



Off-Base Drinking Water Sample Results, Combined Level 2 and Level 4 Laboratory Report, and the Sample Location Figure, SDG FA43290

*Naval Air Station Cecil Field
Jacksonville, Florida*

July 2019

N60200_009862
CECIL_FIELD_NAS
SSIC 5000-33c

LABORATORY DATA PACKAGE FA43290 NAS CECIL FIELD FL
04/20/2017
ACCUTEST LABORATORIES

Approved for public release: distribution unlimited.

Technical Report for

Resolution Consultants

NAS Cecil Field PFAS; Jacksonville, FL

0888817799

SGS Accutest Job Number: FA43290

Sampling Date: 04/20/17

Report to:

Resolution Consultants
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Memphis, TN 38134
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ATTN: Kara Wimble

Total number of pages in report: **208**



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

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Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001)
DoD ELAP(L-A-B L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),
AK, AR, GA, IA, KY, MA, NV, OK, OR, UT, WA

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Test results relate only to samples analyzed.

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Sample Summary

Resolution Consultants

Job No: FA43290

NAS Cecil Field PFAS; Jacksonville, FL
Project No: 0888817799

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FA43290-1	04/20/17	16:24 RB	04/22/17	DW	Drinking Water	COJ-48-0417
FA43290-2	04/20/17	16:24 RB	04/22/17	DW	Drinking Water	COJ-48-0417-D
FA43290-3	04/20/17	16:26 RB	04/22/17	DW	Drinking Water	FB-COJ-48-0417

SAMPLE DELIVERY GROUP CASE NARRATIVE

2

Client: Resolution Consultants

Job No: FA43290

Site: NAS Cecil Field PFAS; Jacksonville, FL

Report Date: 5/4/2017 1:00:08 PM

3 Sample(s) were collected on 04/20/2017 and were received at SGS Accutest Southeast (SASE) on 04/22/2017 properly preserved, at 2.4 Deg. C and intact. These Samples received an SASE job number of FA43290. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Extractables by GCMS By Method EPA 537

Matrix: DW

Batch ID: OP64883

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) OP64883-MB, OP64883-BS have surrogates outside control limits.

OP64883: No Matrix QC available for this batch.

Matrix: DW

Batch ID: OP64835

Sample(s) FA43290-1, FA43290-2, FA43290-3 have surrogates outside control limits. Probable cause is due to matrix interference.

FA43290-1: Confirmation run.

FA43290-2: Confirmation run.

FA43290-3: Confirmation run.

SGS Accutest (SASE) certifies that this report meets the project requirements for analytical data produced for the samples as received at SASE and as stated on the COC. SASE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SASE Quality Manual except as noted above. This report is to be used in its entirety. SASE is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

Kim Benham, Client Services (signature on file)

Date May 4, 2017

Thursday, May 04, 2017

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Summary of Hits

Job Number: FA43290
Account: Resolution Consultants
Project: NAS Cecil Field PFAS; Jacksonville, FL
Collected: 04/20/17



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

FA43290-1 COJ-48-0417

No hits reported in this sample.

FA43290-2 COJ-48-0417-D

Perfluorooctanesulfonic acid	0.00392 J	0.0080	0.0032	ug/l	EPA 537
------------------------------	-----------	--------	--------	------	---------

FA43290-3 FB-COJ-48-0417

No hits reported in this sample.



Sample Results

Report of Analysis

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	COJ-48-0417		Date Sampled:	04/20/17
Lab Sample ID:	FA43290-1		Date Received:	04/22/17
Matrix:	DW - Drinking Water		Percent Solids:	n/a
Method:	EPA 537 EPA 537			
Project:	NAS Cecil Field PFAS; Jacksonville, FL			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q1000.D	1	05/03/17	NAF	05/03/17	OP64883	S2Q28
Run #2 ^a	2Q945.D	1	05/01/17	NAF	04/28/17	OP64835	S2Q26

	Initial Volume	Final Volume
Run #1	250 ml	1.0 ml
Run #2	250 ml	1.0 ml

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

PERFLUOROALKYLCARBOXYLIC ACIDS

335-67-1	Perfluorooctanoic acid	0.0032 U		0.0080	0.0032	0.0020	ug/l	
----------	------------------------	----------	--	--------	--------	--------	------	--

PERFLUOROALKYLSULFONATES

375-73-5	Perfluorobutanesulfonic acid	0.0060 U		0.0080	0.0060	0.0040	ug/l	
----------	------------------------------	----------	--	--------	--------	--------	------	--

1763-23-1	Perfluorooctanesulfonic acid	0.0032 U		0.0080	0.0032	0.0020	ug/l	
-----------	------------------------------	----------	--	--------	--------	--------	------	--

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	110%	80%	70-130%
	13C2-PFDA	113%	48%	70-130%

(a) Confirmation run.

U = Not detected LOD = Limit of Detection

MCL = Maximum Contamination Level (40 CFR 141)

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	COJ-48-0417-D		Date Sampled:	04/20/17
Lab Sample ID:	FA43290-2		Date Received:	04/22/17
Matrix:	DW - Drinking Water		Percent Solids:	n/a
Method:	EPA 537 EPA 537			
Project:	NAS Cecil Field PFAS; Jacksonville, FL			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q1001.D	1	05/03/17	NAF	05/03/17	OP64883	S2Q28
Run #2 ^a	2Q946.D	1	05/01/17	NAF	04/28/17	OP64835	S2Q26

	Initial Volume	Final Volume
Run #1	250 ml	1.0 ml
Run #2	250 ml	1.0 ml

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

PERFLUOROALKYLCARBOXYLIC ACIDS

335-67-1	Perfluorooctanoic acid	0.0032 U		0.0080	0.0032	0.0020	ug/l	
----------	------------------------	----------	--	--------	--------	--------	------	--

PERFLUOROALKYLSULFONATES

375-73-5	Perfluorobutanesulfonic acid	0.0060 U		0.0080	0.0060	0.0040	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.00392		0.0080	0.0032	0.0020	ug/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	110%	73%	70-130%
	13C2-PFDA	108%	22%	70-130%

(a) Confirmation run.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	FB-COJ-48-0417				
Lab Sample ID:	FA43290-3			Date Sampled:	04/20/17
Matrix:	DW - Drinking Water			Date Received:	04/22/17
Method:	EPA 537 EPA 537			Percent Solids:	n/a
Project:	NAS Cecil Field PFAS; Jacksonville, FL				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q1002.D	1	05/03/17	NAF	05/03/17	OP64883	S2Q28
Run #2 ^a	2Q947.D	1	05/01/17	NAF	04/28/17	OP64835	S2Q26

	Initial Volume	Final Volume
Run #1	250 ml	1.0 ml
Run #2	260 ml	1.0 ml

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

PERFLUOROALKYLCARBOXYLIC ACIDS

335-67-1	Perfluorooctanoic acid	0.0032 U		0.0080	0.0032	0.0020	ug/l	
----------	------------------------	----------	--	--------	--------	--------	------	--

PERFLUOROALKYLSULFONATES

375-73-5	Perfluorobutanesulfonic acid	0.0060 U		0.0080	0.0060	0.0040	ug/l	
----------	------------------------------	----------	--	--------	--------	--------	------	--

1763-23-1	Perfluorooctanesulfonic acid	0.0032 U		0.0080	0.0032	0.0020	ug/l	
-----------	------------------------------	----------	--	--------	--------	--------	------	--

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	99%	21%	70-130%
	13C2-PFDA	95%	22%	70-130%

(a) Confirmation run.

U = Not detected LOD = Limit of Detection

MCL = Maximum Contamination Level (40 CFR 141)

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5 Limits

5.1

Rev 5/12

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SGS ACCUTEST - ORLANDO SAMPLE RECEIPT CONFIRMATION

SGS ACCUTEST'S JOB NUMBER: FA43290 CLIENT: Resolution Cons PROJECT: Former NAS
 DATE/TIME RECEIVED: 04/22/17 800 (MM/DD/YY 24:00) NUMBER OF COOLERS RECEIVED: 1
 METHOD OF DELIVERY: FEDEX UPS ACCUTEST COURIER DELIVERY OTHER: _____
 AIRBILL NUMBERS: _____

COOLER INFORMATION

- ☐ CUSTODY SEAL NOT PRESENT OR NOT INTACT
☐ CHAIN OF CUSTODY NOT RECEIVED (COC)
☐ ANALYSIS REQUESTED IS UNCLEAR OR MISSING
☐ SAMPLE DATES OR TIMES UNCLEAR OR MISSING
☐ TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- ☐ TRIP BLANK PROVIDED
☒ TRIP BLANK NOT PROVIDED
☒ TRIP BLANK NOT ON COC
☐ TRIP BLANK INTACT
☐ TRIP BLANK NOT INTACT
☐ RECEIVED WATER TRIP BLANK
☐ RECEIVED SOIL TRIP BLANK

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) _____

SUMMARY OF COMMENTS: _____

TEMPERATURE INFORMATION

- ☐ IR THERM ID 1 CORR. FACTOR 10.4
☐ OBSERVED TEMPS: 2.0
☐ CORRECTED TEMPS: 2.4 (USED FOR LIMS)

SAMPLE INFORMATION

- ☐ INCORRECT NUMBER OF CONTAINERS USED
☐ SAMPLE RECEIVED IMPROPERLY PRESERVED
☐ INSUFFICIENT VOLUME FOR ANALYSIS
☐ DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
☐ ID'S ON COC DO NOT MATCH LABEL
☐ VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
☐ BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
☐ NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
☐ UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
☐ SAMPLE CONTAINER(S) RECEIVED BROKEN
☐ 5035 FIELD KITS NOT RECEIVED WITHIN 48 HOURS
☐ BULK VOA SOIL JARS NOT RECEIVED WITHIN 48 HOURS
☐ % SOLIDS JAR NOT RECEIVED
☐ RESIDUAL CHLORINE PRESENT LOT# _____

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

TECHNICIAN SIGNATURE/DATE

NF 02/16

REVIEWER SIGNATURE/DATE

receipt confirmation 020416.xls

FA43290: Chain of Custody

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QC Evaluation: DOD QSM5 Limits

Job Number: FA43290
Account: Resolution Consultants
Project: NAS Cecil Field PFAS; Jacksonville, FL
Collected: 04/20/17

QC Sample ID	CAS#	Analyte	Sample Result Type	Result Type	Units	Limits
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No Exceptions found.

* Sample used for QC is not from job FA43290

GC/MS Semi-volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: FA43290
Account: RESCTNM Resolution Consultants
Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP64883-MB	2Q995.D	1	05/03/17	NAF	05/03/17	OP64883	S2Q28

The QC reported here applies to the following samples: Method: EPA 537

FA43290-1, FA43290-2, FA43290-3

CAS No.	Compound	Result	RL	MDL	Units	Q
335-67-1	Perfluorooctanoic acid	ND	0.0080	0.0020	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0080	0.0040	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0080	0.0020	ug/l	

CAS No.	Surrogate Recoveries	Limits
	13C2-PFHxA	115% 70-130%
	13C2-PFDA	109% 70-130%
	d5-EtFOSAA	175%* 70-130%

Blank Spike Summary

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Job Number: FA43290
Account: RESCTNM Resolution Consultants
Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP64883-BS ^a	2Q994.D	1	05/03/17	NAF	05/03/17	OP64883	S2Q28

The QC reported here applies to the following samples:**Method:** EPA 537

FA43290-1, FA43290-2, FA43290-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
335-67-1	Perfluorooctanoic acid	0.08	0.0941	118	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0851	106	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0808	101	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	126%	70-130%
	13C2-PFDA	124%	70-130%
	d5-EtFOSAA	172%* ^b	70-130%

(a) Insufficient sample for MS/MSD.

(b) Outside control limits.

* = Outside of Control Limits.

Semivolatile Internal Standard Area Summary

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Job Number: FA43290
Account: RESCTNM Resolution Consultants
Project: NAS Cecil Field PFAS; Jacksonville, FL

Check Std: S2Q26-CC18	Injection Date: 05/01/17
Lab File ID: 2Q941.D	Injection Time: 21:05
Instrument ID: GCMS2Q	Method: EPA 537

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Initial Cal ^a	77062	4.23	159216	6.65	78218	6.64	57710	7.20	34998	7.47	94157	10.66
Check Std ^b	68658	4.25	146839	6.71	74961	6.70	53971	7.29	30848	7.47	83705	10.99
Upper Limit ^c	107887	5.25	222902	7.71	109505	7.70	80794	8.29	48997	8.47	131820	11.99
Lower Limit ^d	53943	3.25	111451	5.71	54753	5.70	40397	6.29	24499	6.47	65910	9.99

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
ZZZZZZ	59415	4.25	126178	6.72	68612	6.71	48760	7.29	27476	7.47	74606	10.99
ZZZZZZ	64603	4.26	130893	6.72	68888	6.71	49480	7.30	28467	7.47	76853	11.00
FA43290-1 ^e	61666	4.26	127775	6.72	67102	6.71	49622	7.30	28771	7.47	71761	10.96
FA43290-2 ^e	63750	4.26	129930	6.72	69334	6.71	50523	7.30	28154	7.47	75521	11.00
FA43290-3 ^e	63831	4.27	127953	6.74	67835	6.71	50235	7.30	27144	7.47	75462	11.00
S2Q26-ECC18	70179	4.27	149308	6.74	75288	6.71	55312	7.30	30387	7.47	85133	11.05

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA
IS 6 = 13C2-PFDoDA

- (a) Initial Cal is: S2Q18-ICC18 2Q655.D 04/20/17 13:13. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of initial standard area; Retention time +1 minutes of check standard.
(d) Lower Limit = -30% of initial standard area; Retention time -1 minutes of check standard.
(e) Confirmation run.

Semivolatile Internal Standard Area Summary

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Job Number: FA43290
Account: RESCTNM Resolution Consultants
Project: NAS Cecil Field PFAS; Jacksonville, FL

Check Std: S2Q28-CC18	Injection Date: 05/03/17
Lab File ID: 2Q992.D	Injection Time: 15:52
Instrument ID: GCMS2Q	Method: EPA 537

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Initial Cal ^a	77062	4.23	159216	6.65	78218	6.64	57710	7.20	34998	7.47	94157	10.66
Check Std ^b	63332	4.25	144649	6.71	68578	6.70	52509	7.29	29507	7.46	82383	11.04
Upper Limit ^c	115593	5.25	238824	7.71	117327	7.70	86565	8.29	52497	8.46	141236	12.04
Lower Limit ^d	38531	3.25	79608	5.71	39109	5.70	28855	6.29	17499	6.46	47079	10.04

Lab Sample ID	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
OP64883-BS ^e	62564	4.25	143394	6.71	67035	6.70	51660	7.28	28869	7.46	80954	11.03
OP64883-MB	58842	4.25	128048	6.71	63388	6.70	48878	7.29	26783	7.46	75233	11.03
ZZZZZZ	57793	4.25	126076	6.71	61510	6.70	47765	7.28	26335	7.46	74377	10.96
ZZZZZZ	50298	4.23	110427	6.71	54122	6.70	42424	7.28	24291	7.46	65736	11.01
ZZZZZZ	58030	4.25	126413	6.71	62894	6.70	47438	7.28	26078	7.46	74719	11.01
ZZZZZZ	61973	4.25	133316	6.71	65729	6.70	50203	7.28	27616	7.46	78323	11.01
FA43290-1	57399	4.25	125880	6.71	63501	6.70	47628	7.28	26681	7.46	75423	11.00
FA43290-2	56134	4.25	123955	6.71	61366	6.70	46634	7.28	25709	7.46	72598	10.96
FA43290-3	60924	4.25	130910	6.71	65124	6.70	48698	7.28	28676	7.46	77672	10.96
ZZZZZZ	63688	4.25	137663	6.71	68709	6.70	51672	7.29	28793	7.46	82236	10.96
S2Q28-ECC18	72607	4.25	163134	6.71	77328	6.70	58178	7.28	33671	7.46	93260	10.96

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA
IS 6 = 13C2-PFDoDA

(a) Initial Cal is: S2Q18-ICC18 2Q655.D 04/20/17 13:13. Area is AVERAGE of initial cal points.

(b) Check Std Limit = -50 to +50% of initial cal area.

(c) Upper Limit = +50% of initial standard area; Retention time +1 minutes of check standard.

(d) Lower Limit = -50% of initial standard area; Retention time -1 minutes of check standard.

(e) Insufficient sample for MS/MSD.

Semivolatile Surrogate Recovery Summary

Job Number: FA43290
Account: RESCTNM Resolution Consultants
Project: NAS Cecil Field PFAS; Jacksonville, FL

Method: EPA 537	Matrix: DW
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2
FA43290-1	2Q1000.D	110	113
FA43290-1	2Q945.D	80	48*
FA43290-2	2Q1001.D	110	108
FA43290-2	2Q946.D	73	22*
FA43290-3	2Q1002.D	99	95
FA43290-3	2Q947.D	21*	22*
OP64883-BS	2Q994.D	126	124
OP64883-MB	2Q995.D	115	109

Surrogate Compounds	Recovery Limits
S1 = 13C2-PFHxA	70-130%
S2 = 13C2-PFDA	70-130%

Initial Calibration Summary

Page 1 of 1

Job Number: FA43290
 Account: RESCTNM Resolution Consultants
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q18-ICC18
 Lab FileID: 2Q655.D

Initial Calibration ReSponse Factors - D:\MassHunter\Data\0420_LIST_S2Q18\S2Q18.batch.bin

Level ID : Calibration File

1 : D:\MassHunter\Data\0420_LIST_S2Q18\2Q651.d
 2 : D:\MassHunter\Data\0420_LIST_S2Q18\2Q652.d
 3 : D:\MassHunter\Data\0420_LIST_S2Q18\2Q653.d
 4 : D:\MassHunter\Data\0420_LIST_S2Q18\2Q654.d
 5 : D:\MassHunter\Data\0420_LIST_S2Q18\2Q655.d
 6 : D:\MassHunter\Data\0420_LIST_S2Q18\2Q656.d
 7 : D:\MassHunter\Data\0420_LIST_S2Q18\2Q657.d

Compound	1	2	3	4	5	6	7	AvgRF	%RSD	r^2
1) 13C2-6:2FTS	-----ISTD-----									
8) 4:2FTS	0.5439	0.5459	0.5345	0.5374	0.4892	0.5027	0.5077	0.5230	4.338	0.9995
9) 6:2FTS	-----	1.1352	1.0675	1.0557	0.9739	0.9634	0.9636	1.0266	6.898	0.9993
10) 8:2FTS	1.6663	1.6728	1.6625	1.6921	1.5507	1.5905	1.6117	1.6352	3.163	0.9996
3) 13C2-PFDoDA	-----ISTD-----									
19) PFDoDA	0.9060	0.9297	0.9083	0.9190	0.8505	0.9094	0.9372	0.9086	3.099	0.9996
31) PFTeDA	0.4345	0.4371	0.4318	0.4343	0.3962	0.4245	0.4420	0.4286	3.559	0.9993
32) PFTrDA	0.7809	0.7694	0.7711	0.7818	0.7223	0.7750	0.8091	0.7728	3.354	0.9994
33) PFUnDA	0.9073	0.8879	0.8779	0.8873	0.8215	0.8600	0.8974	0.8770	3.268	0.9985
5) 13C2-PFOA	-----ISTD-----									
2) 13C2-PFDA	1.3869	1.4181	1.3535	1.3743	1.2810	1.3950	1.4227	1.3759	3.507	0.9984
4) 13C2-PFHxA	0.9750	1.0479	1.0267	1.0364	0.9711	1.0614	1.0680	1.0266	3.818	0.9987
16) PFBA	0.4748	0.5318	0.5137	0.5159	0.4818	0.5228	0.5359	0.5110	4.649	0.9984
18) PFDA	1.0186	1.0187	0.9665	0.9766	0.9006	0.9736	1.0136	0.9812	4.293	0.9978
21) PFHpA	1.6423	1.4730	1.4128	1.4109	1.3074	1.4206	1.4665	1.4476	7.013	0.9986
23) PFHxA	0.4742	0.5078	0.4891	0.4767	0.4527	0.4935	0.4989	0.4847	3.794	0.9996
25) PFNA	1.1263	0.9385	0.9201	0.8924	0.8036	0.8867	0.9120	0.9256	10.636	0.9977
27) PFOA	0.9605	0.8457	0.8362	0.8326	0.7694	0.8479	0.8388	0.8473	6.694	0.9985
6) 13C3-PFPeA	-----ISTD-----									
29) PFPeA	1.5154	1.5656	1.4956	1.5117	1.4189	1.5044	1.5422	1.5077	3.048	0.9989
30) PFPeS	0.1734	0.1915	0.1872	0.1883	0.1775	0.1881	0.1940	0.1857	4.029	0.9987
7) 13C4-PFOS	-----ISTD-----									
17) PFBS	0.7614	0.7709	0.7757	0.7798	0.7414	0.7884	0.8143	0.7760	2.917	0.9986
20) PFDS	0.5220	0.5547	0.5462	0.5487	0.5249	0.5573	0.5779	0.5474	3.528	0.9997
22) PFHpS	0.8012	0.8342	0.8168	0.8222	0.7913	0.8358	0.8645	0.8237	2.944	0.9986
24) PFHxS	0.8075	0.8214	0.8108	0.8095	0.7715	0.8190	0.8571	0.8138	3.098	0.9980
26) PFNS	0.4808	0.5040	0.5004	0.4985	0.4714	0.4980	0.5153	0.4955	2.973	0.9987
28) PFOS	1.1322	1.1479	1.1431	1.1299	1.0613	1.1354	1.1823	1.1331	3.205	0.9981
11) d3-MeFOSAA	-----ISTD-----									
12) d5-EtFOSAA	0.8411	0.6125	0.5388	0.5228	0.5075	0.5045	0.5765	0.5862	20.291	0.9954
13) EtFOSAA	-----	0.5259	0.4906	0.4539	0.4378	0.4479	0.5192	0.4792	7.939	0.9942
14) FOSA	1.0873	1.0855	1.1177	1.1044	1.0530	1.0209	1.1121	1.0830	3.218	0.9968
15) MeFOSAA	-----	0.6142	0.5865	0.6084	0.5819	0.5706	0.6565	0.6030	5.130	0.9942

*(value) - Average RF below (value)

6.5.1
6

Initial Calibration Verification

Page 1 of 1

Job Number: FA43290
Account: RESCTNM Resolution Consultants
Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q18-ICV18
Lab FileID: 2Q659.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0420_LIST_S2Q18\S2Q18.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\0420_LIST_S2Q18\2Q651.d
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3:D:\MassHunter\Data\0420_LIST_S2Q18\2Q653.d
4:D:\MassHunter\Data\0420_LIST_S2Q18\2Q654.d
5:D:\MassHunter\Data\0420_LIST_S2Q18\2Q655.d
6:D:\MassHunter\Data\0420_LIST_S2Q18\2Q656.d
7:D:\MassHunter\Data\0420_LIST_S2Q18\2Q657.d

Data File: 2Q659

Type : QC

Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
=====	=====	=====	=====	=====
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	0.000	0.0	0.0
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	20.000	0.000	0.0	0.0
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	20.000	24.064	20.3	120.3
6:2FTS	20.000	22.507	12.5	112.5
8:2FTS	20.000	22.545	12.7	112.7
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	0.000	0.0	0.0
EtFOSAA	20.000	23.571	17.9	117.9
FOSA	20.000	21.566	7.8	107.8
MeFOSAA	20.000	24.228	21.1	121.1
PFBA	20.000	21.001	5.0	105.0
PFBS	20.000	20.876	4.4	104.4
PFDA	20.000	21.111	5.6	105.6
PFDoDA	20.000	22.315	11.6	111.6
PFDS	20.000	22.350	11.7	111.7
PFHpA	20.000	21.559	7.8	107.8
PFHpS	20.000	21.058	5.3	105.3
PFHxA	20.000	21.933	9.7	109.7
PFHxS	20.000	22.038	10.2	110.2
PFNA	20.000	21.312	6.6	106.6
PFNS	20.000	22.659	13.3	113.3
PFOA	20.000	21.282	6.4	106.4
PFOS	20.000	19.618	-1.9	98.1
PFPeA	20.000	21.052	5.3	105.3
PFPeS	20.000	22.045	10.2	110.2
PFTeDA	20.000	22.537	12.7	112.7
PFTrDA	20.000	22.394	12.0	112.0
PFUnDA	20.000	21.206	6.0	106.0

CC Criteria: +/- 25%

Continuing Calibration Summary

Page 1 of 1

Job Number: FA43290
 Account: RESCTNM Resolution Consultants
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q26-CC18
 Lab FileID: 2Q941.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0501_LIST_S2Q26\S2Q26.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\0420_LIST_S2Q18\2Q651.d
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 3:D:\MassHunter\Data\0420_LIST_S2Q18\2Q653.d
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 5:D:\MassHunter\Data\0420_LIST_S2Q18\2Q655.d
 6:D:\MassHunter\Data\0420_LIST_S2Q18\2Q656.d
 7:D:\MassHunter\Data\0420_LIST_S2Q18\2Q657.d

Data File: 2Q941

Type : QC

Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	18.987	-5.1	94.9
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	20.000	17.425	-12.9	87.1
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	20.000	17.937	-10.3	89.7
6:2FTS	20.000	19.574	-2.1	97.9
8:2FTS	20.000	20.993	5.0	105.0
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	31.387	# 56.9	156.9
EtFOSAA	20.000	28.580	# 42.9	142.9
FOSA	20.000	19.538	-2.3	97.7
MeFOSAA	20.000	29.724	# 48.6	148.6
PFBA	20.000	16.041	-19.8	80.2
PFBS	20.000	17.201	-14.0	86.0
PFDA	20.000	18.346	-8.3	91.7
PFDoDA	20.000	19.404	-3.0	97.0
PFDS	20.000	18.044	-9.8	90.2
PFHpA	20.000	18.326	-8.4	91.6
PFHpS	20.000	18.434	-7.8	92.2
PFHxA	20.000	18.689	-6.6	93.4
PFHxS	20.000	17.797	-11.0	89.0
PFNA	20.000	18.748	-6.3	93.7
PFNS	20.000	18.752	-6.2	93.8
PFOA	20.000	18.877	-5.6	94.4
PFOS	20.000	18.391	-8.0	92.0
PFPeA	20.000	18.285	-8.6	91.4
PFPeS	20.000	18.522	-7.4	92.6
PFTeDA	20.000	18.431	-7.8	92.2
PFTrDA	20.000	19.694	-1.5	98.5
PFUnDA	20.000	17.937	-10.3	89.7

CC Criteria: +/- 25%

Continuing Calibration Summary

Page 1 of 1

Job Number: FA43290
Account: RESCTNM Resolution Consultants
Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q26-ECC18
Lab FileID: 2Q948.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0501_LIST_S2Q26\S2Q26.batch.bin

Level ID: Calibration File

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3:D:\MassHunter\Data\0420_LIST_S2Q18\2Q653.d
4:D:\MassHunter\Data\0420_LIST_S2Q18\2Q654.d
5:D:\MassHunter\Data\0420_LIST_S2Q18\2Q655.d
6:D:\MassHunter\Data\0420_LIST_S2Q18\2Q656.d
7:D:\MassHunter\Data\0420_LIST_S2Q18\2Q657.d

Data File: 2Q948

Type : QC

Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	19.058	-4.7	95.3
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	20.000	17.651	-11.7	88.3
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	20.000	18.202	-9.0	91.0
6:2FTS	20.000	19.727	-1.4	98.6
8:2FTS	20.000	21.315	6.6	106.6
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	30.053	# 50.3	150.3
EtFOSAA	20.000	29.810	# 49.0	149.0
FOSA	20.000	19.997	0.0	100.0
MeFOSAA	20.000	29.756	# 48.8	148.8
PFBA	20.000	16.082	-19.6	80.4
PFBS	20.000	17.142	-14.3	85.7
PFDA	20.000	18.102	-9.5	90.5
PFDoDA	20.000	19.559	-2.2	97.8
PFDS	20.000	17.868	-10.7	89.3
PFHpA	20.000	18.515	-7.4	92.6
PFHpS	20.000	18.332	-8.3	91.7
PFHxA	20.000	19.004	-5.0	95.0
PFHxS	20.000	17.739	-11.3	88.7
PFNA	20.000	18.516	-7.4	92.6
PFNS	20.000	18.622	-6.9	93.1
PFOA	20.000	18.733	-6.3	93.7
PFOS	20.000	17.895	-10.5	89.5
PFPeA	20.000	18.026	-9.9	90.1
PFPeS	20.000	18.683	-6.6	93.4
PFTeDA	20.000	18.143	-9.3	90.7
PFTrDA	20.000	19.340	-3.3	96.7
PFUnDA	20.000	18.075	-9.6	90.4

CC Criteria: +/- 25%

Continuing Calibration Summary

Page 1 of 1

Job Number: FA43290
 Account: RESCTNM Resolution Consultants
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q28-CC18
 Lab FileID: 2Q992.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0503_LIST_S2Q28\S2Q28.batch.bin

Level ID: Calibration File

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 5:D:\MassHunter\Data\0420_LIST_S2Q18\2Q655.d
 6:D:\MassHunter\Data\0420_LIST_S2Q18\2Q656.d
 7:D:\MassHunter\Data\0420_LIST_S2Q18\2Q657.d

Data File: 2Q992

Type : QC

Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
=====	=====	=====	=====	=====
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	18.520	-7.4	92.6
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	20.000	17.483	-12.6	87.4
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	20.000	18.214	-8.9	91.1
6:2FTS	20.000	19.494	-2.5	97.5
8:2FTS	20.000	21.298	6.5	106.5
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	30.101	# 50.5	150.5
EtFOSAA	20.000	28.617	# 43.1	143.1
FOSA	20.000	19.214	-3.9	96.1
MeFOSAA	20.000	29.409	# 47.0	147.0
PFBA	20.000	15.730	-21.3	78.7
PFBS	20.000	16.477	-17.6	82.4
PFDA	20.000	18.203	-9.0	91.0
PFDoDA	20.000	19.492	-2.5	97.5
PFDS	20.000	18.225	-8.9	91.1
PFHpA	20.000	17.937	-10.3	89.7
PFHpS	20.000	18.502	-7.5	92.5
PFHxA	20.000	18.922	-5.4	94.6
PFHxS	20.000	17.789	-11.1	88.9
PFNA	20.000	18.397	-8.0	92.0
PFNS	20.000	18.620	-6.9	93.1
PFOA	20.000	18.605	-7.0	93.0
PFOS	20.000	17.698	-11.5	88.5
PFPeA	20.000	17.837	-10.8	89.2
PFPeS	20.000	19.667	-1.7	98.3
PFTeDA	20.000	17.781	-11.1	88.9
PFTTrDA	20.000	19.017	-4.9	95.1
PFUnDA	20.000	18.628	-6.9	93.1

CC Criteria: +/- 25%

Continuing Calibration Summary

Page 1 of 1

Job Number: FA43290
 Account: RESCTNM Resolution Consultants
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q28-ECC18
 Lab FileID: 2Q1004.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0503_LIST_S2Q28\S2Q28.batch.bin

Level ID: Calibration File

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 3:D:\MassHunter\Data\0420_LIST_S2Q18\2Q653.d
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 5:D:\MassHunter\Data\0420_LIST_S2Q18\2Q655.d
 6:D:\MassHunter\Data\0420_LIST_S2Q18\2Q656.d
 7:D:\MassHunter\Data\0420_LIST_S2Q18\2Q657.d

Data File: 2Q1004

Type : QC

Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	18.741	-6.3	93.7
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	20.000	17.949	-10.3	89.7
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	20.000	18.540	-7.3	92.7
6:2FTS	20.000	19.501	-2.5	97.5
8:2FTS	20.000	21.291	6.5	106.5
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	33.804	# 69.0	169.0
EtFOSAA	20.000	28.902	# 44.5	144.5
FOSA	20.000	18.478	-7.6	92.4
MeFOSAA	20.000	28.549	# 42.7	142.7
PFBA	20.000	15.703	-21.5	78.5
PFBS	20.000	16.873	-15.6	84.4
PFDA	20.000	17.967	-10.2	89.8
PFDoDA	20.000	19.545	-2.3	97.7
PFDS	20.000	18.586	-7.1	92.9
PFHpA	20.000	18.207	-9.0	91.0
PFHpS	20.000	18.820	-5.9	94.1
PFHxA	20.000	19.105	-4.5	95.5
PFHxS	20.000	18.030	-9.9	90.1
PFNA	20.000	18.002	-10.0	90.0
PFNS	20.000	18.663	-6.7	93.3
PFOA	20.000	18.280	-8.6	91.4
PFOS	20.000	18.034	-9.8	90.2
PFPeA	20.000	17.718	-11.4	88.6
PFPeS	20.000	18.767	-6.2	93.8
PFTeDA	20.000	17.297	-13.5	86.5
PFTrDA	20.000	18.678	-6.6	93.4
PFUnDA	20.000	18.579	-7.1	92.9

CC Criteria: +/- 25%



GC/MS Semi-volatiles

Raw Data

7

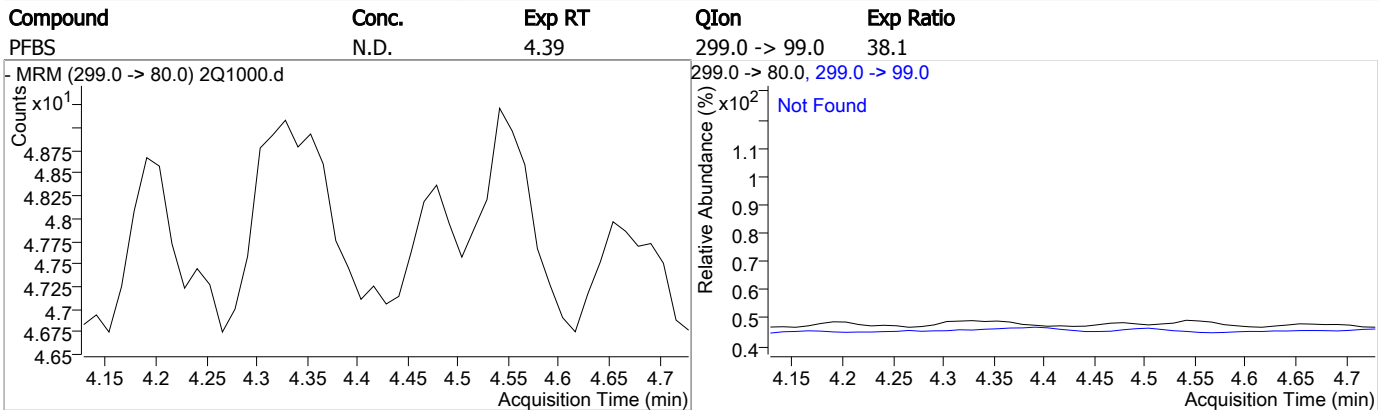
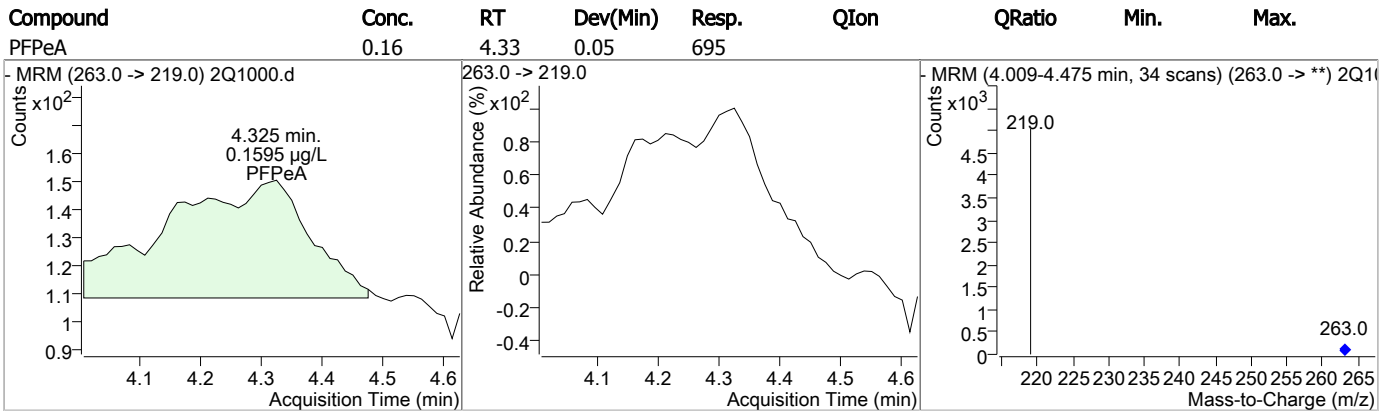
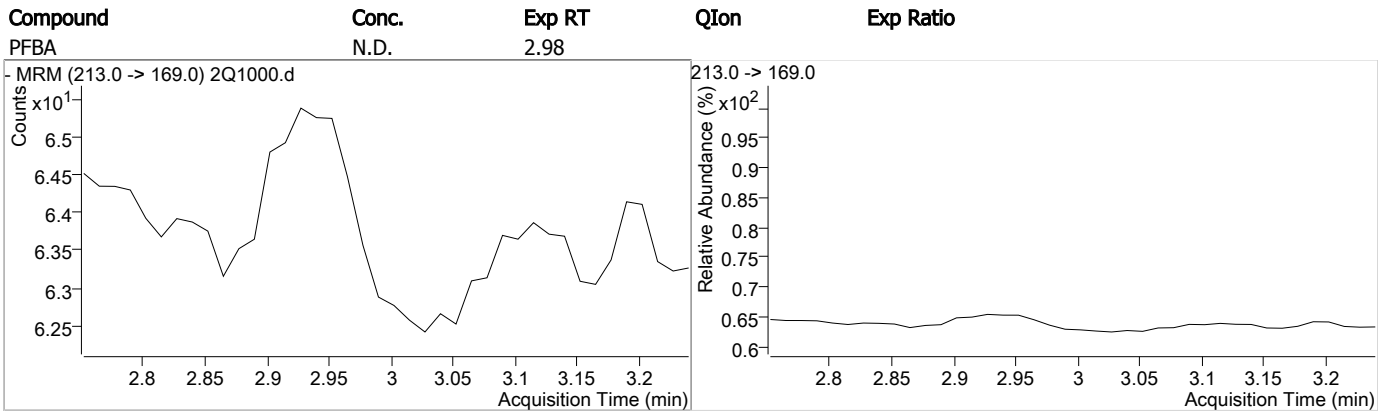
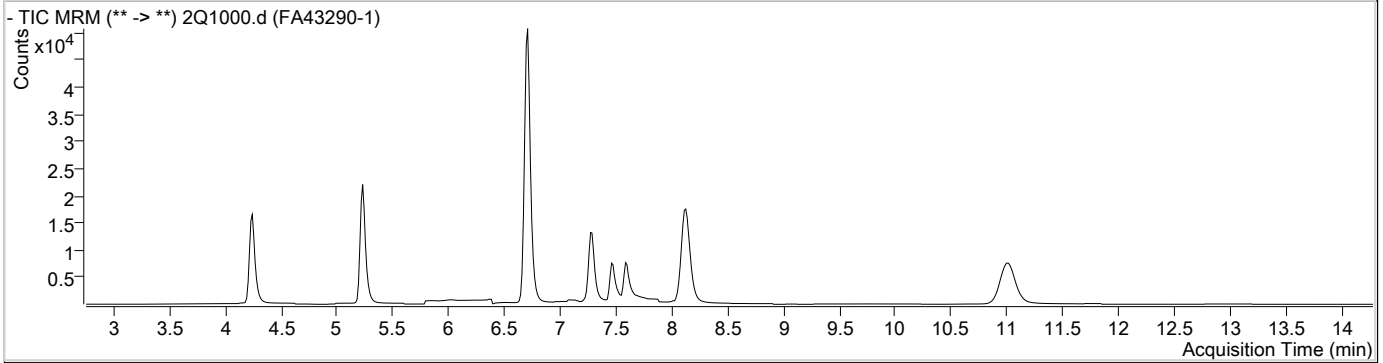
Perfluorinated Compounds by LC/MS/MS

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 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 5/3/2017 6:30:44 PM
 Sample Name : FA43290-1
 Vial : Vial 19
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q28.batch.bin
 Last Calib Update : 5/1/2017 4:47:24 PM

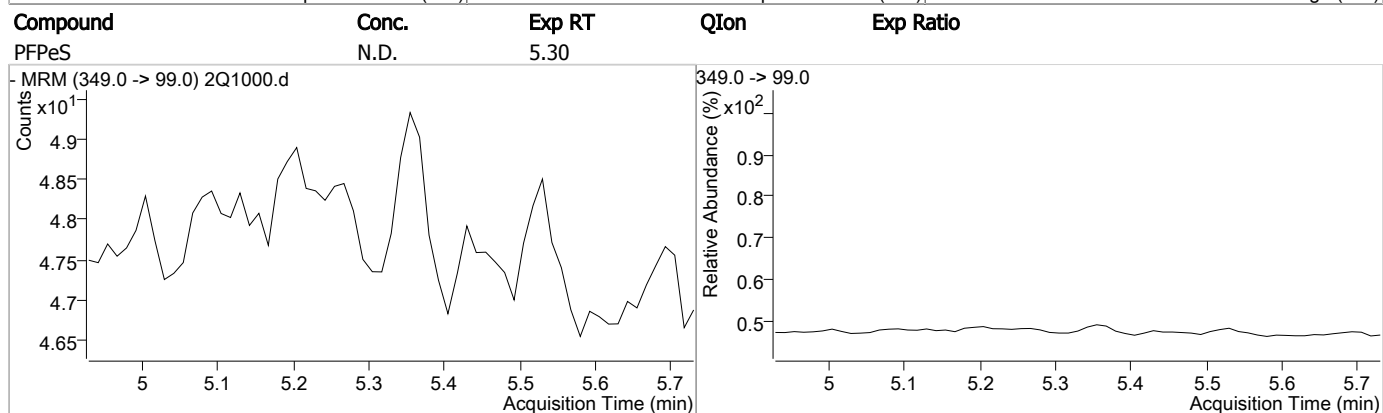
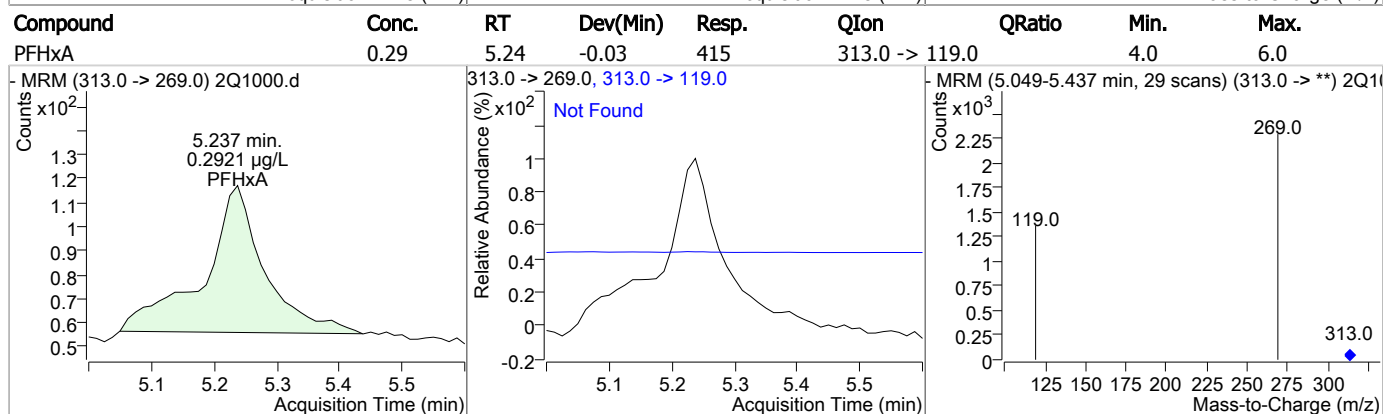
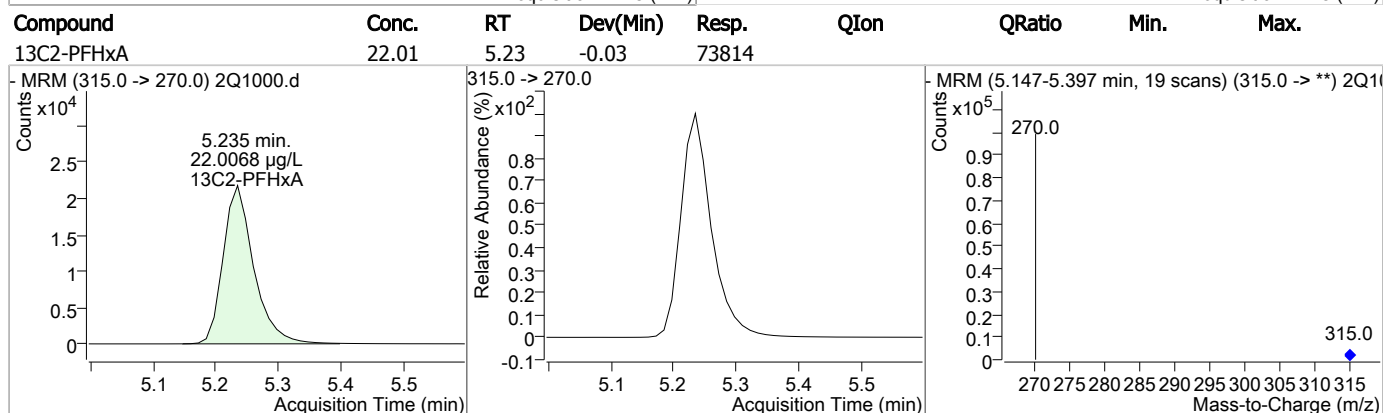
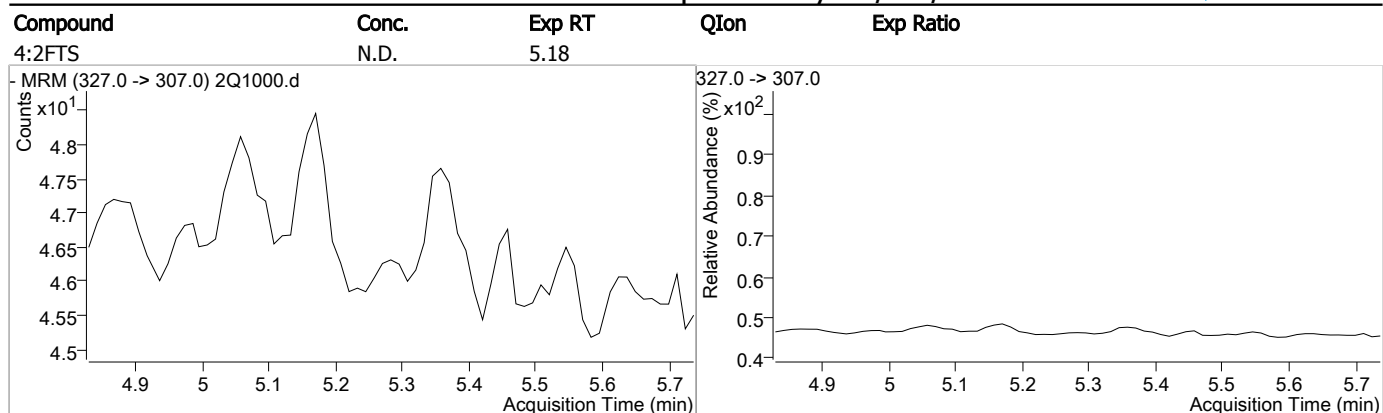
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.710	429.0 -> 409.0	125880	20.00 µg/L	-0.025
13C2-PFDoDA	11.001	615.0 -> 570.0	75423	20.00 µg/L	-0.025
13C2-PFOA	6.701	415.0 -> 370.0	63501	20.00 µg/L	-0.025
13C3-PFPeA	4.247	266.0 -> 222.0	57399	20.00 µg/L	-0.025
13C4-PFOS	7.276	503.0 -> 80.0	47628	20.00 µg/L	-0.038
d3-MeFOSAA	7.462	573.0 -> 419.0	26681	20.00 µg/L	-0.013
System Monitoring Compounds					
13C2-PFDA	8.130	515.0 -> 470.0	100304	22.57 µg/L	-0.050
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 112.9%		
13C2-PFHxA	5.235	315.0 -> 270.0	73814	22.01 µg/L	-0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 110.0%		
d5-EtFOSAA	7.585	589.0 -> 419.0	25642	36.30 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 181.5%		
Target Compounds					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	6.712	427.0 -> 407.0	396	0.07 µg/L	100
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	-	584.0 -> 419.0	-	N.D.	
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBA	-	213.0 -> 169.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	8.158	513.0 -> 469.0	438	0.14 µg/L	100
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFDS	-	599.0 -> 80.0	-	N.D.	
PFHpA	6.023	363.0 -> 319.0	618	0.14 µg/L	85
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	5.237	313.0 -> 269.0	415	0.29 µg/L	85
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 99.0	-	N.D.	
PFOA	6.702	413.0 -> 369.0	364	0.14 µg/L	54
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	4.325	263.0 -> 219.0	695	0.16 µg/L	100
PFPeS	-	349.0 -> 99.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	

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

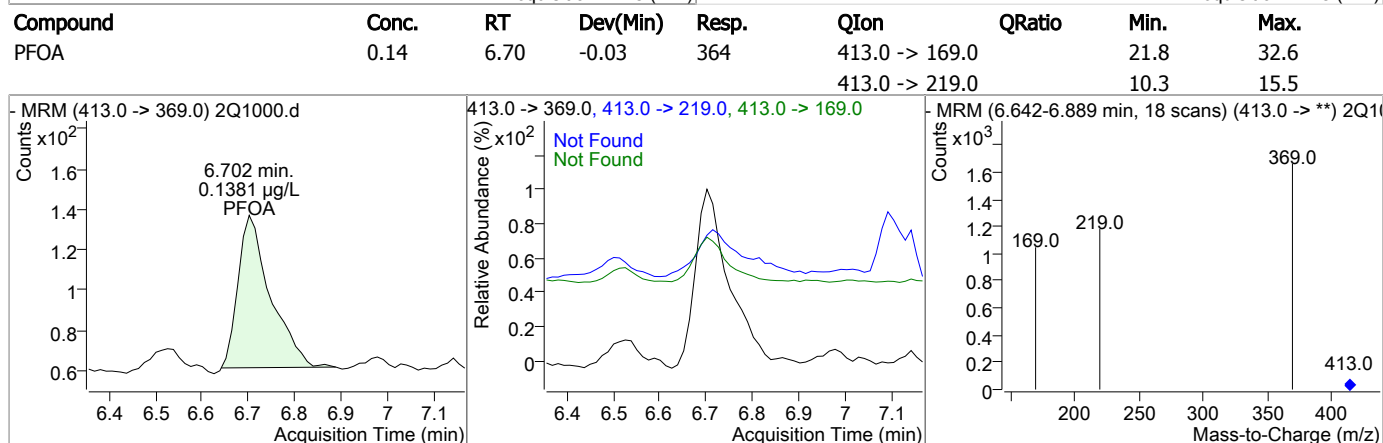
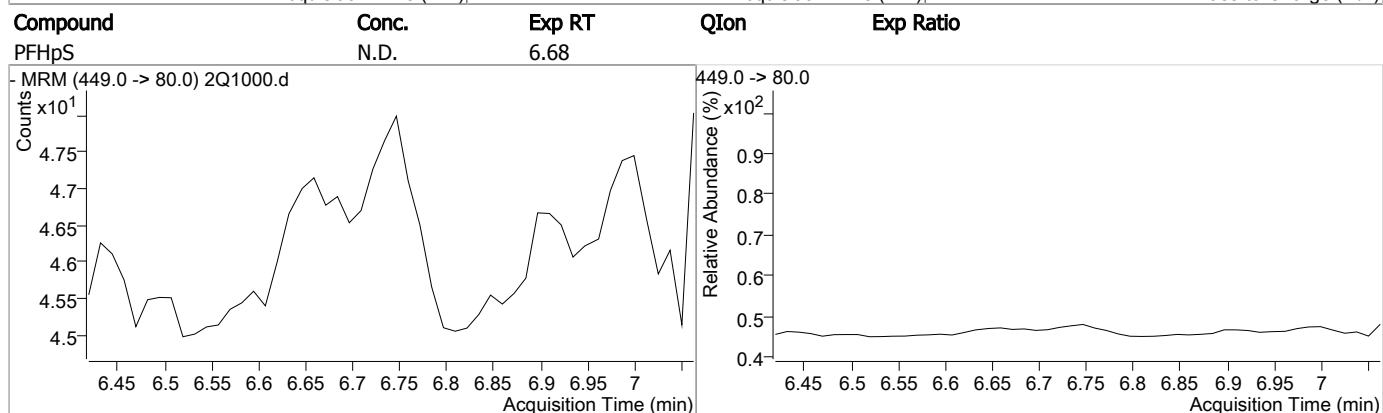
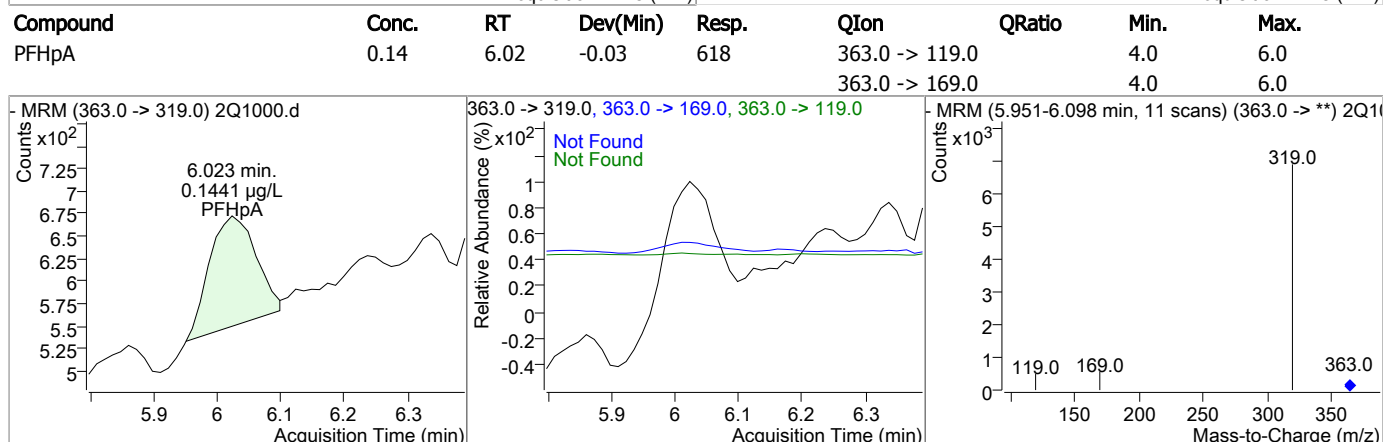
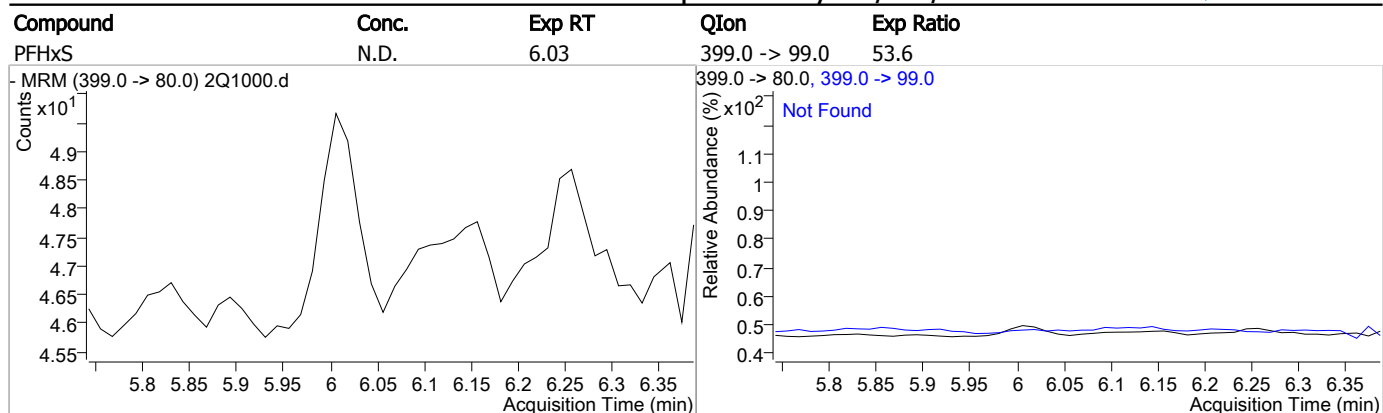
Perfluorinated Compounds by LC/MS/MS



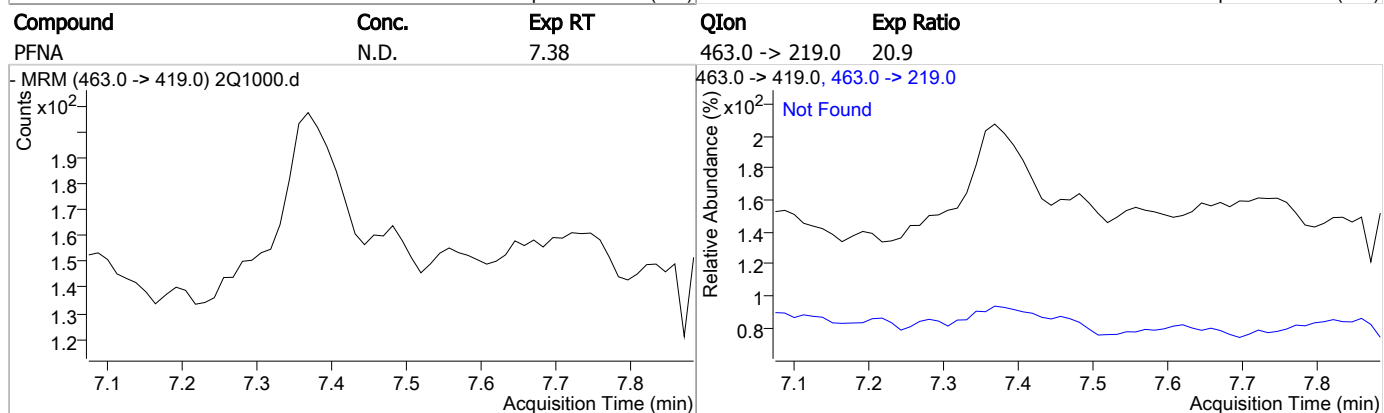
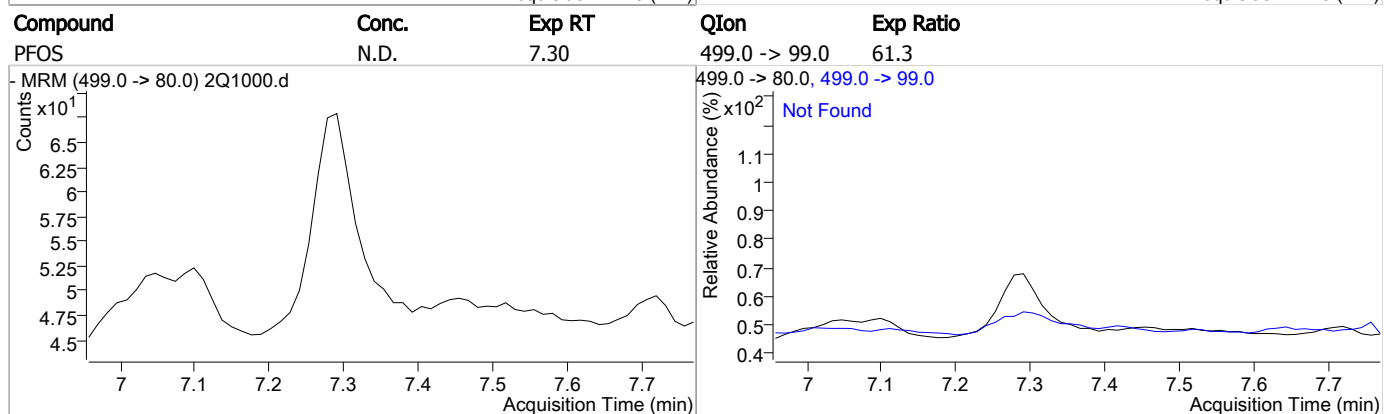
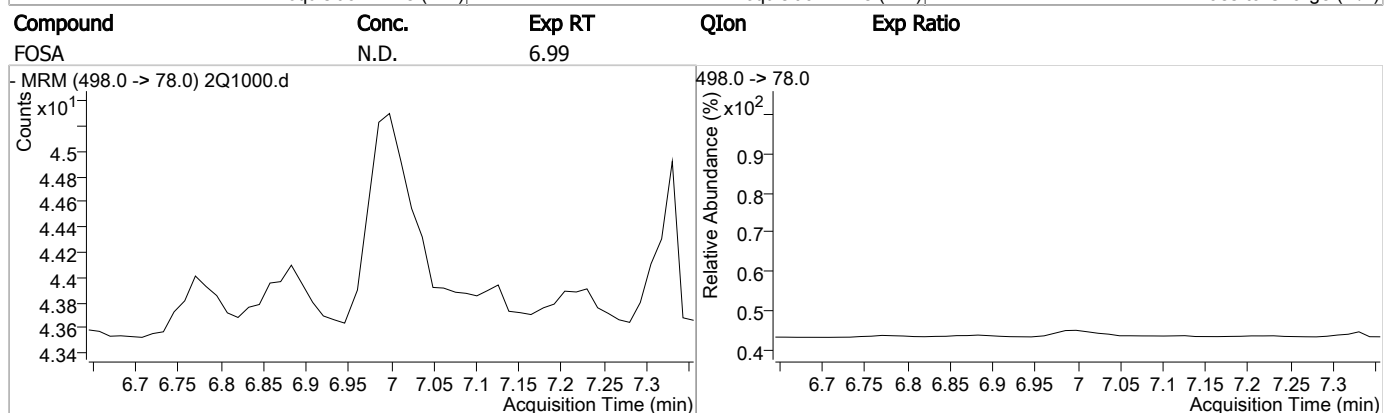
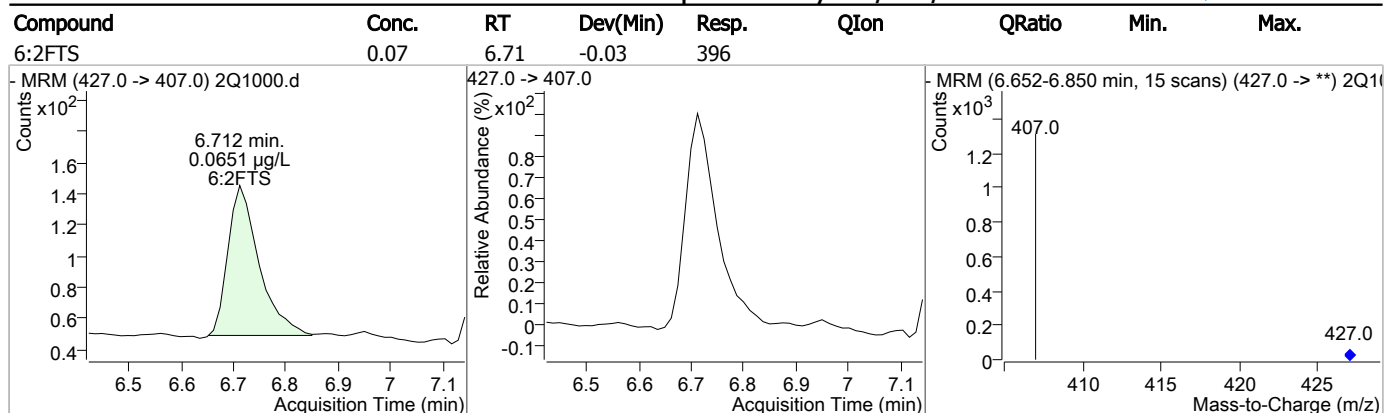
Perfluorinated Compounds by LC/MS/MS



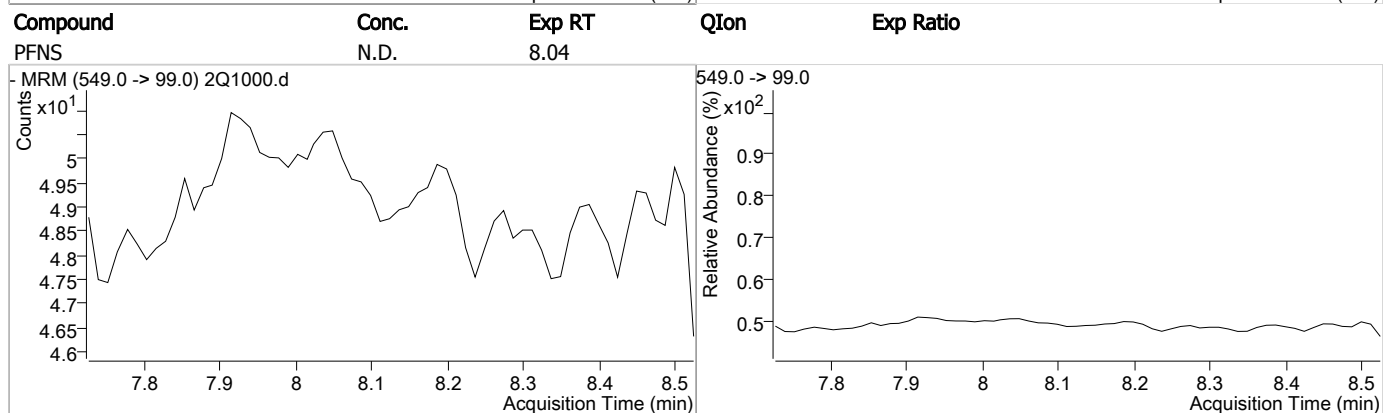
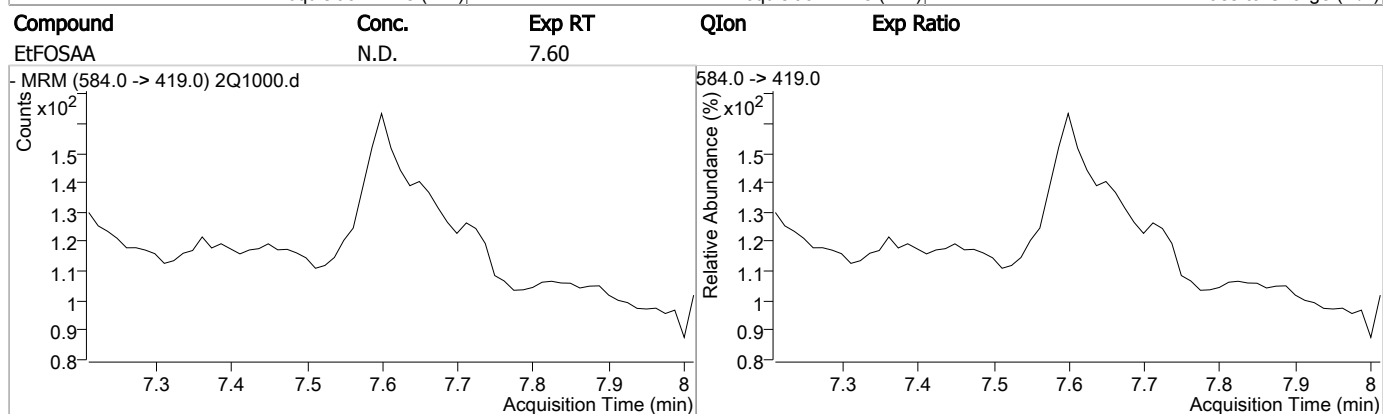
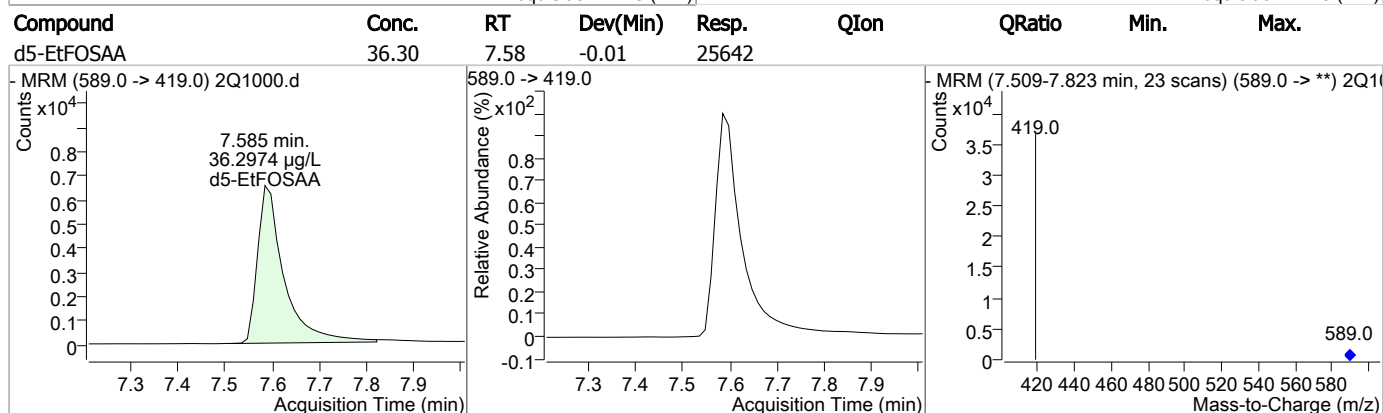
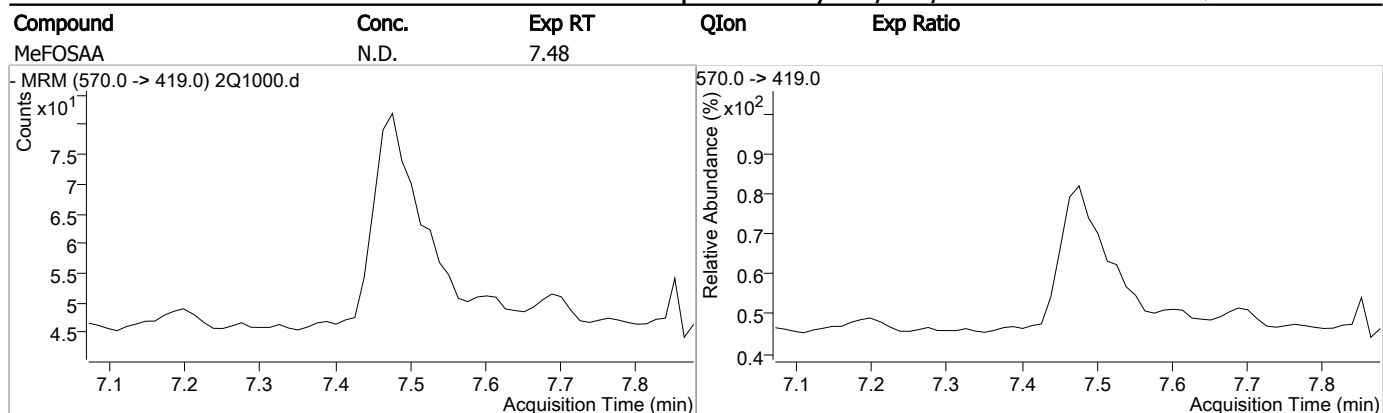
Perfluorinated Compounds by LC/MS/MS



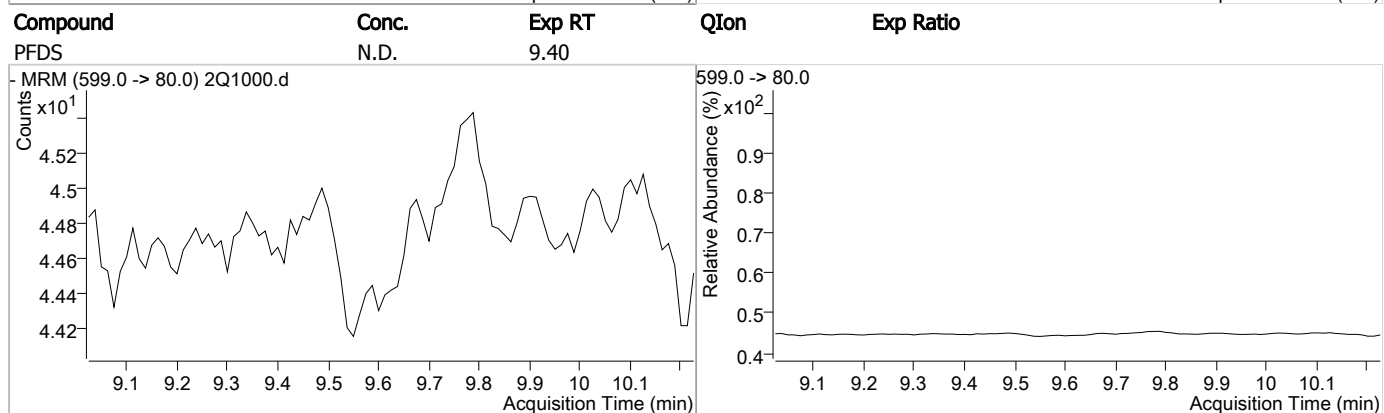
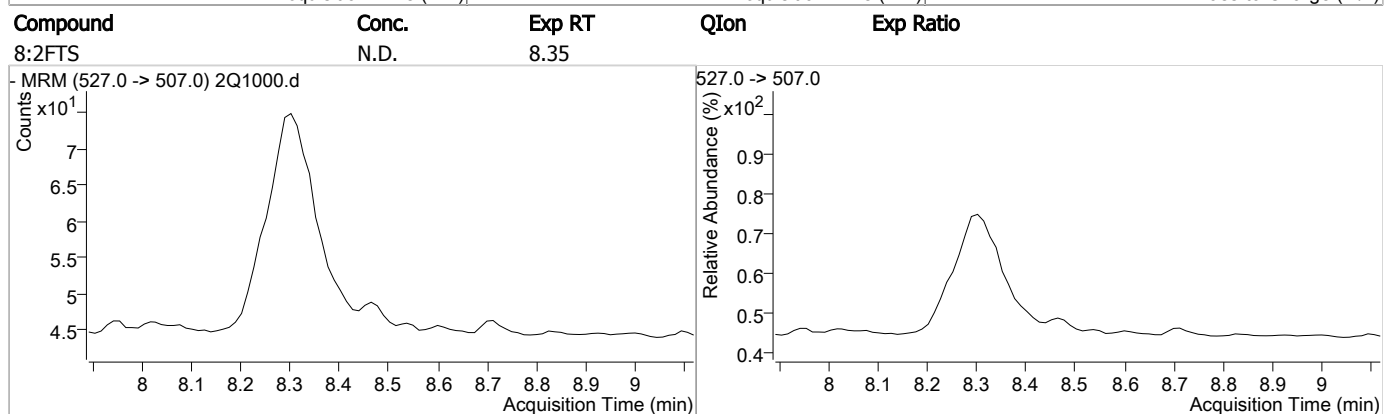
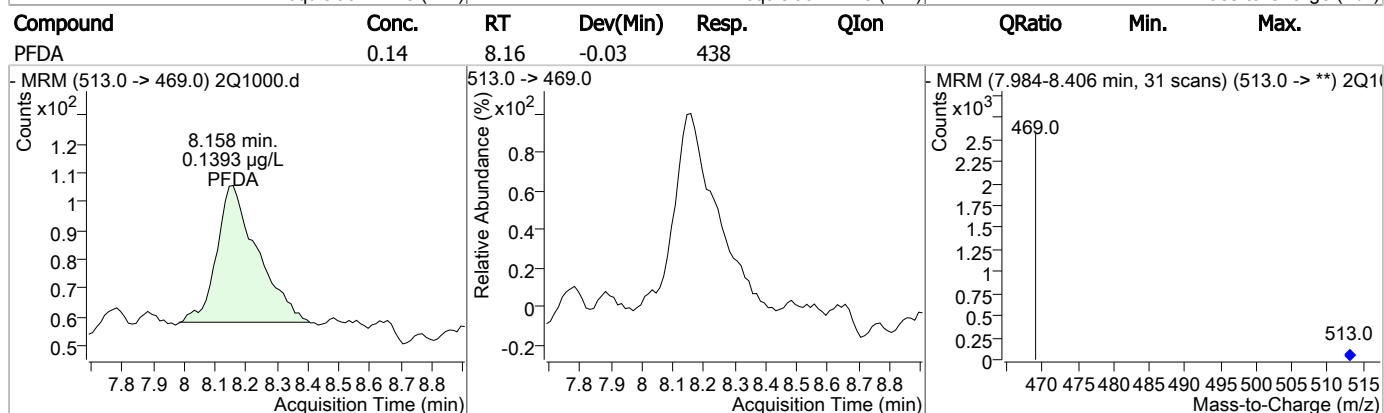
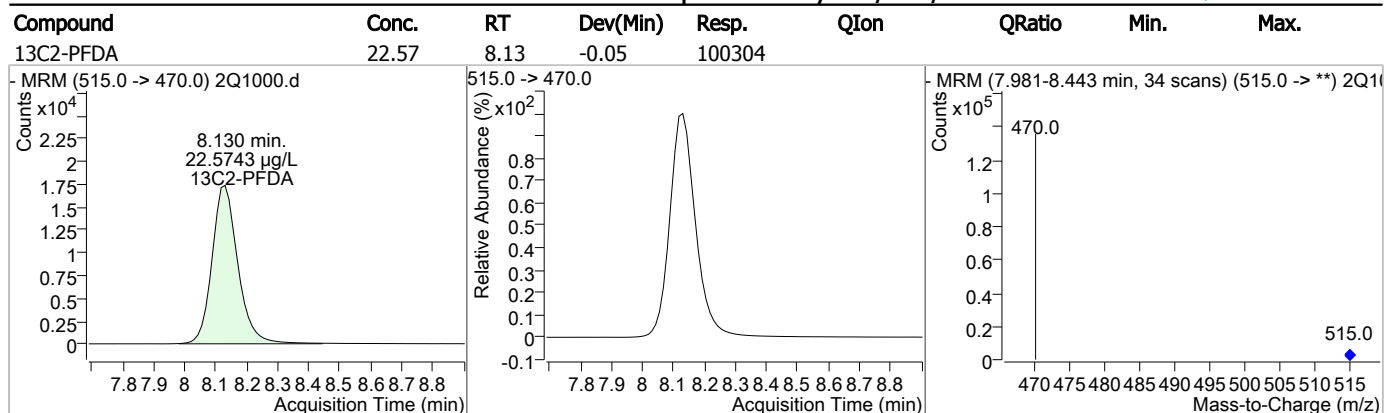
Perfluorinated Compounds by LC/MS/MS



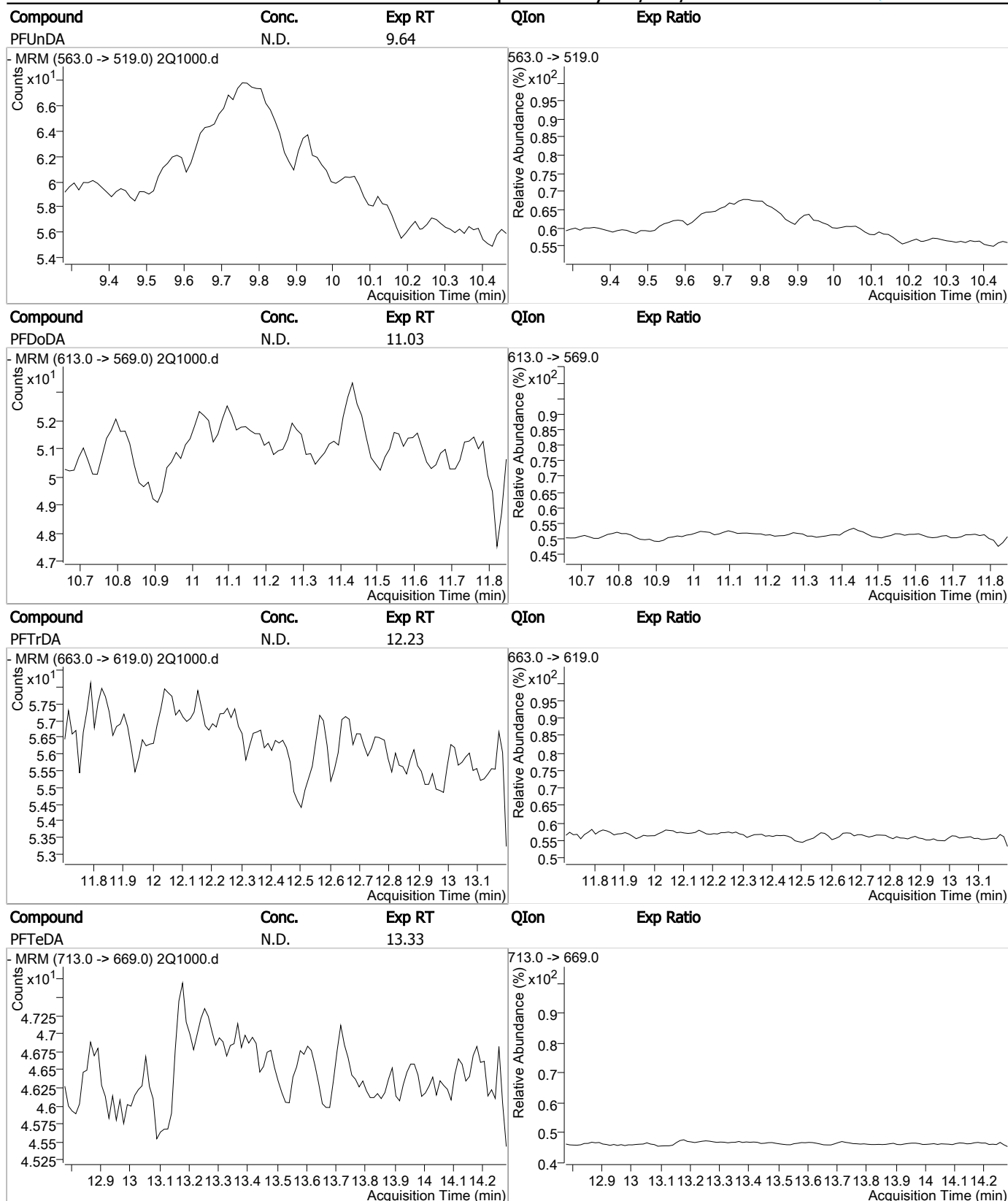
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Data File : 2Q945.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 5/1/2017 10:24:12 PM
 Sample Name : FA43290-1
 Vial : Vial 31
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q26.batch.bin
 Last Calib Update : 5/1/2017 4:47:24 PM

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.723	429.0 -> 409.0	127775	20.00 µg/L	-0.063
13C2-PFDoDA	10.964	615.0 -> 570.0	71761	20.00 µg/L	-0.300
13C2-PFOA	6.713	415.0 -> 370.0	67102	20.00 µg/L	-0.050
13C3-PFPeA	4.260	266.0 -> 222.0	61666	20.00 µg/L	-0.050
13C4-PFOS	7.301	503.0 -> 80.0	49622	20.00 µg/L	-0.063
d3-MeFOSAA	7.475	573.0 -> 419.0	28771	20.00 µg/L	-0.013

System Monitoring Compounds

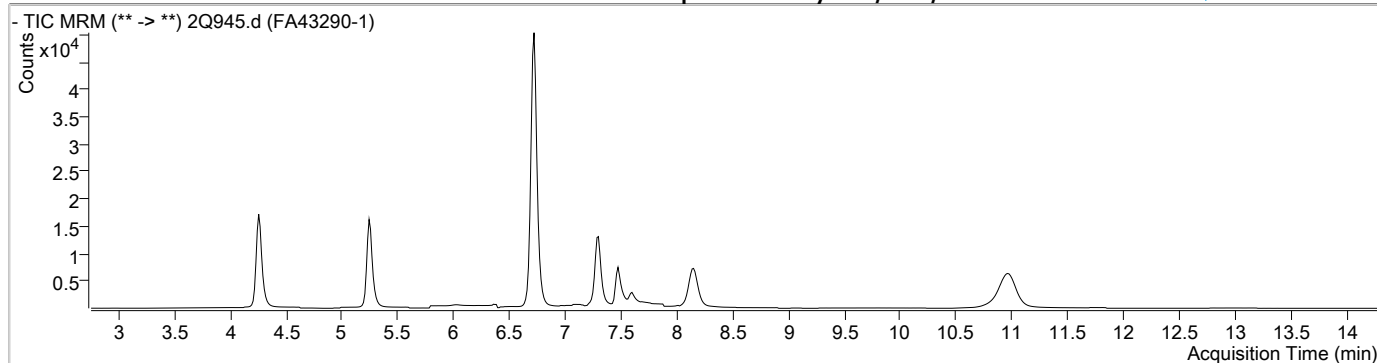
13C2-PFDA	8.155	515.0 -> 470.0	44710	9.52 µg/L	-0.138
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 47.6%		
13C2-PFHxA	5.247	315.0 -> 270.0	56925	16.06 µg/L	-0.050
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 80.3%		
d5-EtFOSAA	7.597	589.0 -> 419.0	7139	10.54 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 52.7%		

Target Compounds

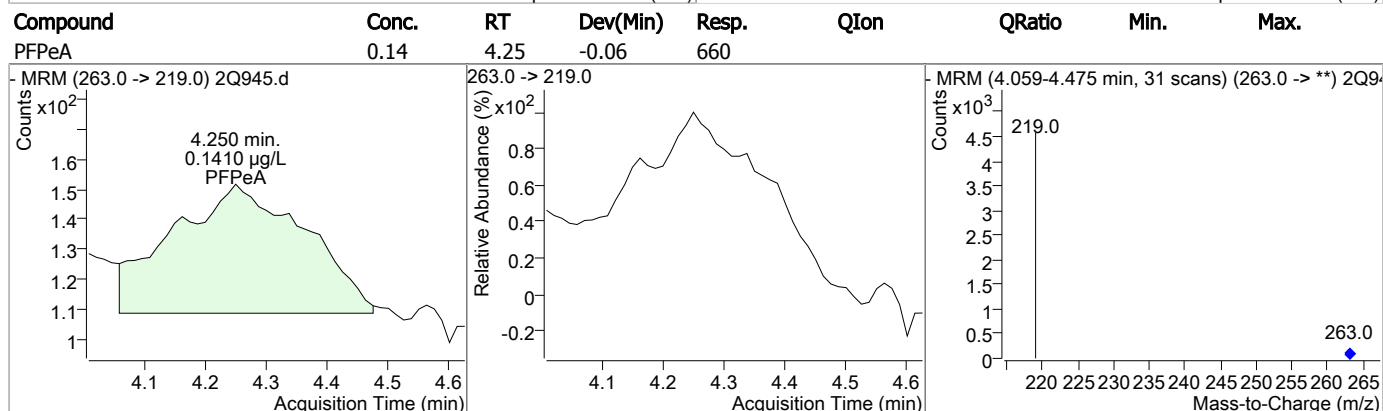
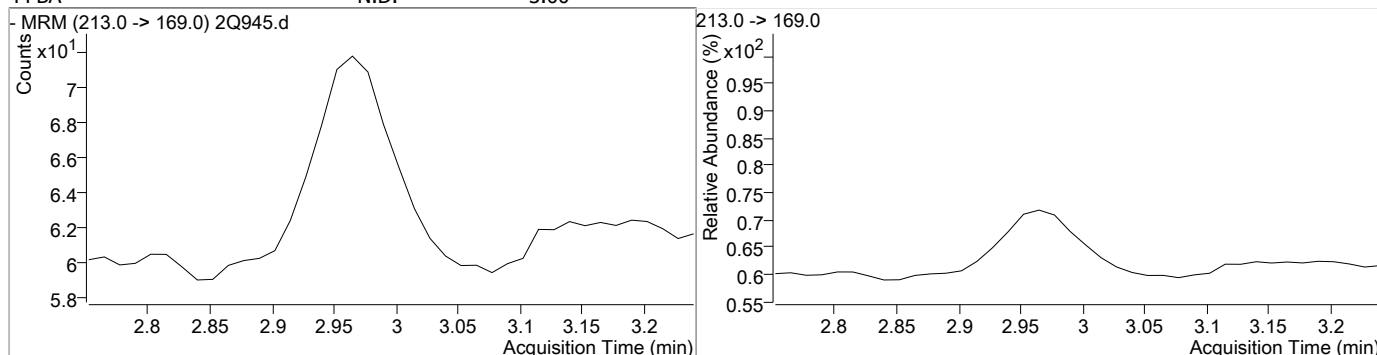
					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	6.724	427.0 -> 407.0	865	0.14 µg/L	100
8:2FTS	8.314	527.0 -> 507.0	565	0.06 µg/L	100
EtFOSAA	7.611	584.0 -> 419.0	629	1.01 µg/L	100
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBA	-	213.0 -> 169.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFDS	-	599.0 -> 80.0	-	N.D.	
PFHpA	6.023	363.0 -> 319.0	881	0.19 µg/L	85
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	5.250	313.0 -> 269.0	425	0.28 µg/L	85
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 99.0	-	N.D.	
PFOA	6.728	413.0 -> 369.0	433	0.16 µg/L	54
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	4.250	263.0 -> 219.0	660	0.14 µg/L	100
PFPeS	-	349.0 -> 99.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	

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

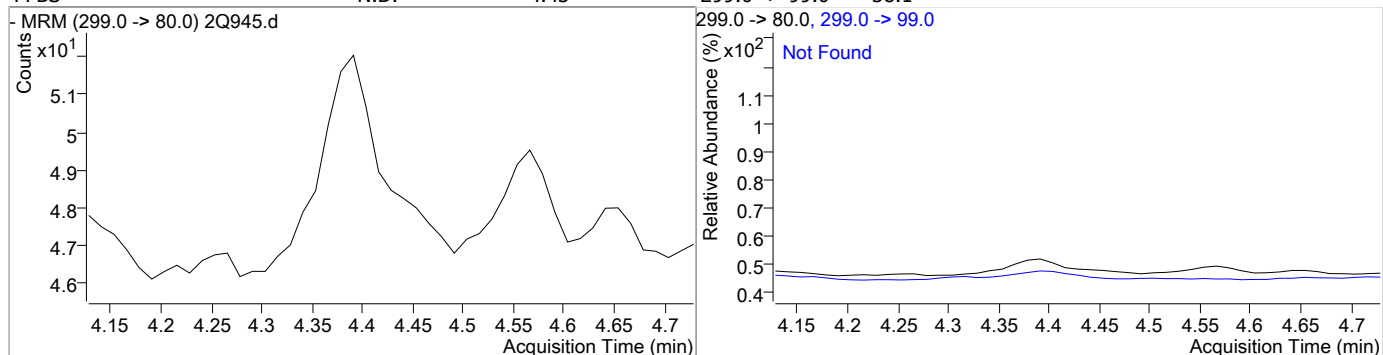
Perfluorinated Compounds by LC/MS/MS



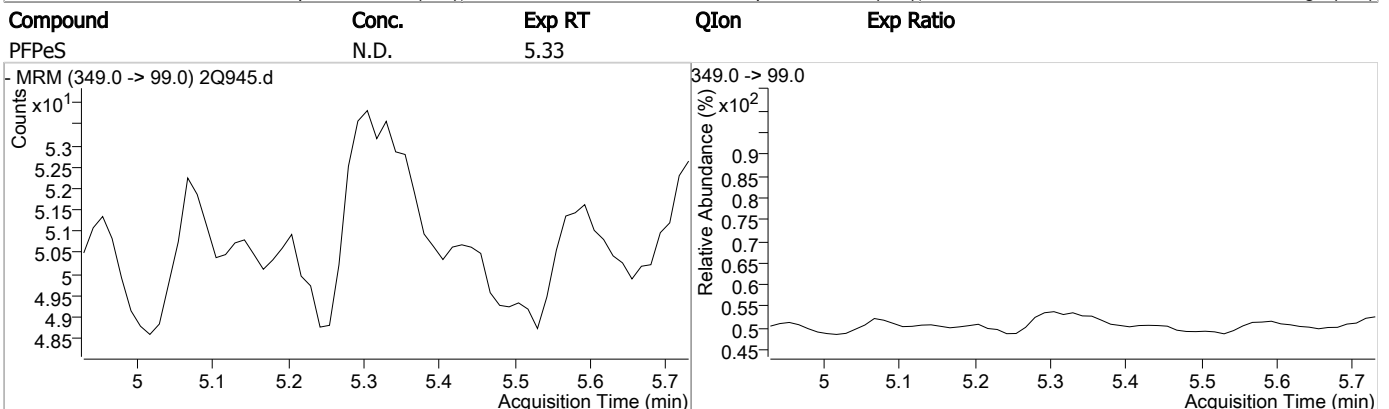
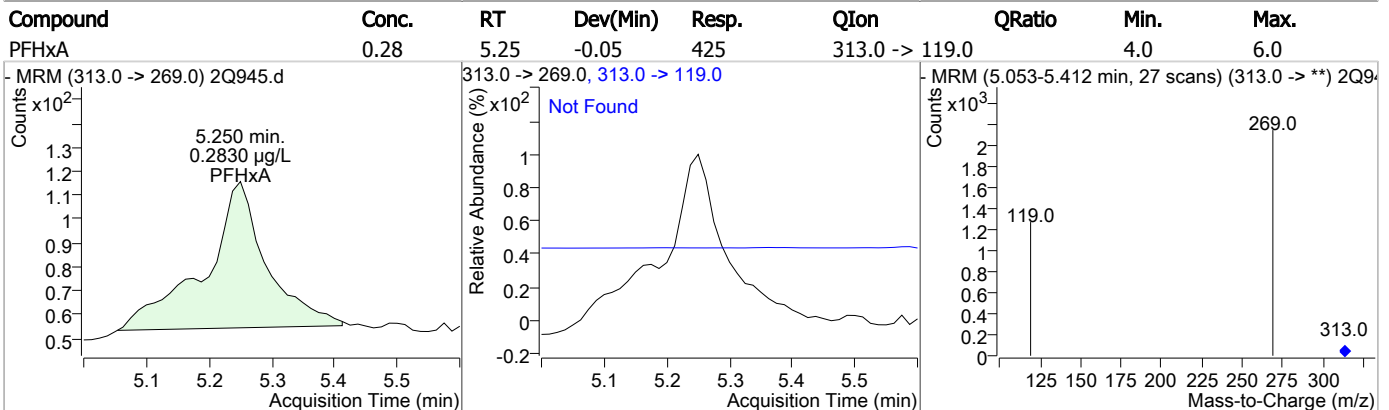
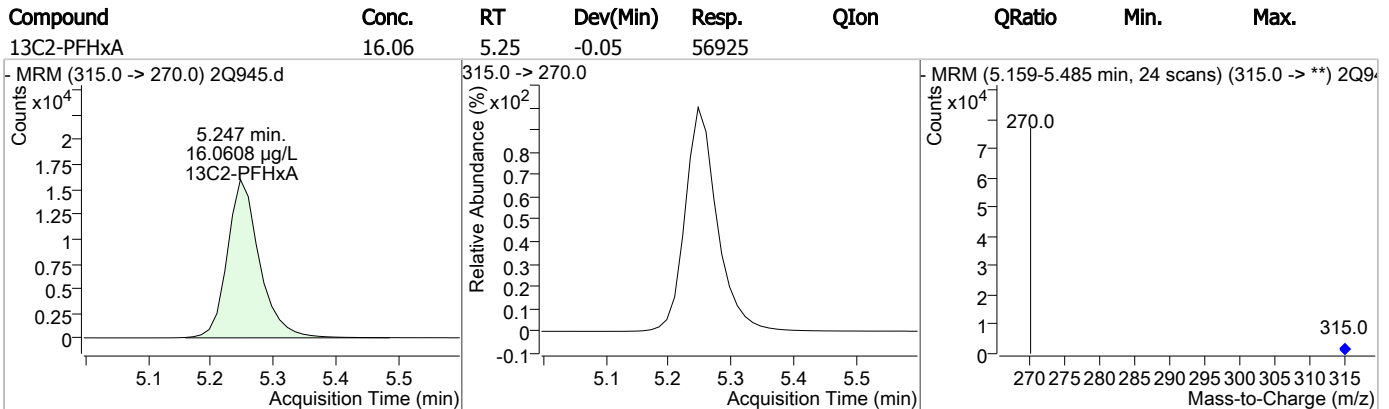
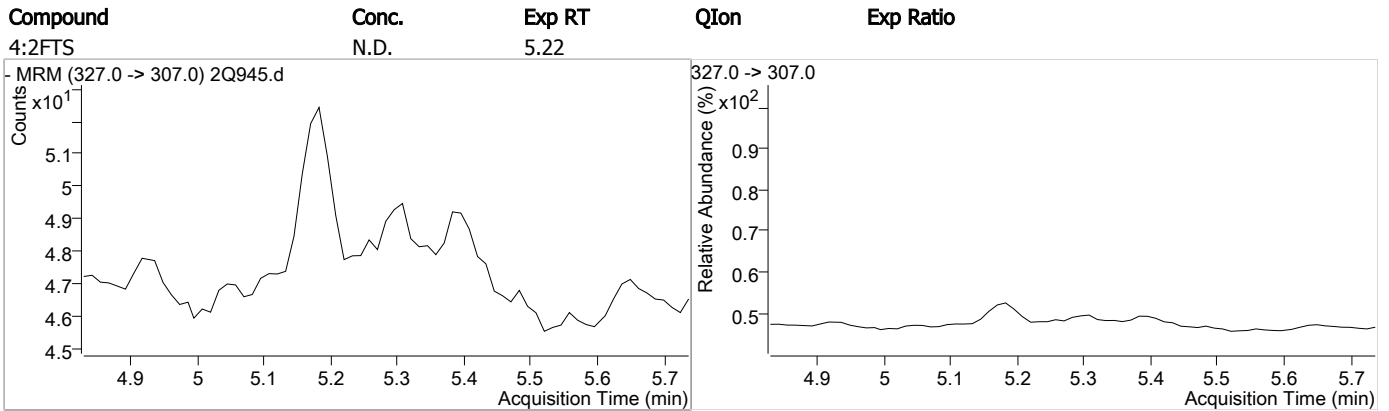
Compound	Conc.	Exp RT	QIon	Exp Ratio
PFBA	N.D.	3.00		



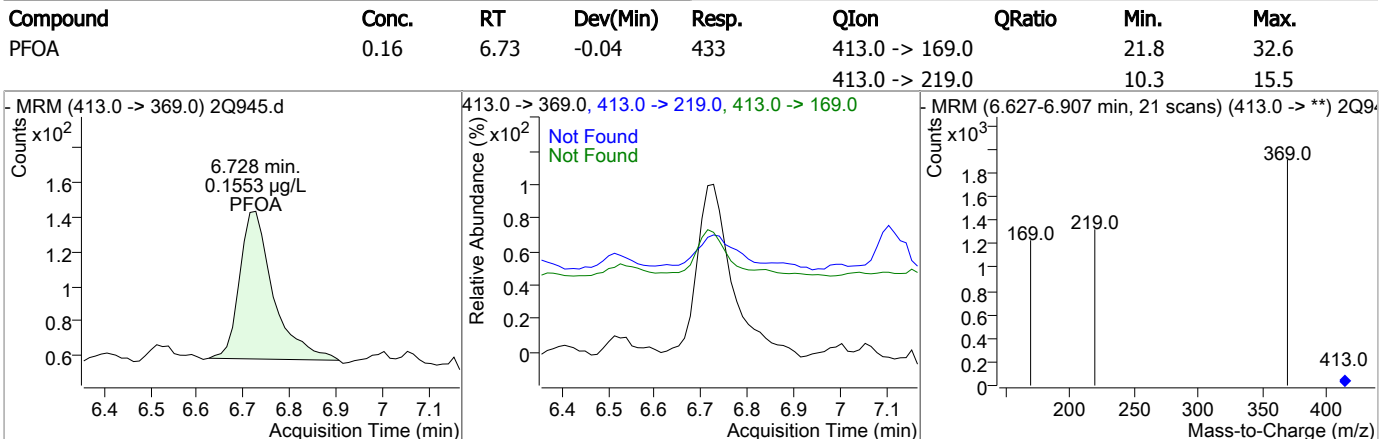
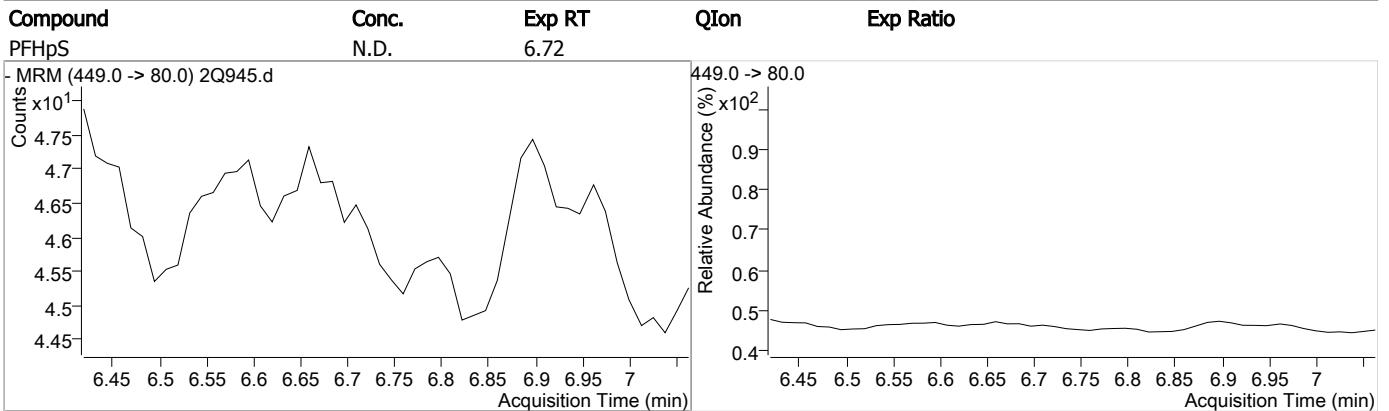
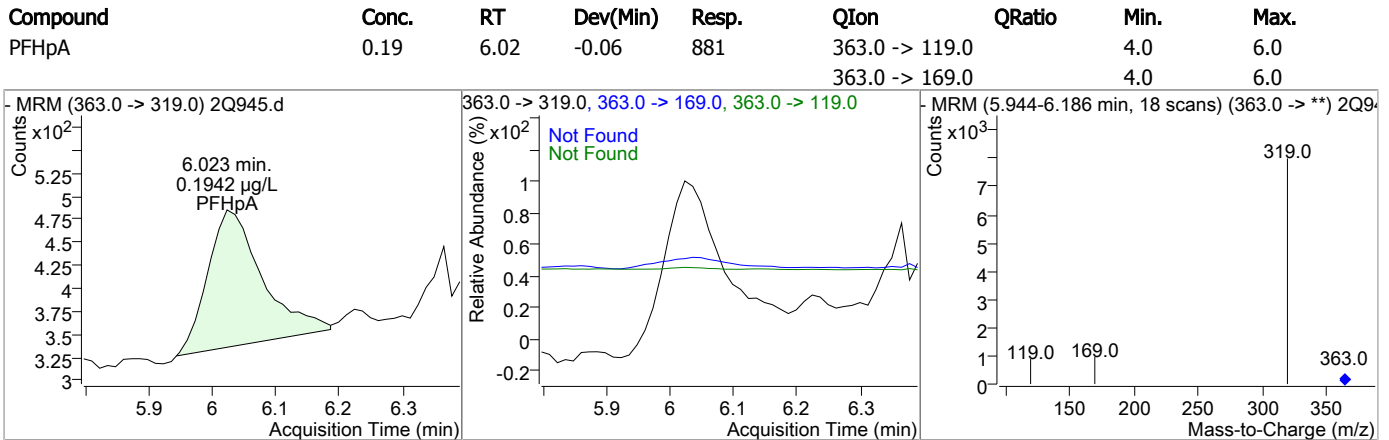
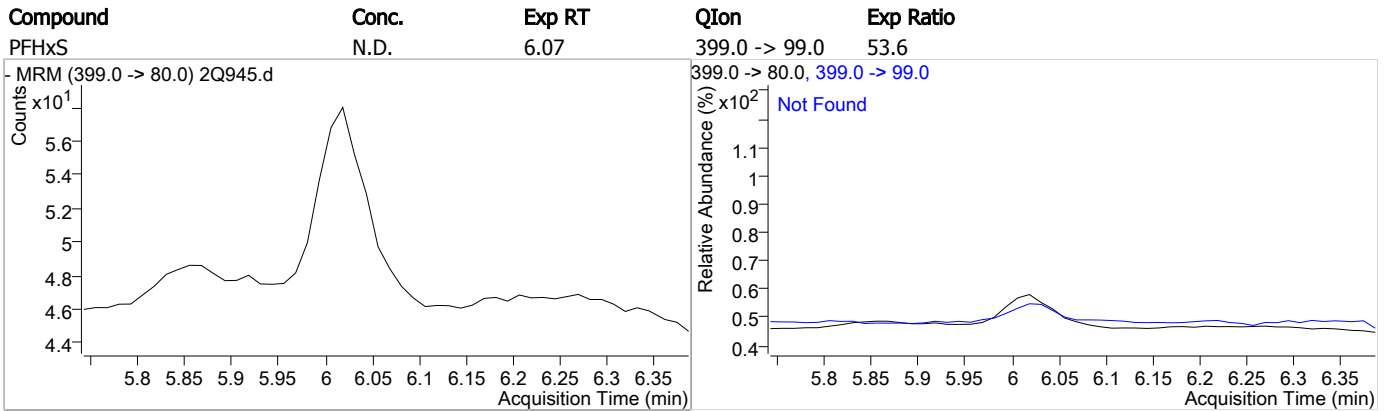
Compound	Conc.	Exp RT	QIon	Exp Ratio
PFBS	N.D.	4.43	299.0 -> 99.0	38.1



