



**Groundwater Sample Results,
Level 4 Laboratory Report, Data Validation Report,
Sample Location Report, SDG FA63526**

*MCAS
El Toro, CA
April 2021*



Orlando, FL

04/30/19

The results set forth herein are provided by SGS North America Inc.

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Automated Report

Technical Report for

NOREAS, Inc.

APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

SGS Job Number: FA63526

Sampling Date: 04/22/19

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Total number of pages in report: 454



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.

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Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001)
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Test results relate only to samples analyzed.





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SGS North America Inc.

Sample Summary

NOREAS, Inc.

Job No: FA63526

APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FA63526-1	04/22/19	09:05 JH	04/23/19	AQ	Water	07DBMW43B
FA63526-2	04/22/19	09:10 JH	04/23/19	AQ	Water	07DBMW43B-FD
FA63526-3	04/22/19	10:39 JH	04/23/19	AQ	Water	07DBMW70
FA63526-4	04/22/19	11:36 JH	04/23/19	AQ	Water	12UGMW31
FA63526-4D	04/22/19	11:36 JH	04/23/19	AQ	Water Dup/MSD	12UGMW31
FA63526-4S	04/22/19	11:36 JH	04/23/19	AQ	Water Matrix Spike	12UGMW31
FA63526-5	04/22/19	12:49 JH	04/23/19	AQ	Water	24EX12A
FA63526-6	04/22/19	13:00 JH	04/23/19	AQ	Equipment Blank	QCEB

SAMPLE DELIVERY GROUP CASE NARRATIVE

2

Client: NOREAS, Inc.

Job No: FA63526

Site: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Report Date 4/30/2019 6:20:29 PM

6 Samples were collected on 04/22/2019 and were received at SGS North America Inc - Orlando on 04/23/2019 properly preserved, at 3.6 Deg. C and intact. These Samples received an SGS Orlando job number of FA63526. 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.

MS Semi-volatiles By Method EPA 537M QSM5.1 B-15

Matrix: AQ

Batch ID: OP74736

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA63526-4MS, FA63526-4MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Matrix Spike Recovery(s) for Perfluorohexanesulfonic acid are outside control limits. Outside control limits due to high level in sample relative to spike amount.

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

Narrative prepared by:

Ariel Hartney, Client Services (*Signature on File*)

Summary of Hits

Job Number: FA63526
Account: NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24
Collected: 04/22/19



Lab Sample ID	Client Sample ID	Result/ Analyte	LOQ	LOD	Units	Method
FA63526-1		07DBMW43B				
		Perfluorohexanoic acid	0.129	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluoroheptanoic acid	0.0205	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorooctanoic acid	0.265	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorobutanesulfonic acid	0.0246	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorohexanesulfonic acid	0.0688	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorooctanesulfonic acid	0.00336 J	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
FA63526-2		07DBMW43B-FD				
		Perfluorohexanoic acid	0.131	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluoroheptanoic acid	0.0204	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorooctanoic acid	0.270	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorobutanesulfonic acid	0.0241	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorohexanesulfonic acid	0.0688	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
FA63526-3		07DBMW70				
		Perfluorohexanoic acid	0.0758	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluoroheptanoic acid	0.00728 J	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorooctanoic acid	0.0288	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorobutanesulfonic acid	0.0312	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorohexanesulfonic acid	0.0119	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
FA63526-4		12UGMW31				
		Perfluorohexanoic acid	0.179	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluoroheptanoic acid	0.0363	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorooctanoic acid	0.137	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorobutanesulfonic acid	0.0946	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorohexanesulfonic acid	0.609	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorooctanesulfonic acid	0.0600	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
FA63526-5		24EX12A				
		Perfluorohexanoic acid	0.701	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluoroheptanoic acid	0.212	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorooctanoic acid	0.359	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorononanoic acid	0.0344	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorobutanesulfonic acid	0.231	0.0080	0.0040	ug/l EPA 537M QSM5.1 B-15
		Perfluorohexanesulfonic acid	0.844	0.080	0.040	ug/l EPA 537M QSM5.1 B-15
		Perfluorooctanesulfonic acid	2.80	0.080	0.040	ug/l EPA 537M QSM5.1 B-15

Summary of Hits

Job Number: FA63526
Account: NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24
Collected: 04/22/19



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FA63526-6 QCEB

No hits reported in this sample.



Orlando, FL

Section 4

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Sample Results

Report of Analysis



Raw Data: **3Q3270.D**

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID:	07DBMW43B	Date Sampled:	04/22/19
Lab Sample ID:	FA63526-1	Date Received:	04/23/19
Matrix:	AQ - Water	Percent Solids:	n/a
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD		
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q3270.D	1	04/25/19 15:09	NG	04/24/19 07:30	OP74736	S3Q83
Run #2							

	Initial Volume	Final Volume
Run #1	125 ml	1.0 ml
Run #2		

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYLCARBOXYLIC ACIDS

307-24-4	Perfluorohexanoic acid	0.129	0.0080	0.0040	0.0020	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0205	0.0080	0.0040	0.0020	ug/l	
335-67-1	Perfluorooctanoic acid	0.265	0.0080	0.0040	0.0020	ug/l	
375-95-1	Perfluorononanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
335-76-2	Perfluorodecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
307-55-1	Perfluorododecanoic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	

PERFLUOROALKYLSULFONATES

375-73-5	Perfluorobutanesulfonic acid	0.0246	0.0080	0.0040	0.0020	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0688	0.0080	0.0040	0.0020	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.00336	0.0080	0.0040	0.0030	ug/l	J

PERFLUOROCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	
2991-50-6	EtFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C5-PFHxA	101%		50-150%
	13C4-PFHpA	102%		50-150%
	13C8-PFOA	102%		50-150%
	13C9-PFNA	101%		50-150%
	13C6-PFDA	95%		50-150%
	13C7-PFUnDA	86%		50-150%
	13C2-PFDoDA	73%		50-150%
	13C2-PFTeDA	74%		50-150%
	13C3-PFBS	98%		50-150%
	13C3-PFHxS	97%		50-150%

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

4.1
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Report of Analysis

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Client Sample ID: 07DBMW43B	Date Sampled: 04/22/19
Lab Sample ID: FA63526-1	Date Received: 04/23/19
Matrix: AQ - Water	Percent Solids: n/a
Method: EPA 537M QSM5.1 B-15 EPA 537 MOD	
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24	

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EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	92%		50-150%
	d3-MeFOSAA	84%		50-150%

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



Raw Data: **3Q3271.D**

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Report of Analysis

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Client Sample ID:	07DBMW43B-FD	Date Sampled:	04/22/19
Lab Sample ID:	FA63526-2	Date Received:	04/23/19
Matrix:	AQ - Water	Percent Solids:	n/a
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD		
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q3271.D	1	04/25/19 15:25	NG	04/24/19 07:30	OP74736	S3Q83
Run #2							

	Initial Volume	Final Volume
Run #1	125 ml	1.0 ml
Run #2		

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.131	0.0080	0.0040	0.0020	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0204	0.0080	0.0040	0.0020	ug/l	
335-67-1	Perfluorooctanoic acid	0.270	0.0080	0.0040	0.0020	ug/l	
375-95-1	Perfluorononanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
335-76-2	Perfluorodecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
307-55-1	Perfluorododecanoic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0241	0.0080	0.0040	0.0020	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0688	0.0080	0.0040	0.0020	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
PERFLUOROCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	
2991-50-6	EtFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	99%		50-150%
	13C4-PFHpA	101%		50-150%
	13C8-PFOA	101%		50-150%
	13C9-PFNA	100%		50-150%
	13C6-PFDA	91%		50-150%
	13C7-PFUnDA	82%		50-150%
	13C2-PFDoDA	72%		50-150%
	13C2-PFTeDA	74%		50-150%
	13C3-PFBS	97%		50-150%
	13C3-PFHxS	96%		50-150%

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

4.2
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Report of Analysis

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Client Sample ID: 07DBMW43B-FD	
Lab Sample ID: FA63526-2	Date Sampled: 04/22/19
Matrix: AQ - Water	Date Received: 04/23/19
Method: EPA 537M QSM5.1 B-15 EPA 537 MOD	Percent Solids: n/a
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24	

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EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	86%		50-150%
	d3-MeFOSAA	82%		50-150%

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



Raw Data: **3Q3272.D**

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Report of Analysis

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Client Sample ID:	07DBMW70	Date Sampled:	04/22/19
Lab Sample ID:	FA63526-3	Date Received:	04/23/19
Matrix:	AQ - Water	Percent Solids:	n/a
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD		
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q3272.D	1	04/25/19 15:41	NG	04/24/19 07:30	OP74736	S3Q83
Run #2							

	Initial Volume	Final Volume
Run #1	125 ml	1.0 ml
Run #2		

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.0758	0.0080	0.0040	0.0020	ug/l	
375-85-9	Perfluoroheptanoic acid	0.00728	0.0080	0.0040	0.0020	ug/l	J
335-67-1	Perfluorooctanoic acid	0.0288	0.0080	0.0040	0.0020	ug/l	
375-95-1	Perfluorononanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
335-76-2	Perfluorodecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
307-55-1	Perfluorododecanoic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0312	0.0080	0.0040	0.0020	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0119	0.0080	0.0040	0.0020	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
PERFLUOROCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	
2991-50-6	EtFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	101%		50-150%
	13C4-PFHpA	102%		50-150%
	13C8-PFOA	103%		50-150%
	13C9-PFNA	100%		50-150%
	13C6-PFDA	93%		50-150%
	13C7-PFUnDA	83%		50-150%
	13C2-PFDoDA	70%		50-150%
	13C2-PFTeDA	69%		50-150%
	13C3-PFBS	99%		50-150%
	13C3-PFHxS	98%		50-150%

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

4.3
4



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Report of Analysis

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Client Sample ID: 07DBMW70	Date Sampled: 04/22/19
Lab Sample ID: FA63526-3	Date Received: 04/23/19
Matrix: AQ - Water	Percent Solids: n/a
Method: EPA 537M QSM5.1 B-15 EPA 537 MOD	
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24	

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EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	87%		50-150%
	d3-MeFOSAA	85%		50-150%

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



Raw Data: **3Q3273.D**

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID:	12UGMW31	Date Sampled:	04/22/19
Lab Sample ID:	FA63526-4	Date Received:	04/23/19
Matrix:	AQ - Water	Percent Solids:	n/a
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD		
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q3273.D	1	04/25/19 15:56	NG	04/24/19 07:30	OP74736	S3Q83
Run #2							

	Initial Volume	Final Volume
Run #1	125 ml	1.0 ml
Run #2		

EPA 537 Method List

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

PERFLUOROALKYLCARBOXYLIC ACIDS

307-24-4	Perfluorohexanoic acid	0.179	0.0080	0.0040	0.0020	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0363	0.0080	0.0040	0.0020	ug/l	
335-67-1	Perfluorooctanoic acid	0.137	0.0080	0.0040	0.0020	ug/l	
375-95-1	Perfluorononanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
335-76-2	Perfluorodecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
307-55-1	Perfluorododecanoic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	

PERFLUOROALKYLSULFONATES

375-73-5	Perfluorobutanesulfonic acid	0.0946	0.0080	0.0040	0.0020	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.609	0.0080	0.0040	0.0020	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0600	0.0080	0.0040	0.0030	ug/l	

PERFLUOROCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	
2991-50-6	EtFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	

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

	13C5-PFHxA	100%		50-150%
	13C4-PFHpA	101%		50-150%
	13C8-PFOA	102%		50-150%
	13C9-PFNA	102%		50-150%
	13C6-PFDA	95%		50-150%
	13C7-PFUnDA	80%		50-150%
	13C2-PFDoDA	73%		50-150%
	13C2-PFTeDA	72%		50-150%
	13C3-PFBS	98%		50-150%
	13C3-PFHxS	94%		50-150%

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

4.4
4

SGS North America Inc.

Report of Analysis

Page 2 of 2

Client Sample ID: 12UGMW31	Date Sampled: 04/22/19
Lab Sample ID: FA63526-4	Date Received: 04/23/19
Matrix: AQ - Water	Percent Solids: n/a
Method: EPA 537M QSM5.1 B-15 EPA 537 MOD	
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24	

4.4
4

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C8-PFOS		90%		50-150%
d3-MeFOSAA		86%		50-150%

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



Raw Data: **3Q3276.D** **3Q3306.D**

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID:	24EX12A	Date Sampled:	04/22/19
Lab Sample ID:	FA63526-5	Date Received:	04/23/19
Matrix:	AQ - Water	Percent Solids:	n/a
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD		
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q3276.D	1	04/25/19 16:43	NG	04/24/19 07:30	OP74736	S3Q83
Run #2	3Q3306.D	10	04/26/19 11:09	NG	04/24/19 07:30	OP74736	S3Q84

	Initial Volume	Final Volume
Run #1	125 ml	1.0 ml
Run #2	125 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYLCARBOXYLIC ACIDS

307-24-4	Perfluorohexanoic acid	0.701	0.0080	0.0040	0.0020	ug/l	
375-85-9	Perfluoroheptanoic acid	0.212	0.0080	0.0040	0.0020	ug/l	
335-67-1	Perfluorooctanoic acid	0.359	0.0080	0.0040	0.0020	ug/l	
375-95-1	Perfluorononanoic acid	0.0344	0.0080	0.0040	0.0020	ug/l	
335-76-2	Perfluorodecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
307-55-1	Perfluorododecanoic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	

PERFLUOROALKYLSULFONATES

375-73-5	Perfluorobutanesulfonic acid	0.231	0.0080	0.0040	0.0020	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.844 ^a	0.080	0.040	0.020	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	2.80 ^a	0.080	0.040	0.030	ug/l	

PERFLUOROCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	
2991-50-6	EtFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C5-PFHxA	96%	92%	50-150%
	13C4-PFHpA	97%	93%	50-150%
	13C8-PFOA	96%	91%	50-150%
	13C9-PFNA	87%	89%	50-150%
	13C6-PFDA	86%	82%	50-150%
	13C7-PFUnDA	77%	73%	50-150%
	13C2-PFDoDA	75%	69%	50-150%
	13C2-PFTeDA	76%	65%	50-150%
	13C3-PFBS	96%	90%	50-150%
	13C3-PFHxS	91%	92%	50-150%

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

4.5
4



SGS North America Inc.

Report of Analysis

Page 2 of 2

Client Sample ID: 24EX12A	
Lab Sample ID: FA63526-5	Date Sampled: 04/22/19
Matrix: AQ - Water	Date Received: 04/23/19
Method: EPA 537M QSM5.1 B-15 EPA 537 MOD	Percent Solids: n/a
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24	

4.5
4

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	74%	80%	50-150%
	d3-MeFOSAA	82%	84%	50-150%

(a) Result is from Run# 2

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



Raw Data: **3Q3277.D**

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: QCEB	
Lab Sample ID: FA63526-6	Date Sampled: 04/22/19
Matrix: AQ - Equipment Blank	Date Received: 04/23/19
Method: EPA 537M QSM5.1 B-15 EPA 537 MOD	Percent Solids: n/a
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q3277.D	1	04/25/19 16:59	NG	04/24/19 07:30	OP74736	S3Q83
Run #2							

	Initial Volume	Final Volume
Run #1	125 ml	1.0 ml
Run #2		

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
335-67-1	Perfluorooctanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
375-95-1	Perfluorononanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
335-76-2	Perfluorodecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
307-55-1	Perfluorododecanoic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
PERFLUOROCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	
2991-50-6	EtFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	104%		50-150%
	13C4-PFHpA	104%		50-150%
	13C8-PFOA	105%		50-150%
	13C9-PFNA	103%		50-150%
	13C6-PFDA	95%		50-150%
	13C7-PFUnDA	83%		50-150%
	13C2-PFDoDA	75%		50-150%
	13C2-PFTeDA	76%		50-150%
	13C3-PFBS	101%		50-150%
	13C3-PFHxS	99%		50-150%

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

4.6
4



SGS North America Inc.

Report of Analysis

Page 2 of 2

Client Sample ID: QCEB	
Lab Sample ID: FA63526-6	Date Sampled: 04/22/19
Matrix: AQ - Equipment Blank	Date Received: 04/23/19
Method: EPA 537M QSM5.1 B-15 EPA 537 MOD	Percent Solids: n/a
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24	

4.6

4

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	89%		50-150%
	d3-MeFOSAA	89%		50-150%

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





Orlando, FL

Section 5

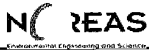
Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5 Limits



CHAIN-OF-CUSTODY RECORD

FA63526

COC No. ET1824-002
 PAGE 7 of 7

Project Name/No: Groundwater Sampling Event 37		Purchase Order No. 18095		Laboratory SDG No:						
Project Location: Former MCAS El Toro IRP Sites 18 & 24		Laboratory Name: SGS North America, Inc.		ANALYSES REQUIRED						
Company Name: NOREAS, Inc.		Laboratory Contact: Andrea Colby								
Address: 16361 Scientific Way Irvine, CA 92618		Laboratory Address: 4405 Vineland Road, Ste C-15 Orlando, FL 32811								
Project Manager: Jinny Hong		Laboratory Phone: 407-426-6700								
Phone/Fax No. (949) 467-9104		Airbill No. X14911								
Project Contact: Sevda Aleckson		Airbill No. COURIER								
Contact Phone: (949) 510-8610										
Sample ID	Sampling Location	Date	Time	Matrix	QC Stage (4)	Unpreserved	Preserved	# of Containers	PFAS - Modified EPA 537 (DOD D5M 5.1 compliant)	MISMSD
1 07DBMW43B	07DBMW43B	4-22-19	0905	W	4	X		2	X	
2 07DBMW43A-FD	07DBMW43B v		0910	W	4	X		2	X	
3 07DBMW70	07DBMW70		1039	W	4	X		2	X	
4 12UGMW31	12UGMW31		1136	W	4	X		6	X	X
5 24EX12A	24EX12A		1249	W	4	X		2	X	
6 QCEB	Equipment Blank		1300	W	4	X		2	X	
Special Instructions: PFAS-Free Water:		Turnaround Time: <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HR		X STANDARD OR <input type="checkbox"/>						
Sampler(s) Name(s): Ryley Robitaille/Mario Losi; Phone No. (714) 273-5132		Matrix: W: Groundwater or Drinking water; S: Soil; W: Waste		Sample Condition Upon Receipt (For Laboratory Use)						
Relinquished By (Signature): <i>[Signature]</i>	Date: 4/22/19	Received By (Signature): <i>[Signature]</i>	Date:	Cooler Temp (°C): 3.0						
Company: NOREAS	Time: 1400	Company: FedEx	Time:	Sample Condition: <input type="checkbox"/> Intact <input type="checkbox"/> Broken						
Relinquished By (Signature): <i>[Signature]</i>	Date:	Received By (Signature): <i>[Signature]</i>	Date: 4/23/19	Cooler Seal: <input type="checkbox"/> Intact <input type="checkbox"/> Broken						
Company: <i>[Signature]</i>	Time:	Company: SGS	Time: 900	<input type="checkbox"/> Intact <input type="checkbox"/> Broken						
Relinquished By (Signature):	Date:	Received By (Signature):	Date:							
Company:	Time:	Company:	Time:							

DISTRIBUTION: White - Laboratory; Blue - Project File

5.1
5



SGS Sample Receipt Summary

Job Number: FA63526 **Client:** NOREAS **Project:** GROUNDWATER SAMPLING EVENT 37
Date / Time Received: 4/23/2019 9:00:00 AM **Delivery Method:** FX **Airbill #'s:** 1002284333310003281100490063528927

Therm ID: IR 1; **Therm CF:** 0.4; **# of Coolers:** 1
Cooler Temps (Raw Measured) °C: Cooler 1: (3.2);
Cooler Temps (Corrected) °C: Cooler 1: (3.6);

Cooler Information			Sample Information			
<u>Y</u>	<u>or</u>	<u>N</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Custody Seals Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Sample labels present on bottles	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Custody Seals Intact	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Samples preserved properly	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3. Temp criteria achieved	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Sufficient volume/containers recvd for analysis:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Cooler temp verification	IR Gun		4. Condition of sample	Intact		
5. Cooler media	Ice (Bag)		5. Sample recvd within HT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>		
1. Trip Blank present / cooler	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
2. Trip Blank listed on COC	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
	<u>W</u>	<u>or</u>	<u>S</u>	<u>N/A</u>		
3. Type Of TB Received	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

Misc. Information
 Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____
 Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____
 Residual Chlorine Test Strip Lot #: _____

Comments

SM001 Technician: PETERH Date: 4/23/2019 9:00:00 AM Reviewer: _____ Date: _____
 Rev. Date 05/24/17

5.1
5



QC Evaluation: DOD QSM5 Limits

Job Number: FA63526
Account: NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24
Collected: 04/22/19

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

5.2
5

* Sample used for QC is not from job FA63526



Orlando, FL

Section 6

MS Semi-volatiles



QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Injection Standard Area Summaries
- Isotope Dilution Standard Recovery Summaries
- Initial and Continuing Calibration Summaries

Raw Data: **3Q3258.D**

Instrument Blank

Page 1 of 1

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q83-IBLK	3Q3258.D	1	04/25/19	NG	n/a	n/a	S3Q83

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.1 B-15

FA63526-1, FA63526-2, FA63526-3, FA63526-4, FA63526-5, FA63526-6

6.1.1
6

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.0015	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.0015	ug/l	
2355-31-9	MeFOSAA	ND	0.020	0.0040	ug/l	
2991-50-6	EtFOSAA	ND	0.020	0.0040	ug/l	

CAS No.	ID Standard Recoveries	Limits	
	13C4-PFBA	102%	50-150%
	13C5-PFPeA	104%	50-150%
	13C5-PFHxA	104%	50-150%
	13C4-PFHpA	104%	50-150%
	13C8-PFOA	107%	50-150%
	13C9-PFNA	106%	50-150%
	13C6-PFDA	109%	50-150%
	13C7-PFUnDA	108%	50-150%
	13C2-PFDODA	107%	50-150%
	13C2-PFTeDA	107%	50-150%
	13C3-PFBS	102%	50-150%
	13C3-PFHxS	102%	50-150%
	13C8-PFOS	104%	50-150%
	13C8-FOSA	110%	50-150%
	d3-MeFOSAA	110%	50-150%
	13C2-4:2FTS	96%	50-150%
	13C2-6:2FTS	99%	50-150%
	13C2-8:2FTS	100%	50-150%

Raw Data: **3Q3299.D**

Instrument Blank

Page 1 of 1

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q84-IBLK	3Q3299.D	1	04/26/19	NG	n/a	n/a	S3Q84

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.1 B-15

FA63526-5

6.1.2
6

CAS No.	Compound	Result	RL	MDL	Units	Q
355-46-4	Perfluorohexanesulfonic acid	ND	0.0080	0.0020	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0080	0.0030	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	103% 50-150%
	13C5-PFPeA	103% 50-150%
	13C5-PFHxA	102% 50-150%
	13C4-PFHpA	105% 50-150%
	13C8-PFOA	104% 50-150%
	13C9-PFNA	105% 50-150%
	13C6-PFDA	105% 50-150%
	13C7-PFUnDA	100% 50-150%
	13C2-PFDODA	95% 50-150%
	13C2-PFTeDA	90% 50-150%
	13C3-PFBS	102% 50-150%
	13C3-PFHxS	103% 50-150%
	13C8-PFOS	103% 50-150%
	13C8-FOSA	103% 50-150%
	d3-MeFOSAA	102% 50-150%
	13C2-4:2FTS	96% 50-150%
	13C2-6:2FTS	97% 50-150%
	13C2-8:2FTS	93% 50-150%

Raw Data: **3Q3263.D**

Method Blank Summary

Page 1 of 1

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP74736-MB	3Q3263.D	1	04/25/19	NG	04/24/19	OP74736	S3Q83

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.1 B-15

FA63526-1, FA63526-2, FA63526-3, FA63526-4, FA63526-5, FA63526-6

6.13
6

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0077	0.0019	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0077	0.0019	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0077	0.0019	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0077	0.0019	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0077	0.0019	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0077	0.0019	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0077	0.0029	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0077	0.0019	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0077	0.0019	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0077	0.0019	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0077	0.0019	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0077	0.0029	ug/l	
2355-31-9	MeFOSAA	ND	0.038	0.0077	ug/l	
2991-50-6	EtFOSAA	ND	0.038	0.0077	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	98%
	13C5-PFPeA	95%
	13C5-PFHxA	97%
	13C4-PFHpA	97%
	13C8-PFOA	98%
	13C9-PFNA	95%
	13C6-PFDA	91%
	13C7-PFUnDA	80%
	13C2-PFDODA	73%
	13C2-PFTeDA	75%
	13C3-PFBS	95%
	13C3-PFHxS	94%
	13C8-PFOS	87%
	13C8-FOSA	91%
	d3-MeFOSAA	84%
	13C2-4:2FTS	92%
	13C2-6:2FTS	91%
	13C2-8:2FTS	82%

Raw Data: **3Q3262.D**

Blank Spike Summary

Page 1 of 1

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP74736-BS	3Q3262.D	1	04/25/19	NG	04/24/19	OP74736	S3Q83

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.1 B-15

FA63526-1, FA63526-2, FA63526-3, FA63526-4, FA63526-5, FA63526-6

6.2.1
6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.154	0.147	96	67-133
375-85-9	Perfluoroheptanoic acid	0.154	0.143	93	72-133
335-67-1	Perfluorooctanoic acid	0.154	0.149	97	71-133
375-95-1	Perfluorononanoic acid	0.154	0.146	95	67-131
335-76-2	Perfluorodecanoic acid	0.154	0.153	99	68-135
2058-94-8	Perfluoroundecanoic acid	0.154	0.155	101	67-133
307-55-1	Perfluorododecanoic acid	0.154	0.146	95	68-131
72629-94-8	Perfluorotridecanoic acid	0.154	0.133	86	65-140
376-06-7	Perfluorotetradecanoic acid	0.154	0.149	97	65-129
375-73-5	Perfluorobutanesulfonic acid	0.154	0.156	101	72-129
355-46-4	Perfluorohexanesulfonic acid	0.154	0.146	95	70-134
1763-23-1	Perfluorooctanesulfonic acid	0.154	0.140	91	65-140
2355-31-9	MeFOSAA	0.154	0.155	101	66-132
2991-50-6	EtFOSAA	0.154	0.143	93	61-133

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	93%	50-150%
	13C5-PFPeA	93%	50-150%
	13C5-PFHxA	94%	50-150%
	13C4-PFHpA	95%	50-150%
	13C8-PFOA	94%	50-150%
	13C9-PFNA	93%	50-150%
	13C6-PFDA	91%	50-150%
	13C7-PFUnDA	84%	50-150%
	13C2-PFDODA	86%	50-150%
	13C2-PFTeDA	102%	50-150%
	13C3-PFBS	95%	50-150%
	13C3-PFHxS	94%	50-150%
	13C8-PFOS	87%	50-150%
	13C8-FOSA	68%	50-150%
	d3-MeFOSAA	86%	50-150%
	13C2-4:2FTS	96%	50-150%
	13C2-6:2FTS	96%	50-150%
	13C2-8:2FTS	89%	50-150%

* = Outside of Control Limits.

Raw Data: **3Q3274.D** **3Q3275.D**

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 2

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP74736-MS	3Q3274.D	1	04/25/19	NG	04/24/19	OP74736	S3Q83
OP74736-MSD	3Q3275.D	1	04/25/19	NG	04/24/19	OP74736	S3Q83
FA63526-4	3Q3273.D	1	04/25/19	NG	04/24/19	OP74736	S3Q83

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.1 B-15

FA63526-1, FA63526-2, FA63526-3, FA63526-4, FA63526-5, FA63526-6

CAS No.	Compound	FA63526-4 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
307-24-4	Perfluorohexanoic acid	0.179	0.16	0.320	88	0.16	0.325	91	2	67-133/30
375-85-9	Perfluoroheptanoic acid	0.0363	0.16	0.185	93	0.16	0.184	92	1	72-133/30
335-67-1	Perfluorooctanoic acid	0.137	0.16	0.284	92	0.16	0.288	94	1	71-133/30
375-95-1	Perfluorononanoic acid	0.0080 U	0.16	0.151	94	0.16	0.151	94	0	67-131/30
335-76-2	Perfluorodecanoic acid	0.0080 U	0.16	0.162	101	0.16	0.158	99	3	68-135/30
2058-94-8	Perfluoroundecanoic acid	0.0080 U	0.16	0.170	106	0.16	0.166	104	2	67-133/30
307-55-1	Perfluorododecanoic acid	0.0080 U	0.16	0.163	102	0.16	0.157	98	4	68-131/30
72629-94-8	Perfluorotridecanoic acid	0.0080 U	0.16	0.161	101	0.16	0.152	95	6	65-140/30
376-06-7	Perfluorotetradecanoic acid	0.0080 U	0.16	0.167	104	0.16	0.158	99	6	65-129/30
375-73-5	Perfluorobutanesulfonic acid	0.0946	0.16	0.252	98	0.16	0.250	97	1	72-129/30
355-46-4	Perfluorohexanesulfonic acid	0.609	0.16	0.708	62* a	0.16	0.733	78	3	70-134/30
1763-23-1	Perfluorooctanesulfonic acid	0.0600	0.16	0.203	89	0.16	0.202	89	0	65-140/30
2355-31-9	MeFOSAA	0.040 U	0.16	0.167	104	0.16	0.165	103	1	66-132/30
2991-50-6	EtFOSAA	0.040 U	0.16	0.148	93	0.16	0.149	93	1	61-133/30

CAS No.	ID Standard Recoveries	MS	MSD	FA63526-4	Limits
13C4-PFBA	99%	104%			50-150%
13C5-PFPeA	97%	101%			50-150%
13C5-PFHxA	98%	102%	100%		50-150%
13C4-PFHpA	97%	101%	101%		50-150%
13C8-PFOA	97%	102%	102%		50-150%
13C9-PFNA	95%	101%	102%		50-150%
13C6-PFDA	88%	93%	95%		50-150%
13C7-PFUnDA	77%	81%	80%		50-150%
13C2-PFDoDA	70%	78%	73%		50-150%
13C2-PFTeDA	68%	78%	72%		50-150%
13C3-PFBS	95%	100%	98%		50-150%
13C3-PFHxS	91%	96%	94%		50-150%
13C8-PFOS	84%	88%	90%		50-150%
13C8-FOSA	84%	65%			50-150%
d3-MeFOSAA	79%	86%	86%		50-150%
13C2-4:2FTS	98%	104%			50-150%
13C2-6:2FTS	97%	104%			50-150%
13C2-8:2FTS	85%	89%			50-150%

* = Outside of Control Limits.

6.3.1
6

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP74736-MS	3Q3274.D	1	04/25/19	NG	04/24/19	OP74736	S3Q83
OP74736-MSD	3Q3275.D	1	04/25/19	NG	04/24/19	OP74736	S3Q83
FA63526-4	3Q3273.D	1	04/25/19	NG	04/24/19	OP74736	S3Q83

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.1 B-15

FA63526-1, FA63526-2, FA63526-3, FA63526-4, FA63526-5, FA63526-6

6.3.1
6

(a) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Check Std: S3Q83-ICC83	Injection Date: 04/25/19
Lab File ID: 3Q3255.D	Injection Time: 10:03
Instrument ID: GCMS3Q	Method: EPA 537M QSM5.1 B-15

	IS 1 AREA	RT	IS 2 AREA	RT
Initial Cal ^a	647669	6.66	151944	7.25
Check Std ^b	647669	6.66	151944	7.25
Upper Limit ^c	971504	7.66	227916	8.25
Lower Limit ^d	323835	5.66	75972	6.25

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT
S3Q83-IBLK	657789	6.67	151054	7.26
S3Q83-IBLK	657789	6.67	151054	7.26
OP74736-BS	631917	6.70	145097	7.27
OP74736-MB	615060	6.70	140704	7.27
ZZZZZZ	638655	6.70	144944	7.27
ZZZZZZ	612158	6.54	134760	7.12
ZZZZZZ	657608	6.63	145289	7.20
ZZZZZZ	569748	6.39	0*	0.00*

IS 1 = 13C2-PFOA
IS 2 = 13C4-PFOS

- (a) Initial Cal is: S3Q83-ICC83 3Q3255.D 04/25/19 10:03
- (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.

6.4.1
6

Injection Standard Area Summary

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Check Std: S3Q83-CC83	Injection Date: 04/25/19
Lab File ID: 3Q3268.D	Injection Time: 14:38
Instrument ID: GCMS3Q	Method: EPA 537M QSM5.1 B-15

	IS 1		IS 2	
	AREA	RT	AREA	RT
Initial Cal ^a	647669	6.66	151944	7.25
Check Std ^b	667430	6.68	152015	7.27
Upper Limit ^c	971504	7.68	227916	8.27
Lower Limit ^d	323835	5.68	75972	6.27

Lab Sample ID	IS 1		IS 2	
	AREA	RT	AREA	RT
FA63526-1	676569	6.70	152348	7.27
FA63526-2	672976	6.70	152591	7.27
FA63526-3	694704	6.70	155715	7.29
FA63526-4	679597	6.70	154619	7.27
OP74736-MS	625667	6.70	139633	7.29
OP74736-MSD	651611	6.70	145043	7.29
FA63526-5	650910	6.70	133765	7.27
FA63526-6	688121	6.70	153842	7.29

IS 1 = 13C2-PFOA
IS 2 = 13C4-PFOS

- (a) Initial Cal is: S3Q83-ICC83 3Q3255.D 04/25/19 10:03
- (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.

6.4.2
6



Injection Standard Area Summary

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Check Std: S3Q84-CC83	Injection Date: 04/26/19
Lab File ID: 3Q3300.D	Injection Time: 09:36
Instrument ID: GCMS3Q	Method: EPA 537M QSM5.1 B-15

	IS 1		IS 2	
	AREA	RT	AREA	RT
Initial Cal ^a	647669	6.66	151944	7.25
Check Std ^b	642608	6.66	149048	7.24
Upper Limit ^c	971504	7.66	227916	8.24
Lower Limit ^d	323835	5.66	75972	6.24

Lab Sample ID	IS 1		IS 2	
	AREA	RT	AREA	RT
ZZZZZZ	685644	6.59	152246	7.18
FA63526-5	712263	6.67	161546	7.25

IS 1 = 13C2-PFOA
IS 2 = 13C4-PFOS

- (a) Initial Cal is: S3Q83-ICC83 3Q3255.D 04/25/19 10:03
- (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.

6.4.3
6

Isotope Dilution Standard Recovery Summary

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Method: EPA 537M QSM5.1 B-15 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6	S7	S8
FA63526-1	3Q3270.D	101	102	102	101	95	86	73	74
FA63526-2	3Q3271.D	99	101	101	100	91	82	72	74
FA63526-3	3Q3272.D	101	102	103	100	93	83	70	69
FA63526-4	3Q3273.D	100	101	102	102	95	80	73	72
FA63526-5	3Q3306.D	92	93	91	89	82	73	69	65
FA63526-5	3Q3276.D	96	97	96	87	86	77	75	76
FA63526-6	3Q3277.D	104	104	105	103	95	83	75	76
OP74736-BS	3Q3262.D	94	95	94	93	91	84	86	102
OP74736-MB	3Q3263.D	97	97	98	95	91	80	73	75
OP74736-MS	3Q3274.D	98	97	97	95	88	77	70	68
OP74736-MSD	3Q3275.D	102	101	102	101	93	81	78	78
S3Q83-IBLK	3Q3258.D	104	104	107	106	109	108	107	107
S3Q84-IBLK	3Q3299.D	102	105	104	105	105	100	95	90

6.5.1
6

Isotope Dilution Standards

Recovery Limits

S1 = 13C5-PFHxA	50-150%
S2 = 13C4-PFHpA	50-150%
S3 = 13C8-PFOA	50-150%
S4 = 13C9-PFNA	50-150%
S5 = 13C6-PFDA	50-150%
S6 = 13C7-PFUnDA	50-150%
S7 = 13C2-PFDoDA	50-150%
S8 = 13C2-PFTeDA	50-150%

Isotope Dilution Standard Recovery Summary

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Method: EPA 537M QSM5.1 B-15 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S9	S10	S11	S12
FA63526-1	3Q3270.D	98	97	92	84
FA63526-2	3Q3271.D	97	96	86	82
FA63526-3	3Q3272.D	99	98	87	85
FA63526-4	3Q3273.D	98	94	90	86
FA63526-5	3Q3306.D	90	92	80	84
FA63526-5	3Q3276.D	96	91	74	82
FA63526-6	3Q3277.D	101	99	89	89
OP74736-BS	3Q3262.D	95	94	87	86
OP74736-MB	3Q3263.D	95	94	87	84
OP74736-MS	3Q3274.D	95	91	84	79
OP74736-MSD	3Q3275.D	100	96	88	86
S3Q83-IBLK	3Q3258.D	102	102	104	110
S3Q84-IBLK	3Q3299.D	102	103	103	102

Isotope Dilution Standards

S9 = 13C3-PFBS
 S10 = 13C3-PFHxS
 S11 = 13C8-PFOS
 S12 = d3-MeFOSAA

Recovery Limits

50-150%
 50-150%
 50-150%
 50-150%

6.5.1
6



Raw Data: 3Q3250.D 3Q3251.D 3Q3252.D 3Q3253.D 3Q3254.D 3Q3255.D 3Q3256.D 3Q3257.D

Initial Calibration Summary
 Job Number: FA63526
 Account: NOREASCA NOREAS, Inc.
 Project: APTM: Fmr MCAS EL Toro IRR Sites 18 and 24

Sample: S3Q83-ICCS3
 Lab Field: 3Q3255.D

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Initial Calibration Report

Method Path D:\MassHunter\Methods
 Method File 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name D:\MassHunter\Data\0425_537_ID_S3Q83\QuantResults\s3q83.batch.bin
 Last Calib Update 4/25/2019 3:48:51 PM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\0425_537_ID_S3Q83\3q3250.d	4/25/2019 8:45:40 AM	4/25/2019 3:48:51 PM
2	D:\MassHunter\Data\0425_537_ID_S3Q83\3q3251.d	4/25/2019 9:01:17 AM	4/25/2019 3:48:51 PM
3	D:\MassHunter\Data\0425_537_ID_S3Q83\3q3252.d	4/25/2019 9:16:54 AM	4/25/2019 3:48:51 PM
4	D:\MassHunter\Data\0425_537_ID_S3Q83\3q3253.d	4/25/2019 9:32:32 AM	4/25/2019 3:48:51 PM
5	D:\MassHunter\Data\0425_537_ID_S3Q83\3q3254.d	4/25/2019 9:48:09 AM	4/25/2019 3:48:51 PM
6	D:\MassHunter\Data\0425_537_ID_S3Q83\3q3255.d	4/25/2019 10:03:46 AM	4/25/2019 3:48:51 PM
7	D:\MassHunter\Data\0425_537_ID_S3Q83\3q3256.d	4/25/2019 10:19:25 AM	4/25/2019 3:48:51 PM
8	D:\MassHunter\Data\0425_537_ID_S3Q83\3q3257.d	4/25/2019 10:35:03 AM	4/25/2019 3:48:51 PM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
S 13C4-PFBA	Linear	15237	16885	17653	17025	17474	17144	17273	16598	16911	4.450
S 13C5-PFPeA	Linear	11090	12301	12806	12411	12845	12630	12744	12233	12383	4.614
S 13C3-PFBS	Linear	2256	2503	2590	2495	2567	2517	2512	2420	2483	4.216
S 13C2-4:2FTS	Linear	6084	6795	7057	6898	7251	7327	7980	8750	7268	11.051
S 13C5-PFHxA	Linear	16485	18279	19123	18627	19070	18753	18797	18052	18398	4.643
S 13C3-HFPO-DA	Linear	1930	2167	2225	2206	2163	2107	2053	1968	2102	5.208
S 13C4-PFHpA	Linear	20287	22296	23329	22764	23361	22941	23062	21820	22482	4.576
S 13C3-PFHxS	Linear	2456	2693	2811	2718	2778	2702	2721	2568	2681	4.306
S 13C2-6:2FTS	Linear	7958	8864	9307	9148	9405	9582	10199	10813	9410	9.077
S 13C8-PFOA	Linear	21753	24195	25447	24840	25247	24812	24395	22820	24189	5.268
S 13C8-PFOS	Linear	4049	4480	4585	4392	4540	4534	4447	4048	4384	4.916
S 13C9-PFNA	Linear	22646	24999	26369	25456	26122	25785	25386	23893	25082	4.957
S 13C8-FOSA	Linear	11316	12637	13270	12882	13058	12666	12077	10755	12333	7.188
S d3-MeFOSAA	Linear	3870	4320	4524	4374	4499	4465	4313	3955	4290	5.750
S 13C6-PFDA	Linear	28012	31146	32490	31779	32508	31762	31225	28697	30952	5.457
S 13C2-8:2FTS	Linear	6380	7014	7477	7393	7699	7801	8419	8903	7636	10.263
S 13C7-PFUnDA	Linear	34305	38435	40432	39325	40725	39451	38894	36419	38498	5.584
S 13C2-PFDoDA	Linear	36968	41198	43747	42994	44421	43568	43702	41826	42303	5.687
S 13C2-PFTeDA	Linear	32613	36366	38706	37878	39806	38753	38497	36359	37372	6.053
I M4-PFBA											
T PFBA	Linear	0.1828	0.1874	0.1816	0.1761	0.1708	0.1864	0.1845	0.1868	0.1820	3.211
I M5-PFPeA											
T PFPeA	Linear	1.1015	1.0766	1.0029	0.9772	0.9739	1.0496	1.0284	1.0423	1.0316	4.409
I M5-PFHxA											
T PFHxA	Linear	0.3914	0.3732	0.3580	0.3547	0.3455	0.3765	0.3733	0.3761	0.3686	4.002
I M4-PFHpA											
T PFHpA	Linear	0.9349	0.9450	0.9324	0.8955	0.8893	0.9639	0.9440	0.9602	0.9332	2.944



Initial Calibration Summary

Job Number: FA63526
 Account: NOREASCA NOREAS, Inc.
 Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S3083-ICC83
 Lab Field: 3Q3255.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M8-PFOA											
T ADONA	Quadratic	1.0904	1.1320	1.0862	1.0723	1.0643	1.1496	1.1603	1.1945	1.1187	4.217
T PFOA	Linear	0.5351	0.5483	0.5293	0.5198	0.5140	0.5585	0.5521	0.5590	0.5395	3.240
I M9-PFNA											
T PFNA	Linear	0.6188	0.6352	0.6282	0.6230	0.6063	0.6530	0.6463	0.6550	0.6332	2.738
I M6-PFDA											
T 9CI-PF3ONS	Quadratic	0.0760	0.0769	0.0764	0.0726	0.0706	0.0772	0.0800	0.0820	0.0765	4.766
T PFDA	Linear	0.4731	0.4641	0.4690	0.4615	0.4571	0.4947	0.4858	0.4925	0.4747	3.055
I M7-PFUnDA											
T PFDS	Avg RF	0.0402	0.0381	0.0389	0.0350	0.0349	0.0386	0.0378	0.0372	0.0376	4.941
T PFUnDA	Linear	0.4619	0.4394	0.4323	0.4217	0.4090	0.4596	0.4487	0.4537	0.4408	4.269
I M2-PFDoDA											
T 11CI-PF3OUdS	Linear	0.2546	0.2659	0.2470	0.2355	0.2349	0.2535	0.2480	0.2468	0.2483	4.090
T PFDoDA	Linear	0.4400	0.4480	0.4376	0.4302	0.4237	0.4665	0.4567	0.4605	0.4454	3.396
I M2-PFTeDA											
T PFTrDA	Linear	0.5919	0.5795	0.5673	0.5624	0.5455	0.6008	0.5929	0.6003	0.5801	3.457
T PFTeDA	Linear	0.6456	0.6344	0.6093	0.5957	0.5841	0.6416	0.6308	0.6379	0.6224	3.702
I M8-FOSA											
T FOSA	Quadratic	0.4888	0.5031	0.4686	0.4627	0.4495	0.4942	0.4799	0.4934	0.4800	3.818
I M3-PFBS											
T PFBS	Avg RF	1.3742	1.3967	1.3294	1.3192	1.2694	1.3687	1.3667	1.3562	1.3476	2.975
T PFPeS	Avg RF	0.9029	0.8781	0.8488	0.8627	0.8241	0.9019	0.8990	0.8911	0.8761	3.276
I M3-PFHxS											
T PFHxS	Linear	1.1627	1.2010	1.1189	1.0914	1.0579	1.1720	1.1468	1.1700	1.1401	4.162
T PFHpS	Linear	1.1021	1.1340	1.0951	1.0438	1.0167	1.1398	1.0995	1.0943	1.0907	3.828
I M8-PFOS											
T PFOS	Linear	0.9980	0.9544	0.9460	0.9065	0.8744	0.9269	0.9262	0.9624	0.9369	3.998
T PFNS	Linear	0.6027	0.5991	0.6129	0.6287	0.5943	0.6280	0.6128	0.6254	0.6130	2.202
I M2-4:2FTS											
T 4:2FTS	Avg RF	0.6315	0.6391	0.6243	0.5990	0.5769	0.6197	0.5663	0.5013	0.5948	7.705
I M2-6:2FTS											
T 6:2FTS	Avg RF	0.5370	0.5384	0.5186	0.5042	0.4906	0.5235	0.4750	0.4249	0.5015	7.571
I M2-8:2FTS											
T 8:2FTS	Avg RF	0.5643	0.5699	0.5873	0.5210	0.5061	0.5403	0.4953	0.4430	0.5284	8.923
I M3-MeFOSAA											

Initial Calibration Summary

Job Number: FA63526
 Account: NOREASCA NOREAS, Inc.
 Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S3Q83-ICC83
 Lab FileID: 3Q3255.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T MeFOSAA	Avg RF	0.4793	0.5610	0.5458	0.5459	0.5288	0.5558	0.5489	0.5547	0.5400	4.881
T EtFOSAA	Avg RF	0.5489	0.4739	0.4241	0.4722	0.4907	0.5310	0.5396	0.5708	0.5064	9.704
I M3-HFPO-DA											
T HFPO-DA	Linear	1.6311	1.5591	1.5167	1.4761	1.4901	1.6203	1.5973	1.5491	1.5550	3.750
I 13C2-PFOA											
S M2-PFOA	Linear	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.000
I 13C4-PFOS											
S M4-PFOS	Linear	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.000

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

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T PFBA	Linear	$y = 0.186209 * x$	0.999873
S 13C4-PFBA	Linear	$y = 16911.245495 * x$	0.000000
S 13C5-PFPeA	Linear	$y = 12382.584828 * x$	0.000000
T PFPeA	Linear	$y = 1.039191 * x$	0.999897
S 13C3-PFBS	Linear	$y = 2482.517965 * x$	0.000000
S 13C2-4:2FTS	Linear	$y = 7267.588091 * x$	0.000000
S 13C5-PFHxA	Linear	$y = 18398.363368 * x$	0.000000
T PFHxA	Linear	$y = 0.375259 * x$	0.999903
T HFPO-DA	Linear	$y = 1.559939 * x$	0.999674
S 13C3-HFPO-DA	Linear	$y = 2102.395151 * x$	0.000000
S 13C4-PFHpA	Linear	$y = 22482.468201 * x$	0.000000
T PFHpA	Linear	$y = 0.956552 * x$	0.999861
T PFHxS	Linear	$y = 1.164588 * x$	0.999796
S 13C3-PFHxS	Linear	$y = 2680.776856 * x$	0.000000
T ADONA	Quadratic	$y = 0.014699 * x^2 + 1.121321 * x$	0.999953
S 13C2-6:2FTS	Linear	$y = 9409.605795 * x$	0.000000
S 13C8-PFOA	Linear	$y = 24188.616596 * x$	0.000000
S M2-PFOA	Linear	$y = 1.000000 * x$	NaN
T PFOA	Linear	$y = 0.557244 * x$	0.999879
T PFHpS	Linear	$y = 1.095997 * x$	0.999852
S 13C8-PFOS	Linear	$y = 4384.410888 * x$	0.000000
S M4-PFOS	Linear	$y = 1.000000 * x$	NaN
T PFOS	Linear	$y = 0.953613 * x$	0.999542
S 13C9-PFNA	Linear	$y = 25081.916516 * x$	0.000000
T PFNA	Linear	$y = 0.652810 * x$	0.999893
S 13C8-FOSA	Linear	$y = 12332.618271 * x$	0.000000
T FOSA	Quadratic	$y = 0.004245 * x^2 + 0.471976 * x$	0.999899
T 9CI-PF3ONS	Quadratic	$y = 0.001095 * x^2 + 0.076608 * x$	0.999897
T PFNS	Linear	$y = 0.622824 * x$	0.999877
S d3-MeFOSAA	Linear	$y = 4290.108945 * x$	0.000000
S 13C6-PFDA	Linear	$y = 30952.157478 * x$	0.000000
T PFDA	Linear	$y = 0.490913 * x$	0.999888
S 13C2-8:2FTS	Linear	$y = 7635.560917 * x$	0.000000
S 13C7-PFUnDA	Linear	$y = 38498.159361 * x$	0.000000
T PFUnDA	Linear	$y = 0.452542 * x$	0.999838
T 11CI-PF3OUdS	Linear	$y = 0.247130 * x$	0.999928
S 13C2-PFDoDA	Linear	$y = 42303.016598 * x$	0.000000
T PFDoDA	Linear	$y = 0.459645 * x$	0.999890
T PFTrDA	Linear	$y = 0.598351 * x$	0.999861
T PFTeDA	Linear	$y = 0.636144 * x$	0.999877
S 13C2-PFTeDA	Linear	$y = 37372.406118 * x$	0.000000

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

Initial Calibration Summary
 Job Number: FA63526
 Account: NOREASCA NOREAS, Inc.
 Project: APTIM: Fmr. MCAS EL Toro IRP Sites 18 and 24

Sample: S3083-ICC83
Lab FieldID: 3Q3255.D

Raw Data: **3Q3259.D**

Initial Calibration Verification

Page 1 of 2

Job Number: FA63526 **Sample:** S3Q83-ICV83
Account: NOREASCA NOREAS, Inc. **Lab FileID:** 3Q3259.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Continuing Calibration Report

Batch: D:\MassHunter\Data\0425_537_ID_S3Q83\s3q83.batch.bin

Level ID: Calibration File

- 1:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3250.d
- 2:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3251.d
- 3:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3252.d
- 4:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3253.d
- 5:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3254.d
- 6:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3255.d
- 7:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3256.d
- 8:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3257.d

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Data File: 3q3259
 Type : QC
 Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	18.946	-5.3	94.7
13C2-6:2FTS	20.000	19.241	-3.8	96.2
13C2-8:2FTS	20.000	19.419	-2.9	97.1
13C2-PFDoDA	20.000	21.116	5.6	105.6
13C2-PFTeDA	20.000	21.436	7.2	107.2
13C3-PFBS	20.000	20.059	0.3	100.3
13C3-PFHxS	20.000	19.881	-0.6	99.4
13C4-PFBA	20.000	19.982	-0.1	99.9
13C4-PFHpA	20.000	20.422	2.1	102.1
13C5-PFHxA	20.000	20.235	1.2	101.2
13C5-PFPeA	20.000	20.299	1.5	101.5
13C6-PFDA	20.000	21.088	5.4	105.4
13C7-PFUnDA	20.000	21.253	6.3	106.3
13C8-FOSA	20.000	21.272	6.4	106.4
13C8-PFOA	20.000	20.733	3.7	103.7
13C8-PFOS	20.000	20.056	0.3	100.3
13C9-PFNA	20.000	20.764	3.8	103.8
4:2FTS	20.000	0.000	# -100.0	0.0
6:2FTS	20.000	0.000	# -100.0	0.0
8:2FTS	20.000	0.000	# -100.0	0.0
d3-MeFOSAA	20.000	21.939	9.7	109.7
EtFOSAA	20.000	0.000	# -100.0	0.0
FOSA	20.000	0.000	# -100.0	0.0
MeFOSAA	20.000	15.532	-22.3	77.7
PFBA	20.000	0.000	# -100.0	0.0
PFBS	20.000	0.000	# -100.0	0.0
PFDA	20.000	0.000	# -100.0	0.0
PFDoDA	20.000	0.000	# -100.0	0.0
PFDS	20.000	0.000	# -100.0	0.0
PFHpA	20.000	0.000	# -100.0	0.0
PFHpS	20.000	0.000	# -100.0	0.0
PFHxA	20.000	0.000	# -100.0	0.0
PFHxS	20.000	0.000	# -100.0	0.0
PFNA	20.000	0.000	# -100.0	0.0
PFNS	20.000	0.000	# -100.0	0.0
PFOA	20.000	15.223	-23.9	76.1
PFOS	20.000	17.566	-12.2	87.8



Initial Calibration Verification

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S3Q83-ICV83
Lab FileID: 3Q3259.D

PFPeA	20.000	0.000	# -100.0	0.0
PFPeS	20.000	0.000	# -100.0	0.0
PFTeDA	20.000	0.000	# -100.0	0.0
PFTTrDA	20.000	0.000	# -100.0	0.0
PFUnDA	20.000	0.000	# -100.0	0.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	0.000	# -100.0	0.0
13C3-HFPO-DA	100.000	103.002	3.0	103.0
9C1-PF3ONS	20.000	0.000	# -100.0	0.0
ADONA	20.000	0.000	# -100.0	0.0
HFPO-DA	100.000	0.000	# -100.0	0.0
M3-HFPO-DA	---	--ISTD--		
13C2-PFOA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
M2-PFOA	20.000	20.000	0.0	100.0
M4-PFOS	20.000	20.000	0.0	100.0

CC Criteria: +/- 30%

6.6.2

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Raw Data: **3Q3260.D**

Initial Calibration Verification

Page 1 of 2

Job Number: FA63526 **Sample:** S3Q83-ICV83
Account: NOREASCA NOREAS, Inc. **Lab FileID:** 3Q3260.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Continuing Calibration Report

Batch: D:\MassHunter\Data\0425_537_ID_S3Q83\s3q83.batch.bin

Level ID: Calibration File

- 1:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3250.d
- 2:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3251.d
- 3:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3252.d
- 4:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3253.d
- 5:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3254.d
- 6:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3255.d
- 7:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3256.d
- 8:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3257.d

6.6.3
6

Data File: 3q3260
 Type : QC
 Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	19.637	-1.8	98.2
13C2-6:2FTS	20.000	19.839	-0.8	99.2
13C2-8:2FTS	20.000	20.164	0.8	100.8
13C2-PFDoDA	20.000	20.655	3.3	103.3
13C2-PFTeDA	20.000	20.919	4.6	104.6
13C3-PFBS	20.000	19.625	-1.9	98.1
13C3-PFHxS	20.000	19.785	-1.1	98.9
13C4-PFBA	20.000	19.719	-1.4	98.6
13C4-PFHpA	20.000	20.242	1.2	101.2
13C5-PFHxA	20.000	19.993	0.0	100.0
13C5-PFPeA	20.000	19.989	-0.1	99.9
13C6-PFDA	20.000	20.476	2.4	102.4
13C7-PFUnDA	20.000	20.571	2.9	102.9
13C8-FOSA	20.000	20.621	3.1	103.1
13C8-PFOA	20.000	20.365	1.8	101.8
13C8-PFOS	20.000	19.852	-0.7	99.3
13C9-PFNA	20.000	20.430	2.2	102.2
4:2FTS	20.000	15.026	-24.9	75.1
6:2FTS	20.000	16.188	-19.1	80.9
8:2FTS	20.000	16.301	-18.5	81.5
d3-MeFOSAA	20.000	20.940	4.7	104.7
EtFOSAA	20.000	16.232	-18.8	81.2
FOSA	20.000	16.759	-16.2	83.8
MeFOSAA	20.000	16.702	-16.5	83.5
PFBA	20.000	15.994	-20.0	80.0
PFBS	20.000	14.827	-25.9	74.1
PFDA	20.000	15.012	-24.9	75.1
PFDoDA	20.000	17.316	-13.4	86.6
PFDS	20.000	14.922	-25.4	74.6
PFHpA	20.000	16.297	-18.5	81.5
PFHpS	20.000	15.137	-24.3	75.7
PFHxA	20.000	14.768	-26.2	73.8
PFHxS	20.000	14.015	-29.9	70.1
PFNA	20.000	14.744	-26.3	73.7
PFNS	20.000	15.857	-20.7	79.3
PFOA	20.000	16.177	-19.1	80.9
PFOS	20.000	16.068	-19.7	80.3



Initial Calibration Verification

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S3Q83-ICV83
Lab FileID: 3Q3260.D

PFPeA	20.000	15.563	-22.2	77.8
PFPeS	20.000	15.055	-24.7	75.3
PFTeDA	20.000	15.026	-24.9	75.1
PFTTrDA	20.000	17.607	-12.0	88.0
PFUnDA	20.000	16.765	-16.2	83.8
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	0.000	# -100.0	0.0
13C3-HFPO-DA	100.000	101.634	1.6	101.6
9C1-PF3ONS	20.000	0.000	# -100.0	0.0
ADONA	20.000	0.000	# -100.0	0.0
HFPO-DA	100.000	0.000	# -100.0	0.0
M3-HFPO-DA	---	--ISTD--		
13C2-PFOA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
M2-PFOA	20.000	20.000	0.0	100.0
M4-PFOS	20.000	20.000	0.0	100.0

CC Criteria: +/- 30%

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 6

Raw Data: 3Q3261.D

Initial Calibration Verification

Page 1 of 2

Job Number: FA63526 **Sample:** S3Q83-ICV83
Account: NOREASCA NOREAS, Inc. **Lab FileID:** 3Q3261.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Continuing Calibration Report

Batch: D:\MassHunter\Data\0425_537_ID_S3Q83\s3q83.batch.bin

Level ID: Calibration File

- 1:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3250.d
- 2:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3251.d
- 3:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3252.d
- 4:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3253.d
- 5:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3254.d
- 6:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3255.d
- 7:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3256.d
- 8:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3257.d

6.6.4
6

Data File: 3q3261
 Type : QC
 Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	19.244	-3.8	96.2
13C2-6:2FTS	20.000	19.480	-2.6	97.4
13C2-8:2FTS	20.000	19.699	-1.5	98.5
13C2-PFDoDA	20.000	21.075	5.4	105.4
13C2-PFTeDA	20.000	21.700	8.5	108.5
13C3-PFBS	20.000	20.027	0.1	100.1
13C3-PFHxS	20.000	19.949	-0.3	99.7
13C4-PFBA	20.000	20.179	0.9	100.9
13C4-PFHpA	20.000	20.631	3.2	103.2
13C5-PFHxA	20.000	20.474	2.4	102.4
13C5-PFPeA	20.000	20.412	2.1	102.1
13C6-PFDA	20.000	21.278	6.4	106.4
13C7-PFUnDA	20.000	21.094	5.5	105.5
13C8-FOSA	20.000	21.686	8.4	108.4
13C8-PFOA	20.000	20.877	4.4	104.4
13C8-PFOS	20.000	20.330	1.6	101.6
13C9-PFNA	20.000	20.958	4.8	104.8
4:2FTS	20.000	0.000	# -100.0	0.0
6:2FTS	20.000	0.000	# -100.0	0.0
8:2FTS	20.000	0.000	# -100.0	0.0
d3-MeFOSAA	20.000	21.679	8.4	108.4
EtFOSAA	20.000	14.820	-25.9	74.1
FOSA	20.000	0.000	# -100.0	0.0
MeFOSAA	20.000	15.503	-22.5	77.5
PFBA	20.000	0.000	# -100.0	0.0
PFBS	20.000	17.775	-11.1	88.9
PFDA	20.000	17.092	-14.5	85.5
PFDoDA	20.000	17.094	-14.5	85.5
PFDS	20.000	0.000	# -100.0	0.0
PFHpA	20.000	16.348	-18.3	81.7
PFHpS	20.000	0.000	# -100.0	0.0
PFHxA	20.000	16.831	-15.8	84.2
PFHxS	20.000	17.022	-14.9	85.1
PFNA	20.000	17.321	-13.4	86.6
PFNS	20.000	0.000	# -100.0	0.0
PFOA	20.000	16.834	-15.8	84.2
PFOS	20.000	16.988	-15.1	84.9



Initial Calibration Verification

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S3Q83-ICV83
Lab FileID: 3Q3261.D

PFPeA	20.000	0.000	# -100.0	0.0
PFPeS	20.000	0.000	# -100.0	0.0
PFTeDA	20.000	16.880	-15.6	84.4
PFTTrDA	20.000	17.059	-14.7	85.3
PFUnDA	20.000	17.263	-13.7	86.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	17.323	-13.4	86.6
13C3-HFPO-DA	100.000	100.286	0.3	100.3
9C1-PF3ONS	20.000	16.865	-15.7	84.3
ADONA	20.000	17.420	-12.9	87.1
HFPO-DA	20.000	19.289	-3.6	96.4
M3-HFPO-DA	---	--ISTD--		
13C2-PFOA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
M2-PFOA	20.000	20.000	0.0	100.0
M4-PFOS	20.000	20.000	0.0	100.0

CC Criteria: +/- 30%

6.6.4

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Raw Data: 3Q3268.D

Continuing Calibration Summary

Page 1 of 2

Job Number: FA63526 **Sample:** S3Q83-CC83
Account: NOREASCA NOREAS, Inc. **Lab FileID:** 3Q3268.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Continuing Calibration Report

Batch: D:\MassHunter\Data\0425_537_ID_S3Q83\s3q83.batch.bin

Level ID: Calibration File

- 1:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3250.d
- 2:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3251.d
- 3:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3252.d
- 4:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3253.d
- 5:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3254.d
- 6:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3255.d
- 7:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3256.d
- 8:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3257.d

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Data File: 3q3268
 Type : QC
 Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	20.911	4.6	104.6
13C2-6:2FTS	20.000	20.982	4.9	104.9
13C2-8:2FTS	20.000	20.984	4.9	104.9
13C2-PFDoDA	20.000	20.290	1.4	101.4
13C2-PFTeDA	20.000	20.589	2.9	102.9
13C3-PFBS	20.000	19.891	-0.5	99.5
13C3-PFHxS	20.000	20.268	1.3	101.3
13C4-PFBA	20.000	20.184	0.9	100.9
13C4-PFHpA	20.000	21.006	5.0	105.0
13C5-PFHxA	20.000	20.695	3.5	103.5
13C5-PFPeA	20.000	20.528	2.6	102.6
13C6-PFDA	20.000	21.242	6.2	106.2
13C7-PFUnDA	20.000	20.524	2.6	102.6
13C8-FOSA	20.000	21.122	5.6	105.6
13C8-PFOA	20.000	21.076	5.4	105.4
13C8-PFOS	20.000	20.099	0.5	100.5
13C9-PFNA	20.000	21.201	6.0	106.0
4:2FTS	20.000	20.566	2.8	102.8
6:2FTS	20.000	20.988	4.9	104.9
8:2FTS	20.000	21.027	5.1	105.1
d3-MeFOSAA	20.000	21.445	7.2	107.2
EtFOSAA	20.000	20.923	4.6	104.6
FOSA	20.000	20.848	4.2	104.2
MeFOSAA	20.000	21.147	5.7	105.7
PFBA	20.000	20.408	2.0	102.0
PFBS	20.000	20.270	1.3	101.3
PFDA	20.000	20.356	1.8	101.8
PFDoDA	20.000	20.129	0.6	100.6
PFDS	20.000	20.614	3.1	103.1
PFHpA	20.000	19.918	-0.4	99.6
PFHpS	20.000	20.025	0.1	100.1
PFHxA	20.000	20.283	1.4	101.4
PFHxS	20.000	19.958	-0.2	99.8
PFNA	20.000	19.584	-2.1	97.9
PFNS	20.000	20.460	2.3	102.3
PFOA	20.000	20.083	0.4	100.4
PFOS	20.000	19.510	-2.4	97.6



Continuing Calibration Summary

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S3Q83-CC83
Lab FileID: 3Q3268.D

PFPeA	20.000	20.216	1.1	101.1
PFPeS	20.000	20.933	4.7	104.7
PFTeDA	20.000	19.946	-0.3	99.7
PFTrDA	20.000	19.619	-1.9	98.1
PFUnDA	20.000	20.421	2.1	102.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	21.005	5.0	105.0
13C3-HFPO-DA	100.000	93.478	-6.5	93.5
9C1-PF3ONS	20.000	20.166	0.8	100.8
ADONA	20.000	20.126	0.6	100.6
HFPO-DA	100.000	107.761	7.8	107.8
M3-HFPO-DA	---	--ISTD--		
13C2-PFOA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
M2-PFOA	20.000	20.000	0.0	100.0
M4-PFOS	20.000	20.000	0.0	100.0

CC Criteria: +/- 30%

Raw Data: 3Q3278.D

Continuing Calibration Summary

Page 1 of 2

Job Number: FA63526 **Sample:** S3Q83-CC83
Account: NOREASCA NOREAS, Inc. **Lab FileID:** 3Q3278.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Continuing Calibration Report

Batch: D:\MassHunter\Data\0425_537_ID_S3Q83\s3q83.batch.bin

Level ID: Calibration File

- 1:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3250.d
- 2:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3251.d
- 3:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3252.d
- 4:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3253.d
- 5:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3254.d
- 6:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3255.d
- 7:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3256.d
- 8:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3257.d

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Data File: 3q3278
 Type : QC
 Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	20.799	4.0	104.0
13C2-6:2FTS	20.000	21.010	5.1	105.1
13C2-8:2FTS	20.000	20.337	1.7	101.7
13C2-PFDoDA	20.000	19.199	-4.0	96.0
13C2-PFTeDA	20.000	19.877	-0.6	99.4
13C3-PFBS	20.000	19.816	-0.9	99.1
13C3-PFHxS	20.000	19.908	-0.5	99.5
13C4-PFBA	20.000	20.228	1.1	101.1
13C4-PFHpA	20.000	21.057	5.3	105.3
13C5-PFHxA	20.000	20.773	3.9	103.9
13C5-PFPeA	20.000	20.753	3.8	103.8
13C6-PFDA	20.000	20.941	4.7	104.7
13C7-PFUnDA	20.000	19.648	-1.8	98.2
13C8-FOSA	20.000	20.872	4.4	104.4
13C8-PFOA	20.000	21.127	5.6	105.6
13C8-PFOS	20.000	19.775	-1.1	98.9
13C9-PFNA	20.000	21.032	5.2	105.2
4:2FTS	20.000	20.691	3.5	103.5
6:2FTS	20.000	20.756	3.8	103.8
8:2FTS	20.000	20.543	2.7	102.7
d3-MeFOSAA	20.000	20.866	4.3	104.3
EtFOSAA	20.000	20.841	4.2	104.2
FOSA	20.000	20.987	4.9	104.9
MeFOSAA	20.000	20.784	3.9	103.9
PFBA	20.000	20.473	2.4	102.4
PFBS	20.000	20.175	0.9	100.9
PFDA	20.000	20.178	0.9	100.9
PFDoDA	20.000	20.163	0.8	100.8
PFDS	20.000	21.232	6.2	106.2
PFHpA	20.000	19.762	-1.2	98.8
PFHpS	20.000	21.018	5.1	105.1
PFHxA	20.000	19.911	-0.4	99.6
PFHxS	20.000	20.377	1.9	101.9
PFNA	20.000	19.660	-1.7	98.3
PFNS	20.000	21.158	5.8	105.8
PFOA	20.000	20.028	0.1	100.1
PFOS	20.000	19.747	-1.3	98.7



Continuing Calibration Summary

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S3Q83-CC83
Lab FileID: 3Q3278.D

PFPeA	20.000	19.792	-1.0	99.0
PFPeS	20.000	20.912	4.6	104.6
PFTeDA	20.000	19.813	-0.9	99.1
PFTTrDA	20.000	19.142	-4.3	95.7
PFUnDA	20.000	20.296	1.5	101.5
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	21.970	9.9	109.9
13C3-HFPO-DA	100.000	92.753	-7.2	92.8
9C1-PF3ONS	20.000	20.008	0.0	100.0
ADONA	20.000	20.042	0.2	100.2
HFPO-DA	100.000	107.265	7.3	107.3
M3-HFPO-DA	---	--ISTD--		
13C2-PFOA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
M2-PFOA	20.000	20.000	0.0	100.0
M4-PFOS	20.000	20.000	0.0	100.0

CC Criteria: +/- 30%

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 6

Raw Data: **3Q3300.D**

Continuing Calibration Summary

Page 1 of 2

Job Number: FA63526 **Sample:** S3Q84-CC83
Account: NOREASCA NOREAS, Inc. **Lab FileID:** 3Q3300.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Continuing Calibration Report

Batch: D:\MassHunter\Data\0426_537_ID_S3Q84\s3q84.batch.bin

Level ID: Calibration File

- 1:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3250.d
- 2:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3251.d
- 3:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3252.d
- 4:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3253.d
- 5:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3254.d
- 6:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3255.d
- 7:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3256.d
- 8:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3257.d

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Data File: 3q3300
 Type : QC
 Level : 2

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	18.738	-6.3	93.7
13C2-6:2FTS	20.000	18.656	-6.7	93.3
13C2-8:2FTS	20.000	17.860	-10.7	89.3
13C2-PFDoDA	20.000	18.303	-8.5	91.5
13C2-PFTeDA	20.000	17.241	-13.8	86.2
13C3-PFBS	20.000	19.532	-2.3	97.7
13C3-PFHxS	20.000	19.674	-1.6	98.4
13C4-PFBA	20.000	19.859	-0.7	99.3
13C4-PFHpA	20.000	20.275	1.4	101.4
13C5-PFHxA	20.000	19.649	-1.8	98.2
13C5-PFPeA	20.000	19.905	-0.5	99.5
13C6-PFDA	20.000	20.090	0.4	100.4
13C7-PFUnDA	20.000	19.442	-2.8	97.2
13C8-FOSA	20.000	20.183	0.9	100.9
13C8-PFOA	20.000	20.070	0.4	100.4
13C8-PFOS	20.000	19.462	-2.7	97.3
13C9-PFNA	20.000	20.405	2.0	102.0
4:2FTS	1.000	1.071	7.1	107.1
6:2FTS	1.000	1.090	9.0	109.0
8:2FTS	1.000	1.112	11.2	111.2
d3-MeFOSAA	20.000	19.940	-0.3	99.7
EtFOSAA	1.000	1.023	2.3	102.3
FOSA	1.000	1.056	5.6	105.6
MeFOSAA	1.000	1.085	8.5	108.5
PFBA	1.000	0.994	-0.6	99.4
PFBS	1.000	0.977	-2.3	97.7
PFDA	1.000	1.014	1.4	101.4
PFDoDA	1.000	0.980	-2.0	98.0
PFDS	1.000	1.116	11.6	111.6
PFHpA	1.000	0.968	-3.2	96.8
PFHpS	1.000	1.033	3.3	103.3
PFHxA	1.000	1.017	1.7	101.7
PFHxS	1.000	1.019	1.9	101.9
PFNA	1.000	1.003	0.3	100.3
PFNS	1.000	1.045	4.5	104.5
PFOA	1.000	0.998	-0.2	99.8
PFOS	1.000	1.081	8.1	108.1



Continuing Calibration Summary

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S3Q84-CC83
Lab FileID: 3Q3300.D

PFPeA	1.000	1.000	0.0	100.0
PFPeS	1.000	1.064	6.4	106.4
PFTeDA	1.000	1.024	2.4	102.4
PFTTrDA	1.000	1.001	0.1	100.1
PFTUnDA	1.000	0.952	-4.8	95.2
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFTUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	1.000	1.109	10.9	110.9
13C3-HFPO-DA	100.000	97.863	-2.1	97.9
9C1-PF3ONS	1.000	0.995	-0.5	99.5
ADONA	1.000	0.995	-0.5	99.5
HFPO-DA	5.000	5.015	0.3	100.3
M3-HFPO-DA	---	--ISTD--		
13C2-PFOA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
M2-PFOA	20.000	20.000	0.0	100.0
M4-PFOS	20.000	20.000	0.0	100.0

CC Criteria: +/- 30%

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Raw Data: **3Q3301.D**

Continuing Calibration Summary

Page 1 of 2

Job Number: FA63526 **Sample:** S3Q84-CC83
Account: NOREASCA NOREAS, Inc. **Lab FileID:** 3Q3301.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Continuing Calibration Report

Batch: D:\MassHunter\Data\0426_537_ID_S3Q84\s3q84.batch.bin

Level ID: Calibration File

- 1:D:\MassHunter\Data\0426_537_ID_S3Q84\s3q84.d
- 2:D:\MassHunter\Data\0426_537_ID_S3Q84\s3q84.d
- 3:D:\MassHunter\Data\0426_537_ID_S3Q84\s3q84.d
- 4:D:\MassHunter\Data\0426_537_ID_S3Q84\s3q84.d
- 5:D:\MassHunter\Data\0426_537_ID_S3Q84\s3q84.d
- 6:D:\MassHunter\Data\0426_537_ID_S3Q84\s3q84.d
- 7:D:\MassHunter\Data\0426_537_ID_S3Q84\s3q84.d
- 8:D:\MassHunter\Data\0426_537_ID_S3Q84\s3q84.d

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6

Data File: 3q3301
 Type : QC
 Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	20.441	2.2	102.2
13C2-6:2FTS	20.000	20.239	1.2	101.2
13C2-8:2FTS	20.000	19.902	-0.5	99.5
13C2-PFDoDA	20.000	19.109	-4.5	95.5
13C2-PFTeDA	20.000	17.866	-10.7	89.3
13C3-PFBS	20.000	20.029	0.1	100.1
13C3-PFHxS	20.000	20.149	0.7	100.7
13C4-PFBA	20.000	20.384	1.9	101.9
13C4-PFHpA	20.000	20.640	3.2	103.2
13C5-PFHxA	20.000	20.262	1.3	101.3
13C5-PFPeA	20.000	20.465	2.3	102.3
13C6-PFDA	20.000	20.258	1.3	101.3
13C7-PFUnDA	20.000	19.866	-0.7	99.3
13C8-FOSA	20.000	20.145	0.7	100.7
13C8-PFOA	20.000	20.464	2.3	102.3
13C8-PFOS	20.000	19.722	-1.4	98.6
13C9-PFNA	20.000	20.605	3.0	103.0
4:2FTS	20.000	20.804	4.0	104.0
6:2FTS	20.000	20.760	3.8	103.8
8:2FTS	20.000	20.810	4.0	104.0
d3-MeFOSAA	20.000	20.818	4.1	104.1
EtFOSAA	20.000	19.680	-1.6	98.4
FOSA	20.000	21.167	5.8	105.8
MeFOSAA	20.000	20.070	0.3	100.3
PFBA	20.000	20.235	1.2	101.2
PFBS	20.000	20.568	2.8	102.8
PFDA	20.000	20.249	1.2	101.2
PFDoDA	20.000	19.985	-0.1	99.9
PFDS	20.000	20.754	3.8	103.8
PFHpA	20.000	20.219	1.1	101.1
PFHpS	20.000	20.634	3.2	103.2
PFHxA	20.000	20.115	0.6	100.6
PFHxS	20.000	20.295	1.5	101.5
PFNA	20.000	20.097	0.5	100.5
PFNS	20.000	21.147	5.7	105.7
PFOA	20.000	19.944	-0.3	99.7
PFOS	20.000	20.058	0.3	100.3



Continuing Calibration Summary

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S3Q84-CC83
Lab FileID: 3Q3301.D

PFPeA	20.000	20.575	2.9	102.9
PFPeS	20.000	21.606	8.0	108.0
PFTeDA	20.000	20.186	0.9	100.9
PFTTrDA	20.000	20.285	1.4	101.4
PFUnDA	20.000	19.914	-0.4	99.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	22.431	12.2	112.2
13C3-HFPO-DA	100.000	95.653	-4.3	95.7
9C1-PF3ONS	20.000	20.668	3.3	103.3
ADONA	20.000	20.515	2.6	102.6
HFPO-DA	100.000	106.939	6.9	106.9
M3-HFPO-DA	---	--ISTD--		
13C2-PFOA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
M2-PFOA	20.000	20.000	0.0	100.0
M4-PFOS	20.000	20.000	0.0	100.0

CC Criteria: +/- 30%

668
 9

Raw Data: **3Q3307.D**

Continuing Calibration Summary

Page 1 of 2

Job Number: FA63526 **Sample:** S3Q84-CC83
Account: NOREASCA NOREAS, Inc. **Lab FileID:** 3Q3307.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Continuing Calibration Report

Batch: D:\MassHunter\Data\0426_537_ID_S3Q84\s3q84.batch.bin

Level ID: Calibration File

- 1:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3250.d
- 2:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3251.d
- 3:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3252.d
- 4:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3253.d
- 5:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3254.d
- 6:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3255.d
- 7:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3256.d
- 8:D:\MassHunter\Data\0425_537_ID_S3Q83\3q3257.d

6.6.9
6

Data File: 3q3307
 Type : QC
 Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	20.792	4.0	104.0
13C2-6:2FTS	20.000	20.749	3.7	103.7
13C2-8:2FTS	20.000	20.214	1.1	101.1
13C2-PFDoDA	20.000	19.335	-3.3	96.7
13C2-PFTeDA	20.000	18.489	-7.6	92.4
13C3-PFBS	20.000	19.942	-0.3	99.7
13C3-PFHxS	20.000	20.392	2.0	102.0
13C4-PFBA	20.000	20.489	2.4	102.4
13C4-PFHpA	20.000	20.945	4.7	104.7
13C5-PFHxA	20.000	20.674	3.4	103.4
13C5-PFPeA	20.000	20.766	3.8	103.8
13C6-PFDA	20.000	20.846	4.2	104.2
13C7-PFUnDA	20.000	20.110	0.6	100.6
13C8-FOSA	20.000	20.917	4.6	104.6
13C8-PFOA	20.000	20.886	4.4	104.4
13C8-PFOS	20.000	19.833	-0.8	99.2
13C9-PFNA	20.000	20.840	4.2	104.2
4:2FTS	20.000	20.601	3.0	103.0
6:2FTS	20.000	20.846	4.2	104.2
8:2FTS	20.000	20.660	3.3	103.3
d3-MeFOSAA	20.000	20.737	3.7	103.7
EtFOSAA	20.000	20.866	4.3	104.3
FOSA	20.000	20.667	3.3	103.3
MeFOSAA	20.000	20.901	4.5	104.5
PFBA	20.000	20.322	1.6	101.6
PFBS	20.000	20.210	1.1	101.1
PFDA	20.000	20.144	0.7	100.7
PFDoDA	20.000	20.266	1.3	101.3
PFDS	20.000	20.417	2.1	102.1
PFHpA	20.000	20.040	0.2	100.2
PFHpS	20.000	20.747	3.7	103.7
PFHxA	20.000	19.883	-0.6	99.4
PFHxS	20.000	20.125	0.6	100.6
PFNA	20.000	19.994	0.0	100.0
PFNS	20.000	21.362	6.8	106.8
PFOA	20.000	19.974	-0.1	99.9
PFOS	20.000	19.729	-1.4	98.6



Continuing Calibration Summary

Job Number: FA63526
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S3Q84-CC83
Lab FileID: 3Q3307.D

PFPeA	20.000	20.260	1.3	101.3
PFPeS	20.000	21.565	7.8	107.8
PFTeDA	20.000	19.841	-0.8	99.2
PFTTrDA	20.000	20.086	0.4	100.4
PFUnDA	20.000	20.120	0.6	100.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	21.917	9.6	109.6
13C3-HFPO-DA	100.000	97.285	-2.7	97.3
9C1-PF3ONS	20.000	20.421	2.1	102.1
ADONA	20.000	20.074	0.4	100.4
HFPO-DA	100.000	105.605	5.6	105.6
M3-HFPO-DA	---	--ISTD--		
13C2-PFOA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
M2-PFOA	20.000	20.000	0.0	100.0
M4-PFOS	20.000	20.000	0.0	100.0

CC Criteria: +/- 30%

6.9
6



Orlando, FL

Section 7

MS Semi-volatiles

Raw Data

7



Sample Results: **3Q3270.D**

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:16

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3270.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 3:09:56 PM
 Sample Name : fa63526-1
 Vial : P3-C1
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74736,S3Q83,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	349121	20.00 µg/L	0.000
M5-PFPeA	3.611	268.0 -> 223.0	252126	20.00 µg/L	0.025
M5-PFHxA	5.013	318.0 -> 273.0	371445	20.00 µg/L	0.037
M4-PFHpA	5.965	367.0 -> 322.0	460350	20.00 µg/L	0.049
M8-PFOA	6.693	421.0 -> 376.0	494534	20.00 µg/L	0.050
M9-PFNA	7.289	472.0 -> 427.0	507081	20.00 µg/L	0.038
M6-PFDA	7.764	519.0 -> 474.0	590350	20.00 µg/L	0.025
M7-PFUnDA	8.127	570.0 -> 525.0	660184	20.00 µg/L	0.000
M2-PFDoDA	8.464	615.0 -> 570.0	616394	20.00 µg/L	-0.001
M2-PFTeDA	9.237	715.0 -> 670.0	555643	20.00 µg/L	0.013
M8-FOSA	7.336	506.0 -> 78.0	183300	20.00 µg/L	0.038
M3-PFBS	3.929	302.0 -> 99.0	48969	20.00 µg/L	0.037
M3-PFHxS	6.022	402.0 -> 99.0	52101	20.00 µg/L	0.050
M8-PFOS	7.272	507.0 -> 99.0	80831	20.00 µg/L	0.038
M2-4:2FTS	4.908	329.0 -> 309.0	139763	20.00 µg/L	0.037
M2-6:2FTS	6.677	429.0 -> 409.0	184142	20.00 µg/L	0.038
M2-8:2FTS	7.789	529.0 -> 509.0	134023	20.00 µg/L	0.026
M3-MeFOSAA	7.758	573.0 -> 419.0	72390	20.00 µg/L	0.025
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	-
13C2-PFOA	6.695	415.0 -> 370.0	676569	20.00 µg/L	0.050
13C4-PFOS	7.274	503.0 -> 80.0	152348	20.00 µg/L	0.038
System Monitoring Compounds					
13C2-4:2FTS	4.908	329.0 -> 309.0	139317	19.17 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C2-6:2FTS	6.677	429.0 -> 409.0	183820	19.54 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C2-8:2FTS	7.789	529.0 -> 509.0	134024	17.55 µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.8%	
13C2-PFDoDA	8.464	615.0 -> 570.0	617089	14.59 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.9%	
13C2-PFTeDA	9.237	715.0 -> 670.0	555536	14.86 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.3%	
13C3-PFBS	3.929	302.0 -> 99.0	48609	19.58 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C3-PFHxS	6.022	402.0 -> 99.0	51934	19.37 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C4-PFBA	1.727	217.0 -> 172.0	348622	20.61 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C4-PFHpA	5.965	367.0 -> 322.0	459216	20.43 µg/L	0.049
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C5-PFHxA	5.013	318.0 -> 273.0	370423	20.13 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFPeA	3.611	268.0 -> 223.0	250493	20.23 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C6-PFDA	7.764	519.0 -> 474.0	589905	19.06 µg/L	0.025

7.1.1
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Sample Results: **3Q3270.D**

Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C7-PFUnDA	8.127	570.0 -> 525.0	659524	17.13 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.7%	
13C8-FOSA	7.336	506.0 -> 78.0	183342	14.87 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.3%	
13C8-PFOA	6.693	421.0 -> 376.0	493468	20.40 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C8-PFOS	7.272	507.0 -> 99.0	80461	18.35 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
13C9-PFNA	7.289	472.0 -> 427.0	506533	20.20 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSAA	7.758	573.0 -> 419.0	72403	16.88 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.4%	
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%	
M2-PFOA	6.695	415.0 -> 370.0	676569	20.00 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
M4-PFOS	7.274	503.0 -> 80.0	152348	20.00 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
Target Compounds					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	-	427.0 -> 407.0	-	N.D.	
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	1.723	213.0 -> 169.0	12326	3.79 µg/L	100
PFBS	3.920	299.0 -> 80.0	10139	3.07 µg/L	98
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFDS	-	599.0 -> 80.0	-	N.D.	
PFHpA	5.967	363.0 -> 319.0	56427	2.56 µg/L	m 97
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	5.015	313.0 -> 269.0	112327	16.12 µg/L	100
PFHxS	6.012	399.0 -> 80.0	26109	8.61 µg/L	m 97
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 80.0	-	N.D.	
PFOA	6.697	413.0 -> 369.0	455736	33.08 µg/L	m 95
PFOS	7.275	499.0 -> 80.0	1618	0.42 µg/L	m 91
PFPeA	3.615	263.0 -> 219.0	101788	7.77 µg/L	100
PFPeS	5.157	349.0 -> 80.0	4378	2.04 µg/L	m 96
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
HFPO-DA	-	329.0 -> 169.0	-	N.D.	

