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Automated Report

## Technical Report for

**AECOM, INC.**

**N6274223F0104 RH Fire Suppression System**

**60697810**

**SGS Job Number: FC2175**

**Sampling Date: 01/24/23**



### Report to:

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ATTN: Katie Abbott

**Total number of pages in report: 645**



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.

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Sample Summary

AECOM, INC.

Job No: FC2175

N6274223F0104 RH Fire Suppression System  
Project No: 60697810

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FC2175-1	01/24/23	10:20 NT	01/25/23	AQ	Ground Water	AF-HDMW225303-WGN01LF-2301W4
FC2175-2	01/24/23	12:30 NT	01/25/23	AQ	Ground Water	AF-RHMW10-WGN01LF-2301W4

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** AECOM, INC.

**Job No:** FC2175

**Site:** N6274223F0104 RH Fire Suppression System

**Report Date:** 2/7/2023 4:42:14 PM

On 01/25/2023, 2 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 0.8 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC2175 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:** OP95216

Sample(s) FC2239-1MS, FC2270-2DUP were used as the QC samples indicated.

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

Narrative prepared by:

---

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



Summary of Hits

Job Number: FC2175  
Account: AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System  
Collected: 01/24/23



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

FC2175-1      AF-HDMW225303-WGN01LF-2301W4

No hits reported in this sample.

FC2175-2      AF-RHMW10-WGN01LF-2301W4

No hits reported in this sample.



Orlando, FL

Section 4

4

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-HDMW225303-WGN01LF-2301W4				
Lab Sample ID:	FC2175-1			Date Sampled:	01/24/23
Matrix:	AQ - Ground Water			Date Received:	01/25/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q12893.D	1	02/03/23 12:08	MV	01/30/23 09:00	OP95216	S6Q198
Run #2							

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

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

375-22-4	Perfluorobutanoic acid	3.8 U	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	9.4	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.7	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.7	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.7	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.7	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.7	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.7	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	

PERFLUOROOCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	4.7	1.9	0.63	ng/l	
31506-32-8	MeFOSA	1.9 U	4.7	1.9	0.94	ng/l	
4151-50-2	EfFOSA	1.9 U	4.7	1.9	0.94	ng/l	

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

## Report of Analysis

Page 2 of 3

Client Sample ID:	AF-HDMW225303-WGN01LF-2301W4				
Lab Sample ID:	FC2175-1		Date Sampled:	01/24/23	
Matrix:	AQ - Ground Water		Date Received:	01/25/23	
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
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## PERFLUOROOCTANE 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	

## PERFLUOROOCTANE SULFONAMIDO ETHANOLS

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

## PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

## PER and POLYFLUOROETHER SULFONIC ACIDS

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

## FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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13C4-PFBA	111%	20-150%
13C5-PFPeA	113%	20-150%
13C5-PFHxA	122%	20-150%
13C4-PFHpA	112%	20-150%
13C8-PFOA	107%	20-150%
13C9-PFNA	100%	20-150%
13C6-PFDA	100%	20-150%
13C7-PFUnDA	102%	20-150%
13C2-PFDoDA	102%	20-150%
13C2-PFTeDA	94%	20-150%
13C3-PFBS	109%	20-150%
13C3-PFHxS	115%	20-150%

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-HDMW225303-WGN01LF-2301W4		
Lab Sample ID:	FC2175-1	Date Sampled:	01/24/23
Matrix:	AQ - Ground Water	Date Received:	01/25/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	91%		20-150%
	13C8-FOSA	100%		20-150%
	d3-MeFOSA	94%		20-150%
	d5-EtFOSA	95%		20-150%
	d3-MeFOSAA	94%		20-150%
	d5-EtFOSAA	92%		20-150%
	d7-MeFOSE	96%		20-150%
	d9-EtFOSE	99%		20-150%
	13C2-4:2FTS	129%		20-150%
	13C2-6:2FTS	125%		20-150%
	13C2-8:2FTS	117%		20-150%
	13C3-HFPO-DA	121%		20-150%

U = Not detected

LOQ = Limit of Quantitation

E = Indicates value exceeds calibration range

LOD = Limit of Detection

DL = Detection Limit

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS North America Inc.

## Report of Analysis

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Client Sample ID:	AF-RHMW10-WGN01LF-2301W4				
Lab Sample ID:	FC2175-2			Date Sampled:	01/24/23
Matrix:	AQ - Ground Water			Date Received:	01/25/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q12894.D	1	02/03/23 12:21	MV	01/30/23 09:00	OP95216	S6Q198
Run #2							

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

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

375-22-4	Perfluorobutanoic acid	3.8 U	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	9.6	1.9	0.90	ng/l	
307-24-4	Perfluorohexanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
375-85-9	Perfluoroheptanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
335-67-1	Perfluorooctanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.8	1.9	0.59	ng/l	
335-76-2	Perfluorodecanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.8	1.9	0.58	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.8	1.9	0.58	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.8	1.9	0.81	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.96 U	4.8	0.96	0.48	ng/l	

## PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.96 U	4.8	0.96	0.48	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.8	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.8	1.9	0.67	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.96 U	4.8	0.96	0.48	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.8	1.9	0.52	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.8	1.9	0.55	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.8	1.9	0.62	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.8	3.8	1.1	ng/l	

## FLUOROTELOMER SULFONIC ACIDS

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

## PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	4.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	1.9 U	4.8	1.9	0.96	ng/l	
4151-50-2	EfOSA	1.9 U	4.8	1.9	0.96	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

## Report of Analysis

Page 2 of 3

Client Sample ID:	AF-RHMW10-WGN01LF-2301W4			Date Sampled:	01/24/23
Lab Sample ID:	FC2175-2			Date Received:	01/25/23
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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## PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS

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

## PERFLUOROOCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.6 U	48	9.6	4.2	ng/l	
1691-99-2	EtFOSE	19 U	48	19	7.1	ng/l	

## PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.8 U	19	3.8	0.96	ng/l	
919005-14-4	ADONA	3.8 U	19	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	9.6	1.9	0.96	ng/l	
863090-89-5	PFMBA	3.8 U	9.6	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	9.6	3.8	1.2	ng/l	

## PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	19	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	19	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	9.6	1.9	0.75	ng/l	

## FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.6 U	24	9.6	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.4	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.5	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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13C4-PFBA	106%	20-150%
13C5-PFPeA	108%	20-150%
13C5-PFHxA	112%	20-150%
13C4-PFHpA	102%	20-150%
13C8-PFOA	100%	20-150%
13C9-PFNA	112%	20-150%
13C6-PFDA	101%	20-150%
13C7-PFUnDA	90%	20-150%
13C2-PFDoDA	86%	20-150%
13C2-PFTeDA	80%	20-150%
13C3-PFBS	102%	20-150%
13C3-PFHxS	101%	20-150%

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW10-WGN01LF-2301W4			Date Sampled:	01/24/23
Lab Sample ID:	FC2175-2			Date Received:	01/25/23
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	99%		20-150%
	13C8-FOSA	101%		20-150%
	d3-MeFOSA	99%		20-150%
	d5-EtFOSA	100%		20-150%
	d3-MeFOSAA	103%		20-150%
	d5-EtFOSAA	92%		20-150%
	d7-MeFOSE	97%		20-150%
	d9-EtFOSE	103%		20-150%
	13C2-4:2FTS	119%		20-150%
	13C2-6:2FTS	113%		20-150%
	13C2-8:2FTS	103%		20-150%
	13C3-HFPO-DA	111%		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**

5

**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

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TEL: 407-425-6700 FAX: 407-425-0707  
www.sgs.com

FC2175

SGS - ORLANDO JOB #:

COC #: 2301W4AFSG03

PAGE 1 OF 1

Client / Reporting Information			Project Information			Analytical Information													Matrix Codes												
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System			<div>PFAS EPA Draft 1633</div> <div>NT</div> <div>01/24/2023</div>													<div>DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe</div>												
Address: 1001 Bishop St. ste 1600			Street																												
City: Honolulu State: HI Zip: 96813			City: Honolulu State: Hawaii																												
Project Contact: Katie Abbott Email: katie.abbott@aecom.com			Project # 60697810																												
Project Manager: Watson Tanji Email: watson.tanji@aecom.com			Fax #																												
Phone #: 303-796-4624 / 808-954-4512			Client Purchase Order #																												
Sampler(s) Name(s) (Printed)																															
Sampler 1: <u>NOAH TURNER</u> Sampler 2:																															
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	PCT	NaOH	HNO3	H2SO4	NaOH-HNO3	DI WATER	MECH	PFAS EPA Draft 1633	LAB USE ONLY														
1	AF-RHWW10-WGN01LF-2301W4	1/24/23	1230	cm/mj/nt	GW	3		X								X															
<div>NT</div> <div>01/24/2023</div>																															
Turnaround Time (Business days)			Data Deliverable Information													Comments / Remarks															
10 Day (Business)			Approved By: / Date:			<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S													EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW <u>United AWB 016-51848403</u>												
7 Day																															
<u>5 Day</u>																															
3 Day RUSH																															
2 Day RUSH																															
1 Day RUSH																															
Other																															
Rush T/A Data Available VIA Email or Lablink																															
Sample Custody must be documented below each time samples change possession, including courier delivery.																															
Relinquished by Sampler/Affiliation			Date Time: 01/24/2023			Received By/Affiliation			Date Time: 1/24/23			Relinquished By/Affiliation			Date Time: 1/24/23			Received By/Affiliation			Date Time: 1/25/23										
1 <u>NOAH TURNER</u> / AECOM						2 <u>Watson Tanji</u> / AECOM						3 <u>Watson Tanji</u> / AECOM						4 <u>Watson Tanji</u> / AECOM													
Relinquished by/Affiliation			Date Time:			Received By/Affiliation			Date Time:			Relinquished By/Affiliation			Date Time:			Received By/Affiliation			Date Time:										
5						6						7						8													
Lab Use Only : Cooler Temperature (s) Celsius (corrected):																		<a href="http://www.sgs.com/en/terms-and-conditions">http://www.sgs.com/en/terms-and-conditions</a>													

PFAS\_COCs\_ALL.xls Rev 031318

FC2175: Chain of Custody

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## SGS Sample Receipt Summary

Job Number: FC2175

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 1/25/2023 3:40:00 PM

Delivery Method: United Cargo/Airspace

Airbill #s: United Cargo AWB #: 016-51848403

Therm ID: IR 1;

Therm CF: 0.2;

# of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (0.6);

Cooler Temps (Corrected) °C: Cooler 1: (0.8);

### 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 | <u>IR Gun</u>                       |                          |
| 5. Cooler media             | <u>Ice (Bag)</u>                    |                          |

### 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"/> |
|------------------------|--------------------------|--------------------------|-------------------------------------|

### 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                              | <u>Intact</u>                       |                                     |                                     |
| 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"/> |

### Misc. Information

Number of Encores: 25-Gram \_\_\_\_\_ 5-Gram \_\_\_\_\_

Number of 5035 Field Kits: \_\_\_\_\_

Number of Lab Filtered Metals: \_\_\_\_\_

Test Strip Lot #s: pH 0-3 230315

pH 10-12 219813A

Other: (Specify) \_\_\_\_\_

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

Comments

SM001  
Rev. Date 05/24/17

Technician: NATHANS

Date: 1/25/2023 3:40:00 PM

Reviewer: CD

Date: 1/26/2023

FC2175: Chain of Custody

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QC Evaluation: DOD QSM5.x Limits

Job Number: FC2175  
Account: AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System  
Collected: 01/24/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
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No DOD QSM5.x Limits found for methods in this job.

\* Sample used for QC is not from job FC2175

## MS Semi-volatiles

### QC Data Summaries

Includes the following where applicable:

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

**Instrument Blank**

Page 1 of 2

Job Number: FC2175  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q198-IBLK	6Q12887.D	1	02/03/23	MV	n/a	n/a	S6Q198

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2175-1, FC2175-2

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic acid	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	0.0025	0.0050	0.0010	ug/l	J
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	0.0086	0.050	0.0044	ug/l	J
1691-99-2	EtFOSE	0.0154	0.050	0.0074	ug/l	J
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

## Instrument Blank

Page 2 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q198-IBLK	6Q12887.D	1	02/03/23	MV	n/a	n/a	S6Q198

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2175-1, FC2175-2

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

CAS No.	ID Standard Recoveries	Limits	
	13C4-PFBA	100%	20-150%
	13C5-PFPeA	102%	20-150%
	13C5-PFHxA	101%	20-150%
	13C4-PFHpA	99%	20-150%
	13C8-PFOA	94%	20-150%
	13C9-PFNA	101%	20-150%
	13C6-PFDA	112%	20-150%
	13C7-PFUnDA	107%	20-150%
	13C2-PFDoDA	99%	20-150%
	13C2-PFTeDA	107%	20-150%
	13C3-PFBS	105%	20-150%
	13C3-PFHxS	105%	20-150%
	13C8-PFOS	99%	20-150%
	13C8-FOSA	107%	20-150%
	d3-MeFOSA	98%	20-150%
	d5-EtFOSA	99%	20-150%
	d3-MeFOSAA	101%	20-150%
	d5-EtFOSAA	102%	20-150%
	d7-MeFOSE	105%	20-150%
	d9-EtFOSE	107%	20-150%
	13C2-4:2FTS	114%	20-150%
	13C2-6:2FTS	115%	20-150%
	13C2-8:2FTS	114%	20-150%
	13C3-HFPO-DA	98%	20-150%



## Method Blank Summary

Page 1 of 2

Job Number: FC2175  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-MB	6Q12892.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2175-1, FC2175-2

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

## Method Blank Summary

Page 2 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-MB	6Q12892.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2175-1, FC2175-2

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

CAS No.	ID Standard Recoveries	Limits	
	13C4-PFBA	101%	20-150%
	13C5-PFPeA	108%	20-150%
	13C5-PFHxA	107%	20-150%
	13C4-PFHpA	107%	20-150%
	13C8-PFOA	105%	20-150%
	13C9-PFNA	107%	20-150%
	13C6-PFDA	113%	20-150%
	13C7-PFUnDA	112%	20-150%
	13C2-PFDoDA	94%	20-150%
	13C2-PFTeDA	90%	20-150%
	13C3-PFBS	91%	20-150%
	13C3-PFHxS	94%	20-150%
	13C8-PFOS	93%	20-150%
	13C8-FOSA	92%	20-150%
	d3-MeFOSA	79%	20-150%
	d5-EtFOSA	81%	20-150%
	d3-MeFOSAA	85%	20-150%
	d5-EtFOSAA	84%	20-150%
	d7-MeFOSE	88%	20-150%
	d9-EtFOSE	94%	20-150%
	13C2-4:2FTS	105%	20-150%
	13C2-6:2FTS	109%	20-150%
	13C2-8:2FTS	107%	20-150%
	13C3-HFPO-DA	107%	20-150%

## Continuing Calibration Blank

Page 1 of 2

Job Number: FC2175

Account: AECOMCOD AECOM, INC.

Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q198-ICCB	6Q12901.D	1	02/03/23	MV	n/a	n/a	S6Q198

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP95216-DUP

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

# Continuing Calibration Blank

Page 2 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q198-ICCB	6Q12901.D	1	02/03/23	MV	n/a	n/a	S6Q198

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP95216-DUP

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

CAS No.	ID Standard Recoveries	Limits	
	13C4-PFBA	98%	20-150%
	13C5-PFPeA	99%	20-150%
	13C5-PFHxA	92%	20-150%
	13C4-PFHpA	104%	20-150%
	13C8-PFOA	102%	20-150%
	13C9-PFNA	92%	20-150%
	13C6-PFDA	105%	20-150%
	13C7-PFUnDA	99%	20-150%
	13C2-PFDoDA	99%	20-150%
	13C2-PFTeDA	104%	20-150%
	13C3-PFBS	95%	20-150%
	13C3-PFHxS	88%	20-150%
	13C8-PFOS	105%	20-150%
	13C8-FOSA	109%	20-150%
	d3-MeFOSAA	103%	20-150%
	d5-EtFOSAA	108%	20-150%
	13C2-4:2FTS	110%	20-150%
	13C2-6:2FTS	96%	20-150%
	13C2-8:2FTS	94%	20-150%

**Blank Spike Summary**

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Job Number: FC2175  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-LLBS	6Q12891.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2175-1, FC2175-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.04	0.0396	99	40-150
2706-90-3	Perfluoropentanoic acid	0.02	0.0205	103	40-150
307-24-4	Perfluorohexanoic acid	0.01	0.0104	104	40-150
375-85-9	Perfluoroheptanoic acid	0.01	0.0096	96	40-150
335-67-1	Perfluorooctanoic acid	0.01	0.0107	107	40-150
375-95-1	Perfluorononanoic acid	0.01	0.0103	103	40-150
335-76-2	Perfluorodecanoic acid	0.01	0.0105	105	40-150
2058-94-8	Perfluoroundecanoic acid	0.01	0.0106	106	40-150
307-55-1	Perfluorododecanoic acid	0.01	0.0103	103	40-150
72629-94-8	Perfluorotridecanoic acid	0.01	0.0098	98	40-150
376-06-7	Perfluorotetradecanoic acid	0.01	0.0112	112	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00887	0.0090	101	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00941	0.0091	97	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00914	0.0095	104	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00953	0.0100	105	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00928	0.0094	101	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00962	0.0098	102	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00965	0.0082	85	40-150
79780-39-5	Perfluorododecanesulfonic acid	0.0097	0.0081	84	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0375	0.0377	101	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.038	0.0388	102	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0384	0.0358	93	40-150
754-91-6	PFOSA	0.01	0.0106	106	40-150
31506-32-8	MeFOSA	0.01	0.0097	97	40-150
4151-50-2	EtFOSA	0.01	0.0092	92	40-150
2355-31-9	MeFOSAA	0.01	0.010	100	40-150
2991-50-6	EtFOSAA	0.01	0.0087	87	40-150
24448-09-7	MeFOSE	0.1	0.0914	91	40-150
1691-99-2	EtFOSE	0.1	0.0878	88	40-150
13252-13-6	HFPO-DA (GenX)	0.04	0.0424	106	40-150
919005-14-4	ADONA	0.0378	0.0360	95	40-150
377-73-1	PFMPA	0.02	0.0206	103	40-150
863090-89-5	PFMBA	0.02	0.0195	98	40-150
151772-58-6	NFDHA	0.02	0.0219	110	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0374	0.0390	104	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0378	0.0364	96	40-150

\* = Outside of Control Limits.

## Blank Spike Summary

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Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-LLBS	6Q12891.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2175-1, FC2175-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0178	0.0176	99	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.05	0.0421	84	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.25	0.233	93	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.25	0.238	95	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	106%	20-150%
	13C5-PFPeA	108%	20-150%
	13C5-PFHxA	107%	20-150%
	13C4-PFHpA	108%	20-150%
	13C8-PFOA	99%	20-150%
	13C9-PFNA	102%	20-150%
	13C6-PFDA	106%	20-150%
	13C7-PFUnDA	103%	20-150%
	13C2-PFDoDA	100%	20-150%
	13C2-PFTeDA	80%	20-150%
	13C3-PFBS	101%	20-150%
	13C3-PFHxS	110%	20-150%
	13C8-PFOS	105%	20-150%
	13C8-FOSA	101%	20-150%
	d3-MeFOSA	85%	20-150%
	d5-EtFOSA	83%	20-150%
	d3-MeFOSAA	107%	20-150%
	d5-EtFOSAA	99%	20-150%
	d7-MeFOSE	90%	20-150%
	d9-EtFOSE	94%	20-150%
	13C2-4:2FTS	124%	20-150%
	13C2-6:2FTS	114%	20-150%
	13C2-8:2FTS	123%	20-150%
	13C3-HFPO-DA	113%	20-150%

\* = Outside of Control Limits.

**Blank Spike Summary**

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Job Number: FC2175  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-BS	6Q12890.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2175-1, FC2175-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0962	96	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0487	97	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0231	92	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0239	96	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0234	94	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0224	90	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0241	96	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0245	98	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0242	97	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0248	99	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0246	98	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0206	93	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0227	96	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0216	95	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0242	102	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0221	95	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0221	92	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0221	92	40-150
79780-39-5	Perfluorododecanesulfonic acid	0.0243	0.0217	89	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0894	95	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0914	96	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0970	101	40-150
754-91-6	PFOSA	0.025	0.0227	91	40-150
31506-32-8	MeFOSA	0.025	0.0217	87	40-150
4151-50-2	EtFOSA	0.025	0.0209	84	40-150
2355-31-9	MeFOSAA	0.025	0.0242	97	40-150
2991-50-6	EtFOSAA	0.025	0.0221	88	40-150
24448-09-7	MeFOSE	0.25	0.239	96	40-150
1691-99-2	EtFOSE	0.25	0.213	85	40-150
13252-13-6	HFPO-DA (GenX)	0.1	0.0967	97	40-150
919005-14-4	ADONA	0.0945	0.0939	99	40-150
377-73-1	PFMPA	0.05	0.0226	45	40-150
863090-89-5	PFMBA	0.05	0.0508	102	40-150
151772-58-6	NFDHA	0.05	0.0483	97	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0935	0.0859	92	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0945	0.0858	91	40-150

\* = Outside of Control Limits.

## Blank Spike Summary

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Job Number: FC2175

Account: AECOMCOD AECOM, INC.

Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-BS	6Q12890.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2175-1, FC2175-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0405	91	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0776	62	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.556	89	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.563	90	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	23%	20-150%
	13C5-PFPeA	109%	20-150%
	13C5-PFHxA	114%	20-150%
	13C4-PFHpA	108%	20-150%
	13C8-PFOA	114%	20-150%
	13C9-PFNA	115%	20-150%
	13C6-PFDA	117%	20-150%
	13C7-PFUnDA	110%	20-150%
	13C2-PFDoDA	105%	20-150%
	13C2-PFTeDA	104%	20-150%
	13C3-PFBS	109%	20-150%
	13C3-PFHxS	110%	20-150%
	13C8-PFOS	115%	20-150%
	13C8-FOSA	123%	20-150%
	d3-MeFOSA	112%	20-150%
	d5-EtFOSA	112%	20-150%
	d3-MeFOSAA	119%	20-150%
	d5-EtFOSAA	119%	20-150%
	d7-MeFOSE	109%	20-150%
	d9-EtFOSE	118%	20-150%
	13C2-4:2FTS	117%	20-150%
	13C2-6:2FTS	123%	20-150%
	13C2-8:2FTS	117%	20-150%
	13C3-HFPO-DA	116%	20-150%

\* = Outside of Control Limits.



## Matrix Spike Summary

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Job Number: FC2175  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-MS	6Q12899.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198
FC2239-1	6Q12898.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2175-1, FC2175-2

CAS No.	Compound	FC2239-1 ug/l	Spike Q	ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.020 U		0.098	0.0996	102	40-150
2706-90-3	Perfluoropentanoic acid	0.0098 U		0.049	0.0509	104	40-150
307-24-4	Perfluorohexanoic acid	0.00086 J		0.0245	0.0237	93	40-150
375-85-9	Perfluoroheptanoic acid	0.0049 U		0.0245	0.0253	103	40-150
335-67-1	Perfluorooctanoic acid	0.00093 J		0.0245	0.0270	106	40-150
375-95-1	Perfluorononanoic acid	0.0049 U		0.0245	0.0242	99	40-150
335-76-2	Perfluorodecanoic acid	0.0049 U		0.0245	0.0241	98	40-150
2058-94-8	Perfluoroundecanoic acid	0.0049 U		0.0245	0.0254	104	40-150
307-55-1	Perfluorododecanoic acid	0.0049 U		0.0245	0.0269	110	40-150
72629-94-8	Perfluorotridecanoic acid	0.0049 U		0.0245	0.0224	91	40-150
376-06-7	Perfluorotetradecanoic acid	0.0049 U		0.0245	0.0269	110	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0049 U		0.0217	0.0228	105	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0049 U		0.0231	0.0240	104	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0010 J		0.0224	0.0250	107	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0049 U		0.0234	0.0235	101	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0049 U		0.0227	0.0309	136	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0049 U		0.0236	0.0224	95	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0049 U		0.0237	0.0209	88	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0049 U		0.0238	0.0204	86	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.020 U		0.0919	0.0942	102	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.020 U		0.0931	0.0945	101	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.020 U		0.0941	0.0977	104	40-150
754-91-6	PFOSA	0.0049 U		0.0245	0.0246	100	40-150
31506-32-8	MeFOSA	0.0049 U		0.0245	0.0236	96	40-150
4151-50-2	EtFOSA	0.0049 U		0.0245	0.0235	96	40-150
2355-31-9	MeFOSAA	0.0049 U		0.0245	0.0242	99	40-150
2991-50-6	EtFOSAA	0.0049 U		0.0245	0.0233	95	40-150
24448-09-7	MeFOSE	0.049 U		0.245	0.251	102	40-150
1691-99-2	EtFOSE	0.049 U		0.245	0.241	98	40-150
13252-13-6	HFPO-DA (GenX)	0.020 U		0.098	0.0900	92	40-150
919005-14-4	ADONA	0.020 U		0.0926	0.0856	92	40-150
377-73-1	PFMPA	0.0098 U		0.049	0.0482	98	40-150
863090-89-5	PFMBA	0.0098 U		0.049	0.0504	103	40-150
151772-58-6	NFDHA	0.0098 U		0.049	0.0483	99	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.020 U		0.0917	0.0806	88	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.020 U		0.0926	0.0746	81	40-150

\* = Outside of Control Limits.

# Matrix Spike Summary

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Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-MS	6Q12899.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198
FC2239-1	6Q12898.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2175-1, FC2175-2

CAS No.	Compound	FC2239-1 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0098 U	0.0436	0.0417	96	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.025 U	0.123	0.104	85	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.12 U	0.613	0.540	88	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.12 U	0.613	0.549	90	40-150

CAS No.	ID Standard Recoveries	MS	FC2239-1	Limits
	13C4-PFBA	101%	108%	20-150%
	13C5-PFPeA	113%	118%	20-150%
	13C5-PFHxA	118%	112%	20-150%
	13C4-PFHpA	112%	117%	20-150%
	13C8-PFOA	105%	102%	20-150%
	13C9-PFNA	101%	121%	20-150%
	13C6-PFDA	114%	112%	20-150%
	13C7-PFUnDA	105%	115%	20-150%
	13C2-PFDoDA	93%	107%	20-150%
	13C2-PFTeDA	77%	88%	20-150%
	13C3-PFBS	110%	109%	20-150%
	13C3-PFHxS	113%	111%	20-150%
	13C8-PFOS	95%	113%	20-150%
	13C8-FOSA	99%	104%	20-150%
	d3-MeFOSA	83%	94%	20-150%
	d5-EtFOSA	83%	88%	20-150%
	d3-MeFOSAA	95%	94%	20-150%
	d5-EtFOSAA	91%	105%	20-150%
	d7-MeFOSE	80%	96%	20-150%
	d9-EtFOSE	82%	96%	20-150%
	13C2-4:2FTS	121%	127%	20-150%
	13C2-6:2FTS	124%	127%	20-150%
	13C2-8:2FTS	119%	116%	20-150%
	13C3-HFPO-DA	124%	123%	20-150%

\* = Outside of Control Limits.

## Duplicate Summary

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Job Number: FC2175  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-DUP	6Q12907.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198
FC2270-2	6Q12906.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198
FC2270-2 <sup>a</sup>	6Q13141.D	5	02/06/23	MV	01/30/23	OP95216	S6Q201

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2175-1, FC2175-2

CAS No.	Compound	FC2270-2 ug/l	DUP Q ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.019 U	ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0096 U	ND		nc	30
307-24-4	Perfluorohexanoic acid	0.0048 U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0048 U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0048 U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0048 U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0048 U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0048 U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0048 U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0048 U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0048 U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0048 U	ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0048 U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0048 U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0048 U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0048 U	ND		nc	30
68259-12-1	Perfluorononanesulfonic acid	0.0048 U	ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	0.0048 U	ND		nc	30
79780-39-5	Perfluorododecanesulfonic acid	0.0048 U	ND		nc	30
757124-72-44:2	Fluorotelomer sulfonate	0.019 U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0064 U	0.0061 U	J	5	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U	ND		nc	30
754-91-6	PFOSA	0.0048 U	ND		nc	30
31506-32-8	MeFOSA	0.0048 U	ND		nc	30
4151-50-2	EtFOSA	0.0048 U	ND		nc	30
2355-31-9	MeFOSAA	0.0048 U	ND		nc	30
2991-50-6	EtFOSAA	0.024 U <sup>b</sup>	ND		nc	30
24448-09-7	MeFOSE	0.048 U	ND		nc	30
1691-99-2	EtFOSE	0.048 U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.019 U	ND		nc	30
919005-14-4	ADONA	0.019 U	ND		nc	30
377-73-1	PFMPA	0.0096 U	ND		nc	30
863090-89-5	PFMBA	0.0096 U	ND		nc	30
151772-58-6	NFDHA	0.0096 U	ND		nc	30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.019 U	ND		nc	30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.019 U	ND		nc	30

\* = Outside of Control Limits.

## Duplicate Summary

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Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95216-DUP	6Q12907.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198
FC2270-2	6Q12906.D	1	02/03/23	MV	01/30/23	OP95216	S6Q198
FC2270-2 <sup>a</sup>	6Q13141.D	5	02/06/23	MV	01/30/23	OP95216	S6Q201

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2175-1, FC2175-2

CAS No.	Compound	FC2270-2 ug/l	DUP Q ug/l	Q	RPD	Limits
113507-82-7	PFEESA	0.0096 U	ND		nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.024 U	ND		nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.12 U	ND		nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.12 U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC2270-2	FC2270-2	Limits
	13C4-PFBA	104%	110%	110%	20-150%
	13C5-PFPeA	108%	117%	112%	20-150%
	13C5-PFHxA	105%	116%	107%	20-150%
	13C4-PFHpA	108%	115%	110%	20-150%
	13C8-PFOA	96%	110%	108%	20-150%
	13C9-PFNA	102%	121%	97%	20-150%
	13C6-PFDA	117%	99%	118%	20-150%
	13C7-PFUnDA	103%	99%	110%	20-150%
	13C2-PFDoDA	100%	88%	85%	20-150%
	13C2-PFTeDA	80%	63%	71%	20-150%
	13C3-PFBS	99%	99%	124%	20-150%
	13C3-PFHxS	105%	109%	131%	20-150%
	13C8-PFOS	109%	108%	67%	20-150%
	13C8-FOSA	127%	108%	51%	20-150%
	d3-MeFOSA	110%	92%	43%	20-150%
	d5-EtFOSA	104%	87%	44%	20-150%
	d3-MeFOSAA	167%* <sup>c</sup>	136%	62%	20-150%
	d5-EtFOSAA	176%* <sup>c</sup>	152%* <sup>c</sup>	60%	20-150%
	d7-MeFOSE	106%	96%	46%	20-150%
	d9-EtFOSE	111%	96%	48%	20-150%
	13C2-4:2FTS	116%	117%	122%	20-150%
	13C2-6:2FTS	96%	100%	126%	20-150%
	13C2-8:2FTS	94%	100%	96%	20-150%
	13C3-HFPO-DA	110%	117%	124%	20-150%

(a) Dilution required (ID recovery standard failure).

(b) Result is from Run #2.

(c) Outside control limits.

\* = Outside of Control Limits.

# Injection Standard Area Summary

Page 1 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q198-CC196	Injection Date:	02/03/23
Lab File ID:	6Q12888.D	Injection Time:	10:58
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>	34482	2.98	35210	5.58	78269	7.16	31770	7.69	27529	8.17
Check Std <sup>c</sup>	35403	2.98	34451	5.56	80369	7.15	31704	7.69	26364	8.17
Upper Limit <sup>d</sup>	68964	3.38	70420	5.96	156538	7.55	63540	8.09	55058	8.57
Lower Limit <sup>e</sup>	10345	2.58	10563	5.16	23481	6.75	9531	7.29	8259	7.77

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF <sup>a</sup>
OP95216-BS	29575	3.02	29232	5.56	62572	7.15	26495	7.68	22396	8.17	1
OP95216-LLBS	29513	3.02	28510	5.58	64619	7.15	26767	7.69	22147	8.17	1
OP95216-MB	30247	3.00	28140	5.56	66517	7.15	26845	7.68	20773	8.17	1
FC2175-1	29765	3.02	29006	5.56	65474	7.15	28715	7.68	22414	8.17	1
FC2175-2	29446	3.02	28595	5.58	65969	7.15	26113	7.68	23981	8.17	1
ZZZZZZ	30023	3.02	28887	5.58	64519	7.15	27936	7.69	23934	8.17	1
ZZZZZZ	30366	3.02	28416	5.56	63987	7.15	26940	7.69	23236	8.17	1
ZZZZZZ	30114	3.02	28964	5.56	65050	7.16	27759	7.69	22134	8.17	1
FC2239-1	30366	3.02	27586	5.56	69032	7.15	26283	7.68	21627	8.17	1
OP95216-MS	29819	3.02	28614	5.58	65584	7.15	27513	7.68	23132	8.17	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: S6Q196-ICC196 6Q12726.D 02/01/23 18:33. Area is AVERAGE of initial cal points.  
(c) Check Std Limit = -70 to +100% of initial cal area.  
(d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.  
(e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

# Injection Standard Area Summary

Page 2 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q198-CC196	Injection Date:	02/03/23
Lab File ID:	6Q12888.D	Injection Time:	10:58
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal <sup>b</sup>	6781	7.29	10607	8.35
Check Std <sup>c</sup>	7014	7.27	10625	8.35
Upper Limit <sup>d</sup>	13562	7.67	21214	8.75
Lower Limit <sup>e</sup>	2034	6.87	3182	7.95

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF <sup>a</sup>
OP95216-BS	5827	7.27	8521	8.35	1
OP95216-LLBS	5637	7.27	9113	8.35	1
OP95216-MB	6310	7.27	9809	8.35	1
FC2175-1	5624	7.27	10166	8.35	1
FC2175-2	5941	7.27	9169	8.35	1
ZZZZZZ	5709	7.29	9483	8.35	1
ZZZZZZ	5637	7.27	9736	8.35	1
ZZZZZZ	6230	7.29	9400	8.35	1
FC2239-1	5694	7.27	9575	8.35	1
OP95216-MS	5494	7.27	10088	8.35	1

IS 6 = 18O2-PFHXS

IS 7 = 13C4-PFOS

(a) Sample areas corrected for dilution where applicable.

(b) Initial Cal is: S6Q196-ICC196 6Q12726.D 02/01/23 18:33. Area is AVERAGE of initial cal points.

(c) Check Std Limit = -70 to +100% of initial cal area.

(d) Upper Limit = +100% of initial standard area; Retention time + 0.4 minutes of check standard.

(e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

# Injection Standard Area Summary

Page 1 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q198-CC196	Injection Date:	02/03/23
Lab File ID:	6Q12900.D	Injection Time:	13:45
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>	34482	2.98	35210	5.58	78269	7.16	31770	7.69	27529	8.17
Check Std <sup>c</sup>	35888	2.98	35238	5.56	79067	7.15	31662	7.68	26924	8.17
Upper Limit <sup>d</sup>	68964	3.38	70420	5.96	156538	7.55	63540	8.08	55058	8.57
Lower Limit <sup>e</sup>	10345	2.58	10563	5.16	23481	6.75	9531	7.28	8259	7.77

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF <sup>a</sup>
S6Q198-ICCB	33648	2.98	33372	5.56	74311	7.15	30830	7.69	25270	8.17	1
ZZZZZZ	30878	3.02	29001	5.58	66657	7.15	27611	7.69	22958	8.18	1
ZZZZZZ	30292	3.00	28109	5.58	65511	7.15	27174	7.69	22481	8.17	1
ZZZZZZ	31071	3.02	29460	5.58	66625	7.15	29552	7.68	24040	8.17	1
ZZZZZZ	30461	3.02	28858	5.58	70213	7.15	29094	7.68	21831	8.17	1
FC2270-2	30266	3.02	28002	5.56	65040	7.15	26308	7.68	25805	8.16	1
OP95216-DUP	30735	3.02	29904	5.58	71582	7.15	27455	7.68	23071	8.17	1
ZZZZZZ	30797	3.02	30744	5.58	68044	7.16	26788	7.69	22673	8.17	1
ZZZZZZ	30979	3.02	29682	5.58	69376	7.15	26799	7.69	23549	8.18	1
ZZZZZZ	29695	3.02	28387	5.56	61140	7.15	26214	7.68	20648	8.17	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: S6Q196-ICC196 6Q12726.D 02/01/23 18:33. Area is AVERAGE of initial cal points.  
(c) Check Std Limit = -70 to +100% of initial cal area.  
(d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.  
(e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

# Injection Standard Area Summary

Page 2 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q198-CC196	Injection Date:	02/03/23
Lab File ID:	6Q12900.D	Injection Time:	13:45
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal <sup>b</sup>	6781	7.29	10607	8.35
Check Std <sup>c</sup>	6699	7.27	10964	8.35
Upper Limit <sup>d</sup>	13562	7.67	21214	8.75
Lower Limit <sup>e</sup>	2034	6.87	3182	7.95

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF <sup>a</sup>
S6Q198-ICCB	6785	7.29	9829	8.35	1
ZZZZZZ	5564	7.29	9968	8.35	1
ZZZZZZ	6117	7.27	9789	8.35	1
ZZZZZZ	5818	7.27	10000	8.35	1
ZZZZZZ	6152	7.27	9473	8.35	1
FC2270-2	5813	7.27	9399	8.33	1
OP95216-DUP	5877	7.27	8058	8.33	1
ZZZZZZ	5764	7.29	9283	8.35	1
ZZZZZZ	5840	7.29	10179	8.35	1
ZZZZZZ	4925	7.27	7950	8.35	1

IS 6 = 18O2-PFHXS

IS 7 = 13C4-PFOS

(a) Sample areas corrected for dilution where applicable.

(b) Initial Cal is: S6Q196-ICC196 6Q12726.D 02/01/23 18:33. Area is AVERAGE of initial cal points.

(c) Check Std Limit = -70 to +100% of initial cal area.

(d) Upper Limit = +100% of initial standard area; Retention time + 0.4 minutes of check standard.

(e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.



## TDCA Retention Time Check

Job Number: FC2175  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q196-RT	Injection Date:	02/01/23
Lab File ID:	6Q12720.D	Injection Time:	17:09
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.347	--	--
TDCA	6.832	1.515	1.000
TCDCA	6.671	1.676	1.000
TUDCA	5.819	2.528	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
S6Q196-IC196	6Q12722.D	02/01/23	17:37	00:28	Mass Calibration Verification
S6Q196-IC196	6Q12723.D	02/01/23	17:51	00:42	Initial cal 1
S6Q196-IC196	6Q12724.D	02/01/23	18:05	00:56	Initial cal 2
S6Q196-IC196	6Q12725.D	02/01/23	18:19	01:10	Initial cal 3
S6Q196-ICC196	6Q12726.D	02/01/23	18:33	01:24	Initial cal 4
S6Q196-IC196	6Q12727.D	02/01/23	18:47	01:38	Initial cal 5
S6Q196-IC196	6Q12728.D	02/01/23	19:01	01:52	Initial cal 6
S6Q196-IC196	6Q12729.D	02/01/23	19:15	02:06	Initial cal 7
S6Q196-IC196	6Q12730.D	02/01/23	19:29	02:20	Initial cal 8
S6Q196-IBLK	6Q12731.D	02/01/23	19:43	02:34	Instrument Blank
S6Q196-IBLK	6Q12731.D	02/01/23	19:43	02:34	Instrument Blank
S6Q196-ICV196	6Q12732.D	02/01/23	19:57	02:48	Initial cal verification 4
S6Q196-ICV196	6Q12733.D	02/01/23	20:11	03:02	Initial cal verification 4
S6Q196-CC196	6Q12734.D	02/01/23	20:25	03:16	Continuing cal 4
S6Q196-CC196	6Q12735.D	02/01/23	20:39	03:30	Continuing cal 1.0LL
OP94938-BS	6Q12736.D	02/01/23	20:53	03:44	Blank Spike
OP94938-LLBS	6Q12737.D	02/01/23	21:07	03:58	Blank Spike
OP94938-MB	6Q12738.D	02/01/23	21:21	04:12	Method Blank
ZZZZZZ	6Q12739.D	02/01/23	21:35	04:26	(unrelated sample)
ZZZZZZ	6Q12740.D	02/01/23	21:49	04:40	(unrelated sample)
ZZZZZZ	6Q12741.D	02/01/23	22:03	04:54	(unrelated sample)
ZZZZZZ	6Q12742.D	02/01/23	22:17	05:08	(unrelated sample)
ZZZZZZ	6Q12743.D	02/01/23	22:31	05:22	(unrelated sample)
FC1643-12	6Q12744.D	02/01/23	22:45	05:36	(used for QC only; not part of job FC2175)
OP94938-MS	6Q12745.D	02/01/23	22:59	05:50	Matrix Spike
S6Q196-CC196	6Q12746.D	02/01/23	23:13	06:04	Continuing cal 4
S6Q196-ICCB	6Q12747.D	02/01/23	23:27	06:18	Continuing Calibration Blank
FC1643-13	6Q12748.D	02/01/23	23:41	06:32	(used for QC only; not part of job FC2175)
OP94938-DUP	6Q12749.D	02/01/23	23:55	06:46	Duplicate
ZZZZZZ	6Q12750.D	02/02/23	00:09	07:00	(unrelated sample)
ZZZZZZ	6Q12751.D	02/02/23	00:22	07:13	(unrelated sample)
ZZZZZZ	6Q12752.D	02/02/23	00:36	07:27	(unrelated sample)
ZZZZZZ	6Q12753.D	02/02/23	00:50	07:41	(unrelated sample)
ZZZZZZ	6Q12755.D	02/02/23	01:18	08:09	(unrelated sample)

## TDCA Retention Time Check

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Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q196-RT	Injection Date:	02/01/23
Lab File ID:	6Q12720.D	Injection Time:	17:09
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q12756.D	02/02/23	01:32	08:23	(unrelated sample)
ZZZZZZ	6Q12757.D	02/02/23	01:46	08:37	(unrelated sample)
S6Q196-CC196	6Q12758.D	02/02/23	02:00	08:51	Continuing cal 4
S6Q196-ICCB	6Q12759.D	02/02/23	02:14	09:05	Continuing Calibration Blank
ZZZZZZ	6Q12761.D	02/02/23	02:42	09:33	(unrelated sample)
ZZZZZZ	6Q12762.D	02/02/23	02:56	09:47	(unrelated sample)
ZZZZZZ	6Q12763.D	02/02/23	03:10	10:01	(unrelated sample)
ZZZZZZ	6Q12764.D	02/02/23	03:24	10:15	(unrelated sample)
ZZZZZZ	6Q12765.D	02/02/23	03:38	10:29	(unrelated sample)
ZZZZZZ	6Q12766.D	02/02/23	03:52	10:43	(unrelated sample)
ZZZZZZ	6Q12767.D	02/02/23	04:06	10:57	(unrelated sample)
S6Q196-CC196	6Q12770.D	02/02/23	04:34	11:25	Continuing cal 4
S6Q196-CC196	6Q12771.D	02/02/23	04:48	11:39	Continuing cal 1.0LL
S6Q196-ICCB	6Q12772.D	02/02/23	05:02	11:53	Continuing Calibration Blank
OP94945-BS	6Q12773.D	02/02/23	05:16	12:07	Blank Spike
OP94945-LLBS	6Q12774.D	02/02/23	05:30	12:21	Blank Spike

## TDCA Retention Time Check

Job Number: FC2175  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q198-RT	Injection Date:	02/03/23
Lab File ID:	6Q12884.D	Injection Time:	10:02
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.334	--	--
TDCA	6.820	1.514	1.000
TCDCA	6.658	1.676	1.000
TUDCA	5.806	2.528	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
S6Q198-IBLK	6Q12887.D	02/03/23	10:44	00:42	Instrument Blank
S6Q198-IBLK	6Q12887.D	02/03/23	10:44	00:42	Instrument Blank
S6Q198-CC196	6Q12888.D	02/03/23	10:58	00:56	Continuing cal 4
S6Q198-CC196	6Q12889.D	02/03/23	11:12	01:10	Continuing cal 1.0LL
OP95216-BS	6Q12890.D	02/03/23	11:26	01:24	Blank Spike
OP95216-LLBS	6Q12891.D	02/03/23	11:40	01:38	Blank Spike
OP95216-MB	6Q12892.D	02/03/23	11:54	01:52	Method Blank
FC2175-1	6Q12893.D	02/03/23	12:08	02:06	AF-HDMW225303-WGN01LF-2301W4
FC2175-2	6Q12894.D	02/03/23	12:21	02:19	AF-RHMW10-WGN01LF-2301W4
ZZZZZZ	6Q12895.D	02/03/23	12:35	02:33	(unrelated sample)
ZZZZZZ	6Q12896.D	02/03/23	12:49	02:47	(unrelated sample)
ZZZZZZ	6Q12897.D	02/03/23	13:03	03:01	(unrelated sample)
FC2239-1	6Q12898.D	02/03/23	13:17	03:15	(used for QC only; not part of job FC2175)
OP95216-MS	6Q12899.D	02/03/23	13:31	03:29	Matrix Spike
S6Q198-CC196	6Q12900.D	02/03/23	13:45	03:43	Continuing cal 4
S6Q198-ICCB	6Q12901.D	02/03/23	13:59	03:57	Continuing Calibration Blank
ZZZZZZ	6Q12902.D	02/03/23	14:13	04:11	(unrelated sample)
ZZZZZZ	6Q12903.D	02/03/23	14:27	04:25	(unrelated sample)
ZZZZZZ	6Q12904.D	02/03/23	14:41	04:39	(unrelated sample)
ZZZZZZ	6Q12905.D	02/03/23	14:55	04:53	(unrelated sample)
FC2270-2	6Q12906.D	02/03/23	15:09	05:07	(used for QC only; not part of job FC2175)
OP95216-DUP	6Q12907.D	02/03/23	15:23	05:21	Duplicate
ZZZZZZ	6Q12908.D	02/03/23	15:37	05:35	(unrelated sample)
ZZZZZZ	6Q12909.D	02/03/23	15:51	05:49	(unrelated sample)
ZZZZZZ	6Q12910.D	02/03/23	16:05	06:03	(unrelated sample)
S6Q198-CC196	6Q12911.D	02/03/23	16:19	06:17	Continuing cal 4
S6Q198-CC196	6Q12912.D	02/03/23	16:33	06:31	Continuing cal 1.0LL
S6Q198-ICCB	6Q12913.D	02/03/23	16:47	06:45	Continuing Calibration Blank
OP95034-BS	6Q12914.D	02/03/23	17:01	06:59	Blank Spike
OP95034-LLBS	6Q12915.D	02/03/23	17:15	07:13	Blank Spike
OP95034-MB	6Q12916.D	02/03/23	17:29	07:27	Method Blank
ZZZZZZ	6Q12917.D	02/03/23	17:43	07:41	(unrelated sample)
JD58693-1B	6Q12918.D	02/03/23	17:57	07:55	(used for QC only; not part of job FC2175)
OP95034-MS	6Q12919.D	02/03/23	18:11	08:09	Matrix Spike

# TDCA Retention Time Check

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Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q198-RT	Injection Date:	02/03/23
Lab File ID:	6Q12884.D	Injection Time:	10:02
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP95034-MSD	6Q12920.D	02/03/23	18:25	08:23	Matrix Spike Duplicate
ZZZZZZ	6Q12921.D	02/03/23	18:39	08:37	(unrelated sample)
ZZZZZZ	6Q12922.D	02/03/23	18:53	08:51	(unrelated sample)
ZZZZZZ	6Q12923.D	02/03/23	19:07	09:05	(unrelated sample)
S6Q198-CC196	6Q12924.D	02/03/23	19:21	09:19	Continuing cal 4
S6Q198-ICCB	6Q12925.D	02/03/23	19:35	09:33	Continuing Calibration Blank
ZZZZZZ	6Q12926.D	02/03/23	19:49	09:47	(unrelated sample)
ZZZZZZ	6Q12927.D	02/03/23	20:03	10:01	(unrelated sample)
ZZZZZZ	6Q12928.D	02/03/23	20:17	10:15	(unrelated sample)
ZZZZZZ	6Q12929.D	02/03/23	20:31	10:29	(unrelated sample)
ZZZZZZ	6Q12930.D	02/03/23	20:45	10:43	(unrelated sample)
ZZZZZZ	6Q12931.D	02/03/23	20:59	10:57	(unrelated sample)
ZZZZZZ	6Q12932.D	02/03/23	21:13	11:11	(unrelated sample)
ZZZZZZ	6Q12933.D	02/03/23	21:27	11:25	(unrelated sample)
ZZZZZZ	6Q12934.D	02/03/23	21:41	11:39	(unrelated sample)
ZZZZZZ	6Q12935.D	02/03/23	21:55	11:53	(unrelated sample)
S6Q198-CC196	6Q12936.D	02/03/23	22:09	12:07	Continuing cal 4
S6Q198-ICCB	6Q12937.D	02/03/23	22:23	12:21	Continuing Calibration Blank
ZZZZZZ	6Q12938.D	02/03/23	22:37	12:35	(unrelated sample)
ZZZZZZ	6Q12939.D	02/03/23	22:51	12:49	(unrelated sample)
ZZZZZZ	6Q12940.D	02/03/23	23:05	13:03	(unrelated sample)
ZZZZZZ	6Q12941.D	02/03/23	23:19	13:17	(unrelated sample)
OP95035-BS	6Q12942.D	02/03/23	23:33	13:31	Blank Spike
OP95035-LLBS	6Q12943.D	02/03/23	23:47	13:45	Blank Spike
OP95035-MB	6Q12944.D	02/04/23	00:01	13:59	Method Blank
JD58693-19B	6Q12945.D	02/04/23	00:15	14:13	(used for QC only; not part of job FC2175)
OP95035-MS	6Q12946.D	02/04/23	00:29	14:27	Matrix Spike
OP95035-MSD	6Q12947.D	02/04/23	00:43	14:41	Matrix Spike Duplicate
S6Q198-CC196	6Q12948.D	02/04/23	00:57	14:55	Continuing cal 4
S6Q198-ICCB	6Q12949.D	02/04/23	01:11	15:09	Continuing Calibration Blank
ZZZZZZ	6Q12950.D	02/04/23	01:24	15:22	(unrelated sample)
ZZZZZZ	6Q12951.D	02/04/23	01:38	15:36	(unrelated sample)
ZZZZZZ	6Q12952.D	02/04/23	01:52	15:50	(unrelated sample)
ZZZZZZ	6Q12953.D	02/04/23	02:06	16:04	(unrelated sample)
ZZZZZZ	6Q12954.D	02/04/23	02:20	16:18	(unrelated sample)
S6Q198-ECC196	6Q12955.D	02/04/23	02:34	16:32	Ending cal 4
S6Q198-ICCB	6Q12956.D	02/04/23	02:48	16:46	Continuing Calibration Blank

Isotope Dilution Standard Recovery Summary

Job Number: FC2175  
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
FC2175-1	6Q12893.D	111	113	122	112	107	100	100	102
FC2175-2	6Q12894.D	106	108	112	102	100	112	101	90
OP95216-BS	6Q12890.D	23	109	114	108	114	115	117	110
OP95216-DUP	6Q12907.D	104	108	105	108	96	102	117	103
OP95216-LLBS	6Q12891.D	106	108	107	108	99	102	106	103
OP95216-MB	6Q12892.D	101	108	107	107	105	107	113	112
OP95216-MS	6Q12899.D	101	113	118	112	105	101	114	105
S6Q198-IBLK	6Q12887.D	100	102	101	99	94	101	112	107
S6Q198-ICCB	6Q12901.D	98	99	92	104	102	92	105	99

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

# Isotope Dilution Standard Recovery Summary

Page 2 of 3

Job Number: FC2175

Account: AECOMCOD AECOM, INC.

Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S9	S10	S11	S12	S13	S14	S15	S16
FC2175-1	6Q12893.D	102	94	109	115	91	100	94	95
FC2175-2	6Q12894.D	86	80	102	101	99	101	99	100
OP95216-BS	6Q12890.D	105	104	109	110	115	123	112	112
OP95216-DUP	6Q12907.D	100	80	99	105	109	127	110	104
OP95216-LLBS	6Q12891.D	100	80	101	110	105	101	85	83
OP95216-MB	6Q12892.D	94	90	91	94	93	92	79	81
OP95216-MS	6Q12899.D	93	77	110	113	95	99	83	83
S6Q198-IBLK	6Q12887.D	99	107	105	105	99	107	98	99
S6Q198-ICCB	6Q12901.D	99	104	95	88	105	109		

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%

6.7.1

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# Isotope Dilution Standard Recovery Summary

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Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633 Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S17	S18	S19	S20	S21	S22	S23	S24
FC2175-1	6Q12893.D	94	92	96	99	129	125	117	121
FC2175-2	6Q12894.D	103	92	97	103	119	113	103	111
OP95216-BS	6Q12890.D	119	119	109	118	117	123	117	116
OP95216-DUP	6Q12907.D	167* a	176* a	106	111	116	96	94	110
OP95216-LLBS	6Q12891.D	107	99	90	94	124	114	123	113
OP95216-MB	6Q12892.D	85	84	88	94	105	109	107	107
OP95216-MS	6Q12899.D	95	91	80	82	121	124	119	124
S6Q198-IBLK	6Q12887.D	101	102	105	107	114	115	114	98
S6Q198-ICCB	6Q12901.D	103	108			110	96	94	

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	20-150%
S22 = 13C2-6:2FTS	20-150%
S23 = 13C2-8:2FTS	20-150%
S24 = 13C3-HFPO-DA	20-150%

(a) Outside control limits.

Initial Calibration Report													
Method Path		D:\MassHunter\Methods											
Method File		1633_020223_S6Q196.quantmethod.xml											
Batch Name		D:\MassHunter\Data\020123_1633_S6Q196\QuantResults\S6Q196.batch.bin											
Last Calib Update		2/2/2023 9:18:07 AM											
Level Name	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD	Level Last Update Time
1	D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d												2/2/2023 9:18:07 AM
2	D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d												2/2/2023 9:18:07 AM
3	D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d												2/2/2023 9:18:07 AM
4	D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d												2/2/2023 9:18:07 AM
5	D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d												2/2/2023 9:18:07 AM
6	D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d												2/2/2023 9:18:07 AM
7	D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d												2/2/2023 9:18:07 AM
8	D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d												2/2/2023 9:18:07 AM
Compound													
I M4-PFBA		Avg RF	0.2276	0.2186	0.2063	0.2053	0.2231	0.2267	0.2405	0.2387	0.2233	5.862	
T PFBA													
I M5-PFPeA		Avg RF	0.2898	0.2844	0.2616	0.2528	0.2786	0.2819	0.3031	0.3004	0.2816	6.191	
T PFMPA		Avg RF	0.0503	0.0504	0.0470	0.0471	0.0519	0.0531	0.0569	0.0580	0.0519	7.825	
T 3:3FTCA		Avg RF	1.0896	1.0782	0.9681	0.9537	1.0510	1.0728	1.1367	1.0963	1.0558	6.018	
T PFPeA		Avg RF	0.3013	0.2949	0.2744	0.2677	0.3014	0.2935	0.3232	0.3191	0.2969	6.488	
T PFMBa													
I M5-PFHxA		Avg RF	0.0619	0.0639	0.0522	0.0545	0.0555	0.0567	0.0609	0.0582	0.0580	6.948	
T NFDHA		Avg RF	1.0729	0.9805	0.9278	0.8722	0.9592	0.9179	1.0959	1.0197	0.9808	7.924	
T PFHxA		Avg RF	1.4355	1.3846	1.2799	1.3482	1.4696	1.3505	1.5544	1.4703	1.4116	6.199	
T PFEEsA		Avg RF	0.1919	0.2100	0.2007	0.1964	0.2025	0.2024	0.2250	0.2114	0.2050	5.026	
T 5:3FTCA		Avg RF	0.1385	0.1426	0.1232	0.1230	0.1328	0.1302	0.1440	0.1379	0.1340	6.078	
T 7:3FTCA													
I M4-PFHpA		Avg RF	1.6502	1.4699	1.3467	1.3667	1.5041	1.4091	1.6025	1.4971	1.4808	7.245	
T PFHpA													
I M8-PFOA		Avg RF	1.0927	1.1466	1.1478	0.9761	1.1128	1.0473	1.1619	1.1229	1.1010	5.657	
T PFOA													
I M9-PFNA		Avg RF	0.9226	0.8817	0.7398	0.7480	0.8690	0.8777	0.8562	0.8508	0.8432	7.714	
T PFNA													
I M6-PFDA		Avg RF	1.4209	1.4499	1.3862	1.3341	1.4190	1.3885	1.5003	1.4809	1.4225	3.805	
T PFDA													
I M7-PFUnDA		Avg RF	1.0138	0.9904	0.9062	0.9216	0.9586	0.9023	1.0968	0.9975	0.9734	6.749	
T PFUnDA													
I M2-PFDODA													

Generated at 9:25 AM on 2/2/2023

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Generated at 9:25 AM on 2/2/2023

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# Initial Calibration Summary

Job Number: FC2175  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICC196  
 Lab FileID: 6Q12726.D

## Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	1.0869	0.8485	0.8749	0.8659	0.8957	0.9382	0.9315	0.8856	0.9159	8.257
T PFTfDA	Avg RF	0.8998	0.9351	0.8755	0.8081	0.9157	0.8672	0.9244	0.7824	0.8760	6.317
I M2-PFTeDA	Avg RF	1.4016	1.4058	1.3373	1.2453	1.3806	1.4287	1.3422	1.2474	1.3486	5.213
T PFTeDA	Avg RF					ISTD					
I M8-FOSA	Avg RF	1.0891	0.9836	0.9477	0.9188	0.9805	1.0433	1.0192	0.9998	0.9978	5.373
T FOSA	Avg RF					ISTD					
I M3-PFBS	Avg RF	1.0164	0.9927	0.8723	0.9341	0.9337	0.9182	0.9839	1.0317	0.9604	5.669
T PFBS	Avg RF					ISTD					
I M3-PFHxS	Avg RF	1.4478	1.3486	1.3135	1.2398	1.2409	1.2780	1.2732	1.3102	1.3065	5.213
T PFPeS	Avg RF	1.1838	1.1824	1.1680	1.0216	1.0951	1.0861	1.1297	1.1193	1.1233	4.959
T PFHxS	Avg RF					ISTD					
I M8-PFOS	Avg RF	1.0476	0.9667	1.0647	0.9956	1.0452	1.0704	1.2115	1.0825	1.0605	6.839
T PFHpS	Avg RF	1.1857	1.2286	1.1889	1.0099	1.0487	1.1202	1.2552	1.1386	1.1470	7.432
T PFOS	Avg RF	1.1067	1.0964	1.1371	1.0284	1.0840	1.1028	1.1930	1.1426	1.1114	4.337
T PFNS	Avg RF	1.0305	0.7885	0.8257	0.7592	0.8124	0.8558	0.8595	0.8435	0.8469	9.647
T PFDS	Avg RF	0.5549	0.4534	0.5598	0.4511	0.5036	0.4958	0.5543	0.4792	0.5065	8.898
T PFDoDS	Avg RF					ISTD					
I M2-4:2FTS	Avg RF	11.19	11.51	10.01	11.13	12.29	12.08	10.61	10.87	11.21	6.675
T 4:2FTS	Avg RF					ISTD					
I M2-6:2FTS	Avg RF	7.5607	7.5633	6.7468	7.1612	7.3014	7.5899	7.6131	7.0353	7.3215	4.353
T 6:2FTS	Avg RF					ISTD					
I M2-8:2FTS	Avg RF	4.8811	3.8177	3.8178	4.2246	3.1202	3.9674	3.8311	3.4051	3.8831	13.562
T 8:2FTS	Avg RF					ISTD					
I M3-MeFOSAA	Avg RF	0.9674	0.8304	0.8441	0.8334	0.9649	0.9193	0.9903	0.9808	0.9163	7.613
T MeFOSAA	Avg RF					ISTD					
I M3-HFO-DA	Avg RF	0.8589	0.9429	0.8775	0.8316	1.0035	1.0176	0.9671	0.9835	0.9353	7.533
T HFO-DA	Avg RF	23.52	20.89	19.96	19.80	22.49	22.43	22.58	21.89	21.69	6.174
T ADONA	Avg RF	12.20	11.68	12.28	11.41	12.43	12.47	12.67	11.91	12.13	3.544
T 9CI-PF3ONS	Avg RF	7.5319	6.9540	6.8739	6.5937	7.4538	7.7075	7.3631	6.9299	7.1760	5.426
T 11CI-PF3OUds	Avg RF					ISTD					
I M5-BrFOSAA	Avg RF	0.9077	0.7765	0.8579	0.7570	0.7208	0.7665	0.8126	0.8076	0.8008	7.457
T EtFOSAA	Avg RF					ISTD					
I M7-MeFOSE	Avg RF	1.0489	0.9573	0.8407	0.9142	1.0213	1.0748	1.0489	1.0722	0.9973	8.521
T MeFOSE	Avg RF					ISTD					
I M9-BrFOSE	Avg RF	1.1380	1.0263	0.9375	0.9659	1.0687	1.0494	1.1224	1.2521	1.0700	9.428
T EtFOSE	Avg RF					ISTD					

Generated at 9:25 AM on 2/2/2023

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# Initial Calibration Summary

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICC196  
Lab FileID: 6Q12726.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	1.2028	1.2186	1.1488	1.1382	1.2362	1.1454	1.2307	1.2247	1.1932	3.507
I M3-MeFOSA											
T MeFOSA	Avg RF	1.0138	1.1668	1.0985	1.0489	1.0960	1.1108	1.0839	1.0328	1.0814	4.511
I 13C4-PFOS											
S d3-MeFOSAA	Linear	1.3569	1.4568	1.3571	1.3674	1.4321	1.3628	1.3447	1.2851	1.3704	3.865
S 13C8-PFOS	Linear	0.7870	0.8704	0.7773	0.8452	0.8821	0.8224	0.7658	0.8219	0.8219	5.220
S d5-EFOSAA	Linear	1.1118	1.1374	1.0231	1.0810	1.2855	1.1796	1.1416	1.1353	1.1369	6.700
S 13C8-FOSA	Linear	1.5538	1.7346	1.6616	1.6593	1.6703	1.5708	1.5605	1.6168	1.6285	3.934
S d7-MeFOSE	Linear	0.2778	0.3024	0.2941	0.2850	0.2948	0.2700	0.2780	0.2687	0.2839	4.337
S d3-MeFOSA	Linear	0.6548	0.6685	0.6762	0.6713	0.7405	0.7128	0.7266	0.7615	0.7015	5.574
S d9-EFOSE	Linear	0.1853	0.2058	0.2028	0.1928	0.2076	0.2049	0.1907	0.1752	0.1956	5.931
S d5-EFOSA	Linear	0.7202	0.7499	0.7557	0.7451	0.7856	0.8086	0.7716	0.7687	0.7632	3.530
I 13C3-PFBA											
S 13C4-PFBA	Linear	1.0956	1.1107	1.1148	1.1092	1.1080	1.0994	1.1283	1.1114	1.1097	0.890
I 1802-PFHxS											
S 13C2-4:2FTS	Linear	0.1768	0.1841	0.1871	0.1586	0.1563	0.1495	0.1597	0.1285	0.1626	11.994
S 13C3-PFBS	Linear	2.0574	2.1353	2.0836	1.9350	2.0478	2.0947	1.9897	1.9483	2.0365	3.531
S 13C2-6:2FTS	Linear	0.2319	0.2311	0.2354	0.2185	0.2245	0.2074	0.1992	0.1774	0.2157	9.240
S 13C3-PFHxS	Linear	1.2719	1.2903	1.2870	1.2640	1.3253	1.3372	1.3914	1.3481	1.3144	3.325
S 13C2-8:2FTS	Linear	0.2200	0.2385	0.2366	0.1955	0.2234	0.2057	0.2105	0.2027	0.2166	7.265
I 13C4-PFOA											
S 13C8-PFOA	Linear	0.8679	0.8294	0.8117	0.8535	0.8360	0.8507	0.8137	0.8159	0.8348	2.505
I 13C2-PFDA											
S 13C6-PFDA	Linear	0.7226	0.6539	0.7100	0.7085	0.6791	0.7016	0.6964	0.6915	0.6954	3.058
S 13C7-PFUnDA	Linear	0.8718	0.7912	0.8611	0.8732	0.8156	0.8562	0.8084	0.7752	0.8316	4.644
S 13C2-PFDODA	Linear	0.9377	0.8998	0.9674	0.9856	0.9570	0.9483	0.9260	0.9877	0.9512	3.151
S 13C2-PFTeDA	Linear	0.5454	0.5096	0.5432	0.5657	0.5411	0.5437	0.5638	0.5823	0.5493	3.949
I 13C5-PFNA											
S 13C9-PFNA	Linear	0.8608	0.8203	0.9476	0.9161	0.8220	0.8447	0.8814	0.9452	0.8798	5.871
I 13C2-PFHxA											
S 13C5-PFPeA	Linear	0.5721	0.5315	0.5921	0.5764	0.5544	0.5415	0.5295	0.5595	0.5571	4.015
S 13C5-PFHxA	Linear	1.0323	0.9467	1.0342	0.9981	0.9985	0.9768	0.9156	1.0123	0.9893	4.178
S 13C3-HFPO-DA	Linear	1.0333	0.1027	1.0178	1.0444	1.0107	0.0955	0.1003	0.1025	0.1022	3.480
S 13C4-PFHpA	Linear	1.0274	1.0208	1.0891	1.0647	1.0182	1.0227	0.9510	1.0603	1.0318	4.032

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

Initial Calibration Summary

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICC196  
Lab FileID: 6Q12726.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PFBA	Linear	y = 1.109666 * x	
S 13C5-PFPeA	Linear	y = 0.557122 * x	
S 13C2-4:2FTS	Linear	y = 0.162589 * x	
S 13C3-PFBS	Linear	y = 2.036463 * x	
S 13C5-PFHxA	Linear	y = 0.989296 * x	
S 13C3-HFPO-DA	Linear	y = 0.102160 * x	
S 13C4-PFHpA	Linear	y = 1.031788 * x	
S 13C2-6:2FTS	Linear	y = 0.215677 * x	
S 13C8-PFOA	Linear	y = 0.834844 * x	
S 13C3-PFHxS	Linear	y = 1.314395 * x	
S 13C9-PFNA	Linear	y = 0.879761 * x	
S 13C2-8:2FTS	Linear	y = 0.216620 * x	
S 13C6-PEDA	Linear	y = 0.695428 * x	
S d3-MeFOSAA	Linear	y = 1.370372 * x	
S 13C8-PFOS	Linear	y = 0.821867 * x	
S d5-EFOSAA	Linear	y = 1.136923 * x	
S 13C7-PFUnDA	Linear	y = 0.831601 * x	
S 13C2-PFDoDA	Linear	y = 0.951192 * x	
S 13C8-FOSA	Linear	y = 1.628463 * x	
S 13C2-PFTeDA	Linear	y = 0.549346 * x	
S d7-MeFOSE	Linear	y = 0.283861 * x	
S d3-MeFOSA	Linear	y = 0.701522 * x	
S d9-EFOSE	Linear	y = 0.195634 * x	
S d5-EFOSA	Linear	y = 0.763177 * x	

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

## Initial Calibration Verification

Page 1 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICV196  
Lab FileID: 6Q12732.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\020123\_1633\_S6Q196\S6Q196.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12723.d  
2:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12724.d  
3:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12725.d  
4:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12726.d  
5:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12727.d  
6:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12728.d  
7:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12729.d  
8:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12730.d

Data File: 6Q12732

Type : QC

Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.205	4.1	104.1
13C2-6:2FTS	5.000	4.783	-4.3	95.7
13C2-8:2FTS	5.000	5.360	7.2	107.2
13C2-PFDoDA	1.250	1.214	-2.9	97.1
13C2-PFTeDA	1.250	1.262	1.0	101.0
13C3-PFBS	2.500	2.408	-3.7	96.3
13C3-PFHxS	2.500	2.594	3.8	103.8
13C4-PFBA	10.000	10.155	1.5	101.5
13C4-PFHpA	2.500	2.572	2.9	102.9
13C5-PFHxA	2.500	2.583	3.3	103.3
13C5-PFPeA	5.000	5.009	0.2	100.2
13C6-PFDA	1.250	1.234	-1.3	98.7
13C7-PFUnDA	1.250	1.306	4.5	104.5
13C8-FOSA	2.500	2.421	-3.1	96.9
13C8-PFOA	2.500	2.460	-1.6	98.4
13C8-PFOS	2.500	2.148	-14.1	85.9
13C9-PFNA	1.250	1.323	5.8	105.8
4:2FTS	9.375	9.356	-0.2	99.8
6:2FTS	9.500	10.247	7.9	107.9
8:2FTS	9.600	8.962	-6.6	93.4
d3-MeFOSAA	5.000	4.572	-8.6	91.4
EtFOSAA	2.500	2.406	-3.8	96.2
FOSA	2.500	2.417	-3.3	96.7
MeFOSAA	2.500	2.534	1.3	101.3
PFBA	10.000	9.843	-1.6	98.4
PFBS	2.218	2.206	-0.5	99.5
PFDA	2.500	2.494	-0.3	99.7
PFDoDA	2.500	2.527	1.1	101.1
PFDS	2.413	2.460	1.9	101.9
PFHpA	2.500	2.308	-7.7	92.3
PFHpS	2.383	2.541	6.6	106.6
PFHxA	2.500	2.400	-4.0	96.0
PFHxS	2.285	2.057	-10.0	90.0
PFNA	2.500	2.317	-7.3	92.7
PFNS	2.405	2.686	11.7	111.7
PFOA	2.500	2.378	-4.9	95.1
PFOS	2.320	2.546	9.7	109.7

# Initial Calibration Verification

Page 2 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICV196  
Lab FileID: 6Q12732.D

PFPeA	5.000	5.008	0.2	100.2
PFPeS	2.353	2.227	-5.4	94.6
PFTeDA	2.500	2.395	-4.2	95.8
PFTTrDA	2.500	2.528	1.1	101.1
PFUnDA	2.500	2.451	-2.0	98.0
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--		
11Cl-PF3OUdS	9.450	9.292	-1.7	98.3
13C3-HFPO-DA	10.000	10.088	0.9	100.9
9Cl-PF3ONS	9.350	9.080	-2.9	97.1
ADONA	9.450	9.393	-0.6	99.4
HFPO-DA	10.000	10.009	0.1	100.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.036	-3.6	96.4
5:3FTCA	62.400	60.099	-3.7	96.3
7:3FTCA	62.400	61.061	-2.1	97.9
d3-MeFOSA	2.500	2.337	-6.5	93.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.581	3.2	103.2
EtFOSE	25.000	23.324	-6.7	93.3
MeFOSA	2.500	2.516	0.6	100.6
MeFOSE	25.000	26.157	4.6	104.6
PFDoDS	2.425	2.443	0.7	100.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.681	-6.4	93.6
d7-MeFOSE	25.000	22.426	-10.3	89.7
d9-EtFOSE	25.000	24.207	-3.2	96.8
d5-EtFOSA	2.500	2.277	-8.9	91.1
NFDHA	5.000	5.074	1.5	101.5
PFMBA	5.000	5.051	1.0	101.0
PFMPA	5.000	5.022	0.4	100.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.329	-2.7	97.3

CC Criteria: +/- 30%

## Initial Calibration Verification

Page 1 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICV196  
Lab FileID: 6Q12733.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\020123\_1633\_S6Q196\S6Q196.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12723.d  
2:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12724.d  
3:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12725.d  
4:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12726.d  
5:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12727.d  
6:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12728.d  
7:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12729.d  
8:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12730.d

Data File: 6Q12733

Type : QC

Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.593	11.9	111.9
13C2-6:2FTS	5.000	5.181	3.6	103.6
13C2-8:2FTS	5.000	5.492	9.8	109.8
13C2-PFDoDA	1.250	1.252	0.2	100.2
13C2-PFTeDA	1.250	1.200	-4.0	96.0
13C3-PFBS	2.500	2.722	8.9	108.9
13C3-PFHxS	2.500	2.672	6.9	106.9
13C4-PFBA	10.000	10.158	1.6	101.6
13C4-PFHpA	2.500	2.649	6.0	106.0
13C5-PFHxA	2.500	2.567	2.7	102.7
13C5-PFPeA	5.000	5.175	3.5	103.5
13C6-PFDA	1.250	1.282	2.5	102.5
13C7-PFUnDA	1.250	1.226	-1.9	98.1
13C8-FOSA	2.500	2.462	-1.5	98.5
13C8-PFOA	2.500	2.518	0.7	100.7
13C8-PFOS	2.500	2.373	-5.1	94.9
13C9-PFNA	1.250	1.320	5.6	105.6
4:2FTS	20.000	19.315	-3.4	96.6
6:2FTS	20.000	20.624	3.1	103.1
8:2FTS	20.000	20.446	2.2	102.2
d3-MeFOSAA	5.000	4.841	-3.2	96.8
EtFOSAA	20.000	19.986	-0.1	99.9
FOSA	20.000	19.512	-2.4	97.6
MeFOSAA	20.000	18.847	-5.8	94.2
PFBA	20.000	18.040	-9.8	90.2
PFBS	20.000	18.840	-5.8	94.2
PFDA	20.000	19.107	-4.5	95.5
PFDoDA	20.000	17.445	-12.8	87.2
PFDS	20.000	18.543	-7.3	92.7
PFHpA	20.000	17.611	-11.9	88.1
PFHpS	20.000	19.526	-2.4	97.6
PFHxA	20.000	21.244	6.2	106.2
PFHxS	20.000	19.561	-2.2	97.8
PFNA	20.000	19.101	-4.5	95.5
PFNS	20.000	19.797	-1.0	99.0
PFOA	20.000	17.925	-10.4	89.6
PFOS	20.000	16.352	-18.2	81.8

# Initial Calibration Verification

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICV196  
Lab FileID: 6Q12733.D

PFPeA	20.000	20.419	2.1	102.1
PFPeS	20.000	19.996	0.0	100.0
PFTeDA	20.000	20.962	4.8	104.8
PFTTrDA	20.000	17.258	-13.7	86.3
PFUnDA	20.000	18.333	-8.3	91.7
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--		
11Cl-PF3OUdS	20.000	20.535	2.7	102.7
13C3-HFPO-DA	10.000	10.808	8.1	108.1
9Cl-PF3ONS	20.000	18.389	-8.1	91.9
ADONA	20.000	19.883	-0.6	99.4
HFPO-DA	20.000	18.803	-6.0	94.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	19.461	-2.7	97.3
5:3FTCA	20.000	19.982	-0.1	99.9
7:3FTCA	20.000	18.979	-5.1	94.9
d3-MeFOSA	2.500	2.381	-4.8	95.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	19.114	-4.4	95.6
EtFOSE	100.000	93.804	-6.2	93.8
MeFOSA	20.000	20.123	0.6	100.6
MeFOSE	100.000	89.300	-10.7	89.3
PFDoDS	20.000	18.241	-8.8	91.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.685	-6.3	93.7
d7-MeFOSE	25.000	23.932	-4.3	95.7
d9-EtFOSE	25.000	24.440	-2.2	97.8
d5-EtFOSA	2.500	2.410	-3.6	96.4
NFDHA	20.000	18.187	-9.1	90.9
PFMBA	20.000	19.219	-3.9	96.1
PFMPA	20.000	19.012	-4.9	95.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	17.298	-13.5	86.5

CC Criteria: +/- 30%

## Continuing Calibration Summary

Page 1 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q198-CC196  
Lab FileID: 6Q12888.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\020123\_1633\_S6Q196\s6q198.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12723.d  
2:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12724.d  
3:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12725.d  
4:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12726.d  
5:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12727.d  
6:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12728.d  
7:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12729.d  
8:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12730.d

Data File: 6Q12888

Type : QC

Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.054	1.1	101.1
13C2-6:2FTS	5.000	5.565	11.3	111.3
13C2-8:2FTS	5.000	4.671	-6.6	93.4
13C2-PFDoDA	1.250	1.201	-3.9	96.1
13C2-PFTeDA	1.250	1.257	0.5	100.5
13C3-PFBS	2.500	2.329	-6.8	93.2
13C3-PFHxS	2.500	2.249	-10.1	89.9
13C4-PFBA	10.000	9.982	-0.2	99.8
13C4-PFHpA	2.500	2.559	2.4	102.4
13C5-PFHxA	2.500	2.745	9.8	109.8
13C5-PFPeA	5.000	5.277	5.5	105.5
13C6-PFDA	1.250	1.299	3.9	103.9
13C7-PFUnDA	1.250	1.308	4.7	104.7
13C8-FOSA	2.500	2.552	2.1	102.1
13C8-PFOA	2.500	2.506	0.2	100.2
13C8-PFOS	2.500	2.509	0.3	100.3
13C9-PFNA	1.250	1.287	3.0	103.0
4:2FTS	9.375	9.603	2.4	102.4
6:2FTS	9.500	8.334	-12.3	87.7
8:2FTS	9.600	10.185	6.1	106.1
d3-MeFOSAA	5.000	5.213	4.3	104.3
EtFOSAA	2.500	2.337	-6.5	93.5
FOSA	2.500	2.285	-8.6	91.4
MeFOSAA	2.500	2.215	-11.4	88.6
PFBA	10.000	9.354	-6.5	93.5
PFBS	2.218	2.250	1.4	101.4
PFDA	2.500	2.469	-1.2	98.8
PFDoDA	2.500	2.421	-3.2	96.8
PFDS	2.413	2.167	-10.2	89.8
PFHpA	2.500	2.234	-10.7	89.3
PFHpS	2.383	2.256	-5.3	94.7
PFHxA	2.500	2.208	-11.7	88.3
PFHxS	2.285	2.257	-1.2	98.8
PFNA	2.500	2.339	-6.5	93.5
PFNS	2.405	2.281	-5.2	94.8
PFOA	2.500	2.146	-14.2	85.8
PFOS	2.320	2.136	-7.9	92.1



# Continuing Calibration Summary

Page 2 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q198-CC196  
Lab FileID: 6Q12888.D

PFPeA	5.000	4.509	-9.8	90.2
PFPeS	2.353	2.392	1.7	101.7
PFTeDA	2.500	2.396	-4.2	95.8
PFTTrDA	2.500	2.467	-1.3	98.7
PFUnDA	2.500	2.424	-3.0	97.0
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--		
11Cl-PF3OUdS	9.450	8.823	-6.6	93.4
13C3-HFPO-DA	10.000	10.072	0.7	100.7
9Cl-PF3ONS	9.350	8.711	-6.8	93.2
ADONA	9.450	9.435	-0.2	99.8
HFPO-DA	10.000	10.107	1.1	101.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.321	-9.3	90.7
5:3FTCA	62.400	53.223	-14.7	85.3
7:3FTCA	62.400	54.329	-12.9	87.1
d3-MeFOSA	2.500	2.456	-1.8	98.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.204	-11.8	88.2
EtFOSE	25.000	22.039	-11.8	88.2
MeFOSA	2.500	2.348	-6.1	93.9
MeFOSE	25.000	21.984	-12.1	87.9
PFDoDS	2.425	2.141	-11.7	88.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.290	5.8	105.8
d7-MeFOSE	25.000	26.112	4.4	104.4
d9-EtFOSE	25.000	25.964	3.9	103.9
d5-EtFOSA	2.500	2.608	4.3	104.3
NFDHA	5.000	4.430	-11.4	88.6
PFMBA	5.000	4.723	-5.5	94.5
PFMPA	5.000	4.566	-8.7	91.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	3.795	-14.7	85.3

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Page 1 of 2

Job Number: FC2175  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q198-CC196  
 Lab FileID: 6Q12889.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\020123\_1633\_S6Q196\s6q198.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12723.d  
 2:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12724.d  
 3:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12725.d  
 4:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12726.d  
 5:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12727.d  
 6:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12728.d  
 7:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12729.d  
 8:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12730.d

Data File: 6Q12889

Type : QC

Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.750	15.0	115.0
13C2-6:2FTS	5.000	5.636	12.7	112.7
13C2-8:2FTS	5.000	5.250	5.0	105.0
13C2-PFDoDA	1.250	1.343	7.4	107.4
13C2-PFTeDA	1.250	1.361	8.9	108.9
13C3-PFBS	2.500	2.637	5.5	105.5
13C3-PFHxS	2.500	2.614	4.6	104.6
13C4-PFBA	10.000	10.154	1.5	101.5
13C4-PFHpA	2.500	2.461	-1.6	98.4
13C5-PFHxA	2.500	2.558	2.3	102.3
13C5-PFPeA	5.000	5.047	0.9	100.9
13C6-PFDA	1.250	1.392	11.3	111.3
13C7-PFUnDA	1.250	1.391	11.2	111.2
13C8-FOSA	2.500	2.598	3.9	103.9
13C8-PFOA	2.500	2.545	1.8	101.8
13C8-PFOS	2.500	2.620	4.8	104.8
13C9-PFNA	1.250	1.386	10.9	110.9
4:2FTS	0.750	0.753	0.4	100.4
6:2FTS	0.760	0.802	5.5	105.5
8:2FTS	0.768	0.976	27.0	127.0
d3-MeFOSAA	5.000	5.407	8.1	108.1
EtFOSAA	0.200	0.212	6.1	106.1
FOSA	0.200	0.215	7.5	107.5
MeFOSAA	0.200	0.230	15.2	115.2
PFBA	0.800	0.879	9.9	109.9
PFBS	0.177	0.163	-8.1	91.9
PFDA	0.200	0.224	11.8	111.8
PFDoDA	0.200	0.216	7.9	107.9
PFDS	0.193	0.195	1.3	101.3
PFHpA	0.200	0.224	12.2	112.2
PFHpS	0.191	0.246	28.6	128.6
PFHxA	0.200	0.209	4.6	104.6
PFHxS	0.183	0.199	8.8	108.8
PFNA	0.200	0.197	-1.4	98.6
PFNS	0.192	0.205	7.0	107.0
PFOA	0.200	0.170	-15.1	84.9
PFOS	0.186	0.212	13.8	113.8

# Continuing Calibration Summary

Page 2 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q198-CC196  
Lab FileID: 6Q12889.D

PFPeA	0.400	0.435	8.6	108.6
PFPeS	0.188	0.200	6.3	106.3
PFTeDA	0.200	0.224	12.0	112.0
PFTTrDA	0.200	0.259	29.4	129.4
PFUnDA	0.200	0.208	4.1	104.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11Cl-PF3OUdS	0.756	0.714	-5.6	94.4
13C3-HFPO-DA	10.000	10.545	5.4	105.4
9Cl-PF3ONS	0.748	0.702	-6.2	93.8
ADONA	0.756	0.739	-2.2	97.8
HFPO-DA	0.800	0.828	3.5	103.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.975	-2.3	97.7
5:3FTCA	4.992	4.823	-3.4	96.6
7:3FTCA	4.992	4.874	-2.4	97.6
d3-MeFOSA	2.500	2.521	0.8	100.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.200	0.206	3.1	103.1
EtFOSE	2.000	2.060	3.0	103.0
MeFOSA	0.200	0.200	0.2	100.2
MeFOSE	2.000	1.964	-1.8	98.2
PFDoDS	0.194	0.192	-0.8	99.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.162	3.2	103.2
d7-MeFOSE	25.000	26.279	5.1	105.1
d9-EtFOSE	25.000	26.973	7.9	107.9
d5-EtFOSA	2.500	2.432	-2.7	97.3
NFDHA	0.400	0.394	-1.4	98.6
PFMBA	0.400	0.421	5.3	105.3
PFMPA	0.400	0.410	2.6	102.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.362	1.6	101.6

CC Criteria: +/- 30%

## Continuing Calibration Summary

Page 1 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q198-CC196  
Lab FileID: 6Q12900.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\020123\_1633\_S6Q196\s6q198.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12723.d  
2:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12724.d  
3:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12725.d  
4:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12726.d  
5:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12727.d  
6:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12728.d  
7:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12729.d  
8:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12730.d

Data File: 6Q12900

Type : QC

Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.463	9.3	109.3
13C2-6:2FTS	5.000	5.259	5.2	105.2
13C2-8:2FTS	5.000	5.594	11.9	111.9
13C2-PFDoDA	1.250	1.267	1.4	101.4
13C2-PFTeDA	1.250	1.275	2.0	102.0
13C3-PFBS	2.500	2.460	-1.6	98.4
13C3-PFHxS	2.500	2.740	9.6	109.6
13C4-PFBA	10.000	9.952	-0.5	99.5
13C4-PFHpA	2.500	2.563	2.5	102.5
13C5-PFHxA	2.500	2.622	4.9	104.9
13C5-PFPeA	5.000	5.039	0.8	100.8
13C6-PFDA	1.250	1.290	3.2	103.2
13C7-PFUnDA	1.250	1.304	4.3	104.3
13C8-FOSA	2.500	2.638	5.5	105.5
13C8-PFOA	2.500	2.468	-1.3	98.7
13C8-PFOS	2.500	2.492	-0.3	99.7
13C9-PFNA	1.250	1.295	3.6	103.6
4:2FTS	9.375	9.176	-2.1	97.9
6:2FTS	9.500	9.526	0.3	100.3
8:2FTS	9.600	9.051	-5.7	94.3
d3-MeFOSAA	5.000	5.016	0.3	100.3
EtFOSAA	2.500	2.228	-10.9	89.1
FOSA	2.500	2.312	-7.5	92.5
MeFOSAA	2.500	2.451	-2.0	98.0
PFBA	10.000	9.231	-7.7	92.3
PFBS	2.218	2.147	-3.2	96.8
PFDA	2.500	2.414	-3.4	96.6
PFDoDA	2.500	2.438	-2.5	97.5
PFDS	2.413	2.078	-13.9	86.1
PFHpA	2.500	2.179	-12.8	87.2
PFHpS	2.383	2.120	-11.0	89.0
PFHxA	2.500	2.317	-7.3	92.7
PFHxS	2.285	1.929	-15.6	84.4
PFNA	2.500	2.273	-9.1	90.9
PFNS	2.405	2.239	-6.9	93.1
PFOA	2.500	2.315	-7.4	92.6
PFOS	2.320	2.124	-8.5	91.5

# Continuing Calibration Summary

Page 2 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q198-CC196  
Lab FileID: 6Q12900.D

PFPeA	5.000	4.681	-6.4	93.6
PFPeS	2.353	2.041	-13.3	86.7
PFTeDA	2.500	2.336	-6.6	93.4
PFTTrDA	2.500	2.492	-0.3	99.7
PFUnDA	2.500	2.348	-6.1	93.9
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--		
11Cl-PF3OUdS	9.450	9.127	-3.4	96.6
13C3-HFPO-DA	10.000	10.126	1.3	101.3
9Cl-PF3ONS	9.350	8.668	-7.3	92.7
ADONA	9.450	8.858	-6.3	93.7
HFPO-DA	10.000	9.856	-1.4	98.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.850	-5.0	95.0
5:3FTCA	62.400	55.991	-10.3	89.7
7:3FTCA	62.400	56.163	-10.0	90.0
d3-MeFOSA	2.500	2.313	-7.5	92.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.424	-3.0	97.0
EtFOSE	25.000	23.540	-5.8	94.2
MeFOSA	2.500	2.376	-4.9	95.1
MeFOSE	25.000	22.505	-10.0	90.0
PFDoDS	2.425	2.241	-7.6	92.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.195	3.9	103.9
d7-MeFOSE	25.000	25.096	0.4	100.4
d9-EtFOSE	25.000	24.739	-1.0	99.0
d5-EtFOSA	2.500	2.485	-0.6	99.4
NFDHA	5.000	4.436	-11.3	88.7
PFMBA	5.000	4.933	-1.3	98.7
PFMPA	5.000	4.698	-6.0	94.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	3.923	-11.8	88.2

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Page 1 of 2

Job Number: FC2175  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q198-CC196  
 Lab FileID: 6Q12911.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\020123\_1633\_S6Q196\s6q198.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12723.d  
 2:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12724.d  
 3:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12725.d  
 4:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12726.d  
 5:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12727.d  
 6:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12728.d  
 7:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12729.d  
 8:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12730.d

Data File: 6Q12911

Type : QC

Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.901	-2.0	98.0
13C2-6:2FTS	5.000	4.737	-5.3	94.7
13C2-8:2FTS	5.000	4.857	-2.9	97.1
13C2-PFDoDA	1.250	1.272	1.7	101.7
13C2-PFTeDA	1.250	1.303	4.3	104.3
13C3-PFBS	2.500	2.369	-5.2	94.8
13C3-PFHxS	2.500	2.285	-8.6	91.4
13C4-PFBA	10.000	10.123	1.2	101.2
13C4-PFHpA	2.500	2.538	1.5	101.5
13C5-PFHxA	2.500	2.603	4.1	104.1
13C5-PFPeA	5.000	5.191	3.8	103.8
13C6-PFDA	1.250	1.311	4.8	104.8
13C7-PFUnDA	1.250	1.318	5.4	105.4
13C8-FOSA	2.500	2.573	2.9	102.9
13C8-PFOA	2.500	2.420	-3.2	96.8
13C8-PFOS	2.500	2.404	-3.8	96.2
13C9-PFNA	1.250	1.304	4.4	104.4
4:2FTS	9.375	8.739	-6.8	93.2
6:2FTS	9.500	8.863	-6.7	93.3
8:2FTS	9.600	9.285	-3.3	96.7
d3-MeFOSAA	5.000	5.098	2.0	102.0
EtFOSAA	2.500	2.166	-13.4	86.6
FOSA	2.500	2.255	-9.8	90.2
MeFOSAA	2.500	2.324	-7.0	93.0
PFBA	10.000	9.165	-8.3	91.7
PFBS	2.218	1.946	-12.3	87.7
PFDA	2.500	2.409	-3.6	96.4
PFDoDA	2.500	2.432	-2.7	97.3
PFDS	2.413	2.330	-3.4	96.6
PFHpA	2.500	2.333	-6.7	93.3
PFHpS	2.383	2.478	4.0	104.0
PFHxA	2.500	2.284	-8.6	91.4
PFHxS	2.285	2.249	-1.6	98.4
PFNA	2.500	2.265	-9.4	90.6
PFNS	2.405	2.308	-4.0	96.0
PFOA	2.500	2.246	-10.2	89.8
PFOS	2.320	2.168	-6.5	93.5

# Continuing Calibration Summary

Page 2 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q198-CC196  
Lab FileID: 6Q12911.D

PFPeA	5.000	4.584	-8.3	91.7
PFPeS	2.353	2.192	-6.8	93.2
PFTeDA	2.500	2.367	-5.3	94.7
PFTTrDA	2.500	2.590	3.6	103.6
PFUnDA	2.500	2.266	-9.4	90.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11Cl-PF3OUdS	9.450	9.266	-2.0	98.0
13C3-HFPO-DA	10.000	10.374	3.7	103.7
9Cl-PF3ONS	9.350	8.606	-8.0	92.0
ADONA	9.450	9.171	-3.0	97.0
HFPO-DA	10.000	9.935	-0.7	99.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.707	-6.2	93.8
5:3FTCA	62.400	56.897	-8.8	91.2
7:3FTCA	62.400	58.640	-6.0	94.0
d3-MeFOSA	2.500	2.415	-3.4	96.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.219	-11.2	88.8
EtFOSE	25.000	22.338	-10.6	89.4
MeFOSA	2.500	2.440	-2.4	97.6
MeFOSE	25.000	22.566	-9.7	90.3
PFDoDS	2.425	2.237	-7.7	92.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.104	2.1	102.1
d7-MeFOSE	25.000	25.265	1.1	101.1
d9-EtFOSE	25.000	26.078	4.3	104.3
d5-EtFOSA	2.500	2.556	2.2	102.2
NFDHA	5.000	5.142	2.8	102.8
PFMBA	5.000	4.745	-5.1	94.9
PFMPA	5.000	4.554	-8.9	91.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.117	-7.5	92.5

CC Criteria: +/- 30%

## Continuing Calibration Summary

Page 1 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q198-CC196  
Lab FileID: 6Q12912.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\020123\_1633\_S6Q196\s6q198.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12723.d  
2:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12724.d  
3:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12725.d  
4:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12726.d  
5:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12727.d  
6:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12728.d  
7:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12729.d  
8:D:\MassHunter\Data\020123\_1633\_S6Q196\6Q12730.d

Data File: 6Q12912

Type : QC

Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.664	13.3	113.3
13C2-6:2FTS	5.000	5.841	16.8	116.8
13C2-8:2FTS	5.000	5.342	6.8	106.8
13C2-PFDoDA	1.250	1.298	3.8	103.8
13C2-PFTeDA	1.250	1.253	0.3	100.3
13C3-PFBS	2.500	2.608	4.3	104.3
13C3-PFHxS	2.500	2.707	8.3	108.3
13C4-PFBA	10.000	10.086	0.9	100.9
13C4-PFHpA	2.500	2.452	-1.9	98.1
13C5-PFHxA	2.500	2.347	-6.1	93.9
13C5-PFPeA	5.000	4.831	-3.4	96.6
13C6-PFDA	1.250	1.311	4.9	104.9
13C7-PFUnDA	1.250	1.307	4.6	104.6
13C8-FOSA	2.500	2.520	0.8	100.8
13C8-PFOA	2.500	2.420	-3.2	96.8
13C8-PFOS	2.500	2.449	-2.0	98.0
13C9-PFNA	1.250	1.318	5.4	105.4
4:2FTS	0.750	0.809	7.9	107.9
6:2FTS	0.760	0.724	-4.7	95.3
8:2FTS	0.768	0.789	2.8	102.8
d3-MeFOSAA	5.000	4.845	-3.1	96.9
EtFOSAA	0.200	0.212	6.0	106.0
FOSA	0.200	0.225	12.4	112.4
MeFOSAA	0.200	0.206	3.2	103.2
PFBA	0.800	0.812	1.5	101.5
PFBS	0.177	0.186	4.9	104.9
PFDA	0.200	0.197	-1.7	98.3
PFDoDA	0.200	0.225	12.4	112.4
PFDS	0.193	0.199	3.1	103.1
PFHpA	0.200	0.208	3.9	103.9
PFHpS	0.191	0.233	21.9	121.9
PFHxA	0.200	0.233	16.7	116.7
PFHxS	0.183	0.151	-17.3	82.7
PFNA	0.200	0.200	0.1	100.1
PFNS	0.192	0.208	8.5	108.5
PFOA	0.200	0.209	4.5	104.5
PFOS	0.186	0.230	23.6	123.6



# Continuing Calibration Summary

Page 2 of 2

Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q198-CC196  
Lab FileID: 6Q12912.D

PFPeA	0.400	0.412	3.1	103.1
PFPeS	0.188	0.170	-9.5	90.5
PFTeDA	0.200	0.226	12.8	112.8
PFTTrDA	0.200	0.218	8.9	108.9
PFUnDA	0.200	0.198	-1.2	98.8
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--		
11Cl-PF3OUdS	0.756	0.767	1.5	101.5
13C3-HFPO-DA	10.000	9.704	-3.0	97.0
9Cl-PF3ONS	0.748	0.775	3.6	103.6
ADONA	0.756	0.758	0.3	100.3
HFPO-DA	0.800	0.773	-3.4	96.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.090	9.2	109.2
5:3FTCA	4.992	5.079	1.7	101.7
7:3FTCA	4.992	5.289	6.0	106.0
d3-MeFOSA	2.500	2.459	-1.6	98.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.200	0.198	-1.1	98.9
EtFOSE	2.000	1.882	-5.9	94.1
MeFOSA	0.200	0.222	10.8	110.8
MeFOSE	2.000	2.140	7.0	107.0
PFDoDS	0.194	0.227	17.2	117.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.105	2.1	102.1
d7-MeFOSE	25.000	25.419	1.7	101.7
d9-EtFOSE	25.000	27.211	8.8	108.8
d5-EtFOSA	2.500	2.542	1.7	101.7
NFDHA	0.400	0.493	23.1	123.1
PFMBA	0.400	0.426	6.5	106.5
PFMPA	0.400	0.427	6.8	106.8
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEA	0.356	0.377	6.0	106.0

CC Criteria: +/- 30%

## Run Sequence Report

Job Number: FC2175  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q196		Method: EPA DRAFT 1633		Instrument ID: GCMS6Q	
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID	
S6Q196-RT	6Q12720.D	02/01/23 17:09	n/a	Retention Time Marker	
S6Q196-RT	6Q12721.D	02/01/23 17:23	n/a	Retention Time Marker	
S6Q196-IC196	6Q12722.D	02/01/23 17:37	n/a	Mass Calibration Verification	
S6Q196-IC196	6Q12723.D	02/01/23 17:51	n/a	Initial cal 1	
S6Q196-IC196	6Q12724.D	02/01/23 18:05	n/a	Initial cal 2	
S6Q196-IC196	6Q12725.D	02/01/23 18:19	n/a	Initial cal 3	
S6Q196-ICC196	6Q12726.D	02/01/23 18:33	n/a	Initial cal 4	
S6Q196-IC196	6Q12727.D	02/01/23 18:47	n/a	Initial cal 5	
S6Q196-IC196	6Q12728.D	02/01/23 19:01	n/a	Initial cal 6	
S6Q196-IC196	6Q12729.D	02/01/23 19:15	n/a	Initial cal 7	
S6Q196-IC196	6Q12730.D	02/01/23 19:29	n/a	Initial cal 8	
S6Q196-IBLK	6Q12731.D	02/01/23 19:43	n/a	Instrument Blank	
S6Q196-IBLK	6Q12731.D	02/01/23 19:43	n/a	Instrument Blank	
S6Q196-ICV196	6Q12732.D	02/01/23 19:57	n/a	Initial cal verification 4	
S6Q196-ICV196	6Q12733.D	02/01/23 20:11	n/a	Initial cal verification 4	
S6Q196-CC196	6Q12734.D	02/01/23 20:25	n/a	Continuing cal 4	
S6Q196-CC196	6Q12735.D	02/01/23 20:39	n/a	Continuing cal 1.0LL	
OP94938-BS	6Q12736.D	02/01/23 20:53	OP94938	Blank Spike	
OP94938-LLBS	6Q12737.D	02/01/23 21:07	OP94938	Blank Spike	
OP94938-MB	6Q12738.D	02/01/23 21:21	OP94938	Method Blank	
ZZZZZZ	6Q12739.D	02/01/23 21:35	OP94938	(unrelated sample)	
ZZZZZZ	6Q12740.D	02/01/23 21:49	OP94938	(unrelated sample)	
ZZZZZZ	6Q12741.D	02/01/23 22:03	OP94938	(unrelated sample)	
ZZZZZZ	6Q12742.D	02/01/23 22:17	OP94938	(unrelated sample)	
ZZZZZZ	6Q12743.D	02/01/23 22:31	OP94938	(unrelated sample)	
FC1643-12	6Q12744.D	02/01/23 22:45	OP94938	(used for QC only; not part of job FC2175)	
OP94938-MS	6Q12745.D	02/01/23 22:59	OP94938	Matrix Spike	
S6Q196-CC196	6Q12746.D	02/01/23 23:13	n/a	Continuing cal 4	
S6Q196-ICCB	6Q12747.D	02/01/23 23:27	n/a	Continuing Calibration Blank	
FC1643-13	6Q12748.D	02/01/23 23:41	OP94938	(used for QC only; not part of job FC2175)	
OP94938-DUP	6Q12749.D	02/01/23 23:55	OP94938	Duplicate	
ZZZZZZ	6Q12750.D	02/02/23 00:09	OP94938	(unrelated sample)	
ZZZZZZ	6Q12751.D	02/02/23 00:22	OP94938	(unrelated sample)	
ZZZZZZ	6Q12752.D	02/02/23 00:36	OP94938	(unrelated sample)	
ZZZZZZ	6Q12753.D	02/02/23 00:50	OP94938	(unrelated sample)	
ZZZZZZ	6Q12755.D	02/02/23 01:18	OP94914	(unrelated sample)	
ZZZZZZ	6Q12756.D	02/02/23 01:32	OP94914	(unrelated sample)	
ZZZZZZ	6Q12757.D	02/02/23 01:46	OP94914	(unrelated sample)	
S6Q196-CC196	6Q12758.D	02/02/23 02:00	n/a	Continuing cal 4	
S6Q196-ICCB	6Q12759.D	02/02/23 02:14	n/a	Continuing Calibration Blank	
ZZZZZZ	6Q12761.D	02/02/23 02:42	OP95176	(unrelated sample)	
ZZZZZZ	6Q12762.D	02/02/23 02:56	OP95176	(unrelated sample)	
ZZZZZZ	6Q12763.D	02/02/23 03:10	OP95176	(unrelated sample)	
ZZZZZZ	6Q12764.D	02/02/23 03:24	OP95176	(unrelated sample)	
ZZZZZZ	6Q12765.D	02/02/23 03:38	OP95176	(unrelated sample)	
ZZZZZZ	6Q12766.D	02/02/23 03:52	OP94914	(unrelated sample)	

# Run Sequence Report

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Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q196	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
ZZZZZZ	6Q12767.D	02/02/23 04:06	OP94914	(unrelated sample)
S6Q196-CC196	6Q12770.D	02/02/23 04:34	n/a	Continuing cal 4
S6Q196-CC196	6Q12771.D	02/02/23 04:48	n/a	Continuing cal 1.0LL
S6Q196-ICCB	6Q12772.D	02/02/23 05:02	n/a	Continuing Calibration Blank
OP94945-BS	6Q12773.D	02/02/23 05:16	OP94945	Blank Spike
OP94945-LLBS	6Q12774.D	02/02/23 05:30	OP94945	Blank Spike
S6Q196-RT	6Q12783.D	02/02/23 09:56	n/a	Retention Time Marker
S6Q196-RT	6Q12784.D	02/02/23 10:10	n/a	Retention Time Marker
S6Q196-IBLK	6Q12786.D	02/02/23 10:38	n/a	Instrument Blank
S6Q196-IBLK	6Q12786.D	02/02/23 10:38	n/a	Instrument Blank
S6Q196-CC196	6Q12787.D	02/02/23 10:52	n/a	Continuing cal 4
S6Q196-CC196	6Q12788.D	02/02/23 11:06	n/a	Continuing cal 1.0LL
OP94945-BS	6Q12789.D	02/02/23 11:20	OP94945	Blank Spike
S6Q196-ICCB	6Q12800.D	02/02/23 13:58	n/a	Continuing Calibration Blank
ZZZZZZ	6Q12801.D	02/02/23 14:12	OP94945	(unrelated sample)
ZZZZZZ	6Q12802.D	02/02/23 14:46	OP94945	(unrelated sample)
ZZZZZZ	6Q12803.D	02/02/23 15:07	OP94945	(unrelated sample)
ZZZZZZ	6Q12804.D	02/02/23 15:20	OP94945	(unrelated sample)
FC1656-11	6Q12805.D	02/02/23 15:37	OP94945	(used for QC only; not part of job FC2175)
OP94945-MS	6Q12806.D	02/02/23 15:51	OP94945	Matrix Spike
OP94945-MSD	6Q12807.D	02/02/23 16:05	OP94945	Matrix Spike Duplicate
ZZZZZZ	6Q12808.D	02/02/23 16:19	OP94945	(unrelated sample)
ZZZZZZ	6Q12809.D	02/02/23 16:33	OP94945	(unrelated sample)
ZZZZZZ	6Q12810.D	02/02/23 16:47	OP94938	(unrelated sample)
S6Q196-CC196	6Q12811.D	02/02/23 17:01	n/a	Continuing cal 4
S6Q196-ICCB	6Q12812.D	02/02/23 17:15	n/a	Continuing Calibration Blank
ZZZZZZ	6Q12813.D	02/02/23 17:29	OP94938	(unrelated sample)
ZZZZZZ	6Q12814.D	02/02/23 17:43	OP94938	(unrelated sample)
ZZZZZZ	6Q12815.D	02/02/23 17:57	OP94938	(unrelated sample)
ZZZZZZ	6Q12817.D	02/02/23 18:25	OP95176	(unrelated sample)
S6Q196-ECC196	6Q12818.D	02/02/23 18:39	n/a	Ending cal 4
S6Q196-ICCB	6Q12819.D	02/02/23 18:53	n/a	Continuing Calibration Blank

6.9.1

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## Run Sequence Report

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Job Number: FC2175  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q198		Method: EPA DRAFT 1633		Instrument ID: GCMS6Q	
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID	
S6Q198-RT	6Q12884.D	02/03/23 10:02	n/a	Retention Time Marker	
S6Q198-RT	6Q12885.D	02/03/23 10:16	n/a	Retention Time Marker	
S6Q198-IBLK	6Q12887.D	02/03/23 10:44	n/a	Instrument Blank	
S6Q198-IBLK	6Q12887.D	02/03/23 10:44	n/a	Instrument Blank	
S6Q198-CC196	6Q12888.D	02/03/23 10:58	n/a	Continuing cal 4	
S6Q198-CC196	6Q12889.D	02/03/23 11:12	n/a	Continuing cal 1.0LL	
OP95216-BS	6Q12890.D	02/03/23 11:26	OP95216	Blank Spike	
OP95216-LLBS	6Q12891.D	02/03/23 11:40	OP95216	Blank Spike	
OP95216-MB	6Q12892.D	02/03/23 11:54	OP95216	Method Blank	
FC2175-1	6Q12893.D	02/03/23 12:08	OP95216	AF-HDMW225303-WGN01LF-2301W4	
FC2175-2	6Q12894.D	02/03/23 12:21	OP95216	AF-RHMW10-WGN01LF-2301W4	
ZZZZZZ	6Q12895.D	02/03/23 12:35	OP95216	(unrelated sample)	
ZZZZZZ	6Q12896.D	02/03/23 12:49	OP95216	(unrelated sample)	
ZZZZZZ	6Q12897.D	02/03/23 13:03	OP95216	(unrelated sample)	
FC2239-1	6Q12898.D	02/03/23 13:17	OP95216	(used for QC only; not part of job FC2175)	
OP95216-MS	6Q12899.D	02/03/23 13:31	OP95216	Matrix Spike	
S6Q198-CC196	6Q12900.D	02/03/23 13:45	n/a	Continuing cal 4	
S6Q198-ICCB	6Q12901.D	02/03/23 13:59	n/a	Continuing Calibration Blank	
ZZZZZZ	6Q12902.D	02/03/23 14:13	OP95216	(unrelated sample)	
ZZZZZZ	6Q12903.D	02/03/23 14:27	OP95216	(unrelated sample)	
ZZZZZZ	6Q12904.D	02/03/23 14:41	OP95216	(unrelated sample)	
ZZZZZZ	6Q12905.D	02/03/23 14:55	OP95216	(unrelated sample)	
FC2270-2	6Q12906.D	02/03/23 15:09	OP95216	(used for QC only; not part of job FC2175)	
OP95216-DUP	6Q12907.D	02/03/23 15:23	OP95216	Duplicate	
ZZZZZZ	6Q12908.D	02/03/23 15:37	OP95216	(unrelated sample)	
ZZZZZZ	6Q12909.D	02/03/23 15:51	OP95216	(unrelated sample)	
ZZZZZZ	6Q12910.D	02/03/23 16:05	OP95216	(unrelated sample)	
S6Q198-CC196	6Q12911.D	02/03/23 16:19	n/a	Continuing cal 4	
S6Q198-CC196	6Q12912.D	02/03/23 16:33	n/a	Continuing cal 1.0LL	
S6Q198-ICCB	6Q12913.D	02/03/23 16:47	n/a	Continuing Calibration Blank	
OP95034-BS	6Q12914.D	02/03/23 17:01	OP95034	Blank Spike	
OP95034-LLBS	6Q12915.D	02/03/23 17:15	OP95034	Blank Spike	
OP95034-MB	6Q12916.D	02/03/23 17:29	OP95034	Method Blank	
ZZZZZZ	6Q12917.D	02/03/23 17:43	OP95034	(unrelated sample)	
JD58693-1B	6Q12918.D	02/03/23 17:57	OP95034	(used for QC only; not part of job FC2175)	
OP95034-MS	6Q12919.D	02/03/23 18:11	OP95034	Matrix Spike	
OP95034-MSD	6Q12920.D	02/03/23 18:25	OP95034	Matrix Spike Duplicate	
ZZZZZZ	6Q12921.D	02/03/23 18:39	OP95034	(unrelated sample)	
ZZZZZZ	6Q12922.D	02/03/23 18:53	OP95034	(unrelated sample)	
ZZZZZZ	6Q12923.D	02/03/23 19:07	OP95034	(unrelated sample)	
S6Q198-CC196	6Q12924.D	02/03/23 19:21	n/a	Continuing cal 4	
S6Q198-ICCB	6Q12925.D	02/03/23 19:35	n/a	Continuing Calibration Blank	
ZZZZZZ	6Q12926.D	02/03/23 19:49	OP95034	(unrelated sample)	
ZZZZZZ	6Q12927.D	02/03/23 20:03	OP95034	(unrelated sample)	
ZZZZZZ	6Q12928.D	02/03/23 20:17	OP95034	(unrelated sample)	
ZZZZZZ	6Q12929.D	02/03/23 20:31	OP95034	(unrelated sample)	

6.9.2

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# Run Sequence Report

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Job Number: FC2175  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q198	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
ZZZZZZ	6Q12930.D	02/03/23 20:45	OP95034	(unrelated sample)
ZZZZZZ	6Q12931.D	02/03/23 20:59	OP95034	(unrelated sample)
ZZZZZZ	6Q12932.D	02/03/23 21:13	OP95034	(unrelated sample)
ZZZZZZ	6Q12933.D	02/03/23 21:27	OP95034	(unrelated sample)
ZZZZZZ	6Q12934.D	02/03/23 21:41	OP95034	(unrelated sample)
ZZZZZZ	6Q12935.D	02/03/23 21:55	OP95034	(unrelated sample)
S6Q198-CC196	6Q12936.D	02/03/23 22:09	n/a	Continuing cal 4
S6Q198-ICCB	6Q12937.D	02/03/23 22:23	n/a	Continuing Calibration Blank
ZZZZZZ	6Q12938.D	02/03/23 22:37	OP95034	(unrelated sample)
ZZZZZZ	6Q12939.D	02/03/23 22:51	OP95034	(unrelated sample)
ZZZZZZ	6Q12940.D	02/03/23 23:05	OP95034	(unrelated sample)
ZZZZZZ	6Q12941.D	02/03/23 23:19	OP95034	(unrelated sample)
OP95035-BS	6Q12942.D	02/03/23 23:33	OP95035	Blank Spike
OP95035-LLBS	6Q12943.D	02/03/23 23:47	OP95035	Blank Spike
OP95035-MB	6Q12944.D	02/04/23 00:01	OP95035	Method Blank
JD58693-19B	6Q12945.D	02/04/23 00:15	OP95035	(used for QC only; not part of job FC2175)
OP95035-MS	6Q12946.D	02/04/23 00:29	OP95035	Matrix Spike
OP95035-MSD	6Q12947.D	02/04/23 00:43	OP95035	Matrix Spike Duplicate
S6Q198-CC196	6Q12948.D	02/04/23 00:57	n/a	Continuing cal 4
S6Q198-ICCB	6Q12949.D	02/04/23 01:11	n/a	Continuing Calibration Blank
ZZZZZZ	6Q12950.D	02/04/23 01:24	OP95035	(unrelated sample)
ZZZZZZ	6Q12951.D	02/04/23 01:38	OP95035	(unrelated sample)
ZZZZZZ	6Q12952.D	02/04/23 01:52	OP95035	(unrelated sample)
ZZZZZZ	6Q12953.D	02/04/23 02:06	OP95035	(unrelated sample)
ZZZZZZ	6Q12954.D	02/04/23 02:20	OP95035	(unrelated sample)
S6Q198-ECC196	6Q12955.D	02/04/23 02:34	n/a	Ending cal 4
S6Q198-ICCB	6Q12956.D	02/04/23 02:48	n/a	Continuing Calibration Blank

6.9.2

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Orlando, FL

Section 7

MS Semi-volatiles

Raw Data

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12893.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/3/2023 12:08:01 PM  
 Sample Name : FC2175-1  
 Vial : P4-A4  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : s6q198.batch.bin  
 Sample Information : OP95216,S6Q198,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.013	216.8 -> 171.9	73623	10.00 µg/L	0.037
M5-PFPeA	4.400	268.3 -> 223.0	36497	5.00 µg/L	0.014
M5-PFHxA	5.575	318.0 -> 273.0	35032	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	33593	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	58607	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	25339	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	15622	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	18961	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	21771	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	11563	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16547	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	12509	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8489	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	7642	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2355	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3043	5.00 µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	2839	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	26071	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14350	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	21356	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	27759	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	19666	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7373	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6678	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10166	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	29765	5.00 µg/L	0.037
18O2-PFHxS	7.273	403.0 -> 83.9	5624	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	65474	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	22414	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	28715	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	29006	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2355	6.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.8%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3043	6.27 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.4%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2839	5.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.5%		
13C2-PFDoDA	9.066	615.1 -> 570.0	21771	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-PFTeDA	9.805	715.2 -> 670.0	11563	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C3-PFBS	5.518	302.1 -> 79.9	12509	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C3-PFHxS	7.274	402.1 -> 79.9	8489	2.87 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 = 114.8%	
13C4-PFBA	3.013	216.8 -> 171.9	73623	11.15 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.5%	
13C4-PFHpA	6.502	367.1 -> 322.0	33593	2.81 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C5-PFHxA	5.575	318.0 -> 273.0	35032	3.05 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 122.1%	
13C5-PFPeA	4.400	268.3 -> 223.0	36497	5.65 µg/L	0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.9%	
13C6-PFDA	8.170	519.1 -> 474.1	15622	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C7-PFUnDA	8.636	570.0 -> 525.1	18961	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-FOSA	9.567	506.1 -> 77.8	16547	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-PFOA	7.146	421.1 -> 376.0	58607	2.68 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C8-PFOS	8.345	507.1 -> 79.9	7642	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.5%	
13C9-PFNA	7.677	472.1 -> 427.0	25339	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.3%	
d3-MeFOSAA	8.215	573.2 -> 419.0	26071	4.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14350	12.11 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 121.1%	
d3-MeFOSA	10.680	515.0 -> 219.0	6678	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.6%	
d5-EtFOSAA	8.410	589.2 -> 419.0	21356	4.62 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.4%	
d7-MeFOSE	10.589	623.2 -> 58.9	27759	24.05 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
d9-EtFOSE	10.847	639.2 -> 58.9	19666	24.72 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
d5-EtFOSA	10.925	531.1 -> 219.0	7373	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	

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



## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.743	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	0	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
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.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

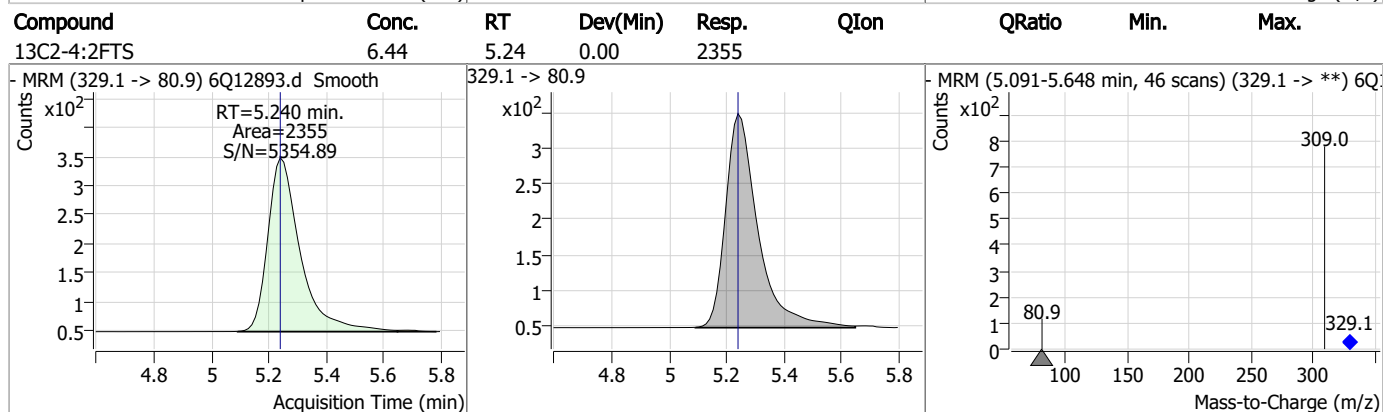
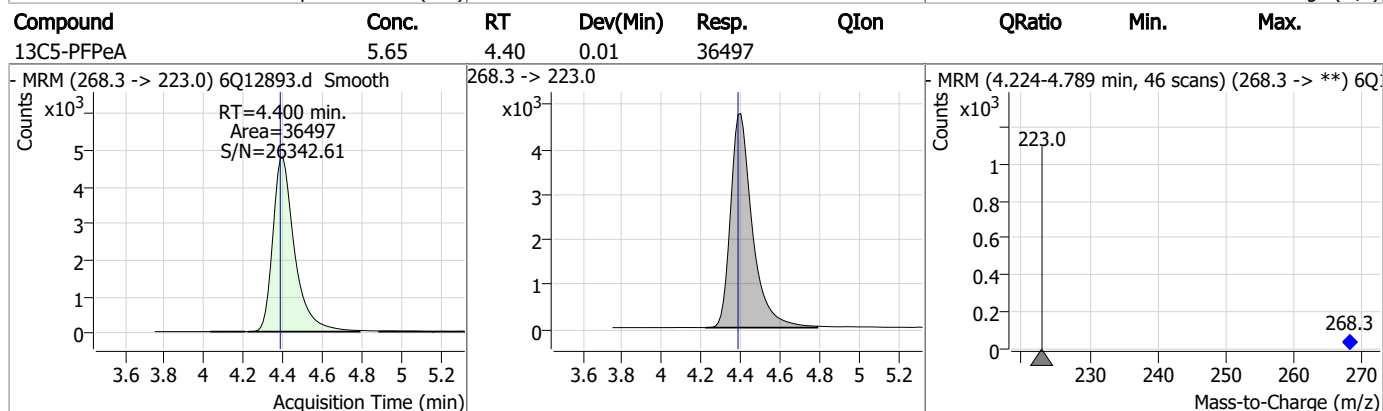
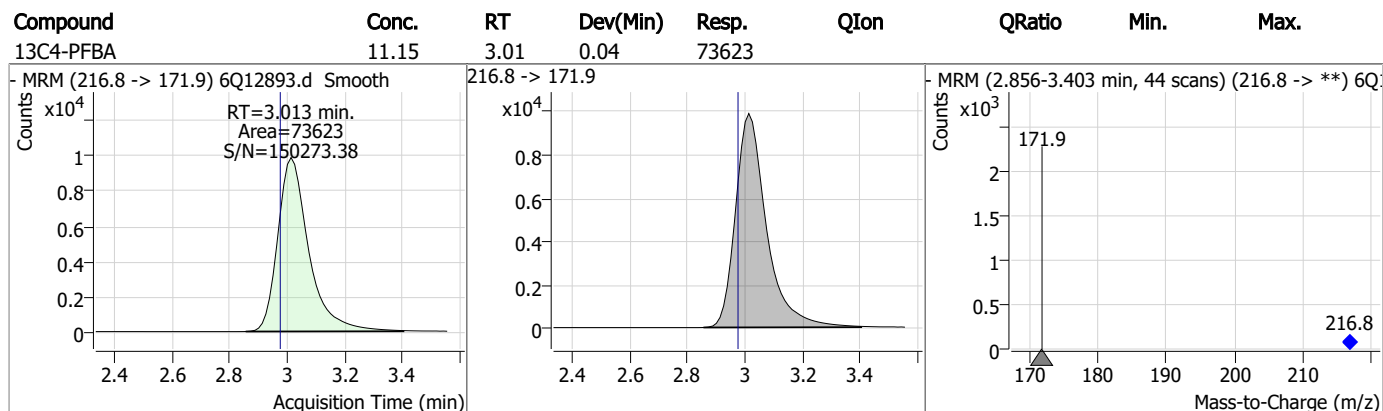
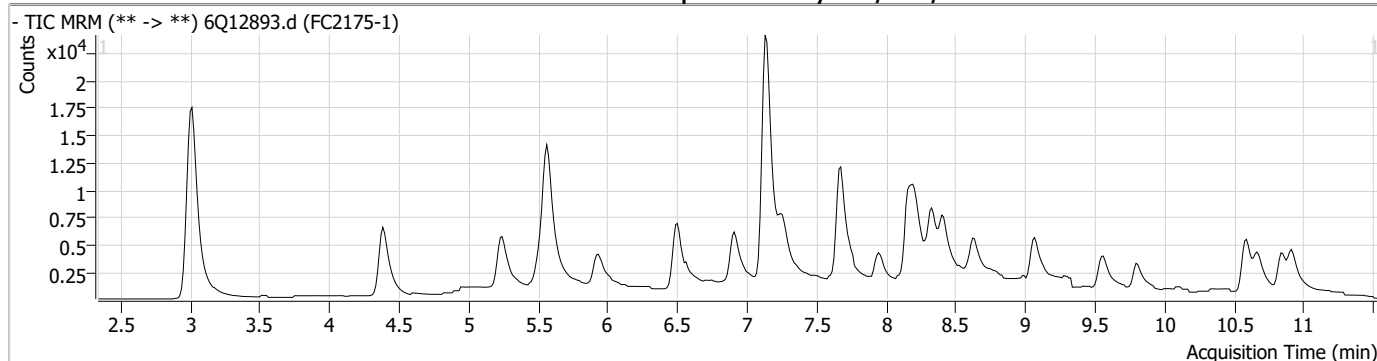
# = Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

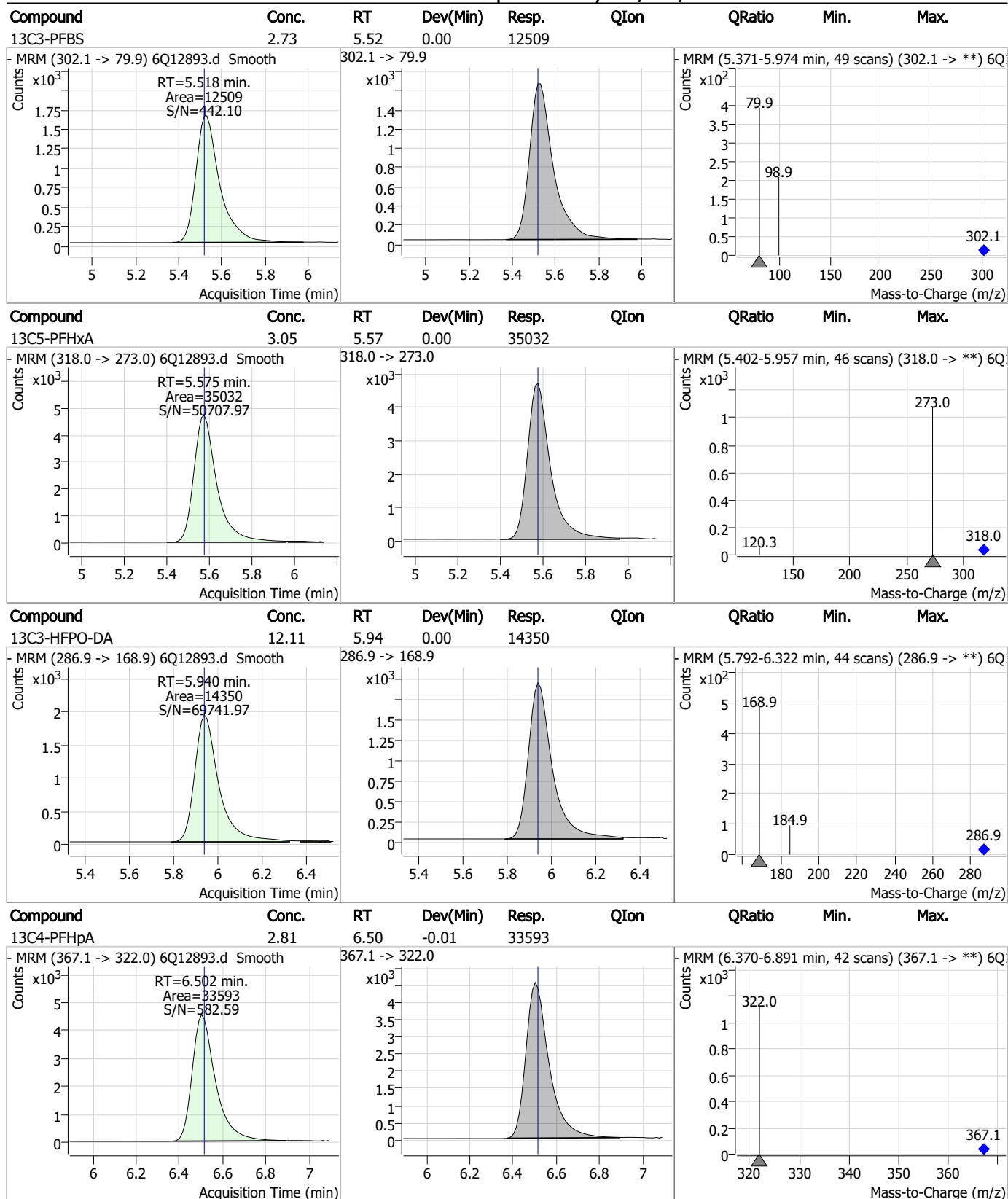
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.1  
7

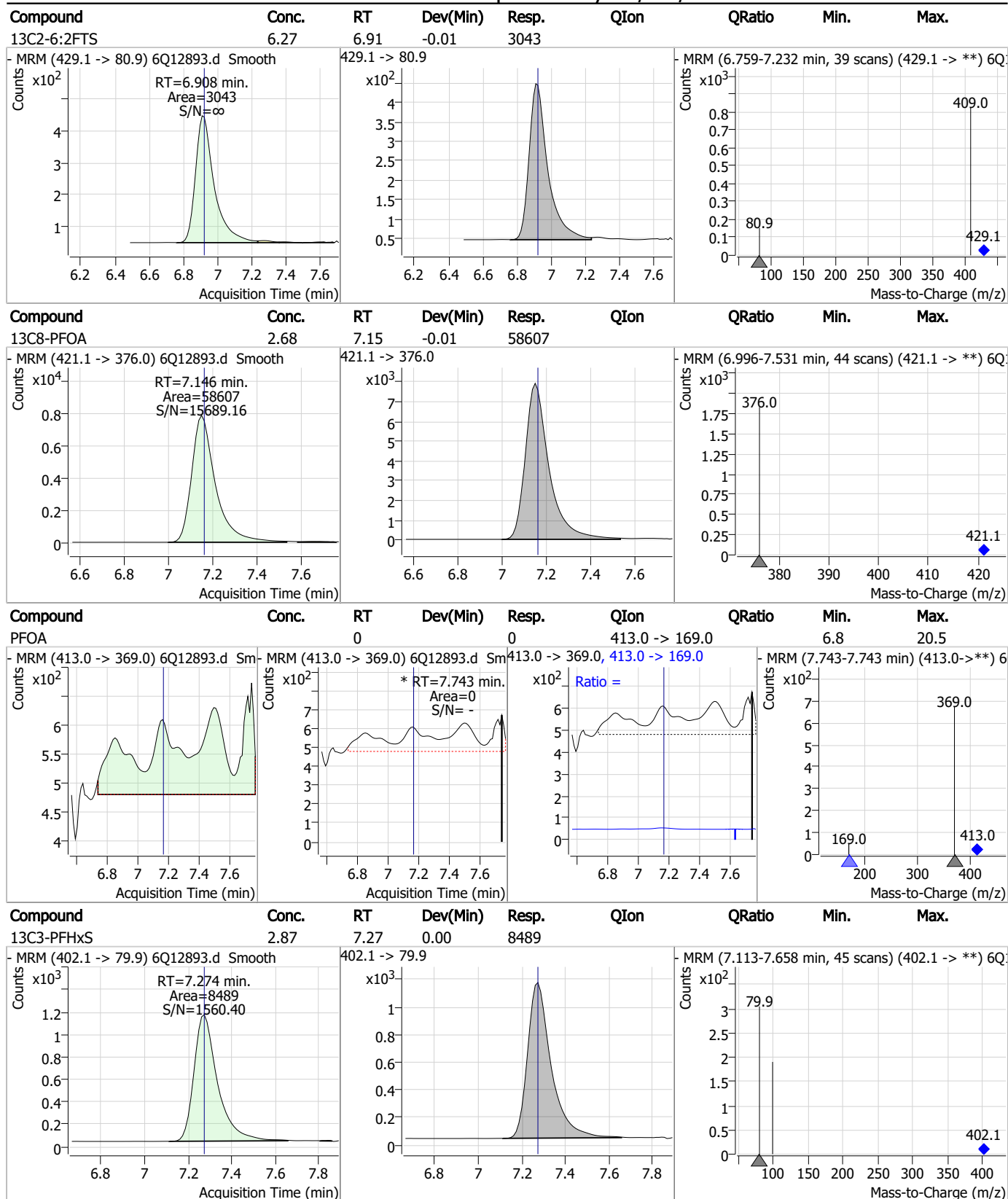
# Perfluorinated Compounds by LC/MS/MS



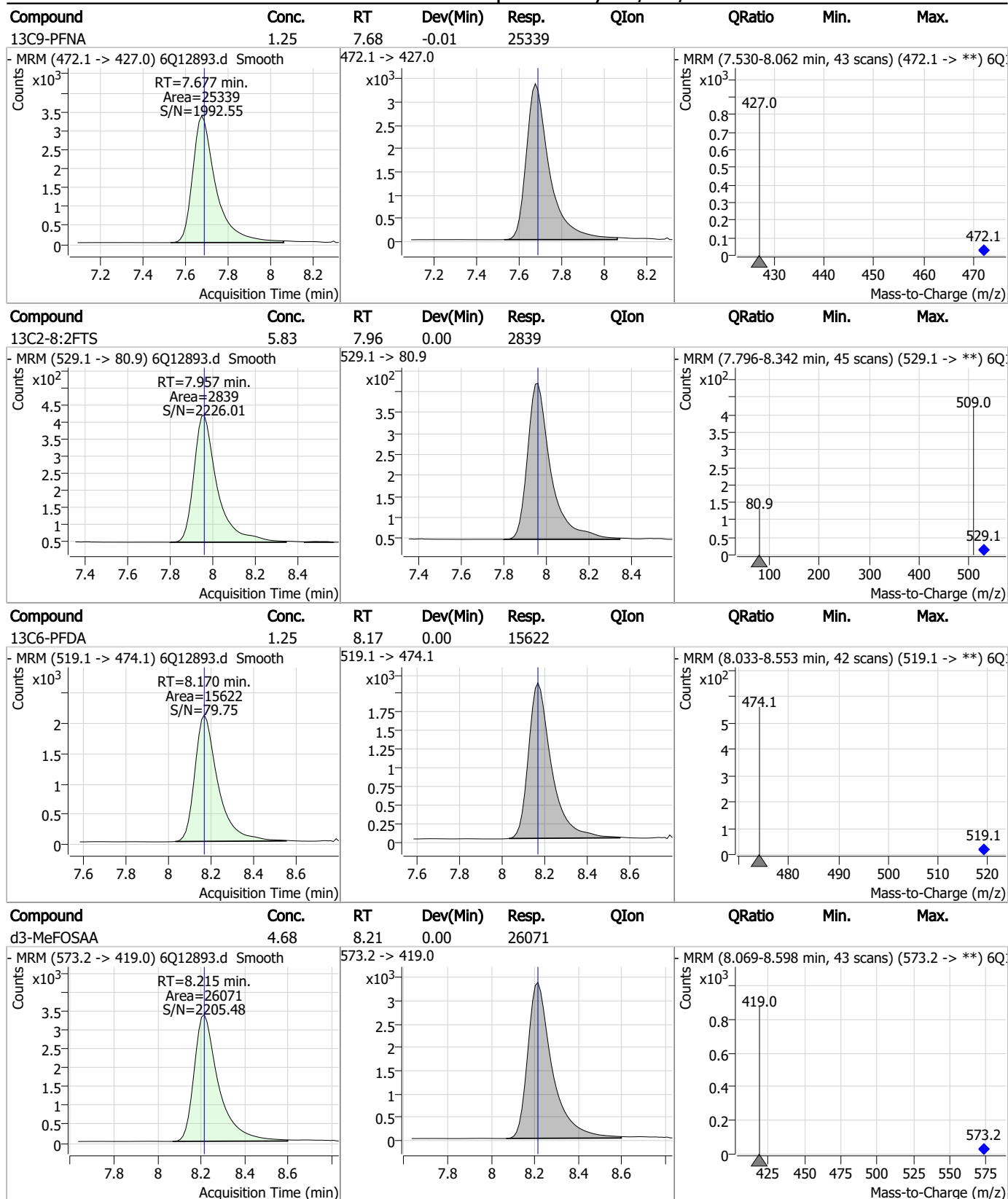
## Perfluorinated Compounds by LC/MS/MS



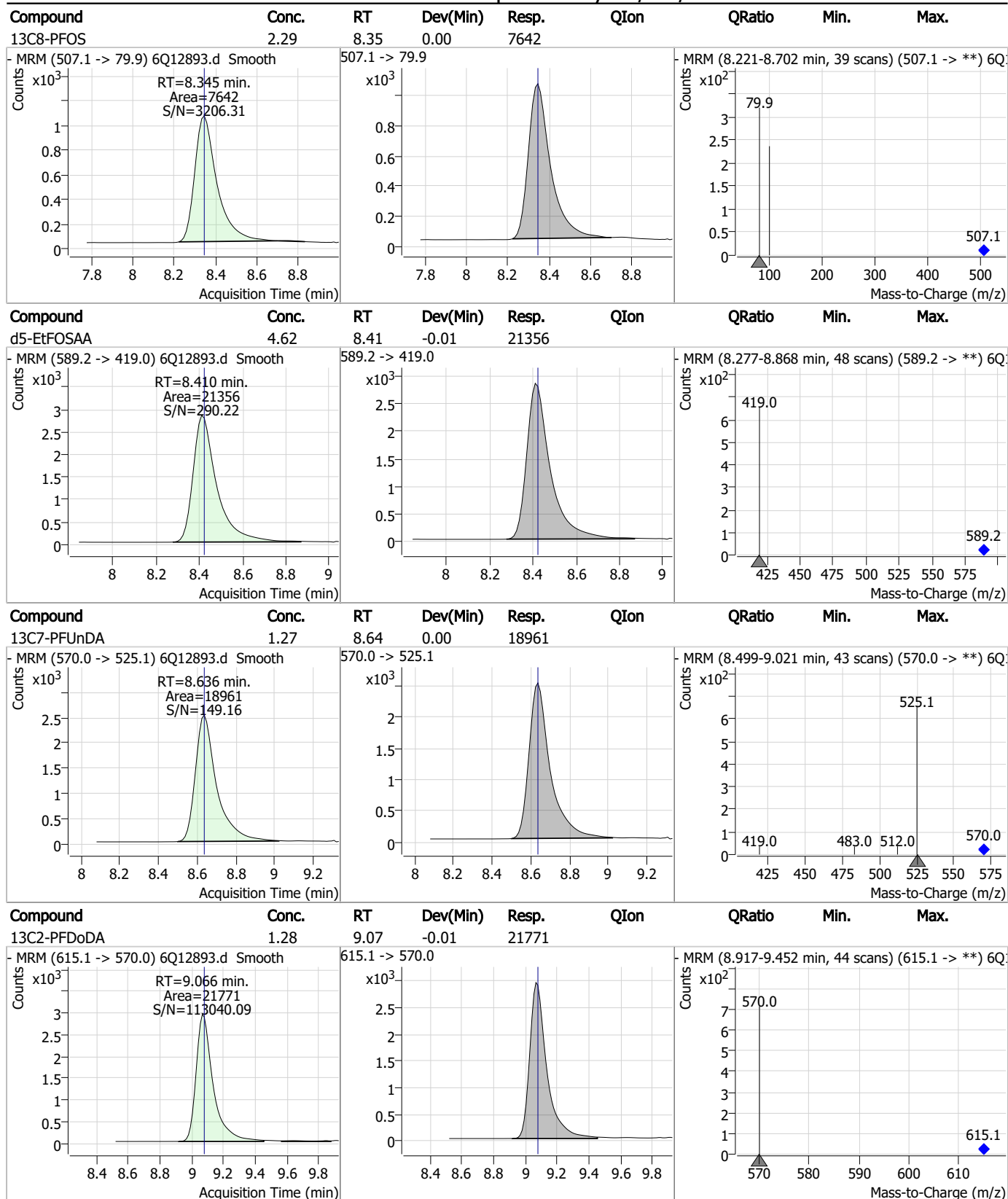
## Perfluorinated Compounds by LC/MS/MS



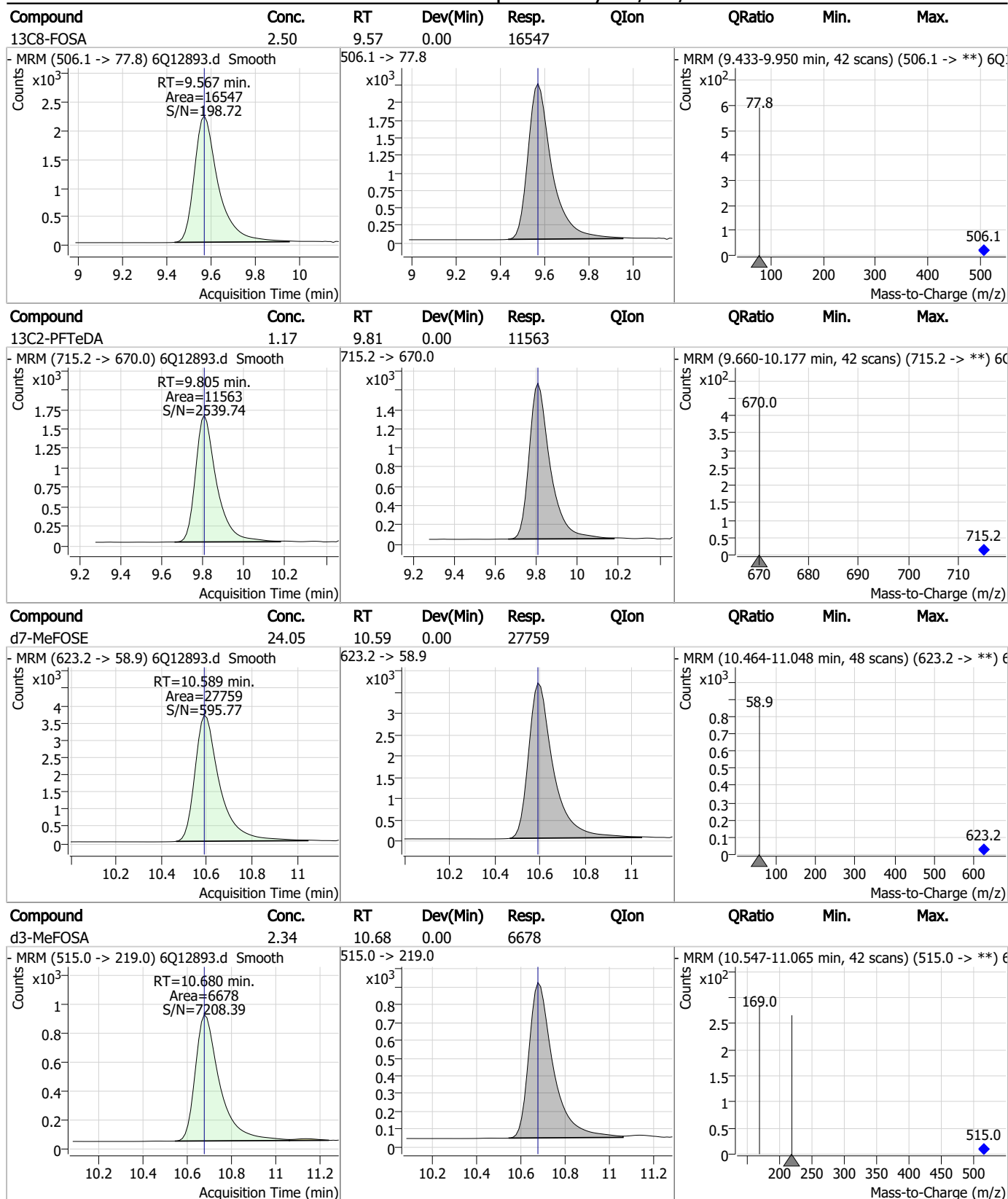
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

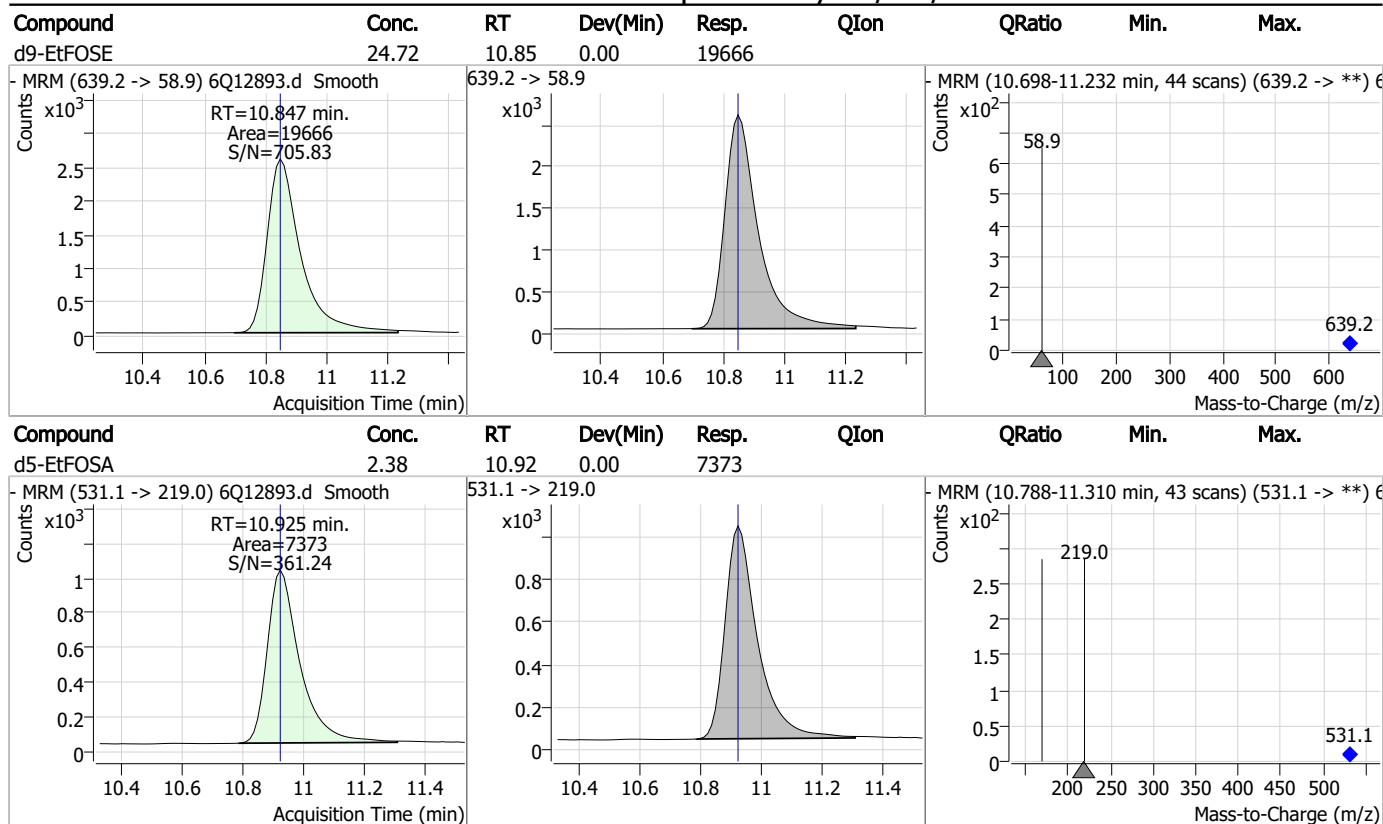


## Perfluorinated Compounds by LC/MS/MS





Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12894.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/3/2023 12:21:59 PM  
 Sample Name : FC2175-2  
 Vial : P4-A5  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : s6q198.batch.bin  
 Sample Information : OP95216,S6Q198,520,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.013	216.8 -> 171.9	69529	10.00 µg/L	0.037
M5-PFPeA	4.400	268.3 -> 223.0	34340	5.00 µg/L	0.014
M5-PFHxA	5.575	318.0 -> 273.0	31790	2.50 µg/L	0.000
M4-PFHpA	6.515	367.1 -> 322.0	30216	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	55065	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	25672	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	16776	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	18041	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	19606	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	10582	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	15148	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	12291	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	7896	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	7482	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2292	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2888	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2651	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	25900	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13027	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	19245	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	25275	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	18484	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7000	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6357	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9169	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	29446	5.00 µg/L	0.037
18O2-PFHxS	7.273	403.0 -> 83.9	5941	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	65969	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	23981	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	26113	1.25 µg/L	-0.012
13C2-PFHxA	5.576	315.1 -> 270.0	28595	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2292	5.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.7%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2888	5.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.7%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2651	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-PFDoDA	9.066	615.1 -> 570.0	19606	1.07 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.9%		
13C2-PFTeDA	9.805	715.2 -> 670.0	10582	1.00 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 80.3%		
13C3-PFBS	5.518	302.1 -> 79.9	12291	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C3-PFHxS	7.274	402.1 -> 79.9	7896	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 = 101.1%		
13C4-PFBA	3.013	216.8 -> 171.9	69529	10.64 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C4-PFHpA	6.515	367.1 -> 322.0	30216	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C5-PFHxA	5.575	318.0 -> 273.0	31790	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.4%		
13C5-PFPeA	4.400	268.3 -> 223.0	34340	5.39 µg/L	0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C6-PFDA	8.170	519.1 -> 474.1	16776	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C7-PFUnDA	8.636	570.0 -> 525.1	18041	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.5%		
13C8-FOSA	9.567	506.1 -> 77.8	15148	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C8-PFOA	7.146	421.1 -> 376.0	55065	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C8-PFOS	8.345	507.1 -> 79.9	7482	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C9-PFNA	7.677	472.1 -> 427.0	25672	1.40 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.7%		
d3-MeFOSAA	8.215	573.2 -> 419.0	25900	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	13027	11.15 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 111.5%		
d3-MeFOSA	10.680	515.0 -> 219.0	6357	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
d5-EtFOSAA	8.410	589.2 -> 419.0	19245	4.62 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.3%		
d7-MeFOSE	10.589	623.2 -> 58.9	25275	24.28 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.1%		
d9-EtFOSE	10.847	639.2 -> 58.9	18484	25.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
d5-EtFOSA	10.925	531.1 -> 219.0	7000	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		

Target Compounds	QValue				
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	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.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

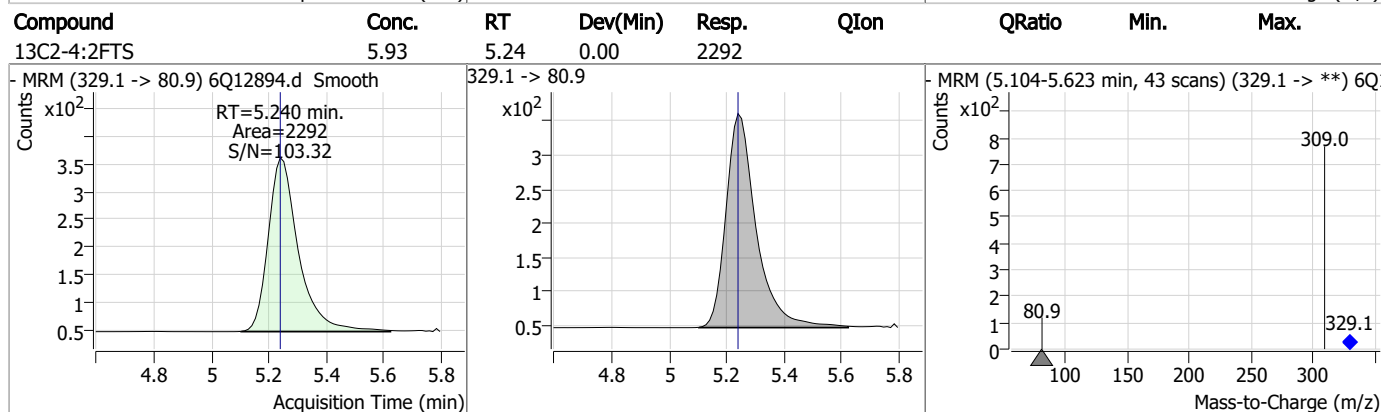
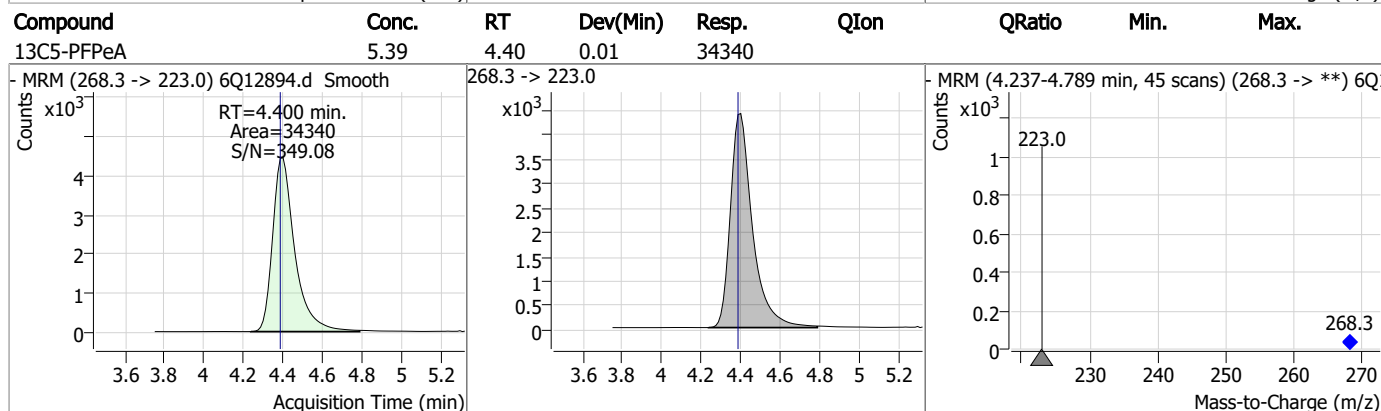
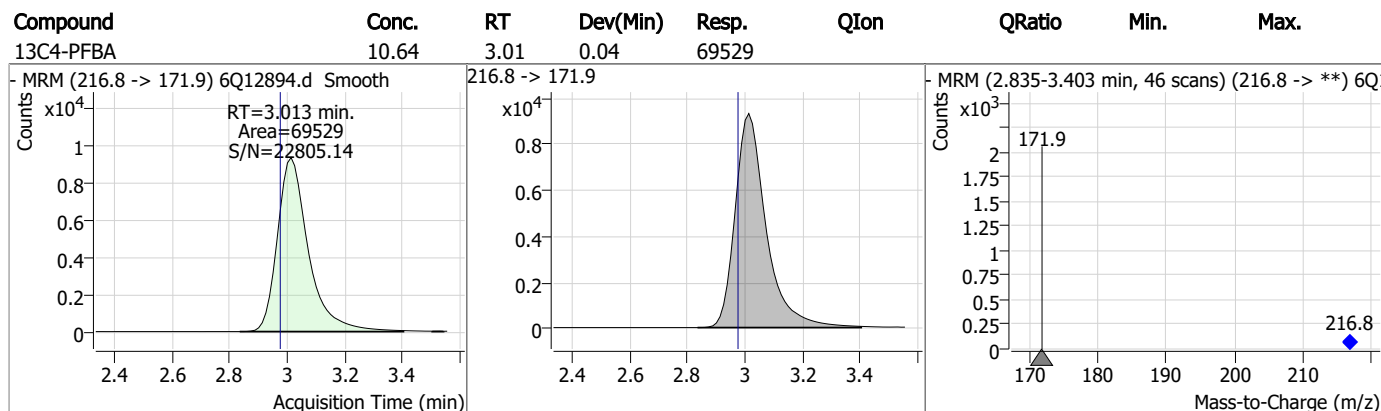
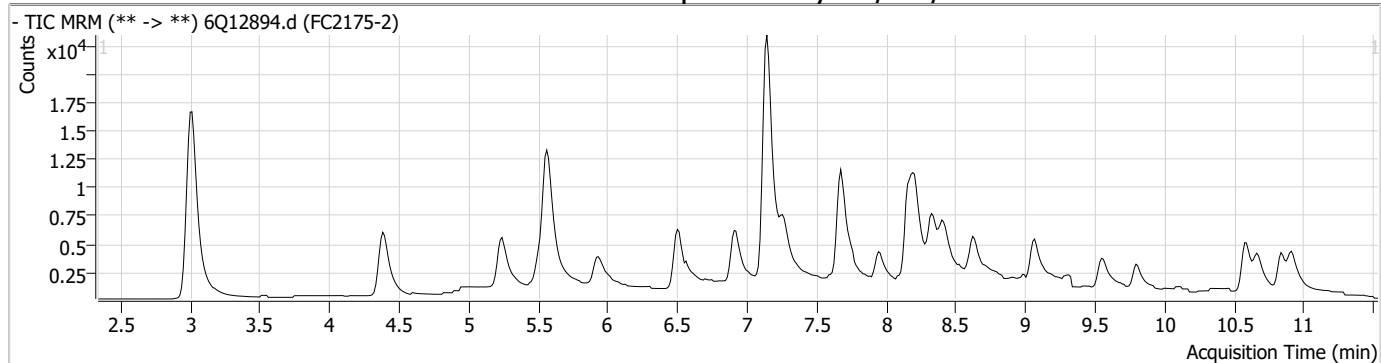
# = Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

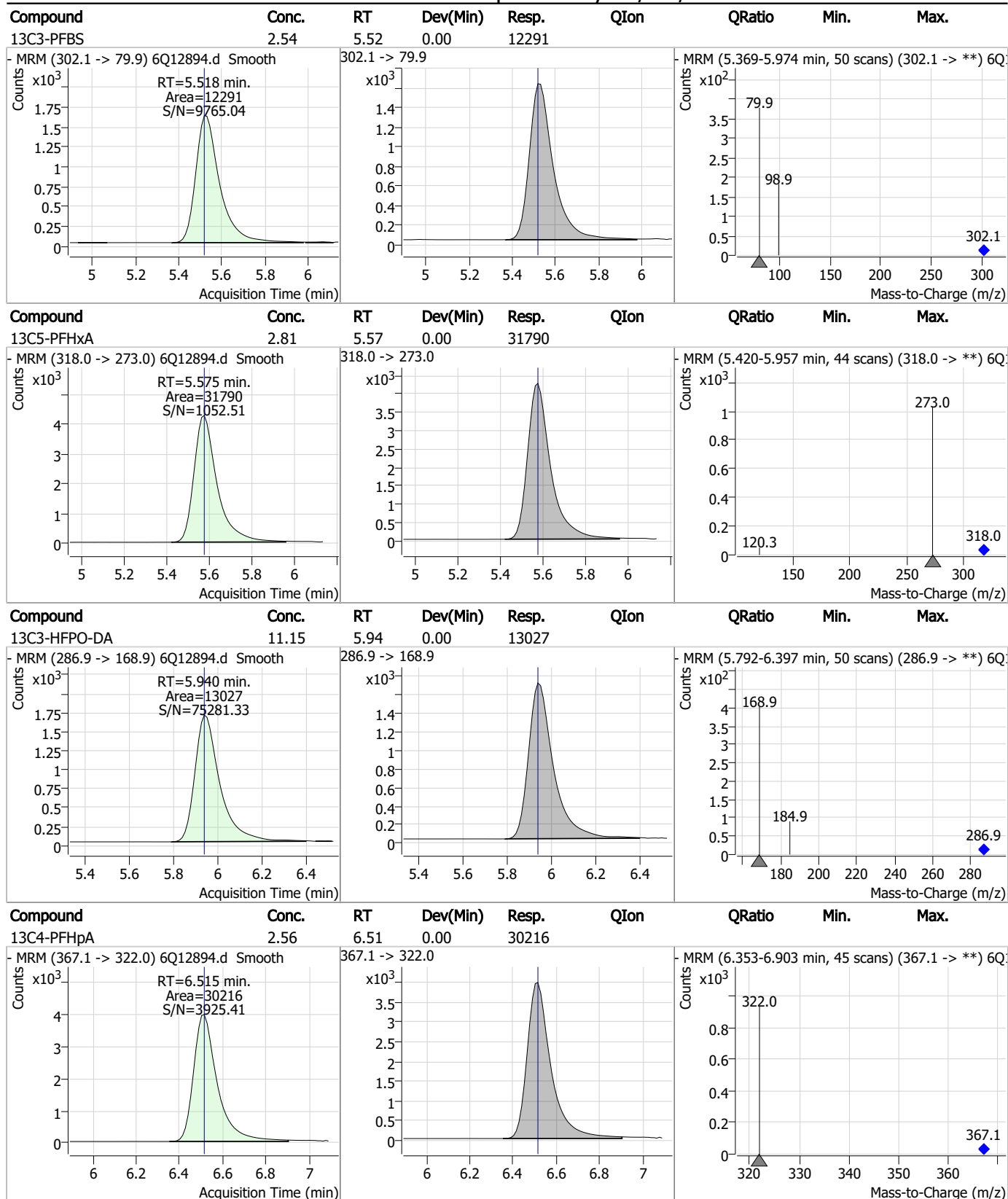
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.2  
7

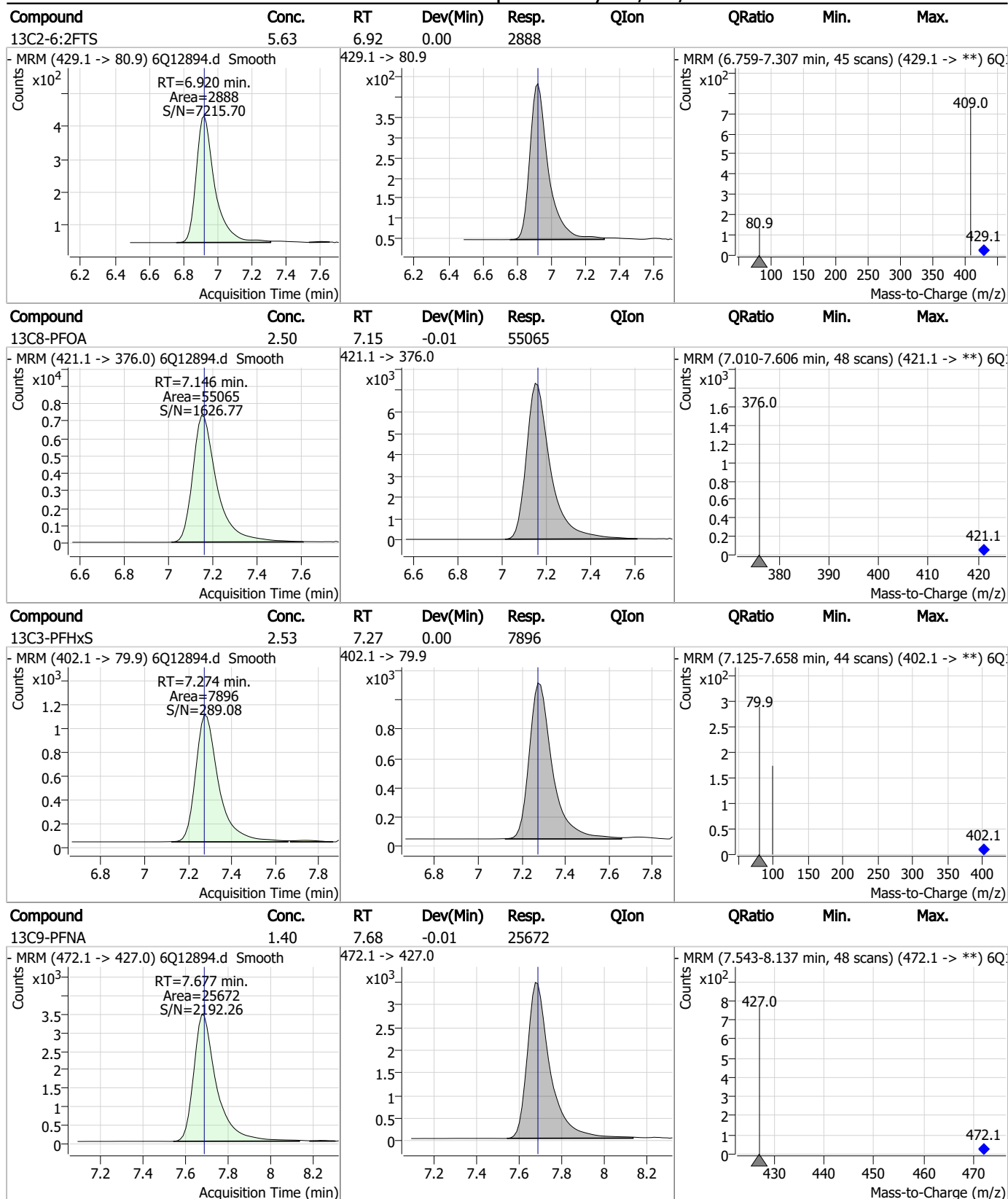
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

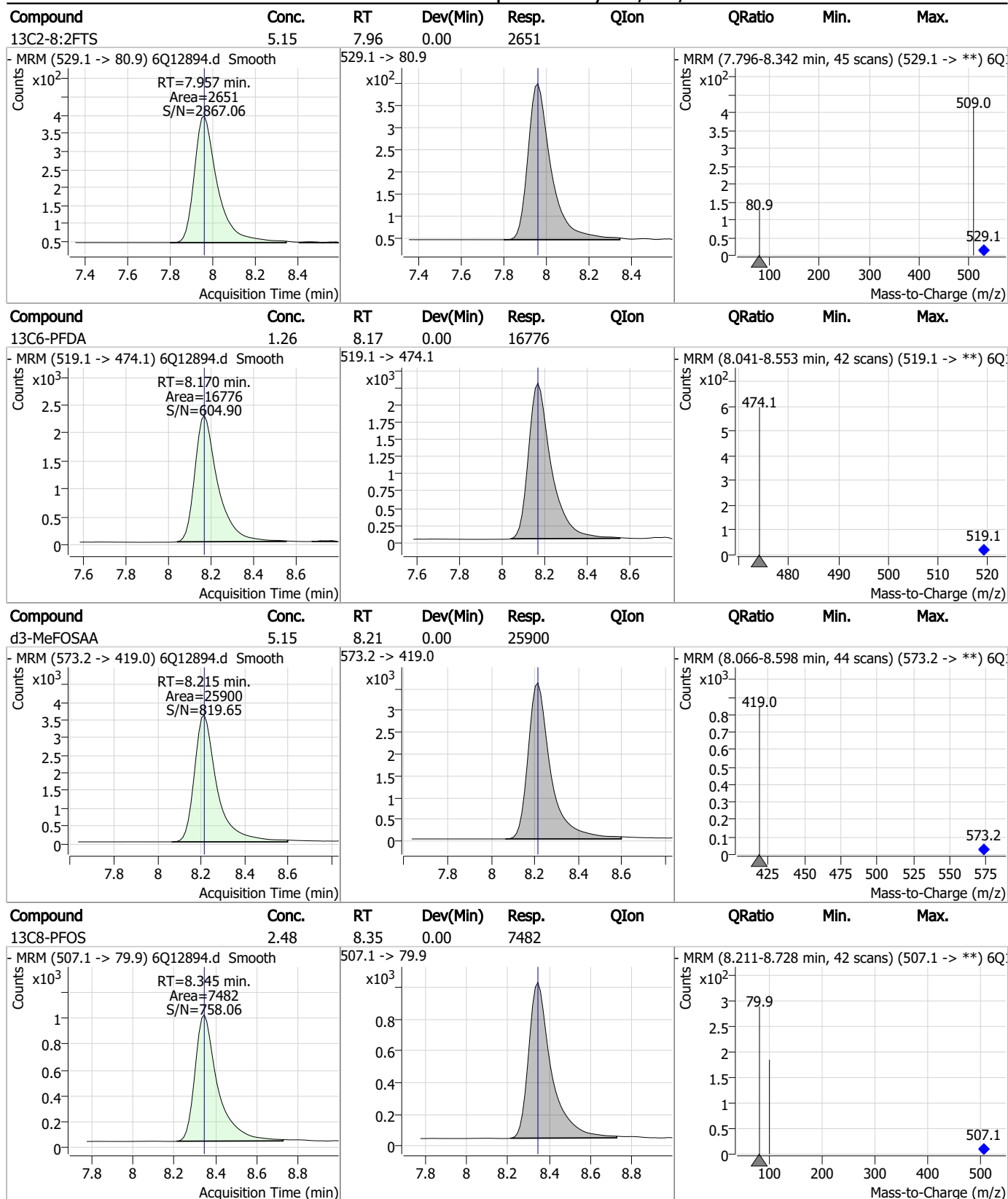


## Perfluorinated Compounds by LC/MS/MS

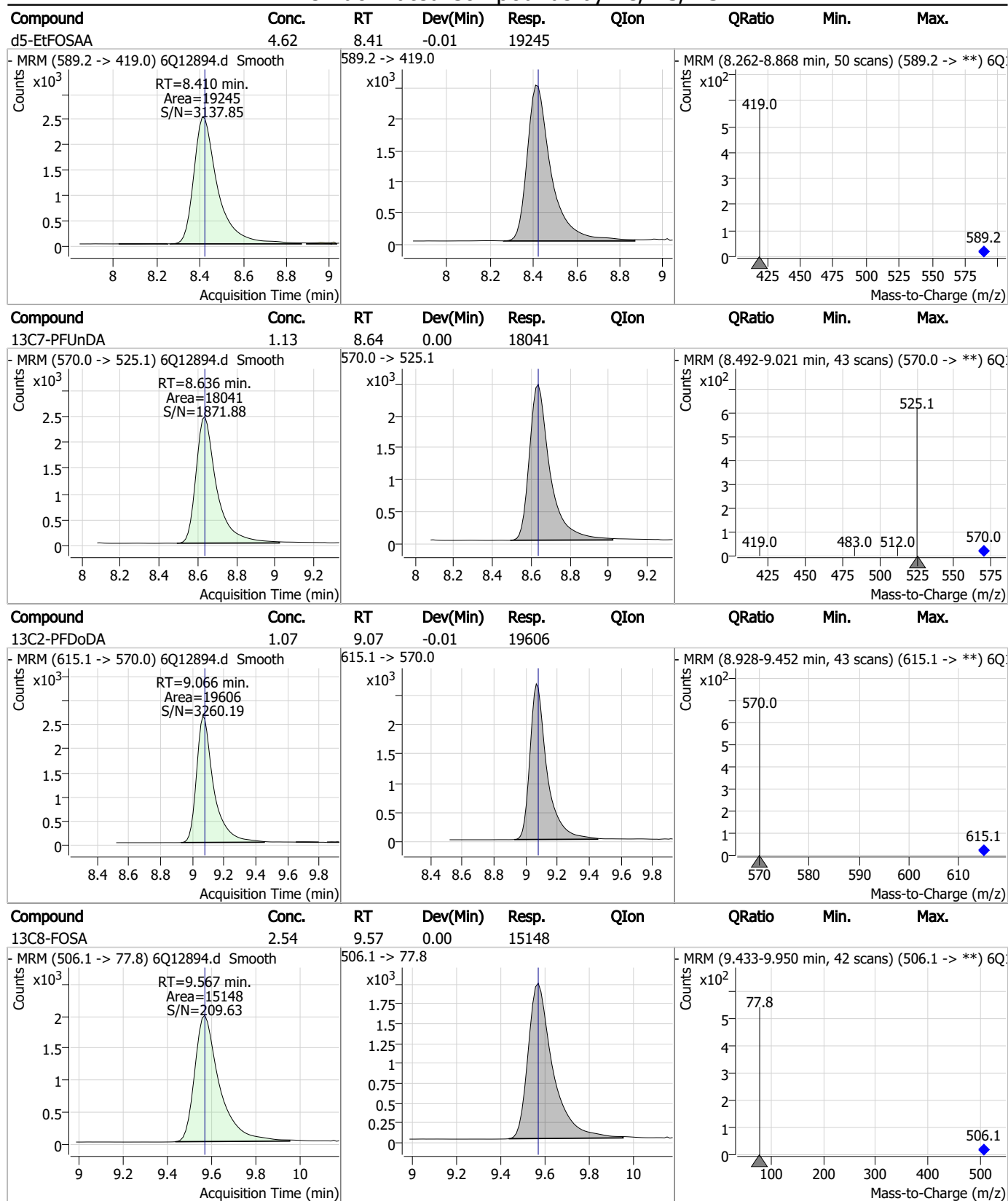




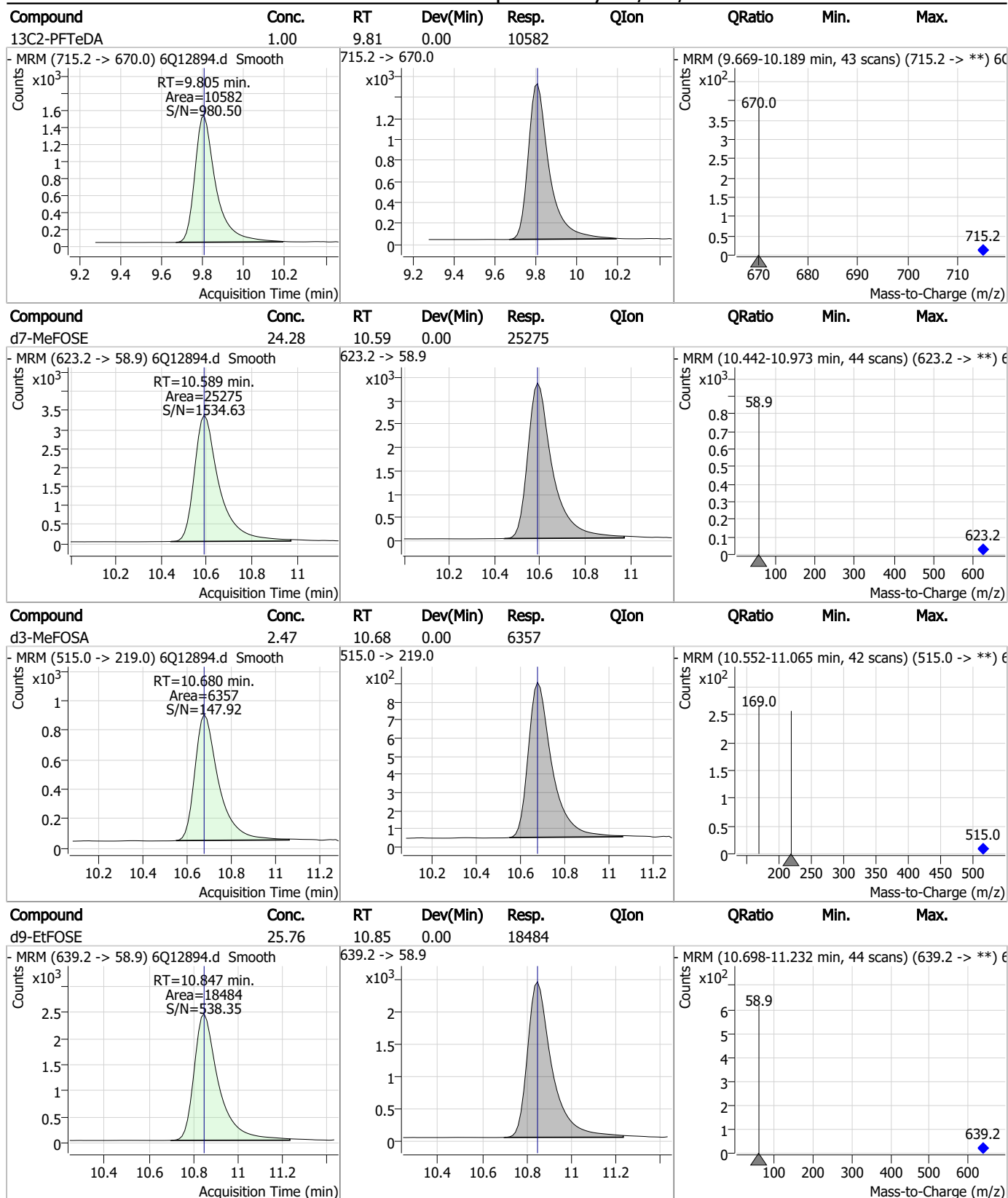
## Perfluorinated Compounds by LC/MS/MS



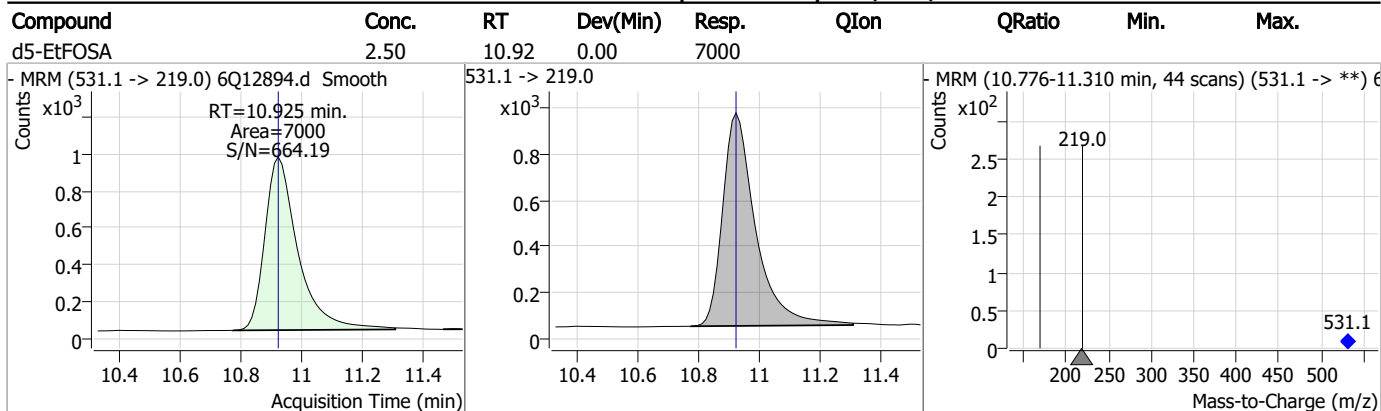
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.2  
7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12892.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/3/2023 11:54:03 AM  
 Sample Name : op95216-mb  
 Vial : P4-A3  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : s6q198.batch.bin  
 Sample Information : OP95216,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.013	216.8 -> 171.9	67986	10.00 µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	33849	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	29794	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	31162	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	58088	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	25312	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	16254	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	19279	1.25 µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	18499	1.25 µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	10253	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	14695	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	11634	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	7798	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	7507	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2163	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	2976	5.00 µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	2939	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	22926	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	12345	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	18672	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	24597	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	17975	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6060	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5449	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9809	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	30247	5.00 µg/L	0.025
18O2-PFHxS	7.273	403.0 -> 83.9	6310	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	66517	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	20773	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	26845	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	28140	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2163	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C2-6:2FTS	6.908	429.1 -> 80.9	2976	5.47 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.3%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2939	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.5%		
13C2-PFDoDA	9.078	615.1 -> 570.0	18499	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C2-PFTeDA	9.805	715.2 -> 670.0	10253	1.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.8%		
13C3-PFBS	5.518	302.1 -> 79.9	11634	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.5%		
13C3-PFHxS	7.274	402.1 -> 79.9	7798	2.35 µg/L	0.000

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C4-PFBA	3.013	216.8 -> 171.9	67986	10.13 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C4-PFHpA	6.502	367.1 -> 322.0	31162	2.68 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.3%		
13C5-PFHxA	5.563	318.0 -> 273.0	29794	2.68 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C5-PFPeA	4.386	268.3 -> 223.0	33849	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C6-PFDA	8.170	519.1 -> 474.1	16254	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 112.5%		
13C7-PFUnDA	8.636	570.0 -> 525.1	19279	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.6%		
13C8-FOSA	9.567	506.1 -> 77.8	14695	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C8-PFOA	7.146	421.1 -> 376.0	58088	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C8-PFOS	8.345	507.1 -> 79.9	7507	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C9-PFNA	7.677	472.1 -> 427.0	25312	1.34 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.2%		
d3-MeFOSAA	8.215	573.2 -> 419.0	22926	4.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.3%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	12345	10.74 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 107.4%		
d3-MeFOSA	10.680	515.0 -> 219.0	5449	1.98 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 79.2%		
d5-EtFOSAA	8.410	589.2 -> 419.0	18672	4.19 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.7%		
d7-MeFOSE	10.589	623.2 -> 58.9	24597	22.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 88.3%		
d9-EtFOSE	10.847	639.2 -> 58.9	17975	23.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 93.7%		
d5-EtFOSA	10.925	531.1 -> 219.0	6060	2.02 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 81.0%		

## Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0	-	N.D.
		327.1 -> 80.9		
6:2FTS	-	427.1 -> 407.0	-	N.D.
		427.1 -> 80.9		
8:2FTS	-	527.1 -> 507.0	-	N.D.
		527.1 -> 80.8		
EtFOSAA	-	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				
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.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

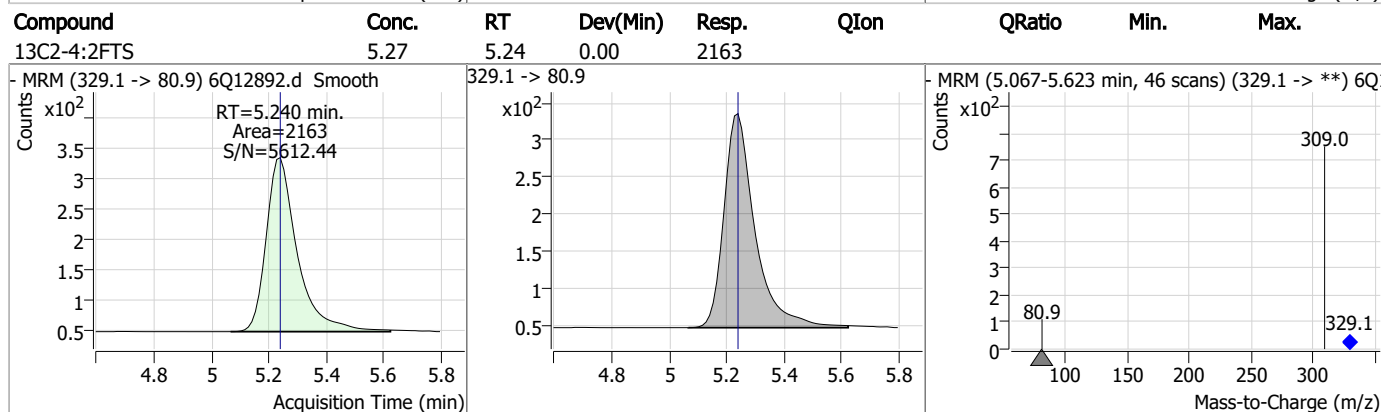
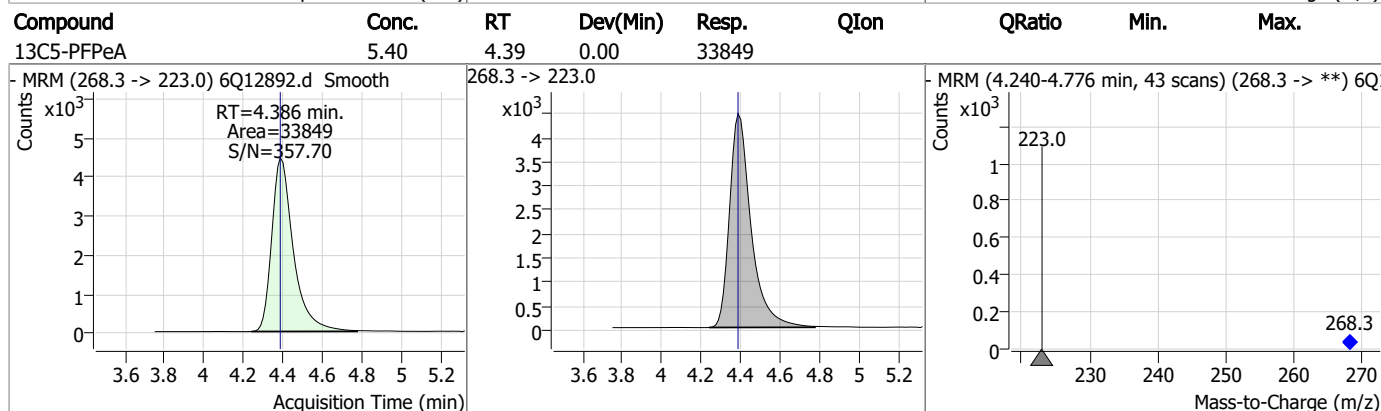
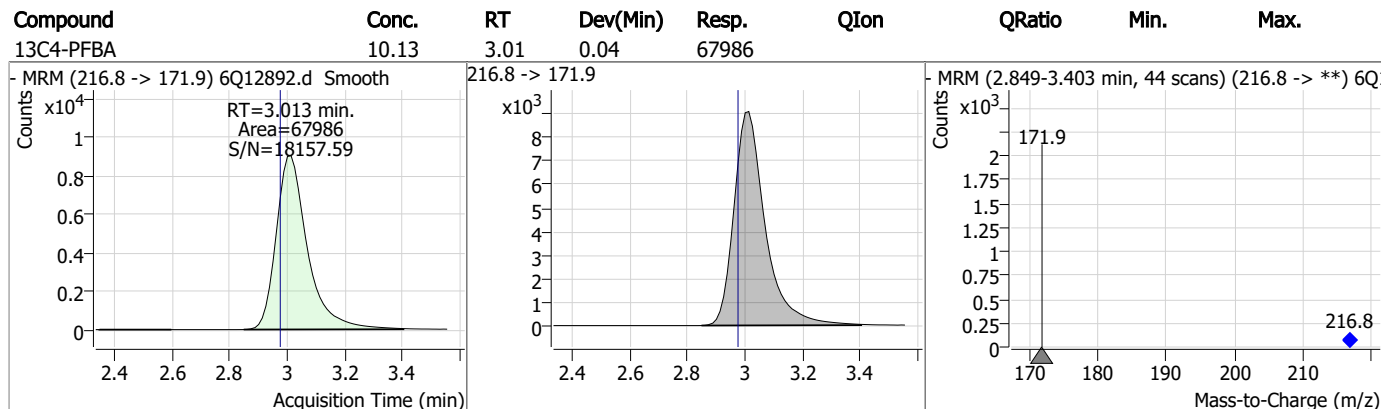
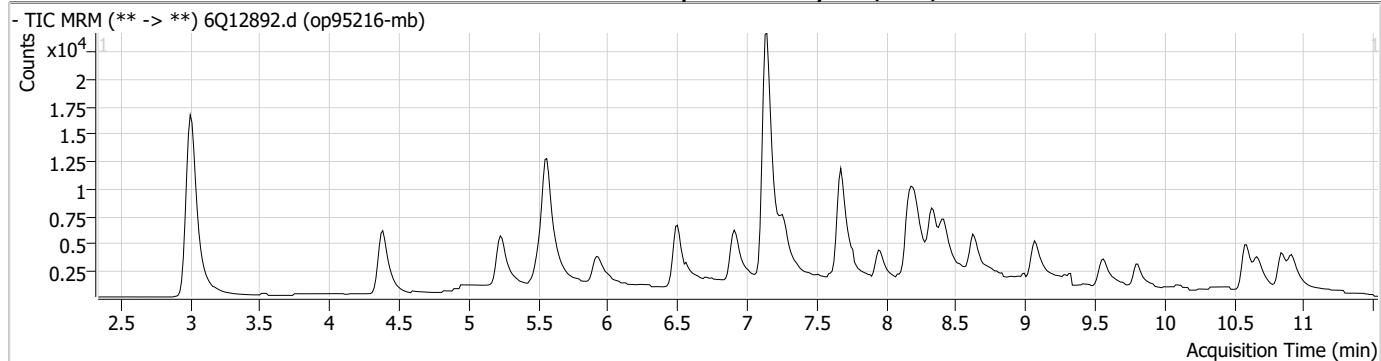
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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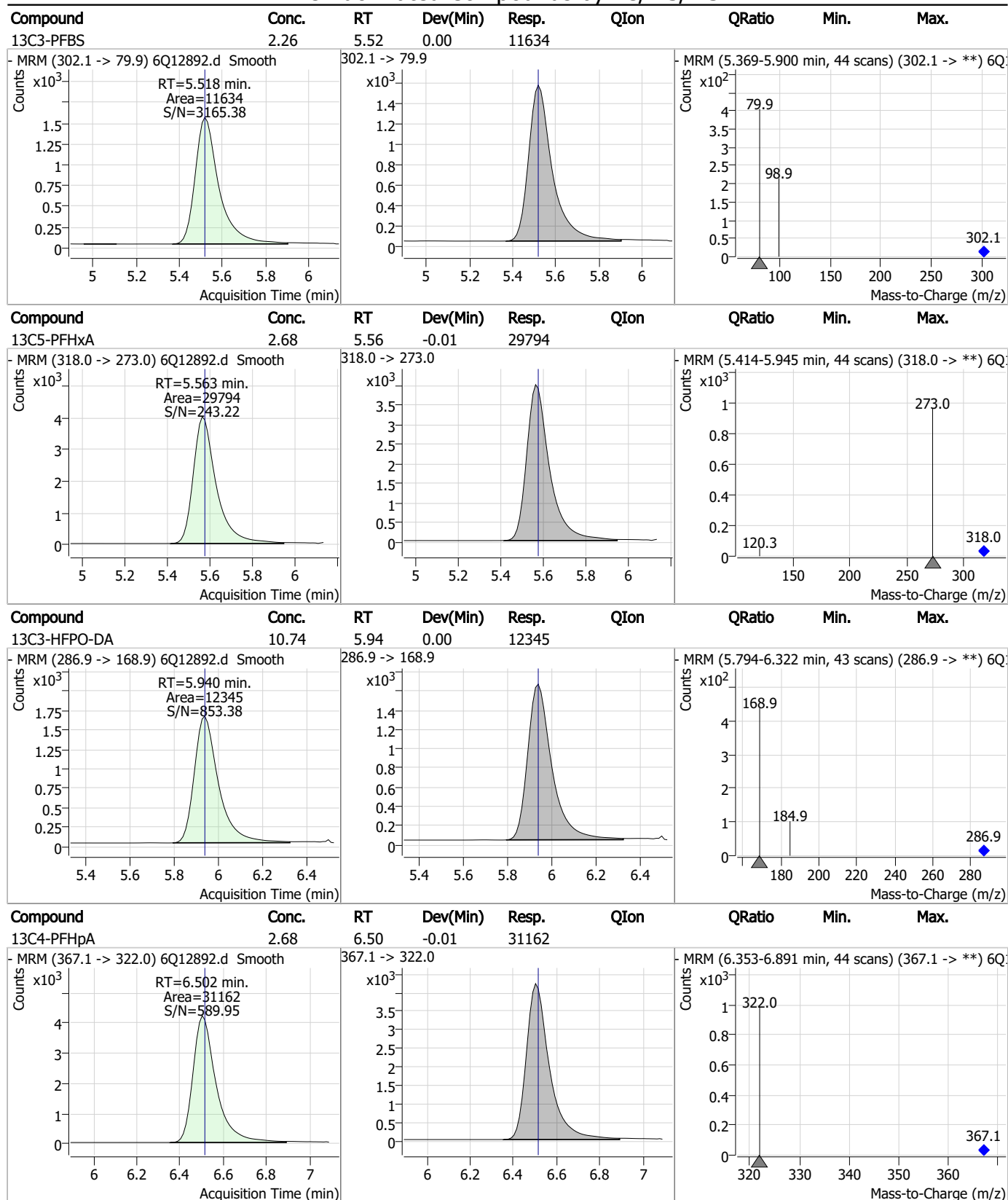
7.2.1  
7



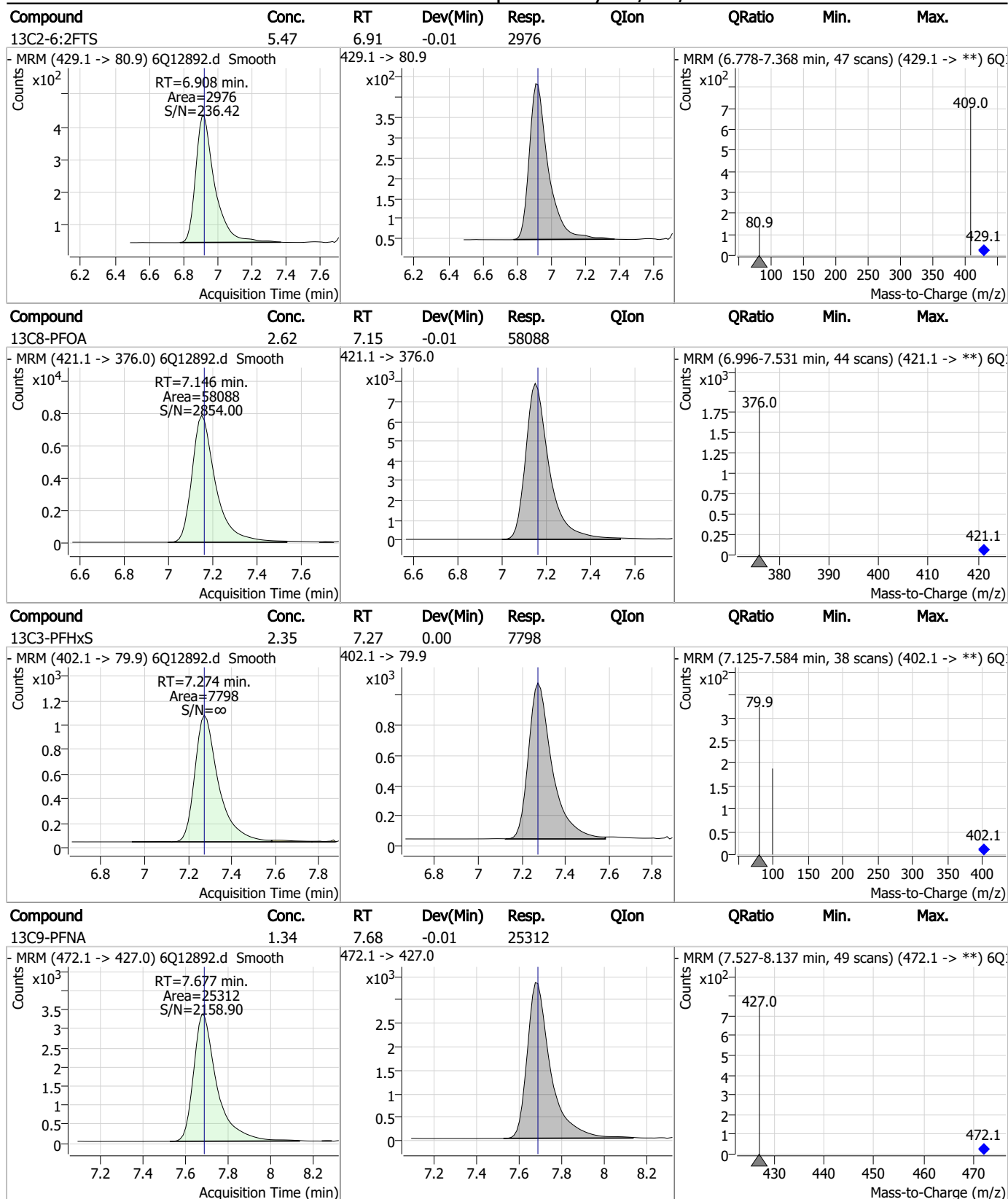
## Perfluorinated Compounds by LC/MS/MS



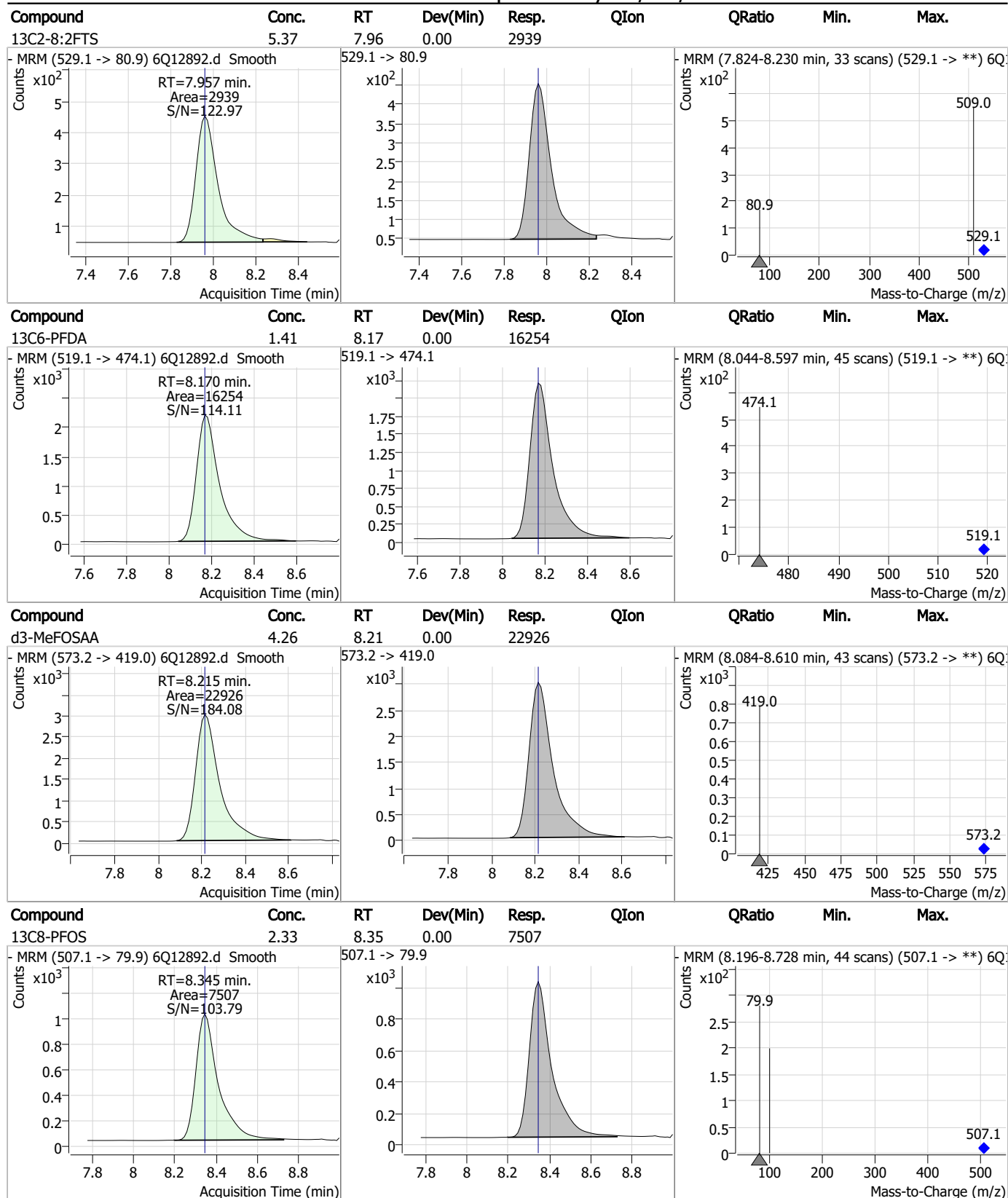
## Perfluorinated Compounds by LC/MS/MS



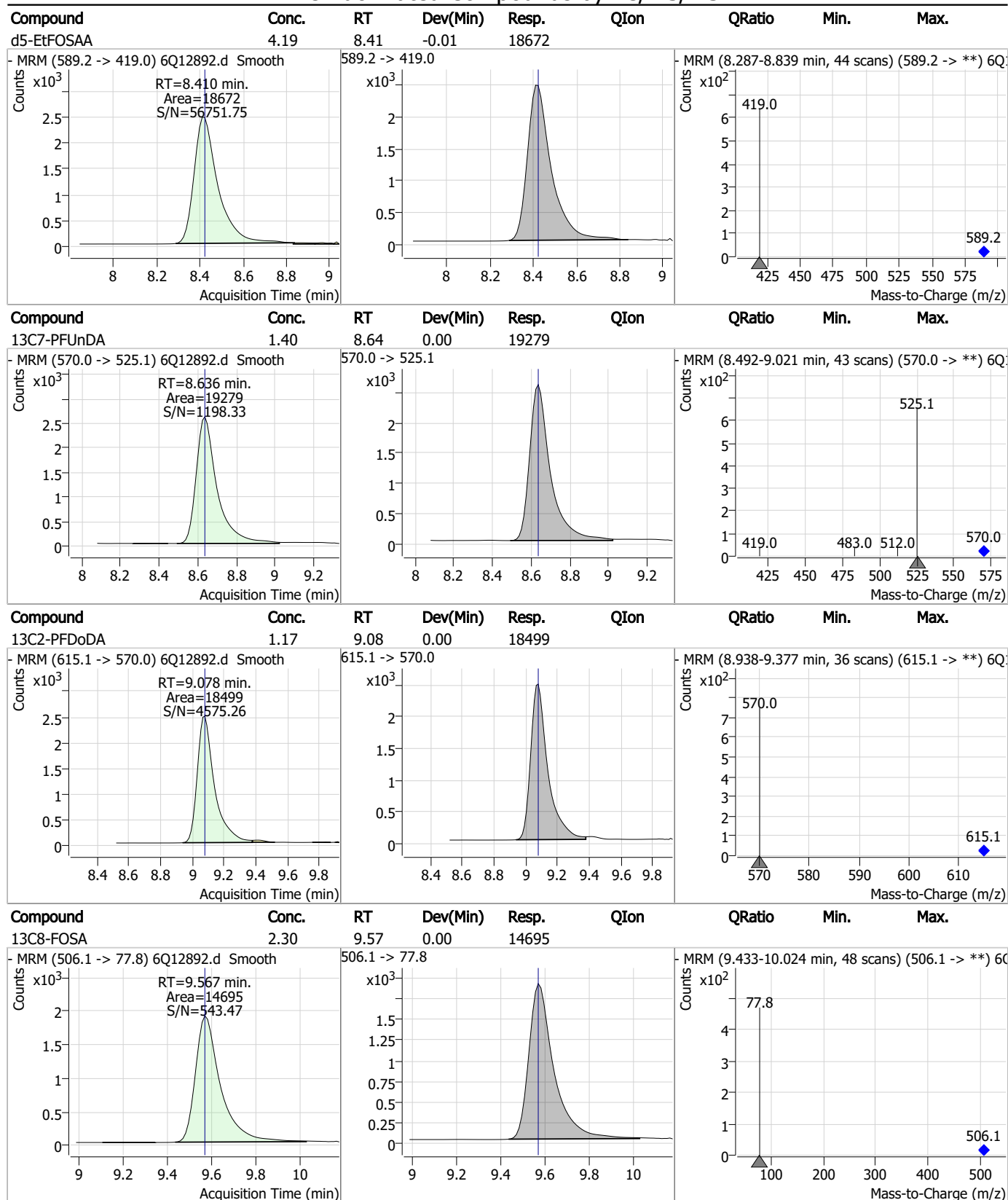
## Perfluorinated Compounds by LC/MS/MS



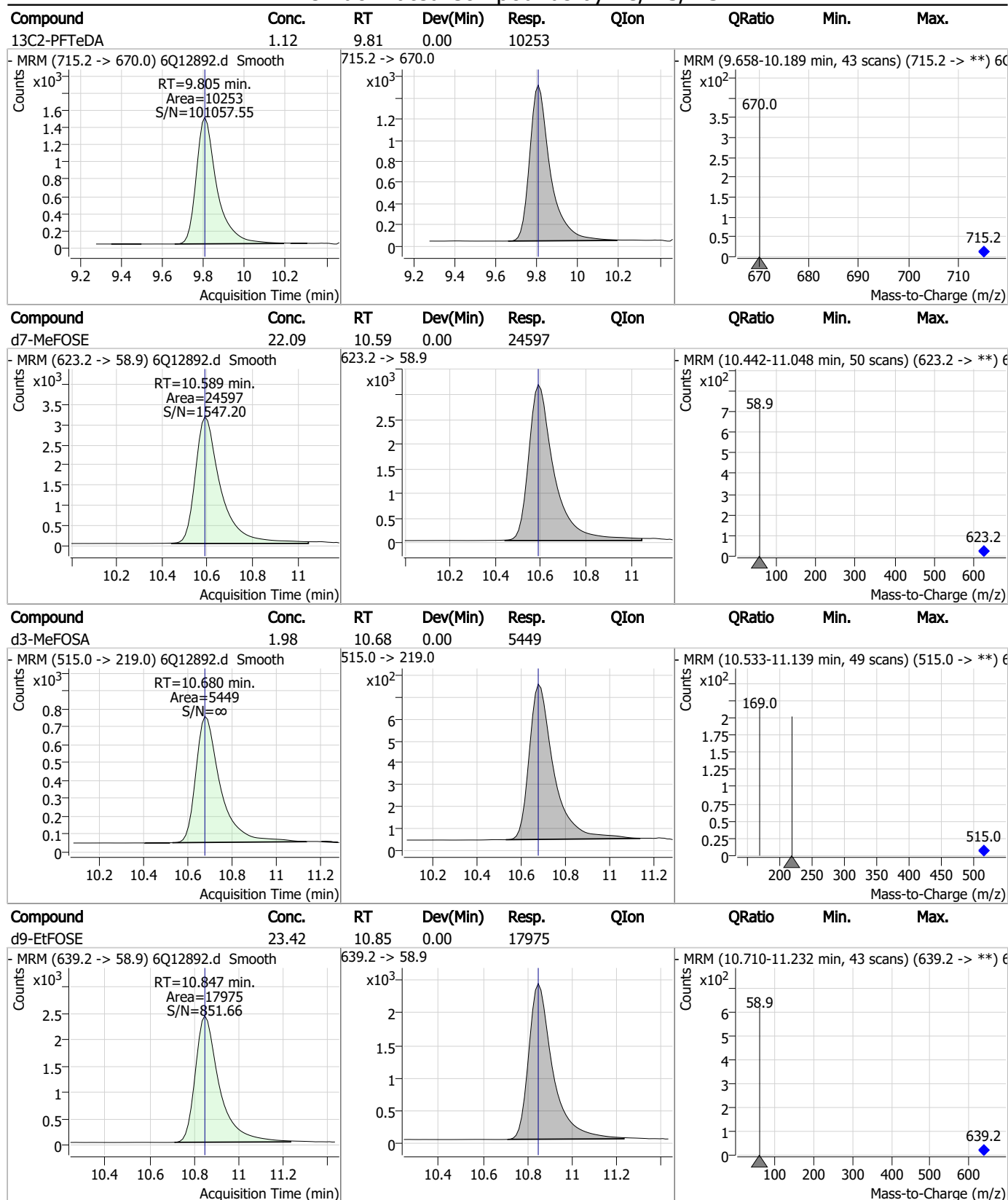
## Perfluorinated Compounds by LC/MS/MS



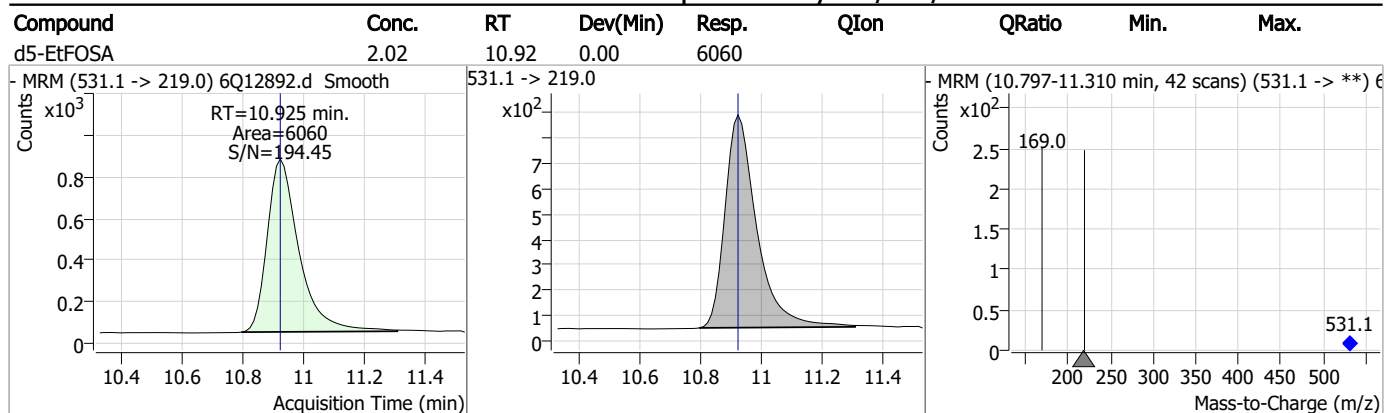
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12887.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/3/2023 10:44:09 AM  
 Sample Name : IBLK  
 Vial : P1-A1  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : s6q198.batch.bin  
 Sample Information : OP94819,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	72098	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	36277	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	31991	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	32622	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	59464	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	25932	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18870	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	21459	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	22845	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14231	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	17107	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13060	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8419	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	7940	2.50 µg/L	0.000
M2-4:2FTS	5.227	329.1 -> 80.9	2274	5.00 µg/L	-0.012
M2-6:2FTS	6.908	429.1 -> 80.9	3027	5.00 µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	3016	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	27038	5.00 µg/L	0.000
M3-HFPO-DA	5.927	286.9 -> 168.9	12730	10.00 µg/L	-0.012
M5-EtFOSAA	8.410	589.2 -> 419.0	22801	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	29326	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	20453	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7372	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6725	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9801	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	32564	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6113	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	75925	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	24229	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	29077	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	31926	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.227	329.1 -> 80.9	2274	5.72 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.4%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3027	5.74 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.8%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3016	5.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.9%		
13C2-PFDoDA	9.066	615.1 -> 570.0	22845	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14231	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C3-PFBS	5.518	302.1 -> 79.9	13060	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C3-PFHxS	7.274	402.1 -> 79.9	8419	2.62 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 = 104.8%		
13C4-PFBA	2.975	216.8 -> 171.9	72098	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C4-PFHpA	6.502	367.1 -> 322.0	32622	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C5-PFHxA	5.563	318.0 -> 273.0	31991	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C5-PFPeA	4.386	268.3 -> 223.0	36277	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C6-PFDA	8.170	519.1 -> 474.1	18870	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 112.0%		
13C7-PFUnDA	8.636	570.0 -> 525.1	21459	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.5%		
13C8-FOSA	9.567	506.1 -> 77.8	17107	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C8-PFOA	7.146	421.1 -> 376.0	59464	2.35 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C8-PFOS	8.345	507.1 -> 79.9	7940	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C9-PFNA	7.677	472.1 -> 427.0	25932	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.4%		
d3-MeFOSAA	8.215	573.2 -> 419.0	27038	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C3-HFPO-DA	5.927	286.9 -> 168.9	12730	9.76 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.6%		
d3-MeFOSA	10.680	515.0 -> 219.0	6725	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.8%		
d5-EtFOSAA	8.410	589.2 -> 419.0	22801	5.12 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
d7-MeFOSE	10.589	623.2 -> 58.9	29326	26.35 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 105.4%		
d9-EtFOSE	10.847	639.2 -> 58.9	20453	26.67 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 106.7%		
d5-EtFOSA	10.925	531.1 -> 219.0	7372	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		

## Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0	-	N.D.
		327.1 -> 80.9		
6:2FTS	-	427.1 -> 407.0	-	N.D.
		427.1 -> 80.9		
8:2FTS	-	527.1 -> 507.0	-	N.D.
		527.1 -> 80.8		
EtFOSAA	-	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	10.889	526.0 -> 219.0	880	0.25 µg/L		96
		526.0 -> 169.0	824			
EtFOSE	10.848	630.0 -> 58.9	1346	1.54 µg/L	m	100
		511.9 -> 219.0	-			
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	10.578	616.1 -> 58.9	1002	0.86 µg/L	m	100
		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				

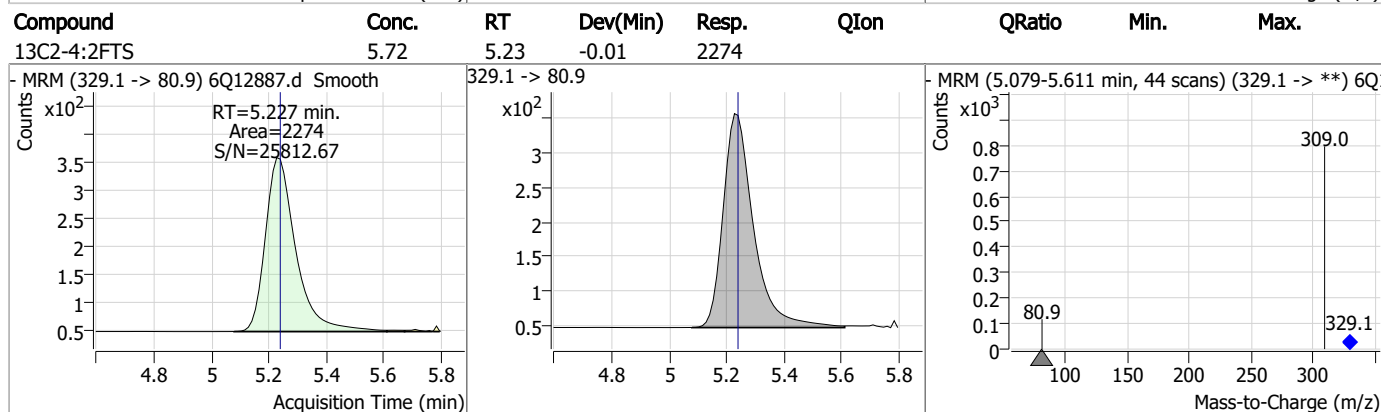
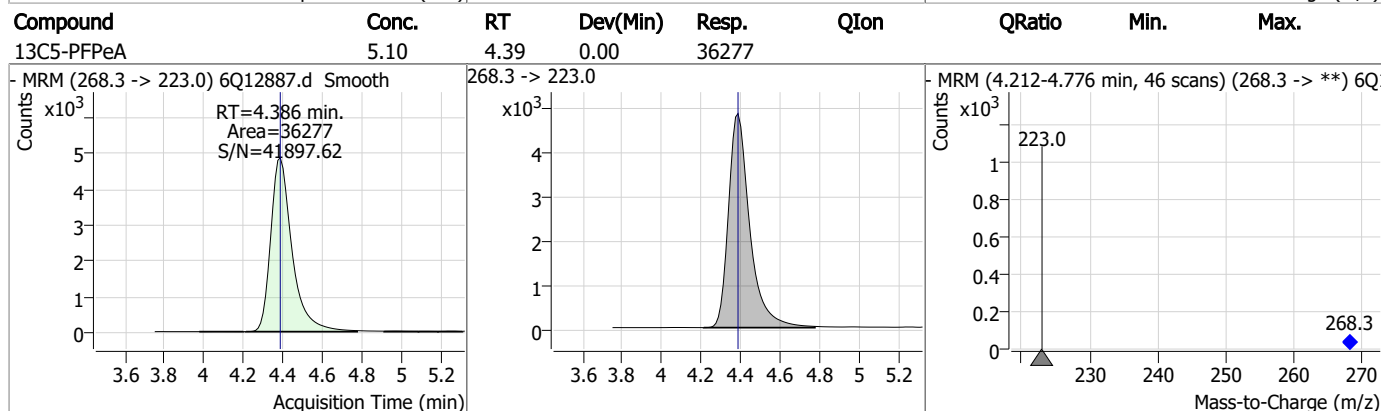
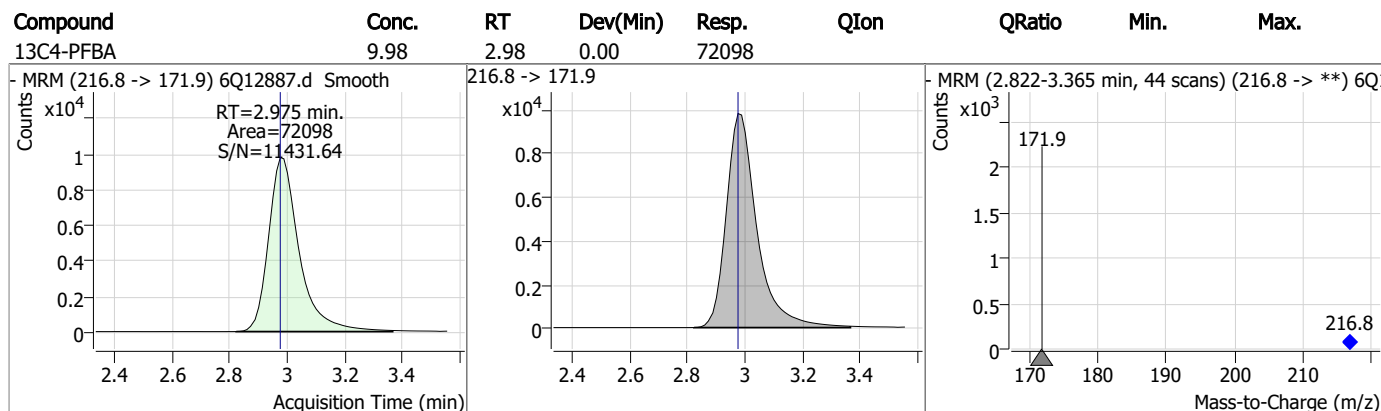
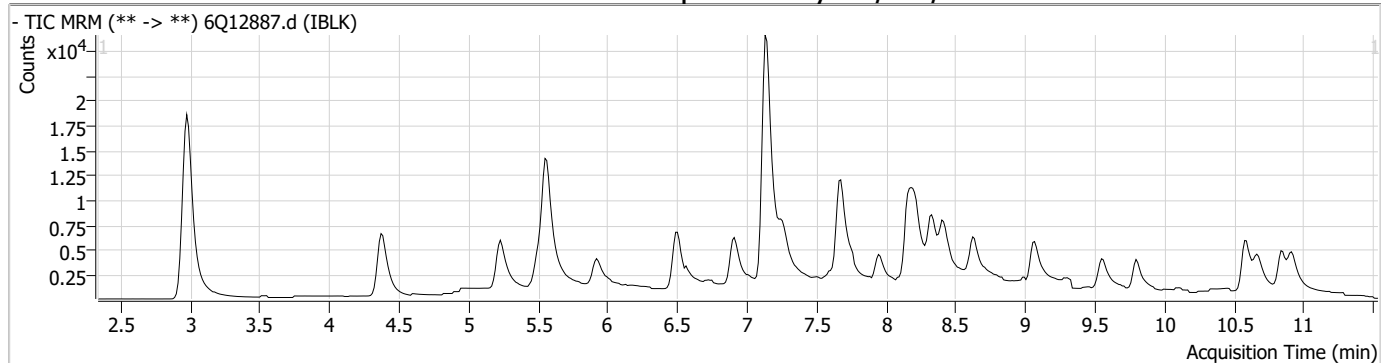
# = Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

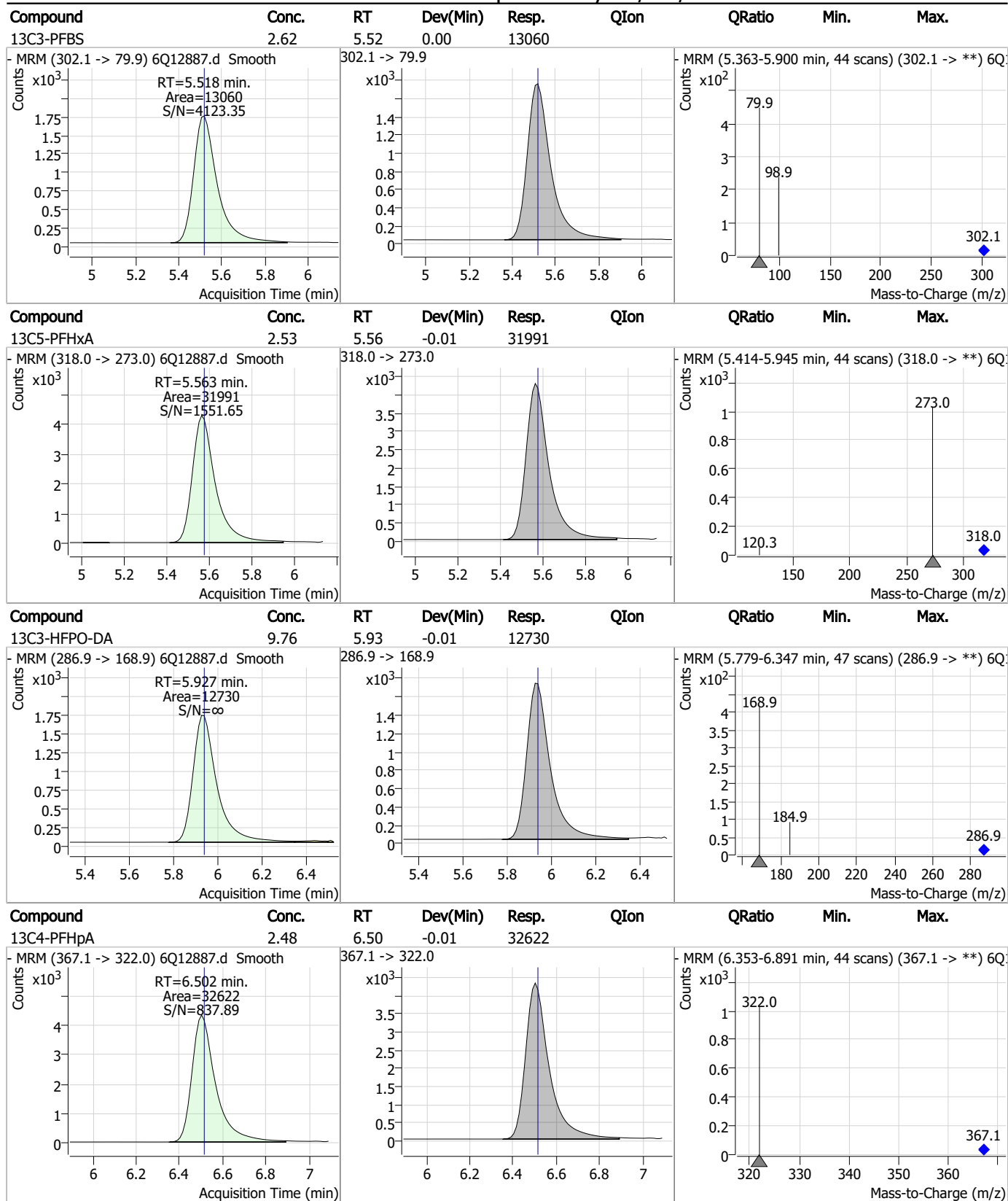
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.2  
7

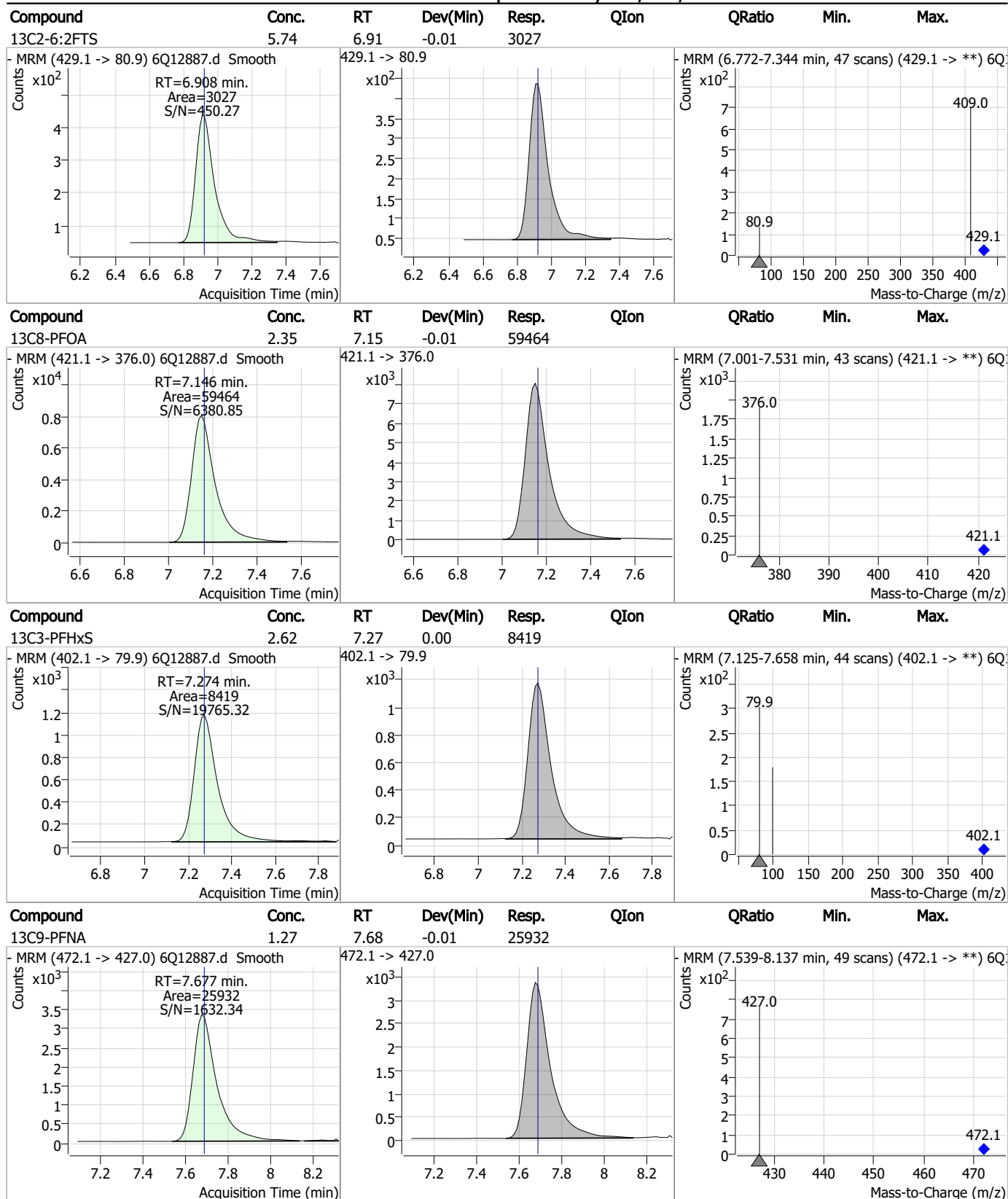
## Perfluorinated Compounds by LC/MS/MS



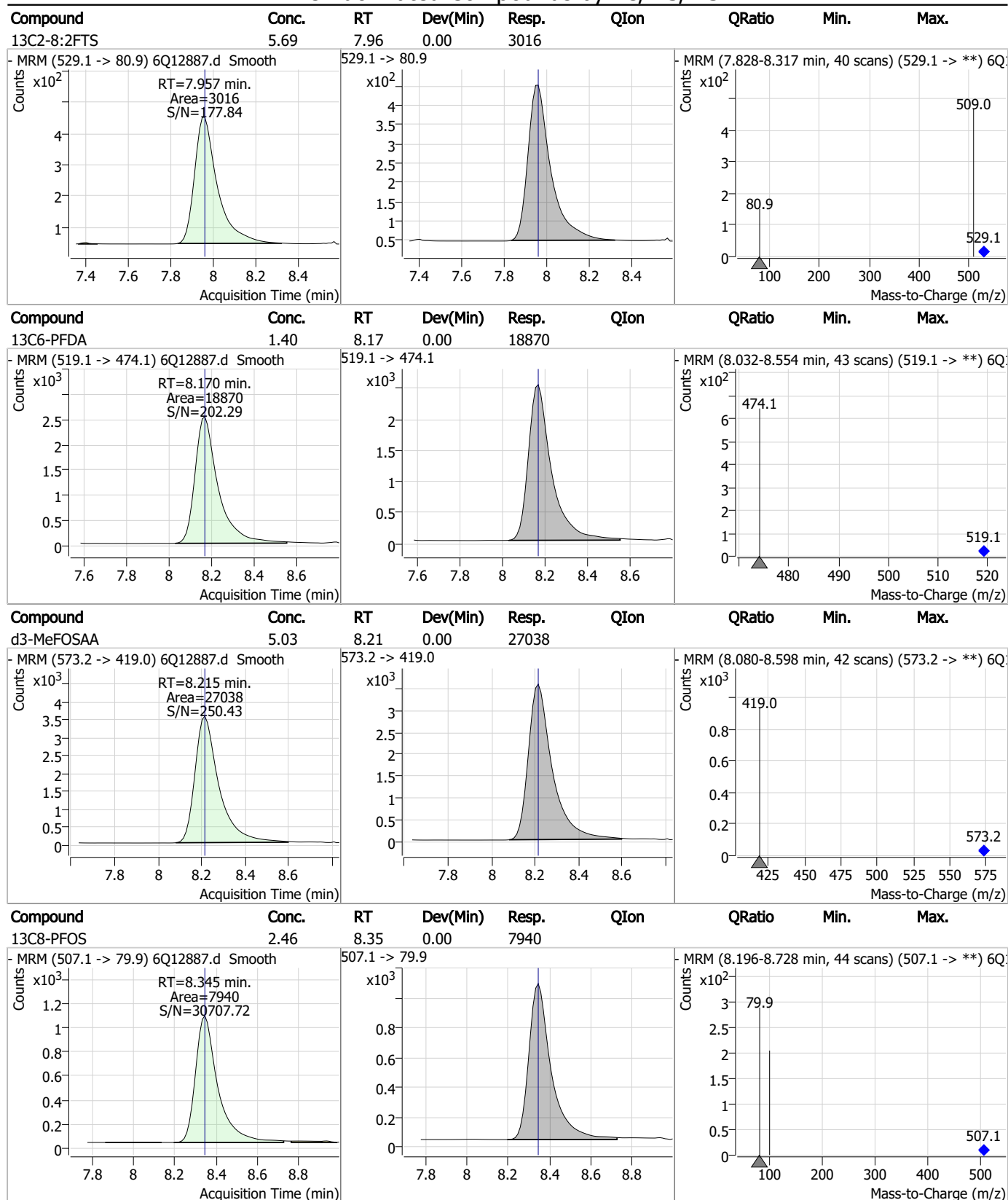
## Perfluorinated Compounds by LC/MS/MS



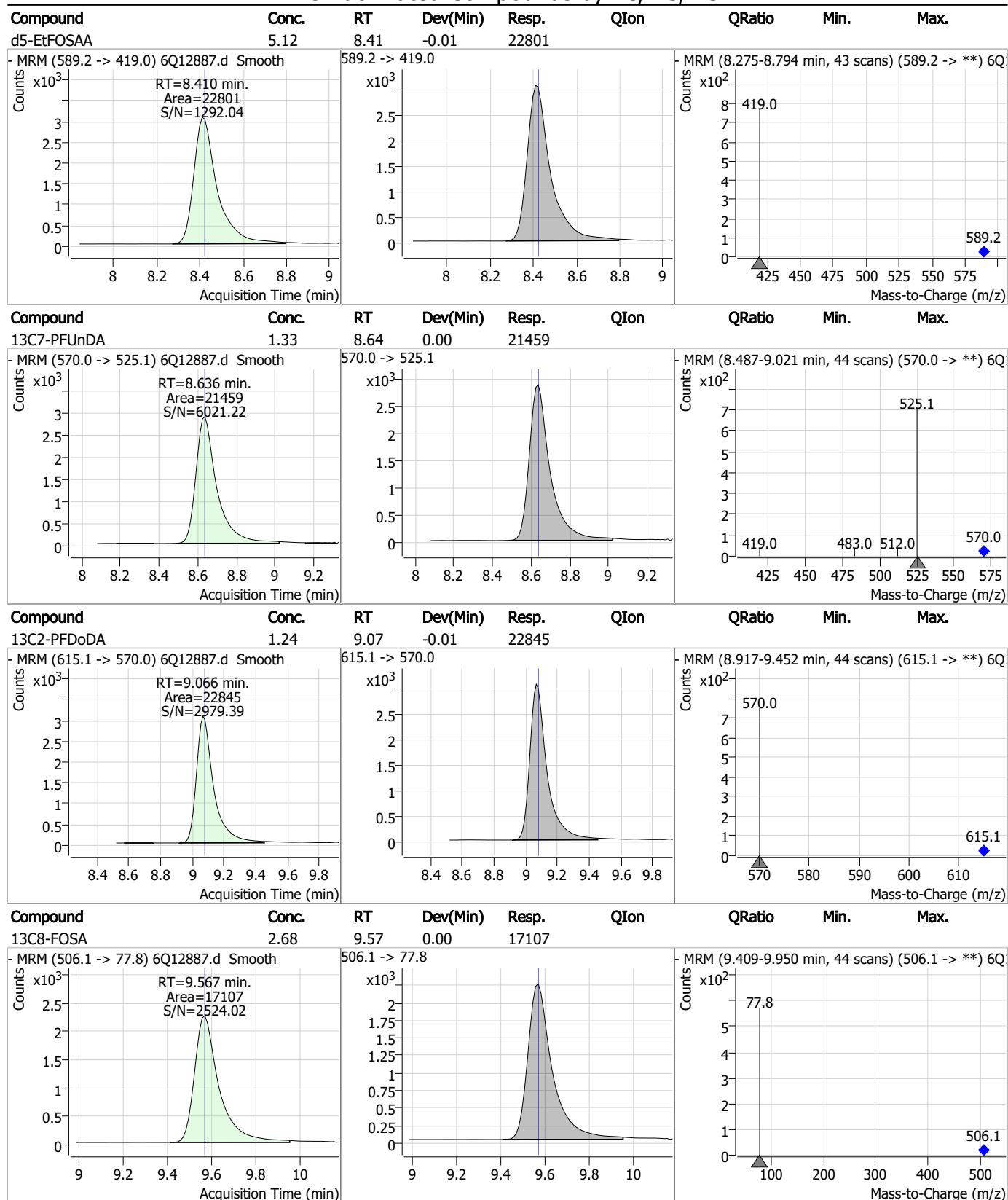
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

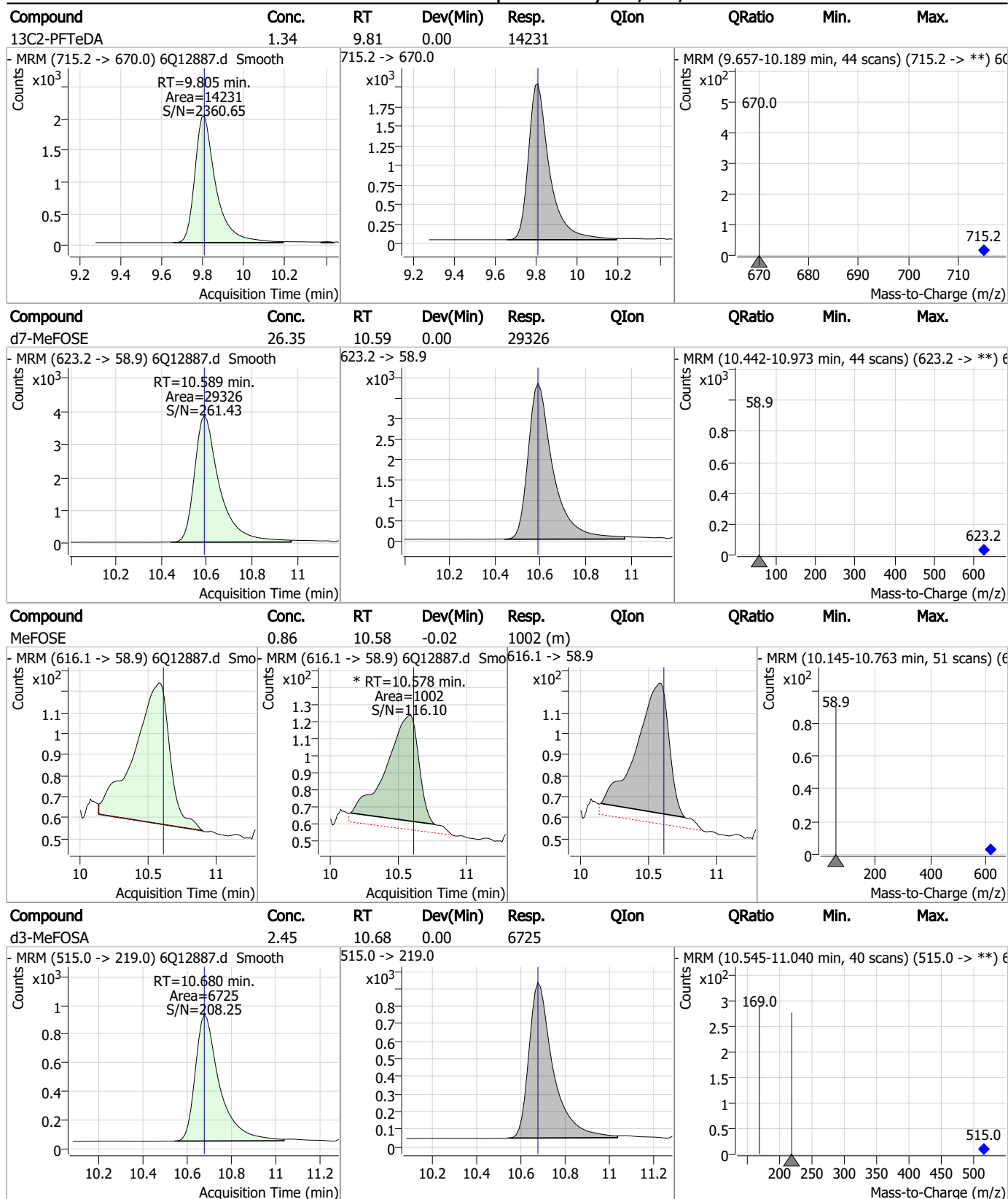


## Perfluorinated Compounds by LC/MS/MS

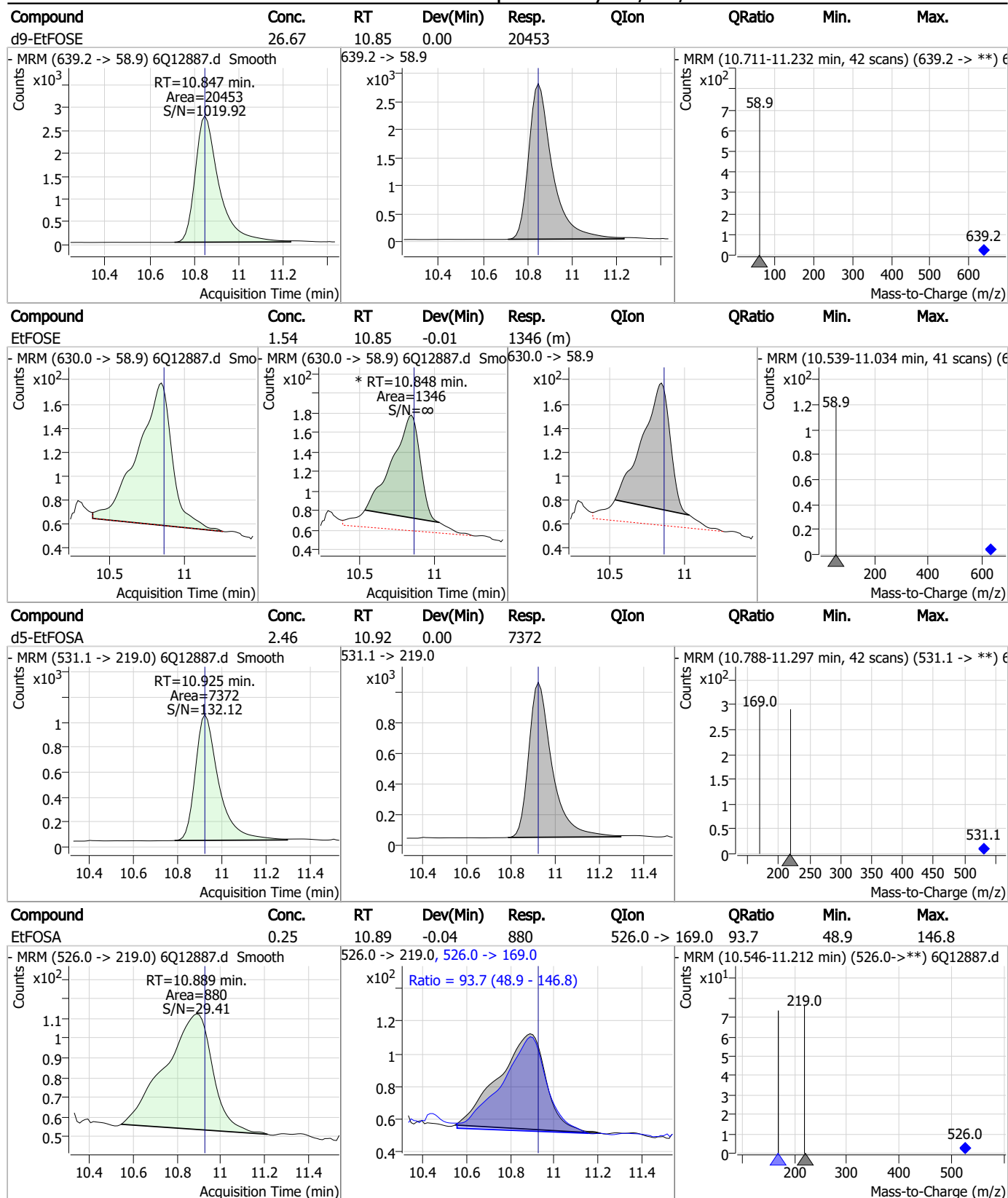




## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S6Q198-IBLK

Method: EPA DRAFT 1633

Lab FileID: 6Q12887.D

Analyst approved: 02/06/23 11:00 Martha Valls

Injection Time: 02/03/23 10:44

Supervisor approved: 02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
MeFOSE	24448-09-7		10.58	Split peak
EtFOSE	1691-99-2		10.85	Split peak