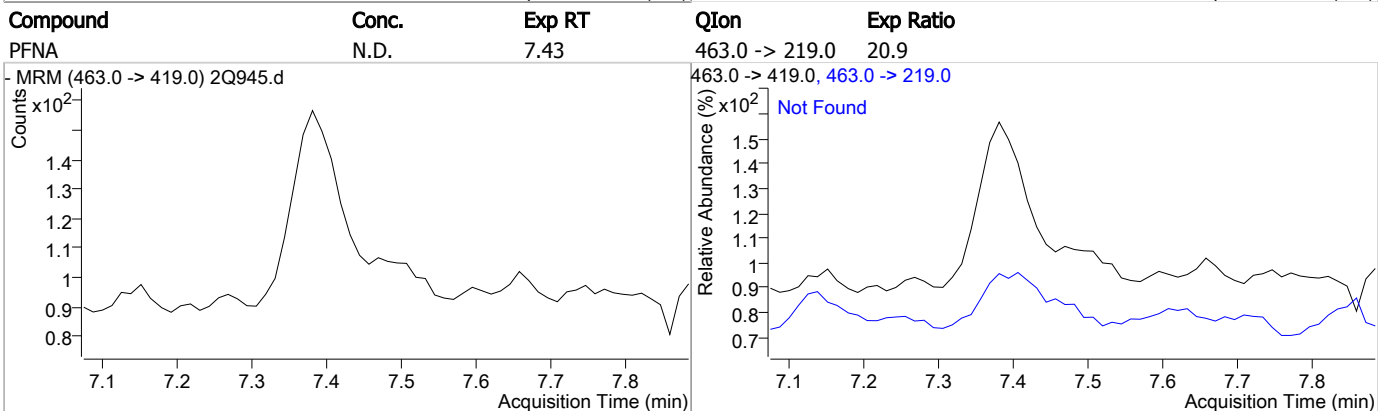
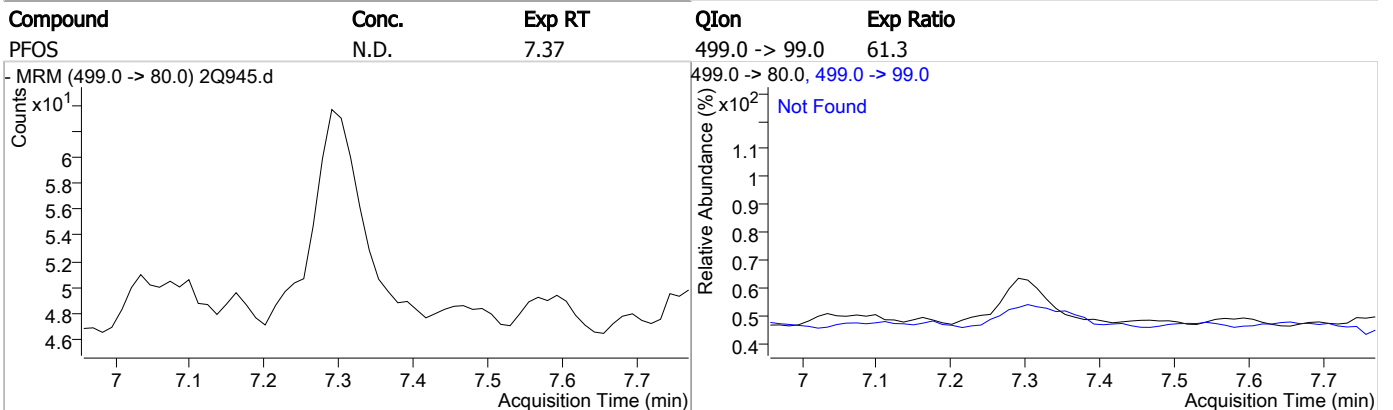
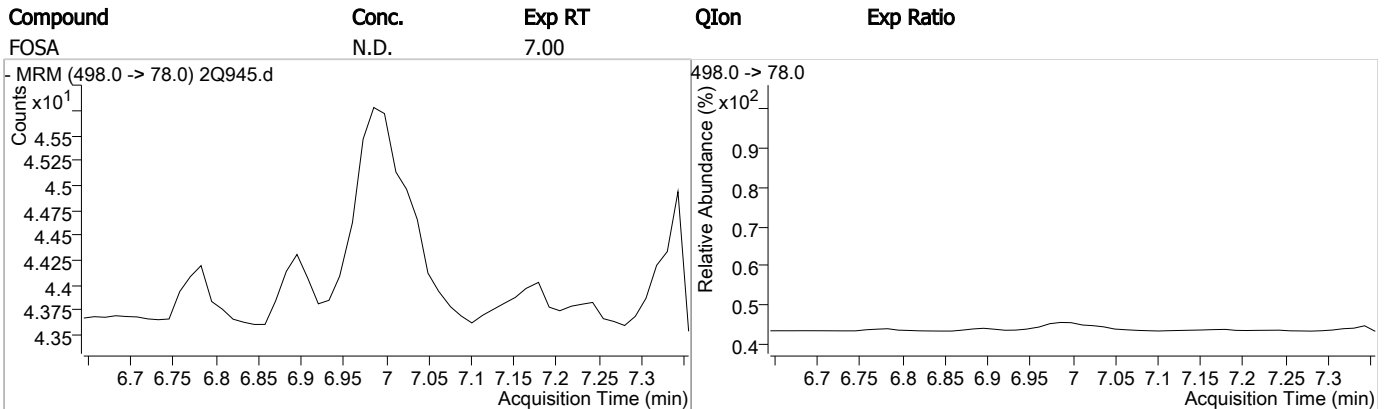
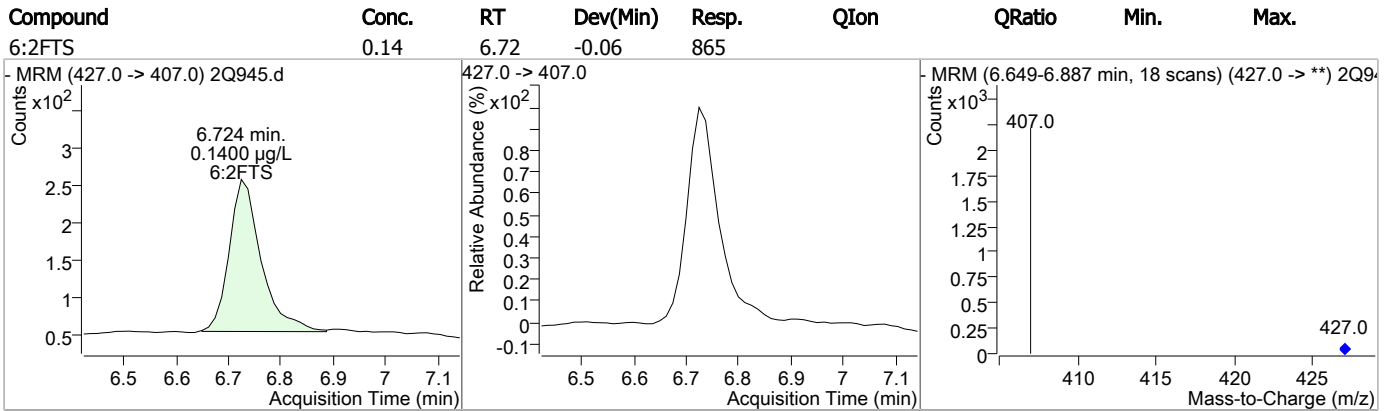
Perfluorinated Compounds by LC/MS/MS



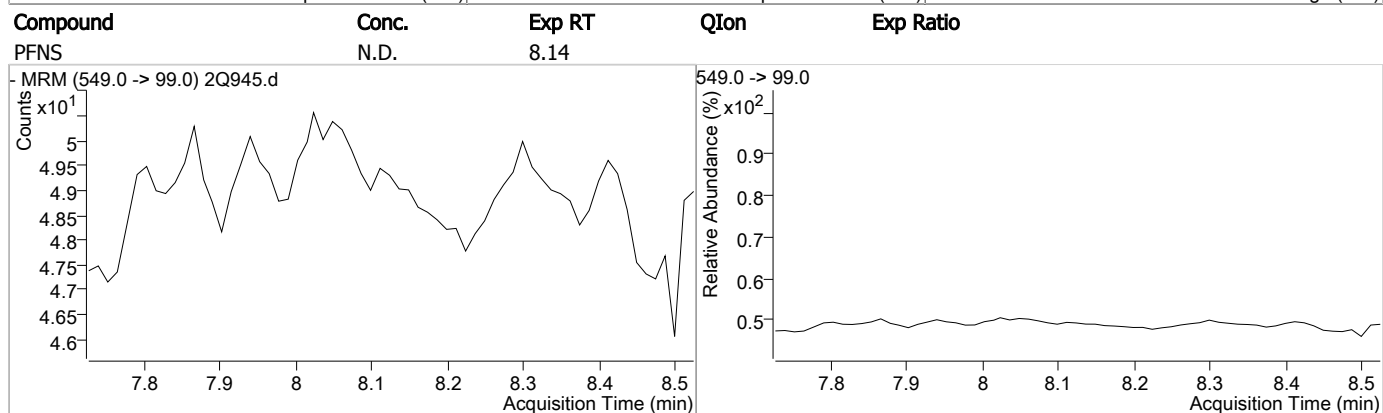
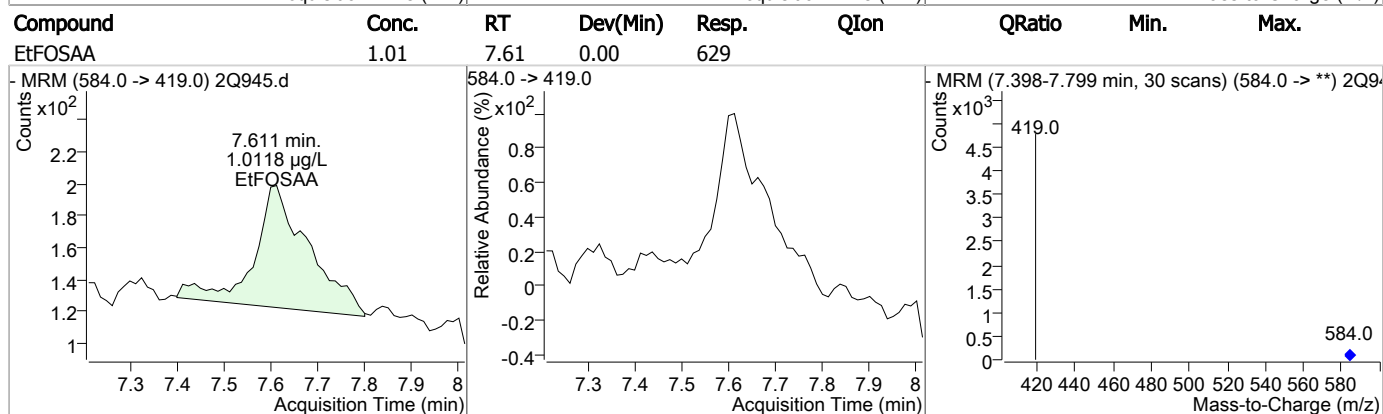
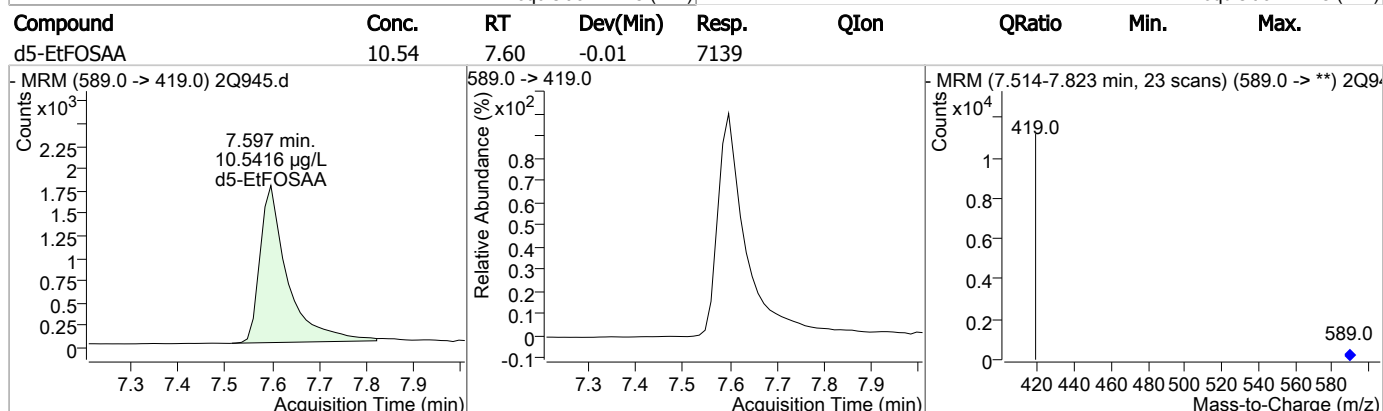
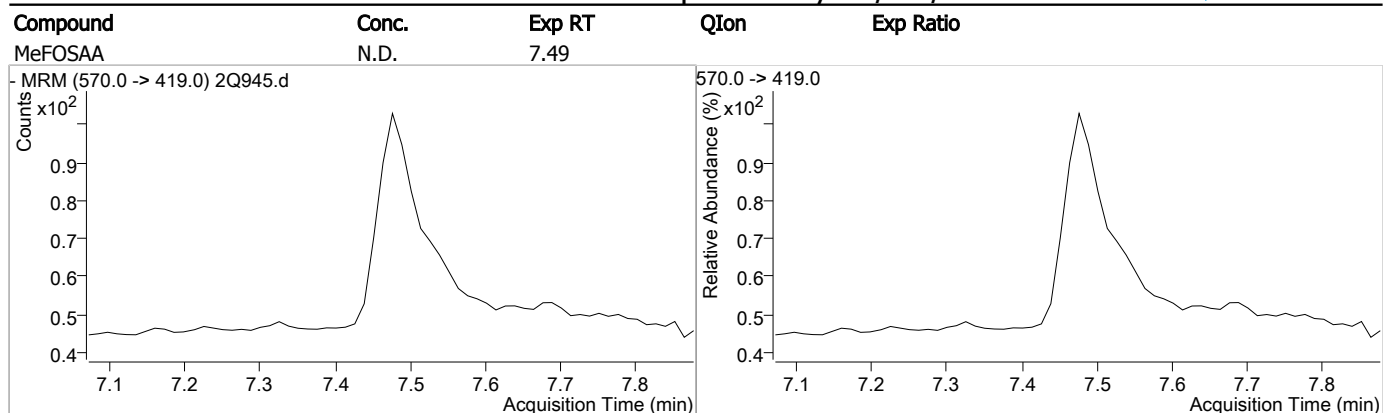
Perfluorinated Compounds by LC/MS/MS



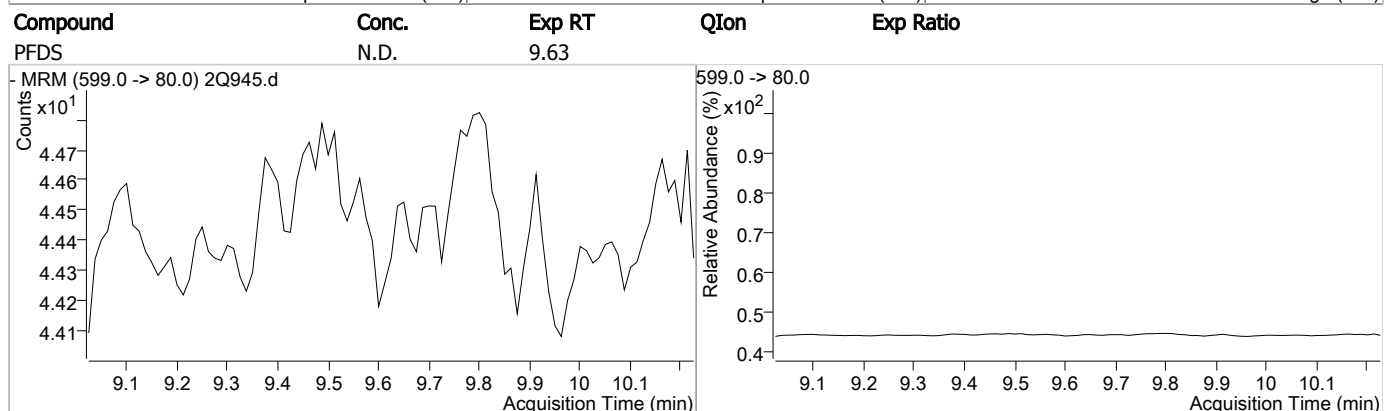
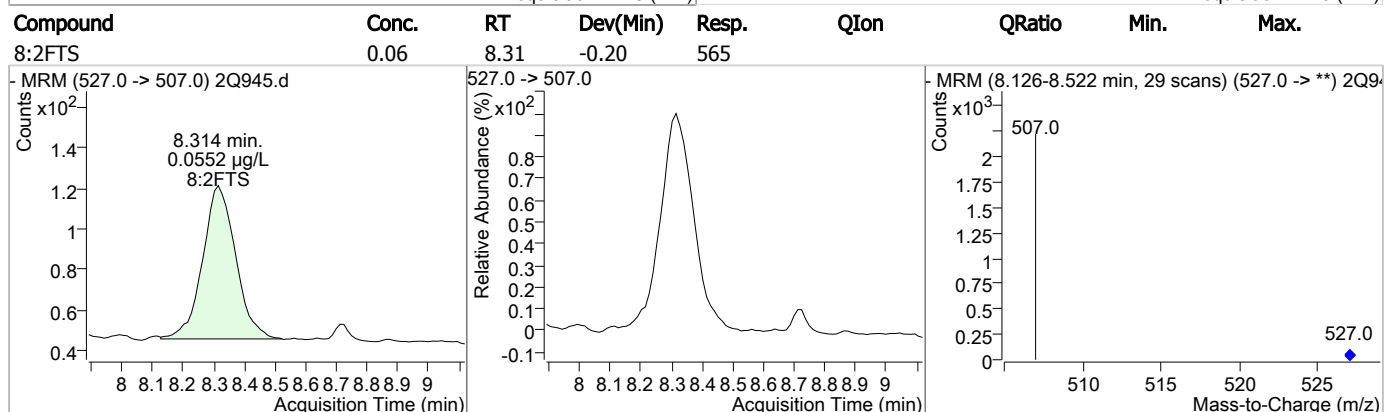
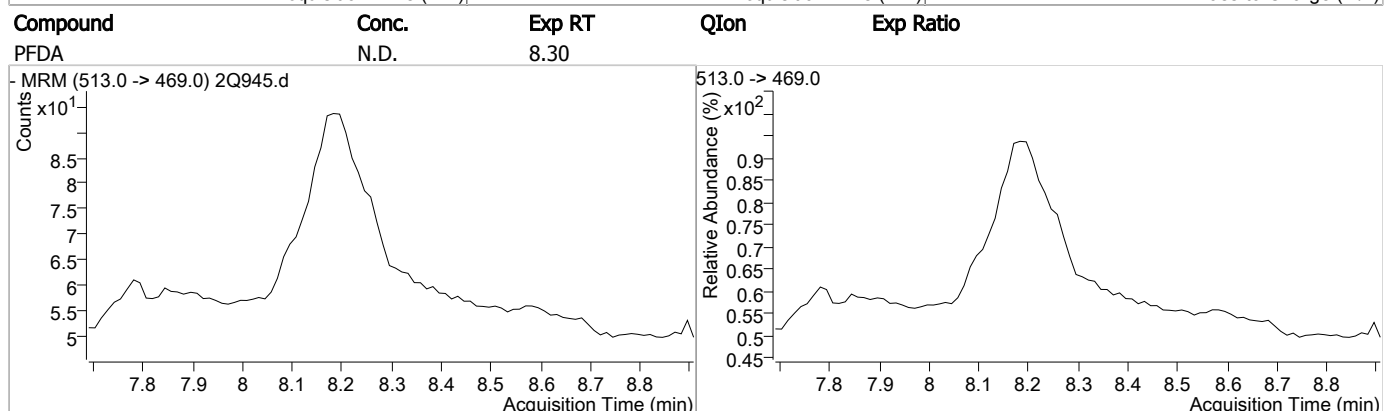
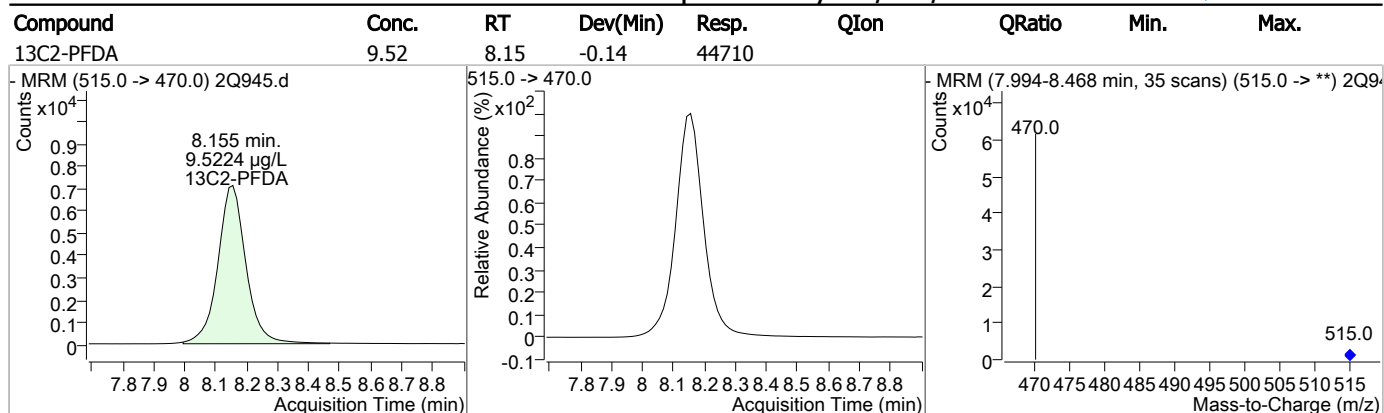
Perfluorinated Compounds by LC/MS/MS



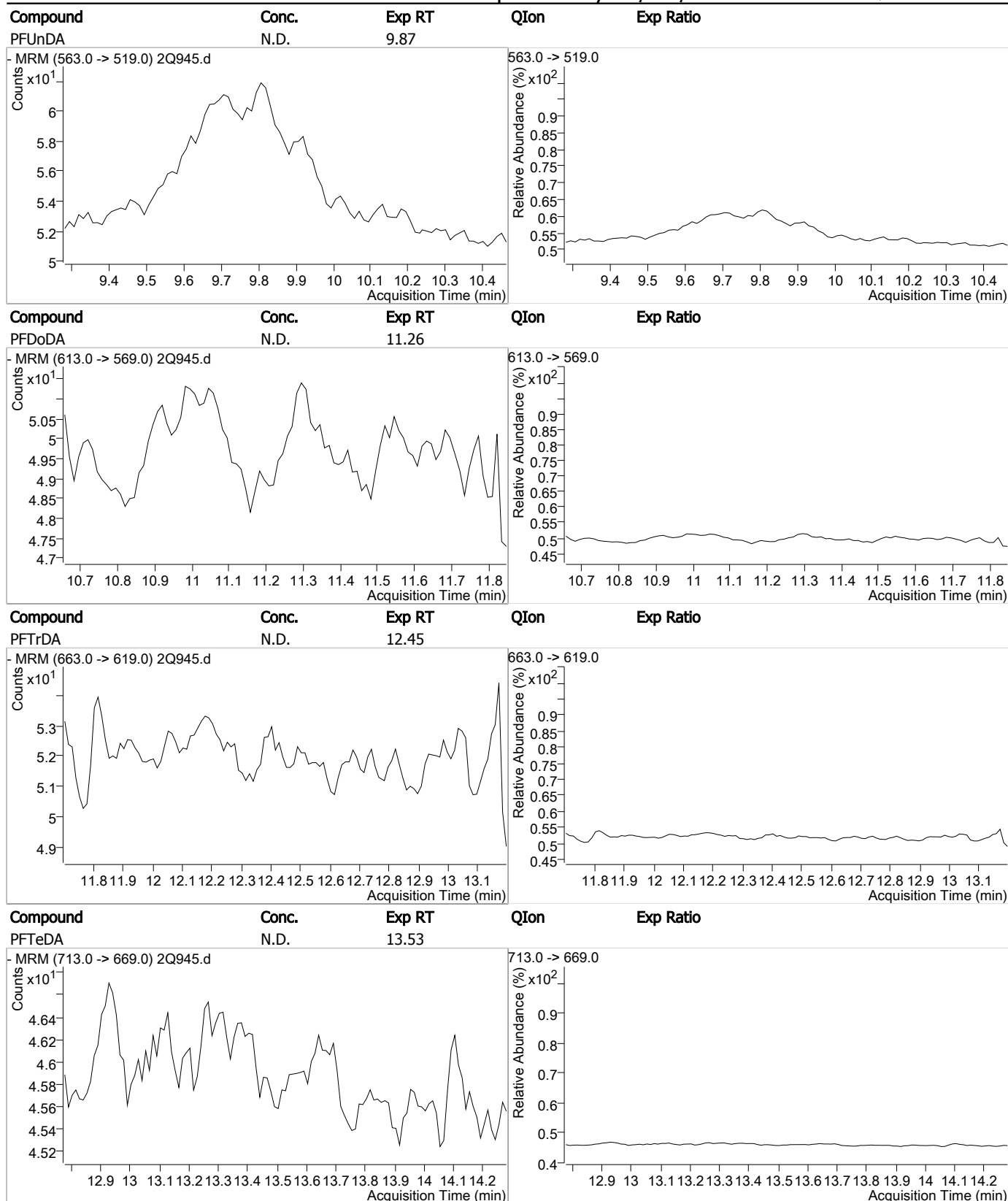
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



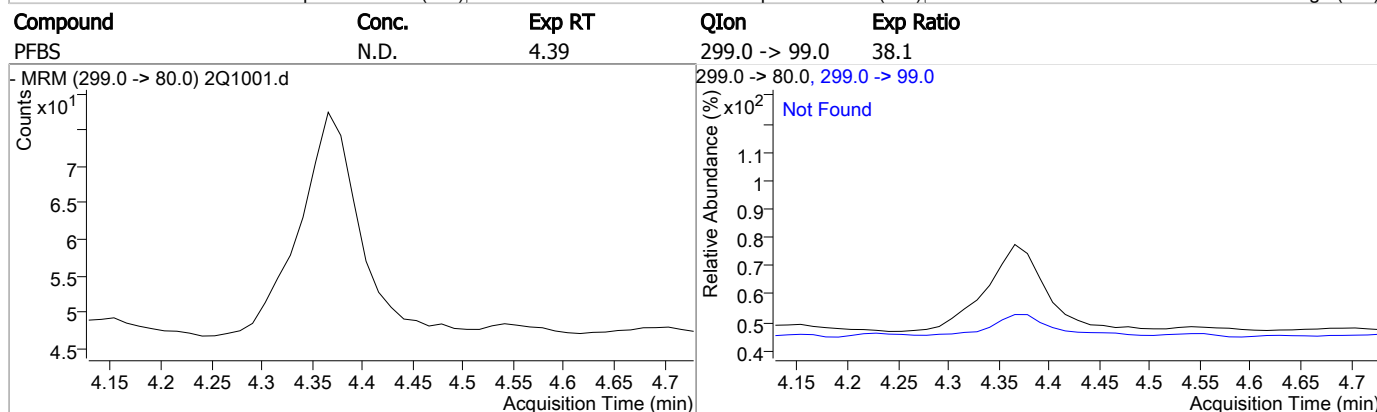
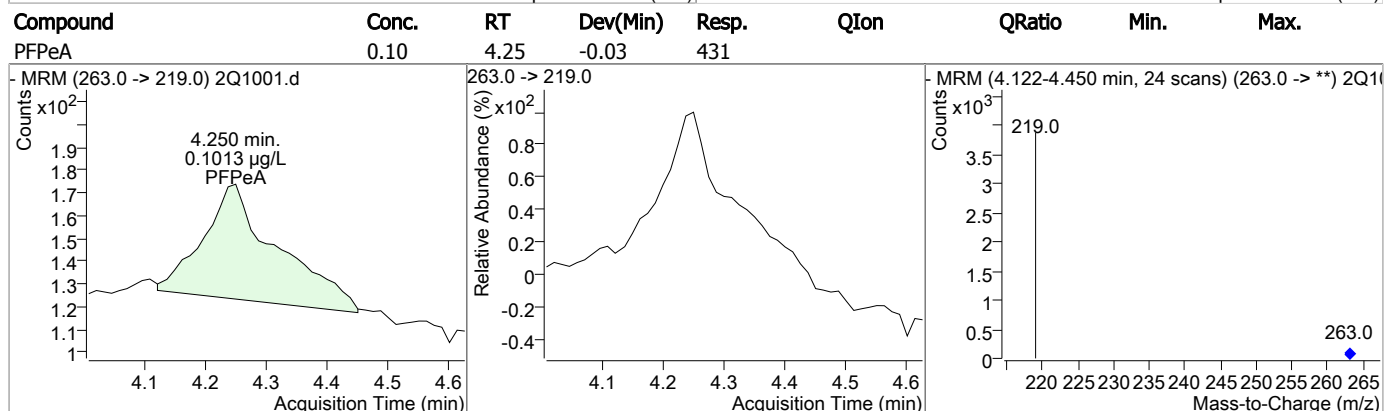
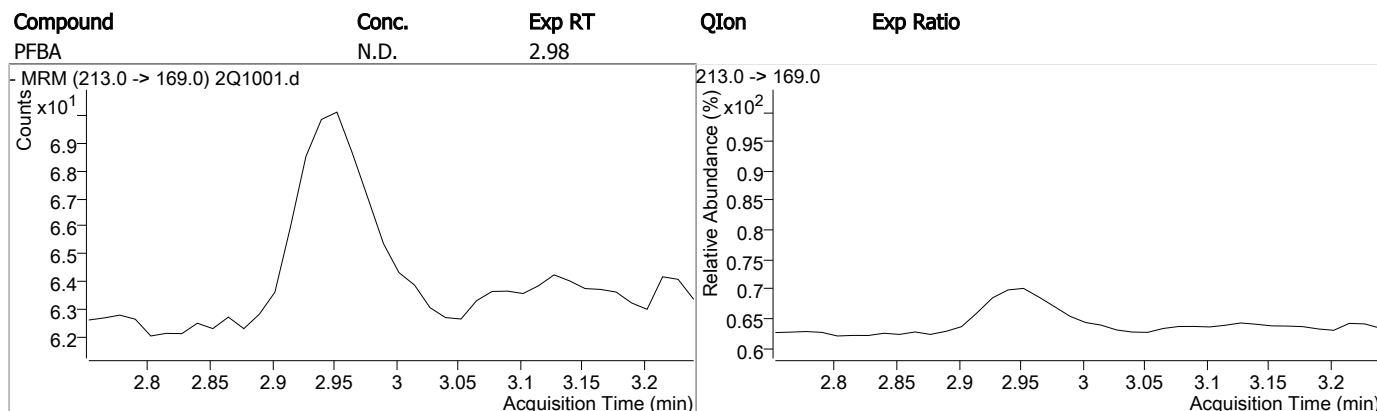
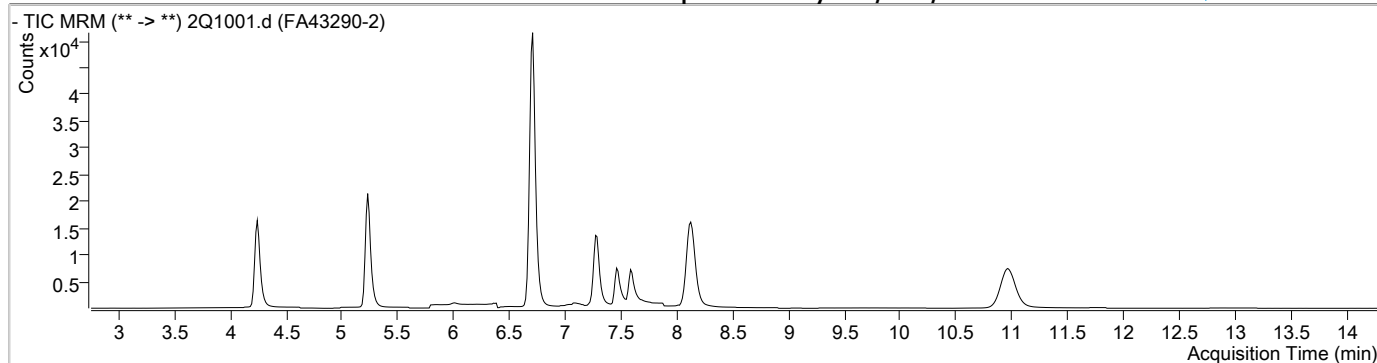
Perfluorinated Compounds by LC/MS/MS

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 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 5/3/2017 6:50:29 PM
 Sample Name : FA43290-2
 Vial : Vial 20
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q28.batch.bin
 Last Calib Update : 5/1/2017 4:47:24 PM

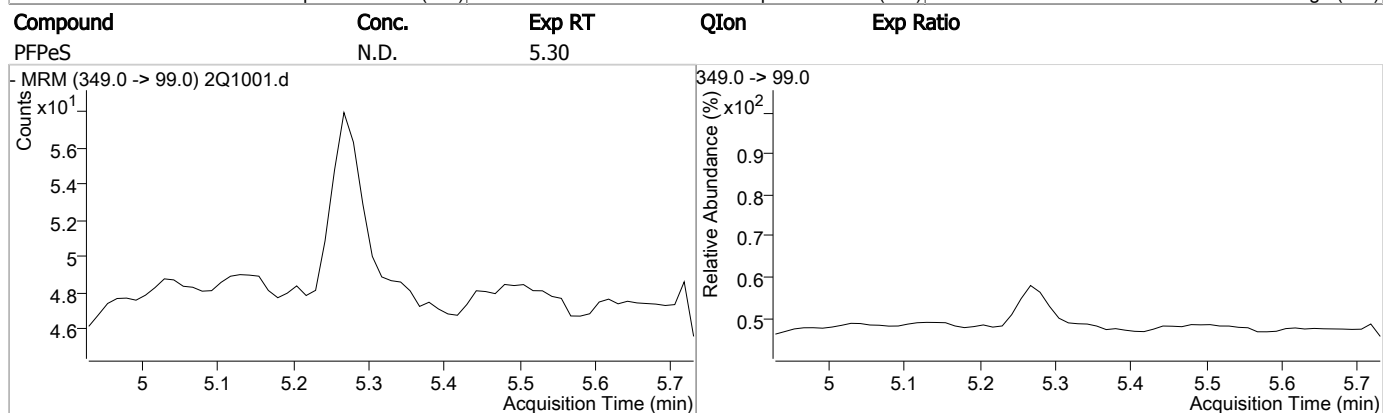
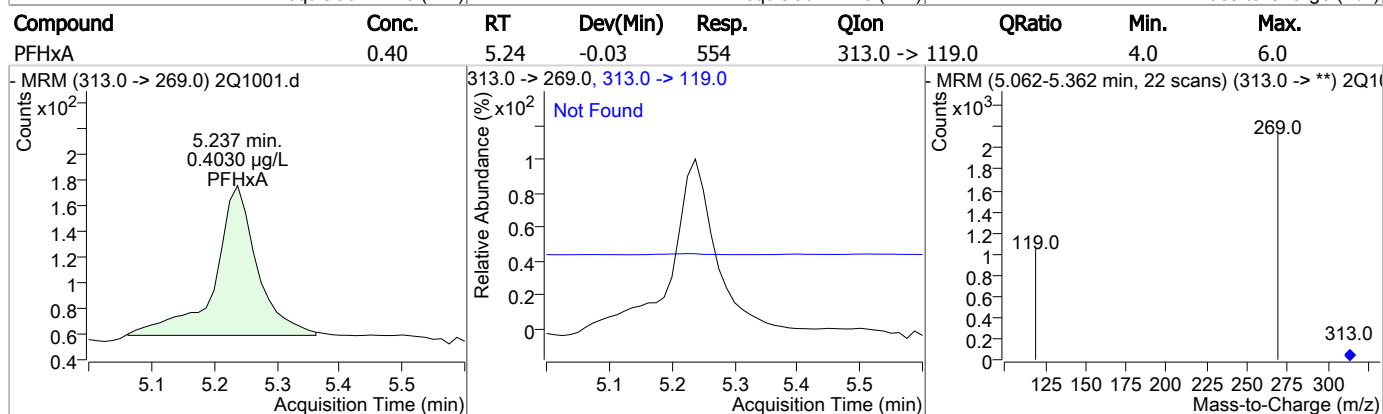
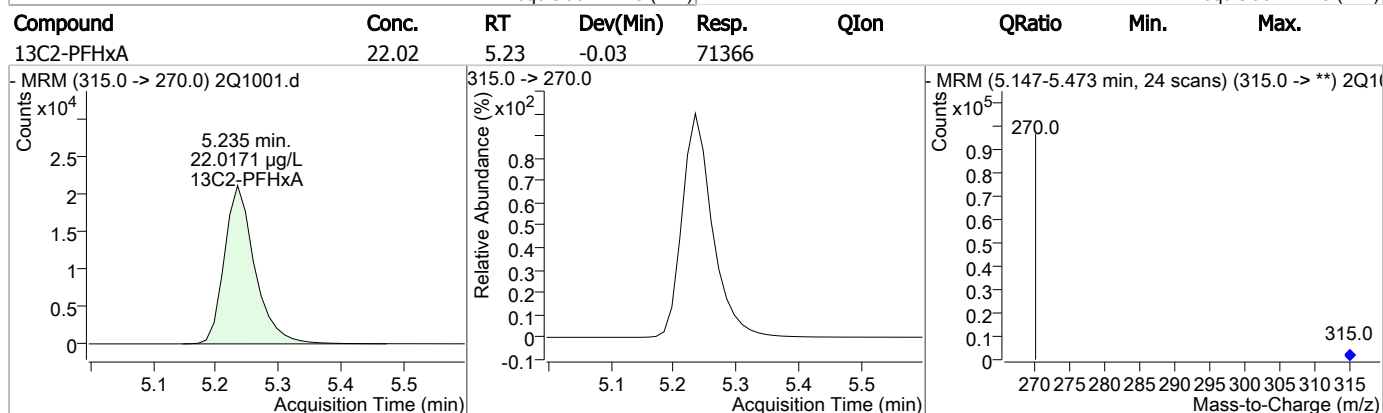
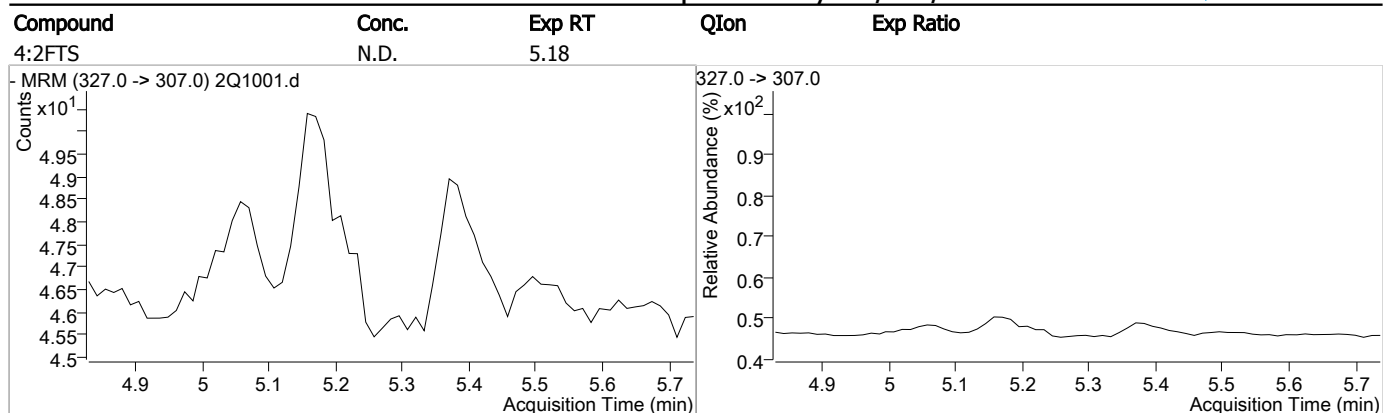
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.710	429.0 -> 409.0	123955	20.00 µg/L	-0.025
13C2-PFDoDA	10.964	615.0 -> 570.0	72598	20.00 µg/L	-0.063
13C2-PFOA	6.701	415.0 -> 370.0	61366	20.00 µg/L	-0.025
13C3-PFPeA	4.247	266.0 -> 222.0	56134	20.00 µg/L	-0.025
13C4-PFOS	7.276	503.0 -> 80.0	46634	20.00 µg/L	-0.038
d3-MeFOSAA	7.462	573.0 -> 419.0	25709	20.00 µg/L	-0.013
System Monitoring Compounds					
13C2-PFDA	8.130	515.0 -> 470.0	92515	21.55 µg/L	-0.050
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 107.7%		
13C2-PFHxA	5.235	315.0 -> 270.0	71366	22.02 µg/L	-0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 110.1%		
d5-EtFOSAA	7.585	589.0 -> 419.0	23610	34.89 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 174.5%		
Target Compounds					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	6.712	427.0 -> 407.0	6123	1.02 µg/L	100
8:2FTS	8.289	527.0 -> 507.0	724	0.07 µg/L	100
EtFOSAA	-	584.0 -> 419.0	-	N.D.	
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBA	-	213.0 -> 169.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	8.145	513.0 -> 469.0	351	0.12 µg/L	100
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFDS	-	599.0 -> 80.0	-	N.D.	
PFHpA	6.011	363.0 -> 319.0	577	0.14 µg/L	85
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	5.237	313.0 -> 269.0	554	0.40 µg/L	85
PFHxS	6.006	399.0 -> 80.0	382	0.20 µg/L	25
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 99.0	-	N.D.	
PFOA	6.702	413.0 -> 369.0	423	0.17 µg/L	54
PFOS	7.278	499.0 -> 80.0	2638	0.98 µg/L	#m 80
PFPeA	4.250	263.0 -> 219.0	431	0.10 µg/L	100
PFPeS	-	349.0 -> 99.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	

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

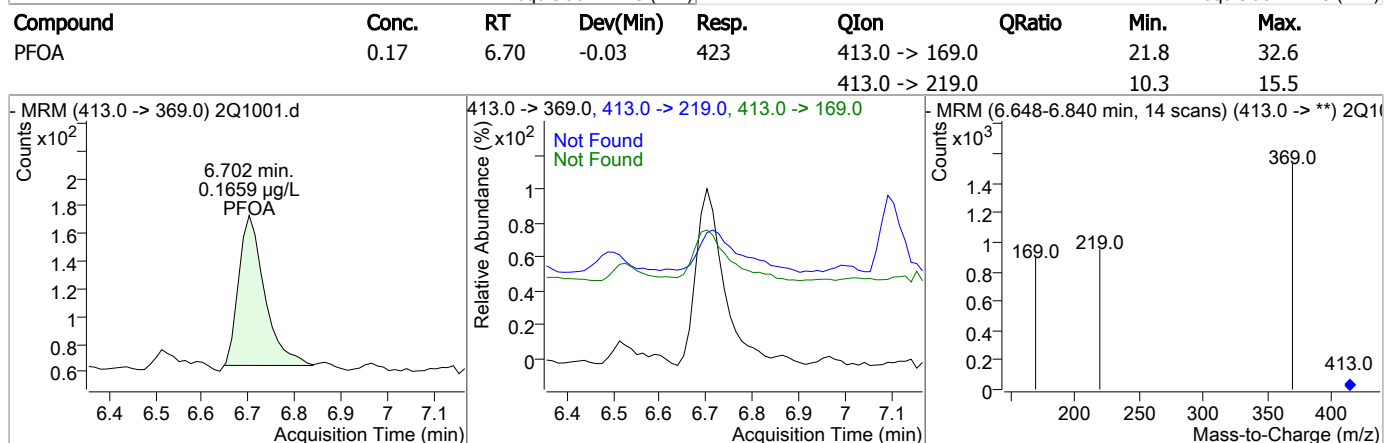
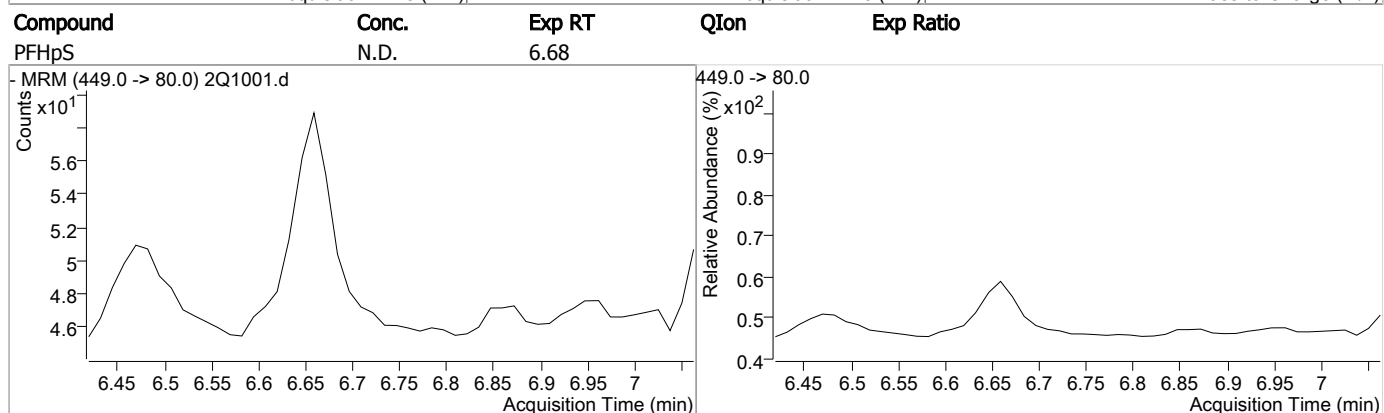
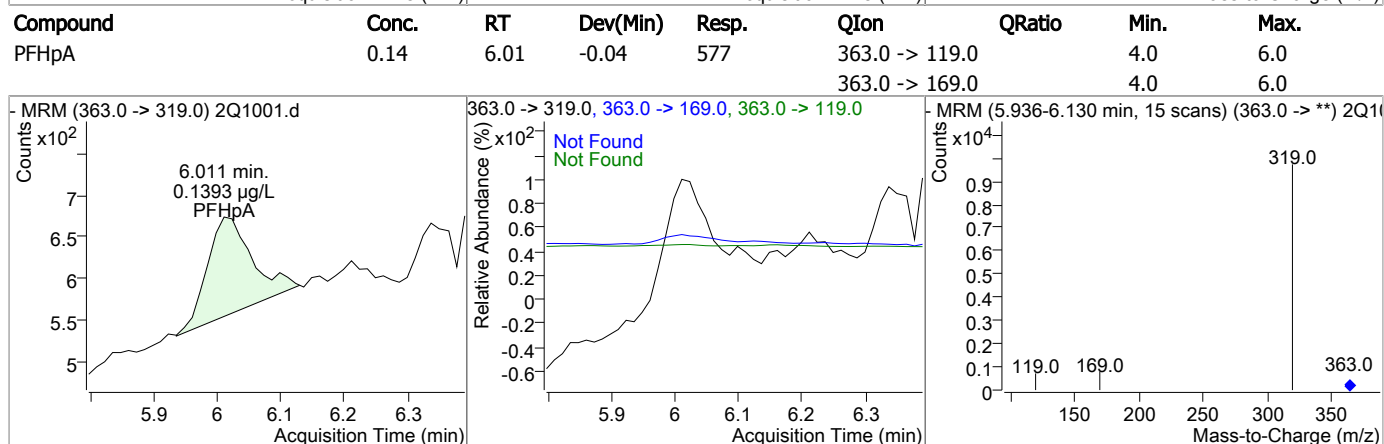
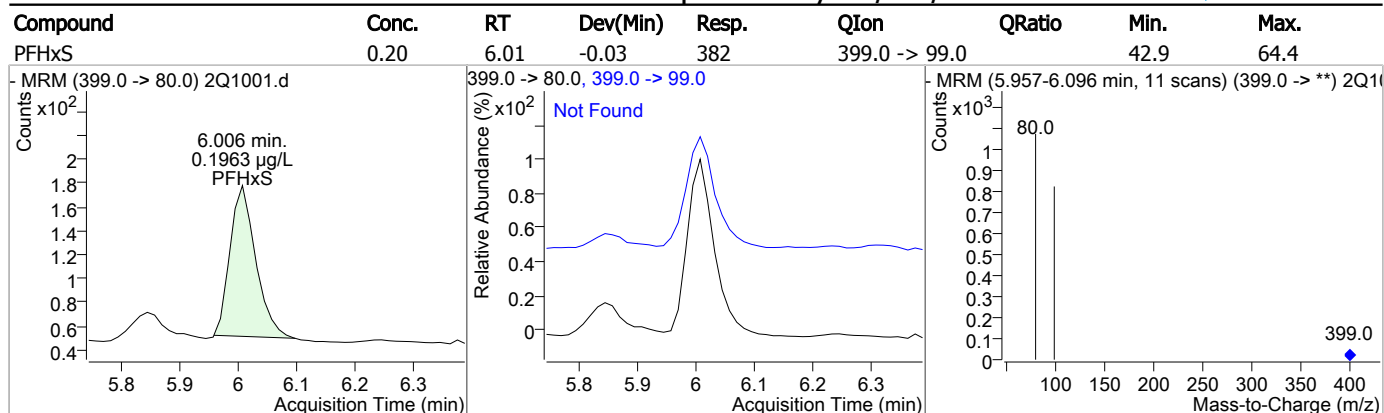
Perfluorinated Compounds by LC/MS/MS



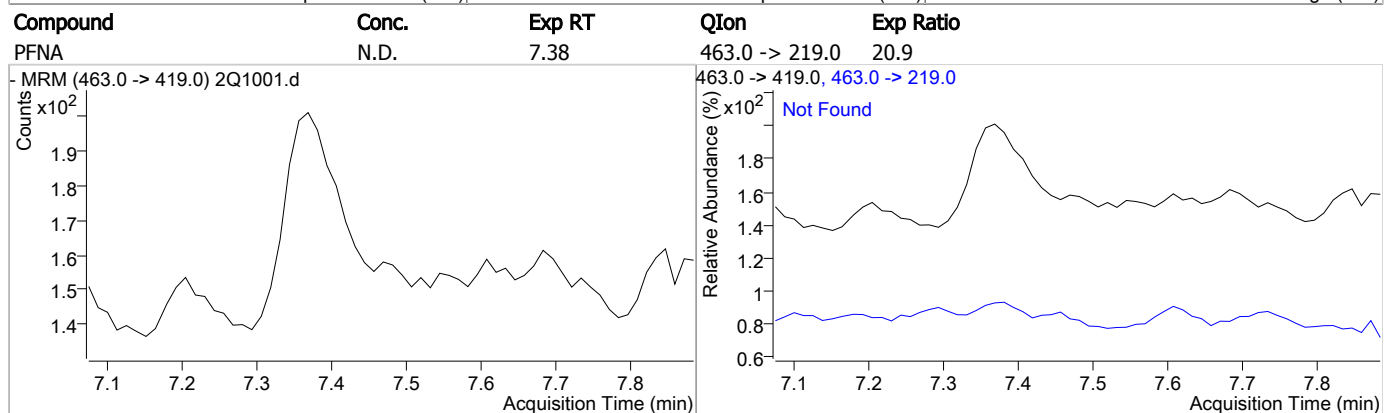
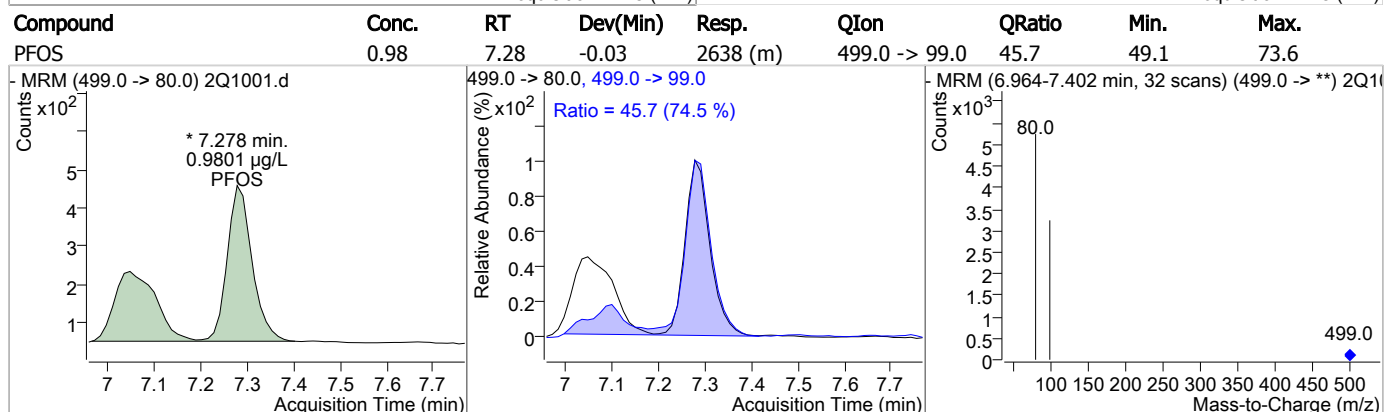
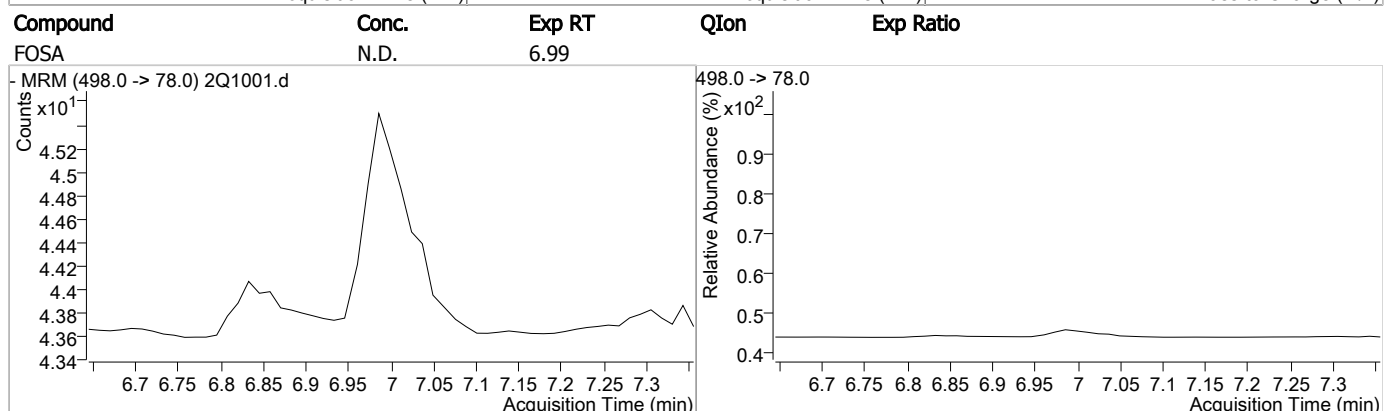
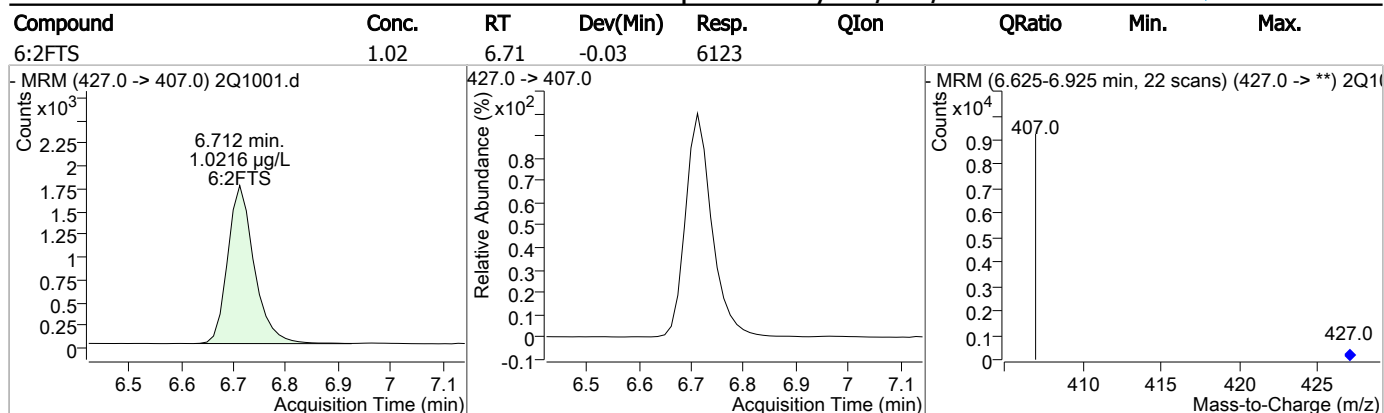
Perfluorinated Compounds by LC/MS/MS



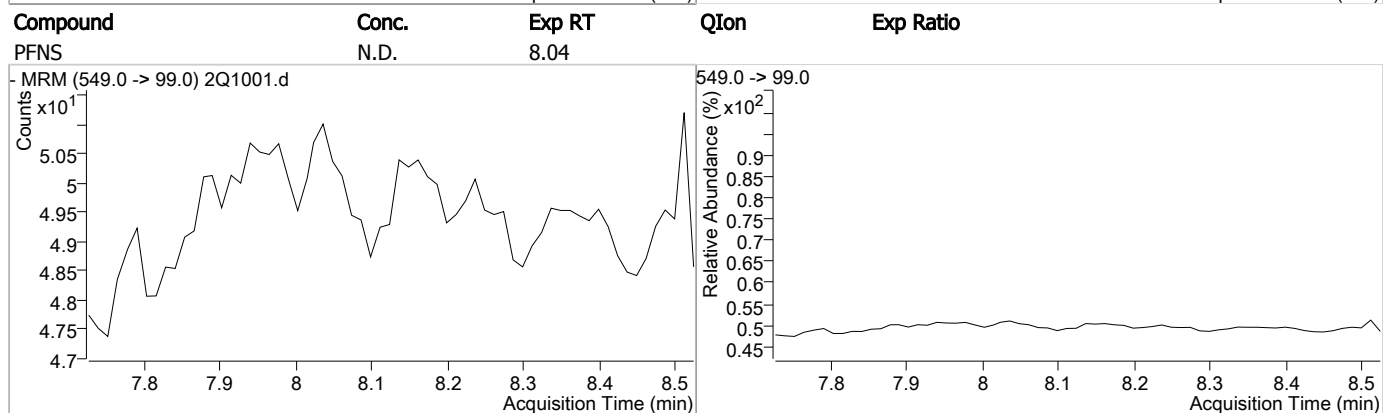
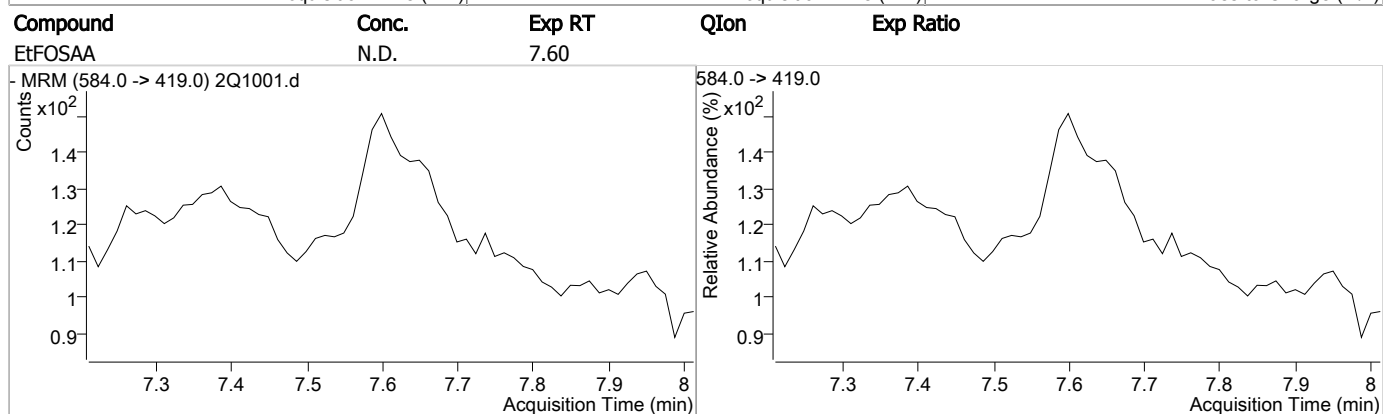
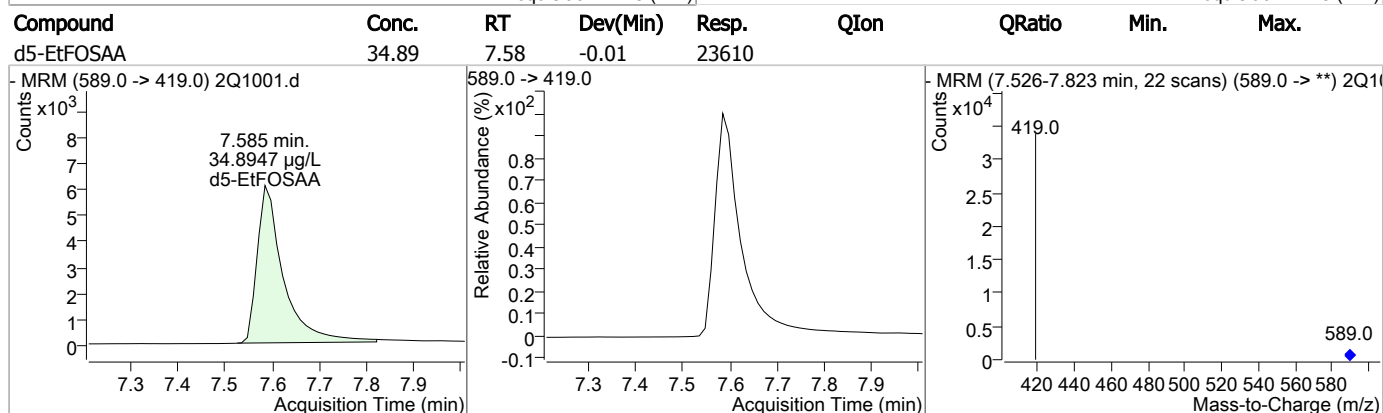
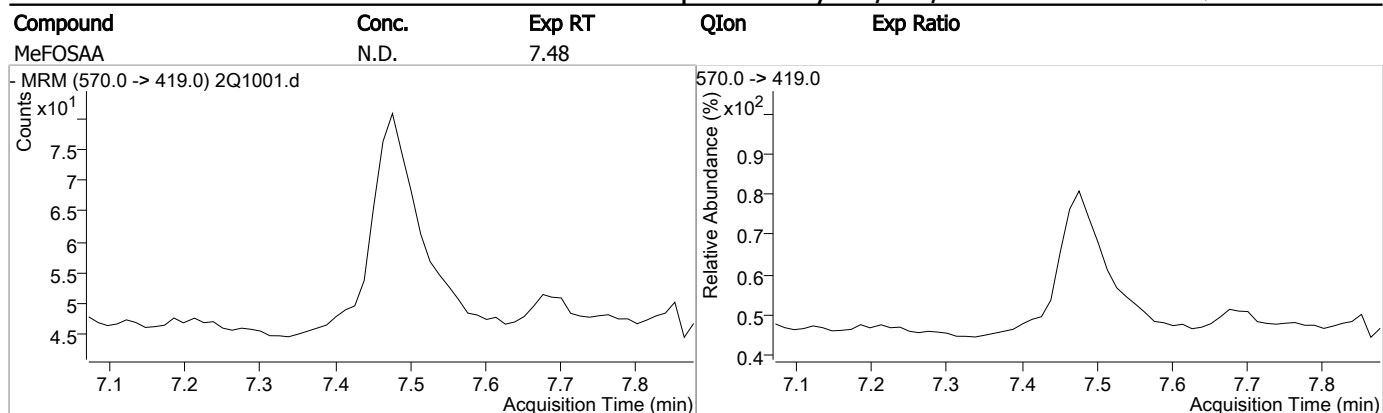
Perfluorinated Compounds by LC/MS/MS



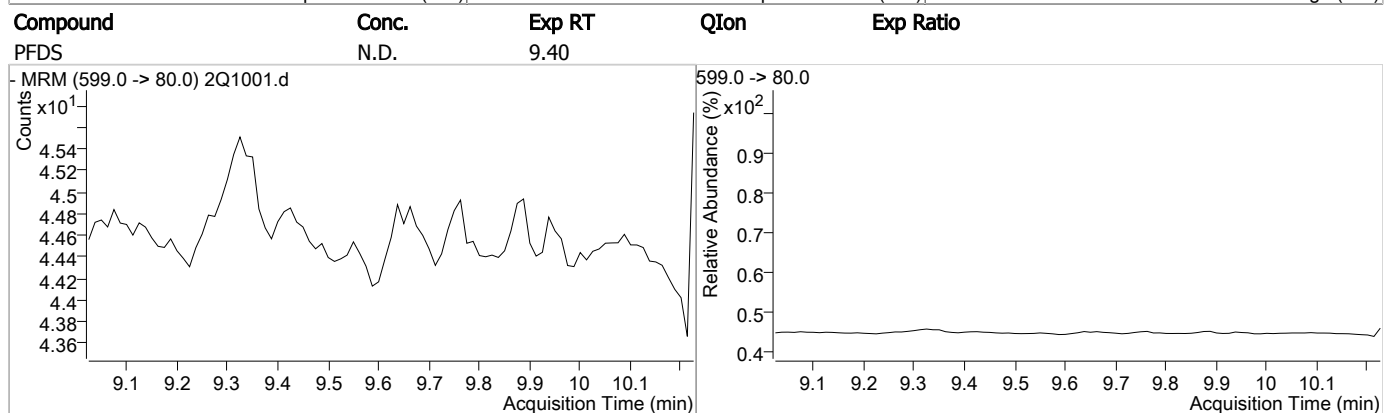
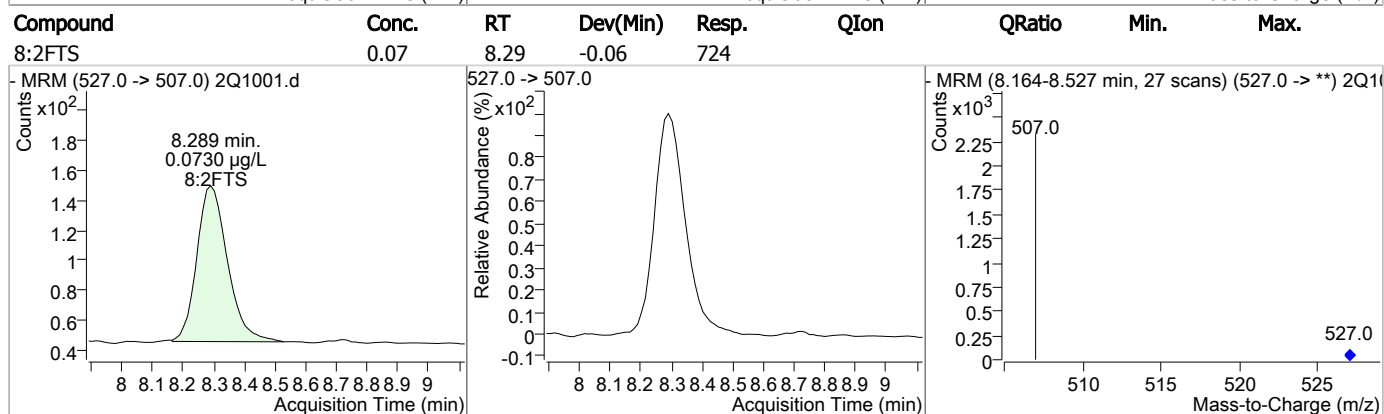
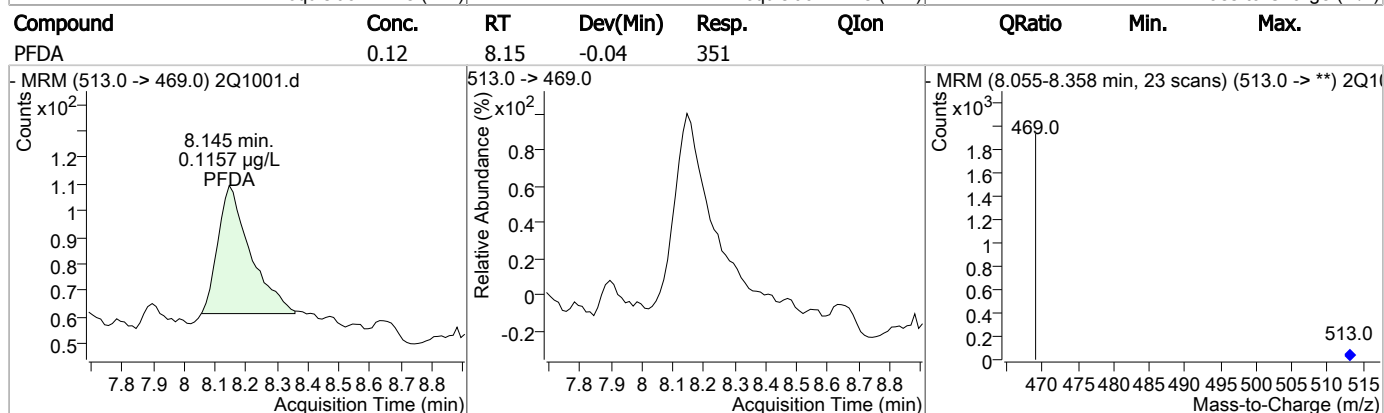
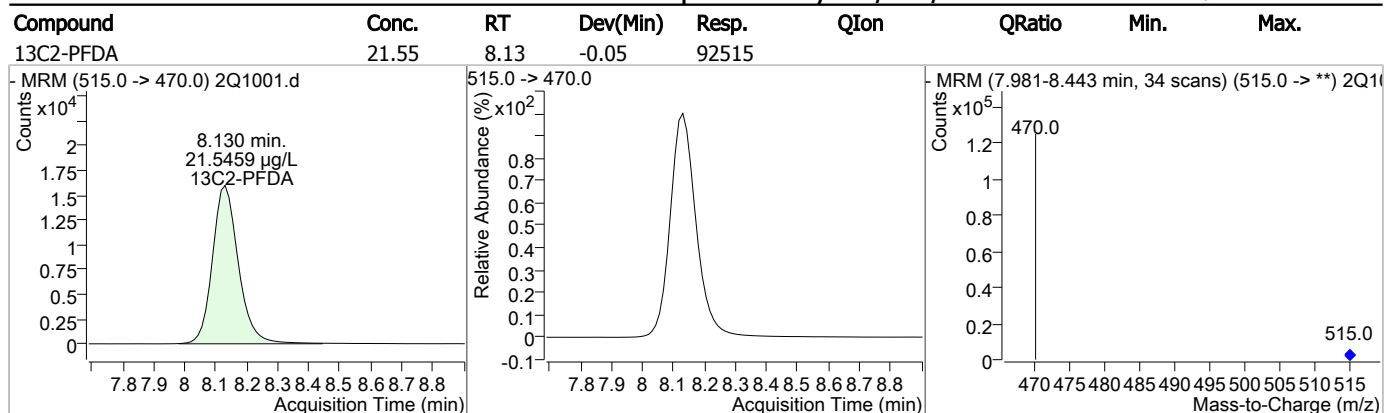
Perfluorinated Compounds by LC/MS/MS



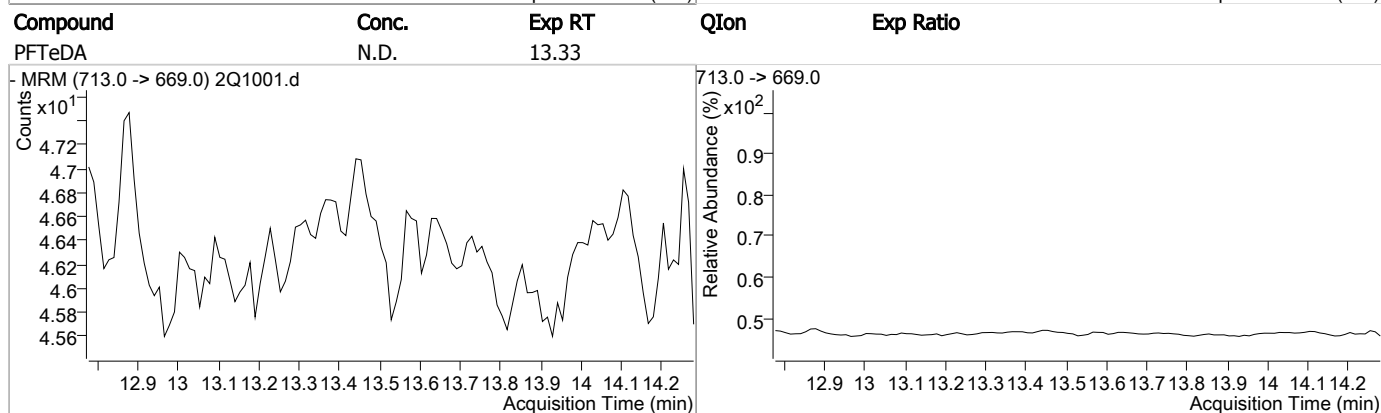
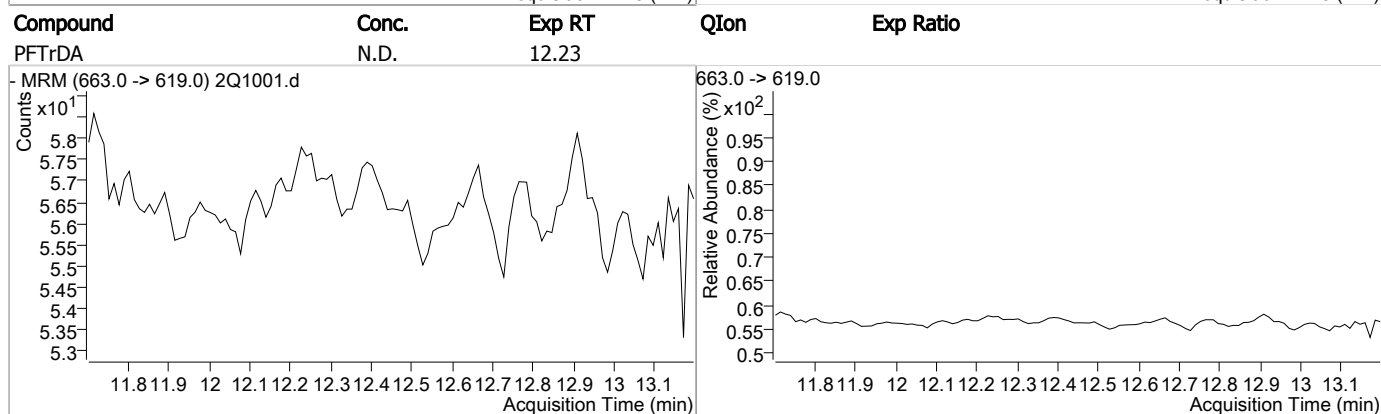
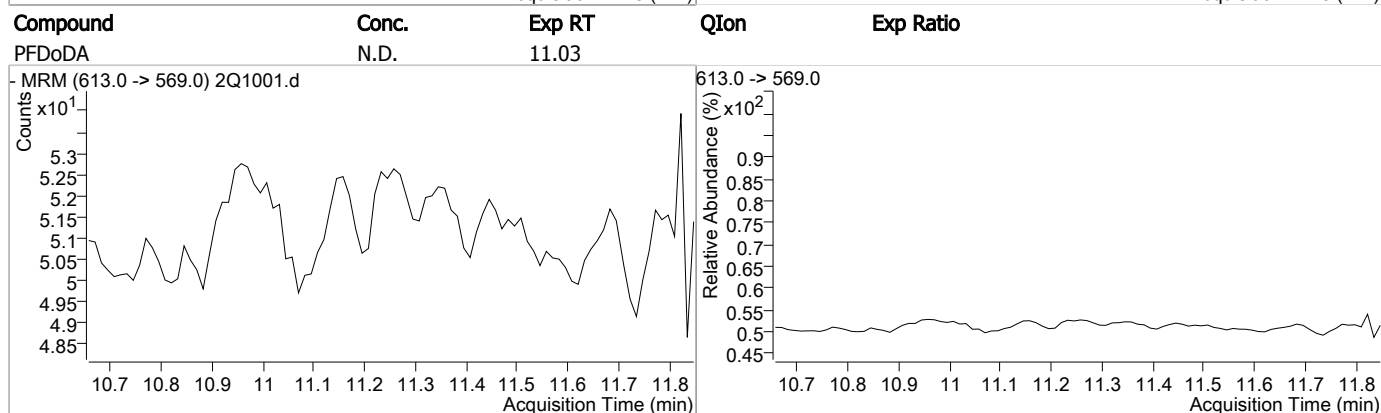
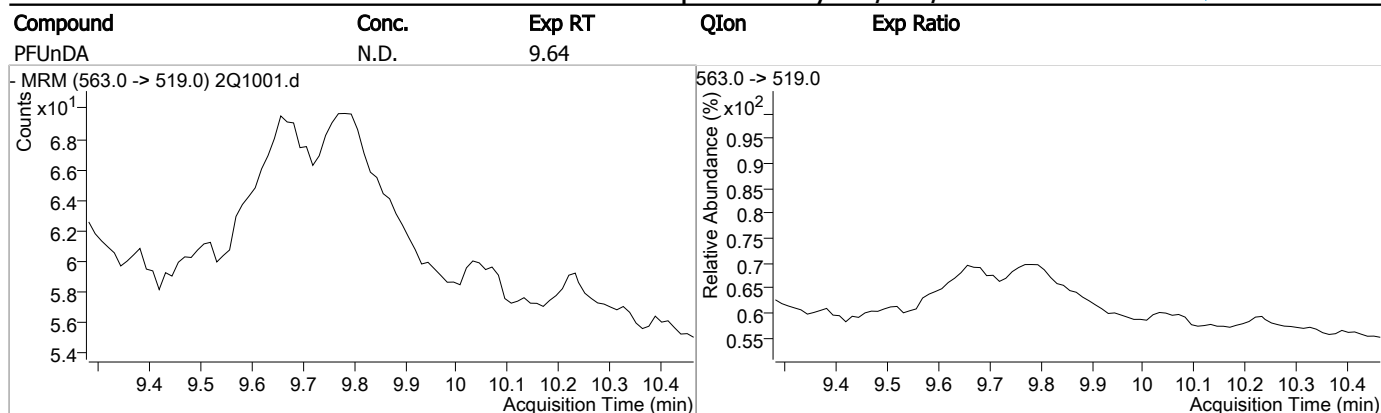
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: FA43290-2

Method: EPA 537

Lab FileID: 2Q1001.D

Analyst approved: 05/04/17 10:26 Nancy Saunders

Injection Time: 05/03/17 18:50

Supervisor approved: 05/04/17 11:46 Mike Eger

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

7.1.3.1
7

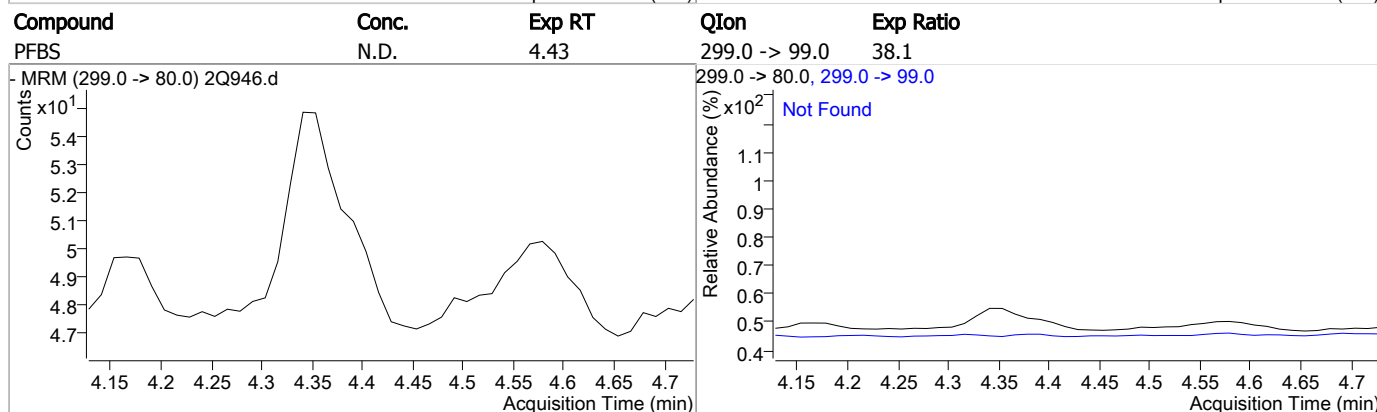
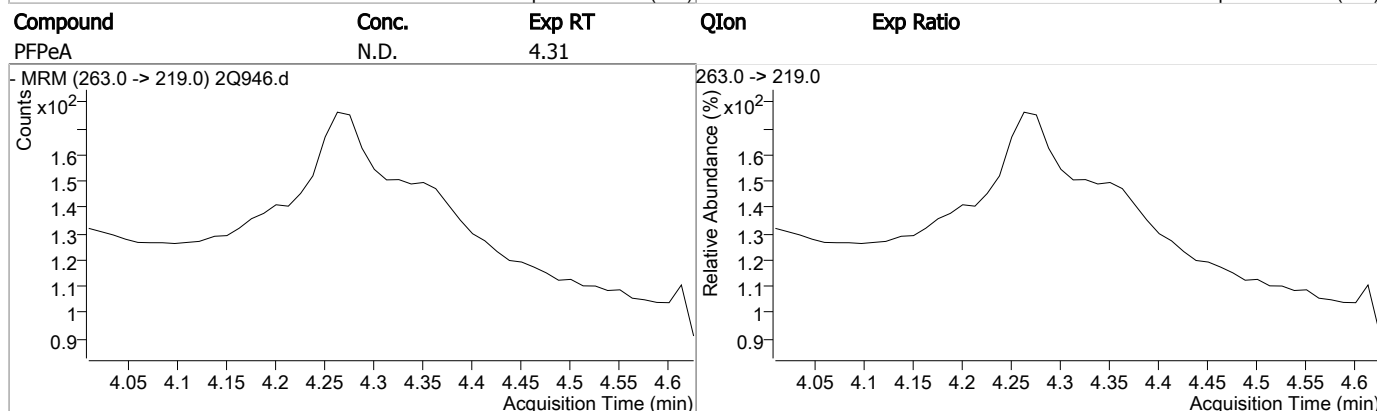
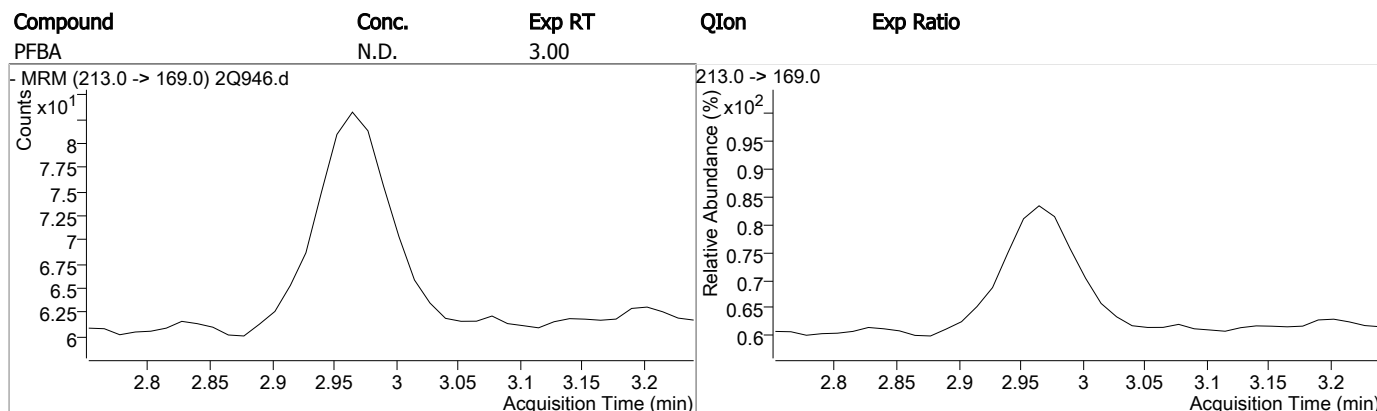
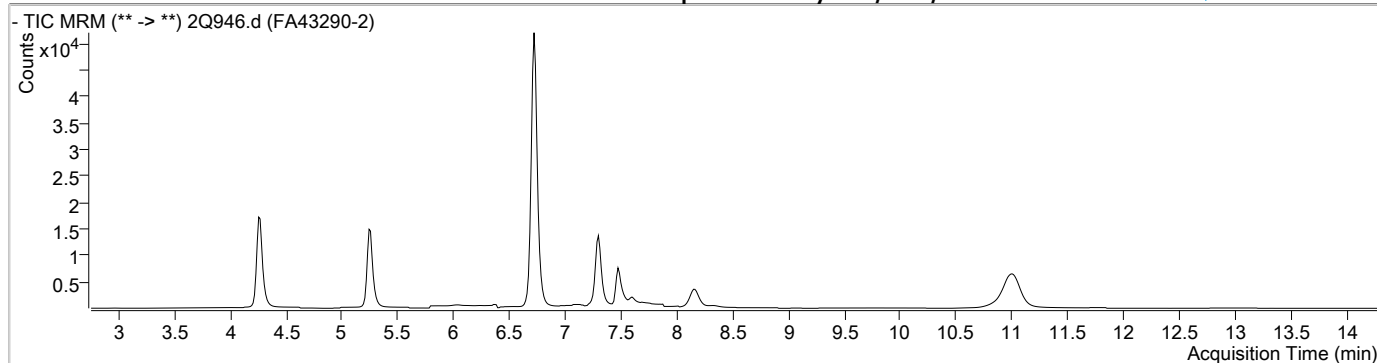
Perfluorinated Compounds by LC/MS/MS

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 Operator : NANCYF
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 Acq. Date-Time : 5/1/2017 10:43:56 PM
 Sample Name : FA43290-2
 Vial : Vial 32
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q26.batch.bin
 Last Calib Update : 5/1/2017 4:47:24 PM

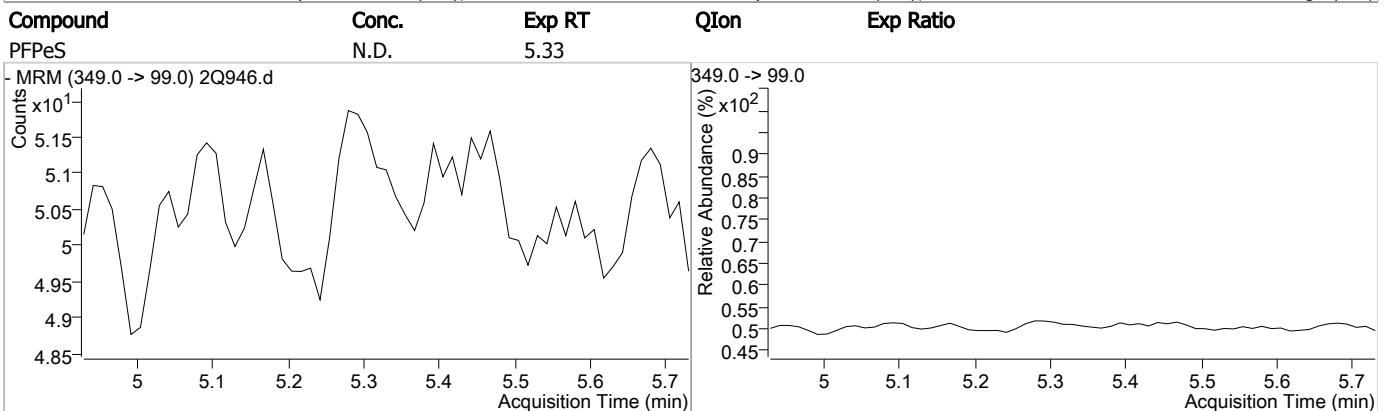
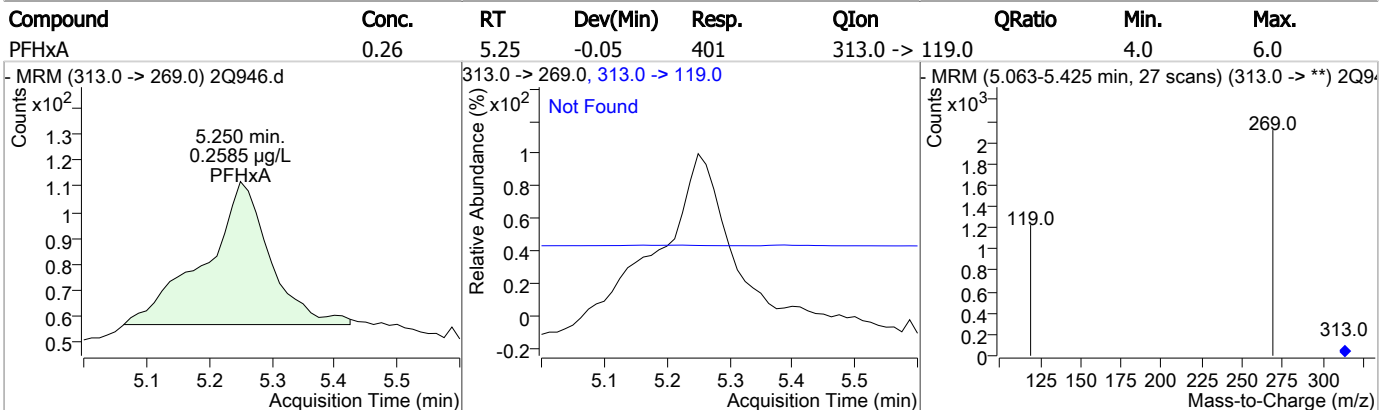
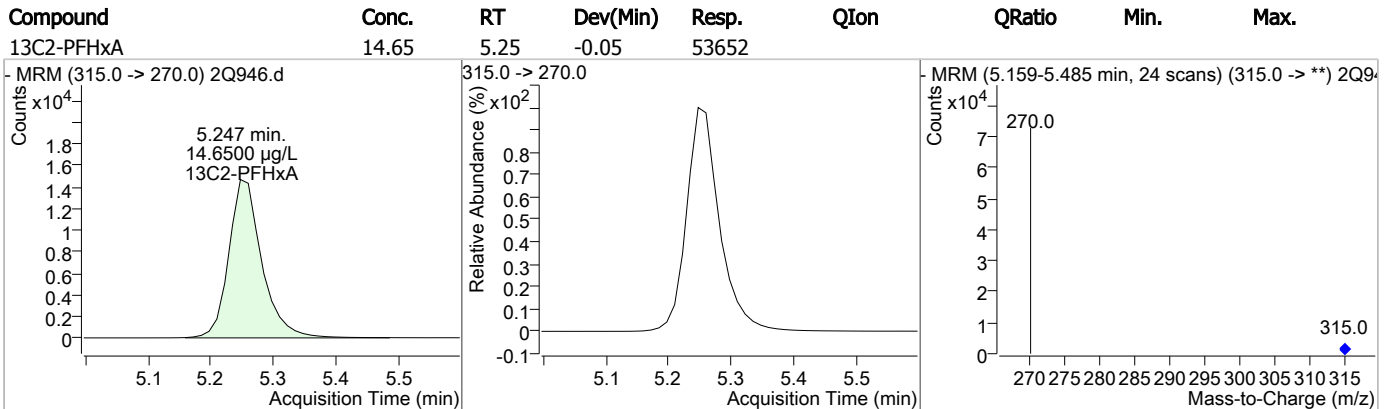
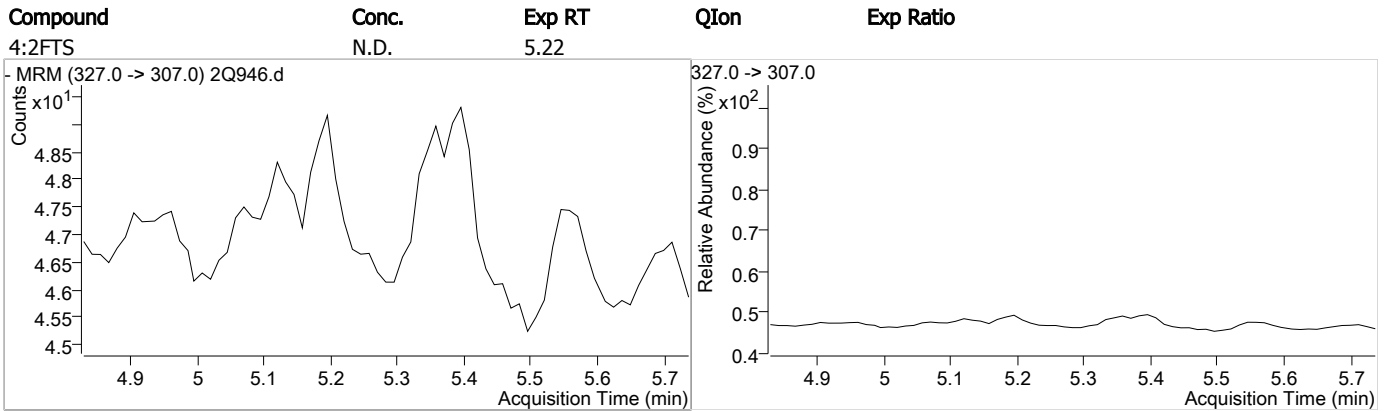
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.723	429.0 -> 409.0	129930	20.00 µg/L	-0.063
13C2-PFDoDA	11.001	615.0 -> 570.0	75521	20.00 µg/L	-0.263
13C2-PFOA	6.713	415.0 -> 370.0	69334	20.00 µg/L	-0.050
13C3-PFPeA	4.260	266.0 -> 222.0	63750	20.00 µg/L	-0.050
13C4-PFOS	7.301	503.0 -> 80.0	50523	20.00 µg/L	-0.063
d3-MeFOSAA	7.475	573.0 -> 419.0	28154	20.00 µg/L	-0.013
System Monitoring Compounds					
13C2-PFDA	8.155	515.0 -> 470.0	21642	4.46 µg/L	-0.138
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 22.3%		
13C2-PFHxA	5.247	315.0 -> 270.0	53652	14.65 µg/L	-0.050
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 73.3%		
d5-EtFOSAA	7.597	589.0 -> 419.0	4049	6.24 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 31.2%		
Target Compounds					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	6.724	427.0 -> 407.0	1361	0.22 µg/L	100
8:2FTS	8.327	527.0 -> 507.0	2181	0.21 µg/L	100
EtFOSAA	7.611	584.0 -> 419.0	754	1.24 µg/L	100
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBA	-	213.0 -> 169.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFDS	-	599.0 -> 80.0	-	N.D.	
PFHpA	6.048	363.0 -> 319.0	1161	0.25 µg/L	85
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	5.250	313.0 -> 269.0	401	0.26 µg/L	85
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 99.0	-	N.D.	
PFOA	6.715	413.0 -> 369.0	383	0.13 µg/L	54
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.0 -> 99.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	

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

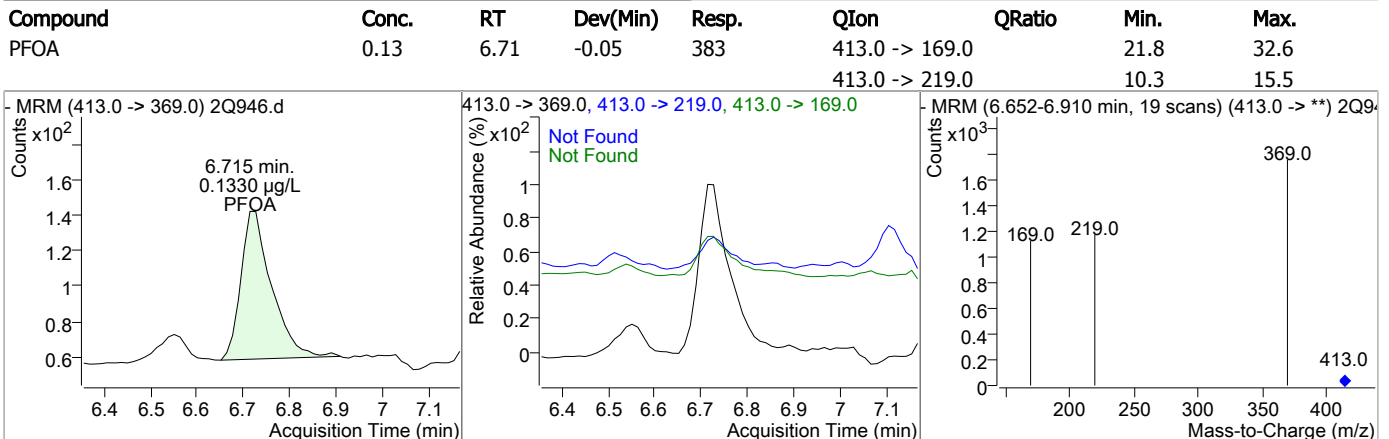
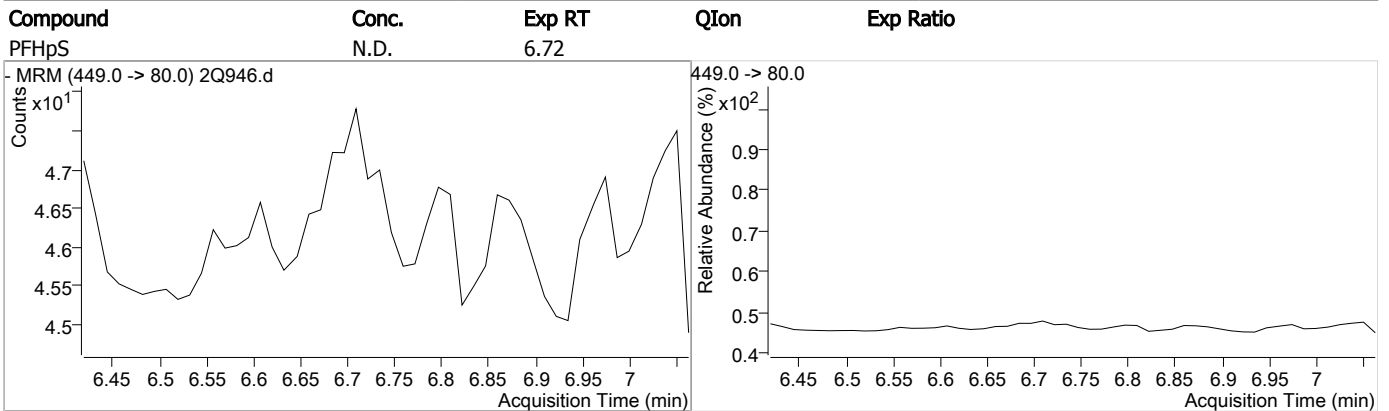
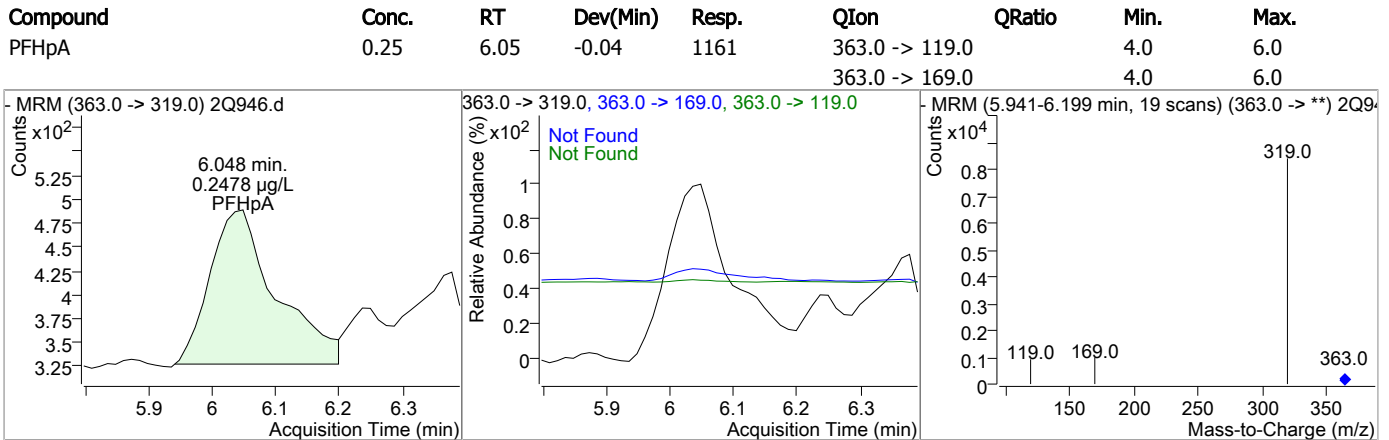
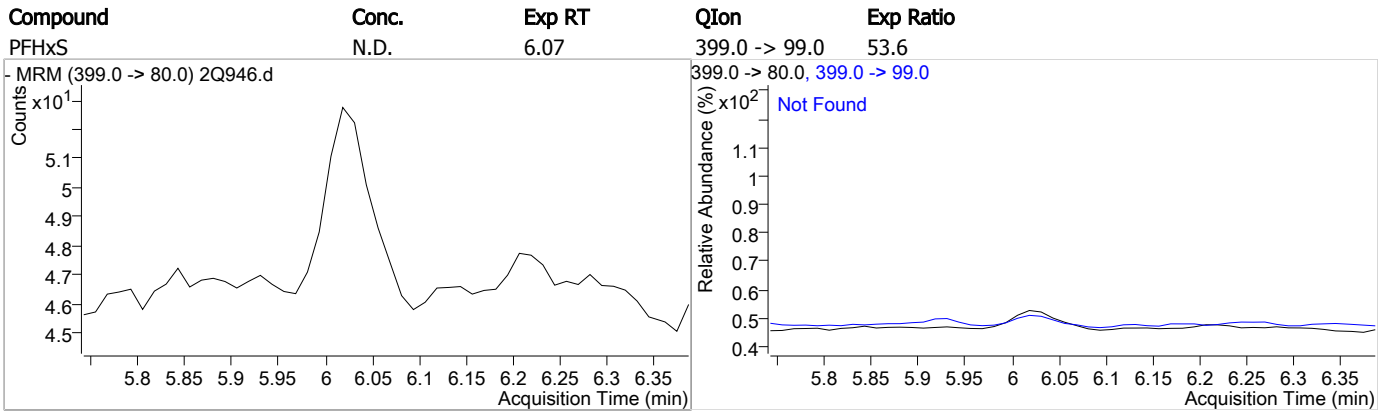
Perfluorinated Compounds by LC/MS/MS



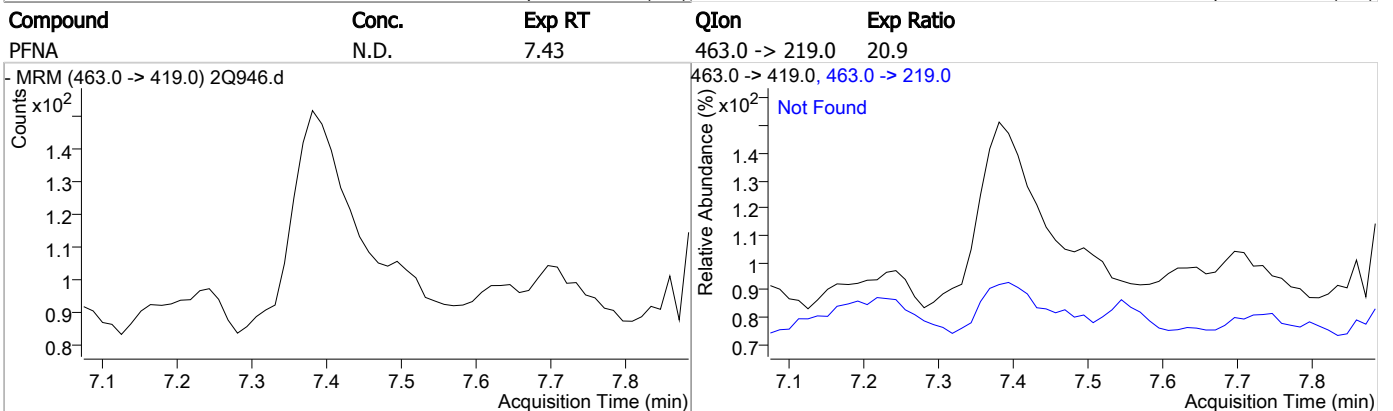
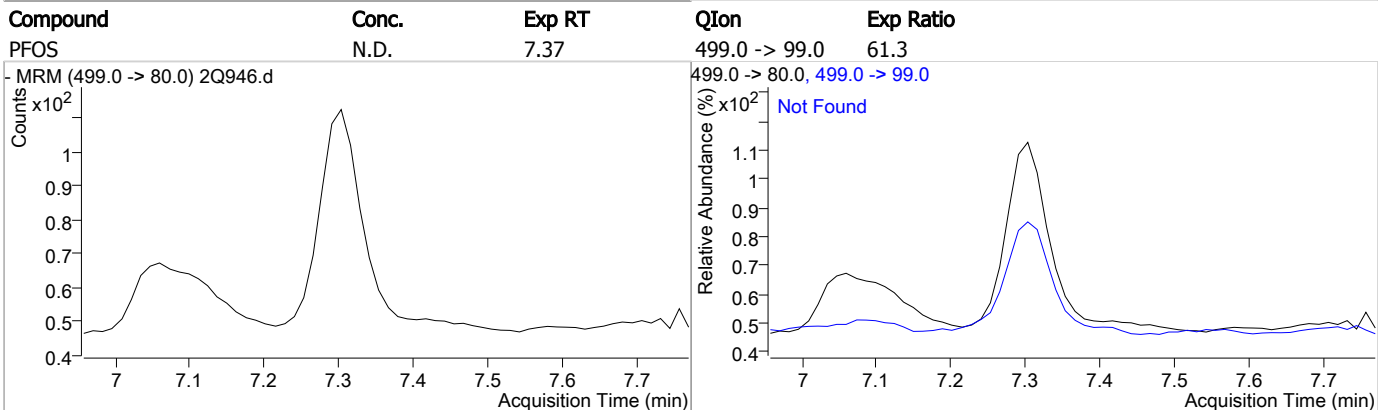
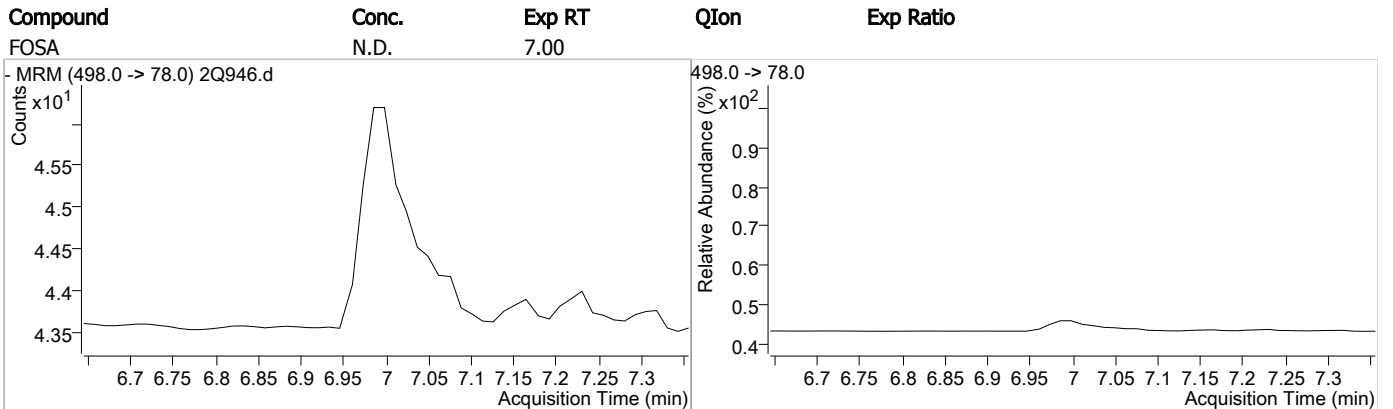
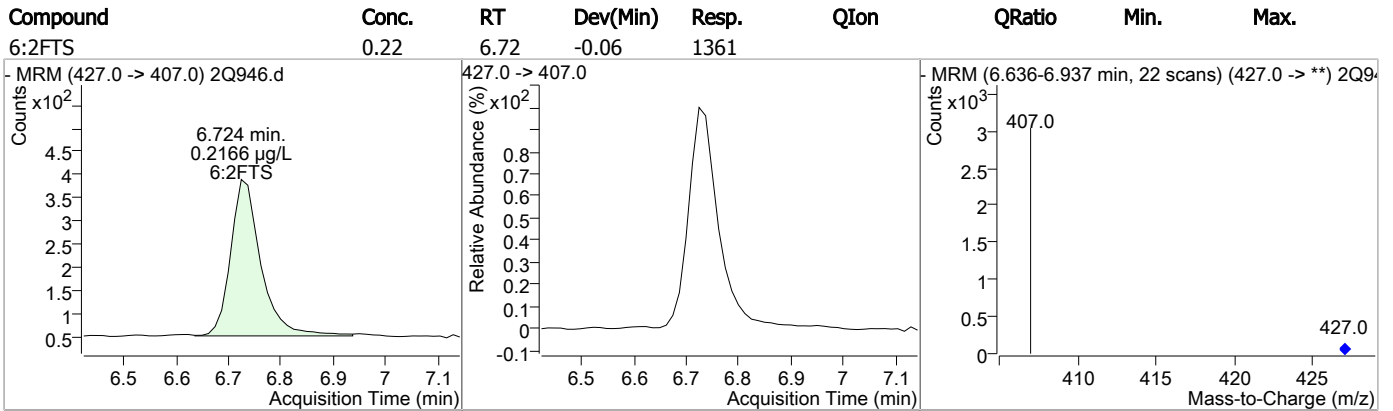
Perfluorinated Compounds by LC/MS/MS