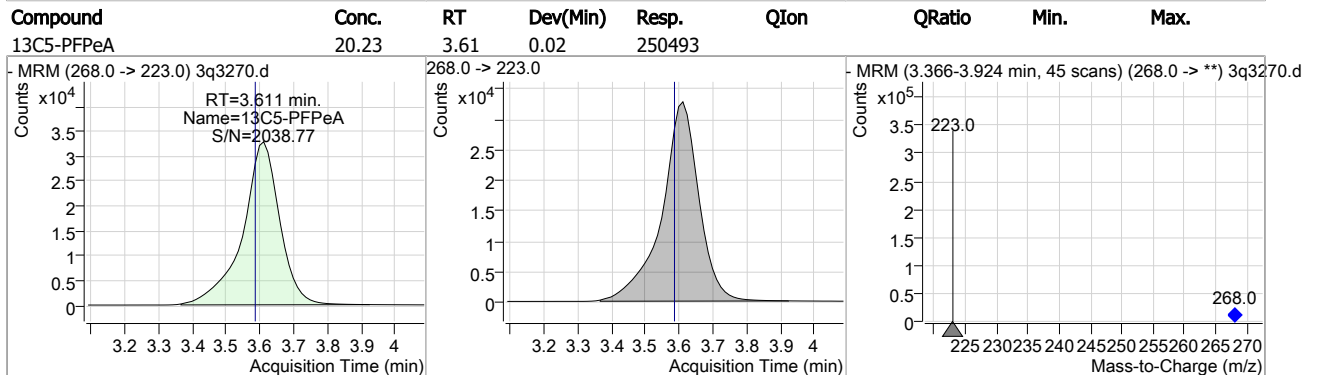
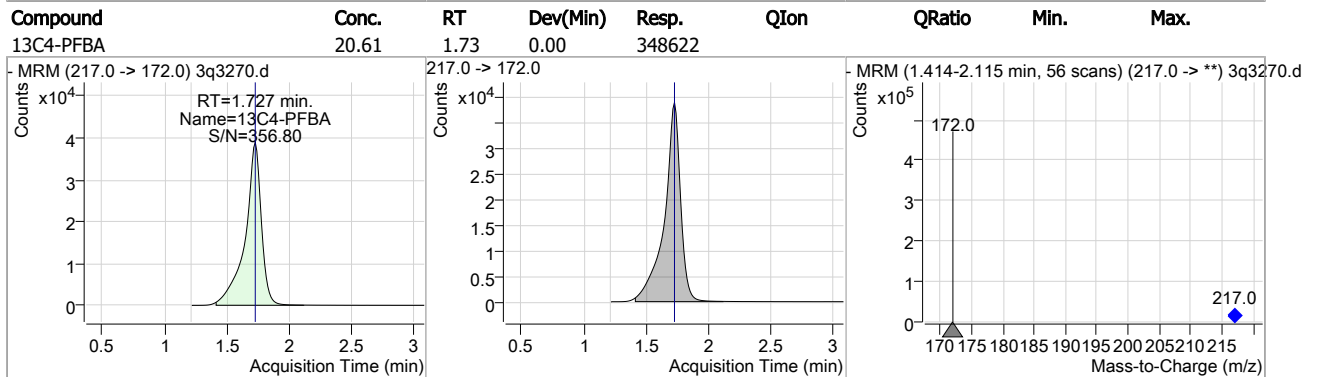
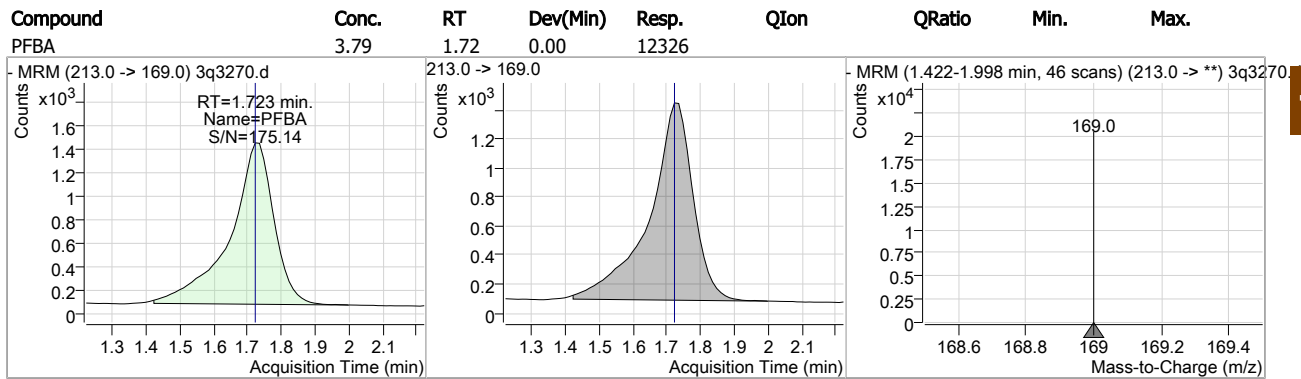
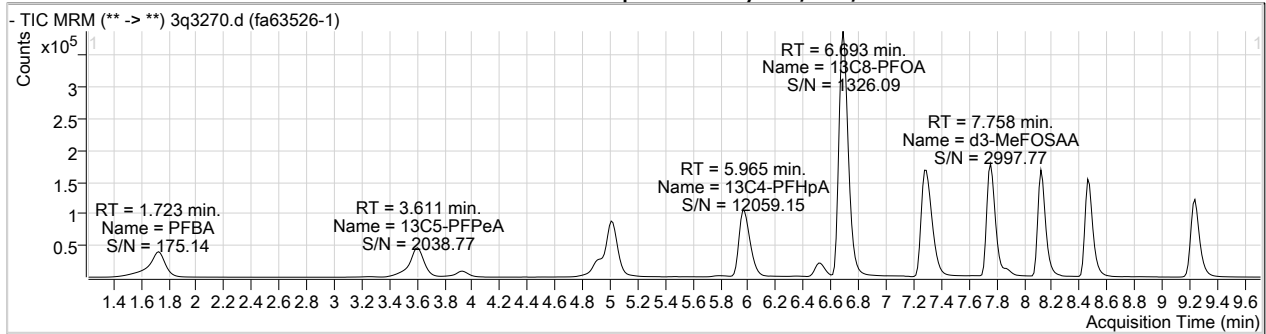
7.1.1
7

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



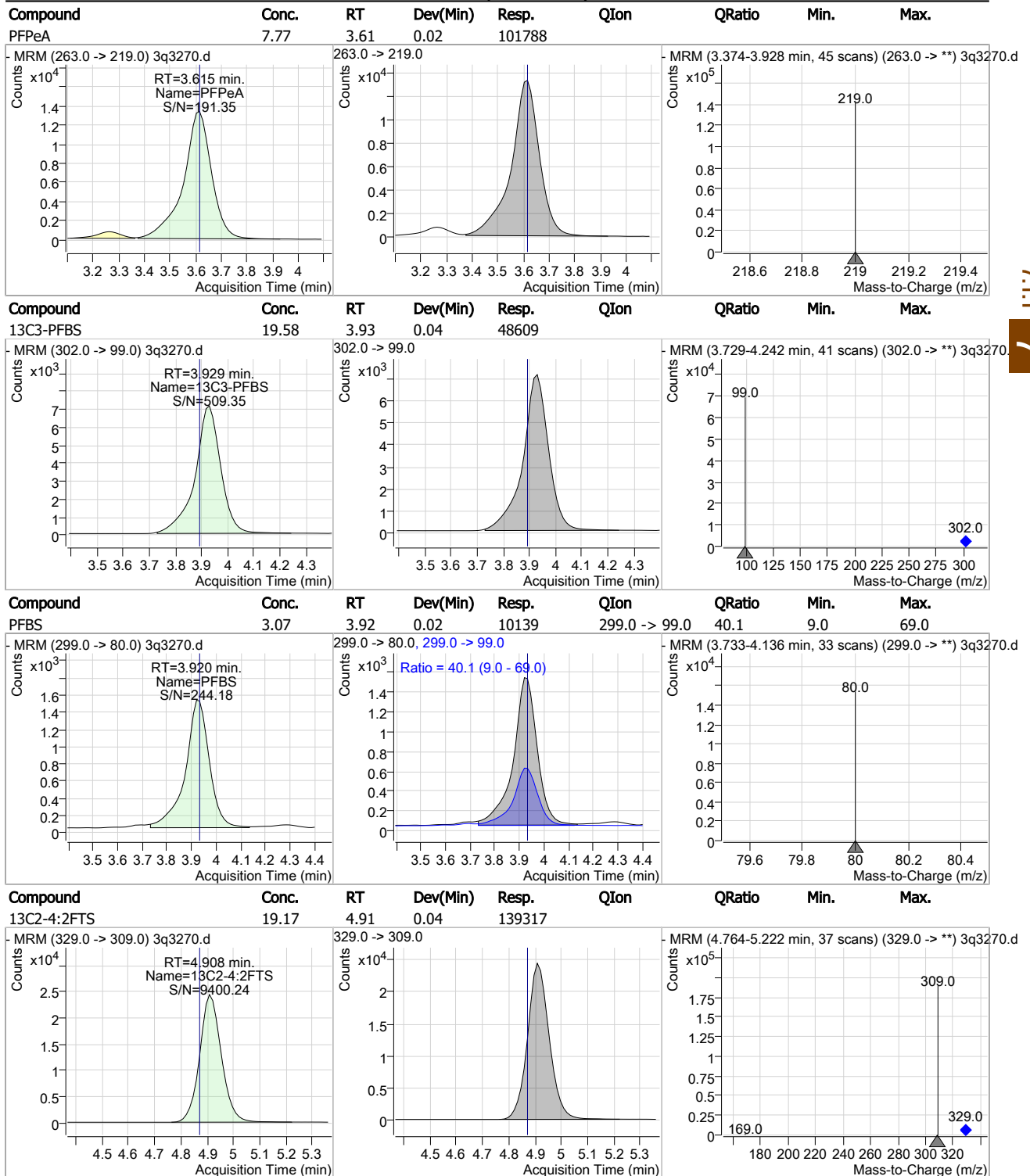
Sample Results: **3Q3270.D**

Perfluorinated Compounds by LC/MS/MS



Sample Results: **3Q3270.D**

Perfluorinated Compounds by LC/MS/MS



7.1.1

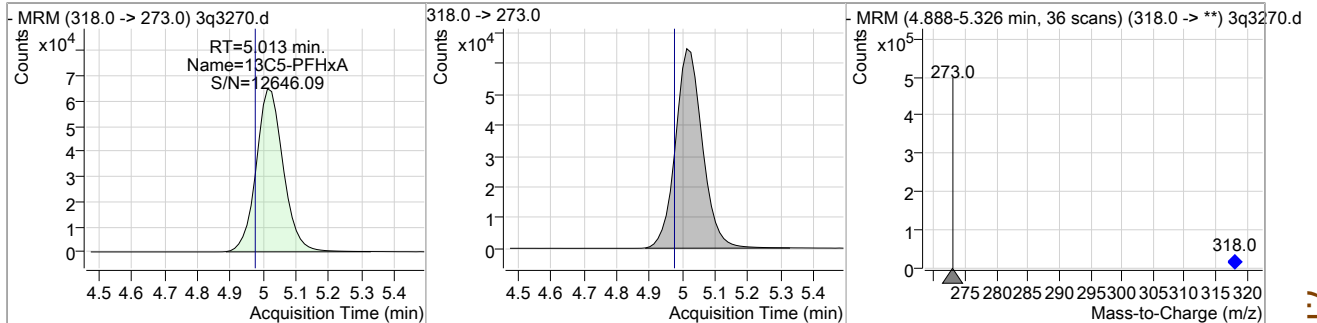
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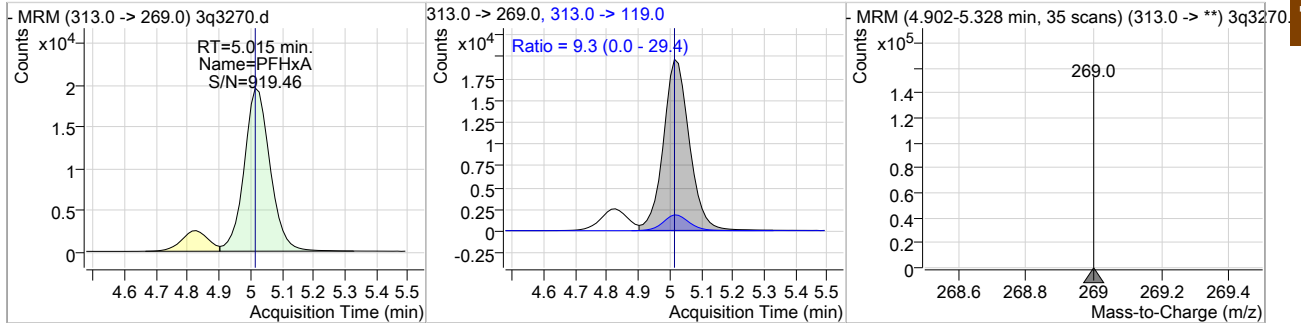
Sample Results: **3Q3270.D**

Perfluorinated Compounds by LC/MS/MS

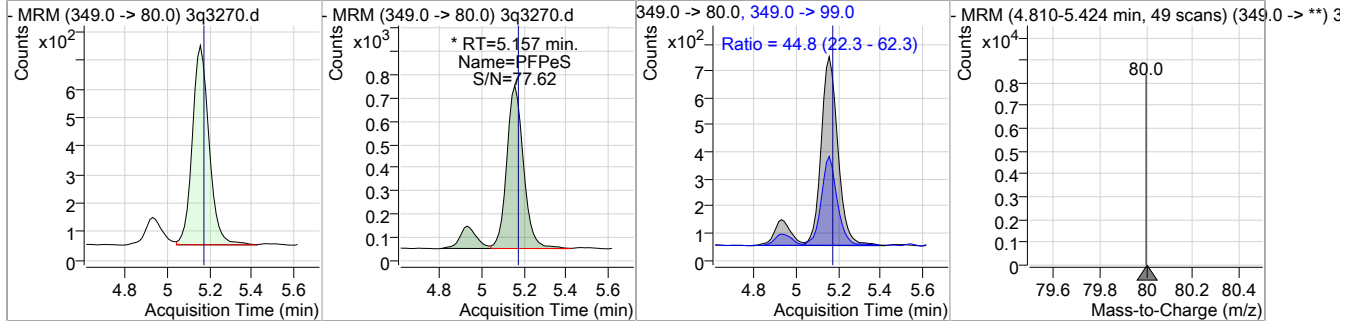
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.13	5.01	0.04	370423				



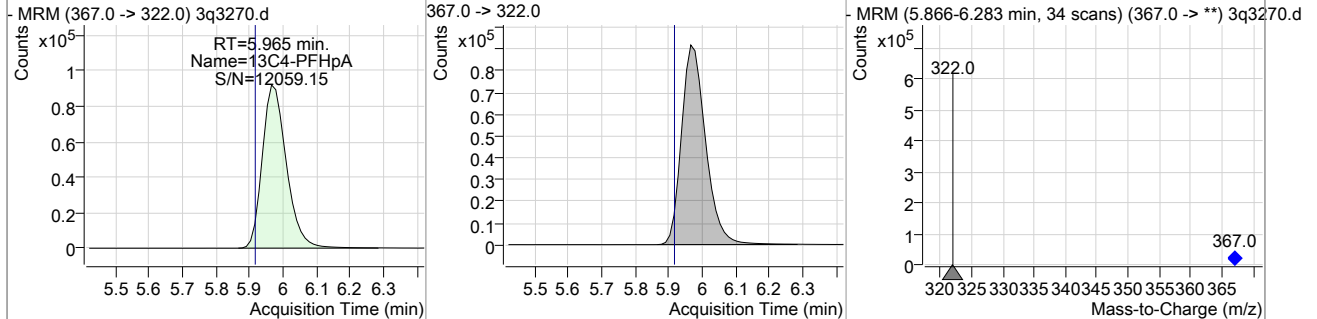
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	16.12	5.01	0.04	112327	313.0 ->	119.0 9.3	0.0	29.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.04	5.16	0.04	4378 (m)	349.0 ->	99.0 44.8	22.3	62.3

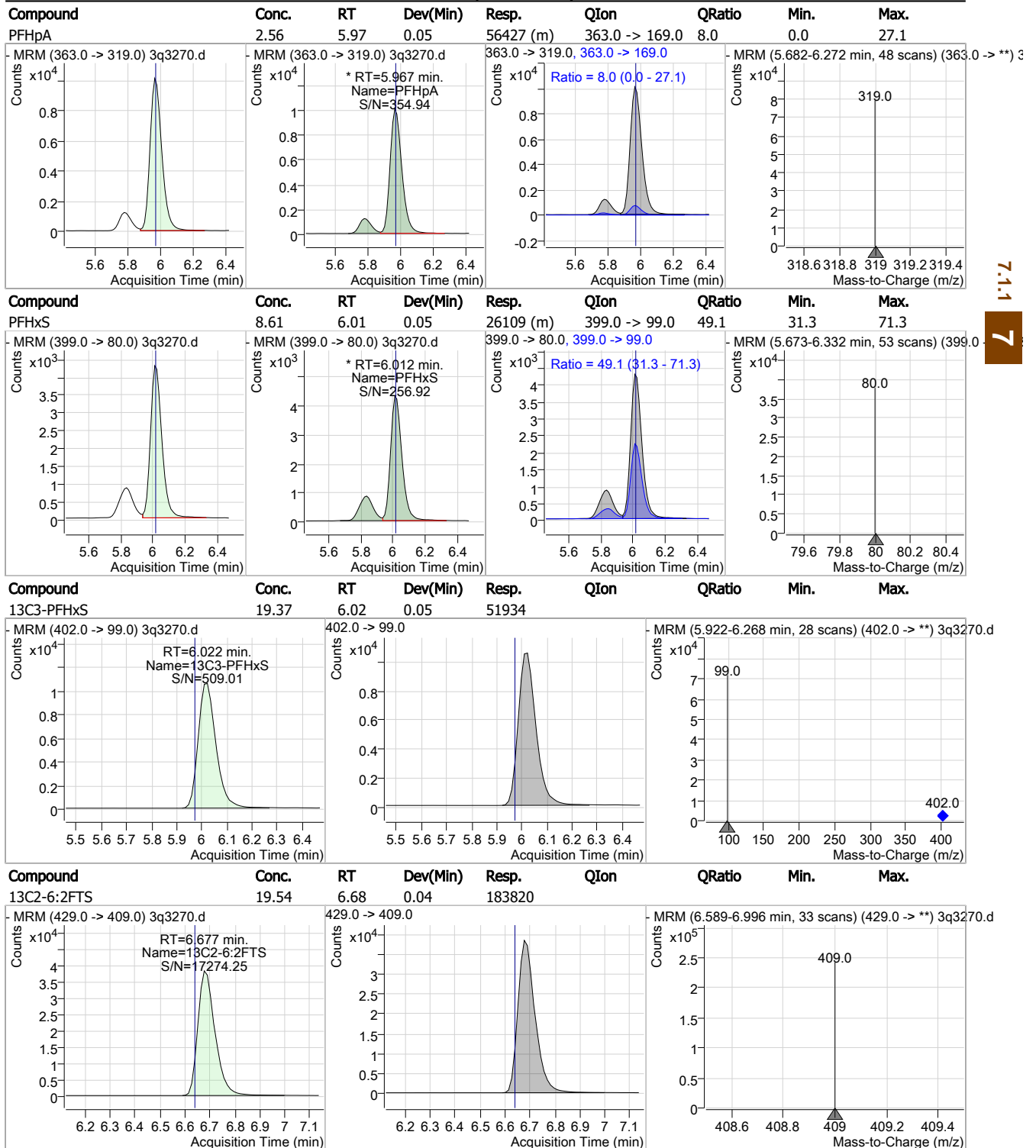


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.43	5.97	0.05	459216				



Sample Results: **3Q3270.D**

Perfluorinated Compounds by LC/MS/MS

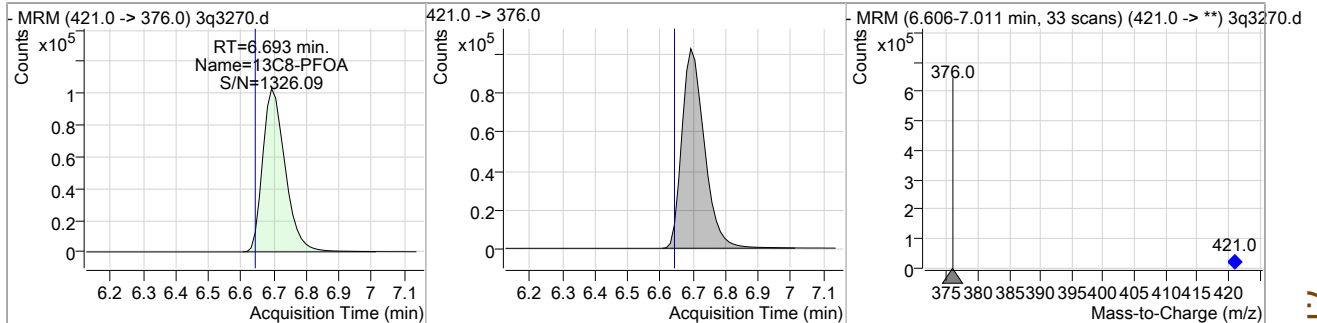


7.1.1
7

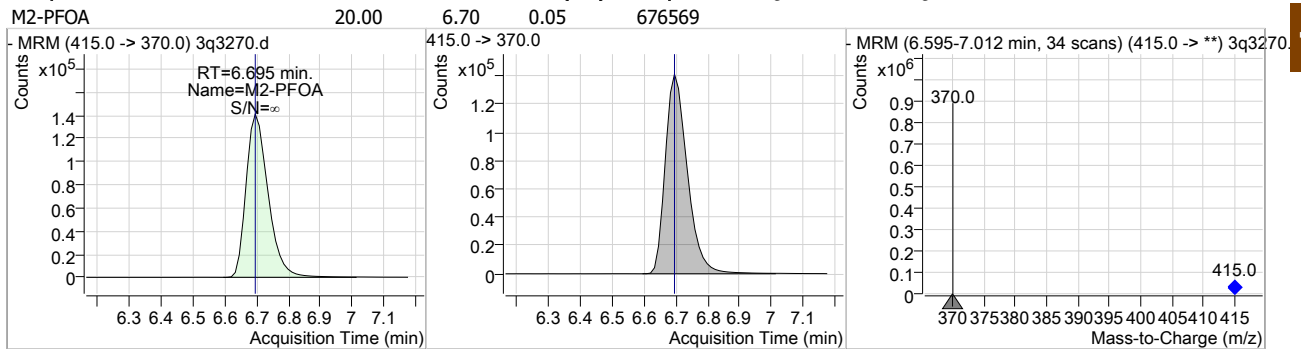
Sample Results: **3Q3270.D**

Perfluorinated Compounds by LC/MS/MS

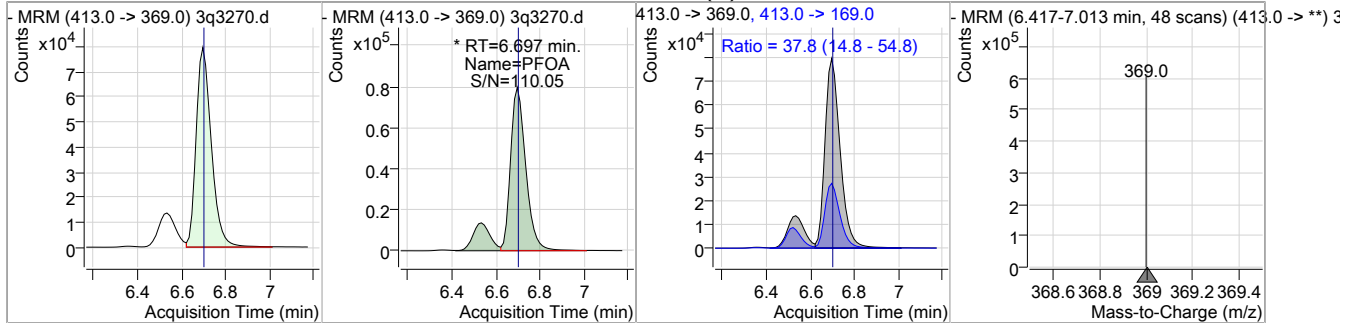
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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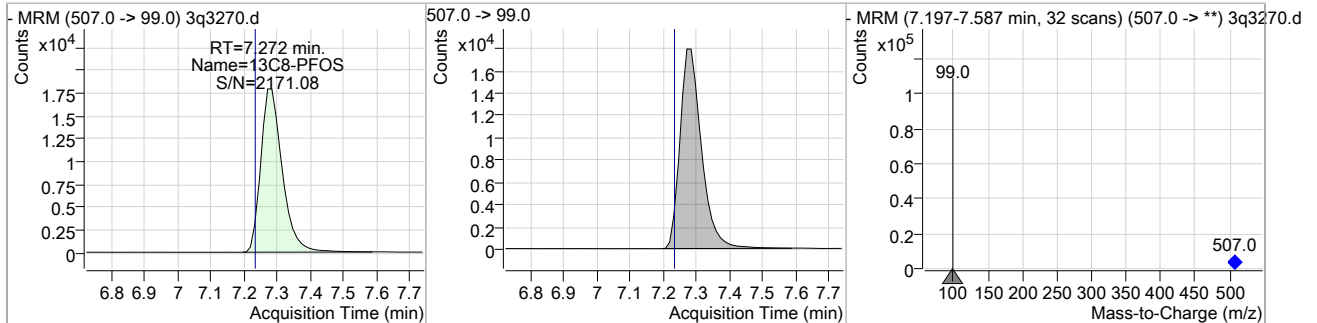
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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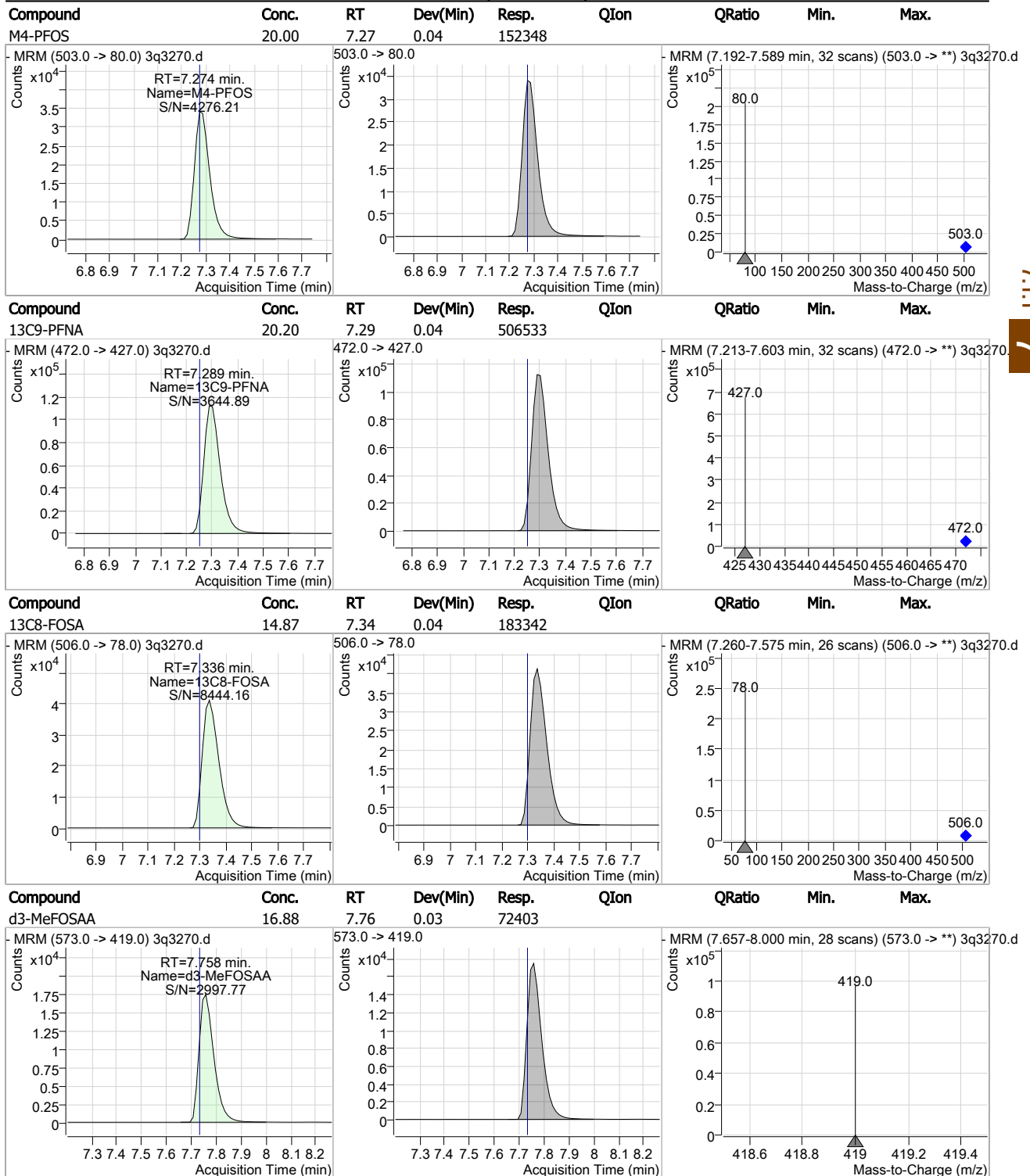
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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7.1.1
7

Sample Results: **3Q3270.D**

Perfluorinated Compounds by LC/MS/MS

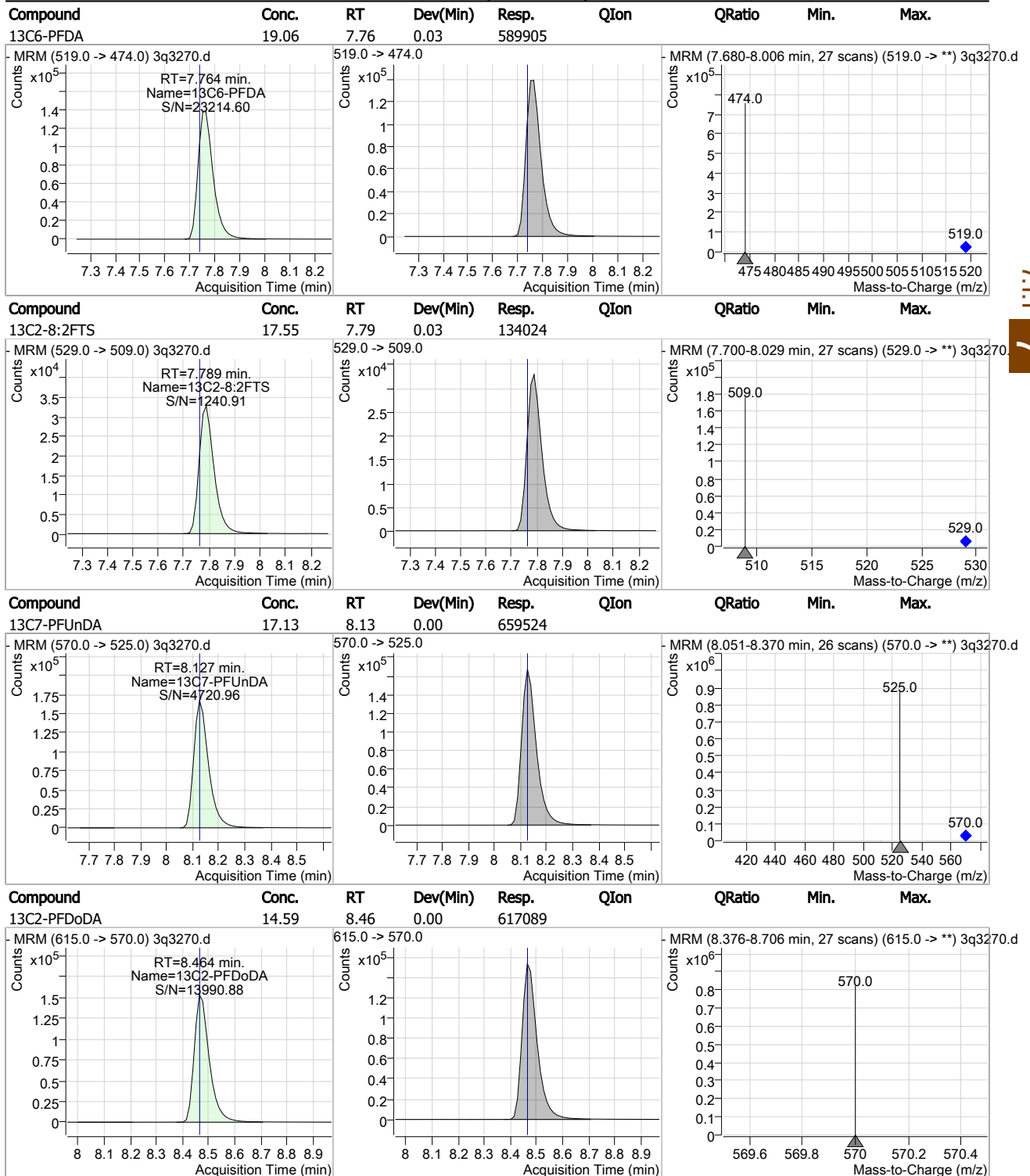


7.1.1
7



Sample Results: **3Q3270.D**

Perfluorinated Compounds by LC/MS/MS



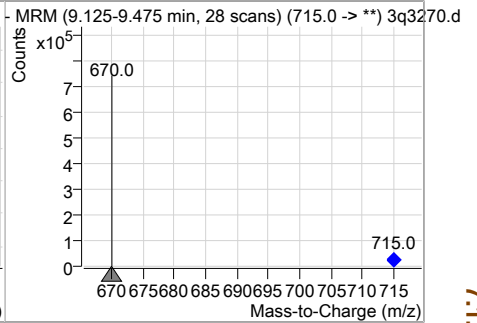
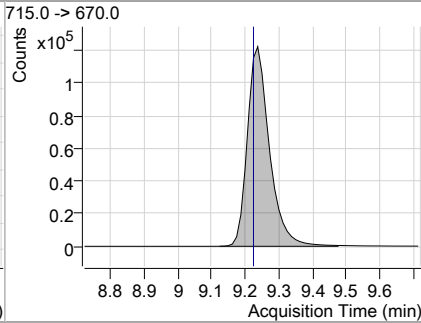
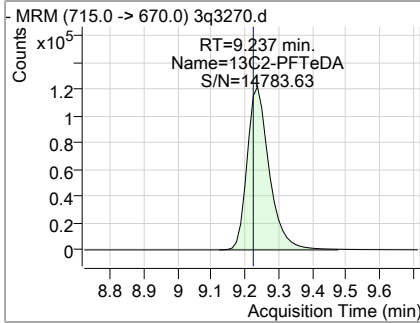
7.1.1
7



Sample Results: **3Q3270.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	14.86	9.24	0.01	555536				



7.1.1

7

Manual Integration Approval Summary

Sample Number: FA63526-1 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3270.D **Analyst approved:** 04/26/19 09:30 Natasha Gumtie
Injection Time: 04/25/19 15:09 **Supervisor approved:** 04/26/19 16:16 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluoropentanesulfonic acid	2706-91-4		5.16	Split peak
Perfluoroheptanoic acid	375-85-9		5.97	Split peak
Perfluorohexanesulfonic acid	355-46-4		6.01	Split peak
Perfluorooctanoic acid	335-67-1		6.70	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.28	Split peak

7.1.1.1

7

Sample Results: **3Q3271.D**

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:16

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3271.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 3:25:32 PM
 Sample Name : fa63526-2
 Vial : P3-C2
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74736,S3Q83,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	342321	20.00 µg/L	0.000
M5-PFPeA	3.611	268.0 -> 223.0	245984	20.00 µg/L	0.025
M5-PFHxA	5.025	318.0 -> 273.0	364510	20.00 µg/L	0.050
M4-PFHpA	5.965	367.0 -> 322.0	455016	20.00 µg/L	0.049
M8-PFOA	6.693	421.0 -> 376.0	488702	20.00 µg/L	0.050
M9-PFNA	7.289	472.0 -> 427.0	504610	20.00 µg/L	0.038
M6-PFDA	7.752	519.0 -> 474.0	563632	20.00 µg/L	0.012
M7-PFUnDA	8.127	570.0 -> 525.0	632248	20.00 µg/L	0.000
M2-PFDoDA	8.464	615.0 -> 570.0	609654	20.00 µg/L	-0.001
M2-PFTeDA	9.237	715.0 -> 670.0	551137	20.00 µg/L	0.013
M8-FOSA	7.336	506.0 -> 78.0	212664	20.00 µg/L	0.038
M3-PFBS	3.929	302.0 -> 99.0	48166	20.00 µg/L	0.037
M3-PFHxS	6.022	402.0 -> 99.0	51429	20.00 µg/L	0.050
M8-PFOS	7.272	507.0 -> 99.0	75143	20.00 µg/L	0.038
M2-4:2FTS	4.908	329.0 -> 309.0	137773	20.00 µg/L	0.037
M2-6:2FTS	6.677	429.0 -> 409.0	182162	20.00 µg/L	0.038
M2-8:2FTS	7.789	529.0 -> 509.0	128812	20.00 µg/L	0.026
M3-MeFOSAA	7.758	573.0 -> 419.0	70623	20.00 µg/L	0.025
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	-
13C2-PFOA	6.695	415.0 -> 370.0	672976	20.00 µg/L	0.050
13C4-PFOS	7.274	503.0 -> 80.0	152591	20.00 µg/L	0.038
System Monitoring Compounds					
13C2-4:2FTS	4.908	329.0 -> 309.0	137800	18.96 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C2-6:2FTS	6.677	429.0 -> 409.0	182196	19.36 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C2-8:2FTS	7.789	529.0 -> 509.0	128615	16.84 µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.2%	
13C2-PFDoDA	8.464	615.0 -> 570.0	609017	14.40 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.0%	
13C2-PFTeDA	9.237	715.0 -> 670.0	551193	14.75 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.7%	
13C3-PFBS	3.929	302.0 -> 99.0	48048	19.35 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C3-PFHxS	6.022	402.0 -> 99.0	51240	19.11 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C4-PFBA	1.727	217.0 -> 172.0	342011	20.22 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C4-PFHpA	5.965	367.0 -> 322.0	453870	20.19 µg/L	0.049
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFHxA	5.025	318.0 -> 273.0	364262	19.80 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C5-PFPeA	3.611	268.0 -> 223.0	245984	19.87 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C6-PFDA	7.752	519.0 -> 474.0	564210	18.23 µg/L	0.012

7.1.2
7



Sample Results: **3Q3271.D**

Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)	QValue
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.1%		
13C7-PFUnDA	8.127	570.0 -> 525.0	632489	16.43 µg/L	0.000	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.1%		
13C8-FOSA	7.336	506.0 -> 78.0	212340	17.22 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.1%		
13C8-PFOA	6.693	421.0 -> 376.0	488405	20.19 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C8-PFOS	7.272	507.0 -> 99.0	74989	17.10 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.5%		
13C9-PFNA	7.289	472.0 -> 427.0	503010	20.05 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.3%		
d3-MeFOSAA	7.758	573.0 -> 419.0	70784	16.50 µg/L	0.025	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.5%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
M2-PFOA	6.695	415.0 -> 370.0	672976	20.00 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.274	503.0 -> 80.0	152591	20.00 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						
4:2FTS	-	327.0 -> 307.0	-	N.D.		
6:2FTS	-	427.0 -> 407.0	-	N.D.		
8:2FTS	-	527.0 -> 507.0	-	N.D.		
EtFOSAA	8.469	584.0 -> 419.0	0	0.00 µg/L	m	1
FOSA	-	498.0 -> 78.0	-	N.D.		
MeFOSAA	-	570.0 -> 419.0	-	N.D.		
PFBA	1.735	213.0 -> 169.0	12239	3.84 µg/L		100
PFBS	3.933	299.0 -> 80.0	9786	3.02 µg/L		99
PFDA	-	513.0 -> 469.0	-	N.D.		
PFDoDA	-	613.0 -> 569.0	-	N.D.		
PFDS	-	599.0 -> 80.0	-	N.D.		
PFHpA	5.967	363.0 -> 319.0	55358	2.54 µg/L	m	97
PFHpS	-	449.0 -> 80.0	-	N.D.		
PFHxA	5.027	313.0 -> 269.0	111610	16.32 µg/L		99
PFHxS	6.012	399.0 -> 80.0	25756	8.60 µg/L	m	97
PFNA	-	463.0 -> 419.0	-	N.D.		
PFNS	-	549.0 -> 80.0	-	N.D.		
PFOA	6.697	413.0 -> 369.0	458791	33.69 µg/L	m	95
PFOS	7.275	499.0 -> 80.0	1172	0.33 µg/L	m	92
PFPeA	3.615	263.0 -> 219.0	101323	7.93 µg/L		100
PFPeS	5.157	349.0 -> 80.0	4019	1.90 µg/L	m	93
PFTeDA	-	713.0 -> 669.0	-	N.D.		
PFTTrDA	-	663.0 -> 619.0	-	N.D.		
PFUnDA	-	563.0 -> 519.0	-	N.D.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

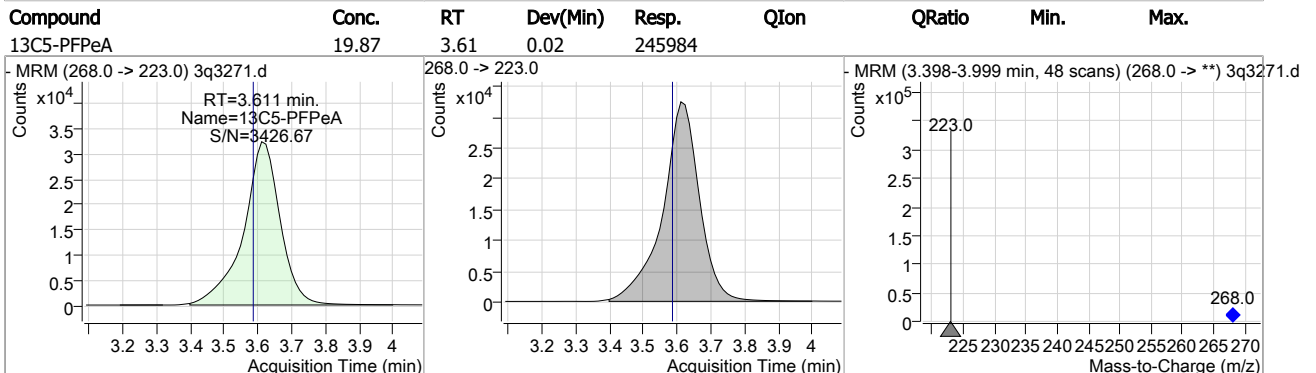
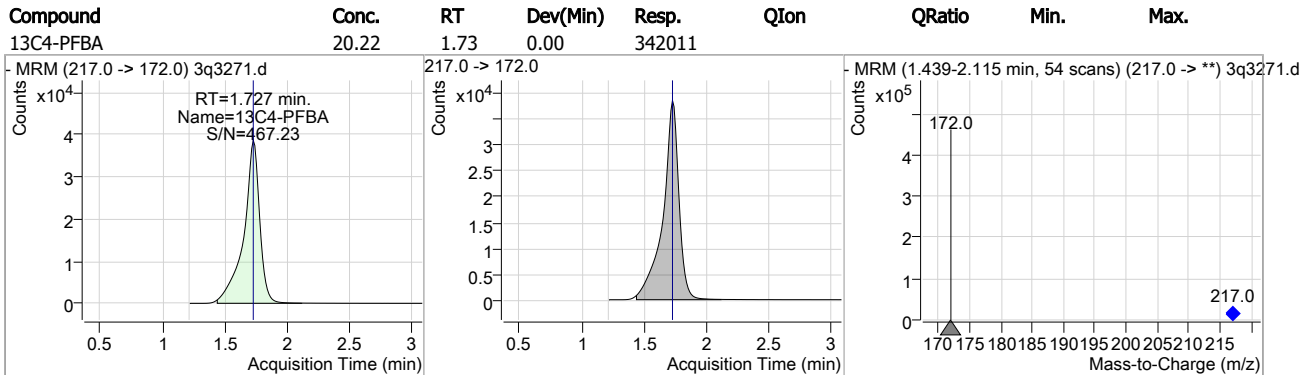
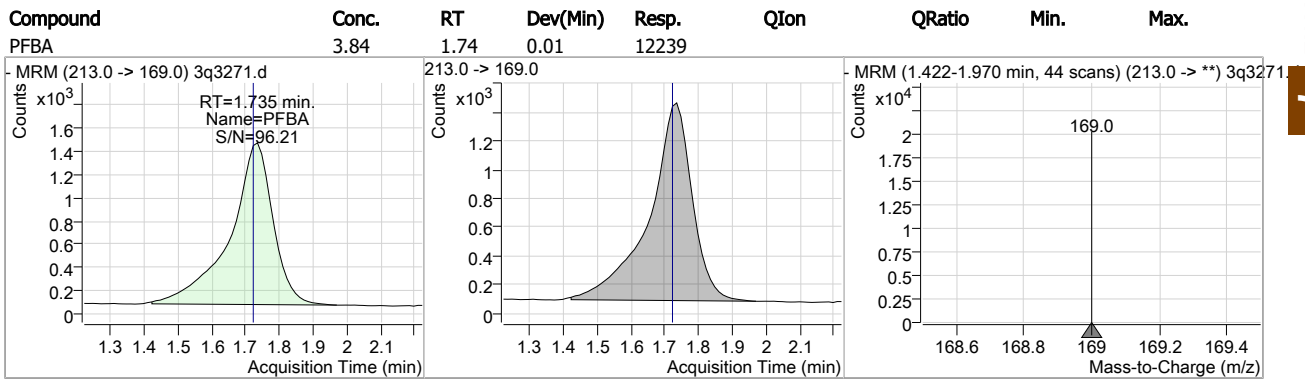
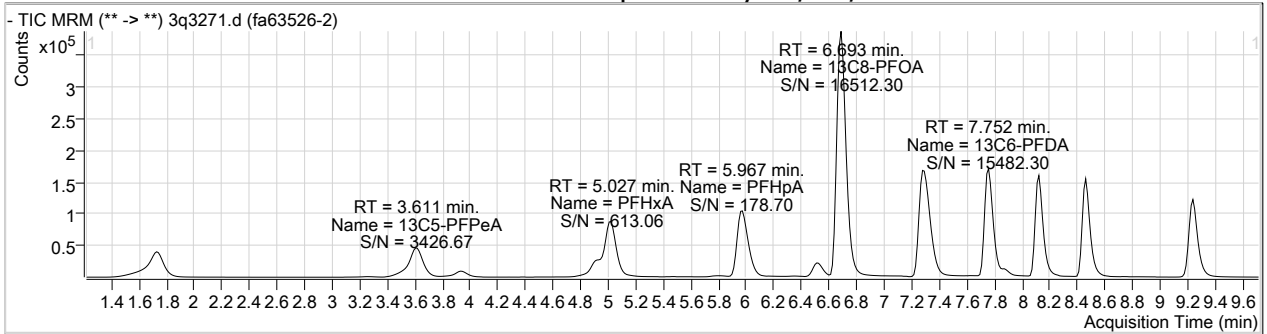
7.1.2
7

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



Sample Results: **3Q3271.D**

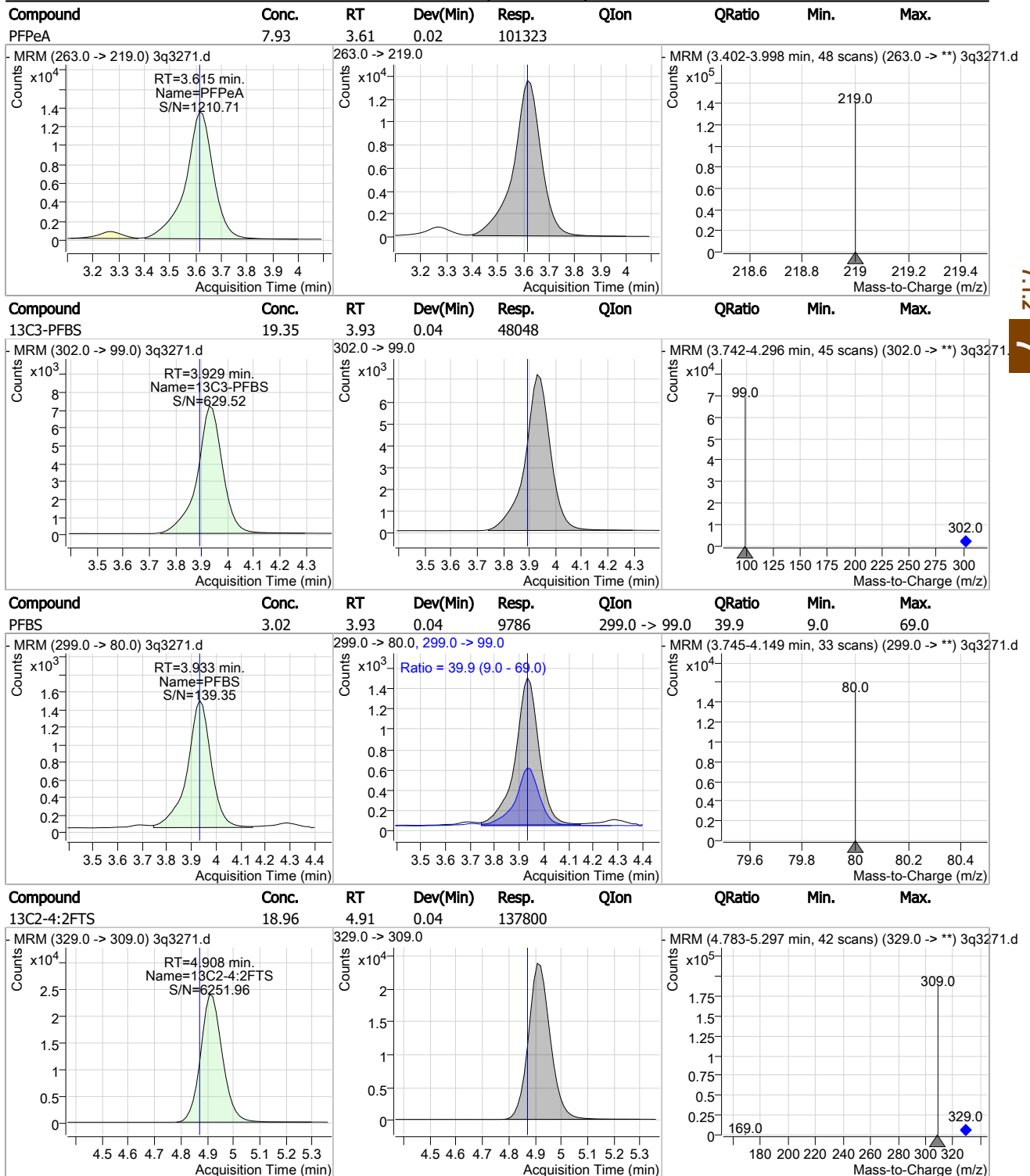
Perfluorinated Compounds by LC/MS/MS



7.1.2
7

Sample Results: **3Q3271.D**

Perfluorinated Compounds by LC/MS/MS



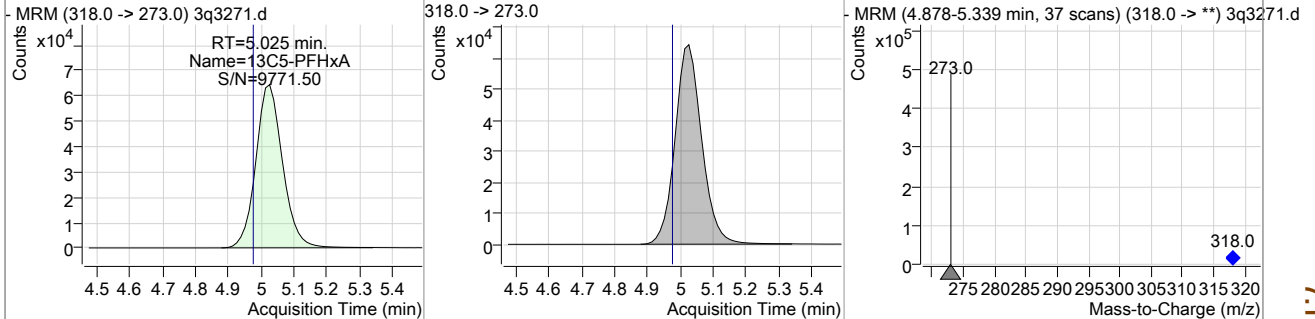
7.1.2
7



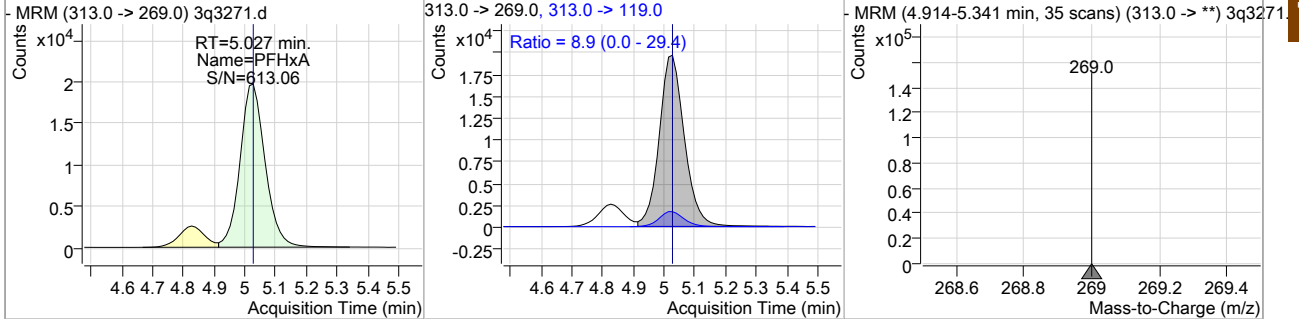
Sample Results: **3Q3271.D**

Perfluorinated Compounds by LC/MS/MS

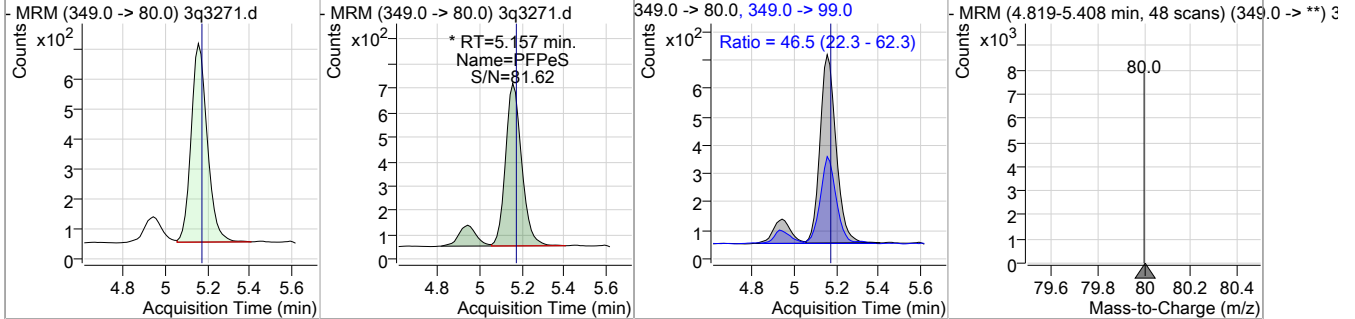
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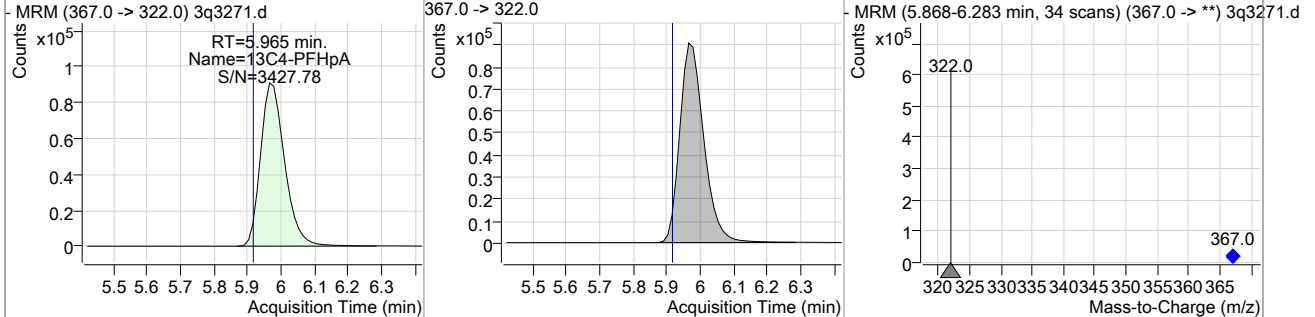
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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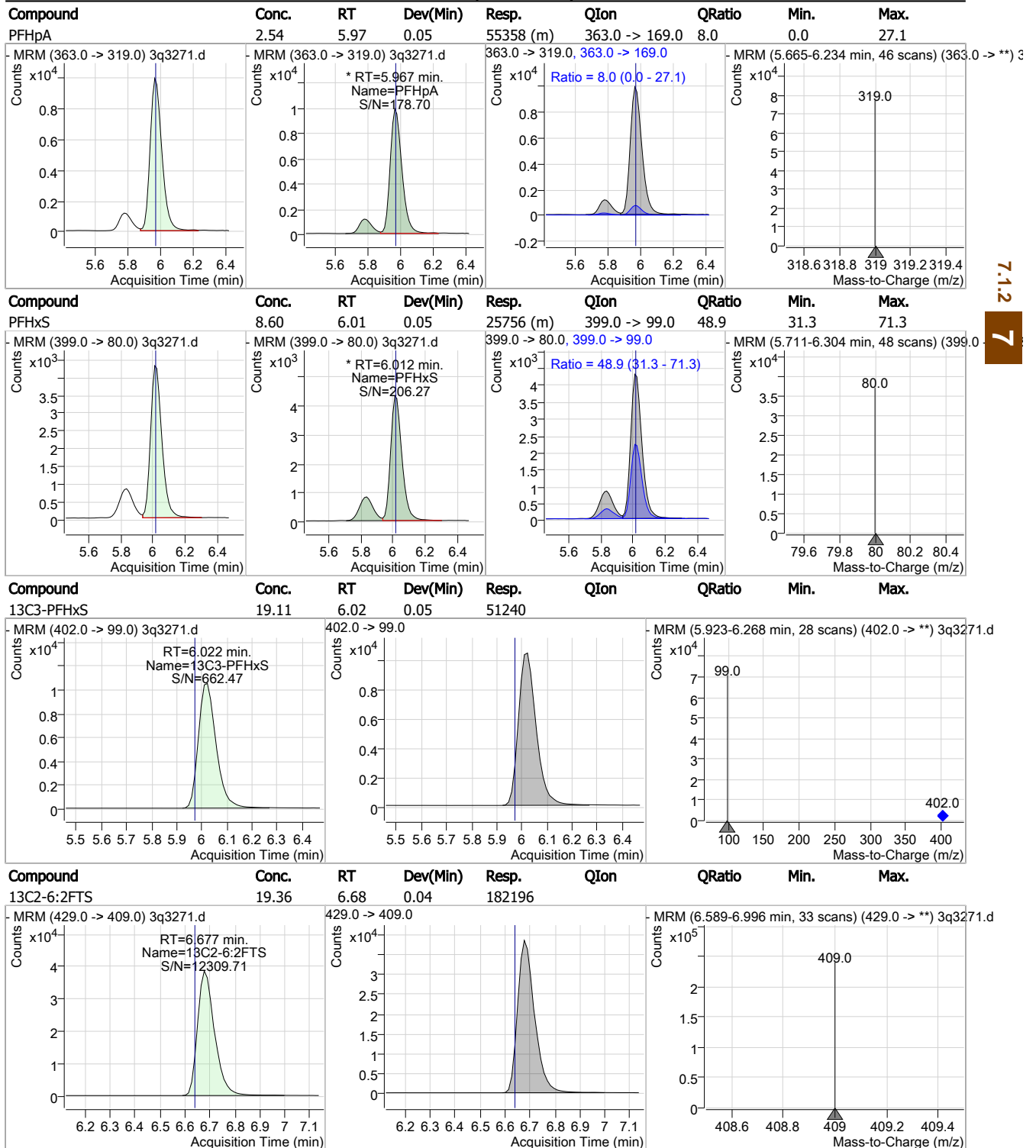
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7.1.2
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Sample Results: **3Q3271.D**

Perfluorinated Compounds by LC/MS/MS



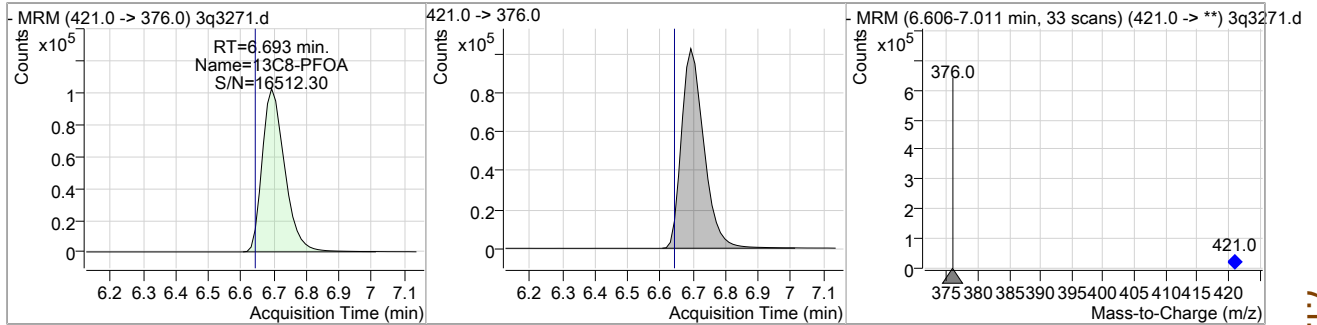
7.1.2
7



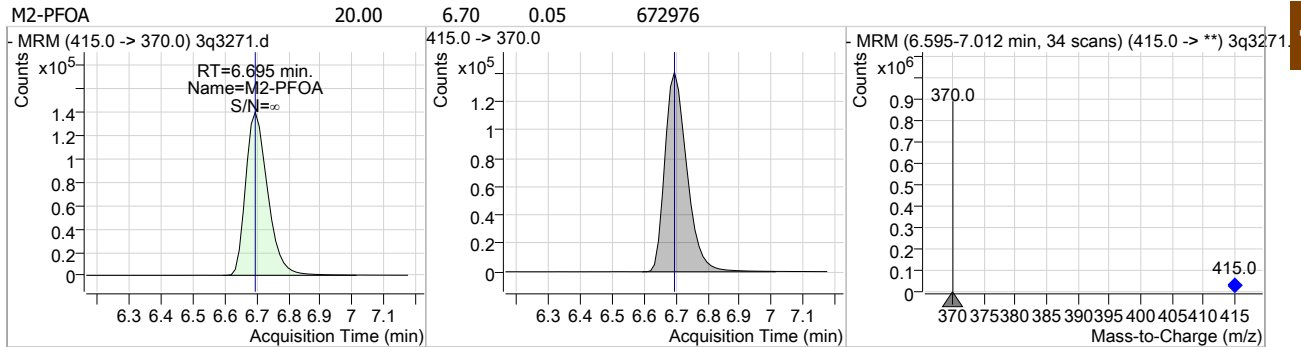
Sample Results: **3Q3271.D**

Perfluorinated Compounds by LC/MS/MS

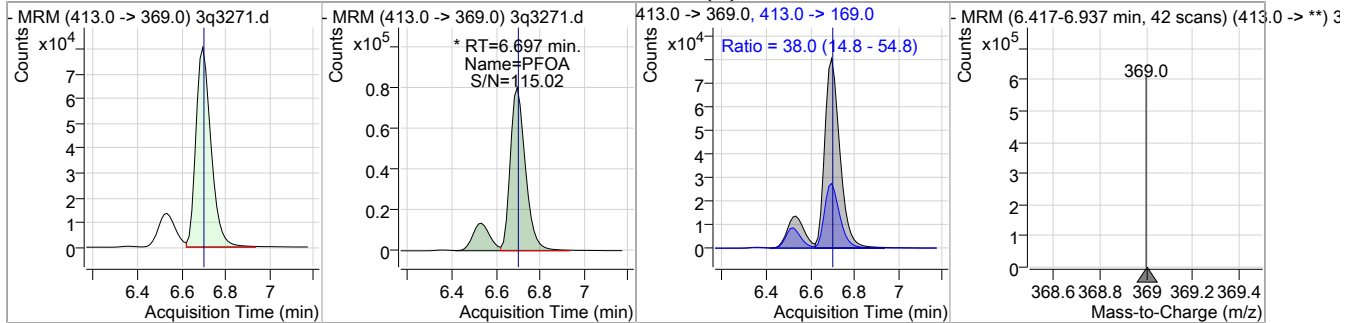
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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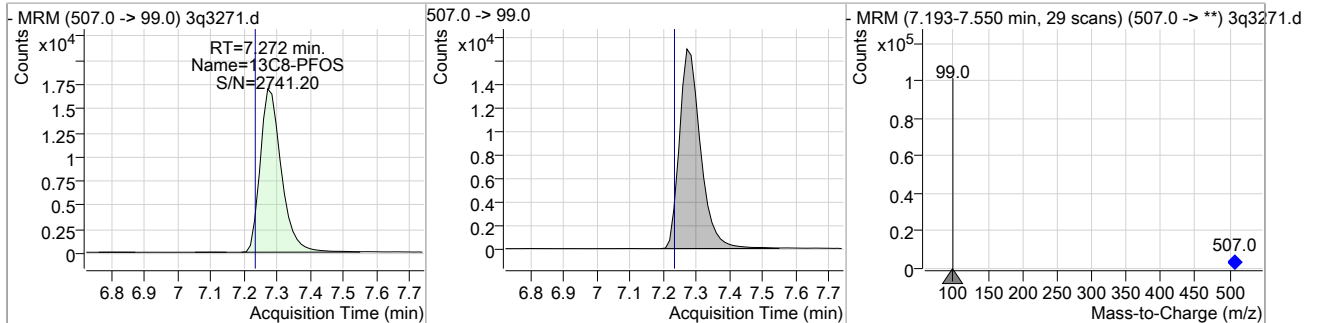
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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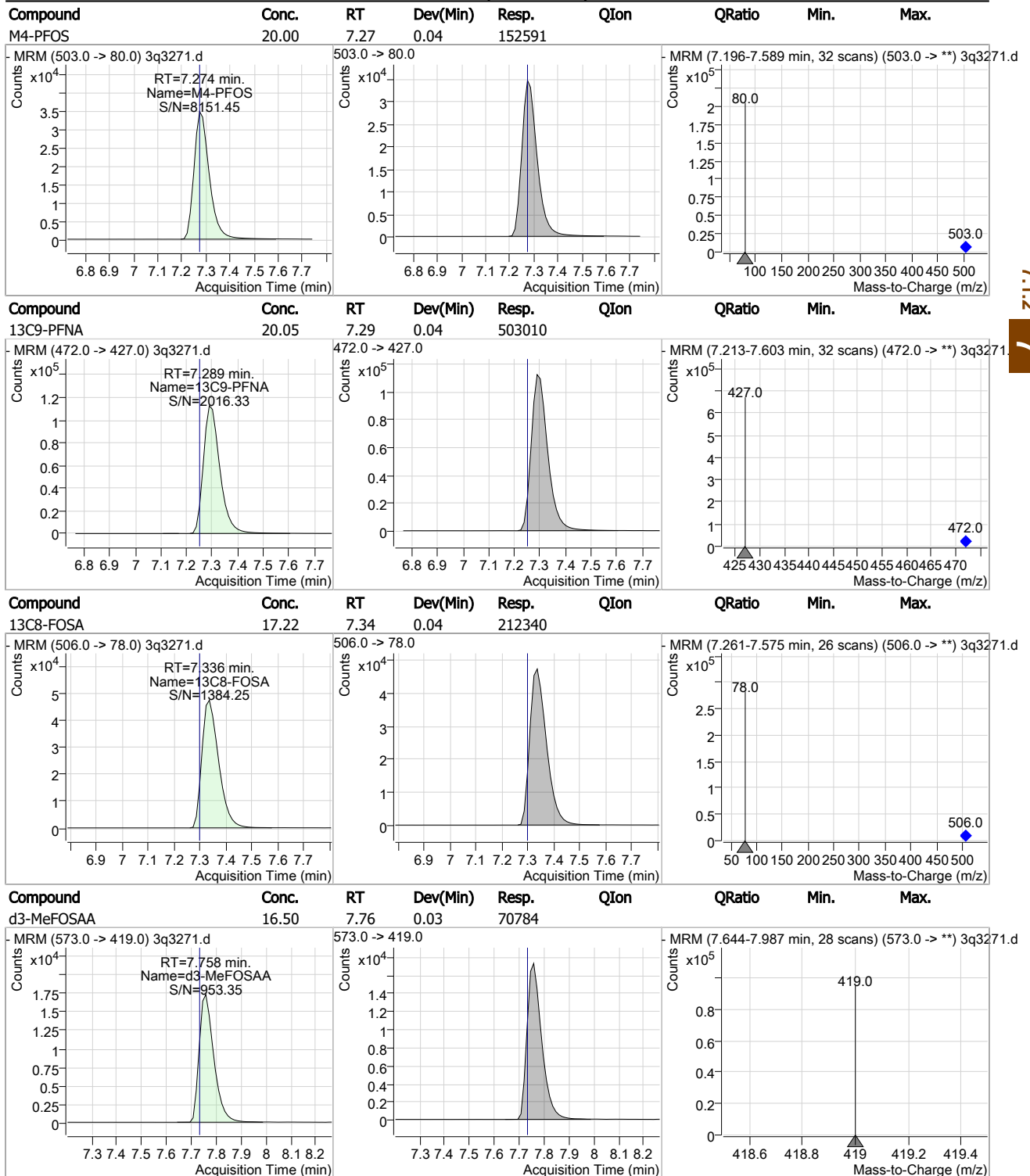


7.1.2
7



Sample Results: **3Q3271.D**

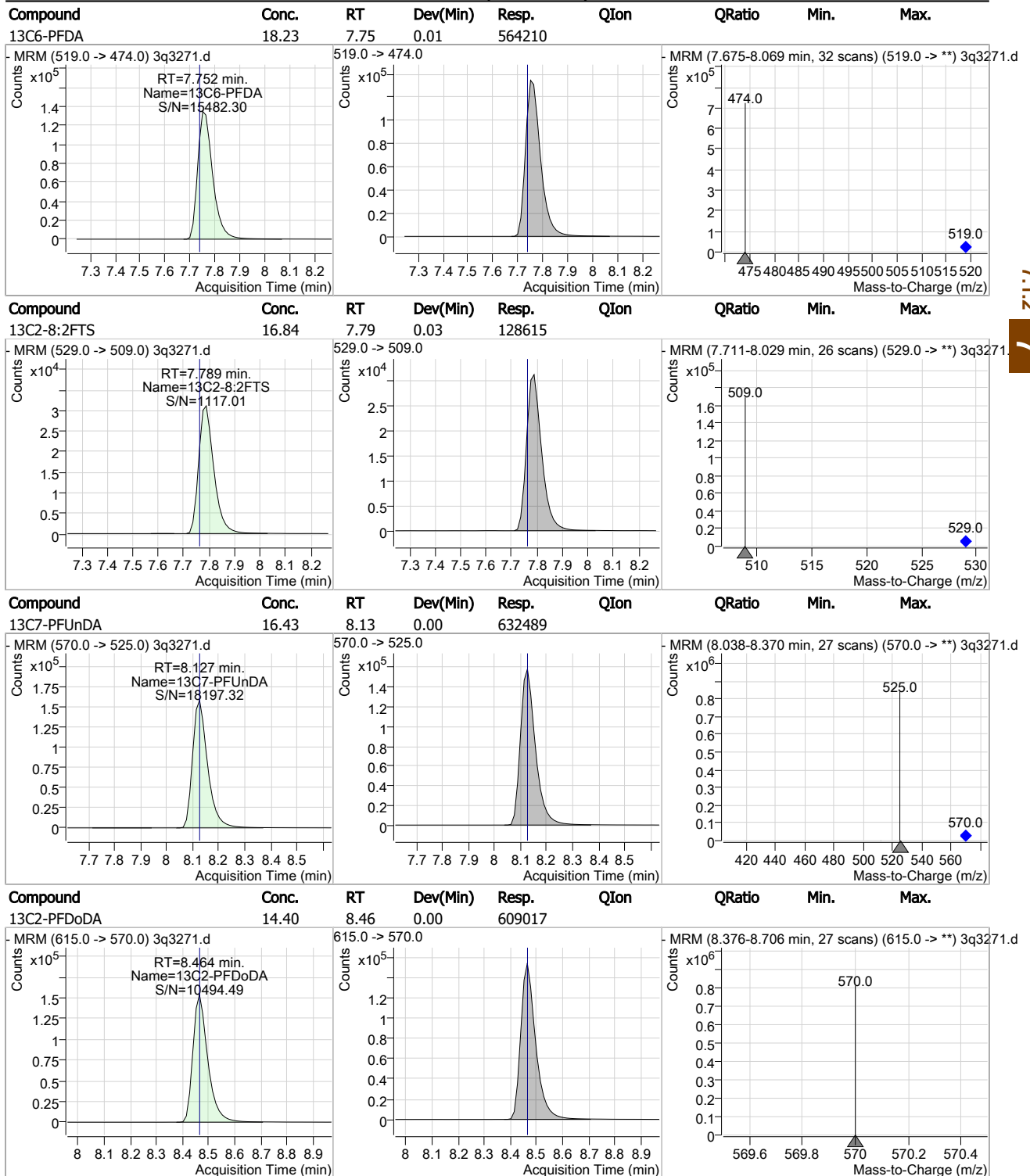
Perfluorinated Compounds by LC/MS/MS



7.1.2
7

Sample Results: **3Q3271.D**

Perfluorinated Compounds by LC/MS/MS



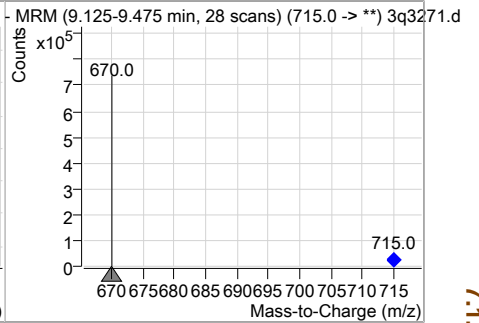
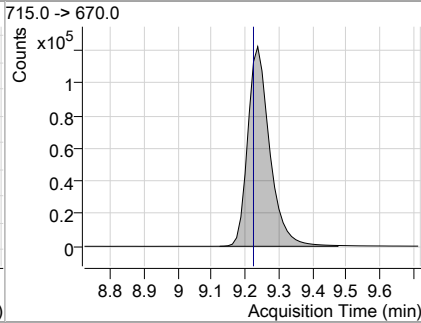
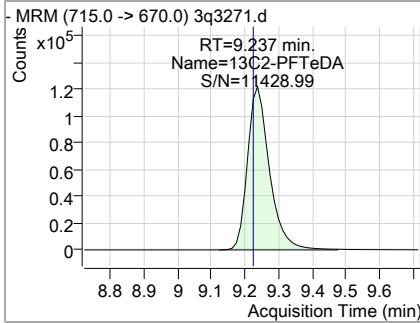
7.1.2
7



Sample Results: **3Q3271.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	14.75	9.24	0.01	551193				



7.1.2
7

Manual Integration Approval Summary

Sample Number: FA63526-2 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3271.D **Analyst approved:** 04/26/19 09:30 Natasha Gumtie
Injection Time: 04/25/19 15:25 **Supervisor approved:** 04/26/19 16:16 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluoropentanesulfonic acid	2706-91-4		5.16	Split peak
Perfluoroheptanoic acid	375-85-9		5.97	Split peak
Perfluorohexanesulfonic acid	355-46-4		6.01	Split peak
Perfluorooctanoic acid	335-67-1		6.70	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.28	Split peak

7.1.2.1

7

Sample Results: **3Q3272.D**

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:16

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3272.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 3:41:09 PM
 Sample Name : fa63526-3
 Vial : P3-C3
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74736,S3Q83,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	348628	20.00 µg/L	0.000
M5-PFPeA	3.611	268.0 -> 223.0	251295	20.00 µg/L	0.025
M5-PFHxA	5.025	318.0 -> 273.0	369625	20.00 µg/L	0.050
M4-PFHpA	5.978	367.0 -> 322.0	458188	20.00 µg/L	0.061
M8-PFOA	6.693	421.0 -> 376.0	497493	20.00 µg/L	0.050
M9-PFNA	7.301	472.0 -> 427.0	502585	20.00 µg/L	0.050
M6-PFDA	7.764	519.0 -> 474.0	573866	20.00 µg/L	0.025
M7-PFUnDA	8.139	570.0 -> 525.0	638256	20.00 µg/L	0.012
M2-PFDoDA	8.477	615.0 -> 570.0	594863	20.00 µg/L	0.012
M2-PFTeDA	9.237	715.0 -> 670.0	515440	20.00 µg/L	0.013
M8-FOSA	7.336	506.0 -> 78.0	177793	20.00 µg/L	0.038
M3-PFBS	3.929	302.0 -> 99.0	49230	20.00 µg/L	0.037
M3-PFHxS	6.022	402.0 -> 99.0	52702	20.00 µg/L	0.050
M8-PFOS	7.285	507.0 -> 99.0	76247	20.00 µg/L	0.050
M2-4:2FTS	4.921	329.0 -> 309.0	141619	20.00 µg/L	0.050
M2-6:2FTS	6.689	429.0 -> 409.0	185571	20.00 µg/L	0.050
M2-8:2FTS	7.789	529.0 -> 509.0	133255	20.00 µg/L	0.026
M3-MeFOSAA	7.758	573.0 -> 419.0	73015	20.00 µg/L	0.025
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	-
13C2-PFOA	6.695	415.0 -> 370.0	694704	20.00 µg/L	0.050
13C4-PFOS	7.286	503.0 -> 80.0	155715	20.00 µg/L	0.050
System Monitoring Compounds					
13C2-4:2FTS	4.921	329.0 -> 309.0	141436	19.46 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C2-6:2FTS	6.689	429.0 -> 409.0	185237	19.69 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C2-8:2FTS	7.789	529.0 -> 509.0	133093	17.43 µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.2%	
13C2-PFDoDA	8.477	615.0 -> 570.0	595507	14.08 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 70.4%	
13C2-PFTeDA	9.237	715.0 -> 670.0	515534	13.79 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.0%	
13C3-PFBS	3.929	302.0 -> 99.0	48997	19.74 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C3-PFHxS	6.022	402.0 -> 99.0	52453	19.57 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C4-PFBA	1.727	217.0 -> 172.0	348115	20.58 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C4-PFHpA	5.978	367.0 -> 322.0	457308	20.34 µg/L	0.061
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C5-PFHxA	5.025	318.0 -> 273.0	370636	20.15 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFPeA	3.611	268.0 -> 223.0	249657	20.16 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C6-PFDA	7.764	519.0 -> 474.0	573900	18.54 µg/L	0.025

7.1.3
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Sample Results: **3Q3272.D**

Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.7%	
13C7-PFUnDA	8.139	570.0 -> 525.0	637982	16.57 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.9%	
13C8-FOSA	7.336	506.0 -> 78.0	177820	14.42 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.1%	
13C8-PFOA	6.693	421.0 -> 376.0	497798	20.58 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-PFOS	7.285	507.0 -> 99.0	76100	17.36 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.8%	
13C9-PFNA	7.301	472.0 -> 427.0	501585	20.00 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d3-MeFOSAA	7.758	573.0 -> 419.0	73145	17.05 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.2%	
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%	
M2-PFOA	6.695	415.0 -> 370.0	694704	20.00 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
M4-PFOS	7.286	503.0 -> 80.0	155715	20.00 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
Target Compounds					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	-	427.0 -> 407.0	-	N.D.	
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	1.735	213.0 -> 169.0	13525	4.17 µg/L	100
PFBS	3.933	299.0 -> 80.0	12930	3.90 µg/L	99
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFDS	-	599.0 -> 80.0	-	N.D.	
PFHpA	5.967	363.0 -> 319.0	19953	0.91 µg/L	m 97
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	5.027	313.0 -> 269.0	65670	9.47 µg/L	100
PFHxS	6.024	399.0 -> 80.0	4548	1.48 µg/L	m 95
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 80.0	-	N.D.	
PFOA	6.697	413.0 -> 369.0	49851	3.60 µg/L	m 91
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	3.615	263.0 -> 219.0	125047	9.58 µg/L	100
PFPeS	5.157	349.0 -> 80.0	3439	1.59 µg/L	m 95
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
HFPO-DA	-	329.0 -> 169.0	-	N.D.	

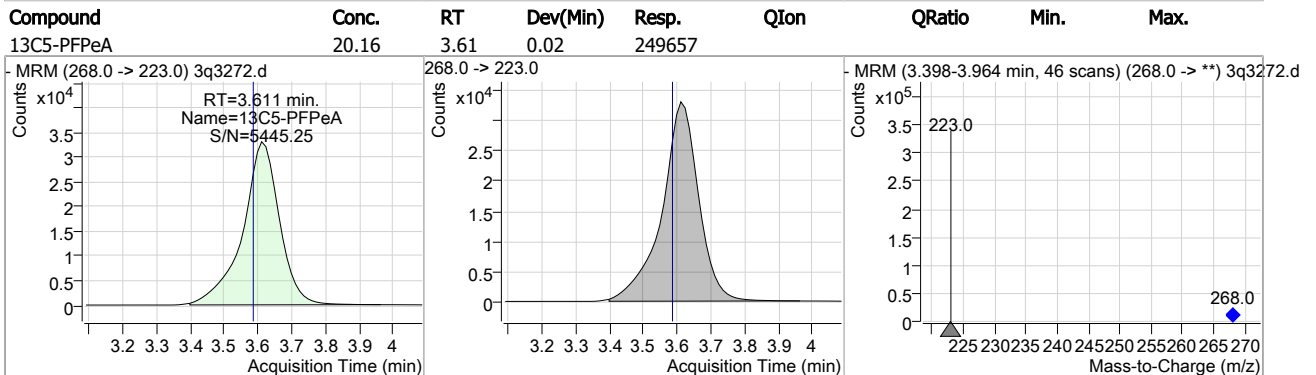
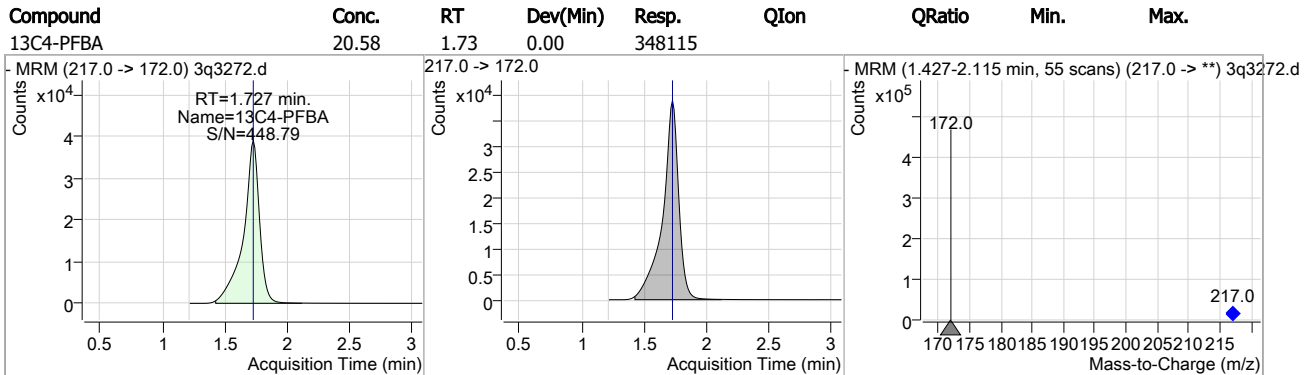
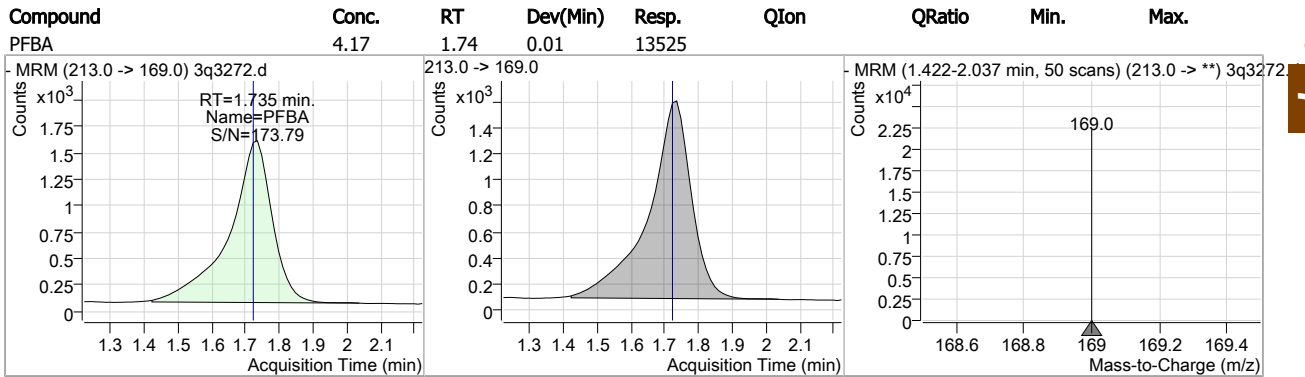
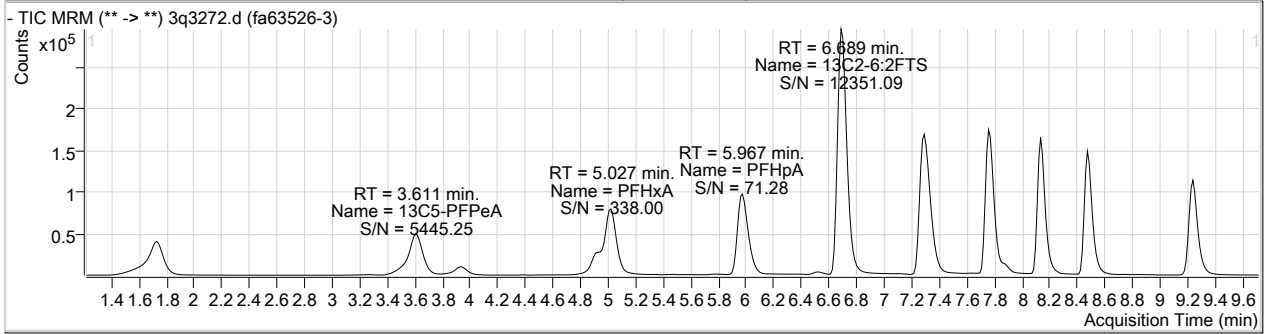
7.1.3

7

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

Sample Results: **3Q3272.D**

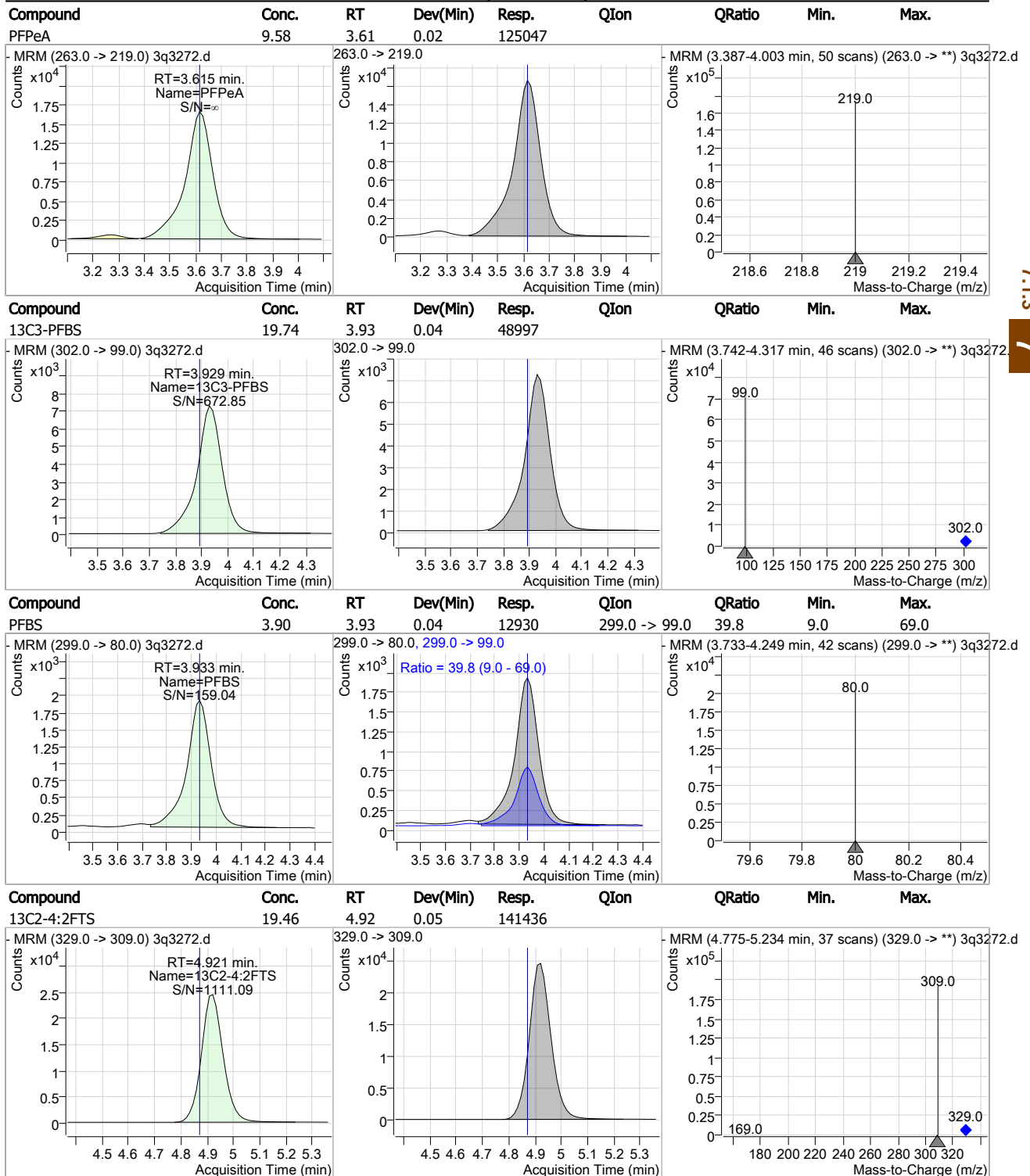
Perfluorinated Compounds by LC/MS/MS



7.1.3
7

Sample Results: **3Q3272.D**

Perfluorinated Compounds by LC/MS/MS



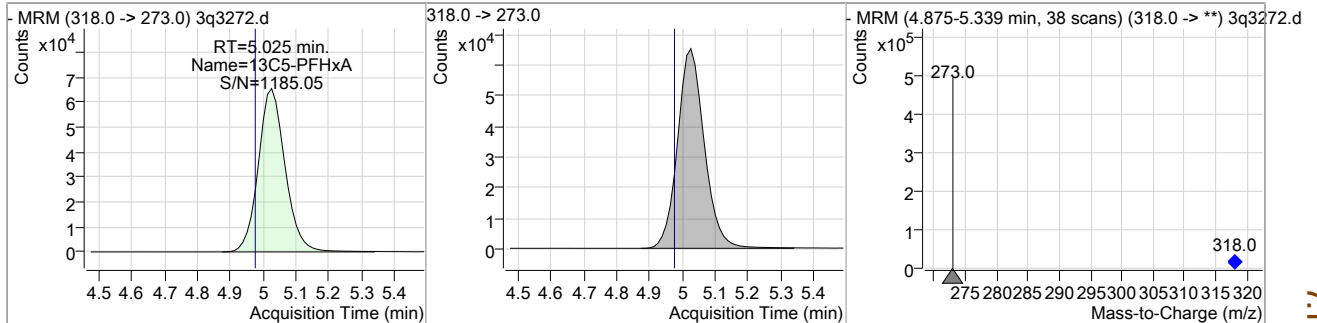
7.1.3

7

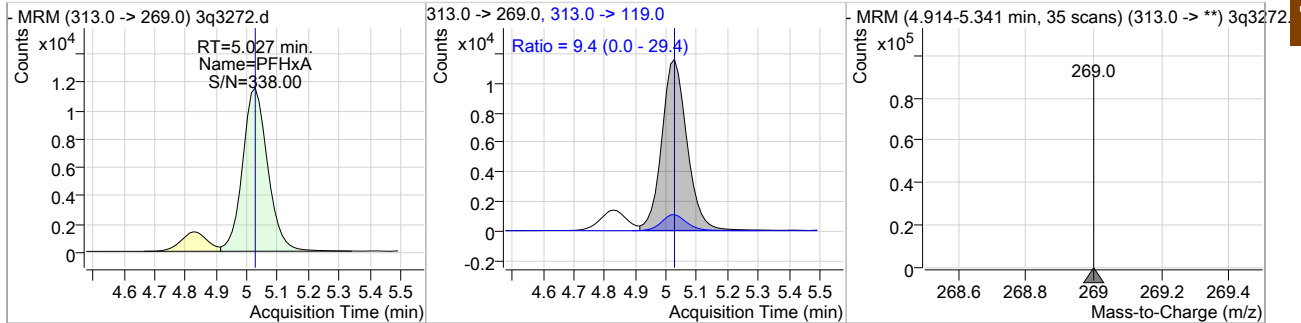
Sample Results: **3Q3272.D**

Perfluorinated Compounds by LC/MS/MS

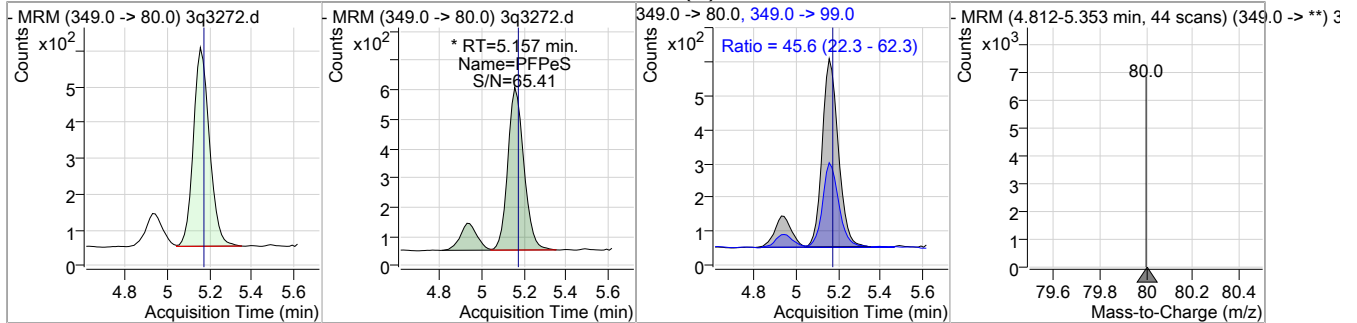
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.15	5.03	0.05	370636				



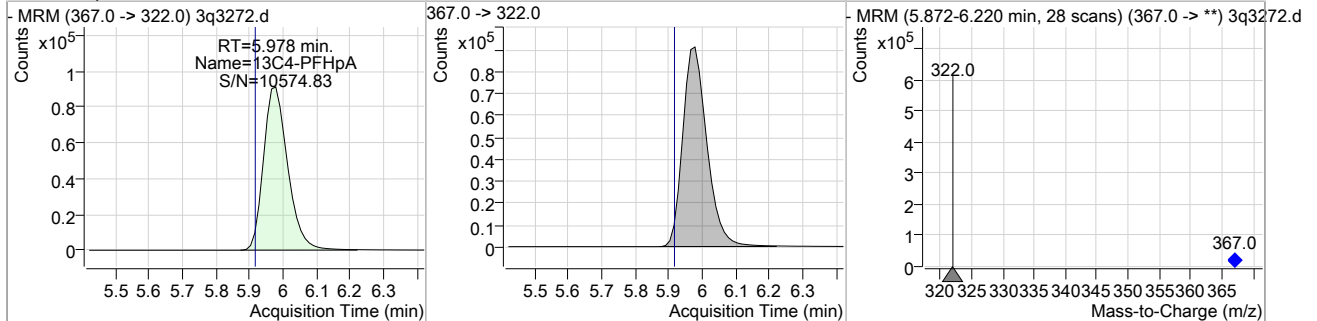
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	9.47	5.03	0.05	65670	313.0 ->	119.0 9.4	0.0	29.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.59	5.16	0.04	3439 (m)	349.0 ->	99.0 45.6	22.3	62.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.34	5.98	0.06	457308				

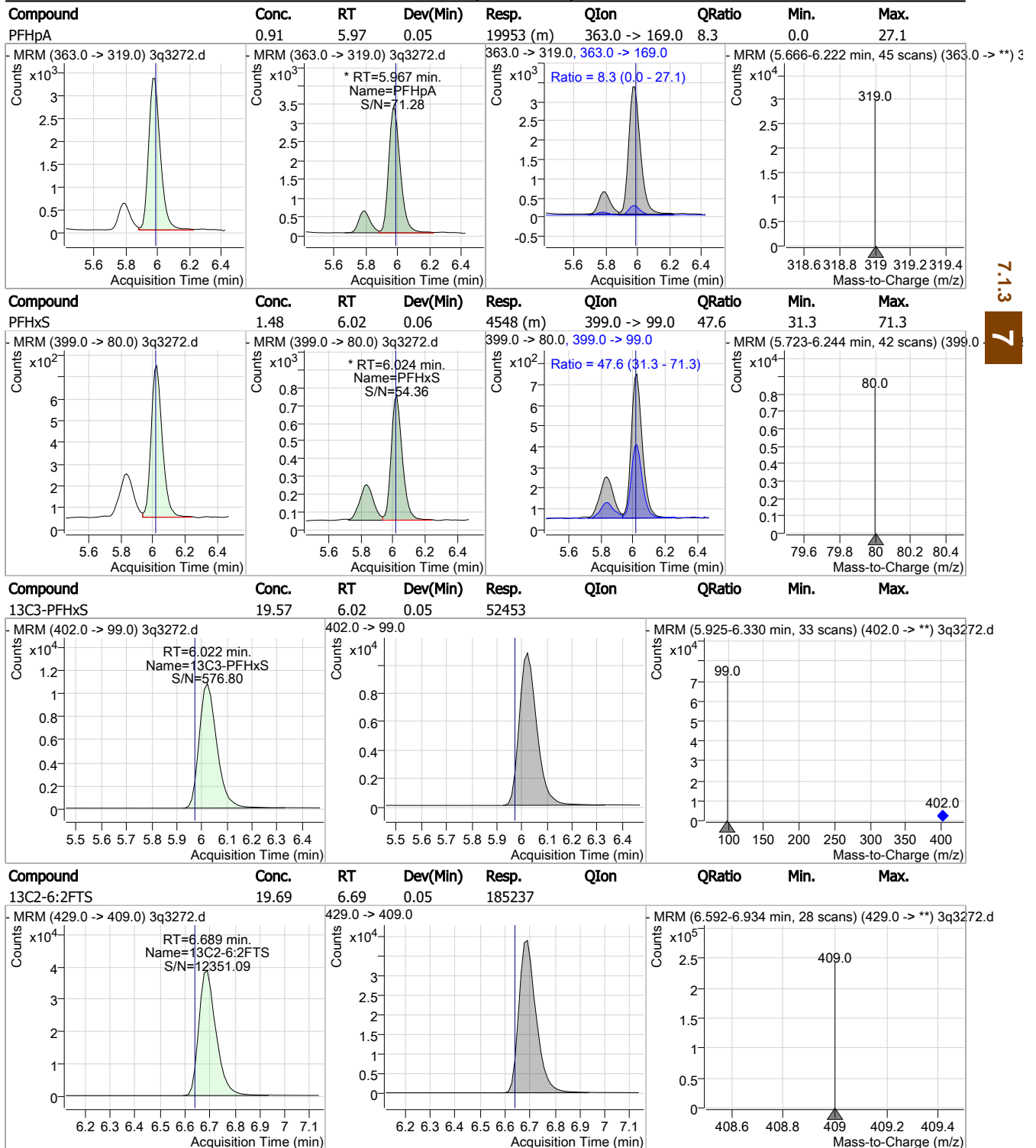


7.1.3

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Sample Results: **3Q3272.D**

