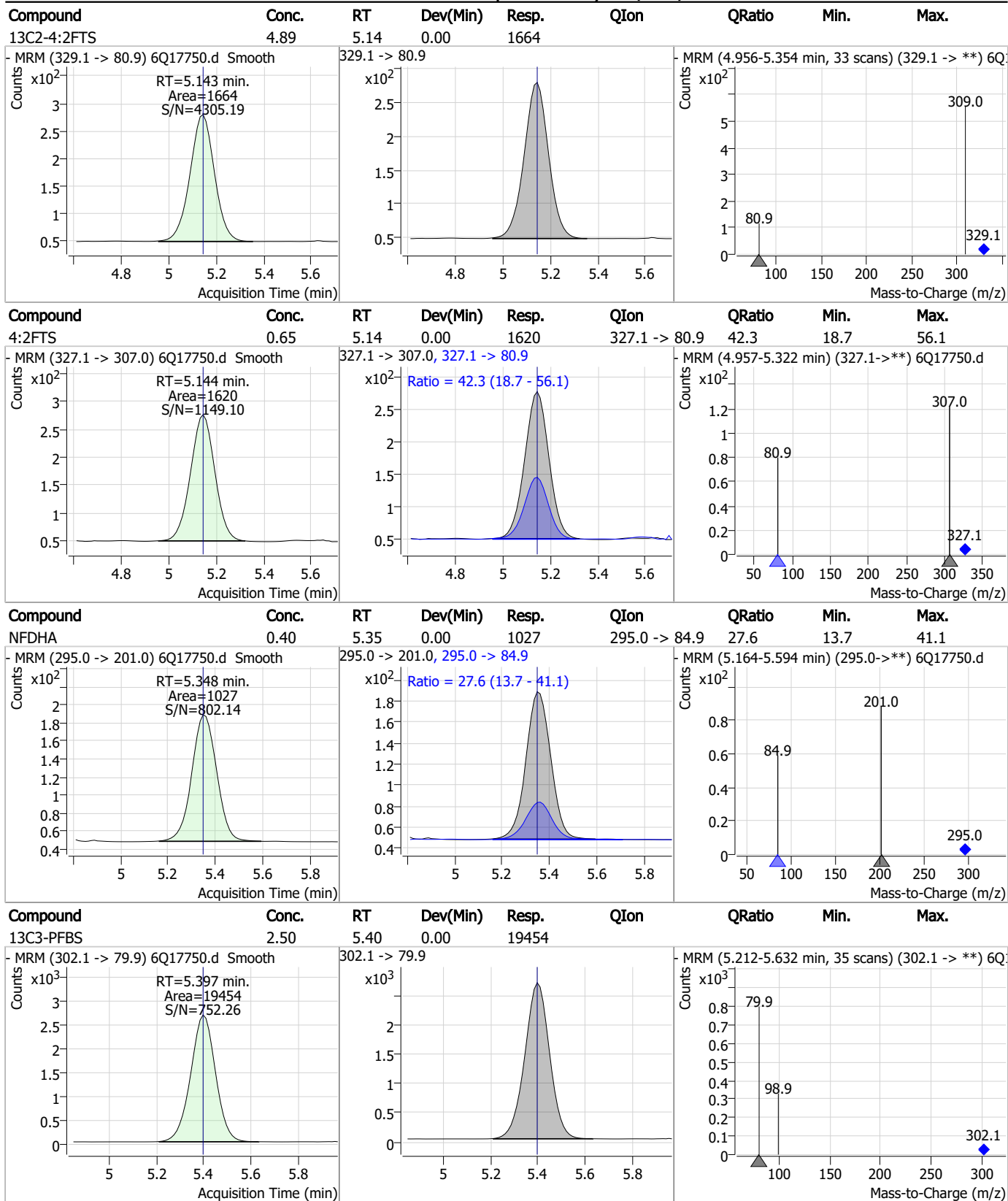


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.38	4.69	0.01	3914				



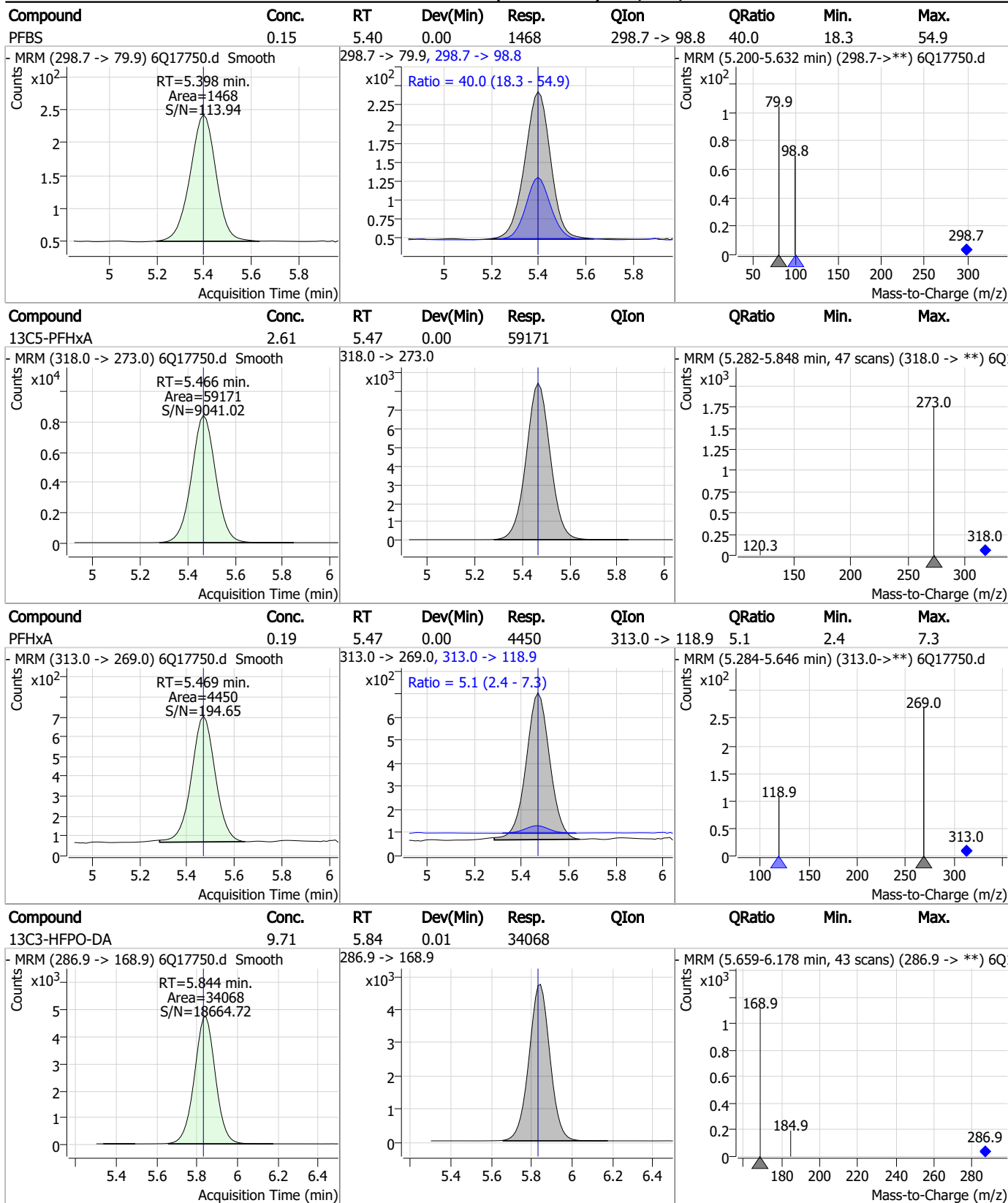
7.7.27 7

### Perfluorinated Compounds by LC/MS/MS



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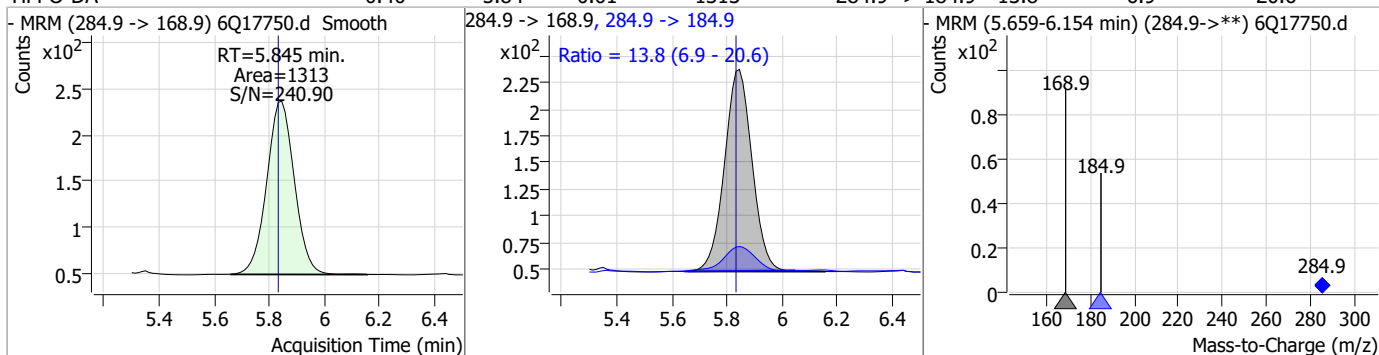
### Perfluorinated Compounds by LC/MS/MS



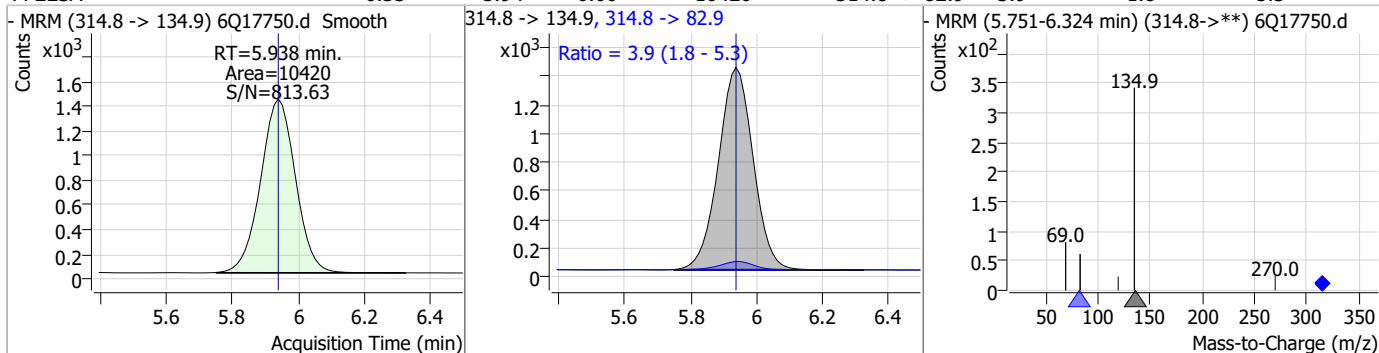
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### Perfluorinated Compounds by LC/MS/MS

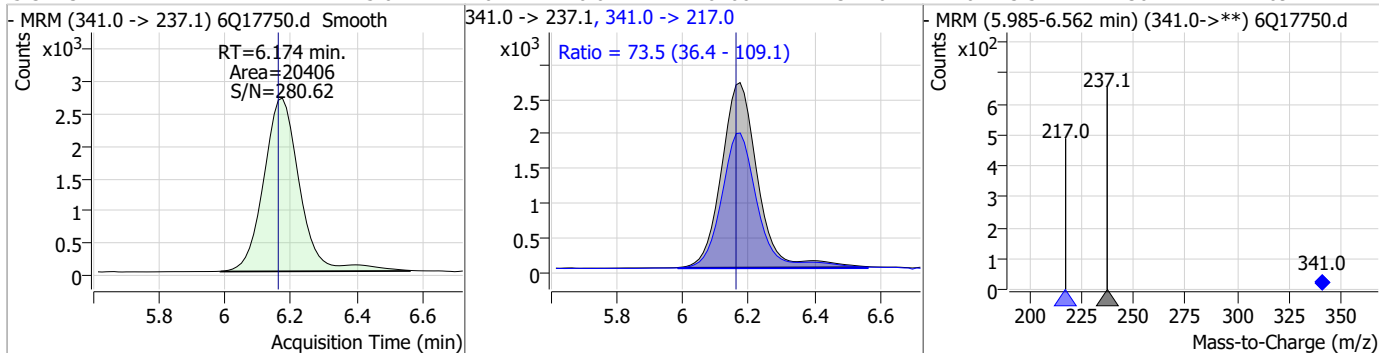
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.40	5.84	0.01	1313	284.9 -> 184.9	13.8	6.9	20.6



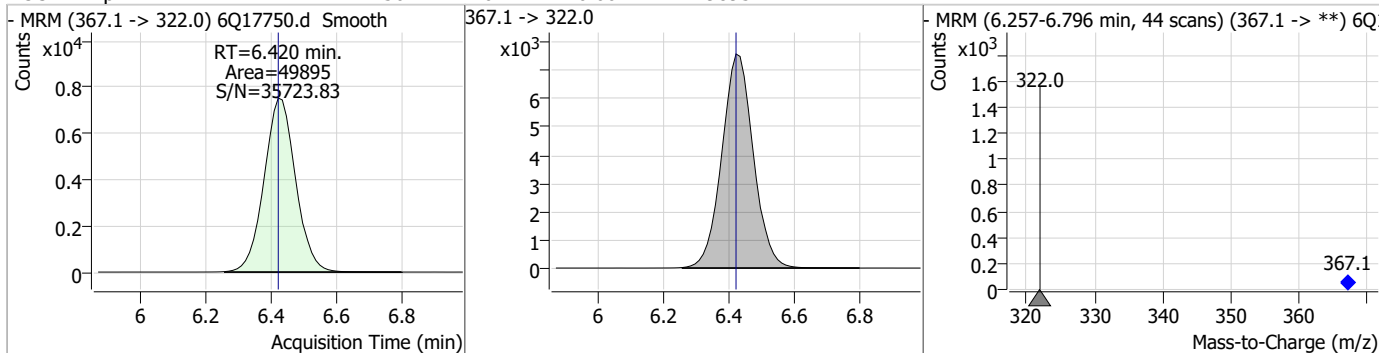
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.33	5.94	0.00	10420	314.8 -> 82.9	3.9	1.8	5.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	5.02	6.17	0.01	20406	341.0 -> 217.0	73.5	36.4	109.1

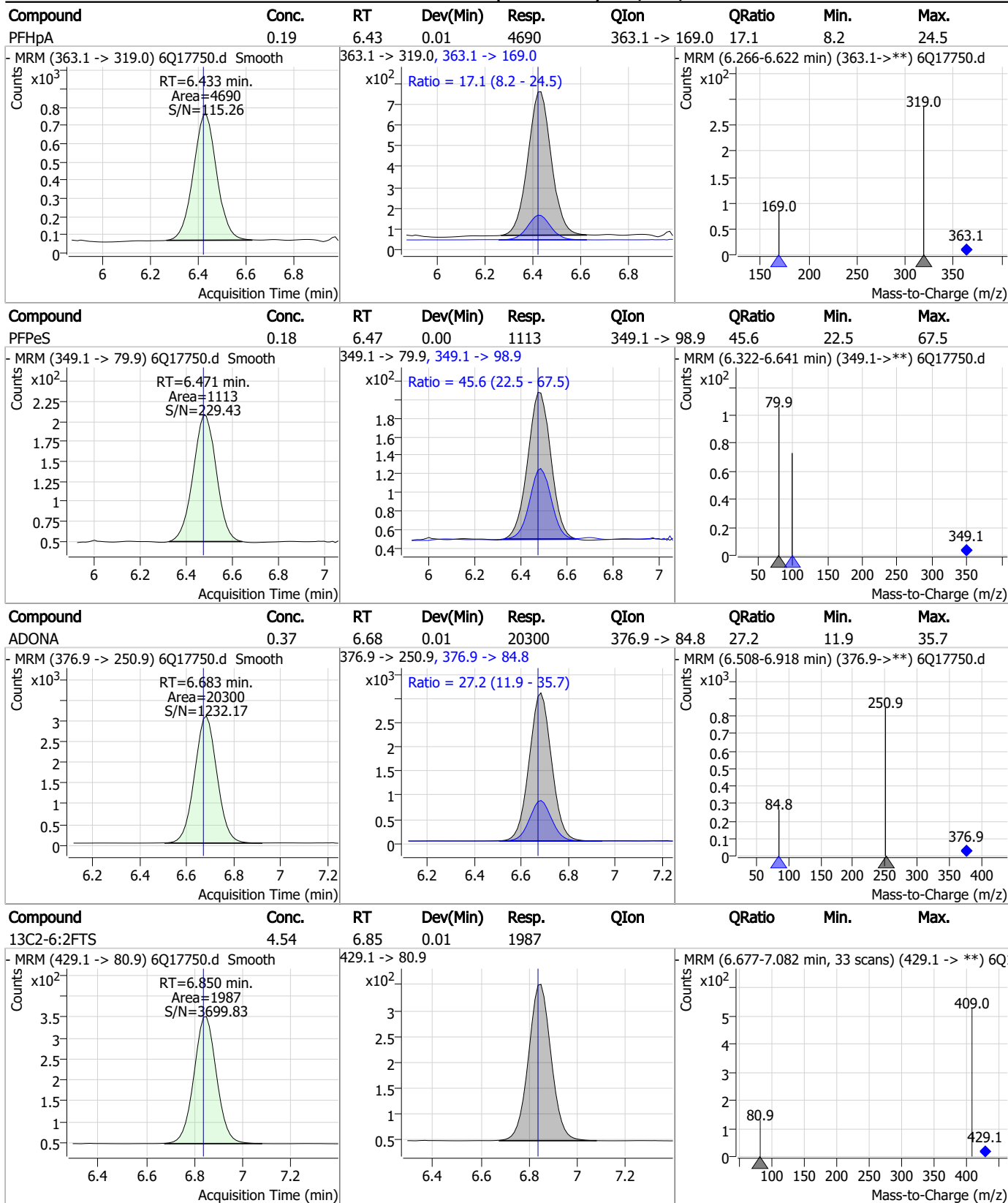


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.50	6.42	0.00	49895	367.1 -> 322.0			



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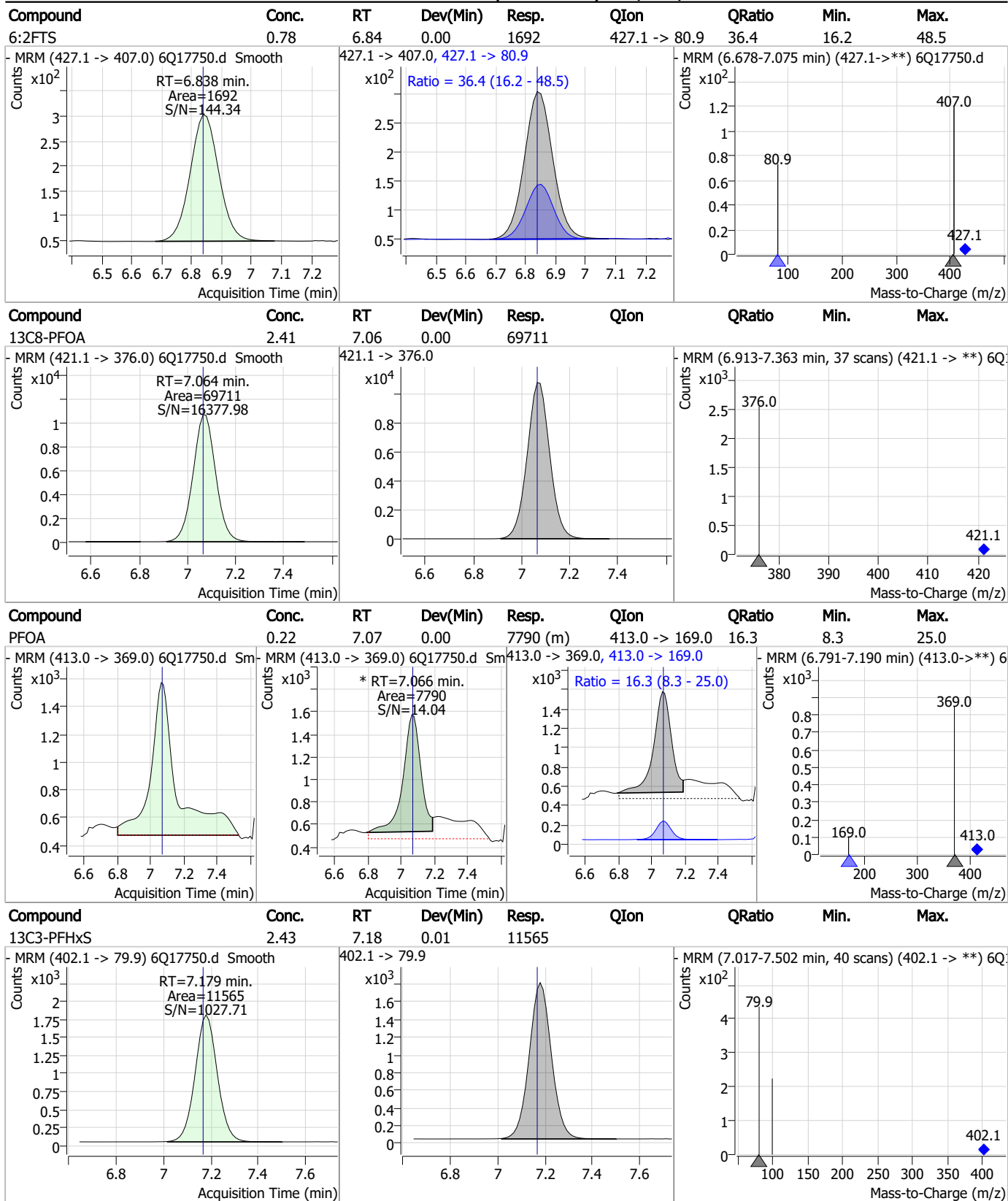
### Perfluorinated Compounds by LC/MS/MS



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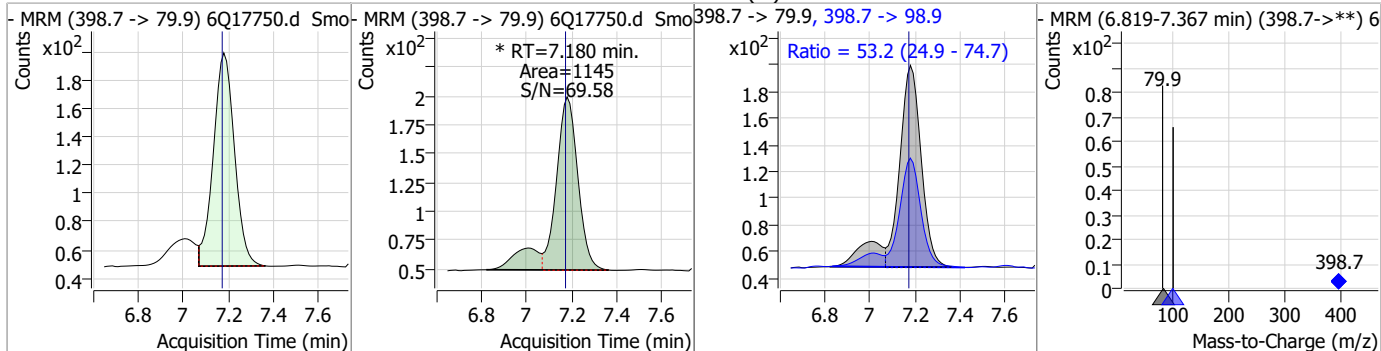
### Perfluorinated Compounds by LC/MS/MS



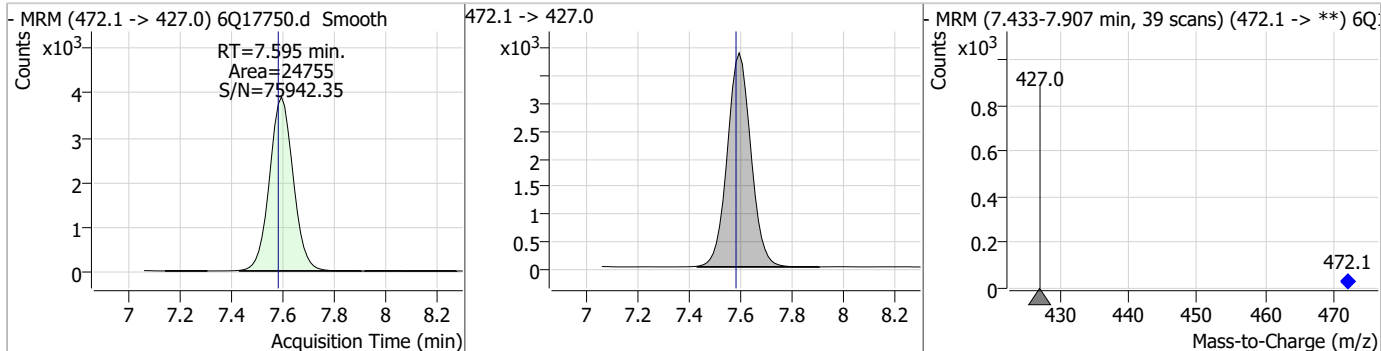
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### Perfluorinated Compounds by LC/MS/MS

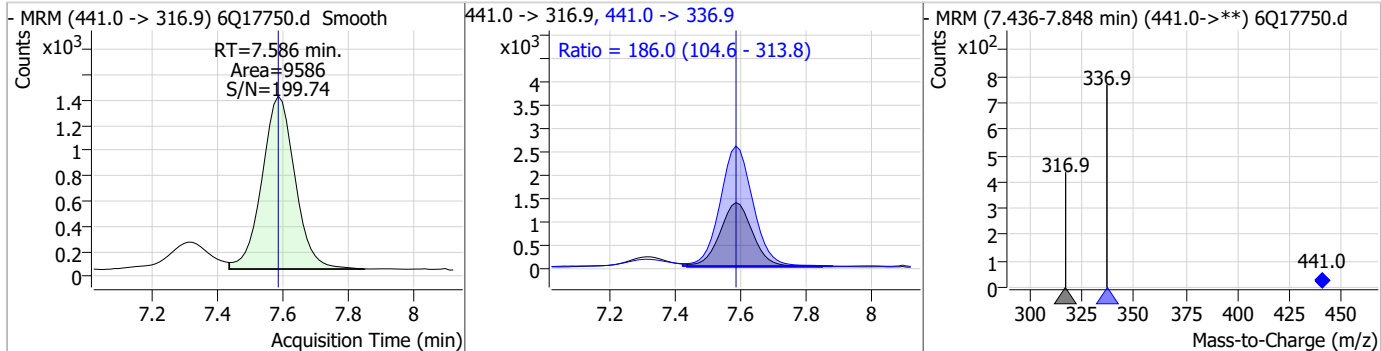
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.18	7.18	0.01	1145 (m)	398.7 -> 98.9	53.2	24.9	74.7



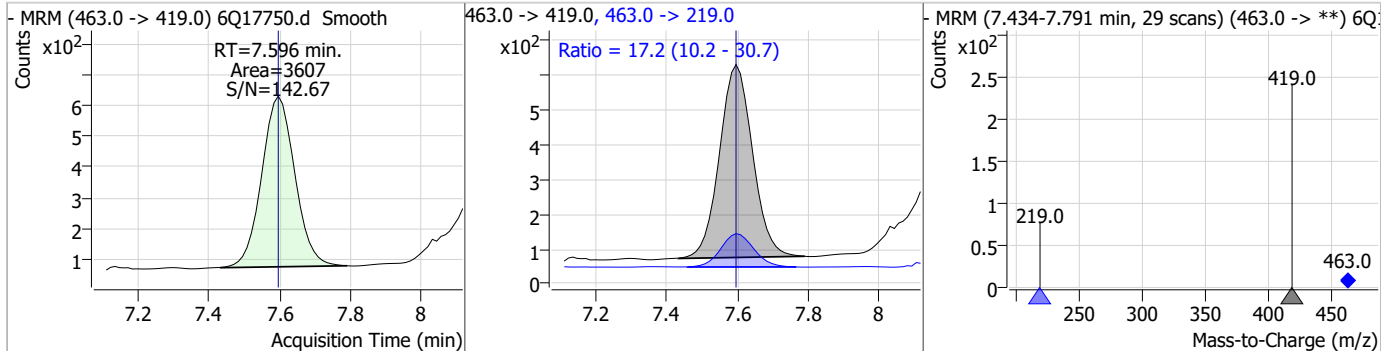
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.25	7.60	0.01	24755				



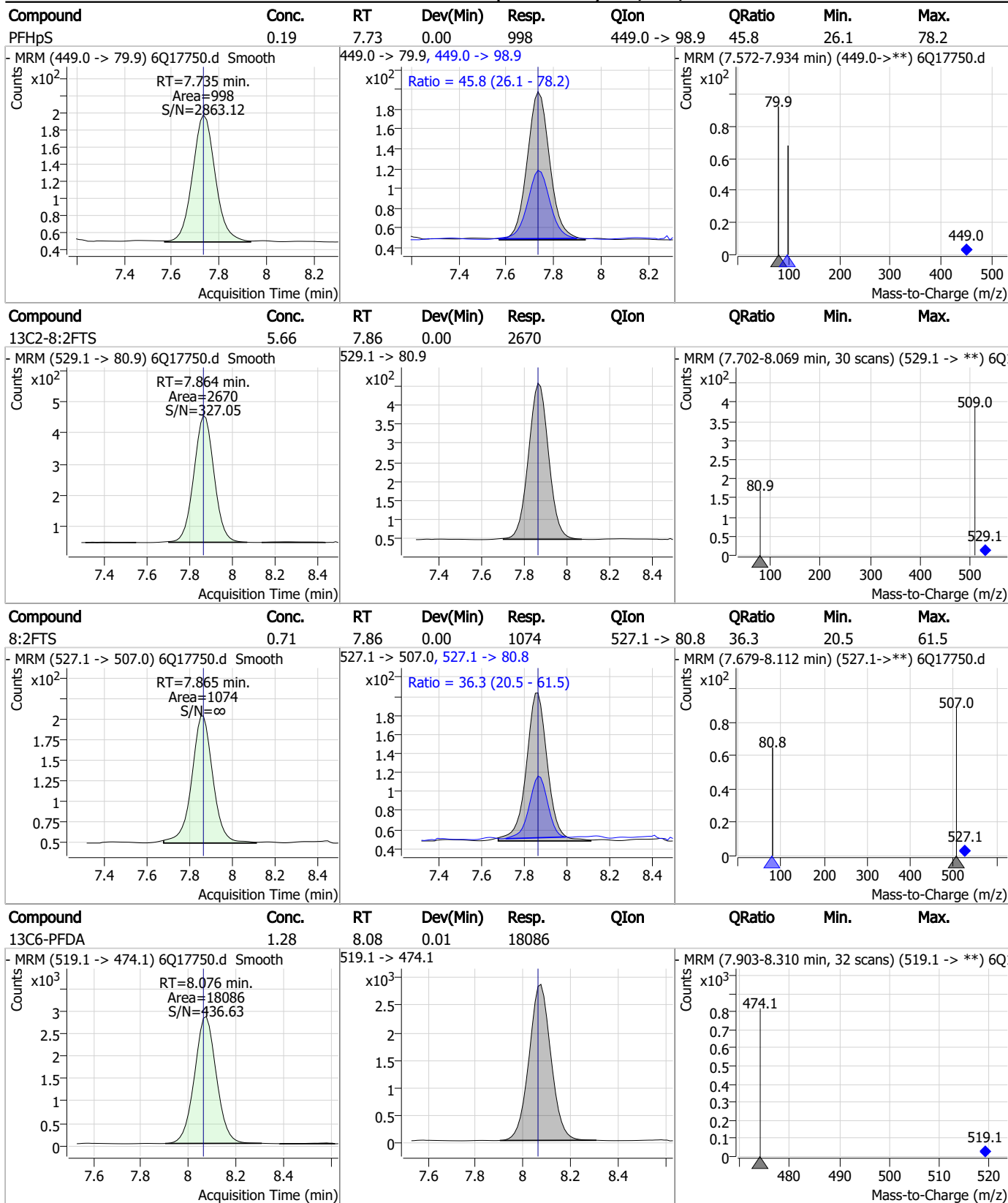
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	5.20	7.59	0.00	9586	441.0 -> 336.9	186.0	104.6	313.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.20	7.60	0.00	3607	463.0 -> 219.0	17.2	10.2	30.7



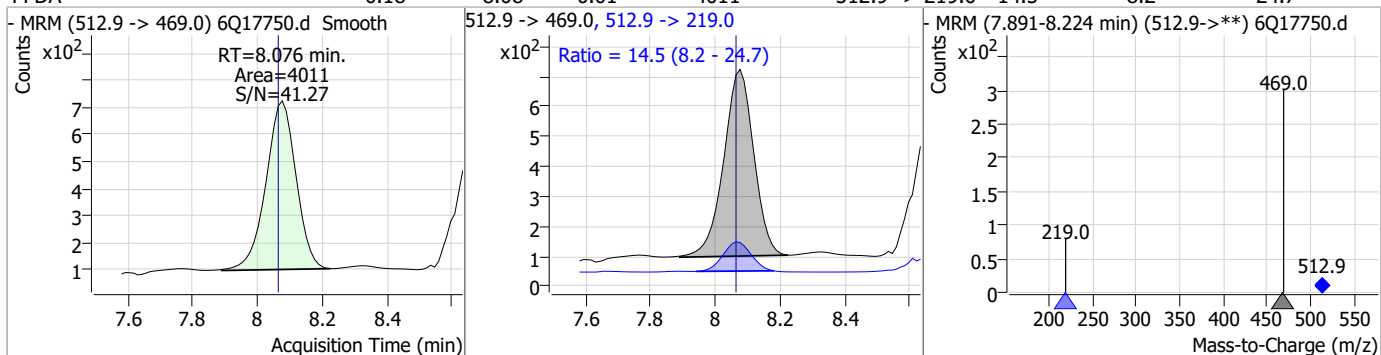
### Perfluorinated Compounds by LC/MS/MS



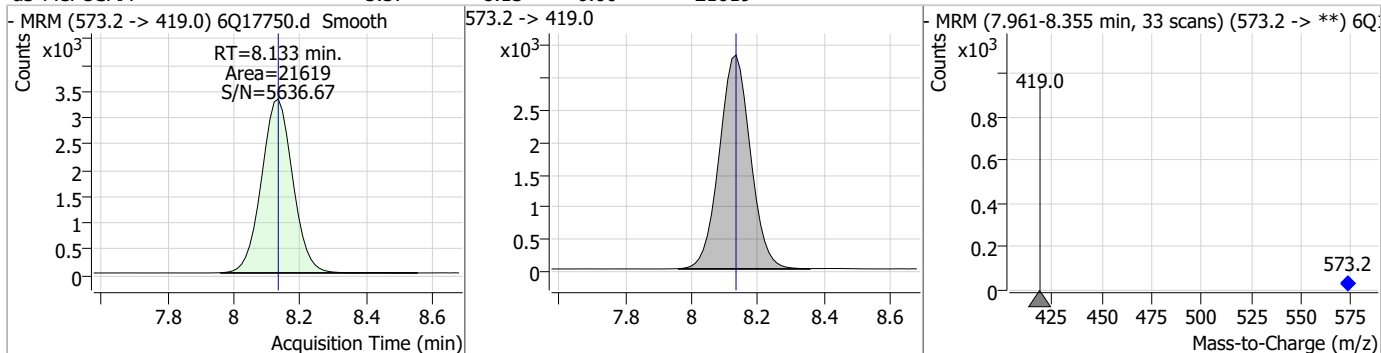
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### Perfluorinated Compounds by LC/MS/MS

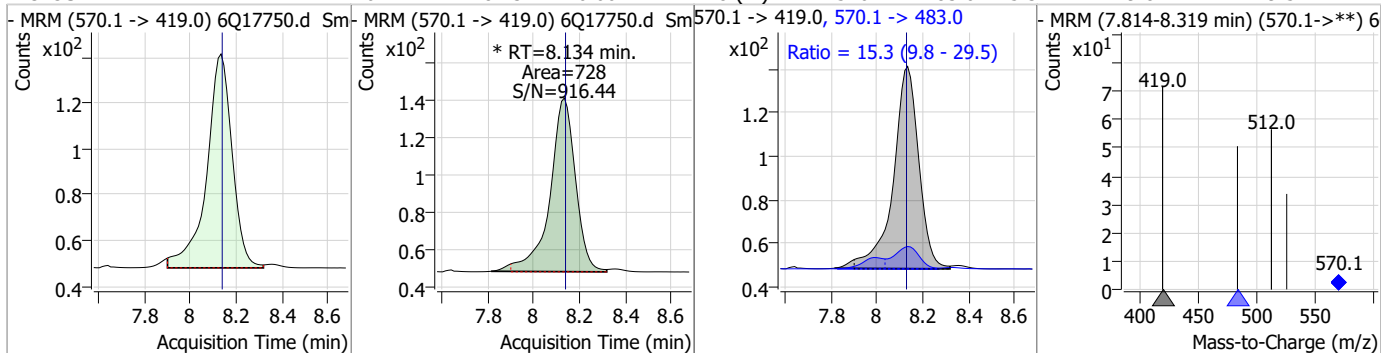
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.18	8.08	0.01	4011	512.9 -> 219.0	14.5	8.2	24.7