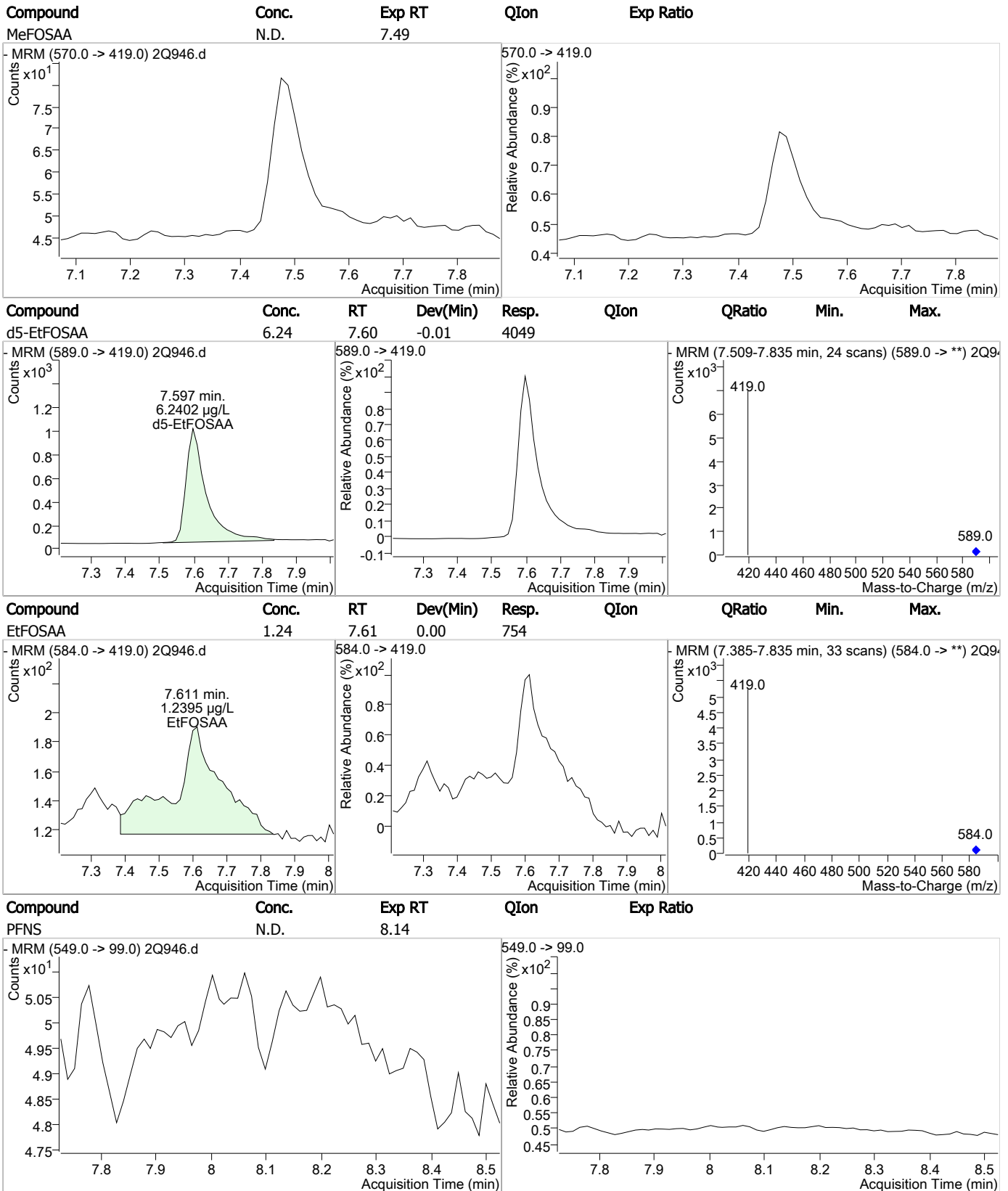
Perfluorinated Compounds by LC/MS/MS



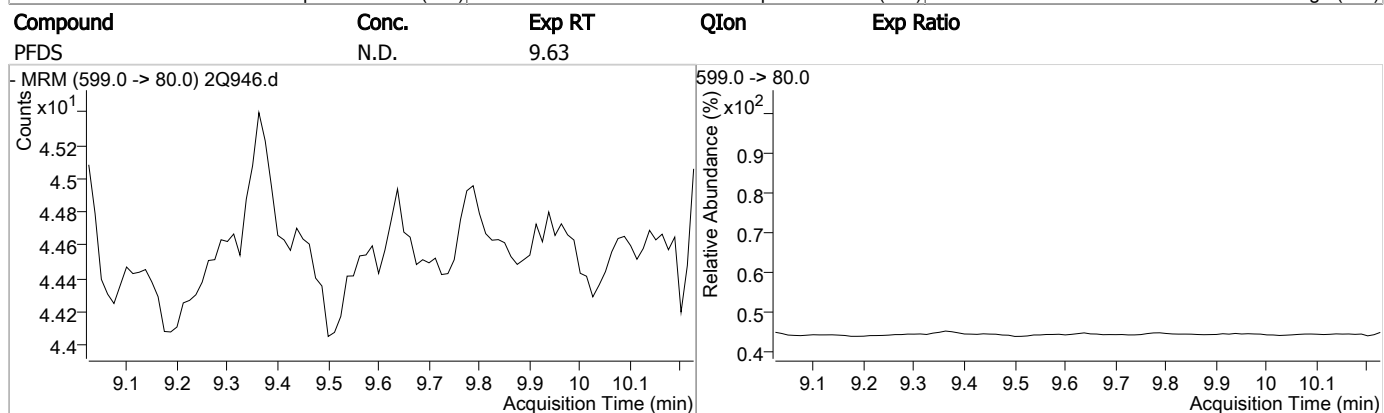
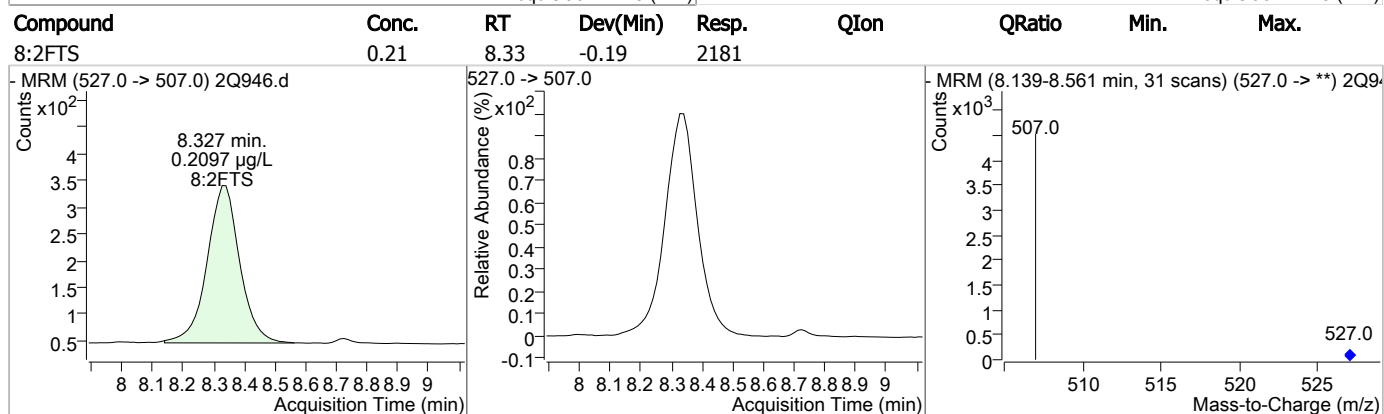
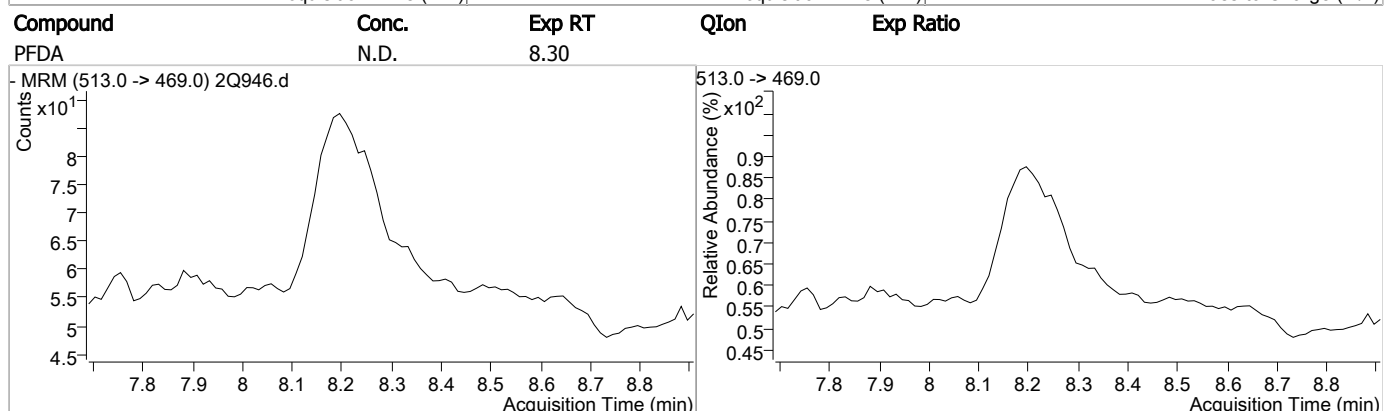
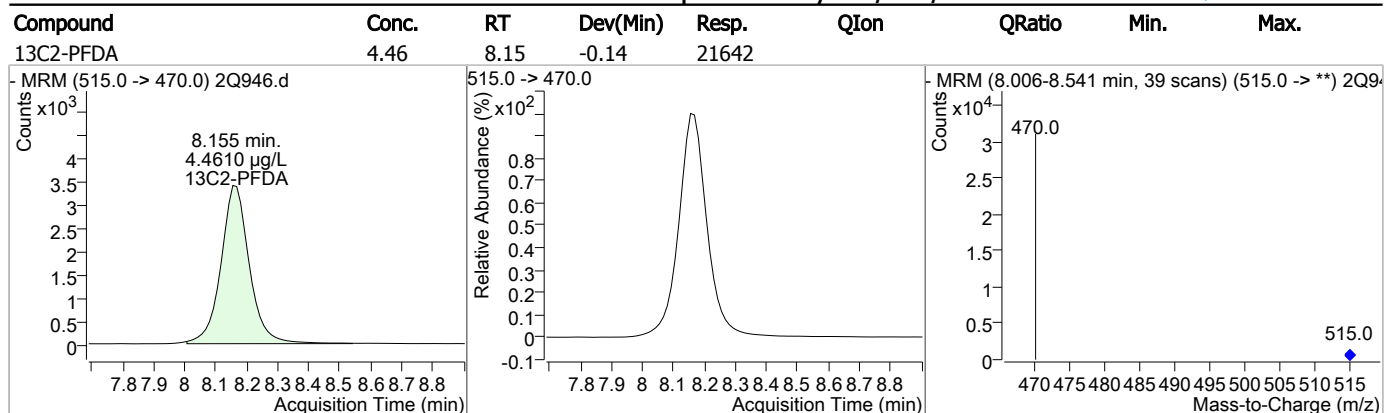
Perfluorinated Compounds by LC/MS/MS



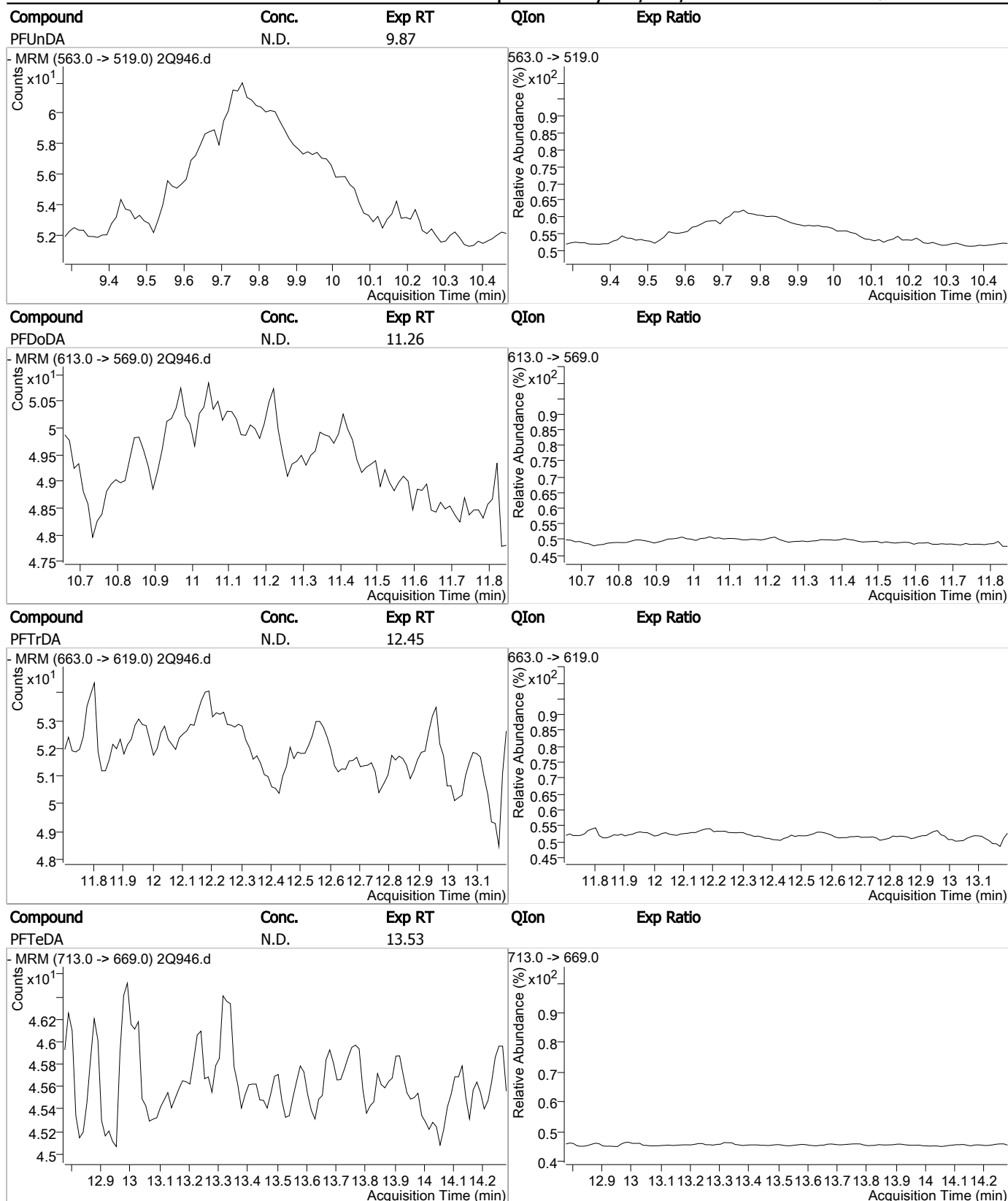
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



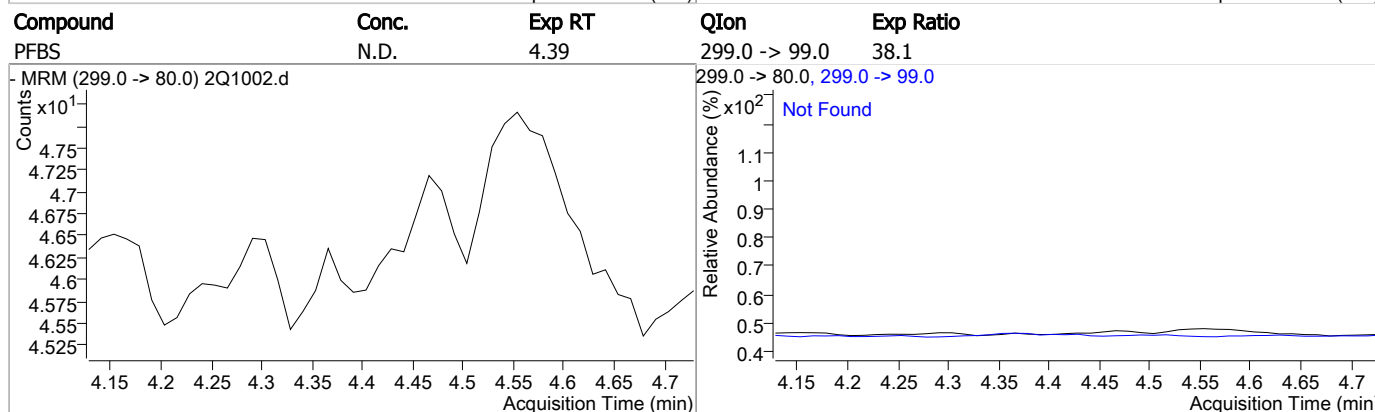
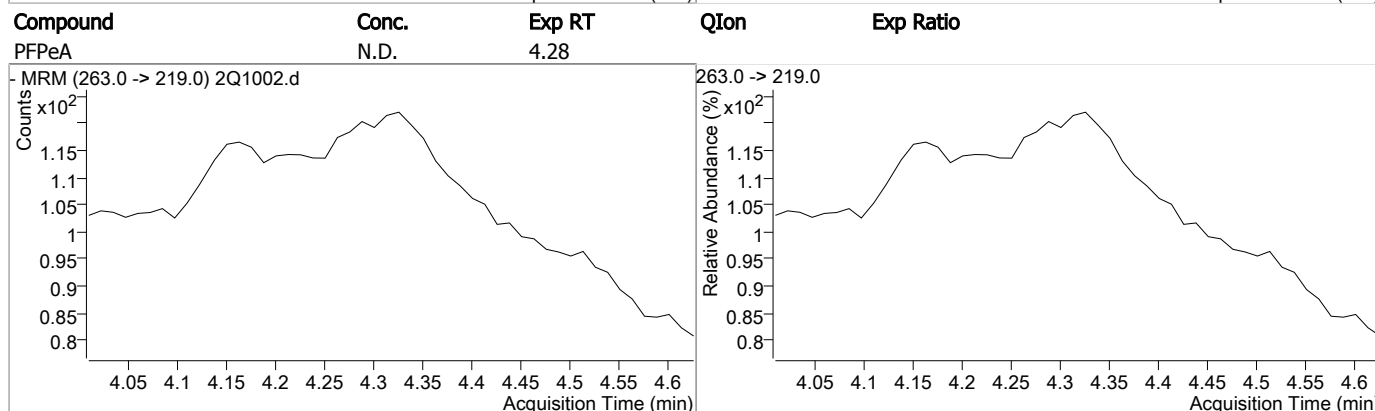
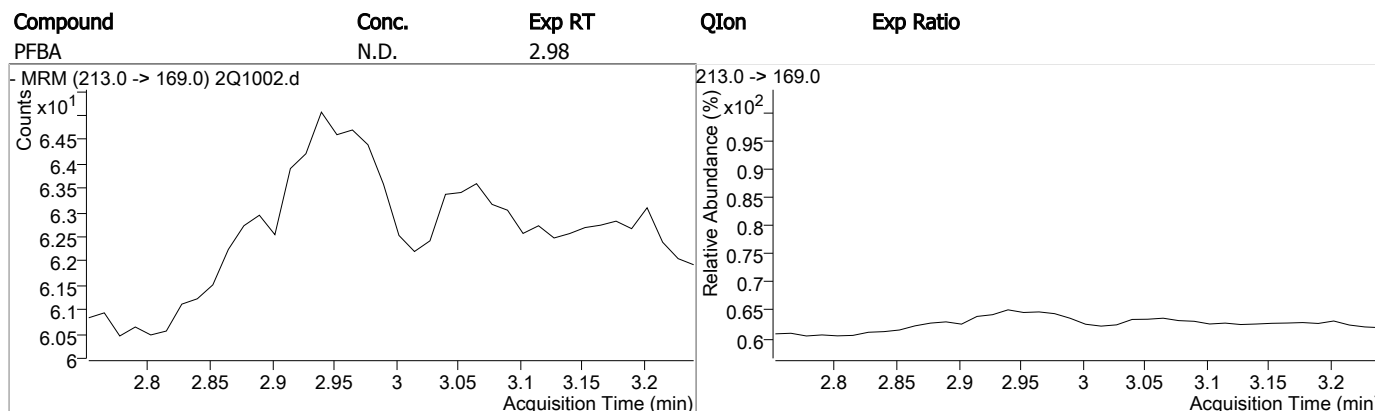
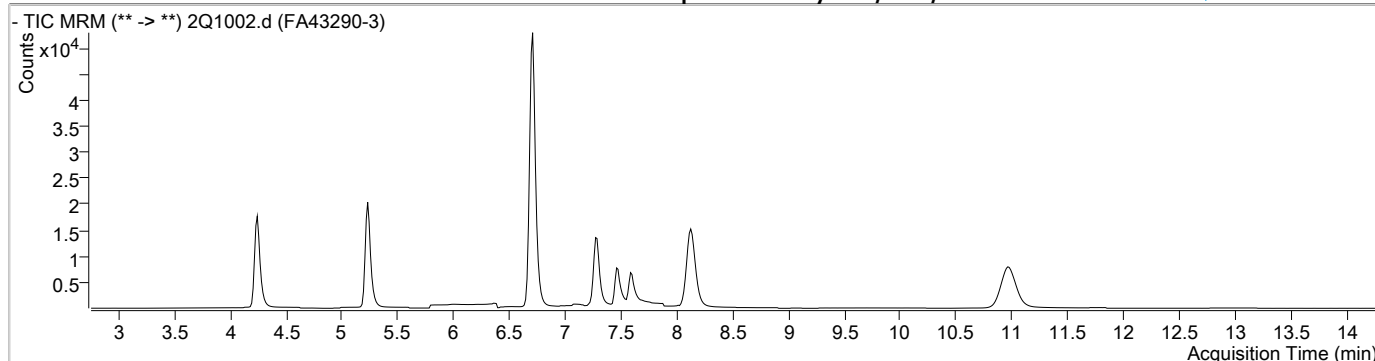
Perfluorinated Compounds by LC/MS/MS

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 Acq. Date-Time : 5/3/2017 7:10:12 PM
 Sample Name : FA43290-3
 Vial : Vial 21
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q28.batch.bin
 Last Calib Update : 5/1/2017 4:47:24 PM

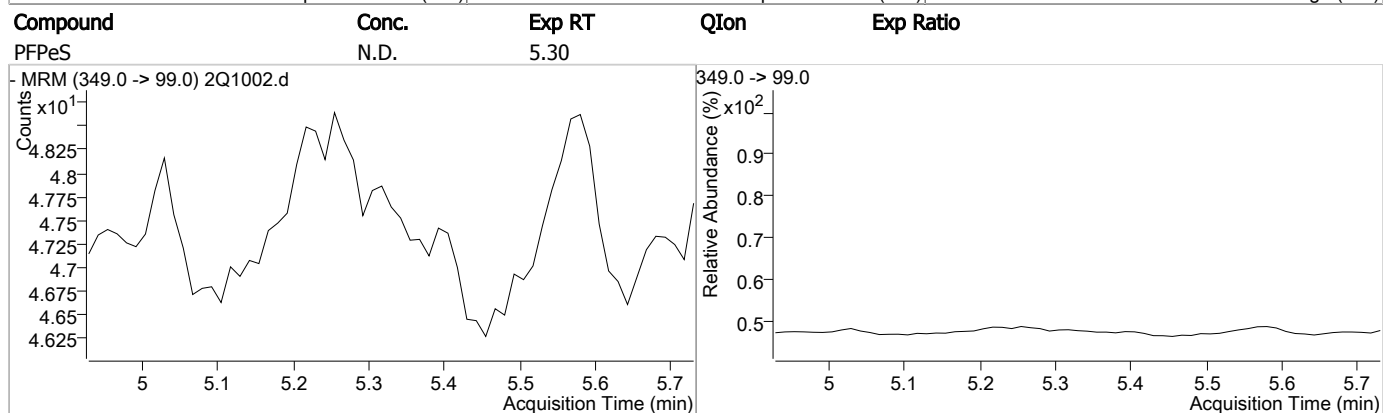
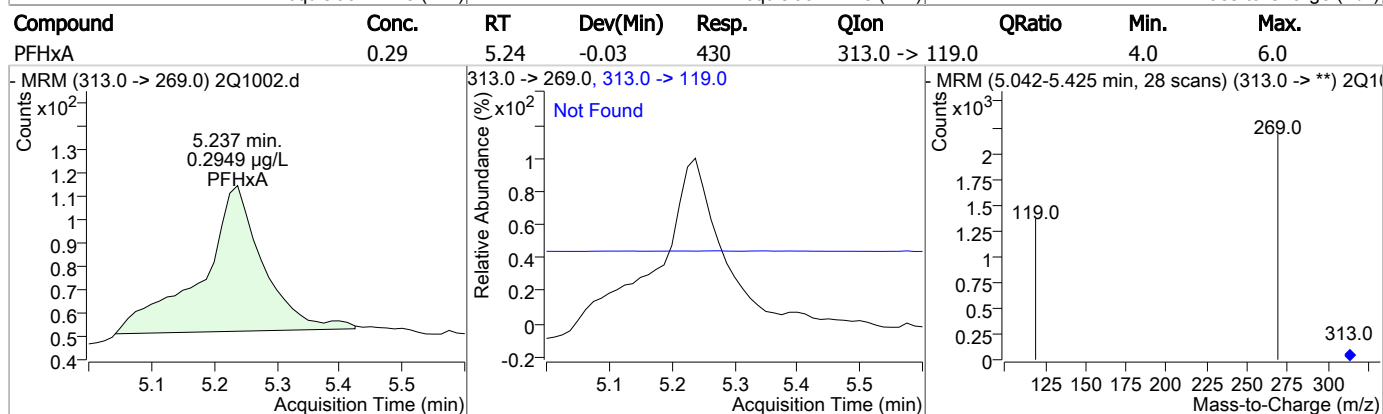
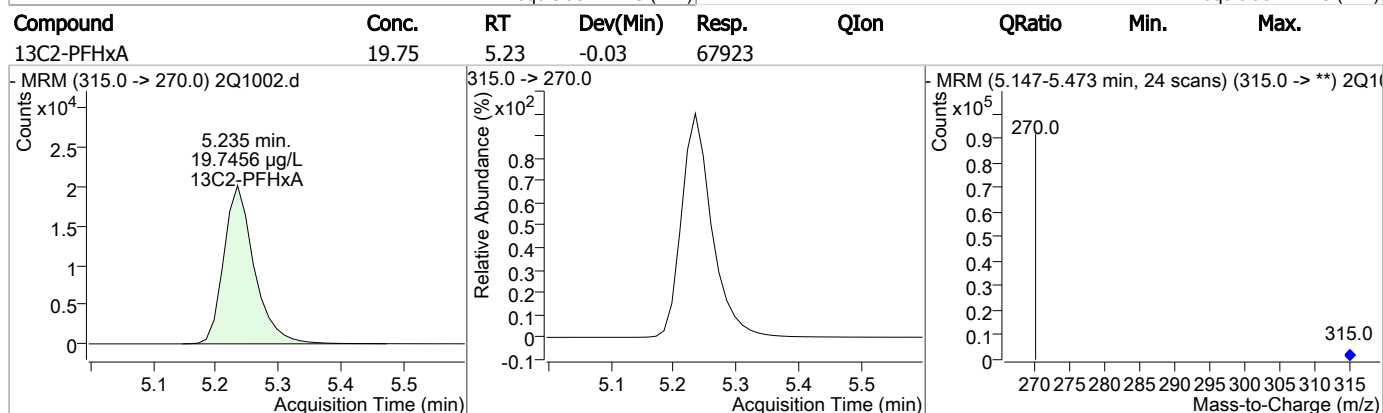
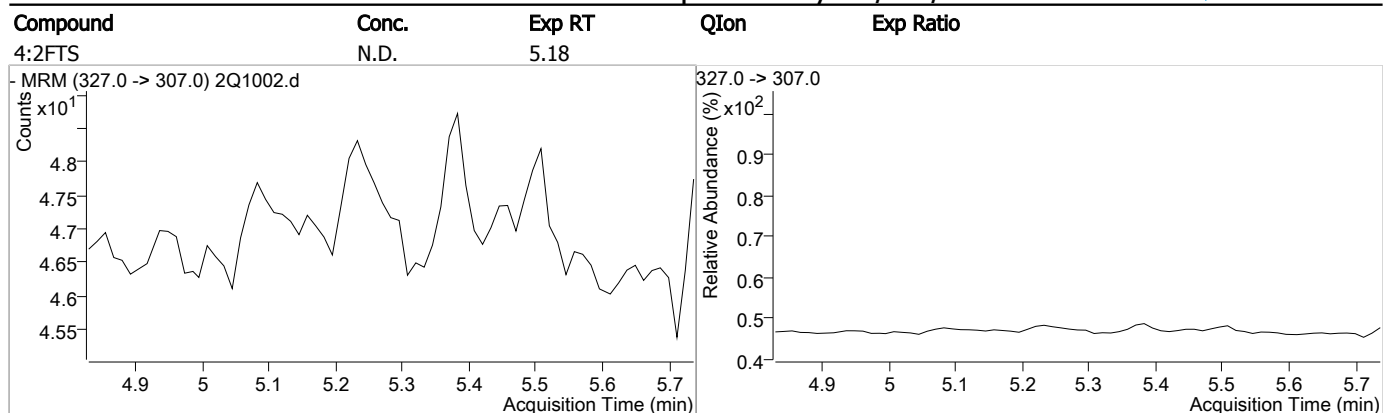
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.710	429.0 -> 409.0	130910	20.00 µg/L	-0.025
13C2-PFDoDA	10.964	615.0 -> 570.0	77672	20.00 µg/L	-0.063
13C2-PFOA	6.701	415.0 -> 370.0	65124	20.00 µg/L	-0.025
13C3-PFPeA	4.247	266.0 -> 222.0	60924	20.00 µg/L	-0.025
13C4-PFOS	7.276	503.0 -> 80.0	48698	20.00 µg/L	-0.038
d3-MeFOSAA	7.462	573.0 -> 419.0	28676	20.00 µg/L	-0.013
System Monitoring Compounds					
13C2-PFDA	8.130	515.0 -> 470.0	86710	19.03 µg/L	-0.050
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 95.1%		
13C2-PFHxA	5.235	315.0 -> 270.0	67923	19.75 µg/L	-0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 98.7%		
d5-EtFOSAA	7.585	589.0 -> 419.0	23227	31.27 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 156.3%		
Target Compounds					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	6.712	427.0 -> 407.0	449	0.07 µg/L	100
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	7.599	584.0 -> 419.0	503	0.81 µg/L	100
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBA	-	213.0 -> 169.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	8.145	513.0 -> 469.0	426	0.13 µg/L	100
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFDS	-	599.0 -> 80.0	-	N.D.	
PFHpA	6.011	363.0 -> 319.0	535	0.12 µg/L	85
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	5.237	313.0 -> 269.0	430	0.29 µg/L	85
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 99.0	-	N.D.	
PFOA	6.702	413.0 -> 369.0	391	0.14 µg/L	54
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.0 -> 99.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	

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

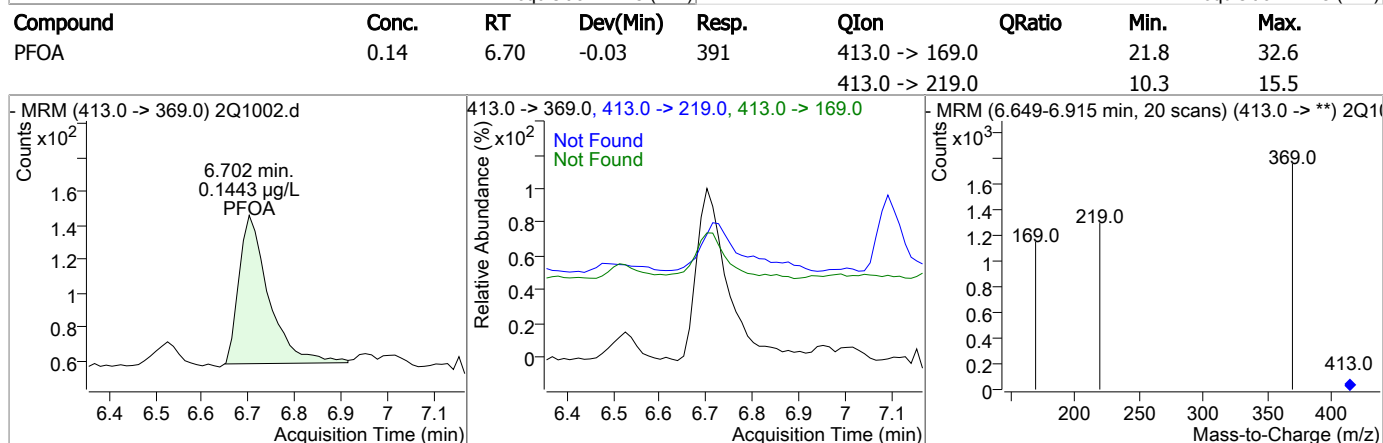
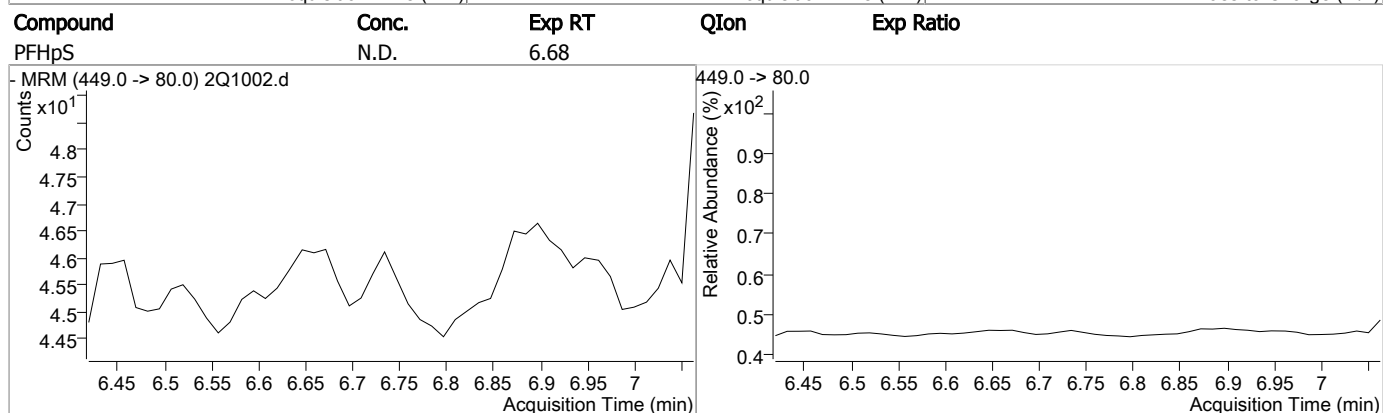
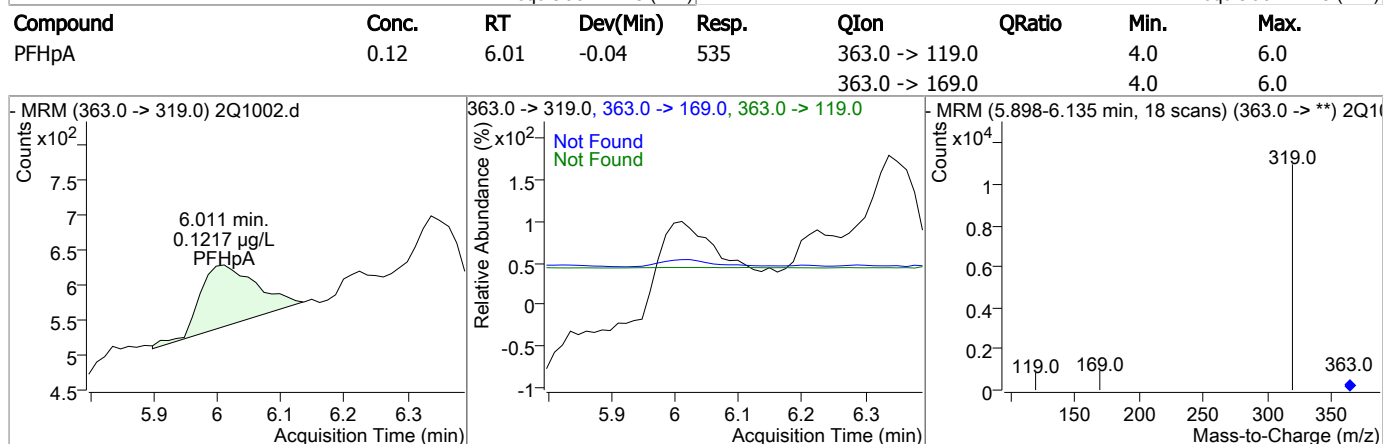
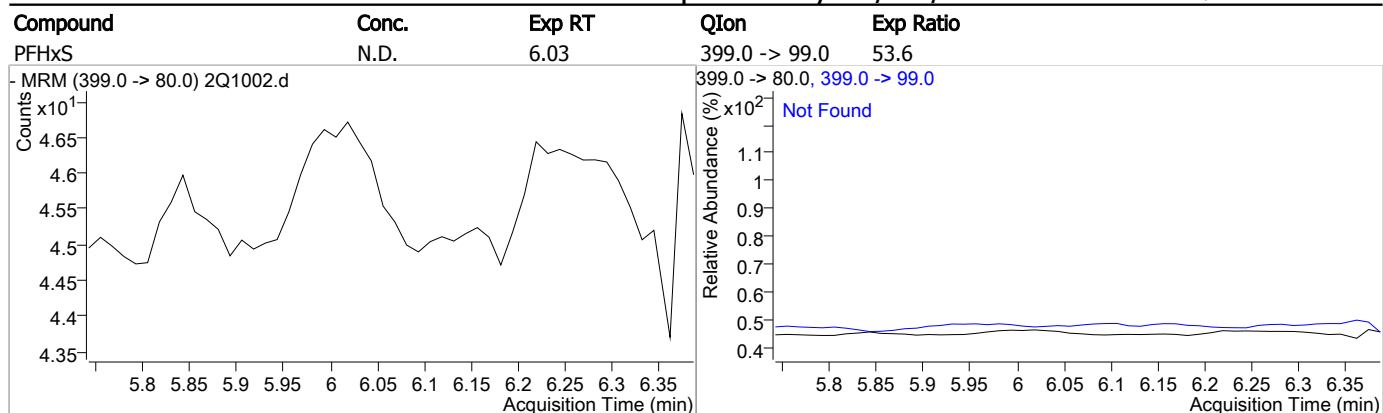
Perfluorinated Compounds by LC/MS/MS



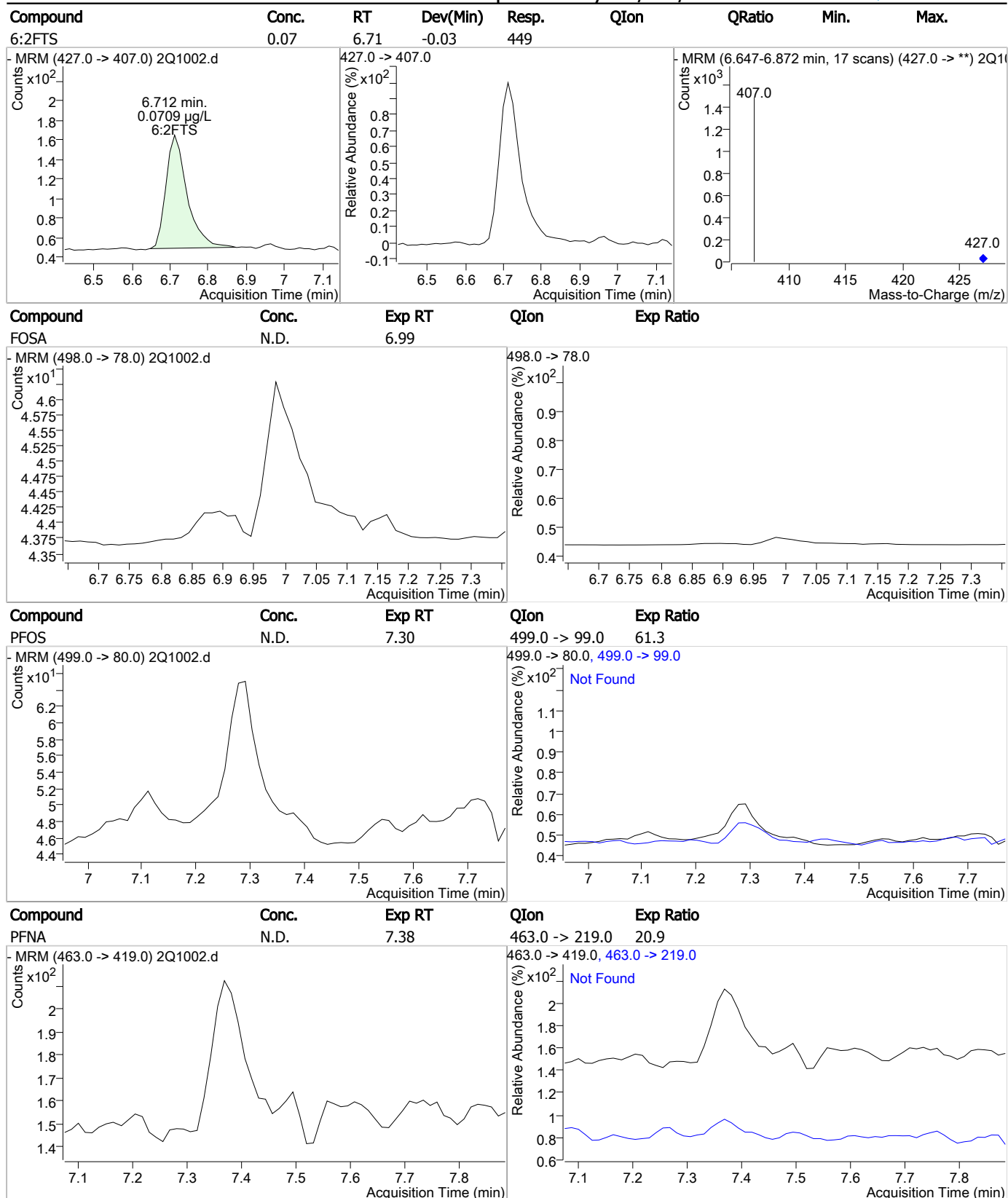
Perfluorinated Compounds by LC/MS/MS



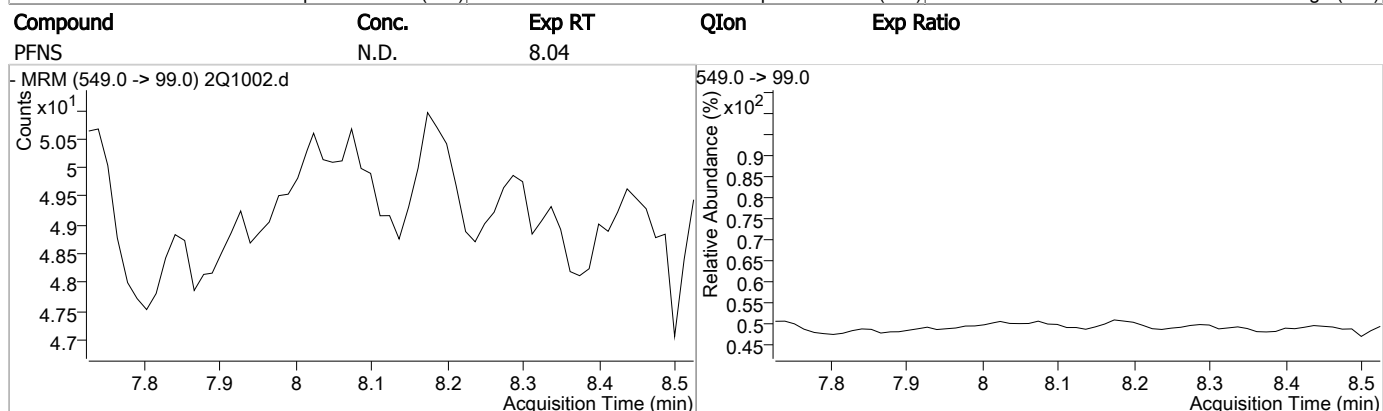
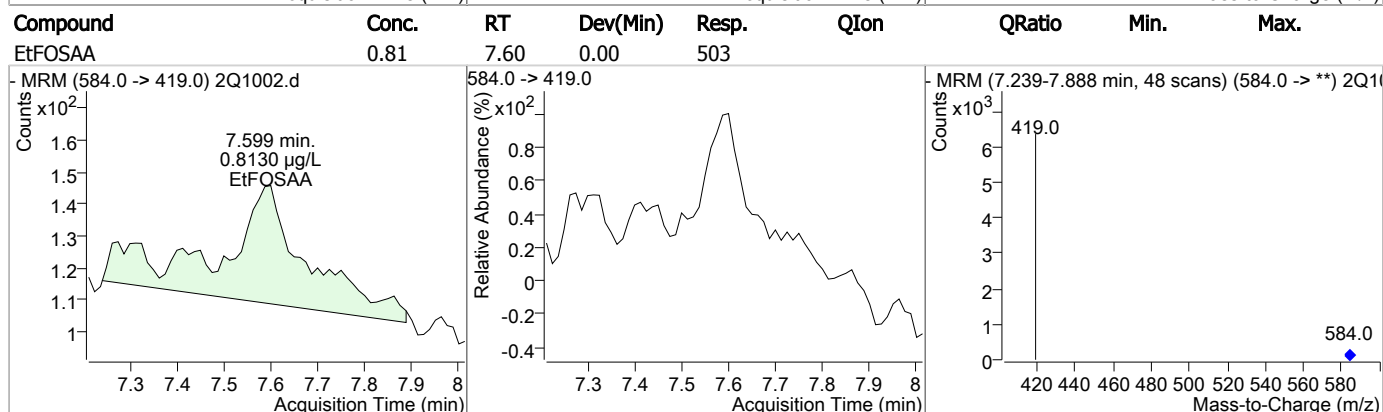
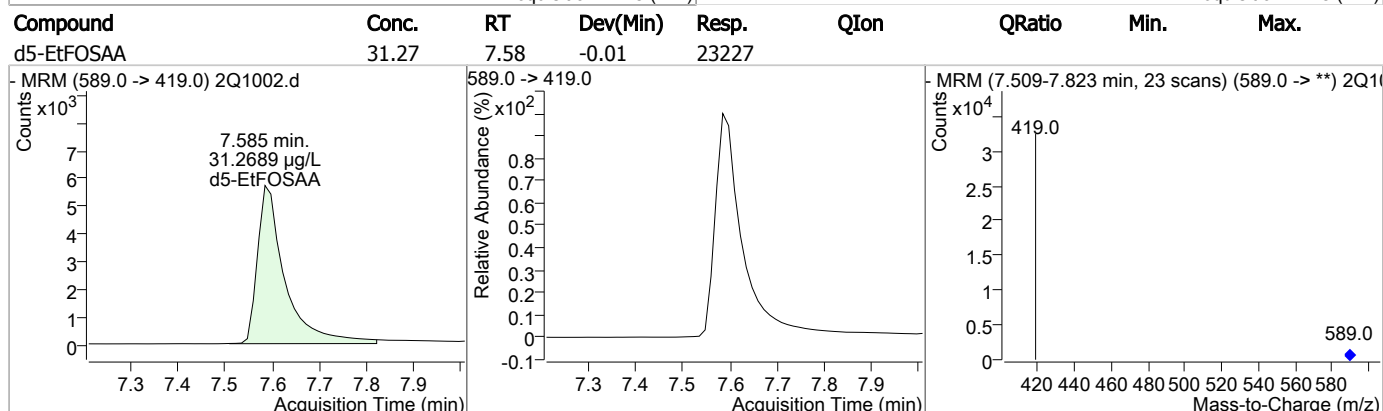
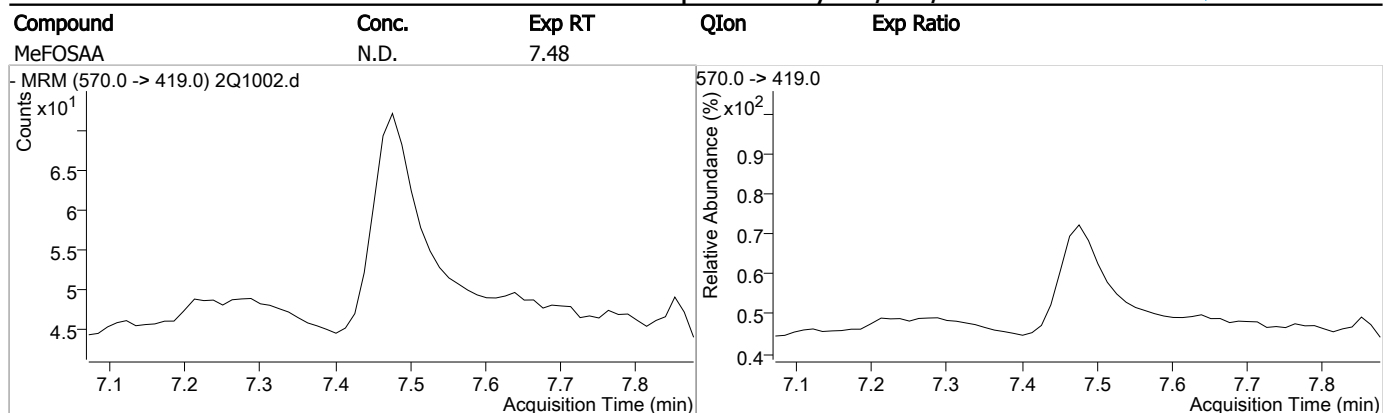
Perfluorinated Compounds by LC/MS/MS



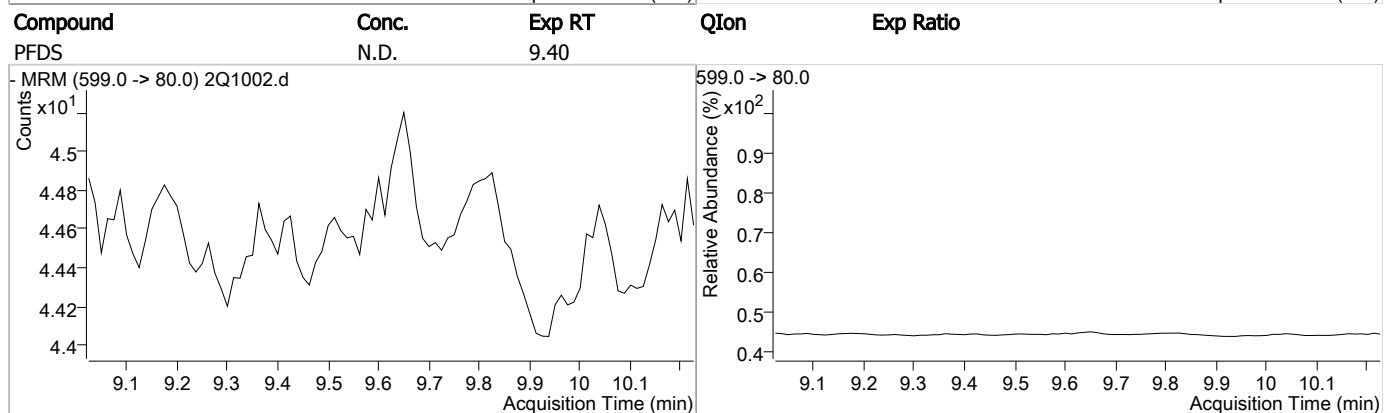
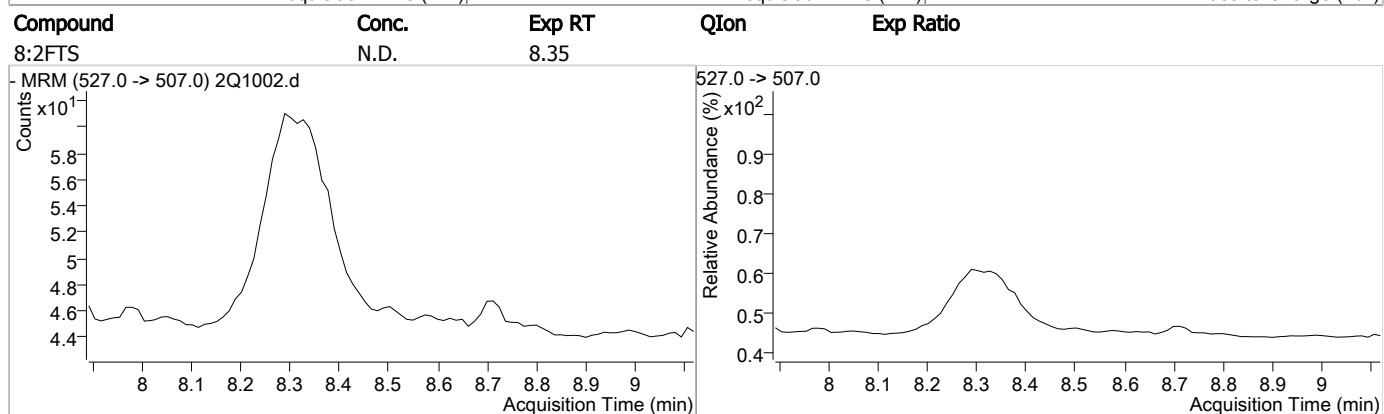
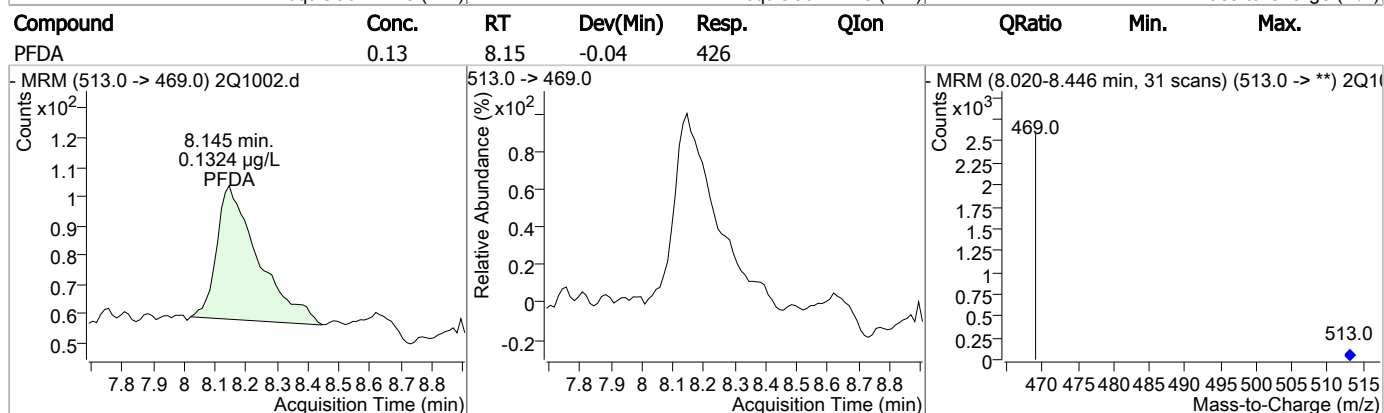
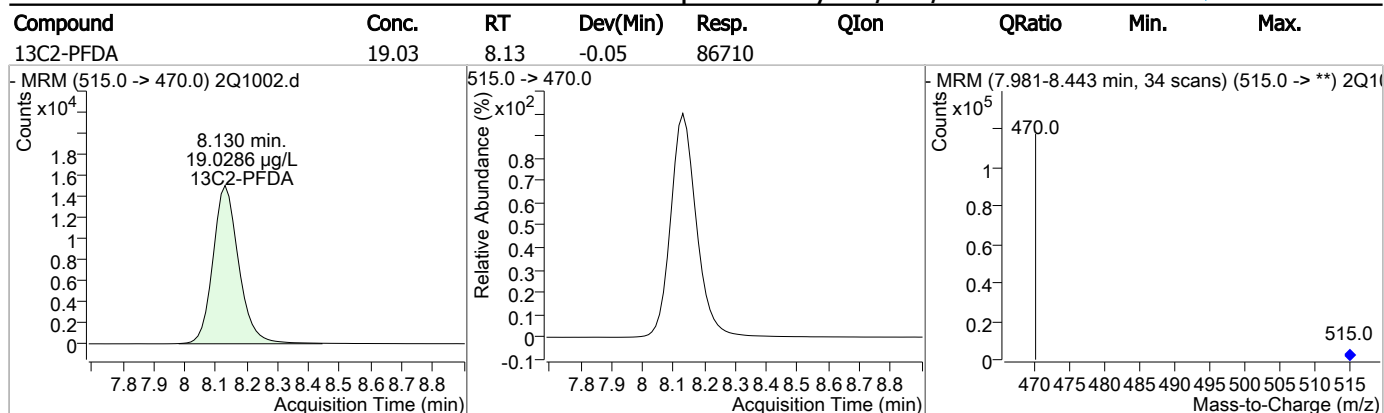
Perfluorinated Compounds by LC/MS/MS



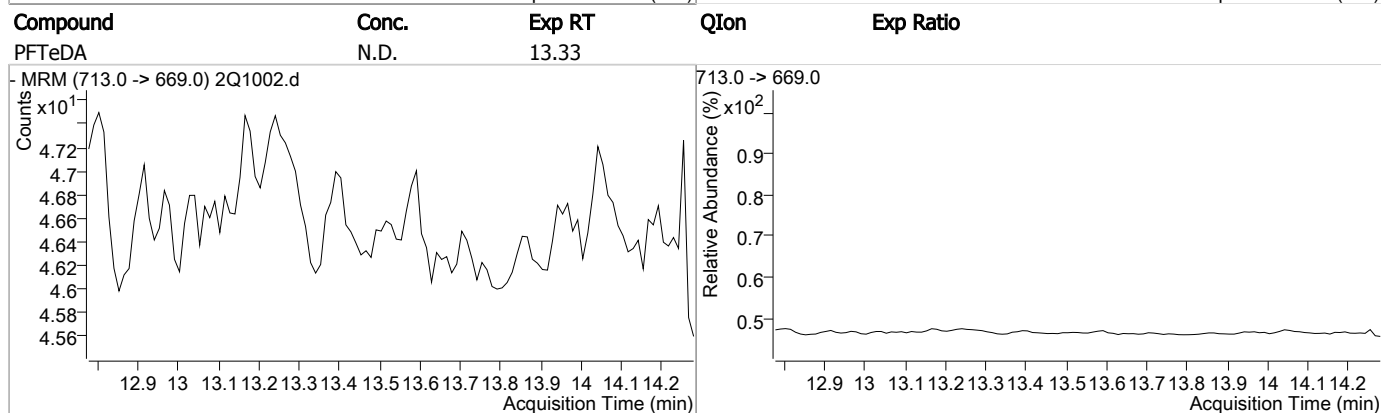
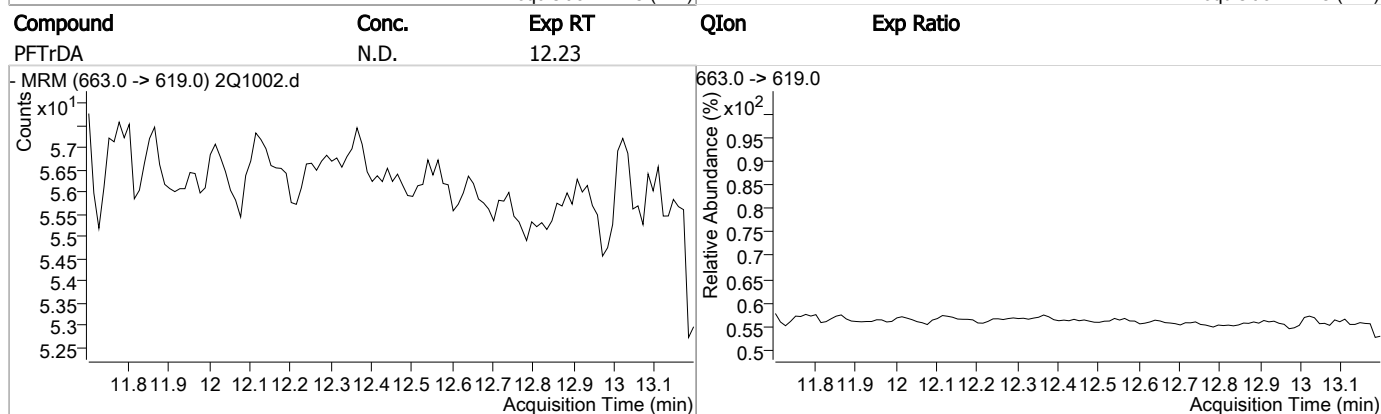
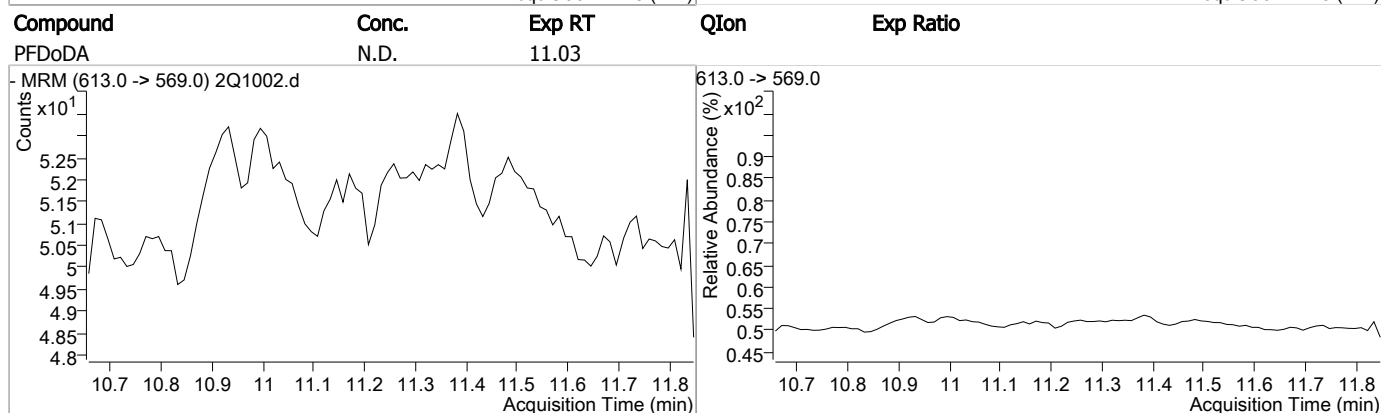
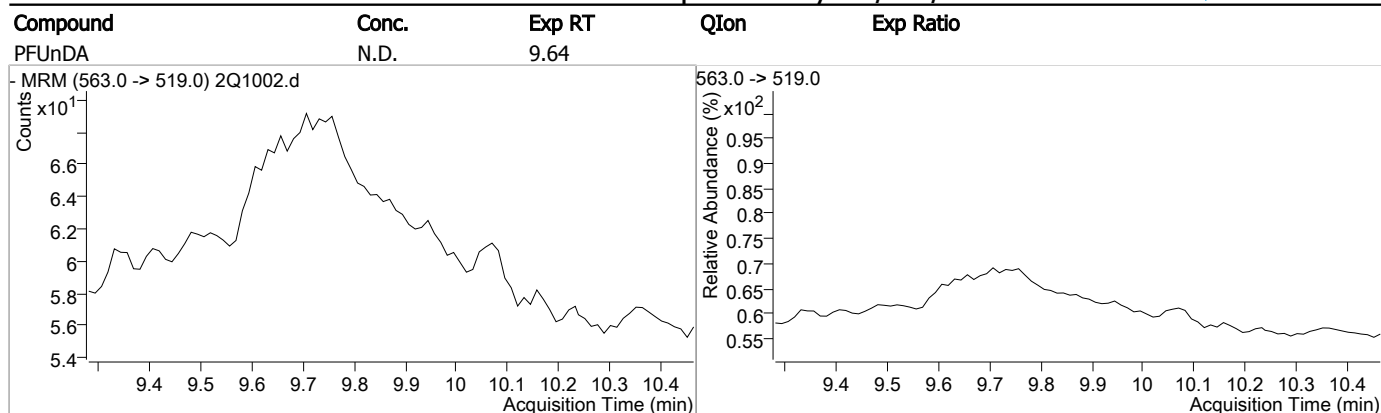
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



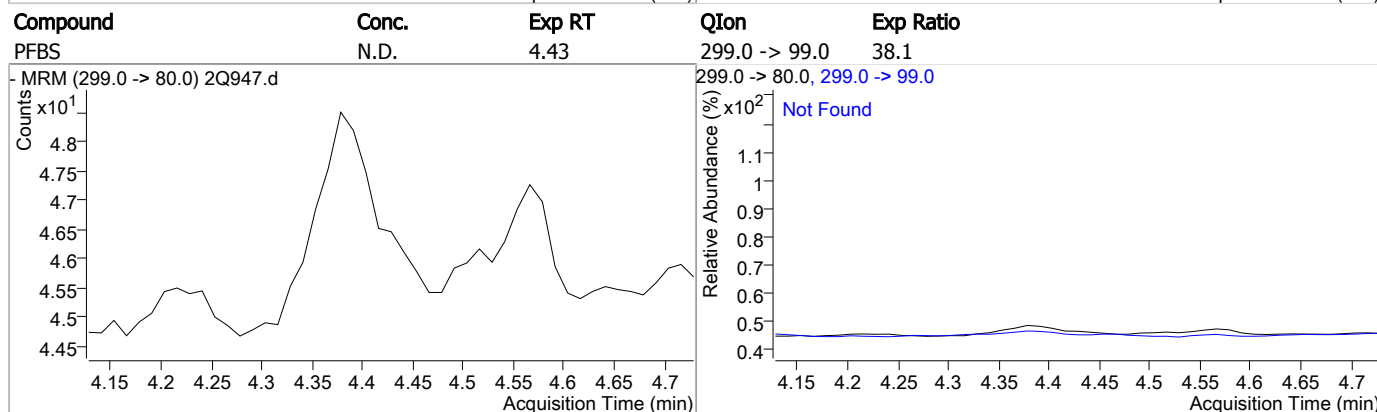
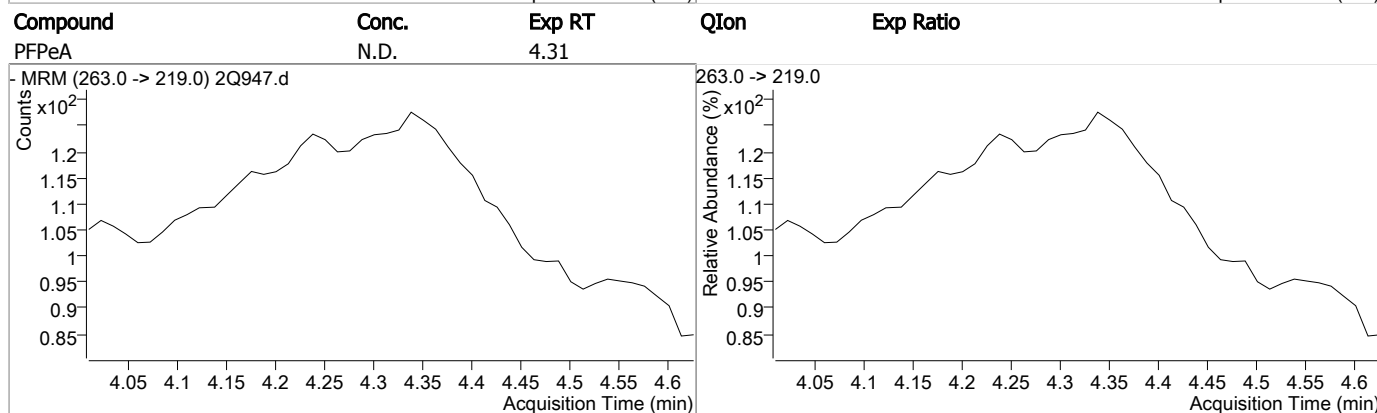
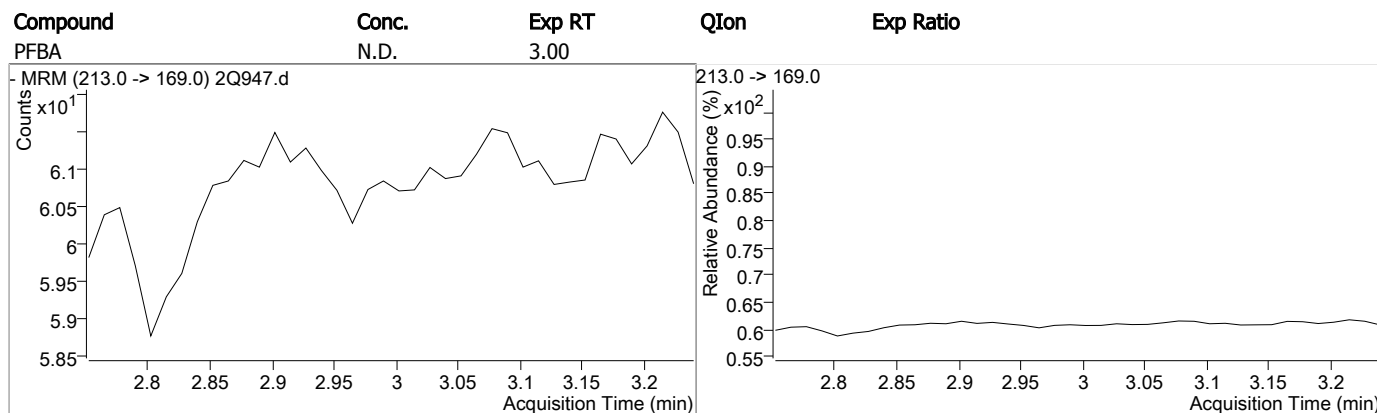
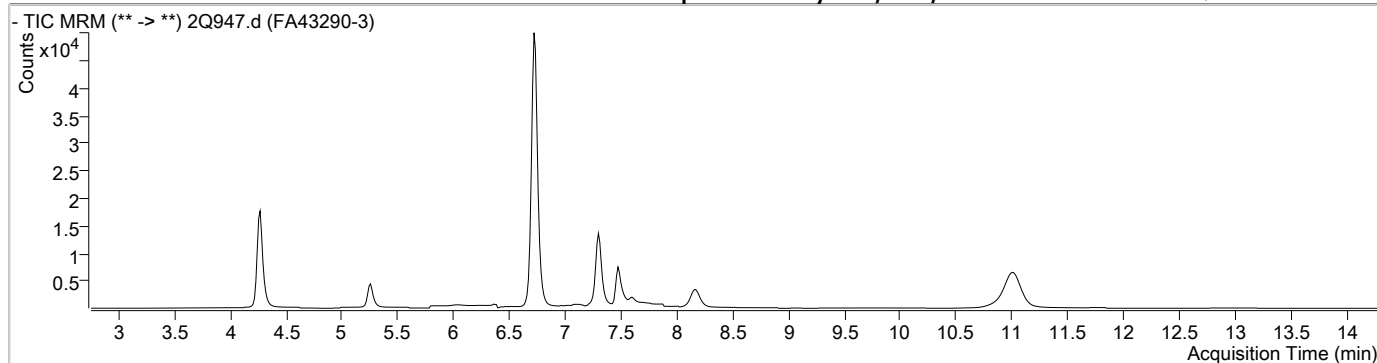
Perfluorinated Compounds by LC/MS/MS

Data File : 2Q947.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 5/1/2017 11:03:41 PM
 Sample Name : FA43290-3
 Vial : Vial 33
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q26.batch.bin
 Last Calib Update : 5/1/2017 4:47:24 PM

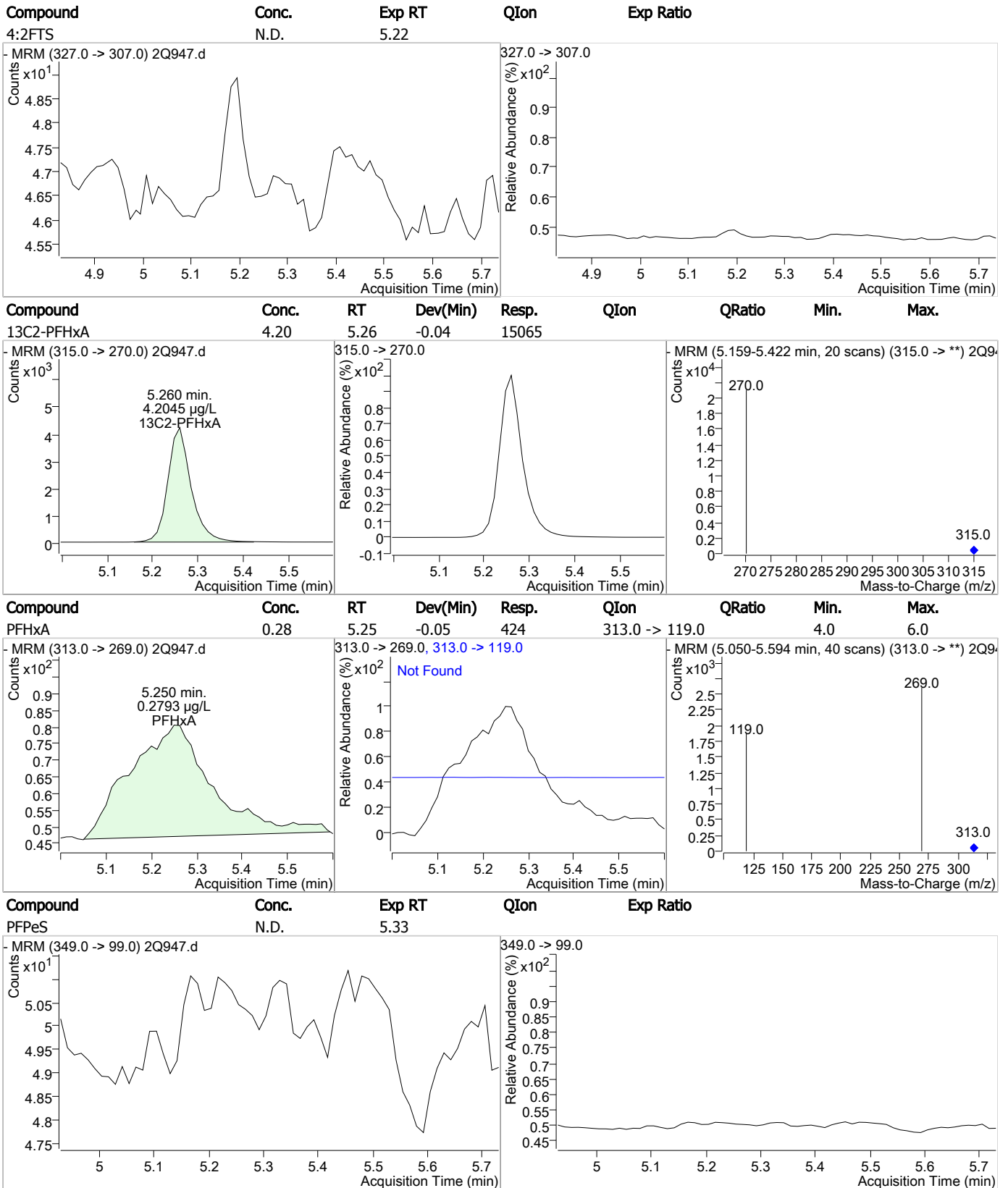
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.735	429.0 -> 409.0	127953	20.00 µg/L	-0.050
13C2-PFDoDA	11.001	615.0 -> 570.0	75462	20.00 µg/L	-0.263
13C2-PFOA	6.713	415.0 -> 370.0	67835	20.00 µg/L	-0.050
13C3-PFPeA	4.272	266.0 -> 222.0	63831	20.00 µg/L	-0.038
13C4-PFOS	7.301	503.0 -> 80.0	50235	20.00 µg/L	-0.063
d3-MeFOSAA	7.475	573.0 -> 419.0	27144	20.00 µg/L	-0.013
System Monitoring Compounds					
13C2-PFDA	8.167	515.0 -> 470.0	20943	4.41 µg/L	-0.125
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 22.1%		
13C2-PFHxA	5.260	315.0 -> 270.0	15065	4.20 µg/L	-0.038
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 21.0%		
d5-EtFOSAA	7.597	589.0 -> 419.0	3984	6.36 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 31.8%		
Target Compounds					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	6.737	427.0 -> 407.0	591	0.10 µg/L	100
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	7.611	584.0 -> 419.0	672	1.15 µg/L	100
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBA	-	213.0 -> 169.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFDS	-	599.0 -> 80.0	-	N.D.	
PFHpA	6.036	363.0 -> 319.0	1113	0.24 µg/L	85
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	5.250	313.0 -> 269.0	424	0.28 µg/L	85
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 99.0	-	N.D.	
PFOA	6.728	413.0 -> 369.0	414	0.15 µg/L	54
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.0 -> 99.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	

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

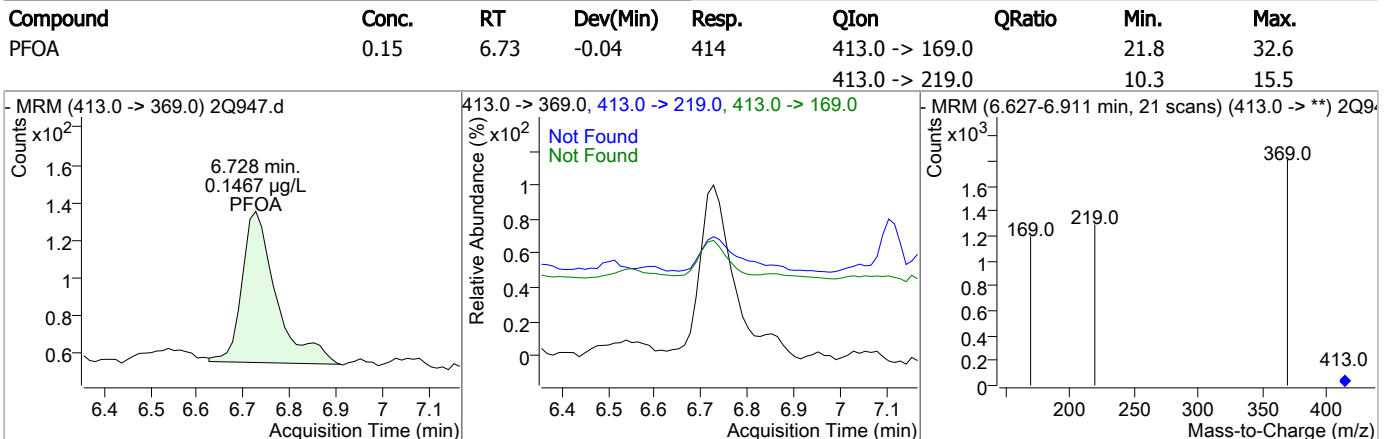
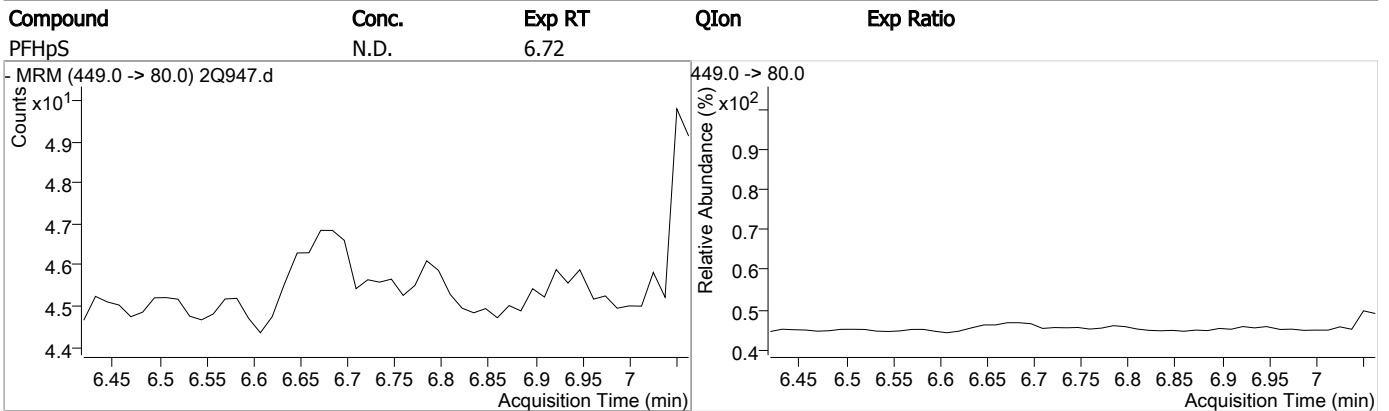
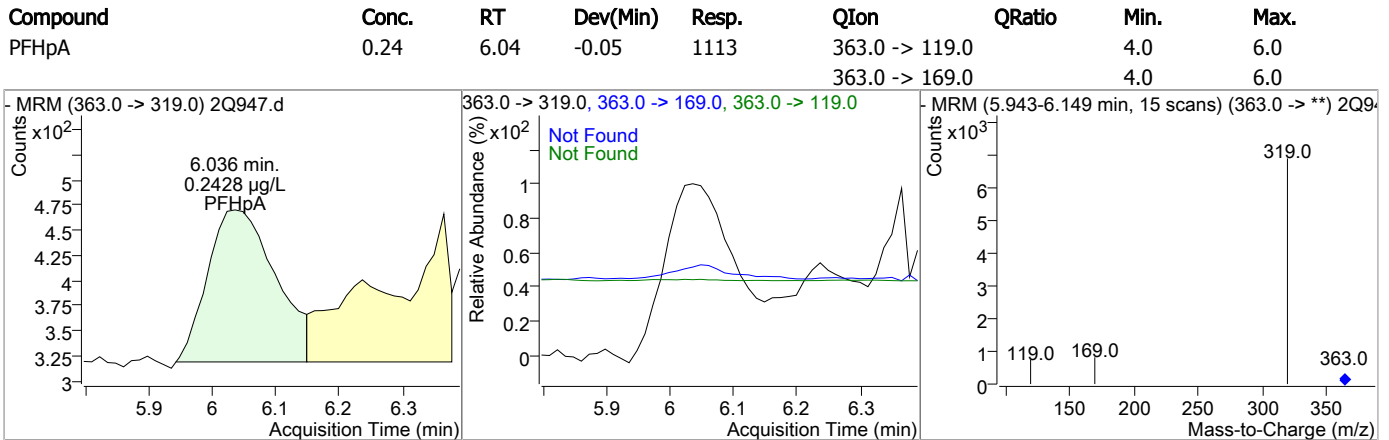
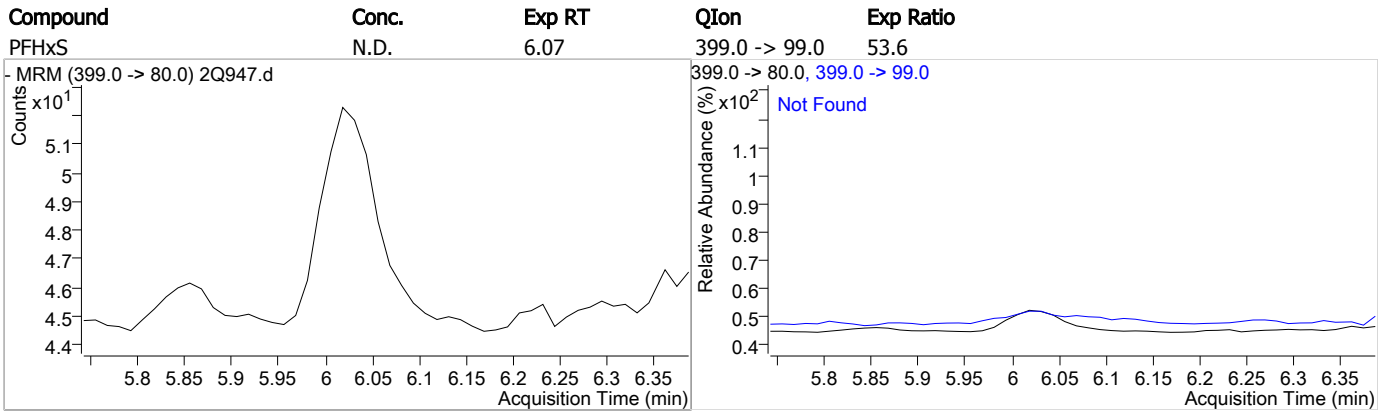
Perfluorinated Compounds by LC/MS/MS



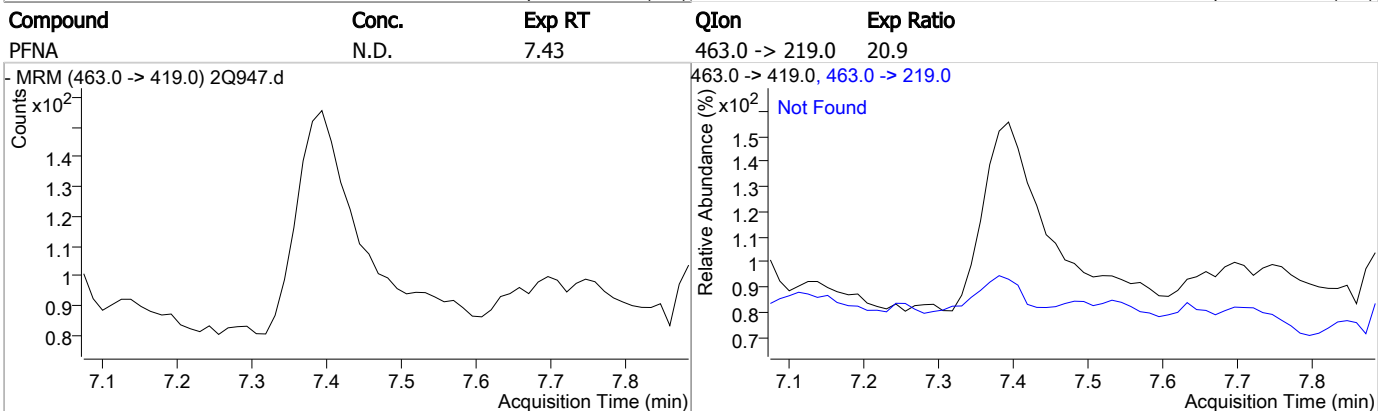
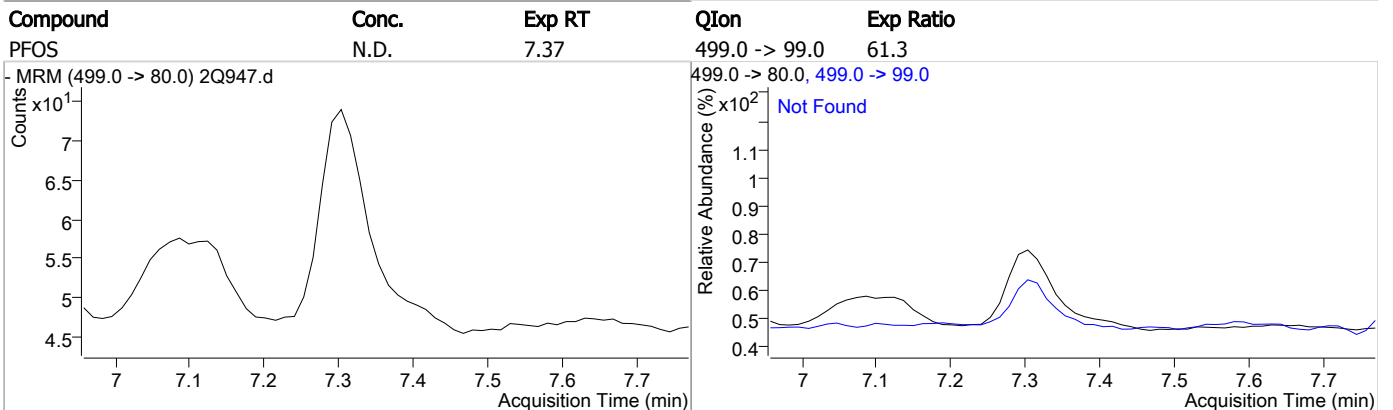
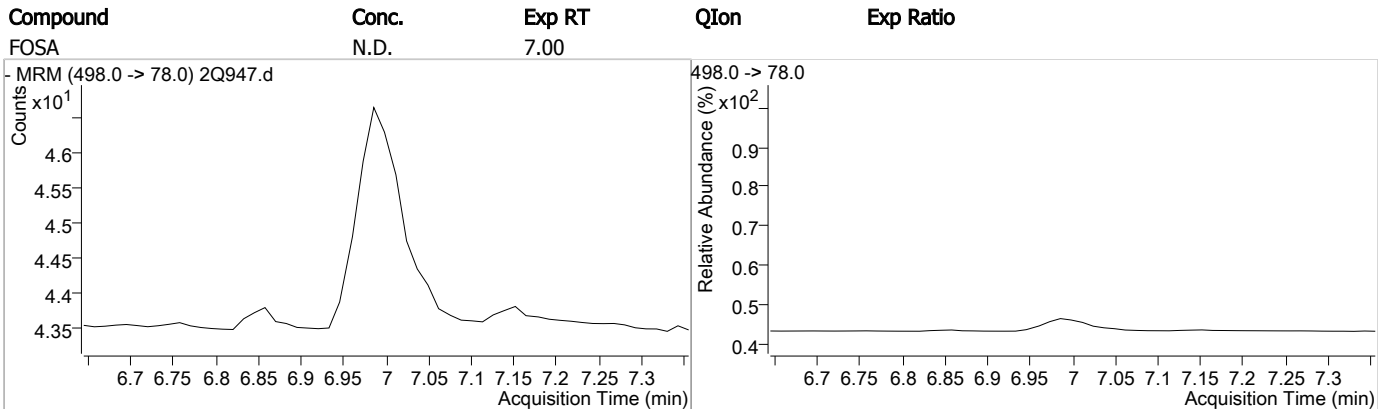
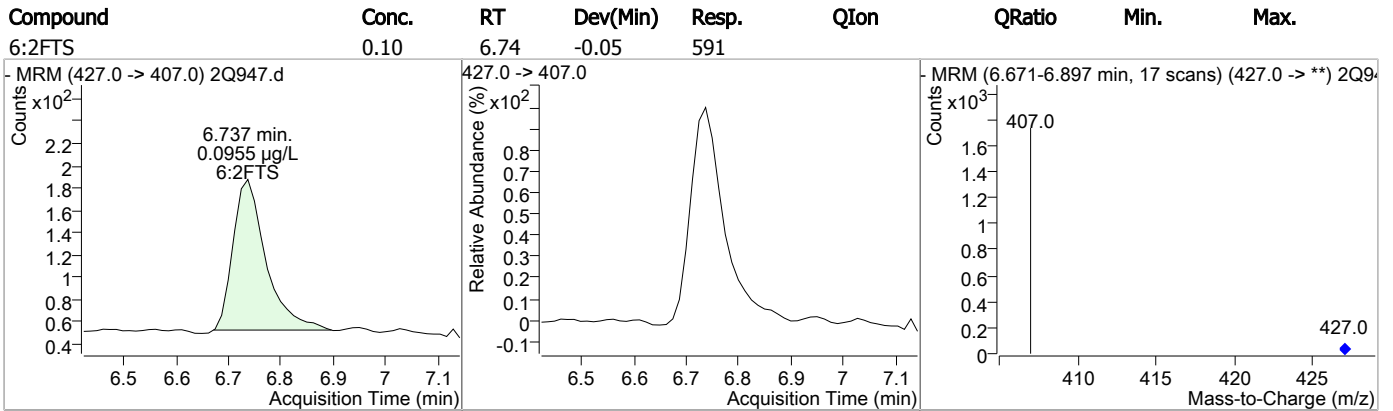
Perfluorinated Compounds by LC/MS/MS



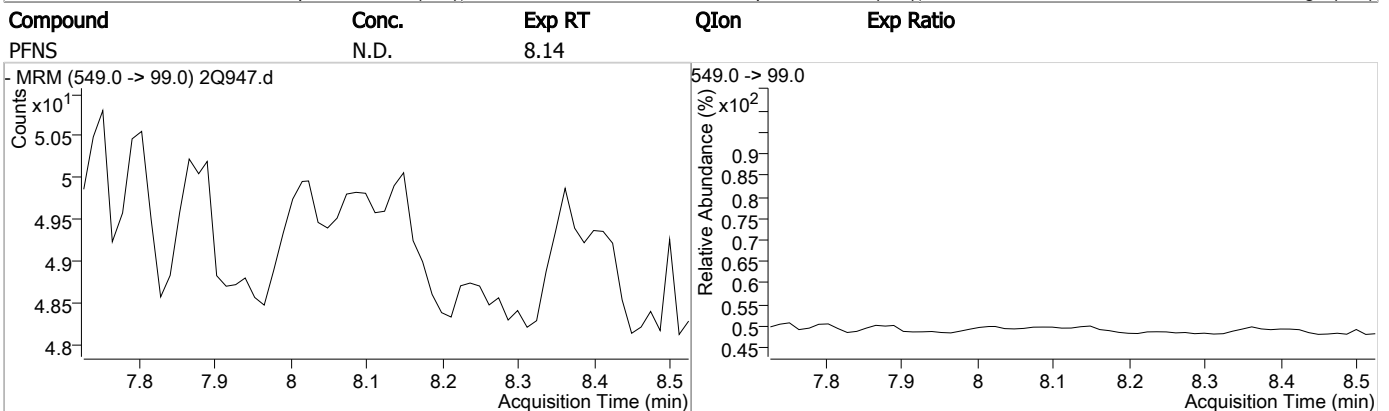
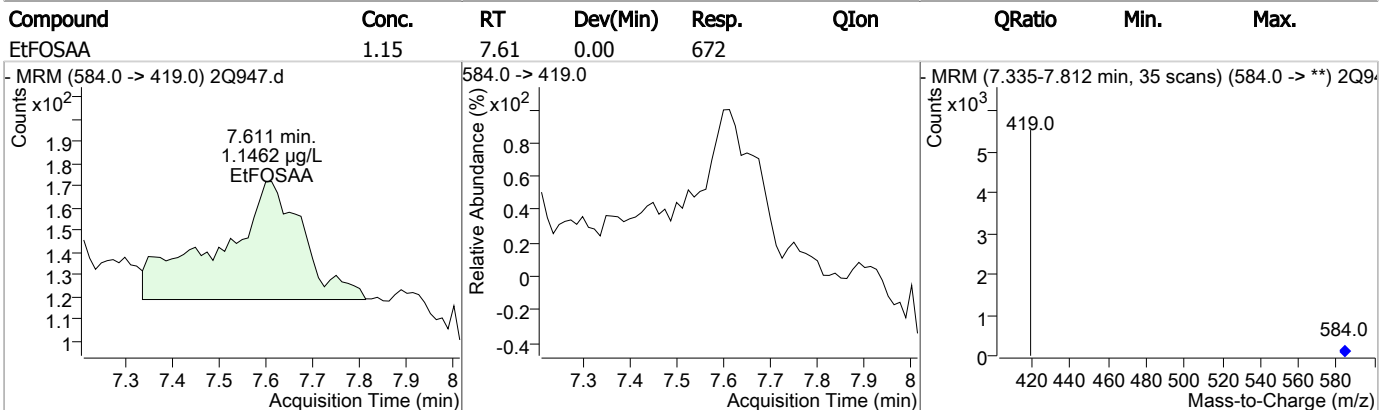
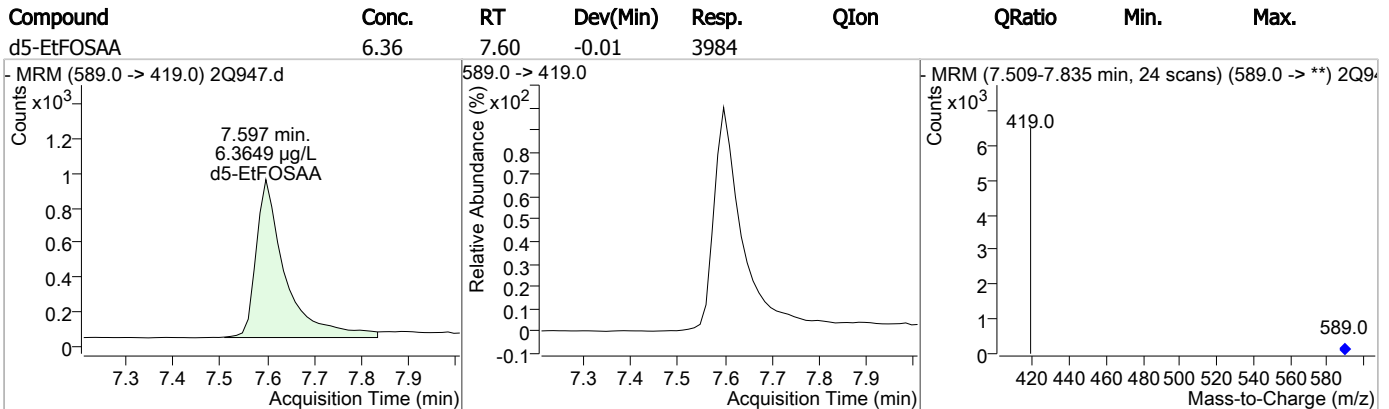
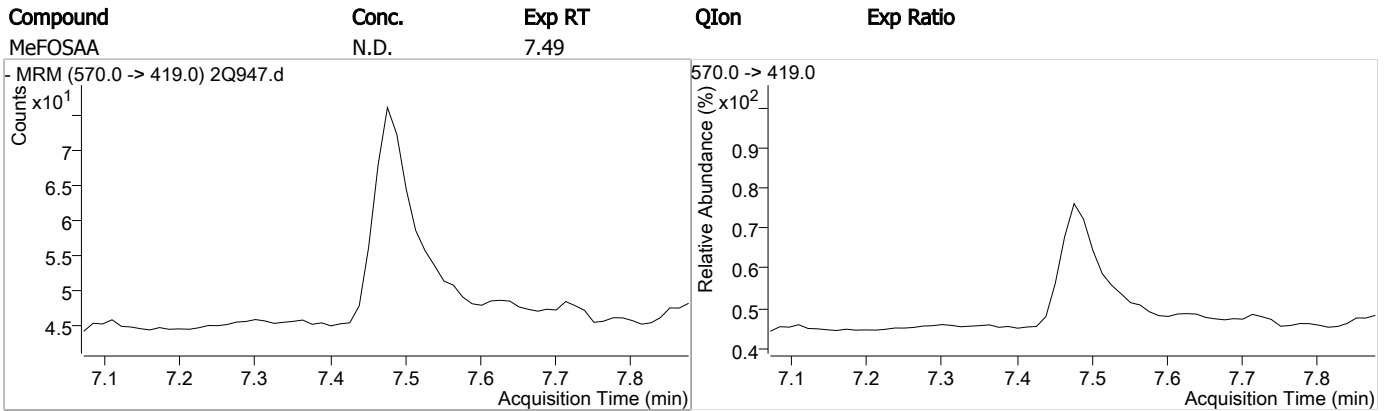
Perfluorinated Compounds by LC/MS/MS



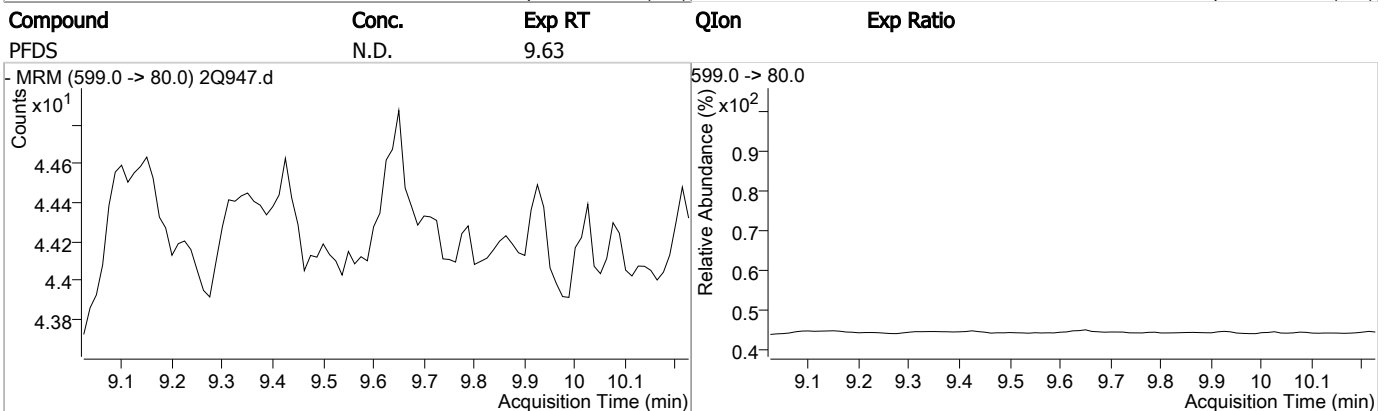
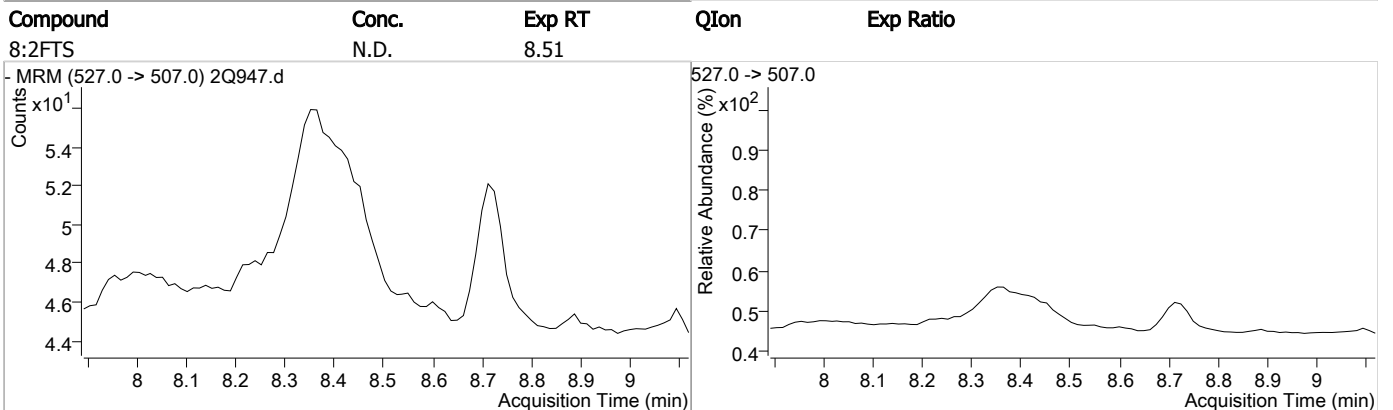
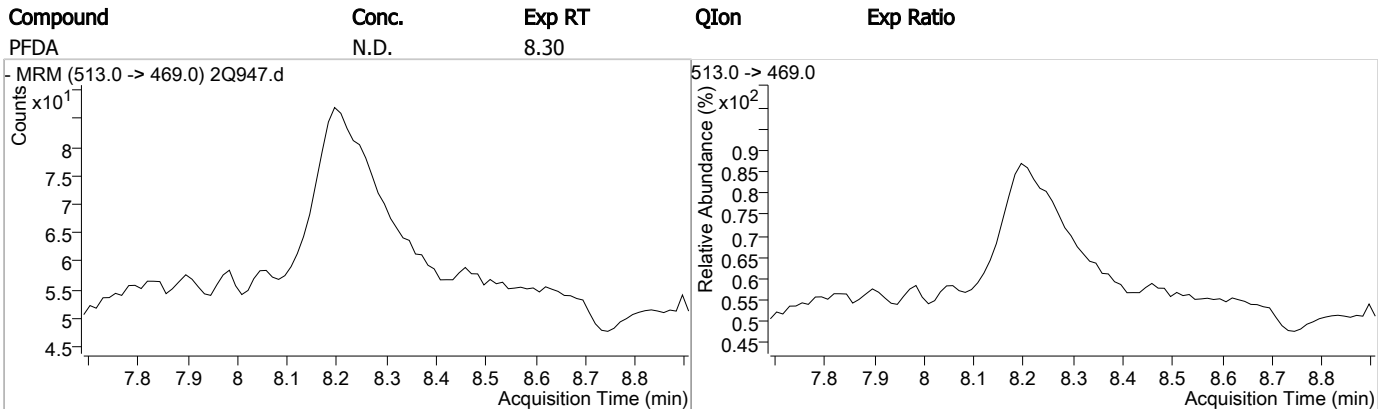
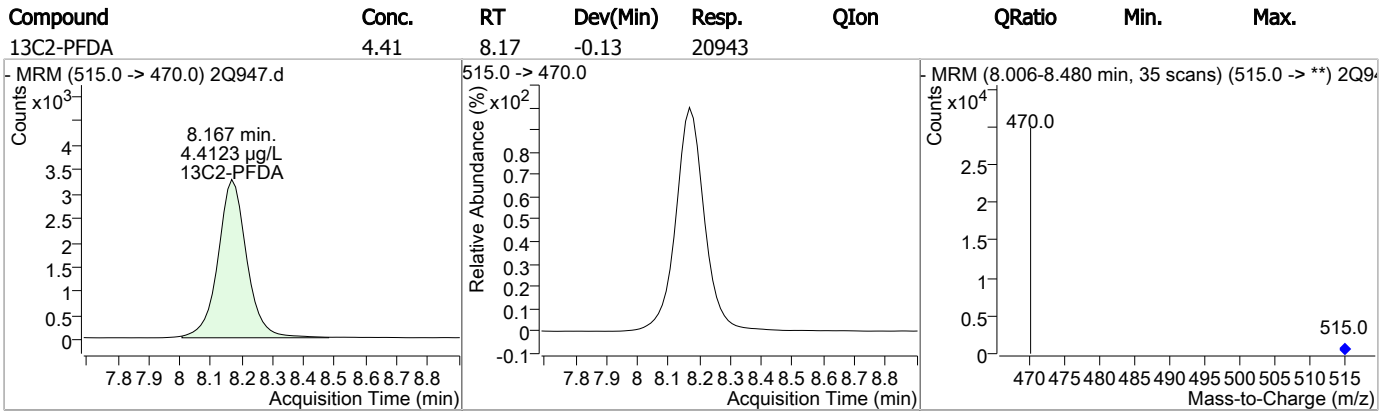
Perfluorinated Compounds by LC/MS/MS



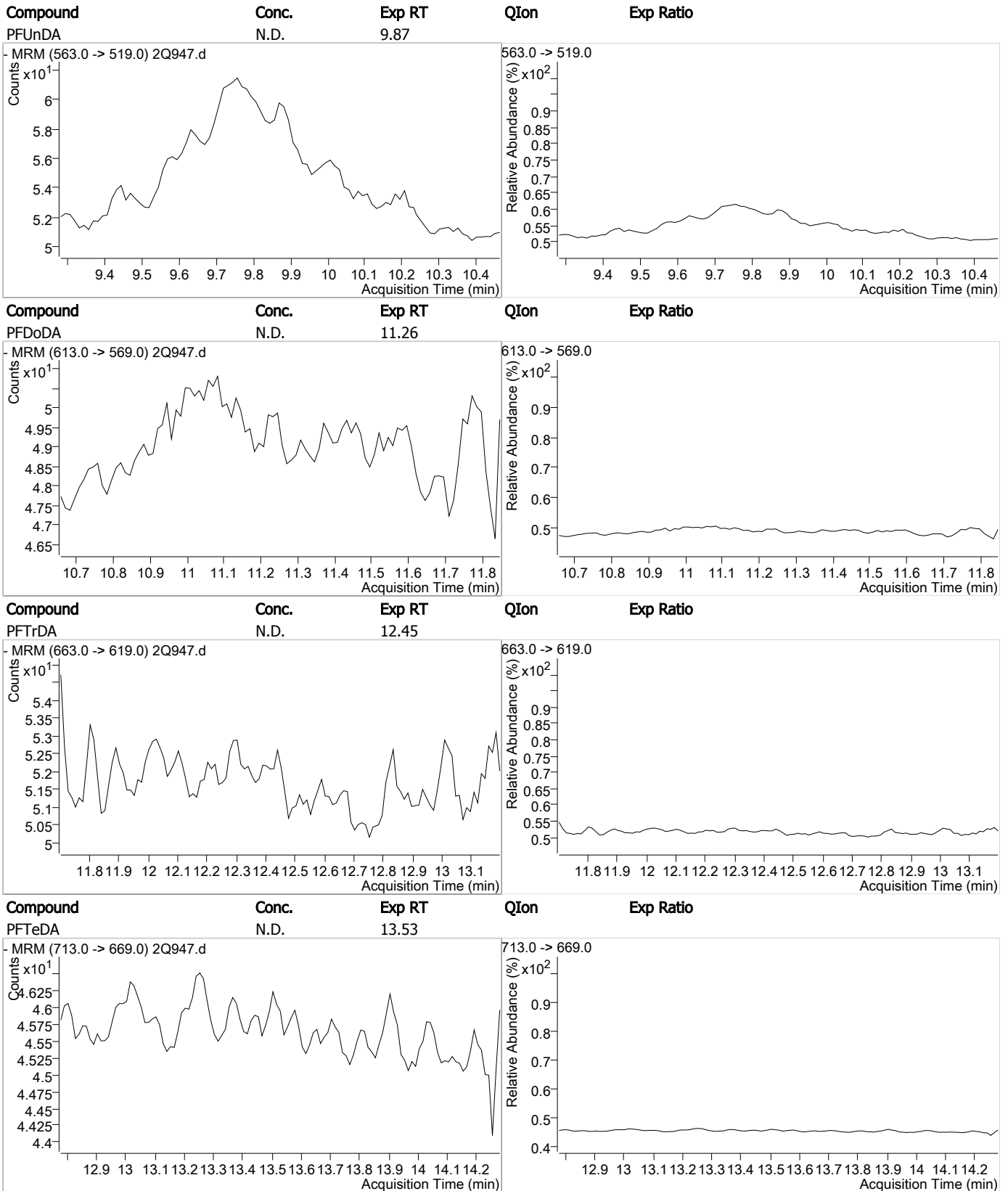
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Data File : 2Q995.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 5/3/2017 4:52:05 PM
 Sample Name : OP64883-MB
 Vial : Vial 14
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q28.batch.bin
 Last Calib Update : 5/1/2017 4:47:24 PM