Perfluorinated Compounds by LC/MS/MS

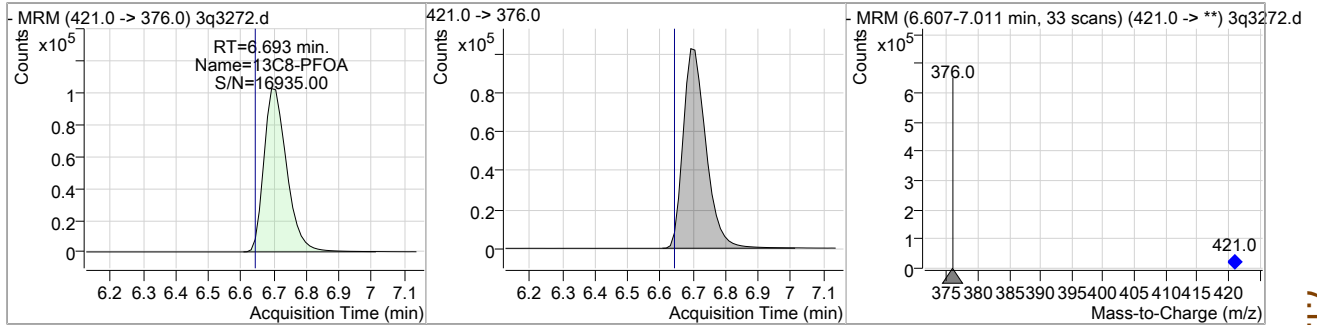


7.1.3
7

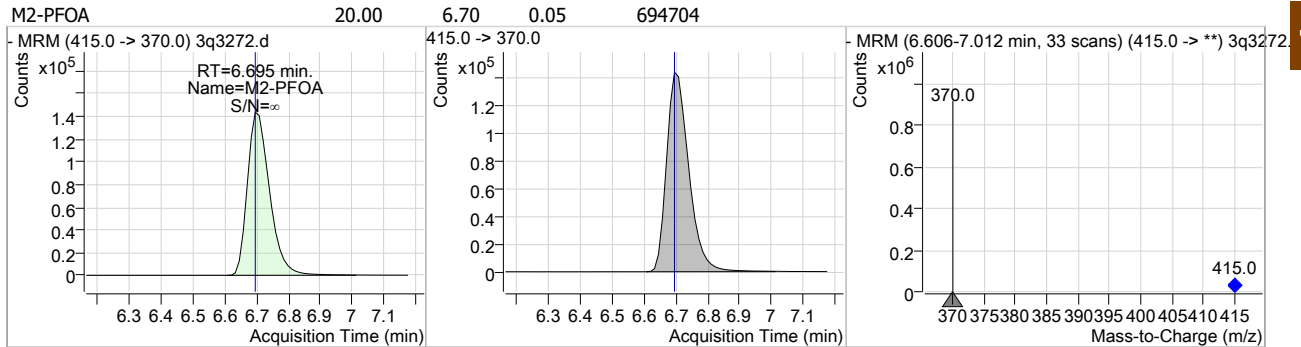
Sample Results: **3Q3272.D**

Perfluorinated Compounds by LC/MS/MS

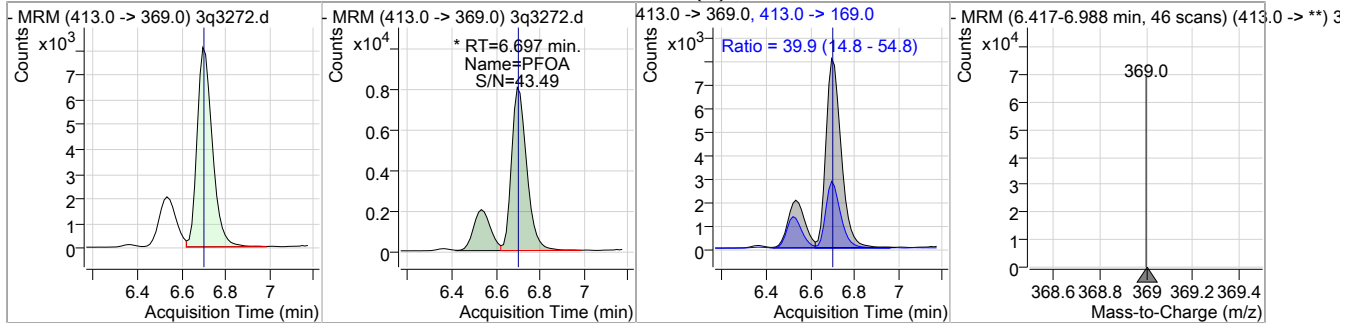
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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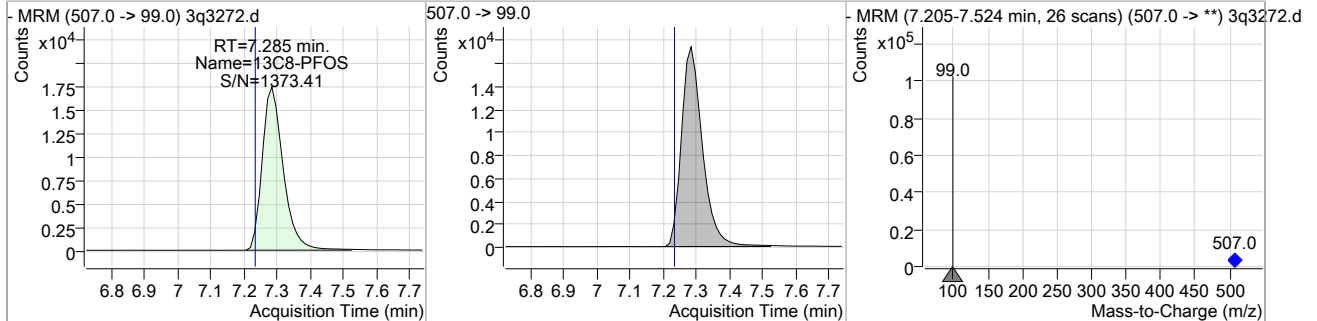
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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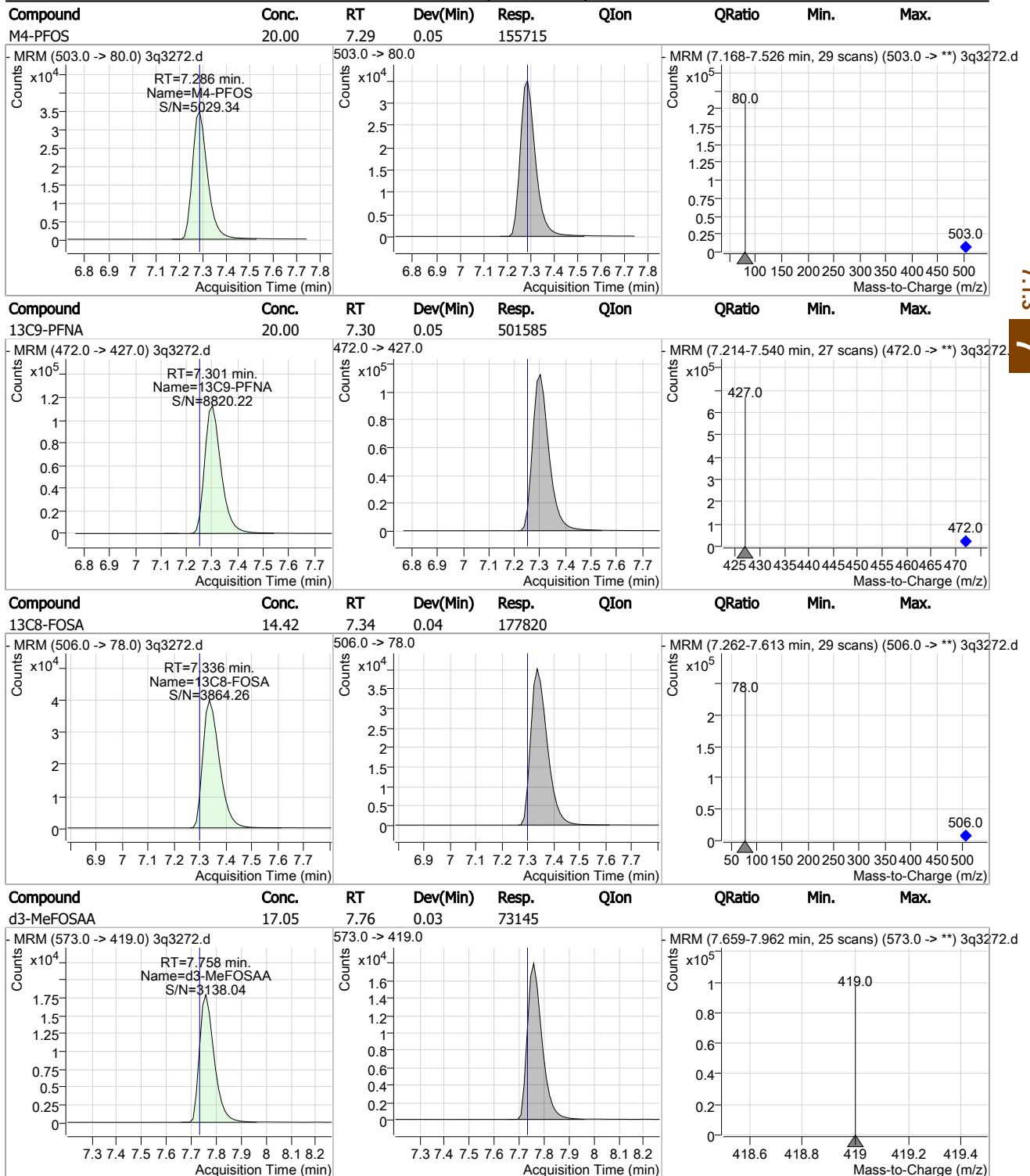


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Sample Results: **3Q3272.D**

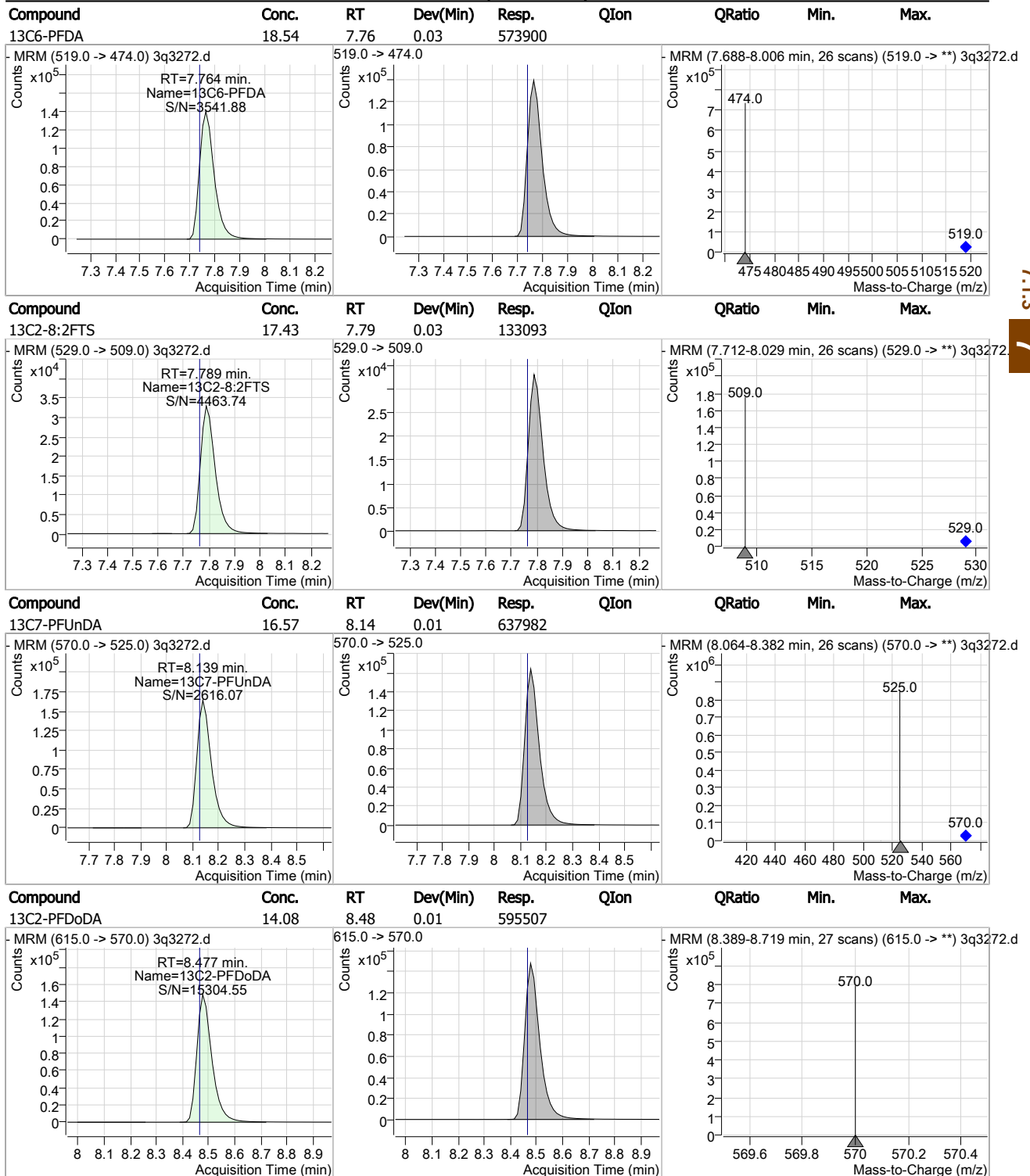
Perfluorinated Compounds by LC/MS/MS



7.1.3
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Sample Results: **3Q3272.D**

Perfluorinated Compounds by LC/MS/MS



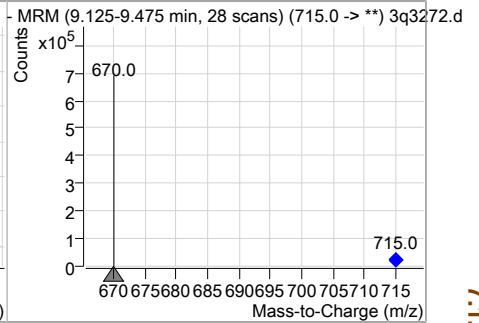
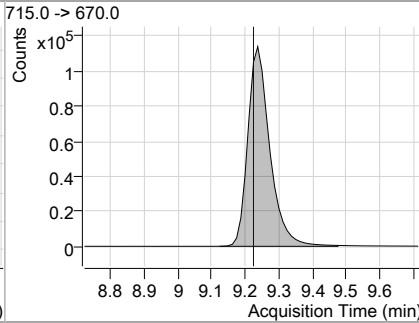
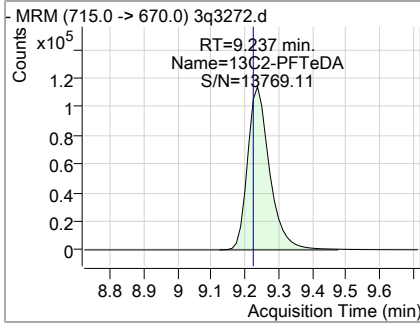
7.1.3

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Sample Results: **3Q3272.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	13.79	9.24	0.01	515534				



7.1.3
7

Manual Integration Approval Summary

Sample Number: FA63526-3 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3272.D **Analyst approved:** 04/26/19 09:30 Natasha Gumtie
Injection Time: 04/25/19 15:41 **Supervisor approved:** 04/26/19 16:16 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluoropentanesulfonic acid	2706-91-4		5.16	Split peak
Perfluoroheptanoic acid	375-85-9		5.97	Split peak
Perfluorohexanesulfonic acid	355-46-4		6.02	Split peak
Perfluorooctanoic acid	335-67-1		6.70	Split peak

7.1.3.1

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Sample Results: **3Q3273.D**

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:16

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3273.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 3:56:45 PM
 Sample Name : fa63526-4
 Vial : P3-C4
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74736,S3Q83,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	347436	20.00 µg/L	0.000
M5-PFPeA	3.598	268.0 -> 223.0	246161	20.00 µg/L	0.012
M5-PFHxA	5.013	318.0 -> 273.0	369630	20.00 µg/L	0.037
M4-PFHpA	5.965	367.0 -> 322.0	456031	20.00 µg/L	0.049
M8-PFOA	6.693	421.0 -> 376.0	494883	20.00 µg/L	0.050
M9-PFNA	7.289	472.0 -> 427.0	510052	20.00 µg/L	0.038
M6-PFDA	7.764	519.0 -> 474.0	585759	20.00 µg/L	0.025
M7-PFUnDA	8.139	570.0 -> 525.0	620378	20.00 µg/L	0.012
M2-PFDoDA	8.477	615.0 -> 570.0	617433	20.00 µg/L	0.012
M2-PFTeDA	9.237	715.0 -> 670.0	540571	20.00 µg/L	0.013
M8-FOSA	7.336	506.0 -> 78.0	191712	20.00 µg/L	0.038
M3-PFBS	3.917	302.0 -> 99.0	48502	20.00 µg/L	0.025
M3-PFHxS	6.010	402.0 -> 99.0	50550	20.00 µg/L	0.038
M8-PFOS	7.272	507.0 -> 99.0	78735	20.00 µg/L	0.038
M2-4:2FTS	4.896	329.0 -> 309.0	141367	20.00 µg/L	0.025
M2-6:2FTS	6.677	429.0 -> 409.0	184848	20.00 µg/L	0.038
M2-8:2FTS	7.789	529.0 -> 509.0	130472	20.00 µg/L	0.026
M3-MeFOSAA	7.758	573.0 -> 419.0	73363	20.00 µg/L	0.025
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	-
13C2-PFOA	6.695	415.0 -> 370.0	679597	20.00 µg/L	0.050
13C4-PFOS	7.274	503.0 -> 80.0	154619	20.00 µg/L	0.038
System Monitoring Compounds					
13C2-4:2FTS	4.896	329.0 -> 309.0	141192	19.43 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C2-6:2FTS	6.677	429.0 -> 409.0	184600	19.62 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C2-8:2FTS	7.789	529.0 -> 509.0	130079	17.04 µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.2%	
13C2-PFDoDA	8.477	615.0 -> 570.0	617206	14.59 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.0%	
13C2-PFTeDA	9.237	715.0 -> 670.0	540586	14.46 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.3%	
13C3-PFBS	3.917	302.0 -> 99.0	48418	19.50 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C3-PFHxS	6.010	402.0 -> 99.0	50624	18.88 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C4-PFBA	1.727	217.0 -> 172.0	347033	20.52 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C4-PFHpA	5.965	367.0 -> 322.0	455795	20.27 µg/L	0.049
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C5-PFHxA	5.013	318.0 -> 273.0	368942	20.05 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFPeA	3.598	268.0 -> 223.0	244351	19.73 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C6-PFDA	7.764	519.0 -> 474.0	585443	18.91 µg/L	0.025

7.1.4
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Sample Results: **3Q3273.D**

Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C7-PFUnDA	8.139	570.0 -> 525.0	619651	16.10 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.5%	
13C8-FOSA	7.336	506.0 -> 78.0	191694	15.54 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.7%	
13C8-PFOA	6.693	421.0 -> 376.0	494067	20.43 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C8-PFOS	7.272	507.0 -> 99.0	78908	18.00 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.0%	
13C9-PFNA	7.289	472.0 -> 427.0	509535	20.31 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
d3-MeFOSAA	7.758	573.0 -> 419.0	73368	17.10 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.5%	
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%	
M2-PFOA	6.695	415.0 -> 370.0	679597	20.00 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
M4-PFOS	7.274	503.0 -> 80.0	154619	20.00 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
Target Compounds					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	6.679	427.0 -> 407.0	3686	0.80 µg/L	96
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	1.723	213.0 -> 169.0	16648	5.15 µg/L	100
PFBS	3.920	299.0 -> 80.0	38641	11.82 µg/L	98
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFDS	-	599.0 -> 80.0	-	N.D.	
PFHpA	5.967	363.0 -> 319.0	98987	4.54 µg/L	m 98
PFHpS	6.700	449.0 -> 80.0	13336	4.81 µg/L	m 99
PFHxA	5.002	313.0 -> 269.0	155155	22.37 µg/L	99
PFHxS	6.012	399.0 -> 80.0	224023	76.11 µg/L	m 99
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 80.0	-	N.D.	
PFOA	6.697	413.0 -> 369.0	235465	17.08 µg/L	m 96
PFOS	7.080	499.0 -> 80.0	28145	7.50 µg/L	#m 66
PFPeA	3.602	263.0 -> 219.0	136698	10.69 µg/L	100
PFPeS	5.145	349.0 -> 80.0	24178	11.38 µg/L	m 96
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
HFPO-DA	-	329.0 -> 169.0	-	N.D.	

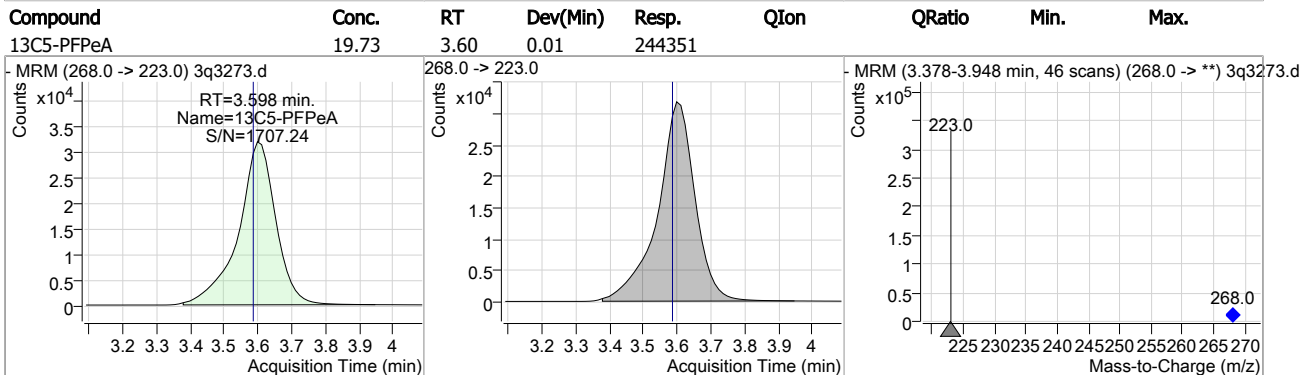
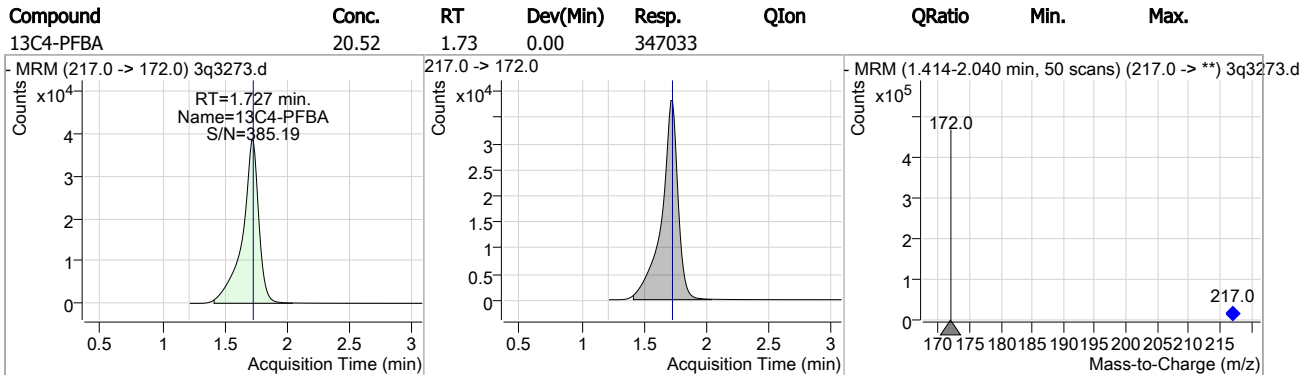
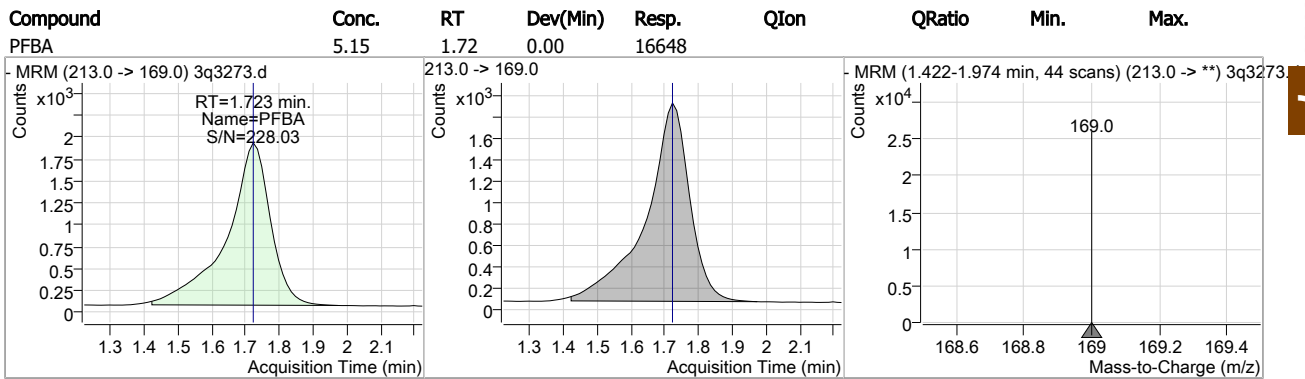
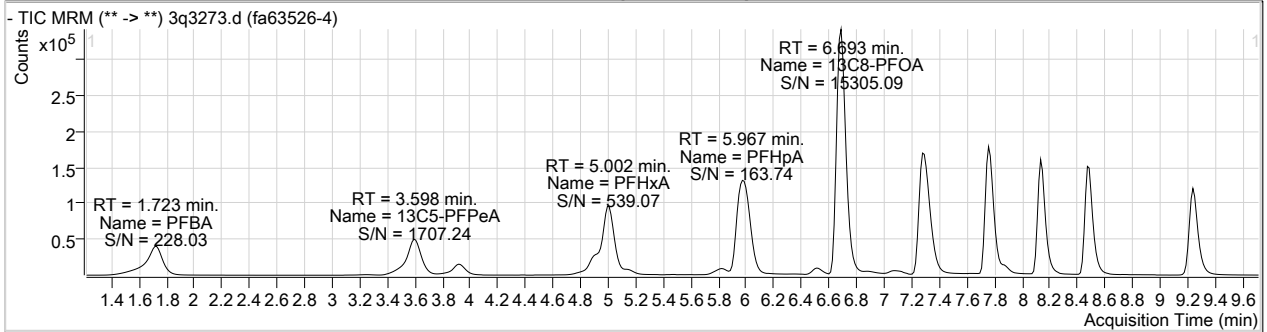
7.1.4
7

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



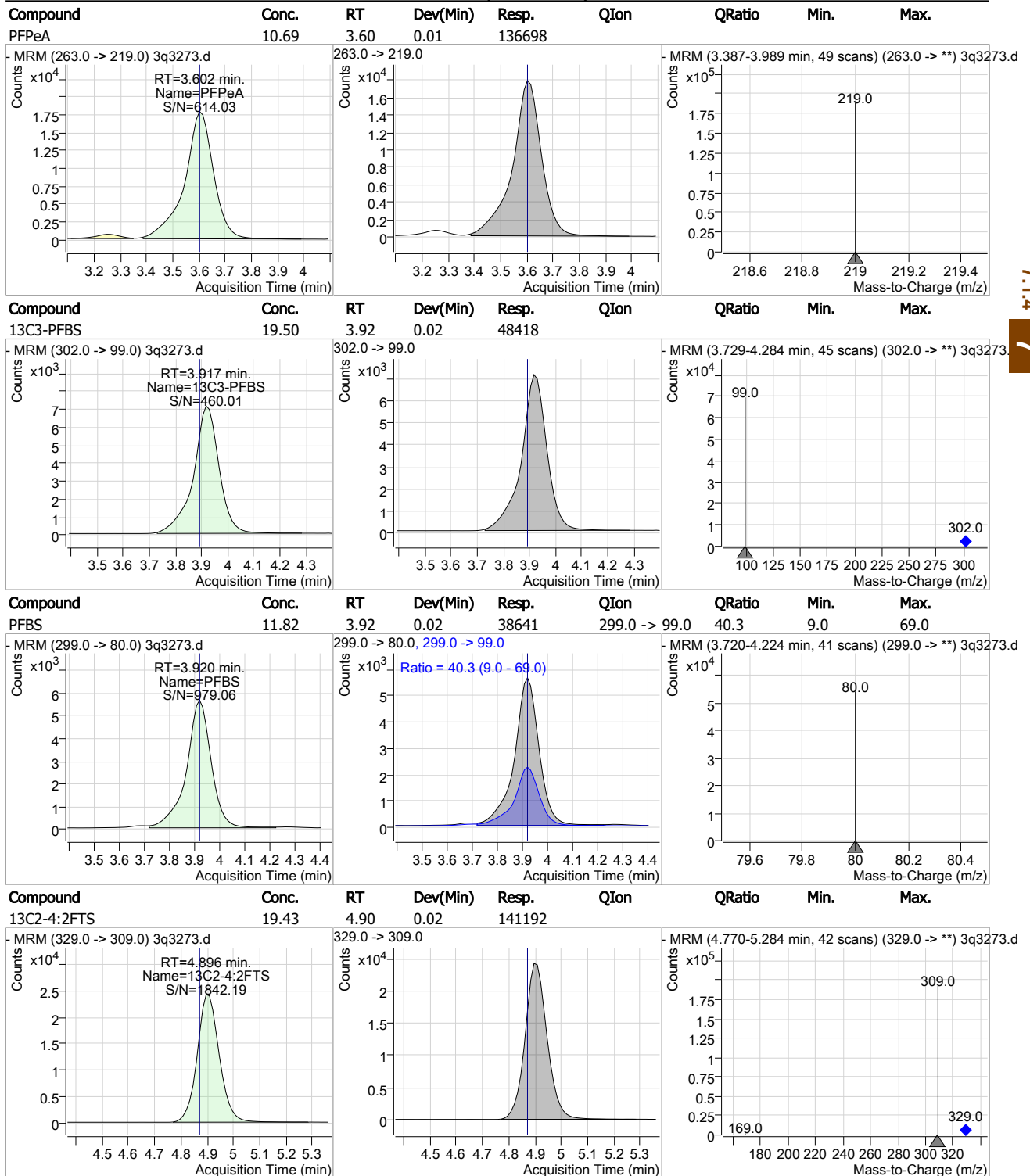
Sample Results: **3Q3273.D**

Perfluorinated Compounds by LC/MS/MS



Sample Results: **3Q3273.D**

Perfluorinated Compounds by LC/MS/MS



7.1.4

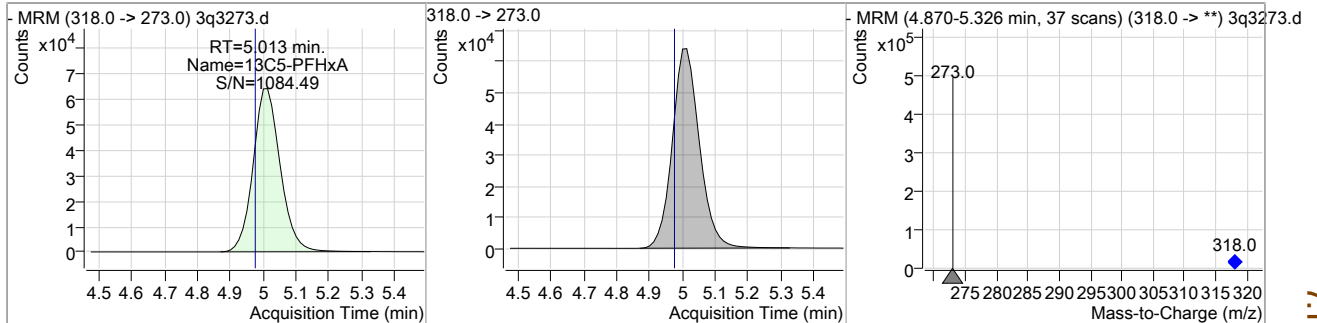
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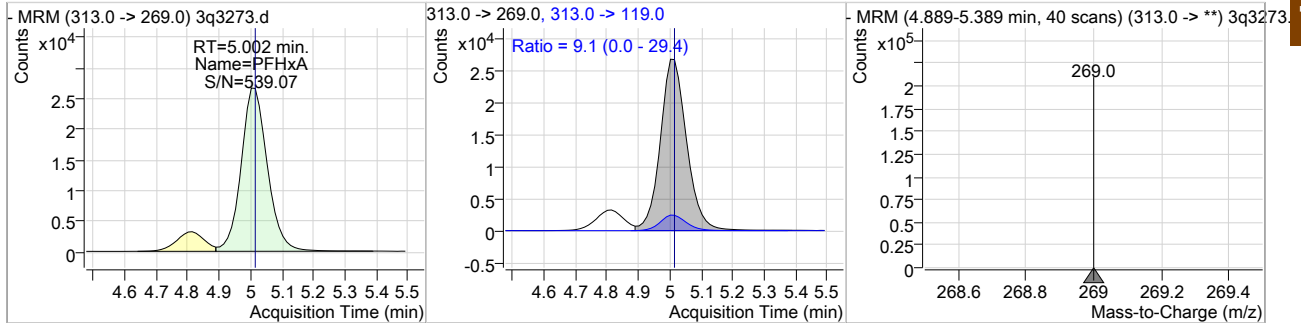
Sample Results: **3Q3273.D**

Perfluorinated Compounds by LC/MS/MS

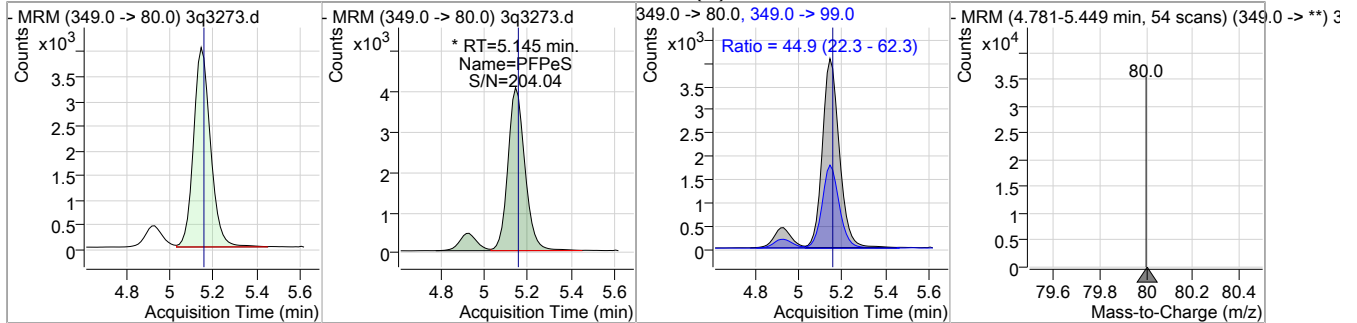
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.05	5.01	0.04	368942				



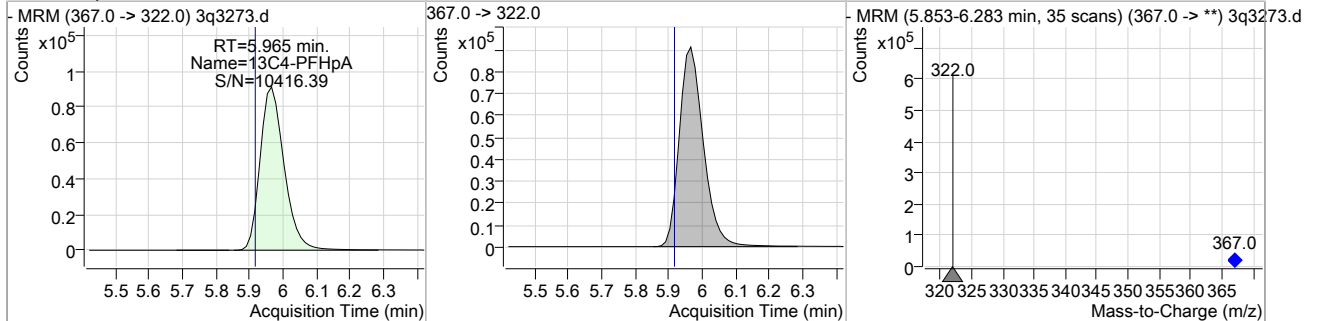
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	22.37	5.00	0.02	155155	313.0 ->	119.0 9.1	0.0	29.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	11.38	5.14	0.02	24178 (m)	349.0 ->	99.0 44.9	22.3	62.3

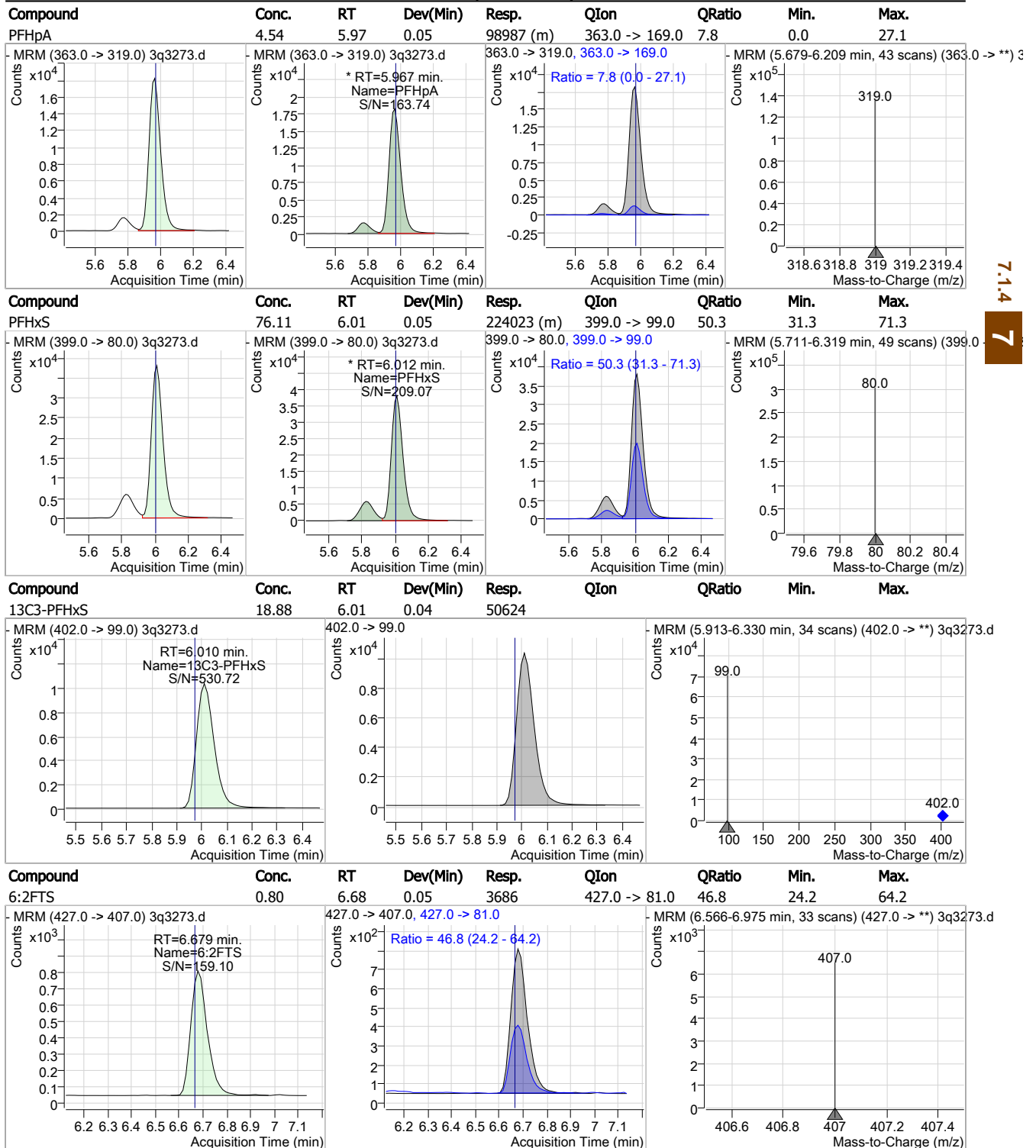


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.27	5.97	0.05	455795				



Sample Results: **3Q3273.D**

Perfluorinated Compounds by LC/MS/MS

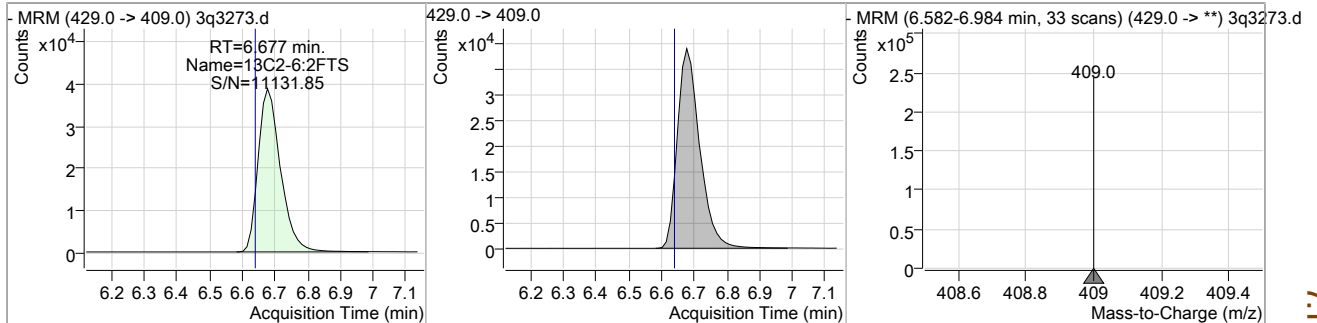


7.14
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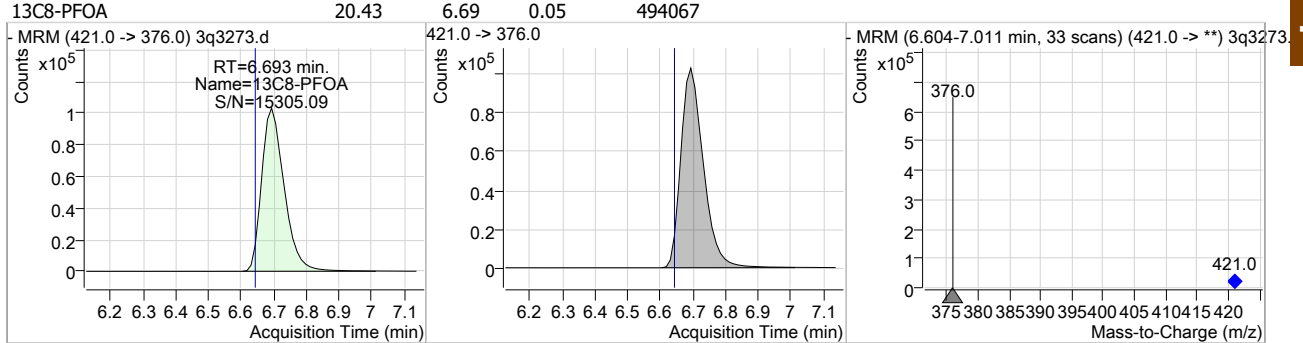
Sample Results: **3Q3273.D**

Perfluorinated Compounds by LC/MS/MS

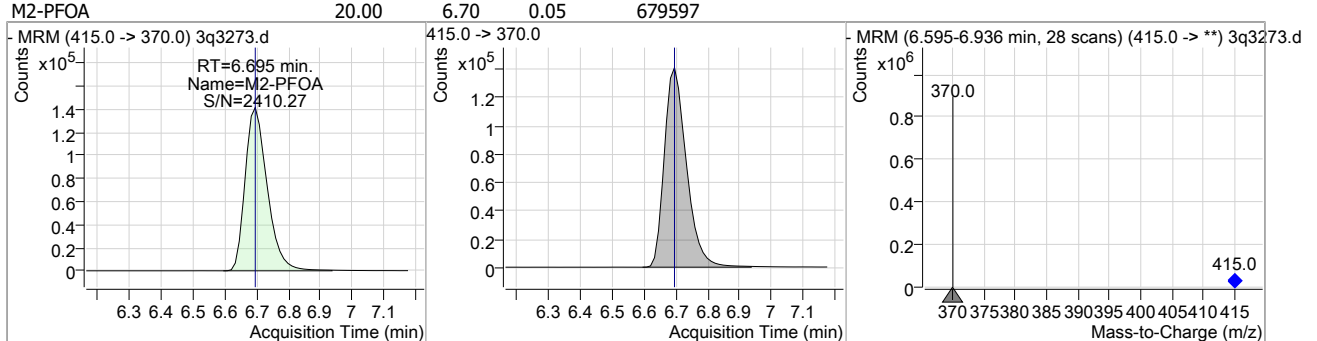
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.62	6.68	0.04	184600				



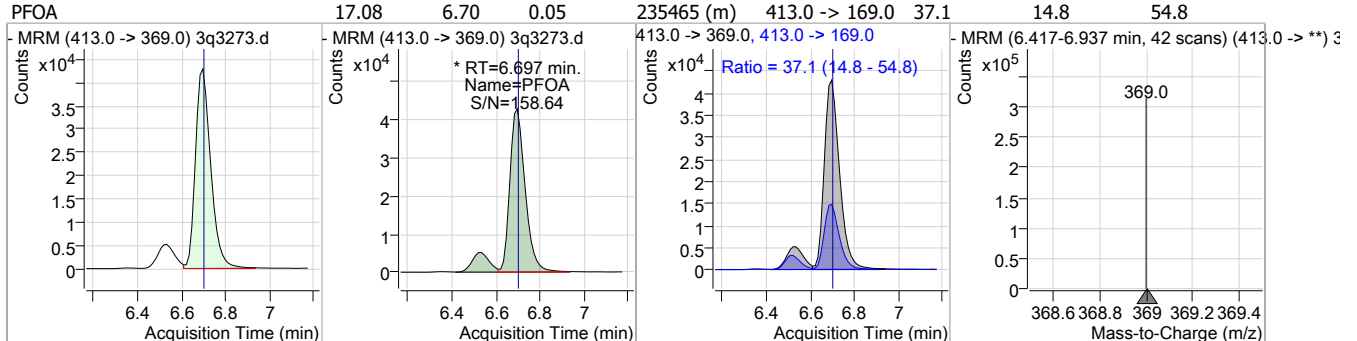
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.43	6.69	0.05	494067				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.70	0.05	679597				



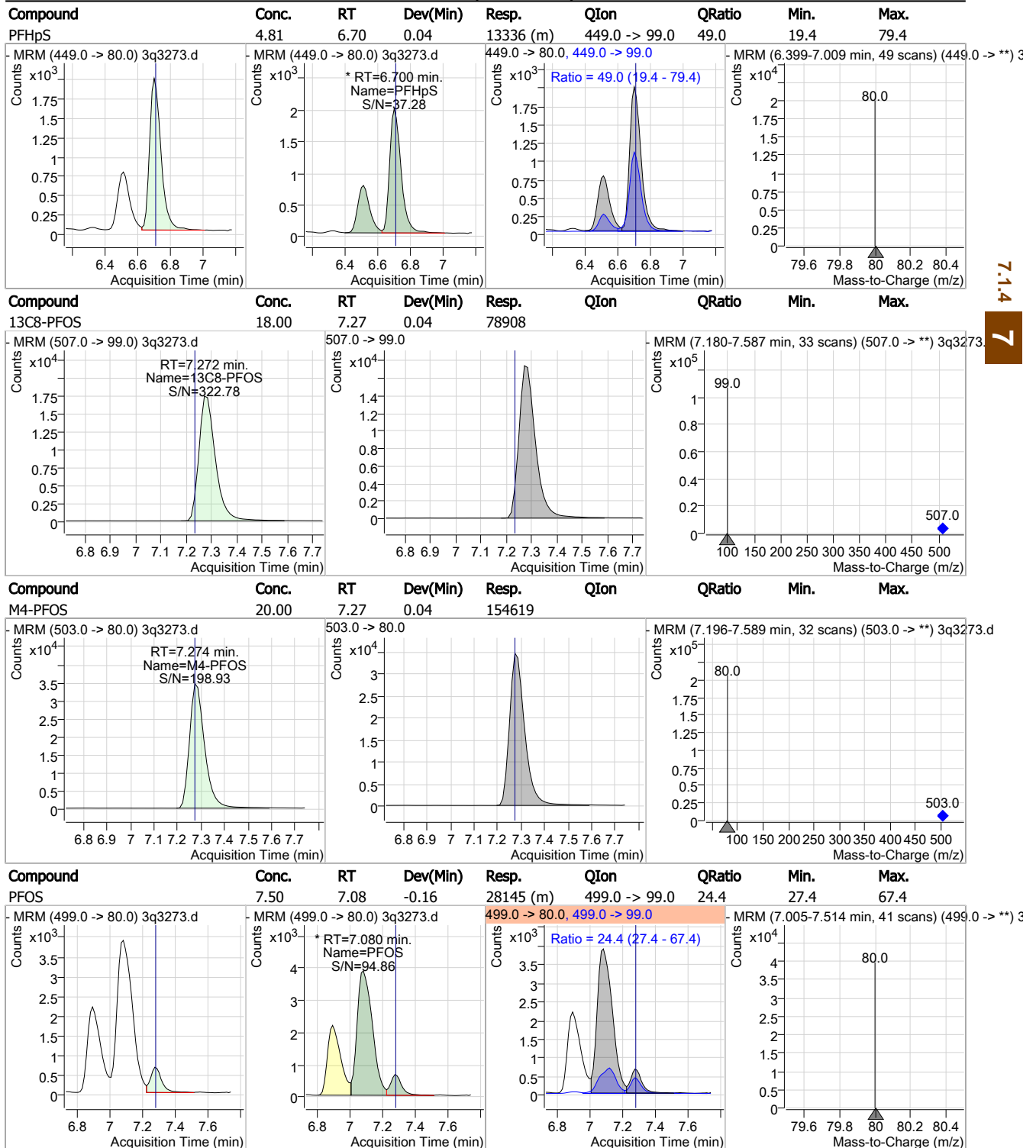
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	17.08	6.70	0.05	235465 (m)	413.0 -> 169.0	37.1	14.8	54.8



7.1.4
7

Sample Results: **3Q3273.D**

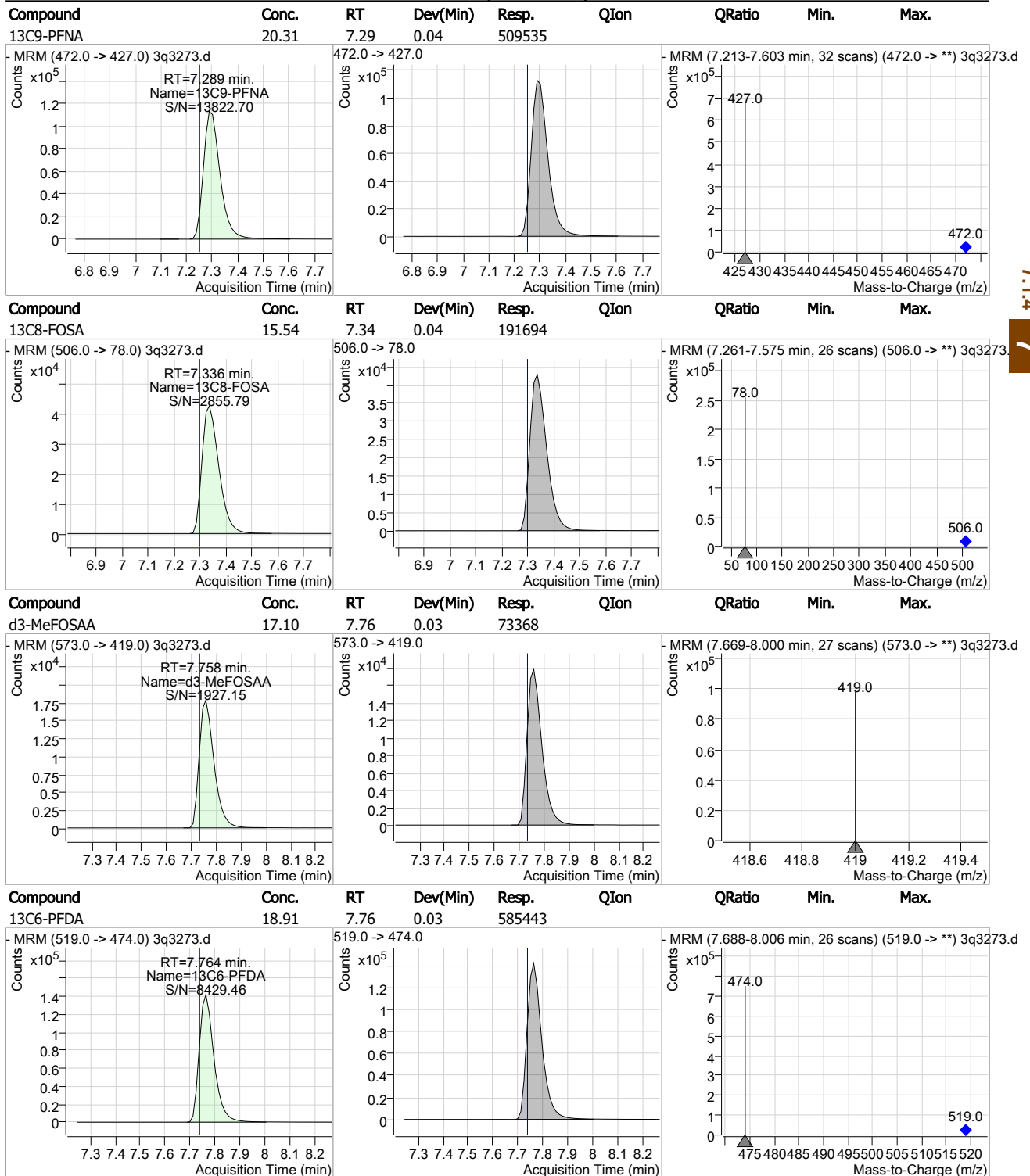
Perfluorinated Compounds by LC/MS/MS



7.1.4
7

Sample Results: **3Q3273.D**

Perfluorinated Compounds by LC/MS/MS



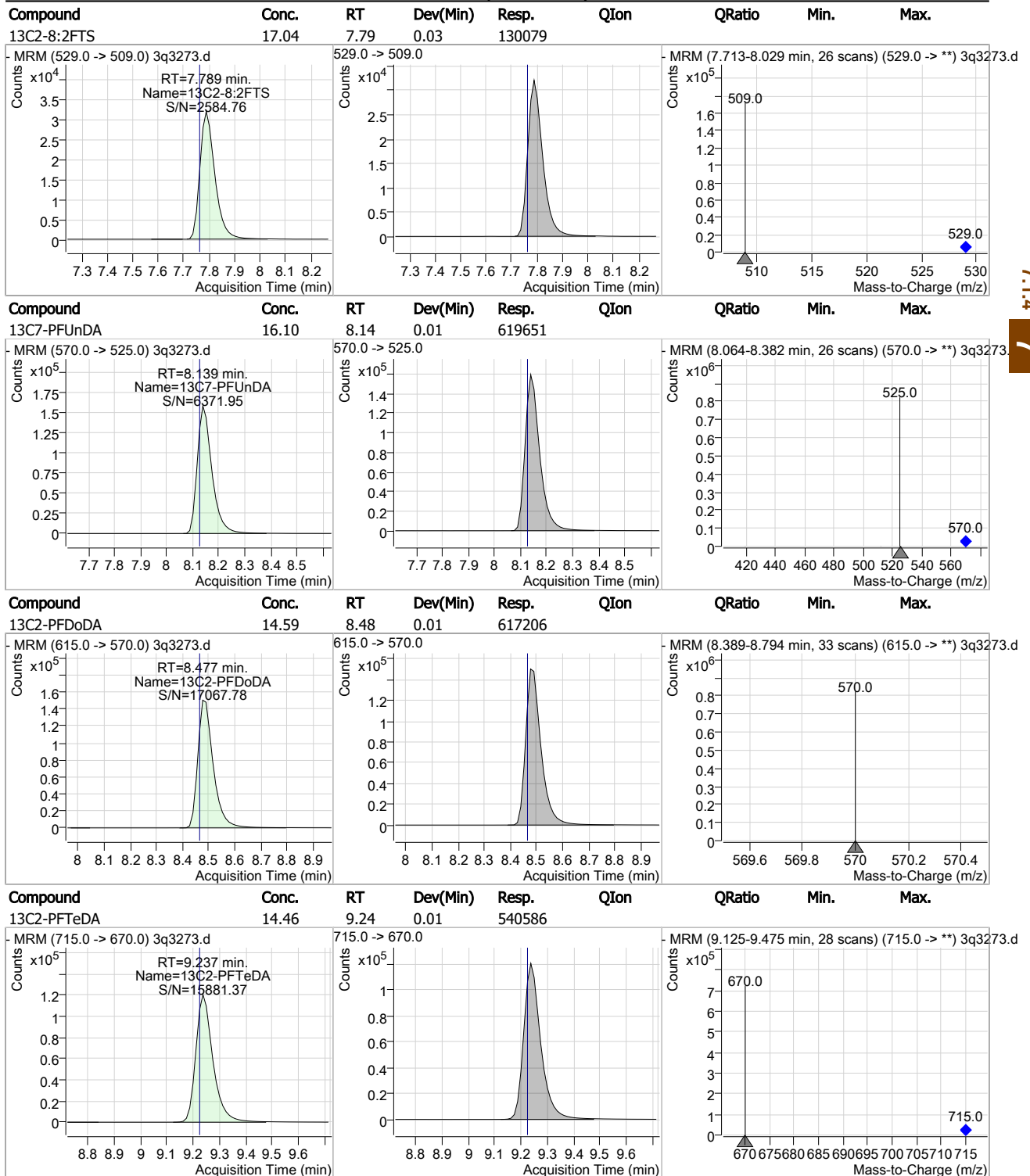
7.1.4

7



Sample Results: **3Q3273.D**

Perfluorinated Compounds by LC/MS/MS



7.1.4
7

Manual Integration Approval Summary

Sample Number: FA63526-4 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3273.D **Analyst approved:** 04/26/19 09:30 Natasha Gumtie
Injection Time: 04/25/19 15:56 **Supervisor approved:** 04/26/19 16:16 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluoropentanesulfonic acid	2706-91-4		5.14	Split peak
Perfluoroheptanoic acid	375-85-9		5.97	Split peak
Perfluorohexanesulfonic acid	355-46-4		6.01	Split peak
Perfluorooctanoic acid	335-67-1		6.70	Split peak
Perfluoroheptanesulfonic acid	375-92-8		6.70	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.08	Split peak

7.1.4.1

7

Sample Results: **3Q3276.D**

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/30/19 15:16

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3276.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 4:43:36 PM
 Sample Name : fa63526-5
 Vial : P3-C7
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74736,S3Q83,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	336240	20.00 µg/L	0.000
M5-PFPeA	3.611	268.0 -> 223.0	235329	20.00 µg/L	0.025
M5-PFHxA	5.025	318.0 -> 273.0	354794	20.00 µg/L	0.050
M4-PFHpA	5.978	367.0 -> 322.0	435845	20.00 µg/L	0.061
M8-PFOA	6.693	421.0 -> 376.0	465782	20.00 µg/L	0.050
M9-PFNA	7.289	472.0 -> 427.0	439375	20.00 µg/L	0.038
M6-PFDA	7.764	519.0 -> 474.0	533651	20.00 µg/L	0.025
M7-PFUnDA	8.127	570.0 -> 525.0	596360	20.00 µg/L	0.000
M2-PFDoDA	8.452	615.0 -> 570.0	630441	20.00 µg/L	-0.013
M2-PFTeDA	9.212	715.0 -> 670.0	567761	20.00 µg/L	-0.012
M8-FOSA	7.336	506.0 -> 78.0	192574	20.00 µg/L	0.038
M3-PFBS	3.929	302.0 -> 99.0	47938	20.00 µg/L	0.037
M3-PFHxS	6.022	402.0 -> 99.0	49135	20.00 µg/L	0.050
M8-PFOS	7.272	507.0 -> 99.0	63211	20.00 µg/L	0.038
M2-4:2FTS	4.921	329.0 -> 309.0	139554	20.00 µg/L	0.050
M2-6:2FTS	6.677	429.0 -> 409.0	230599	20.00 µg/L	0.038
M2-8:2FTS	7.789	529.0 -> 509.0	122356	20.00 µg/L	0.026
M3-MeFOSAA	7.758	573.0 -> 419.0	70466	20.00 µg/L	0.025
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	-
13C2-PFOA	6.695	415.0 -> 370.0	650910	20.00 µg/L	0.050
13C4-PFOS	7.274	503.0 -> 80.0	133765	20.00 µg/L	0.038
System Monitoring Compounds					
13C2-4:2FTS	4.921	329.0 -> 309.0	139272	19.16 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C2-6:2FTS	6.677	429.0 -> 409.0	230476	24.49 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 122.5%	
13C2-8:2FTS	7.789	529.0 -> 509.0	122363	16.03 µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.1%	
13C2-PFDoDA	8.452	615.0 -> 570.0	630852	14.91 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.6%	
13C2-PFTeDA	9.212	715.0 -> 670.0	567762	15.19 µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.0%	
13C3-PFBS	3.929	302.0 -> 99.0	47770	19.24 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C3-PFHxS	6.022	402.0 -> 99.0	48997	18.28 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.4%	
13C4-PFBA	1.727	217.0 -> 172.0	335892	19.86 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C4-PFHpA	5.978	367.0 -> 322.0	435070	19.35 µg/L	0.061
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C5-PFHxA	5.025	318.0 -> 273.0	354860	19.29 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C5-PFPeA	3.611	268.0 -> 223.0	234448	18.93 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C6-PFDA	7.764	519.0 -> 474.0	533397	17.23 µg/L	0.025

7.1.5
7

Sample Results: **3Q3276.D**

Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)	QValue
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.2%		
13C7-PFUnDA	8.127	570.0 -> 525.0	596449	15.49 µg/L	0.000	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.5%		
13C8-FOSA	7.336	506.0 -> 78.0	192349	15.60 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.0%		
13C8-PFOA	6.693	421.0 -> 376.0	465772	19.26 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.3%		
13C8-PFOS	7.272	507.0 -> 99.0	64533	14.72 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.6%		
13C9-PFNA	7.289	472.0 -> 427.0	438466	17.48 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.4%		
d3-MeFOSAA	7.758	573.0 -> 419.0	70751	16.49 µg/L	0.025	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.5%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
M2-PFOA	6.695	415.0 -> 370.0	650910	20.00 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.274	503.0 -> 80.0	133765	20.00 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						
4:2FTS	4.923	327.0 -> 307.0	12876	3.10 µg/L	98	
6:2FTS	6.679	427.0 -> 407.0	567535	98.15 µg/L	100	
8:2FTS	7.789	527.0 -> 507.0	15730	4.87 µg/L	98	
EtFOSAA	-	584.0 -> 419.0	-	N.D.		
FOSA	7.212	498.0 -> 78.0	8740	1.92 µg/L	m	97
MeFOSAA	-	570.0 -> 419.0	-	N.D.		
PFBA	1.723	213.0 -> 169.0	79897	25.52 µg/L	100	
PFBS	3.933	299.0 -> 80.0	93221	28.86 µg/L	98	
PFDA	-	513.0 -> 469.0	-	N.D.		
PFDoDA	-	613.0 -> 569.0	-	N.D.		
PFDS	-	599.0 -> 80.0	-	N.D.		
PFHpA	5.967	363.0 -> 319.0	553232	26.54 µg/L	m	99
PFHpS	6.712	449.0 -> 80.0	6675	2.48 µg/L	m	98
PFHxA	5.027	313.0 -> 269.0	583595	87.67 µg/L		99
PFHxS	6.024	399.0 -> 80.0	305481	106.77 µg/L	m	97
PFNA	7.289	463.0 -> 419.0	61671	4.30 µg/L		100
PFNS	7.557	549.0 -> 80.0	0	0.00 µg/L	m	1
PFOA	6.697	413.0 -> 369.0	582520	44.89 µg/L	m	96
PFOS	7.275	499.0 -> 80.0	1134749	376.50 µg/L	m	98
PFPeA	3.615	263.0 -> 219.0	892117	72.96 µg/L		100
PFPeS	5.157	349.0 -> 80.0	52359	24.93 µg/L	m	95
PFTeDA	-	713.0 -> 669.0	-	N.D.		
PFTrDA	-	663.0 -> 619.0	-	N.D.		
PFUnDA	-	563.0 -> 519.0	-	N.D.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

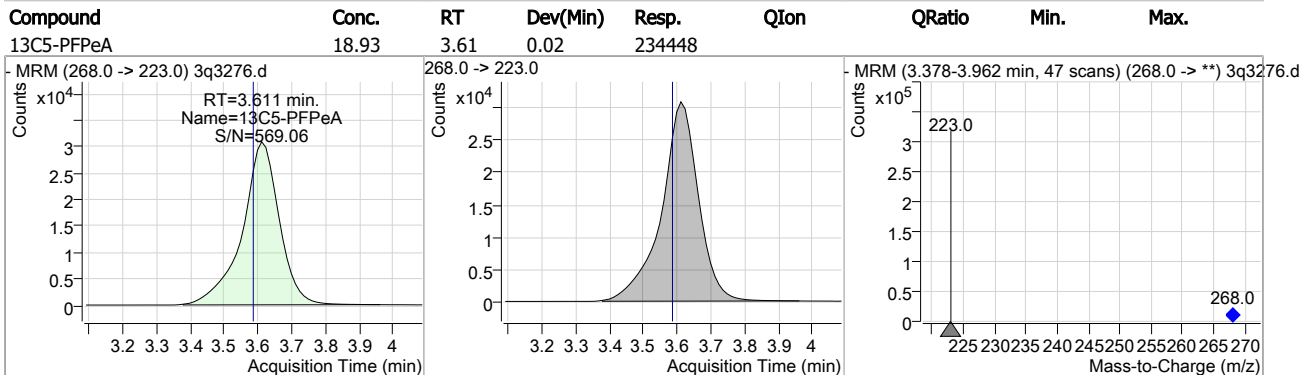
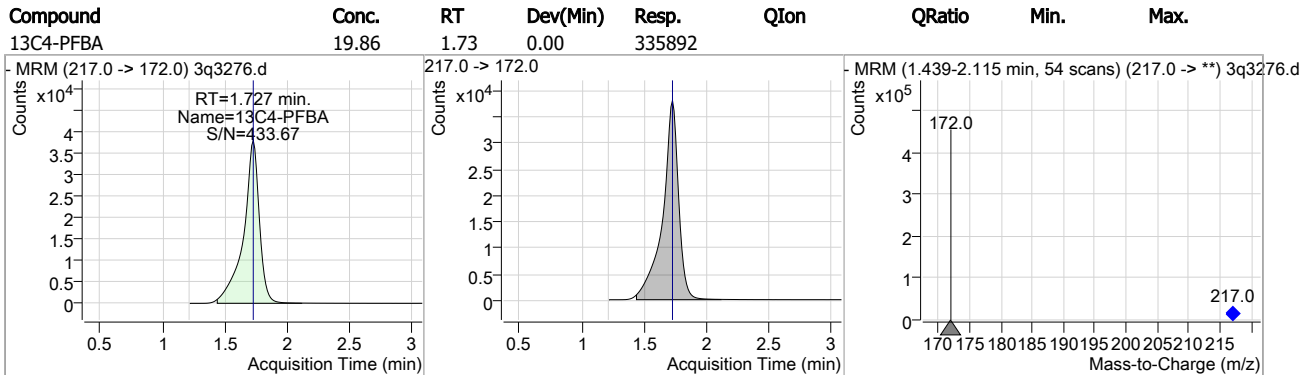
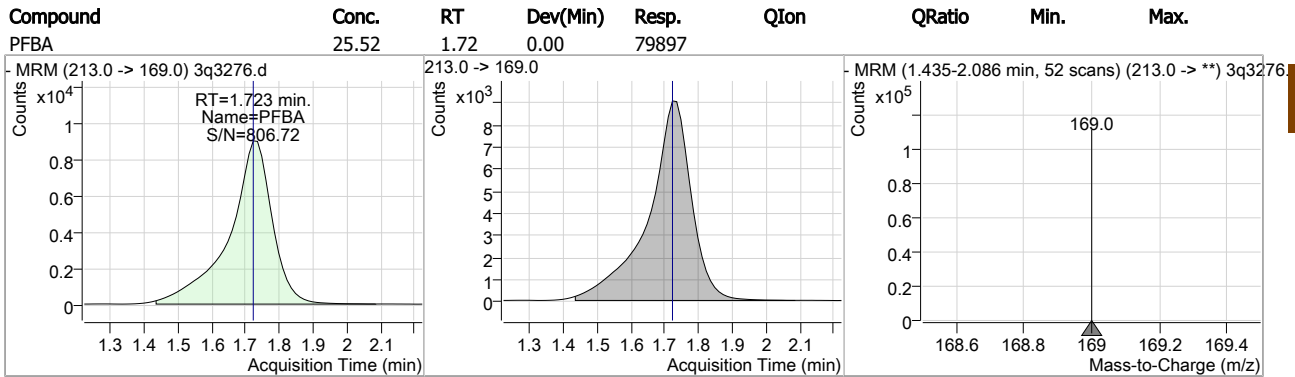
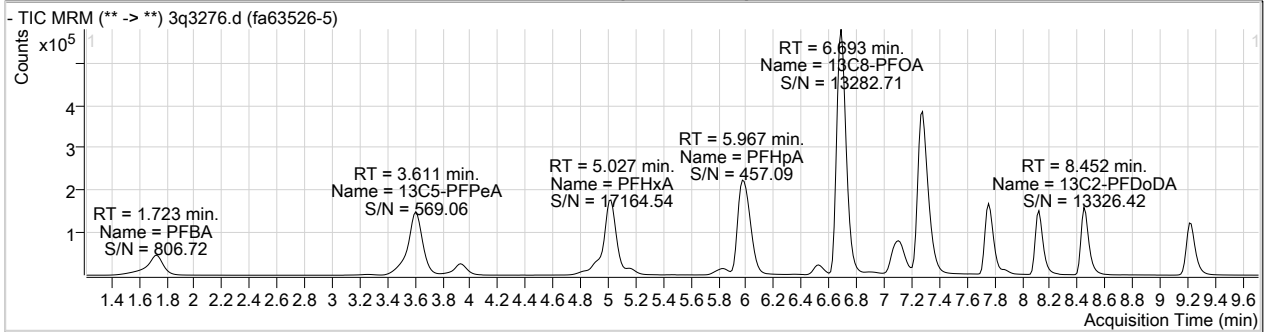
7.1.5
7

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



Sample Results: **3Q3276.D**

Perfluorinated Compounds by LC/MS/MS

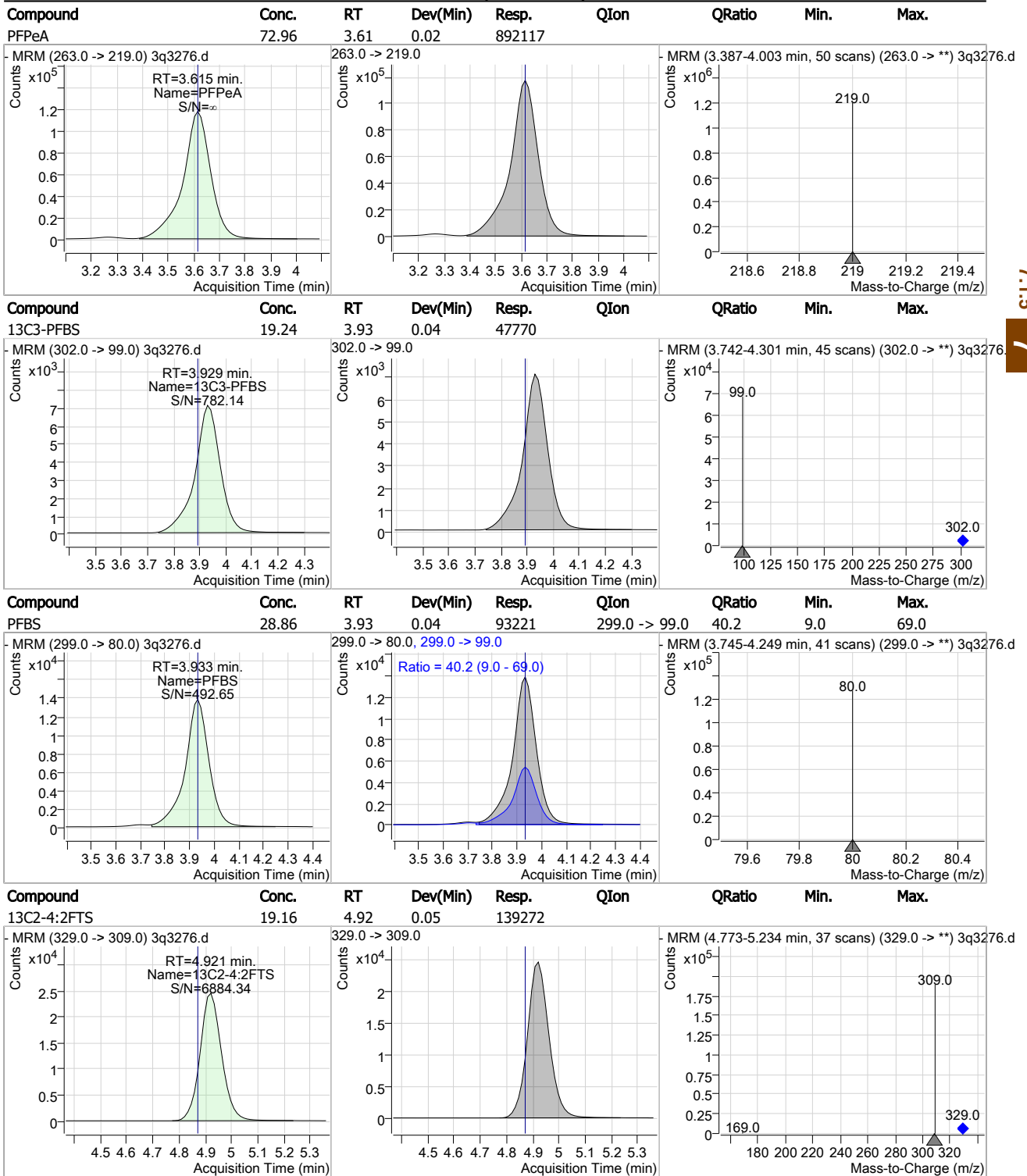


7.15
7



Sample Results: **3Q3276.D**

Perfluorinated Compounds by LC/MS/MS

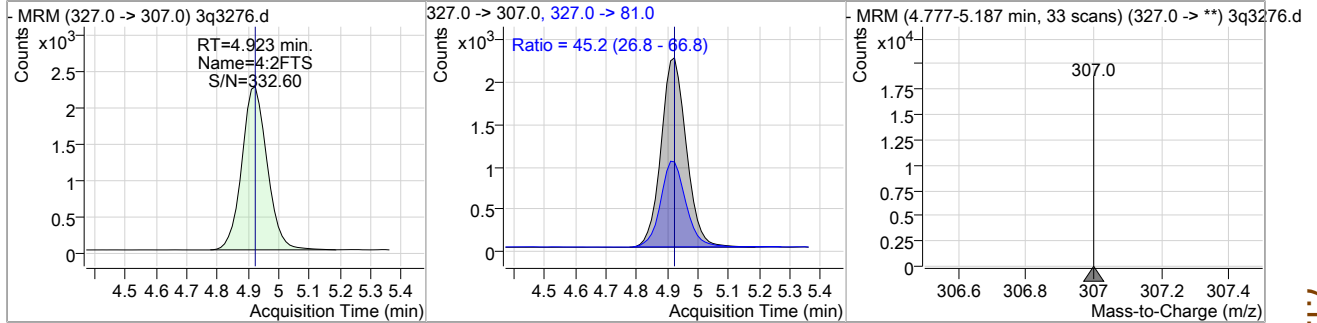


7.1.5
7

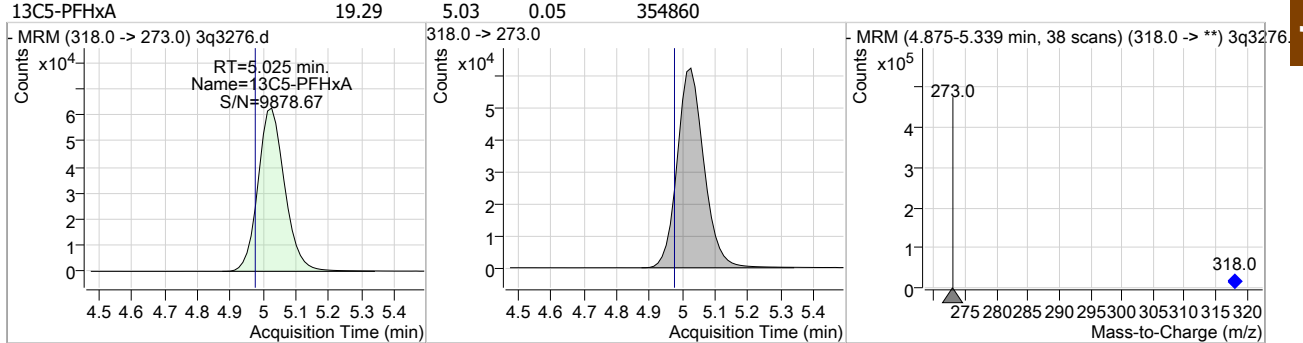
Sample Results: **3Q3276.D**

Perfluorinated Compounds by LC/MS/MS

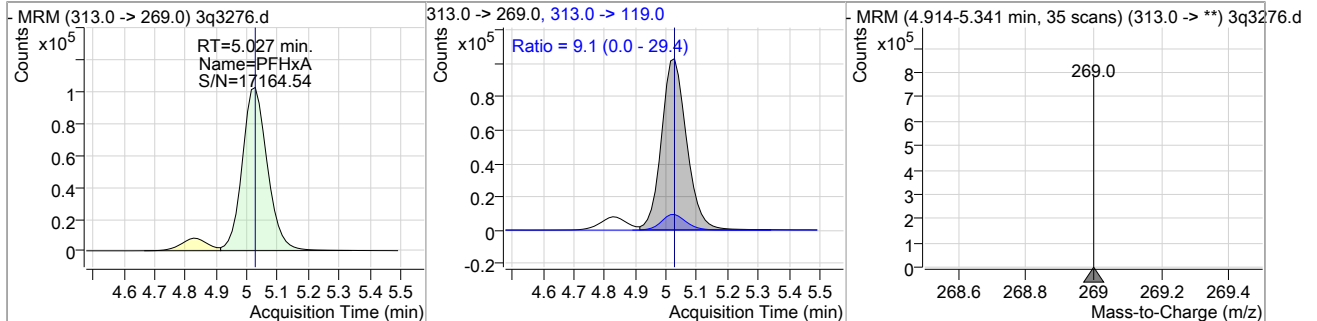
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	3.10	4.92	0.05	12876	327.0 -> 81.0	45.2	26.8	66.8



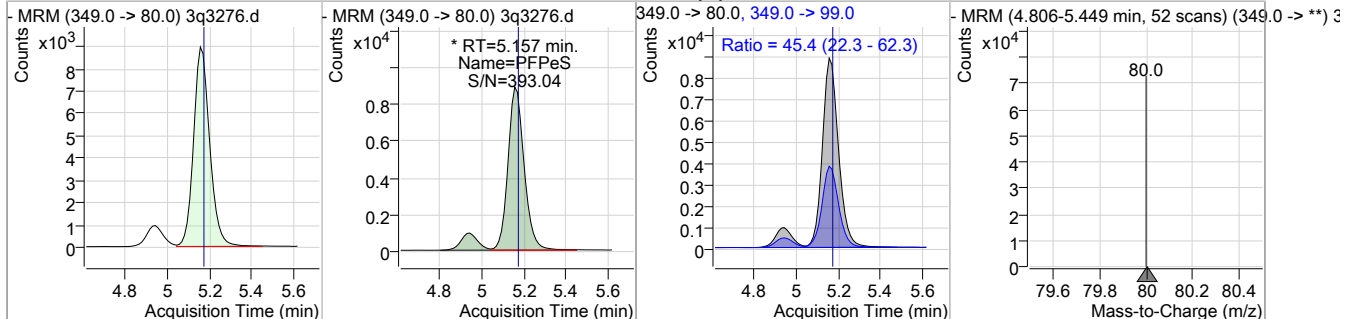
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.29	5.03	0.05	354860				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	87.67	5.03	0.05	583595	313.0 -> 119.0	9.1	0.0	29.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	24.93	5.16	0.04	52359 (m)	349.0 -> 99.0	45.4	22.3	62.3

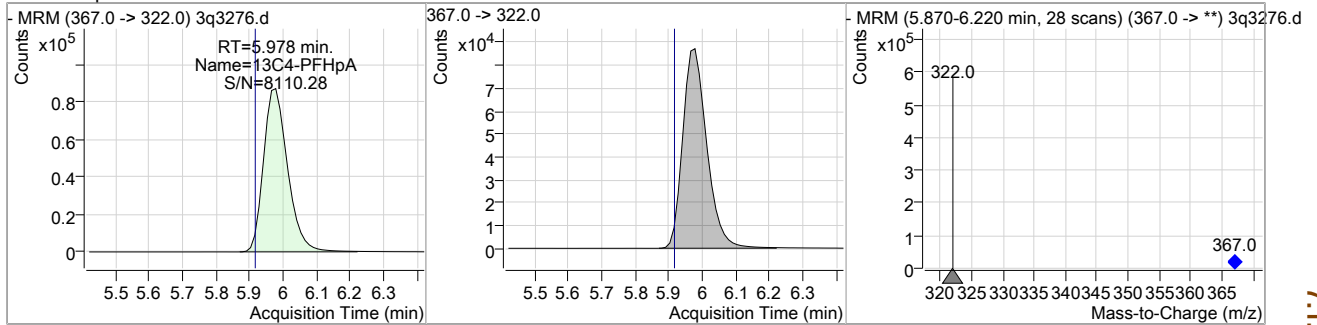


7.1.5
7

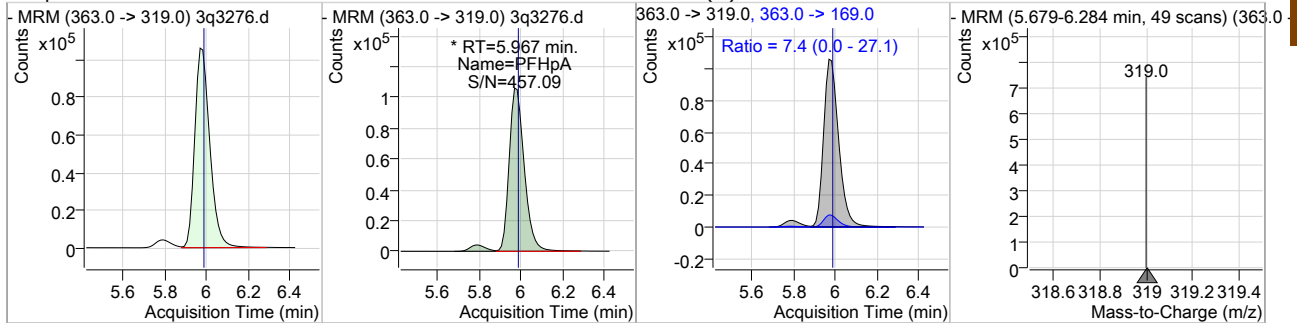
Sample Results: **3Q3276.D**

Perfluorinated Compounds by LC/MS/MS

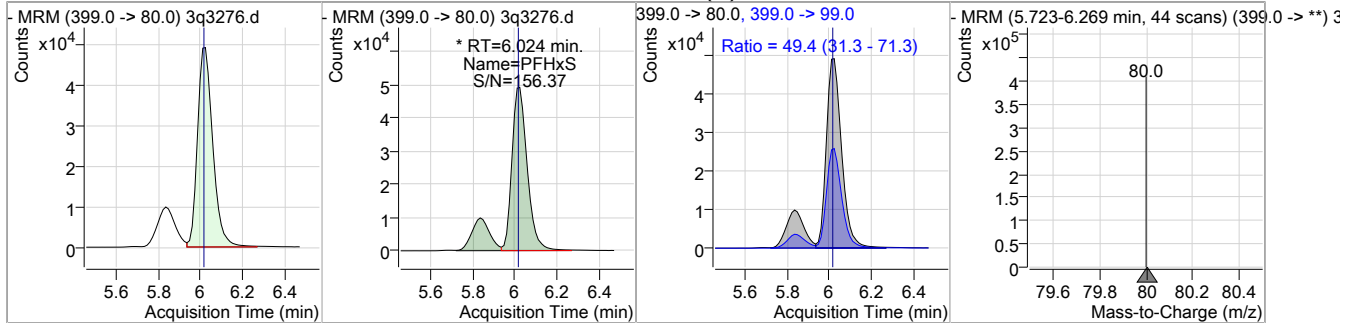
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.35	5.98	0.06	435070				



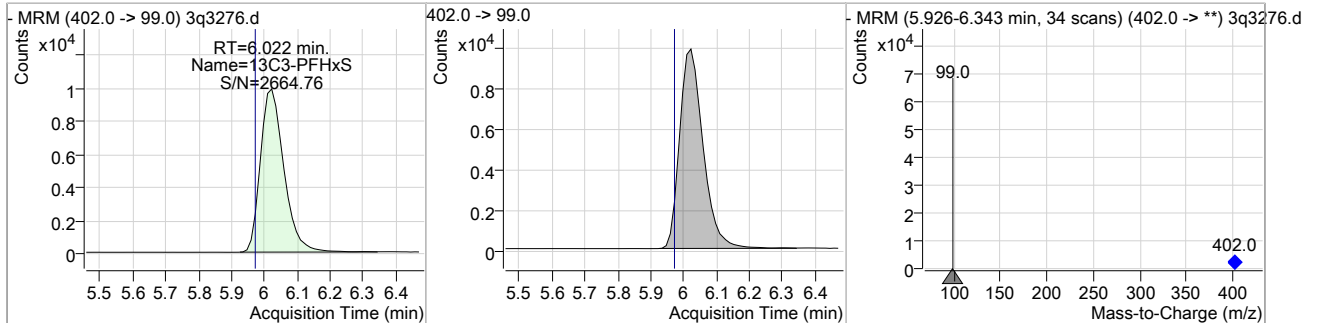
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	26.54	5.97	0.05	553232 (m)	363.0 -> 169.0	7.4	0.0	27.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	106.77	6.02	0.06	305481 (m)	399.0 -> 99.0	49.4	31.3	71.3



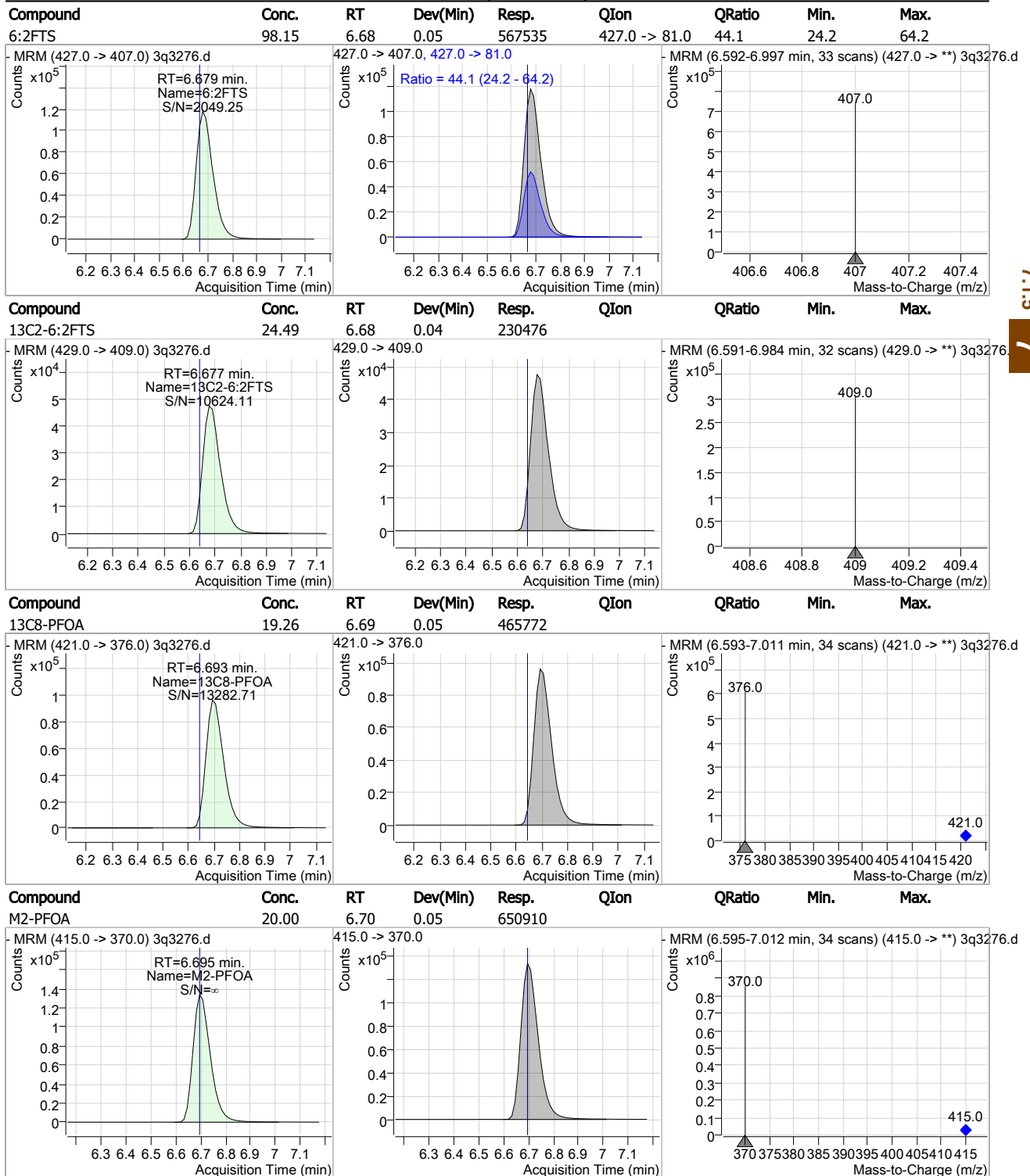
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.28	6.02	0.05	48997				