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12901.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/3/2023 1:59:52 PM  
 Sample Name : iccb  
 Vial : P1-A1  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : s6q198.batch.bin  
 Sample Information : OP94938,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	73488	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	36923	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	30448	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	35859	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	63227	2.50 µg/L	-0.012
M9-PFNA	7.689	472.1 -> 427.0	24967	1.25 µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	18417	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	20719	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	23722	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14415	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	17447	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13076	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	7827	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8513	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2418	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2813	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2751	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	27663	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13730	10.00 µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	24042	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	29704	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	20893	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7652	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6890	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9829	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	33648	5.00 µg/L	0.000
18O2-PFHxS	7.286	403.0 -> 83.9	6785	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	74311	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	25270	1.25 µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	30830	1.25 µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	33372	2.50 µg/L	-0.012

**System Monitoring Compounds**

13C2-4:2FTS	5.240	329.1 -> 80.9	2418	5.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2813	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2751	4.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C2-PFDoDA	9.066	615.1 -> 570.0	23722	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14415	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C3-PFBS	5.518	302.1 -> 79.9	13076	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C3-PFHxS	7.274	402.1 -> 79.9	7827	2.19 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 = 87.8%		
13C4-PFBA	2.975	216.8 -> 171.9	73488	9.84 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C4-PFHpA	6.502	367.1 -> 322.0	35859	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C5-PFHxA	5.575	318.0 -> 273.0	30448	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.2%		
13C5-PFPeA	4.386	268.3 -> 223.0	36923	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C6-PFDA	8.170	519.1 -> 474.1	18417	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C7-PFUnDA	8.636	570.0 -> 525.1	20719	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C8-FOSA	9.567	506.1 -> 77.8	17447	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.0%		
13C8-PFOA	7.146	421.1 -> 376.0	63227	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C8-PFOS	8.345	507.1 -> 79.9	8513	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C9-PFNA	7.689	472.1 -> 427.0	24967	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.1%		
d3-MeFOSAA	8.215	573.2 -> 419.0	27663	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	13730	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
d3-MeFOSA	10.680	515.0 -> 219.0	6890	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
d5-EtFOSAA	8.422	589.2 -> 419.0	24042	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.6%		
d7-MeFOSE	10.589	623.2 -> 58.9	29704	26.62 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 106.5%		
d9-EtFOSE	10.847	639.2 -> 58.9	20893	27.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 108.7%		
d5-EtFOSA	10.925	531.1 -> 219.0	7652	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.0%		

## Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0	-	N.D.
		327.1 -> 80.9		
6:2FTS	-	427.1 -> 407.0	-	N.D.
		427.1 -> 80.9		
8:2FTS	-	527.1 -> 507.0	-	N.D.
		527.1 -> 80.8		
EtFOSAA	-	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.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

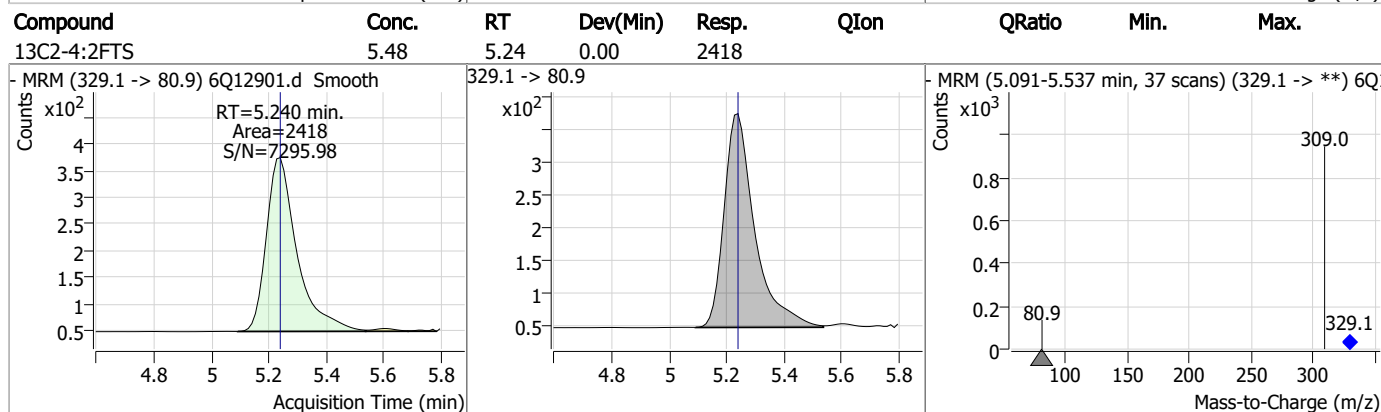
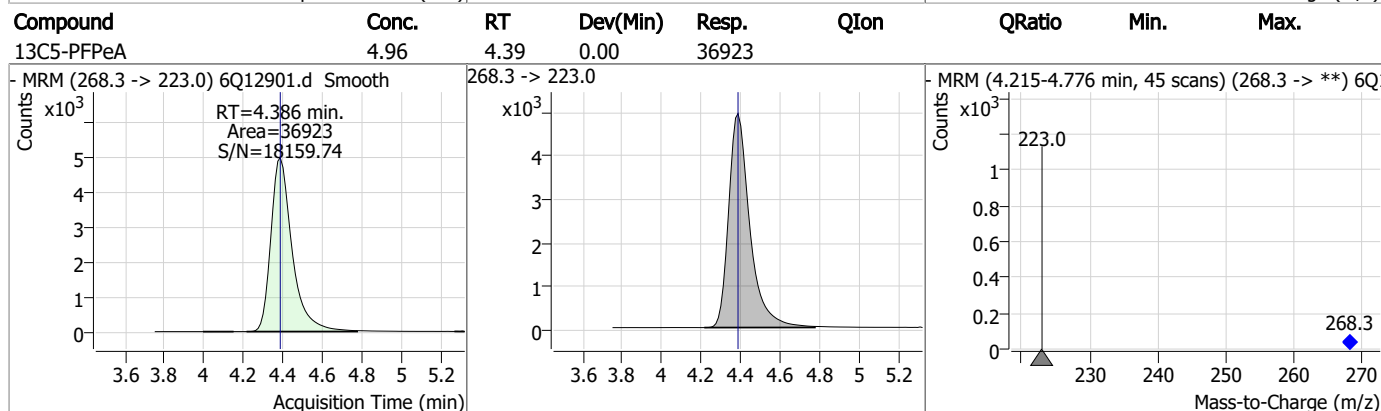
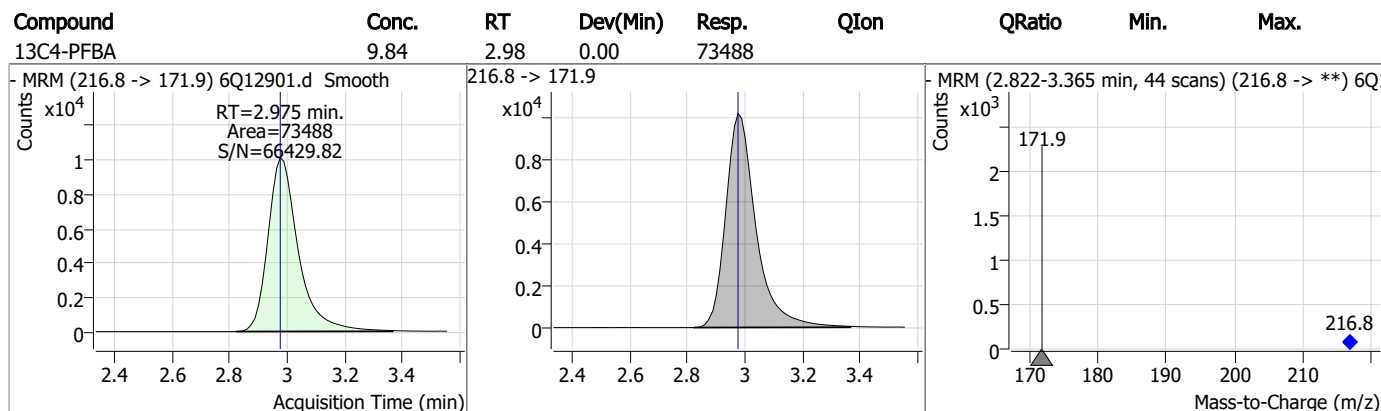
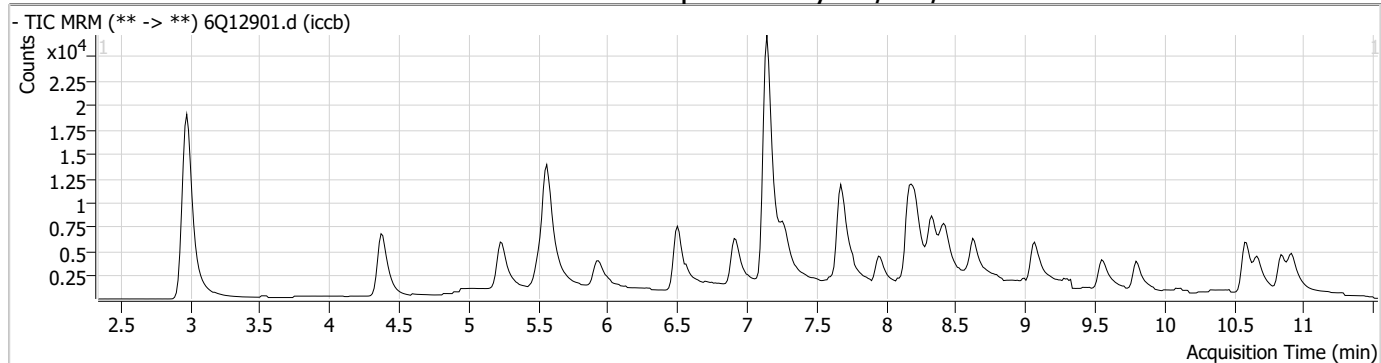
# = Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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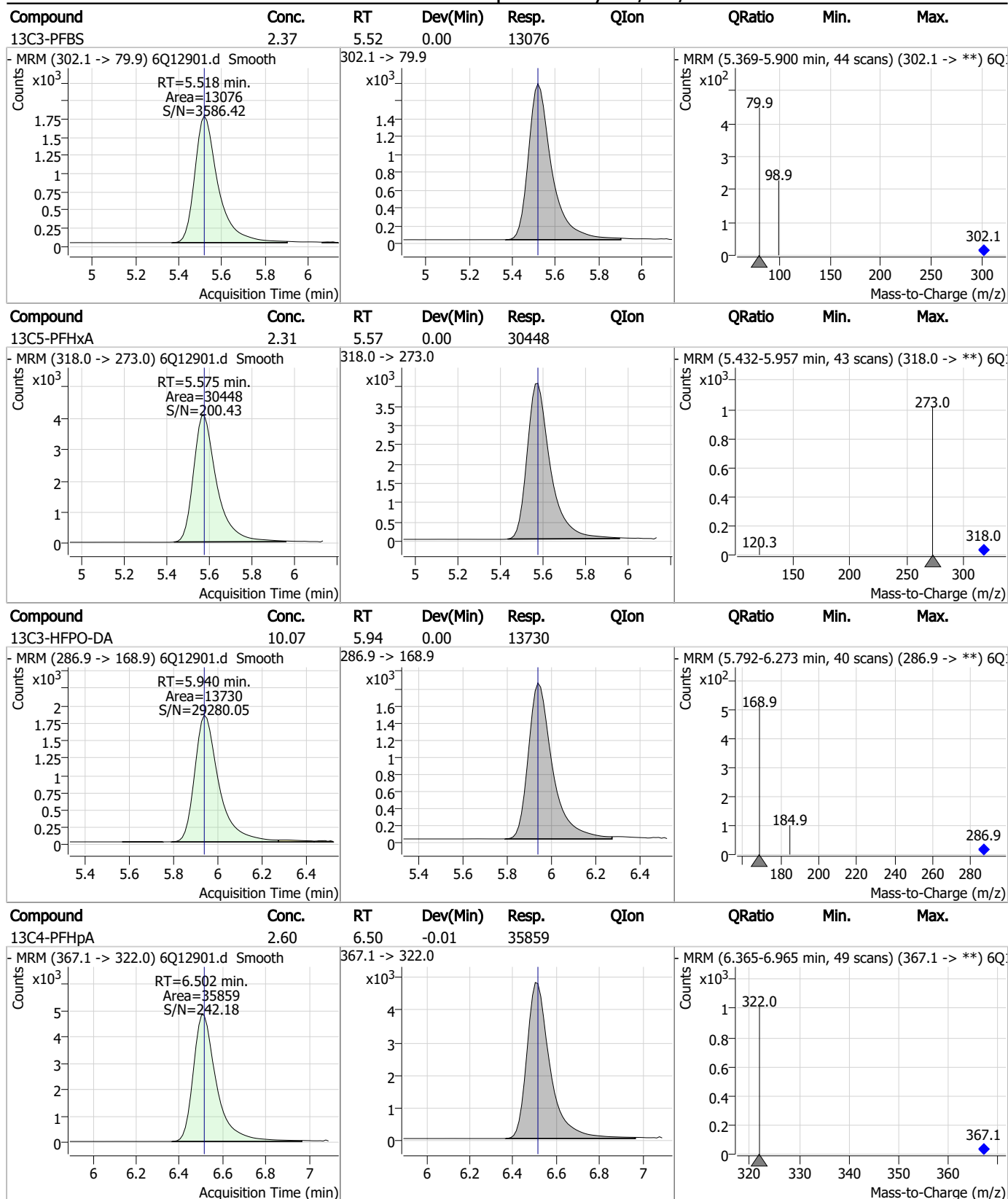
7.2.3  
7

## Perfluorinated Compounds by LC/MS/MS

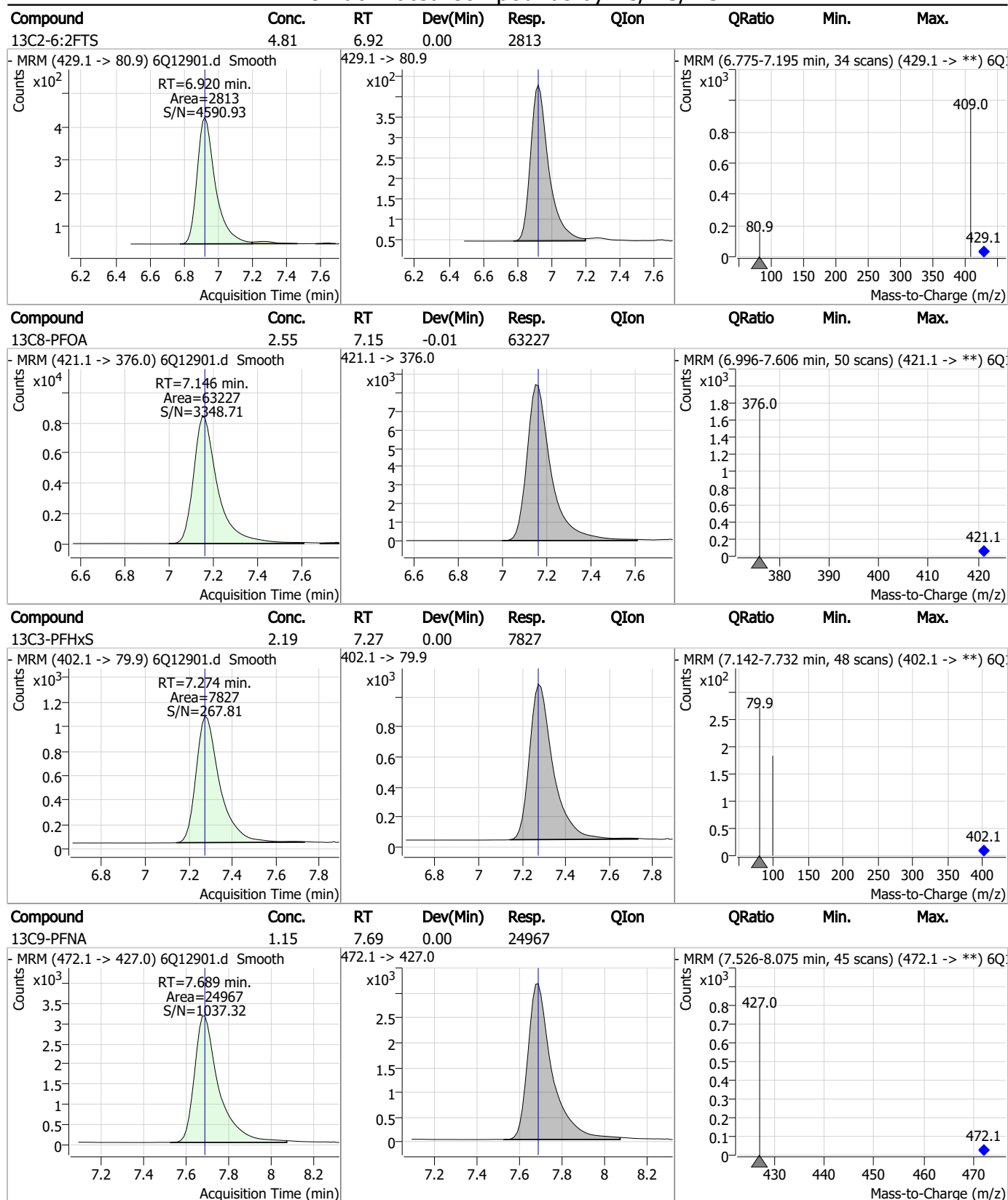




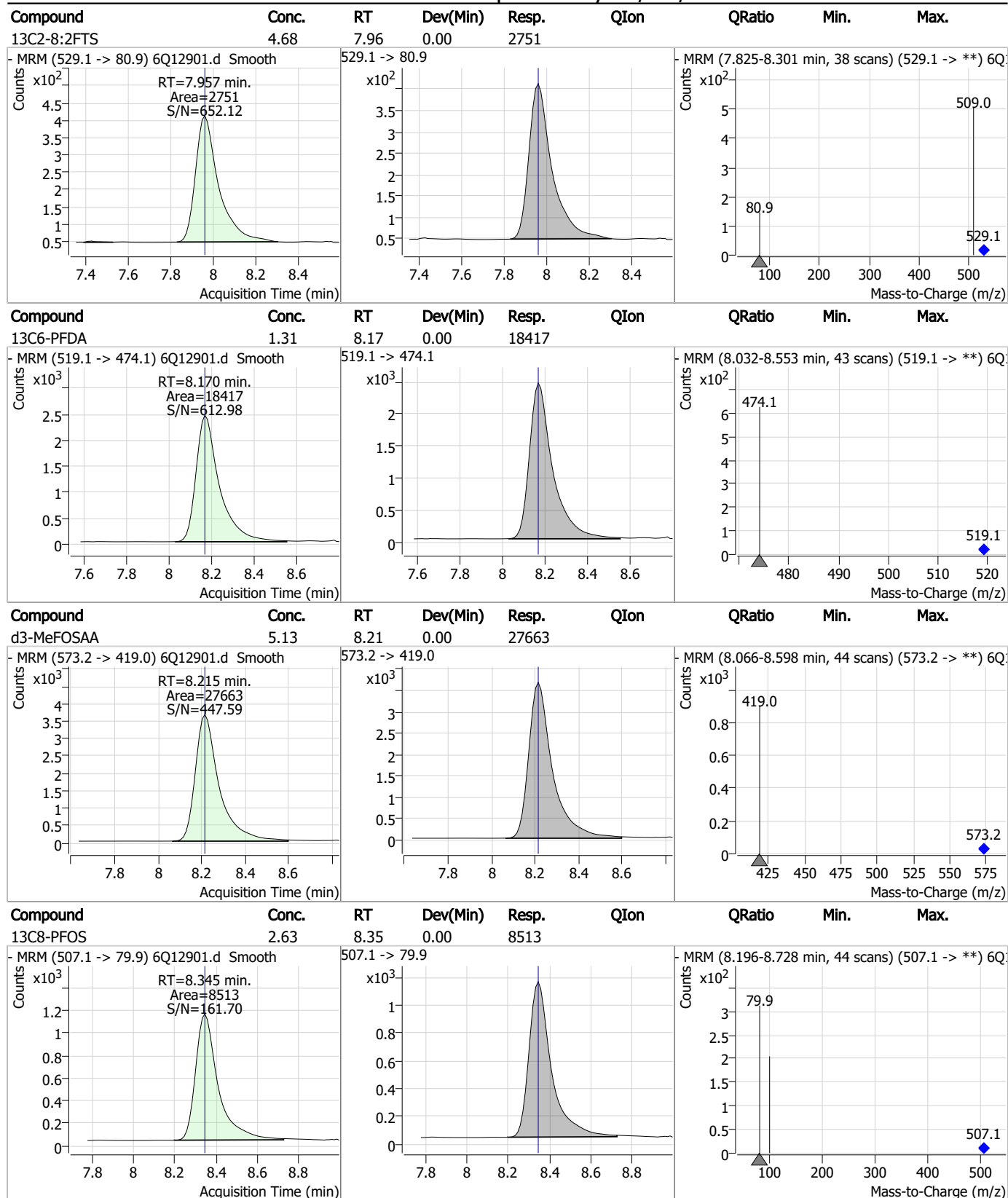
## Perfluorinated Compounds by LC/MS/MS



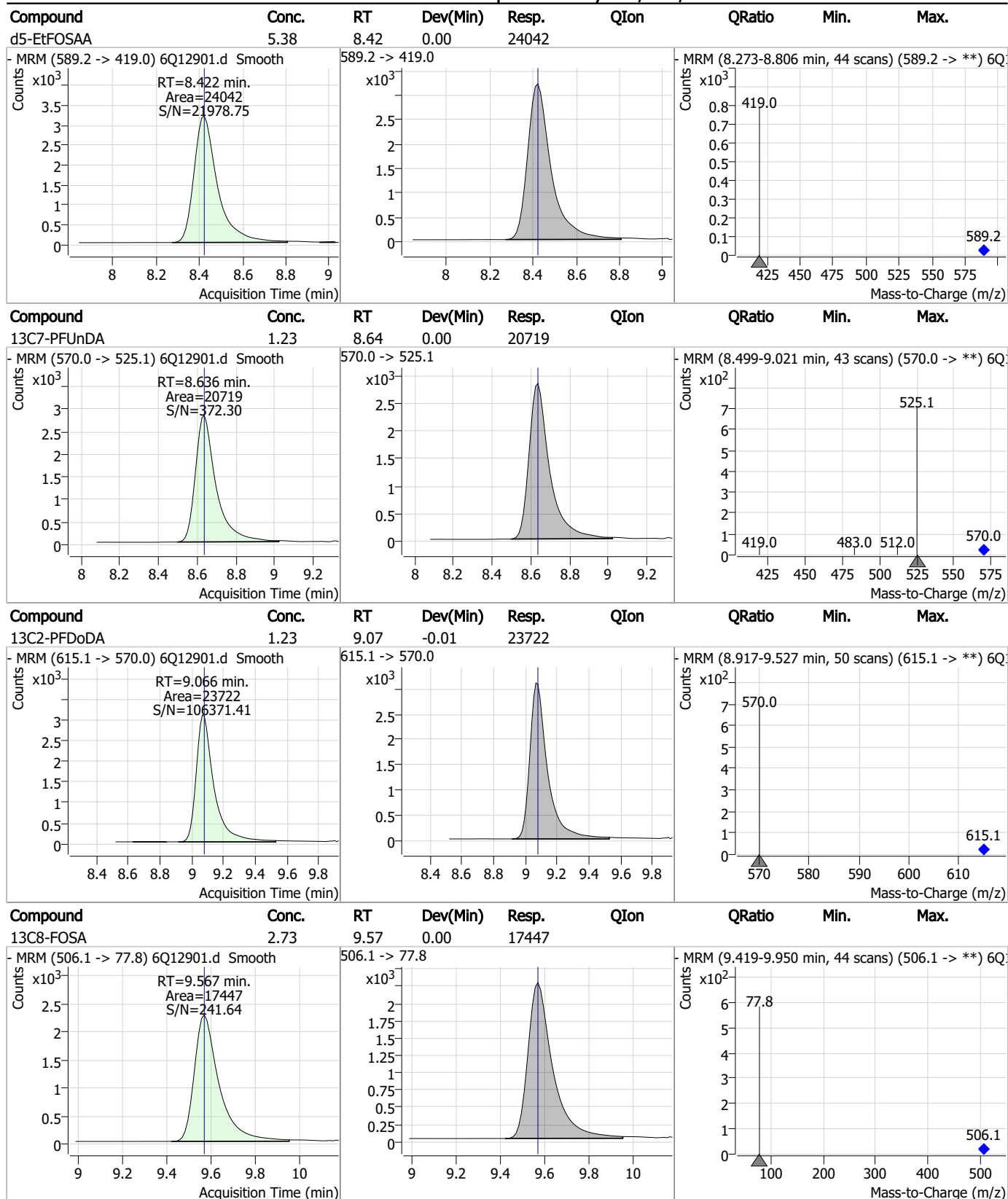
## Perfluorinated Compounds by LC/MS/MS



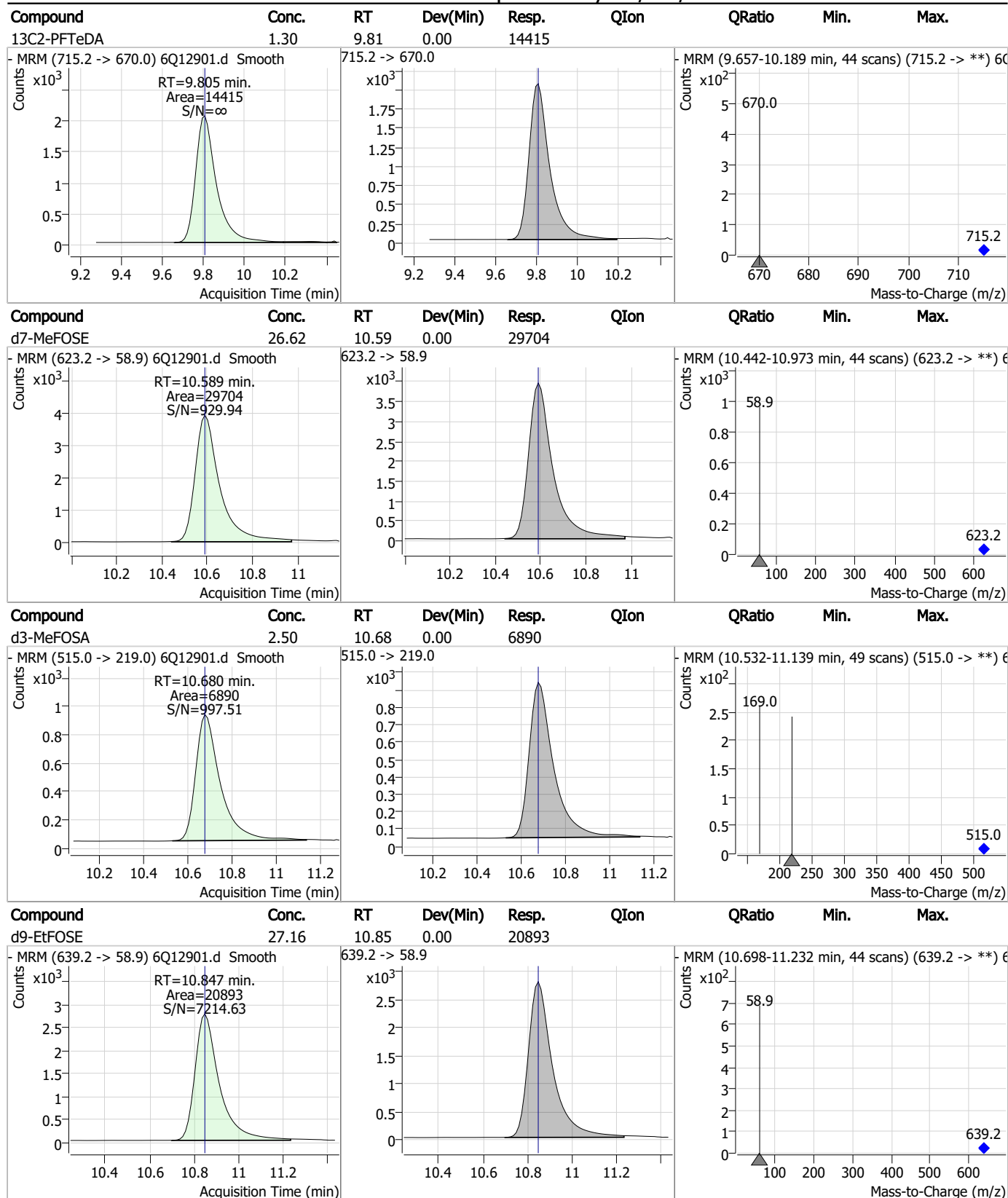
## Perfluorinated Compounds by LC/MS/MS



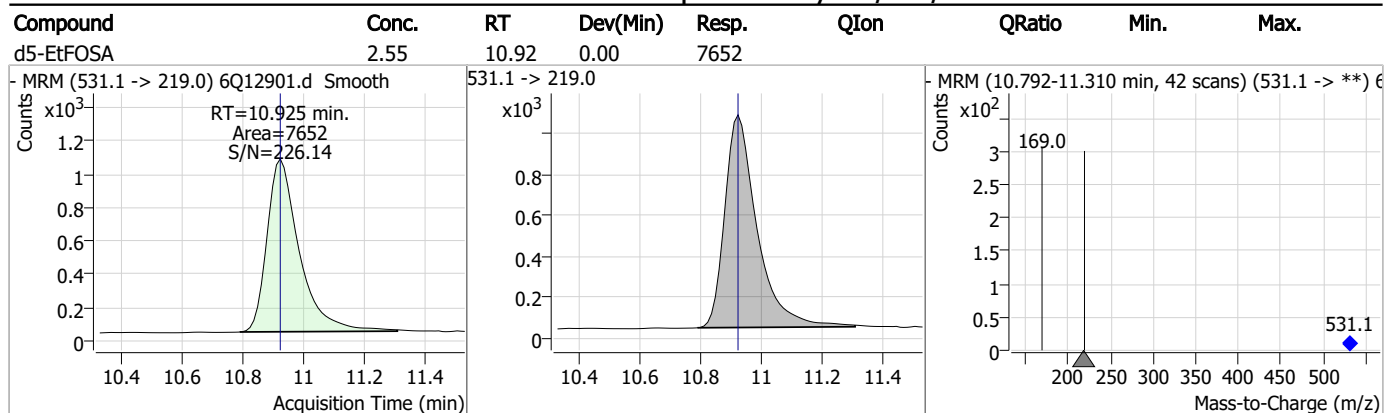
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



7.2.3

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12890.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/3/2023 11:26:06 AM  
 Sample Name : op95216-bs  
 Vial : P4-A1  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : s6q198.batch.bin  
 Sample Information : OP95216,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.013	216.8 -> 171.9	15252	10.00 µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	35547	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	32857	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	32593	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	59390	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	26785	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18212	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	20538	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	22345	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	12818	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	17064	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	12945	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8434	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8055	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2219	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3086	5.00 µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	2942	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	27762	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13905	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	22985	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	26319	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	19723	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7305	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6688	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	8521	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	29575	5.00 µg/L	0.037
18O2-PFHxS	7.273	403.0 -> 83.9	5827	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	62572	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	22396	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	26495	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	29232	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2219	5.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.1%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3086	6.14 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.8%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2942	5.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.5%		
13C2-PFDoDA	9.066	615.1 -> 570.0	22345	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C2-PFTeDA	9.805	715.2 -> 670.0	12818	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C3-PFBS	5.518	302.1 -> 79.9	12945	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C3-PFHxS	7.274	402.1 -> 79.9	8434	2.75 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 = 110.1%	
13C4-PFBA	3.013	216.8 -> 171.9	15252	2.32 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 23.2%	
13C4-PFHpA	6.502	367.1 -> 322.0	32593	2.70 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.1%	
13C5-PFHxA	5.563	318.0 -> 273.0	32857	2.84 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.6%	
13C5-PFPeA	4.386	268.3 -> 223.0	35547	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C6-PFDA	8.170	519.1 -> 474.1	18212	1.46 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 116.9%	
13C7-PFUnDA	8.636	570.0 -> 525.1	20538	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C8-FOSA	9.567	506.1 -> 77.8	17064	3.07 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 123.0%	
13C8-PFOA	7.146	421.1 -> 376.0	59390	2.84 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.7%	
13C8-PFOS	8.345	507.1 -> 79.9	8055	2.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.0%	
13C9-PFNA	7.677	472.1 -> 427.0	26785	1.44 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.9%	
d3-MeFOSAA	8.215	573.2 -> 419.0	27762	5.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.9%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	13905	11.64 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 116.4%	
d3-MeFOSA	10.680	515.0 -> 219.0	6688	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.9%	
d5-EtFOSAA	8.410	589.2 -> 419.0	22985	5.93 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.6%	
d7-MeFOSE	10.589	623.2 -> 58.9	26319	27.20 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.8%	
d9-EtFOSE	10.847	639.2 -> 58.9	19723	29.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 118.3%	
d5-EtFOSA	10.925	531.1 -> 219.0	7305	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.3%	
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	44475	8.94 µg/L	98
		327.1 -> 80.9	10197		
6:2FTS	6.908	427.1 -> 407.0	41311	9.14 µg/L	97
		427.1 -> 80.9	8243		
8:2FTS	7.958	527.1 -> 507.0	22168	9.70 µg/L	94
		527.1 -> 80.8	6016		
EtFOSAA	8.424	584.2 -> 419.1	8145	2.21 µg/L	88
		584.2 -> 526.0	4546		
FOSA	9.557	498.1 -> 77.9	15470	2.27 µg/L	99
		498.1 -> 478.0	619		
MeFOSAA	8.216	570.1 -> 419.0	12322	2.42 µg/L	93
		570.1 -> 483.0	2160		
PFBA	3.007	212.8 -> 168.9	3276	9.62 µg/L	100
PFBS	5.518	298.7 -> 79.9	10220	2.06 µg/L	95
		298.7 -> 98.8	4820		
PFDA	8.170	512.9 -> 469.0	49860	2.41 µg/L	96
		512.9 -> 219.0	6691		
PFDODA	9.067	613.1 -> 569.0	39667	2.42 µg/L	98
		613.1 -> 319.0	4586		
PFDS	9.241	599.0 -> 79.9	6033	2.21 µg/L	100



## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	3041	2.39	µg/L	98
		363.1 -> 319.0	46160			
PFHpS	7.841	363.1 -> 169.0	6206	2.42	µg/L	97
		449.0 -> 79.9	8285			
PFHxA	5.566	449.0 -> 98.9	4761	2.31	µg/L	98
		313.0 -> 269.0	29726			
PFHxS	7.275	313.0 -> 118.9	1071	2.16	µg/L	91
		398.7 -> 79.9	8199			
PFNA	7.677	398.7 -> 98.9	4653	2.24	µg/L	97
		463.0 -> 419.0	40395			
PFNS	8.811	463.0 -> 219.0	8223	2.21	µg/L	94
		548.8 -> 79.9	7924			
PFOA	7.148	548.8 -> 98.9	4807	2.34	µg/L	100
		413.0 -> 369.0	61128			
PFOS	8.347	413.0 -> 169.0	8394	2.21	µg/L	75
		498.9 -> 79.9	8151			
PFPeA	4.388	498.9 -> 98.8	5263	4.87	µg/L	100
		263.0 -> 219.0	36548			
PFPeS	6.581	349.1 -> 79.9	9990	2.27	µg/L	96
		349.1 -> 98.9	5405			
PFTeDA	9.806	713.1 -> 669.0	34038	2.46	µg/L	99
		713.1 -> 168.9	2193			
PFTrDA	9.462	663.0 -> 619.0	38792	2.48	µg/L	98
		663.0 -> 168.9	2794			
PFUnDA	8.637	563.1 -> 519.0	39246	2.45	µg/L	98
		563.1 -> 269.1	5717			
11CI-PF3OUdS	9.514	630.9 -> 450.9	85627	8.58	µg/L	96
		632.9 -> 452.9	27942			
9CI-PF3ONS	8.688	530.8 -> 351.0	144966	8.59	µg/L	98
		532.8 -> 353.0	45571			
ADONA	6.753	376.9 -> 250.9	283159	9.39	µg/L	97
		376.9 -> 84.8	58397			
HFPO-DA	5.940	284.9 -> 168.9	12575	9.67	µg/L	96
		284.9 -> 184.9	1476			
3:3FTCA	3.878	241.0 -> 177.0	2862	7.76	µg/L	94
		241.0 -> 117.0	347			
5:3FTCA	6.206	341.0 -> 237.1	149700	55.55	µg/L	96
		341.0 -> 217.0	136147			
7:3FTCA	7.605	441.0 -> 316.9	99112	56.27	µg/L	91
		441.0 -> 336.9	194451			
EtFOSA	10.927	526.0 -> 219.0	7283	2.09	µg/L	94
		526.0 -> 169.0	7532			
EtFOSE	10.860	630.0 -> 58.9	17957	21.27	µg/L	100
		511.9 -> 219.0	6267			
MeFOSA	10.682	511.9 -> 169.0	6384	2.17	µg/L	99
		616.1 -> 58.9	25067			
MeFOSE	10.602	699.1 -> 79.9	3533	23.88	µg/L	100
		699.1 -> 98.8	2210			
PFDoDS	9.933	295.0 -> 201.0	3683	2.16	µg/L	95
		295.0 -> 84.9	1747			
NFDHA	5.457	279.0 -> 85.1	10718	4.83	µg/L	94
		229.0 -> 84.9	4521			
PFMBA	4.800	314.8 -> 134.9	75220	5.08	µg/L	100
		314.8 -> 82.9	1740			
PFMPA	3.553			2.26	µg/L	100
PFEESA	6.059			4.05	µg/L	100

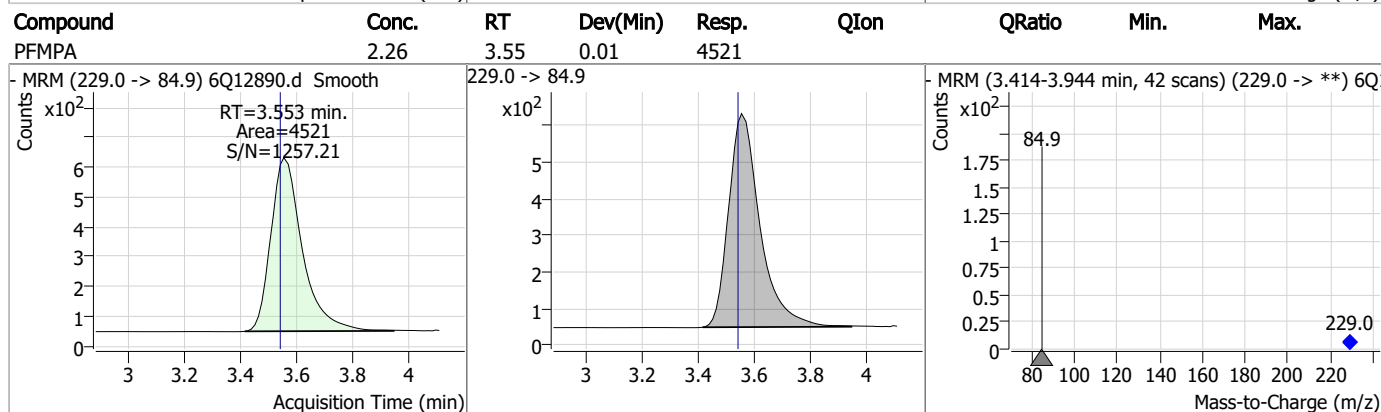
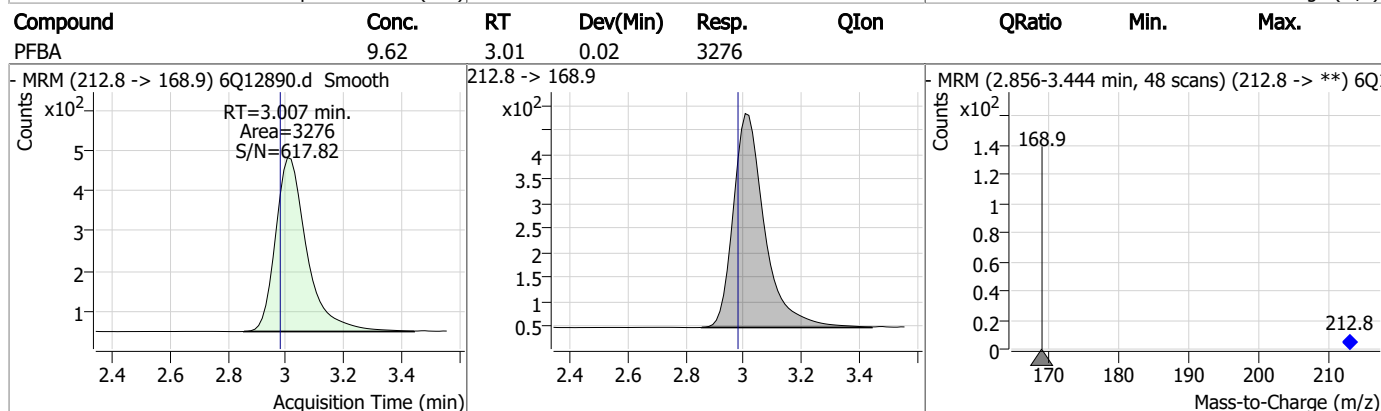
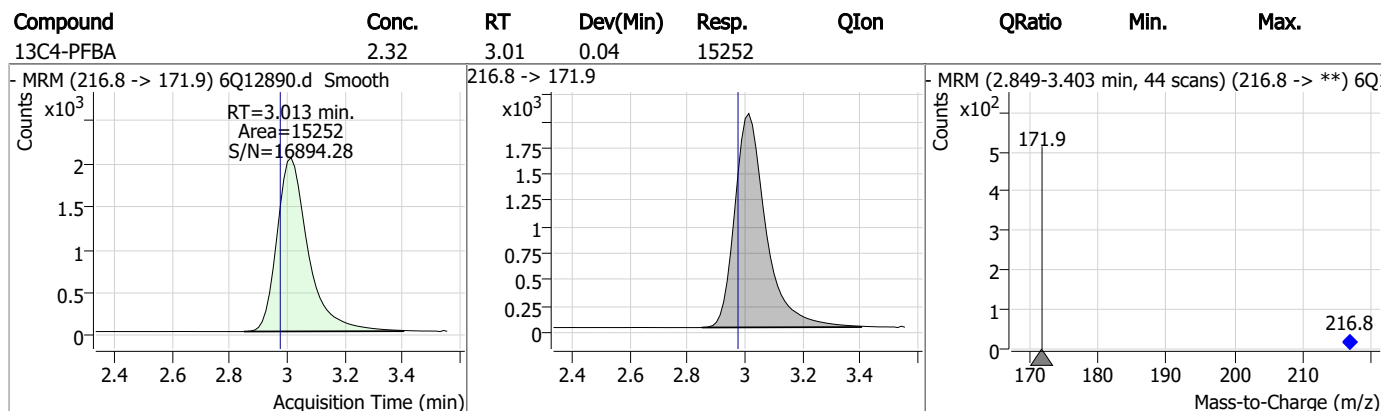
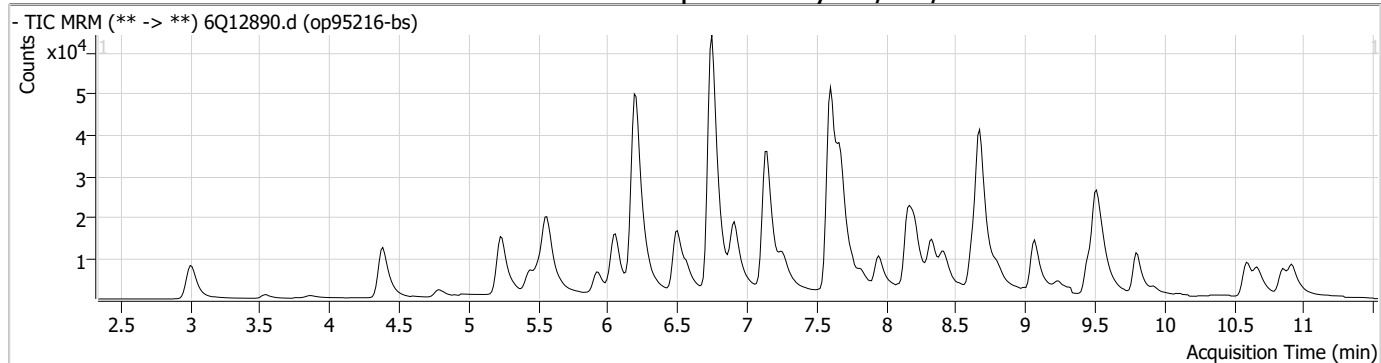
# = Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

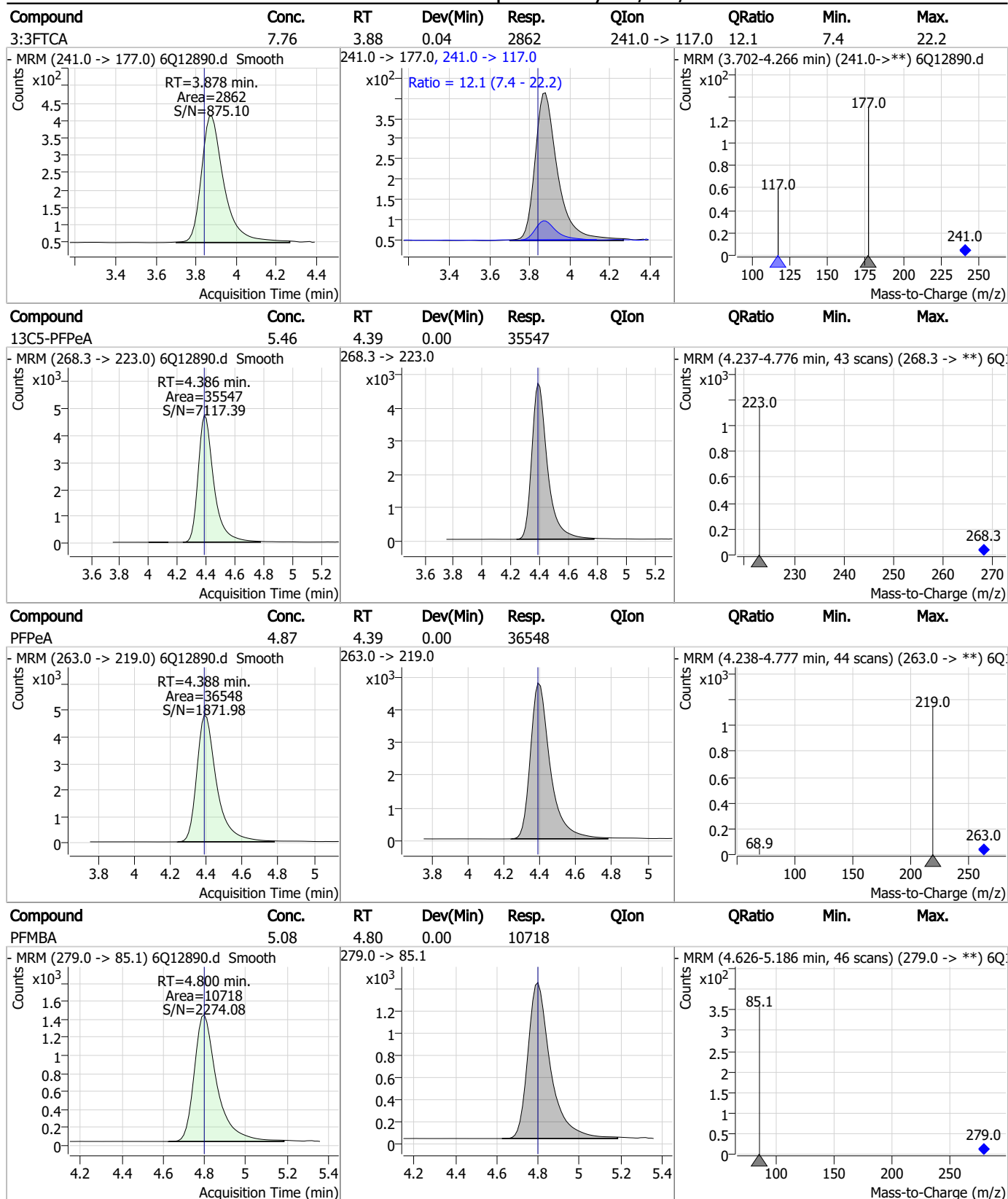
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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7.3.1  
7

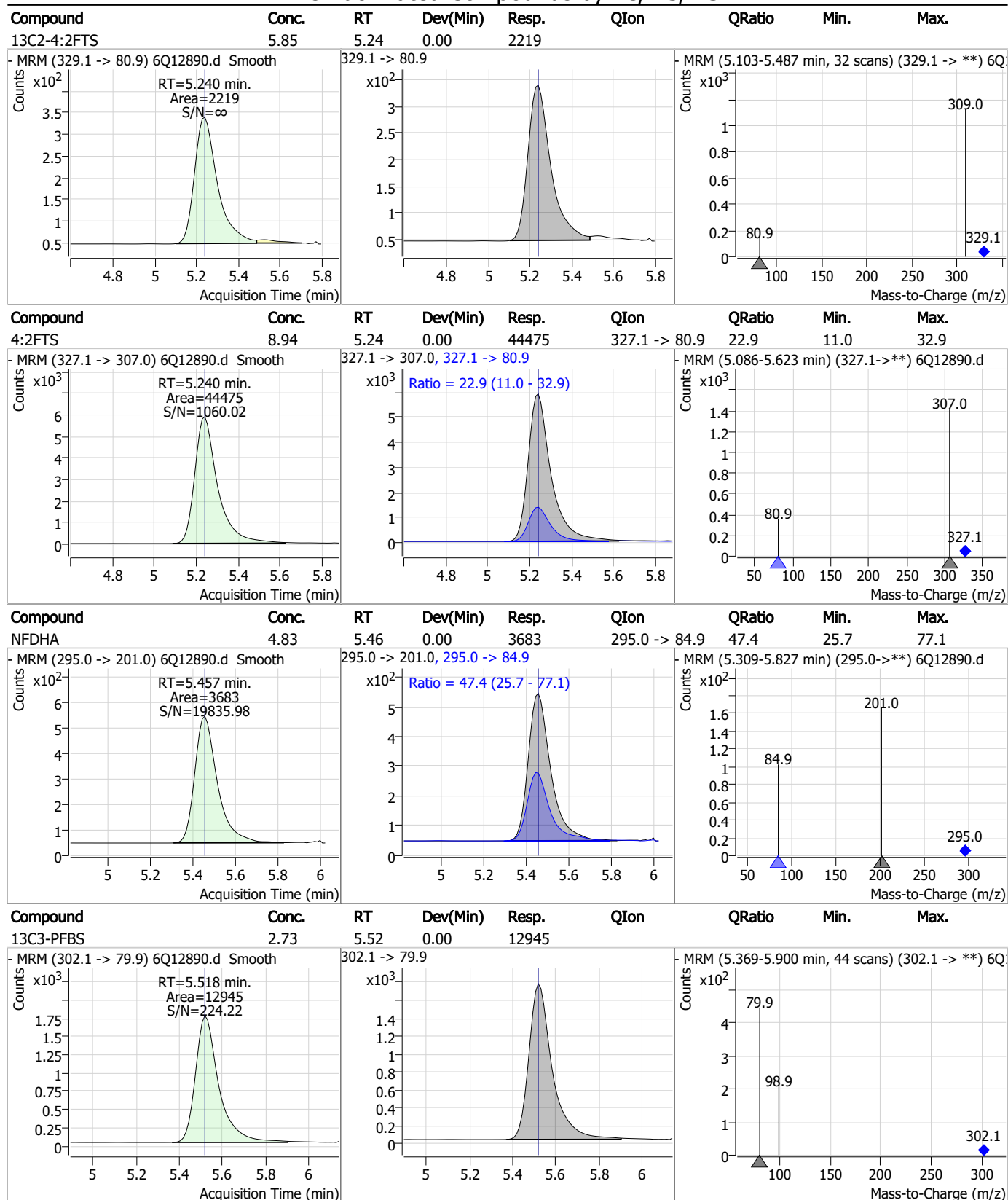
## Perfluorinated Compounds by LC/MS/MS



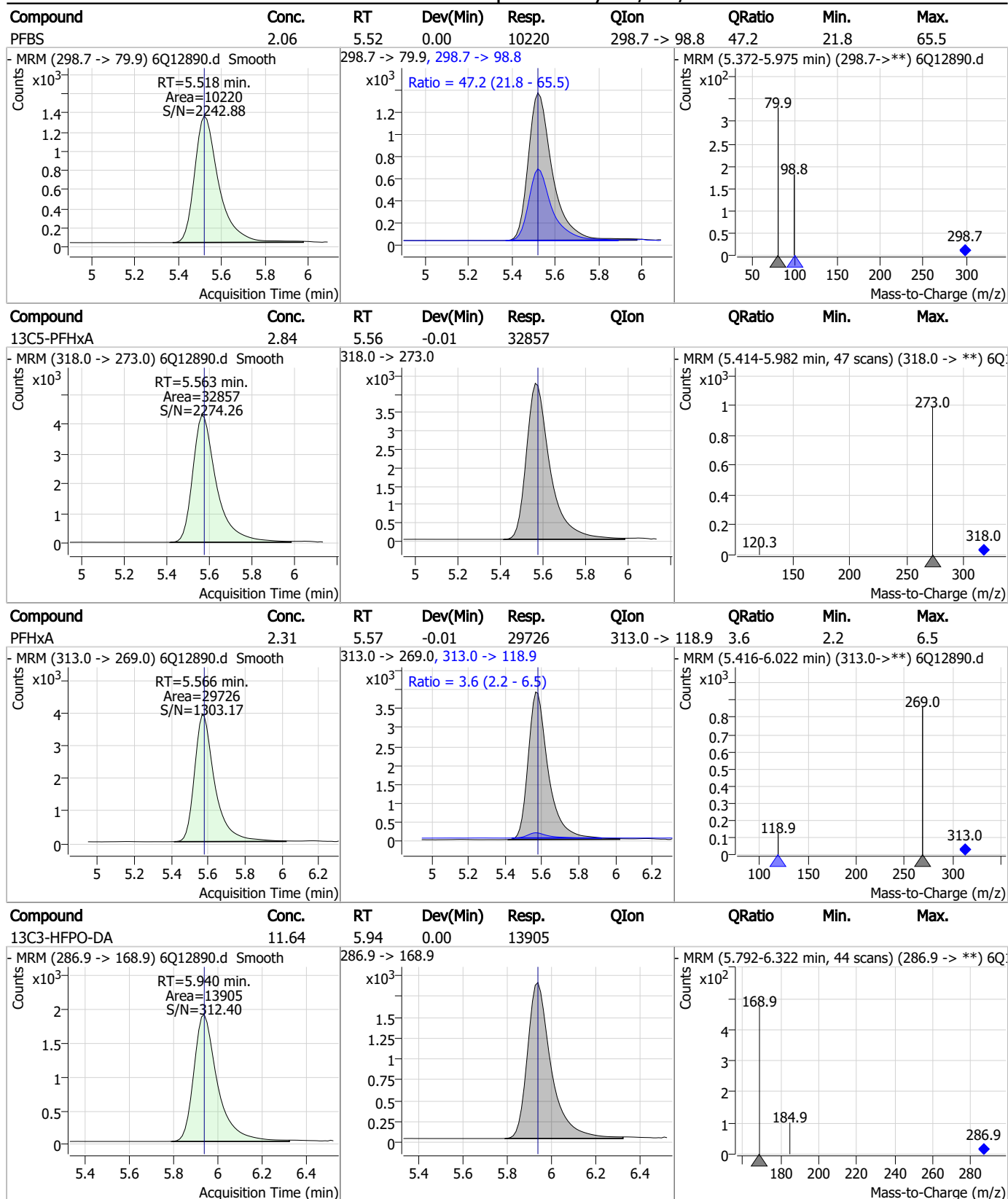
## Perfluorinated Compounds by LC/MS/MS

7.3.1  
7

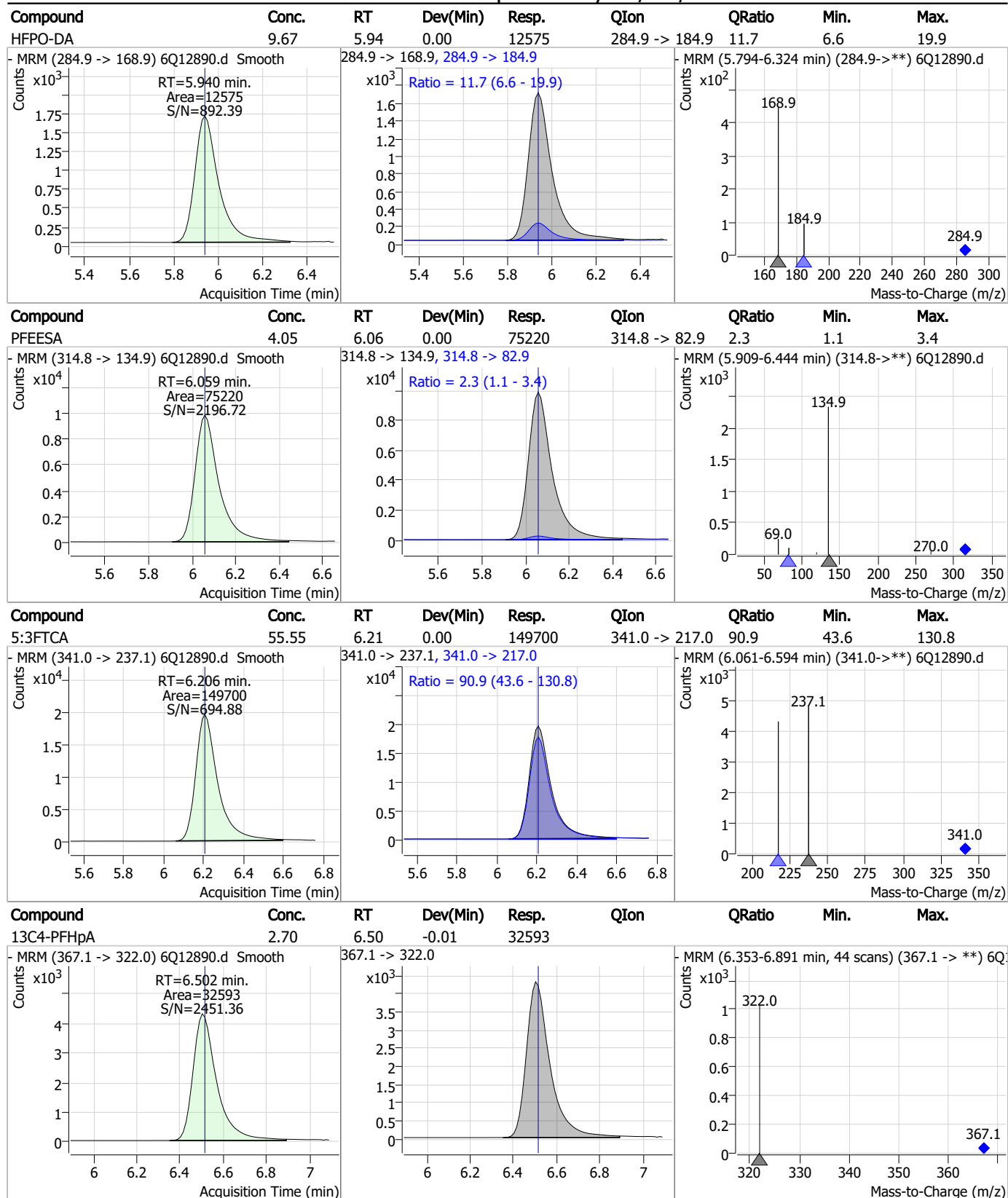
## Perfluorinated Compounds by LC/MS/MS



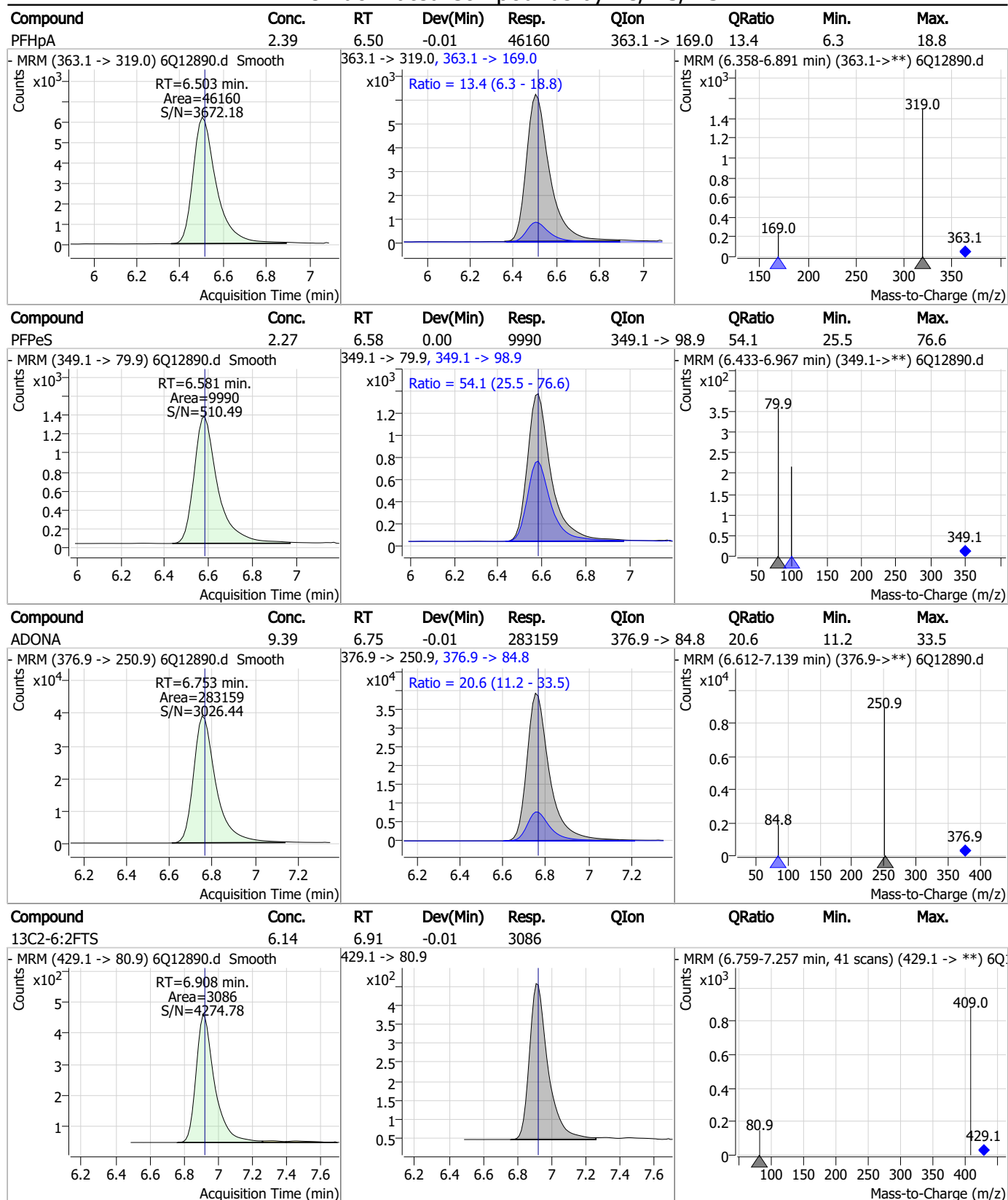
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

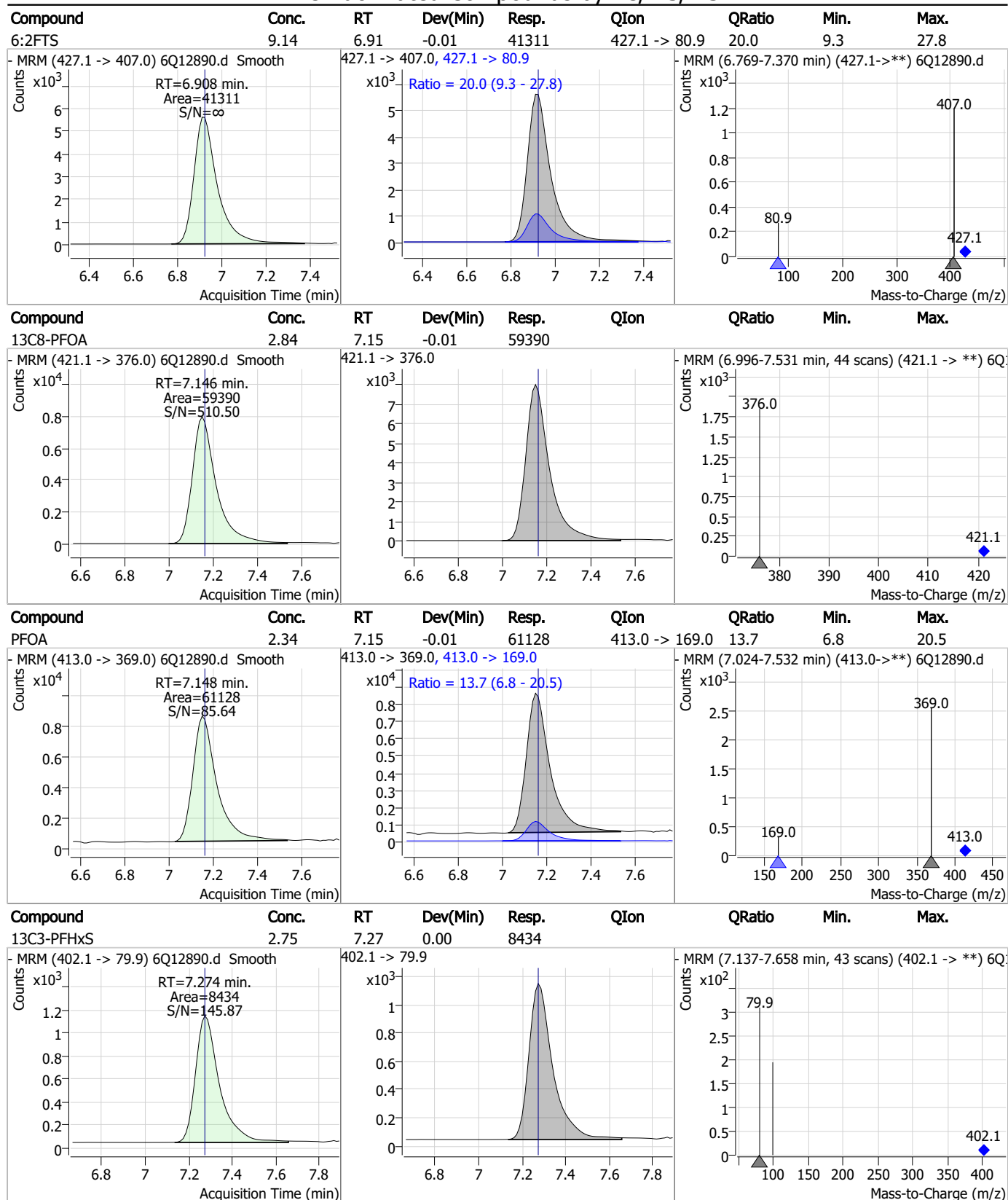


## Perfluorinated Compounds by LC/MS/MS

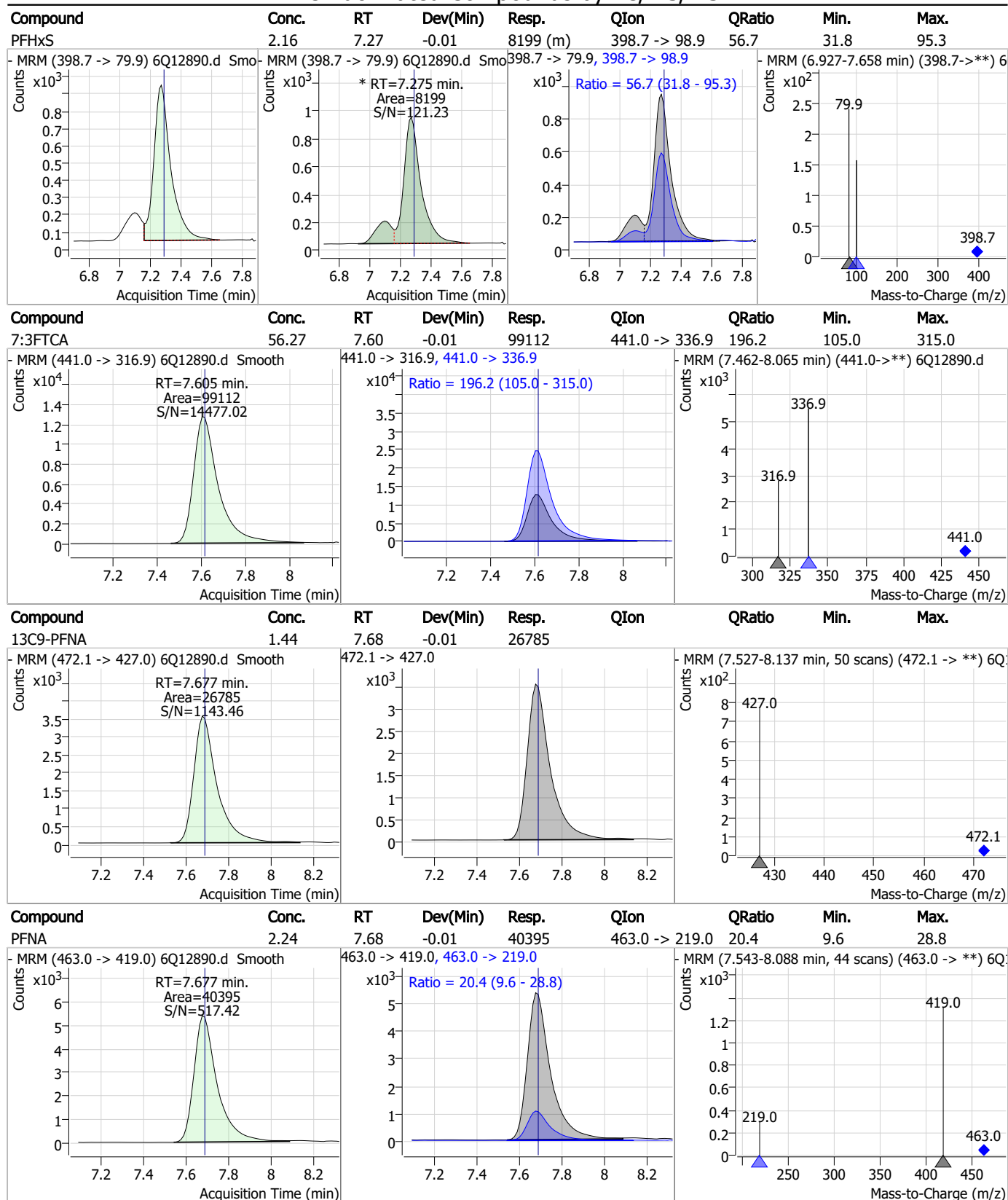




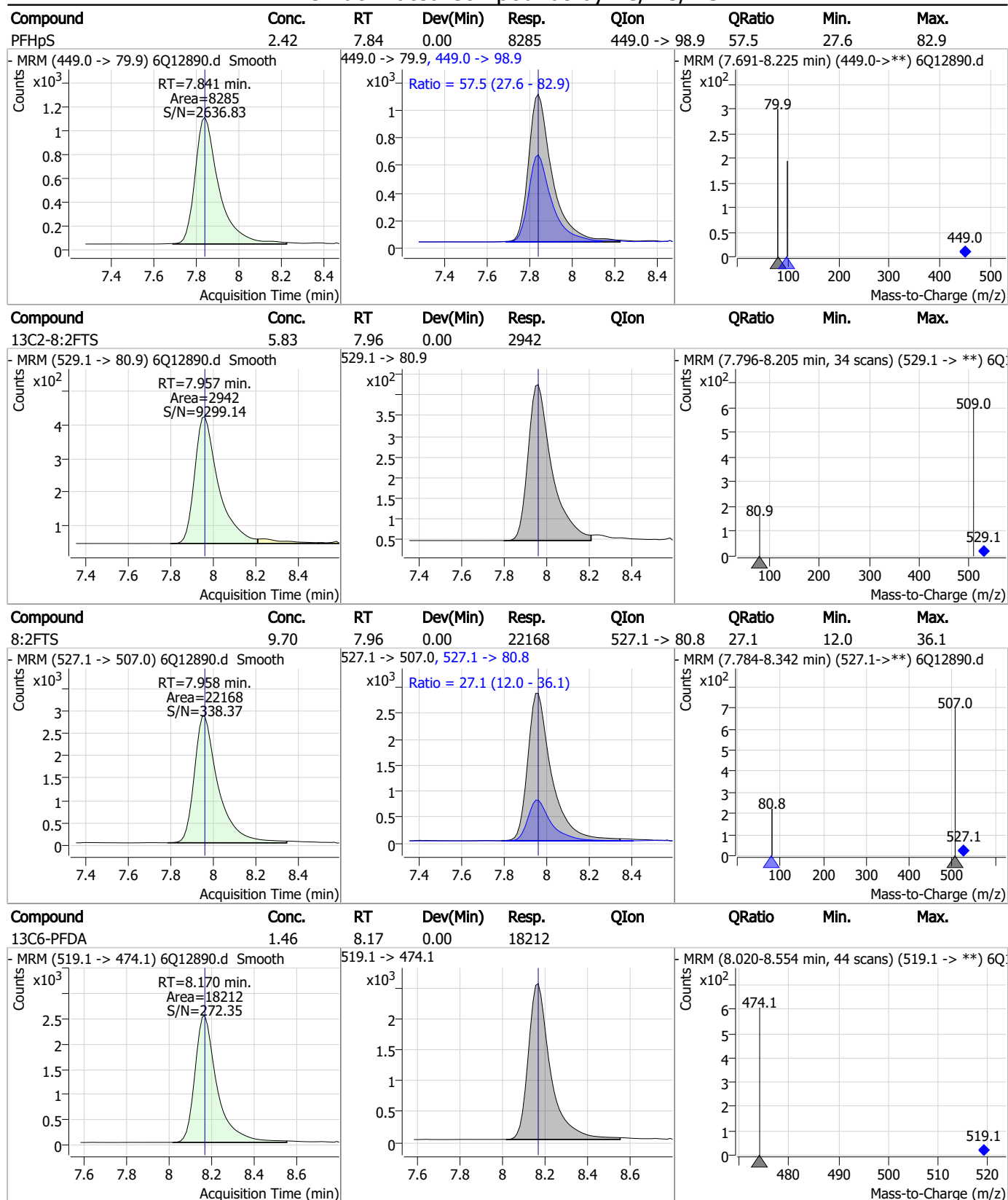
## Perfluorinated Compounds by LC/MS/MS



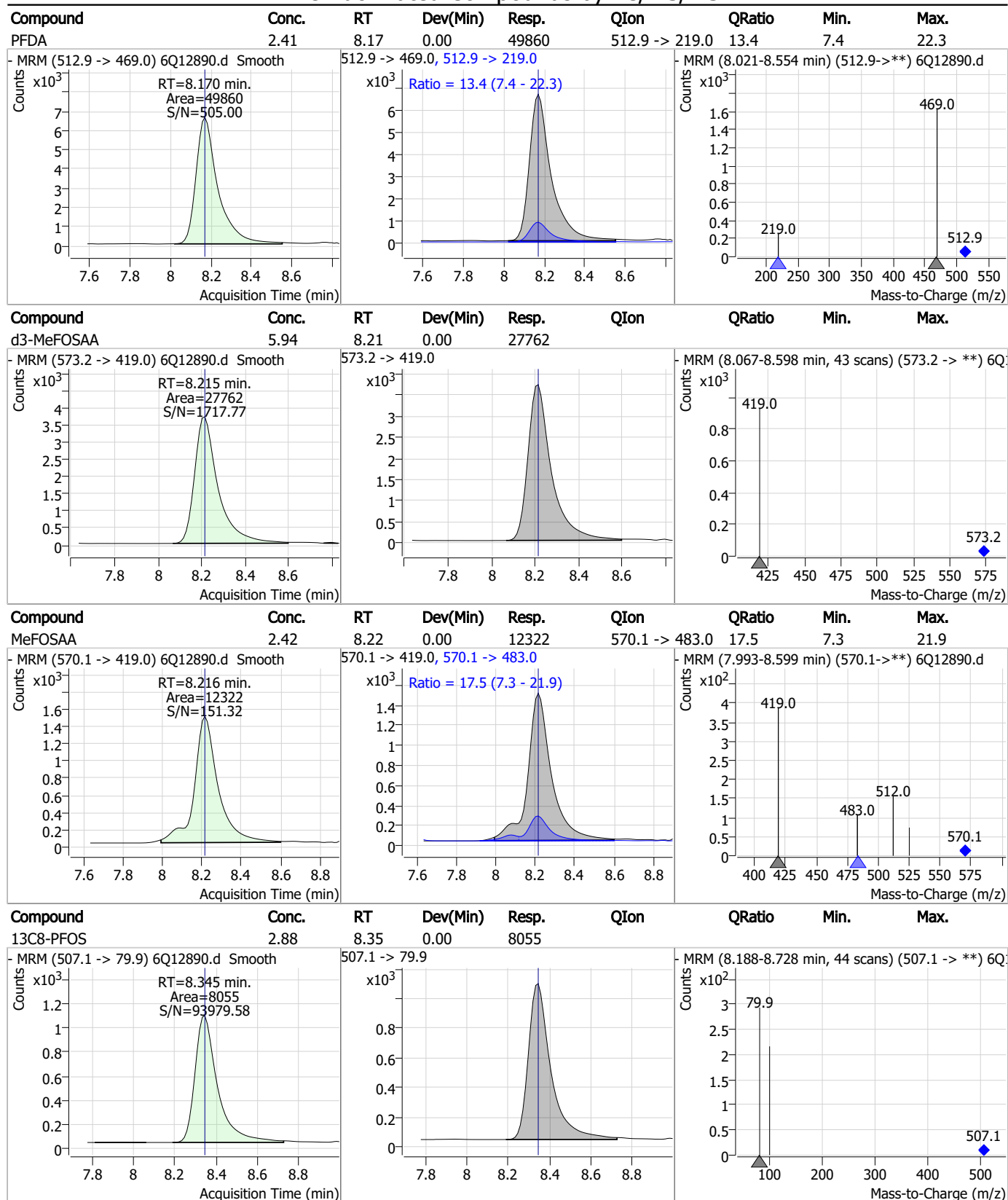
## Perfluorinated Compounds by LC/MS/MS



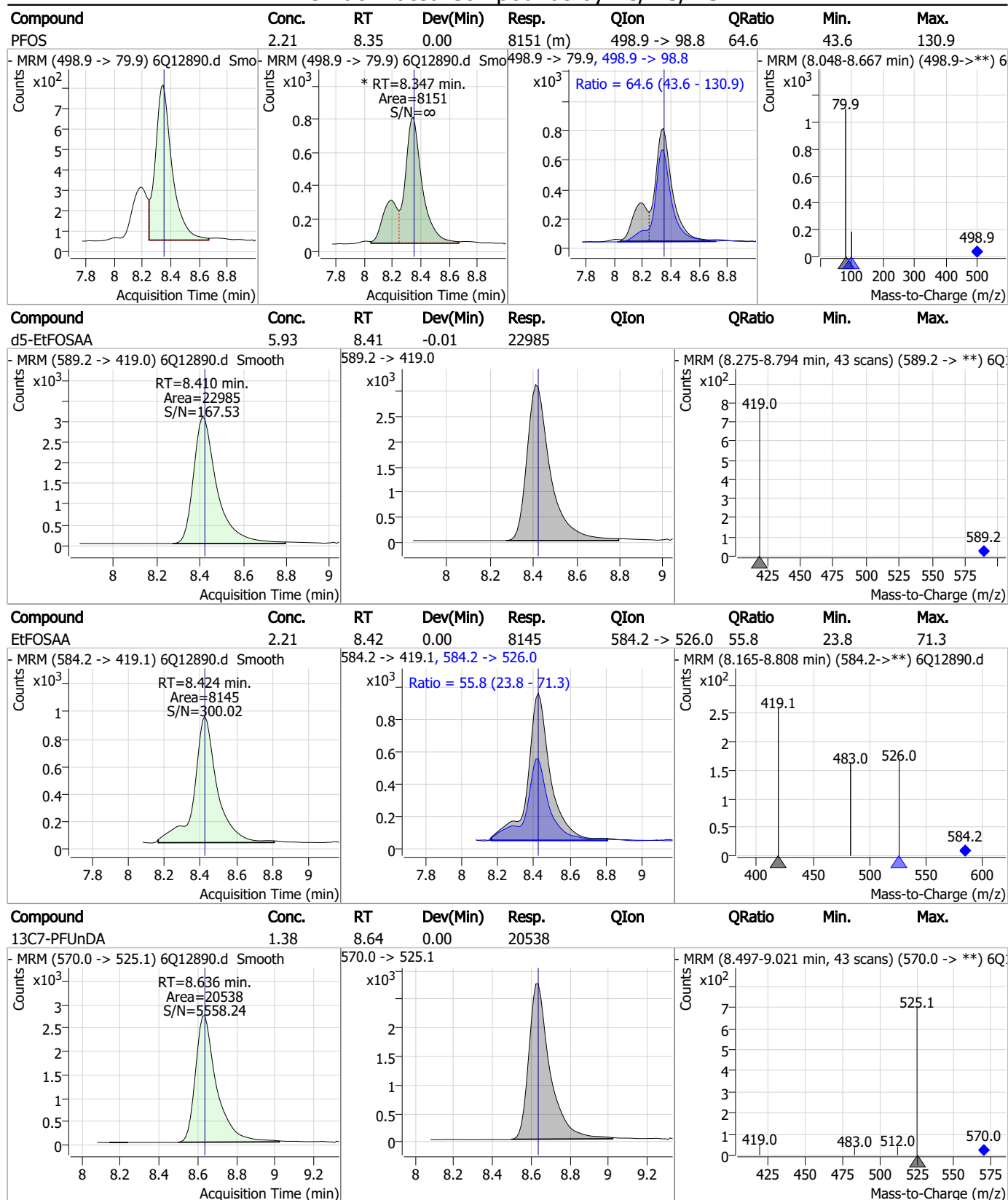
## Perfluorinated Compounds by LC/MS/MS



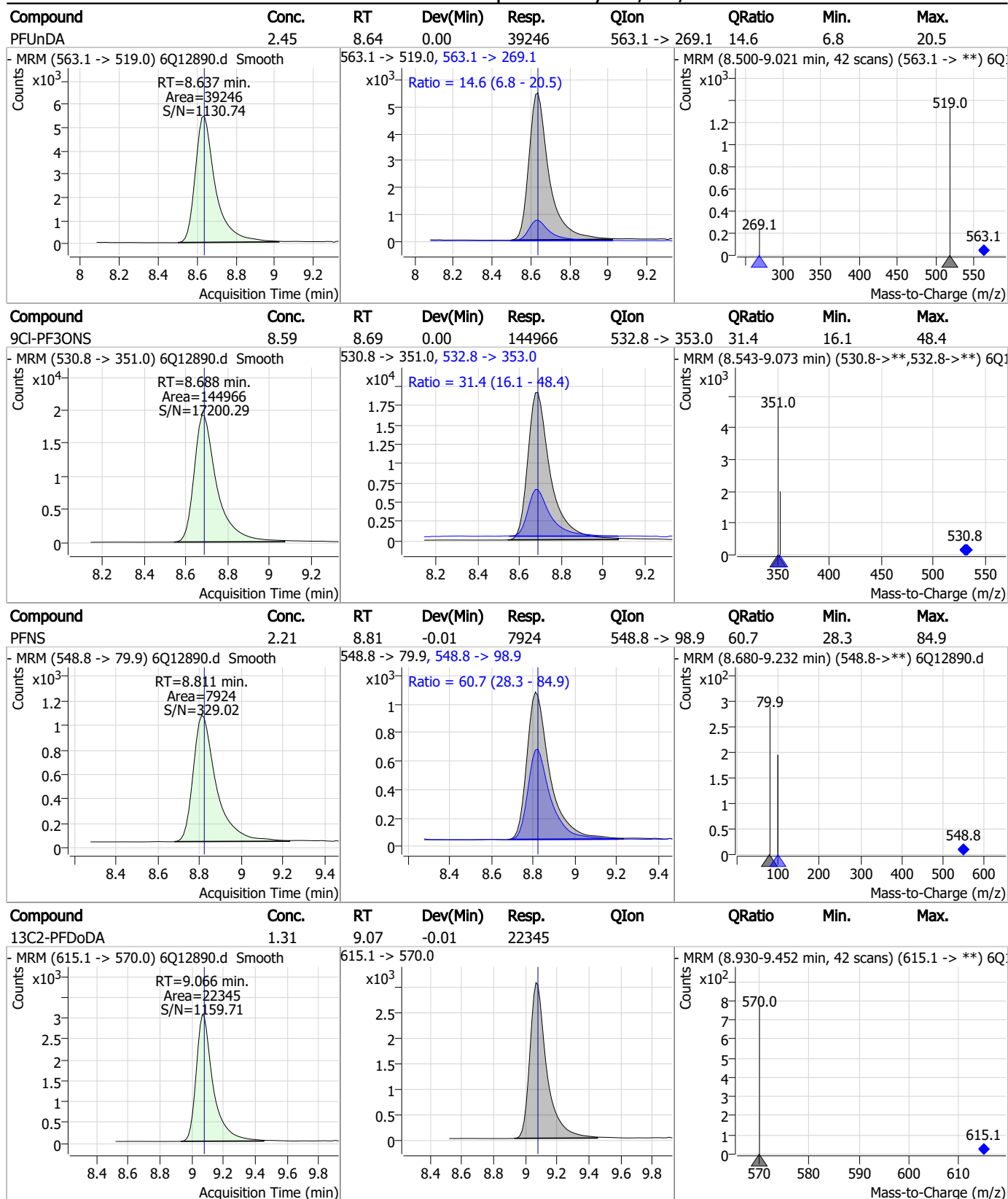
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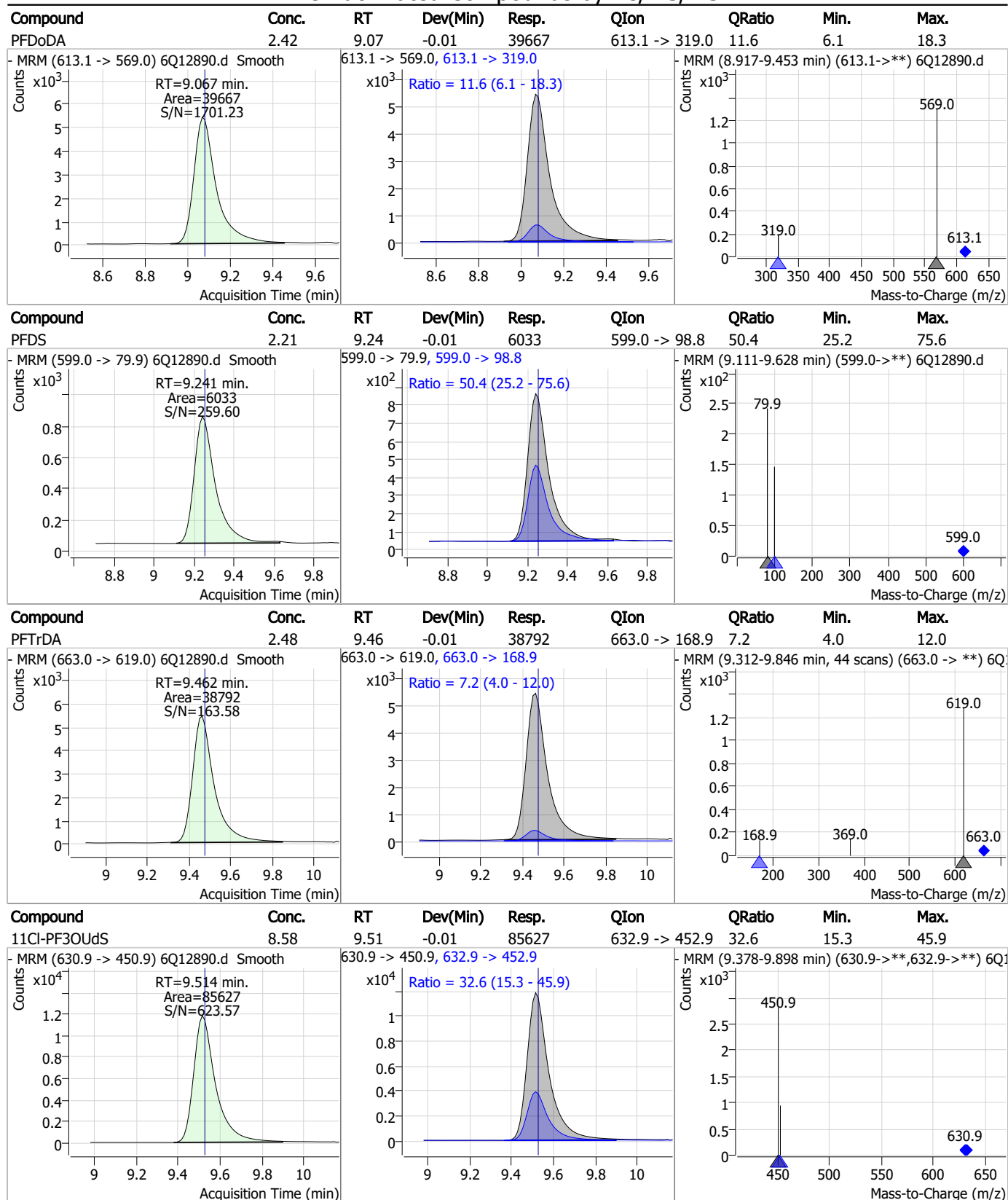
## Perfluorinated Compounds by LC/MS/MS



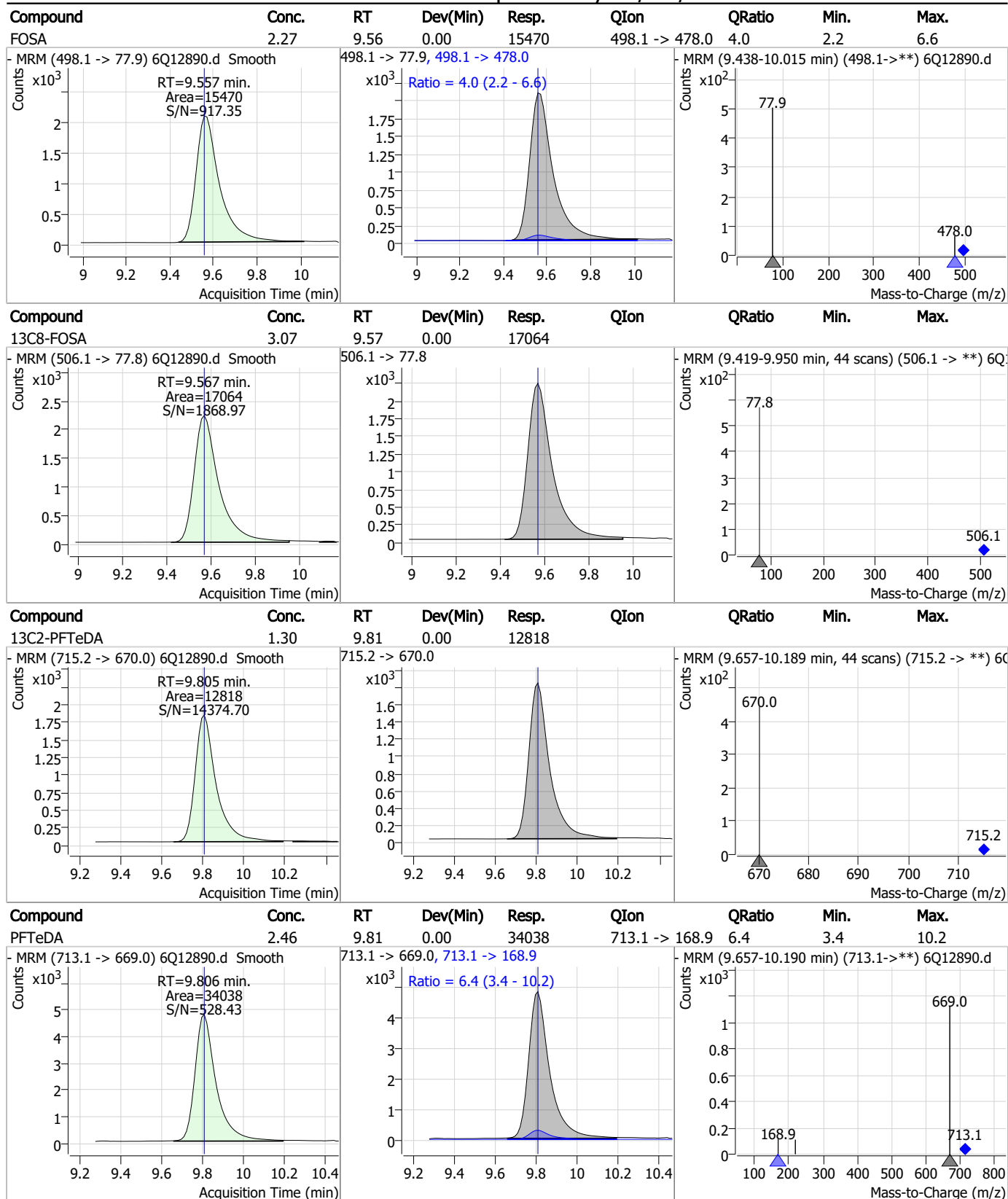
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

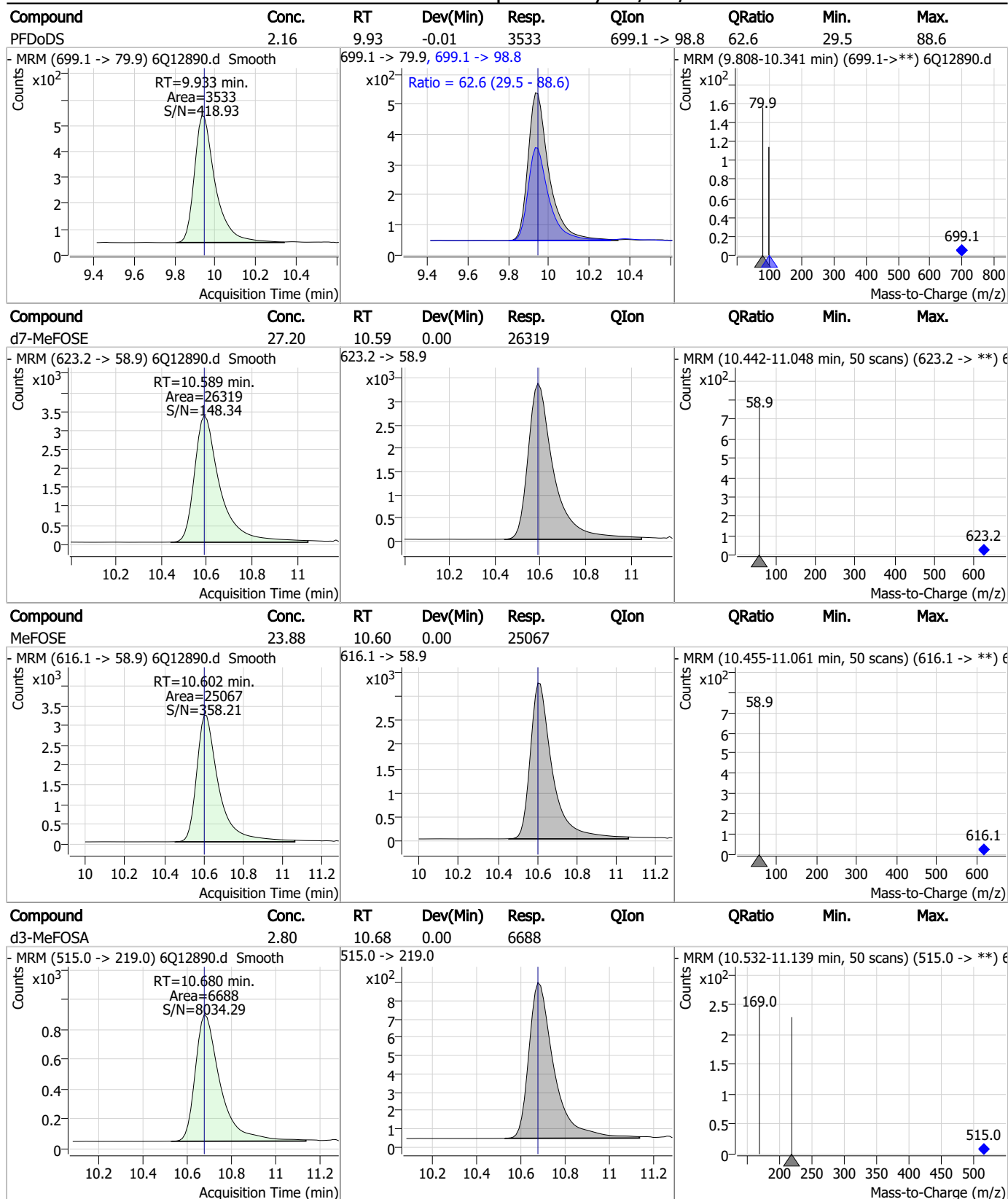


7.3.1

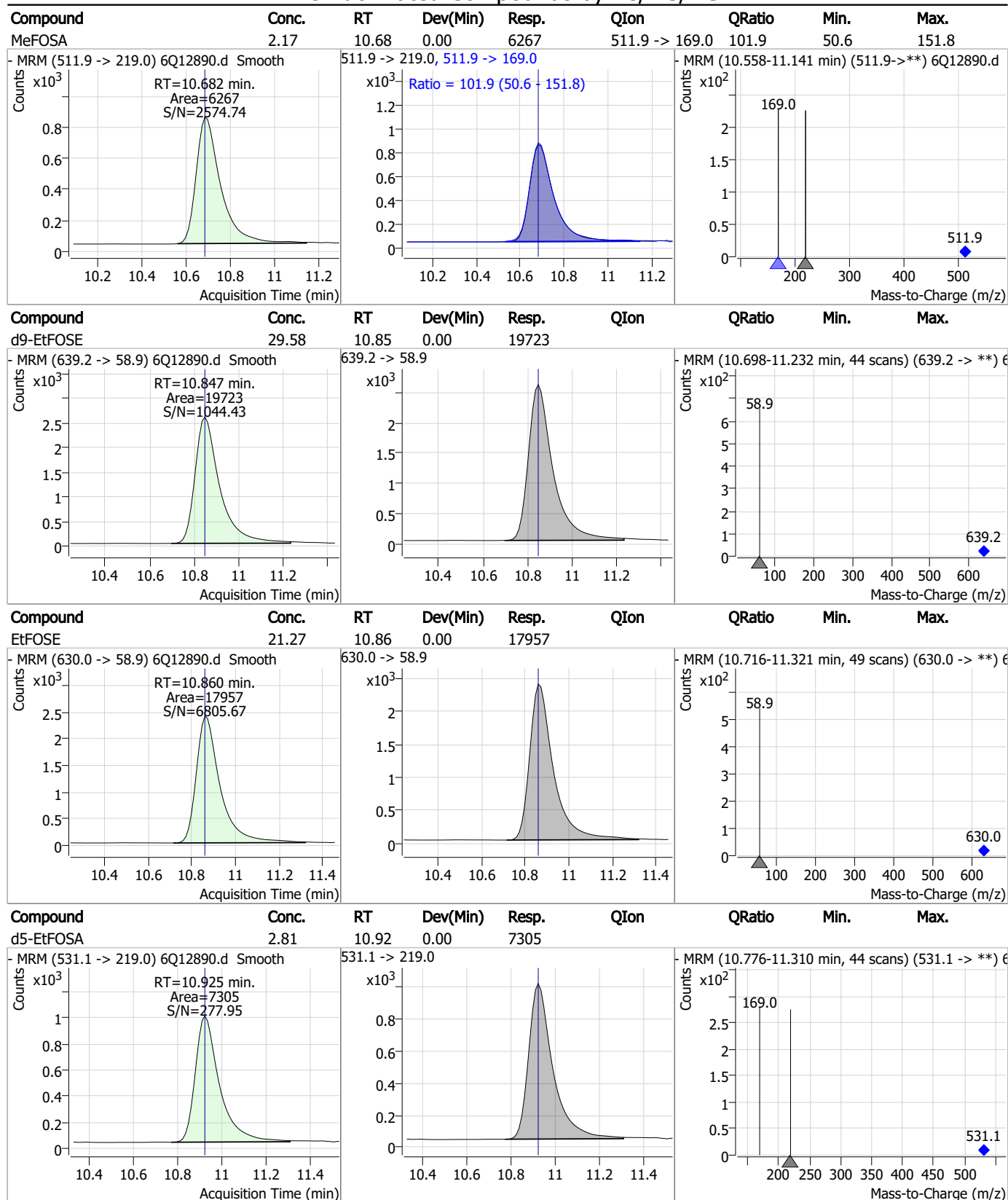
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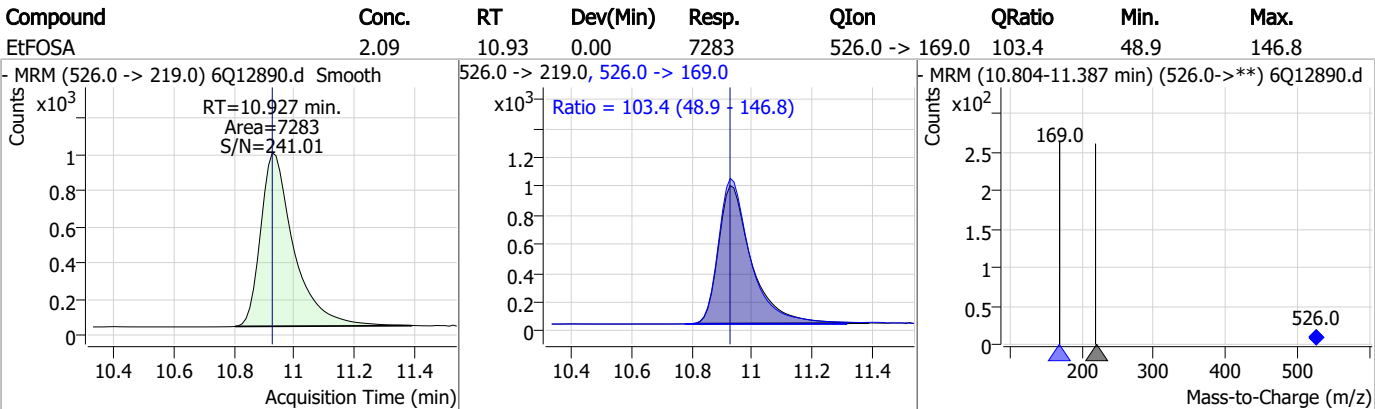
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.3.1  
7

Manual Integration Approval Summary

Sample Number: OP95216-BS

Method: EPA DRAFT 1633

Lab FileID: 6Q12890.D

Analyst approved: 02/06/23 11:00 Martha Valls

Injection Time: 02/03/23 11:26

Supervisor approved: 02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.3.1.1  
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## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12891.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/3/2023 11:40:05 AM  
 Sample Name : op95216-llbs:3  
 Vial : P4-A2  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : s6q198.batch.bin  
 Sample Information : OP95216,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.013	216.8 -> 171.9	69289	10.00 µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	34251	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	30289	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	31874	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	53456	2.50 µg/L	-0.012
M9-PFNA	7.689	472.1 -> 427.0	24064	1.25 µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	16389	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	18901	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	21072	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	9753	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	14990	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	11627	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8151	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	7893	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2265	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2765	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	3007	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	26754	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13163	10.00 µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	20478	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	23236	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	16830	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	5749	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5415	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9113	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	29513	5.00 µg/L	0.037
18O2-PFHxS	7.273	403.0 -> 83.9	5637	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	64619	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	22147	1.25 µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	26767	1.25 µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	28510	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2265	6.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.6%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2765	5.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.7%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3007	6.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.1%		
13C2-PFDoDA	9.066	615.1 -> 570.0	21072	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C2-PFTeDA	9.805	715.2 -> 670.0	9753	1.00 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 80.2%		
13C3-PFBS	5.518	302.1 -> 79.9	11627	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C3-PFHxS	7.274	402.1 -> 79.9	8151	2.75 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 = 110.0%	
13C4-PFBA	3.013	216.8 -> 171.9	69289	10.58 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C4-PFHpA	6.502	367.1 -> 322.0	31874	2.71 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C5-PFHxA	5.575	318.0 -> 273.0	30289	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C5-PFPeA	4.386	268.3 -> 223.0	34251	5.39 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C6-PFDA	8.170	519.1 -> 474.1	16389	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C7-PFUnDA	8.636	570.0 -> 525.1	18901	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C8-FOSA	9.567	506.1 -> 77.8	14990	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-PFOA	7.146	421.1 -> 376.0	53456	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C8-PFOS	8.345	507.1 -> 79.9	7893	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C9-PFNA	7.689	472.1 -> 427.0	24064	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.2%	
d3-MeFOSAA	8.215	573.2 -> 419.0	26754	5.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	13163	11.30 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.0%	
d3-MeFOSA	10.680	515.0 -> 219.0	5415	2.12 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.7%	
d5-EtFOSAA	8.422	589.2 -> 419.0	20478	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
d7-MeFOSE	10.589	623.2 -> 58.9	23236	22.45 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.8%	
d9-EtFOSE	10.847	639.2 -> 58.9	16830	23.60 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.4%	
d5-EtFOSA	10.925	531.1 -> 219.0	5749	2.07 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.7%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.240	327.1 -> 307.0	19158	3.77 µg/L	100
		327.1 -> 80.9	4228		
6:2FTS	6.921	427.1 -> 407.0	15704	3.88 µg/L	97
		427.1 -> 80.9	3110		
8:2FTS	7.958	527.1 -> 507.0	8348	3.58 µg/L	93
		527.1 -> 80.8	2293		
EtFOSAA	8.424	584.2 -> 419.1	2857	0.87 µg/L	76
		584.2 -> 526.0	1825		
FOSA	9.570	498.1 -> 77.9	6318	1.06 µg/L	98
		498.1 -> 478.0	235		
MeFOSAA	8.216	570.1 -> 419.0	4890	1.00 µg/L	97
		570.1 -> 483.0	768		
PFBA	3.007	212.8 -> 168.9	6128	3.96 µg/L	100
PFBS	5.518	298.7 -> 79.9	4012	0.90 µg/L	93
		298.7 -> 98.8	1941		
PFDA	8.170	512.9 -> 469.0	19650	1.05 µg/L	98
		512.9 -> 219.0	2787		
PFDODA	9.067	613.1 -> 569.0	15948	1.03 µg/L	97
		613.1 -> 319.0	1783		
PFDS	9.241	599.0 -> 79.9	2197	0.82 µg/L	86

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.515	599.0 -> 98.8	1323	0.96	µg/L	94
		363.1 -> 319.0	18074			
PFHpS	7.841	363.1 -> 169.0	2676	1.00	µg/L	94
		449.0 -> 79.9	3359			
PFHxA	5.578	449.0 -> 98.9	2009	1.04	µg/L	98
		313.0 -> 269.0	12334			
PFHxS	7.275	313.0 -> 118.9	469	0.95	µg/L	84
		398.7 -> 79.9	3472			
PFNA	7.677	398.7 -> 98.9	1788	1.03	µg/L	97
		463.0 -> 419.0	16644			
PFNS	8.811	463.0 -> 219.0	3007	0.98	µg/L	99
		548.8 -> 79.9	3447			
PFOA	7.148	548.8 -> 98.9	1988	1.07	µg/L	99
		413.0 -> 369.0	25144			
PFOS	8.347	413.0 -> 169.0	3338	0.94	µg/L	71
		498.9 -> 79.9	3421			
PFPeA	4.388	498.9 -> 98.8	2058	2.05	µg/L	100
		263.0 -> 219.0	14795			
PFPeS	6.581	349.1 -> 79.9	3887	0.91	µg/L	97
		349.1 -> 98.9	2064			
PFTeDA	9.806	713.1 -> 669.0	11792	1.12	µg/L	98
		713.1 -> 168.9	876			
PFTrDA	9.462	663.0 -> 619.0	14424	0.98	µg/L	97
		663.0 -> 168.9	1295			
PFUnDA	8.637	563.1 -> 519.0	15607	1.06	µg/L	99
		563.1 -> 269.1	2189			
11CI-PF3OUdS	9.514	630.9 -> 450.9	34368	3.64	µg/L	100
		632.9 -> 452.9	10558			
9CI-PF3ONS	8.688	530.8 -> 351.0	62193	3.89	µg/L	92
		532.8 -> 353.0	17310			
ADONA	6.766	376.9 -> 250.9	102746	3.60	µg/L	97
		376.9 -> 84.8	24563			
HFPO-DA	5.940	284.9 -> 168.9	5222	4.24	µg/L	92
		284.9 -> 184.9	529			
3:3FTCA	3.878	241.0 -> 177.0	1496	4.21	µg/L	98
		241.0 -> 117.0	206			
5:3FTCA	6.206	341.0 -> 237.1	57878	23.30	µg/L	94
		341.0 -> 217.0	53601			
7:3FTCA	7.617	441.0 -> 316.9	38618	23.78	µg/L	81
		441.0 -> 336.9	69874			
EtFOSA	10.927	526.0 -> 219.0	2514	0.92	µg/L	96
		526.0 -> 169.0	2550			
EtFOSE	10.860	630.0 -> 58.9	6324	8.78	µg/L	100
		511.9 -> 219.0	2272			
MeFOSA	10.682	511.9 -> 169.0	2157	0.97	µg/L	94
		616.1 -> 58.9	8473			
MeFOSE	10.615	699.1 -> 79.9	1303	9.14	µg/L	100
		699.1 -> 98.8	772			
PFDoDS	9.945	295.0 -> 201.0	1539	0.81	µg/L	100
		295.0 -> 84.9	795			
NFDHA	5.457	279.0 -> 85.1	3972	2.19	µg/L	100
		229.0 -> 84.9	3978			
PFMBA	4.800	314.8 -> 134.9	30066	1.76	µg/L	100
		314.8 -> 82.9	691			

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

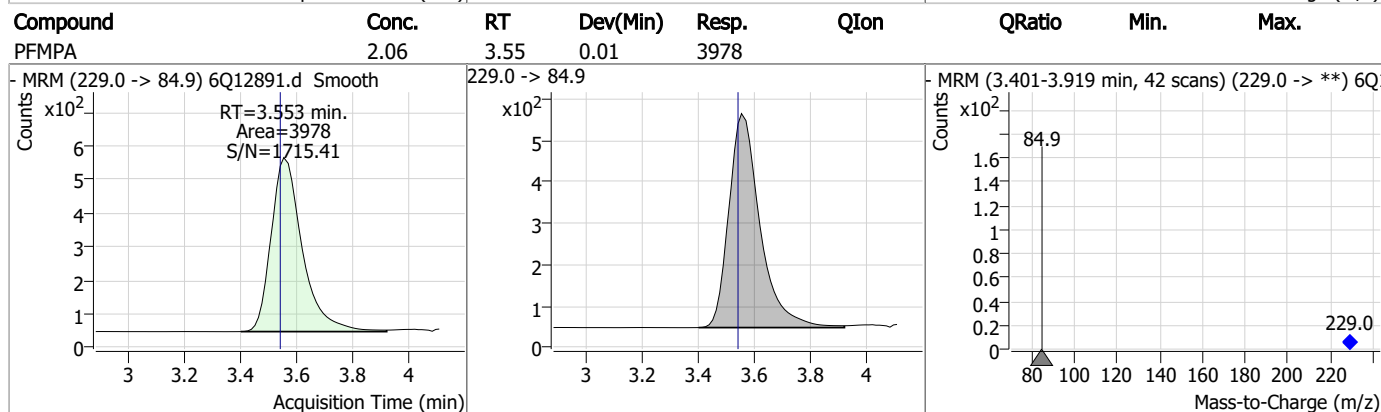
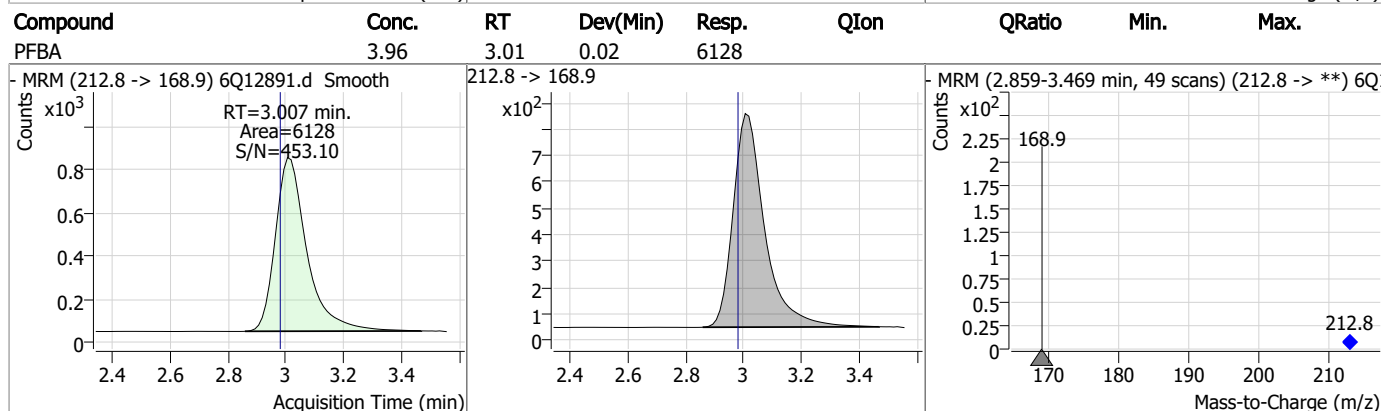
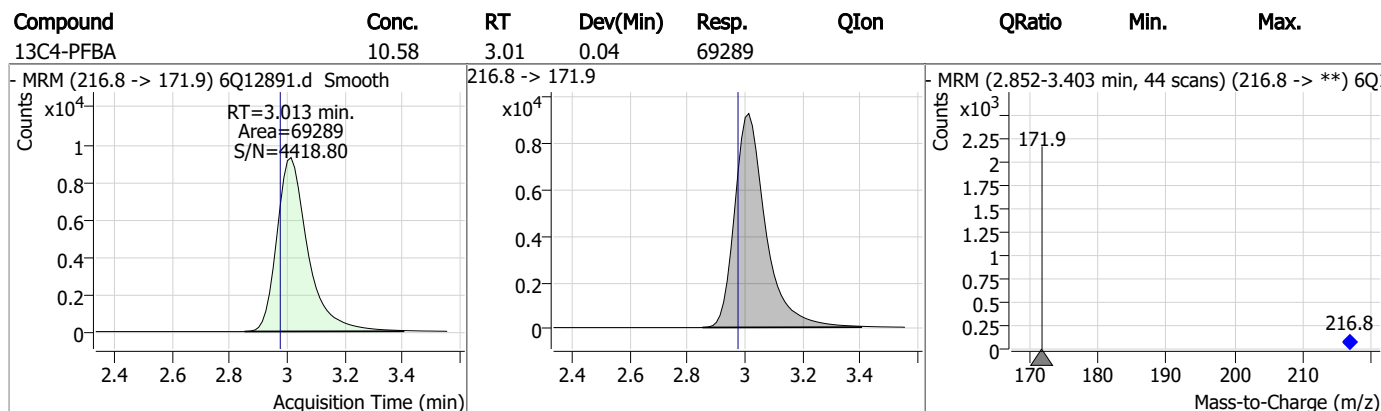
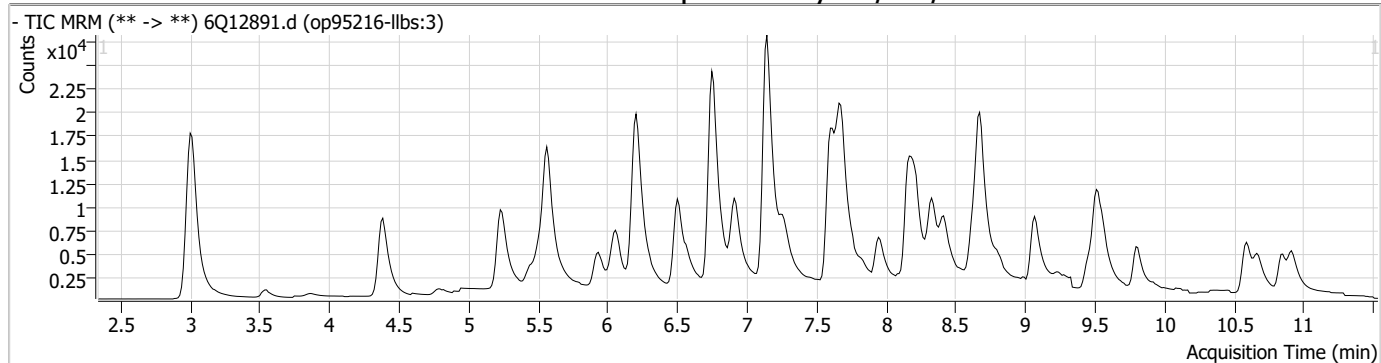
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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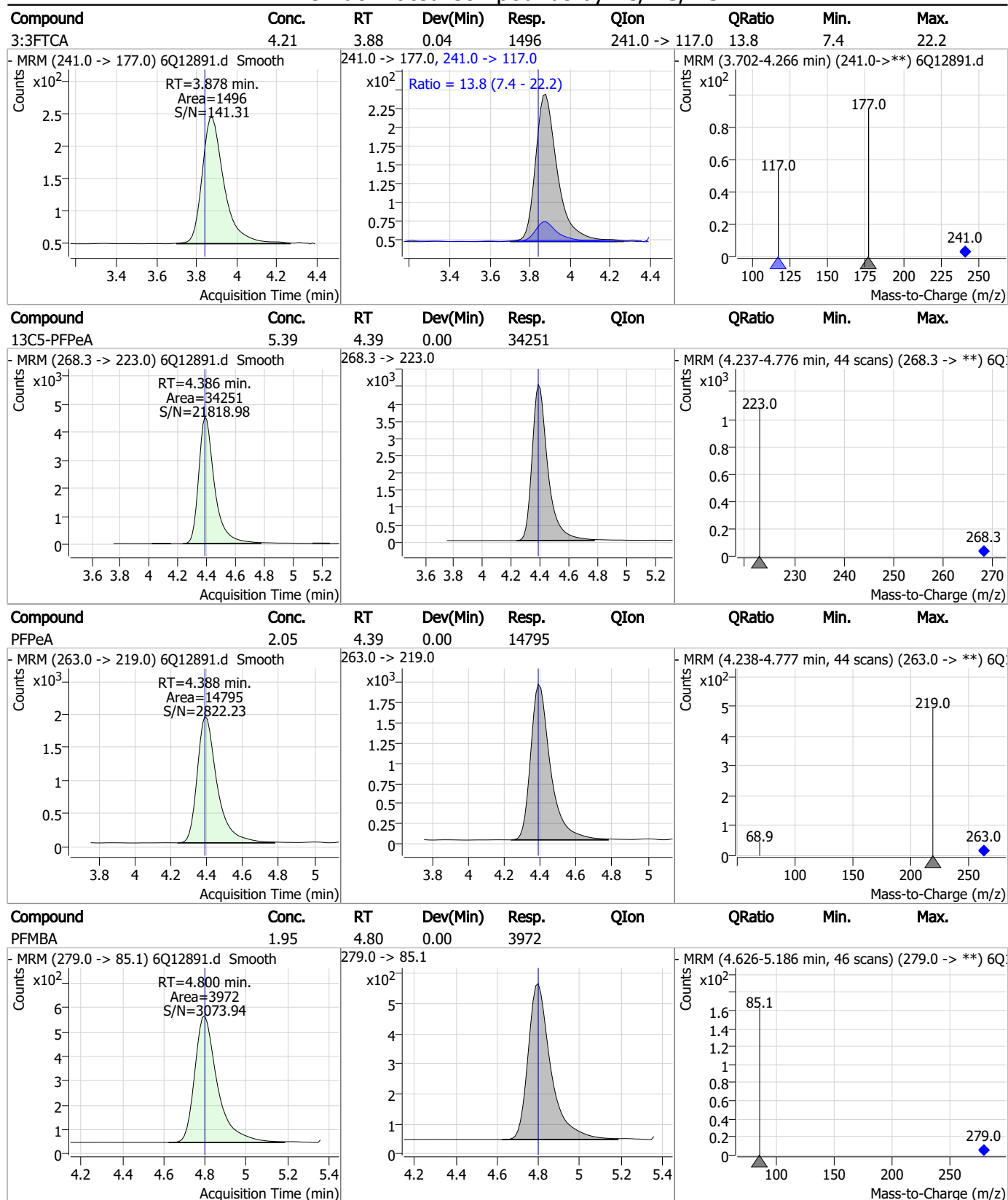
7.3.2  
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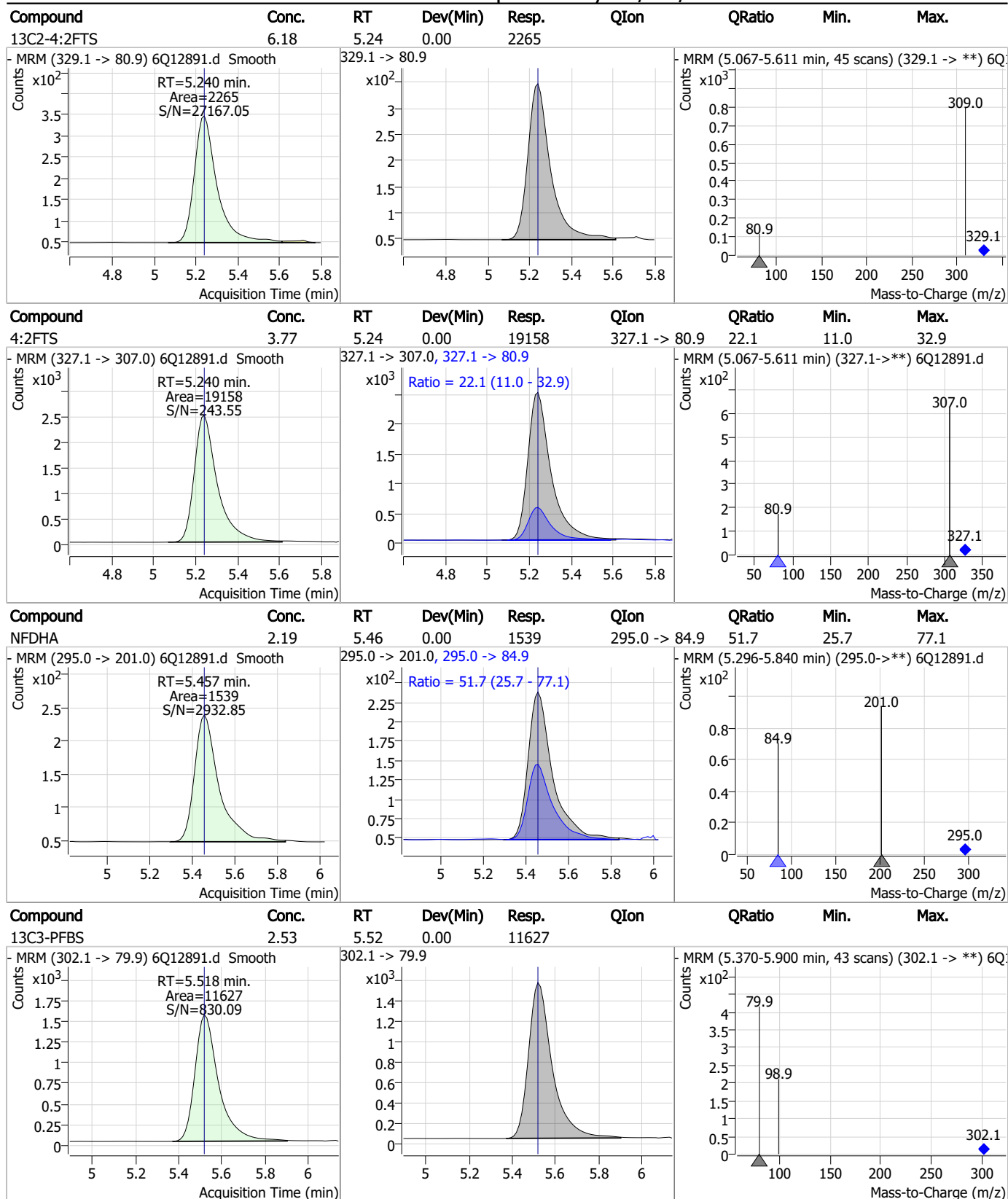
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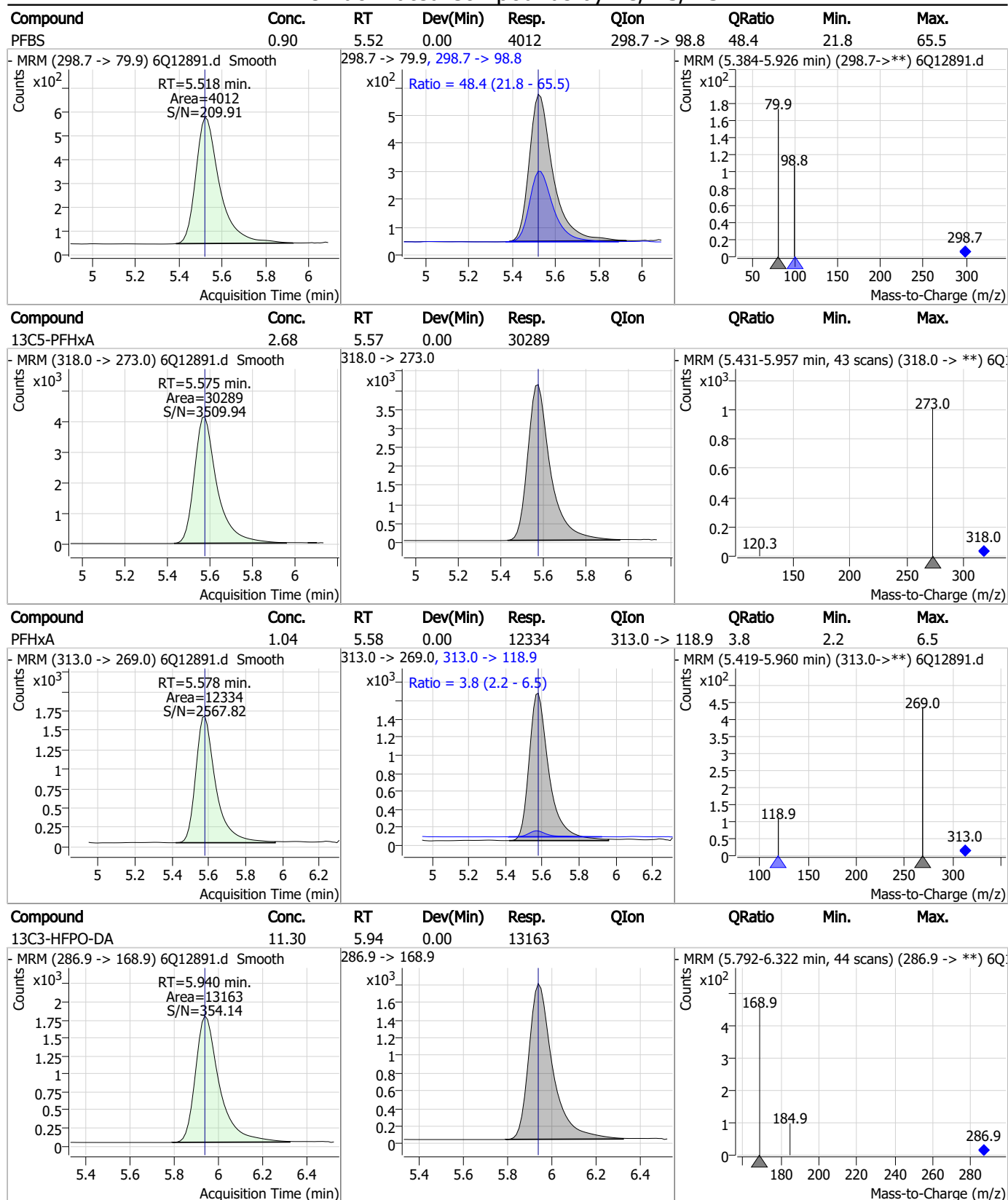
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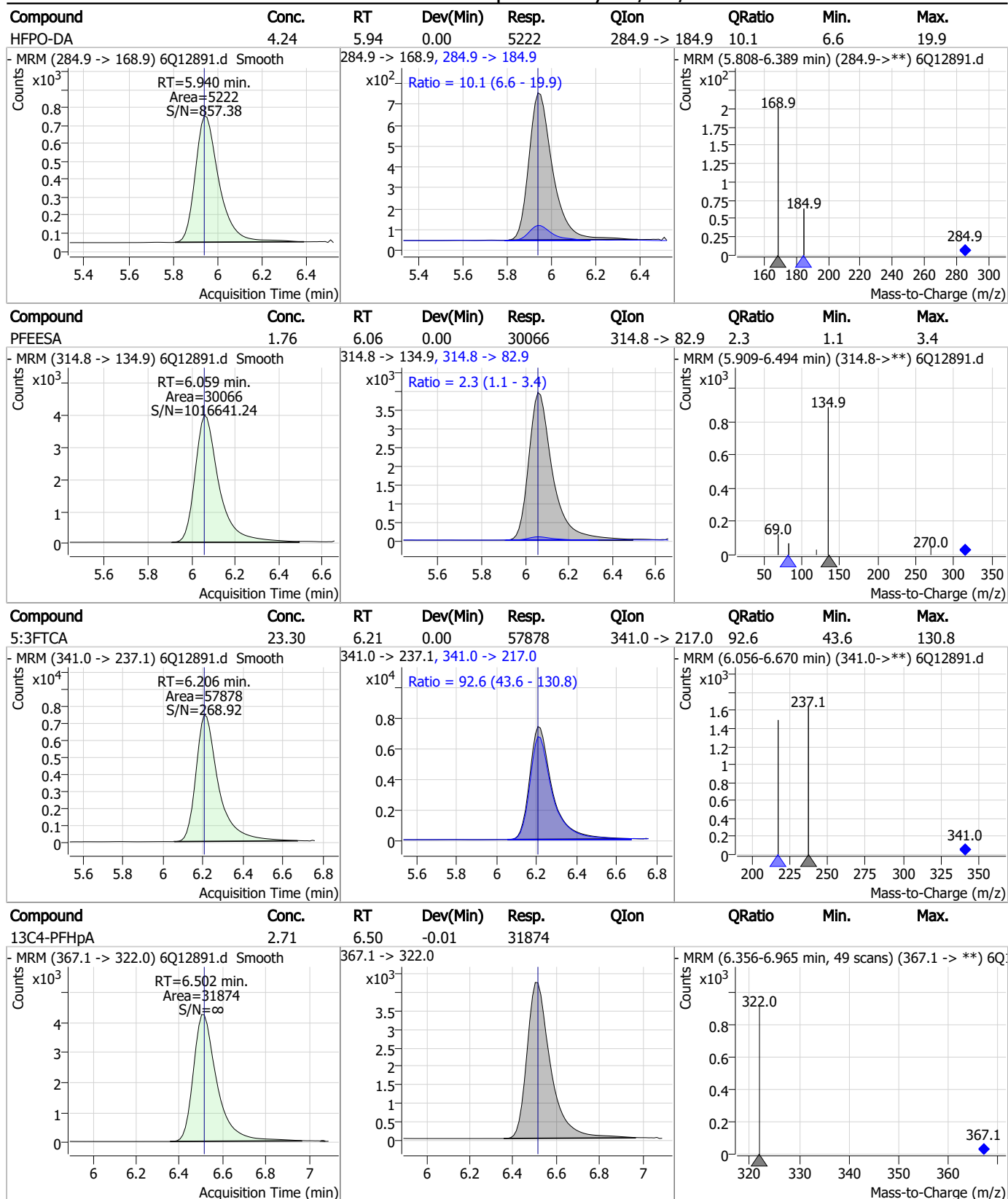
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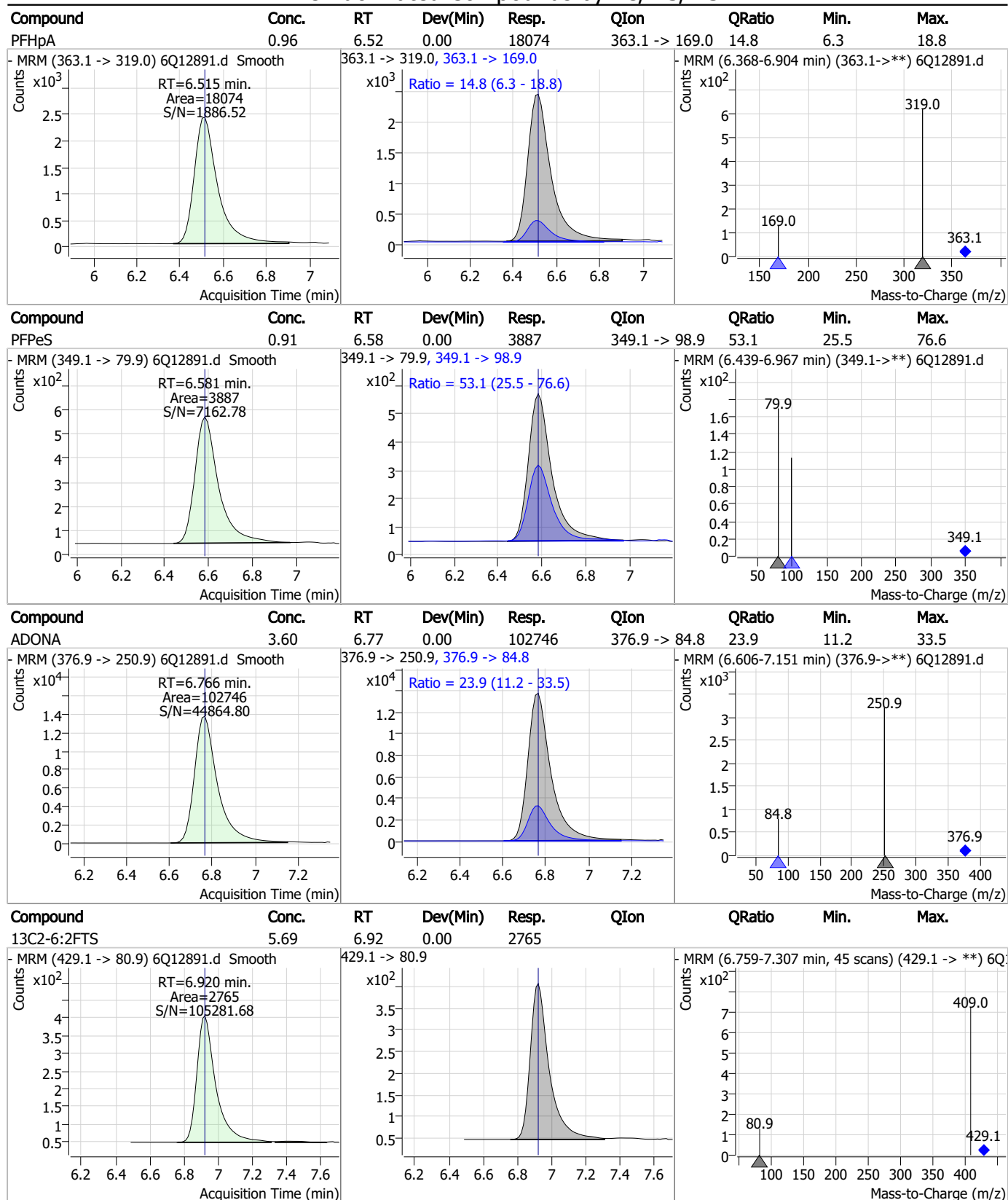
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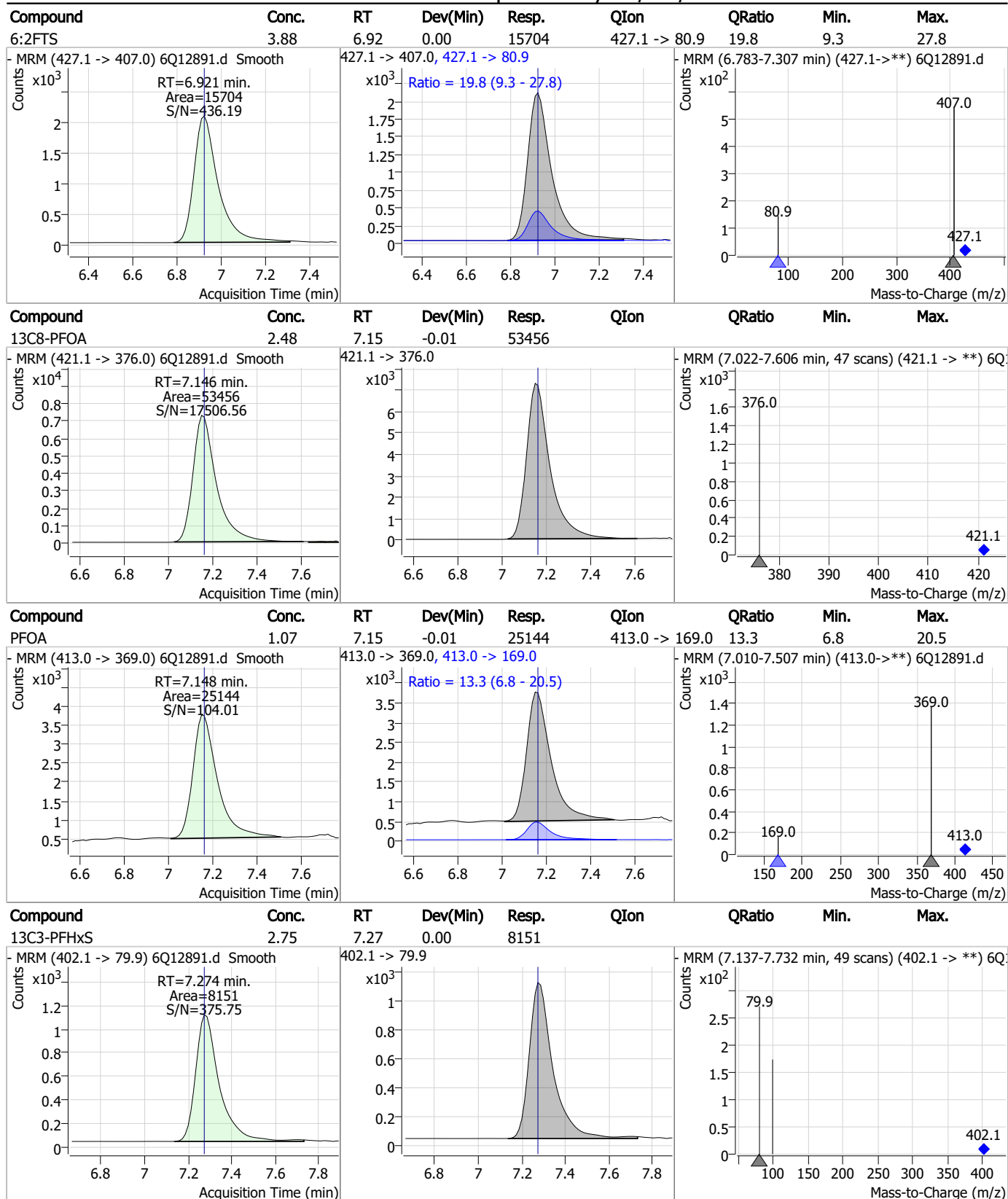
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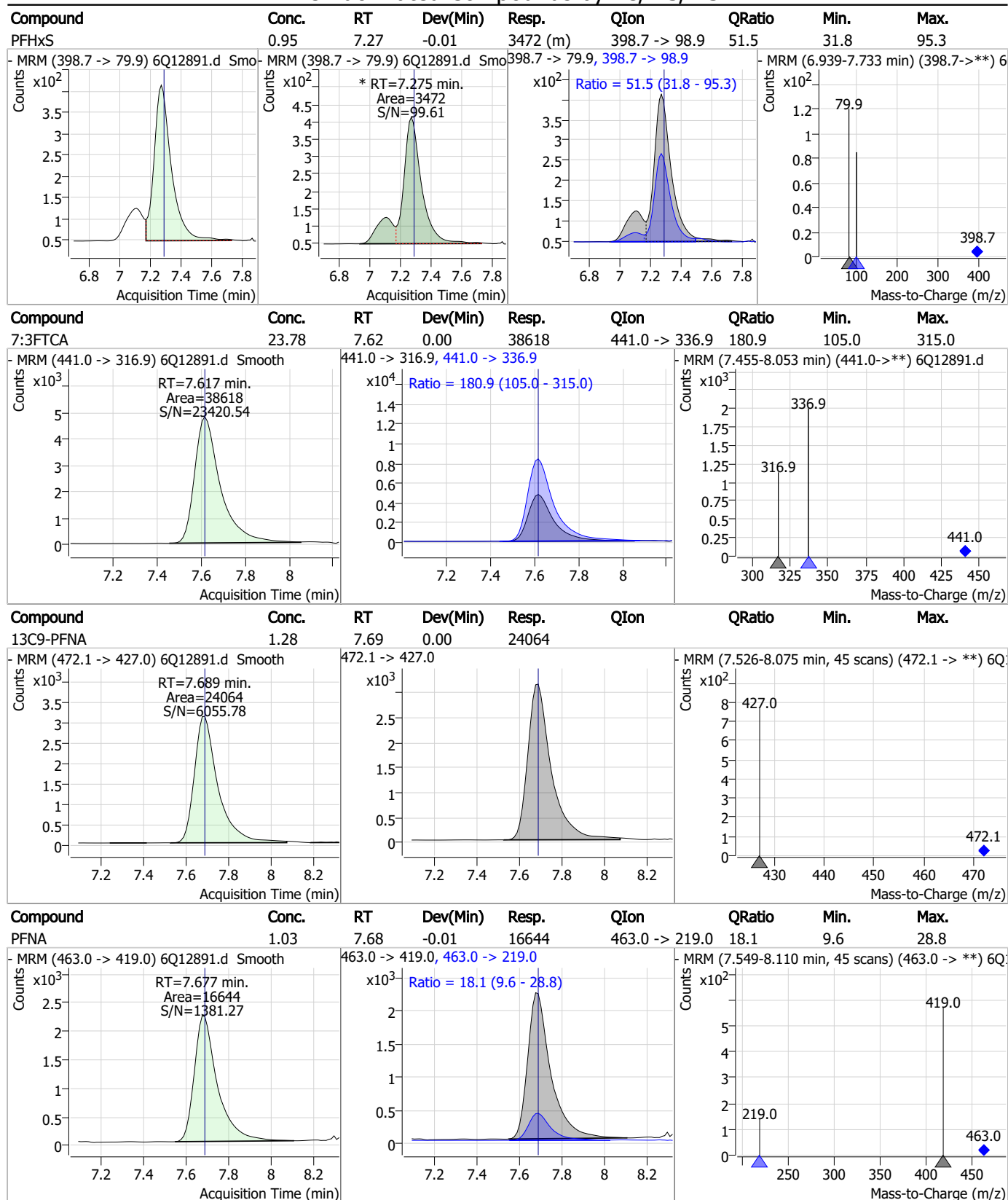
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

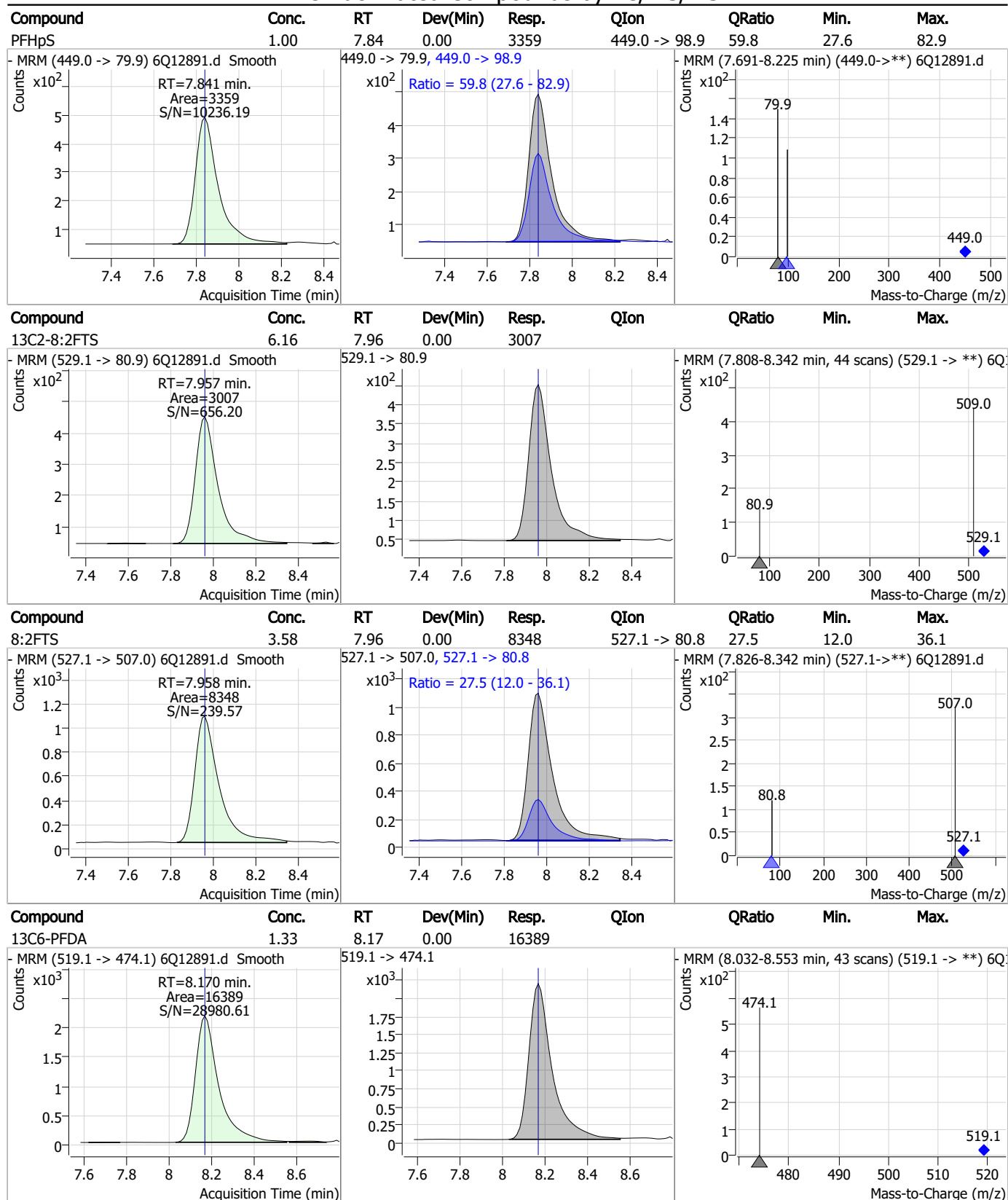


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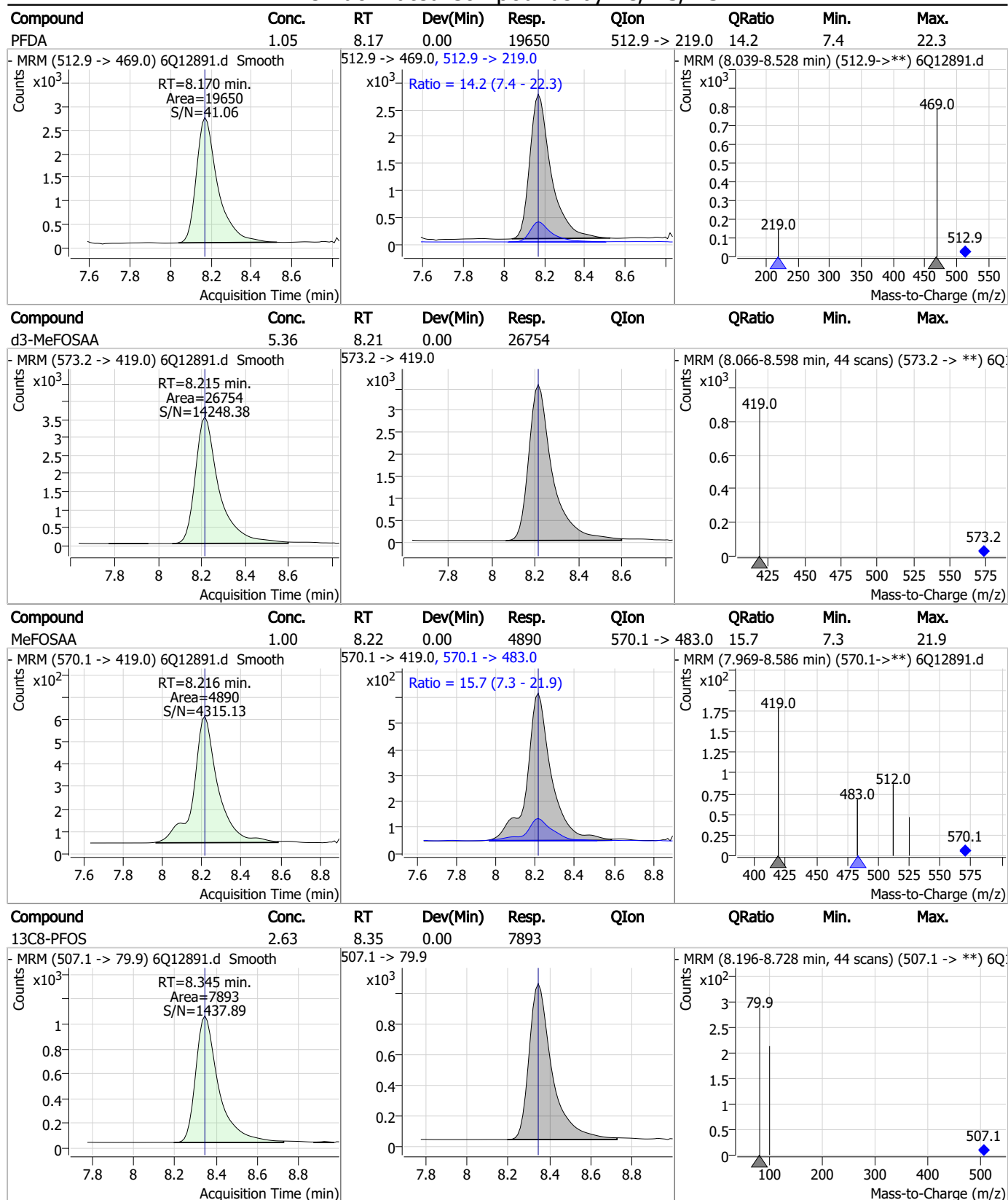




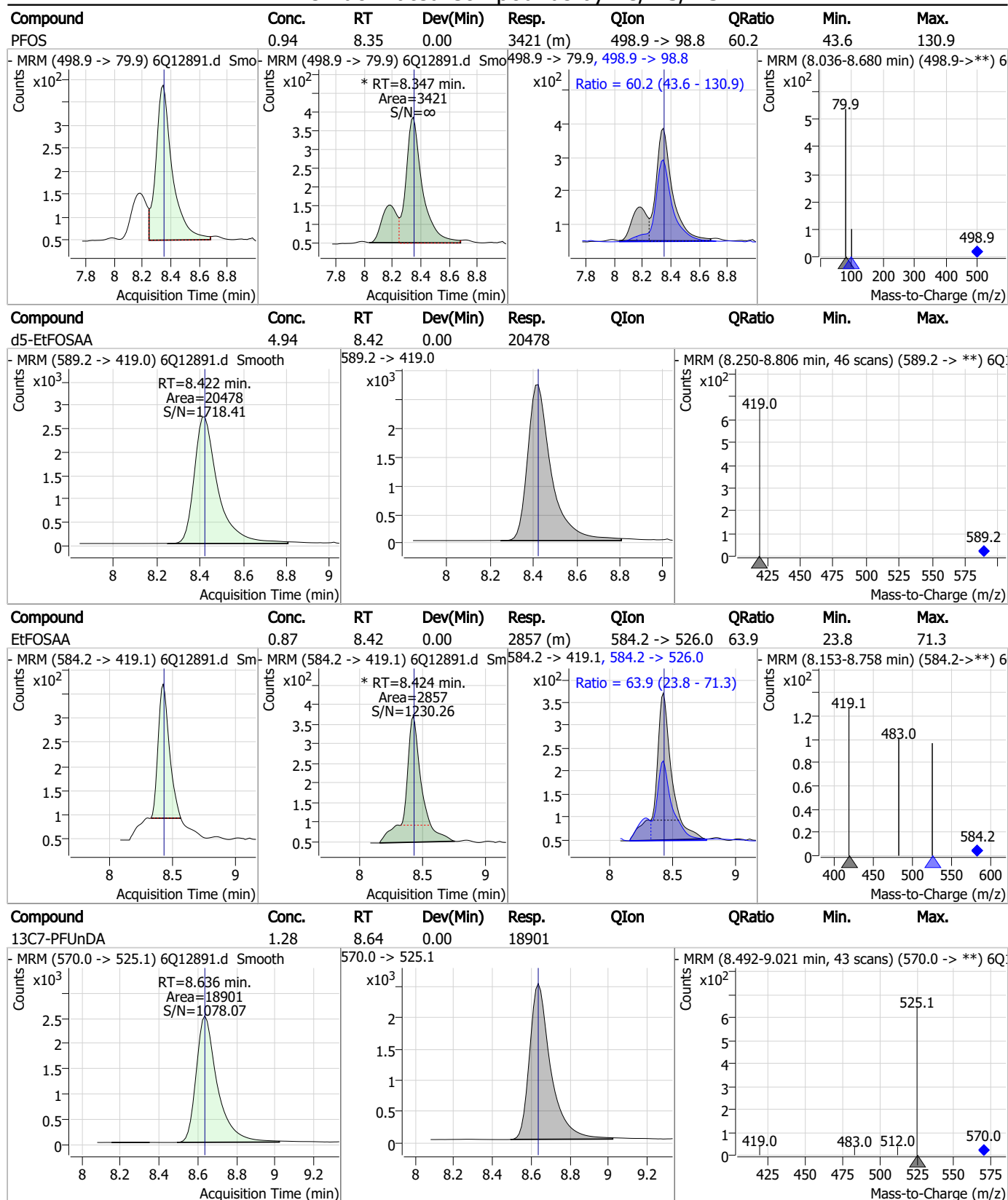
## Perfluorinated Compounds by LC/MS/MS



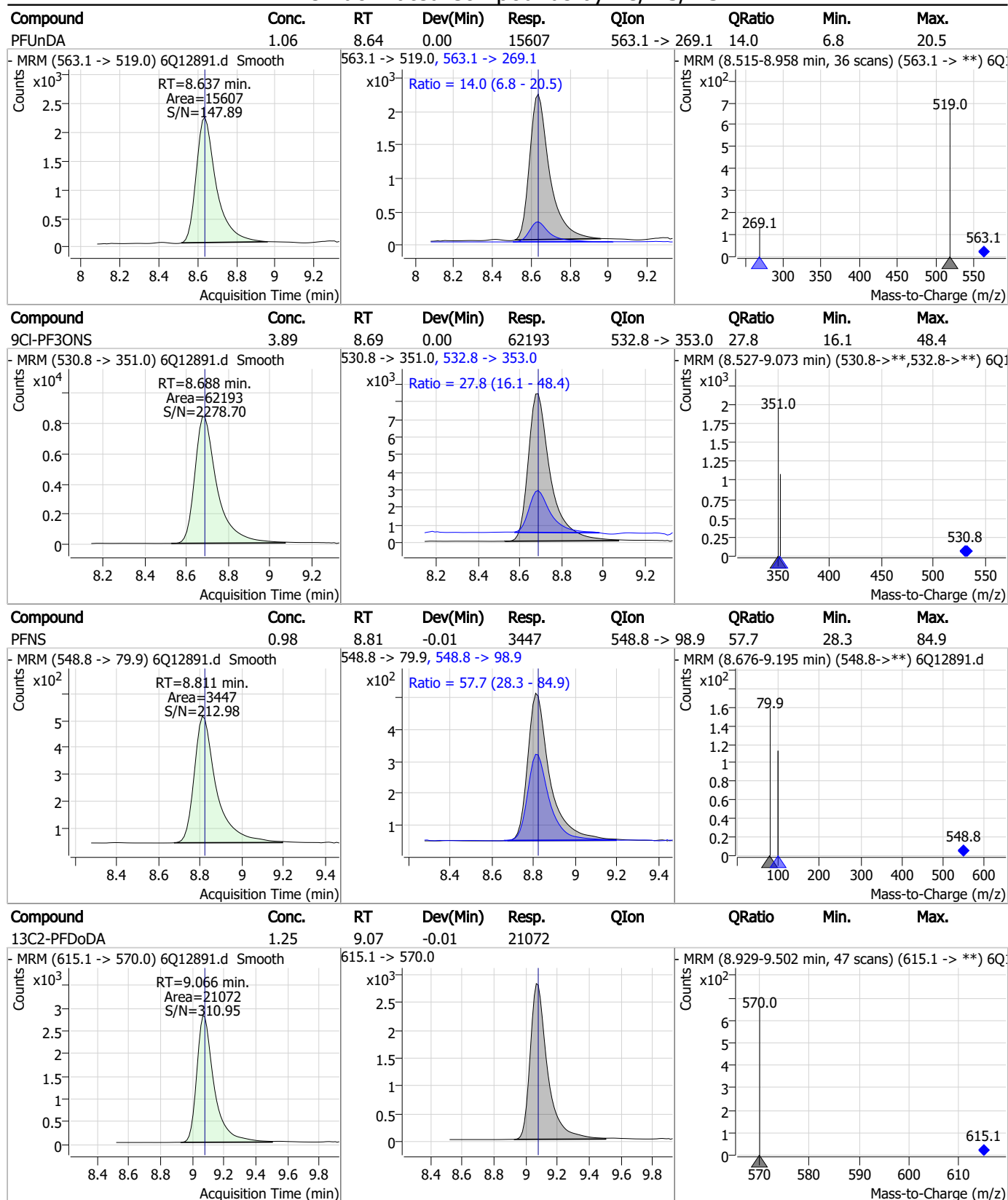
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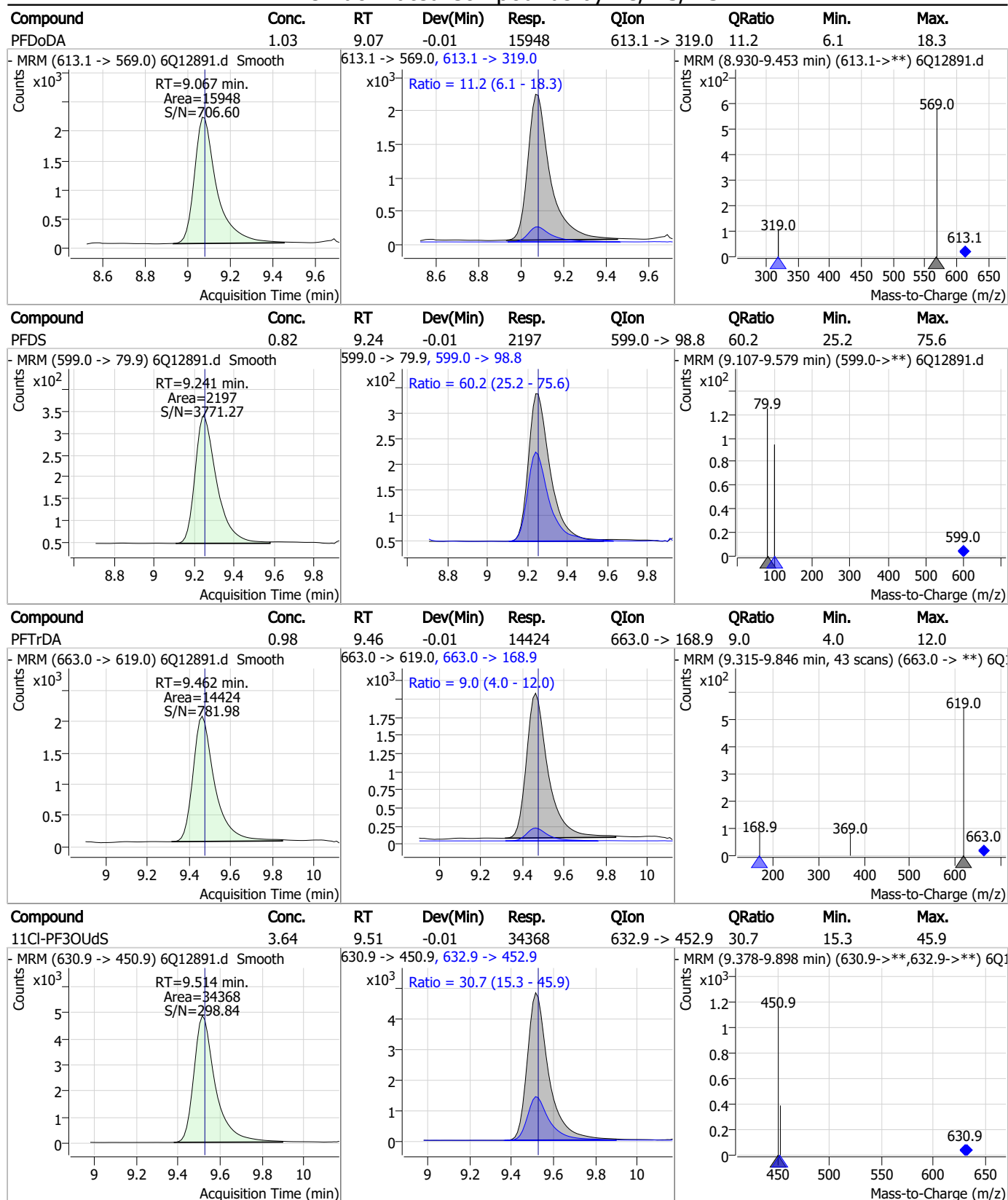
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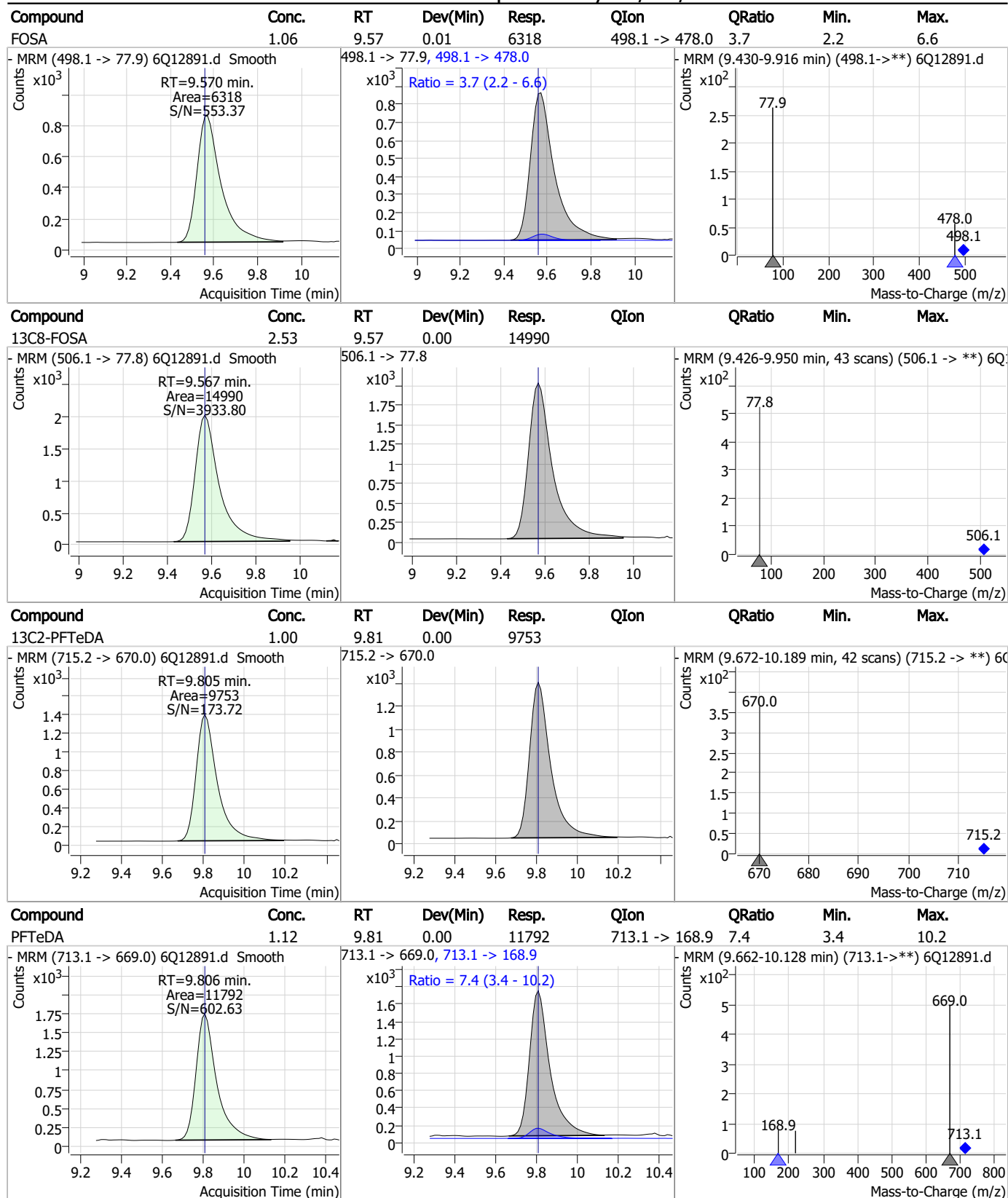
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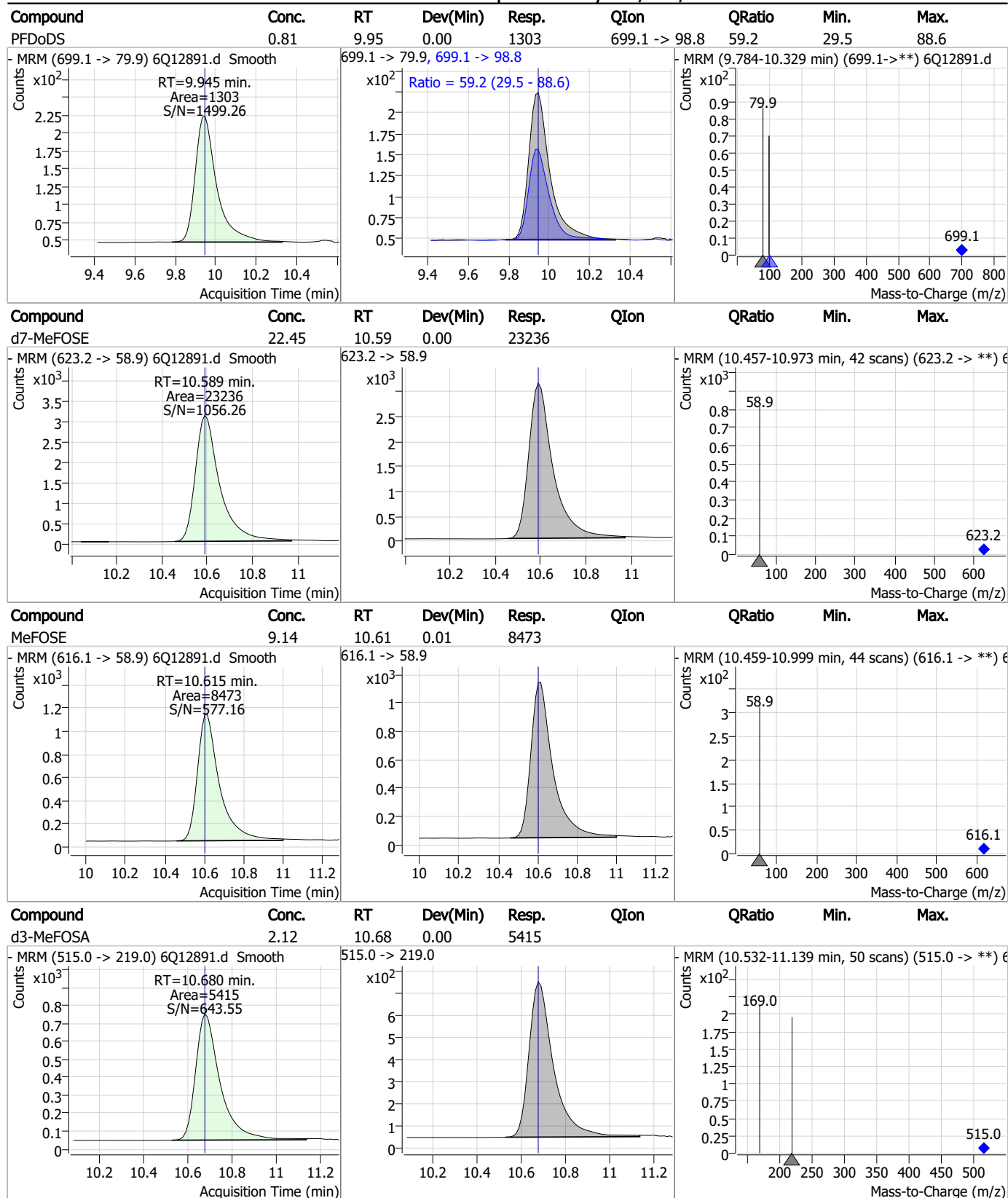
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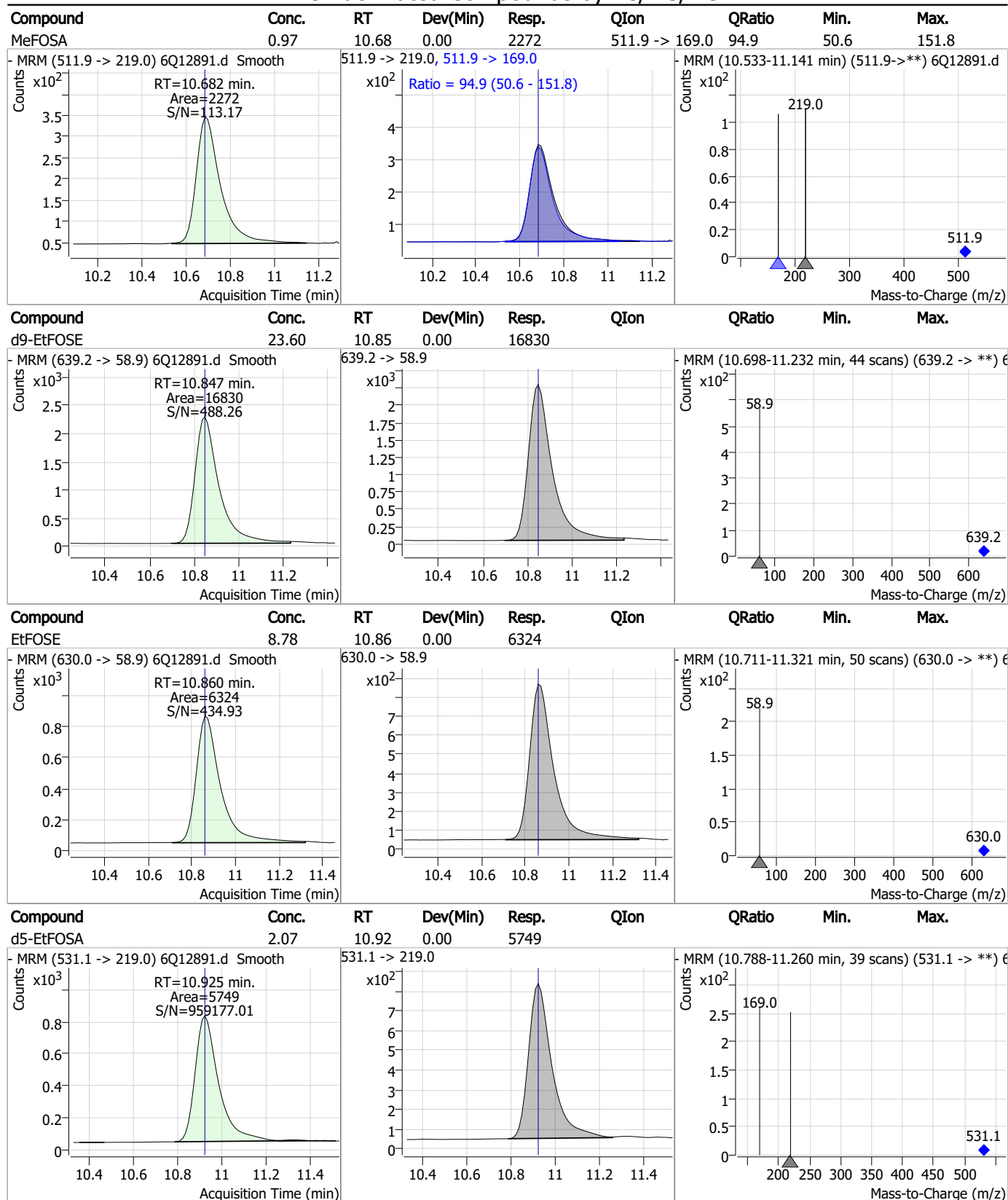
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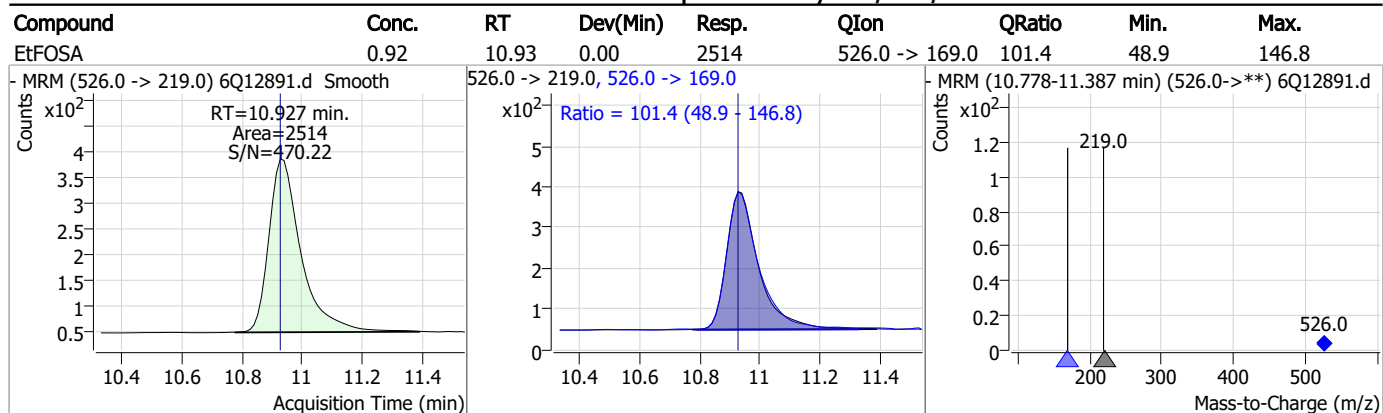


## Perfluorinated Compounds by LC/MS/MS





## Perfluorinated Compounds by LC/MS/MS



7.3.2

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Manual Integration Approval Summary

Sample Number: OP95216-LLBS

Method: EPA DRAFT 1633

Lab FileID: 6Q12891.D

Analyst approved: 02/06/23 11:00 Martha Valls

Injection Time: 02/03/23 11:40

Supervisor approved: 02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.3.2.1  
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## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12899.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/3/2023 1:31:54 PM  
 Sample Name : op95216-ms  
 Vial : P4-B1  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : s6q198.batch.bin  
 Sample Information : OP95216,S6Q198,510,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.013	216.8 -> 171.9	66535	10.00 µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	35975	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	33499	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	32981	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	57434	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	24340	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18372	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	20194	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	20460	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	9757	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16226	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	12349	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8190	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	7843	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2171	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2932	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2823	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	26157	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14513	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	20856	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	22981	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	16114	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6364	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5908	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10088	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	29819	5.00 µg/L	0.037
18O2-PFHxS	7.273	403.0 -> 83.9	5494	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	65584	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	23132	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	27513	1.25 µg/L	-0.012
13C2-PFHxA	5.576	315.1 -> 270.0	28614	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2171	6.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.5%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2932	6.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.7%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2823	5.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.6%		
13C2-PFDoDA	9.066	615.1 -> 570.0	20460	1.16 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.0%		
13C2-PFTeDA	9.805	715.2 -> 670.0	9757	0.96 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 76.8%		
13C3-PFBS	5.518	302.1 -> 79.9	12349	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.4%		
13C3-PFHxS	7.274	402.1 -> 79.9	8190	2.84 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 = 113.4%	
13C4-PFBA	3.013	216.8 -> 171.9	66535	10.05 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.502	367.1 -> 322.0	32981	2.79 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.7%	
13C5-PFHxA	5.575	318.0 -> 273.0	33499	2.96 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 118.3%	
13C5-PFPeA	4.386	268.3 -> 223.0	35975	5.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.8%	
13C6-PFDA	8.170	519.1 -> 474.1	18372	1.43 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.2%	
13C7-PFUnDA	8.636	570.0 -> 525.1	20194	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C8-FOSA	9.567	506.1 -> 77.8	16226	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOA	7.146	421.1 -> 376.0	57434	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C8-PFOS	8.345	507.1 -> 79.9	7843	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C9-PFNA	7.677	472.1 -> 427.0	24340	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.6%	
d3-MeFOSAA	8.215	573.2 -> 419.0	26157	4.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14513	12.41 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 124.1%	
d3-MeFOSA	10.680	515.0 -> 219.0	5908	2.09 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.5%	
d5-EtFOSAA	8.410	589.2 -> 419.0	20856	4.55 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.9%	
d7-MeFOSE	10.589	623.2 -> 58.9	22981	20.06 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.3%	
d9-EtFOSE	10.847	639.2 -> 58.9	16114	20.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.7%	
d5-EtFOSA	10.925	531.1 -> 219.0	6364	2.07 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.7%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.240	327.1 -> 307.0	46776	9.61 µg/L	99
		327.1 -> 80.9	9952		
6:2FTS	6.908	427.1 -> 407.0	41403	9.64 µg/L	98
		427.1 -> 80.9	8033		
8:2FTS	7.945	527.1 -> 507.0	21862	9.97 µg/L	97
		527.1 -> 80.8	5600		
EtFOSAA	8.424	584.2 -> 419.1	7945	2.38 µg/L	92
		584.2 -> 526.0	4225		
FOSA	9.557	498.1 -> 77.9	16277	2.51 µg/L	99
		498.1 -> 478.0	680		
MeFOSAA	8.216	570.1 -> 419.0	11854	2.47 µg/L	96
		570.1 -> 483.0	1937		
PFBA	3.019	212.8 -> 168.9	15090	10.15 µg/L	100
PFBS	5.531	298.7 -> 79.9	11030	2.33 µg/L	96
		298.7 -> 98.8	5077		
PFDA	8.170	512.9 -> 469.0	51336	2.46 µg/L	96
		512.9 -> 219.0	6704		
PFDODA	9.067	613.1 -> 569.0	41146	2.74 µg/L	98
		613.1 -> 319.0	4713		
PFDS	9.241	599.0 -> 79.9	5665	2.13 µg/L	90

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	3243			
		363.1 -> 319.0	50511	2.59	µg/L	96
		363.1 -> 169.0	7131			
PFHpS	7.841	449.0 -> 79.9	7982	2.40	µg/L	94
		449.0 -> 98.9	4781			
PFHxA	5.578	313.0 -> 269.0	31811	2.42	µg/L	98
		313.0 -> 118.9	1206			
PFHxS	7.275	398.7 -> 79.9	9396	2.55	µg/L	92
		398.7 -> 98.9	5414		m	
PFNA	7.677	463.0 -> 419.0	40472	2.46	µg/L	97
		463.0 -> 219.0	8244			
PFNS	8.811	548.8 -> 79.9	7959	2.28	µg/L	98
		548.8 -> 98.9	4597			
PFOA	7.148	413.0 -> 369.0	69597	2.75	µg/L	98
		413.0 -> 169.0	8824		m	
PFOS	8.347	498.9 -> 79.9	11348	3.15	µg/L	71
		498.9 -> 98.8	6904		m	
PFPeA	4.388	263.0 -> 219.0	39420	5.19	µg/L	100
PFPeS	6.581	349.1 -> 79.9	10489	2.45	µg/L	96
		349.1 -> 98.9	5629			
PFTeDA	9.806	713.1 -> 669.0	28841	2.74	µg/L	100
		713.1 -> 168.9	1985			
PFTTrDA	9.462	663.0 -> 619.0	32740	2.28	µg/L	99
		663.0 -> 168.9	2780			
PFUnDA	8.624	563.1 -> 519.0	40702	2.59	µg/L	100
		563.1 -> 269.1	5646			
11CI-PF3OUdS	9.514	630.9 -> 450.9	79214	7.61	µg/L	99
		632.9 -> 452.9	23664			
9CI-PF3ONS	8.676	530.8 -> 351.0	144648	8.22	µg/L	97
		532.8 -> 353.0	49084			
ADONA	6.753	376.9 -> 250.9	275008	8.73	µg/L	100
		376.9 -> 84.8	61015			
HFPO-DA	5.940	284.9 -> 168.9	12459	9.18	µg/L	95
		284.9 -> 184.9	1416			
3:3FTCA	3.878	241.0 -> 177.0	3965	10.63	µg/L	96
		241.0 -> 117.0	520			
5:3FTCA	6.206	341.0 -> 237.1	151365	55.09	µg/L	97
		341.0 -> 217.0	136459			
7:3FTCA	7.617	441.0 -> 316.9	100468	55.95	µg/L	89
		441.0 -> 336.9	194414			
EtFOSA	10.927	526.0 -> 219.0	7267	2.39	µg/L	97
		526.0 -> 169.0	6932			
EtFOSE	10.860	630.0 -> 58.9	16935	24.55	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	6140	2.40	µg/L	95
		511.9 -> 169.0	6512			
MeFOSE	10.602	616.1 -> 58.9	23517	25.65	µg/L	100
PFDoDS	9.933	699.1 -> 79.9	3309	2.08	µg/L	93
		699.1 -> 98.8	2128			
NFDHA	5.457	295.0 -> 201.0	3829	4.93	µg/L	97
		295.0 -> 84.9	1886			
PfMBA	4.800	279.0 -> 85.1	10981	5.14	µg/L	100
PFMPA	3.553	229.0 -> 84.9	9970	4.92	µg/L	100
PFEEA	6.059	314.8 -> 134.9	80379	4.25	µg/L	100
		314.8 -> 82.9	1945			

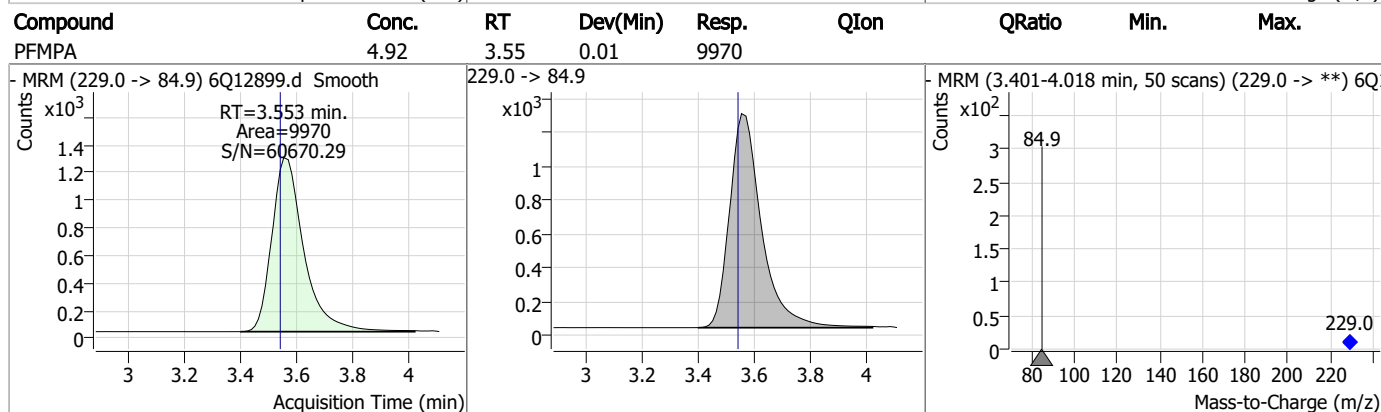
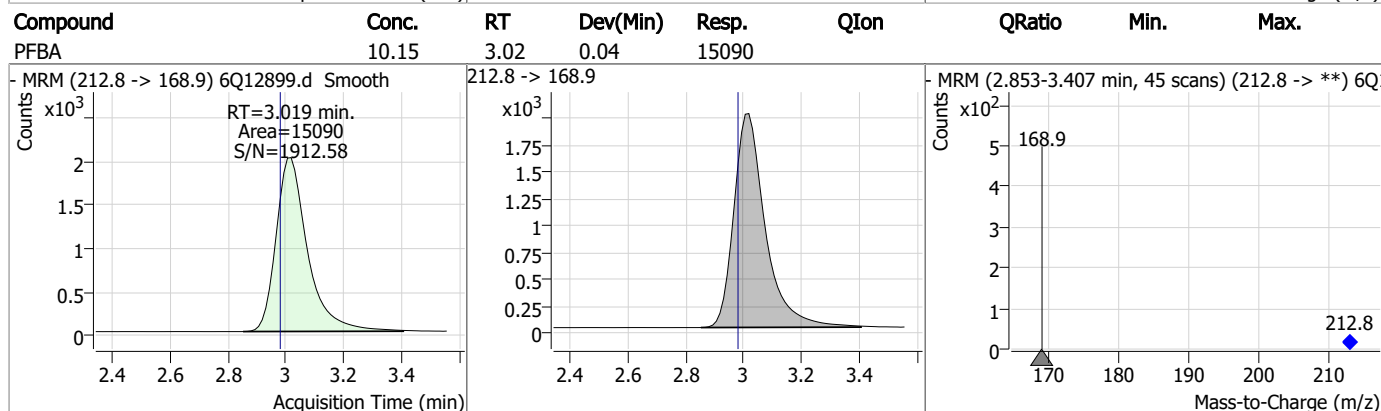
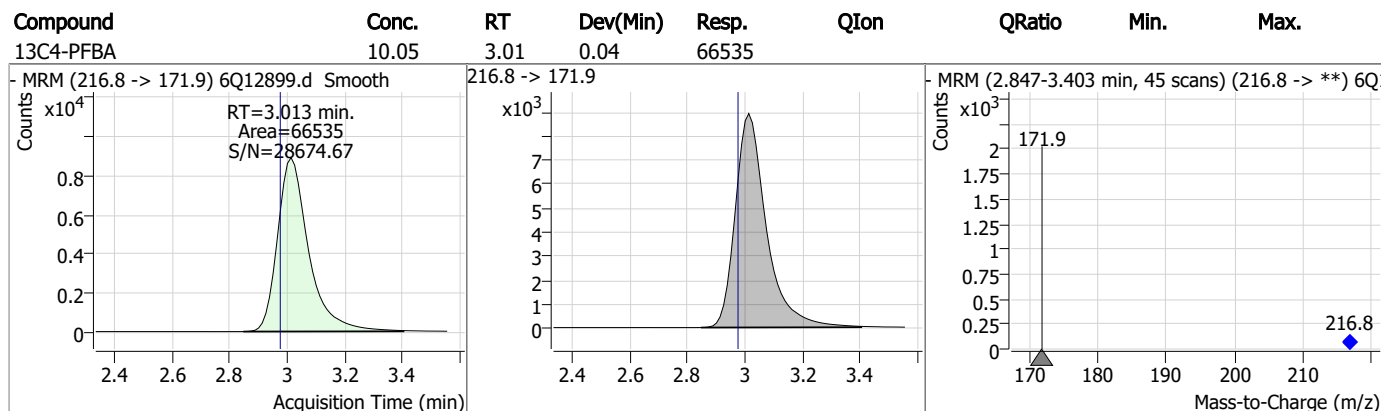
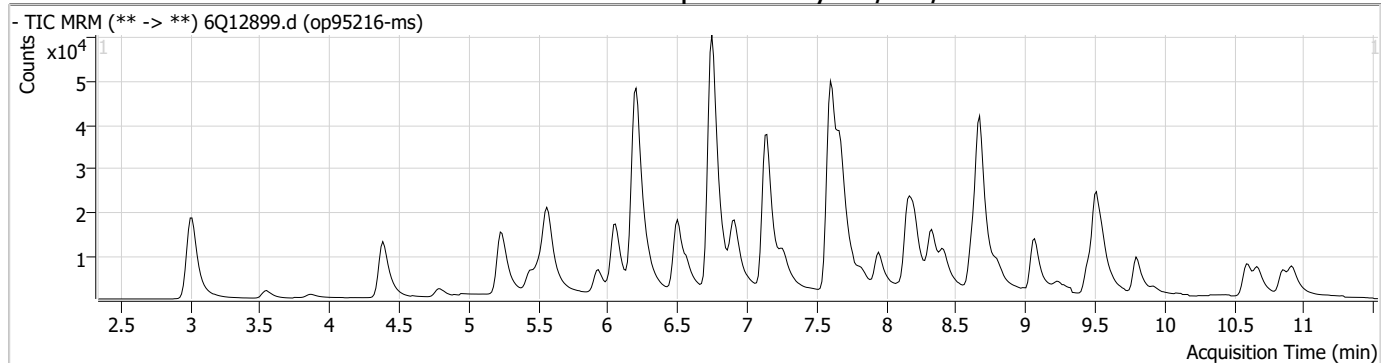
# = Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

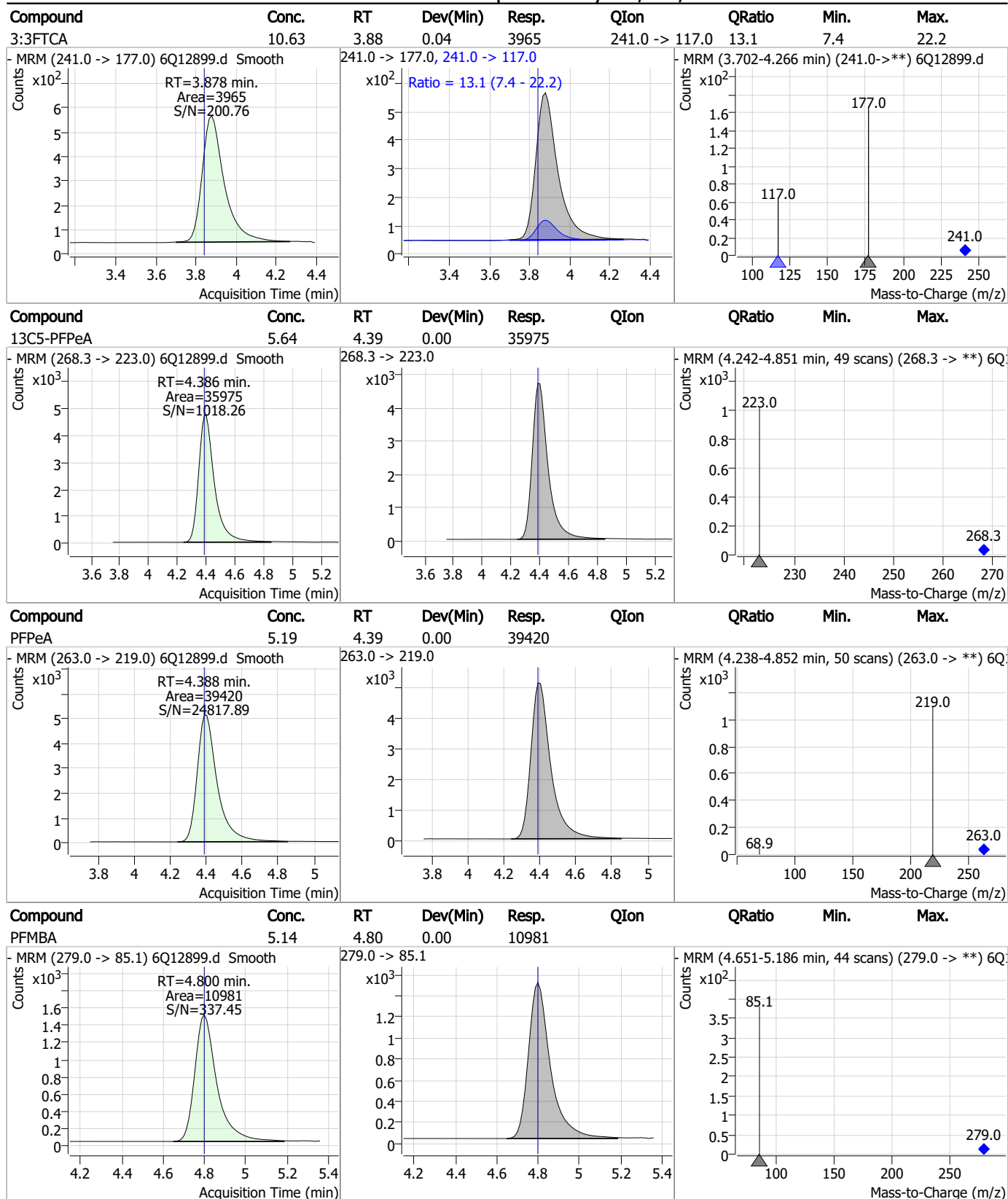
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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7.4.1  
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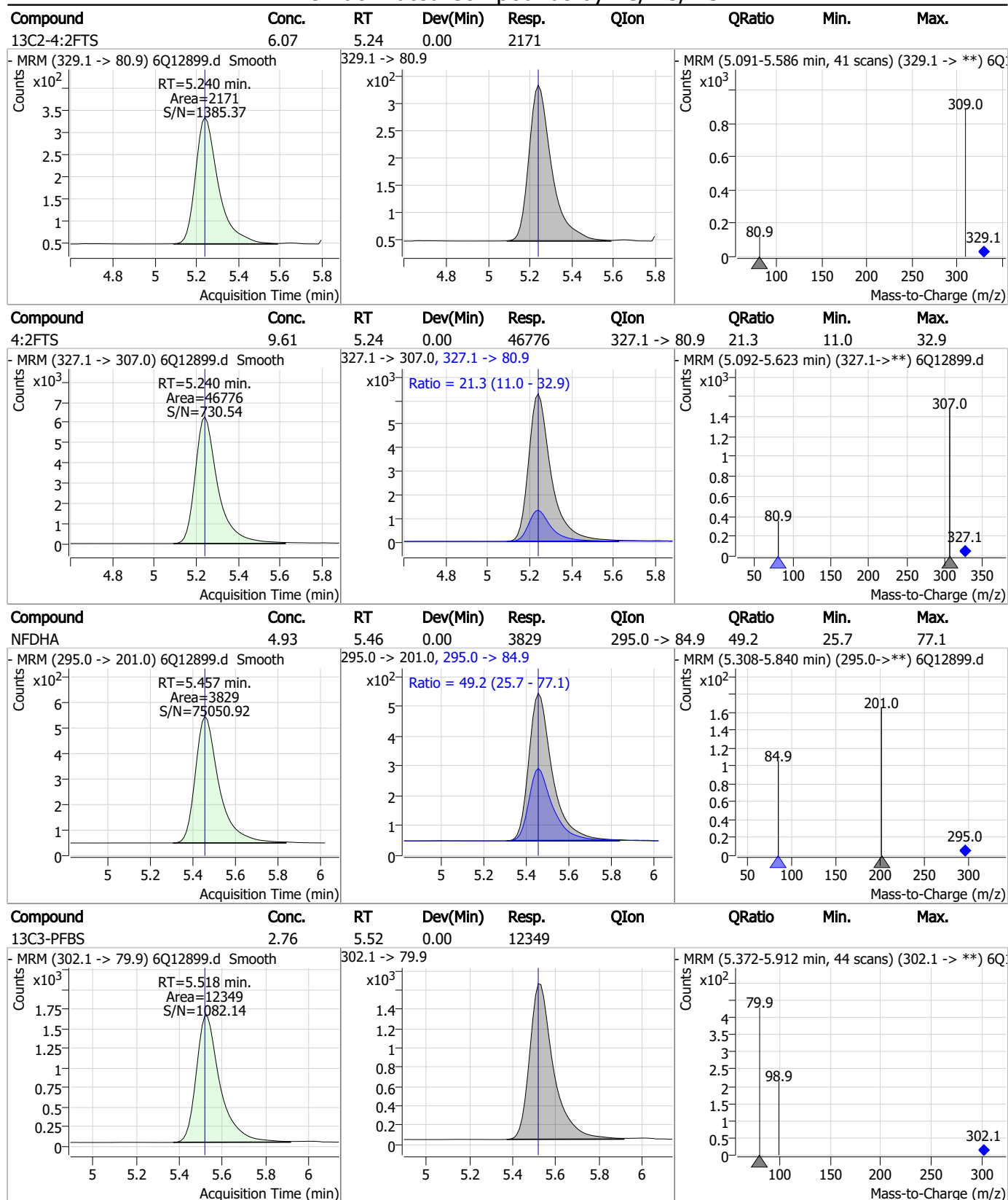


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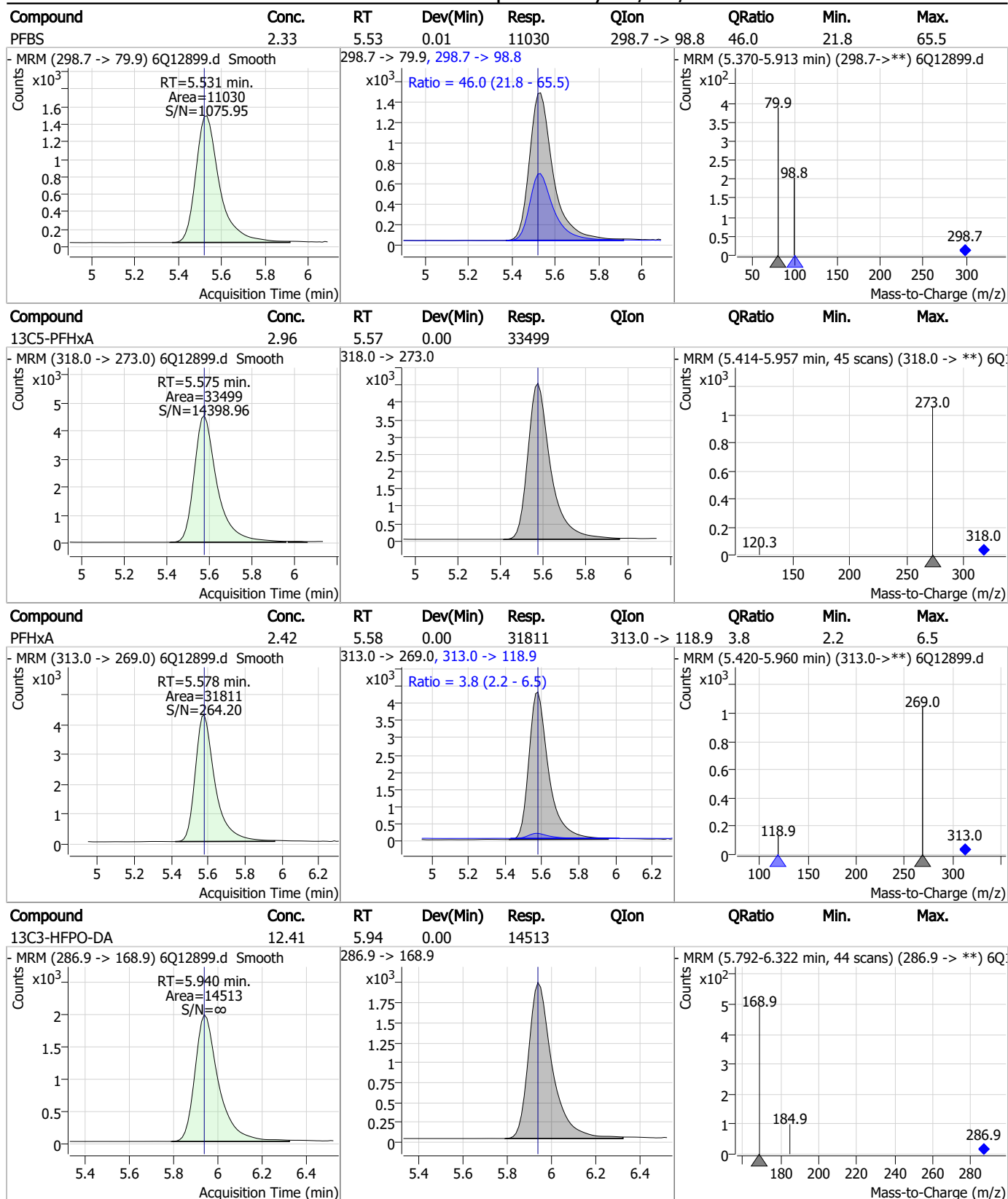




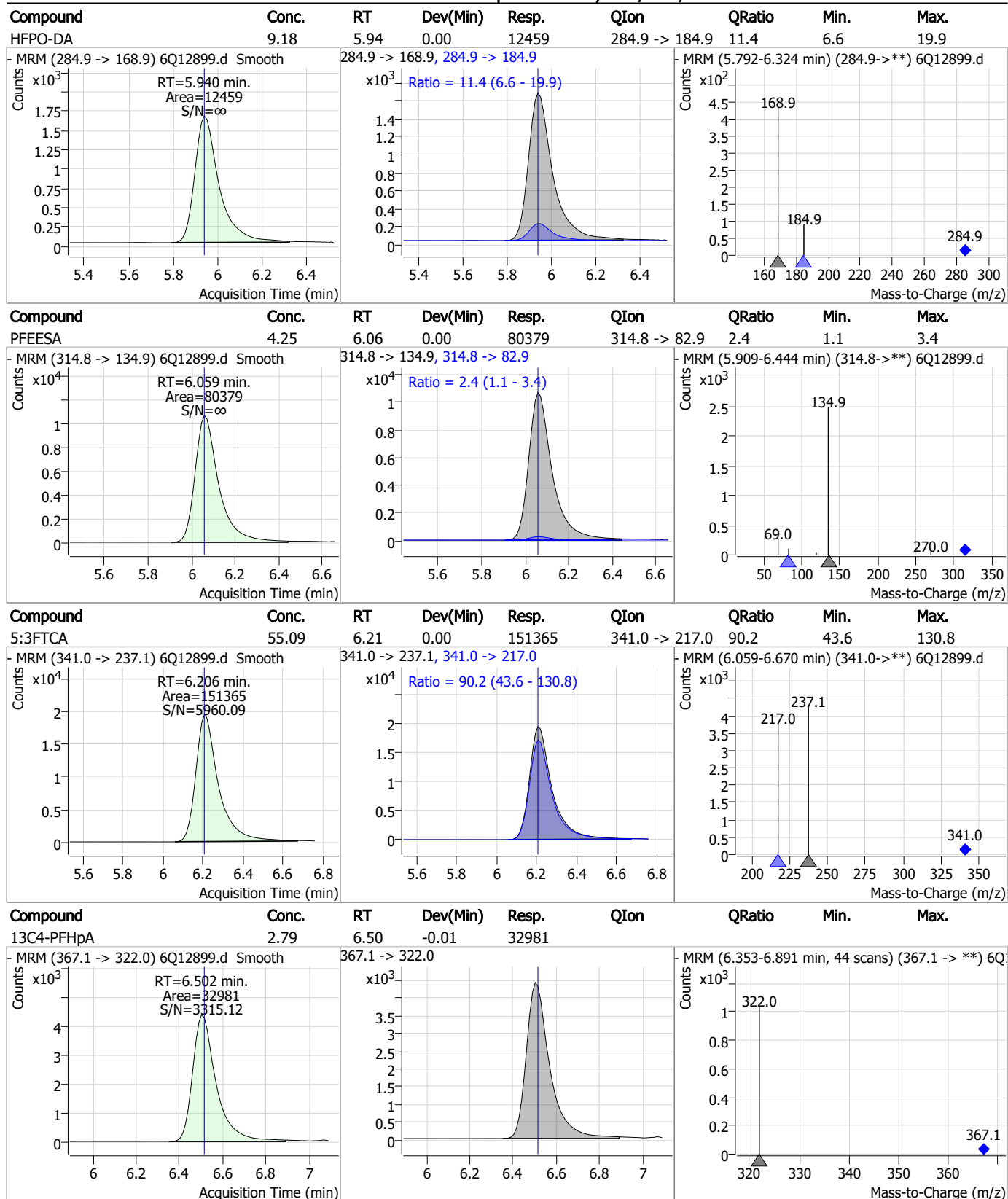
## Perfluorinated Compounds by LC/MS/MS



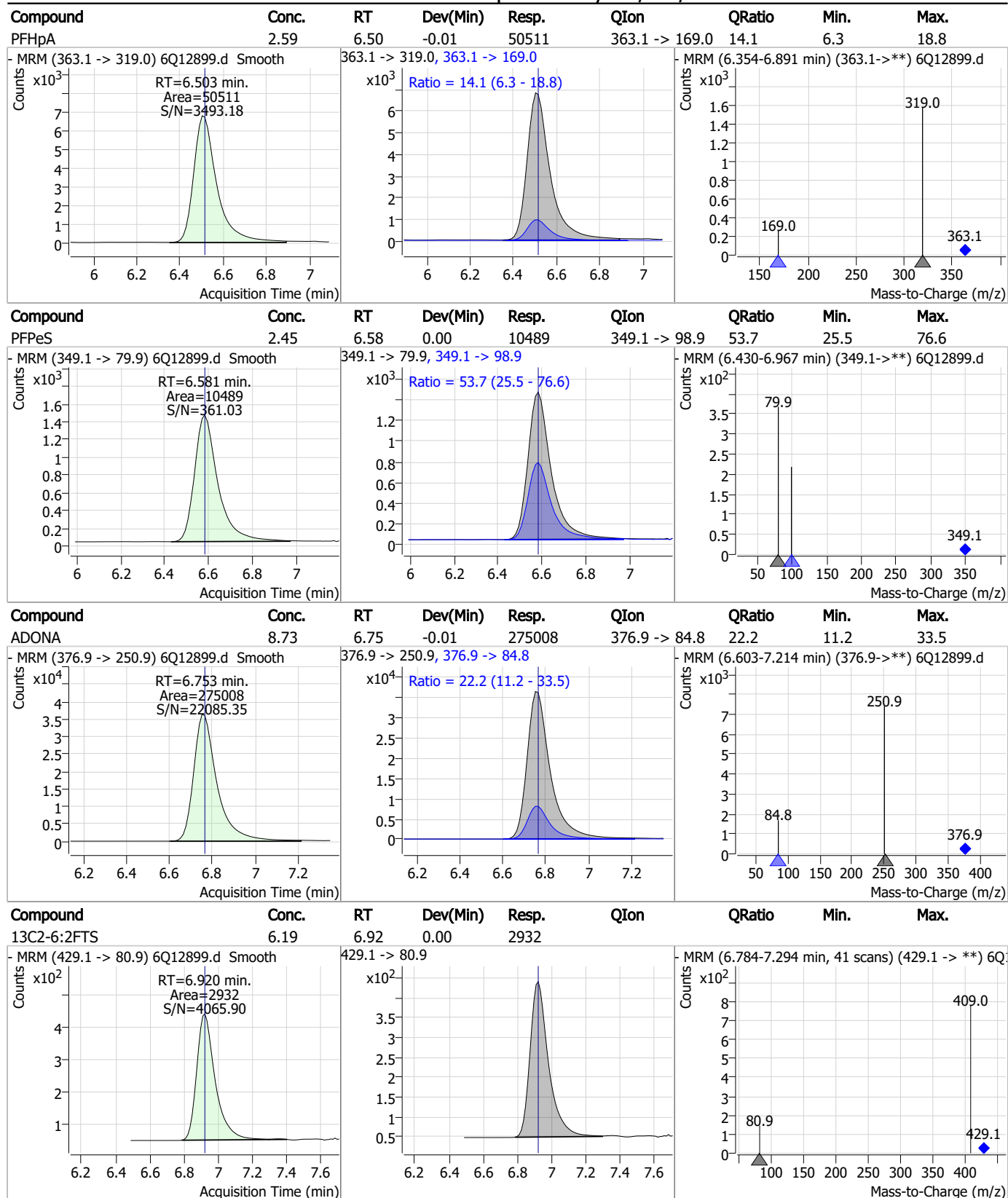
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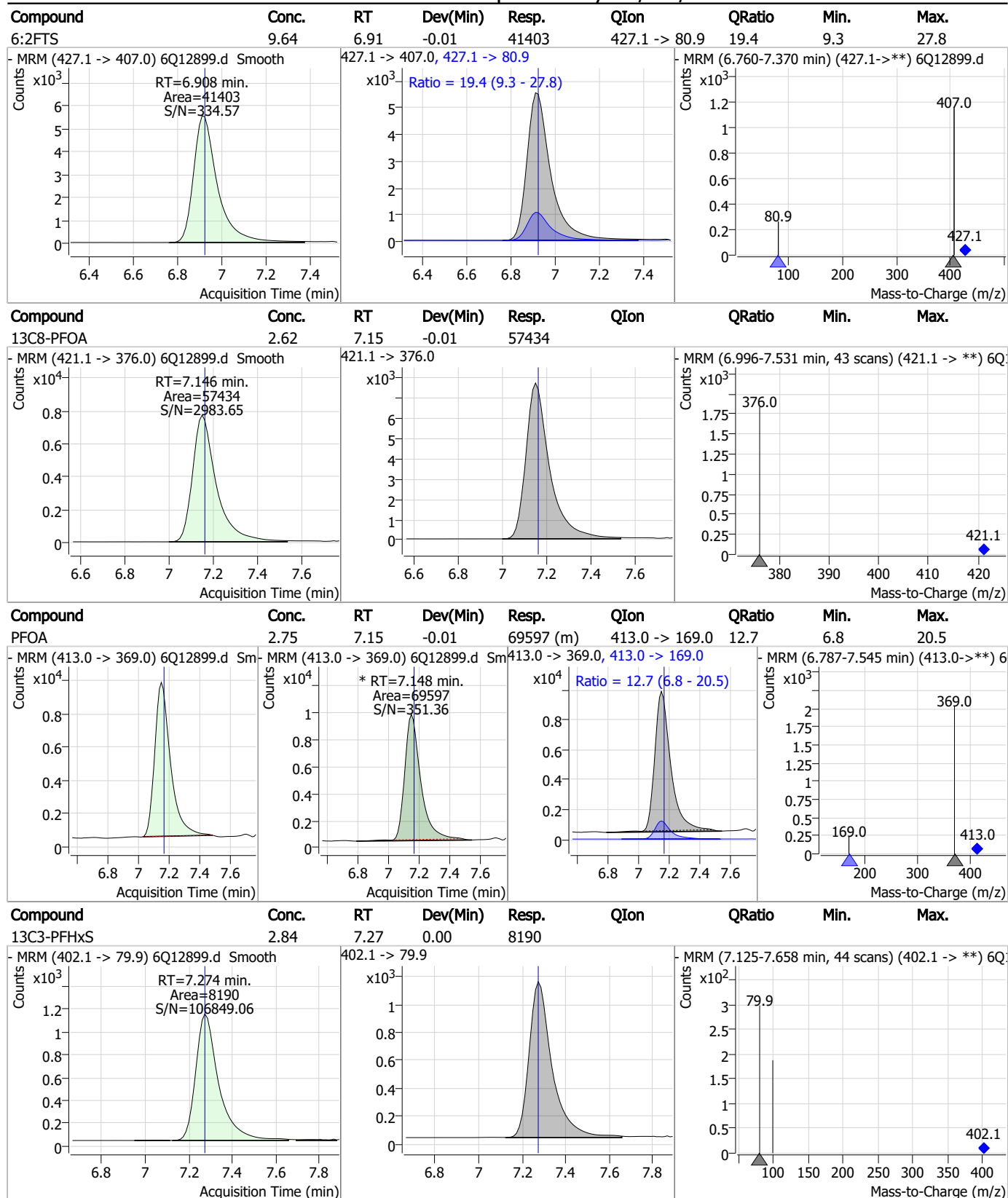
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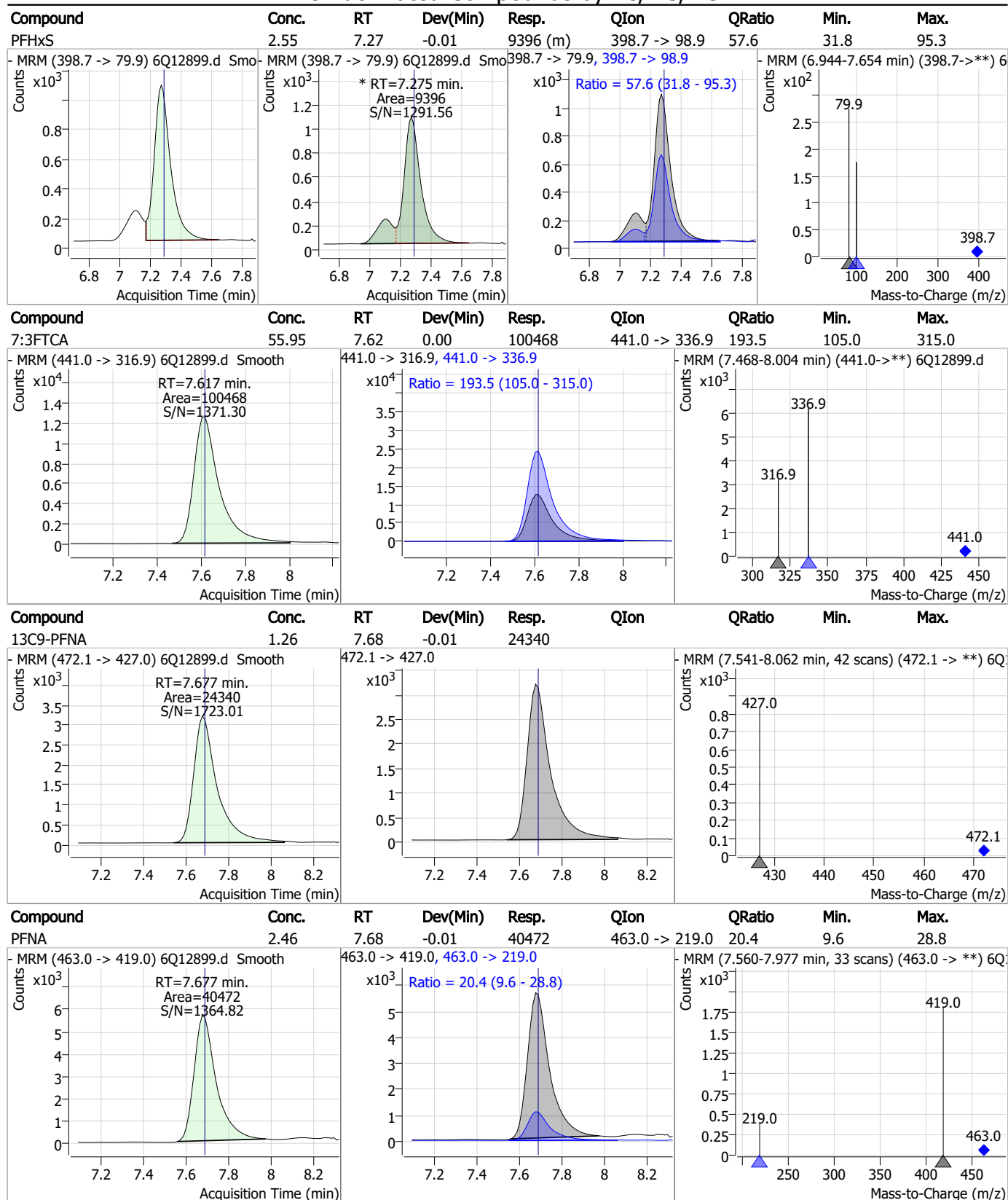
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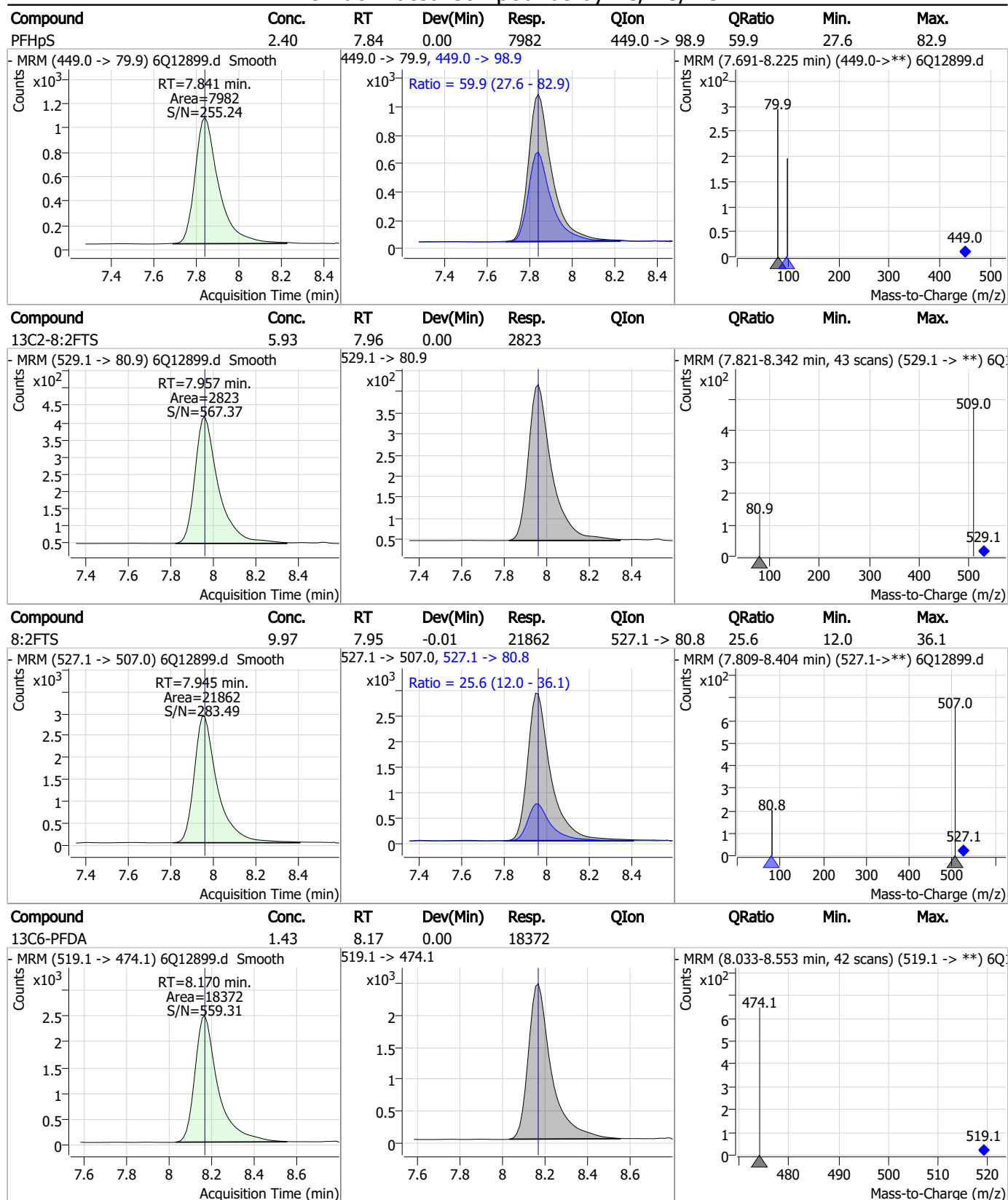
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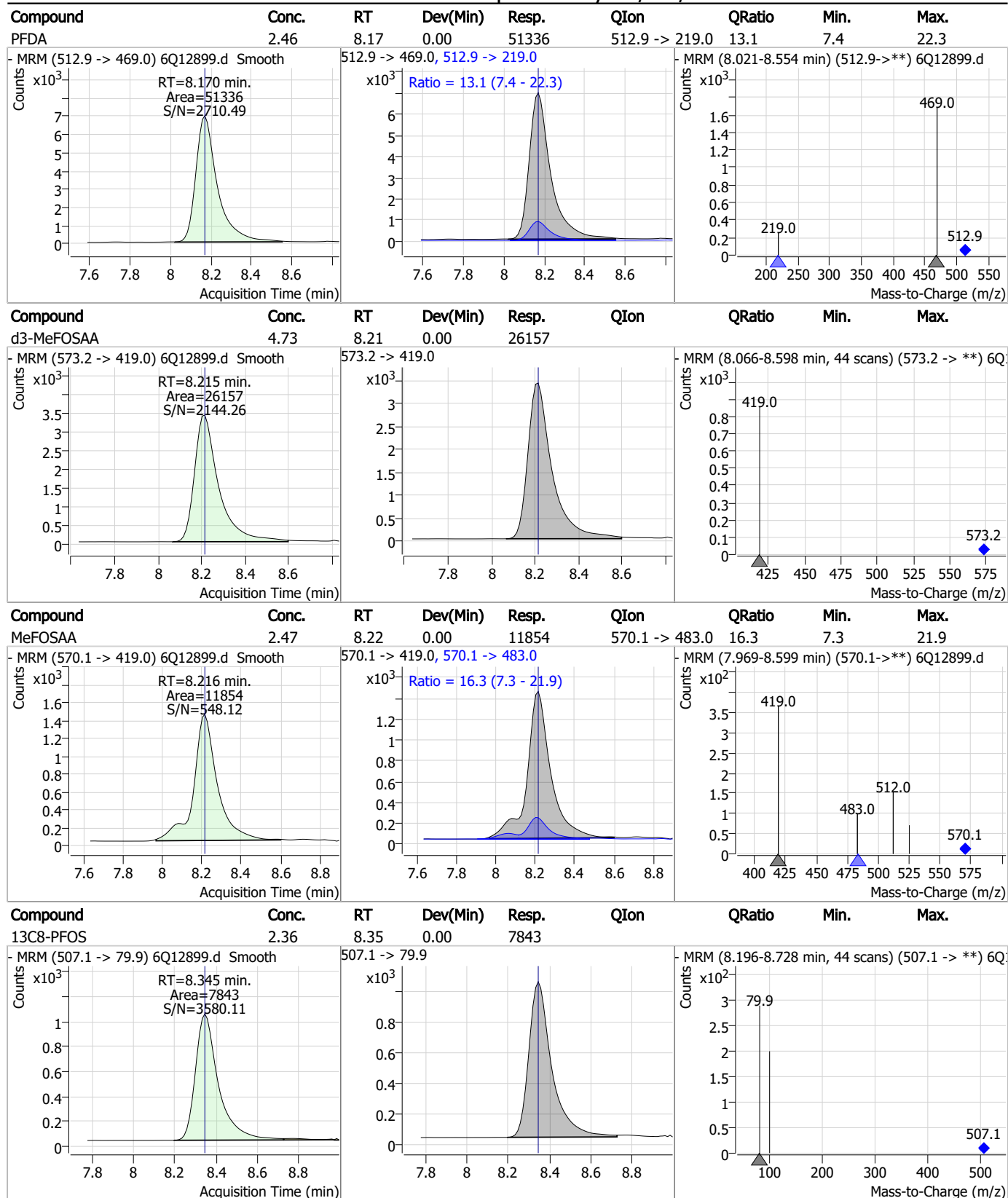
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

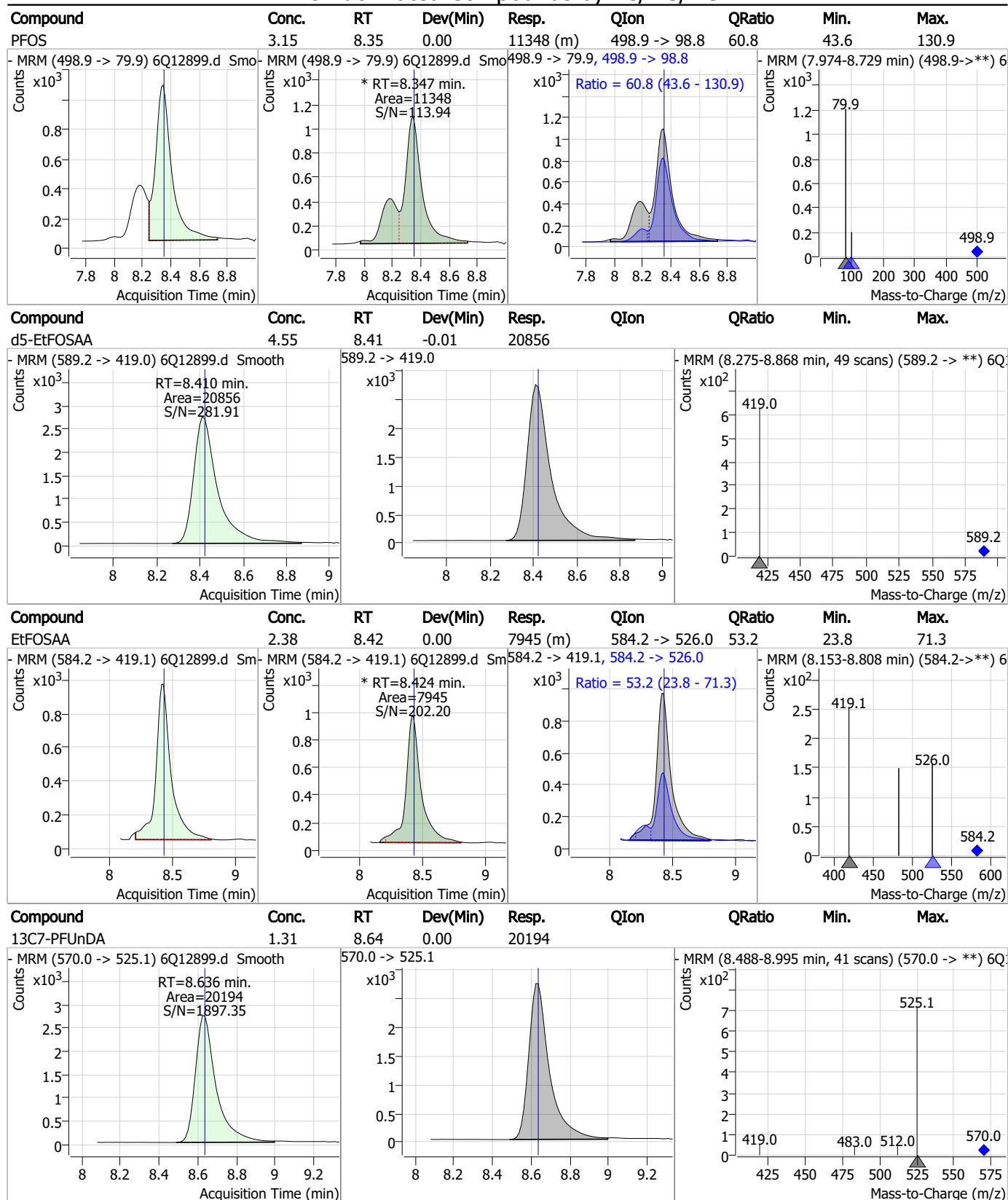


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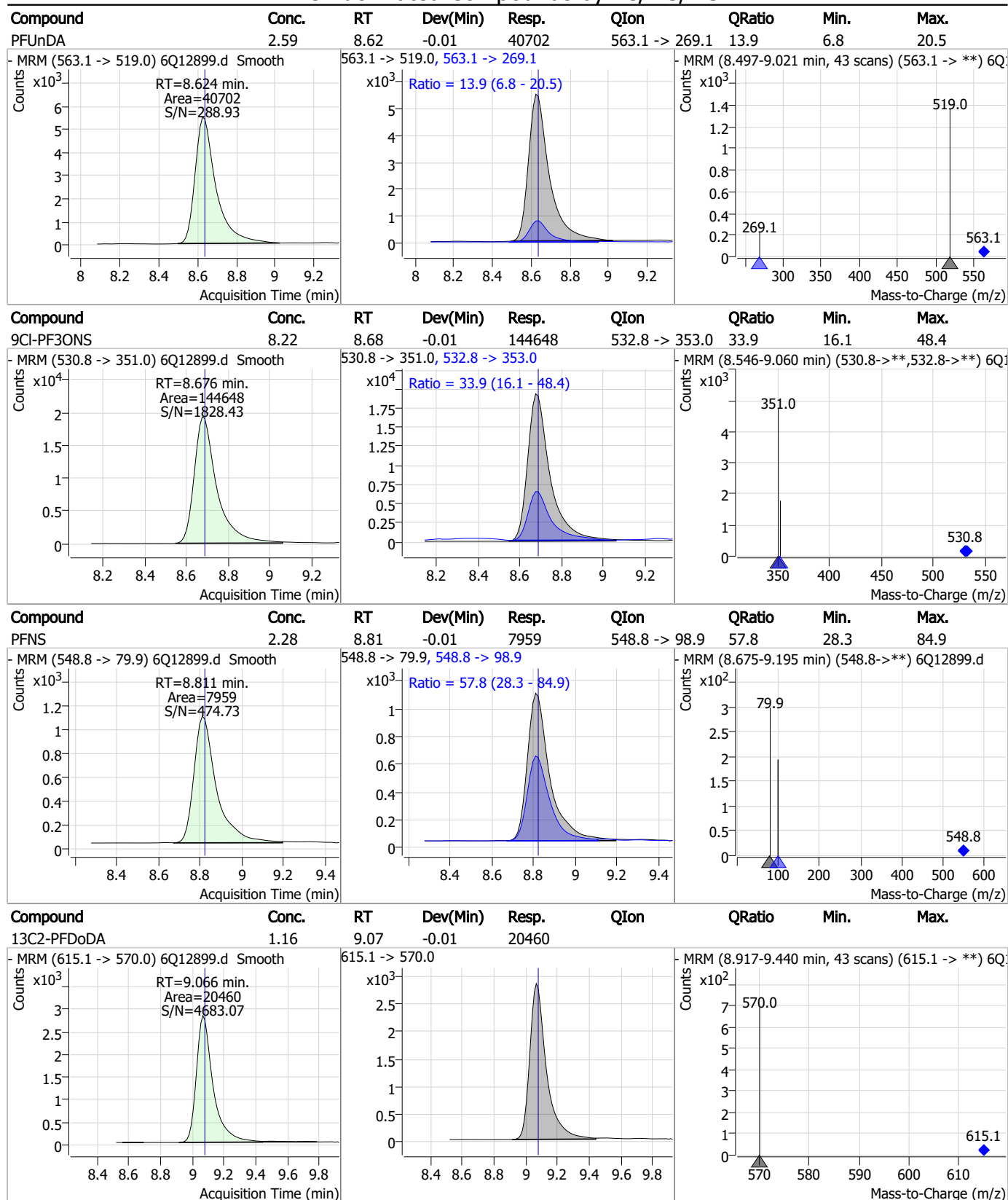




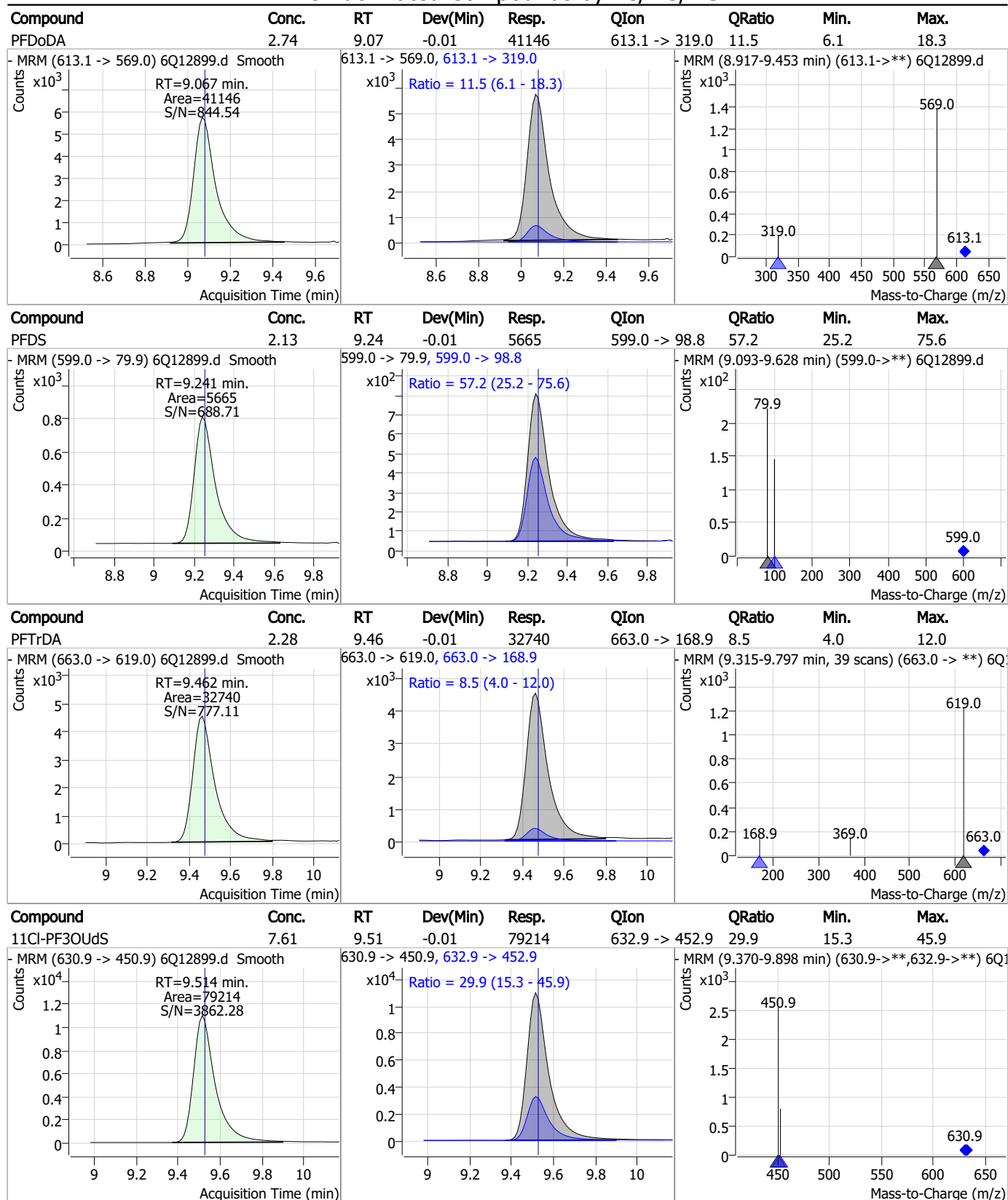
## Perfluorinated Compounds by LC/MS/MS



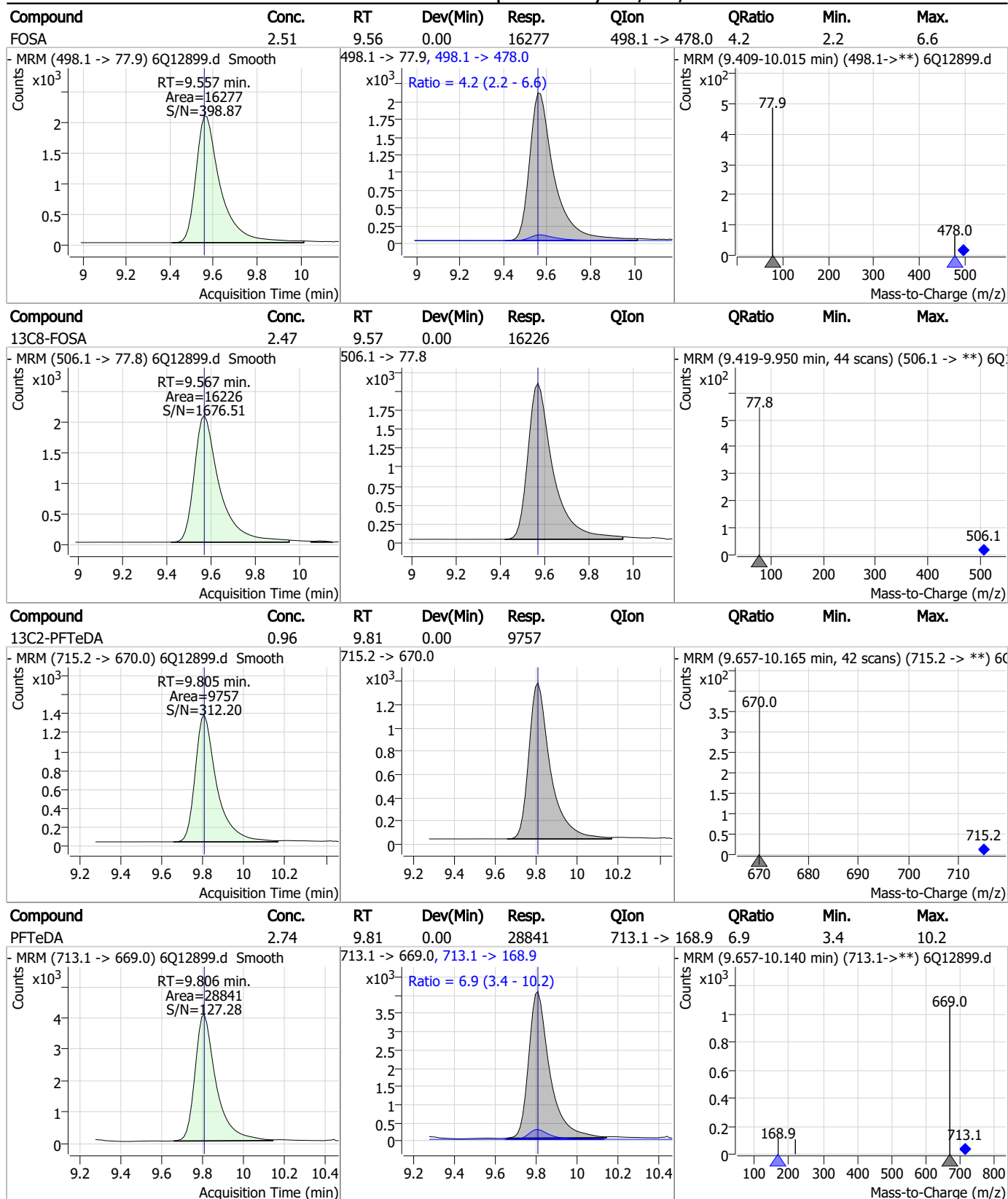
## Perfluorinated Compounds by LC/MS/MS



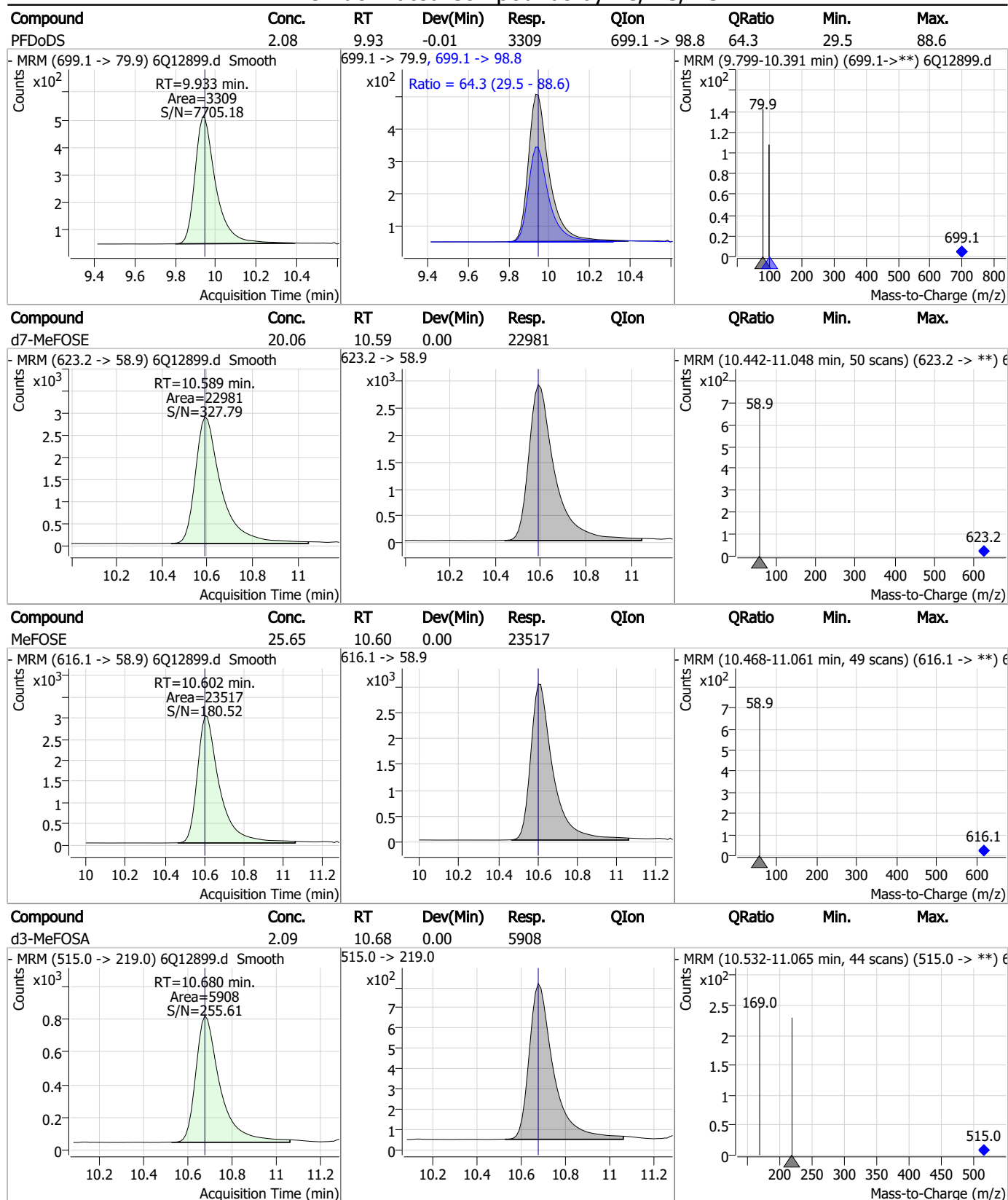
## Perfluorinated Compounds by LC/MS/MS



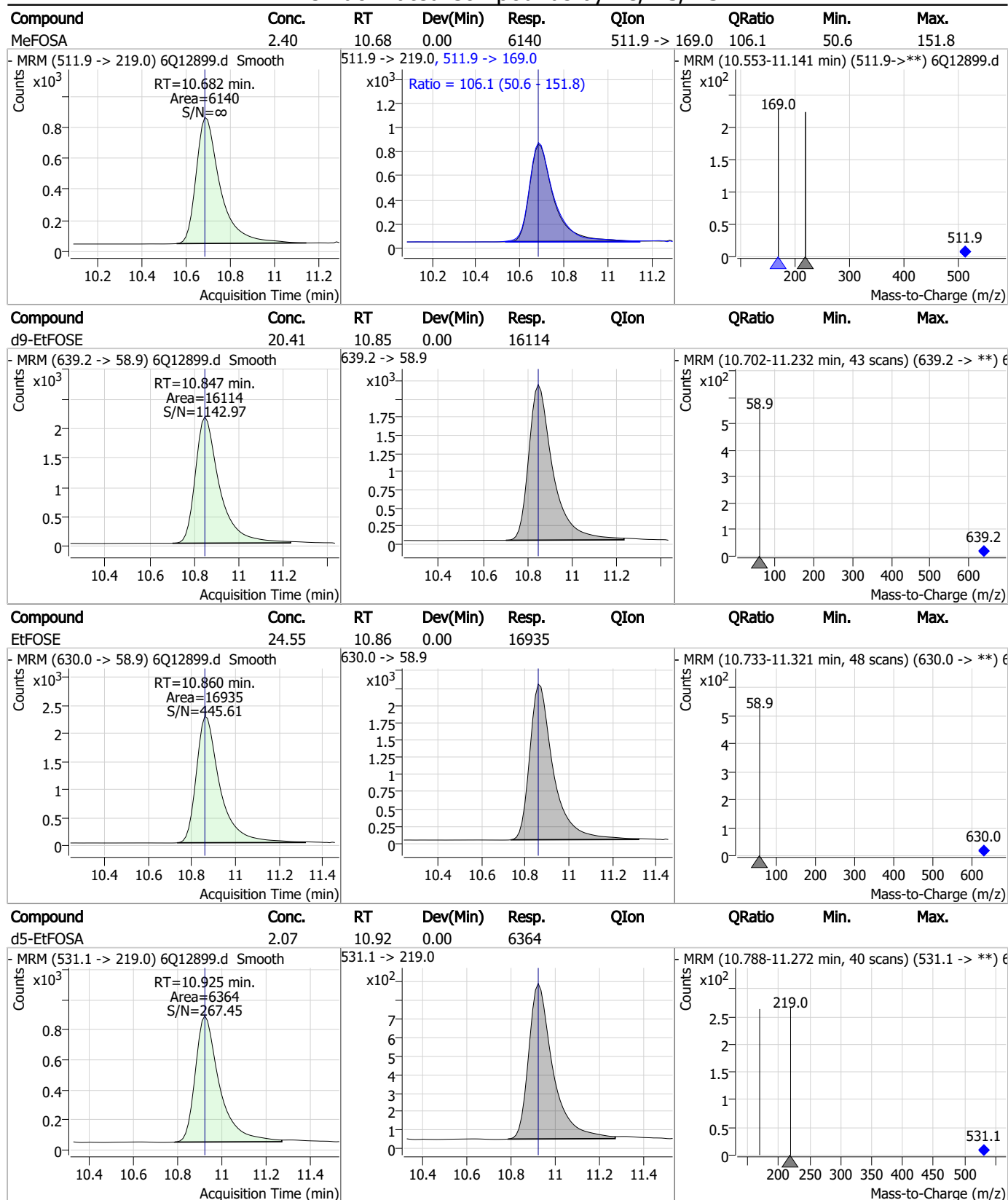
## Perfluorinated Compounds by LC/MS/MS



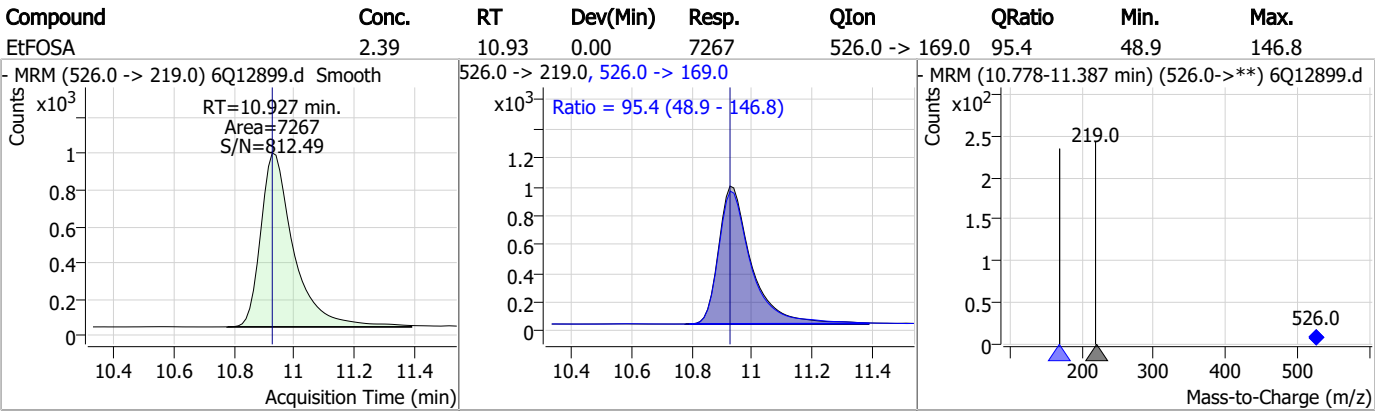
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.4.1  
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Manual Integration Approval Summary

Sample Number: OP95216-MS

Method: EPA DRAFT 1633

Lab FileID: 6Q12899.D

Analyst approved: 02/06/23 11:17 Martha Valls

Injection Time: 02/03/23 13:31

Supervisor approved: 02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.15	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.4.1.1  
7



## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12907.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/3/2023 3:23:47 PM  
 Sample Name : op95216-dup  
 Vial : P4-B7  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : s6q198.batch.bin  
 Sample Information : OP95216,S6Q198,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.013	216.8 -> 171.9	71192	10.00 µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	36133	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	31059	2.50 µg/L	0.000
M4-PFHpA	6.515	367.1 -> 322.0	33291	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	57191	2.50 µg/L	-0.012
M9-PFNA	7.689	472.1 -> 427.0	24576	1.25 µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	18767	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	19713	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	21974	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	10123	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16603	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	11848	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8144	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	7241	2.50 µg/L	-0.012
M2-4:2FTS	5.240	329.1 -> 80.9	2219	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2426	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2400	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	36984	5.00 µg/L	-0.012
M3-HFPO-DA	5.940	286.9 -> 168.9	13386	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	32172	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	24224	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	17463	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6425	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6232	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	8058	2.50 µg/L	-0.012
13C3-PFBA	3.016	216.0 -> 172.0	30735	5.00 µg/L	0.037
18O2-PFHxS	7.273	403.0 -> 83.9	5877	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	71582	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	23071	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	27455	1.25 µg/L	-0.012
13C2-PFHxA	5.576	315.1 -> 270.0	29904	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2219	5.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.1%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2426	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2400	4.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.3%		
13C2-PFDoDA	9.066	615.1 -> 570.0	21974	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFTeDA	9.805	715.2 -> 670.0	10123	1.00 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 79.9%		
13C3-PFBS	5.518	302.1 -> 79.9	11848	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C3-PFHxS	7.274	402.1 -> 79.9	8144	2.64 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 = 105.4%		
13C4-PFBA	3.013	216.8 -> 171.9	71192	10.44 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C4-PFHpA	6.515	367.1 -> 322.0	33291	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C5-PFHxA	5.575	318.0 -> 273.0	31059	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C5-PFPeA	4.386	268.3 -> 223.0	36133	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C6-PFDA	8.170	519.1 -> 474.1	18767	1.46 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 117.0%		
13C7-PFUnDA	8.636	570.0 -> 525.1	19713	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C8-FOSA	9.567	506.1 -> 77.8	16603	3.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 126.5%		
13C8-PFOA	7.146	421.1 -> 376.0	57191	2.39 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C8-PFOS	8.333	507.1 -> 79.9	7241	2.73 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.3%		
13C9-PFNA	7.689	472.1 -> 427.0	24576	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
d3-MeFOSAA	8.202	573.2 -> 419.0	36984	8.37 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 167.5%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	13386	10.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 109.5%		
d3-MeFOSA	10.680	515.0 -> 219.0	6232	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.2%		
d5-EtFOSAA	8.410	589.2 -> 419.0	32172	8.78 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 175.6%		
d7-MeFOSE	10.589	623.2 -> 58.9	24224	26.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 105.9%		
d9-EtFOSE	10.847	639.2 -> 58.9	17463	27.69 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 110.8%		
d5-EtFOSA	10.925	531.1 -> 219.0	6425	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.5%		

## Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	6.921	427.1 -> 407.0	2315	0.65 µg/L	100
		427.1 -> 80.9	434		
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				
		363.1 -> 169.0				
PFHpS	7.804	449.0 -> 79.9	0	µg/L	m	1
PFHxA	5.578	449.0 -> 98.9	0	µg/L	m	1
		313.0 -> 269.0	0			
		313.0 -> 118.9	0			
PFHxS	-	398.7 -> 79.9	-	N.D.		
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
		463.0 -> 219.0				
PFNS	9.171	548.8 -> 79.9	0	µg/L	m	1
PFOA	7.185	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0	0			
		413.0 -> 169.0	0			
PFOS	-	498.9 -> 79.9	-	N.D.		
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
		349.1 -> 79.9				
PFPeS	-	349.1 -> 98.9	-	N.D.		
PFTeDA	9.336	713.1 -> 669.0	0	µg/L	m	1
PFTrDA	-	713.1 -> 168.9	0	N.D.		
		663.0 -> 619.0	-			
		663.0 -> 168.9	-			
PFUnDA	-	563.1 -> 519.0	-	N.D.		
11CI-PF3OUdS	-	563.1 -> 269.1	-	N.D.		
		630.9 -> 450.9				
		632.9 -> 452.9				
9CI-PF3ONS	-	530.8 -> 351.0	-	N.D.		
ADONA	-	532.8 -> 353.0	-	N.D.		
		376.9 -> 250.9				
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
3:3FTCA	-	284.9 -> 184.9	-	N.D.		
		241.0 -> 177.0				
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
7:3FTCA	-	341.0 -> 217.0	-	N.D.		
		441.0 -> 316.9				
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
EtFOSE	-	526.0 -> 169.0	-	N.D.		
		630.0 -> 58.9				
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
MeFOSE	-	616.1 -> 58.9	-	N.D.		
		699.1 -> 79.9				
		699.1 -> 98.8				
PFDODS	-	295.0 -> 201.0	-	N.D.		
NFDHA	-	295.0 -> 84.9	-	N.D.		
		279.0 -> 85.1				
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
PFMPA	-	314.8 -> 82.9	-	N.D.		
PFEESA	-		-	N.D.		