Compound	RT	Qion	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.710	429.0 -> 409.0	128048	20.00 µg/L	-0.025
13C2-PFDoDA	11.026	615.0 -> 570.0	75233	20.00 µg/L	0.000
13C2-PFOA	6.701	415.0 -> 370.0	63388	20.00 µg/L	-0.025
13C3-PFPeA	4.247	266.0 -> 222.0	58842	20.00 µg/L	-0.025
13C4-PFOS	7.289	503.0 -> 80.0	48878	20.00 µg/L	-0.025
d3-MeFOSAA	7.462	573.0 -> 419.0	26783	20.00 µg/L	-0.013

System Monitoring Compounds

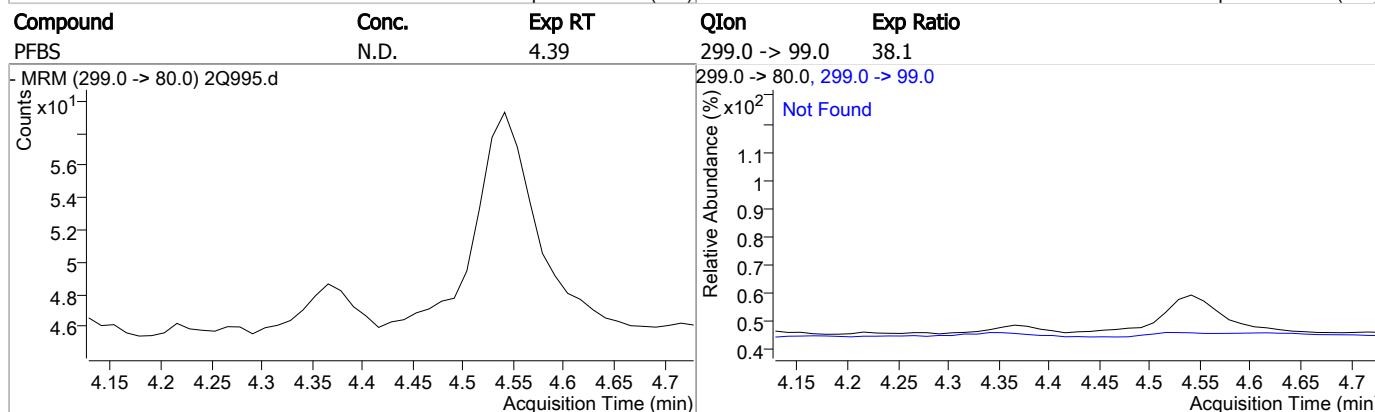
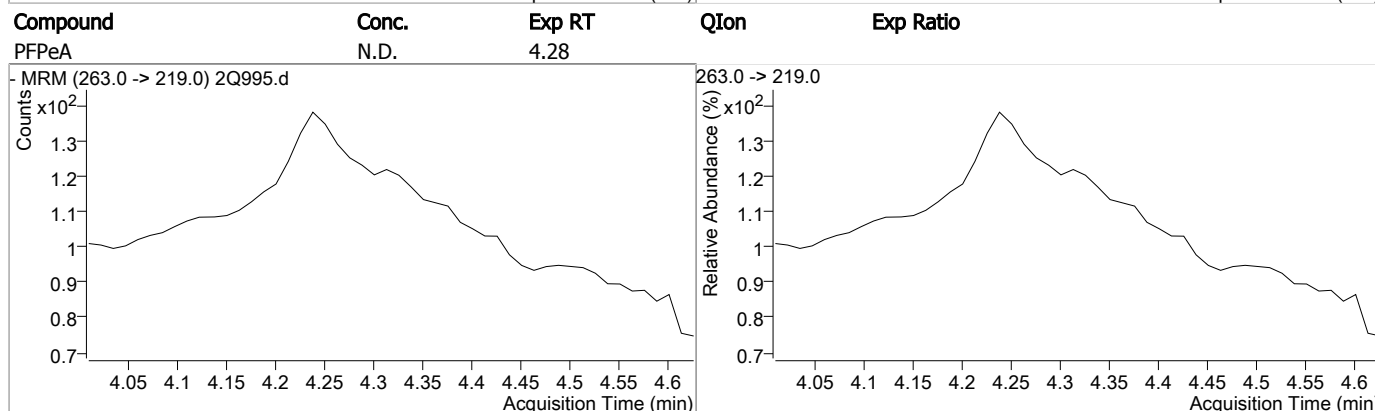
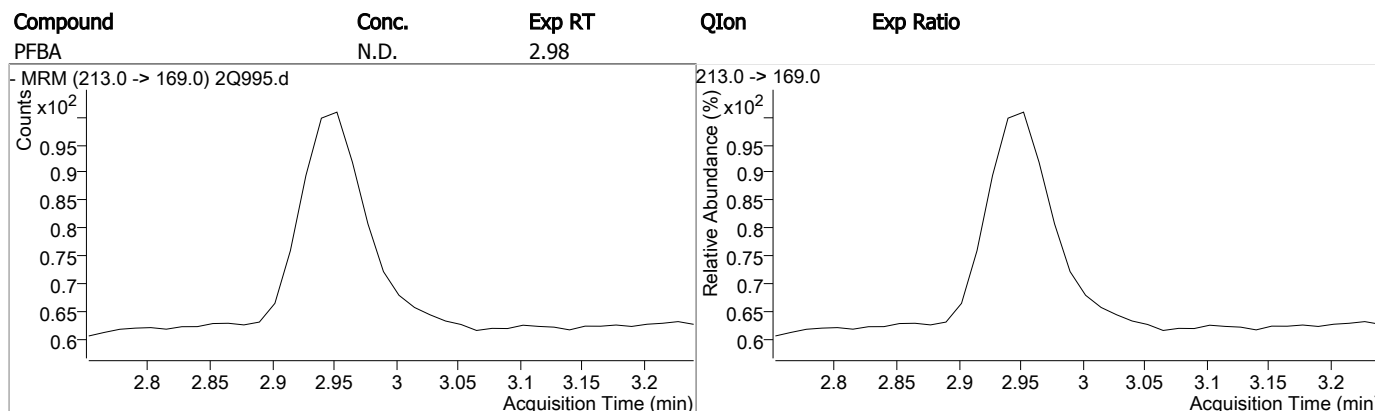
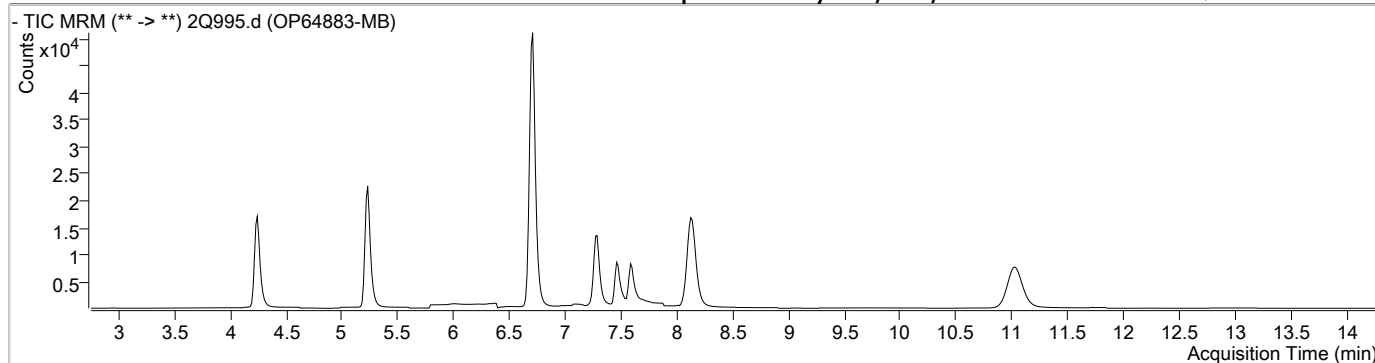
13C2-PFDA	8.130	515.0 -> 470.0	96367	21.73 µg/L	-0.050
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 108.6%	
13C2-PFHxA	5.235	315.0 -> 270.0	76866	22.96 µg/L	-0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 114.8%	
d5-EtFOSAA	7.585	589.0 -> 419.0	24625	34.93 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 174.7%	

Target Compounds

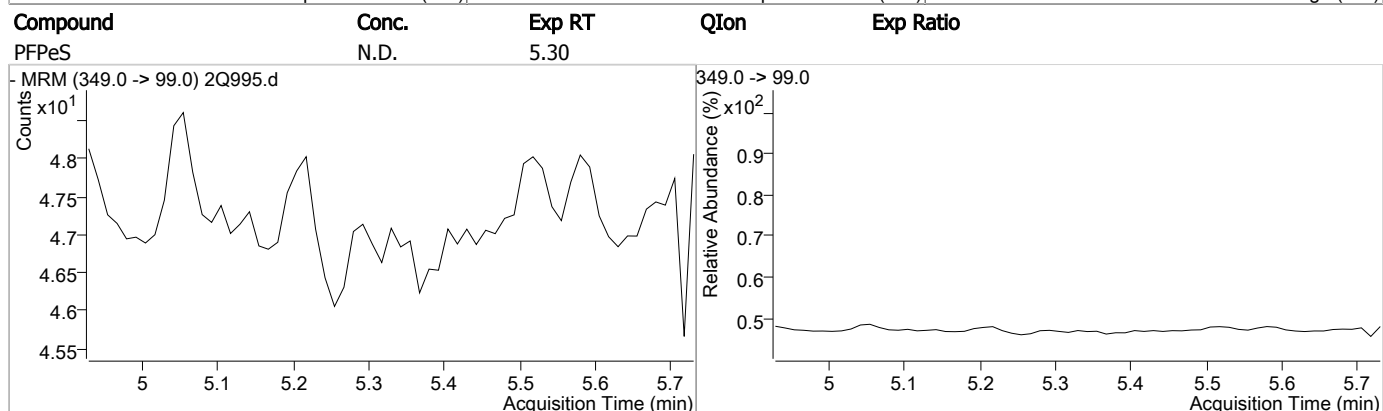
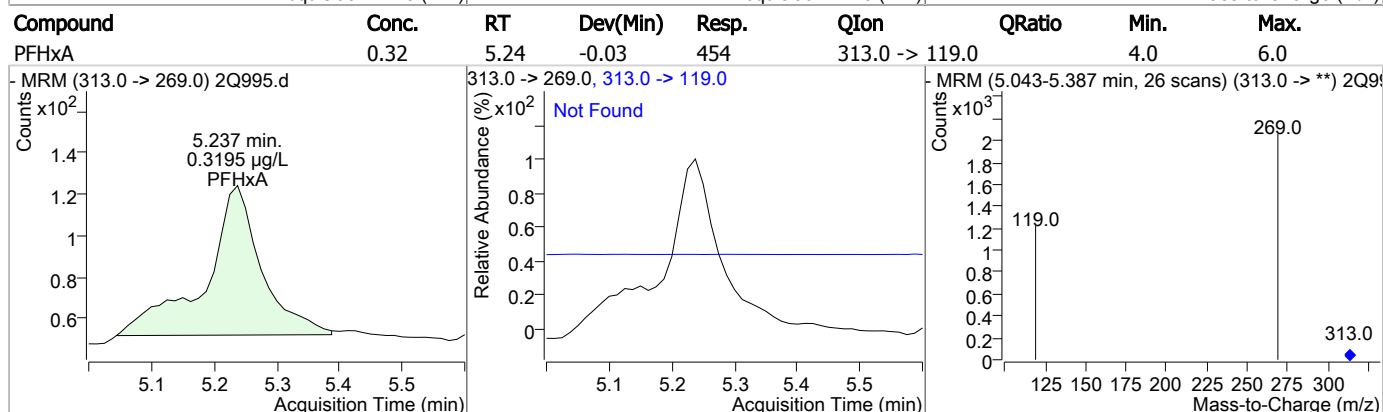
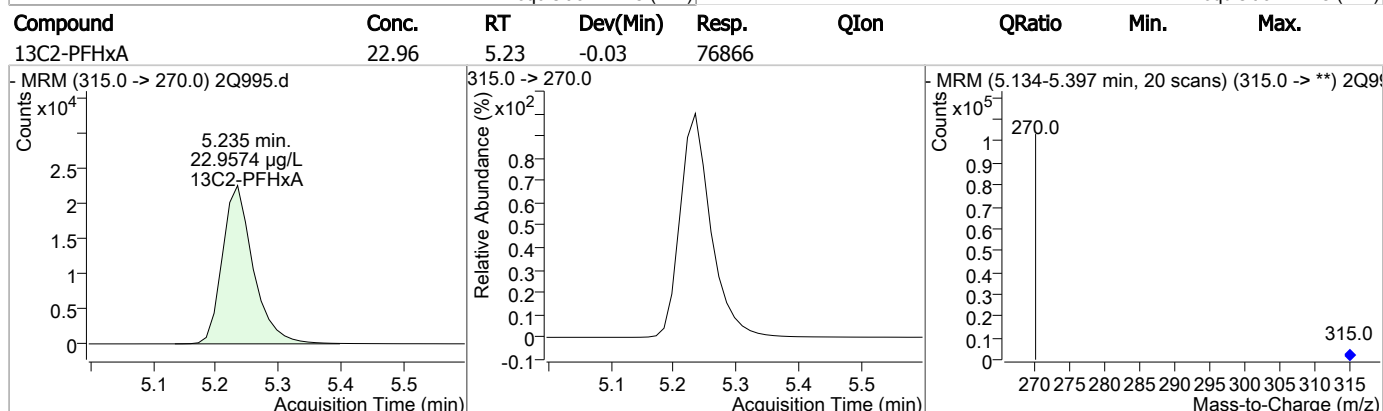
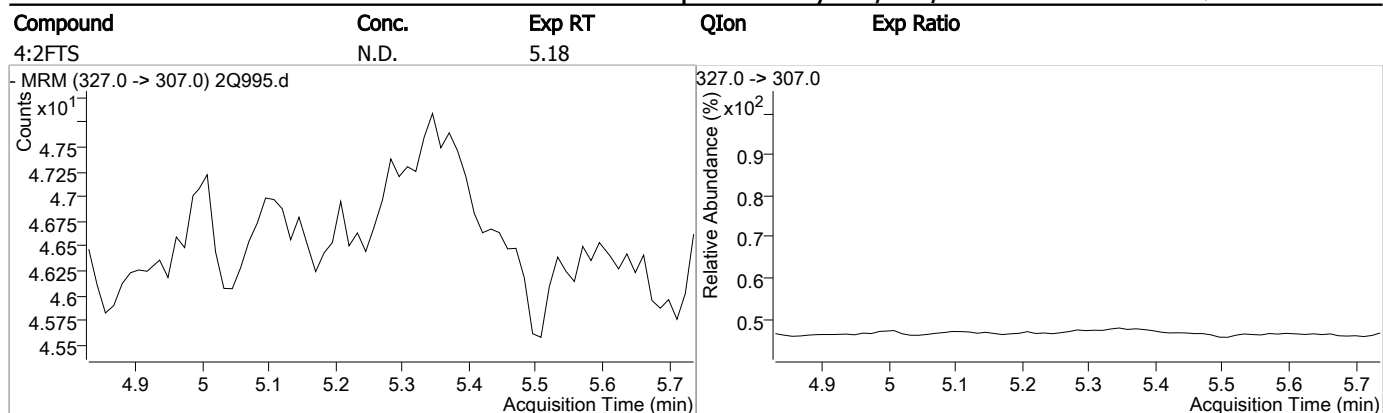
					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	6.712	427.0 -> 407.0	470	0.08 µg/L	100
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	7.599	584.0 -> 419.0	2907	4.97 µg/L	100
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	7.476	570.0 -> 419.0	3125	4.49 µg/L	100
PFBA	-	213.0 -> 169.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	8.145	513.0 -> 469.0	499	0.16 µg/L	100
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFDS	-	599.0 -> 80.0	-	N.D.	
PFHpA	6.011	363.0 -> 319.0	1281	0.30 µg/L	85
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	5.237	313.0 -> 269.0	454	0.32 µg/L	85
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 99.0	-	N.D.	
PFOA	6.702	413.0 -> 369.0	408	0.15 µg/L	54
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.0 -> 99.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	

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

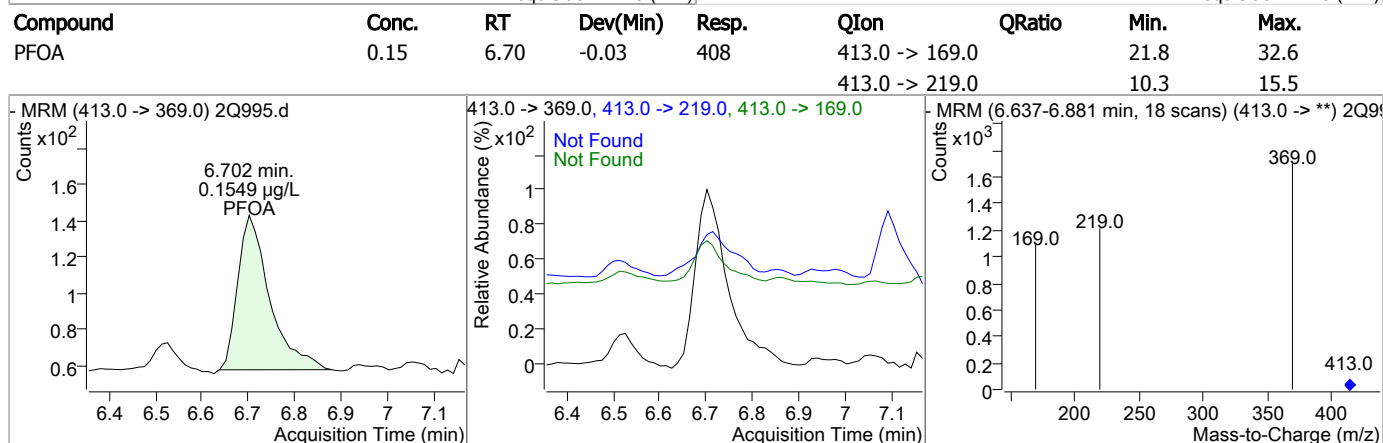
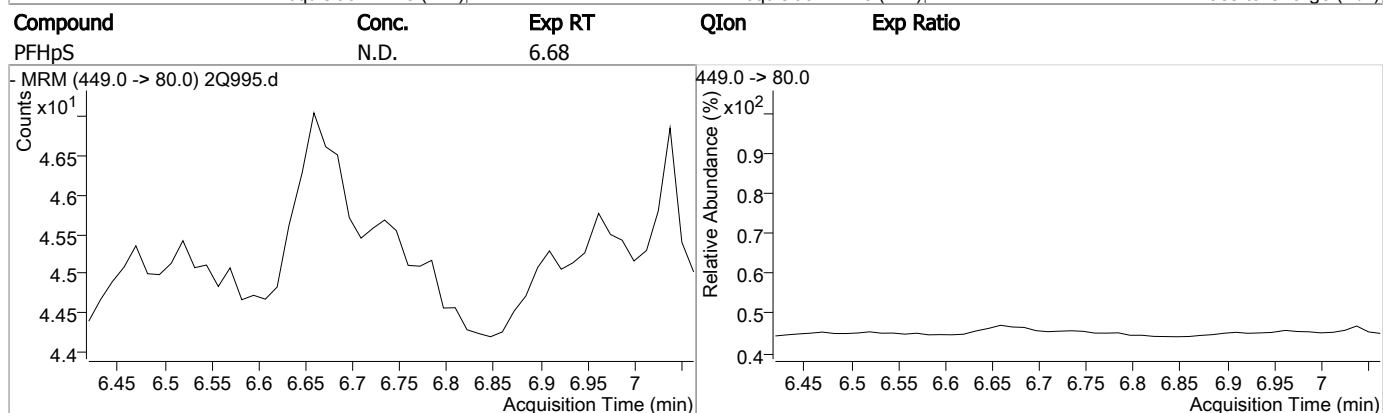
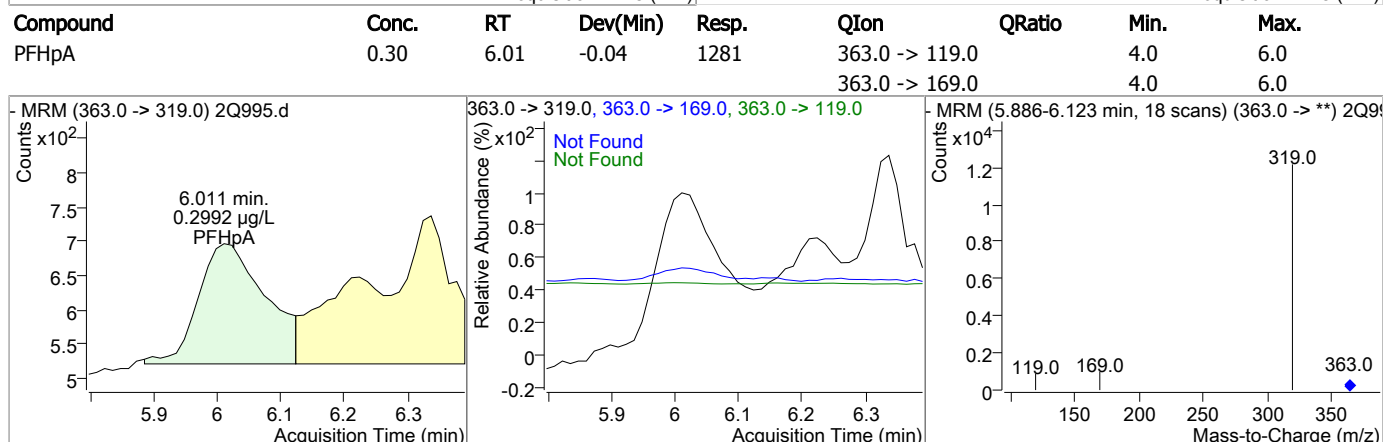
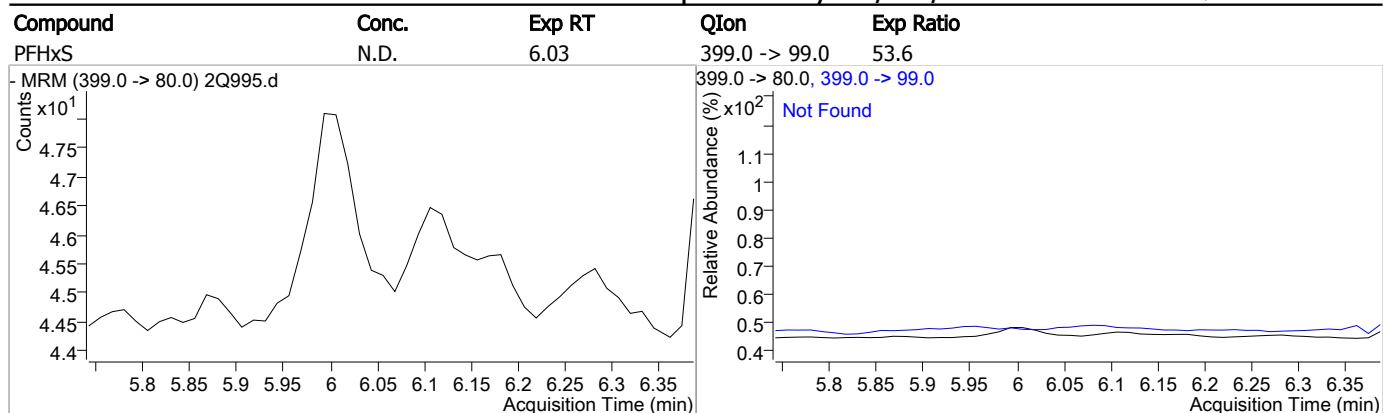
Perfluorinated Compounds by LC/MS/MS



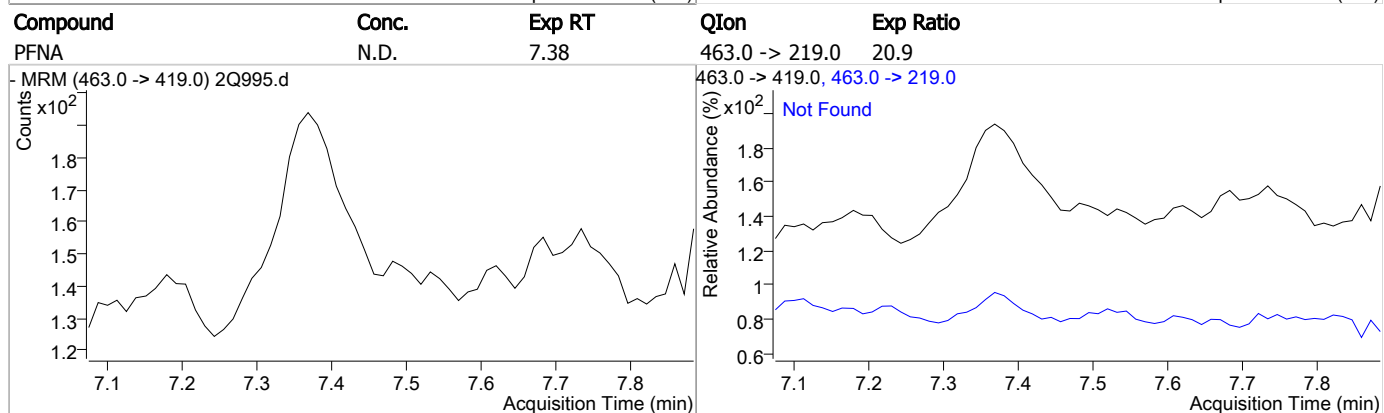
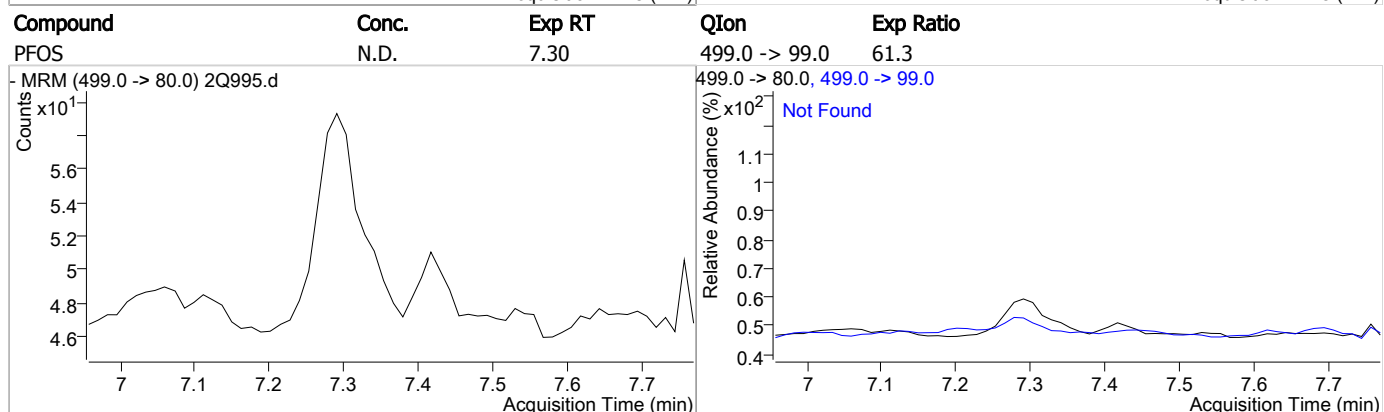
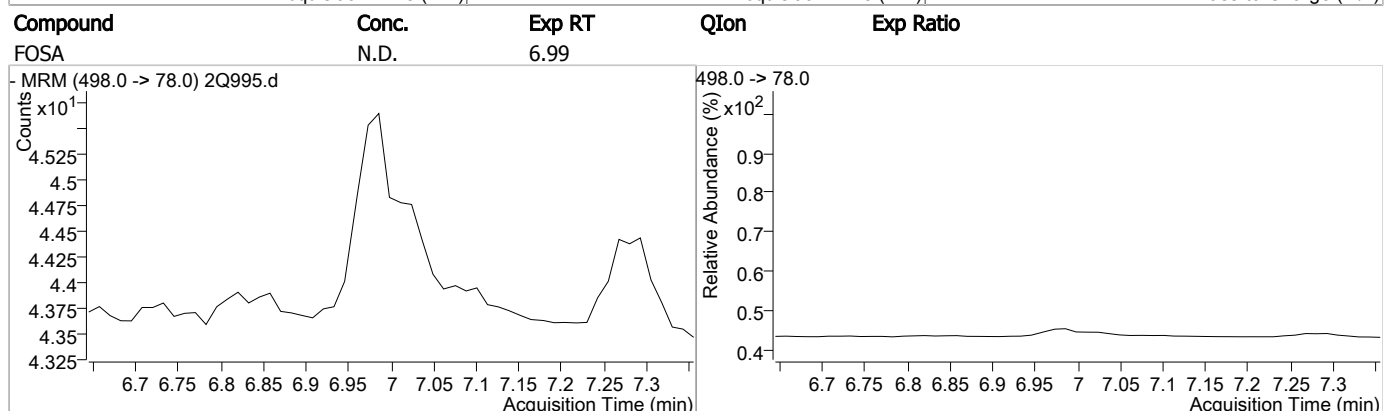
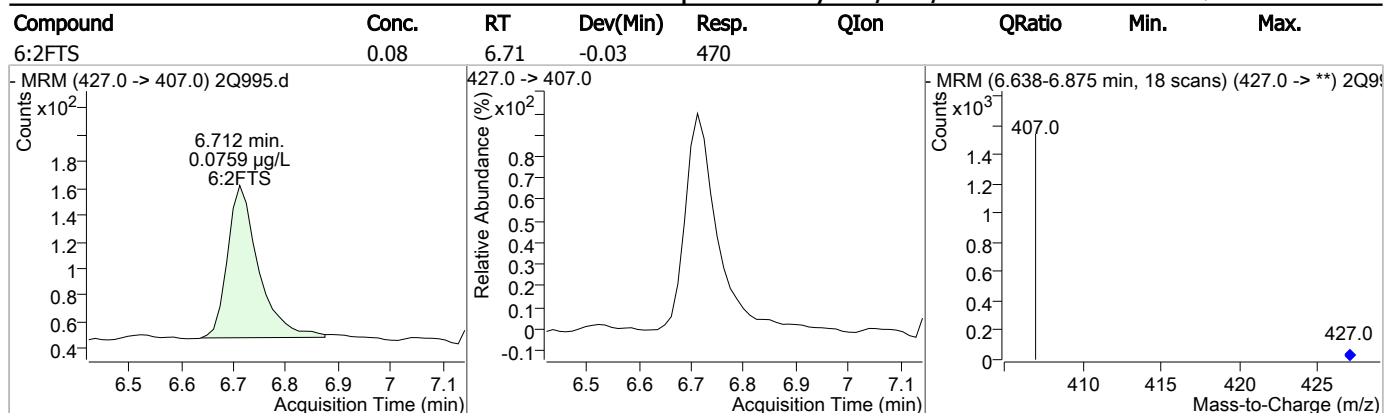
Perfluorinated Compounds by LC/MS/MS



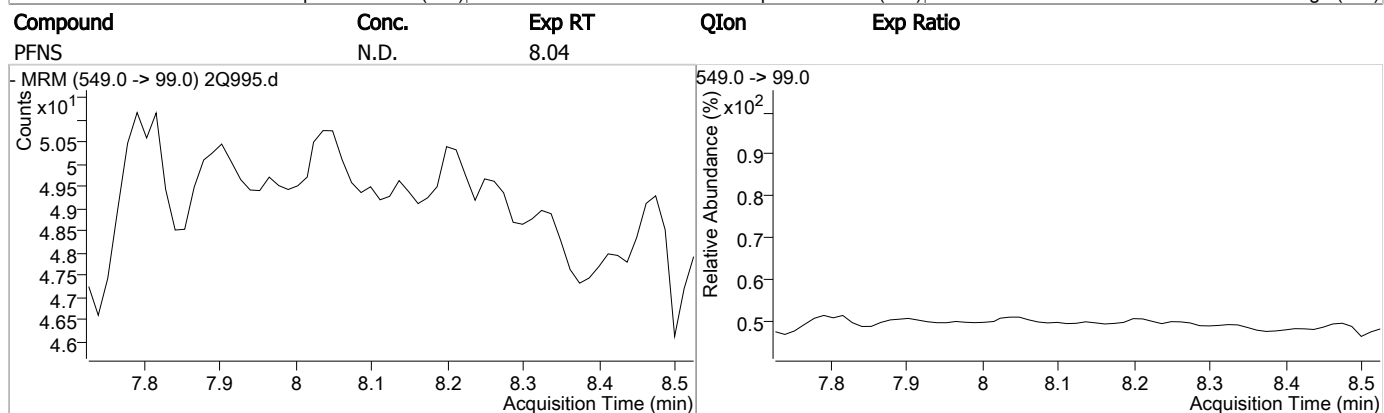
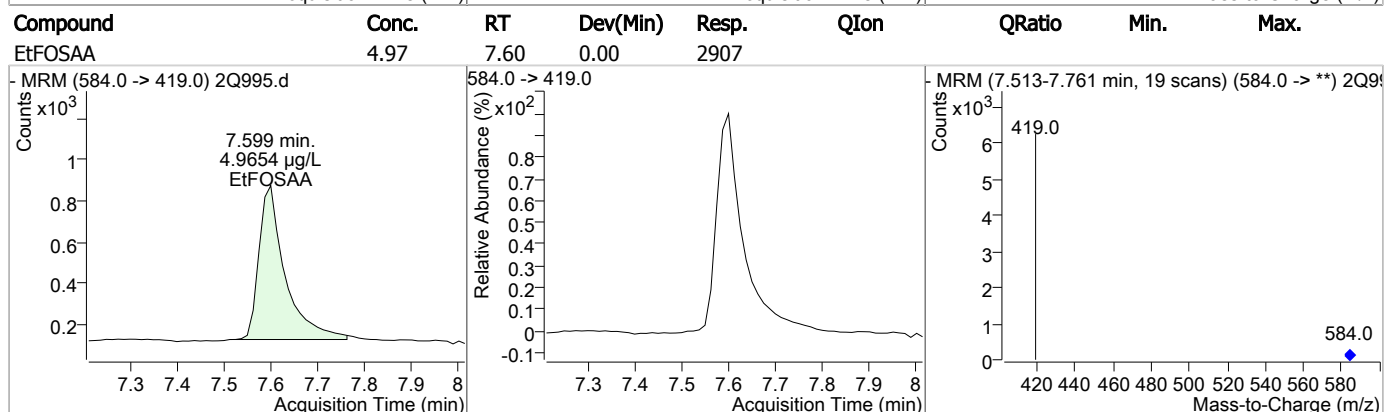
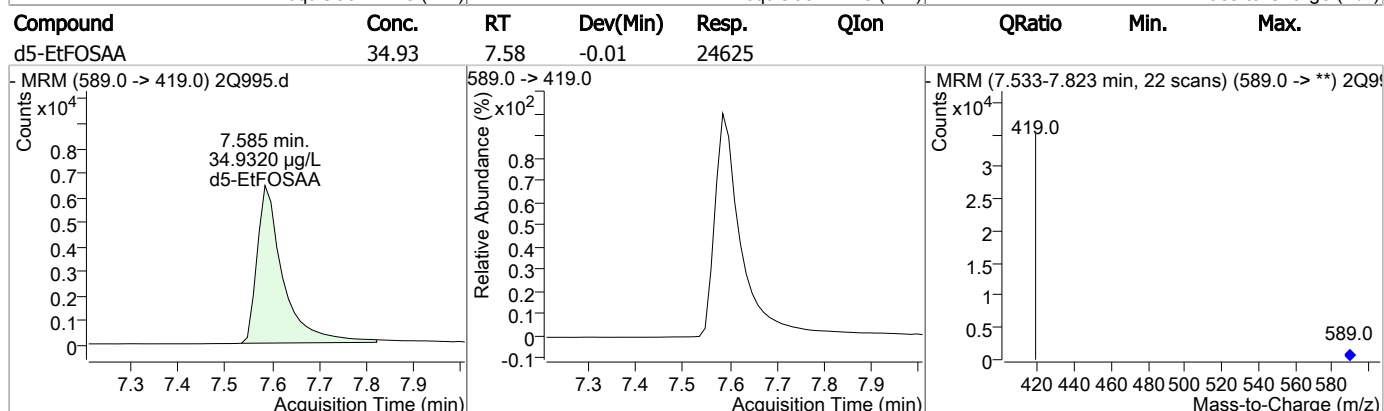
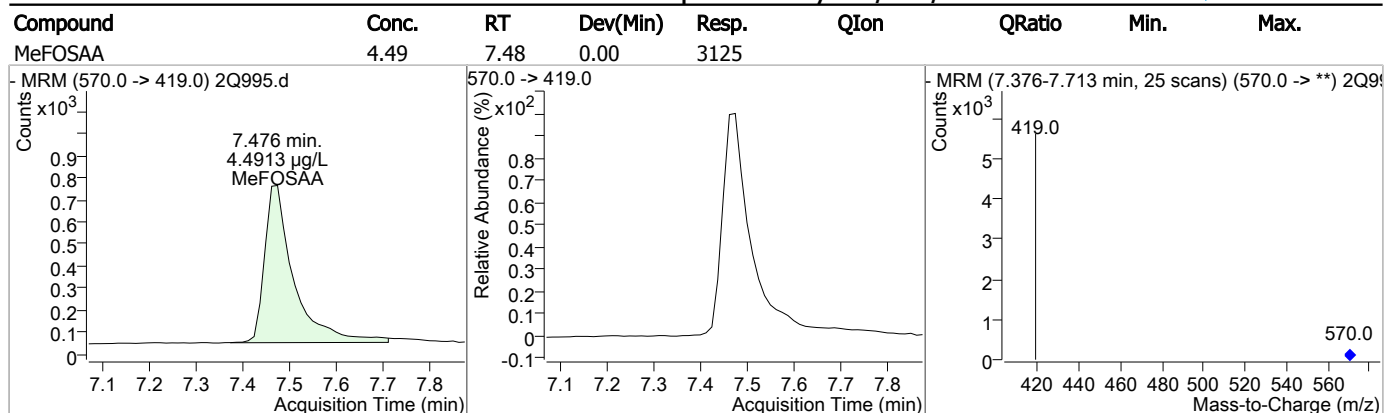
Perfluorinated Compounds by LC/MS/MS



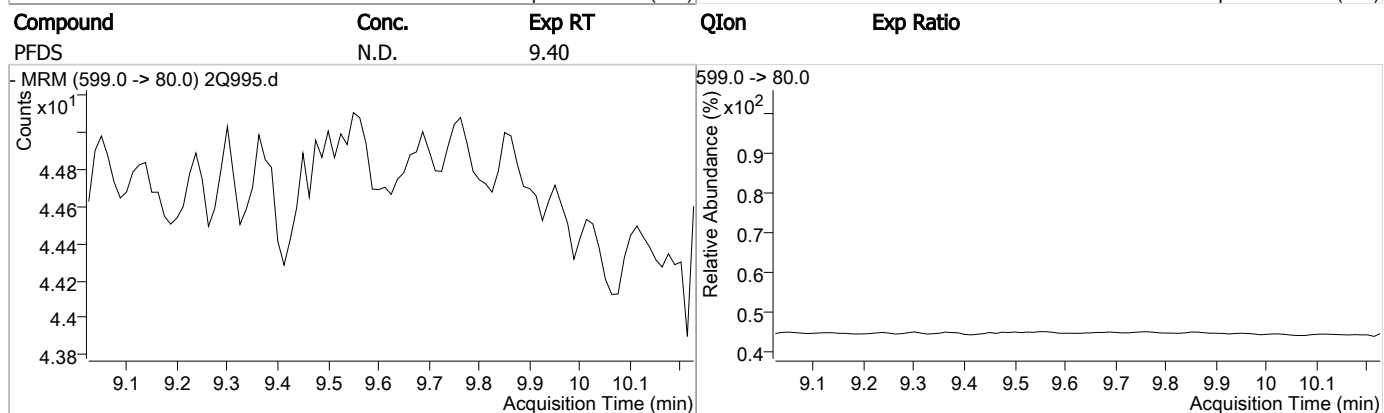
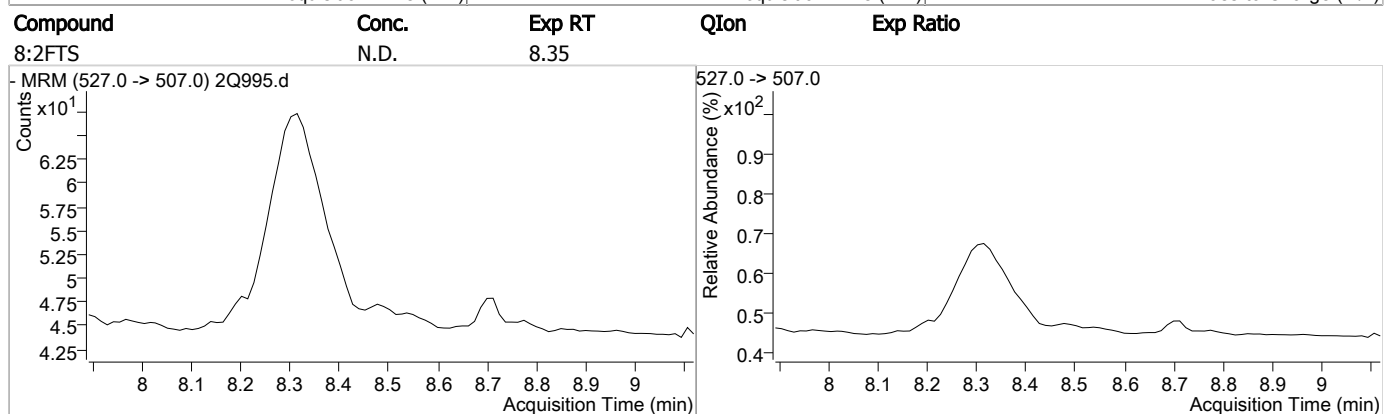
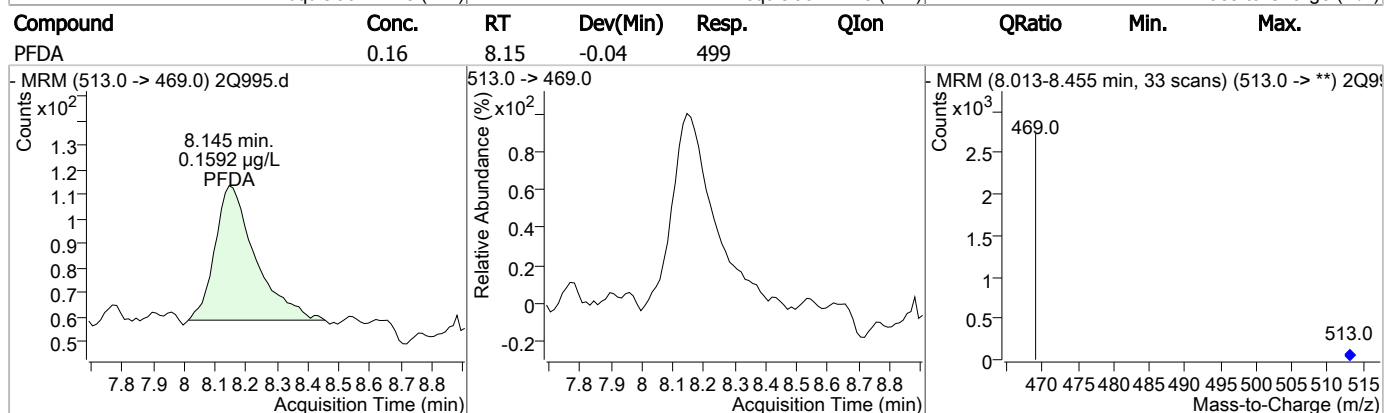
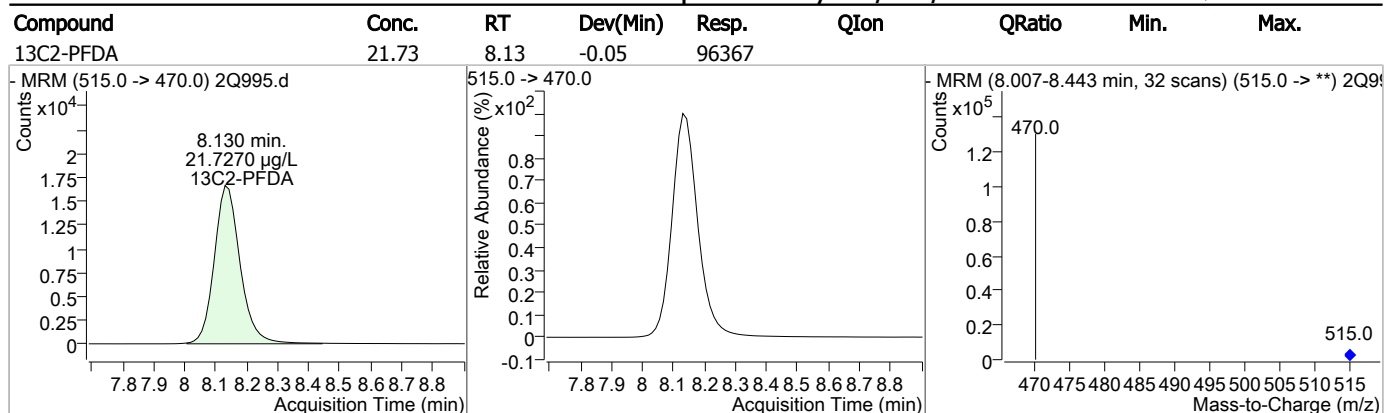
Perfluorinated Compounds by LC/MS/MS



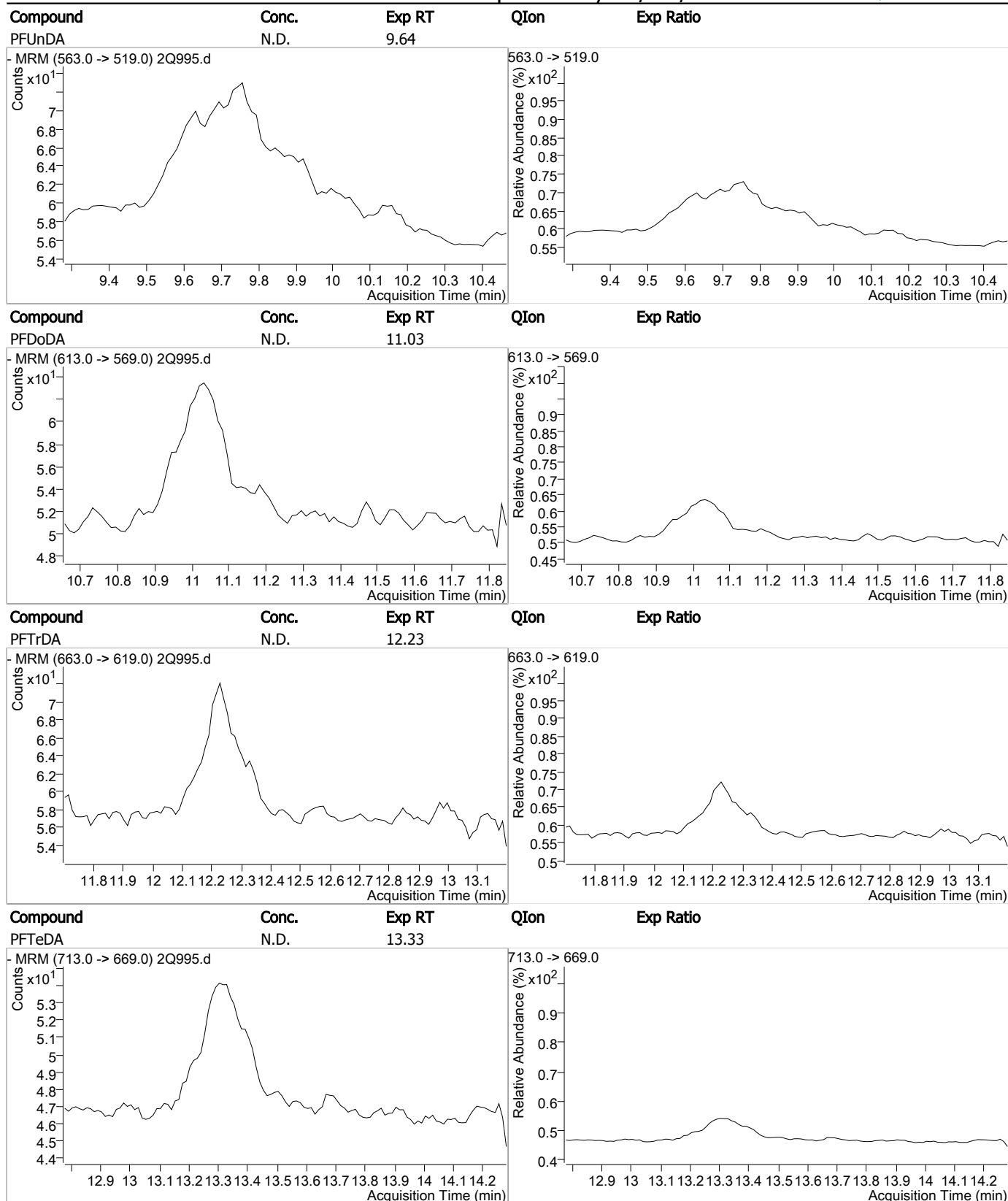
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Data File : 2Q994.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 5/3/2017 4:32:22 PM
 Sample Name : OP64883-BS
 Vial : Vial 13
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q28.batch.bin
 Last Calib Update : 5/1/2017 4:47:24 PM

Compound	RT	Qion	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.710	429.0 -> 409.0	143394	20.00 µg/L	-0.025
13C2-PFDoDA	11.026	615.0 -> 570.0	80954	20.00 µg/L	0.000
13C2-PFOA	6.701	415.0 -> 370.0	67035	20.00 µg/L	-0.025
13C3-PFPeA	4.247	266.0 -> 222.0	62564	20.00 µg/L	-0.025
13C4-PFOS	7.276	503.0 -> 80.0	51660	20.00 µg/L	-0.038
d3-MeFOSAA	7.462	573.0 -> 419.0	28869	20.00 µg/L	-0.013

System Monitoring Compounds

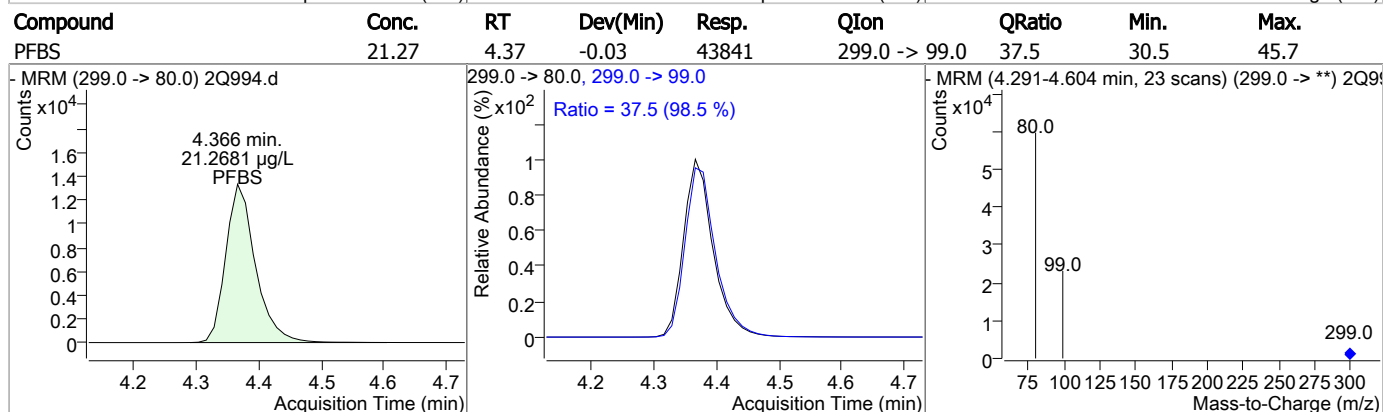
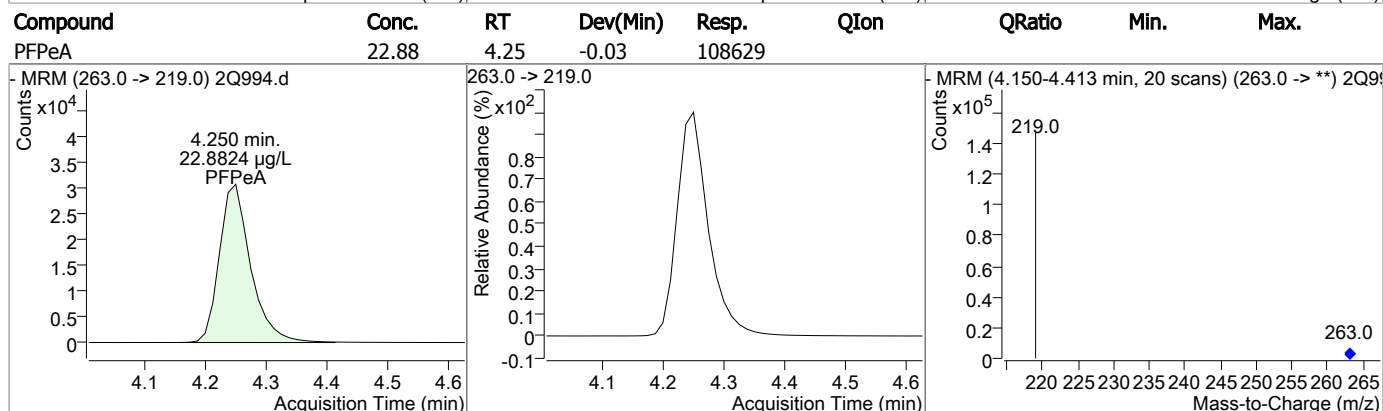
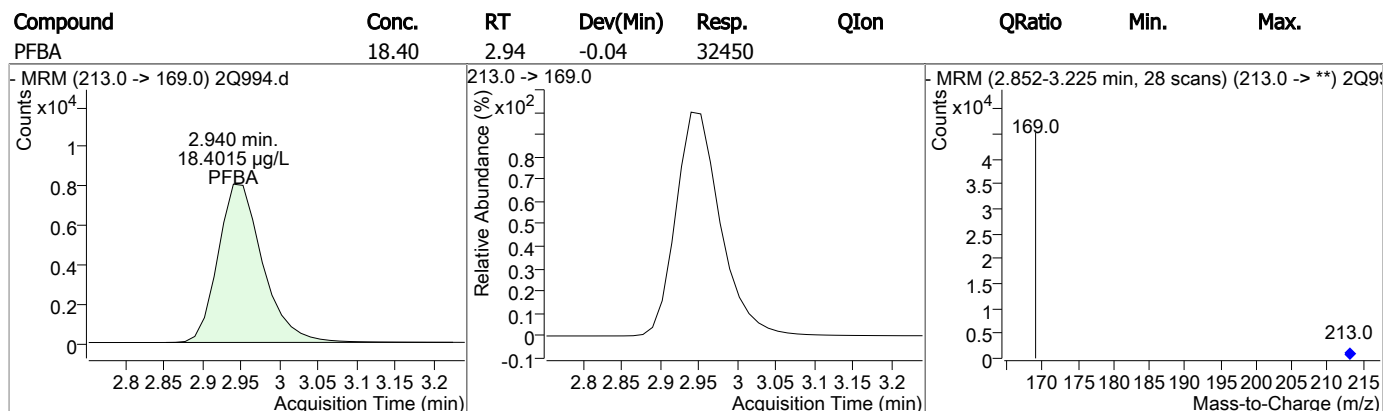
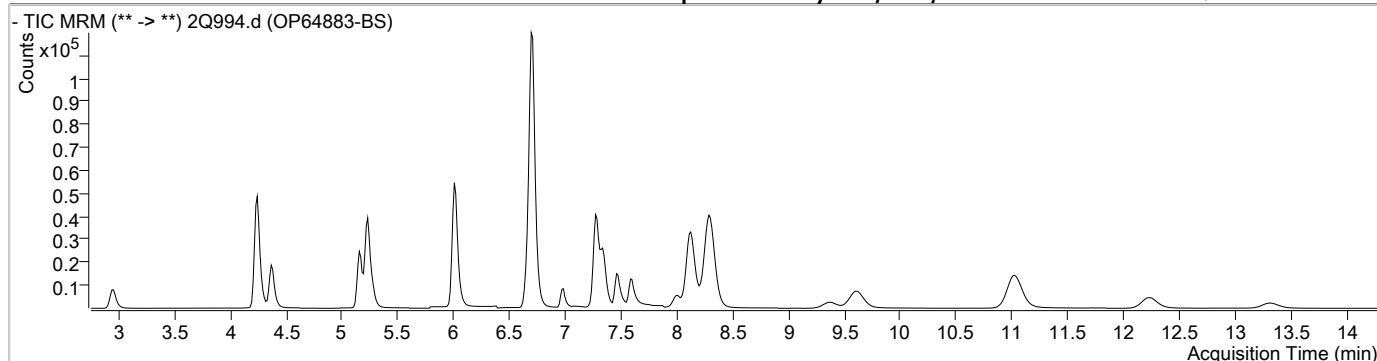
13C2-PFDA	8.130	515.0 -> 470.0	116611	24.86 µg/L	-0.050
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 124.3%		
13C2-PFHxA	5.235	315.0 -> 270.0	89197	25.19 µg/L	-0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 126.0%		
d5-EtFOSAA	7.585	589.0 -> 419.0	26113	34.44 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 172.2%		

Target Compounds

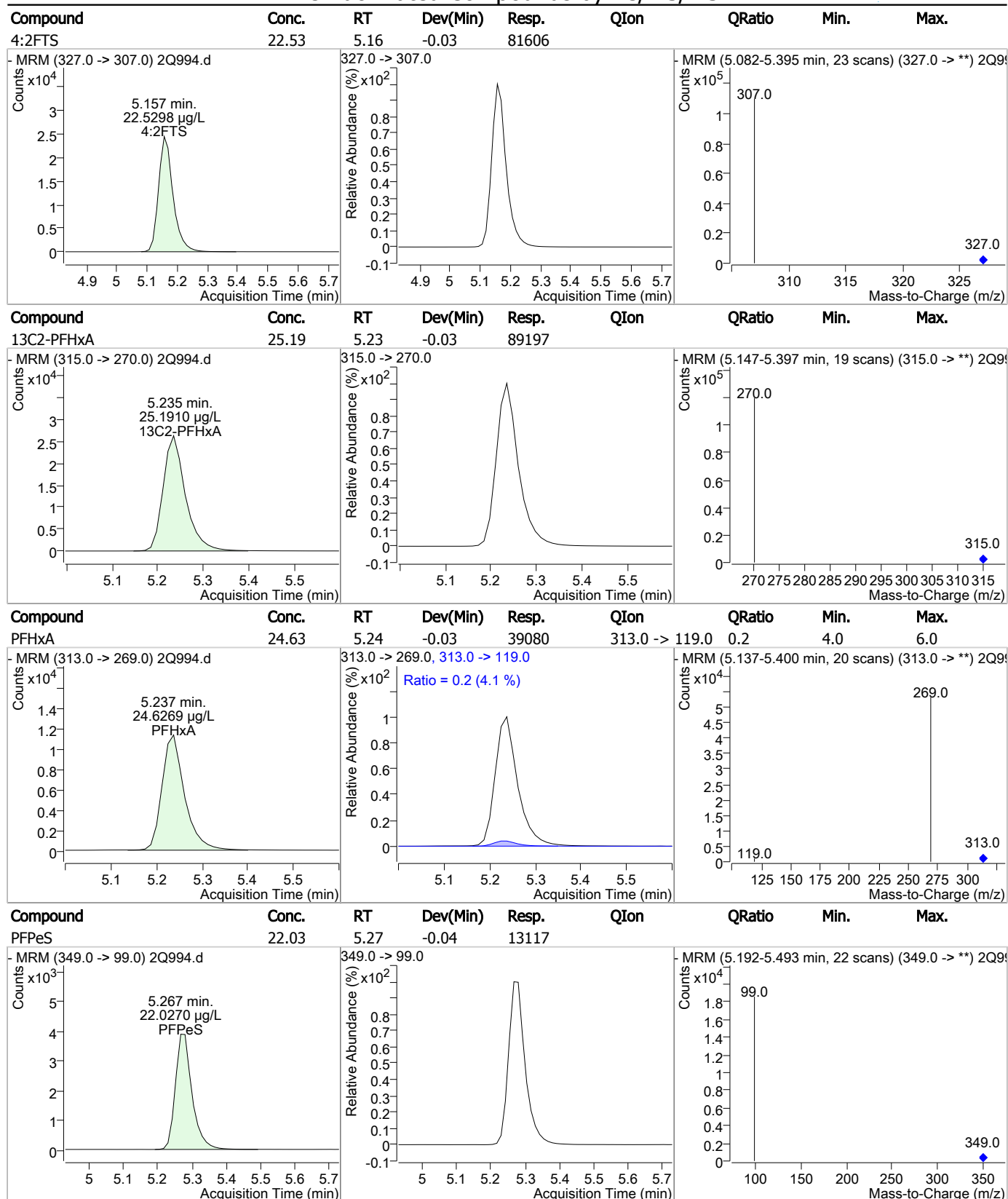
					QValue
4:2FTS	5.157	327.0 -> 307.0	81606	22.53 µg/L	100
6:2FTS	6.712	427.0 -> 407.0	149104	21.50 µg/L	100
8:2FTS	8.289	527.0 -> 507.0	267561	23.31 µg/L	100
EtFOSAA	7.599	584.0 -> 419.0	18746	27.83 µg/L	100
FOSA	6.985	498.0 -> 78.0	24476	15.77 µg/L	100
MeFOSAA	7.476	570.0 -> 419.0	25789	30.44 µg/L	100
PFBA	2.940	213.0 -> 169.0	32450	18.40 µg/L	100
PFBS	4.366	299.0 -> 80.0	43841	21.27 µg/L	99
PFDA	8.133	513.0 -> 469.0	74669	22.53 µg/L	100
PFDoDA	11.020	613.0 -> 569.0	61532	17.50 µg/L	100
PFDS	9.375	599.0 -> 80.0	23104	16.91 µg/L	100
PFHpA	6.023	363.0 -> 319.0	107639	23.00 µg/L	# 93
PFHpS	6.659	449.0 -> 80.0	43375	19.82 µg/L	100
PFHxA	5.237	313.0 -> 269.0	39080	24.63 µg/L	# 86
PFHxS	6.006	399.0 -> 80.0	50874	23.58 µg/L	93
PFNA	7.344	463.0 -> 419.0	69277	23.13 µg/L	97
PFNS	8.002	549.0 -> 99.0	24200	18.55 µg/L	100
PFOA	6.702	413.0 -> 369.0	65553	23.53 µg/L	99
PFOS	7.278	499.0 -> 80.0	60232	20.20 µg/L	98
PFPeA	4.250	263.0 -> 219.0	108629	22.88 µg/L	100
PFPeS	5.267	349.0 -> 99.0	13117	22.03 µg/L	100
PFTeDA	13.316	713.0 -> 669.0	25098	15.40 µg/L	100
PFTTrDA	12.228	663.0 -> 619.0	48412	16.33 µg/L	100
PFUnDA	9.619	563.0 -> 519.0	70653	19.89 µg/L	100

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

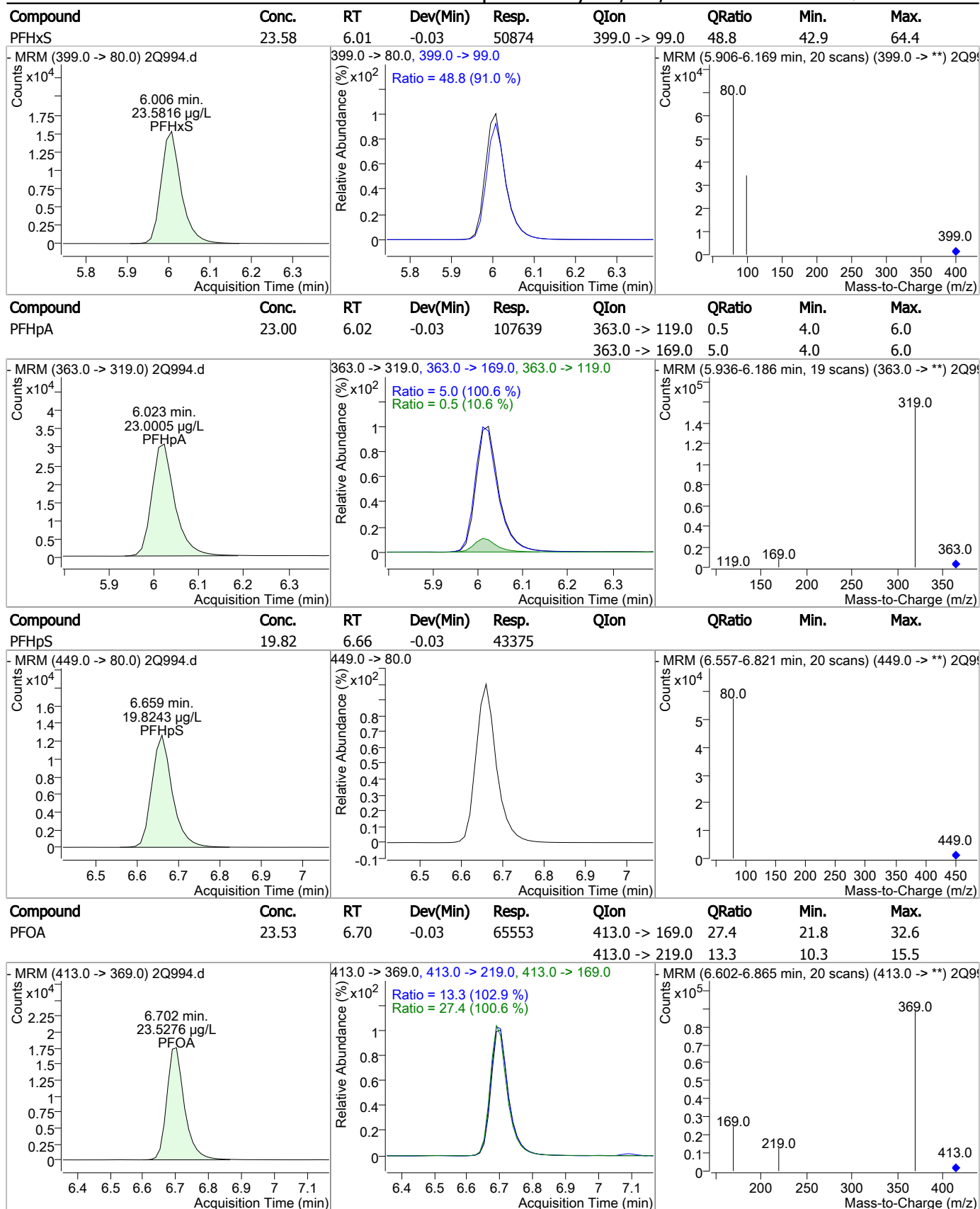
Perfluorinated Compounds by LC/MS/MS



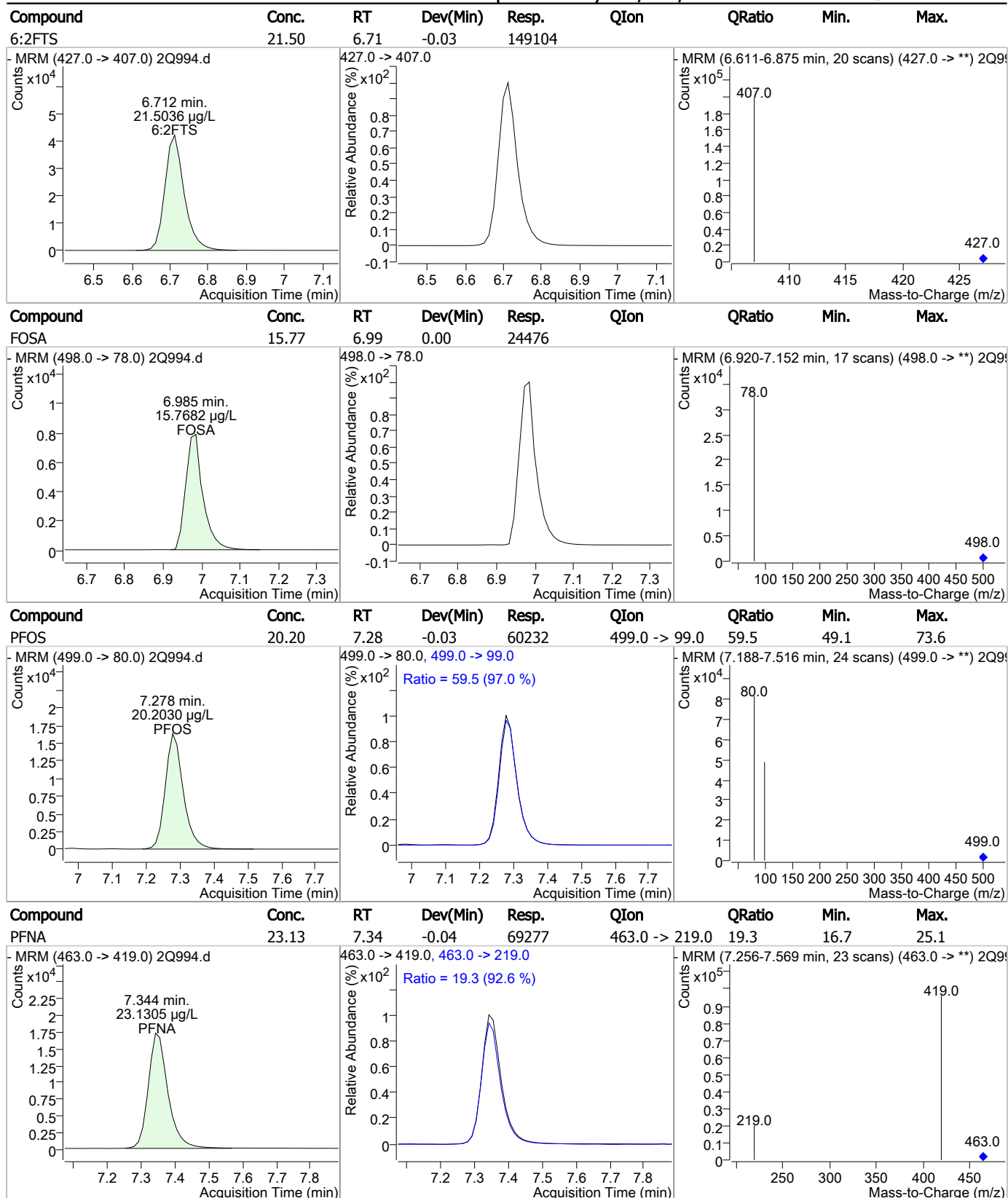
Perfluorinated Compounds by LC/MS/MS



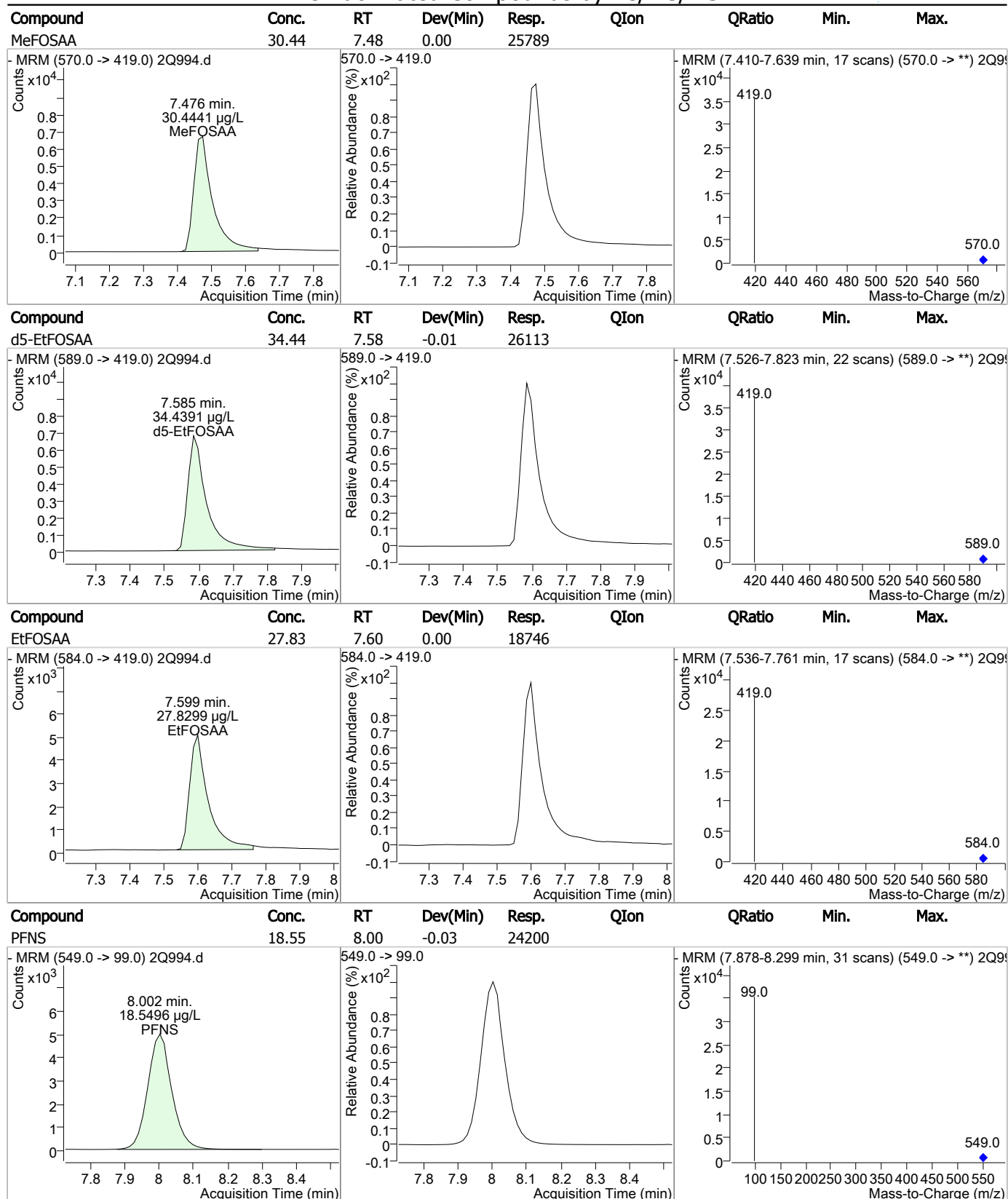
Perfluorinated Compounds by LC/MS/MS

7.3.1
7

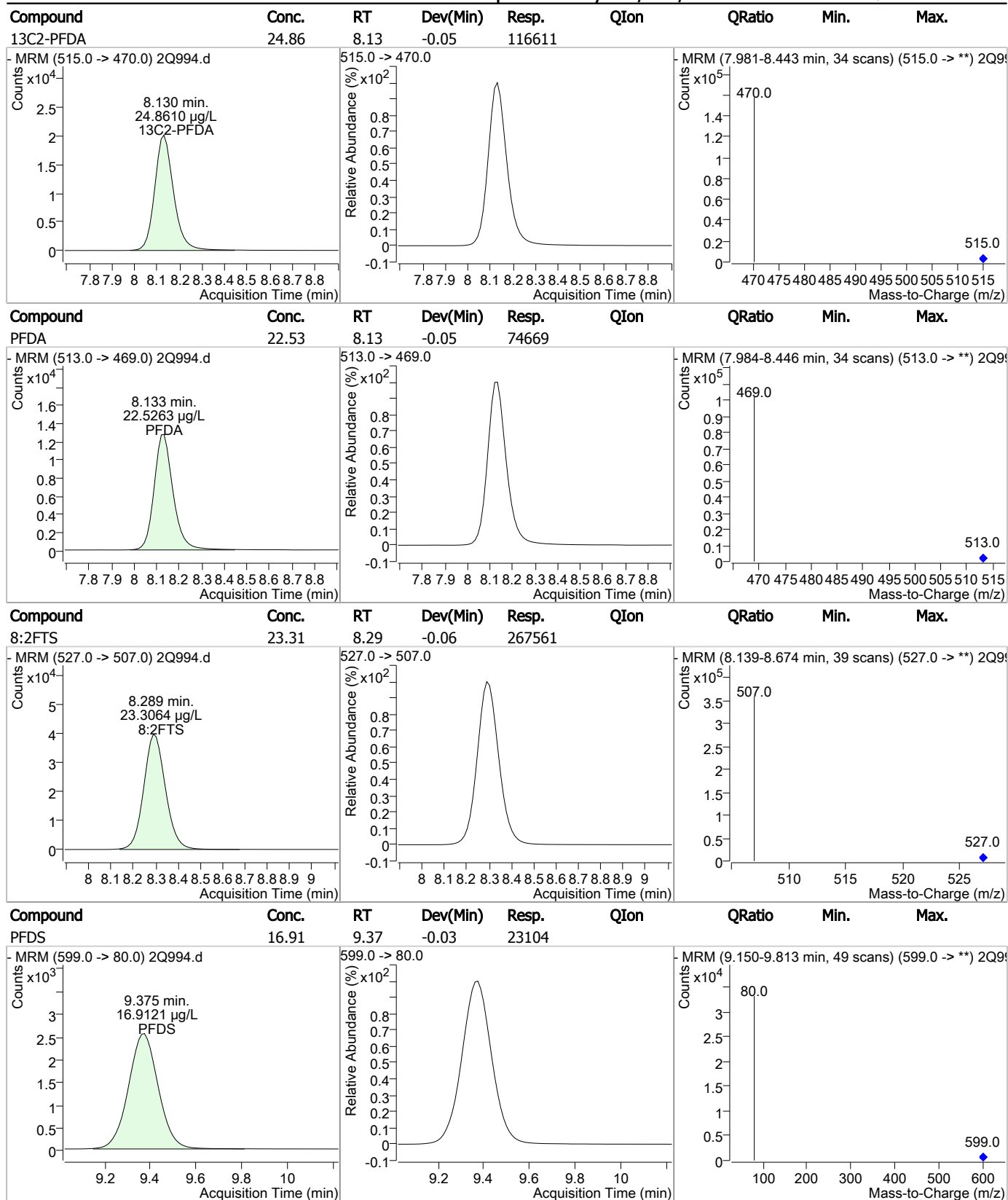
Perfluorinated Compounds by LC/MS/MS



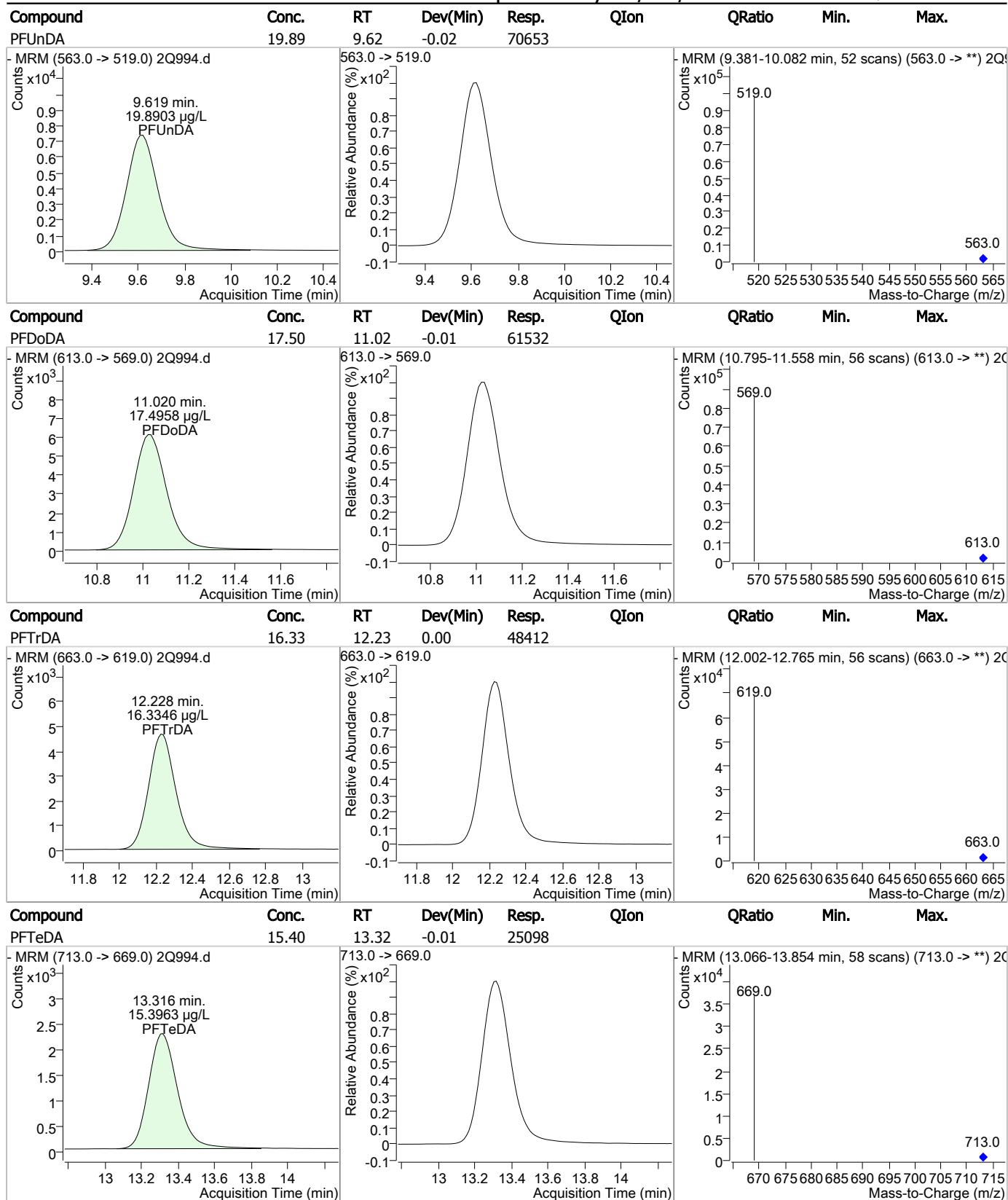
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Data File : 2Q651.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 4/20/2017 11:54:23 AM
 Sample Name : IC18-1
 Vial : Vial 2
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q18.batch.bin
 Last Calib Update : 4/21/2017 7:57:04 AM

Compound	RT	Qion	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.660	429.0 -> 409.0	146593	20.00 µg/L	0.013
13C2-PFDoDA	10.714	615.0 -> 570.0	95399	20.00 µg/L	0.050
13C2-PFOA	6.651	415.0 -> 370.0	81433	20.00 µg/L	0.013
13C3-PFPeA	4.247	266.0 -> 222.0	77778	20.00 µg/L	0.013
13C4-PFOS	7.214	503.0 -> 80.0	57060	20.00 µg/L	0.014
d3-MeFOSAA	7.474	573.0 -> 419.0	34386	20.00 µg/L	0.000

System Monitoring Compounds

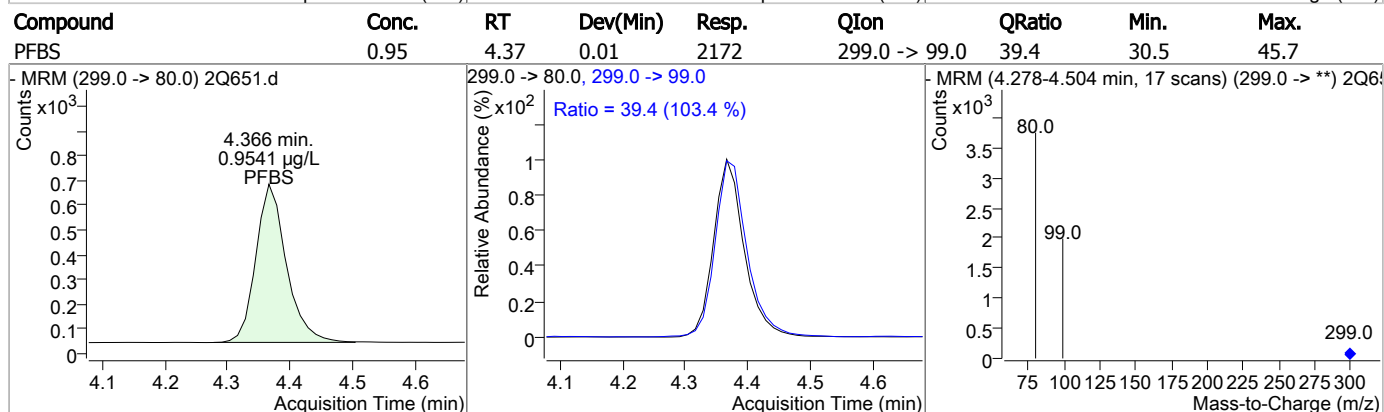
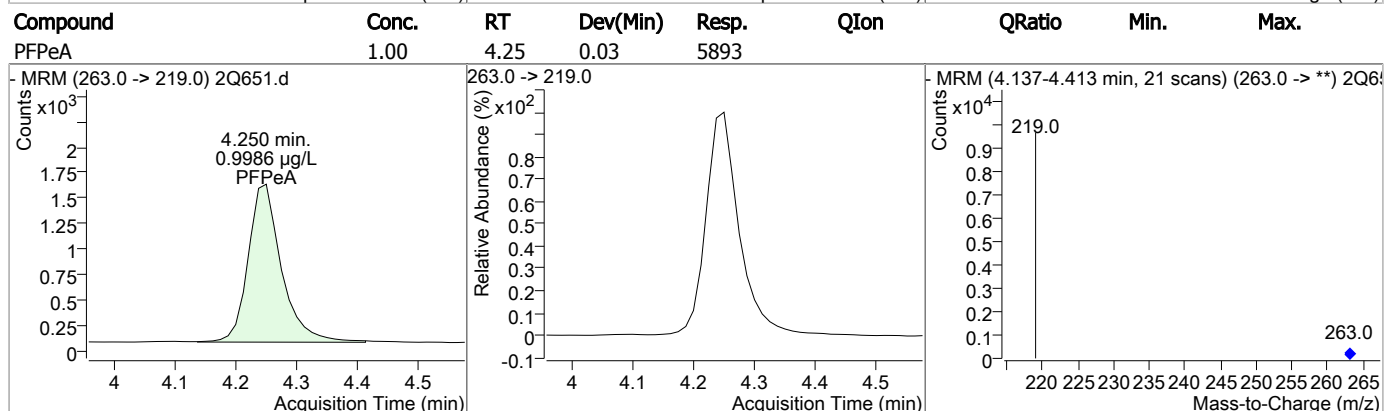
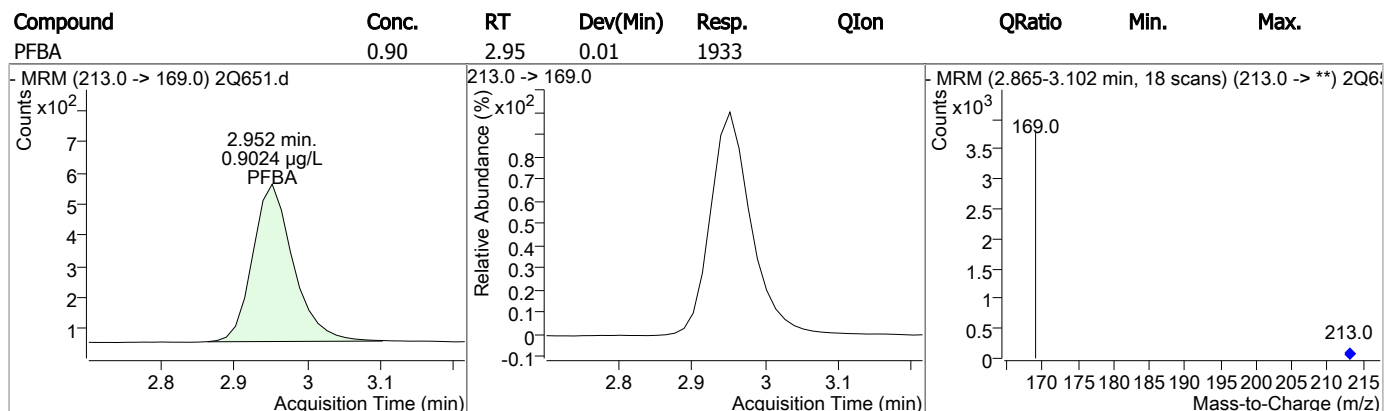
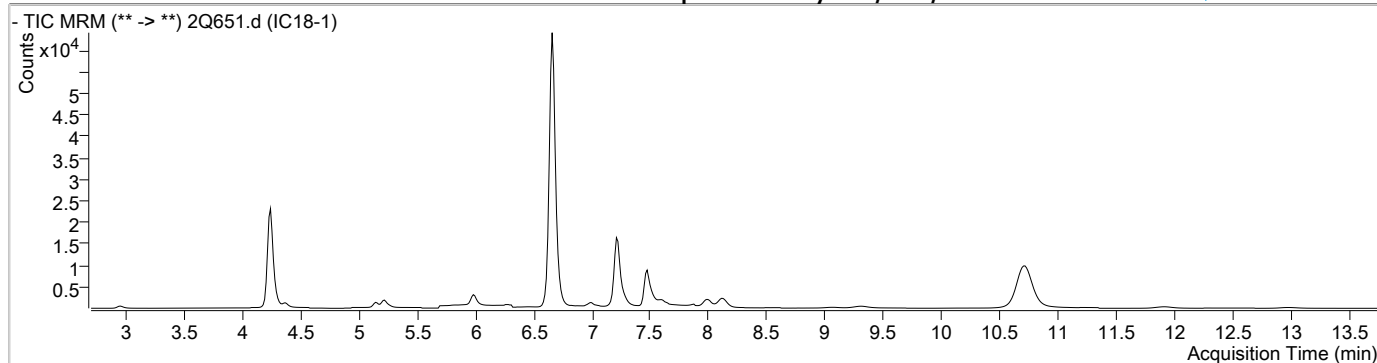
13C2-PFDA	7.994	515.0 -> 470.0	5647	0.99 µg/L	0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 5.0%		
13C2-PFHxA	5.222	315.0 -> 270.0	3970	0.92 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 4.6%		
d5-EtFOSAA	7.597	589.0 -> 419.0	1446	1.87 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 9.3%		

Target Compounds

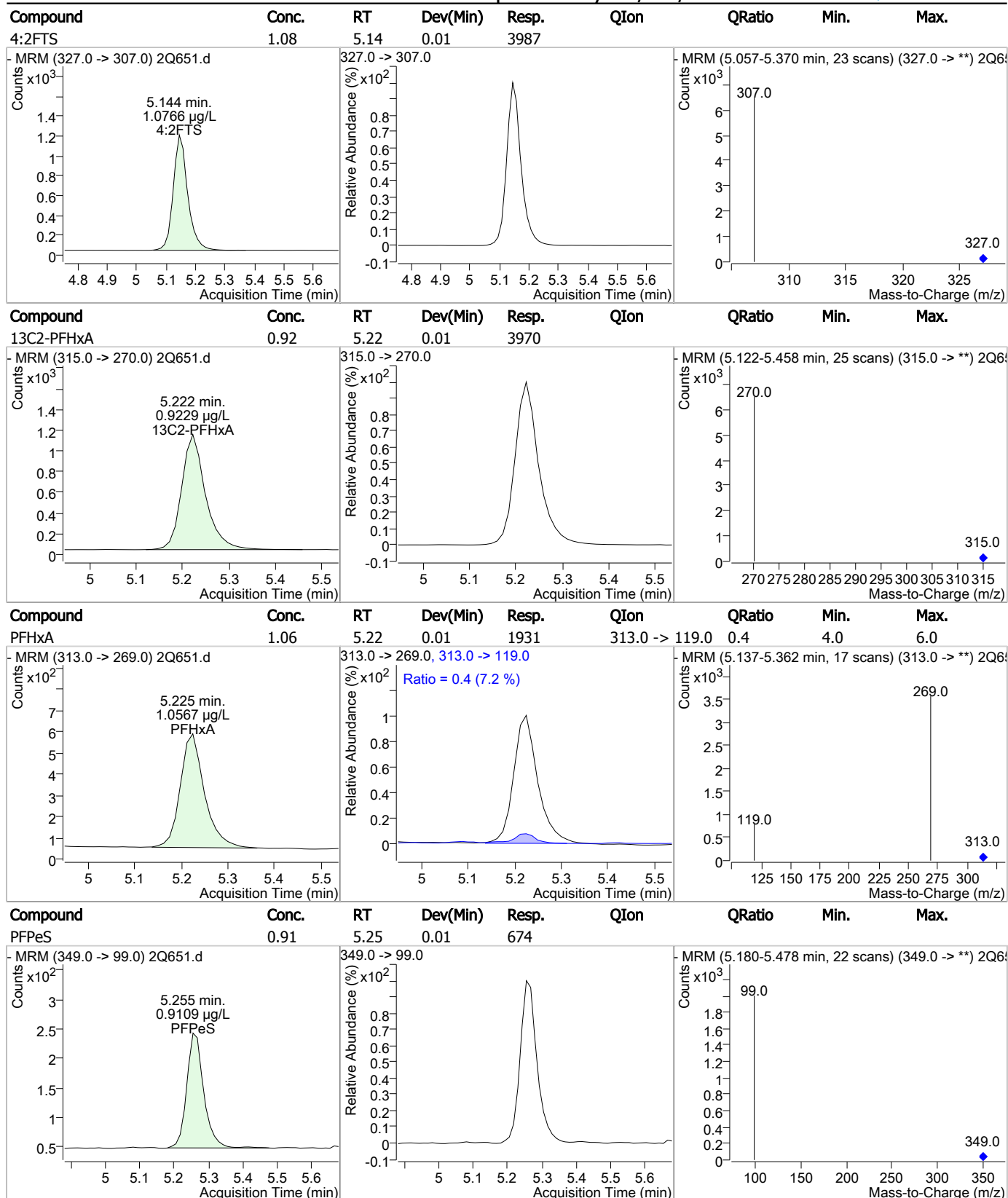
					QValue
4:2FTS	5.144	327.0 -> 307.0	3987	1.08 µg/L	100
6:2FTS	6.662	427.0 -> 407.0	10182	1.44 µg/L	100
8:2FTS	8.114	527.0 -> 507.0	12214	1.04 µg/L	100
EtFOSAA	7.598	584.0 -> 419.0	1377	1.85 µg/L	100
FOSA	6.986	498.0 -> 78.0	1869	1.01 µg/L	100
MeFOSAA	7.475	570.0 -> 419.0	1515	1.72 µg/L	100
PFBA	2.952	213.0 -> 169.0	1933	0.90 µg/L	100
PFBS	4.366	299.0 -> 80.0	2172	0.95 µg/L	98
PFDA	7.996	513.0 -> 469.0	4148	1.03 µg/L	100
PFDoDA	10.707	613.0 -> 569.0	4321	1.08 µg/L	100
PFDS	9.062	599.0 -> 80.0	1489	1.03 µg/L	100
PFHpA	5.986	363.0 -> 319.0	6687	1.21 µg/L	#m 93
PFHpS	6.620	449.0 -> 80.0	2286	0.95 µg/L	100
PFHxA	5.225	313.0 -> 269.0	1931	1.06 µg/L	# 86
PFHxS	5.981	399.0 -> 80.0	2304	0.97 µg/L	m 92
PFNA	7.281	463.0 -> 419.0	4586	1.26 µg/L	97
PFNS	7.879	549.0 -> 99.0	1372	0.95 µg/L	100
PFOA	6.652	413.0 -> 369.0	3911	1.16 µg/L	# 96
PFOS	7.215	499.0 -> 80.0	3230	0.98 µg/L	m 86
PFPeA	4.250	263.0 -> 219.0	5893	1.00 µg/L	100
PFPeS	5.255	349.0 -> 99.0	674	0.91 µg/L	100
PFTeDA	12.978	713.0 -> 669.0	2073	1.12 µg/L	100
PFTTrDA	11.915	663.0 -> 619.0	3725	1.12 µg/L	100
PFUnDA	9.306	563.0 -> 519.0	4328	1.03 µg/L	100

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

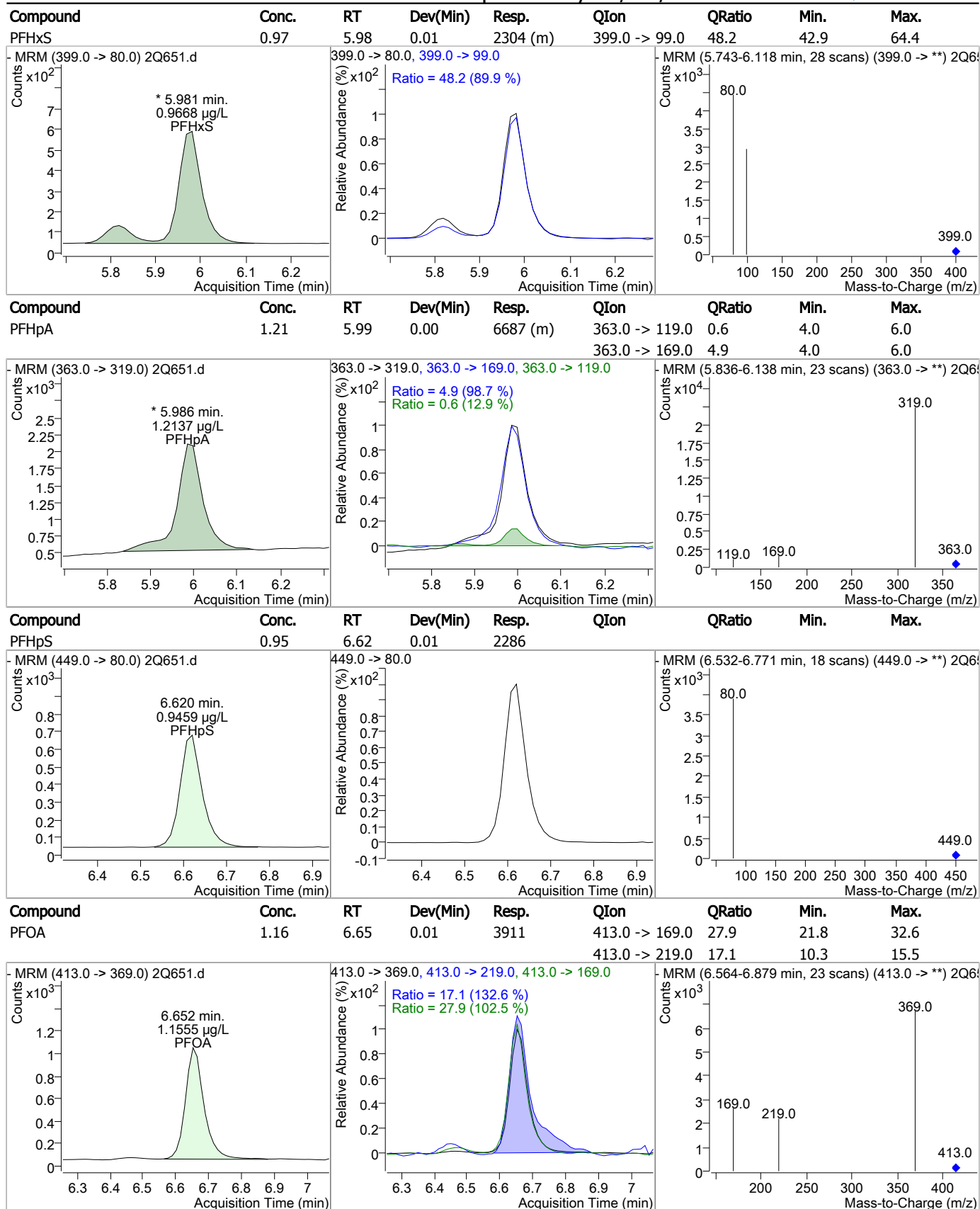
Perfluorinated Compounds by LC/MS/MS



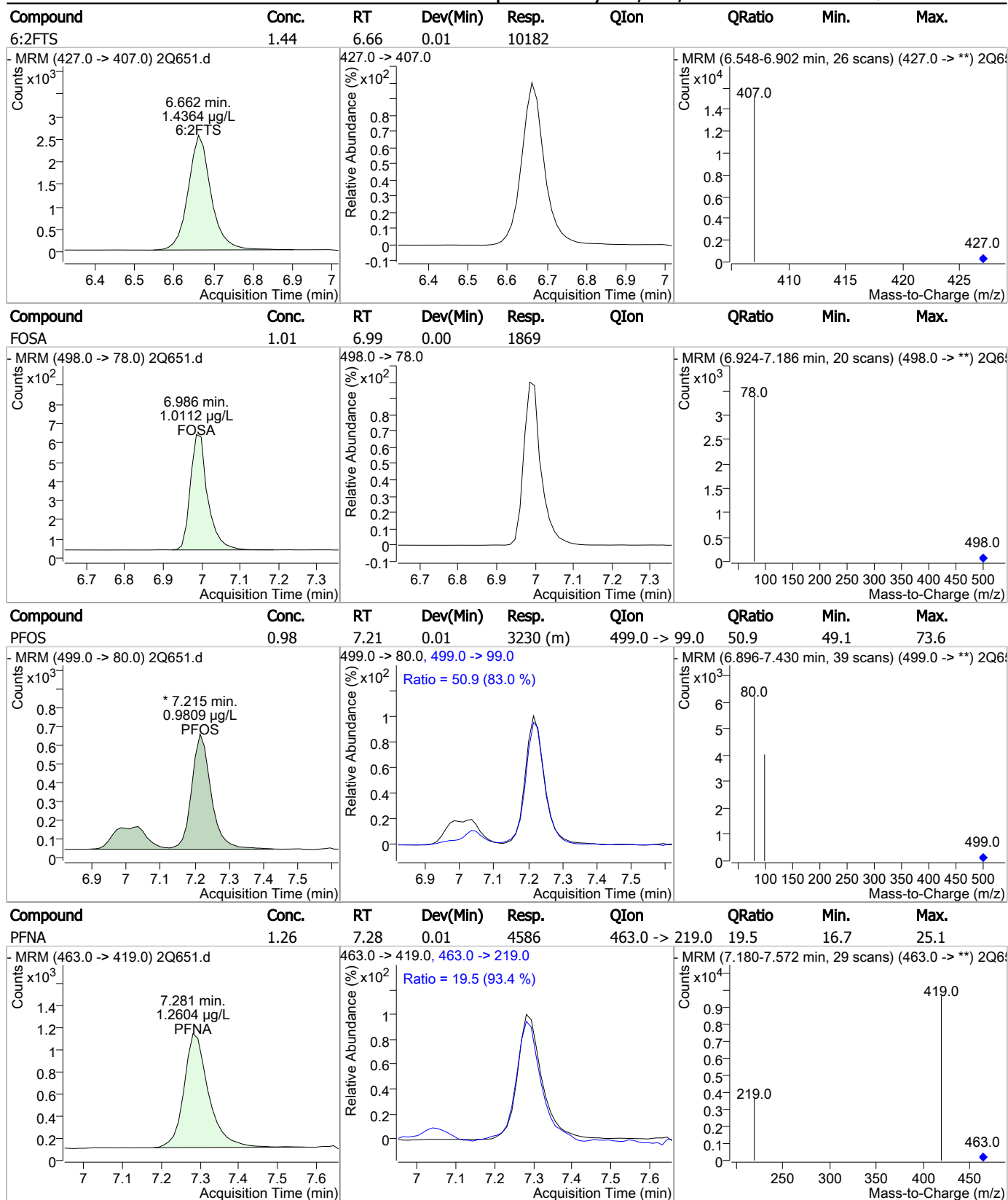
Perfluorinated Compounds by LC/MS/MS



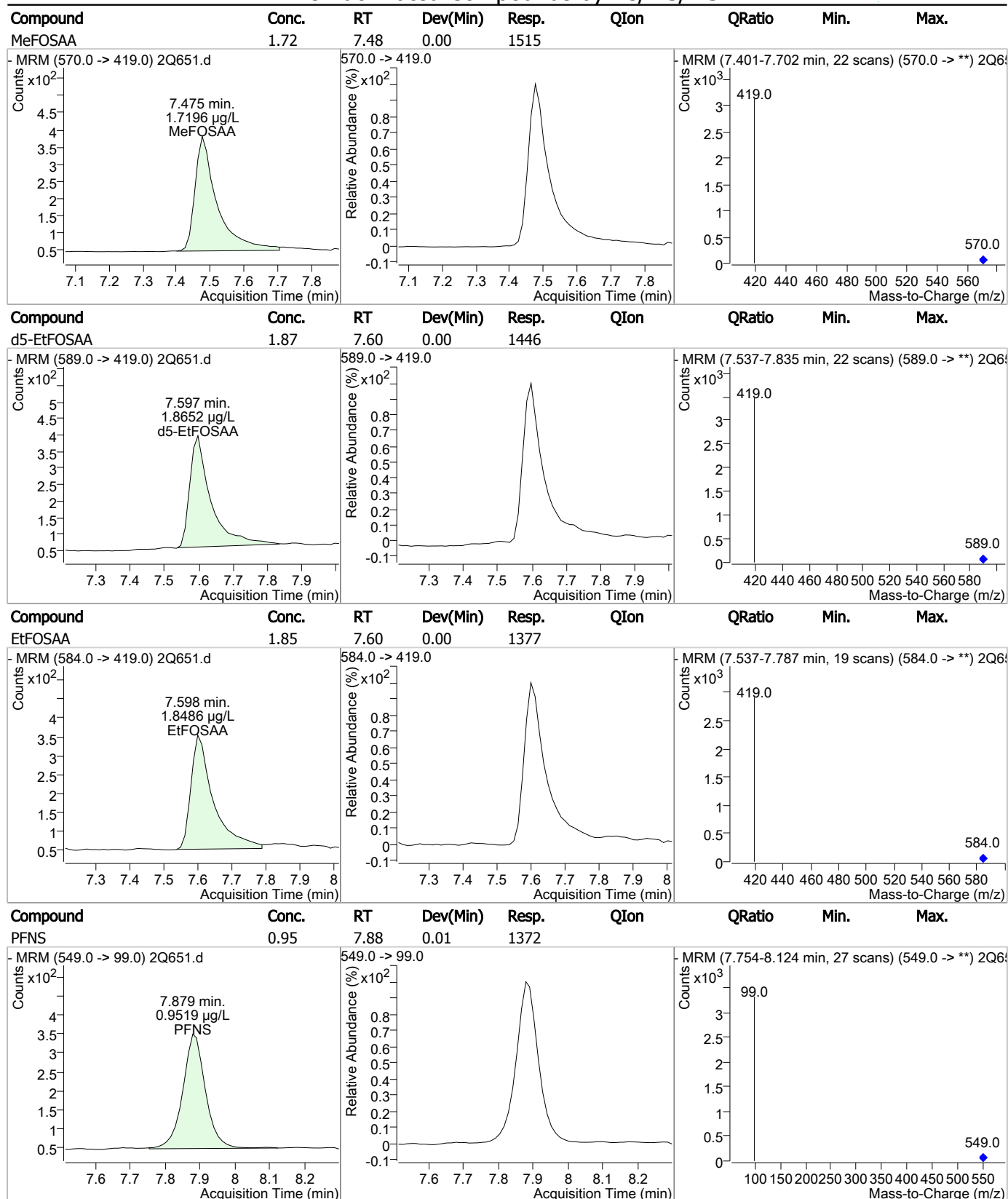
Perfluorinated Compounds by LC/MS/MS



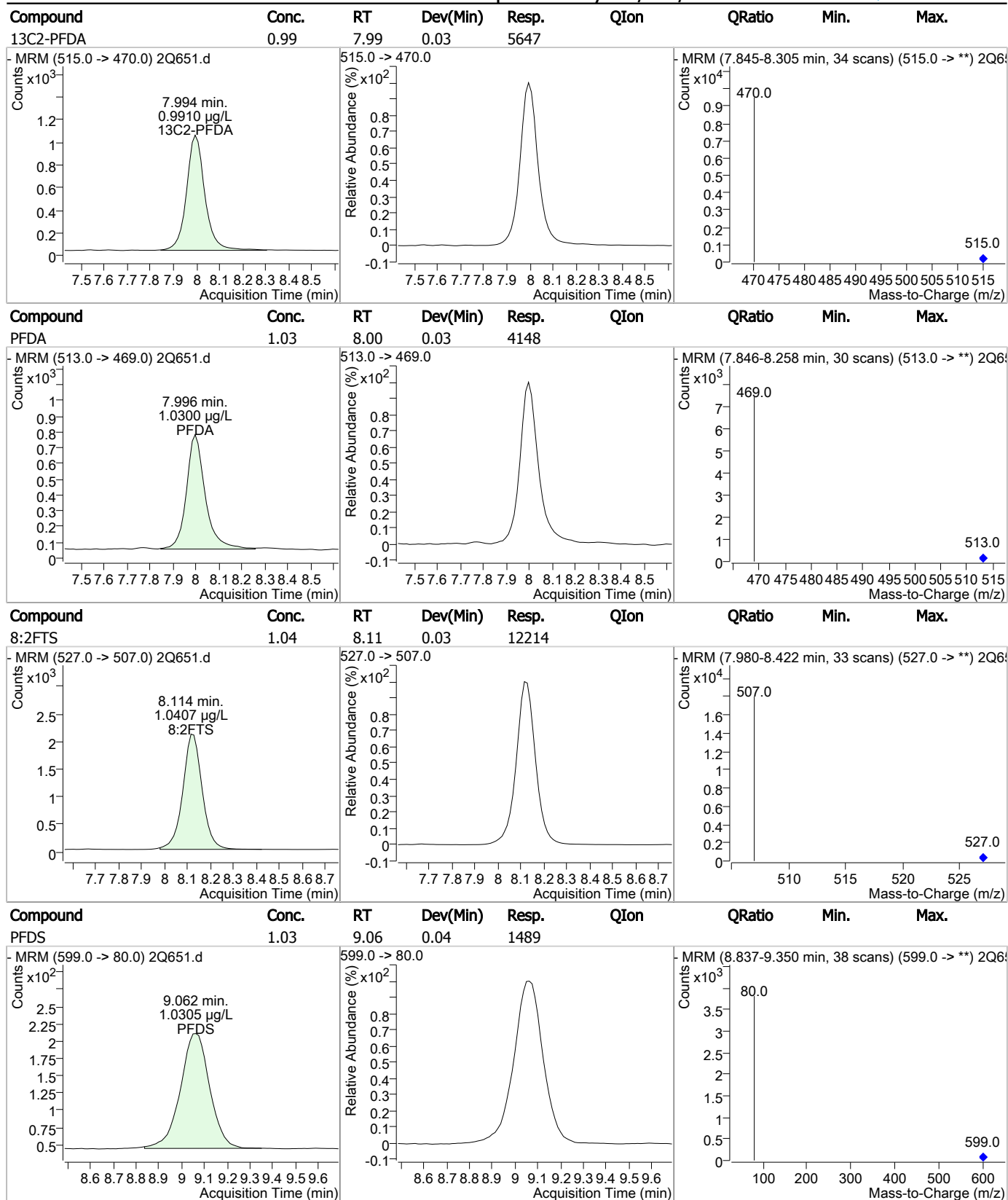
Perfluorinated Compounds by LC/MS/MS



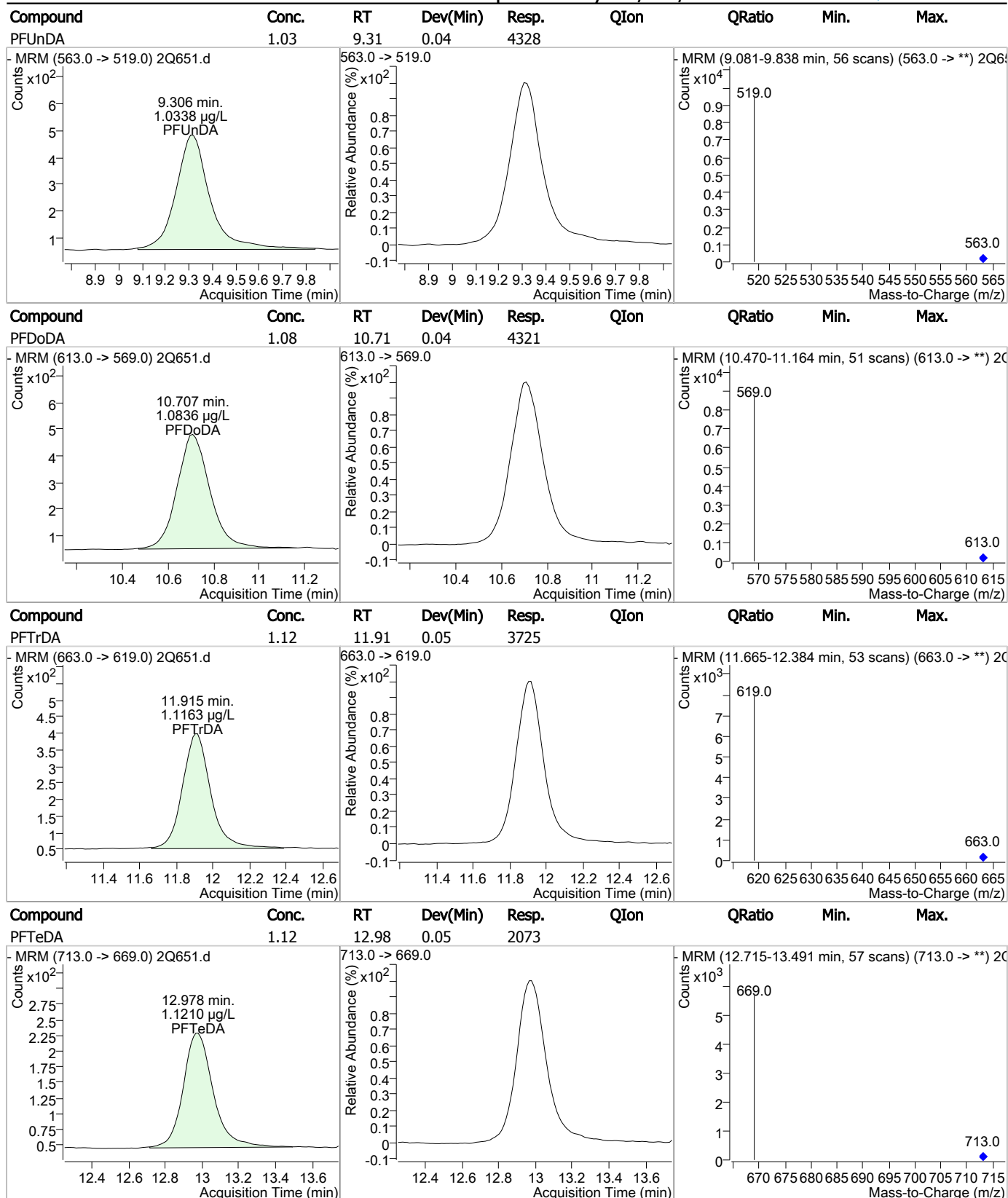
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S2Q18-IC18