7.1.5
7

Sample Results: **3Q3276.D**

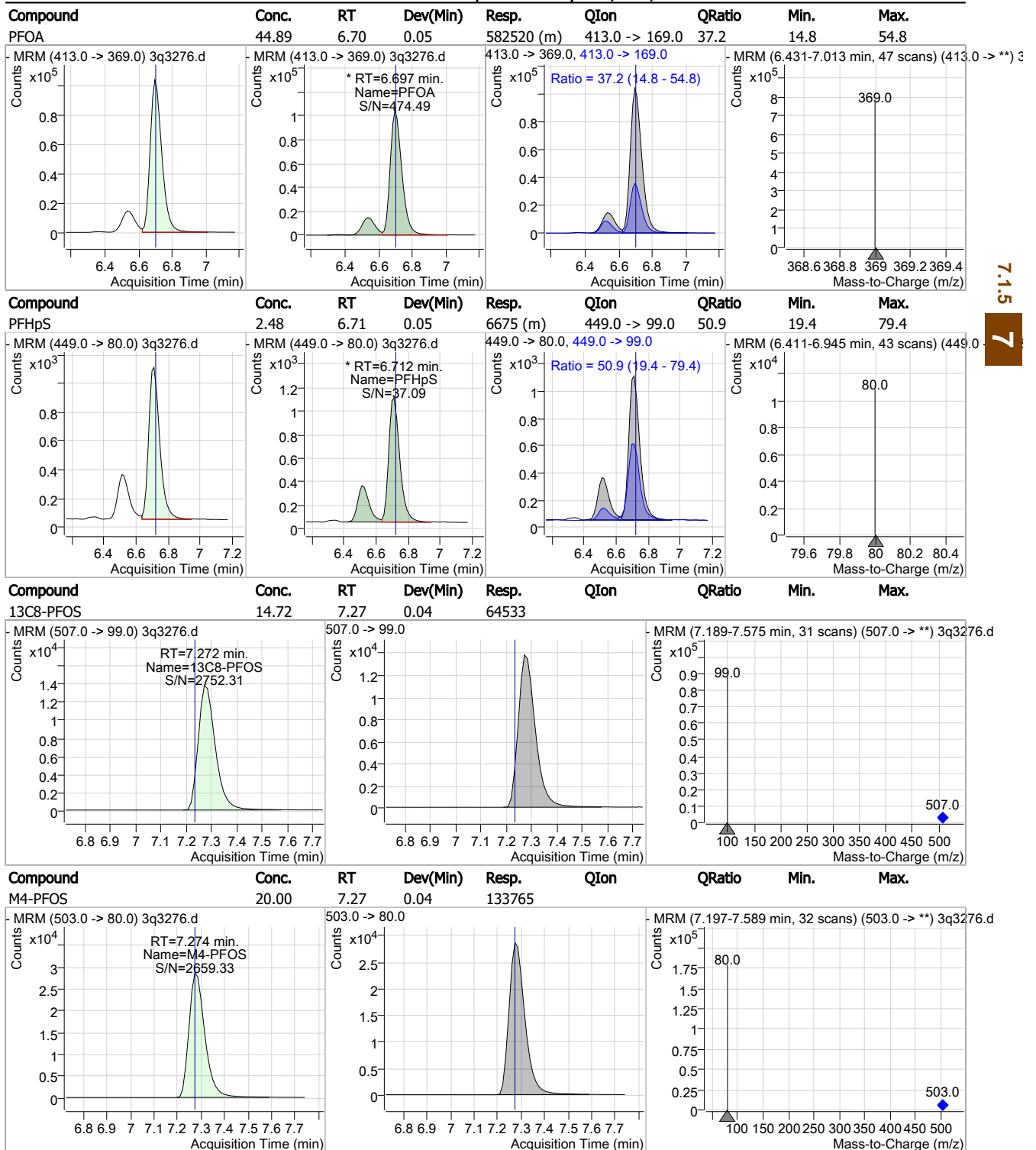
Perfluorinated Compounds by LC/MS/MS



7.1.5
7

Sample Results: **3Q3276.D**

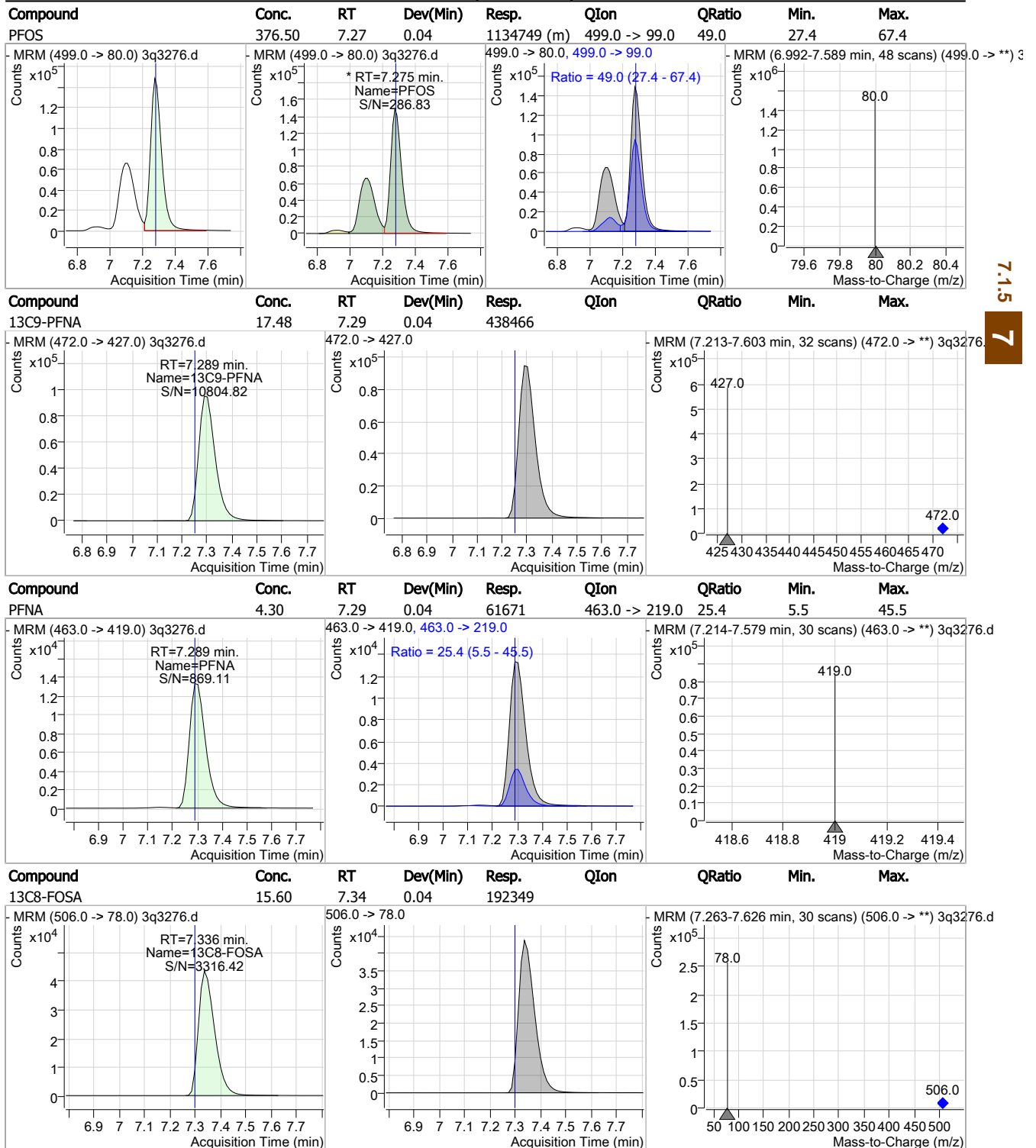
Perfluorinated Compounds by LC/MS/MS



7.15
7

Sample Results: **3Q3276.D**

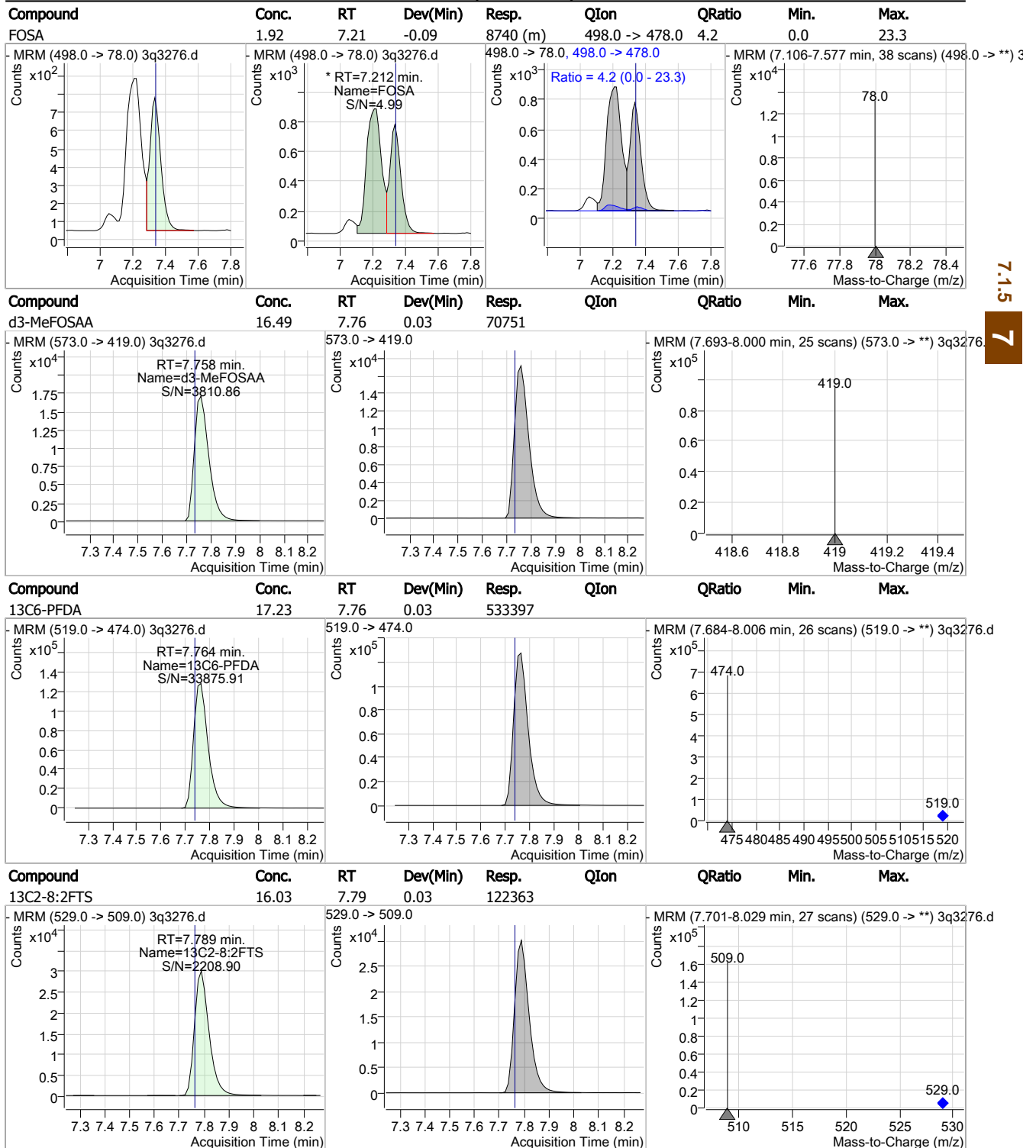
Perfluorinated Compounds by LC/MS/MS



7.1.5
7

Sample Results: **3Q3276.D**

Perfluorinated Compounds by LC/MS/MS

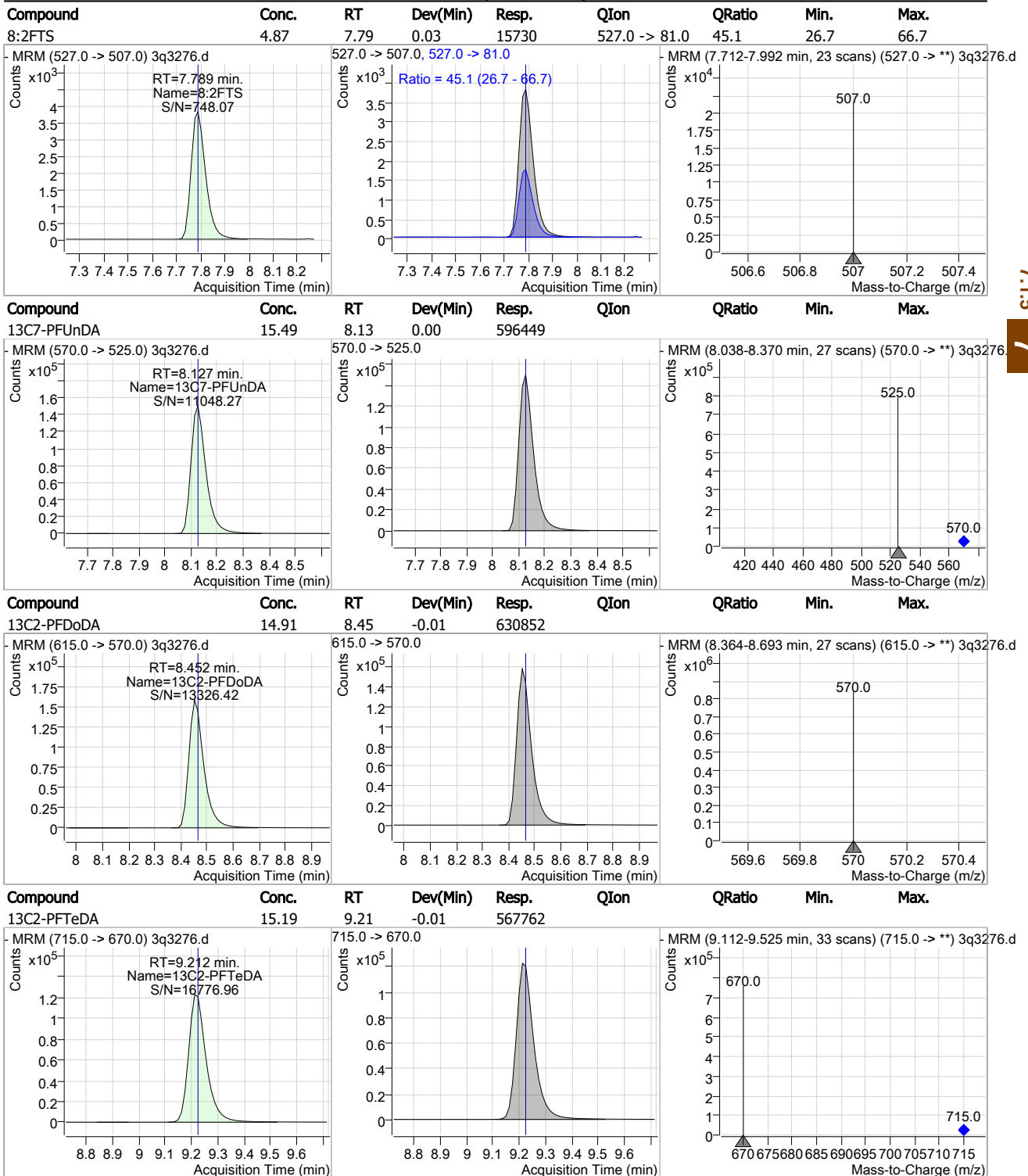


7.15
7



Sample Results: **3Q3276.D**

Perfluorinated Compounds by LC/MS/MS



7.1.5
7

Manual Integration Approval Summary

Sample Number: FA63526-5 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3276.D **Analyst approved:** 04/29/19 11:51 Natasha Gumtie
Injection Time: 04/25/19 16:43 **Supervisor approved:** 04/30/19 15:16 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluoropentanesulfonic acid	2706-91-4		5.16	Split peak
Perfluoroheptanoic acid	375-85-9		5.97	Split peak
Perfluorohexanesulfonic acid	355-46-4		6.02	Split peak
Perfluorooctanoic acid	335-67-1		6.70	Split peak
Perfluoroheptanesulfonic acid	375-92-8		6.71	Split peak
PFOSA	754-91-6		7.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.28	Split peak

7.1.5.1

7

Sample Results:

3Q3306.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/29/19 15:02

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3306.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/26/2019 11:09:55 AM
 Sample Name : fa63526-5
 Vial : P3-E8
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q84.batch.bin
 Sample Information : op74736,S3Q84,125,,,1.0,10,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	30640	20.00 µg/L	0.000
M5-PFPeA	3.586	268.0 -> 223.0	22448	20.00 µg/L	0.000
M5-PFHxA	4.988	318.0 -> 273.0	33899	20.00 µg/L	0.012
M4-PFHpA	5.940	367.0 -> 322.0	41930	20.00 µg/L	0.024
M8-PFOA	6.668	421.0 -> 376.0	44363	20.00 µg/L	0.025
M9-PFNA	7.264	472.0 -> 427.0	44564	20.00 µg/L	0.012
M6-PFDA	7.738	519.0 -> 474.0	50968	20.00 µg/L	-0.002
M7-PFUnDA	8.127	570.0 -> 525.0	56518	20.00 µg/L	0.000
M2-PFDoDA	8.464	615.0 -> 570.0	58126	20.00 µg/L	-0.001
M2-PFTeDA	9.212	715.0 -> 670.0	48561	20.00 µg/L	-0.012
M8-FOSA	7.311	506.0 -> 78.0	19328	20.00 µg/L	0.012
M3-PFBS	3.904	302.0 -> 99.0	4550	20.00 µg/L	0.012
M3-PFHxS	5.985	402.0 -> 99.0	4890	20.00 µg/L	0.012
M8-PFOS	7.247	507.0 -> 99.0	7047	20.00 µg/L	0.012
M2-4:2FTS	4.883	329.0 -> 309.0	13092	20.00 µg/L	0.012
M2-6:2FTS	6.651	429.0 -> 409.0	22126	20.00 µg/L	0.012
M2-8:2FTS	7.776	529.0 -> 509.0	11177	20.00 µg/L	0.013
M3-MeFOSAA	7.746	573.0 -> 419.0	7180	20.00 µg/L	0.012
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	-
13C2-PFOA	6.670	415.0 -> 370.0	712263	20.00 µg/L	0.025
13C4-PFOS	7.249	503.0 -> 80.0	161546	20.00 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	4.883	329.0 -> 309.0	13038	1.79 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 9.0%		
13C2-6:2FTS	6.651	429.0 -> 409.0	22125	2.35 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 11.8%		
13C2-8:2FTS	7.776	529.0 -> 509.0	11156	1.46 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 7.3%		
13C2-PFDoDA	8.464	615.0 -> 570.0	58116	1.37 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 6.9%		
13C2-PFTeDA	9.212	715.0 -> 670.0	48410	1.30 µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 6.5%		
13C3-PFBS	3.904	302.0 -> 99.0	4449	1.79 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 9.0%		
13C3-PFHxS	5.985	402.0 -> 99.0	4953	1.85 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 9.2%		
13C4-PFBA	1.727	217.0 -> 172.0	31184	1.84 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 9.2%		
13C4-PFHpA	5.940	367.0 -> 322.0	41825	1.86 µg/L	0.024
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 9.3%		
13C5-PFHxA	4.988	318.0 -> 273.0	33696	1.83 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 9.2%		
13C5-PFPeA	3.586	268.0 -> 223.0	21681	1.75 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 8.8%		
13C6-PFDA	7.738	519.0 -> 474.0	50896	1.64 µg/L	-0.002

7.1.6
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Sample Results:

3Q3306.D

Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 8.2%	
13C7-PFUnDA	8.127	570.0 -> 525.0	56447	1.47 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 7.3%	
13C8-FOSA	7.311	506.0 -> 78.0	19303	1.57 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 7.8%	
13C8-PFOA	6.668	421.0 -> 376.0	44232	1.83 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 9.1%	
13C8-PFOS	7.247	507.0 -> 99.0	7037	1.60 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 8.0%	
13C9-PFNA	7.264	472.0 -> 427.0	44568	1.78 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 8.9%	
d3-MeFOSAA	7.746	573.0 -> 419.0	7202	1.68 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 8.4%	
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%	
M2-PFOA	6.670	415.0 -> 370.0	712263	2.00 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.0%	
M4-PFOS	7.249	503.0 -> 80.0	161546	2.00 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.0%	
Target Compounds					QValue
4:2FTS	4.886	327.0 -> 307.0	1231	0.32 µg/L	97
6:2FTS	6.654	427.0 -> 407.0	53257	9.60 µg/L	99
8:2FTS	7.763	527.0 -> 507.0	1614	0.55 µg/L	90
EtFOSAA	-	584.0 -> 419.0	-	N.D.	
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBA	1.723	213.0 -> 169.0	6678	2.34 µg/L	100
PFBS	3.908	299.0 -> 80.0	8841	2.88 µg/L	97
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFDS	-	599.0 -> 80.0	-	N.D.	
PFHpA	5.942	363.0 -> 319.0	52531	2.62 µg/L	m 98
PFHpS	6.674	449.0 -> 80.0	673	0.25 µg/L	m 89
PFHxA	4.990	313.0 -> 269.0	57067	8.97 µg/L	100
PFHxS	5.987	399.0 -> 80.0	30036	10.55 µg/L	m 98
PFNA	7.264	463.0 -> 419.0	6423	0.44 µg/L	93
PFNS	-	549.0 -> 80.0	-	N.D.	
PFOA	6.660	413.0 -> 369.0	55048	4.45 µg/L	m 94
PFOS	7.249	499.0 -> 80.0	117547	34.98 µg/L	m 97
PFPeA	3.590	263.0 -> 219.0	81081	6.95 µg/L	100
PFPeS	5.119	349.0 -> 80.0	5035	2.53 µg/L	m 92
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
HFPO-DA	-	329.0 -> 169.0	-	N.D.	

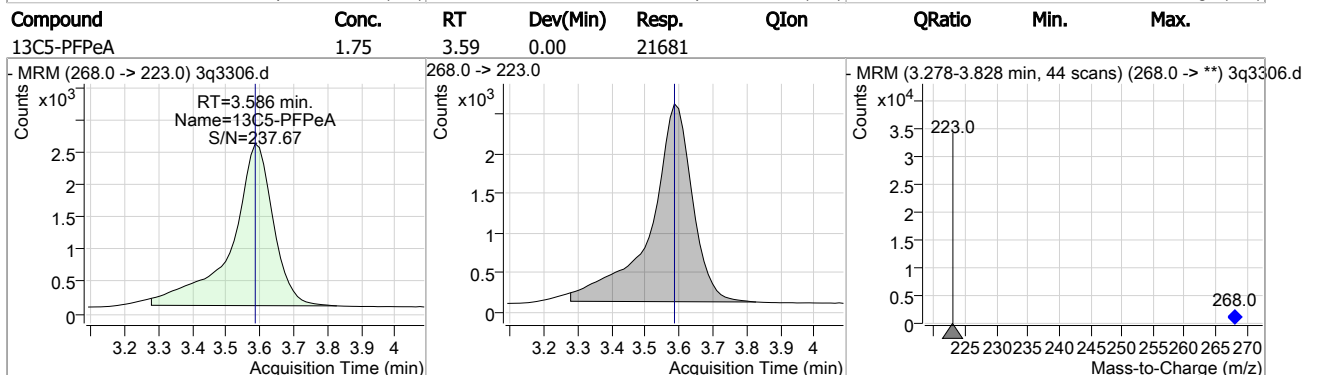
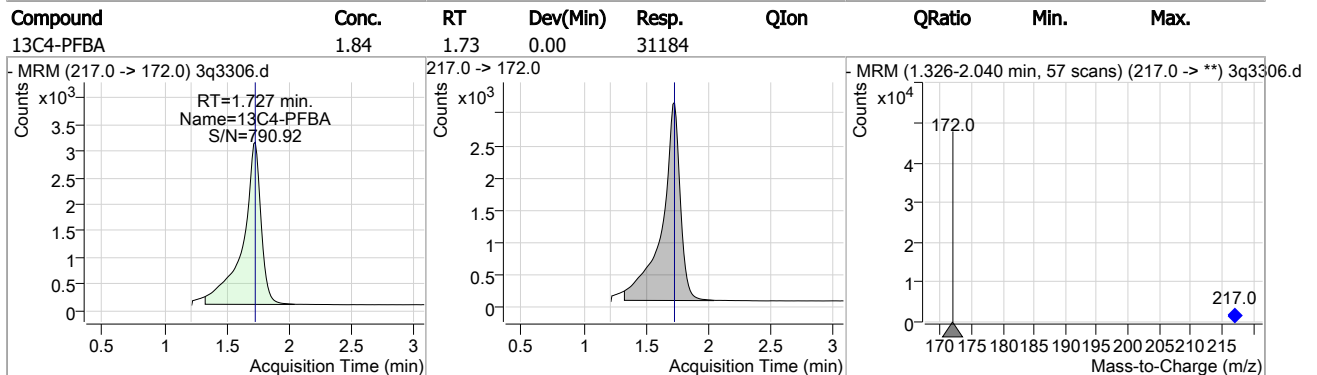
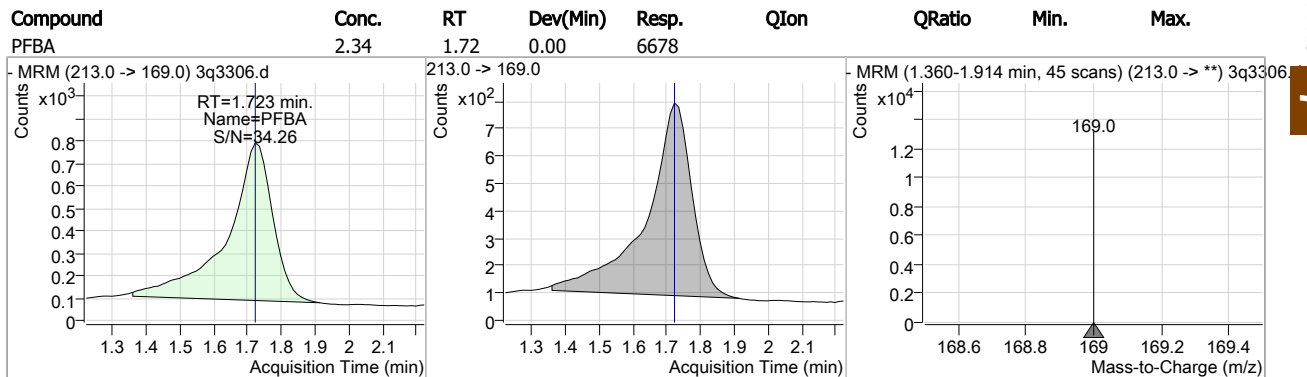
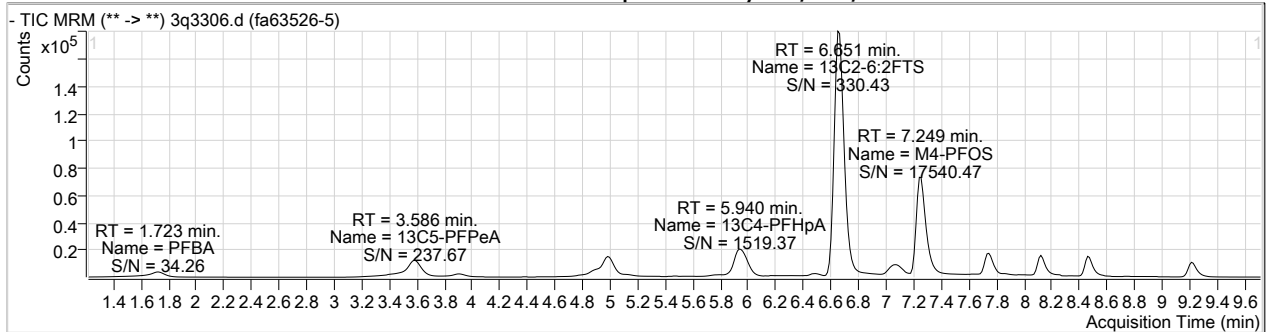
7.1.6
7

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

Sample Results:

3Q3306.D

Perfluorinated Compounds by LC/MS/MS



7.1.6

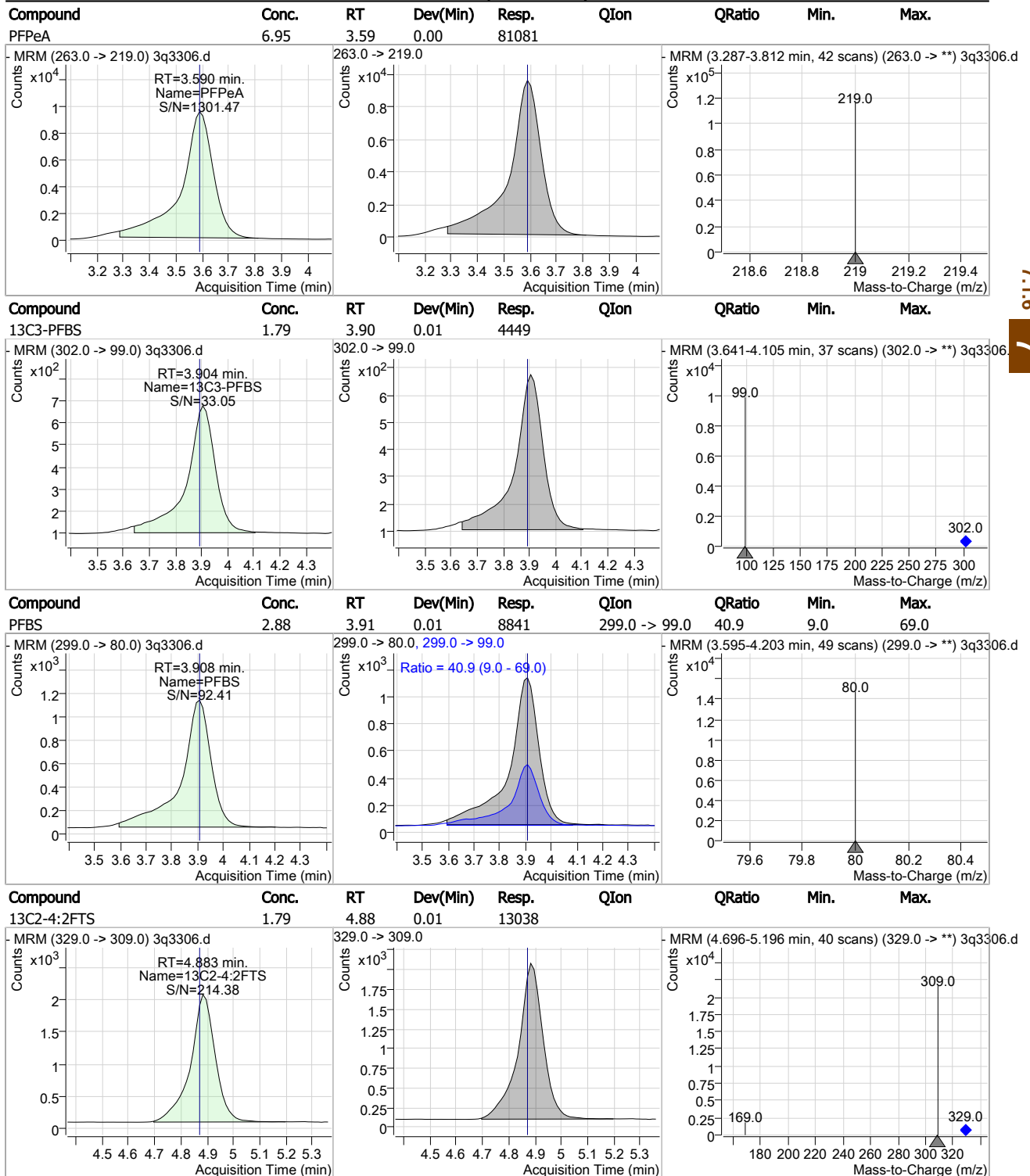
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Sample Results:

3Q3306.D

Perfluorinated Compounds by LC/MS/MS



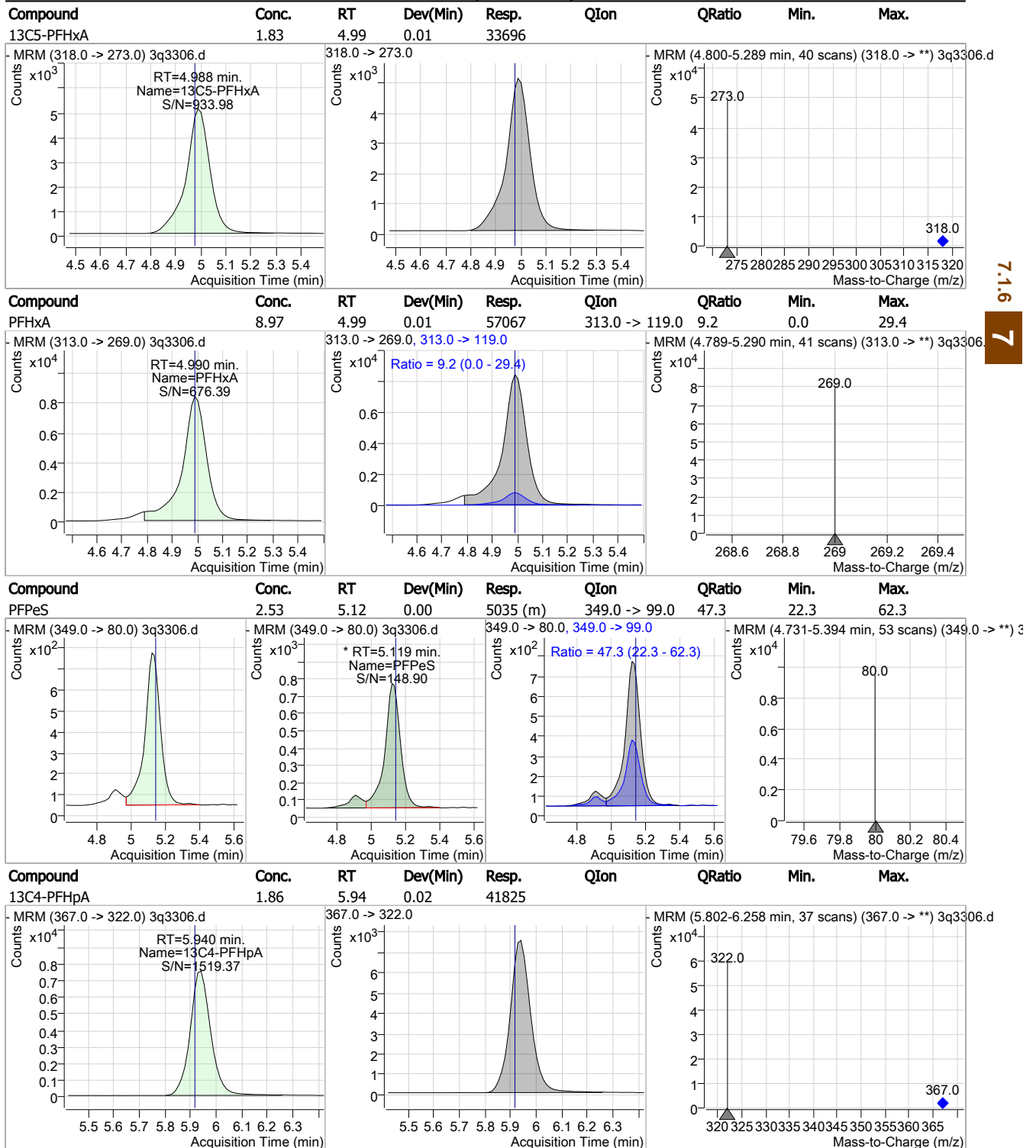
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Sample Results:

3Q3306.D

Perfluorinated Compounds by LC/MS/MS

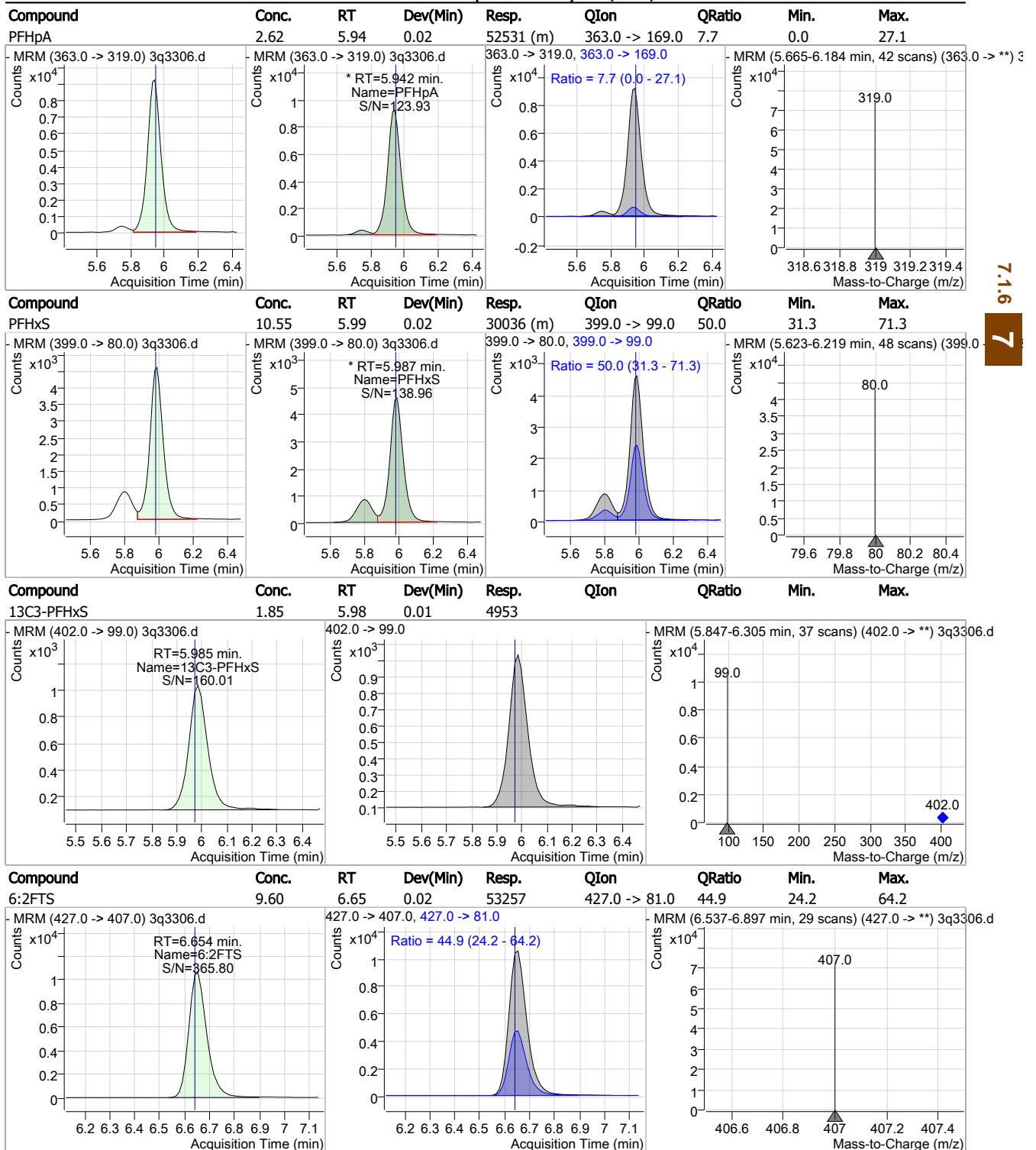


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Sample Results:

3Q3306.D

Perfluorinated Compounds by LC/MS/MS

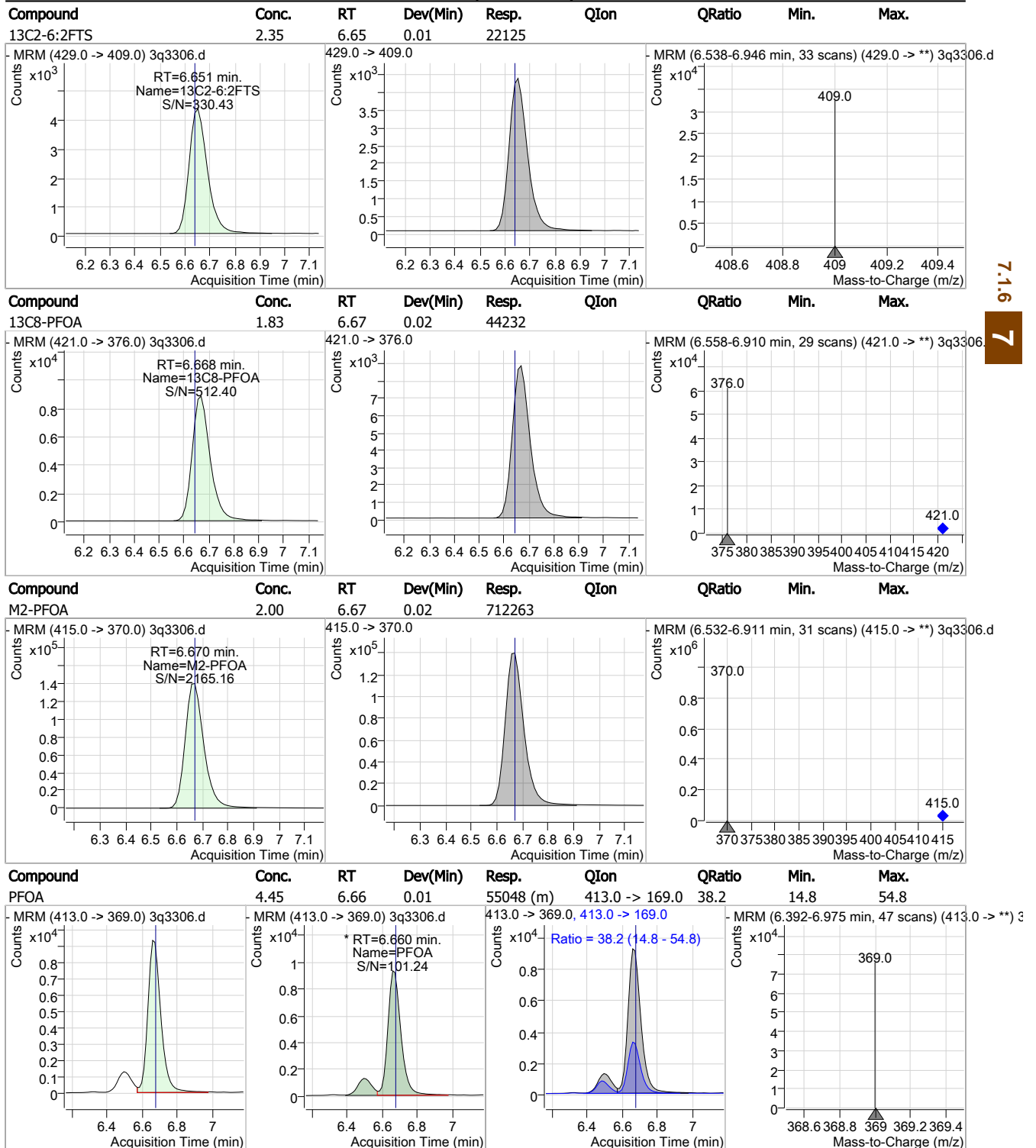


7.1.6
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Sample Results:

3Q3306.D

Perfluorinated Compounds by LC/MS/MS



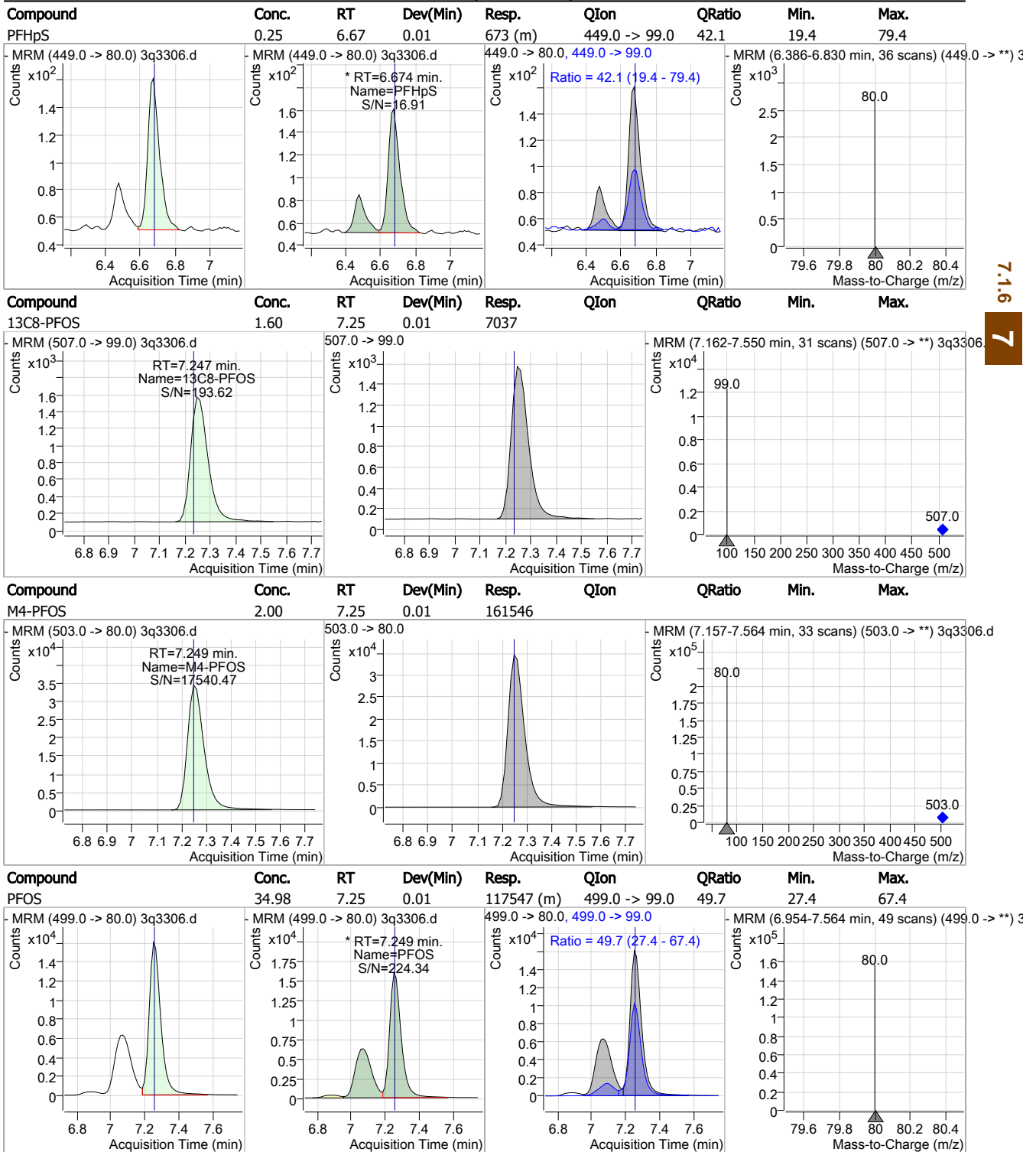
7.1.6
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Sample Results:

3Q3306.D

Perfluorinated Compounds by LC/MS/MS

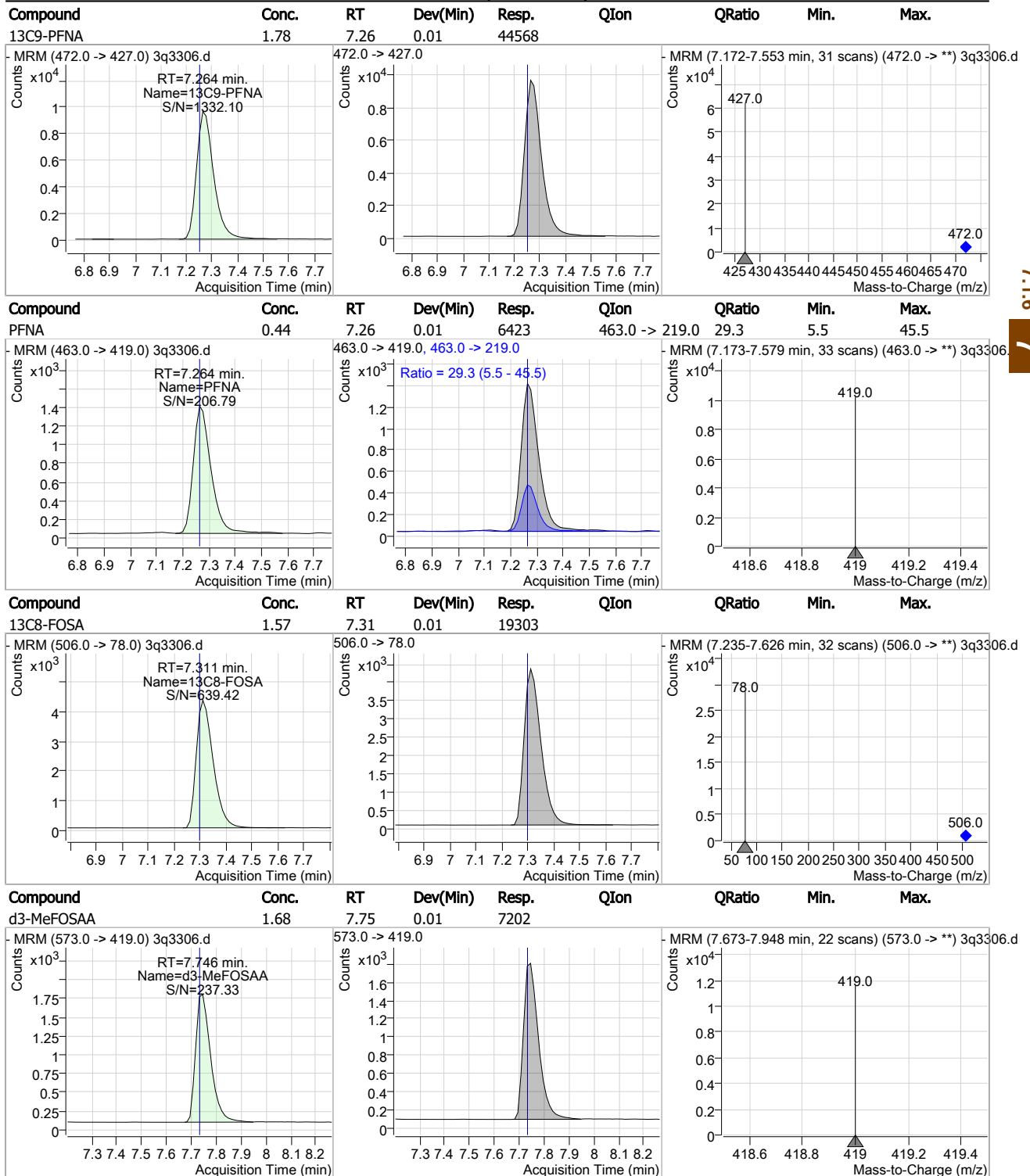


7.1.6
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Sample Results:

3Q3306.D

Perfluorinated Compounds by LC/MS/MS

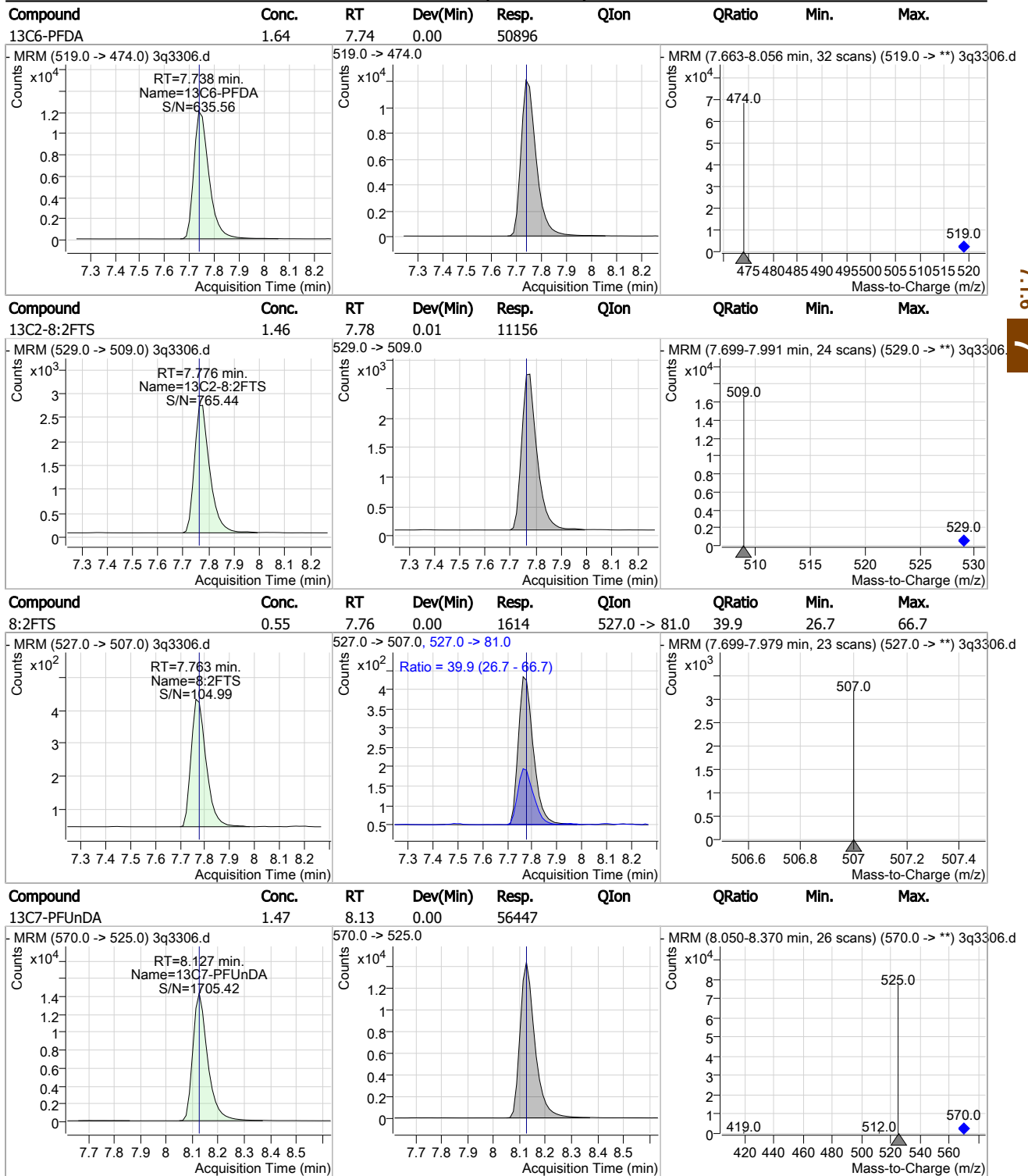


7.1.6
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Sample Results:

3Q3306.D

Perfluorinated Compounds by LC/MS/MS



7.1.6
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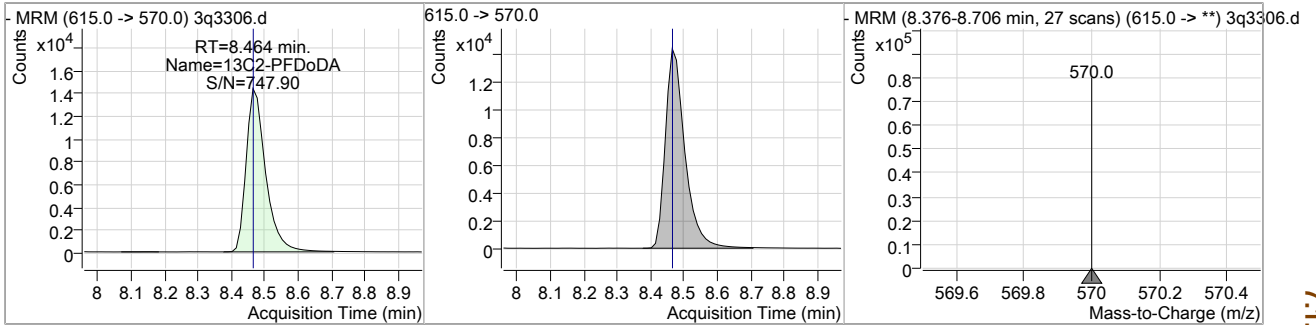


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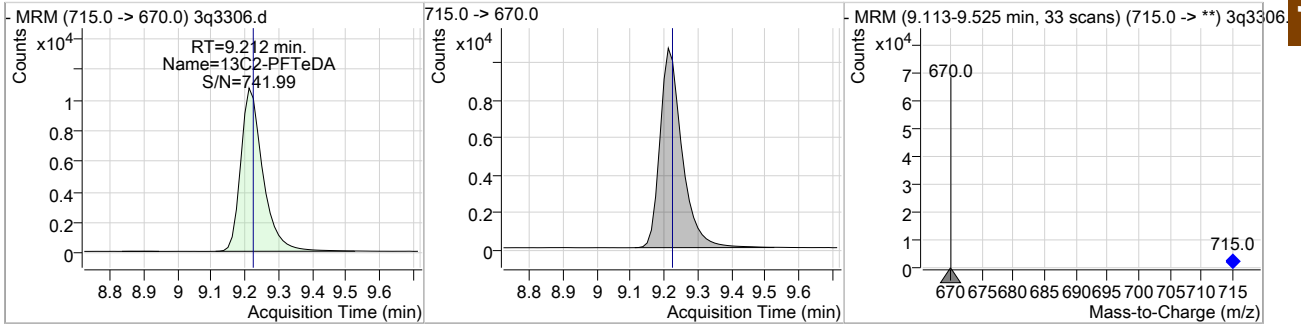
3Q3306.D

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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7.1.6

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Manual Integration Approval Summary

Sample Number: FA63526-5 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3306.D **Analyst approved:** 04/29/19 11:51 Natasha Gumtie
Injection Time: 04/26/19 11:09 **Supervisor approved:** 04/29/19 15:02 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluoropentanesulfonic acid	2706-91-4		5.12	Split peak
Perfluoroheptanoic acid	375-85-9		5.94	Split peak
Perfluorohexanesulfonic acid	355-46-4		5.99	Split peak
Perfluorooctanoic acid	335-67-1		6.66	Split peak
Perfluoroheptanesulfonic acid	375-92-8		6.67	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.25	Split peak

7.1.6.1

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Sample Results: **3Q3277.D**

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3277.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 4:59:13 PM
 Sample Name : fa63526-6
 Vial : P3-C8
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74736,S3Q83,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	356878	20.00 µg/L	0.000
M5-PFPeA	3.611	268.0 -> 223.0	254373	20.00 µg/L	0.025
M5-PFHxA	5.025	318.0 -> 273.0	382346	20.00 µg/L	0.050
M4-PFHpA	5.965	367.0 -> 322.0	467097	20.00 µg/L	0.049
M8-PFOA	6.693	421.0 -> 376.0	509997	20.00 µg/L	0.050
M9-PFNA	7.301	472.0 -> 427.0	515075	20.00 µg/L	0.050
M6-PFDA	7.764	519.0 -> 474.0	586191	20.00 µg/L	0.025
M7-PFUnDA	8.139	570.0 -> 525.0	636032	20.00 µg/L	0.012
M2-PFDoDA	8.489	615.0 -> 570.0	632542	20.00 µg/L	0.024
M2-PFTeDA	9.237	715.0 -> 670.0	569373	20.00 µg/L	0.013
M8-FOSA	7.336	506.0 -> 78.0	201979	20.00 µg/L	0.038
M3-PFBS	3.929	302.0 -> 99.0	50315	20.00 µg/L	0.037
M3-PFHxS	6.022	402.0 -> 99.0	53183	20.00 µg/L	0.050
M8-PFOS	7.285	507.0 -> 99.0	78140	20.00 µg/L	0.050
M2-4:2FTS	4.921	329.0 -> 309.0	144627	20.00 µg/L	0.050
M2-6:2FTS	6.677	429.0 -> 409.0	190956	20.00 µg/L	0.038
M2-8:2FTS	7.789	529.0 -> 509.0	128767	20.00 µg/L	0.026
M3-MeFOSAA	7.758	573.0 -> 419.0	76096	20.00 µg/L	0.025
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	-
13C2-PFOA	6.695	415.0 -> 370.0	688121	20.00 µg/L	0.050
13C4-PFOS	7.286	503.0 -> 80.0	153842	20.00 µg/L	0.050
System Monitoring Compounds					
13C2-4:2FTS	4.921	329.0 -> 309.0	144144	19.83 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C2-6:2FTS	6.677	429.0 -> 409.0	190622	20.26 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C2-8:2FTS	7.789	529.0 -> 509.0	128856	16.88 µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.4%	
13C2-PFDoDA	8.489	615.0 -> 570.0	632284	14.95 µg/L	0.024
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.7%	
13C2-PFTeDA	9.237	715.0 -> 670.0	569324	15.23 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.2%	
13C3-PFBS	3.929	302.0 -> 99.0	50115	20.19 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C3-PFHxS	6.022	402.0 -> 99.0	52987	19.77 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C4-PFBA	1.727	217.0 -> 172.0	356456	21.08 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C4-PFHpA	5.965	367.0 -> 322.0	465756	20.72 µg/L	0.049
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFHxA	5.025	318.0 -> 273.0	382244	20.78 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFPeA	3.611	268.0 -> 223.0	253219	20.45 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C6-PFDA	7.764	519.0 -> 474.0	585575	18.92 µg/L	0.025

7.1.7
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Sample Results: **3Q3277.D**

Perfluorinated Compounds by LC/MS/MS

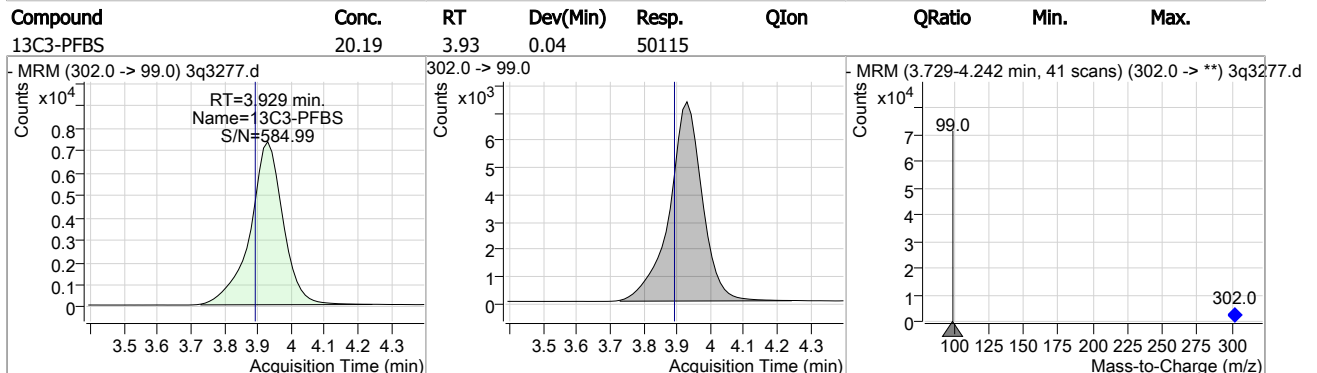
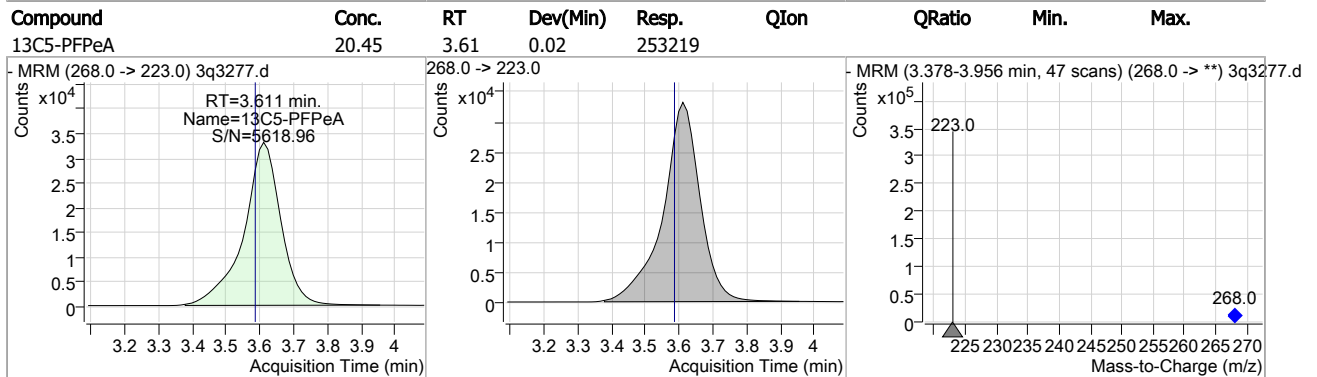
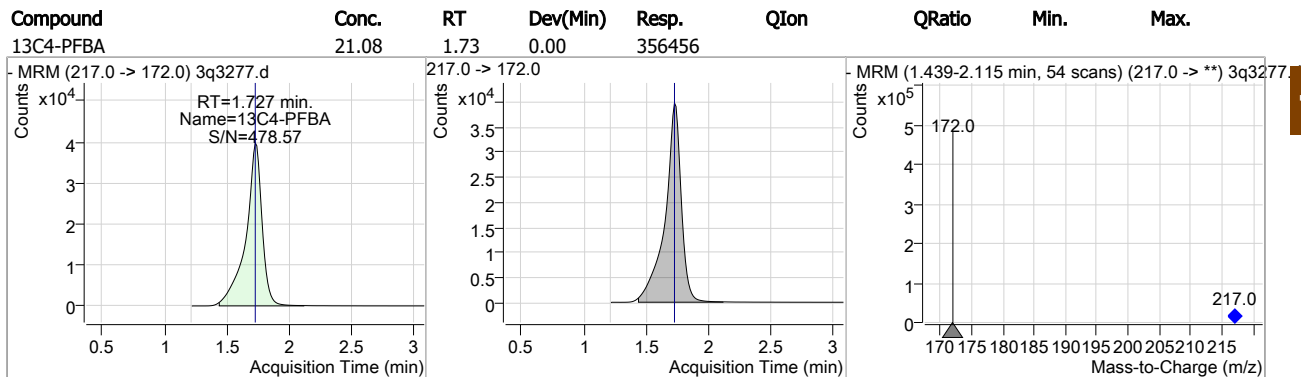
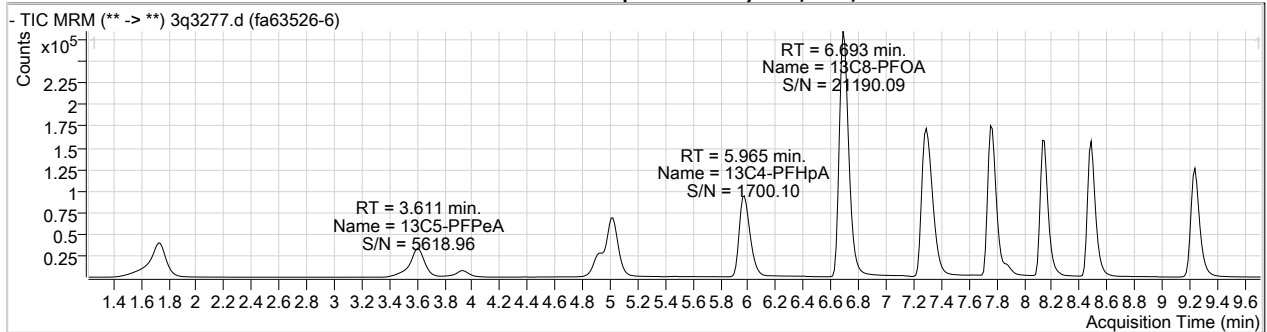
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C7-PFUnDA	8.139	570.0 -> 525.0	636169	16.52 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.6%	
13C8-FOSA	7.336	506.0 -> 78.0	202013	16.38 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.9%	
13C8-PFOA	6.693	421.0 -> 376.0	508656	21.03 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C8-PFOS	7.285	507.0 -> 99.0	78419	17.89 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.4%	
13C9-PFNA	7.301	472.0 -> 427.0	514708	20.52 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d3-MeFOSAA	7.758	573.0 -> 419.0	76094	17.74 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.7%	
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%	
M2-PFOA	6.695	415.0 -> 370.0	688121	20.00 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
M4-PFOS	7.286	503.0 -> 80.0	153842	20.00 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
Target Compounds					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	-	427.0 -> 407.0	-	N.D.	
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	1.735	213.0 -> 169.0	1154	0.35 µg/L	100
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	-	363.0 -> 319.0	-	N.D.	
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	-	313.0 -> 269.0	-	N.D.	
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 80.0	-	N.D.	
PFOA	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.0 -> 80.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
HFPO-DA	-	329.0 -> 169.0	-	N.D.	

7.1.7
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= Qualifier out of range, m = manually integrated, + = Area summed

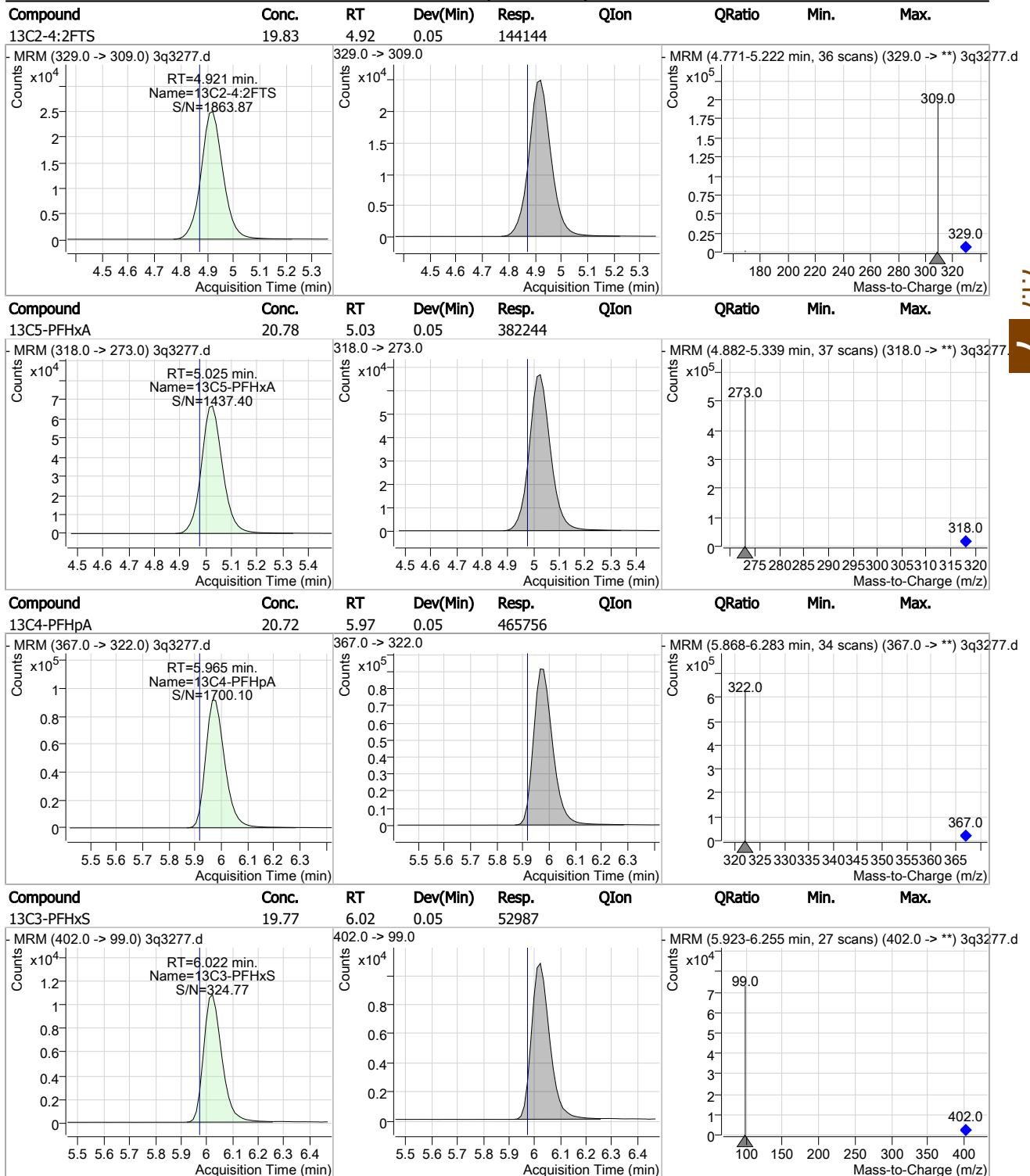
Sample Results: **3Q3277.D**

Perfluorinated Compounds by LC/MS/MS



Sample Results: **3Q3277.D**

Perfluorinated Compounds by LC/MS/MS

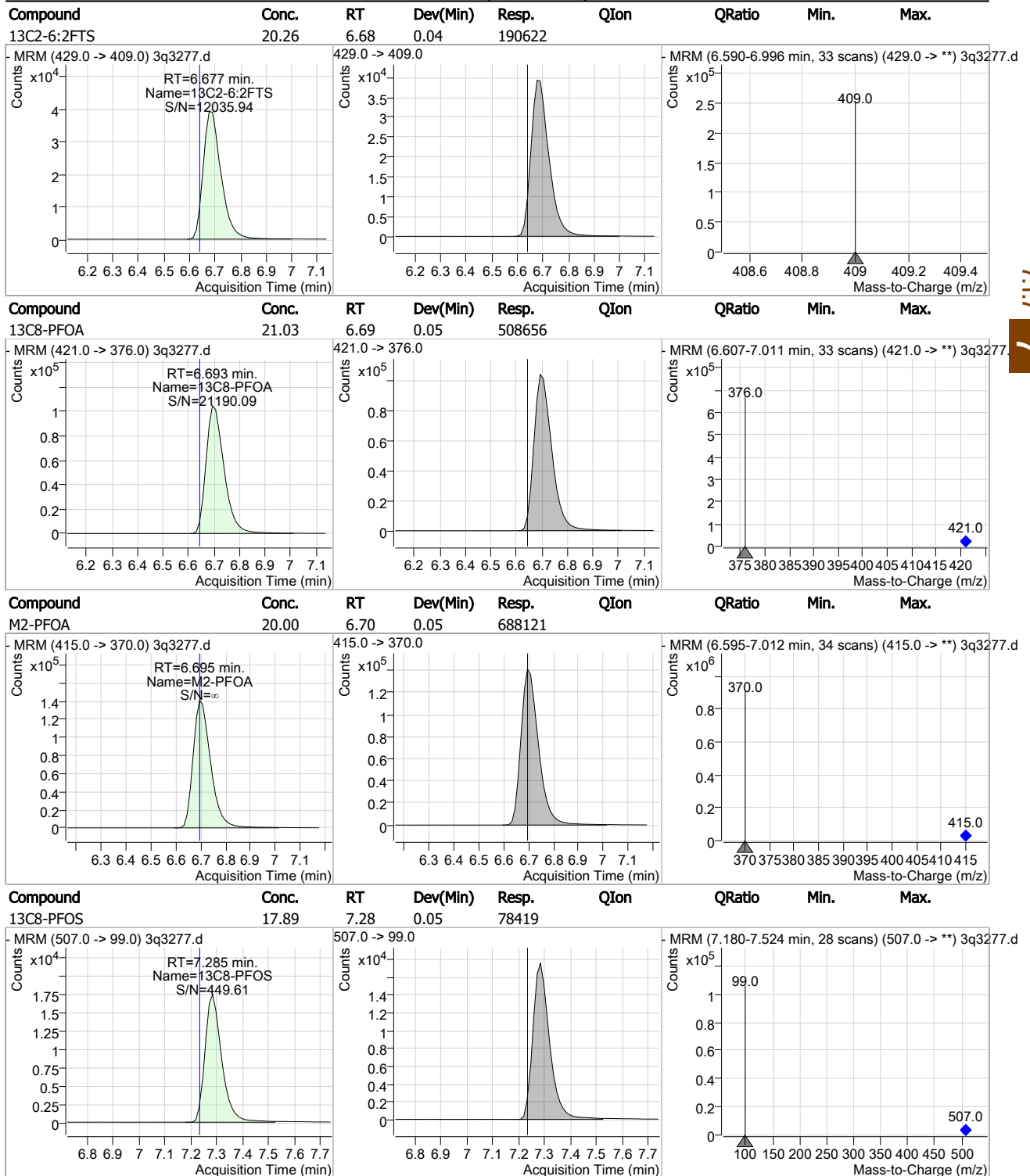


7.1.7

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Sample Results: **3Q3277.D**

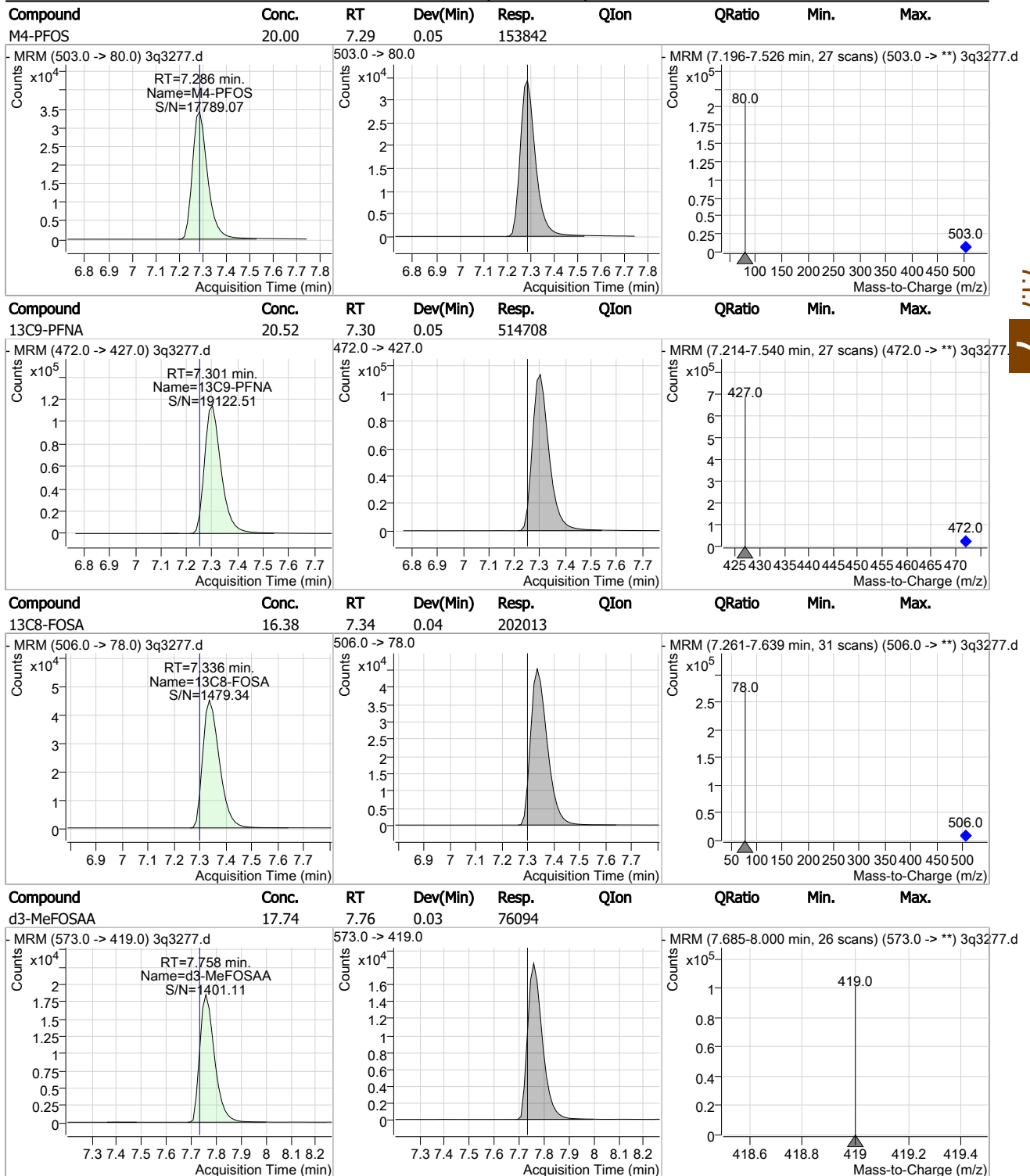
Perfluorinated Compounds by LC/MS/MS



7.1.7
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Sample Results: **3Q3277.D**

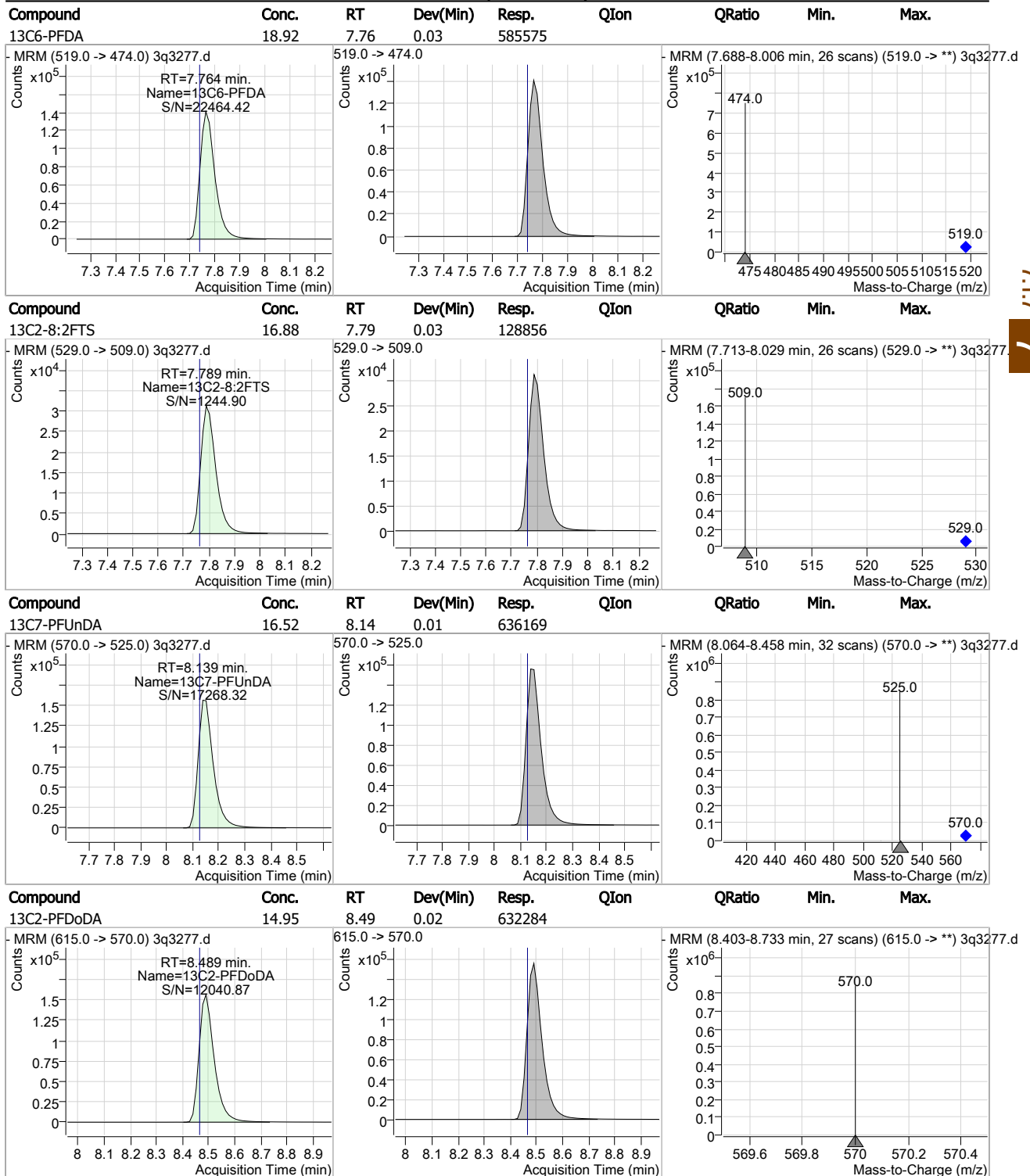
Perfluorinated Compounds by LC/MS/MS



7.1.7
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Sample Results: **3Q3277.D**

Perfluorinated Compounds by LC/MS/MS

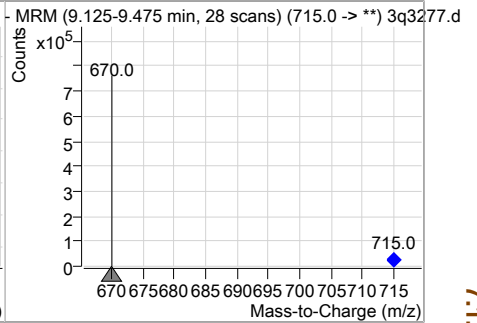
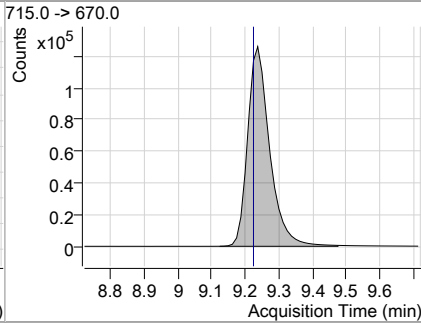
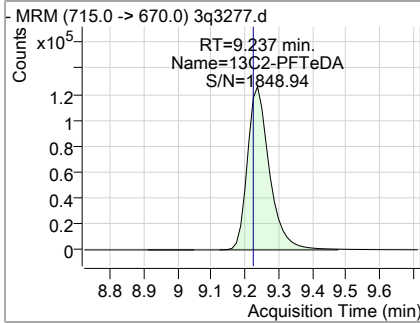


7.1.7
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Sample Results: **3Q3277.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	15.23	9.24	0.01	569324				



7.1.7
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QC Report: 3Q3263.D

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3263.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 1:20:39 PM
 Sample Name : op74736-mb
 Vial : P3-B5
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74736,S3Q83,130,,,1.0,1,water

Compound	RT	QI _{on}	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	332793	20.00 µg/L	0.000
M5-PFPeA	3.598	268.0 -> 223.0	237488	20.00 µg/L	0.012
M5-PFHxA	5.013	318.0 -> 273.0	358537	20.00 µg/L	0.037
M4-PFHpA	5.965	367.0 -> 322.0	438138	20.00 µg/L	0.049
M8-PFOA	6.693	421.0 -> 376.0	474863	20.00 µg/L	0.050
M9-PFNA	7.289	472.0 -> 427.0	477474	20.00 µg/L	0.038
M6-PFDA	7.764	519.0 -> 474.0	561066	20.00 µg/L	0.025
M7-PFUnDA	8.139	570.0 -> 525.0	618567	20.00 µg/L	0.012
M2-PFDoDA	8.489	615.0 -> 570.0	616903	20.00 µg/L	0.024
M2-PFTeDA	9.237	715.0 -> 670.0	558809	20.00 µg/L	0.013
M8-FOSA	7.323	506.0 -> 78.0	225447	20.00 µg/L	0.025
M3-PFBS	3.917	302.0 -> 99.0	47272	20.00 µg/L	0.025
M3-PFHxS	6.010	402.0 -> 99.0	50935	20.00 µg/L	0.038
M8-PFOS	7.272	507.0 -> 99.0	76637	20.00 µg/L	0.038
M2-4:2FTS	4.908	329.0 -> 309.0	133736	20.00 µg/L	0.037
M2-6:2FTS	6.677	429.0 -> 409.0	172472	20.00 µg/L	0.038
M2-8:2FTS	7.789	529.0 -> 509.0	125973	20.00 µg/L	0.026
M3-MeFOSAA	7.746	573.0 -> 419.0	72058	20.00 µg/L	0.012
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
13C2-PFOA	6.695	415.0 -> 370.0	615060	20.00 µg/L	0.050
13C4-PFOS	7.274	503.0 -> 80.0	140704	20.00 µg/L	0.038
System Monitoring Compounds					
13C2-4:2FTS	4.908	329.0 -> 309.0	133199	18.33 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.6%	
13C2-6:2FTS	6.677	429.0 -> 409.0	172167	18.30 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.5%	
13C2-8:2FTS	7.789	529.0 -> 509.0	125589	16.45 µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.2%	
13C2-PFDoDA	8.489	615.0 -> 570.0	617739	14.60 µg/L	0.024
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.0%	
13C2-PFTeDA	9.237	715.0 -> 670.0	559161	14.96 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.8%	
13C3-PFBS	3.917	302.0 -> 99.0	47179	19.00 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C3-PFHxS	6.010	402.0 -> 99.0	50648	18.89 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C4-PFBA	1.727	217.0 -> 172.0	332578	19.67 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C4-PFHpA	5.965	367.0 -> 322.0	436511	19.42 µg/L	0.049
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C5-PFHxA	5.013	318.0 -> 273.0	356902	19.40 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C5-PFPeA	3.598	268.0 -> 223.0	236000	19.06 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C6-PFDA	7.764	519.0 -> 474.0	561137	18.13 µg/L	0.025

7.2.1
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QC Report: 3Q3263.D

Perfluorinated Compounds by LC/MS/MS

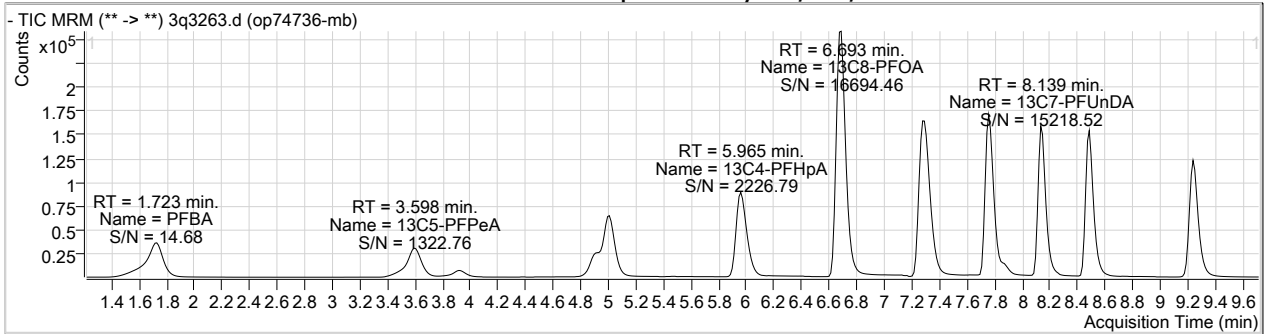
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.6%	
13C7-PFUnDA	8.139	570.0 -> 525.0	617599	16.04 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.2%	
13C8-FOSA	7.323	506.0 -> 78.0	224981	18.24 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.2%	
13C8-PFOA	6.693	421.0 -> 376.0	473881	19.59 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C8-PFOS	7.272	507.0 -> 99.0	76527	17.45 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.3%	
13C9-PFNA	7.289	472.0 -> 427.0	477047	19.02 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d3-MeFOSAA	7.746	573.0 -> 419.0	72083	16.80 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.0%	
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%	
M2-PFOA	6.695	415.0 -> 370.0	615060	20.00 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
M4-PFOS	7.274	503.0 -> 80.0	140704	20.00 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
Target Compounds					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	-	427.0 -> 407.0	-	N.D.	
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	1.723	213.0 -> 169.0	1104	0.36 µg/L	100
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDaDA	-	613.0 -> 569.0	-	N.D.	
PFDS	-	599.0 -> 80.0	-	N.D.	
PFHpA	-	363.0 -> 319.0	-	N.D.	
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	-	313.0 -> 269.0	-	N.D.	
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 80.0	-	N.D.	
PFOA	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.0 -> 80.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
HFPO-DA	-	329.0 -> 169.0	-	N.D.	