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

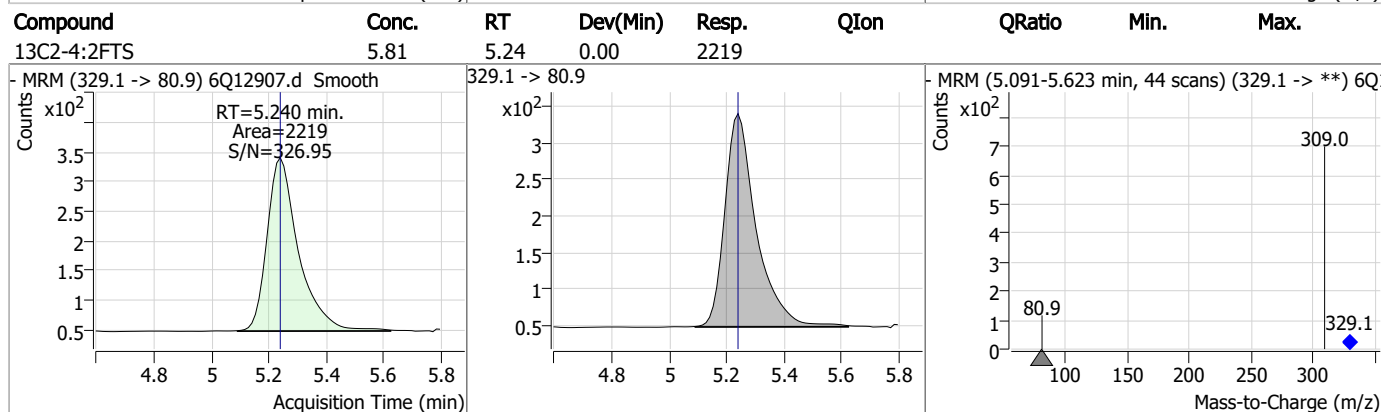
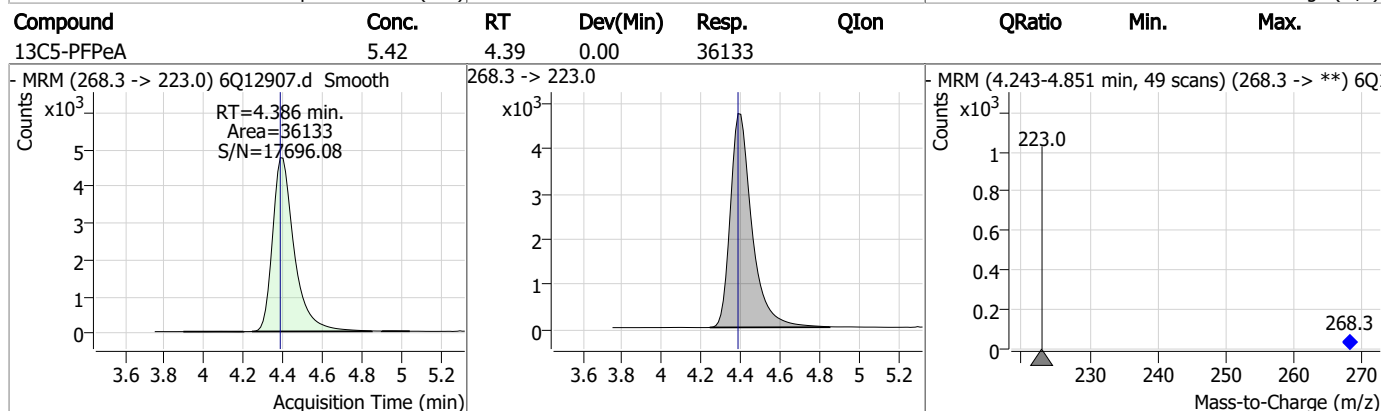
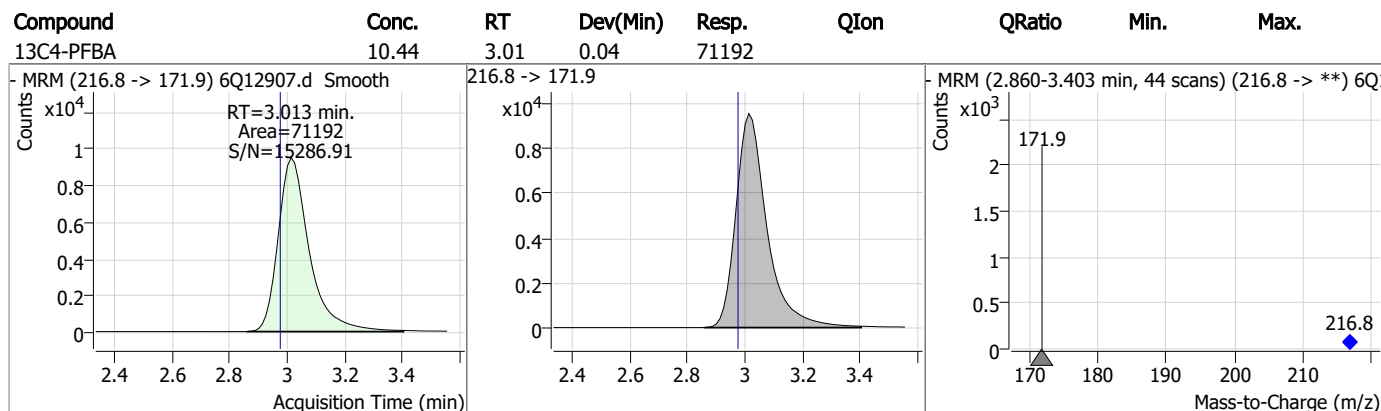
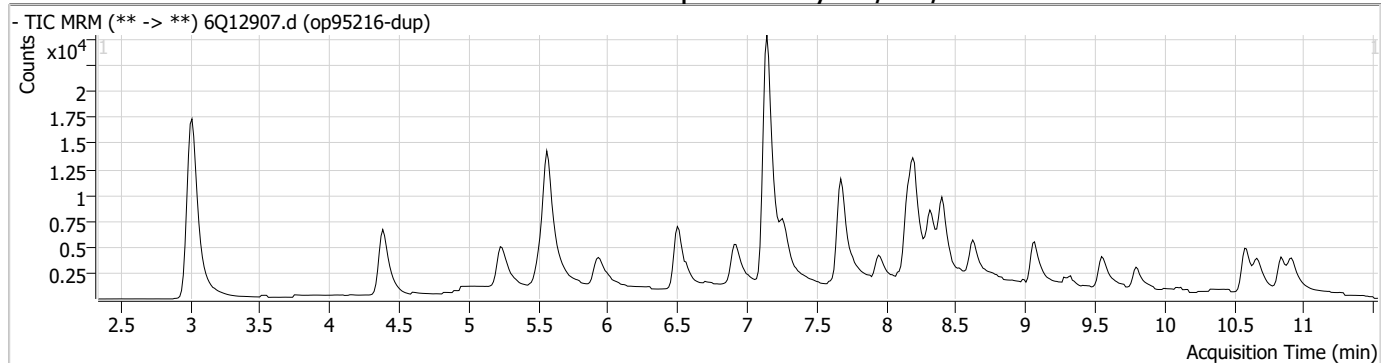
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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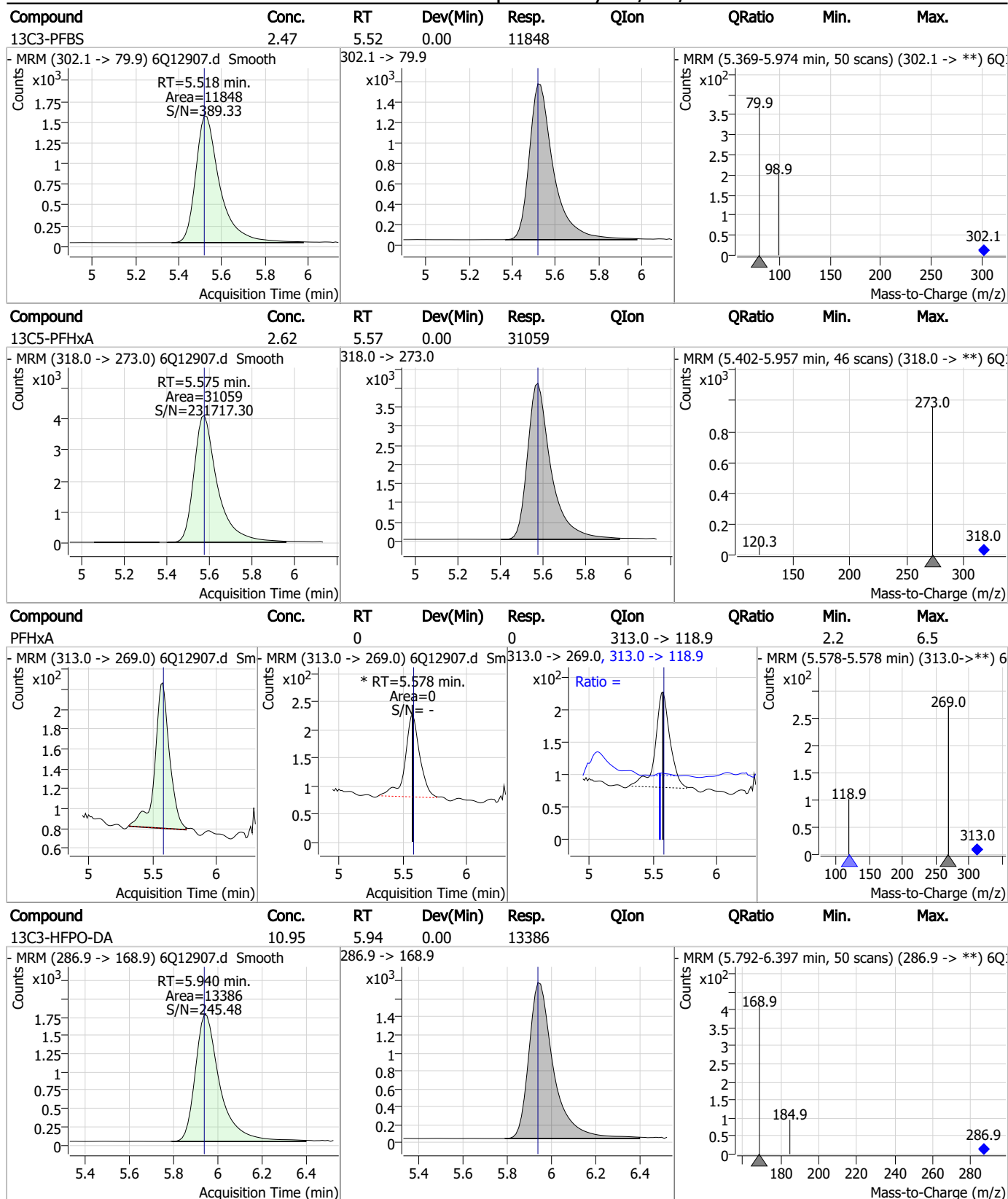
7.5.1  
7



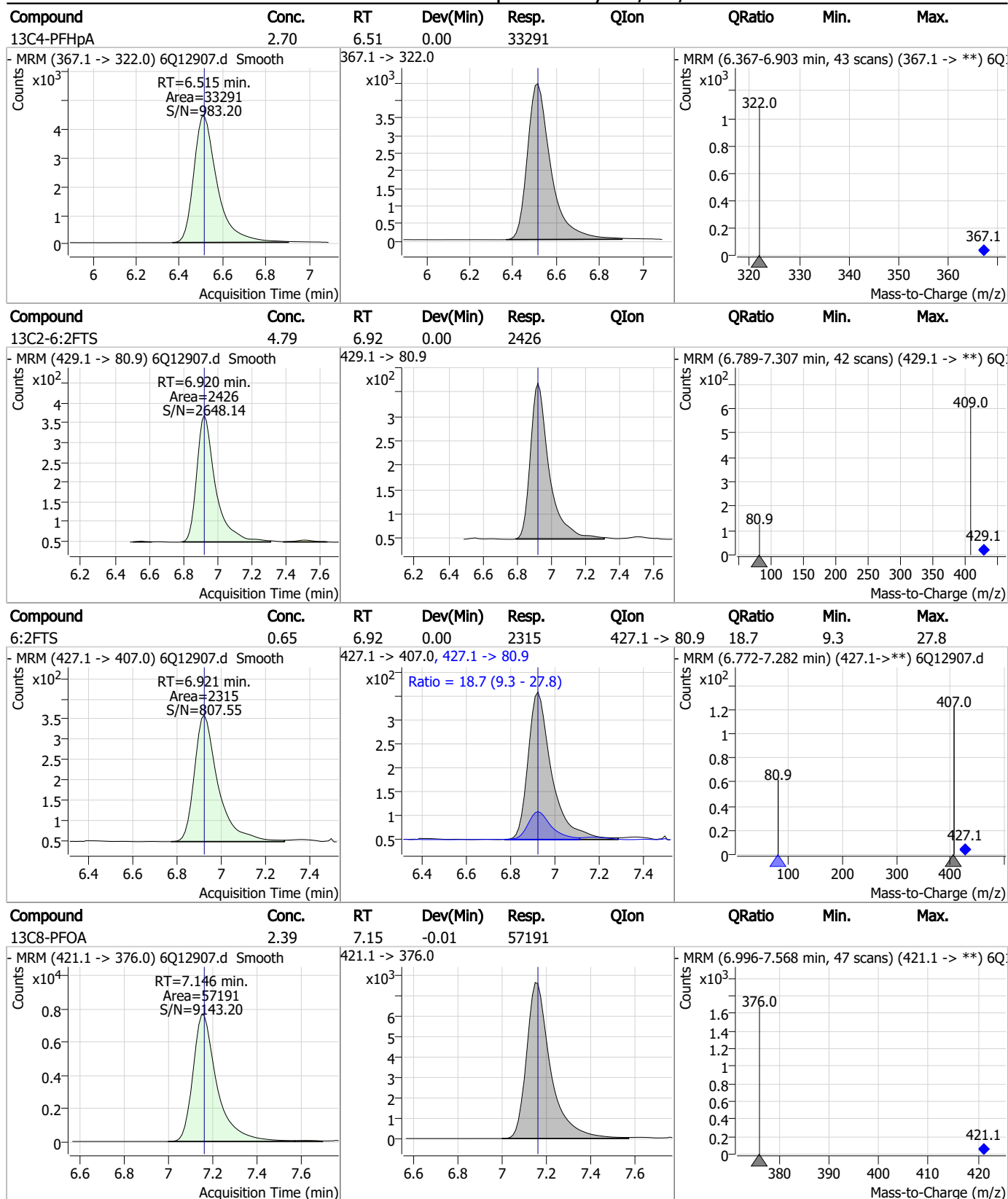
## Perfluorinated Compounds by LC/MS/MS



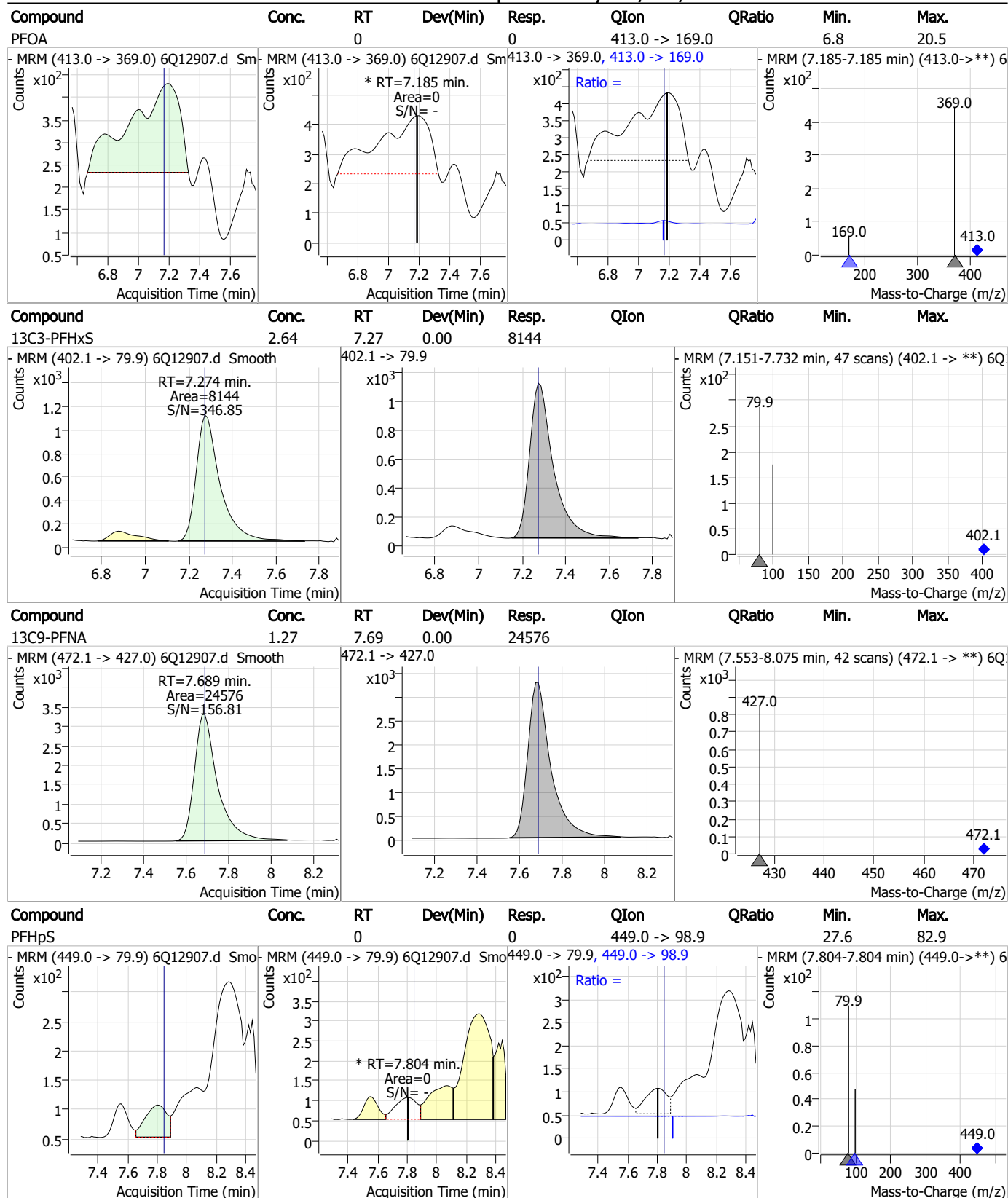
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

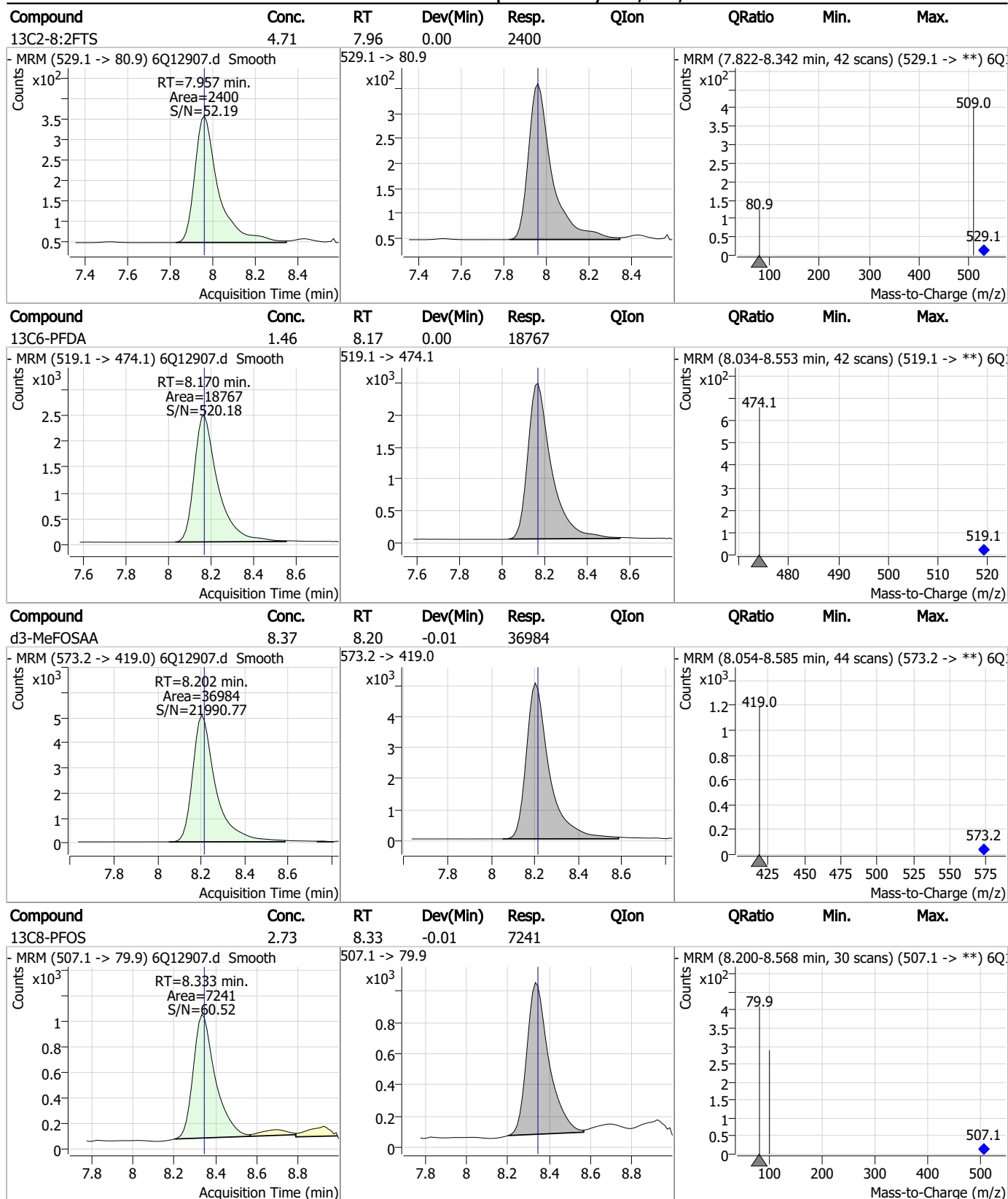


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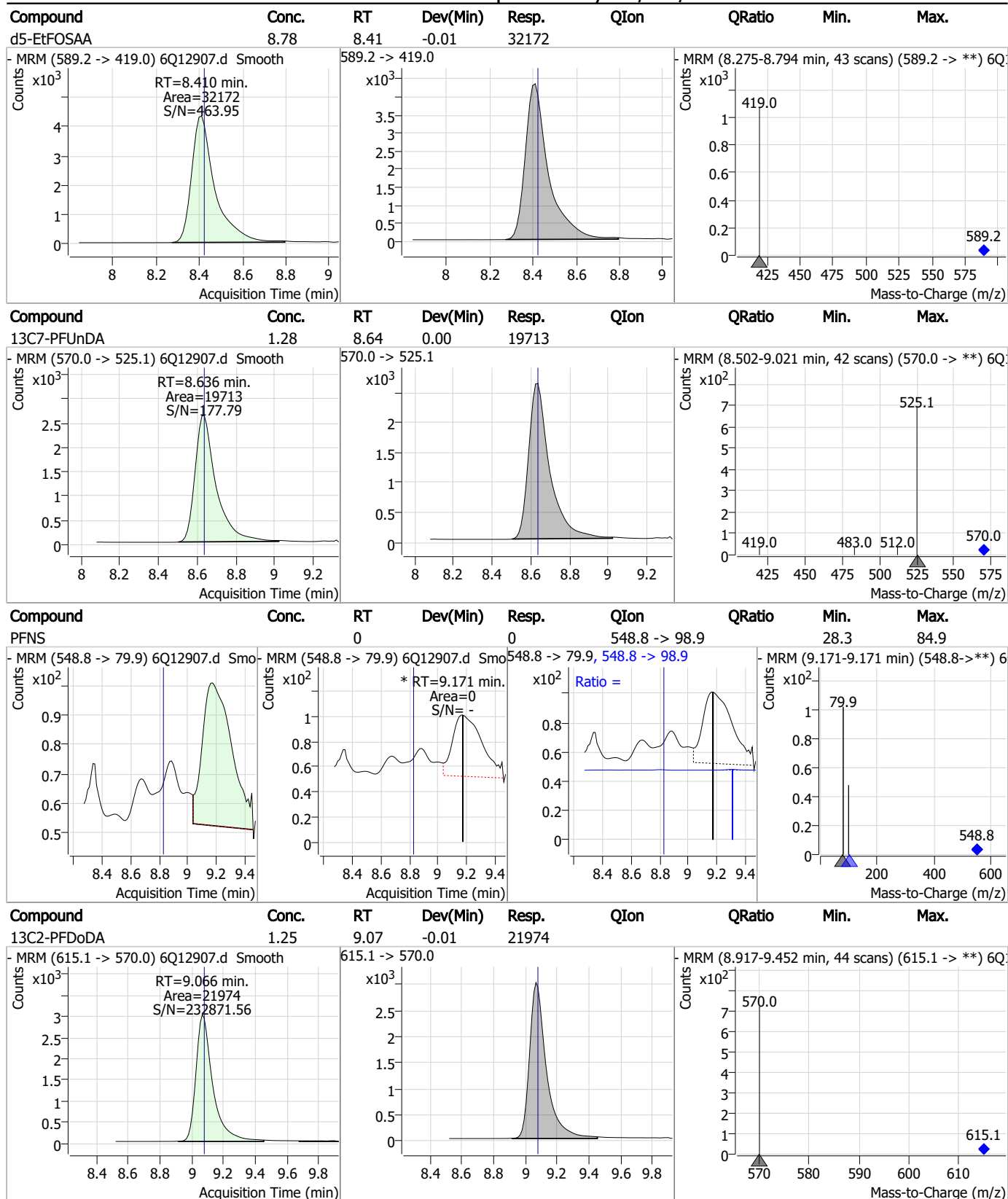




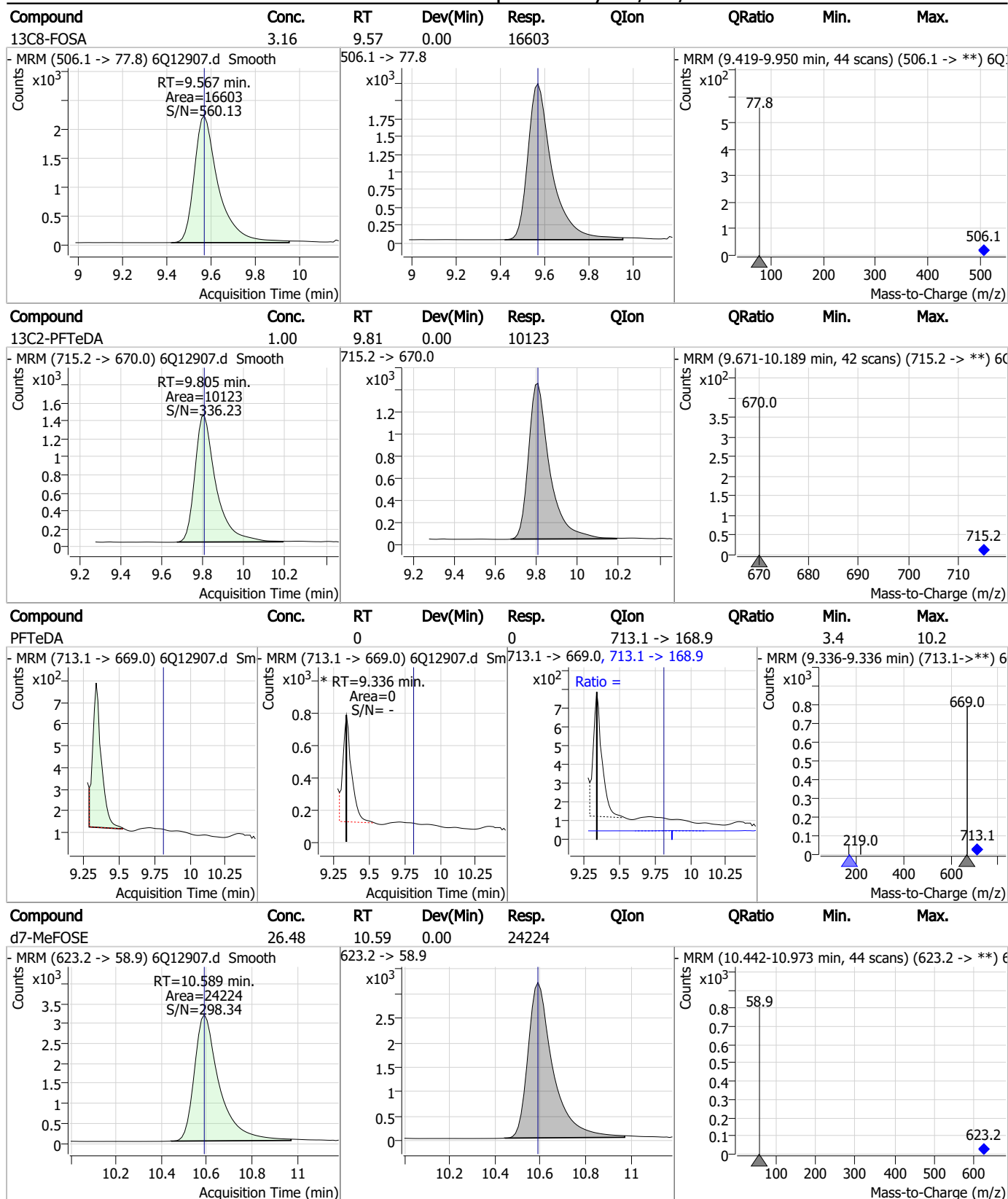
## Perfluorinated Compounds by LC/MS/MS



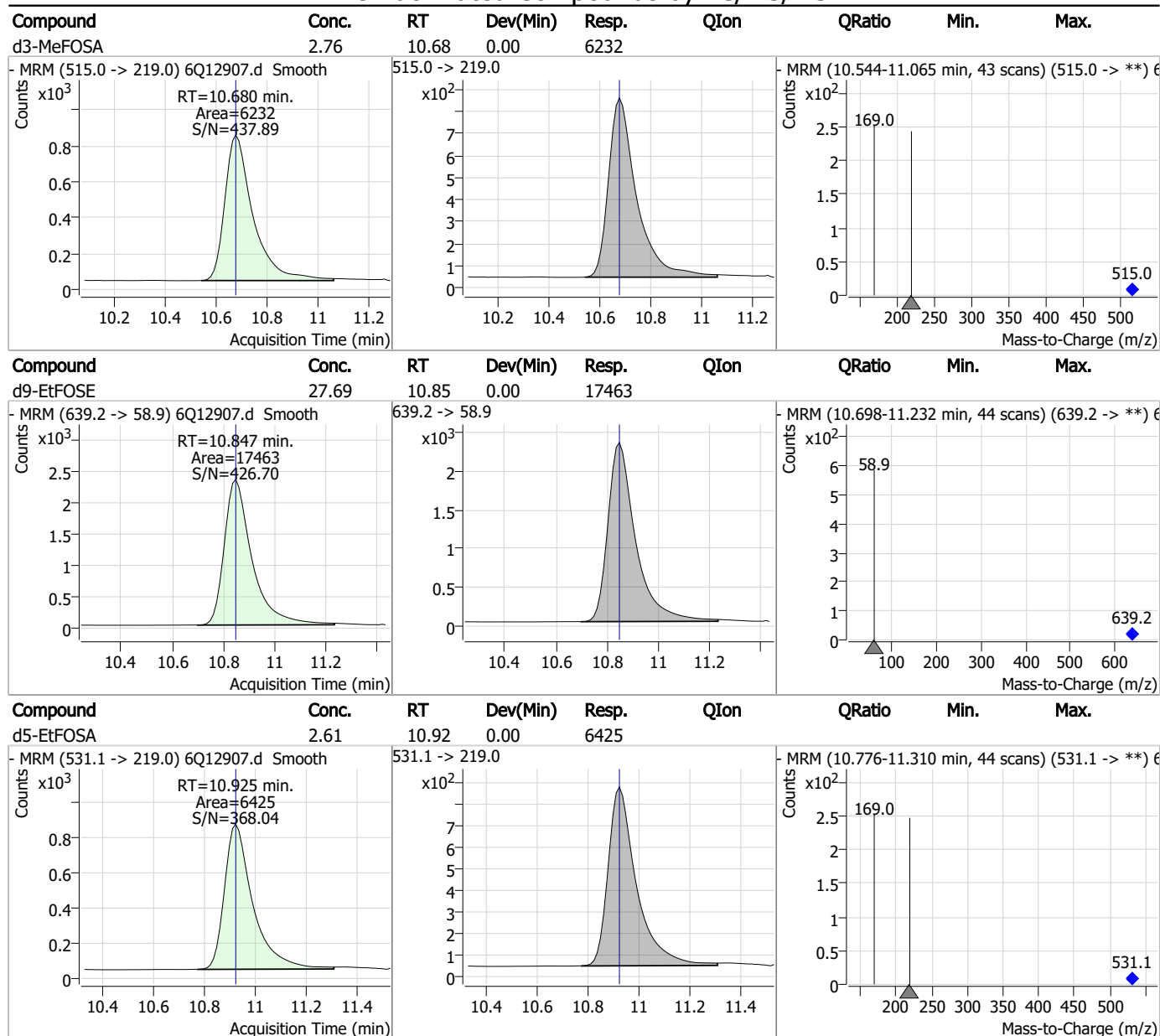
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12720.d  
Operator : marthav  
Acq. Method : 1633full.m  
Acq. Date-Time : 2/1/2023 5:09:16 PM  
Sample Name : RT TDCA  
Vial : P1-B3  
DA Method File : TDCA.quantmethod.xml  
Batch Name : s6q196 TDCA.batch.bin  
Sample Information : OP94819,S6Q196,500,,,5.0,1,water

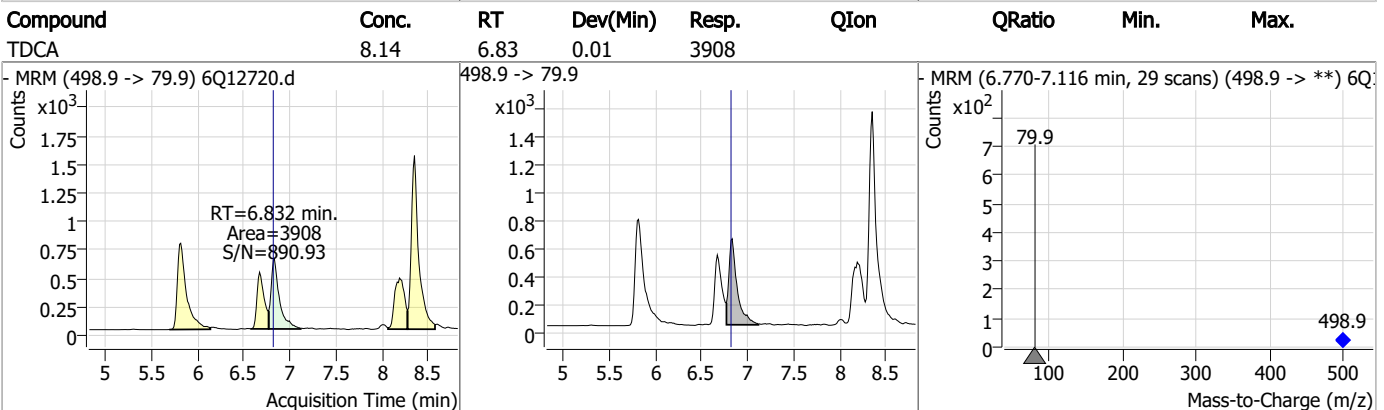
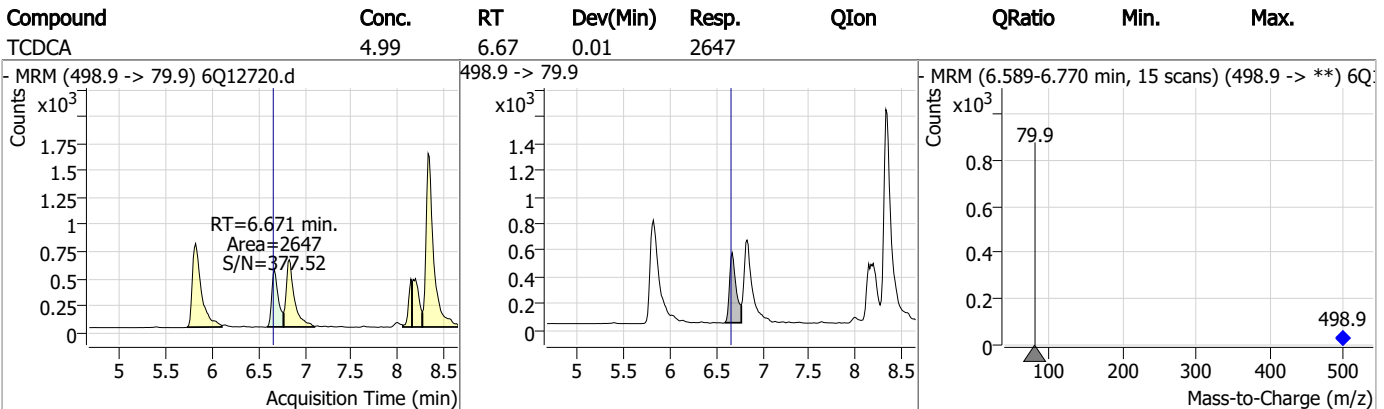
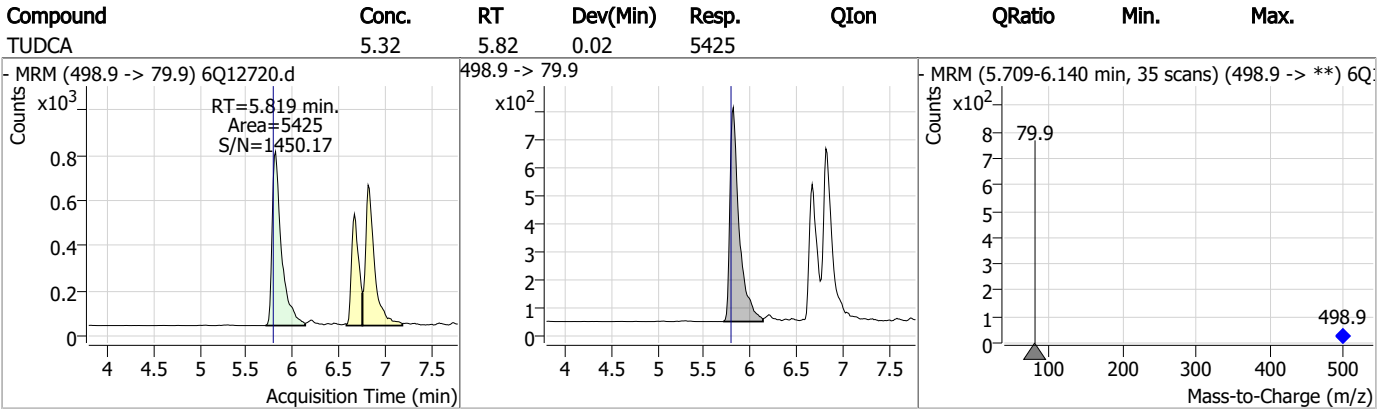
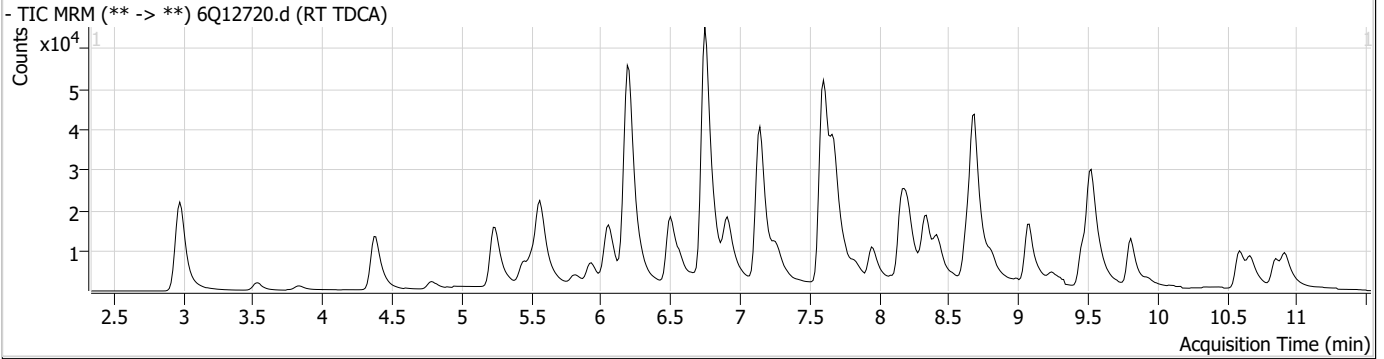
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M8-PFOS	8.345	507.1 -> 79.9	11492	2.50	µg/L	-0.025
13C4-PFOS	8.346	502.8 -> 79.9	13463	2.50	µg/L	-0.012
System Monitoring Compounds						
13C8-PFOS	8.345	507.1 -> 79.9	11492	2.17	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 86.6%			
Target Compounds						
PFOS	8.347	498.9 -> 79.9	11832	3.01	µg/L	75
		498.9 -> 98.8	7025		#m	
TCDCA	6.671	498.9 -> 79.9	2647	4.99	ng/ml	100
TDCA	6.832	498.9 -> 79.9	3908	8.14	ng/ml	100
TUDCA	5.819	498.9 -> 79.9	5425	5.32	ng/ml	100

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

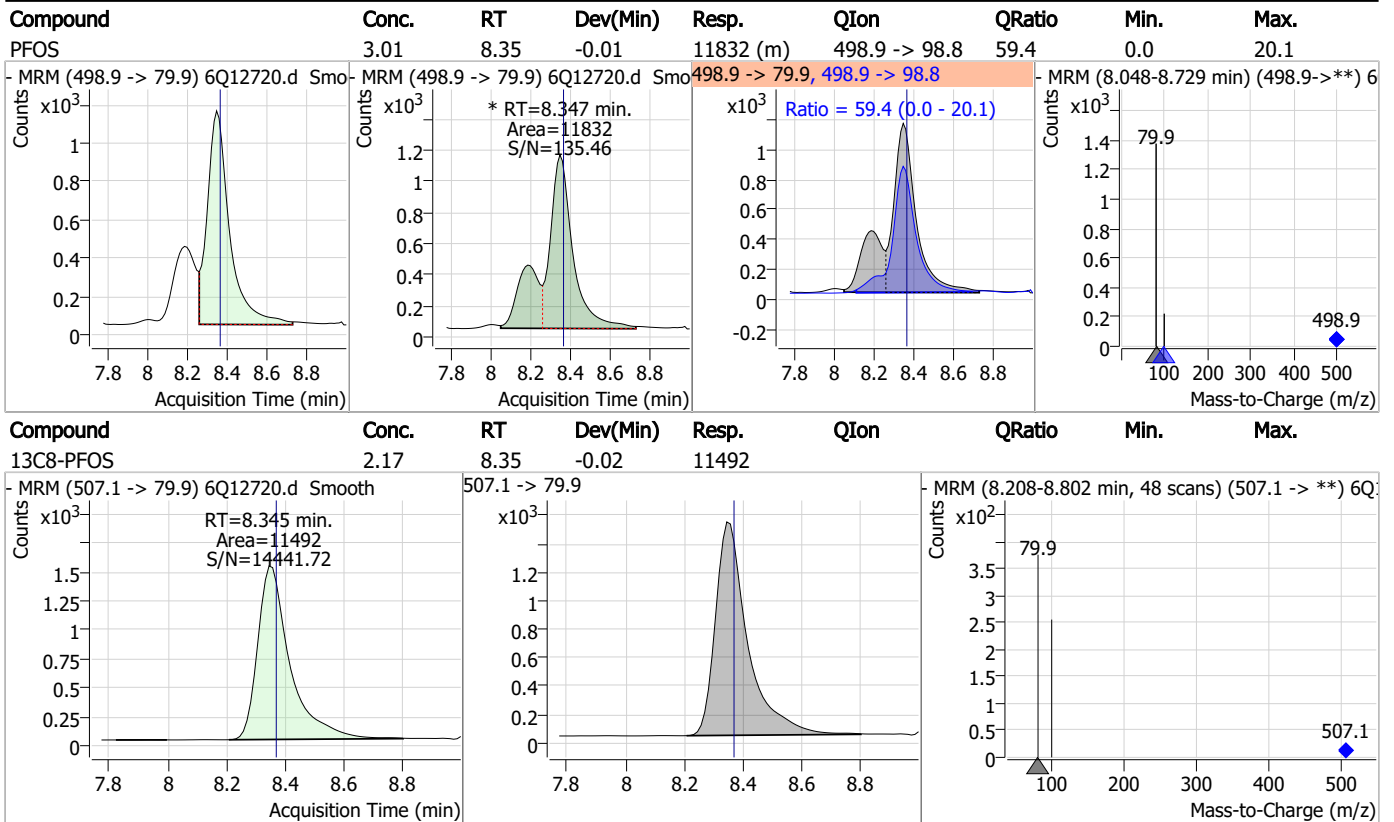
7.6.1

7

# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



7.6.1  
7

Manual Integration Approval Summary

Sample Number: S6Q196-RT

Lab FileID: 6Q12720.D

Injection Time: 02/01/23 17:09

Method: EPA DRAFT 1633

Analyst approved: 02/02/23 11:53 Martha Valls

Supervisor approved: 02/02/23 17:09 Norman Farmer

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

7.6.1.1

7



## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12721.d  
Operator : marthav  
Acq. Method : 1633full.m  
Acq. Date-Time : 2/1/2023 5:23:17 PM  
Sample Name : RT BR-LN  
Vial : P1-B4  
DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
Batch Name : S6Q196.batch.bin  
Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.988	216.8 -> 171.9	73523	10.00 µg/L	0.012
M5-PFPeA	4.386	268.3 -> 223.0	37421	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	33092	2.50 µg/L	0.000
M4-PFHpA	6.515	367.1 -> 322.0	34405	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	57537	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	27503	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	17096	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	20746	1.25 µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	23875	1.25 µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	14702	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16892	2.50 µg/L	0.000
M3-PFBS	5.530	302.1 -> 79.9	13111	2.50 µg/L	0.012
M3-PFHxS	7.274	402.1 -> 79.9	8310	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8946	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	1992	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2587	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2956	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	27724	5.00 µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	14426	10.00 µg/L	0.012
M5-EtFOSAA	8.410	589.2 -> 419.0	22665	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	29698	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	20300	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7728	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7283	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9343	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	32816	5.00 µg/L	0.012
18O2-PFHxS	7.273	403.0 -> 83.9	6427	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	74405	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	27034	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	32413	1.25 µg/L	-0.012
13C2-PFHxA	5.576	315.1 -> 270.0	31636	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	1992	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2587	4.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2956	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-PFDoDA	9.078	615.1 -> 570.0	23875	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.8%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14702	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C3-PFBS	5.530	302.1 -> 79.9	13111	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C3-PFHxS	7.274	402.1 -> 79.9	8310	2.46 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 = 98.4%		
13C4-PFBA	2.988	216.8 -> 171.9	73523	10.10 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C4-PFHpA	6.515	367.1 -> 322.0	34405	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C5-PFHxA	5.575	318.0 -> 273.0	33092	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C5-PFPeA	4.386	268.3 -> 223.0	37421	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C6-PFDA	8.170	519.1 -> 474.1	17096	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.9%		
13C7-PFUnDA	8.636	570.0 -> 525.1	20746	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C8-FOSA	9.567	506.1 -> 77.8	16892	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.0%		
13C8-PFOA	7.146	421.1 -> 376.0	57537	2.32 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.6%		
13C8-PFOS	8.345	507.1 -> 79.9	8946	2.91 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 116.5%		
13C9-PFNA	7.677	472.1 -> 427.0	27503	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.4%		
d3-MeFOSAA	8.215	573.2 -> 419.0	27724	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.3%		
13C3-HFPO-DA	5.952	286.9 -> 168.9	14426	11.16 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 111.6%		
d3-MeFOSA	10.680	515.0 -> 219.0	7283	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.1%		
d5-EtFOSAA	8.410	589.2 -> 419.0	22665	5.33 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.7%		
d7-MeFOSE	10.589	623.2 -> 58.9	29698	27.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 112.0%		
d9-EtFOSE	10.847	639.2 -> 58.9	20300	27.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 111.1%		
d5-EtFOSA	10.925	531.1 -> 219.0	7728	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.4%		

## Target Compounds

					QValue
4:2FTS	5.240	327.1 -> 307.0	226996	50.83 µg/L	99
		327.1 -> 80.9	48871		
6:2FTS	6.921	427.1 -> 407.0	200157	52.84 µg/L	100
		427.1 -> 80.9	36784		
8:2FTS	7.958	527.1 -> 507.0	107975	47.03 µg/L	98
		527.1 -> 80.8	25217		
EtFOSAA	8.424	584.2 -> 419.1	48275	13.30 µg/L	91
		584.2 -> 526.0	25773		
FOSA	9.557	498.1 -> 77.9	203438	30.18 µg/L	98
		498.1 -> 478.0	7881		
MeFOSAA	8.216	570.1 -> 419.0	65181	12.83 µg/L	90
		570.1 -> 483.0	12259		
PFBA	2.982	212.8 -> 168.9	85932	52.33 µg/L	100
PFBS	5.531	298.7 -> 79.9	56662	11.25 µg/L	95
		298.7 -> 98.8	26601		
PFDA	8.170	512.9 -> 469.0	273501	14.06 µg/L	96
		512.9 -> 219.0	36332		
PFDODA	9.079	613.1 -> 569.0	250845	14.34 µg/L	99
		613.1 -> 319.0	29279		
PFDS	9.241	599.0 -> 79.9	33382	11.02 µg/L	93

# Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.515	599.0 -> 98.8	18515	13.35	µg/L	97
		363.1 -> 319.0	271998			
PFHpS	7.841	363.1 -> 169.0	36800	10.99	µg/L	95
		449.0 -> 79.9	41704			
PFHxA	5.578	449.0 -> 98.9	24706	13.54	µg/L	98
		313.0 -> 269.0	175824			
PFHxS	7.275	313.0 -> 118.9	6240	12.00	µg/L	88
		398.7 -> 79.9	44818			
PFNA	7.677	398.7 -> 98.9	24474	22.68	µg/L	96
		463.0 -> 419.0	420857			
PFNS	8.811	463.0 -> 219.0	88158	12.03	µg/L	96
		548.8 -> 79.9	47824			
PFOA	7.148	548.8 -> 98.9	25757	29.26	µg/L	100
		413.0 -> 369.0	741557			
PFOS	8.347	413.0 -> 169.0	99856	11.26	µg/L	75
		498.9 -> 79.9	46232			
PFPeA	4.388	498.9 -> 98.8	29862	26.43	µg/L	100
		263.0 -> 219.0	208878			
PFPeS	6.581	349.1 -> 79.9	53740	12.37	µg/L	94
		349.1 -> 98.9	29704			
PFTeDA	9.806	713.1 -> 669.0	209152	13.19	µg/L	99
		713.1 -> 168.9	13269			
PFTrDA	9.462	663.0 -> 619.0	236702	14.15	µg/L	99
		663.0 -> 168.9	18159			
PFUnDA	8.637	563.1 -> 519.0	240303	14.87	µg/L	100
		563.1 -> 269.1	32548			
11CI-PF3OUdS	9.514	630.9 -> 450.9	494947	47.81	µg/L	98
		632.9 -> 452.9	157776			
9CI-PF3ONS	8.688	530.8 -> 351.0	813794	46.51	µg/L	96
		532.8 -> 353.0	243168			
ADONA	6.766	376.9 -> 250.9	1540645	49.23	µg/L	96
		376.9 -> 84.8	312249			
HFPO-DA	5.953	284.9 -> 168.9	66655	49.40	µg/L	99
		284.9 -> 184.9	8622			
3:3FTCA	3.841	241.0 -> 177.0	24851	64.04	µg/L	97
		241.0 -> 117.0	3376			
5:3FTCA	6.206	341.0 -> 237.1	888542	327.39	µg/L	98
		341.0 -> 217.0	787399			
7:3FTCA	7.605	441.0 -> 316.9	587084	330.95	µg/L	89
		441.0 -> 336.9	1135231			
EtFOSA	10.927	526.0 -> 219.0	118317	32.08	µg/L	86
		526.0 -> 169.0	132251			
EtFOSE	10.860	630.0 -> 58.9	125370	144.30	µg/L	100
		511.9 -> 219.0	100539			
MeFOSA	10.682	511.9 -> 169.0	113613	31.91	µg/L	88
		616.1 -> 58.9	168745			
MeFOSE	10.602	699.1 -> 79.9	21461	142.44	µg/L	100
		699.1 -> 98.8	12686			
PFDoDS	9.945	295.0 -> 201.0	19199	25.02	µg/L	98
		295.0 -> 84.9	10072			
NFDHA	5.457	279.0 -> 85.1	58012	26.11	µg/L	100
		229.0 -> 84.9	54665			
PFMBA	3.541	314.8 -> 134.9	446823	23.91	µg/L	100
		314.8 -> 82.9	10093			
PFEESA	6.071					

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

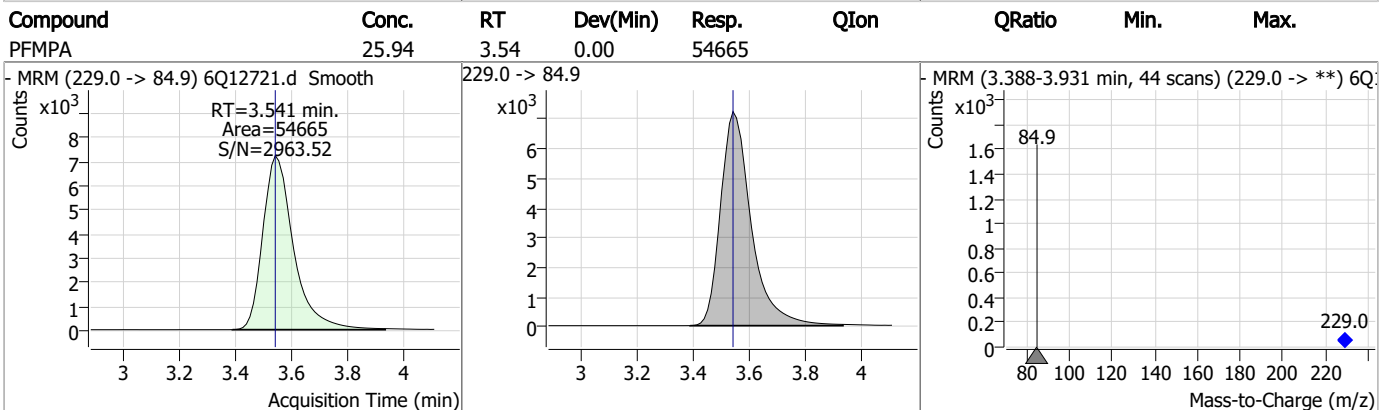
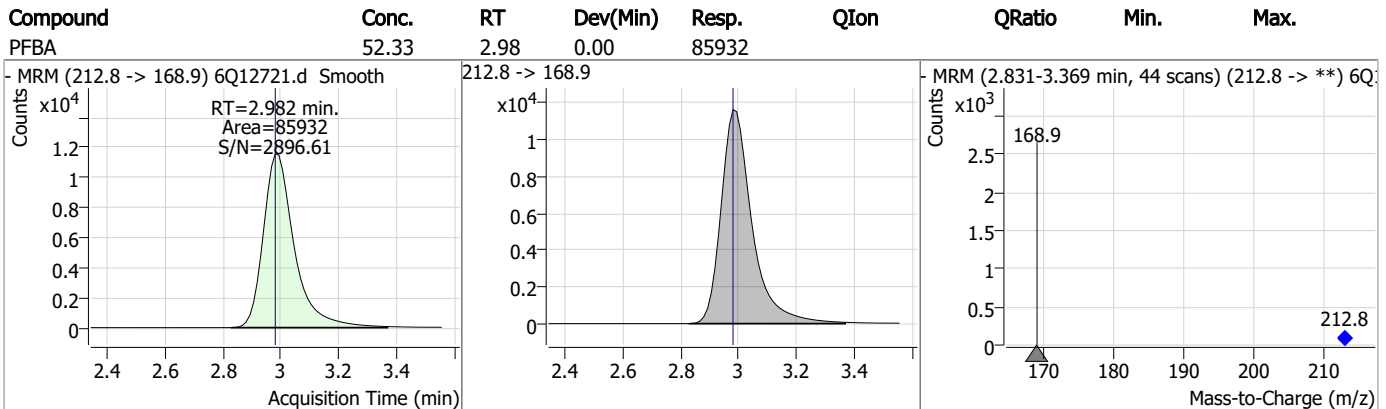
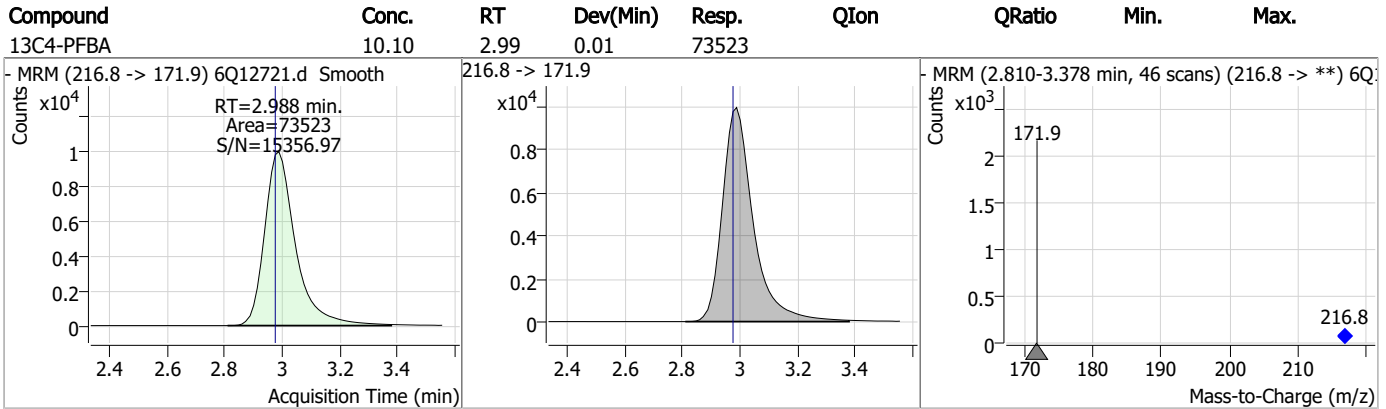
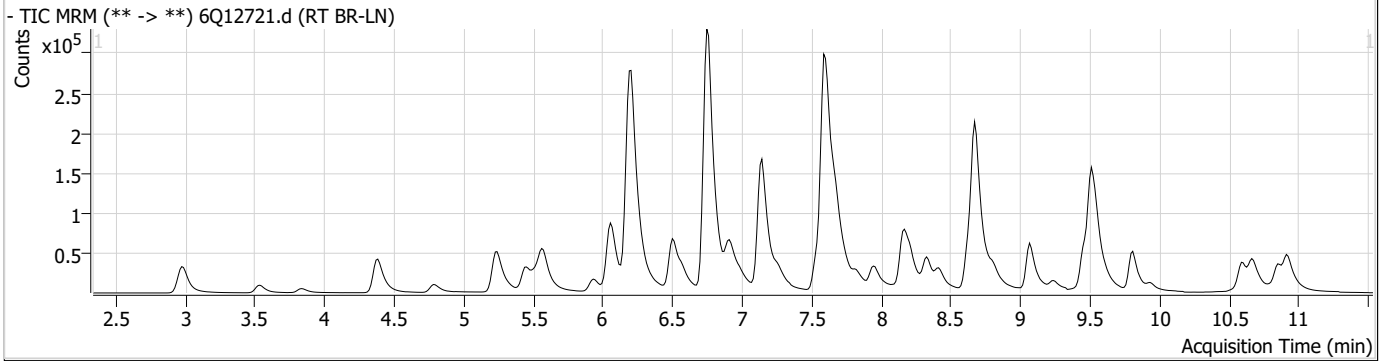
Perfluorinated Compounds by LC/MS/MS

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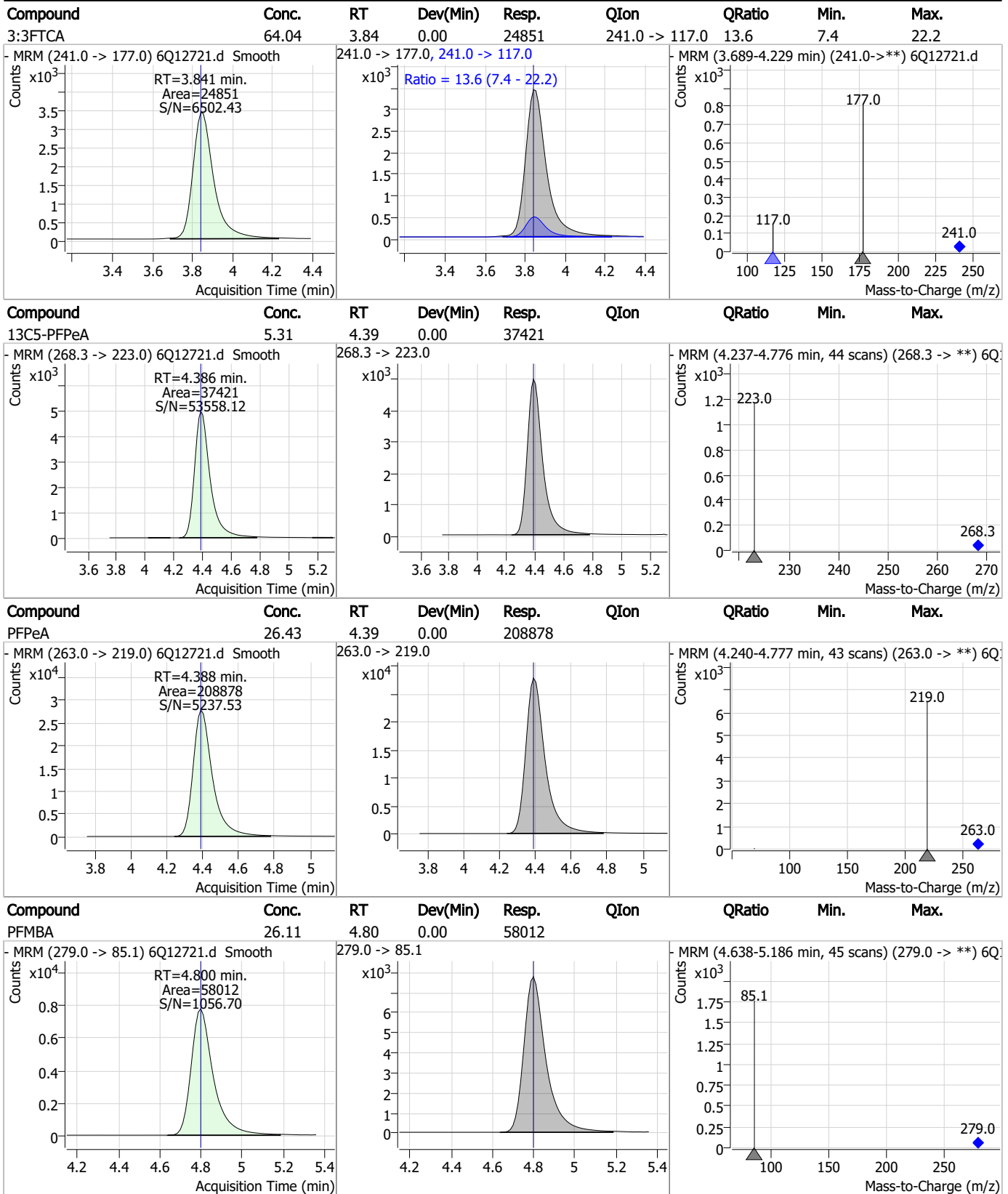
7.6.2

7

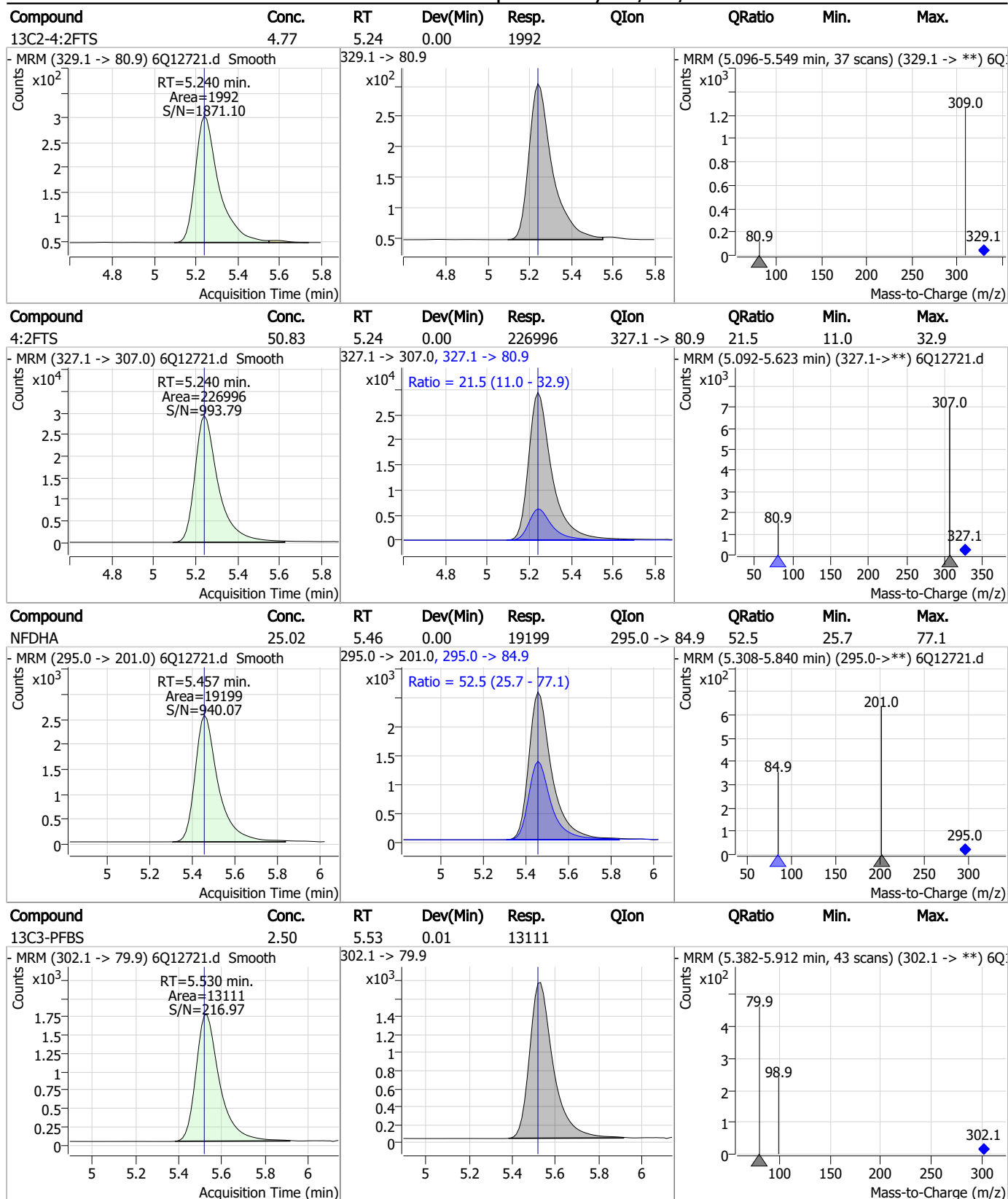
# Perfluorinated Compounds by LC/MS/MS



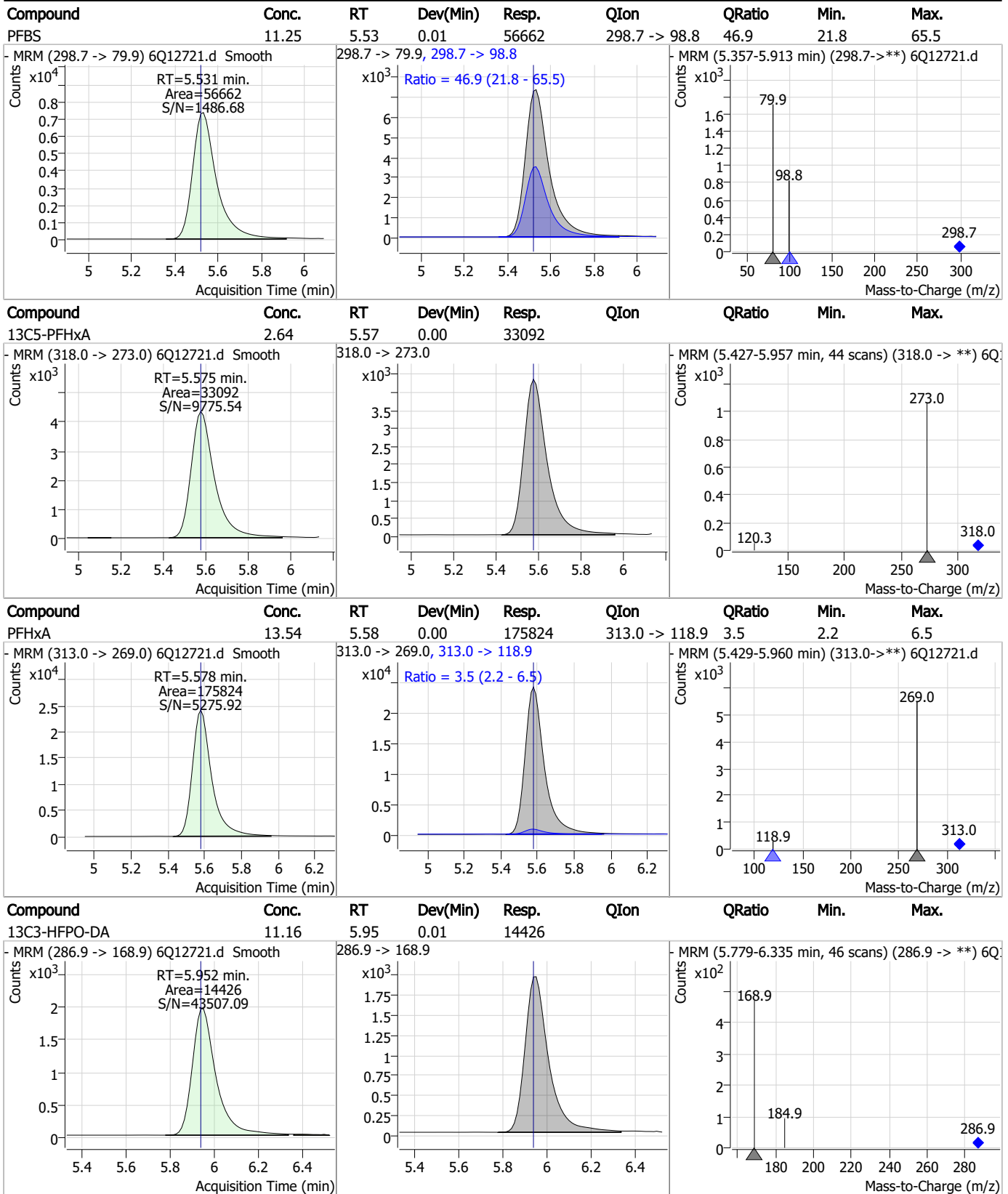
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS

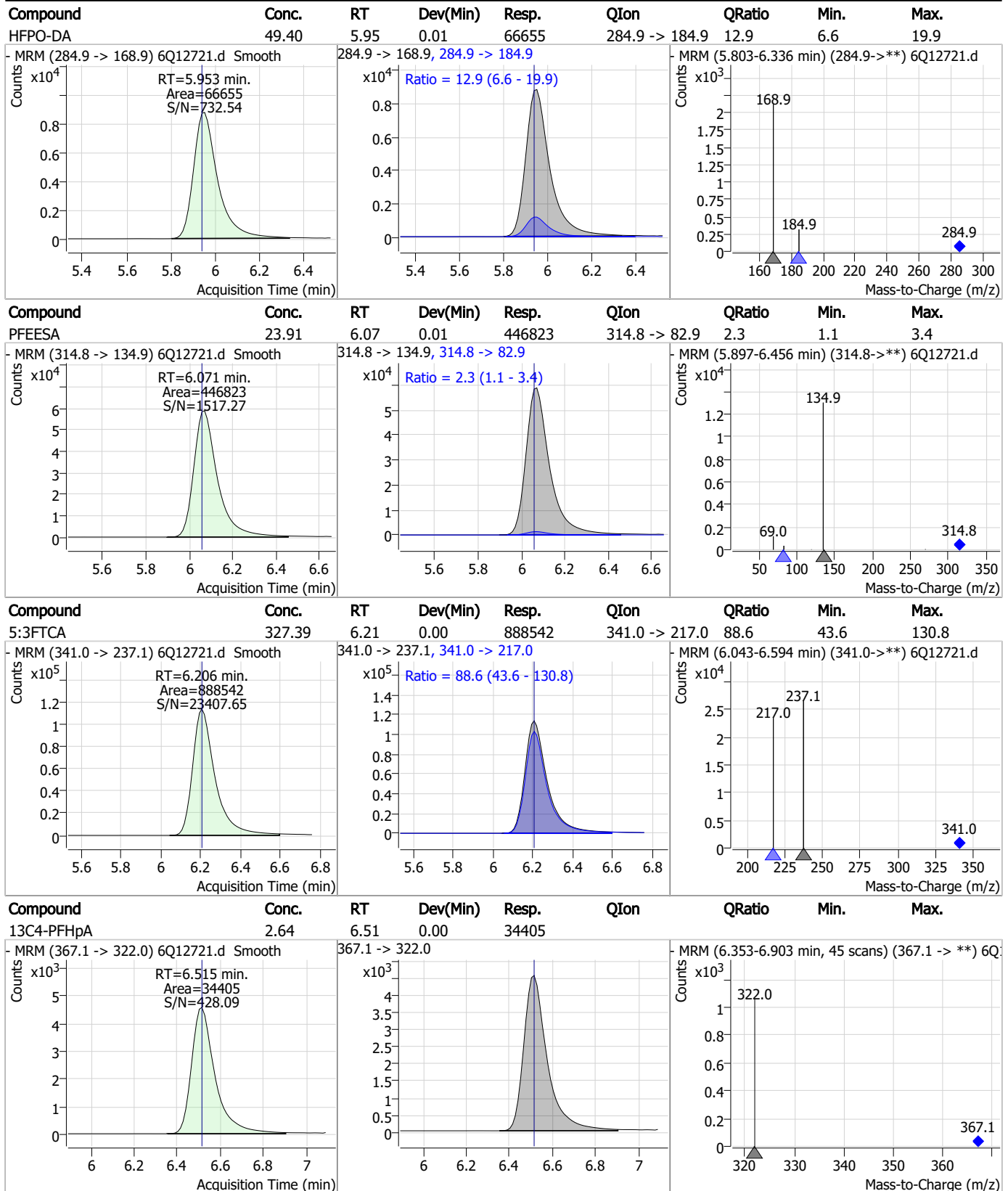


# Perfluorinated Compounds by LC/MS/MS





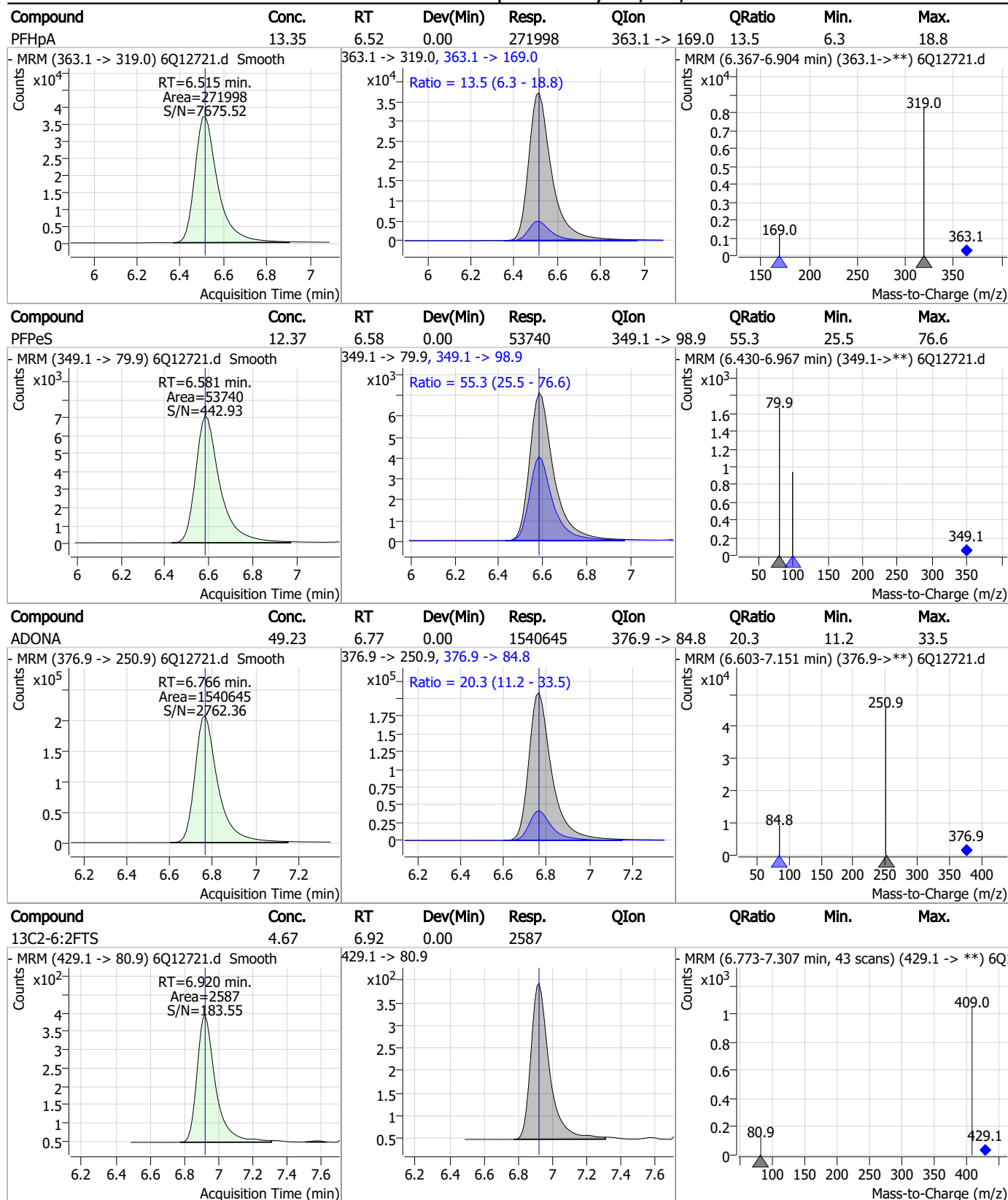
# Perfluorinated Compounds by LC/MS/MS



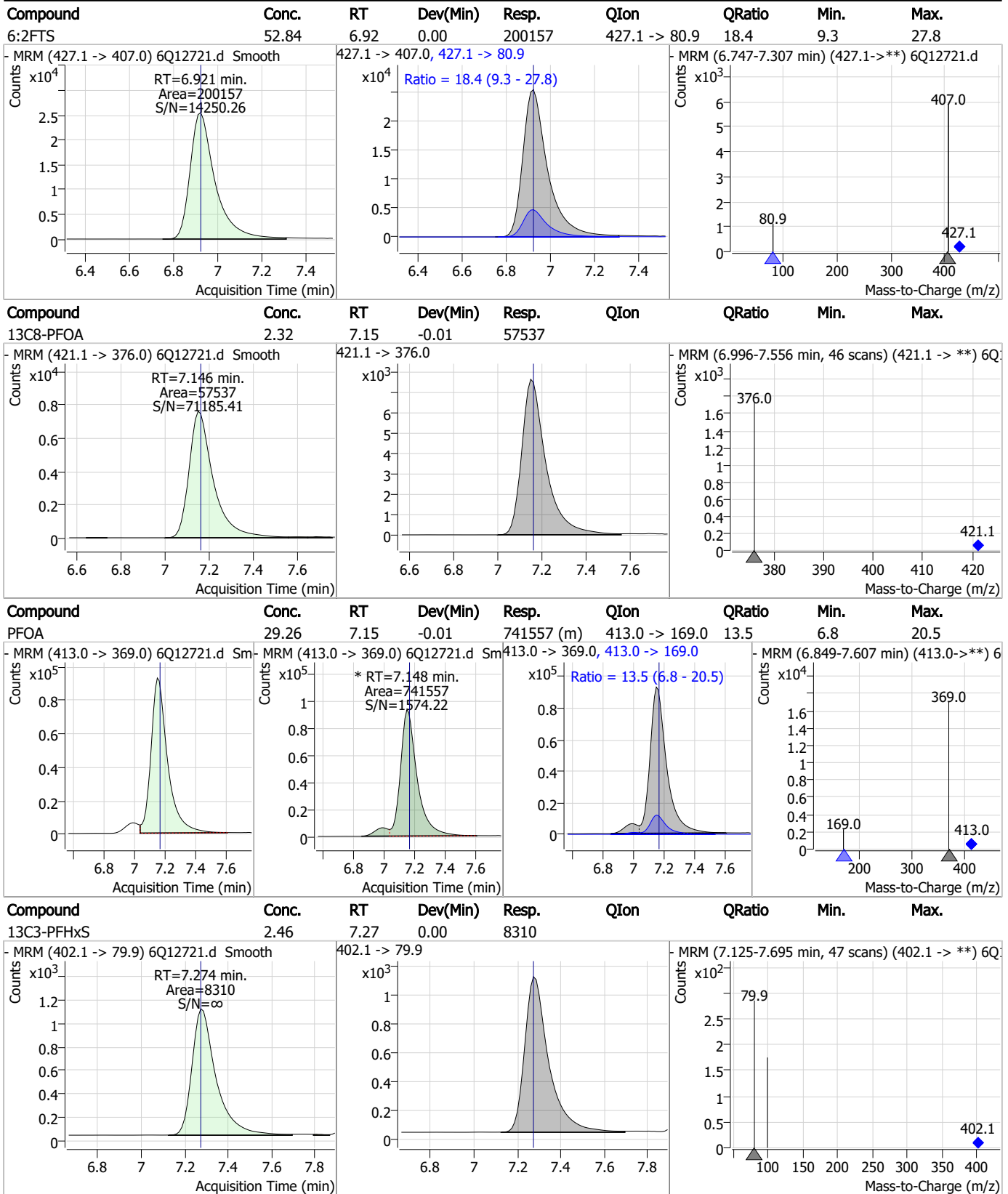
7.6.2

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# Perfluorinated Compounds by LC/MS/MS

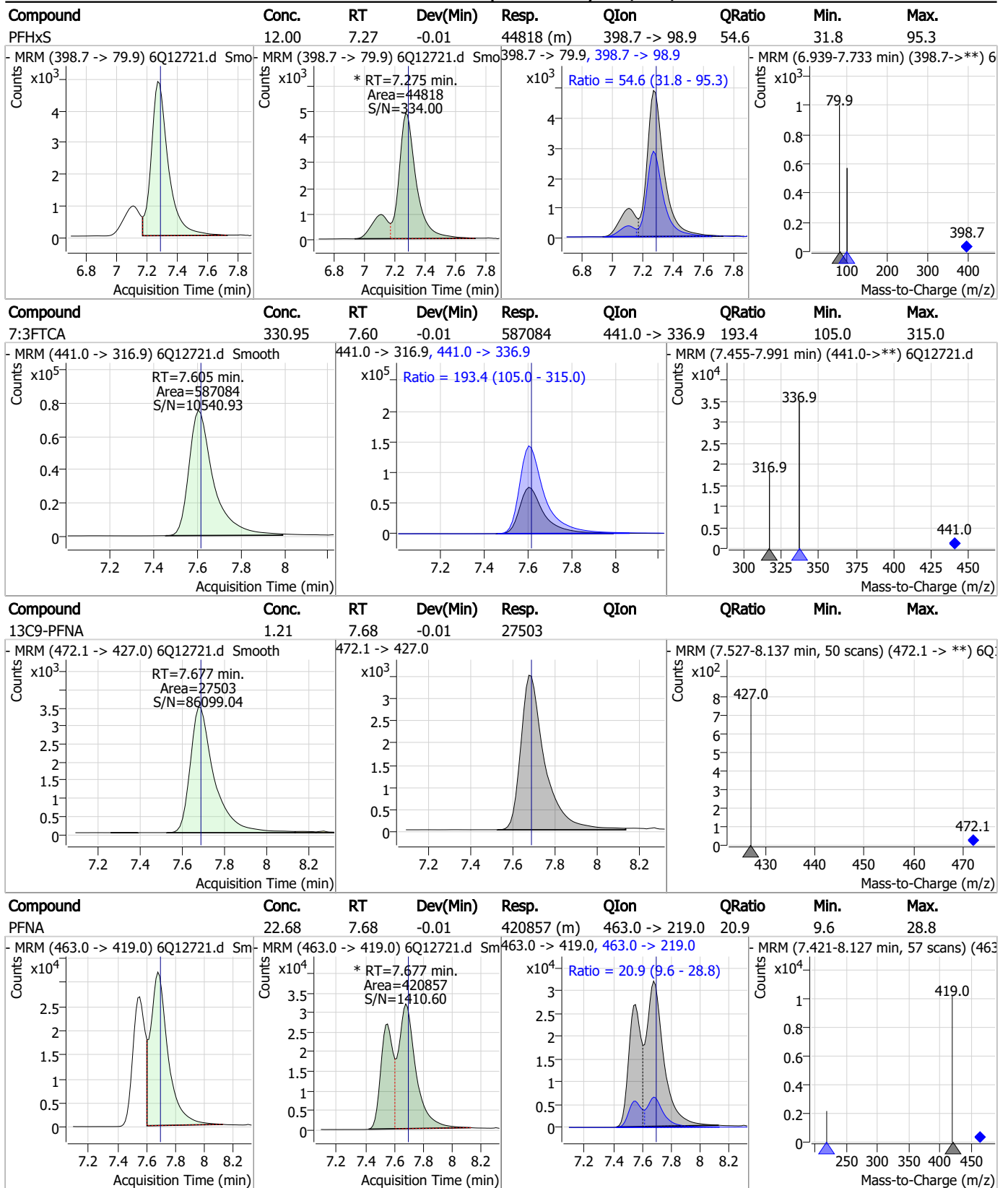


# Perfluorinated Compounds by LC/MS/MS



7.6.2  
7

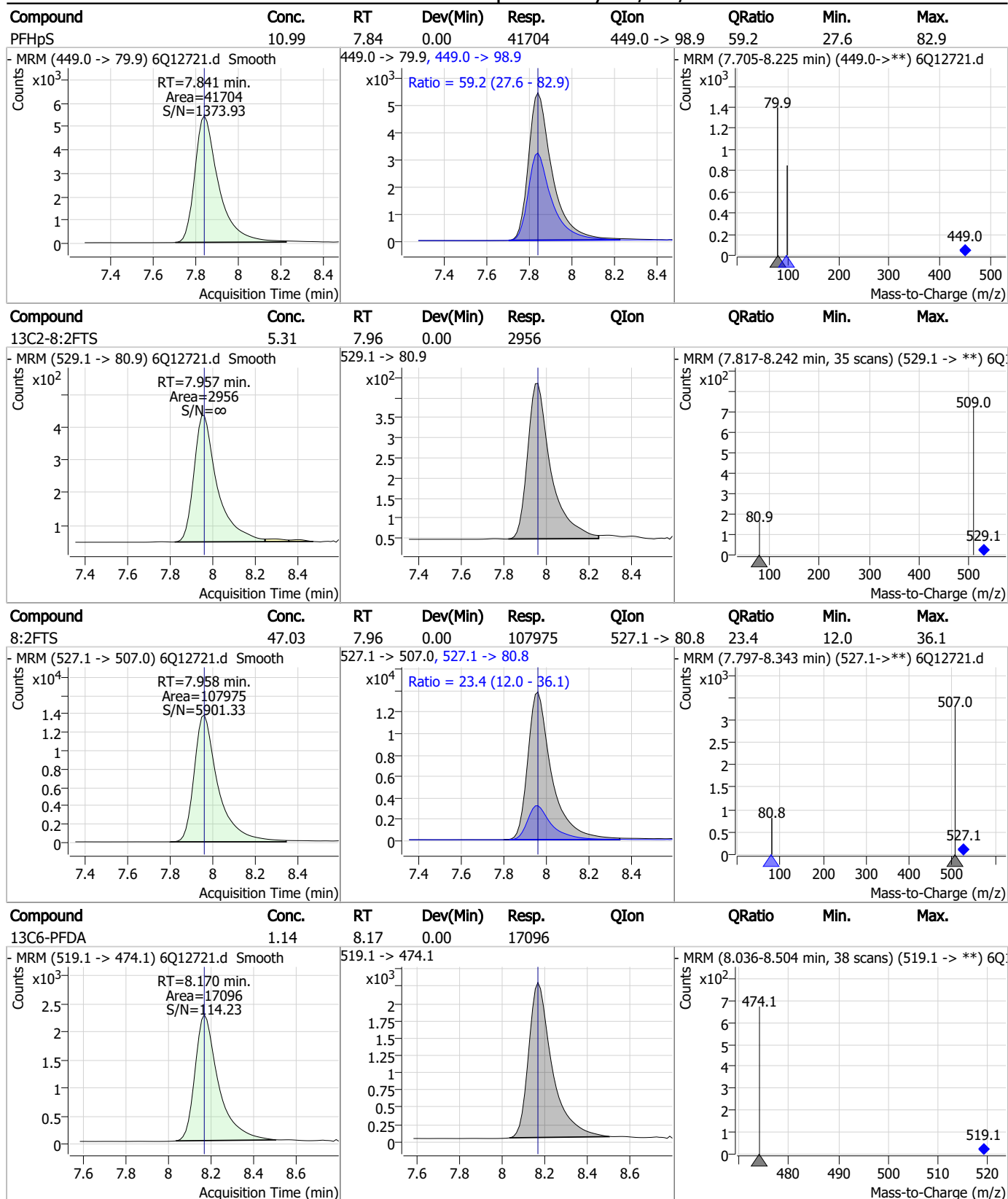
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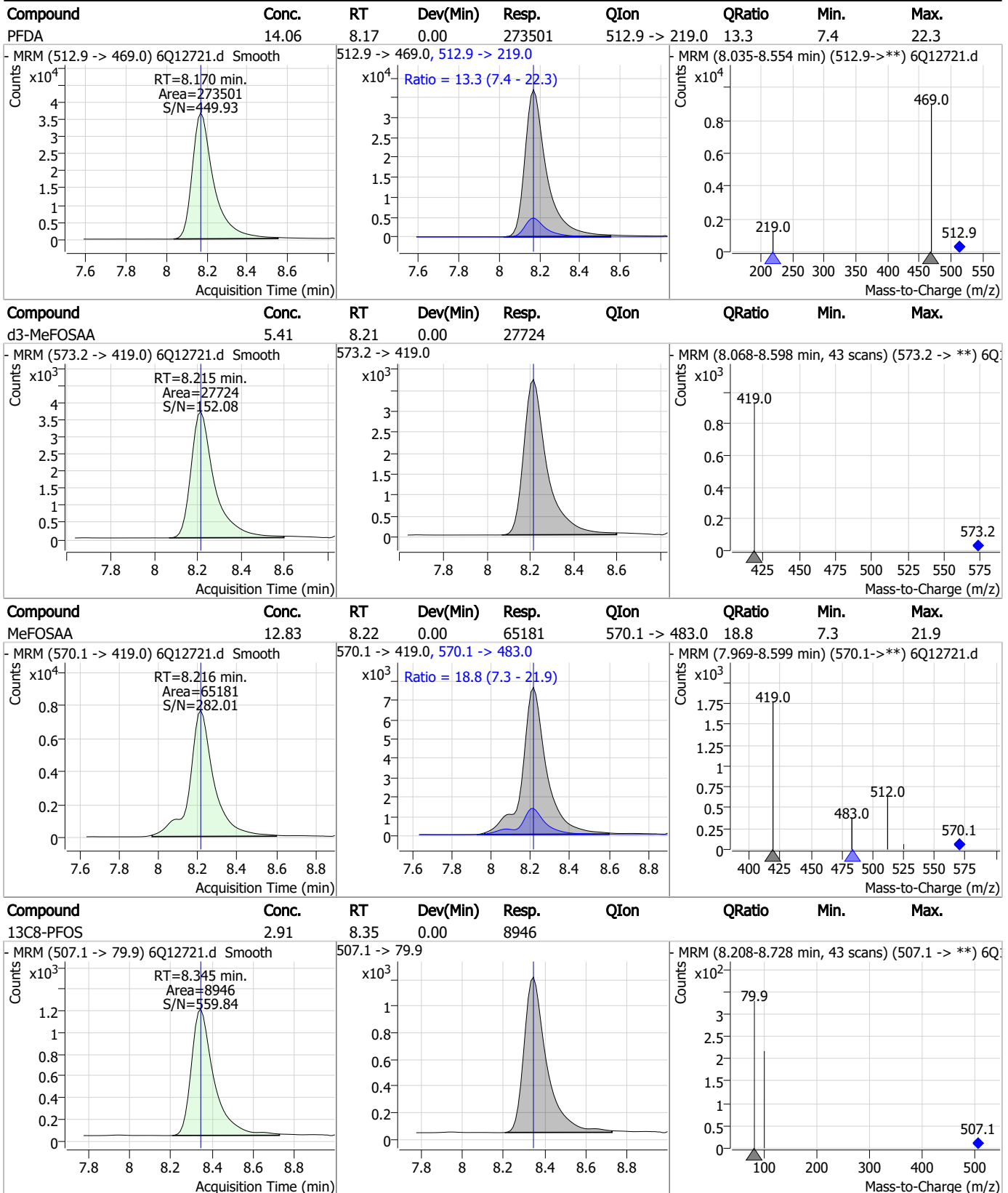
7.6.2

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# Perfluorinated Compounds by LC/MS/MS



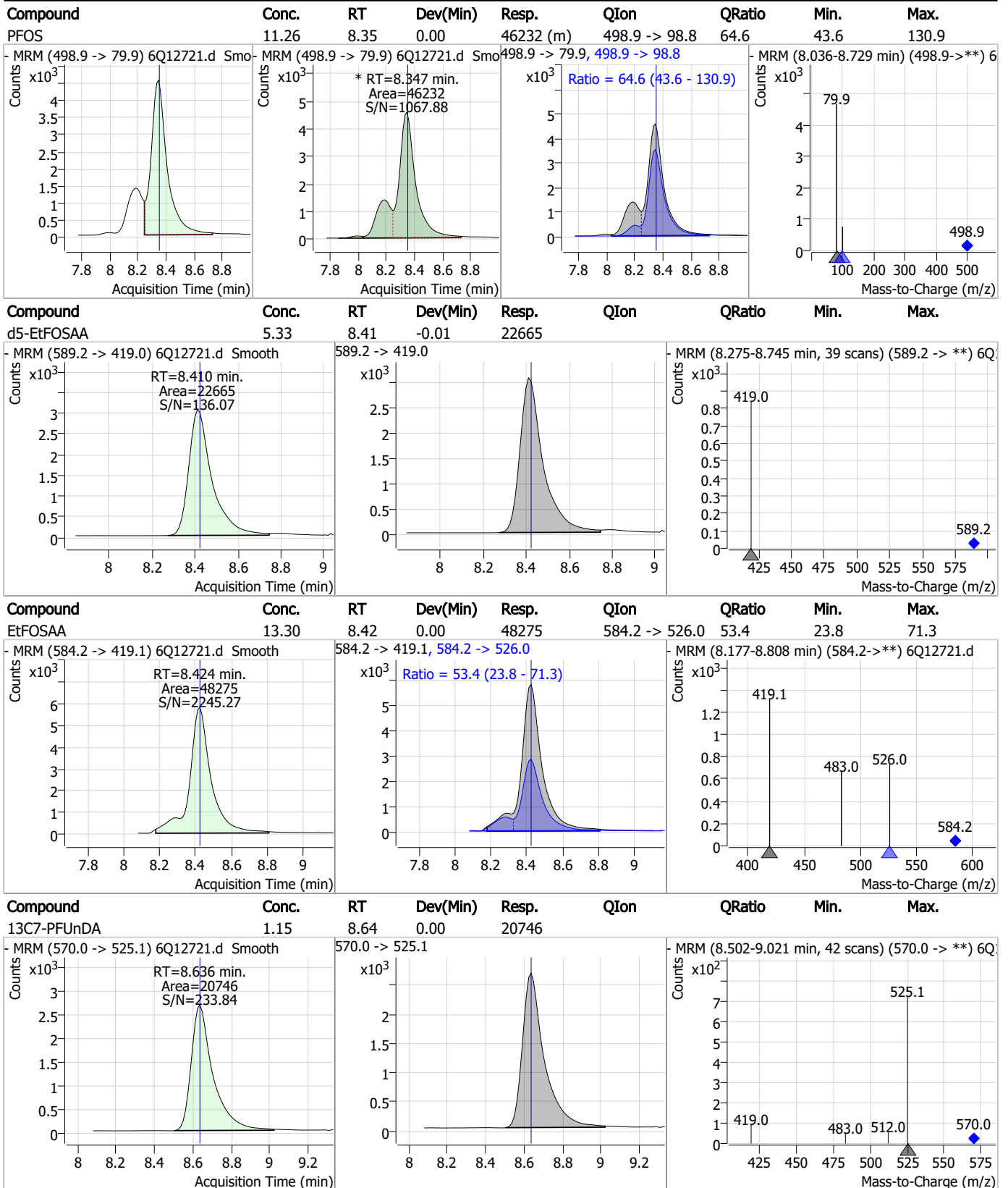
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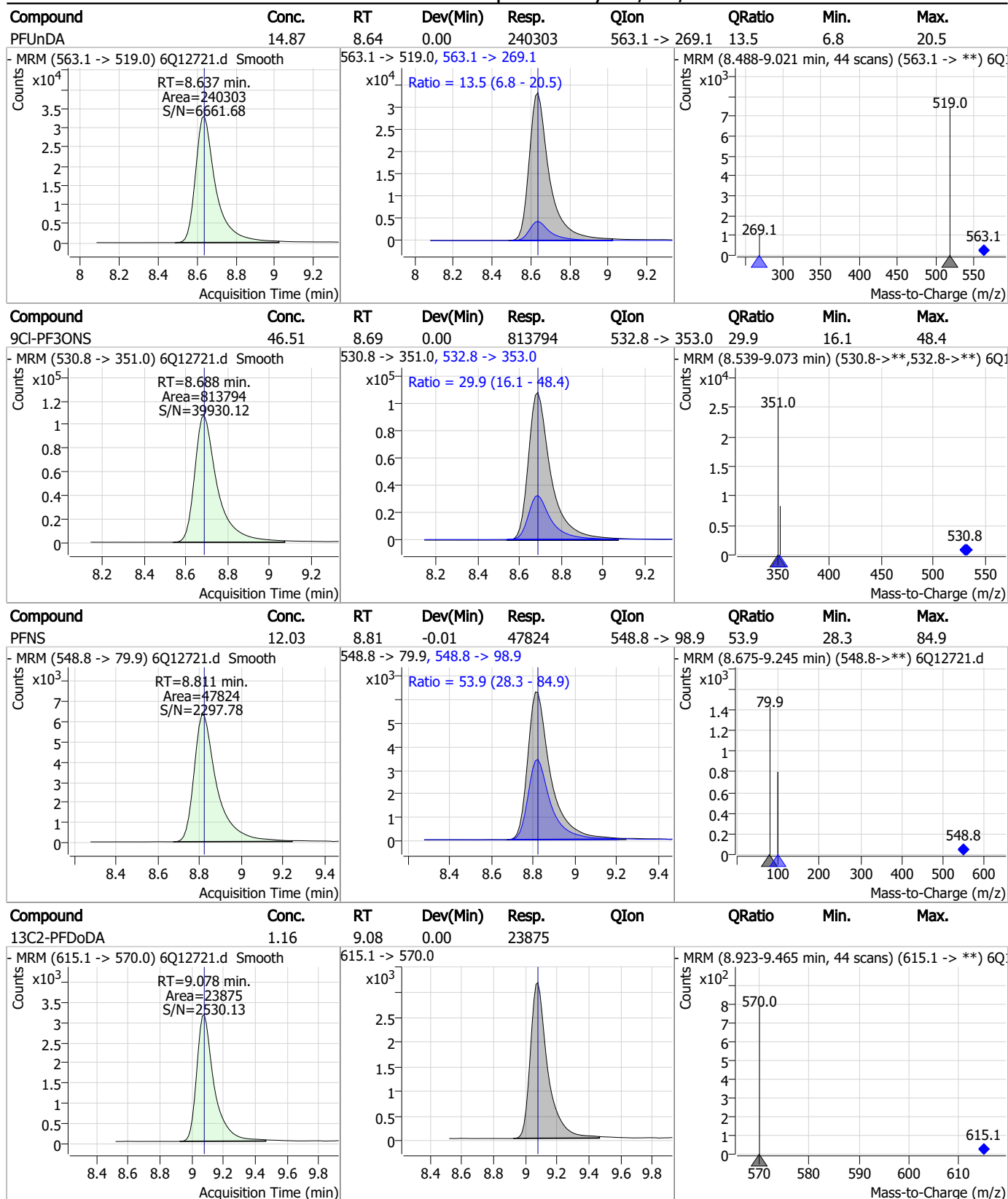
7.6.2

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# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS

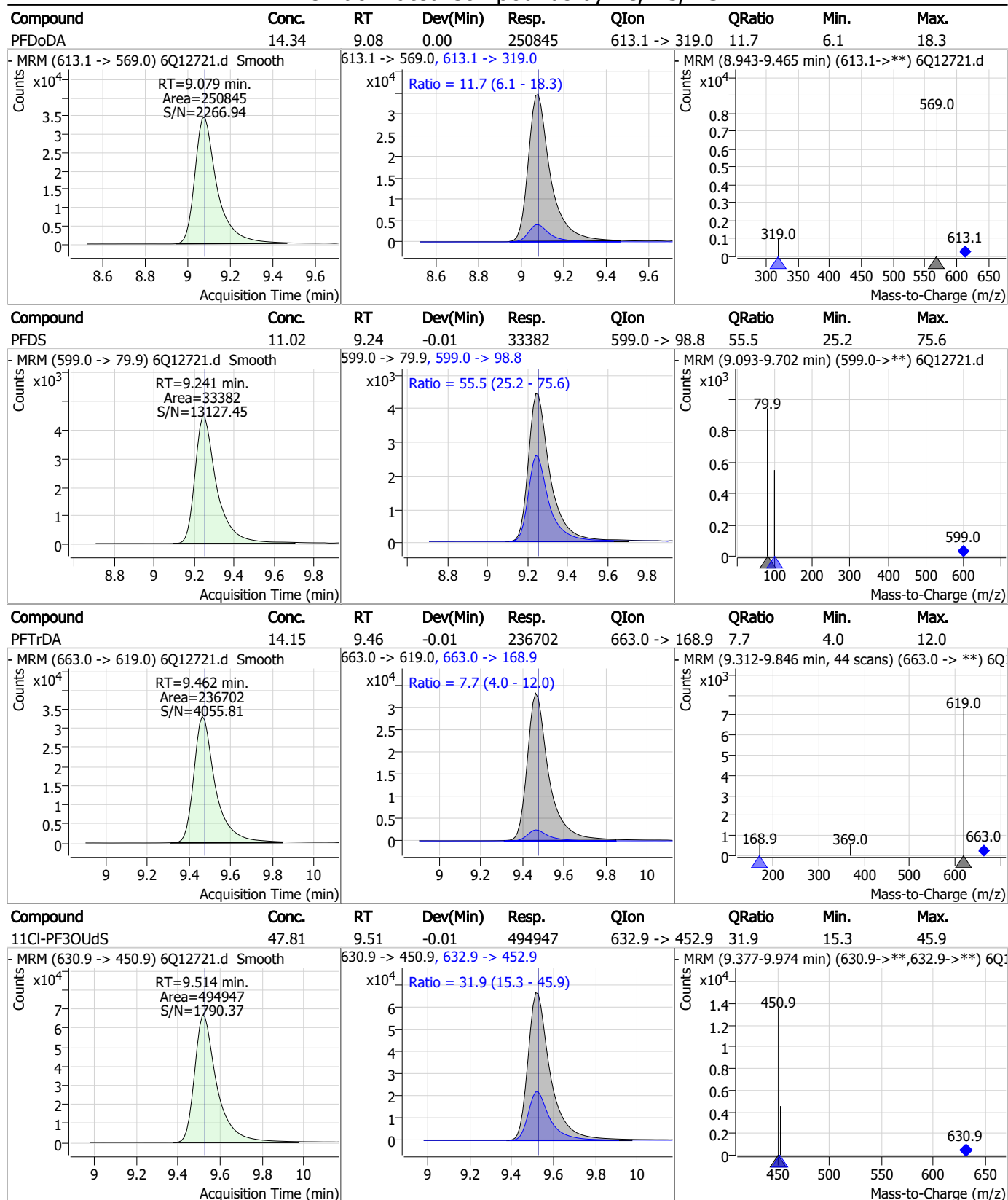


7.6.2

7



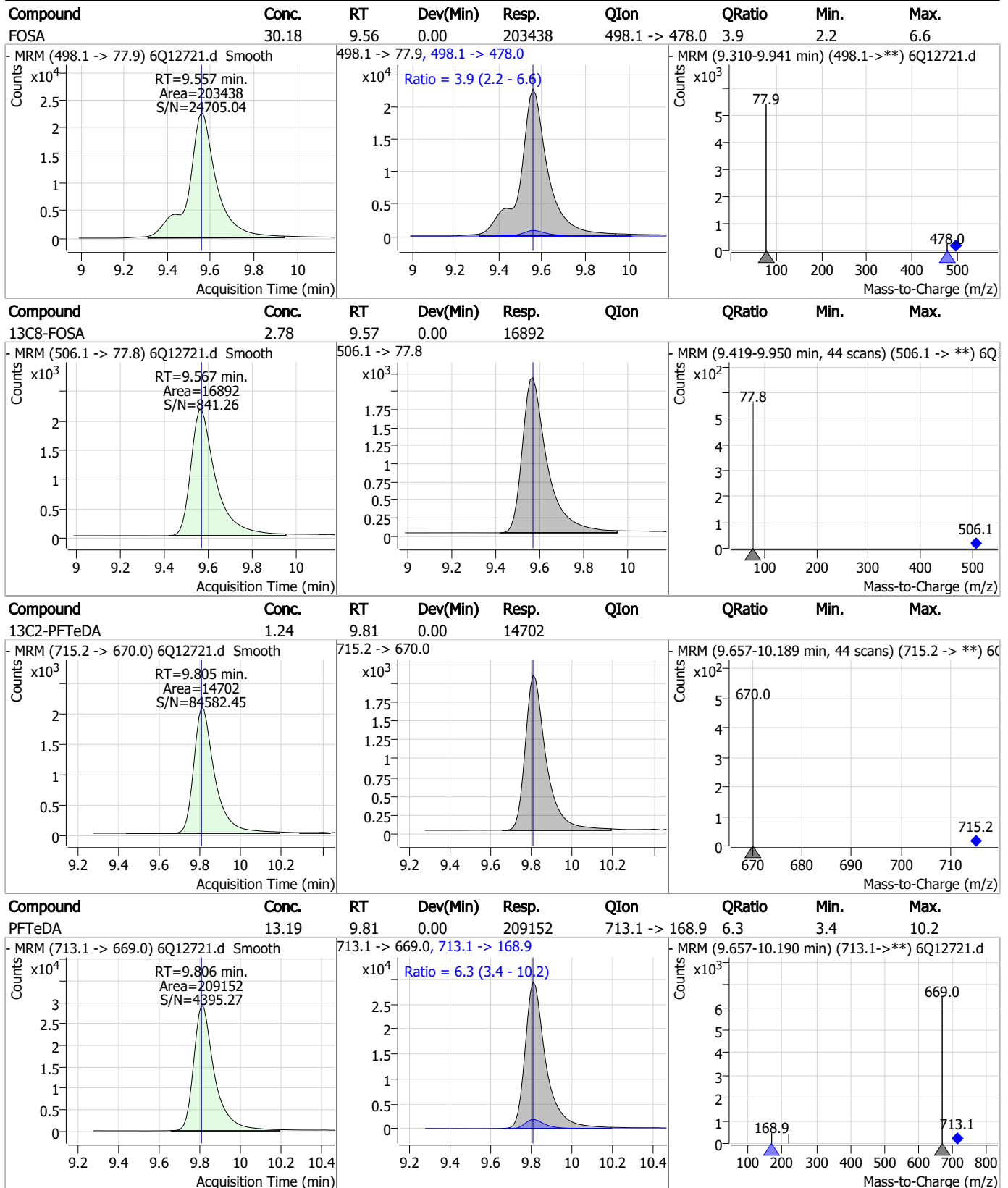
# Perfluorinated Compounds by LC/MS/MS



7.6.2

7

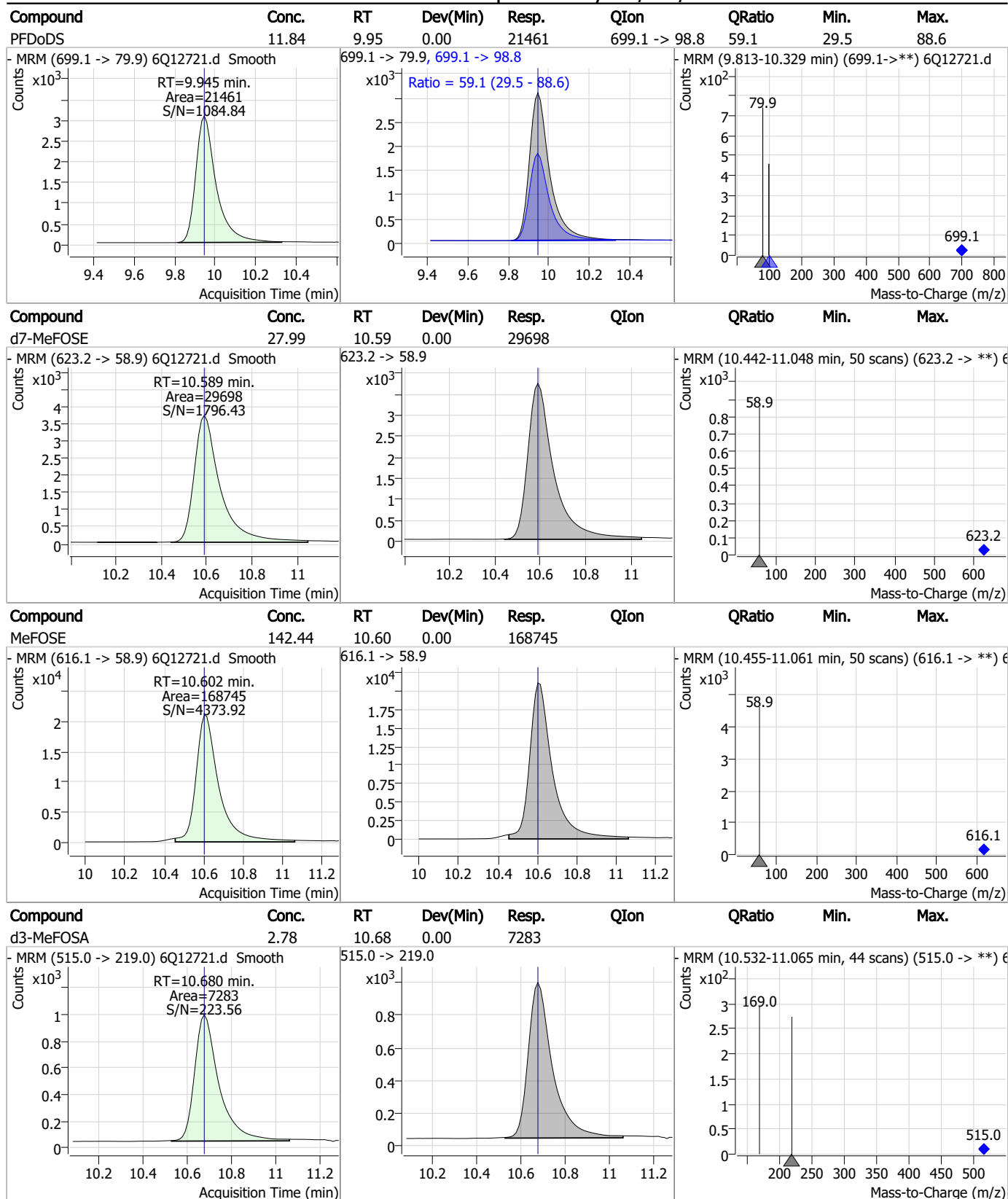
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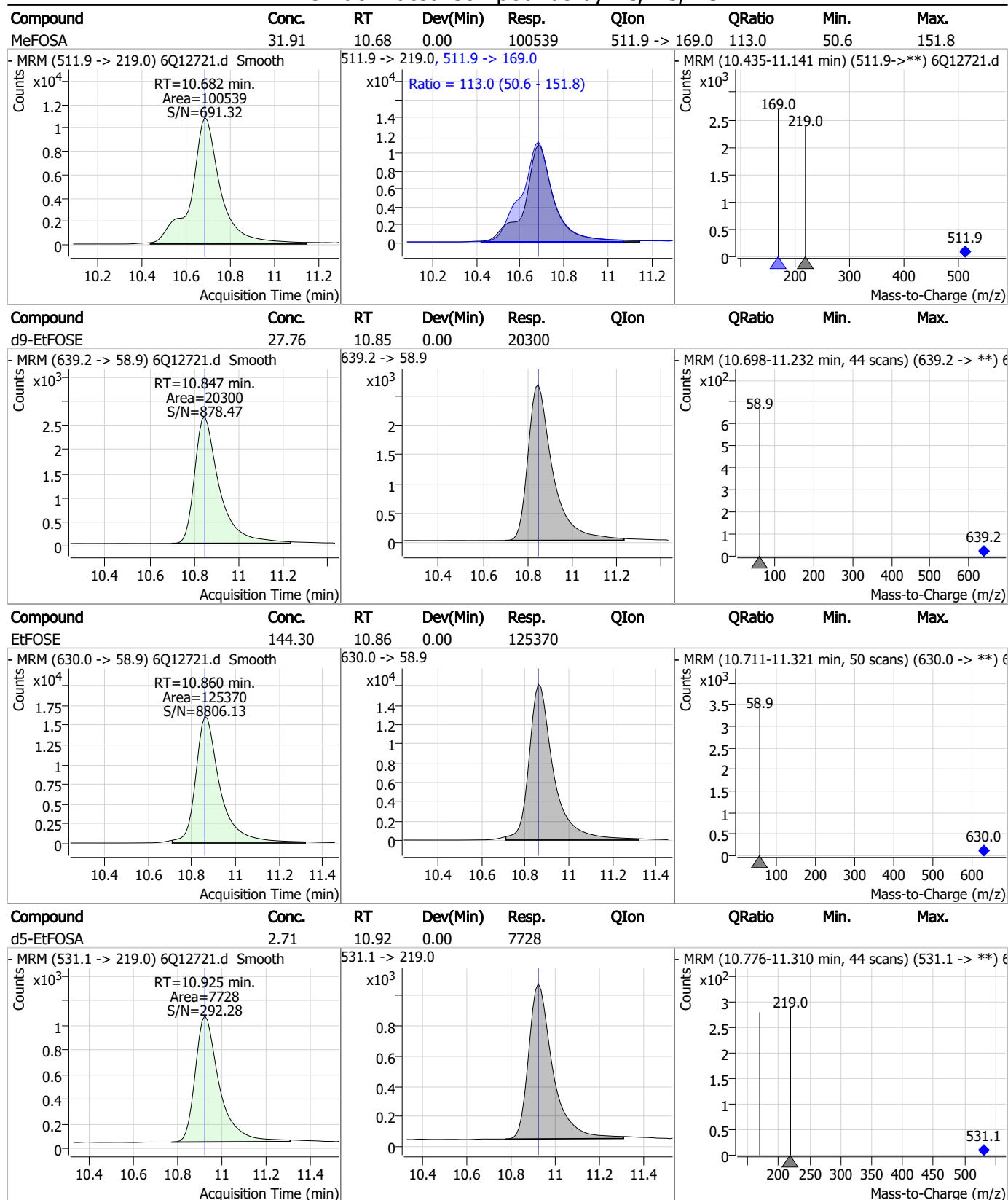
7.6.2

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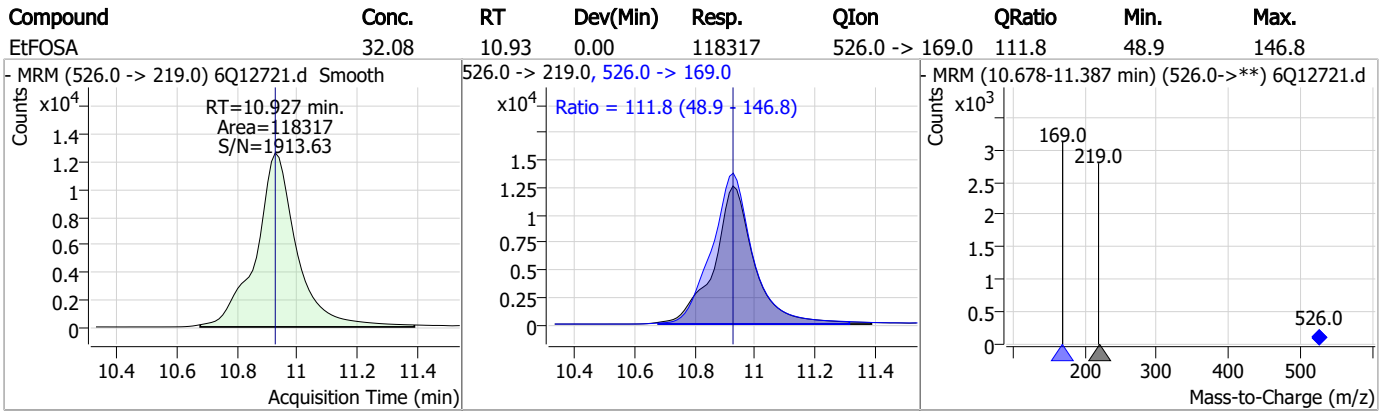
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S6Q196-RT

Method: EPA DRAFT 1633

Lab FileID: 6Q12721.D

Analyst approved: 02/02/23 11:53 Martha Valls

Injection Time: 02/01/23 17:23

Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.15	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorononanoic acid	375-95-1		7.68	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.6.2.1  
7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12884.d  
Operator : marthav  
Acq. Method : 1633full.m  
Acq. Date-Time : 2/3/2023 10:02:07 AM  
Sample Name : RT TDCA  
Vial : P1-B3  
DA Method File : TDCA.quantmethod.xml  
Batch Name : s6q198\_TDCA.batch.bin  
Sample Information : OP94819,S6Q198,500,,,5.0,1,water

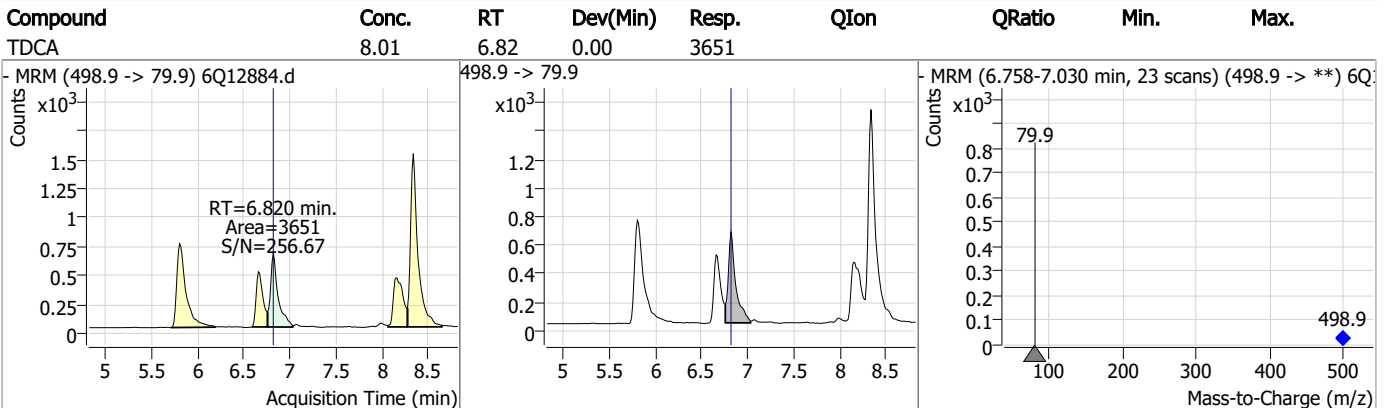
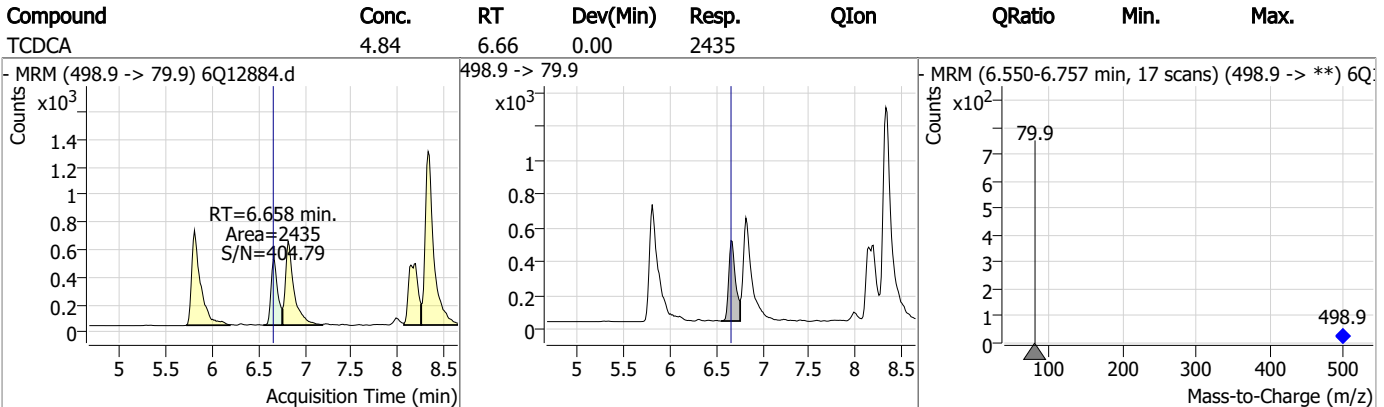
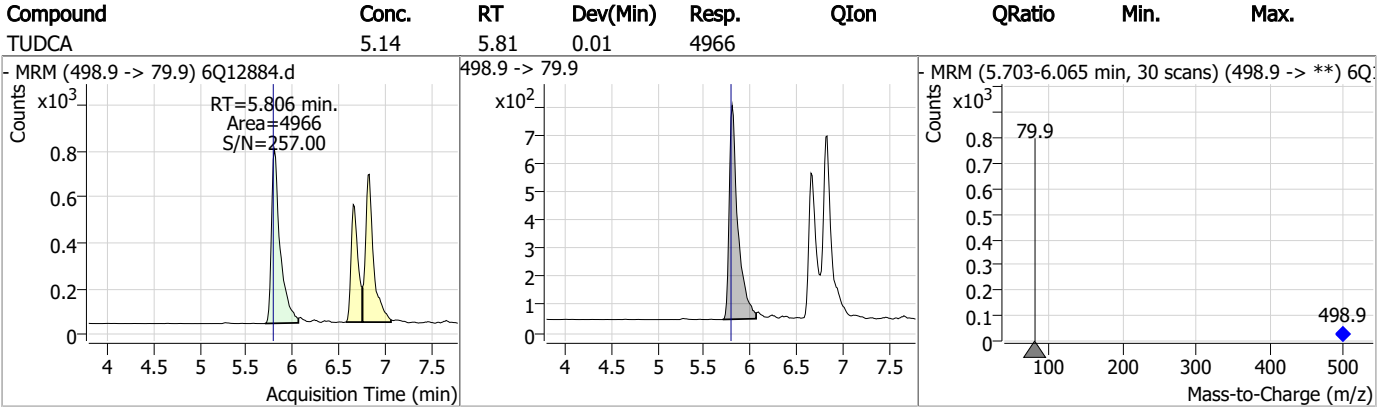
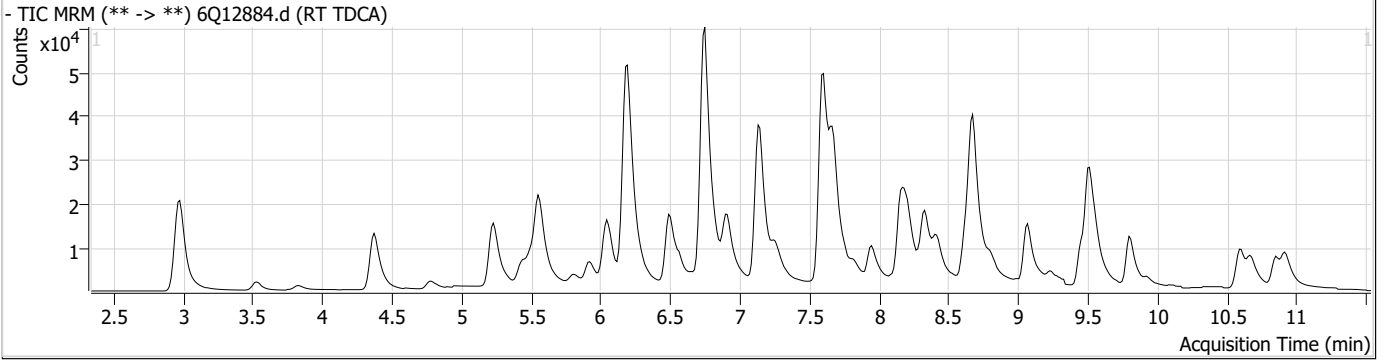
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
M8-PFOS	8.345	507.1 -> 79.9	10906	2.50	µg/L	-0.025
13C4-PFOS	8.346	502.8 -> 79.9	13688	2.50	µg/L	-0.012
System Monitoring Compounds						
13C8-PFOS	8.345	507.1 -> 79.9	10906	2.02	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 80.8%			
Target Compounds						
PFOS	8.334	498.9 -> 79.9	11855	3.18	µg/L	76
		498.9 -> 98.8	6743		#m	
TCDCA	6.658	498.9 -> 79.9	2435	4.84	ng/ml	100
TDCA	6.820	498.9 -> 79.9	3651	8.01	ng/ml	100
TUDCA	5.806	498.9 -> 79.9	4966	5.14	ng/ml	100

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

7.6.3

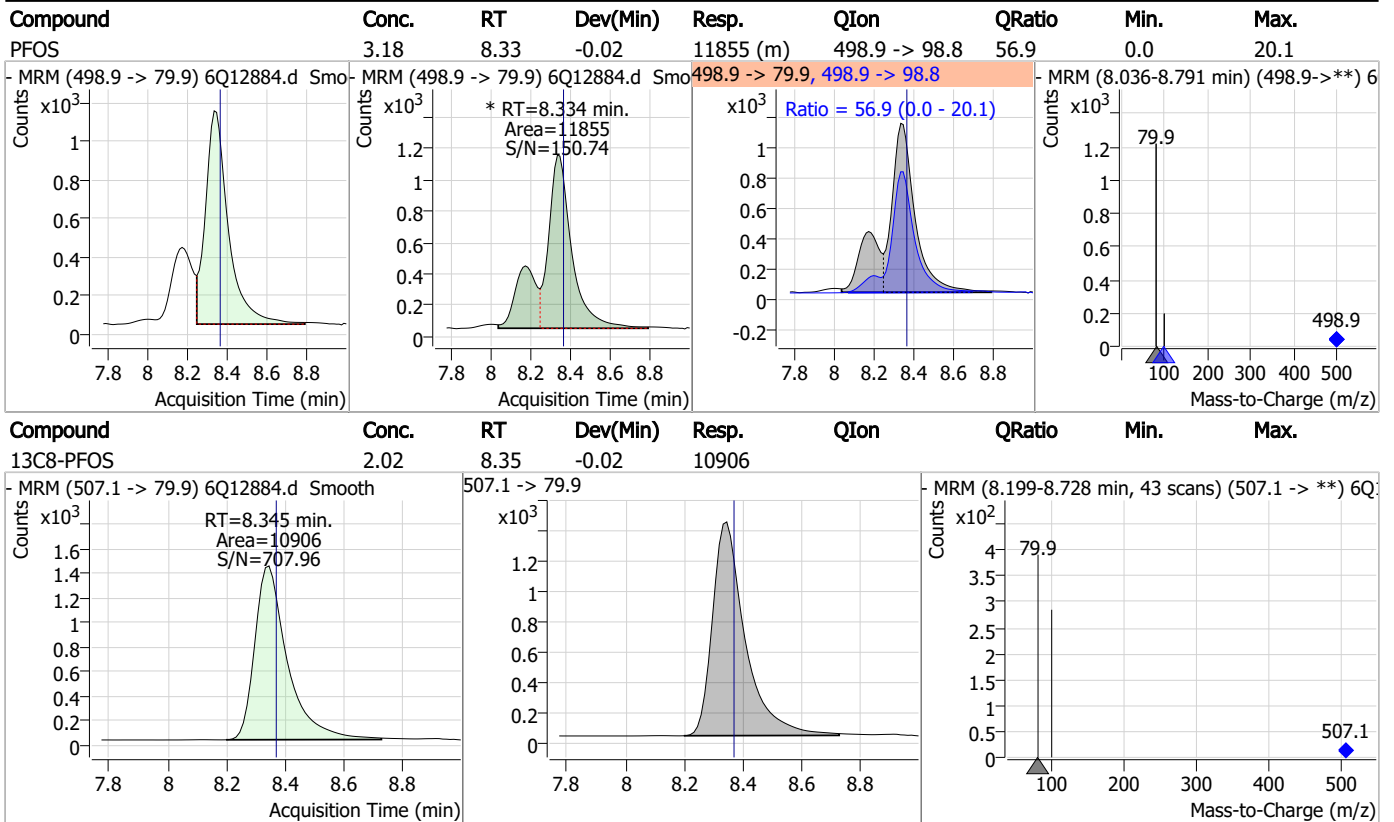
7

# Perfluorinated Compounds by LC/MS/MS





# Perfluorinated Compounds by LC/MS/MS



7.6.3  
7

Manual Integration Approval Summary

Sample Number: S6Q198-RT

Method: EPA DRAFT 1633

Lab FileID: 6Q12884.D

Analyst approved: 02/06/23 11:00 Martha Valls

Injection Time: 02/03/23 10:02

Supervisor approved: 02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak

7.6.3.1  
7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12885.d  
Operator : marthav  
Acq. Method : 1633full.m  
Acq. Date-Time : 2/3/2023 10:16:06 AM  
Sample Name : RT BR-LN  
Vial : P1-B4  
DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
Batch Name : s6q198.batch.bin  
Sample Information : OP94819,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	69063	10.00 µg/L	0.000
M5-PFPeA	4.374	268.3 -> 223.0	35131	5.00 µg/L	-0.012
M5-PFHxA	5.563	318.0 -> 273.0	32195	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	33142	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	57245	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	24500	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	17455	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	19572	1.25 µg/L	-0.012
M2-PFDoDA	9.066	615.1 -> 570.0	22480	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14185	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	15685	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	11971	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	7926	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8067	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	1971	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	2646	5.00 µg/L	-0.012
M2-8:2FTS	7.944	529.1 -> 80.9	2855	5.00 µg/L	-0.012
M3-MeFOSAA	8.215	573.2 -> 419.0	26369	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13323	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	22536	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	27579	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	19396	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7015	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6775	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9863	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	31040	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	5951	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	68763	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	24107	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	27459	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	33078	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	1971	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C2-6:2FTS	6.908	429.1 -> 80.9	2646	5.15 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-8:2FTS	7.944	529.1 -> 80.9	2855	5.54 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C2-PFDoDA	9.066	615.1 -> 570.0	22480	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14185	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.1%		
13C3-PFBS	5.518	302.1 -> 79.9	11971	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C3-PFHxS	7.274	402.1 -> 79.9	7926	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	2.975	216.8 -> 171.9	69063	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C4-PFHpA	6.502	367.1 -> 322.0	33142	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C5-PFHxA	5.563	318.0 -> 273.0	32195	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C5-PFPeA	4.374	268.3 -> 223.0	35131	4.77 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C6-PFDA	8.170	519.1 -> 474.1	17455	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C7-PFUnDA	8.624	570.0 -> 525.1	19572	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C8-FOSA	9.567	506.1 -> 77.8	15685	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C8-PFOA	7.146	421.1 -> 376.0	57245	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C8-PFOS	8.345	507.1 -> 79.9	8067	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C9-PFNA	7.677	472.1 -> 427.0	24500	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.4%		
d3-MeFOSAA	8.215	573.2 -> 419.0	26369	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	13323	9.86 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
d3-MeFOSA	10.680	515.0 -> 219.0	6775	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.9%		
d5-EtFOSAA	8.410	589.2 -> 419.0	22536	5.02 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
d7-MeFOSE	10.589	623.2 -> 58.9	27579	24.63 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
d9-EtFOSE	10.847	639.2 -> 58.9	19396	25.13 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
d5-EtFOSA	10.925	531.1 -> 219.0	7015	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.2%		

## Target Compounds

					QValue
4:2FTS	5.228	327.1 -> 307.0	212232	48.01 µg/L	99
		327.1 -> 80.9	45294		
6:2FTS	6.908	427.1 -> 407.0	186735	48.19 µg/L	100
		427.1 -> 80.9	35054		
8:2FTS	7.945	527.1 -> 507.0	99743	44.99 µg/L	96
		527.1 -> 80.8	26016		
EtFOSAA	8.424	584.2 -> 419.1	43946	12.18 µg/L	85
		584.2 -> 526.0	25232		
FOSA	9.557	498.1 -> 77.9	191818	30.64 µg/L	98
		498.1 -> 478.0	7337		
MeFOSAA	8.216	570.1 -> 419.0	62726	12.98 µg/L	95
		570.1 -> 483.0	10348		
PFBA	2.982	212.8 -> 168.9	81777	53.01 µg/L	100
PFBS	5.518	298.7 -> 79.9	53399	11.61 µg/L	94
		298.7 -> 98.8	25313		
PFDA	8.170	512.9 -> 469.0	259526	13.07 µg/L	98
		512.9 -> 219.0	36696		
PFDODA	9.067	613.1 -> 569.0	222552	13.51 µg/L	99
		613.1 -> 319.0	26338		
PFDS	9.241	599.0 -> 79.9	31922	11.68 µg/L	97

# Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	16669	13.41	µg/L	99
		363.1 -> 319.0	263246			
PFHpS	7.841	363.1 -> 169.0	33759	12.46	µg/L	98
		449.0 -> 79.9	42644			
PFHxA	5.566	449.0 -> 98.9	24227	12.89	µg/L	99
		313.0 -> 269.0	162752			
PFHxS	7.275	313.0 -> 118.9	6221	11.40	µg/L	92
		398.7 -> 79.9	40606			
PFNA	7.677	398.7 -> 98.9	23434	25.11	µg/L	95
		463.0 -> 419.0	414967			
PFNS	8.811	463.0 -> 219.0	88642	12.29	µg/L	98
		548.8 -> 79.9	44075			
PFOA	7.148	548.8 -> 98.9	24342	27.68	µg/L	98
		413.0 -> 369.0	697861			
PFOS	8.334	413.0 -> 169.0	90370	11.89	µg/L	70
		498.9 -> 79.9	44000			
PFPeA	4.388	498.9 -> 98.8	26161	26.47	µg/L	100
		263.0 -> 219.0	196337			
PFPeS	6.569	349.1 -> 79.9	50235	12.13	µg/L	96
		349.1 -> 98.9	27236			
PFTeDA	9.806	713.1 -> 669.0	178479	11.66	µg/L	99
		713.1 -> 168.9	12484			
PFTrDA	9.462	663.0 -> 619.0	210884	13.39	µg/L	98
		663.0 -> 168.9	15629			
PFUnDA	8.624	563.1 -> 519.0	207870	13.64	µg/L	99
		563.1 -> 269.1	29184			
11CI-PF3OUdS	9.514	630.9 -> 450.9	445535	46.60	µg/L	97
		632.9 -> 452.9	144631			
9CI-PF3ONS	8.676	530.8 -> 351.0	826804	51.16	µg/L	94
		532.8 -> 353.0	238995			
ADONA	6.753	376.9 -> 250.9	1358288	47.00	µg/L	98
		376.9 -> 84.8	287373			
HFPO-DA	5.940	284.9 -> 168.9	64987	52.15	µg/L	97
		284.9 -> 184.9	7850			
3:3FTCA	3.841	241.0 -> 177.0	23558	64.66	µg/L	97
		241.0 -> 117.0	3189			
5:3FTCA	6.193	341.0 -> 237.1	825728	312.72	µg/L	100
		341.0 -> 217.0	722920			
7:3FTCA	7.605	441.0 -> 316.9	499447	289.39	µg/L	97
		441.0 -> 336.9	1025926			
EtFOSA	10.927	526.0 -> 219.0	112356	33.56	µg/L	88
		526.0 -> 169.0	123807			
EtFOSE	10.860	630.0 -> 58.9	118882	143.20	µg/L	100
		511.9 -> 219.0	92341			
MeFOSA	10.682	511.9 -> 169.0	106019	31.51	µg/L	86
		616.1 -> 58.9	154284			
MeFOSE	10.602	699.1 -> 79.9	18693	140.24	µg/L	100
		699.1 -> 98.8	12829			
PFDoDS	9.945	295.0 -> 201.0	19311	25.87	µg/L	96
		295.0 -> 84.9	9335			
NFDHA	5.445	279.0 -> 85.1	56899	27.27	µg/L	100
		229.0 -> 84.9	52317			
PFMBA	3.541	314.8 -> 134.9	395233	21.74	µg/L	99
		314.8 -> 82.9	9847			
PFEESA	6.059					

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

Perfluorinated Compounds by LC/MS/MS

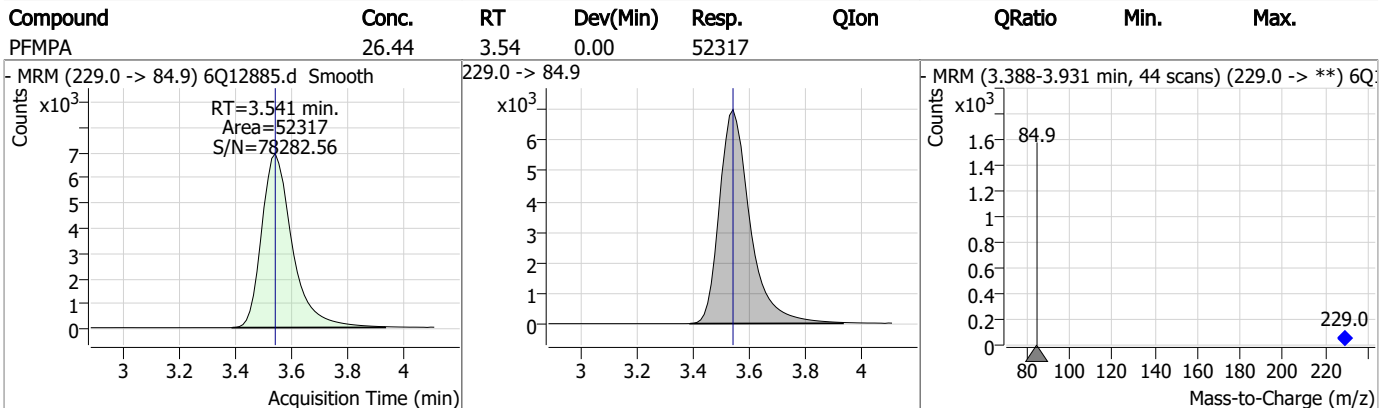
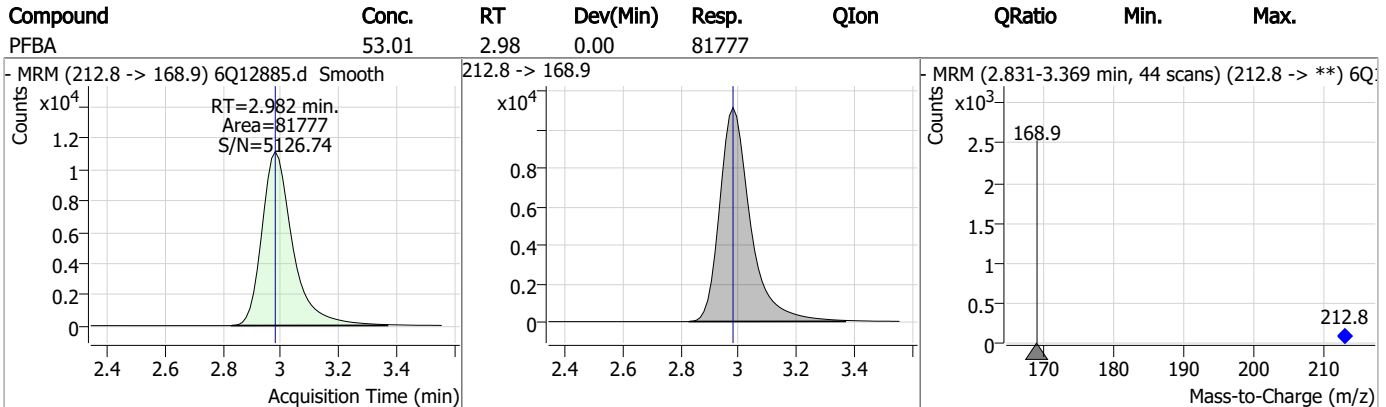
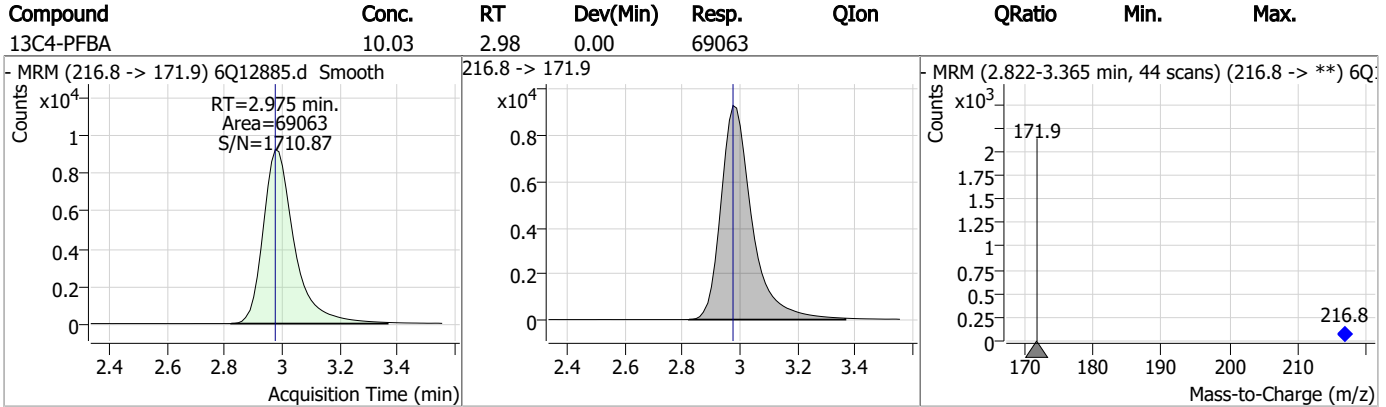
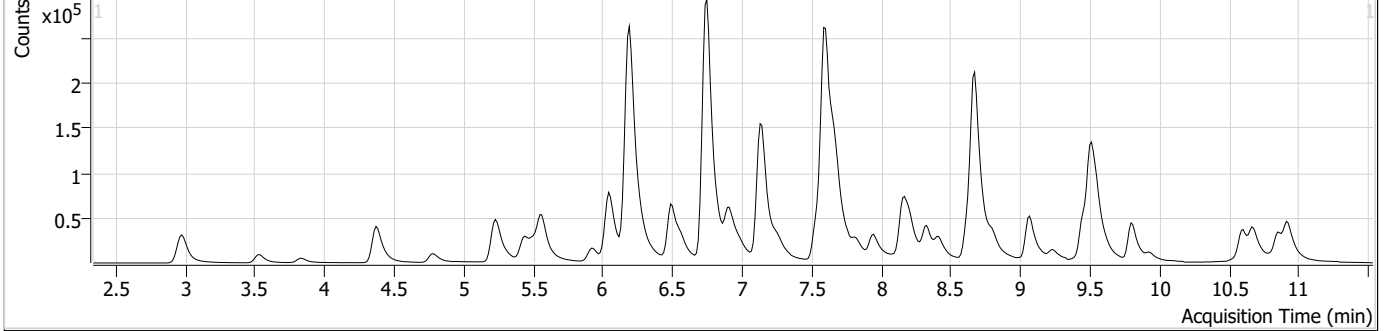
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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7.6.4

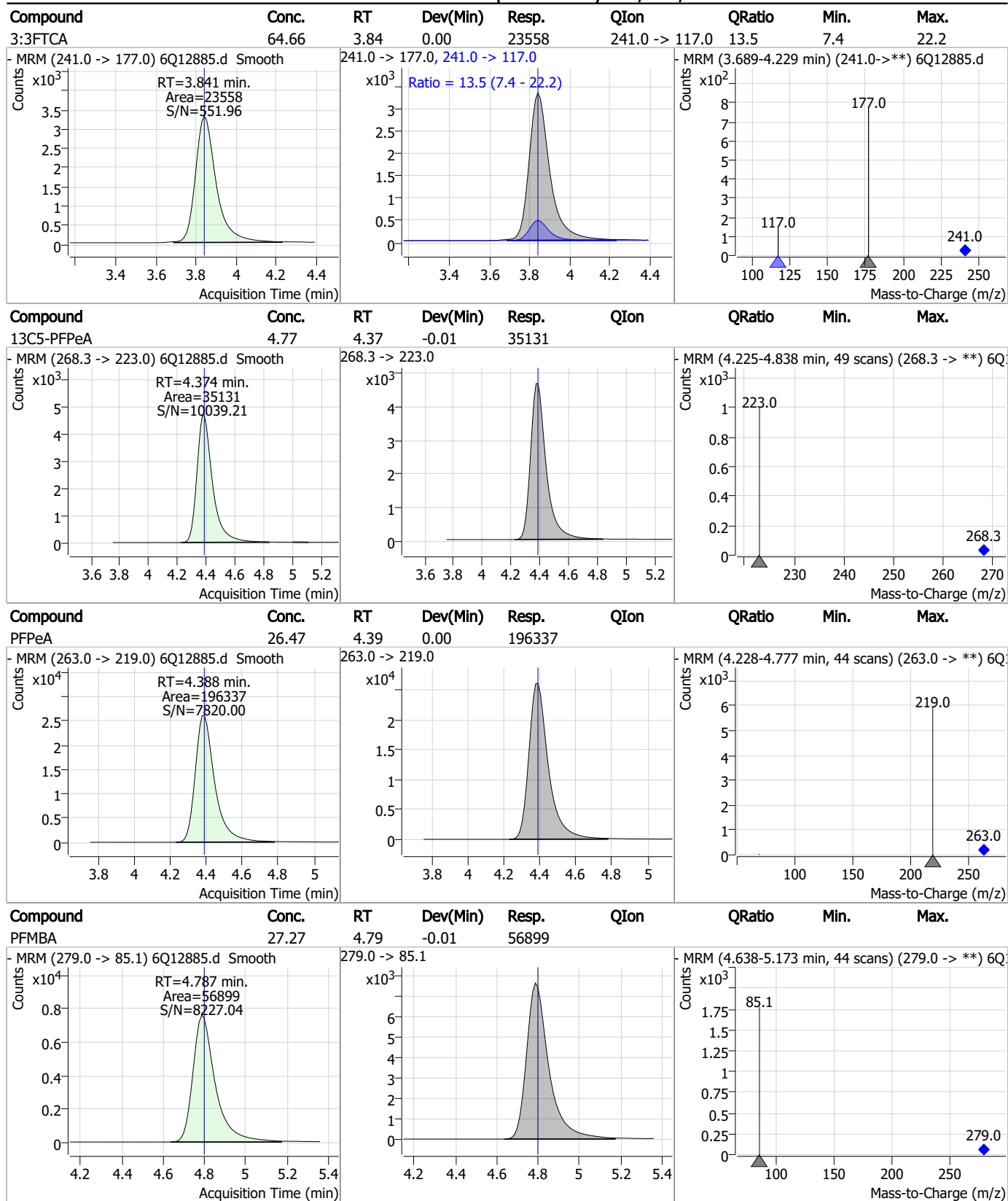
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# Perfluorinated Compounds by LC/MS/MS

- TIC MRM (\*\* -> \*\*) 6Q12885.d (RT BR-LN)

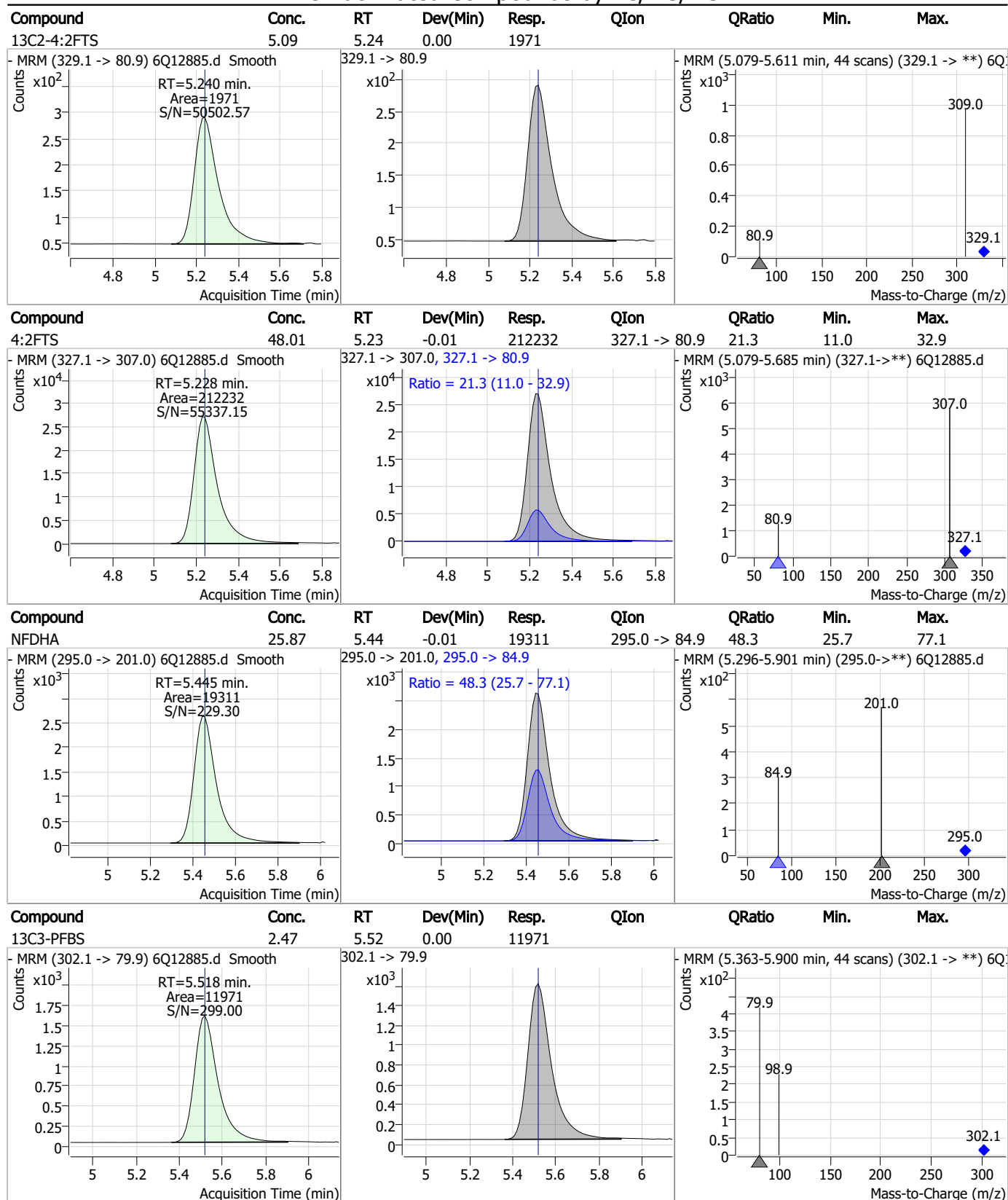


# Perfluorinated Compounds by LC/MS/MS

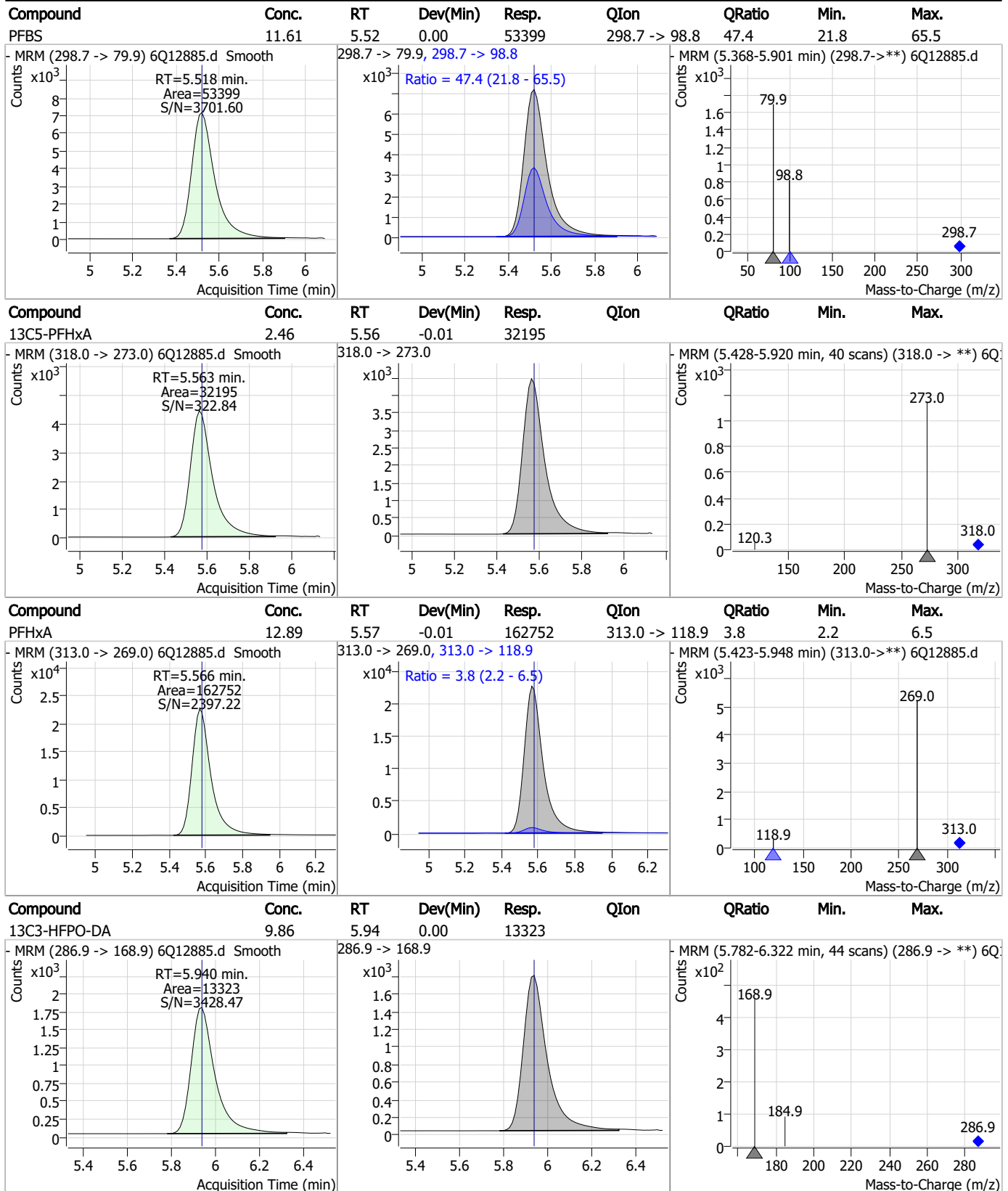




# Perfluorinated Compounds by LC/MS/MS



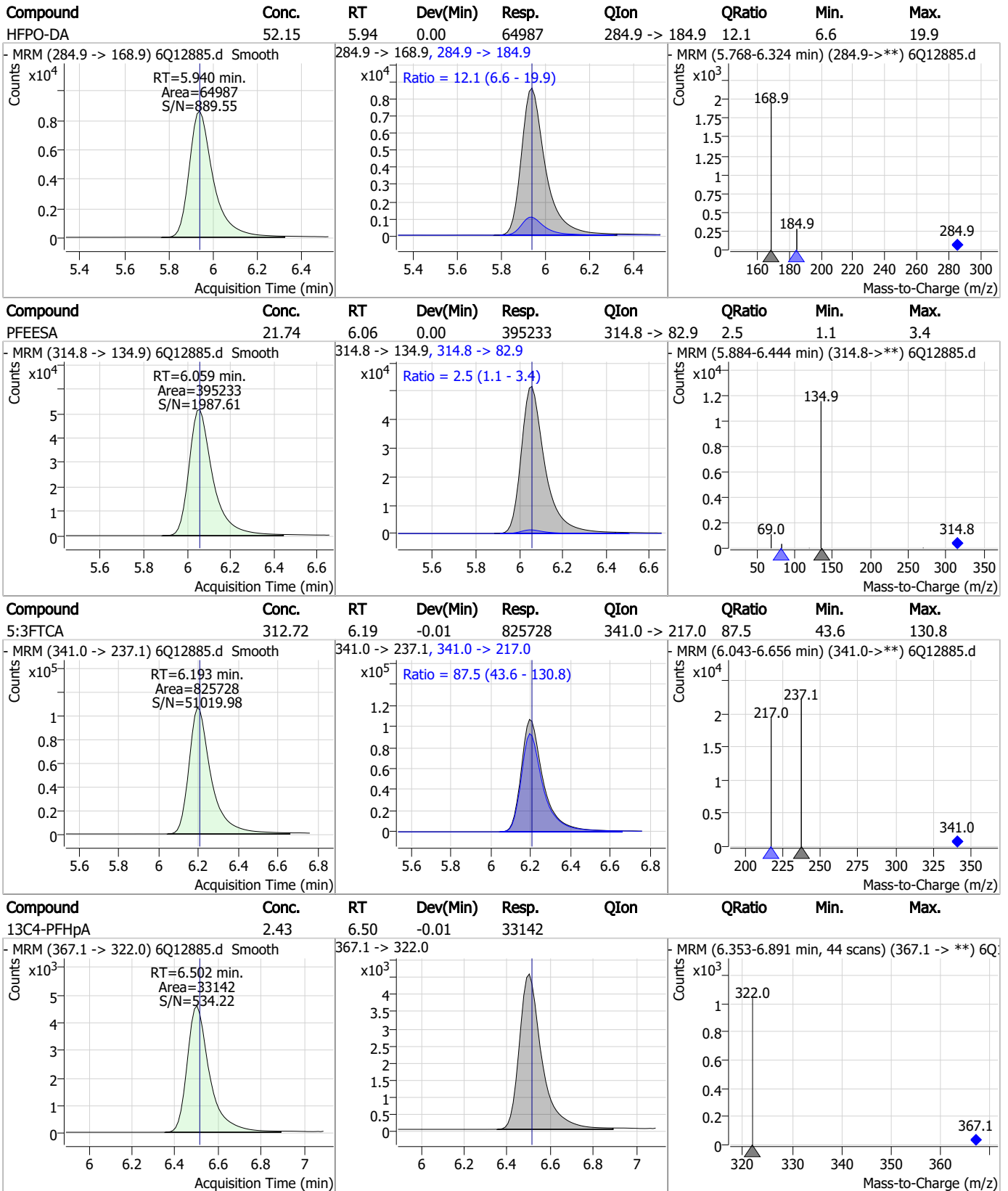
# Perfluorinated Compounds by LC/MS/MS



7.6.4

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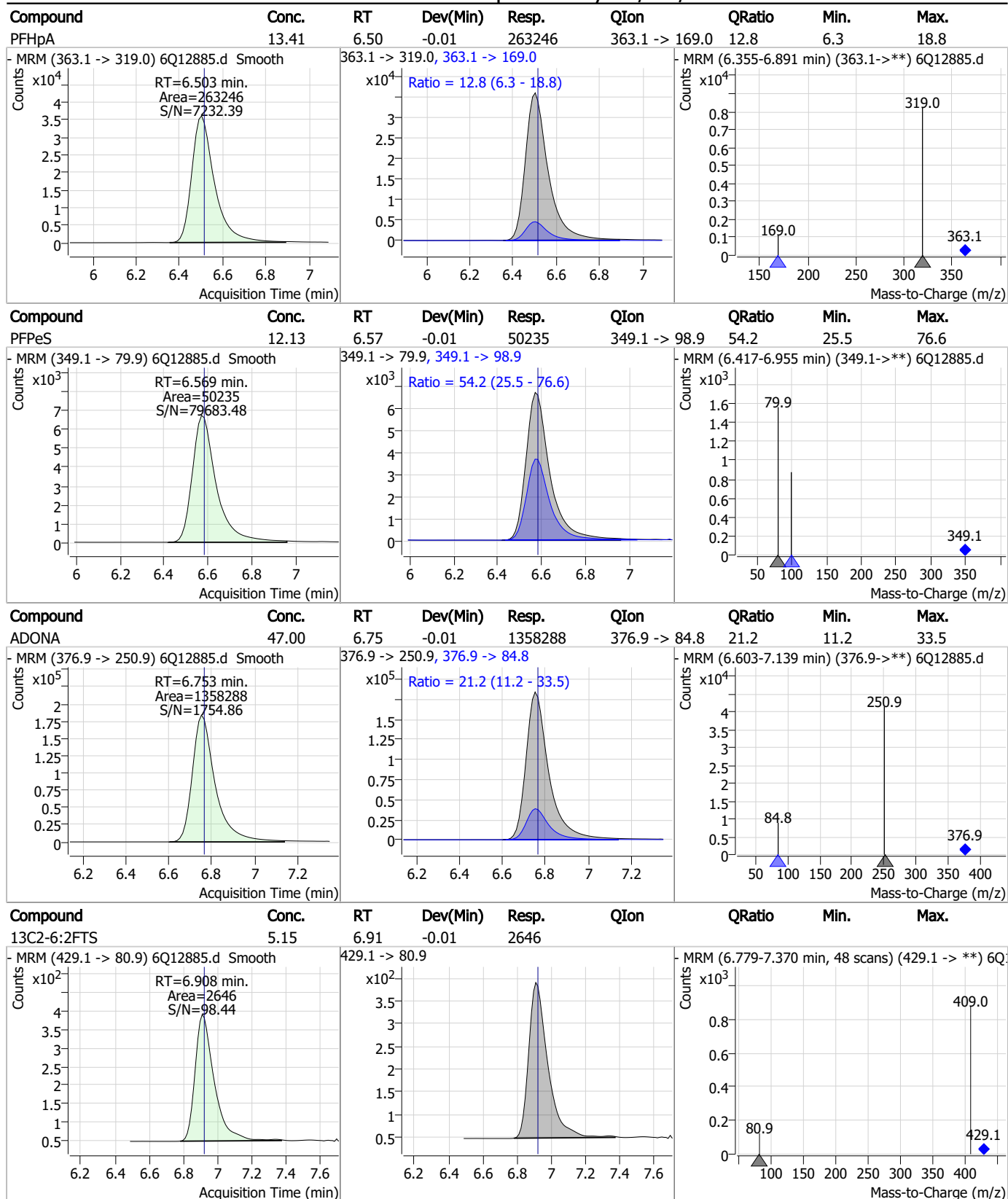
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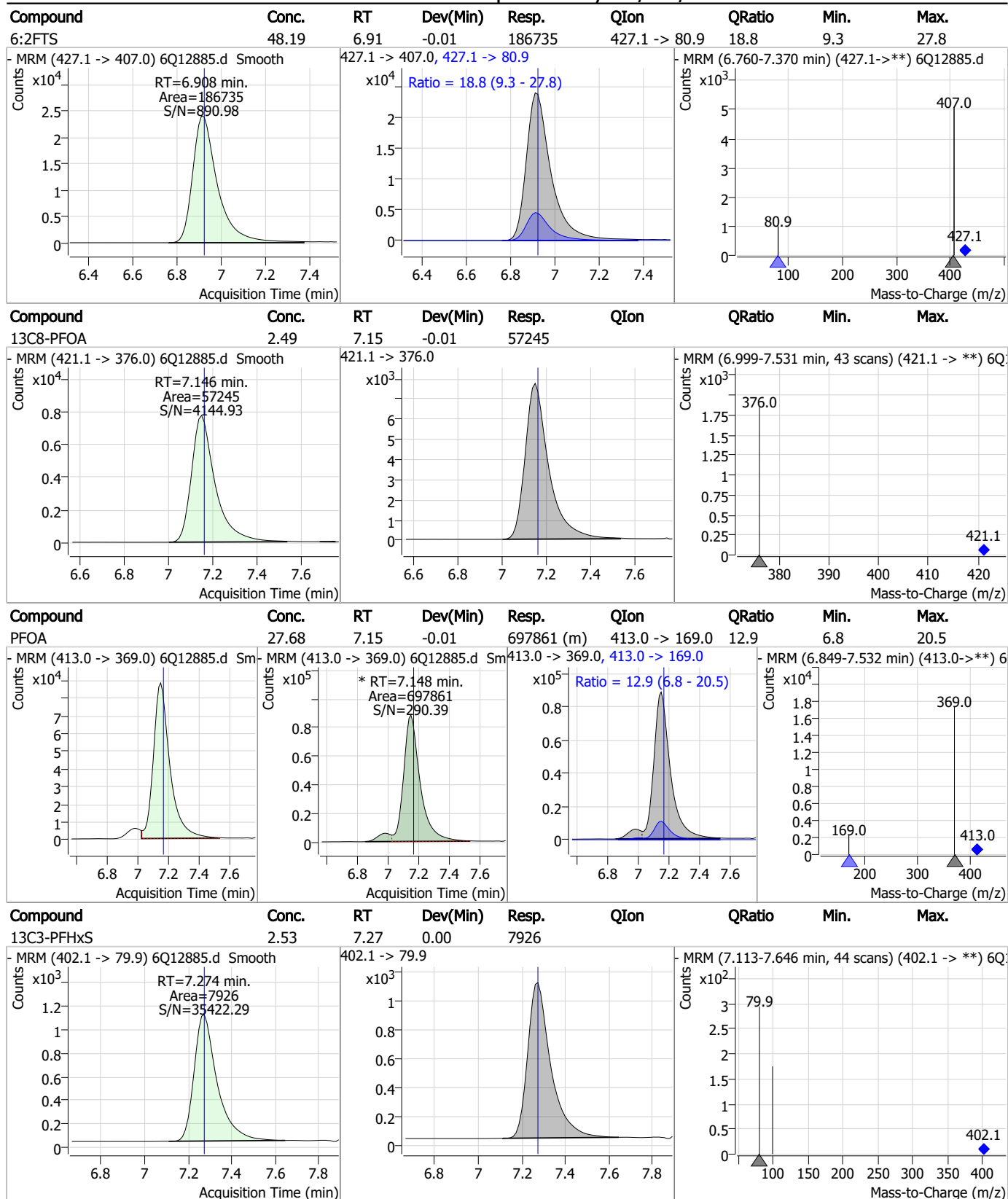
7.6.4

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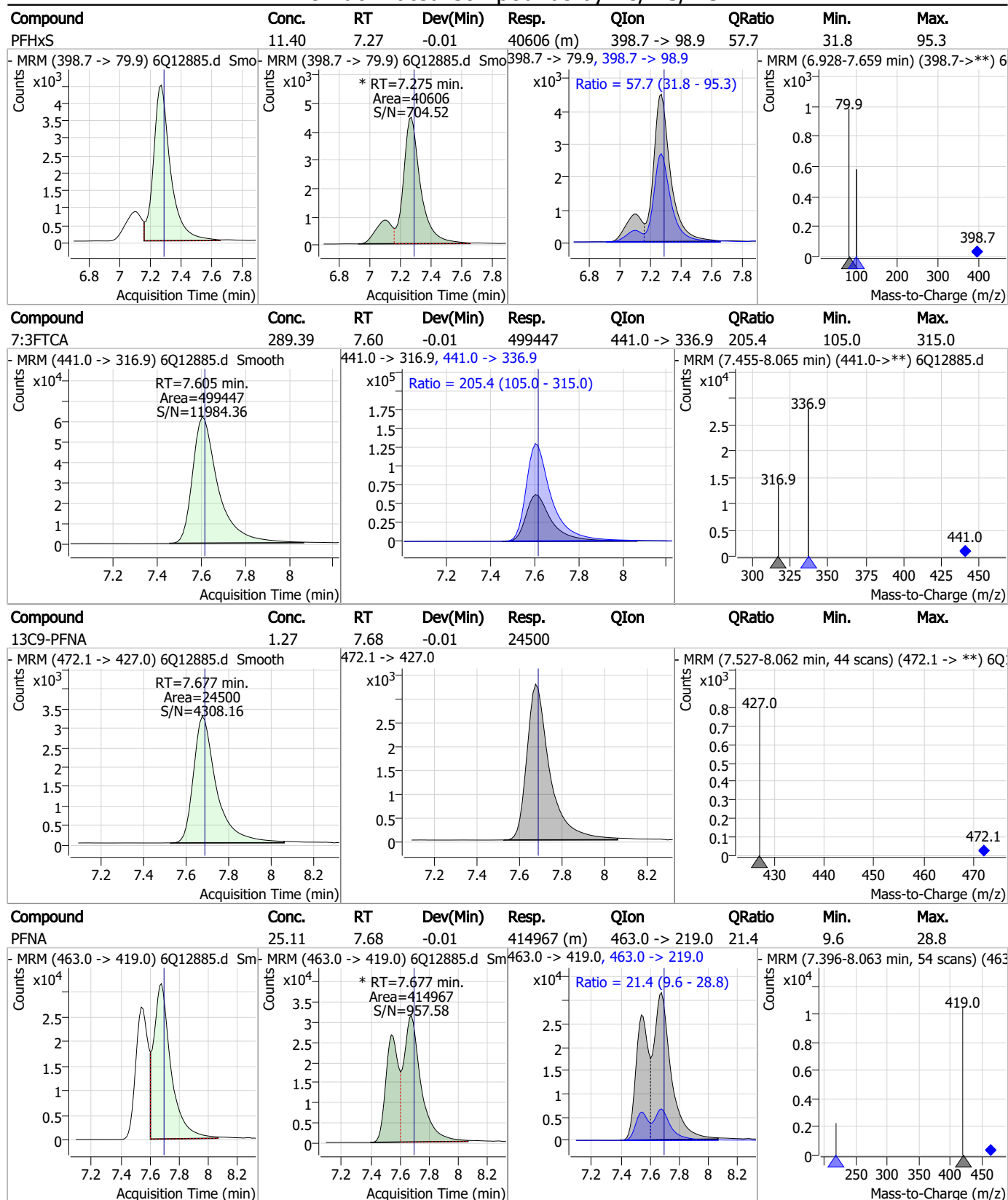
# Perfluorinated Compounds by LC/MS/MS



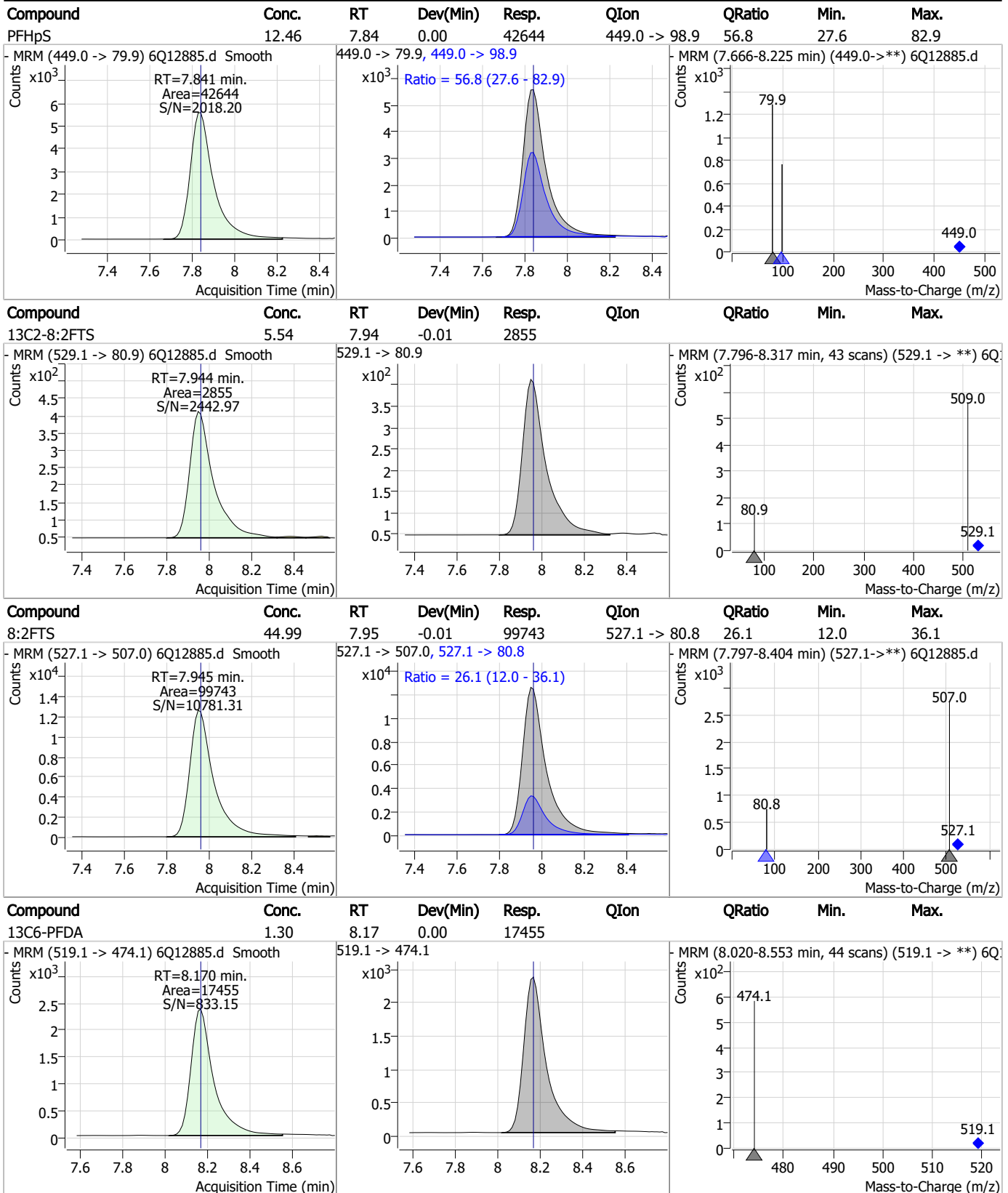
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



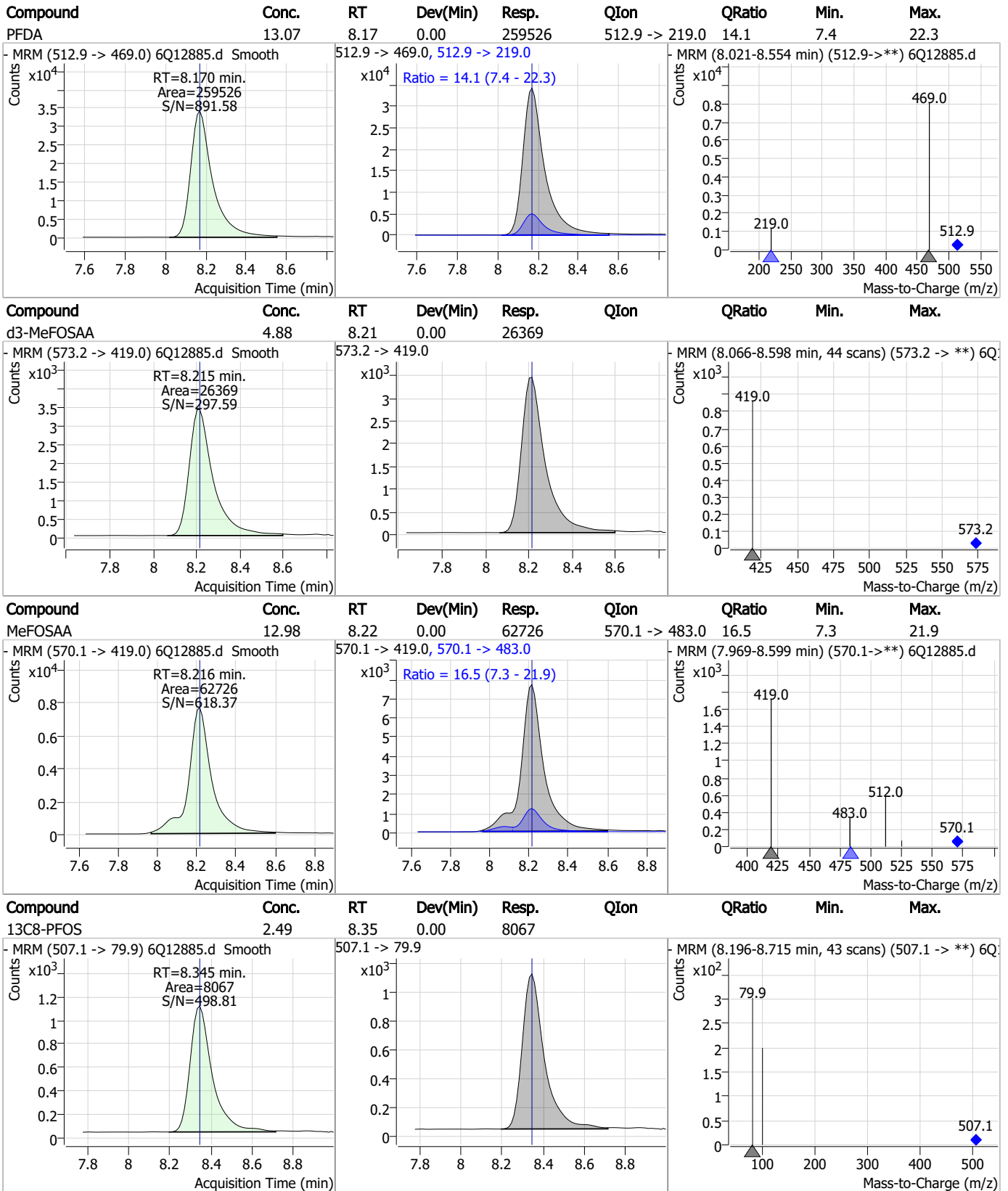
# Perfluorinated Compounds by LC/MS/MS



7.6.4

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# Perfluorinated Compounds by LC/MS/MS

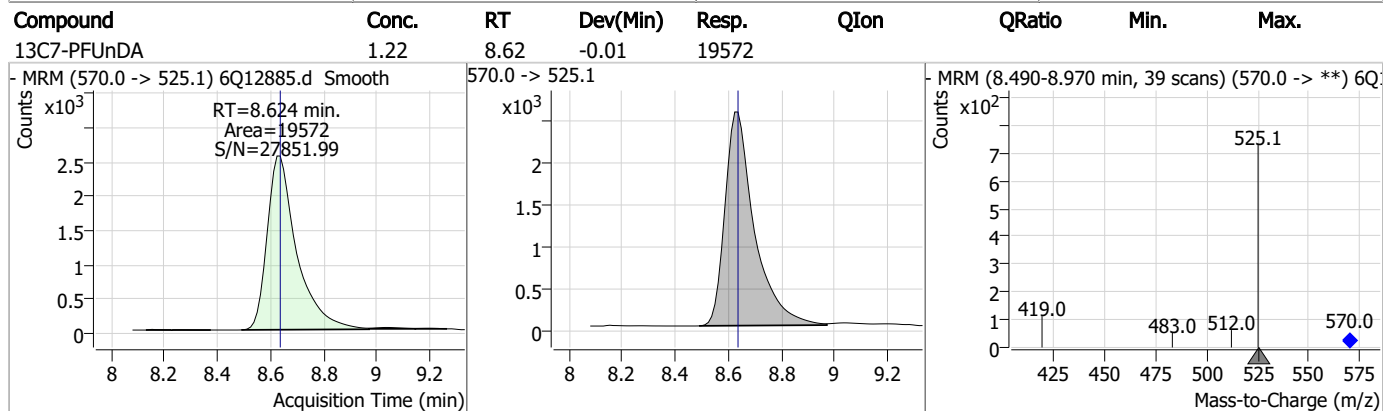
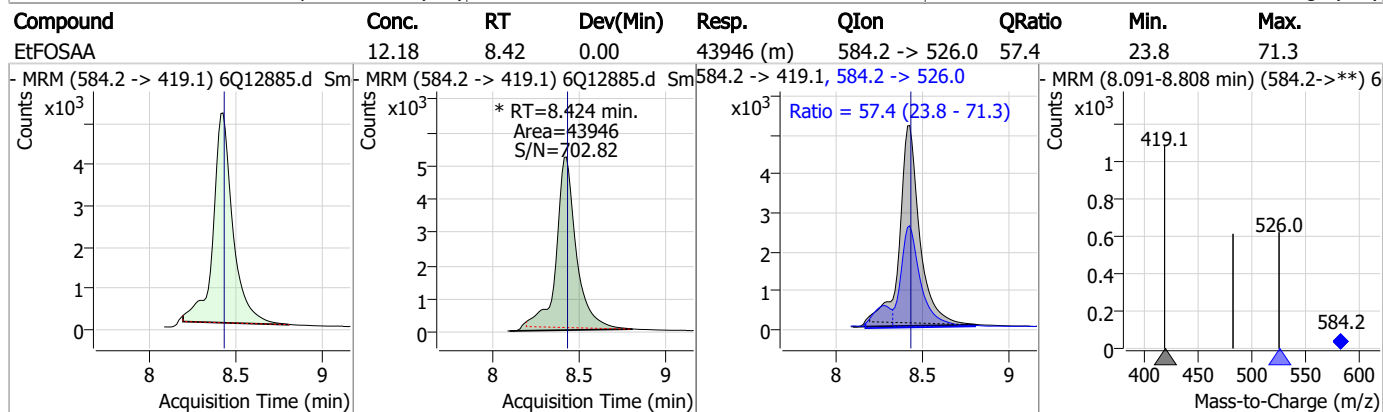
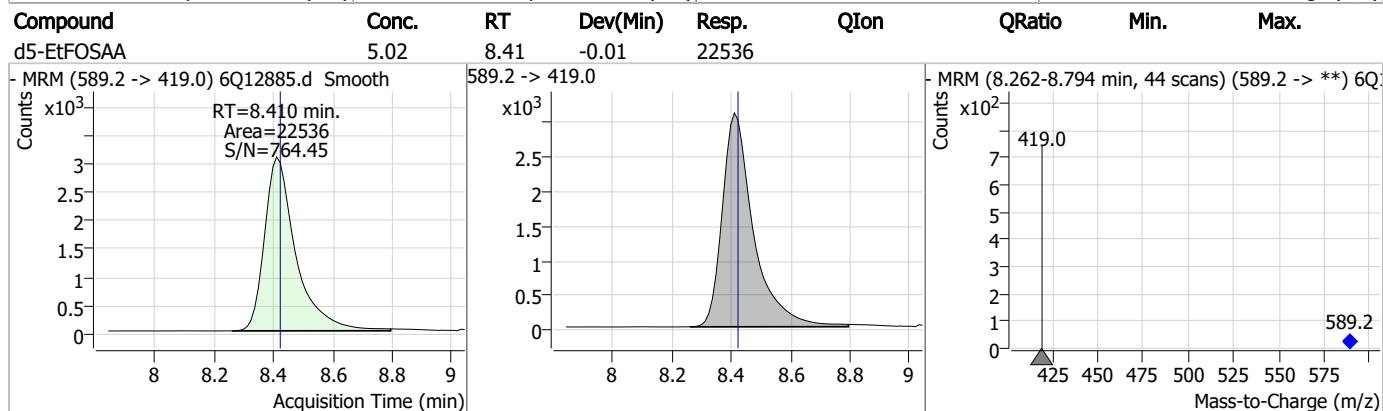
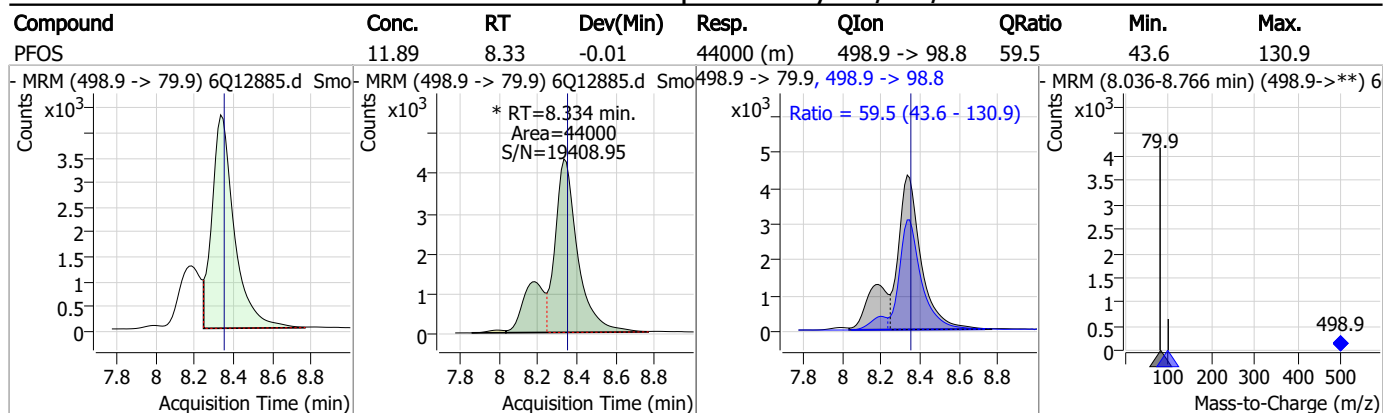


7.6.4

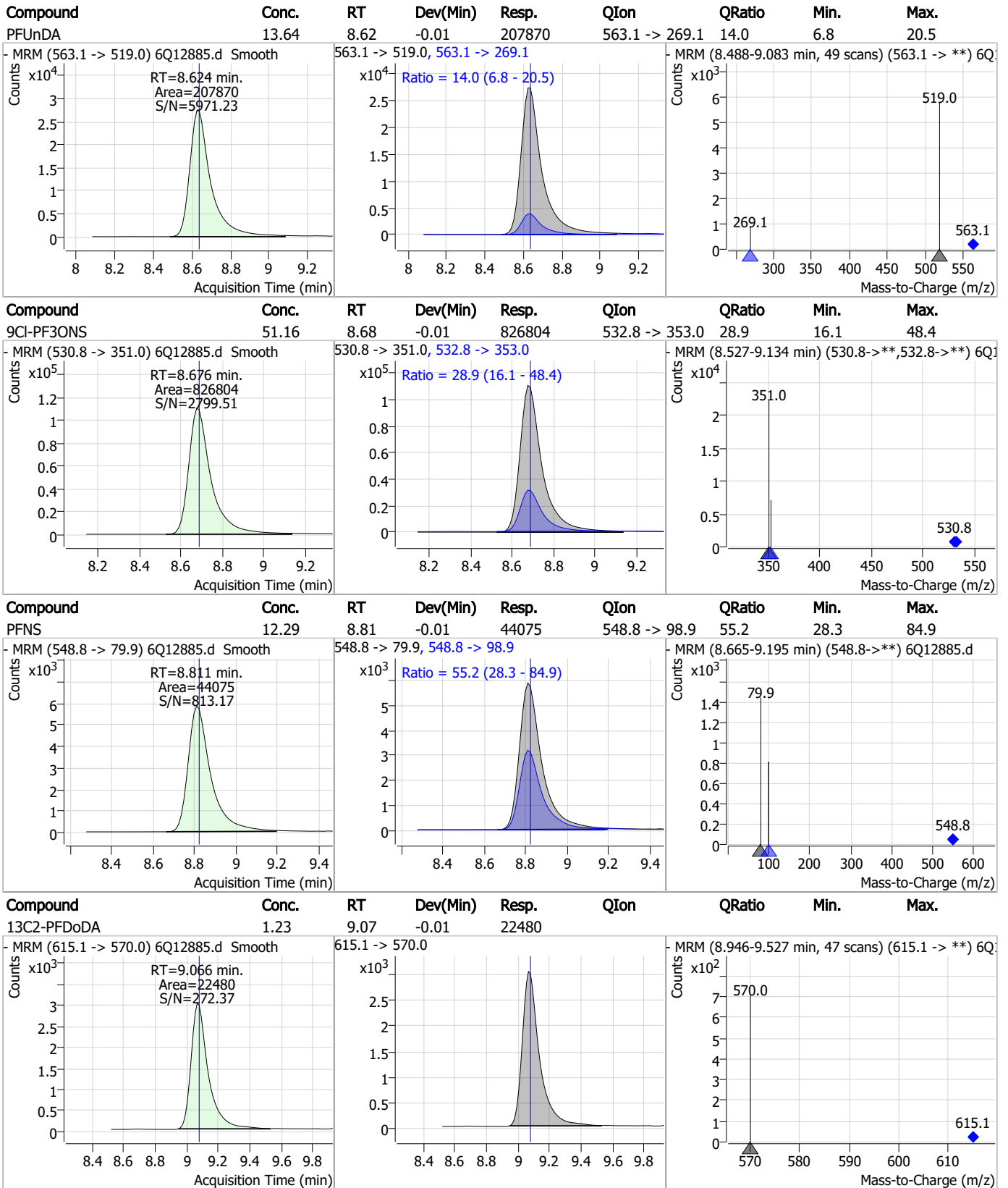
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# Perfluorinated Compounds by LC/MS/MS



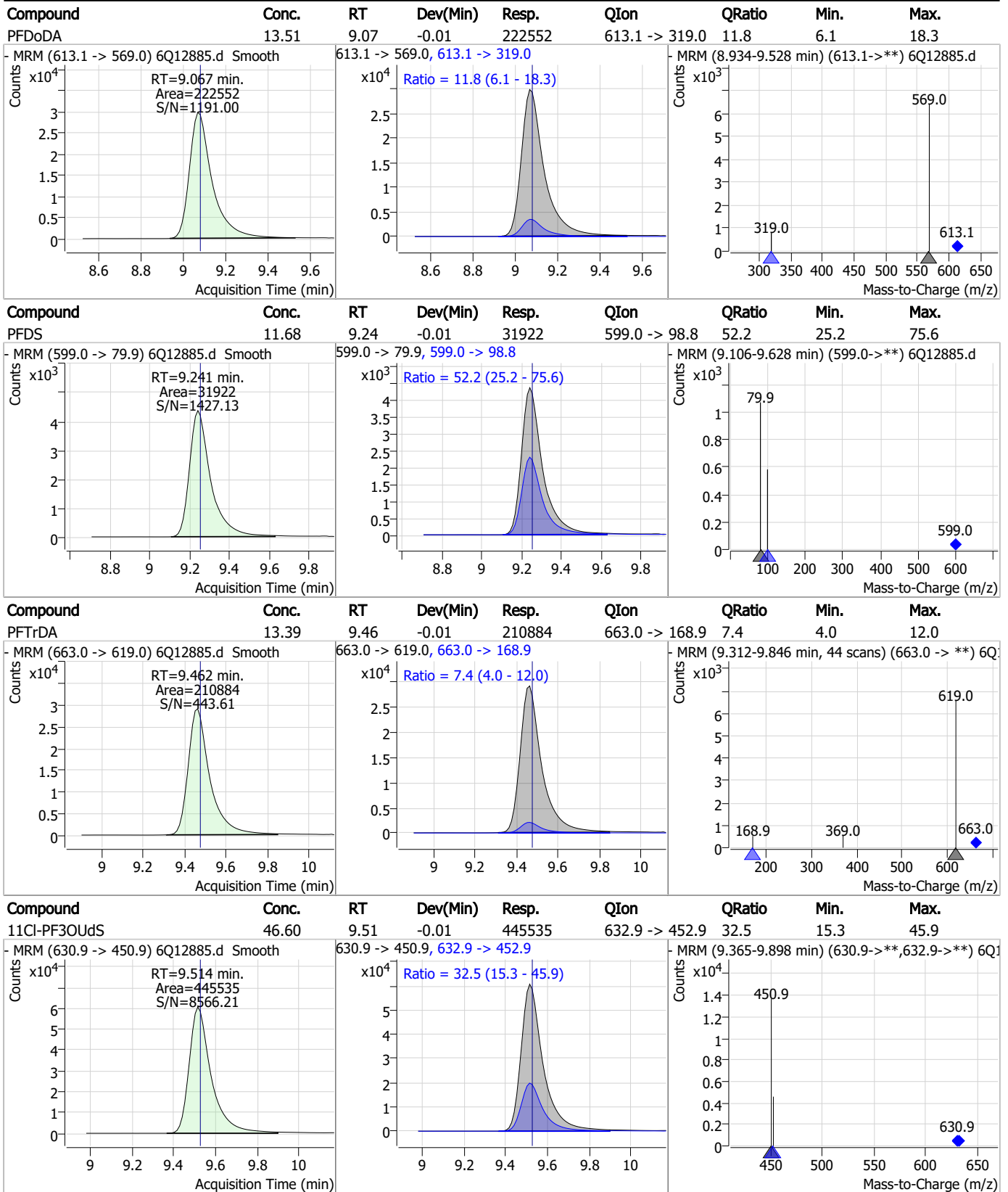
# Perfluorinated Compounds by LC/MS/MS



7.6.4

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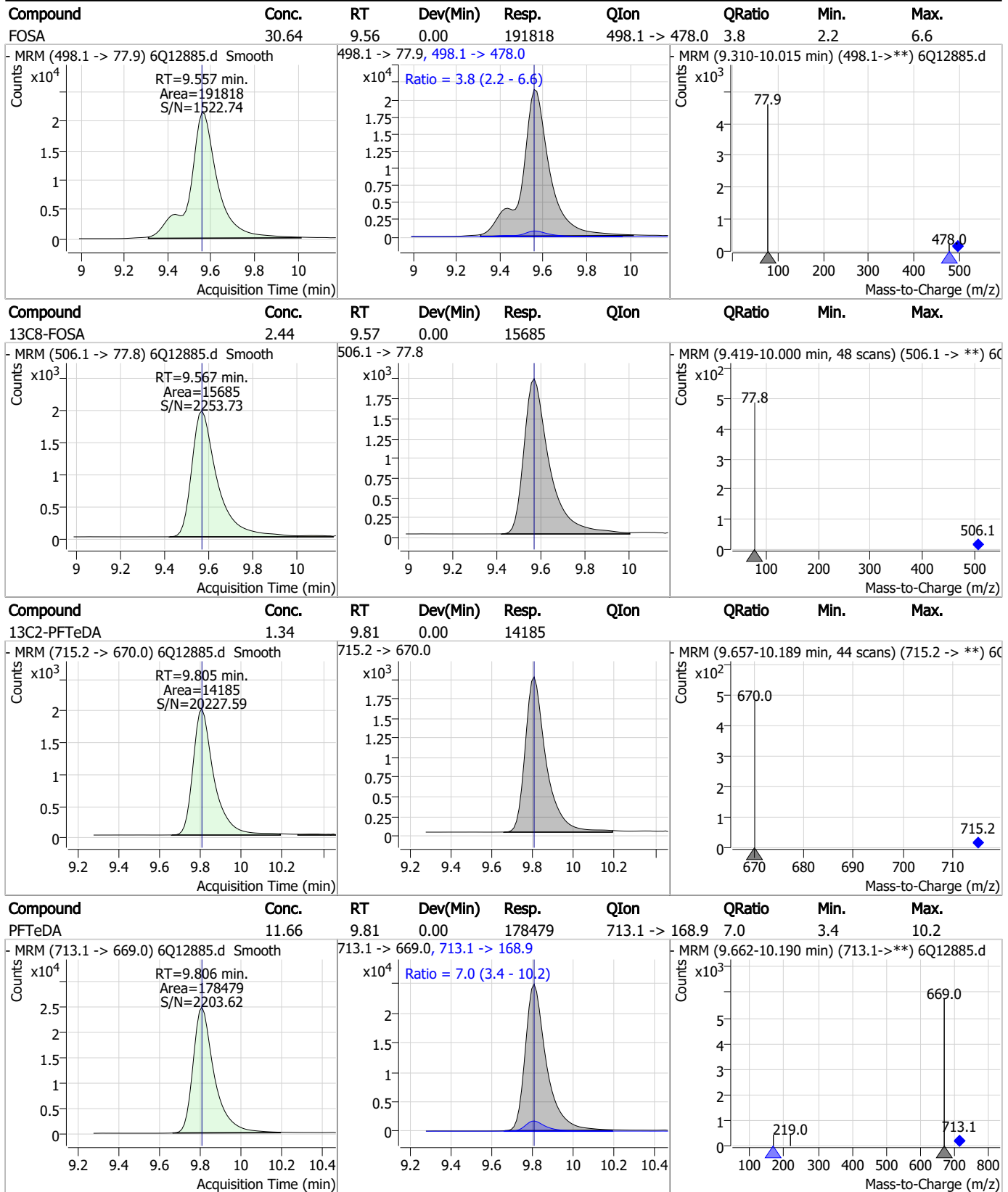
# Perfluorinated Compounds by LC/MS/MS



7.6.4

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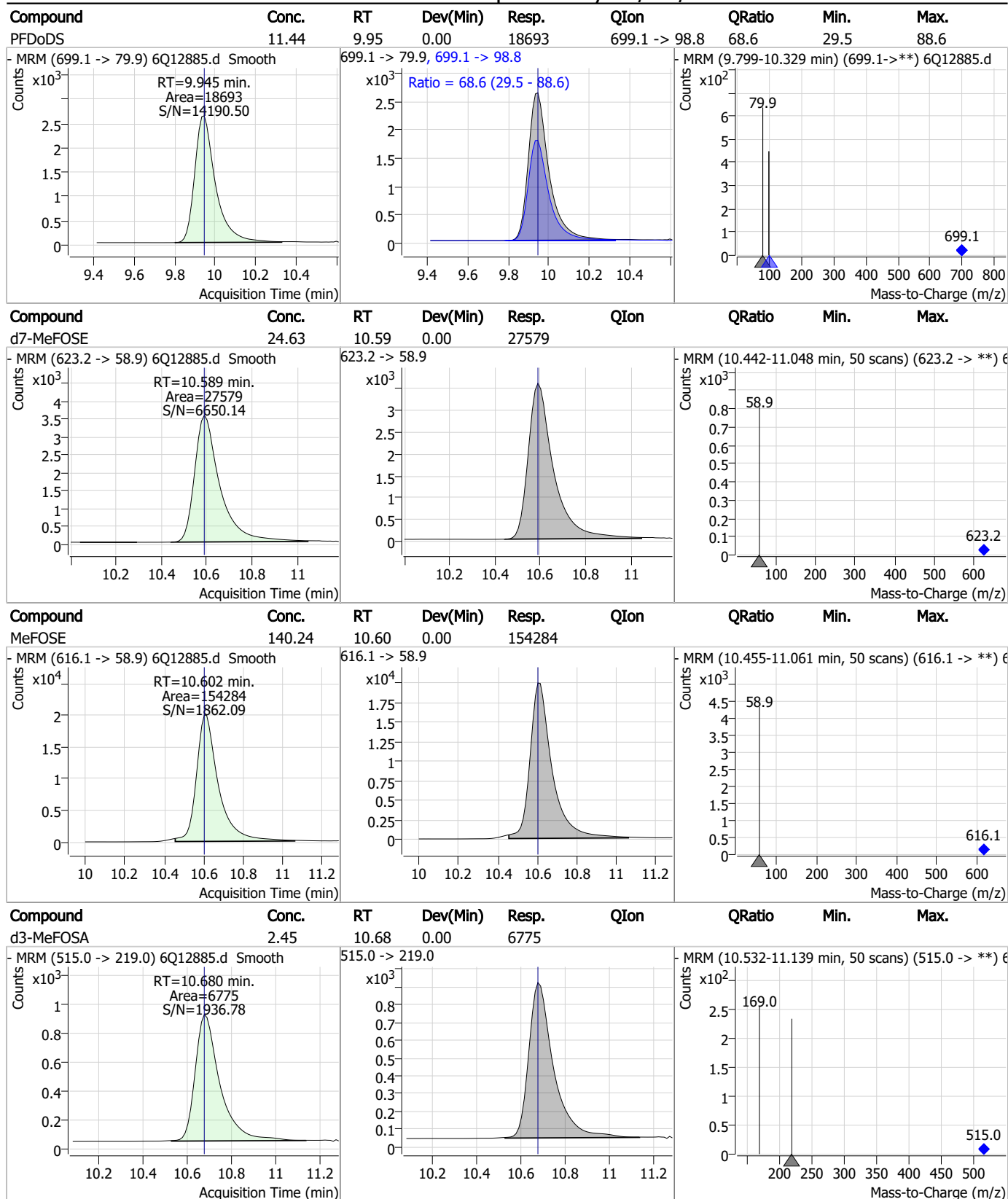
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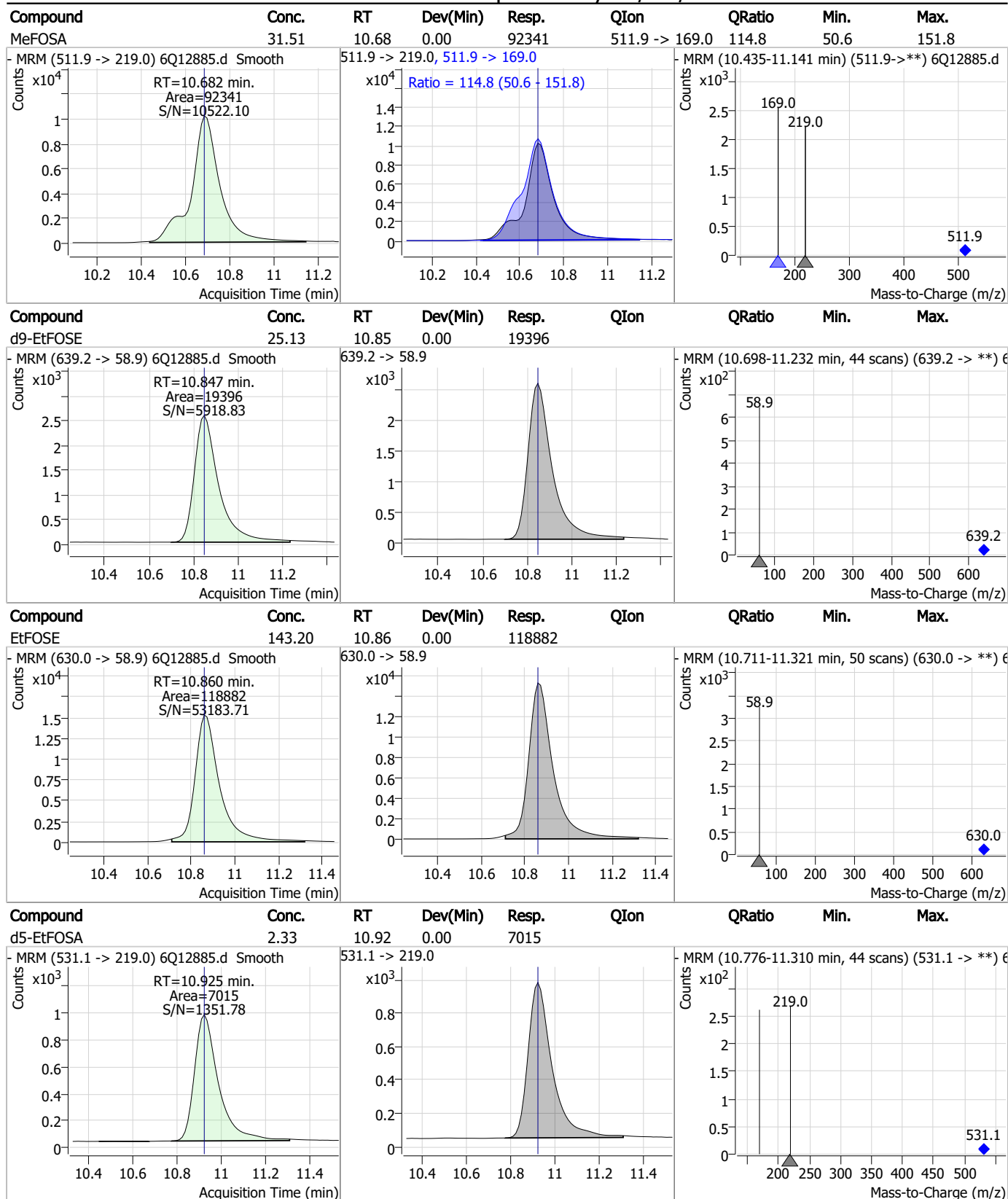
7.6.4

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# Perfluorinated Compounds by LC/MS/MS



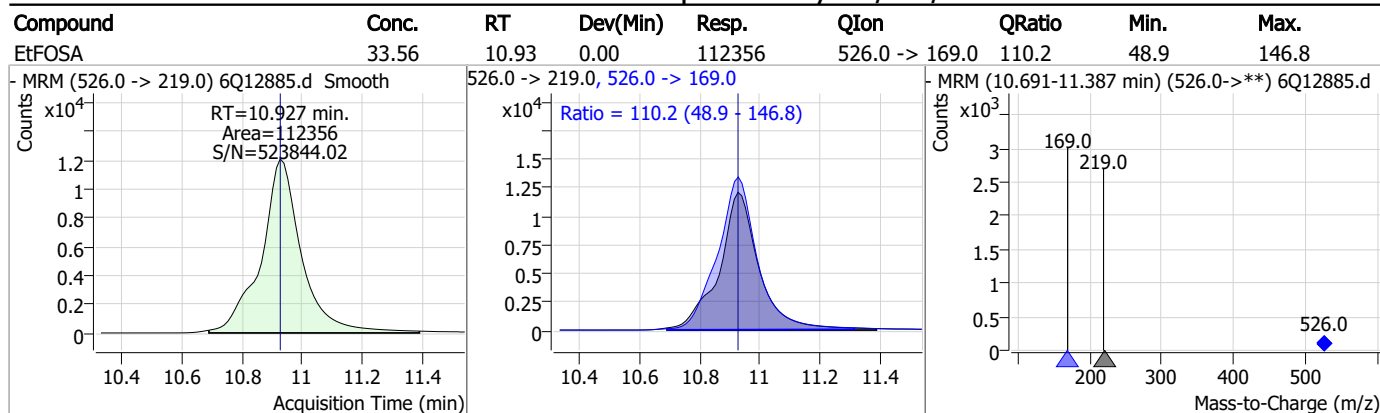
# Perfluorinated Compounds by LC/MS/MS



7.6.4

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# Perfluorinated Compounds by LC/MS/MS



7.6.4

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Manual Integration Approval Summary

Sample Number: S6Q198-RT

Lab FileID: 6Q12885.D

Injection Time: 02/03/23 10:16

Method: EPA DRAFT 1633

Analyst approved: 02/06/23 11:00 Martha Valls

Supervisor approved: 02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.15	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorononanoic acid	375-95-1		7.68	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.6.4.1  
7



QQQ Check Tune Report



Instrument Name LCMS Q6  
MS Model G6495B  
MS Instrument Serial SG1752D103  
Software\_Firmware Version 10.1.67, FW: A.00.08.112  
Tune Date & Time 30 January 2023 11:45:11  
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.tune.xml  
Ion Source AJS ESI  
Ionization Mode AJS ESI  
Tuned Resolution All  
Vacuum Pressure 1.84E+0 [R] (Torr); 2.93E-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

7.7.1  
7

## QQQ Check Tune Report



Agilent

Trusted Answers

## 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	112.93	-0.06	Pass	0.70	0.78	0.08	Pass	79980
302.00	301.95	-0.05	Pass	0.70	0.74	0.04	Pass	474779
601.98	601.97	-0.01	Pass	0.70	0.70	0.00	Pass	2207267
1033.99	1033.89	-0.10	Pass	0.70	0.76	0.06	Pass	547405
1633.95	1633.90	-0.05	Pass	0.70	0.81	0.11	Pass	312655
2233.91	2233.90	-0.01	Pass	0.70	0.75	0.05	Pass	72207

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.05	0.05	Pass	0.70	0.63	-0.07	Pass	60369
112.99	112.95	-0.04	Pass	0.70	0.70	0.00	Pass	85414
302.00	302.00	0.00	Pass	0.70	0.68	-0.02	Pass	338144
601.98	602.01	0.03	Pass	0.70	0.67	-0.03	Pass	1732819
1033.99	1033.92	-0.07	Pass	0.70	0.72	0.02	Pass	776077
1633.95	1633.91	-0.04	Pass	0.70	0.74	0.04	Pass	786552
2233.91	2233.84	-0.07	Pass	0.70	0.78	0.08	Pass	168005

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.96	-0.03	Pass	1.20	1.47	0.27	Pass	101053
302.00	301.98	-0.02	Pass	1.20	1.55	0.35	Pass	671153
601.98	601.88	-0.10	Pass	1.20	1.57	0.37	Pass	3115923
1033.99	1033.82	-0.17	Pass	1.20	1.63	0.43	Pass	795986
1633.95	1633.83	-0.12	Pass	1.20	1.38	0.18	Pass	531980
2233.91	2233.81	-0.10	Pass	1.20	1.21	0.01	Pass	137935

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.01	0.01	Pass	1.20	1.08	-0.12	Pass	90381
112.99	112.96	-0.03	Pass	1.20	1.22	0.02	Pass	139617
302.00	302.03	0.03	Pass	1.20	1.00	-0.20	Pass	670106
601.98	601.98	0.00	Pass	1.20	1.32	0.12	Pass	3095385
1033.99	1033.98	-0.01	Pass	1.20	1.43	0.23	Pass	1697938
1633.95	1633.88	-0.07	Pass	1.20	1.47	0.27	Pass	1992575
2233.91	2233.85	-0.06	Pass	1.20	1.31	0.11	Pass	578469

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.94	-0.05	Pass	2.50	2.73	0.23	Pass	118951
302.00	301.84	-0.16	Pass	2.50	2.87	0.37	Pass	740775
601.98	601.68	-0.30	Pass	2.50	2.86	0.36	Pass	4197725
1033.99	1033.76	-0.23	Pass	2.50	2.66	0.16	Pass	1481977
1633.95	1633.76	-0.19	Pass	2.50	2.67	0.17	Pass	1117275
2233.91	2233.57	-0.34	Pass	2.50	2.45	-0.05	Pass	419484

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.02	0.02	Pass	2.50	2.46	-0.04	Pass	110565
112.99	112.98	-0.01	Pass	2.50	2.58	0.08	Pass	177647
302.00	301.98	-0.02	Pass	2.50	2.58	0.08	Pass	789350
601.98	601.95	-0.03	Pass	2.50	2.69	0.19	Pass	4593649
1033.99	1033.91	-0.08	Pass	2.50	2.98	0.48	Pass	3299810
1633.95	1633.97	0.02	Pass	2.50	2.73	0.23	Pass	3398287
2233.91	2233.77	-0.14	Pass	2.50	2.50	0.00	Pass	1335289

7.7.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12723.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/1/2023 5:51:17 PM  
 Sample Name : ic196-1  
 Vial : P1-A2  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : S6Q196.batch.bin  
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	75677	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	39050	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	35228	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	35062	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	66602	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	27605	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18891	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	22795	1.25 µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	24517	1.25 µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	14260	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17010	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	13615	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8417	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8616	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2340	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3069	5.00 µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	2912	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	29710	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14102	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	24344	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	30414	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	20284	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7884	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7168	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10948	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	34538	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6617	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	76742	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	26145	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	32069	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	34127	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2340	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3069	5.38 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.5%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2912	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-PFDoDA	9.078	615.1 -> 570.0	24517	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14260	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C3-PFBS	5.518	302.1 -> 79.9	13615	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-PFHxS	7.274	402.1 -> 79.9	8417	2.42 µg/L	0.000

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C4-PFBA	2.975	216.8 -> 171.9	75677	9.87 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C4-PFHpA	6.502	367.1 -> 322.0	35062	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C5-PFHxA	5.563	318.0 -> 273.0	35228	2.61 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C5-PFPeA	4.386	268.3 -> 223.0	39050	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C6-PFDA	8.170	519.1 -> 474.1	18891	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C7-PFUnDA	8.636	570.0 -> 525.1	22795	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C8-FOSA	9.555	506.1 -> 77.8	17010	2.39 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C8-PFOA	7.146	421.1 -> 376.0	66602	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C8-PFOS	8.345	507.1 -> 79.9	8616	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C9-PFNA	7.677	472.1 -> 427.0	27605	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
d3-MeFOSAA	8.215	573.2 -> 419.0	29710	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	14102	10.11 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
d3-MeFOSA	10.680	515.0 -> 219.0	7168	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.3%		
d5-EtFOSAA	8.410	589.2 -> 419.0	24344	4.89 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
d7-MeFOSE	10.589	623.2 -> 58.9	30414	24.47 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.9%		
d9-EtFOSE	10.847	639.2 -> 58.9	20284	23.68 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 94.7%		
d5-EtFOSA	10.925	531.1 -> 219.0	7884	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.4%		

## Target Compounds

					QValue
4:2FTS	5.240	327.1 -> 307.0	3927	0.75 µg/L	98
		327.1 -> 80.9	826		
6:2FTS	6.908	427.1 -> 407.0	3528	0.78 µg/L	95
		427.1 -> 80.9	742		
8:2FTS	7.945	527.1 -> 507.0	2183	0.97 µg/L	97
		527.1 -> 80.8	495		
EtFOSAA	8.424	584.2 -> 419.1	884	0.23 µg/L	93
		584.2 -> 526.0	377		
FOSA	9.557	498.1 -> 77.9	1482	0.22 µg/L	95
		498.1 -> 478.0	39		
MeFOSAA	8.216	570.1 -> 419.0	1150	0.21 µg/L	99
		570.1 -> 483.0	171		
PFBA	2.982	212.8 -> 168.9	1378	0.82 µg/L	100
PFBS	5.518	298.7 -> 79.9	980	0.19 µg/L	98
		298.7 -> 98.8	443		
PFDA	8.170	512.9 -> 469.0	4295	0.20 µg/L	99
		512.9 -> 219.0	625		
PFDODA	9.079	613.1 -> 569.0	4264	0.24 µg/L	94
		613.1 -> 319.0	428		
PFDS	9.241	599.0 -> 79.9	685	0.23 µg/L	87

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	283	0.22	µg/L	97
		363.1 -> 319.0	4629			
PFHpS	7.841	363.1 -> 169.0	637	0.19	µg/L	82
		449.0 -> 79.9	690			
PFHxA	5.566	449.0 -> 98.9	473	0.22	µg/L	98
		313.0 -> 269.0	3024			
PFHxS	7.275	313.0 -> 118.9	150	0.19	µg/L	88
		398.7 -> 79.9	729			
PFNA	7.677	398.7 -> 98.9	397	0.22	µg/L	98
		463.0 -> 419.0	4075			
PFNS	8.811	463.0 -> 219.0	741	0.19	µg/L	89
		548.8 -> 79.9	732			
PFOA	7.148	548.8 -> 98.9	476	0.20	µg/L	98
		413.0 -> 369.0	5822			
PFOS	8.334	413.0 -> 169.0	829	0.19	µg/L	77
		498.9 -> 79.9	760			
PFPeA	4.388	498.9 -> 98.8	503	0.41	µg/L	100
		263.0 -> 219.0	3404			
PFPeS	6.581	349.1 -> 79.9	916	0.21	µg/L	95
		349.1 -> 98.9	500			
PFTeDA	9.806	713.1 -> 669.0	3198	0.21	µg/L	98
		713.1 -> 168.9	238			
PFTrDA	9.462	663.0 -> 619.0	3530	0.21	µg/L	98
		663.0 -> 168.9	303			
PFUnDA	8.637	563.1 -> 519.0	3697	0.21	µg/L	100
		563.1 -> 269.1	501			
11CI-PF3OUdS	9.514	630.9 -> 450.9	8030	0.79	µg/L	95
		632.9 -> 452.9	2679			
9CI-PF3ONS	8.688	530.8 -> 351.0	12870	0.75	µg/L	96
		532.8 -> 353.0	3839			
ADONA	6.753	376.9 -> 250.9	25071	0.82	µg/L	97
		376.9 -> 84.8	5287			
HFPO-DA	5.940	284.9 -> 168.9	969	0.73	µg/L	94
		284.9 -> 184.9	106			
3:3FTCA	3.841	241.0 -> 177.0	392	0.97	µg/L	100
		241.0 -> 117.0	58			
5:3FTCA	6.193	341.0 -> 237.1	13499	4.67	µg/L	94
		341.0 -> 217.0	12556			
7:3FTCA	7.605	441.0 -> 316.9	9740	5.16	µg/L	78
		441.0 -> 336.9	17111			
EtFOSA	10.927	526.0 -> 219.0	759	0.20	µg/L	97
		526.0 -> 169.0	718			
EtFOSE	10.860	630.0 -> 58.9	1847	2.13	µg/L	100
		511.9 -> 219.0	581			
MeFOSA	10.682	511.9 -> 169.0	697	0.19	µg/L	81
		616.1 -> 58.9	2552			
MeFOSE	10.602	699.1 -> 79.9	371	2.10	µg/L	100
		699.1 -> 98.8	208			
PFDoDS	9.945	295.0 -> 201.0	349	0.43	µg/L	98
		295.0 -> 84.9	185			
NFDHA	5.445	279.0 -> 85.1	941	0.41	µg/L	100
		229.0 -> 84.9	905			
PFMBA	3.541	314.8 -> 134.9	7201	0.36	µg/L	98
		314.8 -> 82.9	125			