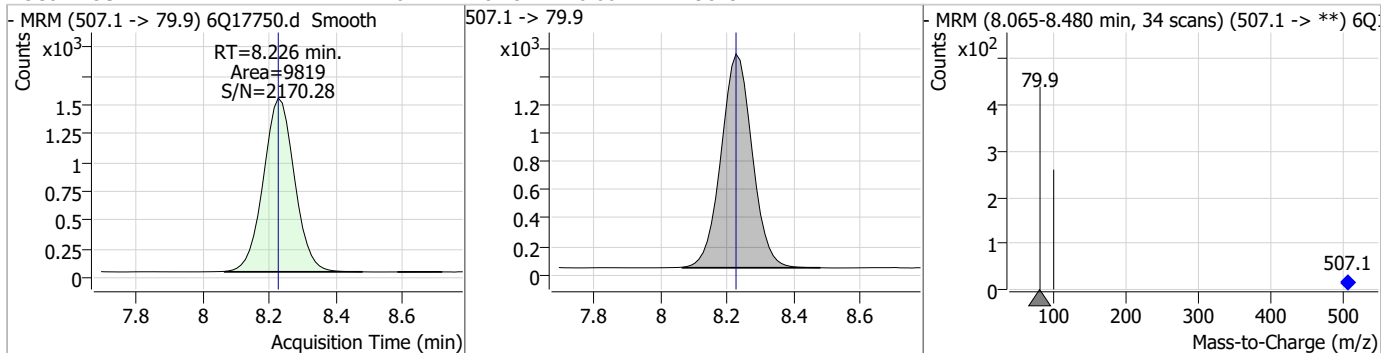
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.37	8.13	0.00	21619				



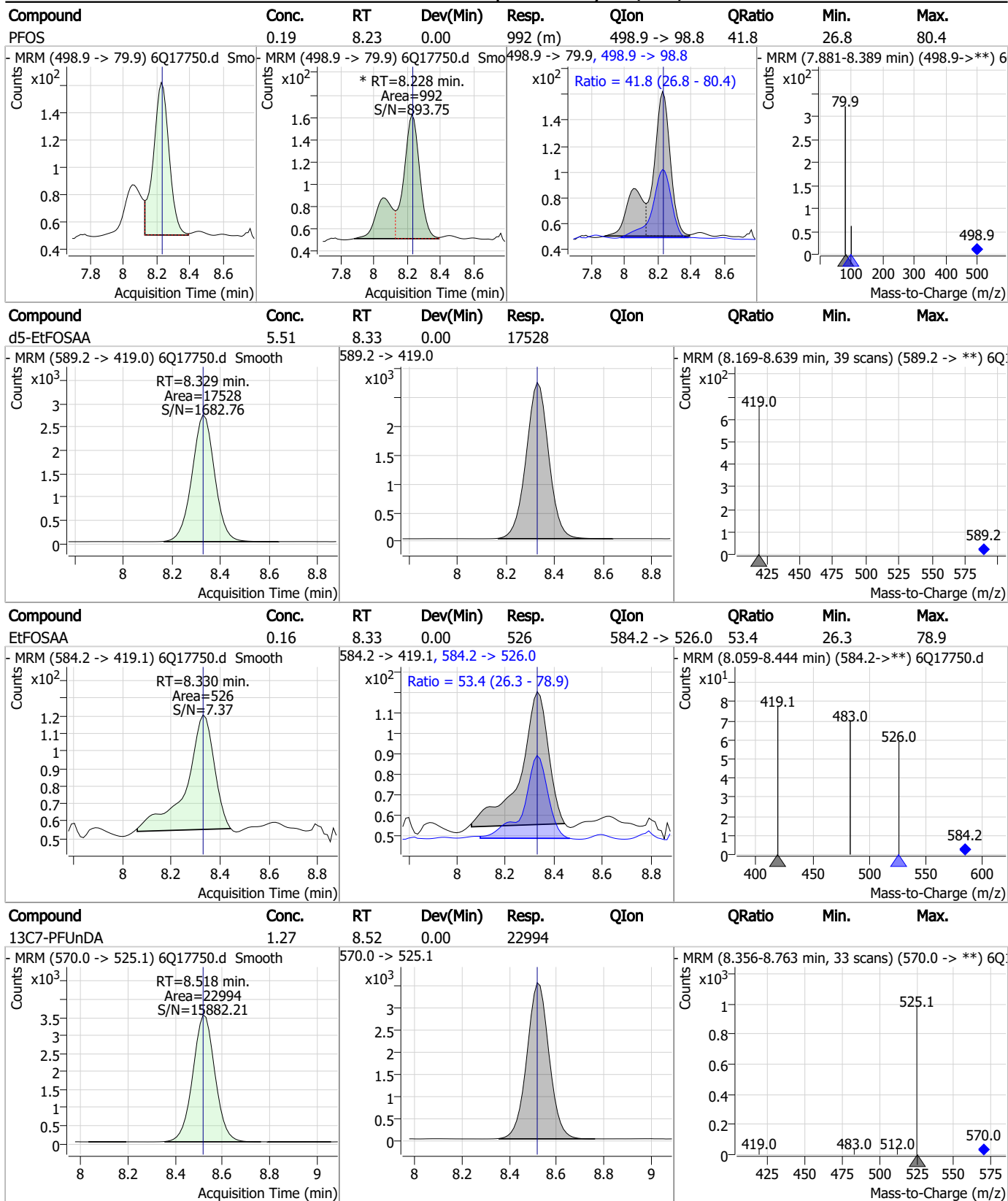
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.17	8.13	0.00	728 (m)	570.1 -> 483.0	15.3	9.8	29.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.46	8.23	0.00	9819				



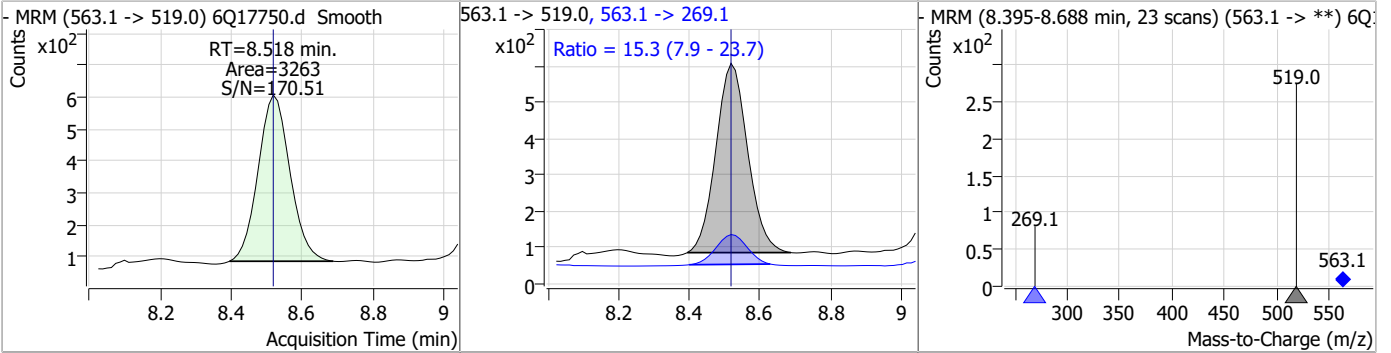
### Perfluorinated Compounds by LC/MS/MS



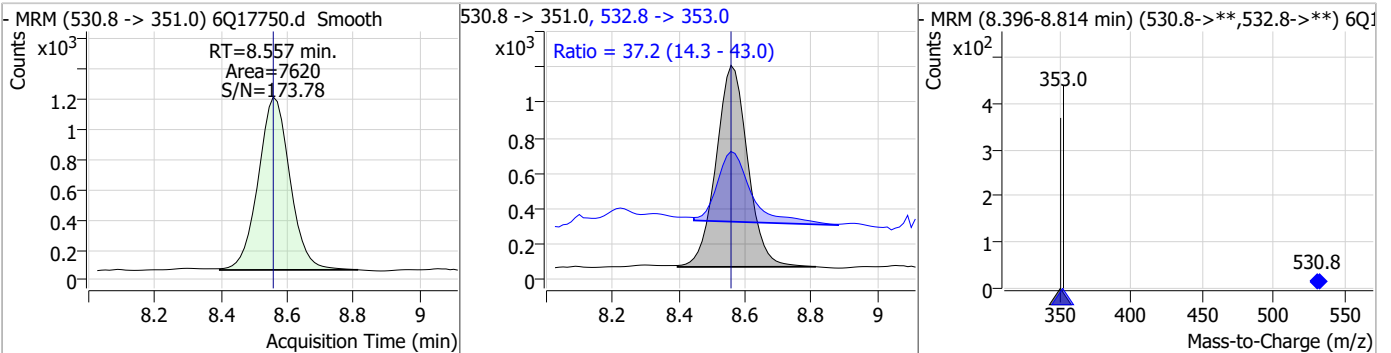
7.7.27  
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### Perfluorinated Compounds by LC/MS/MS

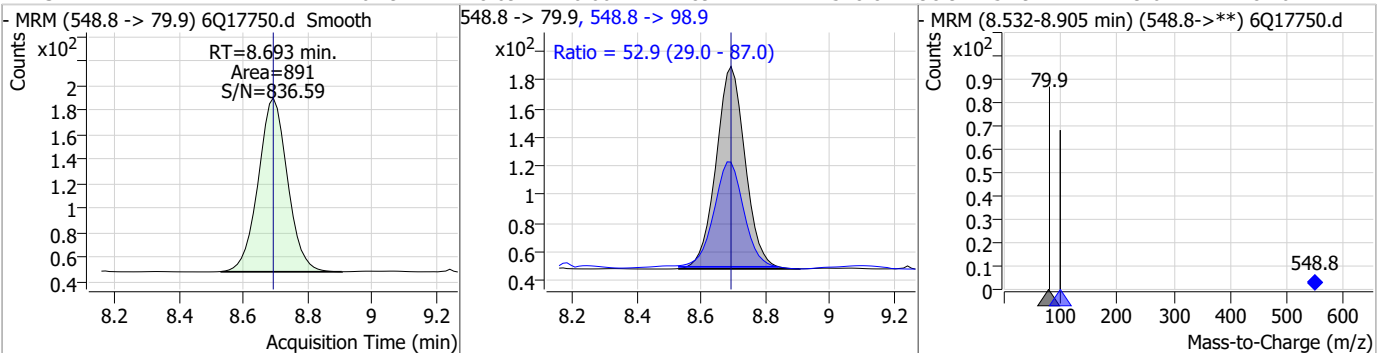
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.20	8.52	0.00	3263	563.1 -> 269.1	15.3	7.9	23.7



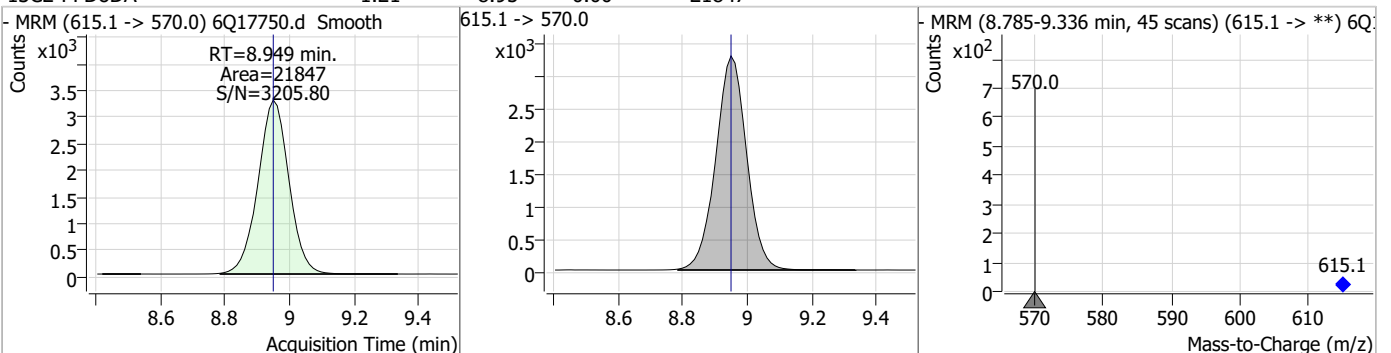
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	0.37	8.56	0.00	7620	532.8 -> 353.0	37.2	14.3	43.0



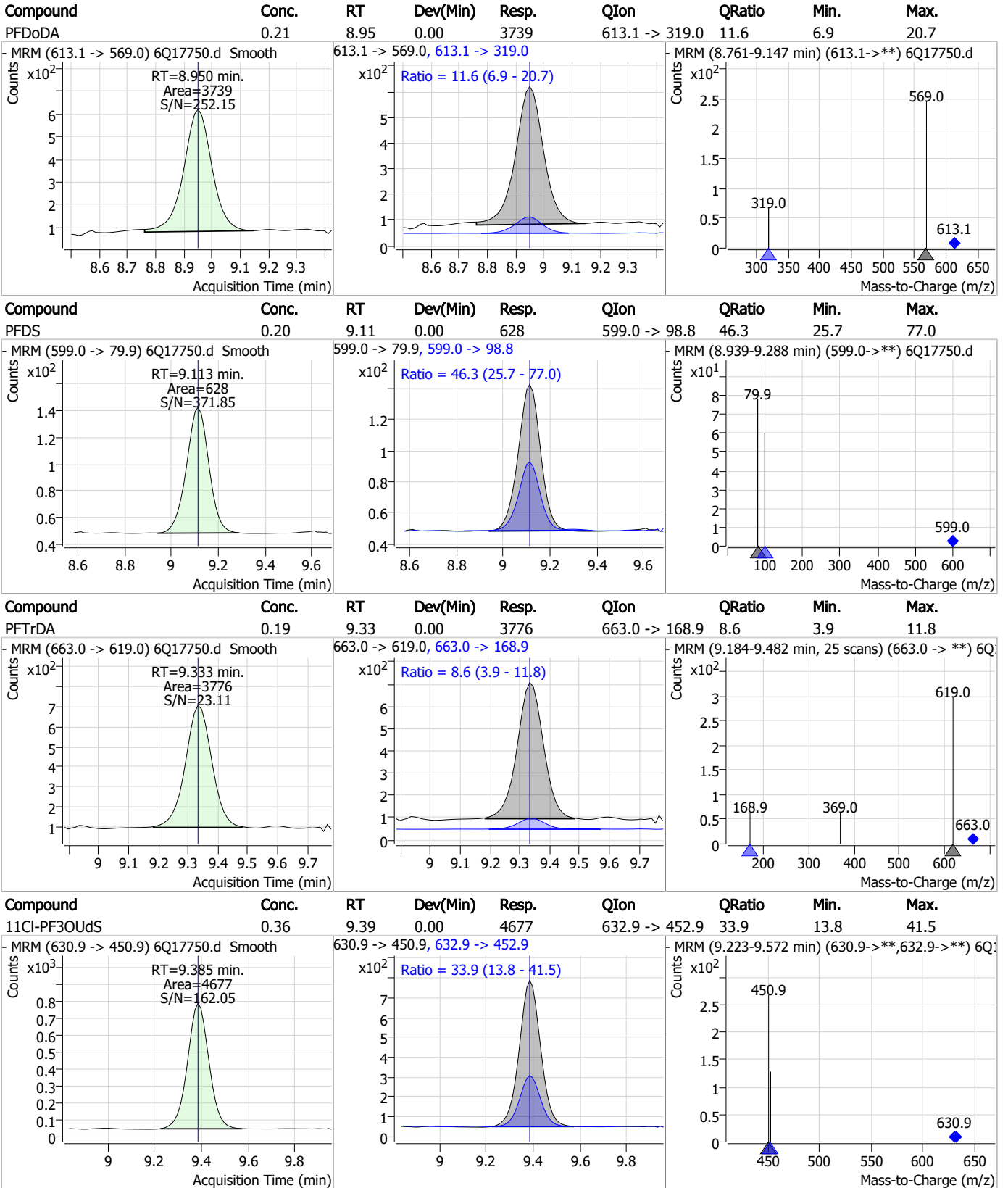
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.19	8.69	0.00	891	548.8 -> 98.9	52.9	29.0	87.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.21	8.95	0.00	21847	615.1 -> 570.0			



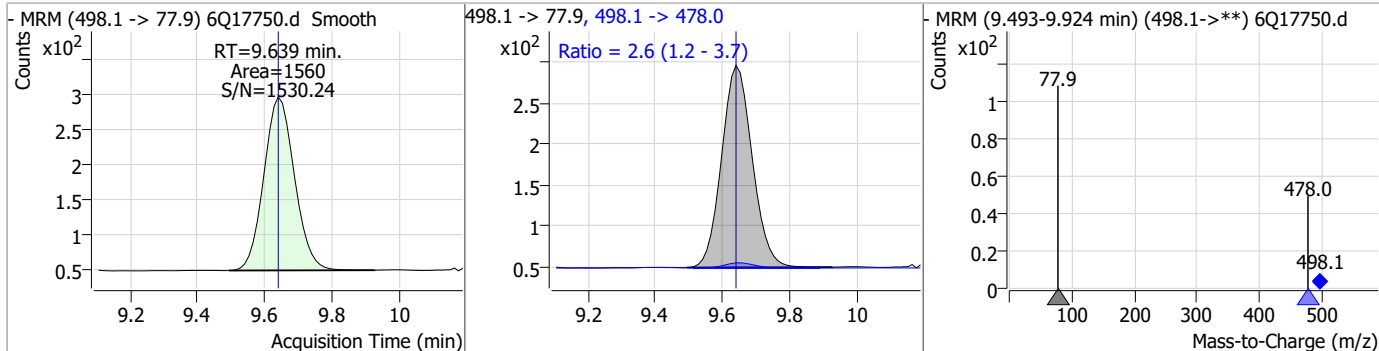
### Perfluorinated Compounds by LC/MS/MS



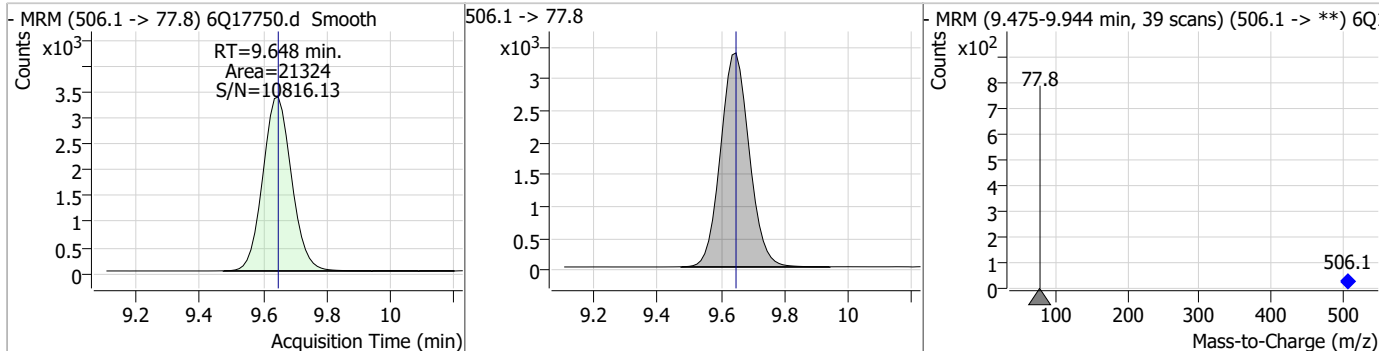
7.7.27 7

### Perfluorinated Compounds by LC/MS/MS

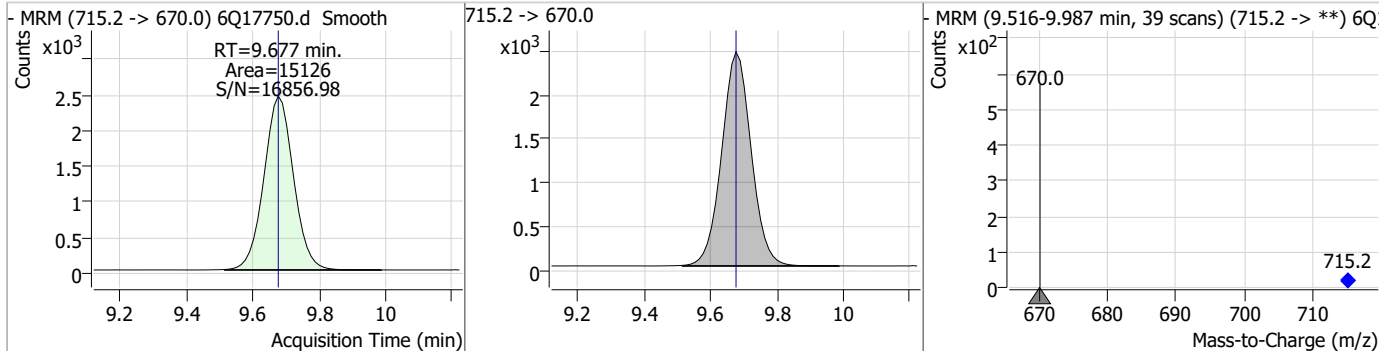
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.20	9.64	0.00	1560	498.1 -> 478.0	2.6	1.2	3.7



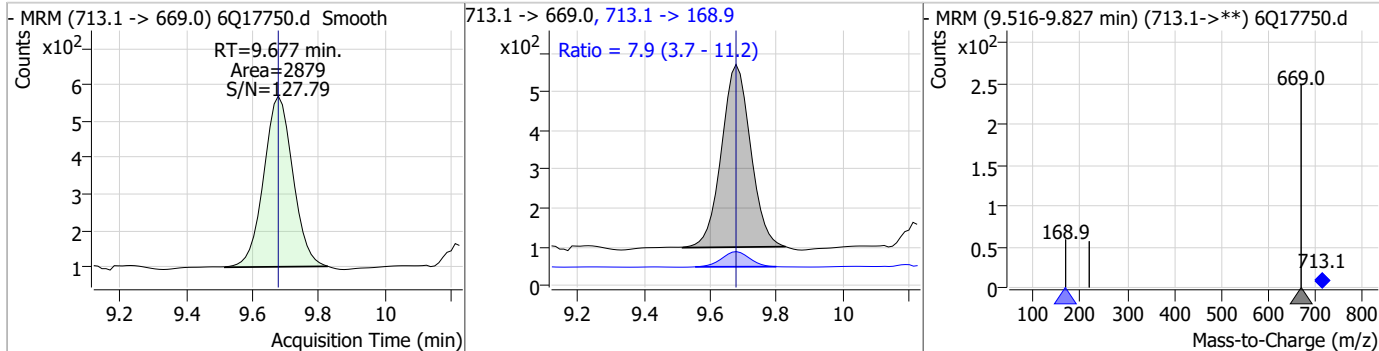
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.50	9.65	0.00	21324				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.68	0.00	15126				



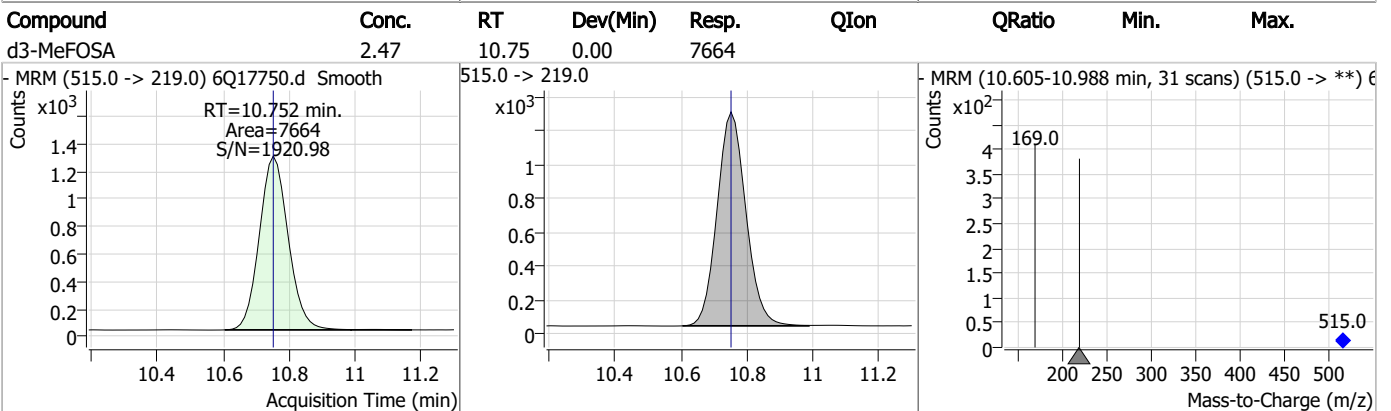
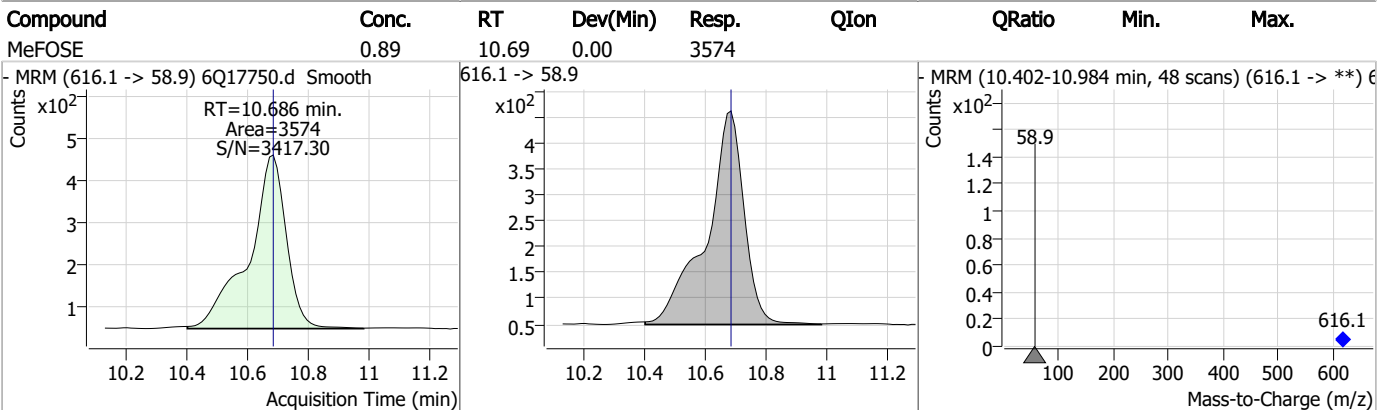
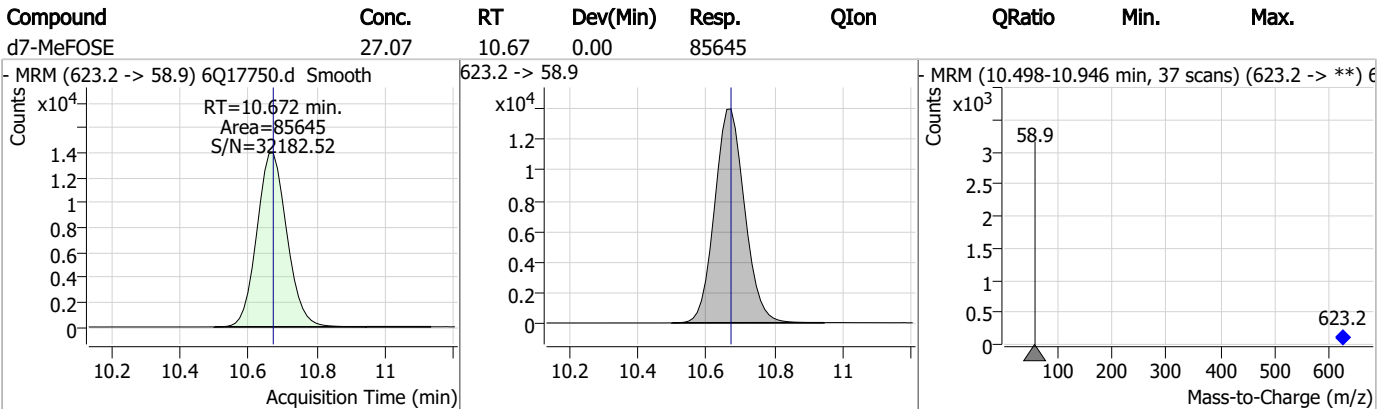
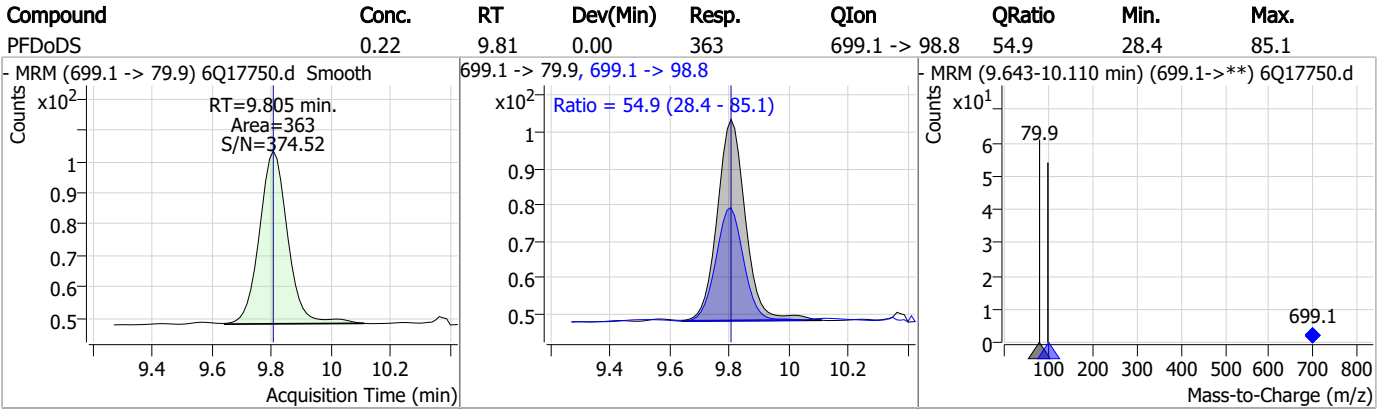
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.19	9.68	0.00	2879	713.1 -> 168.9	7.9	3.7	11.2



7.7.27  
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### Perfluorinated Compounds by LC/MS/MS



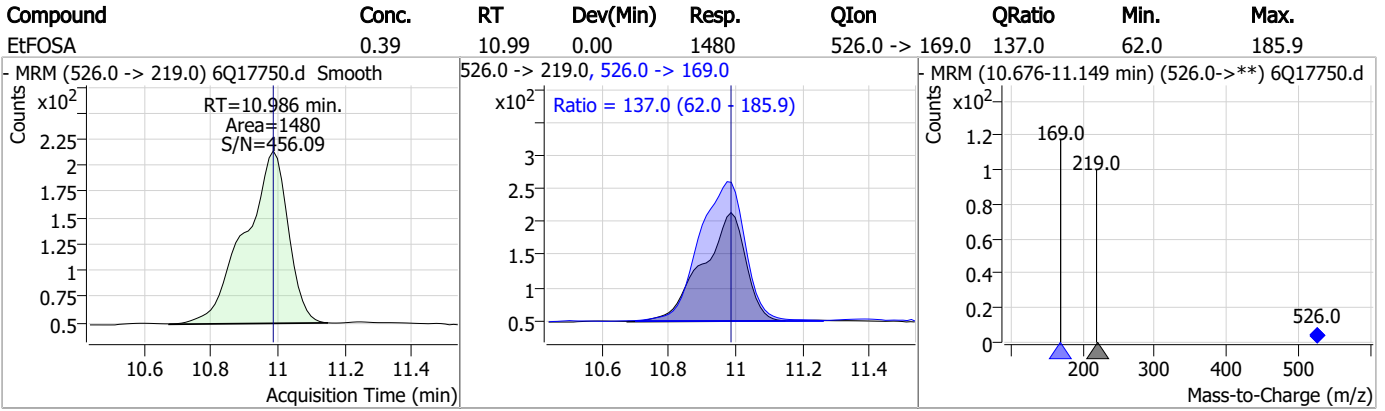
7.7.27 7

### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.40	10.75	0.00	1414	511.9 -> 169.0	129.6	65.4	196.1
d9-EtFOSE	25.73	10.91	0.00	98371	639.2 -> 58.9	-	-	-
EtFOSE	0.91	10.92	-0.01	3919	630.0 -> 58.9	-	-	-
d5-EtFOSA	2.35	10.98	0.00	8807	531.1 -> 219.0	-	-	-

7.7.27  
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### Perfluorinated Compounds by LC/MS/MS



7.7.27  
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# Manual Integration Approval Summary

Sample Number: S6Q268-CC268      Method: EPA DRAFT 1633  
Lab FileID: 6Q17750.D      Analyst approved: 05/15/23 12:43 Martha Valls  
Injection Time: 05/12/23 15:09      Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.07	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
MeFOSAA	2355-31-9		8.13	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.7.27.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17759.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 5/12/2023 5:19:34 PM  
 Sample Name : cc268-4  
 Vial : P1-A5  
 DA Method File : 1633\_051223\_S6Q268.quantmethod.xml  
 Batch Name : s6q268.batch.bin  
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.901	216.8 -> 171.9	157383	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	49824	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	56381	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	48812	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	73622	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	25949	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	17549	1.25 µg/L	0.012
M7-PFUnDA	8.518	570.0 -> 525.1	23472	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	22304	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	15707	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	21367	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	18171	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11534	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	10212	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1747	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2133	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2320	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	19846	5.00 µg/L	0.000
M3-HFPO-DA	5.831	286.9 -> 168.9	34139	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	16717	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	81793	25.00 µg/L	-0.012
M9-EtFOSE	10.907	639.2 -> 58.9	97410	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8405	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7578	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12679	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	66082	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8952	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	72687	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	21119	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	24328	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	49306	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.143	329.1 -> 80.9	1747	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2133	4.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2320	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C2-PFDoDA	8.949	615.1 -> 570.0	22304	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C2-PFTeDA	9.677	715.2 -> 670.0	15707	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C3-PFBS	5.397	302.1 -> 79.9	18171	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C3-PFHxS	7.179	402.1 -> 79.9	11534	2.42 µg/L	0.012

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C4-PFBA	2.901	216.8 -> 171.9	157383	10.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C4-PFHpA	6.420	367.1 -> 322.0	48812	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C5-PFHxA	5.466	318.0 -> 273.0	56381	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C5-PFPeA	4.272	268.3 -> 223.0	49824	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C6-PFDA	8.076	519.1 -> 474.1	17549	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C7-PFUnDA	8.518	570.0 -> 525.1	23472	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C8-FOSA	9.648	506.1 -> 77.8	21367	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-PFOA	7.064	421.1 -> 376.0	73622	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C8-PFOS	8.226	507.1 -> 79.9	10212	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C9-PFNA	7.595	472.1 -> 427.0	25949	1.44 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.4%	
d3-MeFOSAA	8.133	573.2 -> 419.0	19846	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	34139	9.46 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
d3-MeFOSA	10.752	515.0 -> 219.0	7578	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
d5-EtFOSAA	8.329	589.2 -> 419.0	16717	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.4%	
d7-MeFOSE	10.660	623.2 -> 58.9	81793	26.19 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d9-EtFOSE	10.907	639.2 -> 58.9	97410	25.81 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
d5-EtFOSA	10.984	531.1 -> 219.0	8405	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.9%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.144	327.1 -> 307.0	22210	8.46 µg/L	99
		327.1 -> 80.9	8234		
6:2FTS	6.838	427.1 -> 407.0	21242	9.15 µg/L	99
		427.1 -> 80.9	6968		
8:2FTS	7.865	527.1 -> 507.0	11990	9.09 µg/L	93
		527.1 -> 80.8	5437		
EtFOSAA	8.330	584.2 -> 419.1	6749	2.17 µg/L	93
		584.2 -> 526.0	3861		
FOSA	9.639	498.1 -> 77.9	18878	2.36 µg/L	98
		498.1 -> 478.0	579		
MeFOSAA	8.134	570.1 -> 419.0	9621	2.51 µg/L	95
		570.1 -> 483.0	2105		
PFBA	2.907	212.8 -> 168.9	54786	9.70 µg/L	100
PFBS	5.398	298.7 -> 79.9	19576	2.21 µg/L	98
		298.7 -> 98.8	7446		
PFDA	8.064	512.9 -> 469.0	51004	2.35 µg/L	100
		512.9 -> 219.0	8418		
PFDoDA	8.950	613.1 -> 569.0	43825	2.47 µg/L	100
		613.1 -> 319.0	5982		
PFDS	9.113	599.0 -> 79.9	7558	2.28 µg/L	100

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	3864	2.47	µg/L	98
		363.1 -> 319.0	60351			
PFHpS	7.735	363.1 -> 169.0	9212	2.26	µg/L	94
		449.0 -> 79.9	12318			
PFHxA	5.469	449.0 -> 98.9	5910	2.43	µg/L	99
		313.0 -> 269.0	54324			
PFHxS	7.180	313.0 -> 118.9	2450	2.03	µg/L	m
		398.7 -> 79.9	12987			
PFNA	7.596	398.7 -> 98.9	6482	2.27	µg/L	94
		463.0 -> 419.0	43752			
PFNS	8.681	463.0 -> 219.0	7684	2.44	µg/L	90
		548.8 -> 79.9	12046			
PFOA	7.066	548.8 -> 98.9	6105	2.35	µg/L	98
		413.0 -> 369.0	86105			
PFOS	8.228	413.0 -> 169.0	13772	1.98	µg/L	m
		498.9 -> 79.9	10576			
PFPeA	4.274	498.9 -> 98.8	6288	4.83	µg/L	100
		263.0 -> 219.0	69433			
PFPeS	6.471	349.1 -> 79.9	14506	2.29	µg/L	97
		349.1 -> 98.9	6768			
PFTeDA	9.677	713.1 -> 669.0	35876	2.23	µg/L	99
		713.1 -> 168.9	2868			
PFTrDA	9.333	663.0 -> 619.0	48982	2.38	µg/L	96
		663.0 -> 168.9	4512			
PFUnDA	8.518	563.1 -> 519.0	39780	2.33	µg/L	95
		563.1 -> 269.1	5505			
11CI-PF3OUdS	9.385	630.9 -> 450.9	59173	4.59	µg/L	92
		632.9 -> 452.9	18743			
9CI-PF3ONS	8.557	530.8 -> 351.0	89872	4.36	µg/L	95
		532.8 -> 353.0	27984			
ADONA	6.683	376.9 -> 250.9	253819	4.67	µg/L	94
		376.9 -> 84.8	67865			
HFPO-DA	5.845	284.9 -> 168.9	16760	5.08	µg/L	97
		284.9 -> 184.9	2109			
3:3FTCA	3.790	241.0 -> 177.0	10308	11.56	µg/L	100
		241.0 -> 117.0	1378			
5:3FTCA	6.161	341.0 -> 237.1	221647	57.28	µg/L	95
		341.0 -> 217.0	170624			
7:3FTCA	7.586	441.0 -> 316.9	106329	60.57	µg/L	93
		441.0 -> 336.9	210921			
EtFOSA	10.986	526.0 -> 219.0	19577	5.38	µg/L	100
		526.0 -> 169.0	24362			
EtFOSE	10.920	630.0 -> 58.9	48303	11.38	µg/L	100
		511.9 -> 219.0	17884			
MeFOSA	10.753	511.9 -> 169.0	23423	5.13	µg/L	m
		616.1 -> 58.9	43321			
MeFOSE	10.686	699.1 -> 79.9	4160	11.32	µg/L	100
		699.1 -> 98.8	2177			
PFDoDS	9.805	295.0 -> 201.0	12203	2.37	µg/L	94
		295.0 -> 84.9	3050			
NFDHA	5.348	279.0 -> 85.1	49172	4.95	µg/L	95
		229.0 -> 84.9	35703			
PFMBA	4.688	314.8 -> 134.9	128715	4.83	µg/L	100
		314.8 -> 82.9	4568			
PFMPA	3.426			4.29	µg/L	100
PFEESA	5.938			4.29	µg/L	100