7.2.1
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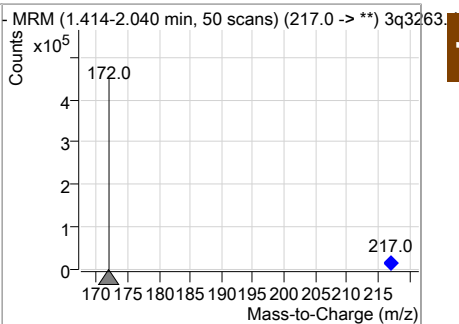
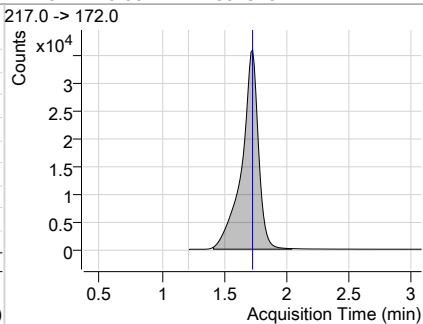
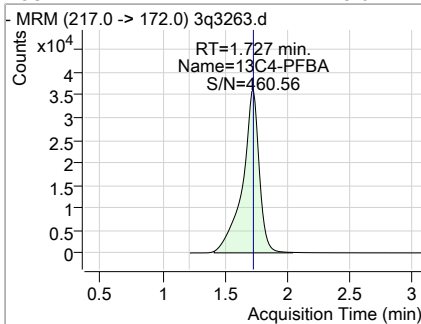
= Qualifier out of range, m = manually integrated, + = Area summed

QC Report: 3Q3263.D

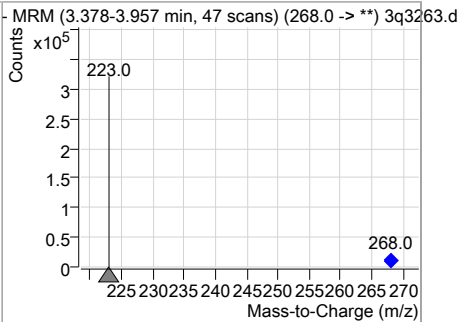
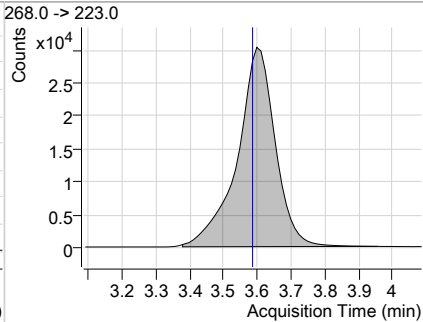
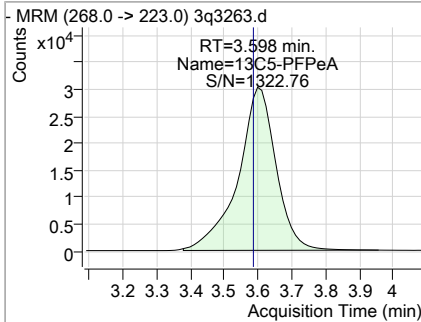
Perfluorinated Compounds by LC/MS/MS



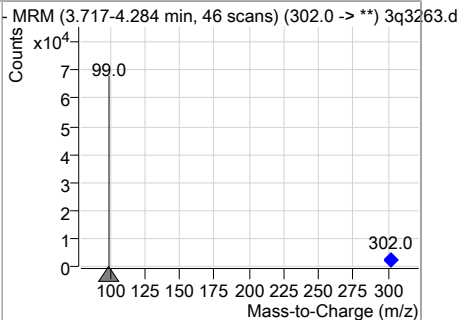
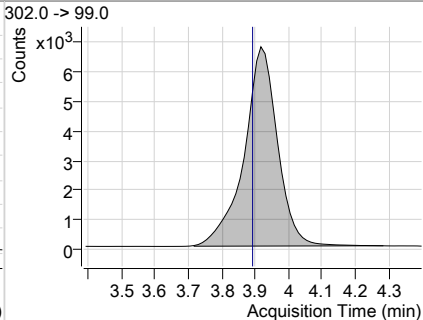
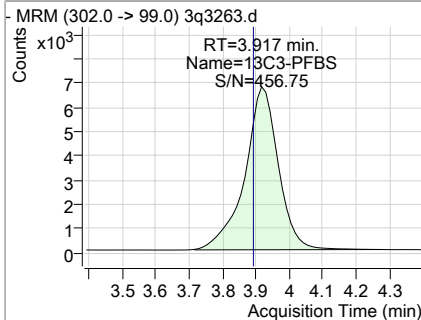
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.67	1.73	0.00	332578				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.06	3.60	0.01	236000				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.00	3.92	0.02	47179				

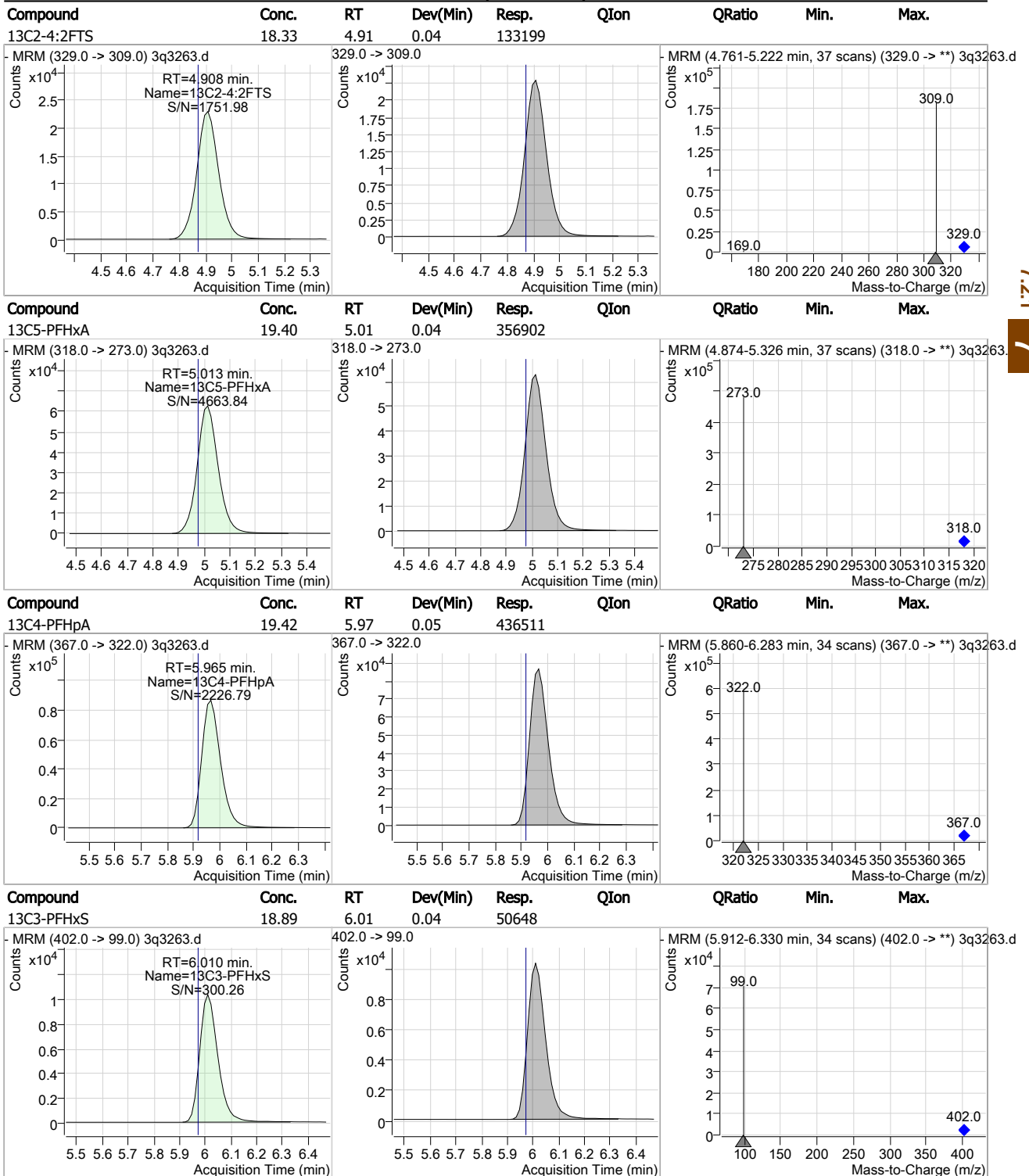


7.2.1
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QC Report: 3Q3263.D

Perfluorinated Compounds by LC/MS/MS

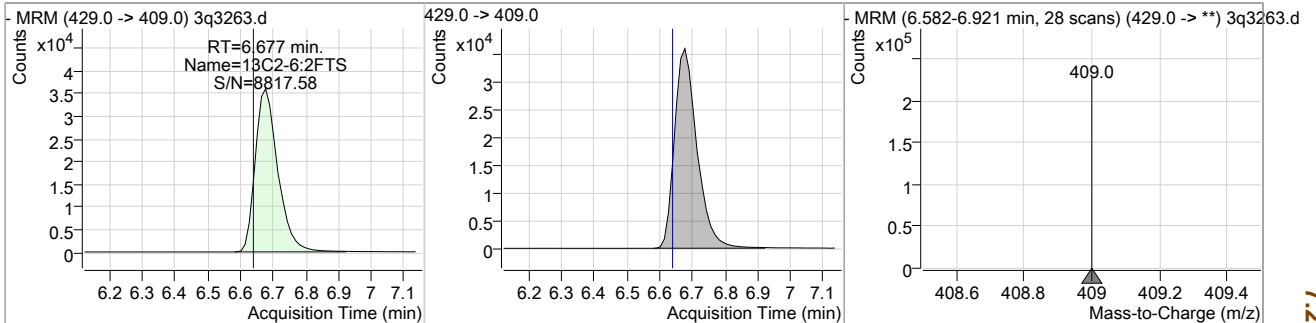


7.2.1 7

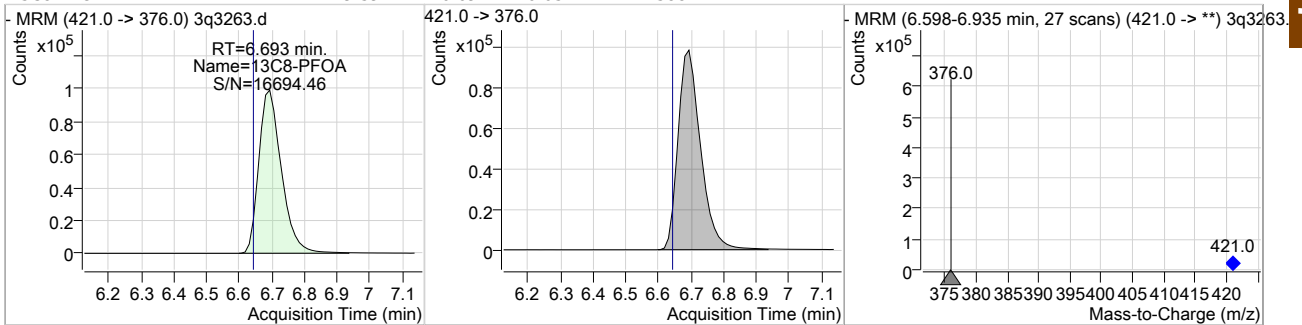
QC Report: 3Q3263.D

Perfluorinated Compounds by LC/MS/MS

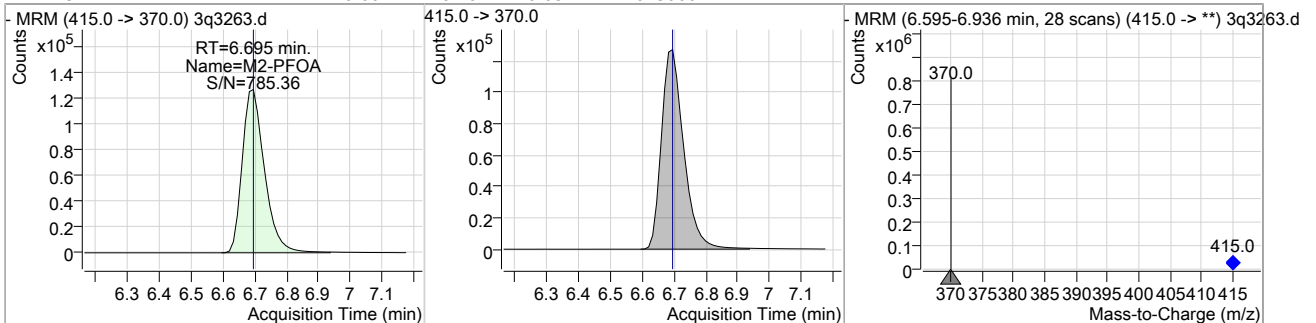
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.30	6.68	0.04	172167				



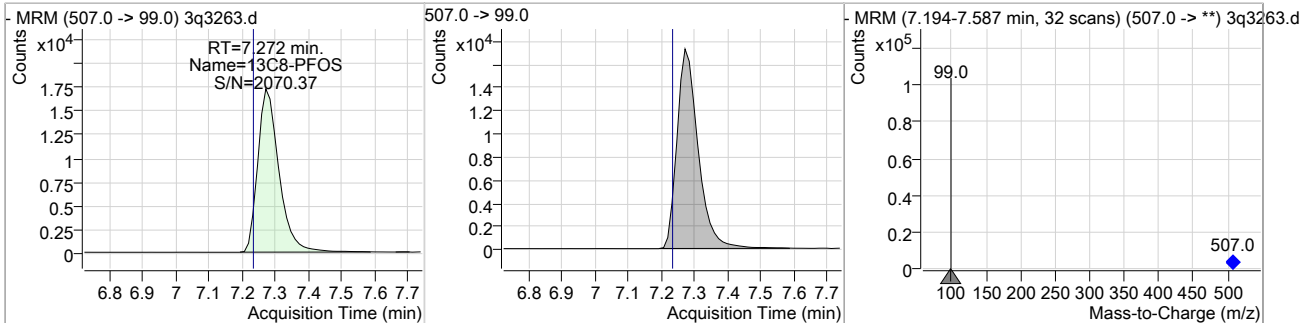
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.59	6.69	0.05	473881				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.70	0.05	615060				

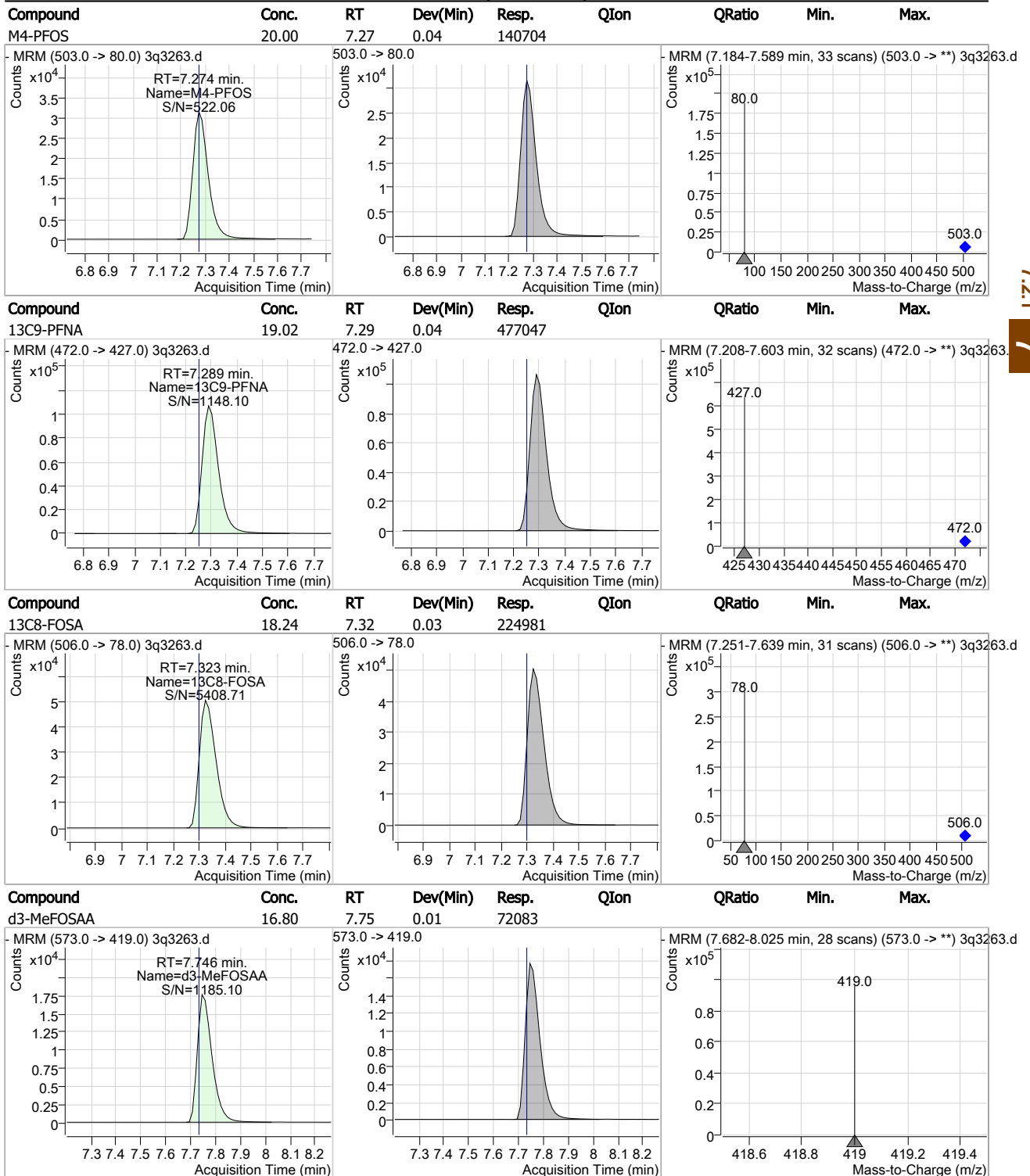


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	17.45	7.27	0.04	76527				



QC Report: 3Q3263.D

Perfluorinated Compounds by LC/MS/MS

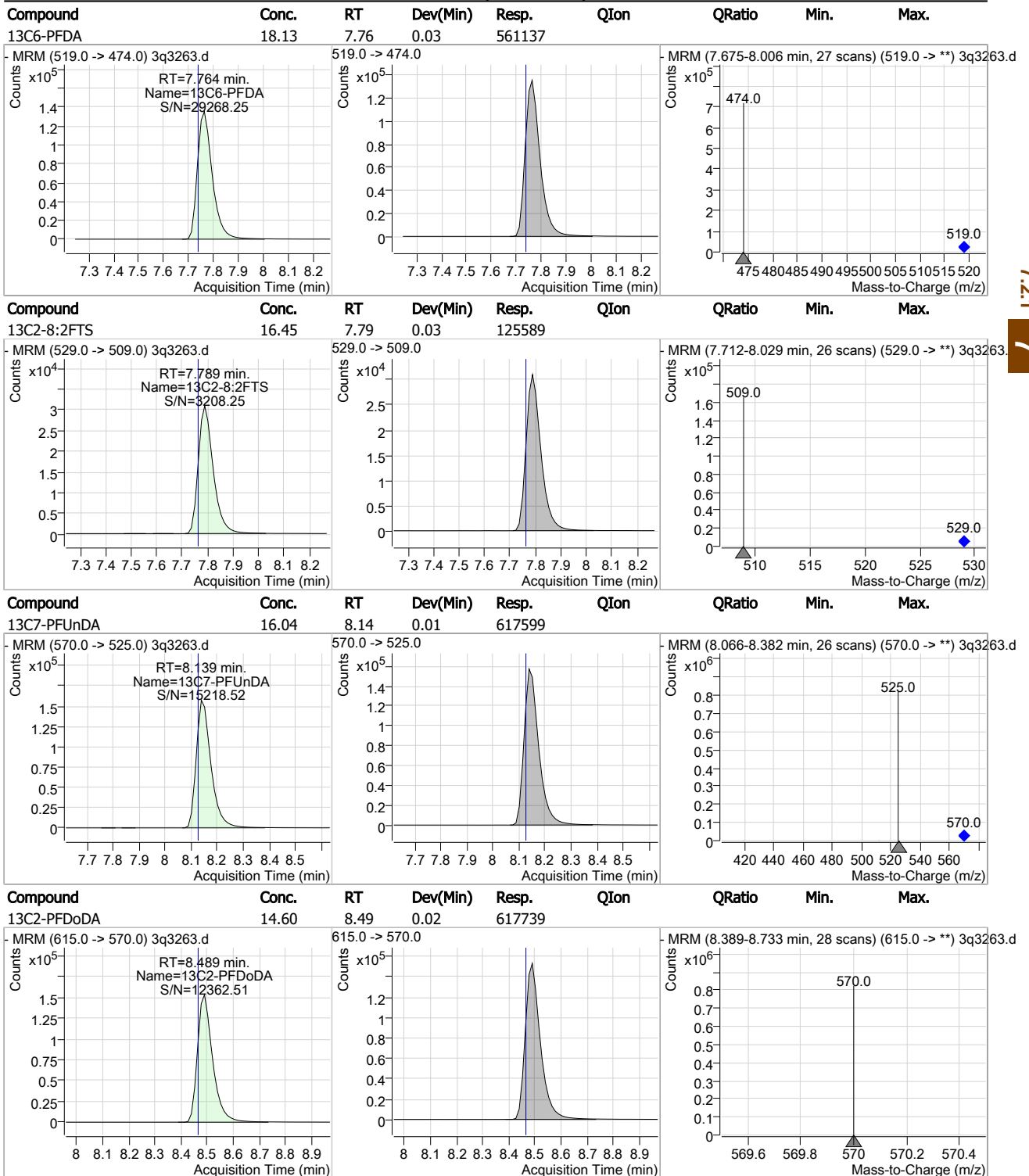


7.2.1

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QC Report: 3Q3263.D

Perfluorinated Compounds by LC/MS/MS



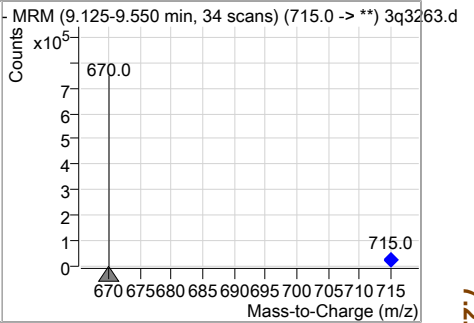
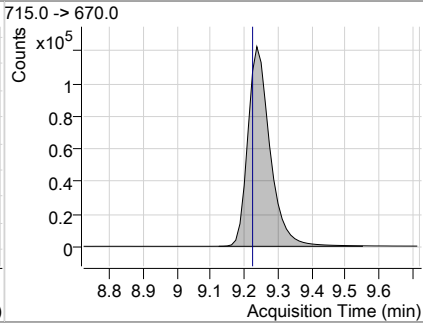
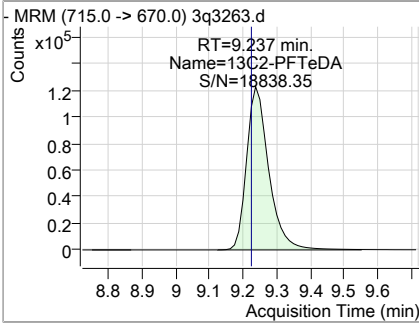
7.2.1

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QC Report: **3Q3263.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	14.96	9.24	0.01	559161				



7.2.1
7



QC Report: 3Q3258.D

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3258.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 10:49:14 AM
 Sample Name : iblk
 Vial : P3-A1
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74632,S3Q83,125,,,1.0,1,water

Compound	RT	QI on	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.739	217.0 -> 172.0	346631	20.00 µg/L	0.013
M5-PFPeA	3.598	268.0 -> 223.0	256608	20.00 µg/L	0.012
M5-PFHxA	4.988	318.0 -> 273.0	386550	20.00 µg/L	0.012
M4-PFHpA	5.940	367.0 -> 322.0	472656	20.00 µg/L	0.024
M8-PFOA	6.668	421.0 -> 376.0	515572	20.00 µg/L	0.025
M9-PFNA	7.276	472.0 -> 427.0	530534	20.00 µg/L	0.025
M6-PFDA	7.752	519.0 -> 474.0	671982	20.00 µg/L	0.012
M7-PFUnDA	8.127	570.0 -> 525.0	829419	20.00 µg/L	0.000
M2-PFDoDA	8.477	615.0 -> 570.0	907366	20.00 µg/L	0.012
M2-PFTeDA	9.225	715.0 -> 670.0	797618	20.00 µg/L	0.000
M8-FOSA	7.311	506.0 -> 78.0	270485	20.00 µg/L	0.012
M3-PFBS	3.904	302.0 -> 99.0	50851	20.00 µg/L	0.012
M3-PFHxS	5.985	402.0 -> 99.0	54994	20.00 µg/L	0.012
M8-PFOS	7.260	507.0 -> 99.0	91245	20.00 µg/L	0.025
M2-4:2FTS	4.883	329.0 -> 309.0	140438	20.00 µg/L	0.012
M2-6:2FTS	6.651	429.0 -> 409.0	186702	20.00 µg/L	0.012
M2-8:2FTS	7.776	529.0 -> 509.0	152409	20.00 µg/L	0.013
M3-MeFOSAA	7.746	573.0 -> 419.0	94279	20.00 µg/L	0.012
M3-HFPO-DA	5.292	287.0 -> 169.0	211389	100.00 µg/L	0.012
13C2-PFOA	6.670	415.0 -> 370.0	657789	20.00 µg/L	0.025
13C4-PFOS	7.261	503.0 -> 80.0	151054	20.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	4.883	329.0 -> 309.0	139125	19.14 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C2-6:2FTS	6.651	429.0 -> 409.0	185686	19.73 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C2-8:2FTS	7.776	529.0 -> 509.0	152236	19.94 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C2-PFDoDA	8.477	615.0 -> 570.0	907861	21.46 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C2-PFTeDA	9.225	715.0 -> 670.0	797718	21.35 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C3-PFBS	3.904	302.0 -> 99.0	50671	20.41 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C3-PFHxS	5.985	402.0 -> 99.0	54545	20.35 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C4-PFBA	1.739	217.0 -> 172.0	346308	20.48 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C4-PFHpA	5.940	367.0 -> 322.0	469508	20.88 µg/L	0.024
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C5-PFHxA	4.988	318.0 -> 273.0	382046	20.77 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C5-PFPeA	3.598	268.0 -> 223.0	256600	20.72 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C6-PFDA	7.752	519.0 -> 474.0	672986	21.74 µg/L	0.012

7.2.2
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QC Report: 3Q3258.D

Perfluorinated Compounds by LC/MS/MS

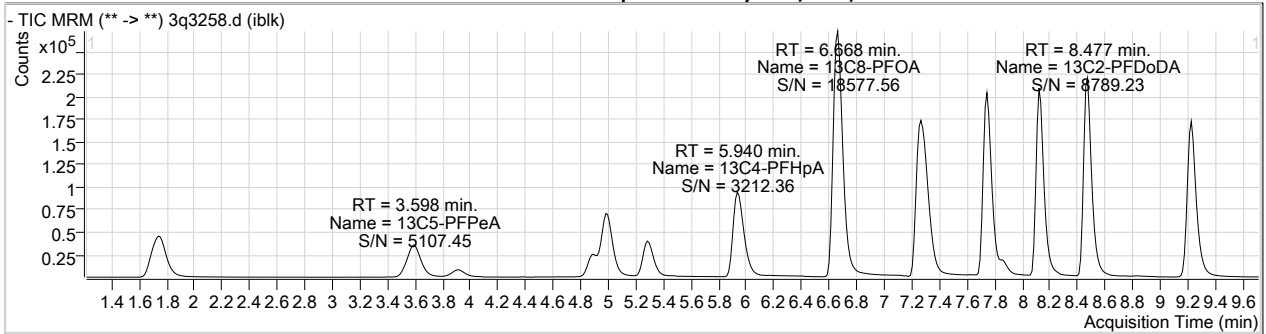
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C7-PFUnDA	8.127	570.0 -> 525.0	830658	21.58 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C8-FOSA	7.311	506.0 -> 78.0	270426	21.93 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C8-PFOA	6.668	421.0 -> 376.0	515864	21.33 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C8-PFOS	7.260	507.0 -> 99.0	90821	20.71 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C9-PFNA	7.276	472.0 -> 427.0	529804	21.12 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
d3-MeFOSAA	7.746	573.0 -> 419.0	94330	21.99 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.9%	
13C3-HFPO-DA	5.292	287.0 -> 169.0	211389	100.55 µg/L	0.012
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
M2-PFOA	6.670	415.0 -> 370.0	657789	20.00 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
M4-PFOS	7.261	503.0 -> 80.0	151054	20.00 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
Target Compounds					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	-	427.0 -> 407.0	-	N.D.	
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	7.872	584.0 -> 419.0	354	0.15 µg/L	# 67
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	7.759	570.0 -> 419.0	456	0.18 µg/L	75
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	-	363.0 -> 319.0	-	N.D.	
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	-	313.0 -> 269.0	-	N.D.	
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 80.0	-	N.D.	
PFOA	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.0 -> 80.0	-	N.D.	
PFTeDA	9.229	713.0 -> 669.0	3716	0.15 µg/L	97
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
HFPO-DA	-	329.0 -> 169.0	-	N.D.	

7.2.2
7

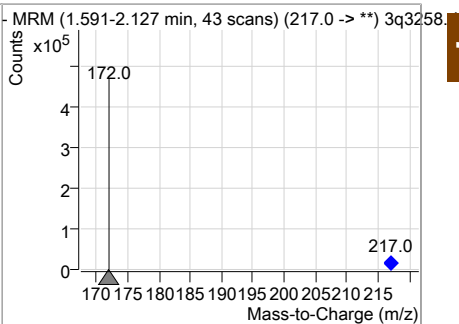
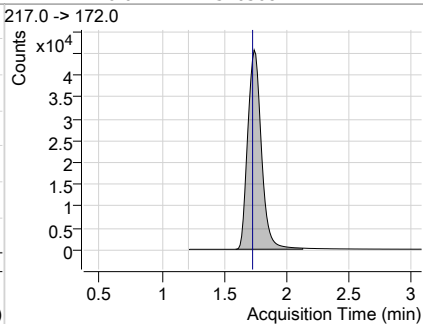
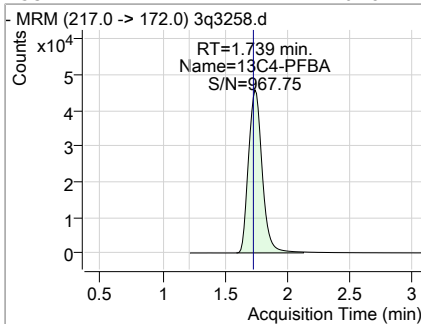
= Qualifier out of range, m = manually integrated, + = Area summed

QC Report: 3Q3258.D

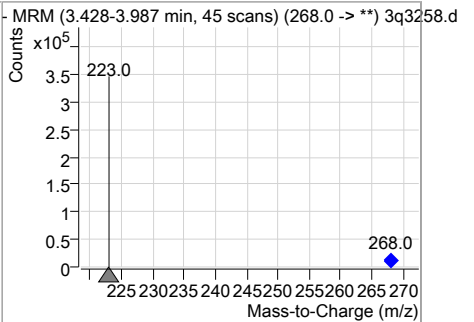
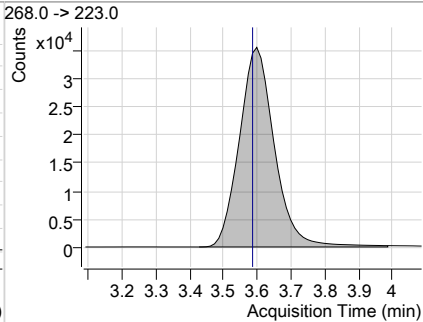
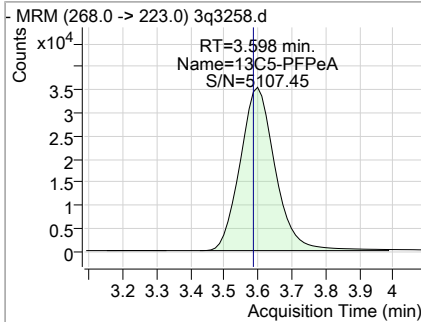
Perfluorinated Compounds by LC/MS/MS



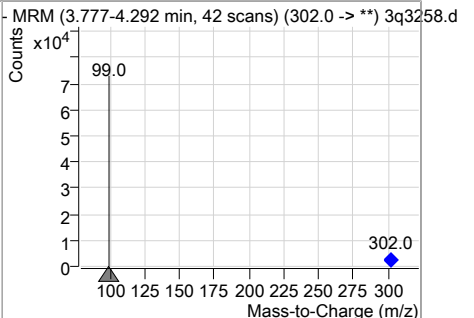
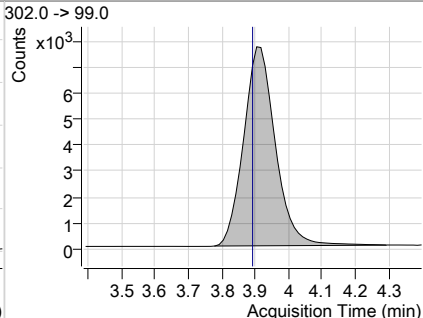
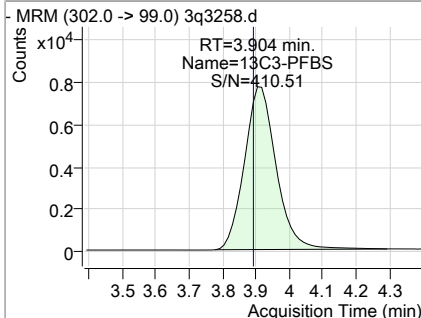
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.48	1.74	0.01	346308				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.72	3.60	0.01	256600				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.41	3.90	0.01	50671				

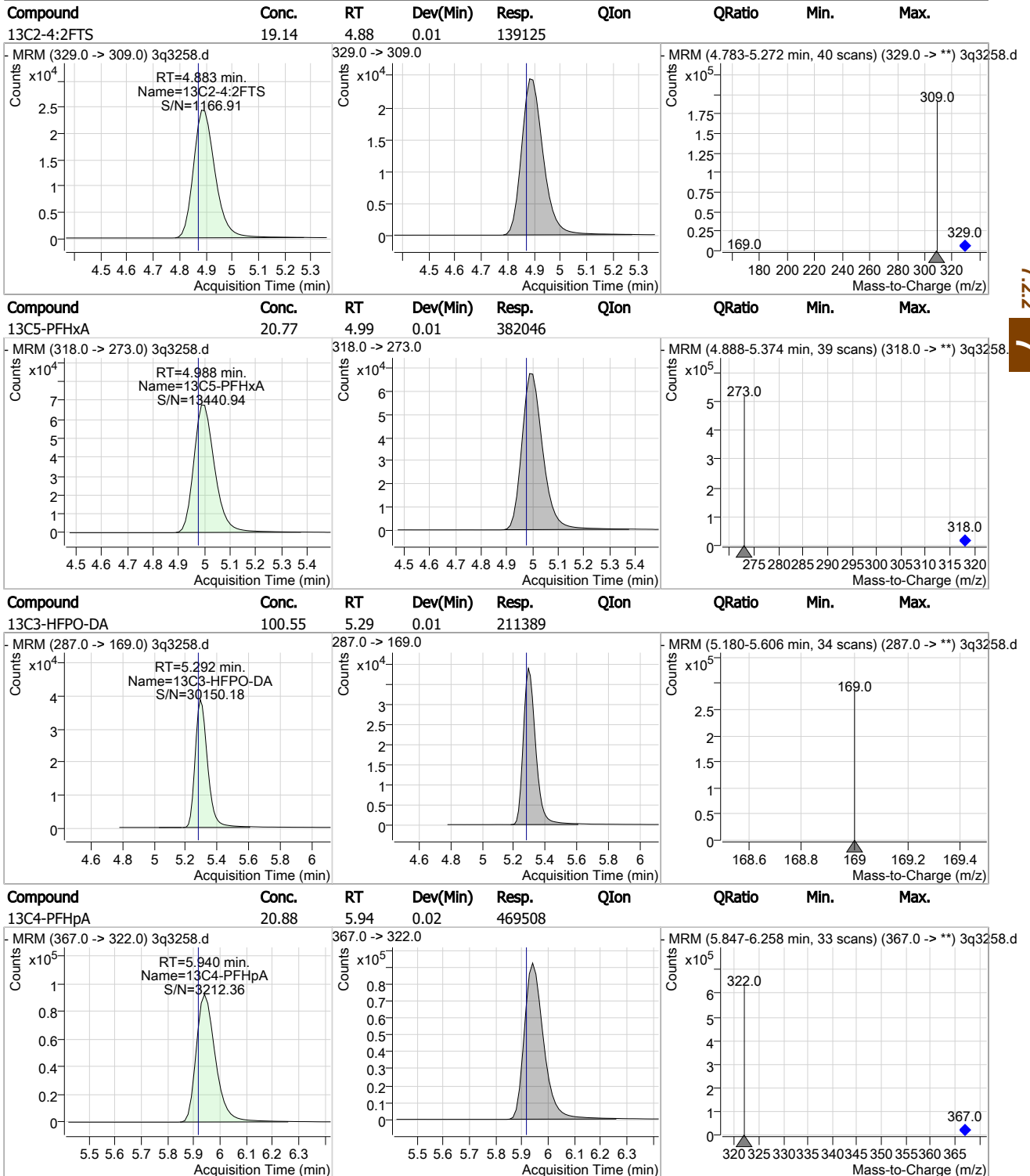


7.2.2

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QC Report: 3Q3258.D

Perfluorinated Compounds by LC/MS/MS



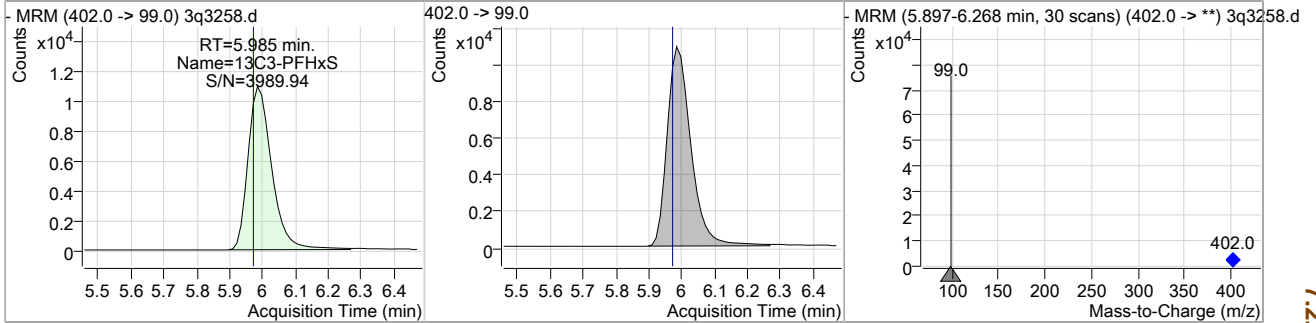
7.2.2

7

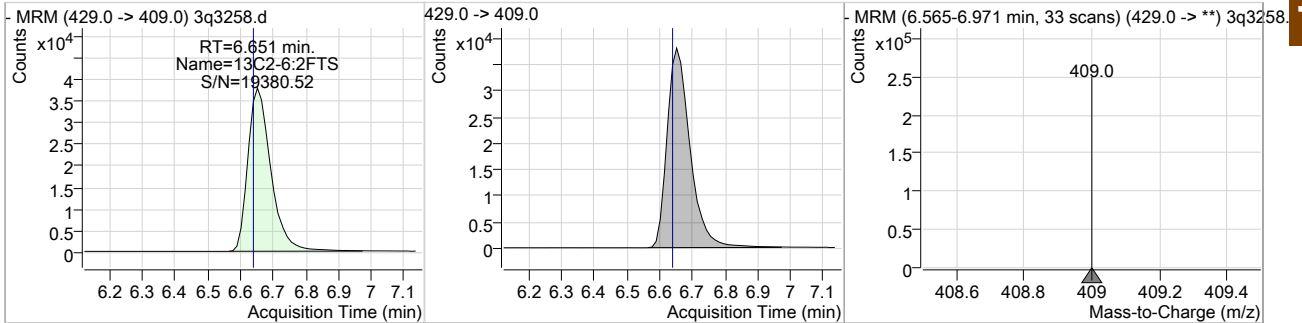
QC Report: 3Q3258.D

Perfluorinated Compounds by LC/MS/MS

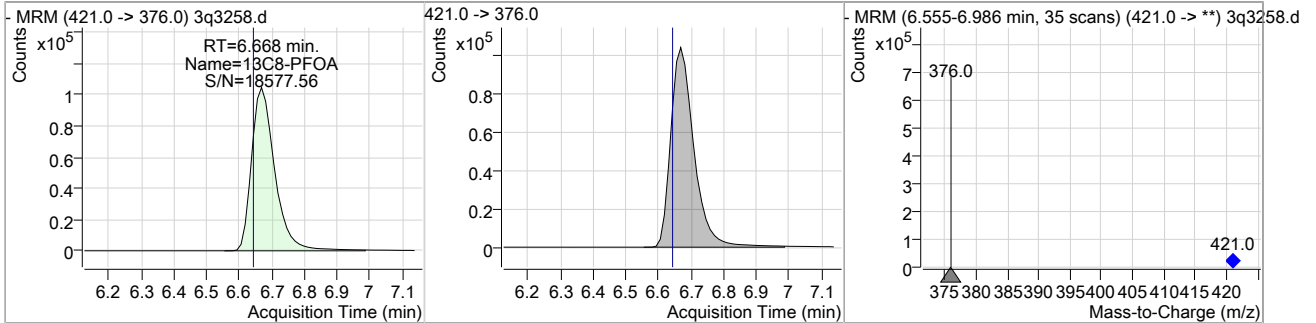
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.35	5.98	0.01	54545				



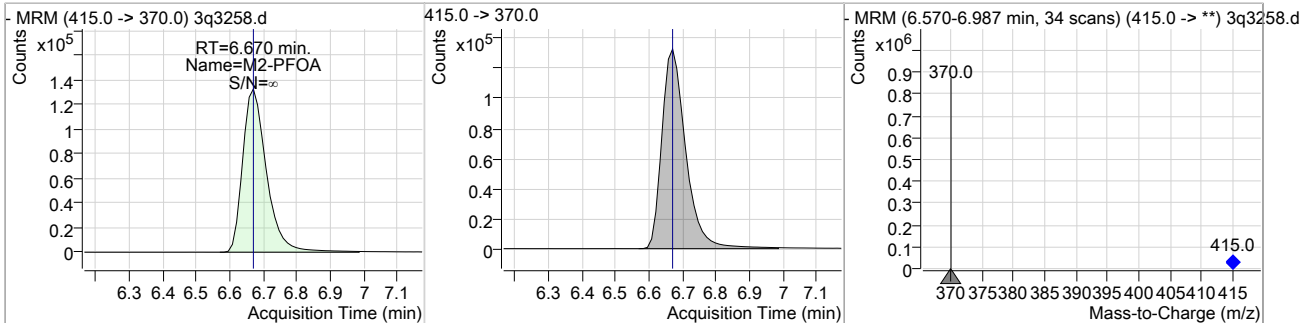
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.73	6.65	0.01	185686				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	21.33	6.67	0.02	515864				



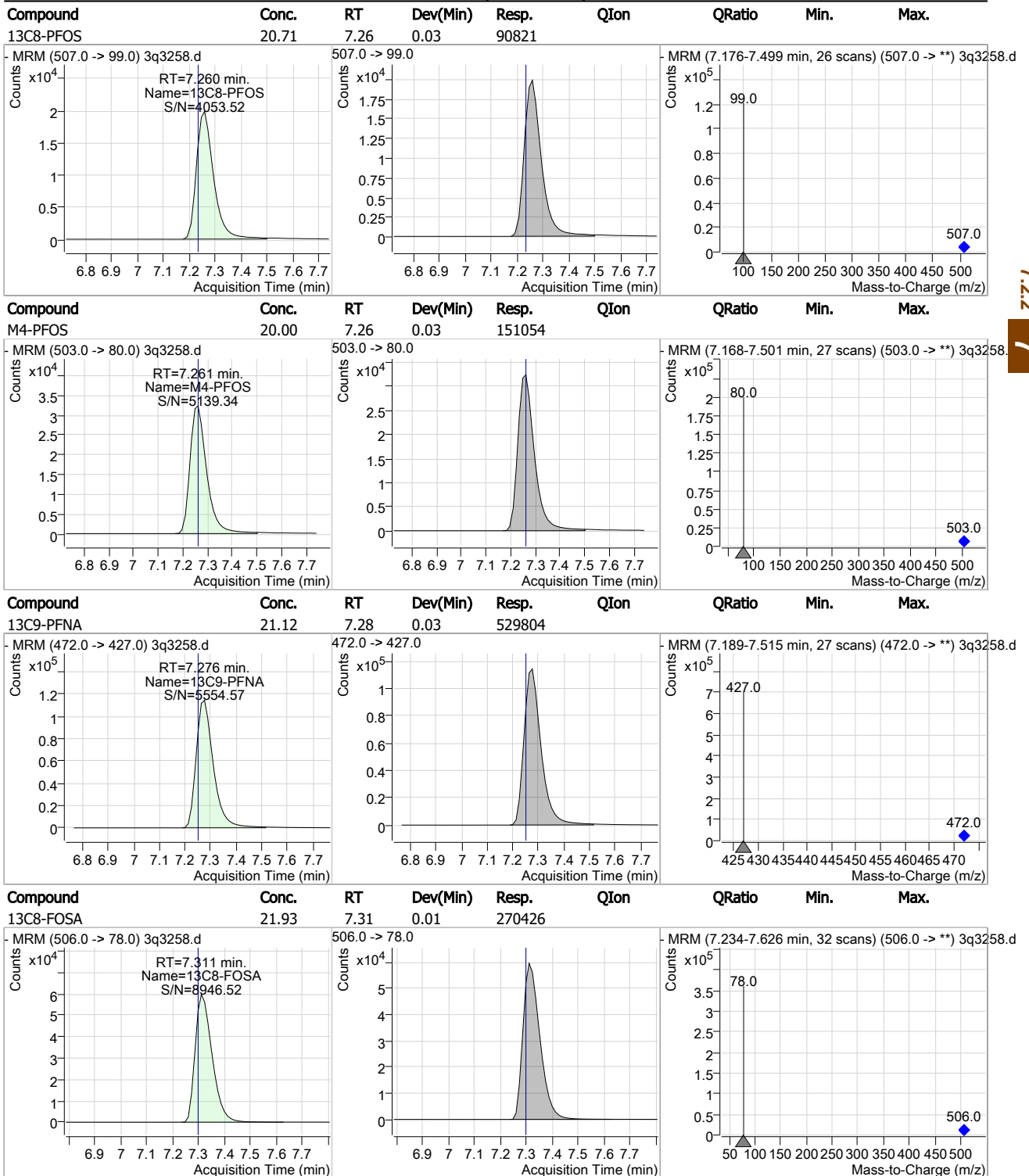
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.67	0.02	657789				



7.2.2
7

QC Report: 3Q3258.D

Perfluorinated Compounds by LC/MS/MS



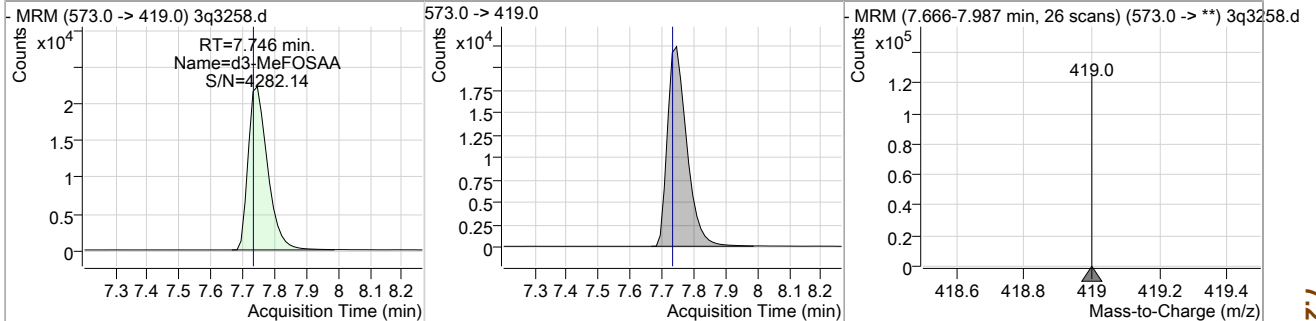
7.2.2

7

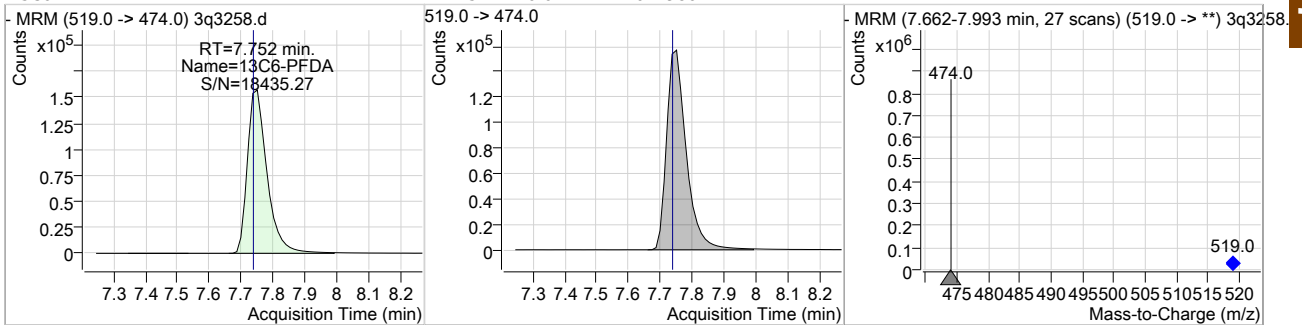
QC Report: 3Q3258.D

Perfluorinated Compounds by LC/MS/MS

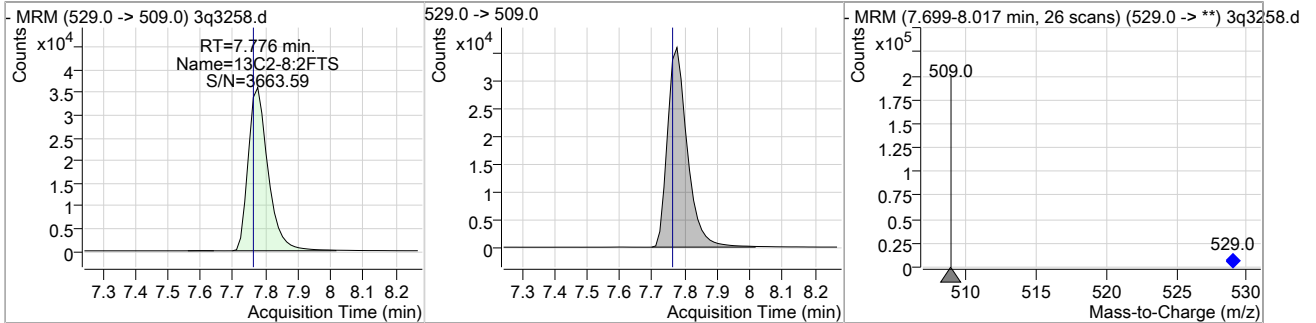
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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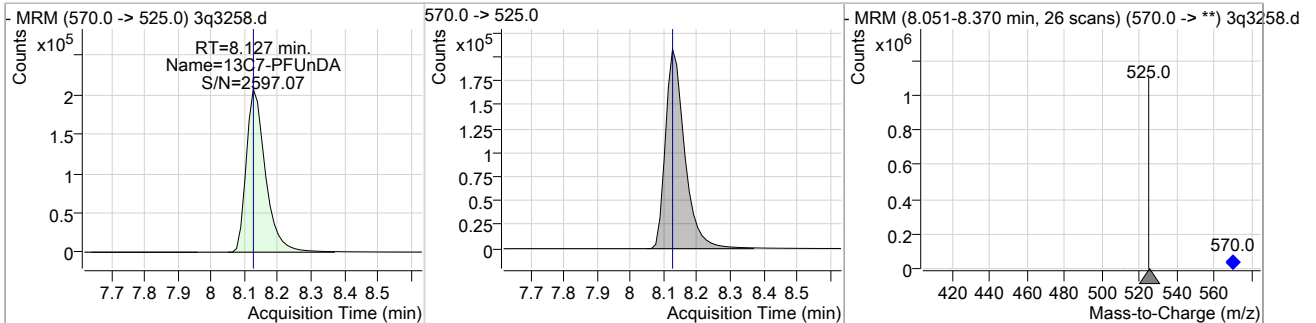
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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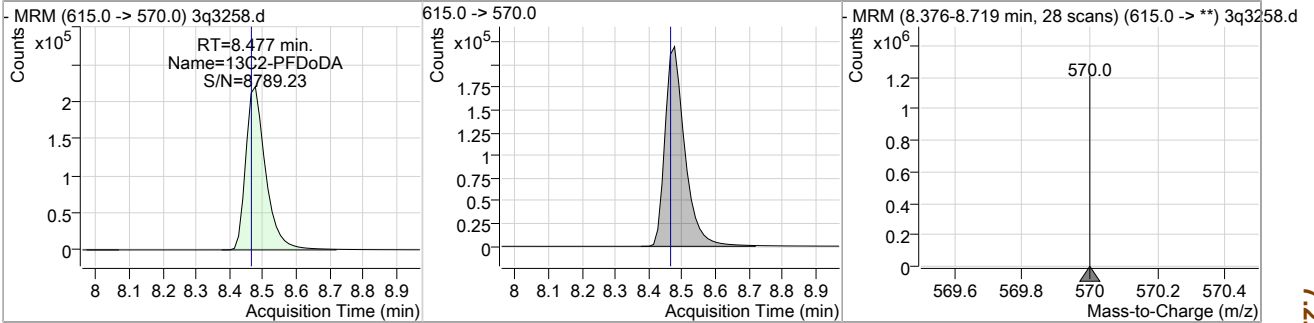
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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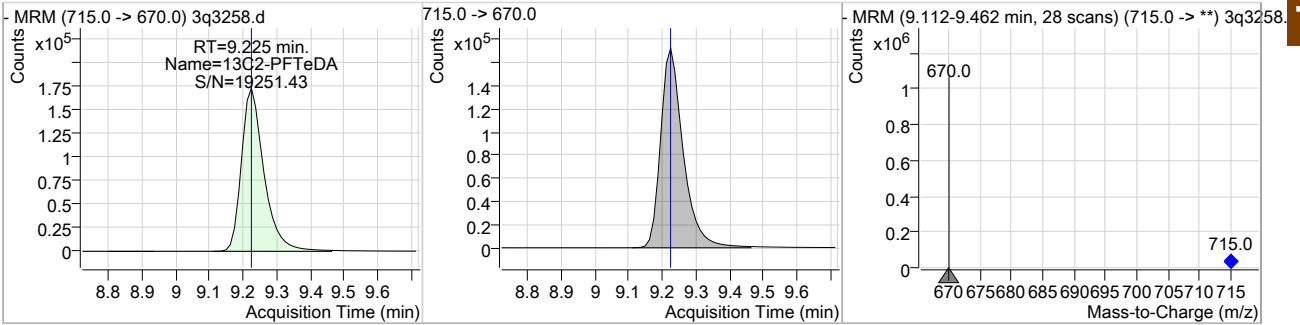
QC Report: **3Q3258.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	21.46	8.48	0.01	907861				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	21.35	9.22	0.00	797718				



7.2.2
7

QC Report: 3Q3299.D

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3299.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/26/2019 9:21:43 AM
 Sample Name : iblk
 Vial : P3-A1
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q84.batch.bin
 Sample Information : op74736,S3Q84,125,,,1.0,1,water

Compound	RT	QI _{on}	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.714	217.0 -> 172.0	349058	20.00 µg/L	-0.013
M5-PFPeA	3.573	268.0 -> 223.0	255340	20.00 µg/L	-0.013
M5-PFHxA	4.975	318.0 -> 273.0	377711	20.00 µg/L	0.000
M4-PFHpA	5.928	367.0 -> 322.0	473178	20.00 µg/L	0.011
M8-PFOA	6.643	421.0 -> 376.0	508172	20.00 µg/L	0.000
M9-PFNA	7.251	472.0 -> 427.0	526066	20.00 µg/L	0.000
M6-PFDA	7.738	519.0 -> 474.0	647678	20.00 µg/L	-0.002
M7-PFUnDA	8.114	570.0 -> 525.0	766807	20.00 µg/L	-0.013
M2-PFDoDA	8.464	615.0 -> 570.0	806596	20.00 µg/L	-0.001
M2-PFTeDA	9.212	715.0 -> 670.0	671128	20.00 µg/L	-0.012
M8-FOSA	7.298	506.0 -> 78.0	254402	20.00 µg/L	0.000
M3-PFBS	3.892	302.0 -> 99.0	51348	20.00 µg/L	0.000
M3-PFHxS	5.972	402.0 -> 99.0	55109	20.00 µg/L	0.000
M8-PFOS	7.233	507.0 -> 99.0	90823	20.00 µg/L	-0.002
M2-4:2FTS	4.871	329.0 -> 309.0	141526	20.00 µg/L	0.000
M2-6:2FTS	6.639	429.0 -> 409.0	183371	20.00 µg/L	0.000
M2-8:2FTS	7.763	529.0 -> 509.0	142259	20.00 µg/L	0.000
M3-MeFOSAA	7.732	573.0 -> 419.0	87496	20.00 µg/L	-0.001
M3-HFPO-DA	5.280	287.0 -> 169.0	207672	100.00 µg/L	0.000
13C2-PFOA	6.645	415.0 -> 370.0	648403	20.00 µg/L	0.000
13C4-PFOS	7.235	503.0 -> 80.0	151935	20.00 µg/L	-0.001
System Monitoring Compounds					
13C2-4:2FTS	4.871	329.0 -> 309.0	140252	19.30 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C2-6:2FTS	6.639	429.0 -> 409.0	182615	19.41 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C2-8:2FTS	7.763	529.0 -> 509.0	142106	18.61 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C2-PFDoDA	8.464	615.0 -> 570.0	806653	19.07 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C2-PFTeDA	9.212	715.0 -> 670.0	671267	17.96 µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.8%	
13C3-PFBS	3.892	302.0 -> 99.0	50451	20.32 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C3-PFHxS	5.972	402.0 -> 99.0	55374	20.66 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C4-PFBA	1.714	217.0 -> 172.0	348650	20.62 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C4-PFHpA	5.928	367.0 -> 322.0	469887	20.90 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C5-PFHxA	4.975	318.0 -> 273.0	373930	20.32 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C5-PFPeA	3.573	268.0 -> 223.0	255353	20.62 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C6-PFDA	7.738	519.0 -> 474.0	647839	20.93 µg/L	-0.002

7.2.3
7

QC Report: 3Q3299.D

Perfluorinated Compounds by LC/MS/MS

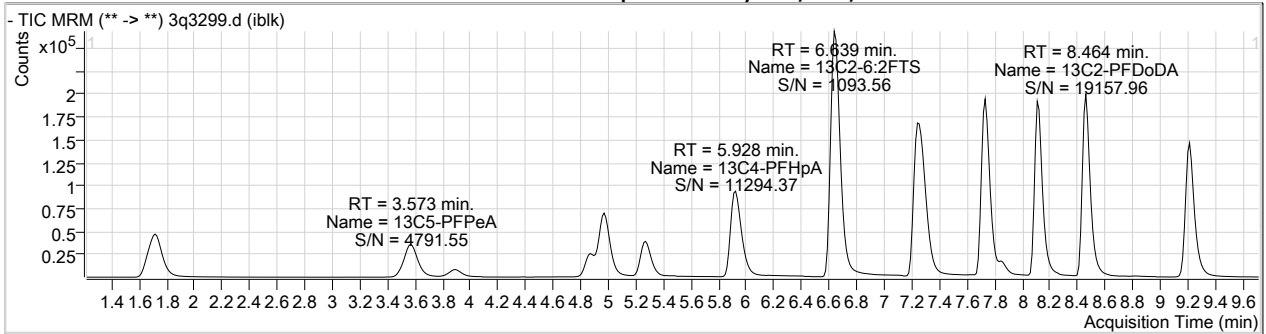
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C7-PFUnDA	8.114	570.0 -> 525.0	766894	19.92 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-FOSA	7.298	506.0 -> 78.0	254083	20.60 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C8-PFOA	6.643	421.0 -> 376.0	505220	20.89 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C8-PFOS	7.233	507.0 -> 99.0	90060	20.54 µg/L	-0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C9-PFNA	7.251	472.0 -> 427.0	524545	20.91 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
d3-MeFOSAA	7.732	573.0 -> 419.0	87526	20.40 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C3-HFPO-DA	5.280	287.0 -> 169.0	207672	98.78 µg/L	0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
M2-PFOA	6.645	415.0 -> 370.0	648403	20.00 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
M4-PFOS	7.235	503.0 -> 80.0	151935	20.00 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
Target Compounds					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	-	427.0 -> 407.0	-	N.D.	
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	7.859	584.0 -> 419.0	0	0.00 µg/L	m 1
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	7.746	570.0 -> 419.0	326	0.14 µg/L	59
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	-	363.0 -> 319.0	-	N.D.	
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	-	313.0 -> 269.0	-	N.D.	
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 80.0	-	N.D.	
PFOA	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.0 -> 80.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
HFPO-DA	-	329.0 -> 169.0	-	N.D.	

7.2.3
7

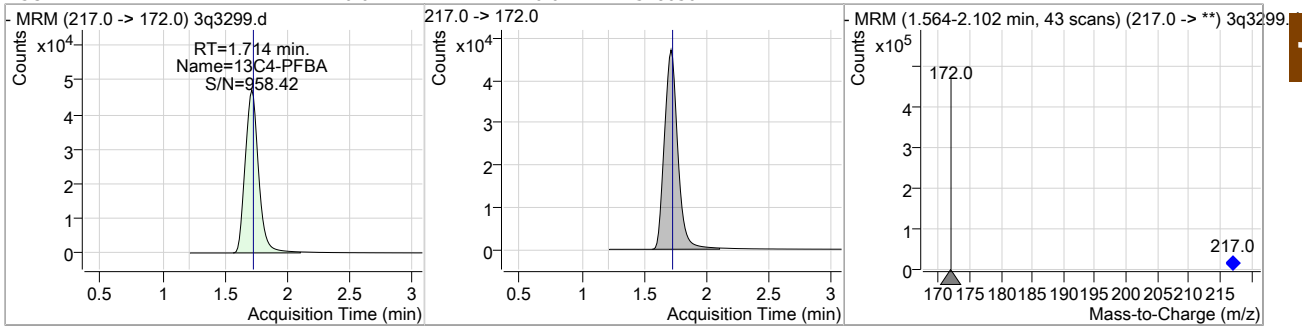
= Qualifier out of range, m = manually integrated, + = Area summed

QC Report: 3Q3299.D

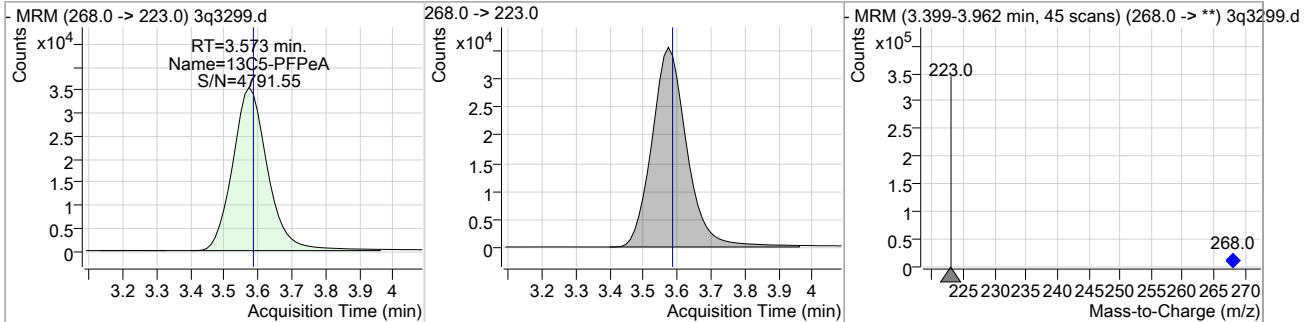
Perfluorinated Compounds by LC/MS/MS



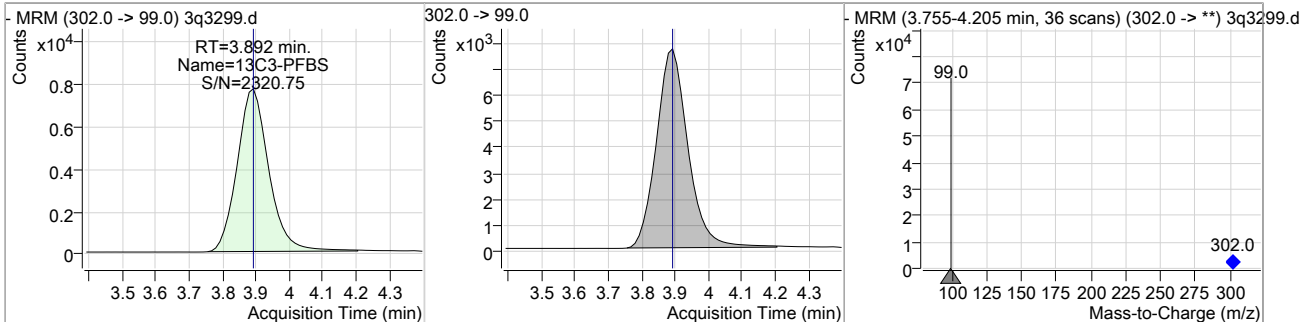
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.62	1.71	-0.01	348650				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.62	3.57	-0.01	255353				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.32	3.89	0.00	50451				



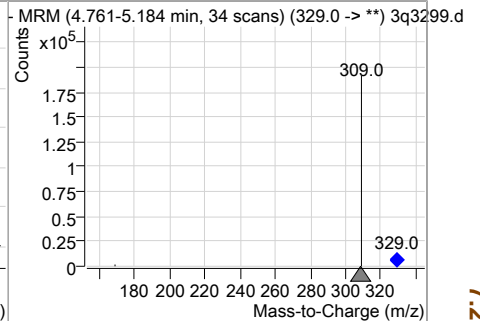
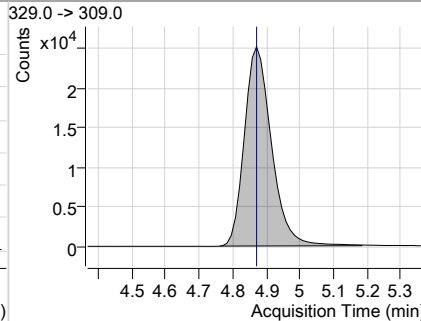
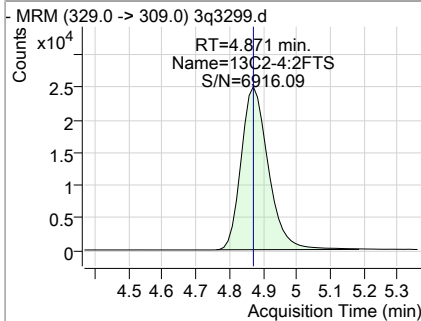
7.2.3

7

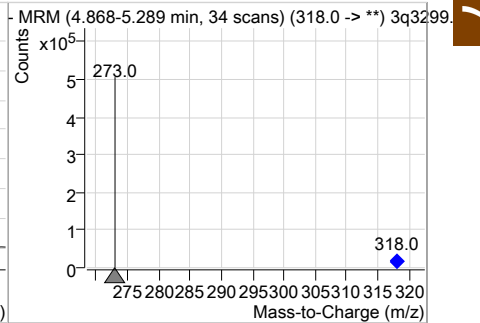
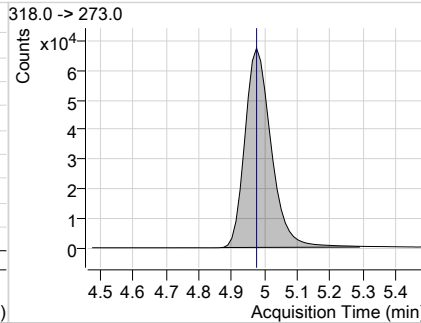
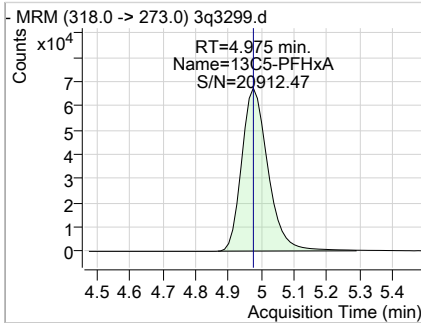
QC Report: 3Q3299.D

Perfluorinated Compounds by LC/MS/MS

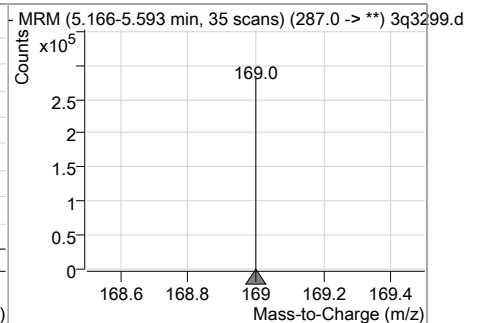
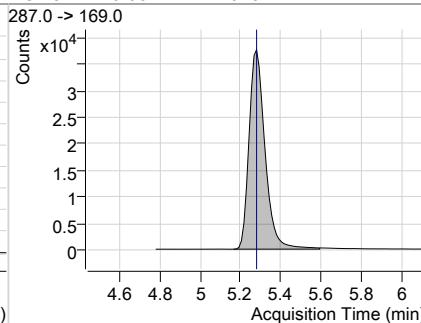
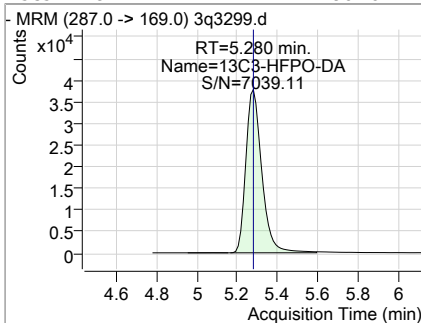
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.30	4.87	0.00	140252				



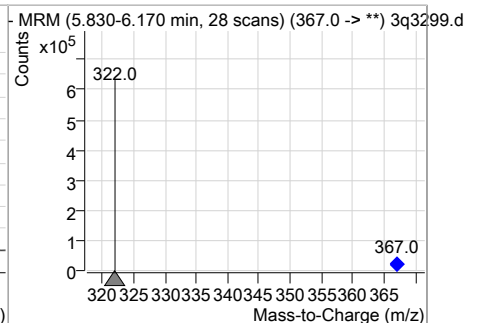
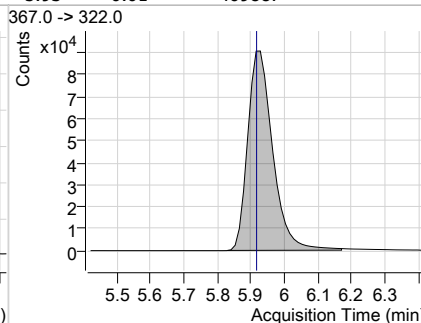
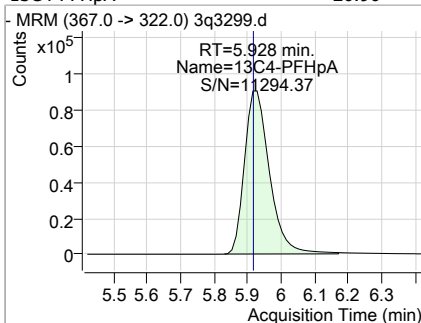
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.32	4.98	0.00	373930				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	98.78	5.28	0.00	207672				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.90	5.93	0.01	469887				



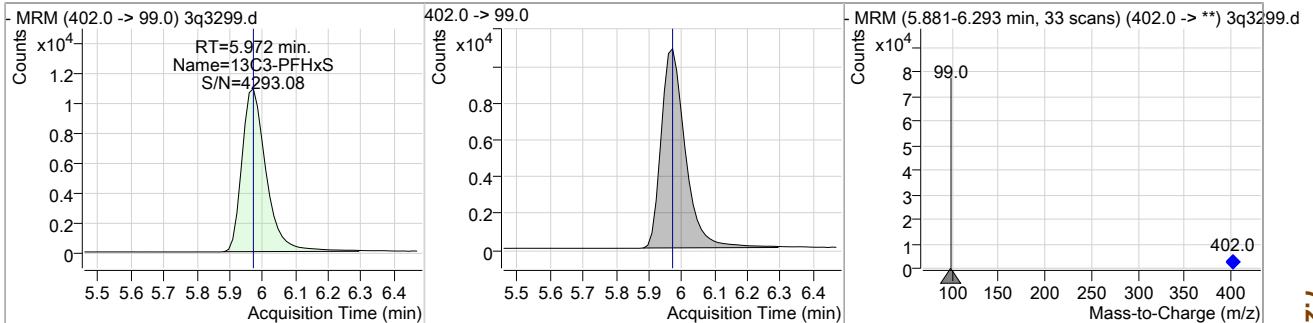
7.2.3

7

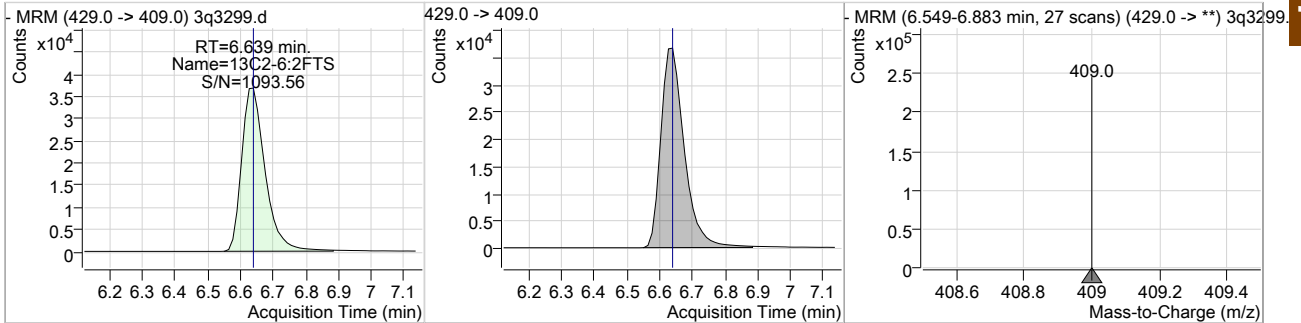
QC Report: 3Q3299.D

Perfluorinated Compounds by LC/MS/MS

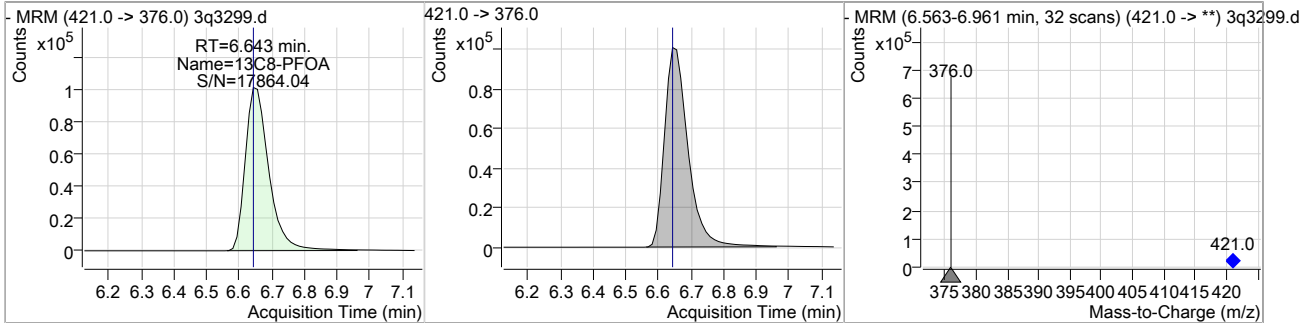
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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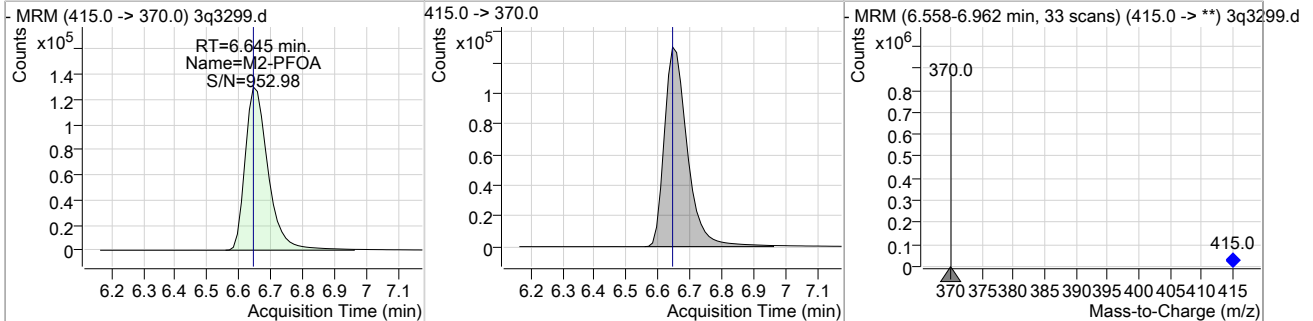
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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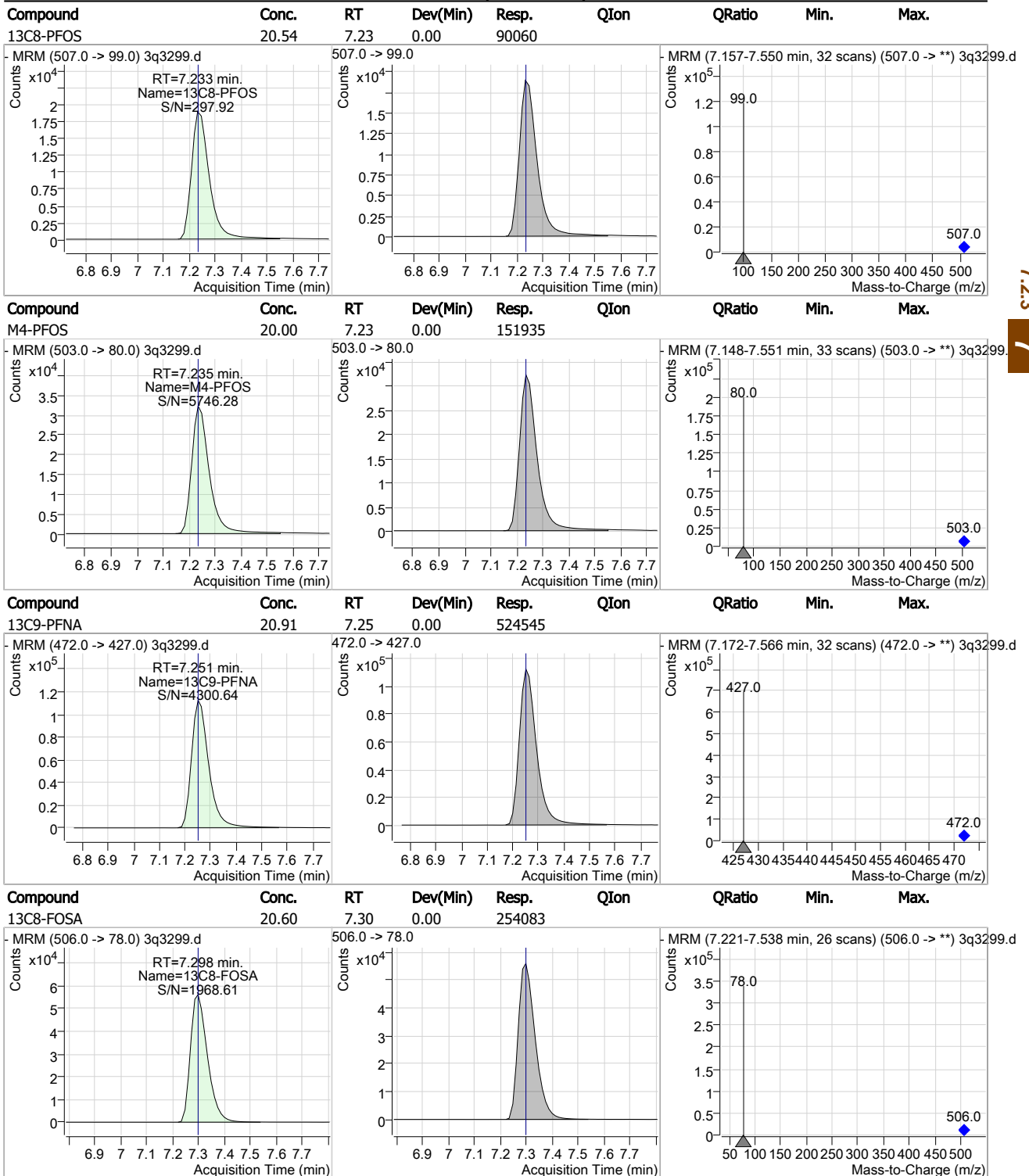


7.2.3

7

QC Report: 3Q3299.D

Perfluorinated Compounds by LC/MS/MS



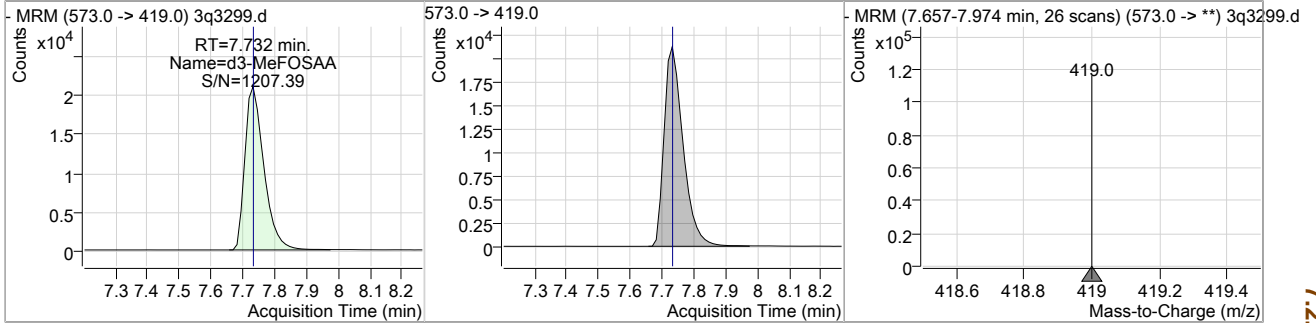
7.2.3

7

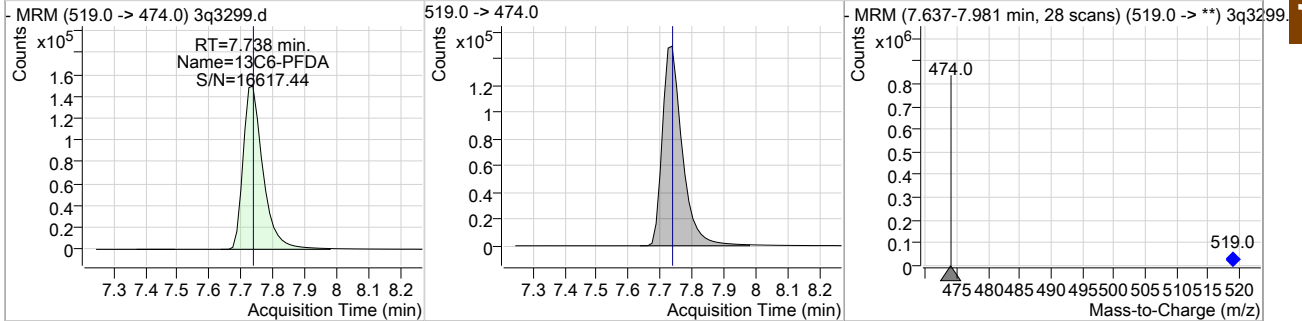
QC Report: 3Q3299.D

Perfluorinated Compounds by LC/MS/MS

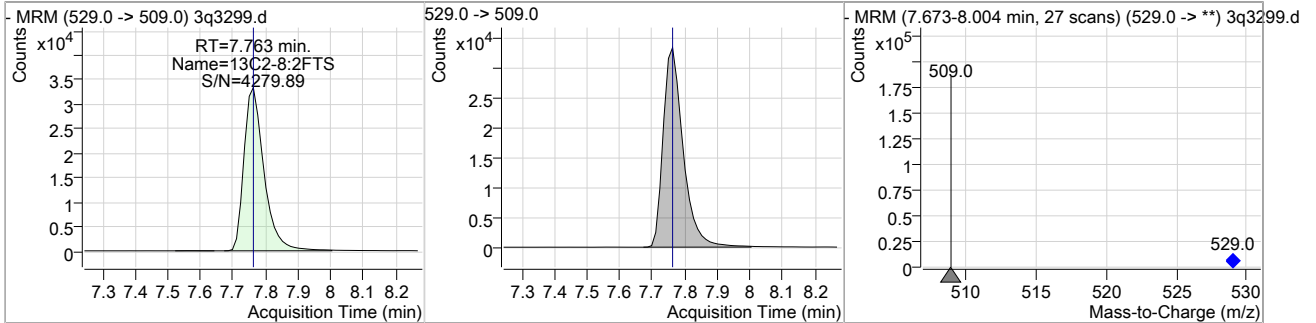
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



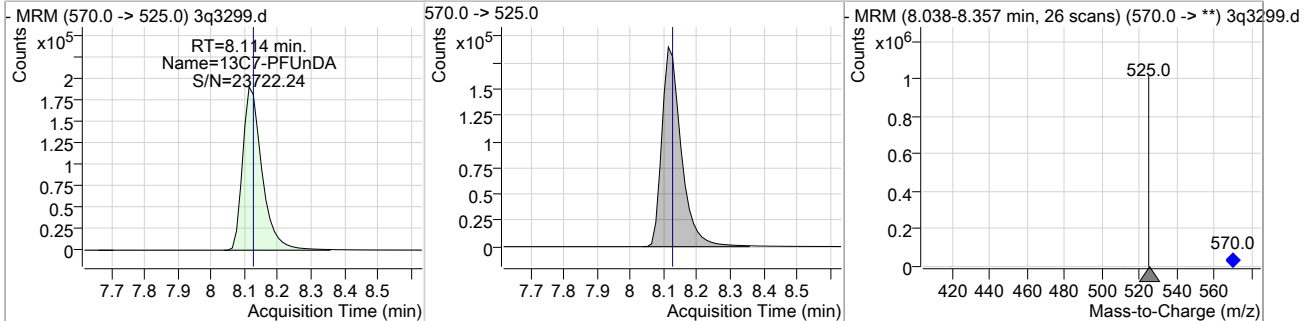
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



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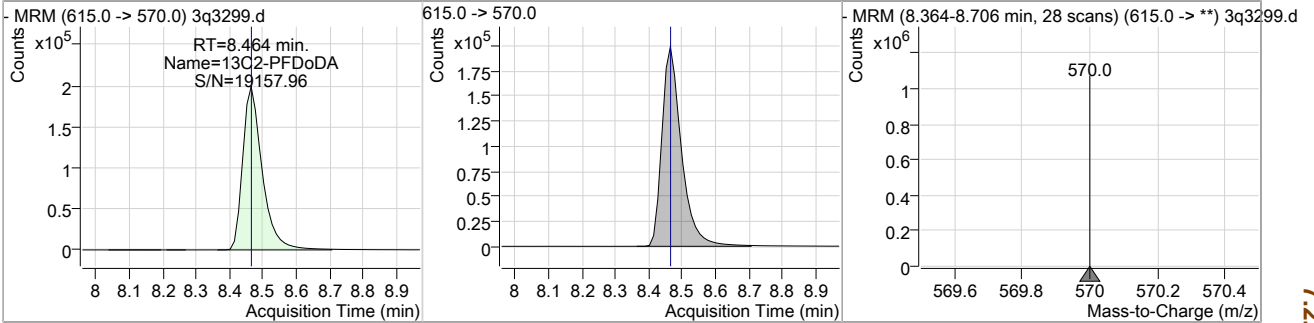


7.2.3
7

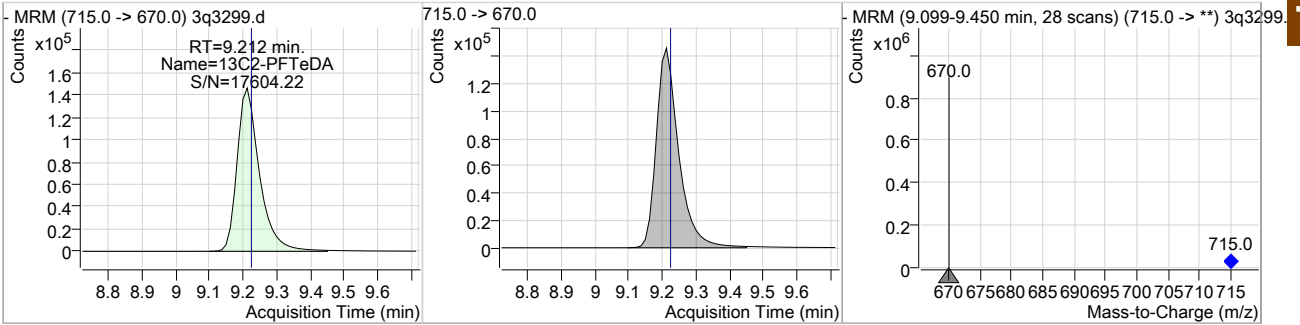
QC Report: **3Q3299.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.07	8.46	0.00	806653				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	17.96	9.21	-0.01	671267				



7.2.3
7

QC Report: 3Q3262.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:16

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3262.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 1:02:04 PM
 Sample Name : op74736-bs
 Vial : P3-B4
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74736,S3Q83,130,,,1.0,1,water

Compound	RT	QI on	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	316098	20.00 µg/L	0.000
M5-PFPeA	3.611	268.0 -> 223.0	229876	20.00 µg/L	0.025
M5-PFHxA	5.013	318.0 -> 273.0	347678	20.00 µg/L	0.037
M4-PFHpA	5.965	367.0 -> 322.0	427175	20.00 µg/L	0.049
M8-PFOA	6.693	421.0 -> 376.0	456529	20.00 µg/L	0.050
M9-PFNA	7.289	472.0 -> 427.0	465593	20.00 µg/L	0.038
M6-PFDA	7.764	519.0 -> 474.0	562363	20.00 µg/L	0.025
M7-PFUnDA	8.139	570.0 -> 525.0	643558	20.00 µg/L	0.012
M2-PFDoDA	8.489	615.0 -> 570.0	729289	20.00 µg/L	0.024
M2-PFTeDA	9.250	715.0 -> 670.0	763585	20.00 µg/L	0.025
M8-FOSA	7.323	506.0 -> 78.0	167603	20.00 µg/L	0.025
M3-PFBS	3.929	302.0 -> 99.0	47532	20.00 µg/L	0.037
M3-PFHxS	6.010	402.0 -> 99.0	50633	20.00 µg/L	0.038
M8-PFOS	7.272	507.0 -> 99.0	76846	20.00 µg/L	0.038
M2-4:2FTS	4.908	329.0 -> 309.0	139764	20.00 µg/L	0.037
M2-6:2FTS	6.677	429.0 -> 409.0	180320	20.00 µg/L	0.038
M2-8:2FTS	7.789	529.0 -> 509.0	135505	20.00 µg/L	0.026
M3-MeFOSAA	7.746	573.0 -> 419.0	73651	20.00 µg/L	0.012
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
13C2-PFOA	6.695	415.0 -> 370.0	631917	20.00 µg/L	0.050
13C4-PFOS	7.274	503.0 -> 80.0	145097	20.00 µg/L	0.038
System Monitoring Compounds					
13C2-4:2FTS	4.908	329.0 -> 309.0	139265	19.16 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C2-6:2FTS	6.677	429.0 -> 409.0	180008	19.13 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C2-8:2FTS	7.789	529.0 -> 509.0	135383	17.73 µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.7%	
13C2-PFDoDA	8.489	615.0 -> 570.0	729088	17.23 µg/L	0.024
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.2%	
13C2-PFTeDA	9.250	715.0 -> 670.0	763557	20.43 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C3-PFBS	3.929	302.0 -> 99.0	47277	19.04 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C3-PFHxS	6.010	402.0 -> 99.0	50266	18.75 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
13C4-PFBA	1.727	217.0 -> 172.0	315760	18.67 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C4-PFHpA	5.965	367.0 -> 322.0	425462	18.92 µg/L	0.049
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C5-PFHxA	5.013	318.0 -> 273.0	346213	18.82 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C5-PFPeA	3.611	268.0 -> 223.0	230419	18.61 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
13C6-PFDA	7.764	519.0 -> 474.0	561204	18.13 µg/L	0.025

7.3.1
7

QC Report: 3Q3262.D

Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)	QValue
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.7%		
13C7-PFUnDA	8.139	570.0 -> 525.0	644313	16.74 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.7%		
13C8-FOSA	7.323	506.0 -> 78.0	167500	13.58 µg/L	0.025	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.9%		
13C8-PFOA	6.693	421.0 -> 376.0	456746	18.88 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.4%		
13C8-PFOS	7.272	507.0 -> 99.0	76724	17.50 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.5%		
13C9-PFNA	7.289	472.0 -> 427.0	465193	18.55 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.7%		
d3-MeFOSAA	7.746	573.0 -> 419.0	73842	17.21 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.1%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
M2-PFOA	6.695	415.0 -> 370.0	631917	20.00 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.274	503.0 -> 80.0	145097	20.00 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						QValue
4:2FTS	4.911	327.0 -> 307.0	79273	19.07 µg/L		99
6:2FTS	6.679	427.0 -> 407.0	89193	19.73 µg/L		100
8:2FTS	7.789	527.0 -> 507.0	71372	19.94 µg/L		99
EtFOSAA	7.872	584.0 -> 419.0	34554	18.53 µg/L		100
FOSA	7.326	498.0 -> 78.0	78415	19.65 µg/L		99
MeFOSAA	7.746	570.0 -> 419.0	40134	20.18 µg/L		99
PFBA	1.723	213.0 -> 169.0	58325	19.82 µg/L		100
PFBS	3.920	299.0 -> 80.0	65145	20.34 µg/L		99
PFDA	7.765	513.0 -> 469.0	273879	19.84 µg/L		100
PFDoDA	8.491	613.0 -> 569.0	317138	18.92 µg/L		100
PFDS	8.111	599.0 -> 80.0	19910	16.46 µg/L		97
PFHpA	5.967	363.0 -> 319.0	378612	18.53 µg/L		100
PFHpS	6.700	449.0 -> 80.0	51526	18.57 µg/L		99
PFHxA	5.015	313.0 -> 269.0	124346	19.06 µg/L		99
PFHxS	6.012	399.0 -> 80.0	56078	19.02 µg/L	m	99
PFNA	7.289	463.0 -> 419.0	288103	18.96 µg/L		100
PFNS	7.735	549.0 -> 80.0	39194	16.38 µg/L		96
PFOA	6.697	413.0 -> 369.0	245961	19.34 µg/L		100
PFOS	7.275	499.0 -> 80.0	66536	18.16 µg/L	m	99
PFPeA	3.615	263.0 -> 219.0	232601	19.47 µg/L		100
PFPeS	5.157	349.0 -> 80.0	40636	19.52 µg/L		100
PFTeDA	9.241	713.0 -> 669.0	470920	19.39 µg/L		100
PFTrDA	8.853	663.0 -> 619.0	394858	17.28 µg/L		100
PFUnDA	8.141	563.0 -> 519.0	294056	20.19 µg/L		100
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

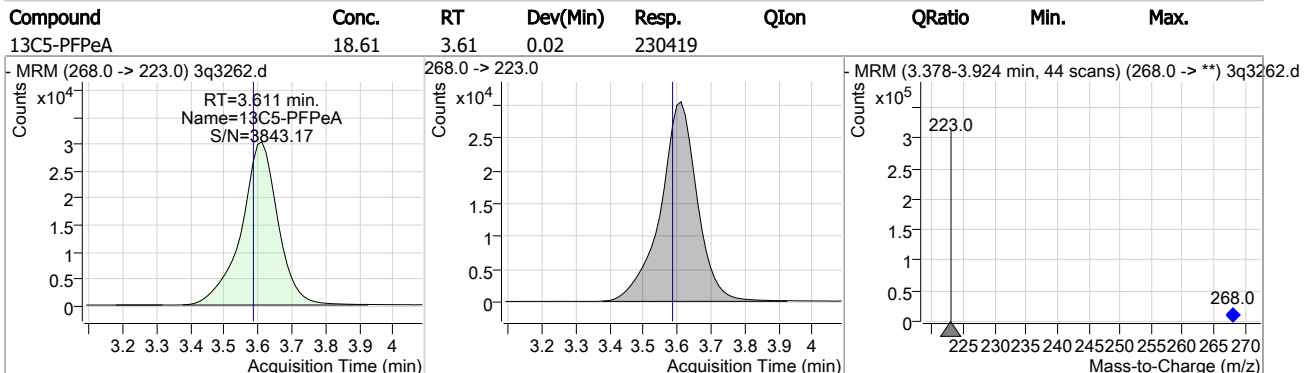
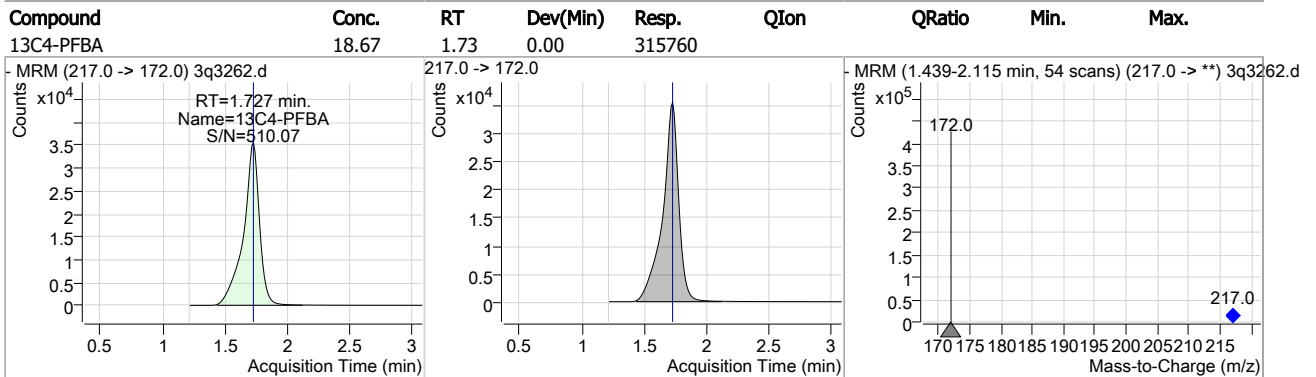
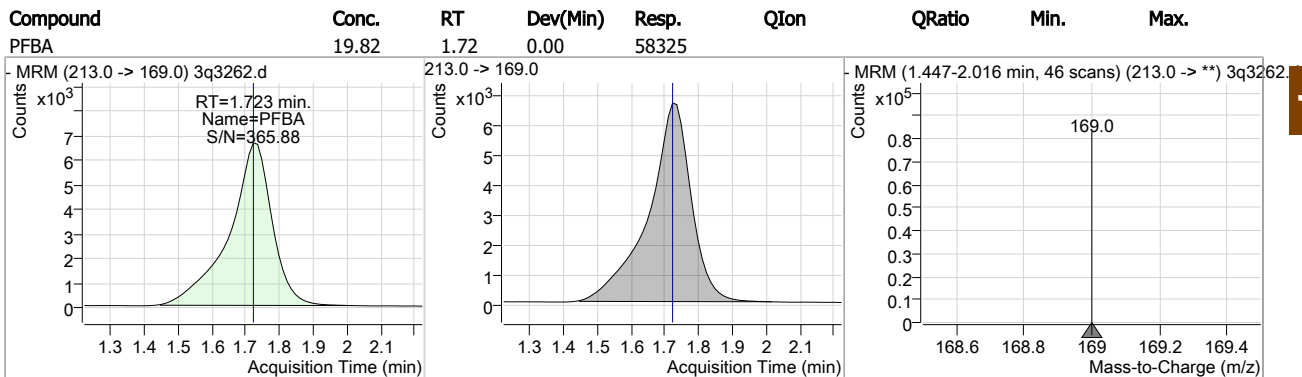
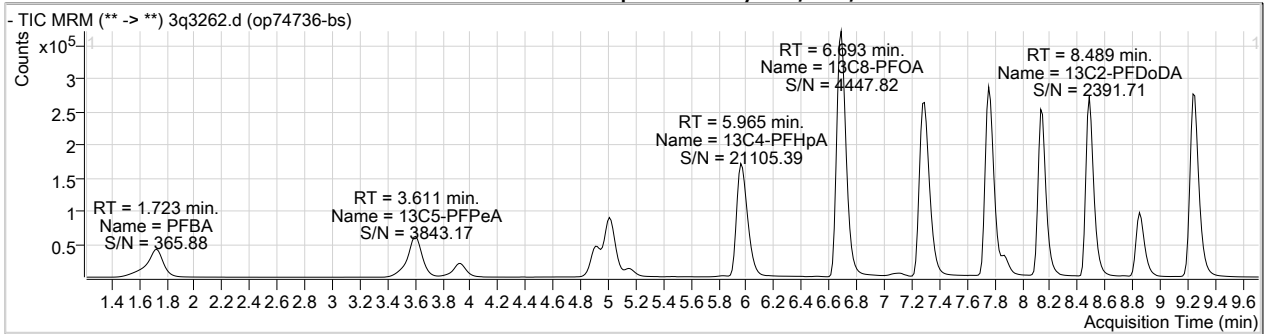
= Qualifier out of range, m = manually integrated, + = Area summed