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

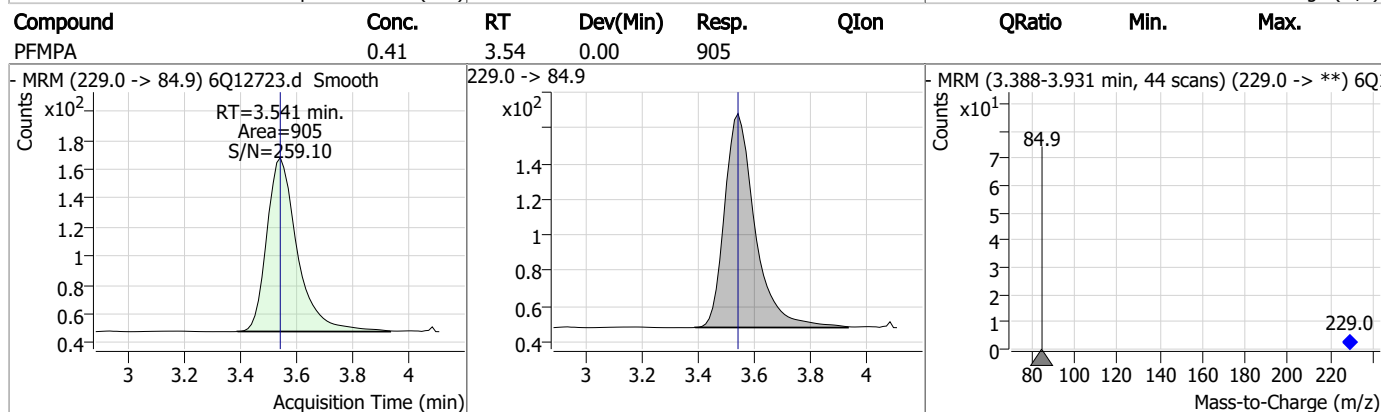
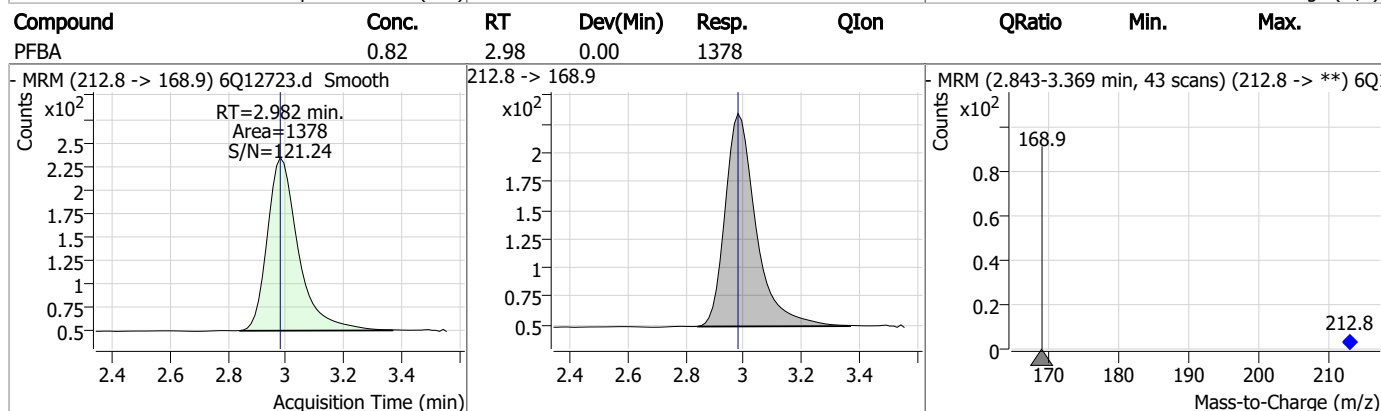
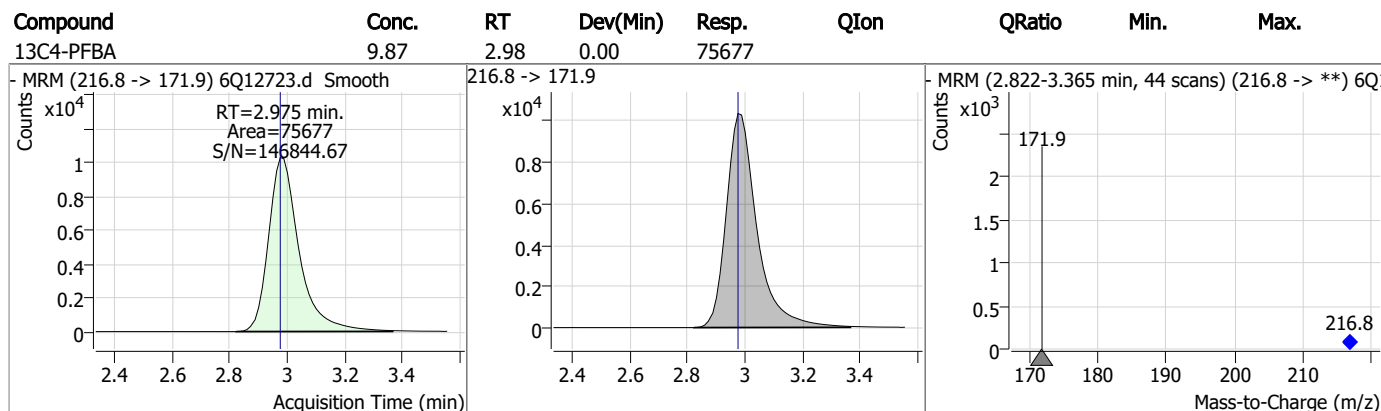
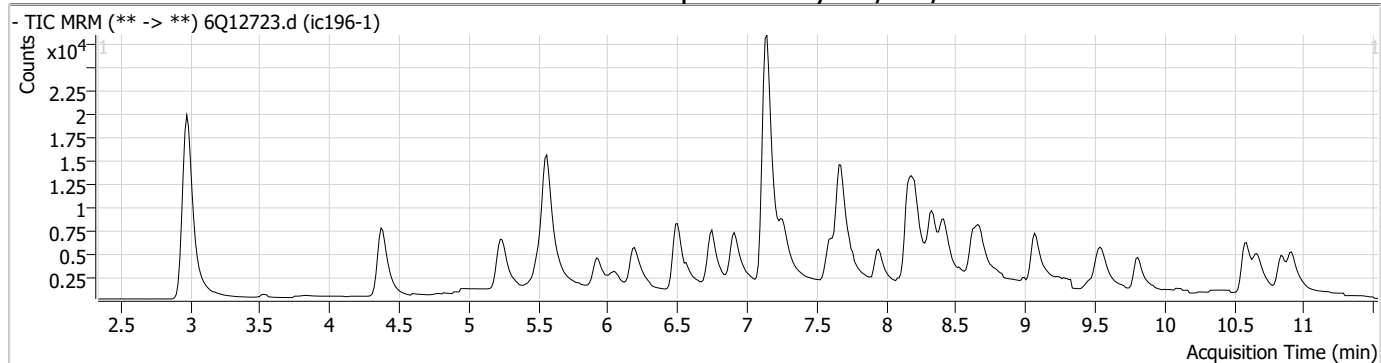
## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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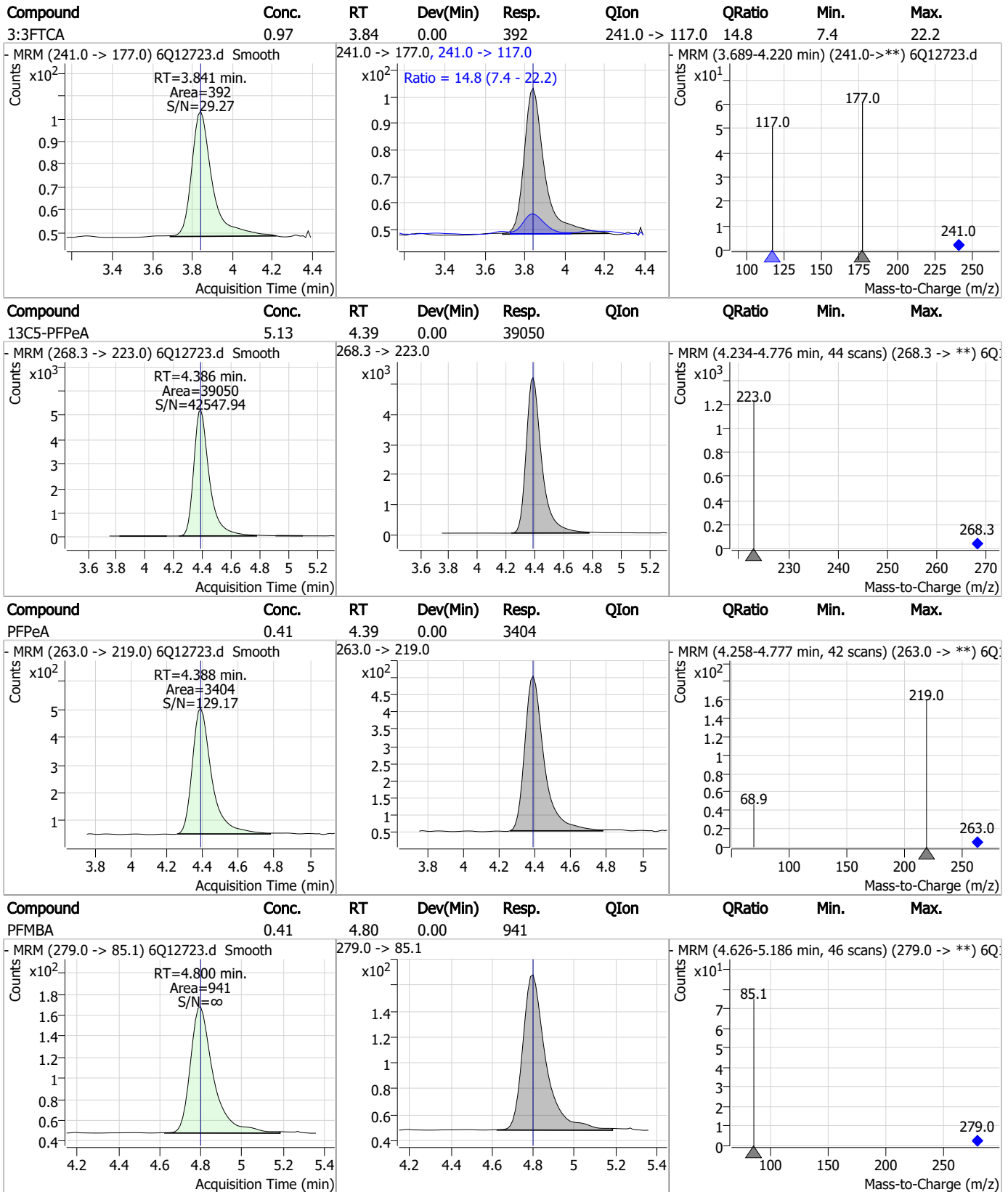
7.7.2

7

## Perfluorinated Compounds by LC/MS/MS

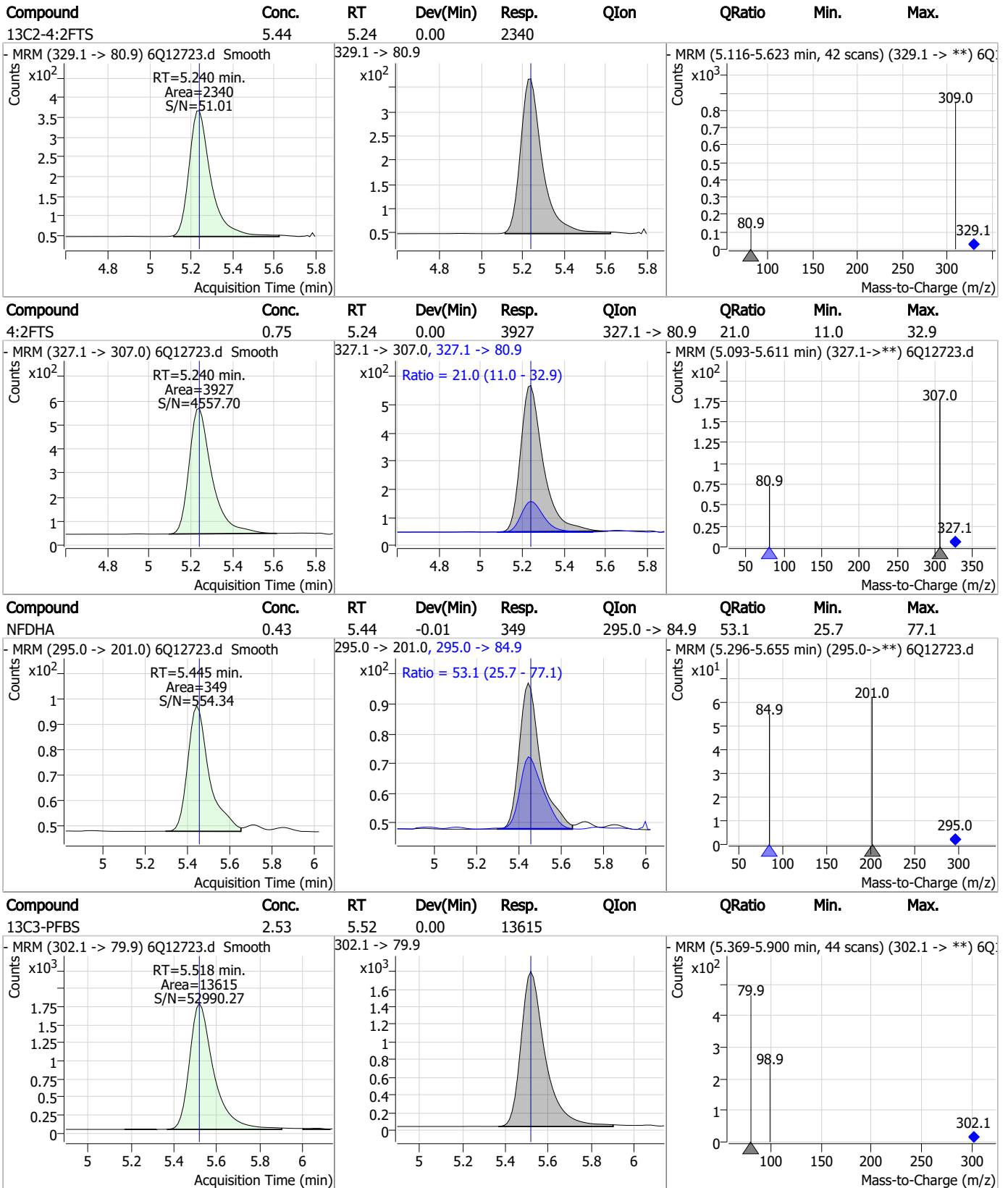


## Perfluorinated Compounds by LC/MS/MS

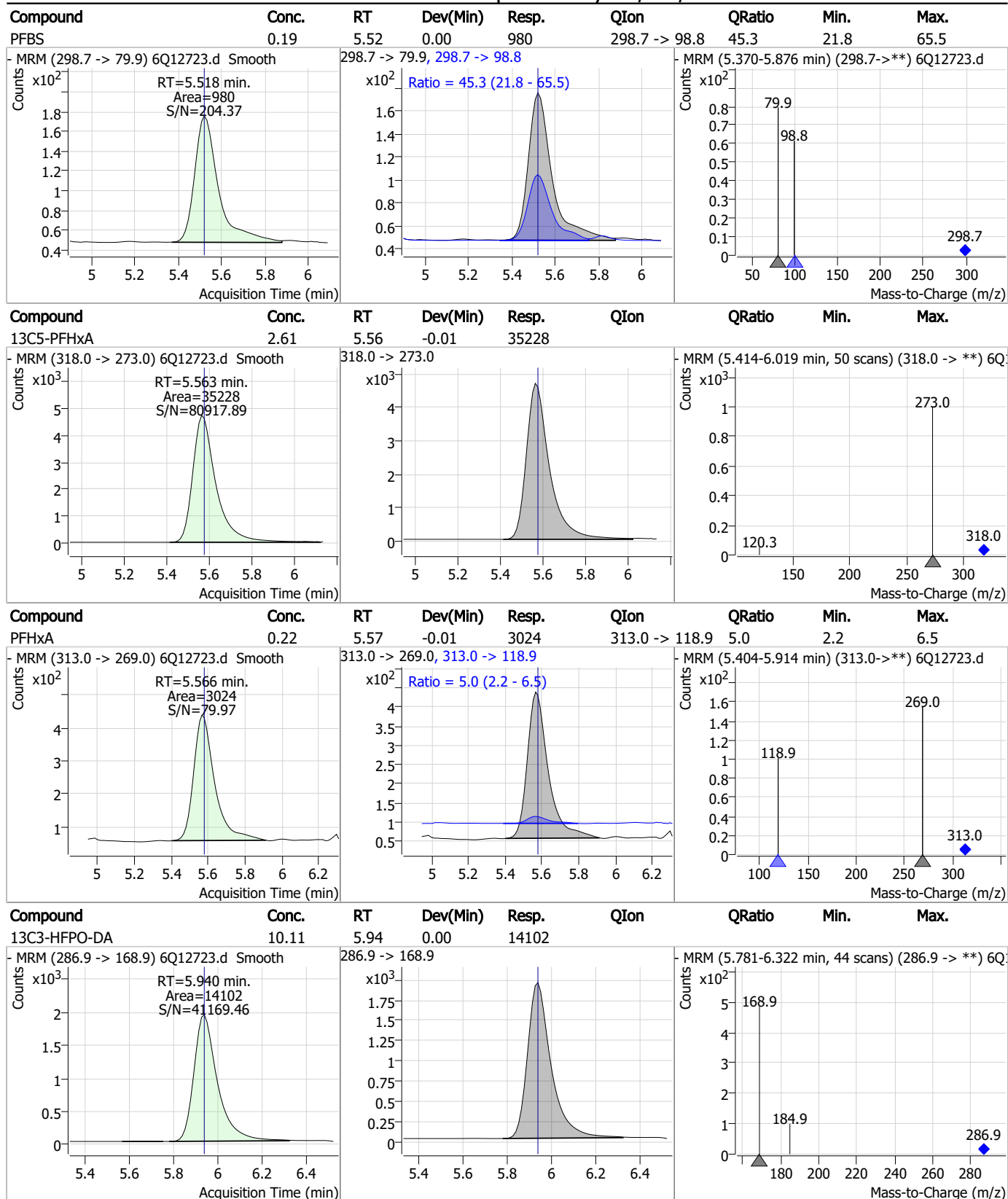




## Perfluorinated Compounds by LC/MS/MS



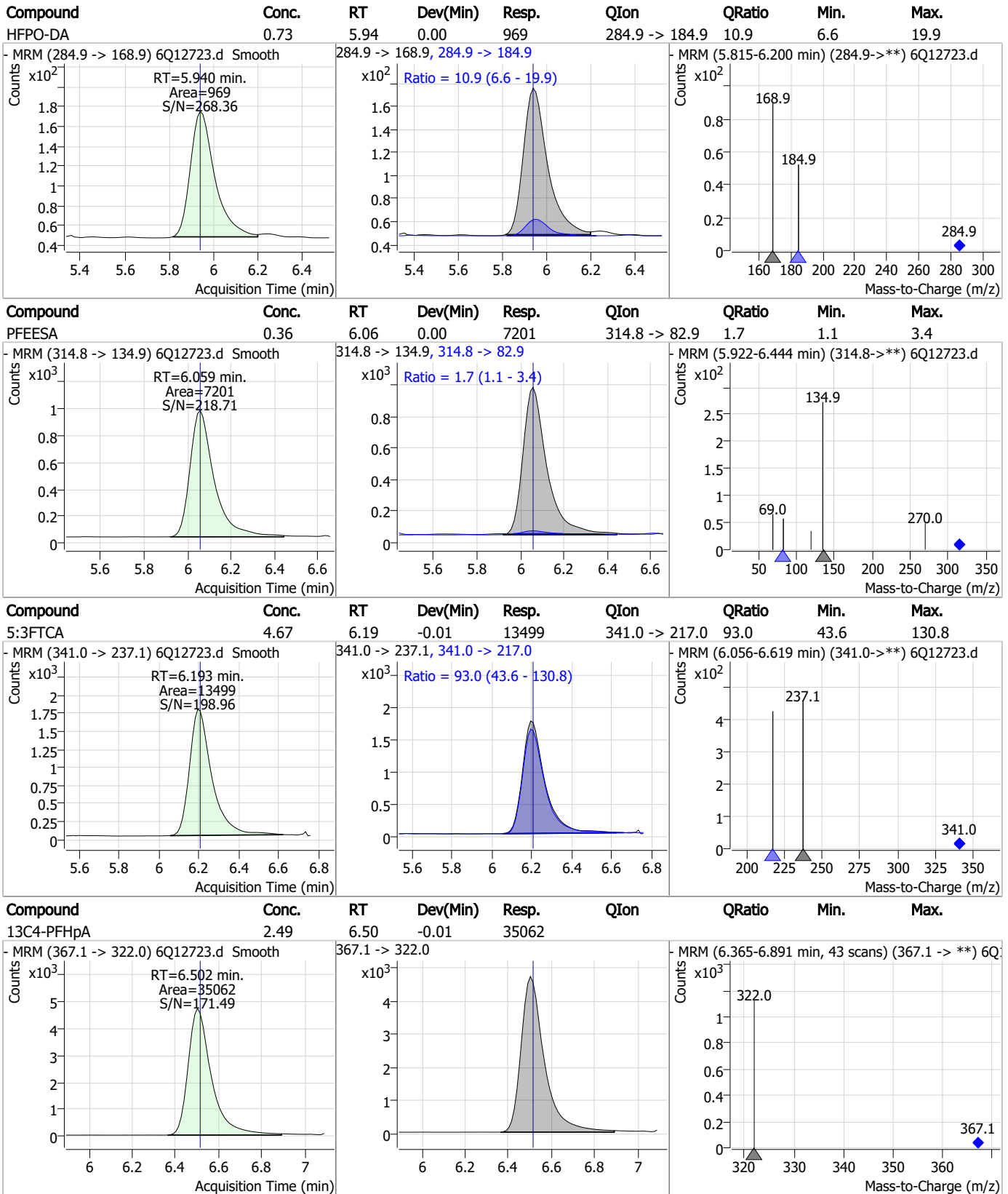
## Perfluorinated Compounds by LC/MS/MS



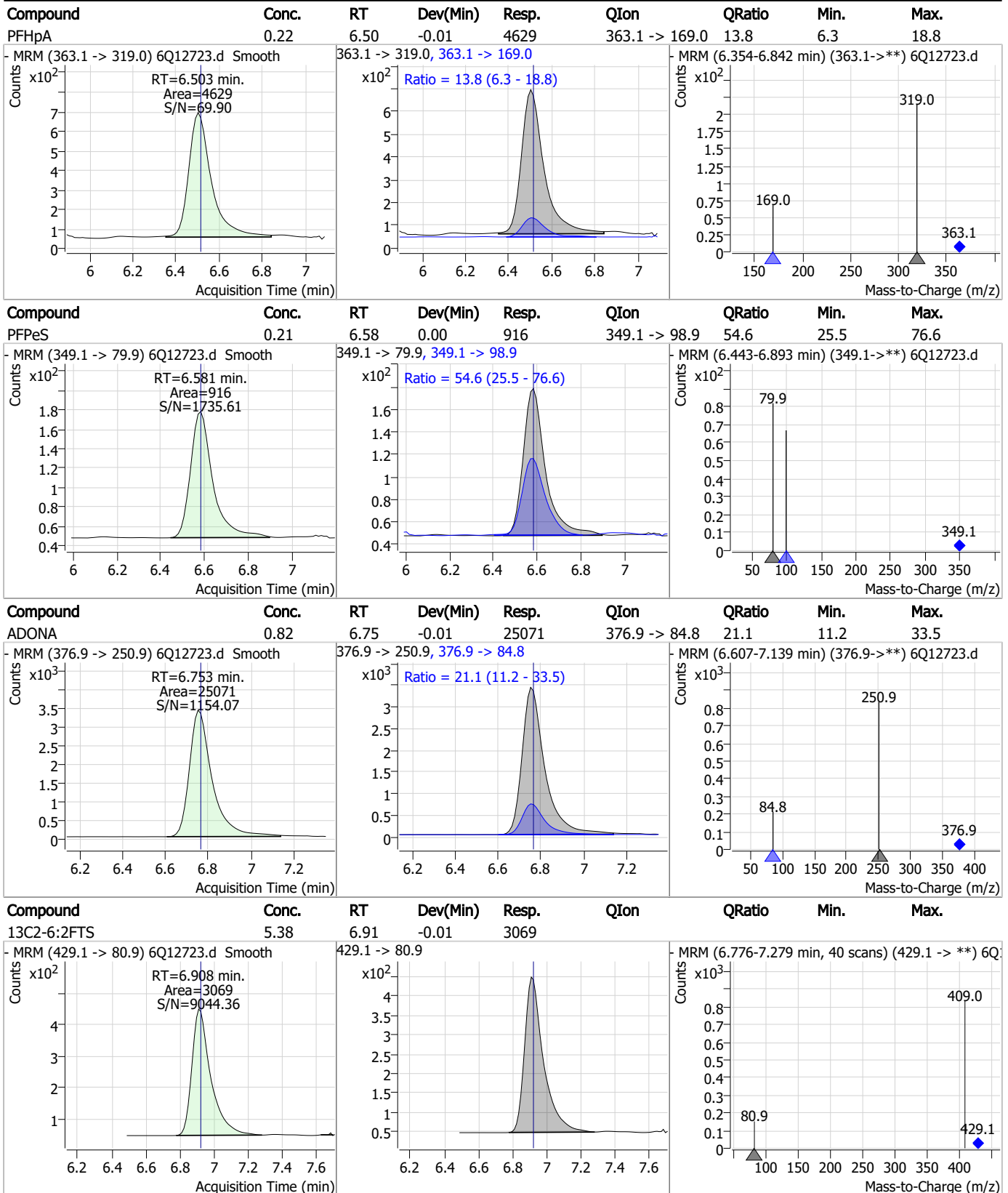
7.7.2

7

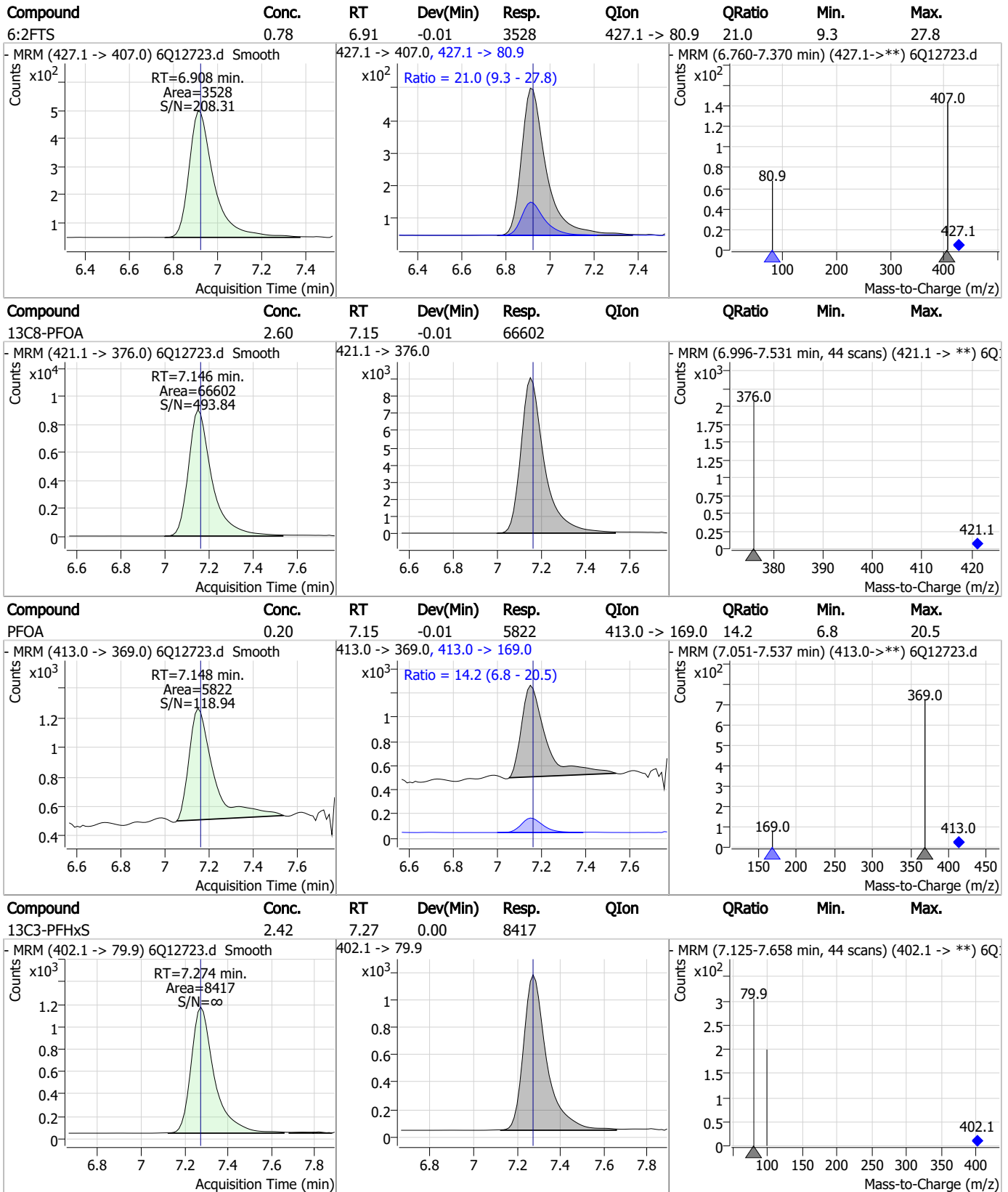
## Perfluorinated Compounds by LC/MS/MS



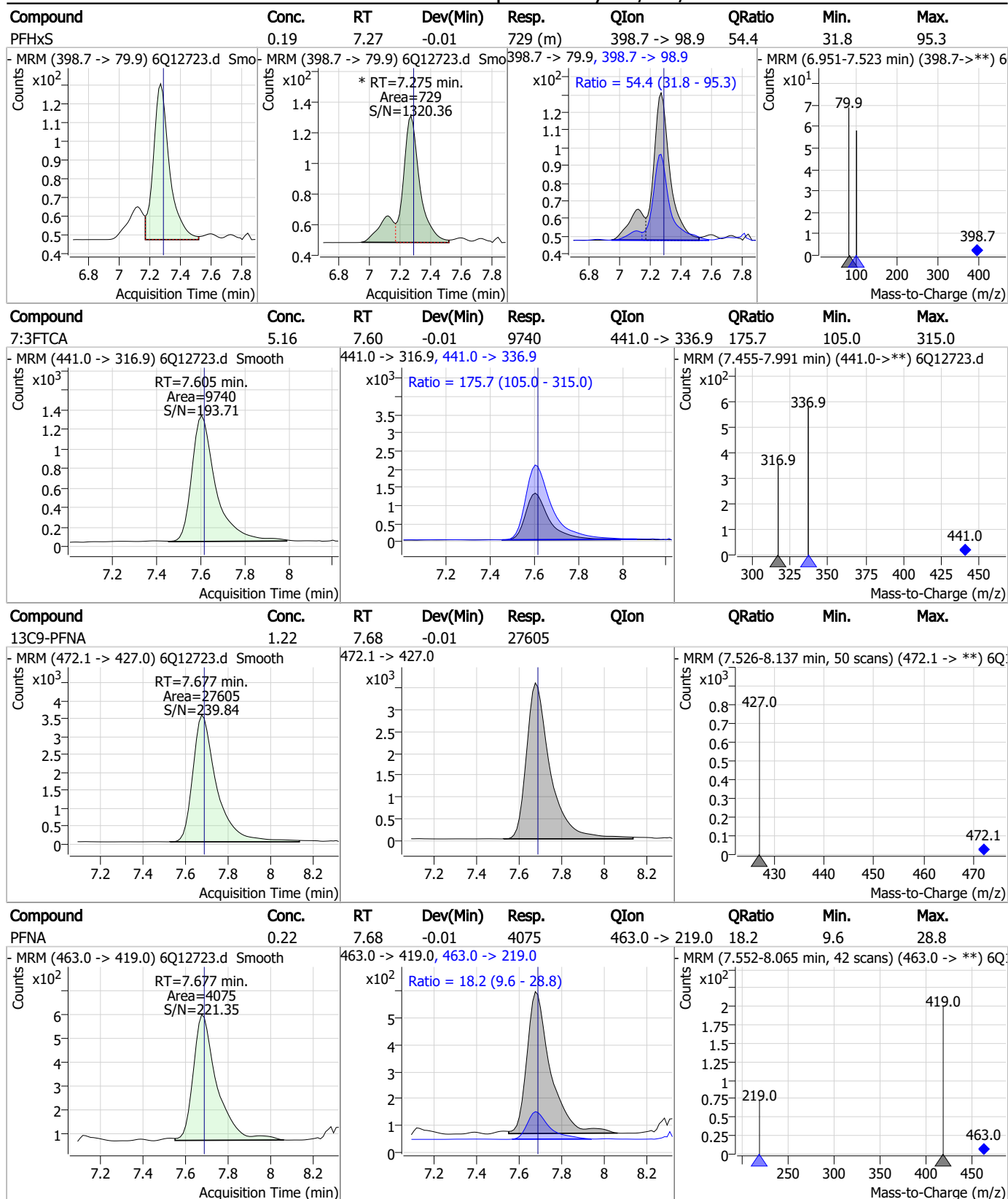
## Perfluorinated Compounds by LC/MS/MS



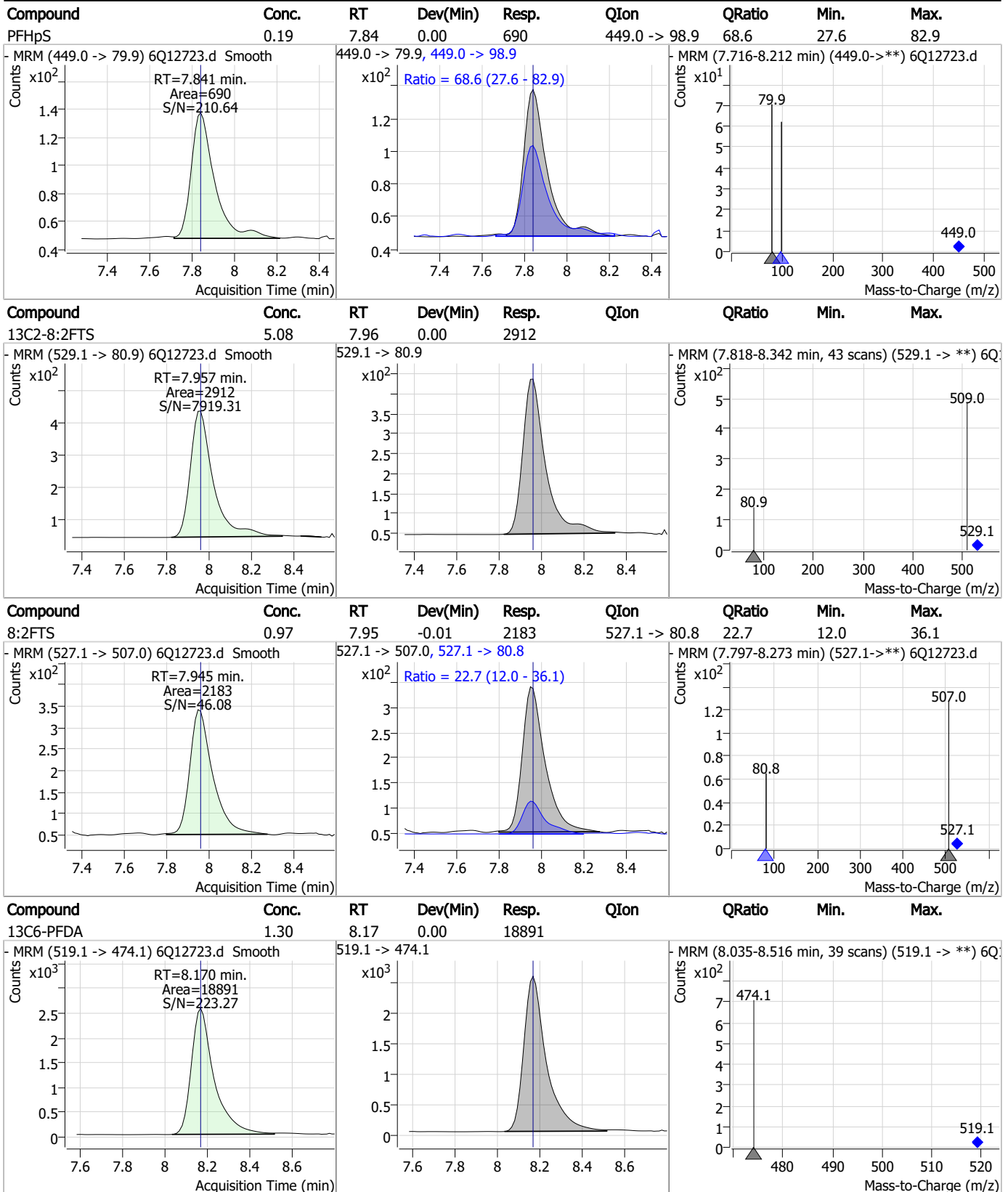
## Perfluorinated Compounds by LC/MS/MS



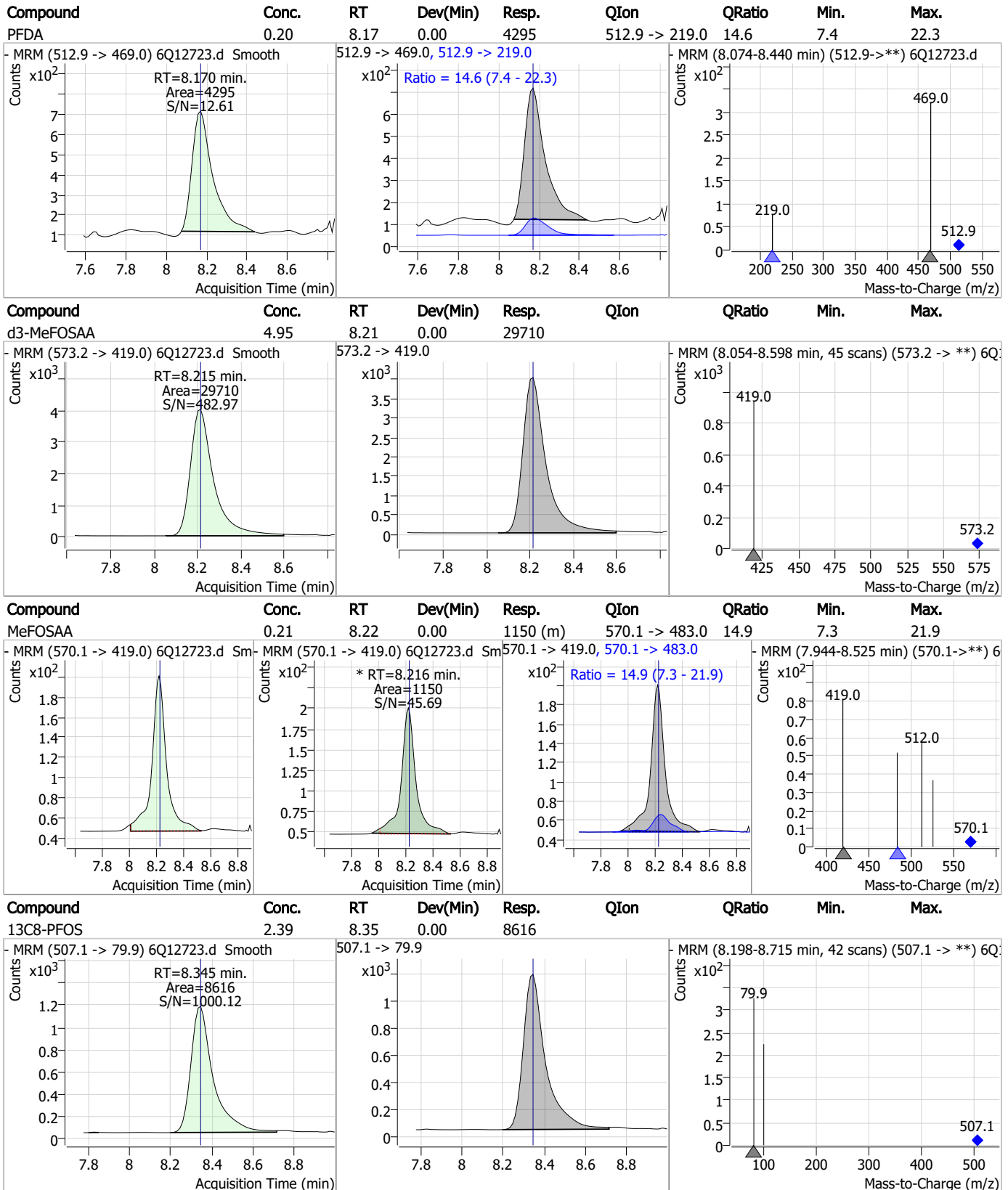
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

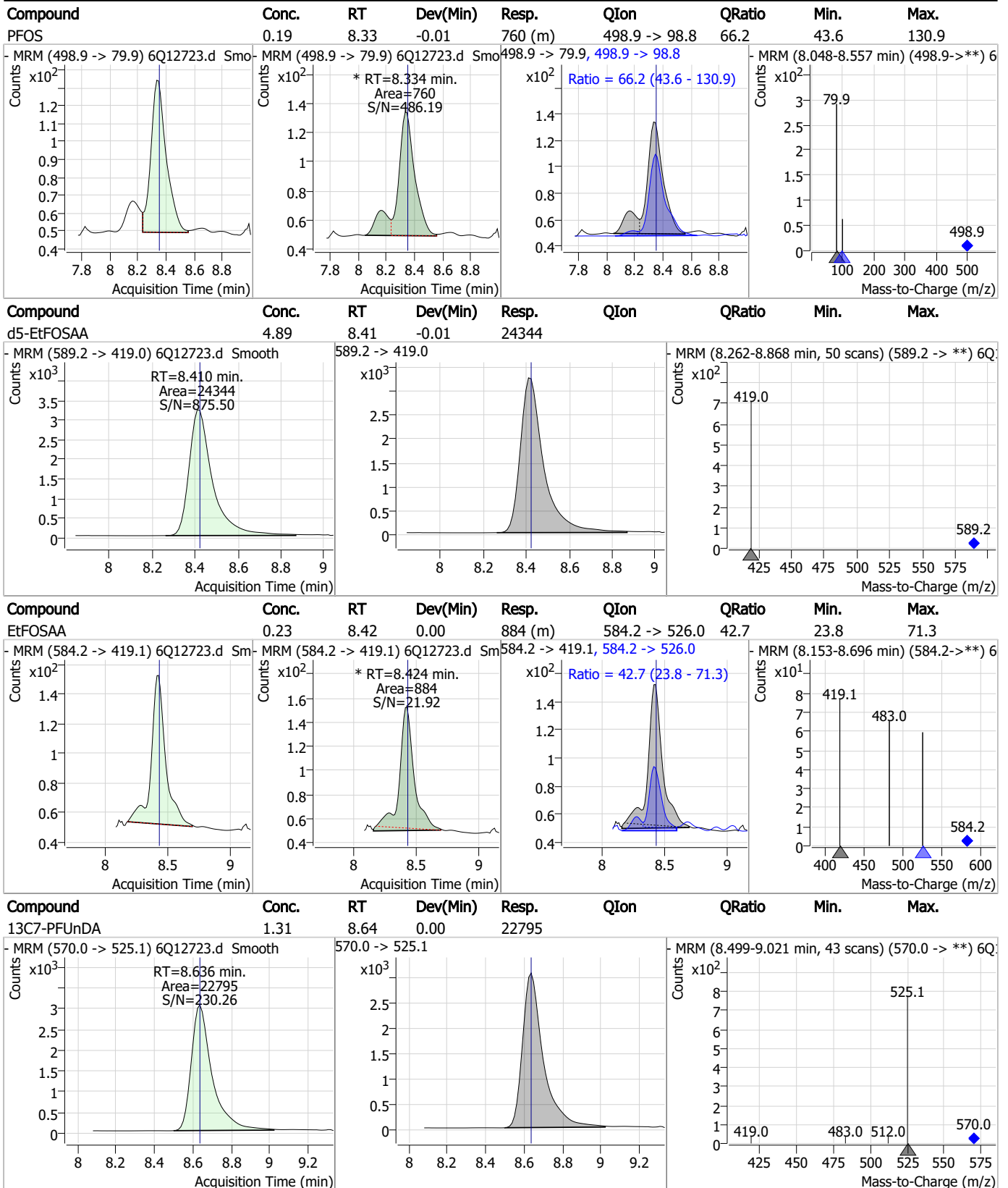


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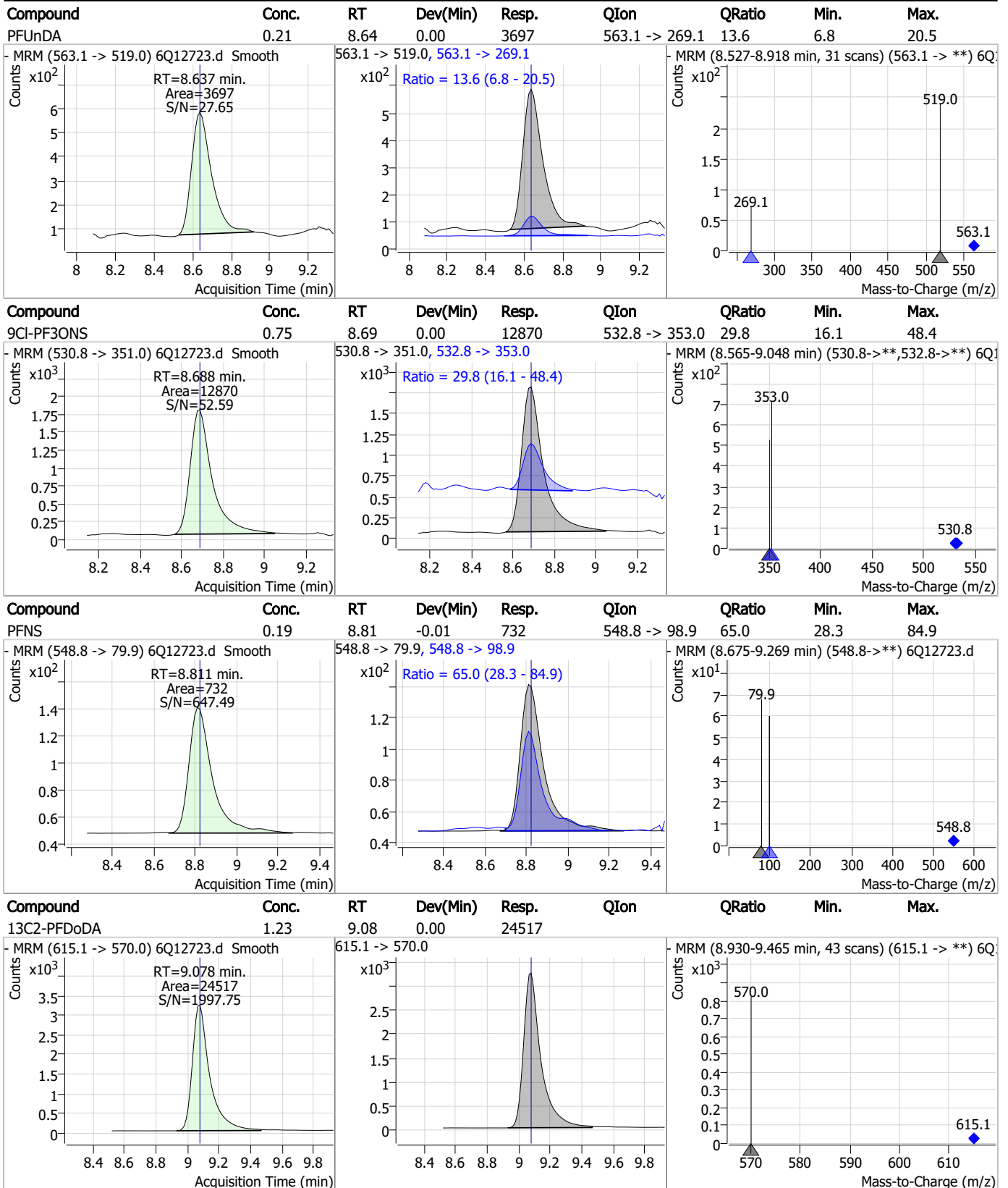




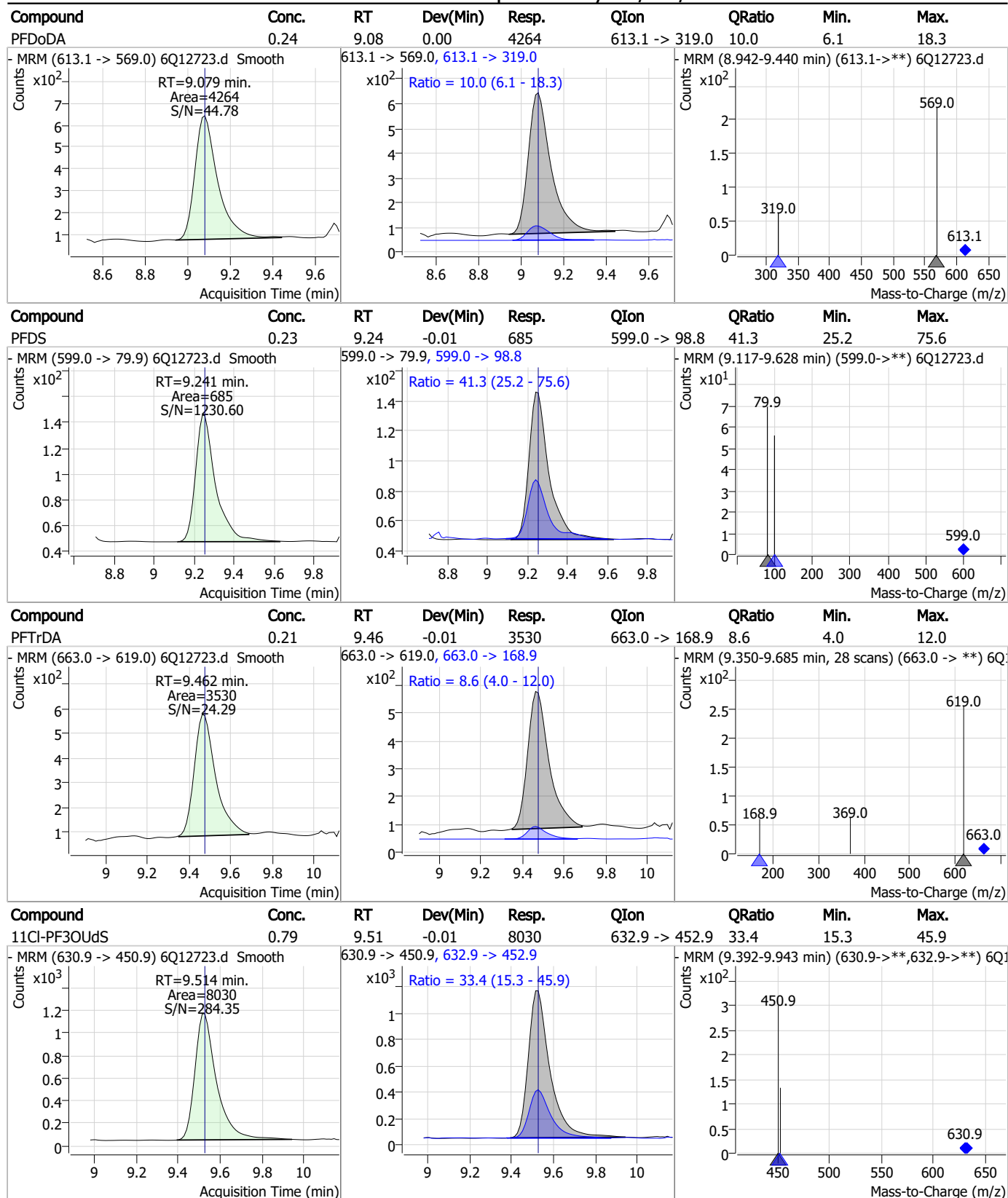
## Perfluorinated Compounds by LC/MS/MS



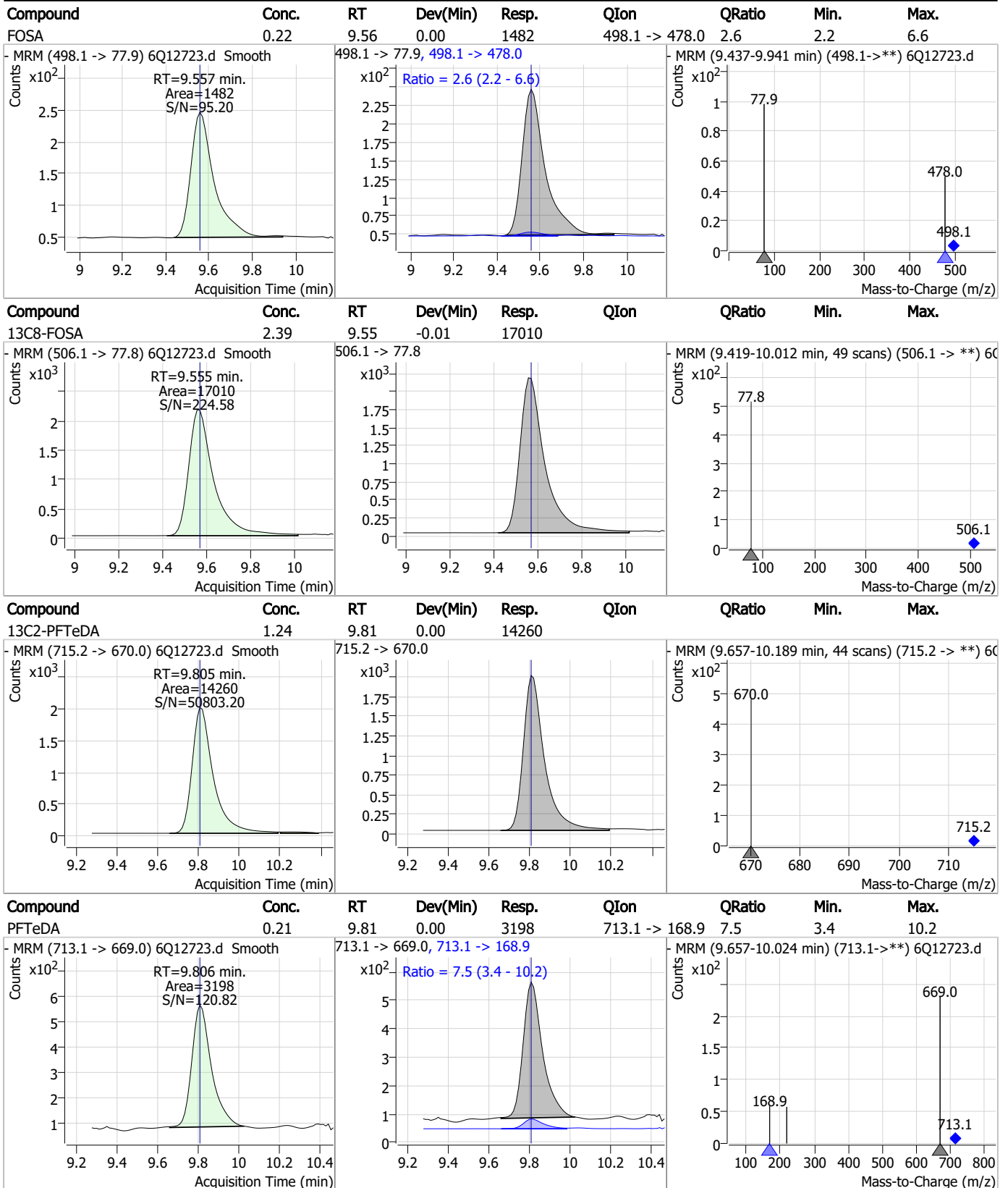
## Perfluorinated Compounds by LC/MS/MS



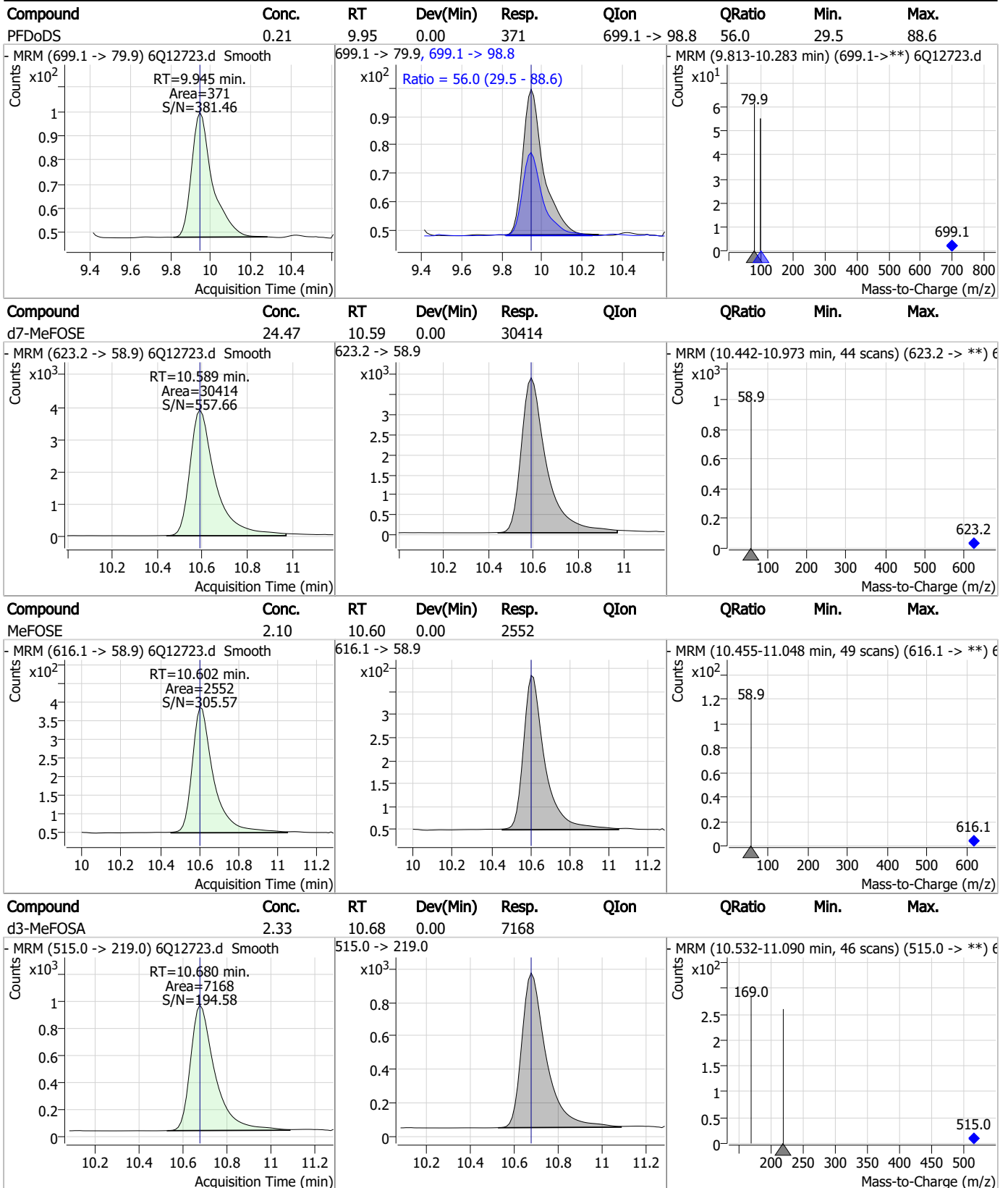
## Perfluorinated Compounds by LC/MS/MS



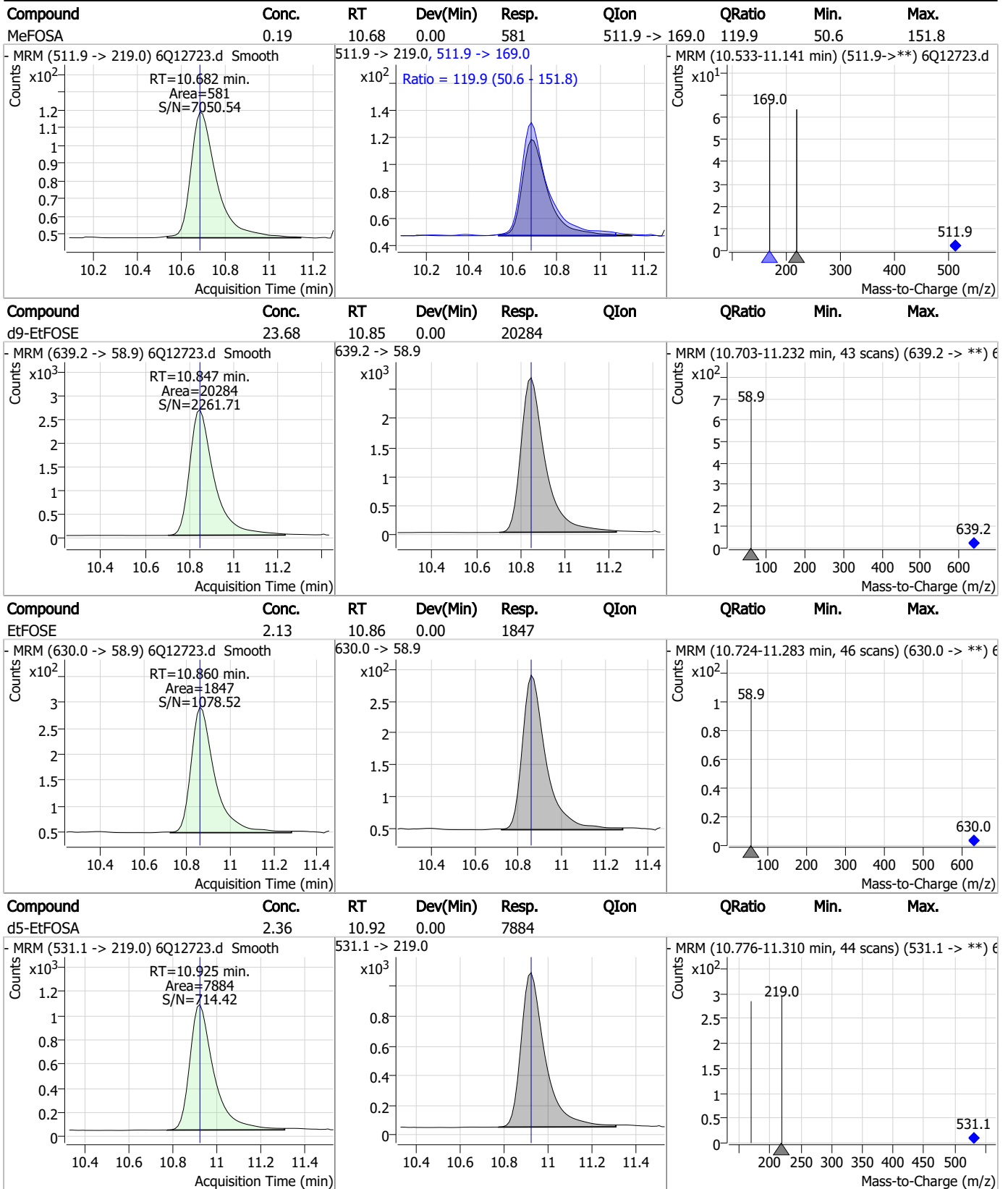
## Perfluorinated Compounds by LC/MS/MS



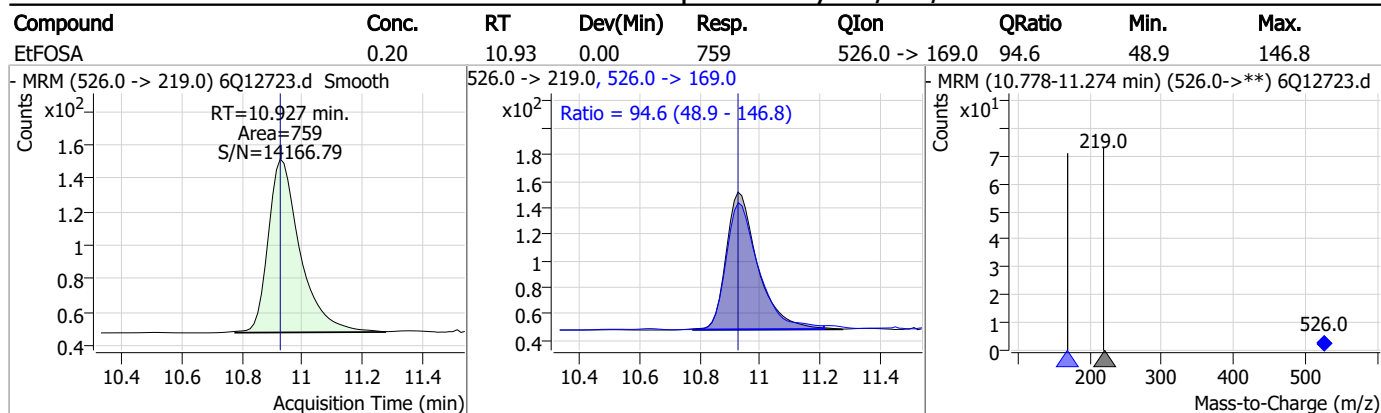
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S6Q196-IC196

Method: EPA DRAFT 1633

Lab FileID: 6Q12723.D

Analyst approved: 02/02/23 11:53 Martha Valls

Injection Time: 02/01/23 17:51

Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.2.1  
7



## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12724.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/1/2023 6:05:15 PM  
 Sample Name : ic196-2  
 Vial : P1-A3  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : S6Q196.batch.bin  
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	78086	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	38504	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	34292	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	36977	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	66521	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	27324	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18971	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	22956	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	26106	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14787	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	18196	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	14165	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8560	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	9131	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2443	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	3066	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	3165	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	30564	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14884	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	23863	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	31720	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21587	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7866	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7013	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10490	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35150	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6634	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	80205	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	29014	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	33308	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	36223	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2443	5.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.2%		
13C2-6:2FTS	6.920	429.1 -> 80.9	3066	5.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3165	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C2-PFDoDA	9.066	615.1 -> 570.0	26106	1.18 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14787	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.8%		
13C3-PFBS	5.518	302.1 -> 79.9	14165	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C3-PFHxS	7.274	402.1 -> 79.9	8560	2.45 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 = 98.2%	
13C4-PFBA	2.975	216.8 -> 171.9	78086	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.502	367.1 -> 322.0	36977	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C5-PFHxA	5.563	318.0 -> 273.0	34292	2.39 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C5-PFPeA	4.386	268.3 -> 223.0	38504	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C6-PFDA	8.170	519.1 -> 474.1	18971	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C7-PFUnDA	8.636	570.0 -> 525.1	22956	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C8-FOSA	9.555	506.1 -> 77.8	18196	2.66 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C8-PFOA	7.146	421.1 -> 376.0	66521	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C8-PFOS	8.345	507.1 -> 79.9	9131	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C9-PFNA	7.677	472.1 -> 427.0	27324	1.17 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.2%	
d3-MeFOSAA	8.215	573.2 -> 419.0	30564	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14884	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d3-MeFOSA	10.680	515.0 -> 219.0	7013	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
d5-EtFOSAA	8.410	589.2 -> 419.0	23863	5.00 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d7-MeFOSE	10.589	623.2 -> 58.9	31720	26.63 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
d9-EtFOSE	10.847	639.2 -> 58.9	21587	26.30 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
d5-EtFOSA	10.925	531.1 -> 219.0	7866	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.240	327.1 -> 307.0	10547	1.93 µg/L	97
		327.1 -> 80.9	2172		
6:2FTS	6.921	427.1 -> 407.0	8812	1.96 µg/L	96
		427.1 -> 80.9	1792		
8:2FTS	7.958	527.1 -> 507.0	4639	1.89 µg/L	99
		527.1 -> 80.8	1146		
EtFOSAA	8.424	584.2 -> 419.1	1853	0.48 µg/L	m 88
		584.2 -> 526.0	1031		
FOSA	9.557	498.1 -> 77.9	3580	0.49 µg/L	95
		498.1 -> 478.0	97		
MeFOSAA	8.216	570.1 -> 419.0	2538	0.45 µg/L	m 90
		570.1 -> 483.0	480		
PFBA	2.982	212.8 -> 168.9	3414	1.96 µg/L	100
PFBS	5.518	298.7 -> 79.9	2497	0.46 µg/L	99
		298.7 -> 98.8	1071		
PFDA	8.170	512.9 -> 469.0	11002	0.51 µg/L	96
		512.9 -> 219.0	1437		
PFDODA	9.067	613.1 -> 569.0	8860	0.46 µg/L	98
		613.1 -> 319.0	1024		
PFDS	9.241	599.0 -> 79.9	1391	0.45 µg/L	94

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	763	0.50	µg/L	94
		363.1 -> 319.0	10870			
PFHpS	7.841	363.1 -> 169.0	1606	0.43	µg/L	83
		449.0 -> 79.9	1684			
PFHxA	5.566	449.0 -> 98.9	1134	0.50	µg/L	96
		313.0 -> 269.0	6725			
PFHxS	7.275	313.0 -> 118.9	211	0.48	µg/L	94
		398.7 -> 79.9	1850			
PFNA	7.677	398.7 -> 98.9	1096	0.52	µg/L	97
		463.0 -> 419.0	9636			
PFNS	8.811	463.0 -> 219.0	1994	0.47	µg/L	98
		548.8 -> 79.9	1926			
PFOA	7.148	548.8 -> 98.9	1055	0.52	µg/L	96
		413.0 -> 369.0	15254			
PFOS	8.347	413.0 -> 169.0	1827	0.50	µg/L	66
		498.9 -> 79.9	2082			
PFPeA	4.388	498.9 -> 98.8	1164	1.02	µg/L	100
		263.0 -> 219.0	8303			
PFPeS	6.581	349.1 -> 79.9	2175	0.49	µg/L	98
		349.1 -> 98.9	1074			
PFTeDA	9.806	713.1 -> 669.0	8315	0.52	µg/L	100
		713.1 -> 168.9	554			
PFTrDA	9.462	663.0 -> 619.0	9765	0.53	µg/L	98
		663.0 -> 168.9	722			
PFUnDA	8.637	563.1 -> 519.0	9095	0.51	µg/L	96
		563.1 -> 269.1	1410			
11CI-PF3OUdS	9.514	630.9 -> 450.9	19562	1.83	µg/L	98
		632.9 -> 452.9	6227			
9CI-PF3ONS	8.688	530.8 -> 351.0	32502	1.80	µg/L	98
		532.8 -> 353.0	10930			
ADONA	6.766	376.9 -> 250.9	58756	1.82	µg/L	98
		376.9 -> 84.8	12405			
HFPO-DA	5.940	284.9 -> 168.9	2807	2.02	µg/L	99
		284.9 -> 184.9	386			
3:3FTCA	3.841	241.0 -> 177.0	968	2.43	µg/L	99
		241.0 -> 117.0	141			
5:3FTCA	6.206	341.0 -> 237.1	35953	12.78	µg/L	99
		341.0 -> 217.0	30944			
7:3FTCA	7.605	441.0 -> 316.9	24409	13.28	µg/L	84
		441.0 -> 336.9	45143			
EtFOSA	10.927	526.0 -> 219.0	1917	0.51	µg/L	97
		526.0 -> 169.0	1936			
EtFOSE	10.860	630.0 -> 58.9	4431	4.80	µg/L	100
		511.9 -> 219.0	1637			
MeFOSA	10.682	511.9 -> 169.0	1674	0.54	µg/L	99
		616.1 -> 58.9	6073			
MeFOSE	10.602	699.1 -> 79.9	803	4.80	µg/L	100
		699.1 -> 98.8	562			
PFDoDS	9.945	295.0 -> 201.0	877	0.43	µg/L	86
		295.0 -> 84.9	412			
NFDHA	5.457	279.0 -> 85.1	2271	1.10	µg/L	94
		229.0 -> 84.9	2190			
PFMBA	4.800	314.8 -> 134.9	16903	0.99	µg/L	100
PFMPA	3.541	314.8 -> 82.9	401	1.01	µg/L	100
PFEESA	6.059			0.87	µg/L	100

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

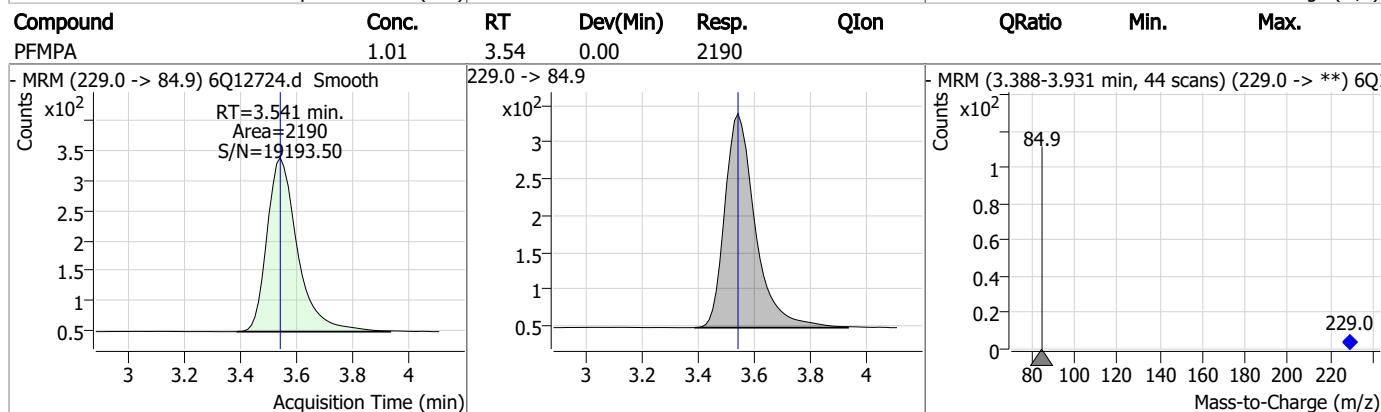
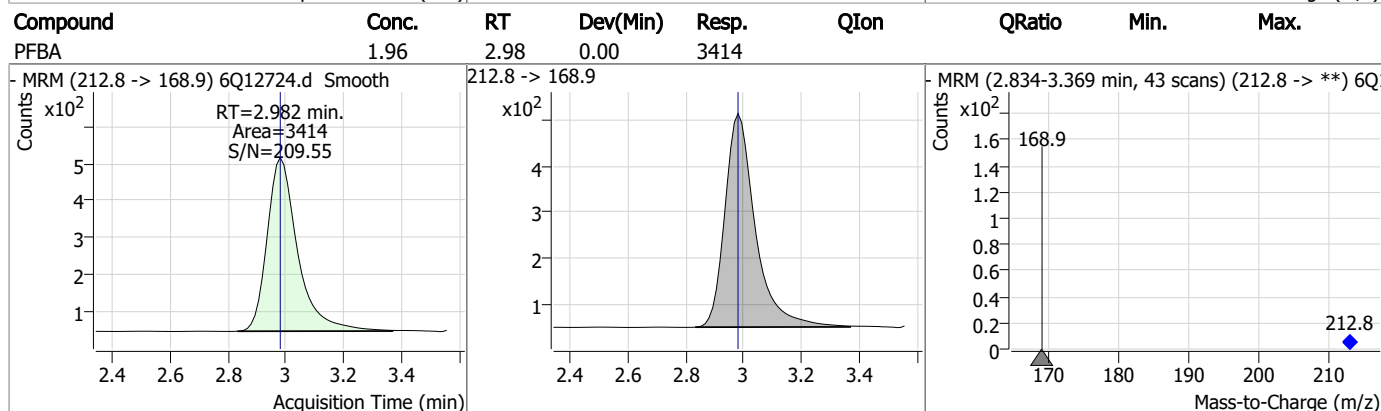
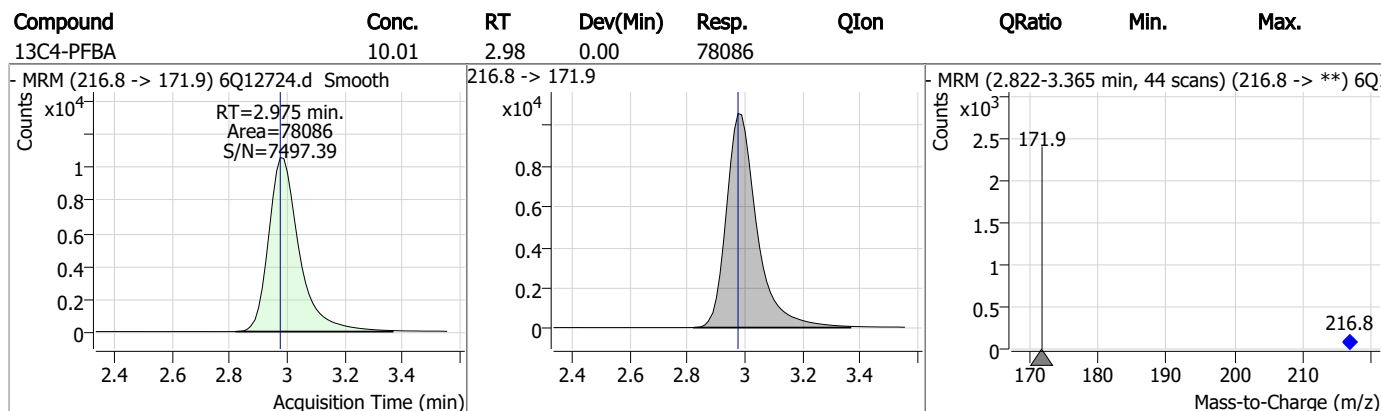
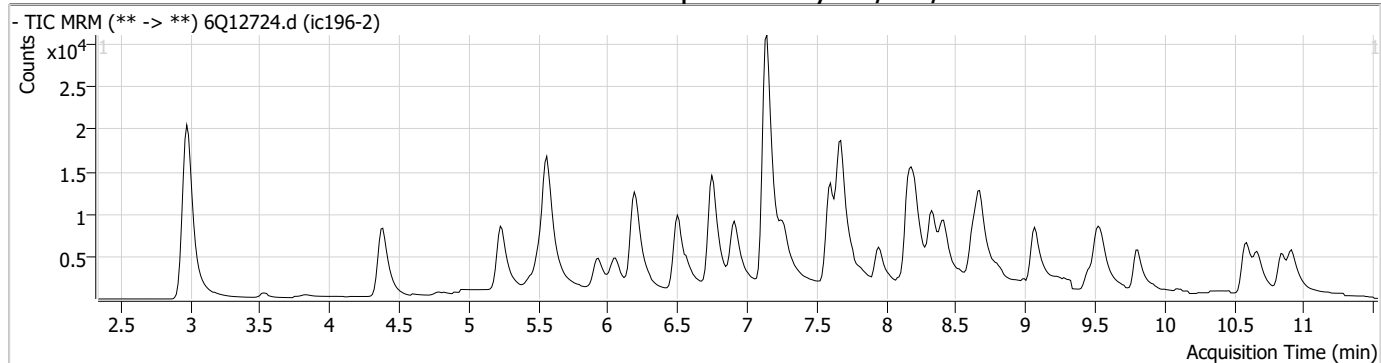
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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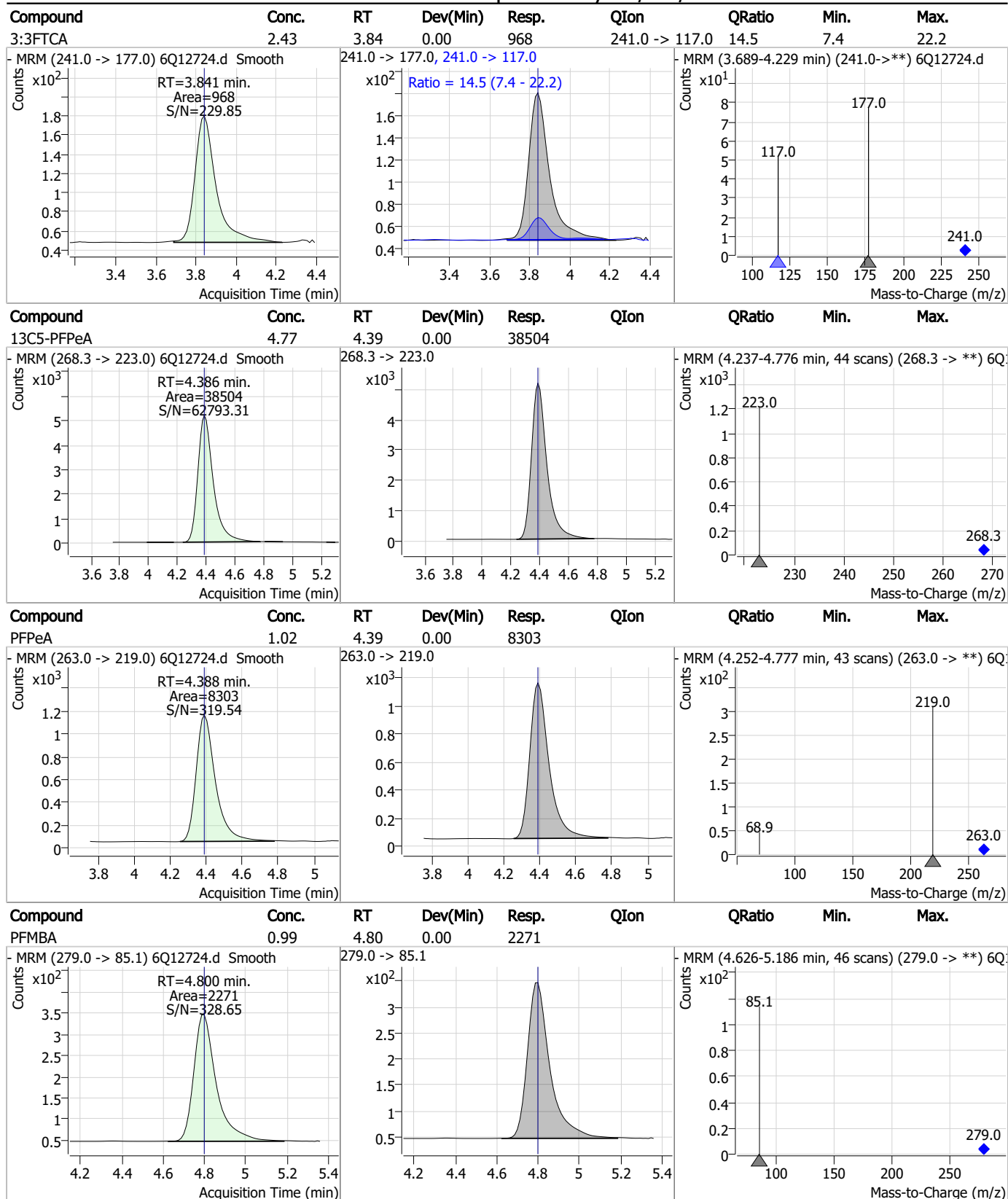
7.7.3  
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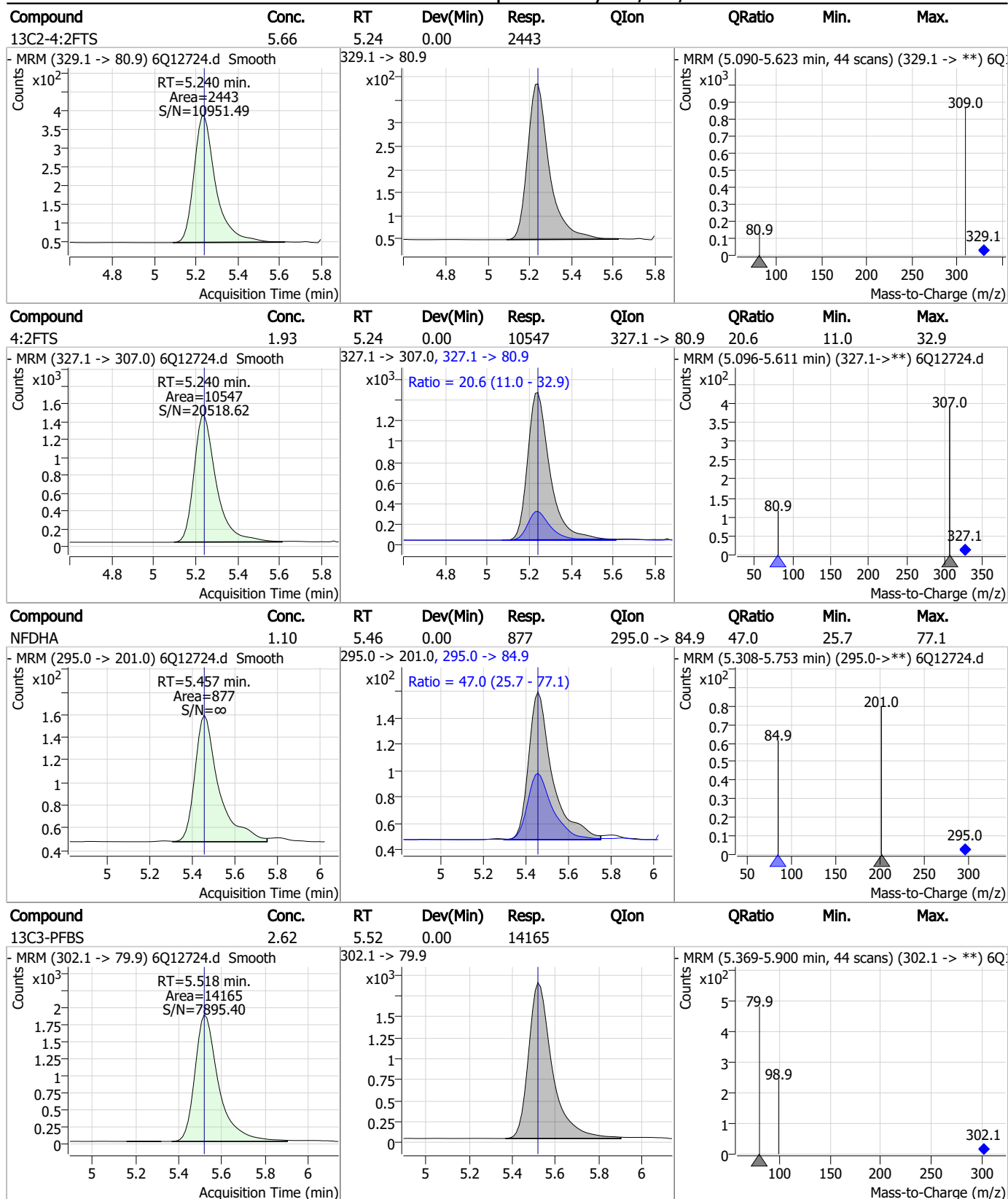
## Perfluorinated Compounds by LC/MS/MS



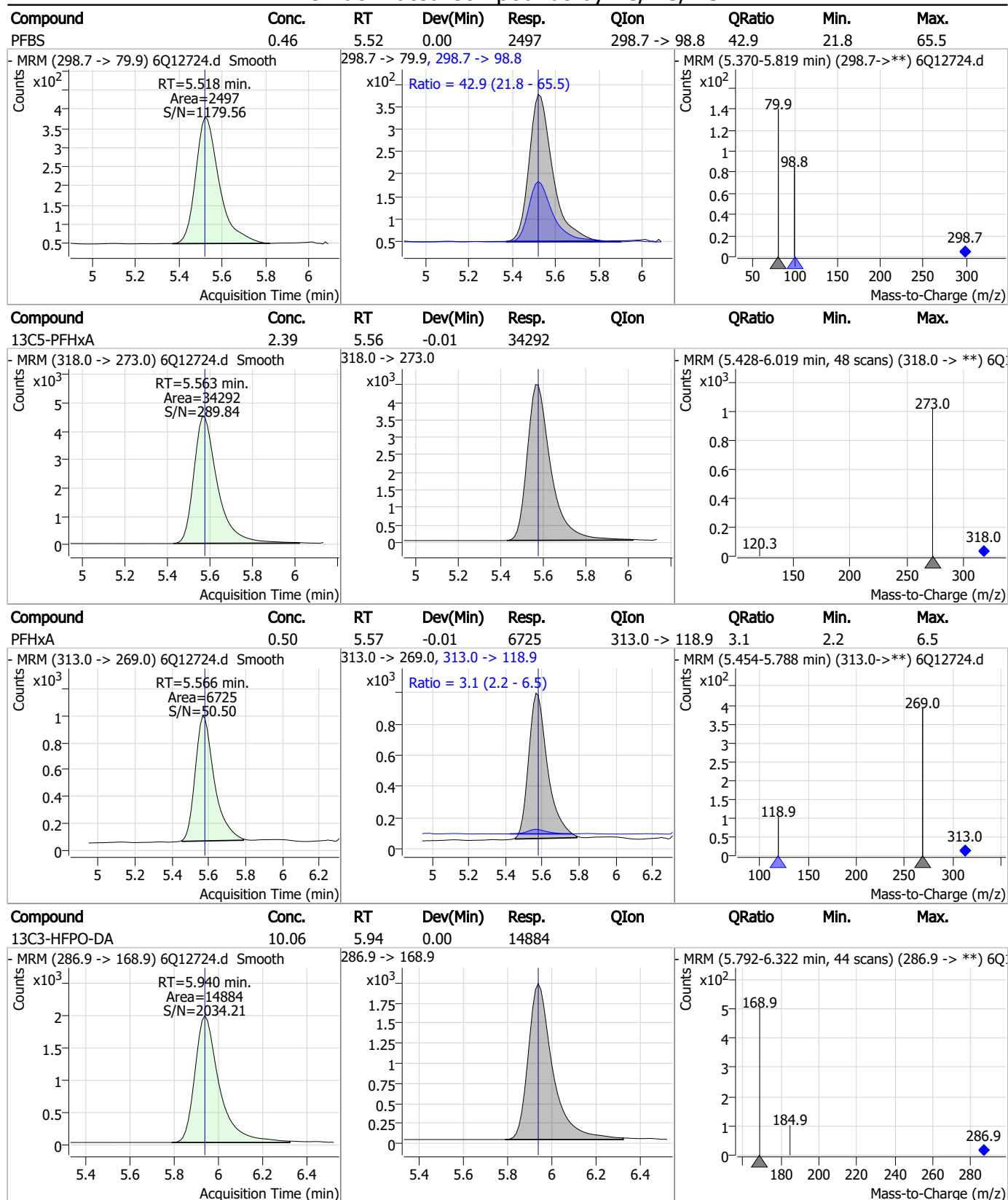
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

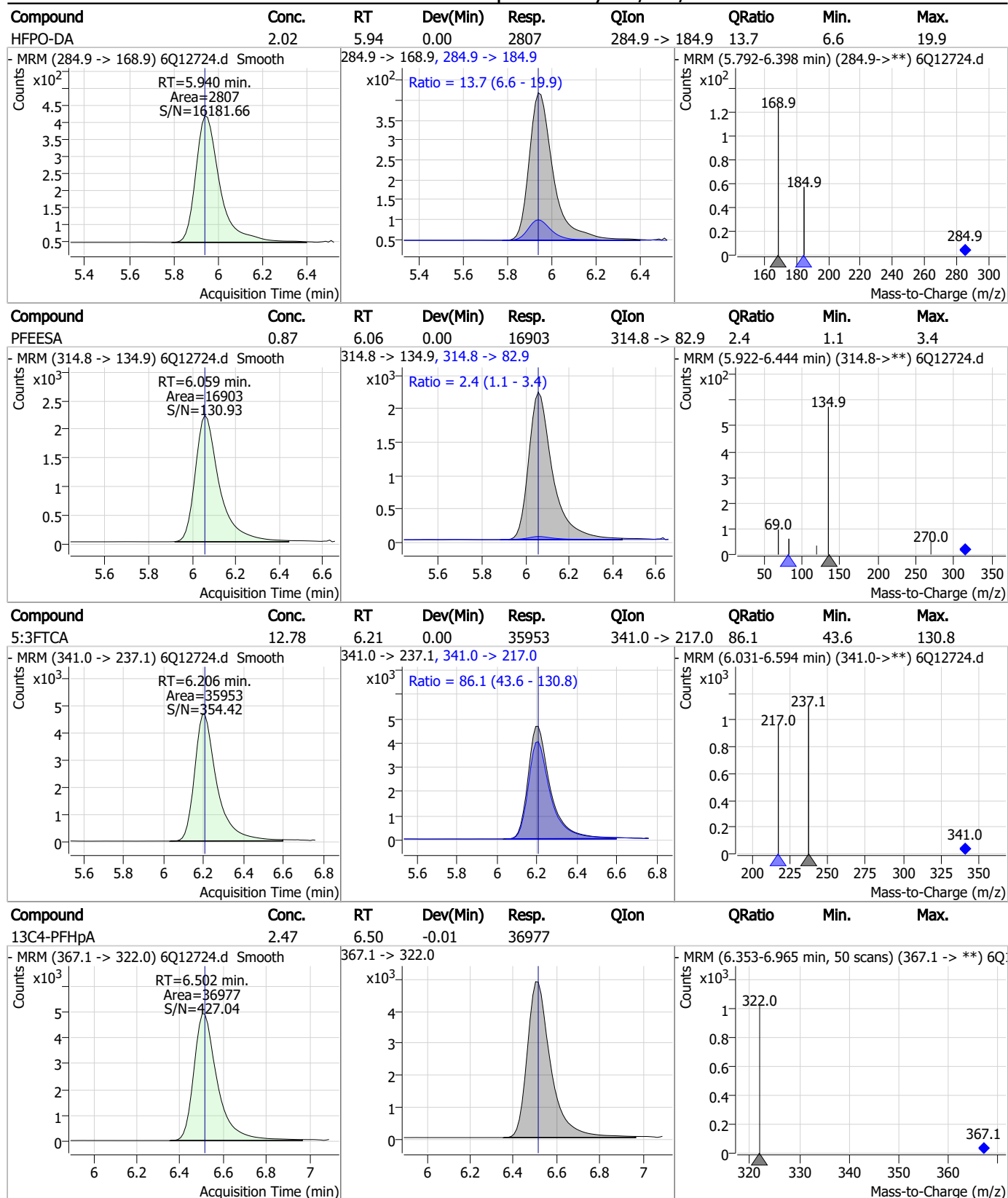


## Perfluorinated Compounds by LC/MS/MS

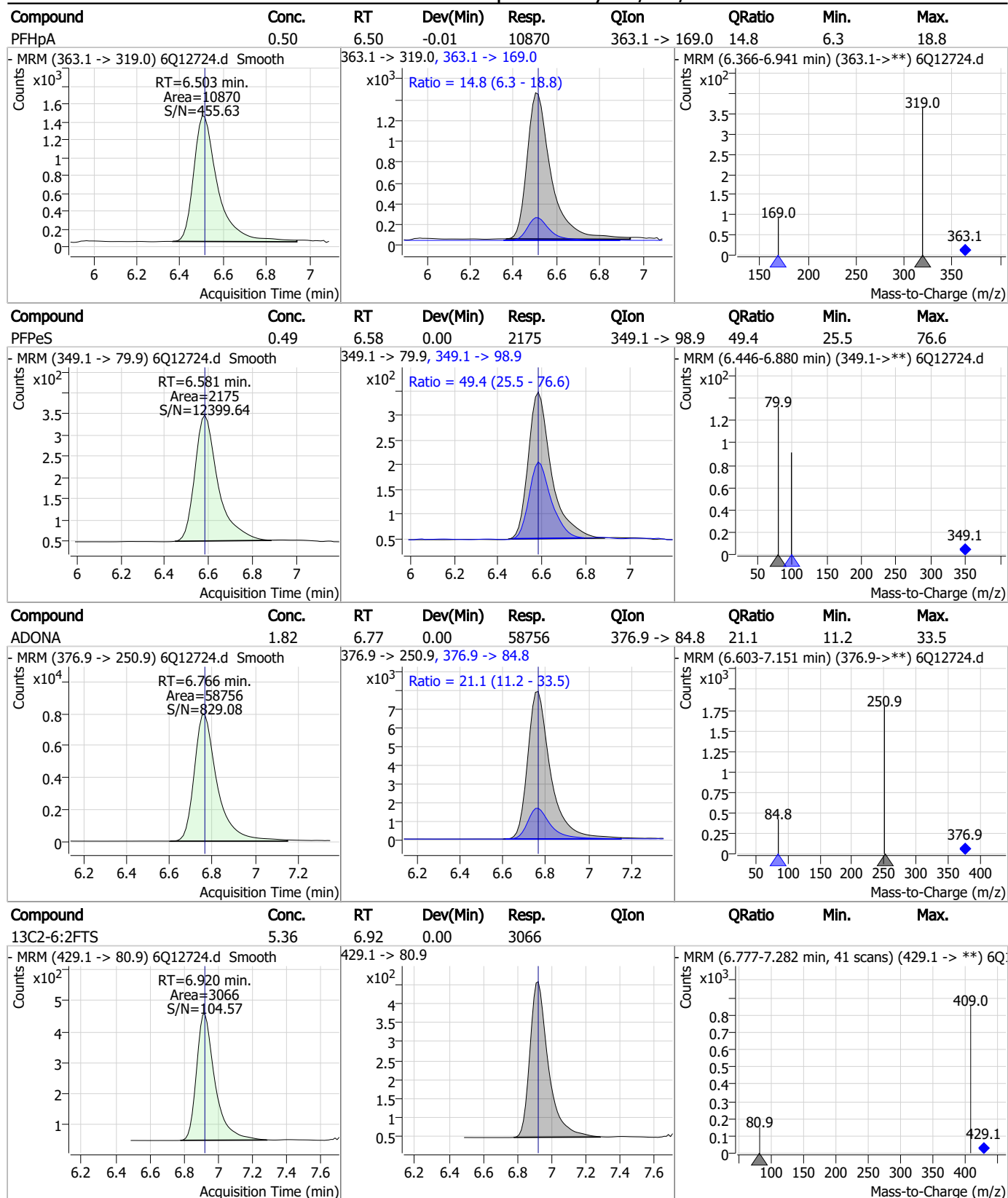




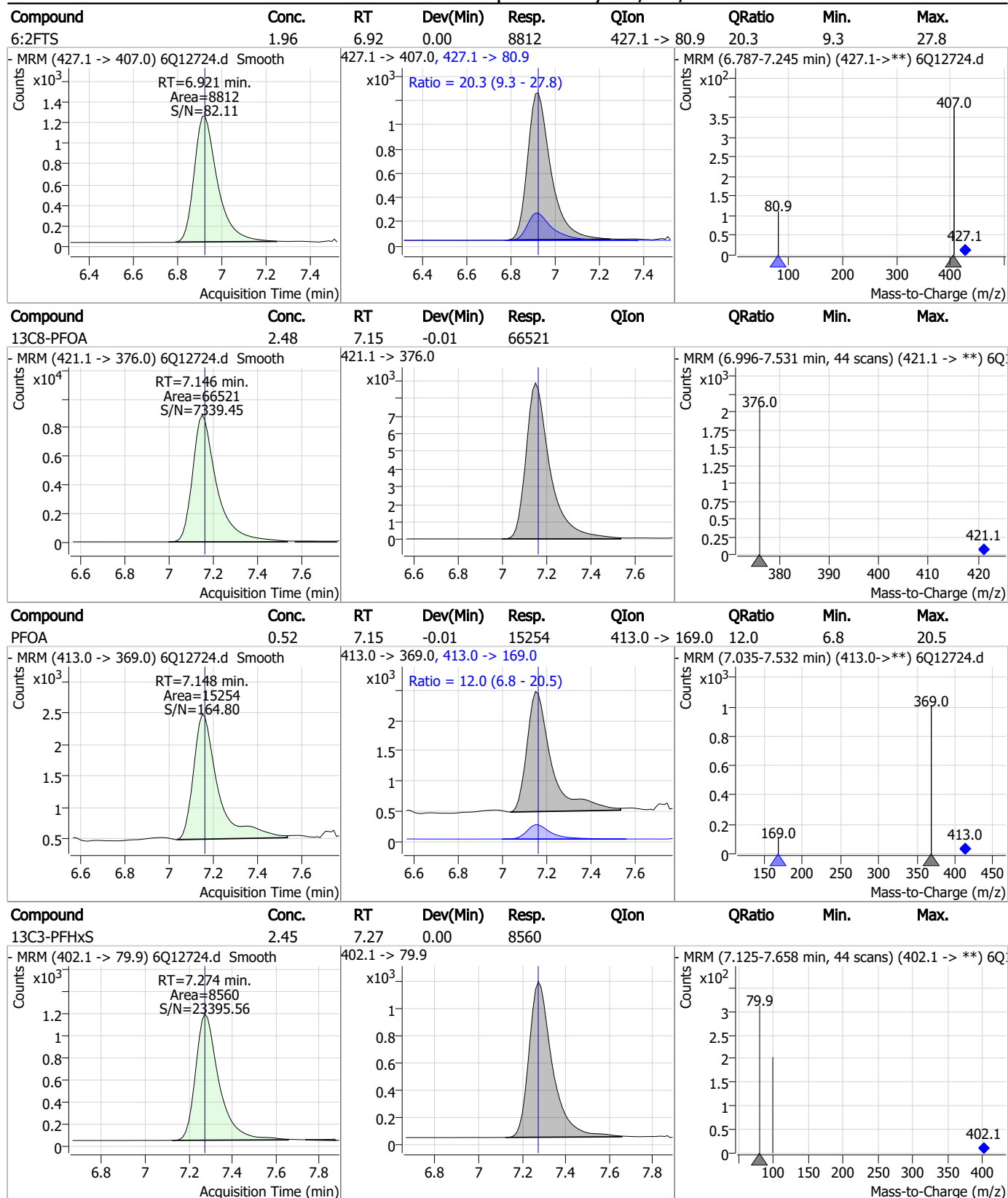
## Perfluorinated Compounds by LC/MS/MS



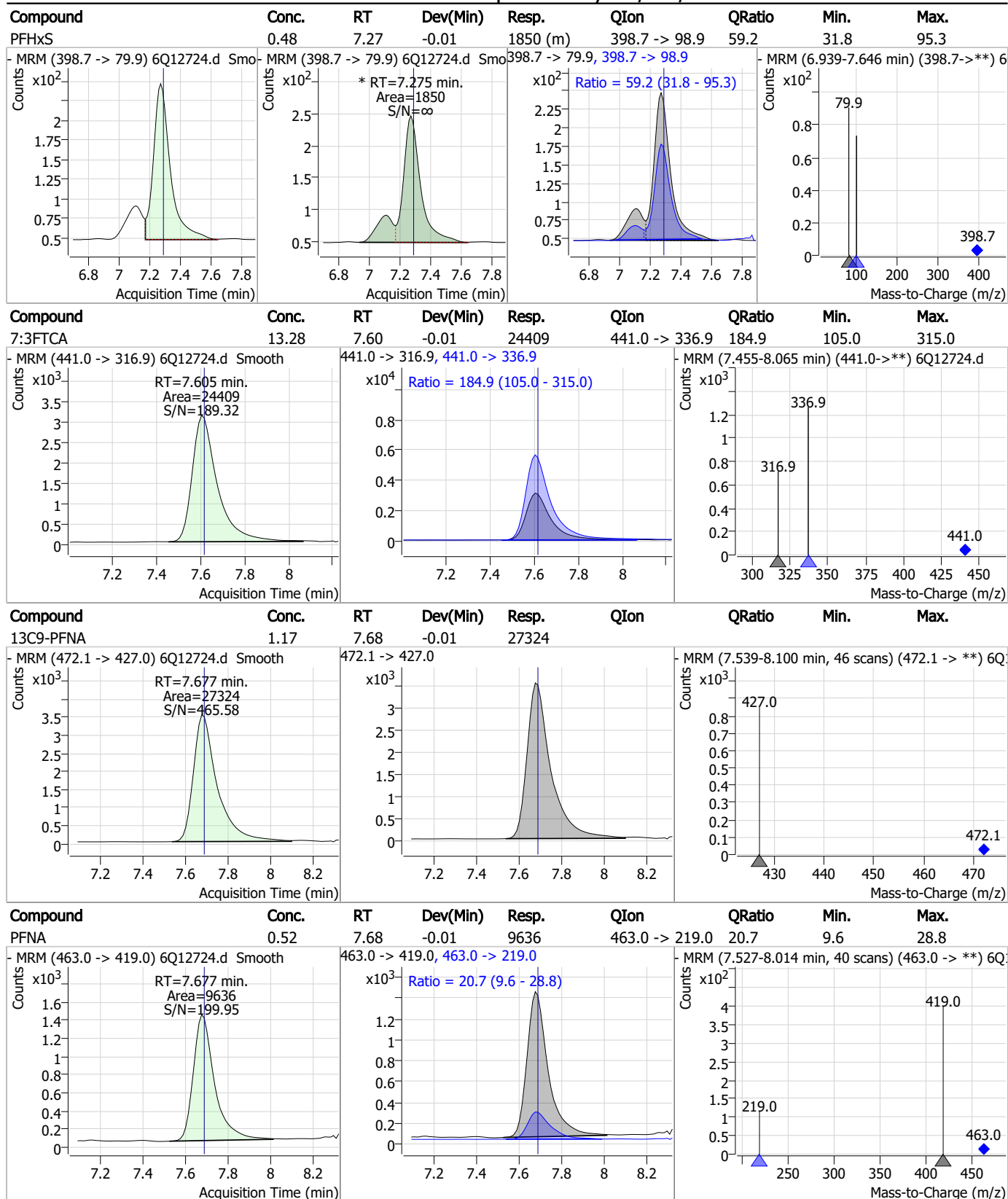
## Perfluorinated Compounds by LC/MS/MS



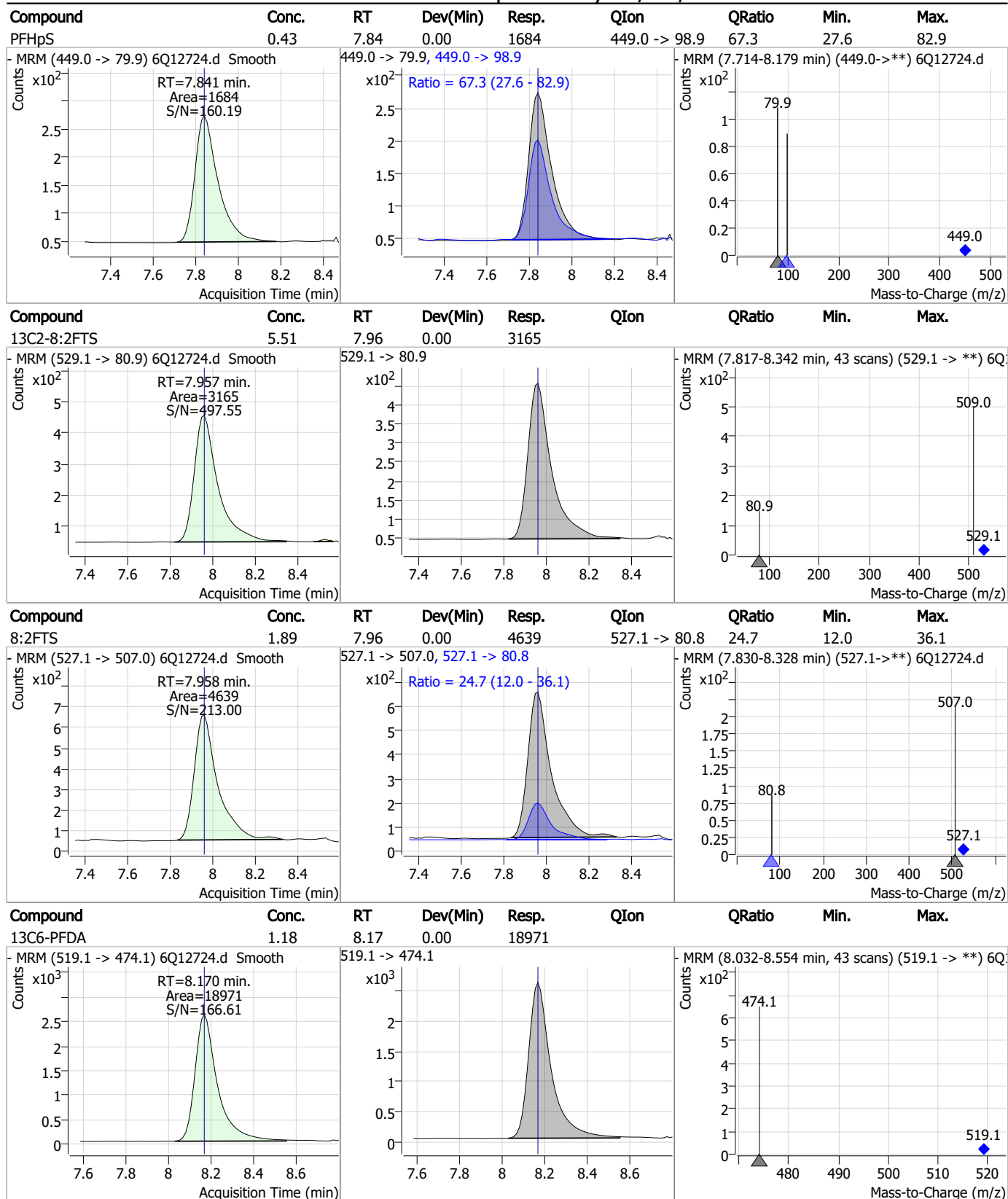
## Perfluorinated Compounds by LC/MS/MS



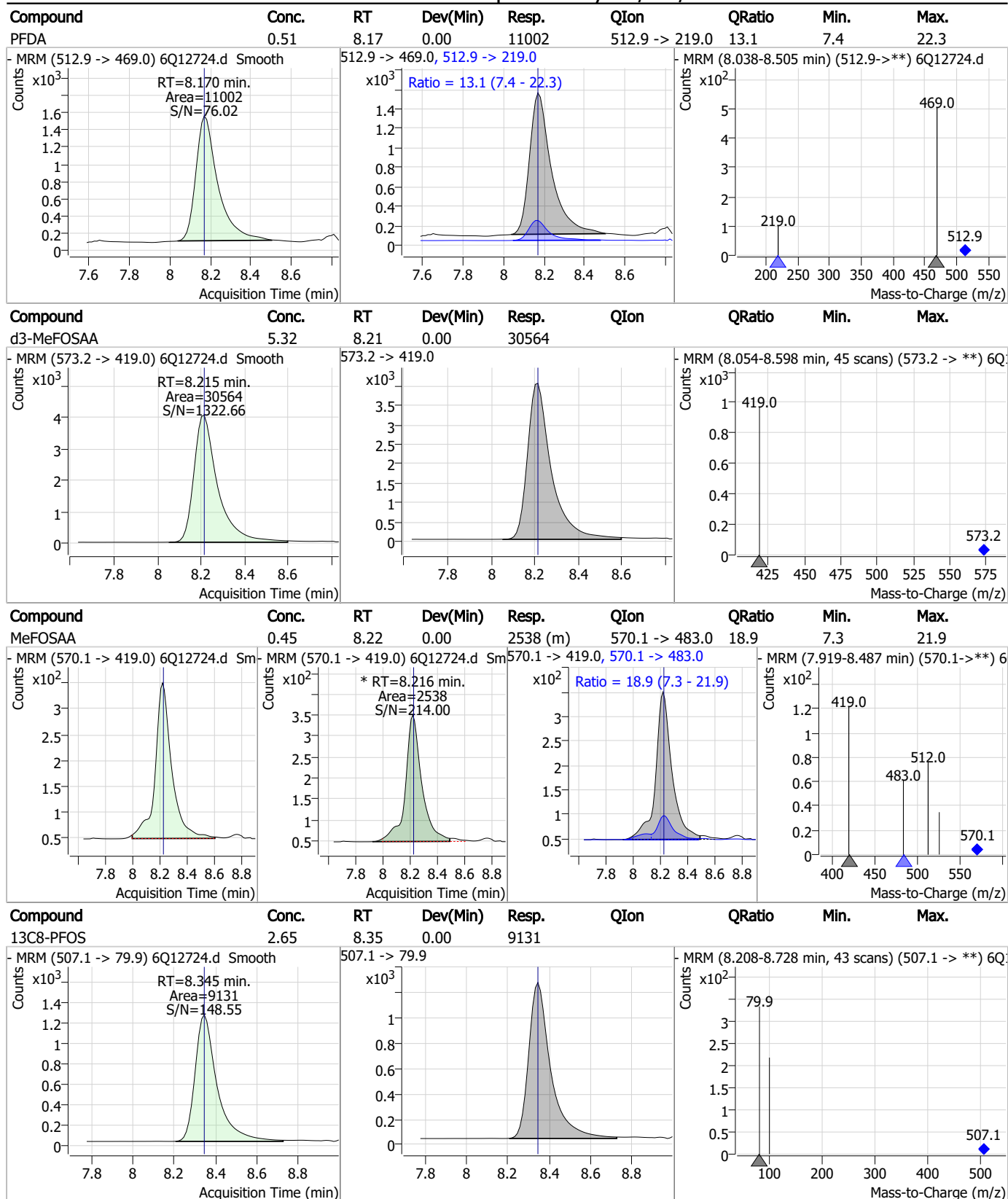
## Perfluorinated Compounds by LC/MS/MS



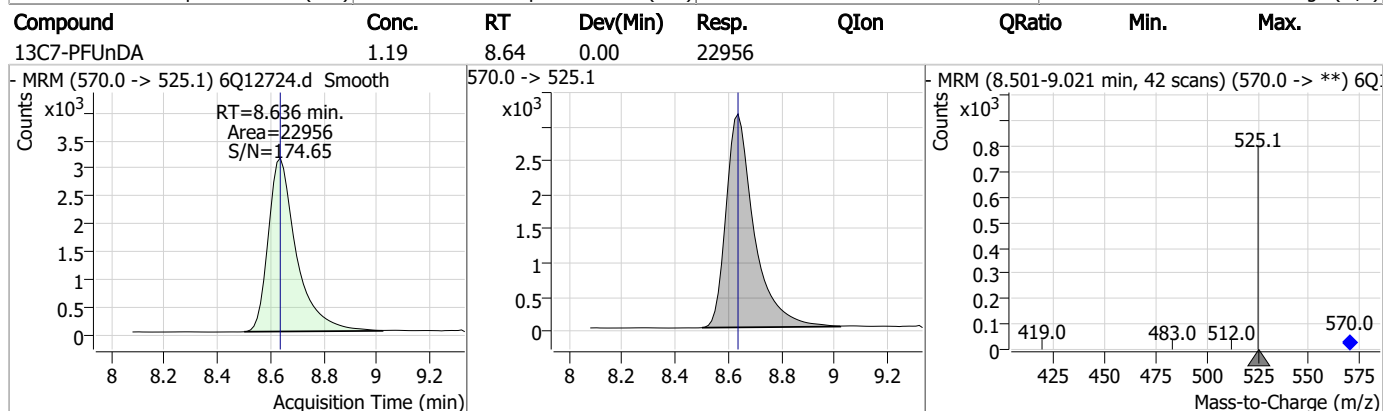
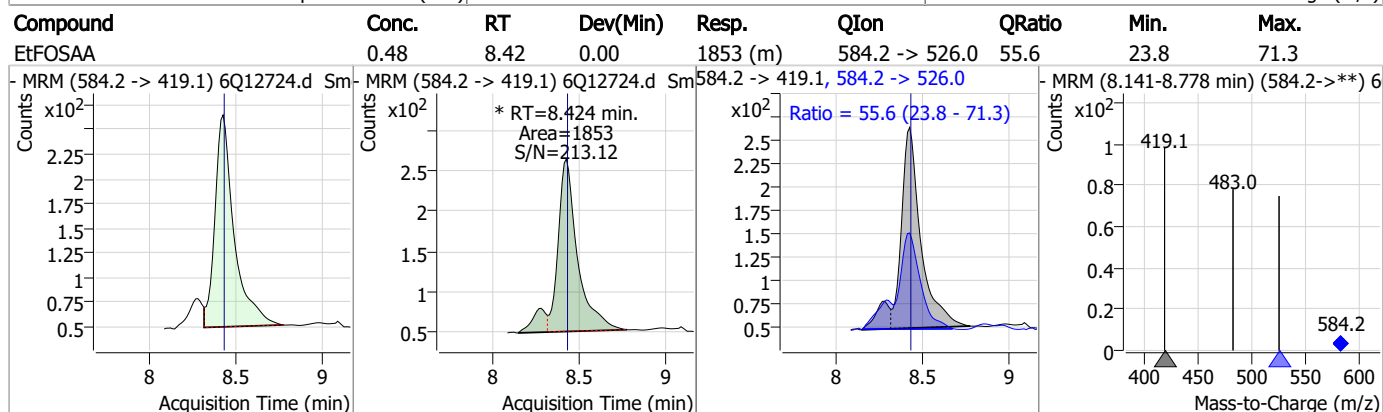
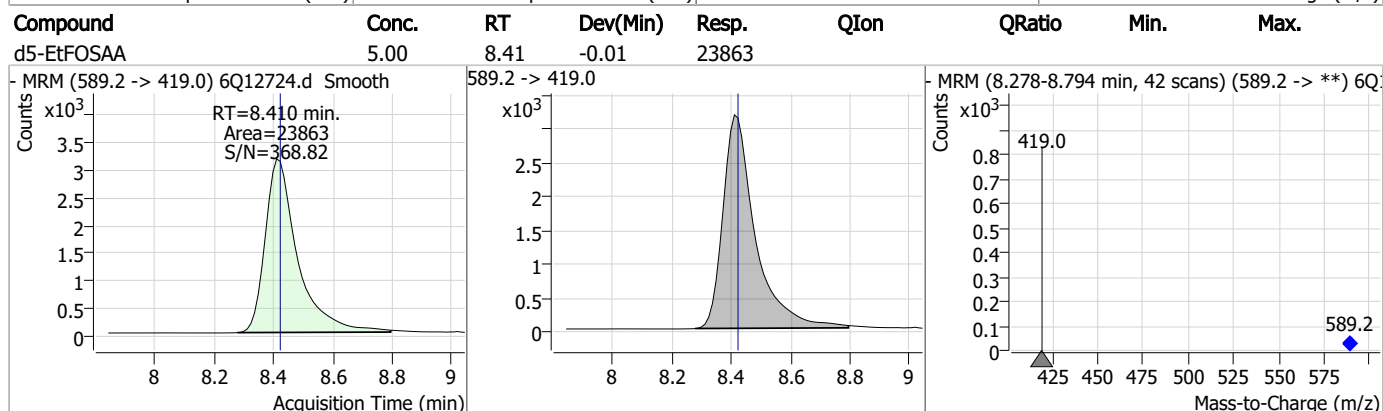
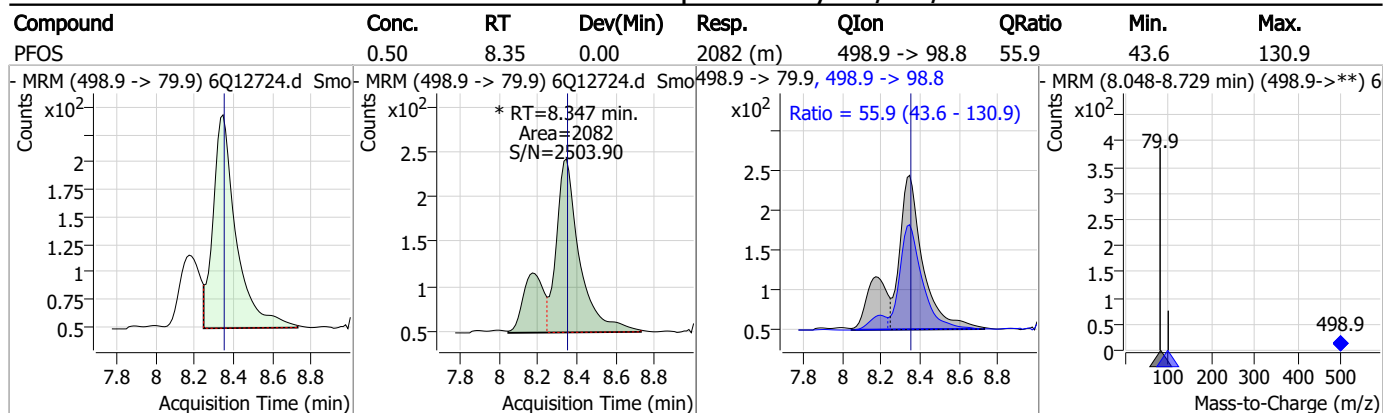
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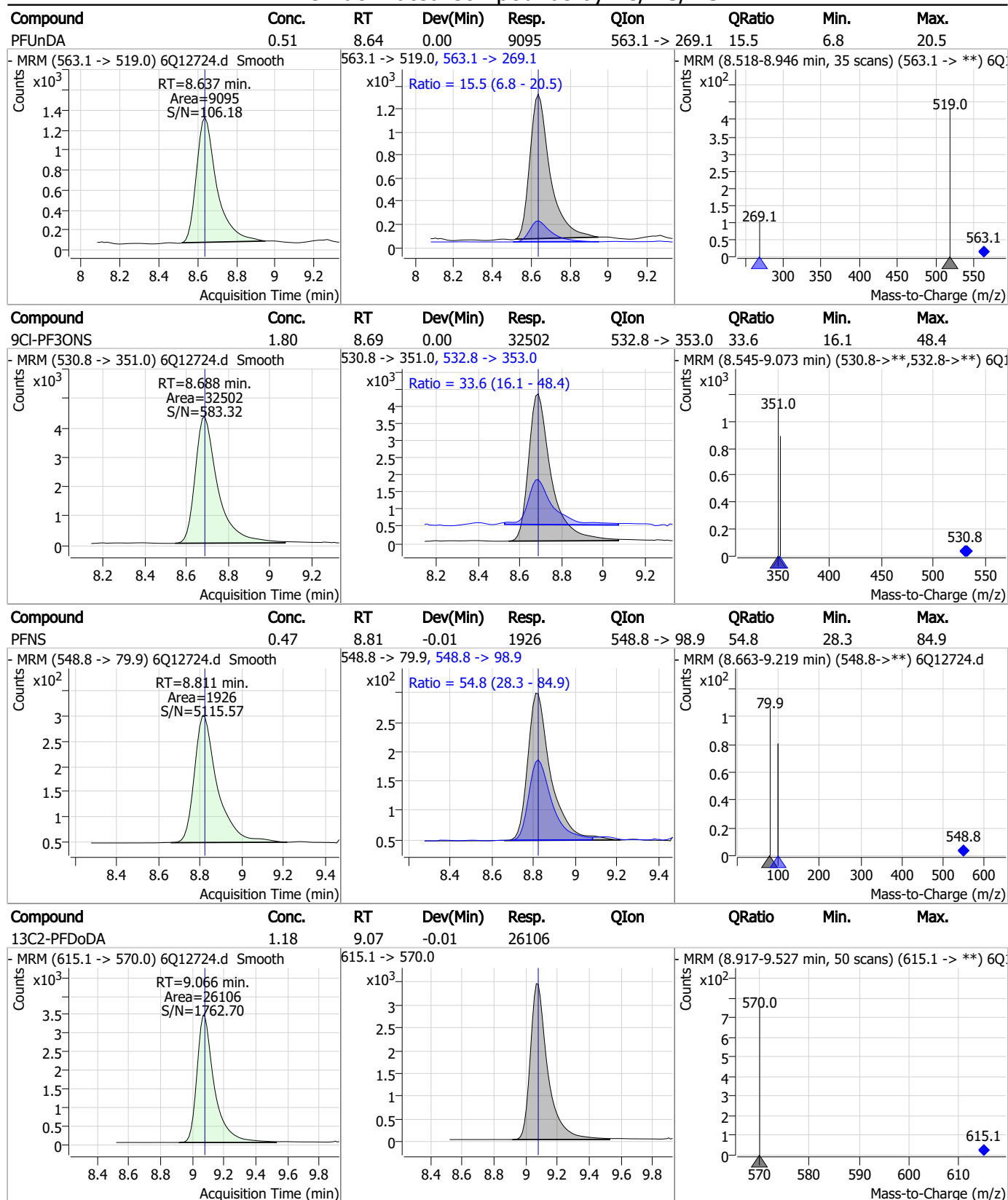
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

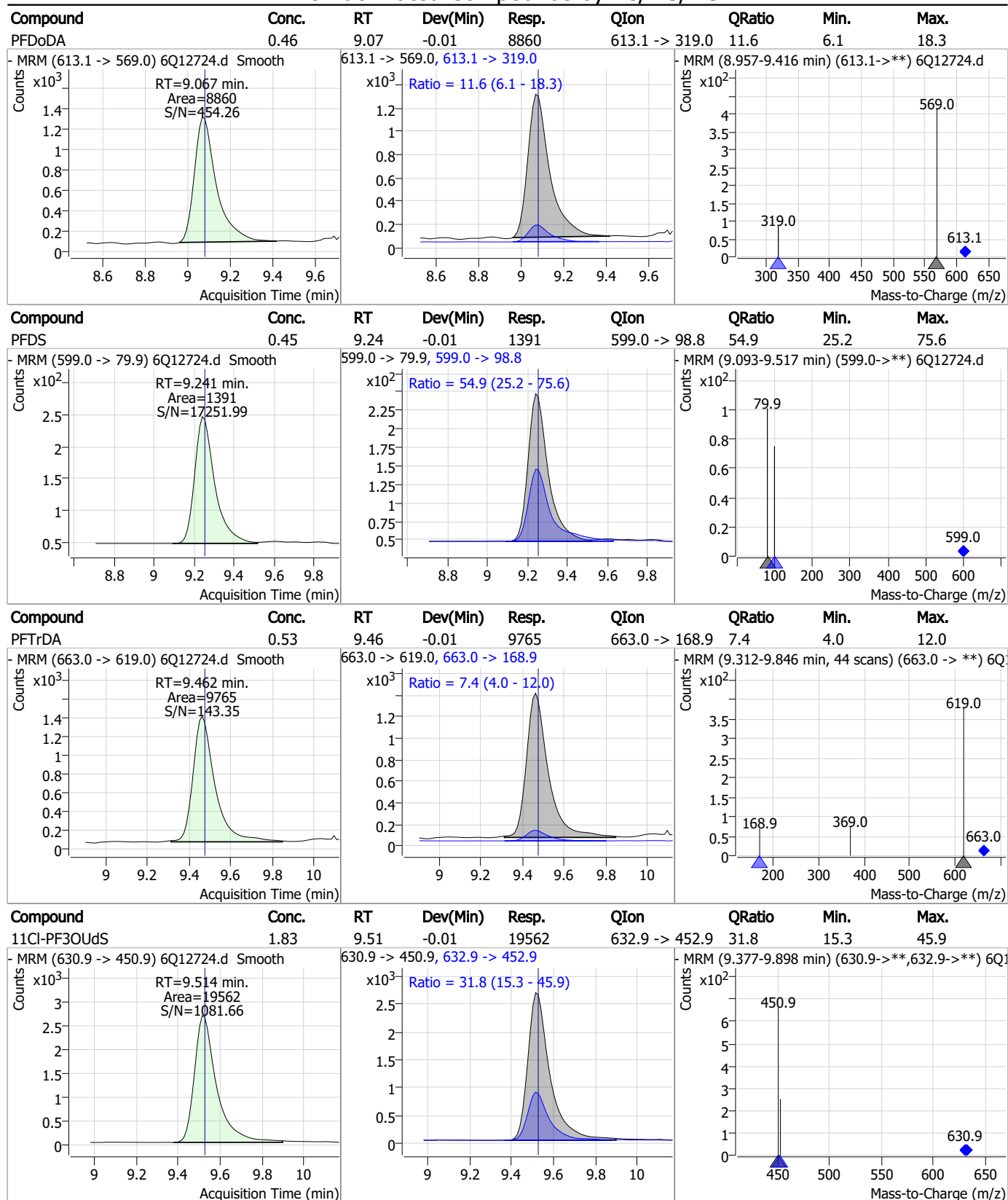


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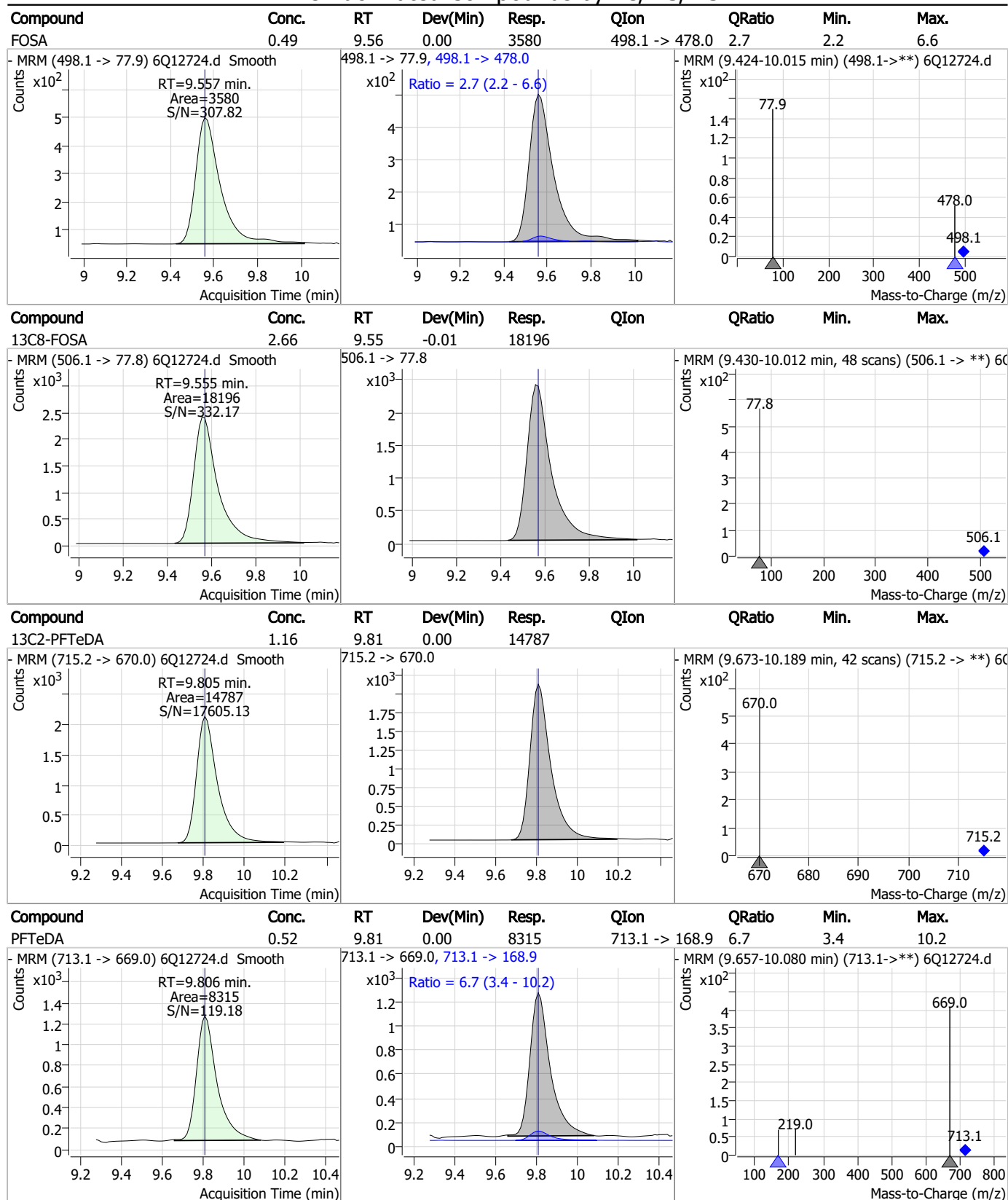




## Perfluorinated Compounds by LC/MS/MS



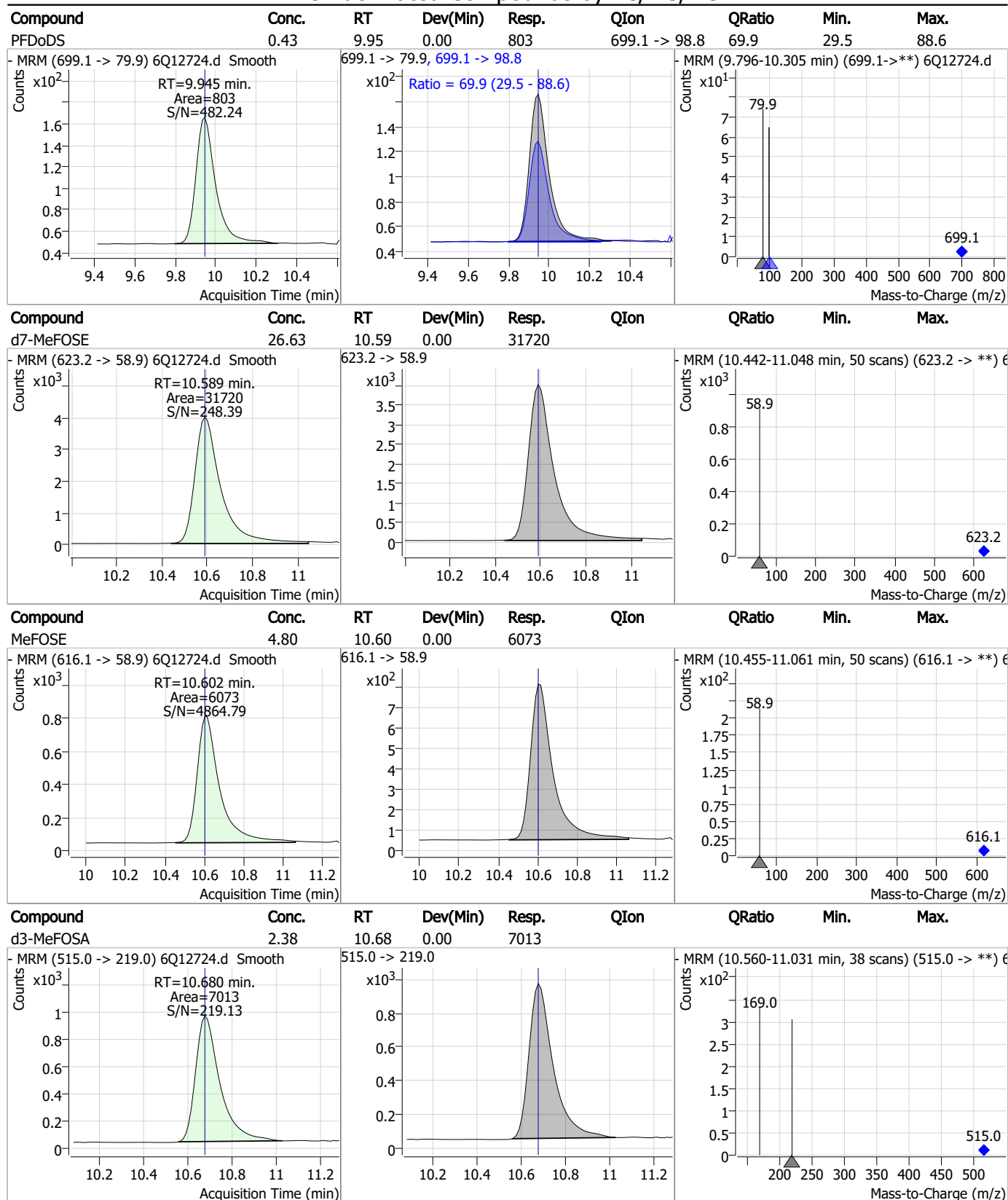
## Perfluorinated Compounds by LC/MS/MS



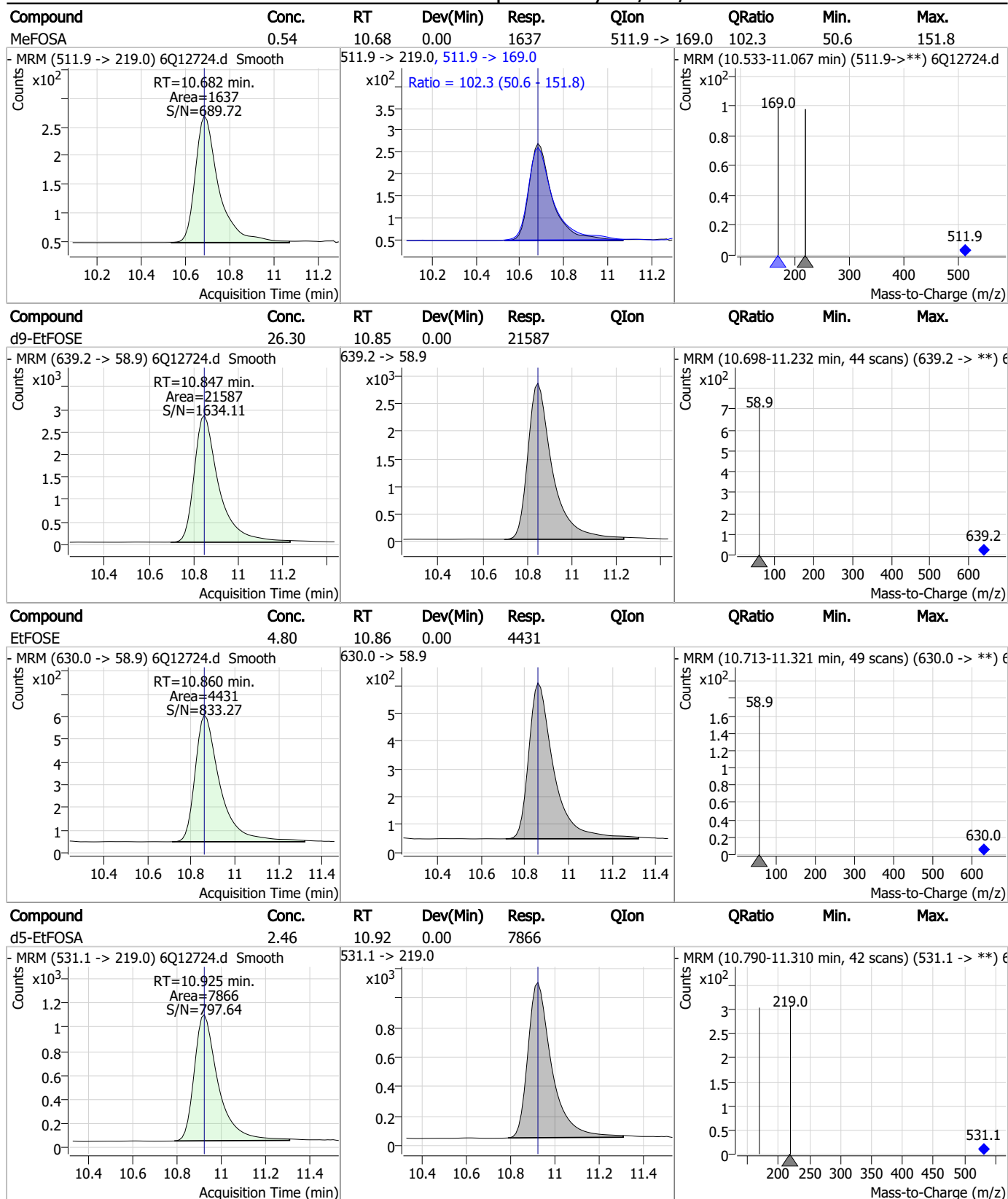
7.7.3

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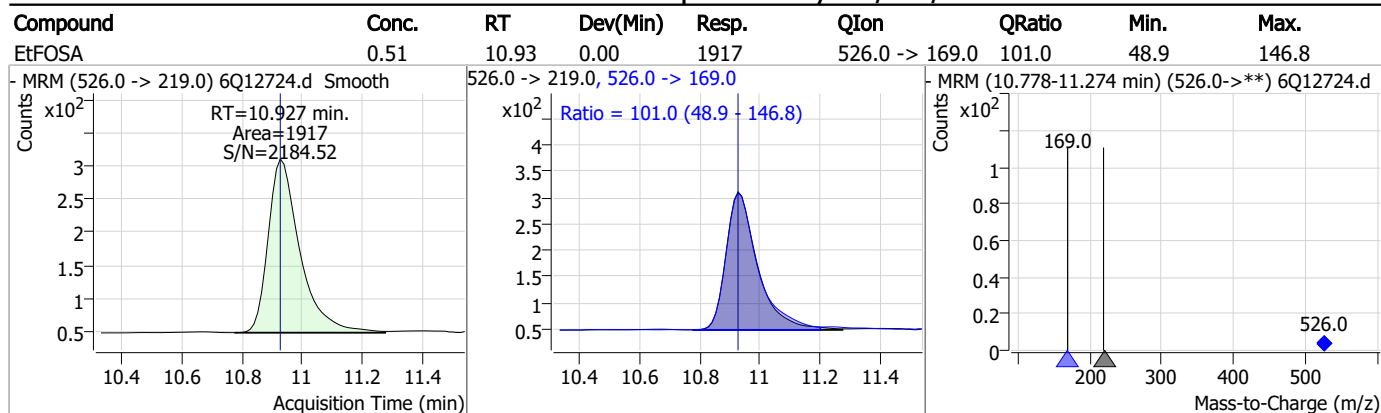
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Manual Integration Approval Summary

Sample Number: S6Q196-IC196

Method: EPA DRAFT 1633

Lab FileID: 6Q12724.D

Analyst approved: 02/02/23 11:53 Martha Valls

Injection Time: 02/01/23 18:05

Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.3.1  
7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12725.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/1/2023 6:19:14 PM  
 Sample Name : ic196-3  
 Vial : P1-A4  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : S6Q196.batch.bin  
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	83559	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	42864	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	37432	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	39421	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	69413	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	31229	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	20644	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	25039	1.25 µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	28131	1.25 µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	15794	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	18922	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	15041	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9290	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8852	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2701	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	3398	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	3416	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	30910	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	15605	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	23303	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	33495	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	23099	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8605	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7700	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	11388	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	37478	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	7219	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	85517	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	29078	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	32956	1.25 µg/L	-0.012
13C2-PFHxA	5.576	315.1 -> 270.0	36195	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2701	5.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.1%		
13C2-6:2FTS	6.920	429.1 -> 80.9	3398	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3416	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C2-PFDoDA	9.078	615.1 -> 570.0	28131	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15794	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C3-PFBS	5.518	302.1 -> 79.9	15041	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C3-PFHxS	7.274	402.1 -> 79.9	9290	2.45 µg/L	0.000

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C4-PFBA	2.975	216.8 -> 171.9	83559	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.502	367.1 -> 322.0	39421	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C5-PFHxA	5.563	318.0 -> 273.0	37432	2.61 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C5-PFPeA	4.386	268.3 -> 223.0	42864	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C6-PFDA	8.170	519.1 -> 474.1	20644	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C7-PFUnDA	8.636	570.0 -> 525.1	25039	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C8-FOSA	9.567	506.1 -> 77.8	18922	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C8-PFOA	7.146	421.1 -> 376.0	69413	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C8-PFOS	8.345	507.1 -> 79.9	8852	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C9-PFNA	7.677	472.1 -> 427.0	31229	1.35 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.7%	
d3-MeFOSAA	8.215	573.2 -> 419.0	30910	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	15605	10.55 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
d3-MeFOSA	10.680	515.0 -> 219.0	7700	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
d5-EtFOSAA	8.410	589.2 -> 419.0	23303	4.50 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.0%	
d7-MeFOSE	10.589	623.2 -> 58.9	33495	25.90 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
d9-EtFOSE	10.847	639.2 -> 58.9	23099	25.92 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
d5-EtFOSA	10.925	531.1 -> 219.0	8605	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.240	327.1 -> 307.0	25354	4.19 µg/L	99
		327.1 -> 80.9	5722		
6:2FTS	6.921	427.1 -> 407.0	21779	4.38 µg/L	95
		427.1 -> 80.9	4518		
8:2FTS	7.958	527.1 -> 507.0	12521	4.72 µg/L	100
		527.1 -> 80.8	3021		
EtFOSAA	8.424	584.2 -> 419.1	4998	1.34 µg/L	m 94
		584.2 -> 526.0	2590		
FOSA	9.557	498.1 -> 77.9	8967	1.19 µg/L	98
		498.1 -> 478.0	344		
MeFOSAA	8.216	570.1 -> 419.0	6523	1.15 µg/L	#m 80
		570.1 -> 483.0	1493		
PFBA	2.982	212.8 -> 168.9	8618	4.62 µg/L	100
PFBS	5.518	298.7 -> 79.9	5820	1.01 µg/L	94
		298.7 -> 98.8	2777		
PFDA	8.170	512.9 -> 469.0	28617	1.22 µg/L	99
		512.9 -> 219.0	4136		
PFDODA	9.079	613.1 -> 569.0	24613	1.19 µg/L	98
		613.1 -> 319.0	2855		
PFDS	9.253	599.0 -> 79.9	3526	1.18 µg/L	99



## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.515	599.0 -> 98.8	1810	1.14	µg/L	93
		363.1 -> 319.0	26544			
PFHpS	7.841	363.1 -> 169.0	4025	1.20	µg/L	93
		449.0 -> 79.9	4490			
PFHxA	5.578	449.0 -> 98.9	2722	1.18	µg/L	98
		313.0 -> 269.0	17365			
PFHxS	7.275	313.0 -> 118.9	629	1.19	µg/L	87
		398.7 -> 79.9	4961			
PFNA	7.677	398.7 -> 98.9	2645	1.10	µg/L	99
		463.0 -> 419.0	23103			
PFNS	8.824	463.0 -> 219.0	4361	1.23	µg/L	96
		548.8 -> 79.9	4844			
PFOA	7.148	548.8 -> 98.9	2900	1.30	µg/L	96
		413.0 -> 369.0	39836			
PFOS	8.347	413.0 -> 169.0	4706	1.20	µg/L	71
		498.9 -> 79.9	4883			
PFPeA	4.388	498.9 -> 98.8	2939	2.29	µg/L	100
		263.0 -> 219.0	20749			
PFPeS	6.581	349.1 -> 79.9	5740	1.18	µg/L	98
		349.1 -> 98.9	3022			
PFTeDA	9.806	713.1 -> 669.0	21121	1.24	µg/L	100
		713.1 -> 168.9	1459			
PFTrDA	9.462	663.0 -> 619.0	24628	1.25	µg/L	99
		663.0 -> 168.9	2051			
PFUnDA	8.637	563.1 -> 519.0	22690	1.16	µg/L	99
		563.1 -> 269.1	3238			
11CI-PF3OUdS	9.526	630.9 -> 450.9	50683	4.53	µg/L	99
		632.9 -> 452.9	15719			
9CI-PF3ONS	8.688	530.8 -> 351.0	89556	4.73	µg/L	93
		532.8 -> 353.0	25272			
ADONA	6.766	376.9 -> 250.9	147183	4.35	µg/L	100
		376.9 -> 84.8	33121			
HFPO-DA	5.940	284.9 -> 168.9	6847	4.69	µg/L	99
		284.9 -> 184.9	927			
3:3FTCA	3.841	241.0 -> 177.0	2515	5.66	µg/L	98
		241.0 -> 117.0	348			
5:3FTCA	6.206	341.0 -> 237.1	93751	30.54	µg/L	98
		341.0 -> 217.0	79652			
7:3FTCA	7.605	441.0 -> 316.9	57548	28.68	µg/L	96
		441.0 -> 336.9	117369			
EtFOSA	10.927	526.0 -> 219.0	4943	1.20	µg/L	99
		526.0 -> 169.0	4800			
EtFOSE	10.860	630.0 -> 58.9	10828	10.95	µg/L	100
		511.9 -> 219.0	4230			
MeFOSA	10.682	511.9 -> 169.0	3878	1.27	µg/L	91
		616.1 -> 58.9	14079			
MeFOSE	10.602	699.1 -> 79.9	2404	10.54	µg/L	100
		699.1 -> 98.8	1389			
PFDoDS	9.945	295.0 -> 201.0	1954	2.25	µg/L	97
		295.0 -> 84.9	1043			
NFDHA	5.457	279.0 -> 85.1	5881	2.31	µg/L	100
		229.0 -> 84.9	5607			
PFMBA	3.541	314.8 -> 134.9	42639	2.32	µg/L	100
		314.8 -> 82.9	1082			
PFEESA	6.059			2.02	µg/L	99

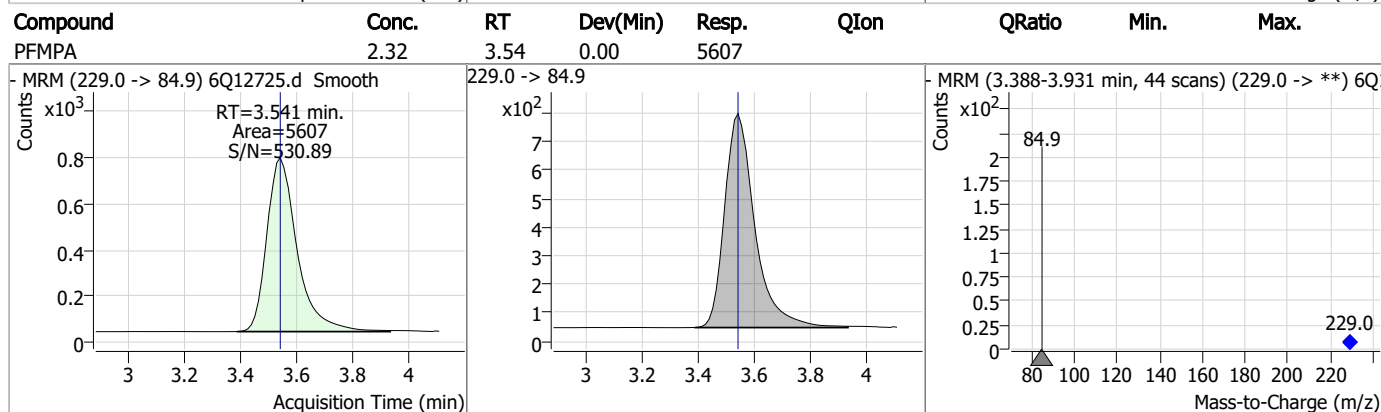
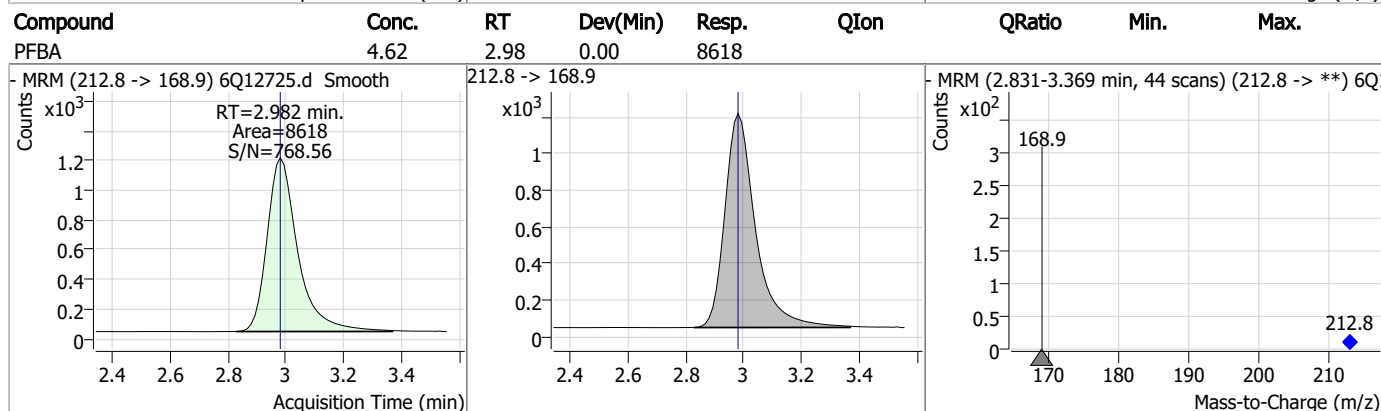
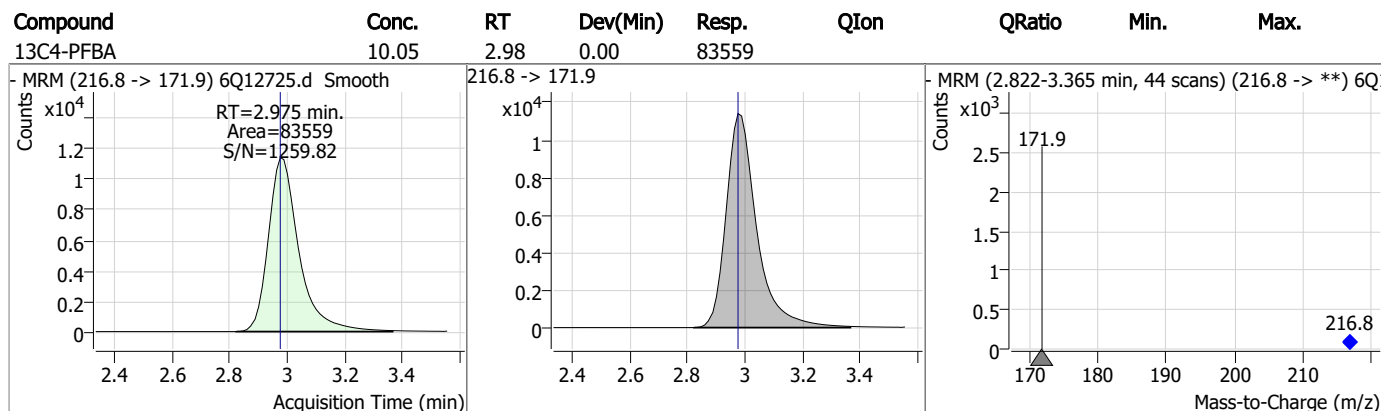
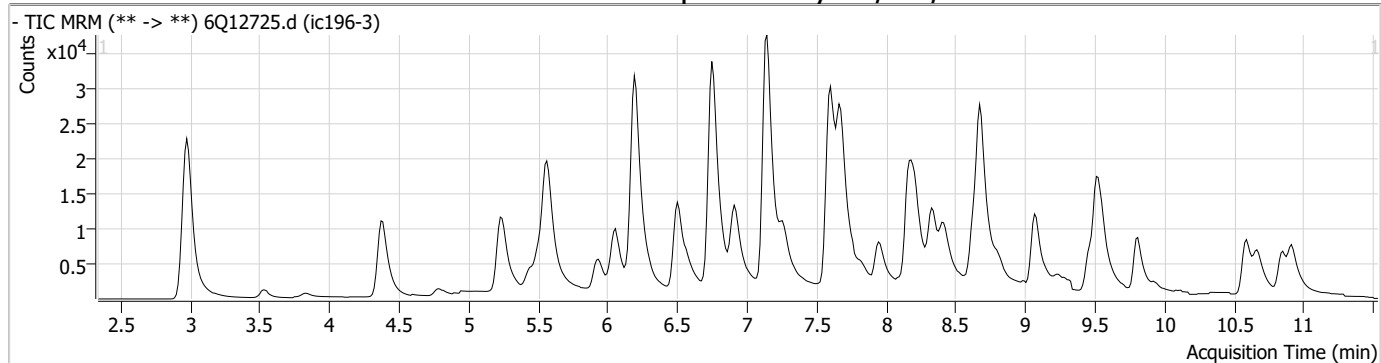
# = Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

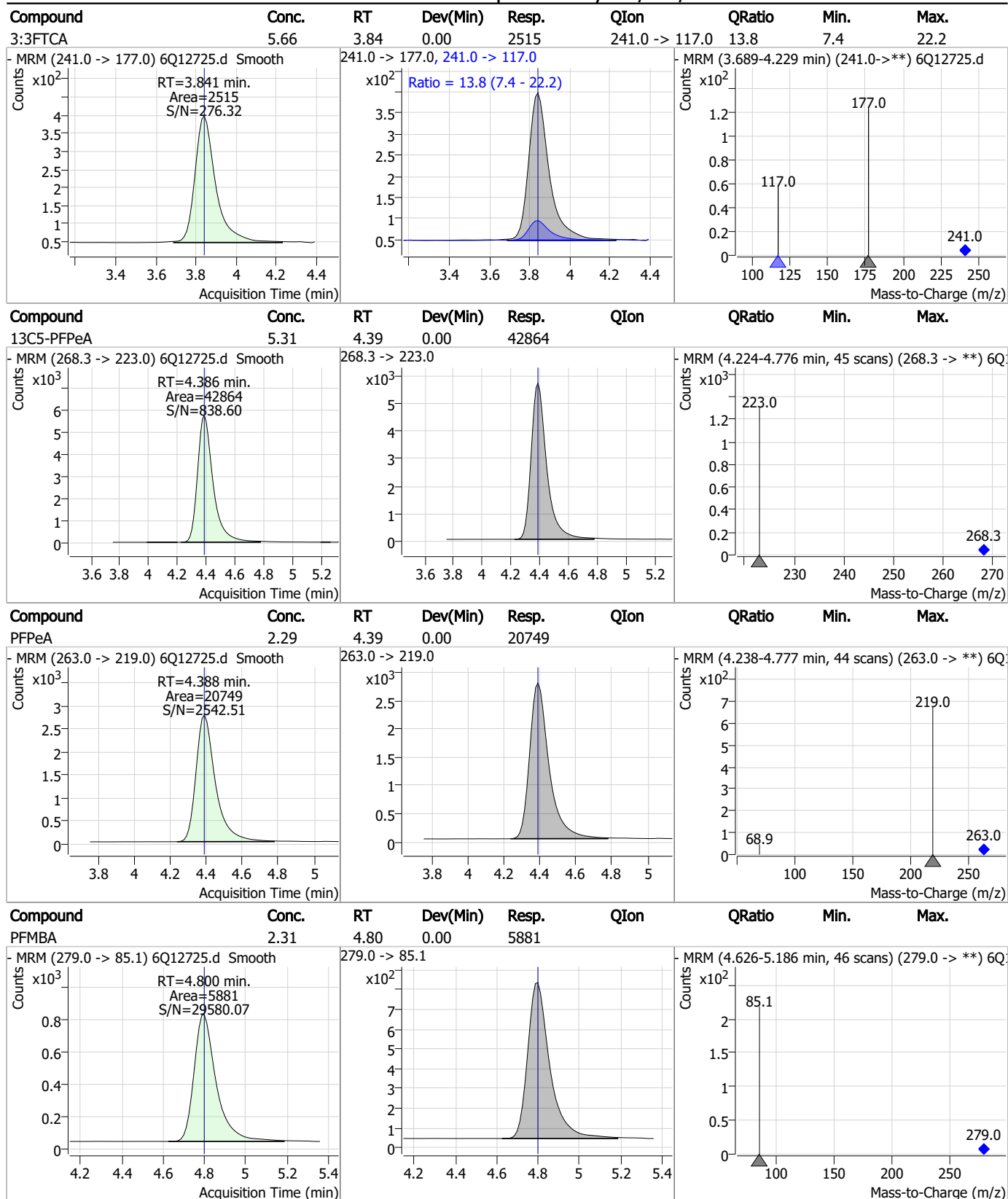
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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7.7.4  
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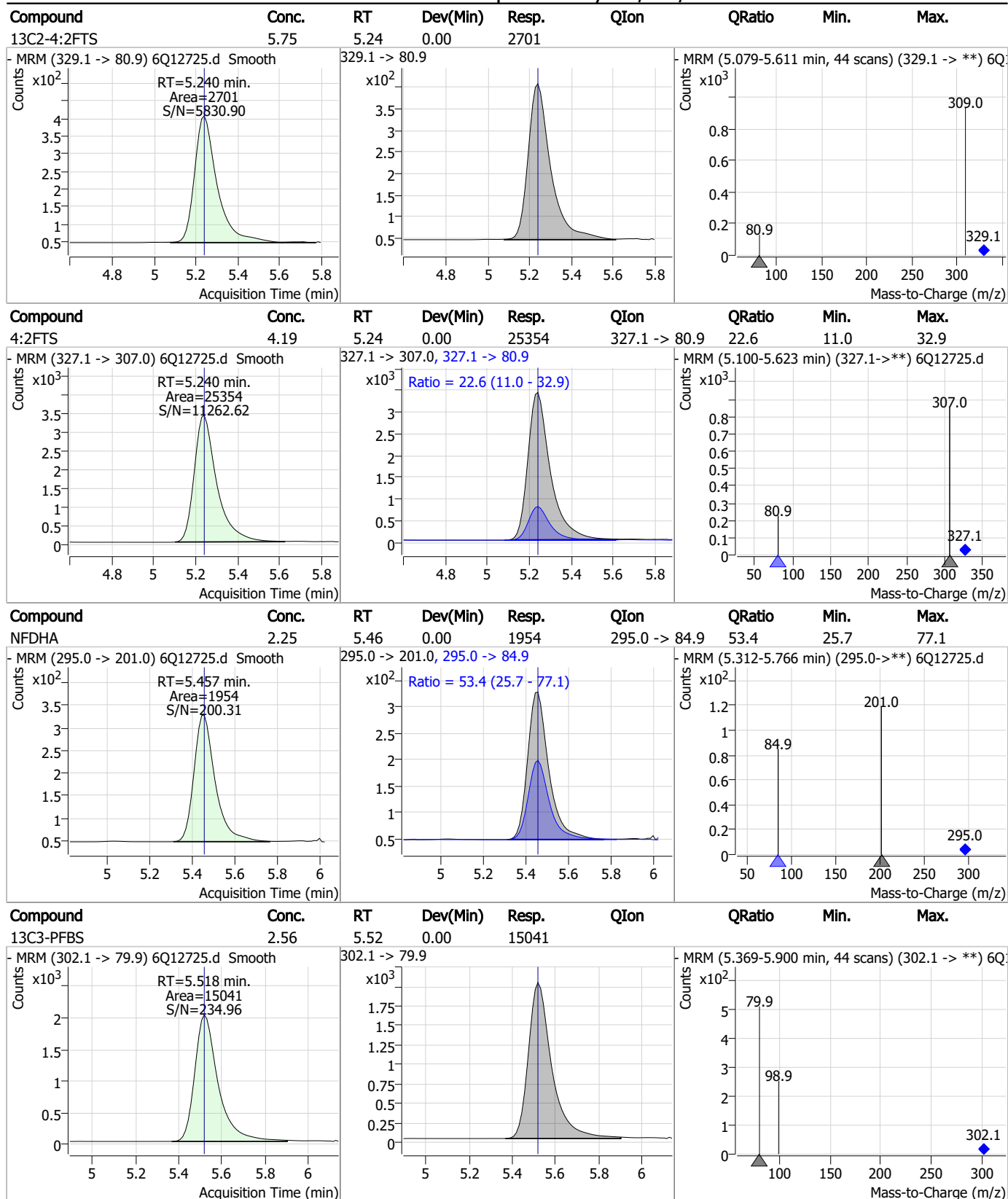
## Perfluorinated Compounds by LC/MS/MS



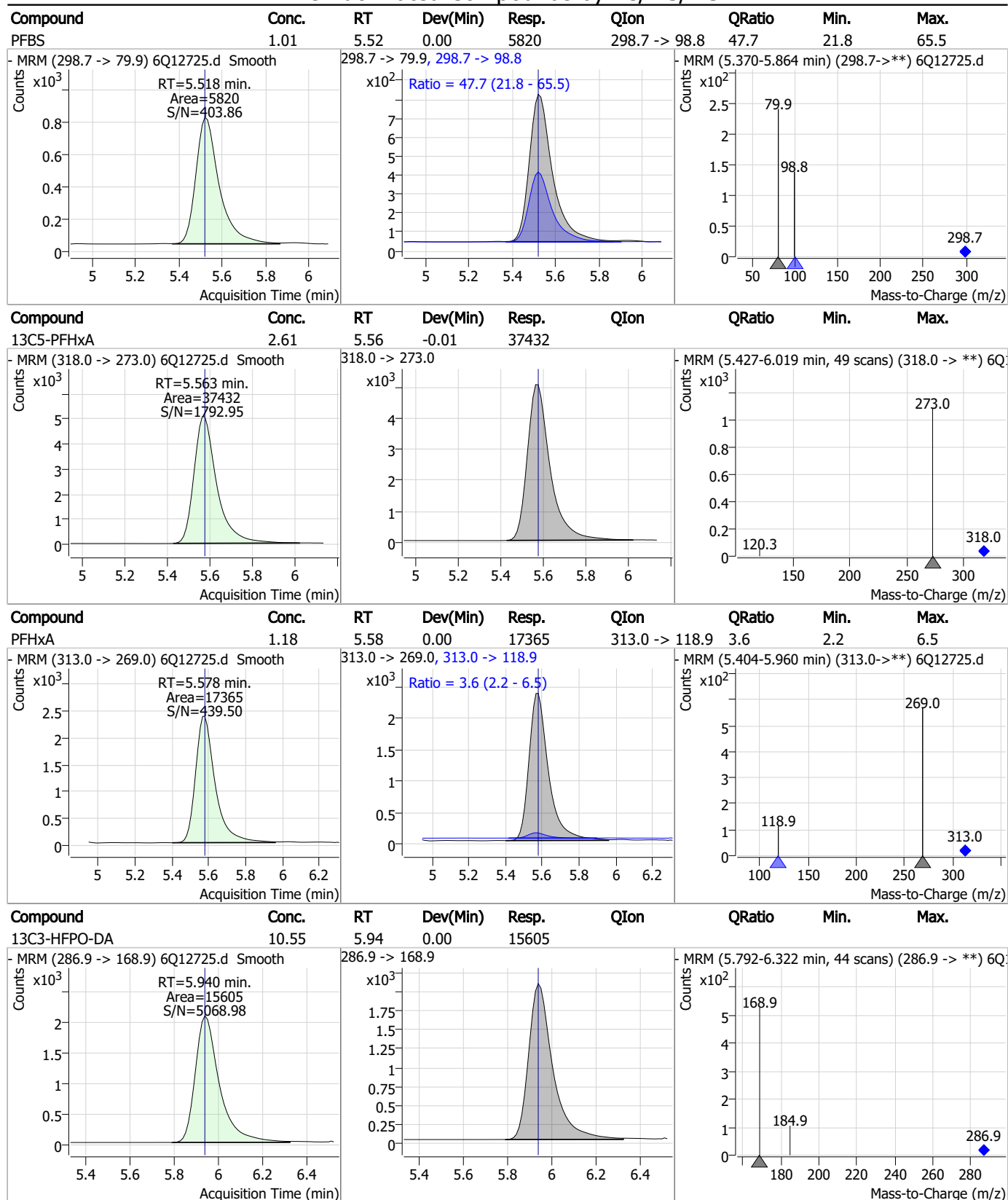
## Perfluorinated Compounds by LC/MS/MS



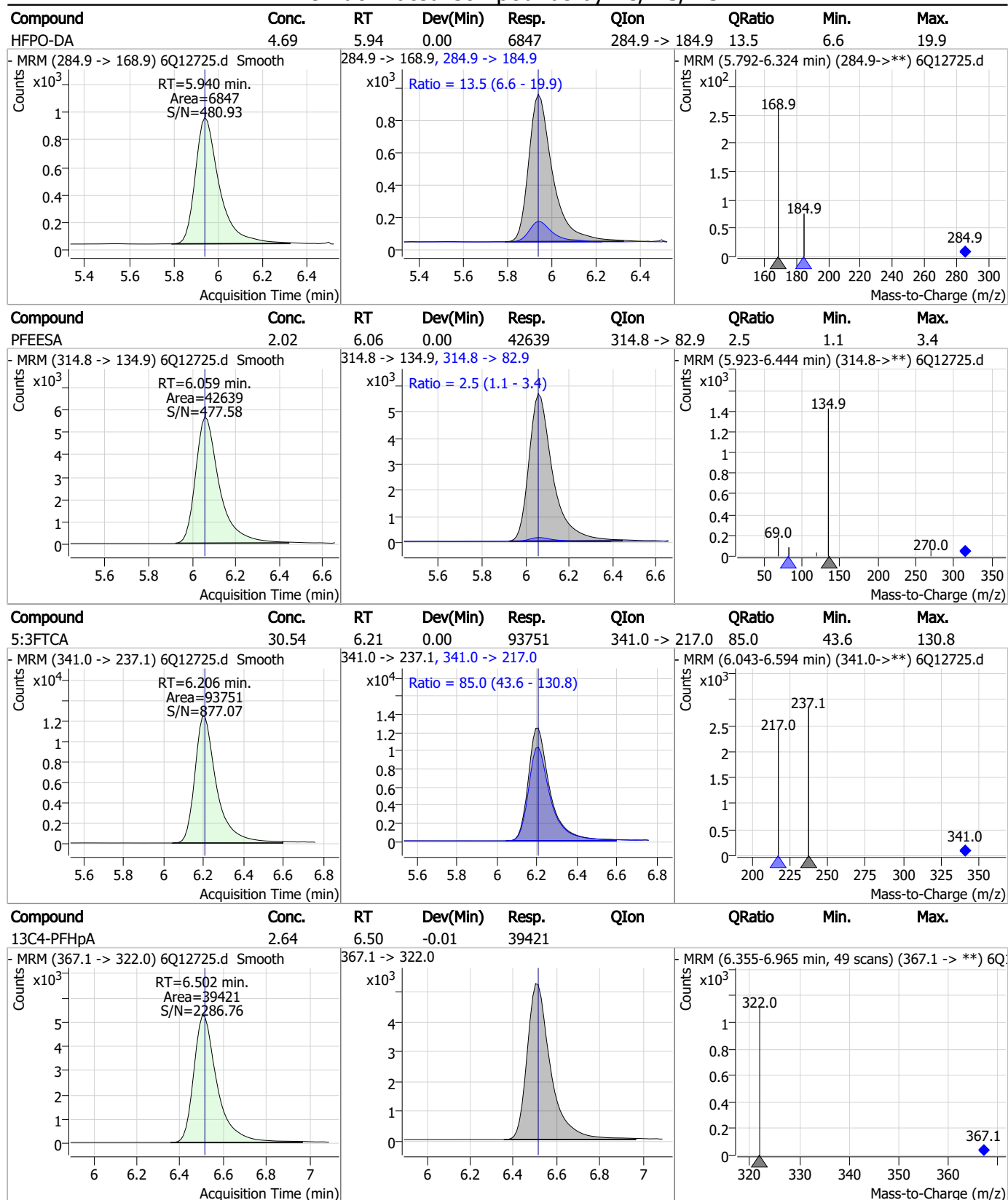
## Perfluorinated Compounds by LC/MS/MS



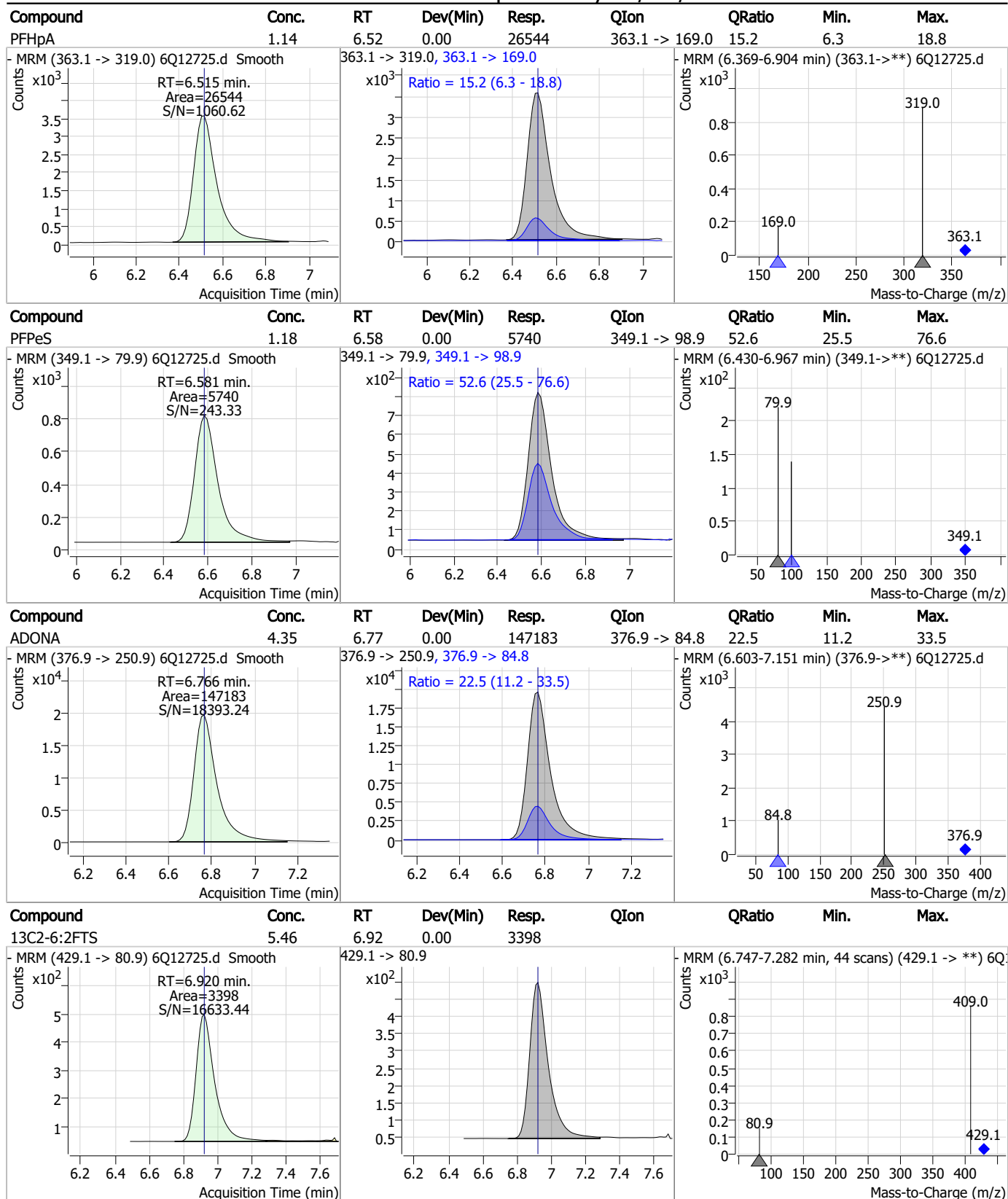
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

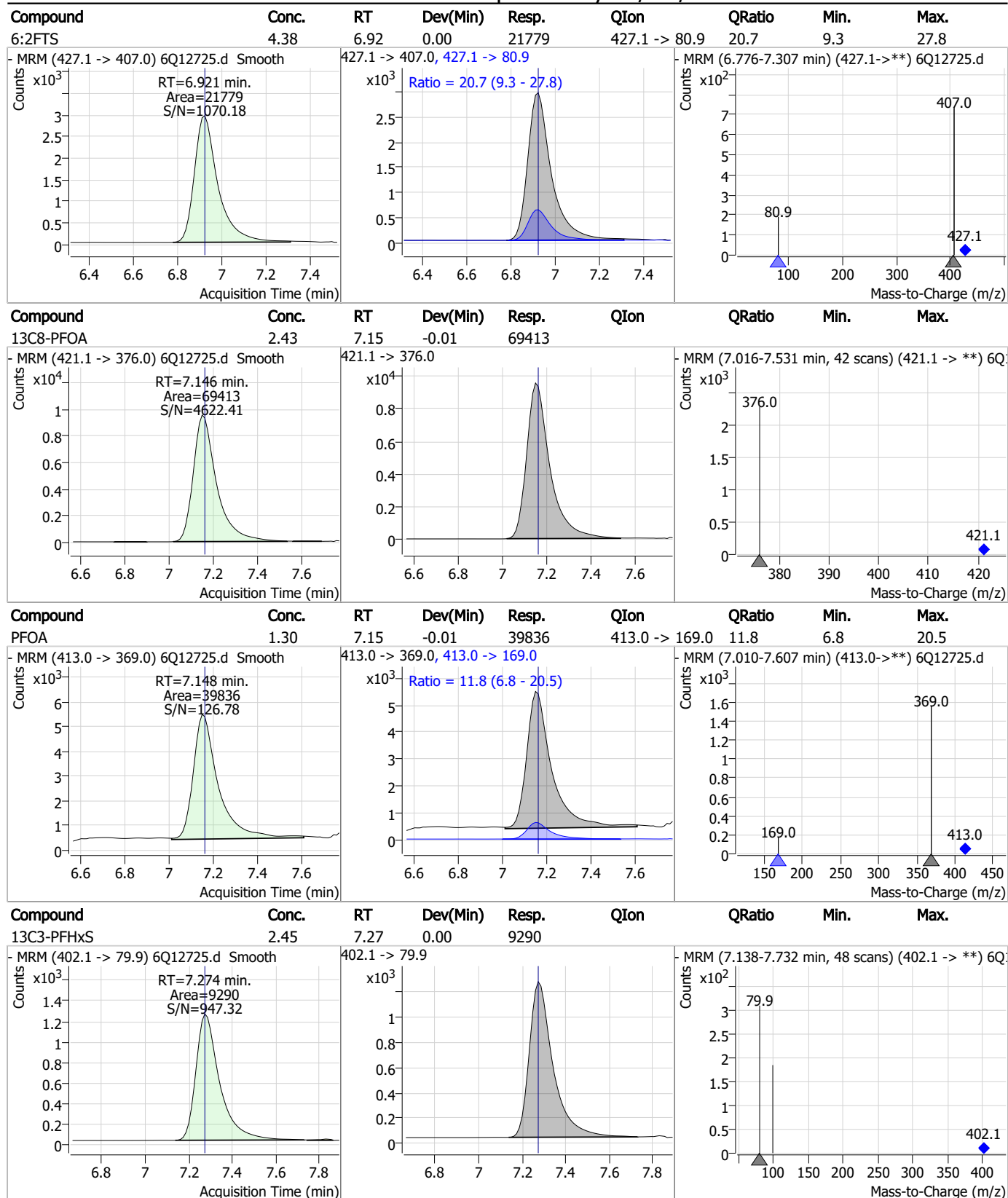


## Perfluorinated Compounds by LC/MS/MS

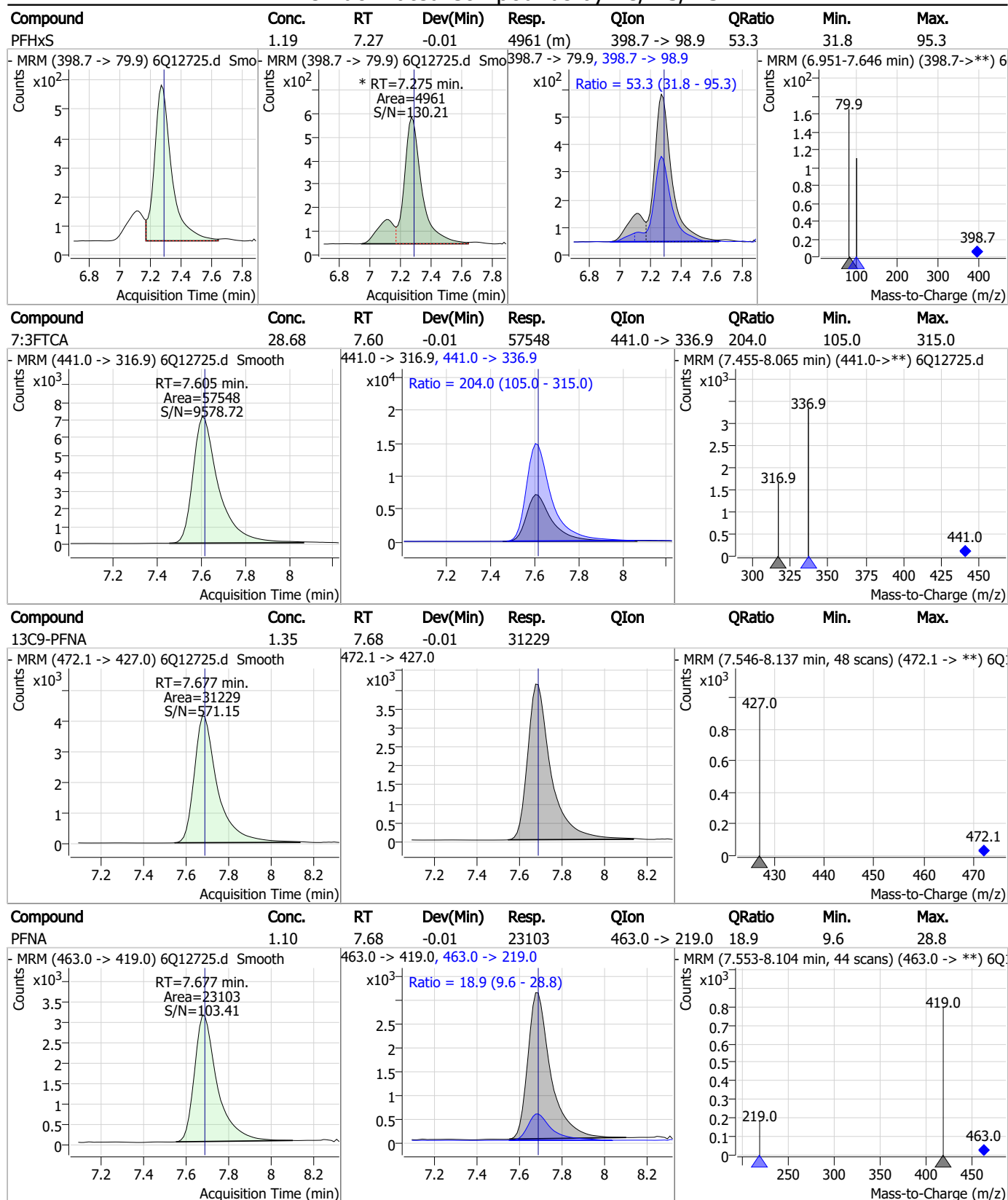




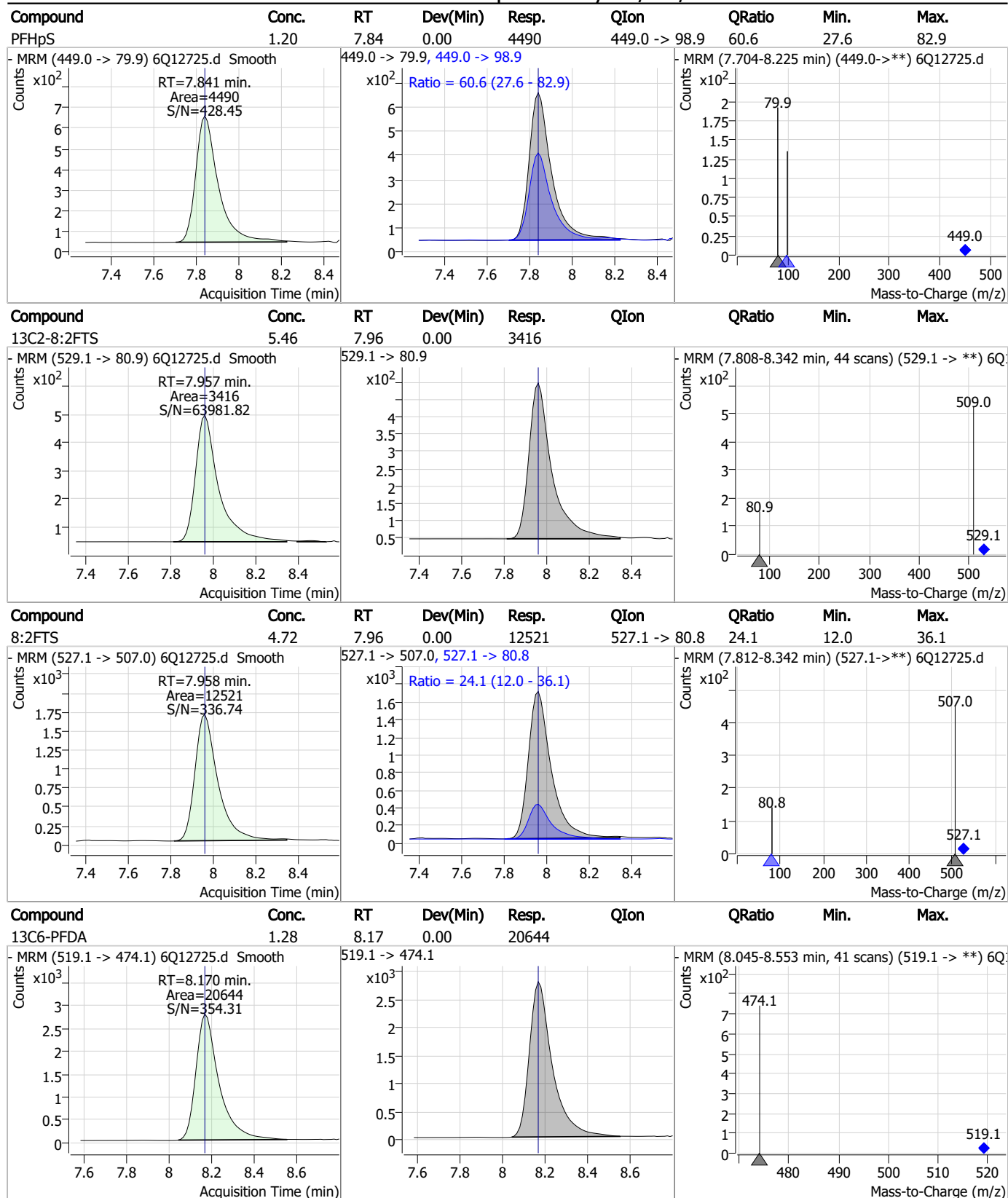
## Perfluorinated Compounds by LC/MS/MS



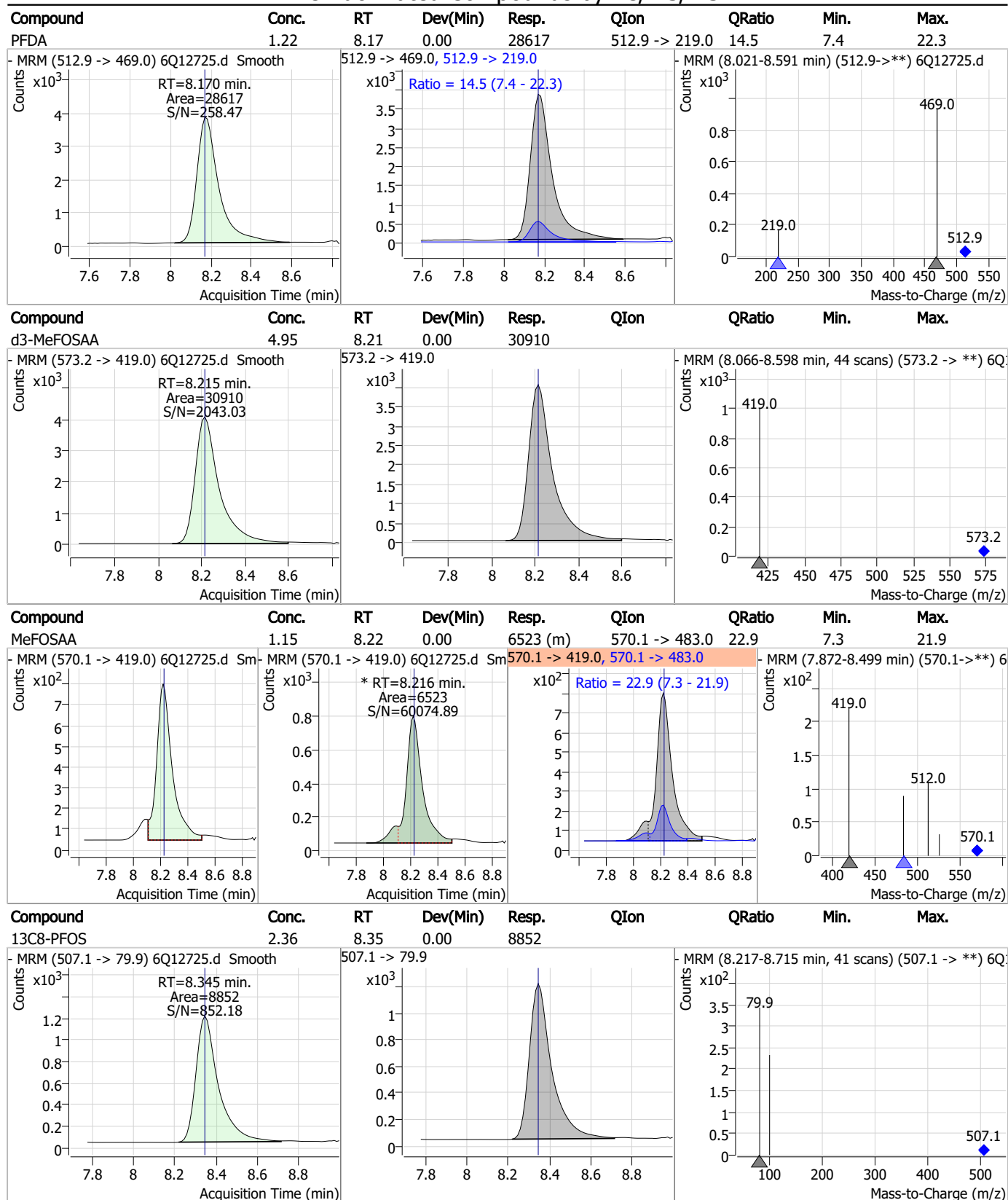
## Perfluorinated Compounds by LC/MS/MS



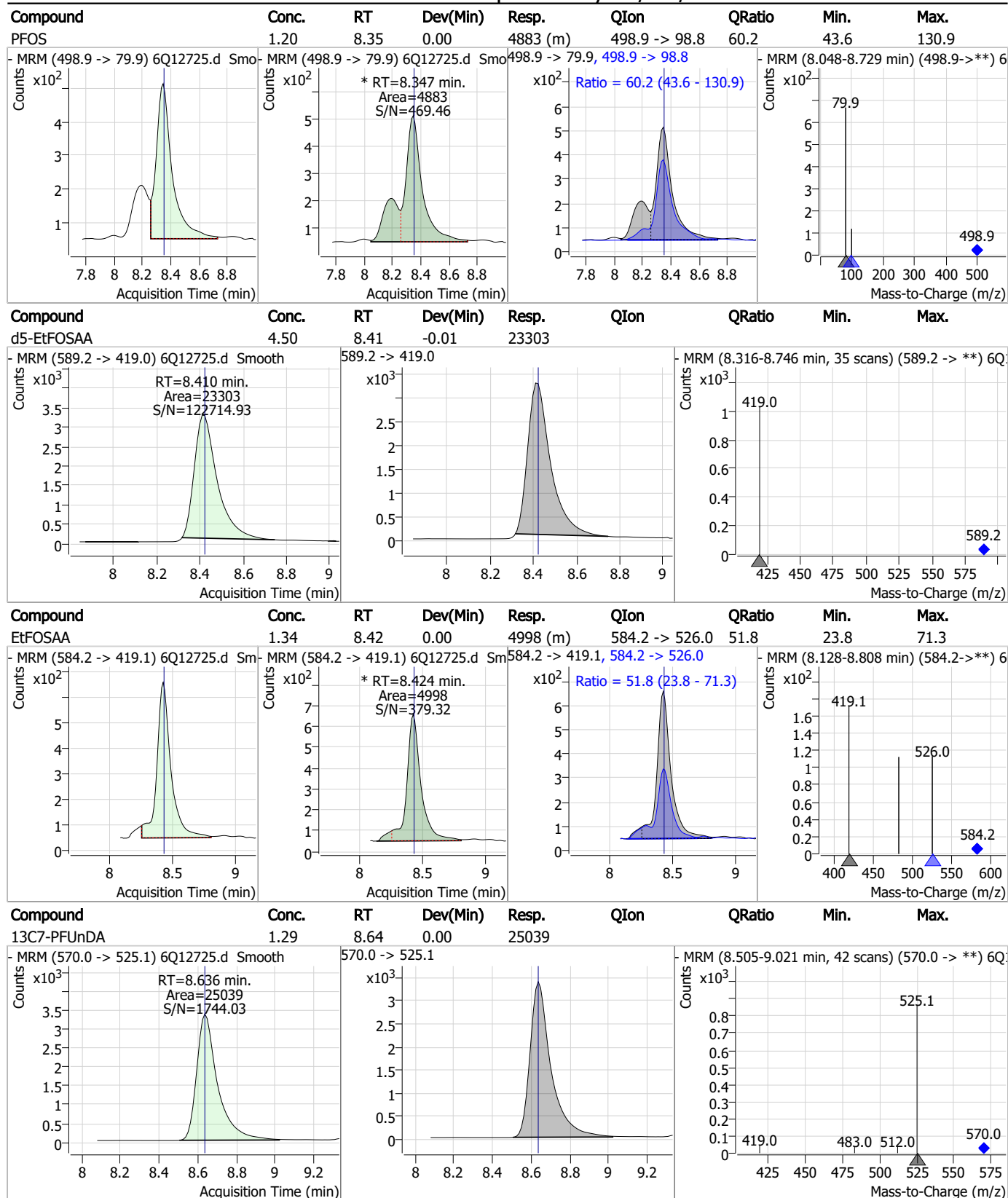
## Perfluorinated Compounds by LC/MS/MS



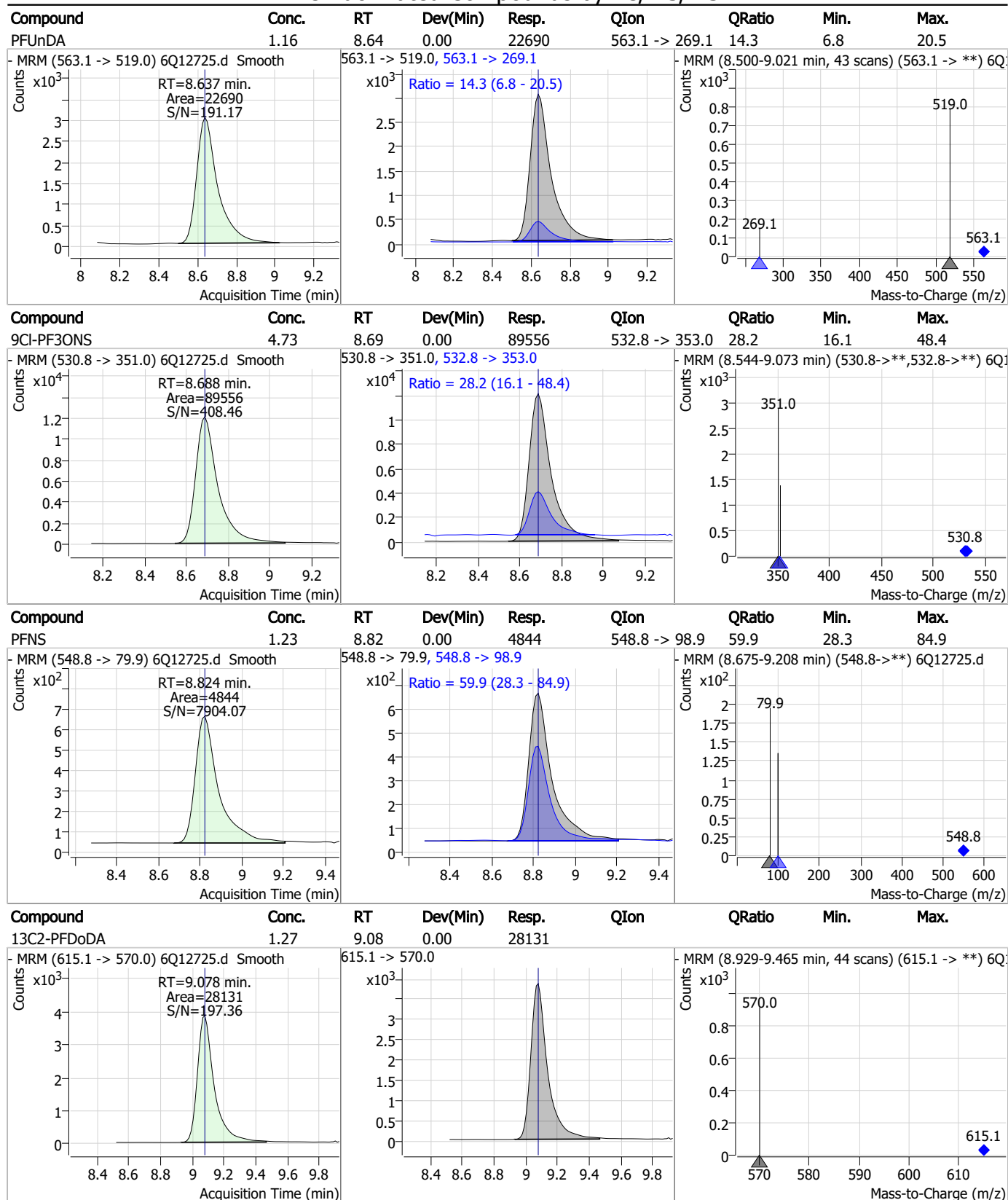
## Perfluorinated Compounds by LC/MS/MS



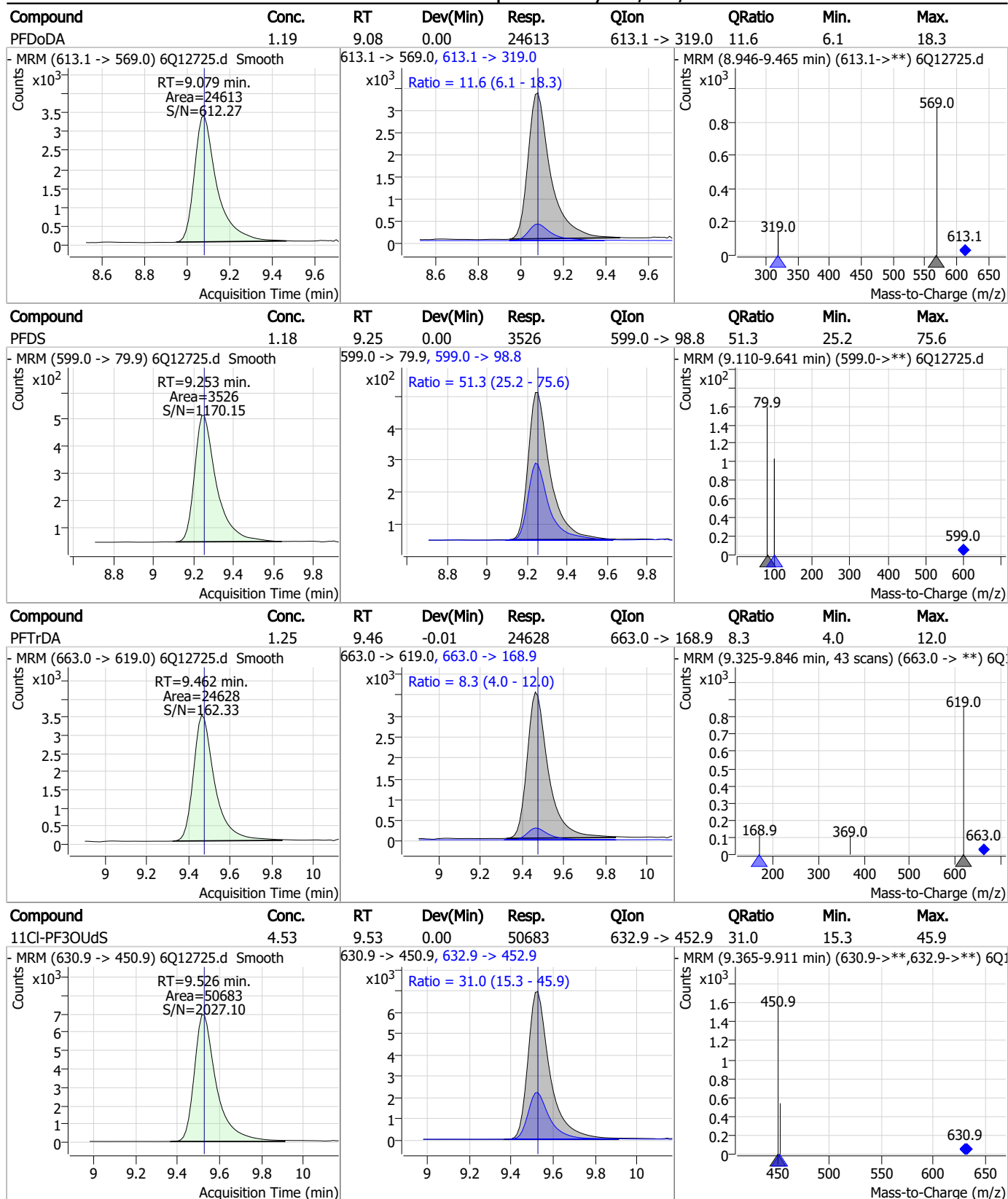
## Perfluorinated Compounds by LC/MS/MS



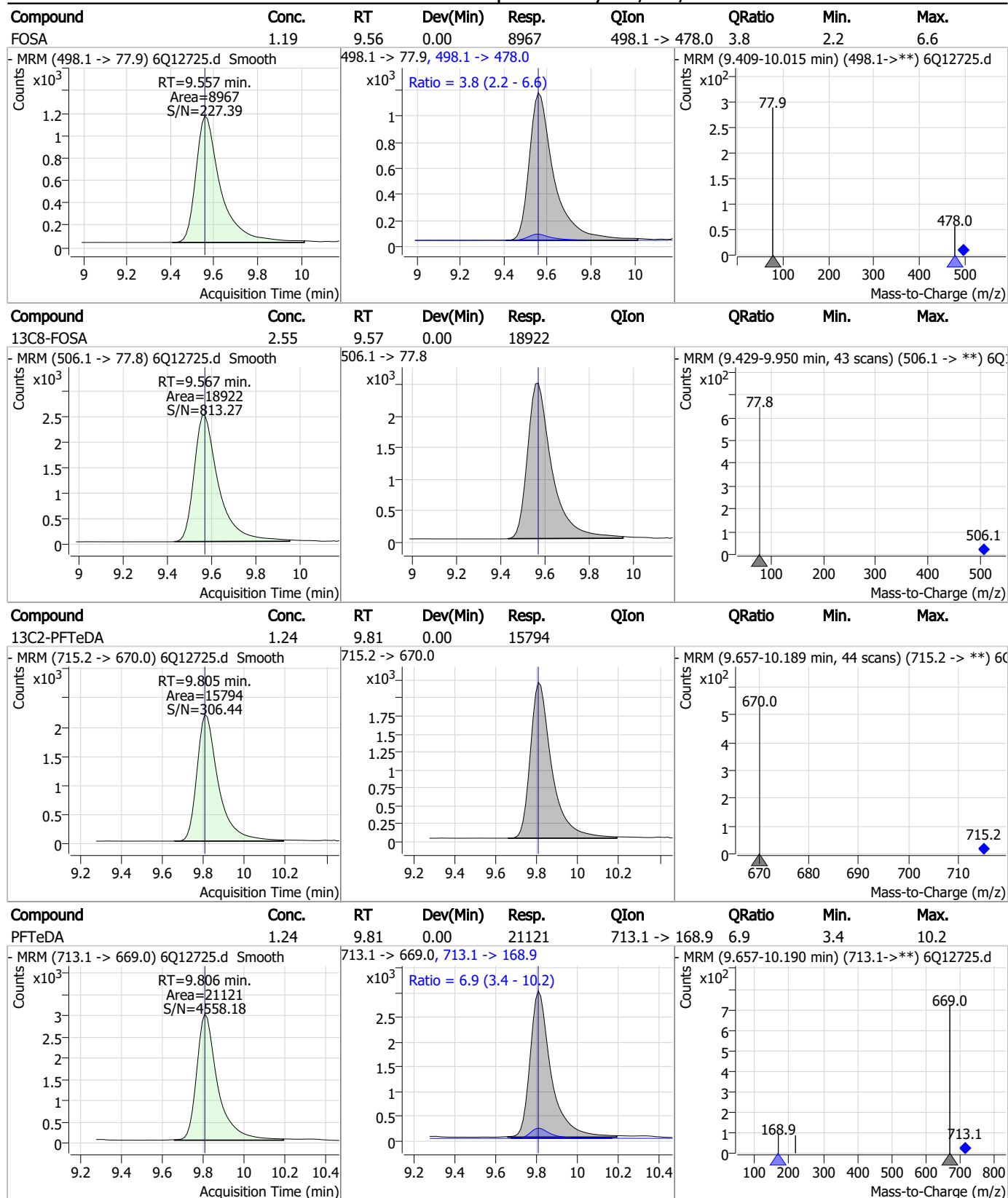
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

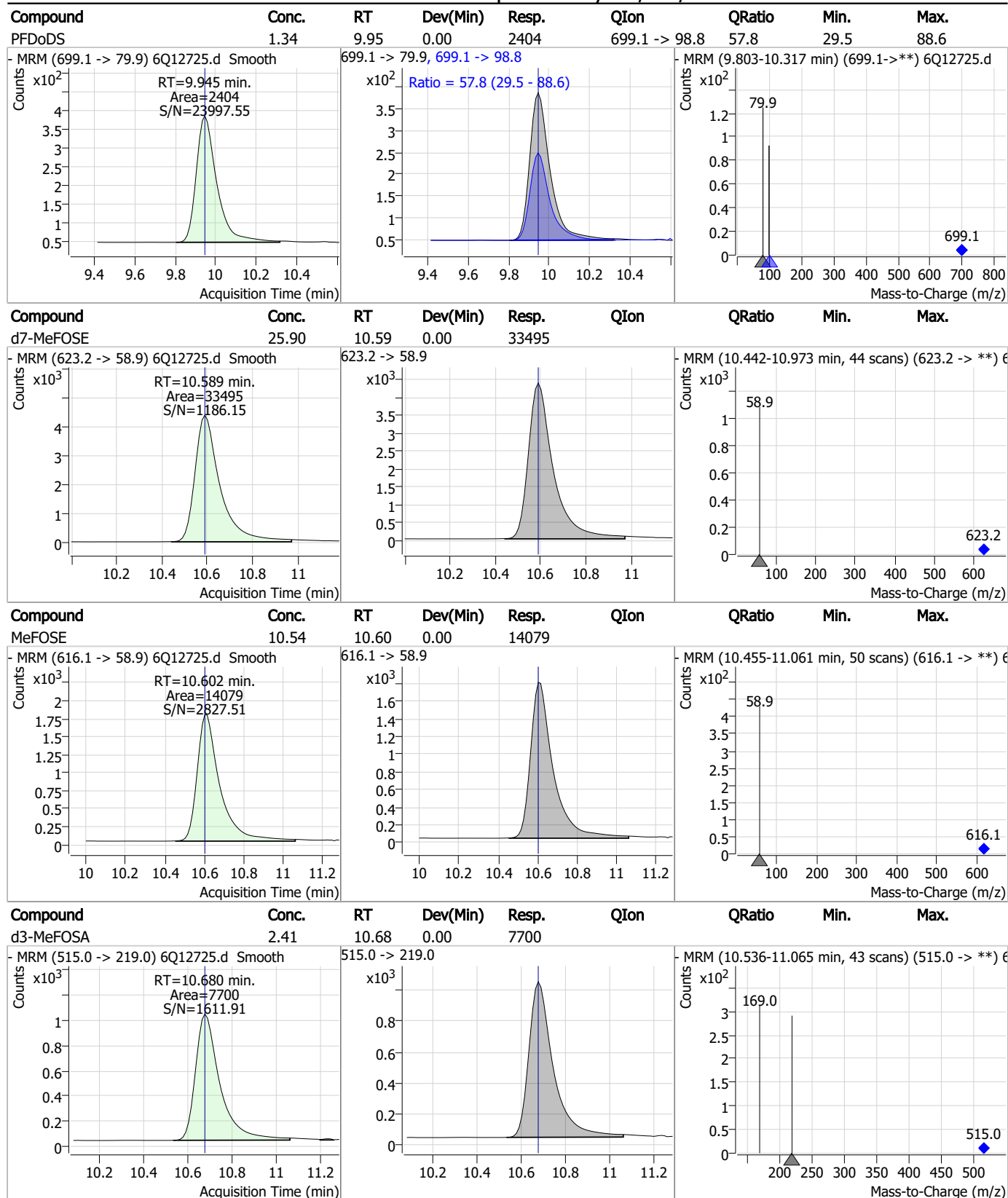


7.7.4

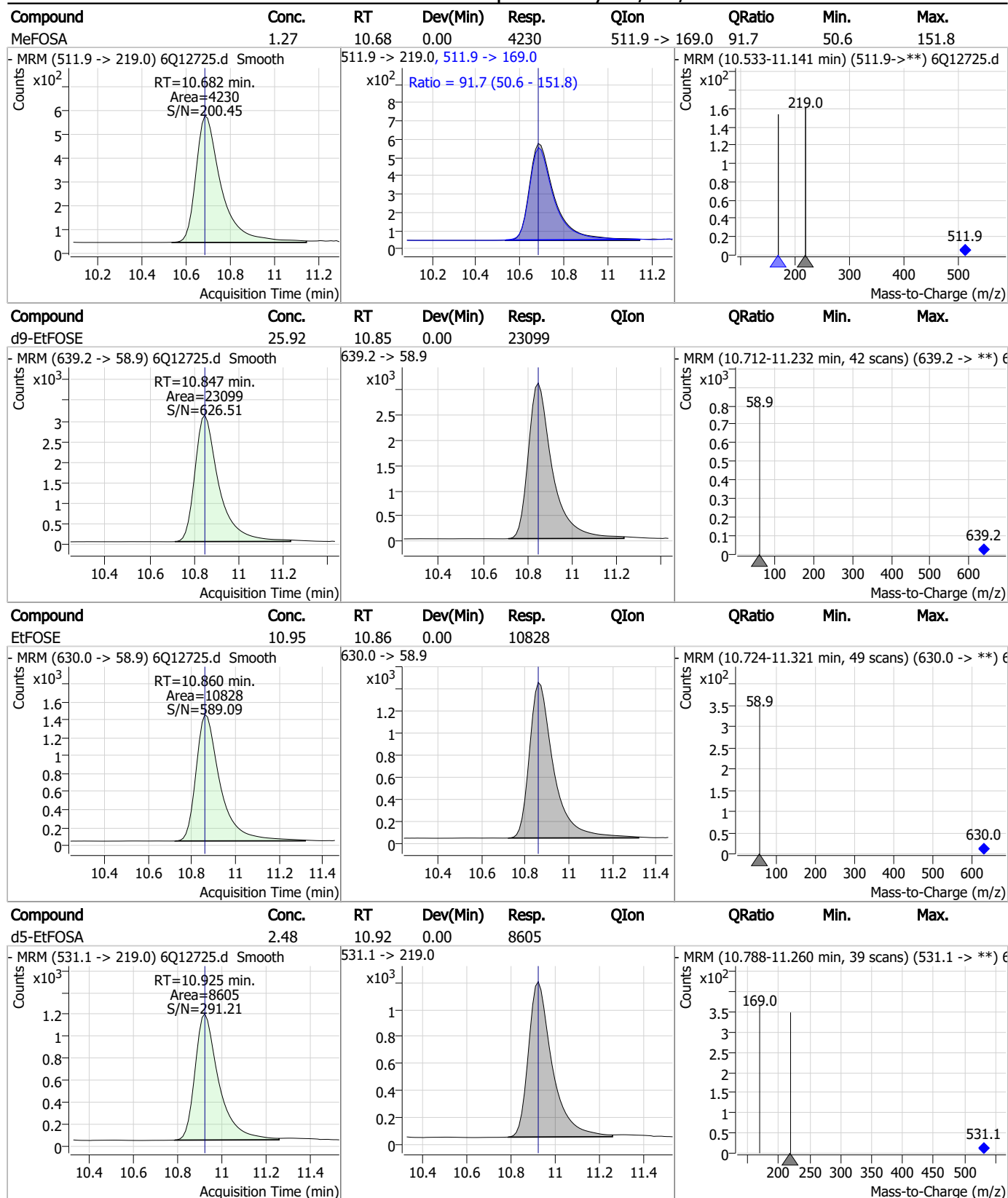
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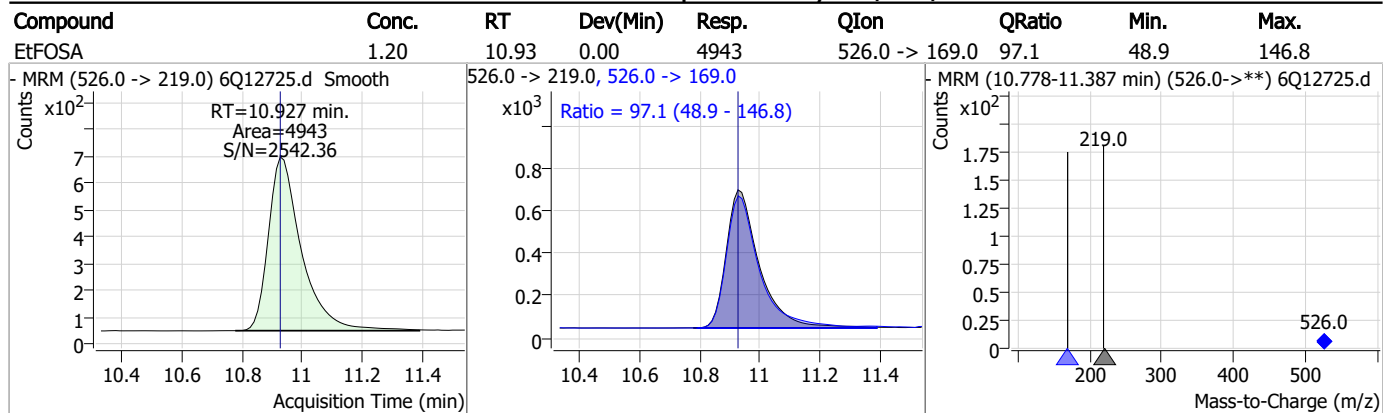
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.7.4  
7

Manual Integration Approval Summary

Sample Number: S6Q196-IC196

Method: EPA DRAFT 1633

Lab FileID: 6Q12725.D

Analyst approved: 02/02/23 11:53 Martha Valls

Injection Time: 02/01/23 18:19

Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.4.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12726.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/1/2023 6:33:16 PM  
 Sample Name : icc196-4  
 Vial : P1-A5  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : S6Q196.batch.bin  
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	81045	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	41552	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	35975	2.50 µg/L	0.000
M4-PFHpA	6.515	367.1 -> 322.0	38376	2.50 µg/L	0.000
M8-PFOA	7.159	421.1 -> 376.0	68201	2.50 µg/L	0.000
M9-PFNA	7.689	472.1 -> 427.0	30158	1.25 µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	19642	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	24209	1.25 µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	27325	1.25 µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	15683	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	18290	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	14169	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9256	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	9316	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2323	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	3200	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2863	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	30144	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	15057	10.00 µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	23831	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	31414	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21253	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8213	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7400	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	11023	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	36535	5.00 µg/L	0.000
18O2-PFHxS	7.286	403.0 -> 83.9	7322	2.50 µg/L	0.000
13C4-PFOA	7.159	417.1 -> 372.0	79910	2.50 µg/L	0.000
13C2-PFDA	8.170	515.1 -> 470.1	27723	1.25 µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	32920	1.25 µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	36044	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2323	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C2-6:2FTS	6.920	429.1 -> 80.9	3200	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2863	4.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C2-PFDoDA	9.078	615.1 -> 570.0	27325	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15683	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C3-PFBS	5.518	302.1 -> 79.9	14169	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C3-PFHxS	7.274	402.1 -> 79.9	9256	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 = 96.2%		
13C4-PFBA	2.975	216.8 -> 171.9	81045	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C4-PFHpA	6.515	367.1 -> 322.0	38376	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C5-PFHxA	5.575	318.0 -> 273.0	35975	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C5-PFPeA	4.386	268.3 -> 223.0	41552	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C6-PFDA	8.170	519.1 -> 474.1	19642	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C7-PFUnDA	8.636	570.0 -> 525.1	24209	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C8-FOSA	9.567	506.1 -> 77.8	18290	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C8-PFOA	7.159	421.1 -> 376.0	68201	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C8-PFOS	8.345	507.1 -> 79.9	9316	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C9-PFNA	7.689	472.1 -> 427.0	30158	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.1%		
d3-MeFOSAA	8.215	573.2 -> 419.0	30144	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	15057	10.22 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
d3-MeFOSA	10.680	515.0 -> 219.0	7400	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.7%		
d5-EtFOSAA	8.422	589.2 -> 419.0	23831	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
d7-MeFOSE	10.589	623.2 -> 58.9	31414	25.10 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
d9-EtFOSE	10.847	639.2 -> 58.9	21253	24.64 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
d5-EtFOSA	10.925	531.1 -> 219.0	8213	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.6%		
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	48473	9.31 µg/L	100
		327.1 -> 80.9	10617		
6:2FTS	6.921	427.1 -> 407.0	43537	9.29 µg/L	100
		427.1 -> 80.9	8078		
8:2FTS	7.958	527.1 -> 507.0	23220	10.44 µg/L	100
		527.1 -> 80.8	5590		
EtFOSAA	8.424	584.2 -> 419.1	9020	2.36 µg/L	m 87
		584.2 -> 526.0	5043		
FOSA	9.557	498.1 -> 77.9	16805	2.30 µg/L	100
		498.1 -> 478.0	740		
MeFOSAA	8.216	570.1 -> 419.0	12562	2.27 µg/L	92
		570.1 -> 483.0	2224		
PFBA	2.982	212.8 -> 168.9	16638	9.19 µg/L	100
PFBS	5.518	298.7 -> 79.9	11743	2.16 µg/L	100
		298.7 -> 98.8	5126		
PFDA	8.170	512.9 -> 469.0	52409	2.34 µg/L	100
		512.9 -> 219.0	7793		
PFDODA	9.079	613.1 -> 569.0	47321	2.36 µg/L	100
		613.1 -> 319.0	5764		
PFDS	9.253	599.0 -> 79.9	6826	2.16 µg/L	100

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.515	599.0 -> 98.8	3440	2.31	µg/L	100
		363.1 -> 319.0	52449			
PFHpS	7.841	363.1 -> 169.0	6568	2.24	µg/L	100
		449.0 -> 79.9	8840			
PFHxA	5.578	449.0 -> 98.9	4888	2.22	µg/L	100
		313.0 -> 269.0	31377			
PFHxS	7.287	313.0 -> 118.9	1353	2.08	µg/L	95
		398.7 -> 79.9	8643			
PFNA	7.690	398.7 -> 98.9	5191	2.22	µg/L	100
		463.0 -> 419.0	45119			
PFNS	8.824	463.0 -> 219.0	8671	2.23	µg/L	100
		548.8 -> 79.9	9216			
PFOA	7.160	548.8 -> 98.9	5214	2.22	µg/L	100
		413.0 -> 369.0	66570			
PFOS	8.347	413.0 -> 169.0	9080	2.04	µg/L	79
		498.9 -> 79.9	8731			
PFPeA	4.388	498.9 -> 98.8	5942	4.52	µg/L	100
		263.0 -> 219.0	39627			
PFPeS	6.581	349.1 -> 79.9	10800	2.23	µg/L	100
		349.1 -> 98.9	5518			
PFTeDA	9.806	713.1 -> 669.0	39062	2.31	µg/L	100
		713.1 -> 168.9	2666			
PFTrDA	9.475	663.0 -> 619.0	44162	2.31	µg/L	100
		663.0 -> 168.9	3535			
PFUnDA	8.637	563.1 -> 519.0	44622	2.37	µg/L	100
		563.1 -> 269.1	6092			
11CI-PF3OUdS	9.526	630.9 -> 450.9	93819	8.68	µg/L	100
		632.9 -> 452.9	28684			
9CI-PF3ONS	8.688	530.8 -> 351.0	160664	8.80	µg/L	100
		532.8 -> 353.0	51833			
ADONA	6.766	376.9 -> 250.9	281709	8.62	µg/L	100
		376.9 -> 84.8	62877			
HFPO-DA	5.940	284.9 -> 168.9	12521	8.89	µg/L	100
		284.9 -> 184.9	1659			
3:3FTCA	3.841	241.0 -> 177.0	4887	11.34	µg/L	100
		241.0 -> 117.0	725			
5:3FTCA	6.206	341.0 -> 237.1	176343	59.77	µg/L	100
		341.0 -> 217.0	153804			
7:3FTCA	7.617	441.0 -> 316.9	110415	57.25	µg/L	100
		441.0 -> 336.9	231871			
EtFOSA	10.927	526.0 -> 219.0	9349	2.38	µg/L	100
		526.0 -> 169.0	9150			
EtFOSE	10.860	630.0 -> 58.9	20527	22.57	µg/L	100
		511.9 -> 219.0	7762			
MeFOSA	10.682	511.9 -> 169.0	7856	2.42	µg/L	100
		616.1 -> 58.9	28719			
MeFOSE	10.602	699.1 -> 79.9	4076	22.92	µg/L	100
		699.1 -> 98.8	2408			
PFDoDS	9.945	295.0 -> 201.0	3919	4.70	µg/L	100
		295.0 -> 84.9	2015			
NFDHA	5.457	279.0 -> 85.1	11121	4.51	µg/L	100
		229.0 -> 84.9	10505			
PFMBA	3.541	314.8 -> 134.9	86334	4.49	µg/L	100
		314.8 -> 82.9	1954			
PFEESA	6.059			4.25	µg/L	100

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

## Perfluorinated Compounds by LC/MS/MS

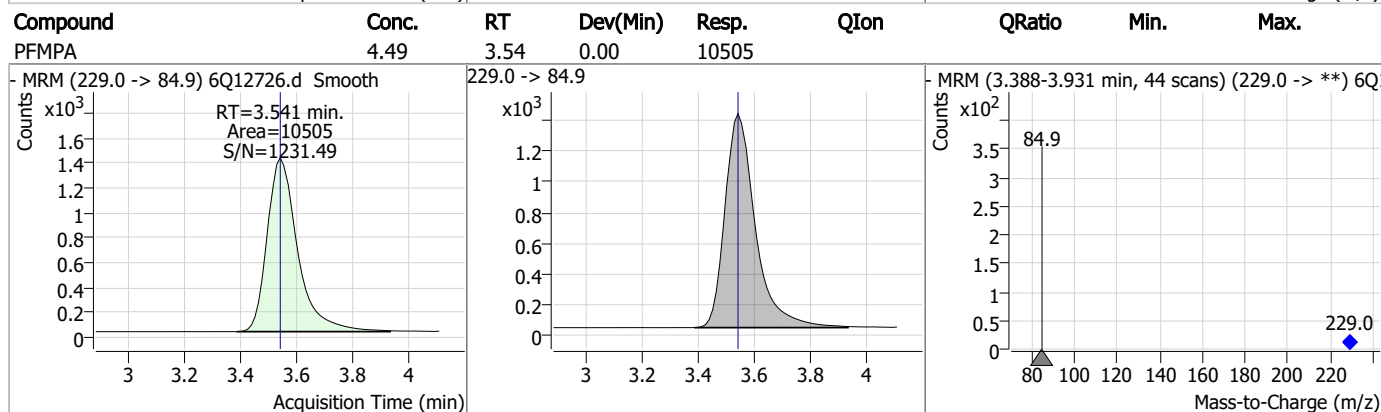
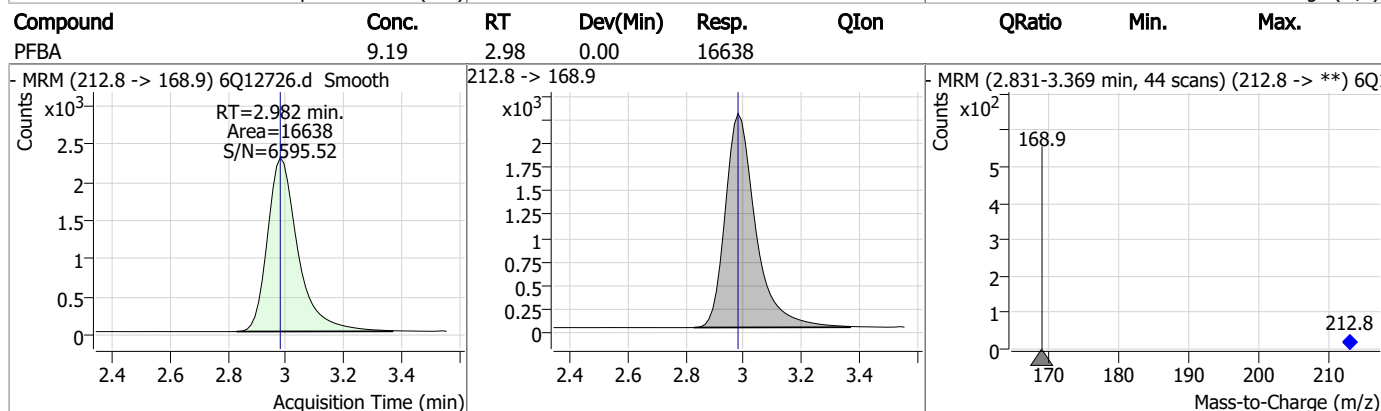
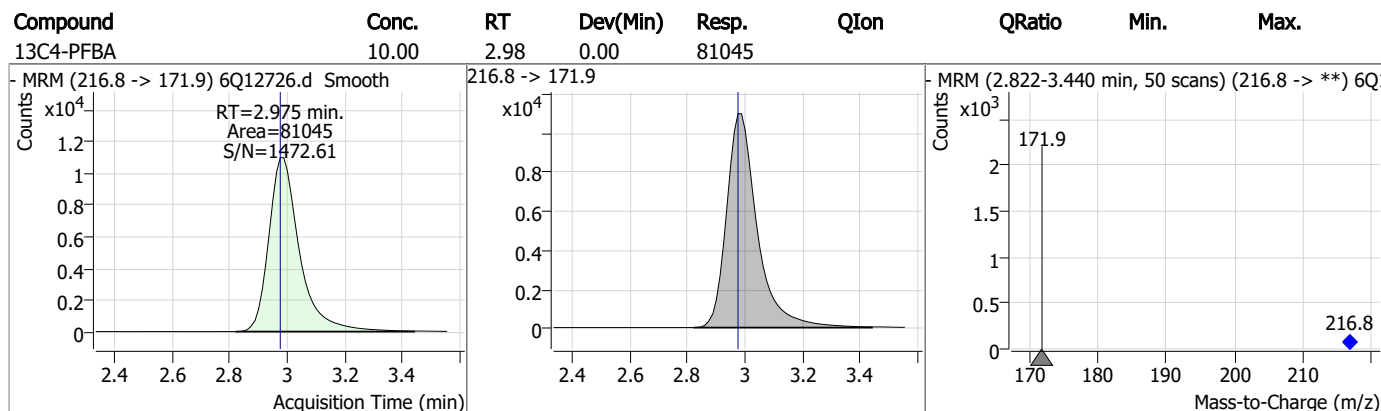
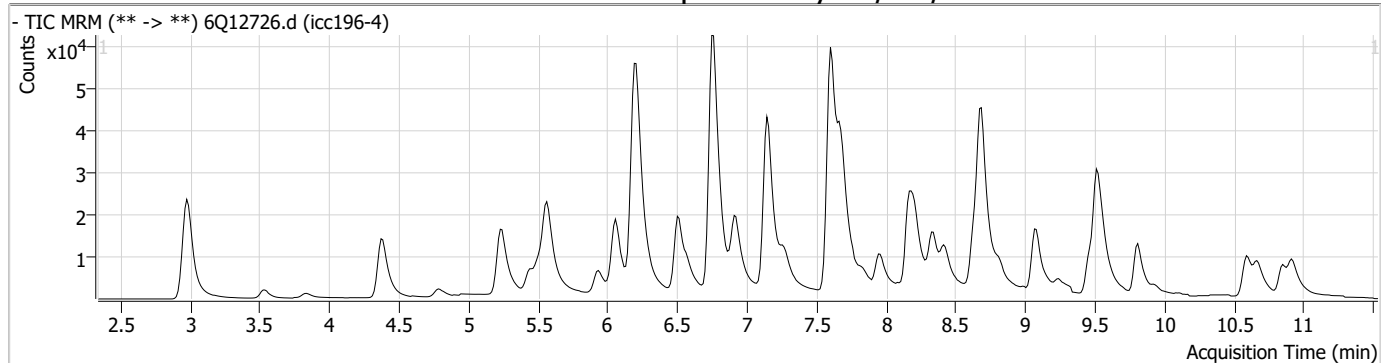
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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7.7.5