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

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### Perfluorinated Compounds by LC/MS/MS

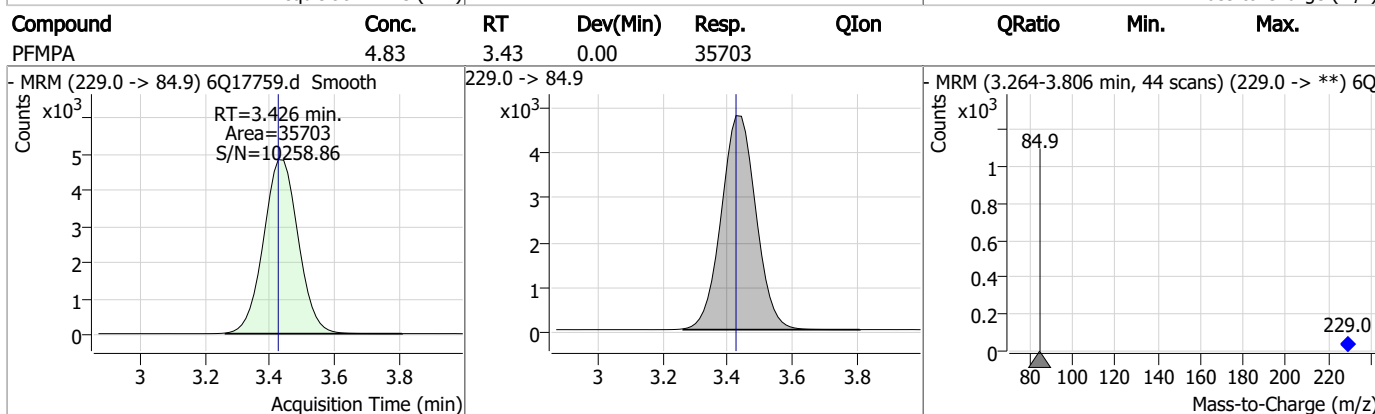
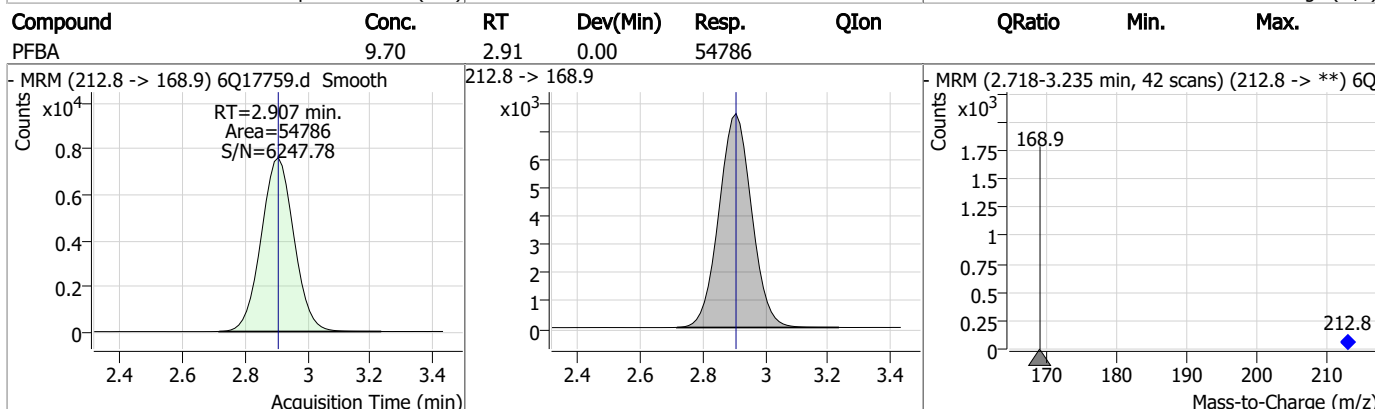
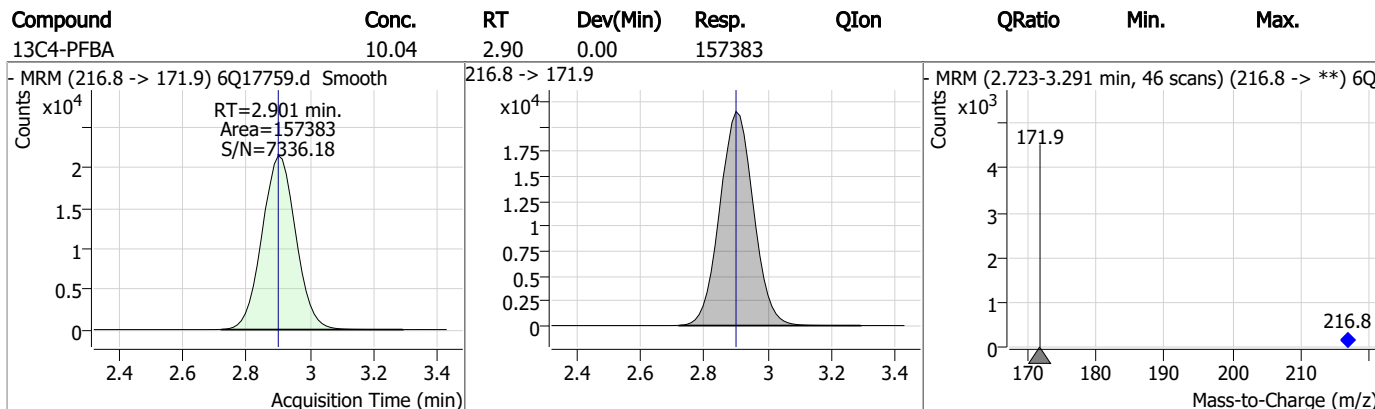
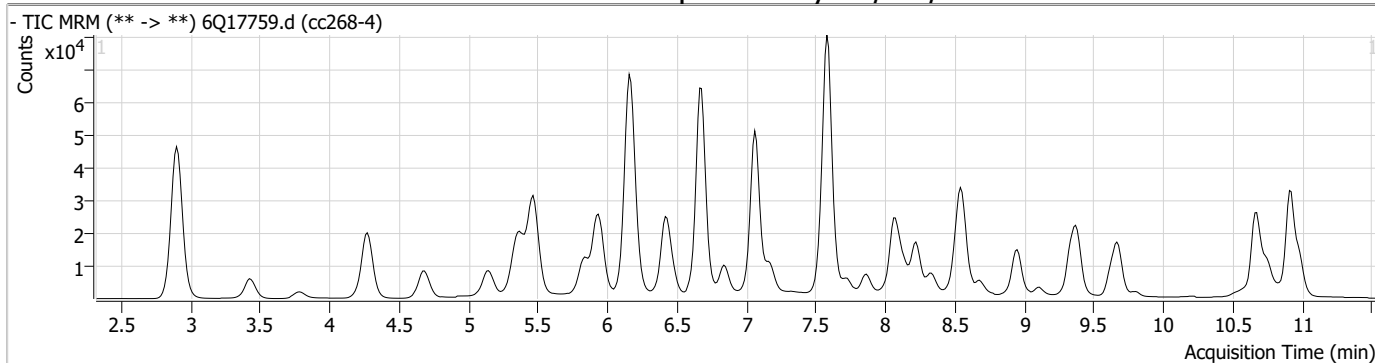
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.28

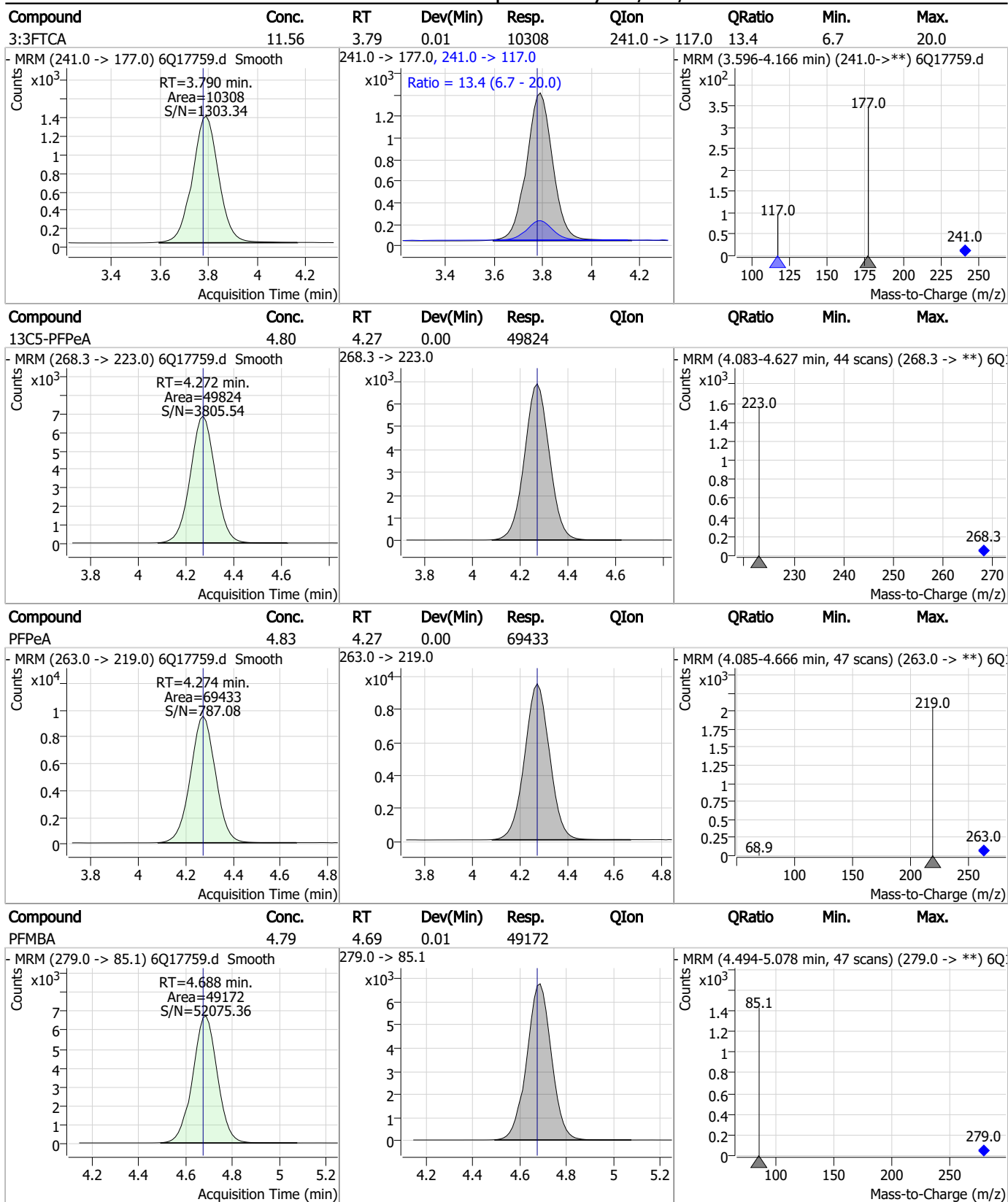
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### Perfluorinated Compounds by LC/MS/MS



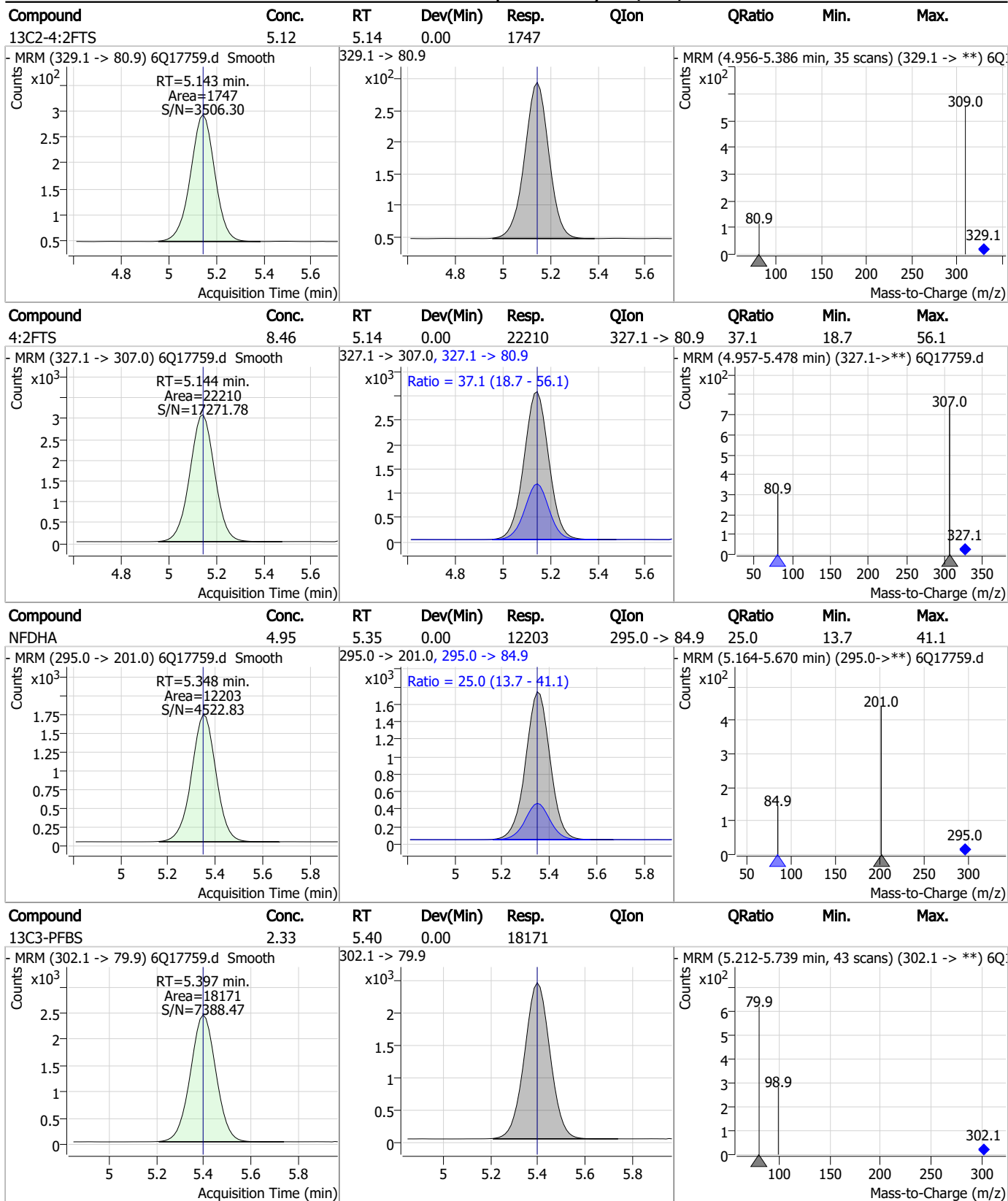
### Perfluorinated Compounds by LC/MS/MS



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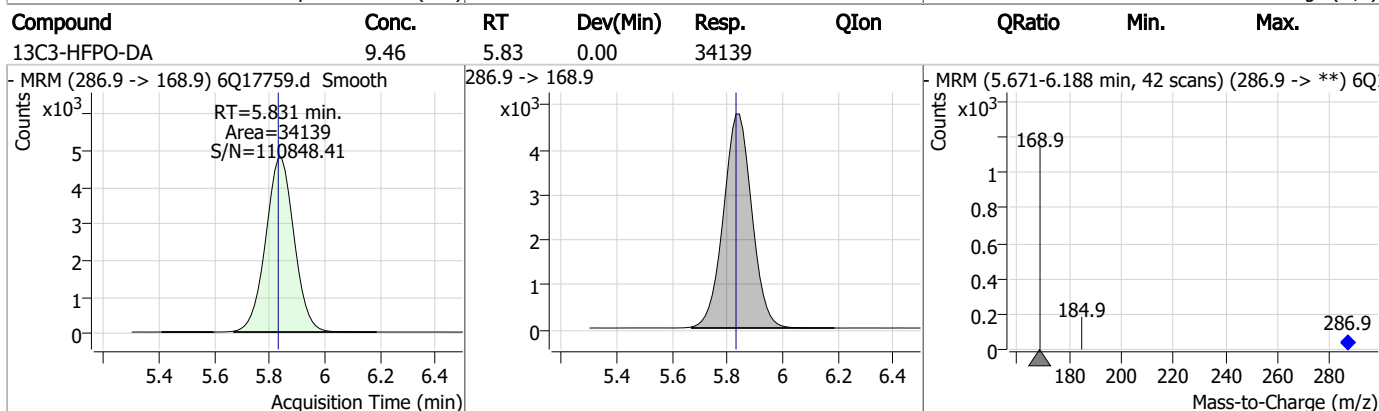
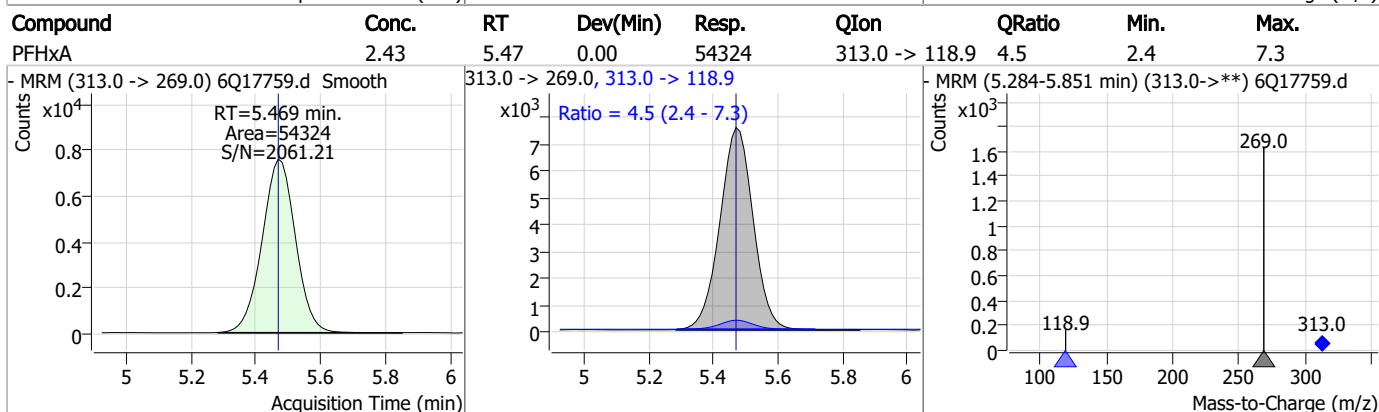
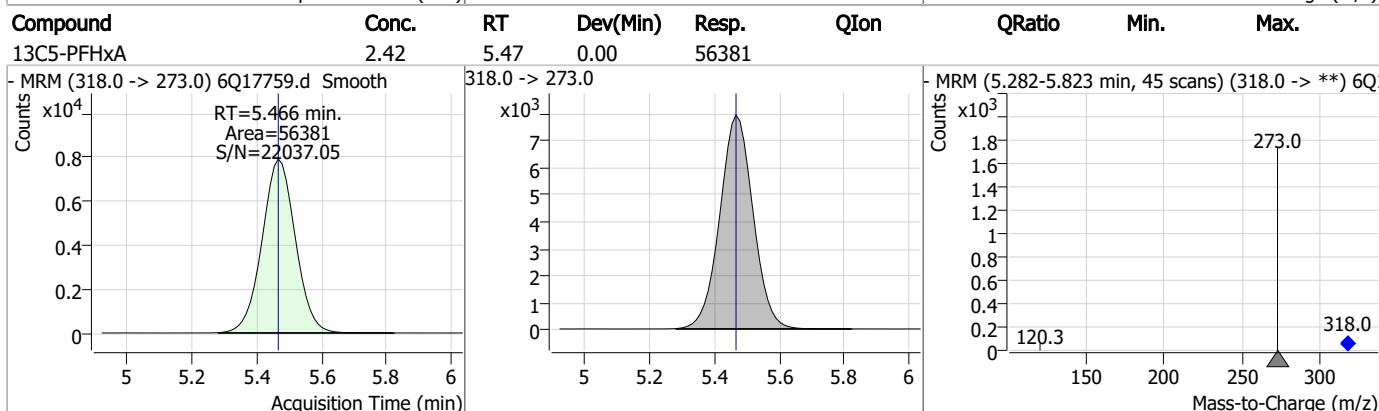
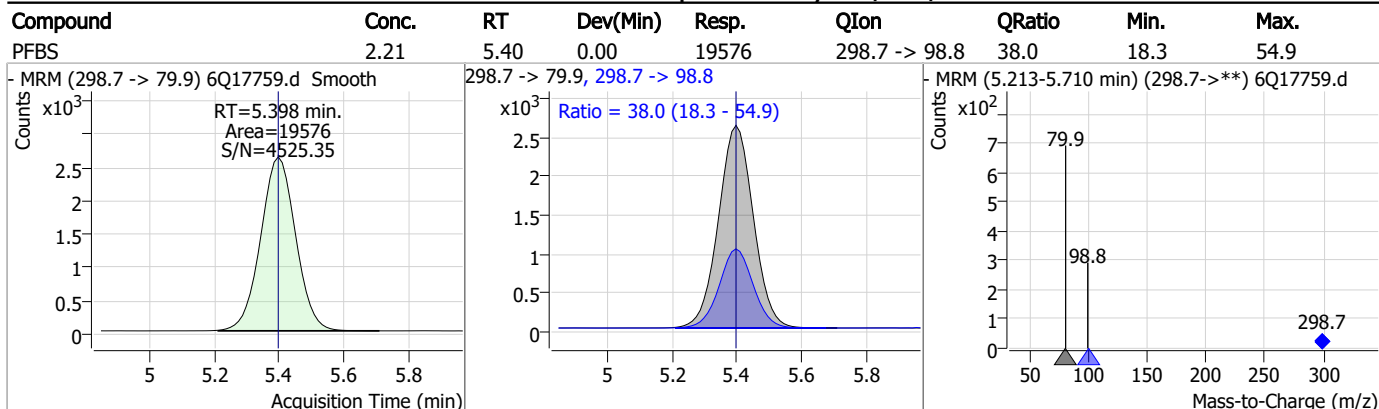
### Perfluorinated Compounds by LC/MS/MS



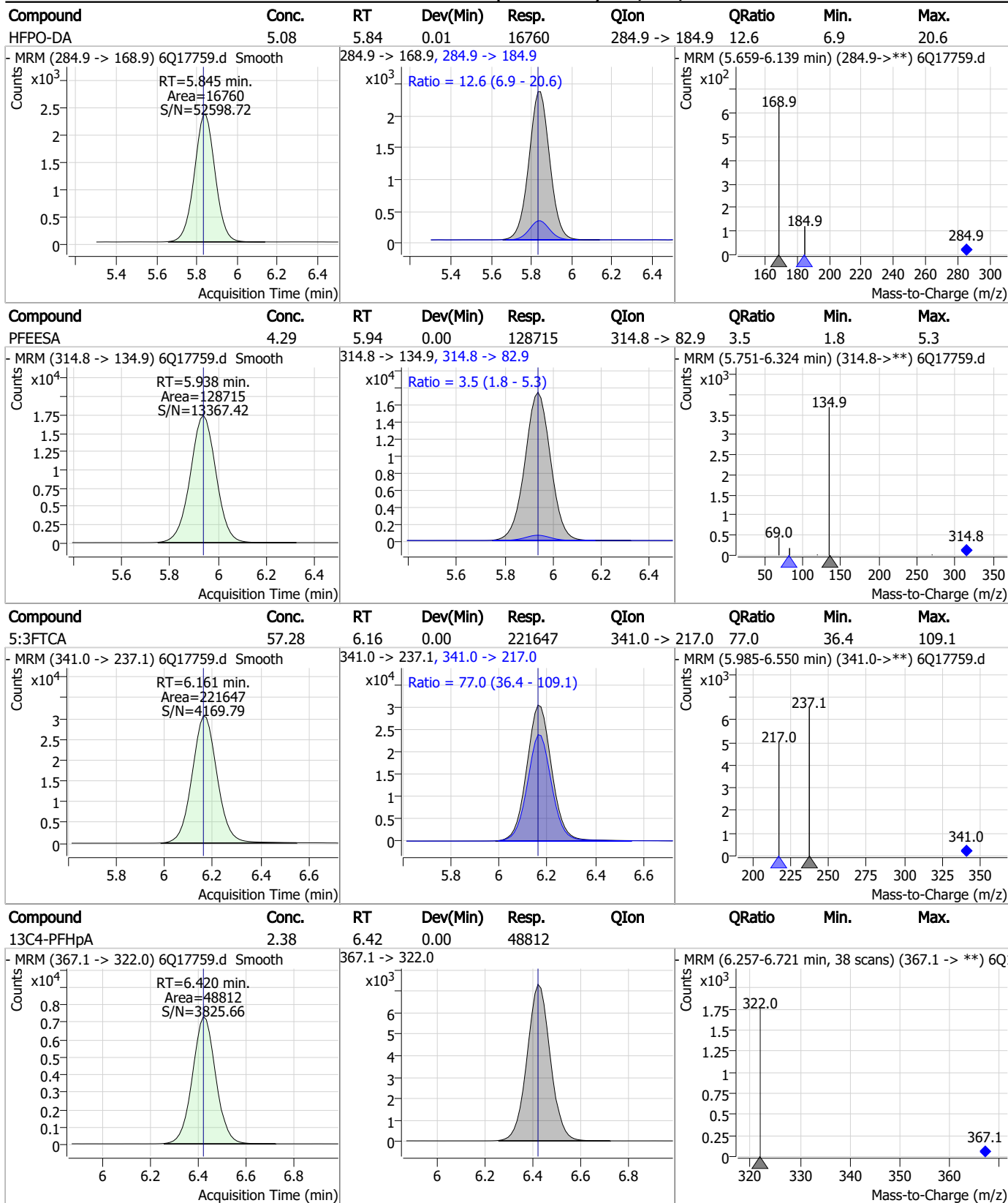
7.7.28  
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### Perfluorinated Compounds by LC/MS/MS

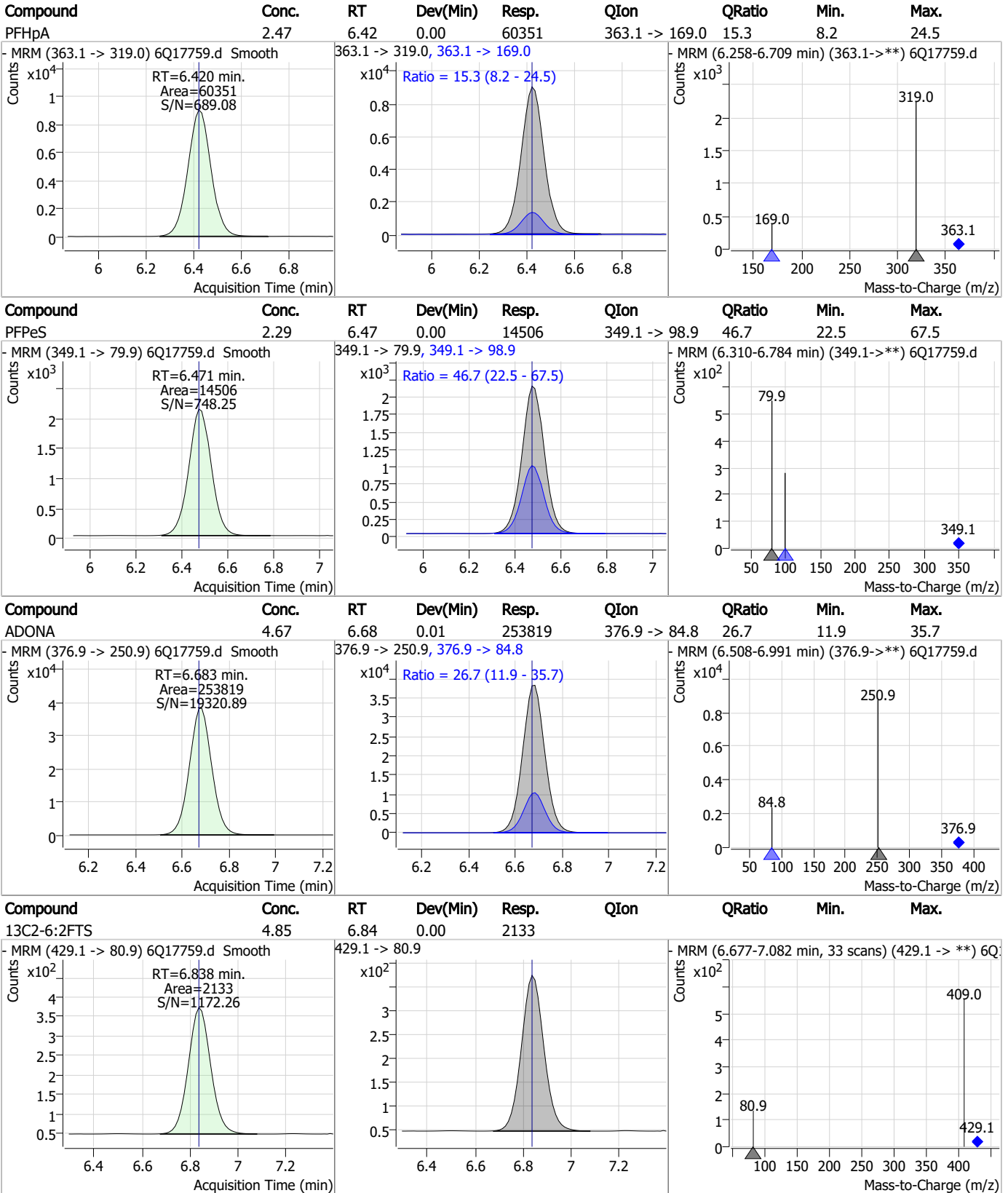


### Perfluorinated Compounds by LC/MS/MS



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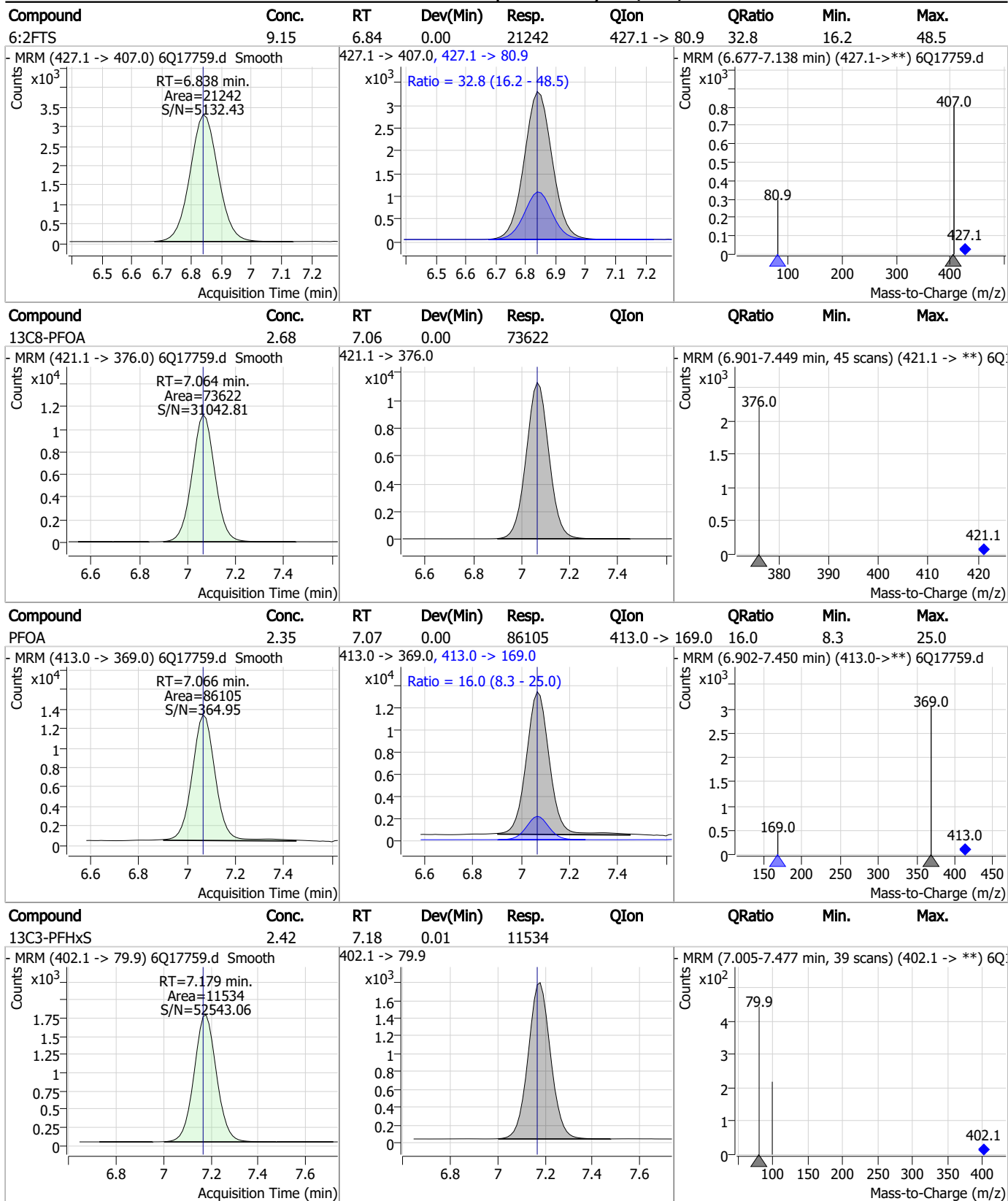
### Perfluorinated Compounds by LC/MS/MS



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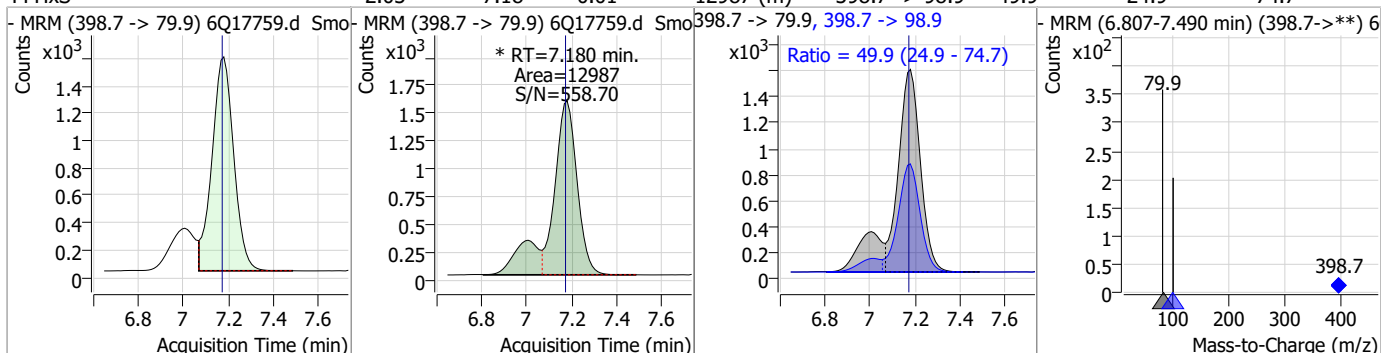
### Perfluorinated Compounds by LC/MS/MS



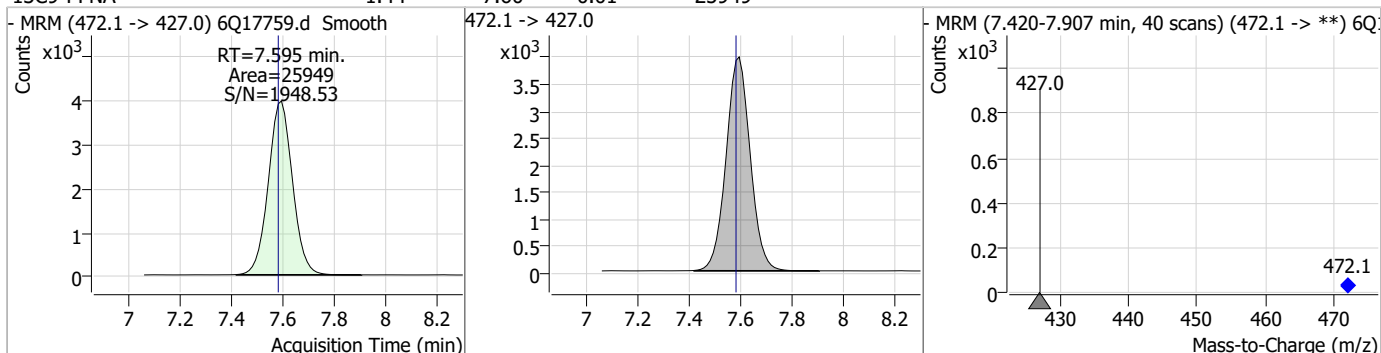
7.7.28  
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### Perfluorinated Compounds by LC/MS/MS