7.3.1
7



QC Report: 3Q3262.D

Perfluorinated Compounds by LC/MS/MS

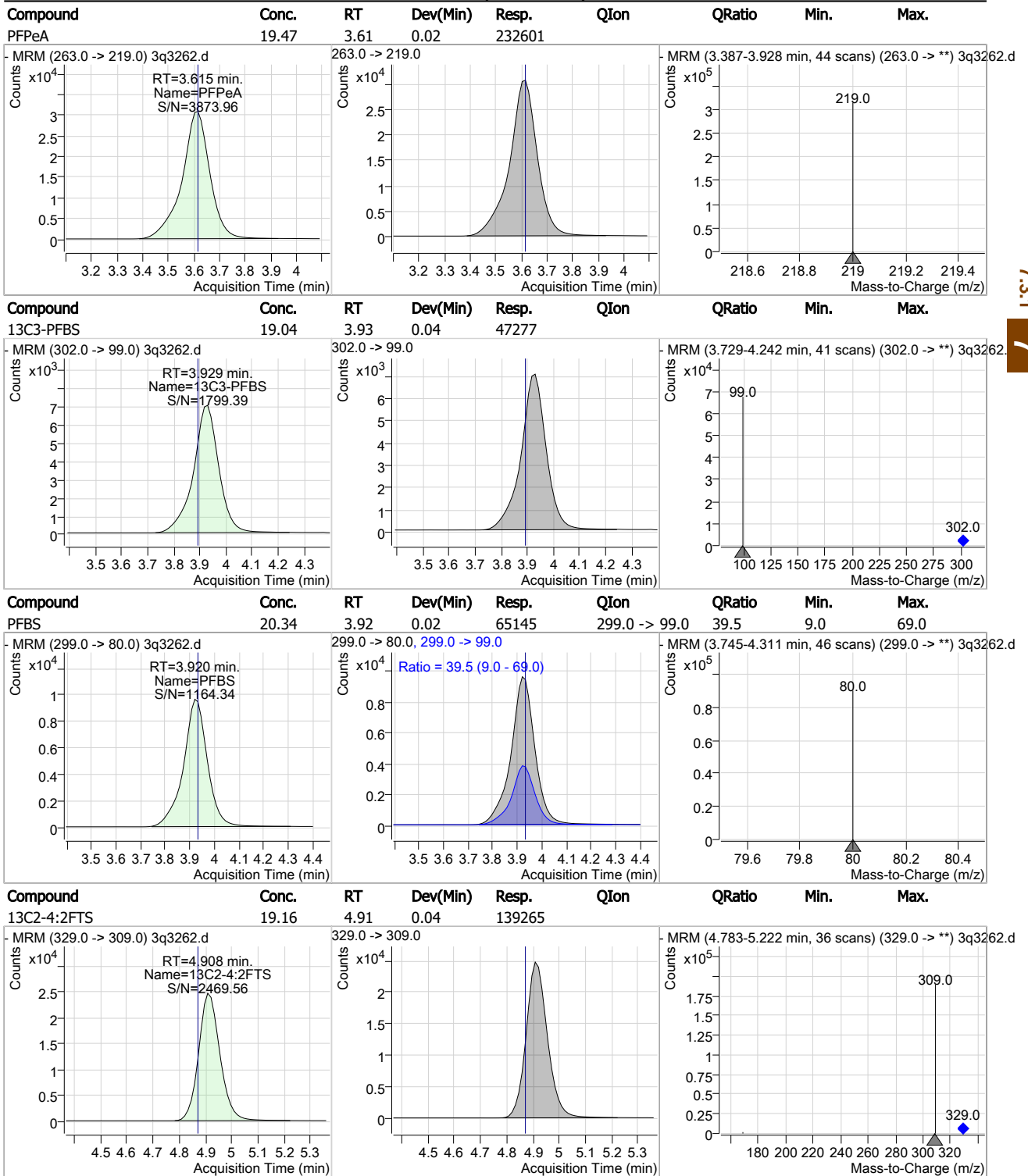


7.3.1

7

QC Report: 3Q3262.D

Perfluorinated Compounds by LC/MS/MS

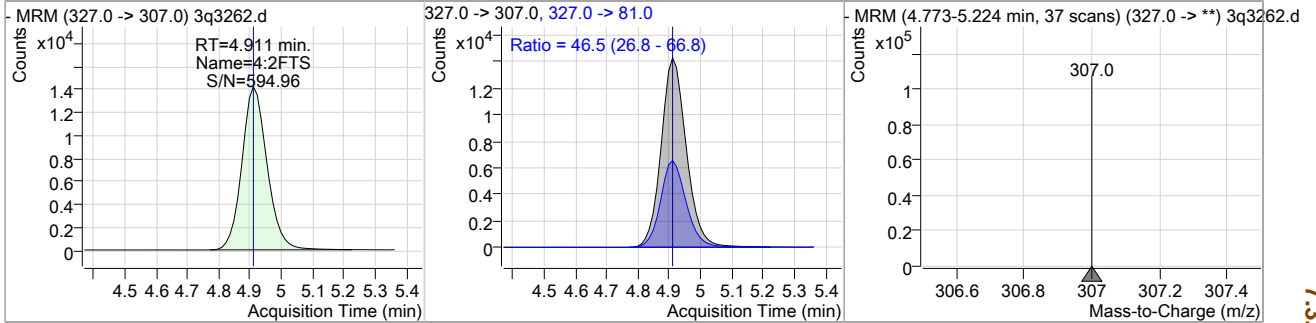


7.3.1
7

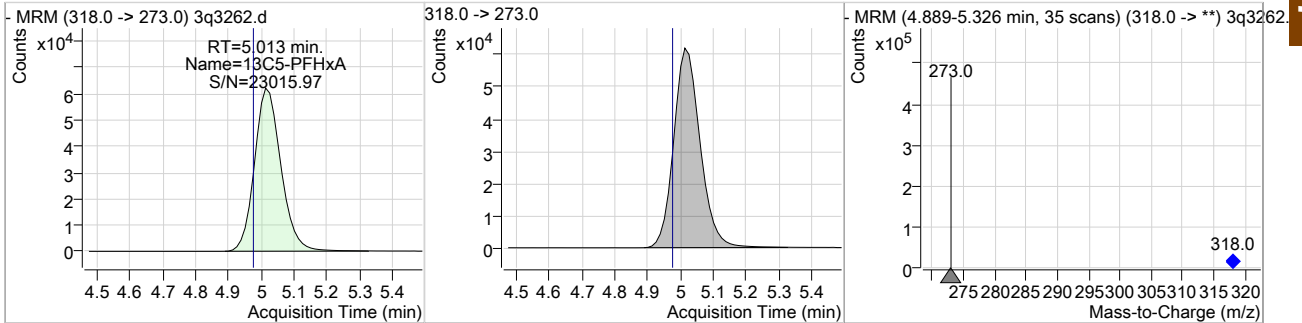
QC Report: 3Q3262.D

Perfluorinated Compounds by LC/MS/MS

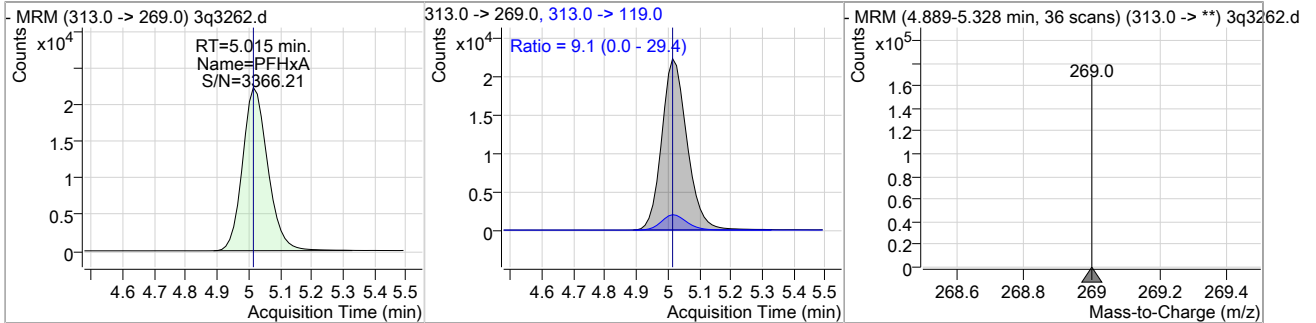
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.07	4.91	0.04	79273	327.0 -> 81.0	46.5	26.8	66.8



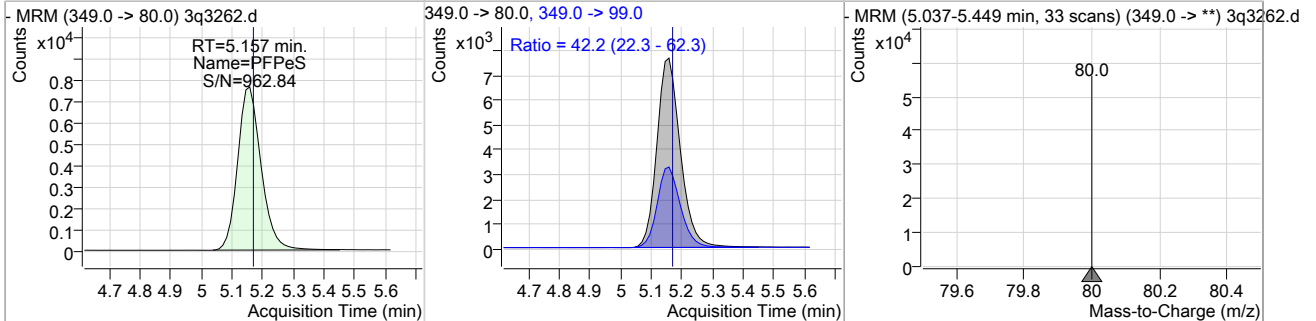
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.82	5.01	0.04	346213				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.06	5.01	0.04	124346	313.0 -> 119.0	9.1	0.0	29.4



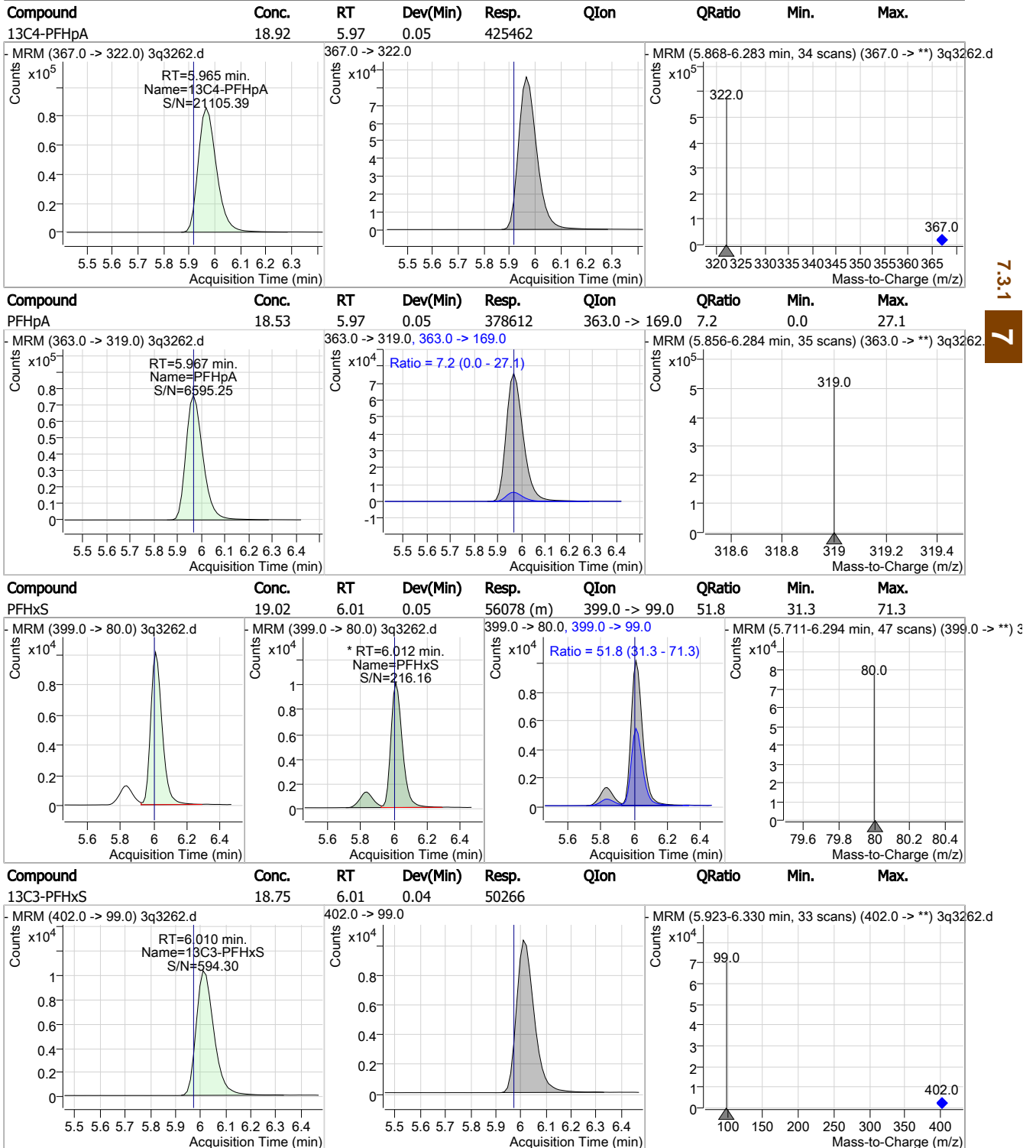
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.52	5.16	0.04	40636	349.0 -> 99.0	42.2	22.3	62.3



7.3.1
7

QC Report: 3Q3262.D

Perfluorinated Compounds by LC/MS/MS

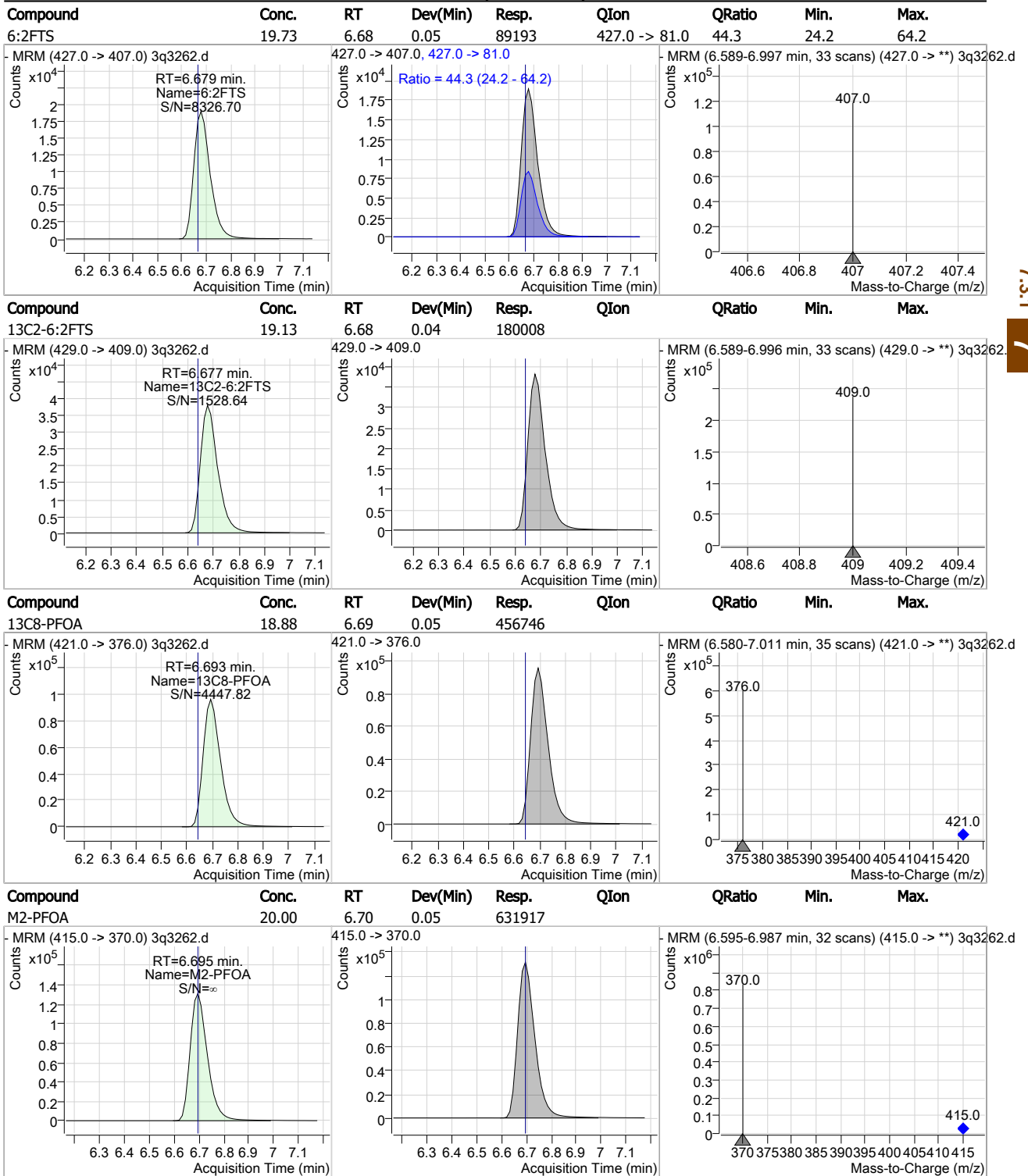


7.3.1

7

QC Report: 3Q3262.D

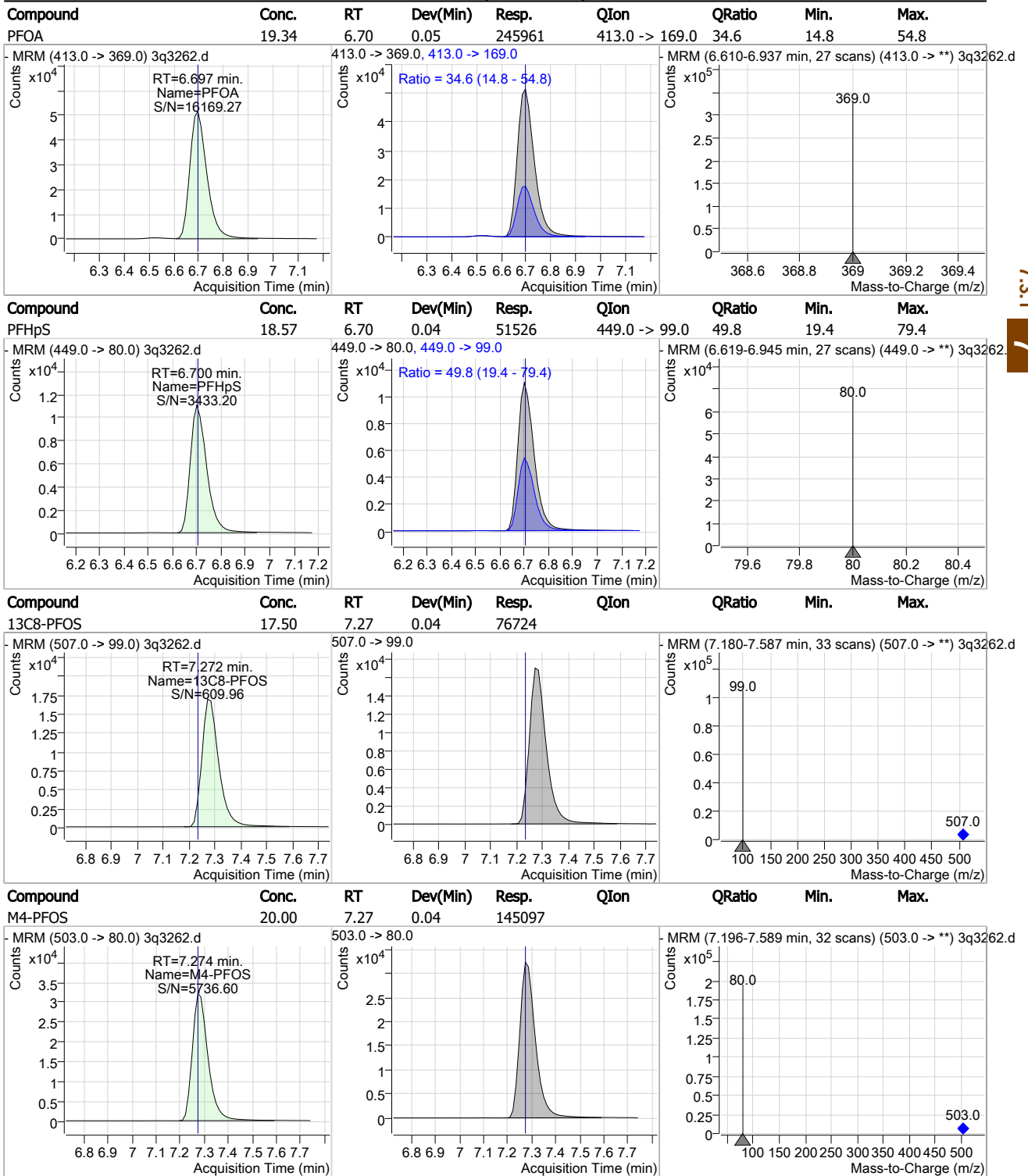
Perfluorinated Compounds by LC/MS/MS



7.3.1 7

QC Report: 3Q3262.D

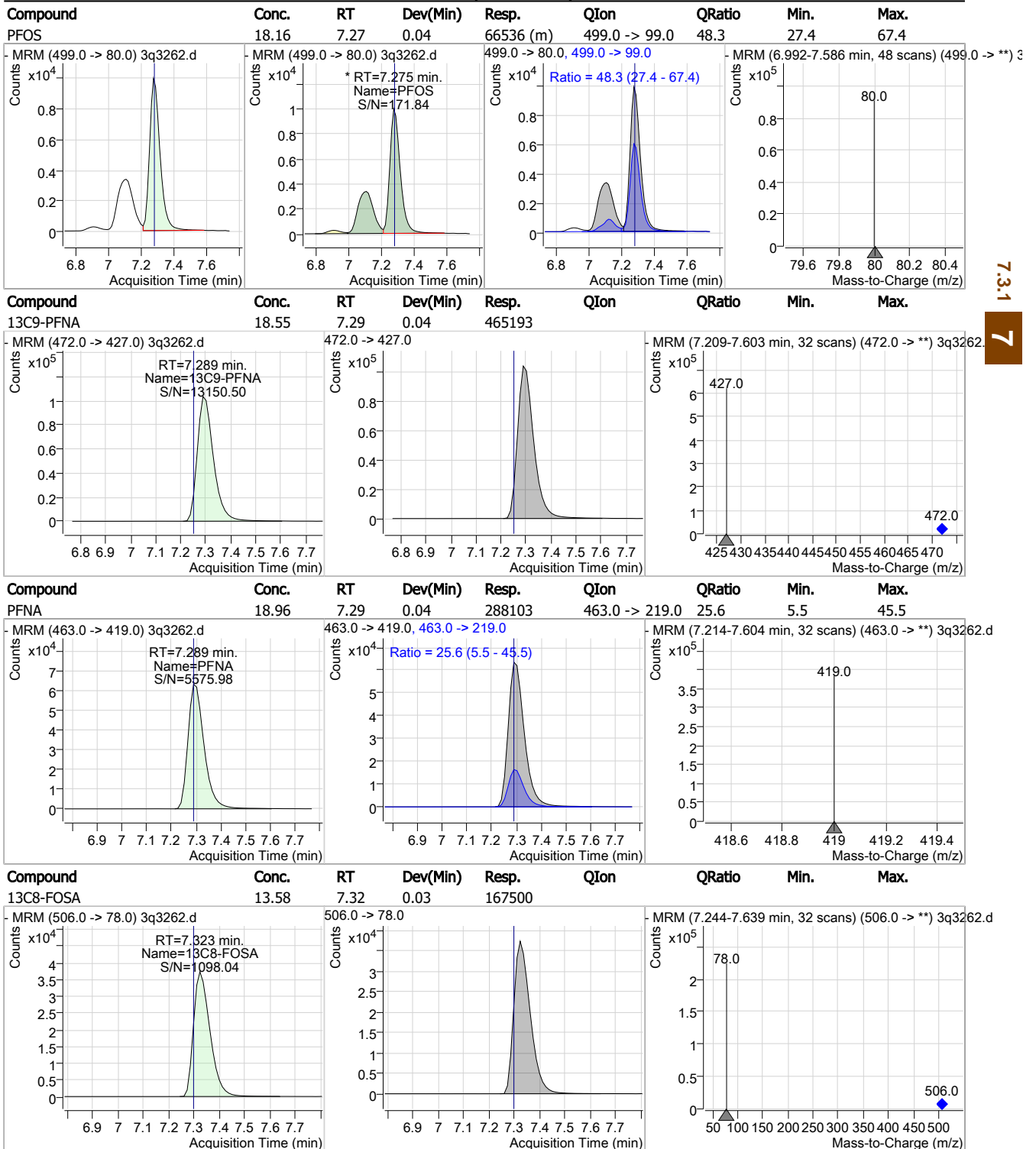
Perfluorinated Compounds by LC/MS/MS



7.3.1 7

QC Report: 3Q3262.D

Perfluorinated Compounds by LC/MS/MS

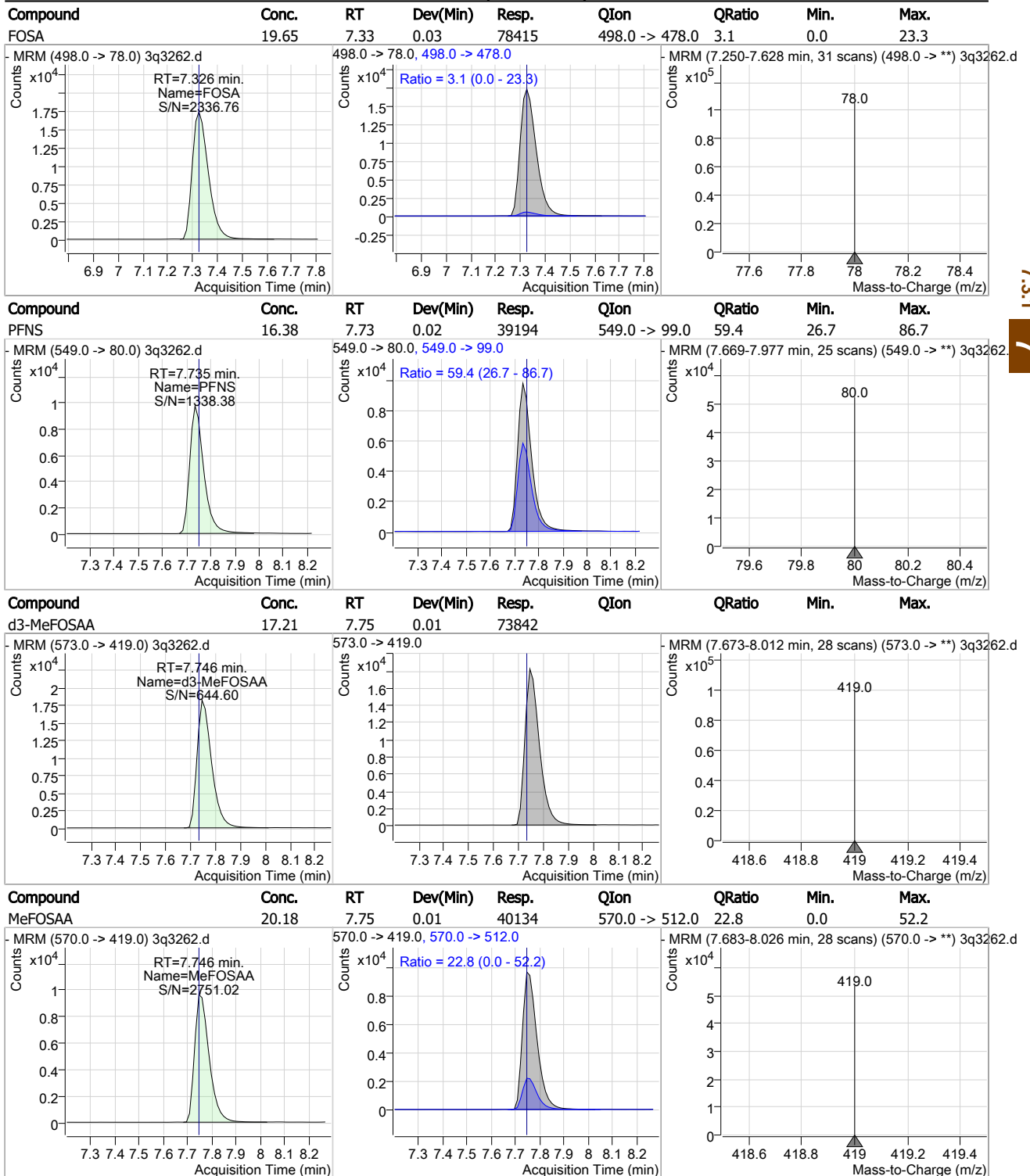


7.3.1

7

QC Report: 3Q3262.D

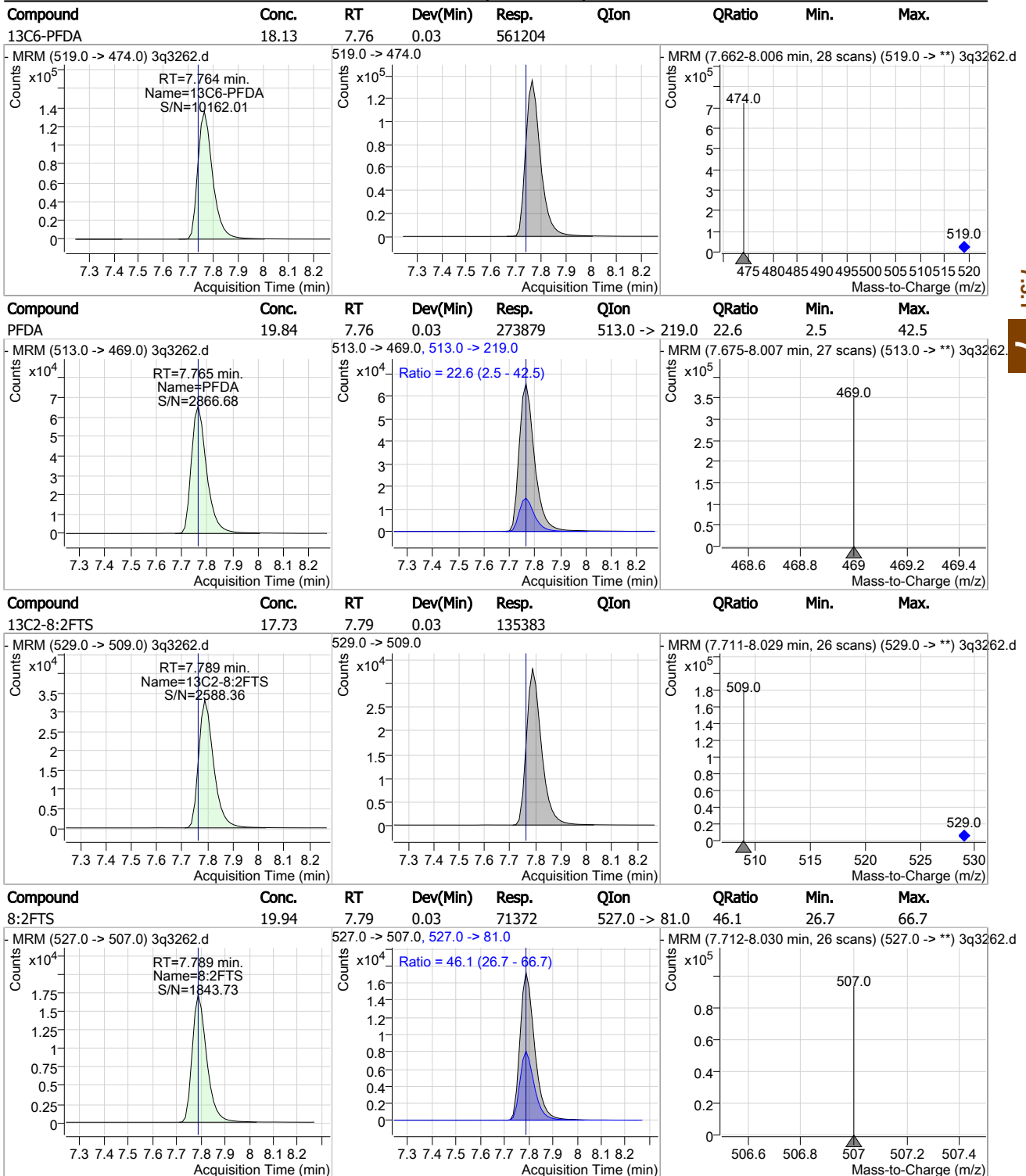
Perfluorinated Compounds by LC/MS/MS



7.3.1 7

QC Report: 3Q3262.D

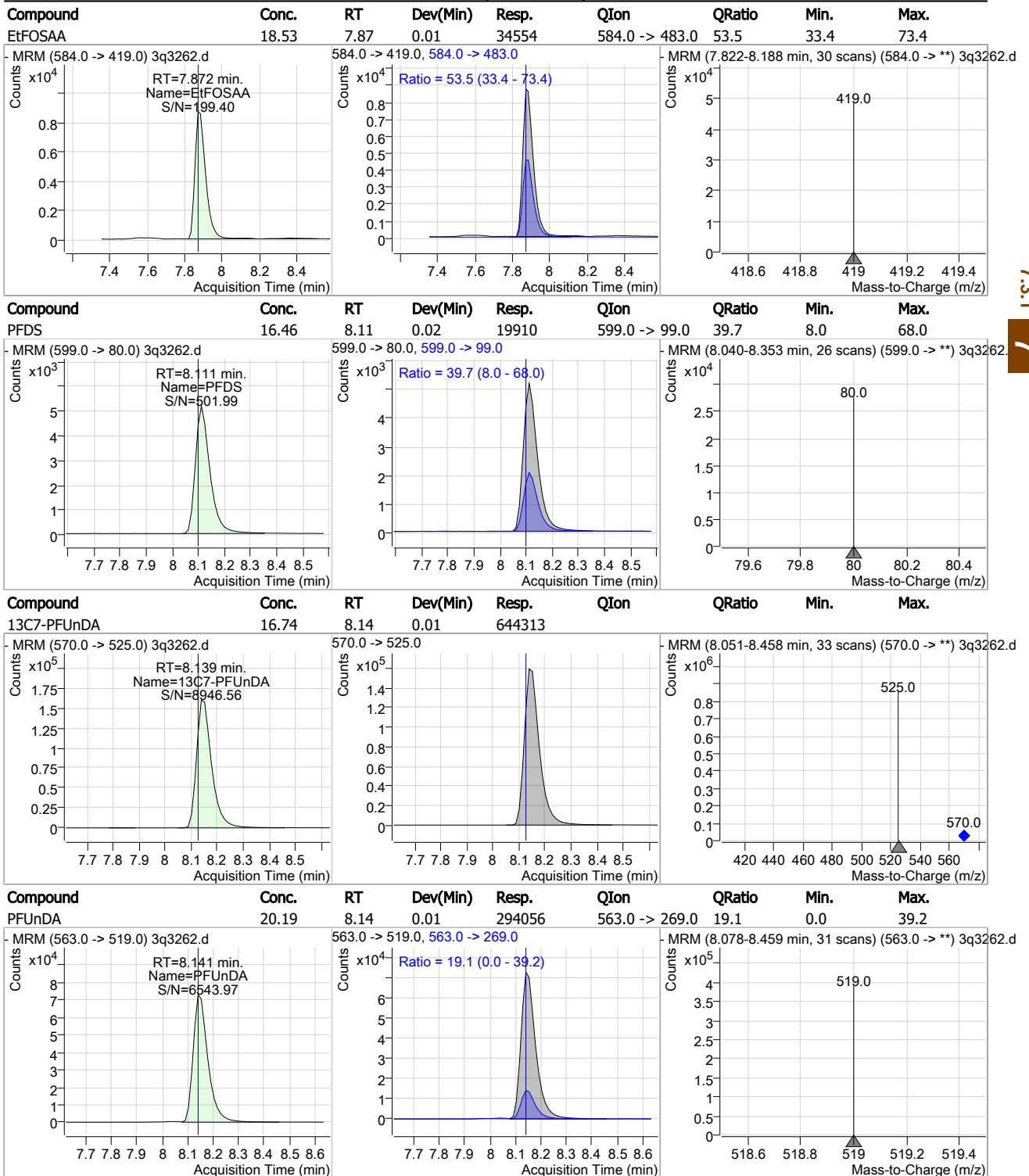
Perfluorinated Compounds by LC/MS/MS



7.3.1 7

QC Report: 3Q3262.D

Perfluorinated Compounds by LC/MS/MS



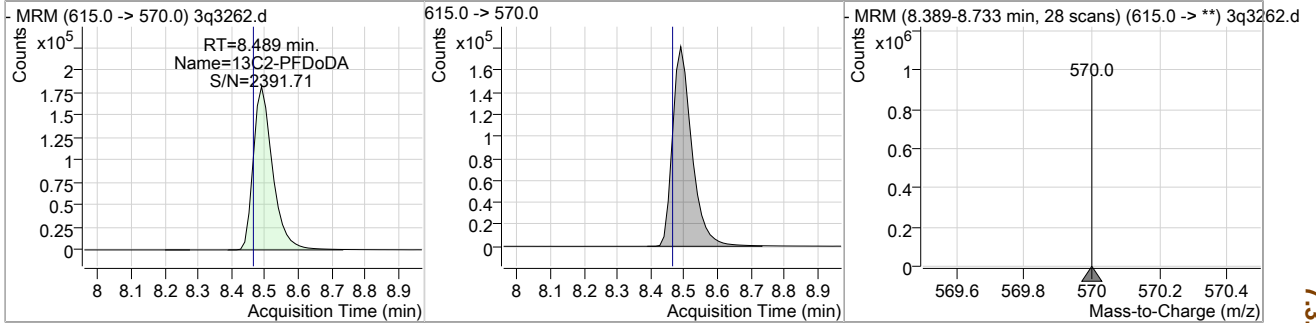
7.3.1 7



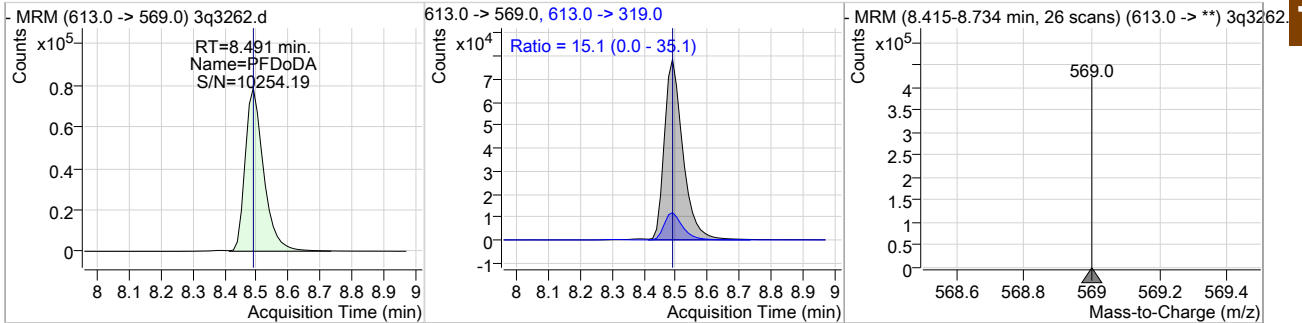
QC Report: 3Q3262.D

Perfluorinated Compounds by LC/MS/MS

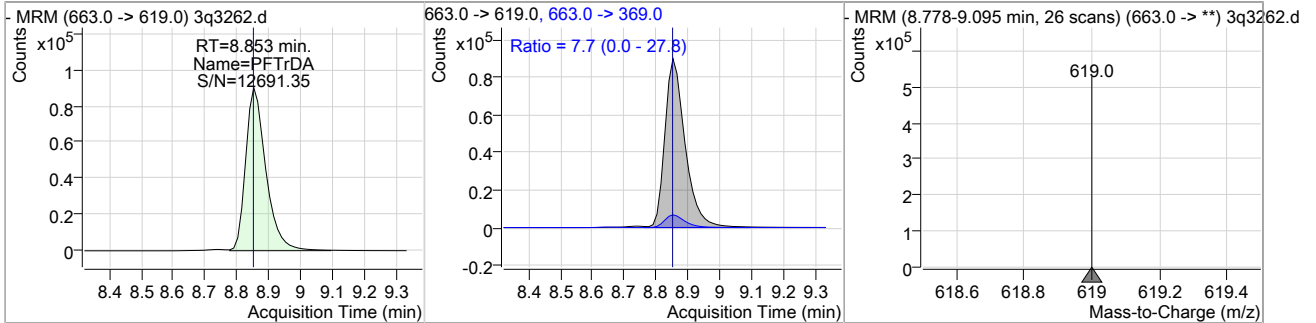
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	17.23	8.49	0.02	729088				



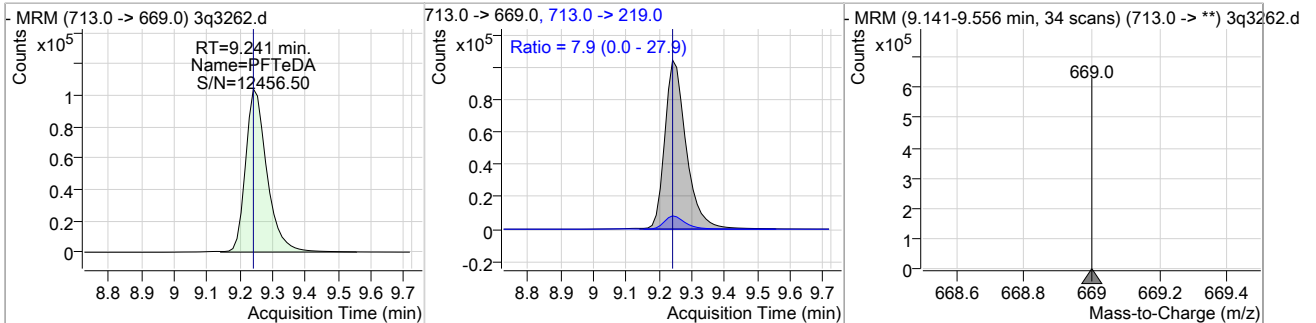
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	18.92	8.49	0.02	317138	613.0 -> 319.0	15.1	0.0	35.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	17.28	8.85	0.03	394858	663.0 -> 369.0	7.7	0.0	27.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.39	9.24	0.03	470920	713.0 -> 219.0	7.9	0.0	27.9

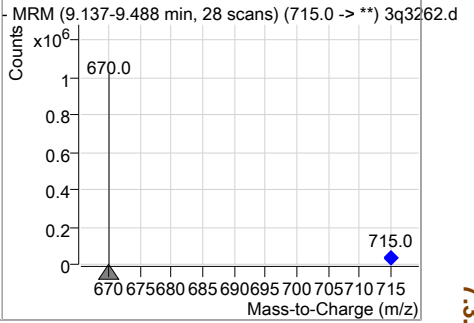
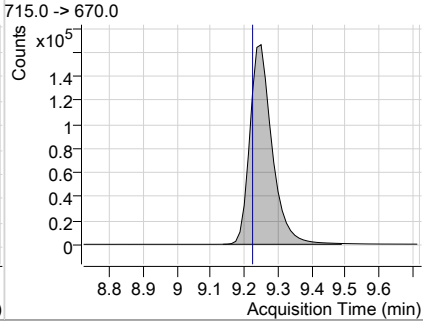
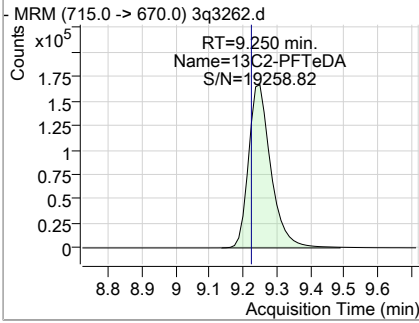


7.3.1
7

QC Report: **3Q3262.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.43	9.25	0.03	763557				



7.3.1
7



Manual Integration Approval Summary

Sample Number: OP74736-BS **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3262.D **Analyst approved:** 04/26/19 09:25 Natasha Gumtie
Injection Time: 04/25/19 13:02 **Supervisor approved:** 04/26/19 16:16 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

7.3.1.1

7

QC Report: 3Q3274.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:16

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3274.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 4:12:22 PM
 Sample Name : op74736-ms
 Vial : P3-C5
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74736,S3Q83,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	336274	20.00 µg/L	0.000
M5-PFPeA	3.611	268.0 -> 223.0	239600	20.00 µg/L	0.025
M5-PFHxA	5.013	318.0 -> 273.0	358926	20.00 µg/L	0.037
M4-PFHpA	5.965	367.0 -> 322.0	434681	20.00 µg/L	0.049
M8-PFOA	6.693	421.0 -> 376.0	469296	20.00 µg/L	0.050
M9-PFNA	7.301	472.0 -> 427.0	478906	20.00 µg/L	0.050
M6-PFDA	7.764	519.0 -> 474.0	542282	20.00 µg/L	0.025
M7-PFUnDA	8.139	570.0 -> 525.0	588745	20.00 µg/L	0.012
M2-PFDoDA	8.489	615.0 -> 570.0	589286	20.00 µg/L	0.024
M2-PFTeDA	9.237	715.0 -> 670.0	509449	20.00 µg/L	0.013
M8-FOSA	7.336	506.0 -> 78.0	208159	20.00 µg/L	0.038
M3-PFBS	3.929	302.0 -> 99.0	47073	20.00 µg/L	0.037
M3-PFHxS	6.022	402.0 -> 99.0	49021	20.00 µg/L	0.050
M8-PFOS	7.285	507.0 -> 99.0	73573	20.00 µg/L	0.050
M2-4:2FTS	4.908	329.0 -> 309.0	143108	20.00 µg/L	0.037
M2-6:2FTS	6.677	429.0 -> 409.0	183456	20.00 µg/L	0.038
M2-8:2FTS	7.789	529.0 -> 509.0	129394	20.00 µg/L	0.026
M3-MeFOSAA	7.758	573.0 -> 419.0	68076	20.00 µg/L	0.025
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
13C2-PFOA	6.695	415.0 -> 370.0	625667	20.00 µg/L	0.050
13C4-PFOS	7.286	503.0 -> 80.0	139633	20.00 µg/L	0.050
System Monitoring Compounds					
13C2-4:2FTS	4.908	329.0 -> 309.0	142956	19.67 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C2-6:2FTS	6.677	429.0 -> 409.0	183168	19.47 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C2-8:2FTS	7.789	529.0 -> 509.0	129335	16.94 µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.7%	
13C2-PFDoDA	8.489	615.0 -> 570.0	589196	13.93 µg/L	0.024
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.6%	
13C2-PFTeDA	9.237	715.0 -> 670.0	508109	13.60 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 68.0%	
13C3-PFBS	3.929	302.0 -> 99.0	46934	18.91 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C3-PFHxS	6.022	402.0 -> 99.0	48945	18.26 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.3%	
13C4-PFBA	1.727	217.0 -> 172.0	336018	19.87 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C4-PFHpA	5.965	367.0 -> 322.0	434578	19.33 µg/L	0.049
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C5-PFHxA	5.013	318.0 -> 273.0	358981	19.51 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C5-PFPeA	3.611	268.0 -> 223.0	239459	19.34 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C6-PFDA	7.764	519.0 -> 474.0	541877	17.51 µg/L	0.025

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QC Report: 3Q3274.D

Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)	QValue
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.5%		
13C7-PFUnDA	8.139	570.0 -> 525.0	589263	15.31 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.5%		
13C8-FOSA	7.336	506.0 -> 78.0	207931	16.86 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.3%		
13C8-PFOA	6.693	421.0 -> 376.0	468269	19.36 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.8%		
13C8-PFOS	7.285	507.0 -> 99.0	73599	16.79 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.9%		
13C9-PFNA	7.301	472.0 -> 427.0	478763	19.09 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.4%		
d3-MeFOSAA	7.758	573.0 -> 419.0	68055	15.86 µg/L	0.025	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.3%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
M2-PFOA	6.695	415.0 -> 370.0	625667	20.00 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.286	503.0 -> 80.0	139633	20.00 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						QValue
4:2FTS	4.911	327.0 -> 307.0	83153	19.54 µg/L		98
6:2FTS	6.679	427.0 -> 407.0	96779	21.04 µg/L		100
8:2FTS	7.789	527.0 -> 507.0	70532	20.63 µg/L		97
EtFOSAA	7.884	584.0 -> 419.0	31974	18.55 µg/L		99
FOSA	7.338	498.0 -> 78.0	100346	20.24 µg/L		100
MeFOSAA	7.759	570.0 -> 419.0	38391	20.89 µg/L		98
PFBA	1.723	213.0 -> 169.0	75870	24.23 µg/L		100
PFBS	3.933	299.0 -> 80.0	99826	31.47 µg/L		99
PFDA	7.765	513.0 -> 469.0	269588	20.25 µg/L		99
PFDoDA	8.491	613.0 -> 569.0	276420	20.41 µg/L		100
PFDS	8.111	599.0 -> 80.0	19585	17.70 µg/L		99
PFHpA	5.967	363.0 -> 319.0	479872	23.08 µg/L	m	99
PFHpS	6.700	449.0 -> 80.0	63687	23.71 µg/L	m	99
PFHxA	5.015	313.0 -> 269.0	269547	40.02 µg/L		99
PFHxS	6.012	399.0 -> 80.0	252788	88.56 µg/L	m	99
PFNA	7.302	463.0 -> 419.0	295953	18.93 µg/L		100
PFNS	7.735	549.0 -> 80.0	38997	17.02 µg/L		100
PFOA	6.697	413.0 -> 369.0	463745	35.47 µg/L	m	98
PFOS	7.287	499.0 -> 80.0	88991	25.37 µg/L	m	92
PFPeA	3.615	263.0 -> 219.0	365287	29.34 µg/L		100
PFPeS	5.157	349.0 -> 80.0	62968	30.54 µg/L	m	98
PFTeDA	9.241	713.0 -> 669.0	337894	20.85 µg/L		100
PFTrDA	8.853	663.0 -> 619.0	306446	20.11 µg/L		100
PFUnDA	8.141	563.0 -> 519.0	283765	21.30 µg/L		100
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

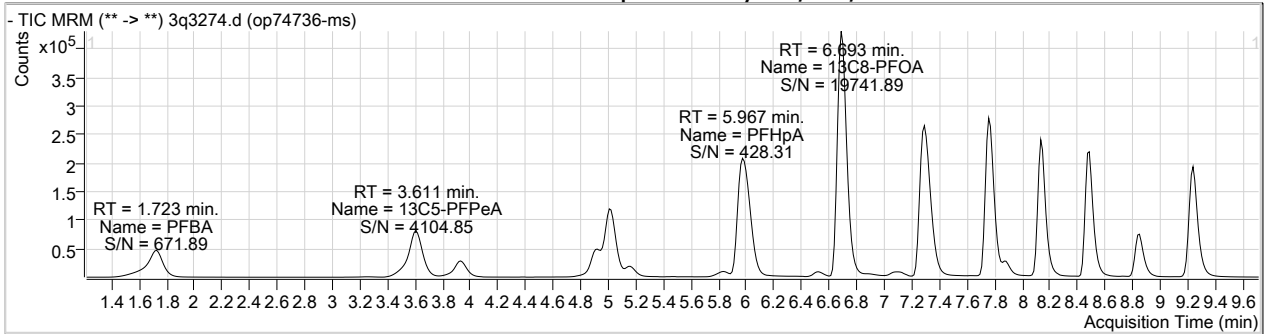
7.4.1
7

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

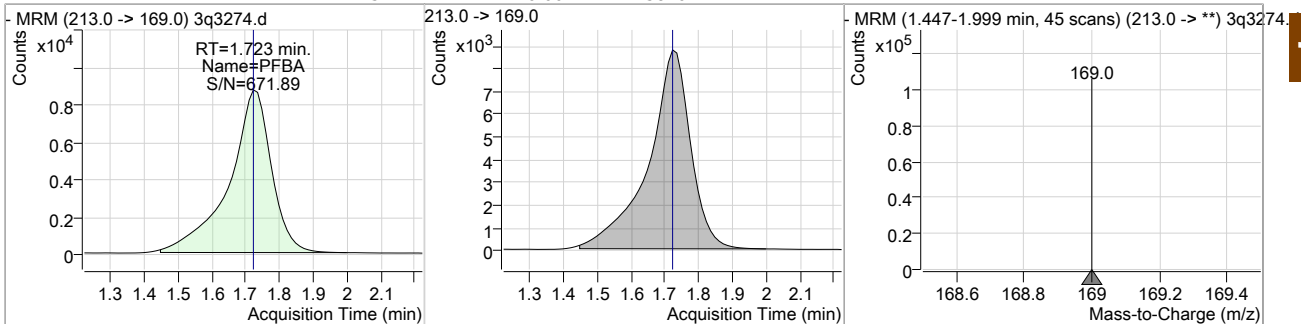


QC Report: 3Q3274.D

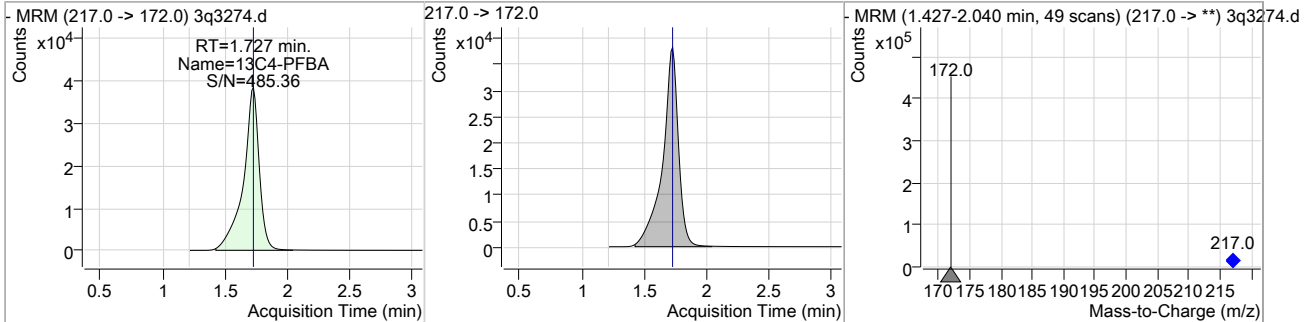
Perfluorinated Compounds by LC/MS/MS



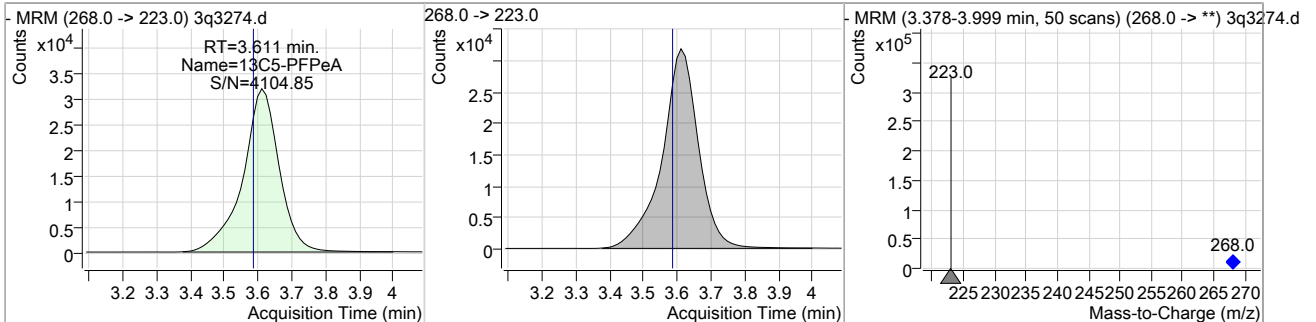
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	24.23	1.72	0.00	75870				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.87	1.73	0.00	336018				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.34	3.61	0.02	239459				



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QC Report: 3Q3274.D

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	29.34	3.61	0.02	365287				
MRM (263.0 -> 219.0) 3q3274.d			263.0 -> 219.0			MRM (3.387-4.003 min, 50 scans) (263.0 -> **) 3q3274.d		
13C3-PFBS	18.91	3.93	0.04	46934				
MRM (302.0 -> 99.0) 3q3274.d			302.0 -> 99.0			MRM (3.742-4.242 min, 40 scans) (302.0 -> **) 3q3274.d		
PFBS	31.47	3.93	0.04	99826	299.0 -> 99.0	39.3	9.0	69.0
MRM (299.0 -> 80.0) 3q3274.d			299.0 -> 80.0, 299.0 -> 99.0			MRM (3.745-4.249 min, 41 scans) (299.0 -> **) 3q3274.d		
13C2-4:2FTS	19.67	4.91	0.04	142956				
MRM (329.0 -> 309.0) 3q3274.d			329.0 -> 309.0			MRM (4.783-5.297 min, 42 scans) (329.0 -> **) 3q3274.d		

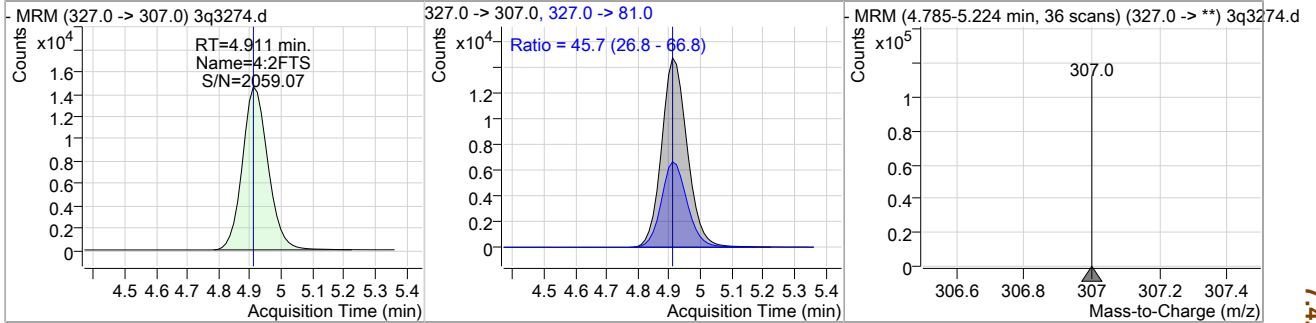
7.4.1

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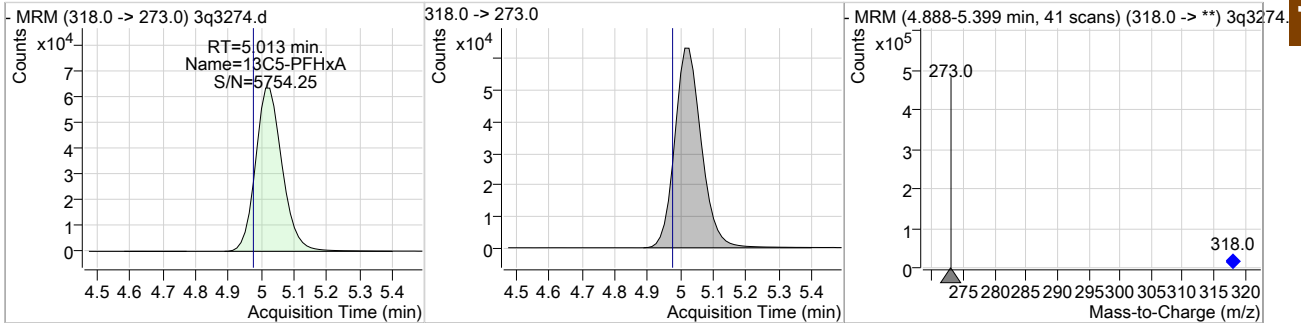
QC Report: 3Q3274.D

Perfluorinated Compounds by LC/MS/MS

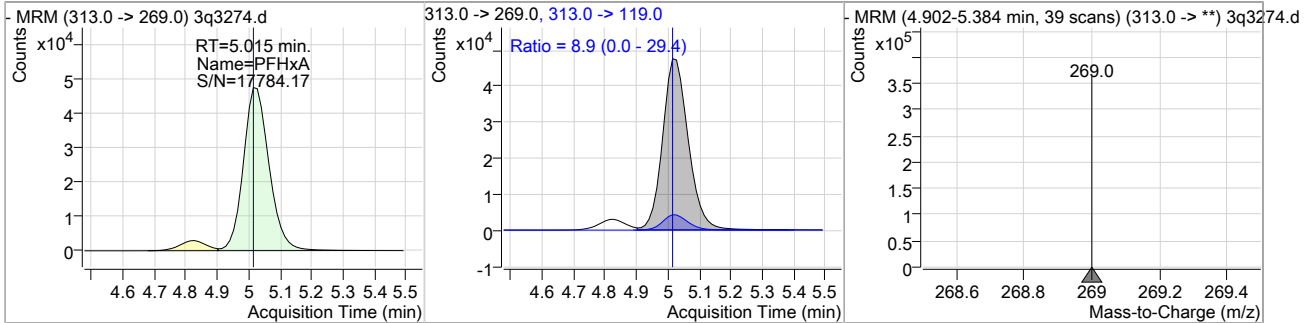
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.54	4.91	0.04	83153	327.0 -> 81.0	45.7	26.8	66.8



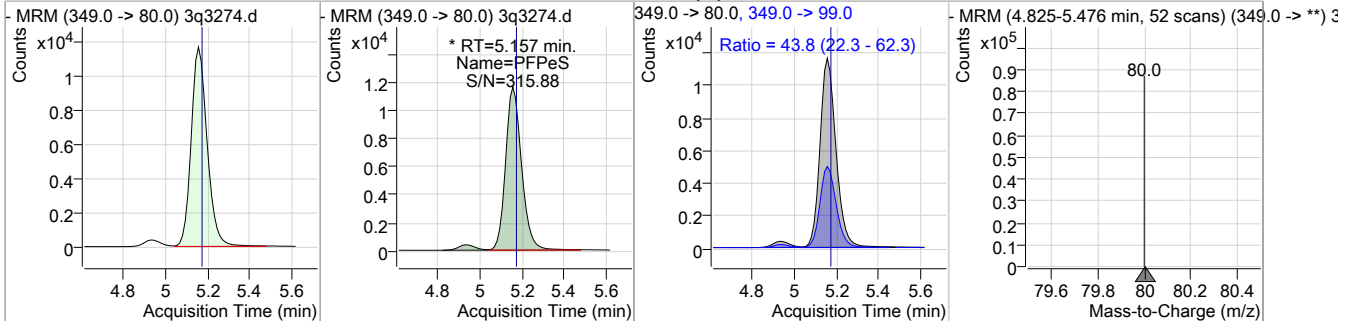
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.51	5.01	0.04	358981				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	40.02	5.01	0.04	269547	313.0 -> 119.0	8.9	0.0	29.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	30.54	5.16	0.04	62968 (m)	349.0 -> 99.0	43.8	22.3	62.3

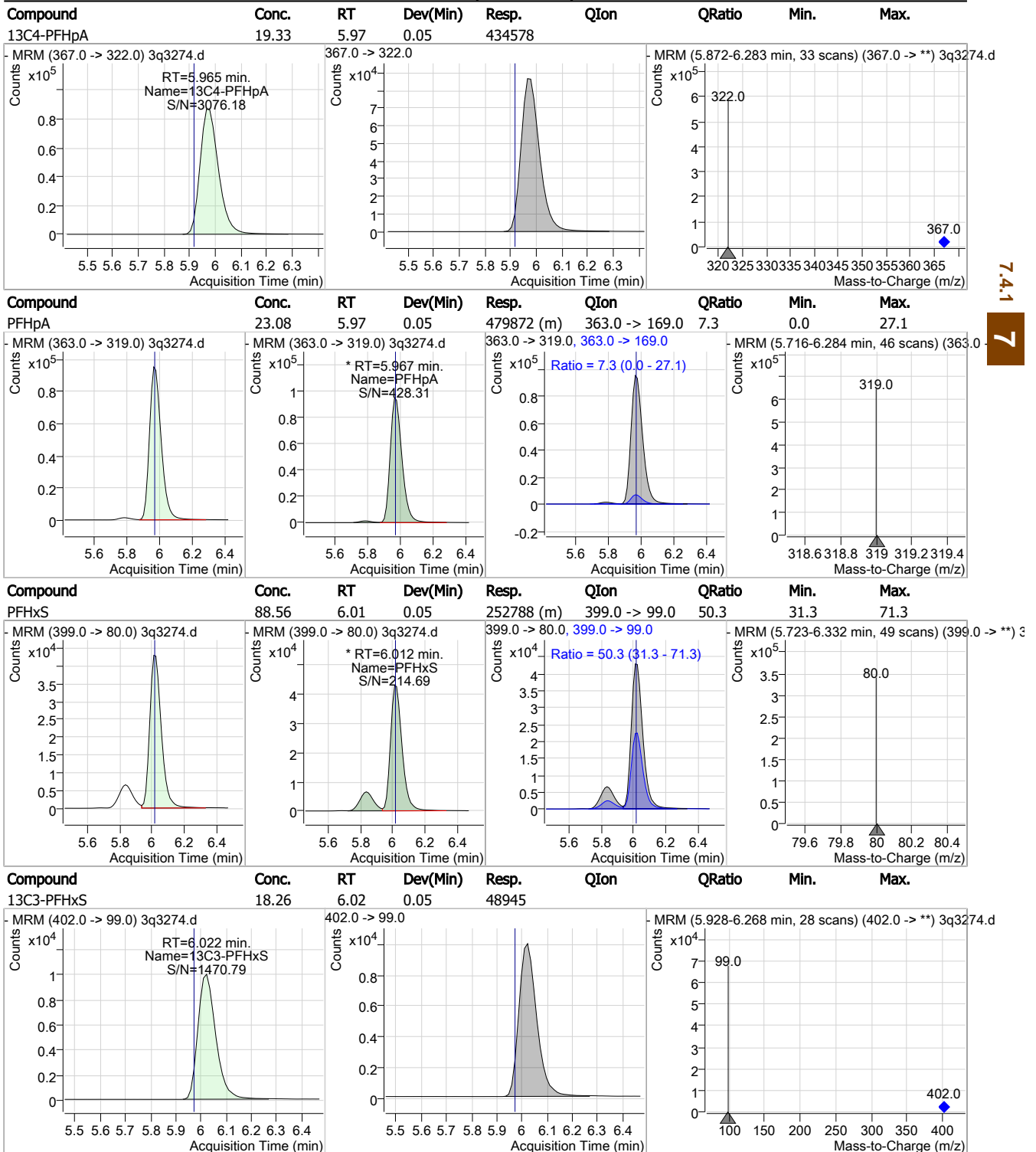


7.4.1

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QC Report: 3Q3274.D

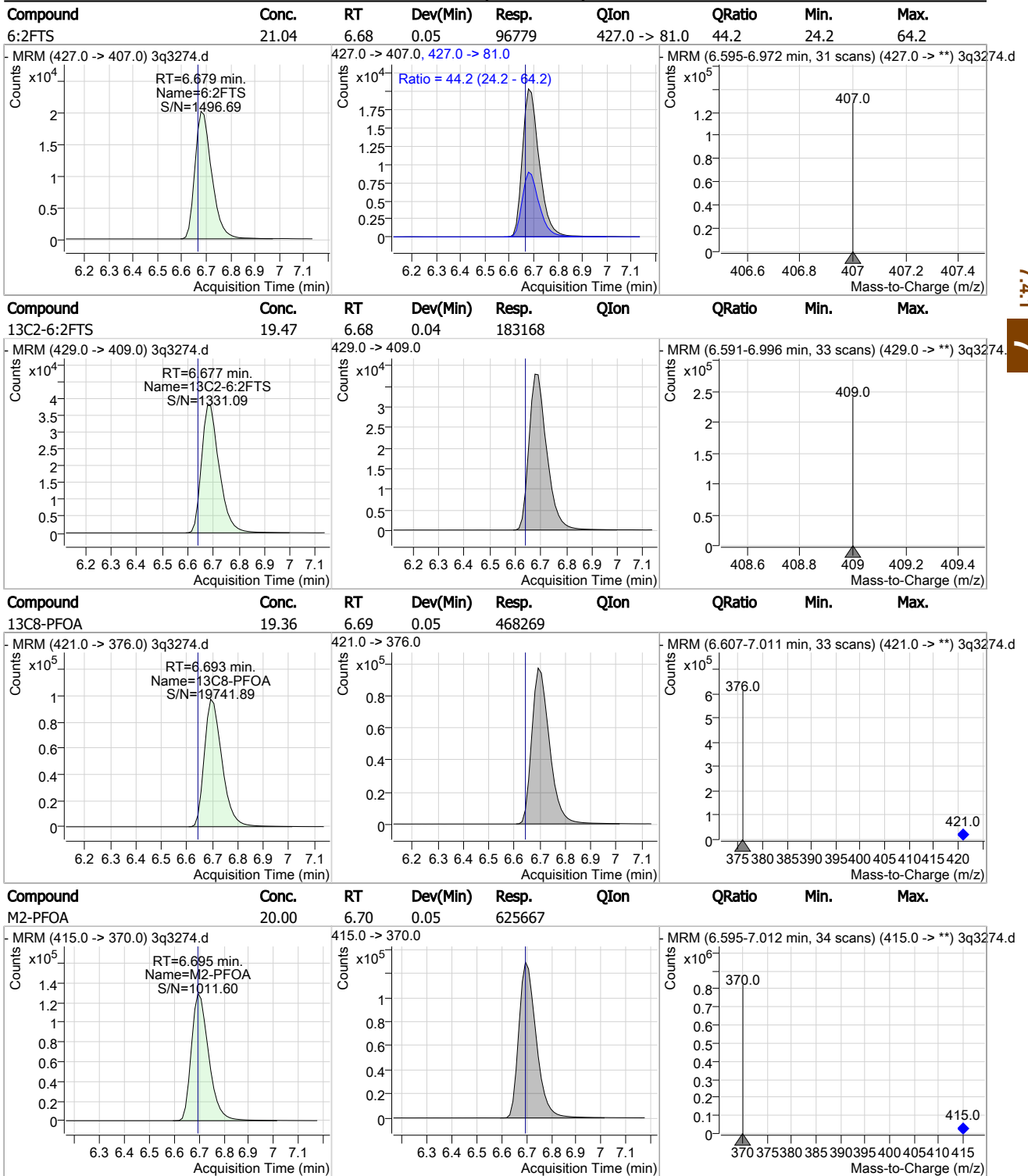
Perfluorinated Compounds by LC/MS/MS



7.4.1
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QC Report: 3Q3274.D

Perfluorinated Compounds by LC/MS/MS



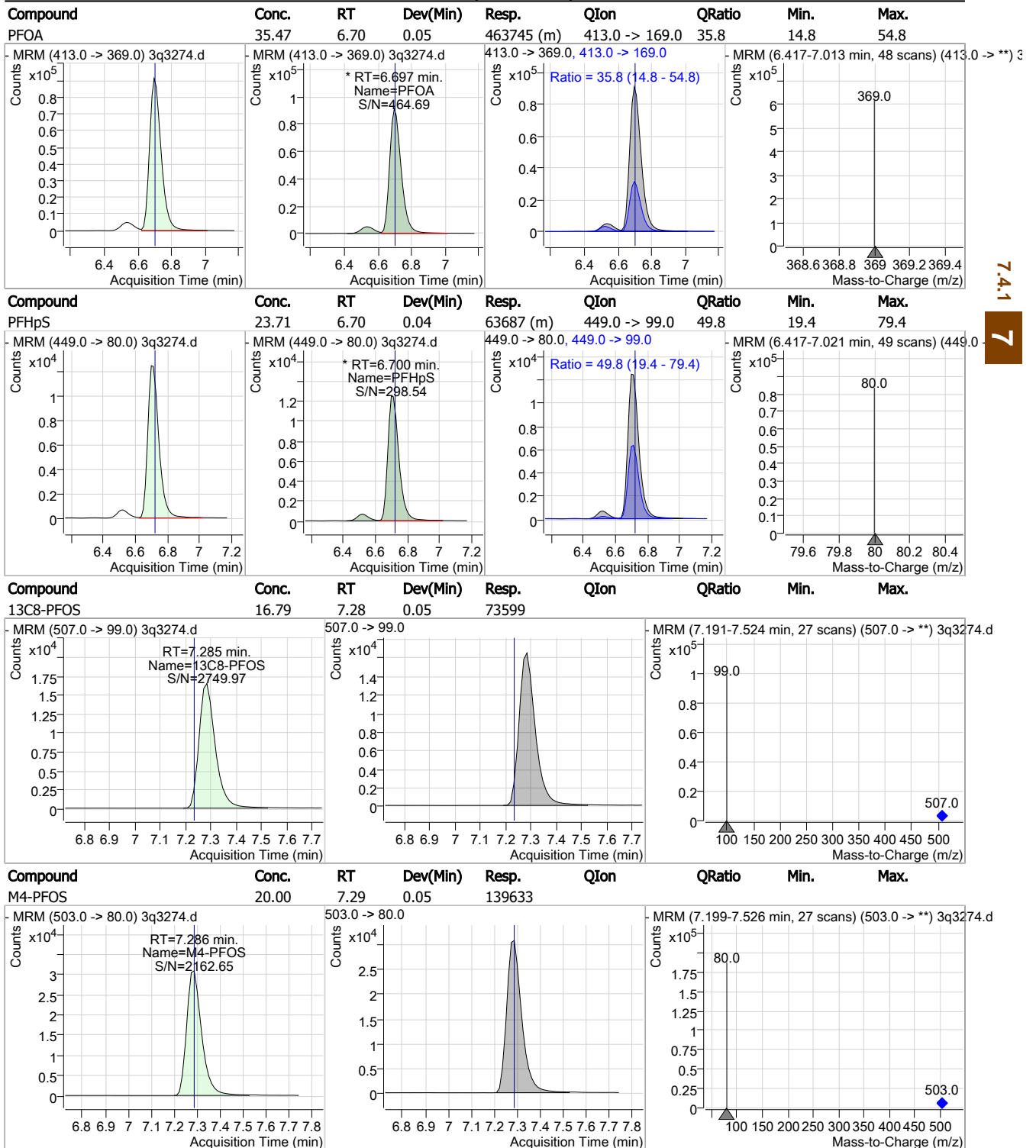
7.4.1

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QC Report: 3Q3274.D

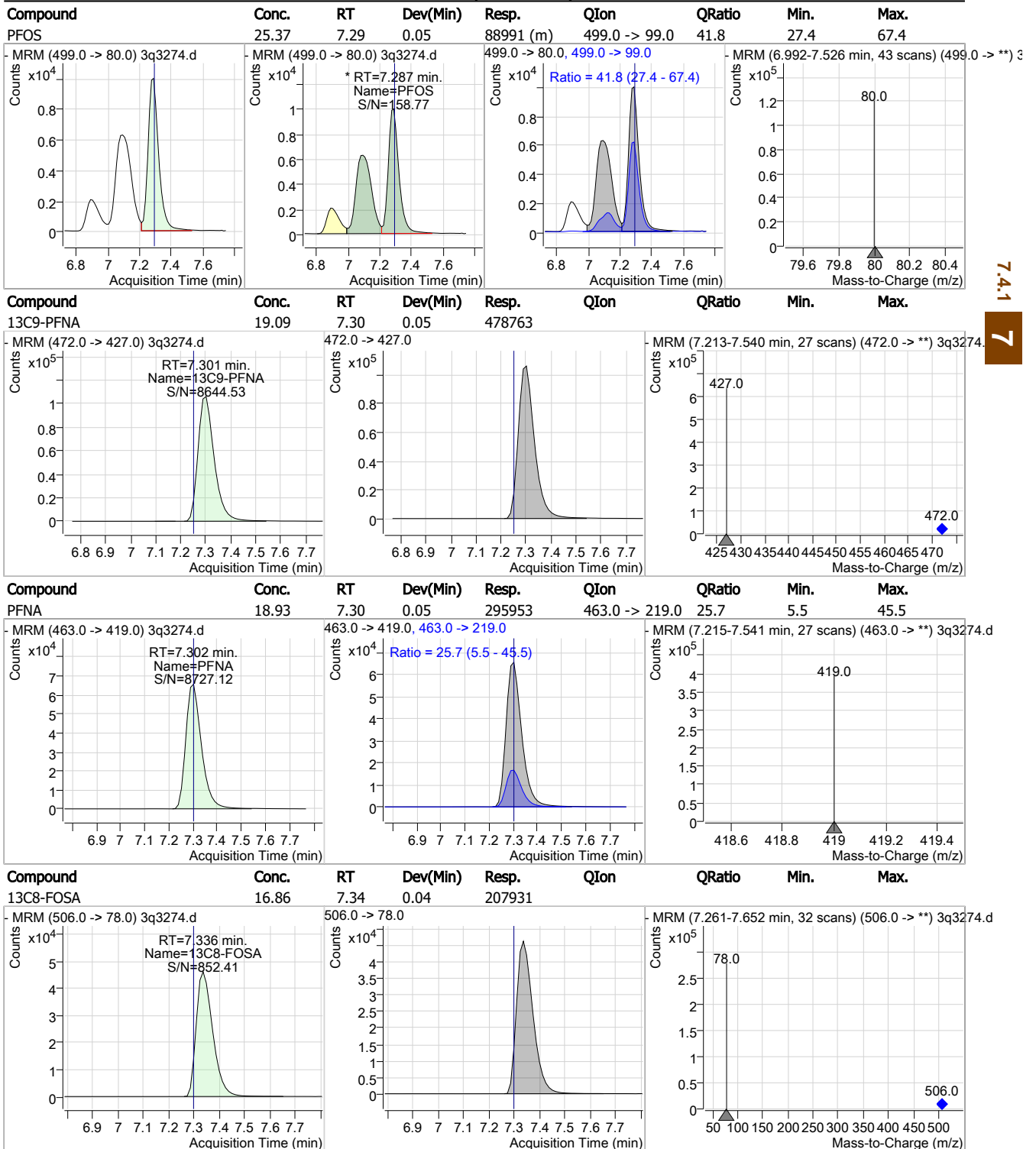
Perfluorinated Compounds by LC/MS/MS



7.4.1
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QC Report: 3Q3274.D

Perfluorinated Compounds by LC/MS/MS

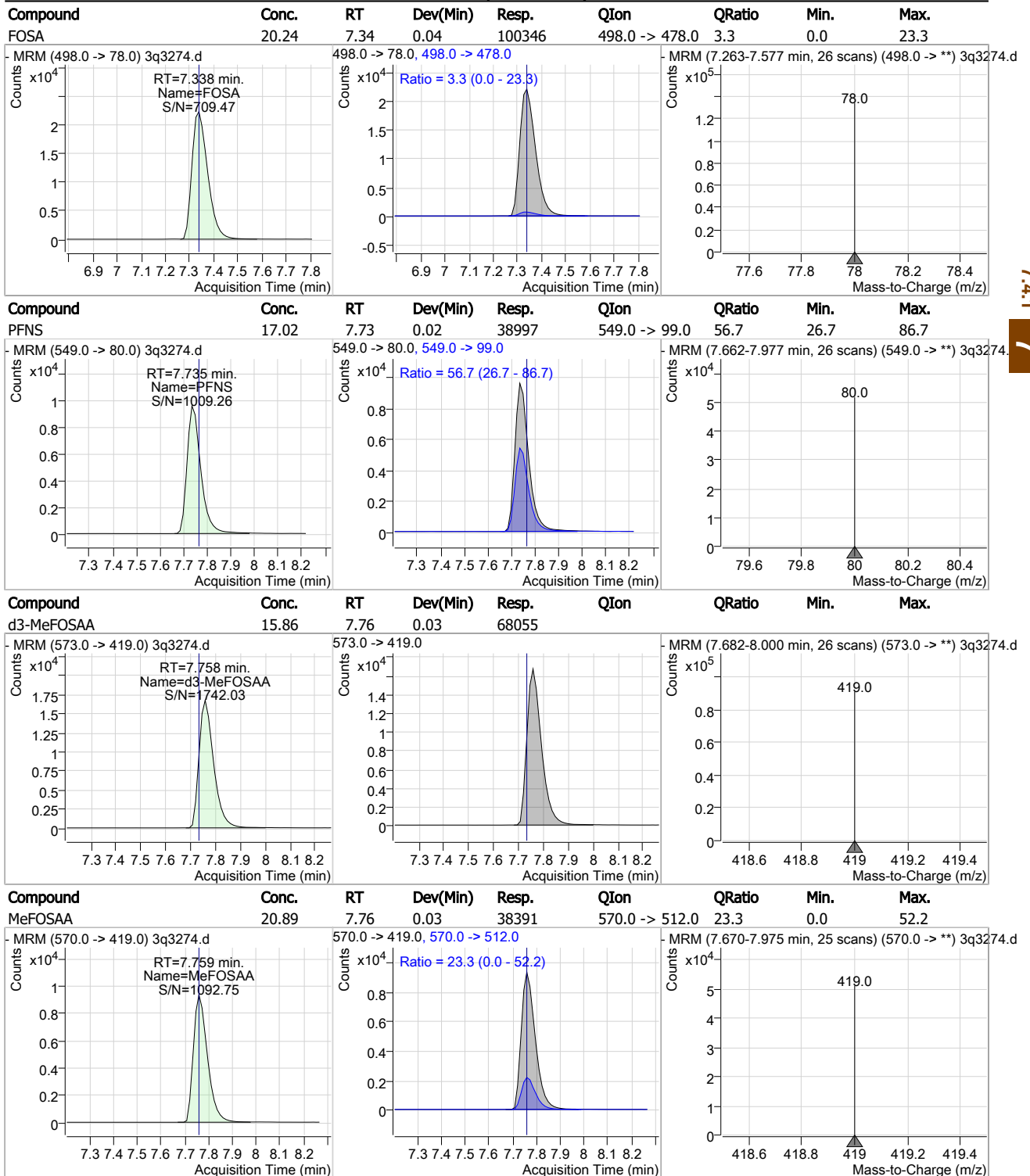


7.4.1

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QC Report: 3Q3274.D

Perfluorinated Compounds by LC/MS/MS

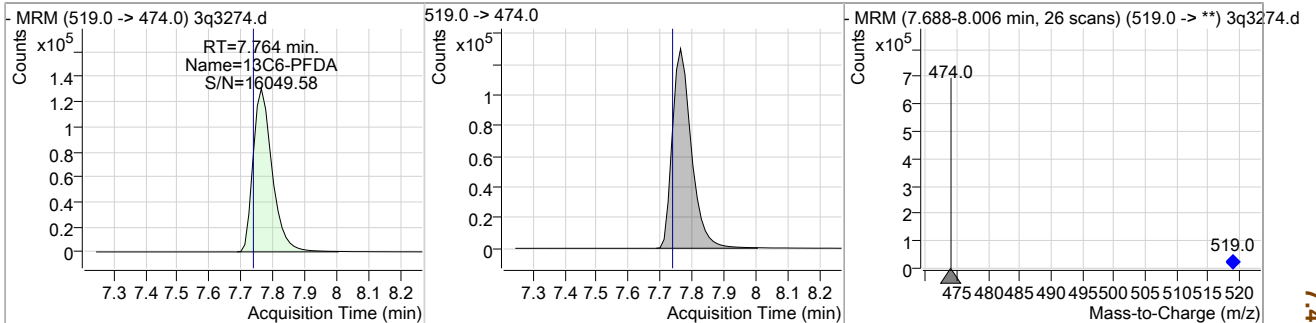


7.4.1

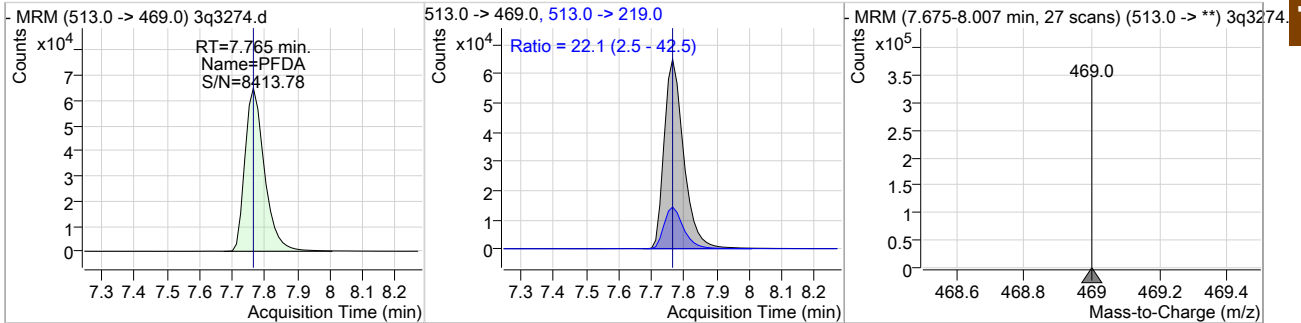
QC Report: 3Q3274.D

Perfluorinated Compounds by LC/MS/MS

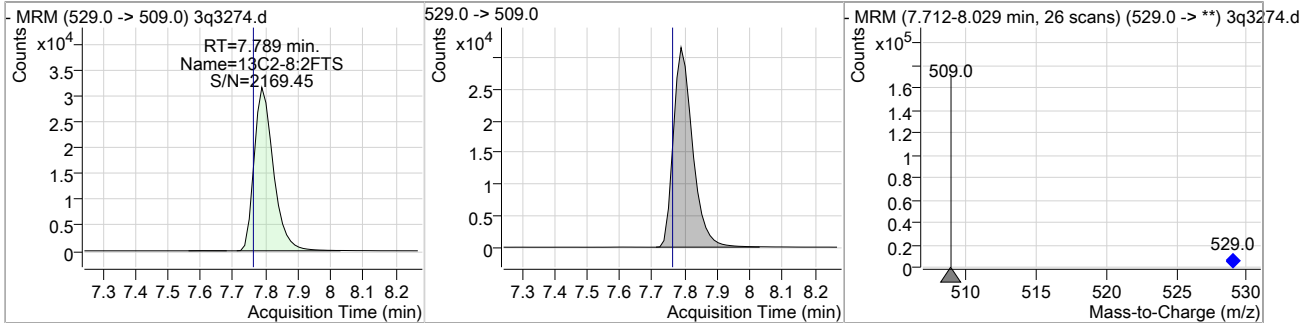
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	17.51	7.76	0.03	541877				



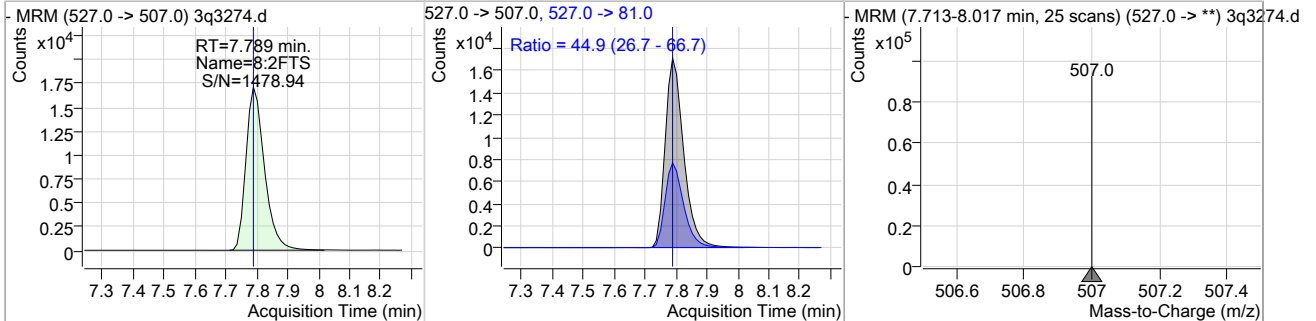
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.25	7.76	0.03	269588	513.0 ->	22.1	2.5	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	16.94	7.79	0.03	129335				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.63	7.79	0.03	70532	527.0 ->	44.9	26.7	66.7

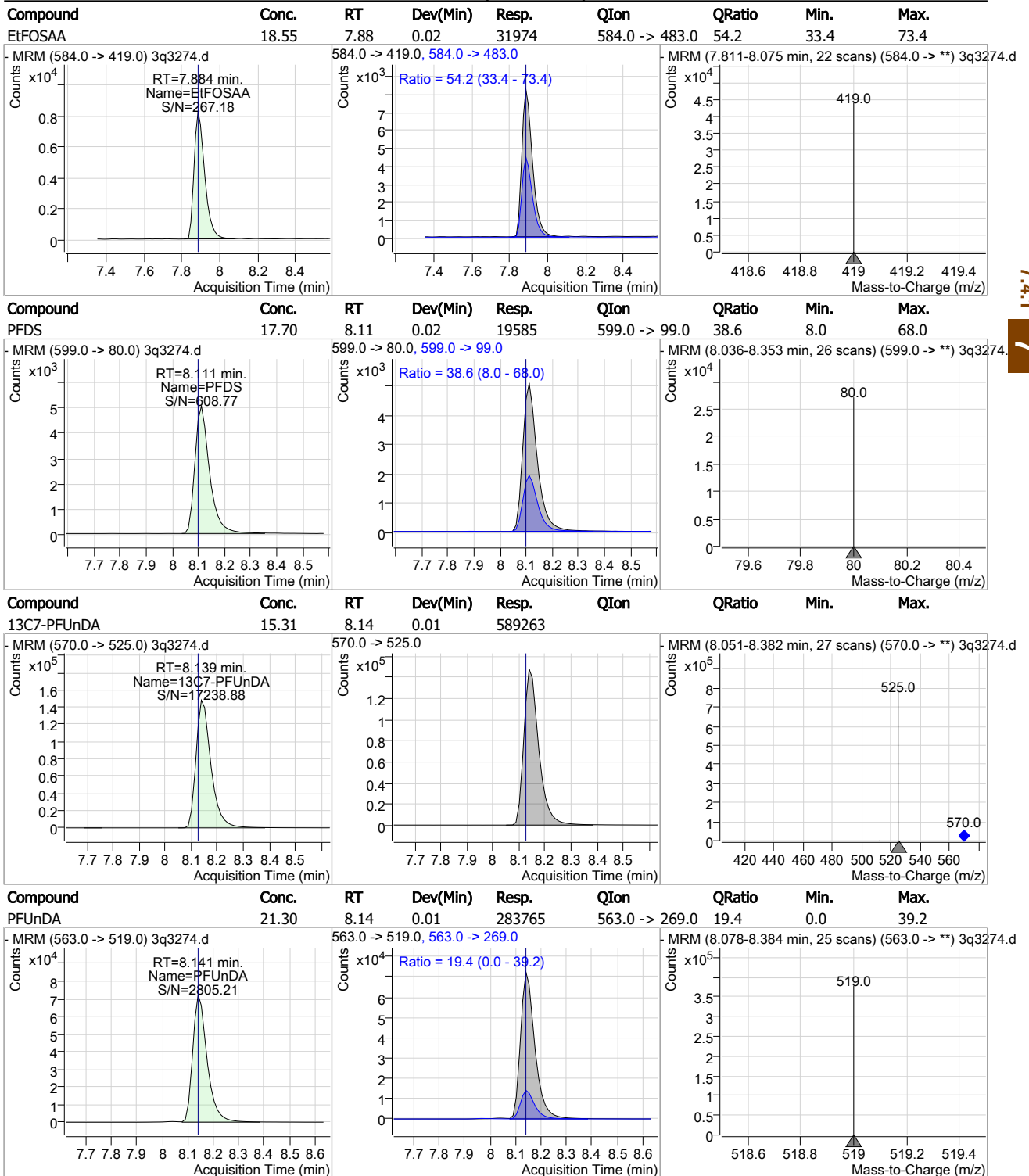


7.4.1

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QC Report: 3Q3274.D

Perfluorinated Compounds by LC/MS/MS

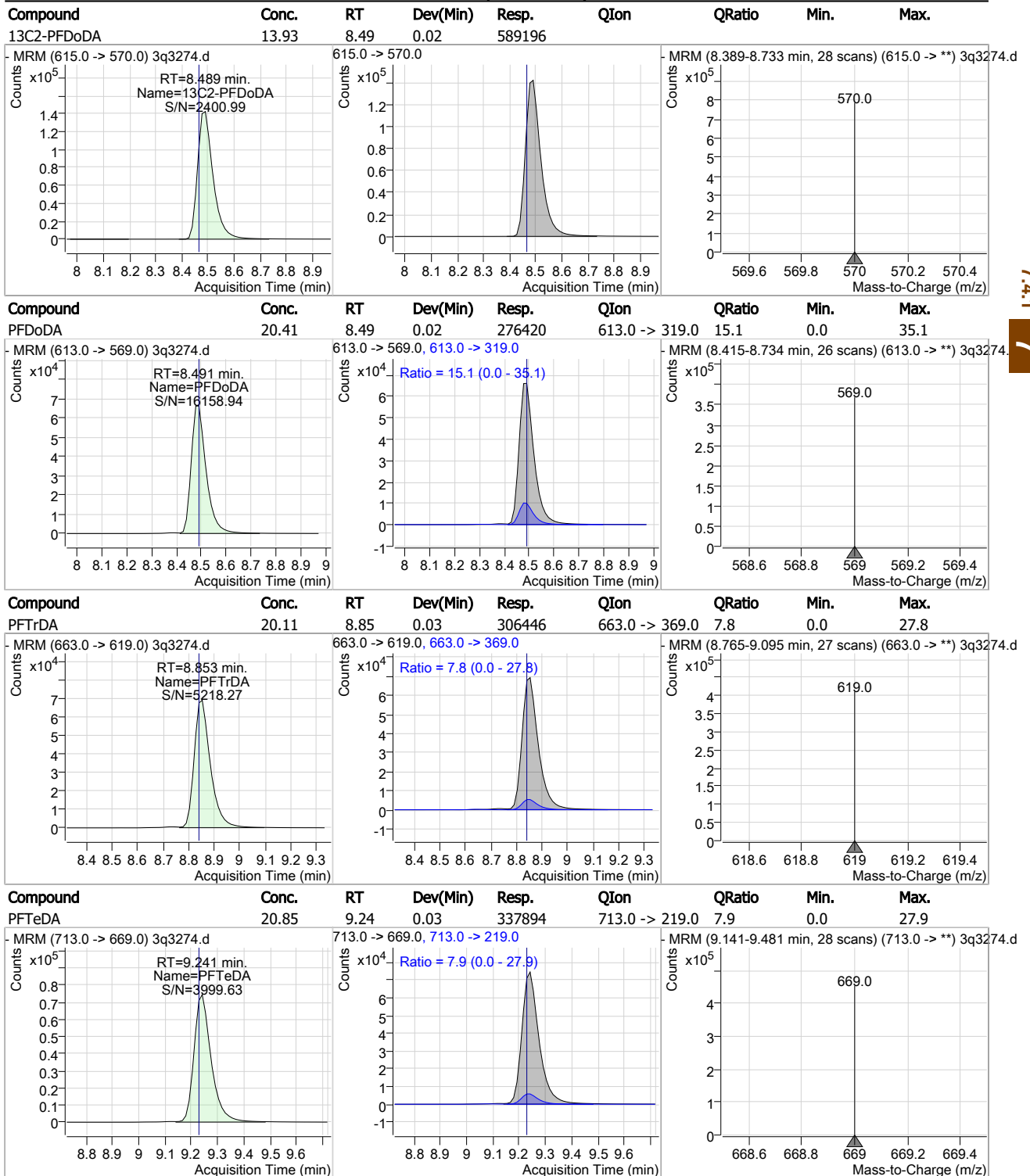


7.4.1

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QC Report: 3Q3274.D

Perfluorinated Compounds by LC/MS/MS



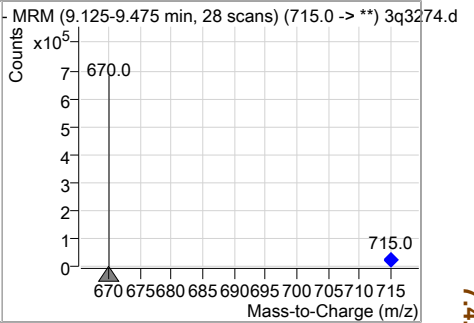
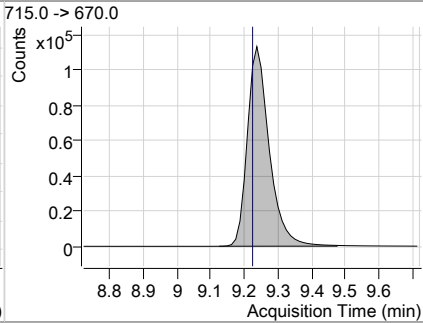
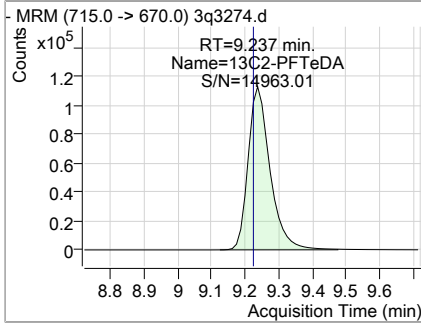
7.4.1