Method: EPA 537 MOD

Lab FileID: 2Q651.D

Analyst approved: 04/21/17 09:46 Nancy Saunders

Injection Time: 04/20/17 11:54

Supervisor approved: 04/21/17 11:22 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.98	Split peak
Perfluoroheptanoic acid	375-85-9		5.99	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.21	Split peak

7.4.1.1
7

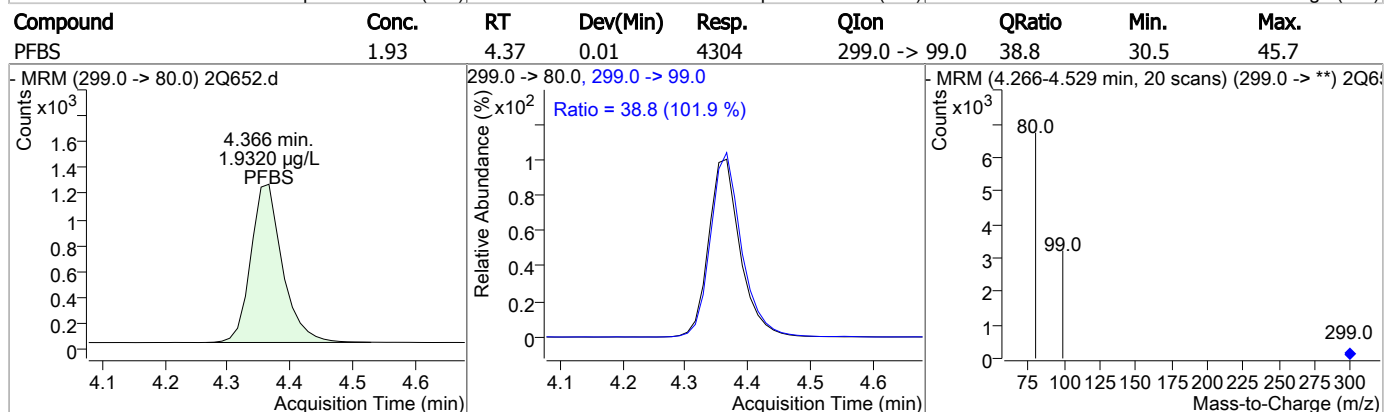
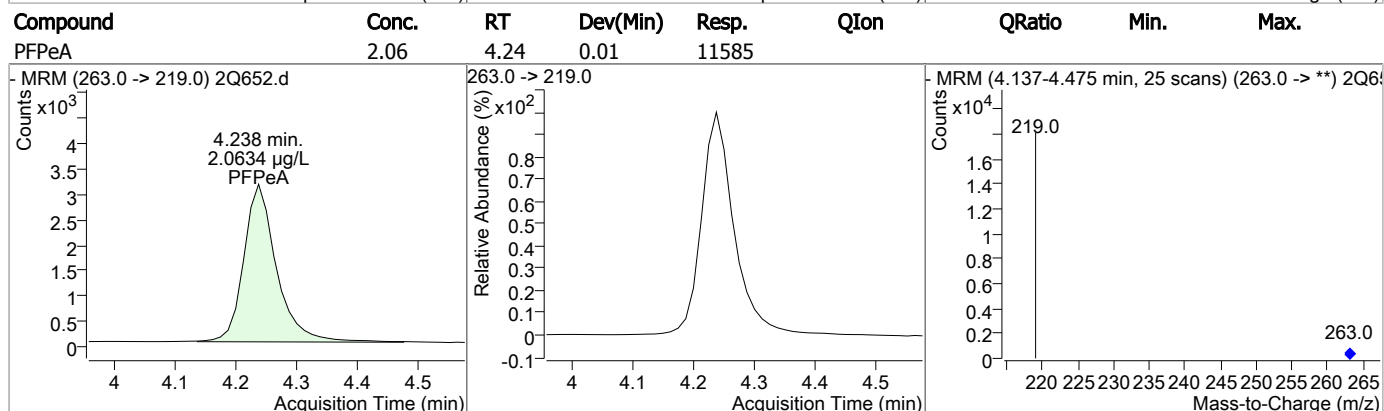
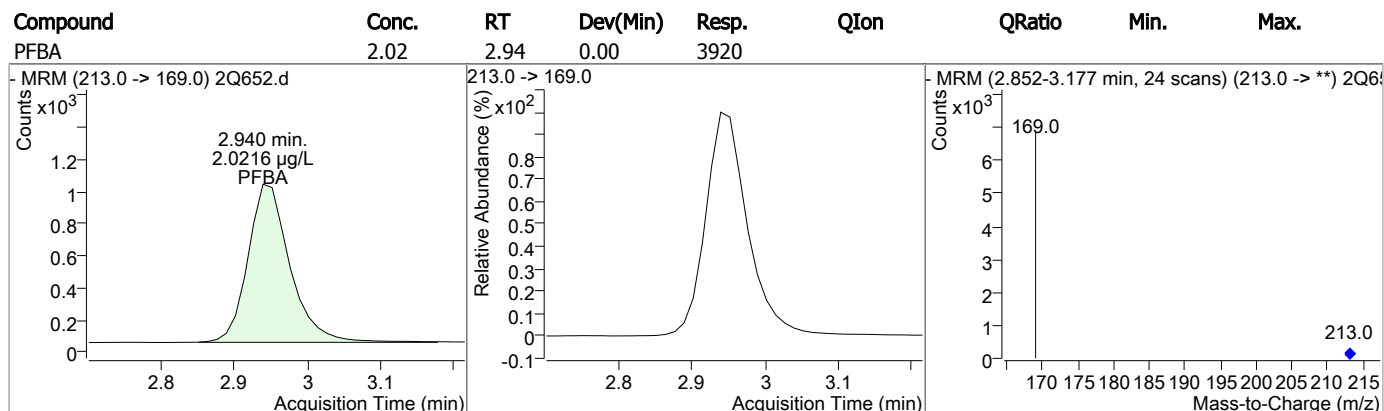
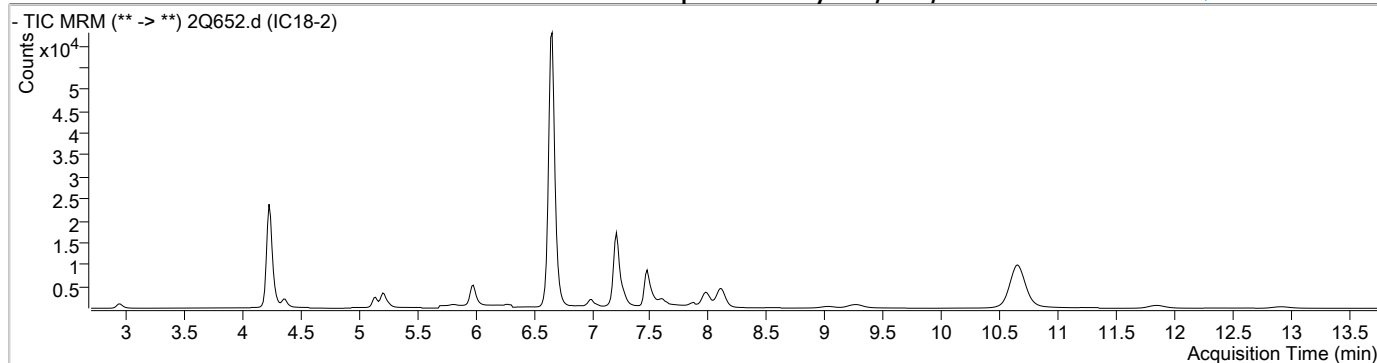
Perfluorinated Compounds by LC/MS/MS

Data File : 2Q652.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 4/20/2017 12:14:08 PM
 Sample Name : IC18-2
 Vial : Vial 3
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q18.batch.bin
 Last Calib Update : 4/21/2017 7:57:04 AM

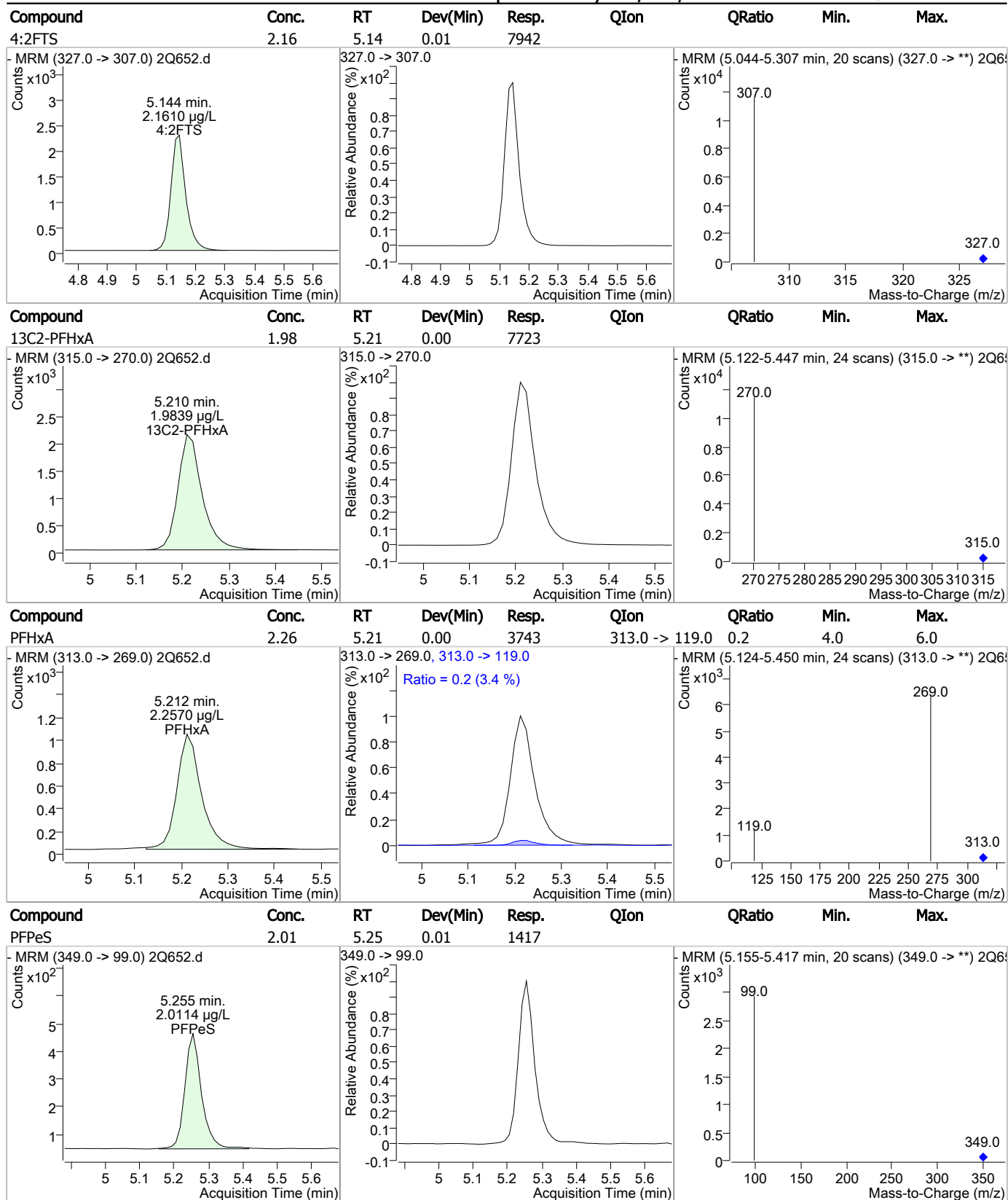
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.660	429.0 -> 409.0	145491	20.00 µg/L	0.013
13C2-PFDoDA	10.651	615.0 -> 570.0	90132	20.00 µg/L	-0.013
13C2-PFOA	6.651	415.0 -> 370.0	73705	20.00 µg/L	0.013
13C3-PFPeA	4.234	266.0 -> 222.0	73997	20.00 µg/L	0.000
13C4-PFOS	7.214	503.0 -> 80.0	55828	20.00 µg/L	0.014
d3-MeFOSAA	7.474	573.0 -> 419.0	34397	20.00 µg/L	0.000
System Monitoring Compounds					
13C2-PFDA	7.982	515.0 -> 470.0	10452	2.03 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 10.1%		
13C2-PFHxA	5.210	315.0 -> 270.0	7723	1.98 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 9.9%		
d5-EtFOSAA	7.597	589.0 -> 419.0	2107	2.71 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 13.5%		
Target Compounds					QValue
4:2FTS	5.144	327.0 -> 307.0	7942	2.16 µg/L	100
6:2FTS	6.662	427.0 -> 407.0	16517	2.35 µg/L	100
8:2FTS	8.102	527.0 -> 507.0	24338	2.09 µg/L	100
EtFOSAA	7.598	584.0 -> 419.0	1809	2.42 µg/L	100
FOSA	6.999	498.0 -> 78.0	3734	2.02 µg/L	100
MeFOSAA	7.475	570.0 -> 419.0	2113	2.39 µg/L	100
PFBA	2.940	213.0 -> 169.0	3920	2.02 µg/L	100
PFBS	4.366	299.0 -> 80.0	4304	1.93 µg/L	99
PFDA	7.984	513.0 -> 469.0	7508	2.06 µg/L	100
PFDoDA	10.645	613.0 -> 569.0	8380	2.22 µg/L	100
PFDS	9.025	599.0 -> 80.0	3097	2.18 µg/L	100
PFHpA	5.986	363.0 -> 319.0	10857	2.17 µg/L	# 93
PFHpS	6.607	449.0 -> 80.0	4657	1.97 µg/L	100
PFHxA	5.212	313.0 -> 269.0	3743	2.26 µg/L	# 85
PFHxS	5.968	399.0 -> 80.0	4586	1.97 µg/L	m 94
PFNA	7.281	463.0 -> 419.0	6918	2.10 µg/L	98
PFNS	7.879	549.0 -> 99.0	2814	2.00 µg/L	100
PFOA	6.652	413.0 -> 369.0	6233	2.03 µg/L	96
PFOS	7.215	499.0 -> 80.0	6408	1.99 µg/L	#m 82
PFPeA	4.238	263.0 -> 219.0	11585	2.06 µg/L	100
PFPeS	5.255	349.0 -> 99.0	1417	2.01 µg/L	100
PFTeDA	12.903	713.0 -> 669.0	3940	2.25 µg/L	100
PFTTrDA	11.840	663.0 -> 619.0	6935	2.19 µg/L	100
PFUnDA	9.269	563.0 -> 519.0	8003	2.02 µg/L	100

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

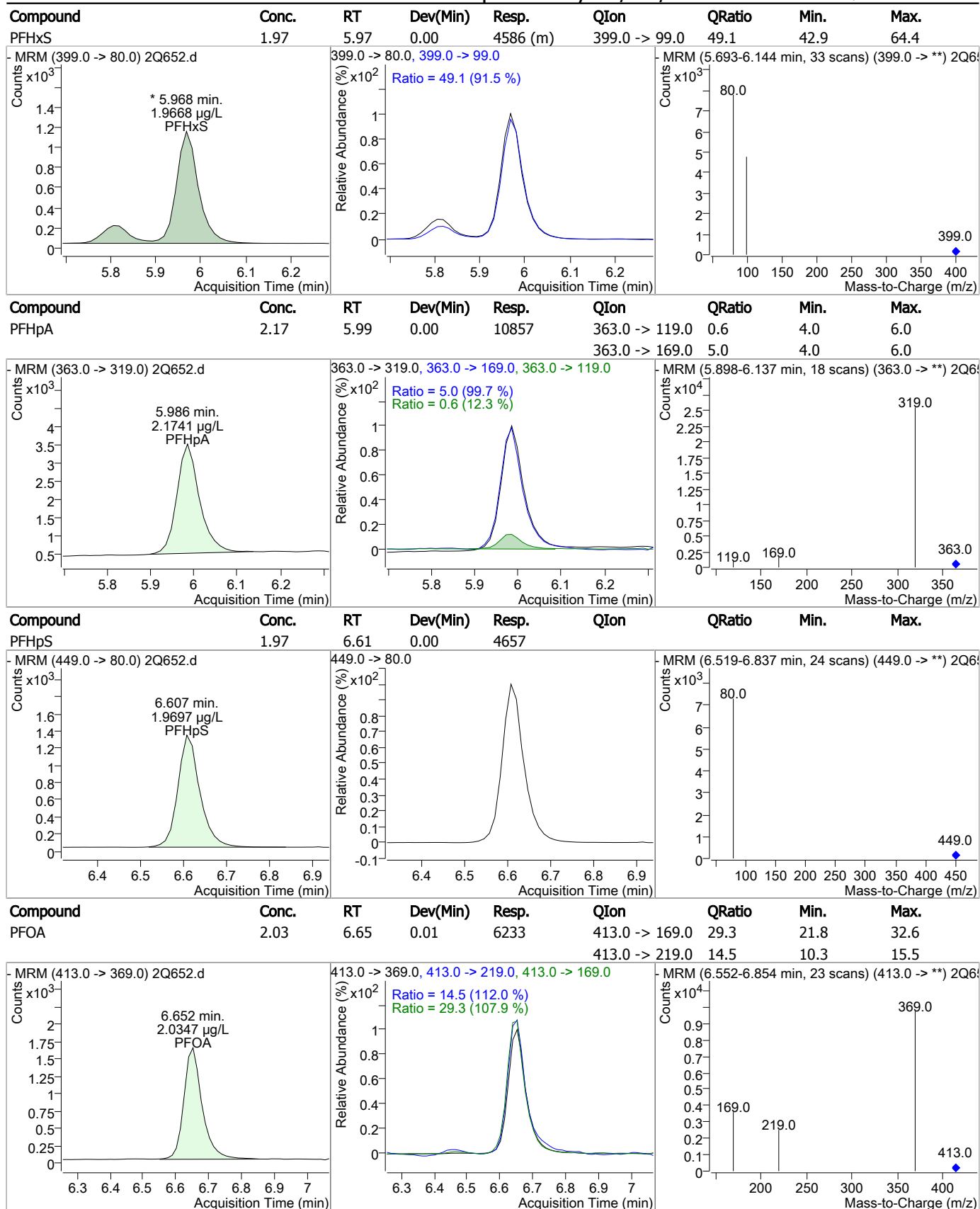
Perfluorinated Compounds by LC/MS/MS



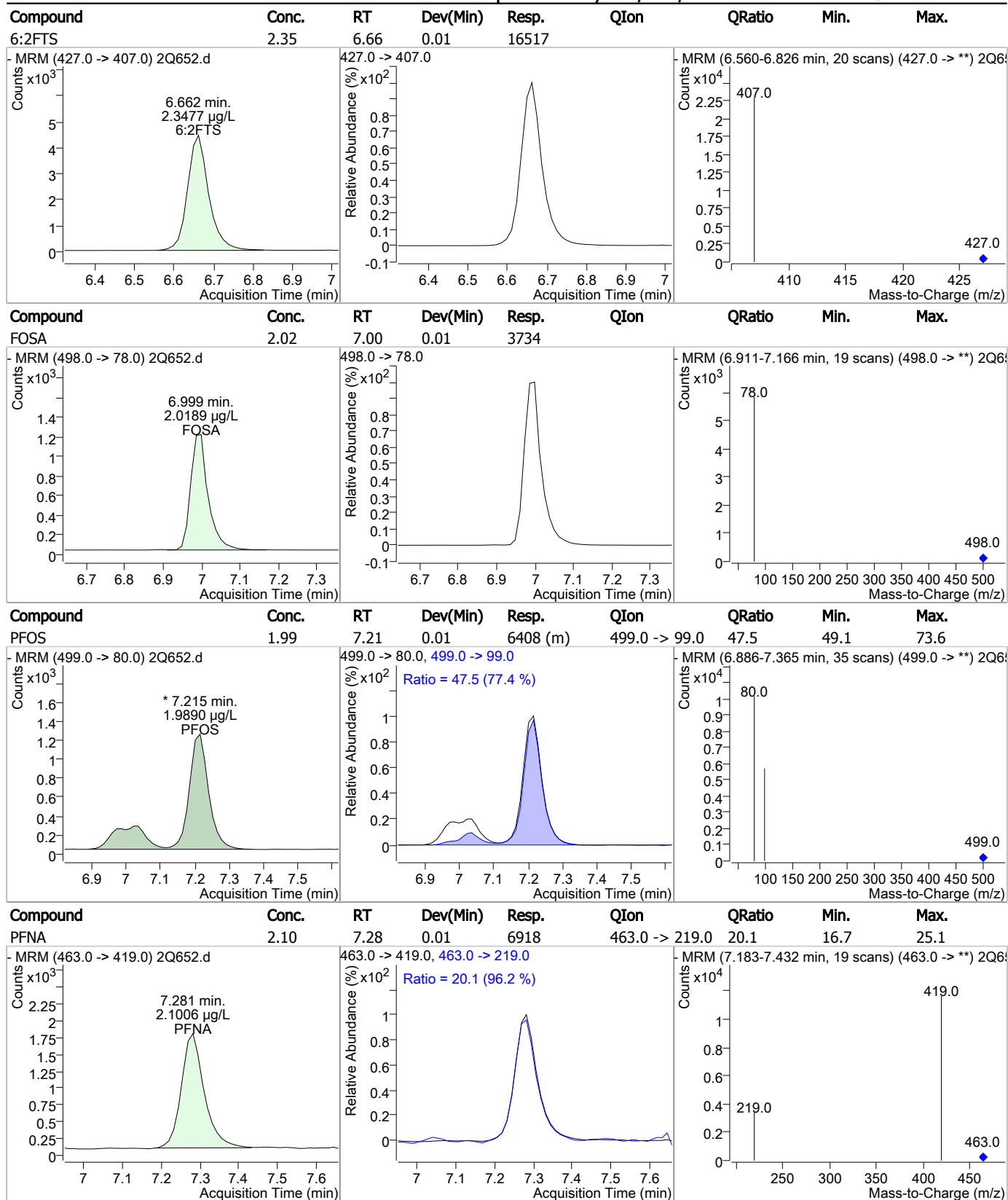
Perfluorinated Compounds by LC/MS/MS



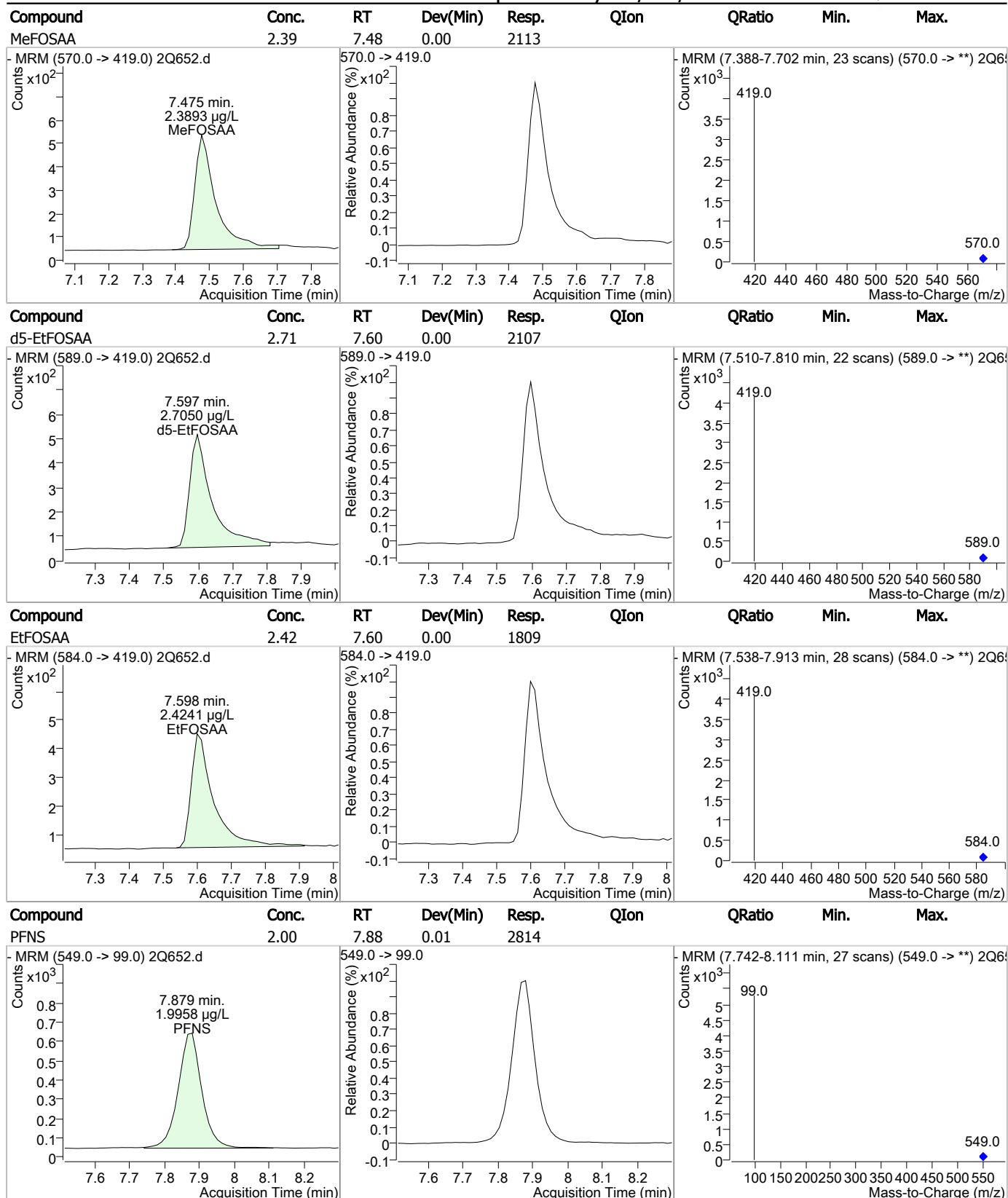
Perfluorinated Compounds by LC/MS/MS



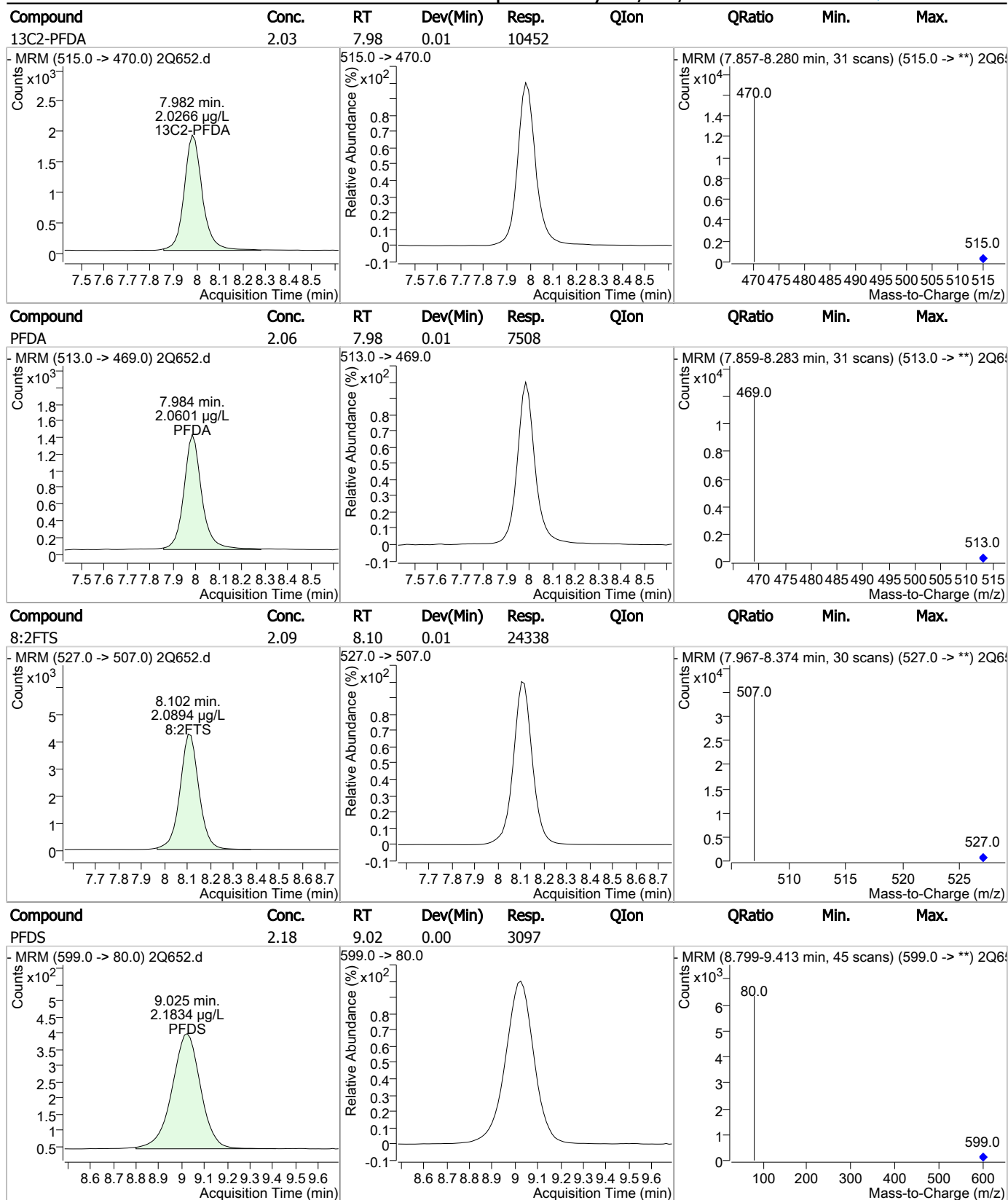
Perfluorinated Compounds by LC/MS/MS



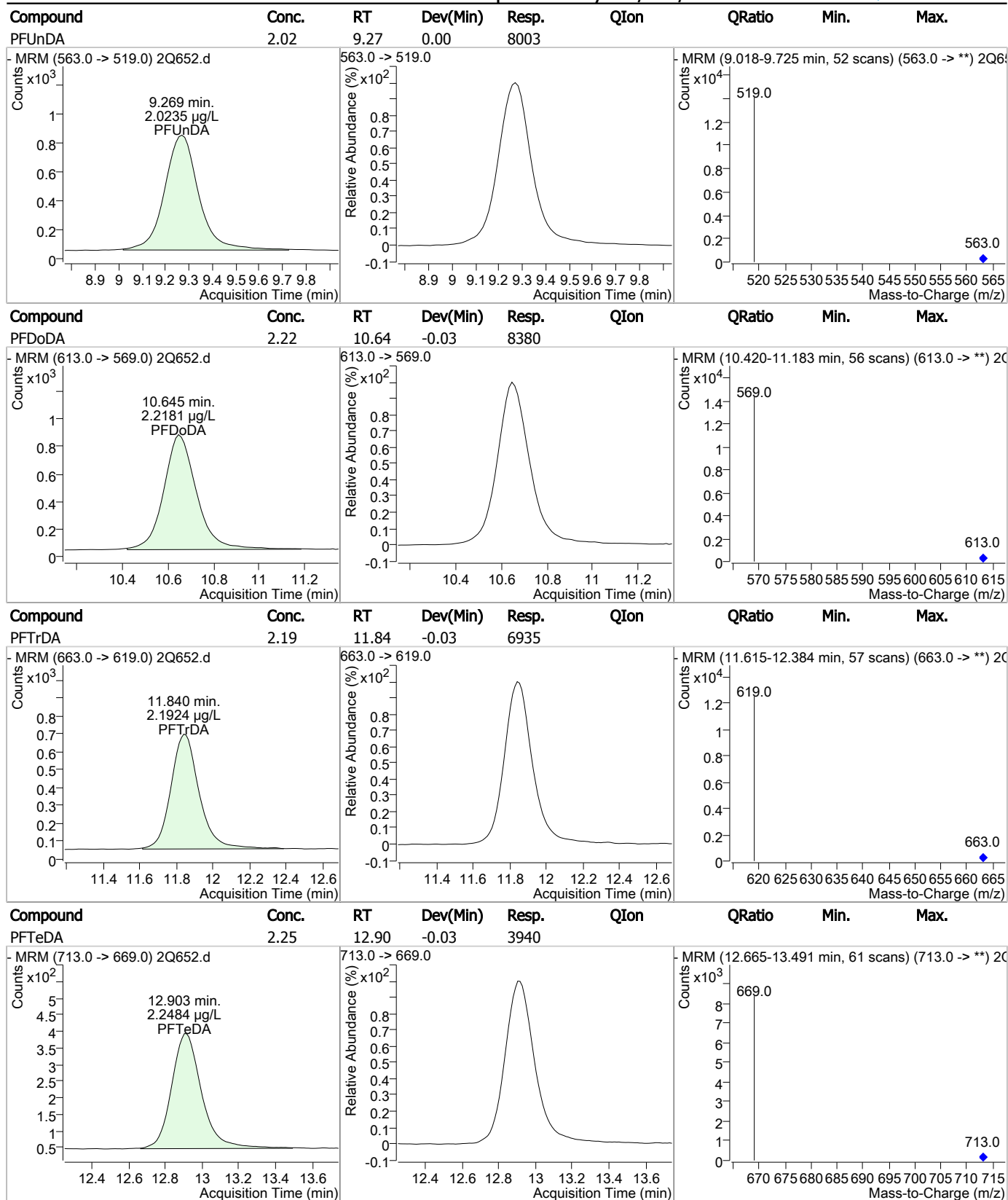
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S2Q18-IC18

Method: EPA 537 MOD

Lab FileID: 2Q652.D

Analyst approved: 04/21/17 09:46 Nancy Saunders

Injection Time: 04/20/17 12:14

Supervisor approved: 04/21/17 11:22 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.97	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.21	Split peak

7.4.2.1
7

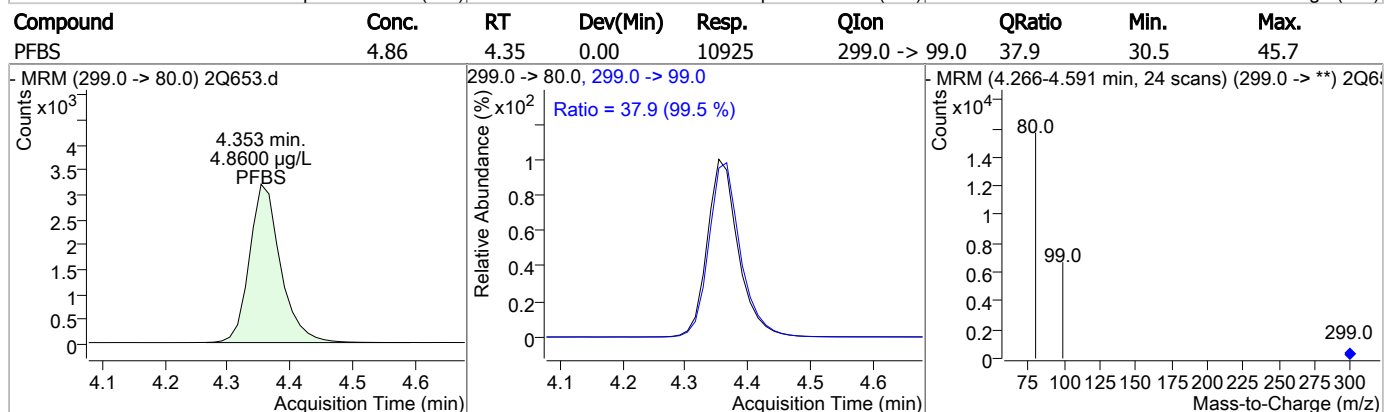
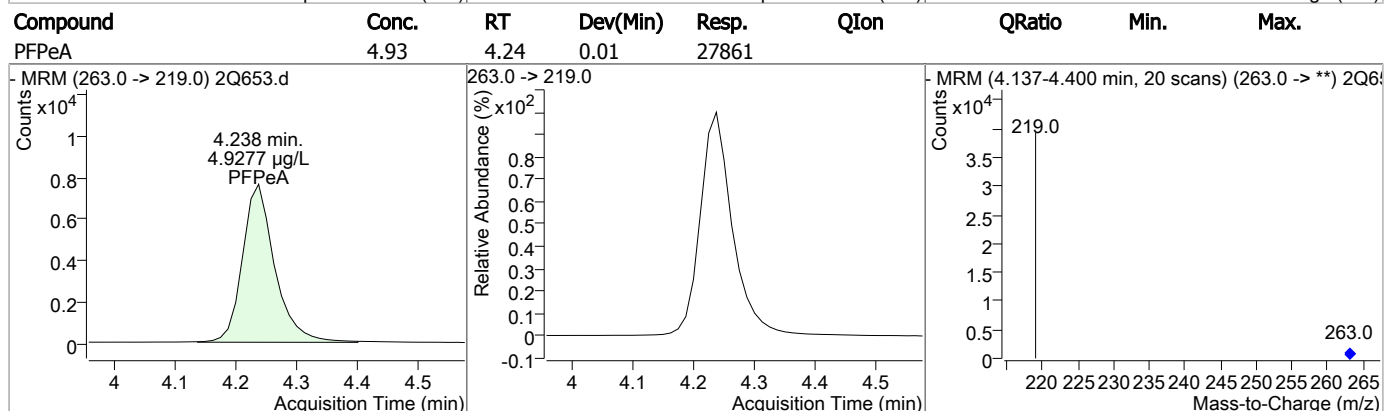
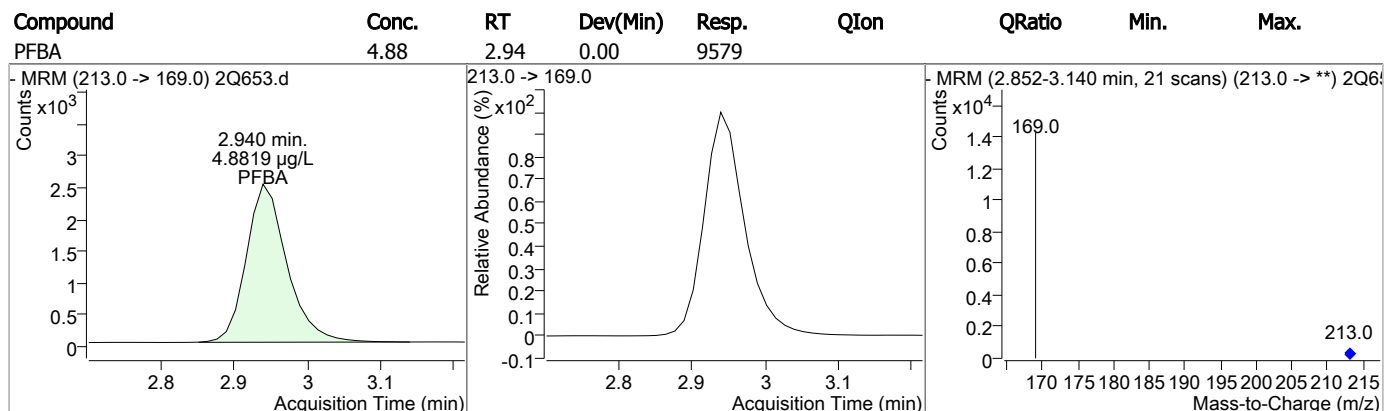
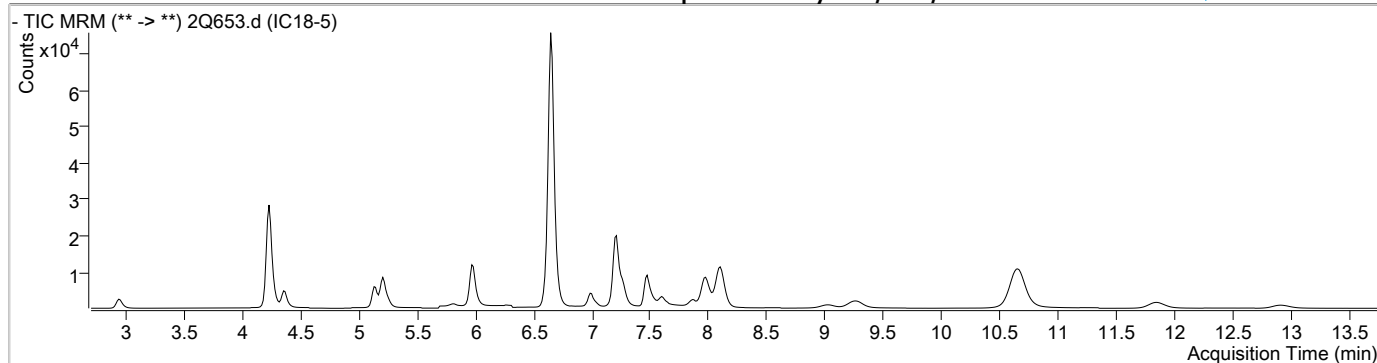
Perfluorinated Compounds by LC/MS/MS

Data File : 2Q653.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 4/20/2017 12:33:51 PM
 Sample Name : IC18-5
 Vial : Vial 4
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q18.batch.bin
 Last Calib Update : 4/21/2017 7:57:04 AM

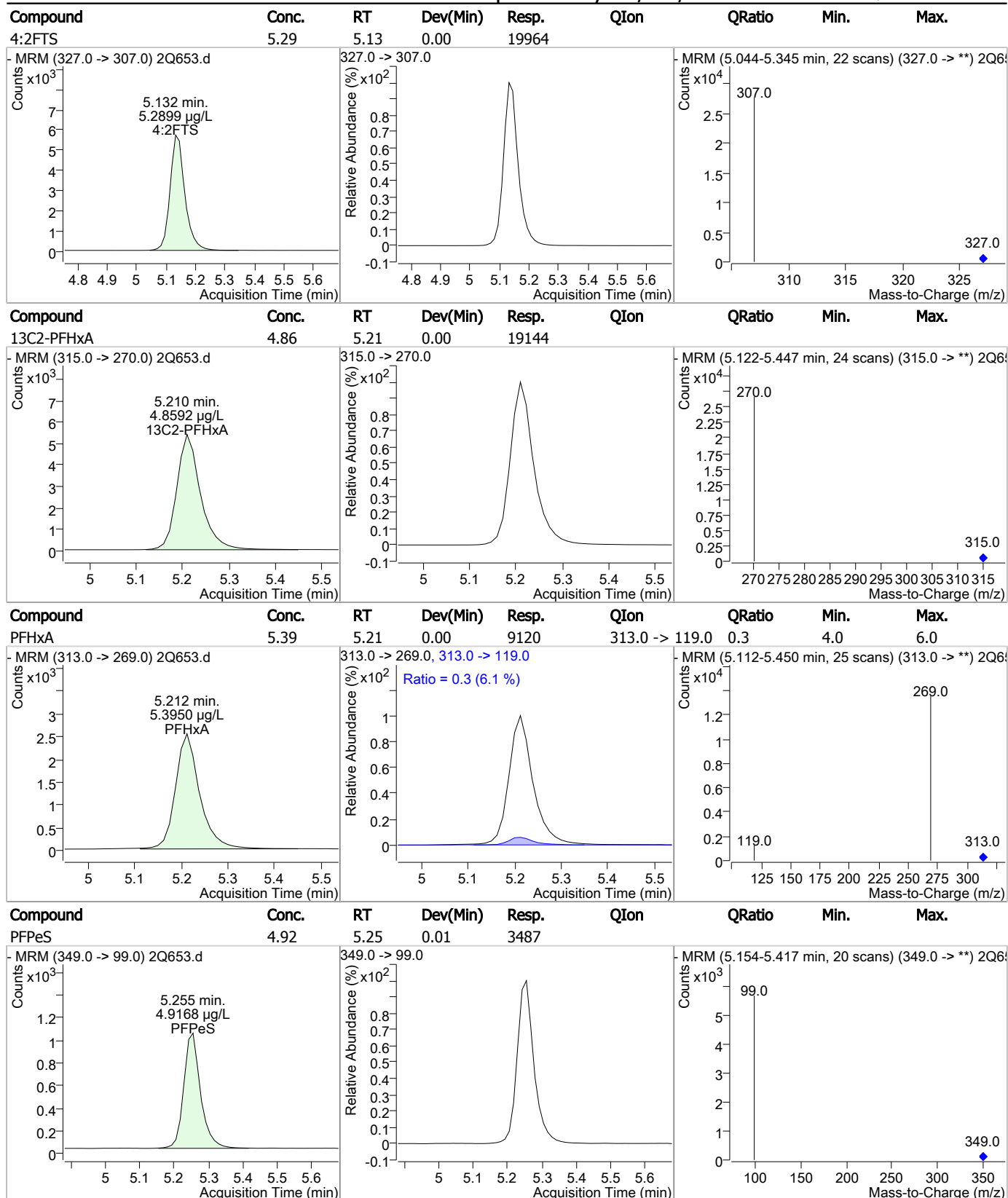
Compound	RT	Qion	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.660	429.0 -> 409.0	149408	20.00 µg/L	0.013
13C2-PFDoDA	10.651	615.0 -> 570.0	89183	20.00 µg/L	-0.013
13C2-PFOA	6.651	415.0 -> 370.0	74588	20.00 µg/L	0.013
13C3-PFPeA	4.234	266.0 -> 222.0	74514	20.00 µg/L	0.000
13C4-PFOS	7.214	503.0 -> 80.0	56334	20.00 µg/L	0.014
d3-MeFOSAA	7.474	573.0 -> 419.0	32584	20.00 µg/L	0.000
System Monitoring Compounds					
13C2-PFDA	7.982	515.0 -> 470.0	25239	4.84 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 24.2%	
13C2-PFHxA	5.210	315.0 -> 270.0	19144	4.86 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 24.3%	
d5-EtFOSAA	7.597	589.0 -> 419.0	4389	5.86 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 29.3%	
Target Compounds					
					QValue
4:2FTS	5.132	327.0 -> 307.0	19964	5.29 µg/L	100
6:2FTS	6.649	427.0 -> 407.0	39875	5.52 µg/L	100
8:2FTS	8.102	527.0 -> 507.0	62098	5.19 µg/L	100
EtFOSAA	7.598	584.0 -> 419.0	3997	5.60 µg/L	100
FOSA	6.986	498.0 -> 78.0	9105	5.20 µg/L	100
MeFOSAA	7.475	570.0 -> 419.0	4778	5.61 µg/L	100
PFBA	2.940	213.0 -> 169.0	9579	4.88 µg/L	100
PFBS	4.353	299.0 -> 80.0	10925	4.86 µg/L	100
PFDA	7.971	513.0 -> 469.0	18022	4.89 µg/L	100
PFDoDA	10.645	613.0 -> 569.0	20252	5.38 µg/L	100
PFDS	9.025	599.0 -> 80.0	7692	5.33 µg/L	100
PFHpA	5.986	363.0 -> 319.0	26345	5.19 µg/L	# 93
PFHpS	6.607	449.0 -> 80.0	11503	4.82 µg/L	100
PFHxA	5.212	313.0 -> 269.0	9120	5.39 µg/L	# 86
PFHxS	5.968	399.0 -> 80.0	11419	4.85 µg/L	m 93
PFNA	7.269	463.0 -> 419.0	17156	5.15 µg/L	97
PFNS	7.867	549.0 -> 99.0	7047	4.95 µg/L	100
PFOA	6.652	413.0 -> 369.0	15593	5.03 µg/L	99
PFOS	7.201	499.0 -> 80.0	16099	4.95 µg/L	m 85
PFPeA	4.238	263.0 -> 219.0	27861	4.93 µg/L	100
PFPeS	5.255	349.0 -> 99.0	3487	4.92 µg/L	100
PFTeDA	12.903	713.0 -> 669.0	9627	5.50 µg/L	100
PFTTrDA	11.840	663.0 -> 619.0	17193	5.44 µg/L	100
PFUnDA	9.269	563.0 -> 519.0	19572	5.00 µg/L	100

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

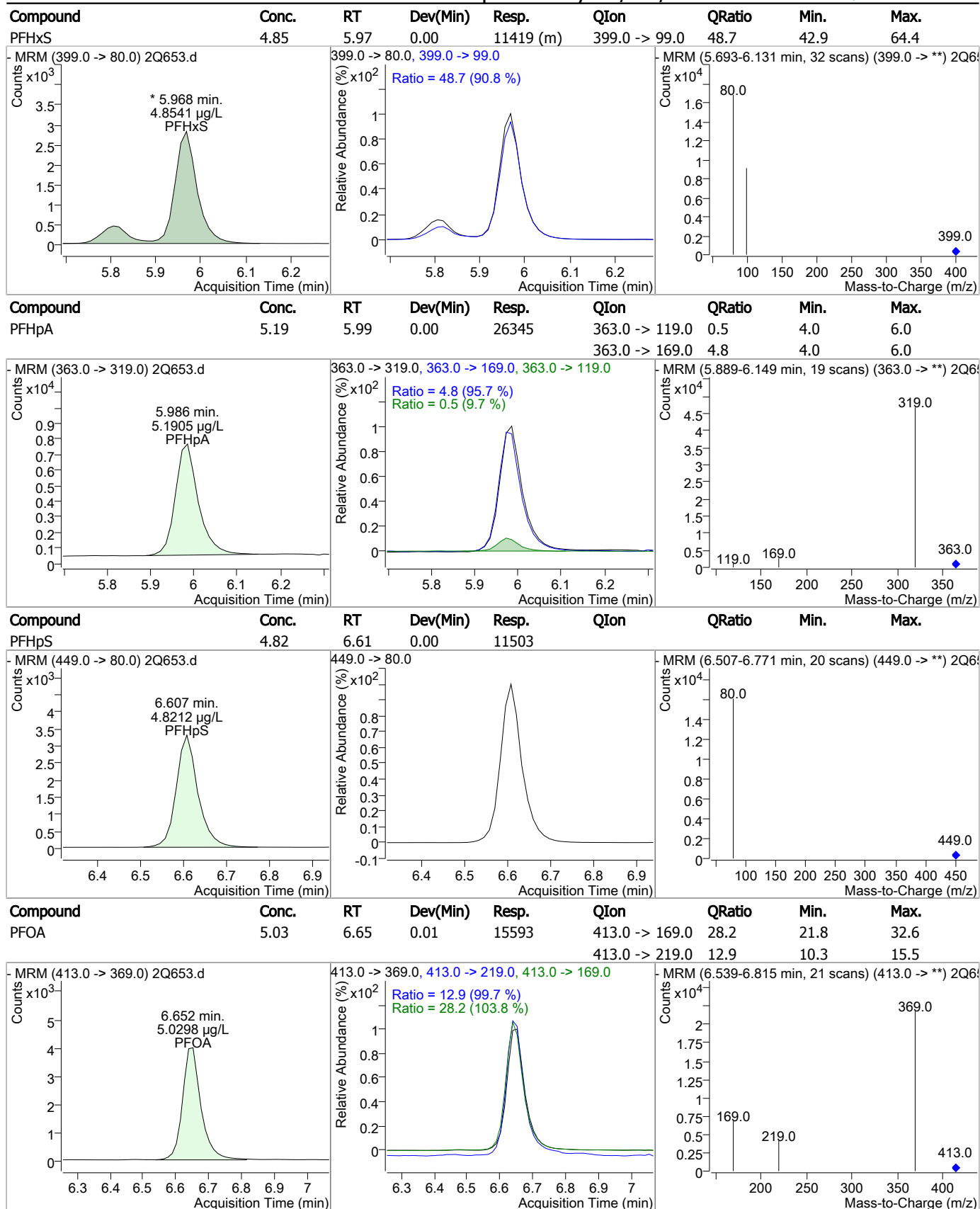
Perfluorinated Compounds by LC/MS/MS



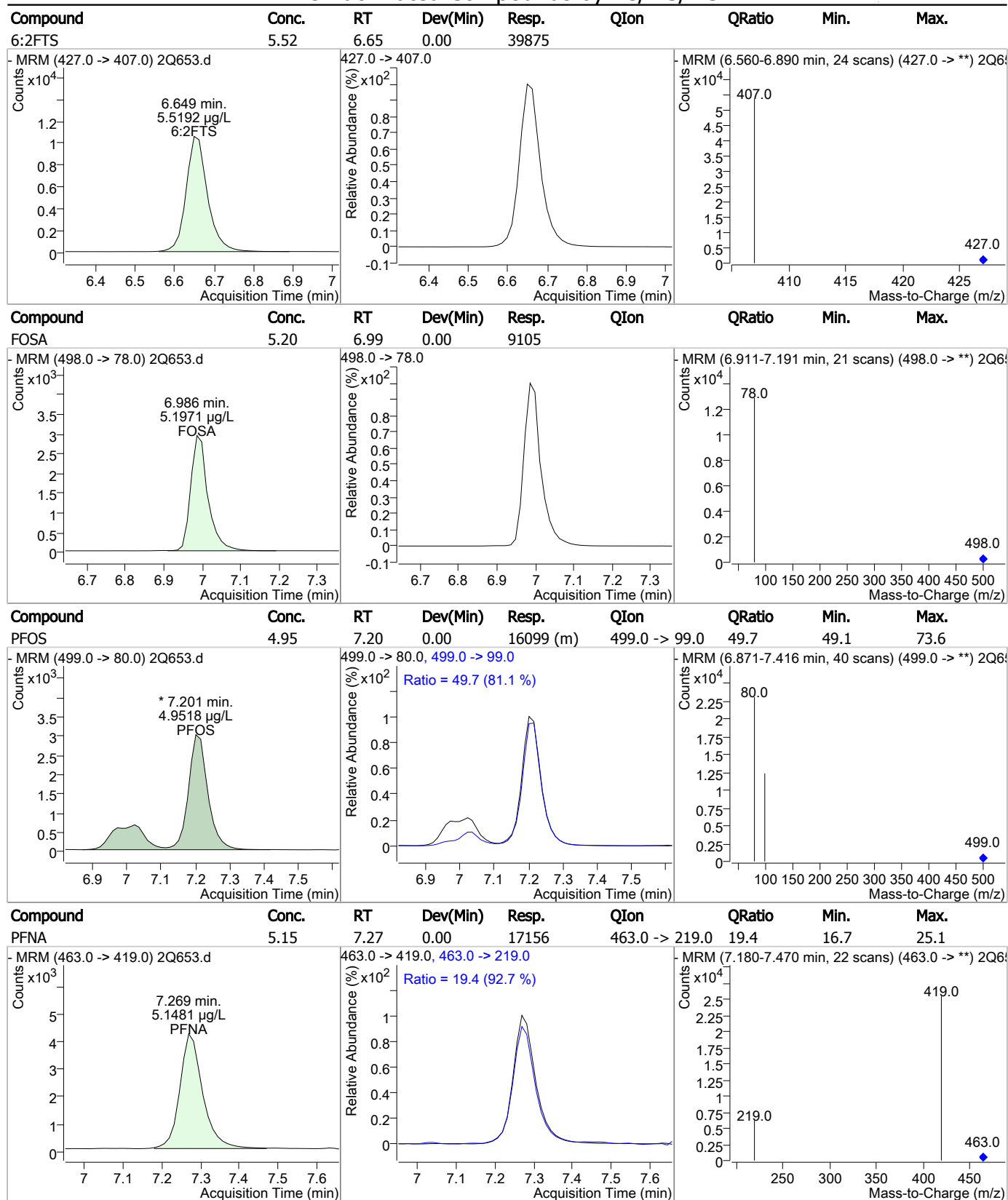
Perfluorinated Compounds by LC/MS/MS



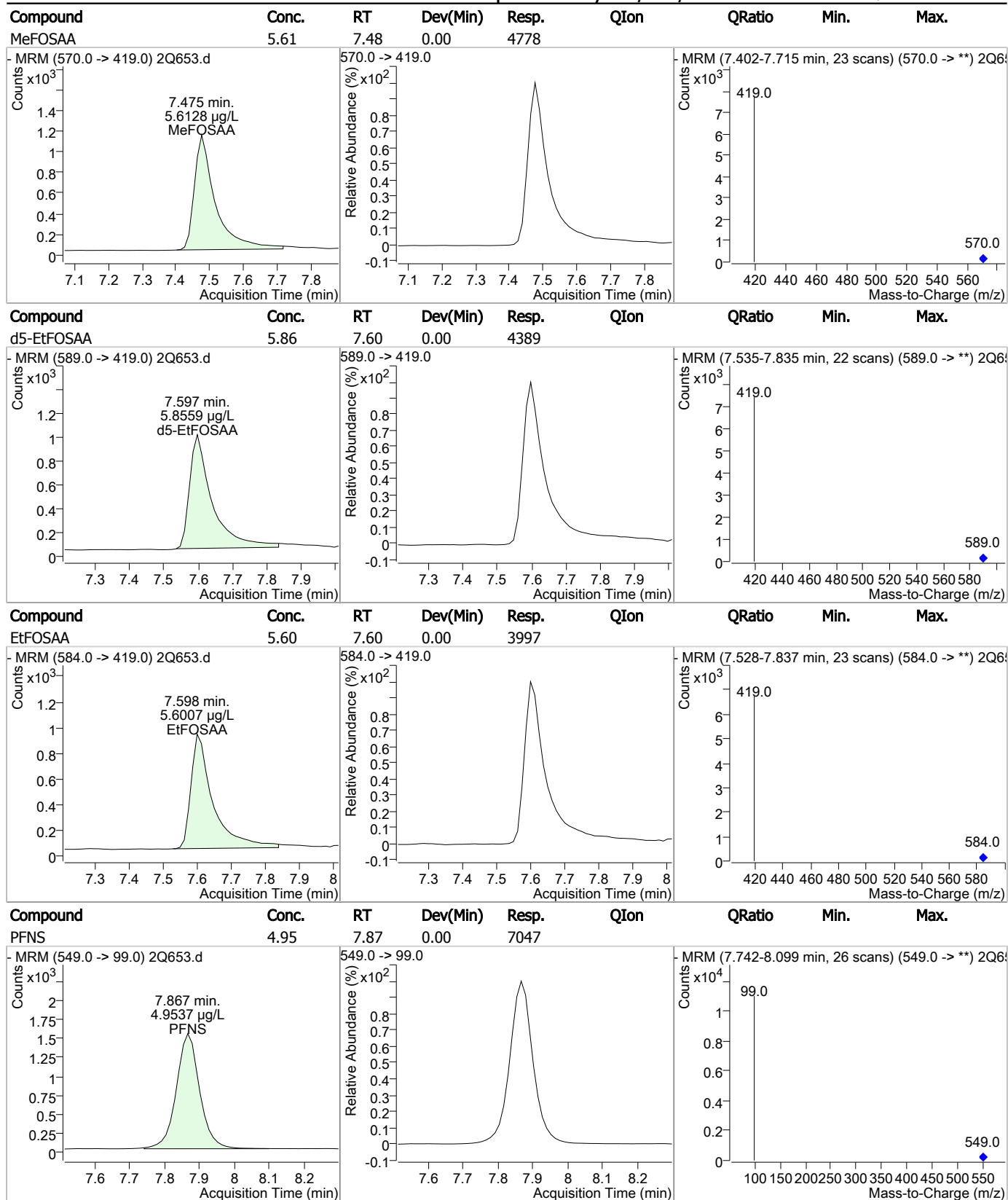
Perfluorinated Compounds by LC/MS/MS



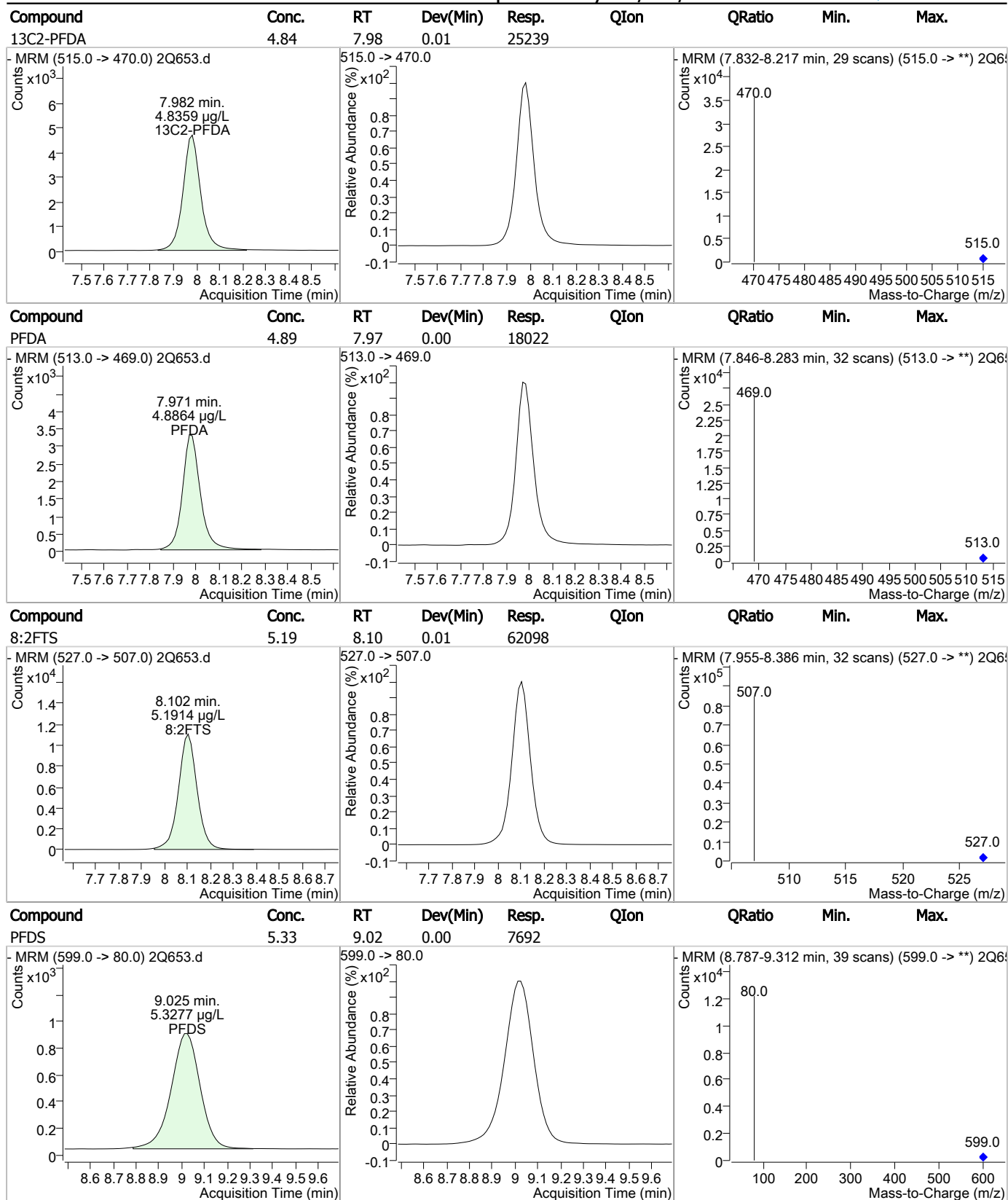
Perfluorinated Compounds by LC/MS/MS



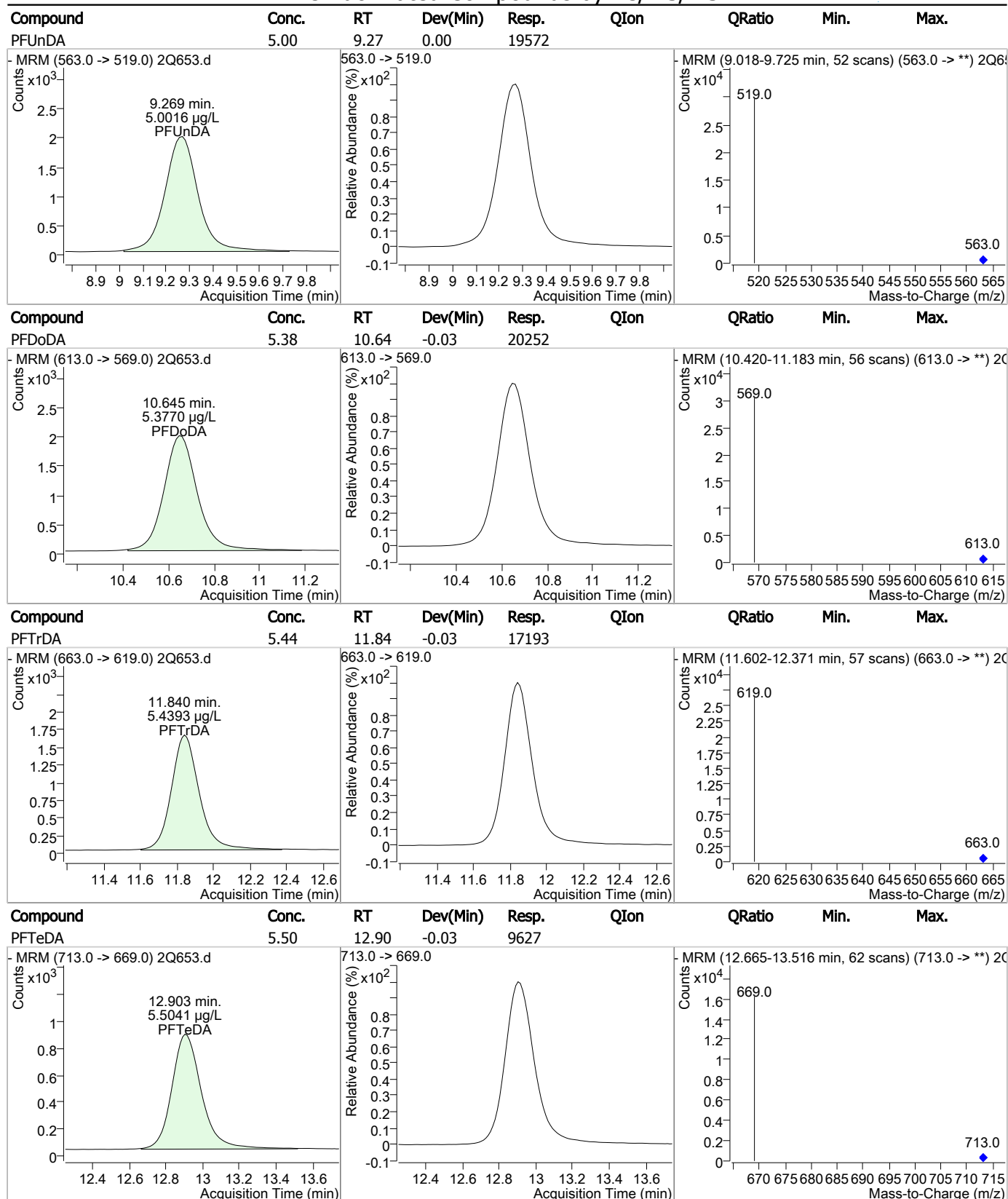
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S2Q18-IC18

Method: EPA 537 MOD

Lab FileID: 2Q653.D

Analyst approved: 04/21/17 09:46 Nancy Saunders

Injection Time: 04/20/17 12:33

Supervisor approved: 04/21/17 11:22 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.97	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.20	Split peak

7.4.3.1
7

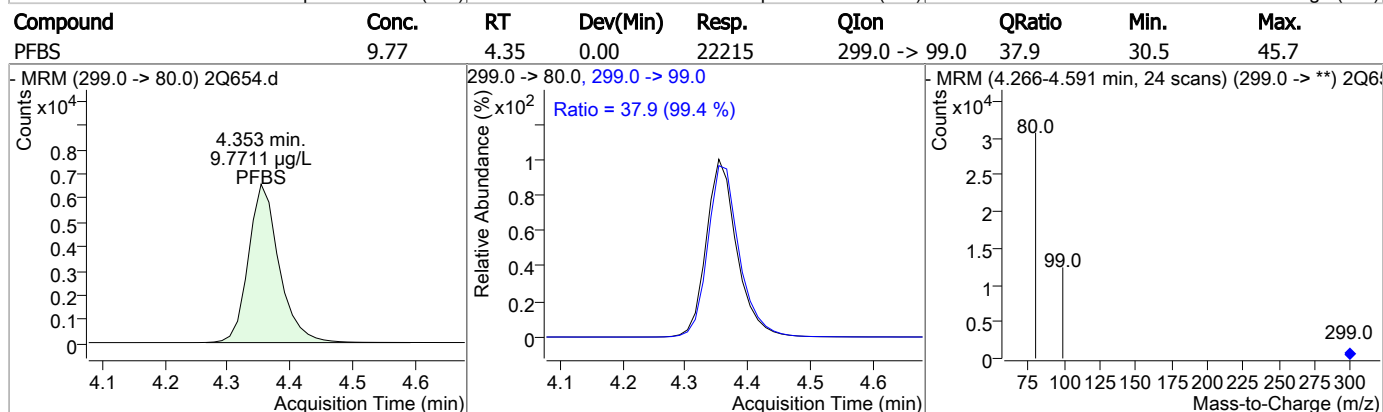
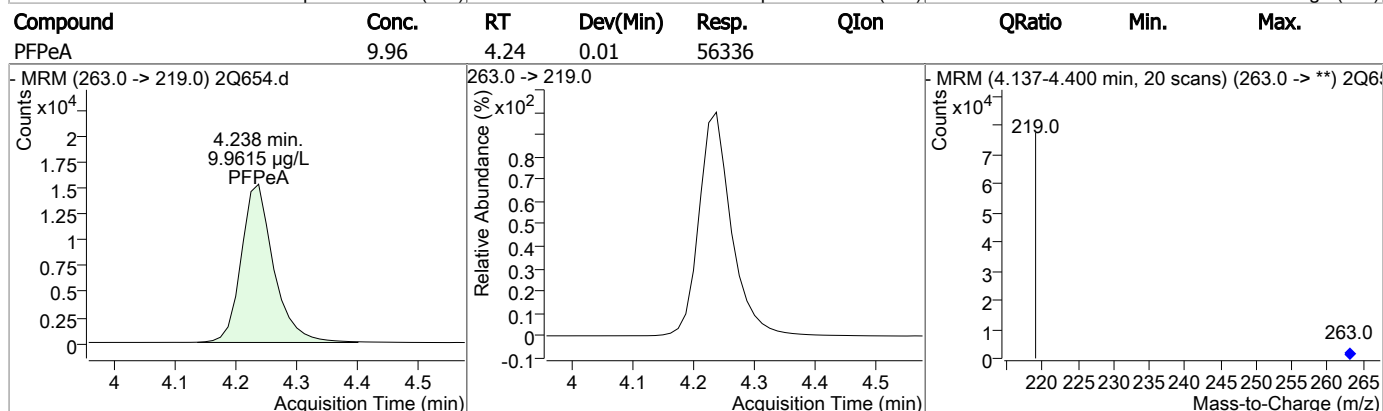
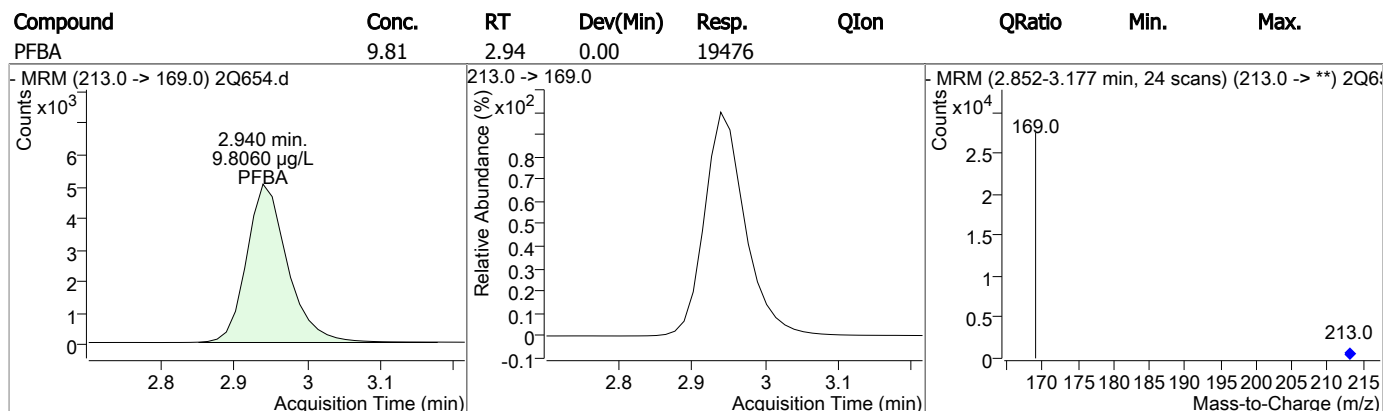
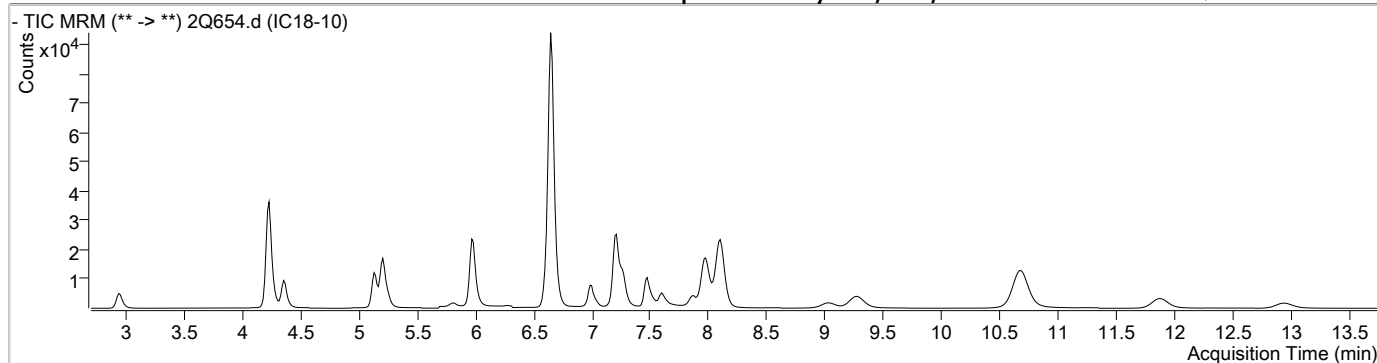
Perfluorinated Compounds by LC/MS/MS

Data File : 2Q654.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 4/20/2017 12:53:35 PM
 Sample Name : IC18-10
 Vial : Vial 5
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q18.batch.bin
 Last Calib Update : 4/21/2017 7:57:04 AM

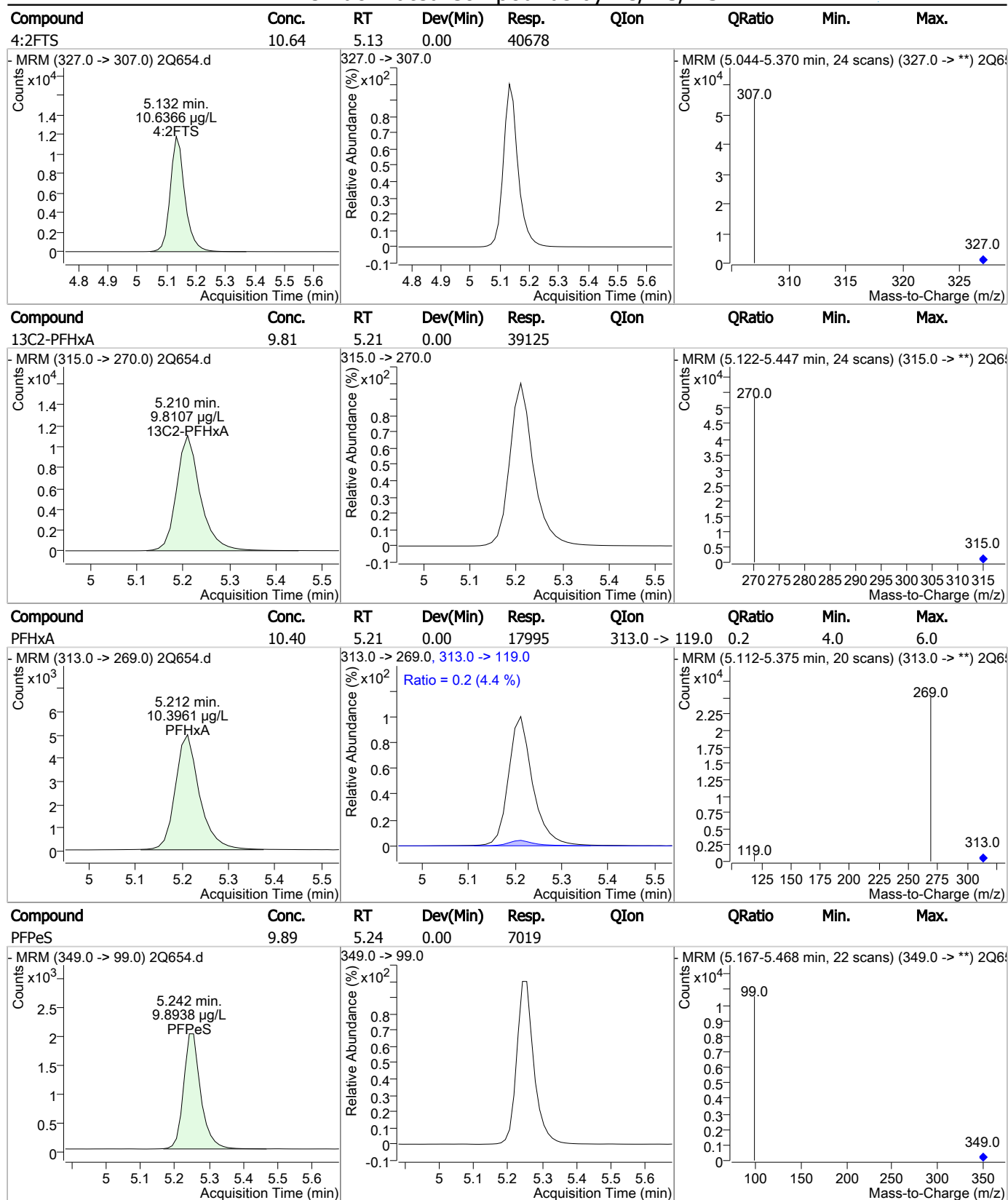
Compound	RT	Qion	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.660	429.0 -> 409.0	151398	20.00 µg/L	0.013
13C2-PFDoDA	10.676	615.0 -> 570.0	90119	20.00 µg/L	0.013
13C2-PFOA	6.651	415.0 -> 370.0	75500	20.00 µg/L	0.013
13C3-PFPeA	4.234	266.0 -> 222.0	74532	20.00 µg/L	0.000
13C4-PFOS	7.214	503.0 -> 80.0	56977	20.00 µg/L	0.014
d3-MeFOSAA	7.474	573.0 -> 419.0	34214	20.00 µg/L	0.000
System Monitoring Compounds					
13C2-PFDA	7.982	515.0 -> 470.0	51879	9.82 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 49.1%	
13C2-PFHxA	5.210	315.0 -> 270.0	39125	9.81 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 49.1%	
d5-EtFOSAA	7.597	589.0 -> 419.0	8943	11.08 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 55.4%	
Target Compounds					
					QValue
4:2FTS	5.132	327.0 -> 307.0	40678	10.64 µg/L	100
6:2FTS	6.649	427.0 -> 407.0	79916	10.92 µg/L	100
8:2FTS	8.102	527.0 -> 507.0	128092	10.57 µg/L	100
EtFOSAA	7.598	584.0 -> 419.0	7765	10.22 µg/L	100
FOSA	6.986	498.0 -> 78.0	18892	10.27 µg/L	100
MeFOSAA	7.475	570.0 -> 419.0	10408	11.32 µg/L	100
PFBA	2.940	213.0 -> 169.0	19476	9.81 µg/L	100
PFBS	4.353	299.0 -> 80.0	22215	9.77 µg/L	100
PFDA	7.971	513.0 -> 469.0	36869	9.88 µg/L	100
PFDoDA	10.670	613.0 -> 569.0	41408	10.74 µg/L	100
PFDS	9.025	599.0 -> 80.0	15632	10.55 µg/L	100
PFHpA	5.986	363.0 -> 319.0	53261	10.29 µg/L	# 93
PFHpS	6.607	449.0 -> 80.0	23423	9.71 µg/L	100
PFHxA	5.212	313.0 -> 269.0	17995	10.40 µg/L	# 86
PFHxS	5.968	399.0 -> 80.0	23060	9.69 µg/L	m 94
PFNA	7.269	463.0 -> 419.0	33687	9.99 µg/L	98
PFNS	7.867	549.0 -> 99.0	14200	9.87 µg/L	100
PFOA	6.639	413.0 -> 369.0	31431	10.02 µg/L	99
PFOS	7.201	499.0 -> 80.0	32188	9.79 µg/L	m 85
PFPeA	4.238	263.0 -> 219.0	56336	9.96 µg/L	100
PFPeS	5.242	349.0 -> 99.0	7019	9.89 µg/L	100
PFTeDA	12.928	713.0 -> 669.0	19571	10.91 µg/L	100
PFTTrDA	11.865	663.0 -> 619.0	35228	10.85 µg/L	100
PFUnDA	9.269	563.0 -> 519.0	39980	10.11 µg/L	100

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

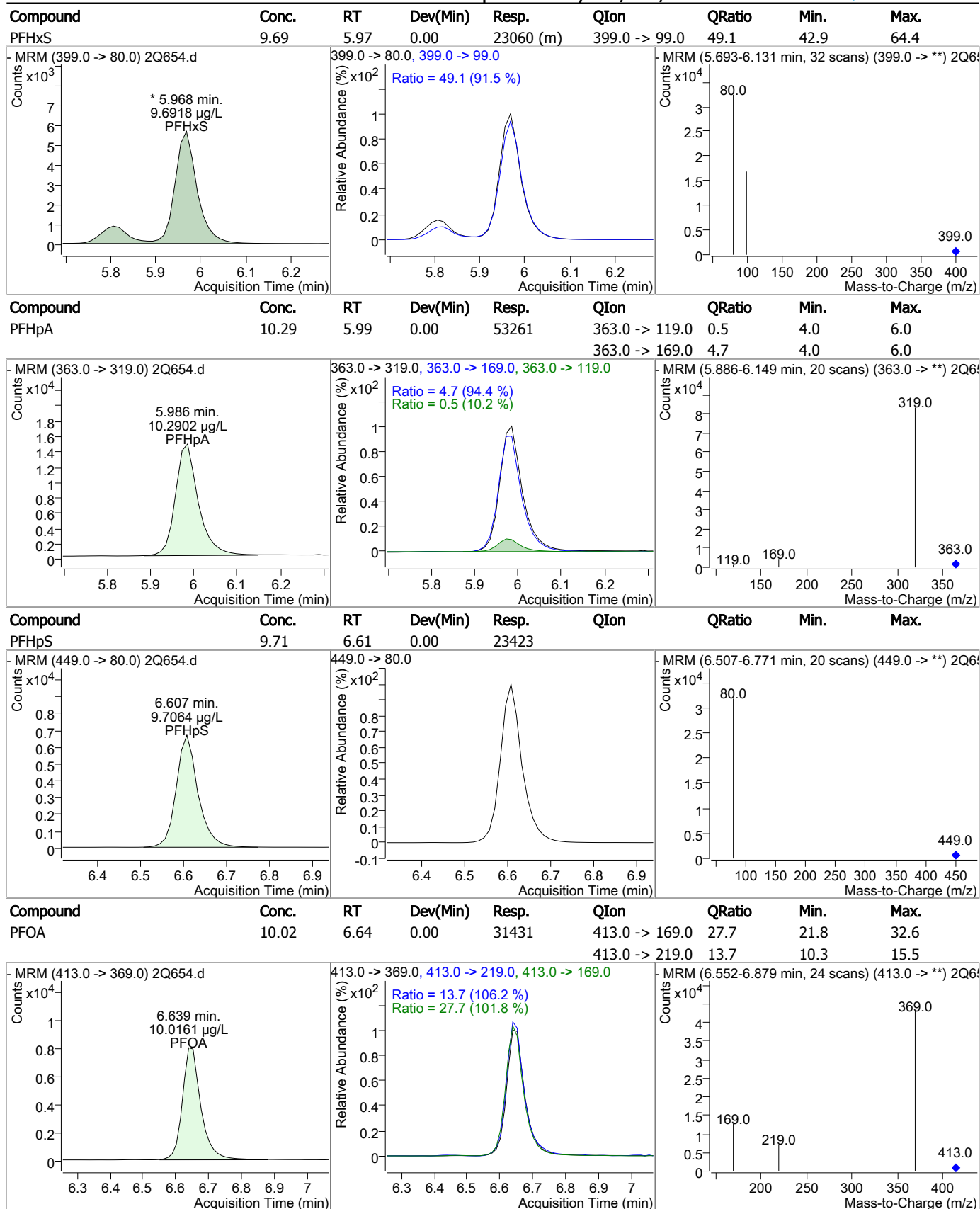
Perfluorinated Compounds by LC/MS/MS



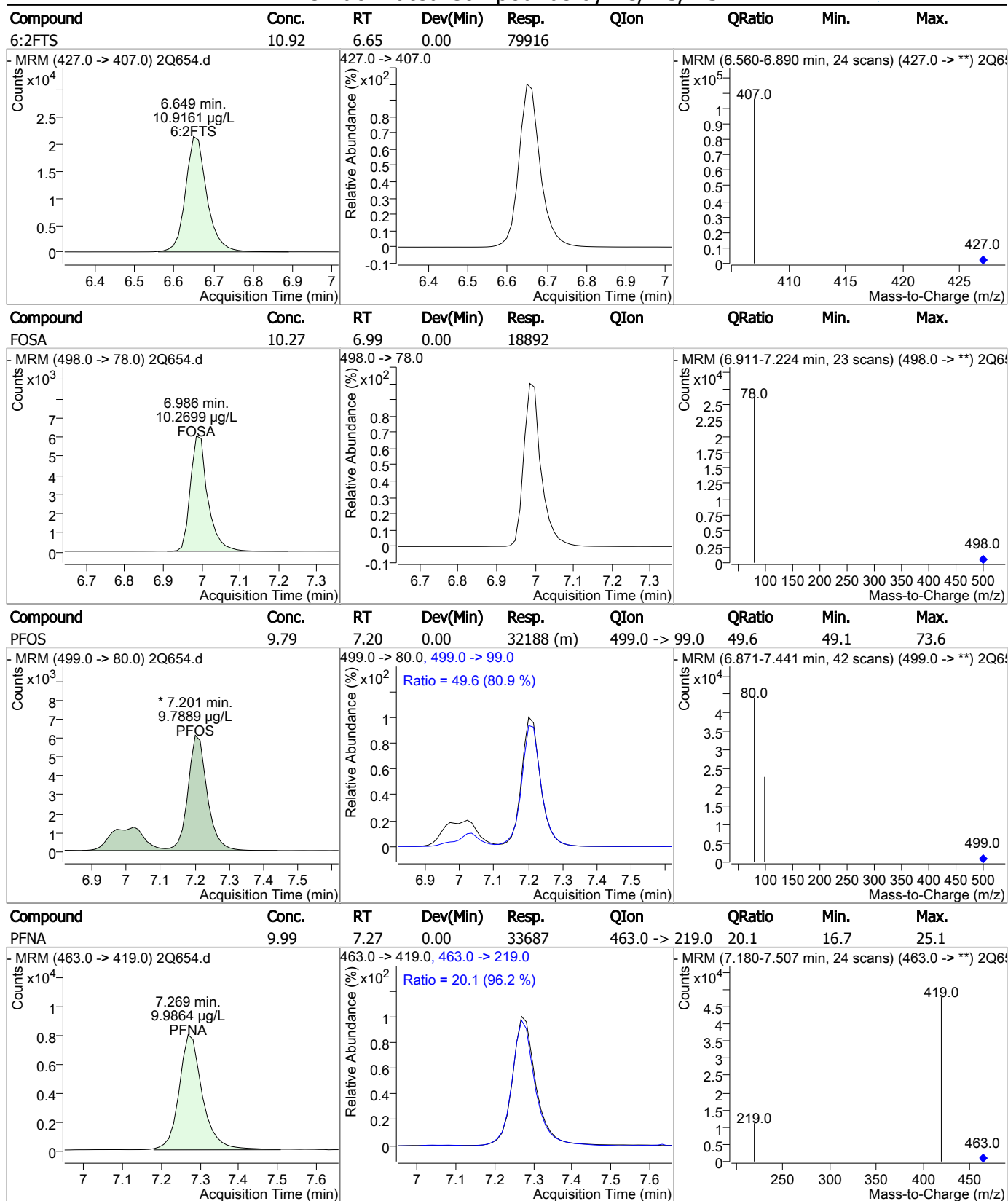
Perfluorinated Compounds by LC/MS/MS



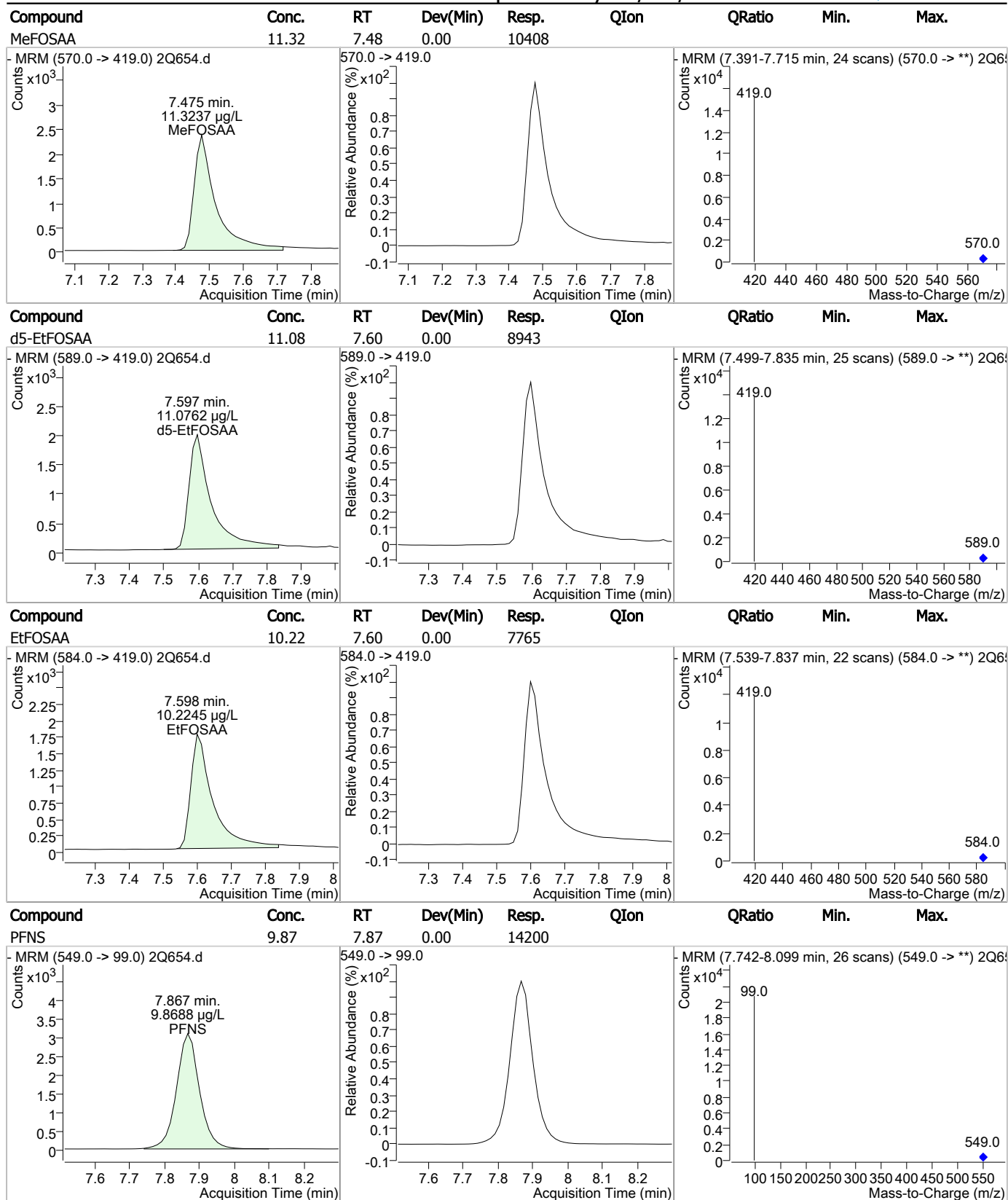
Perfluorinated Compounds by LC/MS/MS



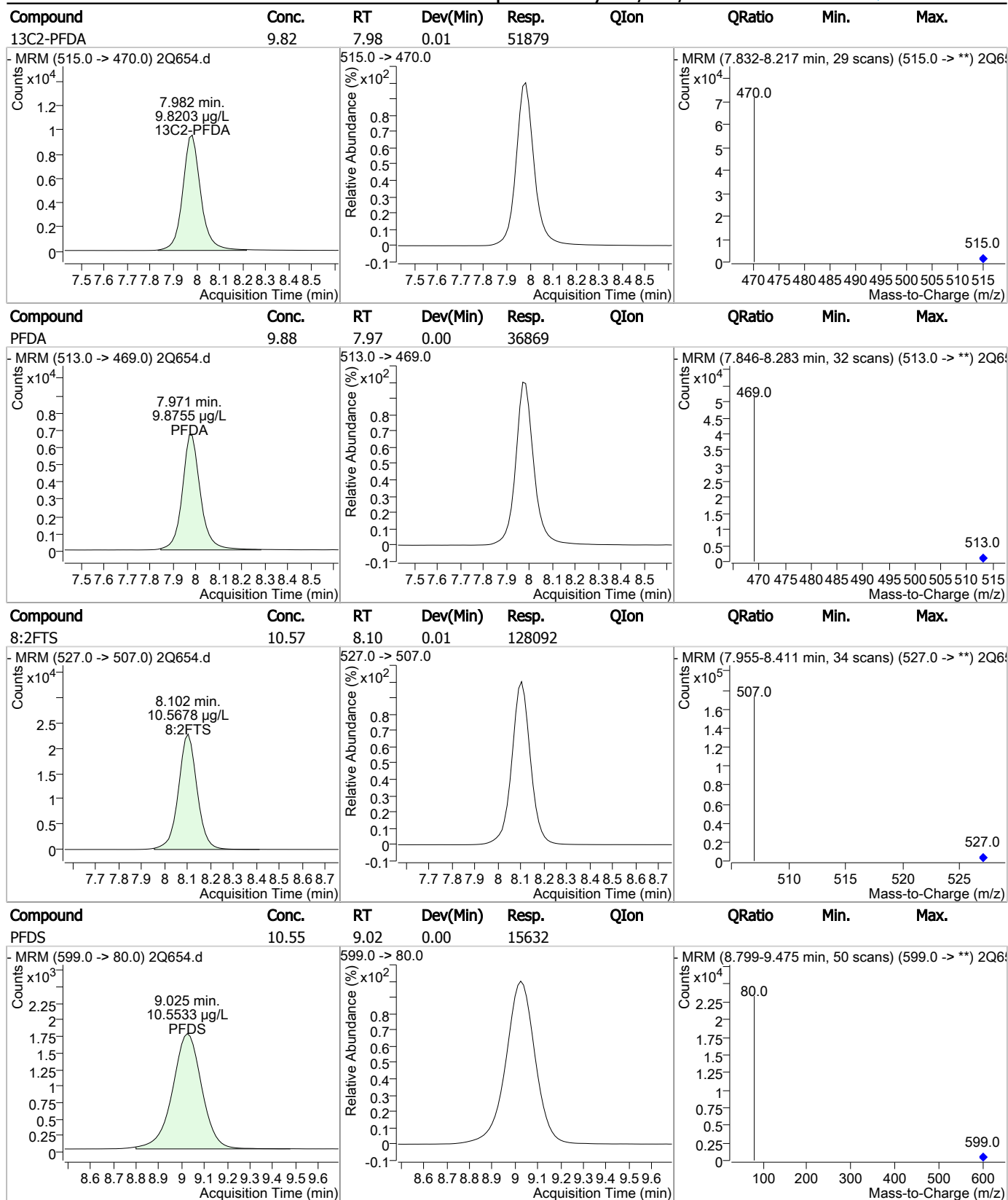
Perfluorinated Compounds by LC/MS/MS



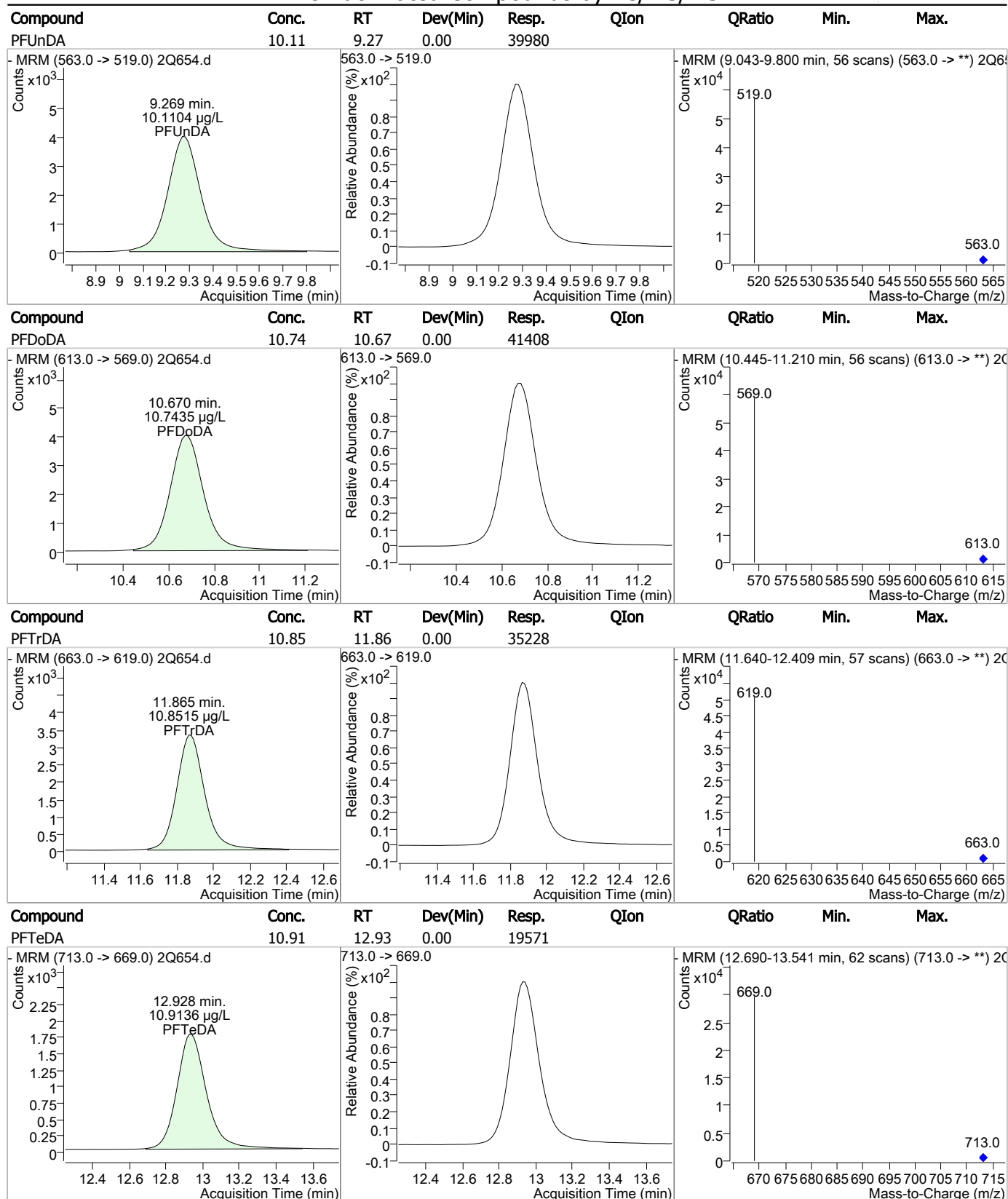
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S2Q18-IC18

Method: EPA 537 MOD

Lab FileID: 2Q654.D

Analyst approved: 04/21/17 09:46 Nancy Saunders

Injection Time: 04/20/17 12:53

Supervisor approved: 04/21/17 11:22 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.97	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.20	Split peak