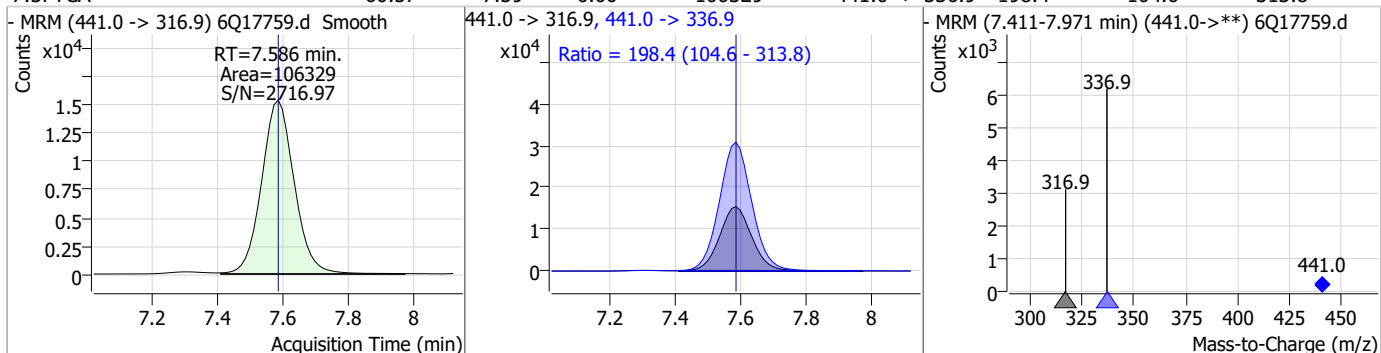
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.03	7.18	0.01	12987 (m)	398.7 -> 98.9	49.9	24.9	74.7



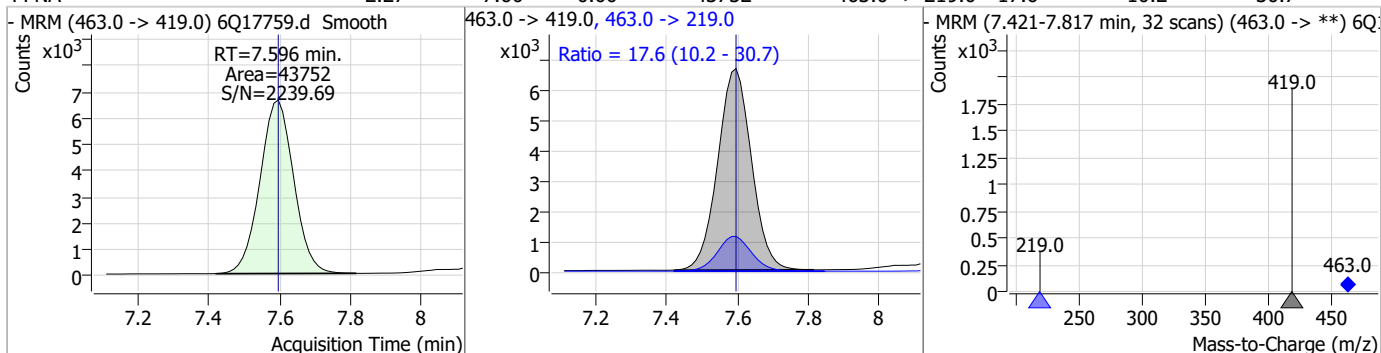
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.44	7.60	0.01	25949				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	60.57	7.59	0.00	106329	441.0 -> 336.9	198.4	104.6	313.8



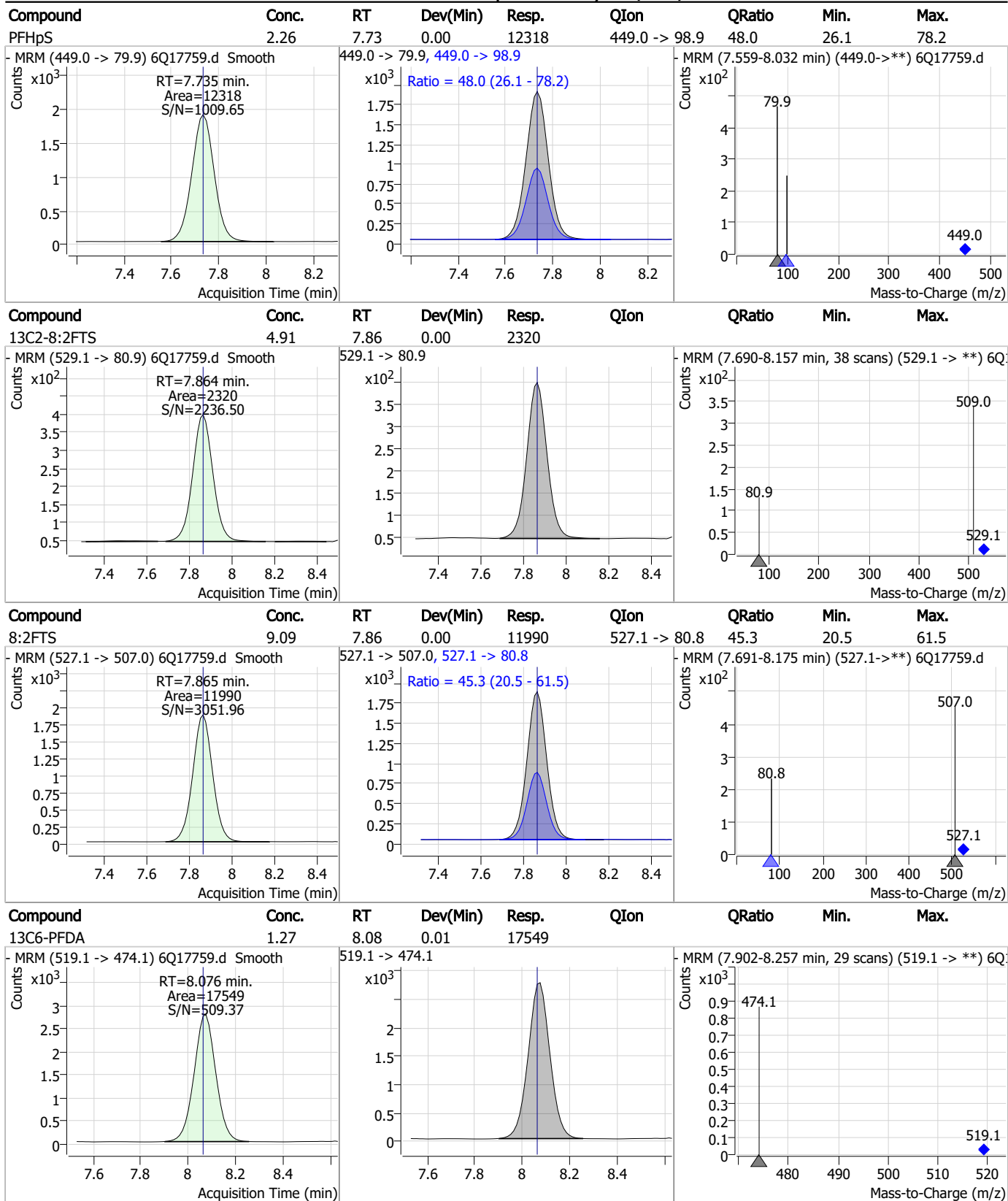
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.27	7.60	0.00	43752	463.0 -> 219.0	17.6	10.2	30.7



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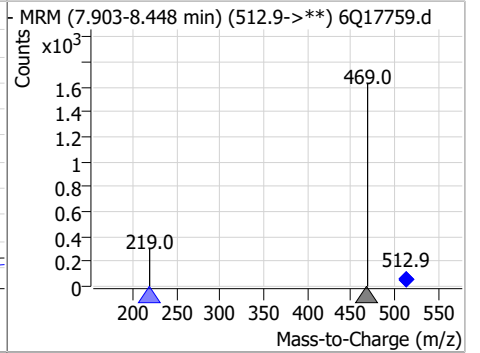
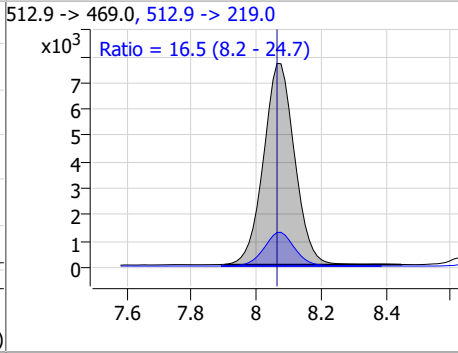
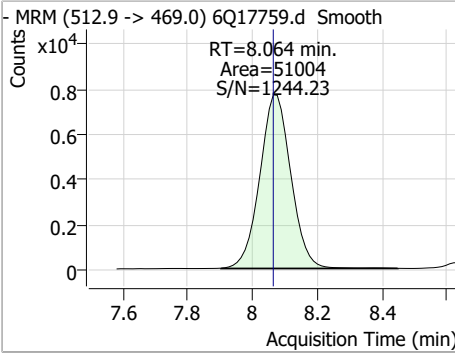
### Perfluorinated Compounds by LC/MS/MS



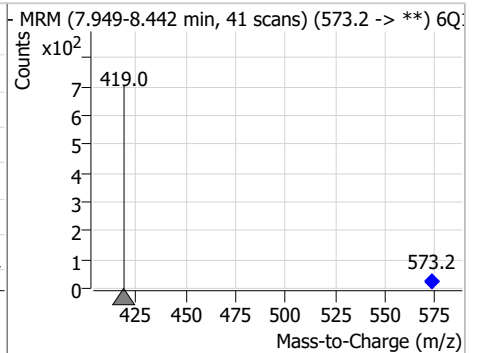
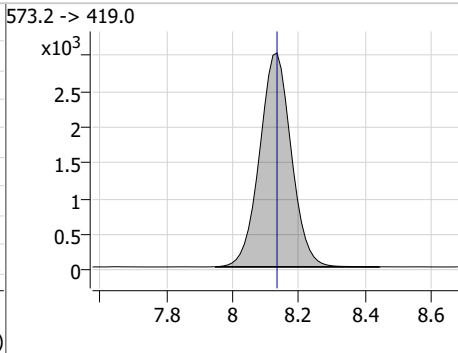
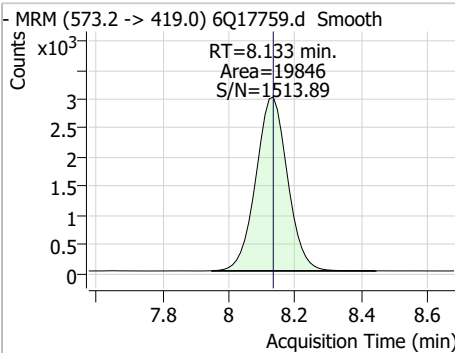
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### Perfluorinated Compounds by LC/MS/MS

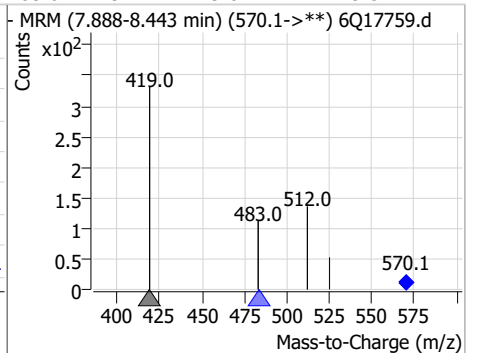
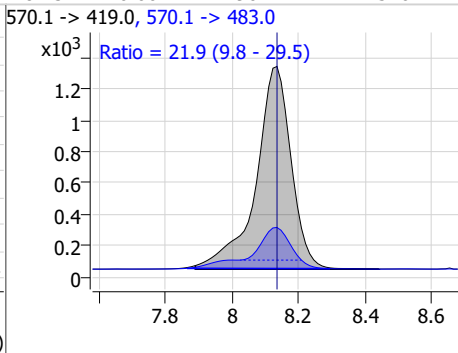
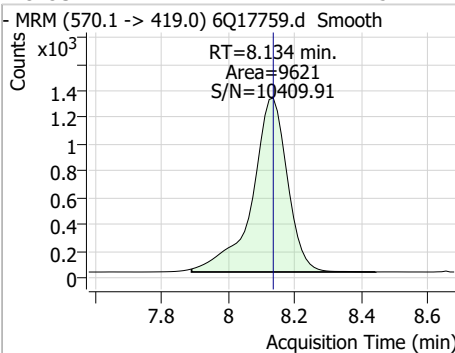
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.35	8.06	0.00	51004	512.9 -> 219.0	16.5	8.2	24.7



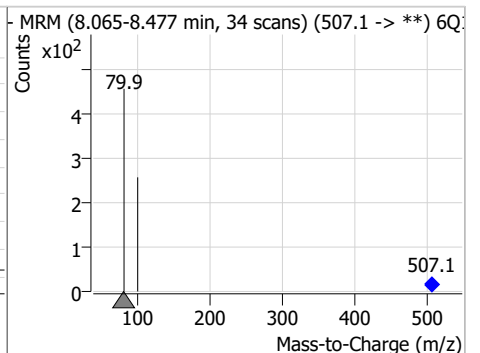
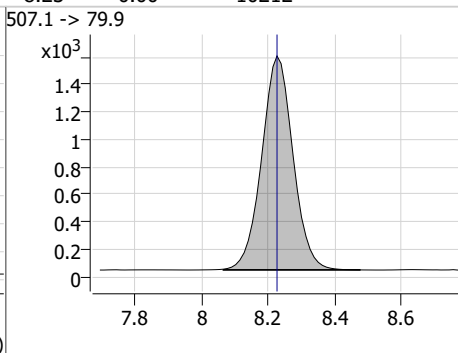
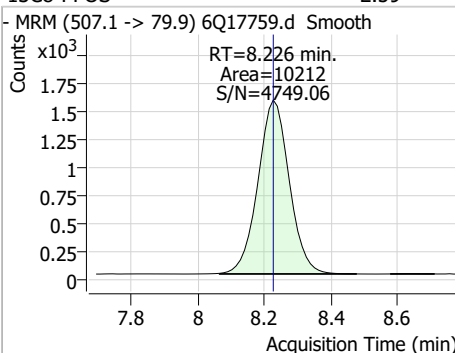
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.99	8.13	0.00	19846				



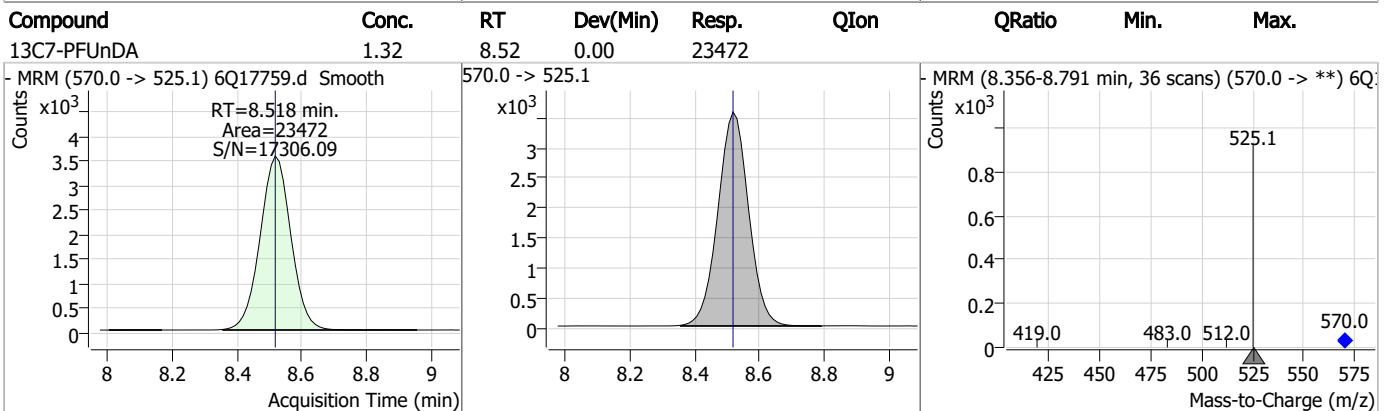
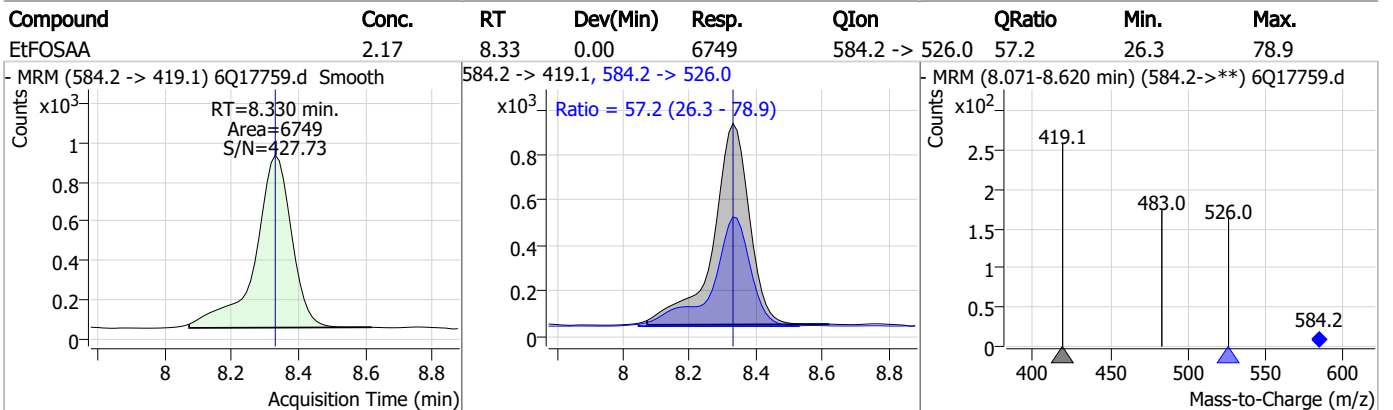
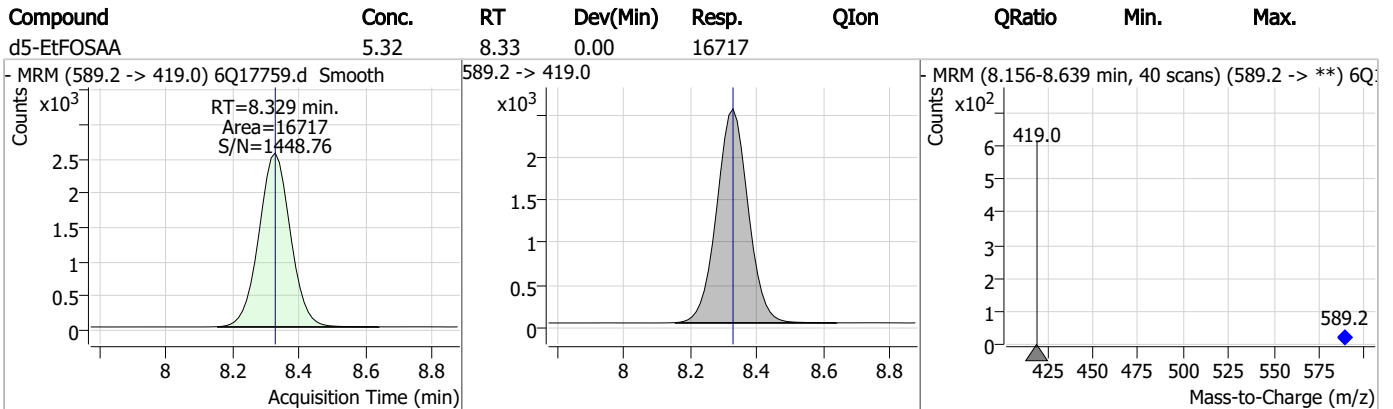
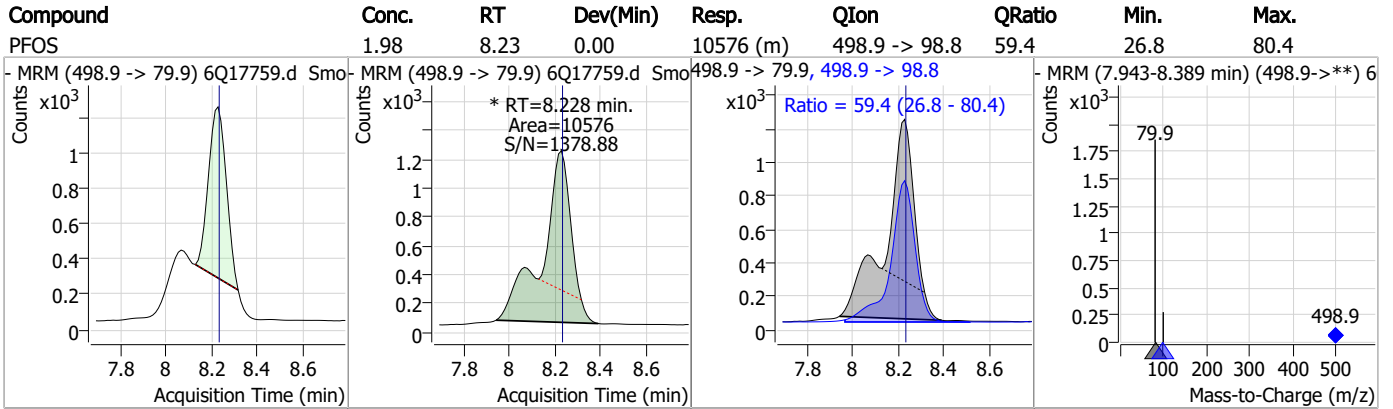
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.51	8.13	0.00	9621	570.1 -> 483.0	21.9	9.8	29.5



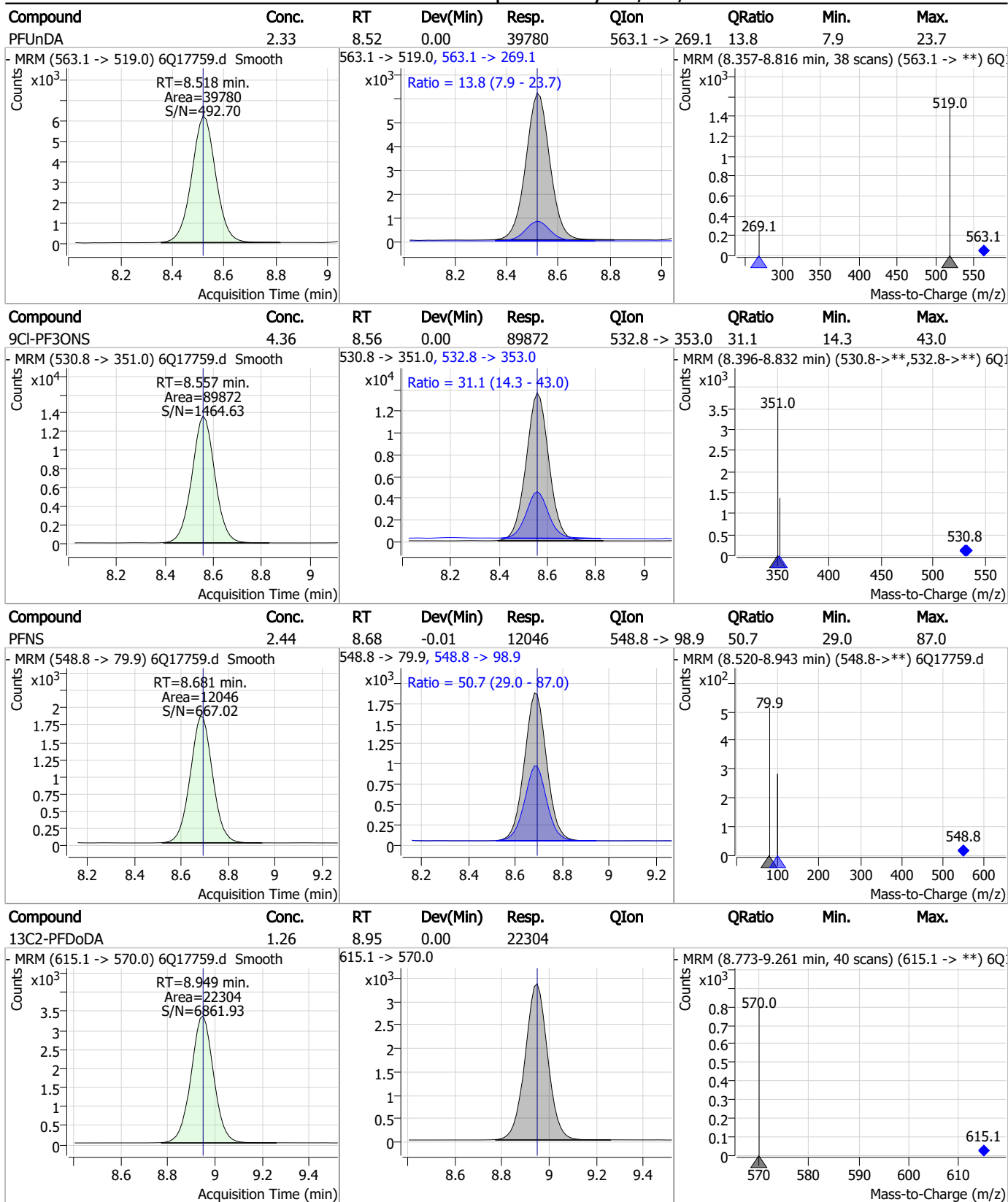
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.59	8.23	0.00	10212				



### Perfluorinated Compounds by LC/MS/MS



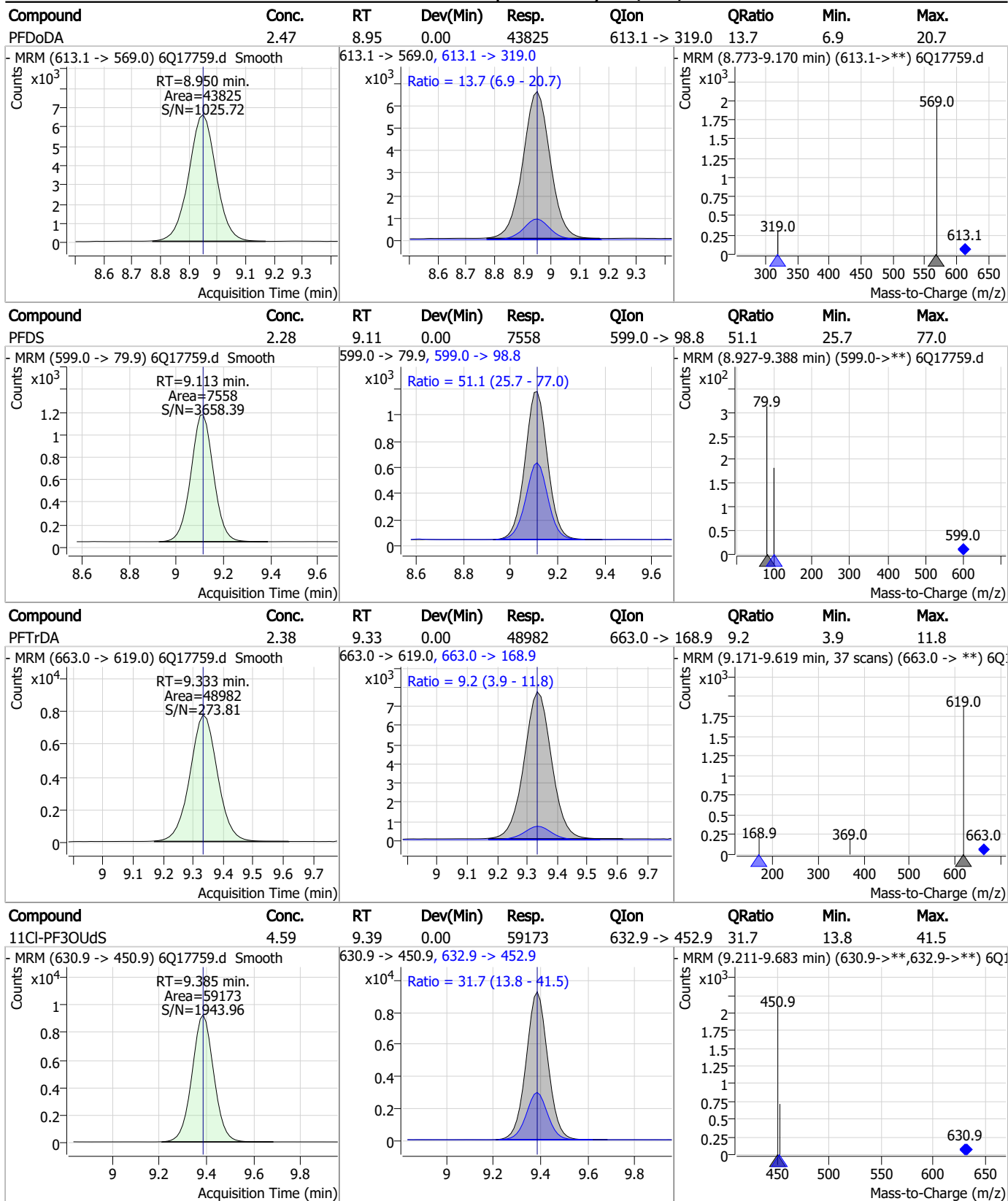
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

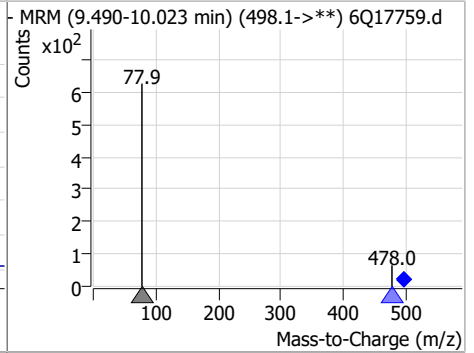
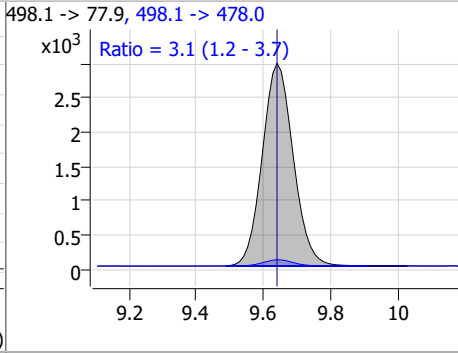
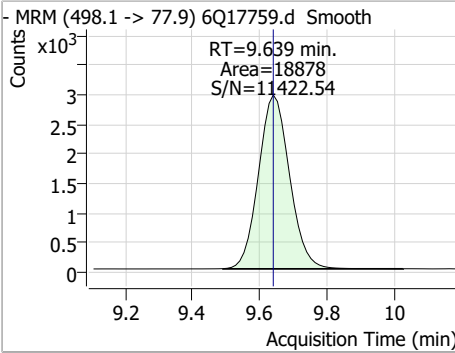


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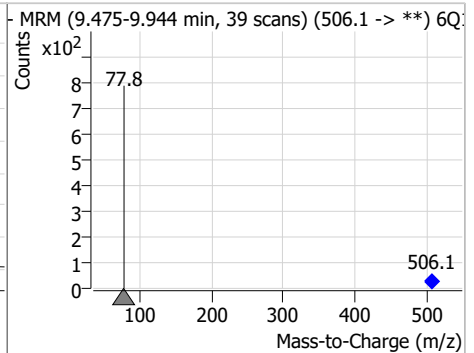
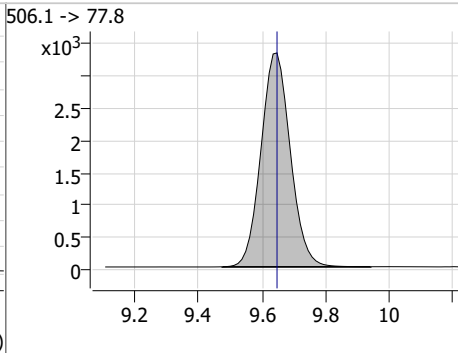
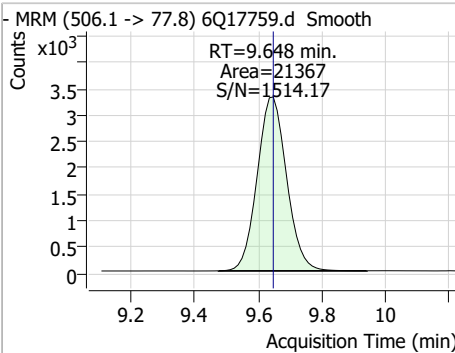


### Perfluorinated Compounds by LC/MS/MS

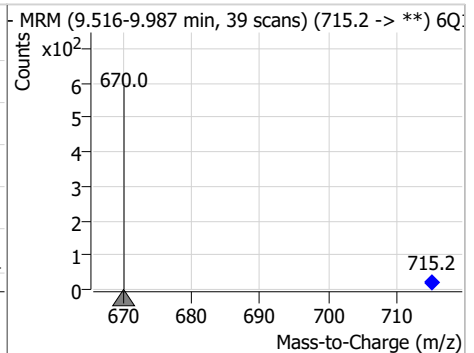
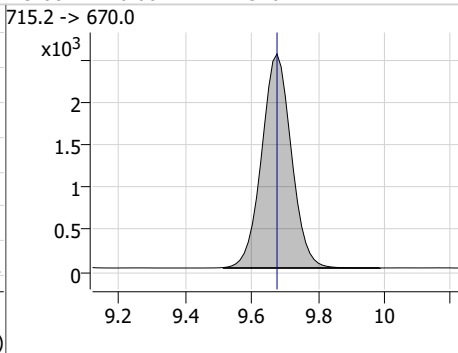
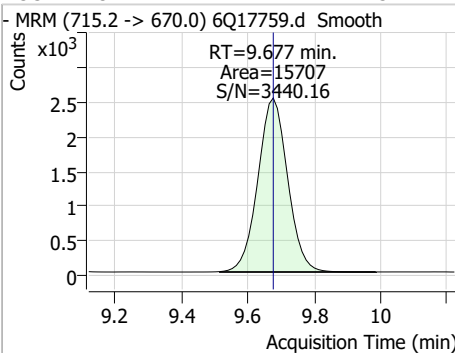
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.36	9.64	0.00	18878	498.1 -> 478.0	3.1	1.2	3.7



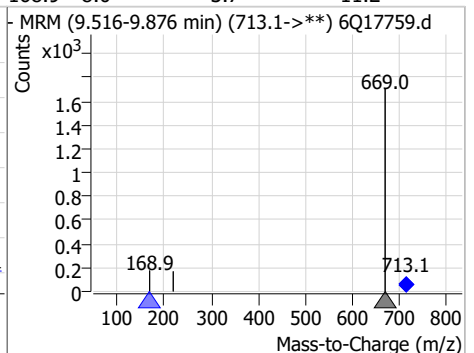
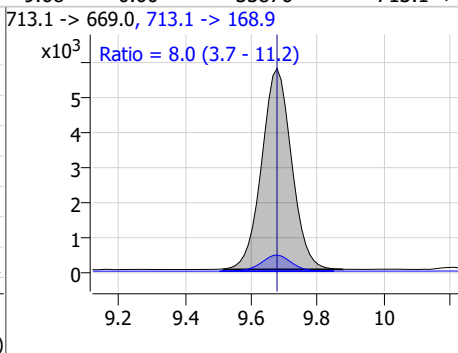
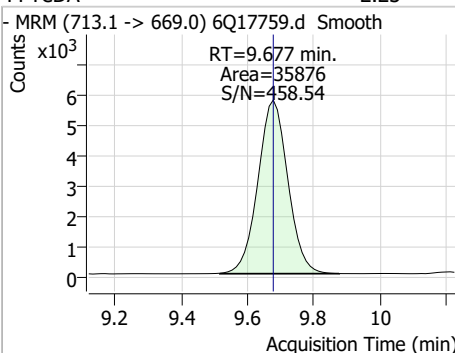
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.54	9.65	0.00	21367				