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QC Report: **3Q3274.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	13.60	9.24	0.01	508109				



7.4.1
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Manual Integration Approval Summary

Sample Number: OP74736-MS **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3274.D **Analyst approved:** 04/26/19 09:30 Natasha Gumtie
Injection Time: 04/25/19 16:12 **Supervisor approved:** 04/26/19 16:16 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluoropentanesulfonic acid	2706-91-4		5.16	Split peak
Perfluoroheptanoic acid	375-85-9		5.97	Split peak
Perfluorohexanesulfonic acid	355-46-4		6.01	Split peak
Perfluorooctanoic acid	335-67-1		6.70	Split peak
Perfluoroheptanesulfonic acid	375-92-8		6.70	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.29	Split peak

7.4.1.1

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QC Report:

3Q3275.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:16

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3275.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 4:27:59 PM
 Sample Name : op74736-msd
 Vial : P3-C6
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74736,S3Q83,125,,,1.0,1,water

Compound	RT	QI on	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	353103	20.00 µg/L	0.000
M5-PFPeA	3.611	268.0 -> 223.0	250267	20.00 µg/L	0.025
M5-PFHxA	5.013	318.0 -> 273.0	374344	20.00 µg/L	0.037
M4-PFHpA	5.965	367.0 -> 322.0	456791	20.00 µg/L	0.049
M8-PFOA	6.693	421.0 -> 376.0	496180	20.00 µg/L	0.050
M9-PFNA	7.301	472.0 -> 427.0	509716	20.00 µg/L	0.050
M6-PFDA	7.764	519.0 -> 474.0	576141	20.00 µg/L	0.025
M7-PFUnDA	8.139	570.0 -> 525.0	625099	20.00 µg/L	0.012
M2-PFDoDA	8.489	615.0 -> 570.0	657550	20.00 µg/L	0.024
M2-PFTeDA	9.237	715.0 -> 670.0	585565	20.00 µg/L	0.013
M8-FOSA	7.336	506.0 -> 78.0	161057	20.00 µg/L	0.038
M3-PFBS	3.929	302.0 -> 99.0	49570	20.00 µg/L	0.037
M3-PFHxS	6.022	402.0 -> 99.0	51706	20.00 µg/L	0.050
M8-PFOS	7.285	507.0 -> 99.0	77295	20.00 µg/L	0.050
M2-4:2FTS	4.908	329.0 -> 309.0	151948	20.00 µg/L	0.037
M2-6:2FTS	6.689	429.0 -> 409.0	195757	20.00 µg/L	0.050
M2-8:2FTS	7.789	529.0 -> 509.0	135861	20.00 µg/L	0.026
M3-MeFOSAA	7.758	573.0 -> 419.0	74024	20.00 µg/L	0.025
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
13C2-PFOA	6.695	415.0 -> 370.0	651611	20.00 µg/L	0.050
13C4-PFOS	7.286	503.0 -> 80.0	145043	20.00 µg/L	0.050
System Monitoring Compounds					
13C2-4:2FTS	4.908	329.0 -> 309.0	151567	20.86 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C2-6:2FTS	6.689	429.0 -> 409.0	195456	20.77 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C2-8:2FTS	7.789	529.0 -> 509.0	135781	17.78 µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.9%	
13C2-PFDoDA	8.489	615.0 -> 570.0	657183	15.54 µg/L	0.024
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.7%	
13C2-PFTeDA	9.237	715.0 -> 670.0	585578	15.67 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.3%	
13C3-PFBS	3.929	302.0 -> 99.0	49404	19.90 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C3-PFHxS	6.022	402.0 -> 99.0	51633	19.26 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C4-PFBA	1.727	217.0 -> 172.0	352695	20.86 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C4-PFHpA	5.965	367.0 -> 322.0	455504	20.26 µg/L	0.049
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C5-PFHxA	5.013	318.0 -> 273.0	373995	20.33 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C5-PFPeA	3.611	268.0 -> 223.0	249664	20.16 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C6-PFDA	7.764	519.0 -> 474.0	576691	18.63 µg/L	0.025

7.4.2
7

QC Report:

3Q3275.D

Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)	QValue
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.2%		
13C7-PFUnDA	8.139	570.0 -> 525.0	625029	16.24 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.2%		
13C8-FOSA	7.336	506.0 -> 78.0	161397	13.09 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 65.4%		
13C8-PFOA	6.693	421.0 -> 376.0	494961	20.46 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C8-PFOS	7.285	507.0 -> 99.0	77142	17.59 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.0%		
13C9-PFNA	7.301	472.0 -> 427.0	508542	20.28 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
d3-MeFOSAA	7.758	573.0 -> 419.0	73905	17.23 µg/L	0.025	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.1%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
M2-PFOA	6.695	415.0 -> 370.0	651611	20.00 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.286	503.0 -> 80.0	145043	20.00 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						QValue
4:2FTS	4.911	327.0 -> 307.0	85558	18.93 µg/L		99
6:2FTS	6.679	427.0 -> 407.0	99834	20.34 µg/L		100
8:2FTS	7.789	527.0 -> 507.0	71248	19.85 µg/L		99
EtFOSAA	7.884	584.0 -> 419.0	34904	18.62 µg/L		99
FOSA	7.338	498.0 -> 78.0	74159	19.34 µg/L		100
MeFOSAA	7.759	570.0 -> 419.0	41205	20.62 µg/L		100
PFBA	1.723	213.0 -> 169.0	79528	24.19 µg/L		100
PFBS	3.920	299.0 -> 80.0	104373	31.25 µg/L		99
PFDA	7.765	513.0 -> 469.0	278868	19.72 µg/L		100
PFDoDA	8.478	613.0 -> 569.0	296384	19.61 µg/L		99
PFDS	8.111	599.0 -> 80.0	21925	18.66 µg/L		100
PFHpA	5.967	363.0 -> 319.0	502097	22.98 µg/L	m	99
PFHpS	6.712	449.0 -> 80.0	67399	23.79 µg/L	m	99
PFHxA	5.015	313.0 -> 269.0	285152	40.60 µg/L		99
PFHxS	6.012	399.0 -> 80.0	275832	91.61 µg/L	m	99
PFNA	7.302	463.0 -> 419.0	313557	18.85 µg/L		100
PFNS	7.735	549.0 -> 80.0	41113	17.08 µg/L		99
PFOA	6.697	413.0 -> 369.0	496832	35.94 µg/L	m	98
PFOS	7.287	499.0 -> 80.0	93134	25.27 µg/L	m	92
PFPeA	3.615	263.0 -> 219.0	382710	29.43 µg/L		100
PFPeS	5.157	349.0 -> 80.0	66530	30.64 µg/L	m	98
PFTeDA	9.241	713.0 -> 669.0	368136	19.77 µg/L		100
PFTrDA	8.841	663.0 -> 619.0	332329	18.97 µg/L		100
PFUnDA	8.141	563.0 -> 519.0	293106	20.72 µg/L		100
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

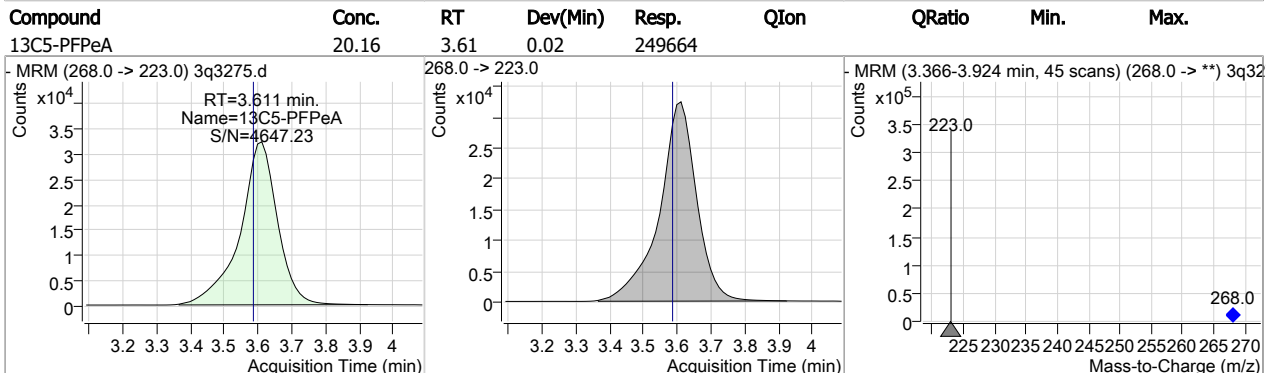
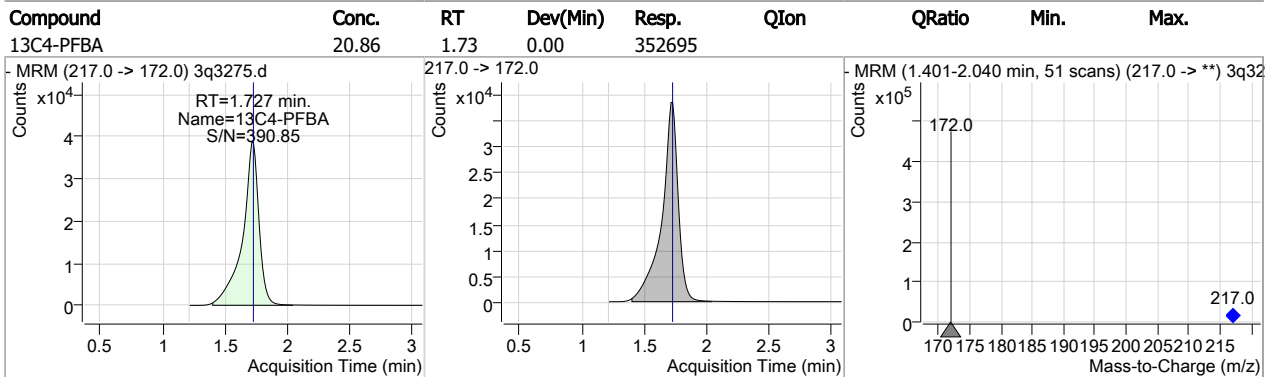
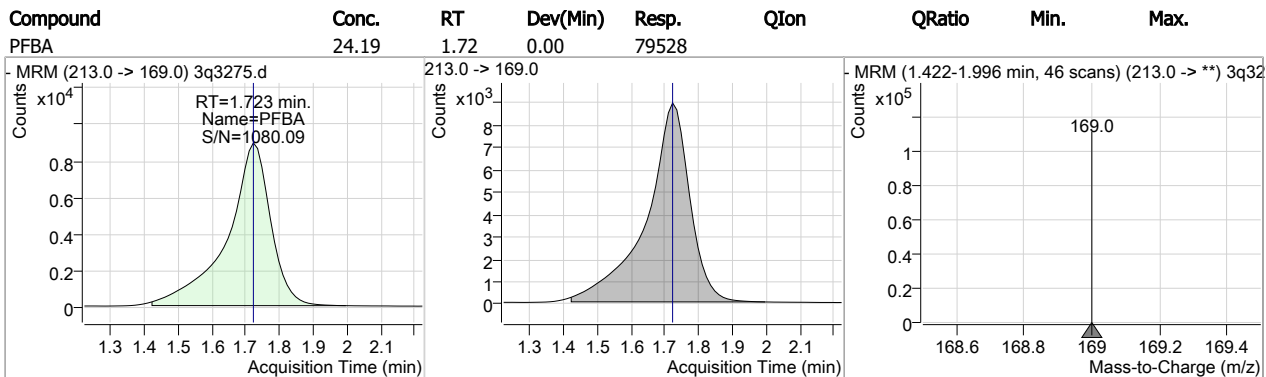
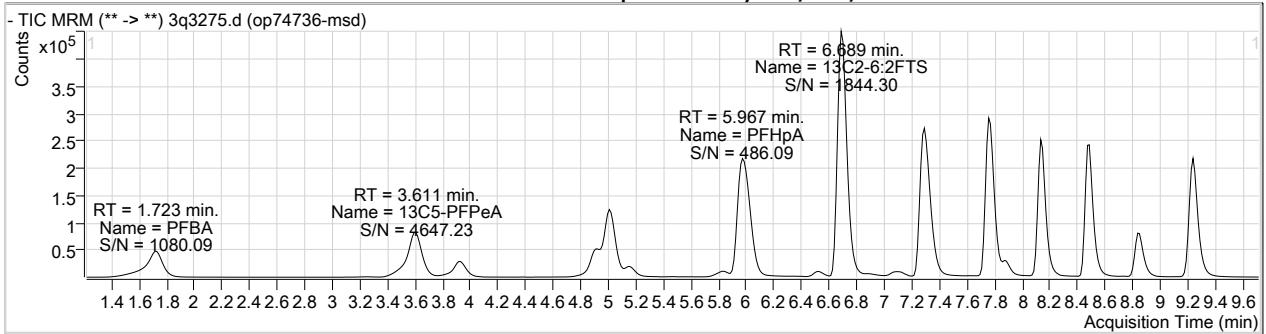
7.4.2
7

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

QC Report:

3Q3275.D

Perfluorinated Compounds by LC/MS/MS



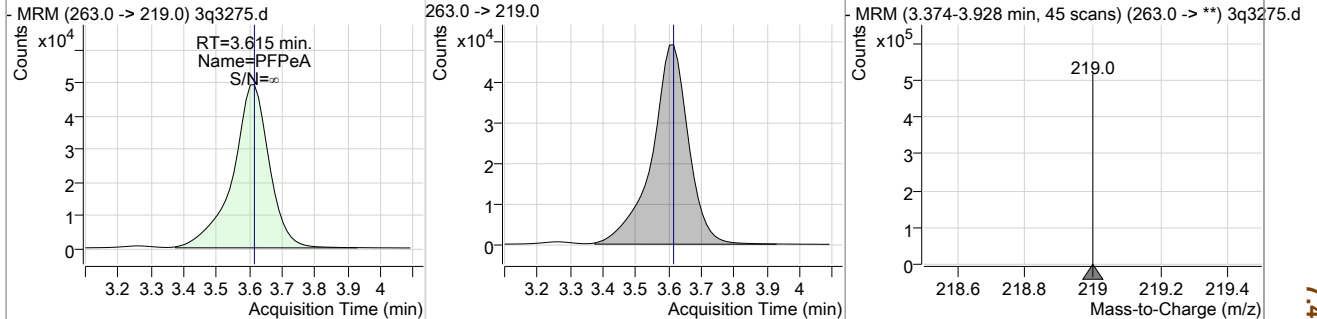
7.4.2
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QC Report:

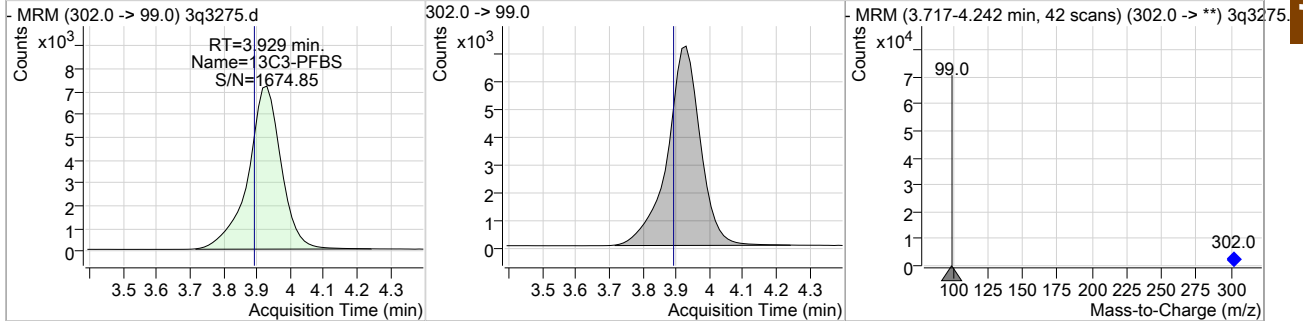
3Q3275.D

Perfluorinated Compounds by LC/MS/MS

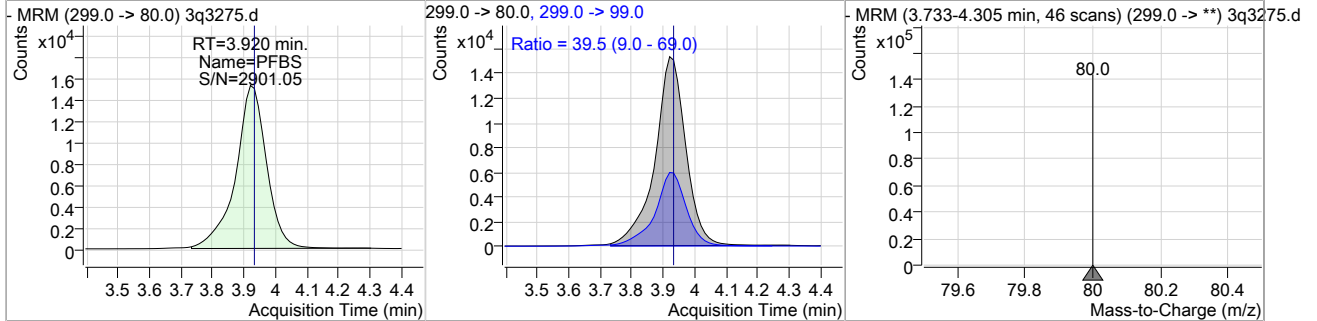
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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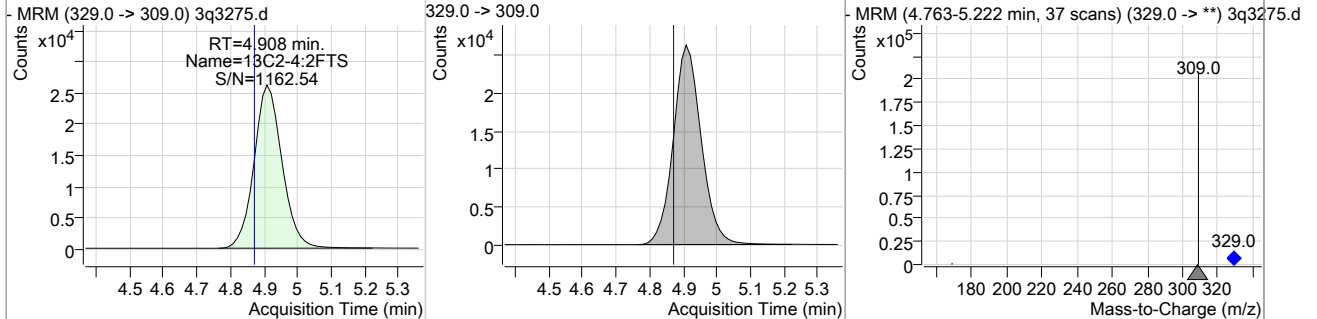
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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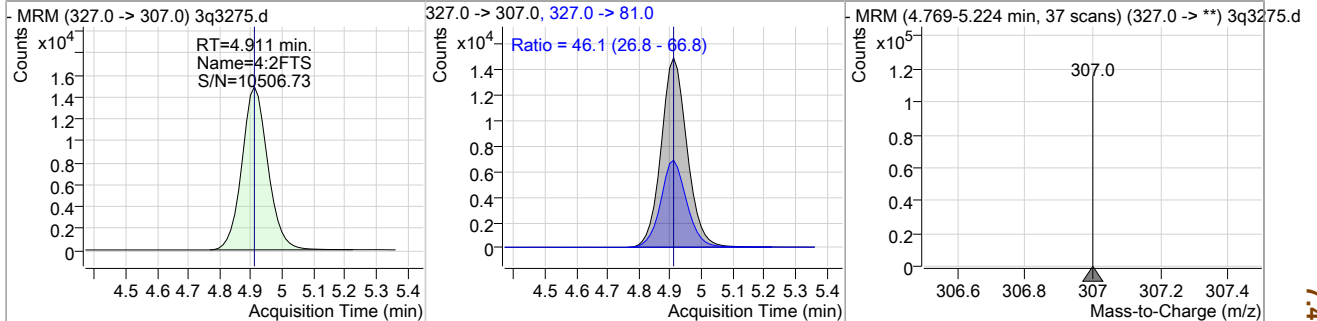
7.4.2
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QC Report:

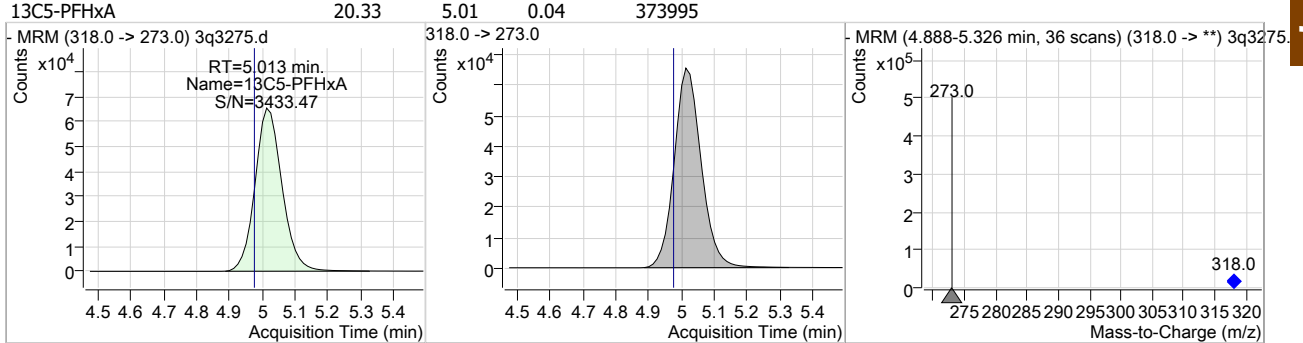
3Q3275.D

Perfluorinated Compounds by LC/MS/MS

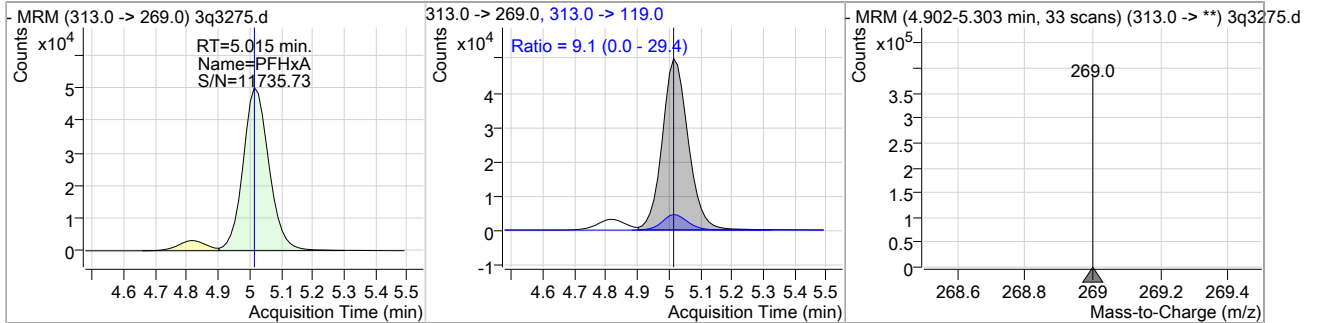
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	18.93	4.91	0.04	85558	327.0 -> 81.0	46.1	26.8	66.8



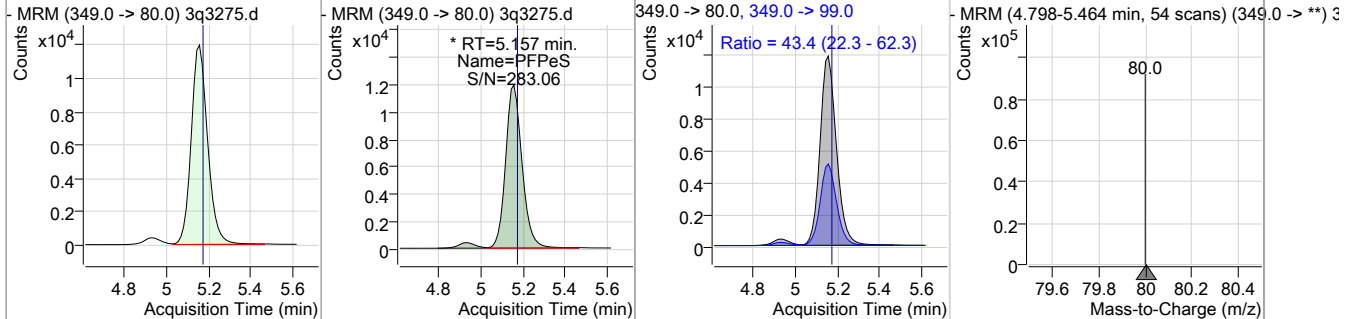
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.33	5.01	0.04	373995				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	40.60	5.01	0.04	285152	313.0 -> 119.0	9.1	0.0	29.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	30.64	5.16	0.04	66530 (m)	349.0 -> 99.0	43.4	22.3	62.3

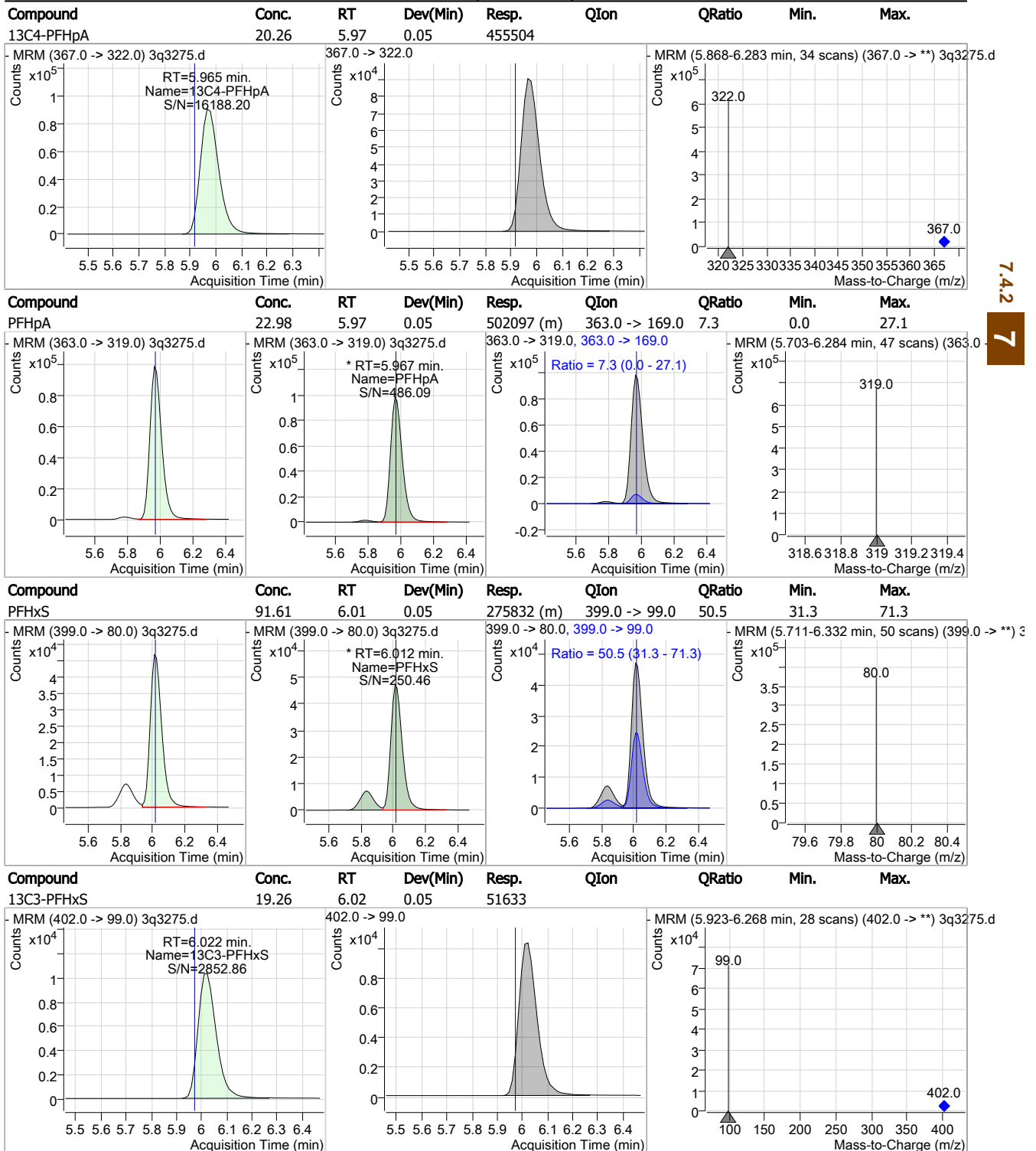


7.4.2
7

QC Report:

3Q3275.D

Perfluorinated Compounds by LC/MS/MS



7.4.2

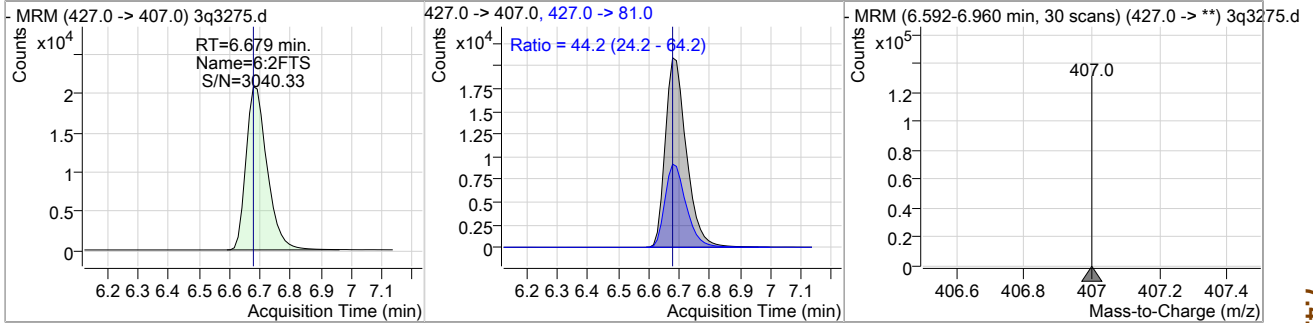
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QC Report:

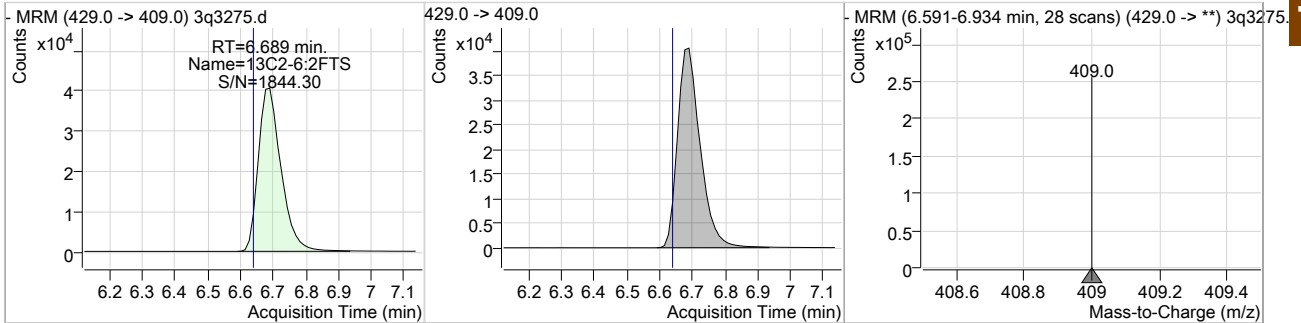
3Q3275.D

Perfluorinated Compounds by LC/MS/MS

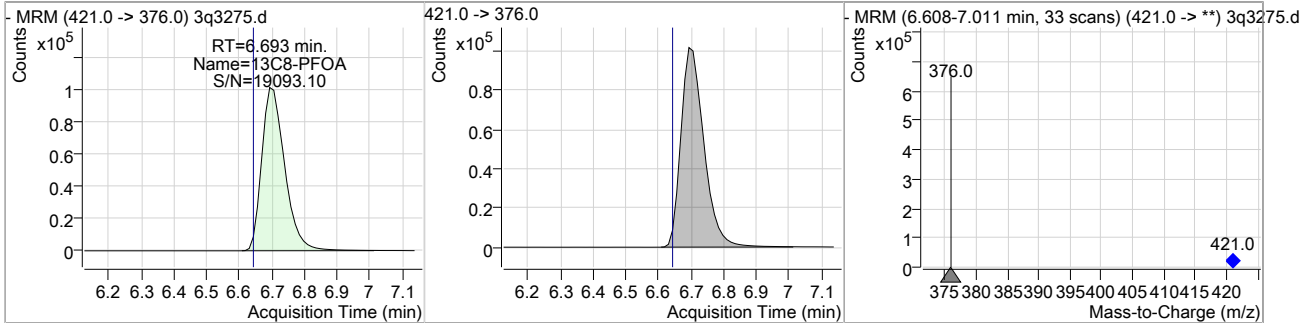
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.34	6.68	0.05	99834	427.0 -> 81.0	44.2	24.2	64.2



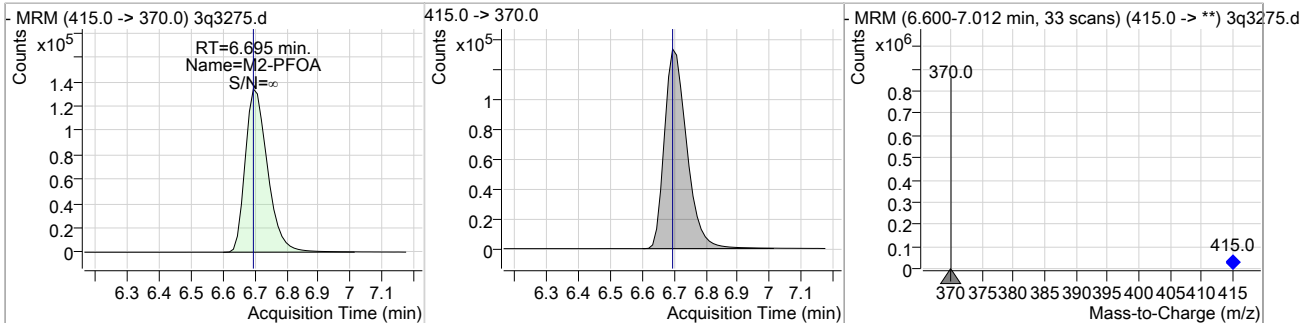
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.77	6.69	0.05	195456				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.46	6.69	0.05	494961				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.70	0.05	651611				



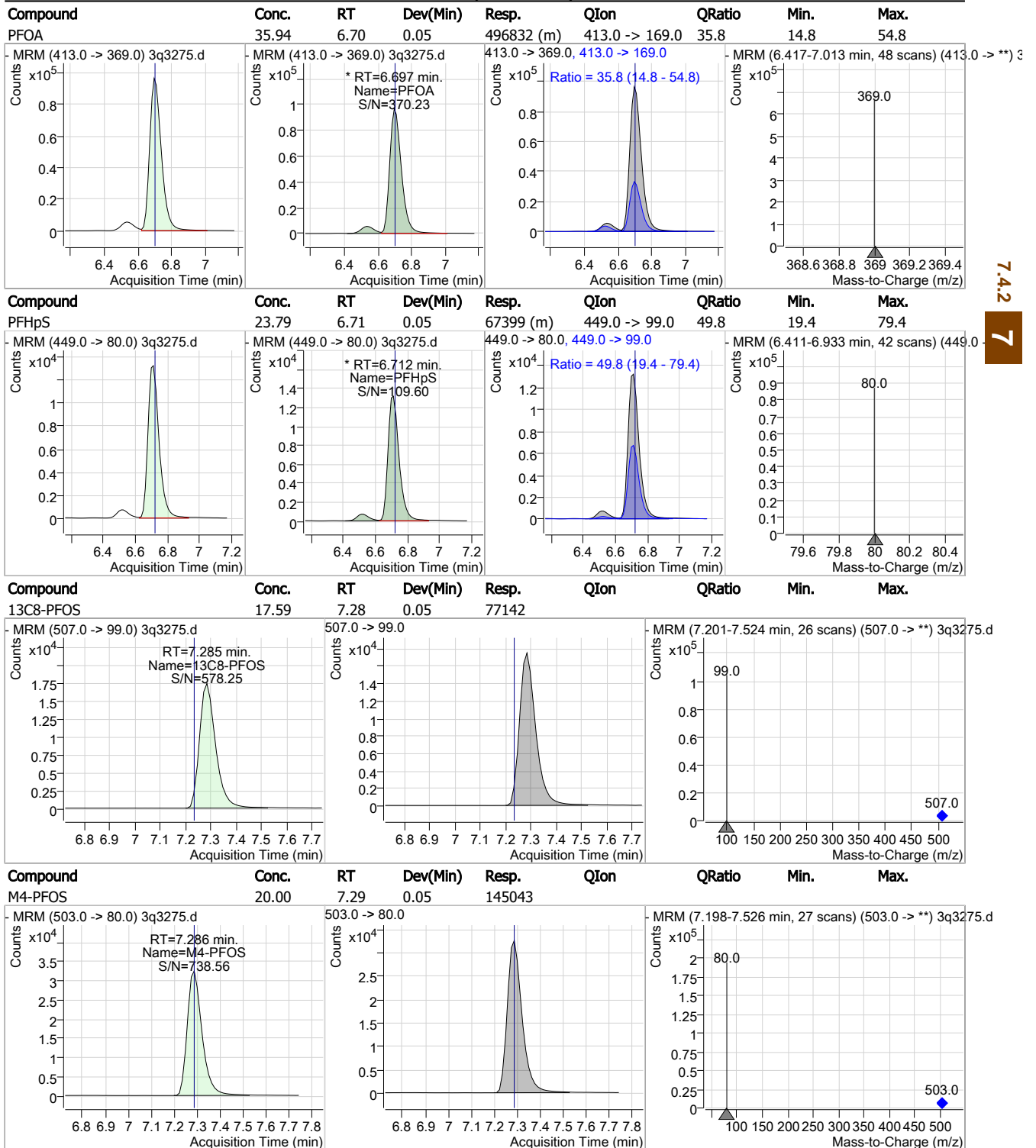
7.4.2
7



QC Report:

3Q3275.D

Perfluorinated Compounds by LC/MS/MS

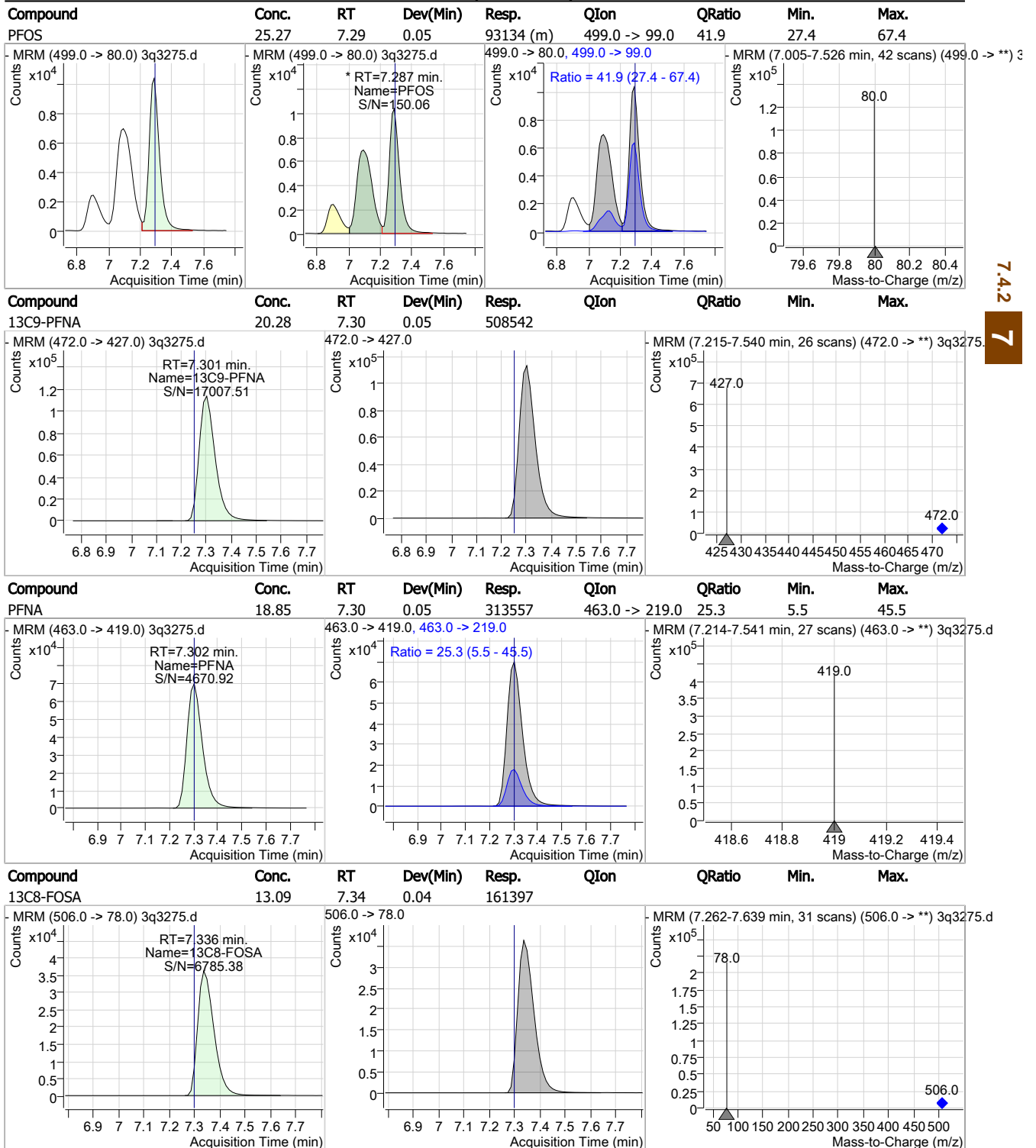


7.4.2
7

QC Report:

3Q3275.D

Perfluorinated Compounds by LC/MS/MS

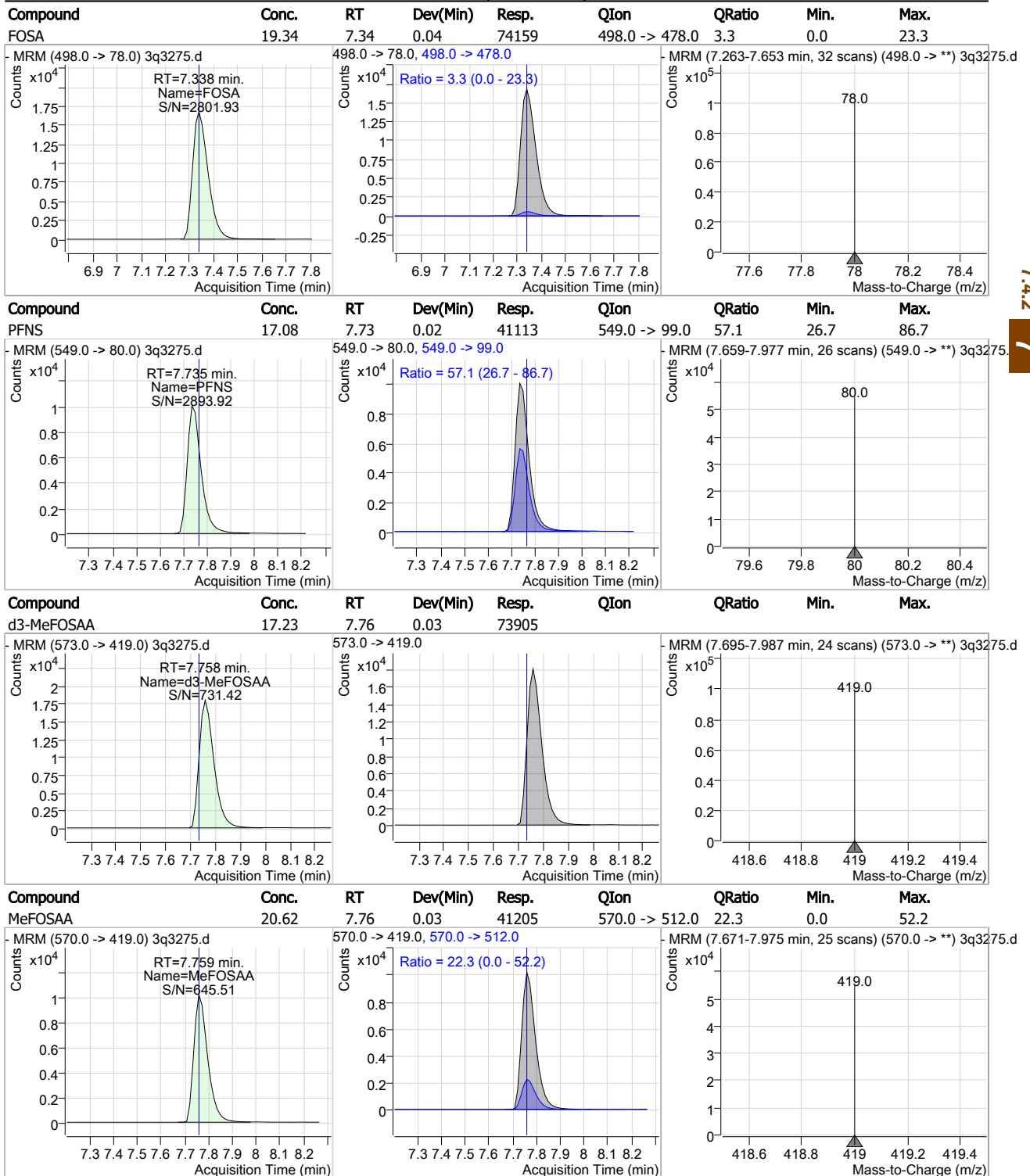


7.4.2 7

QC Report:

3Q3275.D

Perfluorinated Compounds by LC/MS/MS

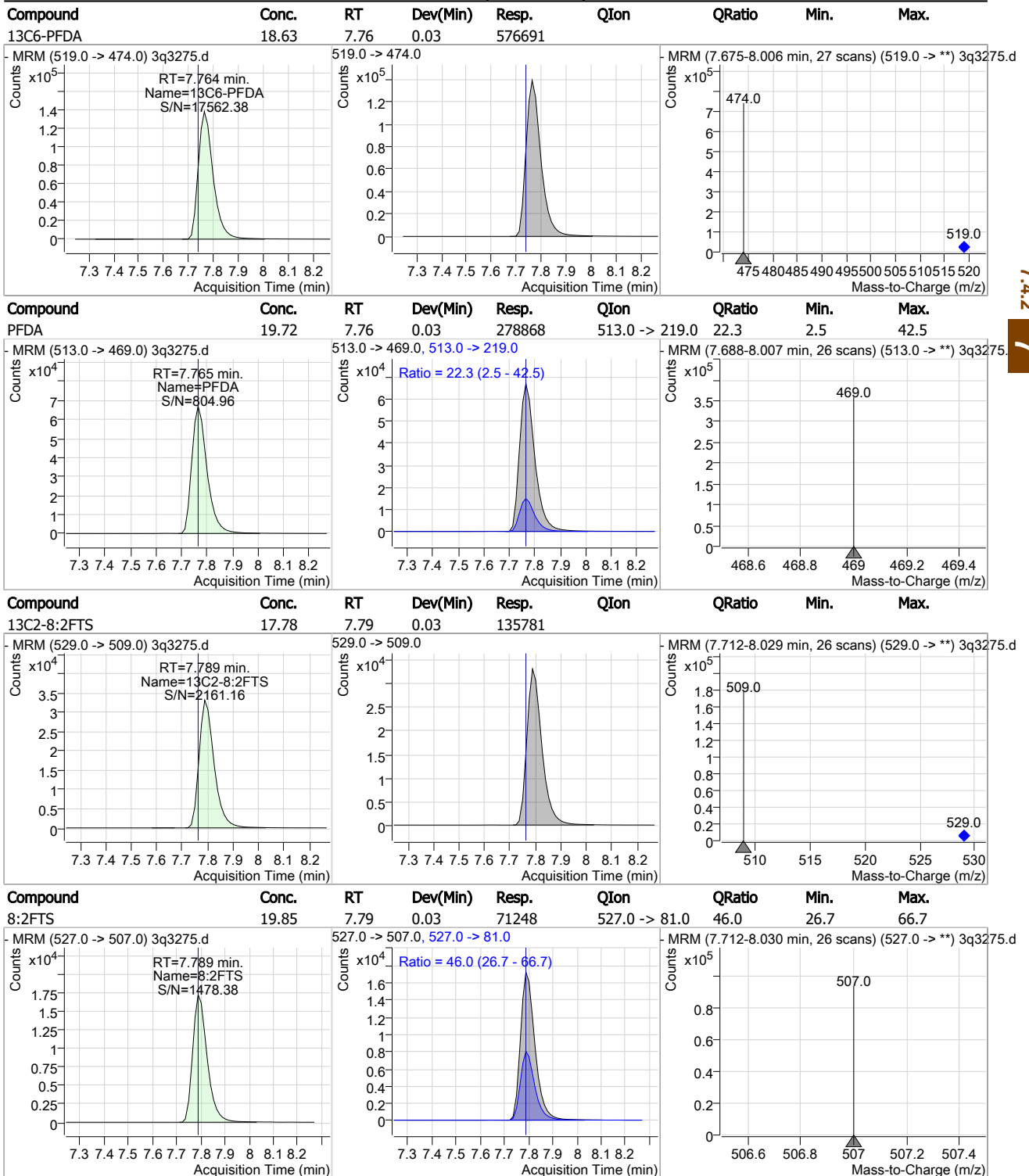


7.4.2 7

QC Report:

3Q3275.D

Perfluorinated Compounds by LC/MS/MS

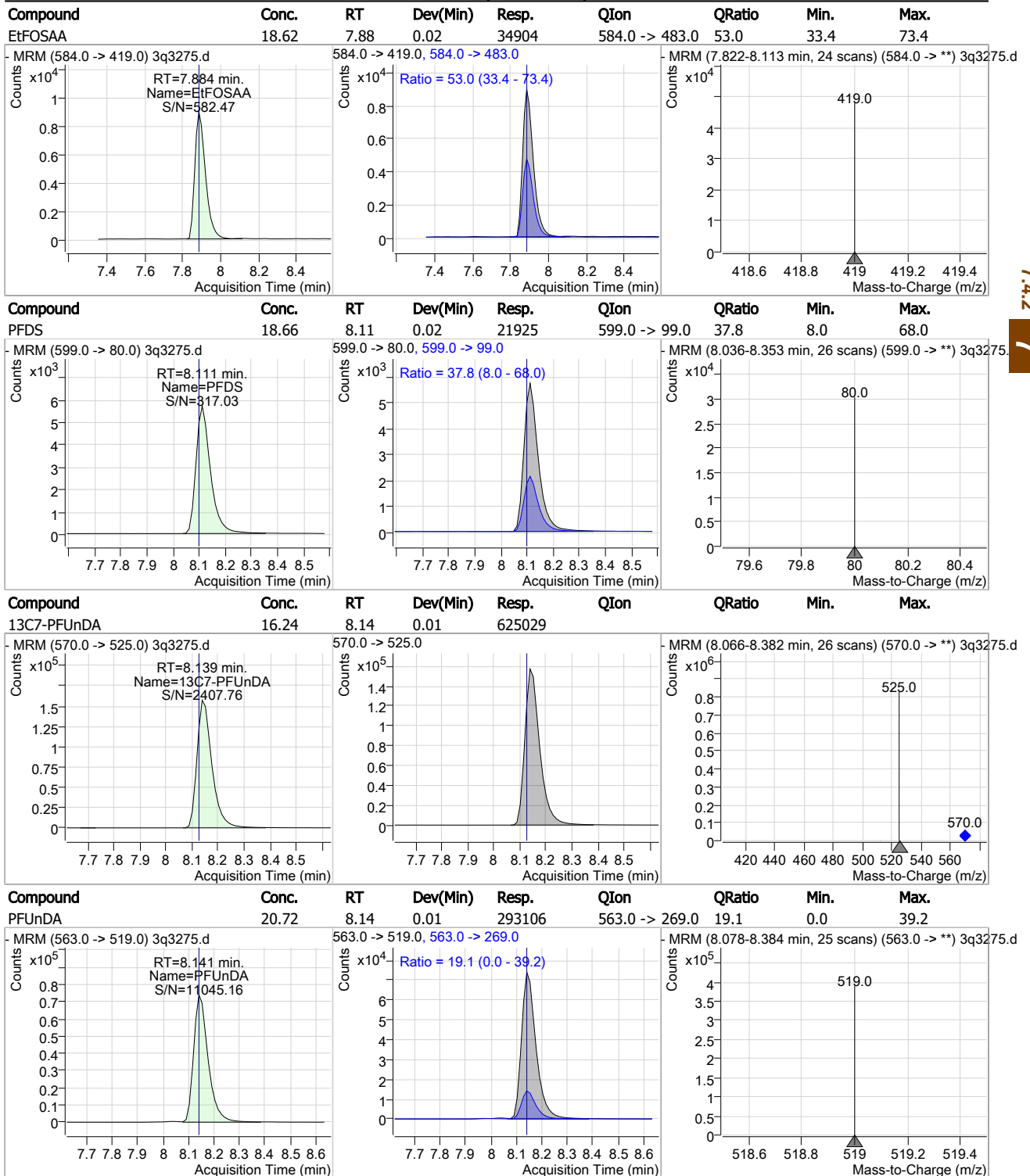


7.4.2 7

QC Report:

3Q3275.D

Perfluorinated Compounds by LC/MS/MS

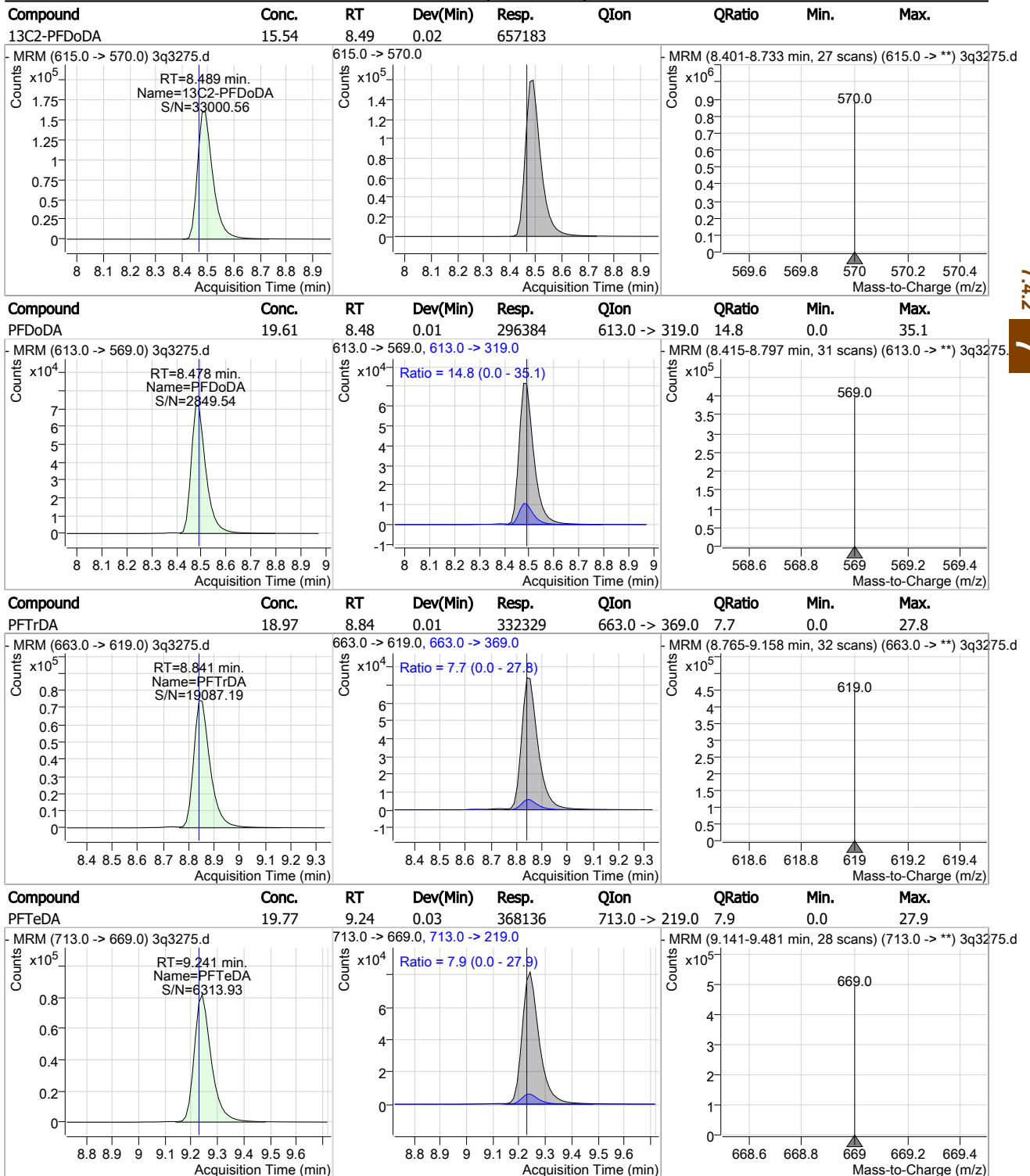


7.4.2 7

QC Report:

3Q3275.D

Perfluorinated Compounds by LC/MS/MS



7.4.2

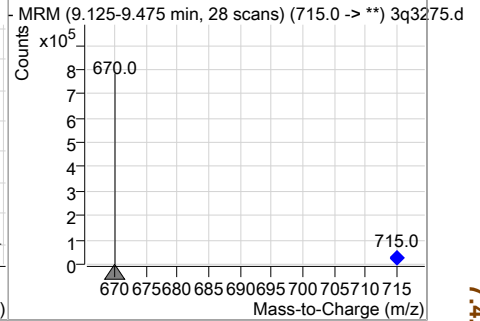
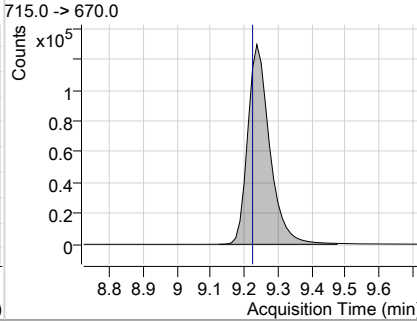
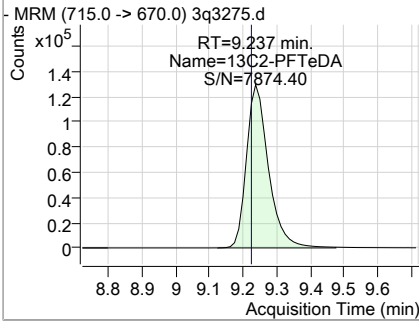
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QC Report:

3Q3275.D

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	15.67	9.24	0.01	585578				



7.4.2
7



Manual Integration Approval Summary

Sample Number: OP74736-MSD **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3275.D **Analyst approved:** 04/26/19 09:30 Natasha Gumtie
Injection Time: 04/25/19 16:27 **Supervisor approved:** 04/26/19 16:16 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluoropentanesulfonic acid	2706-91-4		5.16	Split peak
Perfluoroheptanoic acid	375-85-9		5.97	Split peak
Perfluorohexanesulfonic acid	355-46-4		6.01	Split peak
Perfluorooctanoic acid	335-67-1		6.70	Split peak
Perfluoroheptanesulfonic acid	375-92-8		6.71	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.29	Split peak

7.4.2.1

7

Cal Report: 3Q3250.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:14

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3250.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 8:45:40 AM
 Sample Name : ic83-0.5
 Vial : P3-A2
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74632,S3Q83,125,,,1.0,1,water

Compound	RT	QI on	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.714	217.0 -> 172.0	305000	20.00 µg/L	-0.013
M5-PFPeA	3.573	268.0 -> 223.0	219474	20.00 µg/L	-0.013
M5-PFHxA	4.975	318.0 -> 273.0	332391	20.00 µg/L	0.000
M4-PFHpA	5.928	367.0 -> 322.0	405755	20.00 µg/L	0.011
M8-PFOA	6.656	421.0 -> 376.0	439899	20.00 µg/L	0.012
M9-PFNA	7.264	472.0 -> 427.0	453973	20.00 µg/L	0.012
M6-PFDA	7.738	519.0 -> 474.0	561340	20.00 µg/L	-0.002
M7-PFUnDA	8.127	570.0 -> 525.0	685102	20.00 µg/L	0.000
M2-PFDoDA	8.464	615.0 -> 570.0	739483	20.00 µg/L	-0.001
M2-PFTeDA	9.212	715.0 -> 670.0	651933	20.00 µg/L	-0.012
M8-FOSA	7.298	506.0 -> 78.0	226350	20.00 µg/L	0.000
M3-PFBS	3.892	302.0 -> 99.0	45692	20.00 µg/L	0.000
M3-PFHxS	5.972	402.0 -> 99.0	48877	20.00 µg/L	0.000
M8-PFOS	7.247	507.0 -> 99.0	80677	20.00 µg/L	0.012
M2-4:2FTS	4.871	329.0 -> 309.0	121789	20.00 µg/L	0.000
M2-6:2FTS	6.639	429.0 -> 409.0	159977	20.00 µg/L	0.000
M2-8:2FTS	7.763	529.0 -> 509.0	127473	20.00 µg/L	0.000
M3-MeFOSAA	7.732	573.0 -> 419.0	77495	20.00 µg/L	-0.001
M3-HFPO-DA	5.280	287.0 -> 169.0	193027	100.00 µg/L	0.000
13C2-PFOA	6.658	415.0 -> 370.0	575568	20.00 µg/L	0.012
13C4-PFOS	7.249	503.0 -> 80.0	138931	20.00 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	4.871	329.0 -> 309.0	121672	16.74 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.7%	
13C2-6:2FTS	6.639	429.0 -> 409.0	159155	16.91 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.6%	
13C2-8:2FTS	7.763	529.0 -> 509.0	127595	16.71 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.6%	
13C2-PFDoDA	8.464	615.0 -> 570.0	739354	17.48 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.4%	
13C2-PFTeDA	9.212	715.0 -> 670.0	652260	17.45 µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.3%	
13C3-PFBS	3.892	302.0 -> 99.0	45121	18.18 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.9%	
13C3-PFHxS	5.972	402.0 -> 99.0	49121	18.32 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.6%	
13C4-PFBA	1.714	217.0 -> 172.0	304750	18.02 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.1%	
13C4-PFHpA	5.928	367.0 -> 322.0	405731	18.05 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.2%	
13C5-PFHxA	4.975	318.0 -> 273.0	329699	17.92 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.6%	
13C5-PFPeA	3.573	268.0 -> 223.0	221808	17.91 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.6%	
13C6-PFDA	7.738	519.0 -> 474.0	560238	18.10 µg/L	-0.002

7.5.1
7

Cal Report: 3Q3250.D

Perfluorinated Compounds by LC/MS/MS

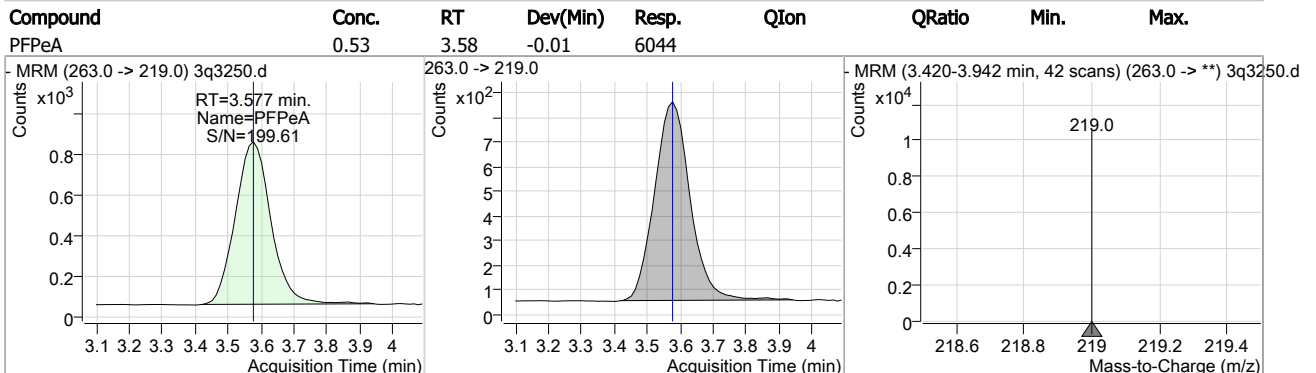
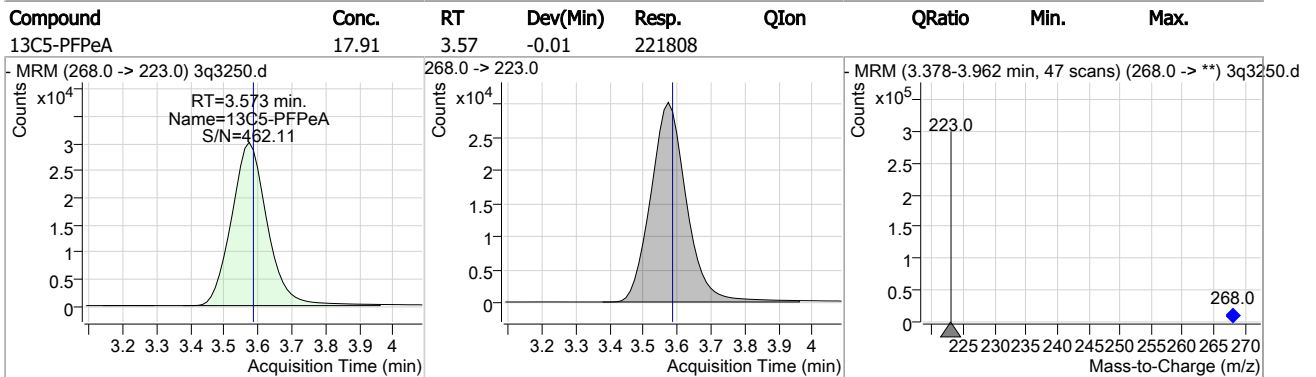
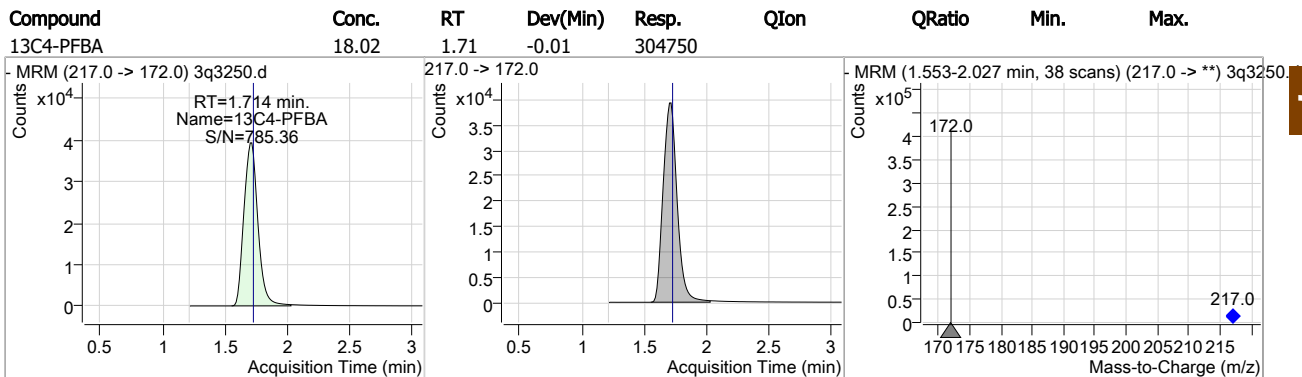
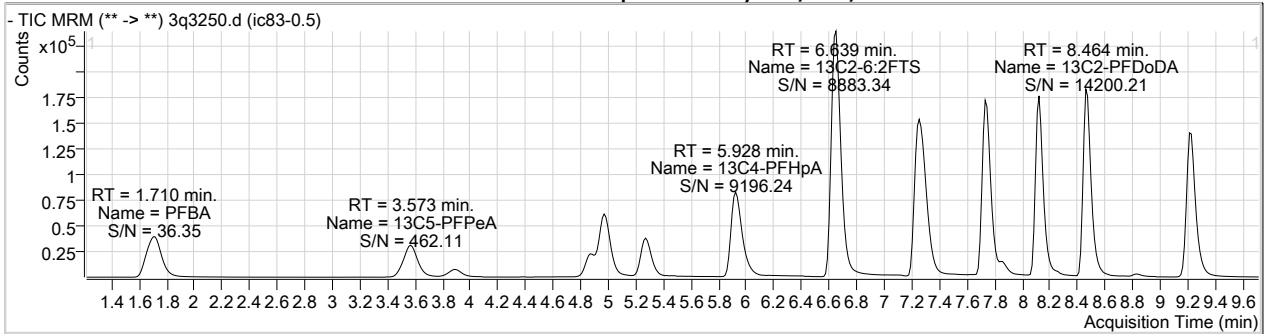
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.5%	
13C7-PFUnDA	8.127	570.0 -> 525.0	686105	17.82 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.1%	
13C8-FOSA	7.298	506.0 -> 78.0	226312	18.35 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
13C8-PFOA	6.656	421.0 -> 376.0	435060	17.99 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.9%	
13C8-PFOS	7.247	507.0 -> 99.0	80989	18.47 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C9-PFNA	7.264	472.0 -> 427.0	452919	18.06 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.3%	
d3-MeFOSAA	7.732	573.0 -> 419.0	77410	18.04 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.2%	
13C3-HFPO-DA	5.280	287.0 -> 169.0	193027	91.81 µg/L	0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
M2-PFOA	6.658	415.0 -> 370.0	575568	20.00 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
M4-PFOS	7.249	503.0 -> 80.0	138931	20.00 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
Target Compounds					QValue
4:2FTS	4.873	327.0 -> 307.0	1923	0.53 µg/L	94
6:2FTS	6.641	427.0 -> 407.0	2148	0.54 µg/L	95
8:2FTS	7.763	527.0 -> 507.0	1798	0.53 µg/L	93
EtFOSAA	7.859	584.0 -> 419.0	1063	0.54 µg/L	96
FOSA	7.300	498.0 -> 78.0	2766	0.52 µg/L	99
MeFOSAA	7.746	570.0 -> 419.0	929	0.44 µg/L	95
PFBA	1.710	213.0 -> 169.0	1394	0.49 µg/L	100
PFBS	3.895	299.0 -> 80.0	1570	0.51 µg/L	98
PFDA	7.738	513.0 -> 469.0	6639	0.48 µg/L	99
PFDoDA	8.465	613.0 -> 569.0	8135	0.48 µg/L	96
PFDS	8.099	599.0 -> 80.0	689	0.54 µg/L	89
PFHpA	5.930	363.0 -> 319.0	9484	0.49 µg/L	100
PFHpS	6.662	449.0 -> 80.0	1347	0.50 µg/L	97
PFHxA	4.977	313.0 -> 269.0	3252	0.52 µg/L	99
PFHxS	5.962	399.0 -> 80.0	1421	0.50 µg/L	m 99
PFNA	7.264	463.0 -> 419.0	7023	0.47 µg/L	100
PFNS	7.710	549.0 -> 80.0	1216	0.48 µg/L	98
PFOA	6.660	413.0 -> 369.0	5885	0.48 µg/L	97
PFOS	7.236	499.0 -> 80.0	2013	0.52 µg/L	m 94
PFPeA	3.577	263.0 -> 219.0	6044	0.53 µg/L	100
PFPeS	5.119	349.0 -> 80.0	1031	0.52 µg/L	96
PFTeDA	9.216	713.0 -> 669.0	10523	0.51 µg/L	98
PFTrDA	8.828	663.0 -> 619.0	9648	0.49 µg/L	100
PFUnDA	8.128	563.0 -> 519.0	7912	0.51 µg/L	98
11Cl-PF3OUdS	8.260	631.0 -> 451.0	4707	0.52 µg/L	96
9Cl-PF3ONS	7.508	531.0 -> 351.0	1067	0.50 µg/L	96
ADONA	6.027	377.0 -> 251.0	11991	0.49 µg/L	100
HFPO-DA	5.284	329.0 -> 169.0	7871	2.61 µg/L	98

7.5.1
7

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

Cal Report: 3Q3250.D

Perfluorinated Compounds by LC/MS/MS

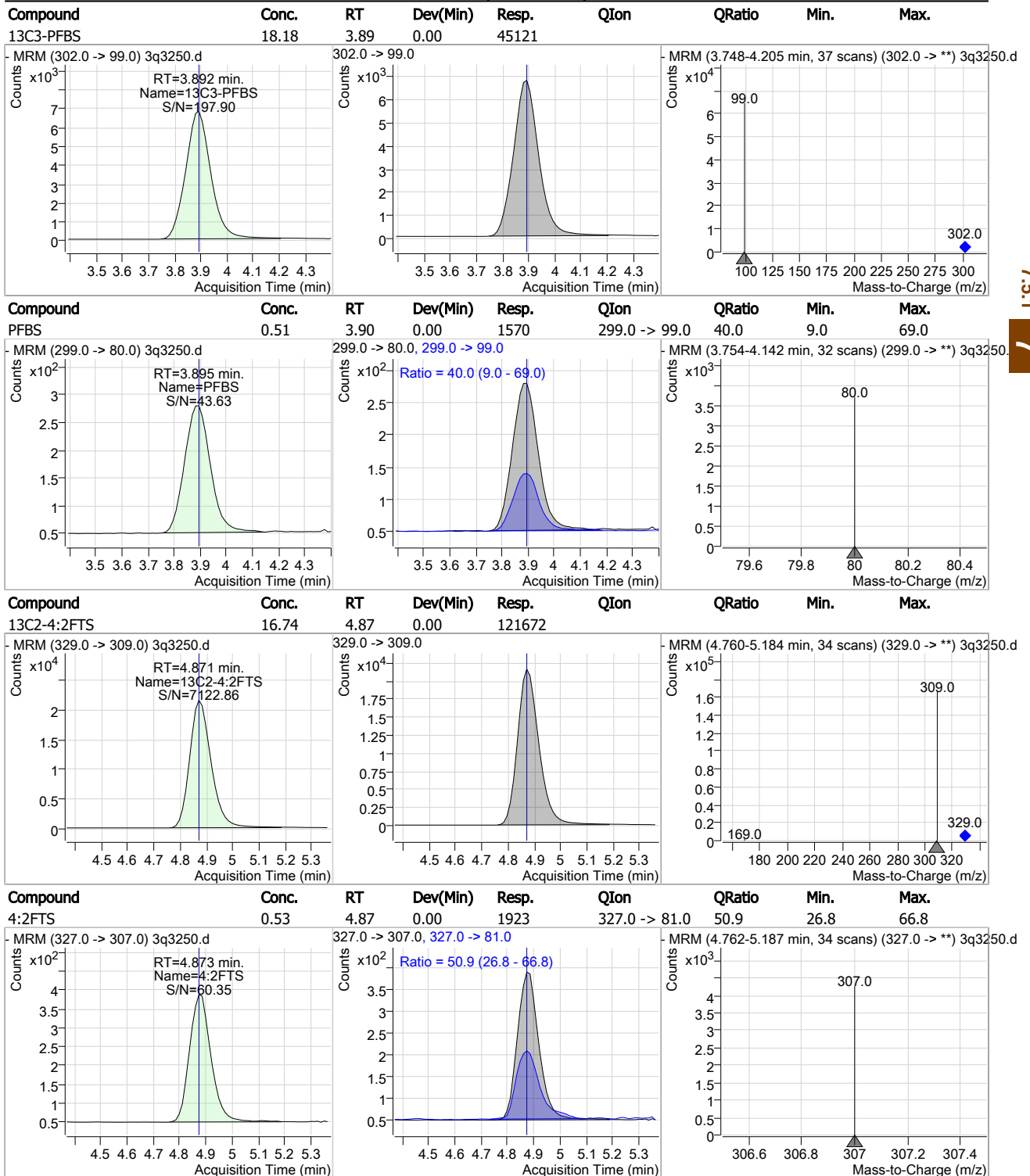


7.5.1

7

Cal Report: 3Q3250.D

Perfluorinated Compounds by LC/MS/MS

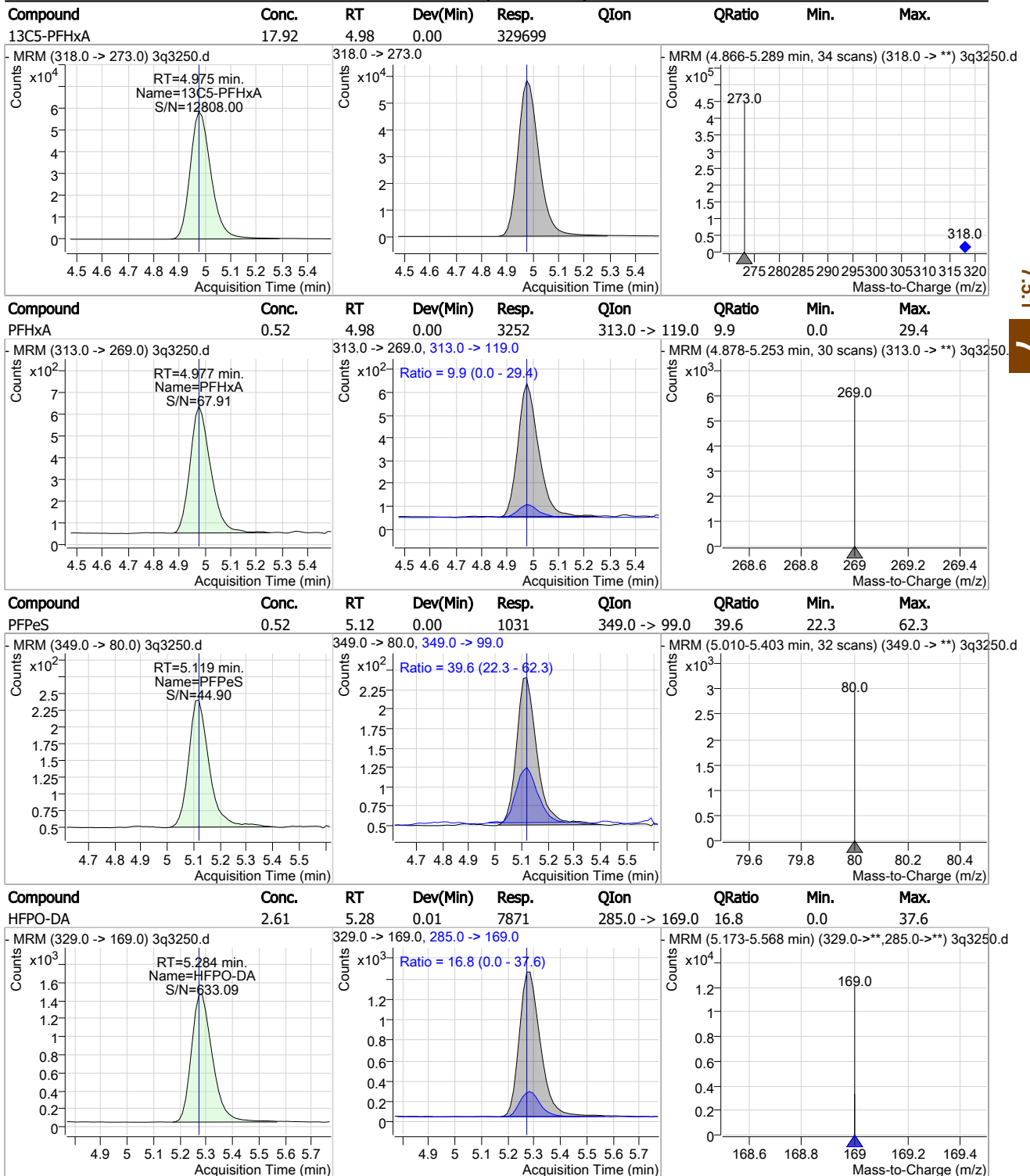


7.5.1

7

Cal Report: 3Q3250.D

Perfluorinated Compounds by LC/MS/MS



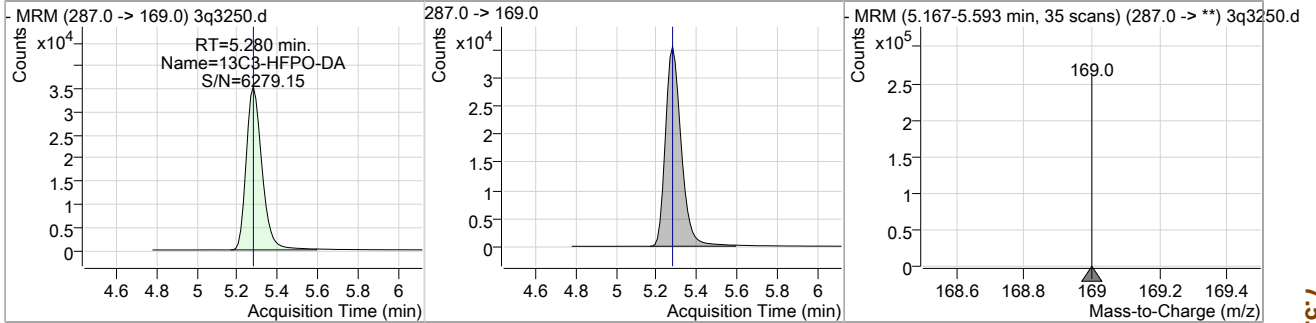
7.5.1

7

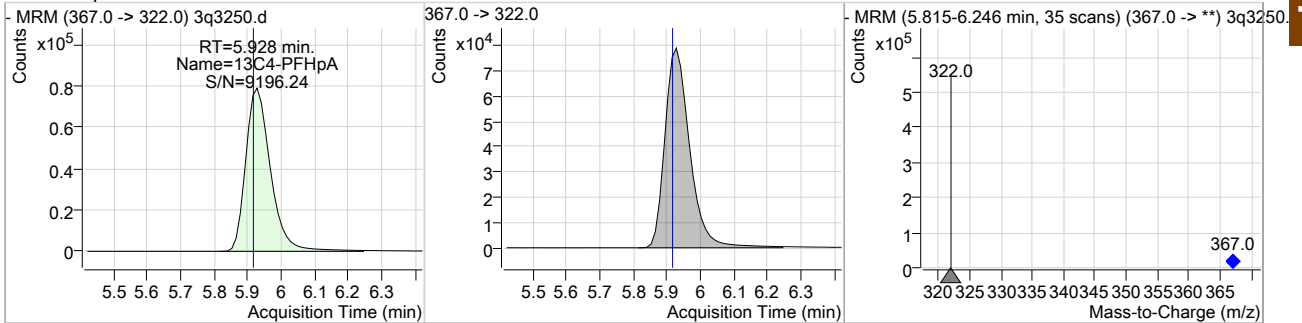
Cal Report: 3Q3250.D

Perfluorinated Compounds by LC/MS/MS

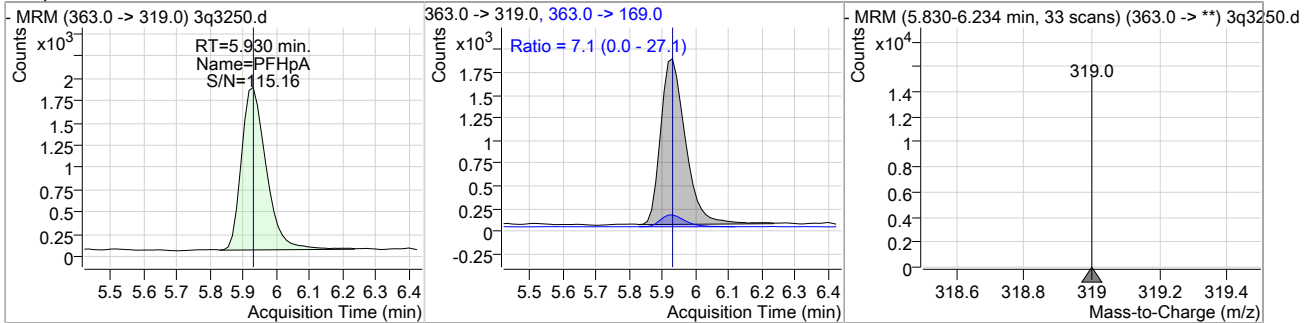
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	91.81	5.28	0.00	193027				



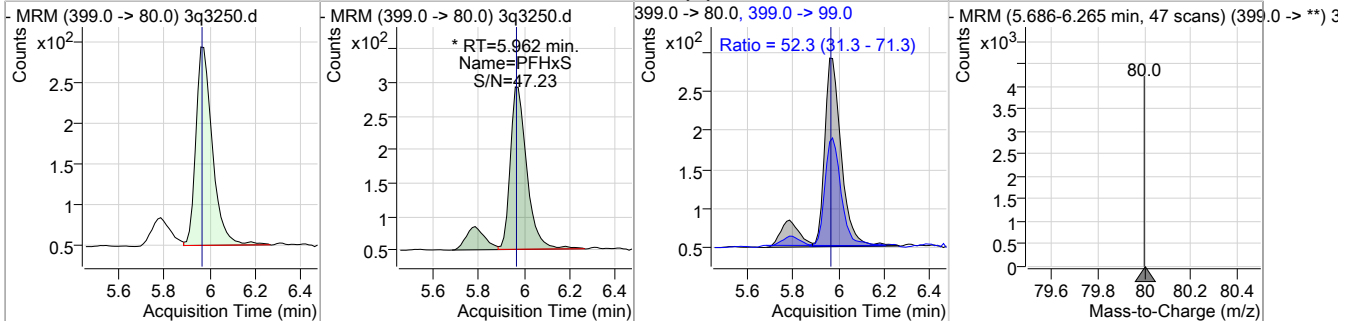
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.05	5.93	0.01	405731				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.49	5.93	0.01	9484	363.0 -> 169.0	7.1	0.0	27.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.50	5.96	0.00	1421 (m)	399.0 -> 99.0	52.3	31.3	71.3



7.5.1
7

Cal Report: **3Q3250.D**

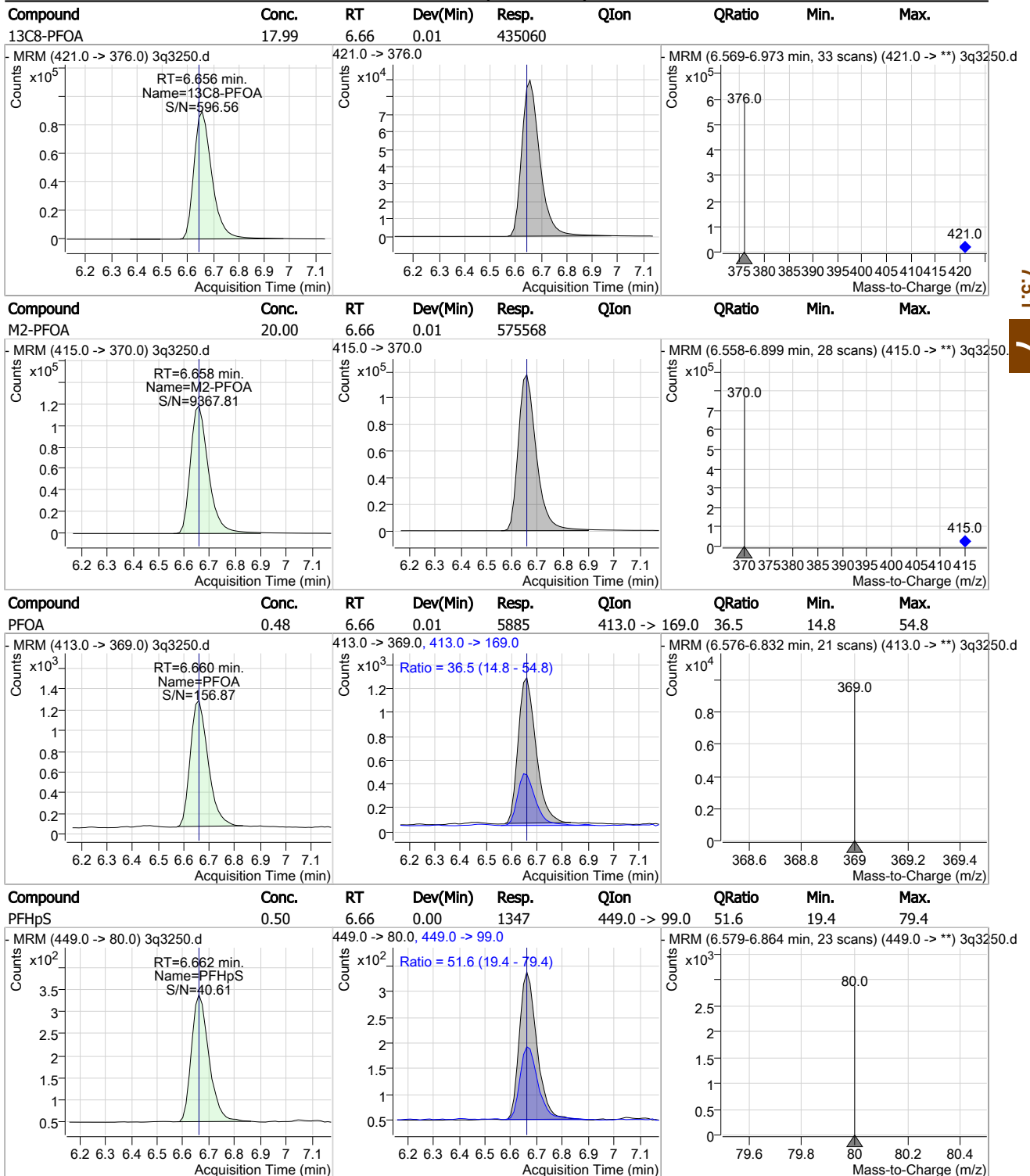
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.32	5.97	0.00	49121				
MRM (402.0 -> 99.0) 3q3250.d			402.0 -> 99.0			MRM (5.879-6.293 min, 34 scans) (402.0 -> **) 3q3250.d		
ADONA	0.49	6.03	0.00	11991				
MRM (377.0 -> 251.0) 3q3250.d			377.0 -> 251.0			MRM (5.935-6.345 min, 33 scans) (377.0 -> **) 3q3250.d		
6:2FTS	0.54	6.64	0.01	2148	427.0 -> 81.0	47.1	24.2	64.2
MRM (427.0 -> 407.0) 3q3250.d			427.0 -> 407.0, 427.0 -> 81.0			MRM (6.553-6.935 min, 31 scans) (427.0 -> **) 3q3250.d		
13C2-6:2FTS	16.91	6.64	0.00	159155				
MRM (429.0 -> 409.0) 3q3250.d			429.0 -> 409.0			MRM (6.552-6.934 min, 31 scans) (429.0 -> **) 3q3250.d		