7.4.4.1
7

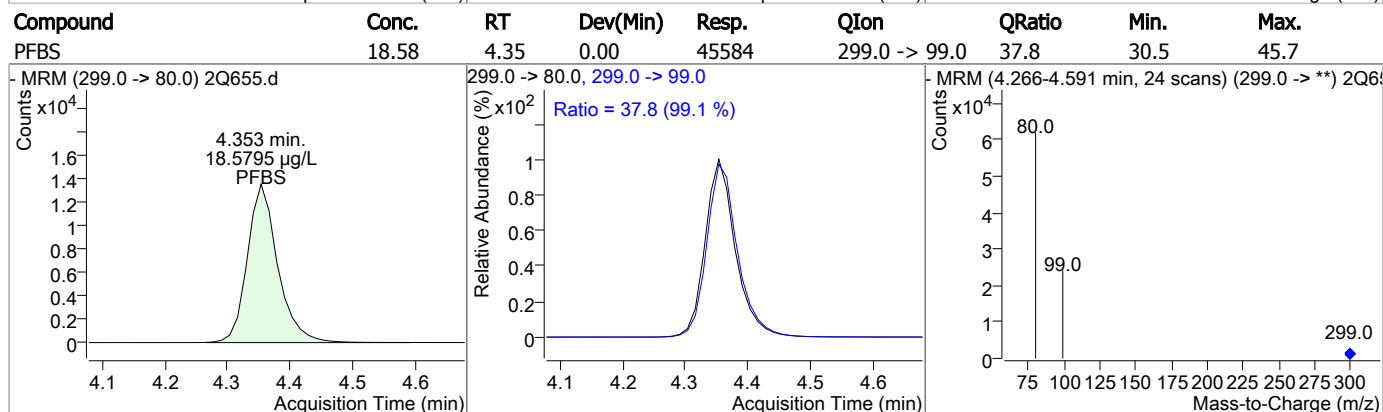
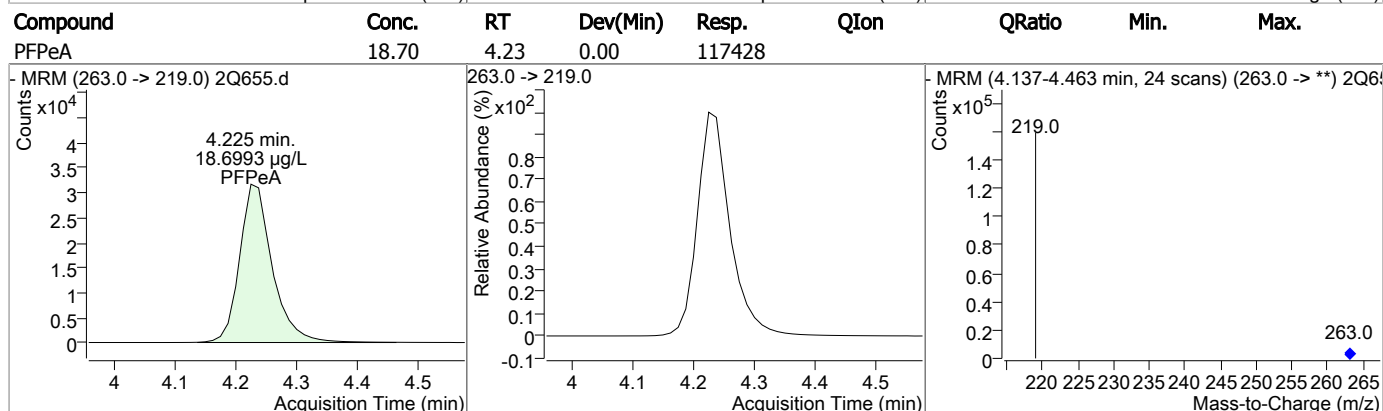
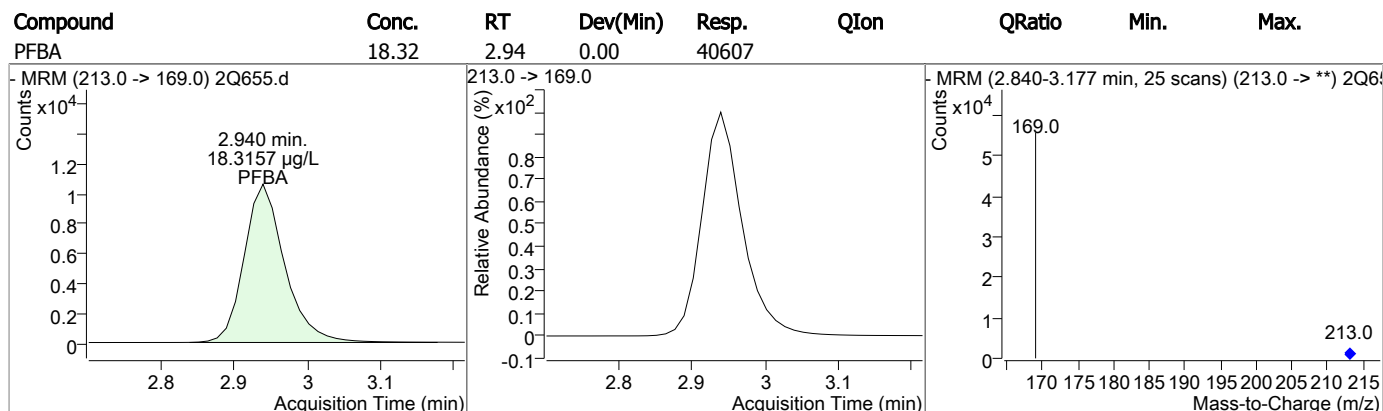
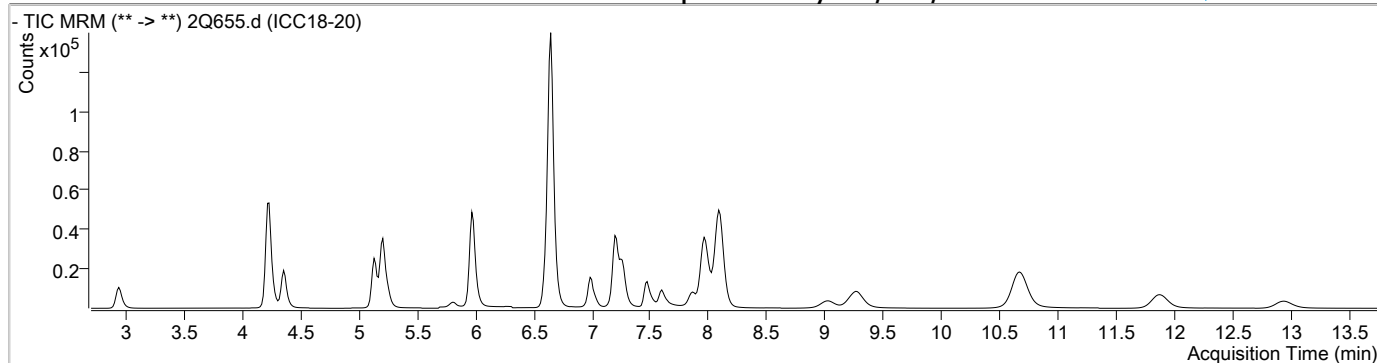
Perfluorinated Compounds by LC/MS/MS

Data File : 2Q655.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 4/20/2017 1:13:18 PM
 Sample Name : ICC18-20
 Vial : Vial 6
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q18.batch.bin
 Last Calib Update : 4/21/2017 7:57:04 AM

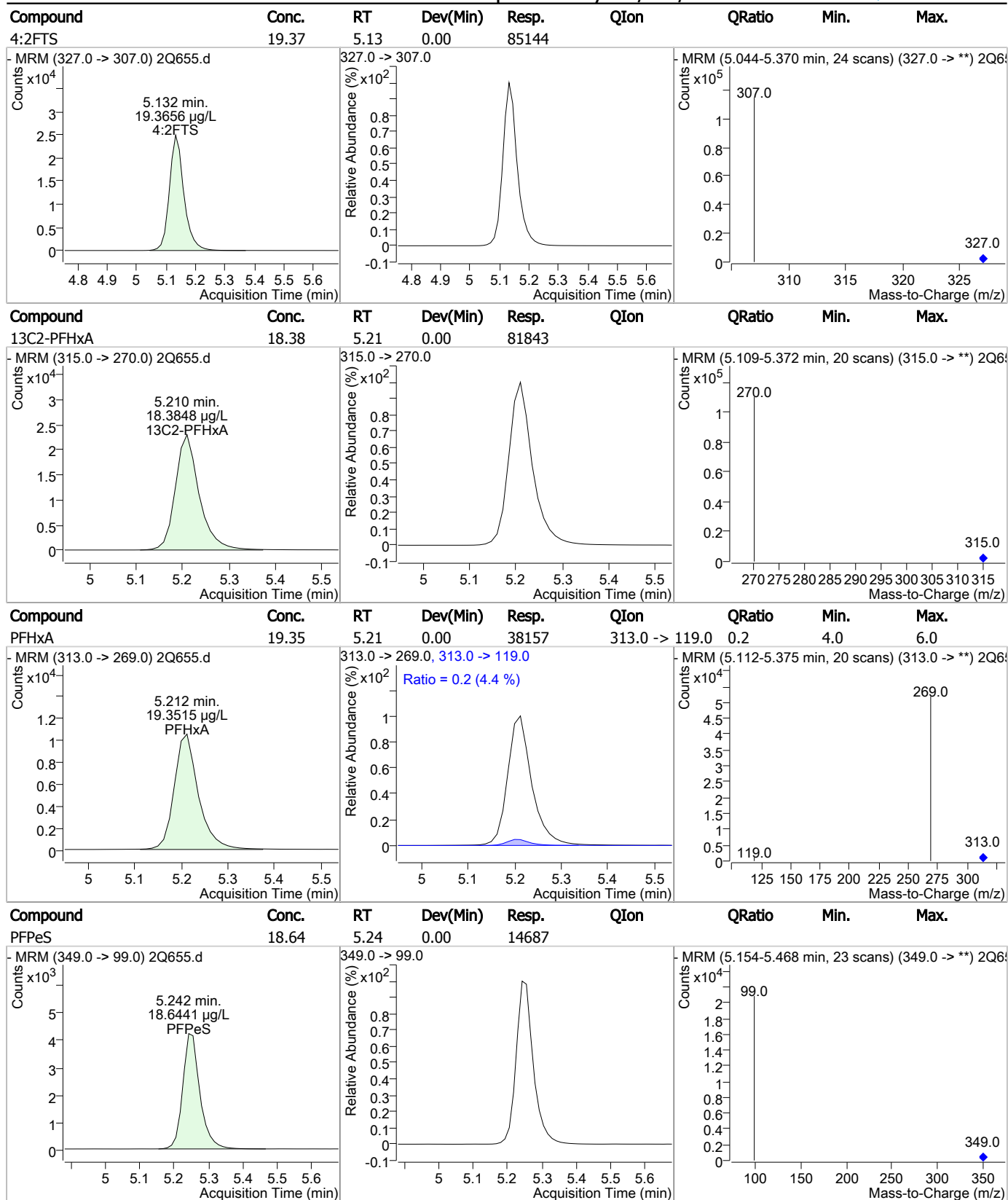
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.648	429.0 -> 409.0	174056	20.00 µg/L	0.000
13C2-PFDoDA	10.664	615.0 -> 570.0	101125	20.00 µg/L	0.000
13C2-PFOA	6.637	415.0 -> 370.0	84279	20.00 µg/L	0.000
13C3-PFPeA	4.234	266.0 -> 222.0	82762	20.00 µg/L	0.000
13C4-PFOS	7.199	503.0 -> 80.0	61486	20.00 µg/L	0.000
d3-MeFOSAA	7.474	573.0 -> 419.0	36374	20.00 µg/L	0.000
System Monitoring Compounds					
13C2-PFDA	7.969	515.0 -> 470.0	107957	18.31 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 91.5%	
13C2-PFHxA	5.210	315.0 -> 270.0	81843	18.38 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 91.9%	
d5-EtFOSAA	7.597	589.0 -> 419.0	18459	20.56 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 102.8%	
Target Compounds					QValue
4:2FTS	5.132	327.0 -> 307.0	85144	19.37 µg/L	100
6:2FTS	6.649	427.0 -> 407.0	169510	20.14 µg/L	100
8:2FTS	8.089	527.0 -> 507.0	269915	19.37 µg/L	100
EtFOSAA	7.598	584.0 -> 419.0	15926	19.22 µg/L	100
FOSA	6.986	498.0 -> 78.0	38302	19.58 µg/L	100
MeFOSAA	7.475	570.0 -> 419.0	21165	20.72 µg/L	100
PFBA	2.940	213.0 -> 169.0	40607	18.32 µg/L	100
PFBS	4.353	299.0 -> 80.0	45584	18.58 µg/L	99
PFDA	7.971	513.0 -> 469.0	75901	18.21 µg/L	100
PFDoDA	10.670	613.0 -> 569.0	86004	19.49 µg/L	100
PFDS	9.025	599.0 -> 80.0	32276	19.70 µg/L	100
PFHpA	5.986	363.0 -> 319.0	110187	18.84 µg/L	# 93
PFHpS	6.607	449.0 -> 80.0	48655	18.68 µg/L	100
PFHxA	5.212	313.0 -> 269.0	38157	19.35 µg/L	# 86
PFHxS	5.968	399.0 -> 80.0	47438	18.47 µg/L	m 95
PFNA	7.269	463.0 -> 419.0	67724	17.99 µg/L	98
PFNS	7.867	549.0 -> 99.0	28984	18.67 µg/L	100
PFOA	6.639	413.0 -> 369.0	64840	18.51 µg/L	98
PFOS	7.201	499.0 -> 80.0	65253	18.39 µg/L	m 86
PFPeA	4.225	263.0 -> 219.0	117428	18.70 µg/L	100
PFPeS	5.242	349.0 -> 99.0	14687	18.64 µg/L	100
PFTeDA	12.928	713.0 -> 669.0	40066	19.47 µg/L	100
PFTTrDA	11.865	663.0 -> 619.0	73047	19.55 µg/L	100
PFUnDA	9.269	563.0 -> 519.0	83071	18.72 µg/L	100

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

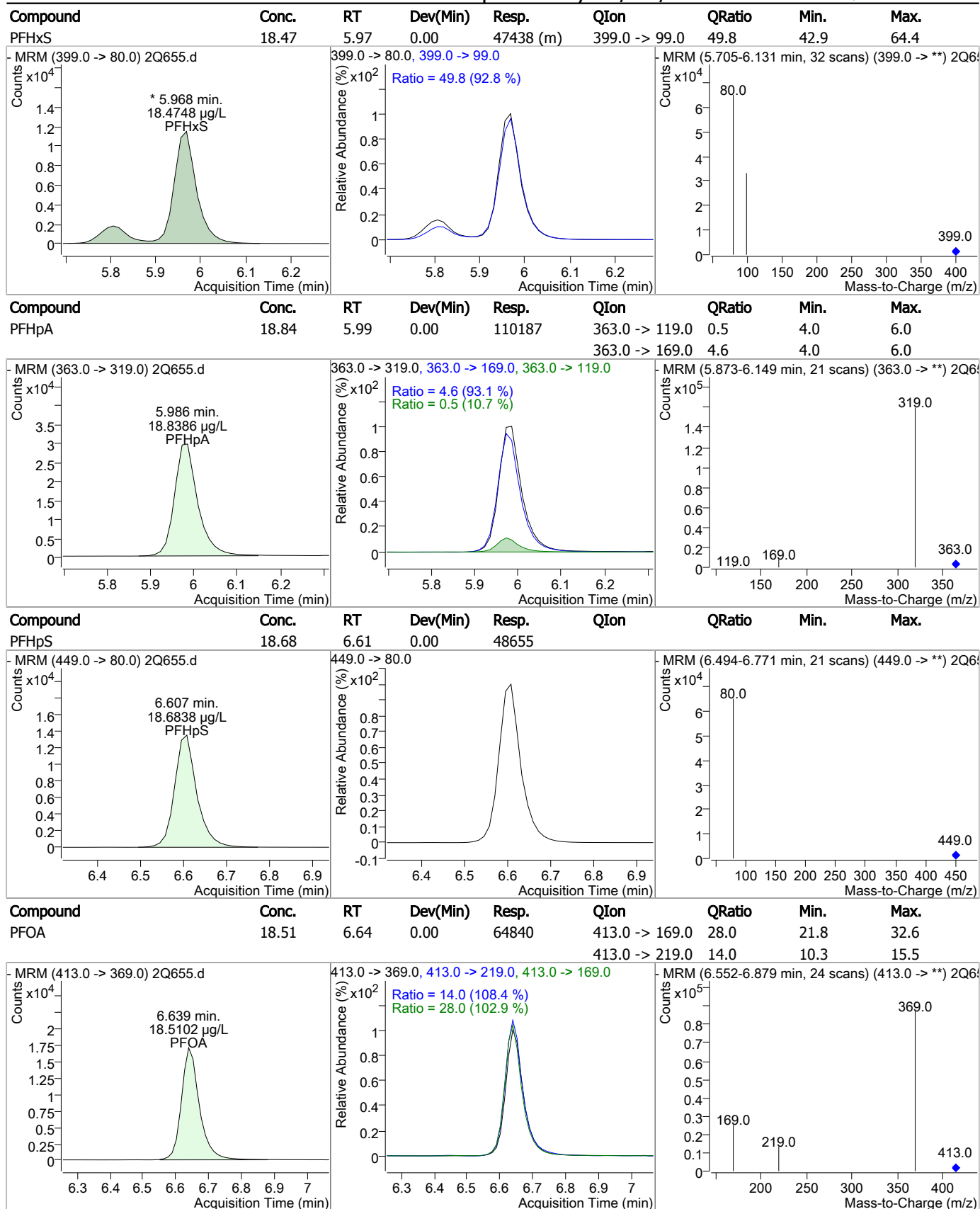
Perfluorinated Compounds by LC/MS/MS



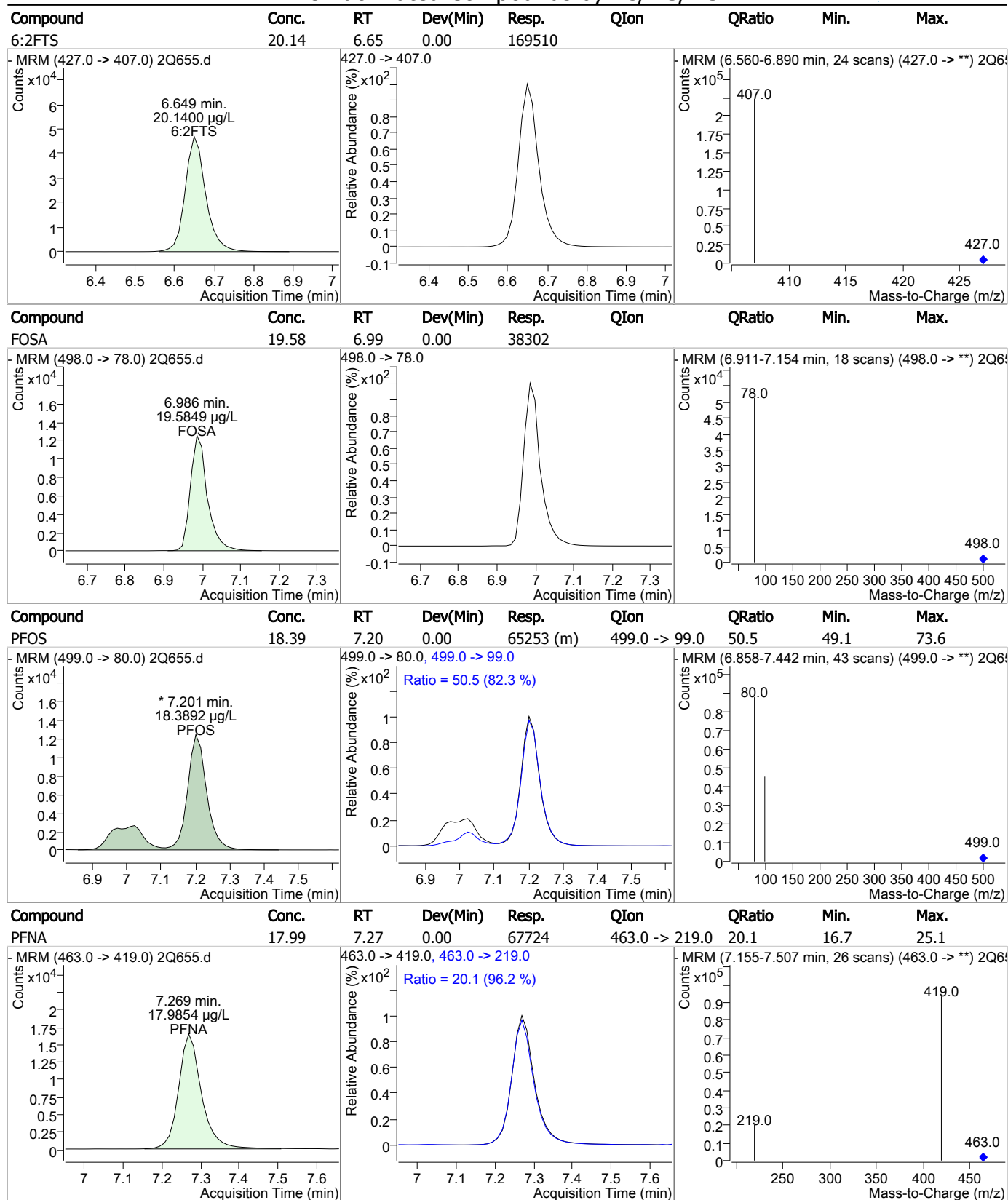
Perfluorinated Compounds by LC/MS/MS



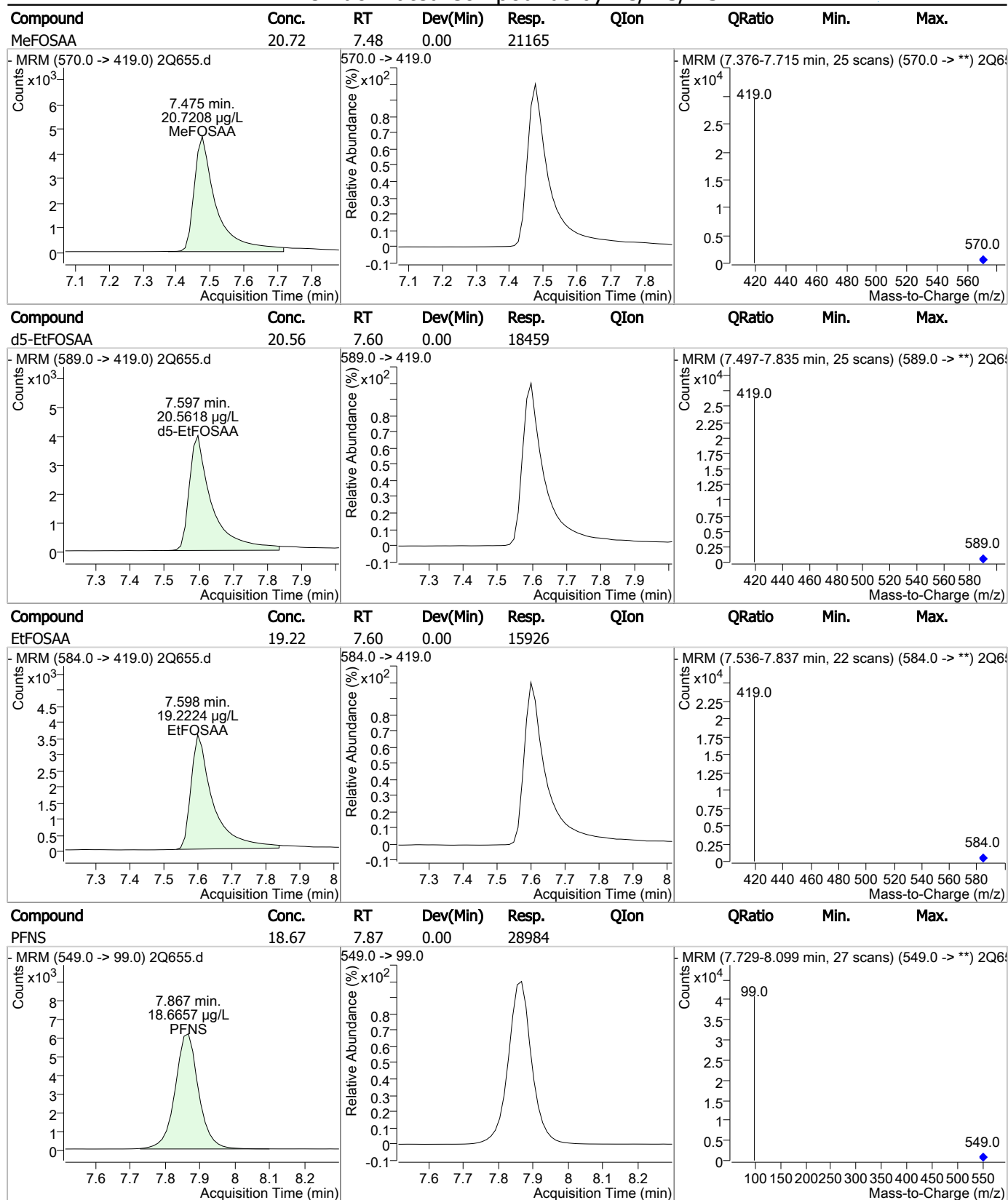
Perfluorinated Compounds by LC/MS/MS



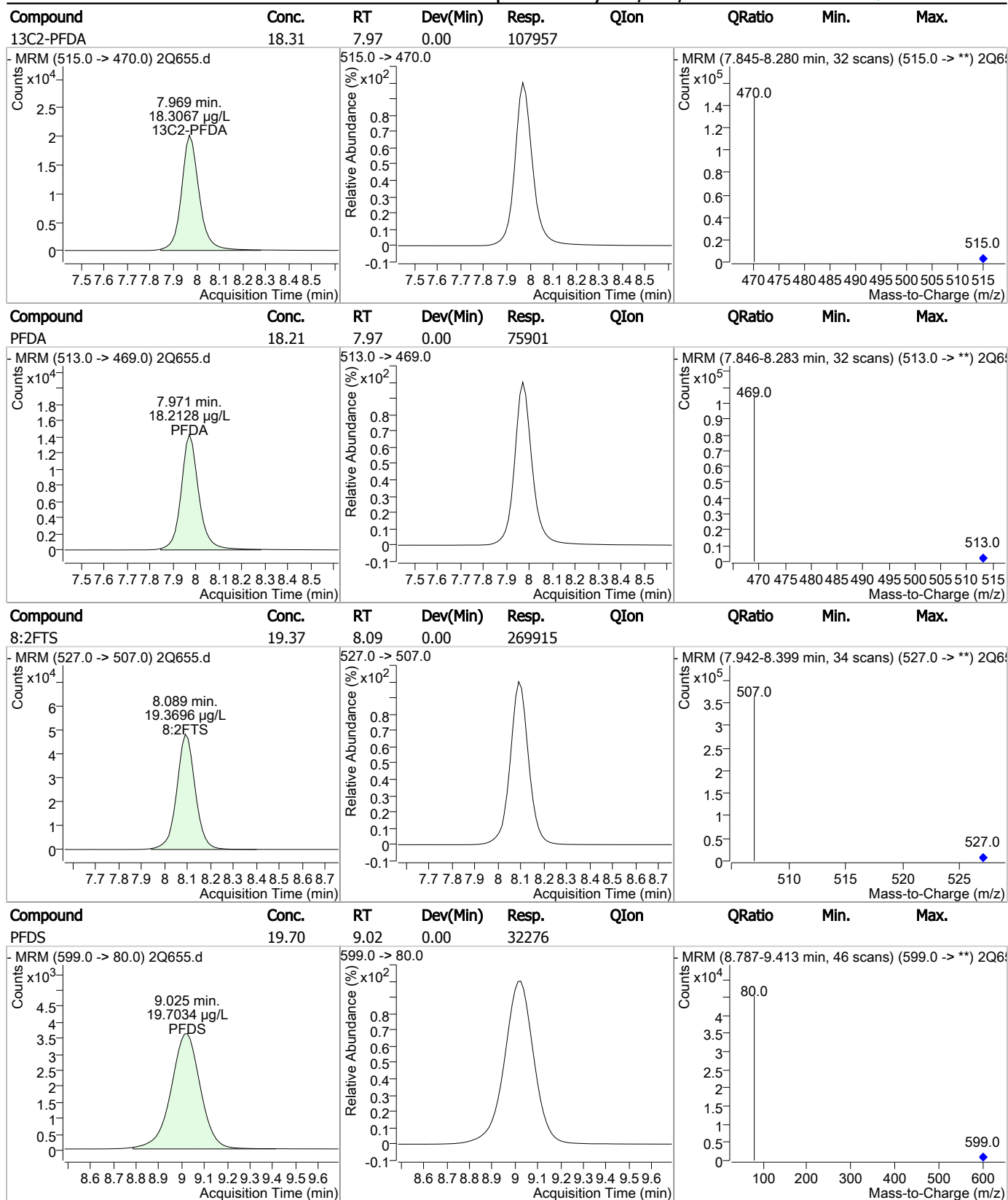
Perfluorinated Compounds by LC/MS/MS



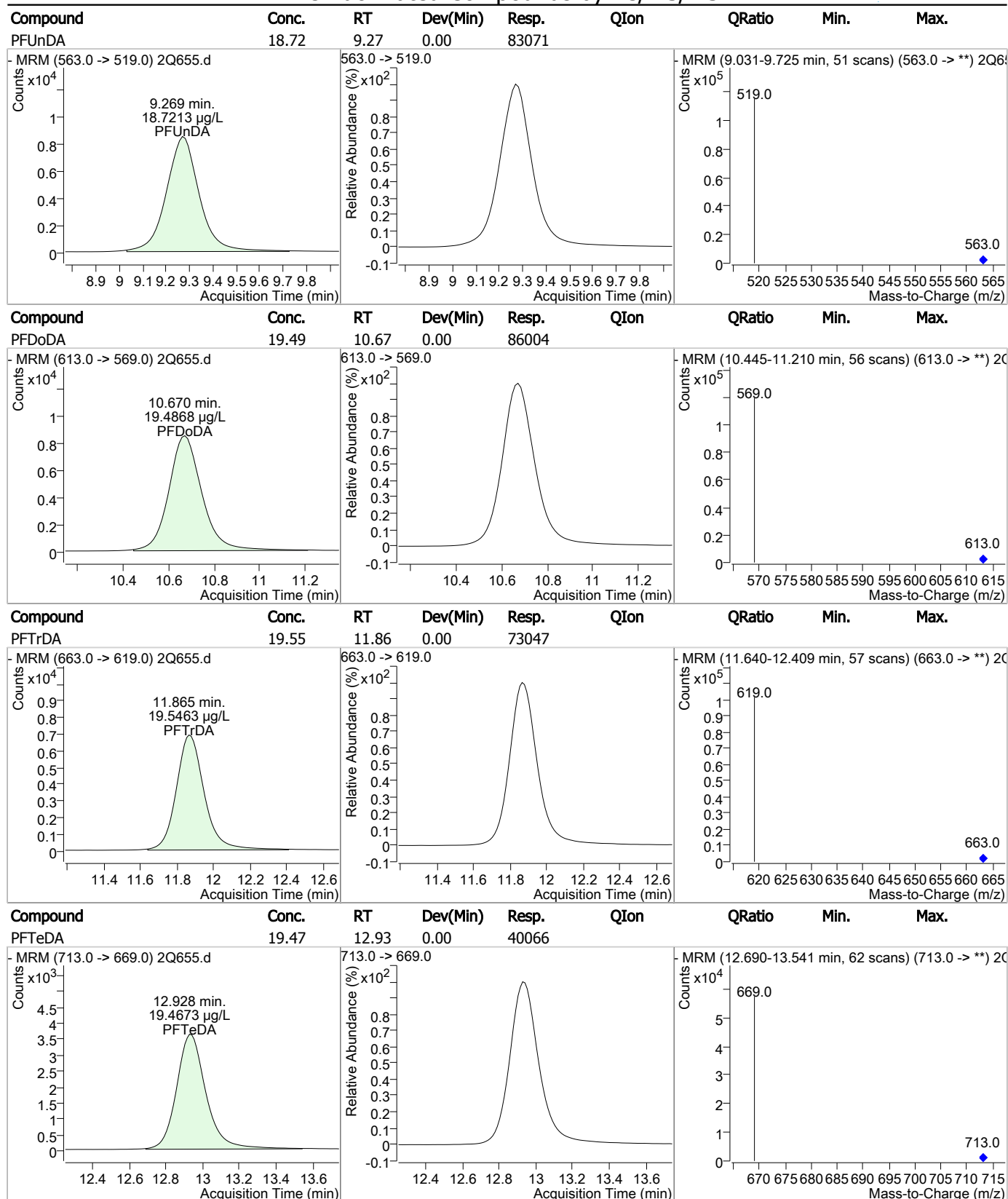
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S2Q18-ICC18

Method: EPA 537 MOD

Lab FileID: 2Q655.D

Analyst approved: 04/21/17 09:46 Nancy Saunders

Injection Time: 04/20/17 13:13

Supervisor approved: 04/21/17 11:22 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.97	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.20	Split peak

7.4.5.1
7

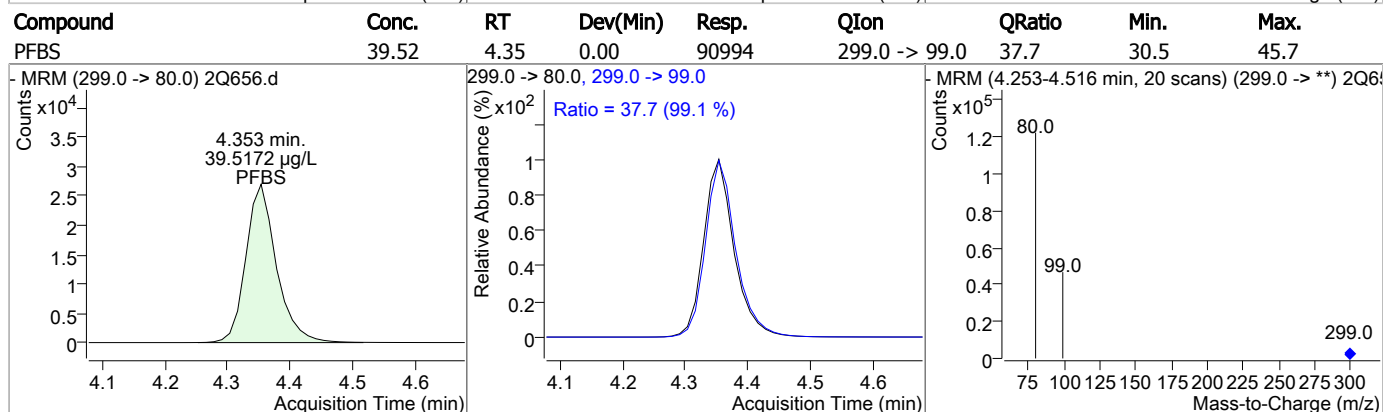
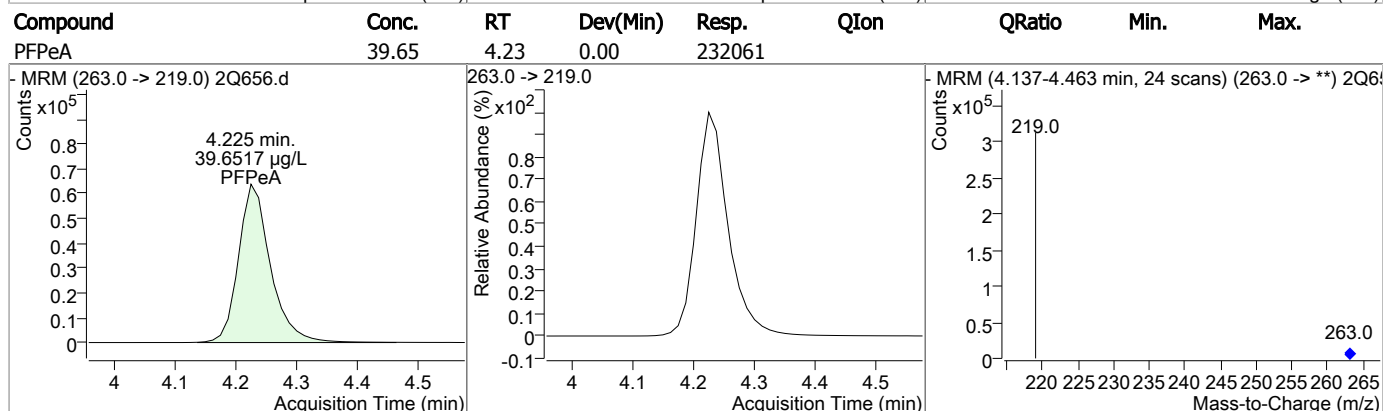
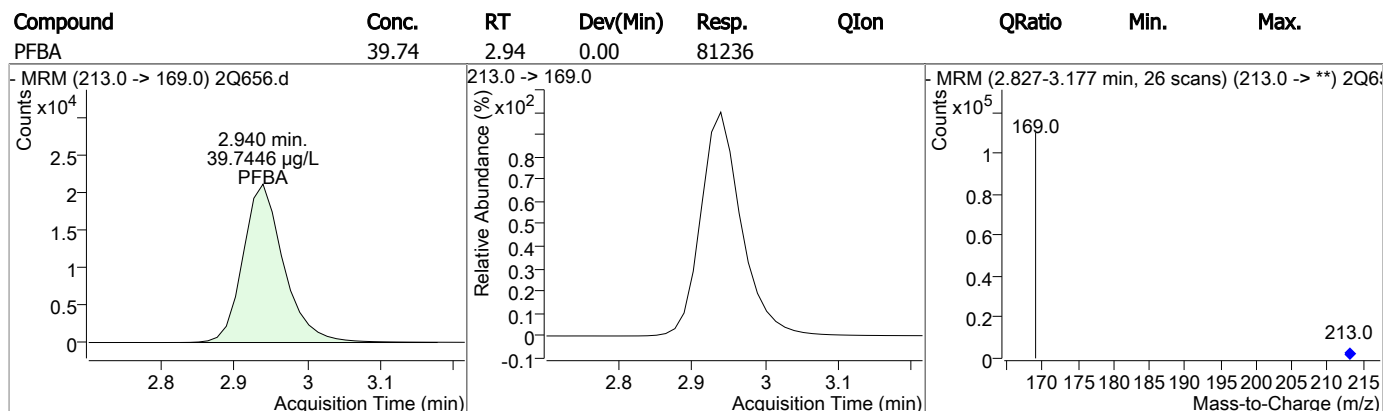
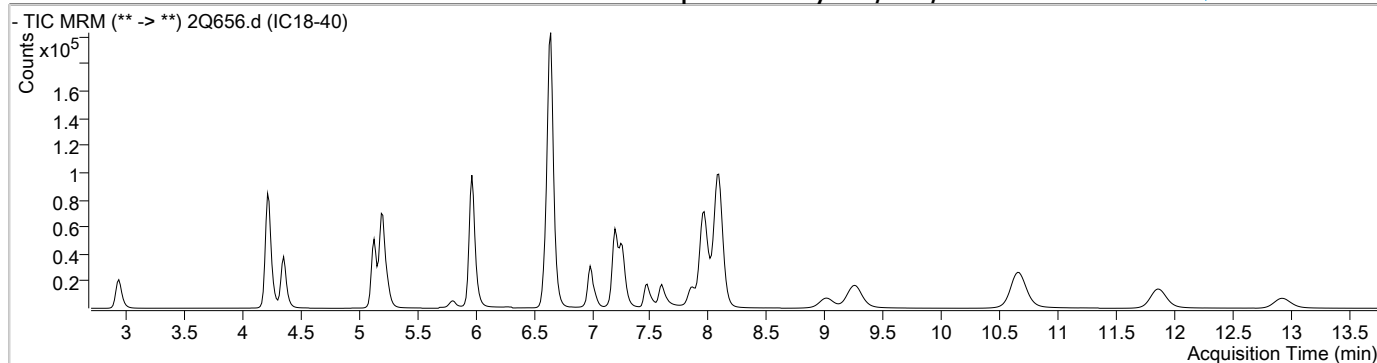
Perfluorinated Compounds by LC/MS/MS

Data File : 2Q656.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 4/20/2017 1:33:02 PM
 Sample Name : IC18-40
 Vial : Vial 7
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q18.batch.bin
 Last Calib Update : 4/21/2017 7:57:04 AM

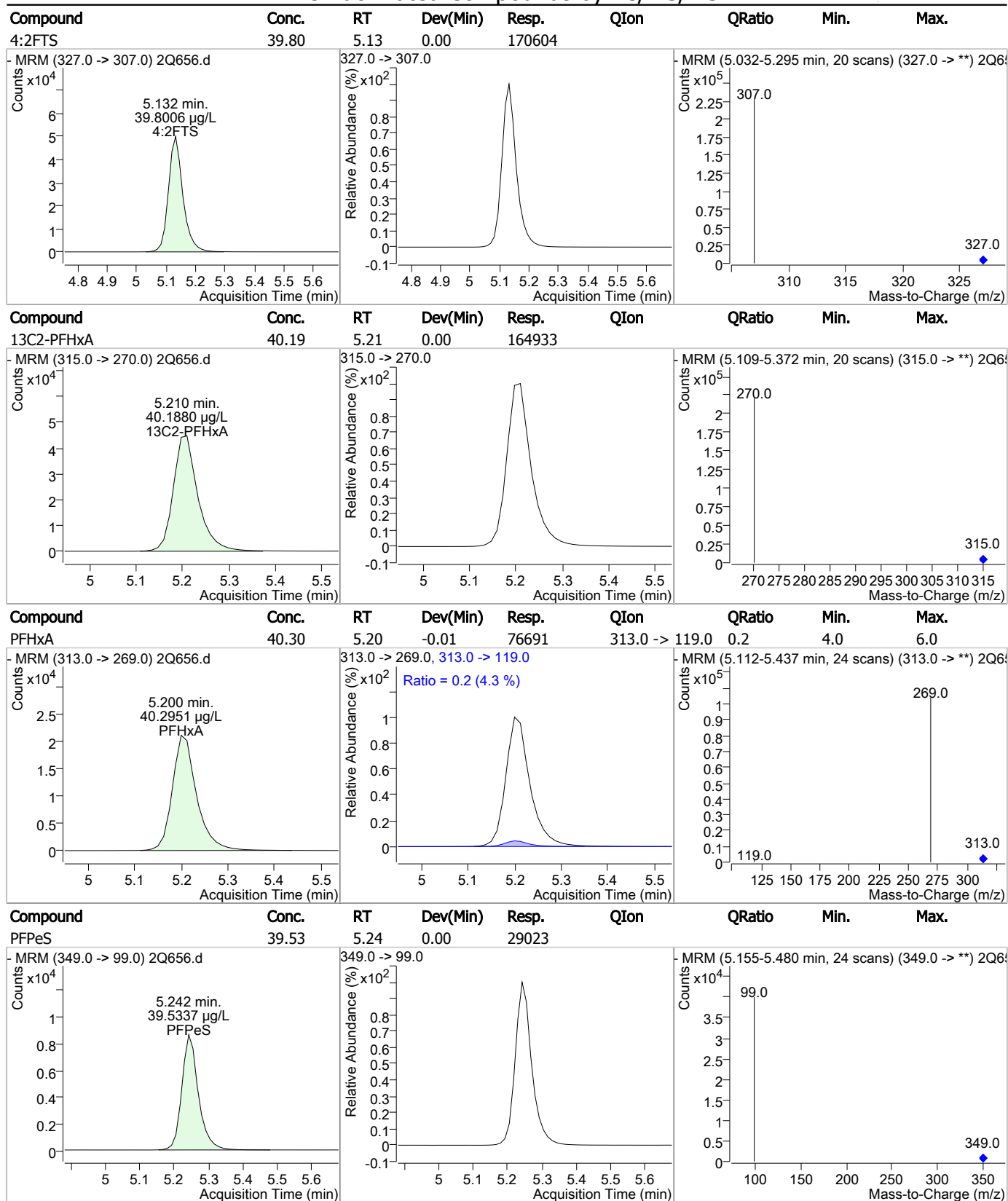
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.648	429.0 -> 409.0	169693	20.00 µg/L	0.000
13C2-PFDoDA	10.664	615.0 -> 570.0	95637	20.00 µg/L	0.000
13C2-PFOA	6.637	415.0 -> 370.0	77698	20.00 µg/L	0.000
13C3-PFPeA	4.222	266.0 -> 222.0	77130	20.00 µg/L	-0.013
13C4-PFOS	7.199	503.0 -> 80.0	57707	20.00 µg/L	0.000
d3-MeFOSAA	7.462	573.0 -> 419.0	37333	20.00 µg/L	-0.013
System Monitoring Compounds					
13C2-PFDA	7.969	515.0 -> 470.0	216770	39.87 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 199.4%		
13C2-PFHxA	5.210	315.0 -> 270.0	164933	40.19 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 200.9%		
d5-EtFOSAA	7.597	589.0 -> 419.0	37670	37.86 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 189.3%		
Target Compounds					QValue
4:2FTS	5.132	327.0 -> 307.0	170604	39.80 µg/L	100
6:2FTS	6.649	427.0 -> 407.0	326949	39.84 µg/L	100
8:2FTS	8.089	527.0 -> 507.0	539797	39.73 µg/L	100
EtFOSAA	7.598	584.0 -> 419.0	33444	37.40 µg/L	100
FOSA	6.986	498.0 -> 78.0	76229	37.98 µg/L	100
MeFOSAA	7.475	570.0 -> 419.0	42603	37.69 µg/L	100
PFBA	2.940	213.0 -> 169.0	81236	39.74 µg/L	100
PFBS	4.353	299.0 -> 80.0	90994	39.52 µg/L	99
PFDA	7.959	513.0 -> 469.0	151294	39.38 µg/L	100
PFDoDA	10.657	613.0 -> 569.0	173937	39.82 µg/L	100
PFDS	9.012	599.0 -> 80.0	64318	39.73 µg/L	100
PFHpA	5.973	363.0 -> 319.0	220762	39.75 µg/L	# 93
PFHpS	6.594	449.0 -> 80.0	96459	39.47 µg/L	100
PFHxA	5.200	313.0 -> 269.0	76691	40.30 µg/L	# 86
PFHxS	5.956	399.0 -> 80.0	94522	39.22 µg/L	m 94
PFNA	7.269	463.0 -> 419.0	137792	39.69 µg/L	98
PFNS	7.854	549.0 -> 99.0	57477	39.44 µg/L	100
PFOA	6.639	413.0 -> 369.0	131759	40.80 µg/L	98
PFOS	7.201	499.0 -> 80.0	131036	39.35 µg/L	m 85
PFPeA	4.225	263.0 -> 219.0	232061	39.65 µg/L	100
PFPeS	5.242	349.0 -> 99.0	29023	39.53 µg/L	100
PFTeDA	12.916	713.0 -> 669.0	81191	39.63 µg/L	100
PFTTrDA	11.852	663.0 -> 619.0	148239	39.63 µg/L	100
PFUnDA	9.256	563.0 -> 519.0	164495	39.20 µg/L	100

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

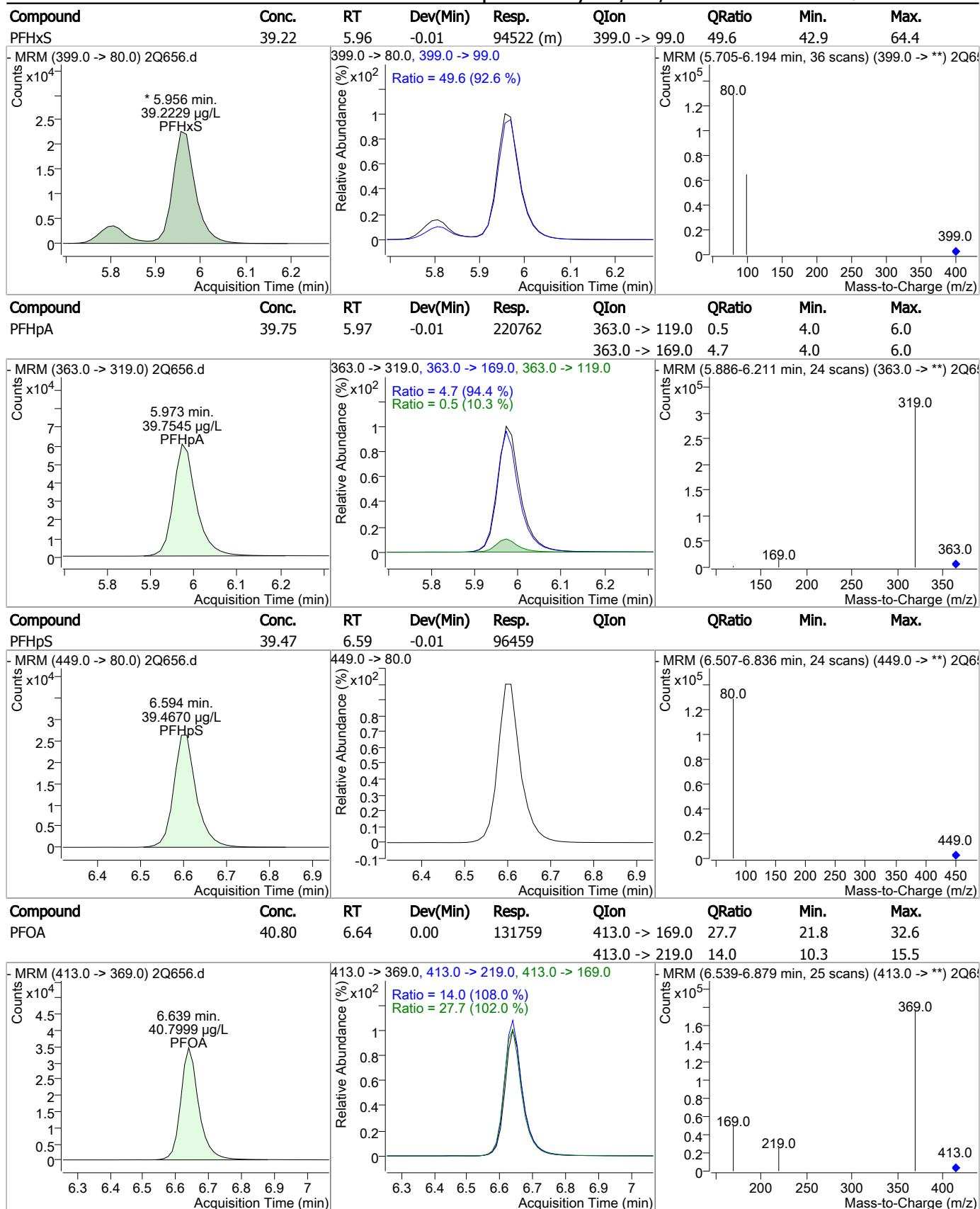
Perfluorinated Compounds by LC/MS/MS



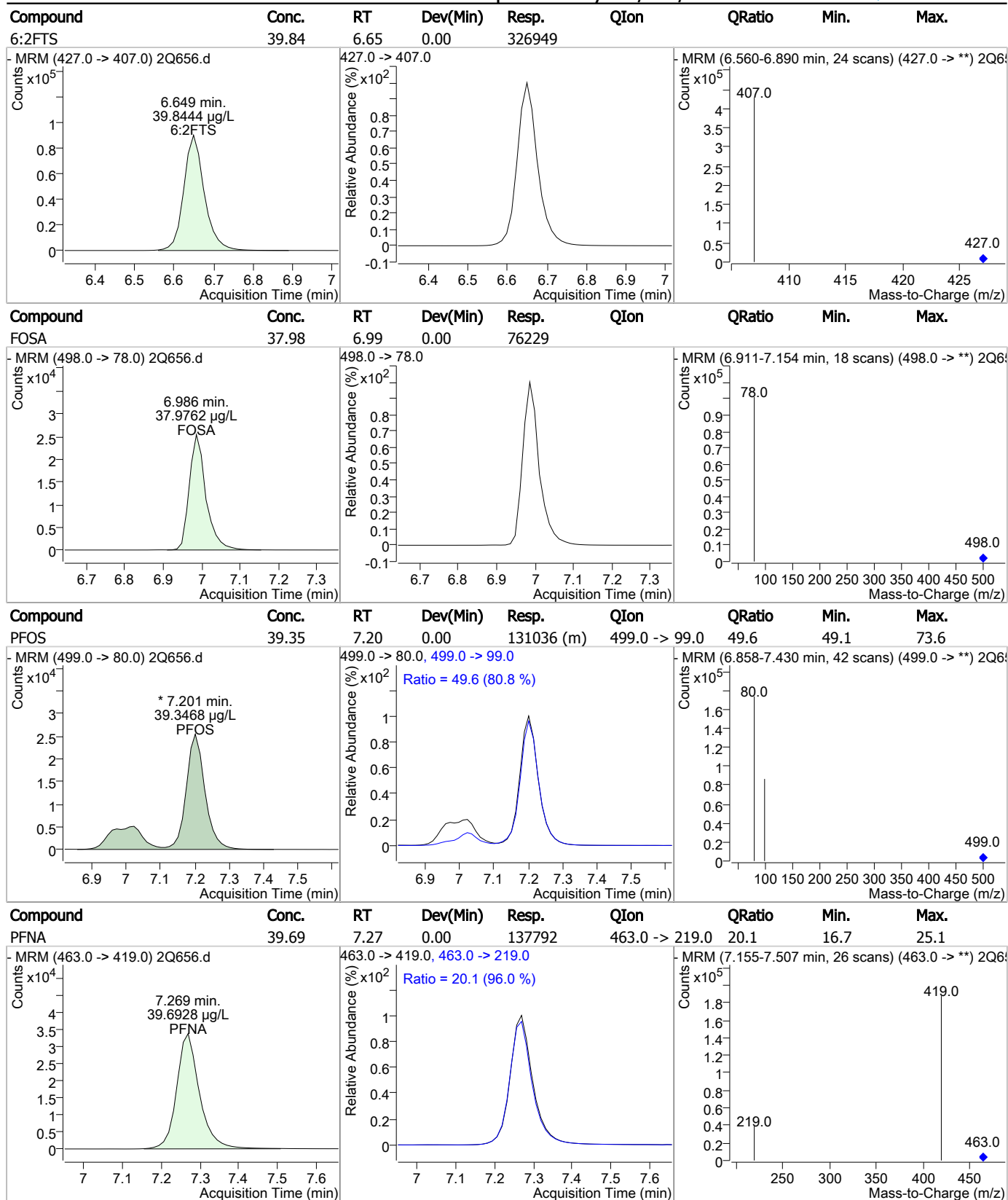
Perfluorinated Compounds by LC/MS/MS



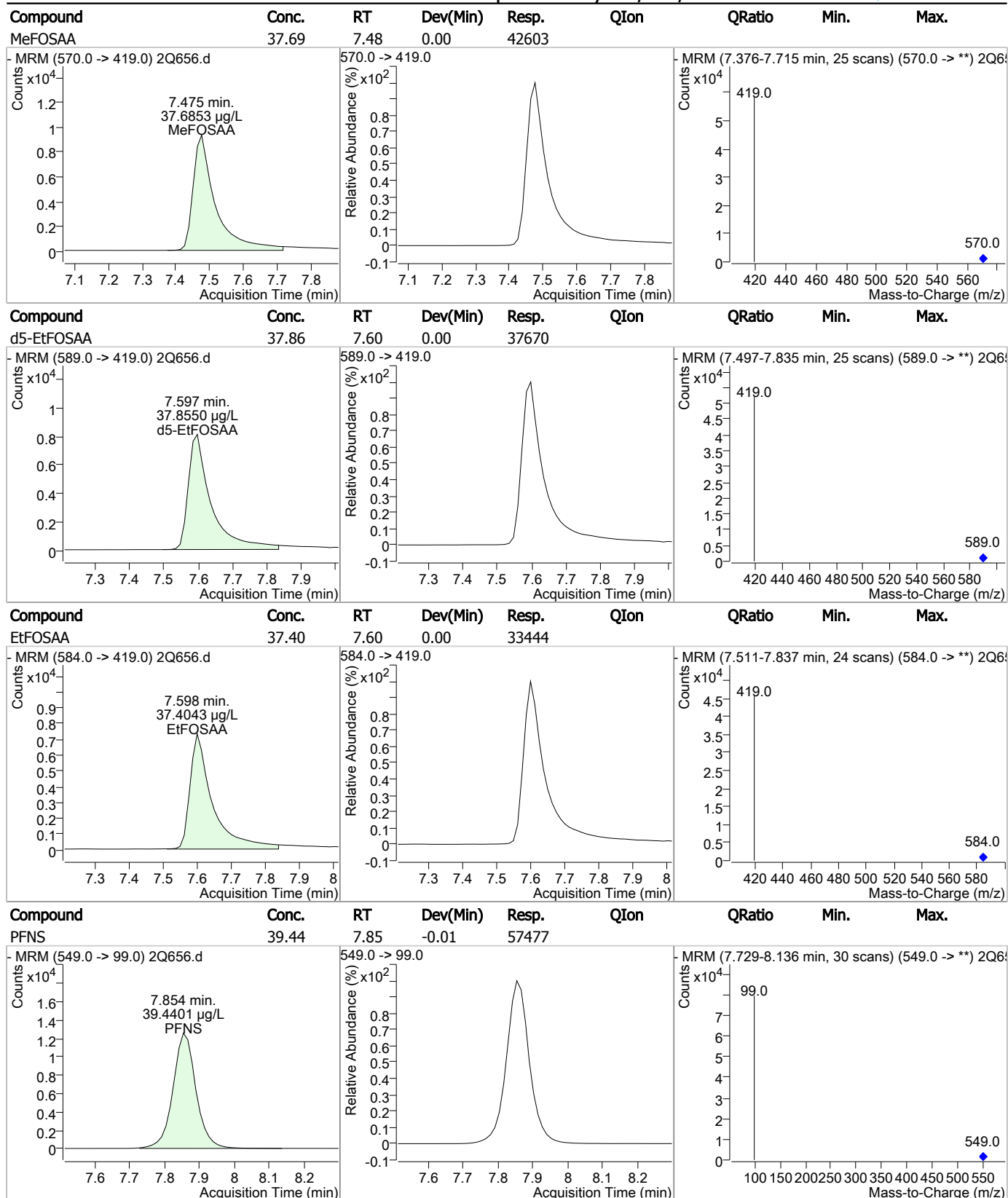
Perfluorinated Compounds by LC/MS/MS



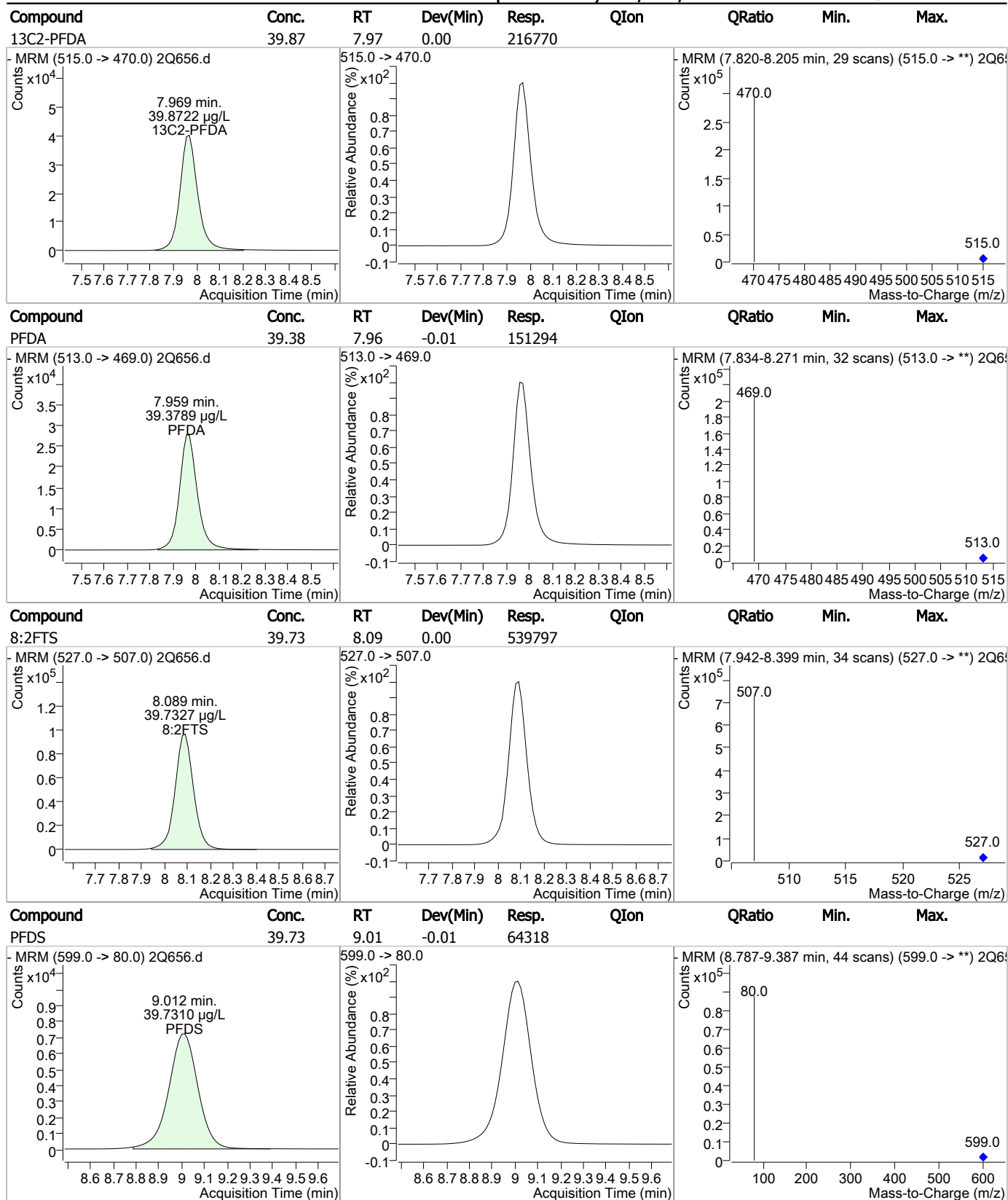
Perfluorinated Compounds by LC/MS/MS



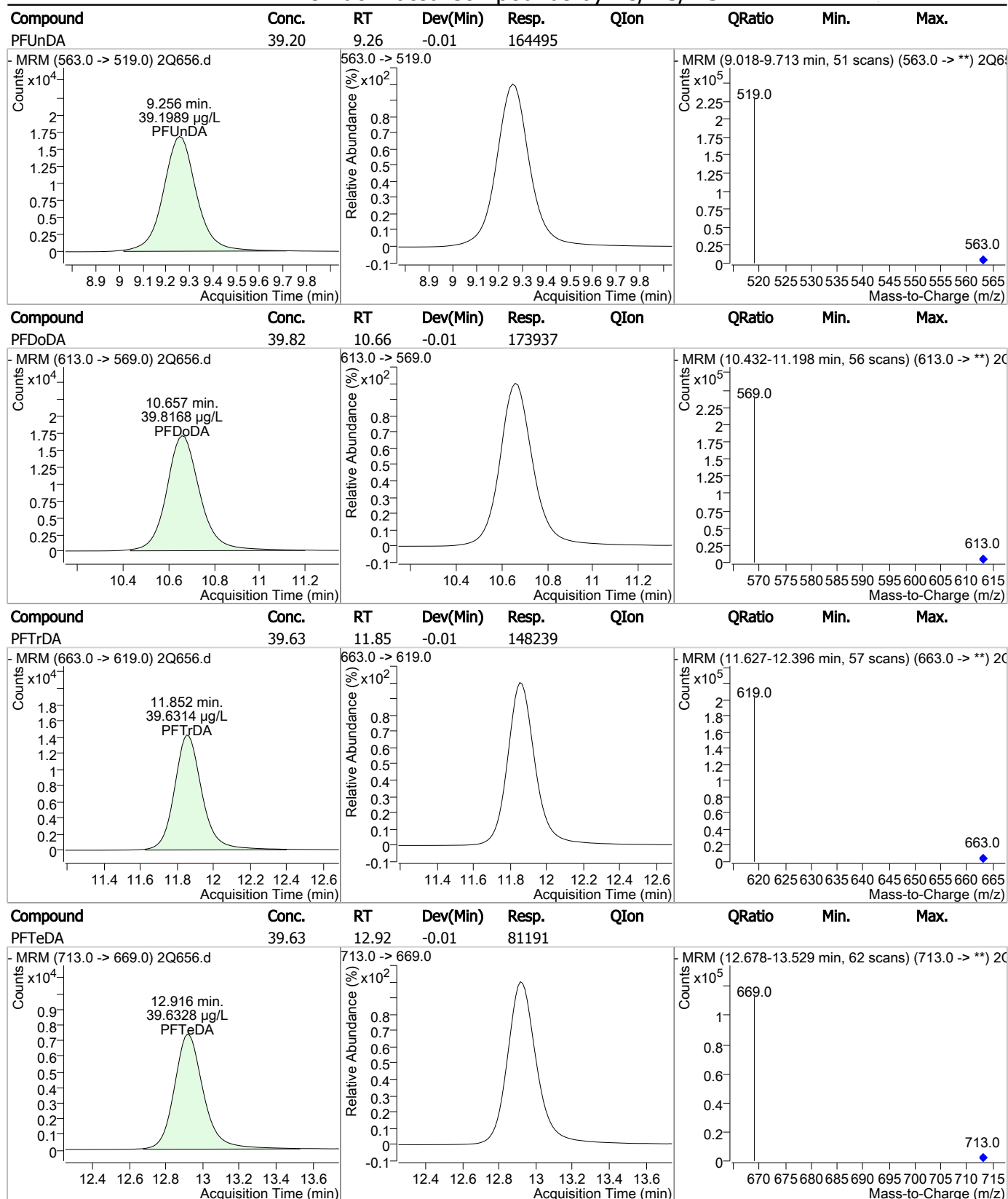
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S2Q18-IC18

Method: EPA 537 MOD

Lab FileID: 2Q656.D

Analyst approved: 04/21/17 09:46 Nancy Saunders

Injection Time: 04/20/17 13:33

Supervisor approved: 04/21/17 11:22 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.96	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.20	Split peak

7.4.6.1
7

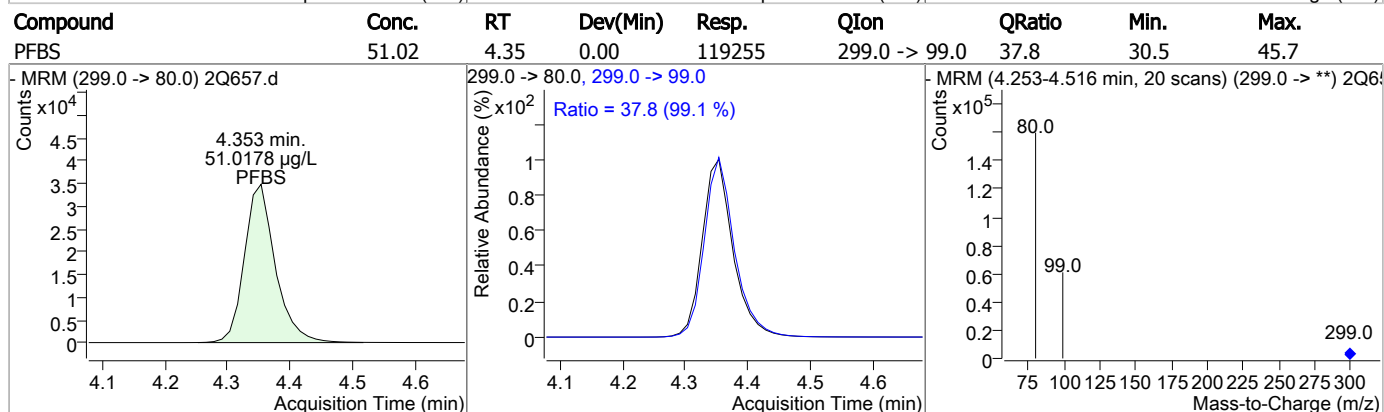
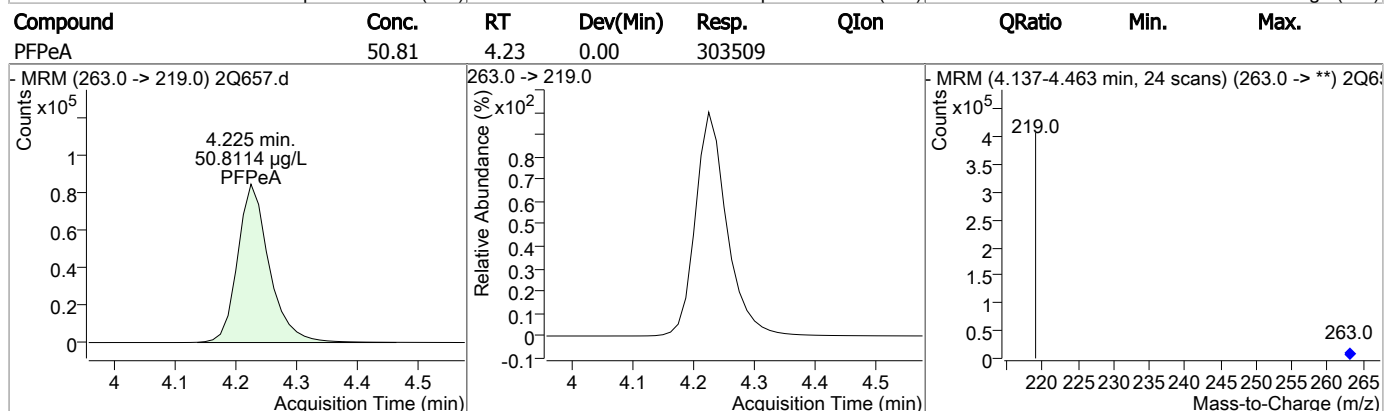
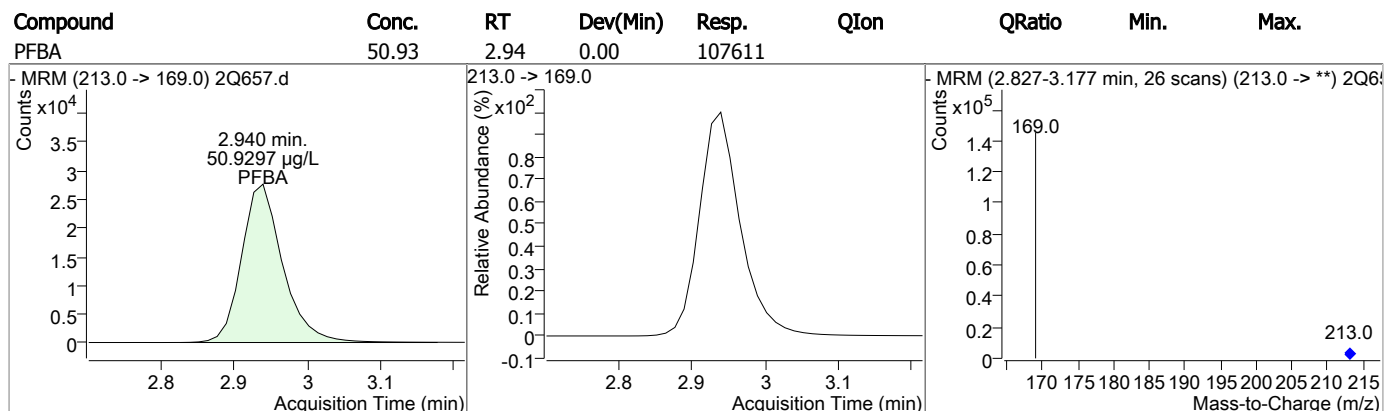
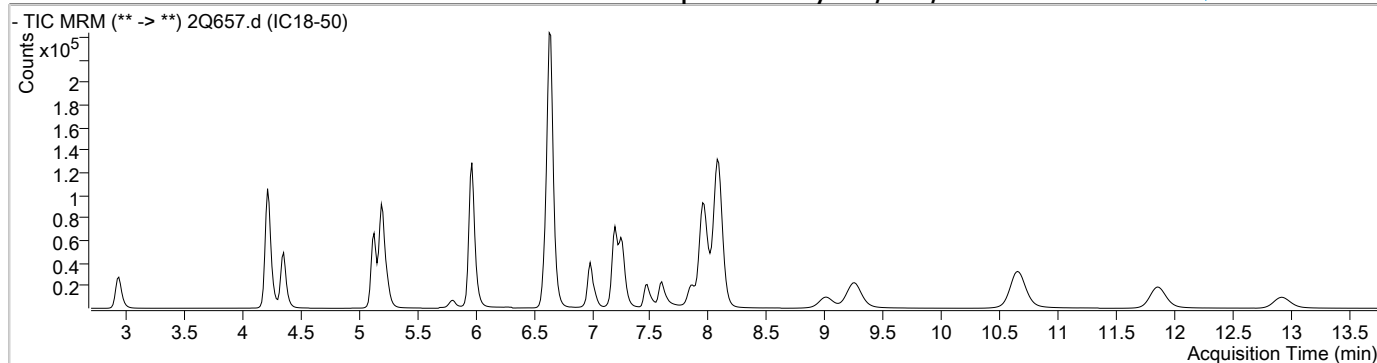
Perfluorinated Compounds by LC/MS/MS

Data File : 2Q657.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 4/20/2017 1:53:01 PM
 Sample Name : IC18-50
 Vial : Vial 8
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q18.batch.bin
 Last Calib Update : 4/21/2017 7:57:04 AM

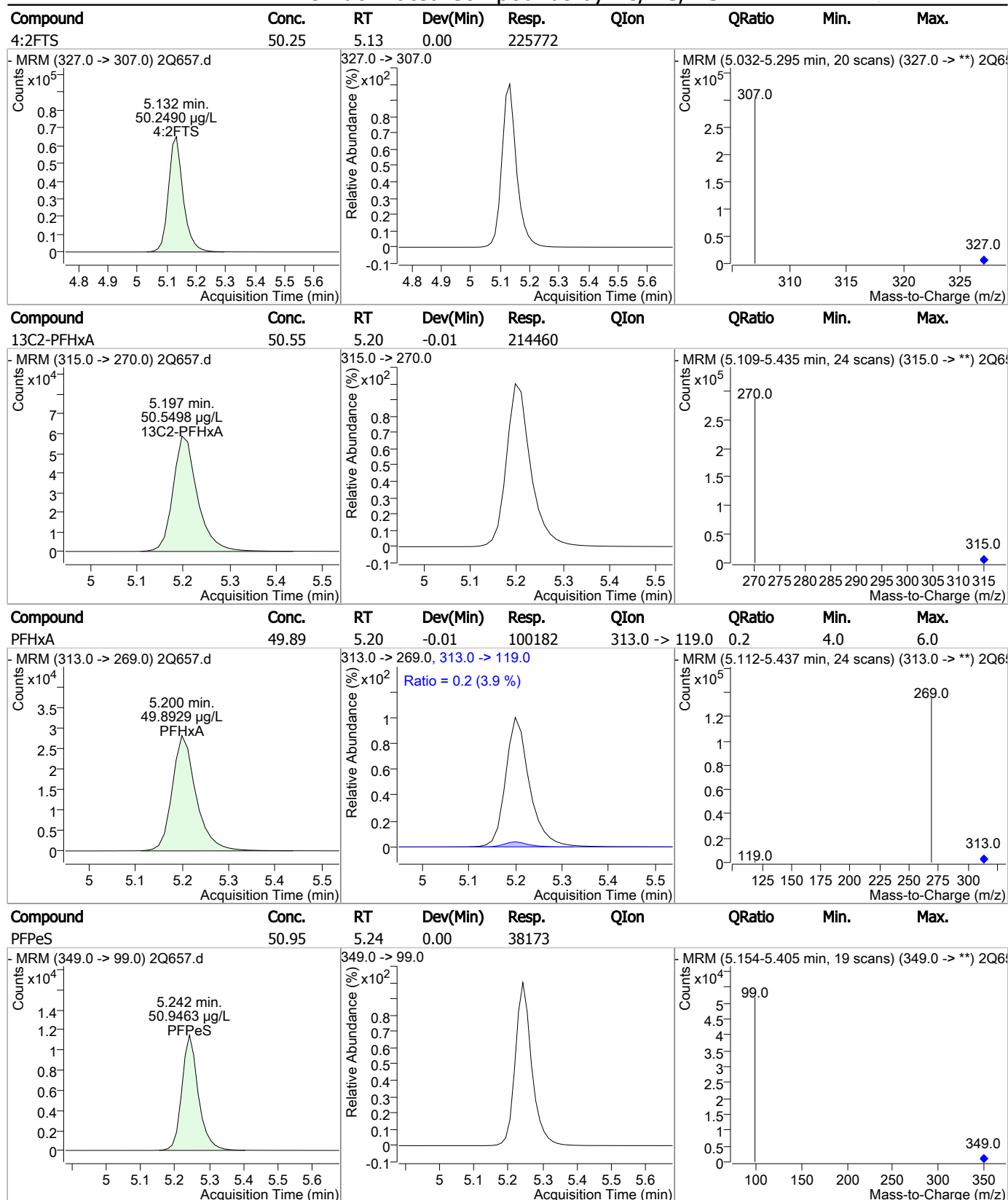
Compound	RT	Qion	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.648	429.0 -> 409.0	177873	20.00 µg/L	0.000
13C2-PFDoDA	10.651	615.0 -> 570.0	97502	20.00 µg/L	-0.013
13C2-PFOA	6.637	415.0 -> 370.0	80320	20.00 µg/L	0.000
13C3-PFPeA	4.222	266.0 -> 222.0	78721	20.00 µg/L	-0.013
13C4-PFOS	7.199	503.0 -> 80.0	58581	20.00 µg/L	0.000
d3-MeFOSAA	7.462	573.0 -> 419.0	35696	20.00 µg/L	-0.013
System Monitoring Compounds					
13C2-PFDA	7.957	515.0 -> 470.0	285676	50.83 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 254.2%	
13C2-PFHxA	5.197	315.0 -> 270.0	214460	50.55 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 252.7%	
d5-EtFOSAA	7.597	589.0 -> 419.0	51446	51.16 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 255.8%	
Target Compounds					
					QValue
4:2FTS	5.132	327.0 -> 307.0	225772	50.25 µg/L	100
6:2FTS	6.649	427.0 -> 407.0	428504	49.82 µg/L	100
8:2FTS	8.077	527.0 -> 507.0	716709	50.33 µg/L	100
EtFOSAA	7.598	584.0 -> 419.0	46332	52.13 µg/L	100
FOSA	6.986	498.0 -> 78.0	99247	51.71 µg/L	100
MeFOSAA	7.475	570.0 -> 419.0	58587	51.23 µg/L	100
PFBA	2.940	213.0 -> 169.0	107611	50.93 µg/L	100
PFBS	4.353	299.0 -> 80.0	119255	51.02 µg/L	99
PFDA	7.959	513.0 -> 469.0	203528	51.25 µg/L	100
PFDoDA	10.657	613.0 -> 569.0	228436	50.16 µg/L	100
PFDS	9.000	599.0 -> 80.0	84636	50.18 µg/L	100
PFHpA	5.973	363.0 -> 319.0	294462	50.54 µg/L	# 93
PFHpS	6.594	449.0 -> 80.0	126613	51.03 µg/L	100
PFHxA	5.200	313.0 -> 269.0	100182	49.89 µg/L	# 86
PFHxS	5.956	399.0 -> 80.0	125523	51.31 µg/L	m 94
PFNA	7.269	463.0 -> 419.0	183128	51.03 µg/L	98
PFNS	7.854	549.0 -> 99.0	75469	51.01 µg/L	100
PFOA	6.639	413.0 -> 369.0	168435	50.45 µg/L	97
PFOS	7.201	499.0 -> 80.0	173143	51.21 µg/L	#m 84
PFPeA	4.225	263.0 -> 219.0	303509	50.81 µg/L	100
PFPeS	5.242	349.0 -> 99.0	38173	50.95 µg/L	100
PFTeDA	12.916	713.0 -> 669.0	107737	50.26 µg/L	100
PFTTrDA	11.852	663.0 -> 619.0	197227	50.26 µg/L	100
PFUnDA	9.256	563.0 -> 519.0	218740	51.13 µg/L	100

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

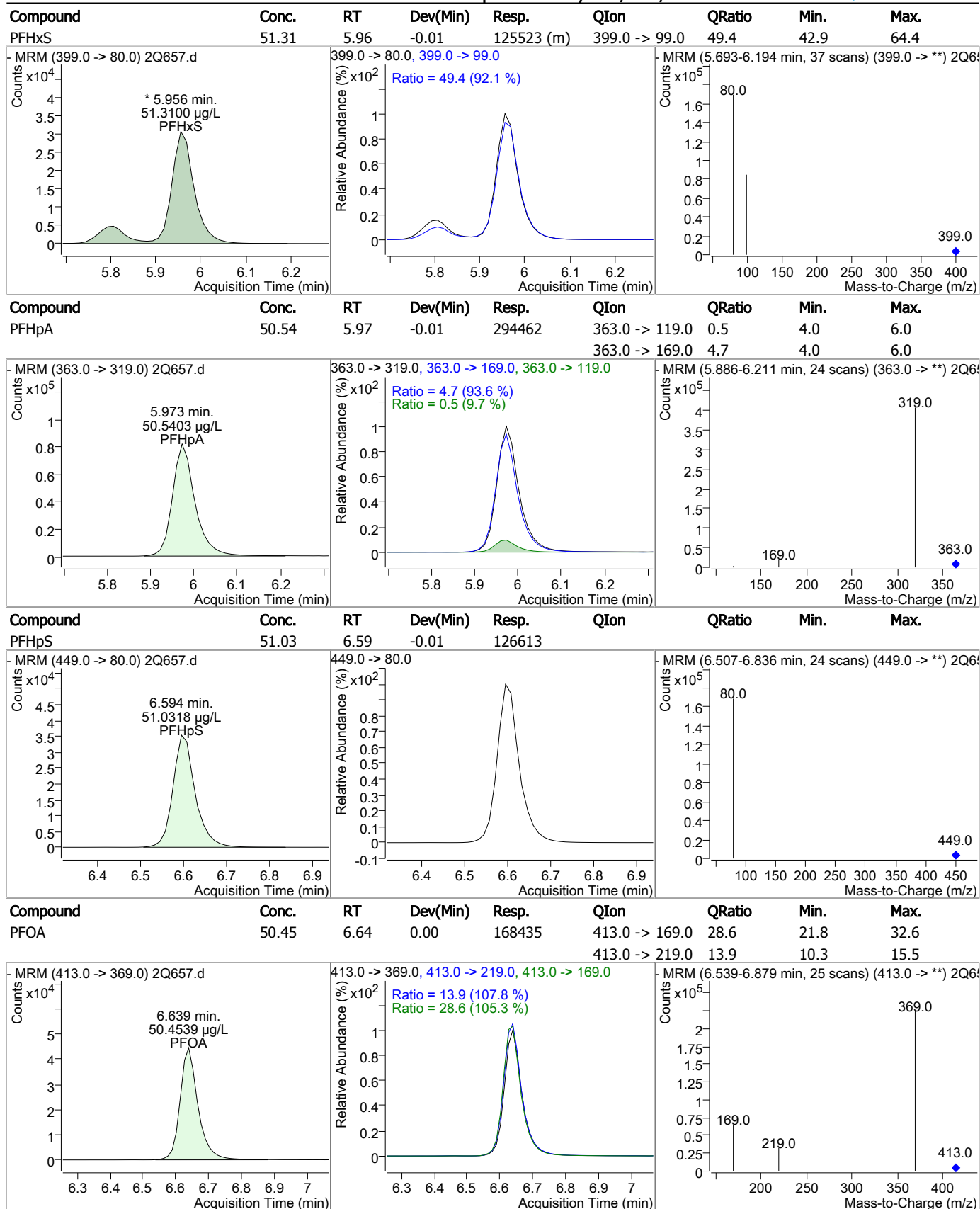
Perfluorinated Compounds by LC/MS/MS



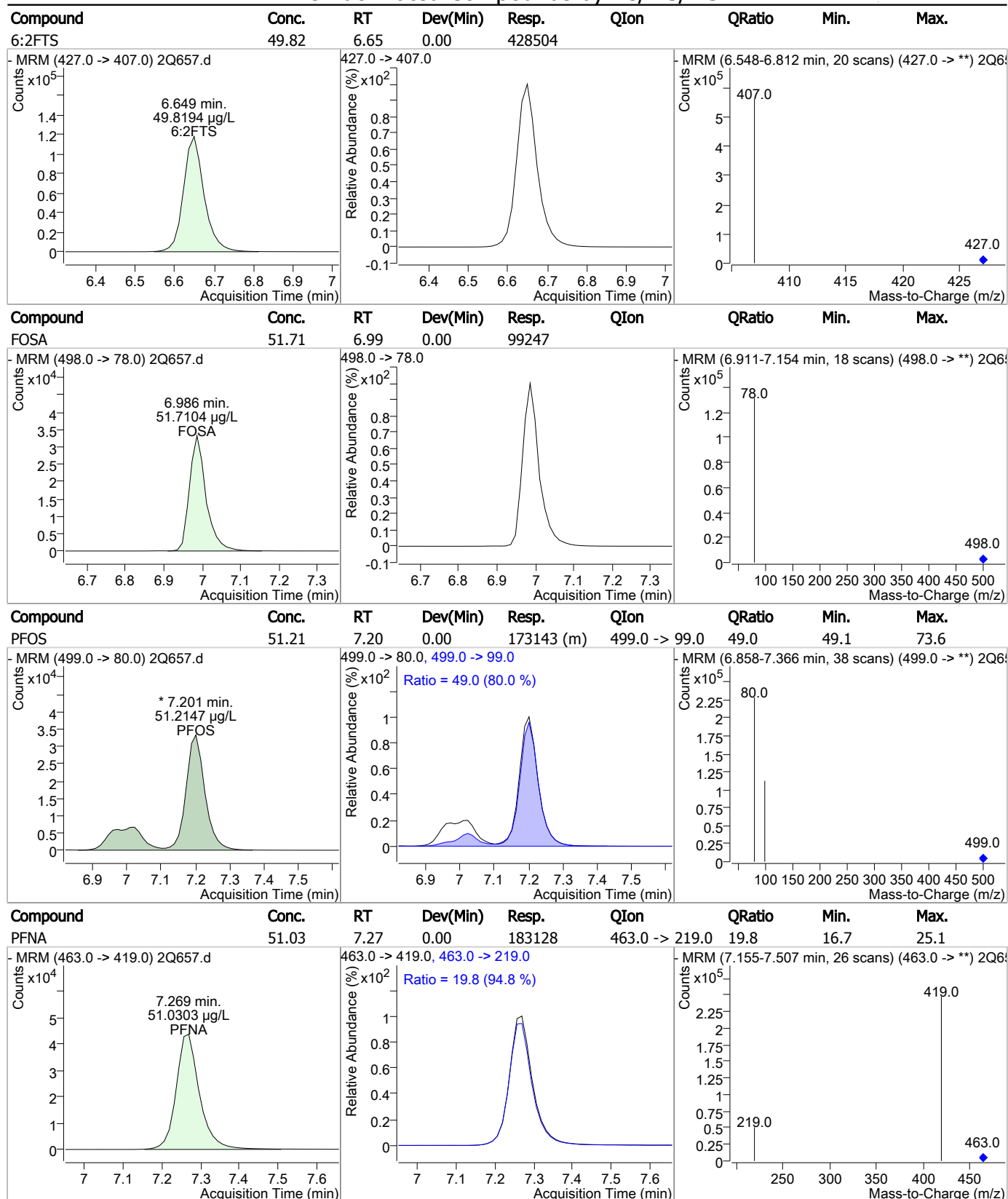
Perfluorinated Compounds by LC/MS/MS



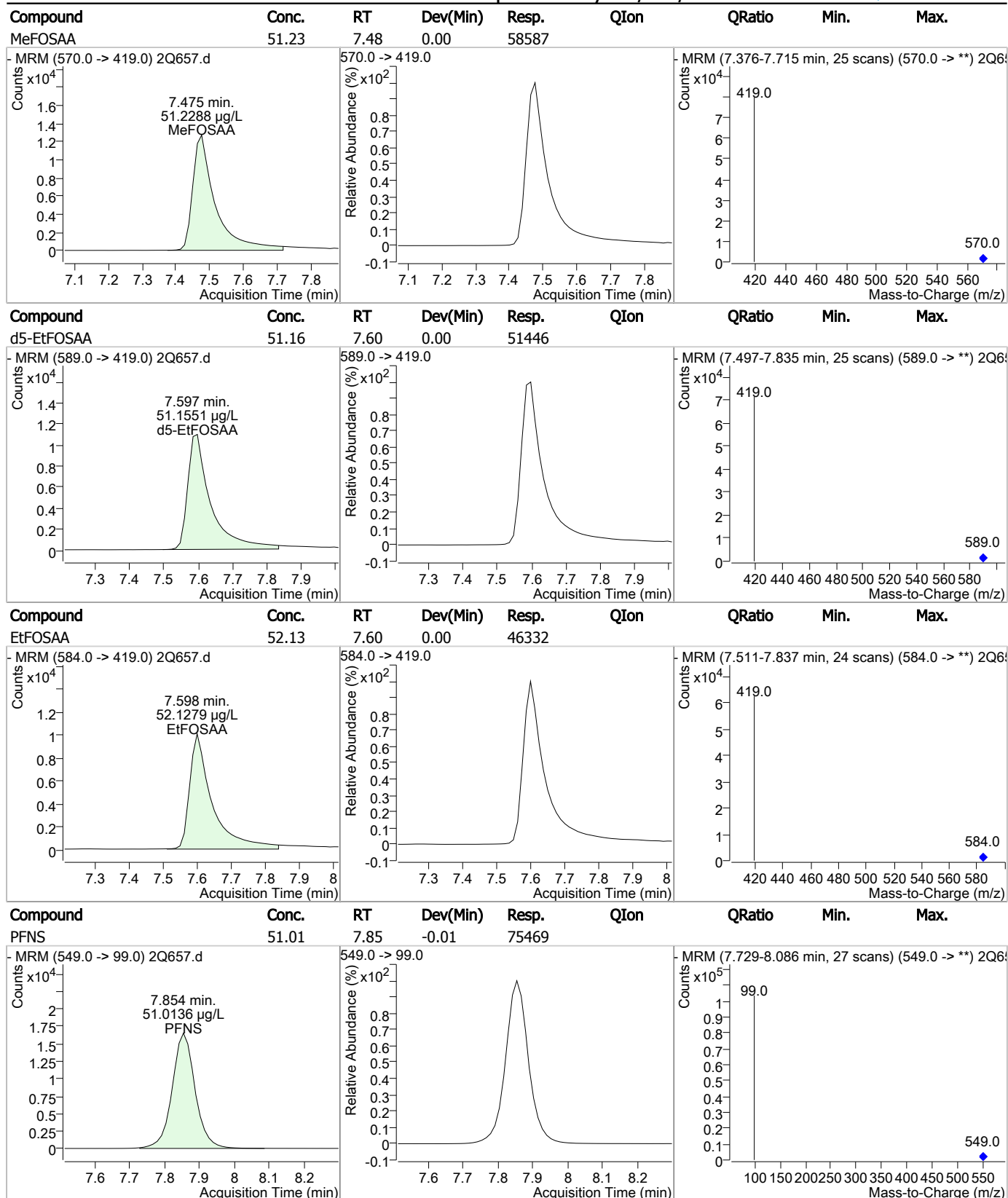
Perfluorinated Compounds by LC/MS/MS



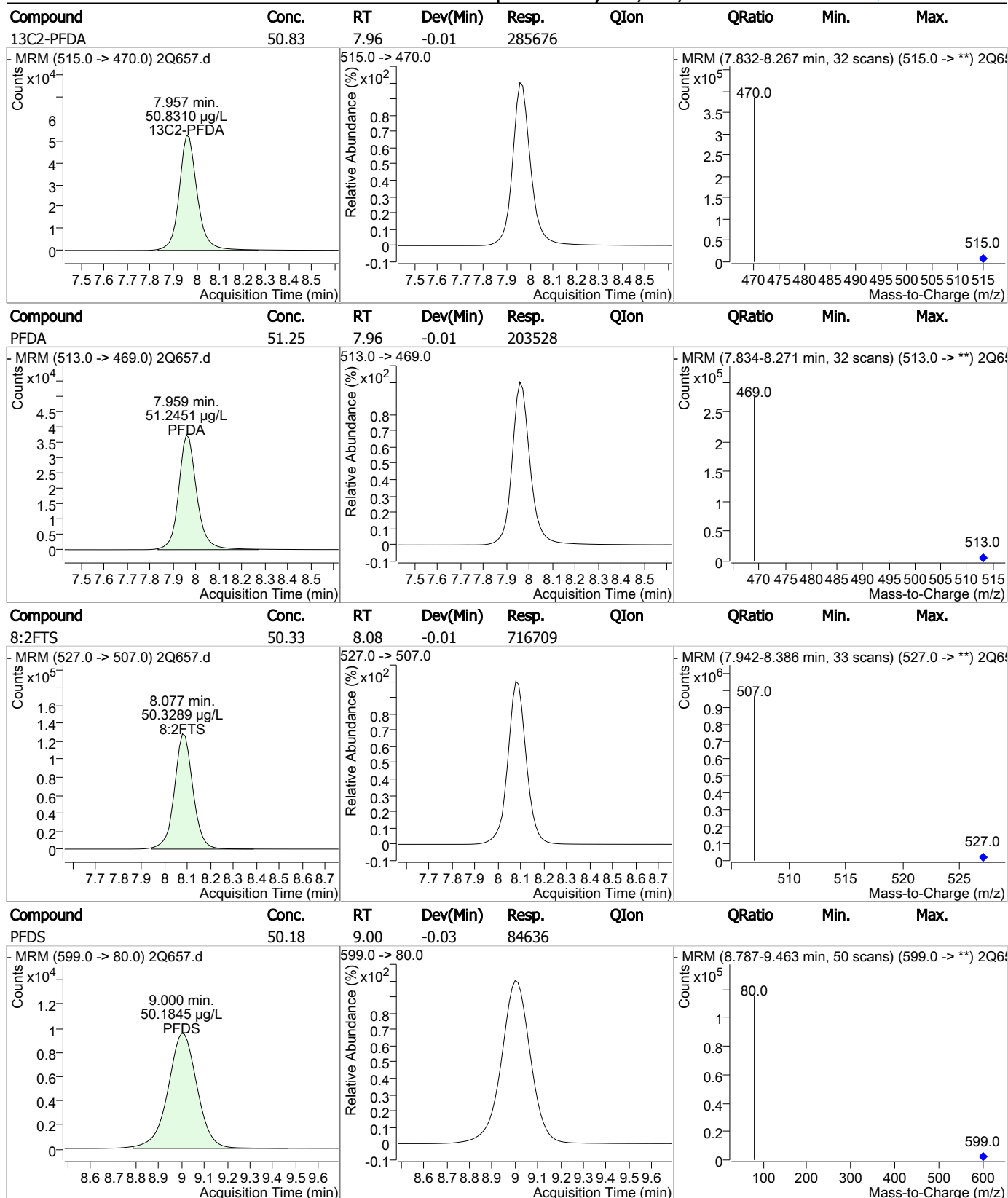
Perfluorinated Compounds by LC/MS/MS



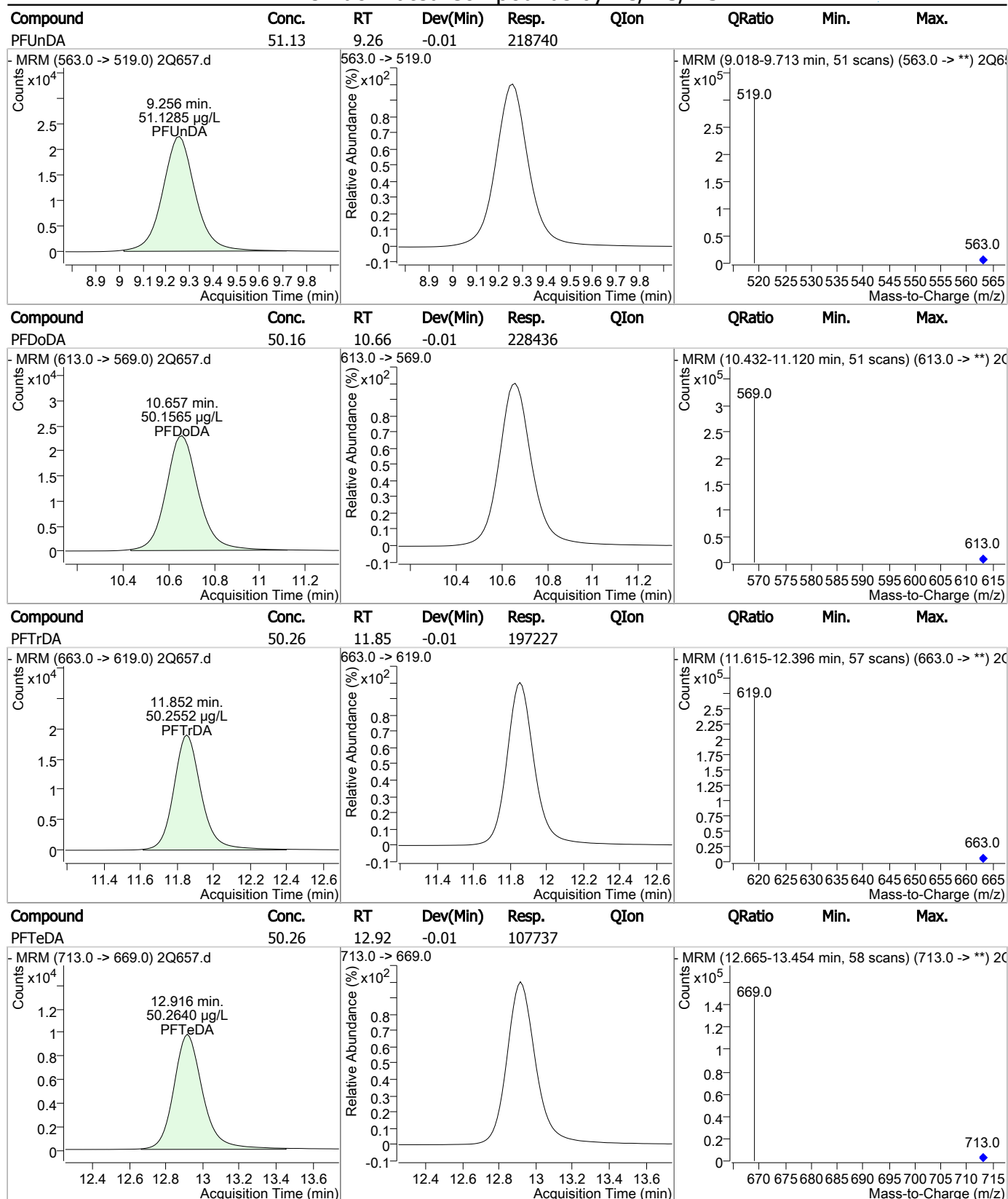
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S2Q18-IC18

Method: EPA 537 MOD

Lab FileID: 2Q657.D

Analyst approved: 04/21/17 09:46 Nancy Saunders

Injection Time: 04/20/17 13:53

Supervisor approved: 04/21/17 11:22 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.96	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.20	Split peak

7.4.7.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q659.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 4/20/2017 2:34:37 PM
 Sample Name : ICV18-20
 Vial : Vial 9
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q18.batch.bin
 Last Calib Update : 4/21/2017 7:57:04 AM

Compound	RT	Qion	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.648	429.0 -> 409.0	158830	20.00 µg/L	0.000
13C2-PFDoDA	10.651	615.0 -> 570.0	91721	20.00 µg/L	-0.013
13C2-PFOA	6.637	415.0 -> 370.0	75324	20.00 µg/L	0.000
13C3-PFPeA	4.222	266.0 -> 222.0	74004	20.00 µg/L	-0.013
13C4-PFOS	7.199	503.0 -> 80.0	55296	20.00 µg/L	0.000
d3-MeFOSAA	7.474	573.0 -> 419.0	34720	20.00 µg/L	0.000

System Monitoring Compounds

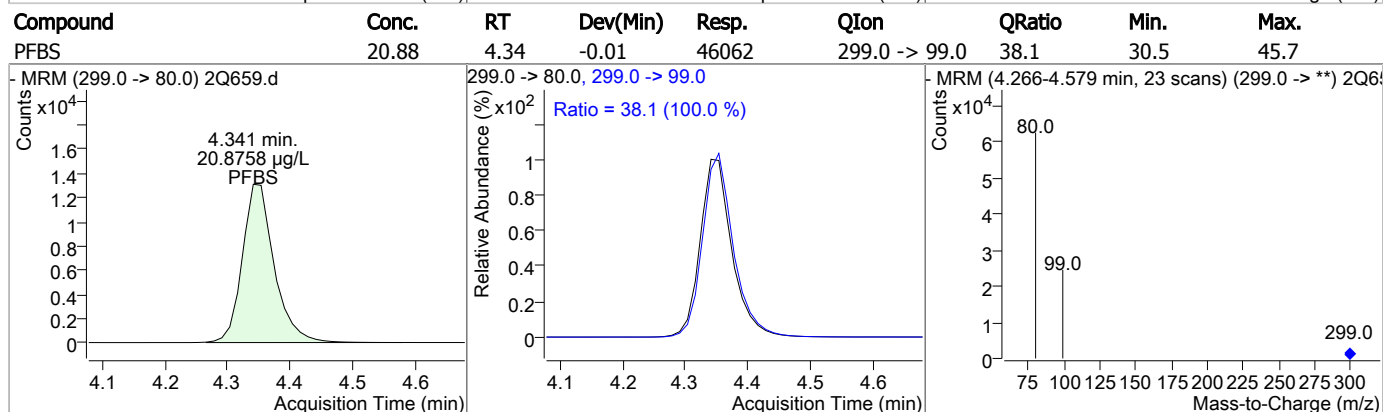
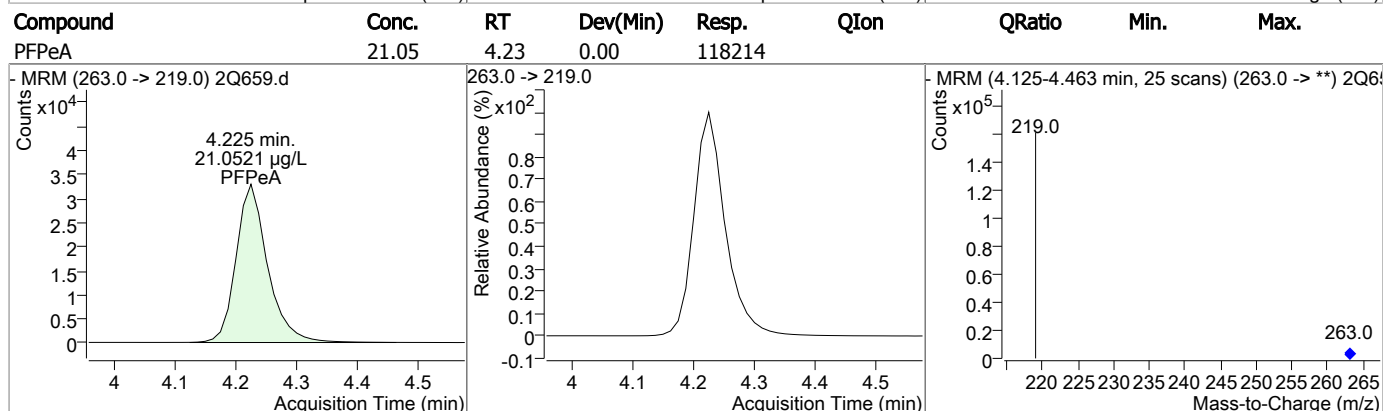
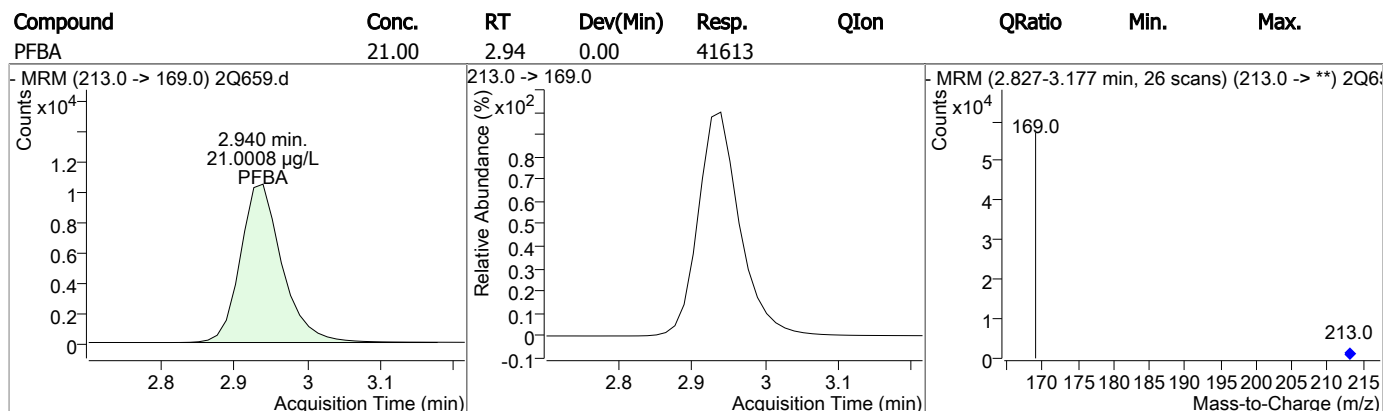
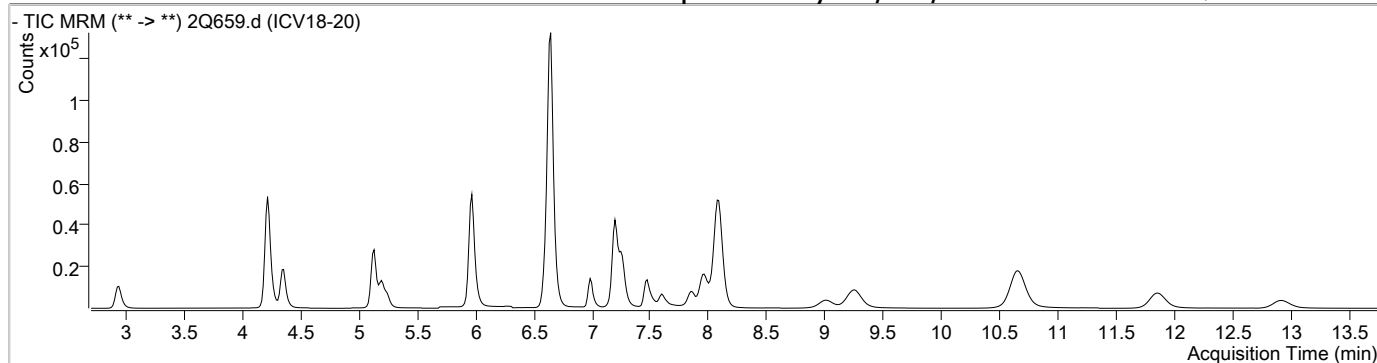
13C2-PFDA	7.969	515.0 -> 470.0	0	0.00 µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = NA%			
13C2-PFHxA	-	315.0 -> 270.0	-	N.D.		
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = NA%			
d5-EtFOSAA	7.597	589.0 -> 419.0	0	0.00 µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = NA%			