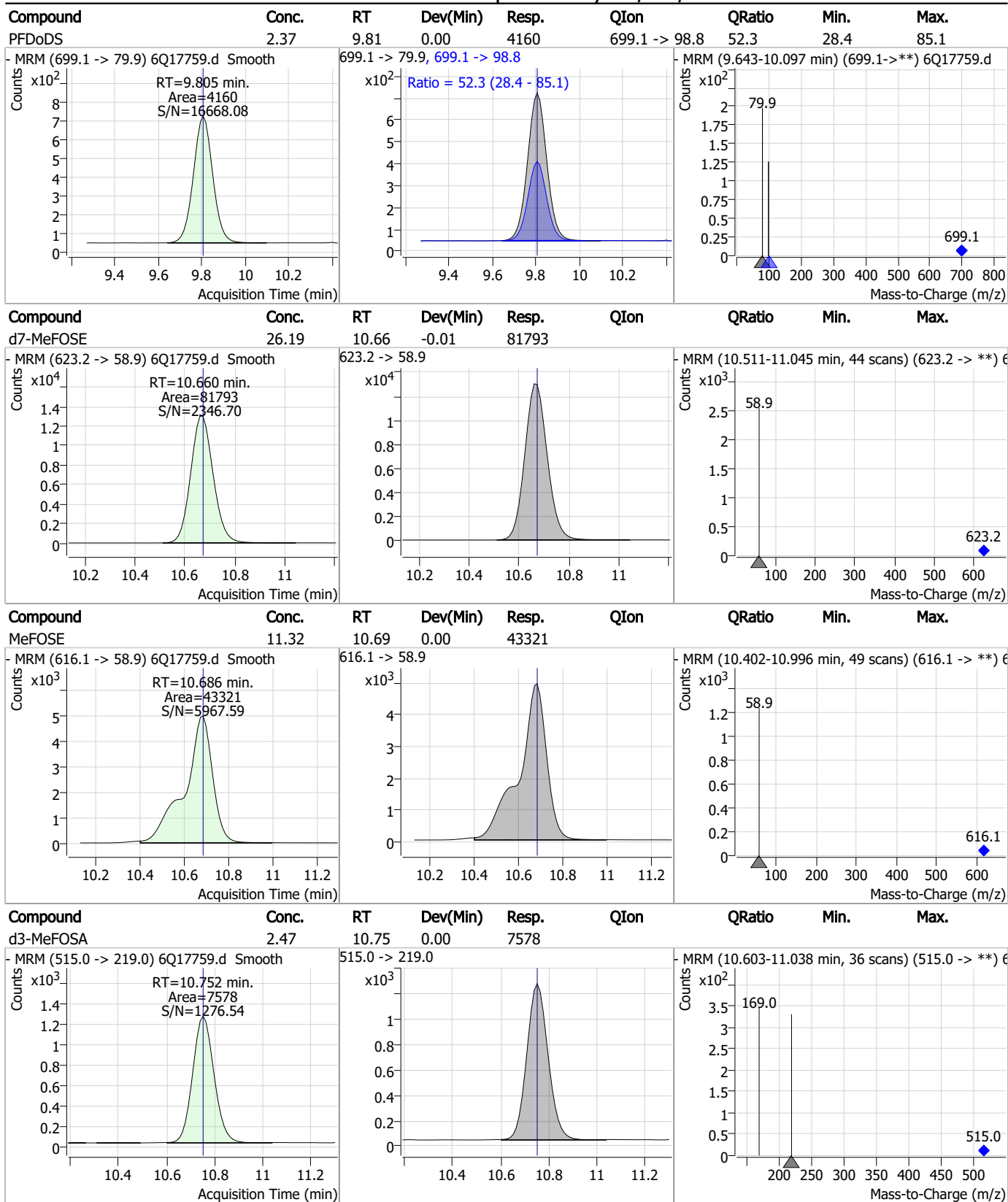
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.31	9.68	0.00	15707				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.23	9.68	0.00	35876	713.1 -> 168.9	8.0	3.7	11.2



### Perfluorinated Compounds by LC/MS/MS

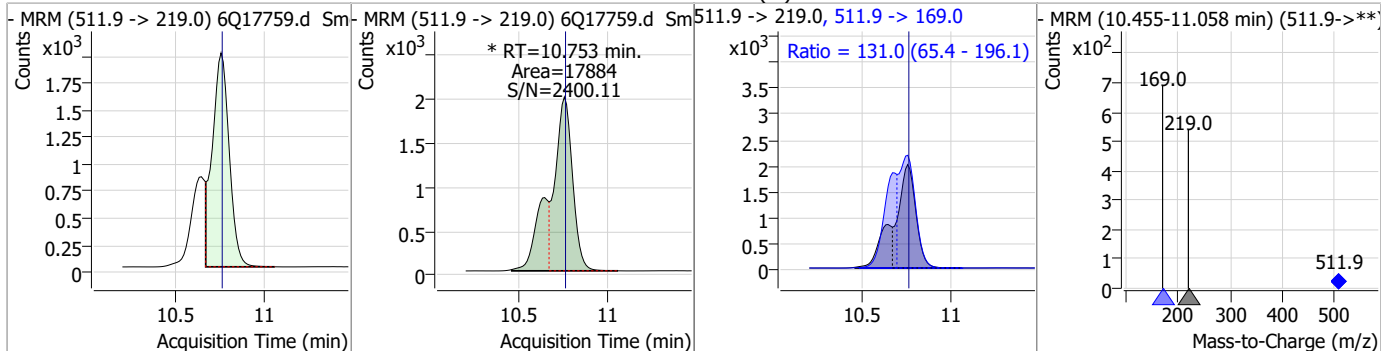


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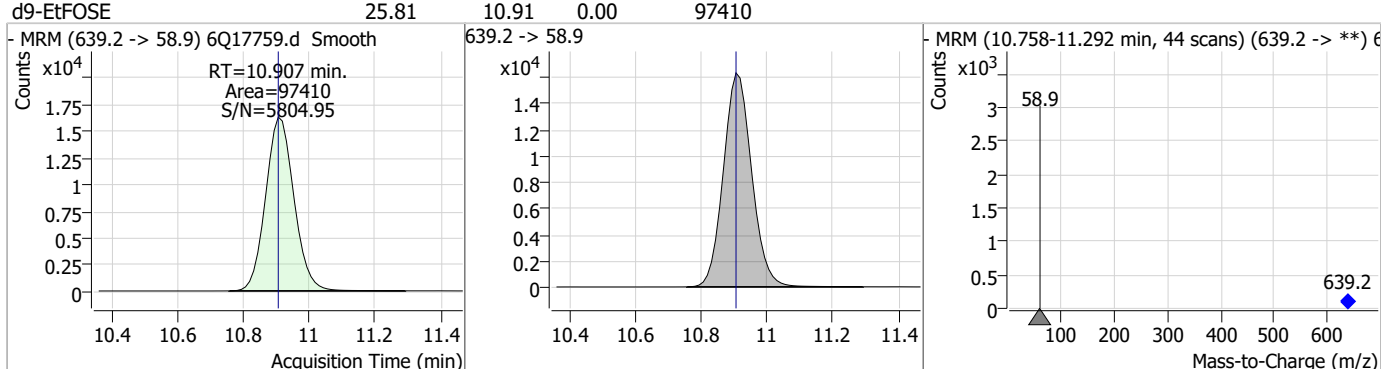


### Perfluorinated Compounds by LC/MS/MS

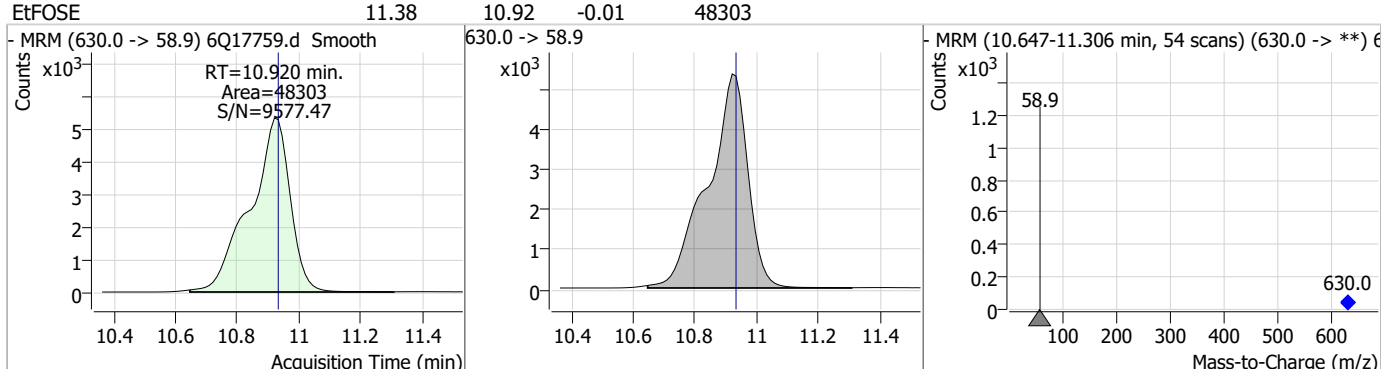
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.13	10.75	0.00	17884 (m)	511.9 -> 169.0	131.0	65.4	196.1



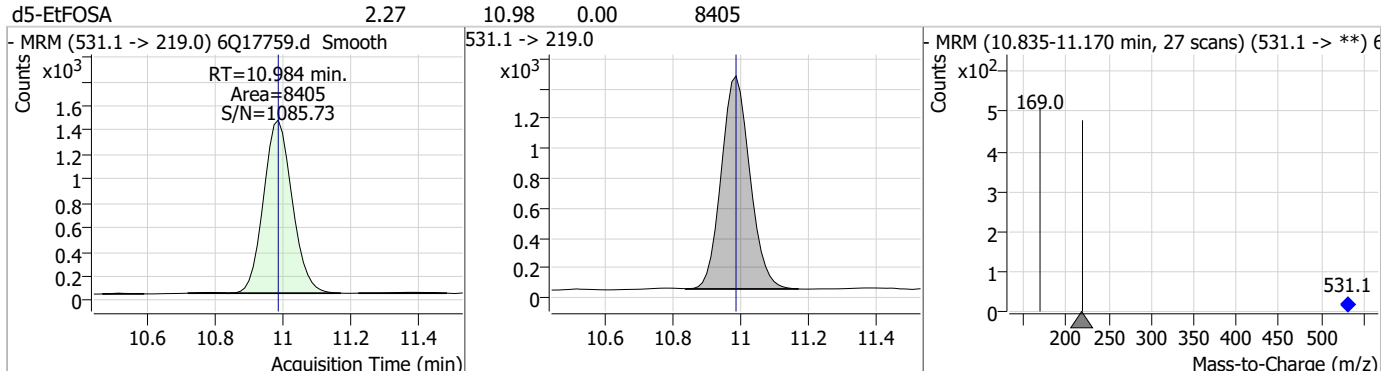
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.81	10.91	0.00	97410				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.38	10.92	-0.01	48303				



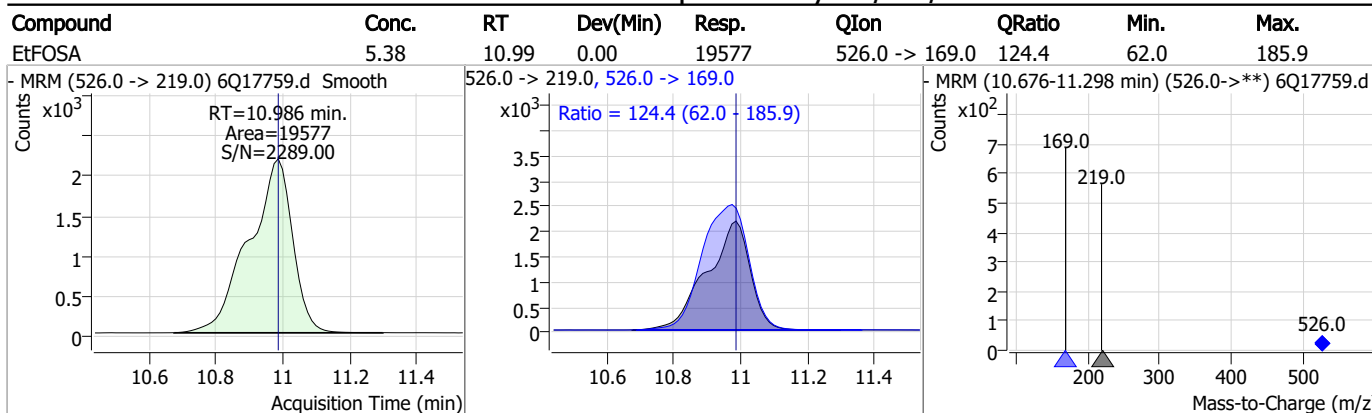
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.27	10.98	0.00	8405				



7.7.28  
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### Perfluorinated Compounds by LC/MS/MS



7.7.28

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# Manual Integration Approval Summary

Sample Number: S6Q268-CC268      Method: EPA DRAFT 1633  
Lab FileID: 6Q17759.D      Analyst approved: 05/15/23 12:43 Martha Valls  
Injection Time: 05/12/23 17:19      Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.75	Split peak

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SGS ORLANDO

DATE:	05/03/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_050323_S4Q634
CAL DATE:	05/03/23
ANALYST:	NG
RUN BATCH:	S4Q634

ELUENT A LOT #:	224863 W5%ACN 214785 2mMAMAC.11387
ELUENT B LOT #:	ACN 214785
IC/CC STD LOT #:	LCMS 2098
ICV STD LOT #:	LCMS 2098B/2100B
ISTD/D STD LOT #:	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q43879.d	P1-A1	CCB	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
2	4Q43880.d	P1-A1	CCB	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
3	4Q43881.d	P1-B1	RT TDCA	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	✓
4	4Q43882.d	P1-B2	RT br/h	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	✓
5	4Q43883.d	P1-A1	ic634-0	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	Check Tune File
6	4Q43884.d	P1-A2	ic634-1	1633full_4Q.m	Calibration	1.6/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
7	4Q43885.d	P1-A3	ic634-2	1633full_4Q.m	Calibration	3.2/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
8	4Q43886.d	P1-A4	ic634-3	1633full_4Q.m	Calibration	10/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
9	4Q43887.d	P1-A5	ic634-4	1633full_4Q.m	Calibration	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
10	4Q43888.d	P1-A6	ic634-5	1633full_4Q.m	Calibration	40/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
11	4Q43889.d	P1-A7	ic634-6	1633full_4Q.m	Calibration	100/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
12	4Q43890.d	P1-A8	ic634-7	1633full_4Q.m	Calibration	200/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
13	4Q43891.d	P1-A9	ic634-8	1633full_4Q.m	Calibration	1x	OP96548,S4Q634,500,,,5.0,1,water	PASS
14	4Q43892.d	P1-A1	iblk	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
15	4Q43893.d	P1-B3	icv634-4	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	wrong vial position, rerun icv
16	4Q43894.d	P1-B4	icv634-20	1633full_4Q.m	QC	100/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
17	4Q43895.d	P1-B3	icv634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
18	4Q43896.d	P1-A5	cc634-4	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	wrong vial position, (incorrect tray #)
19	4Q43897.d	P1-A2	cc634-1.0LL	1633full_4Q.m	QC	1.6/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
20	4Q43898.d	P1-B5	op96662-bs	1633full_4Q.m	Sample		OP96662,S4Q634,500,,,5.0,1,water	✓
21	4Q43899.d	P1-B6	op96662-llbs:3	1633full_4Q.m	Sample		OP96662,S4Q634,500,,,5.0,1,water	✓
22	4Q43900.d	P1-B7	op96662-mb	1633full_4Q.m	Sample		OP96662,S4Q634,500,,,5.0,1,water	✓
23	4Q43901.d	P1-B8	fc5652-1	1633full_4Q.m	Sample		OP96662,S4Q634,530,,,5.0,1,water	✓
24	4Q43902.d	P1-B9	fc5652-2	1633full_4Q.m	Sample		OP96662,S4Q634,530,,,5.0,1,water	✓
25	4Q43903.d	P1-C1	fc5685-1	1633full_4Q.m	Sample		OP96662,S4Q634,550,,,5.0,1,water	✓
26	4Q43904.d	P1-C2	fc5685-2	1633full_4Q.m	Sample		OP96662,S4Q634,530,,,5.0,1,water	✓
27	4Q43905.d	P1-C3	fc5685-3	1633full_4Q.m	Sample		OP96662,S4Q634,560,,,5.0,1,water	✓
28	4Q43906.d	P1-C4	op96662-ms	1633full_4Q.m	Sample		OP96662,S4Q634,520,,,5.0,1,water	✓
29	4Q43907.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
30	4Q43908.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
31	4Q43909.d	P1-C5	fc5685-4	1633full_4Q.m	Sample		OP96662,S4Q634,570,,,5.0,1,water	rr 5x high and low EIS
32	4Q43910.d	P1-C6	op96662-dup	1633full_4Q.m	Sample		OP96662,S4Q634,570,,,5.0,1,water	rr 5x high and low EIS
33	4Q43911.d	P1-C7	fc5685-5	1633full_4Q.m	Sample		OP96662,S4Q634,550,,,5.0,1,water	✓
34	4Q43912.d	P1-C8	op96659-bs	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
35	4Q43913.d	P1-C9	op96659-llbs:2	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓



LCMS4-4Q ANALYSIS LOG

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36	4Q43914.d	P1-D1	op96659-mb	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
37	4Q43915.d	P1-D2	jd63879-1	1633full_4Q.m	Sample		OP96659,S4Q634,60,,,5.0,1,water	✓
38	4Q43916.d	P1-D3	jd63879-1	1633full_4Q.m	Sample	50/500	OP96659,S4Q634,60,,,5.0,10,water	✓
39	4Q43917.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
40	4Q43918.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
41	4Q43919.d	P1-D4	fc5212-1	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
42	4Q43920.d	P1-D5	fc5212-1A	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
43	4Q43921.d	P1-D6	fc5214-1	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
44	4Q43922.d	P1-D7	fc5214-1A	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
45	4Q43923.d	P1-D8	op96657-bs	1633full_4Q.m	Sample		OP96657,S4Q634,5.00,,,5.0,1,soil	DoDS low rerun BS
46	4Q43924.d	P1-D9	op96657-llbs:3	1633full_4Q.m	Sample		OP96657,S4Q634,5.00,,,5.0,1,soil	DoDS low rerun LLBS
47	4Q43925.d	P1-E1	op96657-mb	1633full_4Q.m	Sample		OP96657,S4Q634,5.00,,,5.0,1,soil	✓
48	4Q43926.d	P1-E2	fc5371-10	1633full_4Q.m	Sample		OP96657,S4Q634,4.98,,,5.0,1,soil	✓
49	4Q43927.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
50	4Q43928.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
51	4Q43929.d	P1-E3	fc5371-11	1633full_4Q.m	Sample		OP96657,S4Q634,5.02,,,5.0,1,soil	✓
52	4Q43930.d	P1-E4	op96657-ms	1633full_4Q.m	Sample		OP96657,S4Q634,5.01,,,5.0,1,soil	✓
53	4Q43931.d	P1-E5	op96657-msd	1633full_4Q.m	Sample		OP96657,S4Q634,5.03,,,5.0,1,soil	✓
54	4Q43932.d	P1-E6	fc5371-12	1633full_4Q.m	Sample		OP96657,S4Q634,5.02,,,5.0,1,soil	✓
55	4Q43933.d	P1-E7	fc5371-13	1633full_4Q.m	Sample		OP96657,S4Q634,5.04,,,5.0,1,soil	rr 10x
56	4Q43934.d	P1-E8	fc5371-14	1633full_4Q.m	Sample		OP96657,S4Q634,5.02,,,5.0,1,soil	rr 1x c/o
57	4Q43935.d	P1-E9	fc5371-15	1633full_4Q.m	Sample		OP96657,S4Q634,5.05,,,5.0,1,soil	✓
58	4Q43936.d	P1-F1	fc5371-16	1633full_4Q.m	Sample		OP96657,S4Q634,4.97,,,5.0,1,soil	rr 10x
59	4Q43937.d	P1-F2	fc5371-17	1633full_4Q.m	Sample		OP96657,S4Q634,5.03,,,5.0,1,soil	rr 1x c/o
60	4Q43938.d	P1-F3	fc5371-18	1633full_4Q.m	Sample		OP96657,S4Q634,5.03,,,5.0,1,soil	rr 10x
61	4Q43939.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
62	4Q43940.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
63	4Q43941.d	P1-F4	fc5371-19	1633full_4Q.m	Sample		OP96657,S4Q634,4.96,,,5.0,1,soil	✓
64	4Q43942.d	P1-F5	fc5371-20	1633full_4Q.m	Sample		OP96657,S4Q634,5.05,,,5.0,1,soil	✓
65	4Q43943.d	P1-F6	op96657-ms2	1633full_4Q.m	Sample		OP96657,S4Q634,4.96,,,5.0,1,soil	✓
66	4Q43944.d	P1-F7	op96657-msd2	1633full_4Q.m	Sample		OP96657,S4Q634,5.05,,,5.0,1,soil	✓
67	4Q43945.d	P1-F8	fc5371-21	1633full_4Q.m	Sample		OP96657,S4Q634,4.99,,,5.0,1,soil	✓
68	4Q43946.d	P1-A5	ecc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
69	4Q43947.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND

SGS ORLANDO

DATE:	05/09/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_050323_S4Q634
CAL DATE:	05/03/23
ANALYST:	IMV
RUN BATCH:	S4Q639

ELUENT A LOT #:	224863 W5%ACN 214785 2mMAMAC.11387
ELUENT B LOT #:	ACN 214785
IC/CC STD LOT #:	LCMS 2098
ICV STD LOT #:	LCMS 2098B/2100B
ISTD/ID STD LOT #:	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q44131.d	P1-A1	CCB	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
2	4Q44132.d	P1-A1	CCB	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
3	4Q44133.d	P1-B1	RT TDCA	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
4	4Q44134.d	P1-B2	RT br/h	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
5	4Q44135.d	P1-A9	high std	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
6	4Q44136.d	P1-A1	iblk	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
7	4Q44137.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q639,500,,,5.0,1,water	✓
8	4Q44138.d	P1-A2	cc634-1.0LL	1633full_4Q.m	QC	1.6/500	OP96548,S4Q639,500,,,5.0,1,water	✓
9	4Q44139.d	P3-A1	op96746-bs	1633full_4Q.m	Sample		OP96746,S4Q639,500,,,5.0,1,water	✓
10	4Q44140.d	P3-A2	op96746-llbs:3	1633full_4Q.m	Sample		OP96746,S4Q639,500,,,5.0,1,water	✓
11	4Q44141.d	P3-A3	op96746-mb	1633full_4Q.m	Sample		OP96746,S4Q639,500,,,5.0,1,water	✓
12	4Q44142.d	P3-A4	FC5295-1	1633full_4Q.m	Sample		OP96746,S4Q639,68,,,5.0,1,water	rr10x
13	4Q44143.d	P3-A5	FC5295-3	1633full_4Q.m	Sample		OP96746,S4Q639,480,,,5.0,1,water	rr for co
14	4Q44144.d	P3-A6	FC5309-11	1633full_4Q.m	Sample		OP96746,S4Q639,570,,,5.0,1,water	✓
15	4Q44145.d	P3-A5	FC5295-3	1633full_4Q.m	Sample		OP96746,S4Q639,480,,,5.0,1,water	✓
16	4Q44146.d	P3-A7	FC5295-12	1633full_4Q.m	Sample		OP96746,S4Q639,68,,,5.0,1,water	to confirm
17	4Q44147.d	P3-C8	FC5295-12	1633full_4Q.m	Sample	50/500	OP96746,S4Q639,68,,,5.0,10,water	to confirm
18	4Q44148.d	P3-C7	FC5295-1	1633full_4Q.m	Sample	50/500	OP96746,S4Q639,68,,,5.0,10,water	✓
19	4Q44149.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q639,500,,,5.0,1,water	✓
20	4Q44150.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
21	4Q44151.d	P3-A8	FC5309-12	1633full_4Q.m	Sample		OP96746,S4Q639,570,,,5.0,1,water	✓
22	4Q44152.d	P3-A9	FC5309-13	1633full_4Q.m	Sample		OP96746,S4Q639,570,,,5.0,1,water	✓
23	4Q44153.d	P3-B1	FC5309-14	1633full_4Q.m	Sample		OP96746,S4Q639,570,,,5.0,1,water	✓
24	4Q44154.d	P3-B2	FC5325-1	1633full_4Q.m	Sample		OP96746,S4Q639,560,,,5.0,1,water	cf
25	4Q44155.d	P3-B3	FC5325-2	1633full_4Q.m	Sample		OP96746,S4Q639,560,,,5.0,1,water	cf
26	4Q44156.d	P3-B4	FC5325-3	1633full_4Q.m	Sample		OP96746,S4Q639,560,,,5.0,1,water	cf
27	4Q44157.d	P3-B5	FC5325-6	1633full_4Q.m	Sample		OP96746,S4Q639,560,,,5.0,1,water	cf
28	4Q44158.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q639,500,,,5.0,1,water	✓
29	4Q44159.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
30	4Q44160.d	P3-B6	op96747-bs	1633full_4Q.m	Sample		OP96747,S4Q639,500,,,5.0,1,water	✓
31	4Q44161.d	P3-B7	op96747-llbs:3	1633full_4Q.m	Sample		OP96747,S4Q639,500,,,5.0,1,water	✓
32	4Q44162.d	P3-B8	op96747-mb	1633full_4Q.m	Sample		OP96747,S4Q639,500,,,5.0,1,water	✓
33	4Q44163.d	P3-B9	FC5818-1	1633full_4Q.m	Sample		OP96747,S4Q639,550,,,5.0,1,water	✓
34	4Q44164.d	P3-C1	FC5818-2	1633full_4Q.m	Sample		OP96747,S4Q639,530,,,5.0,1,water	✓
35	4Q44165.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q639,500,,,5.0,1,water	✓

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SGS ORLANDO LCMS4-4Q ANALYSIS LOG

36	4Q44166.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96548,S4Q639,500,,,5.0,1,water	✓
37	4Q44167.d	P3-C2	FC5818-3	1633full_4Q.m	Sample	OP96747,S4Q639,570,,,5.0,1,water	rf5x surr high. Pfba low
38	4Q44168.d	P3-C3	op96747-ms	1633full_4Q.m	Sample	OP96747,S4Q639,560,,,5.0,1,water	✓
39	4Q44169.d	P3-C4	FC5818-4	1633full_4Q.m	Sample	OP96747,S4Q639,530,,,5.0,1,water	✓
40	4Q44170.d	P3-C5	FC5818-5	1633full_4Q.m	Sample	OP96747,S4Q639,560,,,5.0,1,water	✓
41	4Q44171.d	P3-C6	op96747-dup	1633full_4Q.m	Sample	OP96747,S4Q639,560,,,5.0,1,water	✓
42	4Q44172.d	P1-A5	cc634-4	1633full_4Q.m	QC	OP96548,S4Q639,500,,,5.0,1,water	✓
43	4Q44173.d	P1-A2	cc634-1.0LL	1633full_4Q.m	QC	OP96548,S4Q639,500,,,5.0,1,water	✓
44	4Q44174.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96548,S4Q639,500,,,5.0,1,water	✓
45	4Q44175.d	P3-D1	op96784-bs	1633full_4Q.m	Sample	OP96784,S4Q639,500,,,5.0,1,water	✓
46	4Q44176.d	P3-D2	op96784-llbs:3	1633full_4Q.m	Sample	OP96784,S4Q639,500,,,5.0,1,water	✓
47	4Q44177.d	P3-D3	op96784-mb	1633full_4Q.m	Sample	OP96784,S4Q639,500,,,5.0,1,water	✓
48	4Q44178.d	P3-D4	FC5861-1	1633full_4Q.m	Sample	OP96784,S4Q639,520,,,5.0,1,water	✓
49	4Q44179.d	P3-D5	FC5890-1	1633full_4Q.m	Sample	OP96784,S4Q639,550,,,5.0,1,water	✓
50	4Q44180.d	P3-D6	op96784-ms	1633full_4Q.m	Sample	OP96784,S4Q639,540,,,5.0,1,water	✓
51	4Q44181.d	P3-D7	FC5890-2	1633full_4Q.m	Sample	OP96784,S4Q639,550,,,5.0,1,water	✓
52	4Q44182.d	P3-D8	op96784-dup	1633full_4Q.m	Sample	OP96784,S4Q639,550,,,5.0,1,water	✓
53	4Q44183.d	P3-D9	FC5890-3	1633full_4Q.m	Sample	OP96784,S4Q639,530,,,5.0,1,water	✓
54	4Q44184.d	P1-A5	Ecc634-4	1633full_4Q.m	QC	OP96548,S4Q639,500,,,5.0,1,water	✓
55	4Q44185.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96548,S4Q639,500,,,5.0,1,water	✓

SGS ORLANDO

DATE:	05/12/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_050823_S6Q265
CAL DATE:	05/08/23
ANALYST:	M. Valls
RUN BATCH:	S6Q268

ELUENT A LOT #:	ACN 220228
ELUENT B LOT #:	HPLC WATER LOT: 224870 W15% ACN 220225 2mM AMAC: 11387
IC/CC STD LOT #:	LCMS 2107C
ICV STD LOT #:	LCMS 2107C/2100B
ISTD/ID STD LOT #:	11765/11764

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q17732.d	P1-B9	CCB	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1.,water	✓
2	6Q17733.d	P1-B9	CCB	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1.,water	✓
3	6Q17734.d	P1-B9	CCB	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1.,water	✓
4	6Q17735.d	P1-B3	RT TDCA	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1.,water	✓
5	6Q17736.d	P1-B4	RT BR-LN	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1.,water	✓
6	6Q17737.d	P1-A1	ic268-0	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1.,water	✓
7	6Q17738.d	P1-A2	ic268-1	1633full.m	Calibration	1.6/500	OP96663.S6Q268.500,,,5.0,1.,water	✓
8	6Q17739.d	P1-A3	ic268-2	1633full.m	Calibration	3.2/500	OP96663.S6Q268.500,,,5.0,1.,water	✓
9	6Q17740.d	P1-A4	ic268-3	1633full.m	Calibration	10/500	OP96663.S6Q268.500,,,5.0,1.,water	✓
10	6Q17741.d	P1-A5	icc268-4	1633full.m	Calibration	20/500	OP96663.S6Q268.500,,,5.0,1.,water	✓
11	6Q17742.d	P1-A6	ic268-5	1633full.m	Calibration	40/500	OP96663.S6Q268.500,,,5.0,1.,water	✓
12	6Q17743.d	P1-A7	ic268-6	1633full.m	Calibration	100/500	OP96663.S6Q268.500,,,5.0,1.,water	✓
13	6Q17744.d	P1-A8	ic268-7	1633full.m	Calibration	200/500	OP96663.S6Q268.500,,,5.0,1.,water	✓
14	6Q17745.d	P1-A9	ic268-8	1633full.m	Calibration	1x	OP96663.S6Q268.500,,,5.0,1.,water	✓
15	6Q17746.d	P1-A1	iblk	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1.,water	✓
16	6Q17747.d	P1-B1	icv268-4	1633full.m	QC	20/500	OP96663.S6Q268.500,,,5.0,1.,water	✓
17	6Q17748.d	P1-B2	icv268-20	1633full.m	QC	100/500	OP96663.S6Q268.500,,,5.0,1.,water	made icv20 (NG)
18	6Q17749.d	P1-A5	cc268-4	1633full.m	QC	20/500	OP96663.S6Q268.500,,,5.0,1.,water	✓
19	6Q17750.d	P1-A2	cc268-1.0LL	1633full.m	QC	1.6/500	OP96663.S6Q268.500,,,5.0,1.,water	✓
20	6Q17751.d	P4-A1	op96784-mb	1633full.m	Sample		OP96784.S6Q268.500,,,5.0,1.,water	✓
21	6Q17752.d	P4-A2	fc5890-1	1633full.m	Sample		OP96784.S6Q268.550,,,5.0,1.,water	✓
22	6Q17753.d	P4-A3	fc5890-1	1633full.m	Sample	50/500	OP96784.S6Q268.550,,,5.0,5.,water	✓
23	6Q17754.d	P4-A4	op96784-ms	1633full.m	Sample	50/500	OP96784.S6Q268.550,,,5.0,5.,water	✓
24	6Q17755.d	P4-A5	fc5890-2	1633full.m	Sample		OP96784.S6Q268.550,,,5.0,1.,water	✓
25	6Q17756.d	P4-A6	fc5890-2	1633full.m	Sample	50/500	OP96784.S6Q268.550,,,5.0,5.,water	✓
26	6Q17757.d	P4-A7	op96784-dup	1633full.m	Sample		OP96784.S6Q268.550,,,5.0,1.,water	✓
27	6Q17758.d	P4-A8	op96784-dup	1633full.m	Sample	50/500	OP96784.S6Q268.550,,,5.0,5.,water	✓
28	6Q17759.d	P1-A5	cc268-4	1633full.m	QC	20/500	OP96663.S6Q268.500,,,5.0,1.,water	✓
29	6Q17760.d	P1-A1	iccb	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1.,water	✓
30	6Q17761.d	P4-B1	FC5481-3	1633full.m	Sample	50/500	OP96723.S6Q268.60,,,5.0,5.,water	✓
31	6Q17762.d	P4-B2	op96723-ms	1633full.m	Sample	50/500	OP96723.S6Q268.60,,,5.0,5.,water	✓
32	6Q17763.d	P4-B3	op96723-msd	1633full.m	Sample	50/500	OP96723.S6Q268.60,,,5.0,5.,water	✓
33	6Q17764.d	P1-A5	cc268-4	1633full.m	QC	20/500	OP96663.S6Q268.500,,,5.0,1.,water	✓
34	6Q17765.d	P1-A1	iccb	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1.,water	✓
35	6Q17766.d	P4-B4	op96842-bs	1633full.m	Sample		OP96842.S6Q268.500,,,5.0,1.,water	✓

SGS ORLANDO LCMS6-6Q ANALYSIS LOG

36	6Q17767.d	P4-B5	op96842-llbs:3	1633full.m	Sample	OP96842,S6Q268,500,,,5.0,1,water	✓
37	6Q17768.d	P4-B6	op96842-mb	1633full.m	Sample	OP96842,S6Q268,500,,,5.0,1,water	✓
38	6Q17769.d	P4-B7	FC5443-1	1633full.m	Sample	OP96842,S6Q268,560,,,5.0,1,water	✓
39	6Q17770.d	P4-B8	FC5443-2	1633full.m	Sample	OP96842,S6Q268,570,,,5.0,1,water	✓
40	6Q17771.d	P4-B9	FC5443-3	1633full.m	Sample	OP96842,S6Q268,550,,,5.0,1,water	✓
41	6Q17772.d	P4-C1	FC5443-4	1633full.m	Sample	OP96842,S6Q268,540,,,5.0,1,water	RR2X
42	6Q17773.d	P4-C2	op96842-ms	1633full.m	Sample	OP96842,S6Q268,550,,,5.0,1,water	RR2X
43	6Q17774.d	P4-C3	op96842-msd	1633full.m	Sample	OP96842,S6Q268,540,,,5.0,1,water	RR2X
44	6Q17775.d	P4-C4	FC5443-5	1633full.m	Sample	OP96842,S6Q268,550,,,5.0,1,water	RR2X
45	6Q17776.d	P4-C5	FC5818-3	1633full.m	Sample	OP96842,S6Q268,60,,,5.0,1,water	✓
46	6Q17777.d	P1-A5	ecc268-4	1633full.m	QC	20/500	✓
47	6Q17778.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q268,500,,,5.0,1,water	✓



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2098A	1033 SPIKE Cal std.	11672A	PFAC	Wellington	8/18/27	3/23/24	1-4 ppm	2.50uL	4mL	0.25 1.25 2.50ppb	1033 MIX	4/6/23	10/6/23	MW
		LCMS 2097	Br-In Et, Me	Sgs	9/4	10/28/23	2ppm	250uL		125ppb				
		11674B	PFAC MyF	Wellington	1/11/25	3/30/24	2ppm	250uL		312.5ppb				
		11675	PFAC MyG		12/1/27	3/30/24	2ppm	250uL		125ppb				
		11642B	PFAC MyJ		9/14/26	3/23/24	4-20 ppm	312uL		312/1000 ppb				
LCMS 2099	537.1 Du std. (Internal)	11070	MSF-PEA	Wellington Labs	07/06/25	04/06/24	50ppm	80uL	4mL	1.0ppm	2011MSA 41, H2O	04/03/23	06/15/23	NG
		10438A	Mw:2 FTS		11/05/25	04/06/24		80uL		1.0ppm				NG
		10512B	d3-N-MSDSAA		10/22/25	05/15/23		160uL		2.0ppm				NG
		10498A	M:PFOS		11/02/25	03/22/24		80uL		1.0ppm				NG
		11069	M:PFDA		12/09/26	03/22/24		80uL		1.0ppm				NG
LCMS 2100	Full List (90)	11626	PFOR 28 Comp.	Absolute	11/19/27	4/11/24	1.0ppm	400uL	4.0mL	100ppb	75% MeOH 5% H2O	4/11/23	7/24/23	MW
91B	List 40 spike (Std)	LCMS 2067	40 List ADD ON #1	Sgs wld.		8/23/23	1.0ppm	400uL			(2.40031)			
		LCMS 2070	40 List ADD ON #2			5/12/23	1.0ppm	400uL						
		LCMS 2054	Fose Std.			7/24/23	5.0ppm	400uL		50ppb				
LCMS 2101	Fose std.	11336	N-et Fose	Wellington	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	9/11/23	9/19/23	MW
		11338	N-me Fose		5/13/27	9/19/23	50ppm	200uL						

\* B/C checked are normal

\* tested & used on 10/11/23

LCMS 2100 91B \* 100% 100uL 100ppb

\* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

(1,000)



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2095A-J	(10ppb) PFC ID SURF	A-J 11669	PFAC-2YES	Wellington Labs	01/15/23	03/28/24	1.0ppm	2.4mL	~50mL	0.5ppm	05/10/23	03/28/23	09/26/23	NS
↓	↓	11585	M2HFO-DA	↓	11/08/23	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	d-N-METOSAM	↓	05/06/27	03/13/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
LCMS 2096A-B	1033 spike Cal cert.	11672	PFAC-MxH	Wellington Labs	8/15/27	3/23/24	1-4 ppm	250uL	4mL	0.25 125 250ppb	1033 MIX	3/30/23	9/30/23	MUJ
↓	↓	11686	PFAC-MxI	↓	2/27/28	3/30/24	170 ppm	250uL	↓	0.25 6.25ppb	↓	↓	↓	↓
↓	↓	11674A	PFAC-MxG	↓	11/1/25	3/23/24	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11674B	PFAC-MxH	↓	12/1/27	3/30/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxG	↓	9/14/26	3/23/24	4-20 ppm	312uL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11642B	PFAC-MxJ	↓	10/28/23	10/28/23	50ppm	200uL	5mL	2ppm	1033 MIX	4/16/23	10/28/23	MUJ
LCMS 2097A-B	BR-LN metet for 1033	11497	br-N metosa	Wellington Labs	08/23/27	10/28/23	50ppm	200uL	↓	2ppm	↓	↓	↓	↓
↓	↓	11498	br-N Effosa	↓	10/07/27	10/28/23	50ppm	200uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11495	br-N metose	↓	10/28/23	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11494	br-N Effose	↓	10/17/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓					4/6/24								

\* tested & used on 3/20/24

\*\* based on date opened as specified in each SGS - Orlando SOP.