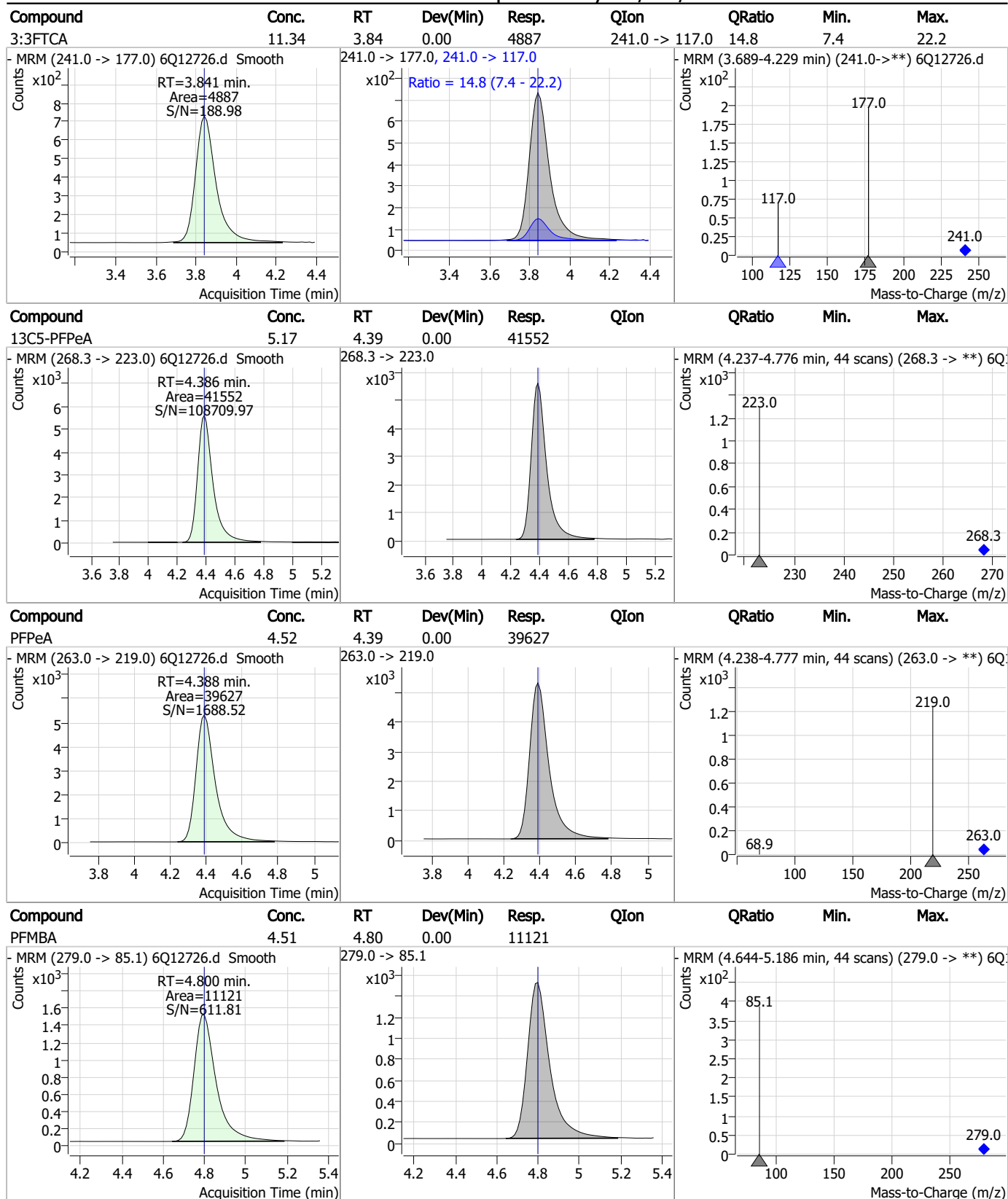
7



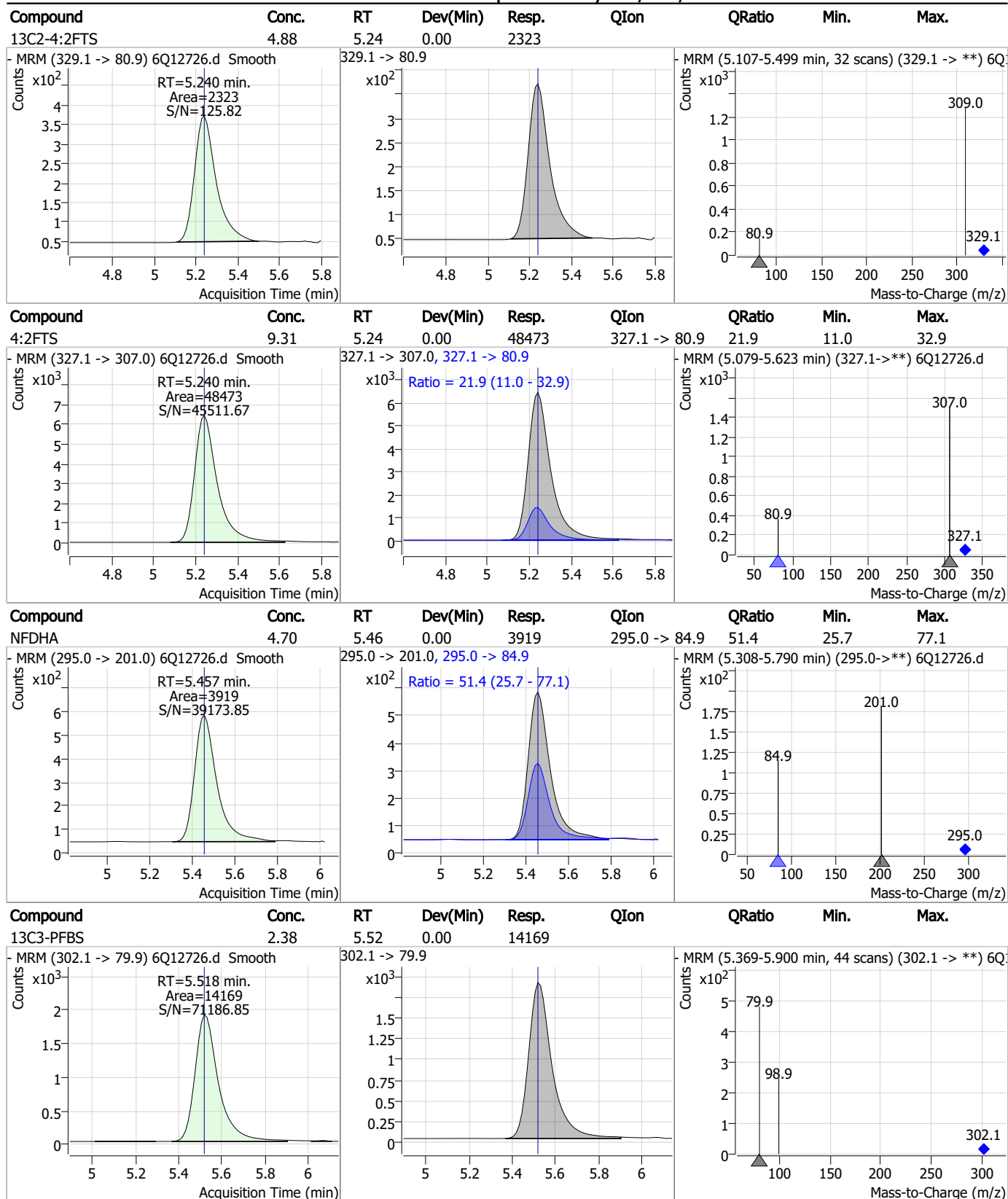
## Perfluorinated Compounds by LC/MS/MS



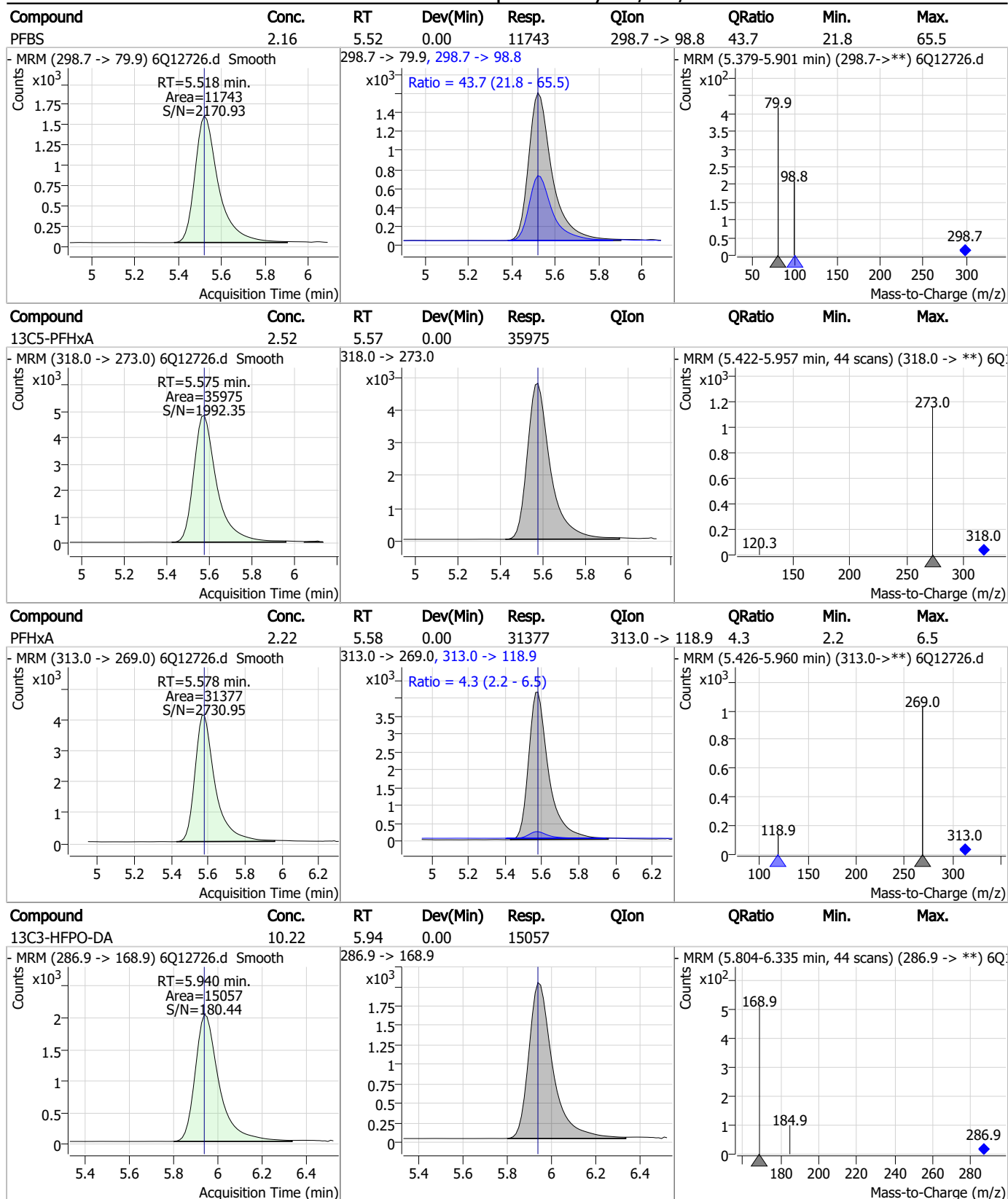
## Perfluorinated Compounds by LC/MS/MS



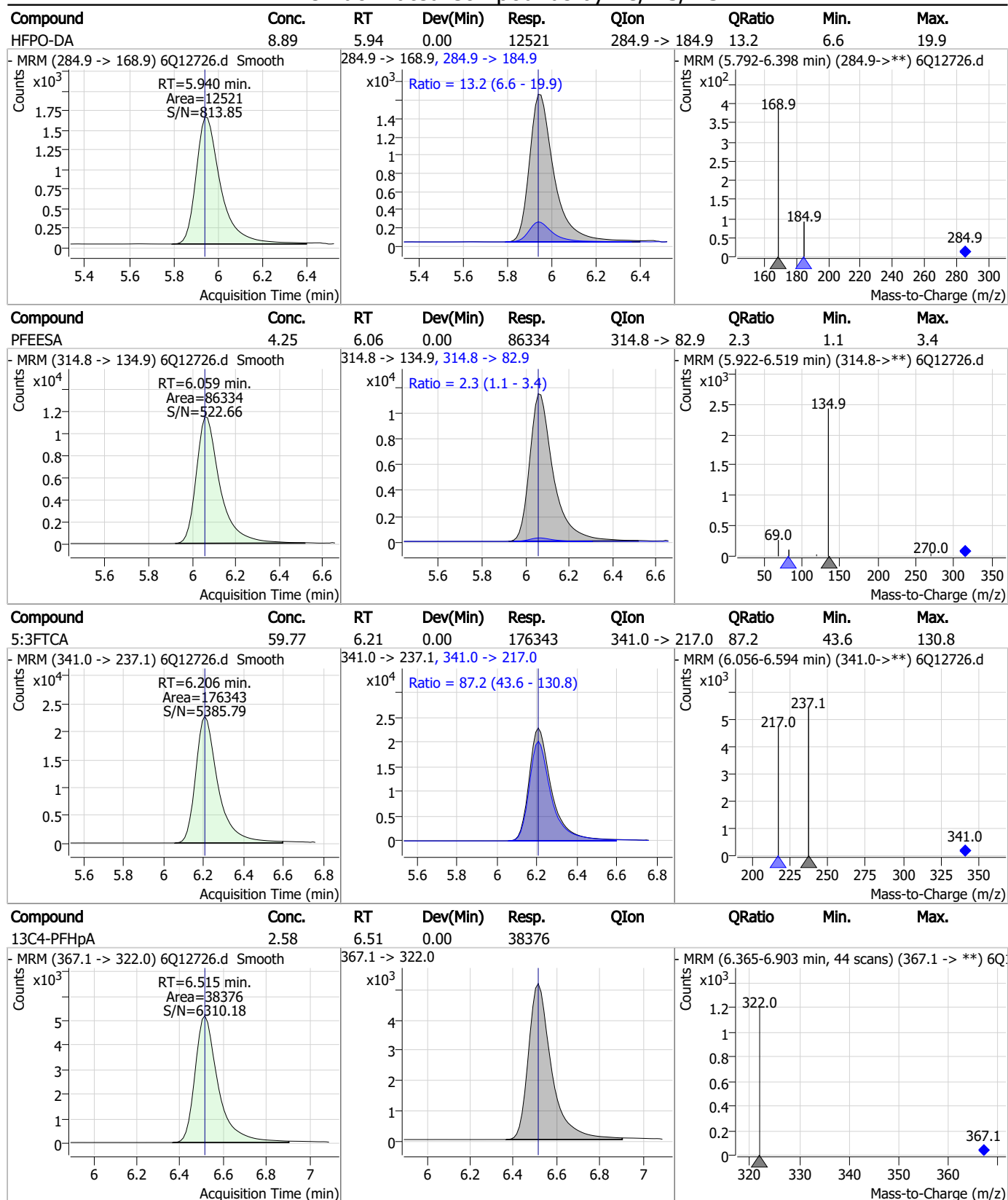
## Perfluorinated Compounds by LC/MS/MS



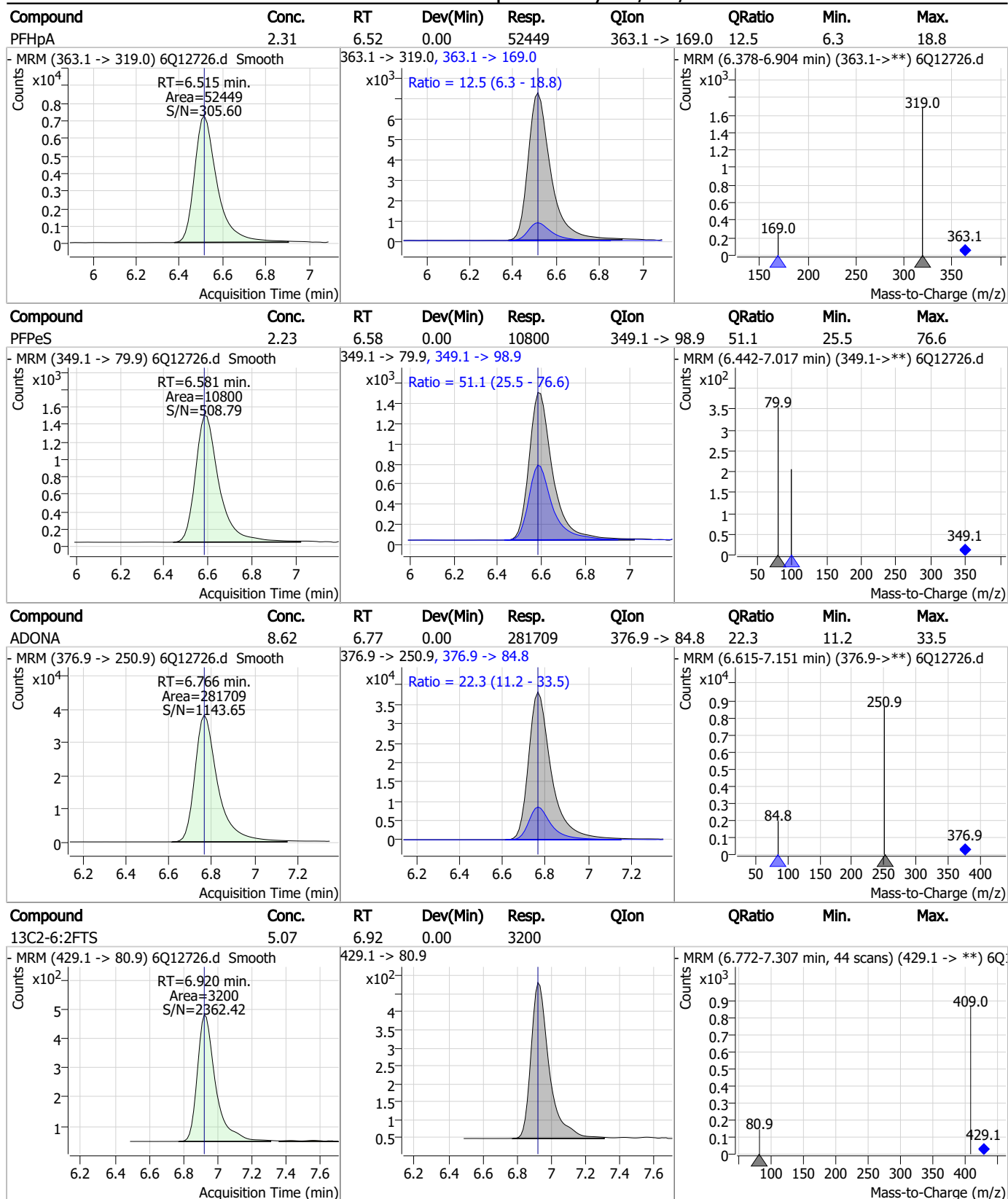
## Perfluorinated Compounds by LC/MS/MS



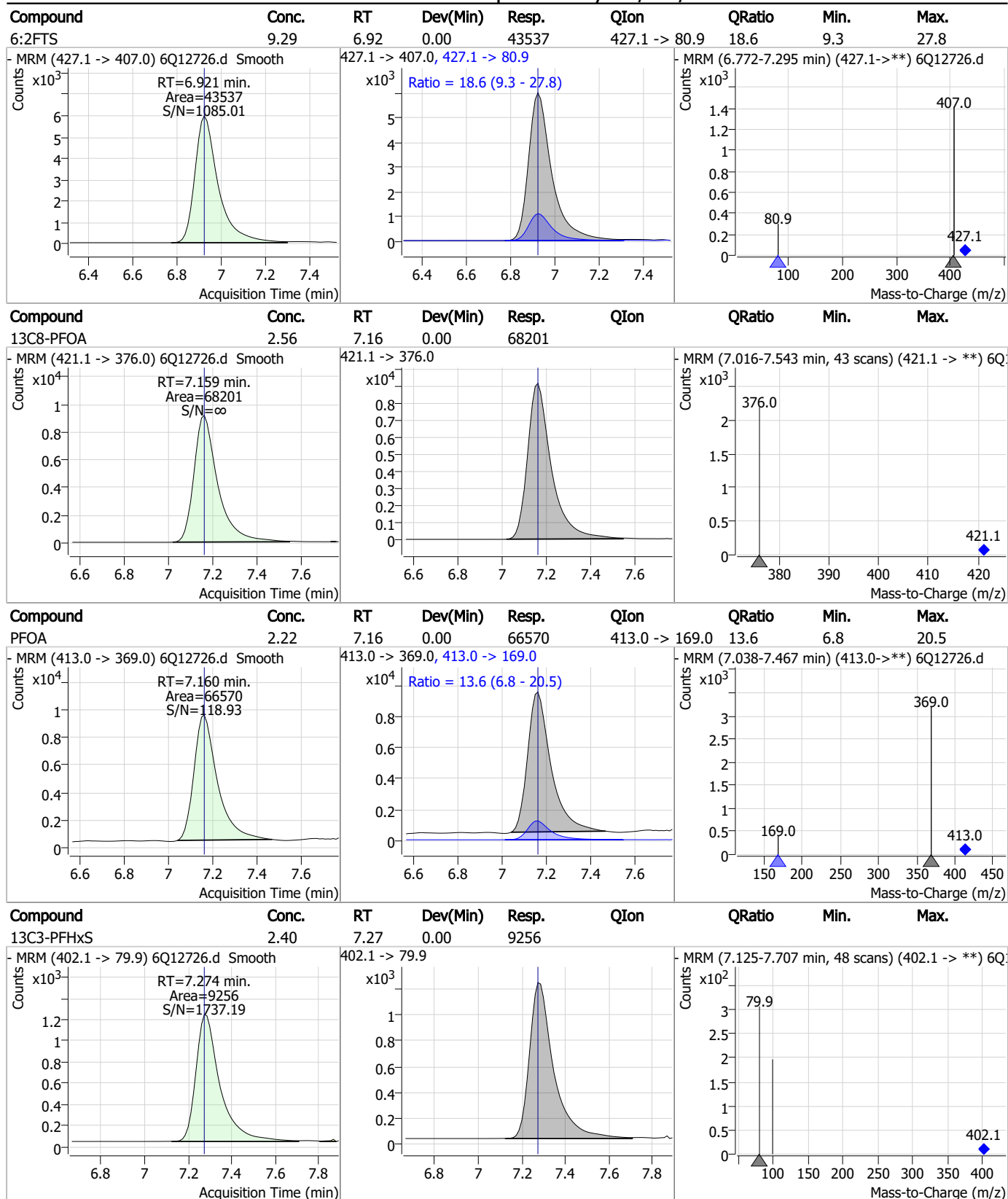
## Perfluorinated Compounds by LC/MS/MS



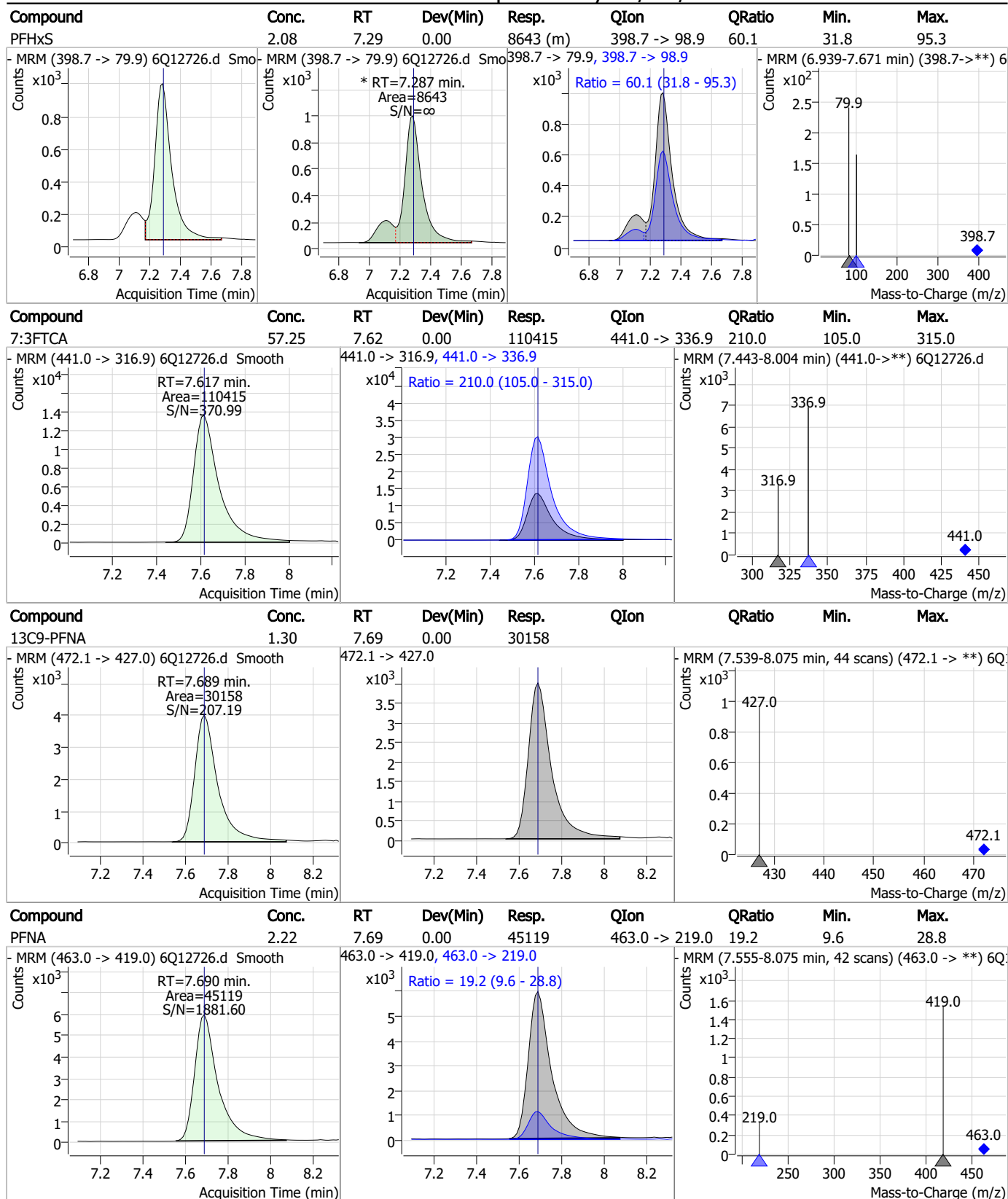
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

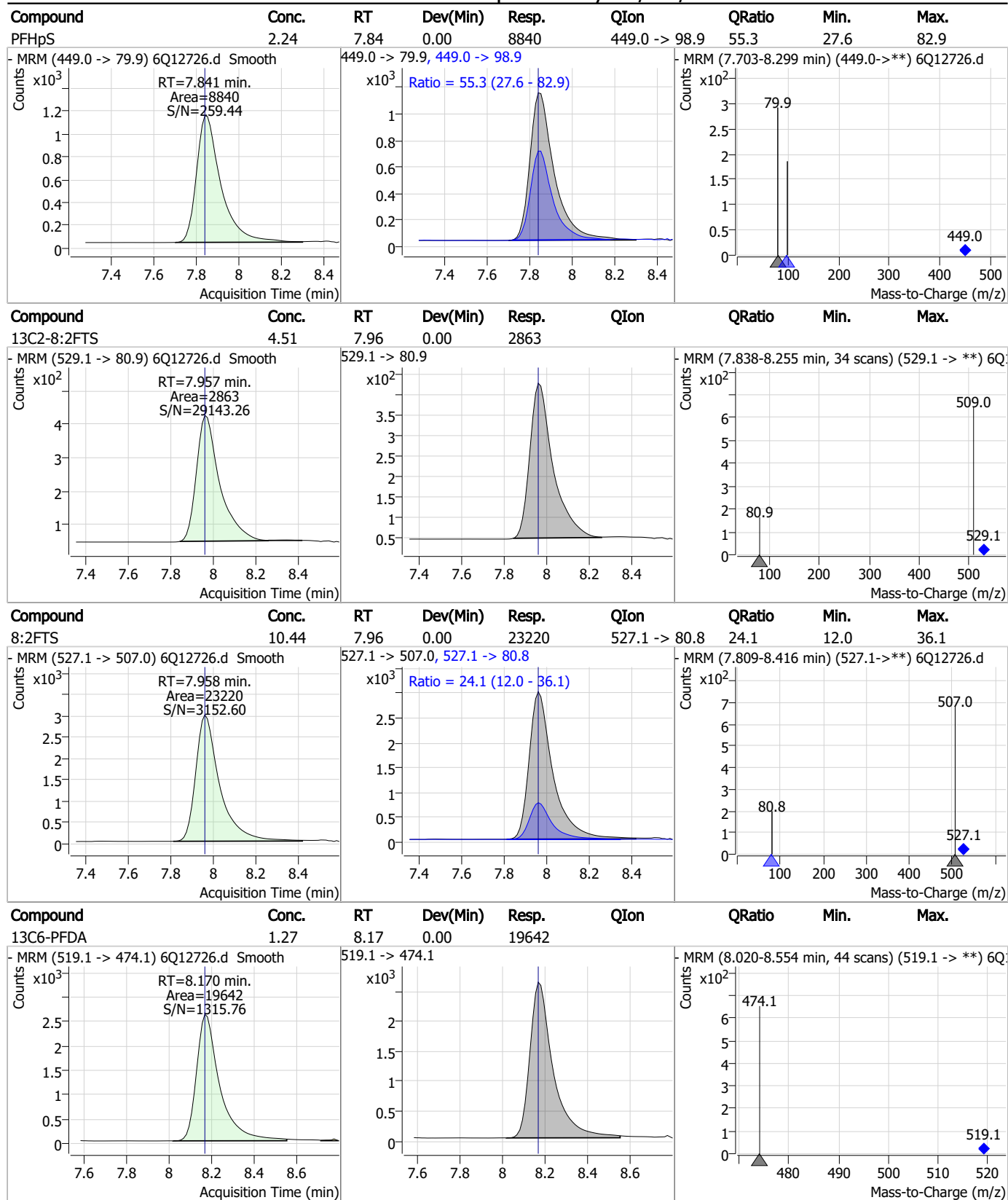


## Perfluorinated Compounds by LC/MS/MS

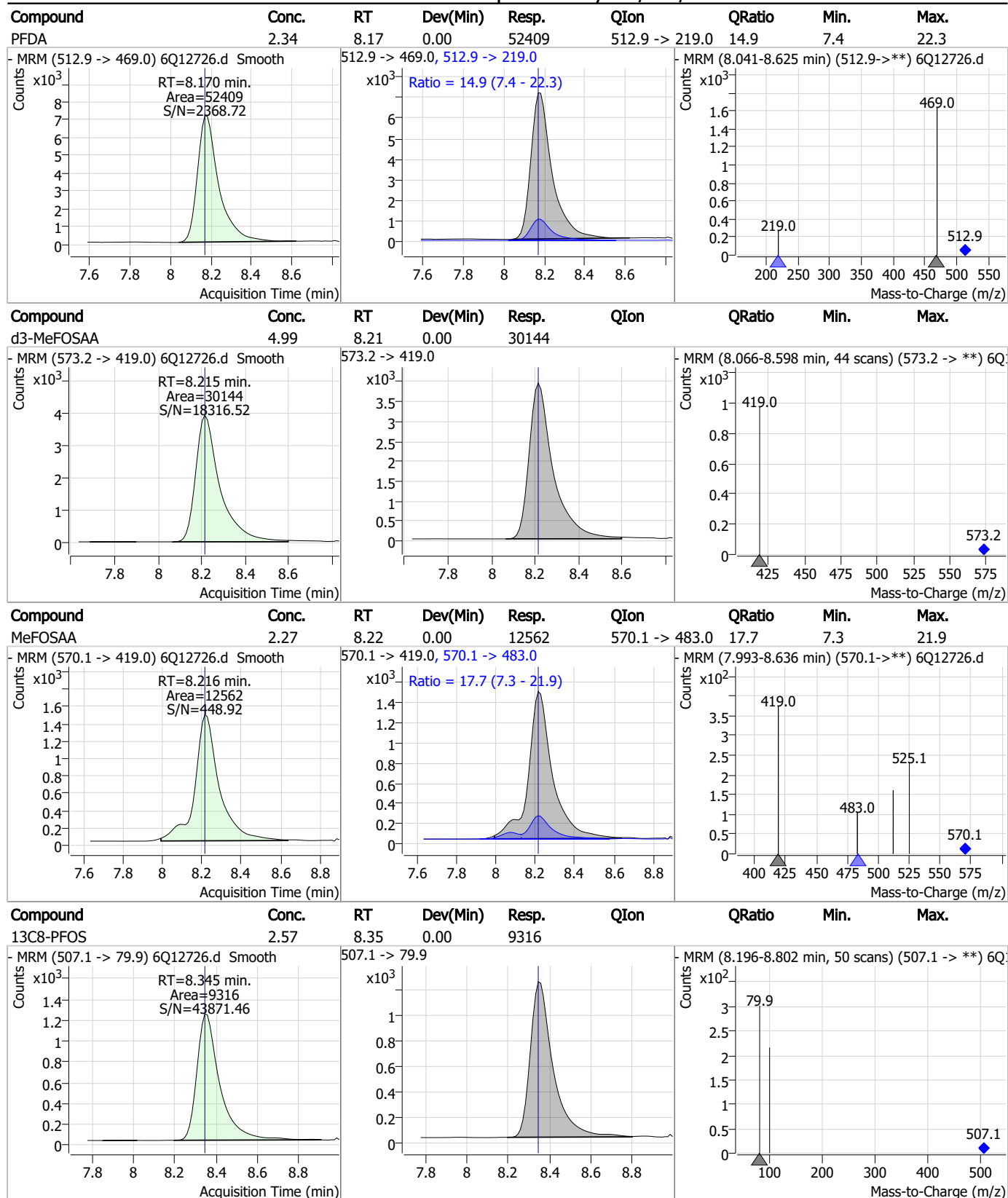




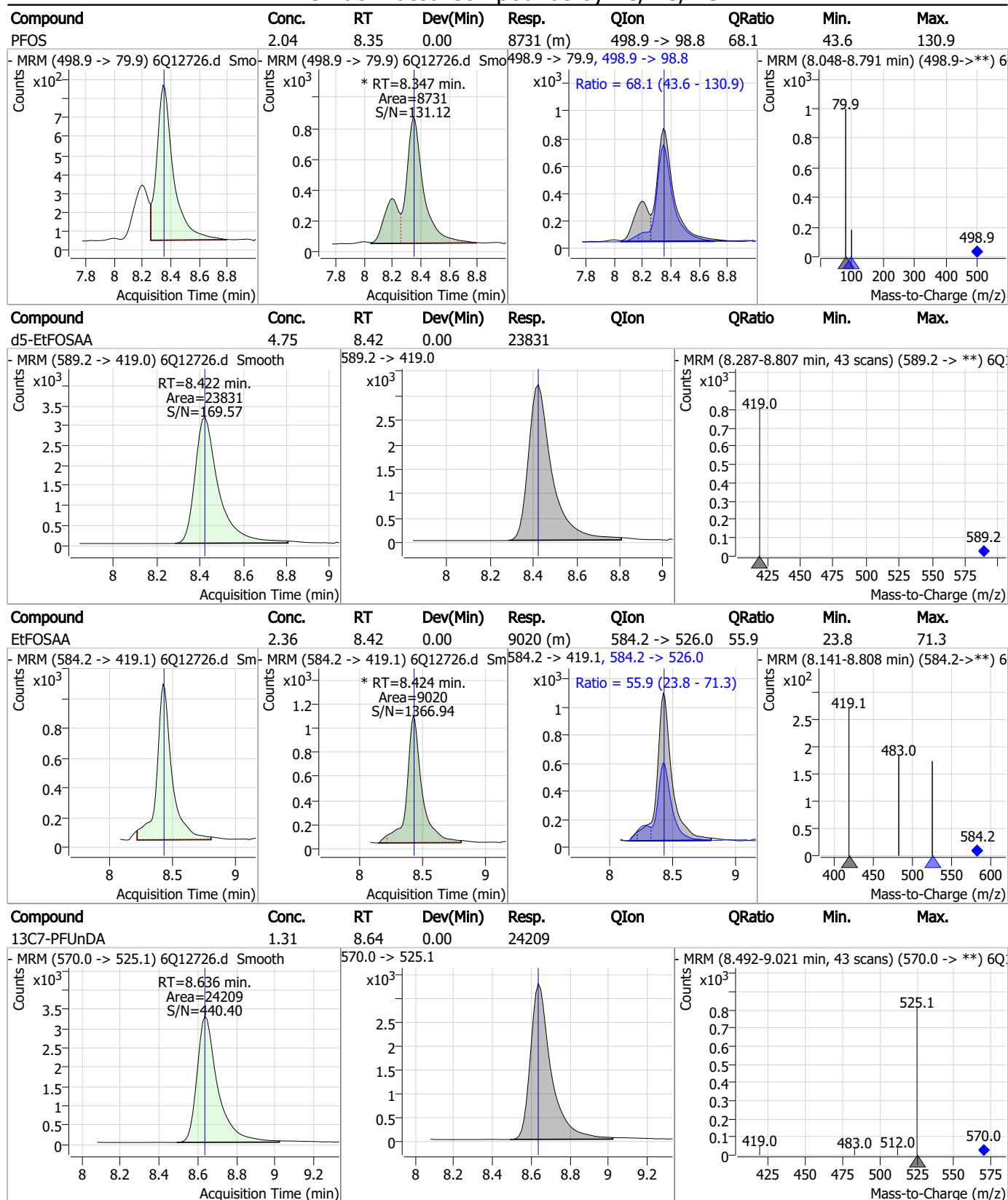
## Perfluorinated Compounds by LC/MS/MS



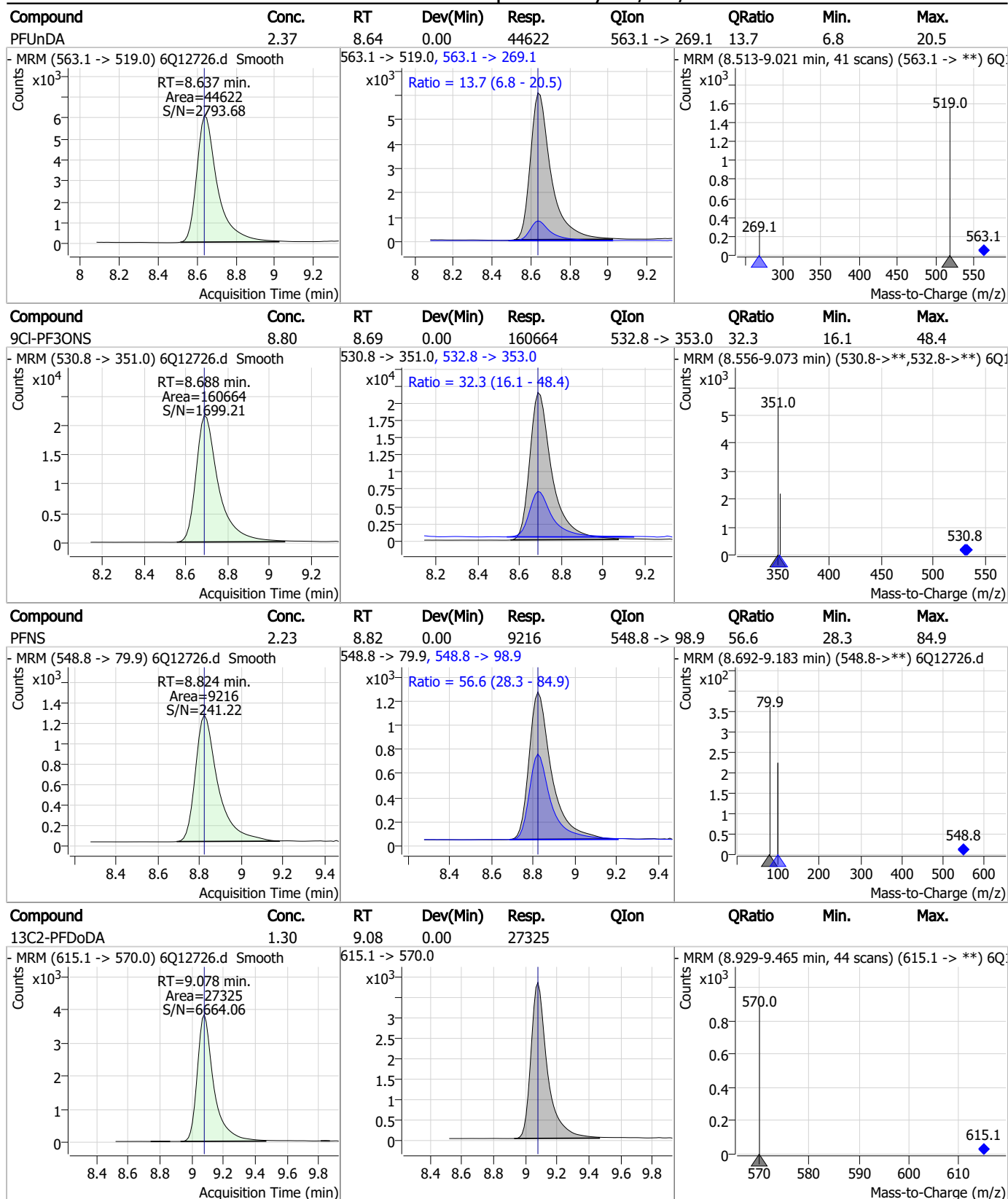
## Perfluorinated Compounds by LC/MS/MS



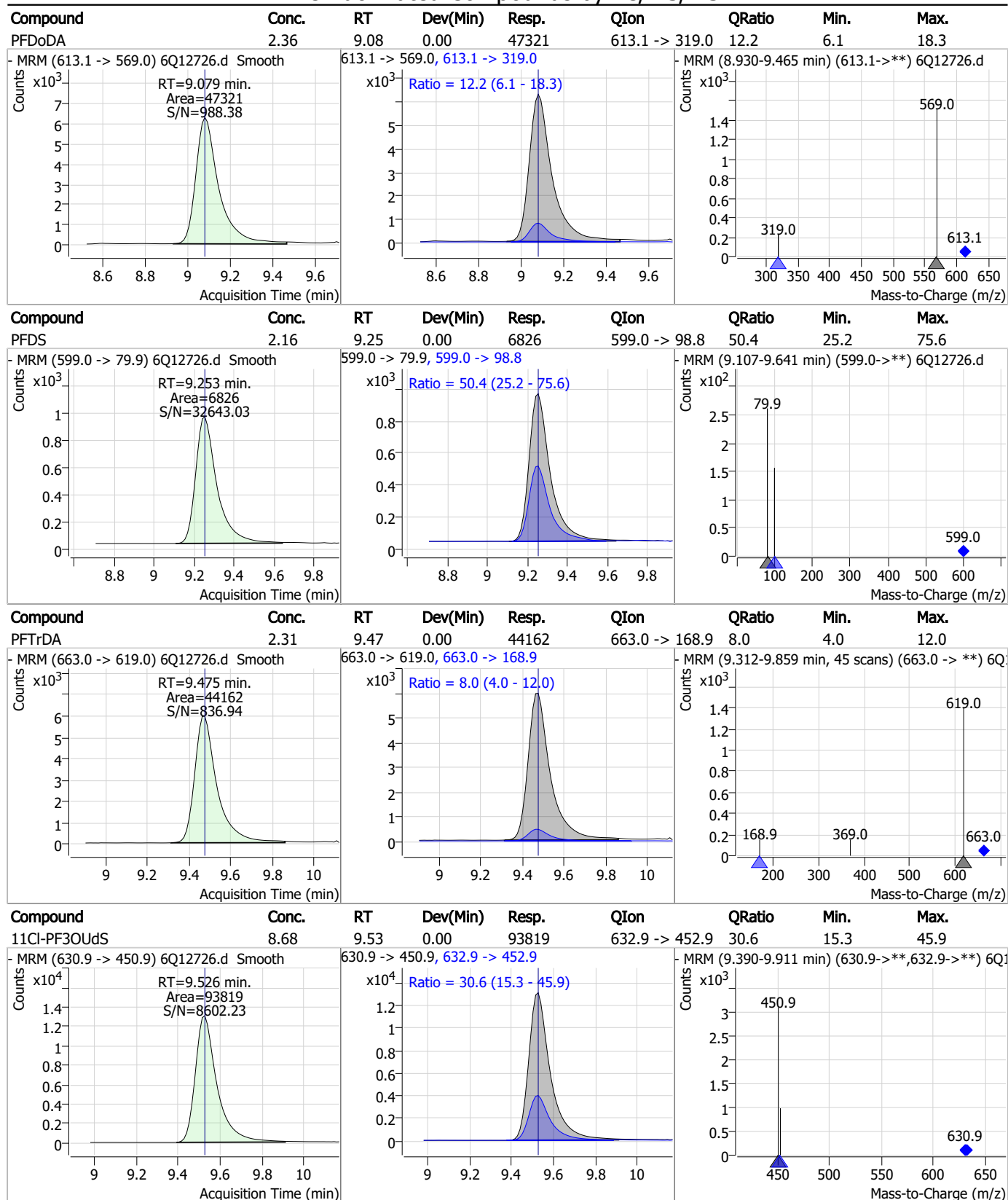
## Perfluorinated Compounds by LC/MS/MS



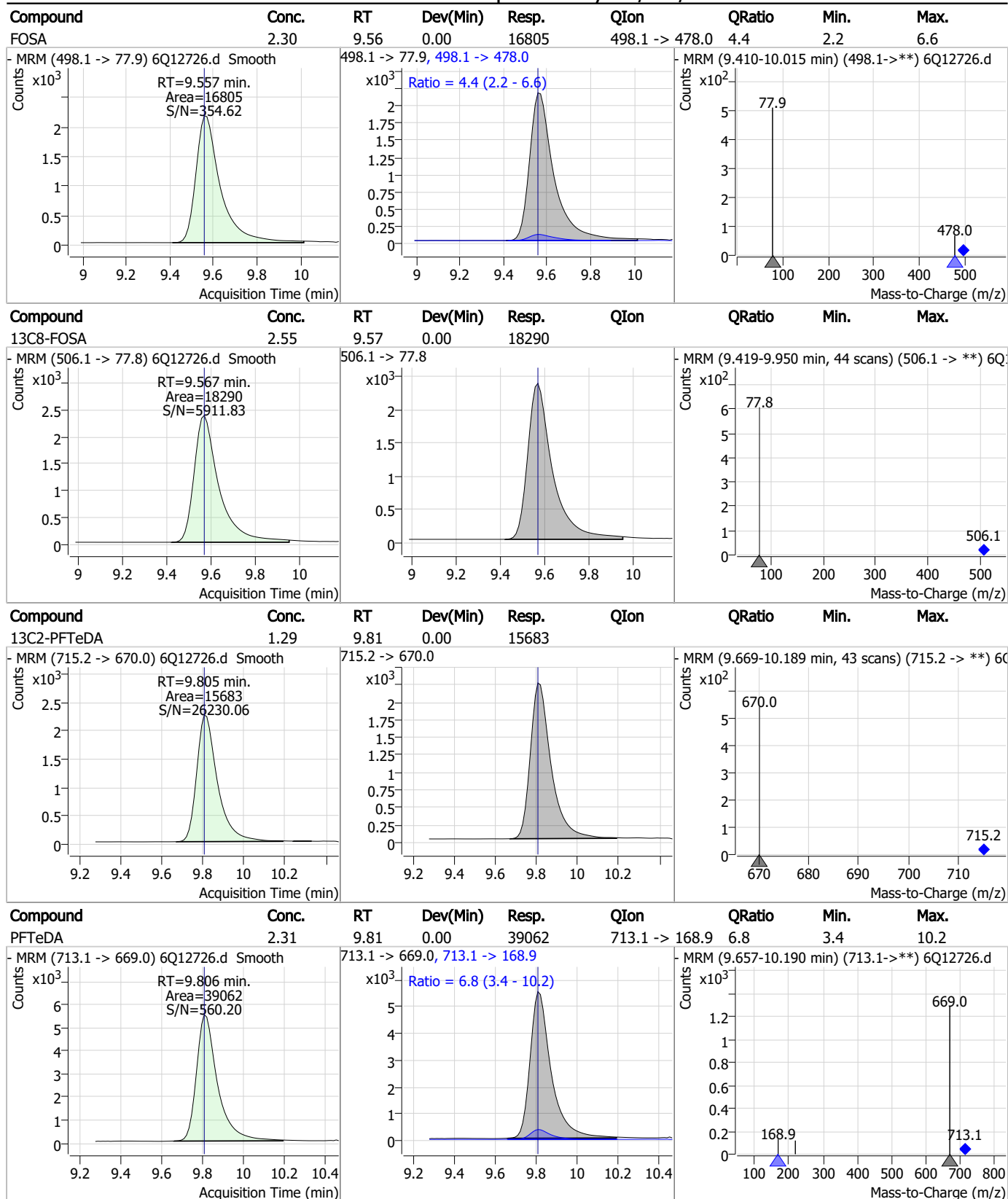
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



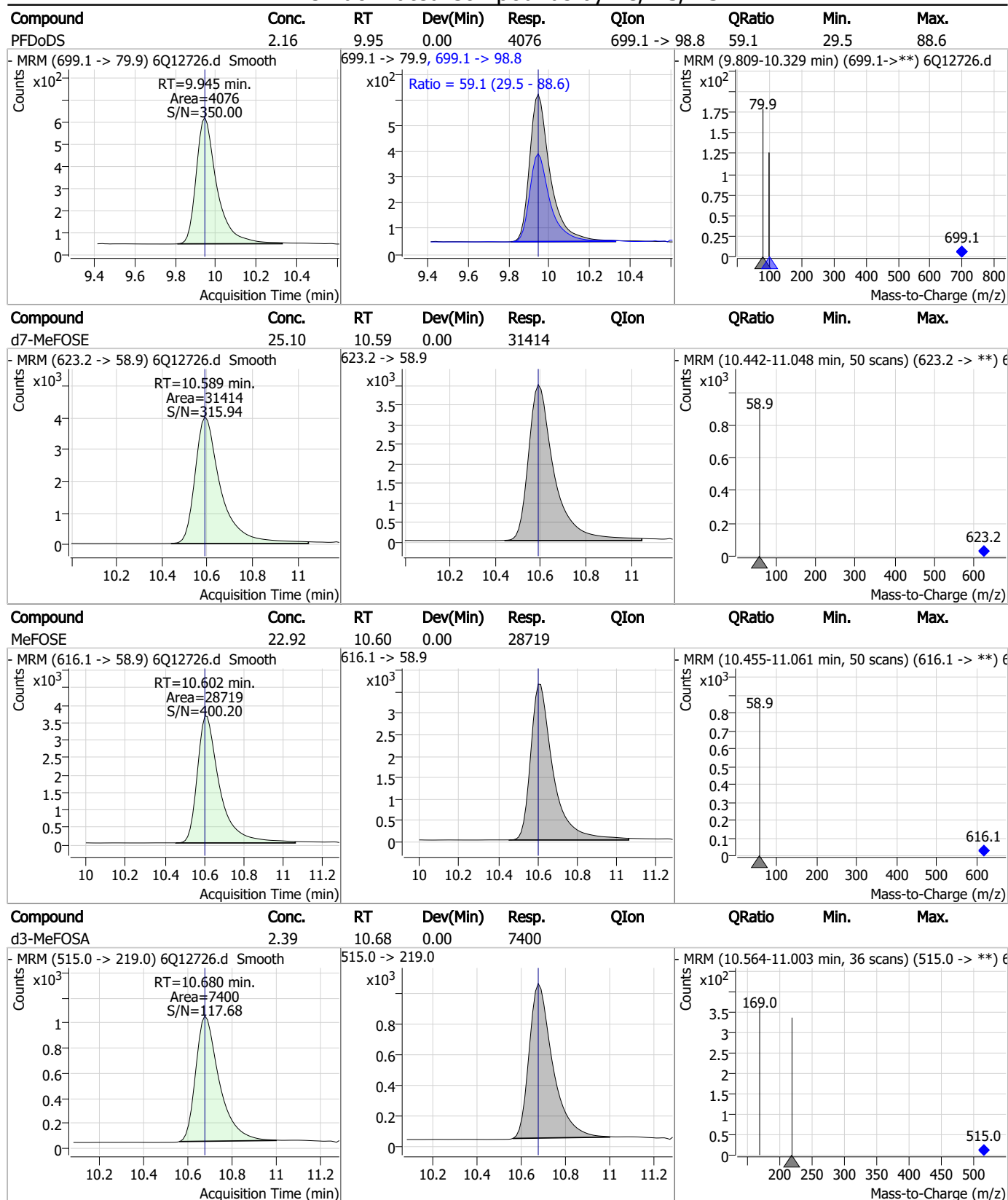
## Perfluorinated Compounds by LC/MS/MS



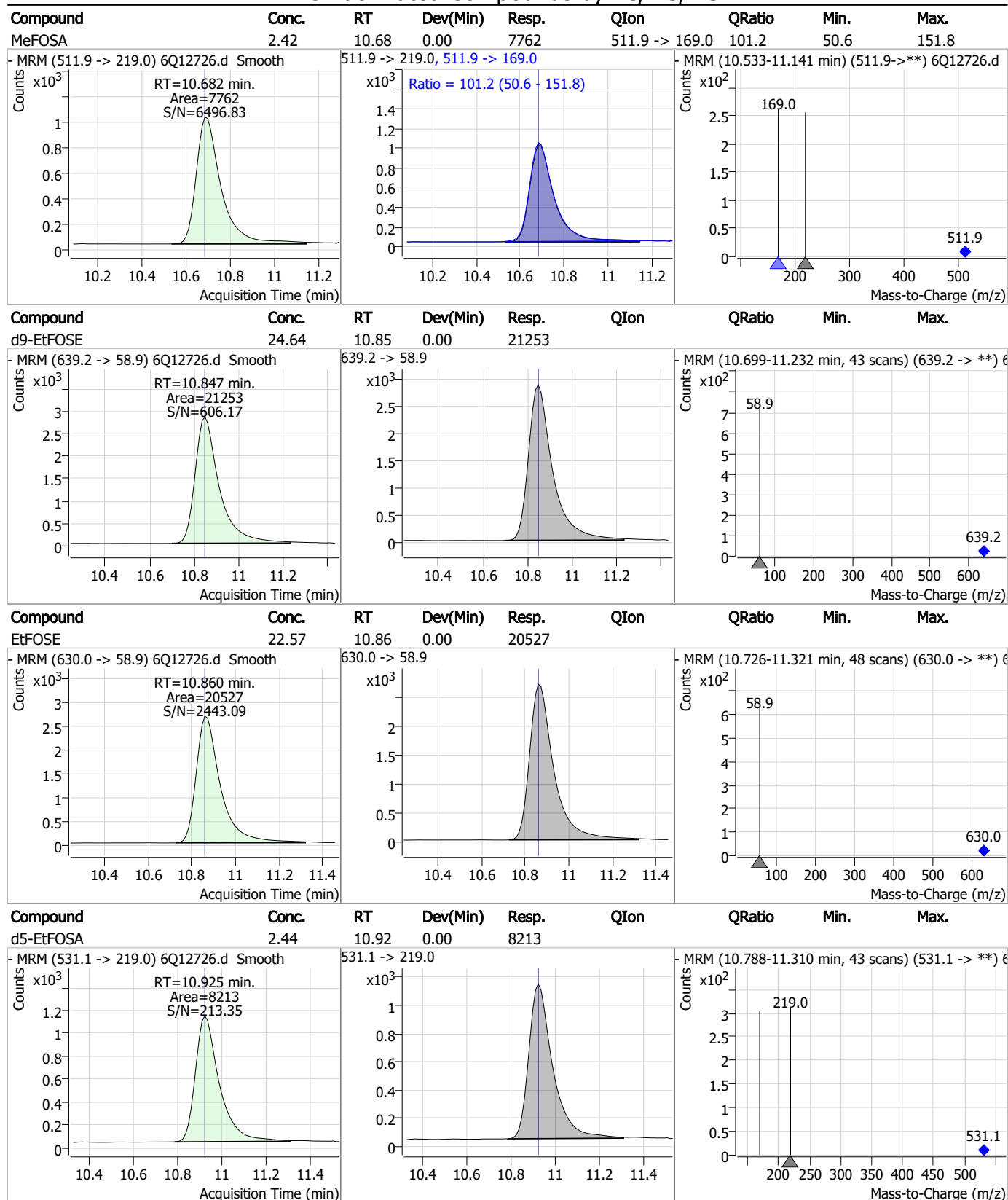
7.7.5

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## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

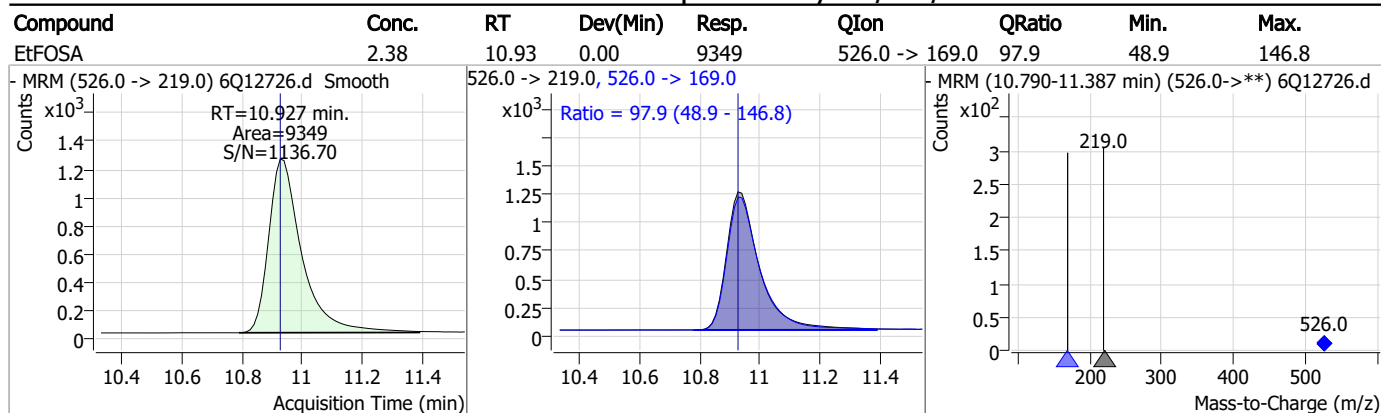


7.7.5

7



## Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Manual Integration Approval Summary

Sample Number: S6Q196-ICC196

Method: EPA DRAFT 1633

Lab FileID: 6Q12726.D

Analyst approved: 02/02/23 11:53 Martha Valls

Injection Time: 02/01/23 18:33

Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.5.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12727.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/1/2023 6:47:16 PM  
 Sample Name : ic196-5  
 Vial : P1-A6  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : S6Q196.batch.bin  
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	78942	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	39851	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	35890	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	36598	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	66375	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	27603	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19407	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	23309	1.25 µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	27350	1.25 µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	15463	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	17261	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	14287	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9246	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	9116	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2181	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3133	5.00 µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	3117	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	29599	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14480	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	26569	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	30467	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21457	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8119	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7652	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10334	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35625	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6977	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	79400	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	28578	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	33582	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	35943	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2181	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3133	5.21 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3117	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-PFDoDA	9.078	615.1 -> 570.0	27350	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15463	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C3-PFBS	5.518	302.1 -> 79.9	14287	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C3-PFHxS	7.274	402.1 -> 79.9	9246	2.52 µg/L	0.000

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C4-PFBA	2.975	216.8 -> 171.9	78942	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C4-PFHpA	6.502	367.1 -> 322.0	36598	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C5-PFHxA	5.563	318.0 -> 273.0	35890	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C5-PFPeA	4.386	268.3 -> 223.0	39851	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C6-PFDA	8.170	519.1 -> 474.1	19407	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C7-PFUnDA	8.636	570.0 -> 525.1	23309	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C8-FOSA	9.567	506.1 -> 77.8	17261	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C8-PFOA	7.146	421.1 -> 376.0	66375	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C8-PFOS	8.345	507.1 -> 79.9	9116	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.3%		
13C9-PFNA	7.677	472.1 -> 427.0	27603	1.17 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.4%		
d3-MeFOSAA	8.215	573.2 -> 419.0	29599	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	14480	9.86 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
d3-MeFOSA	10.680	515.0 -> 219.0	7652	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.6%		
d5-EtFOSAA	8.410	589.2 -> 419.0	26569	5.65 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.1%		
d7-MeFOSE	10.589	623.2 -> 58.9	30467	25.96 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
d9-EtFOSE	10.847	639.2 -> 58.9	21457	26.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 106.1%		
d5-EtFOSA	10.925	531.1 -> 219.0	8119	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		

## Target Compounds

					QValue
4:2FTS	5.240	327.1 -> 307.0	100511	20.55 µg/L	97
		327.1 -> 80.9	20631		
6:2FTS	6.908	427.1 -> 407.0	86930	18.95 µg/L	98
		427.1 -> 80.9	16825		
8:2FTS	7.958	527.1 -> 507.0	37347	15.43 µg/L	90
		527.1 -> 80.8	10895		
EtFOSAA	8.424	584.2 -> 419.1	19150	4.50 µg/L	88
		584.2 -> 526.0	10602		
FOSA	9.557	498.1 -> 77.9	33849	4.91 µg/L	100
		498.1 -> 478.0	1503		
MeFOSAA	8.216	570.1 -> 419.0	28560	5.27 µg/L	94
		570.1 -> 483.0	4913		
PFBA	2.982	212.8 -> 168.9	35222	19.98 µg/L	100
PFBS	5.518	298.7 -> 79.9	23666	4.31 µg/L	93
		298.7 -> 98.8	11459		
PFDA	8.170	512.9 -> 469.0	110156	4.99 µg/L	99
		512.9 -> 219.0	16678		
PFDODA	9.079	613.1 -> 569.0	97991	4.89 µg/L	100
		613.1 -> 319.0	12126		
PFDS	9.241	599.0 -> 79.9	14293	4.63 µg/L	99

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	7320	5.08	µg/L	98
		363.1 -> 319.0	110098			
PFHpS	7.841	363.1 -> 169.0	14498	4.70	µg/L	99
		449.0 -> 79.9	18161			
PFHxA	5.566	449.0 -> 98.9	9926	4.89	µg/L	99
		313.0 -> 269.0	68851			
PFHxS	7.275	313.0 -> 118.9	2814	4.46	µg/L	90
		398.7 -> 79.9	18510			
PFNA	7.677	398.7 -> 98.9	10266	5.15	µg/L	99
		463.0 -> 419.0	95950			
PFNS	8.824	463.0 -> 219.0	17850	4.69	µg/L	98
		548.8 -> 79.9	19012			
PFOA	7.148	548.8 -> 98.9	11068	5.05	µg/L	97
		413.0 -> 369.0	147721			
PFOS	8.347	413.0 -> 169.0	18543	4.24	µg/L	71
		498.9 -> 79.9	17743			
PFPeA	4.388	498.9 -> 98.8	10779	9.95	µg/L	100
		263.0 -> 219.0	83769			
PFPeS	6.581	349.1 -> 79.9	21594	4.47	µg/L	95
		349.1 -> 98.9	11768			
PFTeDA	9.806	713.1 -> 669.0	85389	5.12	µg/L	99
		713.1 -> 168.9	5586			
PFTrDA	9.462	663.0 -> 619.0	100172	5.23	µg/L	99
		663.0 -> 168.9	7718			
PFUnDA	8.637	563.1 -> 519.0	89375	4.92	µg/L	96
		563.1 -> 269.1	13860			
11CI-PF3OUdS	9.526	630.9 -> 450.9	203989	19.63	µg/L	100
		632.9 -> 452.9	62820			
9CI-PF3ONS	8.688	530.8 -> 351.0	336601	19.16	µg/L	96
		532.8 -> 353.0	101391			
ADONA	6.753	376.9 -> 250.9	615502	19.59	µg/L	98
		376.9 -> 84.8	131793			
HFPO-DA	5.940	284.9 -> 168.9	29062	21.46	µg/L	97
		284.9 -> 184.9	3537			
3:3FTCA	3.841	241.0 -> 177.0	10332	25.00	µg/L	96
		241.0 -> 117.0	1339			
5:3FTCA	6.193	341.0 -> 237.1	362809	123.26	µg/L	97
		341.0 -> 217.0	325555			
7:3FTCA	7.605	441.0 -> 316.9	237904	123.66	µg/L	92
		441.0 -> 336.9	468899			
EtFOSA	10.927	526.0 -> 219.0	20073	5.18	µg/L	99
		526.0 -> 169.0	19373			
EtFOSE	10.860	630.0 -> 58.9	45861	49.94	µg/L	100
		511.9 -> 219.0	16774			
MeFOSA	10.682	511.9 -> 169.0	16422	5.07	µg/L	97
		616.1 -> 58.9	62231			
MeFOSE	10.602	699.1 -> 79.9	8906	51.20	µg/L	100
		699.1 -> 98.8	5317			
PFDoDS	9.945	295.0 -> 201.0	7961	4.82	µg/L	99
		295.0 -> 84.9	4300			
NFDHA	5.445	279.0 -> 85.1	24020	9.57	µg/L	96
		229.0 -> 84.9	22203			
PFMBA	4.787	314.8 -> 134.9	187773	9.89	µg/L	100
PFMPA	3.541	314.8 -> 82.9	4280			
PFEESA	6.059			9.27	µg/L	100

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

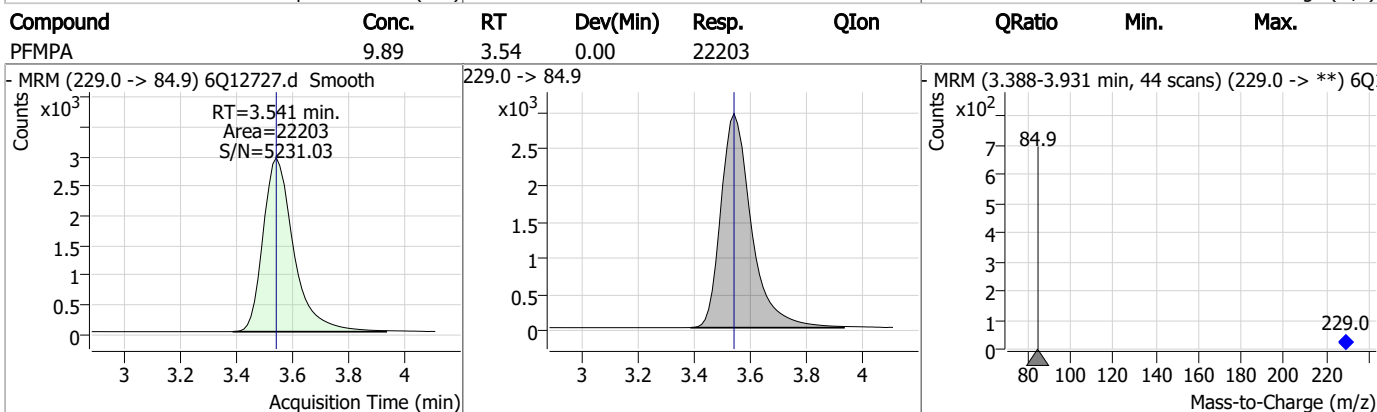
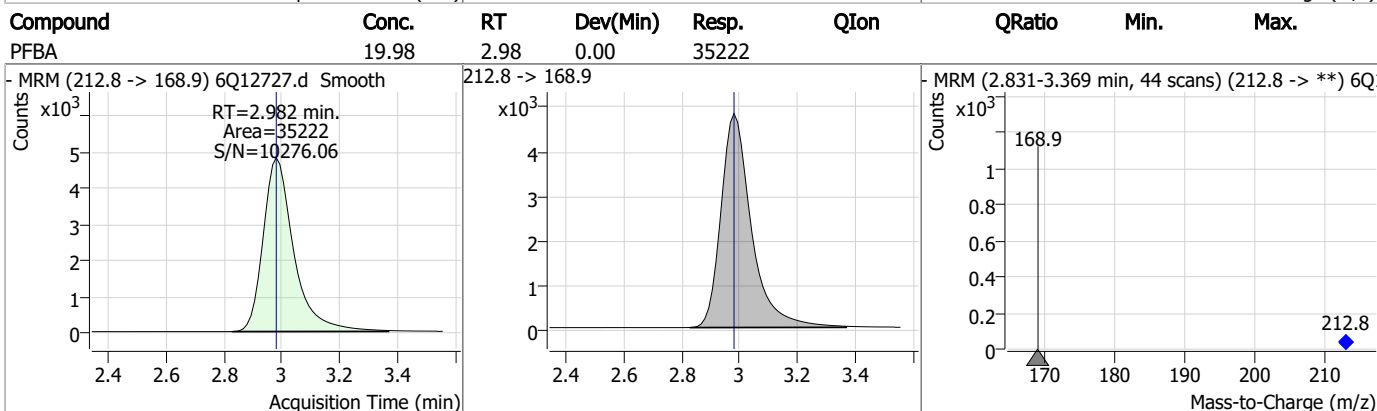
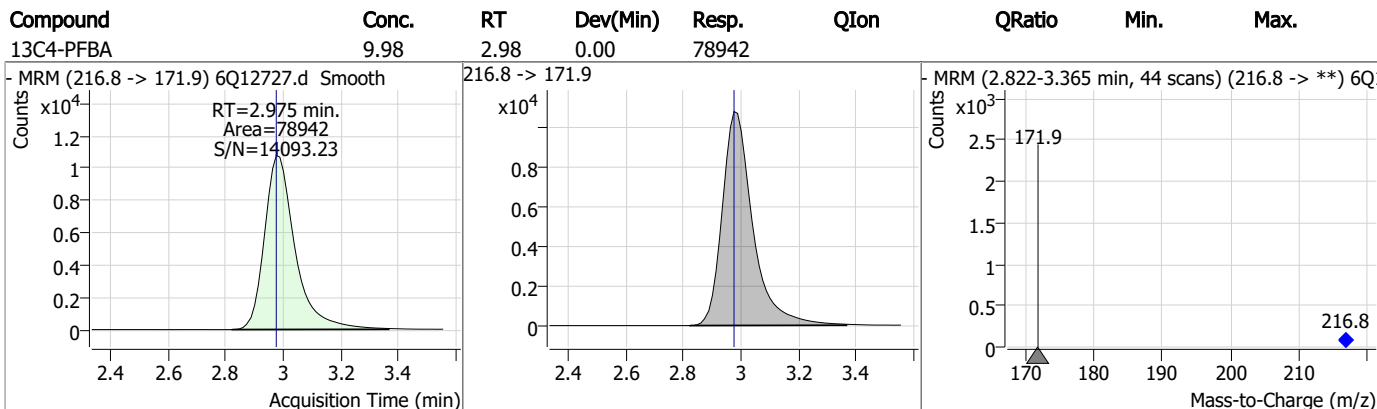
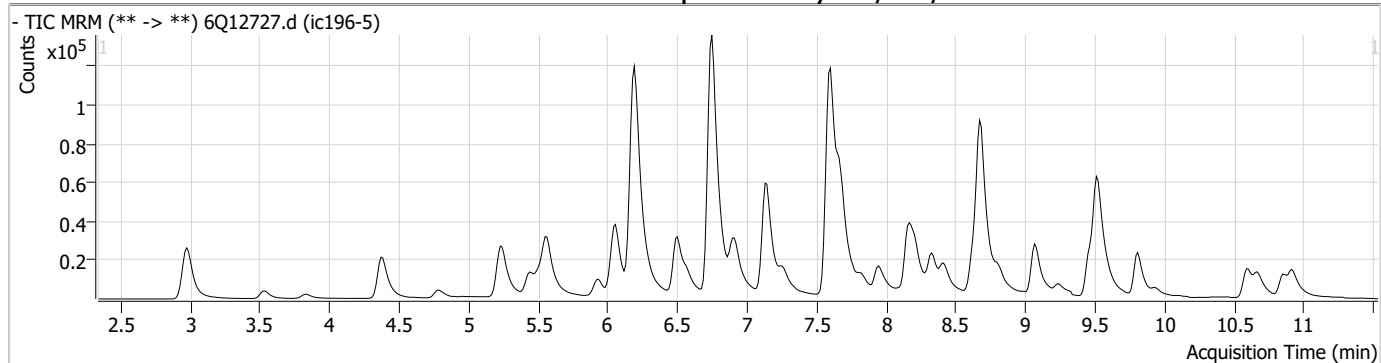
## Perfluorinated Compounds by LC/MS/MS

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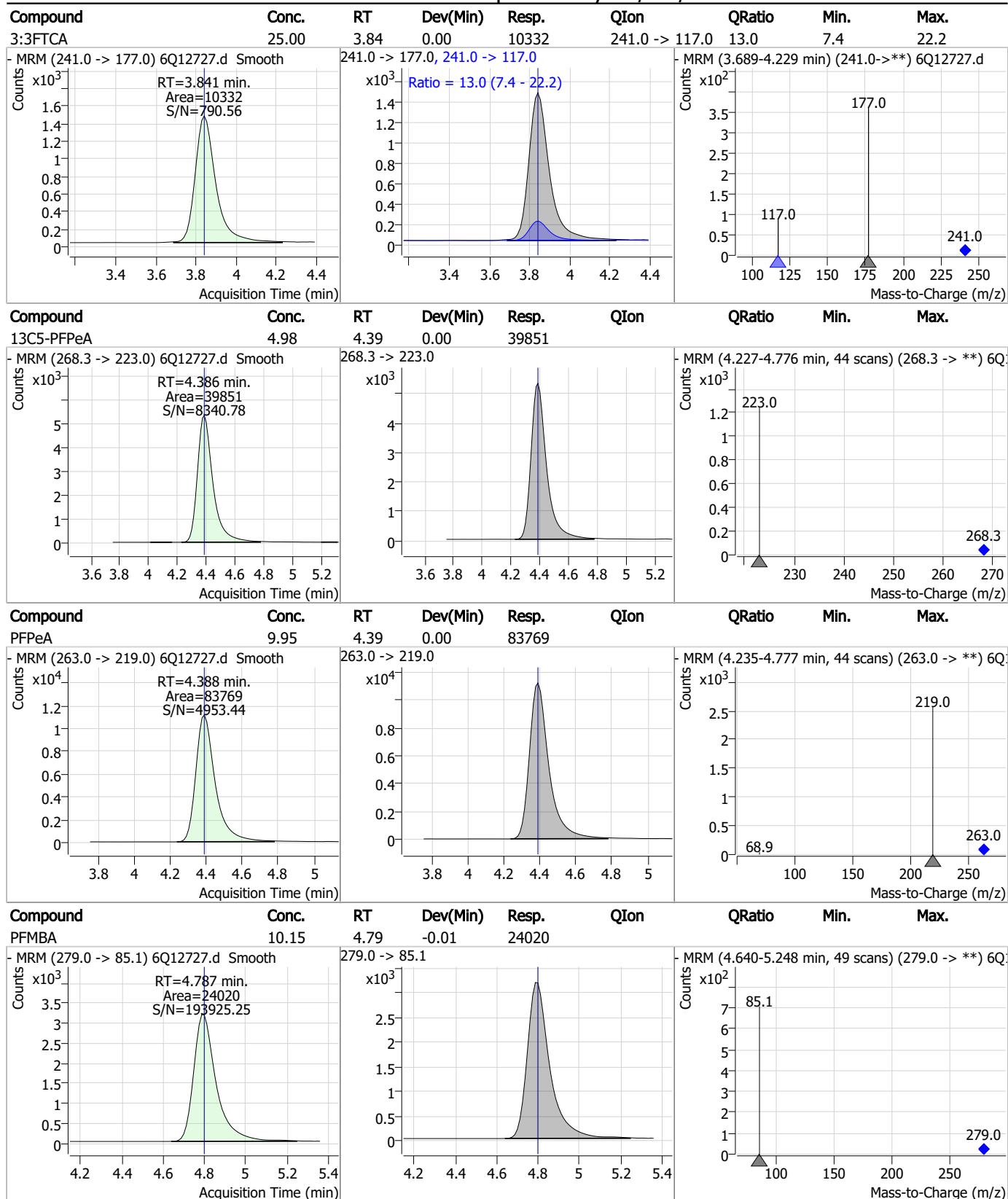
7.7.6

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## Perfluorinated Compounds by LC/MS/MS

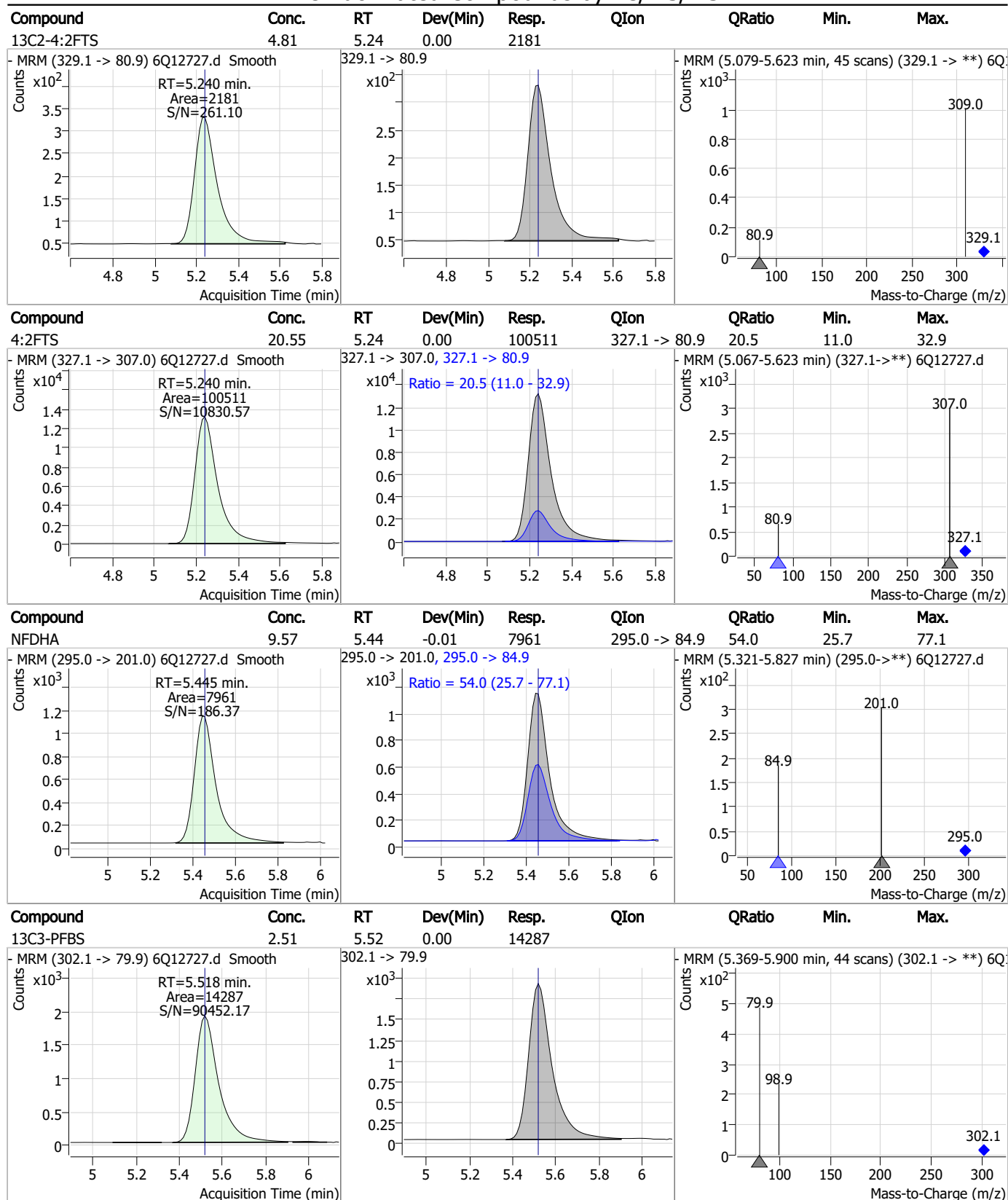


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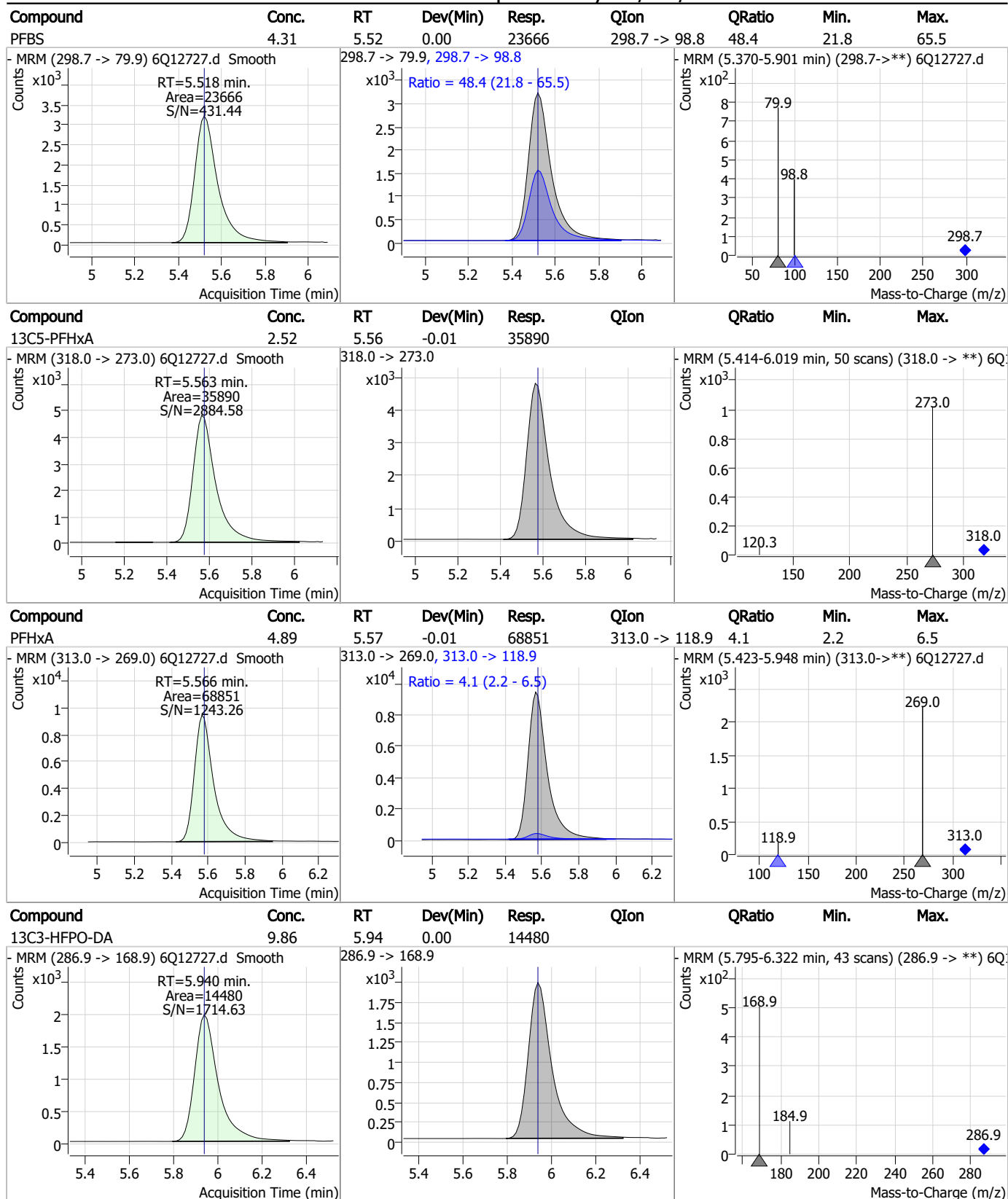




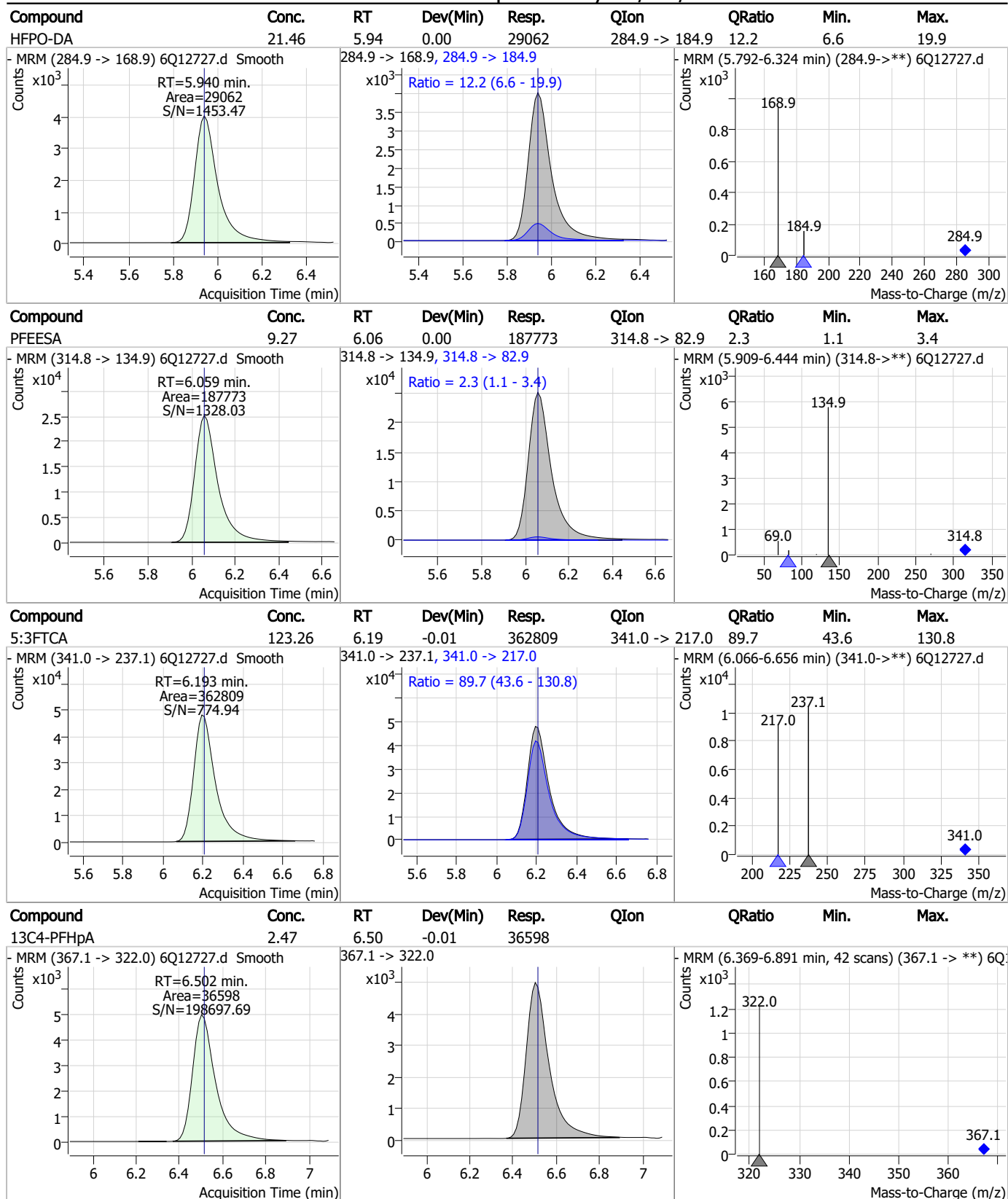
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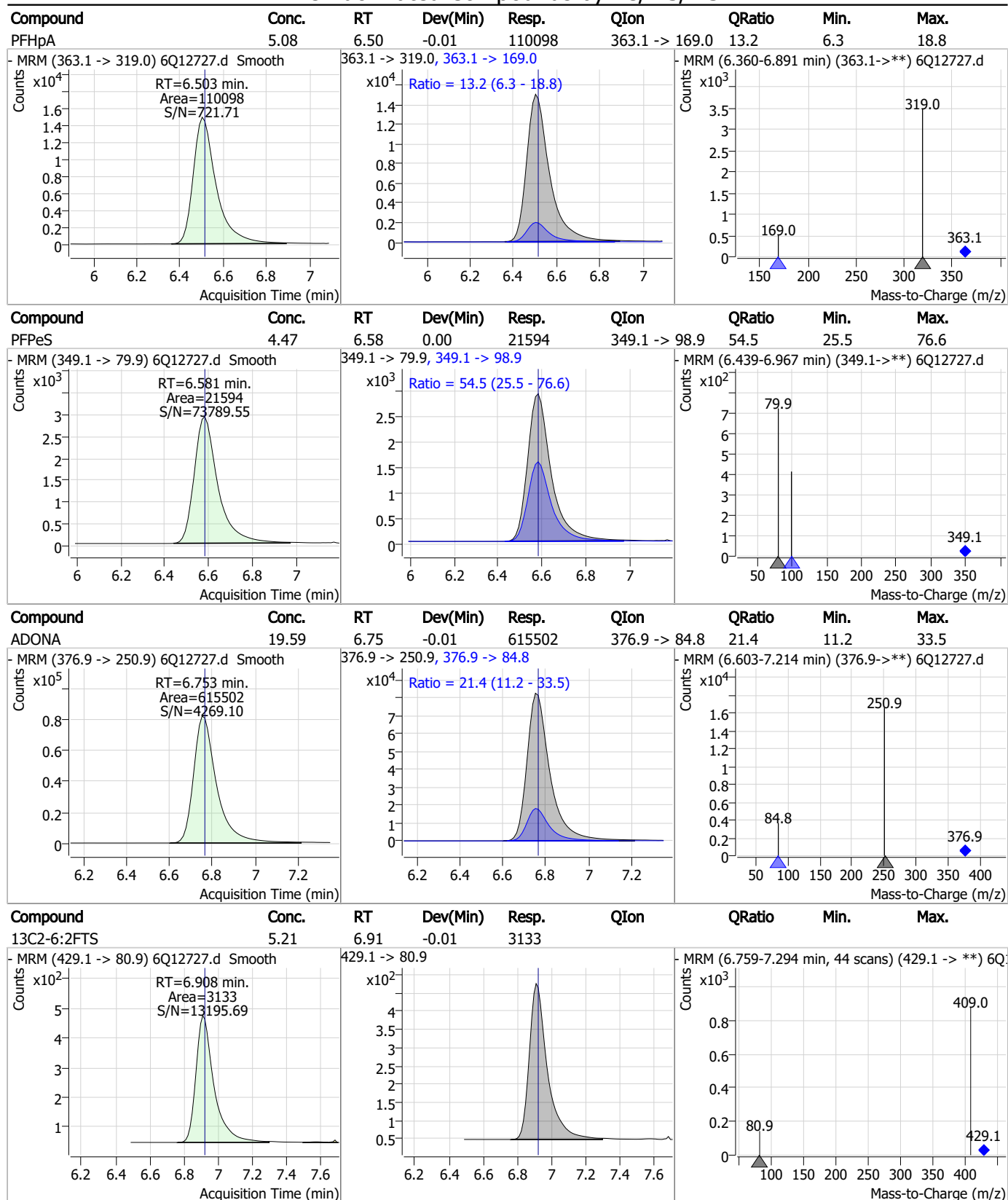
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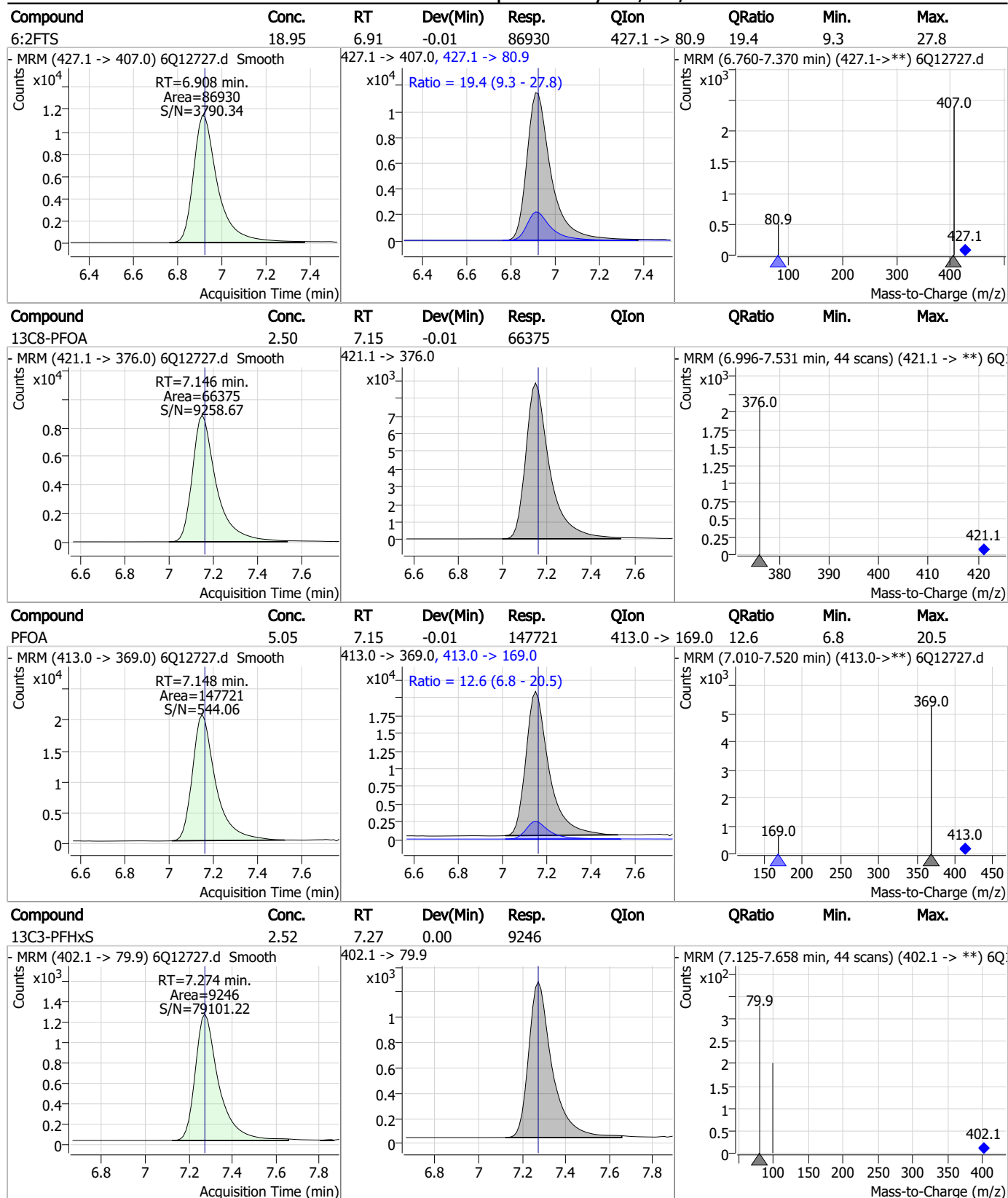
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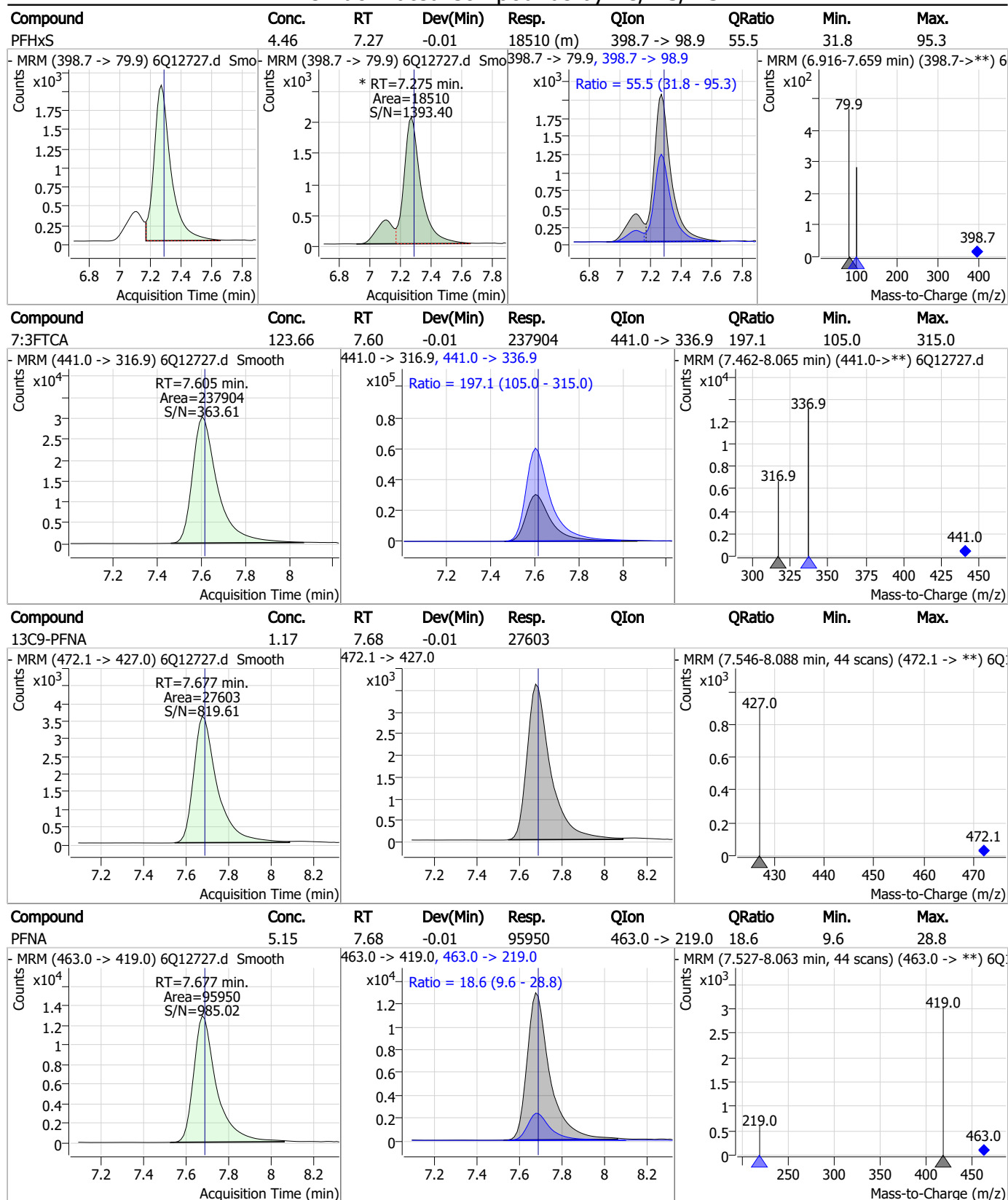
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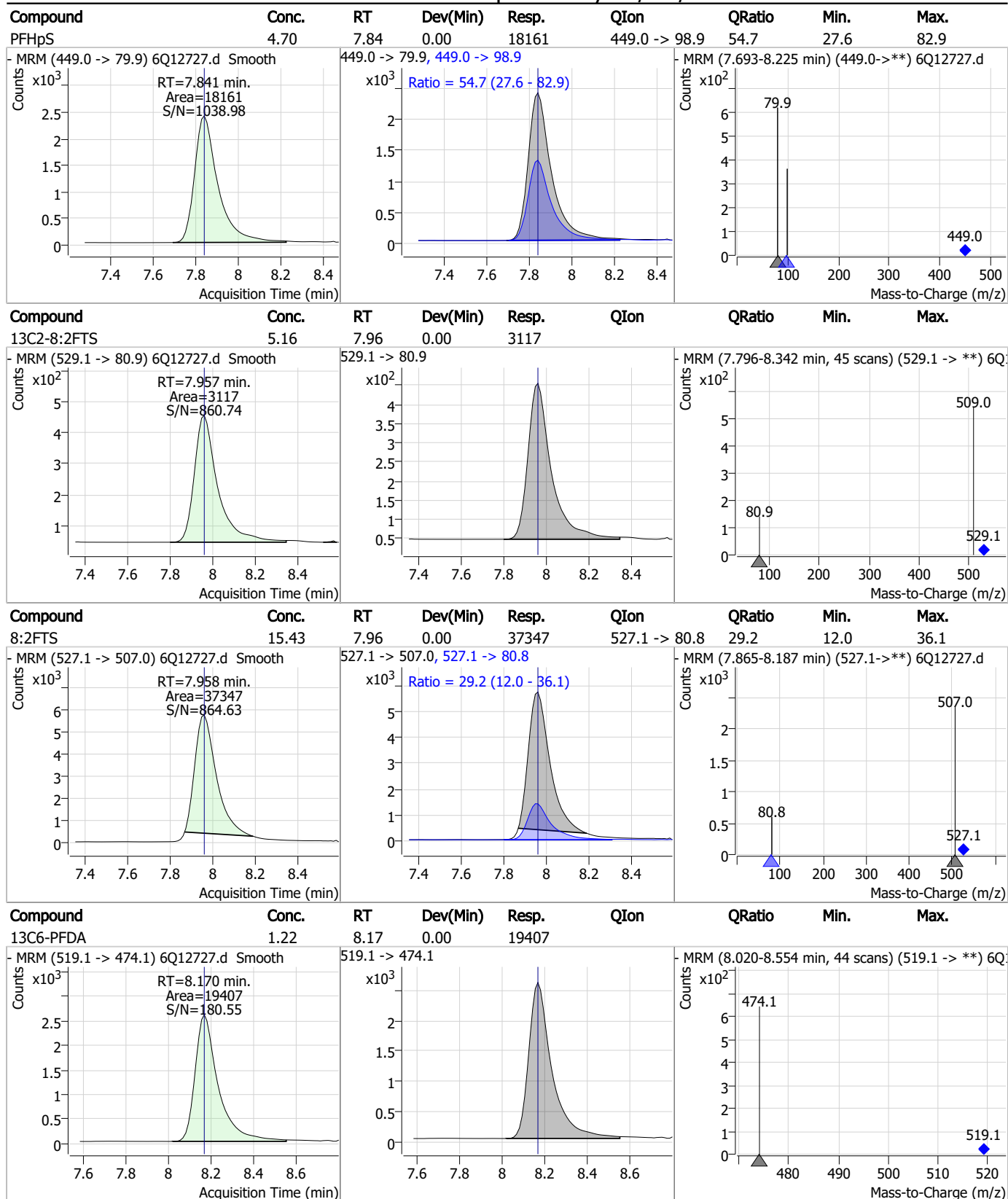
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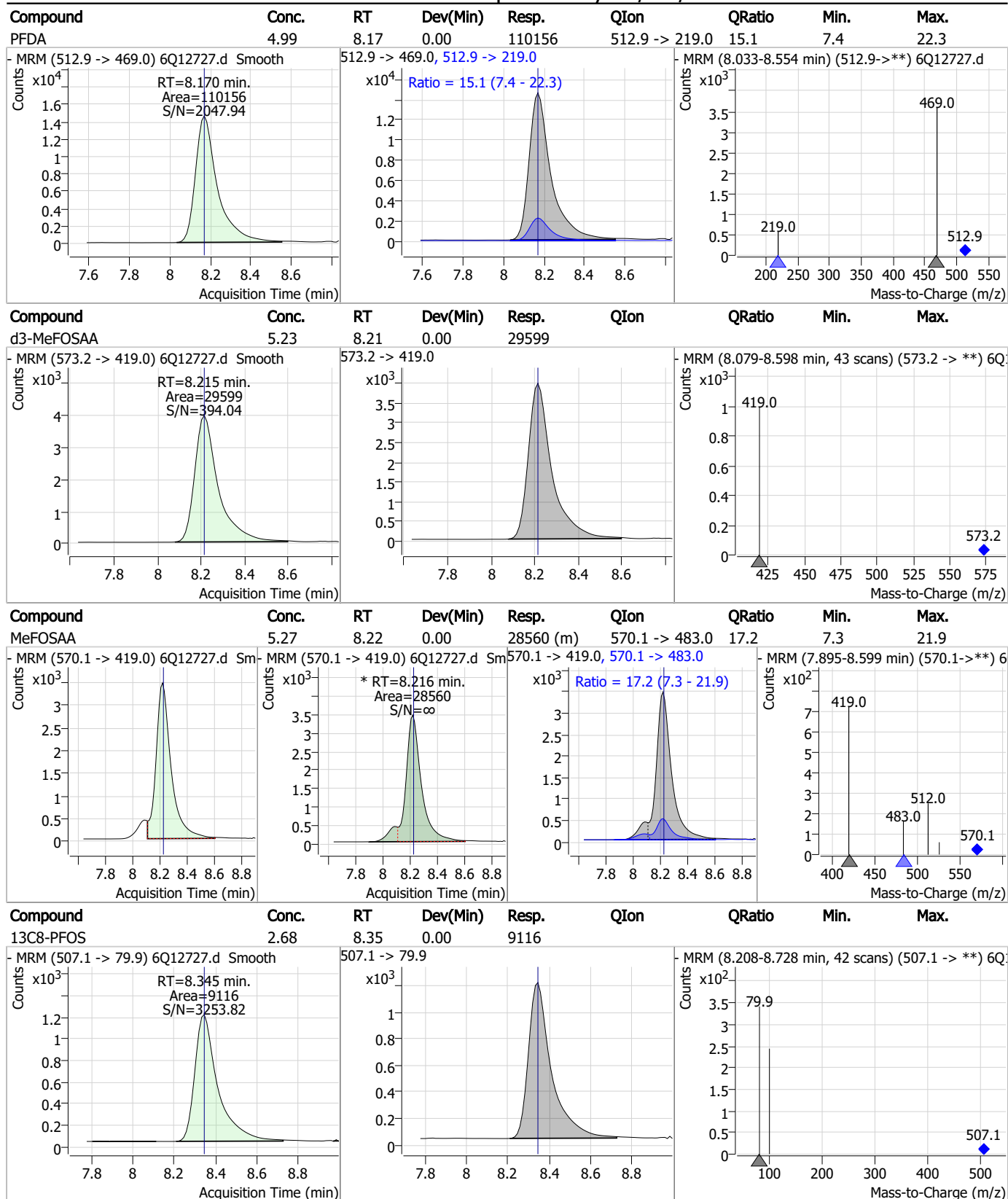
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

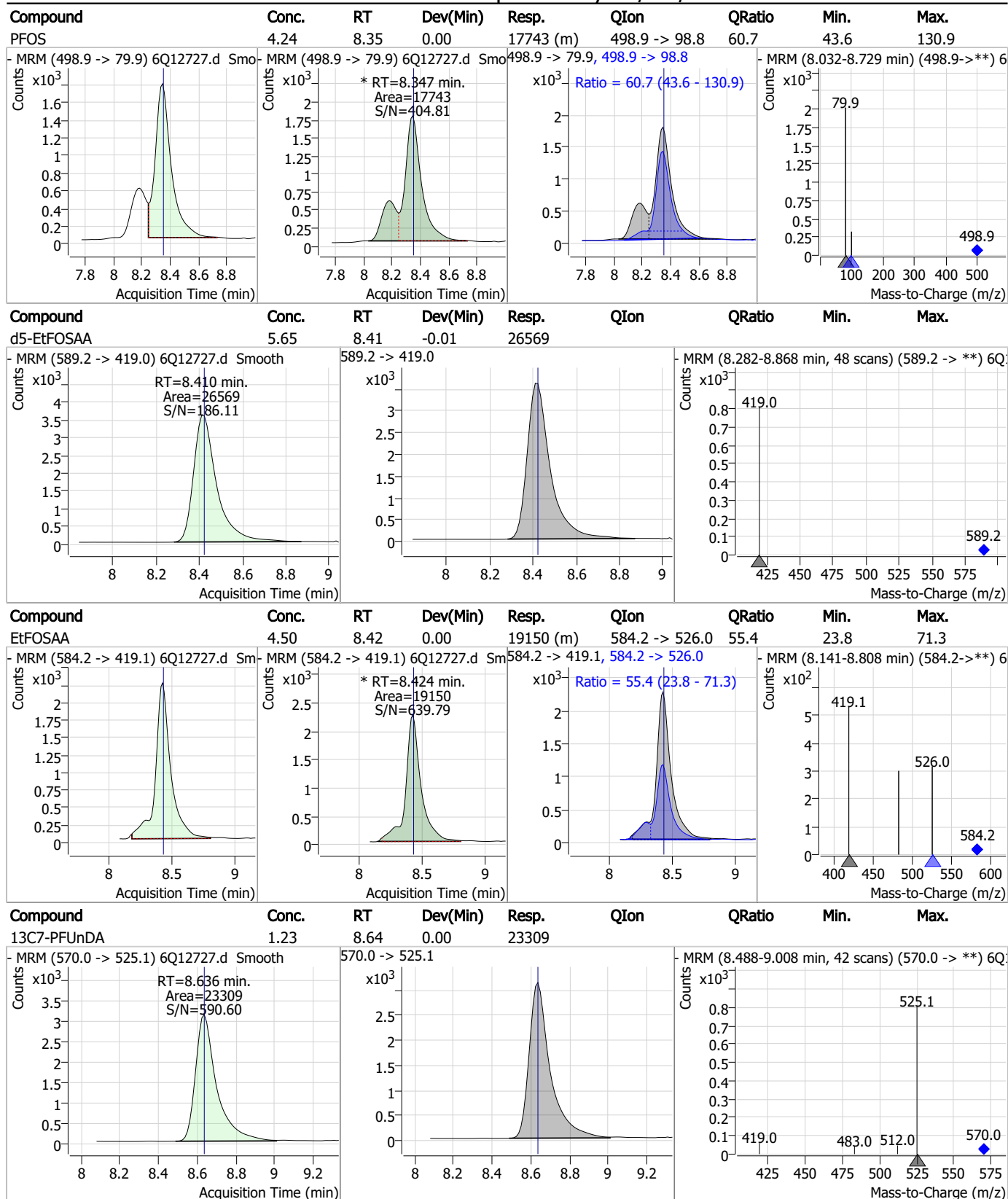


7.7.6

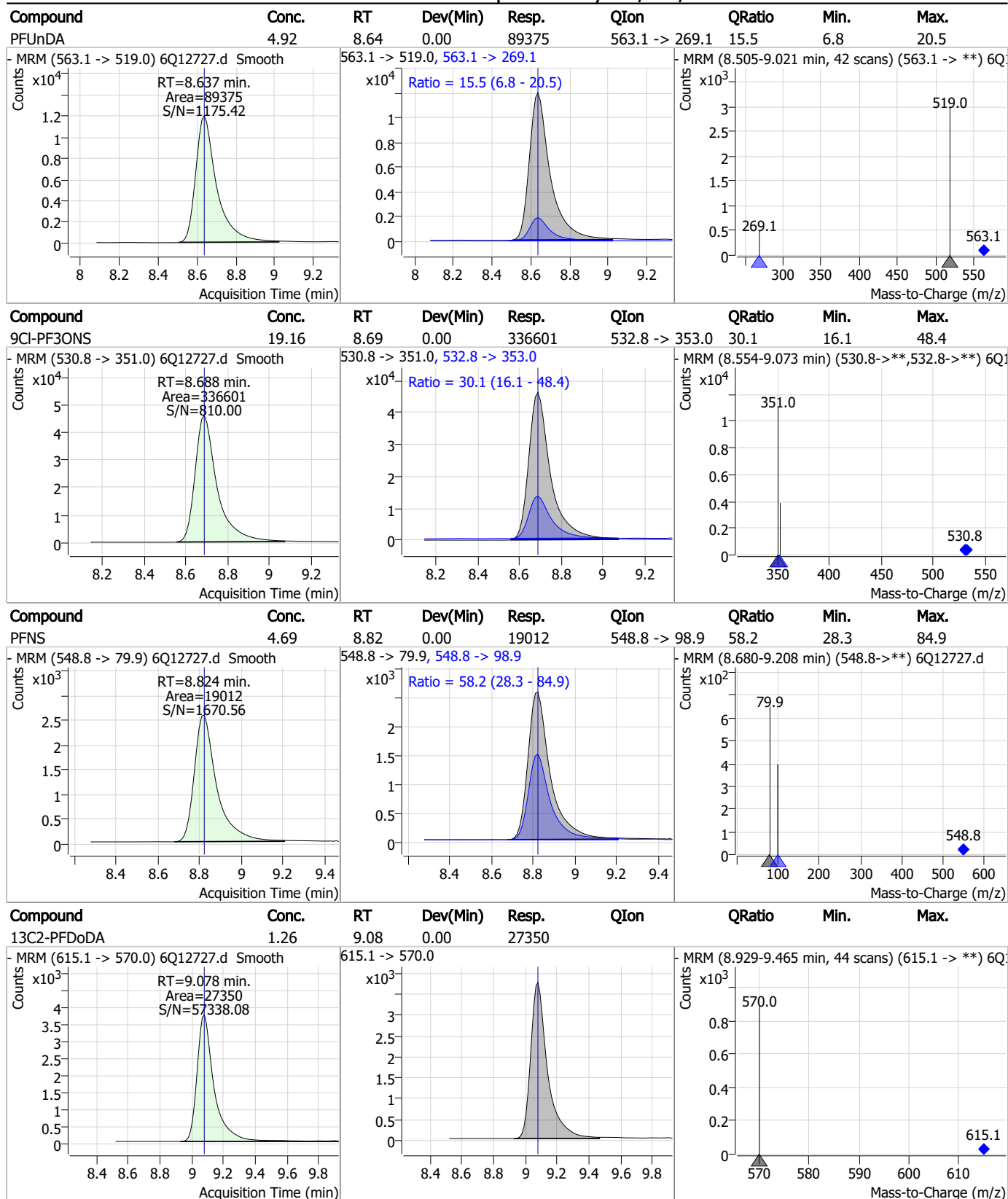
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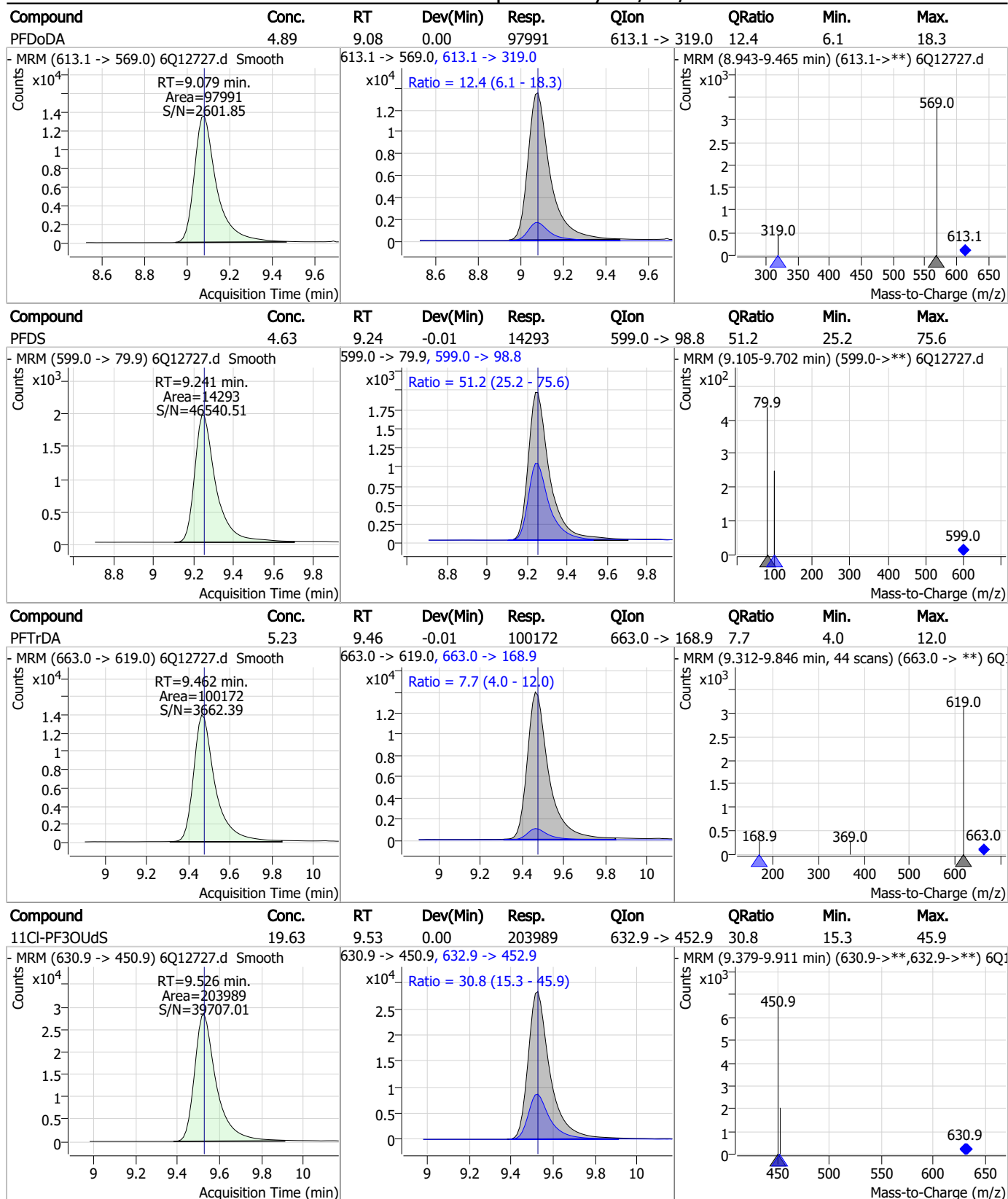
## Perfluorinated Compounds by LC/MS/MS



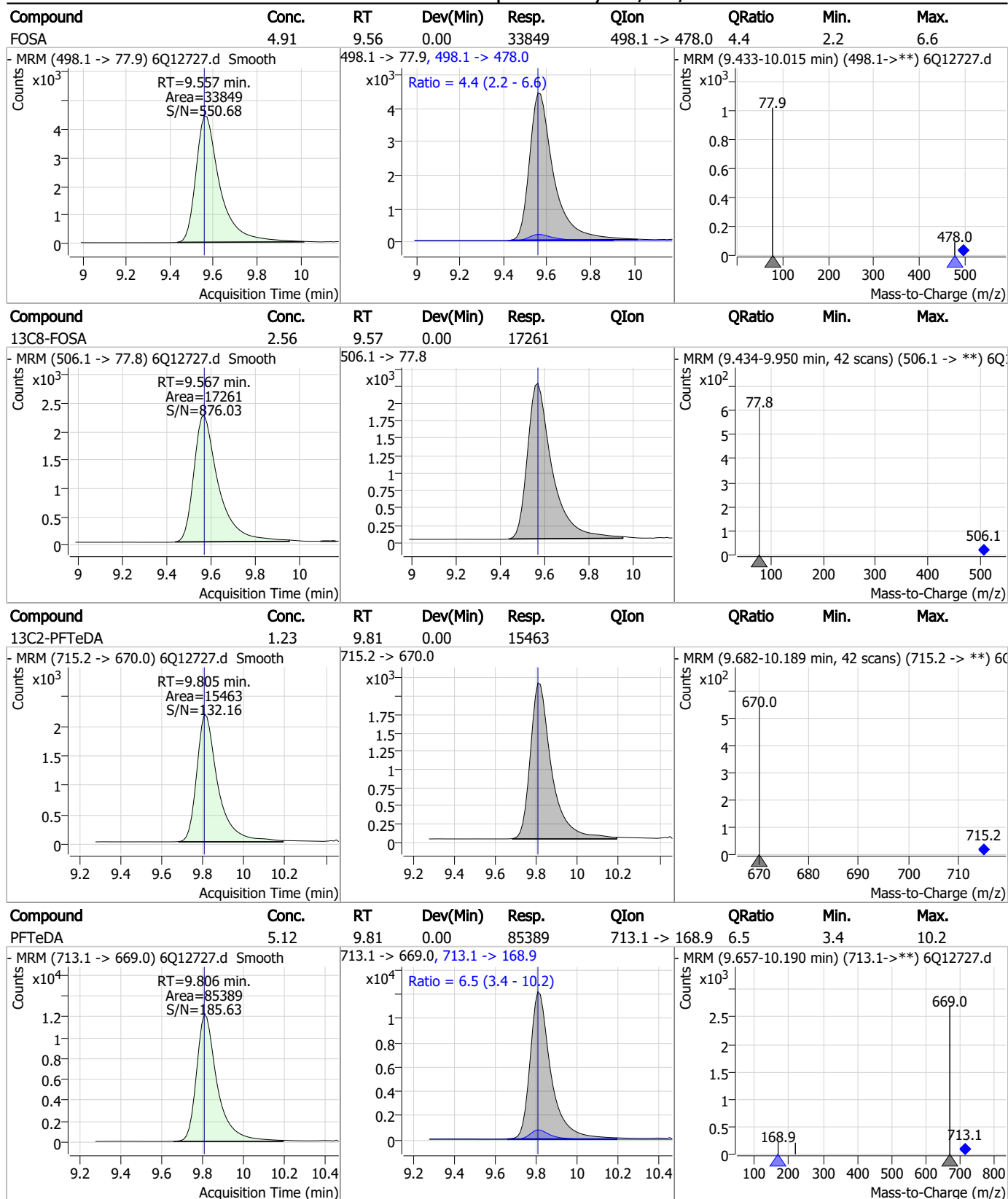
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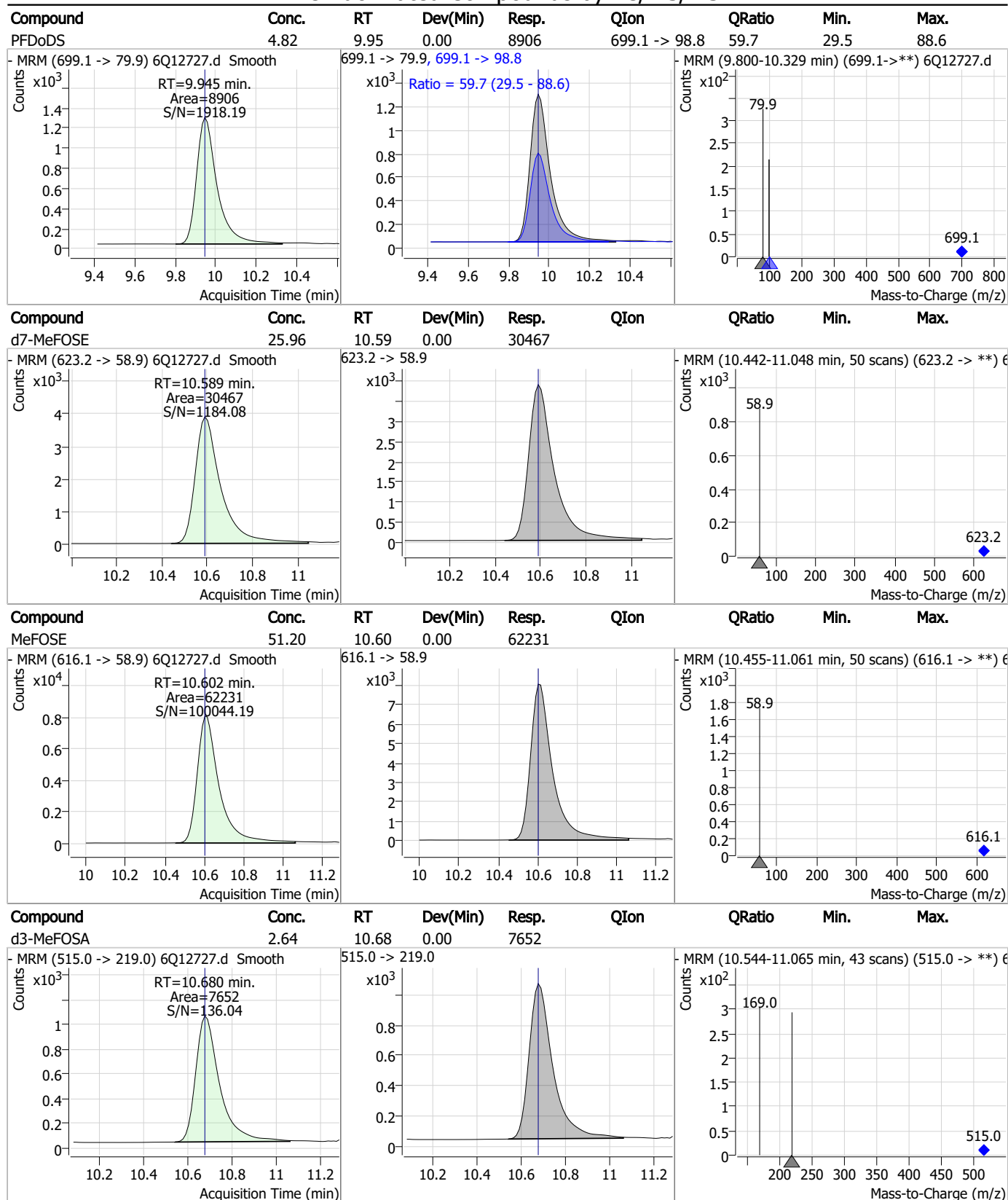
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



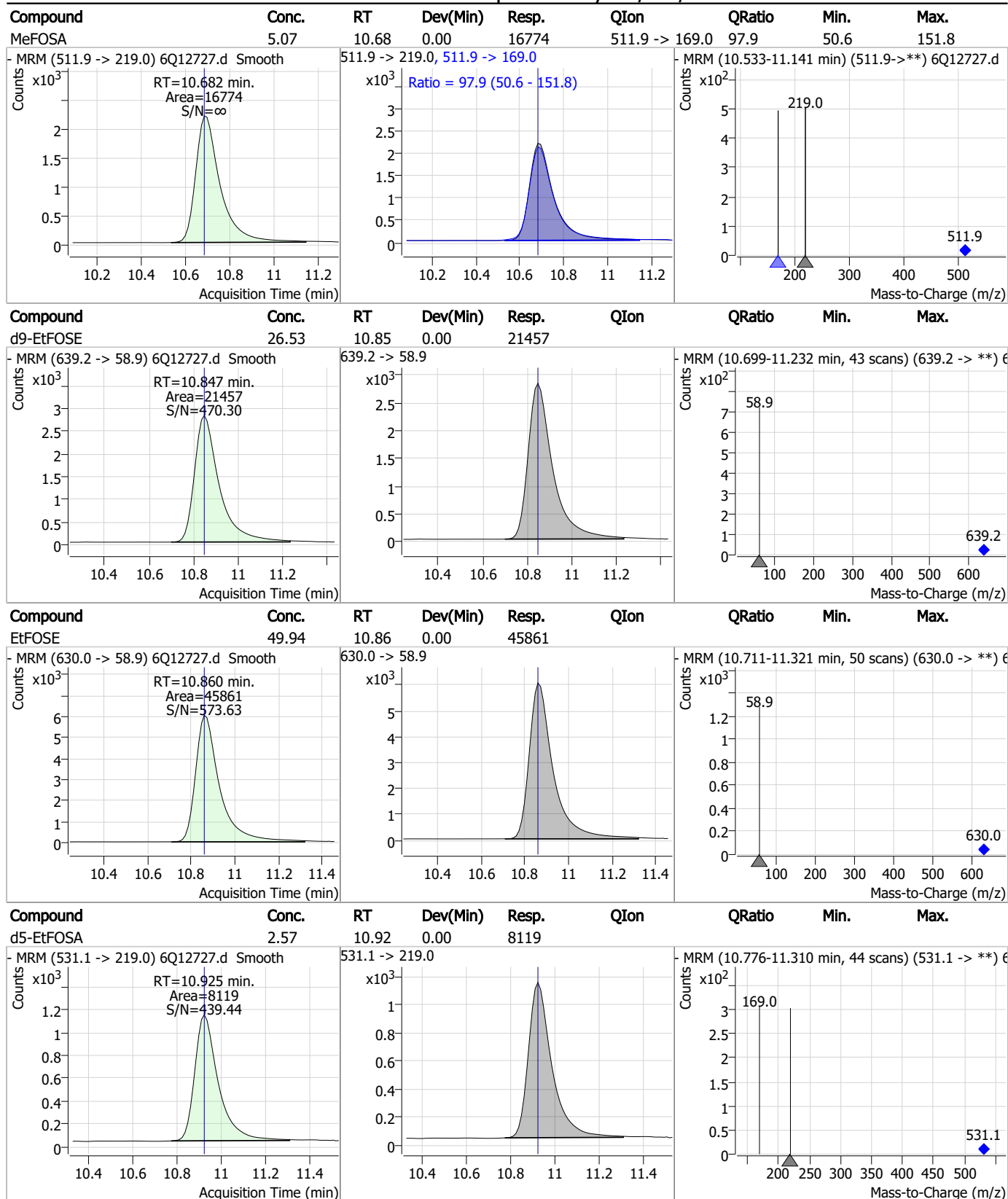
## Perfluorinated Compounds by LC/MS/MS



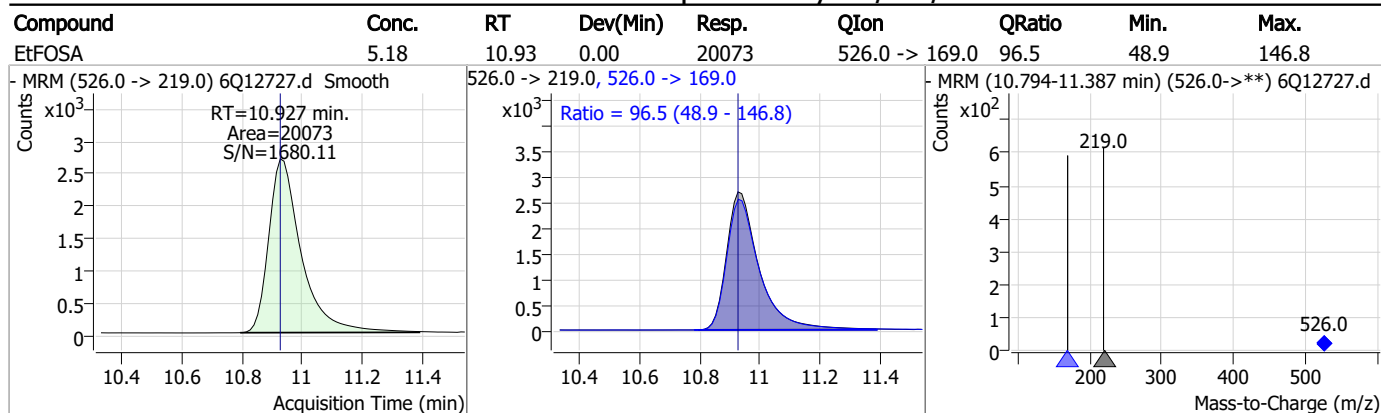
7.7.6

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## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



7.7.6

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Manual Integration Approval Summary

Sample Number: S6Q196-IC196

Method: EPA DRAFT 1633

Lab FileID: 6Q12727.D

Analyst approved: 02/02/23 11:53 Martha Valls

Injection Time: 02/01/23 18:47

Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.6.1  
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## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12728.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/1/2023 7:01:15 PM  
 Sample Name : ic196-6  
 Vial : P1-A7  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : S6Q196.batch.bin  
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	75807	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	38810	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	35006	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	36652	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	66287	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	26314	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19004	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	23194	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	25687	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14727	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16380	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13831	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8829	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8576	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	1975	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2739	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2717	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	28423	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13689	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	24602	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	28159	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21366	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8432	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7433	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10428	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	34475	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6603	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	77916	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	27088	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	31152	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	35839	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	1975	4.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2739	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2717	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C2-PFDoDA	9.066	615.1 -> 570.0	25687	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14727	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C3-PFBS	5.518	302.1 -> 79.9	13831	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C3-PFHxS	7.274	402.1 -> 79.9	8829	2.54 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 = 101.7%	
13C4-PFBA	2.975	216.8 -> 171.9	75807	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.502	367.1 -> 322.0	36652	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C5-PFHxA	5.575	318.0 -> 273.0	35006	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C5-PFPeA	4.386	268.3 -> 223.0	38810	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C6-PFDA	8.170	519.1 -> 474.1	19004	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C7-PFUnDA	8.636	570.0 -> 525.1	23194	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C8-FOSA	9.567	506.1 -> 77.8	16380	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C8-PFOA	7.146	421.1 -> 376.0	66287	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-PFOS	8.345	507.1 -> 79.9	8576	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C9-PFNA	7.677	472.1 -> 427.0	26314	1.20 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.0%	
d3-MeFOSAA	8.215	573.2 -> 419.0	28423	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	13689	9.35 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
d3-MeFOSA	10.680	515.0 -> 219.0	7433	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
d5-EtFOSAA	8.410	589.2 -> 419.0	24602	5.19 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
d7-MeFOSE	10.589	623.2 -> 58.9	28159	23.78 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d9-EtFOSE	10.847	639.2 -> 58.9	21366	26.18 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d5-EtFOSA	10.925	531.1 -> 219.0	8432	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.240	327.1 -> 307.0	223593	50.49 µg/L	98
		327.1 -> 80.9	47062		
6:2FTS	6.921	427.1 -> 407.0	197483	49.24 µg/L	99
		427.1 -> 80.9	37643		
8:2FTS	7.958	527.1 -> 507.0	103485	49.04 µg/L	97
		527.1 -> 80.8	26387		
EtFOSAA	8.424	584.2 -> 419.1	47141	11.96 µg/L	m 88
		584.2 -> 526.0	26059		
FOSA	9.557	498.1 -> 77.9	85451	13.07 µg/L	99
		498.1 -> 478.0	3497		
MeFOSAA	8.216	570.1 -> 419.0	65325	12.54 µg/L	92
		570.1 -> 483.0	11712		
PFBA	2.982	212.8 -> 168.9	85941	50.76 µg/L	100
PFBS	5.518	298.7 -> 79.9	56325	10.60 µg/L	95
		298.7 -> 98.8	26284		
PFDA	8.170	512.9 -> 469.0	263882	12.20 µg/L	98
		512.9 -> 219.0	37498		
PFDODA	9.067	613.1 -> 569.0	241001	12.80 µg/L	98
		613.1 -> 319.0	27351		
PFDS	9.241	599.0 -> 79.9	35414	12.19 µg/L	98

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	17274	11.89	µg/L	97
		363.1 -> 319.0	258234			
PFHpS	7.841	363.1 -> 169.0	35741	12.02	µg/L	97
		449.0 -> 79.9	43744			
PFHxA	5.578	449.0 -> 98.9	25039	11.70	µg/L	98
		313.0 -> 269.0	160652			
PFHxS	7.275	313.0 -> 118.9	6086	11.05	µg/L	93
		398.7 -> 79.9	43823			
PFNA	7.690	398.7 -> 98.9	25487	13.01	µg/L	100
		463.0 -> 419.0	230960			
PFNS	8.811	463.0 -> 219.0	43974	11.93	µg/L	96
		548.8 -> 79.9	45490			
PFOA	7.148	548.8 -> 98.9	27217	11.89	µg/L	99
		413.0 -> 369.0	347114			
PFOS	8.347	413.0 -> 169.0	46243	11.33	µg/L	73
		498.9 -> 79.9	44577			
PFPeA	4.388	498.9 -> 98.8	27878	25.40	µg/L	100
		263.0 -> 219.0	208178			
PFPeS	6.581	349.1 -> 79.9	53091	11.51	µg/L	92
		349.1 -> 98.9	30041			
PFTeDA	9.806	713.1 -> 669.0	210413	13.24	µg/L	98
		713.1 -> 168.9	12838			
PFTrDA	9.462	663.0 -> 619.0	222761	12.37	µg/L	99
		663.0 -> 168.9	18436			
PFUnDA	8.637	563.1 -> 519.0	209274	11.59	µg/L	98
		563.1 -> 269.1	29973			
11CI-PF3OUdS	9.514	630.9 -> 450.9	498527	50.75	µg/L	99
		632.9 -> 452.9	148539			
9CI-PF3ONS	8.688	530.8 -> 351.0	798001	48.06	µg/L	98
		532.8 -> 353.0	268189			
ADONA	6.766	376.9 -> 250.9	1450917	48.86	µg/L	98
		376.9 -> 84.8	312230			
HFPO-DA	5.940	284.9 -> 168.9	69648	54.40	µg/L	96
		284.9 -> 184.9	8211			
3:3FTCA	3.841	241.0 -> 177.0	25737	63.95	µg/L	95
		241.0 -> 117.0	3277			
5:3FTCA	6.206	341.0 -> 237.1	884234	307.99	µg/L	97
		341.0 -> 217.0	798090			
7:3FTCA	7.605	441.0 -> 316.9	568701	303.07	µg/L	96
		441.0 -> 336.9	1158167			
EtFOSA	10.927	526.0 -> 219.0	48290	12.00	µg/L	99
		526.0 -> 169.0	47799			
EtFOSE	10.860	630.0 -> 58.9	112104	122.59	µg/L	100
		511.9 -> 219.0	41283			
MeFOSA	10.682	511.9 -> 169.0	40866	12.84	µg/L	98
		616.1 -> 58.9	151323			
MeFOSE	10.602	699.1 -> 79.9	20621	134.71	µg/L	100
		699.1 -> 98.8	13042			
PFDoDS	9.945	295.0 -> 201.0	19845	24.45	µg/L	99
		295.0 -> 84.9	10297			
NFDHA	5.457	279.0 -> 85.1	56963	24.72	µg/L	100
		229.0 -> 84.9	54695			
PFMBA	3.541	314.8 -> 134.9	420761	21.29	µg/L	99
		314.8 -> 82.9	10779			
PFEESA	6.059					

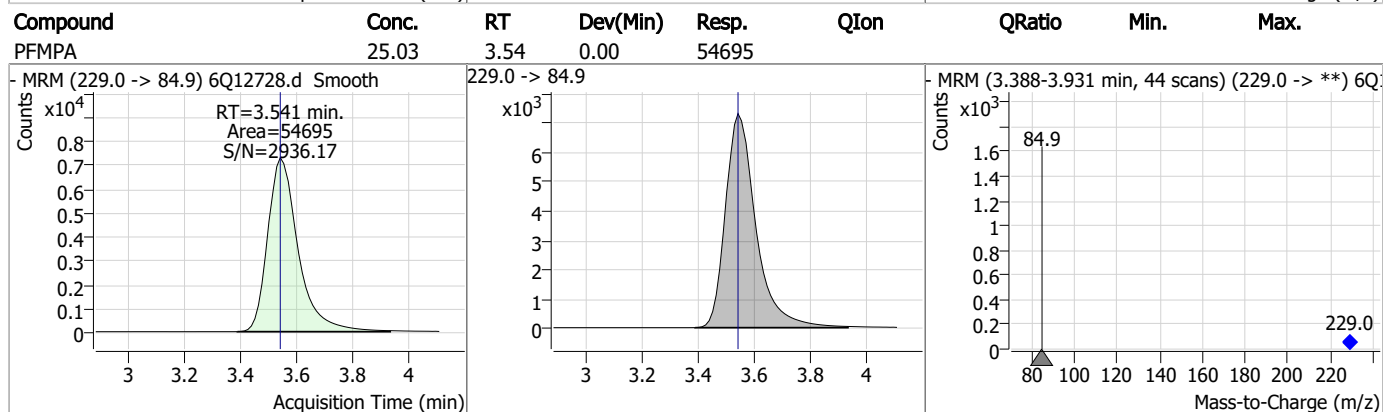
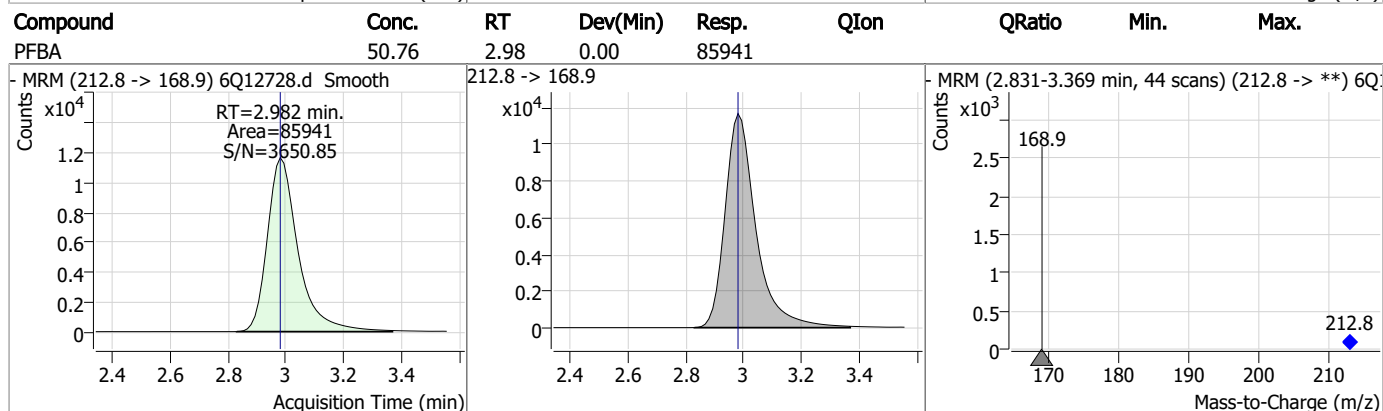
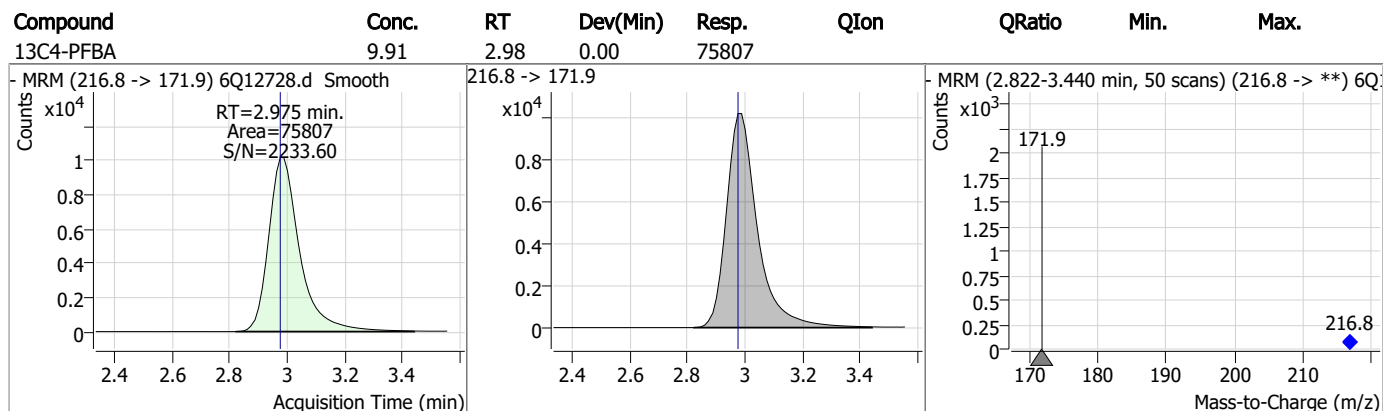
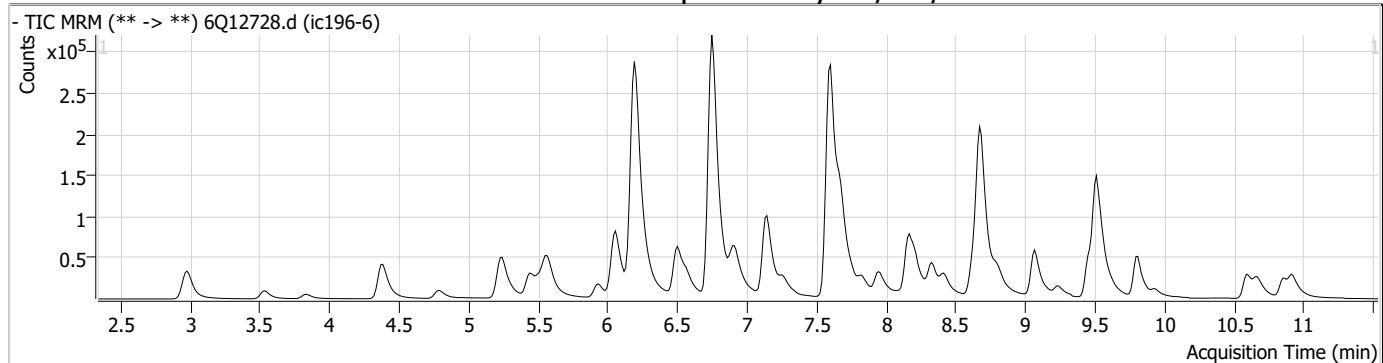
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Perfluorinated Compounds by LC/MS/MS

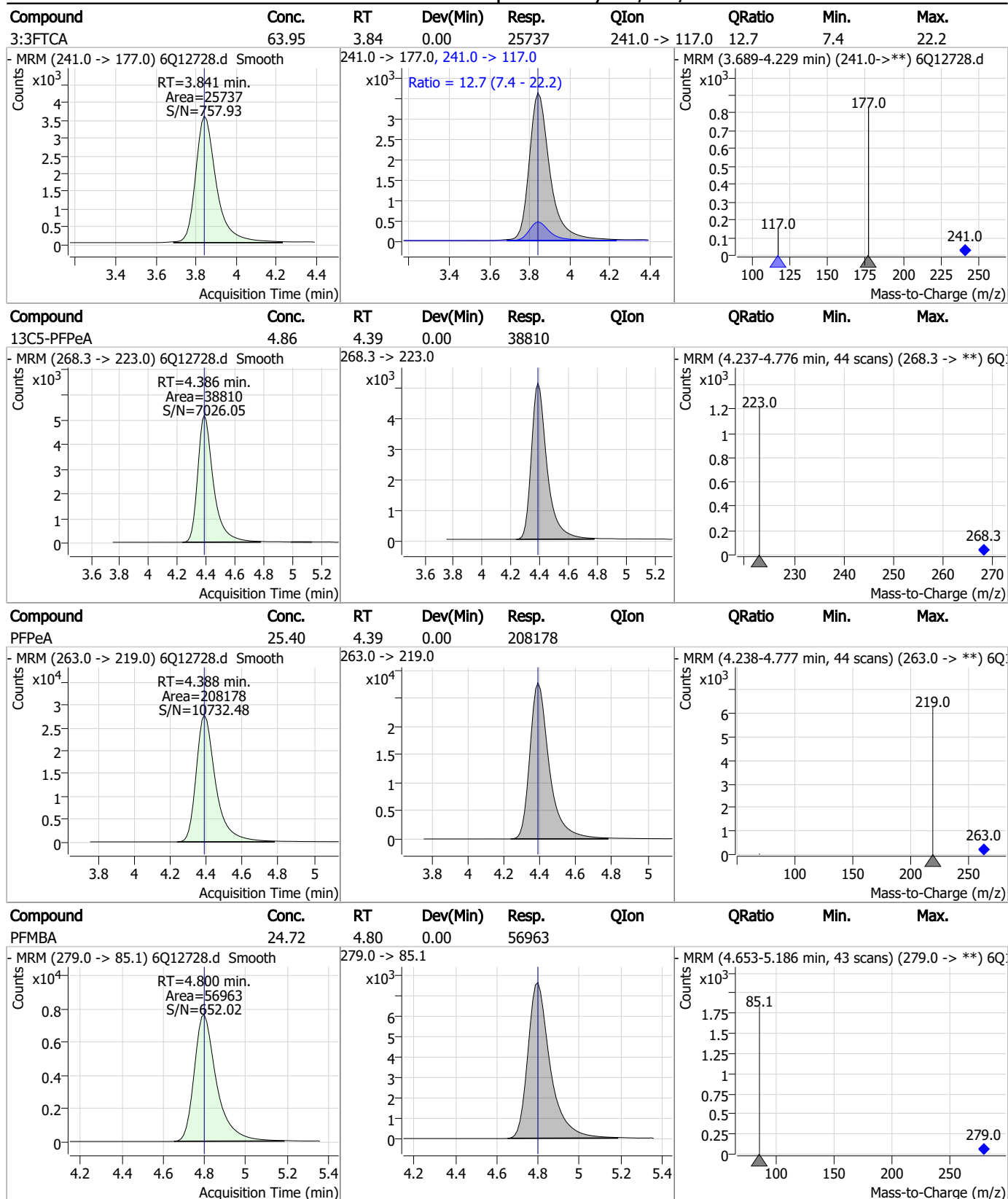
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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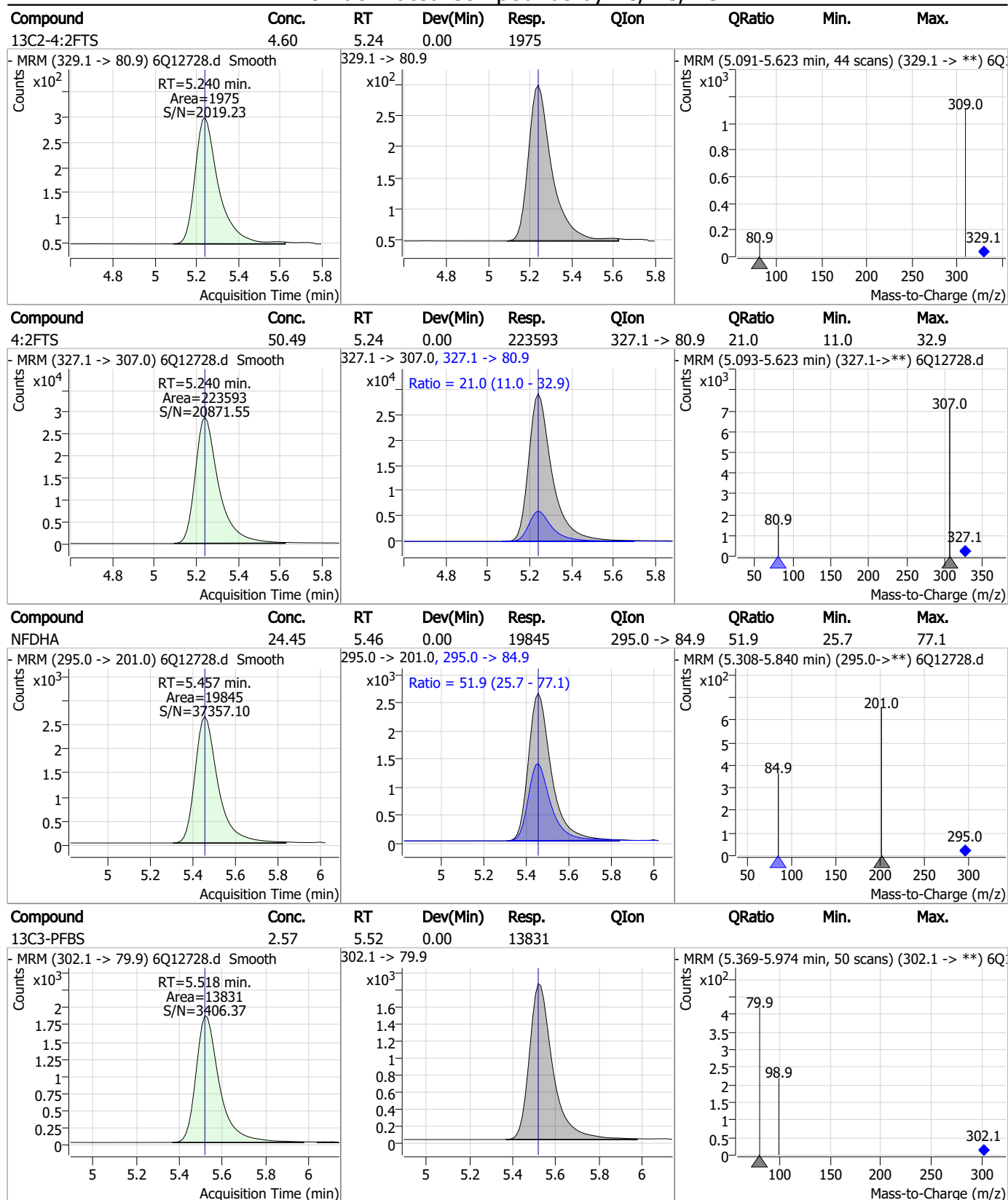
## Perfluorinated Compounds by LC/MS/MS



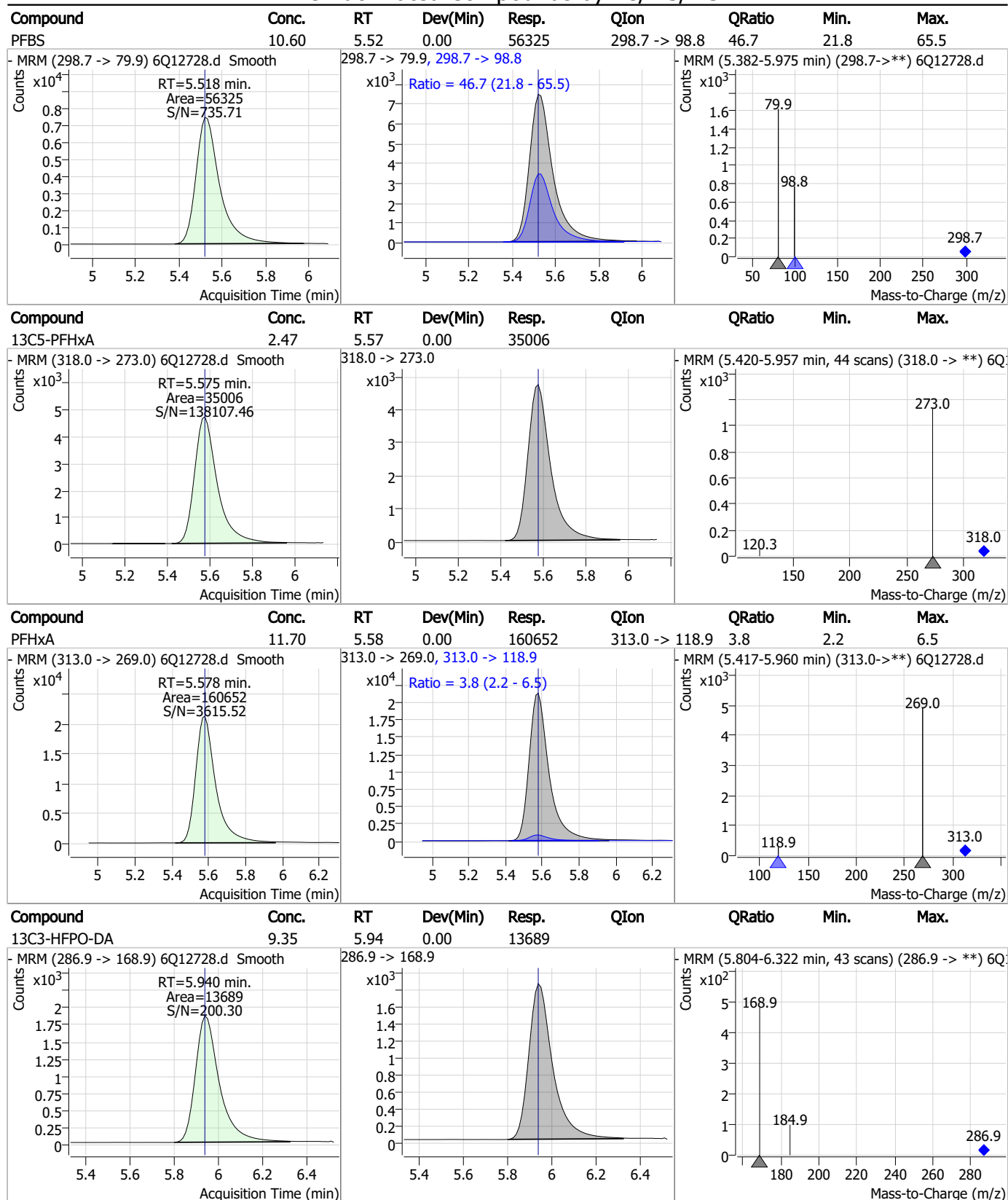
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

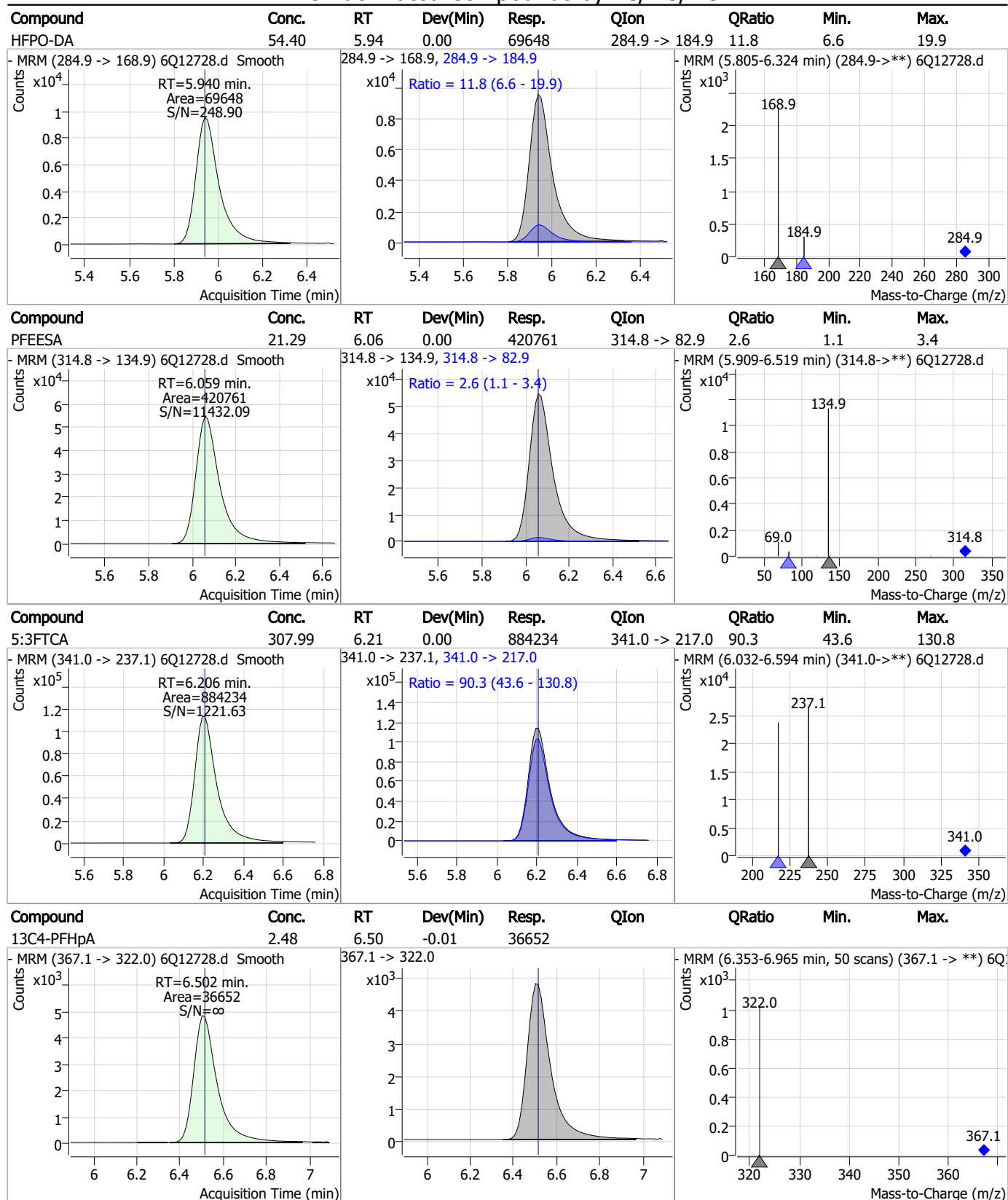


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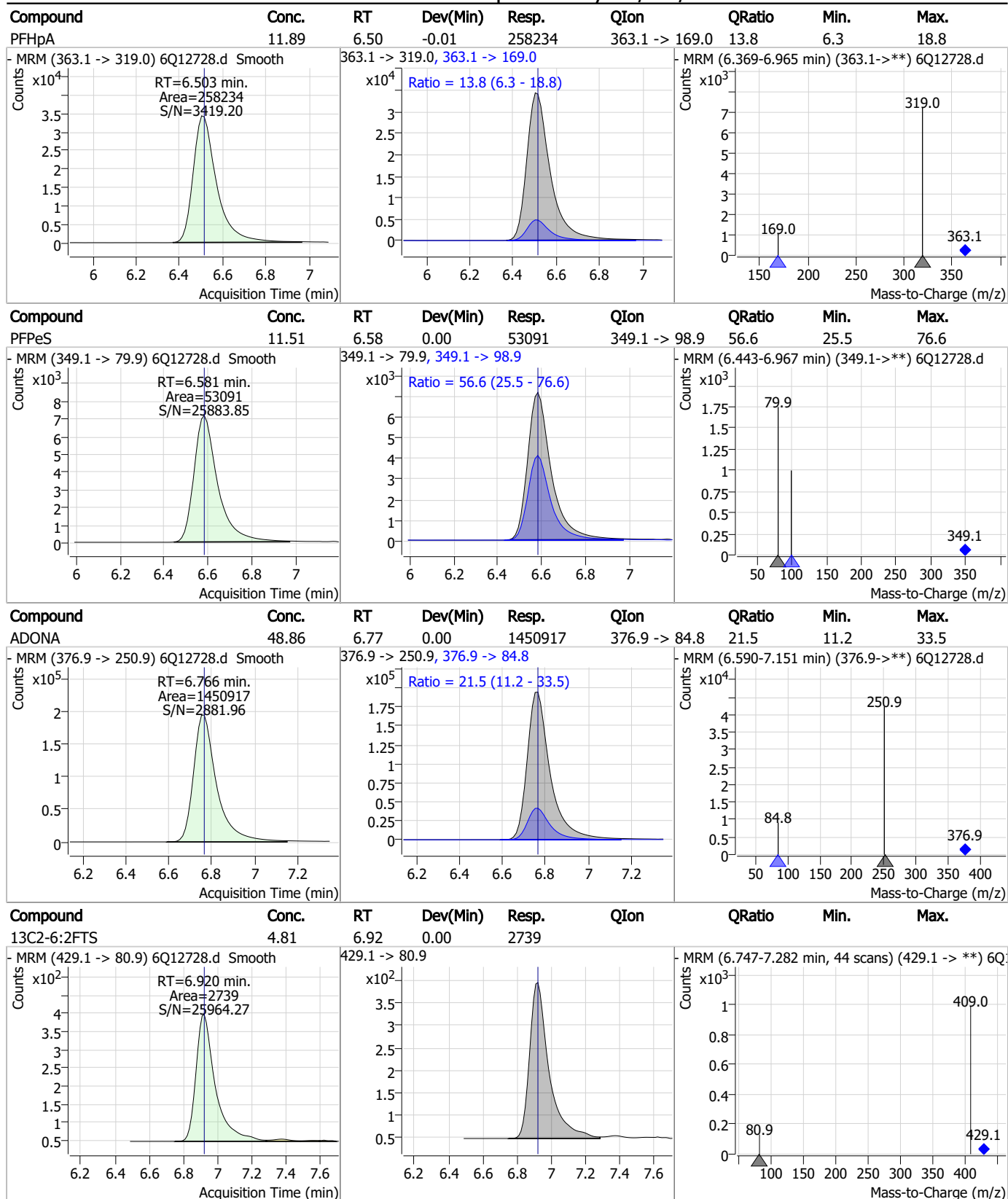




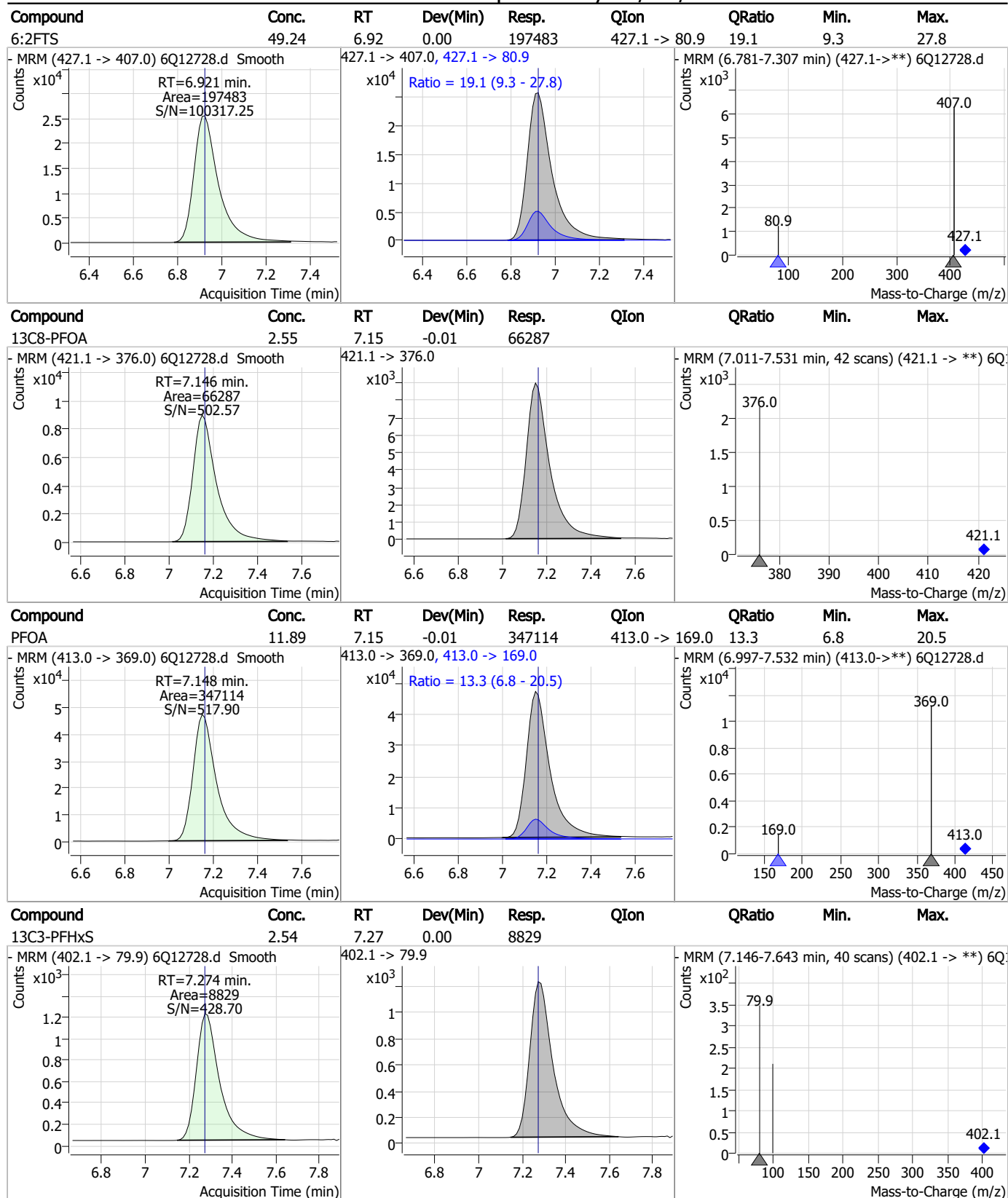
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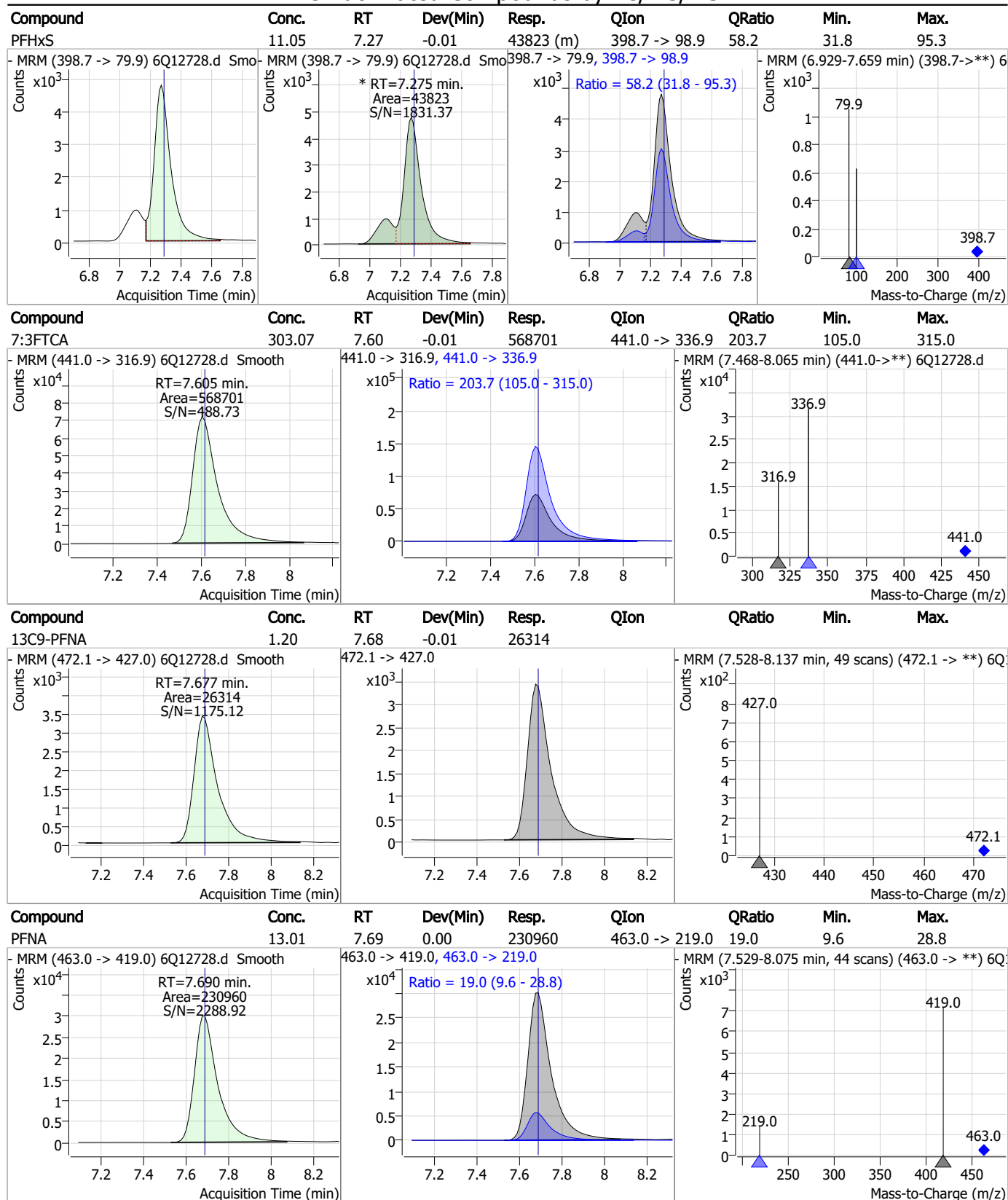
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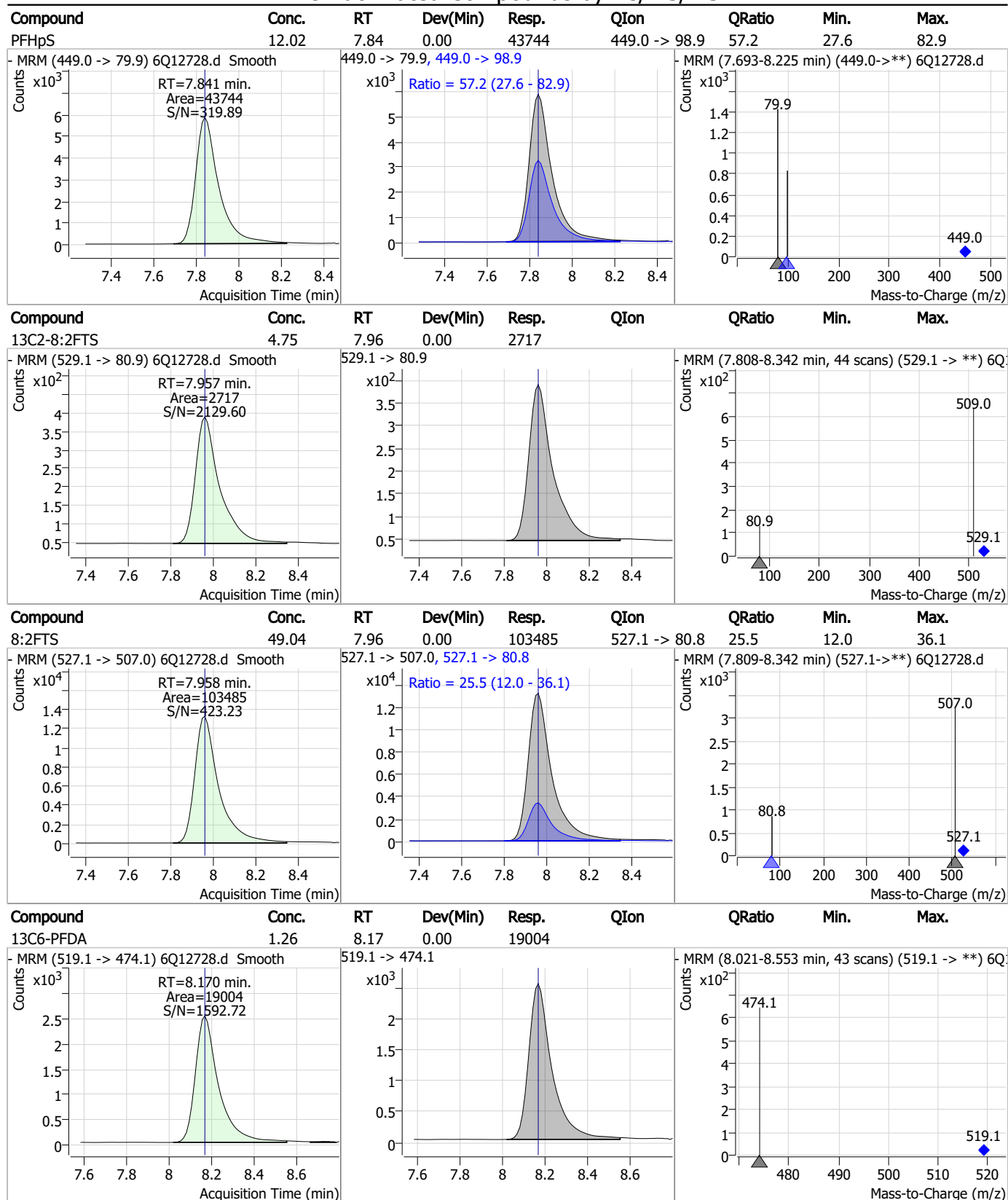
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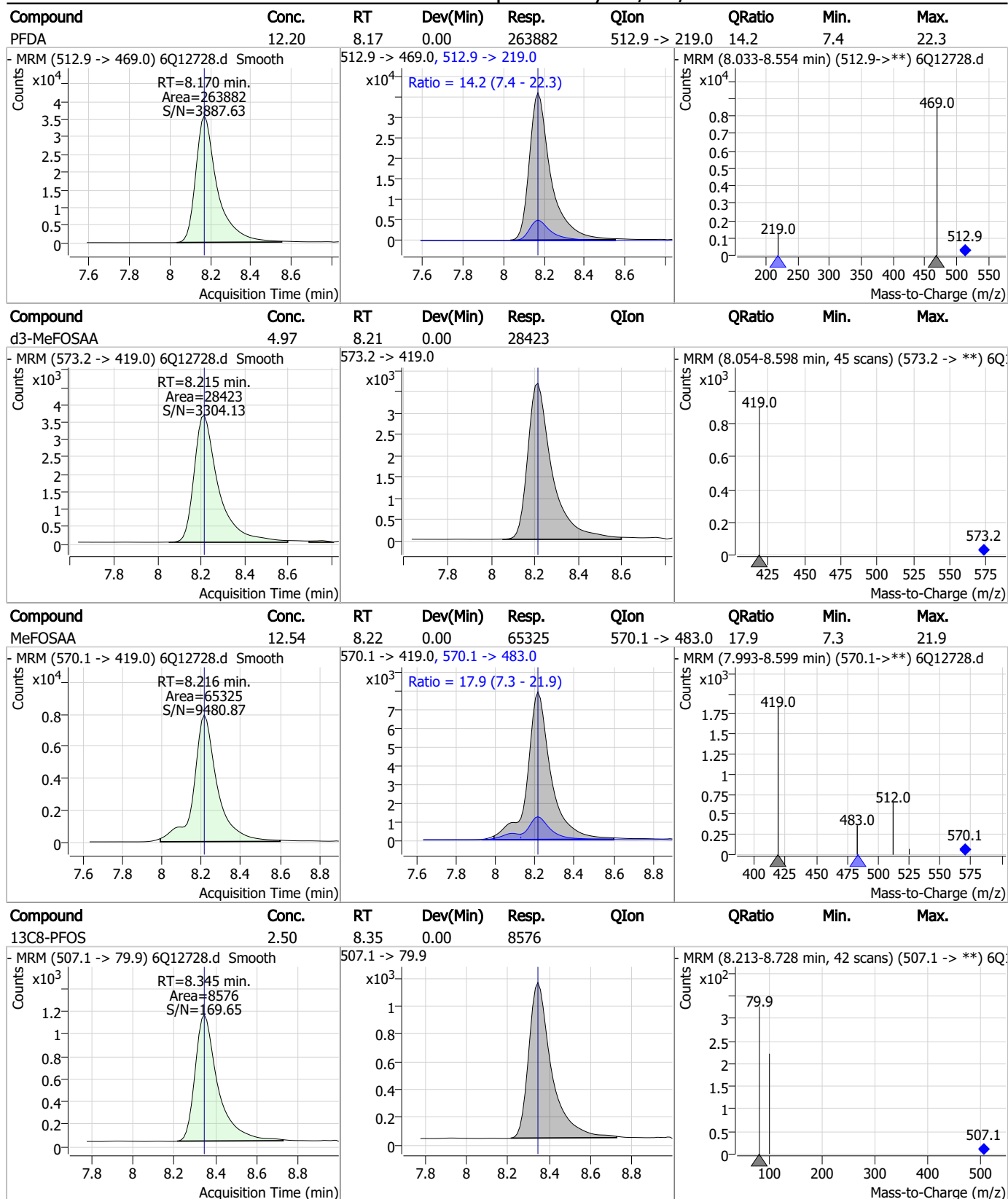
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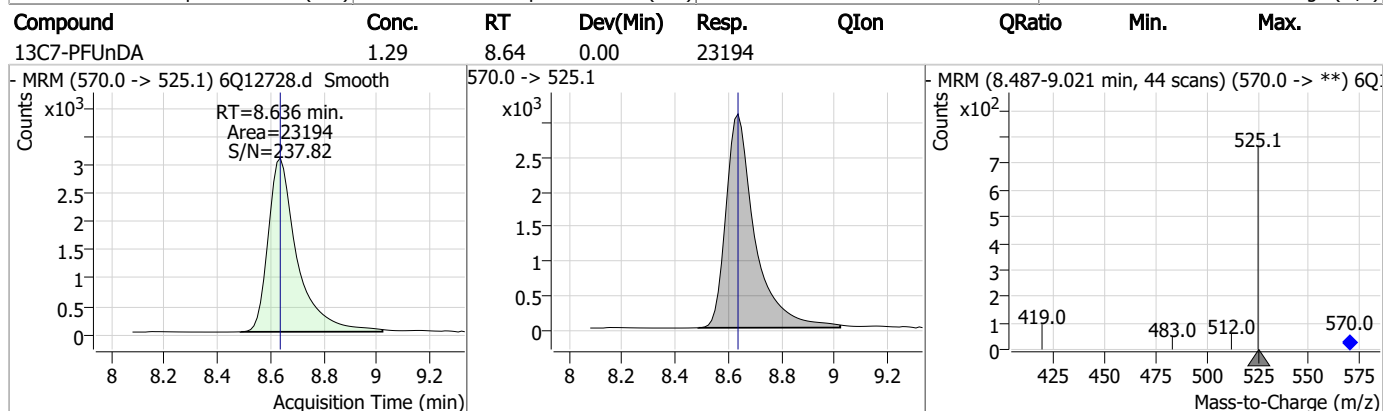
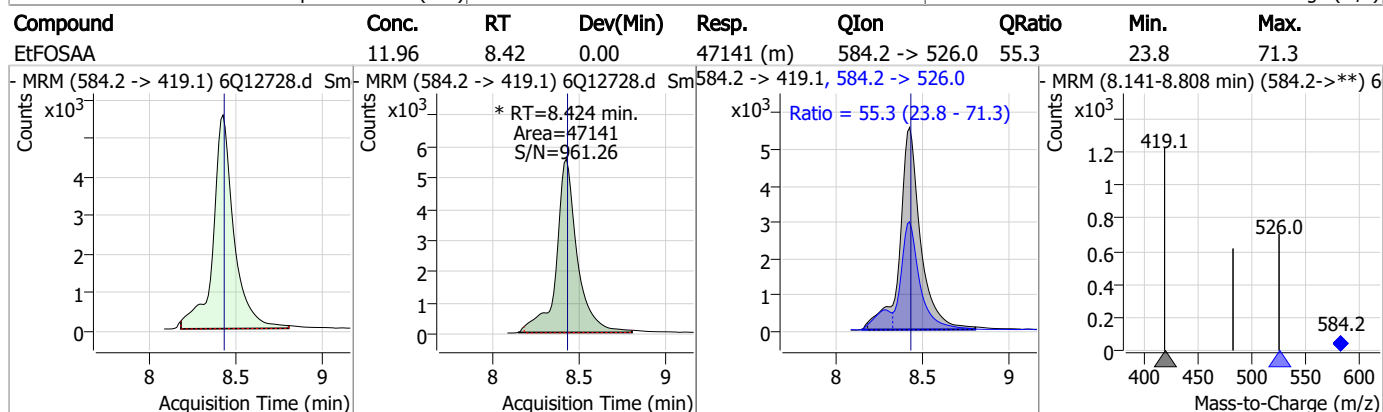
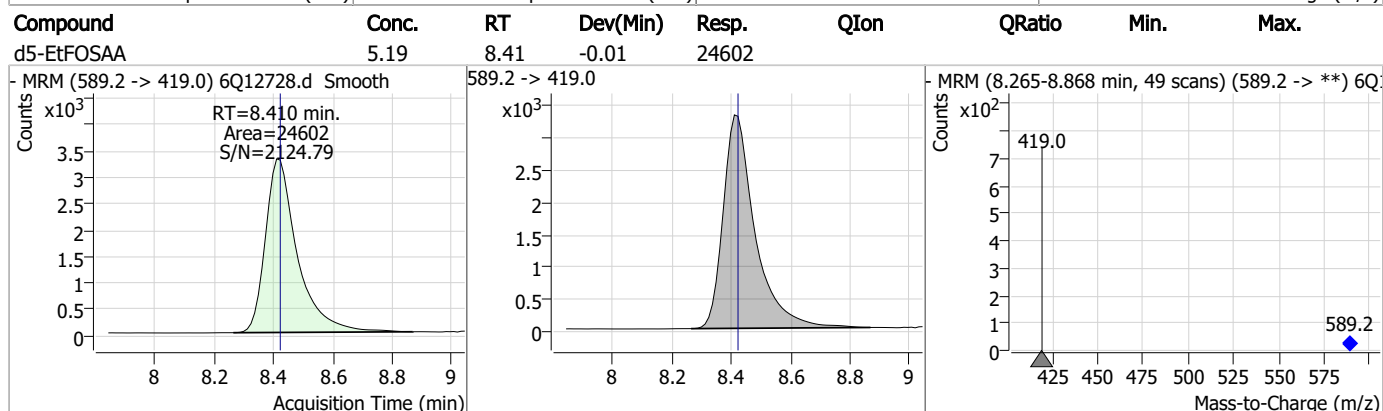
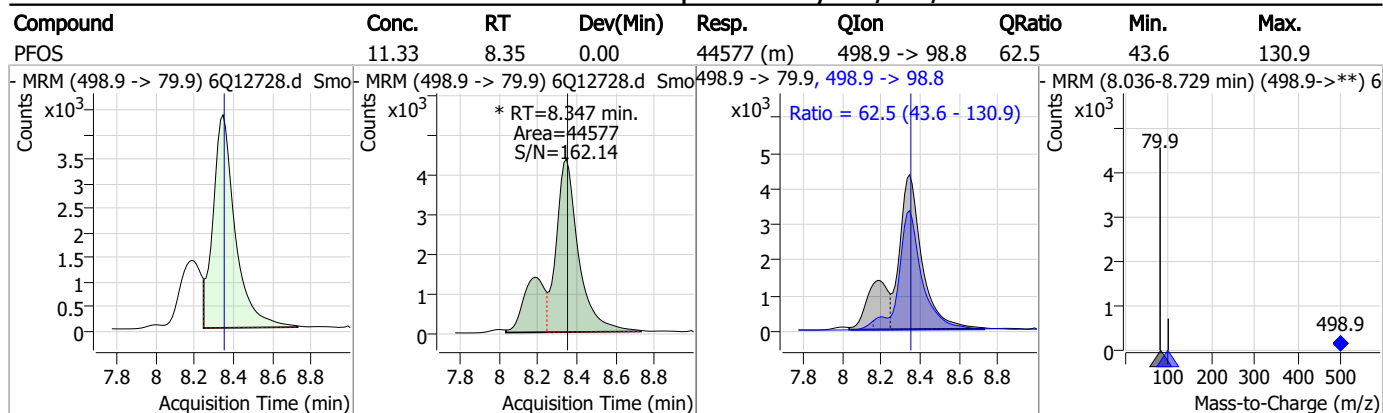
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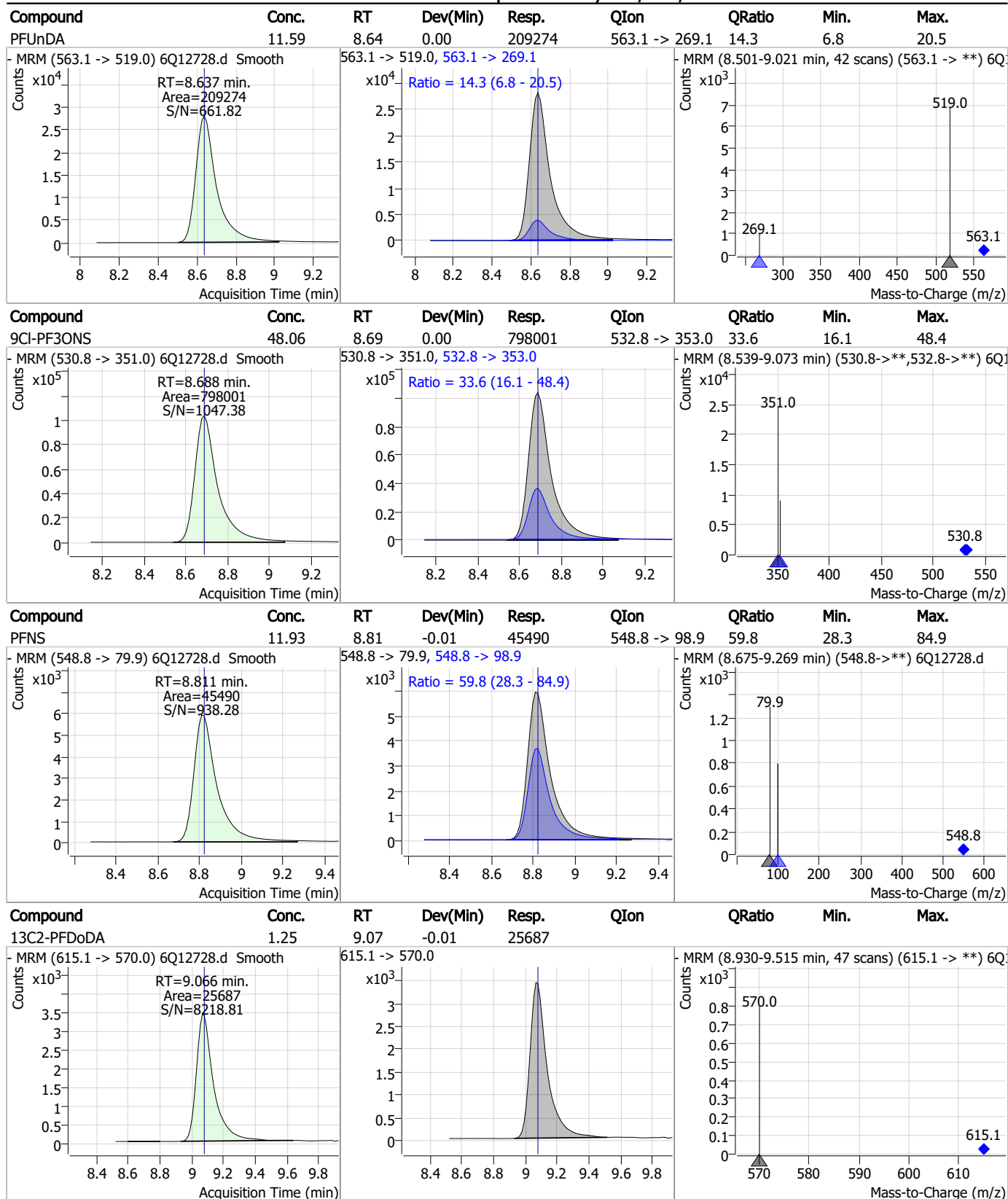
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

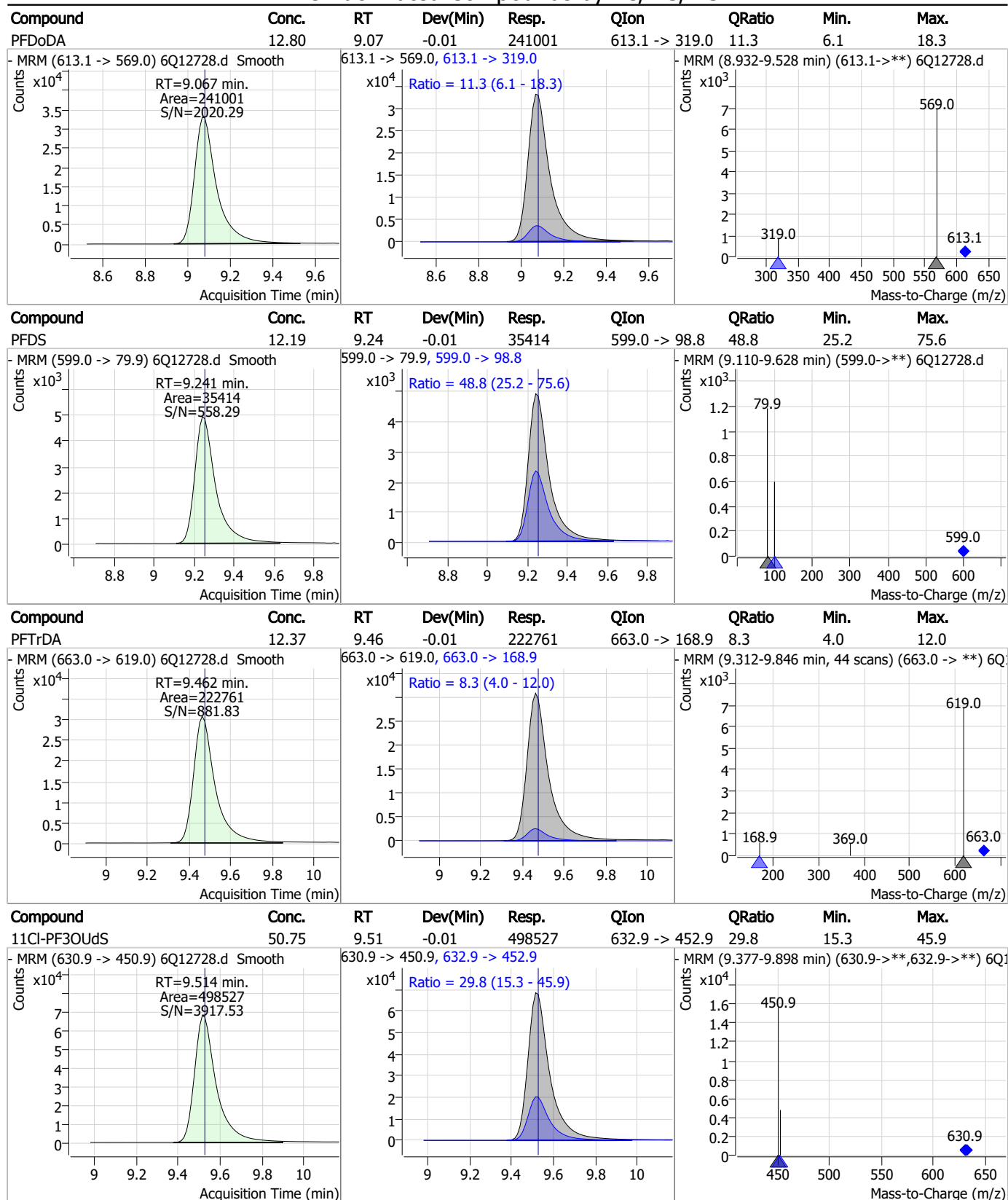


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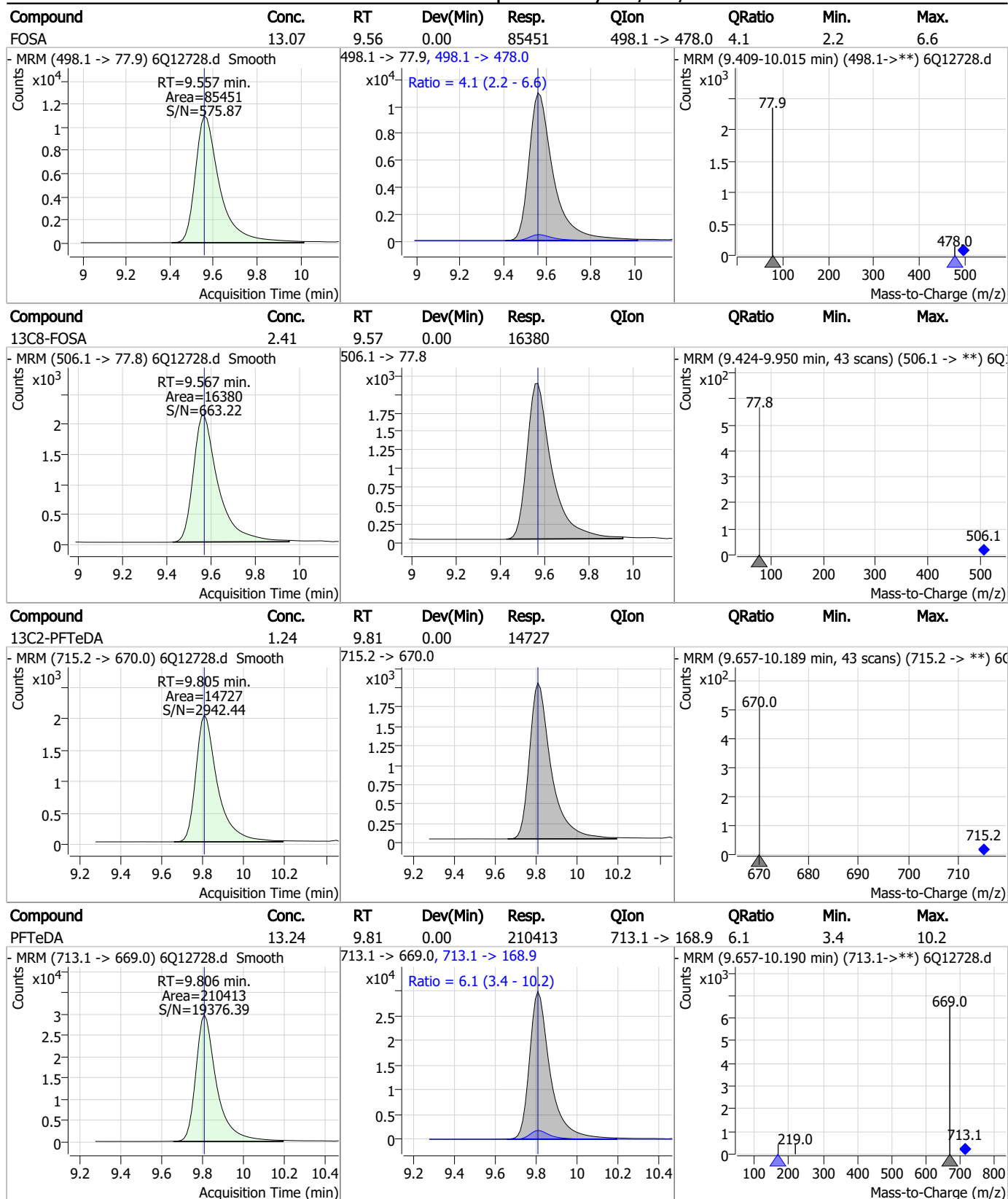




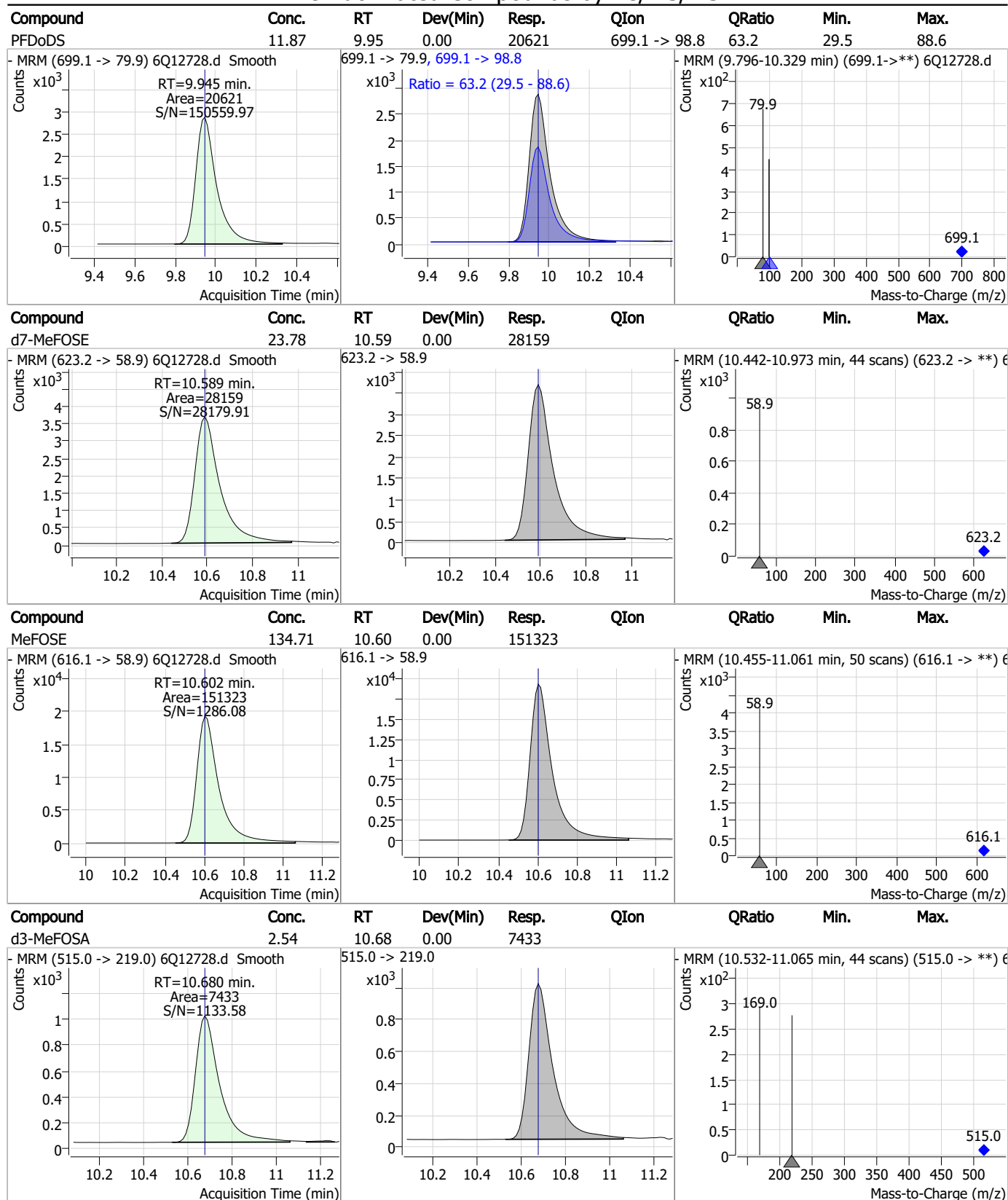
## Perfluorinated Compounds by LC/MS/MS



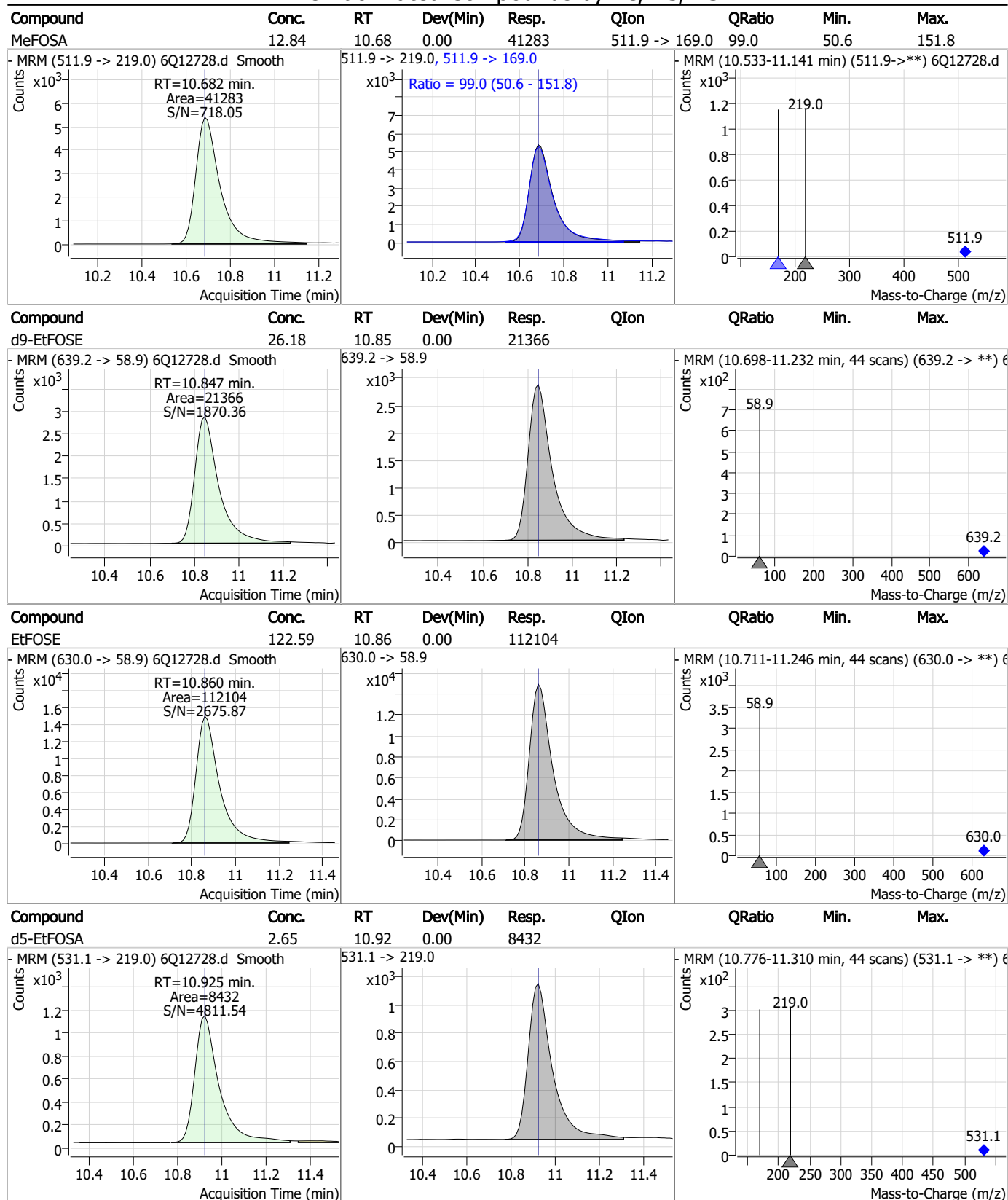
## Perfluorinated Compounds by LC/MS/MS



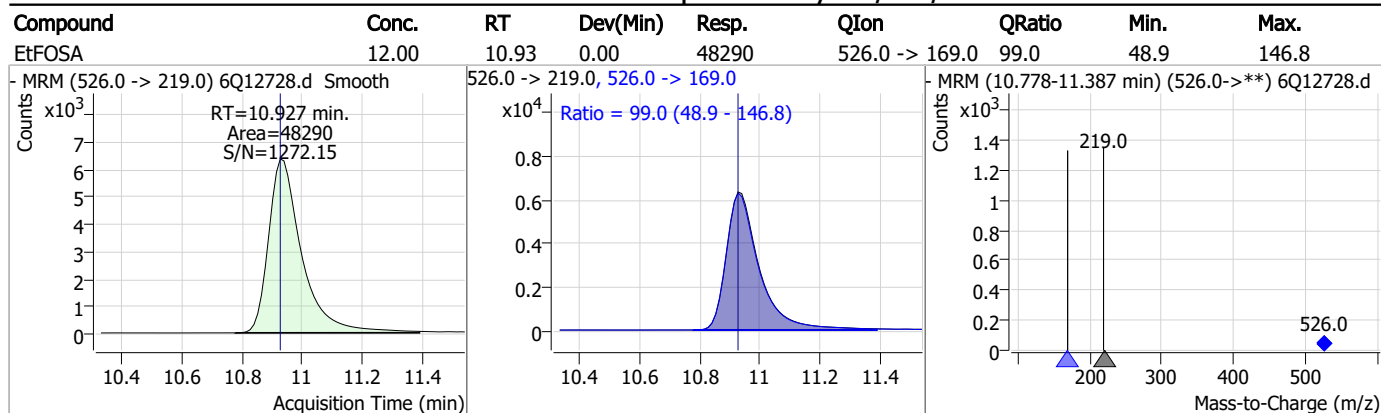
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S6Q196-IC196

Method: EPA DRAFT 1633

Lab FileID: 6Q12728.D

Analyst approved: 02/02/23 11:53 Martha Valls

Injection Time: 02/01/23 19:01

Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

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Manual Integrations  
APPROVED  
(compounds with "m" flag)

Norman Farmer  
02/02/23 17:09

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12729.d  
Operator : marthav  
Acq. Method : 1633full.m  
Acq. Date-Time : 2/1/2023 7:15:14 PM  
Sample Name : ic196-7  
Vial : P1-A8  
DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
Batch Name : S6Q196.batch.bin  
Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	73235	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	37346	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	32289	2.50 µg/L	0.000
M4-PFHpA	6.515	367.1 -> 322.0	33539	2.50 µg/L	0.000
M8-PFOA	7.159	421.1 -> 376.0	61120	2.50 µg/L	0.000
M9-PFNA	7.689	472.1 -> 427.0	26776	1.25 µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	18428	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	21391	1.25 µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	24501	1.25 µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	14917	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	15956	2.50 µg/L	0.000
M3-PFBS	5.530	302.1 -> 79.9	12956	2.50 µg/L	0.012
M3-PFHxS	7.287	402.1 -> 79.9	9060	2.50 µg/L	0.013
M8-PFOS	8.345	507.1 -> 79.9	7830	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2080	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2594	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2741	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	27498	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14153	10.00 µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	23346	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	28427	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	19495	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7890	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7429	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10225	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	32454	5.00 µg/L	0.000
18O2-PFHxS	7.286	403.0 -> 83.9	6512	2.50 µg/L	0.000
13C4-PFOA	7.159	417.1 -> 372.0	75112	2.50 µg/L	0.000
13C2-PFDA	8.170	515.1 -> 470.1	26461	1.25 µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	30379	1.25 µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	35267	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2080	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2594	4.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2741	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-PFDoDA	9.078	615.1 -> 570.0	24501	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14917	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C3-PFBS	5.530	302.1 -> 79.9	12956	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFHxS	7.287	402.1 -> 79.9	9060	2.65 µg/L	0.013

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C4-PFBA	2.975	216.8 -> 171.9	73235	10.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C4-PFHpA	6.515	367.1 -> 322.0	33539	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C5-PFHxA	5.575	318.0 -> 273.0	32289	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.5%	
13C5-PFPeA	4.386	268.3 -> 223.0	37346	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C6-PFDA	8.170	519.1 -> 474.1	18428	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C7-PFUnDA	8.636	570.0 -> 525.1	21391	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C8-FOSA	9.567	506.1 -> 77.8	15956	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-PFOA	7.159	421.1 -> 376.0	61120	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-PFOS	8.345	507.1 -> 79.9	7830	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C9-PFNA	7.689	472.1 -> 427.0	26776	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%	
d3-MeFOSAA	8.215	573.2 -> 419.0	27498	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14153	9.82 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d3-MeFOSA	10.680	515.0 -> 219.0	7429	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
d5-EtFOSAA	8.422	589.2 -> 419.0	23346	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
d7-MeFOSE	10.589	623.2 -> 58.9	28427	24.49 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
d9-EtFOSE	10.847	639.2 -> 58.9	19495	24.36 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
d5-EtFOSA	10.925	531.1 -> 219.0	7890	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.240	327.1 -> 307.0	414036	88.76 µg/L	100
		327.1 -> 80.9	90108		
6:2FTS	6.921	427.1 -> 407.0	375221	98.78 µg/L	99
		427.1 -> 80.9	68351		
8:2FTS	7.958	527.1 -> 507.0	201602	94.71 µg/L	99
		527.1 -> 80.8	47770		
EtFOSAA	8.424	584.2 -> 419.1	94854	25.37 µg/L	m 85
		584.2 -> 526.0	54297		
FOSA	9.557	498.1 -> 77.9	162616	25.54 µg/L	99
		498.1 -> 478.0	6385		
MeFOSAA	8.216	570.1 -> 419.0	136159	27.02 µg/L	m 97
		570.1 -> 483.0	21831		
PFBA	2.982	212.8 -> 168.9	176121	107.67 µg/L	100
PFBS	5.518	298.7 -> 79.9	113065	22.72 µg/L	92
		298.7 -> 98.8	55270		
PFDA	8.170	512.9 -> 469.0	552940	26.37 µg/L	99
		512.9 -> 219.0	79427		
PFDODA	9.079	613.1 -> 569.0	456440	25.42 µg/L	98
		613.1 -> 319.0	59635		
PFDS	9.241	599.0 -> 79.9	64943	24.48 µg/L	95



## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.515	599.0 -> 98.8	34911	27.05	µg/L	96
		363.1 -> 319.0	537448			
PFHpS	7.841	363.1 -> 169.0	75226	27.22	µg/L	94
		449.0 -> 79.9	90405			
PFHxA	5.578	449.0 -> 98.9	54222	27.93	µg/L	98
		313.0 -> 269.0	353846			
PFHxS	7.275	313.0 -> 118.9	12894	22.98	µg/L	86
		398.7 -> 79.9	93551			
PFNA	7.690	398.7 -> 98.9	49093	25.38	µg/L	99
		463.0 -> 419.0	458485			
PFNS	8.824	463.0 -> 219.0	86106	25.82	µg/L	94
		548.8 -> 79.9	89864			
PFOA	7.160	548.8 -> 98.9	54950	26.38	µg/L	99
		413.0 -> 369.0	710157			
PFOS	8.347	413.0 -> 169.0	92927	25.39	µg/L	73
		498.9 -> 79.9	91208			
PFPeA	4.388	498.9 -> 98.8	57224	53.83	µg/L	100
		263.0 -> 219.0	424519			
PFPeS	6.581	349.1 -> 79.9	108547	22.93	µg/L	95
		349.1 -> 98.9	59612			
PFTeDA	9.806	713.1 -> 669.0	400446	24.88	µg/L	100
		713.1 -> 168.9	27323			
PFTrDA	9.462	663.0 -> 619.0	452988	26.38	µg/L	98
		663.0 -> 168.9	33816			
PFUnDA	8.637	563.1 -> 519.0	469239	28.17	µg/L	99
		563.1 -> 269.1	62287			
11CI-PF3OUdS	9.526	630.9 -> 450.9	984756	96.96	µg/L	100
		632.9 -> 452.9	302828			
9CI-PF3ONS	8.688	530.8 -> 351.0	1676561	97.66	µg/L	99
		532.8 -> 353.0	535345			
ADONA	6.766	376.9 -> 250.9	3019273	98.34	µg/L	97
		376.9 -> 84.8	631130			
HFPO-DA	5.953	284.9 -> 168.9	136874	103.40	µg/L	97
		284.9 -> 184.9	16574			
3:3FTCA	3.841	241.0 -> 177.0	53013	136.88	µg/L	95
		241.0 -> 117.0	6772			
5:3FTCA	6.206	341.0 -> 237.1	1813346	684.76	µg/L	100
		341.0 -> 217.0	1574313			
7:3FTCA	7.617	441.0 -> 316.9	1160781	670.63	µg/L	93
		441.0 -> 336.9	2315978			
EtFOSA	10.927	526.0 -> 219.0	97097	25.79	µg/L	99
		526.0 -> 169.0	93801			
EtFOSE	10.860	630.0 -> 58.9	218801	262.23	µg/L	100
		511.9 -> 219.0	80524			
MeFOSA	10.682	511.9 -> 169.0	83697	25.06	µg/L	97
		616.1 -> 58.9	298173			
MeFOSE	10.602	699.1 -> 79.9	42100	262.94	µg/L	100
		699.1 -> 98.8	25247			
PFDoDS	9.945	295.0 -> 201.0	39355	52.56	µg/L	97
		295.0 -> 84.9	21064			
NFDHA	5.457	279.0 -> 85.1	120690	54.42	µg/L	100
		229.0 -> 84.9	113193			
PFMBA	3.541	314.8 -> 134.9	893404	53.82	µg/L	100
		314.8 -> 82.9	21436			
PFEESA	6.071			49.00	µg/L	100

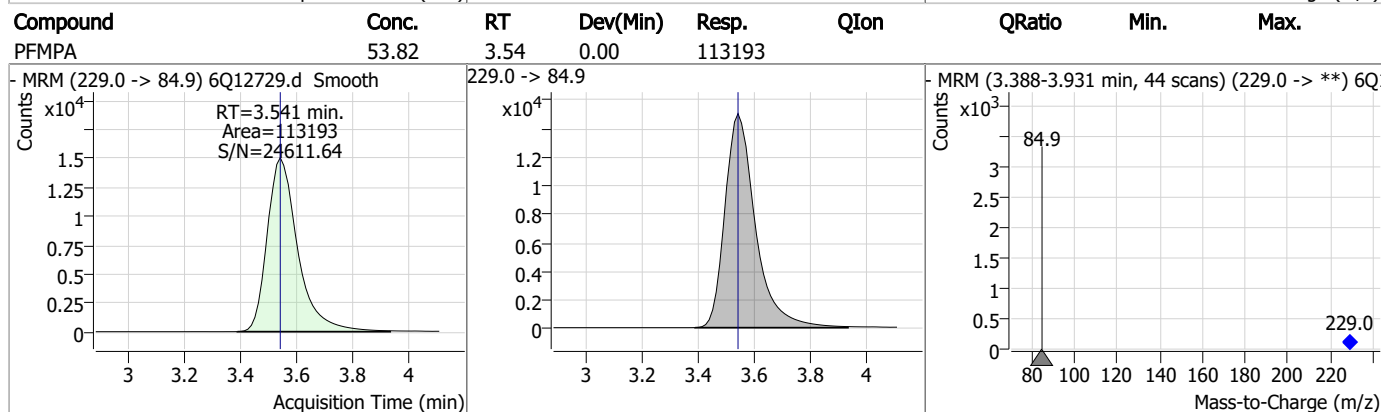
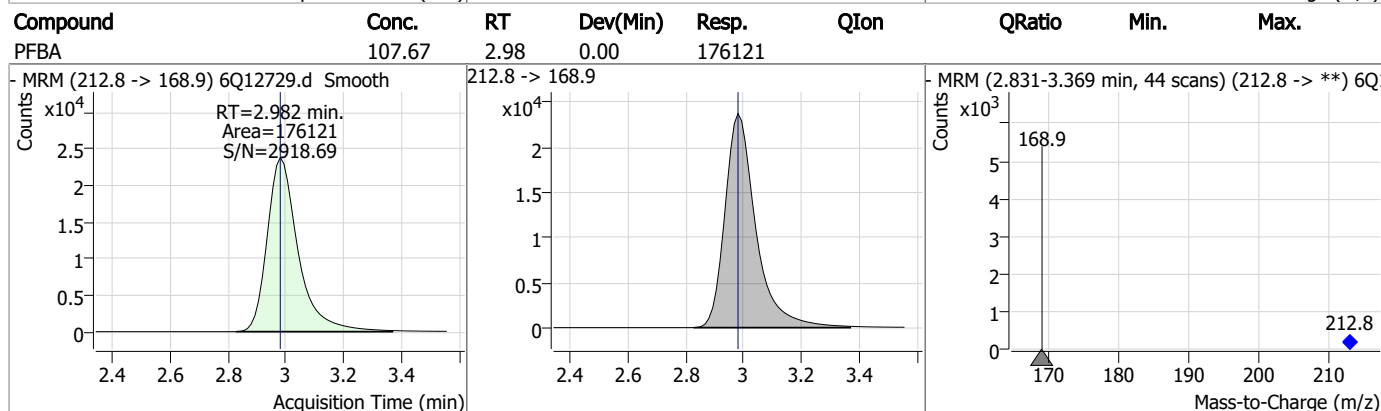
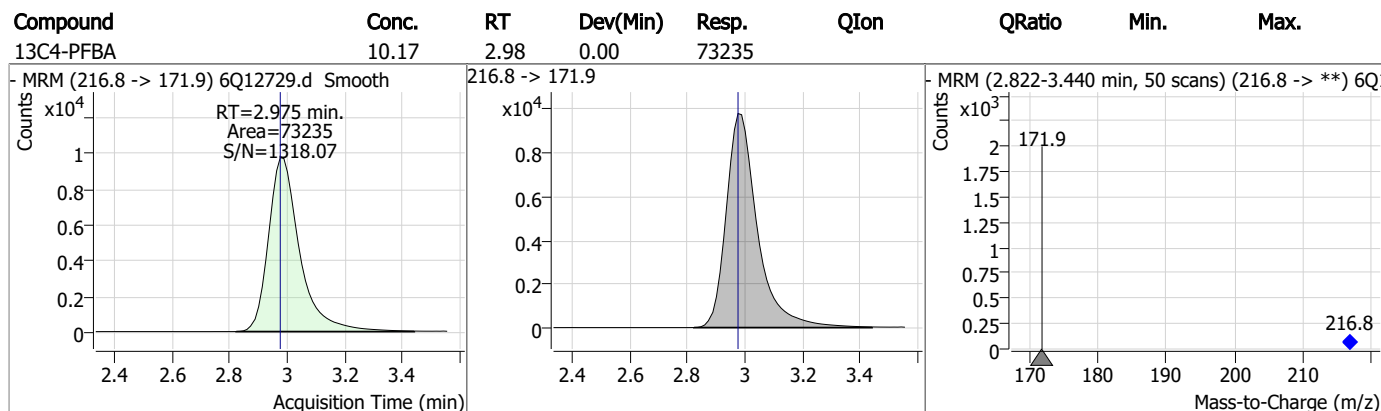
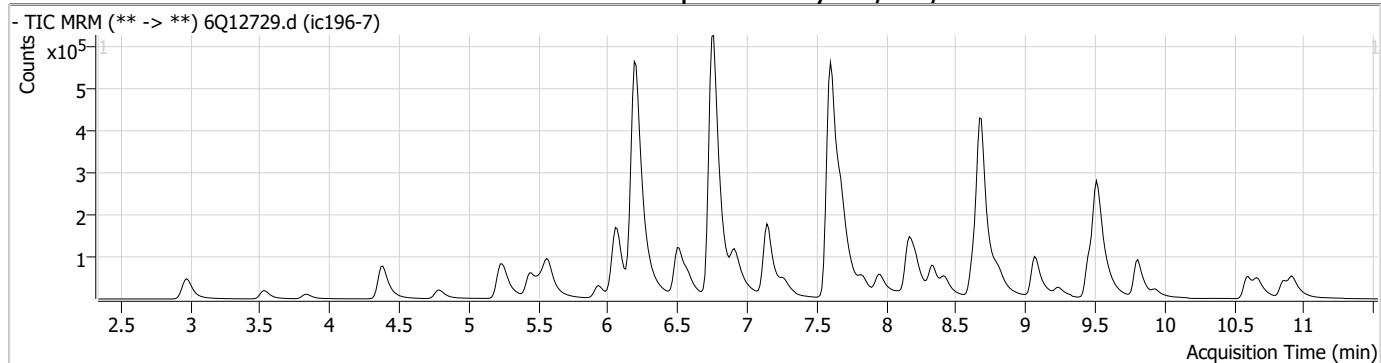
# = Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

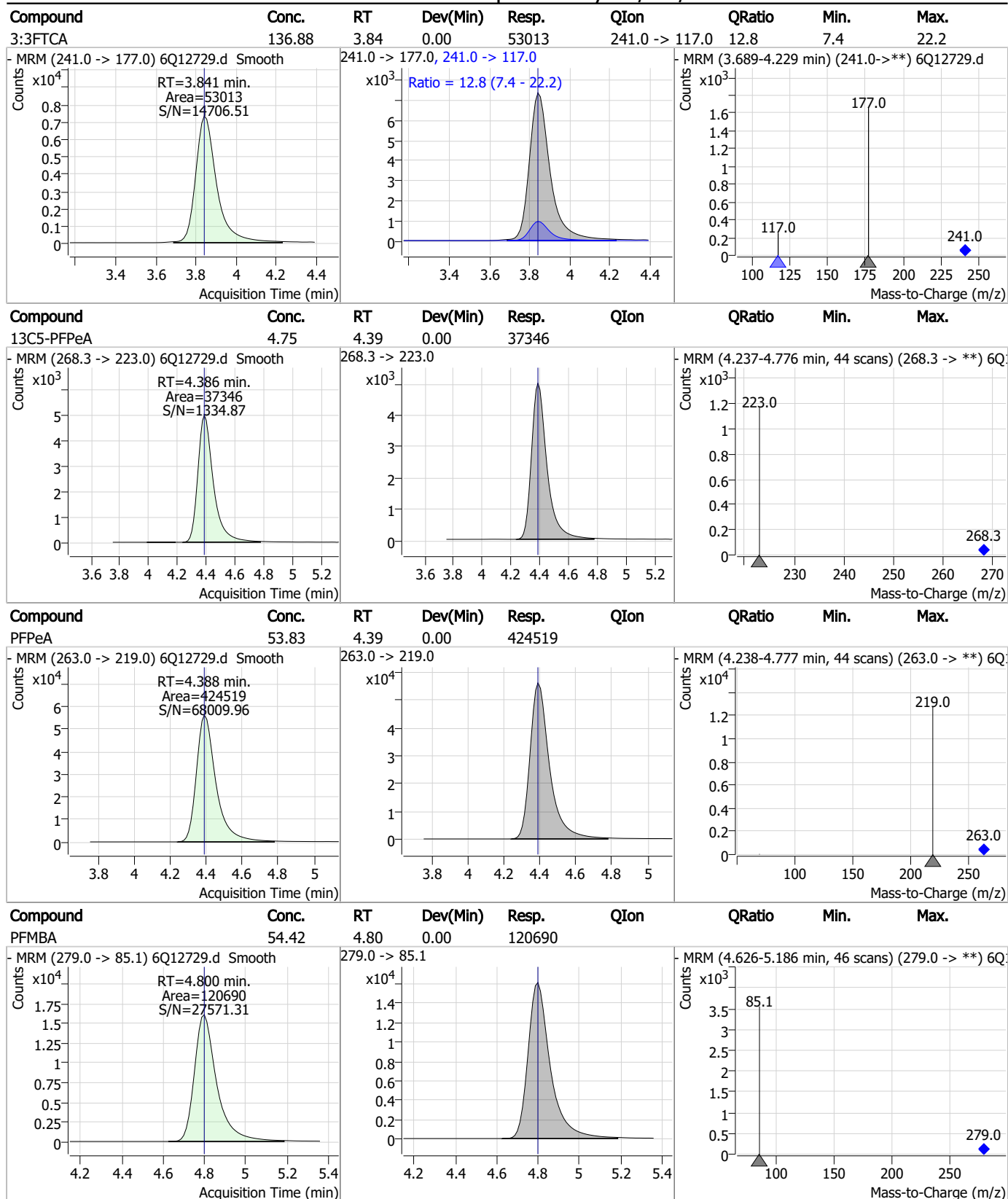
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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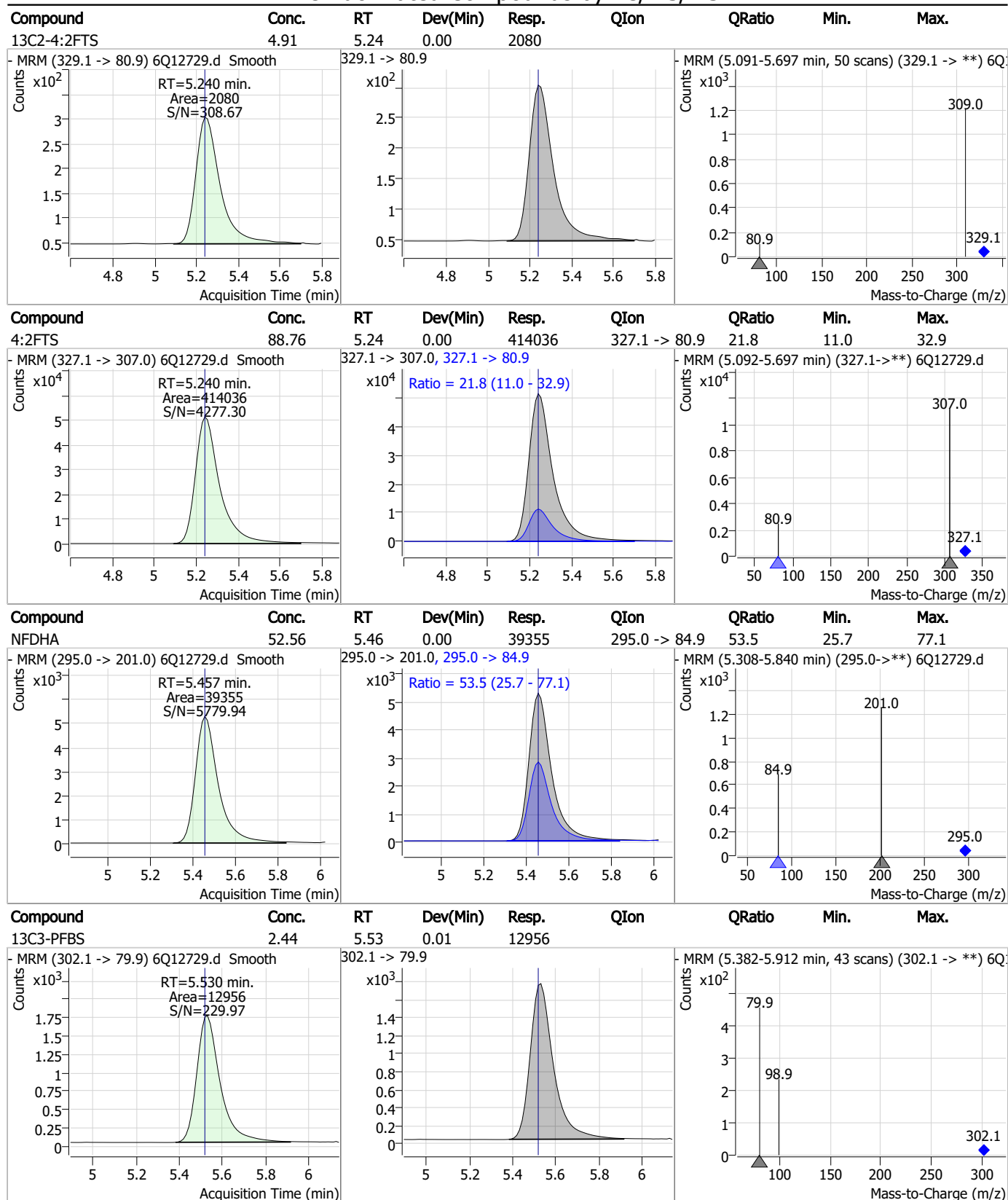
## Perfluorinated Compounds by LC/MS/MS



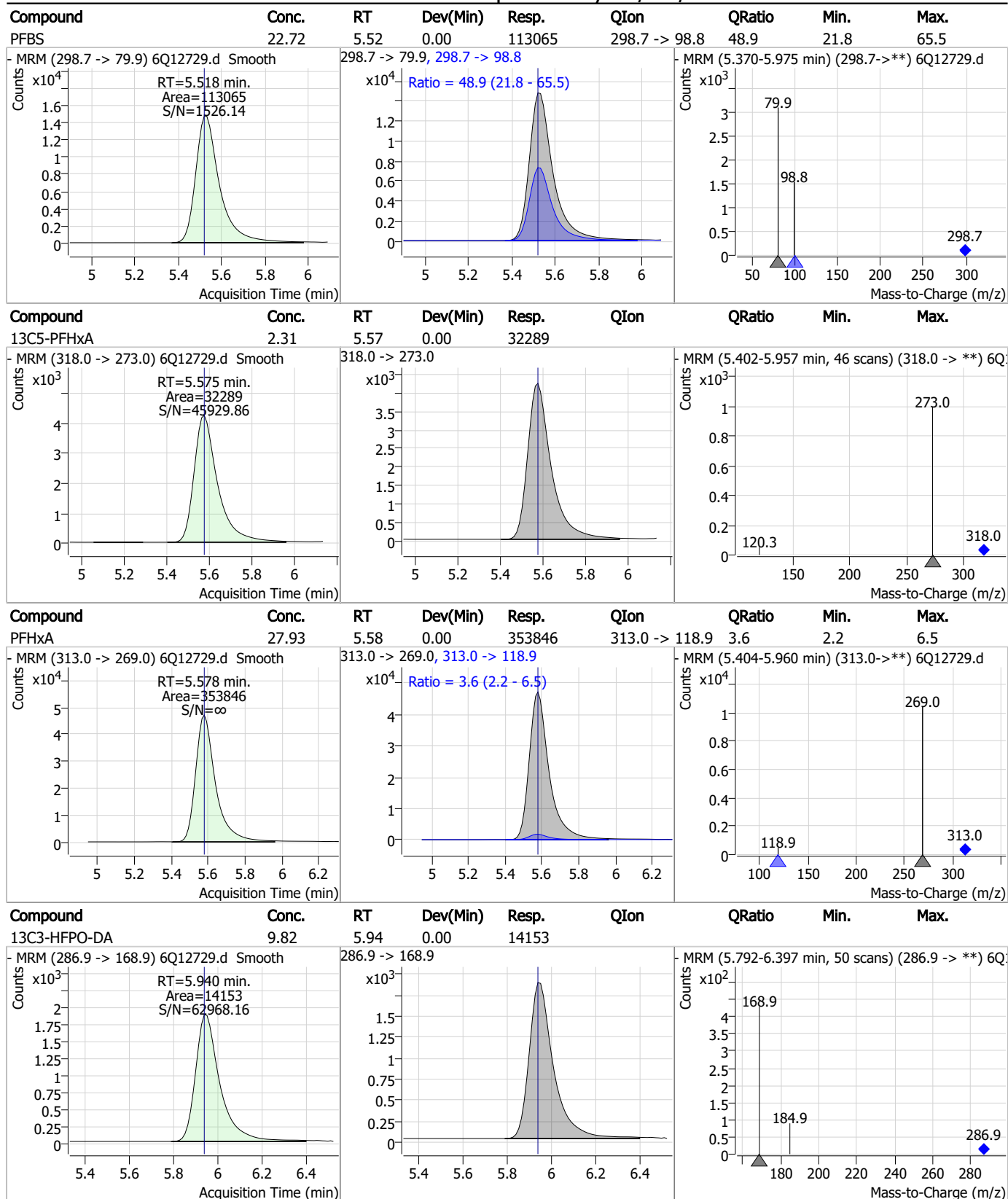
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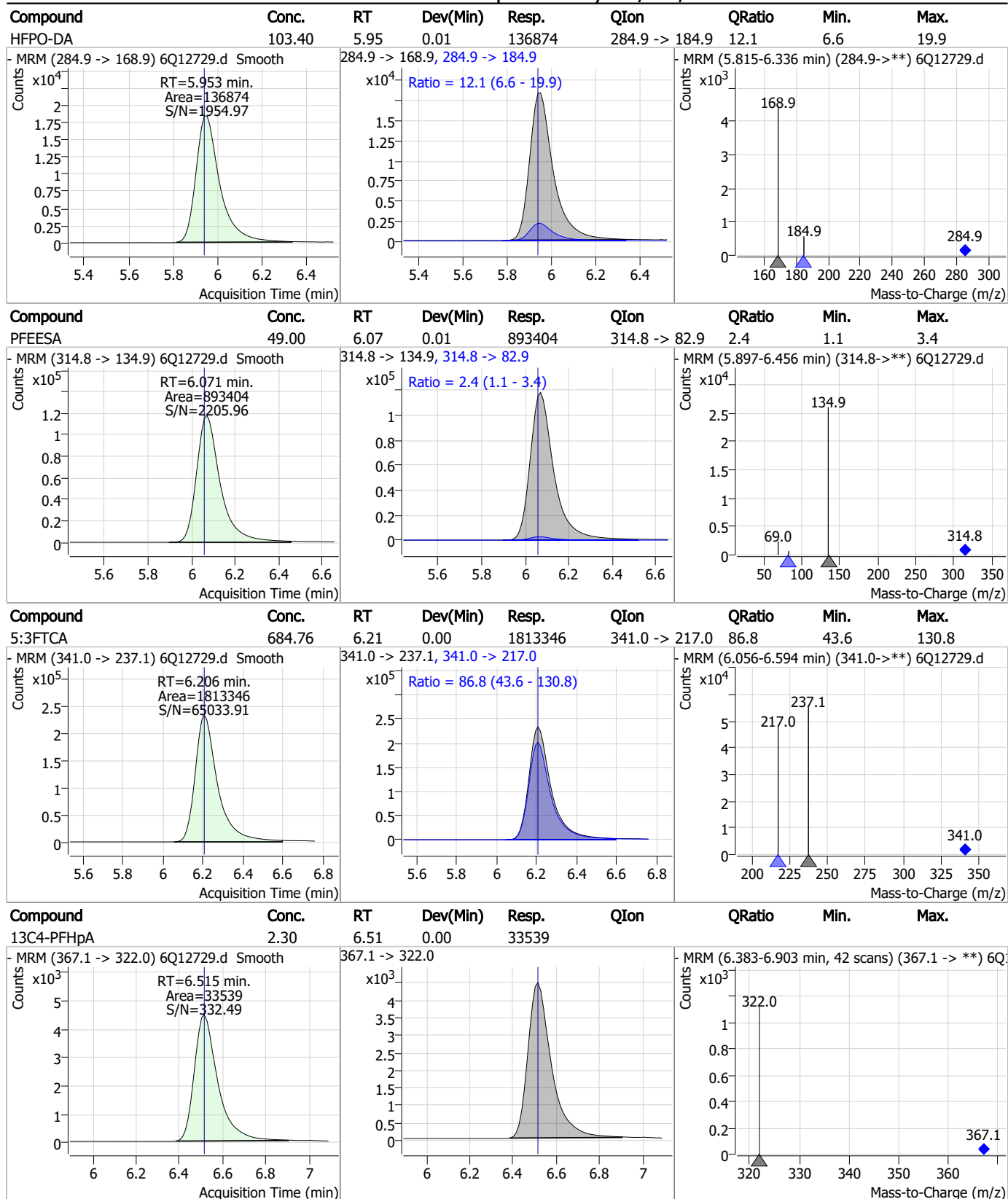
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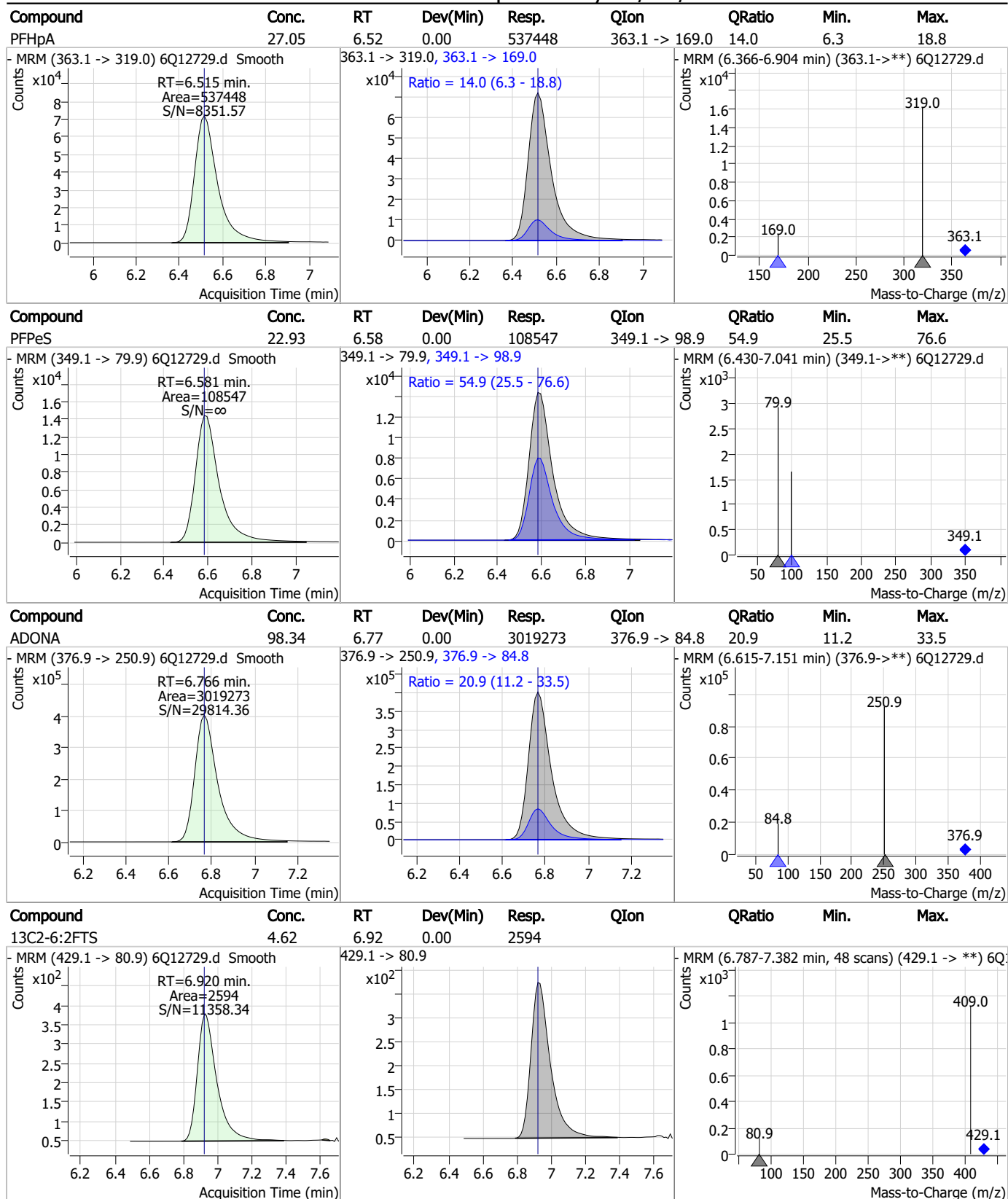
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## Perfluorinated Compounds by LC/MS/MS

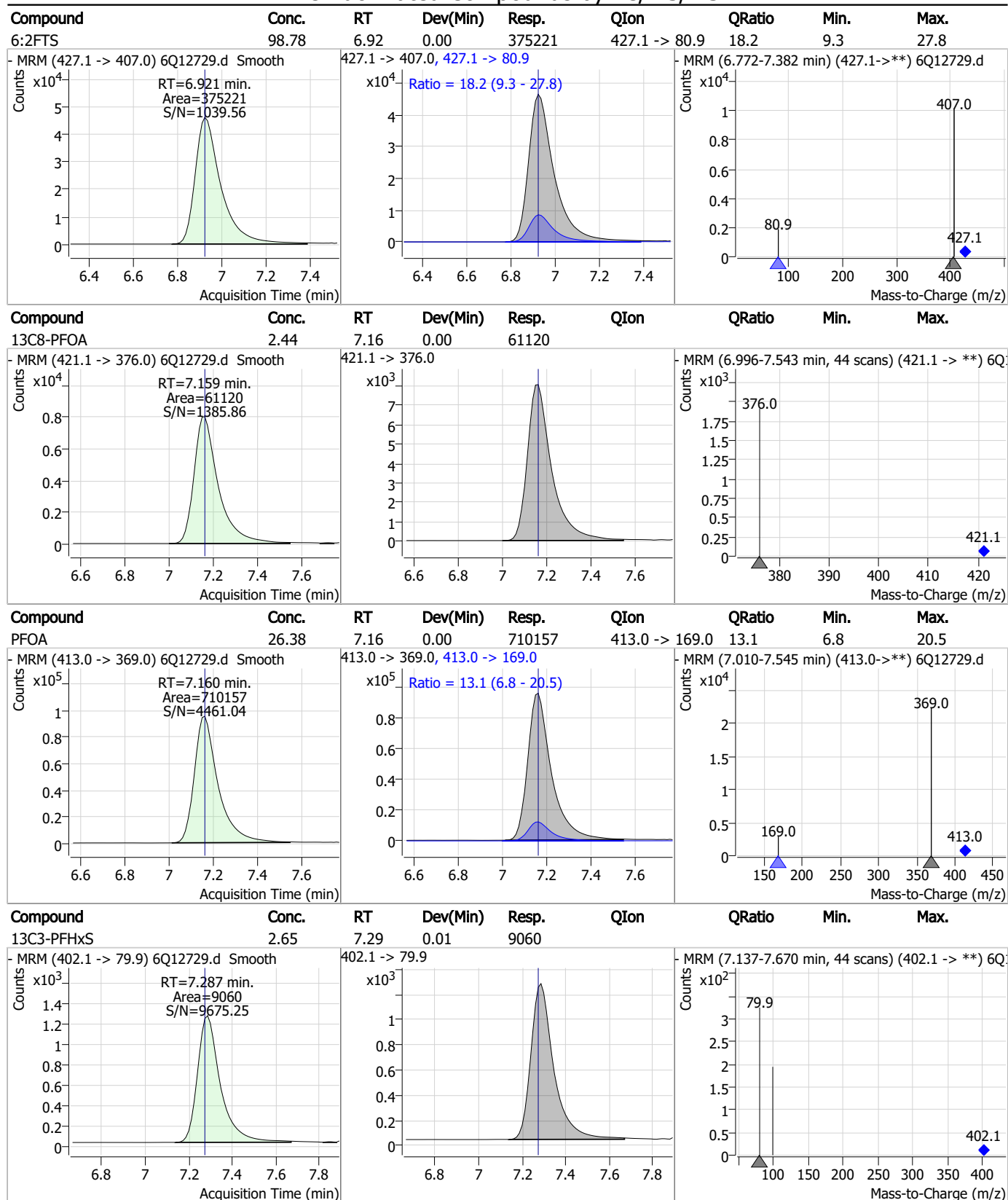


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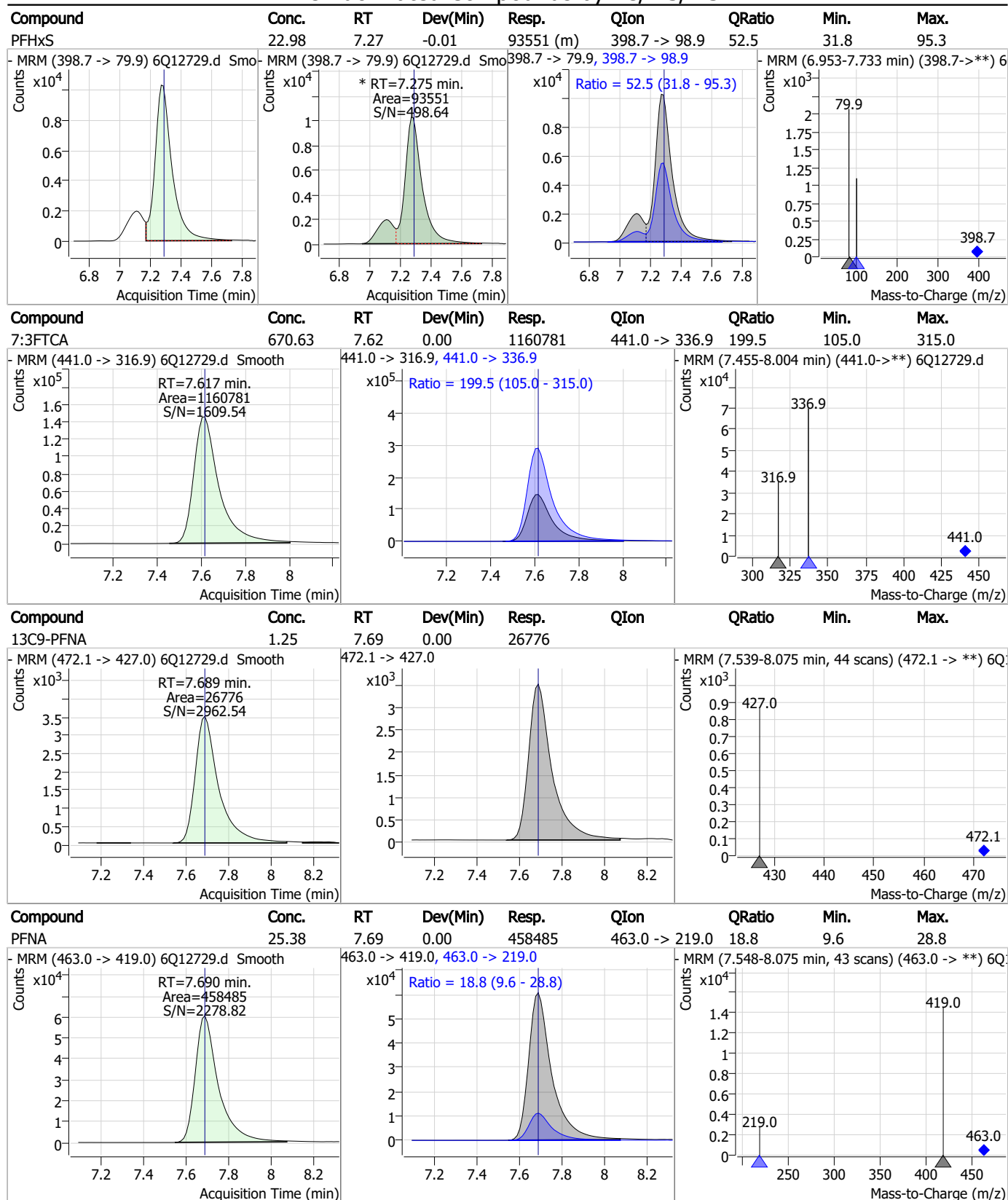