Target Compounds

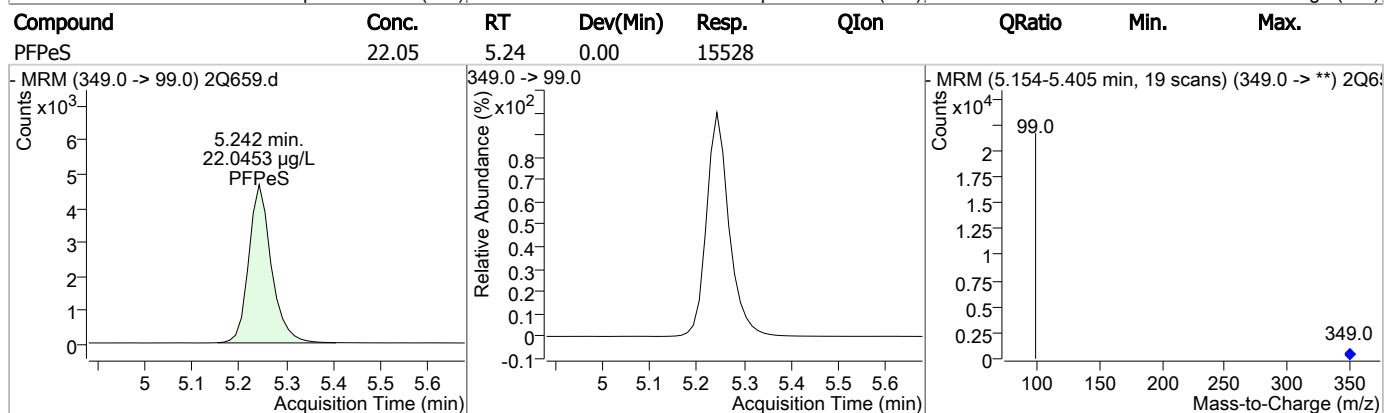
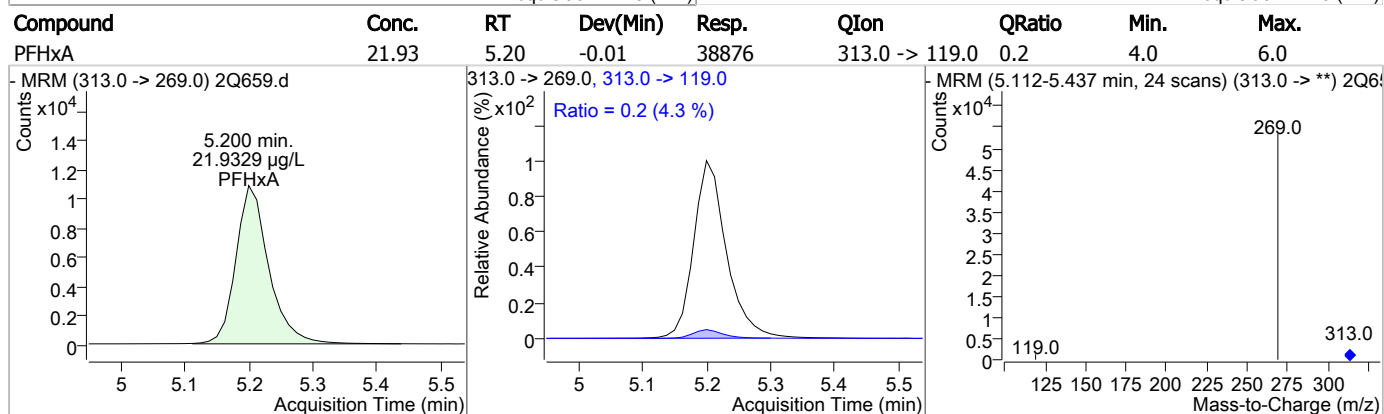
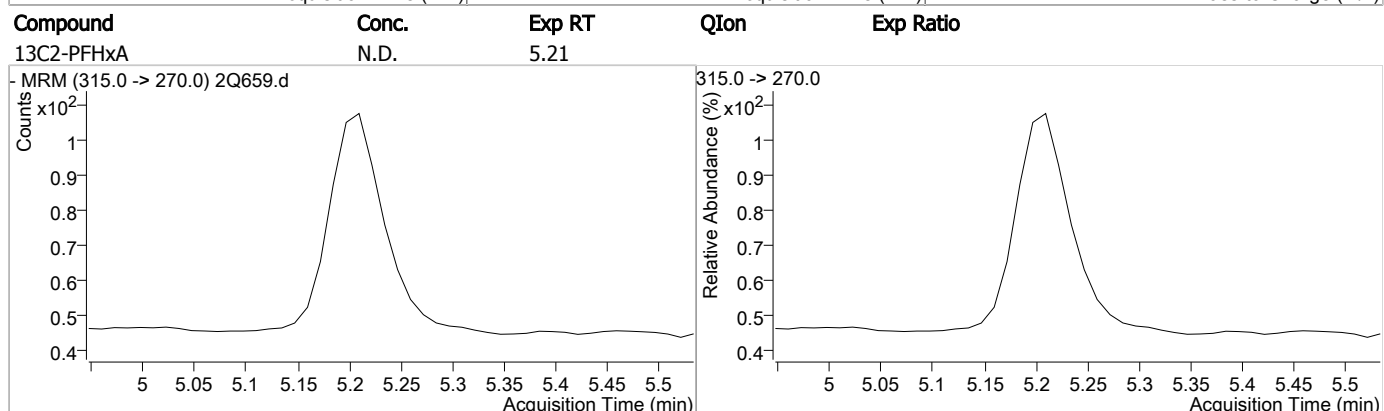
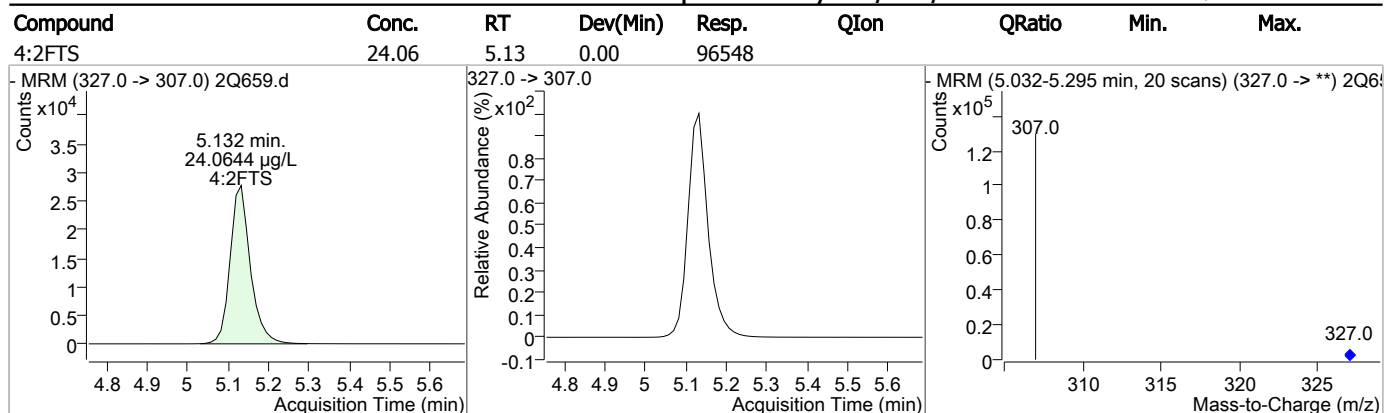
						QValue
4:2FTS	5.132	327.0 -> 307.0	96548	24.06 µg/L		100
6:2FTS	6.649	427.0 -> 407.0	172861	22.51 µg/L		100
8:2FTS	8.077	527.0 -> 507.0	286680	22.54 µg/L		100
EtFOSAA	7.598	584.0 -> 419.0	18871	23.57 µg/L		100
FOSA	6.986	498.0 -> 78.0	40260	21.57 µg/L		100
MeFOSAA	7.475	570.0 -> 419.0	24006	24.23 µg/L		100
PFBA	2.940	213.0 -> 169.0	41613	21.00 µg/L		100
PFBS	4.341	299.0 -> 80.0	46062	20.88 µg/L		100
PFDA	7.959	513.0 -> 469.0	78630	21.11 µg/L		100
PFDoDA	10.657	613.0 -> 569.0	89904	22.31 µg/L		100
PFDS	9.000	599.0 -> 80.0	33156	22.35 µg/L		100
PFHpA	5.973	363.0 -> 319.0	113139	21.56 µg/L	#	93
PFHpS	6.594	449.0 -> 80.0	49317	21.06 µg/L		100
PFHxA	5.200	313.0 -> 269.0	38876	21.93 µg/L	#	86
PFHxS	5.956	399.0 -> 80.0	50890	22.04 µg/L		94
PFNA	7.269	463.0 -> 419.0	71725	21.31 µg/L		97
PFNS	7.854	549.0 -> 99.0	31642	22.66 µg/L		100
PFOA	6.639	413.0 -> 369.0	66629	21.28 µg/L		99
PFOS	7.201	499.0 -> 80.0	62605	19.62 µg/L		96
PFPeA	4.225	263.0 -> 219.0	118214	21.05 µg/L		100
PFPeS	5.242	349.0 -> 99.0	15528	22.05 µg/L		100
PFTeDA	12.916	713.0 -> 669.0	42406	22.54 µg/L		100
PFTTrDA	11.852	663.0 -> 619.0	76534	22.39 µg/L		100
PFUnDA	9.256	563.0 -> 519.0	85345	21.21 µg/L		100

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

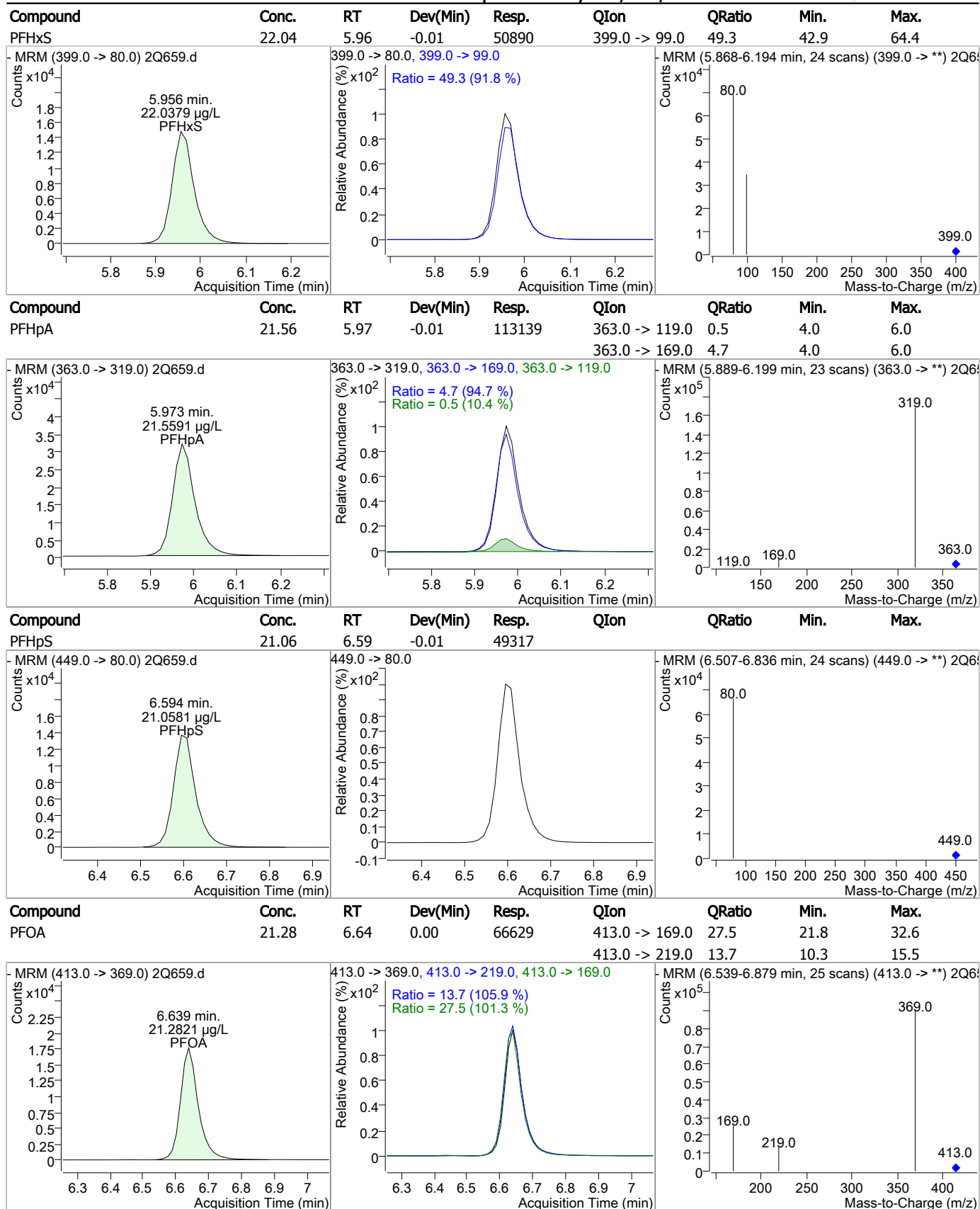
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



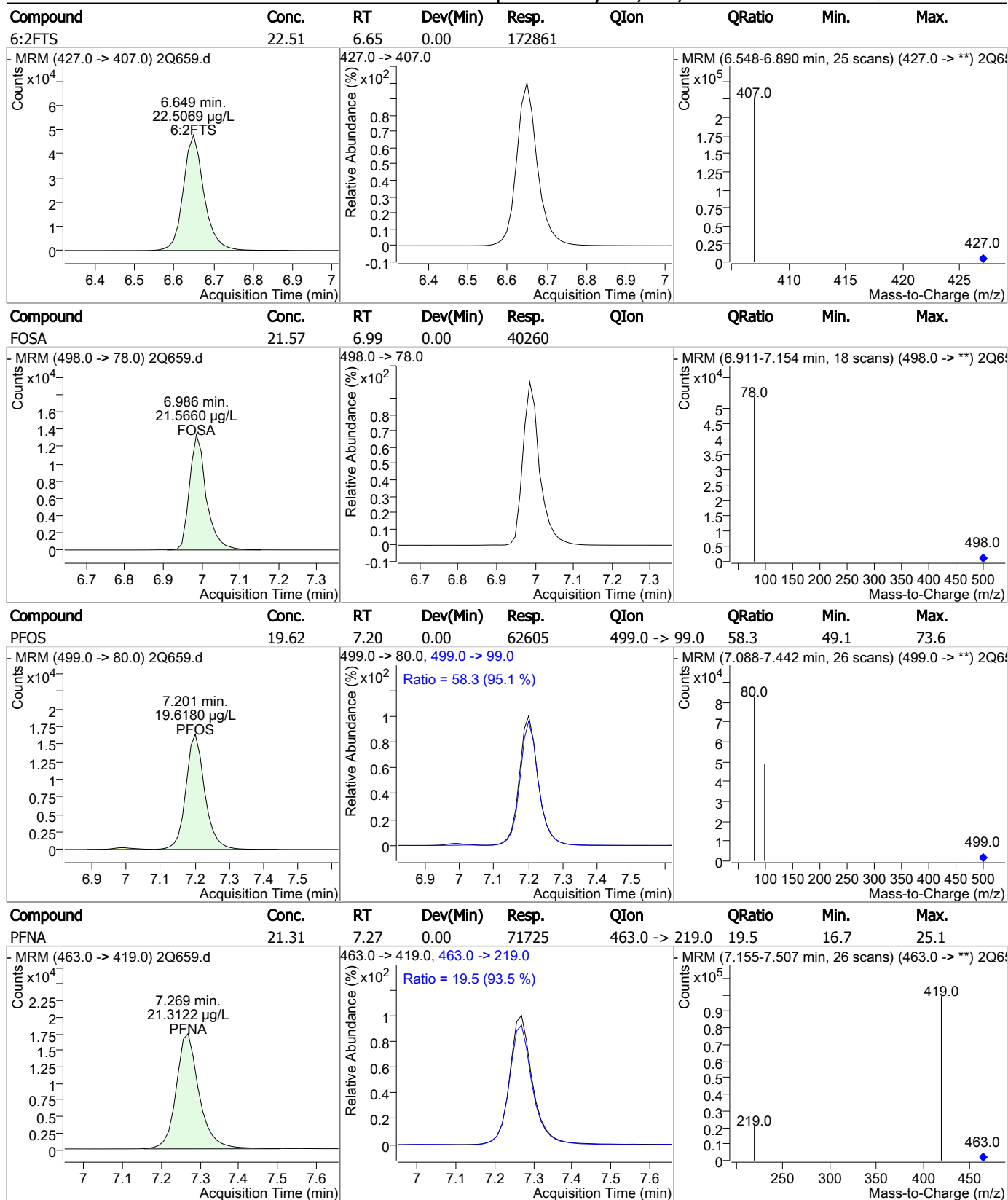
Perfluorinated Compounds by LC/MS/MS



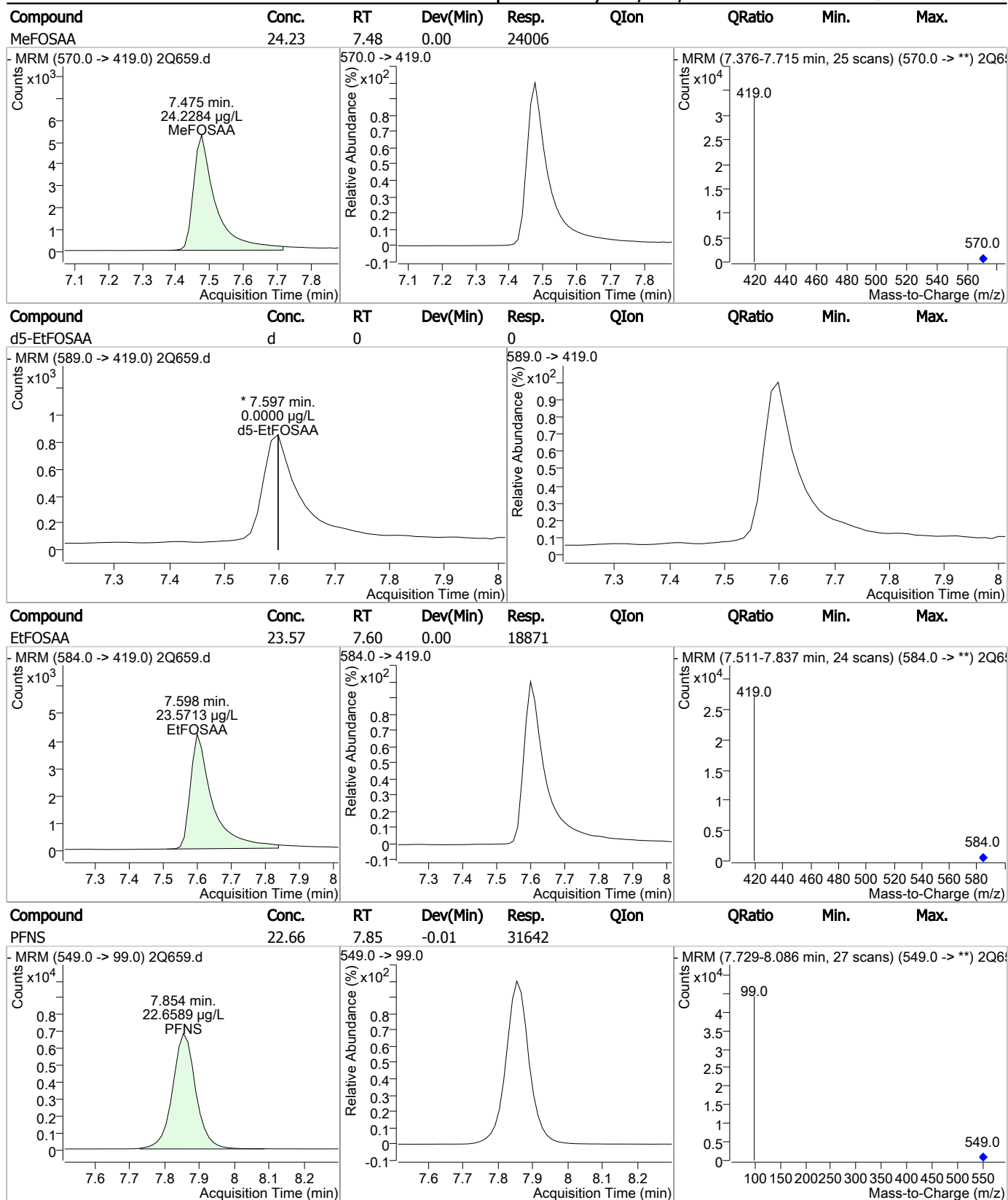
7.4.8

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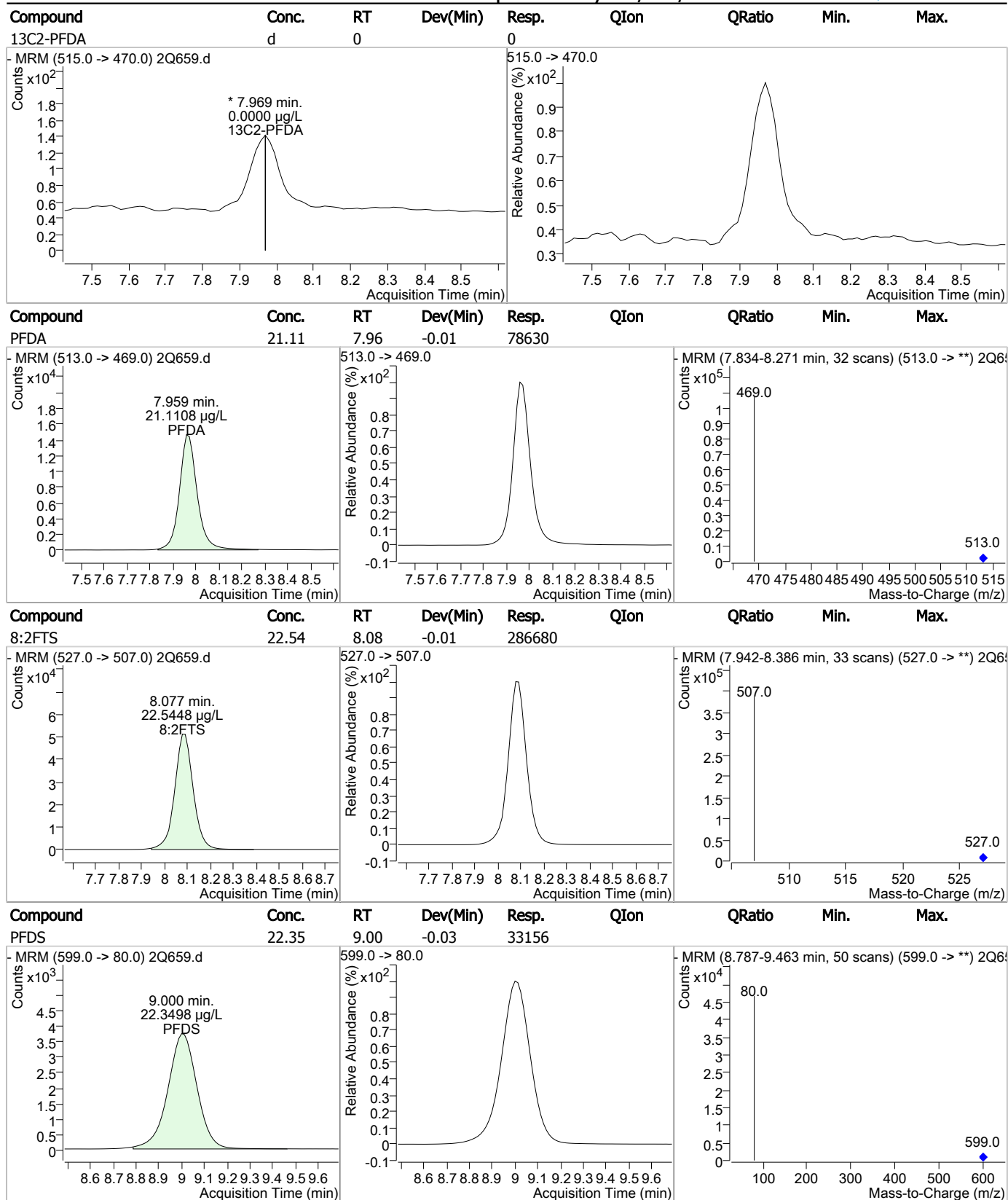
Perfluorinated Compounds by LC/MS/MS



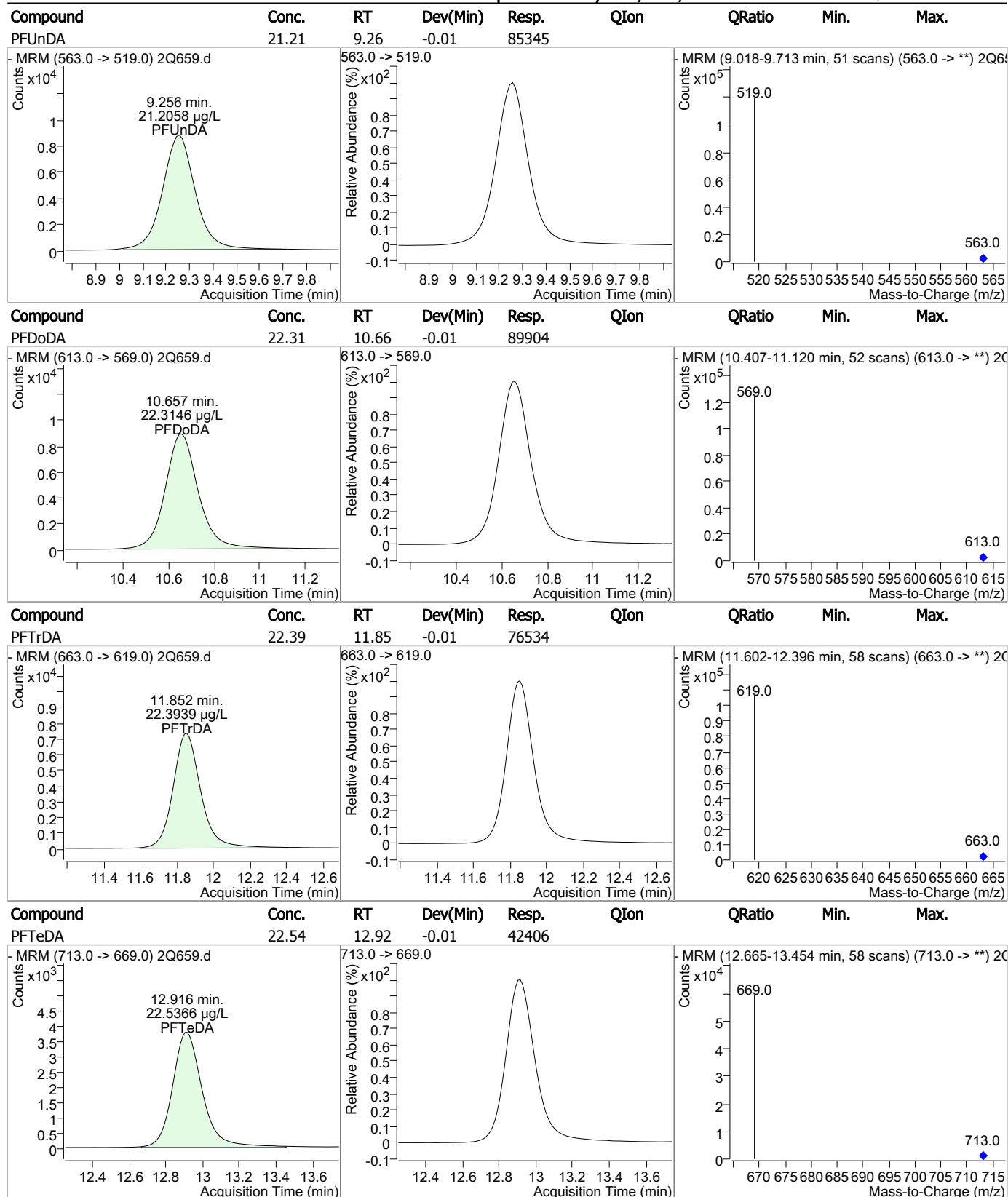
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Data File : 2Q941.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 5/1/2017 9:05:14 PM
 Sample Name : CC18-20
 Vial : Vial 2
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q26.batch.bin
 Last Calib Update : 5/1/2017 4:47:24 PM

Compound	RT	Qion	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.710	429.0 -> 409.0	146839	20.00 µg/L	-0.075
13C2-PFDoDA	10.989	615.0 -> 570.0	83705	20.00 µg/L	-0.275
13C2-PFOA	6.701	415.0 -> 370.0	74961	20.00 µg/L	-0.063
13C3-PFPeA	4.247	266.0 -> 222.0	68658	20.00 µg/L	-0.063
13C4-PFOS	7.289	503.0 -> 80.0	53971	20.00 µg/L	-0.075
d3-MeFOSAA	7.475	573.0 -> 419.0	30848	20.00 µg/L	-0.013

System Monitoring Compounds

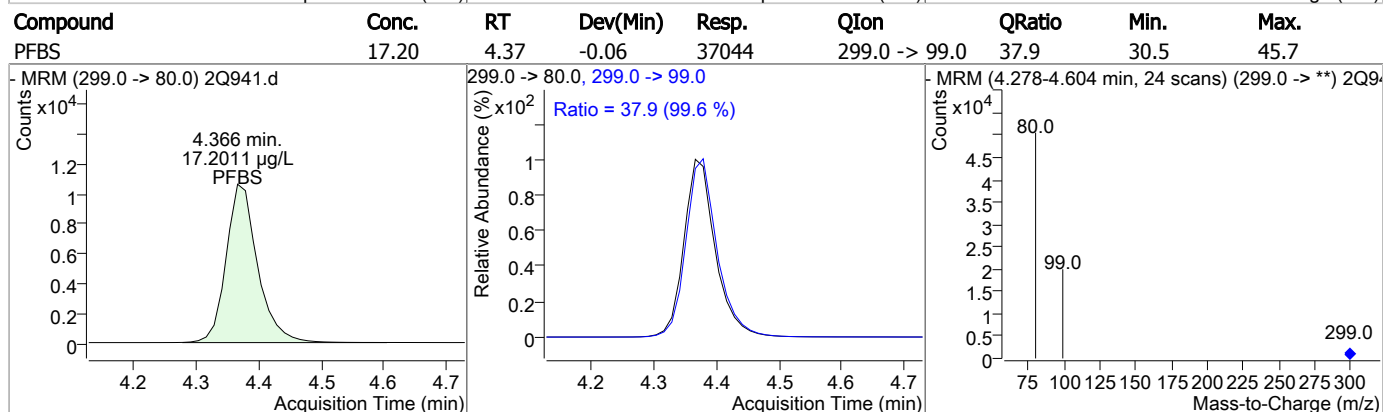
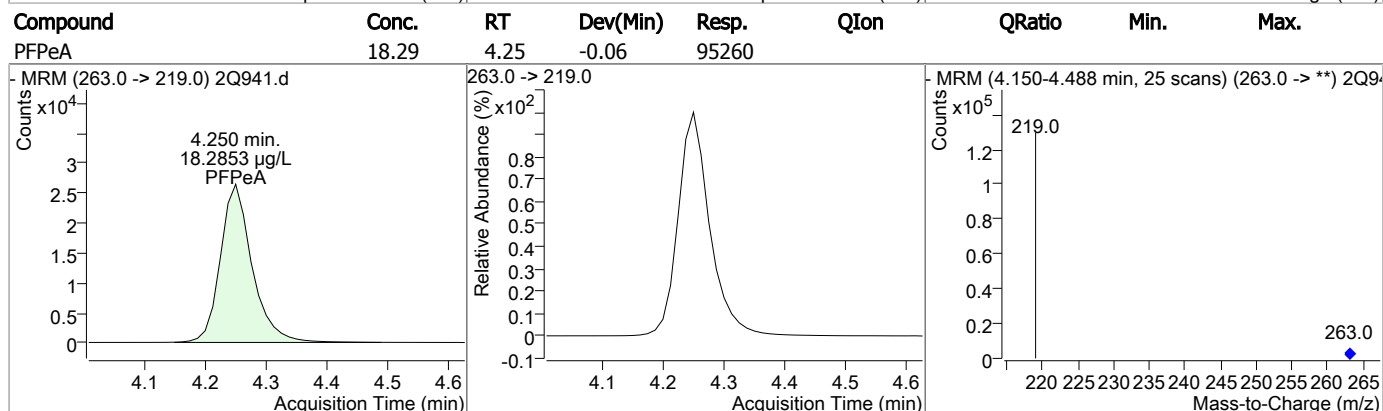
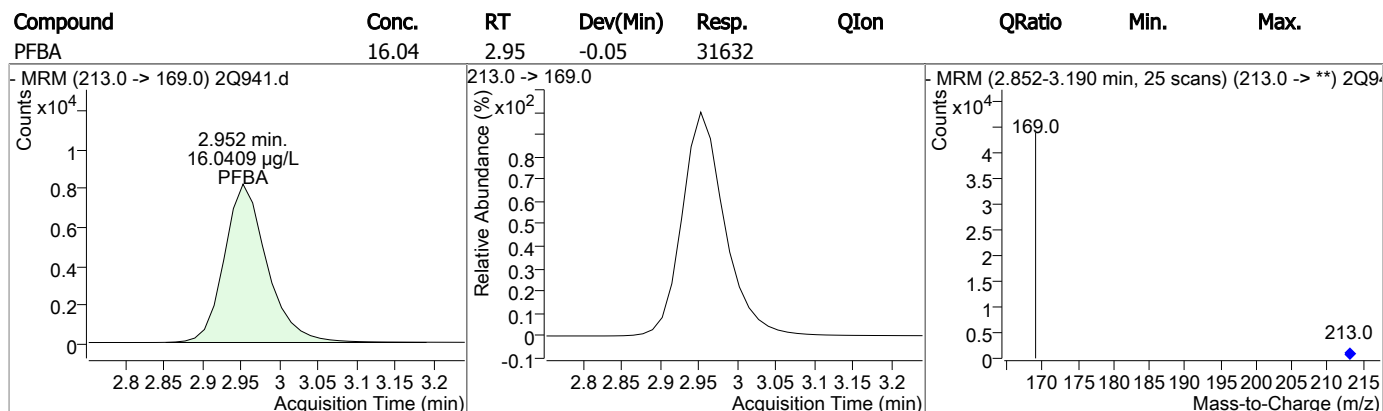
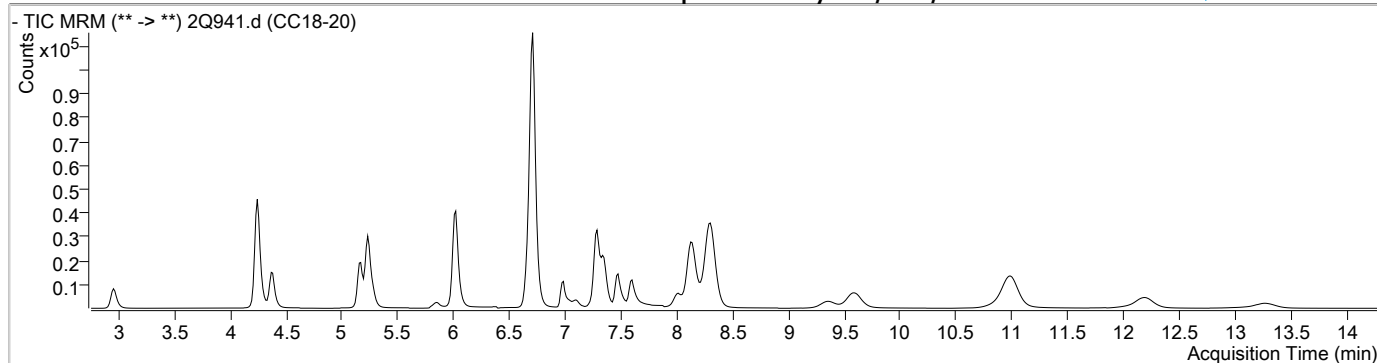
13C2-PFDA	8.130	515.0 -> 470.0	99591	18.99 µg/L	-0.163
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 94.9%		
13C2-PFHxA	5.235	315.0 -> 270.0	68996	17.43 µg/L	-0.063
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 87.1%		
d5-EtFOSAA	7.585	589.0 -> 419.0	25093	31.39 µg/L	-0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 156.9%		

Target Compounds

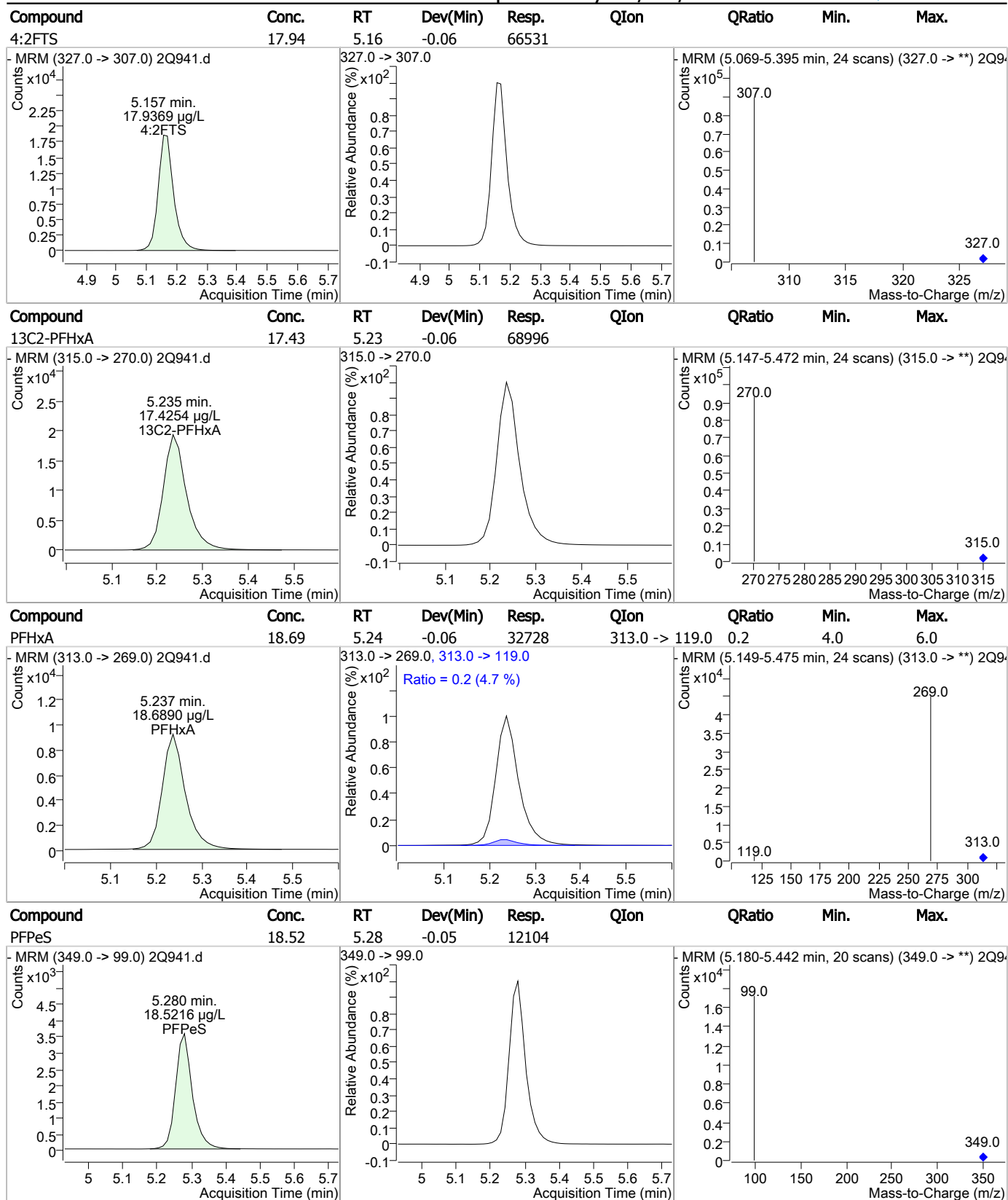
					QValue
4:2FTS	5.157	327.0 -> 307.0	66531	17.94 µg/L	100
6:2FTS	6.712	427.0 -> 407.0	138984	19.57 µg/L	100
8:2FTS	8.302	527.0 -> 507.0	246798	20.99 µg/L	100
EtFOSAA	7.598	584.0 -> 419.0	20614	28.58 µg/L	100
FOSA	6.985	498.0 -> 78.0	32405	19.54 µg/L	100
MeFOSAA	7.476	570.0 -> 419.0	26819	29.72 µg/L	100
PFBA	2.952	213.0 -> 169.0	31632	16.04 µg/L	100
PFBS	4.366	299.0 -> 80.0	37044	17.20 µg/L	100
PFDA	8.133	513.0 -> 469.0	68003	18.35 µg/L	100
PFDoDA	10.983	613.0 -> 569.0	70871	19.40 µg/L	100
PFDS	9.350	599.0 -> 80.0	25831	18.04 µg/L	100
PFHpA	6.023	363.0 -> 319.0	95272	18.33 µg/L	# 93
PFHpS	6.659	449.0 -> 80.0	42136	18.43 µg/L	100
PFHxA	5.237	313.0 -> 269.0	32728	18.69 µg/L	# 86
PFHxS	6.006	399.0 -> 80.0	40112	17.80 µg/L	m 95
PFNA	7.356	463.0 -> 419.0	62789	18.75 µg/L	97
PFNS	8.002	549.0 -> 99.0	25559	18.75 µg/L	100
PFOA	6.702	413.0 -> 369.0	58815	18.88 µg/L	99
PFOS	7.290	499.0 -> 80.0	57284	18.39 µg/L	m 85
PFPeA	4.250	263.0 -> 219.0	95260	18.29 µg/L	100
PFPeS	5.280	349.0 -> 99.0	12104	18.52 µg/L	100
PFTeDA	13.266	713.0 -> 669.0	31315	18.43 µg/L	100
PFTTrDA	12.190	663.0 -> 619.0	60947	19.69 µg/L	100
PFUnDA	9.594	563.0 -> 519.0	65882	17.94 µg/L	100

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

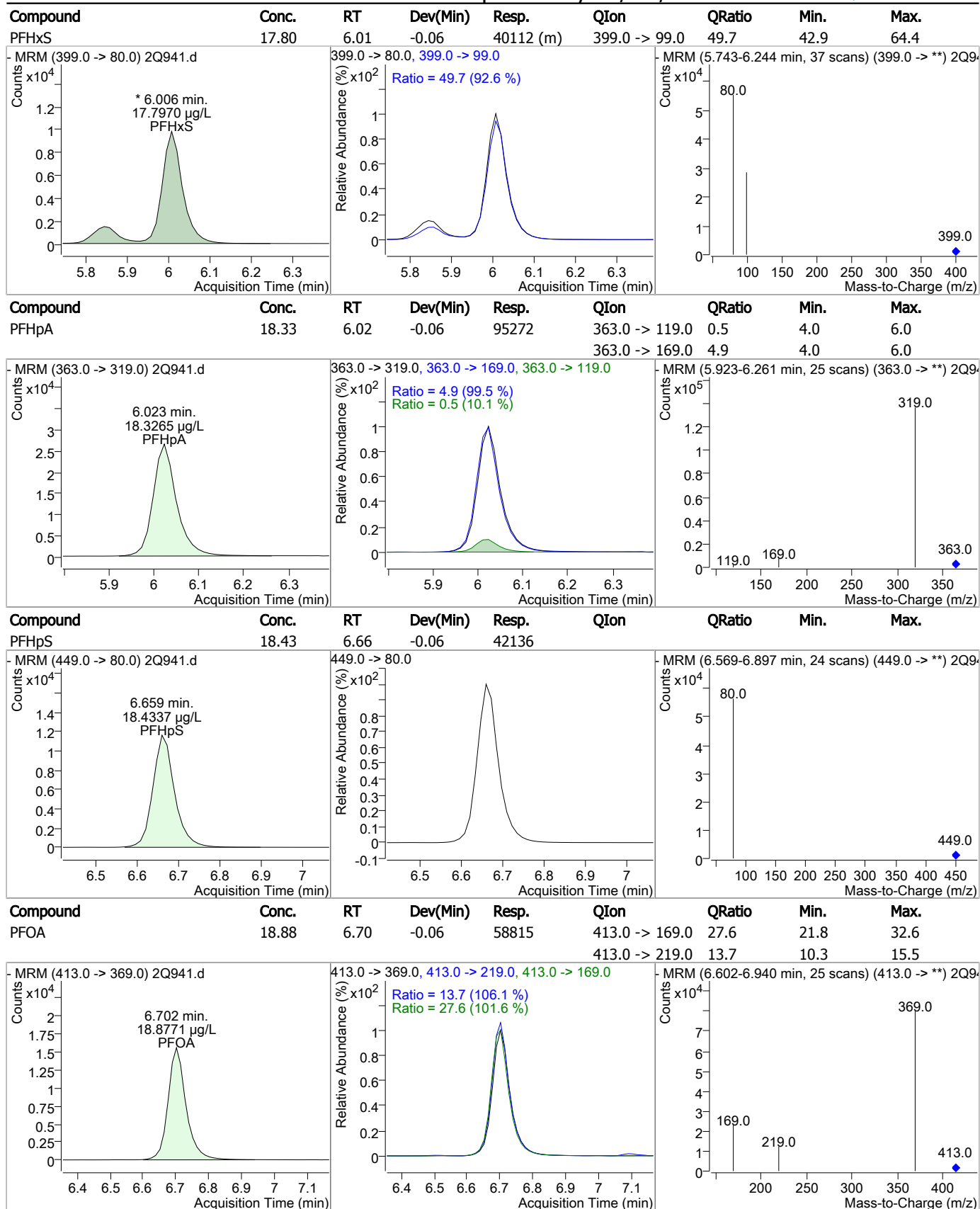
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



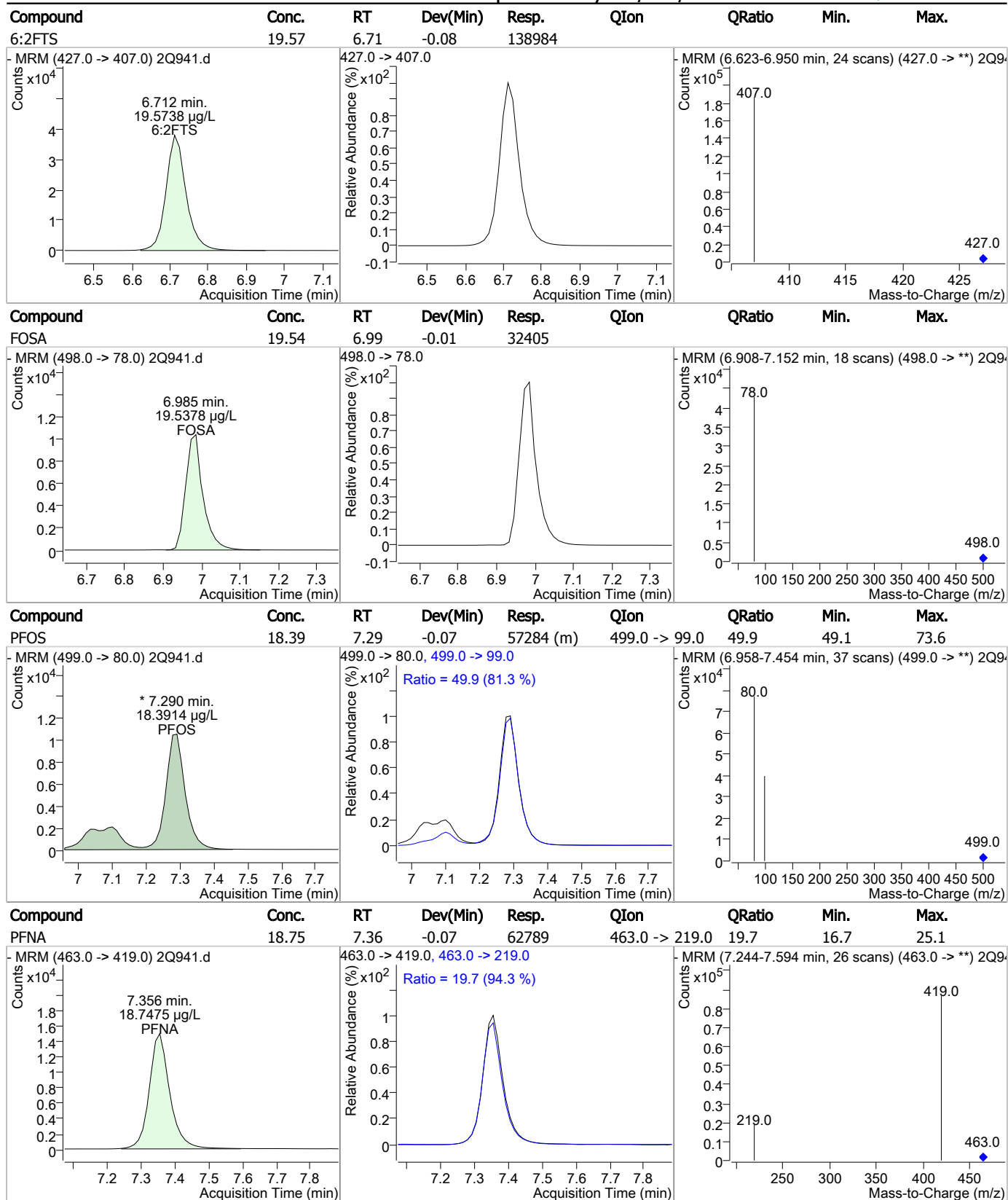
Perfluorinated Compounds by LC/MS/MS



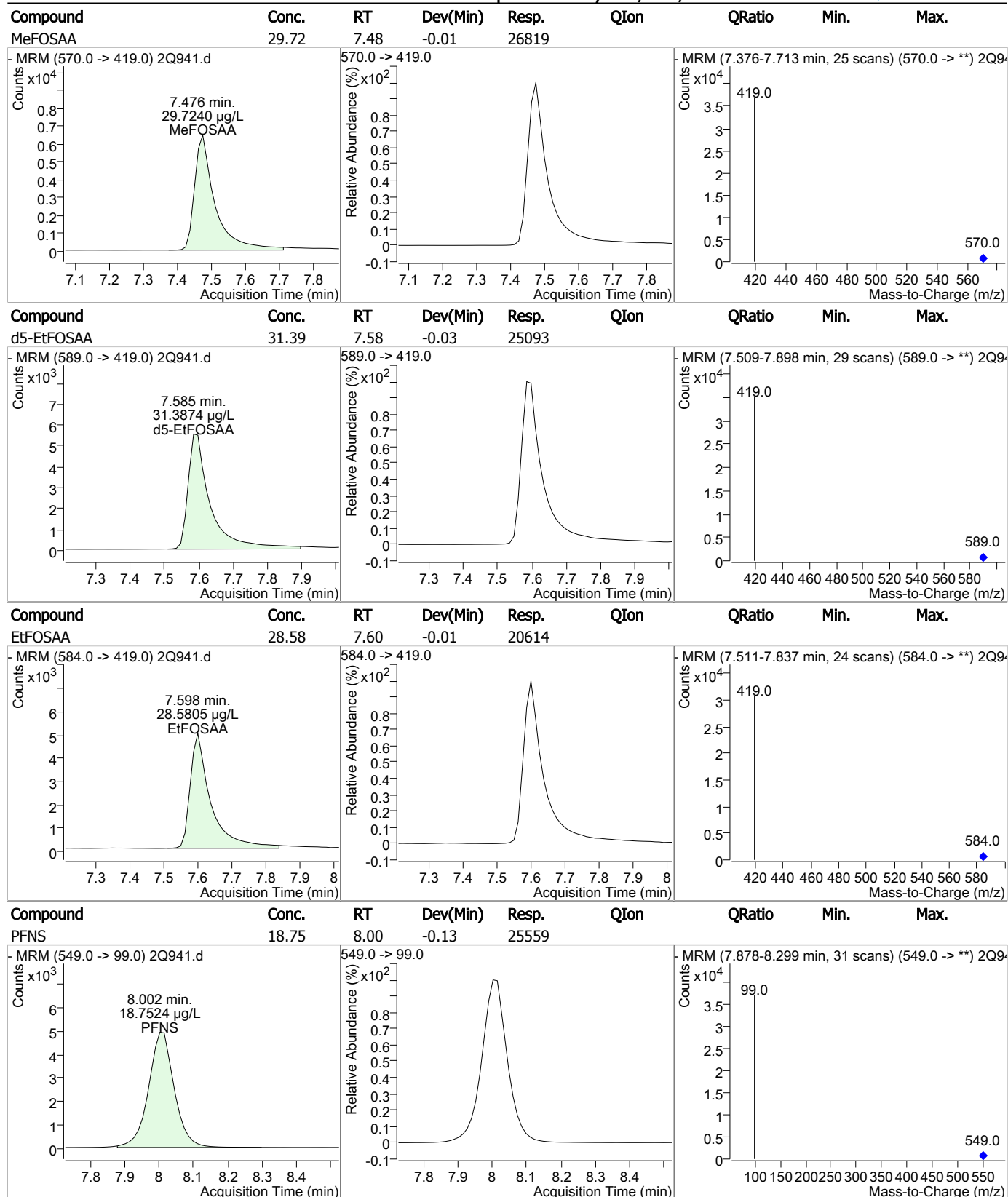
7.4.9

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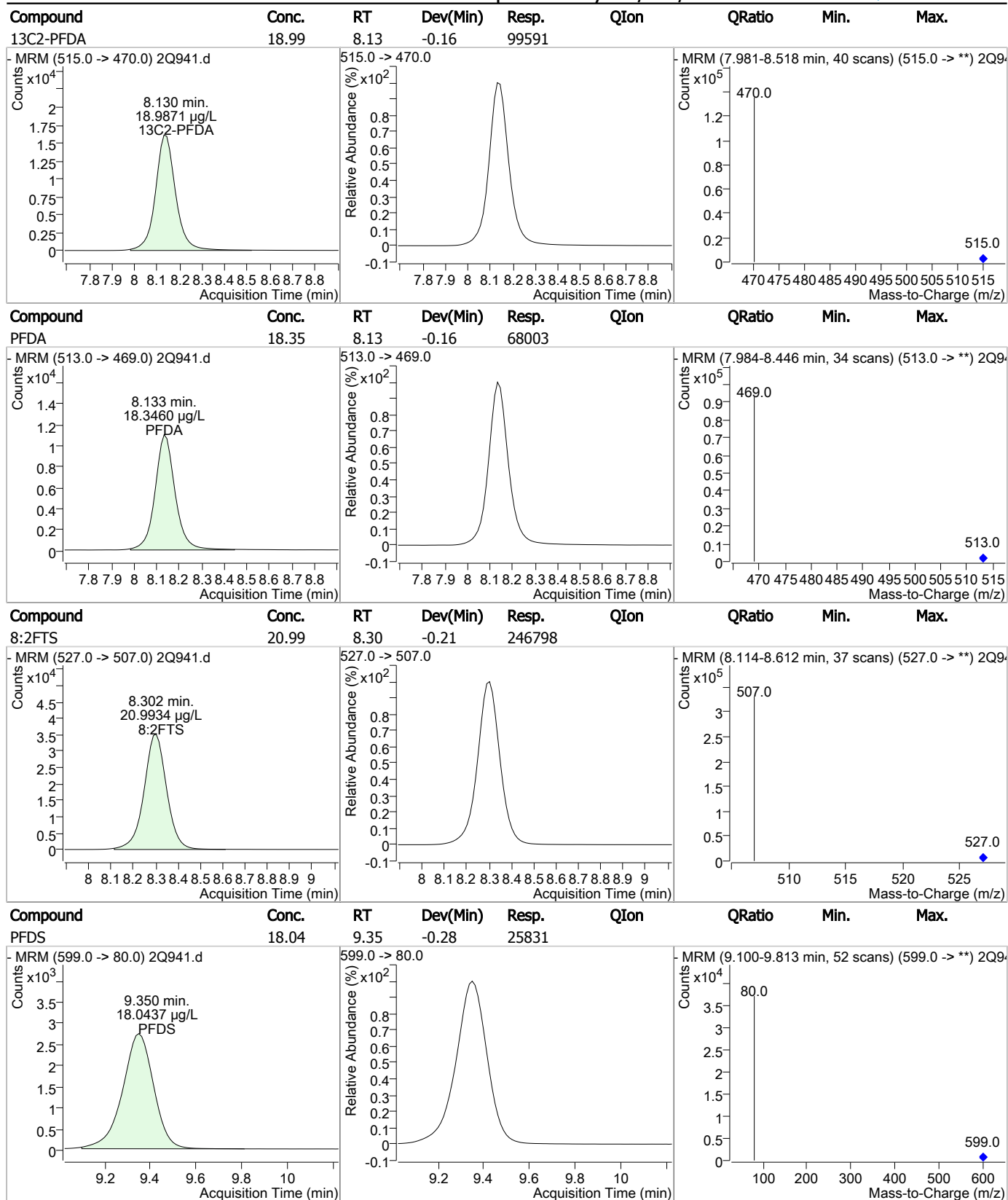
Perfluorinated Compounds by LC/MS/MS



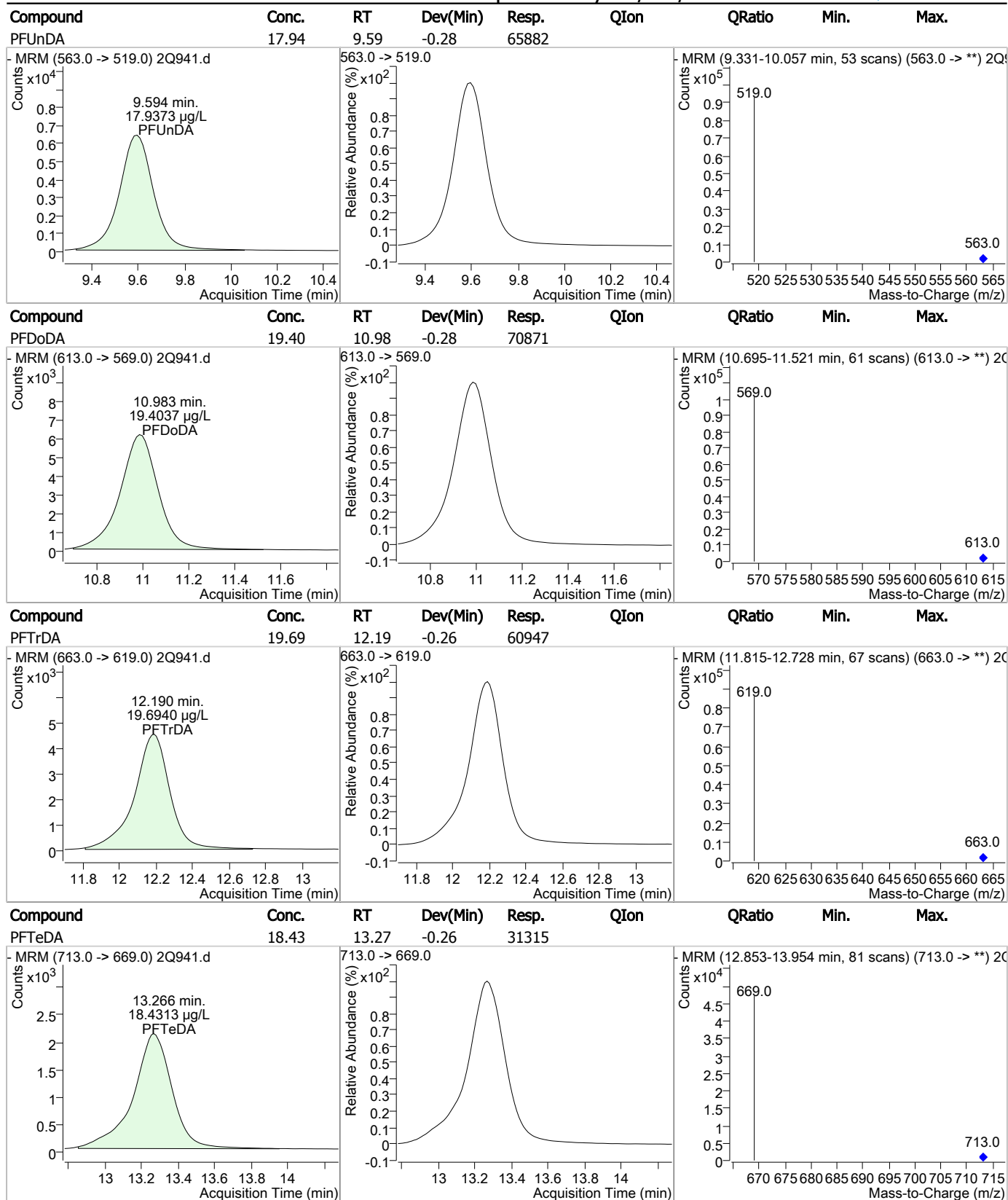
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S2Q26-CC18

Method: EPA 537

Lab FileID: 2Q941.D

Analyst approved: 05/02/17 10:05 Nancy Saunders

Injection Time: 05/01/17 21:05

Supervisor approved: 05/02/17 12:48 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.01	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.29	Split peak

7.4.9.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q948.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 5/1/2017 11:23:24 PM
 Sample Name : ECC18-20
 Vial : Vial 2
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q26.batch.bin
 Last Calib Update : 5/1/2017 4:47:24 PM

Compound	RT	Qion	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.735	429.0 -> 409.0	149308	20.00 µg/L	-0.050
13C2-PFDoDA	11.051	615.0 -> 570.0	85133	20.00 µg/L	-0.213
13C2-PFOA	6.713	415.0 -> 370.0	75288	20.00 µg/L	-0.050
13C3-PFPeA	4.272	266.0 -> 222.0	70179	20.00 µg/L	-0.038
13C4-PFOS	7.301	503.0 -> 80.0	55312	20.00 µg/L	-0.063
d3-MeFOSAA	7.475	573.0 -> 419.0	30387	20.00 µg/L	-0.013

System Monitoring Compounds

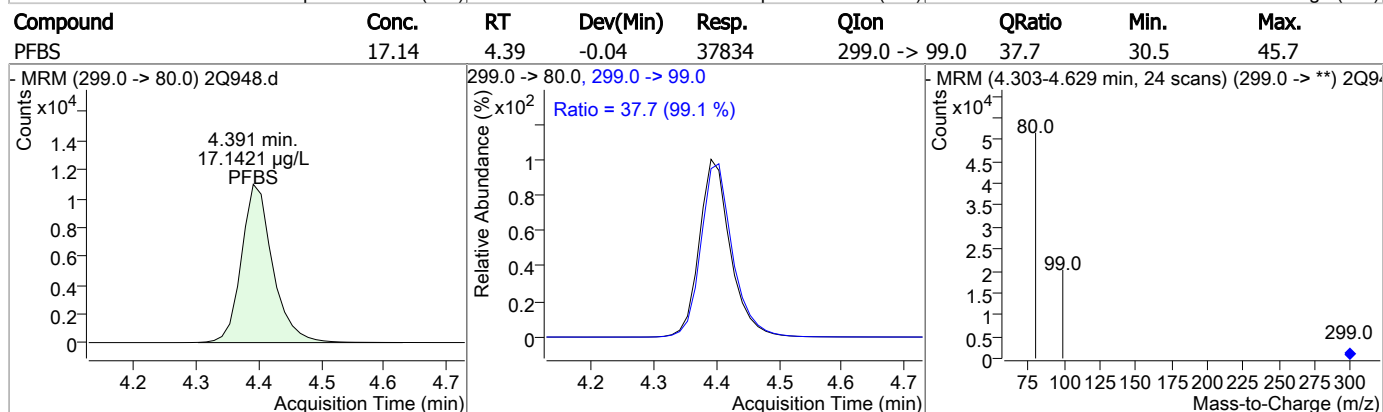
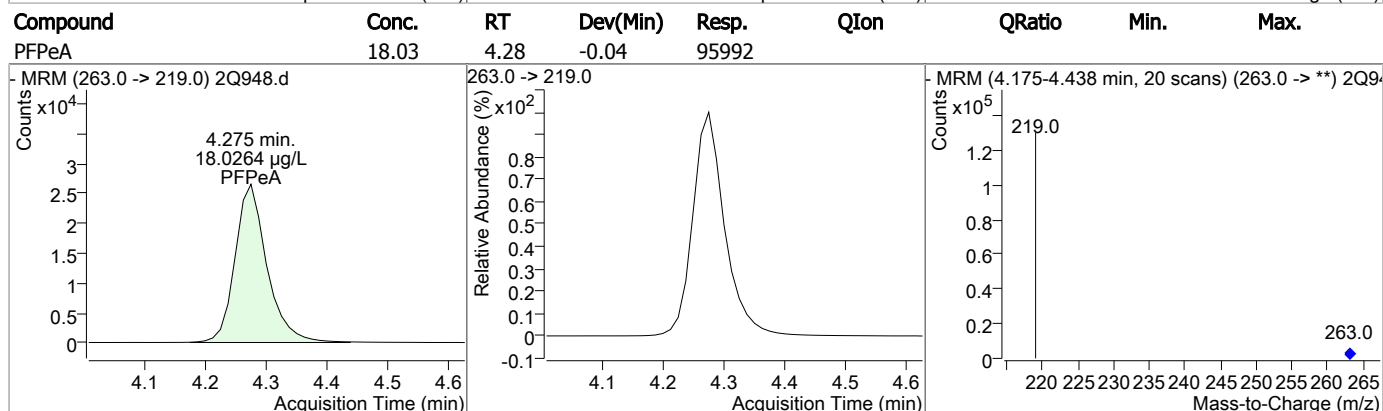
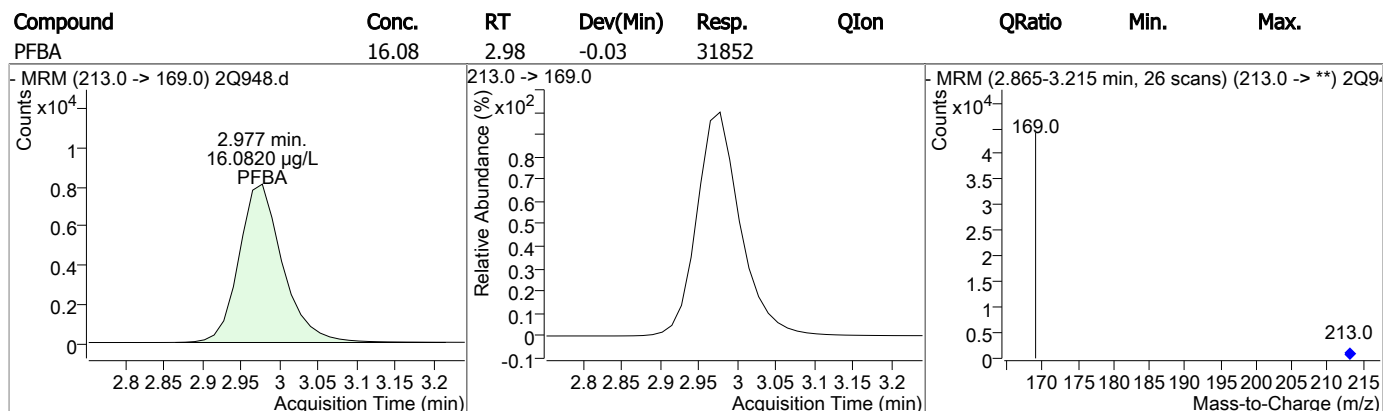
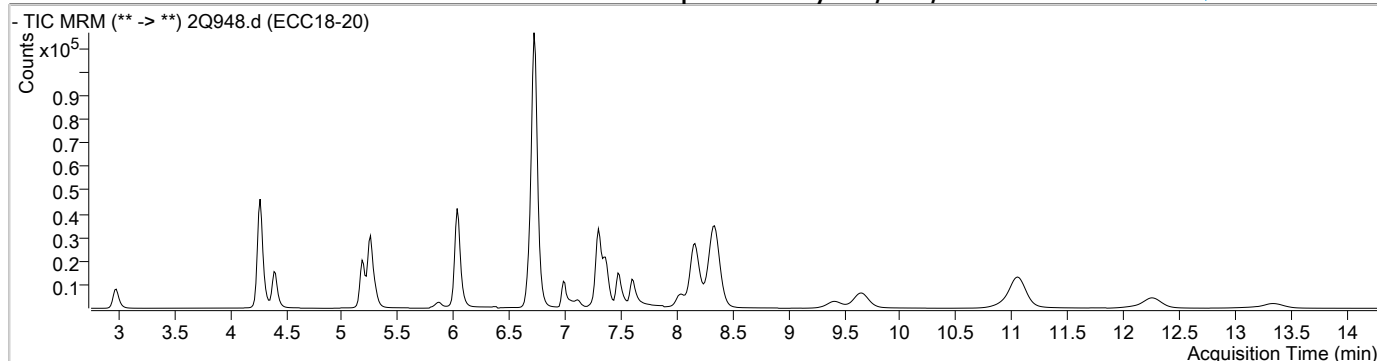
13C2-PFDA	8.167	515.0 -> 470.0	100400	19.06 µg/L	-0.125
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 95.3%	
13C2-PFHxA	5.260	315.0 -> 270.0	70193	17.65 µg/L	-0.038
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 88.3%	
d5-EtFOSAA	7.597	589.0 -> 419.0	23528	30.05 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 150.3%	

Target Compounds

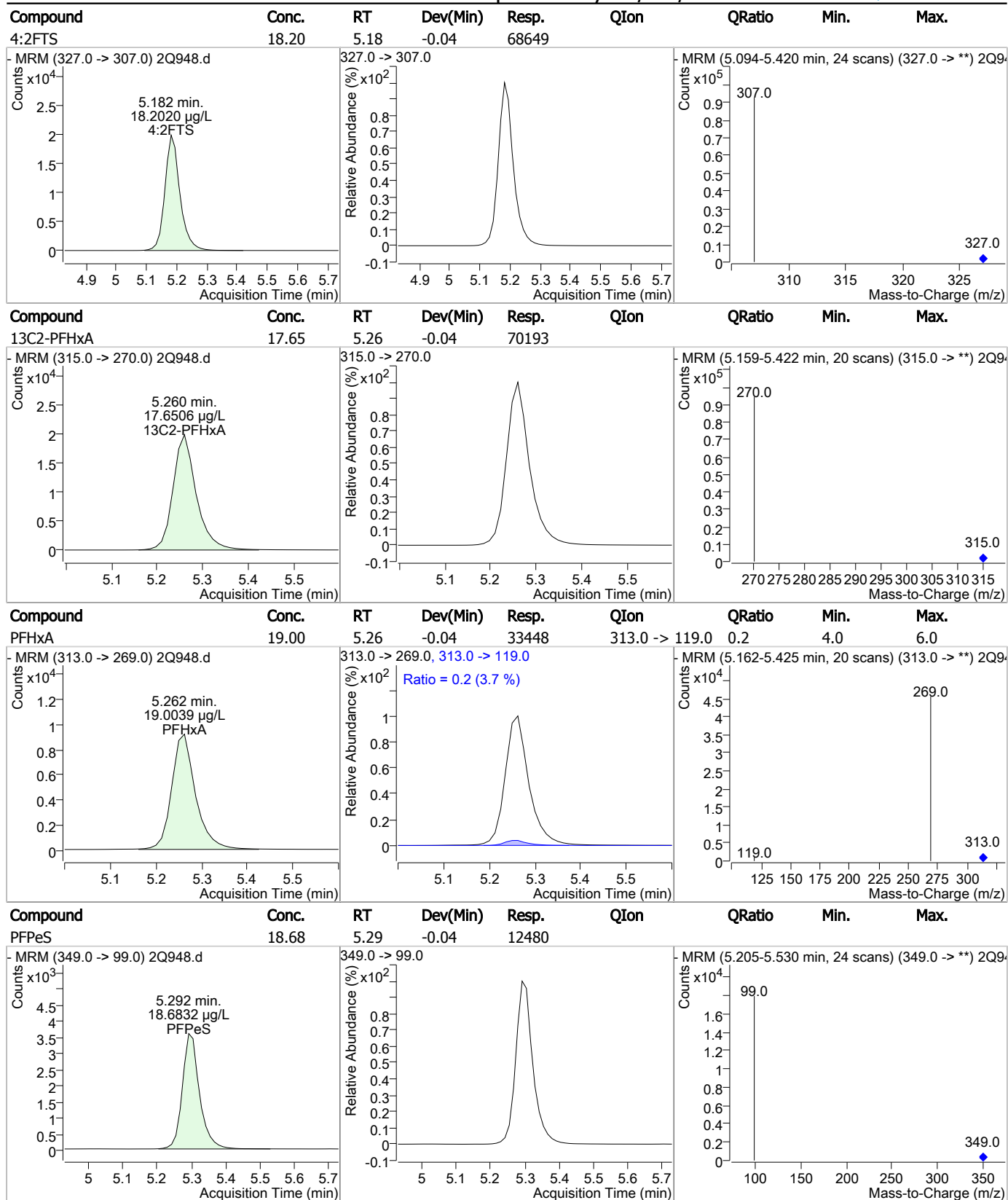
					QValue
4:2FTS	5.182	327.0 -> 307.0	68649	18.20 µg/L	100
6:2FTS	6.737	427.0 -> 407.0	142425	19.73 µg/L	100
8:2FTS	8.339	527.0 -> 507.0	254796	21.32 µg/L	100
EtFOSAA	7.611	584.0 -> 419.0	21251	29.81 µg/L	100
FOSA	6.985	498.0 -> 78.0	32670	20.00 µg/L	100
MeFOSAA	7.488	570.0 -> 419.0	26451	29.76 µg/L	100
PFBA	2.977	213.0 -> 169.0	31852	16.08 µg/L	100
PFBS	4.391	299.0 -> 80.0	37834	17.14 µg/L	99
PFDA	8.170	513.0 -> 469.0	67390	18.10 µg/L	100
PFDoDA	11.058	613.0 -> 569.0	72682	19.56 µg/L	100
PFDS	9.400	599.0 -> 80.0	26203	17.87 µg/L	100
PFHpA	6.036	363.0 -> 319.0	96696	18.51 µg/L	# 93
PFHpS	6.684	449.0 -> 80.0	42946	18.33 µg/L	100
PFHxA	5.262	313.0 -> 269.0	33448	19.00 µg/L	# 85
PFHxS	6.031	399.0 -> 80.0	40976	17.74 µg/L	m 93
PFNA	7.369	463.0 -> 419.0	62284	18.52 µg/L	98
PFNS	8.023	549.0 -> 99.0	26012	18.62 µg/L	100
PFOA	6.715	413.0 -> 369.0	58622	18.73 µg/L	99
PFOS	7.303	499.0 -> 80.0	57122	17.89 µg/L	m 87
PFPeA	4.275	263.0 -> 219.0	95992	18.03 µg/L	100
PFPeS	5.292	349.0 -> 99.0	12480	18.68 µg/L	100
PFTeDA	13.341	713.0 -> 669.0	31328	18.14 µg/L	100
PFTTrDA	12.253	663.0 -> 619.0	60810	19.34 µg/L	100
PFUnDA	9.656	563.0 -> 519.0	67519	18.07 µg/L	100

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

Perfluorinated Compounds by LC/MS/MS

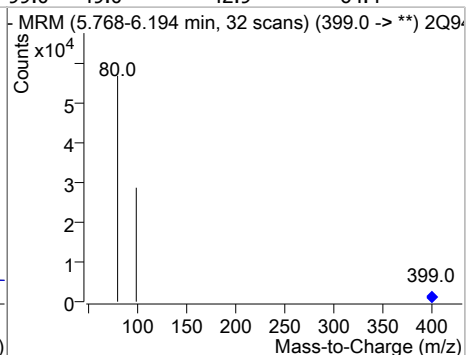


Perfluorinated Compounds by LC/MS/MS

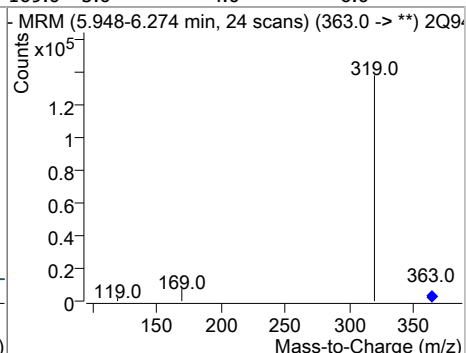


Agilent Technologies

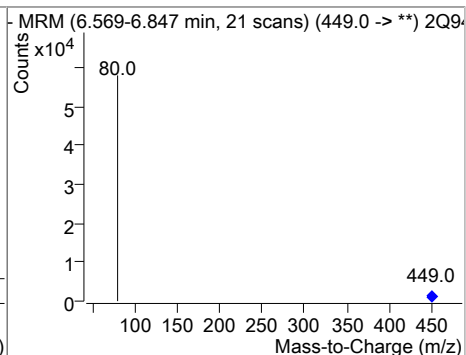
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	17.74	6.03	-0.04	40976 (m)	399.0 -> 99.0	49.0	42.9	64.4



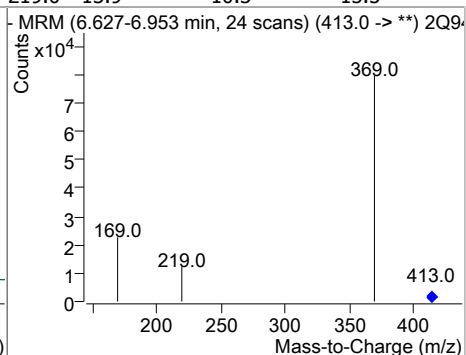
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.51	6.04	-0.05	96696	363.0 -> 119.0	0.5	4.0	6.0
					363.0 -> 169.0	5.0	4.0	6.0



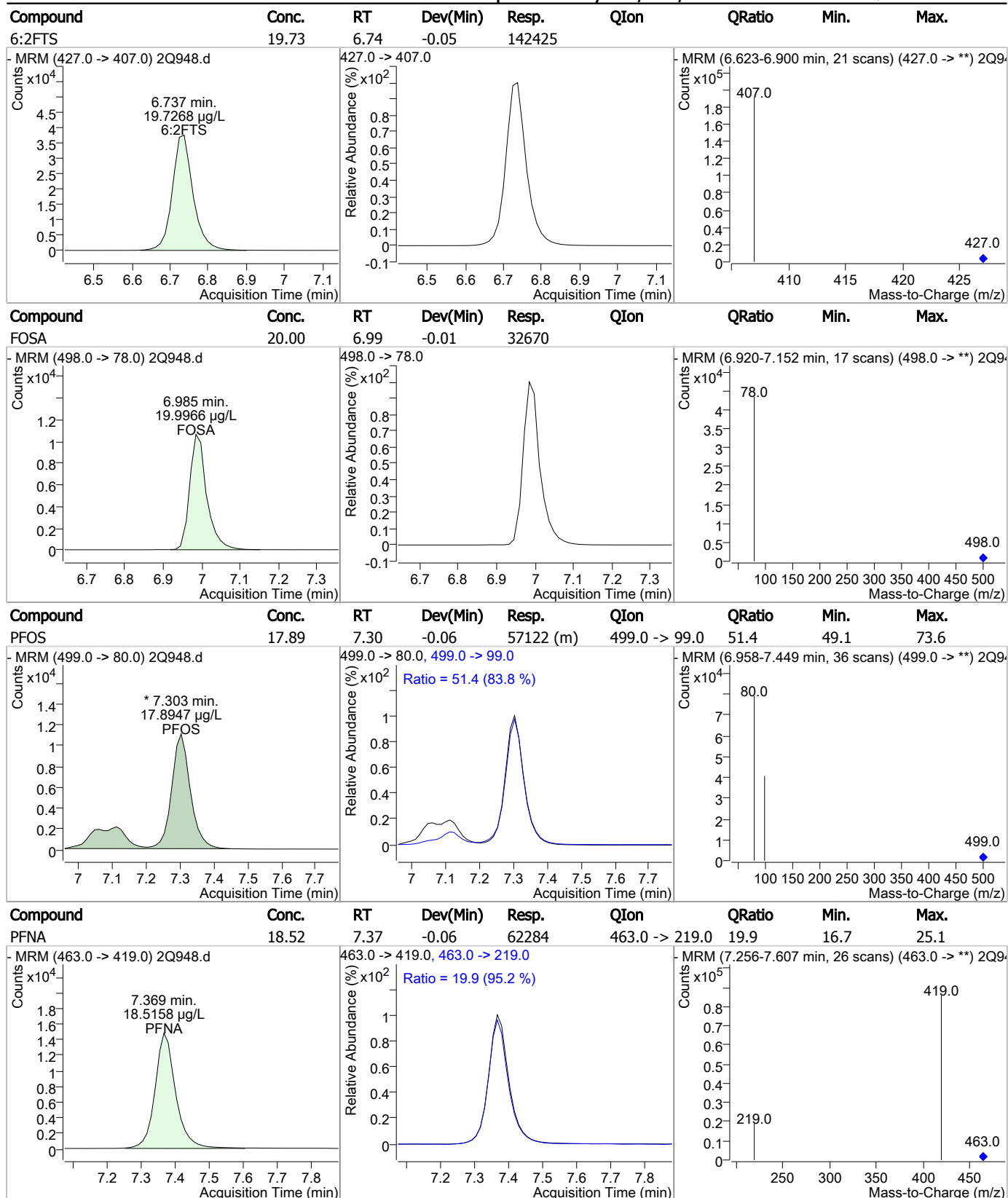
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	18.33	6.68	-0.04	42946				



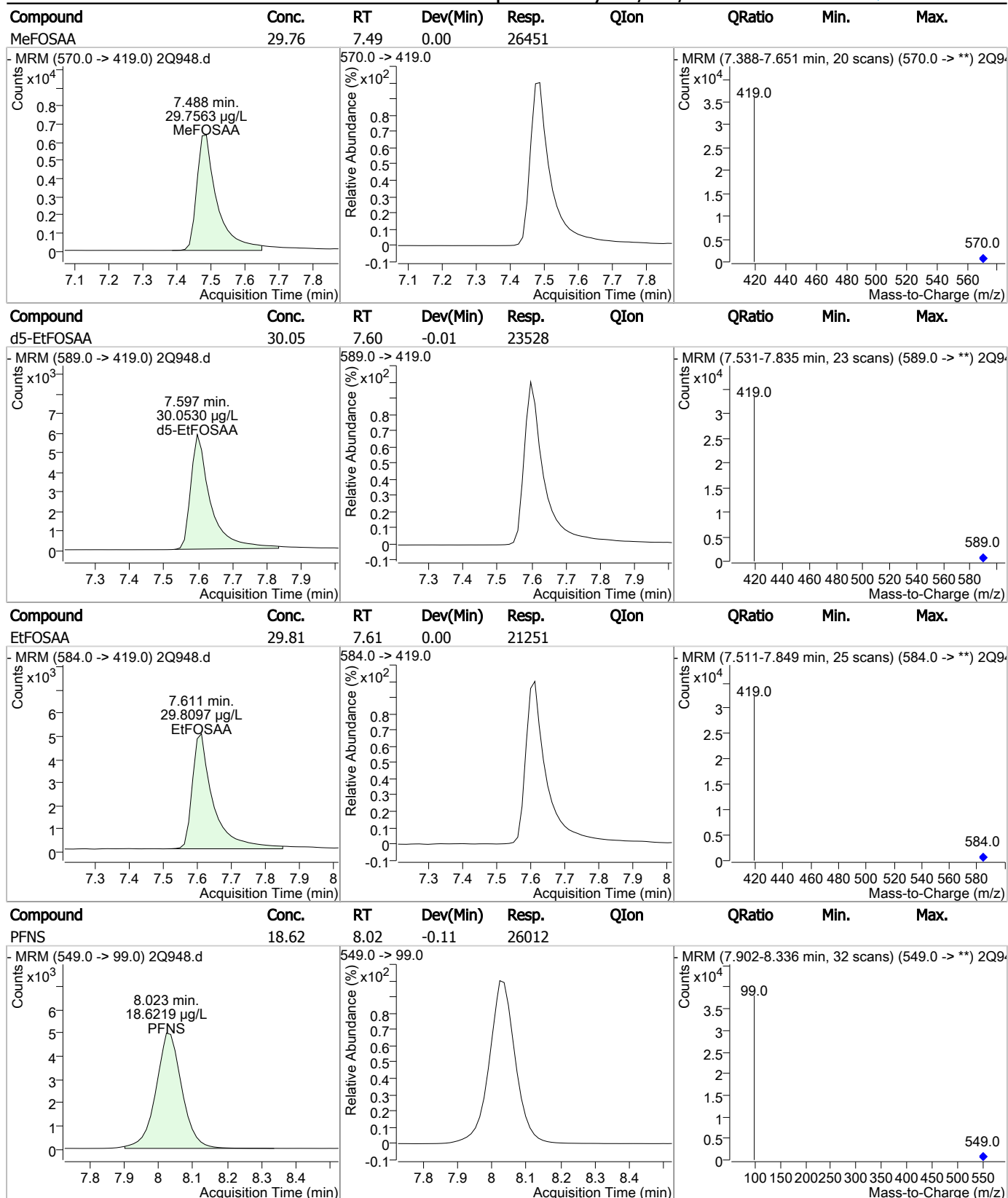
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	18.73	6.71	-0.05	58622	413.0 -> 169.0	27.4	21.8	32.6
					413.0 -> 219.0	13.9	10.3	15.5



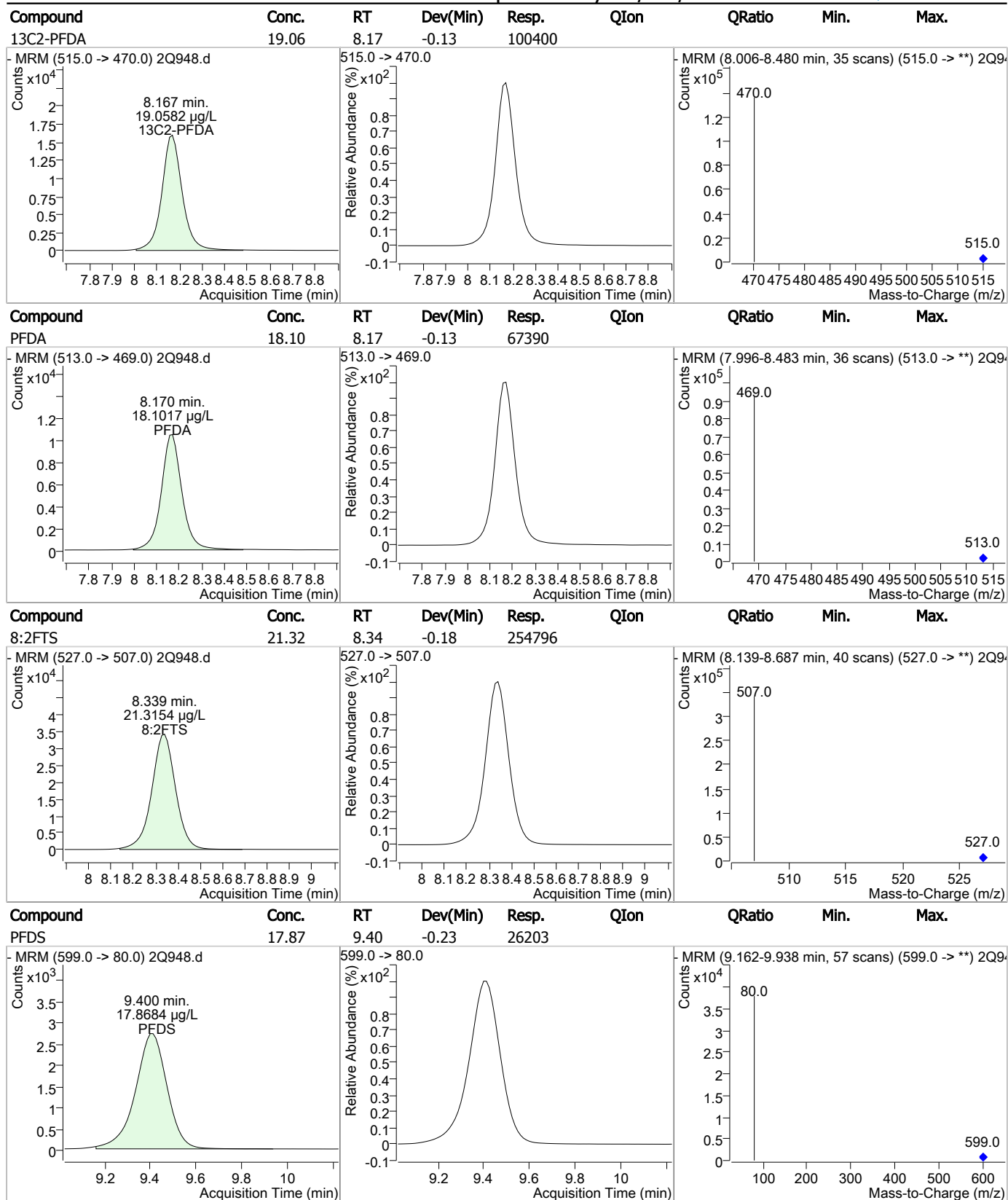
Perfluorinated Compounds by LC/MS/MS



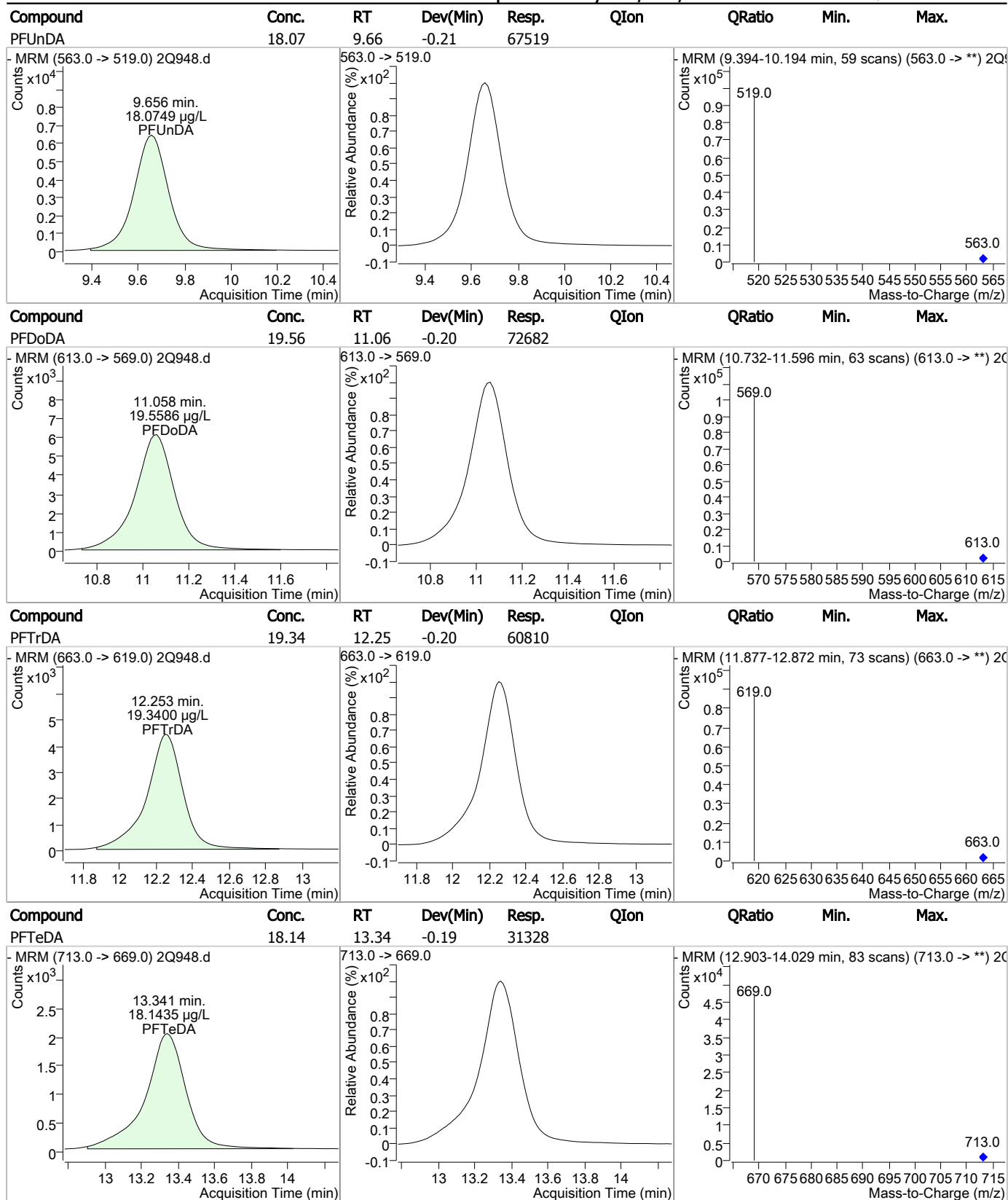
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S2Q26-ECC18

Method: EPA 537

Lab FileID: 2Q948.D

Analyst approved: 05/02/17 10:05 Nancy Saunders

Injection Time: 05/01/17 23:23

Supervisor approved: 05/02/17 12:48 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.03	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.30	Split peak

7.4.10.1
7

Mike Eger
05/04/17 11:46

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q992.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 5/3/2017 3:52:54 PM
 Sample Name : CC18-20
 Vial : Vial 2
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q28.batch.bin
 Last Calib Update : 5/1/2017 4:47:24 PM

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.710	429.0 -> 409.0	144649	20.00 µg/L	-0.025
13C2-PFDoDA	11.039	615.0 -> 570.0	82383	20.00 µg/L	0.013
13C2-PFOA	6.701	415.0 -> 370.0	68578	20.00 µg/L	-0.025
13C3-PFPeA	4.247	266.0 -> 222.0	63332	20.00 µg/L	-0.025
13C4-PFOS	7.289	503.0 -> 80.0	52509	20.00 µg/L	-0.025
d3-MeFOSAA	7.462	573.0 -> 419.0	29507	20.00 µg/L	-0.013

System Monitoring Compounds

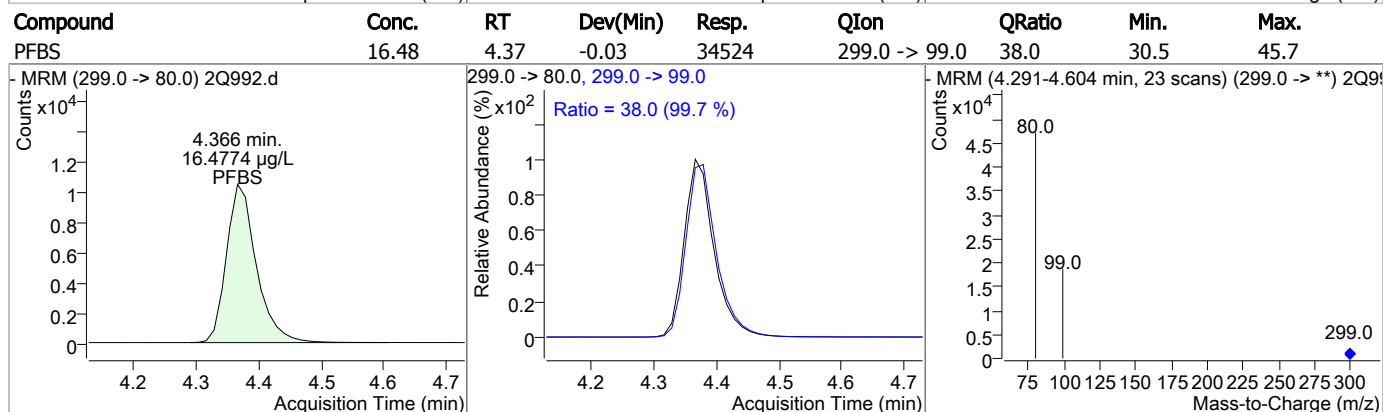
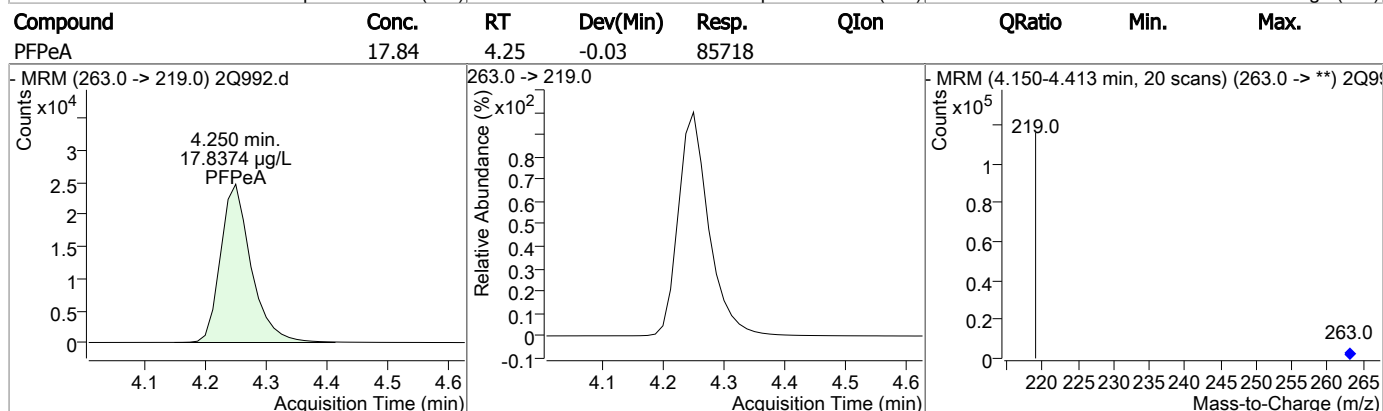
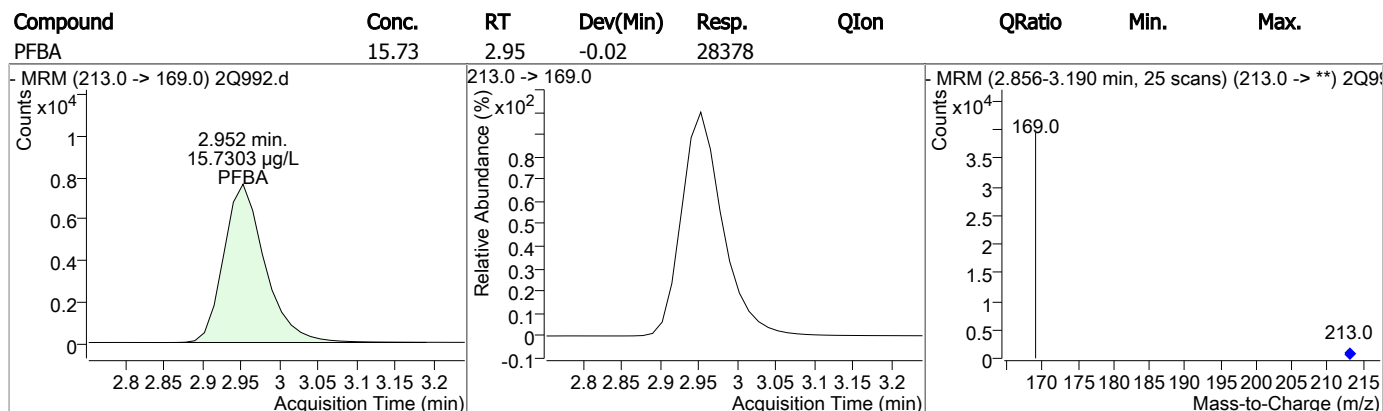
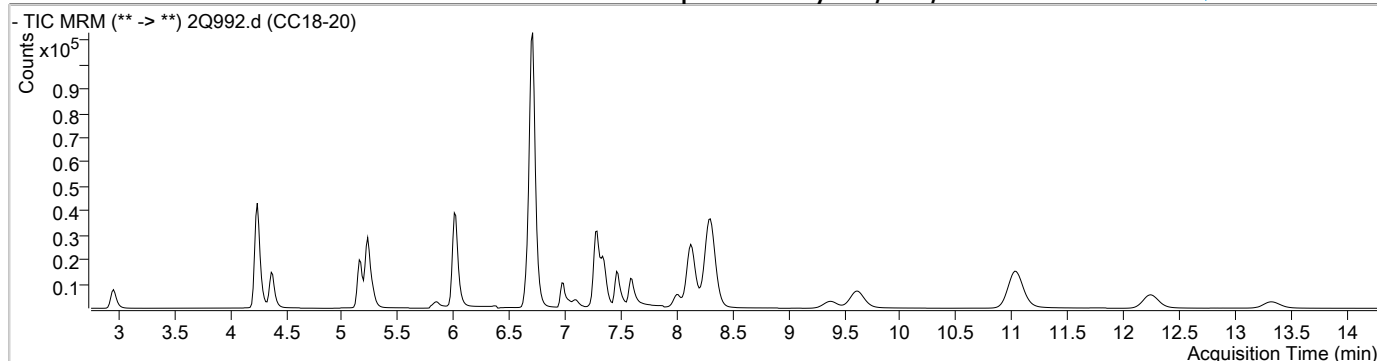
13C2-PFDA	8.130	515.0 -> 470.0	88869	18.52 µg/L	-0.050
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 92.6%		
13C2-PFHxA	5.235	315.0 -> 270.0	63329	17.48 µg/L	-0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 87.4%		
d5-EtFOSAA	7.585	589.0 -> 419.0	22889	30.10 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 150.5%		

Target Compounds

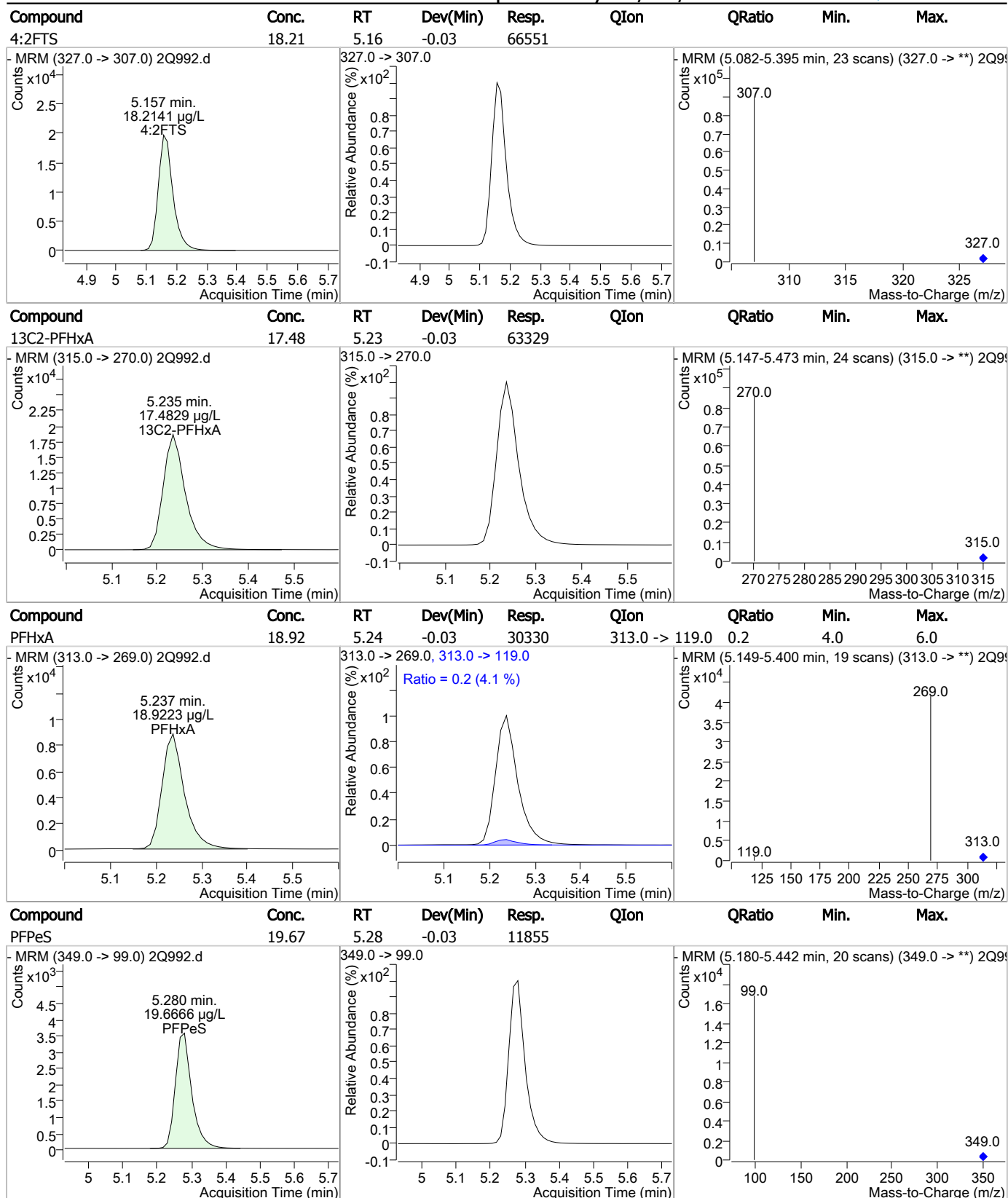
					QValue
4:2FTS	5.157	327.0 -> 307.0	66551	18.21 µg/L	100
6:2FTS	6.712	427.0 -> 407.0	136350	19.49 µg/L	100
8:2FTS	8.302	527.0 -> 507.0	246649	21.30 µg/L	100
EtFOSAA	7.599	584.0 -> 419.0	19745	28.62 µg/L	100
FOSA	6.973	498.0 -> 78.0	30483	19.21 µg/L	100
MeFOSAA	7.476	570.0 -> 419.0	25346	29.41 µg/L	100
PFBA	2.952	213.0 -> 169.0	28378	15.73 µg/L	100
PFBS	4.366	299.0 -> 80.0	34524	16.48 µg/L	100
PFDA	8.133	513.0 -> 469.0	61728	18.20 µg/L	100
PFDoDA	11.033	613.0 -> 569.0	70083	19.49 µg/L	100
PFDS	9.375	599.0 -> 80.0	25395	18.22 µg/L	100
PFHpA	6.023	363.0 -> 319.0	85261	17.94 µg/L	# 93
PFHpS	6.659	449.0 -> 80.0	41146	18.50 µg/L	100
PFHxA	5.237	313.0 -> 269.0	30330	18.92 µg/L	# 86
PFHxS	6.006	399.0 -> 80.0	39008	17.79 µg/L	m 93
PFNA	7.356	463.0 -> 419.0	56368	18.40 µg/L	99
PFNS	8.002	549.0 -> 99.0	24692	18.62 µg/L	100
PFOA	6.702	413.0 -> 369.0	53030	18.60 µg/L	100
PFOS	7.278	499.0 -> 80.0	53631	17.70 µg/L	m 86
PFPeA	4.250	263.0 -> 219.0	85718	17.84 µg/L	100
PFPeS	5.280	349.0 -> 99.0	11855	19.67 µg/L	100
PFTeDA	13.316	713.0 -> 669.0	29681	17.78 µg/L	100
PFTTrDA	12.240	663.0 -> 619.0	57810	19.02 µg/L	100
PFUnDA	9.619	563.0 -> 519.0	67338	18.63 µg/L	100