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2067	40 List Std. ADD-ON #1	10726A	10:2 FTS	Wellington	3/3/26	3/21/23	50 ppm	80 uL	4.0 mL	1 ppm	95% meth 5% H2O	2/8/23	3/21/23	MV
		10840	L <sup>-</sup> PFDO5		7/9/26	10/18/23							8/23/23	
		10829	N <sup>-</sup> McFOSA		8/3/26	8/23/23								
		10837	N <sup>-</sup> EtFOSA		8/3/26	8/23/23								
		10842	PFHxDA		9/3/26	10/18/23								
		10841	PFODA		5/7/26	10/18/23								
		11116 B	3:3 FTCA PFAPA		2/3/27	2/8/24								
		10685A	5:3 FTCA PFAPA		11/11/25	8/23/23								
		11116 A	7:3 FTCA FHPA		11/12/25	2/8/24								
		11332	PFECHS		3/2/27	10/18/23								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA PF50HxA		3/31/25	10/18/23								
		10764	PFMPA PF406A		3/31/25	2/8/24								
		10765B	NFHDA 3.6-08APA		3/31/25	10/18/23								
					NS	02/10/23								

\* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-Icms std prep log.xls 030819

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
* 2074 A-B LCMS 2074 A-B	PFC SPIKE	11613	PROA-SD C8000MS	Absolute	11/09/23	02/23/24	1.0ppm	2mL	5mL	400ppb	95% MeOH 5% H2O	02/23/23	03/23/23	UG
↓	↓	10829	N-Me- FSA-M	Wellington Labs	08/23/26	09/23/23	50ppm	40uL	↓	↓	↓	↓	↓	NG
↓	↓	11250	FBSA-1	↓	11/10/26	11/08/23	↓	↓	↓	↓	↓	↓	↓	NG
↓	↓	11249	FHSA-1	↓	12/29/26	11/03/23	↓	↓	↓	↓	↓	↓	↓	NG
↓	↓	11332	FTECHS	↓	03/28/27	10/18/23	↓	↓	↓	↓	↓	↓	↓	NG
* 2075 A-F LCMS 2075 A-F	(10 PPB) PFC ID SURC	11639	MPAC- 24ES	Wellington Labs	03/24/27	02/23/24	1.0ppm	2.4mL	~50 mL	0.5ppm	95% MeOH 5% H2O	02/23/23	02/23/23	NG
↓	↓	11585	N2HFO- DA	Wellington Labs	11/08/23	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NG
↓	↓	11385	A-N- NEFOSA-M	Wellington Labs	05/10/27	01/01/24	50ppm	48uL	↓	↓	↓	↓	↓	NG
* 2076 LCMS 2076	40 List std. ADDON #2	11250	FBSA-1	Wellington Labs	11/10/26	11/8/23	50ppm	80uL	4.0mL	1ppm	95% MeOH 5% H2O	2/17/23	5/19/26	MV
↓	↓	11249	FHSA-1	↓	2/29/26	11/3/23	50ppm	80uL	↓	↓	↓	↓	↓	↓
↓	↓	11140	L-PFAS	↓	7/12/26	5/26/23	50ppm	80uL	↓	↓	↓	↓	↓	↓
LCMS 2077A-B	1633 Solvent B	11387	Ammonium Acetate	Sigmall drich	---	1/25/24	99.9%	0.62g	4L	2mM	MA	2/28/23	4/28/23	MV
↓	↓	224870	HPLC water	Fisher	---	2/28/23	↓	3,800ml	↓	95%	↓	↓	↓	↓
↓	↓	220225	Acetonil trile	↓	---	2/20/24	↓	200mL	↓	5%	↓	↓	↓	↓
↓	↓					n/a	n/a	n/a						
↓	↓					Continue next page 21								

\* based on date opened as specified in each SGS - Orlando SOP.

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2052	1633 prep mix	Lot: 221044	MeOH	Fisher	—	1/4/24	99.9%	92 mL	100 mL	92%	N/A	1/19/23	2/19/23	MV
↓	↓	Lot: 219481	NH4OH	↓	—	9/19/23	100%	3.3 mL	↓	1%	↓	↓	↓	↓
↓	↓	Lot: 224863	H2O	↓	—	1/17/24	100%	1.7 mL	↓	4%	↓	↓	↓	↓
↓	↓	Lot: 224297	Acetic ACID	↓	—	6/24	99.7%	0.625 mL	↓	.625%	↓	↓	↓	↓
LCMS 2053	(spike) Full list std	11568	PF6A 200 28	SGS standards	11/9/27	1/10/24	1.0 ppm	400 NL	4.0 mL	100 ppb	95% MeOH 5% H2O	12/4/23	3/21/23	MV
↓	↓	LCMS 1987	40 list add-on #1	↓	—	3/21/23	1.0 ppm	400 NL	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 1986	40 list add-on #2	↓	—	4/8/23	1.0 ppm	400 NL	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 2054	FOSC std.	↓	—	7/24/23	5.0 ppm	400 NL	↓	500 ppb	↓	↓	↓	↓
LCMS 2054	FOSC std.	11336	N-Et-FOSE	Wellington	5/13/27	9/19/23	50 ppm	200 NL	2.0 mL	5 ppm	95% MeOH 5% H2O	12/4/23	7/24/23	MV
↓	↓	11338	N-Me FOSE	↓	5/13/27	9/19/23	50 ppm	200 NL	↓	↓	↓	↓	↓	↓
LCMS 2055	1633 Cal std.	10855	PFAC-MxH	Wellington	9/14/26	1/17/24	1-4 ppm	250 NL	4 mL	62.5 125 250 ppb	1633 MIX	1/24/23	7/24/23	MV
↓	↓	10853I	PFAC-MxI	↓	9/14/26	1/11/24	1-10 ppm	250 NL	↓	62.5 125 250 ppb	↓	↓	↓	↓
↓	↓	11579B	PFAC-MxF	↓	11/1/25	1/11/24	2 ppm	500 NL	↓	250 ppb	↓	↓	↓	↓
↓	↓	11601A	PFAC-MxG	↓	3/4/25	1/24/24	2 ppm	250 NL	↓	125 ppb	↓	↓	↓	↓
↓	↓	11492	PFAC-MxJ	↓	9/14/26	1/11/24	4-20 ppm	312 NL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11603	PFAC-MxJ	↓	—	1/24/24	4-20 ppm	312 NL	↓	ppb	↓	↓	↓	↓

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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NMeFOSE

#### 2-(N-Methylperfluorooctanesulfonamido)ethanol Isomeric Mix

<b>PRODUCT CODE:</b>	br-NMeFOSE
<b>LOT NUMBER:</b>	brNMeFOSE0922
<b>CONCENTRATION:</b>	50.0 ± 2.5 µg/mL
<b>SOLVENT(S):</b>	Methanol
<b>DATE PREPARED:</b> (mm/dd/yyyy)	09/02/2022
<b>LAST TESTED:</b> (mm/dd/yyyy)	09/07/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<b>EXPIRY DATE:</b> (mm/dd/yyyy)	10/07/2027
<b>RECOMMENDED STORAGE:</b>	Store ampoule in a cool, dark place

#### DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

#### DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR  
 Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)  
 Figure 2: LC/MS Data (Full Scan and Mass Spectrum)  
 Figure 3: LC/MS Data (SIR)  
 Figure 4: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

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Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

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rev1

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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NEtFOSE

**2-(N-Ethylperfluorooctanesulfonamido)ethanol  
Isomeric Mix**

<b><u>PRODUCT CODE:</u></b>	br-NEtFOSE
<b><u>LOT NUMBER:</u></b>	brNEtFOSE1022
<b><u>CONCENTRATION:</u></b>	50.0 ± 2.5 µg/mL
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	09/12/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	10/07/2027
<b><u>RECOMMENDED STORAGE:</u></b>	Store ampoule in a cool, dark place

### DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

### DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION

**br-NMeFOSA**

**N-Methylperfluorooctanesulfonamide**  
**Isomeric Mix**

**PRODUCT CODE:** br-NMeFOSA  
**LOT NUMBER:** brNMeFOSA0822  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**SOLVENT(S):** Methanol  
**DATE PREPARED:** (mm/dd/yyyy) 08/18/2022  
**LAST TESTED:** (mm/dd/yyyy) 08/23/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 08/23/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**DESCRIPTION:**

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

**DOCUMENTATION/ DATA ATTACHED:**

Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR  
Figure 1: LC/MS Data (Full Scan and Mass Spectrum)  
Figure 2: LC/MS Data (SIR)  
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

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Revision#:9, Revised 2020-12-23

brNMeFOSA0822 (1 of 6)  
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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NEtFOSA

#### N-Ethylperfluorooctanesulfonamide Isomeric Mix

<b><u>PRODUCT CODE:</u></b>	br-NEtFOSA
<b><u>LOT NUMBER:</u></b>	brNEtFOSA0922
<b><u>CONCENTRATION:</u></b>	50.0 ± 2.5 µg/mL
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	08/23/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	10/07/2022
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	10/07/2027
<b><u>RECOMMENDED STORAGE:</u></b>	Store ampoule in a cool, dark place

#### DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

#### DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (SIR)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

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11642 A-B  
REC'D: 02/06/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic  
Acid Solution/Mixture

<b><u>PRODUCT CODE:</u></b>	PFAC-MXJ
<b><u>LOT NUMBER:</u></b>	PFACMXJ0921
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	09/08/2021
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	09/14/2021
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	09/14/2026
<b><u>RECOMMENDED STORAGE:</u></b>	Store ampoule in a cool, dark place

### DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

### DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture  
Figure 1: LC/MS Data (SIR)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.

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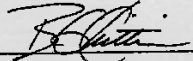
Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

PFACMXJ:0921 (1 of 5)  
rev1

7.9.1  
7

**Table A: PFAC-MXJ; Components and Concentrations ( $\mu\text{g}/\text{mL}$ ;  $\pm 5\%$  in methanol)**

Compound	Acronym	Concentration ( $\mu\text{g}/\text{mL}$ )
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By:   
 B.G. Chittim, General Manager

Date: 10/02/2021  
(m/mcd/yyyy)

Form#:13, Issued 2004-11-10  
 Revision#:9, Revised 2020-12-23

PFACMX.0921 (3 of 5)  
 rev1

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 7



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rec'd: 02/23/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXH

**Native PFAS  
Solution/Mixture**

<b>PRODUCT CODE:</b>	PFAC-MXH
<b>LOT NUMBER:</b>	PFACMXH0822
<b>SOLVENT(S):</b>	Methanol/Isopropanol (2%)/Water (<1%)
<b>DATE PREPARED:</b> (mm/dd/yyyy)	08/05/2022
<b>LAST TESTED:</b> (mm/dd/yyyy)	08/08/2022
<b>EXPIRY DATE:</b> (mm/dd/yyyy)	08/08/2027
<b>RECOMMENDED STORAGE:</b>	Refrigerate ampoule

#### DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C<sub>4</sub>-C<sub>14</sub>), eight native perfluoroalkanesulfonates (C<sub>4</sub>, C<sub>5</sub>, C<sub>7</sub>, C<sub>9</sub>, C<sub>10</sub> and C<sub>12</sub> linear; C<sub>6</sub> and C<sub>8</sub> linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide (FOSA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

#### DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Table B: Isomeric Components and Percent Composition of N-MeFOSAA
- Table C: Isomeric Components and Percent Composition of N-EtFOSAA
- Table D: Isomeric Components and Percent Composition of PFHxSK
- Table E: Isomeric Components and Percent Composition of PFOSK
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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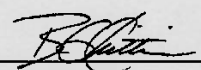
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**Table A: PFAC-MXH; Components and Concentrations**  
(ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUDA	1000		24
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTrDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		23
N-methylperfluorooctanesulfonamidoacetic acid <sup>a</sup>	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-ethylperfluorooctanesulfonamidoacetic acid <sup>a</sup>	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate <sup>c</sup>	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate <sup>d</sup>	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4000	3840	16

<sup>a</sup> See Table B for percent composition of linear and branched N-MeFOSAA isomers.  
<sup>b</sup> See Table C for percent composition of linear and branched N-EtFOSAA isomers.  
<sup>c</sup> See Table D for percent composition of linear and branched PFHxSK isomers.  
<sup>d</sup> See Table E for percent composition of linear and branched PFOSK isomers.

\* Concentrations have been rounded to three significant figures.

Certified By:   
 B.G. Chittim, General Manager

Date: 08/09/2022  
(mm/dd/yyyy)



11674 A-B  
rec'd: 02/23/23



**WELLINGTON  
LABORATORIES**

**CERTIFICATE OF ANALYSIS  
DOCUMENTATION**

**PFAC-MXF**

**Native Replacement PFAS  
Solution/Mixture**

<b><u>PRODUCT CODE:</u></b>	PFAC-MXF
<b><u>LOT NUMBER:</u></b>	PFACMXF0122
<b><u>SOLVENT(S):</u></b>	Methanol / Water (<1%)
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	01/10/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	01/11/2022
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	01/11/2025
<b><u>RECOMMENDED STORAGE:</u></b>	Refrigerate ampoule

**DESCRIPTION:**

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

**DOCUMENTATION/ DATA ATTACHED:**

Table A: Components and Concentrations of the Solution/Mixture  
Figure 1: LC/MS Data (SIR)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Form# 13, Issued 2004-11-10  
Revision# 9, Revised 2020-12-23

PFACMXFC122 (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-dioxananoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

\* Concentrations have been rounded to three significant figures.

Certified By: 

B.G. Chittim, General Manager

Date: 01/12/2022

(mm/dd/yyyy)



11675  
rec'd: 02/23/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXG

#### Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture

<b><u>PRODUCT CODE:</u></b>	PFAC-MXG
<b><u>LOT NUMBER:</u></b>	PFACMXG1122
<b><u>SOLVENT(S):</u></b>	Methanol/Water (<1%)
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	11/30/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	12/01/2022
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	12/01/2027
<b><u>RECOMMENDED STORAGE:</u></b>	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.

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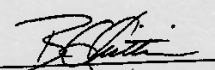


**PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))**

Table A

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

\* Concentrations have been rounded to three significant figures.

Certified By:  Date: 12/09/2022  
(mm/dd/yyyy)  
 B.G. Chittim, General Manager

7.9.1  
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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FPePA

**LOT NUMBER:**

FPePA1120

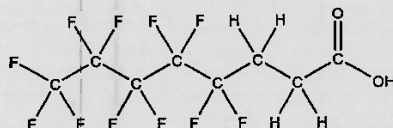
**COMPOUND:**

3-Perfluoropentyl propanoic acid

**STRUCTURE:**

**CAS #:**

914637-49-3



**MOLECULAR FORMULA:**

C<sub>8</sub>H<sub>5</sub>F<sub>11</sub>O<sub>2</sub>

**MOLECULAR WEIGHT:**

342.11

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

11/11/2020

**EXPIRY DATE:** (mm/dd/yyyy)

11/11/2025

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains <1% of the unsaturated 5:3 telomer acid (C<sub>8</sub>H<sub>3</sub>F<sub>11</sub>O<sub>2</sub>) as an impurity determined by <sup>19</sup>F NMR.

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**Certified By:**

B.G. Chittim, General Manager

**Date:** 11/27/2020

(mm/dd/yyyy)

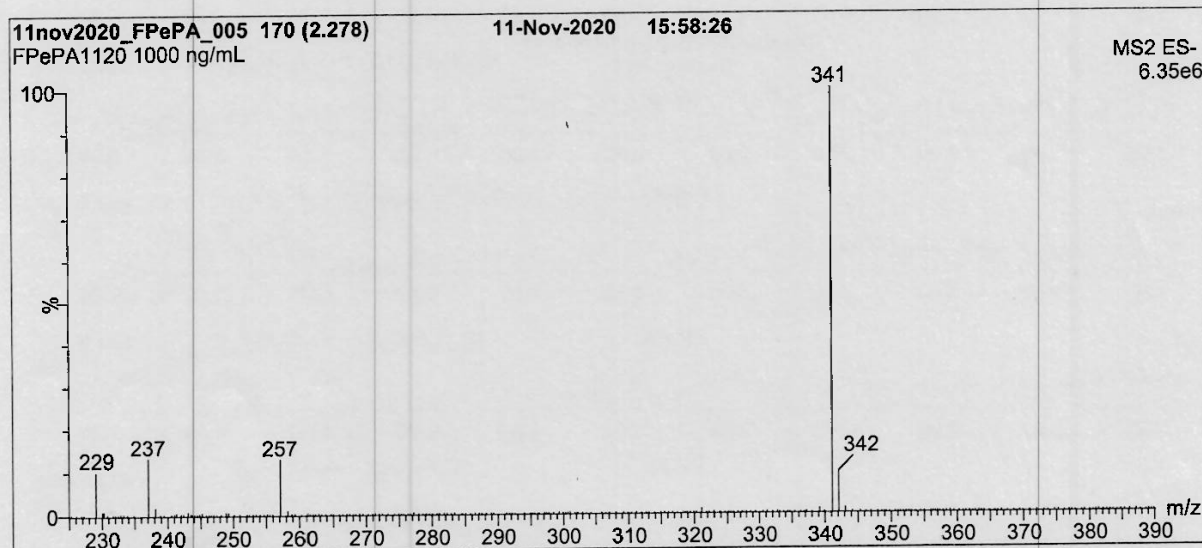
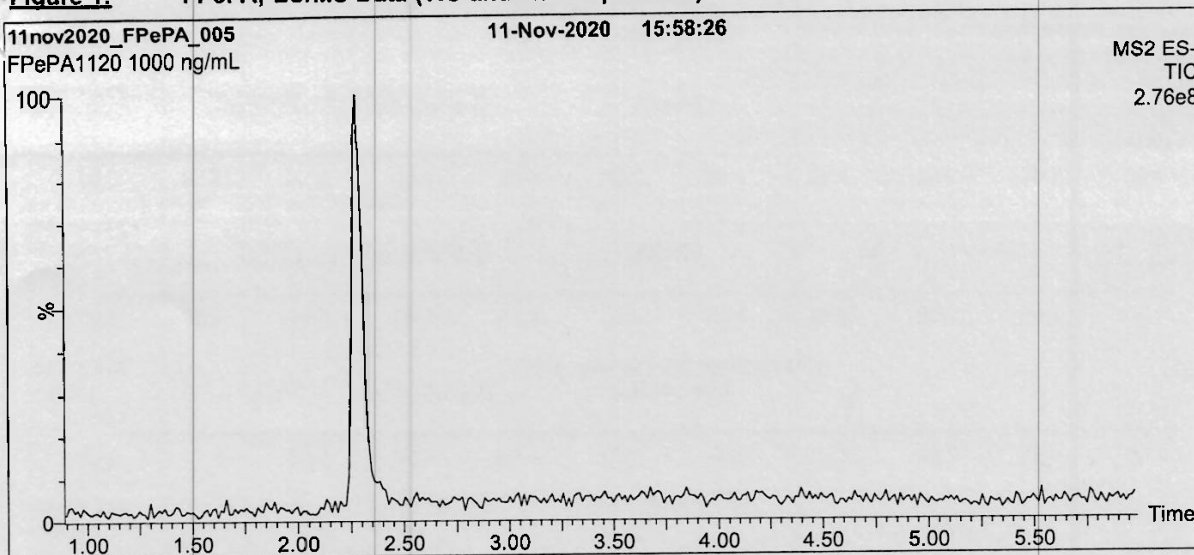
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 Revision#:8, Revised 2020-09-10

FPePA1120 (1 of 4)  
 rev0



**Figure 1: FPePA; LC/MS Data (TIC and Mass Spectrum)**



**Conditions for Figure 1:**

Waters Acquity Ultra Performance LC  
Waters Xevo TQ-S micro MS

**Chromatographic Conditions:**

Column: Acquity UPLC BEH Shield RP<sub>1a</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 45% H<sub>2</sub>O / 55% (80:20 MeOH:ACN)  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 8 min and hold for  
2 min before returning to initial conditions in 0.75 min.  
Time: 12 min

Flow: 300  $\mu$ L/min

**MS Parameters:**

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)  
Capillary Voltage (kV) = 0.50  
Cone Voltage (V) = 18.50  
Desolvation Temperature ( $^{\circ}$ C) = 500  
Desolvation Gas Flow (L/hr) = 1000

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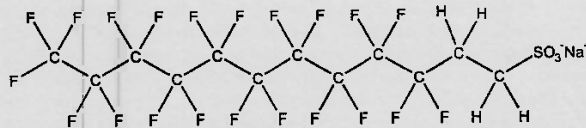


# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** 10:2FTS **LOT NUMBER:** 102FTS0221  
**COMPOUND:** Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

**STRUCTURE:** **CAS #:** 108026-35-3



**MOLECULAR FORMULA:** C<sub>12</sub>H<sub>4</sub>F<sub>21</sub>SO<sub>3</sub>Na **MOLECULAR WEIGHT:** 650.18  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol  
48.3 ± 2.4 µg/mL (10:2FTS acid)  
48.2 ± 2.4 µg/mL (10:2FTS anion)  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 03/03/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 03/03/2026  
**RECOMMENDED STORAGE:** Refrigerate ampoule

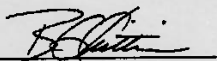
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

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**Certified By:**  **Date:** 03/05/2021  
B.G. Chittim, General Manager (mm/dd/yyyy)

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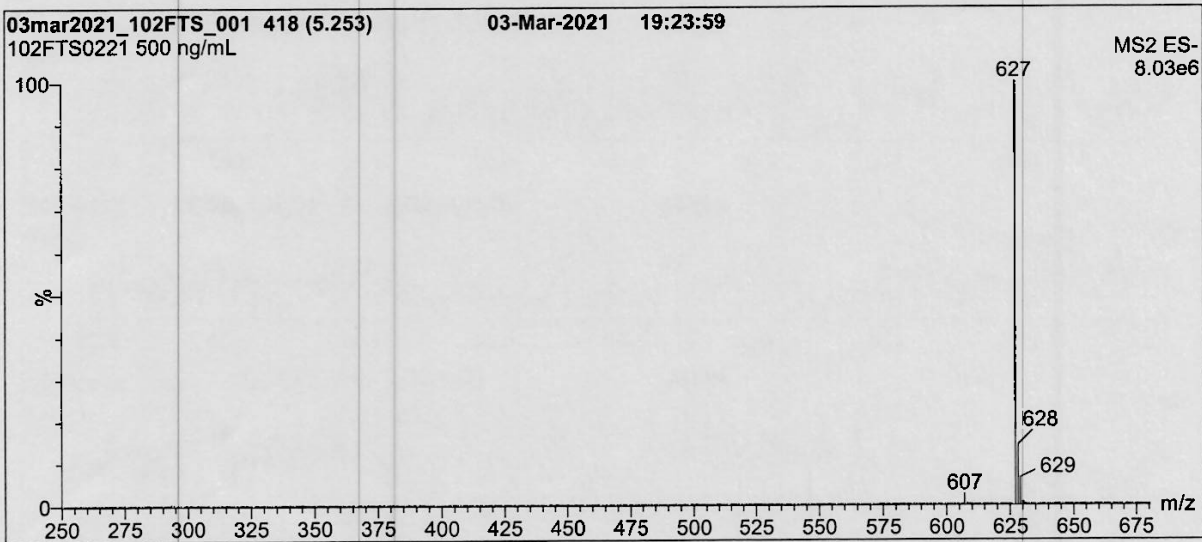
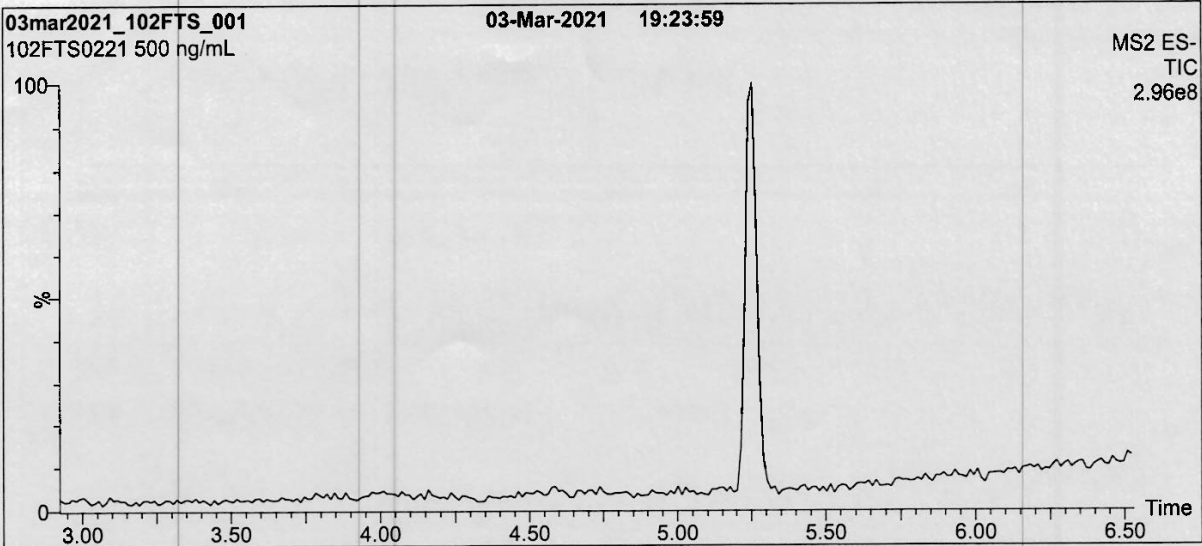
Form#: 27, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

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**Figure 1:** 10:2FTS; LC/MS Data (Full Scan and Mass Spectrum)



**Conditions for Figure 1:**

Waters Acquity Ultra Performance LC  
Waters Xevo TQ-S micro MS

**Chromatographic Conditions:**

Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 40% H<sub>2</sub>O / 60% (80:20 MeOH:ACN)  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 7 min and hold for 3 min  
before returning to initial conditions in 0.75 min.  
Time: 12 min

Flow: 300  $\mu$ L/min

**MS Parameters:**

Experiment: Full Scan (250 - 850 amu)  
Source: Electrospray (negative)  
Capillary Voltage (kV) = 2.00  
Cone Voltage (V) = 25.00  
Desolvation Temperature ( $^{\circ}$ C) = 500  
Desolvation Gas Flow (L/hr) = 1000

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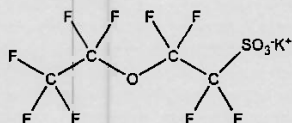
# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** PFEESA *rec'd  
8/20/21  
WPH* **LOT NUMBER:** PFEESA0520

**COMPOUND:** Potassium perfluoro(2-ethoxyethane)sulfonate

**STRUCTURE:** **CAS #:** 117205-07-9



**MOLECULAR FORMULA:** C<sub>4</sub>F<sub>9</sub>SO<sub>4</sub>K **MOLECULAR WEIGHT:** 354.19

**CONCENTRATION:** 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol

44.6 ± 2.2 µg/ml (PFEESA acid)

44.5 ± 2.2 µg/ml (PFEESA anion)

**CHEMICAL PURITY:** >98%

**LAST TESTED:** (mm/dd/yyyy) 05/13/2020

**EXPIRY DATE:** (mm/dd/yyyy) 05/13/2025

**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

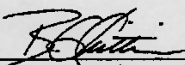
Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA).

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**Certified By:**  **Date:** 05/29/2020  
(mm/dd/yyyy)

B.G. Chittim, General Manager

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Form#:27, Issued 2004-11-10  
Revision#:7, Revised 2020-01-09

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# WELLINGTON LABORATORIES

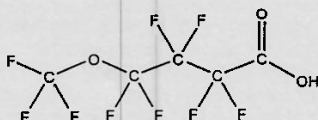
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** PF5OHxA *res'd with 8/20/21* **LOT NUMBER:** PF5OHxA0320

**COMPOUND:** Perfluoro-5-oxahexanoic acid

**SYNONYM:** Perfluoro-4-methoxybutanoic acid (PFMBA)

**STRUCTURE:** **CAS #:** 863090-89-5



**MOLECULAR FORMULA:** C<sub>5</sub>HF<sub>9</sub>O<sub>3</sub> **MOLECULAR WEIGHT:** 280.05

**CONCENTRATION:** 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol  
Water (<1%)

**CHEMICAL PURITY:** >98%

**LAST TESTED:** (mm/dd/yyyy) 03/31/2020

**EXPIRY DATE:** (mm/dd/yyyy) 03/31/2025

**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

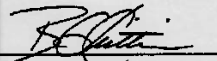
**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (TIC and Mass Spectrum)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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**Certified By:**  **Date:** 12/21/2020  
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10  
Revision#: 8, Revised 2020-09-10

PF5OHxA0320 (1 of 4)  
rev1

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# WELLINGTON LABORATORIES

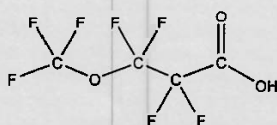
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** PF4OPeA *rec'd  
w/wh  
8/20/21* **LOT NUMBER:** PF4OPeA0320

**COMPOUND:** Perfluoro-4-oxapentanoic acid

**SYNONYM:** Perfluoro-3-methoxypropanoic acid (PFMPA)

**STRUCTURE:** **CAS #:** 377-73-1



**MOLECULAR FORMULA:** C<sub>4</sub>HF<sub>7</sub>O<sub>3</sub> **MOLECULAR WEIGHT:** 230.04

**CONCENTRATION:** 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol  
Water (<1%)

**CHEMICAL PURITY:** >98%

**LAST TESTED:** (mm/dd/yyyy) 03/31/2020

**EXPIRY DATE:** (mm/dd/yyyy) 03/31/2025

**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

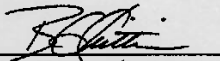
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager

**Date:** 12/21/2020  
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10  
Revision#: 8, Revised 2020-09-10

PF4OPeA0320 (1 of 4)  
rev1

7.9.1

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10765 A-13



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

3,6-OPFHpA

*rec'd  
WPH  
8/20/21*

**LOT NUMBER:**

36OPFHpA0320

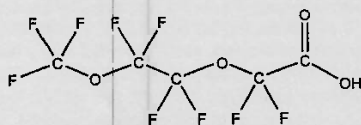
**COMPOUND:**

Perfluoro-3,6-dioxaheptanoic acid

**STRUCTURE:**

**CAS #:**

151772-58-6



**MOLECULAR FORMULA:**

C<sub>6</sub>H<sub>2</sub>F<sub>8</sub>O<sub>4</sub>

**MOLECULAR WEIGHT:**

296.04

**CONCENTRATION:**

50.0 ± 2.5 µg/ml

**SOLVENT(S):**

Methanol  
Water (<1%)

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

03/31/2020

**EXPIRY DATE:** (mm/dd/yyyy)

03/31/2025

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

B.G. Chittim, General Manager

Date: 05/27/2020  
(mm/dd/yyyy)

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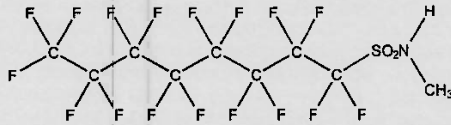
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** N-MeFOSA-M  
**COMPOUND:** N-methylperfluoro-1-octanesulfonamide

**LOT NUMBER:** NMeFOSA0721M

**STRUCTURE:**

**CAS #:** 31506-32-8



rec'd  
WPA  
10/5/21

**MOLECULAR FORMULA:** C<sub>9</sub>H<sub>4</sub>F<sub>17</sub>NO<sub>2</sub>S  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 08/03/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 08/03/2026  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**MOLECULAR WEIGHT:** 513.17  
**SOLVENT(S):** Methanol

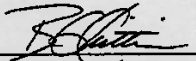
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager

**Date:** 08/04/2021  
(mm/dd/yyyy)

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Revision#:9, Revised 2020-12-23

NMeFOSA0721M (1 of 4)  
rev0

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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

N-EtFOSA-M

10837

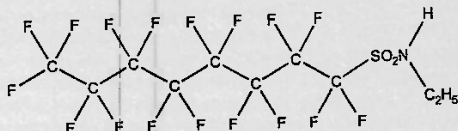
**LOT NUMBER:** NEtFOSA0821M

**COMPOUND:**

N-ethylperfluoro-1-octanesulfonamide

**STRUCTURE:**

**CAS #:** 4151-50-2



**MOLECULAR FORMULA:**

C<sub>10</sub>H<sub>9</sub>F<sub>17</sub>NO<sub>2</sub>S

**MOLECULAR WEIGHT:**

527.20

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

08/12/2021

**EXPIRY DATE:** (mm/dd/yyyy)

08/12/2026

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)


Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

  
B.G. Chittim, General Manager

**Date:** 08/16/2021

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA

7.9.1  
7



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

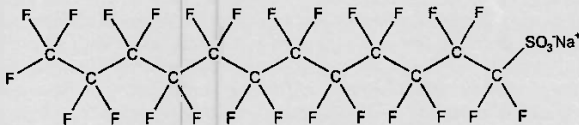
10840

**PRODUCT CODE:** L-PFDoS  
**COMPOUND:** Sodium perfluoro-1-dodecanesulfonate

**LOT NUMBER:** LPFDoS0721

**STRUCTURE:**

**CAS #:** 1260224-54-1



**MOLECULAR FORMULA:** C<sub>12</sub>F<sub>25</sub>SO<sub>3</sub>Na  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL (Na salt)  
48.5 ± 2.4 µg/mL (PFDoS acid)  
48.4 ± 2.4 µg/mL (PFDoS anion)  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 07/09/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 07/09/2026  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**MOLECULAR WEIGHT:** 722.14  
**SOLVENT(S):** Methanol


**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains ~0.2% of perfluoro-n-dodecanoic acid (PFDoA).

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager

**Date:** 07/16/2021  
(mm/dd/yyyy)

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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

10847 NS 01/18/23

**PRODUCT CODE:**

PFODA

**LOT NUMBER:**

PFODA0821

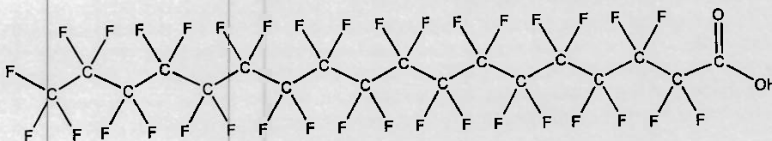
**COMPOUND:**

Perfluoro-n-octadecanoic acid

**STRUCTURE:**

**CAS #:**

16517-11-6



**MOLECULAR FORMULA:**

C<sub>18</sub>H<sub>35</sub>O<sub>2</sub>

**MOLECULAR WEIGHT:**

914.14

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

Water (<1%)

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

09/03/2021

**EXPIRY DATE:** (mm/dd/yyyy)

09/03/2026

**RECOMMENDED STORAGE:**

Store ampoule at ambient temperature in a dark place

### DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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7.9.1  
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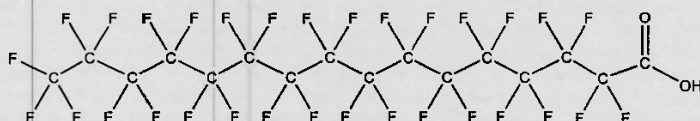


10842 \* NG 01/18/23

**PRODUCT CODE:** PFHxDA **LOT NUMBER:** PFHxDA0421

**COMPOUND:** Perfluoro-n-hexadecanoic acid

**STRUCTURE:** **CAS #:** 67905-19-5



**MOLECULAR FORMULA:** C<sub>16</sub>HF<sub>31</sub>O<sub>2</sub> **MOLECULAR WEIGHT:** 814.13  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol  
 Water (<1%)

**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 05/07/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 05/07/2026  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

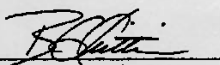
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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**Certified By:**  **Date:** 05/25/2021  
 B.G. Chittim, General Manager (mm/dd/yyyy)