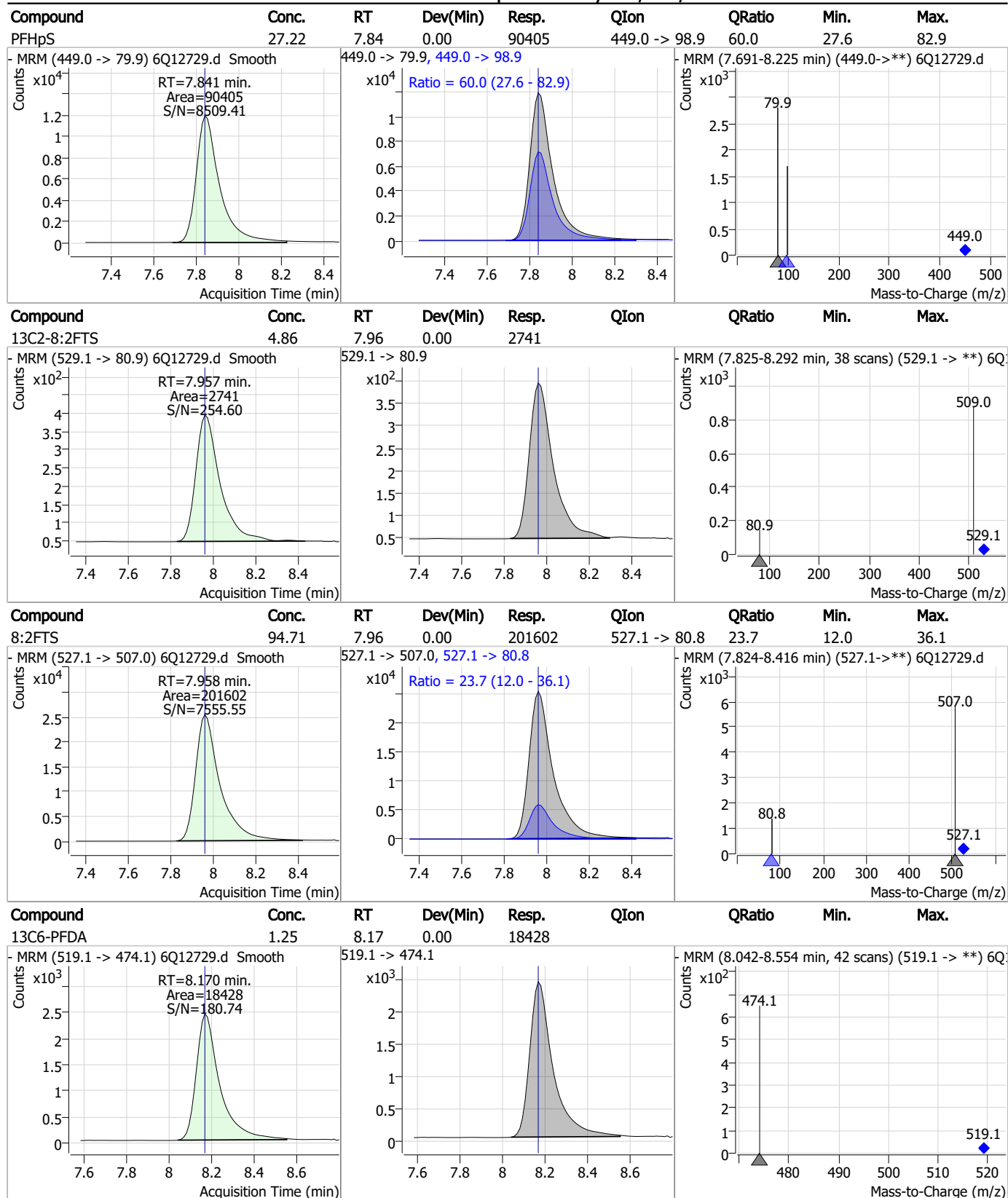
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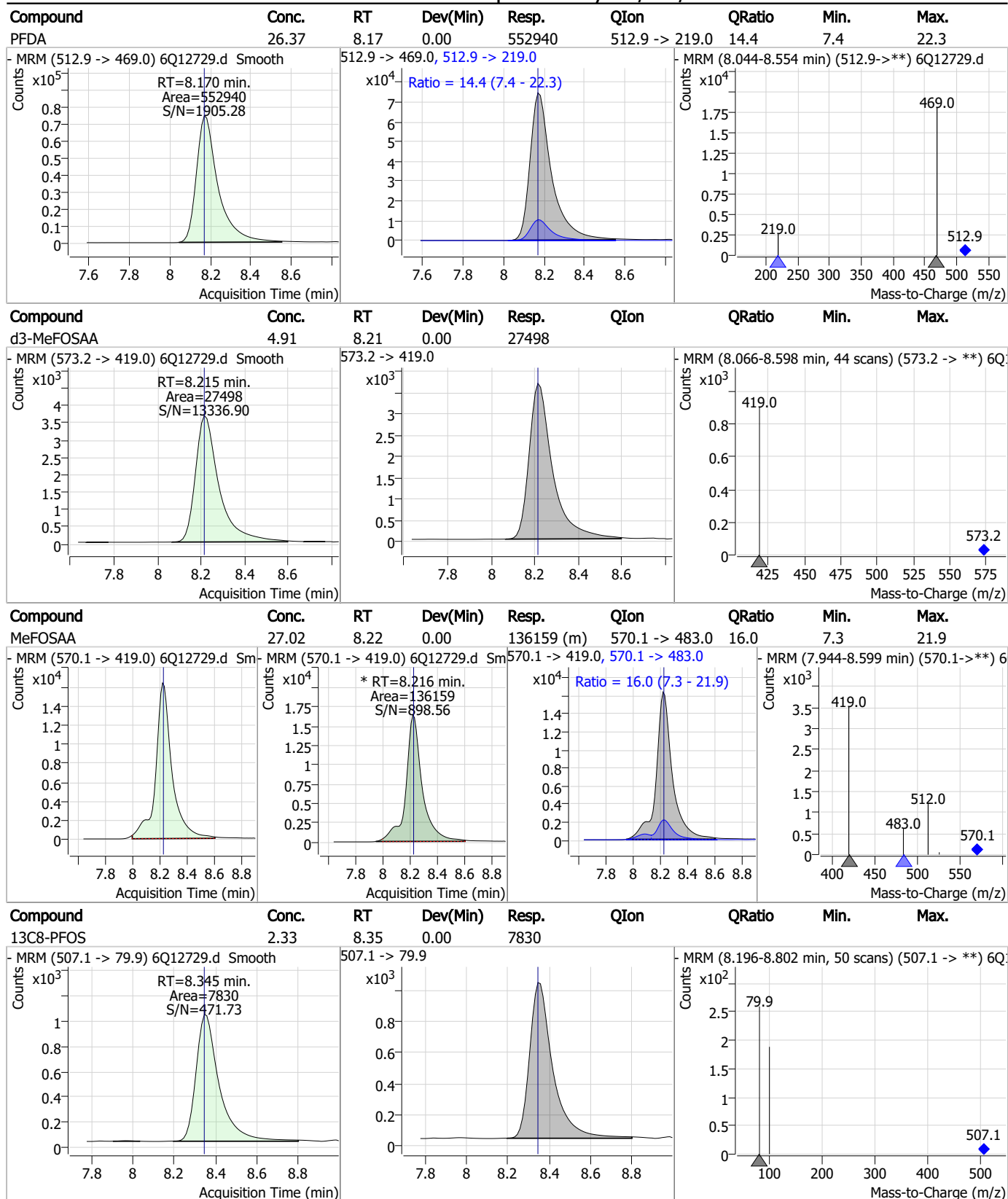
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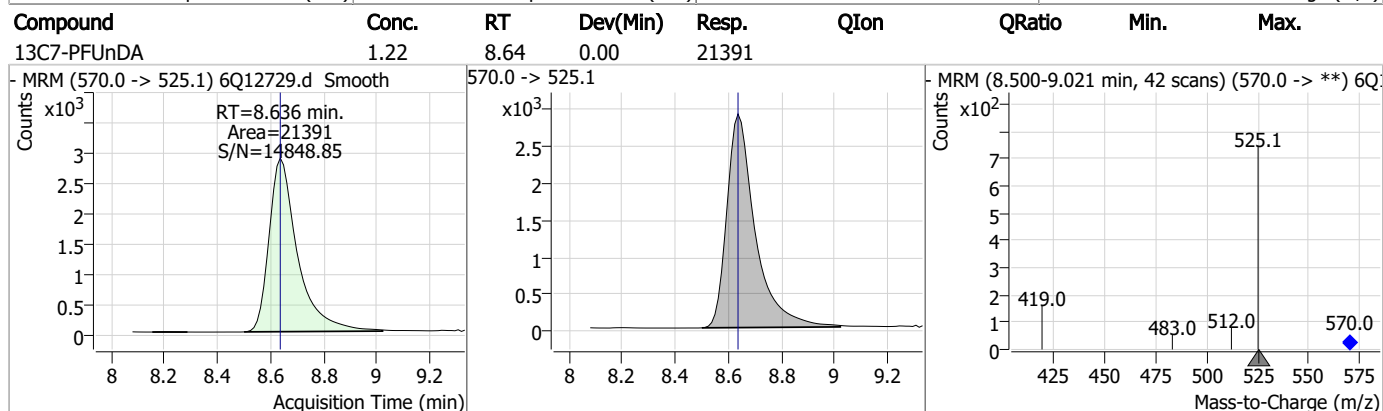
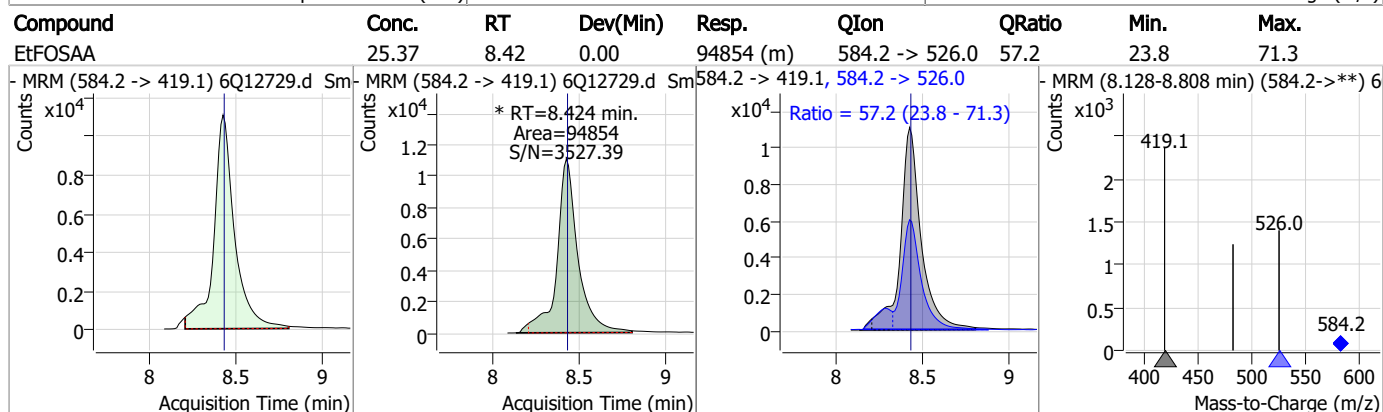
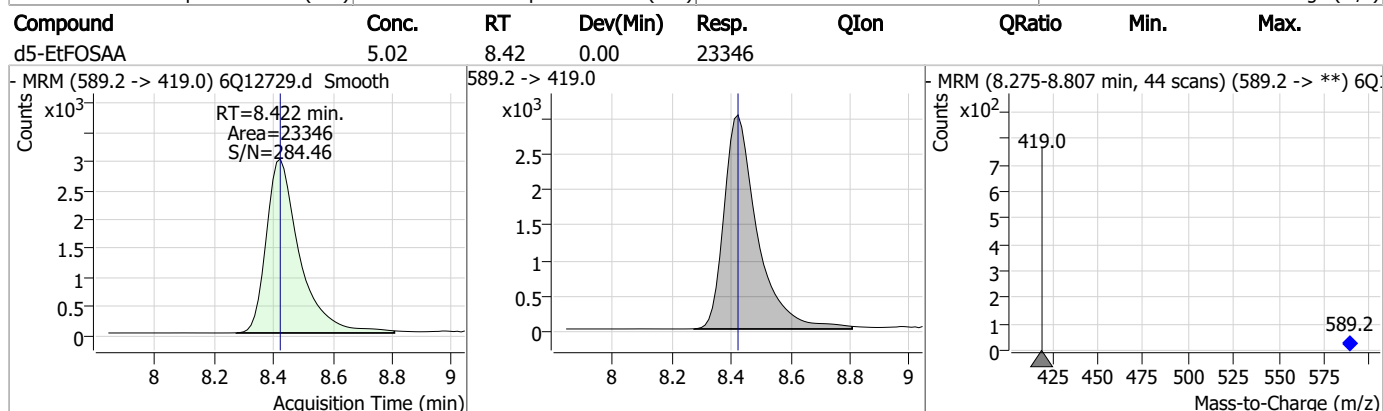
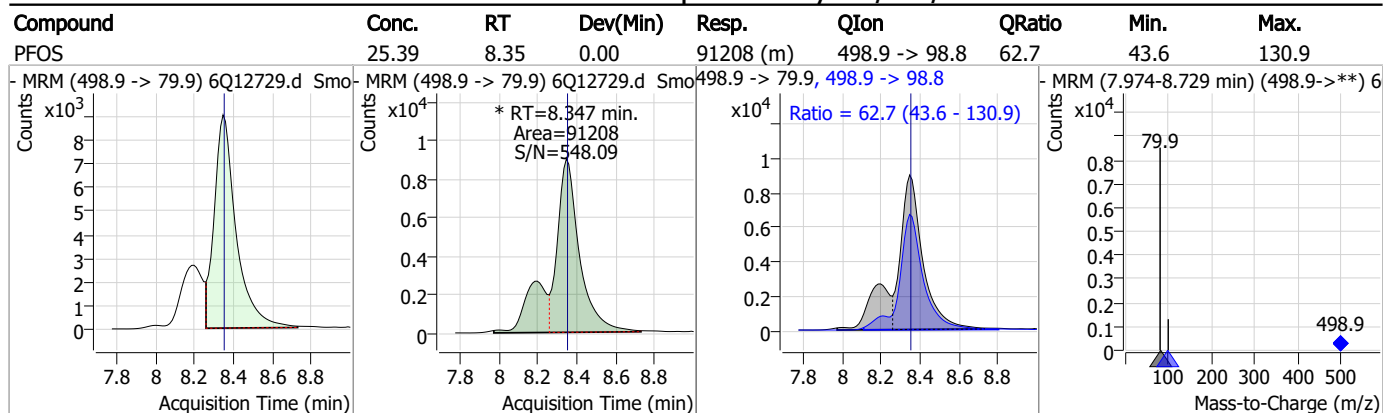
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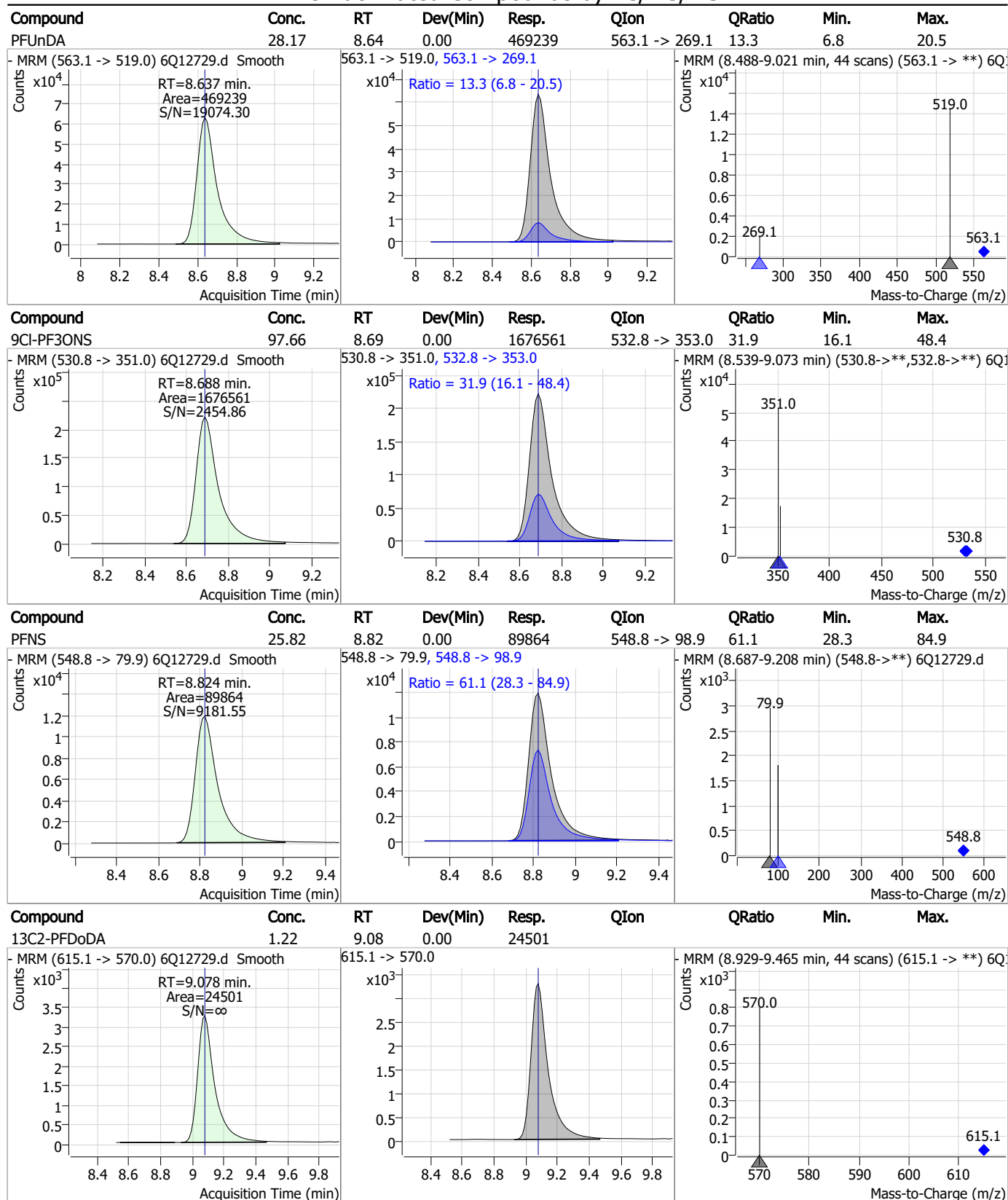
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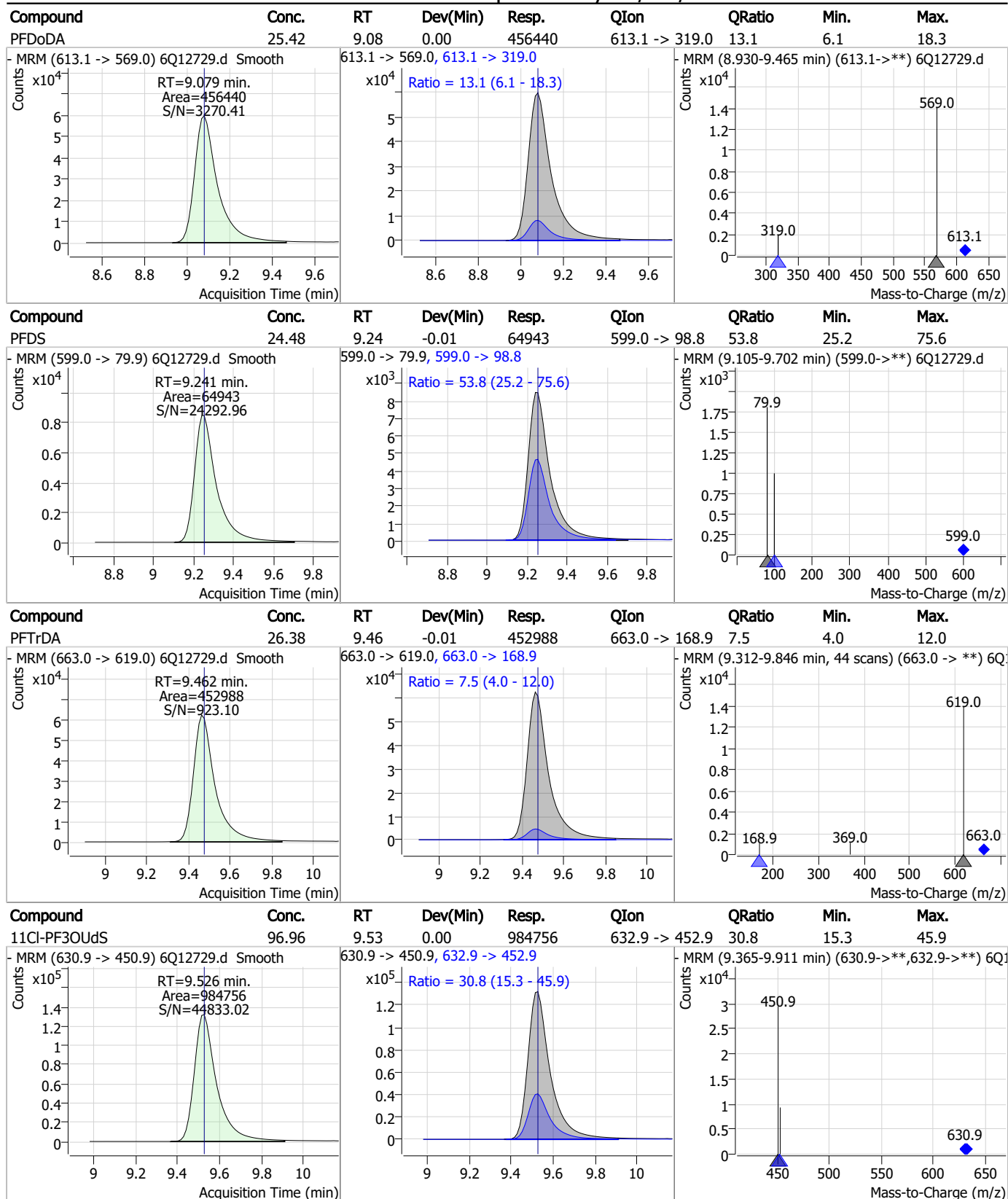
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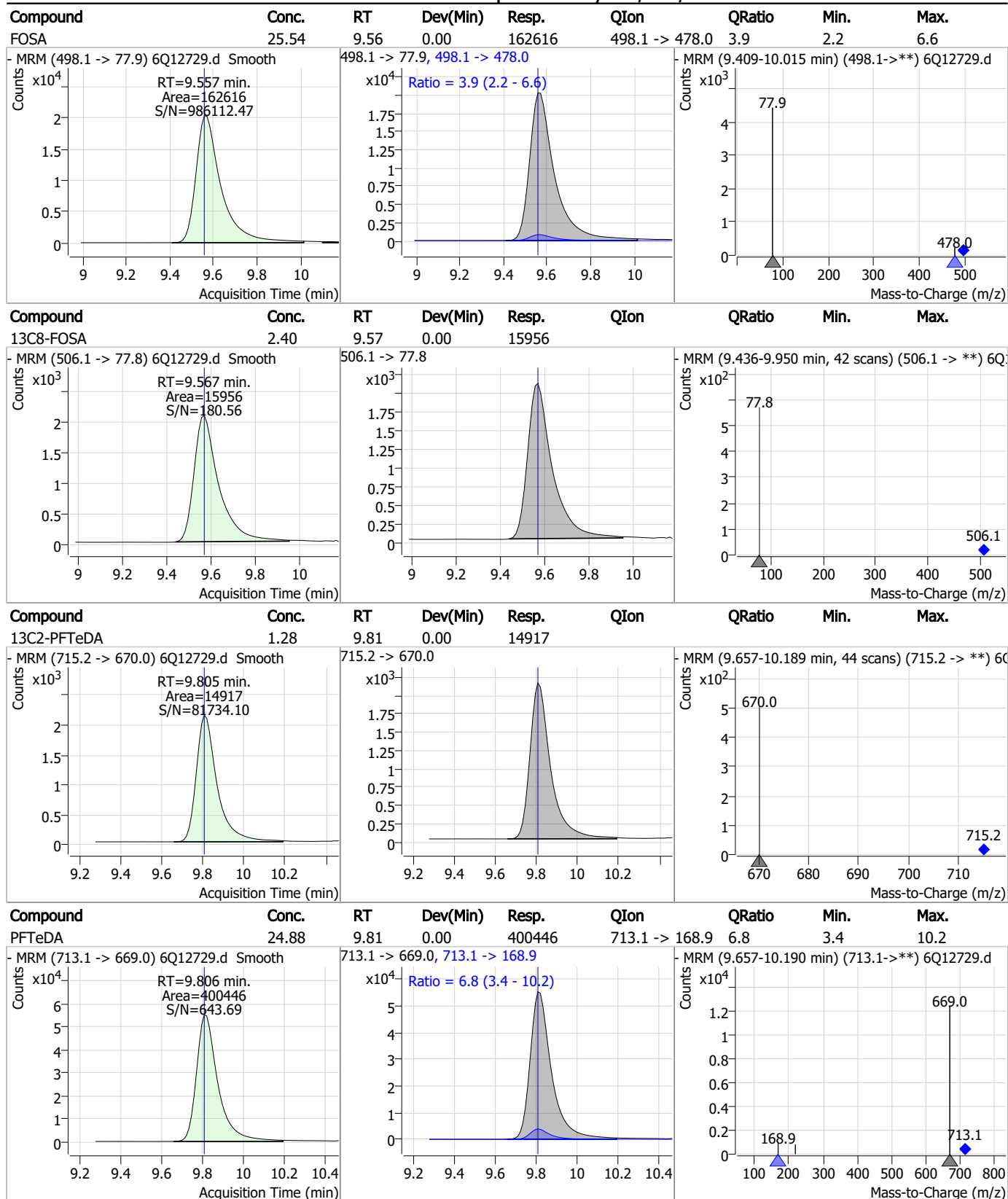
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

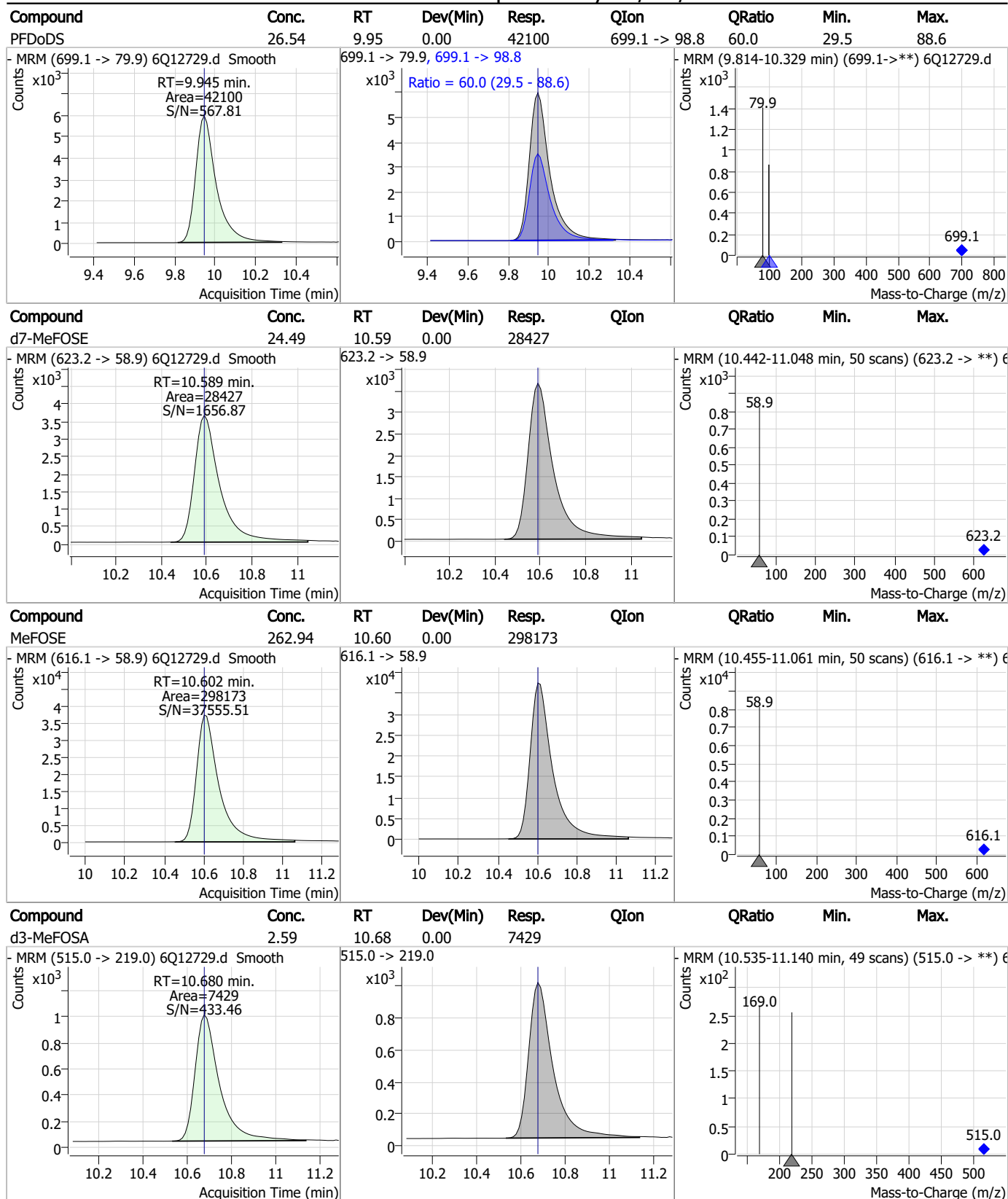


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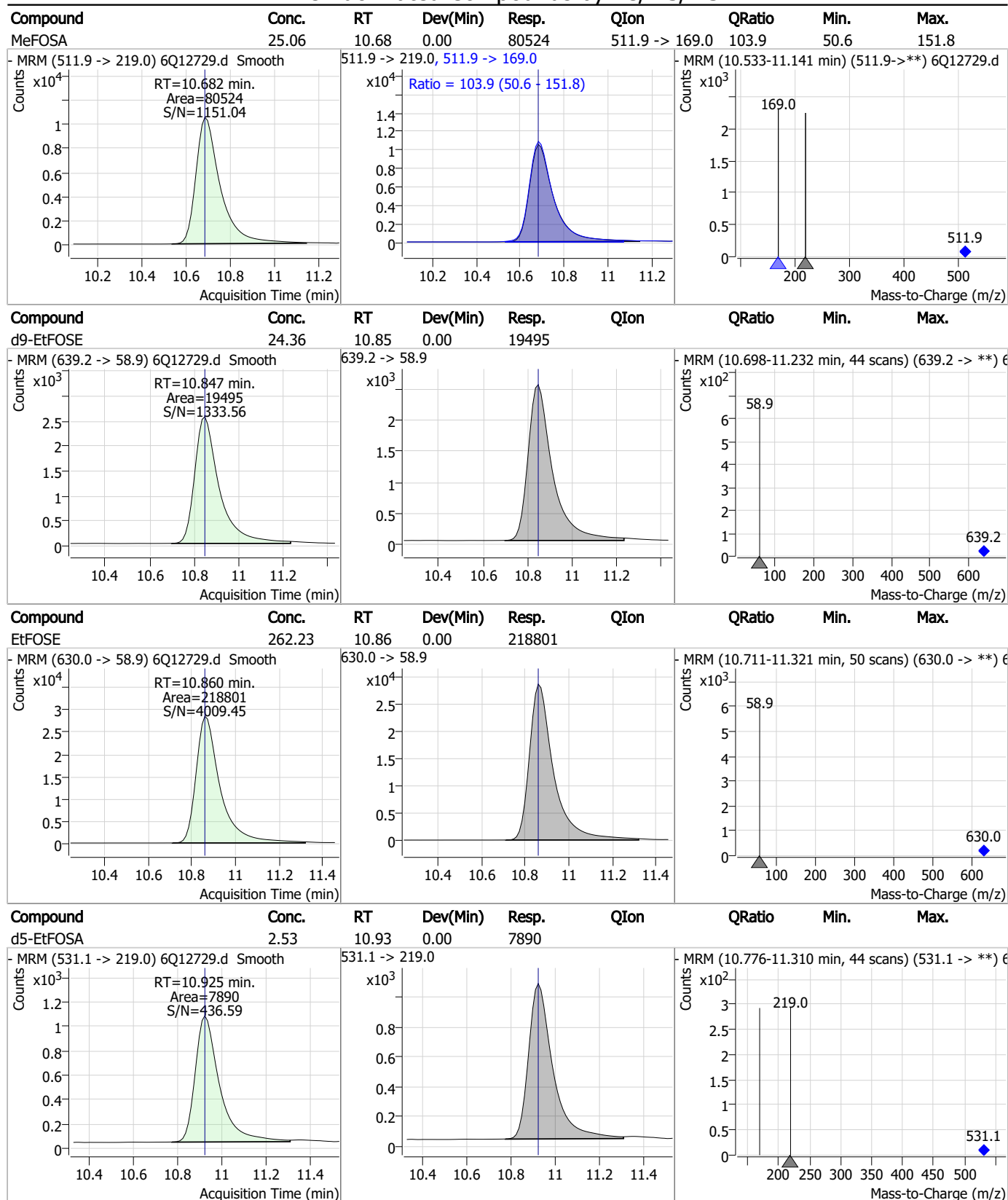
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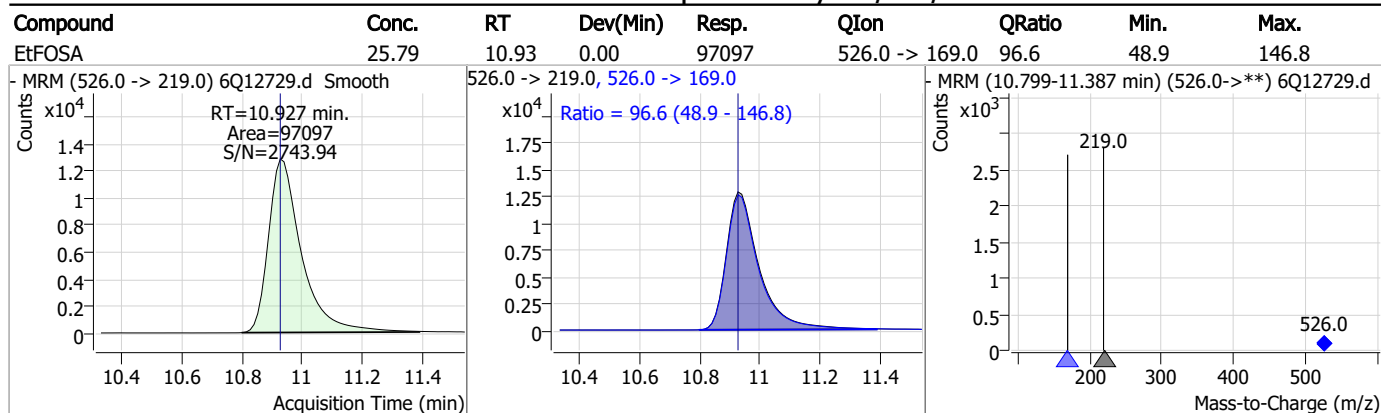
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q196-IC196

Method: EPA DRAFT 1633

Lab FileID: 6Q12729.D

Analyst approved: 02/02/23 11:53 Martha Valls

Injection Time: 02/01/23 19:15

Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

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## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12730.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/1/2023 7:29:13 PM  
 Sample Name : ic196-8  
 Vial : P1-A9  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : S6Q196.batch.bin  
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	65796	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	35855	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	32433	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	33973	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	58215	2.50 µg/L	-0.012
M9-PFNA	7.689	472.1 -> 427.0	26272	1.25 µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	18077	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	20265	1.25 µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	25822	1.25 µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	15224	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16196	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	12393	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8575	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8262	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	1635	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2257	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2579	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	25746	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13136	10.00 µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	22746	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	26917	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	17548	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7700	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7628	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10017	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	29600	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6361	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	71349	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	26143	1.25 µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	27794	1.25 µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	32041	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	1635	3.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 79.0%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2257	4.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 82.3%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2579	4.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C2-PFDoDA	9.078	615.1 -> 570.0	25822	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15224	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C3-PFBS	5.518	302.1 -> 79.9	12393	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C3-PFHxS	7.274	402.1 -> 79.9	8575	2.56 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 = 102.6%		
13C4-PFBA	2.975	216.8 -> 171.9	65796	10.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C4-PFHpA	6.502	367.1 -> 322.0	33973	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C5-PFHxA	5.575	318.0 -> 273.0	32433	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C5-PFPeA	4.386	268.3 -> 223.0	35855	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C6-PFDA	8.170	519.1 -> 474.1	18077	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C7-PFUnDA	8.636	570.0 -> 525.1	20265	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C8-FOSA	9.567	506.1 -> 77.8	16196	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C8-PFOA	7.146	421.1 -> 376.0	58215	2.44 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C8-PFOS	8.345	507.1 -> 79.9	8262	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C9-PFNA	7.689	472.1 -> 427.0	26272	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.4%		
d3-MeFOSAA	8.215	573.2 -> 419.0	25746	4.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	13136	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
d3-MeFOSA	10.680	515.0 -> 219.0	7628	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.6%		
d5-EtFOSAA	8.422	589.2 -> 419.0	22746	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
d7-MeFOSE	10.589	623.2 -> 58.9	26917	23.67 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 94.7%		
d9-EtFOSE	10.847	639.2 -> 58.9	17548	22.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 89.5%		
d5-EtFOSA	10.925	531.1 -> 219.0	7700	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%		

## Target Compounds

					QValue
4:2FTS	5.240	327.1 -> 307.0	832798	227.20 µg/L	100
		327.1 -> 80.9	183196		
6:2FTS	6.921	427.1 -> 407.0	754297	228.22 µg/L	96
		427.1 -> 80.9	127612		
8:2FTS	7.958	527.1 -> 507.0	421545	210.46 µg/L	98
		527.1 -> 80.8	97754		
EtFOSAA	8.424	584.2 -> 419.1	229619	63.03 µg/L	m 97
		584.2 -> 526.0	113897		
FOSA	9.570	498.1 -> 77.9	404801	62.63 µg/L	98
		498.1 -> 478.0	14930		
MeFOSAA	8.216	570.1 -> 419.0	315638	66.90 µg/L	m 95
		570.1 -> 483.0	53221		
PFBA	2.982	212.8 -> 168.9	392659	267.20 µg/L	100
PFBS	5.518	298.7 -> 79.9	283532	59.56 µg/L	98
		298.7 -> 98.8	127290		
PFDA	8.170	512.9 -> 469.0	1338537	65.07 µg/L	96
		512.9 -> 219.0	179133		
PFDODA	9.079	613.1 -> 569.0	1143341	60.43 µg/L	98
		613.1 -> 319.0	131621		
PFDS	9.253	599.0 -> 79.9	168118	60.07 µg/L	100

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.515	599.0 -> 98.8	84809	63.19	µg/L	97
		363.1 -> 319.0	1271519			
PFHpS	7.841	363.1 -> 169.0	176413	60.80	µg/L	96
		449.0 -> 79.9	213084			
PFHxA	5.566	449.0 -> 98.9	123648	64.98	µg/L	98
		313.0 -> 269.0	826785			
PFHxS	7.275	313.0 -> 118.9	30538	56.93	µg/L	92
		398.7 -> 79.9	219332			
PFNA	7.690	398.7 -> 98.9	125836	63.06	µg/L	99
		463.0 -> 419.0	1117587			
PFNS	8.824	463.0 -> 219.0	219745	61.82	µg/L	96
		548.8 -> 79.9	227034			
PFOA	7.148	548.8 -> 98.9	122330	63.74	µg/L	100
		413.0 -> 369.0	1634197			
PFOS	8.347	413.0 -> 169.0	223509	57.58	µg/L	74
		498.9 -> 79.9	218245			
PFPeA	4.388	498.9 -> 98.8	137136	129.80	µg/L	100
		263.0 -> 219.0	982715			
PFPeS	6.581	349.1 -> 79.9	264310	58.98	µg/L	97
		349.1 -> 98.9	141423			
PFTeDA	9.806	713.1 -> 669.0	949527	57.81	µg/L	99
		713.1 -> 168.9	59929			
PFTrDA	9.462	663.0 -> 619.0	1010146	55.82	µg/L	99
		663.0 -> 168.9	78347			
PFUnDA	8.637	563.1 -> 519.0	1010682	64.05	µg/L	98
		563.1 -> 269.1	146108			
11CI-PF3OUdS	9.526	630.9 -> 450.9	2150650	228.15	µg/L	97
		632.9 -> 452.9	688124			
9CI-PF3ONS	8.688	530.8 -> 351.0	3655612	229.41	µg/L	99
		532.8 -> 353.0	1157478			
ADONA	6.766	376.9 -> 250.9	6794261	238.41	µg/L	98
		376.9 -> 84.8	1452759			
HFPO-DA	5.940	284.9 -> 168.9	322984	262.87	µg/L	99
		284.9 -> 184.9	40921			
3:3FTCA	3.841	241.0 -> 177.0	129824	349.15	µg/L	97
		241.0 -> 117.0	17347			
5:3FTCA	6.206	341.0 -> 237.1	4278045	1608.30	µg/L	100
		341.0 -> 217.0	3749834			
7:3FTCA	7.605	441.0 -> 316.9	2791279	1605.47	µg/L	97
		441.0 -> 336.9	5752265			
EtFOSA	10.939	526.0 -> 219.0	235772	64.15	µg/L	99
		526.0 -> 169.0	232213			
EtFOSE	10.860	630.0 -> 58.9	549287	731.33	µg/L	100
		511.9 -> 219.0	196977			
MeFOSA	10.682	511.9 -> 169.0	194643	59.69	µg/L	98
		616.1 -> 58.9	721504			
MeFOSE	10.602	699.1 -> 79.9	96014	671.93	µg/L	100
		699.1 -> 98.8	62266			
PFDoDS	9.945	295.0 -> 201.0	94335	125.43	µg/L	100
		295.0 -> 84.9	48440			
NFDHA	5.457	279.0 -> 85.1	286016	134.33	µg/L	100
		229.0 -> 84.9	269264			
PFMBA	3.541	314.8 -> 134.9	2122021	115.87	µg/L	100
		314.8 -> 82.9	48044			
PFEESA	6.059					

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

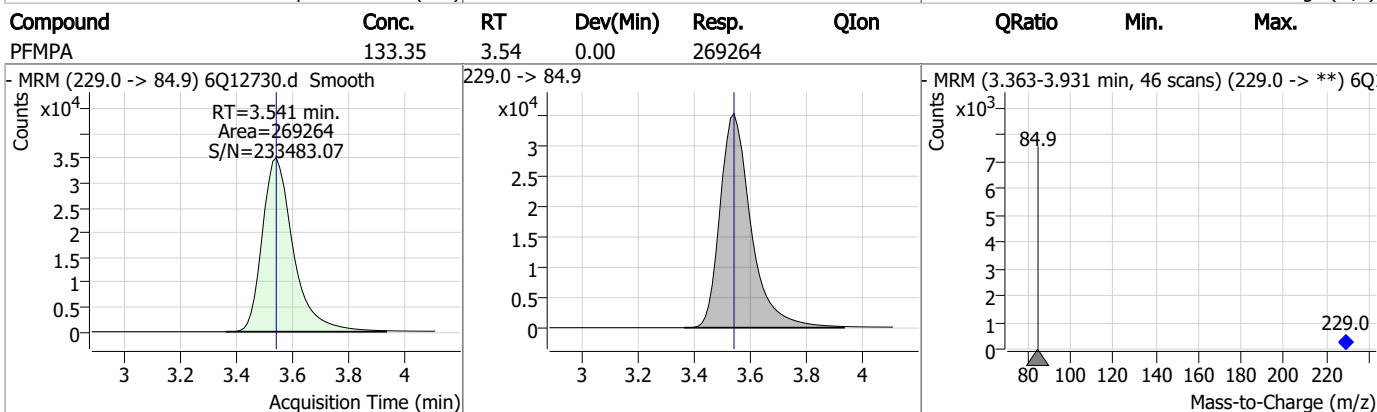
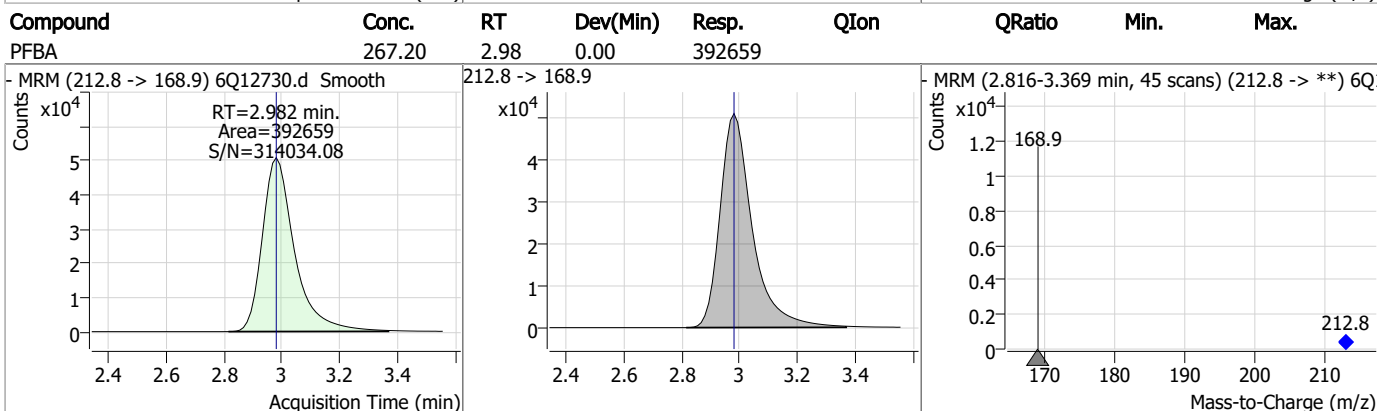
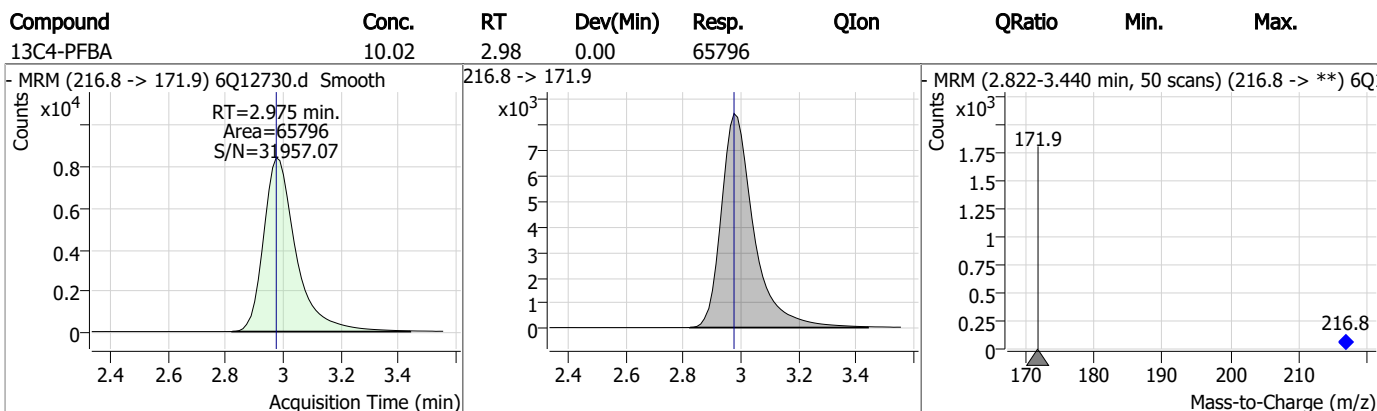
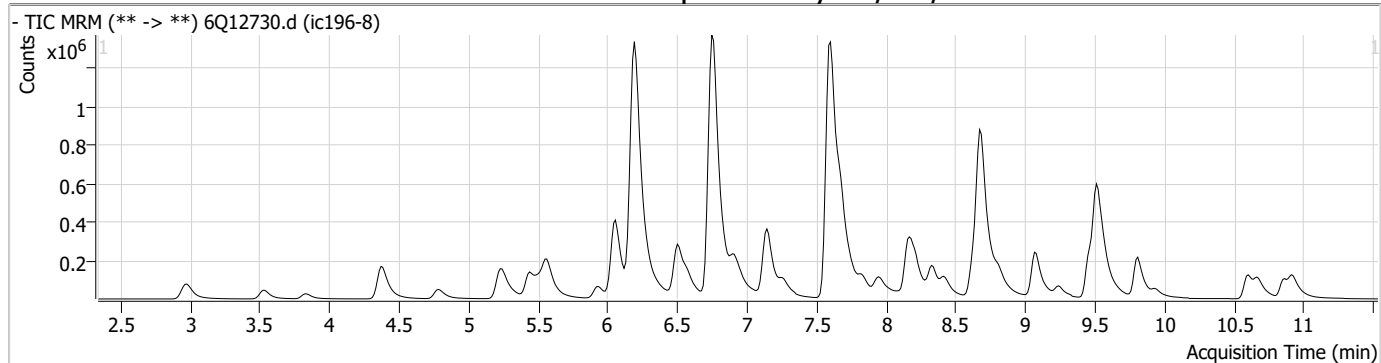
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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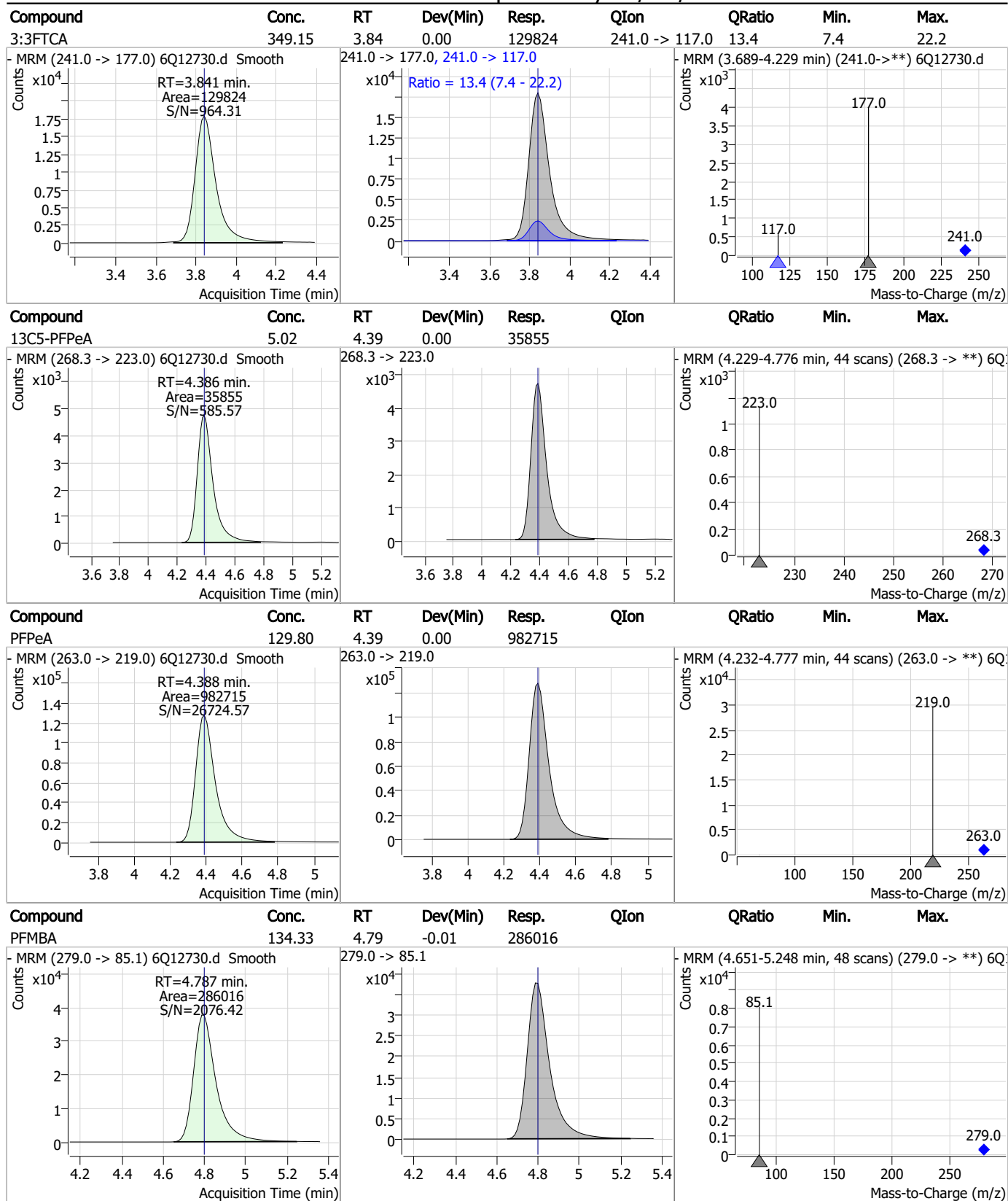
7.7.9  
7



## Perfluorinated Compounds by LC/MS/MS



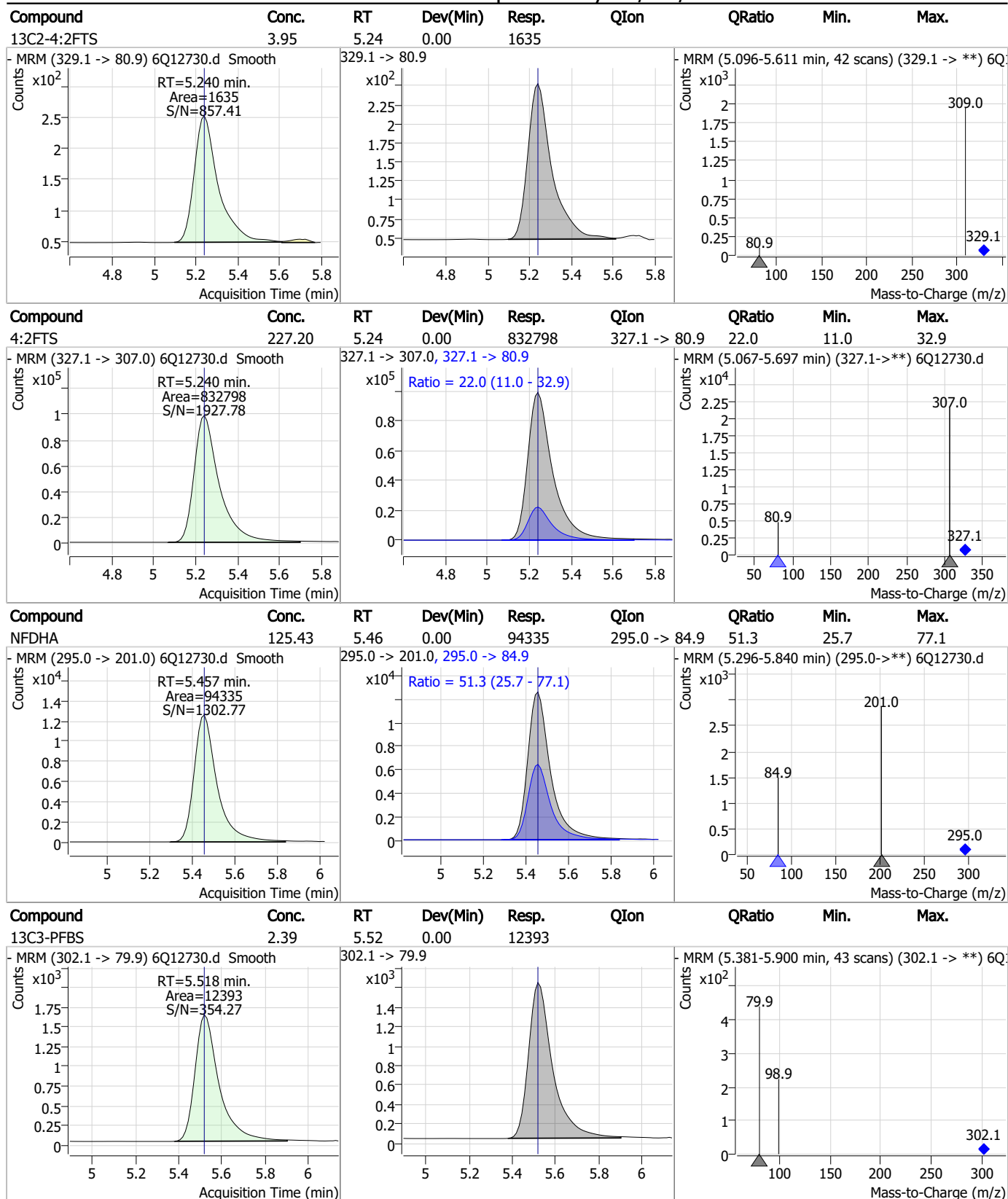
## Perfluorinated Compounds by LC/MS/MS



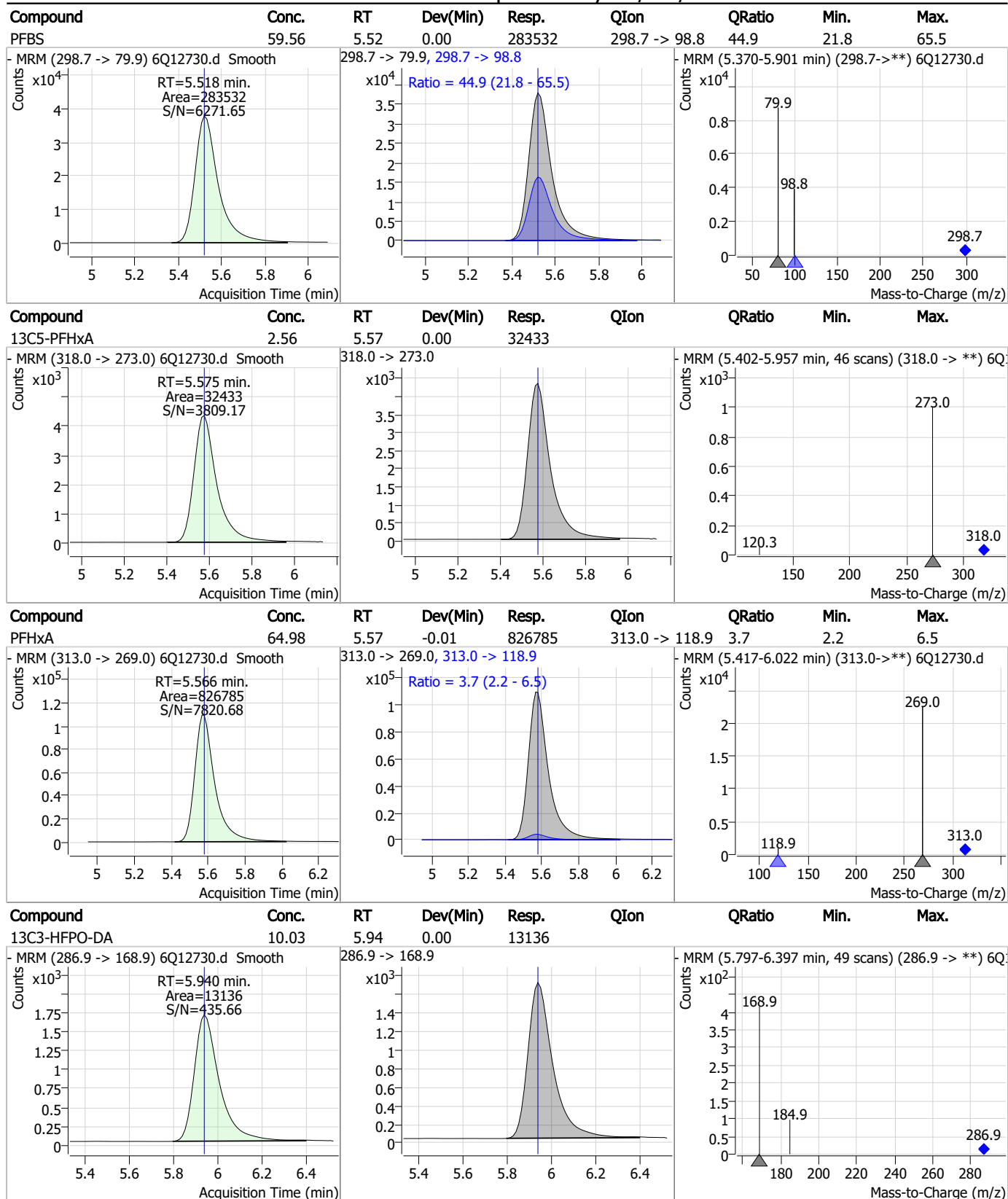
7.7.9

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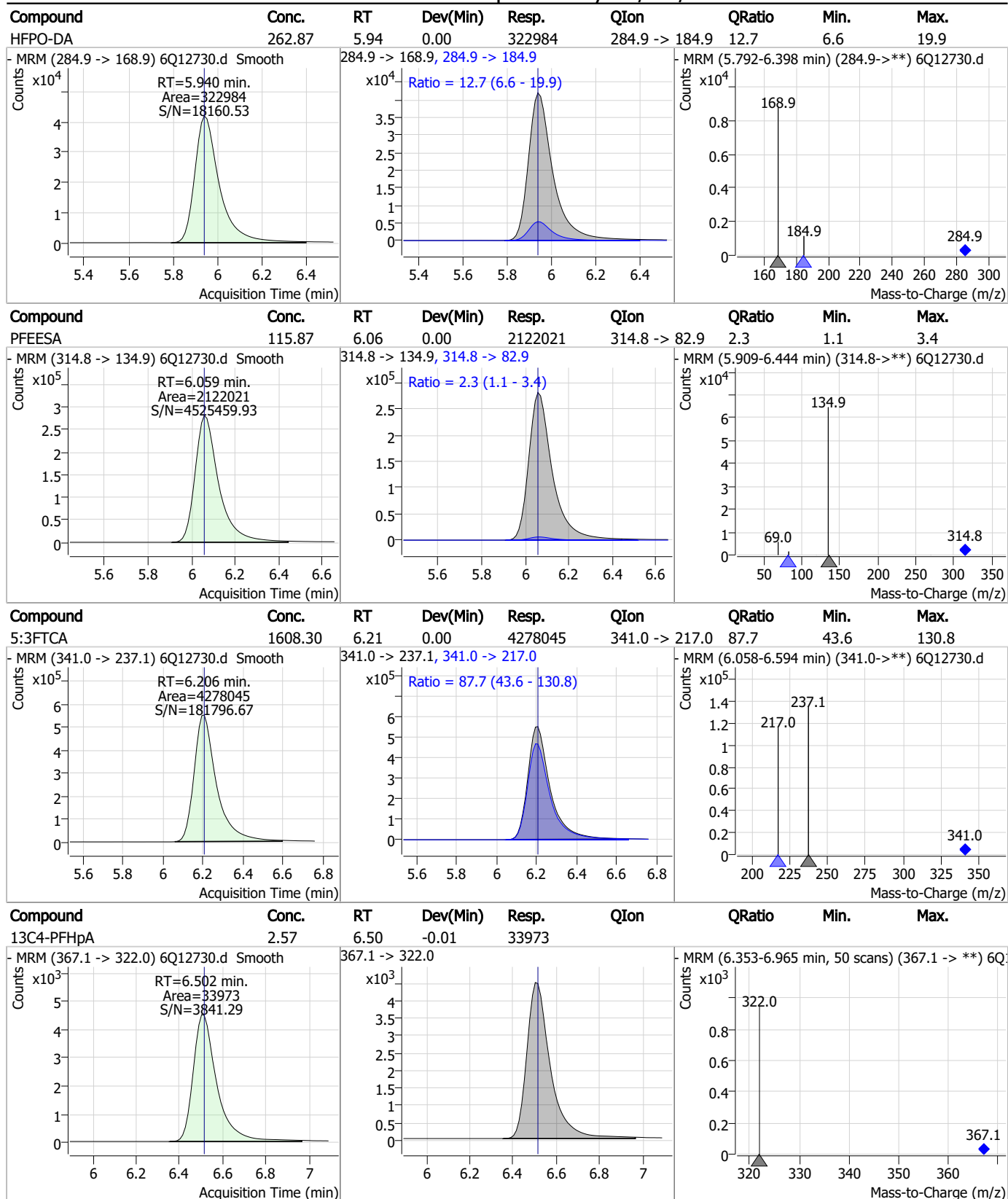
## Perfluorinated Compounds by LC/MS/MS



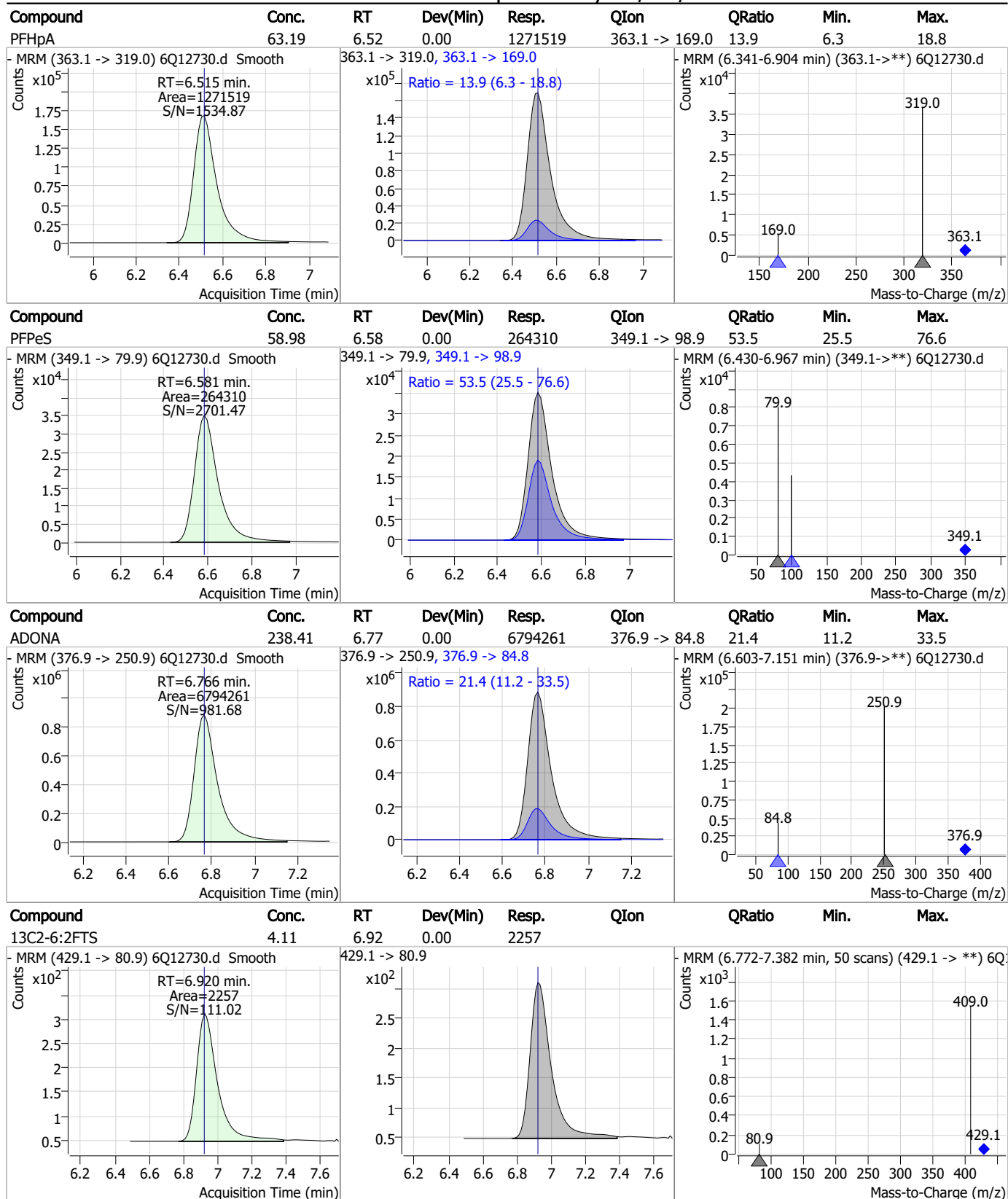
## Perfluorinated Compounds by LC/MS/MS



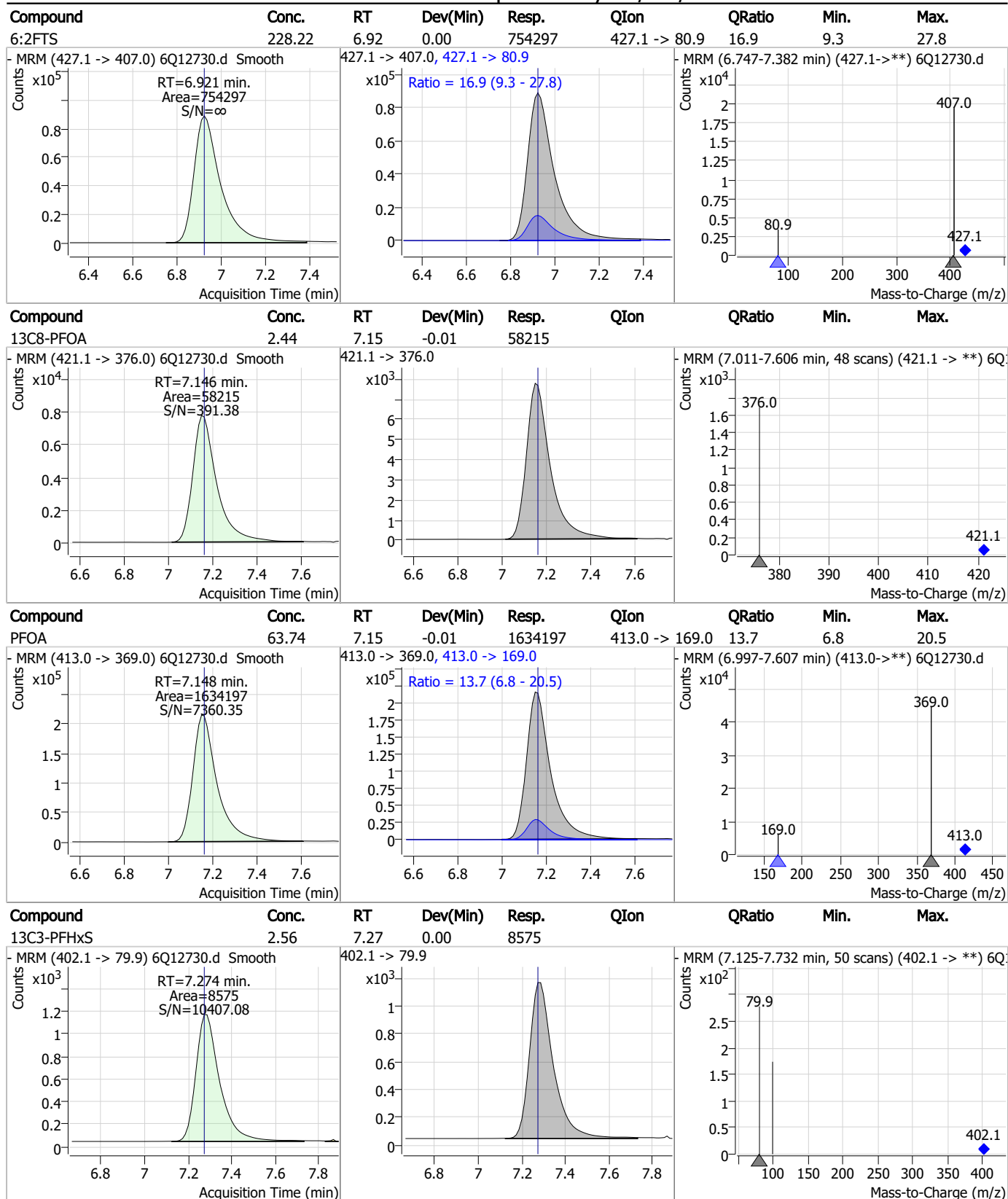
## Perfluorinated Compounds by LC/MS/MS



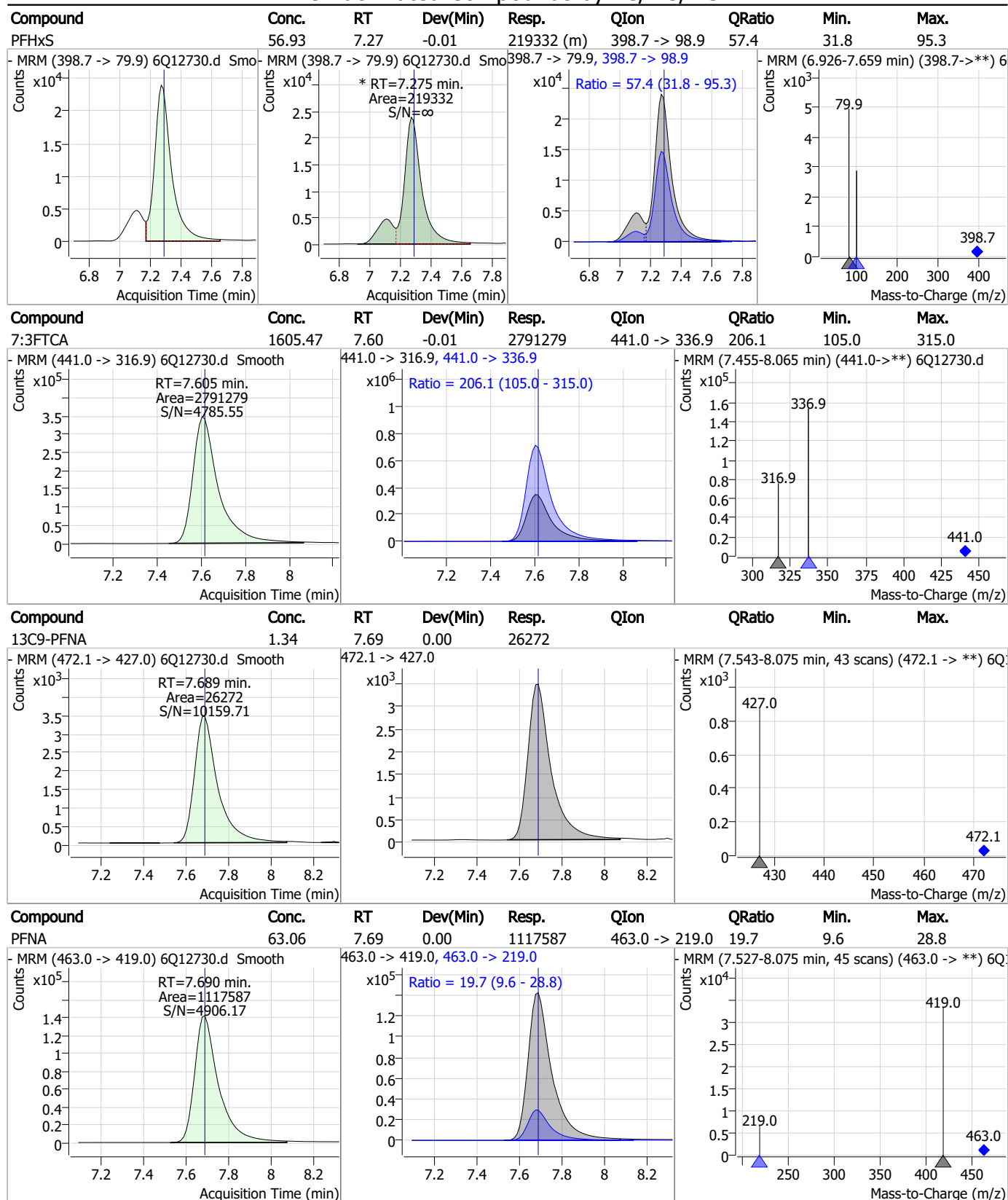
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

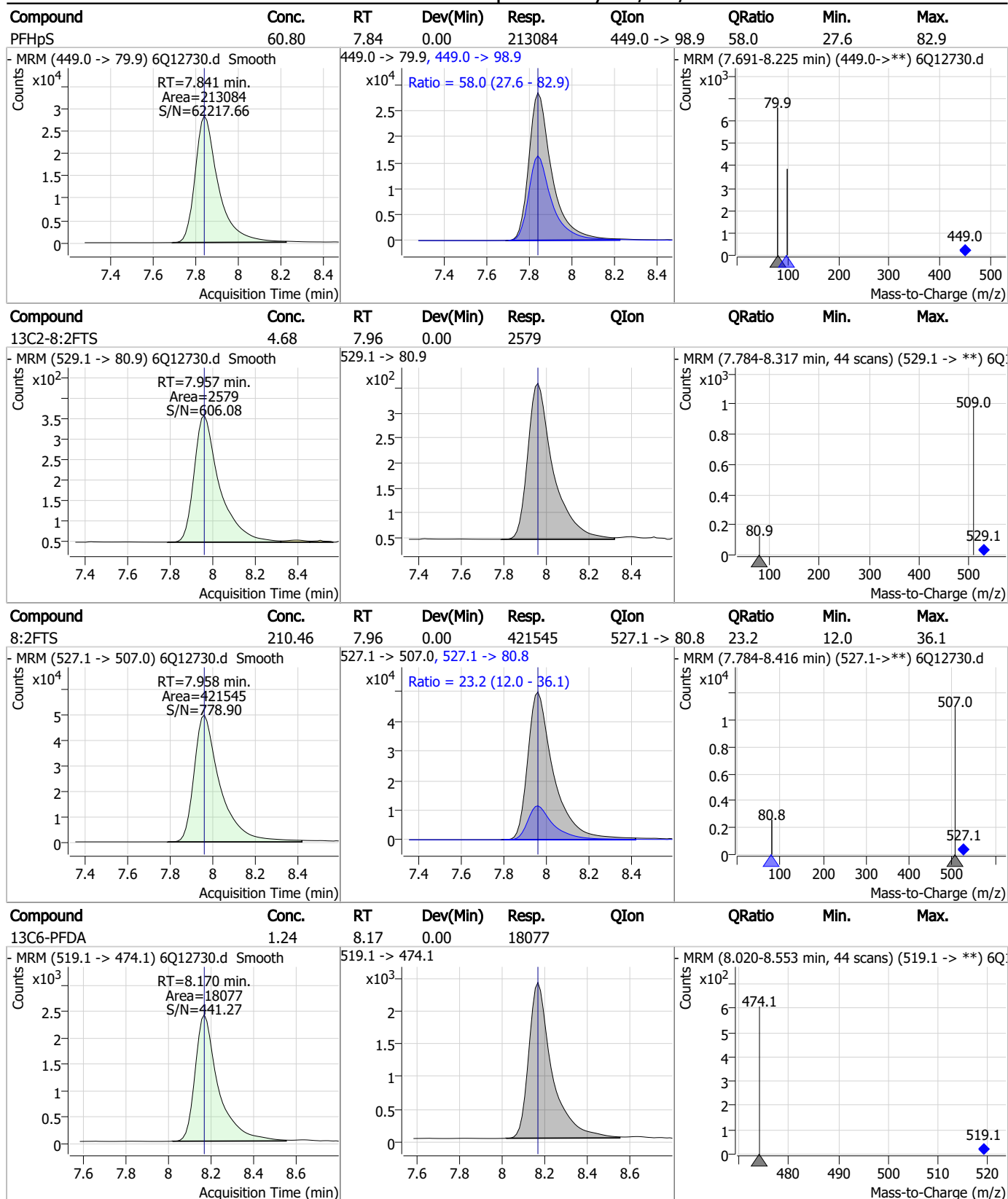


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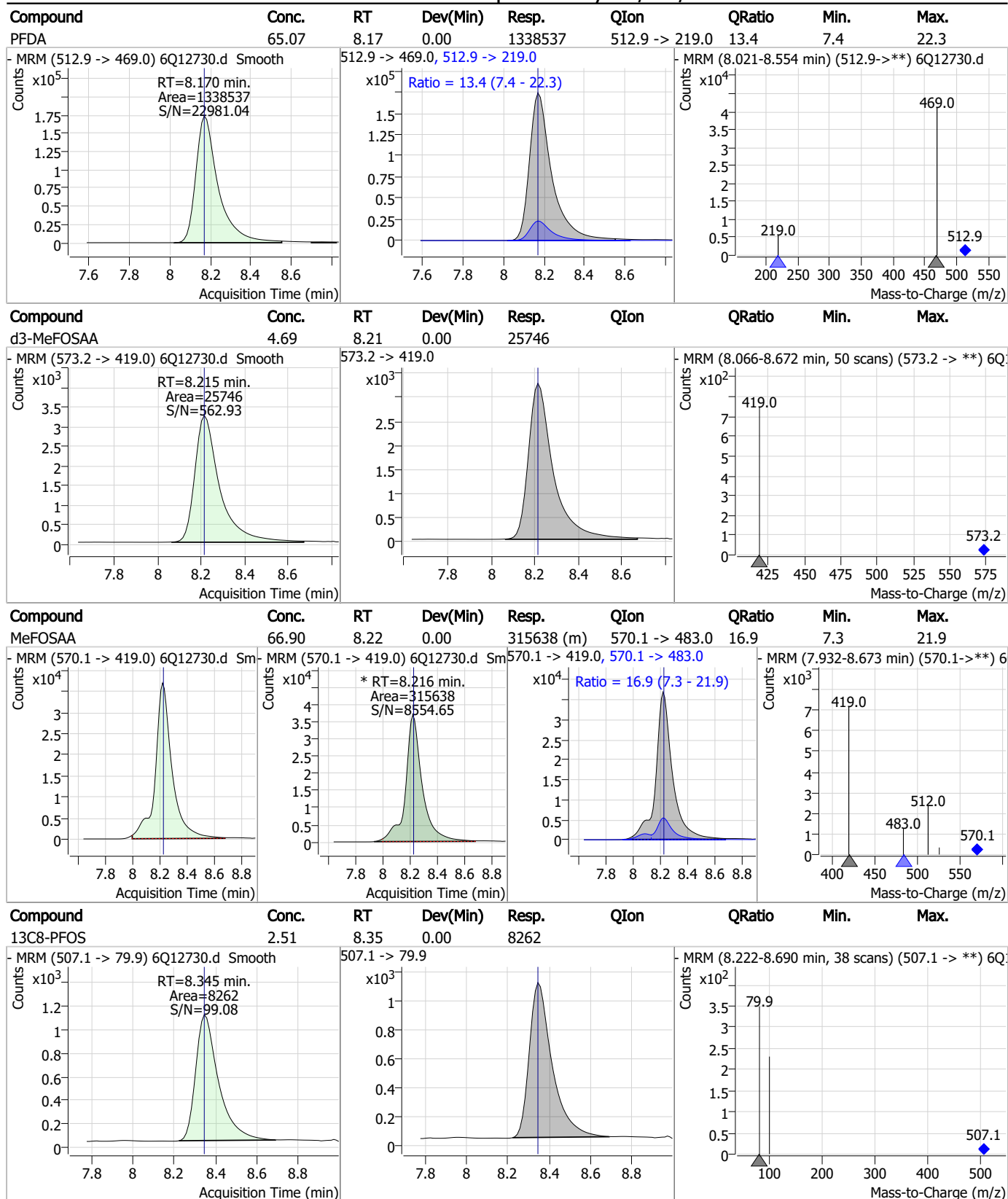




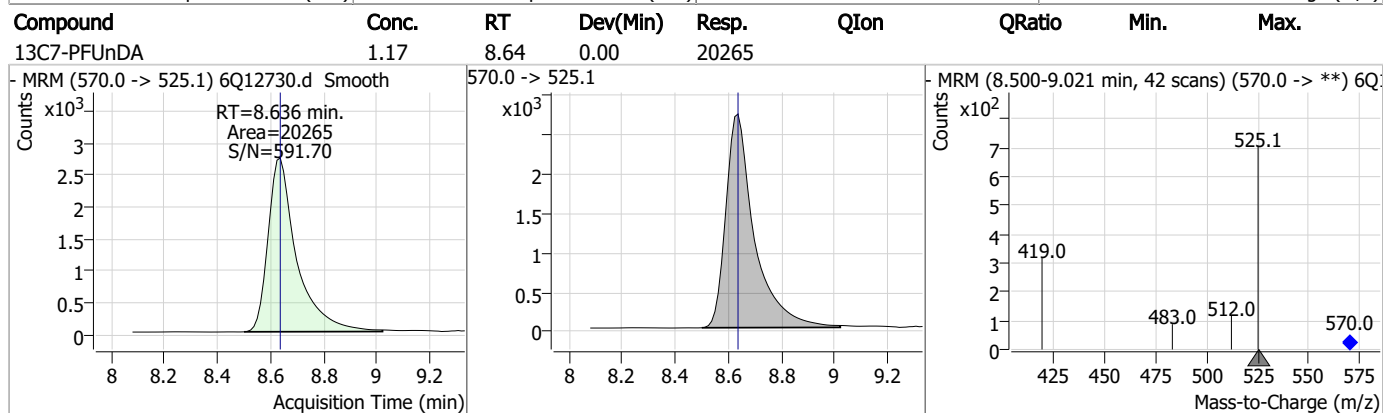
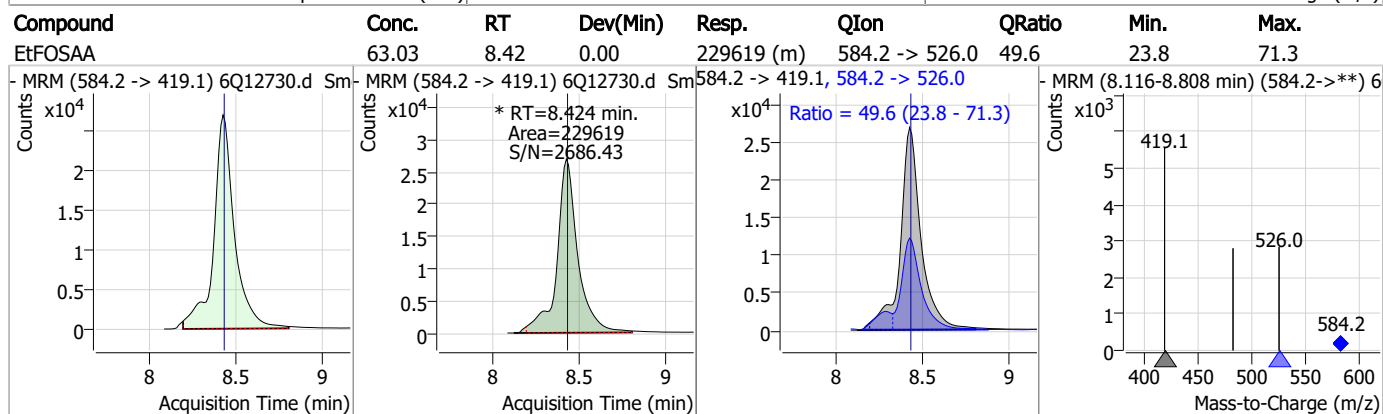
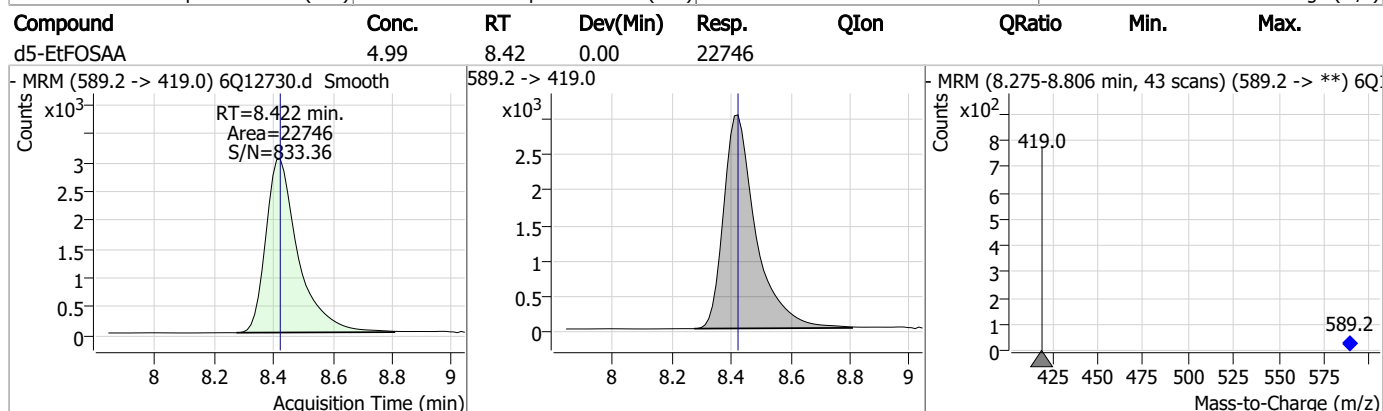
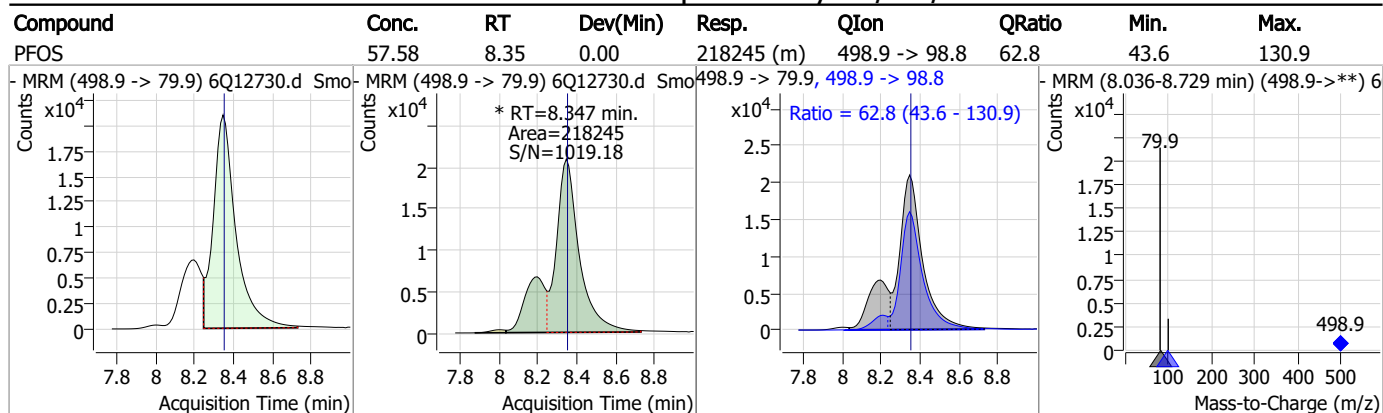
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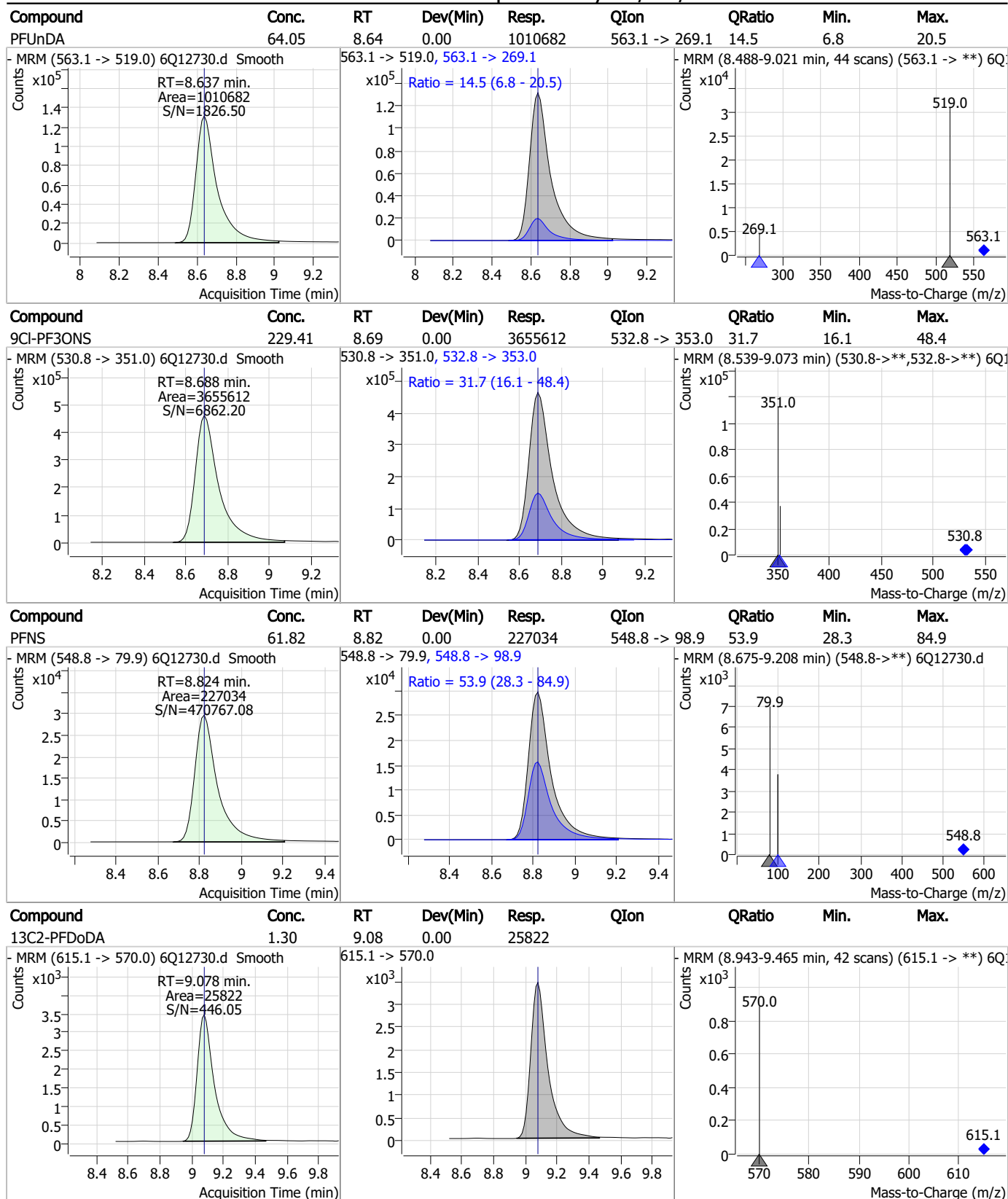
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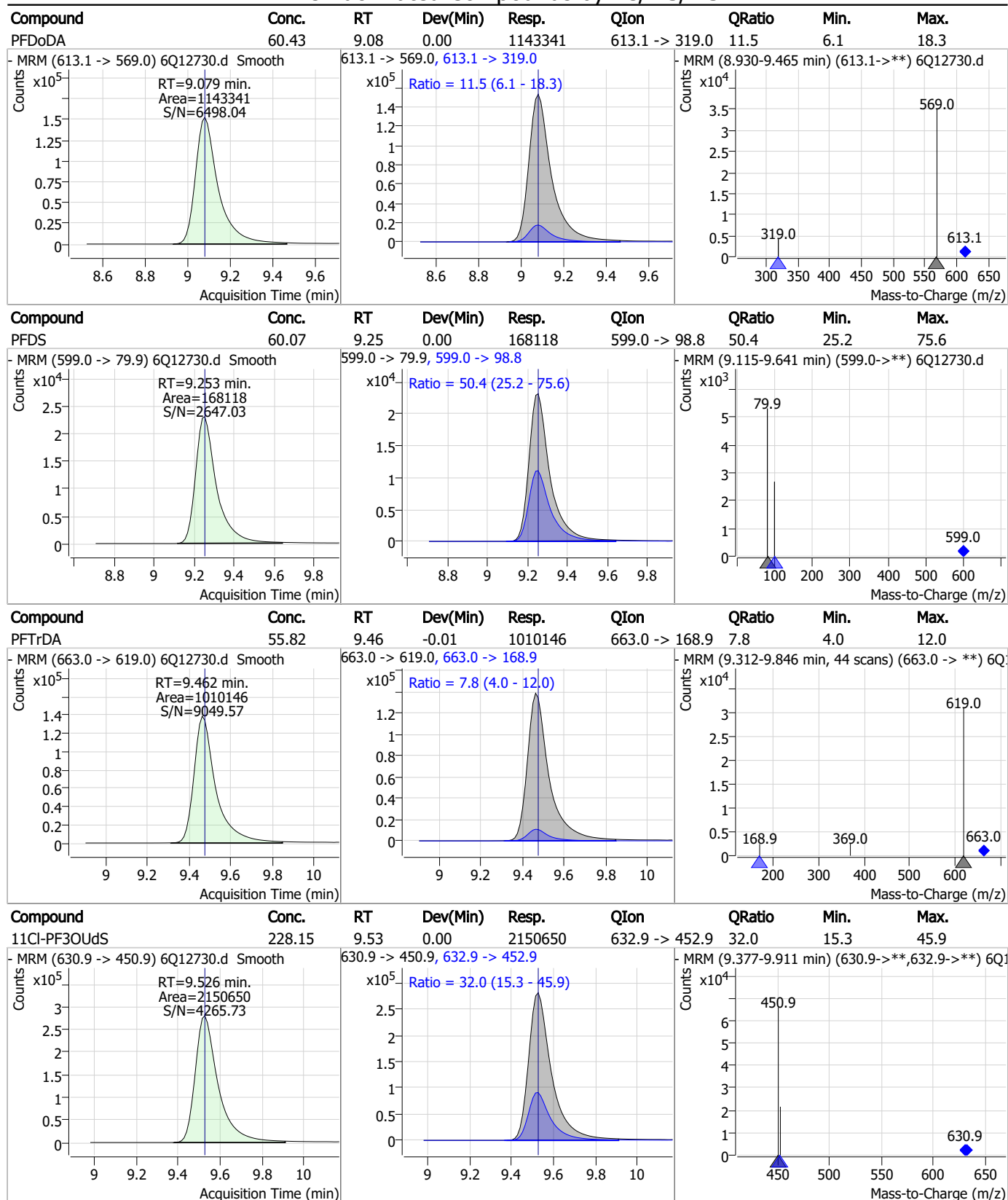
## Perfluorinated Compounds by LC/MS/MS



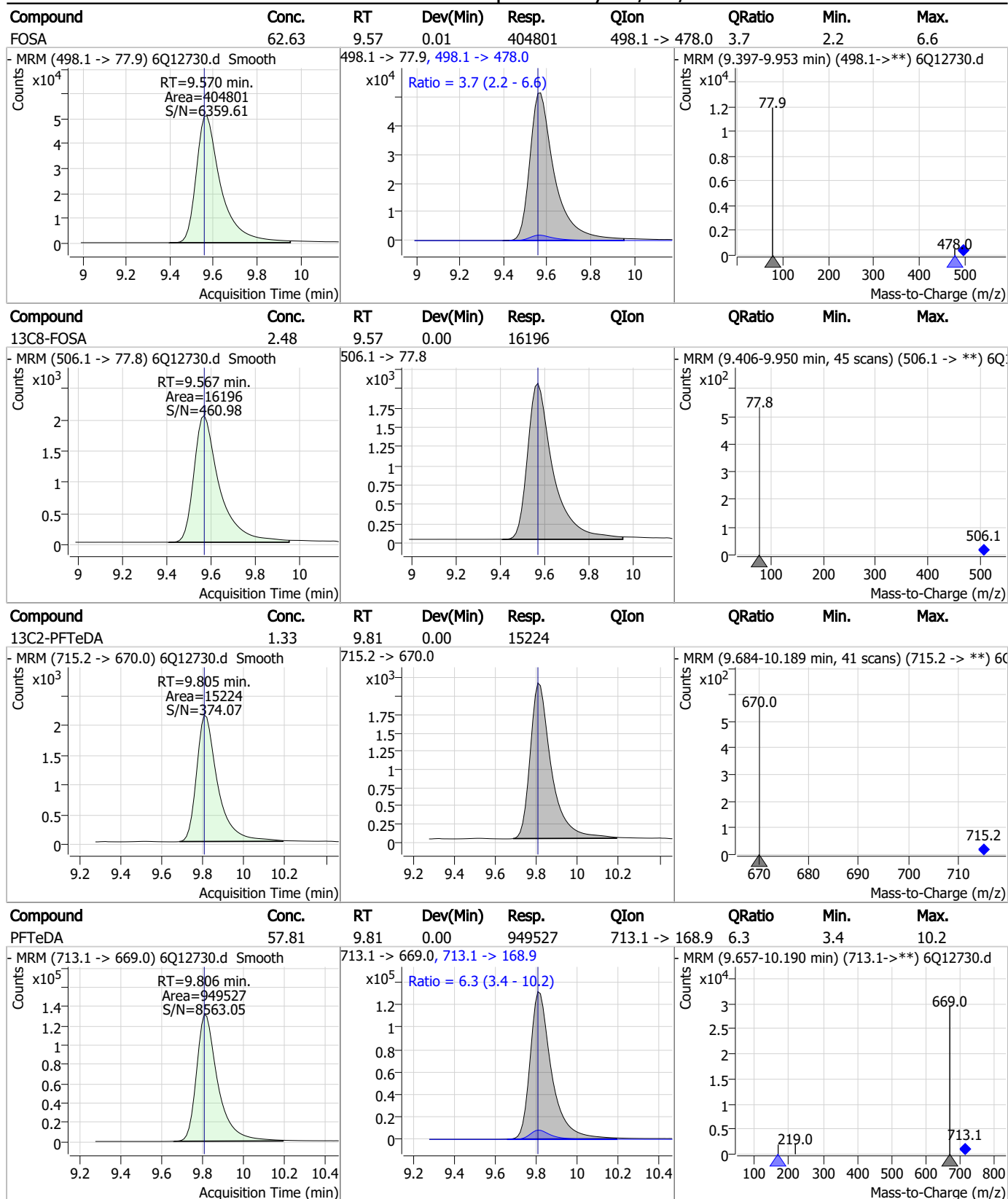
## Perfluorinated Compounds by LC/MS/MS



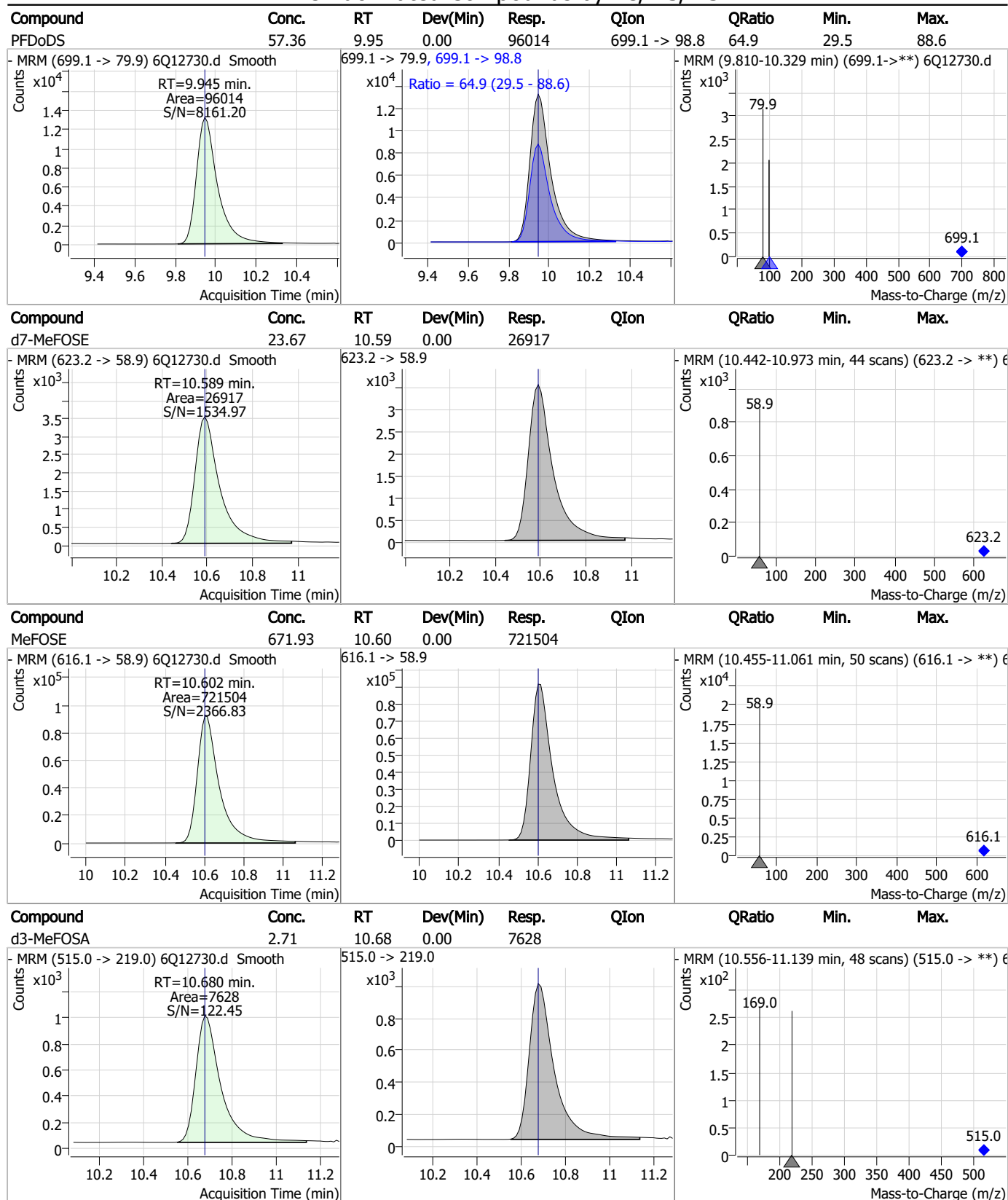
## Perfluorinated Compounds by LC/MS/MS



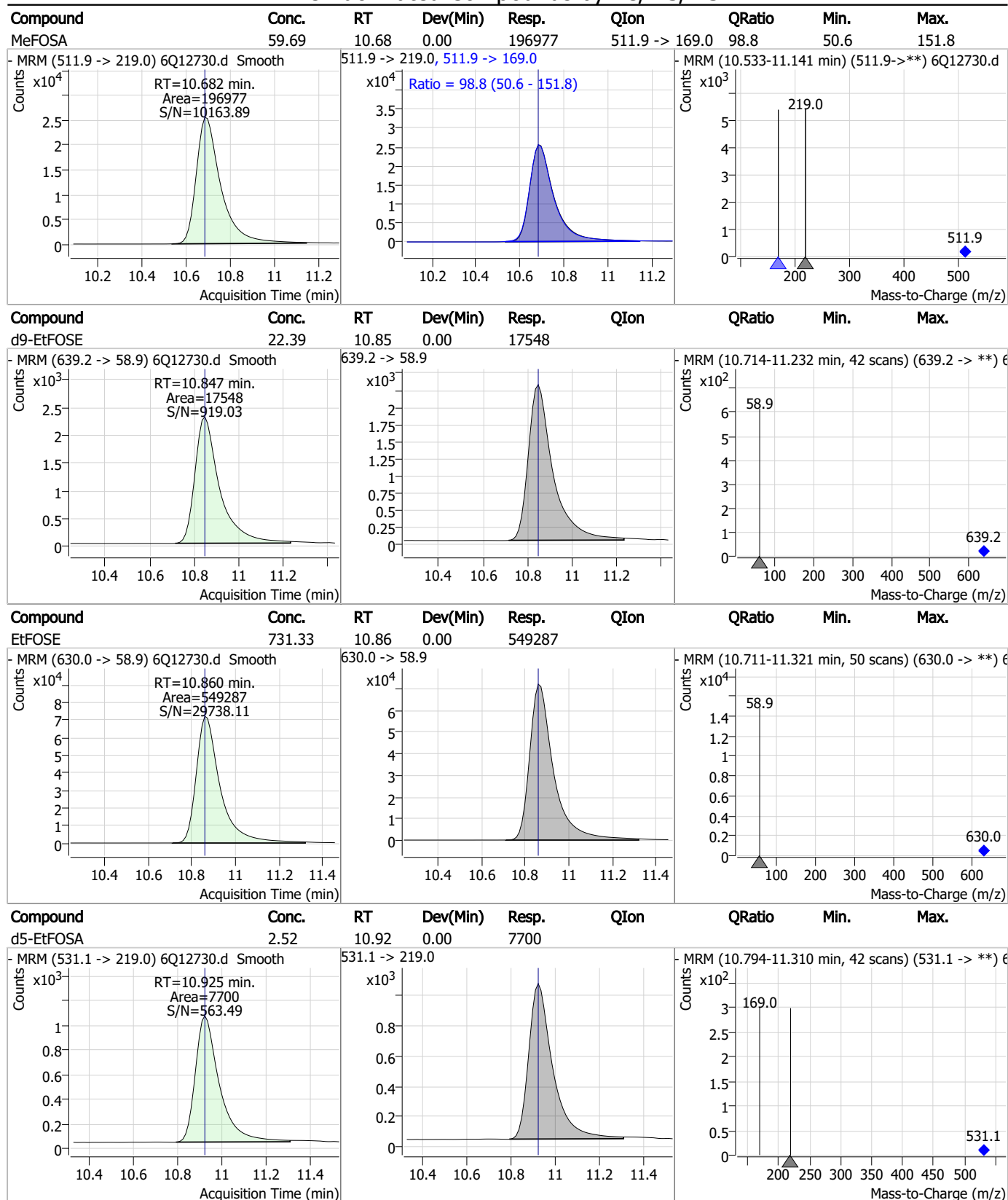
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

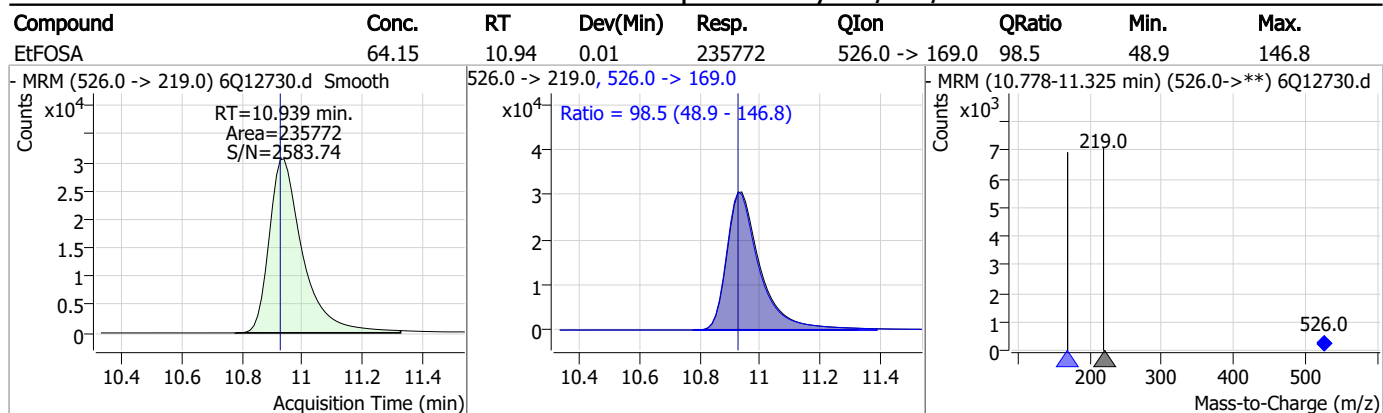


7.7.9

7



## Perfluorinated Compounds by LC/MS/MS



7.7.9

7

Manual Integration Approval Summary

Sample Number: S6Q196-IC196

Lab FileID: 6Q12730.D

Injection Time: 02/01/23 19:29

Method: EPA DRAFT 1633

Analyst approved: 02/02/23 11:53 Martha Valls

Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.9.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12732.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/1/2023 7:57:14 PM  
 Sample Name : icv196-4  
 Vial : P1-B1  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : S6Q196.batch.bin  
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	79637	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	39774	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	36427	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	37827	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	65553	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	30548	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19568	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	24768	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	26321	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	15807	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	18601	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	13944	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9696	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8327	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2406	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2933	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	3302	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	29558	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14689	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	25108	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	30032	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	22341	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8200	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7736	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	11794	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35336	5.00 µg/L	0.000
18O2-PFHxS	7.286	403.0 -> 83.9	7109	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	79806	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	28497	1.25 µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	32809	1.25 µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	35632	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2406	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2933	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3302	5.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C2-PFDoDA	9.066	615.1 -> 570.0	26321	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15807	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-PFBS	5.518	302.1 -> 79.9	13944	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFHxS	7.274	402.1 -> 79.9	9696	2.59 µg/L	0.000

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C4-PFBA	2.975	216.8 -> 171.9	79637	10.15 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFHpA	6.502	367.1 -> 322.0	37827	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C5-PFHxA	5.575	318.0 -> 273.0	36427	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C5-PFPeA	4.386	268.3 -> 223.0	39774	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C6-PFDA	8.170	519.1 -> 474.1	19568	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C7-PFUnDA	8.636	570.0 -> 525.1	24768	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C8-FOSA	9.555	506.1 -> 77.8	18601	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C8-PFOA	7.146	421.1 -> 376.0	65553	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C8-PFOS	8.345	507.1 -> 79.9	8327	2.15 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.9%	
13C9-PFNA	7.677	472.1 -> 427.0	30548	1.32 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.8%	
d3-MeFOSAA	8.215	573.2 -> 419.0	29558	4.57 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.4%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14689	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
d3-MeFOSA	10.680	515.0 -> 219.0	7736	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
d5-EtFOSAA	8.410	589.2 -> 419.0	25108	4.68 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.6%	
d7-MeFOSE	10.589	623.2 -> 58.9	30032	22.43 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.7%	
d9-EtFOSE	10.847	639.2 -> 58.9	22341	24.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
d5-EtFOSA	10.925	531.1 -> 219.0	8200	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.1%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.240	327.1 -> 307.0	50479	9.36 µg/L	99
		327.1 -> 80.9	10798		
6:2FTS	6.921	427.1 -> 407.0	44010	10.25 µg/L	99
		427.1 -> 80.9	8402		
8:2FTS	7.958	527.1 -> 507.0	22980	8.96 µg/L	97
		527.1 -> 80.8	5851		
EtFOSAA	8.424	584.2 -> 419.1	9675	2.41 µg/L	m 89
		584.2 -> 526.0	5322		
FOSA	9.557	498.1 -> 77.9	17943	2.42 µg/L	98
		498.1 -> 478.0	668		
MeFOSAA	8.216	570.1 -> 419.0	13724	2.53 µg/L	88
		570.1 -> 483.0	2670		
PFBA	2.982	212.8 -> 168.9	17507	9.84 µg/L	100
PFBS	5.518	298.7 -> 79.9	11817	2.21 µg/L	95
		298.7 -> 98.8	5567		
PFDA	8.170	512.9 -> 469.0	55527	2.49 µg/L	99
		512.9 -> 219.0	8015		
PFDODA	9.067	613.1 -> 569.0	48734	2.53 µg/L	98
		613.1 -> 319.0	5563		
PFDS	9.241	599.0 -> 79.9	6938	2.46 µg/L	93

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.515	599.0 -> 98.8	3835	2.31	µg/L	95
		363.1 -> 319.0	51704			
PFHpS	7.841	363.1 -> 169.0	7390	2.54	µg/L	94
		449.0 -> 79.9	8976			
PFHxA	5.578	449.0 -> 98.9	5385	2.40	µg/L	98
		313.0 -> 269.0	34300			
PFHxS	7.275	313.0 -> 118.9	1269	2.06	µg/L	91
		398.7 -> 79.9	8961			
PFNA	7.677	398.7 -> 98.9	5058	2.32	µg/L	100
		463.0 -> 419.0	47751			
PFNS	8.811	463.0 -> 219.0	9195	2.69	µg/L	100
		548.8 -> 79.9	9944			
PFOA	7.148	548.8 -> 98.9	5610	2.38	µg/L	100
		413.0 -> 369.0	68664			
PFOS	8.347	413.0 -> 169.0	9310	2.55	µg/L	67
		498.9 -> 79.9	9727			
PFPeA	4.388	498.9 -> 98.8	5483	5.01	µg/L	100
		263.0 -> 219.0	42065			
PFPeS	6.581	349.1 -> 79.9	11283	2.23	µg/L	97
		349.1 -> 98.9	6039			
PFTeDA	9.806	713.1 -> 669.0	40836	2.39	µg/L	99
		713.1 -> 168.9	2965			
PFTrDA	9.462	663.0 -> 619.0	46631	2.53	µg/L	100
		663.0 -> 168.9	3767			
PFUnDA	8.637	563.1 -> 519.0	47272	2.45	µg/L	99
		563.1 -> 269.1	6635			
11CI-PF3OUdS	9.514	630.9 -> 450.9	97942	9.29	µg/L	95
		632.9 -> 452.9	32489			
9CI-PF3ONS	8.688	530.8 -> 351.0	161780	9.08	µg/L	97
		532.8 -> 353.0	49889			
ADONA	6.766	376.9 -> 250.9	299321	9.39	µg/L	98
		376.9 -> 84.8	64098			
HFPO-DA	5.940	284.9 -> 168.9	13752	10.01	µg/L	97
		284.9 -> 184.9	1662			
3:3FTCA	3.841	241.0 -> 177.0	4965	12.04	µg/L	98
		241.0 -> 117.0	699			
5:3FTCA	6.206	341.0 -> 237.1	179549	60.10	µg/L	97
		341.0 -> 217.0	161221			
7:3FTCA	7.605	441.0 -> 316.9	119235	61.06	µg/L	91
		441.0 -> 336.9	233157			
EtFOSA	10.927	526.0 -> 219.0	10099	2.58	µg/L	95
		526.0 -> 169.0	9437			
EtFOSE	10.860	630.0 -> 58.9	22303	23.32	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	8419	2.52	µg/L	98
		511.9 -> 169.0	8333			
MeFOSE	10.602	616.1 -> 58.9	31337	26.16	µg/L	100
PFDoDS	9.945	699.1 -> 79.9	4121	2.44	µg/L	91
		699.1 -> 98.8	2701			
NFDHA	5.457	295.0 -> 201.0	4286	5.07	µg/L	99
		295.0 -> 84.9	2175			
PFMBA	4.800	279.0 -> 85.1	11930	5.05	µg/L	100
PFMPA	3.541	229.0 -> 84.9	11247	5.02	µg/L	100
PFEESA	6.059	314.8 -> 134.9	89034	4.33	µg/L	100
		314.8 -> 82.9	2098			

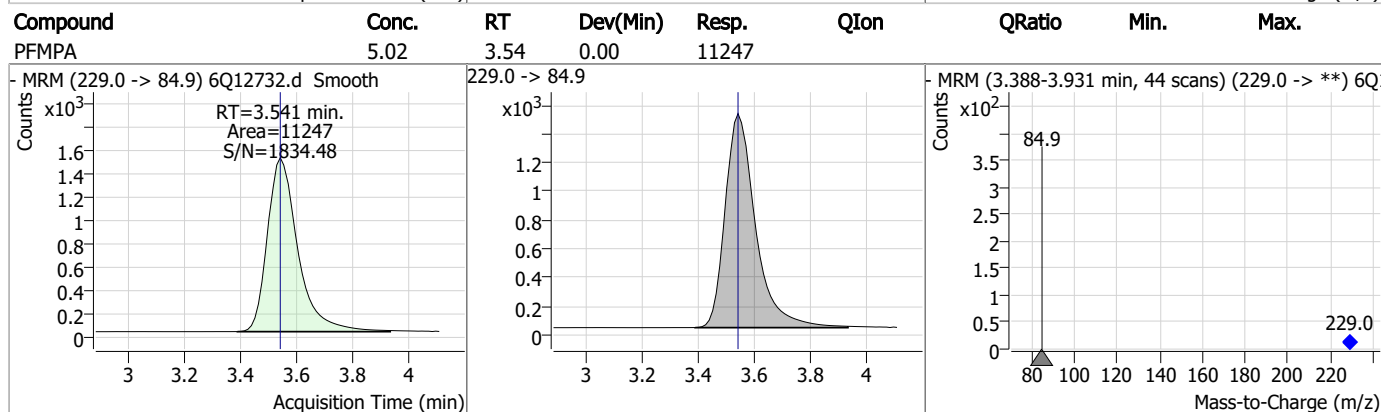
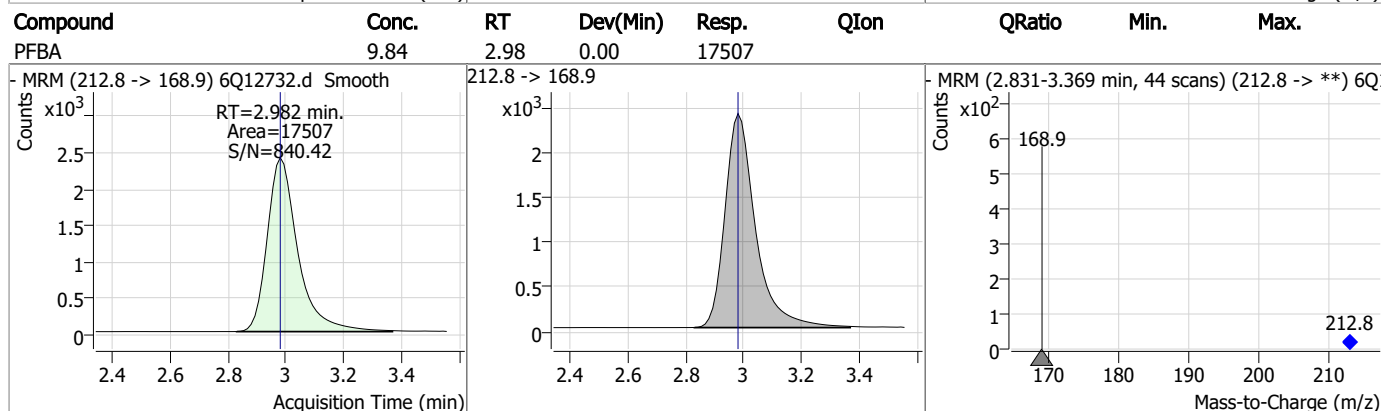
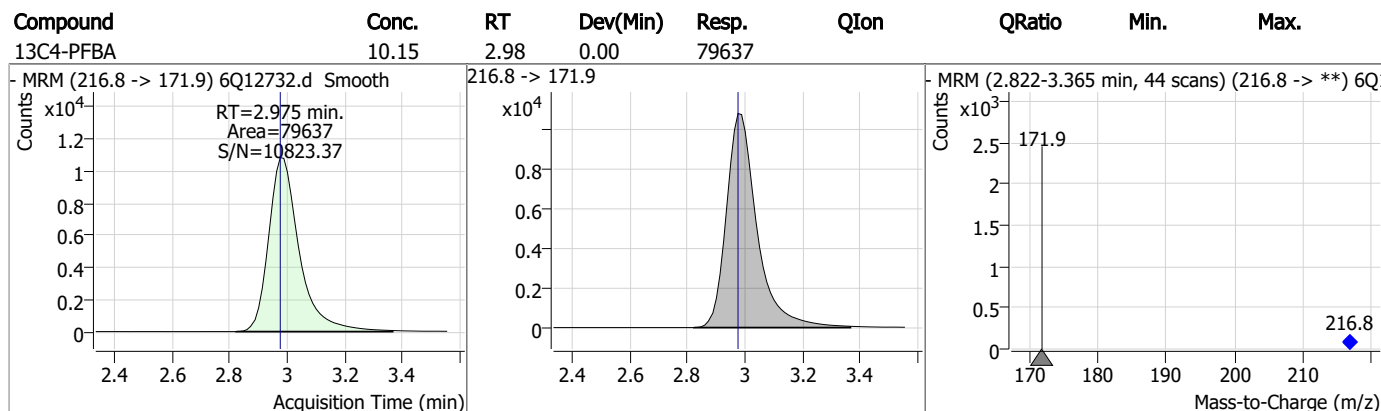
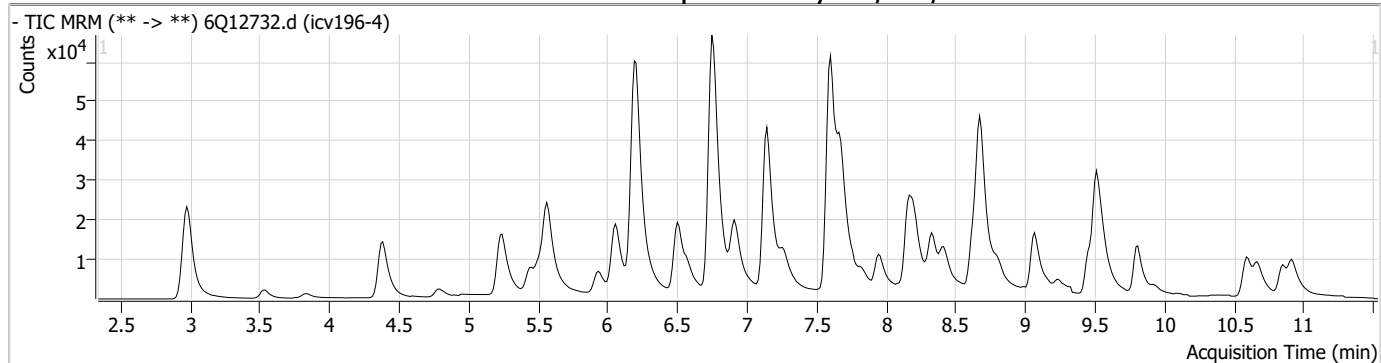
# = Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

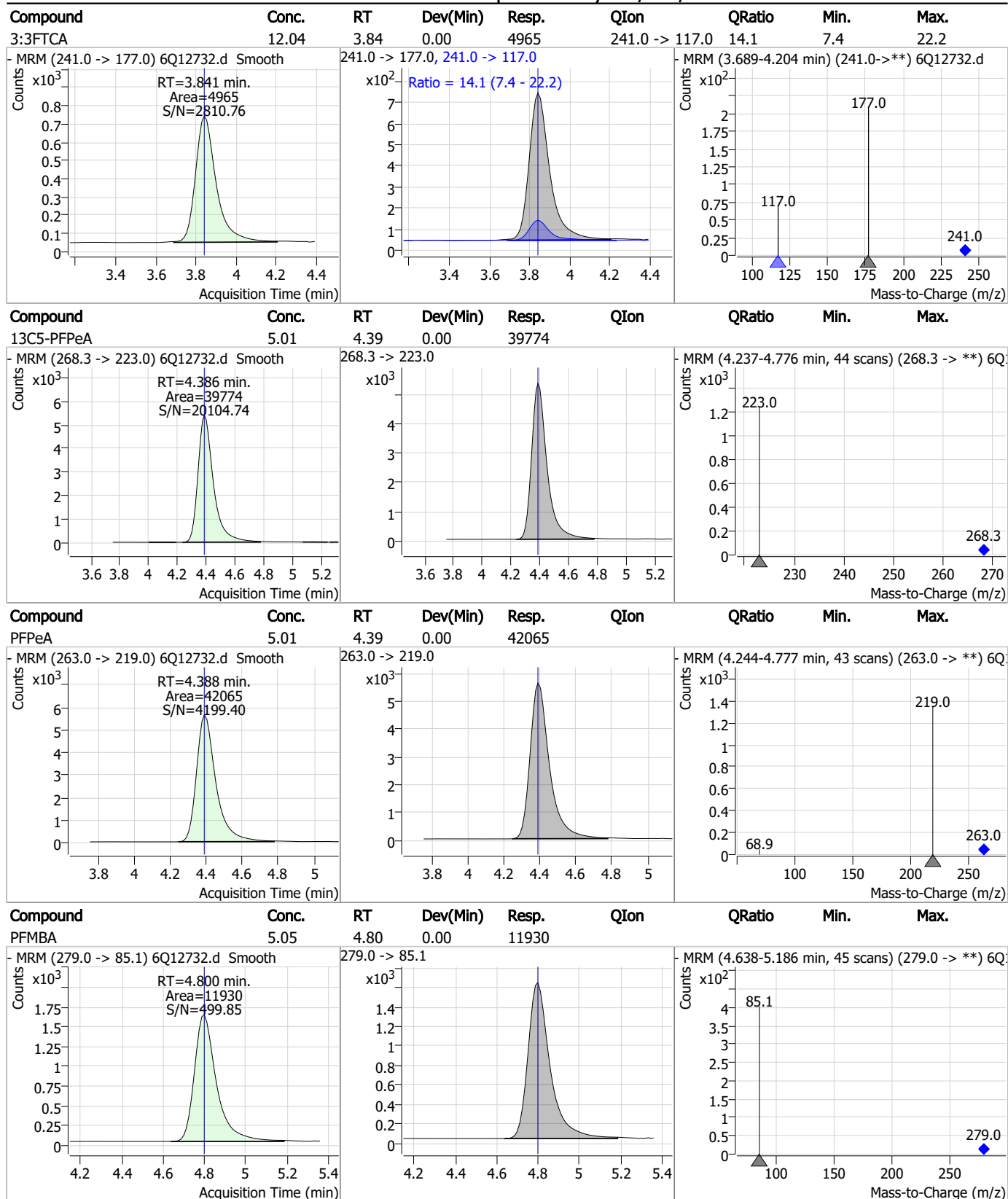
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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7.7.10  
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## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

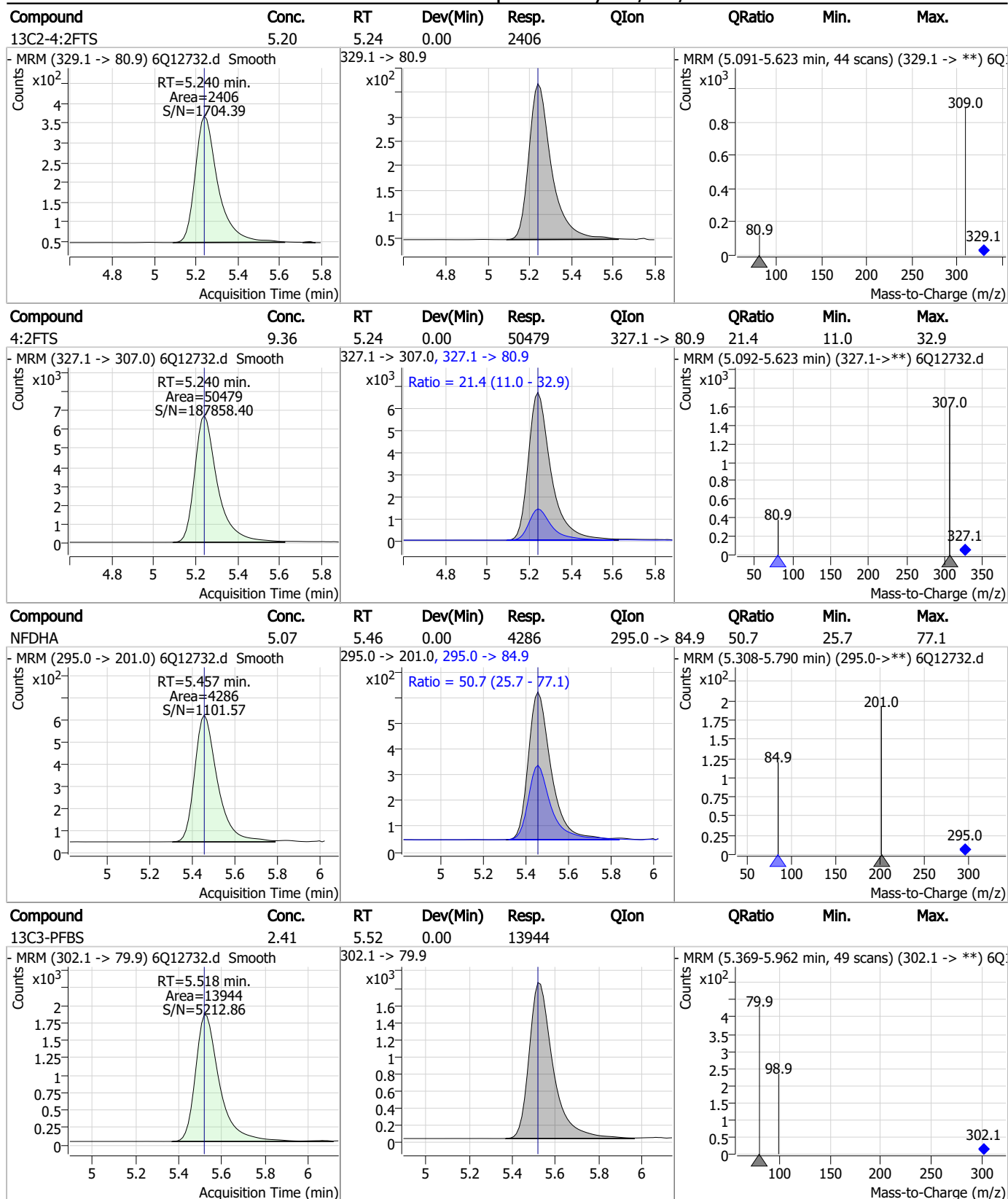


7.7.10

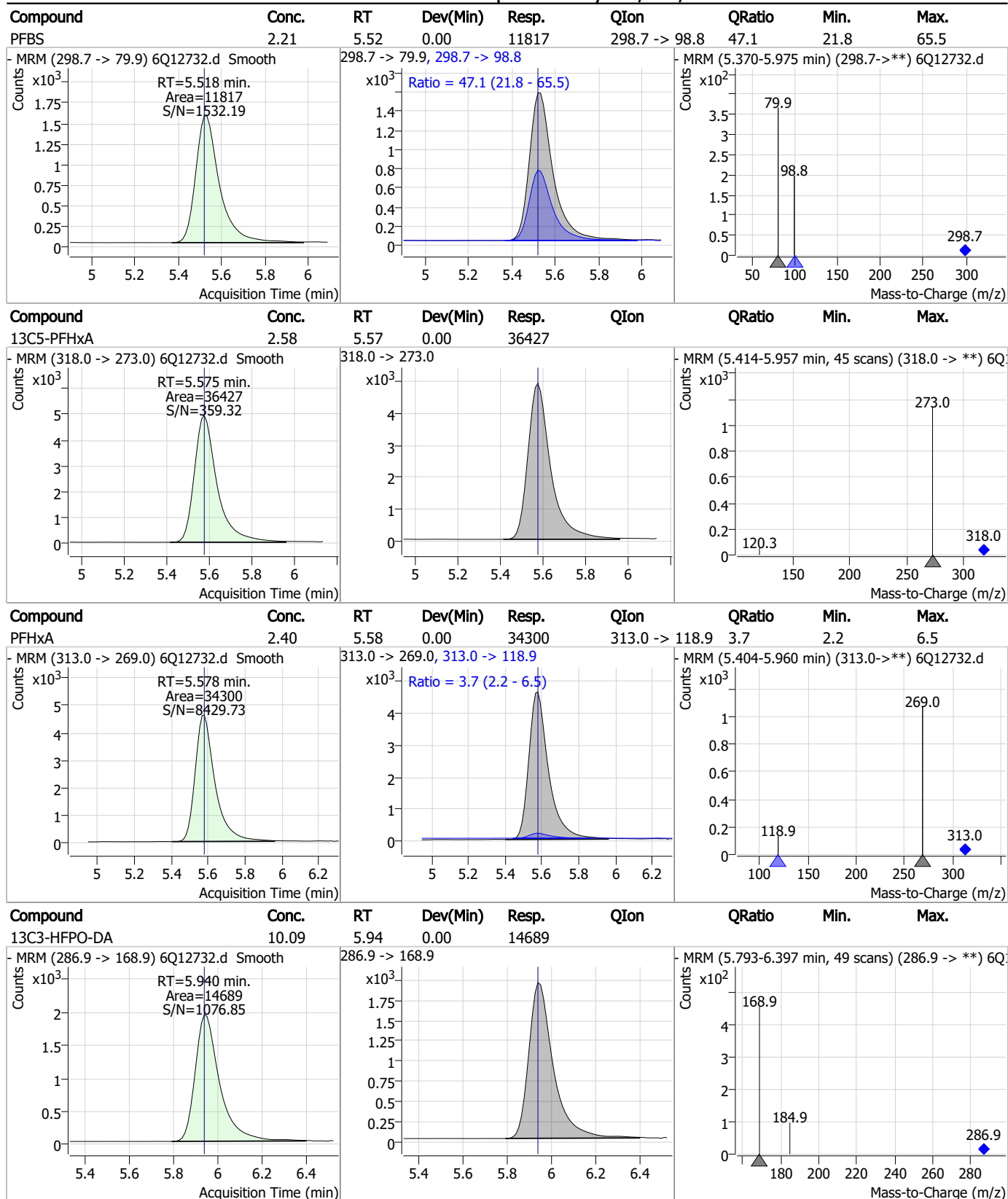
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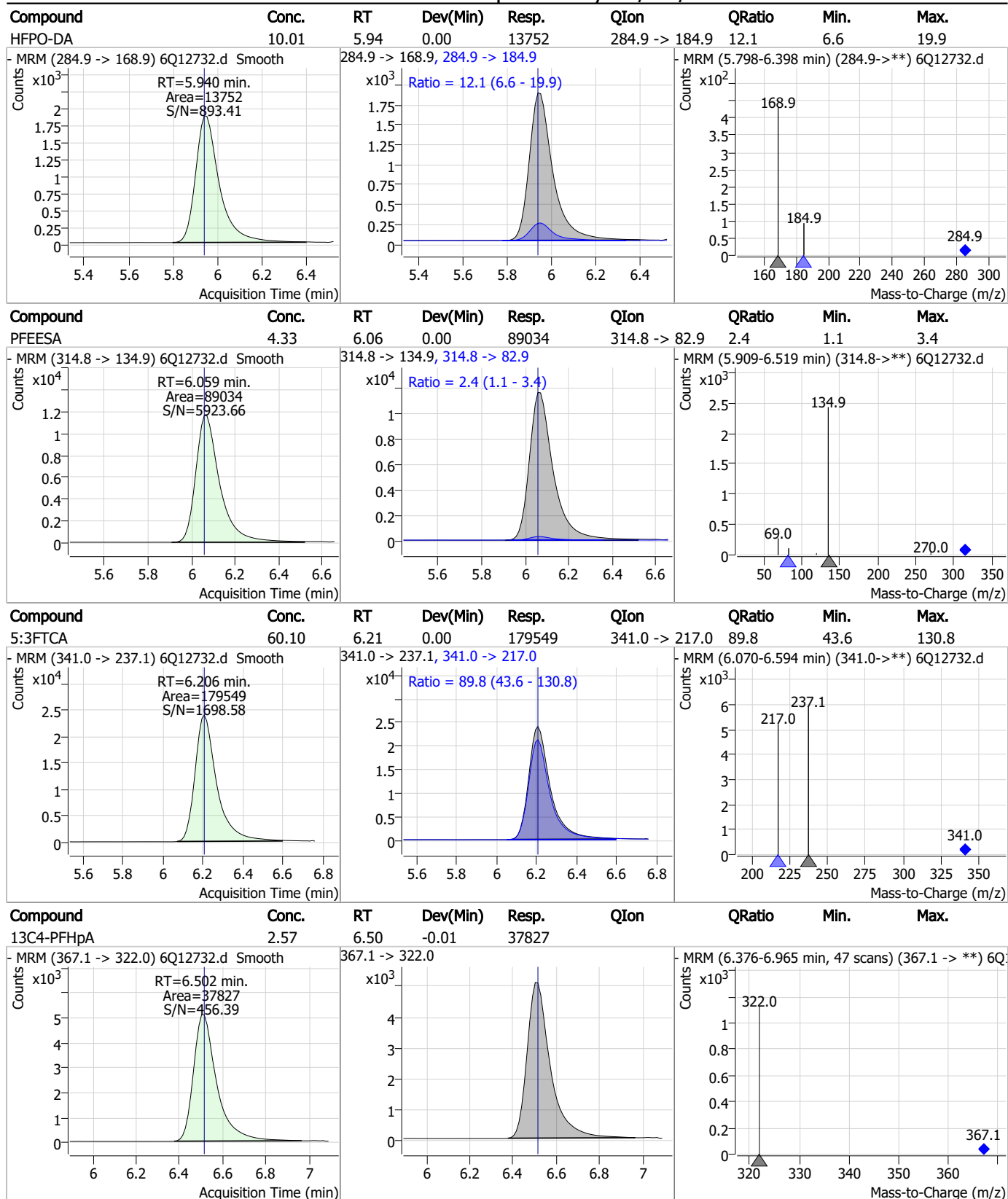
## Perfluorinated Compounds by LC/MS/MS



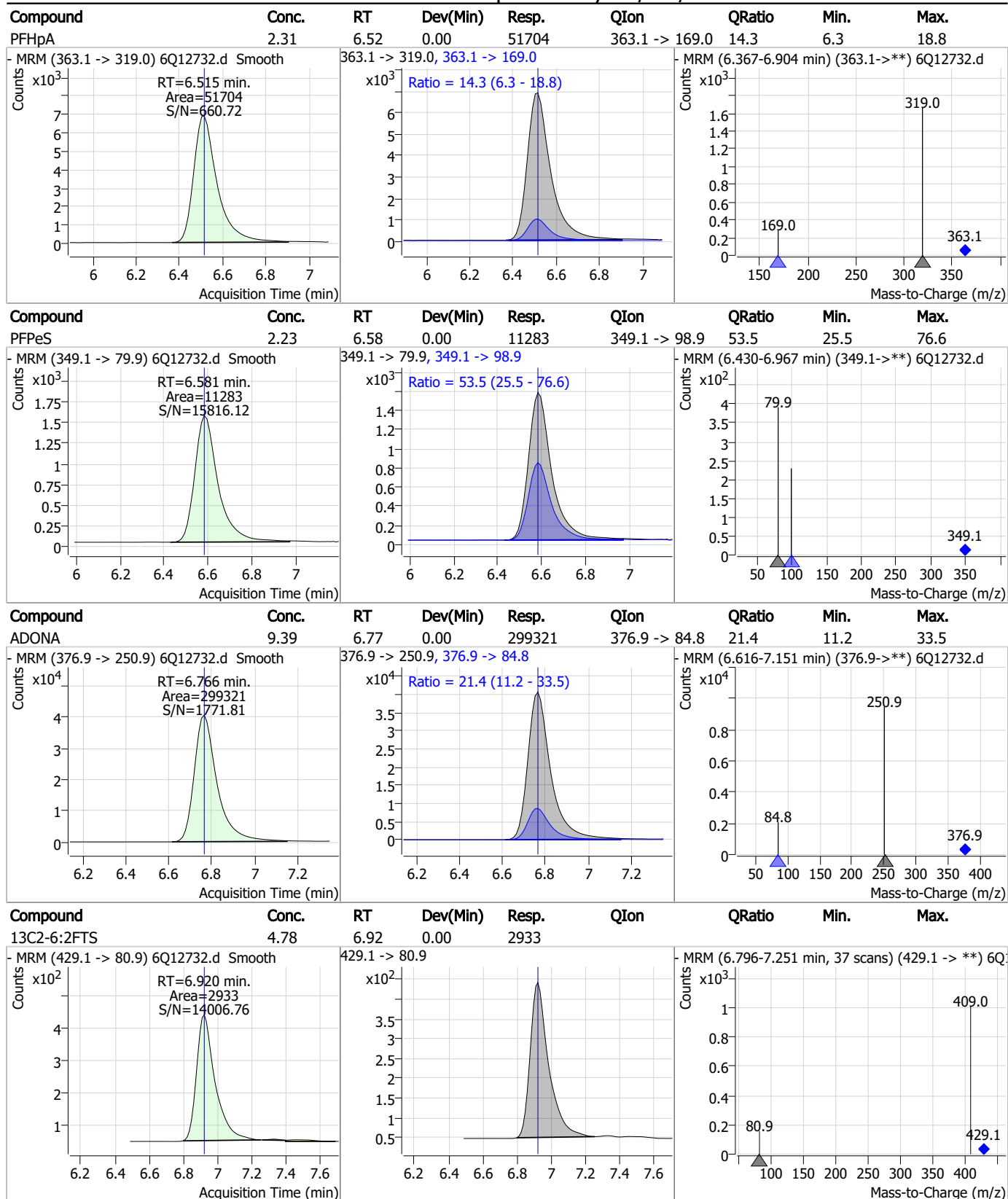
## Perfluorinated Compounds by LC/MS/MS



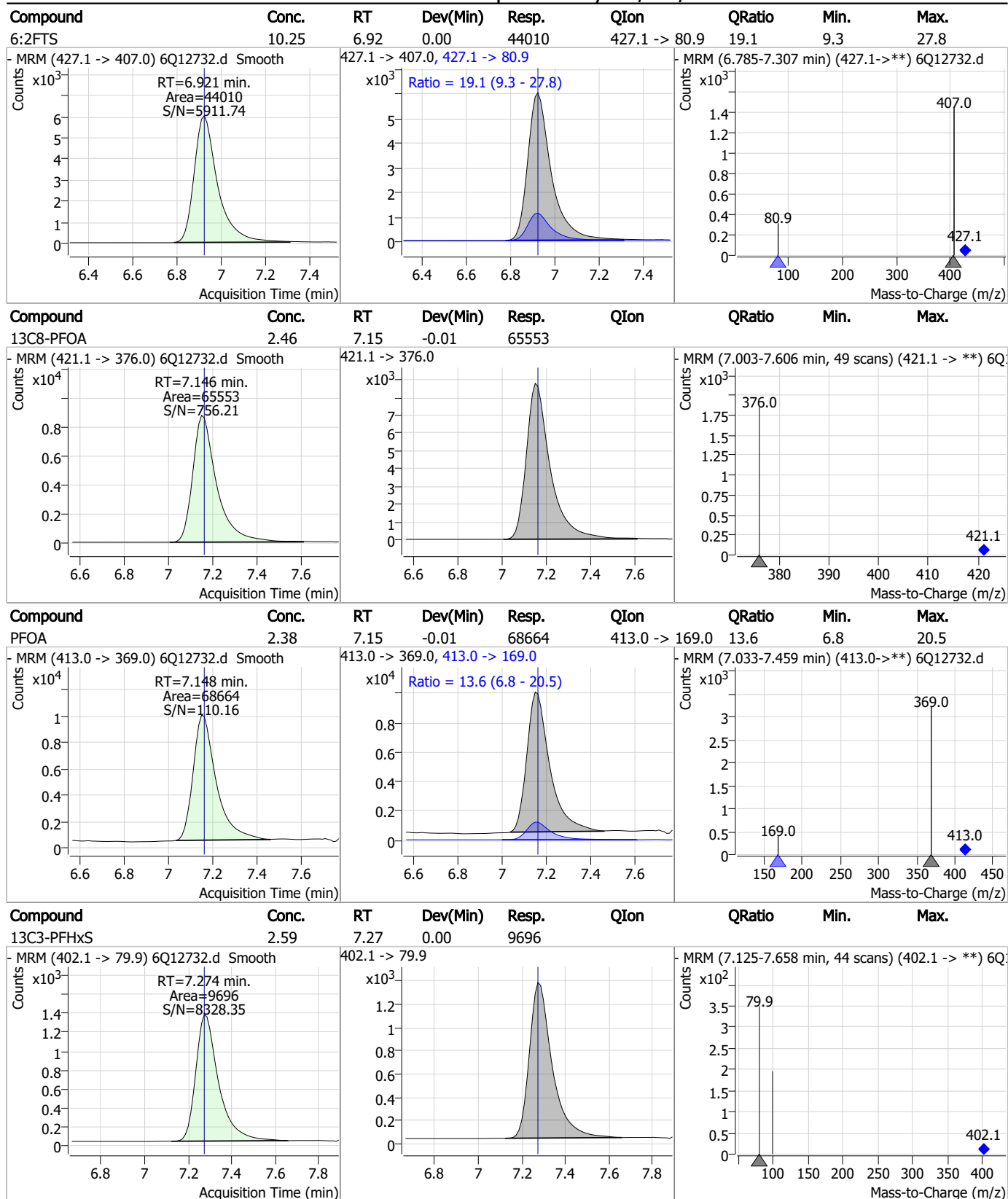
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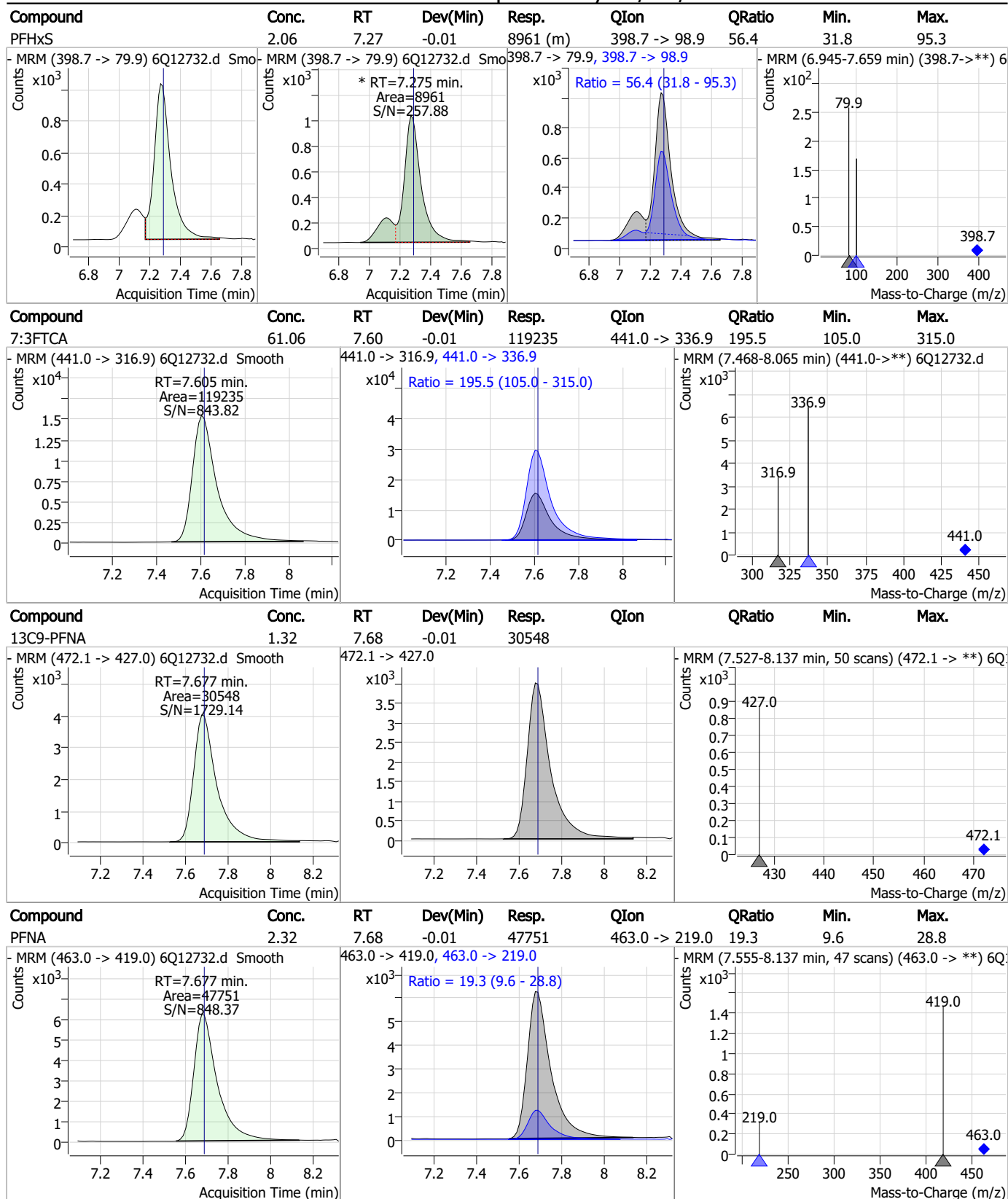
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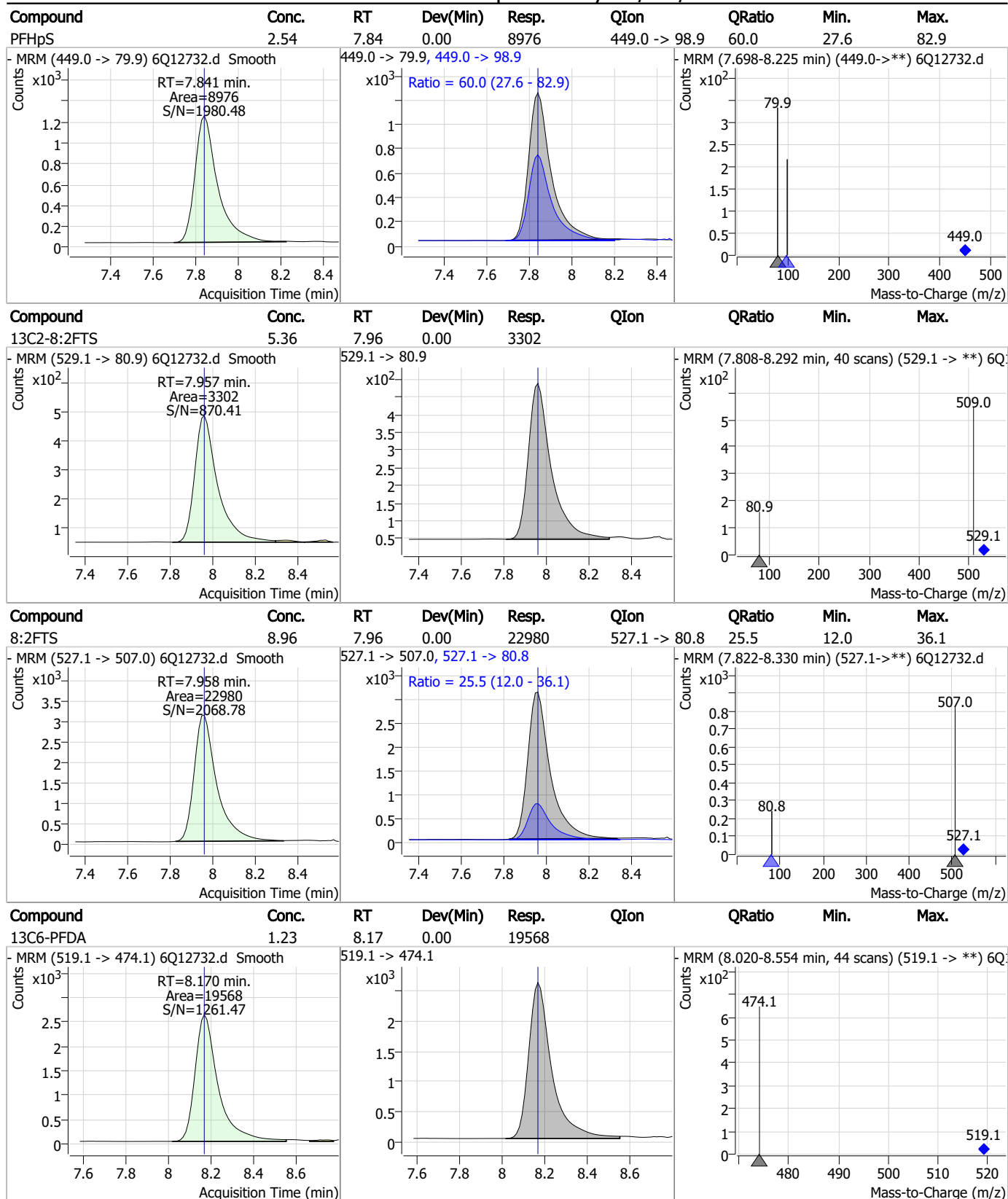
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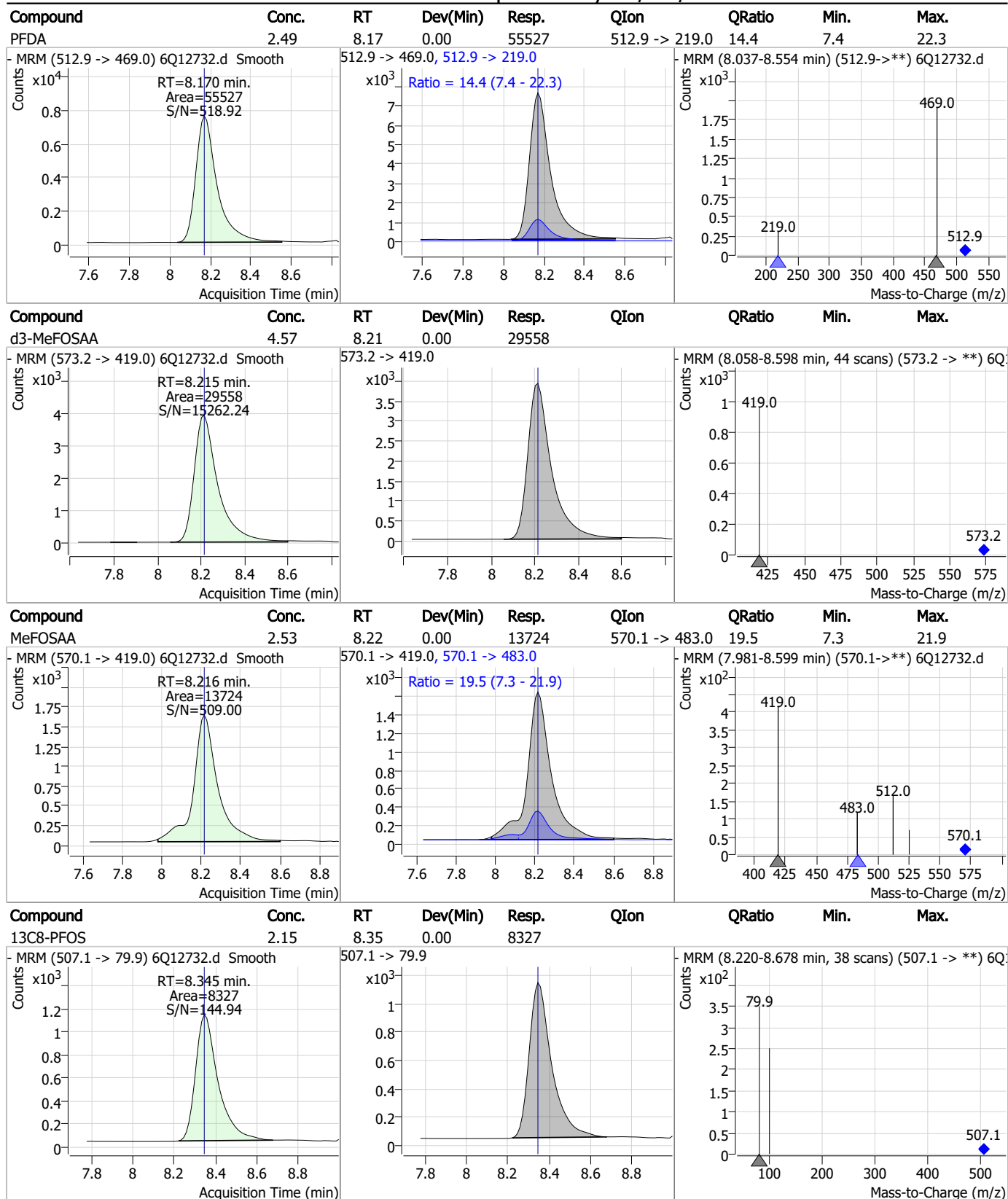
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

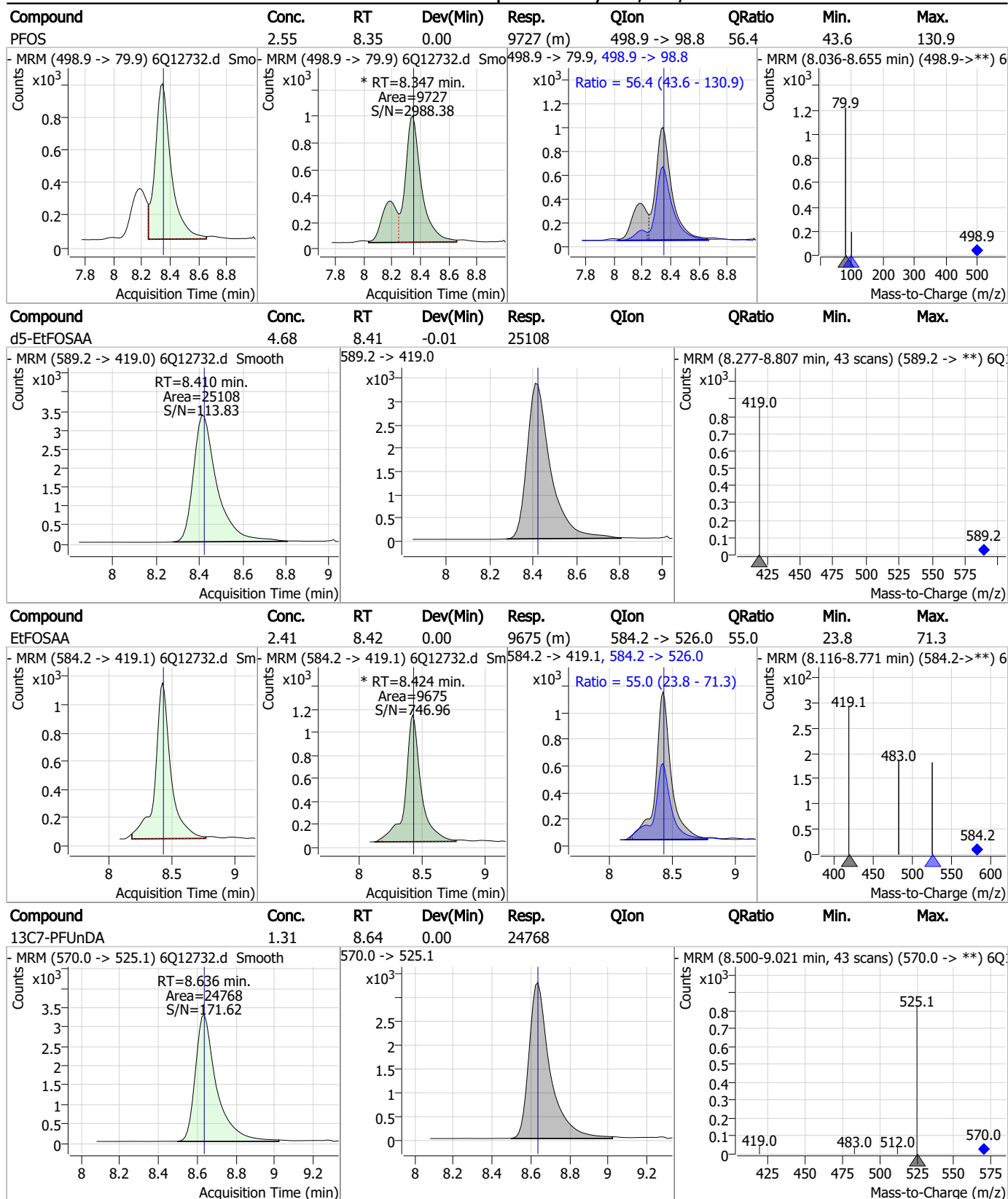


## Perfluorinated Compounds by LC/MS/MS

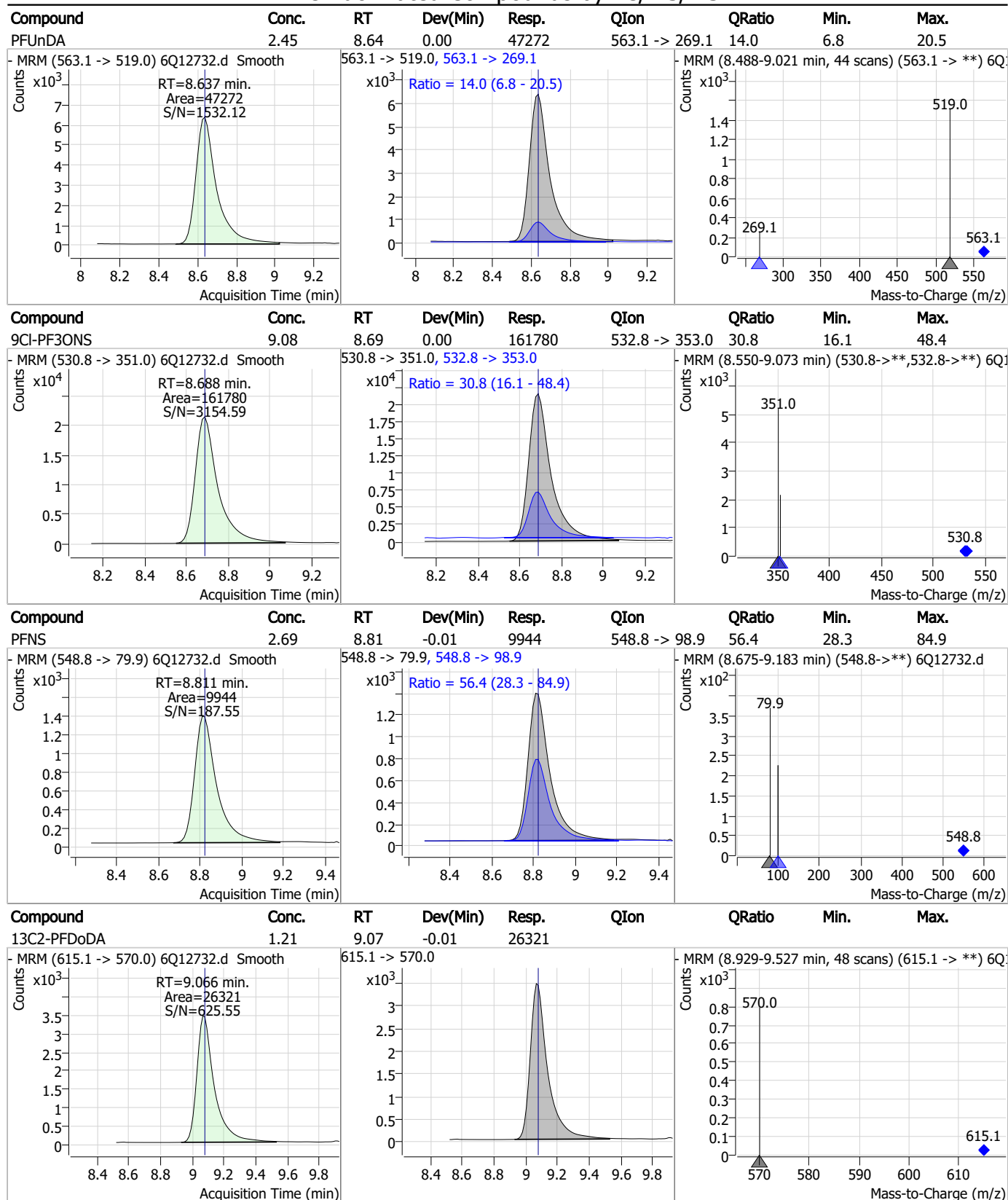




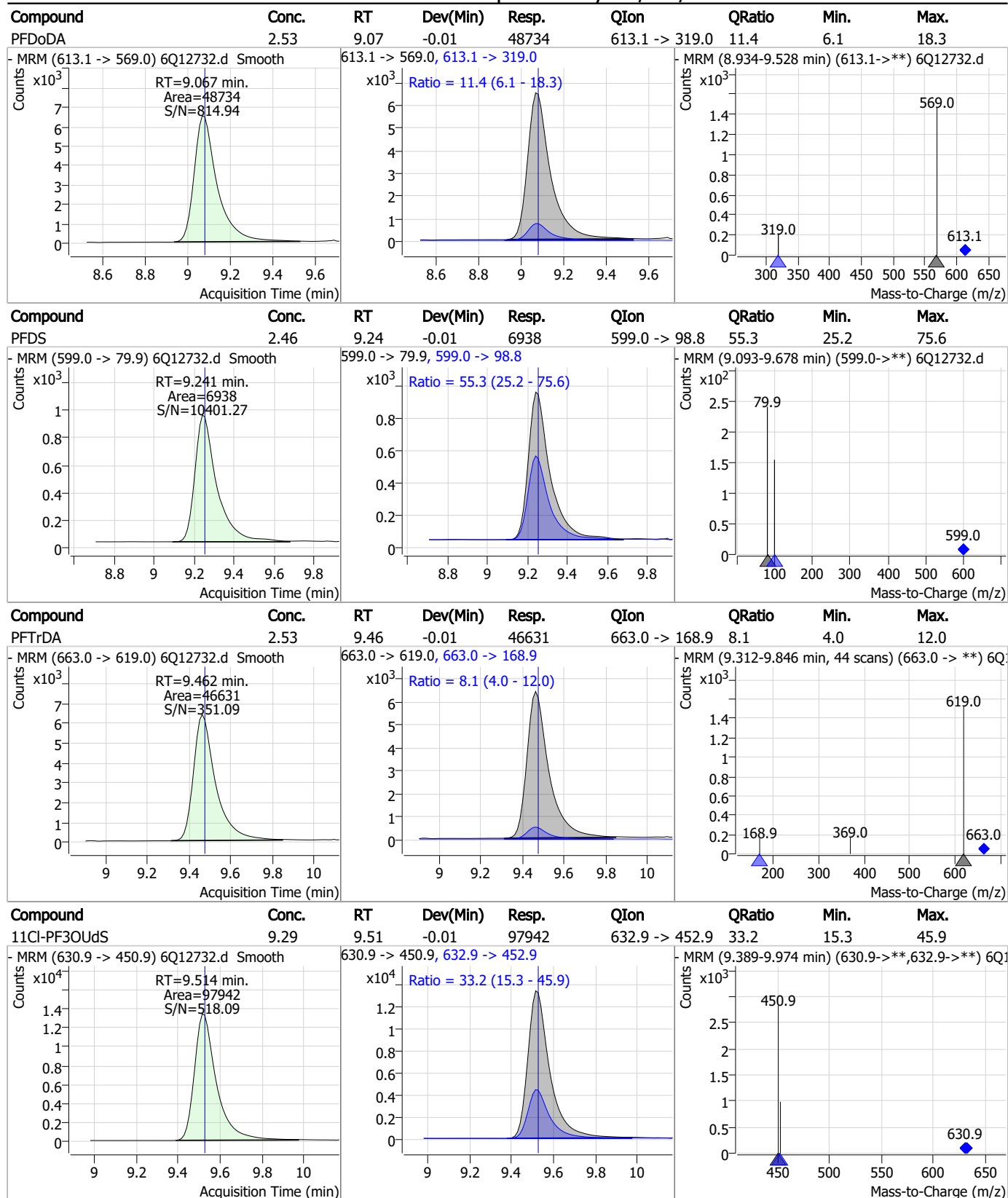
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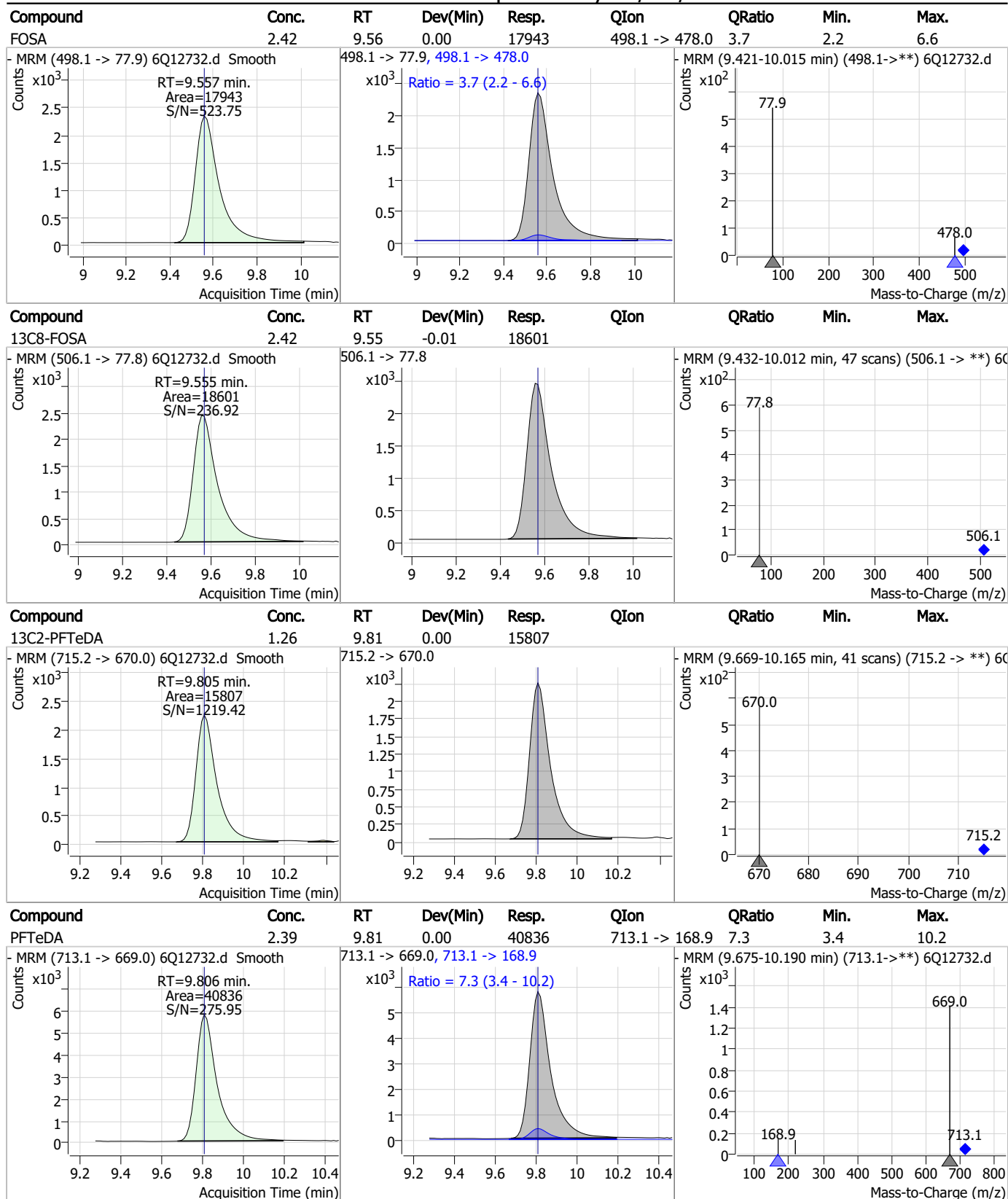
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



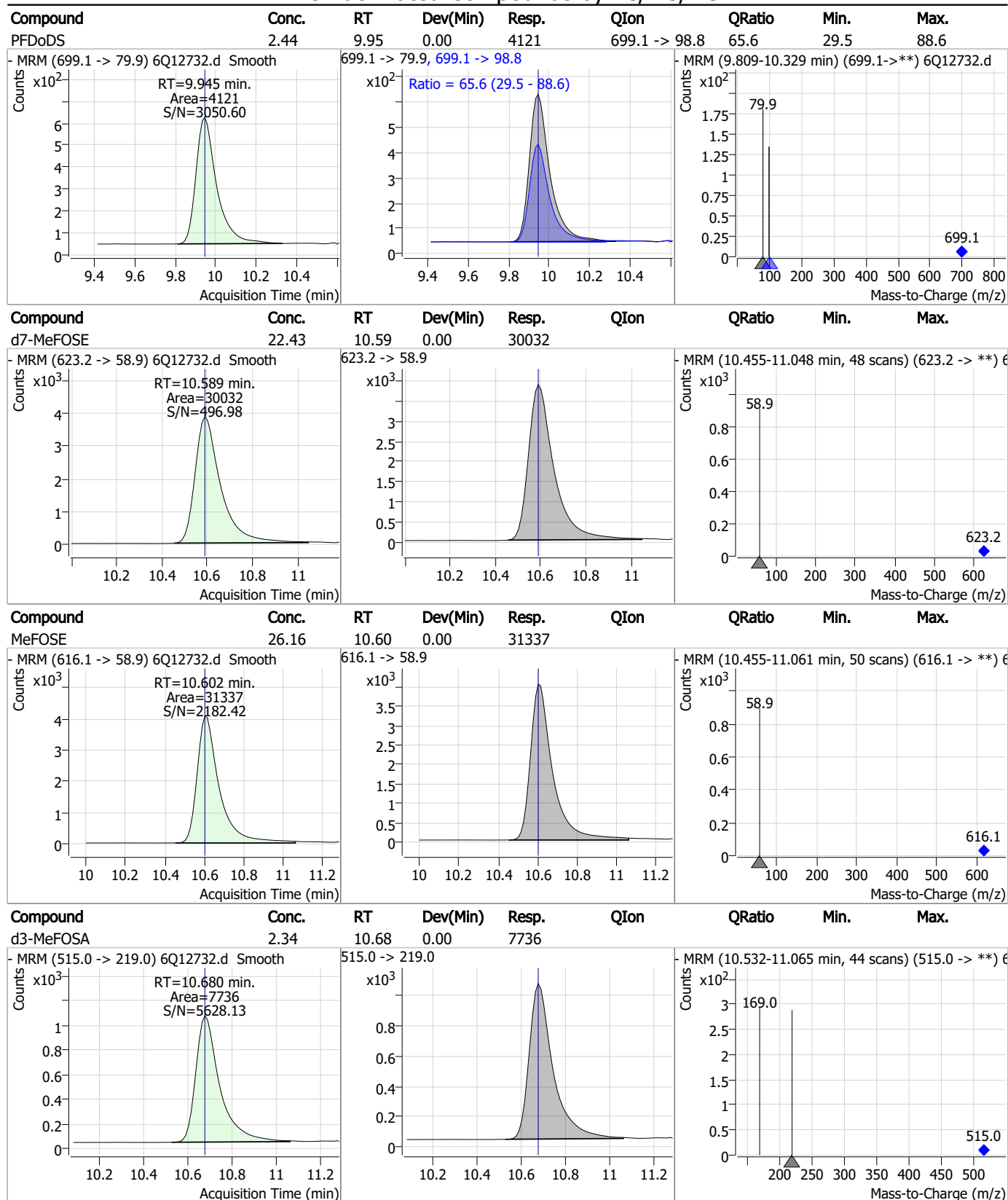
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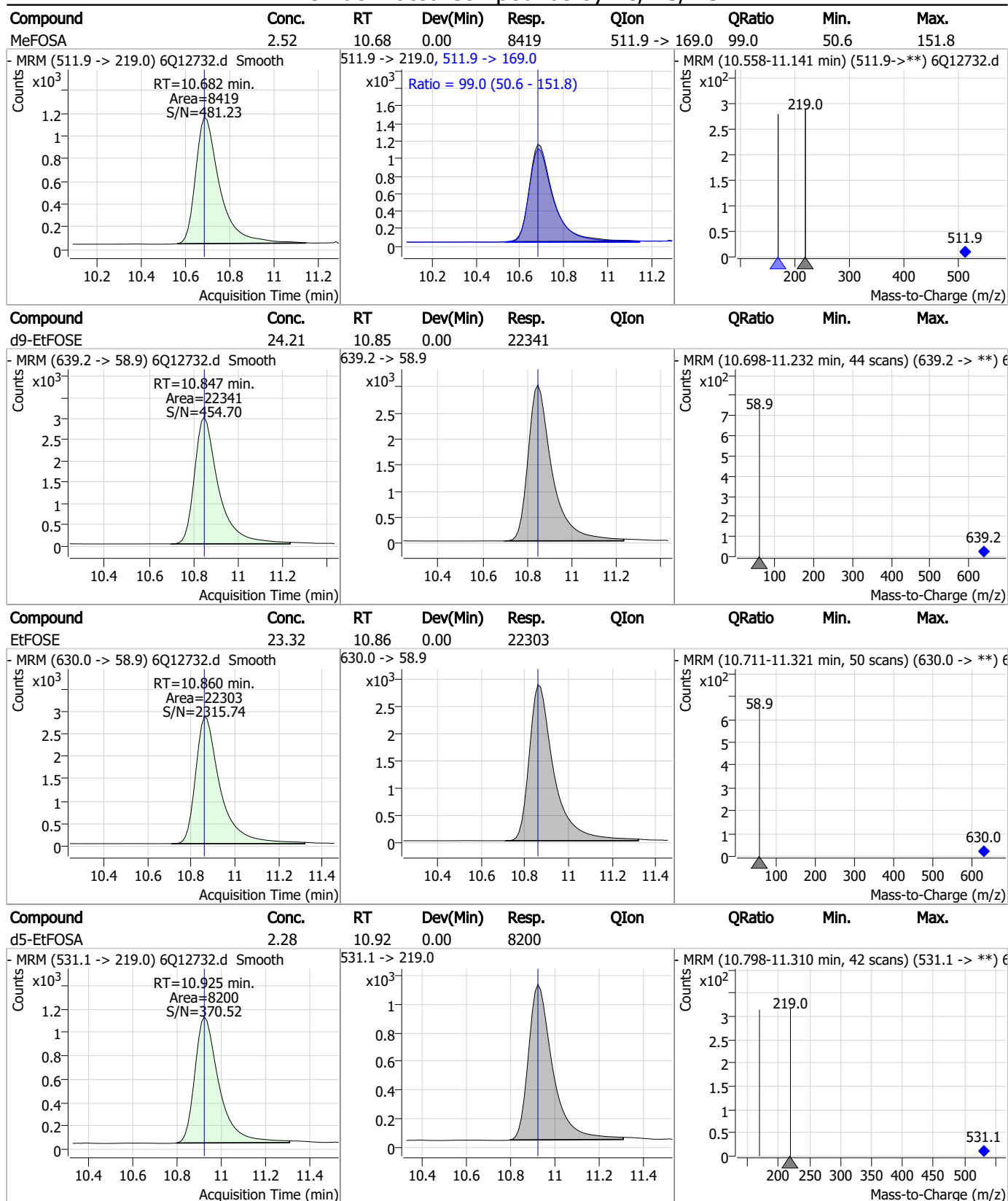
7.7.10

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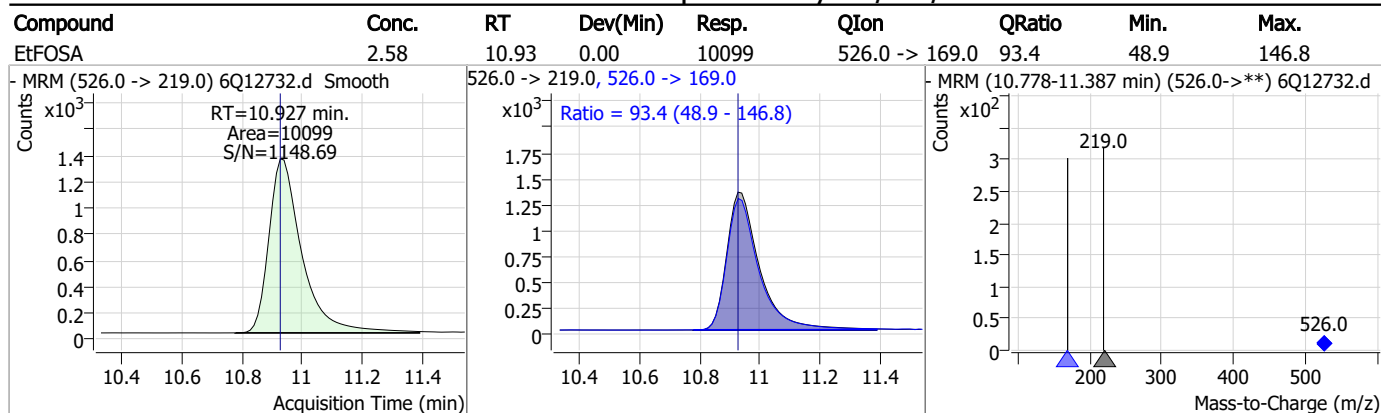
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



7.7.10

7

Manual Integration Approval Summary

Sample Number: S6Q196-ICV196

Method: EPA DRAFT 1633

Lab FileID: 6Q12732.D

Analyst approved: 02/02/23 11:53 Martha Valls

Injection Time: 02/01/23 19:57

Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.10.1  
7



## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12733.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/1/2023 8:11:13 PM  
 Sample Name : icv196-4  
 Vial : P1-B2  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : S6Q196.batch.bin  
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.988	216.8 -> 171.9	79952	10.00 µg/L	0.012
M5-PFPeA	4.386	268.3 -> 223.0	39491	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	34792	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	37437	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	66233	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	29034	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19754	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	22594	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	26398	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14615	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17751	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	14354	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9092	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8633	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2354	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	2893	5.00 µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	3080	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	29368	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	15125	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	23579	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	30073	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21166	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8141	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7394	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	11067	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35466	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6473	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	78778	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	27701	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	31251	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	34246	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2354	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.9%		
13C2-6:2FTS	6.908	429.1 -> 80.9	2893	5.18 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3080	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.8%		
13C2-PFDoDA	9.066	615.1 -> 570.0	26398	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14615	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C3-PFBS	5.518	302.1 -> 79.9	14354	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C3-PFHxS	7.274	402.1 -> 79.9	9092	2.67 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 = 106.9%	
13C4-PFBA	2.988	216.8 -> 171.9	79952	10.16 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C4-PFHpA	6.502	367.1 -> 322.0	37437	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C5-PFHxA	5.575	318.0 -> 273.0	34792	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C5-PFPeA	4.386	268.3 -> 223.0	39491	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C6-PFDA	8.170	519.1 -> 474.1	19754	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C7-PFUnDA	8.636	570.0 -> 525.1	22594	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C8-FOSA	9.555	506.1 -> 77.8	17751	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C8-PFOA	7.146	421.1 -> 376.0	66233	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C8-PFOS	8.345	507.1 -> 79.9	8633	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C9-PFNA	7.677	472.1 -> 427.0	29034	1.32 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.6%	
d3-MeFOSAA	8.215	573.2 -> 419.0	29368	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	15125	10.81 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.1%	
d3-MeFOSA	10.680	515.0 -> 219.0	7394	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.2%	
d5-EtFOSAA	8.410	589.2 -> 419.0	23579	4.68 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.7%	
d7-MeFOSE	10.589	623.2 -> 58.9	30073	23.93 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
d9-EtFOSE	10.847	639.2 -> 58.9	21166	24.44 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
d5-EtFOSA	10.925	531.1 -> 219.0	8141	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.240	327.1 -> 307.0	101970	19.32 µg/L	98
		327.1 -> 80.9	21342		
6:2FTS	6.908	427.1 -> 407.0	87375	20.62 µg/L	99
		427.1 -> 80.9	15878		
8:2FTS	7.958	527.1 -> 507.0	48914	20.45 µg/L	100
		527.1 -> 80.8	11691		
EtFOSAA	8.424	584.2 -> 419.1	75476	19.99 µg/L	92
		584.2 -> 526.0	40031		
FOSA	9.557	498.1 -> 77.9	138240	19.51 µg/L	99
		498.1 -> 478.0	5722		
MeFOSAA	8.216	570.1 -> 419.0	101435	18.85 µg/L	94
		570.1 -> 483.0	17390		
PFBA	2.982	212.8 -> 168.9	32215	18.04 µg/L	100
PFBS	5.518	298.7 -> 79.9	103885	18.84 µg/L	96
		298.7 -> 98.8	48007		
PFDA	8.170	512.9 -> 469.0	429530	19.11 µg/L	97
		512.9 -> 219.0	59110		
PFDODA	9.067	613.1 -> 569.0	337429	17.45 µg/L	97
		613.1 -> 319.0	37730		
PFDS	9.241	599.0 -> 79.9	54229	18.54 µg/L	100

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	27466	17.61	µg/L	95
		363.1 -> 319.0	390510			
PFHpS	7.841	363.1 -> 169.0	56801	19.53	µg/L	96
		449.0 -> 79.9	71508			
PFHxA	5.566	449.0 -> 98.9	41650	21.24	µg/L	97
		313.0 -> 269.0	289962			
PFHxS	7.275	313.0 -> 118.9	9630	19.56	µg/L	91
		398.7 -> 79.9	79906			
PFNA	7.677	398.7 -> 98.9	45517	19.10	µg/L	99
		463.0 -> 419.0	374102			
PFNS	8.824	463.0 -> 219.0	73687	19.80	µg/L	99
		548.8 -> 79.9	75978			
PFOA	7.148	548.8 -> 98.9	42325	17.92	µg/L	100
		413.0 -> 369.0	522846			
PFOS	8.334	413.0 -> 169.0	71492	16.35	µg/L	68
		498.9 -> 79.9	64767			
PFPeA	4.388	498.9 -> 98.8	37069	20.42	µg/L	100
		263.0 -> 219.0	170278			
PFPeS	6.581	349.1 -> 79.9	95006	20.00	µg/L	98
		349.1 -> 98.9	49612			
PFTeDA	9.806	713.1 -> 669.0	330527	20.96	µg/L	99
		713.1 -> 168.9	21227			
PFTrDA	9.462	663.0 -> 619.0	319271	17.26	µg/L	98
		663.0 -> 168.9	23448			
PFUnDA	8.637	563.1 -> 519.0	322562	18.33	µg/L	98
		563.1 -> 269.1	46295			
11CI-PF3OUdS	9.514	630.9 -> 450.9	222884	20.53	µg/L	97
		632.9 -> 452.9	64982			
9CI-PF3ONS	8.688	530.8 -> 351.0	337382	18.39	µg/L	96
		532.8 -> 353.0	101290			
ADONA	6.753	376.9 -> 250.9	652420	19.88	µg/L	97
		376.9 -> 84.8	135036			
HFPO-DA	5.940	284.9 -> 168.9	26601	18.80	µg/L	97
		284.9 -> 184.9	3186			
3:3FTCA	3.841	241.0 -> 177.0	7970	19.46	µg/L	97
		241.0 -> 117.0	1079			
5:3FTCA	6.206	341.0 -> 237.1	57017	19.98	µg/L	99
		341.0 -> 217.0	49158			
7:3FTCA	7.605	441.0 -> 316.9	35397	18.98	µg/L	86
		441.0 -> 336.9	66676			
EtFOSA	10.927	526.0 -> 219.0	74265	19.11	µg/L	98
		526.0 -> 169.0	71604			
EtFOSE	10.860	630.0 -> 58.9	84979	93.80	µg/L	100
		511.9 -> 219.0	64363			
MeFOSA	10.682	511.9 -> 169.0	62497	20.12	µg/L	96
		616.1 -> 58.9	107130			
MeFOSE	10.602	699.1 -> 79.9	31906	89.30	µg/L	100
		699.1 -> 98.8	19499			
PFDoDS	9.945	295.0 -> 201.0	14673	18.24	µg/L	97
		295.0 -> 84.9	8016			
NFDHA	5.457	279.0 -> 85.1	45072	19.22	µg/L	100
		229.0 -> 84.9	42282			
PFMBA	3.541	314.8 -> 134.9	339828	17.30	µg/L	100
		314.8 -> 82.9	8276			

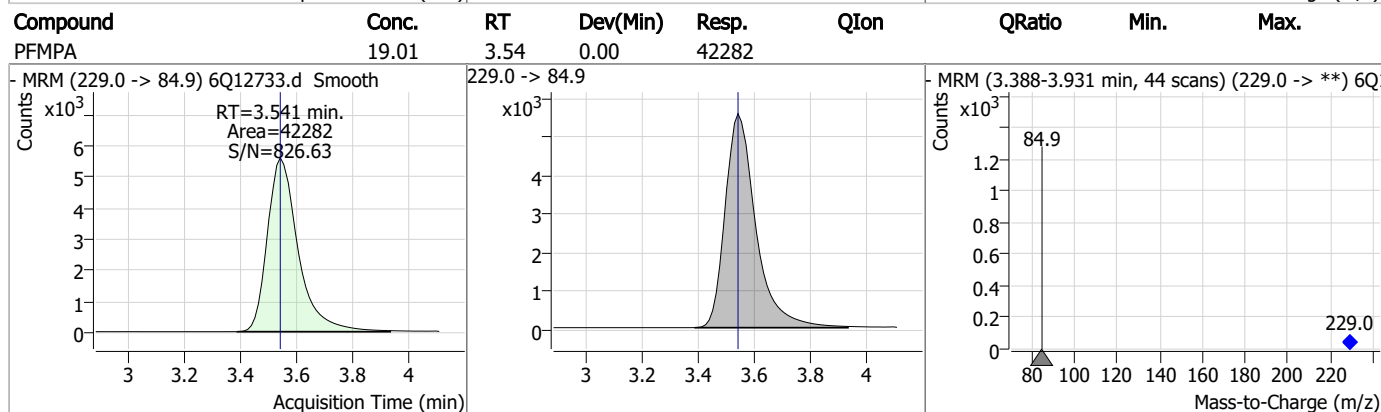
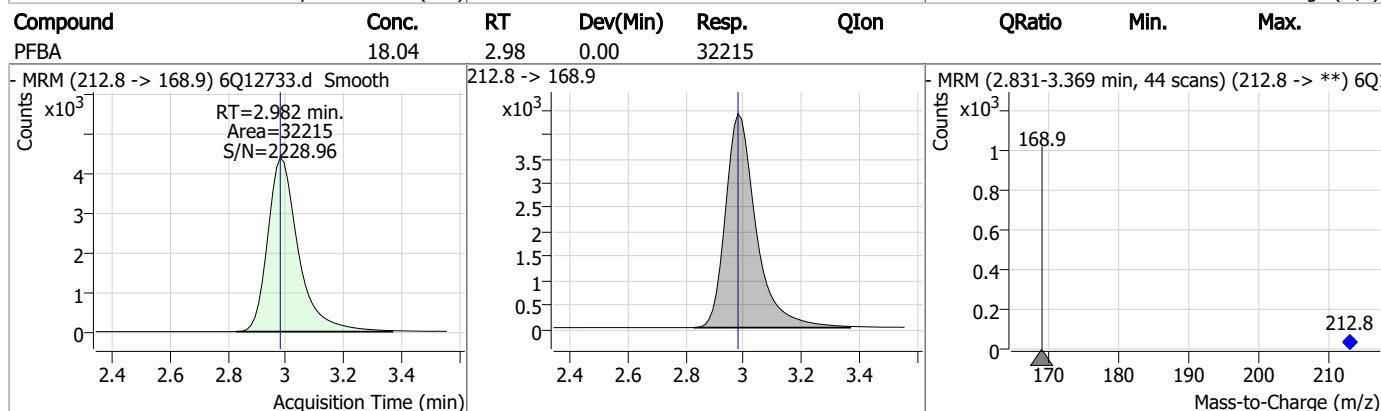
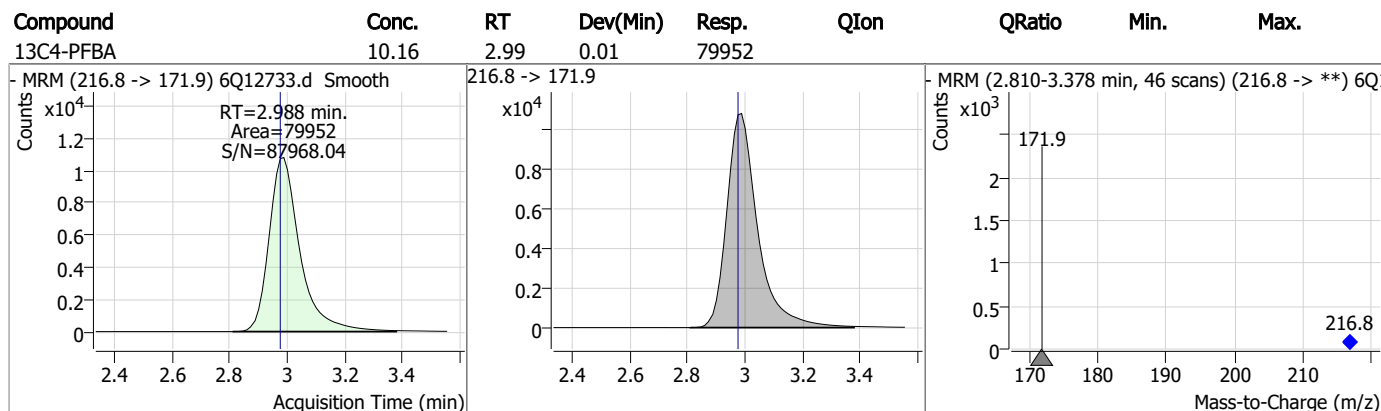
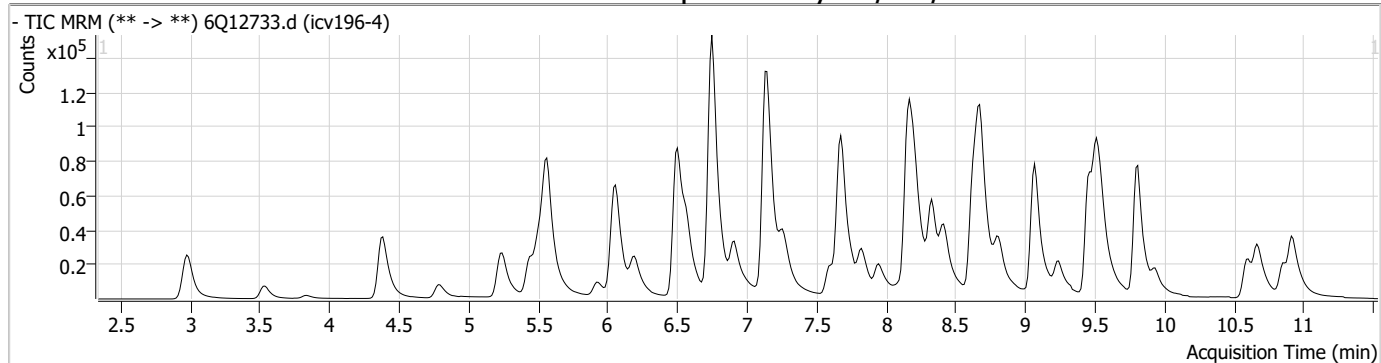
# = Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

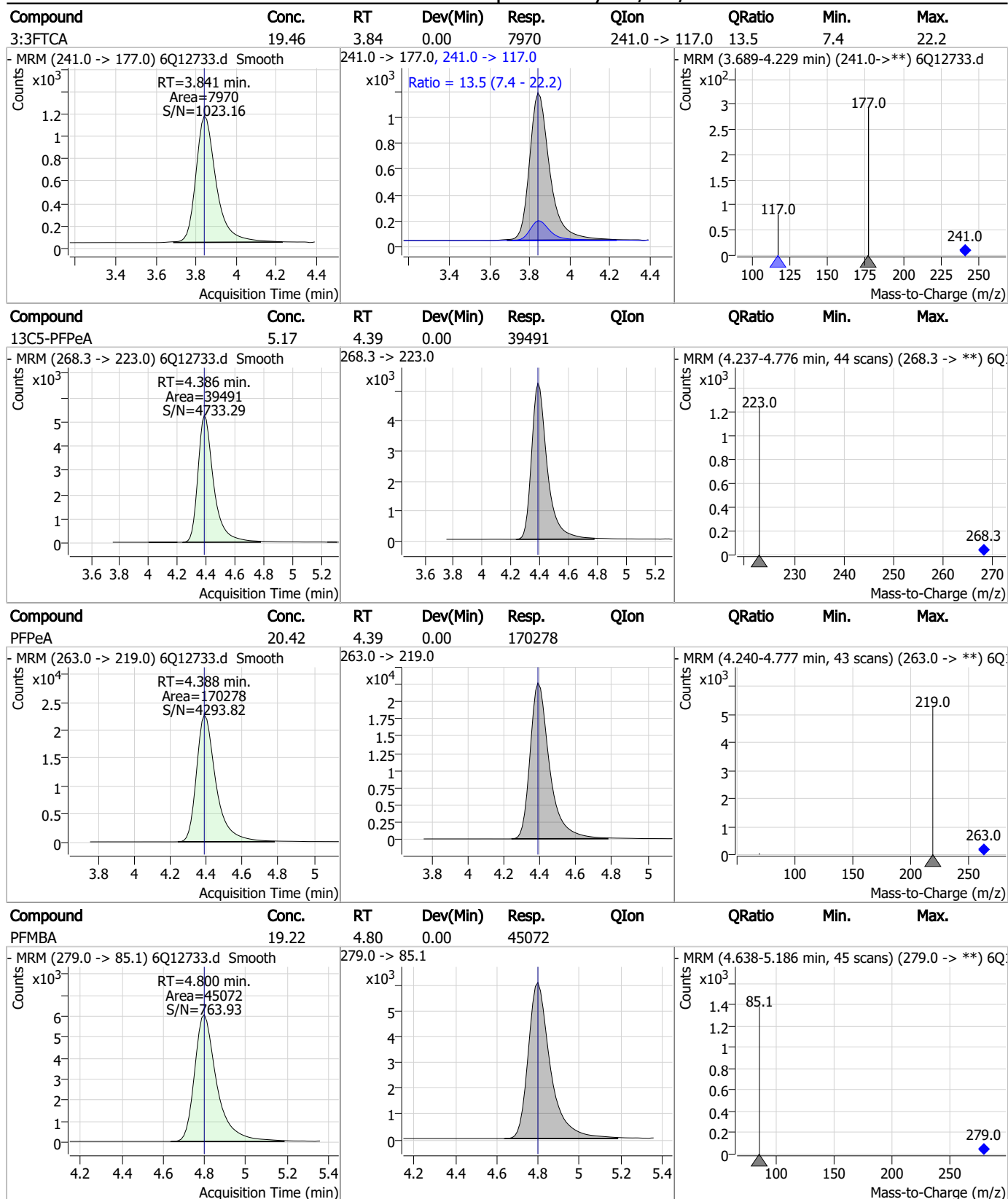
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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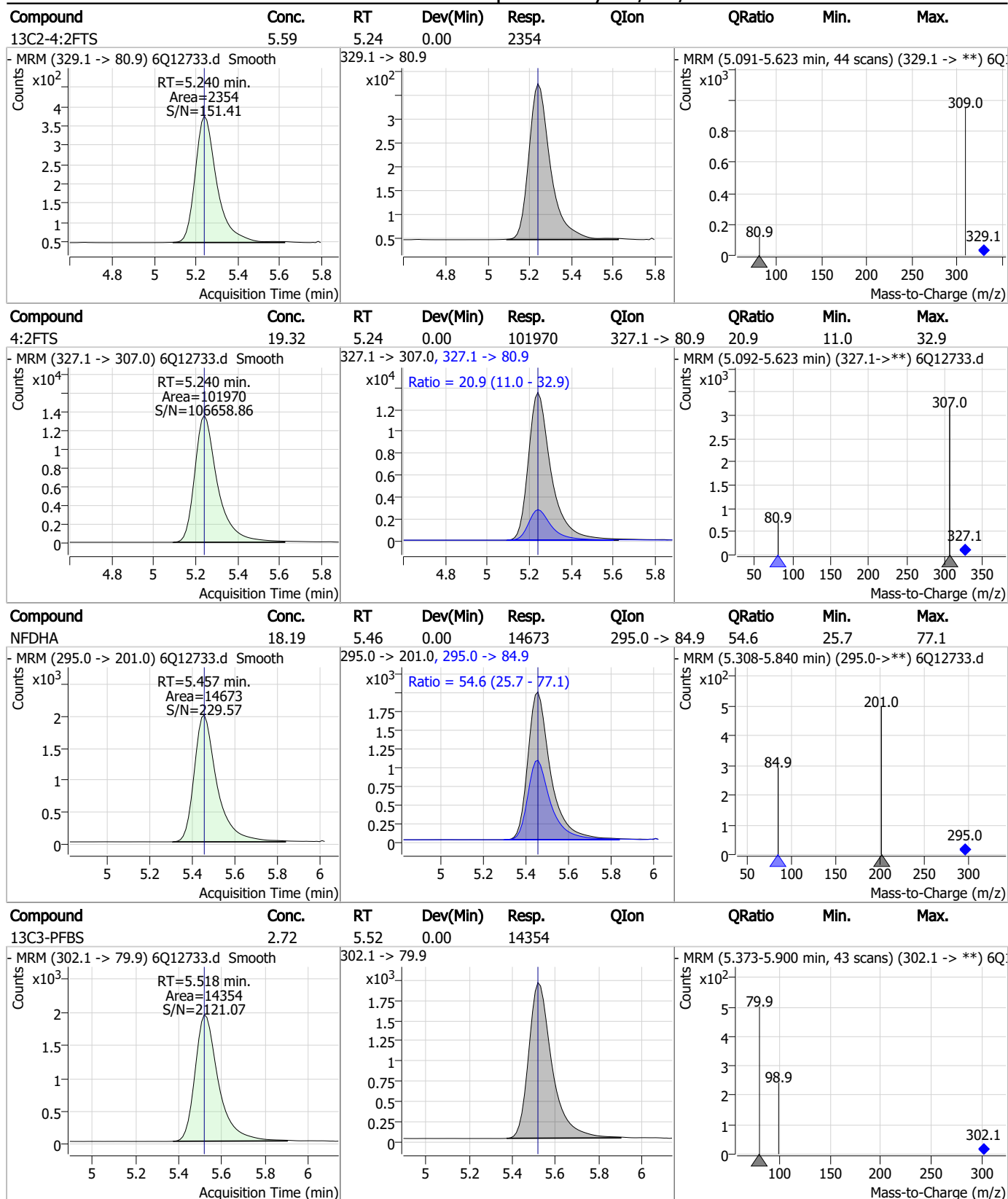
## Perfluorinated Compounds by LC/MS/MS



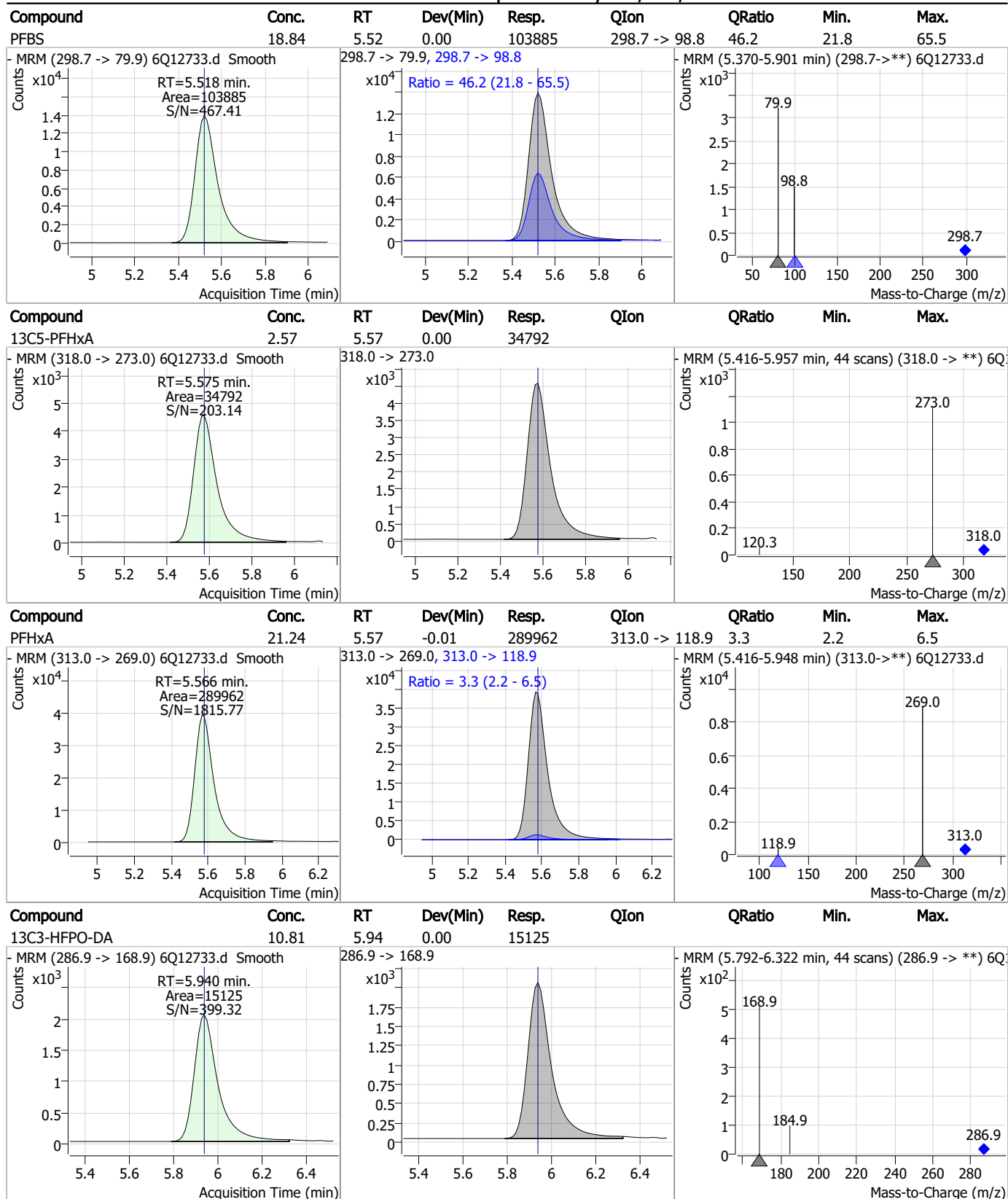
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

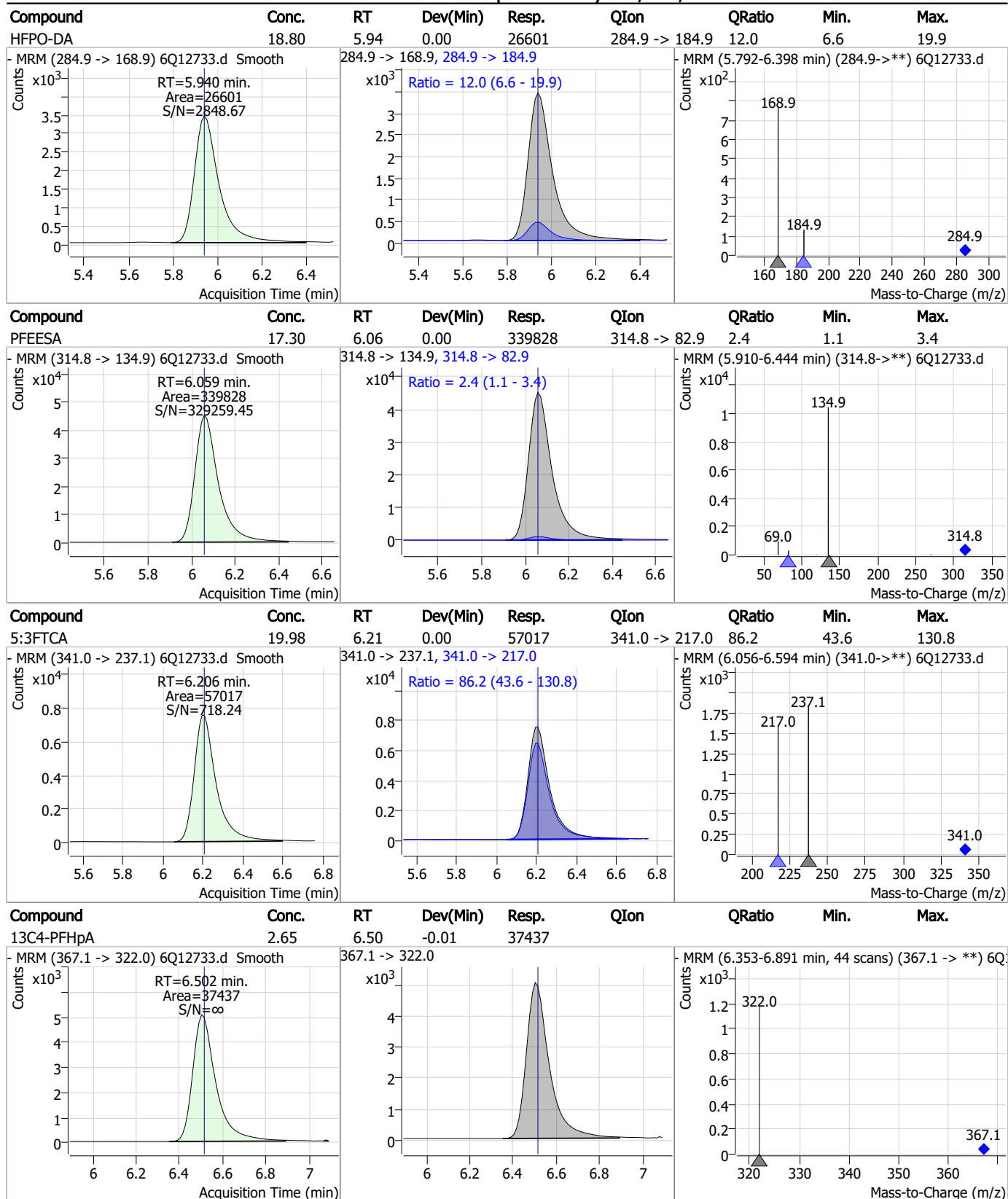


## Perfluorinated Compounds by LC/MS/MS

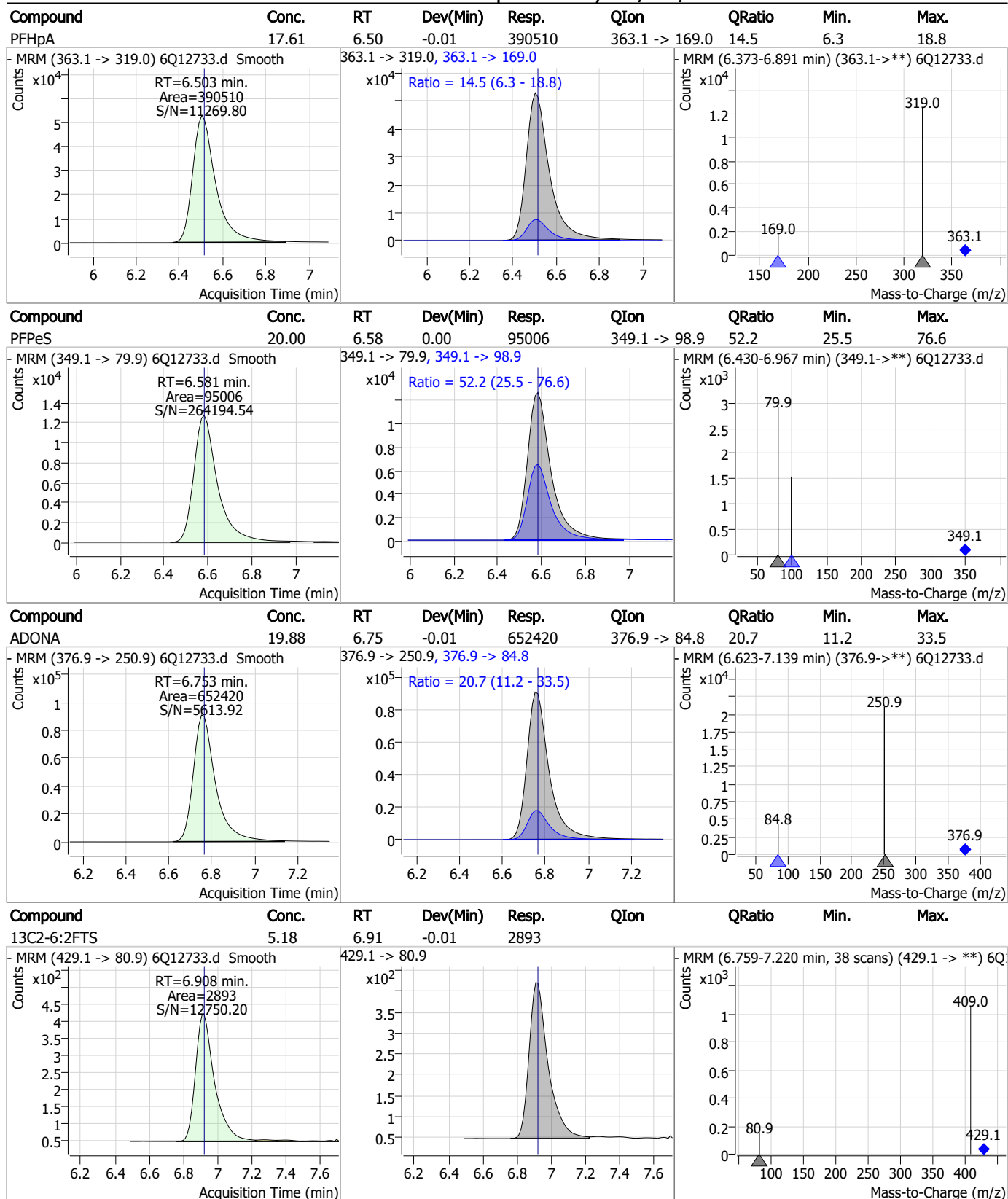




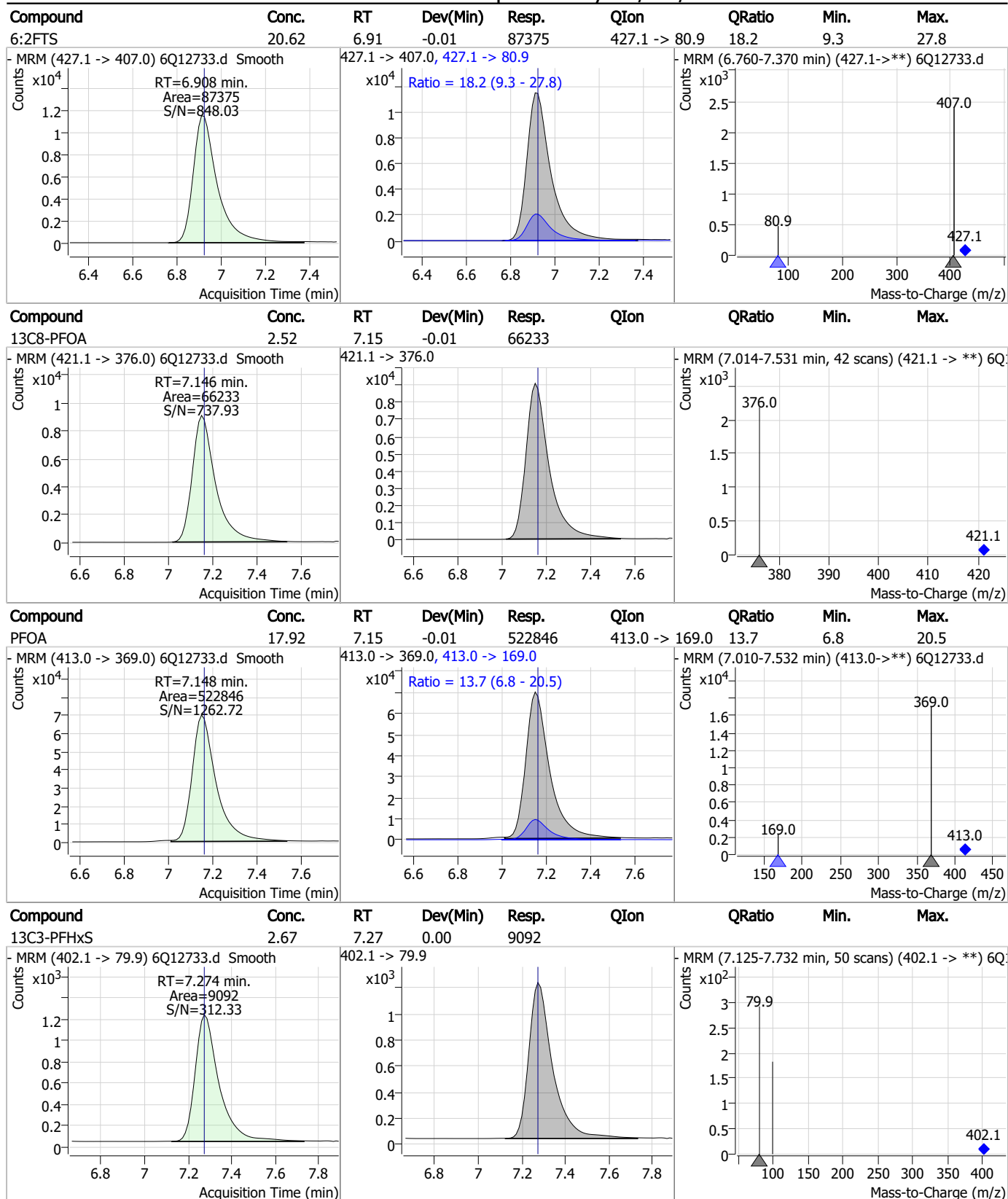
## Perfluorinated Compounds by LC/MS/MS



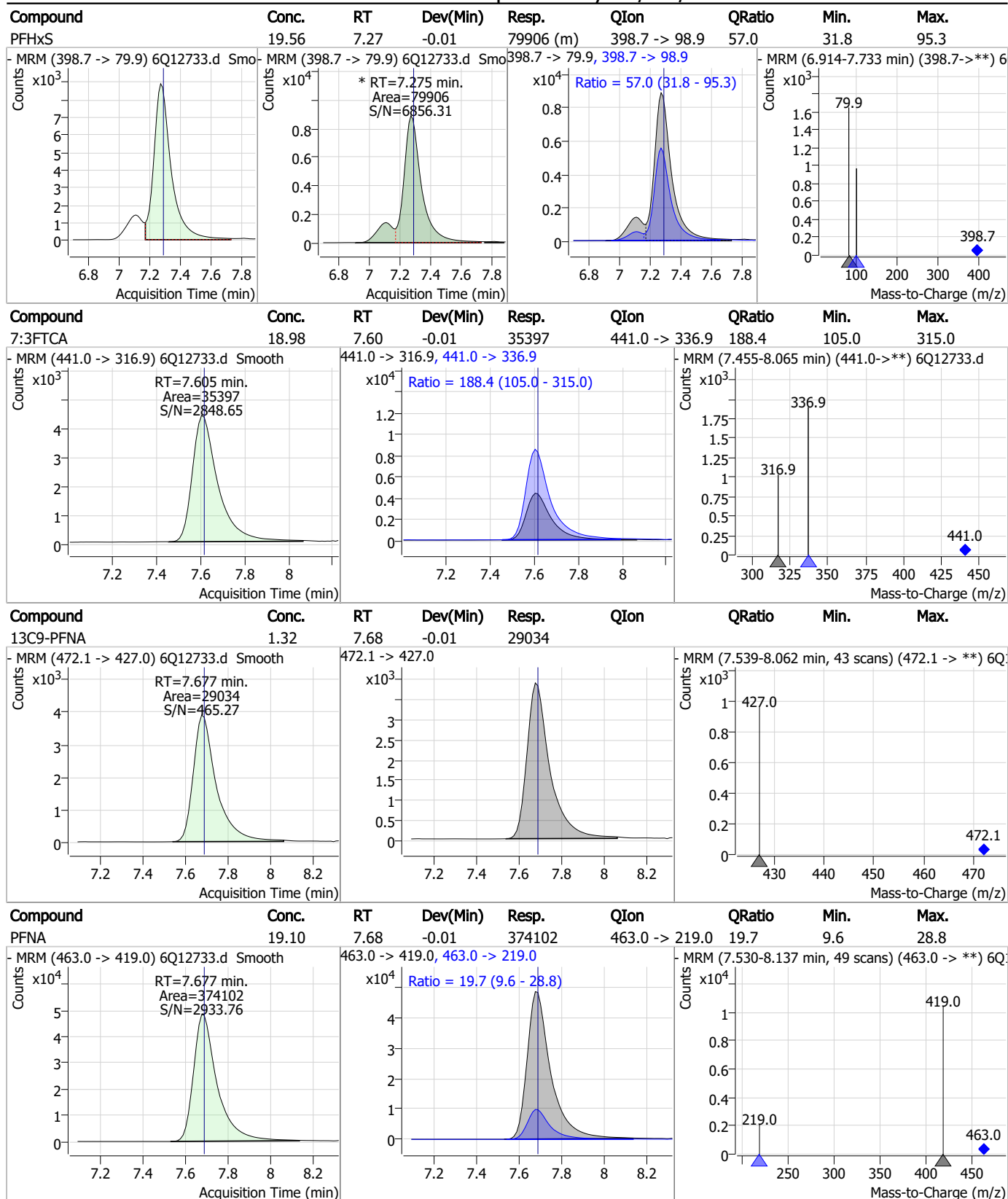
## Perfluorinated Compounds by LC/MS/MS



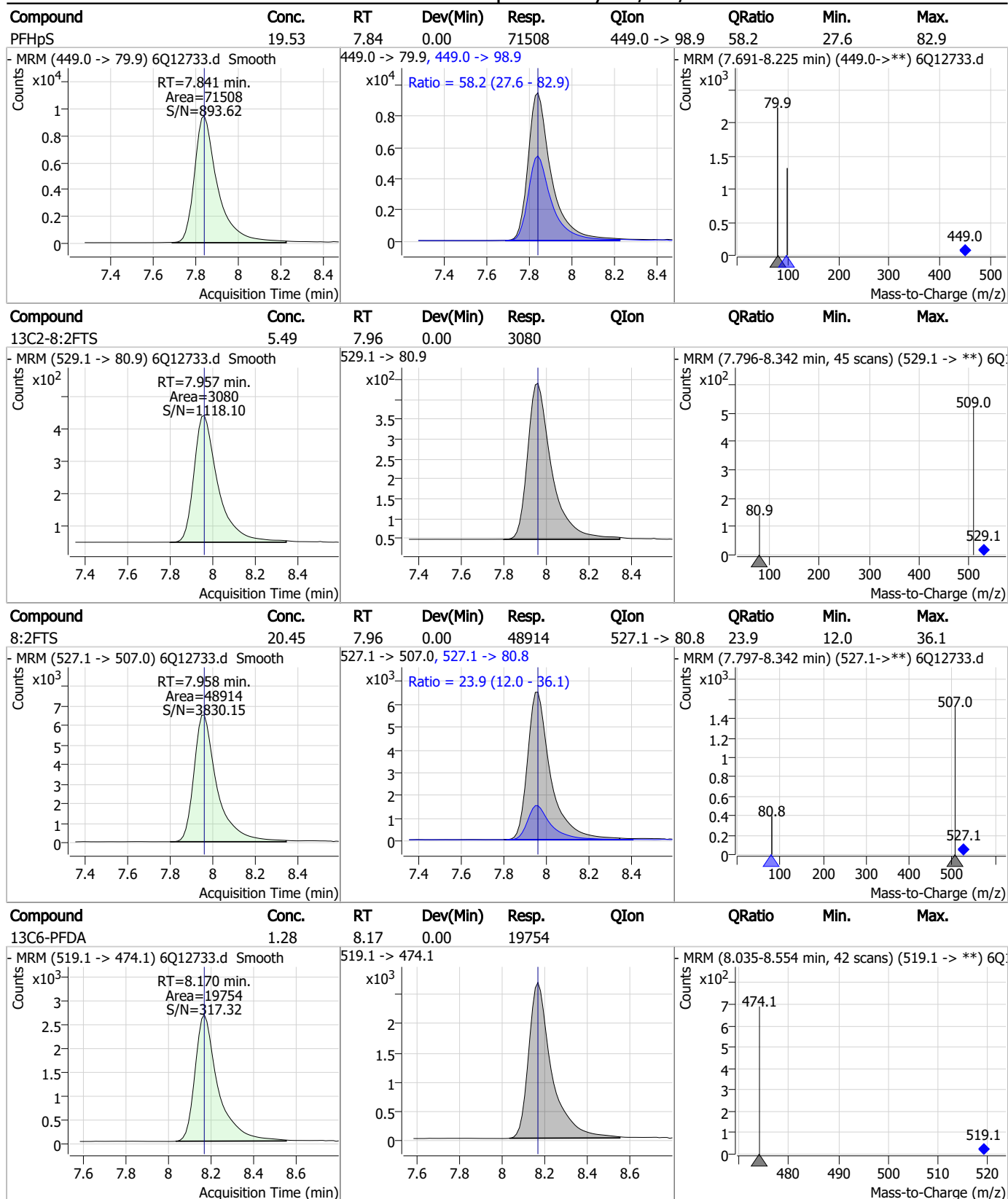
## Perfluorinated Compounds by LC/MS/MS



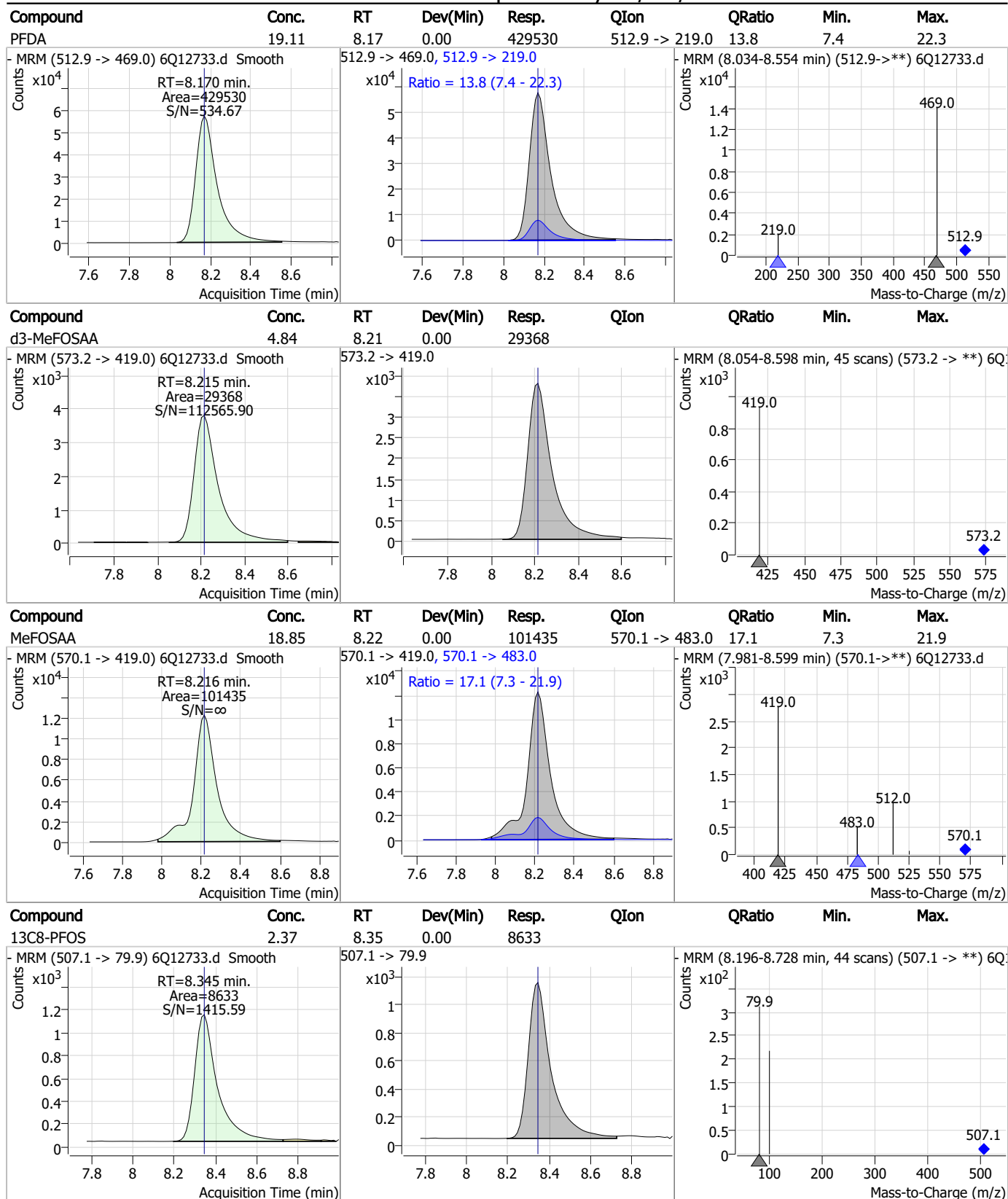
## Perfluorinated Compounds by LC/MS/MS



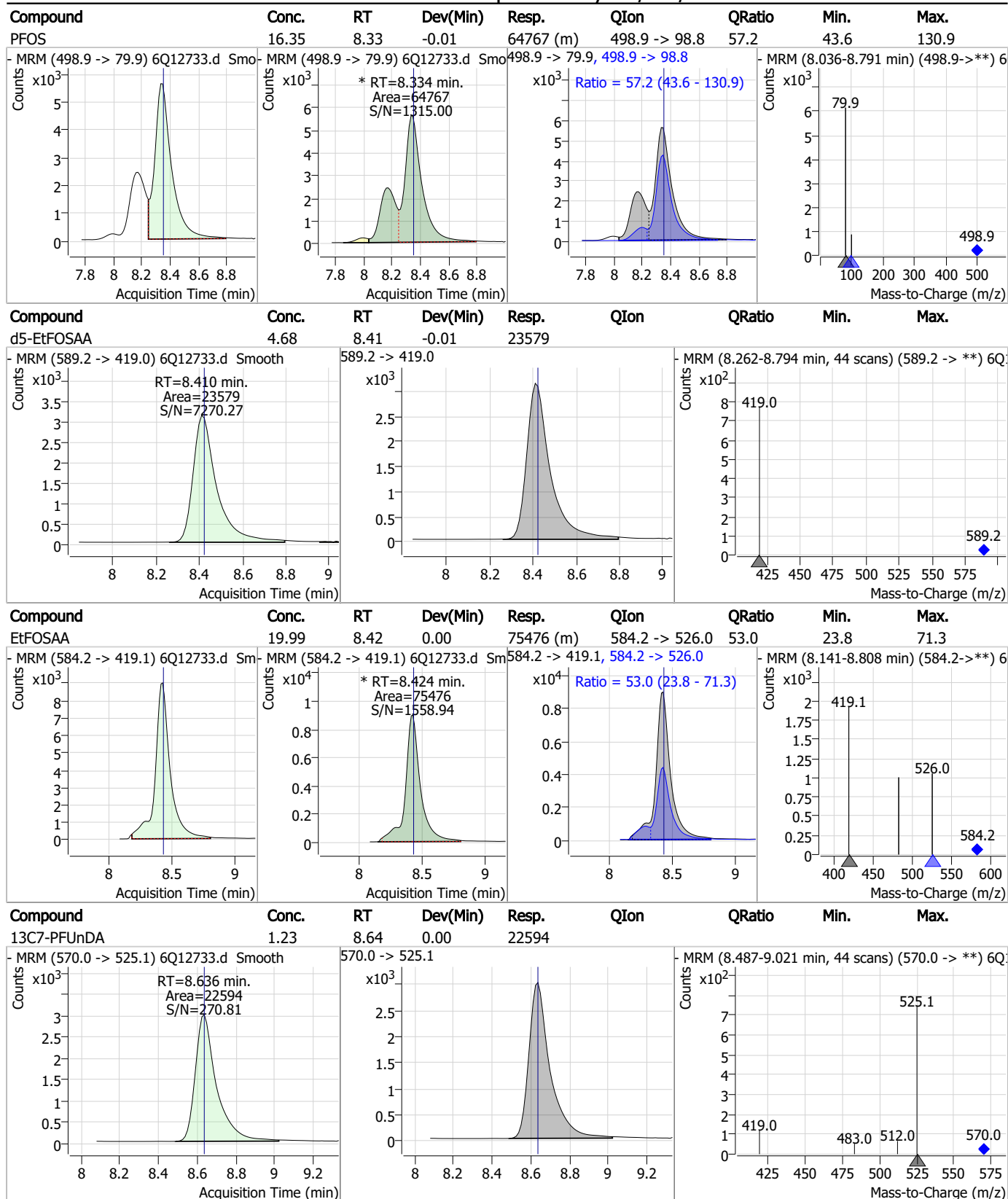
## Perfluorinated Compounds by LC/MS/MS



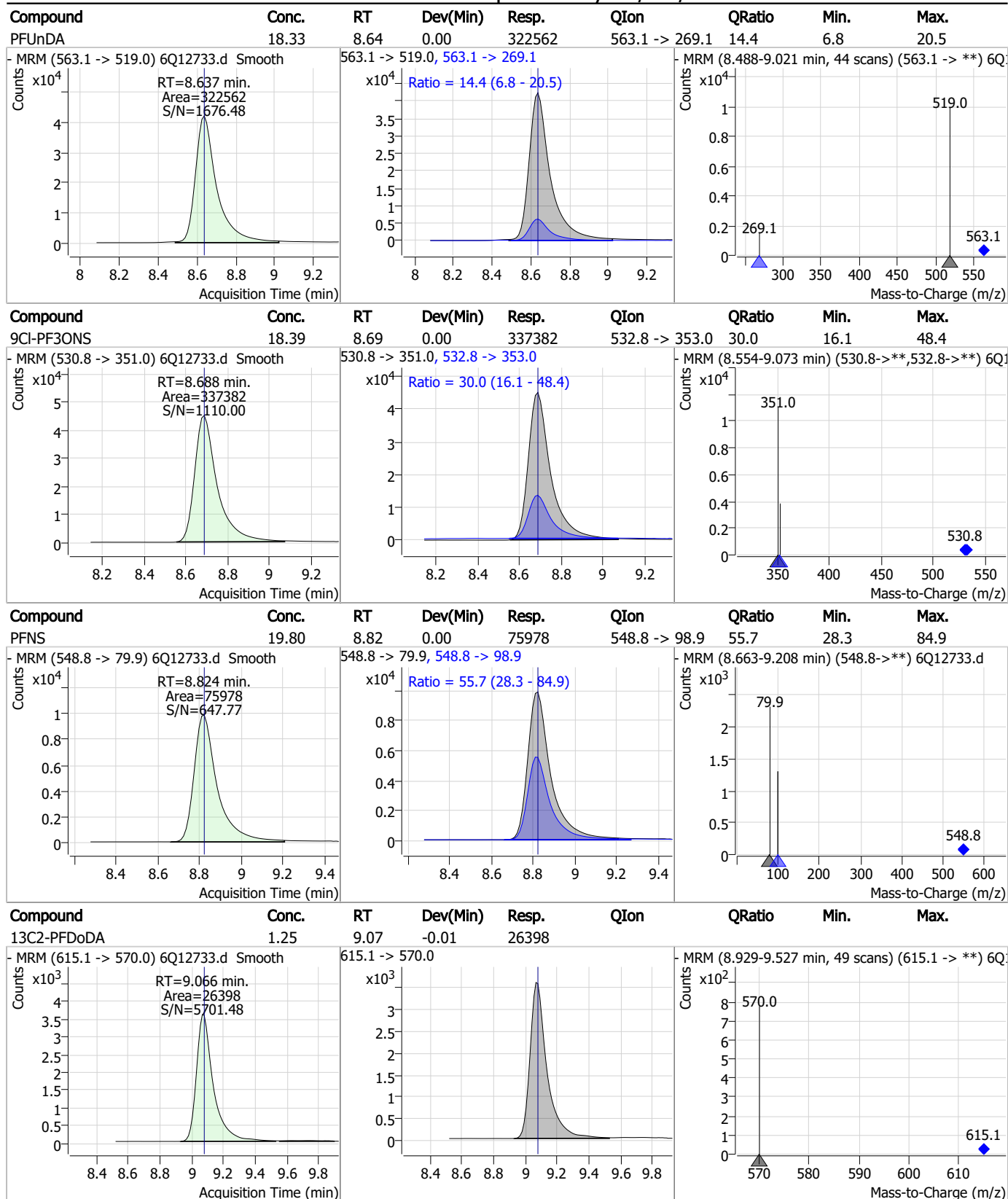
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