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

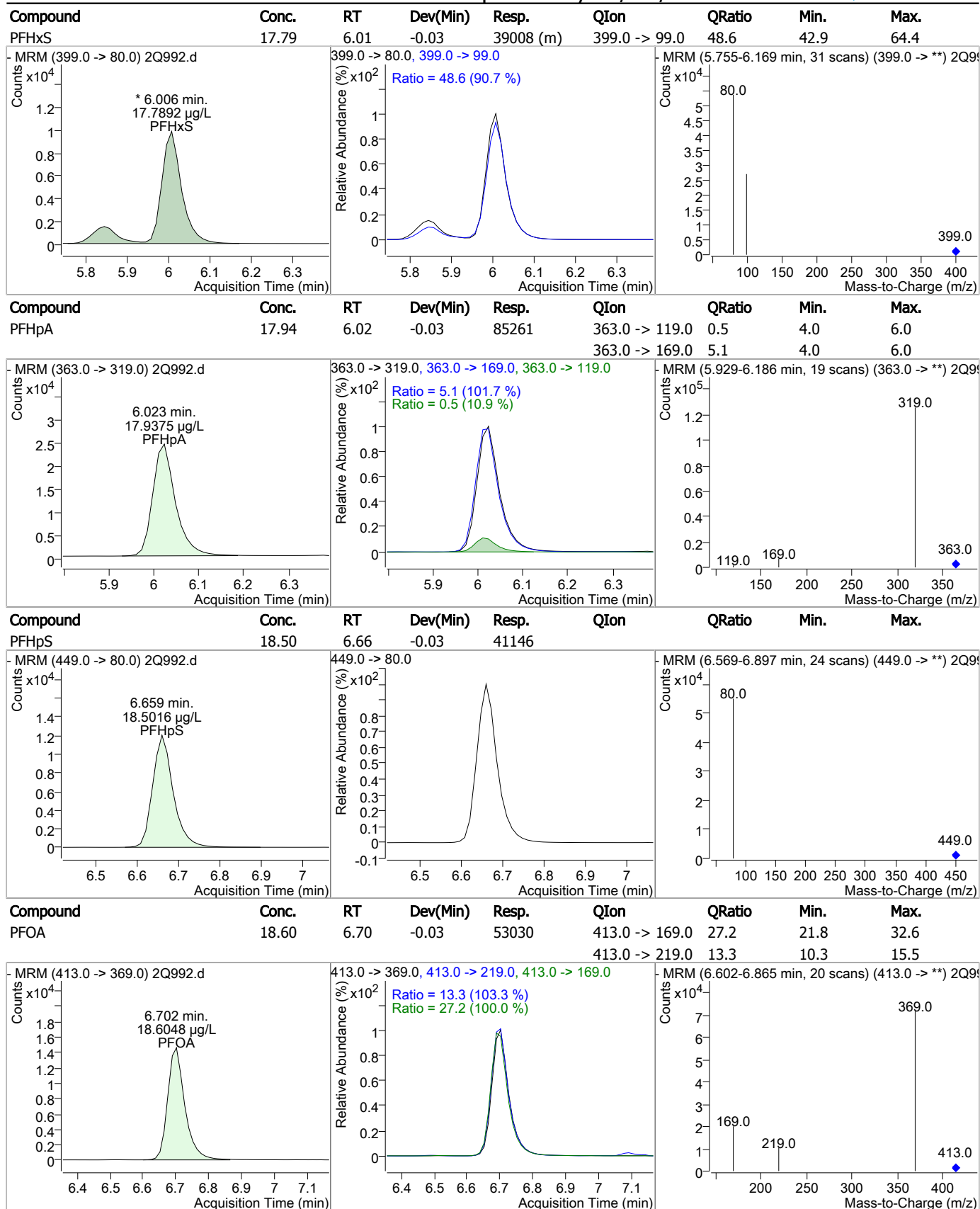
Perfluorinated Compounds by LC/MS/MS



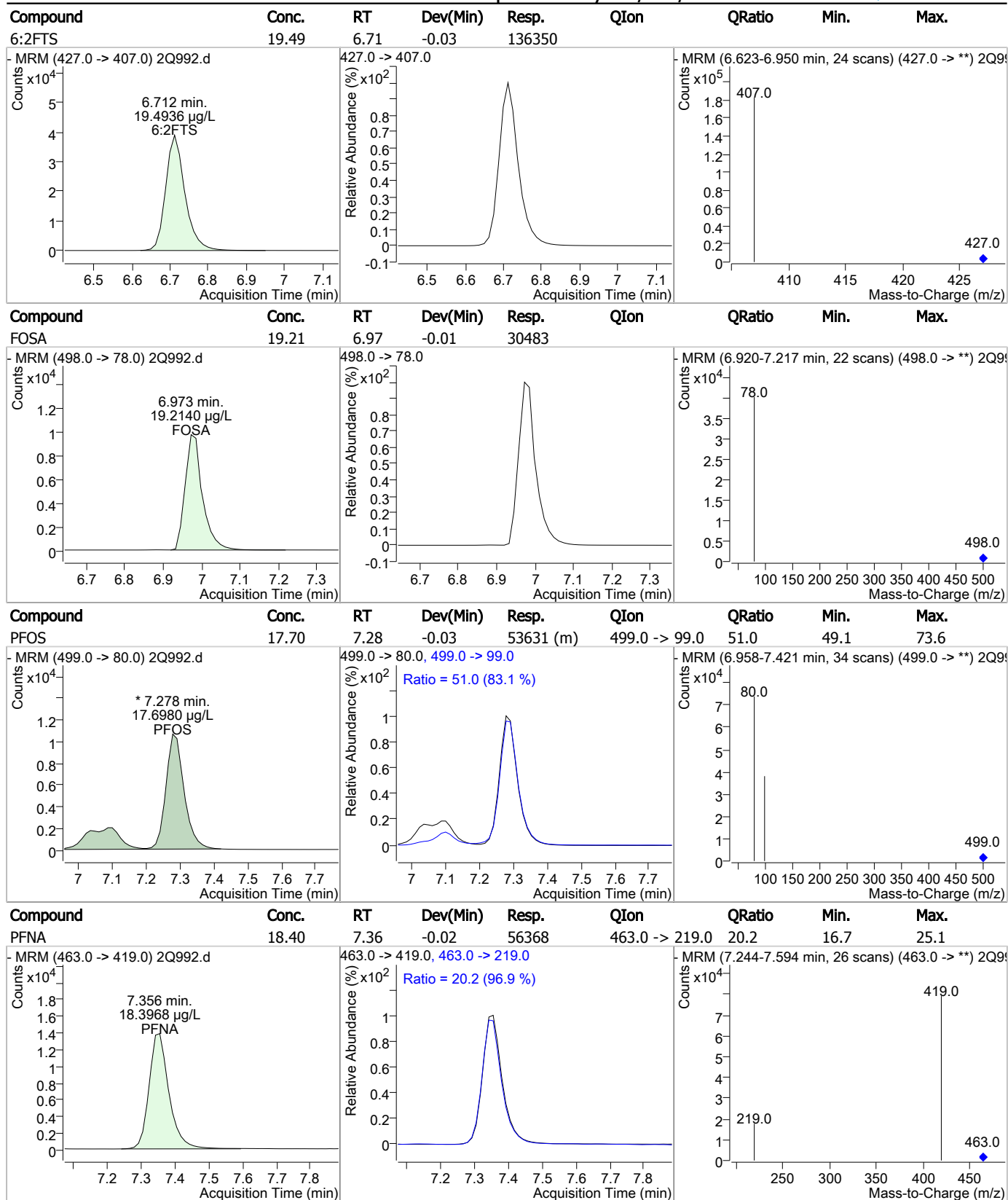
Perfluorinated Compounds by LC/MS/MS



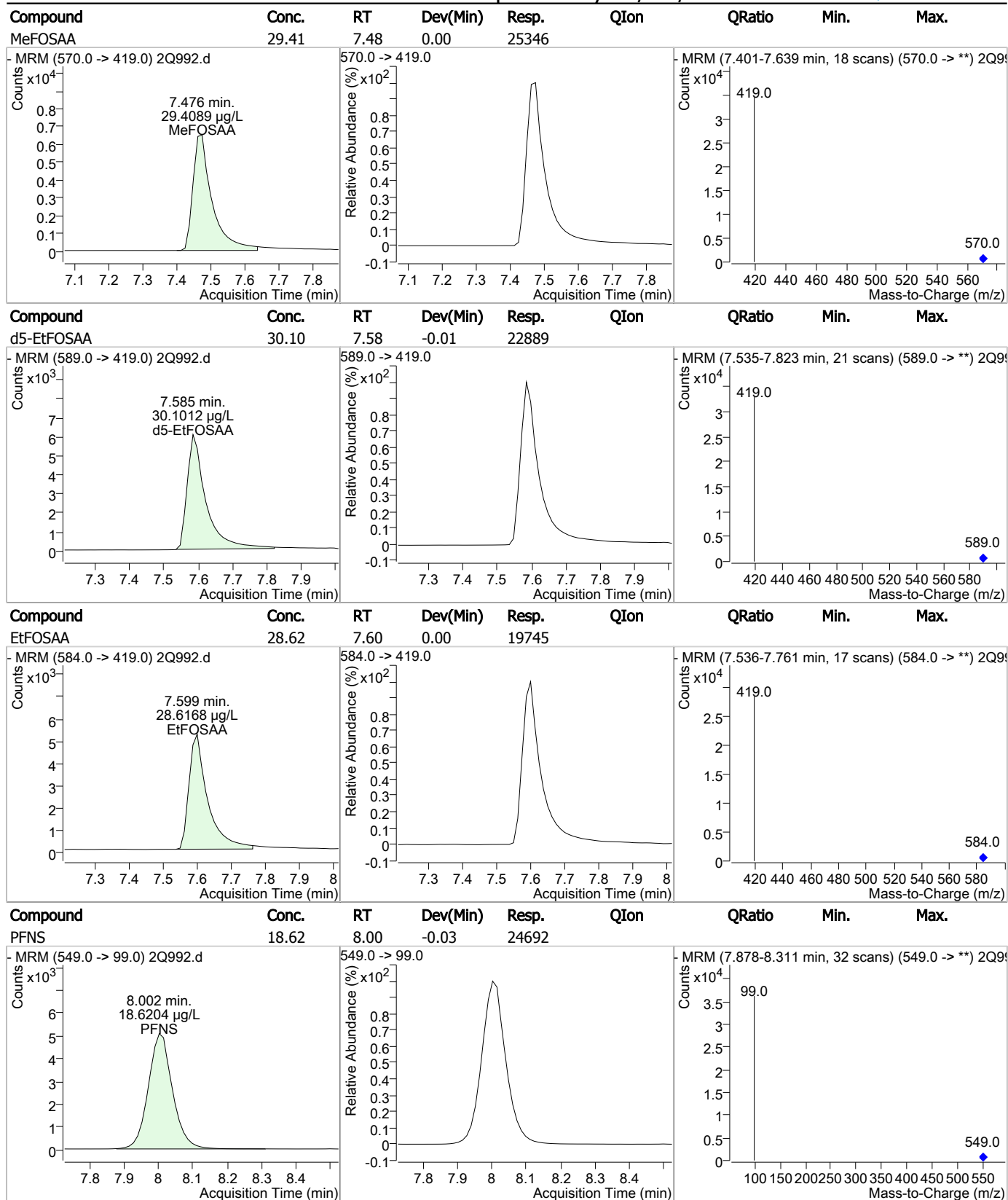
Perfluorinated Compounds by LC/MS/MS



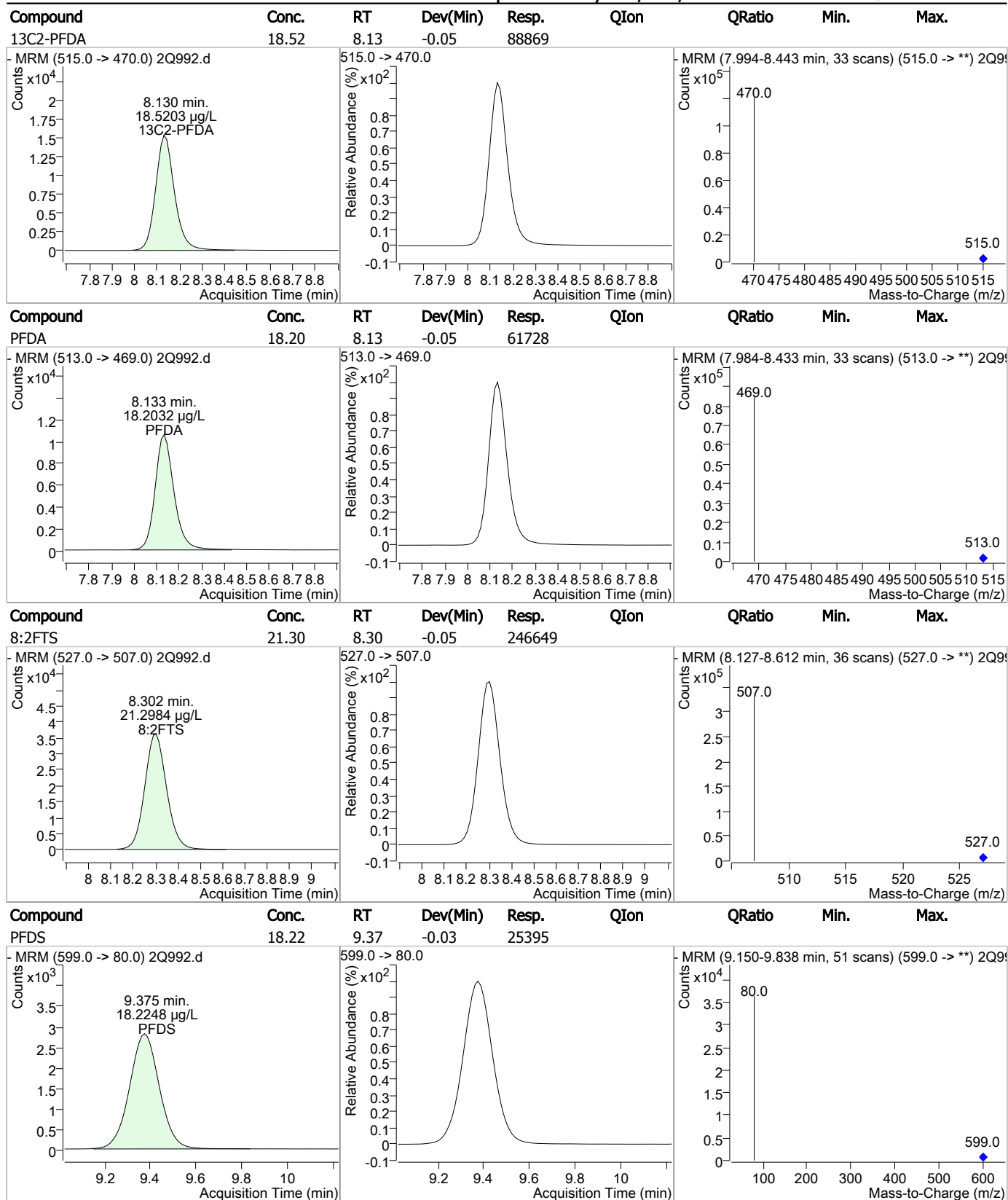
Perfluorinated Compounds by LC/MS/MS



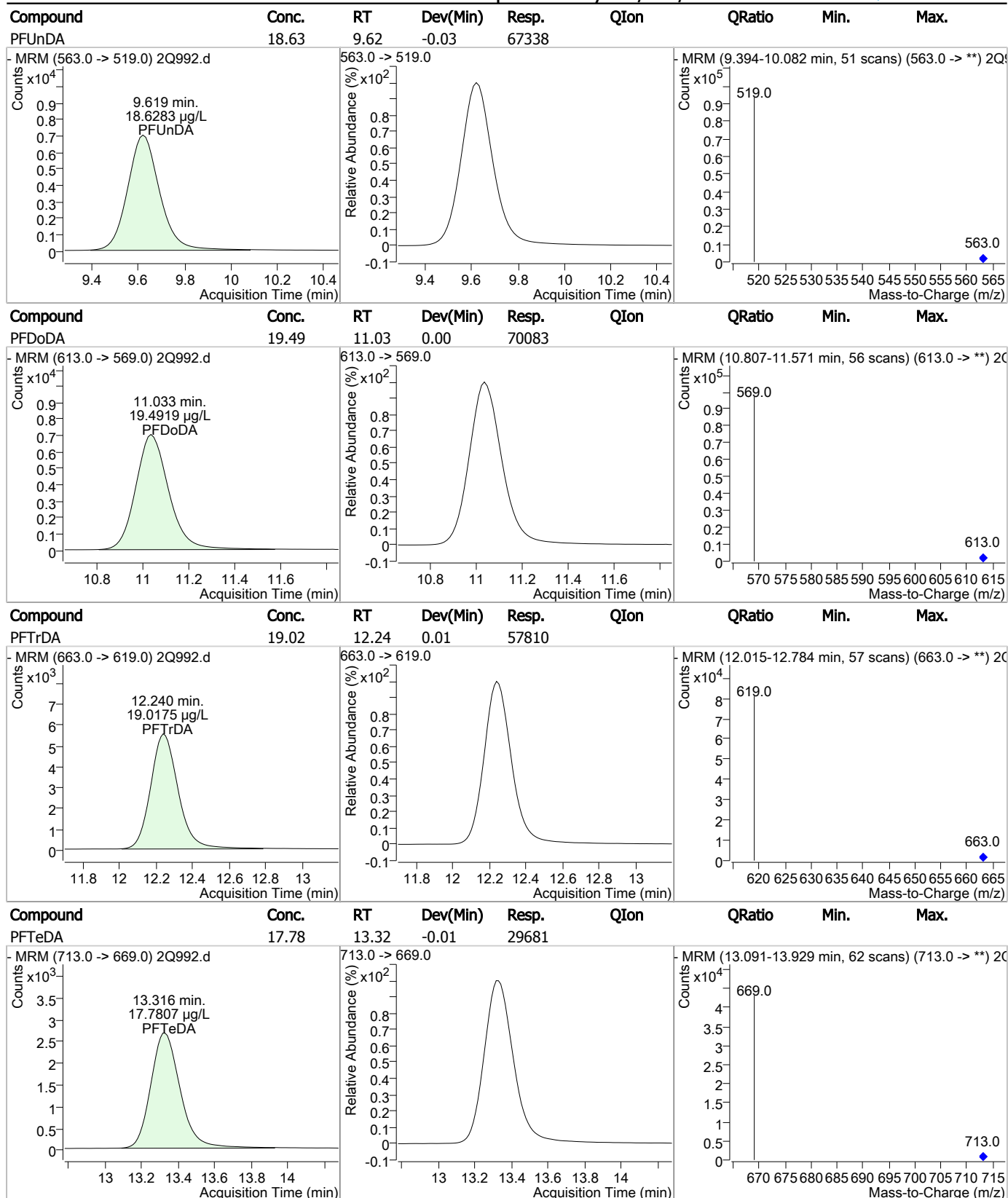
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S2Q28-CC18

Method: EPA 537 MOD

Lab FileID: 2Q992.D

Analyst approved: 05/04/17 09:41 Nancy Saunders

Injection Time: 05/03/17 15:52

Supervisor approved: 05/04/17 11:46 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.01	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.28	Split peak

7.4.11.1
7

Mike Eger
05/04/17 11:46

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q1004.d
 Operator : NANCYF
 Acq. Method : dMRM_PFOA_PFOS_LIST.m
 Acq. Date-Time : 5/3/2017 7:49:38 PM
 Sample Name : ECC18-20
 Vial : Vial 2
 DA Method File : PFCLISTDW_0420_S2Q18.m
 Batch Name : S2Q28.batch.bin
 Last Calib Update : 5/1/2017 4:47:24 PM

Compound	RT	Qion	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.710	429.0 -> 409.0	163134	20.00 µg/L	-0.025
13C2-PFDoDA	10.964	615.0 -> 570.0	93260	20.00 µg/L	-0.063
13C2-PFOA	6.701	415.0 -> 370.0	77328	20.00 µg/L	-0.025
13C3-PFPeA	4.247	266.0 -> 222.0	72607	20.00 µg/L	-0.025
13C4-PFOS	7.276	503.0 -> 80.0	58178	20.00 µg/L	-0.038
d3-MeFOSAA	7.462	573.0 -> 419.0	33671	20.00 µg/L	-0.013

System Monitoring Compounds

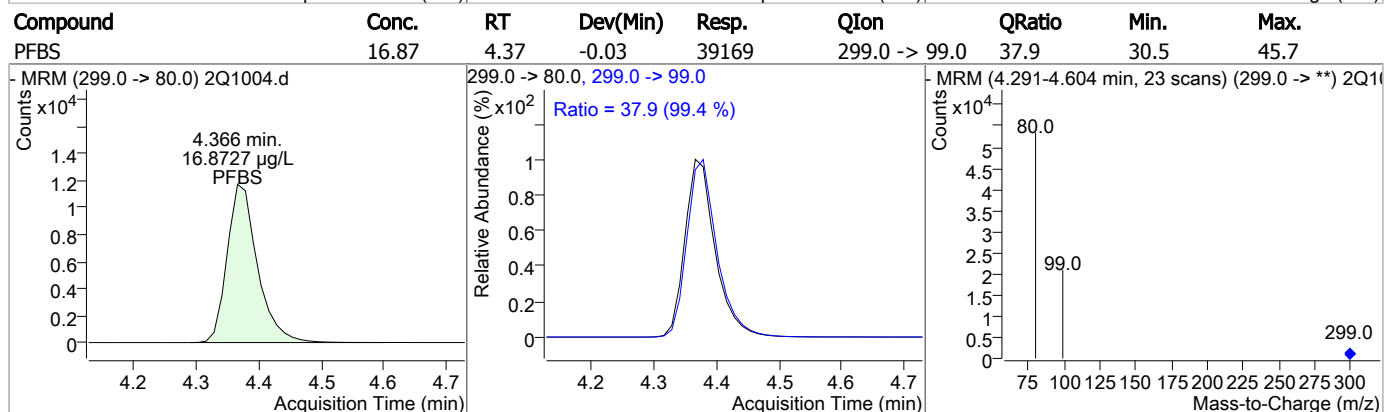
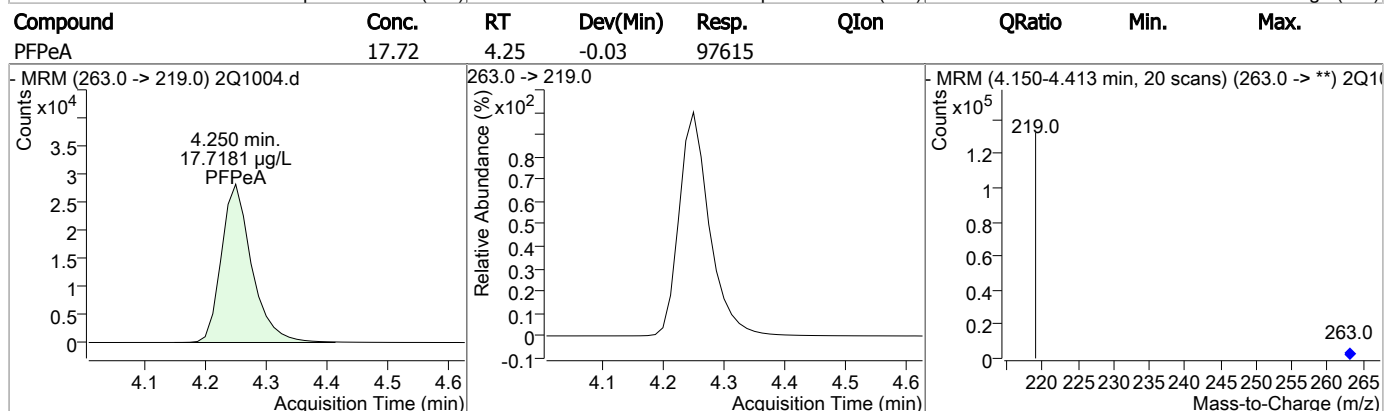
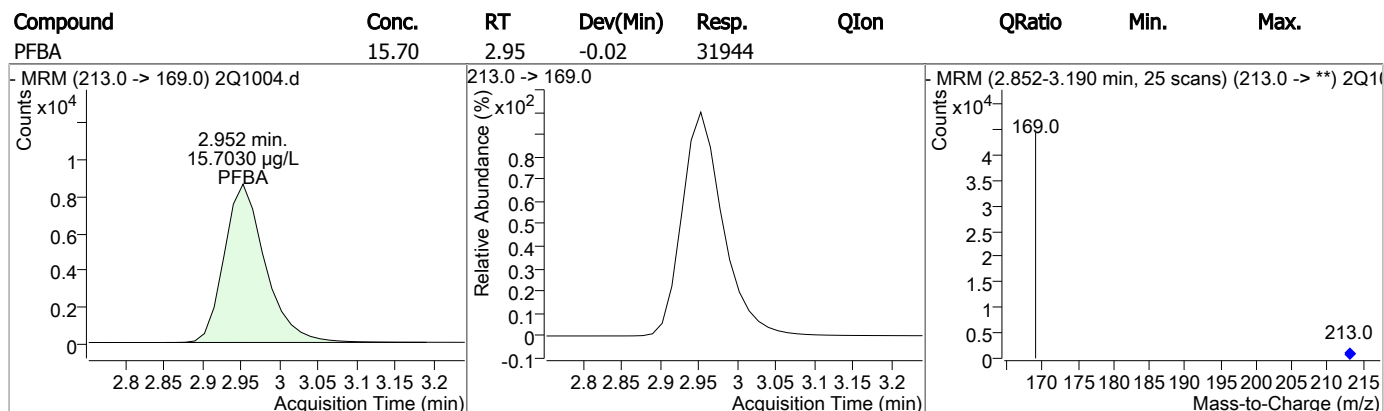
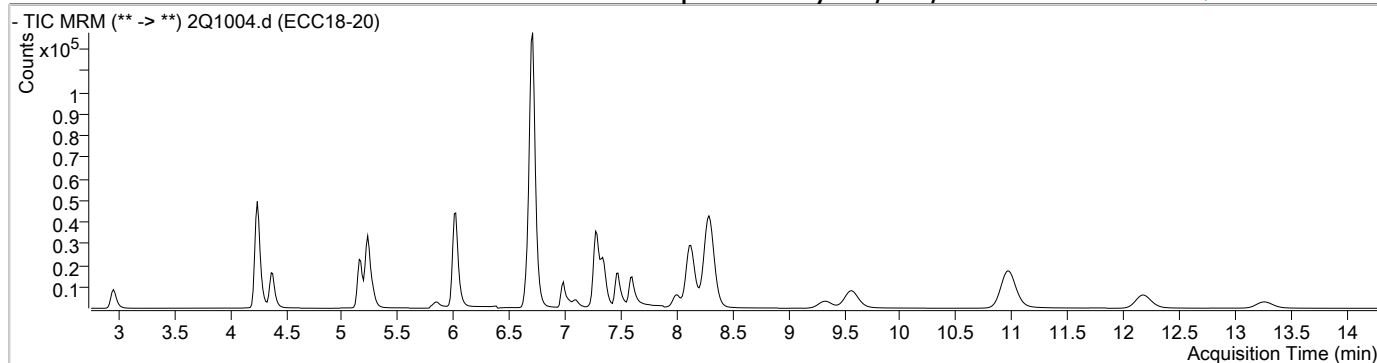
13C2-PFDA	8.130	515.0 -> 470.0	101403	18.74 µg/L	-0.050
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 93.7%		
13C2-PFHxA	5.235	315.0 -> 270.0	73312	17.95 µg/L	-0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 89.7%		
d5-EtFOSAA	7.585	589.0 -> 419.0	29813	33.80 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 169.0%		

Target Compounds

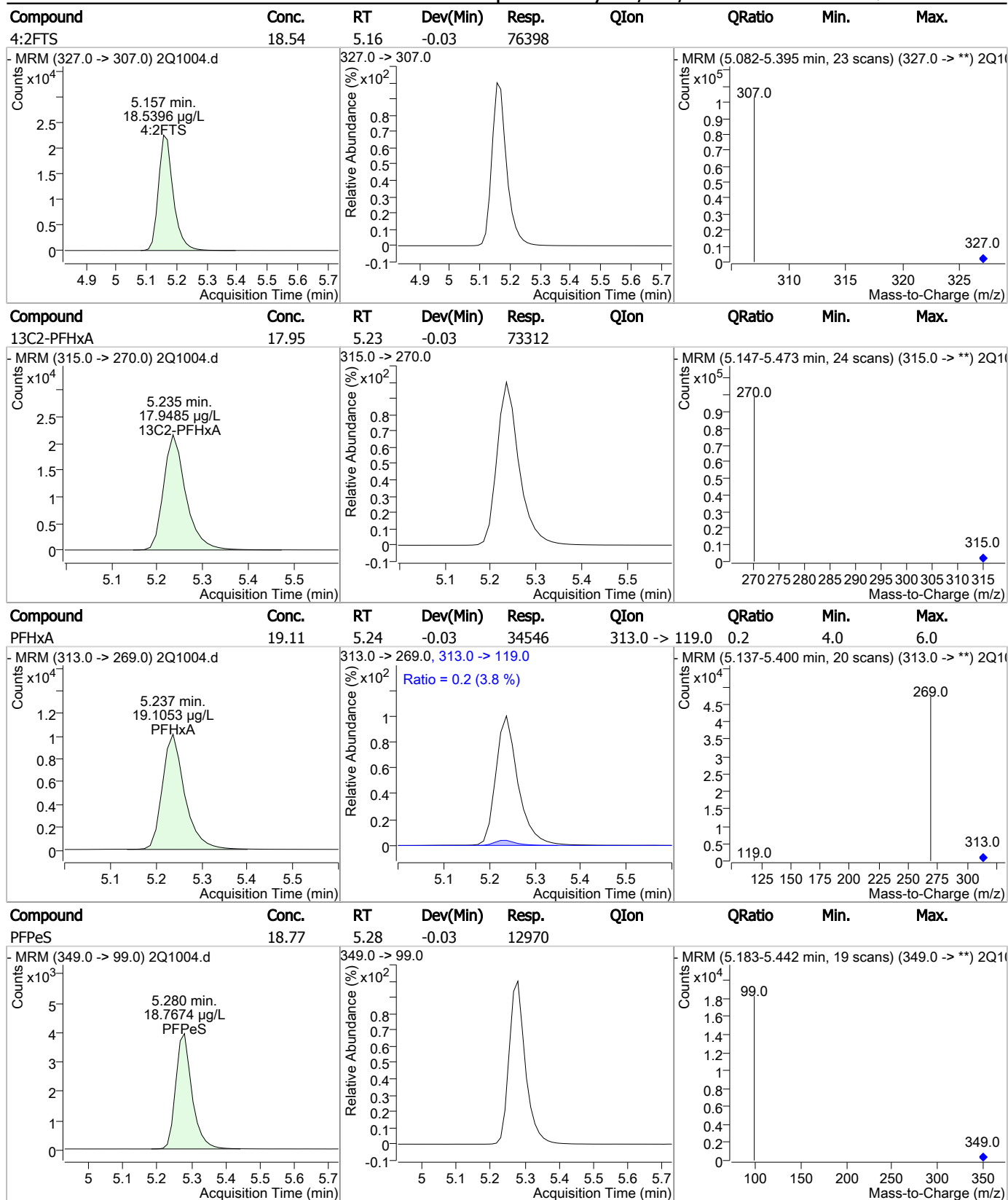
					QValue
4:2FTS	5.157	327.0 -> 307.0	76398	18.54 µg/L	100
6:2FTS	6.712	427.0 -> 407.0	153832	19.50 µg/L	100
8:2FTS	8.289	527.0 -> 507.0	278077	21.29 µg/L	100
EtFOSAA	7.599	584.0 -> 419.0	22774	28.90 µg/L	100
FOSA	6.985	498.0 -> 78.0	33453	18.48 µg/L	100
MeFOSAA	7.476	570.0 -> 419.0	27970	28.55 µg/L	100
PFBA	2.952	213.0 -> 169.0	31944	15.70 µg/L	100
PFBS	4.366	299.0 -> 80.0	39169	16.87 µg/L	100
PFDA	8.120	513.0 -> 469.0	68702	17.97 µg/L	100
PFDoDA	10.970	613.0 -> 569.0	79564	19.55 µg/L	100
PFDS	9.325	599.0 -> 80.0	28723	18.59 µg/L	100
PFHpA	6.023	363.0 -> 319.0	97623	18.21 µg/L	# 93
PFHpS	6.659	449.0 -> 80.0	46372	18.82 µg/L	100
PFHxA	5.237	313.0 -> 269.0	34546	19.11 µg/L	# 86
PFHxS	6.006	399.0 -> 80.0	43804	18.03 µg/L	m 94
PFNA	7.344	463.0 -> 419.0	62197	18.00 µg/L	99
PFNS	8.002	549.0 -> 99.0	27420	18.66 µg/L	100
PFOA	6.702	413.0 -> 369.0	58754	18.28 µg/L	99
PFOS	7.278	499.0 -> 80.0	60549	18.03 µg/L	m 85
PFPeA	4.250	263.0 -> 219.0	97615	17.72 µg/L	100
PFPeS	5.280	349.0 -> 99.0	12970	18.77 µg/L	100
PFTeDA	13.266	713.0 -> 669.0	32644	17.30 µg/L	100
PFTTrDA	12.178	663.0 -> 619.0	64210	18.68 µg/L	100
PFUnDA	9.569	563.0 -> 519.0	76029	18.58 µg/L	100

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

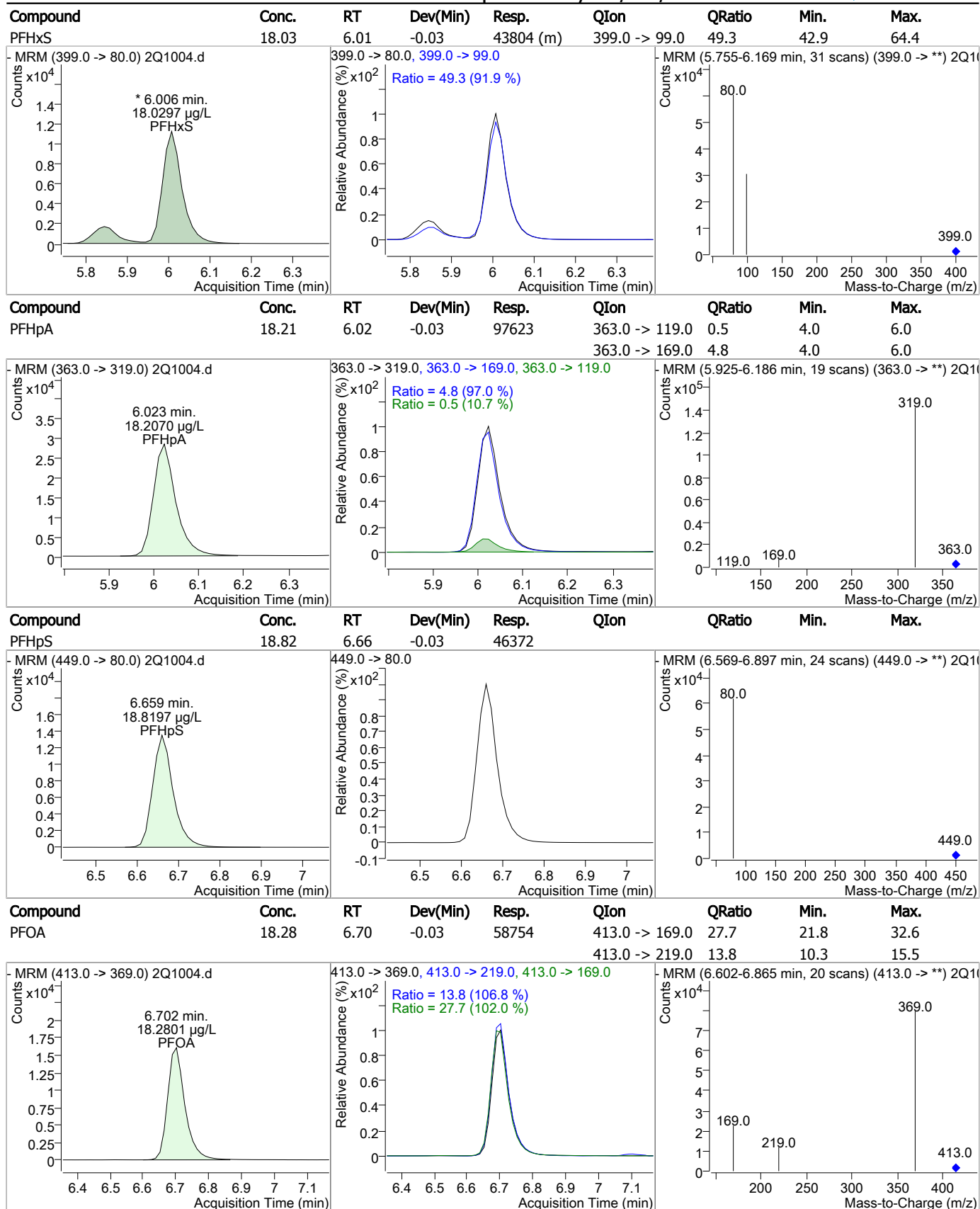
Perfluorinated Compounds by LC/MS/MS



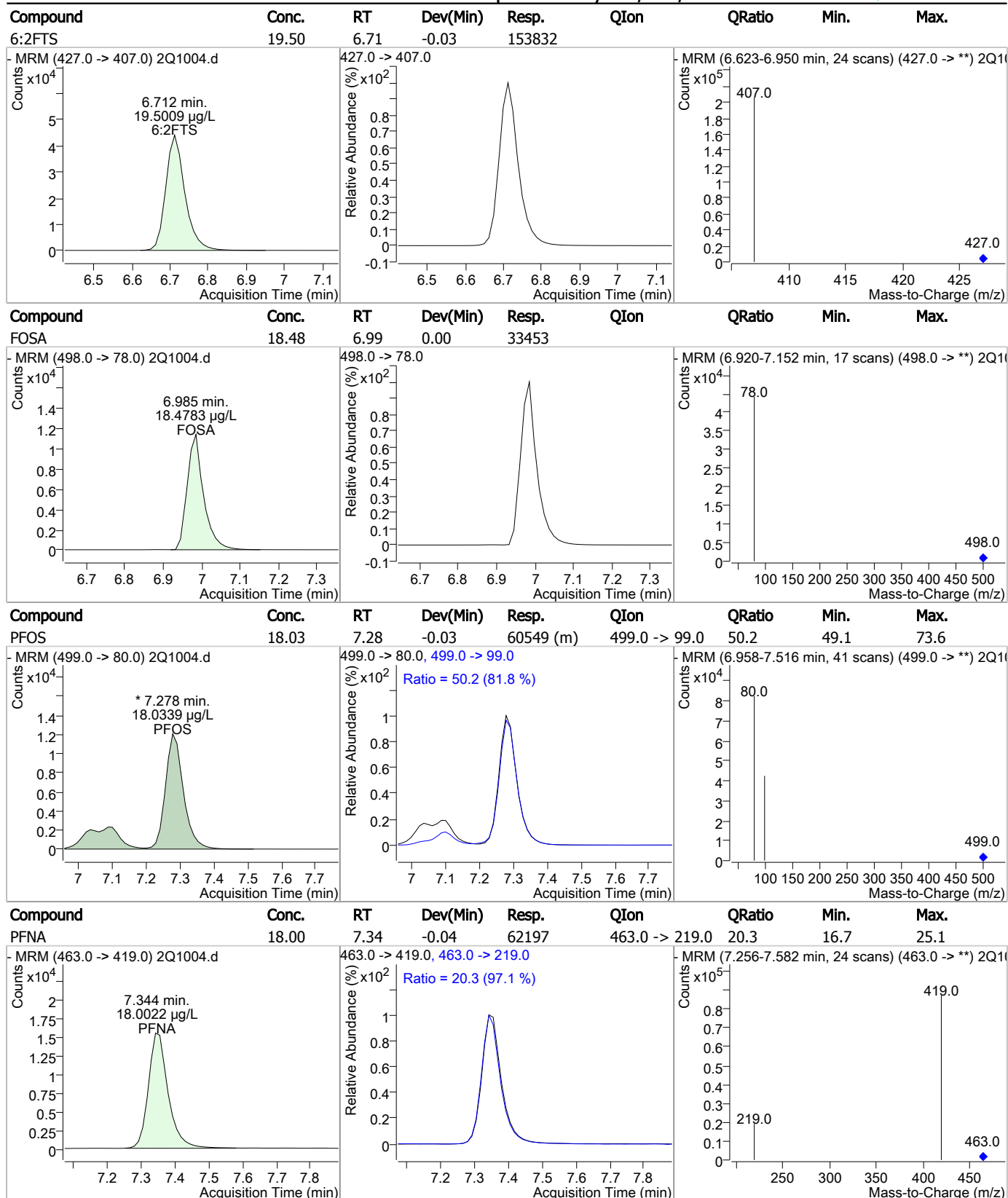
Perfluorinated Compounds by LC/MS/MS



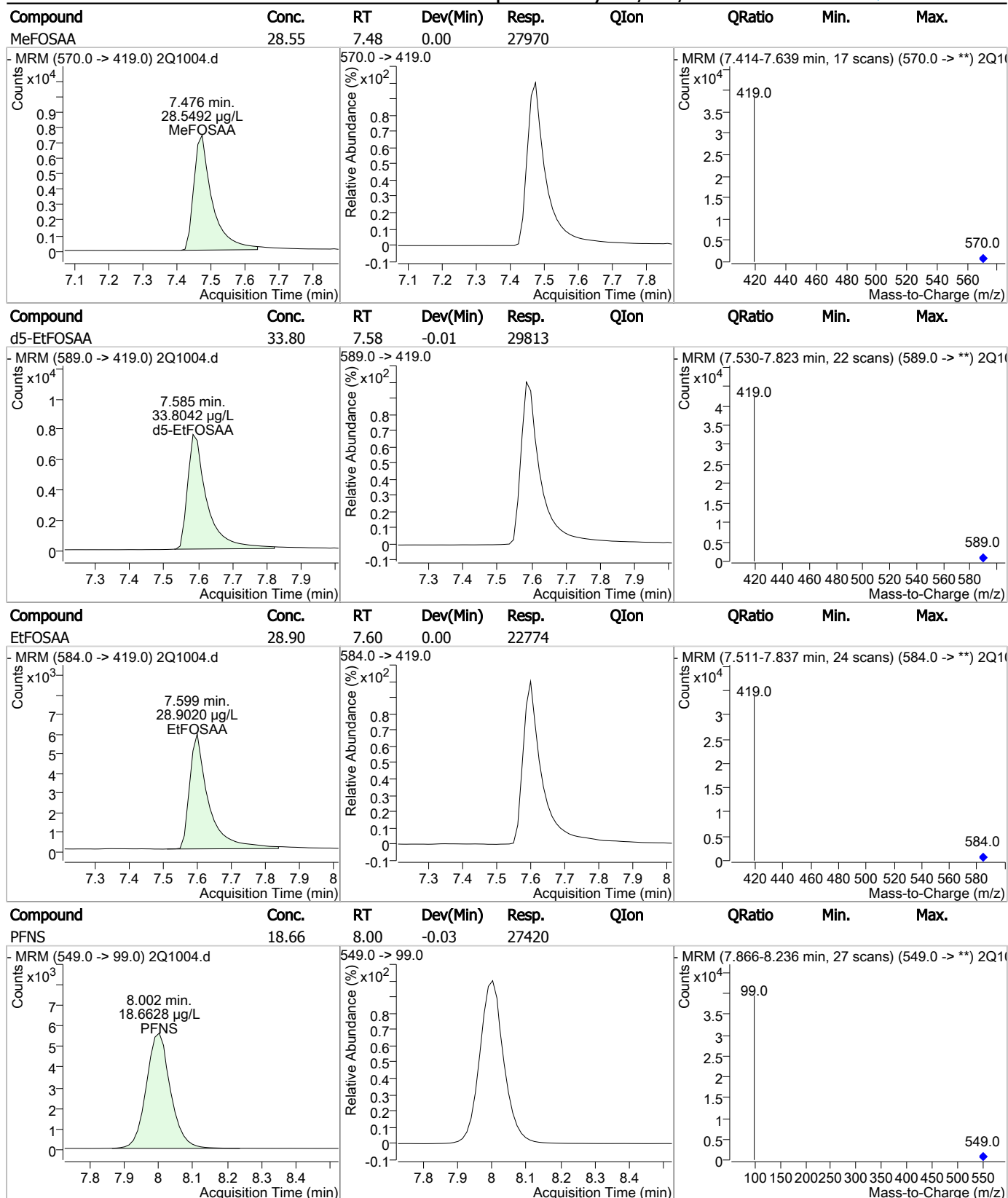
Perfluorinated Compounds by LC/MS/MS



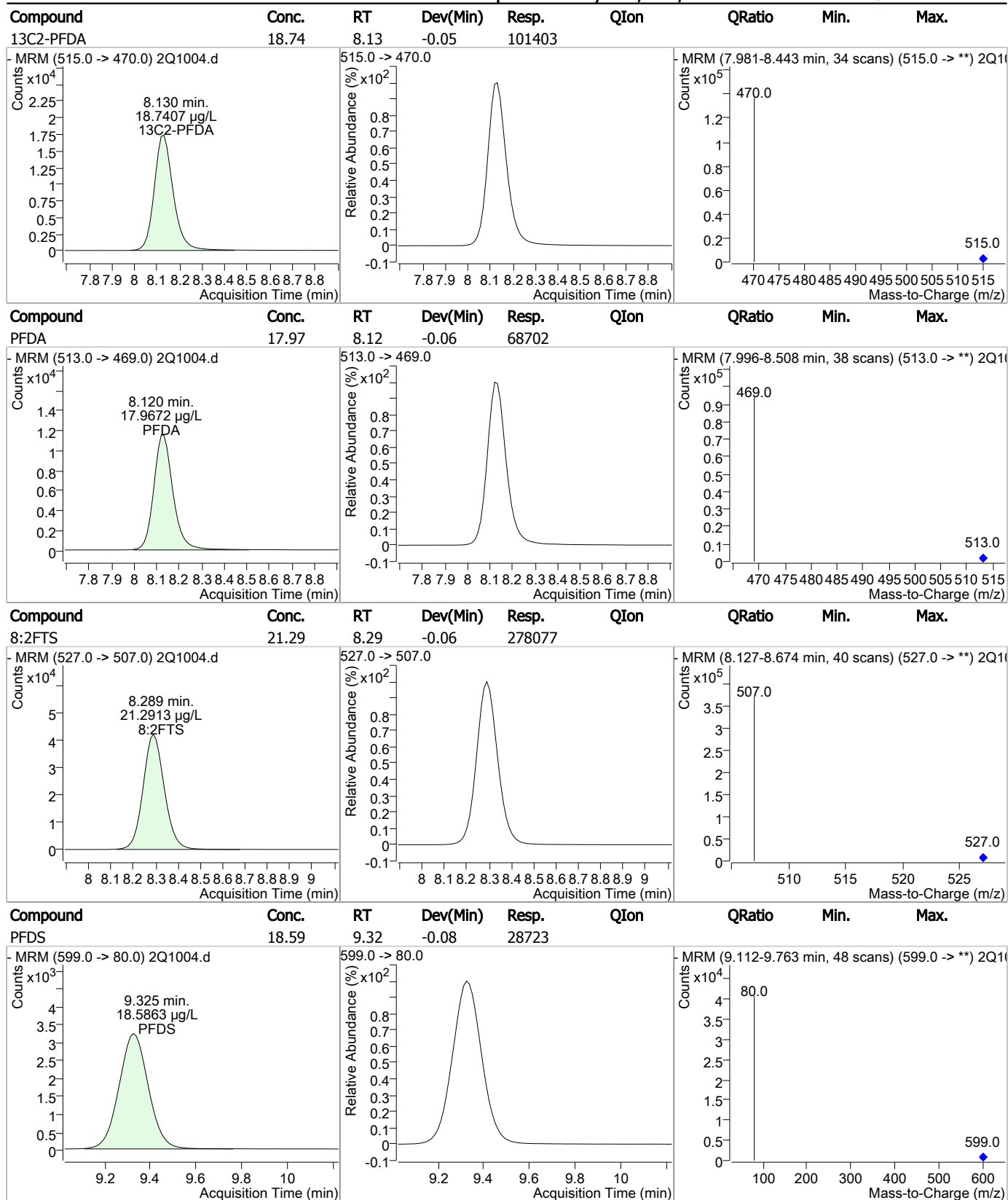
Perfluorinated Compounds by LC/MS/MS



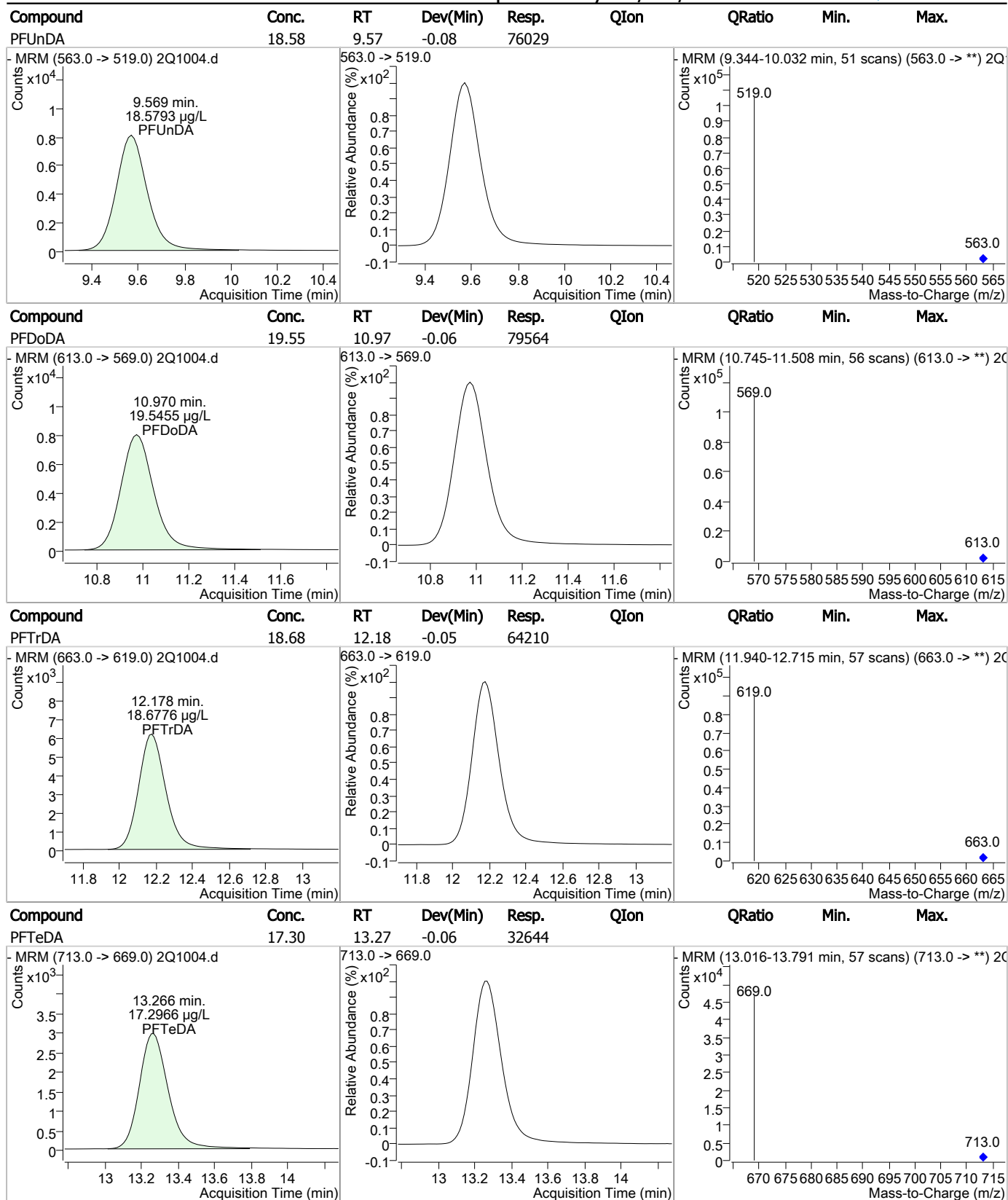
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: S2Q28-ECC18

Method: EPA 537 MOD

Lab FileID: 2Q1004.D

Analyst approved: 05/04/17 09:41 Nancy Saunders

Injection Time: 05/03/17 19:49

Supervisor approved: 05/04/17 11:46 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.01	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.28	Split peak

7.4.12.1
7

SGS ACCUTEST-ORLANDO

DATE:	04-20-17
COLUMN TYPE:	PERCHLORATE
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	330

LCMS2-2Q ANALYSIS LOG

METHODS:	537 MOD
ACQ. METHOD:	DMAM AREA PFS LIST
PROC. METHOD:	PFCLIST.DW 04202018
CALIB. DATE:	04-20-17
RUN BATCH:	S2Q 18

ANALYST:	Mgs
ELUENT A LOT #:	167421
ELUENT B LOT #:	166751
WATER LOT #:	167421
ISTD Lot #:	LC836

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 644	1	CCB	PFCL						✓
2Q 45	1	CCB							✓
2Q 46	1	CCB							✓
2Q 47	2	CC16-20		LC836	100/100				SS ↓ Am Cume
2Q 48	1	CCB							✓
2Q 49	1	CCB							✓
2Q 50	2	FC18-1		LC836	5/100				X Fix AT RA
2Q 51	2	-1			↓		SD		✓
2Q 52	3	-2			100/100		SD		✓
2Q 53	4	-5			25/100		SD		✓
2Q 54	5	-10			70/100		SD		✓
2Q 55	6	FC18-20			100/100		SD		✓
2Q 56	7	FC18-40			200/100		SD		✓
2Q 57	8	-50			250/100		SD		✓
2Q 58	1	CCB							✓
2Q 59	9	FC18-20		LC817/614 84063	5/100 5/100				Pass
2Q 60	10	OP64645-BS		OP64645	1X				✓
2Q 61	11	FA42757-3			10X		SD		✓ Report E+, Re Form 1X
2Q 62	12	-25			10X		SD	±	✓ ↓
2Q 63	13	-4			1X		SD		✓

* < Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

LCMS2_2Q_log.xls ME rev. 06/16

40 of 100

Analyst's Signature: 

SGS ACCUTEST-ORLANDO

DATE: 04-20-17
 COLUMN TYPE: Poragov 16C18
 AMOUNT INJECTED: 5 ul
 INSTRUMENT: LCMS2-2Q
 HEAD PRESSURE: 330

LCMS2-2Q ANALYSIS LOG

METHODS: 537 M03
 ACQ. METHOD: JMEM ACQ+ACQ5 LIST
 PROC. METHOD: PFC LIST BW 3420 3420 16
 CALIB. DATE: 04-20-17
 RUN BATCH: S2Q 18

ANALYST: NAS
 ELUENT A LOT #: 167421 WATKINS
 ELUENT B LOT #: 166751
 WATER LOT #: 167421
 ISTD Lot #: LL836

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 664	14	OP 64707-RS	PFC	OP64707	17				✓
2Q 65	15	-MB							✓ ME, ETAL
2Q 66	15	-MB							BAL
2Q 67	16	FA43168-1							BAL
2Q 68	17	-2					SP		✓
2Q 69	18	-3					SP		✓
2Q 70	19	-4					SP		✓
2Q 71	6	CC18-20		LL836	1001500		SP		Pass
2Q 72	1	CCB							✓
2Q 73	1	CCB							✓
2Q 74	20	FA42877-1		OP64707	17		SP		✓
2Q 75	24	-3					SP		✓ AA 10X, 100X
2Q 76	25	-4					SP		✓ AA 5X
2Q 77	26	-5					SP		✓ AA 5X
2Q 78	27	-6					SP		✓ AA 10X, 50X
2Q 79	28	-8					SP OP	I	✓ AA 20X
2Q 80	29	-9					SP		✓ AA 20X, 50X
2Q 81	21	-2					SP		✓ AA 5X
2Q 82	22	OP64707-M5					SP		
2Q 83	23	MSD					SP		

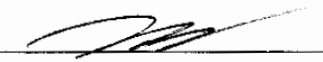
*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration

All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

LCMS2_2Q_log.xls ME rev. 06/16

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Analyst's Signature: 

SGS ACCUTEST-ORLANDO

DATE: 04-20-17
 COLUMN TYPE: Porus 11 FC10
 AMOUNT INJECTED: 5 ul
 INSTRUMENT: LCMS2-2Q
 HEAD PRESSURE: 330

LCMS2-2Q ANALYSIS LOG

METHODS: 537 mod
 ACQ. METHOD: dmam PDA ACOS List
 PROC. METHOD: PFC Listow 0420 S2Q18
 CALIB. DATE: 04-20-17
 RUN BATCH: S2Q 18

ANALYST: MAS
 ELUENT A LOT #: 167421 w Acetic
 ELUENT B LOT #: 166751 L
 WATER LOT #: 167421
 ISTD Lot #: LC836

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 684	6	CC18-20	PFC	LC836	100/TW		SP		Pass
2Q 85	1	CCB							✓
2Q 86	1	CCB							✓
2Q 87	30	FA 412677-1		0A64707	17		SP		✓ AA 20X
2Q 88	31	-16		+	+				Pass
2Q 89	6	ECC 18-20		LC836	100/TW		SP		Pass
2Q 90	1	CCB							✓
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									

*< Conductivity Limit For Perchlorate by SW846 6850
 Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
 All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

LCMS2_2Q_log.xls ME rev. 06/16

Analyst's Signature: 

LCMS2-2Q ANALYSIS LOG

DATE:	08-01-17 05:01:17
COLUMN TYPE:	Porosil LC C18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	303

METHODS:	537000
ACQ. METHOD:	1 B20 AF01 PC05 #17
PROC. METHOD:	PFCLIST-DW 0420 S2010
CALIB. DATE:	4-20-7
RUN BATCH:	S2Q 26

ANALYST:	NAS
ELUENT A LOT #:	167421 w/ AFT-KY
ELUENT B LOT #:	(16675) 2
WATER LOT #:	167423
ISTD Lot #:	LC 836

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 906	1	CCB	PFL	---	---	---	---	---	/
2Q 07	1	CCB		---	---	---	---	---	/
2Q 08	1	CCB		---	---	---	---	---	/
2Q 09	2	CC18-20		L438	---	---	SP	---	Puss
2Q 10	3	FA4316-2		0264760	2x	---	SP	---	FA 4X NO. 25 TAL
2Q 11	4	-4			10x	---	SP	---	✓
2Q 12	5	-12			L	---	SP	---	✓
2Q 13	6	FA43, 53-1		0264765	2x	---	SP	---	✓
2Q 14	7	-2			L	---	SP	---	✓
2Q 15	8	0264763-35		0264763	1x	---	---	---	✓
2Q 16	9	-MB				---	---	---	B.D.L.
2Q 17	14	FA42444-203		0264760		---	PE	---	✓ SS 5/17
2Q 18	20	CC18-2		L438	10/100	---	SP	---	Puss Et, Me, dis ET
2Q 19	2	CC18-20			10/100	---	SP	---	Puss Et, Me, dis ET
2Q 20	1	CCB		---	---	---	---	---	✓
2Q 21	10	FA43086-5		0264783	1x	---	SP	---	✓ Run 2X
2Q 22	11	-6				---	SP	---	✓ Run 5X
2Q 23	12	-7				---	---	---	✓ Run 2X
2Q 24	13	-13				---	---	---	B.D.L.
2Q 25	14	-8				---	---	---	✓

* > Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration

All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

LCMS2_2Q_log.xls ME rev. 06/16

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Analyst's Signature:

SGS ACCUTEST-ORLANDO

DATE: 08-01-17 05-01-17
 COLUMN TYPE: Porobond 11 LC18
 AMOUNT INJECTED: 5 ul
 INSTRUMENT: LCMS2-2Q
 HEAD PRESSURE: 203

LCMS2-2Q ANALYSIS LOG

METHODS: SZQ mod
 ACQ. METHOD: dmam pcvapors list
 PROC. METHOD: PFC Lys + DW 0420 SZQ16
 CALIB. DATE: 04-20-17
 RUN BATCH: SZQ 26

ANALYST: AAS
 ELUENT A LOT #: 167421 w Mobile
 ELUENT B LOT #: 166771
 WATER LOT #: 167421
 ISTD Lot #: LC036

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 926	3	FA43116-2	PFC	0P64760	4x				BOL d5-ET ^{RTD} ESTD matrix
2Q 27	15	FA43086-9		0P64783	1x				✓ RADY
2Q 28	16	-10					MP		BOL ESTD PoDA
2Q 29	17	-11					SP		✓ RADY ^{nosql}
2Q 30	18	-12					SP		✓ RADY
2Q 31	2	CC18-20		LC838	100/100		SP		PASS Et, Me, d5-ET
2Q 32	1	CCB							✓
2Q 33	21	0P64835-RS		0P64835	1x				✓
2Q 34	22	-MB							✓ Me, Et
2Q 35	23	FA43132-1						nosql	✓ BOL SSL PeA, Me ESTD
2Q 36	24	0P64835-MS							✓ SSL
2Q 37	25	-MSD							✓ SSL
2Q 38	26	FA43132-2							BOL SSL
2Q 39	27	FA43133-1							BOL SSL PeA, Me ESTD
2Q 40	28	-2							BOL SSL ^{nosql}
2Q 41	2	CC18-20		LC838	100/100		SP		PASS Et, Me, d5-ET
2Q 42	1	CCB							✓
2Q 43	29	FA43289-1		0P64835	1x				BOL
2Q 44	30	2							BOL, SSL
2Q 45	31	FA43290-1							BOL SSL

* < Conductivity Limit For Perchlorate by SW846 6850 08/01/17

Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
 All strikeouts must be initiated and dated. If correction was not due to a transcription error, then list the reason for correction.

LCMS2_2Q_log.xls ME rev. 06/16

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Analyst's Signature: _____

Analyst's Signature: _____

SGS ACCUTEST-ORLANDO

DATE: 05-03-17
 COLUMN TYPE: Perchlorate AC18
 AMOUNT INJECTED: 5 ul
 INSTRUMENT: LCMS2-2Q
 HEAD PRESSURE: 300

LCMS2-2Q ANALYSIS LOG

METHODS: 537 Method
 ACQ. METHOD: 8MA-M Perchlorate List
 PROC. METHOD: PCL: 1st 0.20 0.42 0.52 0.16
 CALIB. DATE: 04-20-17
 RUN BATCH: S2Q 28

ANALYST: NBS
 ELUENT A LOT #: 16772 W Analytic
 ELUENT B LOT #: 160751 +
 WATER LOT #: 167451
 ISTD Lot #: LC18312

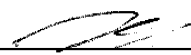
DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 976	1	LC18	PCL						✓
2Q 77	1	LC18							✓
2Q 78	2	CC18-20		LC1838	100/500		SP		Pass Et, Me, d, s-Et
2Q 79	3	FA43415-9		0864843	2x				✓
2Q 80	4	2		L	500x				✓
2Q 81	2	CC18-20		LC1838	100/500		SP		Pass Et, Me, d, s-Et ↑
2Q 82	1	LC18							✓
2Q 83	5	FA43325-1		0864843	5x		SP		✓
2Q 84	6	-20fs			1x		SP		✓ ss↓
2Q 85	7	-4fs	missed		1		SP		✓
2Q 86	8	-6fs			1		SP		✓ ss↓
2Q 87	9	-7			5x		SP		✓
2Q 88	10	-9fs			1x		SP		✓ ss↓
2Q 89	11	-10fs			1				vial stuck rx
2Q 90	11	-10fs			1		SP		✓ ss↓ Analyx
2Q 91	12	-10		missed	82x		SP		✓ ss↓
2Q 92	2	CC18-20		LC1838	100/500		SP		Pass Et, Me, d, s-Et
2Q 93	1	LC18							✓
2Q 94	13	0864883-B5		0864883	1x				✓
2Q 95	14	-ms	✓	L	1				BDL target

* < Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
 All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

LCMS2_2Q_log.xls ME rev. 06/16

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Analyst's Signature: 

LCMS2-2Q ANALYSIS LOG

DATE:	05-03-17
COLUMN TYPE:	Poragel 11 A (10)
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	300

METHODS: 537 mod
ACQ. METHOD: Amam PEVA PCOS List
PROC. METHOD: PRELIS ROW 642052018
CALIB. DATE: 04-20-17
RUN BATCH: S2Q 28

ANALYST:	AS
ELUENT A LOT #:	167421 w Acetone
ELUENT B LOT #:	166751 L
WATER LOT #:	167421
ISTD Lot #:	LC 843

[illegible]

* < Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration

All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

LCMS2_2Q_log.xls ME rev. 06/16

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Analyst's Signature: _____

SGS ACCUTEST - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 04/28/17 1100
Started (mm/dd/yy 24:00)Prep Method: 3535A or (Method) (circle)Date/Time: 04/28/17 1600
Finished (mm/dd/yy 24:00)Analytical Method: LC 537 DUBatch#: OP64835 Ext. By: MB Conc. By: KC Viald By: MB

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Comments
OP64835 MB	X	250	6	N/A	20ul		1ml	DI H2O TEST Bot. 1
OP64835 BS		250				10+10ul		1 1 Bot. 2
FA43132-1	1	260						
-2	1	260						
FA43133-1	1	250						
-2	1	250						
FA43289-1	1	260						
-2	1	250						
FA43290-1	1	250						
-2	1	250						
-3	1	260						
MB 04/28/17								
FA43132-1 MS 2 130 6 N/A 20ul 10+10ul 1ml								
-1 MSD 2 130 1 1 1 1 1								
DUP								

Comments:

Surr.1 ID: LC834 Conc: 1ppm Exp. Date: 10/05/17 Inj. By: MB Ver. By: MB
 Surr.2 ID: — Conc: — Exp. Date: — Inj. By: — Ver. By: —
 Spk.1 ID: LC834 Conc: 2ppm Exp. Date: 08/25/17 Inj. By: MB Ver. By: MB
 Spk.2 ID: B487A Conc: 2ppm Exp. Date: 04/19/18 Inj. By: MB Ver. By: MB

Initial Bath Temp (Therm ID): — Exchange Bath/N-Evap Temp (Therm ID): —
 Observed Temp °C: — Corr. Temp °C: — Observed Temp °C: — Corr. Temp °C: —

Methanol Lot # 170294 SPE Lot # 5308-0032 pH Paper # 230016
 Acetonitrile Lot # — SPE Lot # — Reagent # —
 Water Lot# OP64835 Syringe Filter Lot# — Solvent # —

Relinquished By: MB
 Accepted By: —

Date: 04/28/17
 Date: 05-01-17

SPE LIQUID SAMPLE PREP REPORT

Prep Method: 8535A or Method (circle)

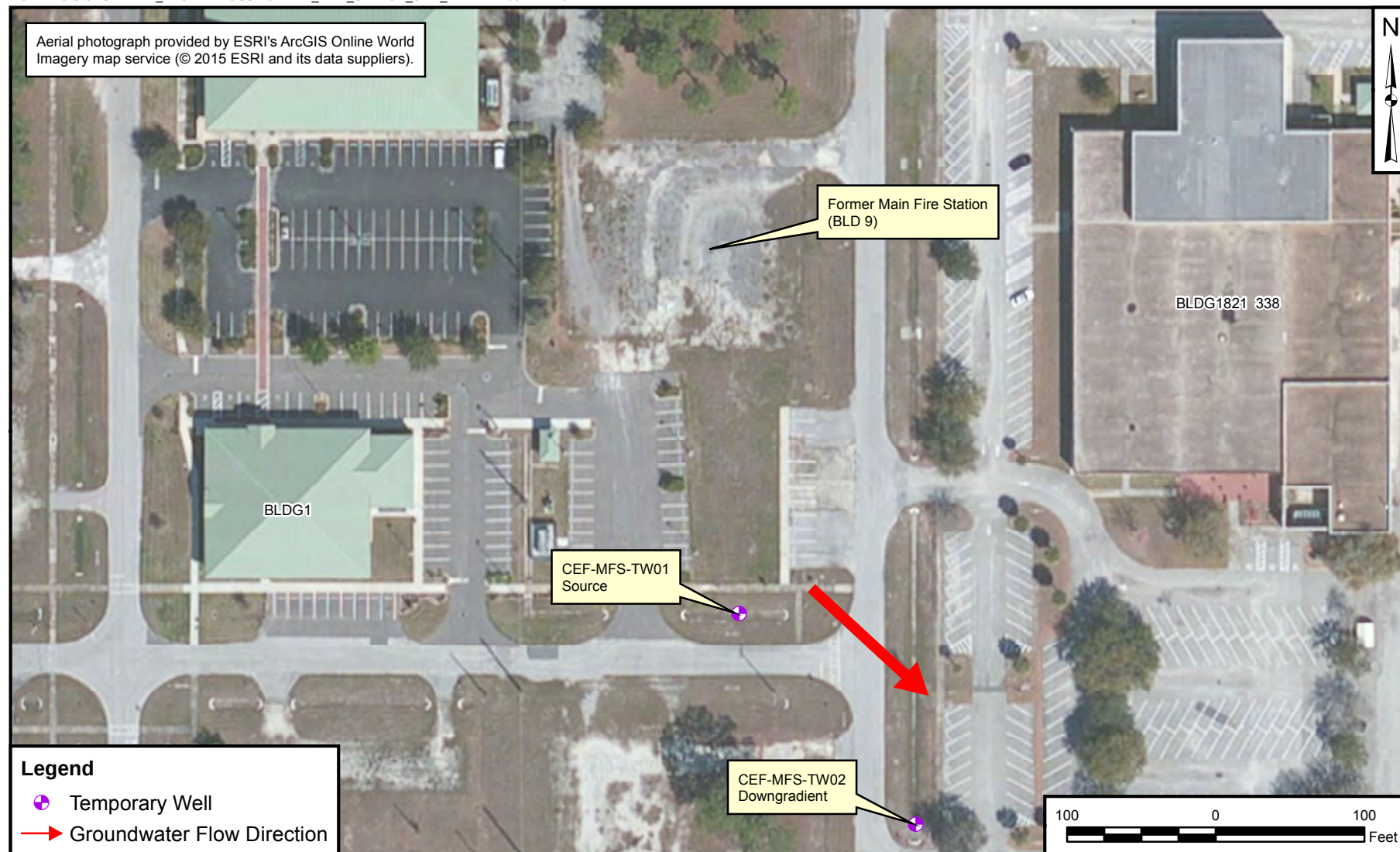
Analytical Method: Lc 537 DW

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Comments
OP 64883 MB	X	250	6	N/A	20ul		1ml	
OP 64883 BS		250				10+10ul		
FA 43132-2 _{RE}	2	260						
FA 43133-1 _{RE}	2	250						
-2 _{RE}	2	260						
FA 43289-2 _{RE}	2	260						
FA 43290-1 _{RE}	2	250						
-2 _{RE}	2	250						
-3 _{RE}	2	250						
FA 43405-4	1	260						
MS 05/03/17								
MS								
MSD								
DUP								

Surr.1 ID:	LC 834	Conc:	1 ppm	Exp. Date:	10/05/17	Inj. By:	MB	Ver. By	MB
Surr.2 ID:	—	Conc:	—	Exp. Date:	—	Inj. By:	—	Ver. By	—
Spk.1 ID:	LC 839	Conc:	2 ppm	Exp. Date:	08/25/17	Inj. By:	MB	Ver. By	MB
Spk.2 ID:	8487A	Conc:	2 ppm	Exp. Date:	04/19/18	Inj. By:	MB	Ver. By	MB

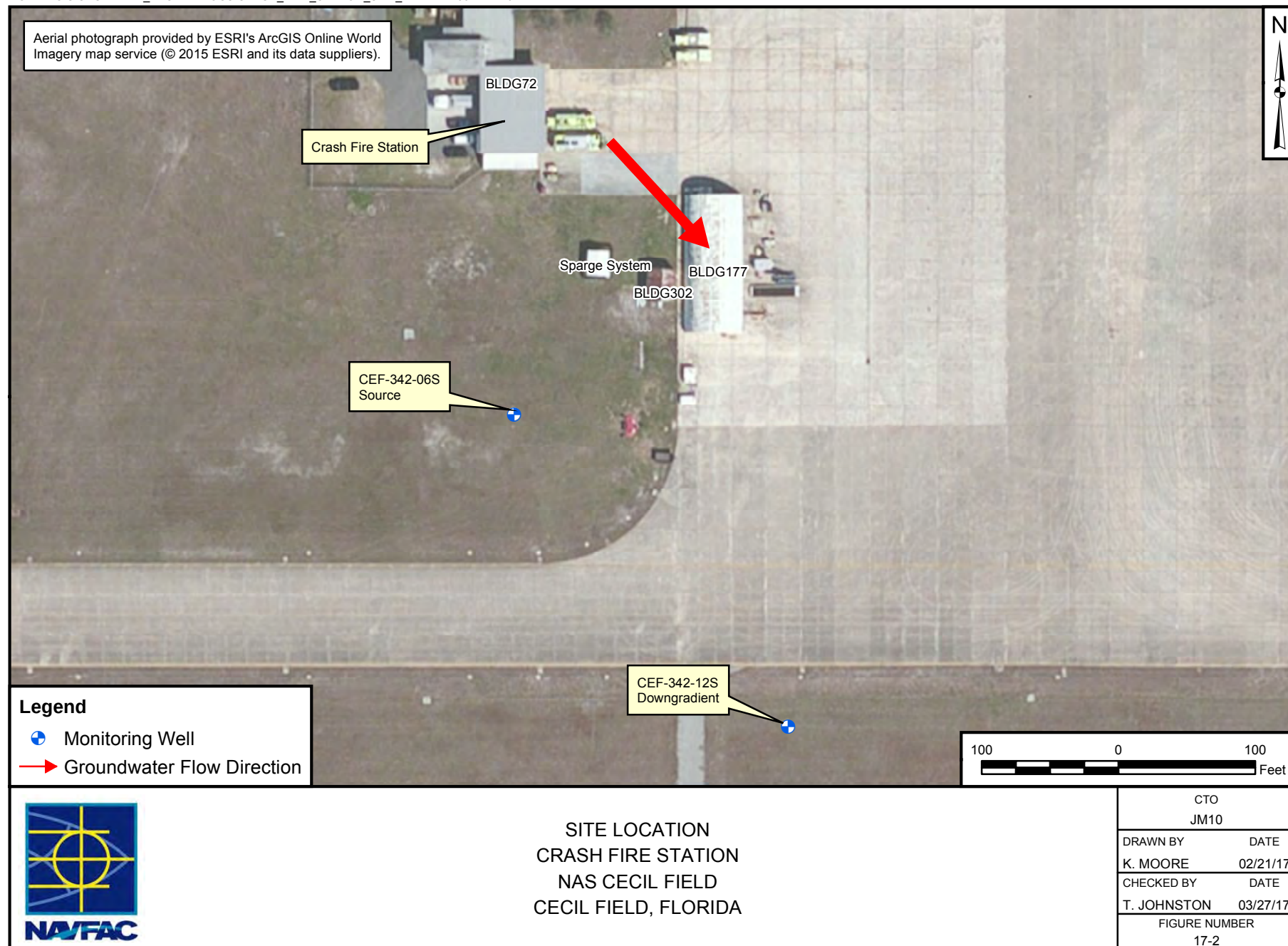
Methanol Lot # 170294 SPE Lot # 5308-0072 pH Paper # 2300/6
Acetonitrile Lot # SPE Lot # Reagent #
Water Lot# MS 05/03/13 Syringe Filter Lot# Solvent #
DP64835

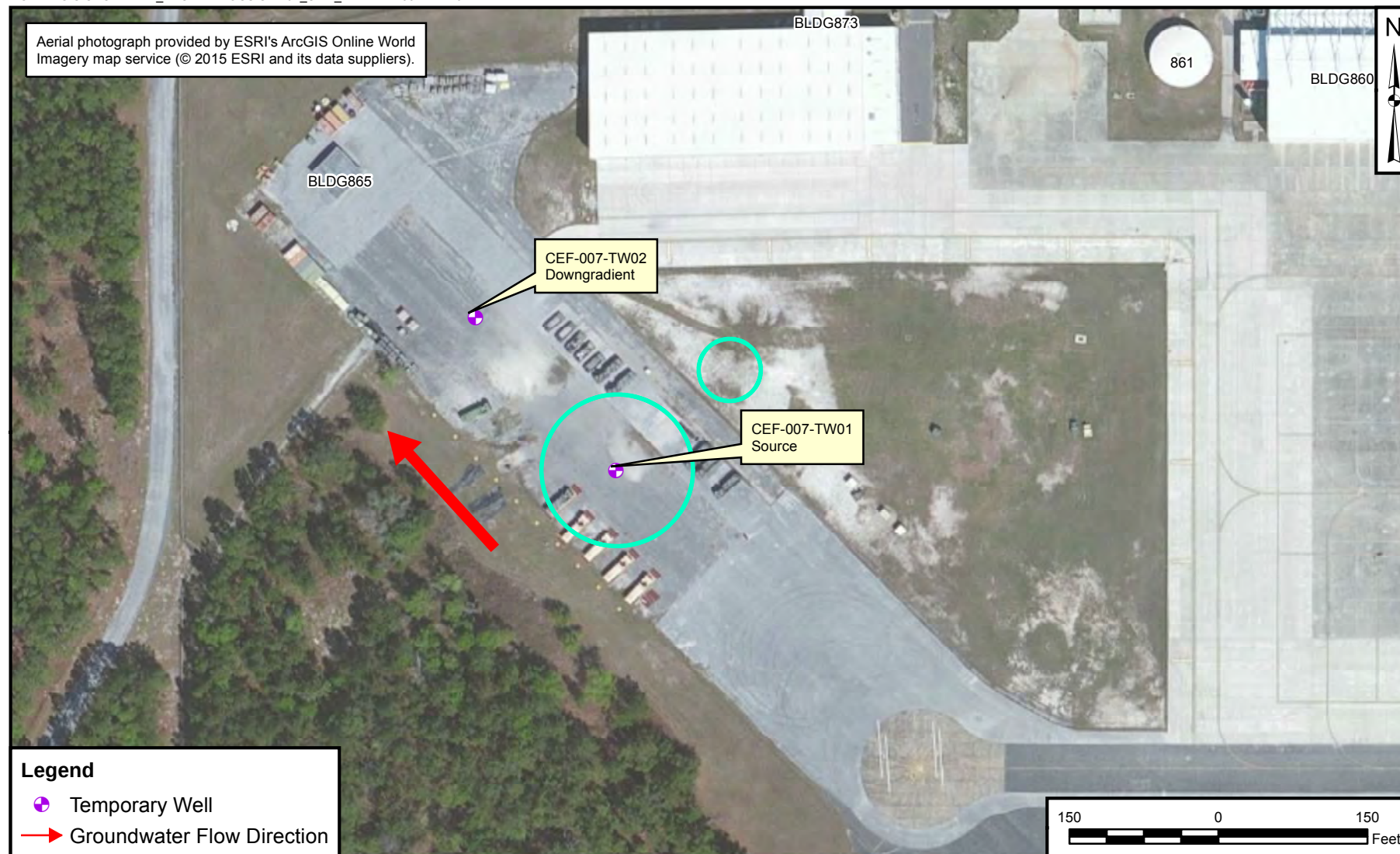
Date: 05/03/17
Date: 05-07-17



SITE LOCATION
FORMER FIRE STATION
NAS CECIL FIELD
CECIL FIELD, FLORIDA

CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-1	

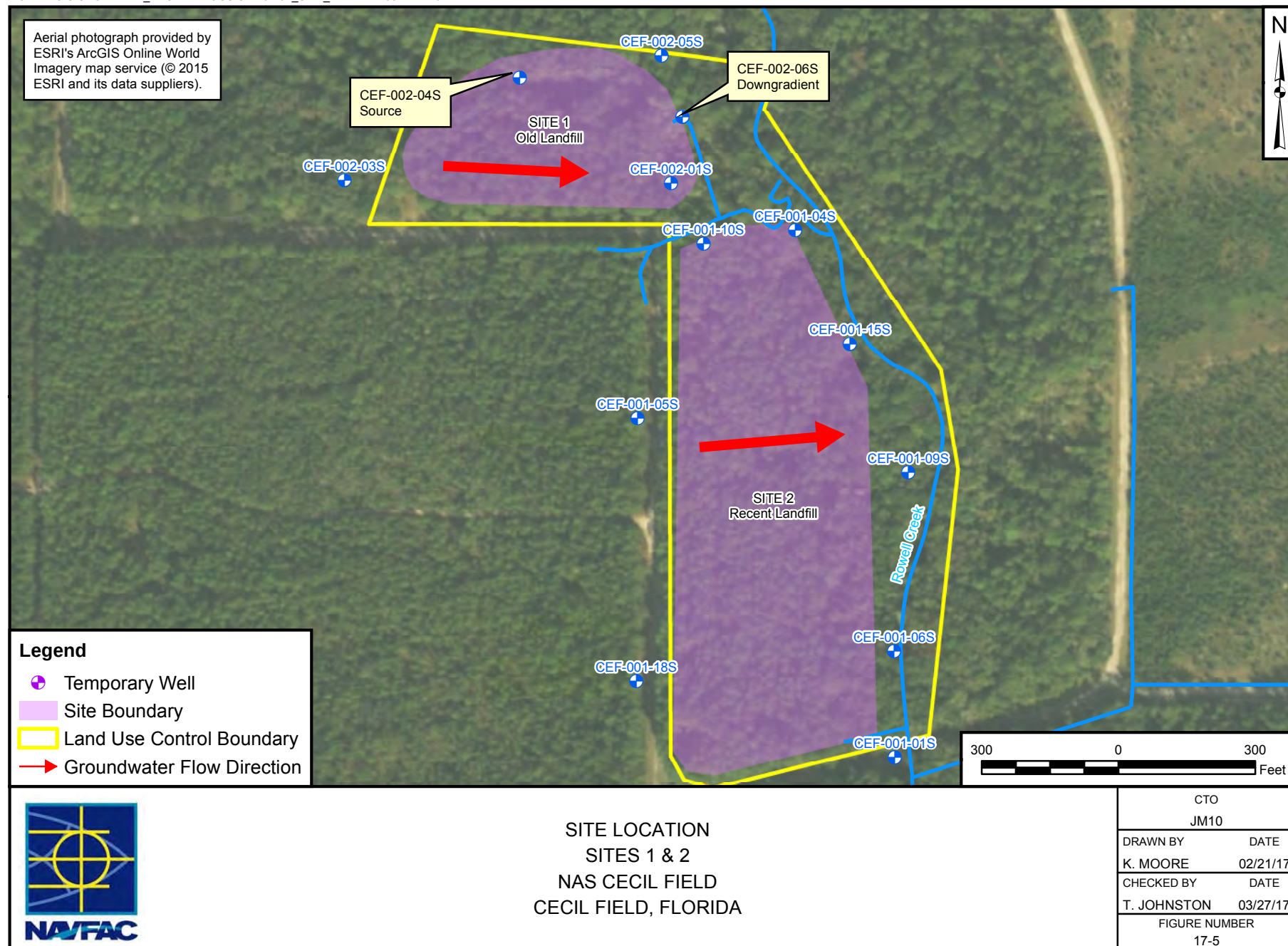


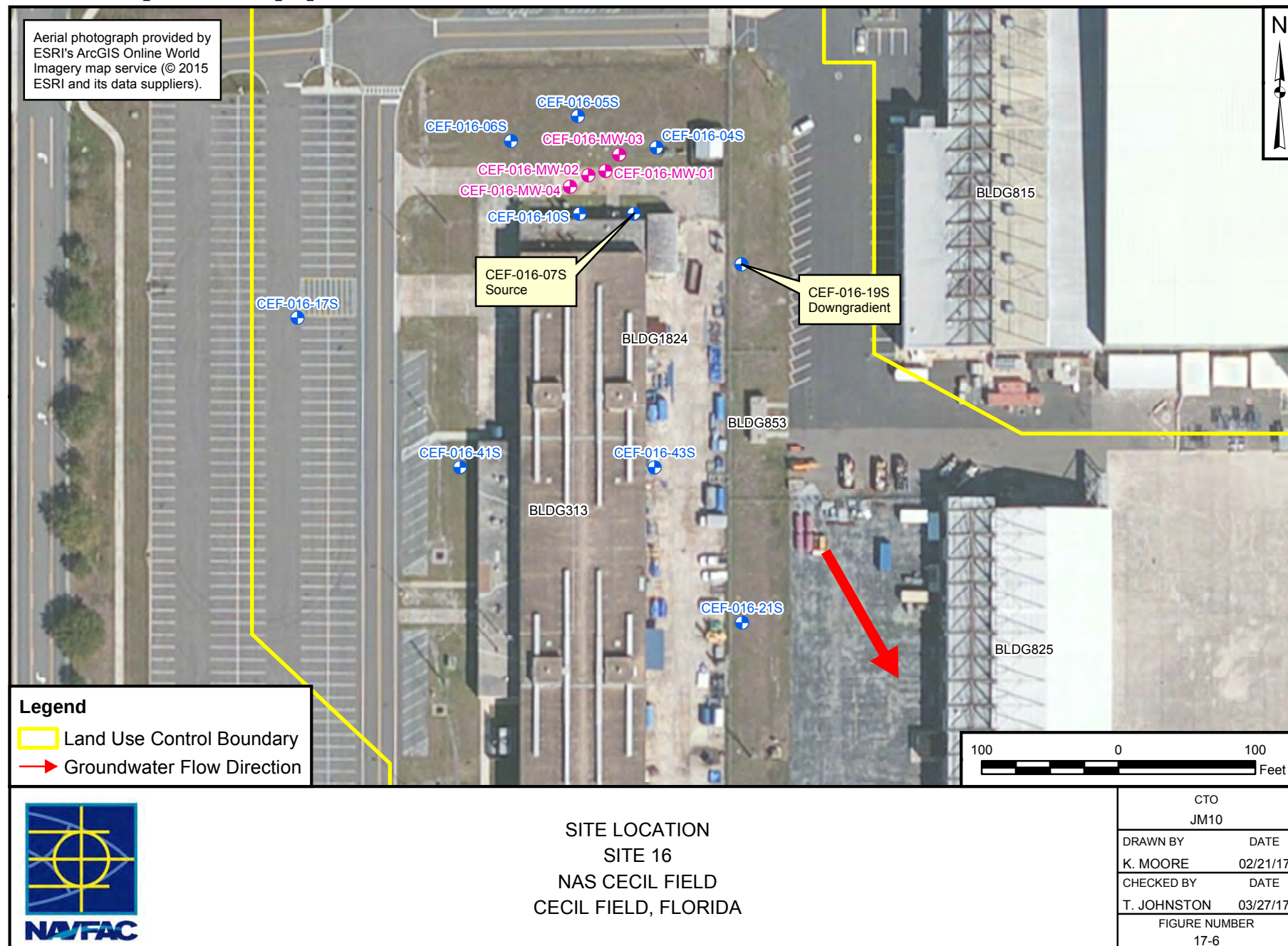


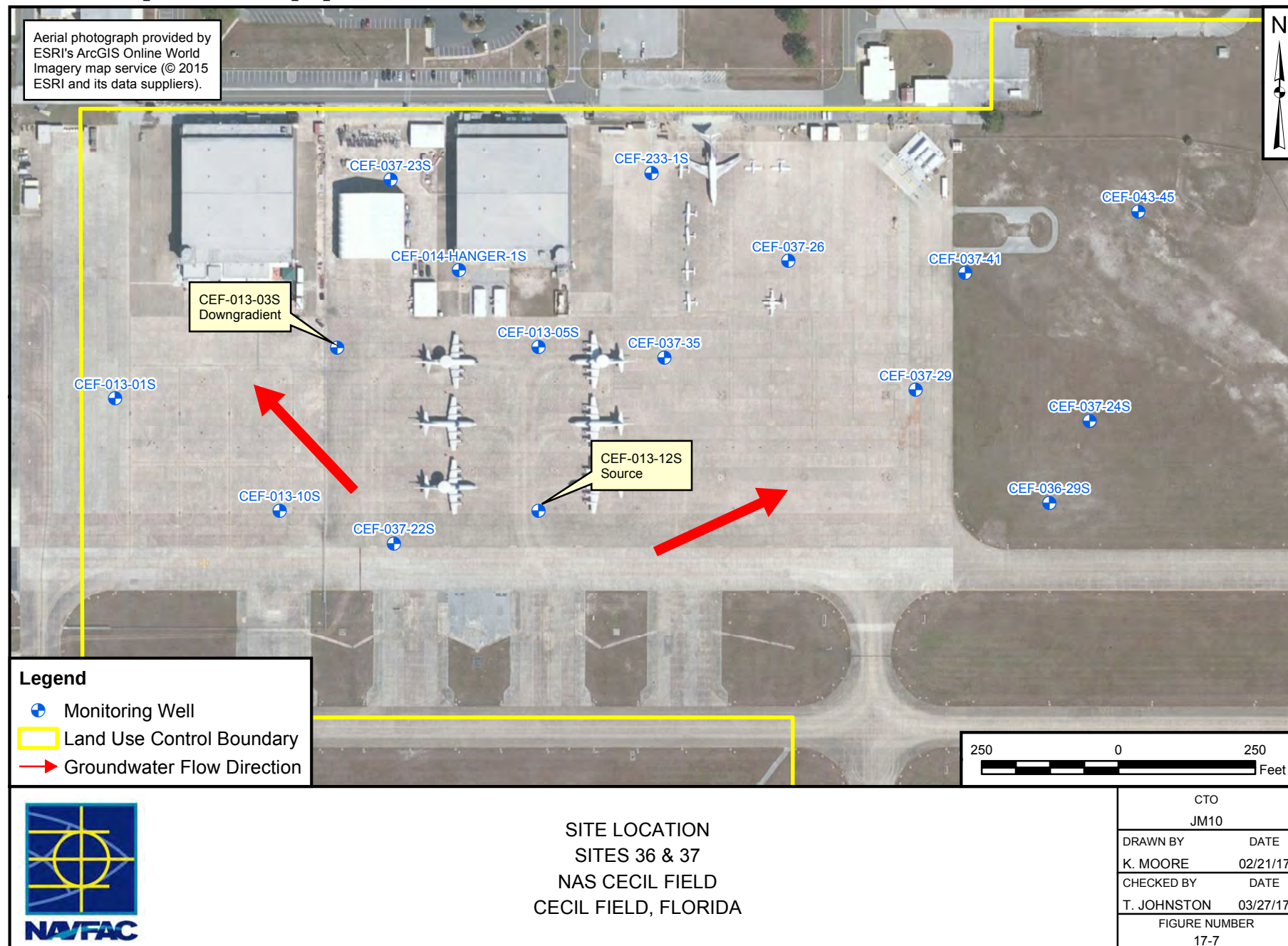
SITE LOCATION
SITE 7
NAS CECIL FIELD
CECIL FIELD, FLORIDA

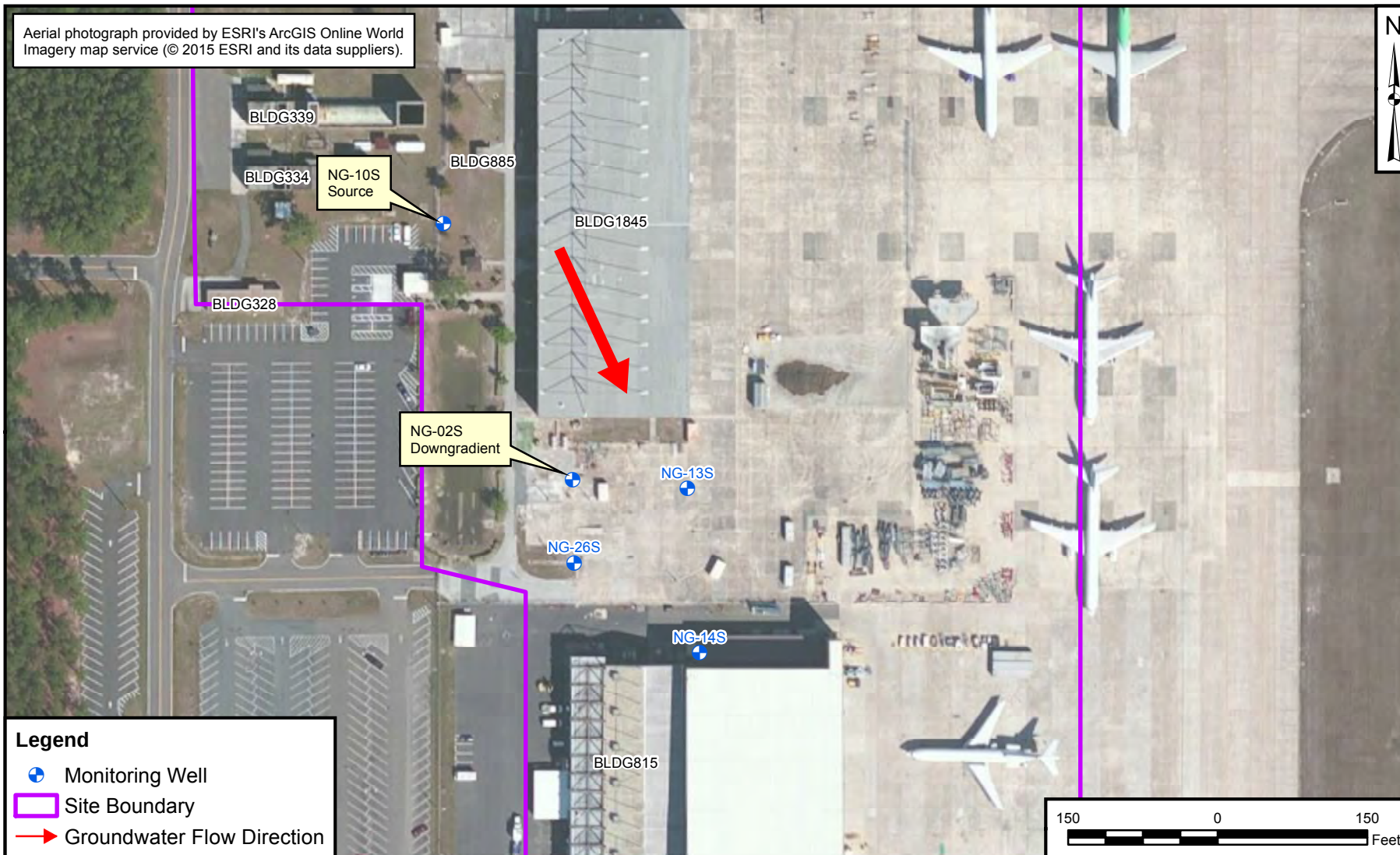
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DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-3	





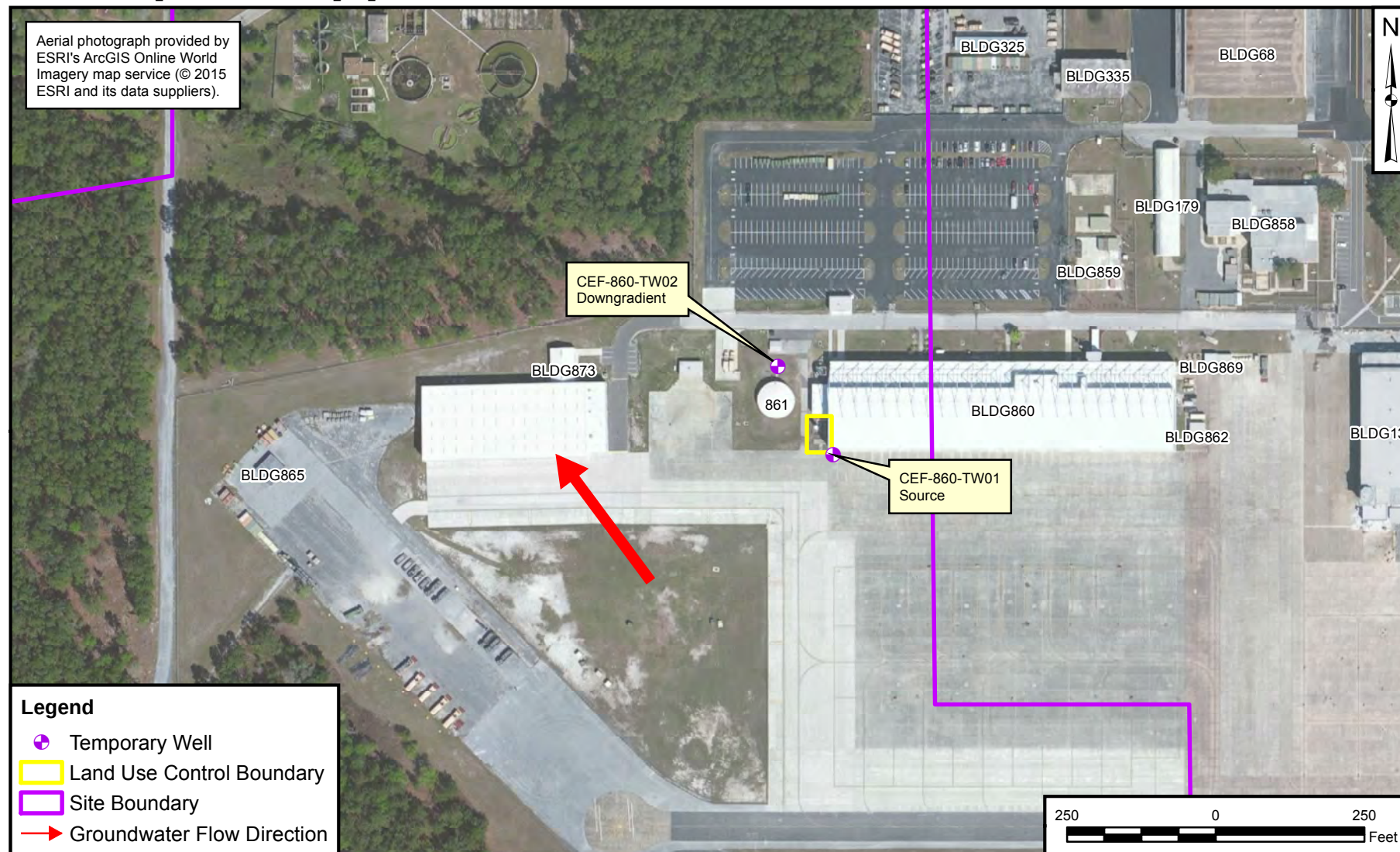






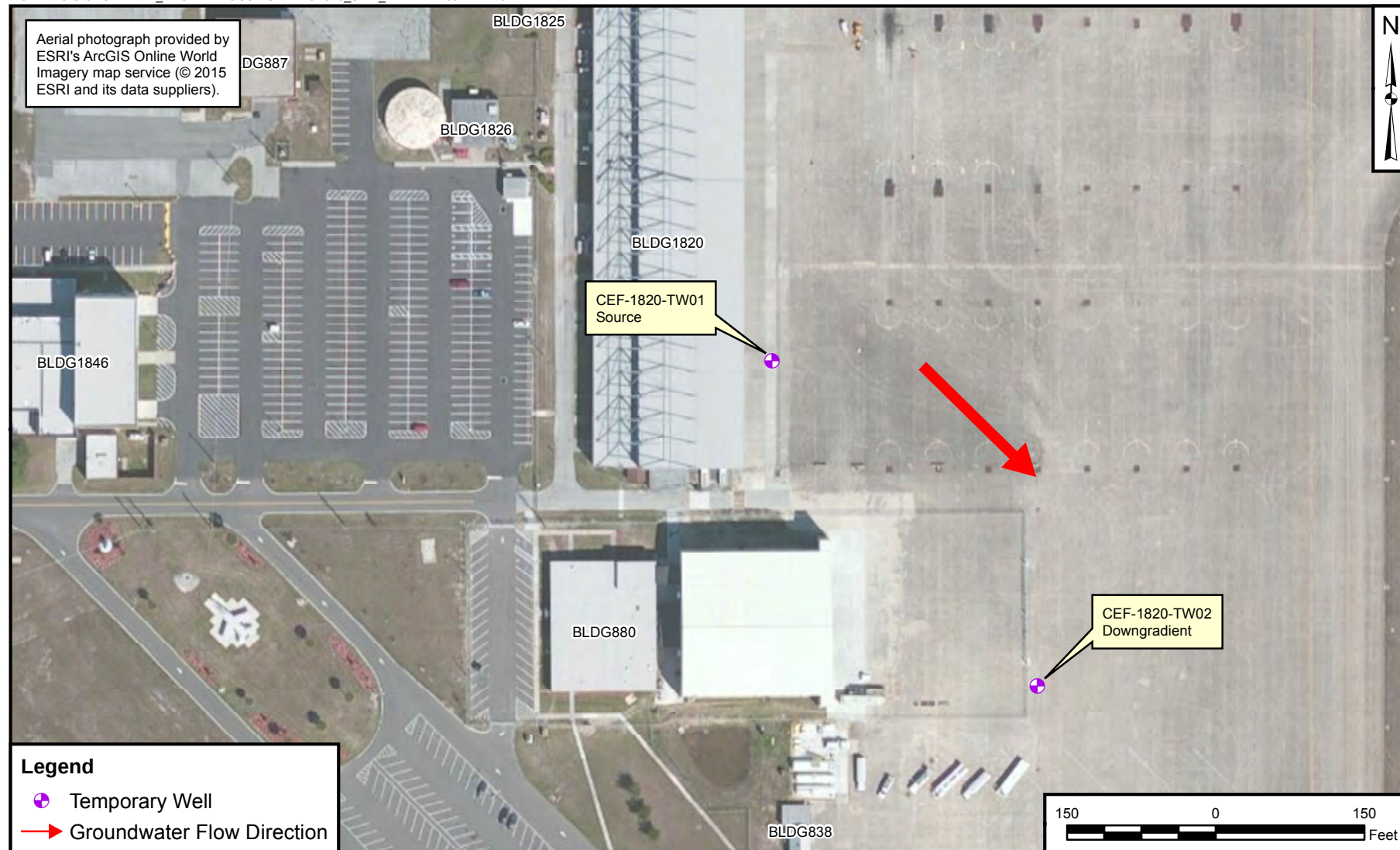
SITE LOCATION
SITE 59
NAS CECIL FIELD
CECIL FIELD, FLORIDA

CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-8	



SITE LOCATION
BUILDING 860
NAS CECIL FIELD
CECIL FIELD, FLORIDA

CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-9	



SITE LOCATION
BUILDING 1820
NAS CECIL FIELD
CECIL FIELD, FLORIDA

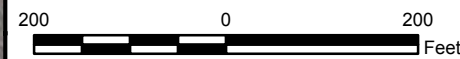
CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-10	

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).



Legend

- Land Use Control Boundary
- ➔ Groundwater Flow Direction



SITE LOCATION
NORTH FUEL FARM
NAS CECIL FIELD
CECIL FIELD, FLORIDA

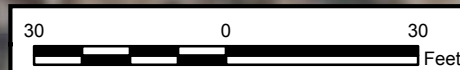
CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-11	

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).



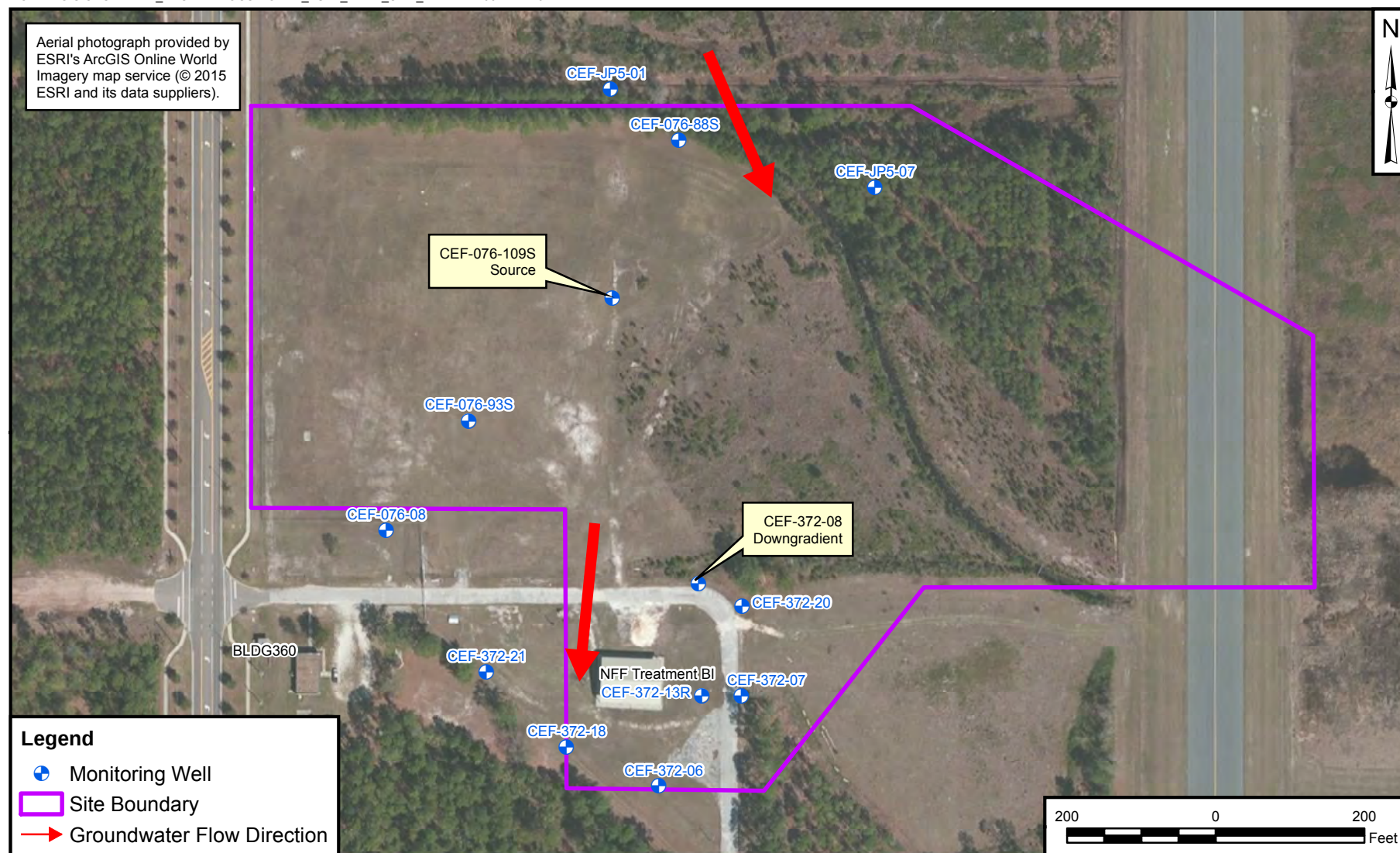
Legend

-  Monitoring Well
-  Groundwater Flow Direction



SITE LOCATION
OCALA CRASH SITE
NAS CECIL FIELD
CECIL FIELD, FLORIDA

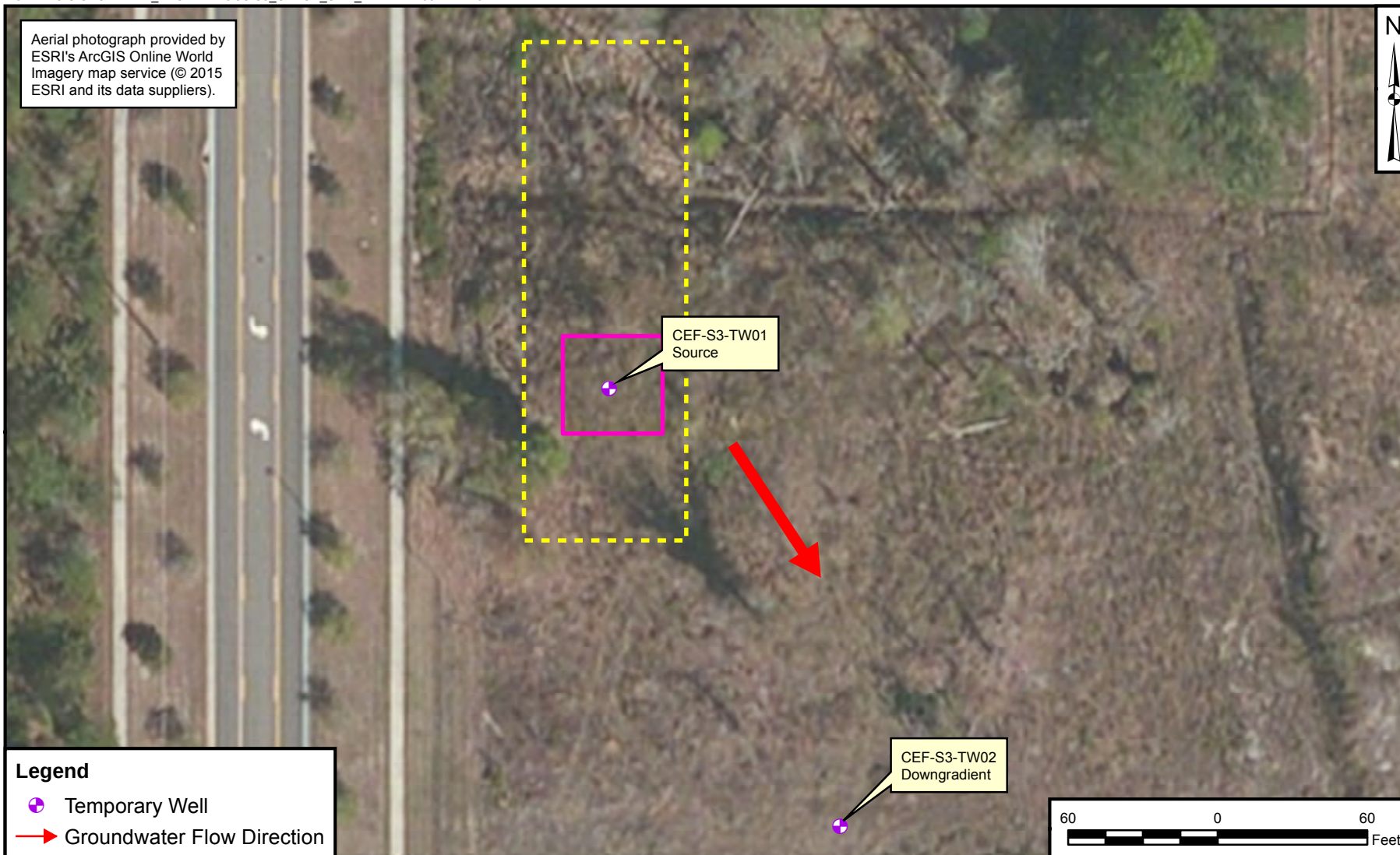
CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-12	



SITE LOCATION
NORTH FUEL FARM
NAS CECIL FIELD
CECIL FIELD, FLORIDA

CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-13	

Aerial photograph provided by
ESRI's ArcGIS Online World
Imagery map service (© 2015
ESRI and its data suppliers).



Legend

-  Temporary Well
-  Groundwater Flow Direction



SITE LOCATION
S-3 CRASH SITE
NAS CECIL FIELD
CECIL FIELD, FLORIDA

CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-14	