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1116 A/B NW

1116B on the back NW



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHpPA

**LOT NUMBER:**

FHpPA1020

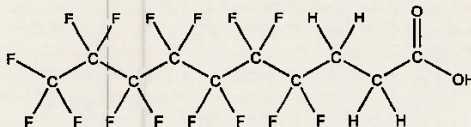
**COMPOUND:**

3-Perfluoroheptyl propanoic acid

**STRUCTURE:**

**CAS #:**

812-70-4



**MOLECULAR FORMULA:**

C<sub>10</sub>H<sub>5</sub>F<sub>15</sub>O<sub>2</sub>

**MOLECULAR WEIGHT:**

442.12

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

11/12/2020

**EXPIRY DATE:** (mm/dd/yyyy)

11/12/2025

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

B.G. Chittim, General Manager

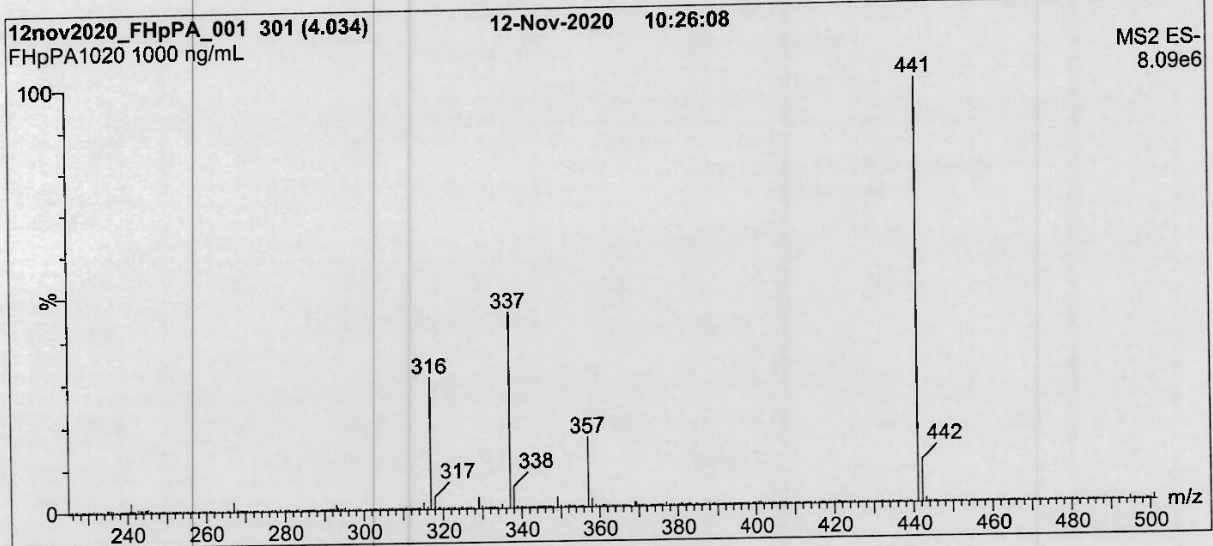
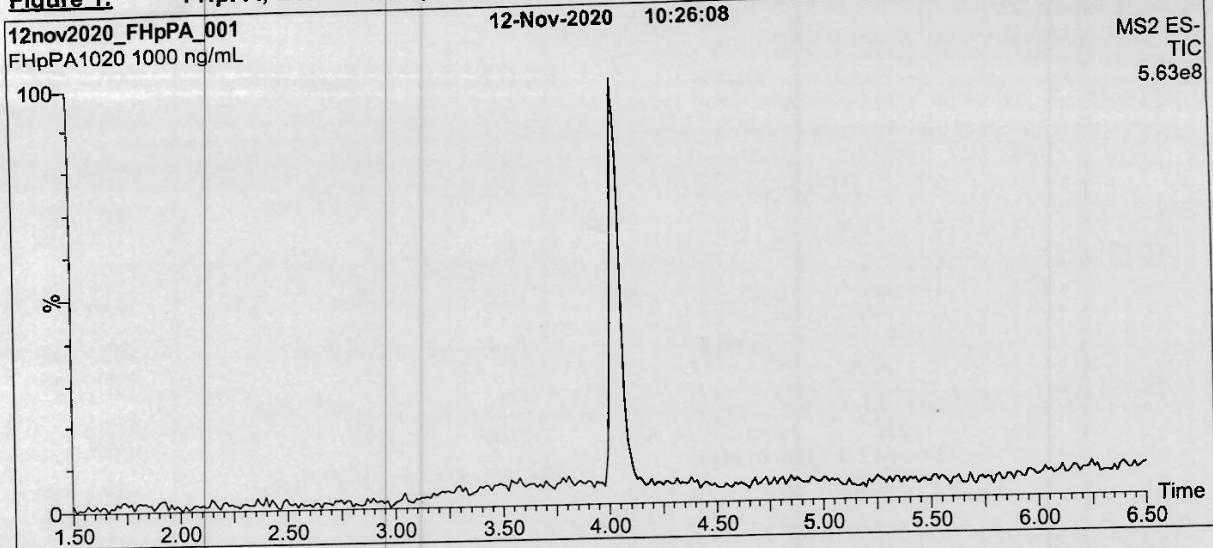
**Date:** 11/27/2020

(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10  
Revision#: 8, Revised 2020-09-10

FHpPA1020 (1 of 4)  
rev0

**Figure 1: FHpPA; LC/MS Data (TIC and Mass Spectrum)****Conditions for Figure 1:**

Waters Acquity Ultra Performance LC  
Waters Xevo TQ-S micro MS

**Chromatographic Conditions:**

Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 45% H<sub>2</sub>O / 55% (80:20 MeOH:ACN)  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 8 min and hold for  
2 min before returning to initial conditions in 0.75 min.  
Time: 12 min

Flow: 300  $\mu$ L/min

**MS Parameters:**

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)  
Capillary Voltage (kV) = 0.50  
Cone Voltage (V) = 28.50  
Desolvation Temperature ( $^{\circ}$ C) = 500  
Desolvation Gas Flow (L/hr) = 1000



FPPrPA(3:3FTCA) 1116 B



**WELLINGTON**  
LABORATORIES

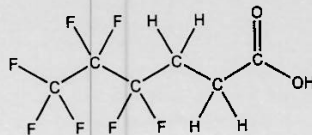
**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION

**PRODUCT CODE:** FPPrPA  
**COMPOUND:** 3-Perfluoropropyl propanoic acid

**LOT NUMBER:** FPPrPA0122

**STRUCTURE:**

**CAS #:** 356-02-5



**MOLECULAR FORMULA:** C<sub>6</sub>H<sub>5</sub>F<sub>7</sub>O<sub>2</sub>  
**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

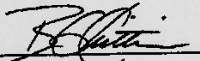
**DOCUMENTATION/ DATA ATTACHED:**

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 (C<sub>6</sub>H<sub>3</sub>F<sub>7</sub>O<sub>2</sub>) as an impurity determined by <sup>19</sup>F NMR.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager

**Date:** 02/04/2022  
(mm/dd/yyyy)

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11140



# WELLINGTON LABORATORIES

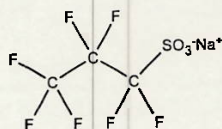
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** L-PFPrS  
**COMPOUND:** Sodium perfluoro-1-propanesulfonate

**LOT NUMBER:** LPFPrS0721

**STRUCTURE:**

**CAS #:** Not available



**MOLECULAR FORMULA:** C<sub>3</sub>F<sub>7</sub>SO<sub>3</sub>Na  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL (Na salt)  
46.0 ± 2.3 µg/mL (PFPrS acid)  
45.8 ± 2.3 µg/mL (PFPrS anion)  
**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

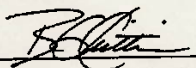
**DOCUMENTATION/ DATA ATTACHED:**

- 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)

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Form#:27, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

LPFPrS0721 (1 of 4)  
rev0

7.9.1  
7



11252 11249  
7/1/22 KA



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHxSA-I

**LOT NUMBER:**

FHxSA12211

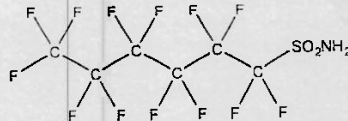
**COMPOUND:**

Perfluoro-1-hexanesulfonamide

**STRUCTURE:**

**CAS #:**

41997-13-1



**MOLECULAR FORMULA:**

C<sub>6</sub>H<sub>2</sub>F<sub>13</sub>NO<sub>2</sub>S

**MOLECULAR WEIGHT:**

399.13

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

isopropanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

12/29/2021

**EXPIRY DATE:** (mm/dd/yyyy)

12/29/2026

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

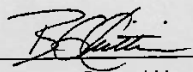
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

  
B.G. Chittim, General Manager

Date: 01/10/2022

(mm/dd/yyyy)

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11332



# WELLINGTON LABORATORIES

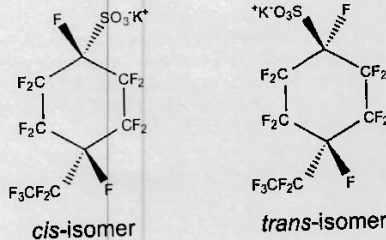
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**  
**COMPOUND:**

PFECHS  
Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

**LOT NUMBER:** PFECHS0222

**STRUCTURE:**



**CAS #:** 335-24-0

**MOLECULAR FORMULA:**  
**CONCENTRATION:**

$C_8F_{15}SO_3K$   
50.0 ± 2.5 µg/mL (K salt)  
46.2 ± 2.3 µg/mL (PFECHS acid)  
46.1 ± 2.3 µg/mL (PFECHS anion)  
>98%

**MOLECULAR WEIGHT:** 500.22  
**SOLVENT(S):** Methanol

**CHEMICAL PURITY:**

**LAST TESTED:** (mm/dd/yyyy)

03/28/2022

**EXPIRY DATE:** (mm/dd/yyyy)

03/28/2027

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

B.G. Chittim, General Manager

Date: 03/30/2022  
(mm/dd/yyyy)

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11338



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

N-MeFOSE-M

**LOT NUMBER:**

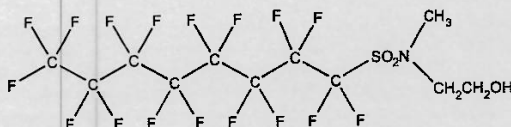
NMeFOSE0522M

**COMPOUND:**

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

**STRUCTURE:****CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C<sub>11</sub>H<sub>8</sub>F<sub>17</sub>NO<sub>3</sub>S**MOLECULAR WEIGHT:**

557.22

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

&gt;98%

**LAST TESTED:** (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

**EXPIRY DATE:** (mm/dd/yyyy)

05/13/2027

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

  
B.G. Chittim, General Manager
Date: 06/14/2022  
(mm/dd/yyyy)

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11615 A-5  
rec'd 01/19/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### MPFAC-HIF-IS

Mass-Labelled PFAS Injection  
Standard Solution/Mixture

**PRODUCT CODE:** MPFAC-HIF-IS  
**LOT NUMBER:** MPFACHIFIS1122  
**SOLVENT(S):** Methanol/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 11/28/2022  
**LAST TESTED:** (mm/dd/yyyy) 11/29/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 11/29/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

#### DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled ( $^{13}\text{C}$ ) perfluoroalkylcarboxylic acids ( $\text{C}_4$ ,  $\text{C}_6$ ,  $\text{C}_8$ - $\text{C}_{10}$ ) and two mass-labelled ( $^{18}\text{O}$  and  $^{13}\text{C}$ ) perfluoroalkanesulfonates ( $\text{C}_6$  and  $\text{C}_8$ ). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of  $\geq 99\%$  per  $^{13}\text{C}$  or >94% per  $^{18}\text{O}$ .

#### DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture  
Figure 1: LC/MS Data (SIR)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Form#: 13 Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

MPFACHIFIS1122 (1 of 5)  
rev0

7.9.1

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**Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(2,3,4- <sup>13</sup> C <sub>3</sub> )butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- <sup>13</sup> C <sub>4</sub> )octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- <sup>13</sup> C <sub>5</sub> )nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )decanoic acid	MPFDA	250		7
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-hexane( <sup>18</sup> O <sub>2</sub> )sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- <sup>13</sup> C <sub>4</sub> )octanesulfonate	MPFOS	500	479	6

\* Concentrations have been rounded to three significant figures.

Certified By:   
 B.G. Chittim, General Manager

Date: 12/05/2022  
(mm/dd/yyyy)



11626  
rec'd 01/26/23

CERTIFIED WEIGHT REPORT

Part Number: 64029A  
Lot Number: 110922  
Description: PFOA - DOD  
28 components  
Expiration Date: 110827  
Recommended Storage: Freezer (0 °C)  
Nominal Concentration (µg/mL): 1.0  
NIST Test ID#: 6UTB

Solvent(s): Methanol (1 mM KOH)  
2-Propanol  
Lot# 102722 (98%)  
32500 (2%)

Formulated By: <i>P. S. Chauhan</i>	110922
Prepared By: <i>Prashant Chauhan</i>	DATE
Reviewed By: <i>Prashant Chauhan</i>	110922
Reviewed By: <i>Pedro L. Rentas</i>	DATE

Volume(s) shown below were combined and diluted to (mL):  
Note: All assigned values are anion concentrations.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.)		
									Free Acid CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (PFBA)	99542	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid (PFPeA)	99543	050222	0.02	2.00	0.017	50.3	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid (PFHxA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid (PFHpA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (br-PFOA)*	99202	080522	0.02	2.00	0.017	50.2	1.00	0.02	335-67-1 (L)	N/A	ip-rat 189mg/kg
6. Perfluorononanoic acid (PFNA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	N/A
7. Perfluorodecanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.0	1.00	0.02	335-76-2	N/A	rat 57mg/kg
8. Perfluoroundecanoic acid (PFUnA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2058-94-8	N/A	N/A
9. Perfluorododecanoic acid (PFDoA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PTTDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid (PTeDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	376-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide (FOSA)	3677	FOSA03221	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
13. N-Methylperfluoro-1-octanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
14. N-Ethylperfluoro-1-octanesulfonamidoacetic acid (br-NEFOSAA)*	4163	brNEFOSAA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
15. Perfluorobutanesulfonic acid (PFBS)	99194	080522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	032422	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A
17. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	071522	0.02	2.00	0.017	50.2	1.00	0.02	355-46-4 (L)	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid (PFHpS)	3672	LPFHPS0822	0.021	2.10	0.017	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201	033022	0.02	2.00	0.017	50.1	1.00	0.01	1763-23-1 (L)	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS1021	0.021	2.10	0.017	48.0	1.01	0.05	68259-12-1	N/A	N/A
21. Perfluoro-1-decanesulfonic acid (PFDS)	3671	LPFDS0222	0.021	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	65271	080522	0.02	2.00	0.017	50.2	1.00	0.05	757124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	071522	0.02	2.00	0.017	50.2	1.00	0.05	29108-34-4	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	3662	82FTS0822	0.021	2.10	0.017	47.9	1.01	0.05	39108-34-4	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropanoic acid (HFPO-DA)	99666	080522	0.02	2.00	0.017	50.1	1.00	0.02	13252-13-6	N/A	N/A
26. 11-Chlorooctadecafluoro-3-oxadecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	11ClPF3OUdS0522	0.021	2.12	0.017	47.1	1.00	0.05	763051-92-9	N/A	N/A
27. 9-Chlorooctadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	4164	9ClPF3ONS0522	0.021	2.14	0.017	46.8	1.00	0.05	756426-58-1	N/A	N/A
28. Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA0922	0.021	2.12	0.017	47.1	1.00	0.05	919005-14-4	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	080522	0.02	2.00	0.004	49.6	0.99	0.010	335-67-1 (L)	N/A	ip-rat 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	080522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	ip-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	071522	0.02	2.00	0.017	44.2	0.88	0.02	355-46-4 (L)	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	071522	0.02	2.00	0.017	6.0	0.12	0.0021	355-46-4 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	033022	0.02	2.00	0.017	38.1	0.76	0.02	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	7.5	0.15	0.003	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	4.0	0.08	0.002	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	0.5	0.010	0.0002	1763-23-1 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	36.0	0.72	0.04	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEFOSAA1121	0.02	2.00	0.017	36.6	0.73	0.04	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	7.7	0.15	0.009	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	6.3	0.11	0.005	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	0.4	0.007	0.0006	2991-50-6 (L)	N/A	N/A

\*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.

The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.  
Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).  
Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.  
All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.  
Uncertainty Reference: Taylor, B.N. and Kaye, C.E. "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

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11636 A-J  
rec'd 02/06/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### MPFAC-HIF-ES

#### Mass-Labelled PFAS Extraction Standard Solution/Mixture

**PRODUCT CODE:** MPFAC-HIF-ES  
**LOT NUMBER:** MPFACHIFES1022  
**SOLVENT(S):** Methanol/Isopropanol (1%)/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 10/28/2022  
**LAST TESTED:** (mm/dd/yyyy) 11/23/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 11/23/2025  
**RECOMMENDED STORAGE:** Refrigerate ampoule

#### DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (<sup>13</sup>C) perfluoroalkylcarboxylic acids (C<sub>4</sub>-C<sub>12</sub>, C<sub>14</sub>), three mass-labelled (<sup>13</sup>C) perfluoroalkanesulfonates (C<sub>4</sub>, C<sub>6</sub>, and C<sub>8</sub>), three mass-labelled (one <sup>13</sup>C and two <sup>2</sup>H) perfluoro-1-octanesulfonamides, three mass-labelled (<sup>13</sup>C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (<sup>2</sup>H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (<sup>2</sup>H) perfluorooctanesulfonamidoethanols, and mass-labelled (<sup>13</sup>C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual <sup>13</sup>C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual <sup>2</sup>H-labelled components all have chemical purities >98% and isotopic purities of ≥98%.

#### DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture  
Figure 1: LC/MS Data (SIR)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#: 13, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

MPFACHIFES1022 (1 of 7)  
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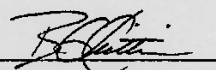
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**Table A: MPFAC-HIF-ES; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-( <sup>13</sup> C <sub>4</sub> )butanoic acid	MPFBA	2000		1
Perfluoro-n-( <sup>13</sup> C <sub>5</sub> )pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- <sup>13</sup> C <sub>6</sub> )hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- <sup>13</sup> C <sub>6</sub> )heptanoic acid	M4PFHpA	500		7
Perfluoro-n-( <sup>13</sup> C <sub>8</sub> )octanoic acid	M8PFOA	500		10
Perfluoro-n-( <sup>13</sup> C <sub>9</sub> )nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- <sup>13</sup> C <sub>10</sub> )decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- <sup>13</sup> C <sub>11</sub> )undecanoic acid	M7PFUdA	250		18
Perfluoro-n-(1,2- <sup>13</sup> C <sub>12</sub> )dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- <sup>13</sup> C <sub>14</sub> )tetradecanoic acid	M2PFTeDA	250		22
Perfluoro-1-( <sup>13</sup> C <sub>8</sub> )octanesulfonamide	M8FOSA	500		17
N-methyl-d <sub>5</sub> -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d <sub>5</sub> -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d <sub>5</sub> -perfluoro-1-octanesulfonamido)ethan-d <sub>5</sub> -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamido)ethan-d <sub>5</sub> -ol	d9-N-EtFOSE	5000		23
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)( <sup>13</sup> C <sub>3</sub> )propanoic acid	M3HFPO-DA	2000		6
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4- <sup>13</sup> C <sub>3</sub> )butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- <sup>13</sup> C <sub>3</sub> )hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-( <sup>13</sup> C <sub>8</sub> )octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )decanesulfonate	M2-8:2FTS	1000	960	13

\* Concentrations have been rounded to three significant figures.

Certified By:   
B.G. Chittim, General Manager

Date: 11/24/2022  
(mm/dd/yyyy)



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2106A-B	PFC SPIKE	11653	PFOA-DOD (28 comps)	Absolute Wellington Labs	11/08/27	10/18/24	1.0ppm	2mL	5mL	400ppb	MS/MNH 5/14/20	01/18/23	10/18/23	NG
		11432	N-He-FOSA-m	Wellington Labs	02/18/27	03/13/24	50ppm	40uL						NG
		11513	FBSA-1		11/10/26	04/18/24								NG
		11514	FHSA-1		12/19/26	04/18/24								NG
		11332	PFERHS		03/18/27	10/18/24								NG
LCMS 2107A-C	1633-OPiKE Cal Std.	11734	PFAC MxH	Wellington	8/8/27	4/14/24	1-4 ppm	250uL	4mL	62.5 125 250ppb	1633 MIX	4/19/23	10/19/23	MV
		11736	PFAC MxH	Wellington	11/11/25	4/14/24	2ppm	250uL		125ppb	2688mL			
		11676	PFAC MxG		12/11/27	4/11/24	2ppm	250uL		125ppb				
		11689	PFAC MxJ		9/11/26	4/19/24	4-20 ppm	250uL		125ppb				
LCMS 2108A-O	10PPb PFC ID SURT	11763	MPFAC-24-ES	Wellington Labs	01/18/28	04/18/24	1.0ppm	2.4mL	~50mL	95/MNH 5/14/20	04/24/23	10/18/23	NG	
		11635A	M3HFO-DA		11/08/28	04/18/24	50ppm	48uL						
		11431	d-N-MADOSAM		05/06/27	03/13/24	50ppm	48uL						NG
LCMS-2109	537.1 DW STD.	11653	PFOA-DOD (28 comps)	Absolute	11/09/27	04/18/24	1.0ug/mL	4mL	100ppb	90% MeOH 4/24/23		09/10/23	JR	
		2080	DW SURT		07/06/23		1.0/2.0 PPM	400uL	100/200 PPB					JR

\* based on date opened as specified in each SGS - Orlando SOP.

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 20915A-E	(10ppb) PFC ID SURR	A-5 11669	PFAC-2YES	Wilmington Labs	01/16/18	03/18/24	1.0ppm	2.4mL	~50mL	0.5ppm	151mech 51.420	03/18/23	09/18/23	NS
↓	↓	11585	PFAC-DA	↓	11/08/15	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	PFAC-D-N	↓	05/10/07	03/13/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
LCMS 20916A-B	1033 spike Cal w/d.	11672	PFAC-MxH	Wilmington	8/8/17	3/23/24	1-4 ppm	250uL	4mL	0.25 125 250ppb	1033 MIX	3/30/23	9/30/23	MU
↓	↓	11686	PFAC-MxI	↓	2/27/28	3/30/24	1-10 ppm	250uL	↓	0.25 0.25ppb	↓	↓	↓	↓
↓	↓	11674A	PFAC-MxF	↓	11/1/25	3/23/24	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxG	↓	12/1/27	3/16/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11672B	PFAC-MxJ	↓	9/14/26	3/23/24	4-20 ppm	312uL	↓	312/100 ppb	↓	↓	↓	↓
LCMS 2097A-B	BR-LN metal for 1033	11497	br-N metosa	Wilmington	08/23/17	10/28/23	50ppm	200uL	5mL	2ppm 5ppm	1033 MIX	4/6/23	10/28/23	MU
↓	↓	11498	br-N Effosa	↓	10/6/17	10/28/23	50ppm	200uL	↓	2ppm	↓	↓	↓	↓
↓	↓	11495	br-N metosa	↓	10/6/17 10/28/17	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11494	br-N Effosa	↓	10/7/17	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓					4/8 MU								

\* tested & used on 3/30/24

\* based on date opened as specified in each SGS - Orlando SOP.



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2098A	1033 spike Cal std.	11672A	PFAC	Wellington	8/18/27	3/23/24	1-4 ppm	250uL	4mL	0.25 1.25 250ppb	1033 mix	4/6/23	10/6/23	MW
		LCMS 2097	Br-1n Et-Me	SGS Labo	NA	10/28/23	3ppm 5ppm	250uL		125ppb 312.5ppb				
		11674B	PFAC Mx F	Wellington	1/11/25	3/30/24	2ppm	250uL 500uL 750uL		125ppb				
		11675	PFAC Mx G		12/1/27	3/30/24	2ppm	250uL		125ppb				
		11672B	PFAC Mx J		9/14/26	3/23/24	4-20 ppm	312uL		312/100 ppb				
LCMS 2099	537.1 Du std. (Fumeral)	11670	M3P-PEA	Wellington Labs	07/08/25	04/06/24	50ppm	80uL	4mL	1.0ppm	0161168H 41. H2O	04/06/23	05/15/23	NG
		10436A	Mx 2 FTS		11/05/25	04/06/24		80uL		1.0ppm				NG
		10522B	d3-N-NEOSAA		10/22/25	08/15/23		160uL		20ppm				NG
		10498A	M1FOS		11/02/25	03/22/24		80uL		1.0ppm				NG
		11069	M2PFA		12/09/26	03/22/24		80uL		1.0ppm				NG
LCMS 2100	Full List (90) List 40 spike (500)	11626	PFOR 28 Comp.	Absolute	11/19/27 4/13/24	4/11/24	1.0ppm	400uL	4.0mL	100ppb	45% MeOH 5% H2O (2,40021)	4/11/23	7/24/23	MW
		LCMS 2067	40 List ADD #1	SGS Add.		8/23/23	1.0ppm	400uL						
		LCMS 2070	40 List ADD #2			5/12/23	1.0ppm	400uL						
		LCMS 2054	FOSSE Std.			7/24/23	5.0ppm	400uL		50ppb				
LCMS 2101	Fose std.	11336	N-et Fose	Wellington	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	45% MeOH 5% H2O	9/11/23	9/19/23	MW
		11338	N-me fose		5/13/27	9/19/23	50ppm	200uL						

\* based on date opened as specified in each SGS - Orlando SOP. (1,600)

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2067	40 List std. ADD-ON #1	10720A	10:2 FTS	Wellington	3/3/26	3/21/23	50 ppm	80 uL	4.0 mL	1 ppm	95% meth 5% H2O	2/8/23	3/21/23 8/23/23	MV
		10840	L- PFDOS		7/9/26	10/18/23							8/23/23	
		10829	N- MCFOSA		8/3/26	8/23/23								
		10837	N- E-FOSA		8/3/26	8/23/23								
		10842	PFHxDA		9/3/26	10/18/23								
		10841	PFOA		5/7/26	10/18/23								
		11116B	3:3FTCA PFRPA		2/3/27	2/8/24								
		10685A	5:3FTCA PF2PA		11/1/25	8/23/23								
		11116A	7:3FTCA FHPA		11/12/25	2/8/24								
		11332	PFECHS		3/2/27	10/18/23								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA		3/31/25	10/18/23								
		10764	PFMFA PF40eA		3/31/25	2/8/24								
		10765B	NFHDA 3.6-OPHdA		3/31/25	10/18/23								
					NG 02/10/23									

\* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819



Organic Standards Preparation Log

SGS - Orlando Sid. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2074 A-B	PFC SPIKE	11613	PROA-DOD CASCOMP	Absolute Wellington Labs	11/09/23	02/23/24	1.0ppm	2mL	5mL	400ppb	95% MeOH 5% H2O	02/23/23	05/23/23	NG
		10829	N-ME-PBSA-M	Wellington Labs	08/23/26	08/23/23	50ppm	40uL						NG
		11250	PBSA-1		11/10/26	11/08/23								NG
		11249	PHSA-1		12/29/26	11/03/23								NG
		11322	PFECHS		02/28/27	10/18/23								NG
LCMS 2075A-F	(10 PPB) PFC ID SURF	11639	MPPAC-24ES	Wellington Labs	03/24/27	02/23/24	1.0ppm	2.4mL	~50 mL	0.5ppm	95% MeOH 5% H2O	02/23/23	05/23/23	NG
		11585	N2HFO-DA	Wellington Labs	11/08/23	01/26/24	50ppm	48uL						NG
		11385	B-N-NACROSA-M	Wellington Labs	05/10/27	01/01/24	50ppm	48uL						NG
LCMS 2076	40 List std. ADDON #2	11250	FBSA-1	Wellington Labs	11/10/26	11/8/23	50ppm	80uL	4.0mL	1ppm	95% MeOH 5% H2O	2/27/23	5/2/26	MW
		11249	FHSA-1		2/29/26	11/3/23	50ppm	80uL						
		11140	L-PFRG		7/12/26	5/26/23	50ppm	80uL						
LCMS 2077A-B	1633 Solvent B	11387	Ammonium Acetate	Sigmaaldrich		1/25/24	99.9%	0.62g	4L	2mM	95% MeOH 5% H2O	2/28/23	4/28/23	MW
		224870	HPLC water	Fisher		2/28/23		3,800ml		95%				
		220225	Acetoni trile			2/20/24		200mL		5%				
						aka new 2/28/23								
						Continue next page #1								

\* added 8/23/23  
8/23/23  
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\* based on date opened as specified in each SGS - Orlando SOP. ORLD-QAC-0017-6-03-FORM-icms std prep log.xls 030819

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2052	1633 prep mix	Lot: 221044	MeOH	Fisher	—	1/4/24	99.9%	92 mL	100 mL	92%	N/A	1/19/23	2/19/23	MV
		Lot: 219481	NH4OH		—	9/19/23	100%	3.3 mL		1%				
		Lot: 224863	H2O		—	1/17/24	100%	1.7 mL		4%				
		Lot: 224297	Acetic Acid		—	6/24	99.7%	0.625 mL		.625%				
LCMS 2053	(spike) Full list std	11568	PF6A DOP 28	SGS Standards	11/9/27	11/10/24	1.0 ppm	400 nL	4.0 mL	100 ppb	95% MeOH 5% H2O	12/4/23	3/21/23	MV
		LCMS 1987	40 list Add on #1		—	3/21/23	1.0 ppm	400 nL						
		LCMS 1986	40 list Add on #2		—	4/18/23	1.0 ppm	400 nL						
		LCMS 2054	Fose std.		—	7/7/23	5.0 ppm	400 nL		500 ppb				
LCMS 2054	Fose std.	11336	N-Et-FOSE	Wellington	5/13/27	9/19/23	50 ppm	200 nL	2.0 mL	5 ppm	95% MeOH 5% H2O	12/4/23	7/24/23	MV
		11338	N-Me FOSE		5/13/27	9/19/23	50 ppm	200 nL						
LCMS 2055	1633 Cal std.	10855	PFAC-MXH	Wellington	9/14/26	1/17/24	1-4 ppm	2.50 nL	4 mL	62.5 125 250 ppb	1633 MIX	1/24/23	7/24/23	MV
		10853J	PFAC-MXJ		9/14/26	1/11/24	1-10 ppm	2.50 nL		62.5 125 250 ppb				
		11549B	PFAC-MXF		1/11/25	1/11/24	2 ppm	500 nL		250 ppb				
		11607A	PFAC-MXJ		3/4/25	1/24/24	2 ppm	250 nL		125 ppb				
		10854J	PFAC-MXG		9/14/26	1/11/24	4-20 ppm	312 nL		312/100 ppb				
		11492	PFAC-MXJ		9/14/26	1/24/24	4-20 ppm	312 nL		9 ppb				
		11603					N/A	N/A						

\* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-icms std prep log.xls 030819

11494



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NMeFOSE

#### 2-(N-Methylperfluorooctanesulfonamido)ethanol Isomeric Mix

<b><u>PRODUCT CODE:</u></b>	br-NMeFOSE
<b><u>LOT NUMBER:</u></b>	brNMeFOSE0922
<b><u>CONCENTRATION:</u></b>	50.0 ± 2.5 µg/mL
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	09/02/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	09/07/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	10/07/2027
<b><u>RECOMMENDED STORAGE:</u></b>	Store ampoule in a cool, dark place

### DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

### DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR  
 Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)  
 Figure 2: LC/MS Data (Full Scan and Mass Spectrum)  
 Figure 3: LC/MS Data (SIR)  
 Figure 4: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

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Revision#:9, Revised 2020-12-23

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11495



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NEtFOSE

**2-(N-Ethylperfluorooctanesulfonamido)ethanol  
Isomeric Mix**

<b><u>PRODUCT CODE:</u></b>	br-NEtFOSE
<b><u>LOT NUMBER:</u></b>	brNEtFOSE1022
<b><u>CONCENTRATION:</u></b>	50.0 ± 2.5 µg/mL
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	09/12/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	10/07/2027
<b><u>RECOMMENDED STORAGE:</u></b>	Store ampoule in a cool, dark place

### DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

### DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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**WELLINGTON  
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**CERTIFICATE OF ANALYSIS  
DOCUMENTATION**

**br-NMeFOSA**

**N-Methylperfluorooctanesulfonamide  
Isomeric Mix**

**PRODUCT CODE:** br-NMeFOSA  
**LOT NUMBER:** brNMeFOSA0822  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**SOLVENT(S):** Methanol  
**DATE PREPARED:** (mm/dd/yyyy) 08/18/2022  
**LAST TESTED:** (mm/dd/yyyy) 08/23/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 08/23/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**DESCRIPTION:**

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

**DOCUMENTATION/ DATA ATTACHED:**

Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR  
Figure 1: LC/MS Data (Full Scan and Mass Spectrum)  
Figure 2: LC/MS Data (SIR)  
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

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11498



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NEtFOSA

#### N-Ethylperfluorooctanesulfonamide Isomeric Mix

<b><u>PRODUCT CODE:</u></b>	br-NEtFOSA
<b><u>LOT NUMBER:</u></b>	brNEtFOSA0922
<b><u>CONCENTRATION:</u></b>	50.0 ± 2.5 µg/mL
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	08/23/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	10/07/2022
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	10/07/2027
<b><u>RECOMMENDED STORAGE:</u></b>	Store ampoule in a cool, dark place

#### DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

#### DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR  
 Figure 1: LC/MS Data (Full Scan and Mass Spectrum)  
 Figure 2: LC/MS Data (SIR)  
 Figure 3: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

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11676  
rec'd: 02/23/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic  
Acid Solution/Mixture

<b>PRODUCT CODE:</b>	PFAC-MXJ
<b>LOT NUMBER:</b>	PFACMXJ0921
<b>SOLVENT(S):</b>	Methanol
<b>DATE PREPARED:</b> (mm/dd/yyyy)	09/08/2021
<b>LAST TESTED:</b> (mm/dd/yyyy)	09/14/2021
<b>EXPIRY DATE:</b> (mm/dd/yyyy)	09/14/2026
<b>RECOMMENDED STORAGE:</b>	Store ampoule in a cool, dark place

### DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

### DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture  
Figure 1: LC/MS Data (SIR)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.

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Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

PFACMXJ0921 (1 of 5)  
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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: 10/02/2021  
(mm/dd/yyyy)



11688  
rec'd 103/03/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXG

#### Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture

<b><u>PRODUCT CODE:</u></b>	PFAC-MXG
<b><u>LOT NUMBER:</u></b>	PFACMXG1122
<b><u>SOLVENT(S):</u></b>	Methanol/Water (<1%)
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	11/30/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	12/01/2022
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	12/01/2027
<b><u>RECOMMENDED STORAGE:</u></b>	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.

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PFACMXG1122 (1 of 5)  
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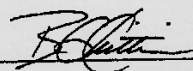
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**Table A: PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

\* Concentrations have been rounded to three significant figures.

Certified By:   
 B.G. Chittim, General Manager

Date: 12/09/2022  
(mm/dd/yyyy)

11689  
rec'd: 03/03/23



**WELLINGTON  
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**CERTIFICATE OF ANALYSIS  
DOCUMENTATION**

**PFAC-MXJ**

**Native X:3 Fluorotelomer Carboxylic  
Acid Solution/Mixture**

<b><u>PRODUCT CODE:</u></b>	PFAC-MXJ
<b><u>LOT NUMBER:</u></b>	PFACMXJ0921
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	09/08/2021
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	09/14/2021
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	09/14/2026
<b><u>RECOMMENDED STORAGE:</u></b>	Store ampoule in a cool, dark place

**DESCRIPTION:**

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

**DOCUMENTATION/ DATA ATTACHED:**

Table A: Components and Concentrations of the Solution/Mixture  
Figure 1: LC/MS Data (SIR)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

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rev1


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**Table A: PFAC-MXJ; Components and Concentrations ( $\mu\text{g}/\text{mL}$ ;  $\pm 5\%$  in methanol)**

Compound	Acronym	Concentration ( $\mu\text{g}/\text{mL}$ )
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By:   
B.G. Chittim, General Manager

Date: 10/02/2021  
(mm/dd/yyyy)

11734  
rec'd: 03/29/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXH

Native PFAS  
Solution/Mixture

<b><u>PRODUCT CODE:</u></b>	PFAC-MXH
<b><u>LOT NUMBER:</u></b>	PFACMXH0822
<b><u>SOLVENT(S):</u></b>	Methanol/Isopropanol (2%)/Water (<1%)
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	08/05/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	08/08/2022
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	08/08/2027
<b><u>RECOMMENDED STORAGE:</u></b>	Refrigerate ampoule

### DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C<sub>4</sub>-C<sub>14</sub>), eight native perfluoroalkanesulfonates (C<sub>4</sub>, C<sub>6</sub>, C<sub>7</sub>, C<sub>8</sub>, C<sub>10</sub> and C<sub>12</sub> linear; C<sub>6</sub> and C<sub>8</sub> linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide (FOSA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

### DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Table B: Isomeric Components and Percent Composition of N-MeFOSAA
- Table C: Isomeric Components and Percent Composition of N-EtFOSAA
- Table D: Isomeric Components and Percent Composition of PFHxSK
- Table E: Isomeric Components and Percent Composition of PFOSK
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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**Table A: PFAC-MXH; Components and Concentrations**  
(ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUDA	1000		24
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		23
N-methylperfluorooctanesulfonamidoacetic acid <sup>a</sup>	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-ethylperfluorooctanesulfonamidoacetic acid <sup>b</sup>	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanedisulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentadisulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexadisulfonate <sup>c</sup>	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptadisulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctadisulfonate <sup>d</sup>	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

<sup>a</sup> See Table B for percent composition of linear and branched N-MeFOSAA isomers.

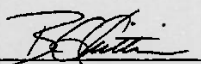
<sup>b</sup> See Table C for percent composition of linear and branched N-EtFOSAA isomers.

<sup>c</sup> See Table D for percent composition of linear and branched PFHxSK isomers.

<sup>d</sup> See Table E for percent composition of linear and branched PFOSK isomers.

\* Concentrations have been rounded to three significant figures.

Certified By:

  
B.G. Chittim, General Manager

Date: 08/09/2022

(mm/dd/yyyy)

11736  
rec'd: 03/29/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXF

**Native Replacement PFAS  
Solution/Mixture**

<b><u>PRODUCT CODE:</u></b>	PFAC-MXF
<b><u>LOT NUMBER:</u></b>	PFACMXF0122
<b><u>SOLVENT(S):</u></b>	Methanol / Water (<1%)
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	01/10/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	01/11/2022
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	01/11/2025
<b><u>RECOMMENDED STORAGE:</u></b>	Refrigerate ampoule

### DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

### DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Form# 13, Issued 2004-11-10  
Revision# 3, Revised 2020-12-23

PFACMXF0122 (1 of 5)  
rev0

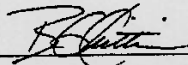
7.9.2  
7



**Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))**

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxanonoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

\* Concentrations have been rounded to three significant figures.

Certified By: 

B.G. Chittim, General Manager

Date: 01/12/2022  
(mm/dd/yyyy)



11737  
rec'd: 03/29/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXG

**Native Perfluoroalkyl Ether Carboxylic  
Acids and Sulfonate Solution/Mixture**

<b><u>PRODUCT CODE:</u></b>	PFAC-MXG
<b><u>LOT NUMBER:</u></b>	PFACMXG1122
<b><u>SOLVENT(S):</u></b>	Methanol/Water (<1%)
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	11/30/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	12/01/2022
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	12/01/2027
<b><u>RECOMMENDED STORAGE:</u></b>	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.

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Revision# 9, Revised 2020-12-23

PFACMXG1122 (1 of 5)  
rev0

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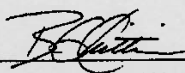
Table A:

**PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

\* Concentrations have been rounded to three significant figures.