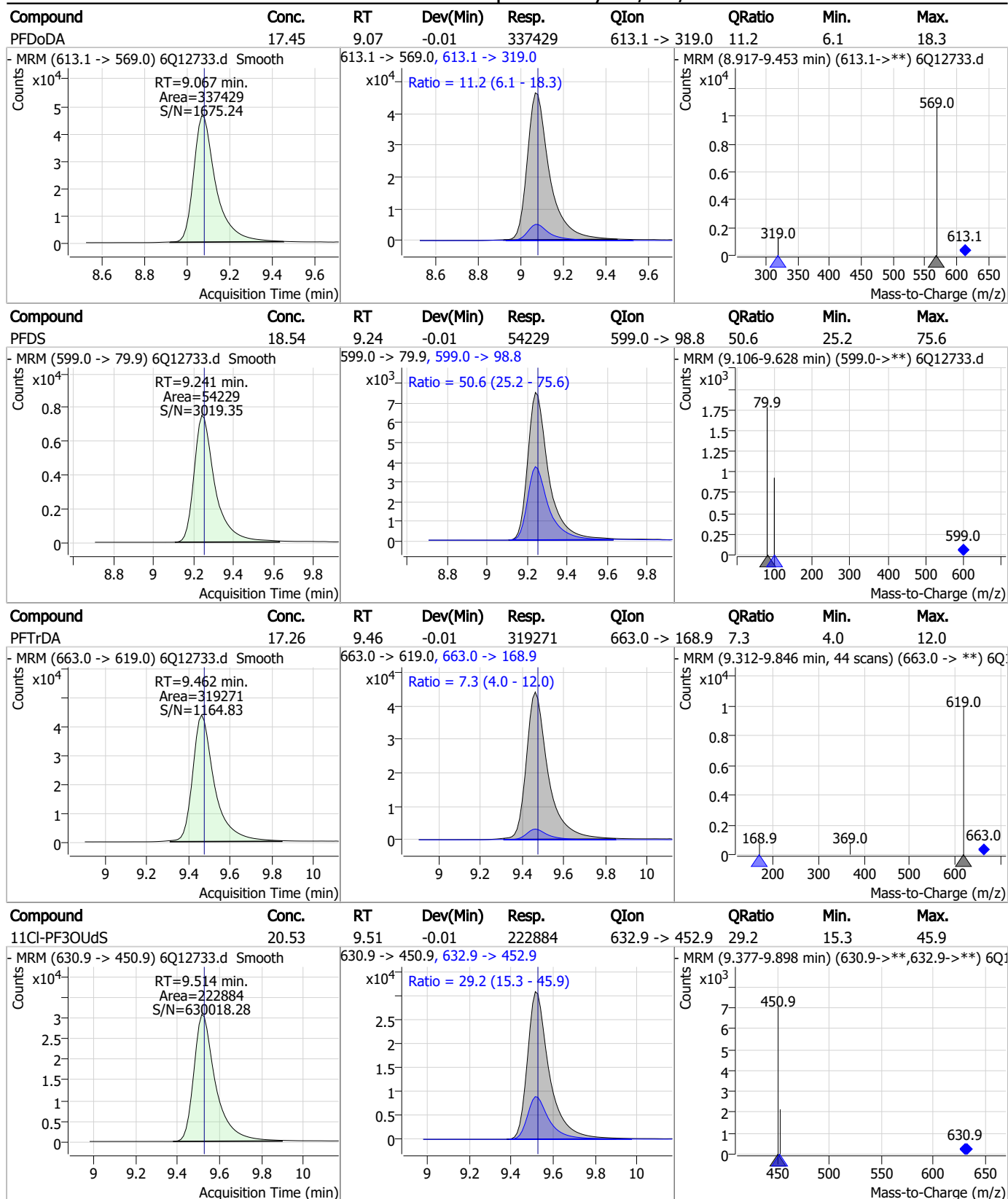


## Perfluorinated Compounds by LC/MS/MS

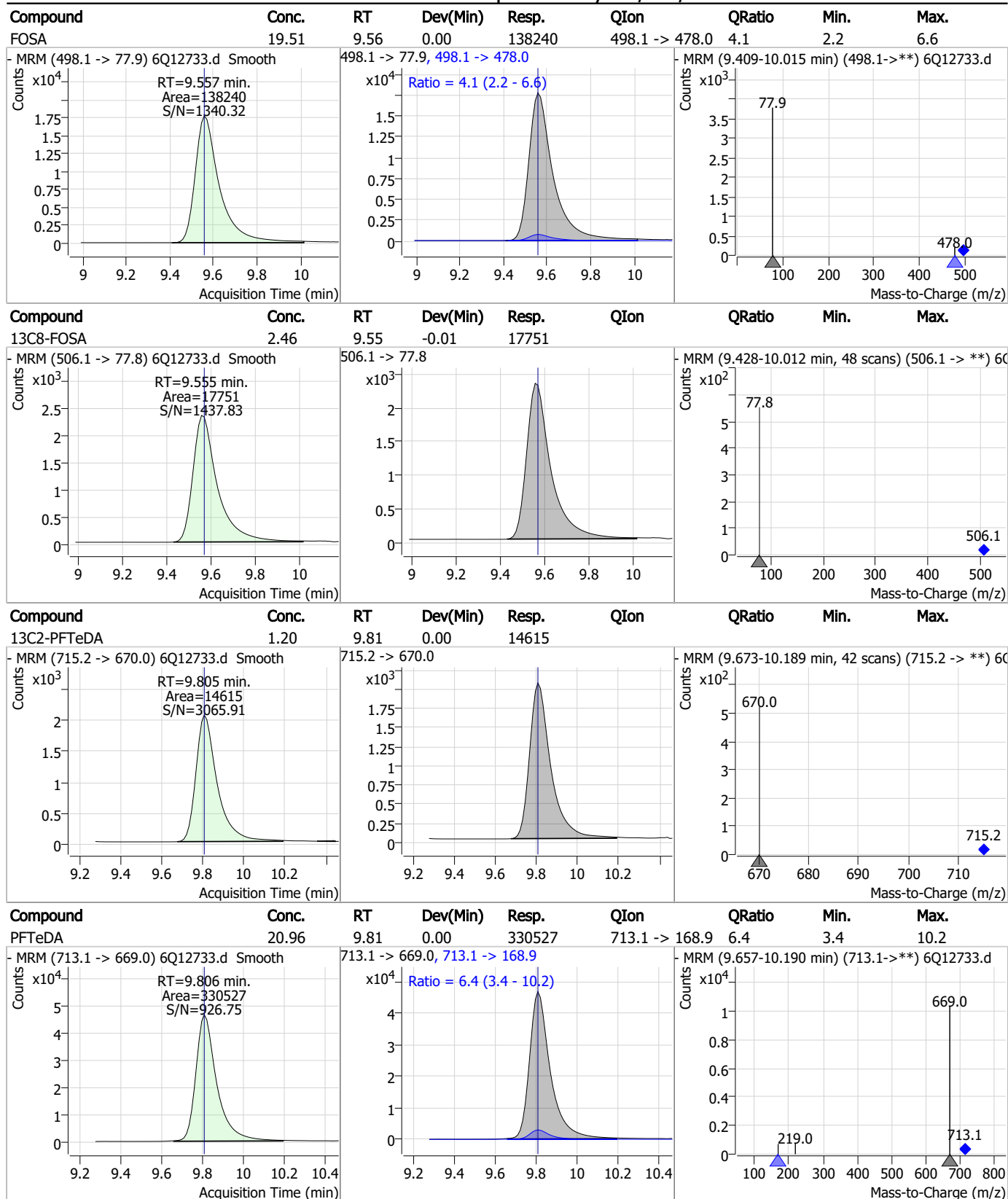




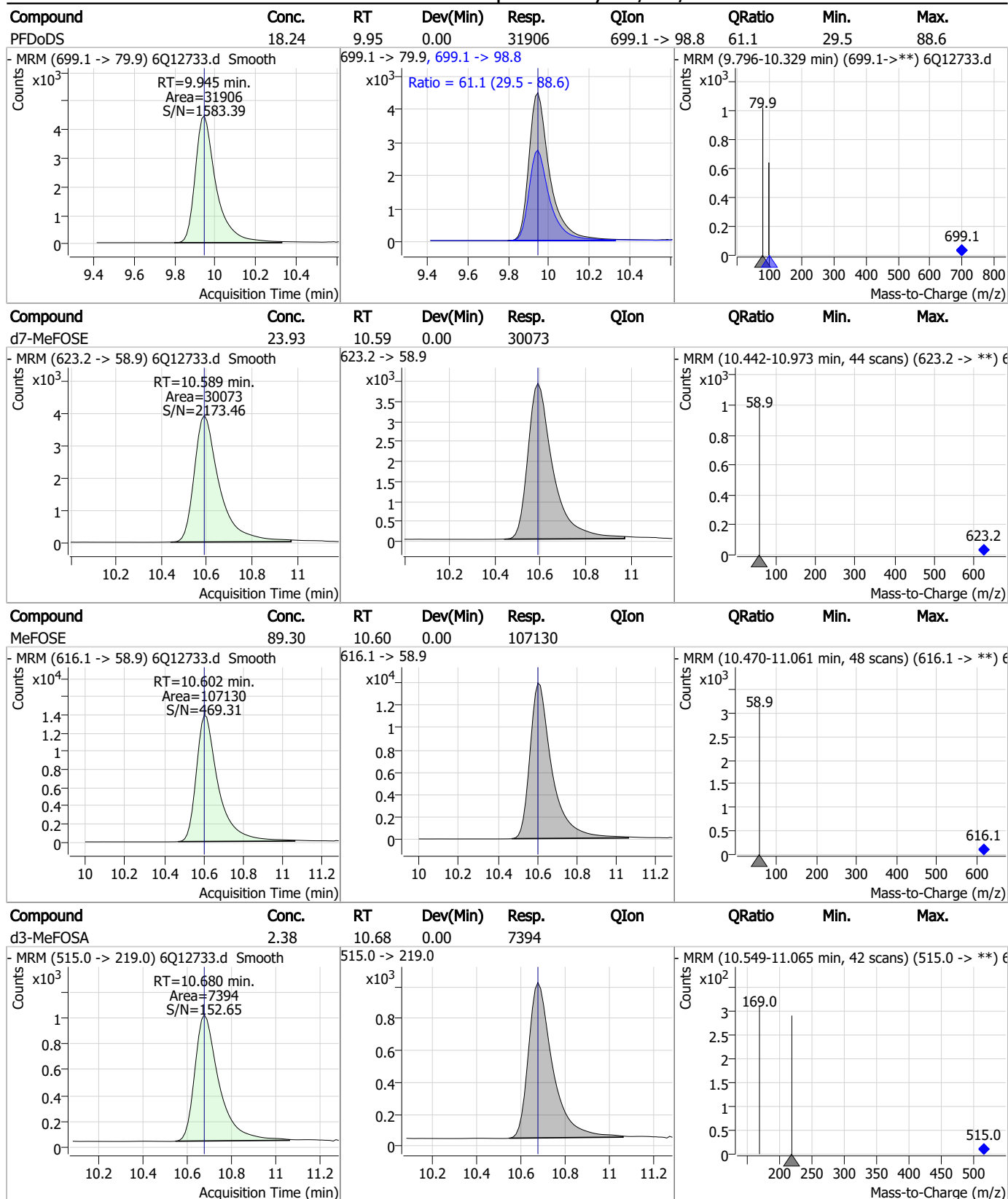
## Perfluorinated Compounds by LC/MS/MS



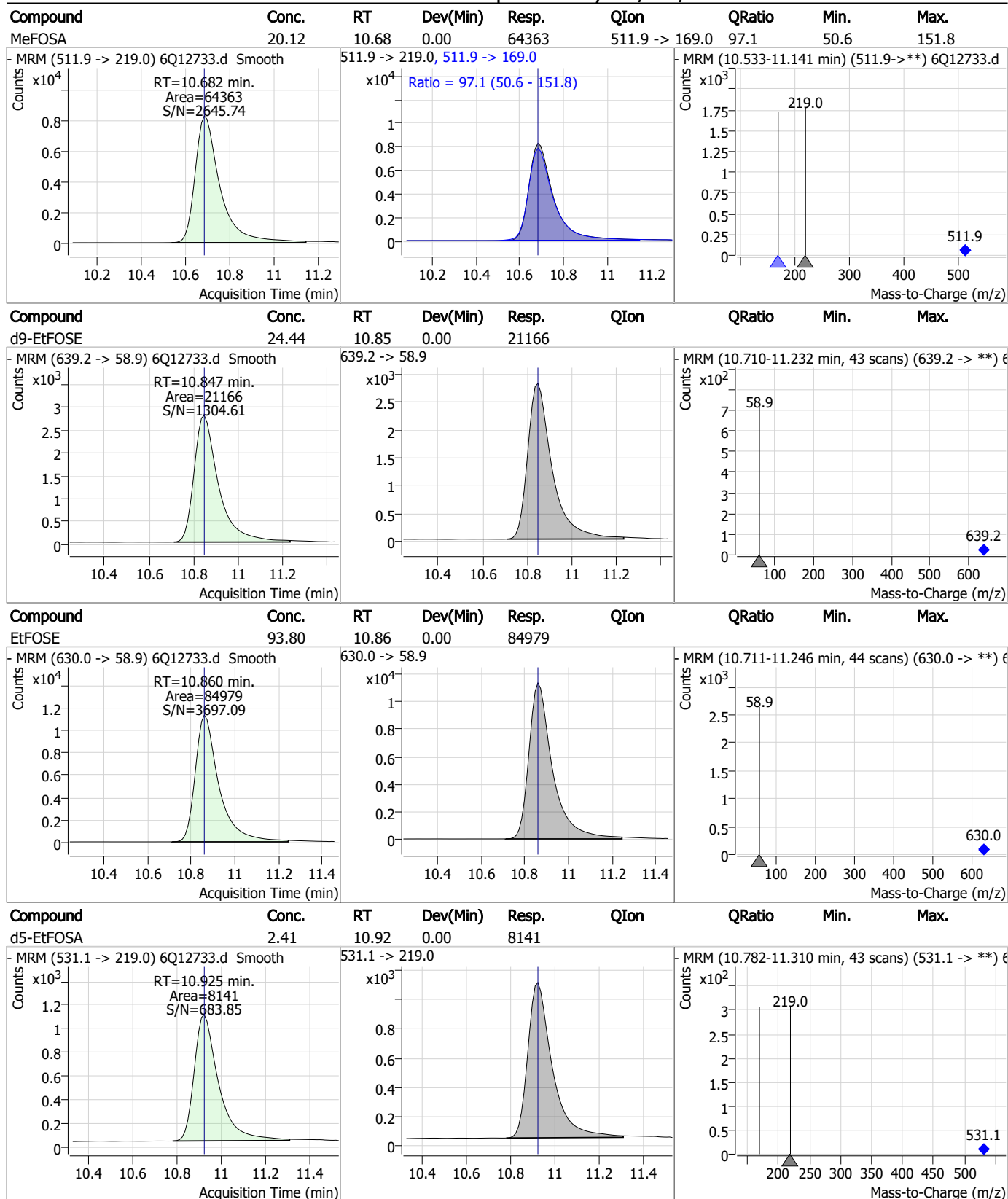
## Perfluorinated Compounds by LC/MS/MS



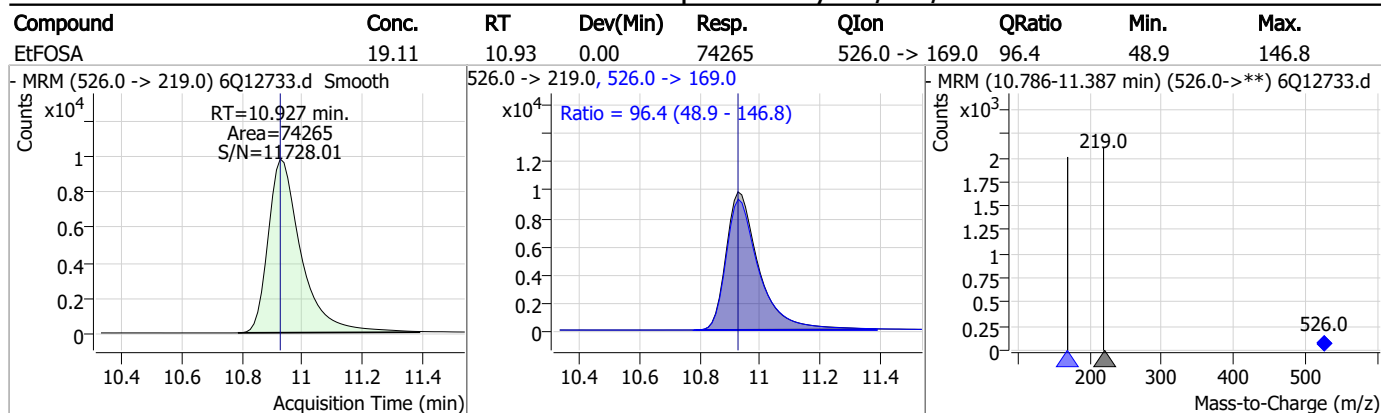
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S6Q196-ICV196

Method: EPA DRAFT 1633

Lab FileID: 6Q12733.D

Analyst approved: 02/02/23 11:53 Martha Valls

Injection Time: 02/01/23 20:11

Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.11.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12888.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/3/2023 10:58:08 AM  
 Sample Name : cc196-4  
 Vial : P1-A5  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : s6q198.batch.bin  
 Sample Information : OP94819,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	78434	10.00 µg/L	0.000
M5-PFPeA	4.374	268.3 -> 223.0	40512	5.00 µg/L	-0.012
M5-PFHxA	5.563	318.0 -> 273.0	37416	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	36388	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	67260	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	28723	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19051	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	22948	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	24088	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14562	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	17662	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13307	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8292	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8762	2.50 µg/L	0.000
M2-4:2FTS	5.227	329.1 -> 80.9	2306	5.00 µg/L	-0.012
M2-6:2FTS	6.908	429.1 -> 80.9	3367	5.00 µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	2839	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	30361	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14180	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	25561	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	31502	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21588	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8459	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7321	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10625	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35403	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	7014	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	80369	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	26364	1.25 µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	31704	1.25 µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	34451	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.227	329.1 -> 80.9	2306	5.05 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3367	5.56 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.3%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2839	4.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.4%		
13C2-PFDoDA	9.066	615.1 -> 570.0	24088	1.20 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14562	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C3-PFBS	5.518	302.1 -> 79.9	13307	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C3-PFHxS	7.274	402.1 -> 79.9	8292	2.25 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 = 89.9%	
13C4-PFBA	2.975	216.8 -> 171.9	78434	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.502	367.1 -> 322.0	36388	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFHxA	5.563	318.0 -> 273.0	37416	2.74 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C5-PFPeA	4.374	268.3 -> 223.0	40512	5.28 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C6-PFDA	8.170	519.1 -> 474.1	19051	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C7-PFUnDA	8.636	570.0 -> 525.1	22948	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C8-FOSA	9.567	506.1 -> 77.8	17662	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C8-PFOA	7.146	421.1 -> 376.0	67260	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C8-PFOS	8.345	507.1 -> 79.9	8762	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C9-PFNA	7.677	472.1 -> 427.0	28723	1.29 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%	
d3-MeFOSAA	8.215	573.2 -> 419.0	30361	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14180	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d3-MeFOSA	10.680	515.0 -> 219.0	7321	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
d5-EtFOSAA	8.410	589.2 -> 419.0	25561	5.29 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
d7-MeFOSE	10.589	623.2 -> 58.9	31502	26.11 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
d9-EtFOSE	10.847	639.2 -> 58.9	21588	25.96 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
d5-EtFOSA	10.925	531.1 -> 219.0	8459	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.228	327.1 -> 307.0	49650	9.60 µg/L	96
		327.1 -> 80.9	9996		
6:2FTS	6.908	427.1 -> 407.0	41094	8.33 µg/L	100
		427.1 -> 80.9	7702		
8:2FTS	7.958	527.1 -> 507.0	22456	10.19 µg/L	99
		527.1 -> 80.8	5538		
EtFOSAA	8.424	584.2 -> 419.1	9568	2.34 µg/L	m 91
		584.2 -> 526.0	5092		
FOSA	9.557	498.1 -> 77.9	16109	2.29 µg/L	98
		498.1 -> 478.0	595		
MeFOSAA	8.216	570.1 -> 419.0	12326	2.22 µg/L	m 87
		570.1 -> 483.0	2450		
PFBA	2.982	212.8 -> 168.9	16387	9.35 µg/L	100
PFBS	5.518	298.7 -> 79.9	11500	2.25 µg/L	99
		298.7 -> 98.8	5063		
PFDA	8.170	512.9 -> 469.0	53539	2.47 µg/L	94
		512.9 -> 219.0	6674		
PFDODA	9.067	613.1 -> 569.0	42727	2.42 µg/L	100
		613.1 -> 319.0	5274		
PFDS	9.241	599.0 -> 79.9	6433	2.17 µg/L	98



## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	3347	2.23	µg/L	95
		363.1 -> 319.0	48140			
PFHpS	7.841	363.1 -> 169.0	6944	2.26	µg/L	98
		449.0 -> 79.9	8385			
PFHxA	5.566	449.0 -> 98.9	4777	2.21	µg/L	99
		313.0 -> 269.0	32407			
PFHxS	7.275	313.0 -> 118.9	1242	2.26	µg/L	93
		398.7 -> 79.9	8409			
PFNA	7.677	398.7 -> 98.9	4859	2.34	µg/L	97
		463.0 -> 419.0	45311			
PFNS	8.811	463.0 -> 219.0	8078	2.28	µg/L	98
		548.8 -> 79.9	8885			
PFOA	7.148	548.8 -> 98.9	5178	2.15	µg/L	100
		413.0 -> 369.0	63572			
PFOS	8.347	413.0 -> 169.0	8696	2.14	µg/L	73
		498.9 -> 79.9	8585			
PFPeA	4.375	498.9 -> 98.8	5327	4.51	µg/L	100
		263.0 -> 219.0	38573			
PFPeS	6.569	349.1 -> 79.9	10368	2.39	µg/L	97
		349.1 -> 98.9	5519			
PFTeDA	9.806	713.1 -> 669.0	37636	2.40	µg/L	99
		713.1 -> 168.9	2459			
PFTrDA	9.462	663.0 -> 619.0	41643	2.47	µg/L	99
		663.0 -> 168.9	3419			
PFUnDA	8.637	563.1 -> 519.0	43322	2.42	µg/L	99
		563.1 -> 269.1	6046			
11CI-PF3OUdS	9.514	630.9 -> 450.9	89779	8.82	µg/L	96
		632.9 -> 452.9	29226			
9CI-PF3ONS	8.688	530.8 -> 351.0	149831	8.71	µg/L	94
		532.8 -> 353.0	53749			
ADONA	6.753	376.9 -> 250.9	290239	9.43	µg/L	96
		376.9 -> 84.8	59466			
HFPO-DA	5.940	284.9 -> 168.9	13405	10.11	µg/L	99
		284.9 -> 184.9	1718			
3:3FTCA	3.841	241.0 -> 177.0	4756	11.32	µg/L	95
		241.0 -> 117.0	607			
5:3FTCA	6.193	341.0 -> 237.1	163325	53.22	µg/L	99
		341.0 -> 217.0	144104			
7:3FTCA	7.605	441.0 -> 316.9	108969	54.33	µg/L	87
		441.0 -> 336.9	206726			
EtFOSA	10.939	526.0 -> 219.0	8898	2.20	µg/L	99
		526.0 -> 169.0	8808			
EtFOSE	10.860	630.0 -> 58.9	20364	22.04	µg/L	100
		511.9 -> 219.0	7436			
MeFOSA	10.682	511.9 -> 169.0	7535	2.35	µg/L	100
		616.1 -> 58.9	27626			
MeFOSE	10.615	699.1 -> 79.9	3801	21.98	µg/L	100
		699.1 -> 98.8	2564			
PFDoDS	9.933	295.0 -> 201.0	3844	2.14	µg/L	89
		295.0 -> 84.9	2014			
NFDHA	5.445	279.0 -> 85.1	11362	4.43	µg/L	99
		229.0 -> 84.9	10416			
PFMBA	4.787	314.8 -> 134.9	80175	4.72	µg/L	100
		314.8 -> 82.9	2063			
PFMPA	3.541			4.57	µg/L	100
PFEESA	6.059			3.79	µg/L	99

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

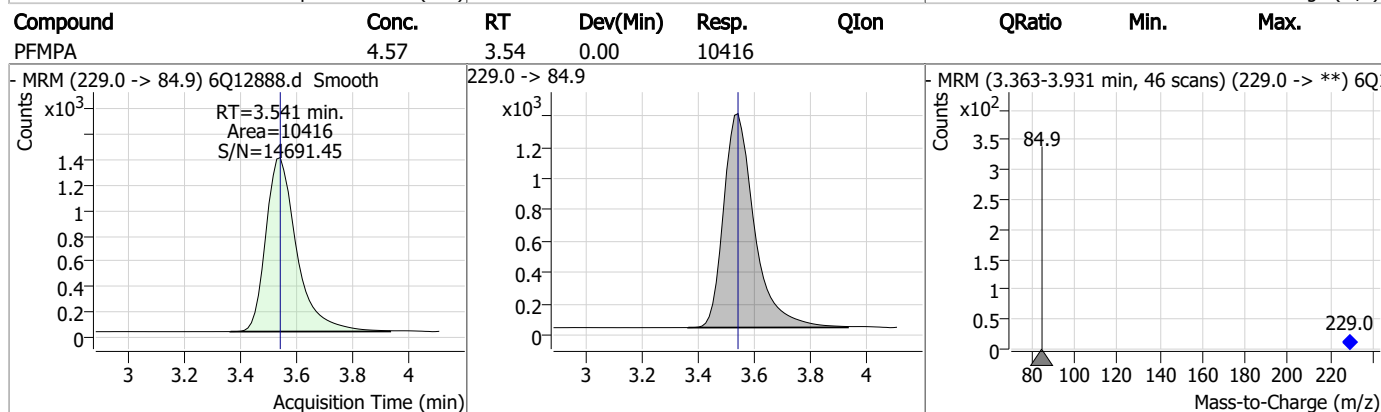
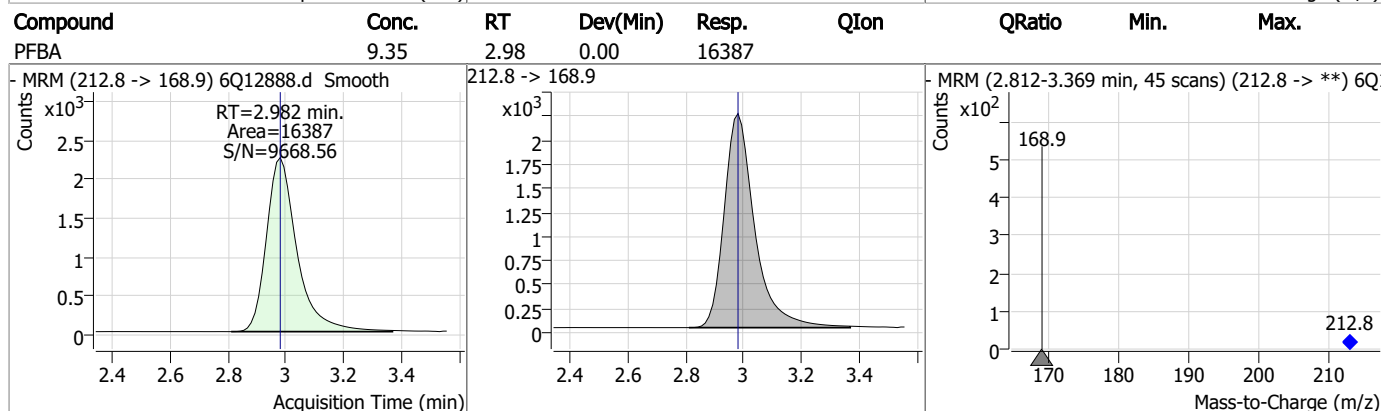
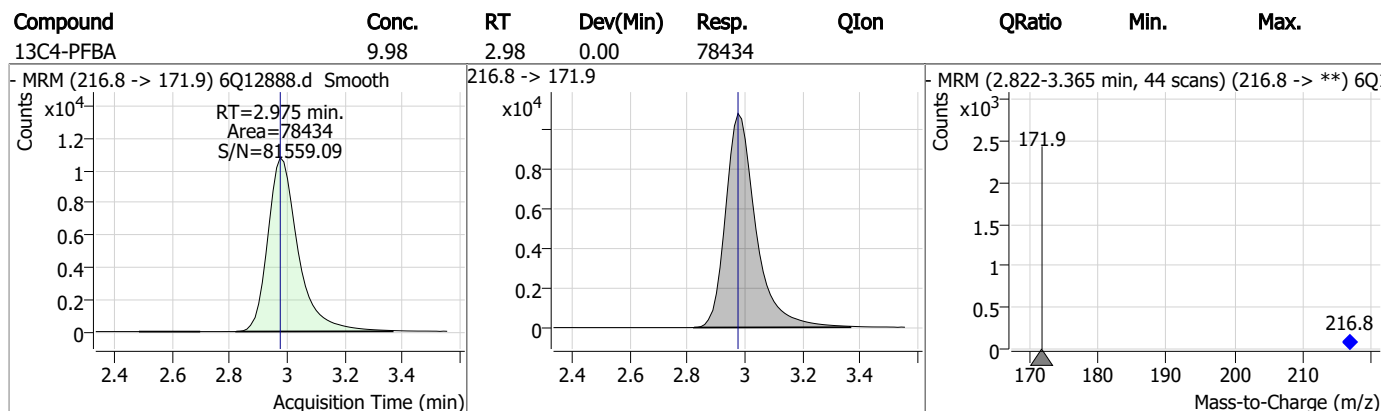
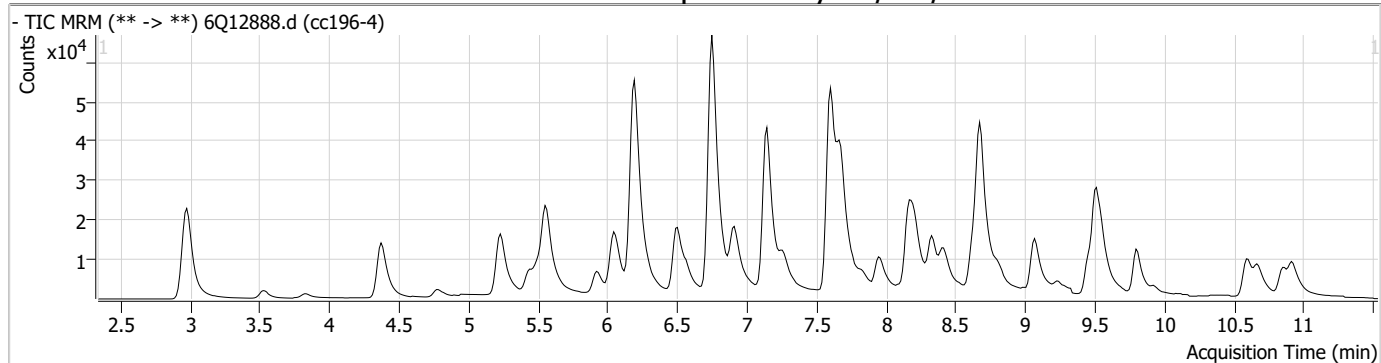
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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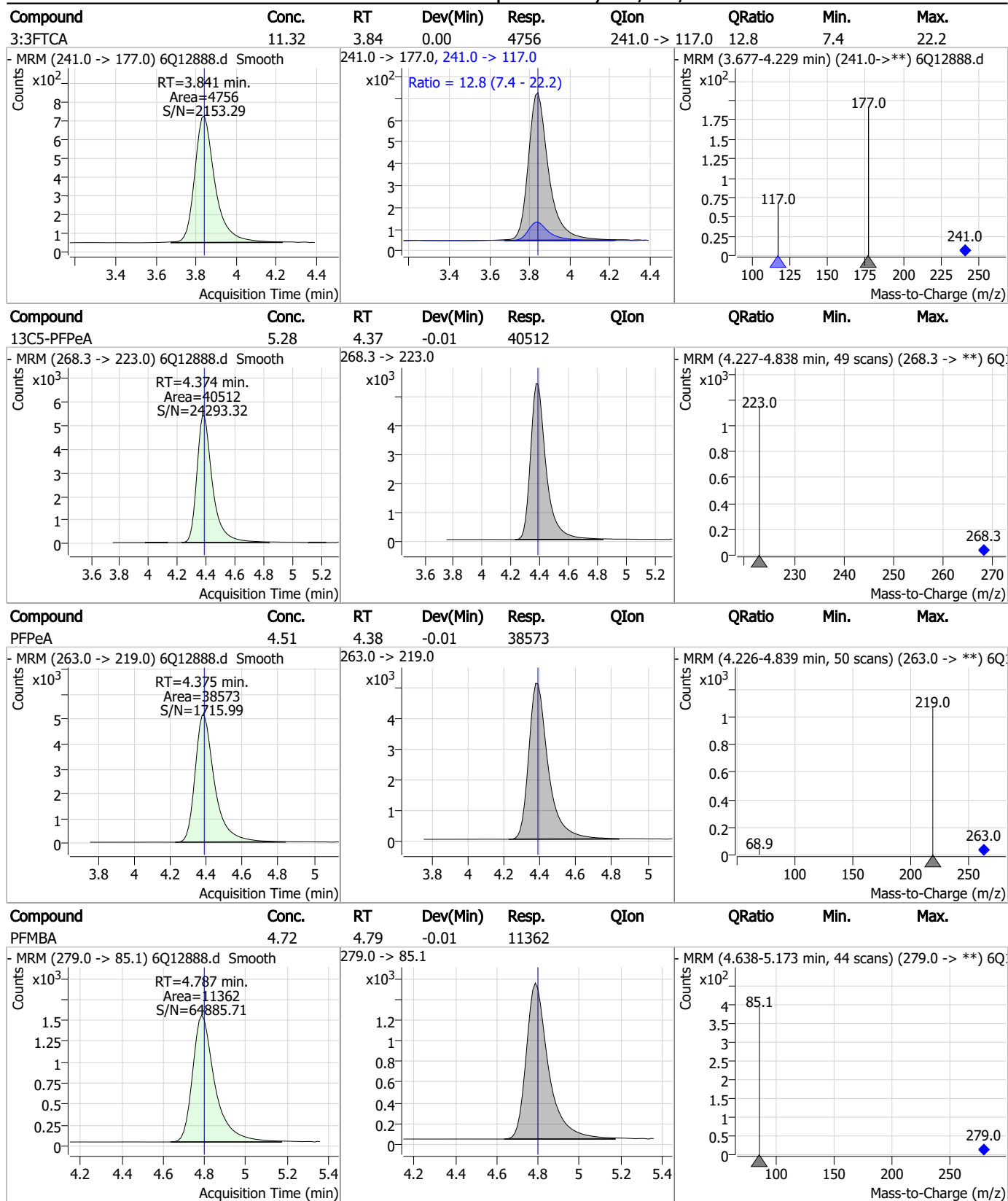
7.7.12  
7



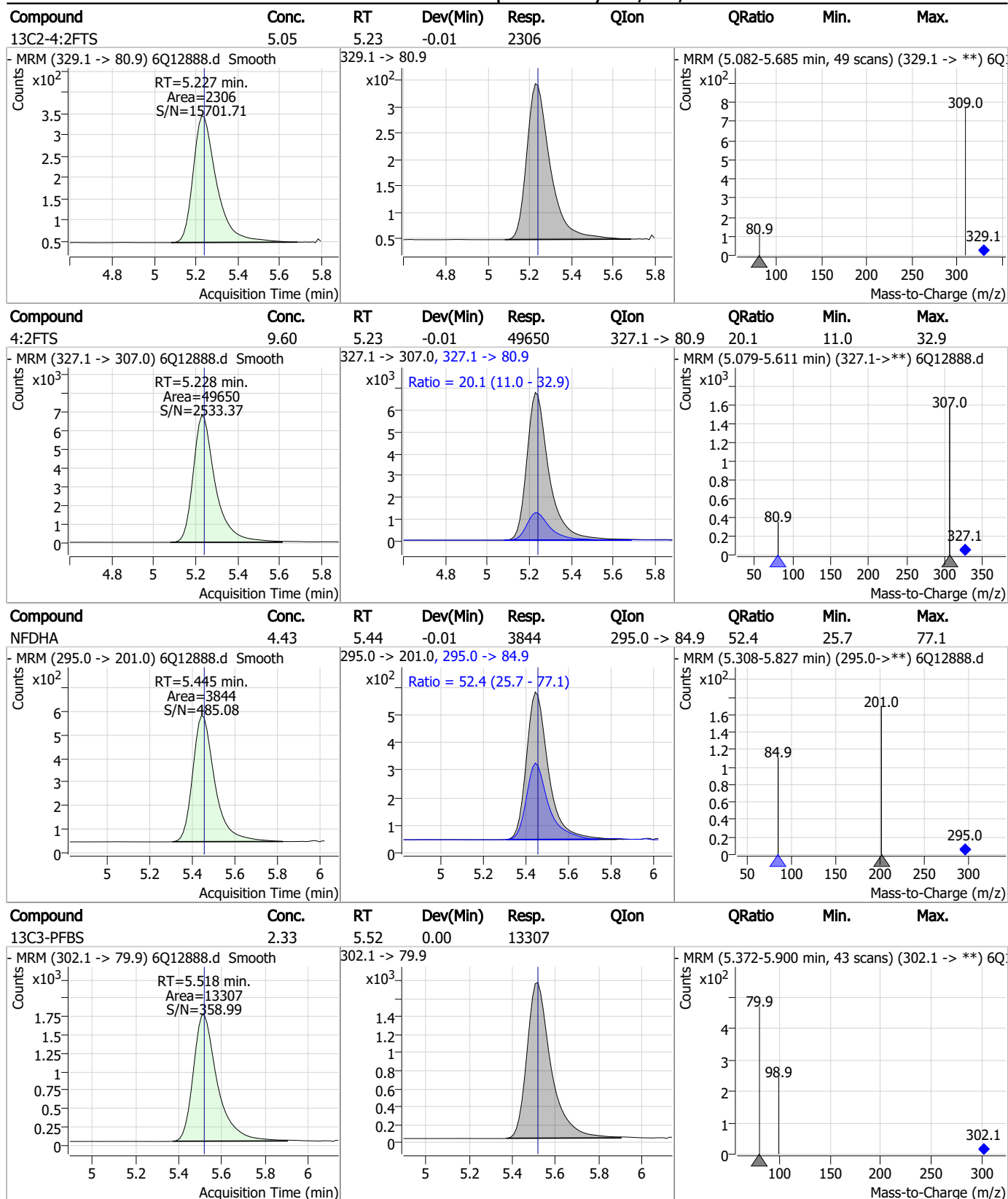
## Perfluorinated Compounds by LC/MS/MS



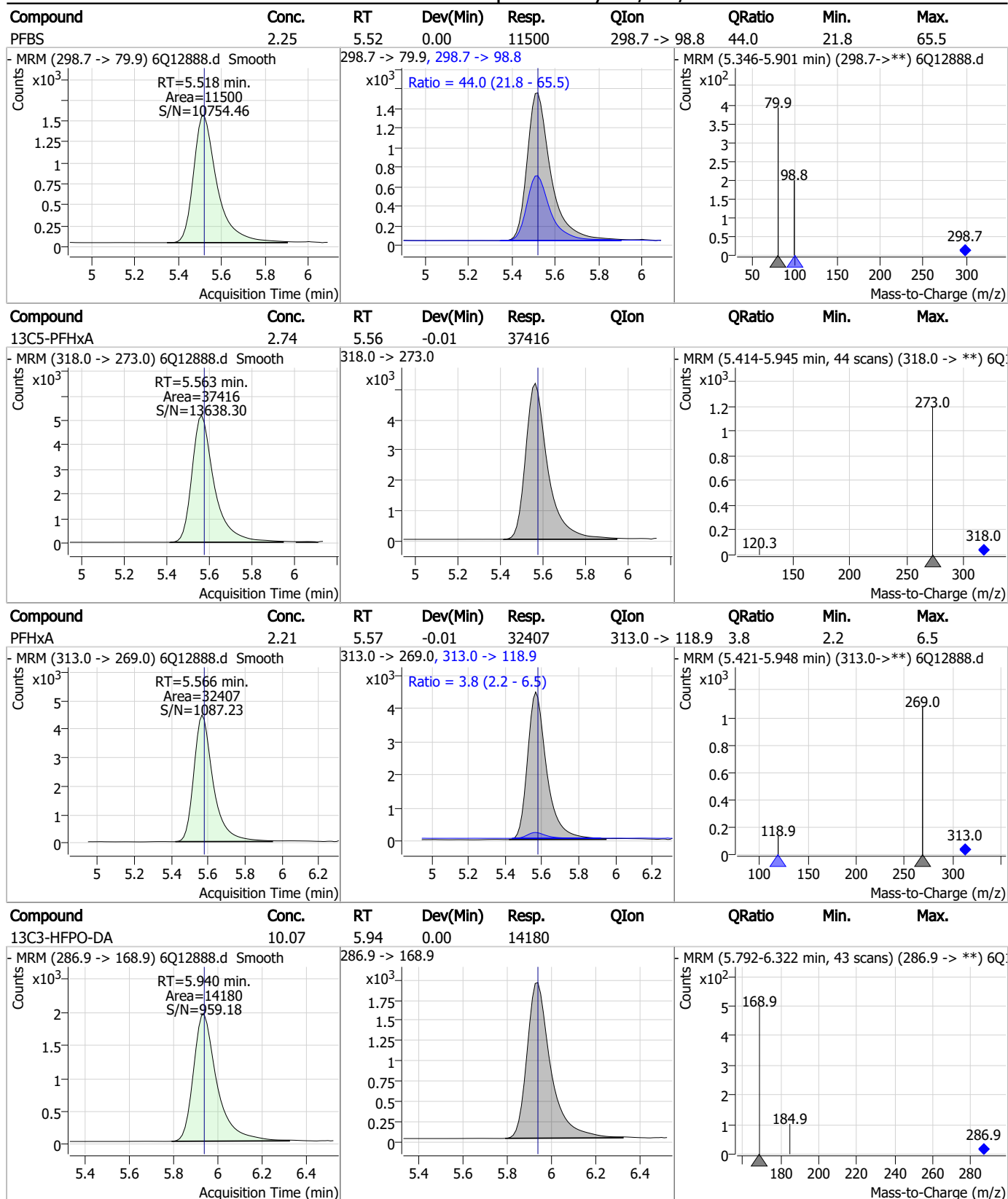
## Perfluorinated Compounds by LC/MS/MS



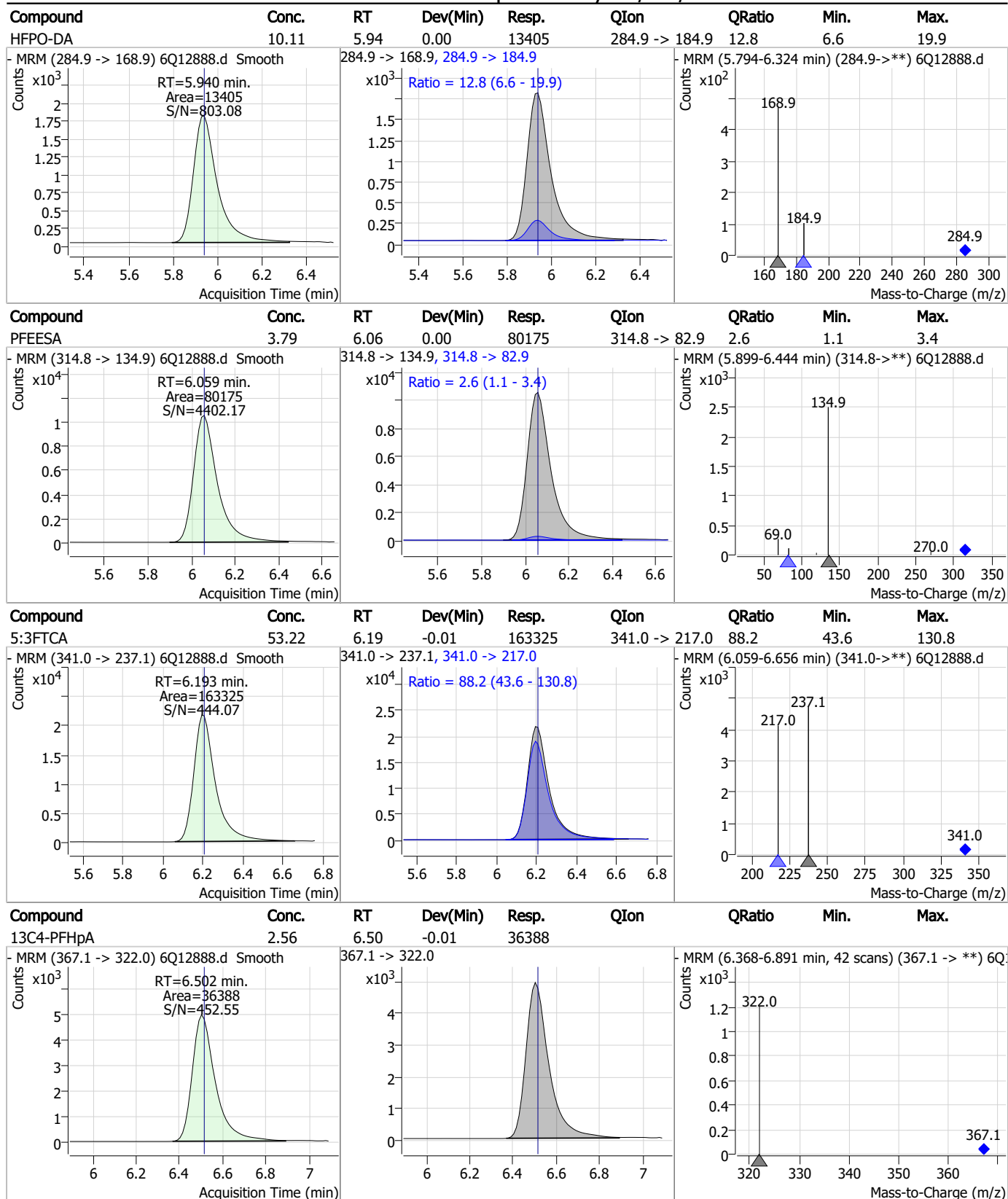
## Perfluorinated Compounds by LC/MS/MS



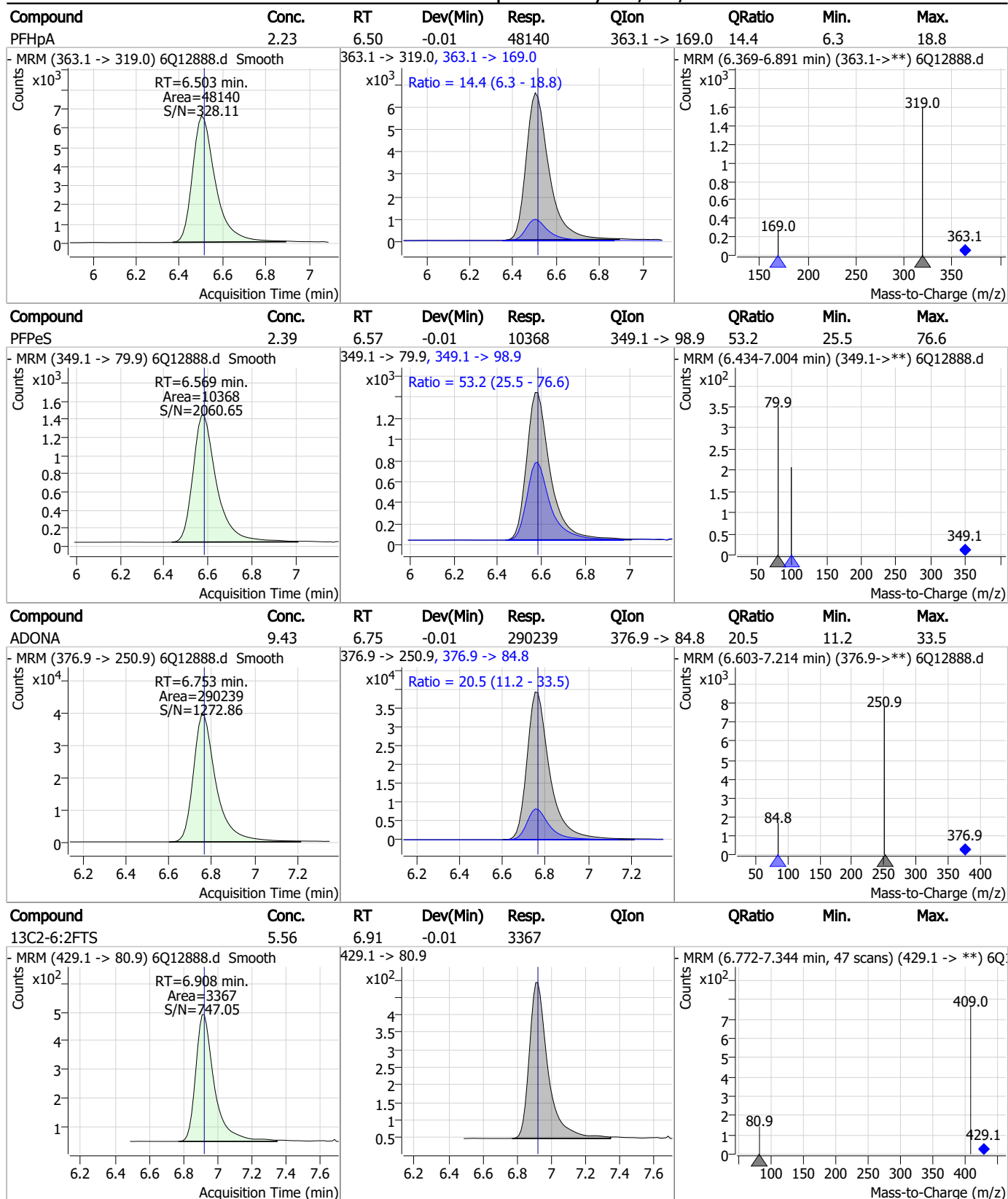
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

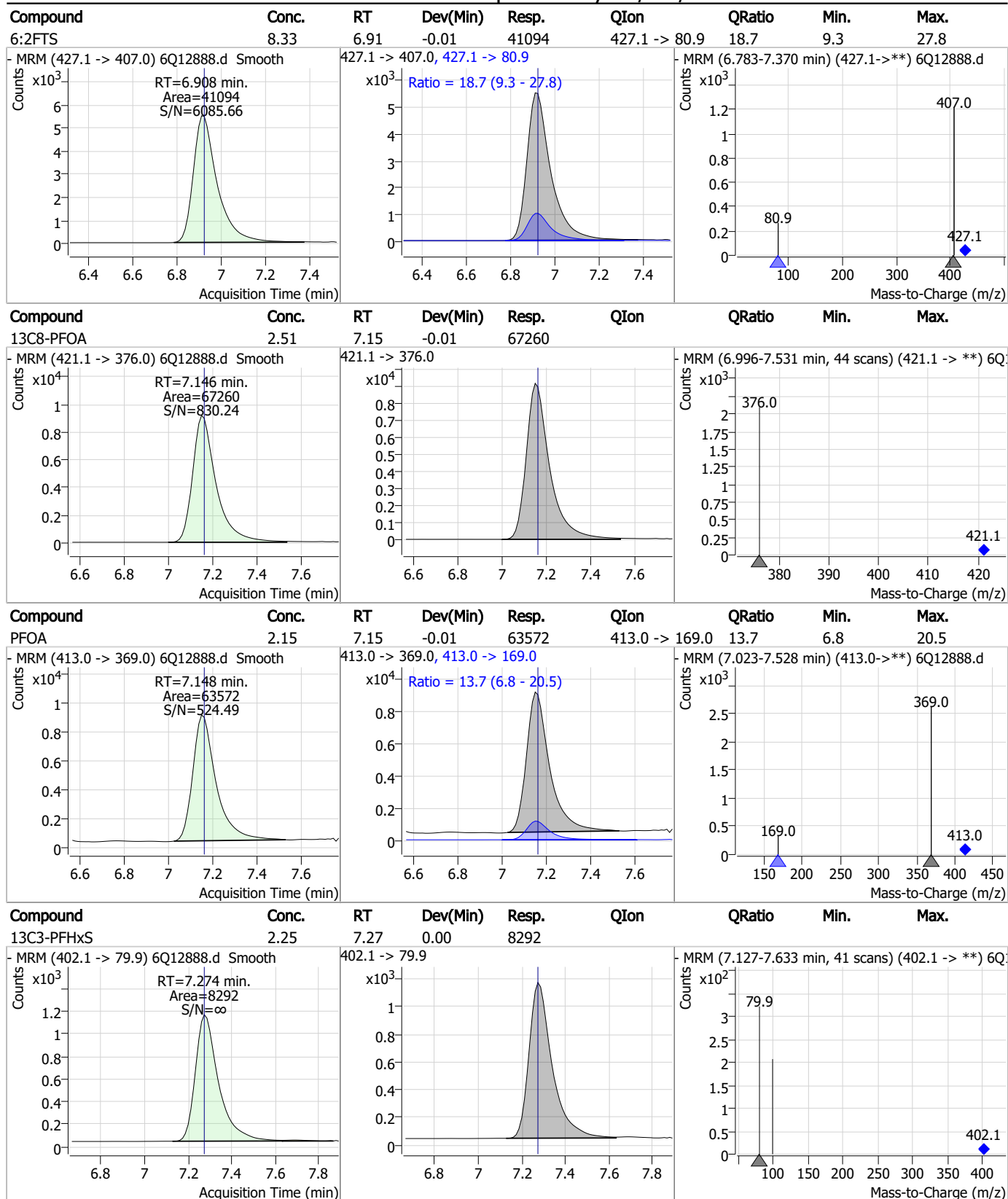


## Perfluorinated Compounds by LC/MS/MS

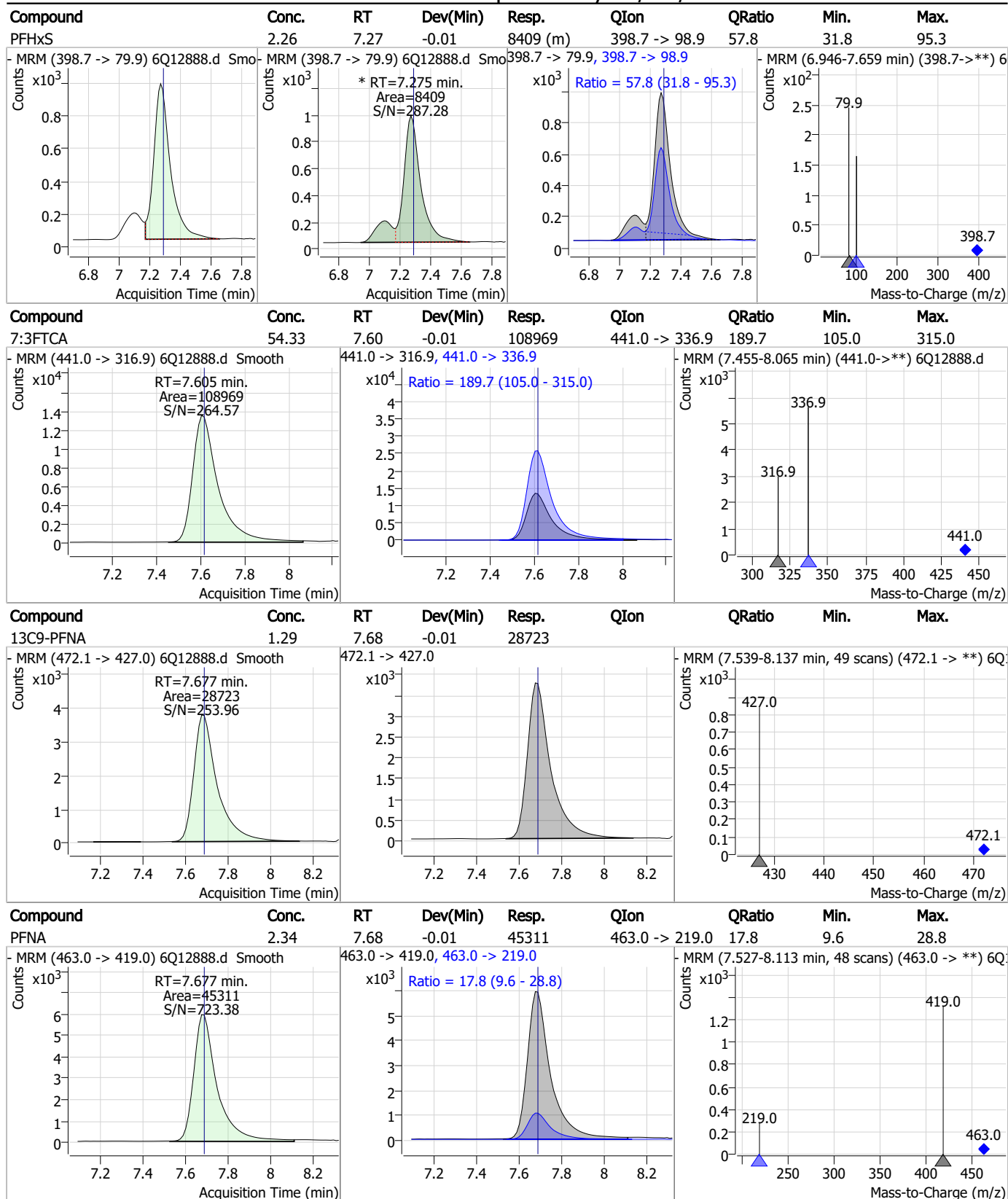




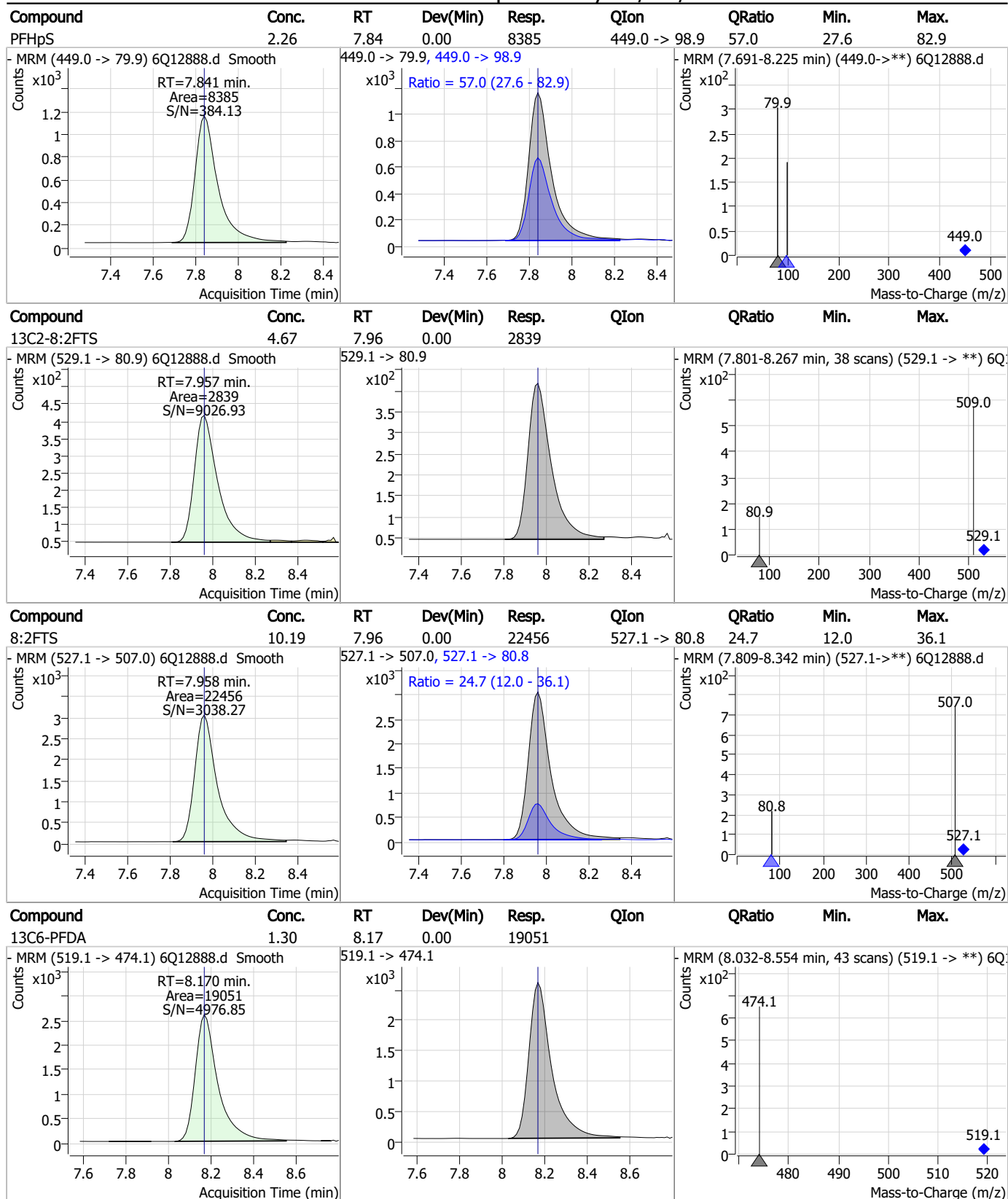
## Perfluorinated Compounds by LC/MS/MS



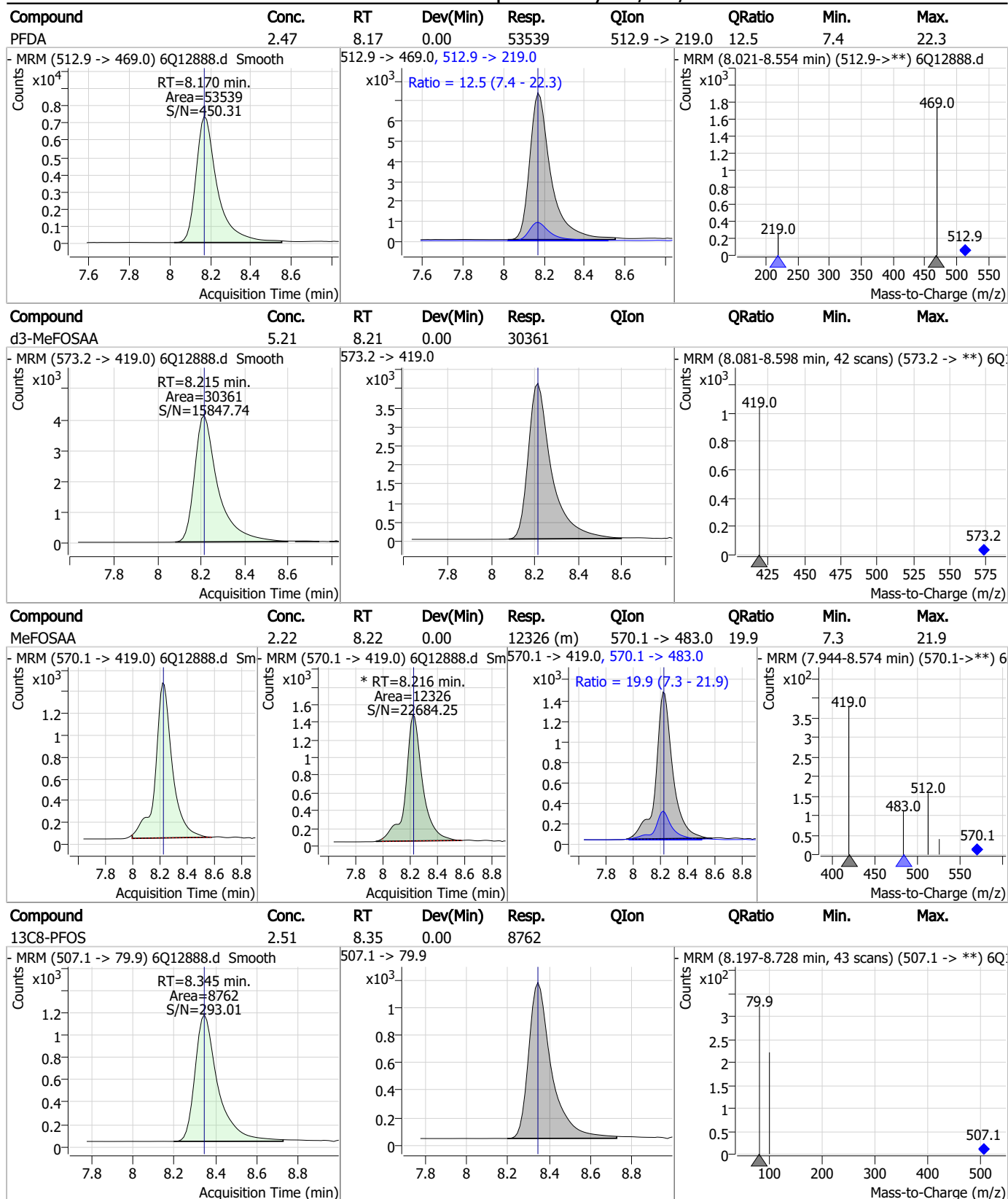
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



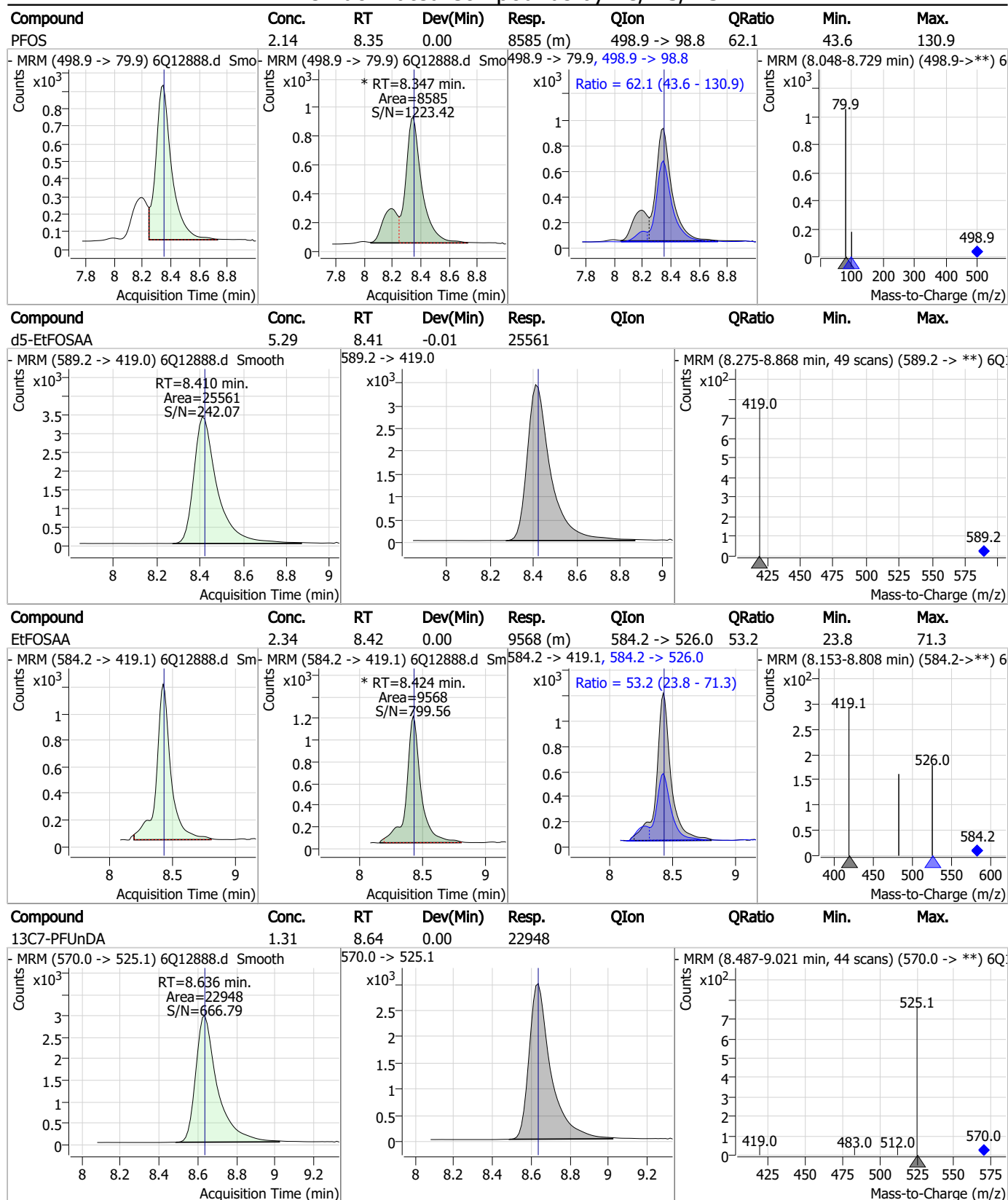
## Perfluorinated Compounds by LC/MS/MS



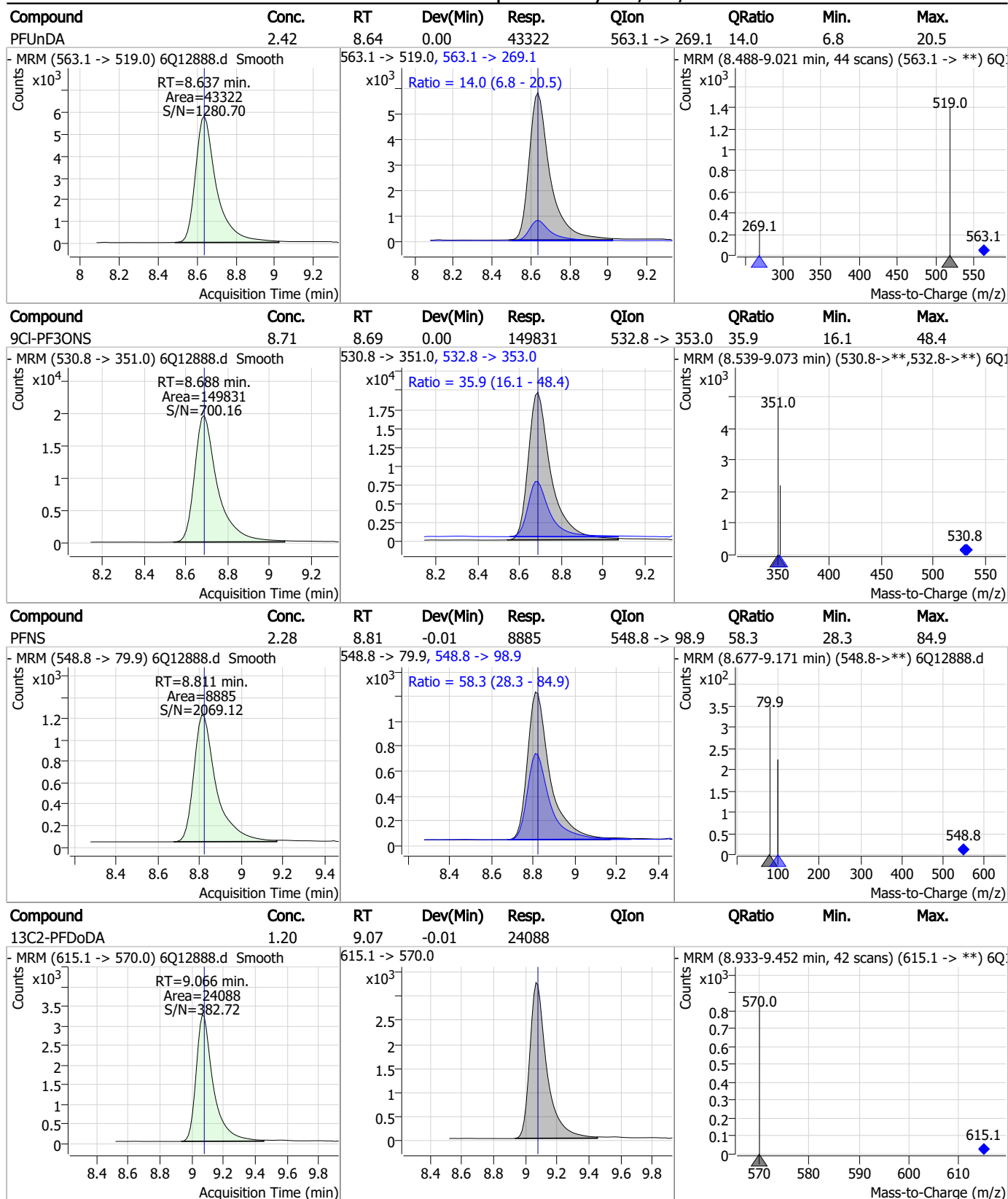
7.7.12

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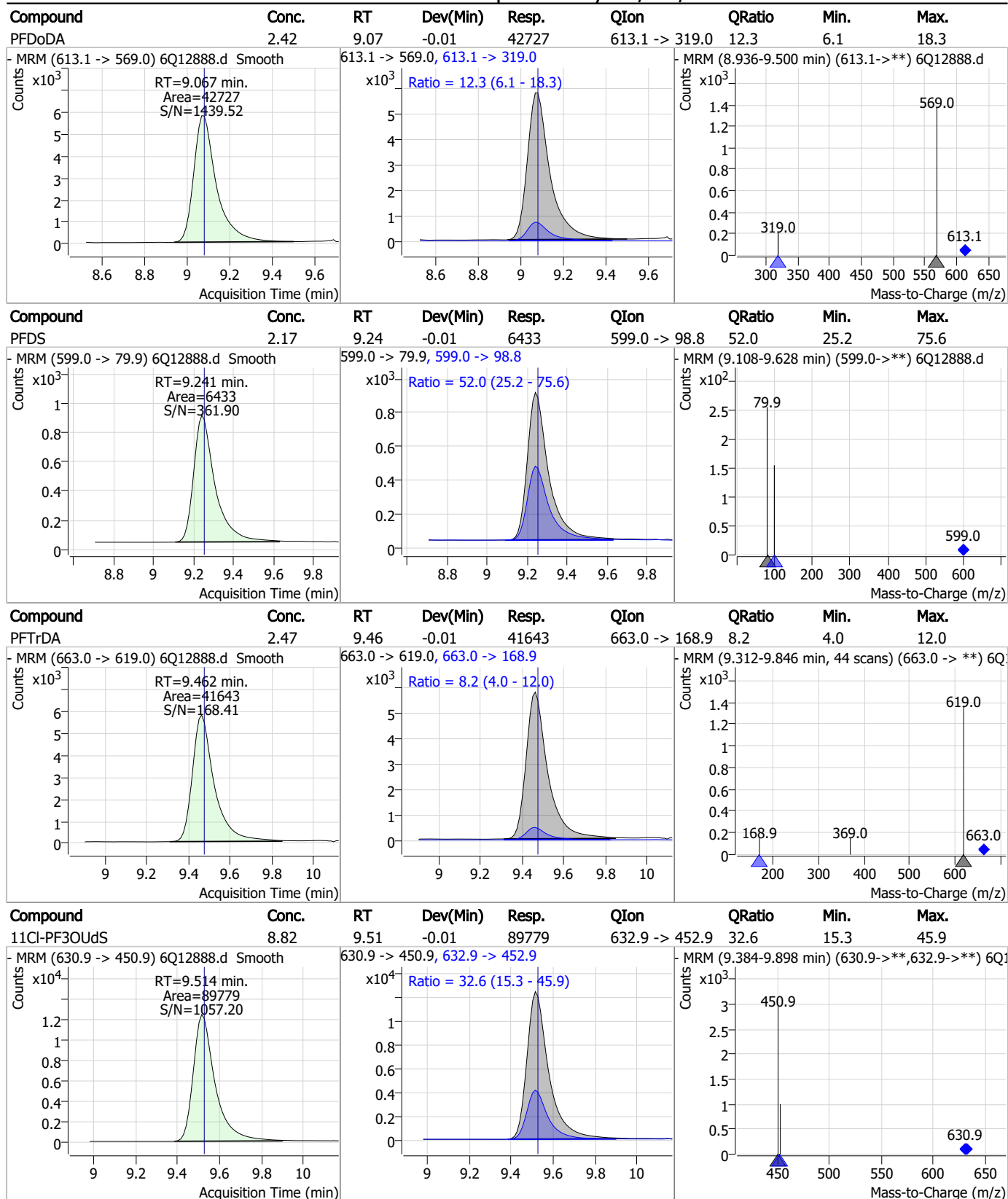
## Perfluorinated Compounds by LC/MS/MS



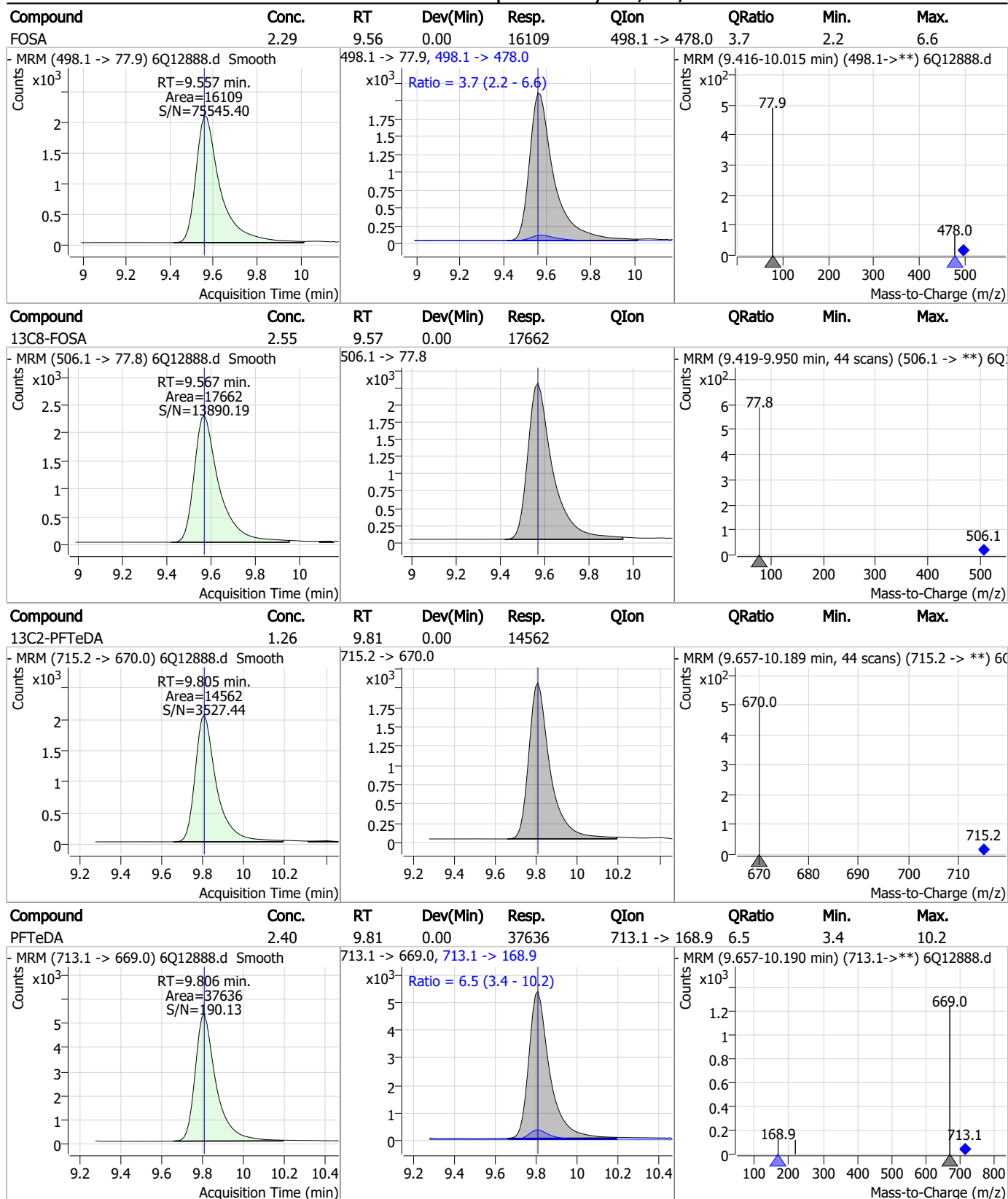
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

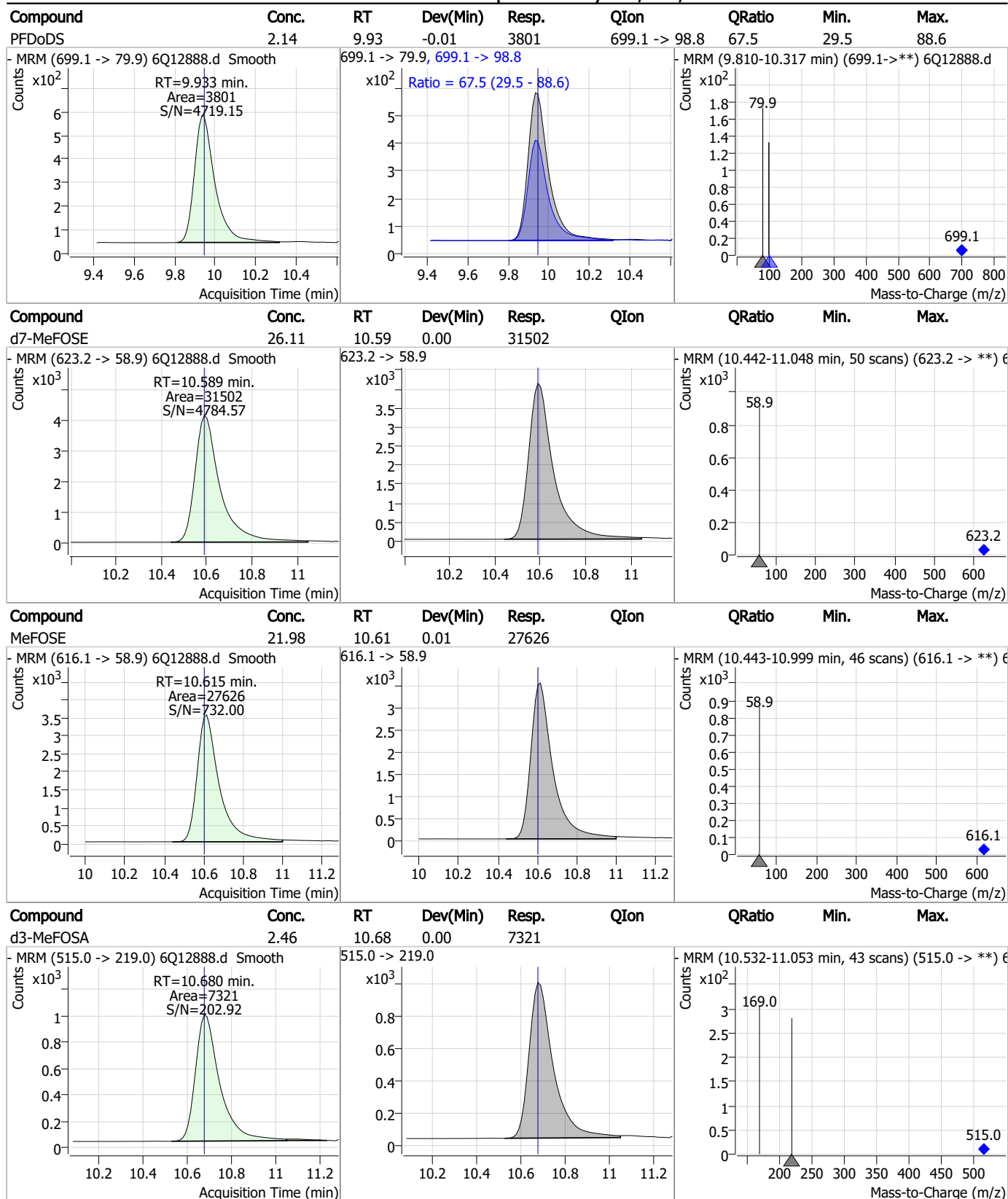


## Perfluorinated Compounds by LC/MS/MS

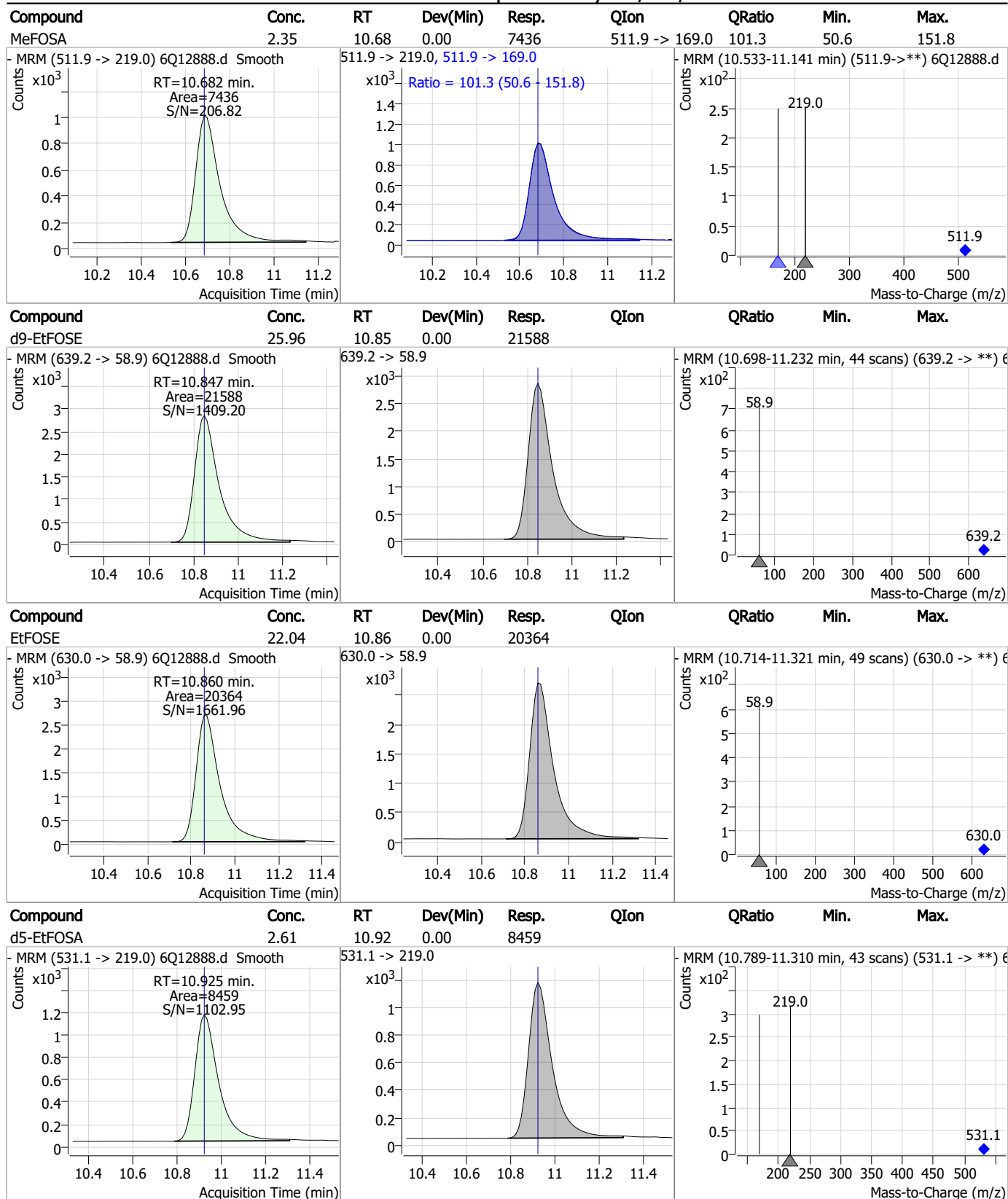




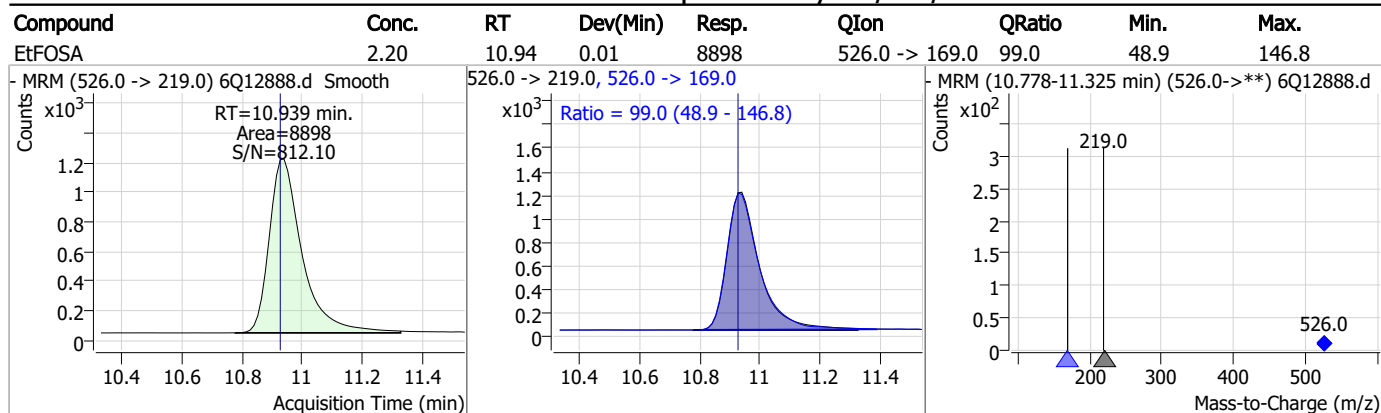
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S6Q198-CC196

Lab FileID: 6Q12888.D

Injection Time: 02/03/23 10:58

Method: EPA DRAFT 1633

Analyst approved: 02/06/23 11:00 Martha Valls

Supervisor approved: 02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.12.1

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## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12889.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/3/2023 11:12:08 AM  
 Sample Name : cc196-1.0LL  
 Vial : P1-A2  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : s6q198.batch.bin  
 Sample Information : OP94819,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	73429	10.00 µg/L	0.000
M5-PFPeA	4.374	268.3 -> 223.0	36892	5.00 µg/L	-0.012
M5-PFHxA	5.563	318.0 -> 273.0	33196	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	33310	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	63805	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	27067	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18034	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	21546	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	23796	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	13927	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16958	2.50 µg/L	0.000
M3-PFBS	5.505	302.1 -> 79.9	13228	2.50 µg/L	-0.012
M3-PFHxS	7.274	402.1 -> 79.9	8464	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	8631	2.50 µg/L	-0.012
M2-4:2FTS	5.227	329.1 -> 80.9	2303	5.00 µg/L	-0.012
M2-6:2FTS	6.908	429.1 -> 80.9	2994	5.00 µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	2802	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	29702	5.00 µg/L	-0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	14133	10.00 µg/L	-0.012
M5-EtFOSAA	8.410	589.2 -> 419.0	23527	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	29905	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21154	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7440	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7089	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10022	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	32585	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6159	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	75076	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	23289	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	27739	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	32799	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.227	329.1 -> 80.9	2303	5.75 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.0%		
13C2-6:2FTS	6.908	429.1 -> 80.9	2994	5.64 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.7%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2802	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C2-PFDoDA	9.066	615.1 -> 570.0	23796	1.34 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C2-PFTeDA	9.805	715.2 -> 670.0	13927	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C3-PFBS	5.505	302.1 -> 79.9	13228	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C3-PFHxS	7.274	402.1 -> 79.9	8464	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 = 104.6%	
13C4-PFBA	2.975	216.8 -> 171.9	73429	10.15 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFHpA	6.502	367.1 -> 322.0	33310	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C5-PFHxA	5.563	318.0 -> 273.0	33196	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C5-PFPeA	4.374	268.3 -> 223.0	36892	5.05 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C6-PFDA	8.170	519.1 -> 474.1	18034	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.3%	
13C7-PFUnDA	8.636	570.0 -> 525.1	21546	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C8-FOSA	9.567	506.1 -> 77.8	16958	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C8-PFOA	7.146	421.1 -> 376.0	63805	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C8-PFOS	8.333	507.1 -> 79.9	8631	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C9-PFNA	7.677	472.1 -> 427.0	27067	1.39 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.9%	
d3-MeFOSAA	8.202	573.2 -> 419.0	29702	5.41 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.1%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	14133	10.54 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
d3-MeFOSA	10.680	515.0 -> 219.0	7089	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
d5-EtFOSAA	8.410	589.2 -> 419.0	23527	5.16 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
d7-MeFOSE	10.589	623.2 -> 58.9	29905	26.28 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
d9-EtFOSE	10.847	639.2 -> 58.9	21154	26.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 107.9%	
d5-EtFOSA	10.925	531.1 -> 219.0	7440	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.228	327.1 -> 307.0	3890	0.75 µg/L	96
		327.1 -> 80.9	934		
6:2FTS	6.908	427.1 -> 407.0	3517	0.80 µg/L	99
		427.1 -> 80.9	634		
8:2FTS	7.958	527.1 -> 507.0	2123	0.98 µg/L	96
		527.1 -> 80.8	467		
EtFOSAA	8.424	584.2 -> 419.1	799	0.21 µg/L	m 85
		584.2 -> 526.0	458		
FOSA	9.570	498.1 -> 77.9	1455	0.22 µg/L	100
		498.1 -> 478.0	64		
MeFOSAA	8.216	570.1 -> 419.0	1255	0.23 µg/L	m 99
		570.1 -> 483.0	187		
PFBA	2.982	212.8 -> 168.9	1442	0.88 µg/L	100
PFBS	5.506	298.7 -> 79.9	826	0.16 µg/L	80
		298.7 -> 98.8	470		
PFDA	8.170	512.9 -> 469.0	4589	0.22 µg/L	96
		512.9 -> 219.0	599		
PFDODA	9.067	613.1 -> 569.0	3764	0.22 µg/L	98
		613.1 -> 319.0	482		
PFDS	9.241	599.0 -> 79.9	571	0.20 µg/L	98

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	294	0.22	µg/L	96
		363.1 -> 319.0	4426			
PFHpS	7.841	363.1 -> 169.0	623	0.25	µg/L	70
		449.0 -> 79.9	900			
PFHxA	5.566	449.0 -> 98.9	305	0.21	µg/L	97
		313.0 -> 269.0	2724			
PFHxS	7.263	313.0 -> 118.9	143	0.20	µg/L	72
		398.7 -> 79.9	757			
PFNA	7.677	398.7 -> 98.9	314	0.20	µg/L	90
		463.0 -> 419.0	3600			
PFNS	8.811	463.0 -> 219.0	849	0.21	µg/L	93
		548.8 -> 79.9	788			
PFOA	7.148	548.8 -> 98.9	486	0.17	µg/L	95
		413.0 -> 369.0	4769			
PFOS	8.347	413.0 -> 169.0	751	0.21	µg/L	68
		498.9 -> 79.9	838			
PFPeA	4.375	498.9 -> 98.8	480	0.43	µg/L	100
		263.0 -> 219.0	3386			
PFPeS	6.569	349.1 -> 79.9	884	0.20	µg/L	96
		349.1 -> 98.9	475			
PFTeDA	9.806	713.1 -> 669.0	3366	0.22	µg/L	98
		713.1 -> 168.9	211			
PFTrDA	9.462	663.0 -> 619.0	4316	0.26	µg/L	96
		663.0 -> 168.9	280			
PFUnDA	8.637	563.1 -> 519.0	3494	0.21	µg/L	95
		563.1 -> 269.1	555			
11CI-PF3OUdS	9.514	630.9 -> 450.9	7239	0.71	µg/L	98
		632.9 -> 452.9	2298			
9CI-PF3ONS	8.676	530.8 -> 351.0	12032	0.70	µg/L	98
		532.8 -> 353.0	3996			
ADONA	6.753	376.9 -> 250.9	22666	0.74	µg/L	98
		376.9 -> 84.8	4848			
HFPO-DA	5.928	284.9 -> 168.9	1094	0.83	µg/L	98
		284.9 -> 184.9	137			
3:3FTCA	3.841	241.0 -> 177.0	373	0.98	µg/L	87
		241.0 -> 117.0	76			
5:3FTCA	6.193	341.0 -> 237.1	13130	4.82	µg/L	98
		341.0 -> 217.0	11645			
7:3FTCA	7.605	441.0 -> 316.9	8673	4.87	µg/L	91
		441.0 -> 336.9	17028			
EtFOSA	10.927	526.0 -> 219.0	732	0.21	µg/L	99
		526.0 -> 169.0	711			
EtFOSE	10.860	630.0 -> 58.9	1865	2.06	µg/L	100
		511.9 -> 219.0	615			
MeFOSA	10.694	511.9 -> 169.0	590	0.20	µg/L	95
		616.1 -> 58.9	2343			
MeFOSE	10.615	699.1 -> 79.9	336	1.96	µg/L	100
		699.1 -> 98.8	252			
PFDoDS	9.945	295.0 -> 201.0	304	0.39	µg/L	98
		295.0 -> 84.9	159			
NFDHA	5.445	279.0 -> 85.1	923	0.42	µg/L	100
		229.0 -> 84.9	853			
PFMBA	3.541	314.8 -> 134.9	6778	0.36	µg/L	99
		314.8 -> 82.9	135			

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

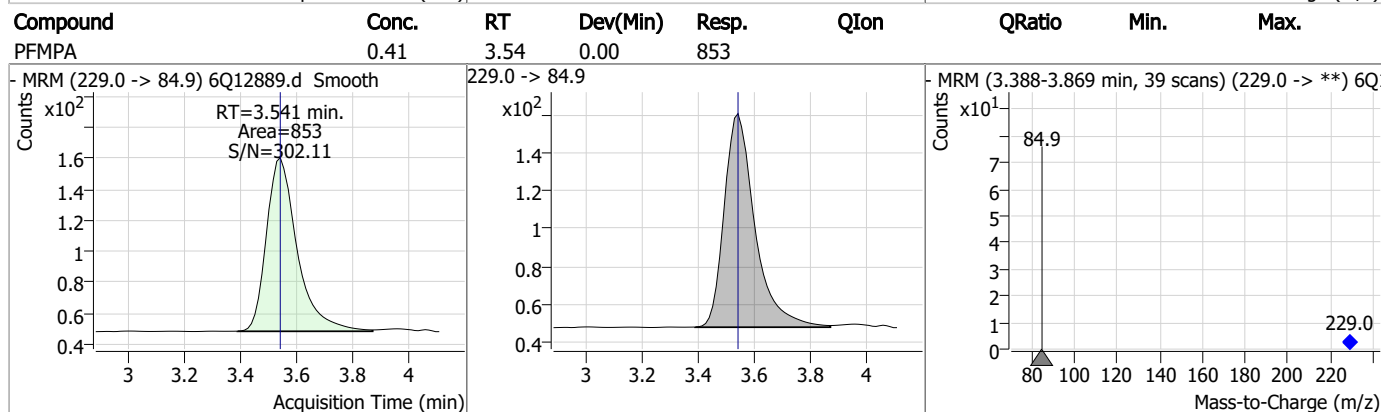
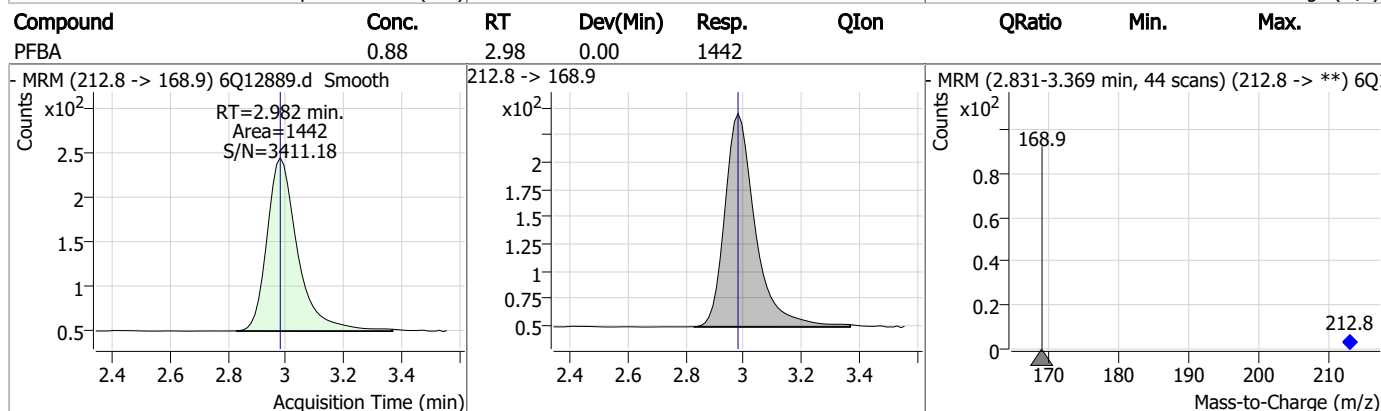
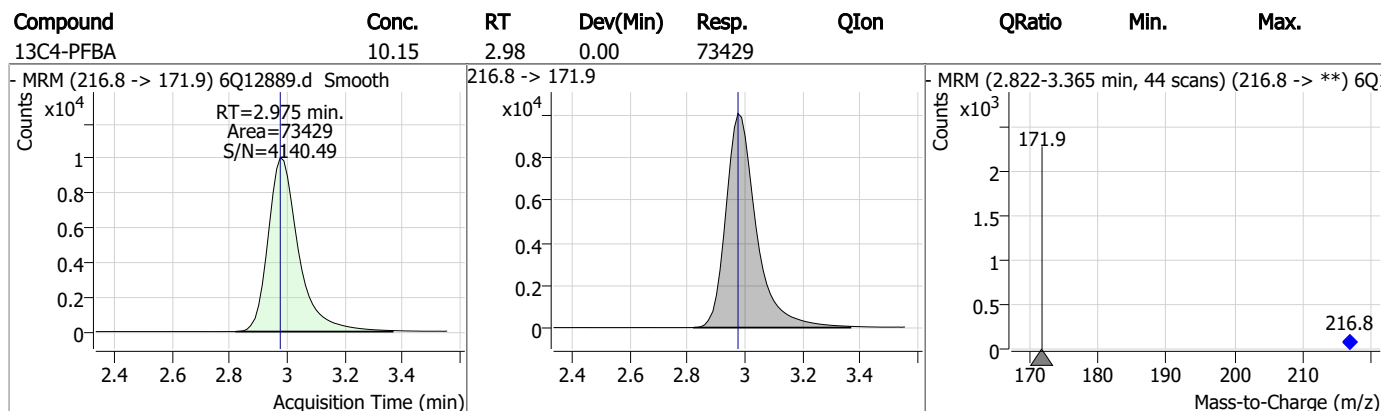
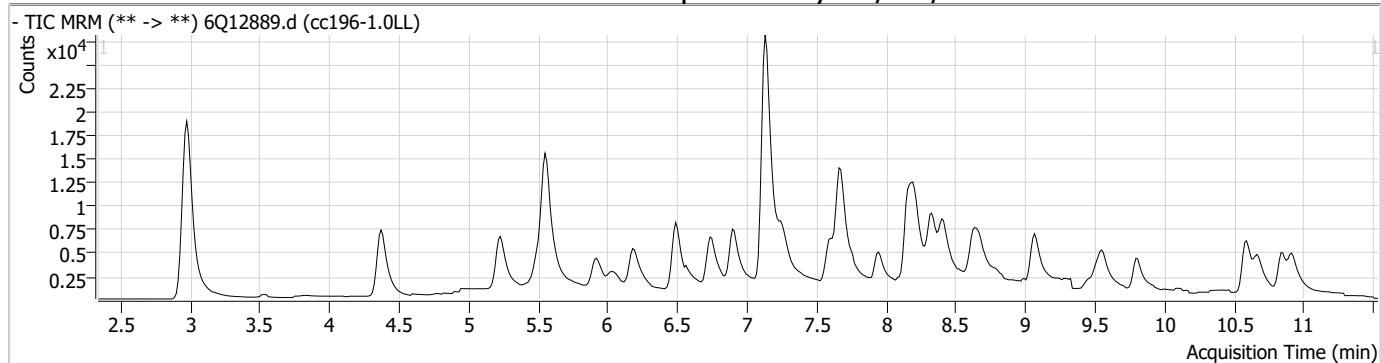
Perfluorinated Compounds by LC/MS/MS

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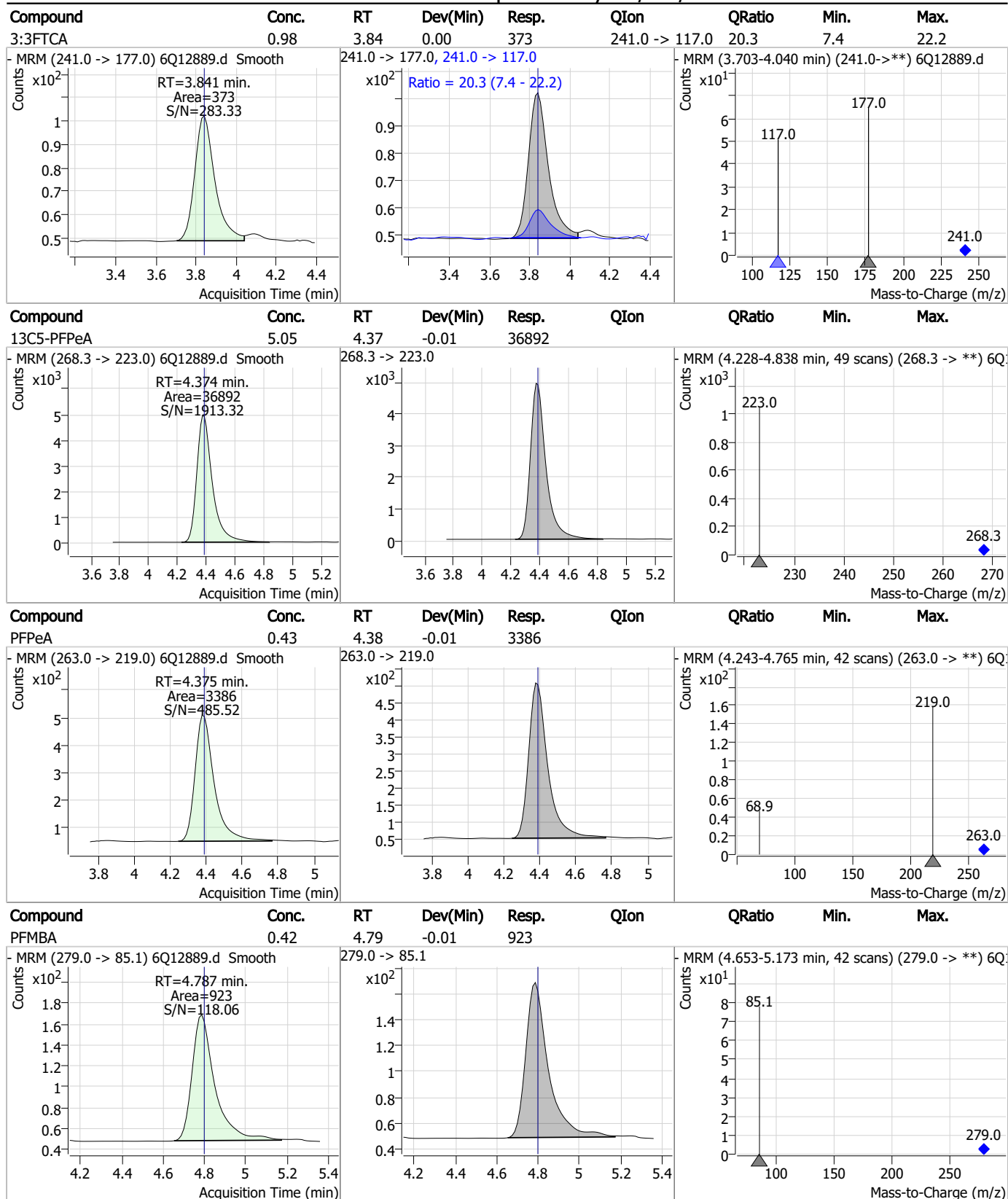
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## Perfluorinated Compounds by LC/MS/MS



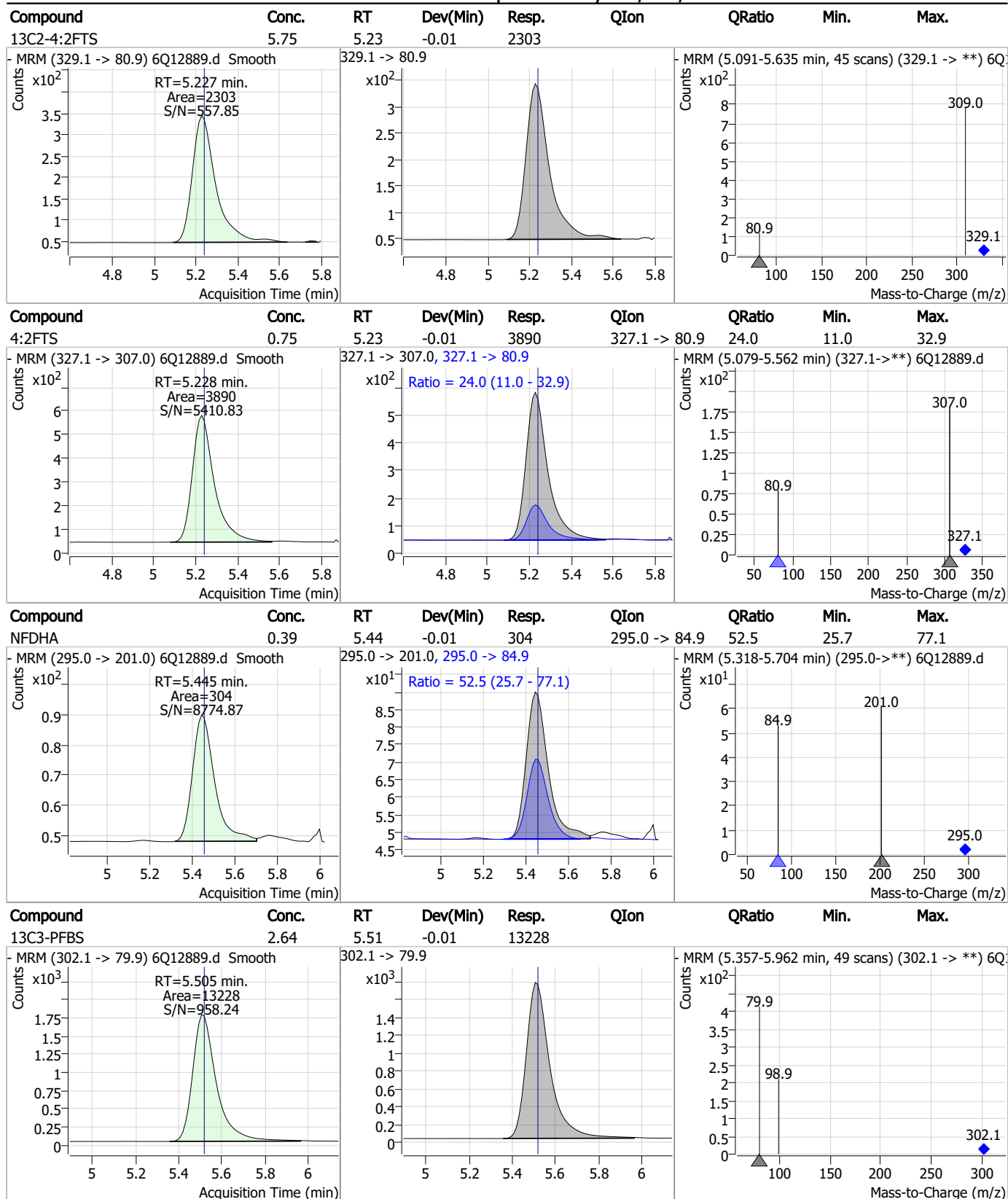
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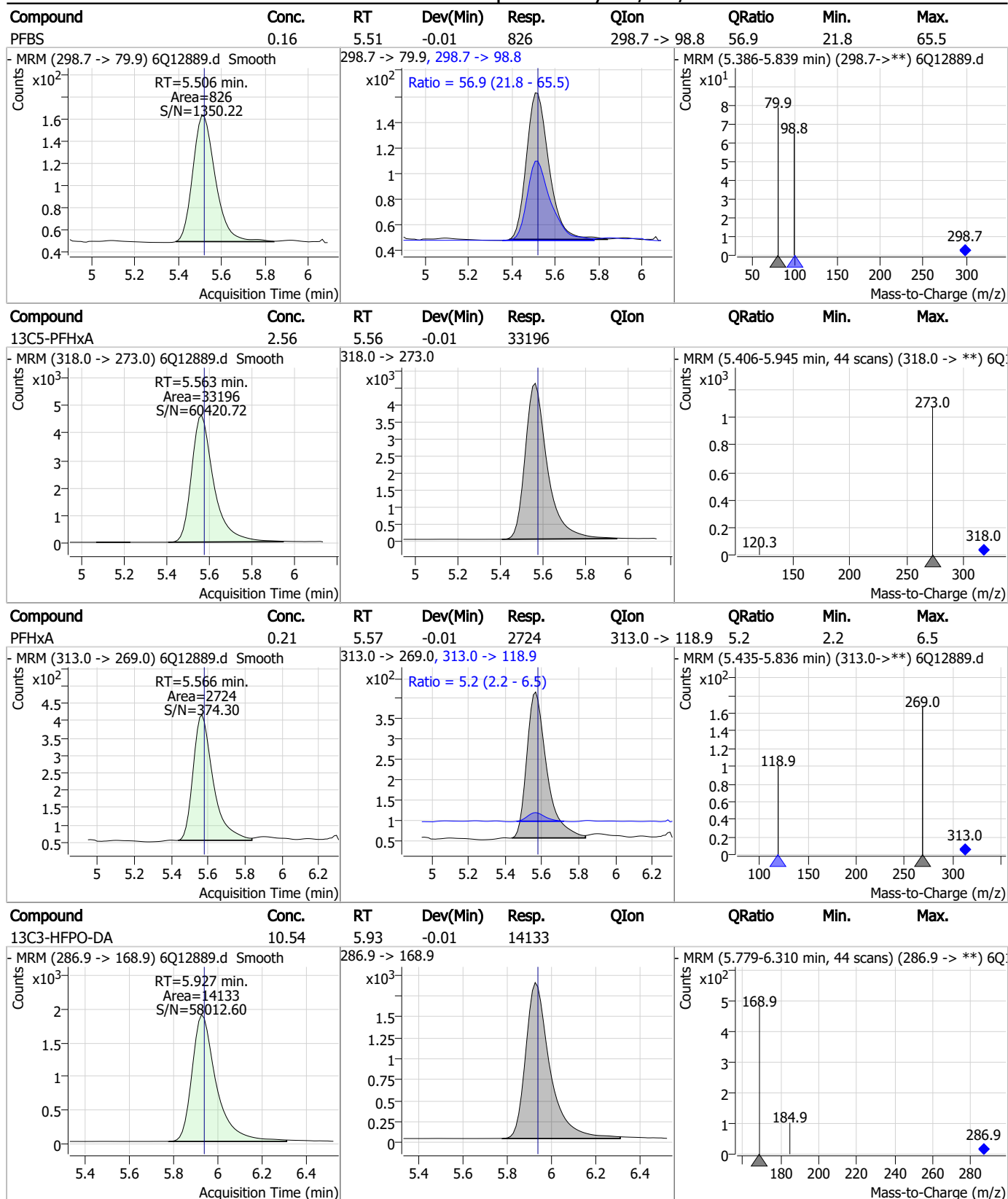
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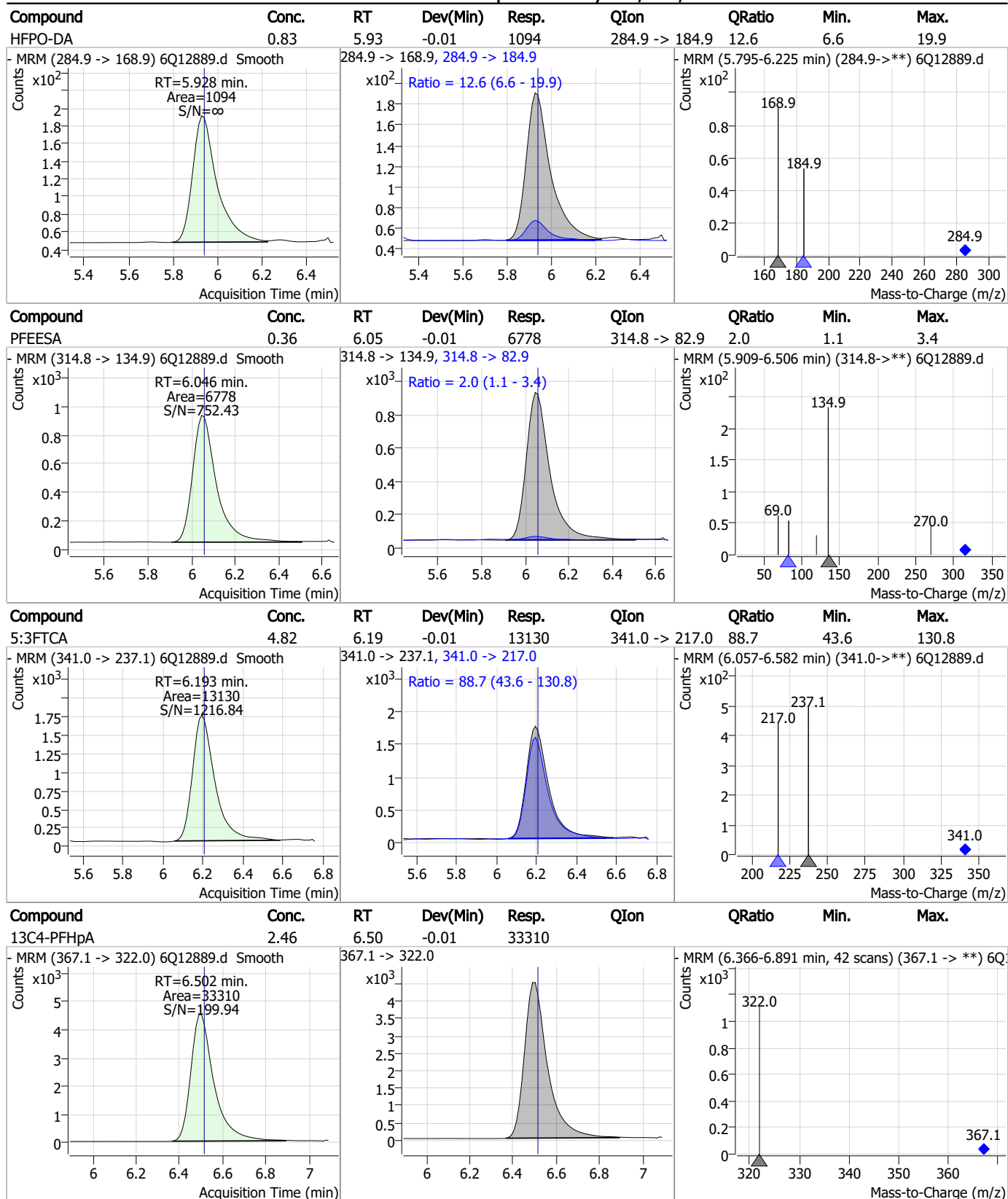
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## Perfluorinated Compounds by LC/MS/MS



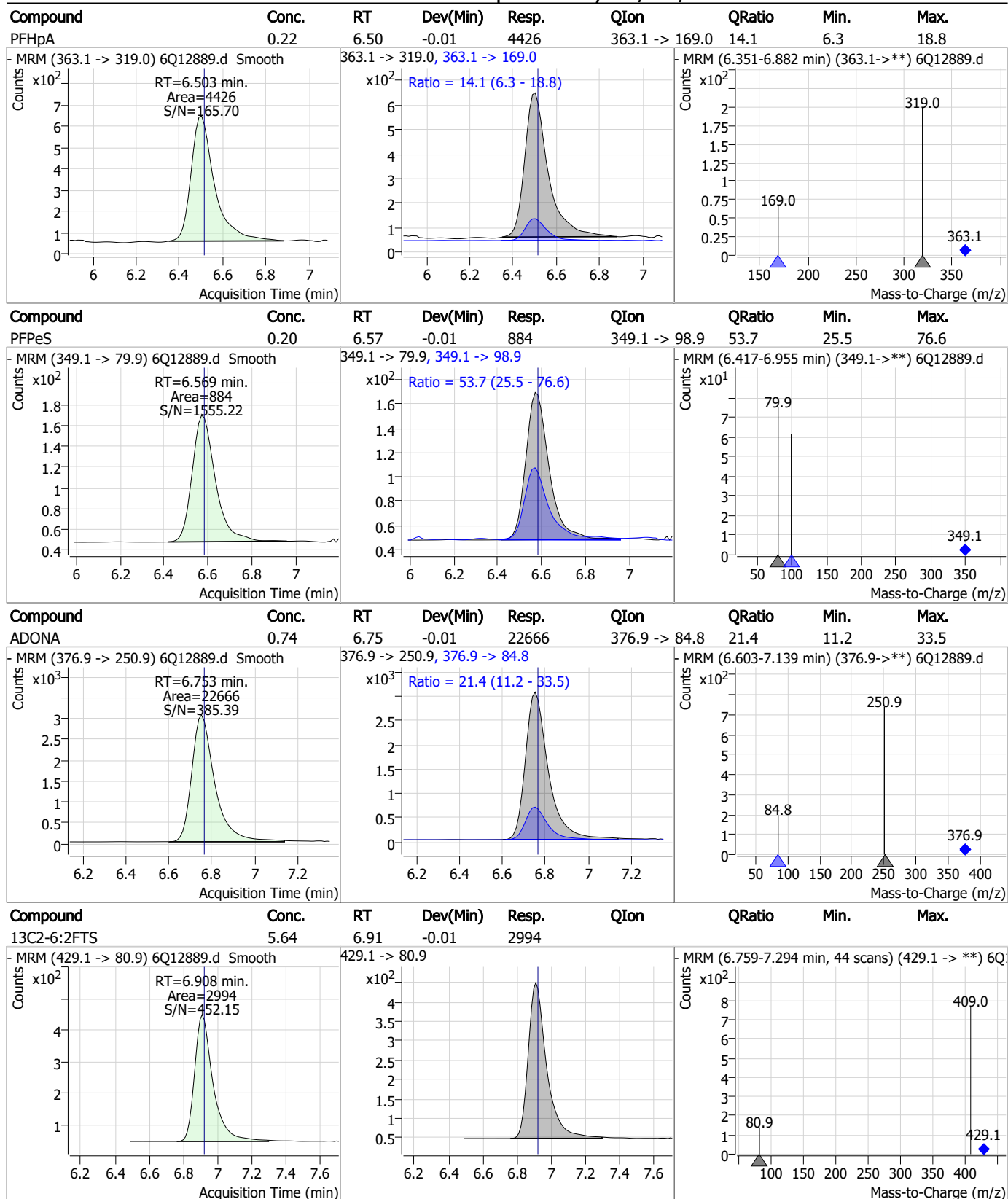
## Perfluorinated Compounds by LC/MS/MS



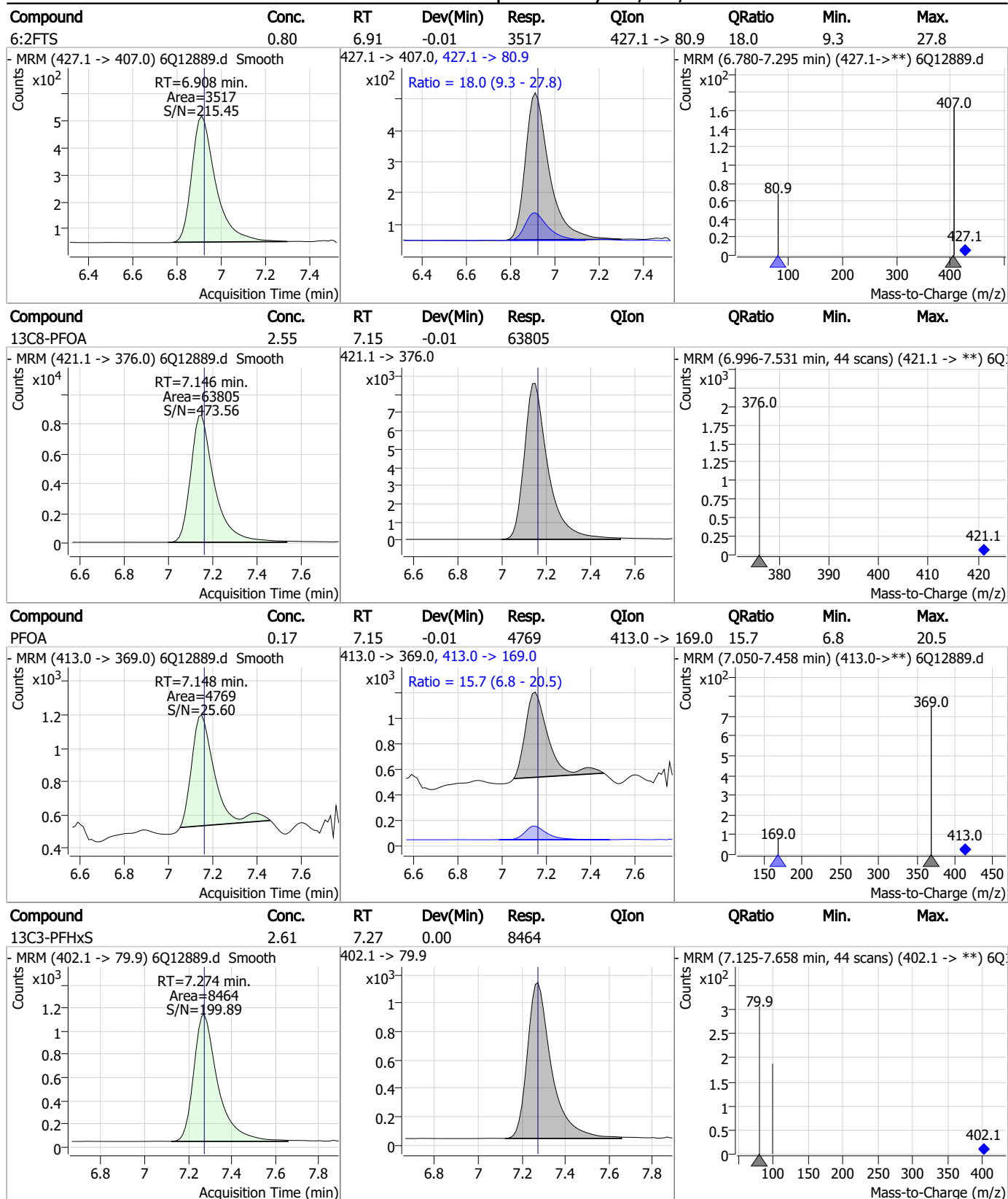
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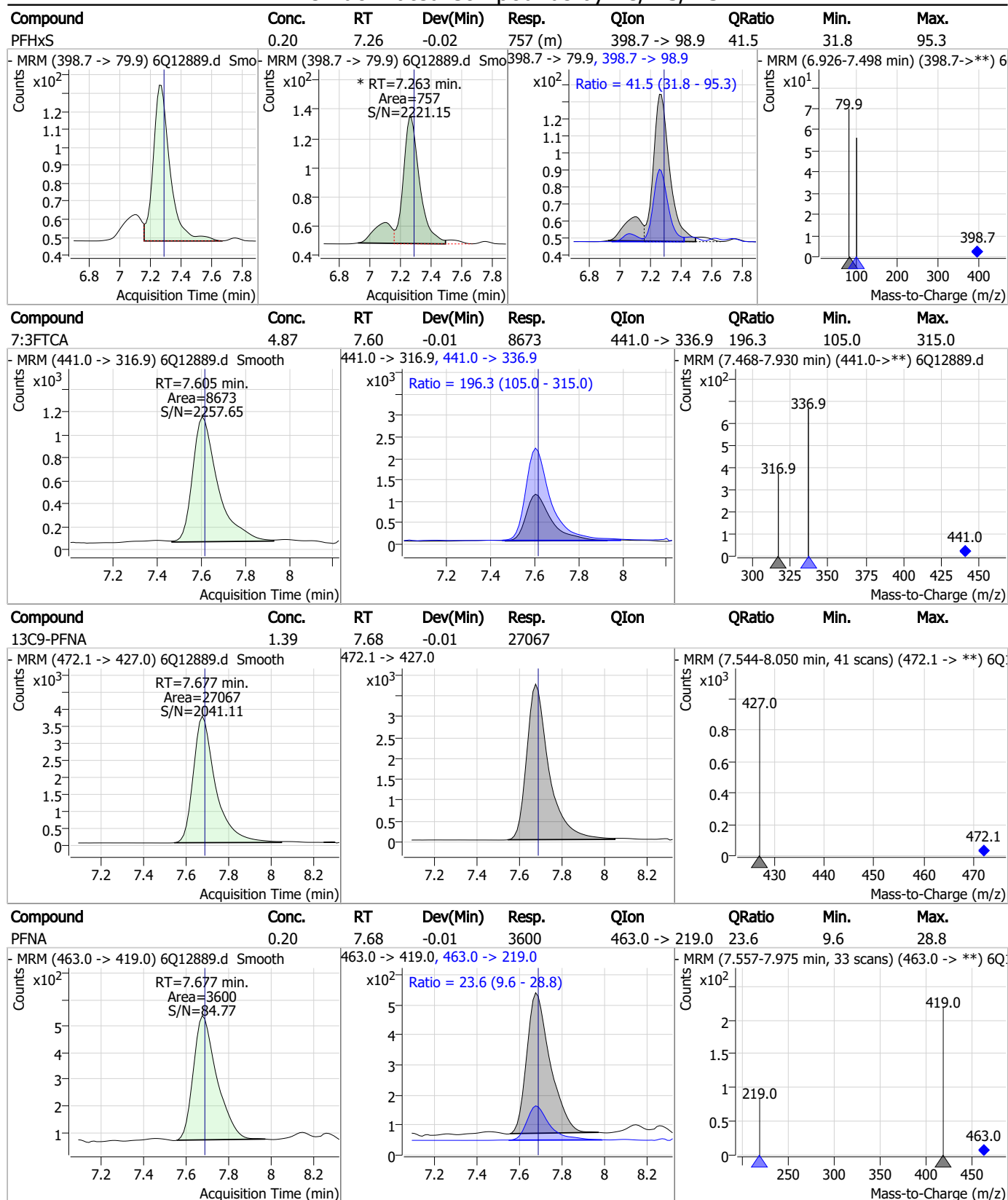
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

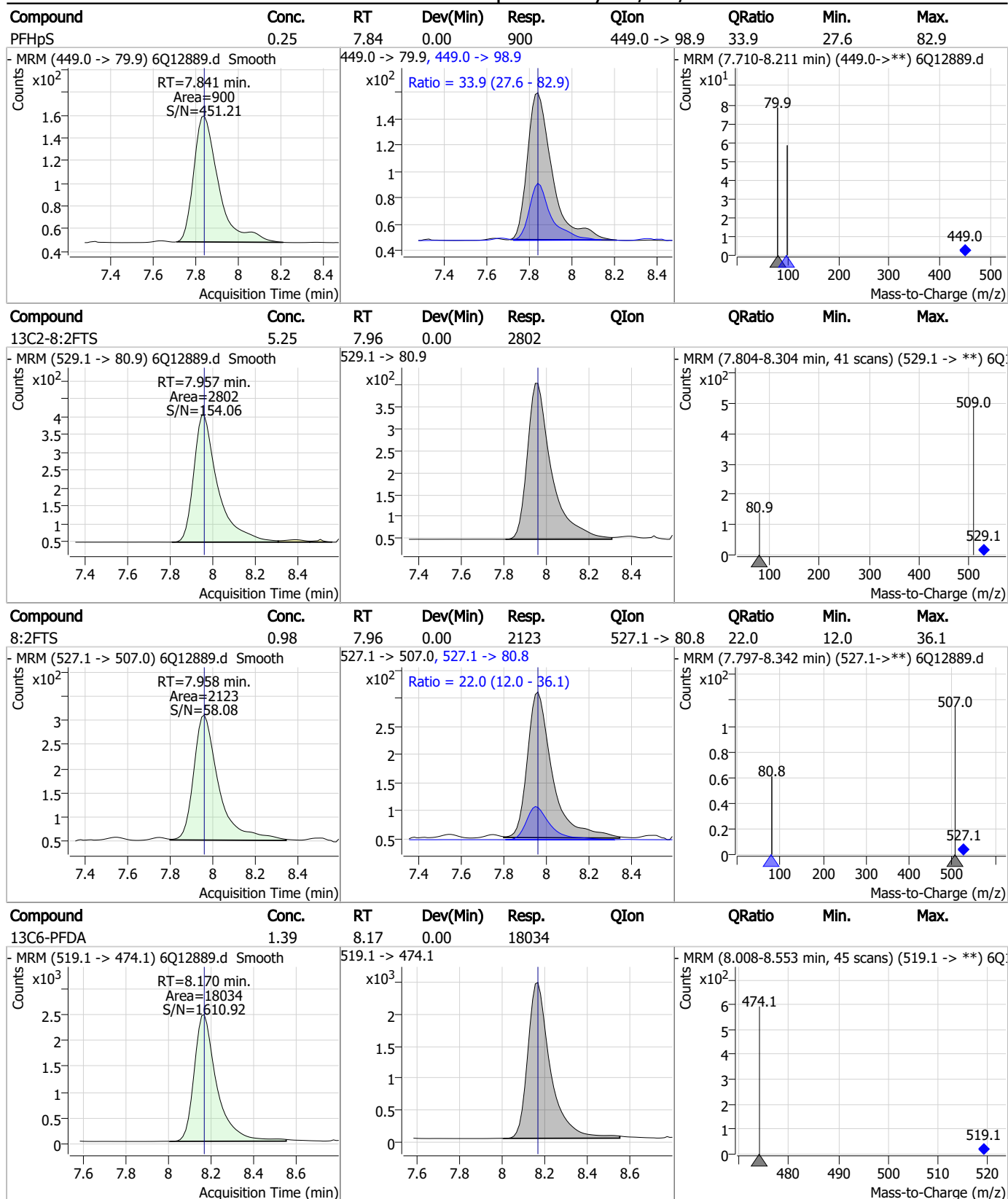


## Perfluorinated Compounds by LC/MS/MS





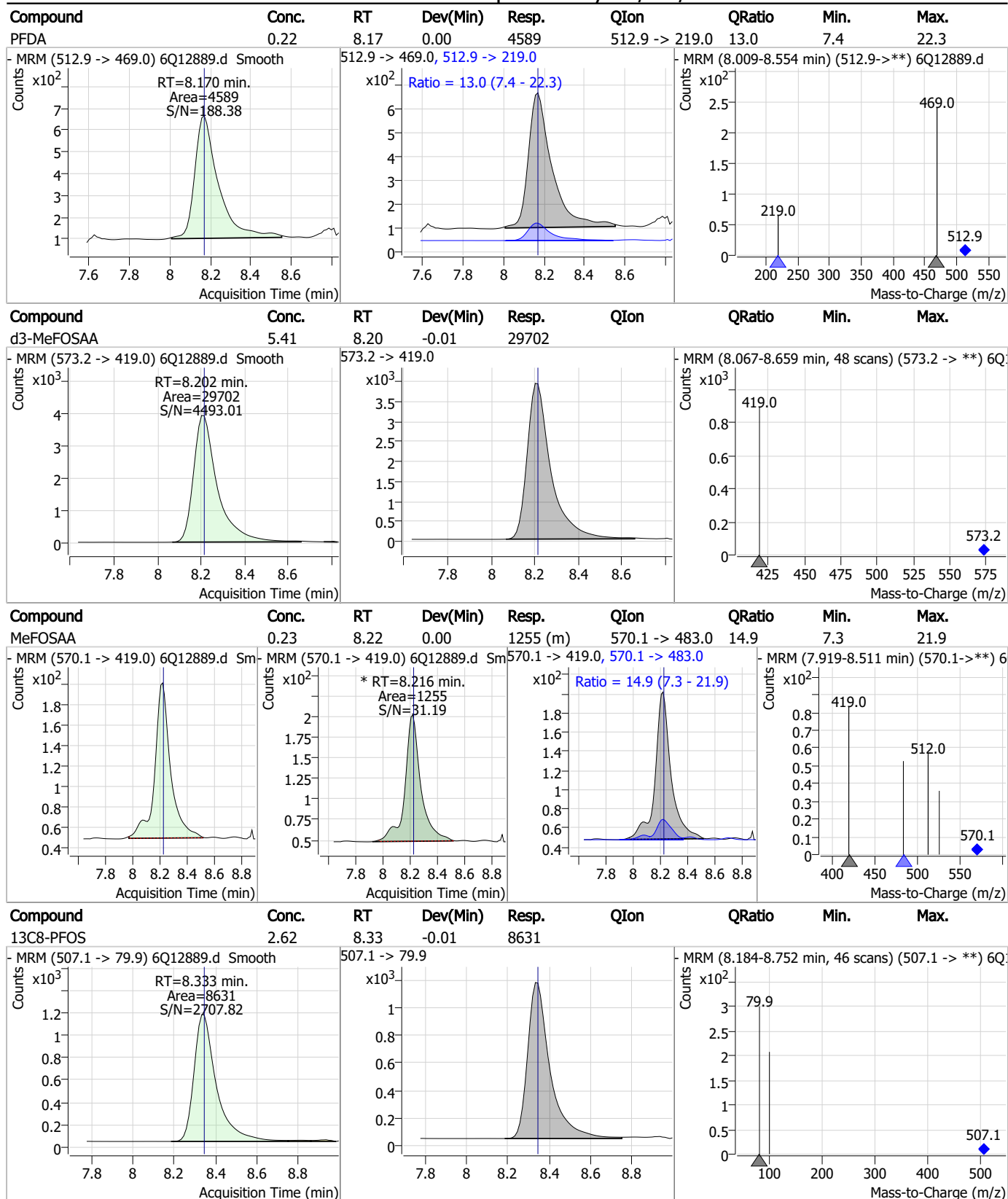
## Perfluorinated Compounds by LC/MS/MS



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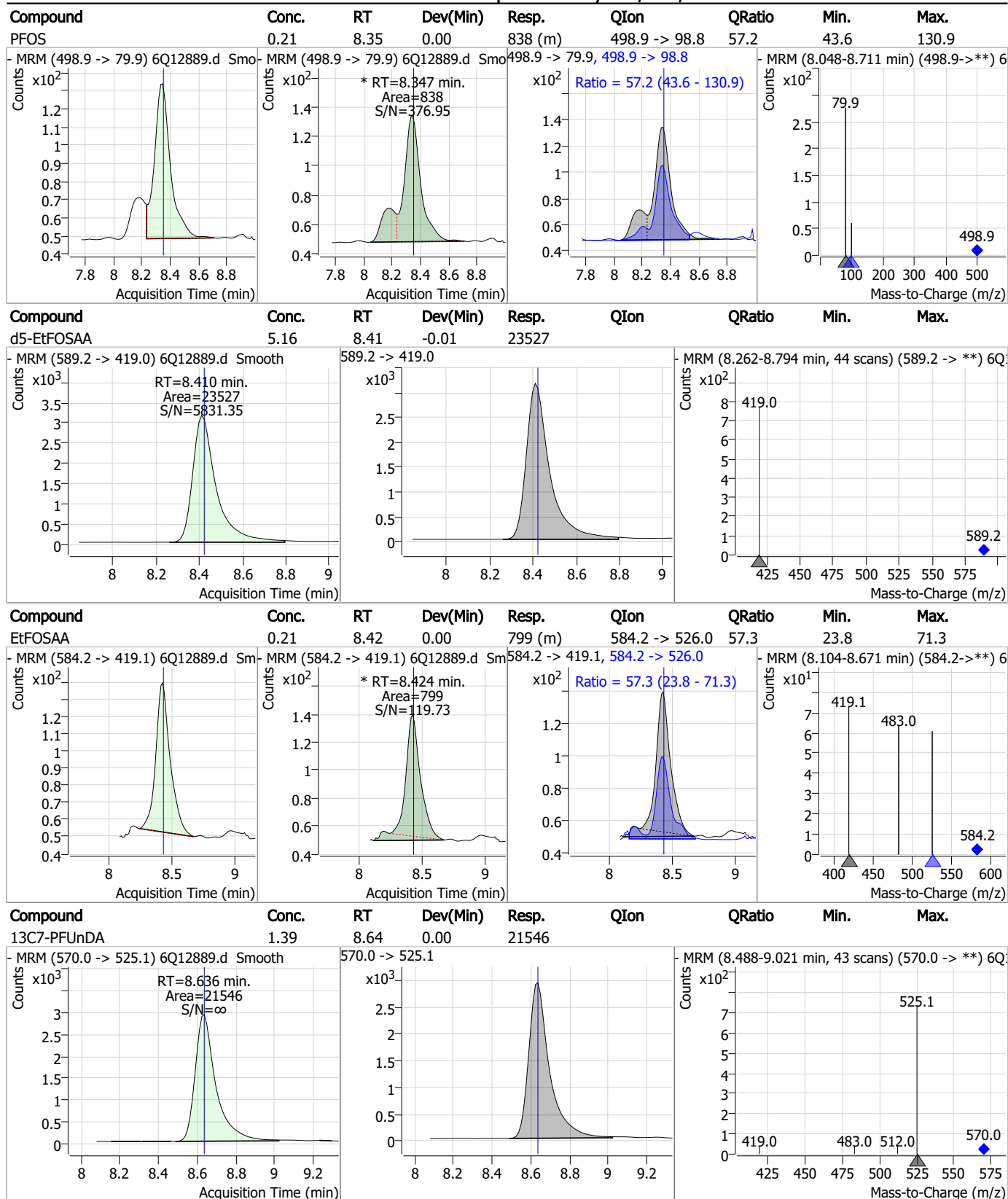
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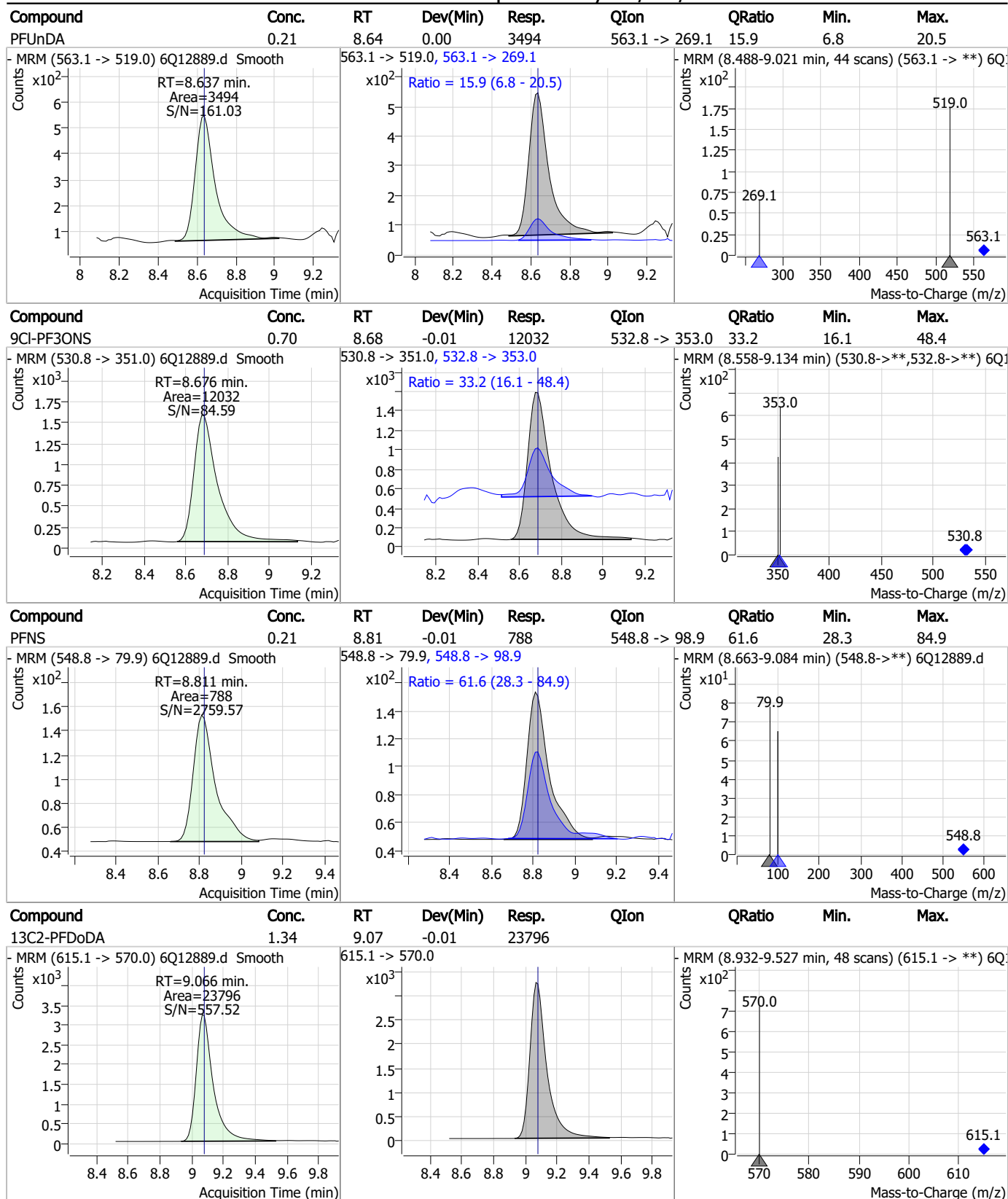
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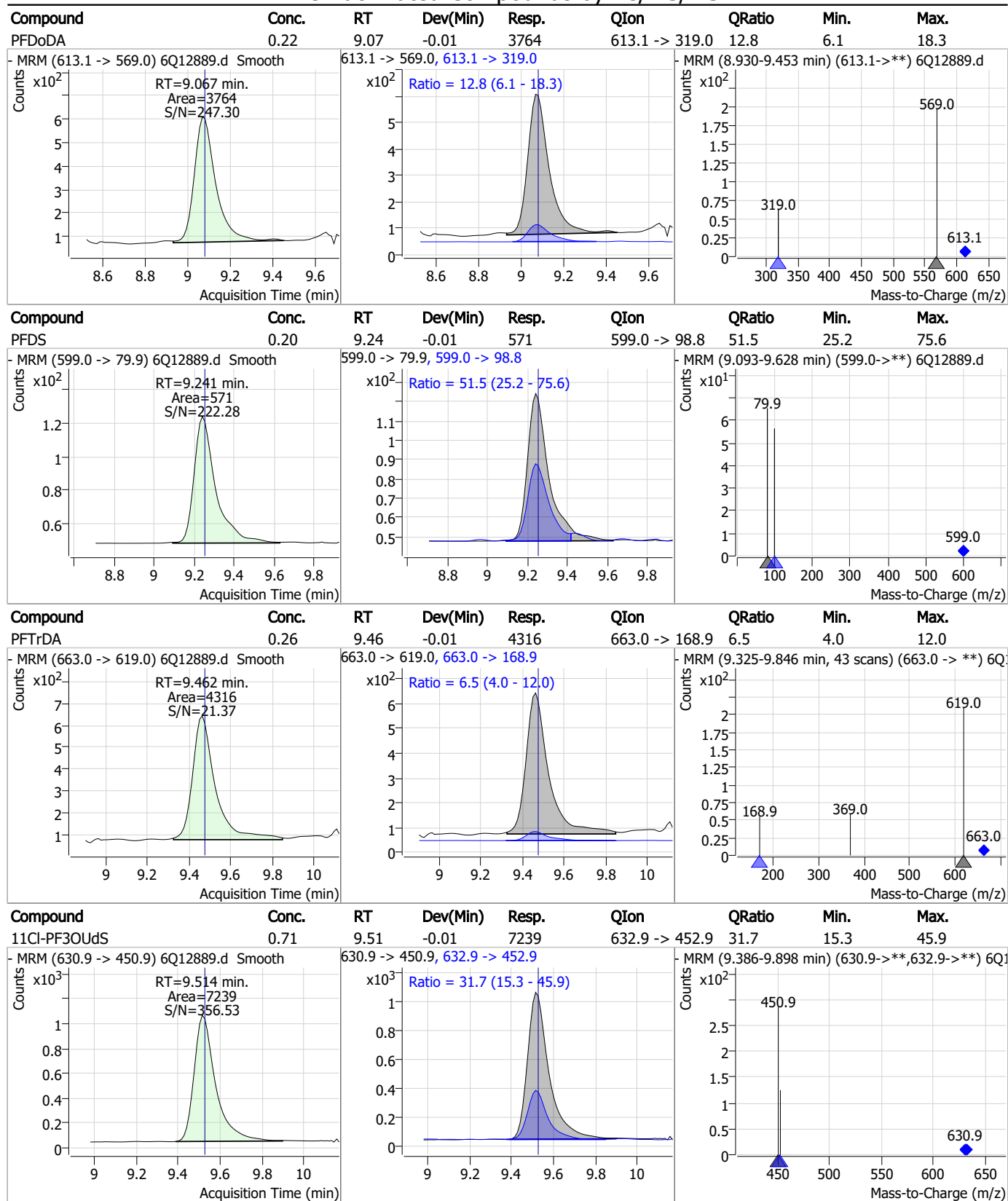
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



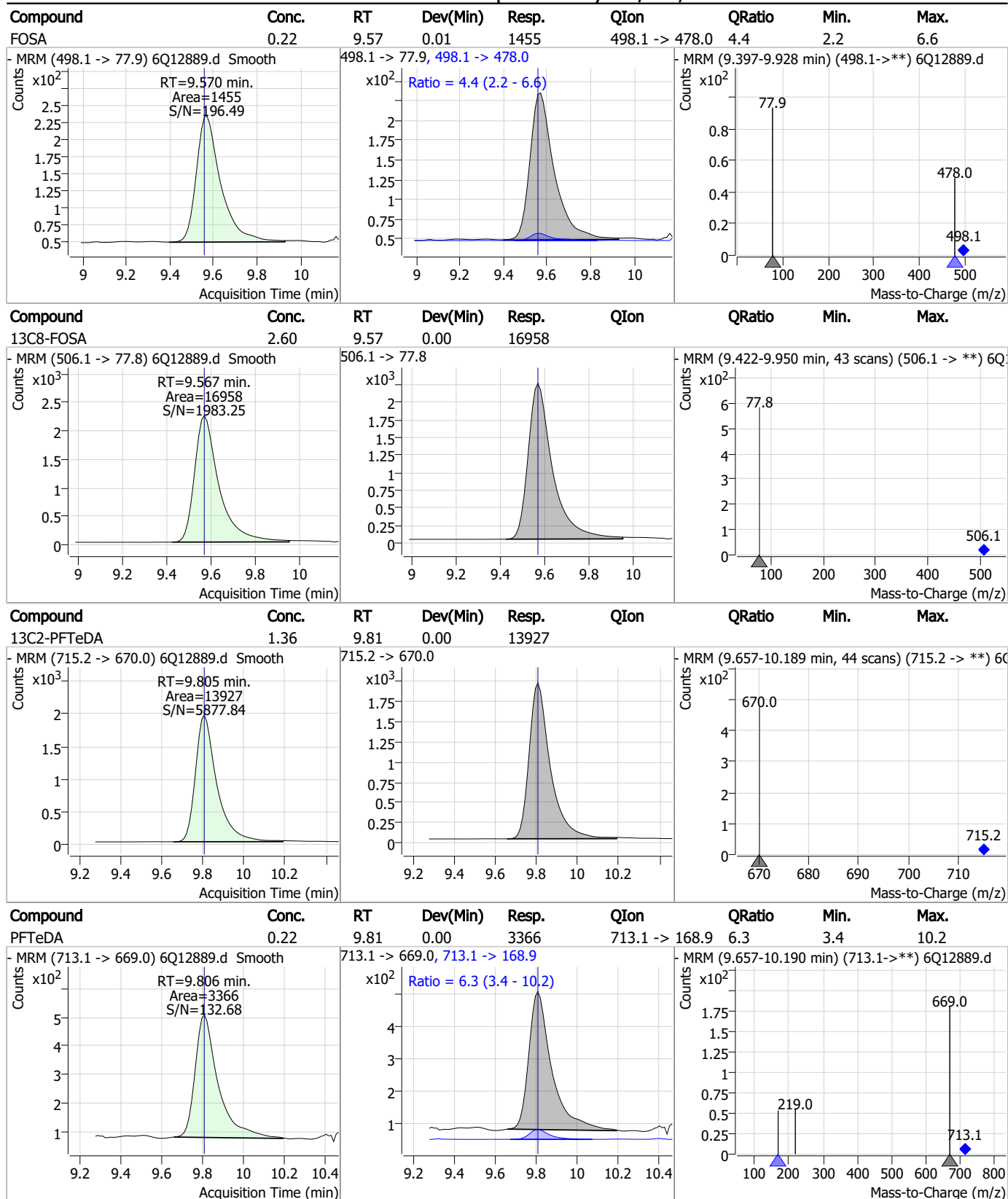
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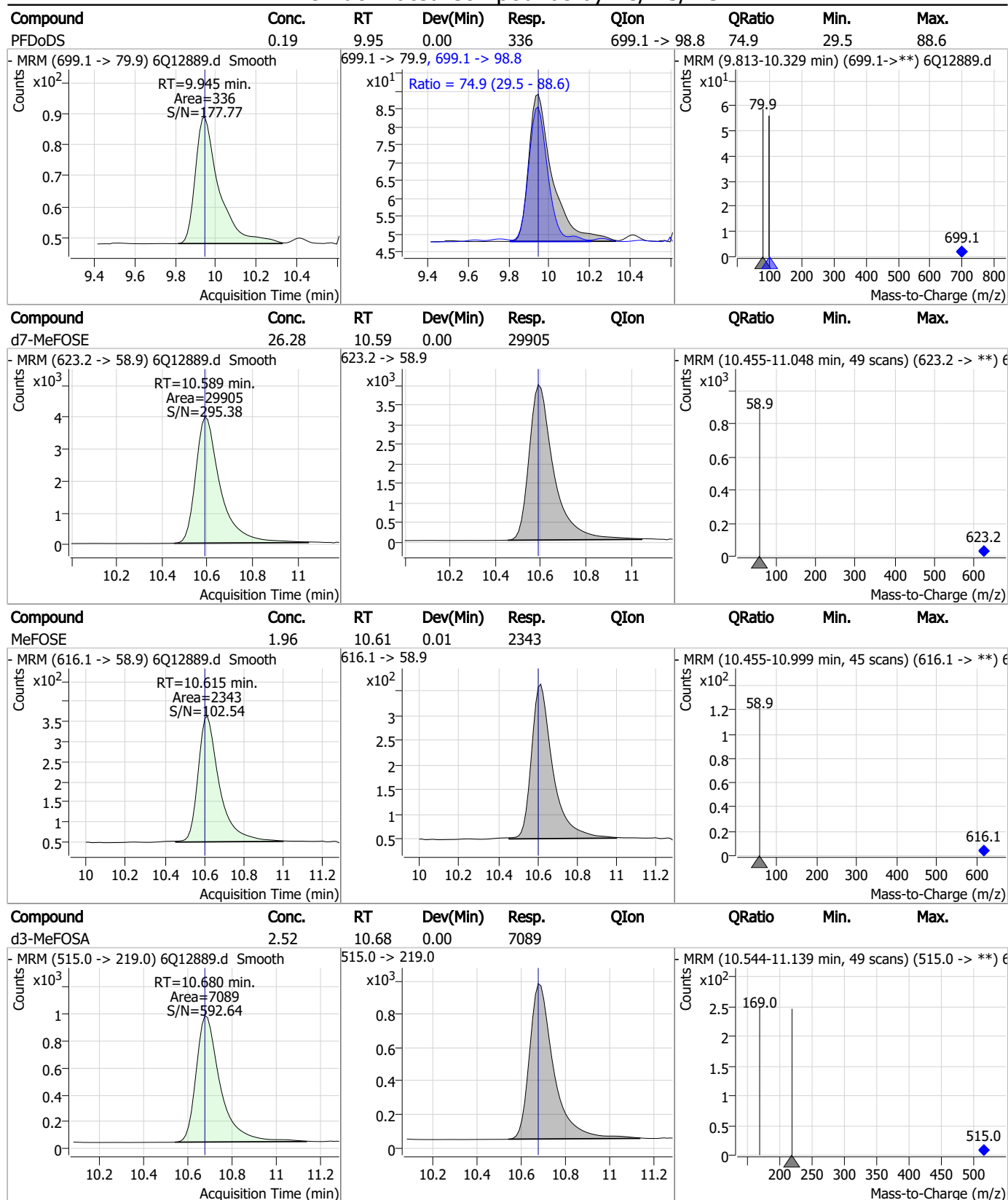
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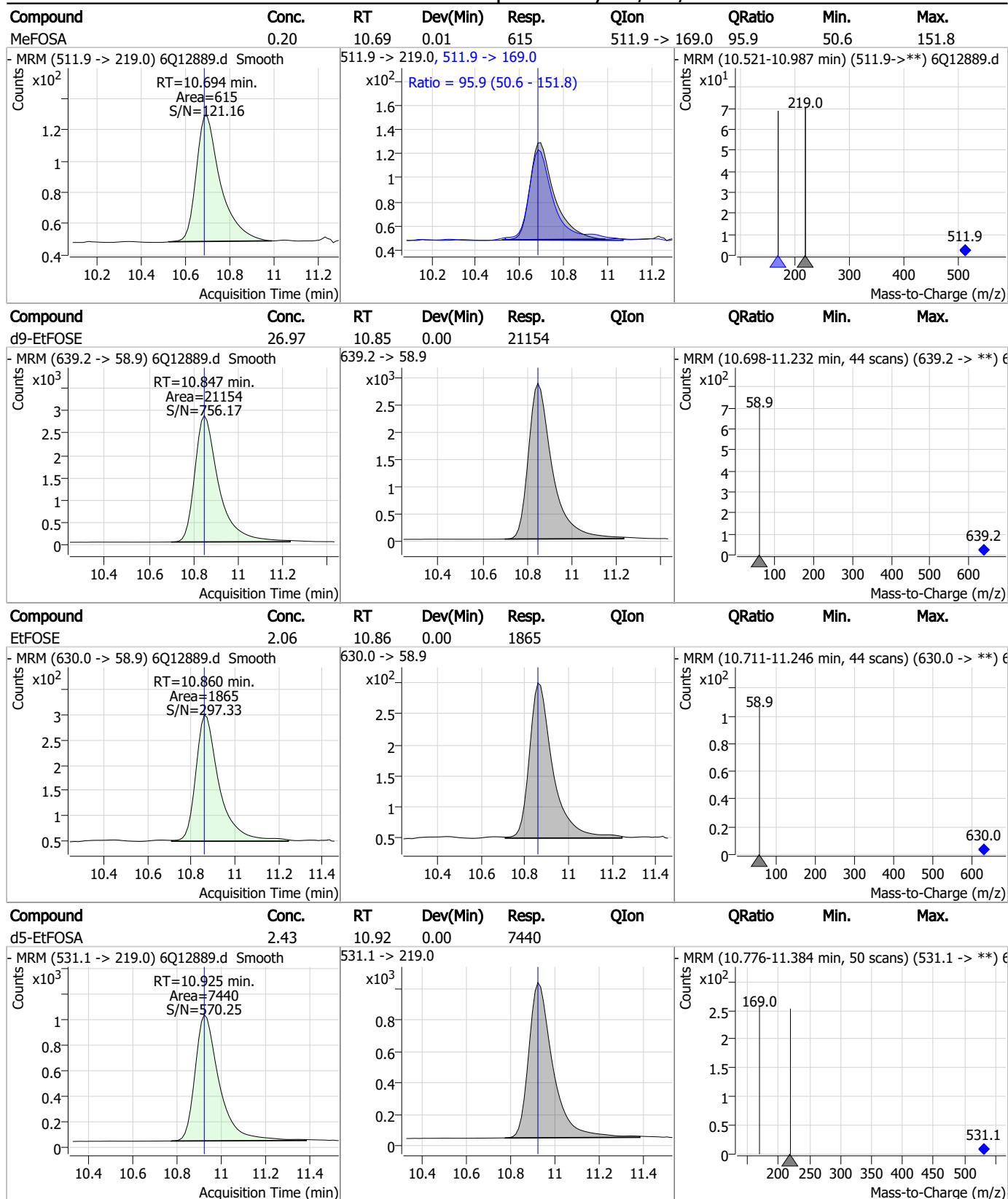
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

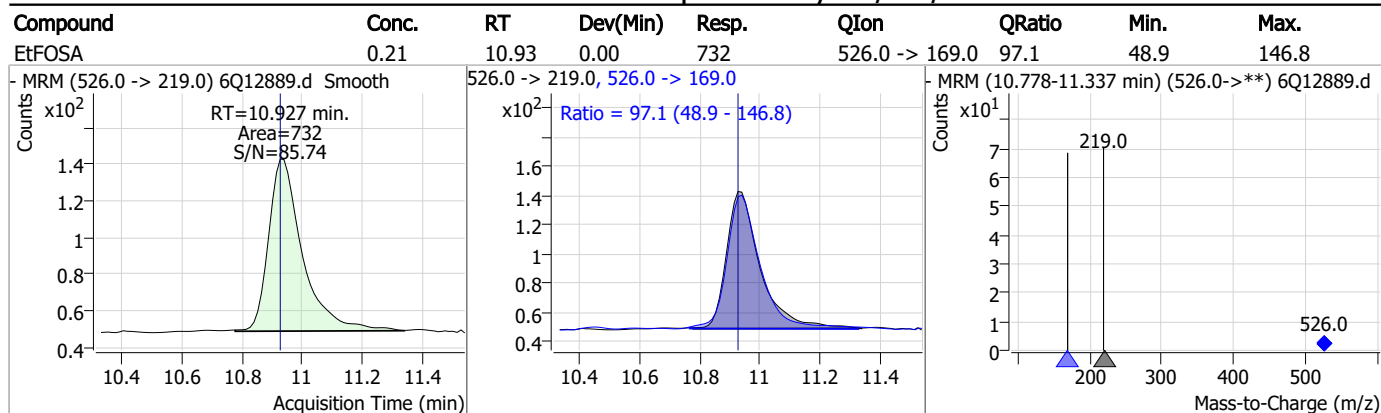


## Perfluorinated Compounds by LC/MS/MS





## Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q198-CC196

Method: EPA DRAFT 1633

Lab FileID: 6Q12889.D

Analyst approved: 02/06/23 11:00 Martha Valls

Injection Time: 02/03/23 11:12

Supervisor approved: 02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.26	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

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## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12900.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/3/2023 1:45:53 PM  
 Sample Name : cc196-4  
 Vial : P1-A5  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : s6q198.batch.bin  
 Sample Information : OP94819,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	79268	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	39569	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	36555	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	37279	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	65170	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	28860	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19326	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	23349	1.25 µg/L	-0.012
M2-PFDoDA	9.066	615.1 -> 570.0	25968	1.25 µg/L	-0.012
M2-PFTeDA	9.793	715.2 -> 670.0	15084	1.25 µg/L	-0.012
M8-FOSA	9.567	506.1 -> 77.8	18841	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13425	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9651	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8983	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2380	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3039	5.00 µg/L	-0.012
M2-8:2FTS	7.944	529.1 -> 80.9	3247	5.00 µg/L	-0.012
M3-MeFOSAA	8.215	573.2 -> 419.0	30146	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14582	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	25901	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	31242	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21225	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8317	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7116	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10964	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35888	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6699	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	79067	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	26924	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	31662	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	35238	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2380	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.3%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3039	5.26 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C2-8:2FTS	7.944	529.1 -> 80.9	3247	5.59 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.9%		
13C2-PFDoDA	9.066	615.1 -> 570.0	25968	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C2-PFTeDA	9.793	715.2 -> 670.0	15084	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C3-PFBS	5.518	302.1 -> 79.9	13425	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C3-PFHxS	7.274	402.1 -> 79.9	9651	2.74 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 = 109.6%	
13C4-PFBA	2.975	216.8 -> 171.9	79268	9.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.502	367.1 -> 322.0	37279	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C5-PFHxA	5.563	318.0 -> 273.0	36555	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C5-PFPeA	4.386	268.3 -> 223.0	39569	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C6-PFDA	8.170	519.1 -> 474.1	19326	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C7-PFUnDA	8.624	570.0 -> 525.1	23349	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C8-FOSA	9.567	506.1 -> 77.8	18841	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C8-PFOA	7.146	421.1 -> 376.0	65170	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-PFOS	8.345	507.1 -> 79.9	8983	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C9-PFNA	7.677	472.1 -> 427.0	28860	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.6%	
d3-MeFOSAA	8.215	573.2 -> 419.0	30146	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14582	10.13 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
d3-MeFOSA	10.680	515.0 -> 219.0	7116	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.5%	
d5-EtFOSAA	8.410	589.2 -> 419.0	25901	5.19 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
d7-MeFOSE	10.589	623.2 -> 58.9	31242	25.10 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
d9-EtFOSE	10.847	639.2 -> 58.9	21225	24.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d5-EtFOSA	10.925	531.1 -> 219.0	8317	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	

## Target Compounds

					QValue
4:2FTS	5.240	327.1 -> 307.0	48971	9.18 µg/L	99
		327.1 -> 80.9	10492		
6:2FTS	6.908	427.1 -> 407.0	42395	9.53 µg/L	100
		427.1 -> 80.9	7922		
8:2FTS	7.945	527.1 -> 507.0	22822	9.05 µg/L	100
		527.1 -> 80.8	5475		
EtFOSAA	8.424	584.2 -> 419.1	9243	2.23 µg/L	91
		584.2 -> 526.0	4973		
FOSA	9.557	498.1 -> 77.9	17389	2.31 µg/L	98
		498.1 -> 478.0	666		
MeFOSAA	8.216	570.1 -> 419.0	13539	2.45 µg/L	95
		570.1 -> 483.0	2263		
PFBA	2.982	212.8 -> 168.9	16343	9.23 µg/L	100
PFBS	5.518	298.7 -> 79.9	11074	2.15 µg/L	93
		298.7 -> 98.8	5347		
PFDA	8.170	512.9 -> 469.0	53099	2.41 µg/L	97
		512.9 -> 219.0	7324		
PFDODA	9.067	613.1 -> 569.0	46380	2.44 µg/L	98
		613.1 -> 319.0	5381		
PFDS	9.241	599.0 -> 79.9	6322	2.08 µg/L	93

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	3509	2.18	µg/L	95
		363.1 -> 319.0	48125			
PFHpS	7.841	363.1 -> 169.0	7041	2.12	µg/L	88
		449.0 -> 79.9	8078			
PFHxA	5.566	449.0 -> 98.9	5169	2.32	µg/L	98
		313.0 -> 269.0	33225			
PFHxS	7.275	313.0 -> 118.9	1168	1.93	µg/L	93
		398.7 -> 79.9	8366			
PFNA	7.677	398.7 -> 98.9	4864	2.27	µg/L	97
		463.0 -> 419.0	44259			
PFNS	8.811	463.0 -> 219.0	7886	2.24	µg/L	97
		548.8 -> 79.9	8943			
PFOA	7.148	548.8 -> 98.9	5235	2.31	µg/L	99
		413.0 -> 369.0	66440			
PFOS	8.334	413.0 -> 169.0	8669	2.12	µg/L	71
		498.9 -> 79.9	8753			
PFPeA	4.388	498.9 -> 98.8	5267	4.68	µg/L	100
		263.0 -> 219.0	39115			
PFPeS	6.569	349.1 -> 79.9	10294	2.04	µg/L	93
		349.1 -> 98.9	5778			
PFTeDA	9.806	713.1 -> 669.0	38018	2.34	µg/L	98
		713.1 -> 168.9	2367			
PFTrDA	9.450	663.0 -> 619.0	45344	2.49	µg/L	98
		663.0 -> 168.9	3265			
PFUnDA	8.637	563.1 -> 519.0	42694	2.35	µg/L	98
		563.1 -> 269.1	5586			
11CI-PF3OUdS	9.514	630.9 -> 450.9	95498	9.13	µg/L	98
		632.9 -> 452.9	30097			
9CI-PF3ONS	8.676	530.8 -> 351.0	153318	8.67	µg/L	99
		532.8 -> 353.0	48456			
ADONA	6.753	376.9 -> 250.9	280193	8.86	µg/L	99
		376.9 -> 84.8	61602			
HFPO-DA	5.940	284.9 -> 168.9	13443	9.86	µg/L	97
		284.9 -> 184.9	1638			
3:3FTCA	3.841	241.0 -> 177.0	4863	11.85	µg/L	96
		241.0 -> 117.0	638			
5:3FTCA	6.193	341.0 -> 237.1	167862	55.99	µg/L	99
		341.0 -> 217.0	145561			
7:3FTCA	7.605	441.0 -> 316.9	110052	56.16	µg/L	84
		441.0 -> 336.9	203864			
EtFOSA	10.927	526.0 -> 219.0	9621	2.42	µg/L	94
		526.0 -> 169.0	8838			
EtFOSE	10.860	630.0 -> 58.9	21385	23.54	µg/L	100
		511.9 -> 219.0	7314			
MeFOSA	10.682	511.9 -> 169.0	7706	2.38	µg/L	96
		616.1 -> 58.9	28047			
MeFOSE	10.602	699.1 -> 79.9	4078	22.50	µg/L	100
		699.1 -> 98.8	2456			
PFDoDS	9.933	295.0 -> 201.0	3760	2.24	µg/L	99
		295.0 -> 84.9	1985			
NFDHA	5.445	279.0 -> 85.1	11591	4.44	µg/L	98
		229.0 -> 84.9	10469			
PFMBA	4.787	314.8 -> 134.9	80971	4.93	µg/L	100
PFMPA	3.541	314.8 -> 82.9	1956	4.70	µg/L	100
PFEESA	6.059			3.92	µg/L	100

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

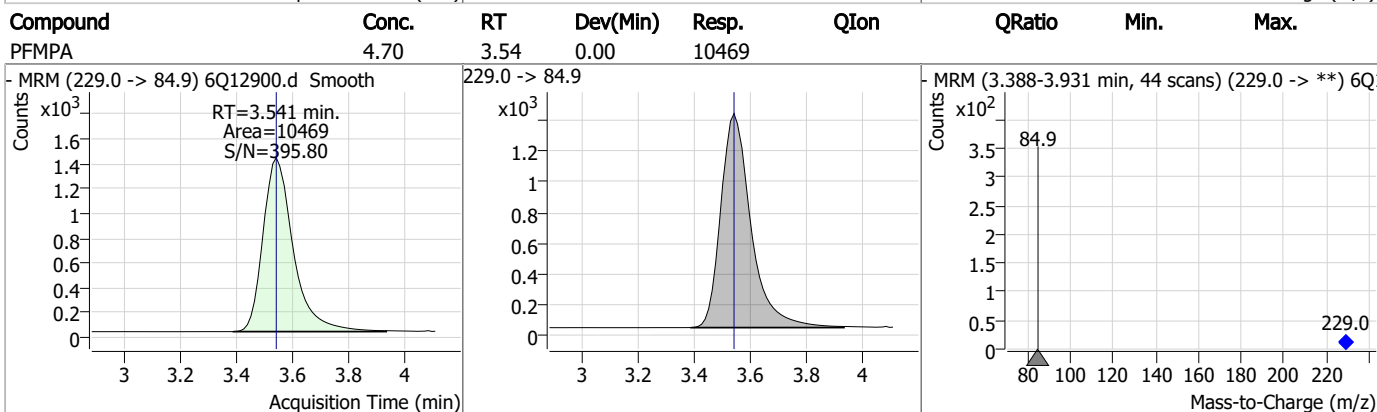
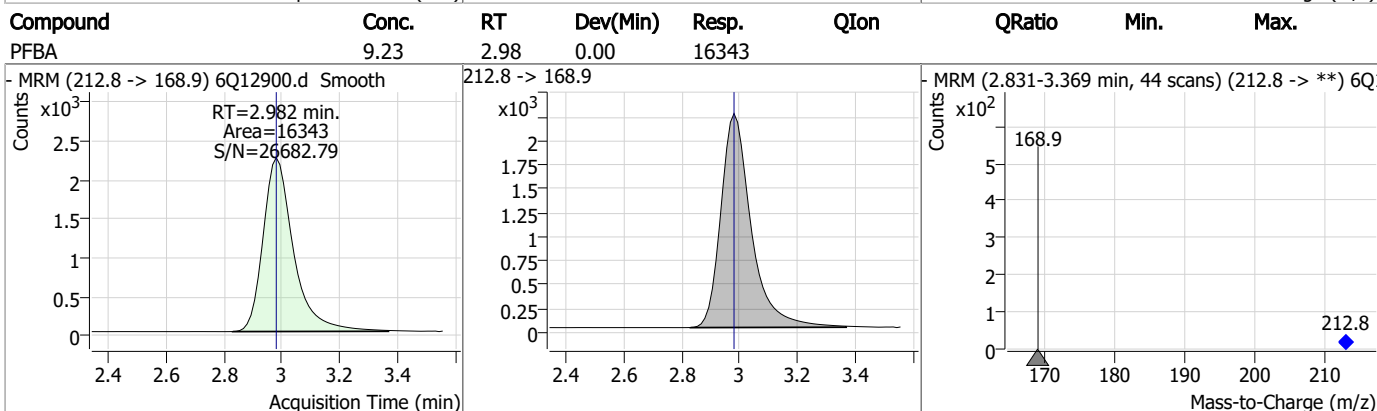
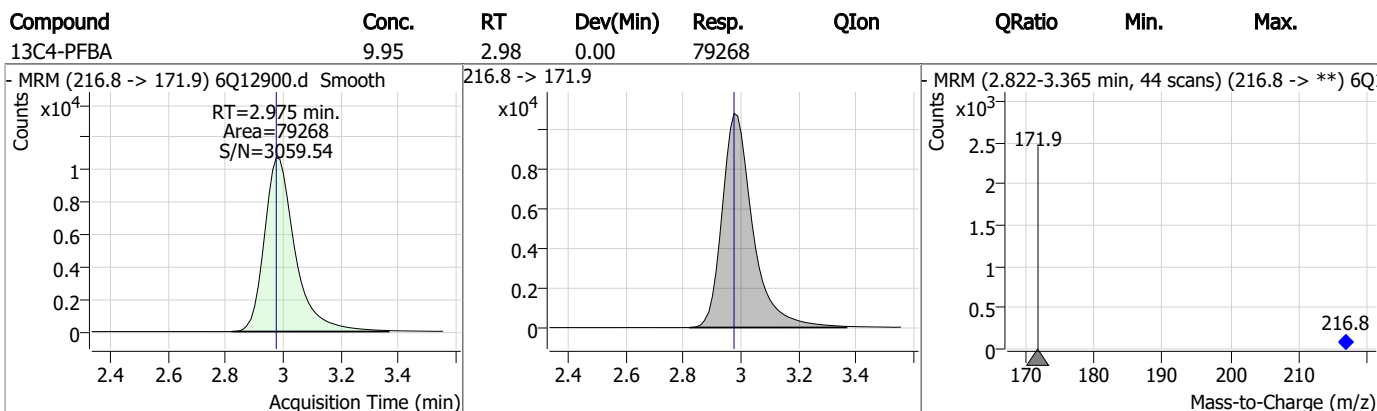
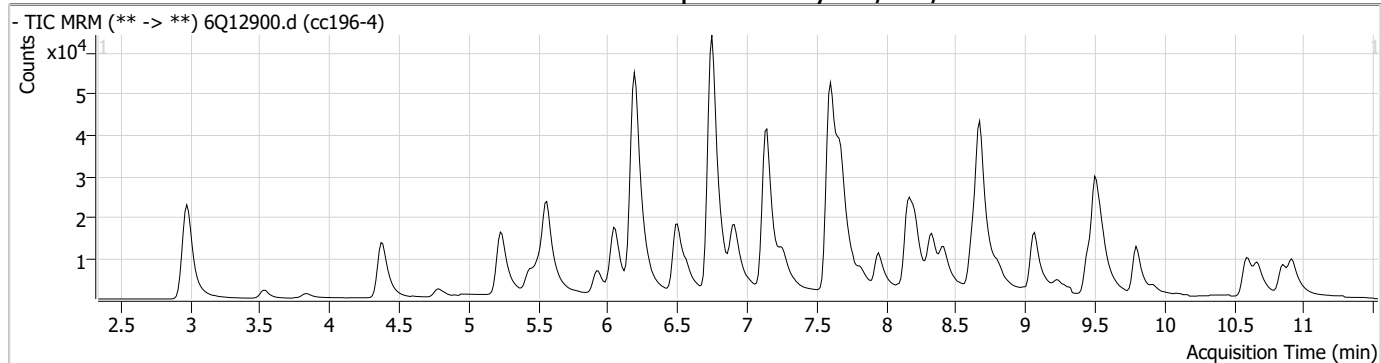
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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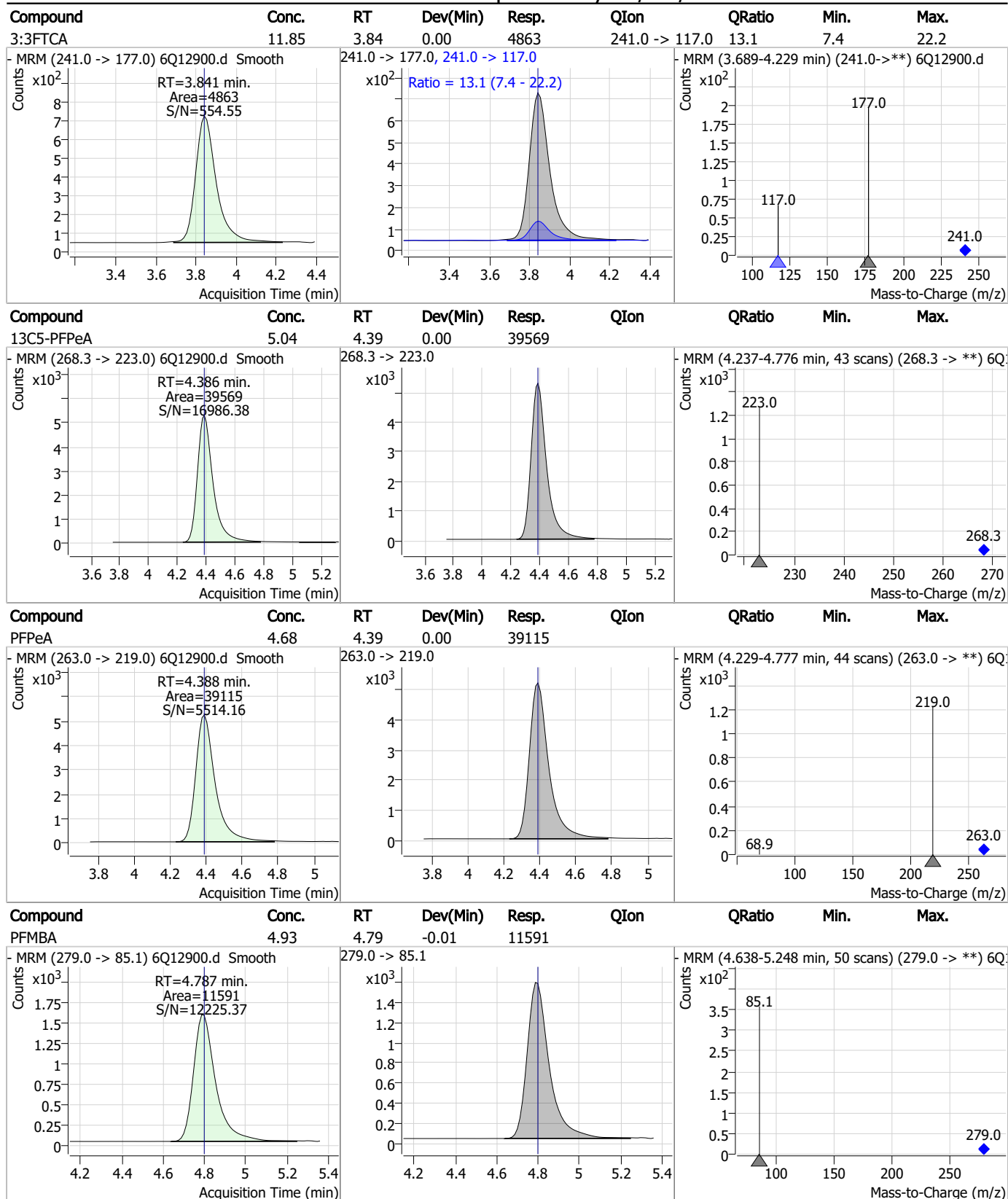
7.7.14  
7



## Perfluorinated Compounds by LC/MS/MS

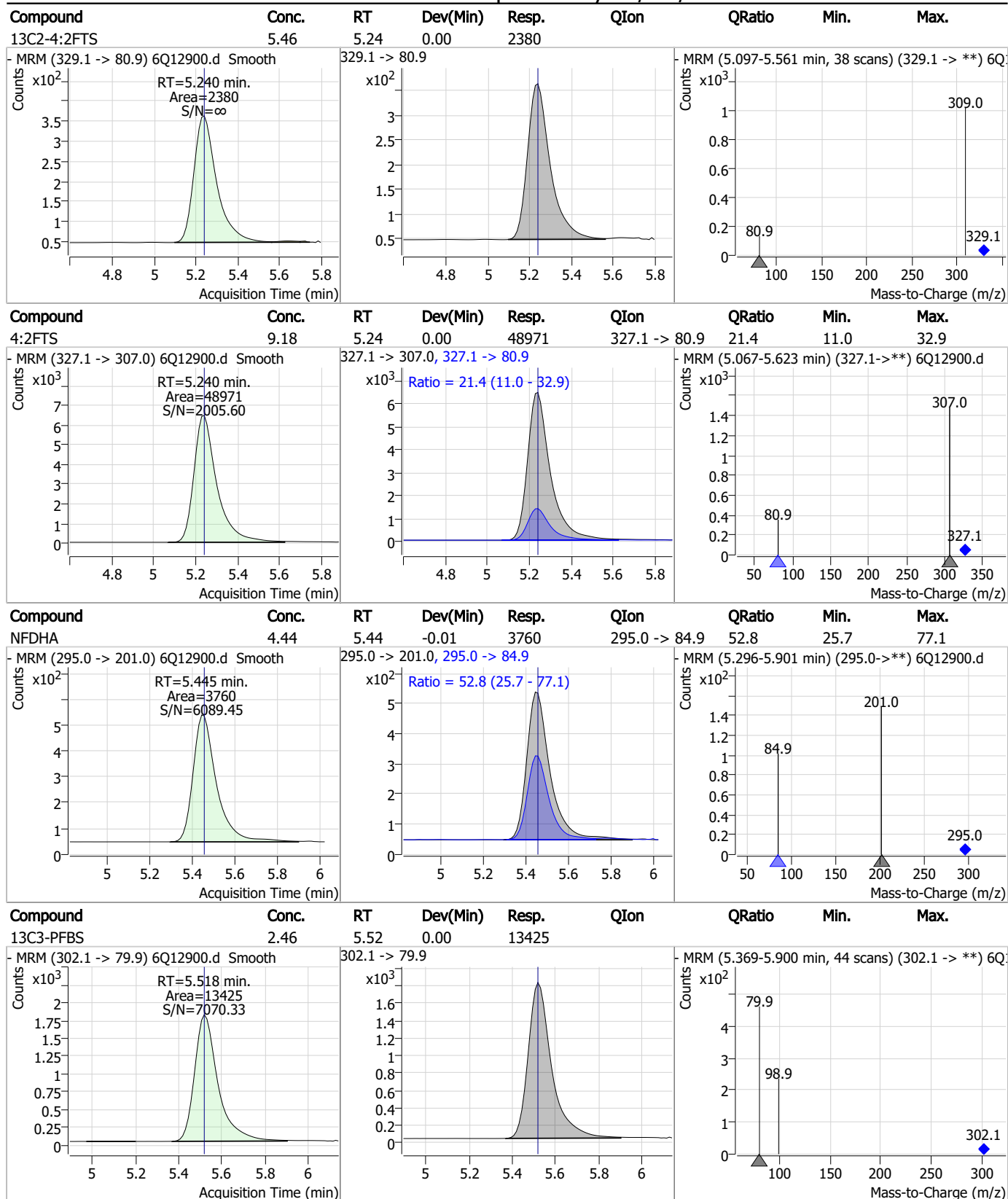


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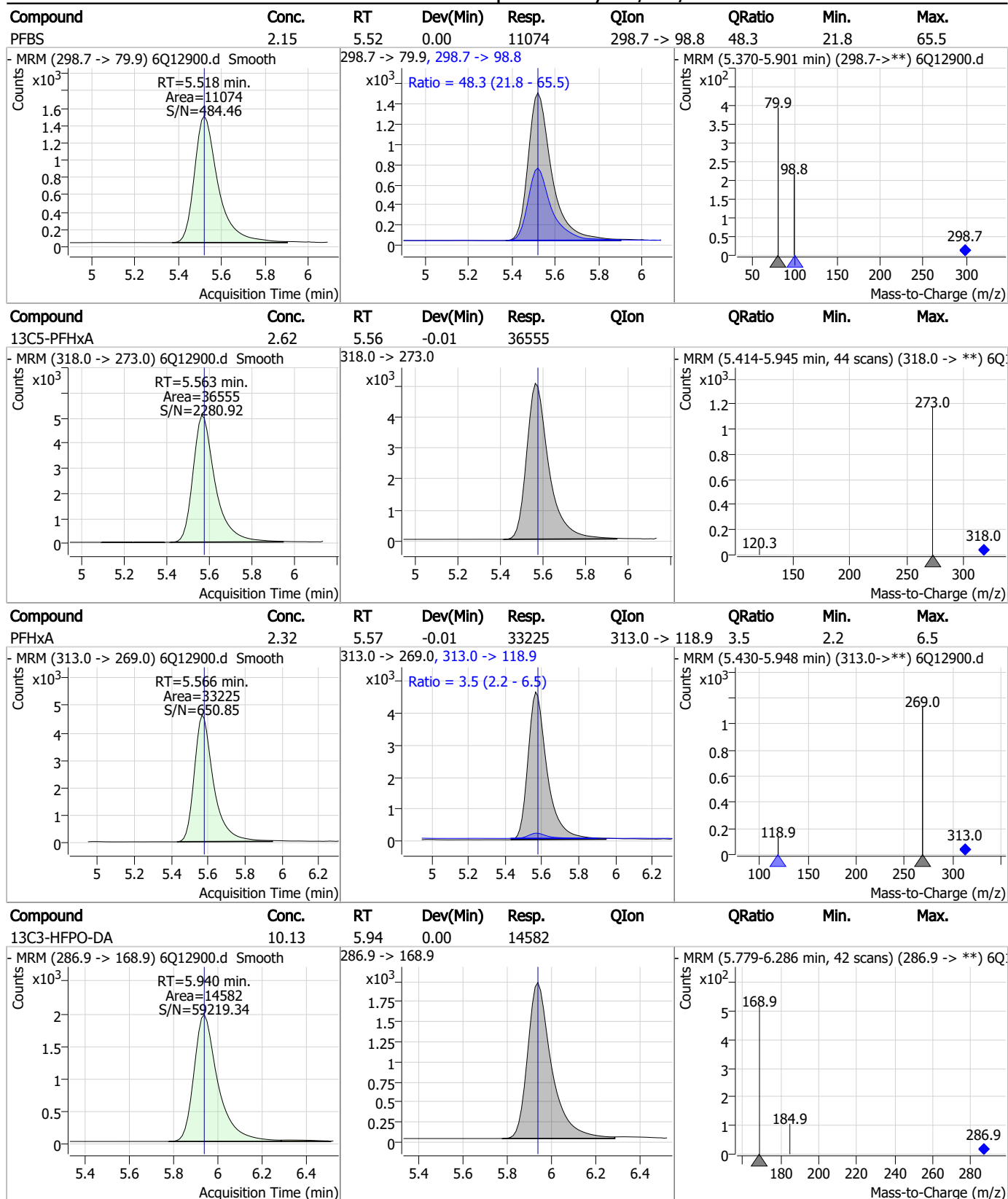




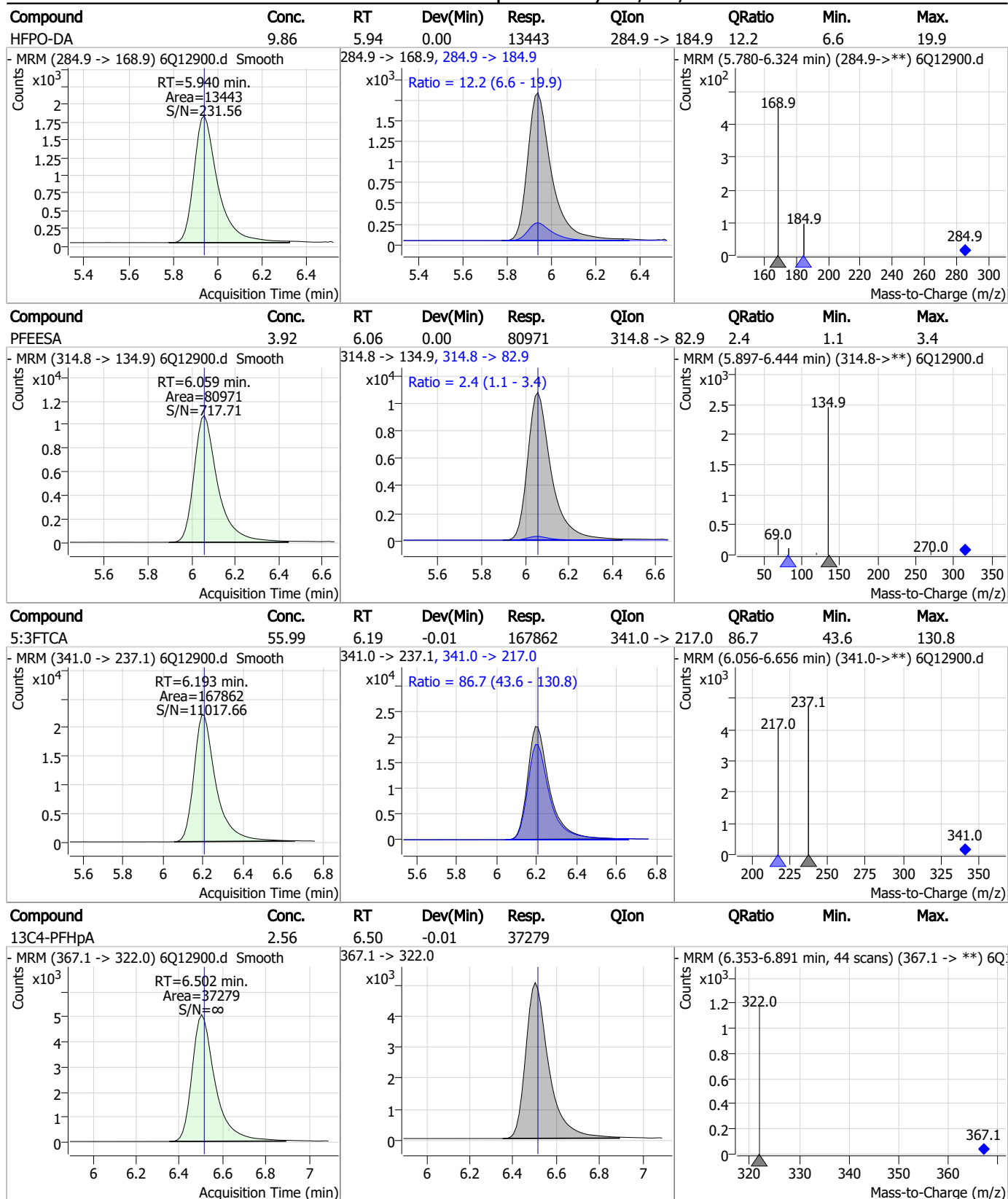
## Perfluorinated Compounds by LC/MS/MS



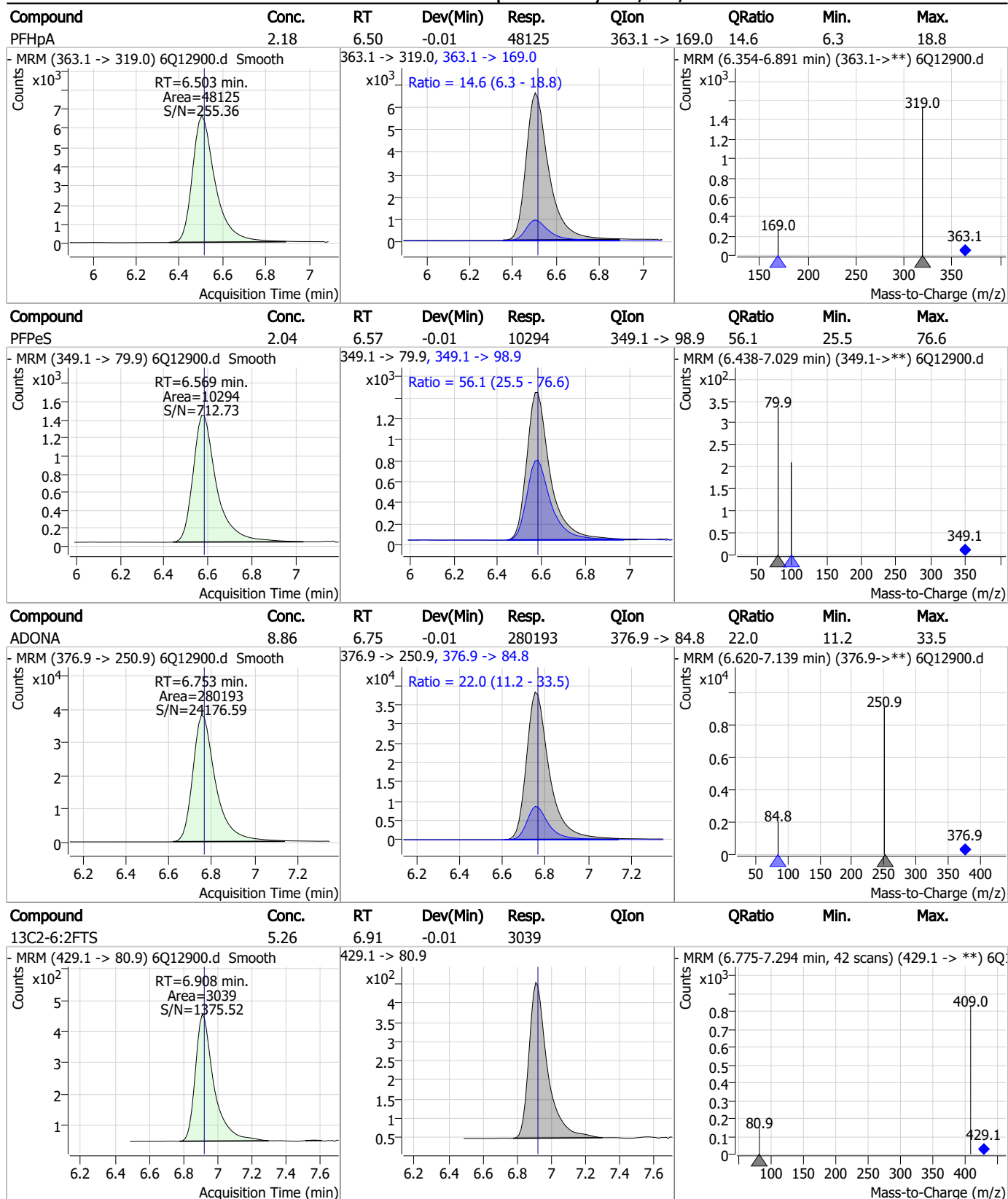
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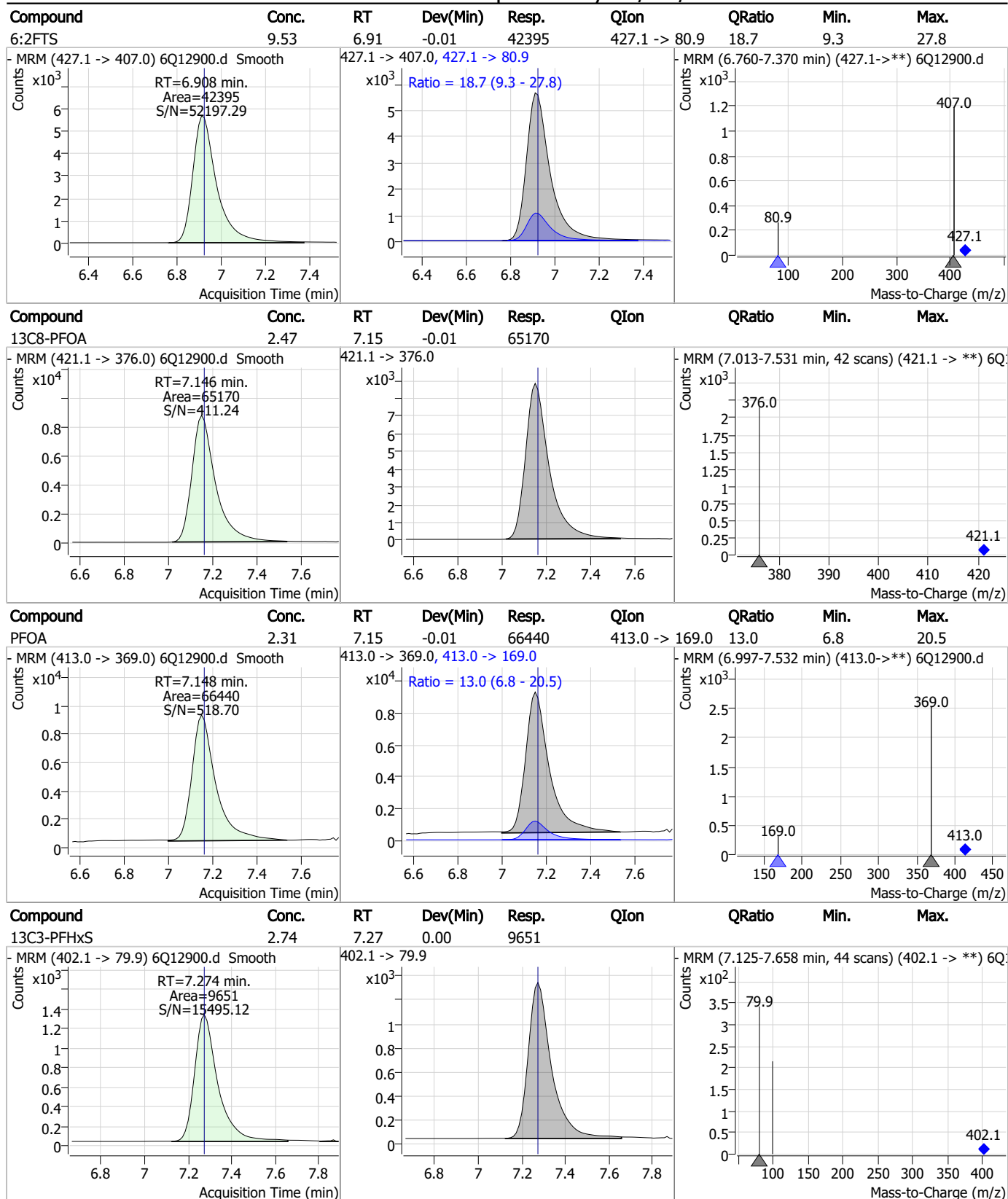
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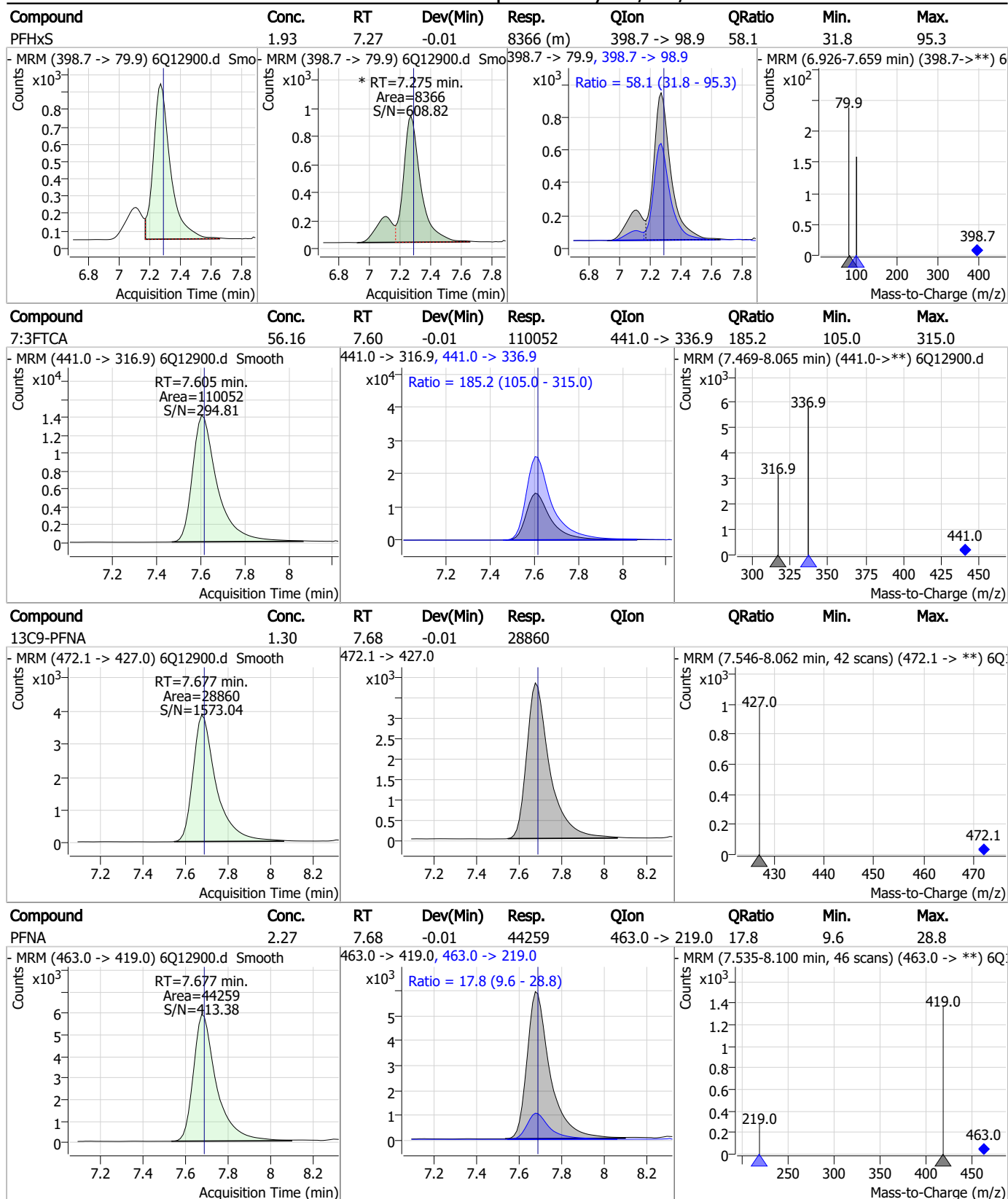
## Perfluorinated Compounds by LC/MS/MS



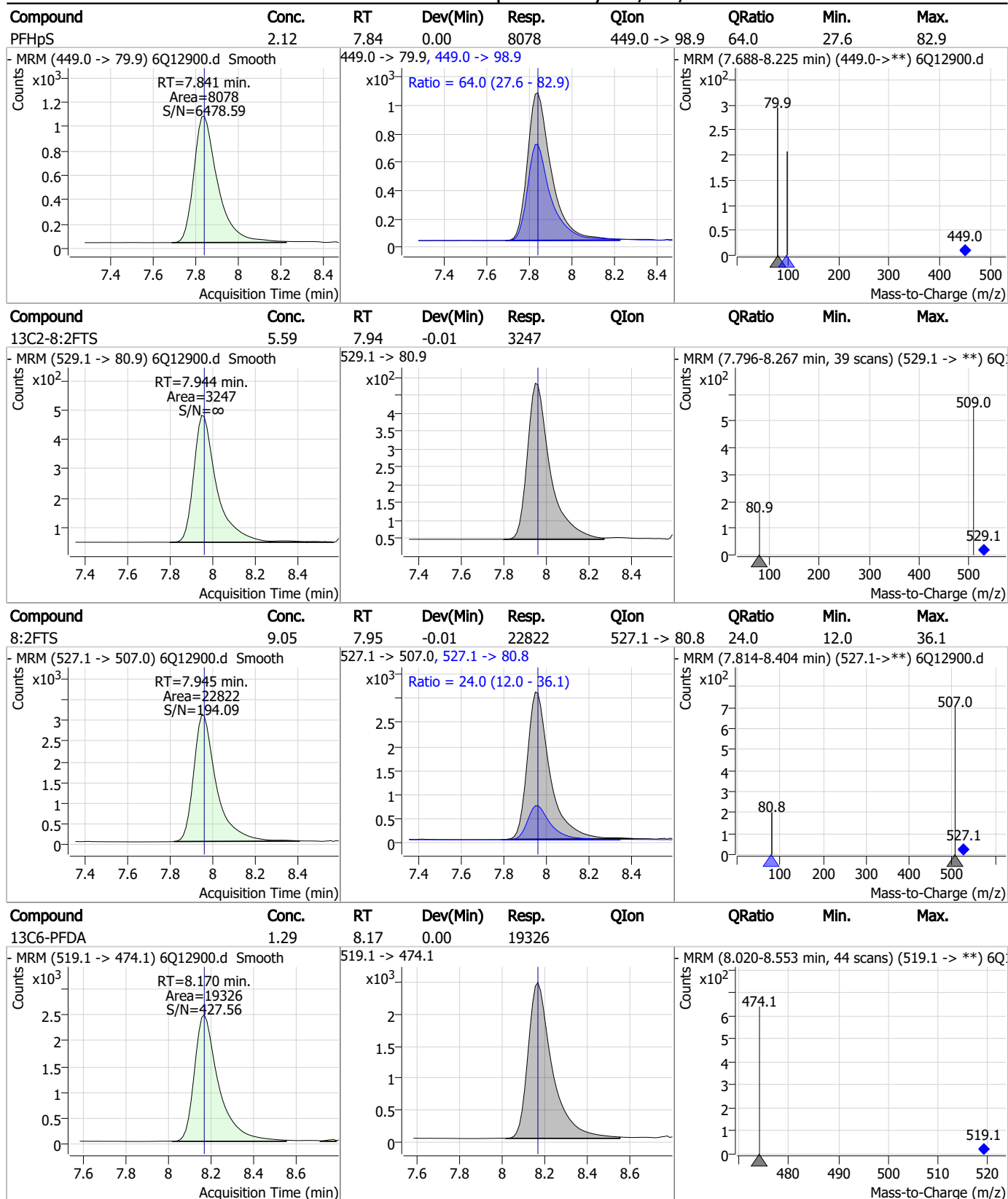
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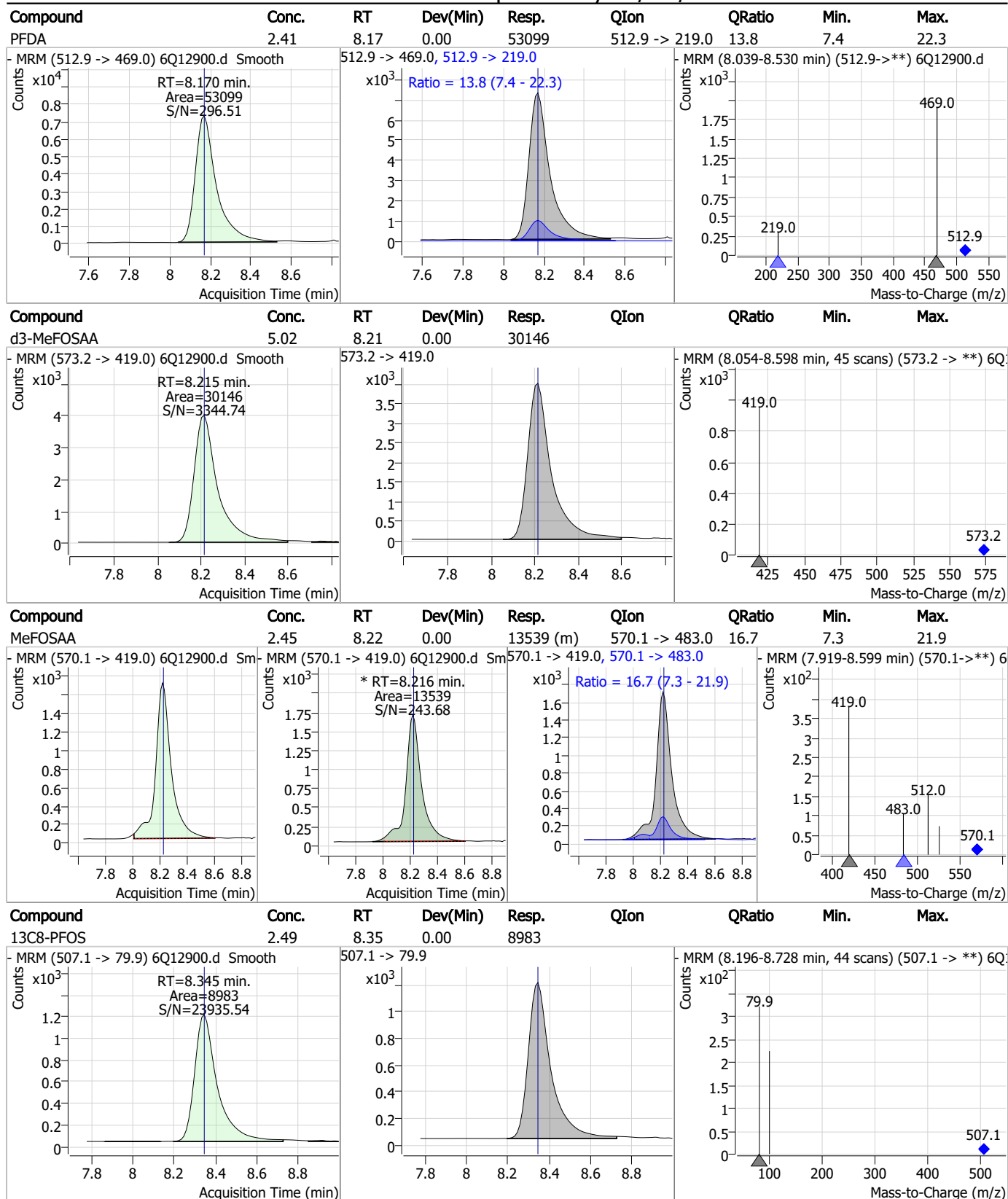
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

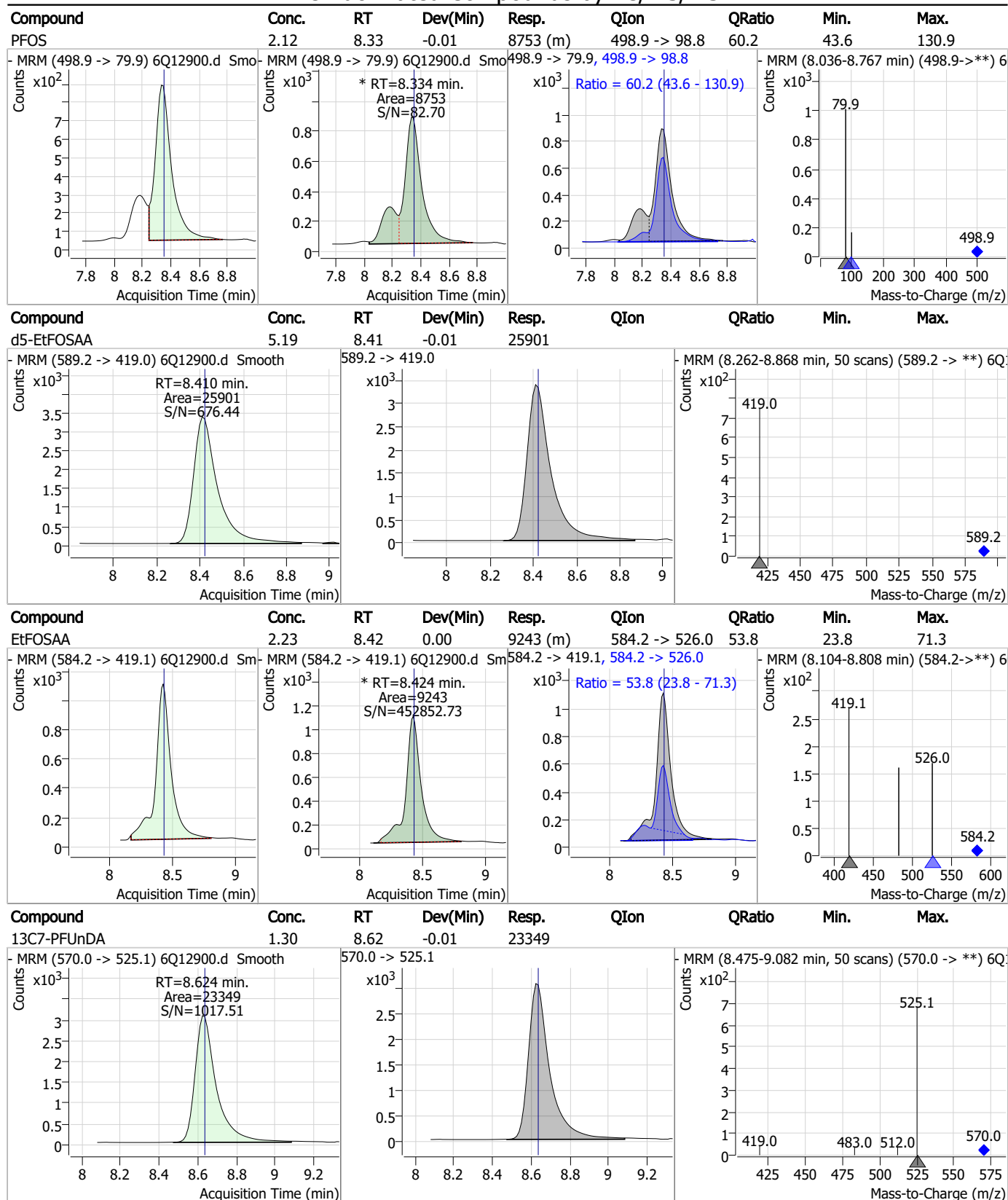


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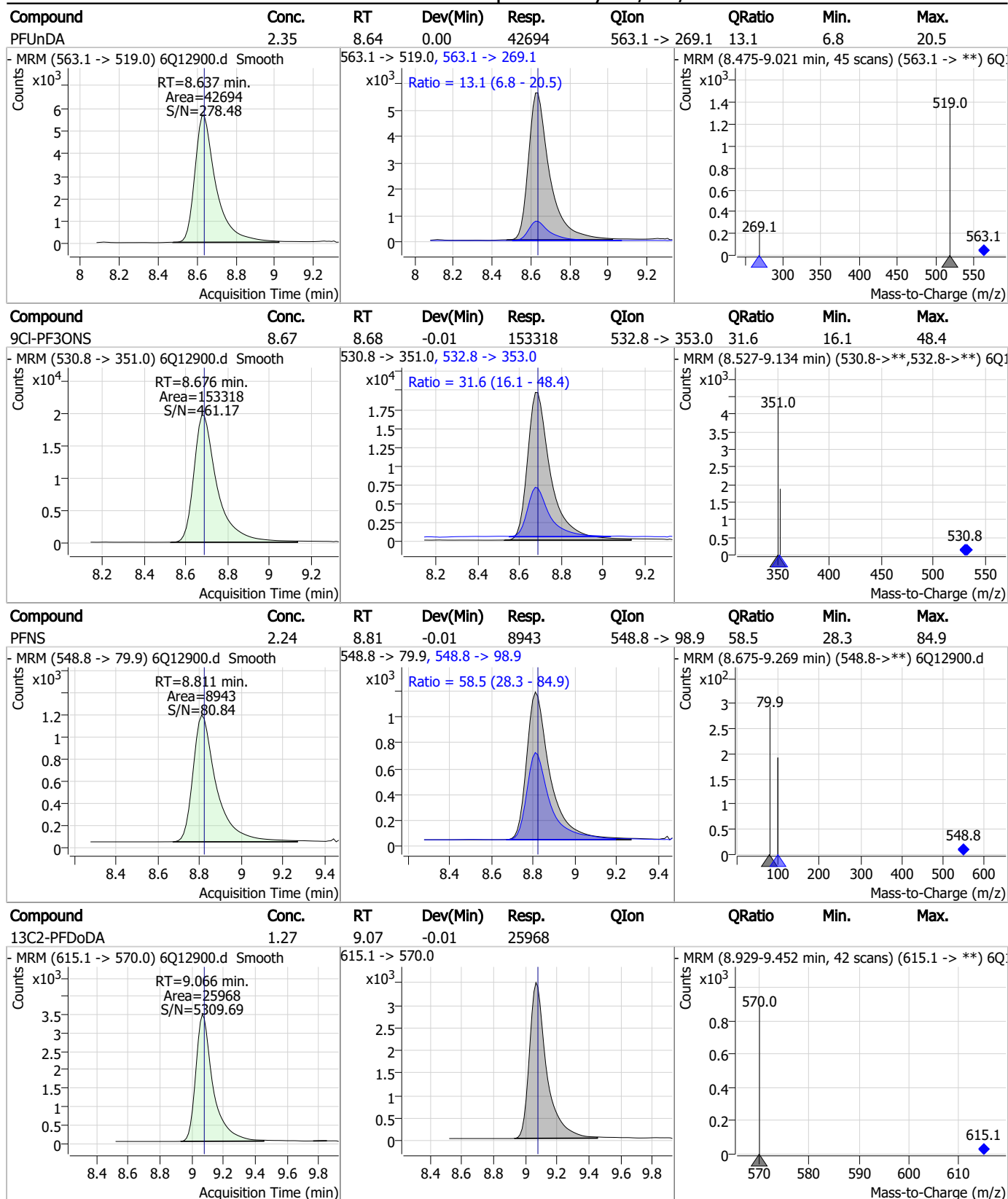




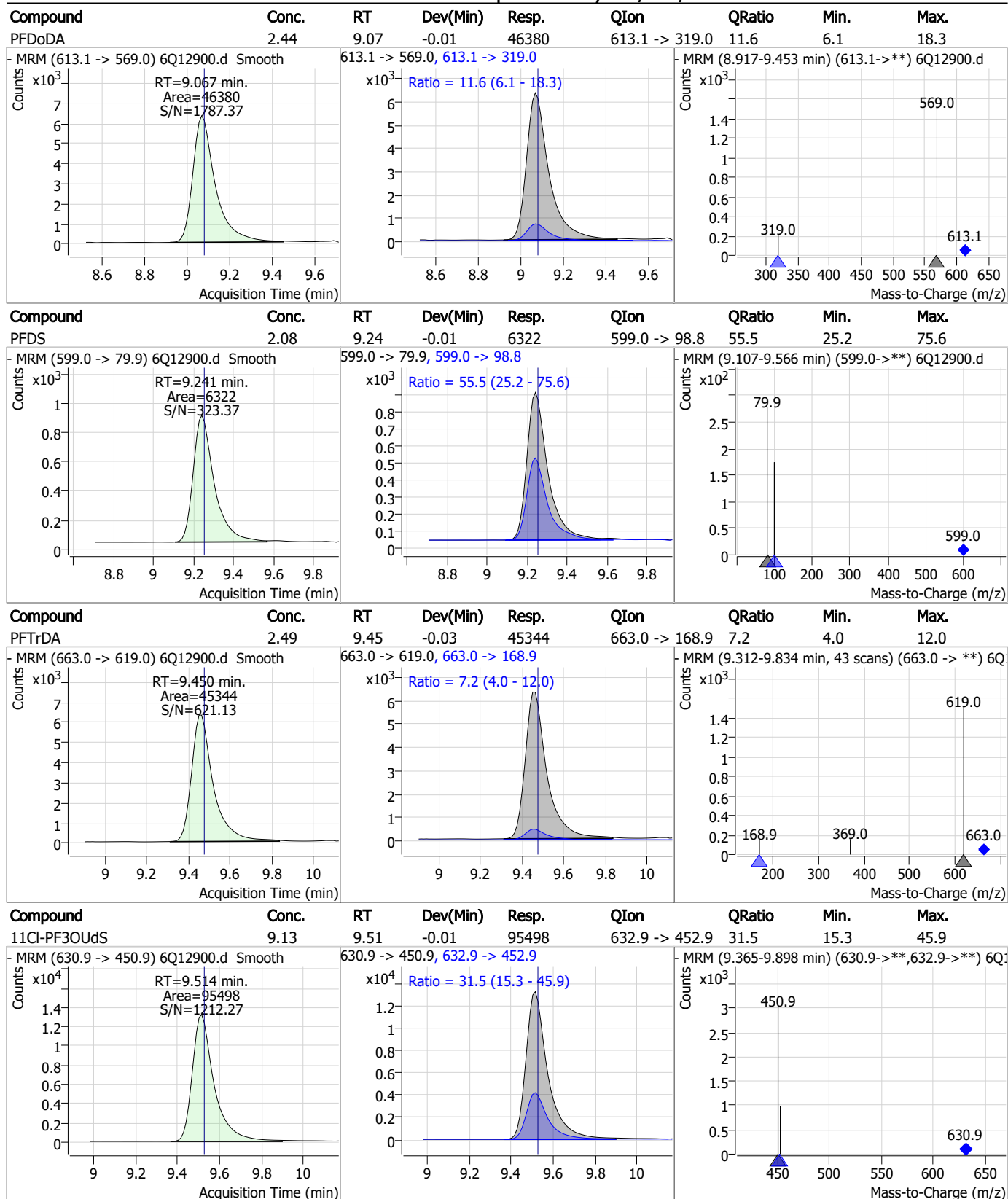
## Perfluorinated Compounds by LC/MS/MS



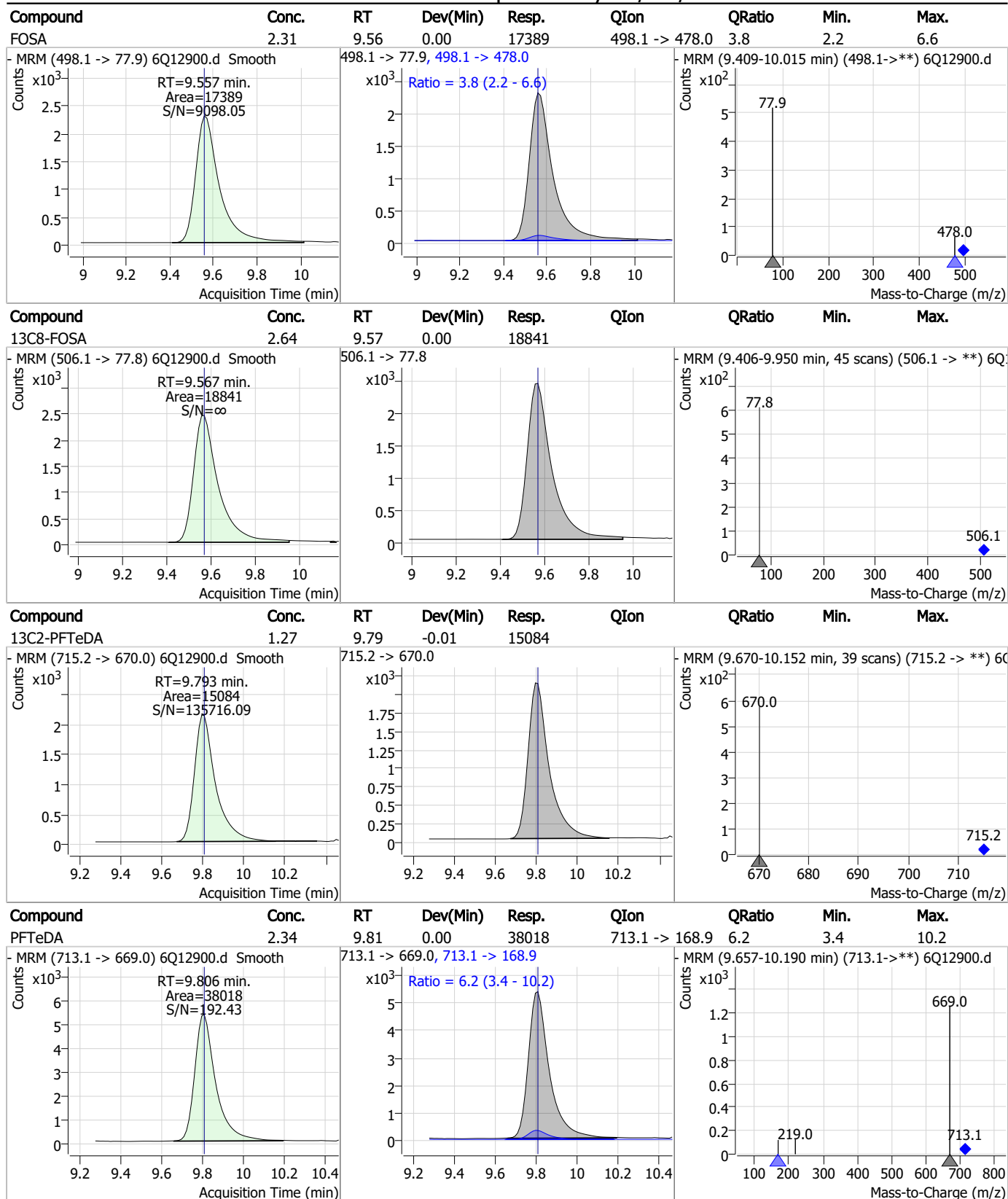
## Perfluorinated Compounds by LC/MS/MS



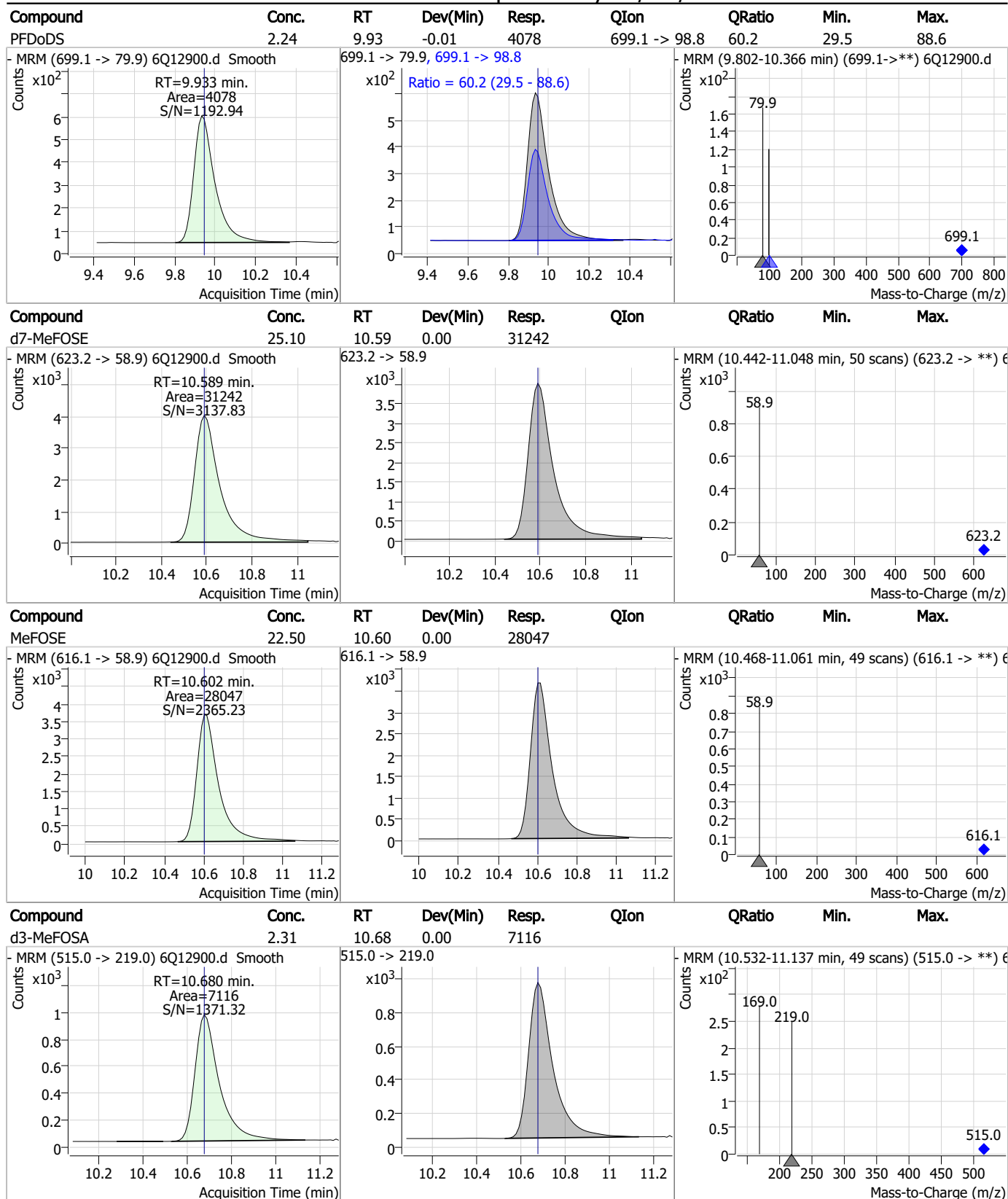
## Perfluorinated Compounds by LC/MS/MS



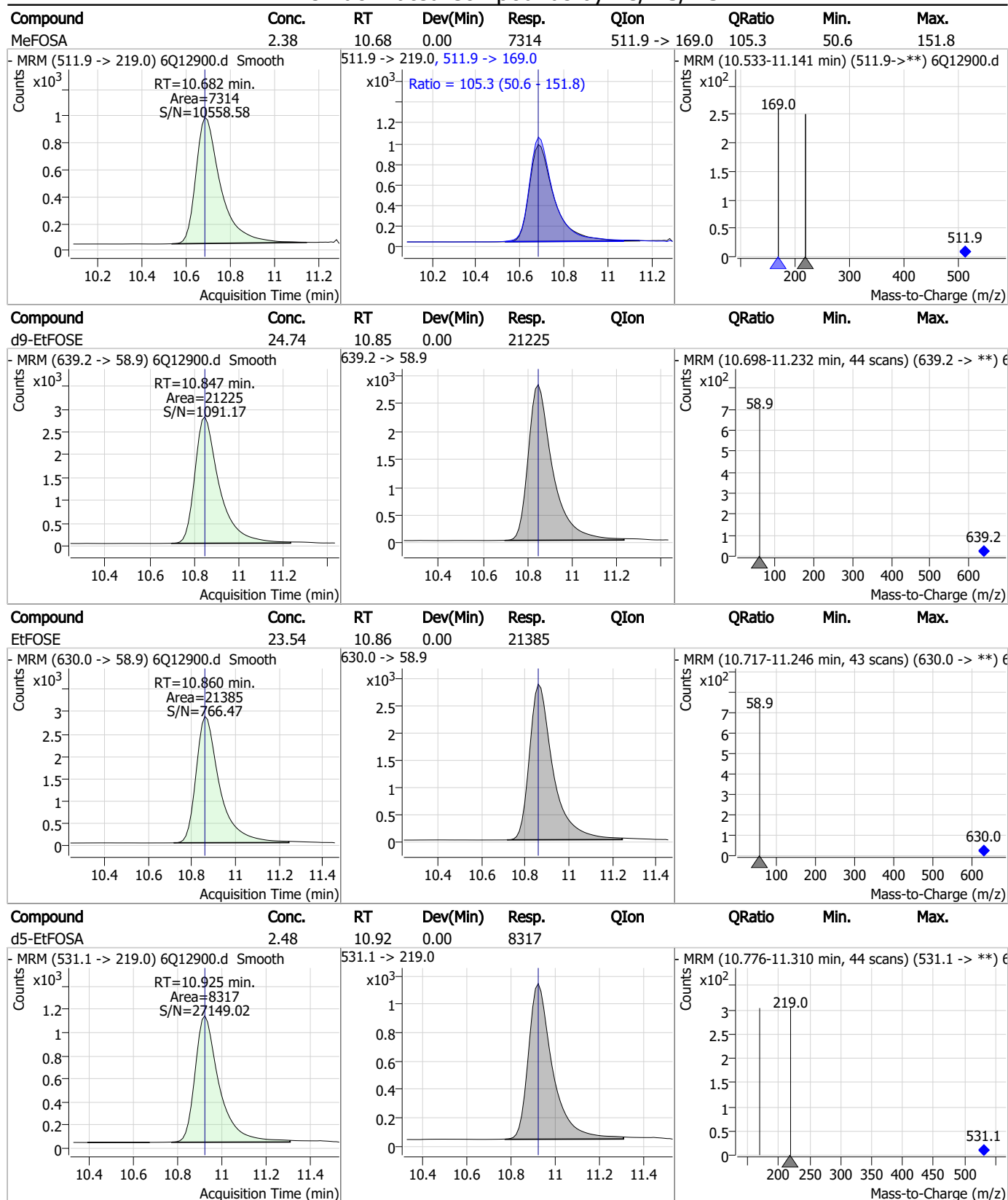
## Perfluorinated Compounds by LC/MS/MS



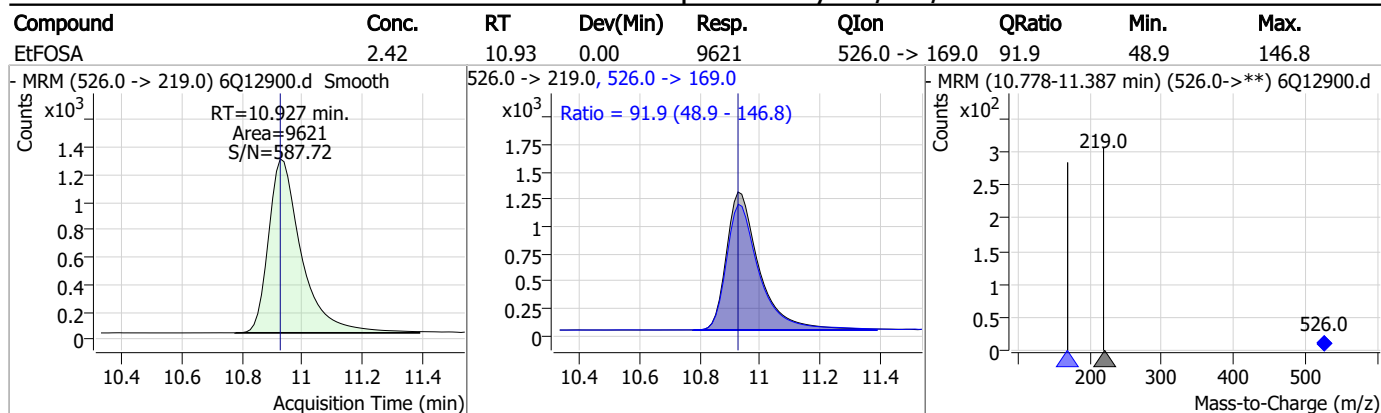
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S6Q198-CC196

Method: EPA DRAFT 1633

Lab FileID: 6Q12900.D

Analyst approved: 02/06/23 11:00 Martha Valls

Injection Time: 02/03/23 13:45

Supervisor approved: 02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.14.1

7



## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12911.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/3/2023 4:19:41 PM  
 Sample Name : cc196-4  
 Vial : P1-A5  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : s6q198.batch.bin  
 Sample Information : OP94819,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.975	216.8 -> 171.9	81073	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	40863	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	36389	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	37007	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	65821	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	29550	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19814	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	23818	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	26297	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	15566	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	18531	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	14728	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9166	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8740	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2433	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	3119	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	3211	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	30905	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14975	10.00 µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	25667	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	31723	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	22567	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8628	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7494	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	11059	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	36086	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	7631	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	81454	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	27174	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	32187	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	35326	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2433	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C2-6:2FTS	6.920	429.1 -> 80.9	3119	4.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.7%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3211	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFDoDA	9.066	615.1 -> 570.0	26297	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15566	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C3-PFBS	5.518	302.1 -> 79.9	14728	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C3-PFHxS	7.274	402.1 -> 79.9	9166	2.28 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 = 91.4%	
13C4-PFBA	2.975	216.8 -> 171.9	81073	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C4-PFHpA	6.502	367.1 -> 322.0	37007	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C5-PFHxA	5.563	318.0 -> 273.0	36389	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C5-PFPeA	4.386	268.3 -> 223.0	40863	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C6-PFDA	8.170	519.1 -> 474.1	19814	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C7-PFUnDA	8.636	570.0 -> 525.1	23818	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C8-FOSA	9.567	506.1 -> 77.8	18531	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-PFOA	7.146	421.1 -> 376.0	65821	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C8-PFOS	8.345	507.1 -> 79.9	8740	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C9-PFNA	7.677	472.1 -> 427.0	29550	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.4%	
d3-MeFOSAA	8.215	573.2 -> 419.0	30905	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14975	10.37 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
d3-MeFOSA	10.680	515.0 -> 219.0	7494	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
d5-EtFOSAA	8.422	589.2 -> 419.0	25667	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
d7-MeFOSE	10.589	623.2 -> 58.9	31723	25.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d9-EtFOSE	10.847	639.2 -> 58.9	22567	26.08 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
d5-EtFOSA	10.925	531.1 -> 219.0	8628	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.240	327.1 -> 307.0	47665	8.74 µg/L	99
		327.1 -> 80.9	10222		
6:2FTS	6.921	427.1 -> 407.0	40473	8.86 µg/L	95
		427.1 -> 80.9	8433		
8:2FTS	7.945	527.1 -> 507.0	23158	9.29 µg/L	98
		527.1 -> 80.8	5406		
EtFOSAA	8.424	584.2 -> 419.1	8903	2.17 µg/L	84
		584.2 -> 526.0	5177		
FOSA	9.570	498.1 -> 77.9	16680	2.26 µg/L	99
		498.1 -> 478.0	660		
MeFOSAA	8.216	570.1 -> 419.0	13165	2.32 µg/L m	93
		570.1 -> 483.0	2321		
PFBA	2.982	212.8 -> 168.9	16596	9.17 µg/L	100
PFBS	5.518	298.7 -> 79.9	11008	1.95 µg/L	94
		298.7 -> 98.8	5241		
PFDA	8.170	512.9 -> 469.0	54316	2.41 µg/L	96
		512.9 -> 219.0	7128		
PFDODA	9.067	613.1 -> 569.0	46865	2.43 µg/L	97
		613.1 -> 319.0	6238		
PFDS	9.241	599.0 -> 79.9	6898	2.33 µg/L	98