Certified By:



B.G. Chittim, General Manager

Date: 12/09/2022

(mm/dd/yyyy)

7.9.2  
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10726 A

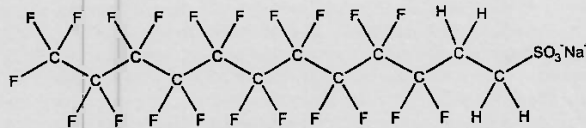


# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** 10:2FTS **LOT NUMBER:** 102FTS0221  
**COMPOUND:** Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

**STRUCTURE:** **CAS #:** 108026-35-3



**MOLECULAR FORMULA:** C<sub>12</sub>H<sub>4</sub>F<sub>21</sub>SO<sub>3</sub>Na **MOLECULAR WEIGHT:** 650.18  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol  
48.3 ± 2.4 µg/mL (10:2FTS acid)  
48.2 ± 2.4 µg/mL (10:2FTS anion)  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 03/03/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 03/03/2026  
**RECOMMENDED STORAGE:** Refrigerate ampoule

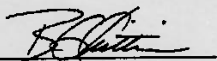
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

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**Certified By:**  **Date:** 03/05/2021  
B.G. Chittim, General Manager (mm/dd/yyyy)

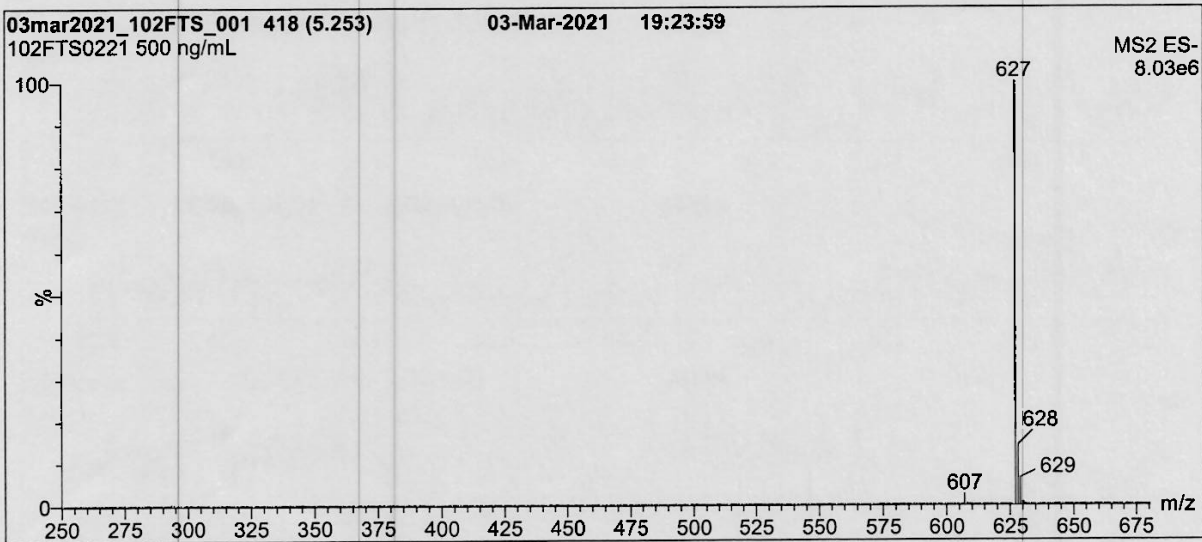
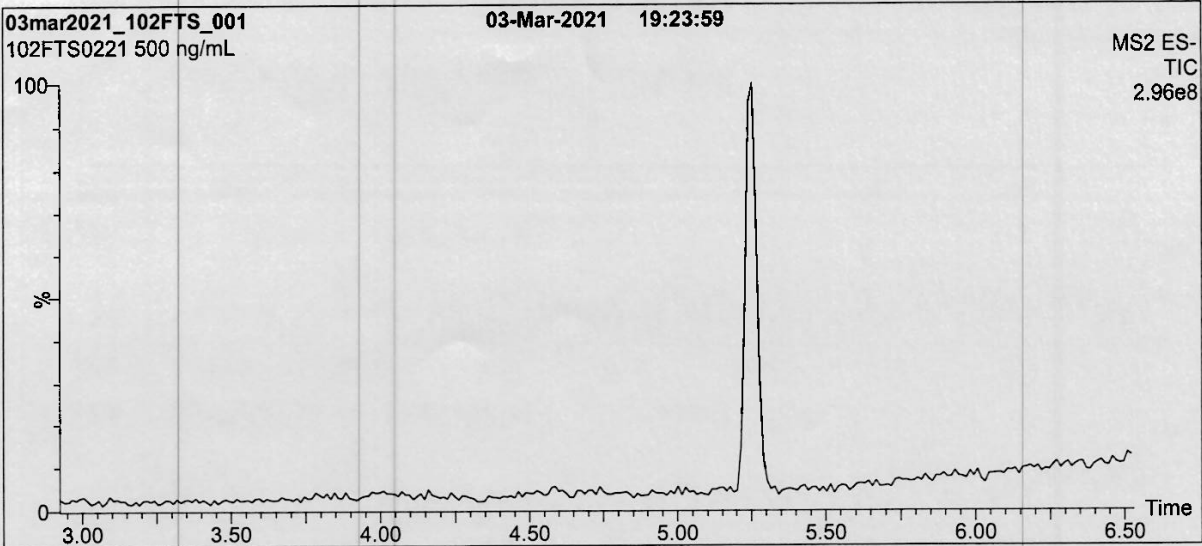
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Revision#: 9, Revised 2020-12-23

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7

**Figure 1:** 10:2FTS; LC/MS Data (Full Scan and Mass Spectrum)



**Conditions for Figure 1:**

Waters Acquity Ultra Performance LC  
Waters Xevo TQ-S micro MS

**Chromatographic Conditions:**

Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 40% H<sub>2</sub>O / 60% (80:20 MeOH:ACN)  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 7 min and hold for 3 min  
before returning to initial conditions in 0.75 min.  
Time: 12 min

Flow: 300  $\mu$ L/min

**MS Parameters:**

Experiment: Full Scan (250 - 850 amu)  
Source: Electrospray (negative)  
Capillary Voltage (kV) = 2.00  
Cone Voltage (V) = 25.00  
Desolvation Temperature ( $^{\circ}$ C) = 500  
Desolvation Gas Flow (L/hr) = 1000



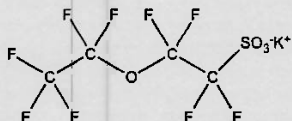
10762 A-B



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** PFEESA *rec'd 8/20/21 WPH* **LOT NUMBER:** PFEESA0520  
**COMPOUND:** Potassium perfluoro(2-ethoxyethane)sulfonate  
**STRUCTURE:** **CAS #:** 117205-07-9



**MOLECULAR FORMULA:** C<sub>4</sub>F<sub>8</sub>SO<sub>4</sub>K **MOLECULAR WEIGHT:** 354.19  
**CONCENTRATION:** 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol  
 44.6 ± 2.2 µg/ml (PFEESA acid)  
 44.5 ± 2.2 µg/ml (PFEESA anion)  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 05/13/2020  
**EXPIRY DATE:** (mm/dd/yyyy) 05/13/2025  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

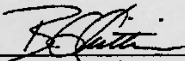
**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (TIC and Mass Spectrum)  
 Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA).

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**  **Date:** 05/29/2020  
 B.G. Chittim, General Manager (mm/dd/yyyy)

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Form#:27, Issued 2004-11-10  
 Revision#:7, Revised 2020-01-09

7.9.2  
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10763 A-B



# WELLINGTON LABORATORIES

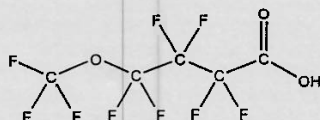
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** PF5OHxA *res'd with 8/20/21* **LOT NUMBER:** PF5OHxA0320

**COMPOUND:** Perfluoro-5-oxahexanoic acid

**SYNONYM:** Perfluoro-4-methoxybutanoic acid (PFMBA)

**STRUCTURE:** **CAS #:** 863090-89-5



**MOLECULAR FORMULA:** C<sub>5</sub>HF<sub>9</sub>O<sub>3</sub> **MOLECULAR WEIGHT:** 280.05

**CONCENTRATION:** 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol  
Water (<1%)

**CHEMICAL PURITY:** >98%

**LAST TESTED:** (mm/dd/yyyy) 03/31/2020

**EXPIRY DATE:** (mm/dd/yyyy) 03/31/2025

**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

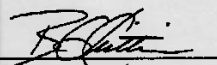
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager

**Date:** 12/21/2020  
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10  
Revision#: 8, Revised 2020-09-10

PF5OHxA0320 (1 of 4)  
rev1

7.9.2  
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10764A-B



# WELLINGTON LABORATORIES

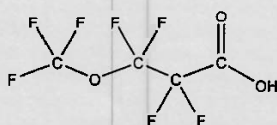
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** PF4OPeA *rec'd  
WPH  
8/20/21* **LOT NUMBER:** PF4OPeA0320

**COMPOUND:** Perfluoro-4-oxapentanoic acid

**SYNONYM:** Perfluoro-3-methoxypropanoic acid (PFMPA)

**STRUCTURE:** **CAS #:** 377-73-1



**MOLECULAR FORMULA:** C<sub>4</sub>HF<sub>7</sub>O<sub>3</sub> **MOLECULAR WEIGHT:** 230.04

**CONCENTRATION:** 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol  
Water (<1%)

**CHEMICAL PURITY:** >98%

**LAST TESTED:** (mm/dd/yyyy) 03/31/2020

**EXPIRY DATE:** (mm/dd/yyyy) 03/31/2025

**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

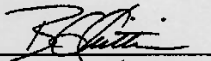
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager

**Date:** 12/21/2020  
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10  
Revision#: 8, Revised 2020-09-10

PF4OPeA0320 (1 of 4)  
rev1

7.9.2

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10765 A-13



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

3,6-OPFHpA

*rec'd  
WPH  
8/20/21*

**LOT NUMBER:**

36OPFHpA0320

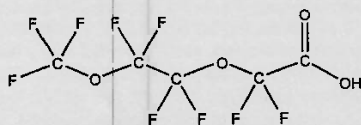
**COMPOUND:**

Perfluoro-3,6-dioxaheptanoic acid

**STRUCTURE:**

**CAS #:**

151772-58-6



**MOLECULAR FORMULA:**

C<sub>6</sub>H<sub>2</sub>F<sub>9</sub>O<sub>4</sub>

**MOLECULAR WEIGHT:**

296.04

**CONCENTRATION:**

50.0 ± 2.5 µg/ml

**SOLVENT(S):**

Methanol  
Water (<1%)

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

03/31/2020

**EXPIRY DATE:** (mm/dd/yyyy)

03/31/2025

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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**Certified By:**

B.G. Chittim, General Manager

**Date:** 05/27/2020  
(mm/dd/yyyy)

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10829



# WELLINGTON LABORATORIES

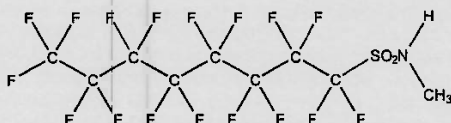
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** N-MeFOSA-M  
**COMPOUND:** N-methylperfluoro-1-octanesulfonamide

**LOT NUMBER:** NMeFOSA0721M

**STRUCTURE:**

**CAS #:** 31506-32-8



rec'd  
WPA  
10/5/21

**MOLECULAR FORMULA:** C<sub>8</sub>H<sub>4</sub>F<sub>17</sub>NO<sub>2</sub>S  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 08/03/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 08/03/2026  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**MOLECULAR WEIGHT:** 513.17  
**SOLVENT(S):** Methanol

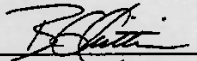
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager

**Date:** 08/04/2021  
(mm/dd/yyyy)

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Revision#:9, Revised 2020-12-23

NMeFOSA0721M (1 of 4)  
rev0

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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

N-EtFOSA-M

10837

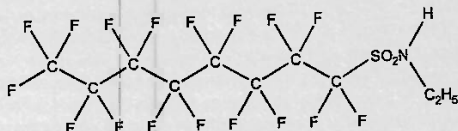
**LOT NUMBER:** NEtFOSA0821M

**COMPOUND:**

N-ethylperfluoro-1-octanesulfonamide

**STRUCTURE:**

**CAS #:** 4151-50-2



**MOLECULAR FORMULA:**

C<sub>10</sub>H<sub>9</sub>F<sub>17</sub>NO<sub>2</sub>S

**MOLECULAR WEIGHT:**

527.20

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

08/12/2021

**EXPIRY DATE:** (mm/dd/yyyy)

08/12/2026

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

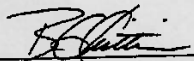
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

  
B.G. Chittim, General Manager

**Date:** 08/16/2021

(mm/dd/yyyy)

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10



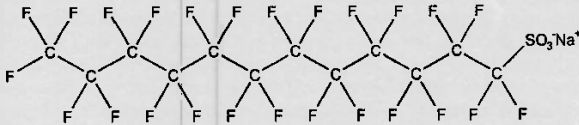
# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

10840

**PRODUCT CODE:** L-PFDoS **LOT NUMBER:** LPFDoS0721  
**COMPOUND:** Sodium perfluoro-1-dodecanesulfonate

**STRUCTURE:** **CAS #:** 1260224-54-1



**MOLECULAR FORMULA:** C<sub>12</sub>F<sub>25</sub>SO<sub>3</sub>Na **MOLECULAR WEIGHT:** 722.14  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol  
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


**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:**  **Date:** 07/16/2021  
B.G. Chittim, General Manager (mm/dd/yyyy)

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Revision#: 9, Revised 2020-12-23

LPFDoS0721 (1 of 4)  
rev0

7.9.2  
7



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

10847 NS 01/18/23

**PRODUCT CODE:**

PFODA

**LOT NUMBER:**

PFODA0821

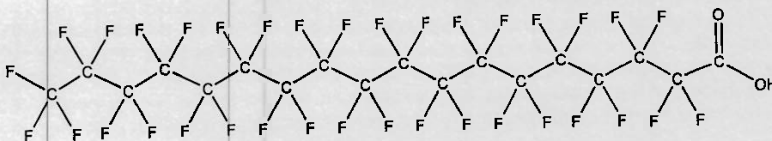
**COMPOUND:**

Perfluoro-n-octadecanoic acid

**STRUCTURE:**

**CAS #:**

16517-11-6



**MOLECULAR FORMULA:**

C<sub>18</sub>H<sub>35</sub>O<sub>2</sub>

**MOLECULAR WEIGHT:**

914.14

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

Water (<1%)

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

09/03/2021

**EXPIRY DATE:** (mm/dd/yyyy)

09/03/2026

**RECOMMENDED STORAGE:**

Store ampoule at ambient temperature in a dark place

**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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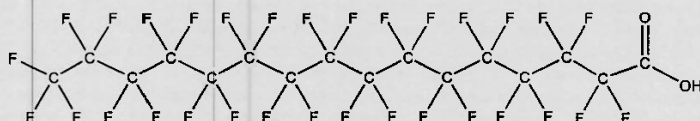


10842 \* NG 01/18/23

**PRODUCT CODE:** PFHxDA **LOT NUMBER:** PFHxDA0421

**COMPOUND:** Perfluoro-n-hexadecanoic acid

**STRUCTURE:** **CAS #:** 67905-19-5



**MOLECULAR FORMULA:** C<sub>16</sub>HF<sub>31</sub>O<sub>2</sub> **MOLECULAR WEIGHT:** 814.13  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol  
 Water (<1%)

**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 05/07/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 05/07/2026  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

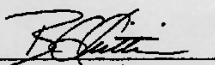
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**  **Date:** 05/25/2021  
 B.G. Chittim, General Manager (mm/dd/yyyy)

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1116 A/B NW

1116B on the back NW



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHpPA

**LOT NUMBER:**

FHpPA1020

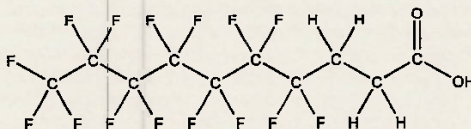
**COMPOUND:**

3-Perfluoroheptyl propanoic acid

**STRUCTURE:**

**CAS #:**

812-70-4



**MOLECULAR FORMULA:**

C<sub>10</sub>H<sub>5</sub>F<sub>15</sub>O<sub>2</sub>

**MOLECULAR WEIGHT:**

442.12

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

11/12/2020

**EXPIRY DATE:** (mm/dd/yyyy)

11/12/2025

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

B.G. Chittim, General Manager

**Date:** 11/27/2020

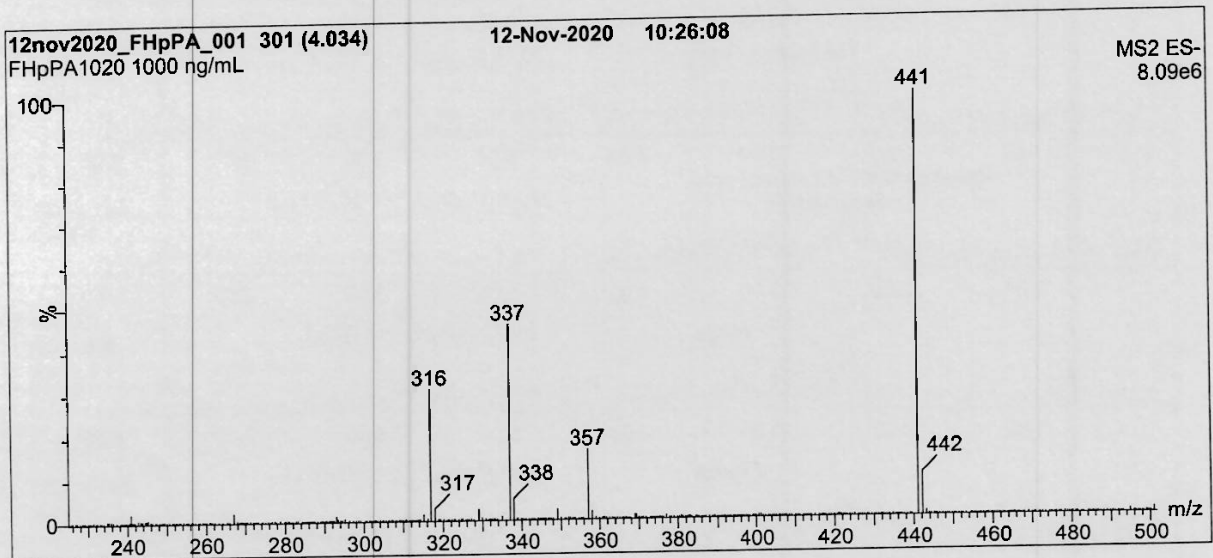
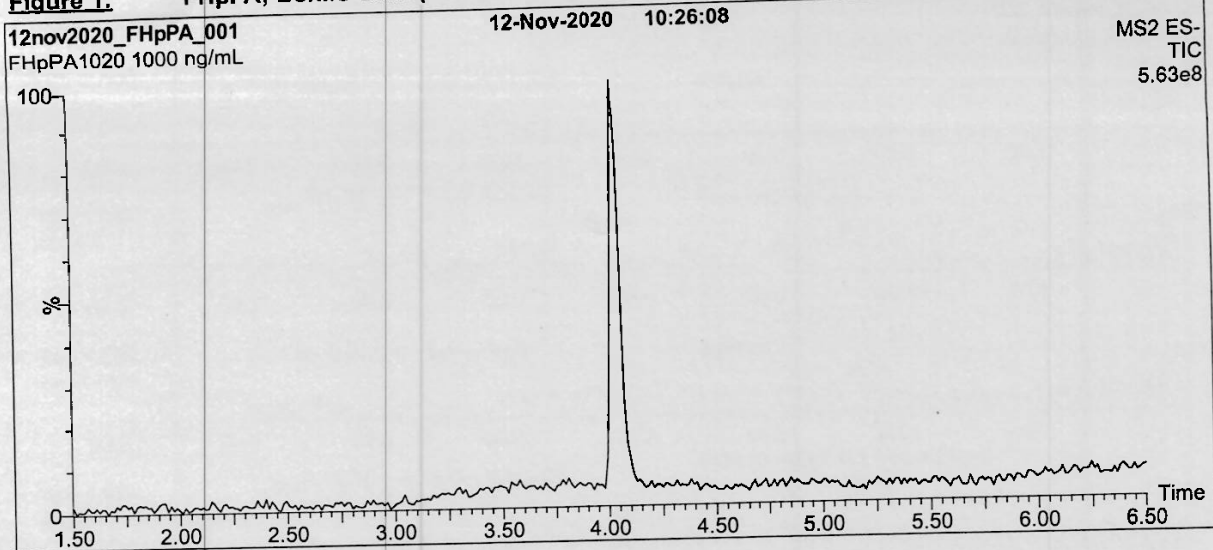
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10  
Revision#: 8, Revised 2020-09-10

FHpPA1020 (1 of 4)  
rev0



**Figure 1: FHpPA; LC/MS Data (TIC and Mass Spectrum)****Conditions for Figure 1:**

Waters Acquity Ultra Performance LC  
Waters Xevo TQ-S micro MS

**Chromatographic Conditions:**

Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 45% H<sub>2</sub>O / 55% (80:20 MeOH:ACN)  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 8 min and hold for  
2 min before returning to initial conditions in 0.75 min.  
Time: 12 min

Flow: 300  $\mu$ L/min

**MS Parameters:**

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)  
Capillary Voltage (kV) = 0.50  
Cone Voltage (V) = 28.50  
Desolvation Temperature ( $^{\circ}$ C) = 500  
Desolvation Gas Flow (L/hr) = 1000



FPa PA(3:3 FTA) 1116 B



**WELLINGTON**  
LABORATORIES

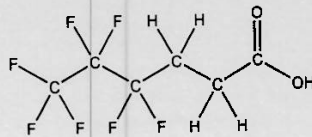
**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION

**PRODUCT CODE:** FPrPA  
**COMPOUND:** 3-Perfluoropropyl propanoic acid

**LOT NUMBER:** FPrPA0122

**STRUCTURE:**

**CAS #:** 356-02-5



**MOLECULAR FORMULA:** C<sub>6</sub>H<sub>5</sub>F<sub>7</sub>O<sub>2</sub>  
**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

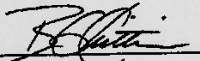
**DOCUMENTATION/ DATA ATTACHED:**

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 (C<sub>6</sub>H<sub>3</sub>F<sub>7</sub>O<sub>2</sub>) as an impurity determined by <sup>19</sup>F NMR.

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**Certified By:**   
B.G. Chittim, General Manager

**Date:** 02/04/2022  
(mm/dd/yyyy)

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11332



# WELLINGTON LABORATORIES

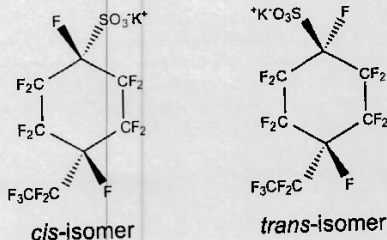
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**  
**COMPOUND:**

PFECHS  
Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

**LOT NUMBER:** PFECHS0222

**STRUCTURE:**



**CAS #:** 335-24-0

**MOLECULAR FORMULA:**  
**CONCENTRATION:**

$C_8F_{15}SO_3K$   
50.0 ± 2.5 µg/mL (K salt)  
46.2 ± 2.3 µg/mL (PFECHS acid)  
46.1 ± 2.3 µg/mL (PFECHS anion)  
>98%

**MOLECULAR WEIGHT:** 500.22  
**SOLVENT(S):** Methanol

**CHEMICAL PURITY:**

**LAST TESTED:** (mm/dd/yyyy)

03/28/2022

**EXPIRY DATE:** (mm/dd/yyyy)

03/28/2027

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

B.G. Chittim, General Manager

Date: 03/30/2022  
(mm/dd/yyyy)

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11626  
rec'd 01/26/23

CERTIFIED WEIGHT REPORT

Part Number: 64029A  
Lot Number: 110922  
Description: PFOA - DOD  
28 components  
Expiration Date: 110827  
Recommended Storage: Freezer (0 °C)  
Nominal Concentration (µg/mL): 1.0  
NIST Test ID#: 6UTB

Solvent(s): Methanol (1 mM KOH)  
2-Propanol  
Lot# 102722 (98%)  
32500 (2%)

Formulated By: <i>P. S. Chauhan</i>	110922
Prepared By: <i>Prashant Chauhan</i>	DATE
Reviewed By: <i>Prashant Chauhan</i>	110922
Reviewed By: <i>Pedro L. Rentas</i>	DATE

Volume(s) shown below were combined and diluted to (mL):  
Note: All assigned values are anion concentrations.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.)		
									Free Acid CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (PFBA)	99542	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid (PFPeA)	99543	050222	0.02	2.00	0.017	50.3	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid (PFHxA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid (PFHpA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (br-PFOA)*	99202	080522	0.02	2.00	0.017	50.2	1.00	0.02	335-67-1 (L)	N/A	ipr-rat 189mg/kg
6. Perfluorononanoic acid (PFNA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	N/A
7. Perfluorodecanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.0	1.00	0.02	335-76-2	N/A	rat 57mg/kg
8. Perfluoroundecanoic acid (PFUnA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2058-94-8	N/A	N/A
9. Perfluorododecanoic acid (PFDoA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PTTDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid (PTeDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	376-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide (FOSA)	3677	FOSA03221	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
13. N-Methylperfluoro-1-octanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
14. N-Ethylperfluoro-1-octanesulfonamidoacetic acid (br-NEFOSAA)*	4163	brNEFOSAA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
15. Perfluorobutanesulfonic acid (PFBS)	99194	080522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	032422	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A
17. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	071522	0.02	2.00	0.017	50.2	1.00	0.02	355-46-4 (L)	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid (PFHpS)	3672	LPFHpS0822	0.021	2.10	0.017	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201	033022	0.02	2.00	0.017	50.1	1.00	0.02	1763-23-1 (L)	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS1021	0.021	2.10	0.017	48.0	1.01	0.05	68259-12-1	N/A	N/A
21. Perfluoro-1-decanesulfonic acid (PFDS)	3671	LPFDS0222	0.021	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	65271	080522	0.02	2.00	0.017	50.2	1.00	0.05	757124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluoroheptane sulfonic acid (6:2FTS)	65272	071522	0.02	2.00	0.017	50.2	1.00	0.05	29187-87-2	N/A	N/A
24. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (8:2FTS)	3662	82FTS0822	0.021	2.10	0.017	47.9	1.01	0.05	39108-34-4	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropanoic acid (HFPO-DA)	99666	080522	0.02	2.00	0.017	50.1	1.00	0.02	13252-13-6	N/A	N/A
26. 11-Chlorooctadecafluoro-3-oxadecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	11ClPF3OUdS0522	0.021	2.12	0.017	47.1	1.00	0.05	763051-92-9	N/A	N/A
27. 9-Chlorooctadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	4164	9ClPF3ONS0522	0.021	2.14	0.017	46.8	1.00	0.05	756426-58-1	N/A	N/A
28. Dodecafluoro-3H,4,8-dioxanonanoic acid (ADONA)	4103	NaDONA0922	0.021	2.12	0.017	47.1	1.00	0.05	919005-14-4	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	080522	0.02	2.00	0.004	49.6	0.99	0.010	335-67-1 (L)	N/A	ipr-rat 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	080522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	ipr-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	071522	0.02	2.00	0.017	44.2	0.88	0.02	355-46-4 (L)	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	071522	0.02	2.00	0.017	6.0	0.12	0.0021	355-46-4 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	033022	0.02	2.00	0.017	38.1	0.76	0.02	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	7.5	0.15	0.003	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	4.0	0.08	0.002	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	0.5	0.010	0.0002	1763-23-1 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	36.0	0.72	0.04	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEFOSAA1121	0.02	2.00	0.017	36.6	0.73	0.04	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	7.7	0.15	0.009	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	6.3	0.11	0.005	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	0.4	0.007	0.0006	2991-50-6 (L)	N/A	N/A

\*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.

The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.  
Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).  
Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.  
All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.  
Uncertainty Reference: Taylor, B.N. and Kaye, C.E. "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

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11140



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

L-PFPrS

**LOT NUMBER:**

LPFPrS0721

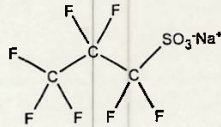
**COMPOUND:**

Sodium perfluoro-1-propanesulfonate

**STRUCTURE:**

**CAS #:**

Not available



**MOLECULAR FORMULA:**

C<sub>3</sub>F<sub>7</sub>SO<sub>3</sub>Na

**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)

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11852 11249  
7/1/22 KA



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHxSA-I

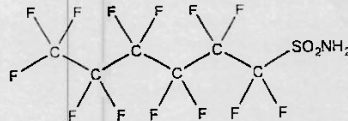
**LOT NUMBER:** FHxSA12211

**COMPOUND:**

Perfluoro-1-hexanesulfonamide

**STRUCTURE:**

**CAS #:** 41997-13-1



**MOLECULAR FORMULA:**

C<sub>6</sub>H<sub>2</sub>F<sub>13</sub>NO<sub>2</sub>S

**MOLECULAR WEIGHT:** 399.13

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

isopropanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

12/29/2021

**EXPIRY DATE:** (mm/dd/yyyy)

12/29/2026

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

B.G. Chittim, General Manager

Date: 01/10/2022

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

11250 Lx 7/1122



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FBSA-I

**LOT NUMBER:**

FBSA11211

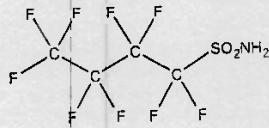
**COMPOUND:**

Perfluoro-1-butananesulfonamide

**STRUCTURE:**

**CAS #:**

30334-69-1



**MOLECULAR FORMULA:**

C<sub>4</sub>H<sub>2</sub>F<sub>10</sub>NO<sub>2</sub>S

**MOLECULAR WEIGHT:**

299.11

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Isopropanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

11/10/2021

**EXPIRY DATE:** (mm/dd/yyyy)

11/10/2026

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

B.G. Chittim, General Manager

**Date:** 11/10/2021

(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

FBSA11211 (1 of 4)  
rev0

7.9.2

7







11338



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

7.9.2  
7**PRODUCT CODE:**

N-MeFOSE-M

**LOT NUMBER:**

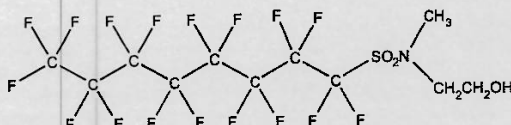
NMeFOSE0522M

**COMPOUND:**

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

**STRUCTURE:****CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C<sub>11</sub>H<sub>8</sub>F<sub>17</sub>NO<sub>3</sub>S**MOLECULAR WEIGHT:**

557.22

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

&gt;98%

**LAST TESTED:** (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

**EXPIRY DATE:** (mm/dd/yyyy)

05/13/2027

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

  
B.G. Chittim, General Manager
Date: 06/14/2022  
(mm/dd/yyyy)

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11764 A-5  
rec'd: 04/20/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### MPFAC-HIF-IS

Mass-Labelled PFAS Injection  
Standard Solution/Mixture

**PRODUCT CODE:** MPFAC-HIF-IS  
**LOT NUMBER:** MPFACHIFIS1122  
**SOLVENT(S):** Methanol/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 11/28/2022  
**LAST TESTED:** (mm/dd/yyyy) 11/29/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 11/29/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

### DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (<sup>13</sup>C) perfluoroalkylcarboxylic acids (C<sub>4</sub>, C<sub>6</sub>, C<sub>8</sub>-C<sub>10</sub>) and two mass-labelled (<sup>18</sup>O and <sup>13</sup>C) perfluoroalkanesulfonates (C<sub>6</sub> and C<sub>8</sub>). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per <sup>13</sup>C or >94% per <sup>18</sup>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.

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Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

MPFACHIFIS1122 (1 of 5)  
rev0

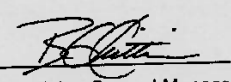
7.9.2

7

**Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(2,3,4- <sup>13</sup> C <sub>3</sub> )butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- <sup>13</sup> C <sub>4</sub> )octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- <sup>13</sup> C <sub>5</sub> )nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )decanoic acid	MPFDA	250		7
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-hexane( <sup>18</sup> O <sub>2</sub> )sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- <sup>13</sup> C <sub>4</sub> )octanesulfonate	MPFOS	500	479	6

\* Concentrations have been rounded to three significant figures.

Certified By:  Date: 12/05/2022  
(mm/dd/yyyy)

R.G. Chittim, General Manager



11765 A-J  
Rec'd: 04/20/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### **MPFAC-HIF-ES**

#### **Mass-Labelled PFAS Extraction Standard Solution/Mixture**

**PRODUCT CODE:** MPFAC-HIF-ES  
**LOT NUMBER:** MPFACHIFES1022  
**SOLVENT(S):** Methanol/Isopropanol (1%)/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 10/28/2022  
**LAST TESTED:** (mm/dd/yyyy) 11/23/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 11/23/2025  
**RECOMMENDED STORAGE:** Refrigerate ampoule

#### **DESCRIPTION:**

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled ( $^{13}\text{C}$ ) perfluoroalkylcarboxylic acids ( $\text{C}_4$ - $\text{C}_{12}$ ,  $\text{C}_{14}$ ), three mass-labelled ( $^{13}\text{C}$ ) perfluoroalkanesulfonates ( $\text{C}_4$ ,  $\text{C}_6$ , and  $\text{C}_8$ ), three mass-labelled (one  $^{13}\text{C}$  and two  $^2\text{H}$ ) perfluoro-1-octanesulfonamides, three mass-labelled ( $^{13}\text{C}$ ) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled ( $^2\text{H}$ ) perfluorooctanesulfonamidoacetic acids, two mass-labelled ( $^2\text{H}$ ) perfluorooctane-sulfonamidoethanols, and mass-labelled ( $^{13}\text{C}$ ) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual  $^{13}\text{C}$ -labelled components all have chemical purities >98% and isotopic purities of  $\geq 99\%$ . The individual  $^2\text{H}$ -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.

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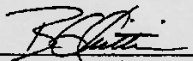
Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

MPFACHIFES1022 (1 of 7)  
rev0

**Table A: MPFAC-HIF-ES; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-( <sup>13</sup> C <sub>2</sub> )butanoic acid	MPFBA	2000		1
Perfluoro-n-( <sup>13</sup> C <sub>3</sub> )pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- <sup>13</sup> C <sub>5</sub> )hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- <sup>13</sup> C <sub>4</sub> )heptanoic acid	M4PFHpA	500		7
Perfluoro-n-( <sup>13</sup> C <sub>8</sub> )octanoic acid	M8PFOA	500		10
Perfluoro-n-( <sup>13</sup> C <sub>9</sub> )nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- <sup>13</sup> C <sub>6</sub> )decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- <sup>13</sup> C <sub>7</sub> )undecanoic acid	M7PFUdA	250		18
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )dodecanoic acid	MPFD <sub>o</sub> A	250		19
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )tetradecanoic acid	M2PFTeDA	250		22
Perfluoro-1-( <sup>13</sup> C <sub>8</sub> )octanesulfonamide	M8FOSA	500		17
N-methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamido)ethan-d <sub>2</sub> -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamido)ethan-d <sub>2</sub> -ol	d9-N-EtFOSE	5000		23
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)( <sup>13</sup> C <sub>3</sub> )propanoic acid	M3HFPO-DA	2000		6
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4- <sup>13</sup> C <sub>3</sub> )butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- <sup>13</sup> C <sub>3</sub> )hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-( <sup>13</sup> C <sub>8</sub> )octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )decanesulfonate	M2-8:2FTS	1000	960	13

\* Concentrations have been rounded to three significant figures.

Certified By:   
B.G. Chittim, General Manager

Date: 11/24/2022  
(mm/dd/yyyy)

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 05/08/23 10:30  
Started (mm/dd/yy 24:00)

Method: EPA 1633 Draft (OSM) List 4c

Date/Time: 5/9/23 14:00  
Finished (mm/dd/yy 24:00)

Balance ID: \_\_\_\_\_

Batch# OP96784 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 96784 MB		500	7	N/A	25		5	AL	
OP 96784 BS		500	7			200			
OP 96784 LLBS		500	7			60			
FC 5861-1	2	520	6						
FC 5890-1	2	550							
	2	550							
	3	530	6	N/A	25		5	AL	
OP FC5890-1 MS	3	540	6	N/A	25	200		AL	
OP FC5890-2 DUP	3	550	6	N/A	25			AL	

Comments:

EIS (SURR) ID: 11777F-H Conc: 250-5000 ng/ml Exp. Date: 05/01/24 Inj. By: GH Ver. By: DBL  
 SPIKE.1 ID: LMS 2112A Conc: VARIED Exp. Date: 10/28/23 Inj. By: GH Ver. By: DBL  
 SPIKE.2 ID: \_\_\_\_\_ Conc: \_\_\_\_\_ Exp. Date: \_\_\_\_\_ Inj. By: \_\_\_\_\_ Ver. By: \_\_\_\_\_  
 NIS (ISTD) ID: 11776I-J Conc: 250-1000 ng/ml Exp. Date: 5/9/24 Inj. By: MU Ver. By: PR

TurboVap Temp (Therm ID): \_\_\_\_\_ N-Evap Temp (Therm ID): \_\_\_\_\_  
 Observed Temp °C: \_\_\_\_\_ Corr. Temp °C: \_\_\_\_\_ Observed Temp °C: \_\_\_\_\_ Corr. Temp °C: \_\_\_\_\_

Methanol Lot # 223237 1% NH4OH MeOH PF 384 SPE Lot # 0723430-02  
 Water Lot# OP96255 0.3M Formic Acid PF 384 Syringe filter Lot # \_\_\_\_\_  
 Acetic Acid# 194003 3% NH4OH Sol \_\_\_\_\_ pH paper Lot# 215322  
 0.1M Formic PF 386 5% Formic Acid \_\_\_\_\_ Carbon Lot# 99687

Relinquished By: Daniella Vachus  
Accepted By: MU

Date: 05/08/23  
Date: 5/9/23