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	3383	2.33	µg/L	97
		363.1 -> 319.0	51133			
PFHpS	7.841	363.1 -> 169.0	7085	2.48	µg/L	97
		449.0 -> 79.9	9189			
PFHxA	5.566	449.0 -> 98.9	4898	2.28	µg/L	100
		313.0 -> 269.0	32612			
PFHxS	7.275	313.0 -> 118.9	1371	2.25	µg/L	87
		398.7 -> 79.9	9263			
PFNA	7.677	398.7 -> 98.9	4941	2.26	µg/L	98
		463.0 -> 419.0	45148			
PFNS	8.811	463.0 -> 219.0	8214	2.31	µg/L	95
		548.8 -> 79.9	8969			
PFOA	7.148	548.8 -> 98.9	5423	2.25	µg/L	100
		413.0 -> 369.0	65107			
PFOS	8.347	413.0 -> 169.0	8876	2.17	µg/L	78
		498.9 -> 79.9	8695			
PFPeA	4.388	498.9 -> 98.8	5792	4.58	µg/L	100
		263.0 -> 219.0	39554			
PFPeS	6.581	349.1 -> 79.9	10503	2.19	µg/L	97
		349.1 -> 98.9	5564			
PFTeDA	9.806	713.1 -> 669.0	39747	2.37	µg/L	99
		713.1 -> 168.9	2501			
PFTrDA	9.462	663.0 -> 619.0	47734	2.59	µg/L	98
		663.0 -> 168.9	3446			
PFUnDA	8.637	563.1 -> 519.0	42023	2.27	µg/L	97
		563.1 -> 269.1	6253			
11CI-PF3OUdS	9.514	630.9 -> 450.9	99567	9.27	µg/L	97
		632.9 -> 452.9	28616			
9CI-PF3ONS	8.688	530.8 -> 351.0	156331	8.61	µg/L	96
		532.8 -> 353.0	47291			
ADONA	6.753	376.9 -> 250.9	297936	9.17	µg/L	96
		376.9 -> 84.8	60056			
HFPO-DA	5.940	284.9 -> 168.9	13915	9.93	µg/L	99
		284.9 -> 184.9	1914			
3:3FTCA	3.841	241.0 -> 177.0	4961	11.71	µg/L	95
		241.0 -> 117.0	632			
5:3FTCA	6.206	341.0 -> 237.1	169802	56.90	µg/L	98
		341.0 -> 217.0	150797			
7:3FTCA	7.605	441.0 -> 316.9	114386	58.64	µg/L	85
		441.0 -> 336.9	213569			
EtFOSA	10.927	526.0 -> 219.0	9140	2.22	µg/L	97
		526.0 -> 169.0	9220			
EtFOSE	10.860	630.0 -> 58.9	21576	22.34	µg/L	100
		511.9 -> 219.0	7911			
MeFOSA	10.682	511.9 -> 169.0	7760	2.44	µg/L	97
		616.1 -> 58.9	28557			
MeFOSE	10.615	699.1 -> 79.9	3962	22.57	µg/L	100
		699.1 -> 98.8	2512			
PFDoDS	9.945	295.0 -> 201.0	4339	2.24	µg/L	94
		295.0 -> 84.9	2093			
NFDHA	5.457	279.0 -> 85.1	11516	5.14	µg/L	95
		229.0 -> 84.9	10480			
PFMBA	4.800	314.8 -> 134.9	84586	4.75	µg/L	100
PFMPA	3.541	314.8 -> 82.9	2063	4.55	µg/L	100
PFEESA	6.059			4.12	µg/L	100

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

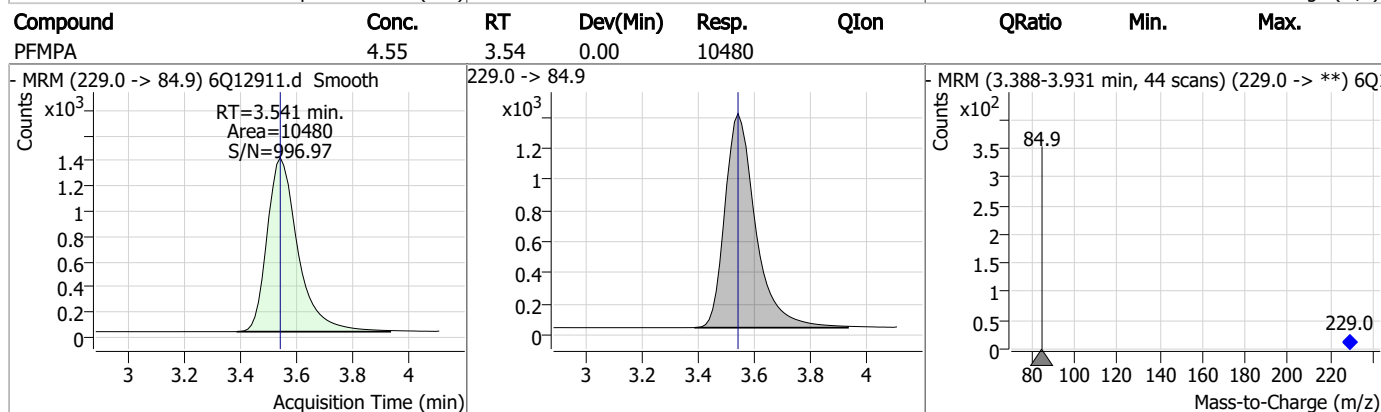
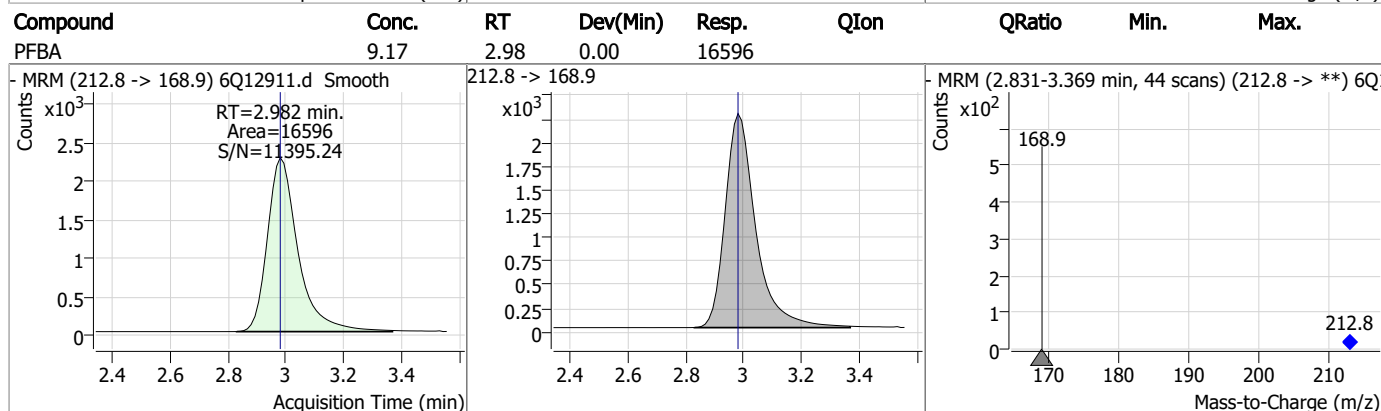
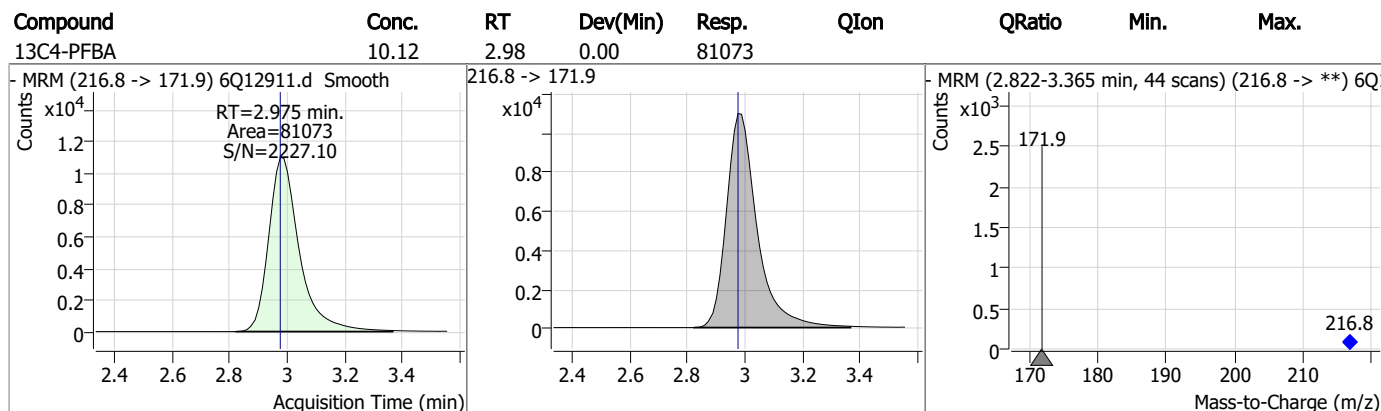
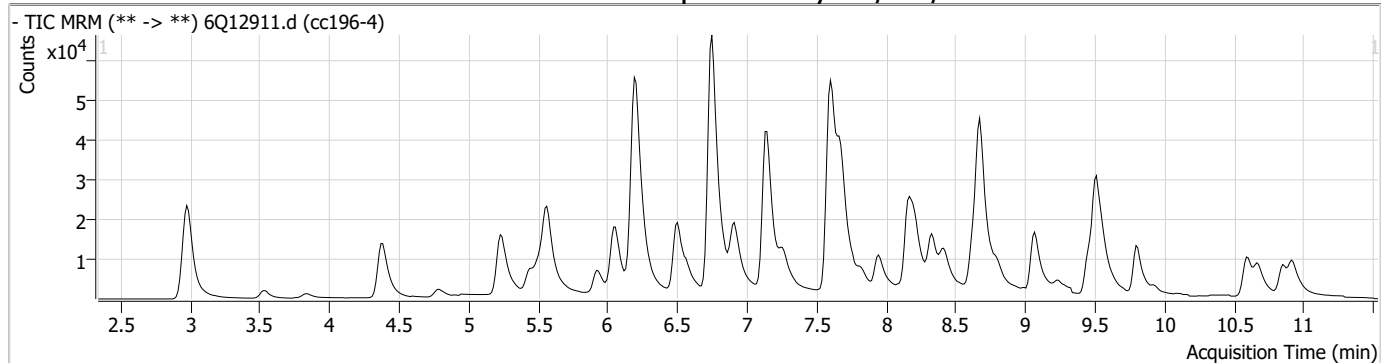
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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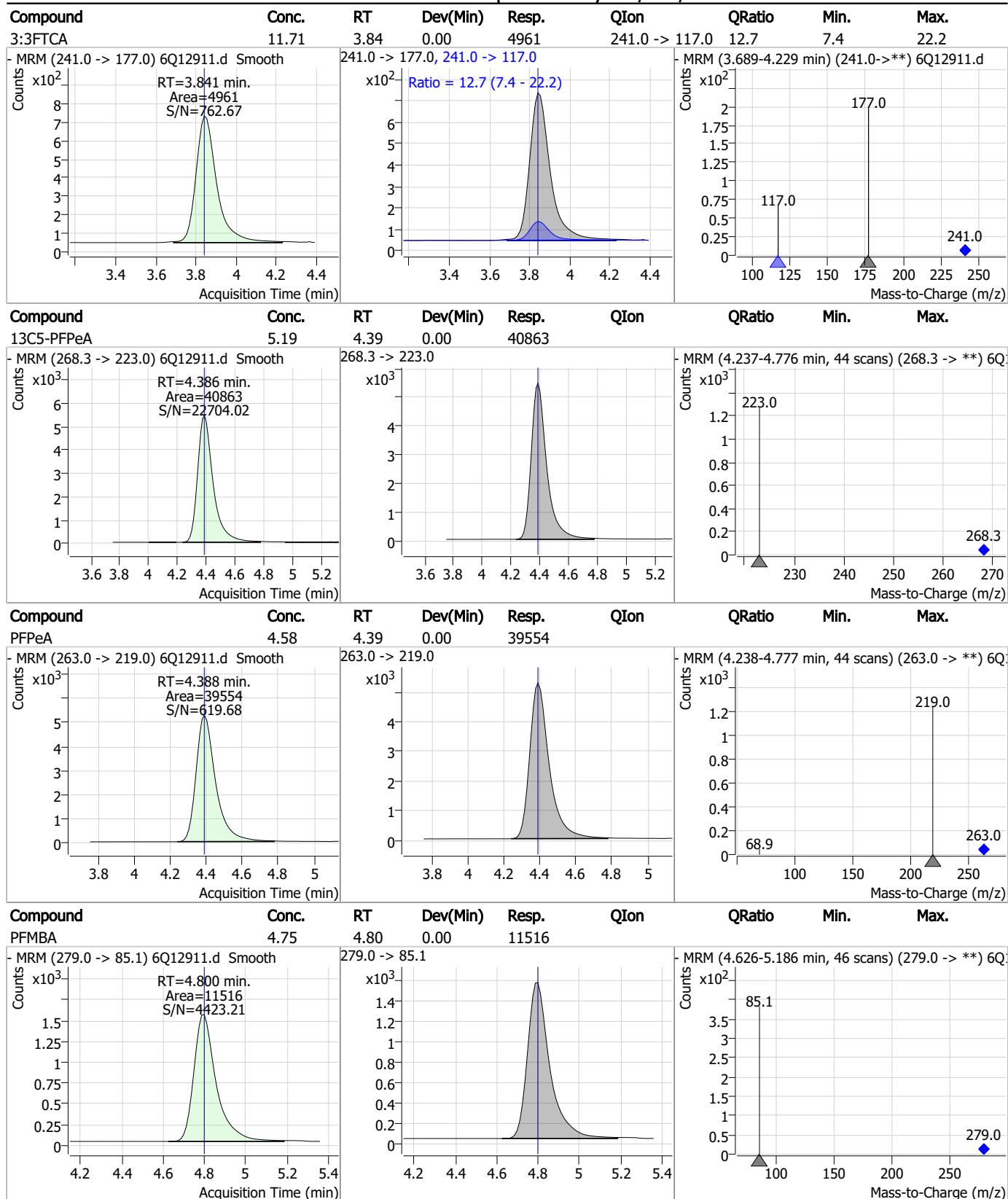
7.7.15  
7



## Perfluorinated Compounds by LC/MS/MS



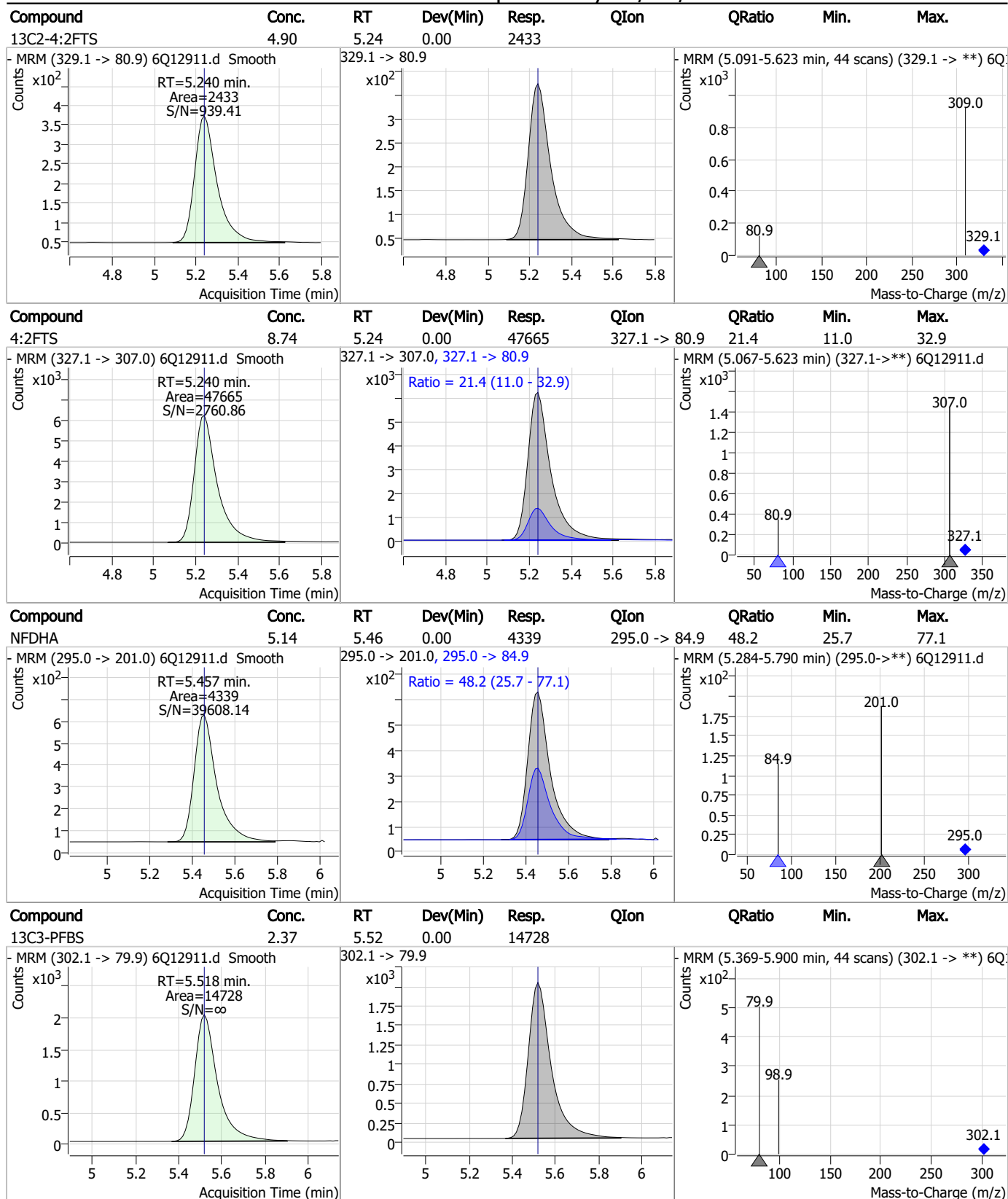
## Perfluorinated Compounds by LC/MS/MS



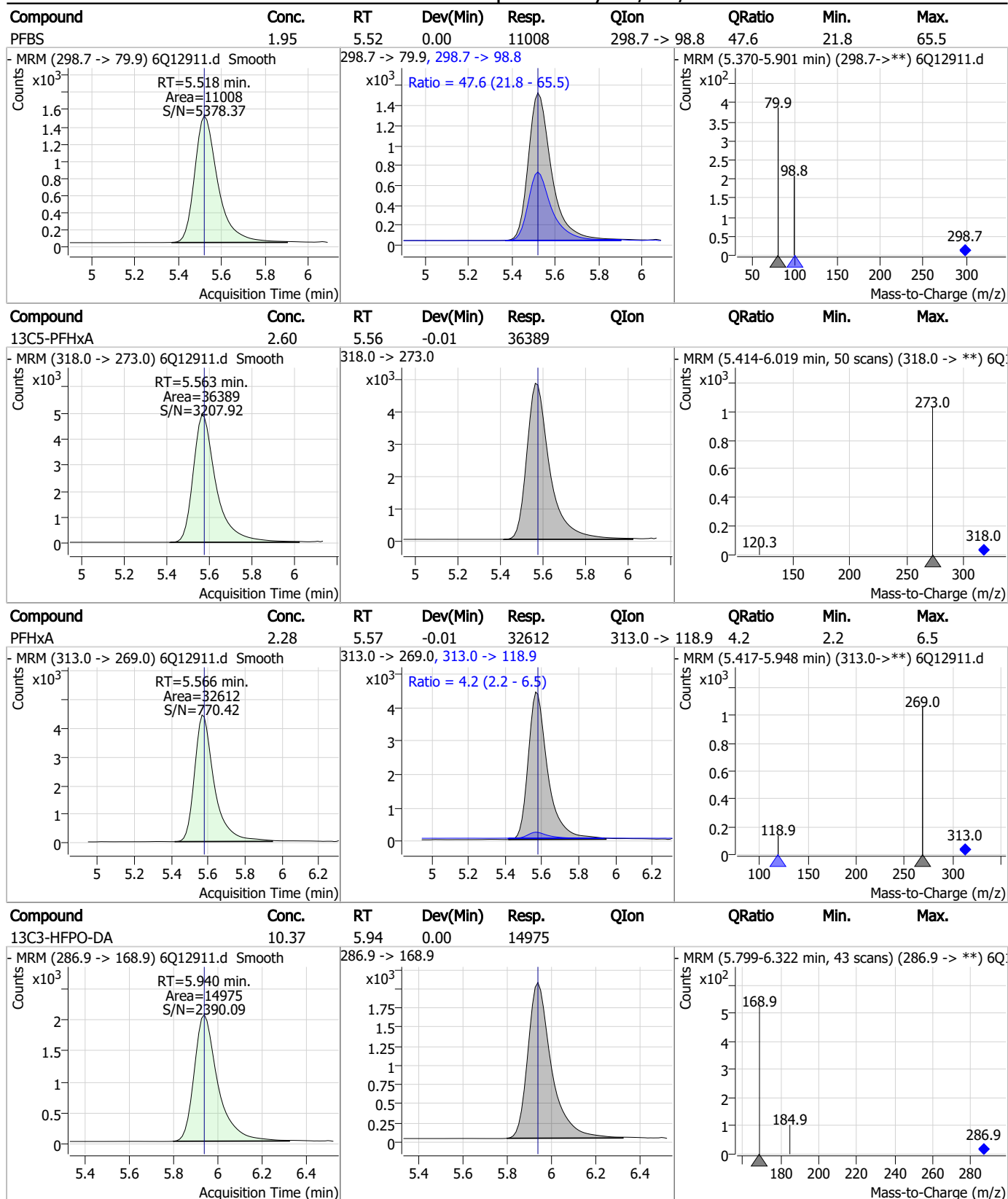
7.7.15

7

## Perfluorinated Compounds by LC/MS/MS

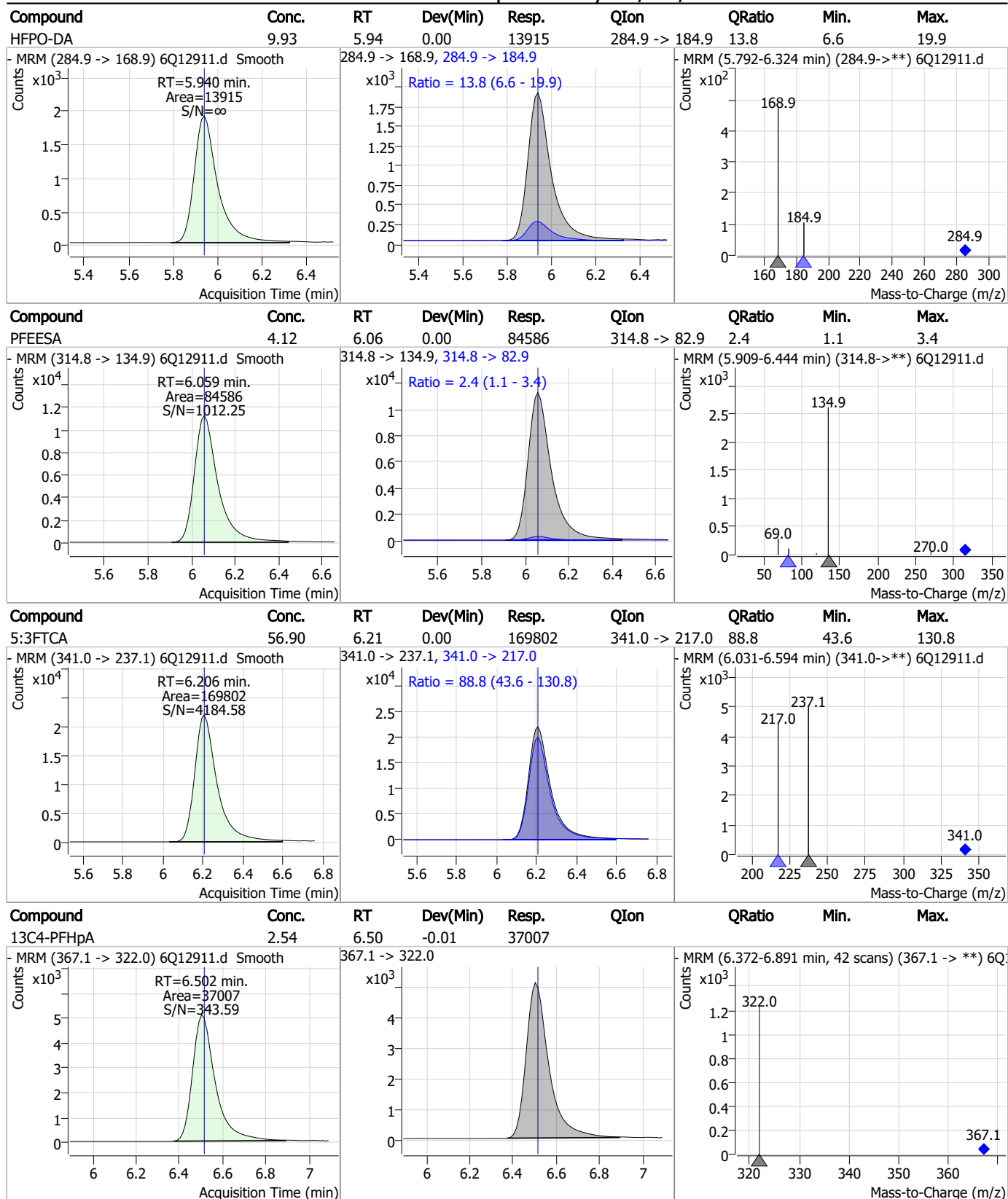


## Perfluorinated Compounds by LC/MS/MS

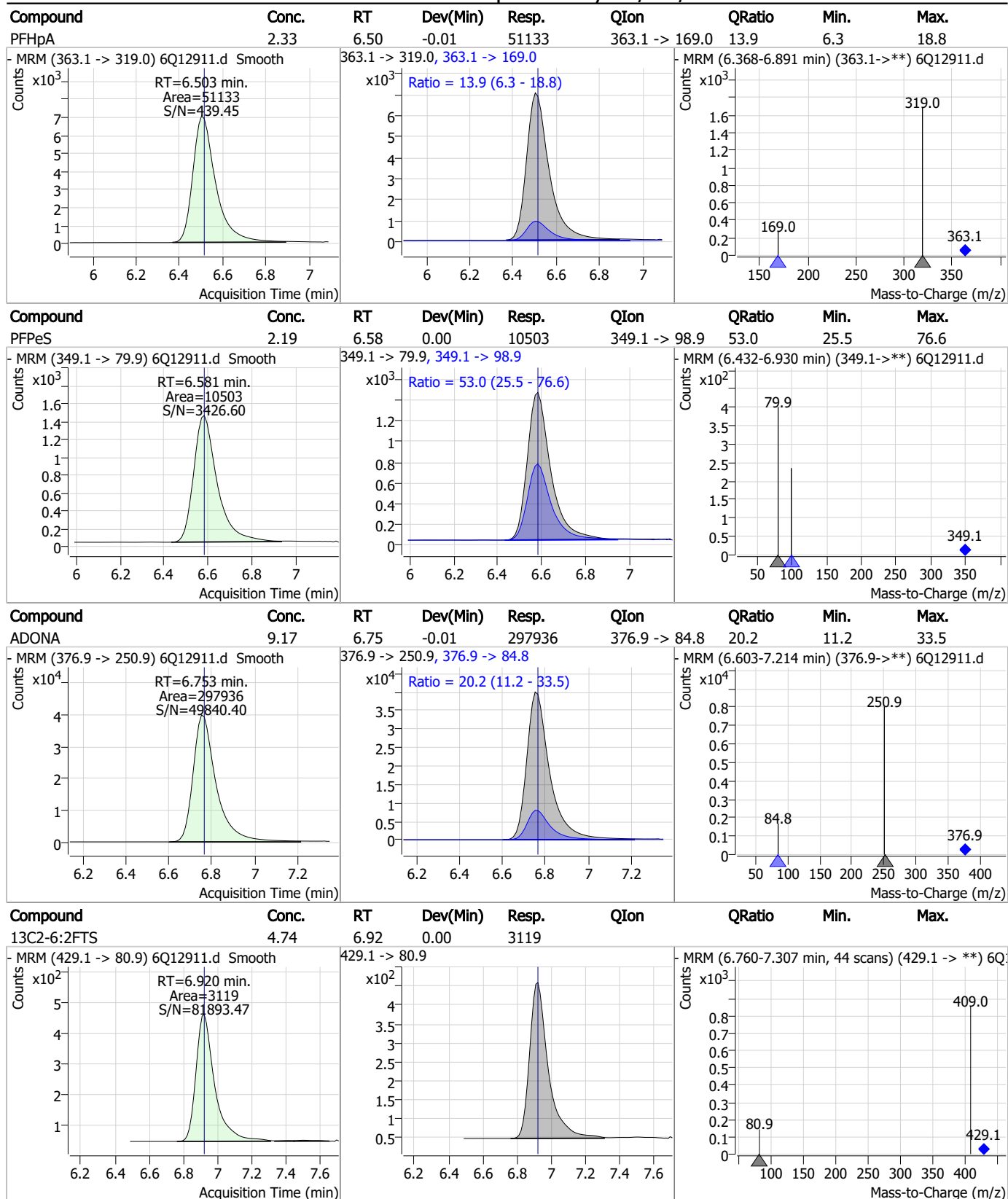




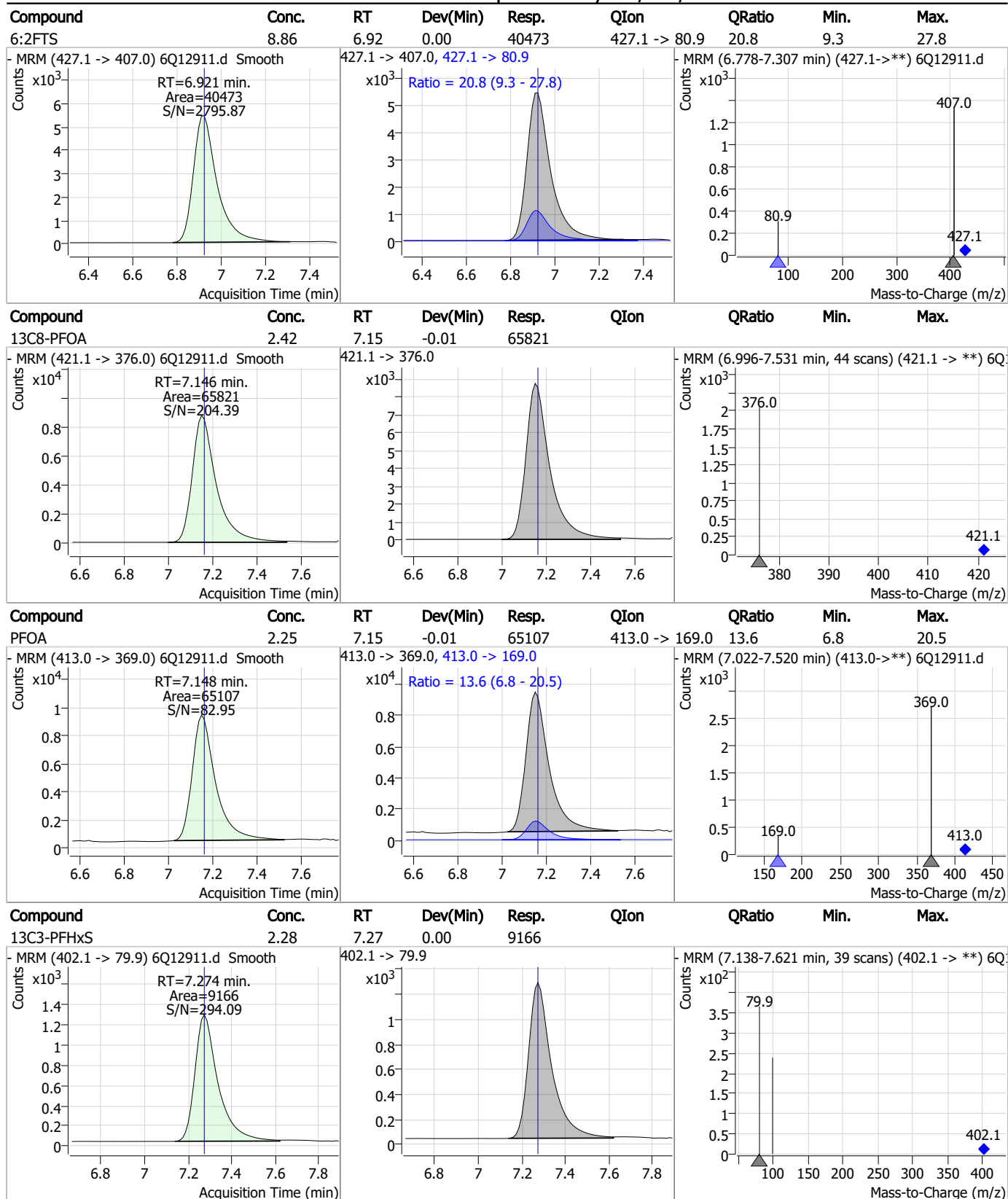
## Perfluorinated Compounds by LC/MS/MS



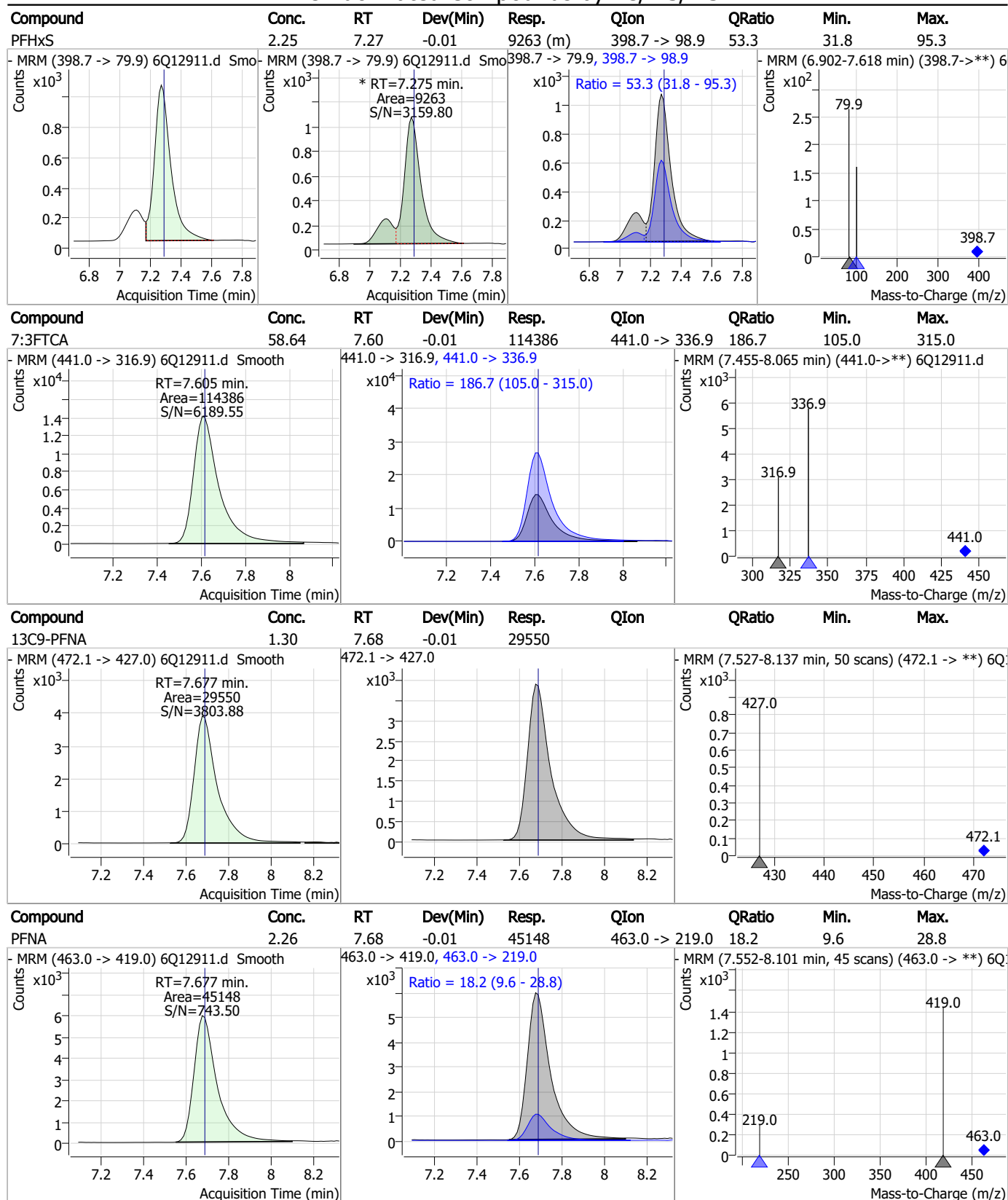
## Perfluorinated Compounds by LC/MS/MS



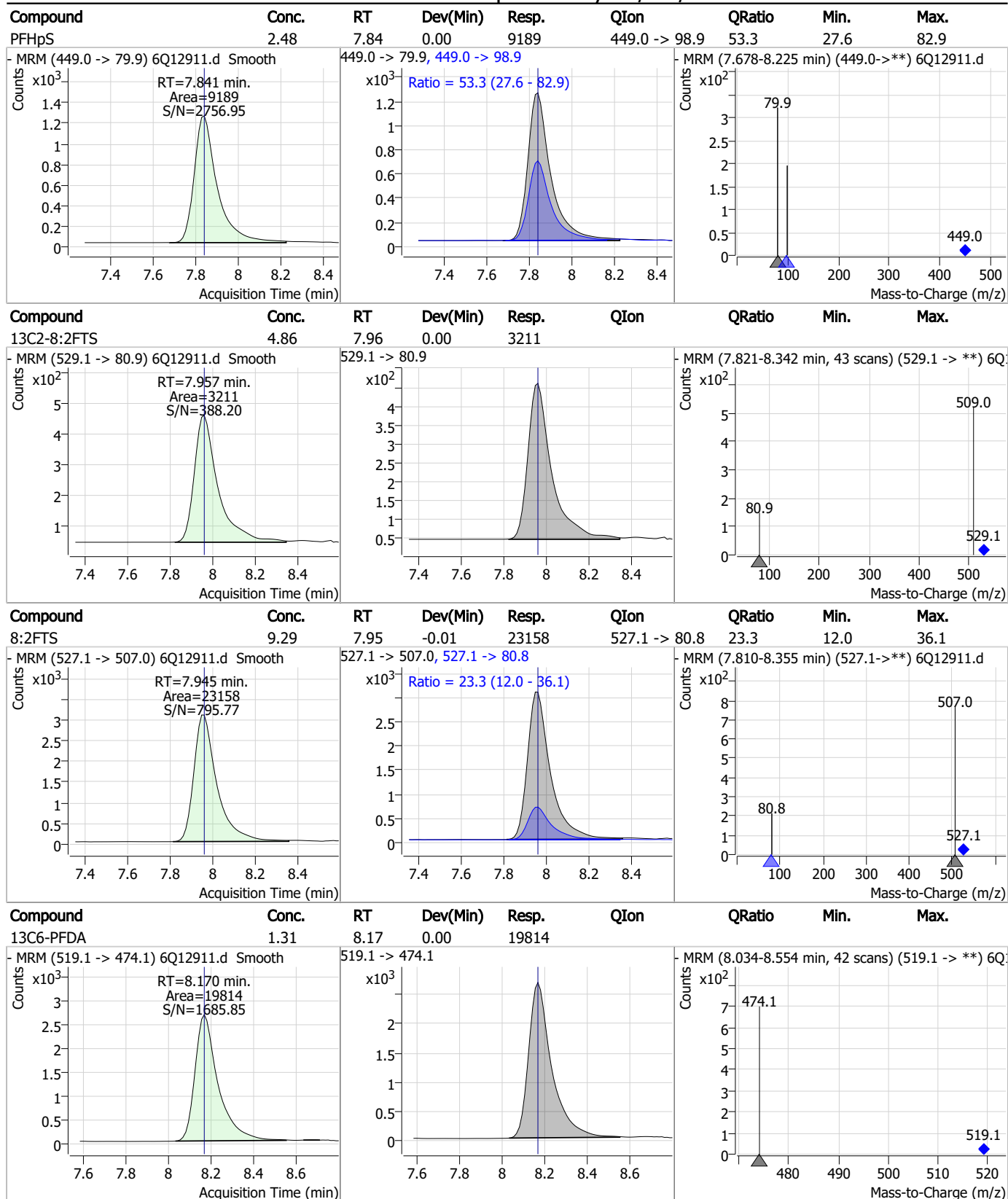
## Perfluorinated Compounds by LC/MS/MS



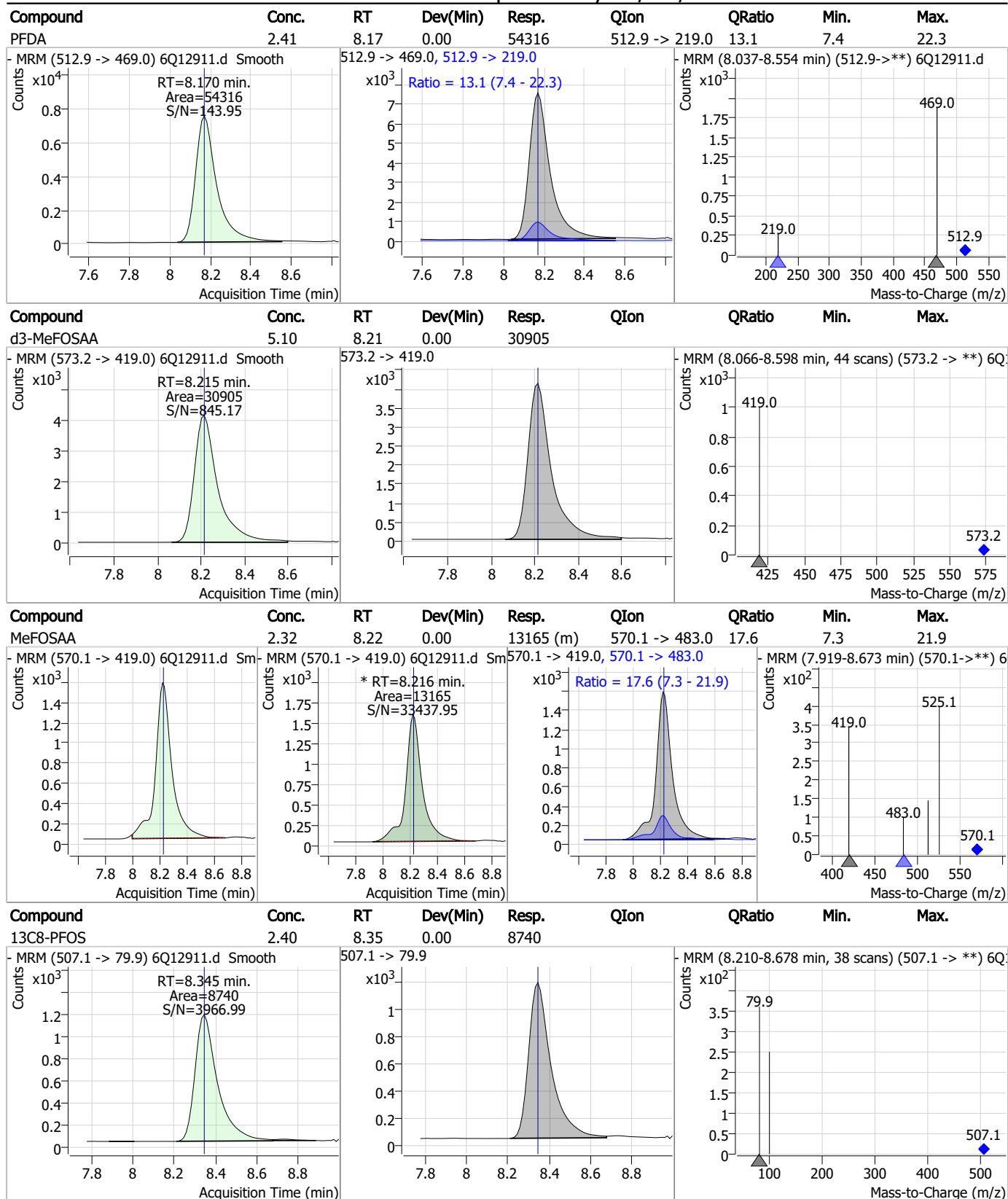
## Perfluorinated Compounds by LC/MS/MS



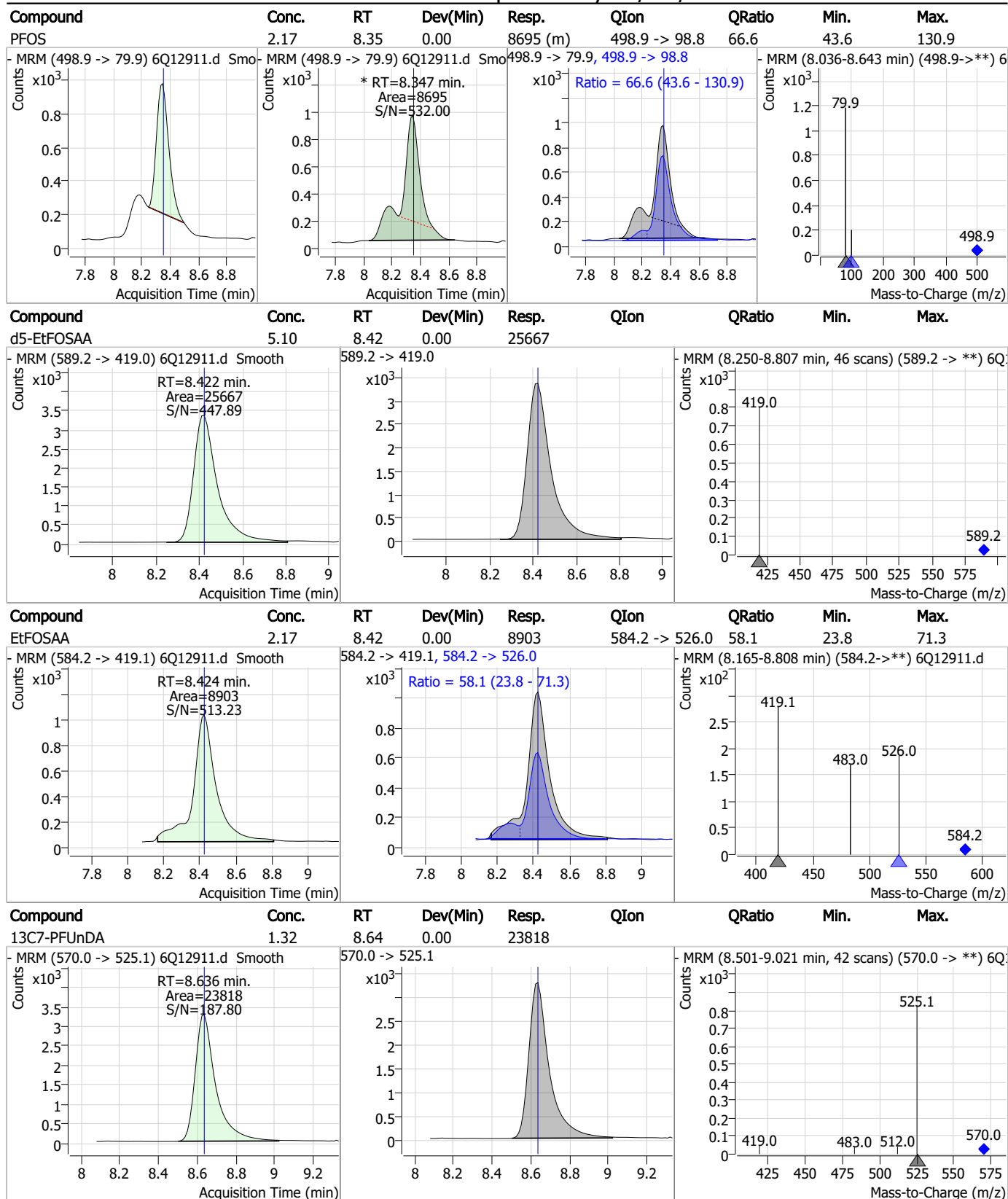
## Perfluorinated Compounds by LC/MS/MS



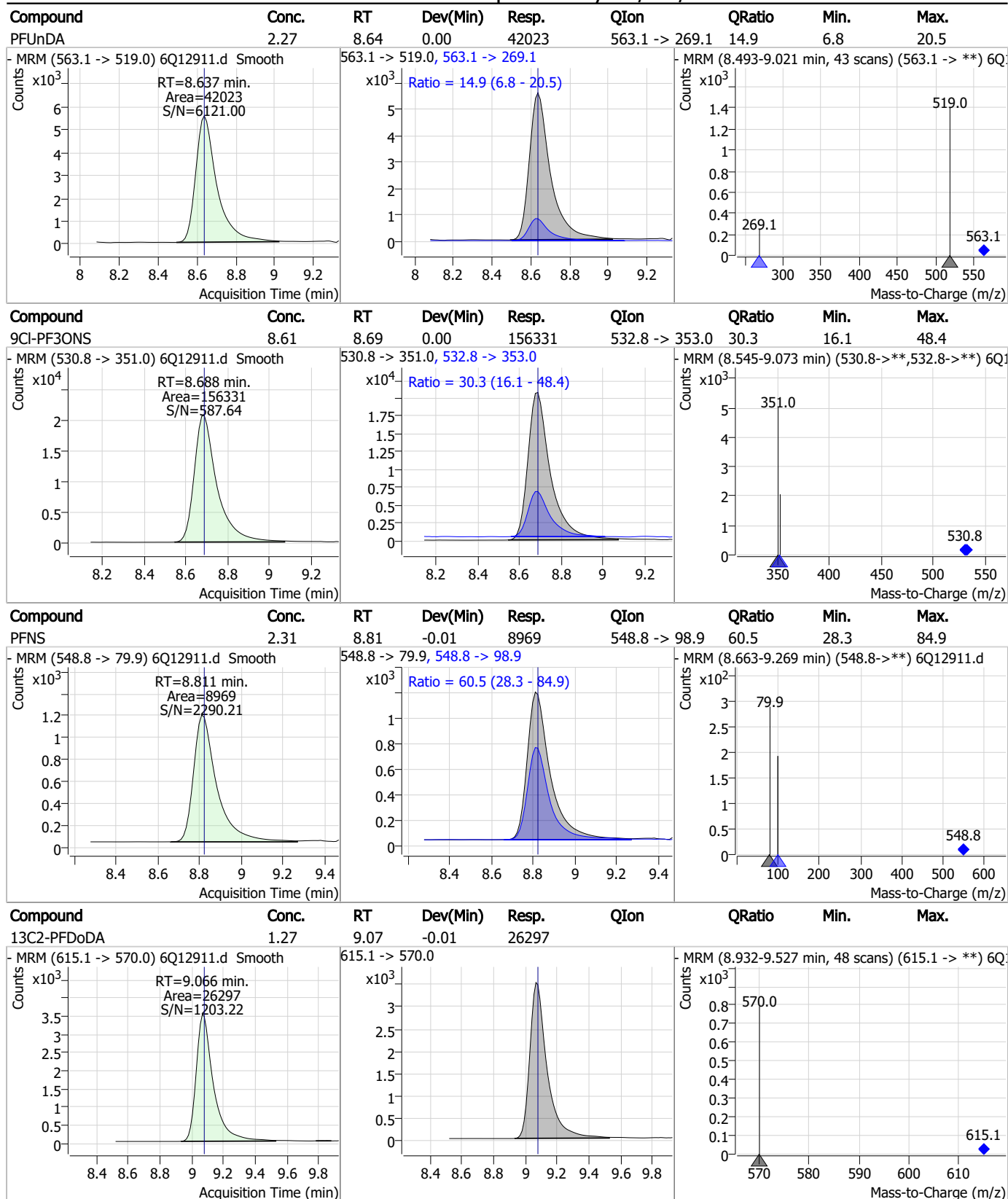
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

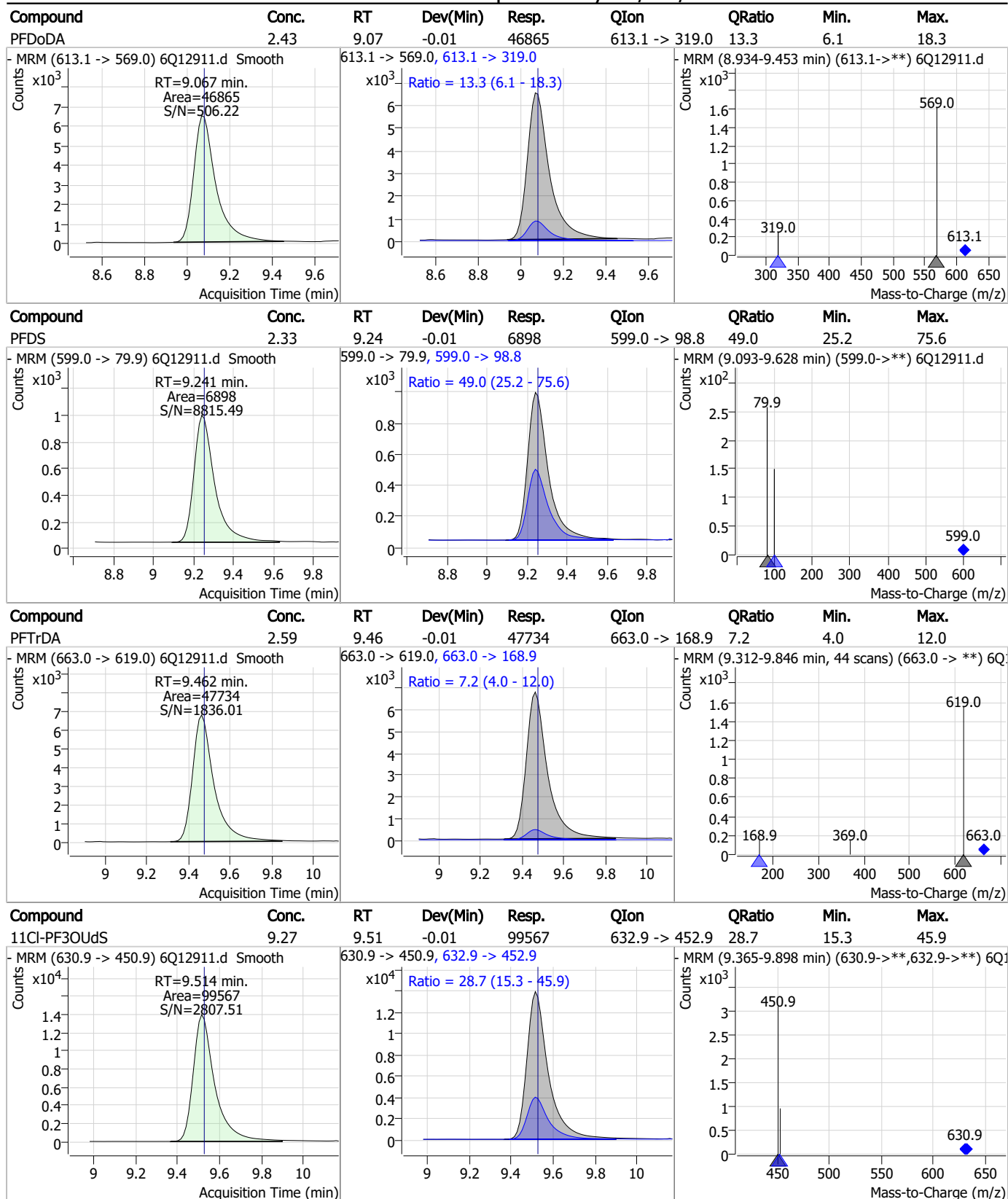


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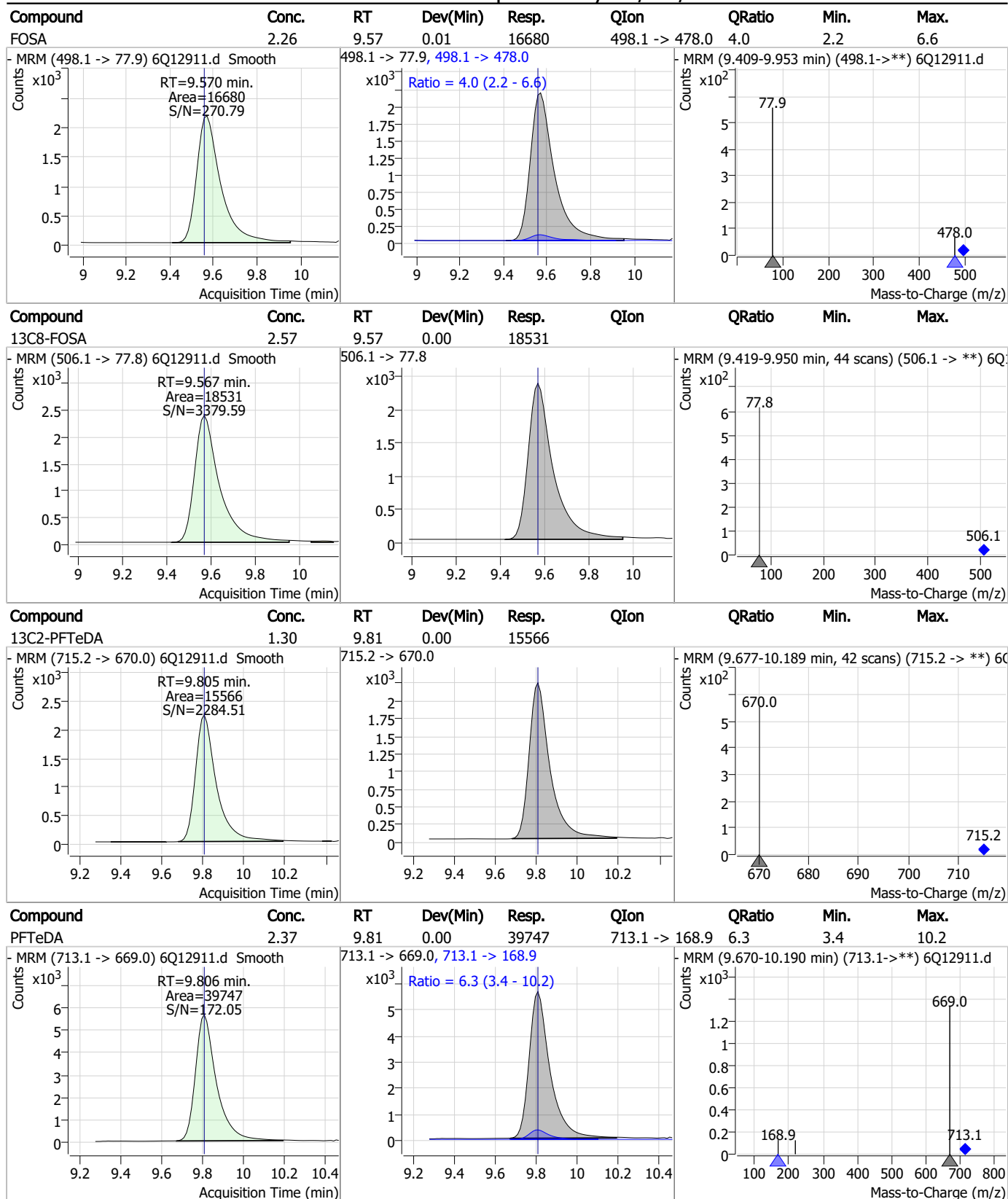




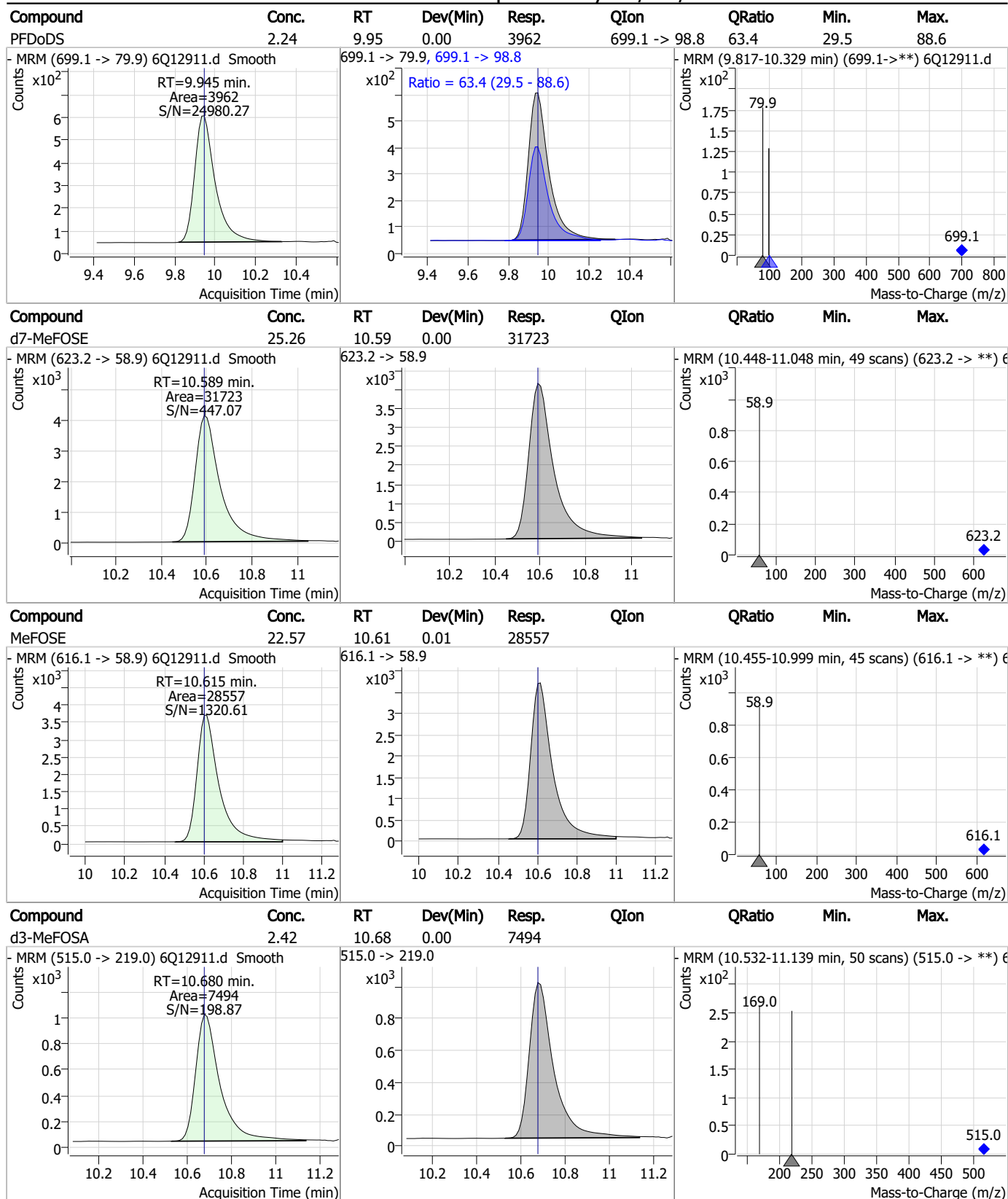
## Perfluorinated Compounds by LC/MS/MS



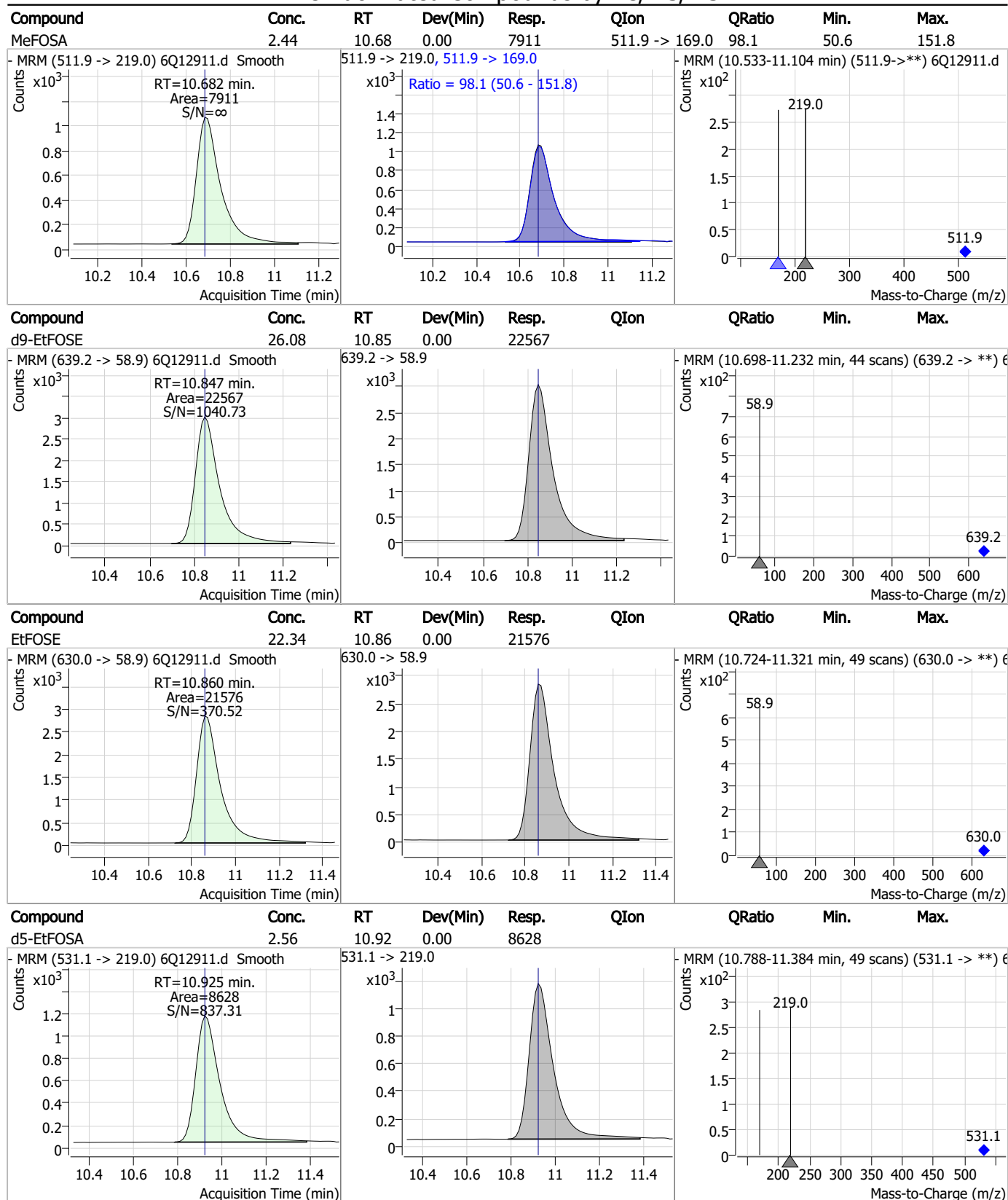
## Perfluorinated Compounds by LC/MS/MS



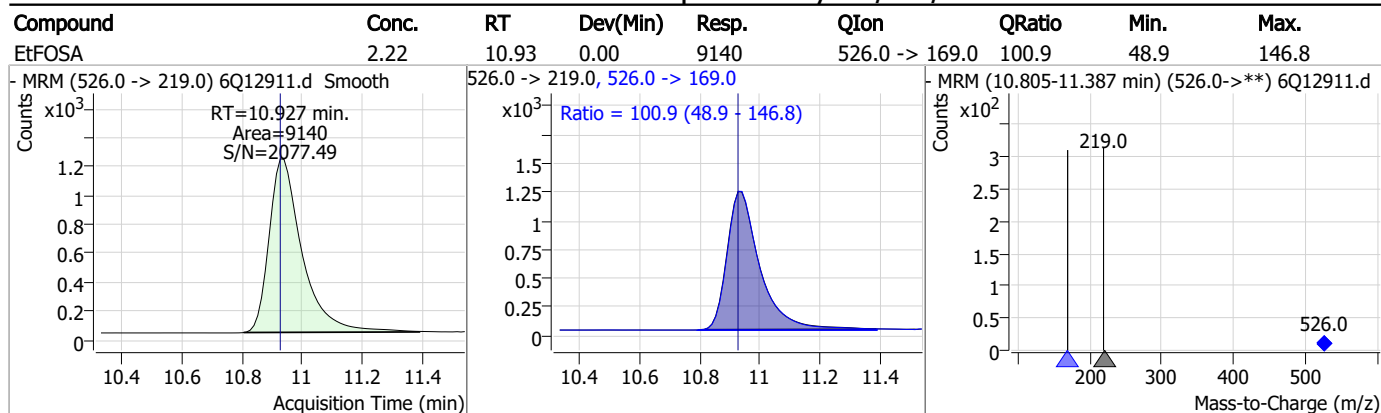
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S6Q198-CC196

Method: EPA DRAFT 1633

Lab FileID: 6Q12911.D

Analyst approved: 02/06/23 11:00 Martha Valls

Injection Time: 02/03/23 16:19

Supervisor approved: 02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.7.15.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12912.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 2/3/2023 4:33:41 PM  
 Sample Name : cc196-1.0LL  
 Vial : P1-A2  
 DA Method File : 1633\_020223\_S6Q196.quantmethod.xml  
 Batch Name : s6q198.batch.bin  
 Sample Information : OP94819,S6Q198,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.988	216.8 -> 171.9	76038	10.00 µg/L	0.012
M5-PFPeA	4.386	268.3 -> 223.0	37900	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	32695	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	35624	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	61910	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	28419	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18938	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	22586	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	25651	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14302	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	17003	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13787	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9236	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8340	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2391	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3270	5.00 µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	3004	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	27508	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13959	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	24047	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	29896	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	22056	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8039	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7147	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10358	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	33970	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6490	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	76621	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	25968	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	30646	1.25 µg/L	-0.012
13C2-PFHxA	5.576	315.1 -> 270.0	35203	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.240	329.1 -> 80.9	2391	5.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.3%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3270	5.84 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.8%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3004	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C2-PFDoDA	9.066	615.1 -> 570.0	25651	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14302	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C3-PFBS	5.518	302.1 -> 79.9	13787	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C3-PFHxS	7.274	402.1 -> 79.9	9236	2.71 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 = 108.3%		
13C4-PFBA	2.988	216.8 -> 171.9	76038	10.09 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C4-PFHpA	6.502	367.1 -> 322.0	35624	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C5-PFHxA	5.575	318.0 -> 273.0	32695	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C5-PFPeA	4.386	268.3 -> 223.0	37900	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C6-PFDA	8.170	519.1 -> 474.1	18938	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C7-PFUnDA	8.636	570.0 -> 525.1	22586	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C8-FOSA	9.567	506.1 -> 77.8	17003	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C8-PFOA	7.146	421.1 -> 376.0	61910	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C8-PFOS	8.345	507.1 -> 79.9	8340	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C9-PFNA	7.677	472.1 -> 427.0	28419	1.32 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.4%		
d3-MeFOSAA	8.215	573.2 -> 419.0	27508	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	13959	9.70 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.0%		
d3-MeFOSA	10.680	515.0 -> 219.0	7147	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.4%		
d5-EtFOSAA	8.410	589.2 -> 419.0	24047	5.10 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
d7-MeFOSE	10.589	623.2 -> 58.9	29896	25.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
d9-EtFOSE	10.847	639.2 -> 58.9	22056	27.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
d5-EtFOSA	10.925	531.1 -> 219.0	8039	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.7%		
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	4339	0.81 µg/L	100
		327.1 -> 80.9	942		
6:2FTS	6.921	427.1 -> 407.0	3467	0.72 µg/L	96
		427.1 -> 80.9	713		
8:2FTS	7.958	527.1 -> 507.0	1842	0.79 µg/L	94
		527.1 -> 80.8	501		
EtFOSAA	8.424	584.2 -> 419.1	817	0.21 µg/L	83
		584.2 -> 526.0	479		
FOSA	9.557	498.1 -> 77.9	1525	0.22 µg/L	98
		498.1 -> 478.0	78		
MeFOSAA	8.216	570.1 -> 419.0	1040	0.21 µg/L	99
		570.1 -> 483.0	148		
PFBA	2.982	212.8 -> 168.9	1380	0.81 µg/L	100
PFBS	5.518	298.7 -> 79.9	983	0.19 µg/L	93
		298.7 -> 98.8	477		
PFDA	8.170	512.9 -> 469.0	4239	0.20 µg/L	97
		512.9 -> 219.0	578		
PFDODA	9.067	613.1 -> 569.0	4224	0.22 µg/L	93
		613.1 -> 319.0	398		
PFDS	9.241	599.0 -> 79.9	562	0.20 µg/L	87



## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	333	0.21	µg/L	100
		363.1 -> 319.0	4386			
PFHpS	7.841	363.1 -> 169.0	552	0.23	µg/L	99
		449.0 -> 79.9	823			
PFHxA	5.566	449.0 -> 98.9	449	0.23	µg/L	97
		313.0 -> 269.0	2994			
PFHxS	7.275	313.0 -> 118.9	96	0.15	µg/L	78
		398.7 -> 79.9	628			
PFNA	7.677	398.7 -> 98.9	506	0.20	µg/L	97
		463.0 -> 419.0	3840			
PFNS	8.811	463.0 -> 219.0	788	0.21	µg/L	95
		548.8 -> 79.9	772			
PFOA	7.148	548.8 -> 98.9	410	0.21	µg/L	100
		413.0 -> 369.0	5700			
PFOS	8.347	413.0 -> 169.0	767	0.23	µg/L	70
		498.9 -> 79.9	880			
PFPeA	4.388	498.9 -> 98.8	521	0.41	µg/L	100
		263.0 -> 219.0	3301			
PFPeS	6.581	349.1 -> 79.9	821	0.17	µg/L	70
		349.1 -> 98.9	589			
PFTeDA	9.806	713.1 -> 669.0	3481	0.23	µg/L	97
		713.1 -> 168.9	204			
PFTrDA	9.462	663.0 -> 619.0	3916	0.22	µg/L	98
		663.0 -> 168.9	282			
PFUnDA	8.637	563.1 -> 519.0	3475	0.20	µg/L	96
		563.1 -> 269.1	526			
11CI-PF3OUdS	9.514	630.9 -> 450.9	7684	0.77	µg/L	94
		632.9 -> 452.9	2589			
9CI-PF3ONS	8.676	530.8 -> 351.0	13126	0.78	µg/L	92
		532.8 -> 353.0	3669			
ADONA	6.766	376.9 -> 250.9	22956	0.76	µg/L	100
		376.9 -> 84.8	5080			
HFPO-DA	5.940	284.9 -> 168.9	1009	0.77	µg/L	98
		284.9 -> 184.9	127			
3:3FTCA	3.841	241.0 -> 177.0	428	1.09	µg/L	95
		241.0 -> 117.0	55			
5:3FTCA	6.206	341.0 -> 237.1	13619	5.08	µg/L	99
		341.0 -> 217.0	11810			
7:3FTCA	7.605	441.0 -> 316.9	9270	5.29	µg/L	90
		441.0 -> 336.9	18026			
EtFOSA	10.927	526.0 -> 219.0	759	0.20	µg/L	94
		526.0 -> 169.0	701			
EtFOSE	10.860	630.0 -> 58.9	1777	1.88	µg/L	100
		511.9 -> 219.0	685			
MeFOSA	10.682	511.9 -> 169.0	659	0.22	µg/L	95
		616.1 -> 58.9	2553			
MeFOSE	10.602	699.1 -> 79.9	384	2.14	µg/L	100
		699.1 -> 98.8	234			
PFDoDS	9.933	295.0 -> 201.0	373	0.23	µg/L	97
		295.0 -> 84.9	186			
NFDHA	5.470	279.0 -> 85.1	959	0.49	µg/L	98
		229.0 -> 84.9	911			
PFMBA	4.800	314.8 -> 134.9	6963	0.43	µg/L	100
		314.8 -> 82.9	182			
PFMPA	3.541			0.43	µg/L	100
PFEESA	6.059			0.38	µg/L	99

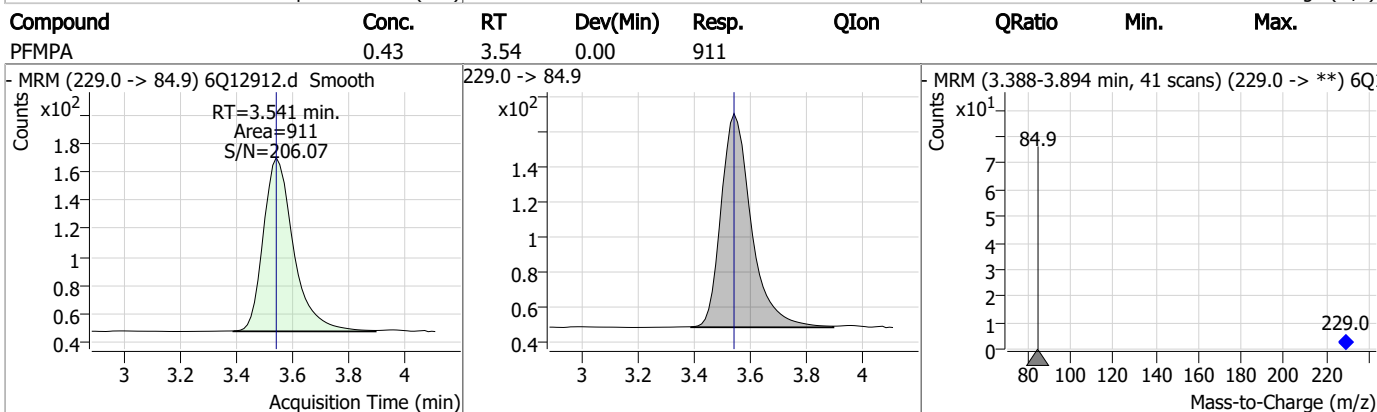
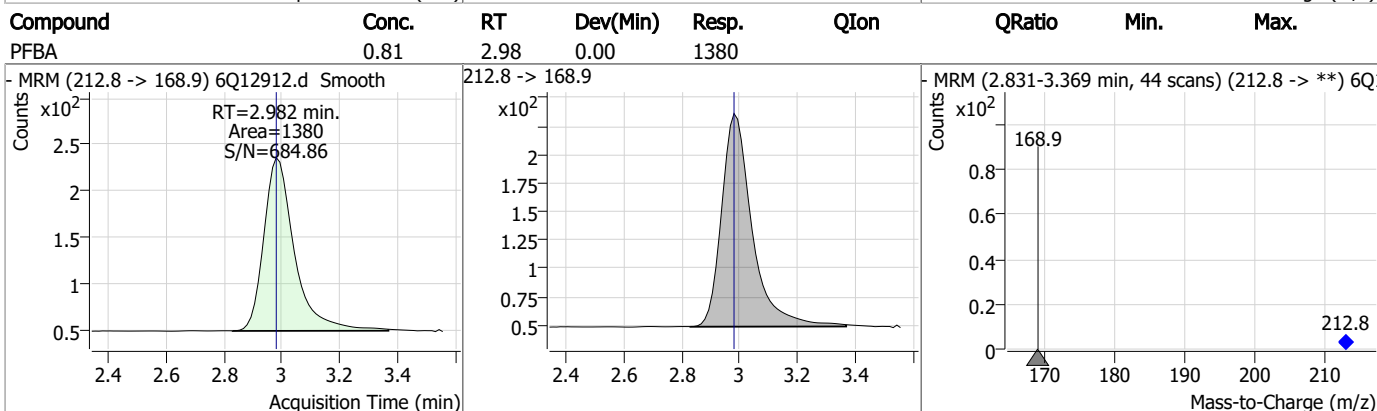
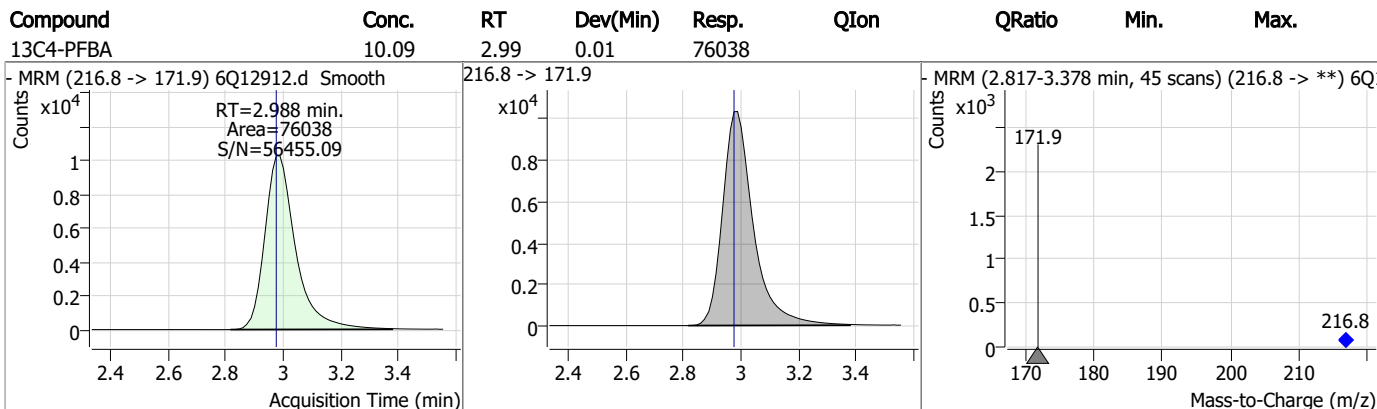
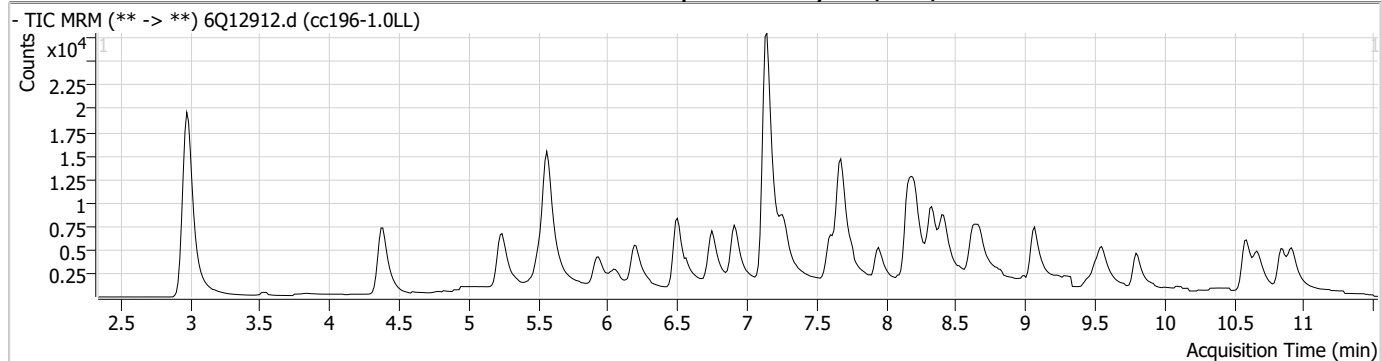
# = Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

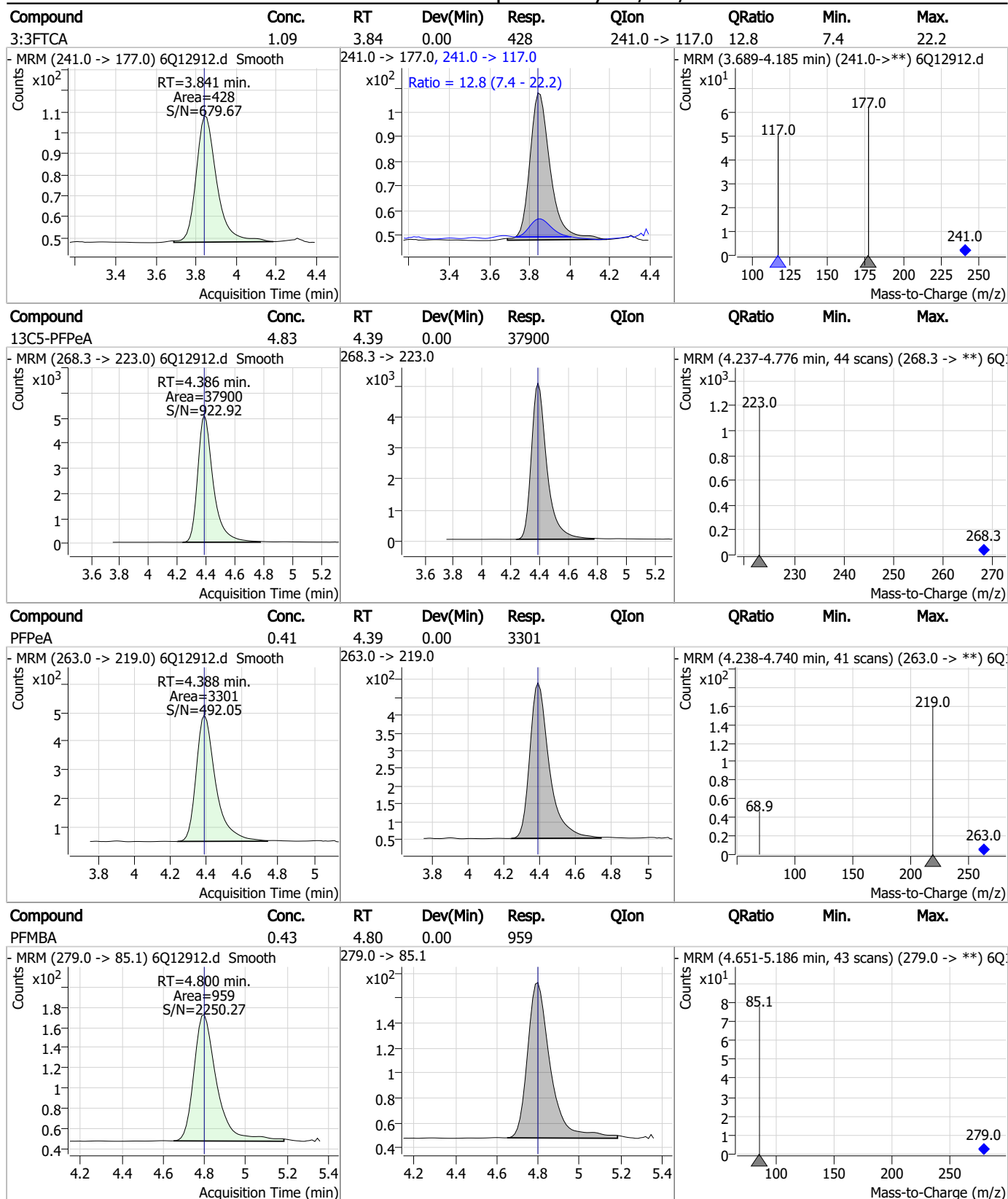
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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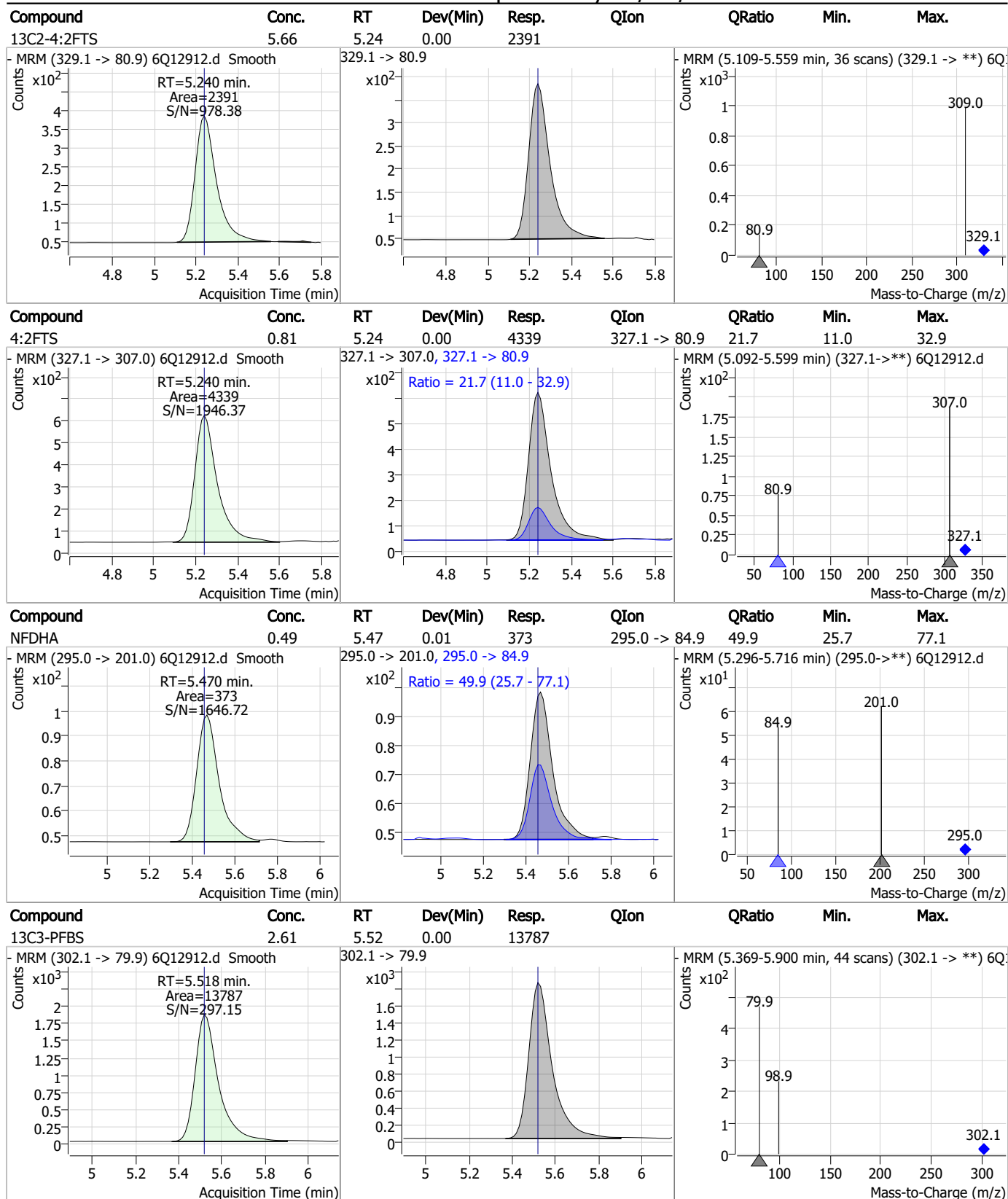
## Perfluorinated Compounds by LC/MS/MS



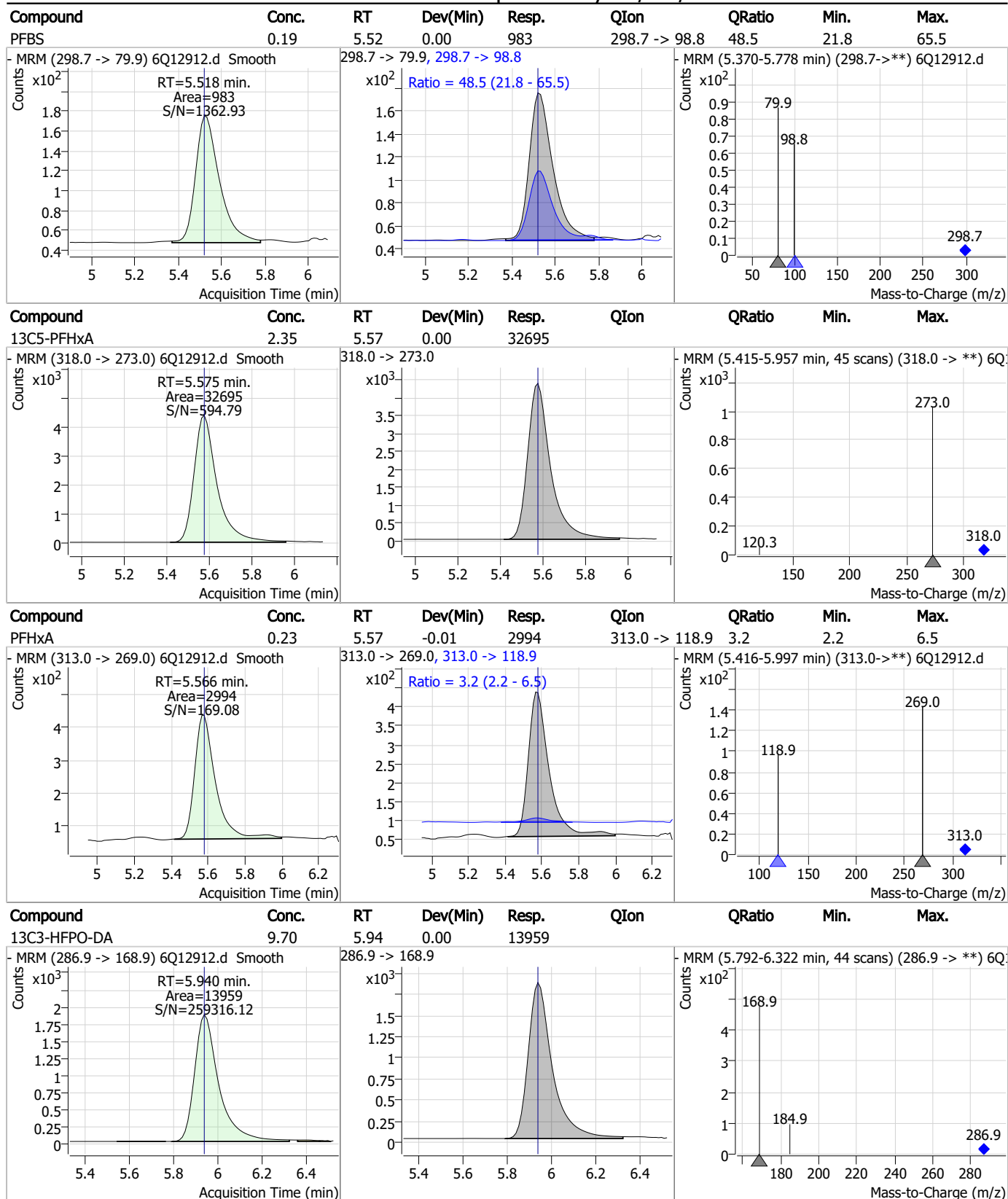
## Perfluorinated Compounds by LC/MS/MS



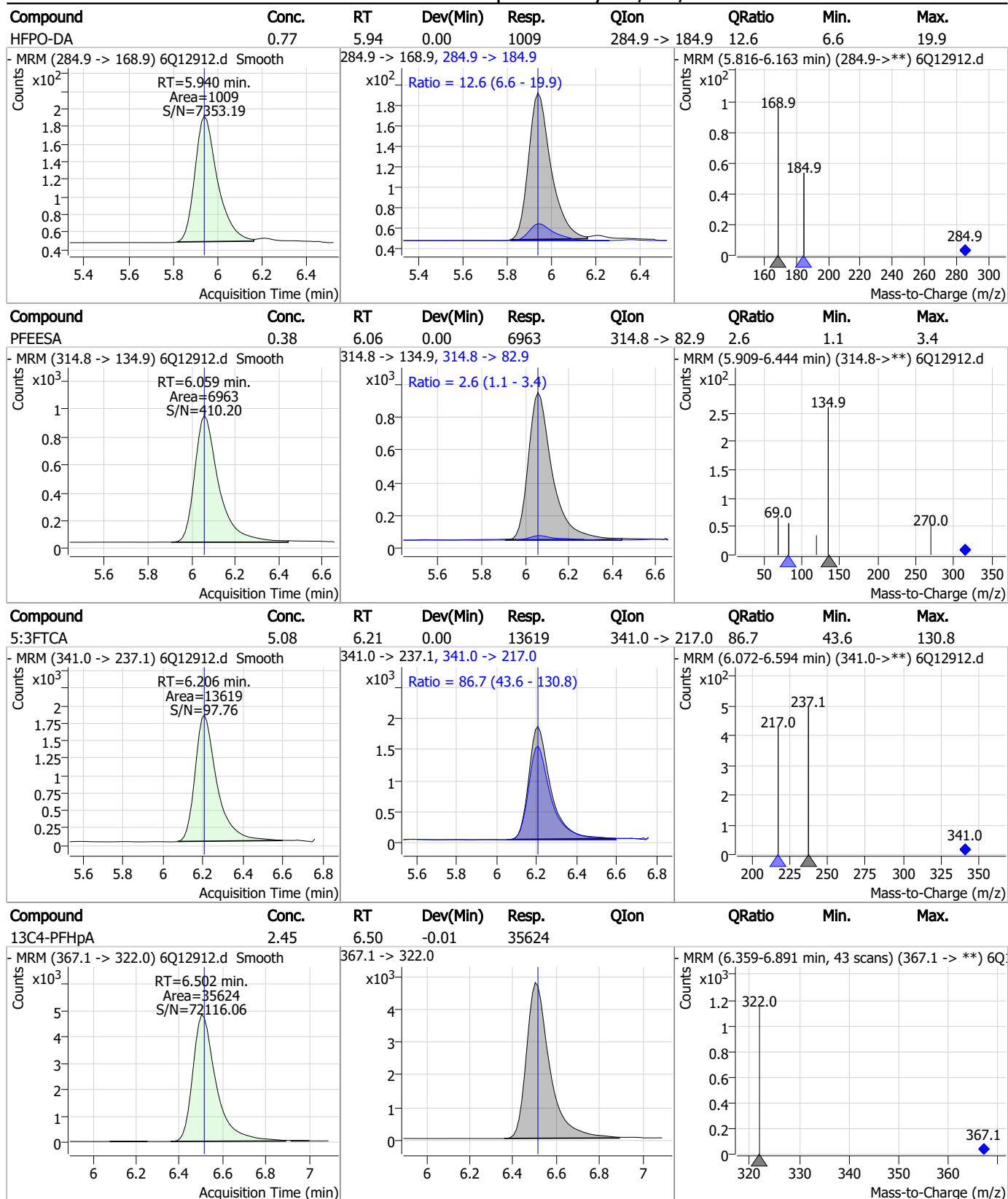
## Perfluorinated Compounds by LC/MS/MS



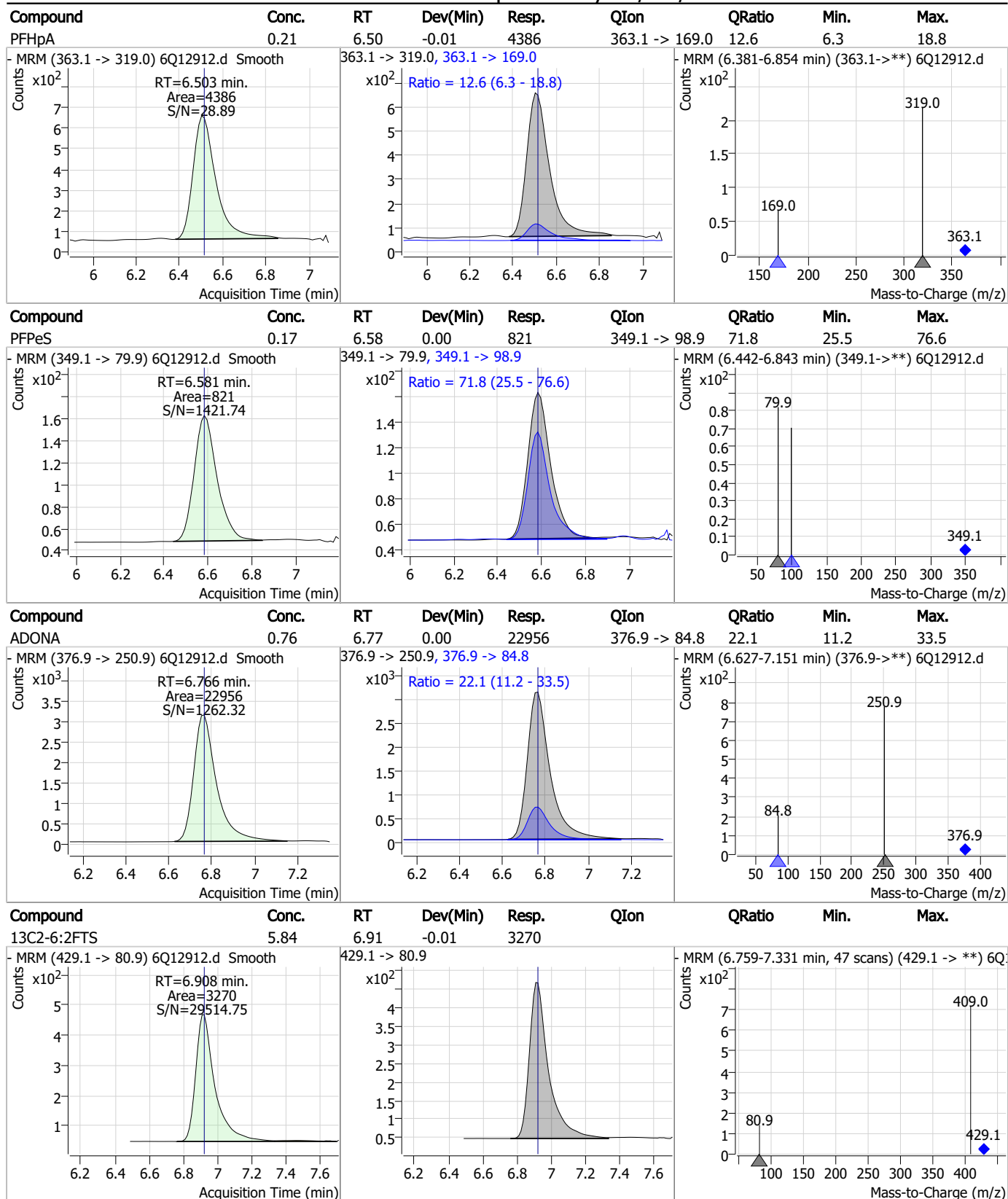
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

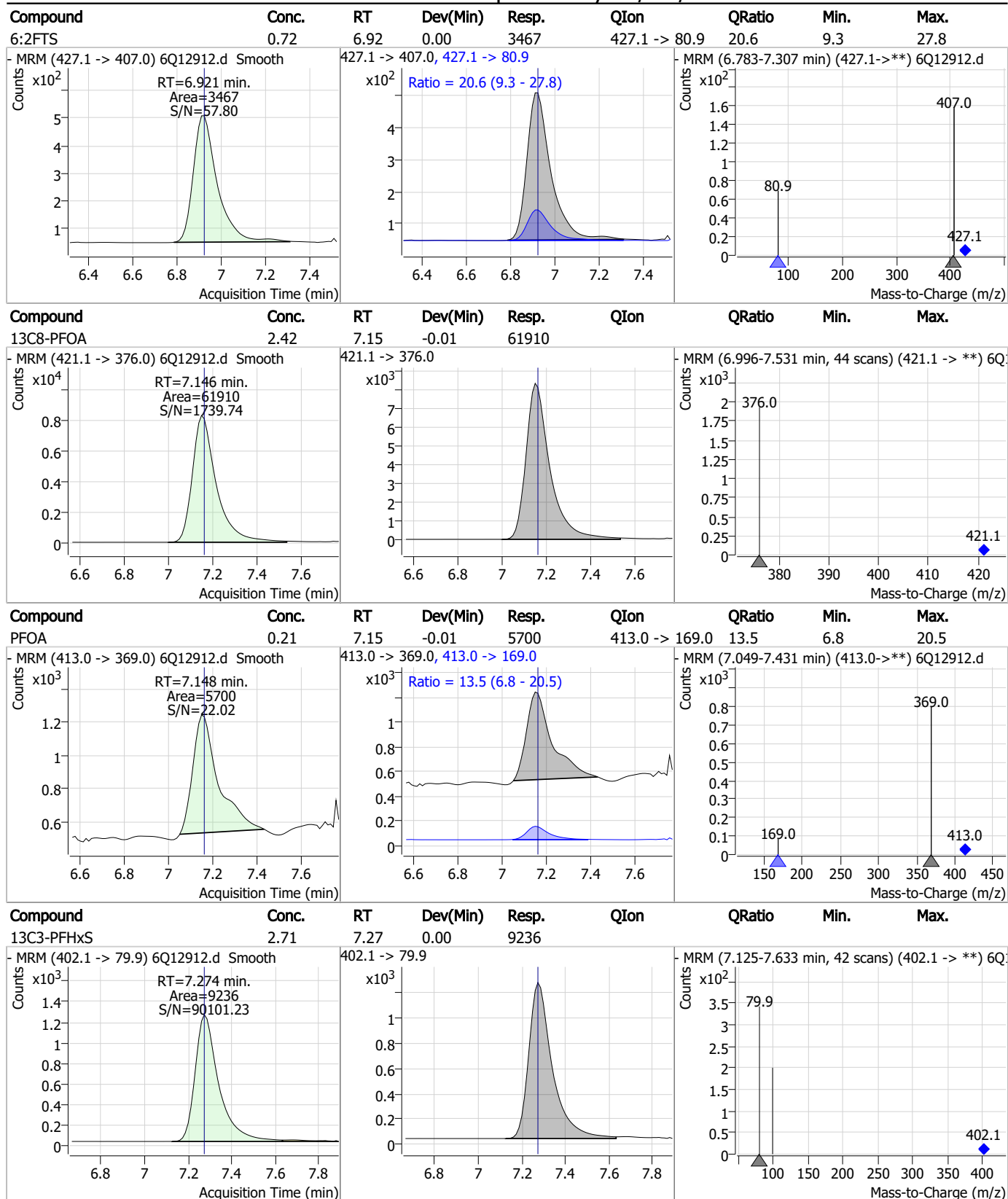


## Perfluorinated Compounds by LC/MS/MS

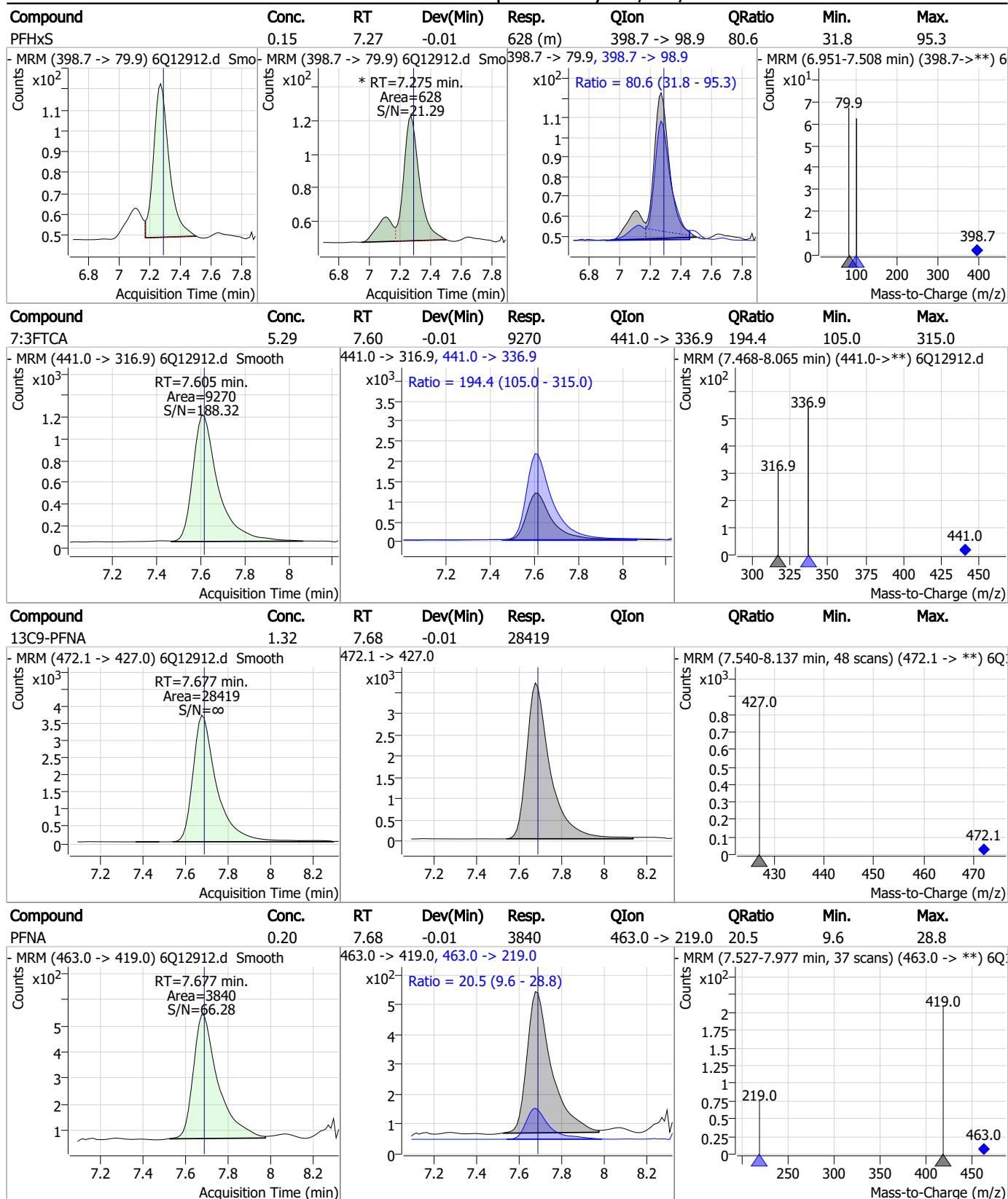




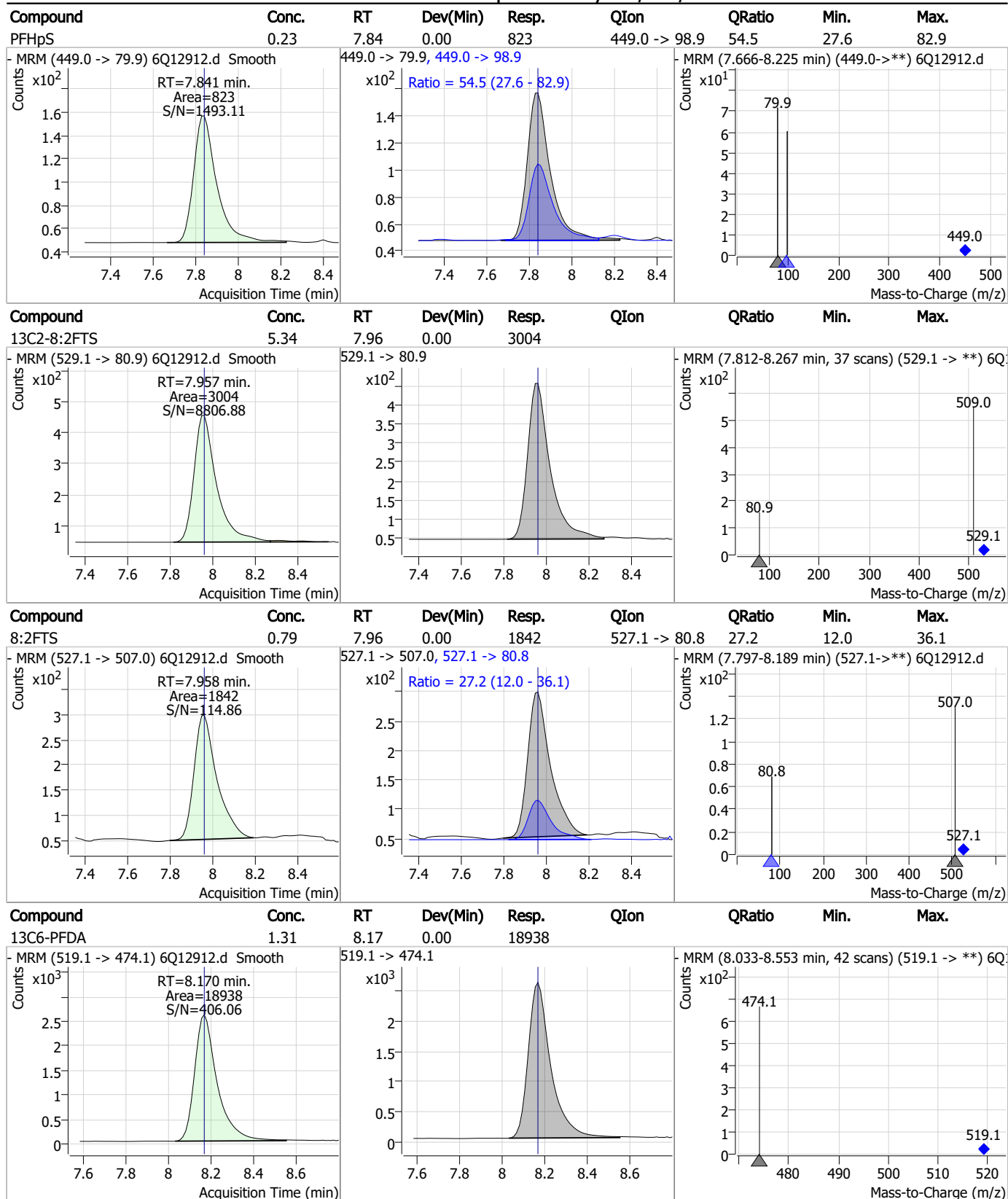
## Perfluorinated Compounds by LC/MS/MS



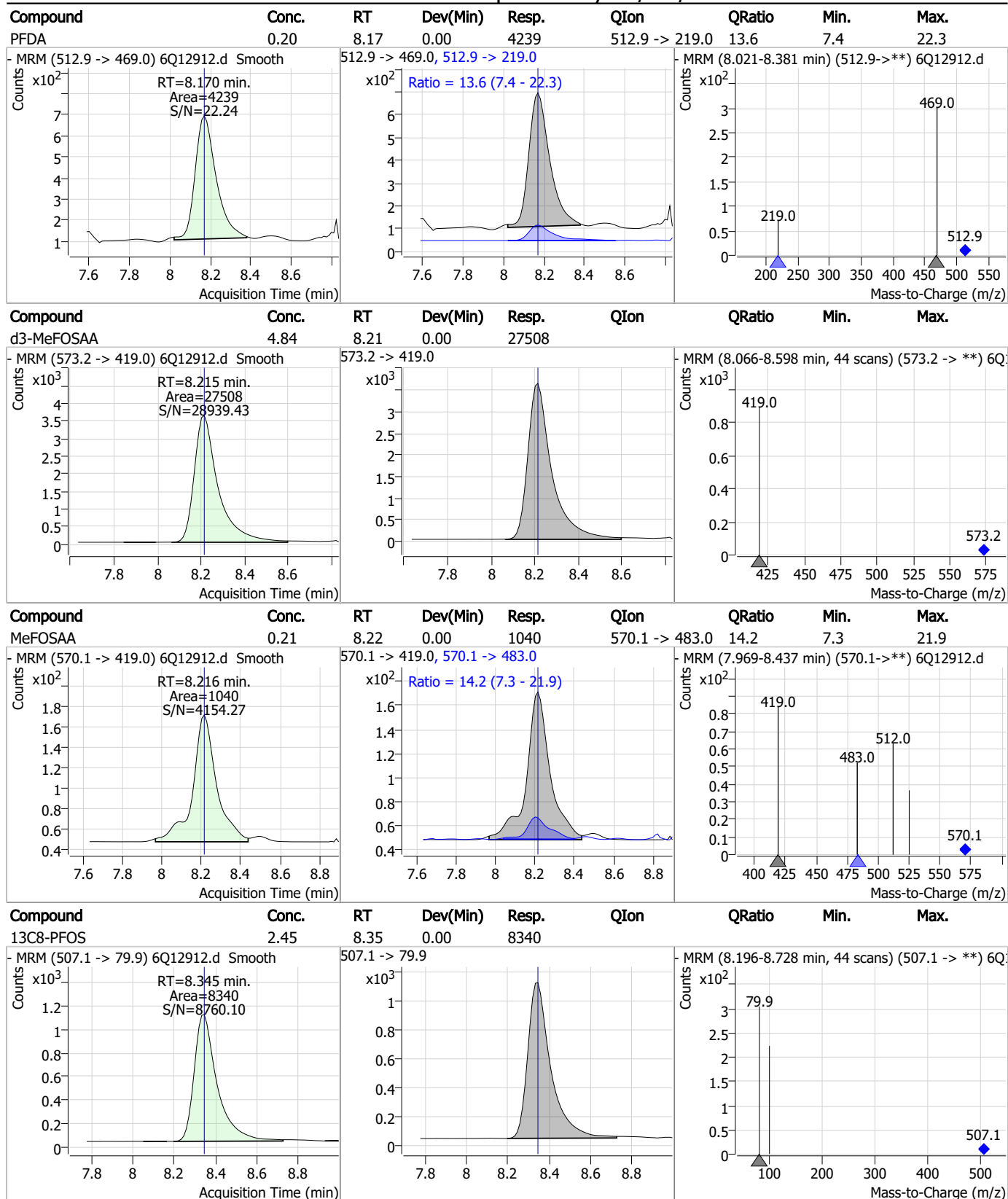
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



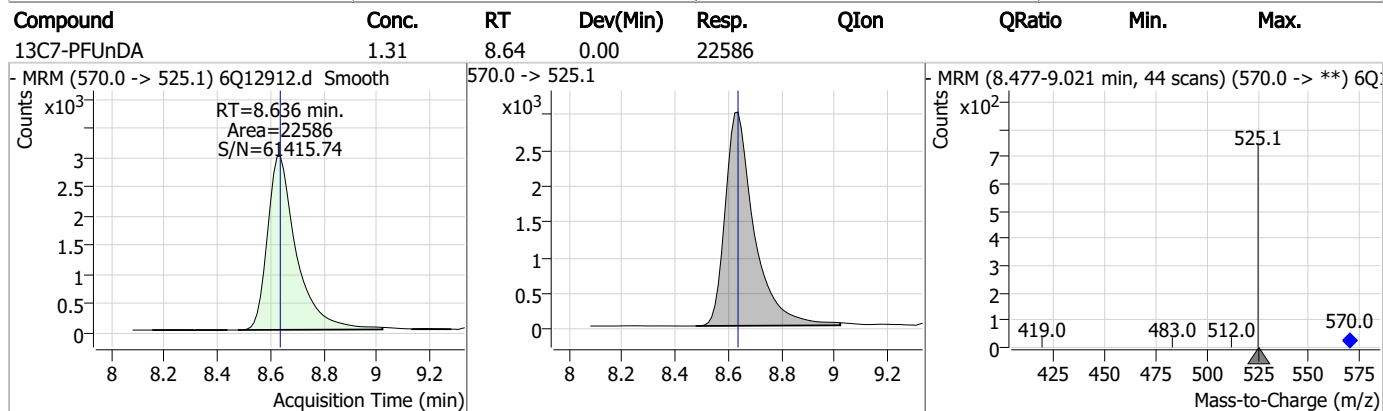
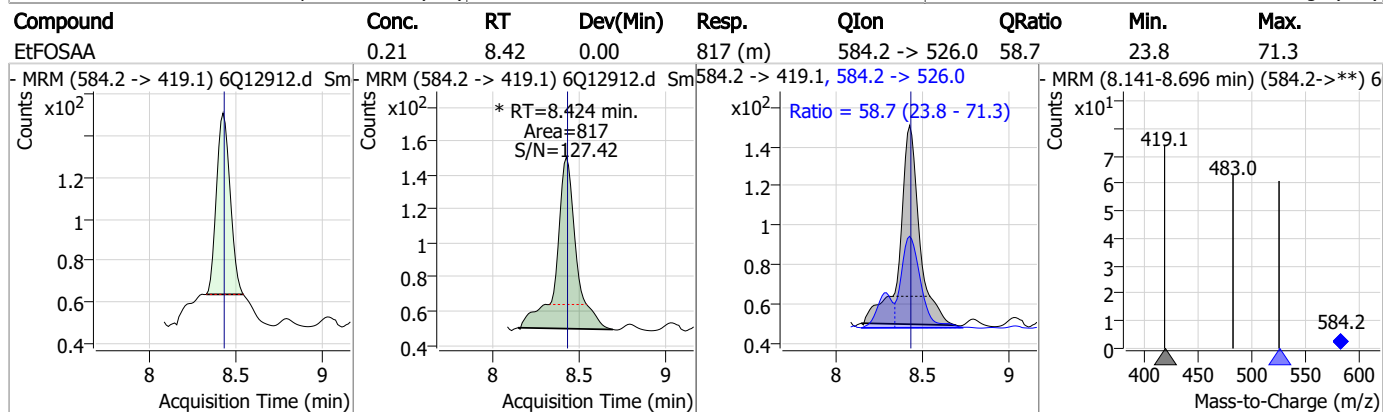
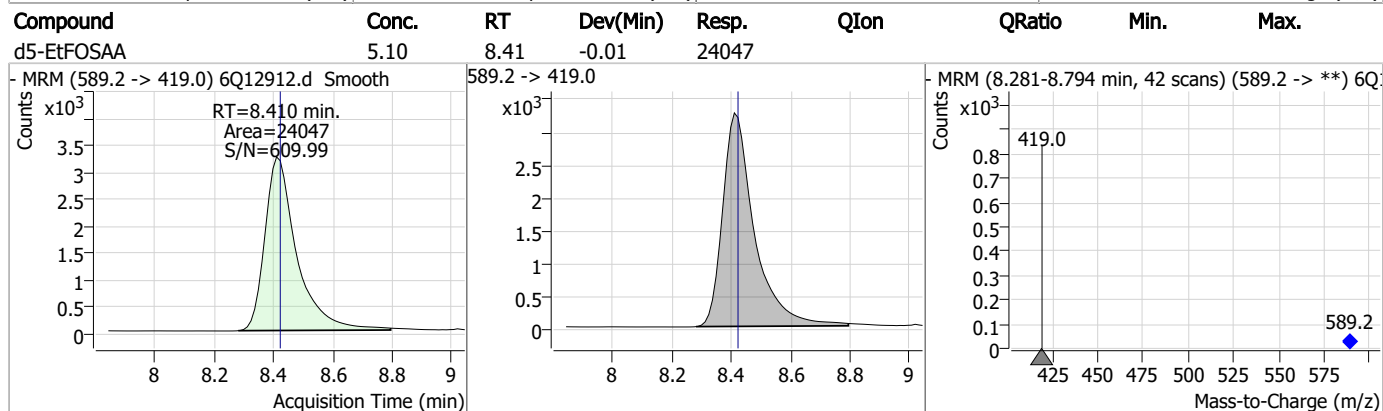
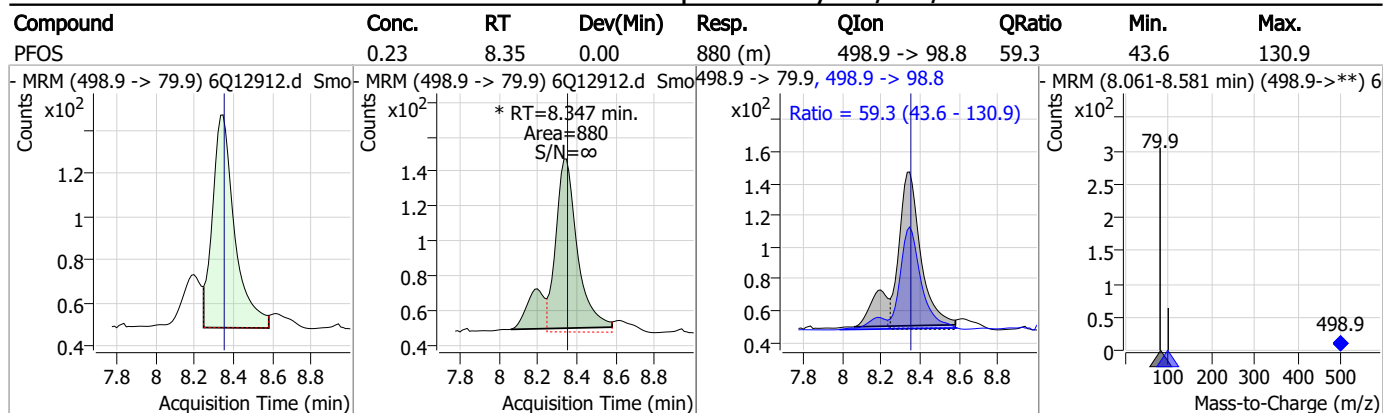
## Perfluorinated Compounds by LC/MS/MS



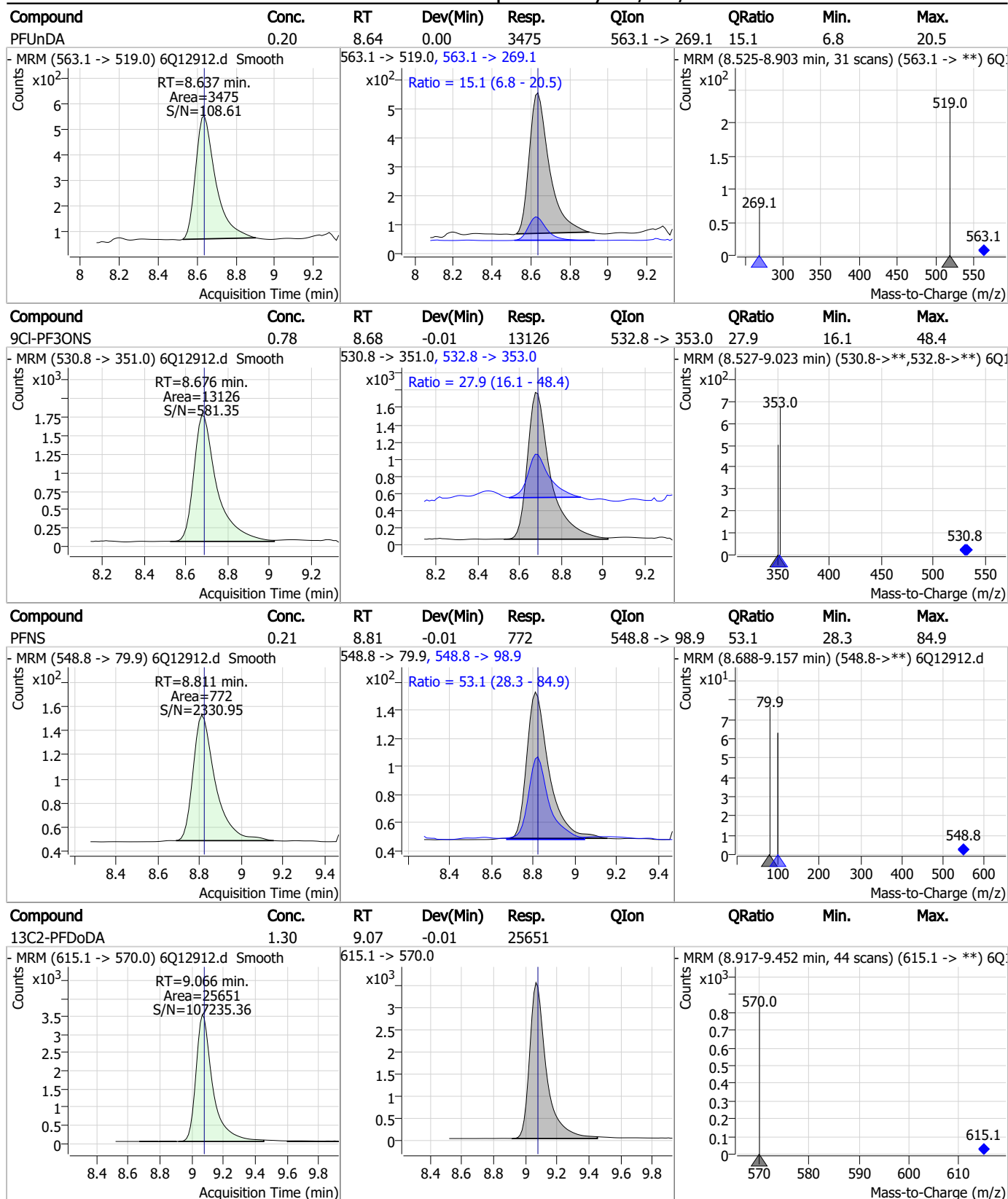
7.7.16

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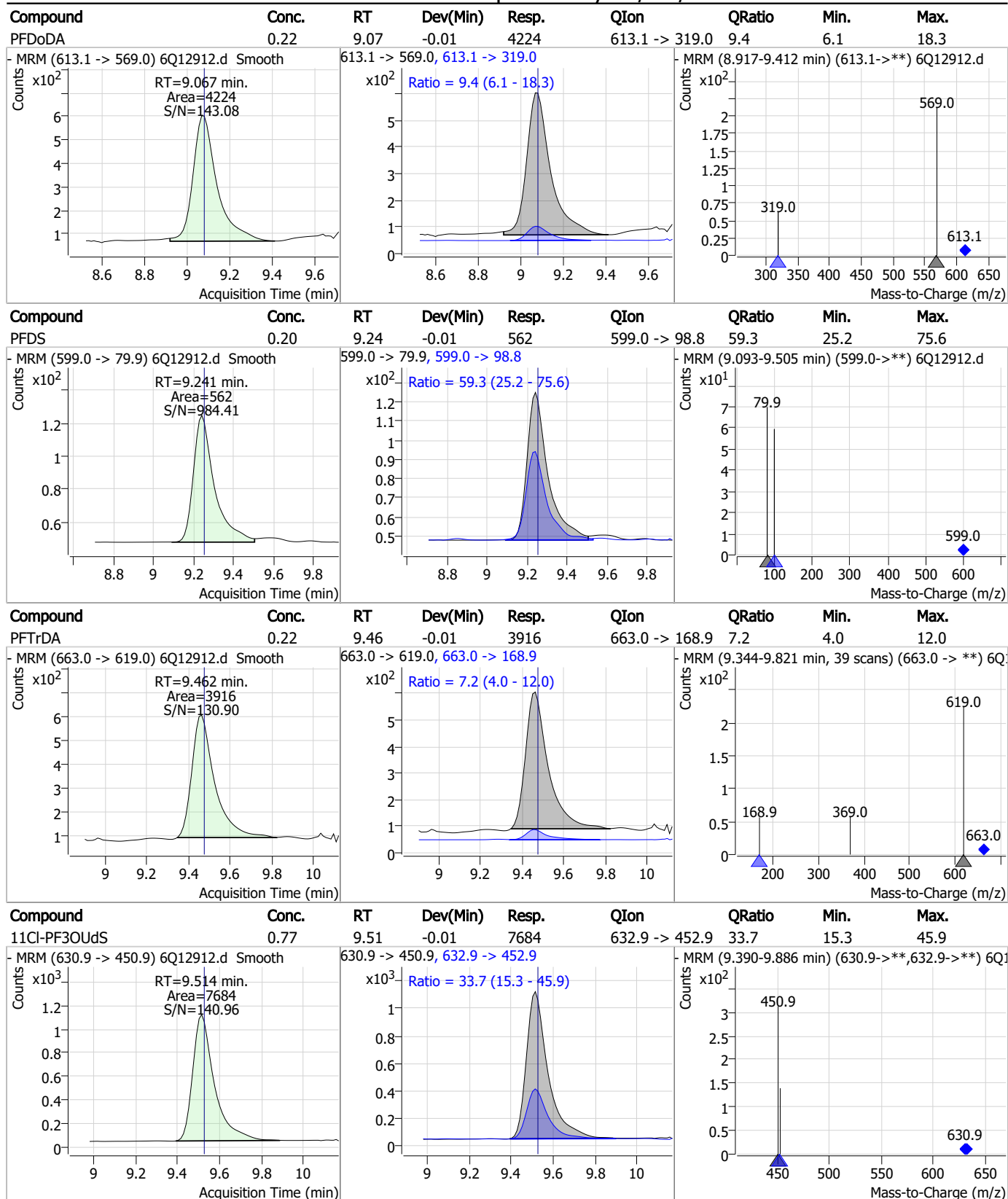
## Perfluorinated Compounds by LC/MS/MS



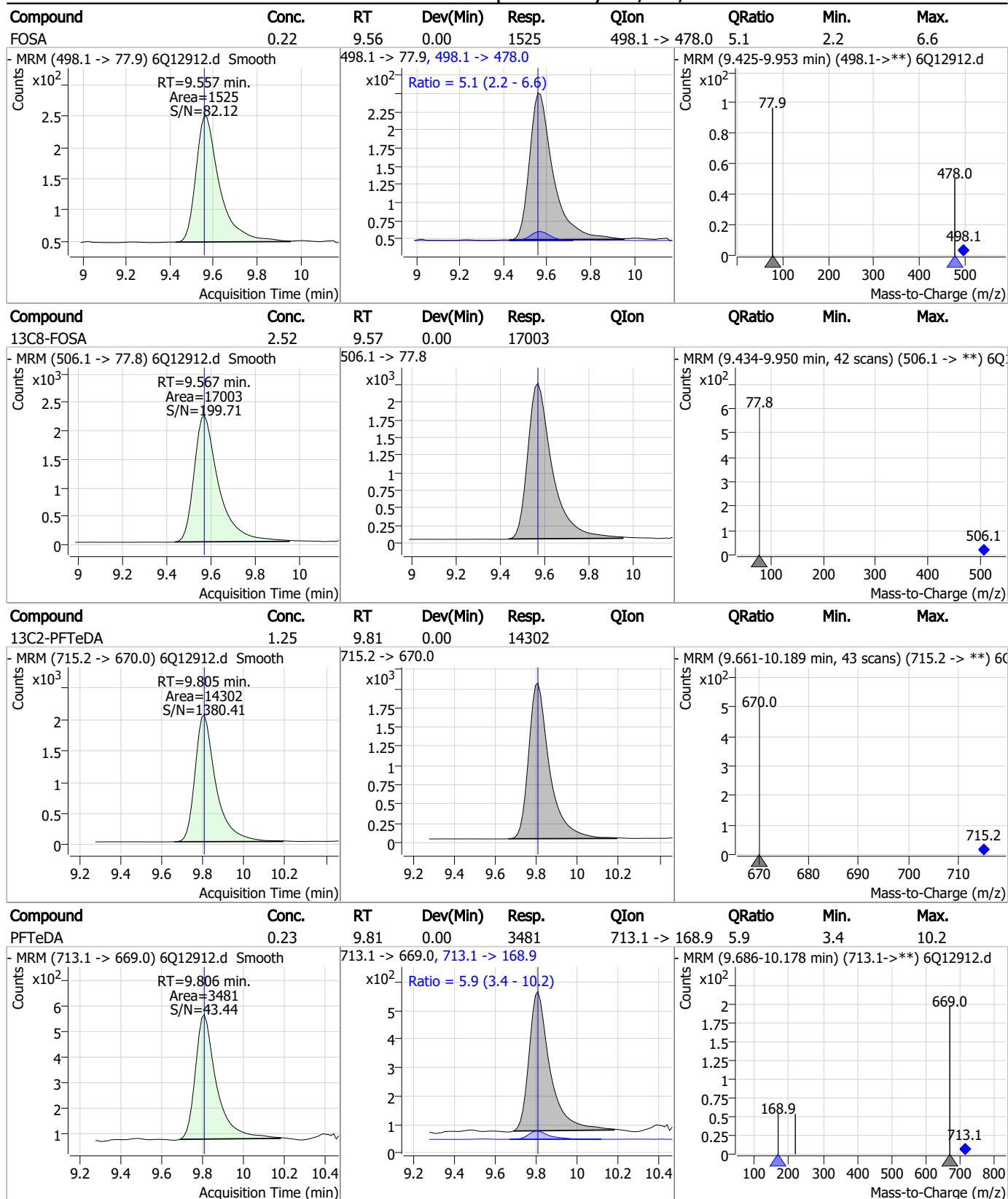
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS

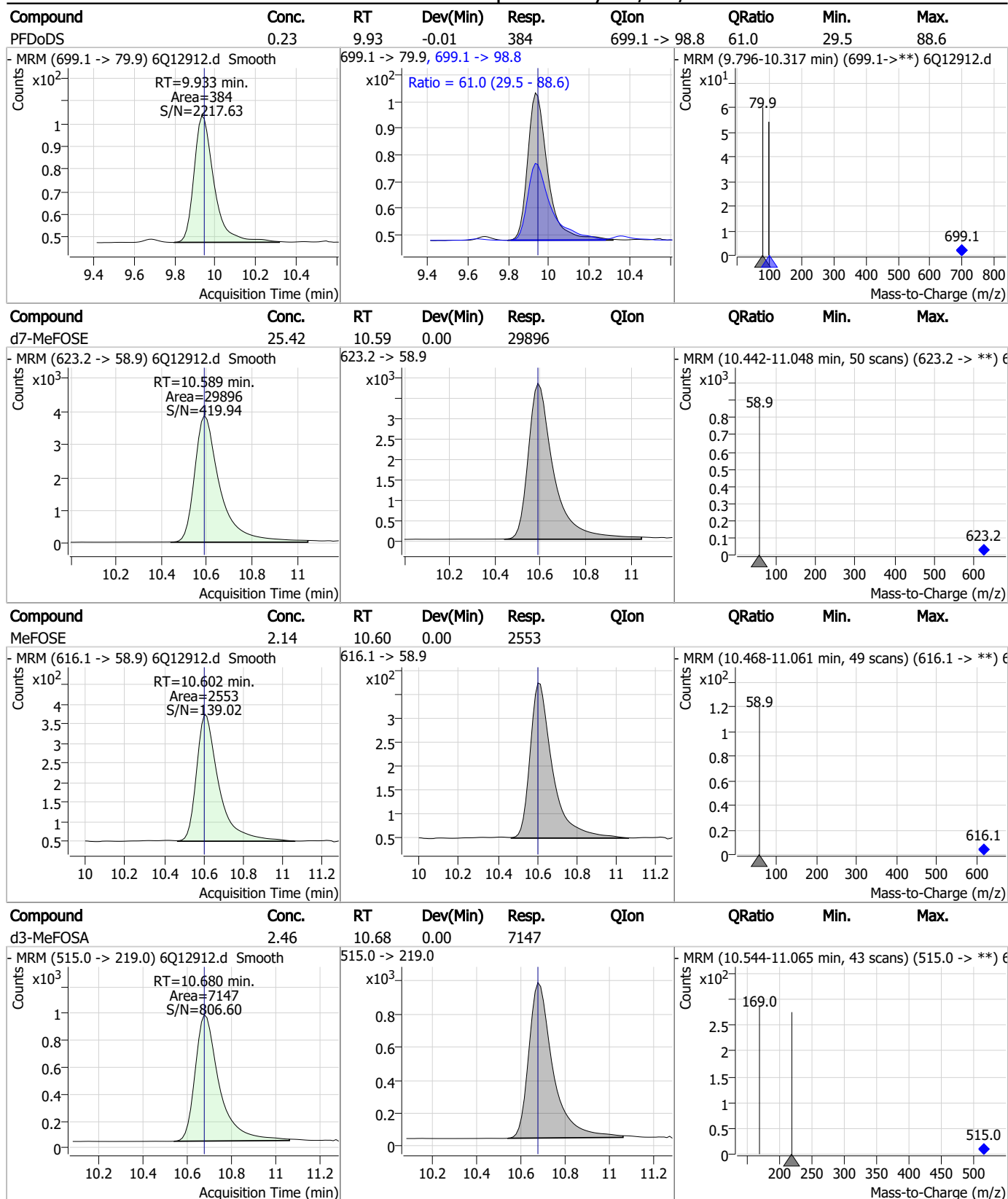


## Perfluorinated Compounds by LC/MS/MS

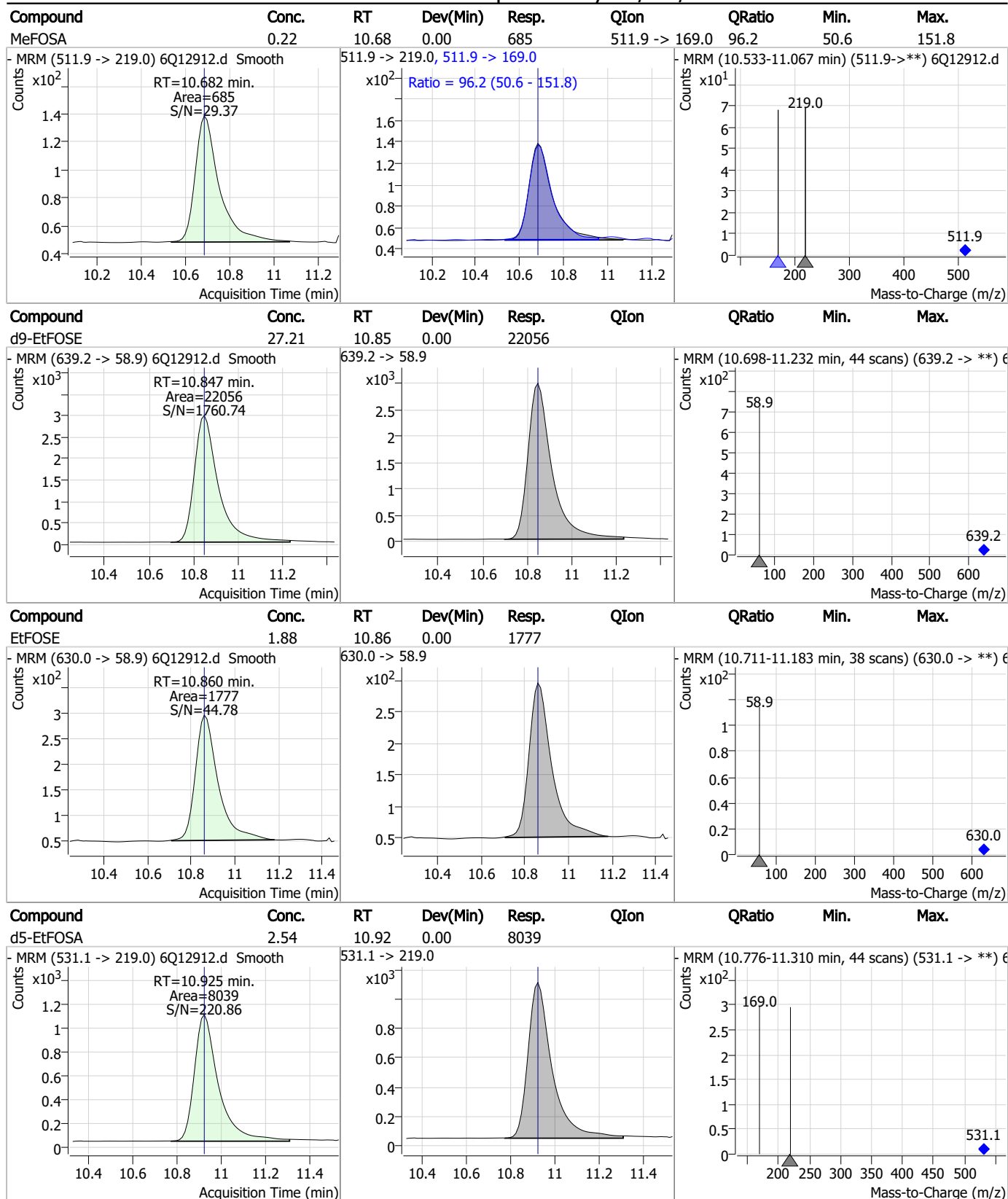




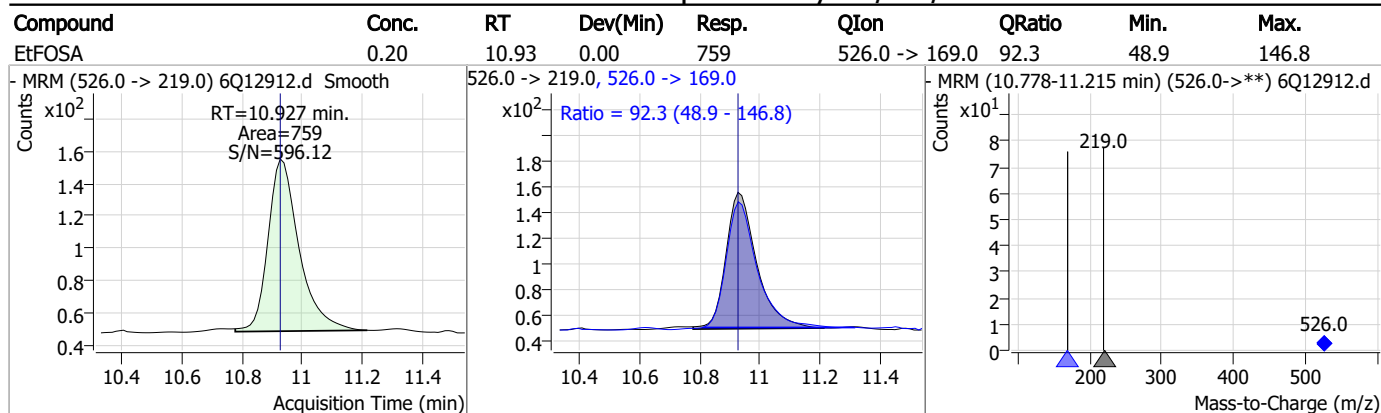
## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



## Perfluorinated Compounds by LC/MS/MS



7.7.16

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Manual Integration Approval Summary

Sample Number: S6Q198-CC196

Method: EPA DRAFT 1633

Lab FileID: 6Q12912.D

Analyst approved: 02/06/23 11:00 Martha Valls

Injection Time: 02/03/23 16:33

Supervisor approved: 02/06/23 14:16 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.16.1

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DATE:	02/01/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS6-6Q

METHODS:	1633
PROC. METH:	1633_020123_S6Q196
CAL DATE:	02/01/23
ANALYST:	M.Valls
RUN BATCH:	S6Q196

ELUENT A LOT #:	ACN 220213
ELUENT B LOT #:	224857 W5% CAN 220213 2mm AMAC: 11387
IC/CC STD LOT #:	LCMS 2055-C
ICV STD LOT #:	LCMS 2041 A/2042
ISTD/ID STD LOT #:	11384/11383

ICV 2: Full list LCMS2042

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q12715.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
2	6Q12716.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
3	6Q12717.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
4	6Q12718.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
5	6Q12719.d	P1-A1	CCB	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
6	6Q12720.d	P1-B3	RT TDCA	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
7	6Q12721.d	P1-B4	RT BR-LN	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
8	6Q12722.d	P1-A1	ic196-0	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
9	6Q12723.d	P1-A2	ic196-1	1633full.m	Calibration	1.6/500	OP94819,S6Q196,500,,,5.0,1,water	✓
10	6Q12724.d	P1-A3	ic196-2	1633full.m	Calibration	4/500	OP94819,S6Q196,500,,,5.0,1,water	✓
11	6Q12725.d	P1-A4	ic196-3	1633full.m	Calibration	10/500	OP94819,S6Q196,500,,,5.0,1,water	✓
12	6Q12726.d	P1-A5	icc196-4	1633full.m	Calibration	20/500	OP94819,S6Q196,500,,,5.0,1,water	✓
13	6Q12727.d	P1-A6	ic196-5	1633full.m	Calibration	40/500	OP94819,S6Q196,500,,,5.0,1,water	✓
14	6Q12728.d	P1-A7	ic196-6	1633full.m	Calibration	100/500	OP94819,S6Q196,500,,,5.0,1,water	✓
15	6Q12729.d	P1-A8	ic196-7	1633full.m	Calibration	200/500	OP94819,S6Q196,500,,,5.0,1,water	✓
16	6Q12730.d	P1-A9	ic196-8	1633full.m	Calibration	1x	OP94819,S6Q196,500,,,5.0,1,water	✓
17	6Q12731.d	P1-A1	IBLK	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
18	6Q12732.d	P1-B1	icv196-4	1633full.m	QC	20/500	OP94819,S6Q196,500,,,5.0,1,water	prep by NG
19	6Q12733.d	P1-B2	icv196-4	1633full.m	QC	100/500	OP94819,S6Q196,500,,,5.0,1,water	Full list lot
20	6Q12734.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP94819,S6Q196,500,,,5.0,1,water	✓
21	6Q12735.d	P1-A2	cc196-1.0LL	1633full.m	QC	1.6/500	OP94819,S6Q196,500,,,5.0,1,water	✓
22	6Q12736.d	P2-B3	op94938-bs	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
23	6Q12737.d	P2-B4	op94938-llbs:3	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
24	6Q12738.d	P2-B5	op94938-mb	1633full.m	Sample		OP94819,S6Q196,500,,,5.0,1,water	✓
25	6Q12739.d	P2-C3	FC1643-7	1633full.m	Sample		OP94938,S6Q196,500,,,5.0,1,water	✓
26	6Q12740.d	P2-C4	FC1643-8	1633full.m	Sample		OP94938,S6Q196,500,,,5.0,1,water	✓
27	6Q12741.d	P2-C5	FC1643-9	1633full.m	Sample		OP94938,S6Q196,500,,,5.0,1,water	✓
28	6Q12742.d	P2-C6	FC1643-10	1633full.m	Sample		OP94938,S6Q196,500,,,5.0,1,water	rr1x for J value pfos
29	6Q12743.d	P2-C7	FC1643-11	1633full.m	Sample		OP94938,S6Q196,500,,,5.0,1,water	✓
30	6Q12744.d	P2-C8	FC1643-12	1633full.m	Sample		OP94938,S6Q196,500,,,5.0,1,water	✓
31	6Q12745.d	P2-C9	op94938-ms	1633full.m	Sample		OP94938,S6Q196,500,,,5.0,1,water	✓
32	6Q12746.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP95122,S6Q196,500,,,5.0,1,water	✓
33	6Q12747.d	P1-A1	iccb	1633full.m	Sample		OP95122,S6Q196,500,,,5.0,1,water	✓
34	6Q12748.d	P2-D1	FC1643-13	1633full.m	Sample		OP94938,S6Q196,500,,,5.0,1,water	✓
35	6Q12749.d	P2-D2	op94938-dup	1633full.m	Sample		OP94938,S6Q196,500,,,5.0,1,water	✓

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36	6Q12750.d	P2-D3	FC1643-14	1633full.m	Sample	OP94938,S6Q196,545,,,5.0,1,water	✓
37	6Q12751.d	P2-D4	FC1643-15	1633full.m	Sample	OP94938,S6Q196,565,,,5.0,1,water	✓
38	6Q12752.d	P2-D5	FC1643-16	1633full.m	Sample	OP94938,S6Q196,550,,,5.0,1,water	✓
39	6Q12753.d	P2-D6	FC1643-17	1633full.m	Sample	OP94938,S6Q196,555,,,5.0,1,water	rr2x
40	6Q12754.d	P2-D7	FC1643-18	1633full.m	Sample	OP94938,S6Q196,545,,,5.0,1,water	rr1x co + 2x
41	6Q12755.d	P1-F4	fc1641-14	1633full.m	Sample	OP94914,S6Q196,530,,,5.0,5,water	✓
42	6Q12756.d	P1-F5	fc1641-15	1633full.m	Sample	OP94914,S6Q196,530,,,5.0,5,water	✓
43	6Q12757.d	P1-F6	fc1641-16	1633full.m	Sample	OP94914,S6Q196,550,,,5.0,5,water	✓
44	6Q12758.d	P1-A5	cc196-4	1633full.m	QC	OP95176,S6Q196,500,,,5.0,1,water	✓
45	6Q12759.d	P1-A1	iccb	1633full.m	Sample	OP95176,S6Q196,500,,,5.0,1,water	✓
46	6Q12760.d	P1-F9	FC1904-2	1633full.m	Sample	OP95018,S6Q196,540,,,5.0,10,water	✓
47	6Q12761.d	P3-C1	FC1823-9	1633full.m	Sample	OP95176,S6Q196,66,,,5.0,5,water	✓
48	6Q12762.d	P3-C2	FC1823-11	1633full.m	Sample	OP95176,S6Q196,66,,,5.0,1,water	✓
49	6Q12763.d	P3-C3	FC1823-11	1633full.m	Sample	OP95176,S6Q196,66,,,5.0,10,water	✓
50	6Q12764.d	P3-C4	FC1823-13	1633full.m	Sample	OP95176,S6Q196,66,,,5.0,5,water	✓
51	6Q12765.d	P3-C5	FC1823-6	1633full.m	Sample	OP95176,S6Q196,66,,,5.0,2,water	✓
52	6Q12766.d	P3-C6	FC1641-4	1633full.m	Sample	OP94914,S6Q196,530,,,5.0,1,water	✓
53	6Q12767.d	P3-C7	FC1641-5	1633full.m	Sample	OP94914,S6Q196,520,,,5.0,1,water	✓
54	6Q12768.d	P3-C8	FC1643-5	1633full.m	Sample	OP94938,S6Q196,565,,,5.0,1,water	rr, data file skipped.
55	6Q12769.d	P3-C9	FC1643-5	1633full.m	Sample	OP94938,S6Q196,565,,,5.0,5,water	✓
56	6Q12770.d	P1-A5	cc196-4	1633full.m	QC	OP95176,S6Q196,500,,,5.0,1,water	✓
57	6Q12771.d	P1-A2	cc196-1.0LL	1633full.m	QC	OP95176,S6Q196,500,,,5.0,1,water	✓
58	6Q12772.d	P1-A1	iccb	1633full.m	Sample	OP95176,S6Q196,500,,,5.0,1,water	✓
59	6Q12773.d	P2-D8	op94945-bs	1633full.m	Sample	OP94945,S6Q196,500,,,5.0,1,water	rr samples. No ccv
60	6Q12774.d	P2-D9	op94945-llbs:3	1633full.m	Sample	OP94945,S6Q196,500,,,5.0,1,water	↑
61	6Q12775.d	P2-E1	op94945-mb	1633full.m	Sample	OP94945,S6Q196,500,,,5.0,1,water	↑
62	6Q12776.d	P2-E2	FC1656-1	1633full.m	Sample	OP94945,S6Q196,555,,,5.0,1,water	↑
63	6Q12777.d	P2-E3	FC1656-2	1633full.m	Sample	OP94945,S6Q196,545,,,5.0,1,water	↑
64	6Q12778.d	P2-E4	FC1656-3	1633full.m	Sample	OP94945,S6Q196,565,,,5.0,1,water	↑
65	6Q12779.d	P2-E5	FC1656-4	1633full.m	Sample	OP94945,S6Q196,565,,,5.0,1,water	Vial punture error at 6:30AM
66	6Q12780.d	P2-E6	FC1656-5	1633full.m	Sample	OP94945,S6Q196,565,,,5.0,1,water	RR
67	6Q12781.d	P1-D9	CCB	1633full.m	Sample	OP95176,S6Q196,500,,,5.0,1,water	✓
68	6Q12782.d	P1-D9	CCB	1633full.m	Sample	OP95176,S6Q196,500,,,5.0,1,water	✓
69	6Q12783.d	P1-B3	RT TDCA	1633full.m	Sample	OP94819,S6Q196,500,,,5.0,1,water	✓
70	6Q12784.d	P1-B4	RT BR-LN	1633full.m	Sample	OP94819,S6Q196,500,,,5.0,1,water	✓
71	6Q12785.d	P1-A9	HIGH STD	1633full.m	Calibration	OP94819,S6Q196,500,,,5.0,1,water	✓
72	6Q12786.d	P1-A1	IBLK	1633full.m	Sample	OP94819,S6Q196,500,,,5.0,1,water	✓
73	6Q12787.d	P1-A5	cc196-4	1633full.m	QC	OP94819,S6Q196,500,,,5.0,1,water	✓
74	6Q12788.d	P1-A2	cc196-1.0LL	1633full.m	QC	OP94819,S6Q196,500,,,5.0,1,water	✓
75	6Q12789.d	P2-D8	op94945-bs	1633full.m	Sample	OP94945,S6Q196,500,,,5.0,1,water	✓
76	6Q12790.d	P2-D9	op94945-llbs:3	1633full.m	Sample	OP94945,S6Q196,500,,,5.0,1,water	✓
77	6Q12791.d	P2-E1	op94945-mb	1633full.m	Sample	OP94945,S6Q196,500,,,5.0,1,water	✓
78	6Q12792.d	P2-E2	FC1656-1	1633full.m	Sample	OP94945,S6Q196,555,,,5.0,1,water	✓

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79	6Q12793.d	P2-E3	FC1656-2	1633full.m	Sample	OP94945,S6Q196,545,,,5.0,1,water	✓
80	6Q12794.d	P2-E4	FC1656-3	1633full.m	Sample	OP94945,S6Q196,565,,,5.0,1,water	✓
81	6Q12795.d	P2-E5	FC1656-4	1633full.m	Sample	OP94945,S6Q196,565,,,5.0,1,water	✓
82	6Q12796.d	P2-E6	FC1656-5	1633full.m	Sample	OP94945,S6Q196,565,,,5.0,1,water	✓
83	6Q12797.d	P2-E7	FC1656-6	1633full.m	Sample	OP94945,S6Q196,565,,,5.0,1,water	✓
84	6Q12798.d	P1-A5	cc196-4	1633full.m	QC	OP95176,S6Q196,500,,,5.0,1,water	✓
85	6Q12799.d	P1-A1	iccb	1633full.m	Sample	OP95176,S6Q196,500,,,5.0,1,water	✓
86	6Q12800.d	P2-E8	FC1656-7	1633full.m	Sample	OP94945,S6Q196,565,,,5.0,1,water	✓
87	6Q12801.d	P2-E9	FC1656-8	1633full.m	Sample	OP94945,S6Q196,540,,,5.0,1,water	✓
88	6Q12802.d	P2-F1	FC1656-9	1633full.m	Sample	OP94945,S6Q196,565,,,5.0,1,water	✓
89	6Q12803.d	P2-F2	FC1656-10	1633full.m	Sample	OP94945,S6Q196,565,,,5.0,1,water	✓
90	6Q12804.d	P2-F3	FC1656-11	1633full.m	Sample	OP94945,S6Q196,565,,,5.0,1,water	✓
91	6Q12805.d	P2-F4	op94945-ms	1633full.m	Sample	OP94945,S6Q196,560,,,5.0,1,water	✓
92	6Q12806.d	P2-F5	op94945-msd	1633full.m	Sample	OP94945,S6Q196,560,,,5.0,1,water	✓
93	6Q12807.d	P2-F6	FC1656-12	1633full.m	Sample	OP94945,S6Q196,565,,,5.0,1,water	✓
94	6Q12808.d	P2-F7	FC1656-13	1633full.m	Sample	OP94945,S6Q196,555,,,5.0,1,water	✓
95	6Q12809.d	P1-A5	Ecc196-4	1633full.m	QC	OP95176,S6Q196,500,,,5.0,1,water	✓
96	6Q12810.d	P1-A1	iccb	1633full.m	Sample	OP95176,S6Q196,500,,,5.0,1,water	✓

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DATE:	02/03/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_020123_S6Q196
CAL DATE:	02/01/23
ANALYST:	M.Valls
RUN BATCH:	S6Q198

ELUENT A LOT #:	ACN 220213
ELUENT B LOT #:	224857 W5% CAN 220213 2mm AMAC: 11387
IC/CC STD LOT #:	LCMS 2055-C
ICV STD LOT #:	LCMS 2041 A/2042
ISTD/ID STD LOT #:	11384/11383

ICV 2: Full list LCMS2042

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
168	6Q12882.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q198,500,,,5.0,1,water	✓
169	6Q12883.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q198,500,,,5.0,1,water	✓
170	6Q12884.d	P1-B3	RT TDCA	1633full.m	Sample		OP94819,S6Q198,500,,,5.0,1,water	✓
171	6Q12885.d	P1-B4	RT BR-LIN	1633full.m	Sample		OP94819,S6Q198,500,,,5.0,1,water	✓
172	6Q12886.d	P1-A9	High Std	1633full.m	Sample		OP94819,S6Q198,500,,,5.0,1,water	✓
173	6Q12887.d	P1-A1	IBLK	1633full.m	Sample		OP94819,S6Q198,500,,,5.0,1,water	✓
174	6Q12888.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP94819,S6Q198,500,,,5.0,1,water	✓
175	6Q12889.d	P1-A2	cc196-1.0LL	1633full.m	QC	1.6/500	OP94819,S6Q198,500,,,5.0,1,water	✓
176	6Q12890.d	P4-A1	op95216-bs	1633full.m	Sample		OP95216,S6Q198,500,,,5.0,1,water	✓
177	6Q12891.d	P4-A2	op95216-llbs:3	1633full.m	Sample		OP95216,S6Q198,500,,,5.0,1,water	✓
178	6Q12892.d	P4-A3	op95216-mb	1633full.m	Sample		OP95216,S6Q198,500,,,5.0,1,water	✓
179	6Q12893.d	P4-A4	FC2175-1	1633full.m	Sample		OP95216,S6Q198,530,,,5.0,1,water	✓
180	6Q12894.d	P4-A5	FC2175-2	1633full.m	Sample		OP95216,S6Q198,520,,,5.0,1,water	✓
181	6Q12895.d	P4-A6	FC2228-1	1633full.m	Sample		OP95216,S6Q198,540,,,5.0,1,water	✓
182	6Q12896.d	P4-A7	FC2228-2	1633full.m	Sample		OP95216,S6Q198,560,,,5.0,1,water	✓
183	6Q12897.d	P4-A8	FC2228-3	1633full.m	Sample		OP95216,S6Q198,560,,,5.0,1,water	✓
184	6Q12898.d	P4-A9	FC2239-1	1633full.m	Sample		OP95216,S6Q198,510,,,5.0,1,water	✓
185	6Q12899.d	P4-B1	op95216-ms	1633full.m	Sample		OP95216,S6Q198,510,,,5.0,1,water	✓
186	6Q12900.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP94819,S6Q198,500,,,5.0,1,water	✓
187	6Q12901.d	P1-A1	iccb	1633full.m	Sample		OP94819,S6Q198,500,,,5.0,1,water	✓
188	6Q12902.d	P4-B2	FC2239-2	1633full.m	Sample		OP95216,S6Q198,560,,,5.0,1,water	✓
189	6Q12903.d	P4-B3	FC2239-3	1633full.m	Sample		OP95216,S6Q198,540,,,5.0,1,water	✓
190	6Q12904.d	P4-B4	FC2242-1	1633full.m	Sample		OP95216,S6Q198,280,,,5.0,1,water	✓
191	6Q12905.d	P4-B5	FC2270-1	1633full.m	Sample		OP95216,S6Q198,560,,,5.0,1,water	✓
192	6Q12906.d	P4-B6	FC2270-2	1633full.m	Sample		OP95216,S6Q198,520,,,5.0,1,water	d5-ElFOSAA HIGH, r75x
193	6Q12907.d	P4-B7	op95216-dup	1633full.m	Sample		OP95216,S6Q198,530,,,5.0,1,water	✓
194	6Q12908.d	P4-B8	FC2270-3	1633full.m	Sample		OP95216,S6Q198,510,,,5.0,1,water	✓
195	6Q12909.d	P4-B9	FC2270-4	1633full.m	Sample		OP95216,S6Q198,520,,,5.0,1,water	✓
196	6Q12910.d	P4-C1	FC2205-1	1633full.m	Sample		OP95216,S6Q198,520,,,5.0,1,water	RR10X
197	6Q12911.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP94819,S6Q198,500,,,5.0,1,water	✓
198	6Q12912.d	P1-A2	cc196-1.0LL	1633full.m	QC	1.6/500	OP94819,S6Q198,500,,,5.0,1,water	✓
199	6Q12913.d	P1-A1	iccb	1633full.m	Sample		OP95034,S6Q198,500,,,5.0,1,soil	✓
200	6Q12914.d	P4-C2	op95034-bs	1633full.m	Sample		OP95034,S6Q198,500,,,5.0,1,soil	✓
201	6Q12915.d	P4-C3	op95034-llbs:2	1633full.m	Sample		OP95034,S6Q198,500,,,5.0,1,soil	✓
202	6Q12916.d	P4-C4	op95034-mb	1633full.m	Sample		OP95034,S6Q198,500,,,5.0,1,soil	✓



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LCMS6-6Q ANALYSIS LOG

203	6Q12917.d	P4-C5	JD58609-2A	1633full.m	Sample	OP95034,S6Q198,4.99,,5.0,1 soil	✓
204	6Q12918.d	P4-C6	JD58693-1B	1633full.m	Sample	OP95034,S6Q198,4.95,,5.0,1 soil	✓
205	6Q12919.d	P4-C7	op95034-ms	1633full.m	Sample	OP95034,S6Q198,5.02,,5.0,1 soil	✓
206	6Q12920.d	P4-C8	op95034-msd	1633full.m	Sample	OP95034,S6Q198,5.03,,5.0,1 soil	✓
207	6Q12921.d	P4-C9	JD58693-2B	1633full.m	Sample	OP95034,S6Q198,5.02,,5.0,1 soil	✓
208	6Q12922.d	P4-D1	JD58693-3B	1633full.m	Sample	OP95034,S6Q198,5.04,,5.0,1 soil	✓
209	6Q12923.d	P4-D2	JD58693-4B	1633full.m	Sample	OP95034,S6Q198,4.96,,5.0,1 soil	✓
210	6Q12924.d	P1-A5	cc196-4	1633full.m	QC	OP94819,S6Q198,500,,5.0,1 water	✓
211	6Q12925.d	P1-A1	iccb	1633full.m	Sample	OP95034,S6Q198,5.00,,5.0,1 soil	✓
212	6Q12926.d	P4-D3	JD58693-5B	1633full.m	Sample	OP95034,S6Q198,4.95,,5.0,1 soil	✓
213	6Q12927.d	P4-D4	JD58693-6B	1633full.m	Sample	OP95034,S6Q198,5.04,,5.0,1 soil	✓
214	6Q12928.d	P4-D5	JD58693-7B	1633full.m	Sample	OP95034,S6Q198,5.00,,5.0,1 soil	✓
215	6Q12929.d	P4-D6	JD58693-8B	1633full.m	Sample	OP95034,S6Q198,4.97,,5.0,1 soil	✓
216	6Q12930.d	P4-D7	JD58693-9B	1633full.m	Sample	OP95034,S6Q198,5.01,,5.0,1 soil	✓
217	6Q12931.d	P4-D8	JD58693-10B	1633full.m	Sample	OP95034,S6Q198,4.98,,5.0,1 soil	✓
218	6Q12932.d	P4-D9	JD58693-11B	1633full.m	Sample	OP95034,S6Q198,4.99,,5.0,1 soil	✓
219	6Q12933.d	P4-E1	JD58693-12B	1633full.m	Sample	OP95034,S6Q198,5.01,,5.0,1 soil	✓
220	6Q12934.d	P4-E2	JD58693-13B	1633full.m	Sample	OP95034,S6Q198,5.03,,5.0,1 soil	✓
221	6Q12935.d	P4-E3	JD58693-14B	1633full.m	Sample	OP95034,S6Q198,5.03,,5.0,1 soil	✓
222	6Q12936.d	P1-A5	cc196-4	1633full.m	QC	OP94819,S6Q198,500,,5.0,1 water	✓
223	6Q12937.d	P1-A1	iccb	1633full.m	Sample	OP95034,S6Q198,5.00,,5.0,1 soil	✓
224	6Q12938.d	P4-E4	JD58693-15B	1633full.m	Sample	OP95034,S6Q198,4.96,,5.0,1 soil	✓
225	6Q12939.d	P4-E5	JD58693-16B	1633full.m	Sample	OP95034,S6Q198,5.04,,5.0,1 soil	✓
226	6Q12940.d	P4-E6	JD58693-17B	1633full.m	Sample	OP95034,S6Q198,5.01,,5.0,1 soil	✓
227	6Q12941.d	P4-E7	JD58693-18B	1633full.m	Sample	OP95034,S6Q198,5.05,,5.0,1 soil	✓
228	6Q12942.d	P4-E8	op95035-bs	1633full.m	Sample	OP95035,S6Q198,5.00,,5.0,1 soil	✓
229	6Q12943.d	P4-E9	op95035-llbs-2	1633full.m	Sample	OP95035,S6Q198,5.00,,5.0,1 soil	✓
230	6Q12944.d	P4-F1	op95035-mb	1633full.m	Sample	OP95035,S6Q198,5.00,,5.0,1 soil	✓
231	6Q12945.d	P4-F2	JD58693-19B	1633full.m	Sample	OP95035,S6Q198,4.99,,5.0,1 soil	✓
232	6Q12946.d	P4-F3	op95035-ms	1633full.m	Sample	OP95035,S6Q198,5.04,,5.0,1 soil	✓
233	6Q12947.d	P4-F4	op95035-msd	1633full.m	Sample	OP95035,S6Q198,4.95,,5.0,1 soil	✓
234	6Q12948.d	P1-A5	cc196-4	1633full.m	QC	OP94819,S6Q198,500,,5.0,1 water	✓
235	6Q12949.d	P1-A1	iccb	1633full.m	Sample	OP95035,S6Q198,5.00,,5.0,1 soil	✓
236	6Q12950.d	P4-F5	JD58693-20B	1633full.m	Sample	OP95035,S6Q198,4.97,,5.0,1 soil	✓
237	6Q12951.d	P4-F6	JD58693-21B	1633full.m	Sample	OP95035,S6Q198,5.04,,5.0,1 soil	✓
238	6Q12952.d	P4-F7	JD58693-22B	1633full.m	Sample	OP95035,S6Q198,4.95,,5.0,1 soil	✓
239	6Q12953.d	P4-F8	JD58693-23B	1633full.m	Sample	OP95035,S6Q198,4.97,,5.0,1 soil	✓
240	6Q12954.d	P4-F9	JD58693-24B	1633full.m	Sample	OP95035,S6Q198,4.97,,5.0,1 soil	✓
241	6Q12955.d	P1-A5	Ecc196-4	1633full.m	QC	OP94819,S6Q198,500,,5.0,1 water	✓
242	6Q12956.d	P1-A1	iccb	1633full.m	Sample	OP95035,S6Q198,5.00,,5.0,1 soil	✓

Organic Standards Preparation Log

SGS - Orlando	Name	Parent	Parent	Parent	Vendor	Lab	Percent	Vol.	Final	Final	Client	Prep	Exp.	Notes
Set #	Description	Set #	Name	Vendor	Exp. Date	Exp. Date	Conc.	Used	Vol.	Conc.	Lot	Date	Date	
LCMS 2052	1633 prep mix	Lot: 221994	M2C4	Fisher	---	9/19/23	99.9%	92.0 mL	100.0 mL	99.9%	N/A	10/20/23	10/20/23	
↓	↓	Lot: 219481	NH4OH	---	---	9/19/23	100%	5.3 mL	---	---	---	---	---	
↓	↓	Lot: 224863	H2O	---	---	11/7/23	100%	17.0 mL	---	---	---	---	---	
↓	↓	Lot: 224297	Acetic Acid	---	---	6/24	99.7%	10.25 mL	---	---	---	---	---	
LCMS 2053	(301Kc) Full list std	115368	PF04 D5 2% C6H12O6	SGS Lab	11/9/23	1/9/24	16 ppm	100.0 mL	100.0 mL	15.9 ppm	10/20/23	10/20/23	10/20/23	
↓	↓	LCMS 1987	440 list	---	---	3/2/23	10 ppm	16.0 mL	---	---	---	---	---	
↓	↓	LCMS 1986	440 list Addition #2	---	---	4/8/23	1.0 ppm	16.0 mL	---	---	---	---	---	
↓	↓	LCMS 2054	505c std.	---	---	4/24/23	5.0 ppm	16.0 mL	---	---	---	---	---	
LCMS 2054	F05c std	11336	N-E- F05c	Wellbroth	5/2/23	9/19/23	50 ppm	22.0 mL	---	---	---	---	---	
↓	↓	11338	N-Me F05c	---	5/16/23	5/19/23	30 ppm	22.0 mL	---	---	---	---	---	
LCMS 2055	10333 Cal. std.	108535	PFAC MxH	Wellbroth	9/1/23	1/1/24	1.4	25.0 mL	---	---	---	---	---	
↓	↓	108533	PFAC MxT	---	9/19/23	1/11/24	1.10	25.0 mL	---	---	---	---	---	
↓	↓	115798	PFAC MxH	---	11/9/23	1/11/24	2.0 ppm	5.00 mL	---	---	---	---	---	
↓	↓	108541	PFAC MxG	---	3/4/25	1/19/24	2.0 ppm	3.50 mL	---	---	---	---	---	
↓	↓	11492	PFAC MxJ	---	9/14/23	1/11/24	4.20 ppm	3.12 mL	---	---	---	---	---	
↓	↓	11603	---	---	9/14/23	1/24/24	4.20 ppm	3.12 mL	---	---	---	---	---	

\* 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.	Dilution Lot	Prep Date	*Exp. Date	Notes
LCMS 2041	Spike 1633 Cal. std.	108534H	PFAC- MxH	Waters	9/11/2012	12/20/23	1-4 ppm	2500µL	4mL	62.5 125 250 ppm	1053 ADIX	11/12/23	7/6/23	141
		108534H	PFAC- MxI		9/14/2012	12/28/23	1-10 ppm	250µL		62.5 125 250 ppm				
		11512B	PFAC- MxI		01/11/25	12/28/23	2 ppm	500µL		250 ppm				
		108544H	PFAC- MxG		3/11/25	12/30/23	2 ppm	250µL		125 ppm				
		108545J	PFAC- MxJ		7/11/2012	10/12/23	4-20 ppm	312 µL		514 ppm				
LCMS 2042	(Spike) Full list std.	115241	PFAC- MxJ		11/11/23	11/13/23	1-20 ppm	400µL	4mL	125 ppm	1053	11/13/23	5/16/23	141
		1457	40115T	SGS	---	3/21/23	1-20 ppm	400µL		125 ppm				
		19810	40115T	---	4/6/23	1-20 ppm	400µL			125 ppm				
		2012	40115T	---	5/11/23	5-20 ppm	400µL			125 ppm				
LCMS 2043	154-40 (SGS) ADD-2M 50002008	114600	D9-N EAF052		01/21/27	12/11/23	1-20 ppm	400µL		125 ppm				
		11115	M2- PFAC-DA		11/21/28	8/23/23	1-20 ppm	400µL		125 ppm				
		10836	D-N EAF054		12/30/25	8/23/23	1-20 ppm	400µL		125 ppm				
LCMS 2044	1633 solvent B	11387	Ammonium Acetate		9/19/23	9/19/23	1-20 ppm	400µL		125 ppm				
		224856	Water		1/16/24	1/16/24	1-20 ppm	400µL		125 ppm				
		226228	Acetic Acid		9/16/24	9/16/24	1-20 ppm	400µL		125 ppm				

\* 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 1987	40 List Std ADD-012 #1	10726A	10:2 PFS	Wallington Labs	03/03/26	03/21/23	50ppm	80uL	4.0mL	1ppm	05/16/20 5/14/20	10/18/22	03/21/23	NG
		10840	PFS DOS		07/09/26	10/18/23								
		10829	N-HFOSA		08/03/26	08/23/23								
		10837	N-HFOSA		08/03/26	08/23/23								
		10842	PFS HADA		08/03/26	10/18/23								
		10841	PFS DPA		05/01/26	10/18/23								
		10844	3:3 FPPA		11/12/25	08/23/23								
		10685A	5:3 FPPA		11/12/25	08/23/23								
		10683A	7:3 FPPA		11/12/25	08/23/23								
		11117	PFS HS		10/19/26	06/23/23								
		10762B	PFS ESA		05/13/25	10/18/23								
		10763B	PFS HADA		03/21/25	10/18/23								
		10764A	PFS HADA		03/21/25	10/18/23								
		10765B	PFS HADA		03/21/25	10/18/23								

10/18/22

\* based on date opened as specified in each SGS - Orlando SOP.

## SGS

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\* 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 A 2009 &	PTC Spike	11483	PTC A-D00 (as concs)	Wellington Labs	08/15/17	11/08/17	1.0 ppm	2 mL	5 mL	400 ppb	Q511100H 5:1 H <sub>2</sub> O	11/08/17	05/10/18	NS
		10839	N-14E- Rosa-m		08/15/17	09/15/17	50 ppm	40 uL						NS
		11324	PTC A-1		11/10/17	06/12/17								NS
		11249	FTXSA-1		12/29/16	11/03/17								NS
		11332	PTCHS		03/28/17	10/18/17								NS
LCMS A-B 2010	(Spike) 11033 CAL. Std.	10855F	PTAC- Mx4	Wellington Labs	09/14/16	11/04/17	1-H ppm	250 uL	4 mL	42.5 / 125 ppb	1033 Mx3	11/09/17	05/10/18	NS
		10853E	PTAC- Mx2		09/14/16	11/04/17	1-H ppm	250 uL		42.5 / 125 ppb				NS
		10856I	PTAC- Mx1		05/04/17	05/04/17	2 ppm	500 uL		250 ppb				NS
		10854E	PTAC- Mx5		03/04/17	11/04/17	2 ppm	250 uL		125 ppb				NS
		10857D	PTAC- Mx3		10/12/17	11/08/17	4-20 ppm	32 uL		212 / 1160 ppb				NS
LCMS 2011	(Spike) Full List Std.	11440	PTC A- D01128	Abscure	08/05/17	10/12/17	1.0 ppm	400 uL	4 mL	100 ppb	Q511100H 5:1 H <sub>2</sub> O	11/11/17	03/12/18	NS
		10887	40 List ADDON #1			03/21/17	1.0 ppm	400 uL		100 ppb				NS
		10886	40 List ADDON #2			04/18/17	1.0 ppm	400 uL		100 ppb				NS
		10886	FOSE std.			05/11/17	50 ppm	400 uL		500 ppb				NS
LCMS 2012	FOSE Std.	11336	N-14E- FOSE	Wellington Labs	05/13/17	09/19/17	50 ppm	200 uL	2.0 mL	5 ppm	Q511100H 5:1 H <sub>2</sub> O	11/11/17	05/11/18	NS
		11336	N-14E- FOSE		05/13/17	09/19/17	50 ppm	200 uL						NS

\* based on date opened as specified in each SGS - Orlando SOP.

10853

**WELLINGTON**  
LABORATORIES**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION**PFAC-MXI****Native Perfluorooctanesulfonamide  
and Perfluorooctanesulfonamidoethanol  
Solution/Mixture****PRODUCT CODE:**

PFAC-MXI

**LOT NUMBER:**

PFACMXI0921

**SOLVENT(S):**

Methanol

**DATE PREPARED:** (mm/dd/yyyy)

09/08/2021

**LAST TESTED:** (mm/dd/yyyy)

09/14/2021

**EXPIRY DATE:** (mm/dd/yyyy)

09/14/2026

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DESCRIPTION:**

PFAC-MXI is a solution/mixture of two native perfluorooctanesulfonamides (FOSAs) and two native perfluorooctanesulfonamidoethanols (FOSEs). 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#: 8, Revised 2020-12-23

PFACMXI0921 (1 of 5)  
rev0

**Table A:** PFAC-MXI; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/mL)	Peak Assignment in Figure 1
N-methylperfluoro-1-octanesulfonamide	N-MeFOSA	1.00	B
N-ethylperfluoro-1-octanesulfonamide	N-EtFOSA	1.00	D
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	N-MeFOSE	10.0	A
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	N-EtFOSE	10.0	C

Certified By: \_\_\_\_\_

B.G. Chittim, General Manager

Date: 09/23/2021  
(mm/dd/yyyy)

Form# 13, Issued 2004-11-10  
Revision# 9, Revised 2020-12-23

PFACMXI0921 (3 of 5)  
rev0



10854

**WELLINGTON**  
LABORATORIESCERTIFICATE OF ANALYSIS  
DOCUMENTATION**PFAC-MXG****Native Perfluoroalkyl Ether Carboxylic  
Acids and Sulfonate Solution/Mixture****PRODUCT CODE:**

PFAC-MXG

**LOT NUMBER:**

PFACMXG1219

**SOLVENT(S):**

Methanol/Water (&lt;1%)

**DATE PREPARED:** (mm/dd/yyyy)

12/03/2019

**LAST TESTED:** (mm/dd/yyyy)

05/04/2020

**EXPIRY DATE:** (mm/dd/yyyy)

05/04/2025

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DESCRIPTION:**

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

**DOCUMENTATION/ DATA ATTACHED:**

Table A: Components and Concentrations of the Solution/Mixture

Figure 1: LC/MS Data (SIR)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Revision#:9, Revised 2020-12-23

PFACMXG1219 (1 of 5)  
rev2

### **INTENDED USE:**

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

### **HANDLING:**

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

### **SYNTHESIS / CHARACTERIZATION:**

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

### **HOMOGENEITY:**

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

### **UNCERTAINTY:**

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty,  $u_c(y)$ , of a value  $y$  and the uncertainty of the independent parameters

$x_1, x_2, \dots, x_n$  on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where  $x$  is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of  $\pm 5\%$  (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

### **TRACEABILITY:**

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

### **EXPIRY DATE / PERIOD OF VALIDITY:**

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

### **LIMITED WARRANTY:**

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

### **QUALITY MANAGEMENT:**

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).



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**Table A: PFAC-MXG; Components and Concentrations (ng/mL;  $\pm$  5% in methanol/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-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: 07/30/2021

(mmdd/yyyy)

10899



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXH

Native Per- and Poly-fluoroalkyl Substance  
Solution/Mixture

**PRODUCT CODE:**

PFAC-MXH

**LOT NUMBER:**

PFACMXH0921

**SOLVENT(S):**

Methanol / Isopropanol (2%) / Water (<1%)

**DATE PREPARED:** (mm/dd/yyyy)

09/09/2021

**LAST TESTED:** (mm/dd/yyyy)

09/14/2021

**EXPIRY DATE:** (mm/dd/yyyy)

09/14/2026

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DESCRIPTION:**

PFAC-MXH is a solution/mixture of eleven native linear perfluoroalkylcarboxylic acids ( $C_4$ - $C_{14}$ ), eight native perfluoroalkanesulfonates ( $C_4$ ,  $C_5$ ,  $C_7$ ,  $C_9$ ,  $C_{10}$  and  $C_{12}$  linear;  $C_8$  and  $C_8$  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 br-NMeFOSAA  
Table C: Isomeric Components and Percent Composition of br-NEtFOSAA  
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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Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

PFACMXH0921 (1 of 11)  
rev0

### **INTENDED USE:**

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

### **HANDLING:**

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

### **SYNTHESIS / CHARACTERIZATION:**

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

### **HOMOGENEITY:**

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

### **UNCERTAINTY:**

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty,  $u_c(y)$ , of a value  $y$  and the uncertainty of the independent parameters

$x_1, x_2, \dots, x_n$  on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where  $x$  is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of  $\pm 5\%$  (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

### **TRACEABILITY:**

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

### **EXPIRY DATE / PERIOD OF VALIDITY:**

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

### **LIMITED WARRANTY:**

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

### **QUALITY MANAGEMENT:**

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).



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**Table A:** PFAC-MXH; Components and Concentrations  
(µg/mL, ± 5% in methanol / isopropanol (2%) / water (<1%))

Compound			Acronym	Concentration* (µg/mL)	Peak Assignment in Figure 1	
Perfluoro-n-butanoic acid			PFBA	4.00	1	
Perfluoro-n-pentanoic acid			PFPeA	2.00	2	
Perfluoro-n-hexanoic acid			PFHxA	1.00	5	
Perfluoro-n-heptanoic acid			PFHpA	1.00	7	
Perfluoro-n-octanoic acid			PFOA	1.00	11	
Perfluoro-n-nonanoic acid			PFNA	1.00	14	
Perfluoro-n-decanoic acid			PFDA	1.00	18	
Perfluoro-n-undecanoic acid			PFUdA	1.00	23	
Perfluoro-n-dodecanoic acid			PFDoA	1.00	26	
Perfluoro-n-tridecanoic acid			PFTrDA	1.00	27	
Perfluoro-n-tetradecanoic acid			PFTeDA	1.00	29	
Perfluoro-1-octanesulfonamide			FOSA	1.00	25	
N-methylperfluorooctanesulfonamidoacetic acid <sup>a</sup>			N-MeFOSAA: linear isomer	0.760	20	
			N-MeFOSAA: ∑ branched isomers	0.240	17	
N-ethylperfluorooctanesulfonamidoacetic acid <sup>a</sup>			N-EtFOSAA: linear isomer	0.775	22	
			N-EtFOSAA: ∑ branched isomers	0.225	21	
Compound			Acronym	Concentration* (µg/mL)		Peak Assignment in Figure 1
				as the salt	as the acid	
Potassium perfluoro-1-butanedisulfonate			L-PFBS	1.00	0.887	3
Sodium perfluoro-1-pentanesulfonate			L-PFPeS	1.00	0.941	6
Potassium perfluorohexanesulfonate <sup>c</sup>			PFHxSK: linear isomer	0.811	0.741	9
			PFHxSK: ∑ branched isomers	0.189	0.173	8
Sodium perfluoro-1-heptanesulfonate			L-PFHpS	1.00	0.953	12
Potassium perfluorooctanesulfonate <sup>a</sup>			PFOSK: linear isomer	0.788	0.732	15
			PFOSK: ∑ branched isomers	0.211	0.196	13
Sodium perfluoro-1-nonanesulfonate			L-PFNS	1.00	0.962	19
Sodium perfluoro-1-decanedisulfonate			L-PFDS	1.00	0.965	24
Sodium perfluoro-1-dodecanedisulfonate			L-PFDoS	1.00	0.970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate			4:2FTS	4.00	3.75	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate			6:2FTS	4.00	3.80	10
Sodium 1H,1H,2H,2H-perfluorodecanedisulfonate			8:2FTS	4.00	3.84	16

\* See Table B for percent composition of linear and branched N-MeFOSAA isomers.


\* See Table C for percent composition of linear and branched N-EtFOSAA isomers.

\* See Table D for percent composition of linear and branched PFHxSK isomers.

\* 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: 09/23/2021  
(mm/dd/yyyy)

Form# 13, Issued 2004-11-10  
Revision# 9, Revised 2020-12-23

PFACMXH0921 (3 of 11)  
rev0



rec'd 10/31/22 11492



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic  
Acid Solution/Mixture

**PRODUCT CODE:**

PFAC-MXJ

**LOT NUMBER:**

PFACMXJ0921

**SOLVENT(S):**

Methanol

**DATE PREPARED:** (mm/dd/yyyy)

09/08/2021

**LAST TESTED:** (mm/dd/yyyy)

09/14/2021

**EXPIRY DATE:** (mm/dd/yyyy)

09/14/2026

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DESCRIPTION:**

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

**DOCUMENTATION/ DATA ATTACHED:**

Table A: Components and Concentrations of the Solution/Mixture

Figure 1: LC/MS Data (SIR)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

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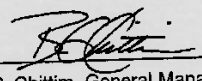
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Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

PFACMXJ0921 (1 of 5)  
rev1

**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)



11579 A-B  
rec'd 12/27/22



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXF

Native Replacement PFAS  
Solution/Mixture

**PRODUCT CODE:** PFAC-MXF  
**LOT NUMBER:** PFACMXF0122  
**SOLVENT(S):** Methanol / Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 01/10/2022  
**LAST TESTED:** (mm/dd/yyyy) 01/11/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 01/11/2025  
**RECOMMENDED STORAGE:** Refrigerate ampoule

### DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

### DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture  
Figure 1: LC/MS Data (SIR)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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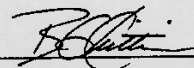
PFACMXF0122 (1 of 5)  
rev0

**Table A:** PFAC-MXF; Components and Concentrations (ng/mL;  $\pm$  5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the acid	
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-dioxanonanoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUs	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)

11603  
rec'd: 01/10/23



# 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

PFACMXJ0921 (1 of 5)  
rev1

7.9.1

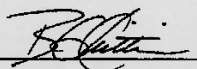
7



**Table A: PFAC-MXJ; Components and Concentrations ( $\mu\text{g/mL}$ ;  $\pm 5\%$  in methanol)**

Compound	Acronym	Concentration ( $\mu\text{g/mL}$ )
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By:

  
B.G. Chittim, General Manager

Date: 10/02/2021

(mm/dd/yyyy)

11617 A-B rec'd 01/19/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXF

#### Native Replacement PFAS Solution/Mixture

**PRODUCT CODE:** PFAC-MXF  
**LOT NUMBER:** PFACMXF0122  
**SOLVENT(S):** Methanol / Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 01/10/2022  
**LAST TESTED:** (mm/dd/yyyy) 01/11/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 01/11/2025  
**RECOMMENDED STORAGE:** Refrigerate ampoule

#### DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUDS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

#### DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture  
Figure 1: LC/MS Data (SIR)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Revision# 9, Revised 2020-12-23

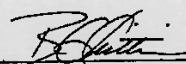
PFACMXF0122 (1 of 5)  
revD

**Table A:** PFAC-MXF; Components and Concentrations (ng/mL;  $\pm 5\%$  in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
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)



10857

**WELLINGTON**  
LABORATORIES**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION**PFAC-MXJ****Native Fluorotelomer Propanoic Acid  
Solution/Mixture****PRODUCT CODE:**

PFAC-MXJ

**LOT NUMBER:**

PFACMXJ0921

**SOLVENT(S):**

Methanol

**DATE PREPARED:** (mm/dd/yyyy)

09/08/2021

**LAST TESTED:** (mm/dd/yyyy)

09/14/2021

**EXPIRY DATE:** (mm/dd/yyyy)

09/14/2026

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DESCRIPTION:**

PFAC-MXJ is a solution/mixture of three native fluorotelomer propanoic 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)  
rev0

#### **INTENDED USE:**

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

#### **HANDLING:**

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

#### **SYNTHESIS / CHARACTERIZATION:**

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

#### **HOMOGENEITY:**

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

#### **UNCERTAINTY:**

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty,  $u_c(y)$ , of a value  $y$  and the uncertainty of the independent parameters

$x_1, x_2, \dots, x_n$  on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where  $x$  is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of  $\pm 5\%$  (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

#### **TRACEABILITY:**

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

#### **EXPIRY DATE / PERIOD OF VALIDITY:**

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

#### **LIMITED WARRANTY:**

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

#### **QUALITY MANAGEMENT:**

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).



\*\*For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at [www.well-labs.com](http://www.well-labs.com) or contact us directly at [info@well-labs.com](mailto:info@well-labs.com)\*\*



**Table A:** PFAC-MXJ; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/mL)	Peak Assignment in Figure 1
3-Perfluoropropyl propanoic acid	FPrPA	4.00	A
3-Perfluoropentyl propanoic acid	FPePA	20.0	B
3-Perfluoroheptyl propanoic acid	FHpPA	20.0	C

Certified By: \_\_\_\_\_

B.G. Chittim, General Manager

Date: 09/23/2021  
(mm/dd/yyyy)

Form#13, Issued 2004-11-10  
Revision#9, Revised 2020-12-23

PFACMXJ0921 (3 of 5)  
rev0

11512 A-B  
rec'd 11/11/22



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXF

#### Native Replacement PFAS Solution/Mixture

**PRODUCT CODE:** PFAC-MXF  
**LOT NUMBER:** PFACMXF0122  
**SOLVENT(S):** Methanol / Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 01/10/2022  
**LAST TESTED:** (mm/dd/yyyy) 01/11/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 01/11/2025  
**RECOMMENDED STORAGE:** Refrigerate ampoule

#### DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

#### DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture  
Figure 1: LC/MS Data (SIR)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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PFACMXF0122 (1 of 5)  
rev0

7.9.1

7

**Table A: PFAC-MXF; Components and Concentrations (ng/mL;  $\pm$  5% in Methanol/Water (<1%))**

Table A: PFAC-MX1, Component

Compound	Acronym	Concentration* (ng/ml)	Peak Assignment in Figure 1
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000	A

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
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.

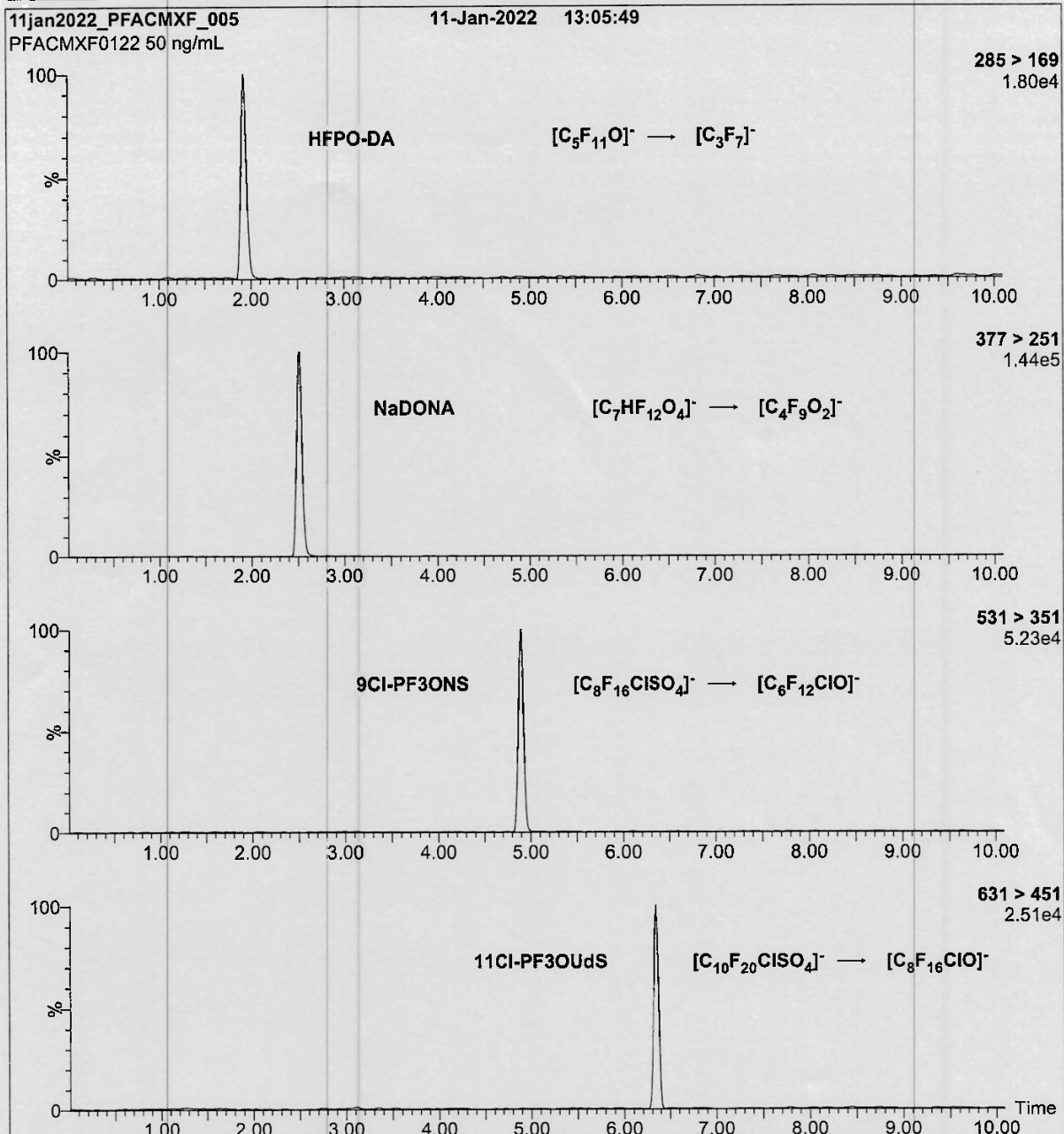
Certified By: 

B.G. Chittim, General Manager

Date: 01/12/2022  
(mm/dd/yyyy)



**Figure 2: PFAC-MXF; LC/MS/MS Data (Selected MRM Transitions)**



**Conditions for Figure 2:**

Injection: On-column (PFAC-MXF)

Mobile phase: Same as Figure 1

Flow: 300  $\mu$ L/min

**MS Parameters:**

Collision Gas (mbar) = 3.43e-3

Collision Energy (eV) = 6-60 (variable)

10683A



# WELLINGTON LABORATORIES

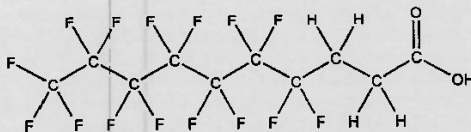
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHpPA

**LOT NUMBER:** FHpPA1020**COMPOUND:**

3-Perfluoroheptyl propanoic acid

**STRUCTURE:****CAS #:** 812-70-4**MOLECULAR FORMULA:** $C_{10}H_{15}F_7O_2$ **MOLECULAR WEIGHT:**

442.12

**CONCENTRATION:** $50.0 \pm 2.5 \mu\text{g/mL}$ **SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

&gt;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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FHpPA1020 (1 of 4)  
rev0



106 84A



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FPrPA

**LOT NUMBER:**

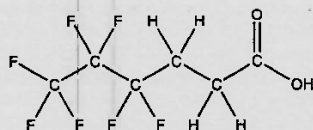
FPrPA1020

**COMPOUND:**

3-Perfluoropropyl propanoic acid

**STRUCTURE:****CAS #:**

356-02-5

**MOLECULAR FORMULA:** $C_6H_5F_7O_2$ **MOLECULAR WEIGHT:**

242.09

**CONCENTRATION:** $50.0 \pm 2.5 \mu\text{g/mL}$ **SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

&gt;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.
- Contains <1% of the unsaturated 3:3 telomer acid ( $C_8H_5F_7O_2$ ) as an impurity determined by  $^{19}\text{F}$  NMR.

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Certified By:

B.G. Chittim, General Manager

Date: 11/27/2020

(mm/dd/yyyy)

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10685A



# WELLINGTON LABORATORIES

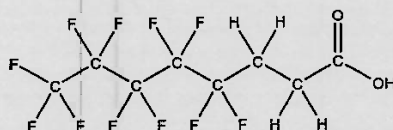
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FPePA

**LOT NUMBER:** FPePA1120**COMPOUND:**

3-Perfluoropentyl propanoic acid

**STRUCTURE:****CAS #:** 914637-49-3**MOLECULAR FORMULA:** $C_8H_5F_{11}O_2$ **MOLECULAR WEIGHT:**

342.11

**CONCENTRATION:** $50.0 \pm 2.5 \mu\text{g/mL}$ **SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

&gt;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 ( $C_8H_3F_{11}O_2$ ) as an impurity determined by  $^{19}\text{F}$  NMR.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

  
B.G. Chittim, General Manager

Date: 11/27/2020

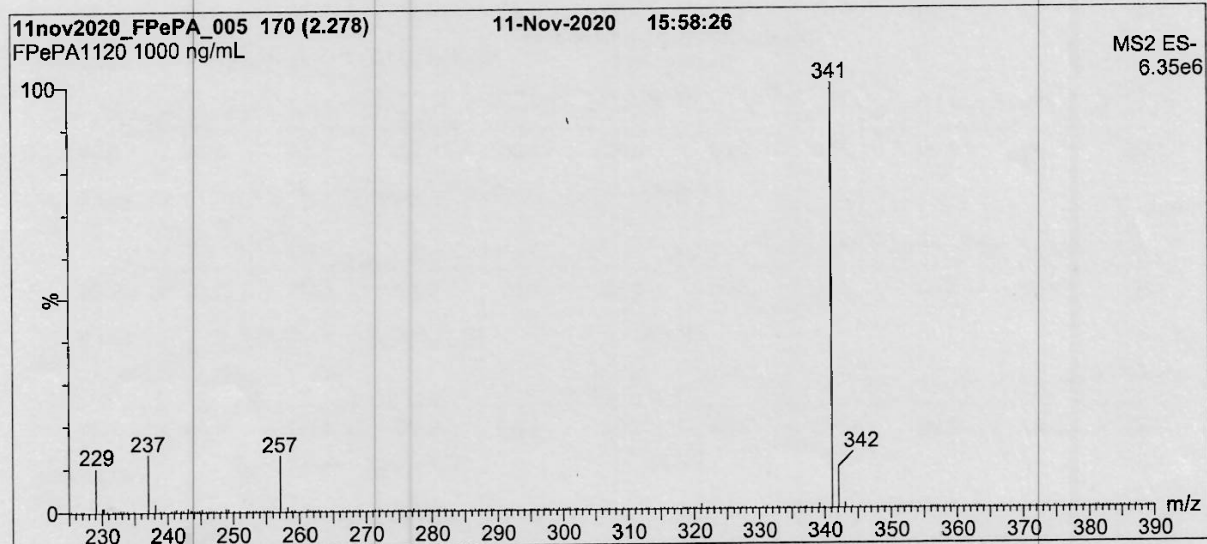
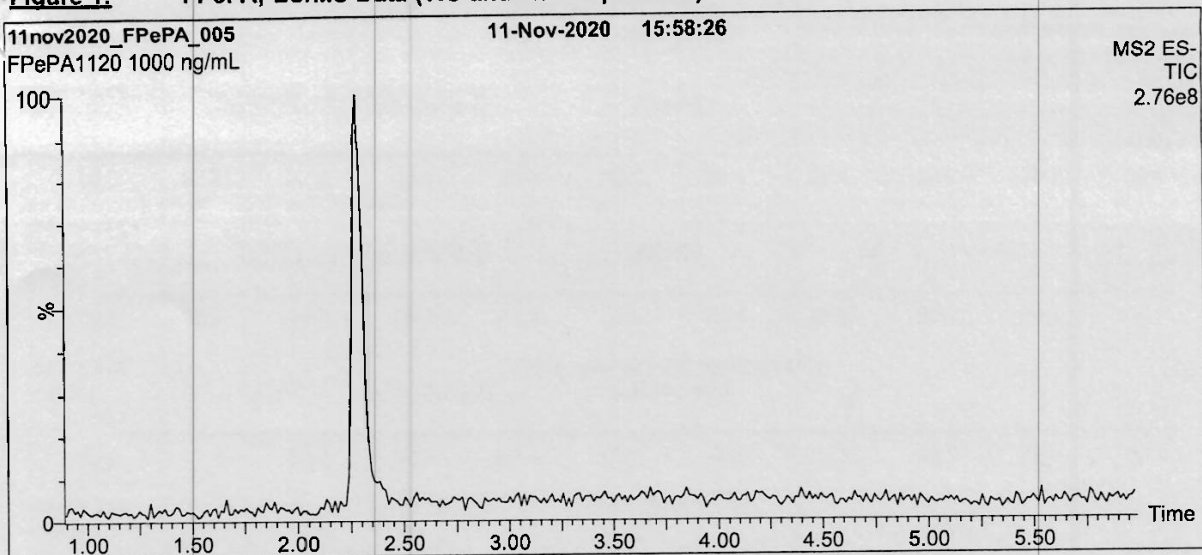
(mm/dd/yyyy)

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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>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) = 18.50  
Desolvation Temperature ( $^{\circ}$ C) = 500  
Desolvation Gas Flow (L/hr) = 1000



10726 A



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

10:2FTS

**LOT NUMBER:**

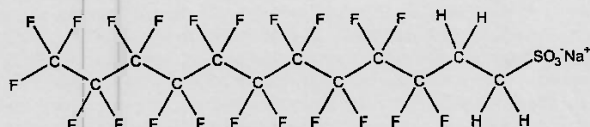
102FTS0221

**COMPOUND:**

Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

**STRUCTURE:****CAS #:**

108026-35-3

**MOLECULAR FORMULA:** $C_{12}H_4F_{21}SO_3Na$ **MOLECULAR WEIGHT:**

650.18

**CONCENTRATION:**50.0  $\pm$  2.5  $\mu$ g/mL (Na salt)**SOLVENT(S):**

Methanol

48.3  $\pm$  2.4  $\mu$ g/mL (10:2FTS acid)48.2  $\pm$  2.4  $\mu$ g/mL (10:2FTS anion)**CHEMICAL PURITY:**

&gt;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.

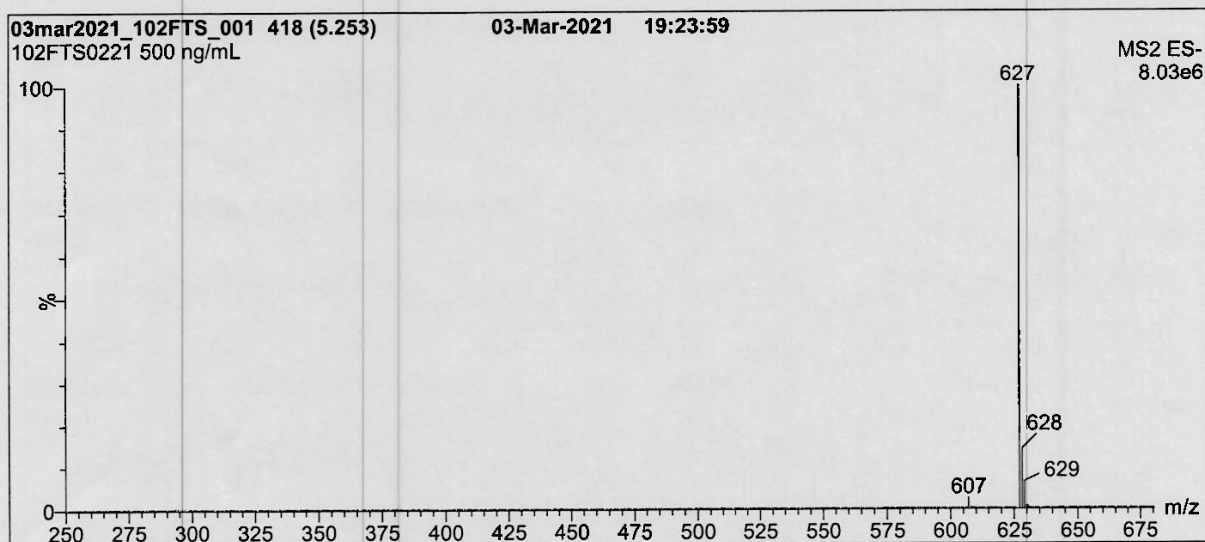
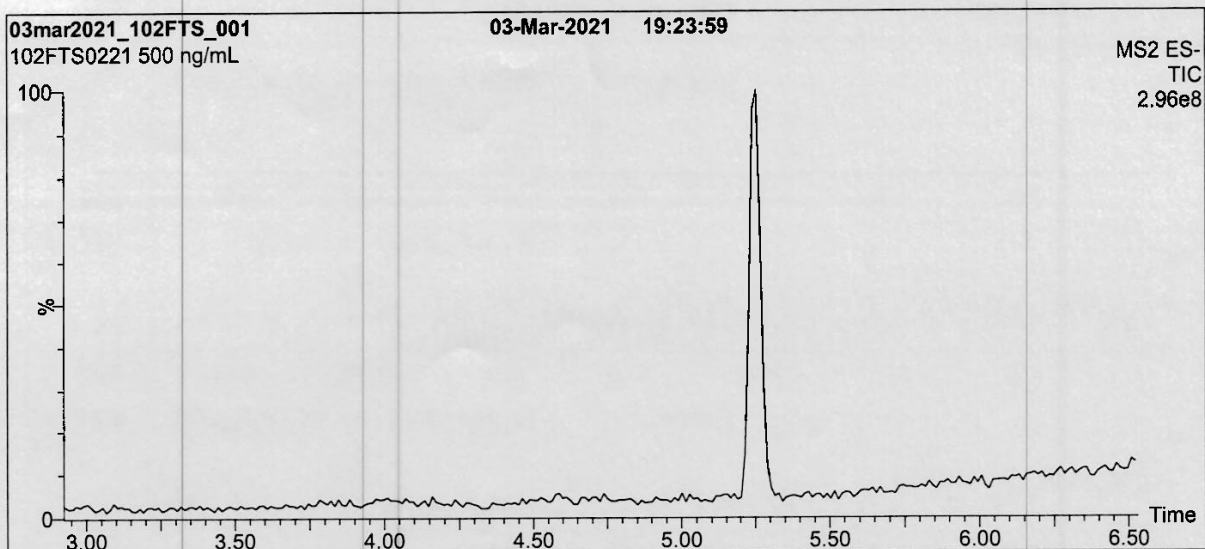
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Certified By:

  
B.G. Chittim, General Manager
Date: 03/05/2021  
(mm/dd/yyyy)

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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



10762 A-B



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

PFEESA

**LOT NUMBER:**

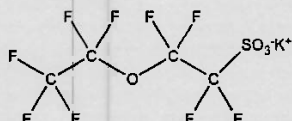
PFEESA0520

**COMPOUND:**

Potassium perfluoro(2-ethoxyethane)sulfonate

**STRUCTURE:****CAS #:**

117205-07-9

**MOLECULAR FORMULA:** $C_4F_9SO_4K$ **MOLECULAR WEIGHT:**

354.19

**CONCENTRATION:**

50.0 ± 2.5 µg/ml (K salt)  
 44.6 ± 2.2 µg/ml (PFEESA acid)  
 44.5 ± 2.2 µg/ml (PFEESA anion)

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

&gt;98%

**LAST TESTED:** (mm/dd/yyyy)

05/13/2020

**EXPIRY DATE:** (mm/dd/yyyy)

05/13/2025

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA).

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE****Certified By:**

B.G. Chittim, General Manager

**Date:** 05/29/2020  
(mm/dd/yyyy)

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10763 A-B



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

PF5OHxA

**LOT NUMBER:**

PF5OHxA0320

**COMPOUND:**

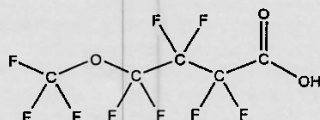
Perfluoro-5-oxahexanoic acid

**SYNONYM:**

Perfluoro-4-methoxybutanoic acid (PFMBA)

**STRUCTURE:****CAS #:**

863090-89-5

**MOLECULAR FORMULA:** $C_5H_5F_9O_3$ **MOLECULAR WEIGHT:**

280.05

**CONCENTRATION:**50.0  $\pm$  2.5  $\mu$ g/mL**SOLVENT(S):**Methanol  
Water (<1%)**CHEMICAL PURITY:**

&gt;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



10764 A-B



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

PF4OPeA

**LOT NUMBER:**

PF4OPeA0320

**COMPOUND:**

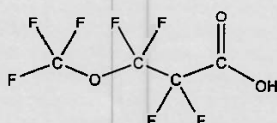
Perfluoro-4-oxapentanoic acid

**SYNONYM:**

Perfluoro-3-methoxypropanoic acid (PFMPA)

**STRUCTURE:****CAS #:**

377-73-1

**MOLECULAR FORMULA:** $C_4H_2F_7O_3$ **MOLECULAR WEIGHT:**

230.04

**CONCENTRATION:** $50.0 \pm 2.5 \mu\text{g/mL}$ **SOLVENT(S):**

Methanol

Water (&lt;1%)

**CHEMICAL PURITY:**

&gt;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

10765 A-13



# WELLINGTON LABORATORIES

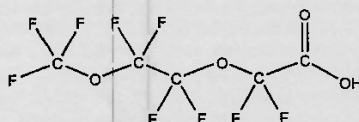
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**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:** $C_5HF_9O_4$ **MOLECULAR WEIGHT:**

296.04

**CONCENTRATION:** $50.0 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):**Methanol  
Water (<1%)**CHEMICAL PURITY:**

&gt;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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10829



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

N-MeFOSA-M

**LOT NUMBER:**

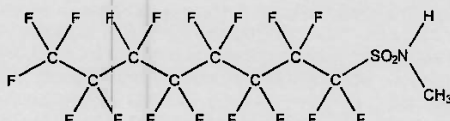
NMeFOSA0721M

**COMPOUND:**

N-methylperfluoro-1-octanesulfonamide

**STRUCTURE:****CAS #:**

31506-32-8



rec'd  
WHL  
10/5/21

**MOLECULAR FORMULA:** $C_8H_4F_{17}NO_2S$ **MOLECULAR WEIGHT:**

513.17

**CONCENTRATION:** $50.0 \pm 2.5 \mu\text{g/mL}$ **SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

&gt;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

**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

NMeFOSA0721M (1 of 4)  
rev0



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

N-EtFOSA-M

10837

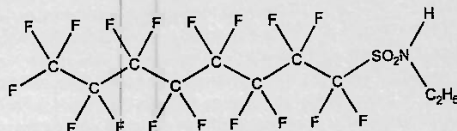
**COMPOUND:**

N-ethylperfluoro-1-octanesulfonamide

**LOT NUMBER:** NEtFOSA0821M

**STRUCTURE:**

**CAS #:** 4151-50-2



**MOLECULAR FORMULA:**

$C_{10}H_{17}F_{17}NO_2S$

**CONCENTRATION:**

$50.0 \pm 2.5 \mu\text{g/mL}$

**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

**MOLECULAR WEIGHT:**

527.20

**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:** 08/16/2021

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA





# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

10840

**PRODUCT CODE:**

L-PFDoS

**LOT NUMBER:**

LPFDoS0721

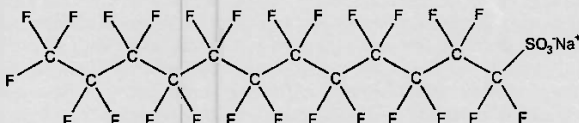
**COMPOUND:**

Sodium perfluoro-1-dodecanesulfonate

**STRUCTURE:**

**CAS #:**

1260224-54-1



**MOLECULAR FORMULA:**

$C_{12}F_{25}SO_3Na$

**MOLECULAR WEIGHT:**

722.14

**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)

**SOLVENT(S):**

Methanol

**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:

B.G. Chittim, General Manager

Date: 07/16/2021

(mm/dd/yyyy)

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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

PFODA

**LOT NUMBER:**

PFODA0821

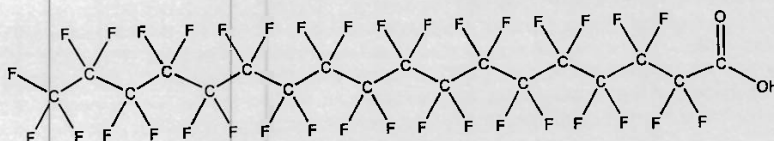
**COMPOUND:**

Perfluoro-n-octadecanoic acid

**CAS #:**

16517-11-6

**STRUCTURE:**



**MOLECULAR FORMULA:**

$C_{18}H_{35}O_2$

**MOLECULAR WEIGHT:**

914.14

**CONCENTRATION:**

$50.0 \pm 2.5 \mu\text{g/mL}$

**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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# CERTIFICATE OF ANALYSIS

## DOCUMENTATION

1084<sup>2</sup> \* NG 01/18/23

**PRODUCT CODE:**

PFHxDA

**LOT NUMBER:**

PFHxDA0421

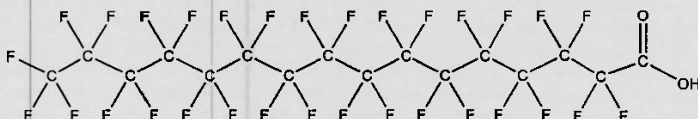
**COMPOUND:**

Perfluoro-n-hexadecanoic acid

**STRUCTURE:**

**CAS #:**

67905-19-5



**MOLECULAR FORMULA:**

$$\text{C}_{16}\text{HF}_{31}\text{O}_2$$

**MOLECULAR WEIGHT:**

814.13

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

Water (&lt;1%)

**CHEMICAL PURITY:**

**>98%**

**LAST TESTED:** (mm/dd/yyyy)

05/07/2021

**EXPIRY DATE:** (mm/dd/yyyy)

05/07/2026

**RECOMMENDED STORAGE:**

**Store ampoule in a cool, dark place**

**DOCUMENTATION/ DATA ATTACHED:**

**Figure 1: LC/MS Data (Full Scan and Mass Spectrum)**


**Figure 2: LC/MS/MS Data (Selected MRM Transitions)**

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

  
B.G. Chittim, General Manager

**Date:** 05/25/2021  
(mm/dd/yyyy)

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Form#:27, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

PFHxDA0421 (1 of 4)  
rev0

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# WELLINGTON LABORATORIES

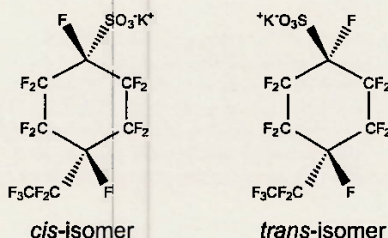
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

PFECHS

**LOT NUMBER:** PFECHS1021**COMPOUND:**

Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

**STRUCTURE:****CAS #:** 335-24-0**MOLECULAR FORMULA:** $C_8F_{15}SO_3K$ **MOLECULAR WEIGHT:**

500.22

**CONCENTRATION:**

50.0 ± 2.5 µg/mL (K salt)  
 46.2 ± 2.3 µg/mL (PFECHS acid)  
 46.1 ± 2.3 µg/mL (PFECHS anion)

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

&gt;98%

**LAST TESTED:** (mm/dd/yyyy)

10/14/2021

**EXPIRY DATE:** (mm/dd/yyyy)

10/14/2026

**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 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:** 10/15/2021  
(mm/dd/yyyy)

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11140



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

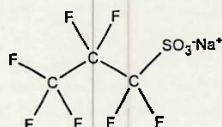
L-PFPrS

**LOT NUMBER:** LPFPrS0721**COMPOUND:**

Sodium perfluoro-1-propanesulfonate

**STRUCTURE:****CAS #:**

Not available

**MOLECULAR FORMULA:** $C_3F_7SO_3Na$ **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:**

&gt;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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11224



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FBSA-I

**LOT NUMBER:**

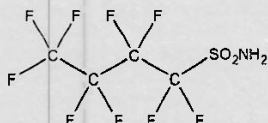
FBSA11211

**COMPOUND:**

Perfluoro-1-butananesulfonamide

**STRUCTURE:****CAS #:**

30334-69-1

**MOLECULAR FORMULA:** $C_4H_2F_9NO_2S$ **MOLECULAR WEIGHT:**

299.11

**CONCENTRATION:** $50.0 \pm 2.5 \mu\text{g/mL}$ **SOLVENT(S):**

Isopropanol

**CHEMICAL PURITY:**

&gt;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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Revision#: 9, Revised 2020-12-23

FBSA11211 (1 of 4)  
rev0

11225



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHxSA-I

**COMPOUND:**

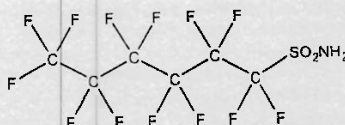
Perfluoro-1-hexanesulfonamide

**LOT NUMBER:**

FHxSA12211

**STRUCTURE:****CAS #:**

41997-13-1

**MOLECULAR FORMULA:** $C_8H_2F_{13}NO_2S$ **CONCENTRATION:** $50.0 \pm 2.5 \mu\text{g/mL}$ **CHEMICAL PURITY:**

&gt;98%

**LAST TESTED:** (mm/dd/yyyy)

12/29/2021

**EXPIRY DATE:** (mm/dd/yyyy)

12/29/2026

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**MOLECULAR WEIGHT:**

399.13

**SOLVENT(S):**

Isopropanol

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

  
B.G. Chittim, General Manager
Date: 01/10/2022  
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

FHxSA12211 (1 of 4)  
revD





# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

11336

**PRODUCT CODE:**

N-EtFOSE-M

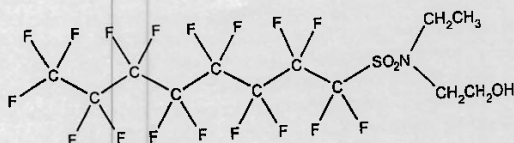
**LOT NUMBER:** NEtFOSE0622M

**COMPOUND:**

2-(N-ethylperfluoro-1-octanesulfonamido)ethanol

**CAS #:** 1691-99-2

**STRUCTURE:**



**MOLECULAR FORMULA:**

$C_{12}H_{19}F_{17}NO_3S$

**MOLECULAR WEIGHT:**

571.25

**CONCENTRATION:**

$50.0 \pm 2.5 \mu\text{g/mL}$

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

**EXPIRY DATE:** (mm/dd/yyyy)

05/13/2027

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

### DOCUMENTATION/ DATA ATTACHED:

- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

B.G. Chittim, General Manager

Date: 07/13/2022  
(mm/dd/yyyy)

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NEtFOSE0622M (1 of 5)  
rev0



11338



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

N-MeFOSE-M

**LOT NUMBER:**

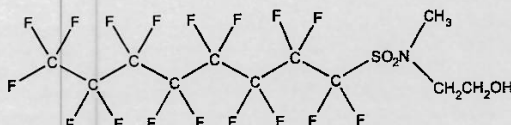
NMeFOSE0522M

**COMPOUND:**

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

**STRUCTURE:****CAS #:**

24448-09-7

**MOLECULAR FORMULA:** $C_{11}H_8F_{17}NO_3S$ **MOLECULAR WEIGHT:**

557.22

**CONCENTRATION:** $50.0 \pm 2.5 \mu\text{g/mL}$ **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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Form#:27, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

NMeFOSE0522M (1 of 5)  
rev0

11383 A-J



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### **MPFAC-HIF-ES**

#### **Mass-Labelled PFAS Extraction Standard Solution/Mixture**

**PRODUCT CODE:**

MPFAC-HIF-ES

**LOT NUMBER:**

MPFACHIFES0822

**SOLVENT(S):**

Methanol/Isopropanol (1%)/Water (&lt;1%)

**DATE PREPARED:** (mm/dd/yyyy)

07/20/2022

**LAST TESTED:** (mm/dd/yyyy)

08/02/2022

**EXPIRY DATE:** (mm/dd/yyyy)

08/02/2025

**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 ( $^2\text{H}$ ) perfluorooctanesulfonamidoethanols, 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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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
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Form# 13, Issued 2004-11-10  
Revision#9, Revised 2020-12-23

MPFACHIFES0822 (1 of 7)  
rev0



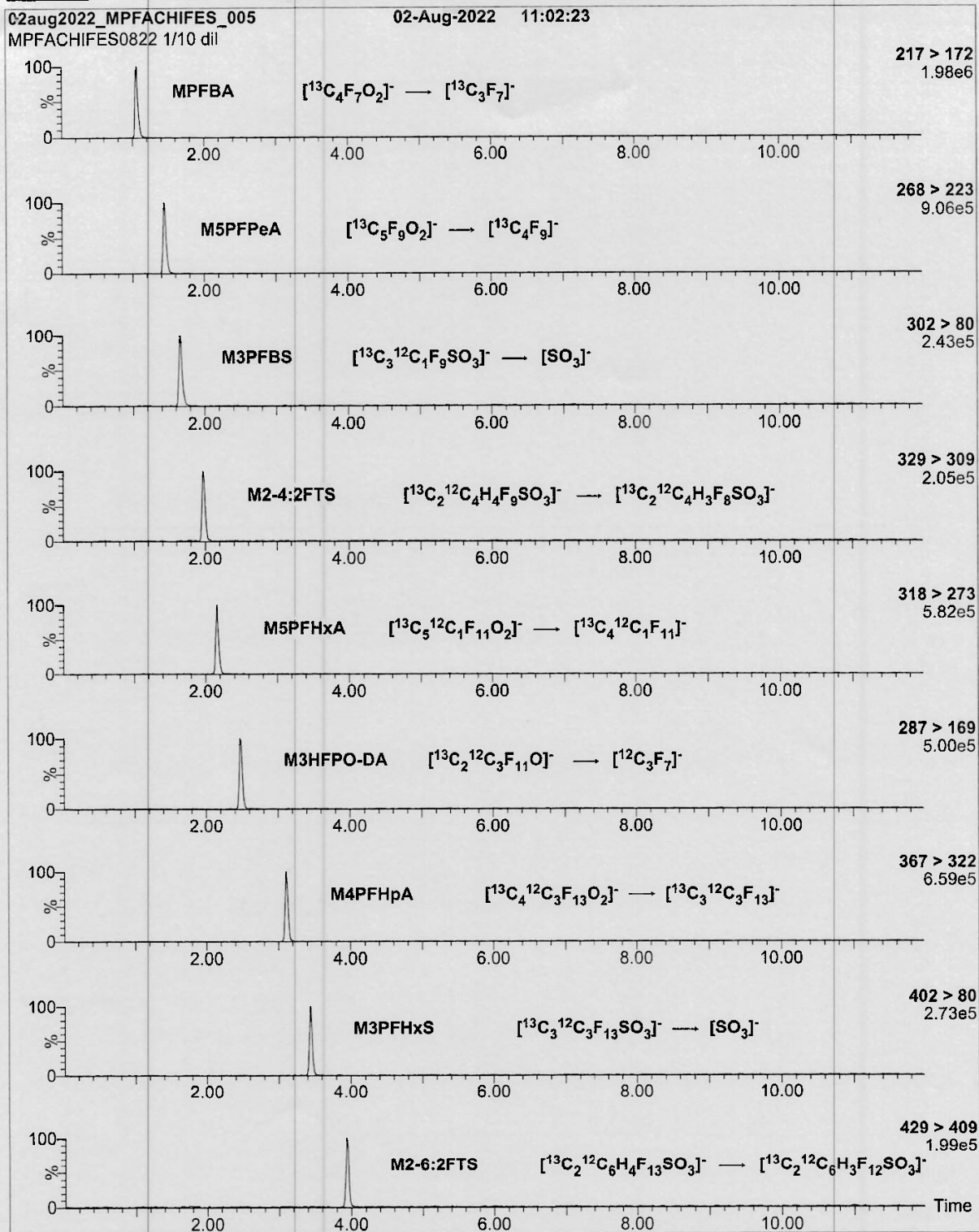
**Table A: MPFAC-HIF-ES; Components and Concentrations**  
(ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
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>5</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>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		17
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )tetradecanoic acid	M2PFTeDA	250		23
Perfluoro-1-( <sup>13</sup> C <sub>8</sub> )octanesulfonamide	M8FOSA	500		18
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>4</sub> -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamido)ethan-d <sub>4</sub> -ol	d9-N-EtFOSE	5000		22
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.

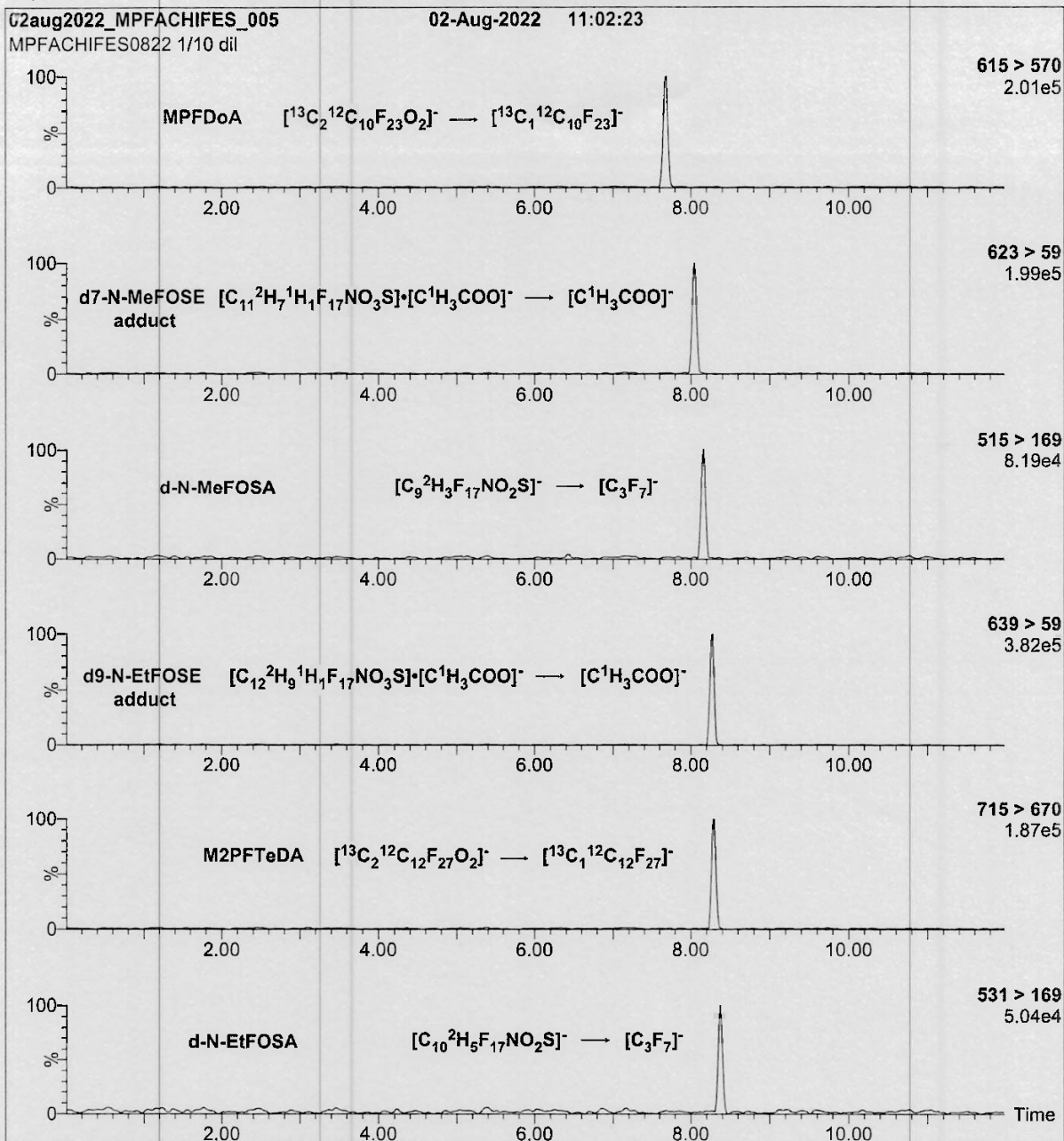
Certified By:   
B.G. Chittim, General Manager

Date: 08/02/2022  
(mm/dd/yyyy)

**Figure 2: MPFAC-HIF-ES; LC/MS/MS Data (Selected MRM Transitions)**



**Figure 2: MPFAC-HIF-ES; LC/MS/MS Data (Selected MRM Transitions)**



**Conditions for Figure 2:**

Injection: On-column (MPFAC-HIF-ES)

Mobile phase: Same as Figure 1

Flow: 300  $\mu\text{L}/\text{min}$

**MS Parameters:**

Collision Gas (mbar) = 3.24e-3

Collision Energy (eV) = 4-64 (variable)



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### MPFAC-HIF-IS

Mass-Labelled Perfluoroalkyl Substance  
Injection Standard Solution/Mixture

**PRODUCT CODE:**

MPFAC-HIF-IS

**LOT NUMBER:**

MPFACHIFIS0921

**SOLVENT(S):**

Methanol/Water (<1%)

**DATE PREPARED:** (mm/dd/yyyy)

09/07/2021

**LAST TESTED:** (mm/dd/yyyy)

09/07/2021

**EXPIRY DATE:** (mm/dd/yyyy)

09/07/2026

**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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**Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL,  $\pm$  5% in methanol/water (<1%))**

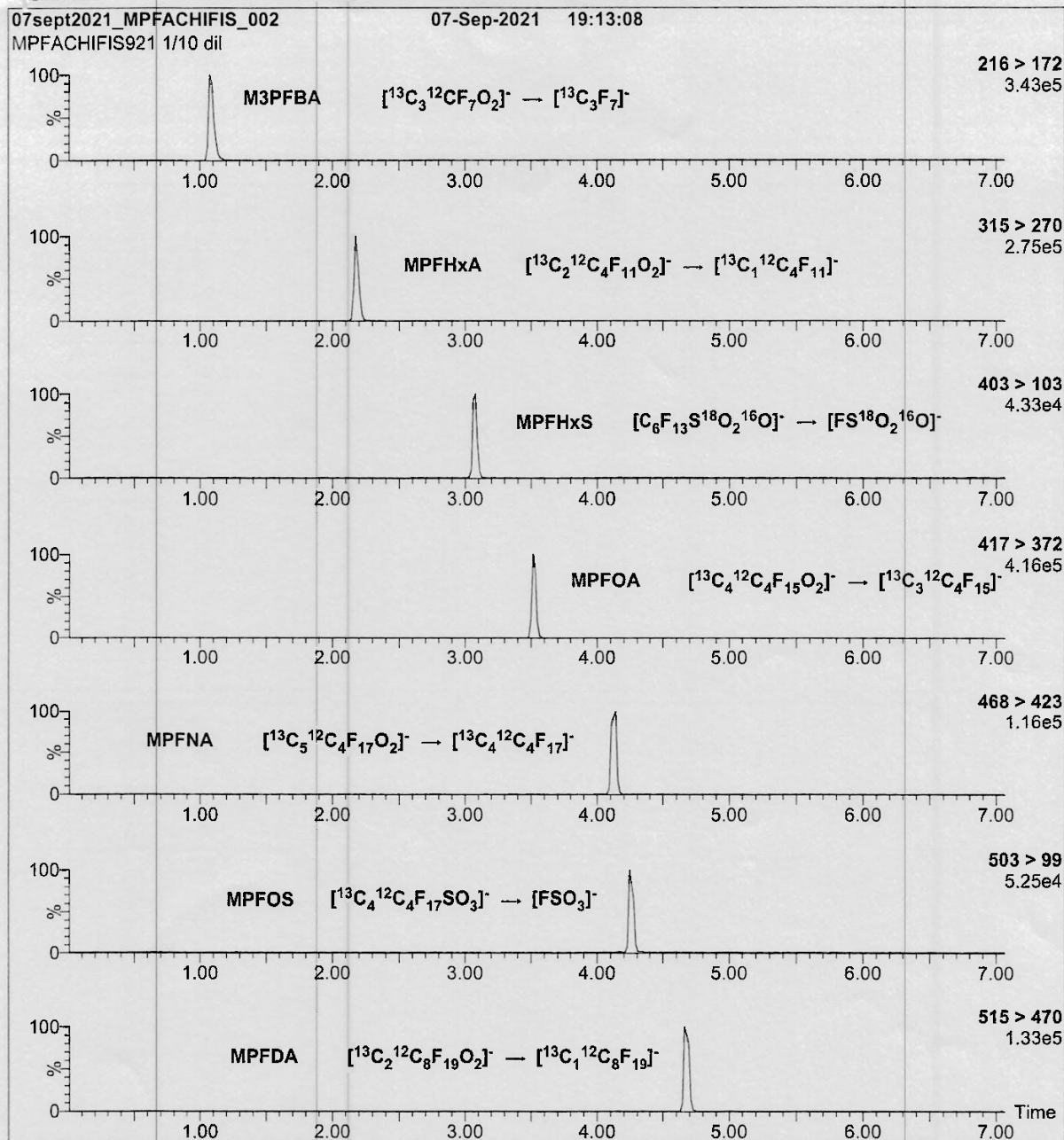
Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
Perfluoro-n-(2,3,4- $^{13}\text{C}_3$ )butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- $^{13}\text{C}_2$ )hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- $^{13}\text{C}_4$ )octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- $^{13}\text{C}_5$ )nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- $^{13}\text{C}_2$ )decanoic acid	MPFDA	250		7
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-hexane( $^{18}\text{O}_2$ )sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- $^{13}\text{C}_4$ )octanesulfonate	MPFOS	500	479	6

\* Concentrations have been rounded to three significant figures.

Certified By:   
B.G. Chittim, General Manager

Date: 10/13/2021  
(mm/dd/yyyy)

Figure 2: MPFAC-HIF-IS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (MPFAC-HIF-IS)

Mobile phase: Same as Figure 1

Flow: 300  $\mu\text{L}/\text{min}$

MS Parameters:

Collision Gas (mbar) = 3.18e-3

Collision Energy (eV) = 4-64 (variable)



SGS - ORLANDO

## SPE LIQUID SAMPLE PREP REPORT

Date/Time: 01/30/23 09:00  
Started (mm/dd/yy 24:00)

Method: EPA 1633 Draft (QSM)

Date/Time: 2/2/23 9:13  
Finished (mm/dd/yy 24:00)

Balance ID: \_\_\_\_\_

Batch#: OP95216Ext. 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
OP95216 MB		500	7	N/A	25		5	E	
OP95216 BS		500				200			
OP95216 LLBS		500				80			
FC2175-1	2	530							
	2	520							
FC2228-1	2	540							
	2	560							
	3	560							
FC2239-1	2	510							
	2	560							
	3	540		N/A				E	
FC2242-1	4	280	10	7				F	orange
FC2270-1	2	560	7	N/A					
	2	520	8	6					
	3	510	7	N/A					
	4	520							
FC2205-1	1	520	7	N/A	25		5	F	orange, dirty
OPFC2239-1 MS	3	510	7	N/A	25	200	5	E	
OP MSD									
OPFC2270-2 DUP	3	530	8	N/A	25		5	E	

Comments:

EIS (SURR) ID: 116160-F Conc: 250-5000 ng/ml Exp. Date: 01/20/24 Inj. By: GH Ver. By: DBL  
 SPIKE.1 ID: LCMS2055A Conc: VARIED Exp. Date: 07/24/23 Inj. By: GH Ver. By: DBL  
 SPIKE.2 ID: \_\_\_\_\_ Conc: \_\_\_\_\_ Exp. Date: \_\_\_\_\_ Inj. By: \_\_\_\_\_ Ver. By: \_\_\_\_\_  
 NIS (ISTD) ID: 11615 A-C Conc: 250-1000 ng/ml Exp. Date: 1/20/24 Inj. By: FS Ver. By: MV

TurboVap Temp (Therm ID): \_\_\_\_\_

N-Evap Temp (Therm ID): \_\_\_\_\_

Observed Temp °C: \_\_\_\_\_

Corr. Temp °C: \_\_\_\_\_

Observed Temp °C: \_\_\_\_\_

Corr. Temp °C: \_\_\_\_\_

Methanol Lot # 2232311% NH4OH MeOH PF252SPE Lot # S22-006891Water Lot# OP950690.3M Formic Acid PF241

Syringe filter Lot # \_\_\_\_\_

Acetic Acid# 194003

3% NH4OH Sol \_\_\_\_\_

pH paper Lot# 2153220.1M Formic PF2515% Formic Acid PF203Carbon Lot# 160898Relinquished By: Balmeille VachetDate: 01/30/23Accepted By: MVDate: 2/2/23

1633 AQ extraction 042222.xls NF