7.5.1
7

Cal Report: **3Q3250.D**

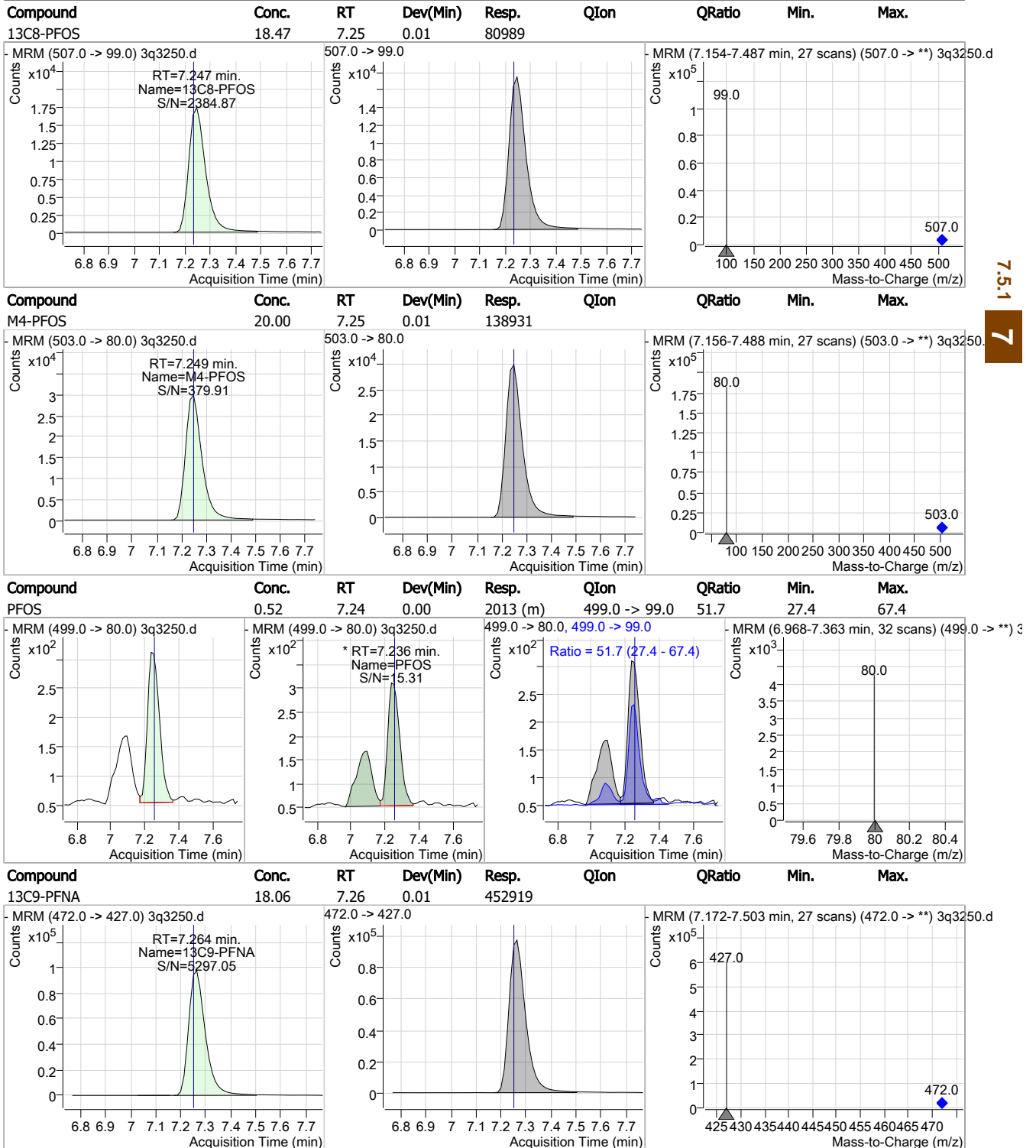
Perfluorinated Compounds by LC/MS/MS



7.5.1
7

Cal Report: 3Q3250.D

Perfluorinated Compounds by LC/MS/MS

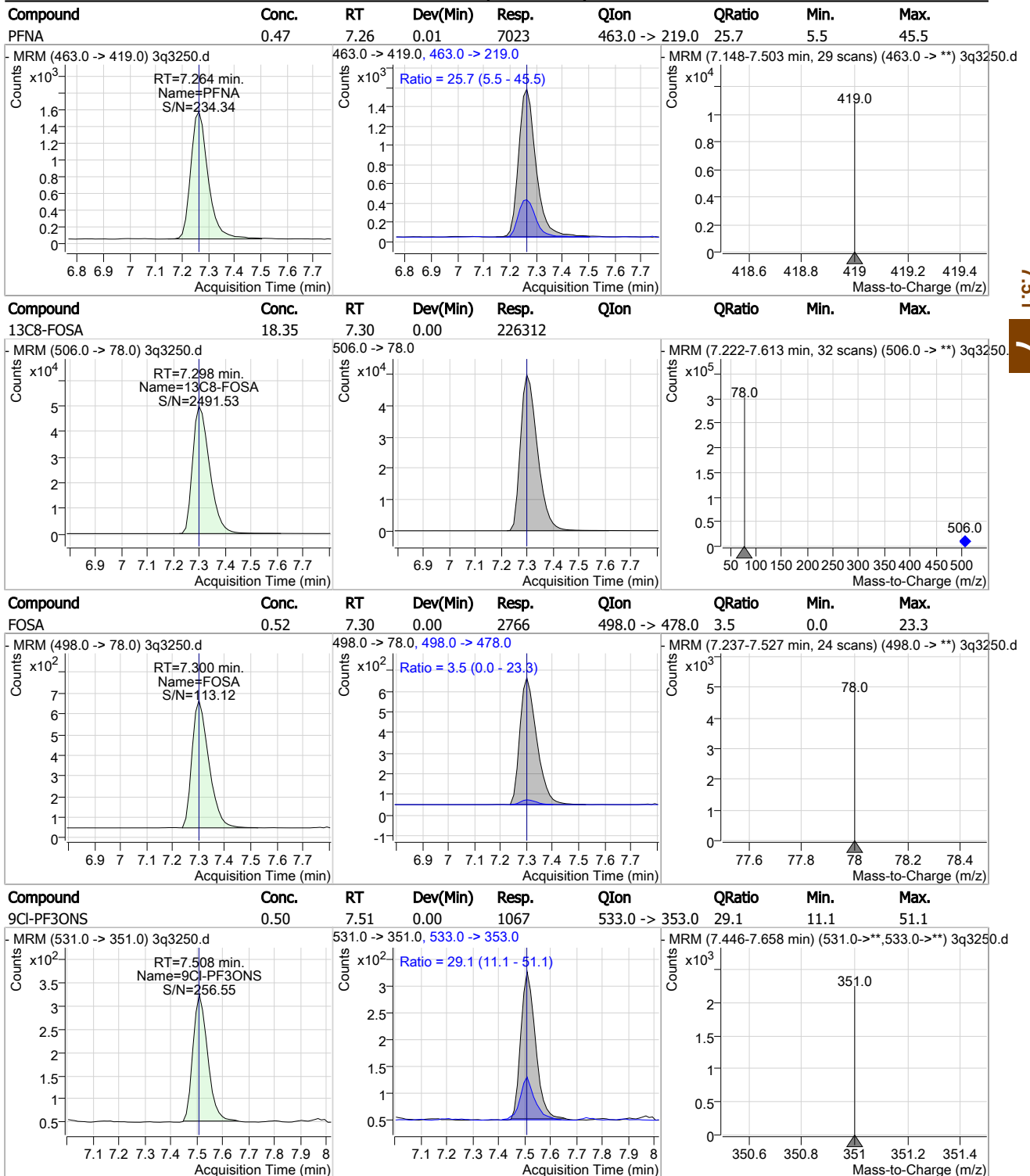


7.5.1

7

Cal Report: 3Q3250.D

Perfluorinated Compounds by LC/MS/MS

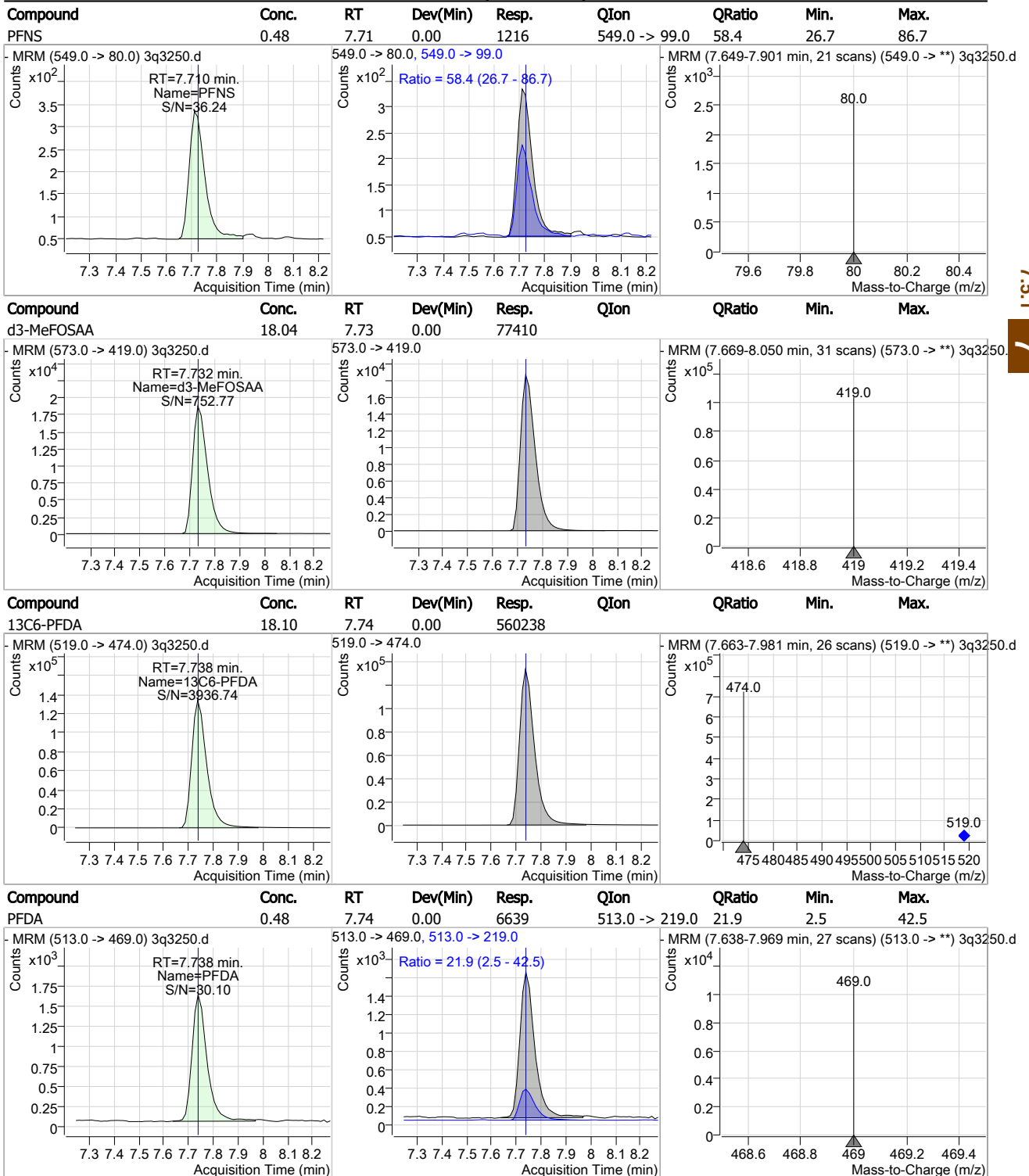


7.5.1

7

Cal Report: 3Q3250.D

Perfluorinated Compounds by LC/MS/MS

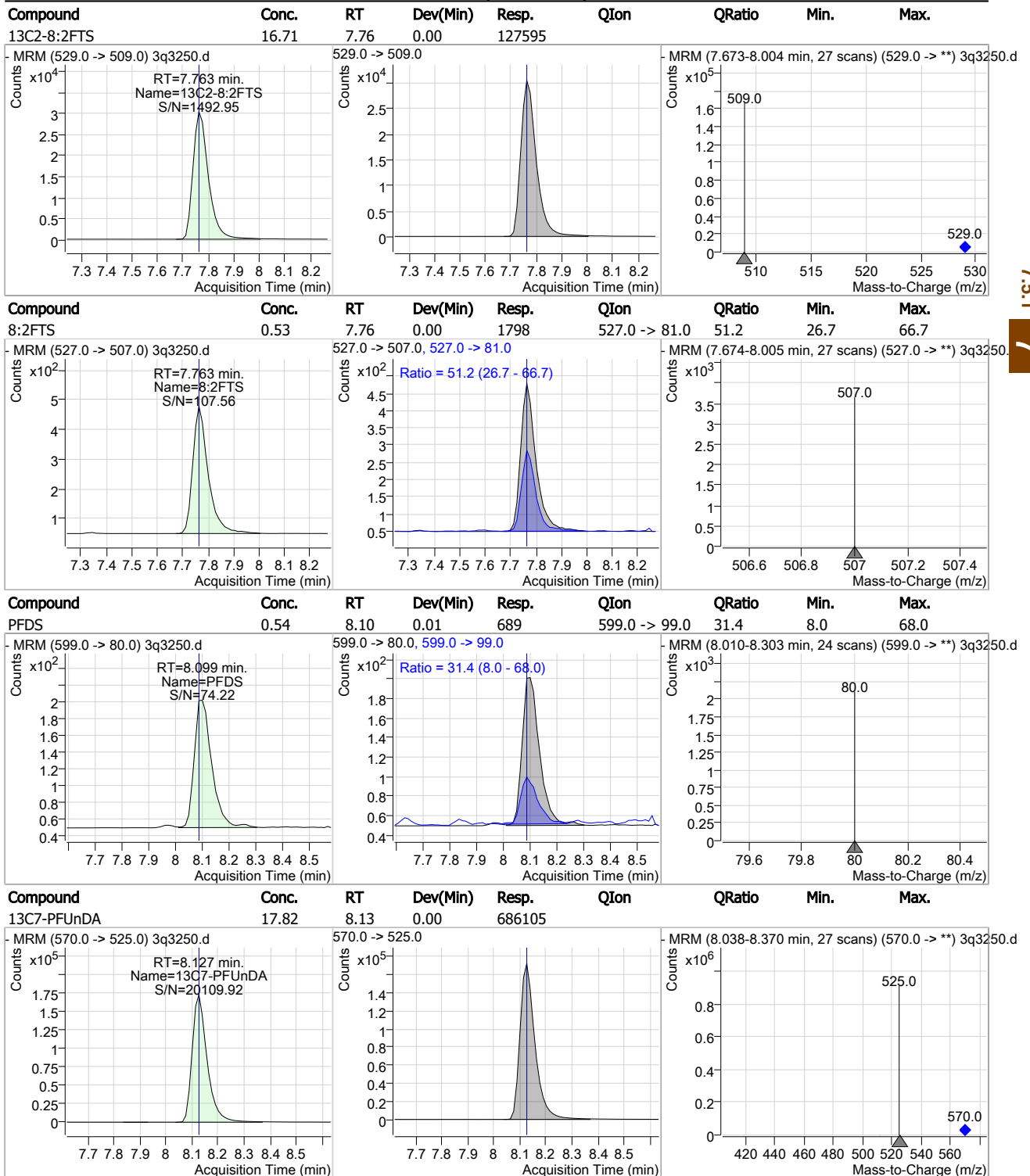


7.5.1

7

Cal Report: 3Q3250.D

Perfluorinated Compounds by LC/MS/MS

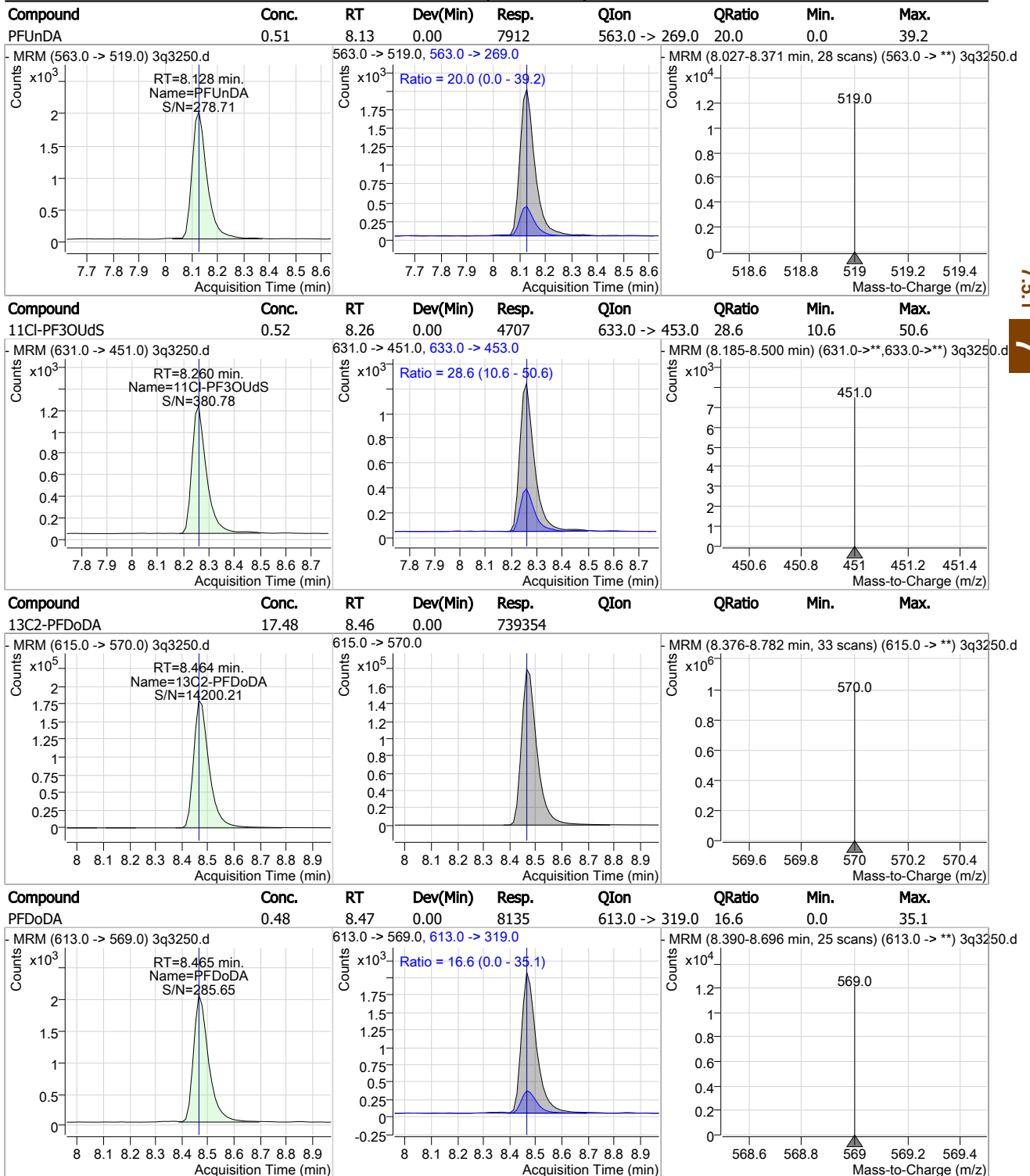


7.5.1

7

Cal Report: 3Q3250.D

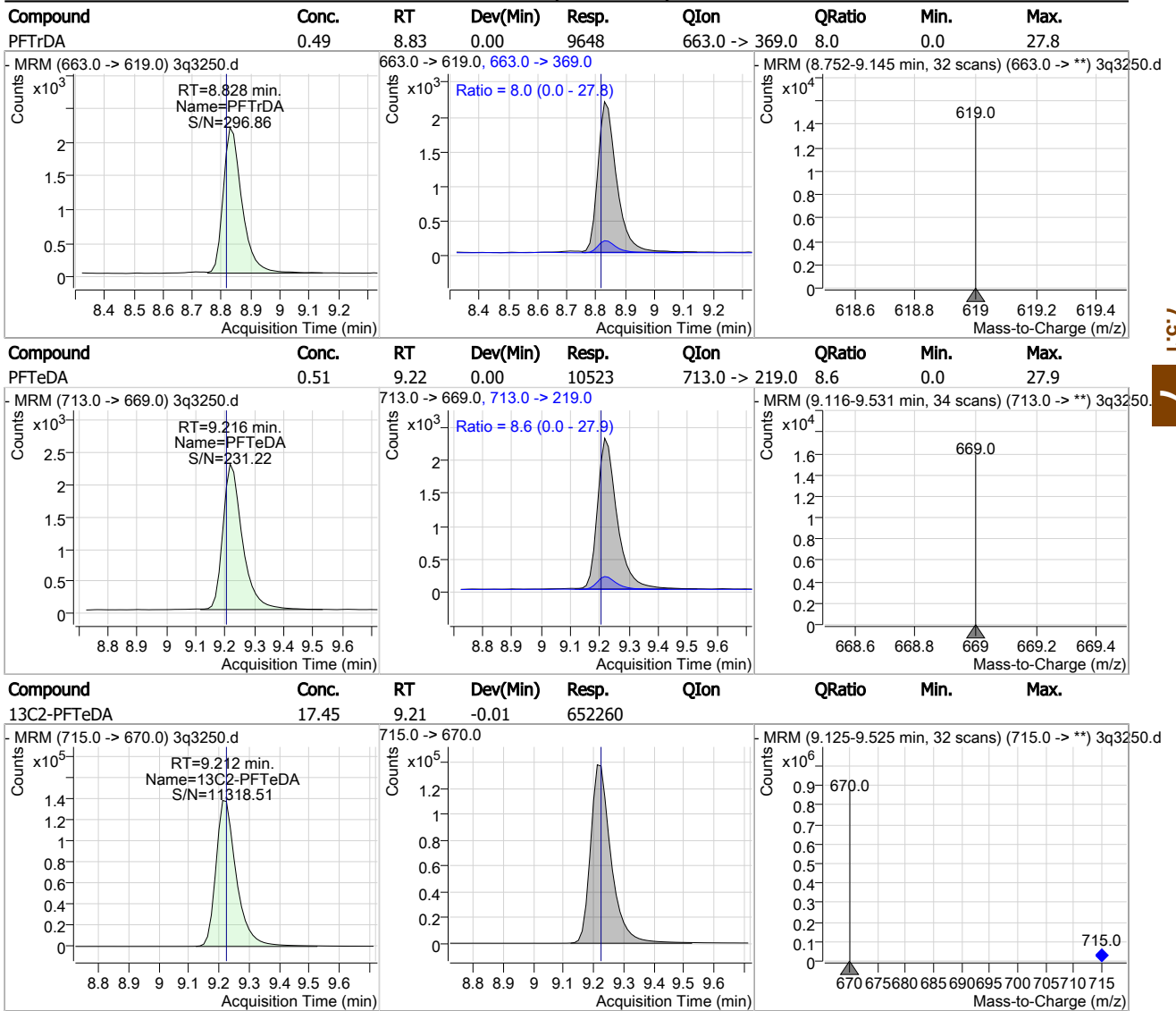
Perfluorinated Compounds by LC/MS/MS



7.5.1
7

Cal Report: 3Q3250.D

Perfluorinated Compounds by LC/MS/MS



7.5.1
7

Manual Integration Approval Summary

Sample Number: S3Q83-IC83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3250.D **Analyst approved:** 04/26/19 09:23 Natasha Gumtie
Injection Time: 04/25/19 08:45 **Supervisor approved:** 04/26/19 16:14 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.96	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.24	Split peak

7.5.1.1

7

Cal Report:

3Q3251.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:14

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3251.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 9:01:17 AM
 Sample Name : ic83-1
 Vial : P3-A3
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74632,S3Q83,125,,,1.0,1,water

Compound	RT	QI on	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.714	217.0 -> 172.0	338026	20.00 µg/L	-0.013
M5-PFPeA	3.573	268.0 -> 223.0	246026	20.00 µg/L	-0.013
M5-PFHxA	4.975	318.0 -> 273.0	368527	20.00 µg/L	0.000
M4-PFHpA	5.928	367.0 -> 322.0	449281	20.00 µg/L	0.011
M8-PFOA	6.656	421.0 -> 376.0	489143	20.00 µg/L	0.012
M9-PFNA	7.264	472.0 -> 427.0	500693	20.00 µg/L	0.012
M6-PFDA	7.738	519.0 -> 474.0	622678	20.00 µg/L	-0.002
M7-PFUnDA	8.127	570.0 -> 525.0	770696	20.00 µg/L	0.000
M2-PFDoDA	8.464	615.0 -> 570.0	824823	20.00 µg/L	-0.001
M2-PFTeDA	9.225	715.0 -> 670.0	730610	20.00 µg/L	0.000
M8-FOSA	7.298	506.0 -> 78.0	253318	20.00 µg/L	0.000
M3-PFBS	3.892	302.0 -> 99.0	50329	20.00 µg/L	0.000
M3-PFHxS	5.972	402.0 -> 99.0	53710	20.00 µg/L	0.000
M8-PFOS	7.247	507.0 -> 99.0	90052	20.00 µg/L	0.012
M2-4:2FTS	4.871	329.0 -> 309.0	135957	20.00 µg/L	0.000
M2-6:2FTS	6.639	429.0 -> 409.0	177423	20.00 µg/L	0.000
M2-8:2FTS	7.763	529.0 -> 509.0	140199	20.00 µg/L	0.000
M3-MeFOSAA	7.732	573.0 -> 419.0	86355	20.00 µg/L	-0.001
M3-HFPO-DA	5.280	287.0 -> 169.0	216720	100.00 µg/L	0.000
13C2-PFOA	6.658	415.0 -> 370.0	639199	20.00 µg/L	0.012
13C4-PFOS	7.249	503.0 -> 80.0	152586	20.00 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	4.871	329.0 -> 309.0	135906	18.70 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C2-6:2FTS	6.639	429.0 -> 409.0	177288	18.84 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C2-8:2FTS	7.763	529.0 -> 509.0	140270	18.37 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C2-PFDoDA	8.464	615.0 -> 570.0	823963	19.48 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C2-PFTeDA	9.225	715.0 -> 670.0	727322	19.46 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C3-PFBS	3.892	302.0 -> 99.0	50054	20.16 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C3-PFHxS	5.972	402.0 -> 99.0	53867	20.09 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFBA	1.714	217.0 -> 172.0	337700	19.97 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	5.928	367.0 -> 322.0	445927	19.83 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C5-PFHxA	4.975	318.0 -> 273.0	365577	19.87 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C5-PFPeA	3.573	268.0 -> 223.0	246026	19.87 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C6-PFDA	7.738	519.0 -> 474.0	622915	20.13 µg/L	-0.002

7.5.2
7

Cal Report:

3Q3251.D

Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)	QValue
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C7-PFUnDA	8.127	570.0 -> 525.0	768692	19.97 µg/L	0.000	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C8-FOSA	7.298	506.0 -> 78.0	252744	20.49 µg/L	0.000	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C8-PFOA	6.656	421.0 -> 376.0	483891	20.00 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C8-PFOS	7.247	507.0 -> 99.0	89594	20.43 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.2%		
13C9-PFNA	7.264	472.0 -> 427.0	499975	19.93 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.7%		
d3-MeFOSAA	7.732	573.0 -> 419.0	86409	20.14 µg/L	-0.001	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C3-HFPO-DA	5.280	287.0 -> 169.0	216720	103.08 µg/L	0.000	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 103.1%		
M2-PFOA	6.658	415.0 -> 370.0	639199	20.00 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.249	503.0 -> 80.0	152586	20.00 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						QValue
4:2FTS	4.873	327.0 -> 307.0	4345	1.07 µg/L		100
6:2FTS	6.641	427.0 -> 407.0	4776	1.07 µg/L		94
8:2FTS	7.763	527.0 -> 507.0	3995	1.08 µg/L		100
EtFOSAA	7.872	584.0 -> 419.0	2046	0.94 µg/L		90
FOSA	7.300	498.0 -> 78.0	6372	1.07 µg/L		100
MeFOSAA	7.733	570.0 -> 419.0	2422	1.04 µg/L		91
PFBA	1.723	213.0 -> 169.0	3167	1.01 µg/L		100
PFBS	3.895	299.0 -> 80.0	3515	1.04 µg/L		99
PFDA	7.738	513.0 -> 469.0	14449	0.95 µg/L		98
PFDoDA	8.465	613.0 -> 569.0	18476	0.97 µg/L		100
PFDS	8.086	599.0 -> 80.0	1467	1.01 µg/L		98
PFHpA	5.930	363.0 -> 319.0	21228	0.99 µg/L		98
PFHpS	6.662	449.0 -> 80.0	3045	1.03 µg/L		96
PFHxA	4.977	313.0 -> 269.0	6877	0.99 µg/L		97
PFHxS	5.974	399.0 -> 80.0	3225	1.03 µg/L	m	97
PFNA	7.264	463.0 -> 419.0	15902	0.97 µg/L		99
PFNS	7.710	549.0 -> 80.0	2698	0.96 µg/L		95
PFOA	6.647	413.0 -> 369.0	13409	0.98 µg/L		99
PFOS	7.236	499.0 -> 80.0	4297	1.00 µg/L	m	96
PFPeA	3.577	263.0 -> 219.0	13244	1.04 µg/L		100
PFPeS	5.119	349.0 -> 80.0	2210	1.00 µg/L		97
PFTeDA	9.216	713.0 -> 669.0	23176	1.00 µg/L		99
PFTrDA	8.828	663.0 -> 619.0	21169	0.97 µg/L		100
PFUnDA	8.128	563.0 -> 519.0	16933	0.97 µg/L		100
11Cl-PF3OUdS	8.247	631.0 -> 451.0	10964	1.08 µg/L		99
9Cl-PF3ONS	7.495	531.0 -> 351.0	2395	1.00 µg/L		100
ADONA	6.027	377.0 -> 251.0	27684	1.01 µg/L		100
HFPO-DA	5.272	329.0 -> 169.0	16894	5.00 µg/L		100

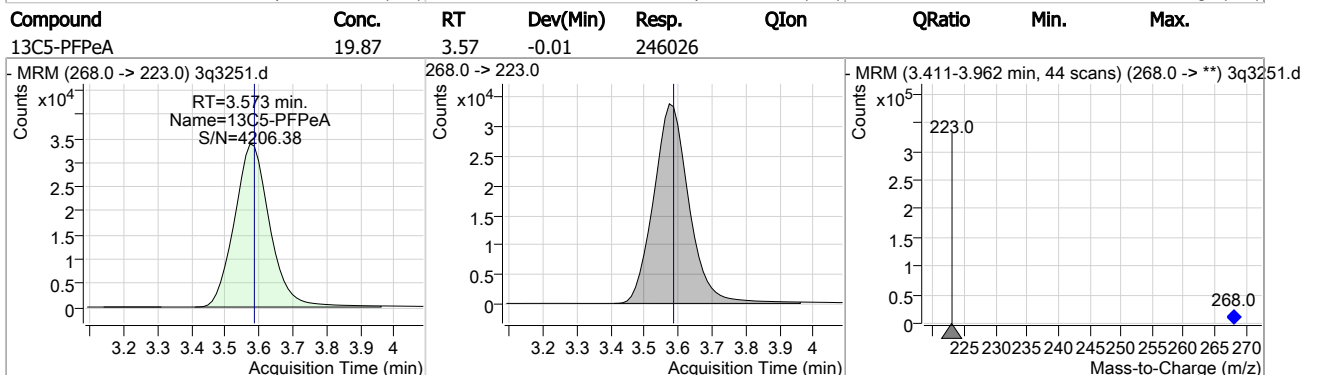
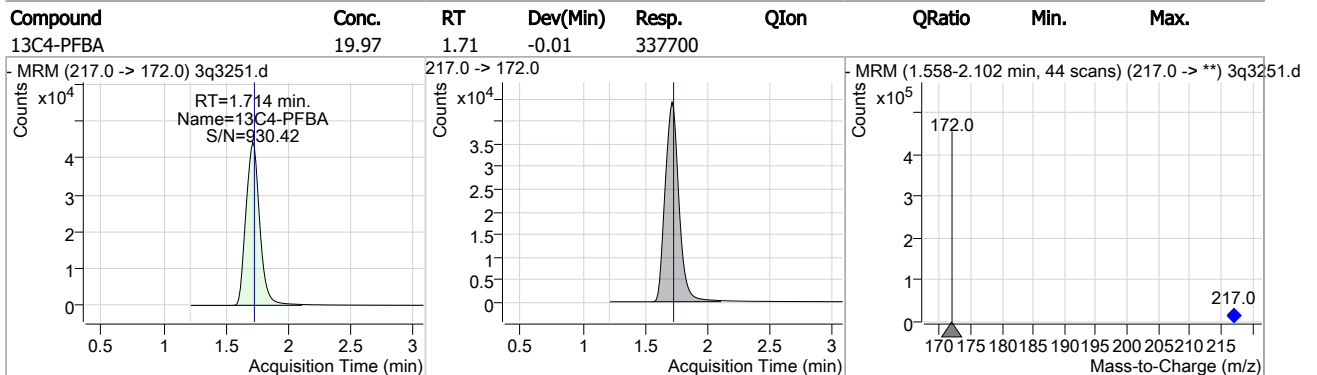
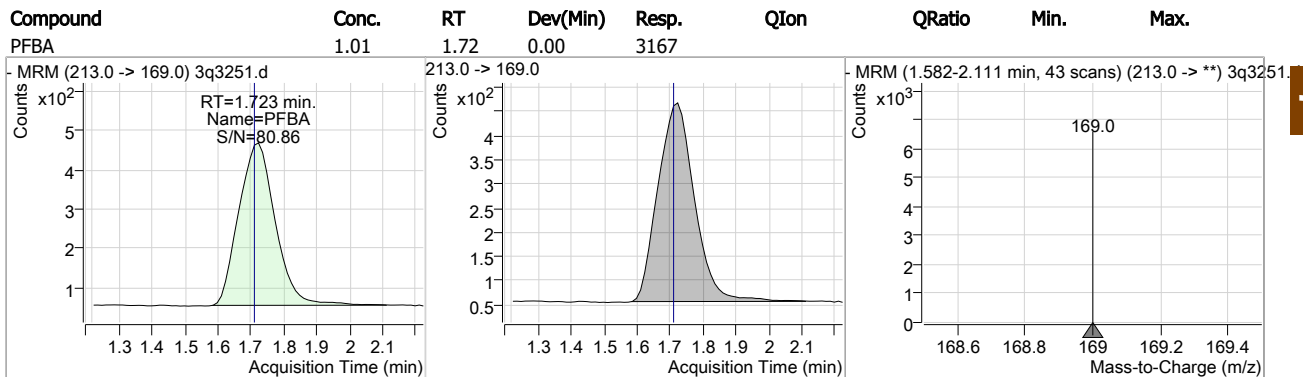
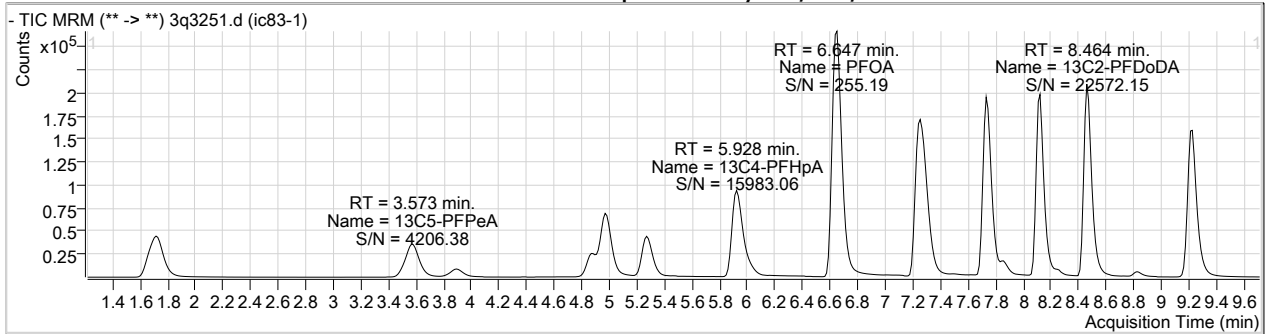
7.5.2
7

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

Cal Report:

3Q3251.D

Perfluorinated Compounds by LC/MS/MS



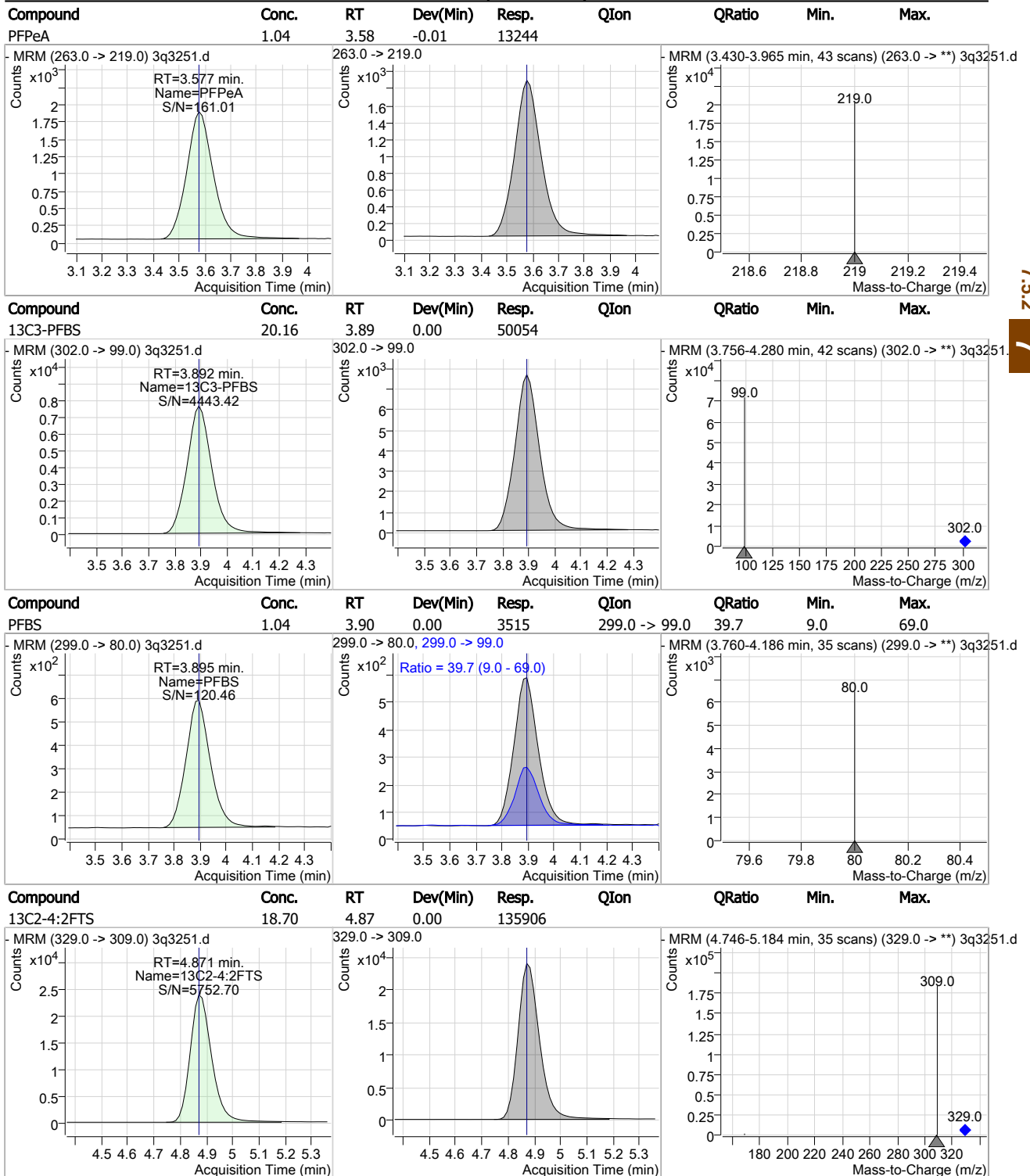
7.5.2

7

Cal Report:

3Q3251.D

Perfluorinated Compounds by LC/MS/MS

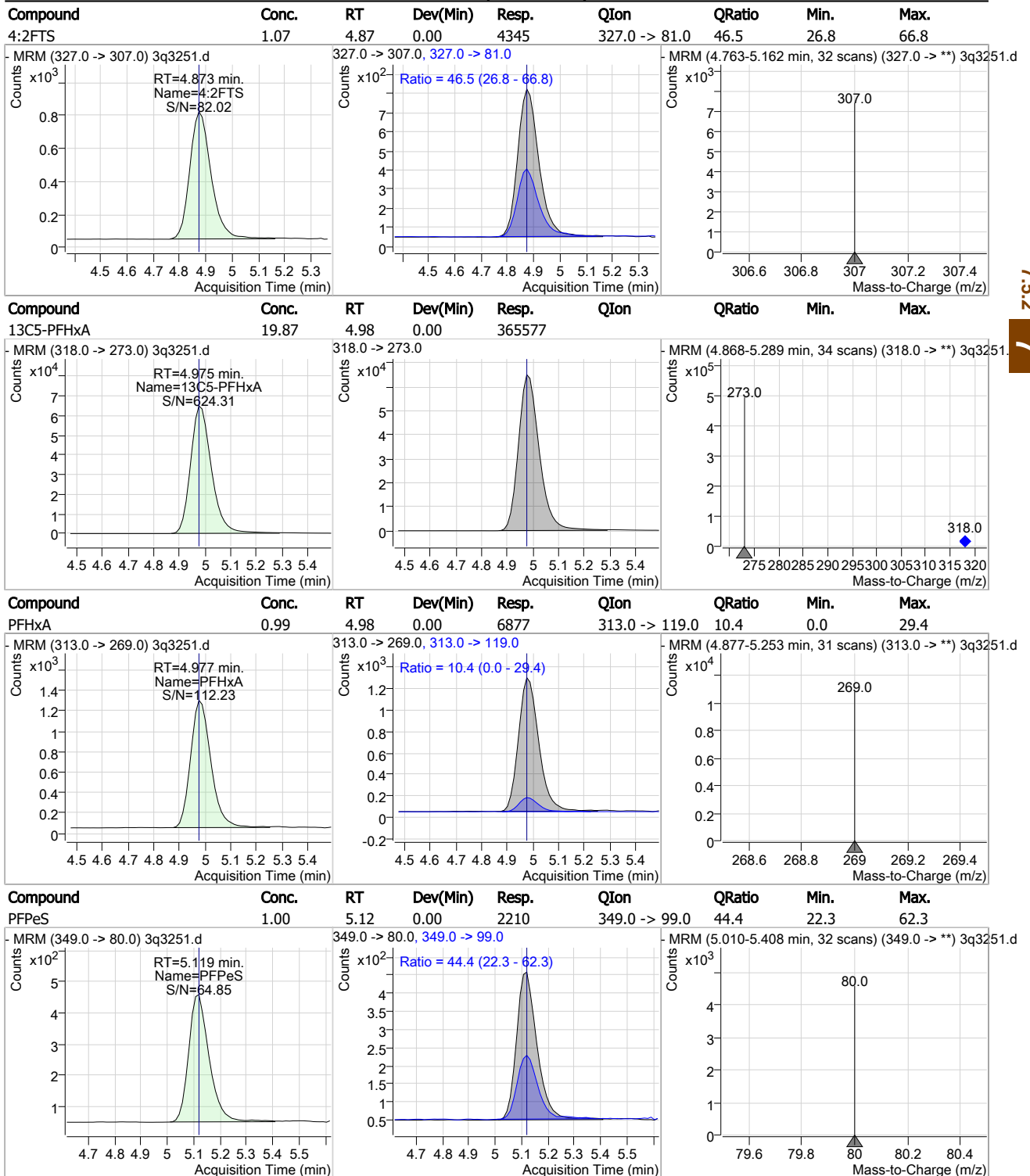


7.5.2
7

Cal Report:

3Q3251.D

Perfluorinated Compounds by LC/MS/MS



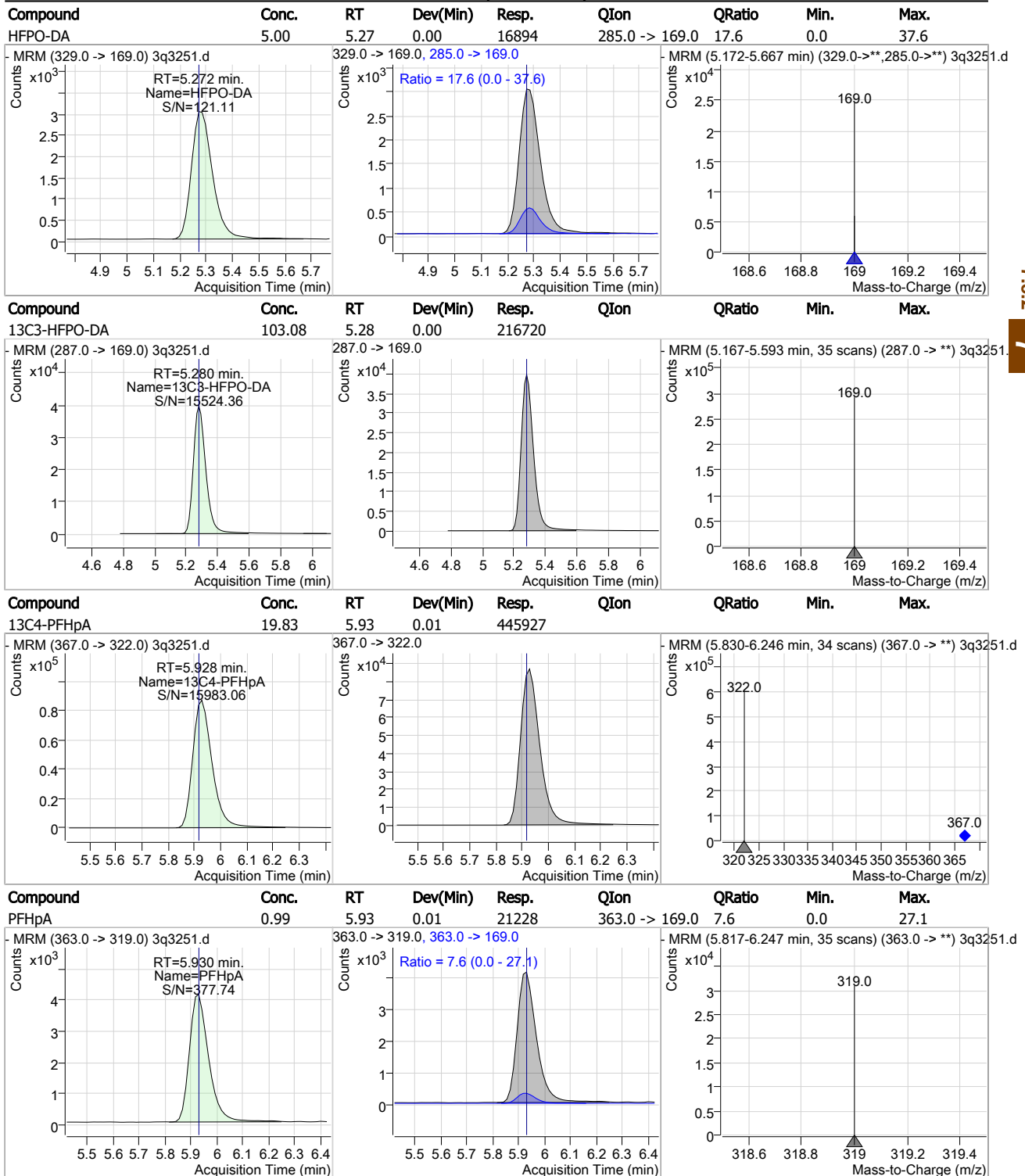
7.5.2

7

Cal Report:

3Q3251.D

Perfluorinated Compounds by LC/MS/MS

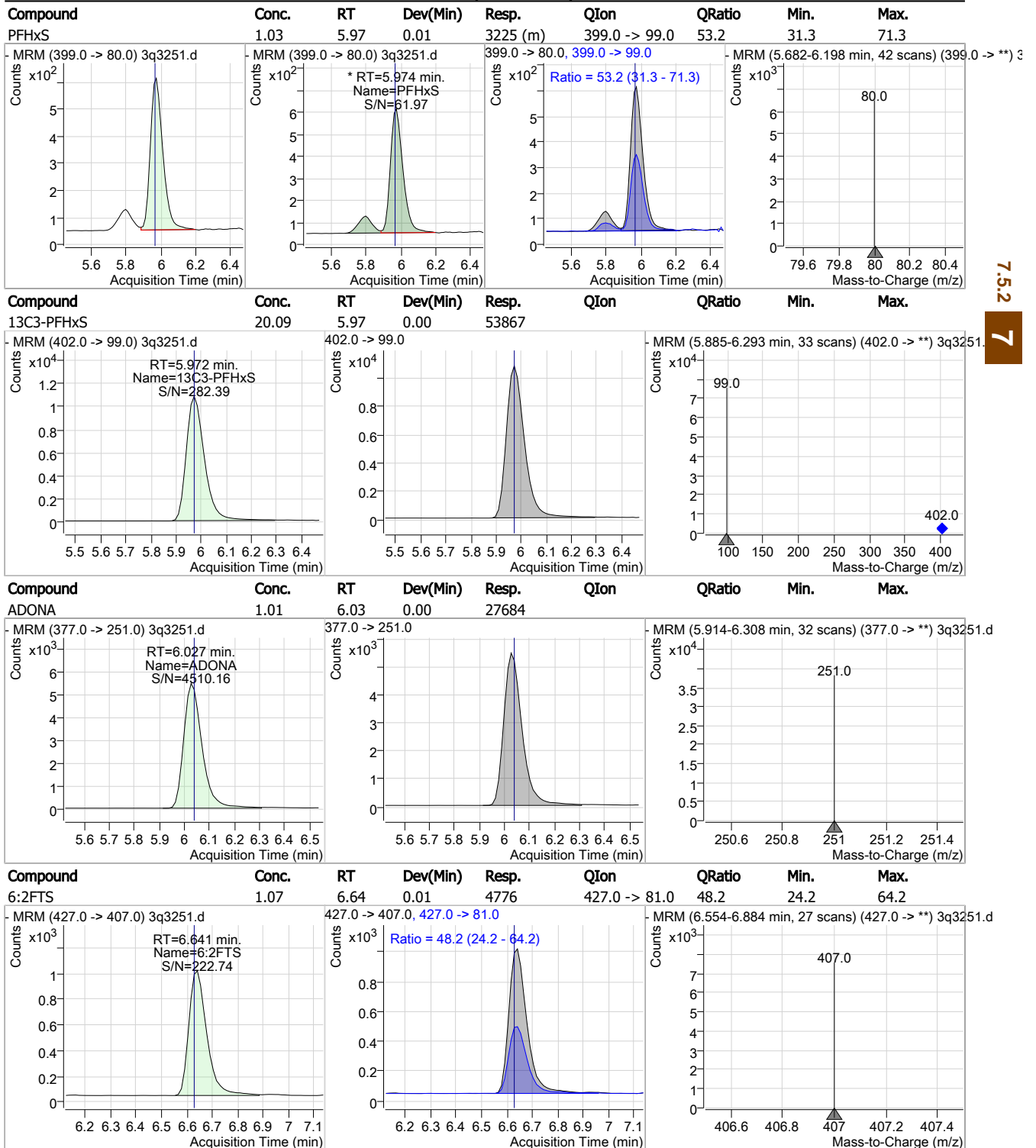


7.5.2
7

Cal Report:

3Q3251.D

Perfluorinated Compounds by LC/MS/MS

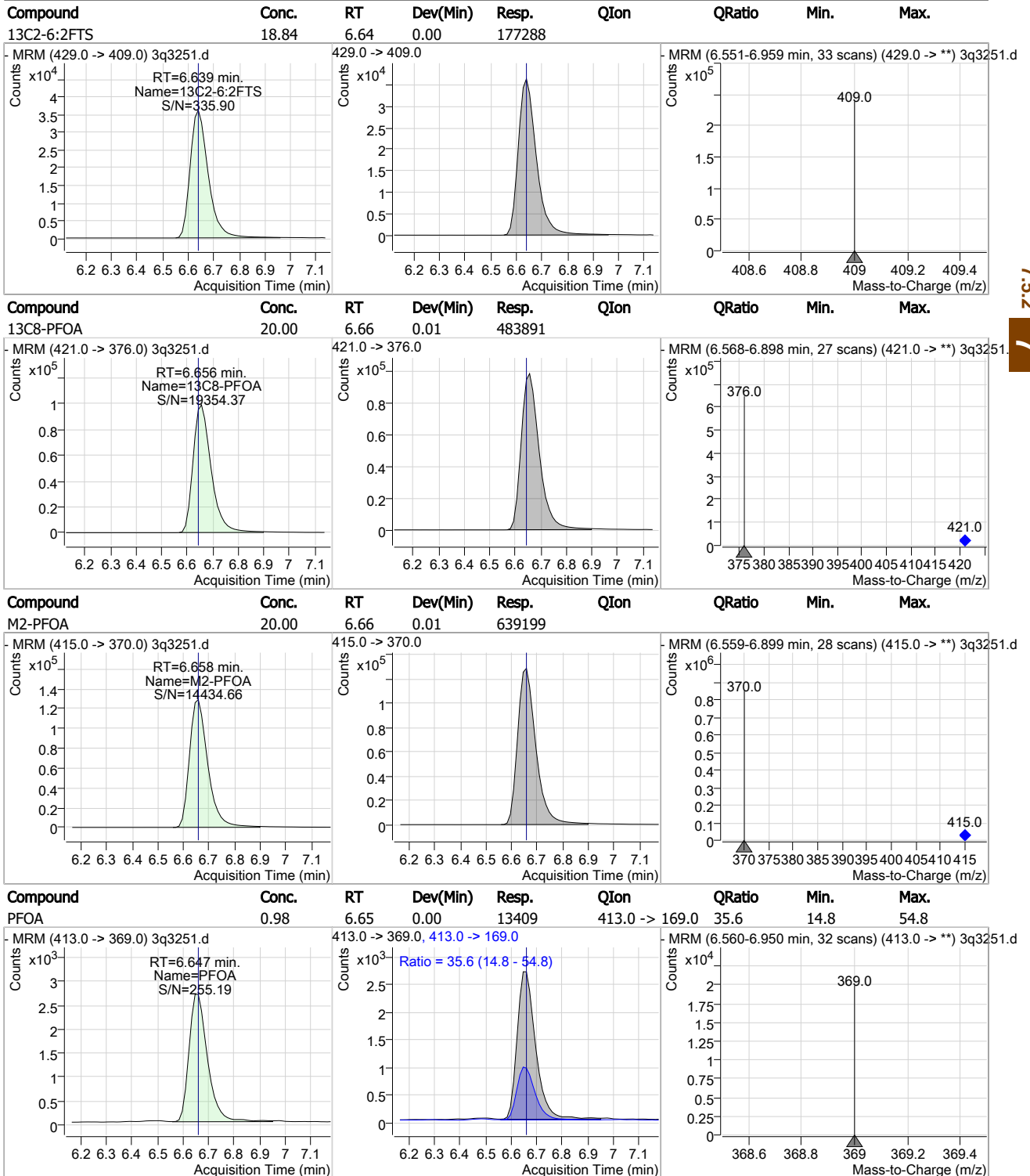


7.5.2
7

Cal Report:

3Q3251.D

Perfluorinated Compounds by LC/MS/MS

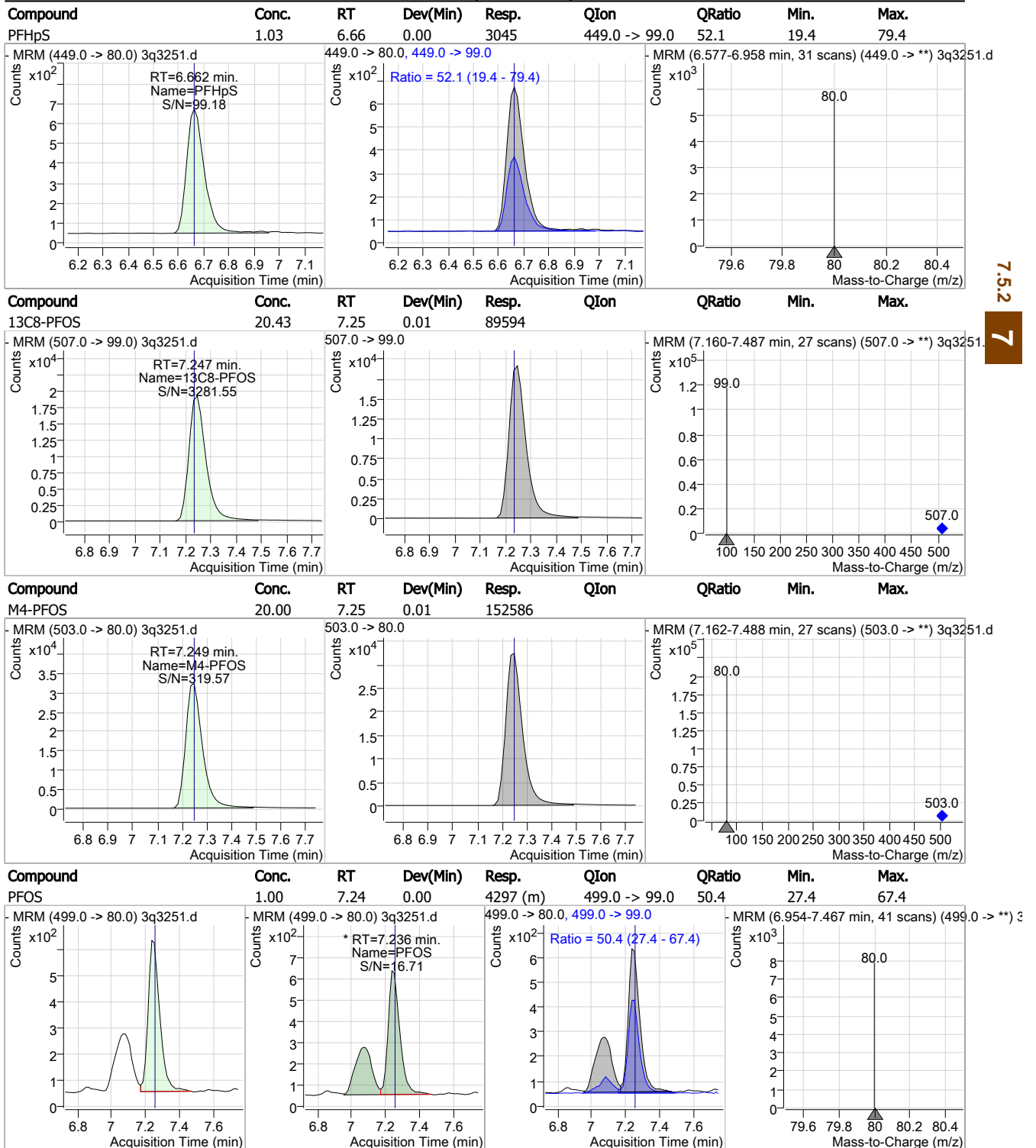


7.52 7

Cal Report:

3Q3251.D

Perfluorinated Compounds by LC/MS/MS

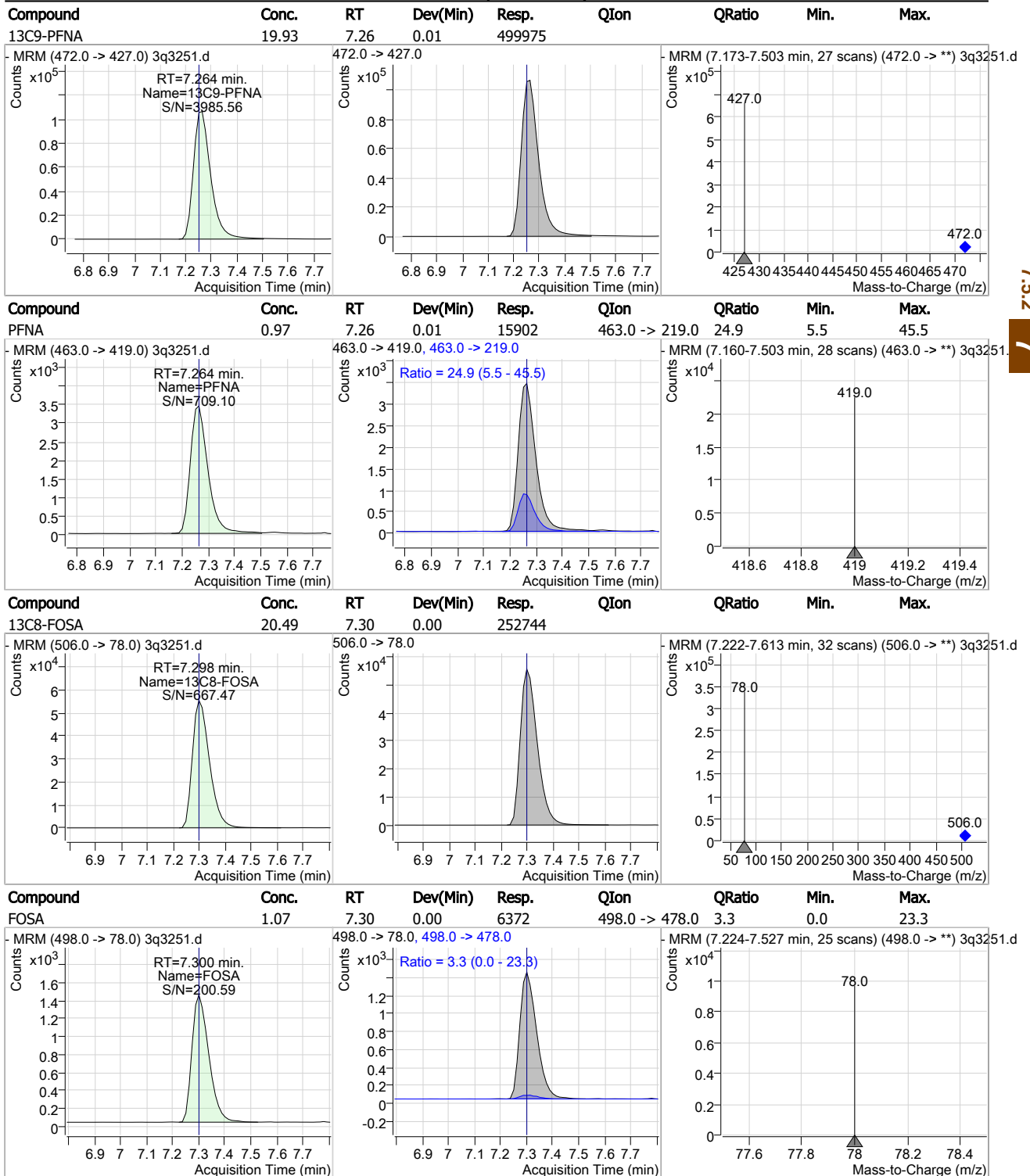


7.52
7

Cal Report:

3Q3251.D

Perfluorinated Compounds by LC/MS/MS

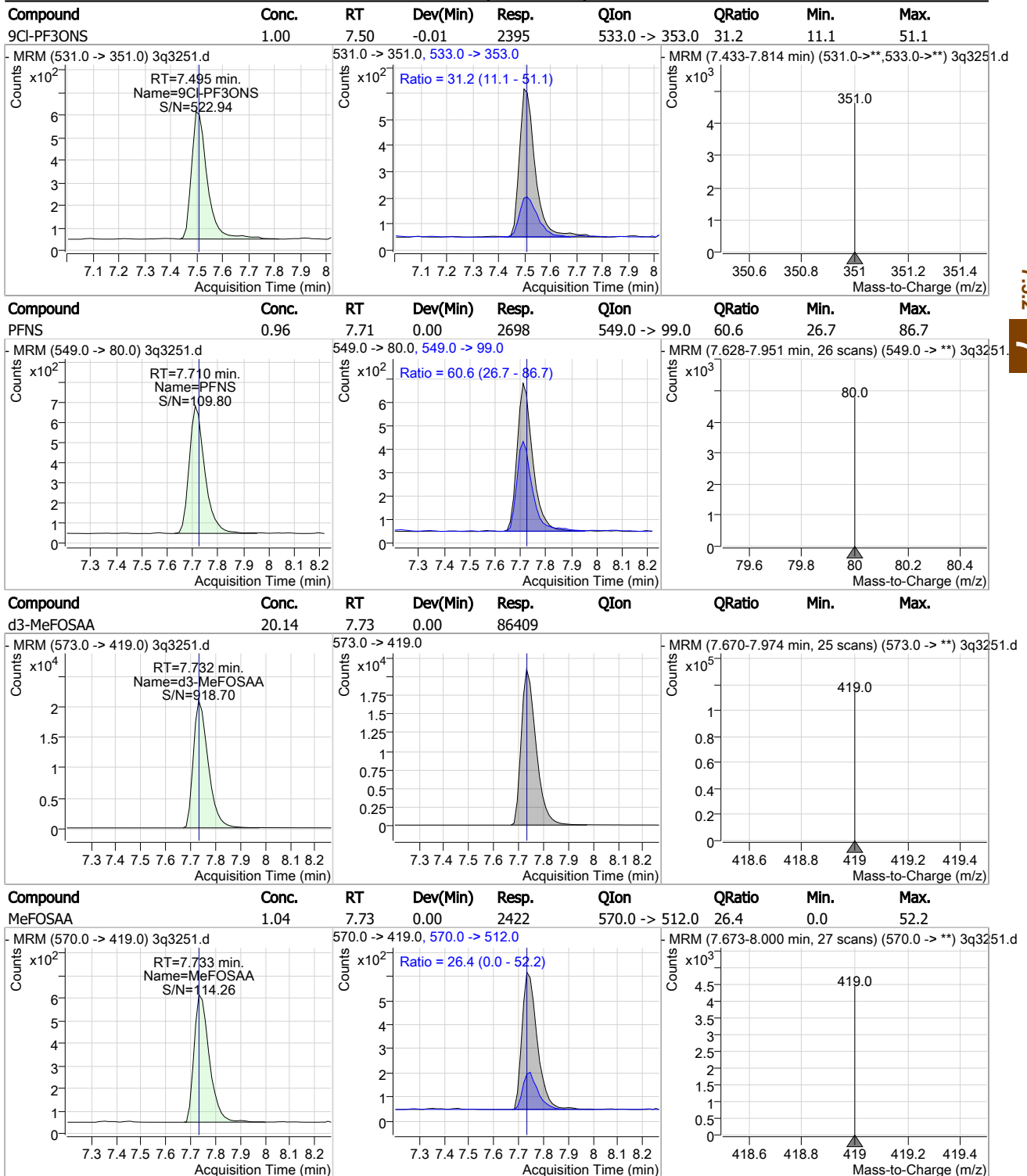


7.5.2
7

Cal Report:

3Q3251.D

Perfluorinated Compounds by LC/MS/MS

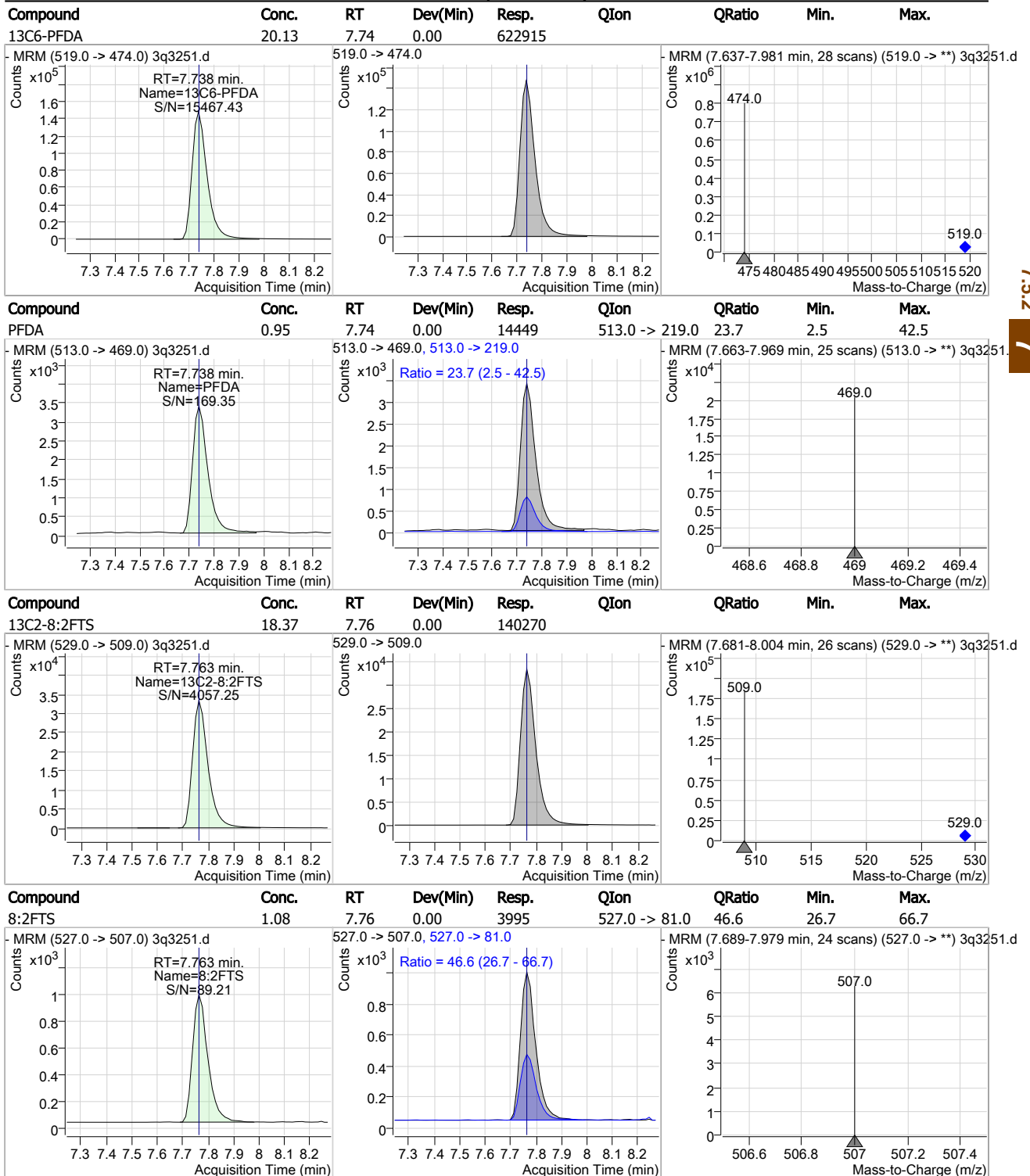


7.5.2 7

Cal Report:

3Q3251.D

Perfluorinated Compounds by LC/MS/MS

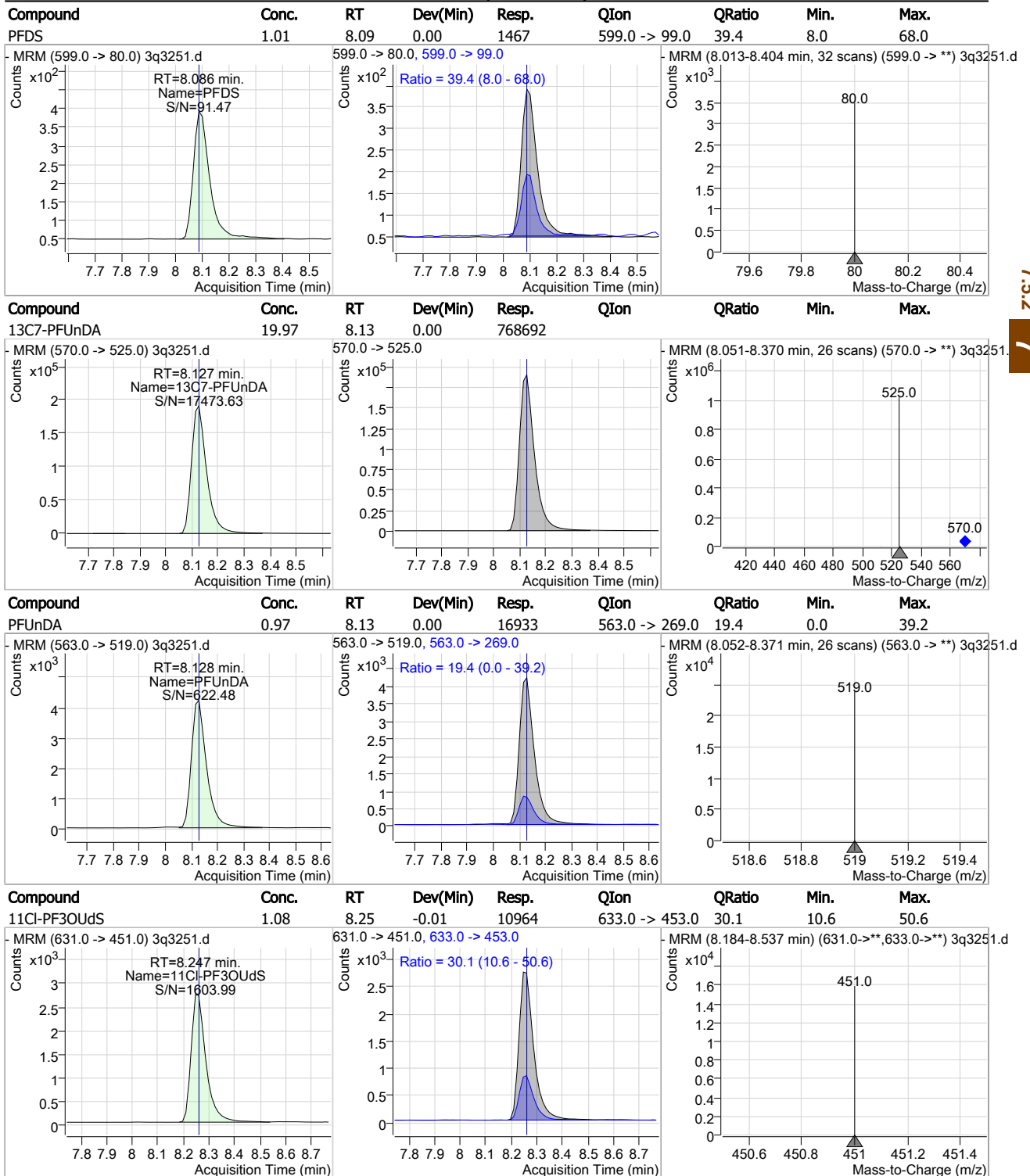


7.5.2
7

Cal Report:

3Q3251.D

Perfluorinated Compounds by LC/MS/MS

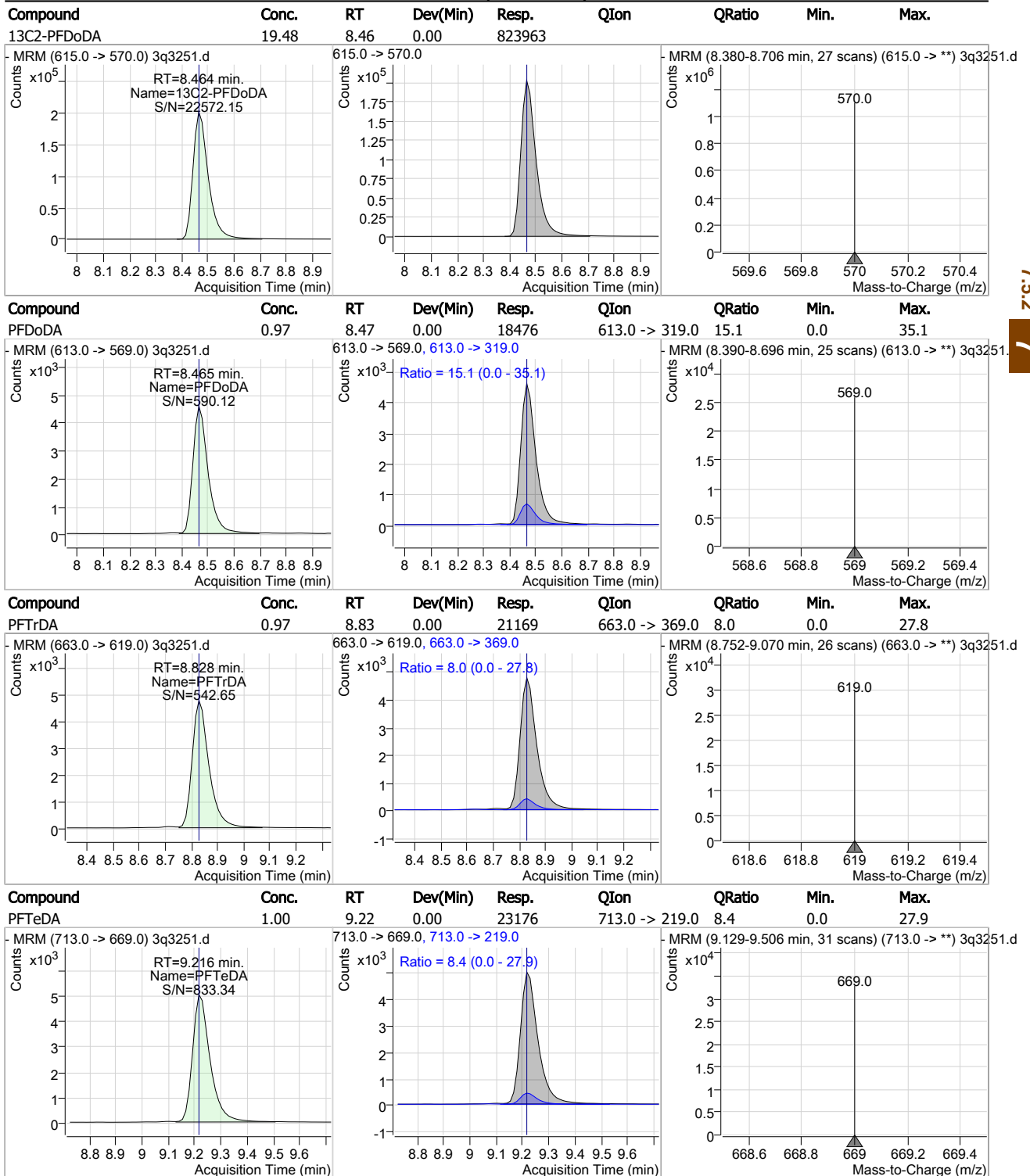


7.5.2
7

Cal Report:

3Q3251.D

Perfluorinated Compounds by LC/MS/MS



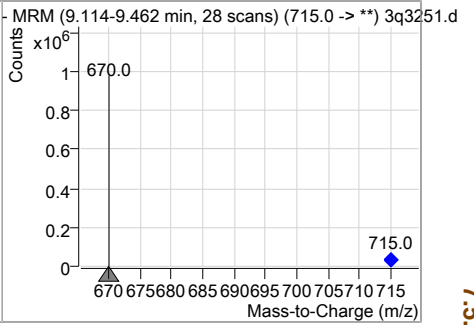
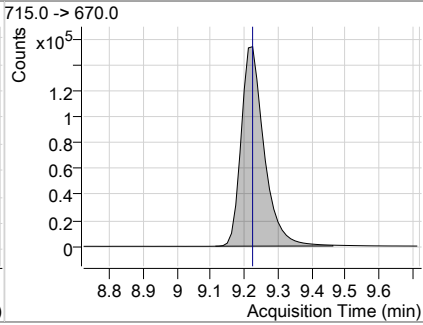
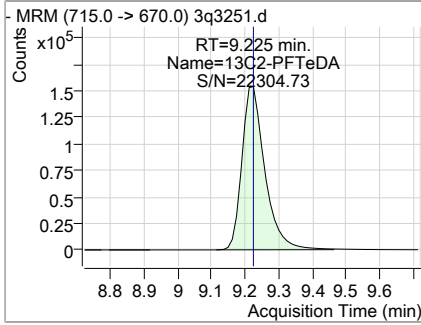
7.5.2
7

Cal Report:

3Q3251.D

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.46	9.22	0.00	727322				



7.5.2
7



Manual Integration Approval Summary

Sample Number: S3Q83-IC83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3251.D **Analyst approved:** 04/26/19 09:23 Natasha Gumtie
Injection Time: 04/25/19 09:01 **Supervisor approved:** 04/26/19 16:14 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.97	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.24	Split peak

7.5.2.1



Cal Report:

3Q3252.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:14

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3252.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 9:16:54 AM
 Sample Name : ic83-2
 Vial : P3-A4
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74632,S3Q83,125,,,1.0,1,water

Compound	RT	QI on	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.714	217.0 -> 172.0	353428	20.00 µg/L	-0.013
M5-PFPeA	3.573	268.0 -> 223.0	253863	20.00 µg/L	-0.013
M5-PFHxA	4.988	318.0 -> 273.0	386297	20.00 µg/L	0.012
M4-PFHpA	5.928	367.0 -> 322.0	470175	20.00 µg/L	0.011
M8-PFOA	6.656	421.0 -> 376.0	511798	20.00 µg/L	0.012
M9-PFNA	7.264	472.0 -> 427.0	528931	20.00 µg/L	0.012
M6-PFDA	7.738	519.0 -> 474.0	653627	20.00 µg/L	-0.002
M7-PFUnDA	8.127	570.0 -> 525.0	808672	20.00 µg/L	0.000
M2-PFDoDA	8.464	615.0 -> 570.0	874989	20.00 µg/L	-0.001
M2-PFTeDA	9.225	715.0 -> 670.0	773893	20.00 µg/L	0.000
M8-FOSA	7.298	506.0 -> 78.0	265034	20.00 µg/L	0.000
M3-PFBS	3.892	302.0 -> 99.0	52753	20.00 µg/L	0.000
M3-PFHxS	5.972	402.0 -> 99.0	56398	20.00 µg/L	0.000
M8-PFOS	7.247	507.0 -> 99.0	92197	20.00 µg/L	0.012
M2-4:2FTS	4.883	329.0 -> 309.0	141522	20.00 µg/L	0.012
M2-6:2FTS	6.639	429.0 -> 409.0	186524	20.00 µg/L	0.000
M2-8:2FTS	7.763	529.0 -> 509.0	150208	20.00 µg/L	0.000
M3-MeFOSAA	7.732	573.0 -> 419.0	90444	20.00 µg/L	-0.001
M3-HFPO-DA	5.280	287.0 -> 169.0	222530	100.00 µg/L	0.000
13C2-PFOA	6.658	415.0 -> 370.0	639874	20.00 µg/L	0.012
13C4-PFOS	7.249	503.0 -> 80.0	152113	20.00 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	4.883	329.0 -> 309.0	141132	19.42 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C2-6:2FTS	6.639	429.0 -> 409.0	186145	19.78 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C2-8:2FTS	7.763	529.0 -> 509.0	149531	19.58 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C2-PFDoDA	8.464	615.0 -> 570.0	874935	20.68 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C2-PFTeDA	9.225	715.0 -> 670.0	774112	20.71 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C3-PFBS	3.892	302.0 -> 99.0	51806	20.87 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C3-PFHxS	5.972	402.0 -> 99.0	56217	20.97 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C4-PFBA	1.714	217.0 -> 172.0	353060	20.88 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C4-PFHpA	5.928	367.0 -> 322.0	466589	20.75 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C5-PFHxA	4.988	318.0 -> 273.0	382465	20.79 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFPeA	3.573	268.0 -> 223.0	256118	20.68 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C6-PFDA	7.738	519.0 -> 474.0	649792	20.99 µg/L	-0.002

7.5.3
7

Cal Report:

3Q3252.D

Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)	QValue
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.0%		
13C7-PFUnDA	8.127	570.0 -> 525.0	808633	21.00 µg/L	0.000	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.0%		
13C8-FOSA	7.298	506.0 -> 78.0	265401	21.52 µg/L	0.000	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.6%		
13C8-PFOA	6.656	421.0 -> 376.0	508937	21.04 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.2%		
13C8-PFOS	7.247	507.0 -> 99.0	91705	20.92 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.6%		
13C9-PFNA	7.264	472.0 -> 427.0	527377	21.03 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.1%		
d3-MeFOSAA	7.732	573.0 -> 419.0	90472	21.09 µg/L	-0.001	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.4%		
13C3-HFPO-DA	5.280	287.0 -> 169.0	222530	105.85 µg/L	0.000	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 105.8%		
M2-PFOA	6.658	415.0 -> 370.0	639874	20.00 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.249	503.0 -> 80.0	152113	20.00 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						
4:2FTS	4.873	327.0 -> 307.0	8836	2.10 µg/L	100	
6:2FTS	6.641	427.0 -> 407.0	9673	2.07 µg/L	99	
8:2FTS	7.763	527.0 -> 507.0	8822	2.22 µg/L	94	
EtFOSAA	7.872	584.0 -> 419.0	3836	1.67 µg/L	89	
FOSA	7.300	498.0 -> 78.0	12418	1.98 µg/L	98	
MeFOSAA	7.733	570.0 -> 419.0	4936	2.02 µg/L	97	
PFBA	1.723	213.0 -> 169.0	6417	1.95 µg/L	100	
PFBS	3.895	299.0 -> 80.0	7013	1.97 µg/L	99	
PFDA	7.738	513.0 -> 469.0	30654	1.91 µg/L	100	
PFDoDA	8.465	613.0 -> 569.0	38291	1.90 µg/L	99	
PFDS	8.086	599.0 -> 80.0	3149	2.07 µg/L	99	
PFHpA	5.930	363.0 -> 319.0	43839	1.95 µg/L	99	
PFHpS	6.662	449.0 -> 80.0	6176	2.00 µg/L	98	
PFHxA	4.977	313.0 -> 269.0	13828	1.91 µg/L	99	
PFHxS	5.974	399.0 -> 80.0	6310	1.92 µg/L	m 100	
PFNA	7.264	463.0 -> 419.0	33230	1.92 µg/L	100	
PFNS	7.710	549.0 -> 80.0	5651	1.97 µg/L	91	
PFOA	6.660	413.0 -> 369.0	27092	1.90 µg/L	98	
PFOS	7.249	499.0 -> 80.0	8722	1.98 µg/L	m 98	
PFPeA	3.577	263.0 -> 219.0	25459	1.93 µg/L	100	
PFPeS	5.119	349.0 -> 80.0	4478	1.94 µg/L	94	
PFTeDA	9.216	713.0 -> 669.0	47151	1.92 µg/L	99	
PFTrDA	8.828	663.0 -> 619.0	43900	1.90 µg/L	100	
PFUnDA	8.128	563.0 -> 519.0	34958	1.91 µg/L	100	
11Cl-PF3OUdS	8.260	631.0 -> 451.0	21616	2.00 µg/L	99	
9Cl-PF3ONS	7.508	531.0 -> 351.0	4992	1.99 µg/L	99	
ADONA	6.027	377.0 -> 251.0	55589	1.93 µg/L	100	
HFPO-DA	5.284	329.0 -> 169.0	33751	9.72 µg/L	99	

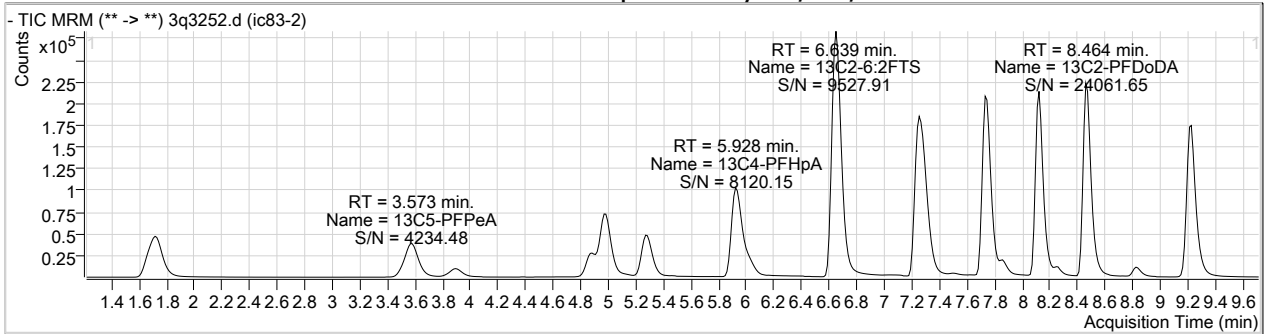
7.5.3
7

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

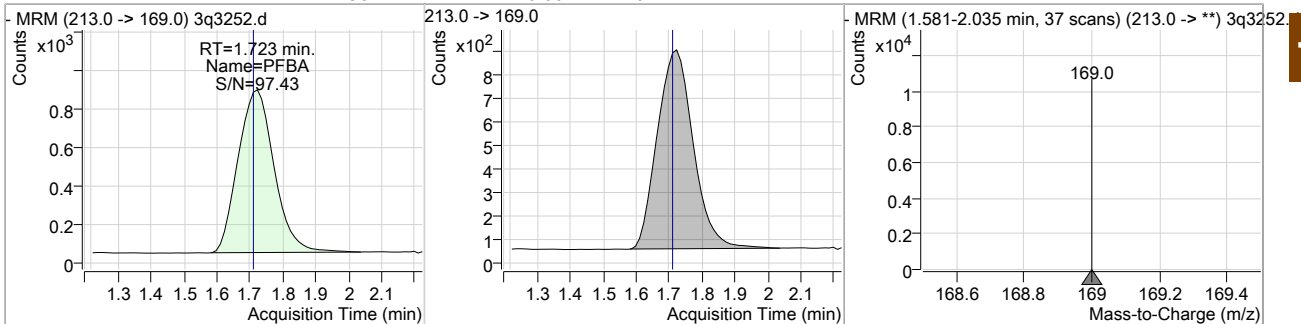
Cal Report:

3Q3252.D

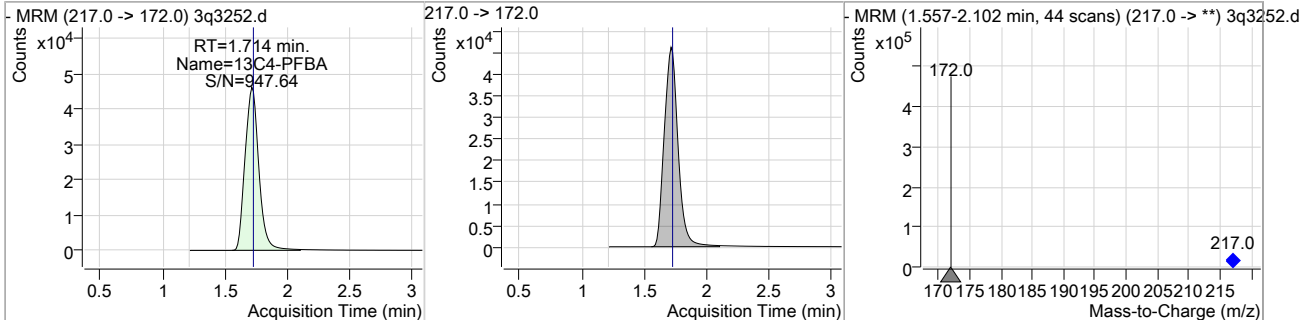
Perfluorinated Compounds by LC/MS/MS



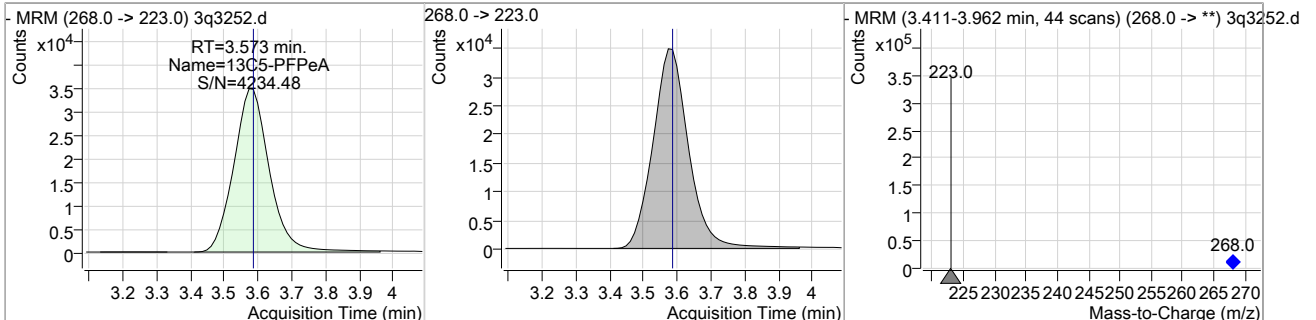
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.95	1.72	0.00	6417				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.88	1.71	-0.01	353060				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.68	3.57	-0.01	256118				



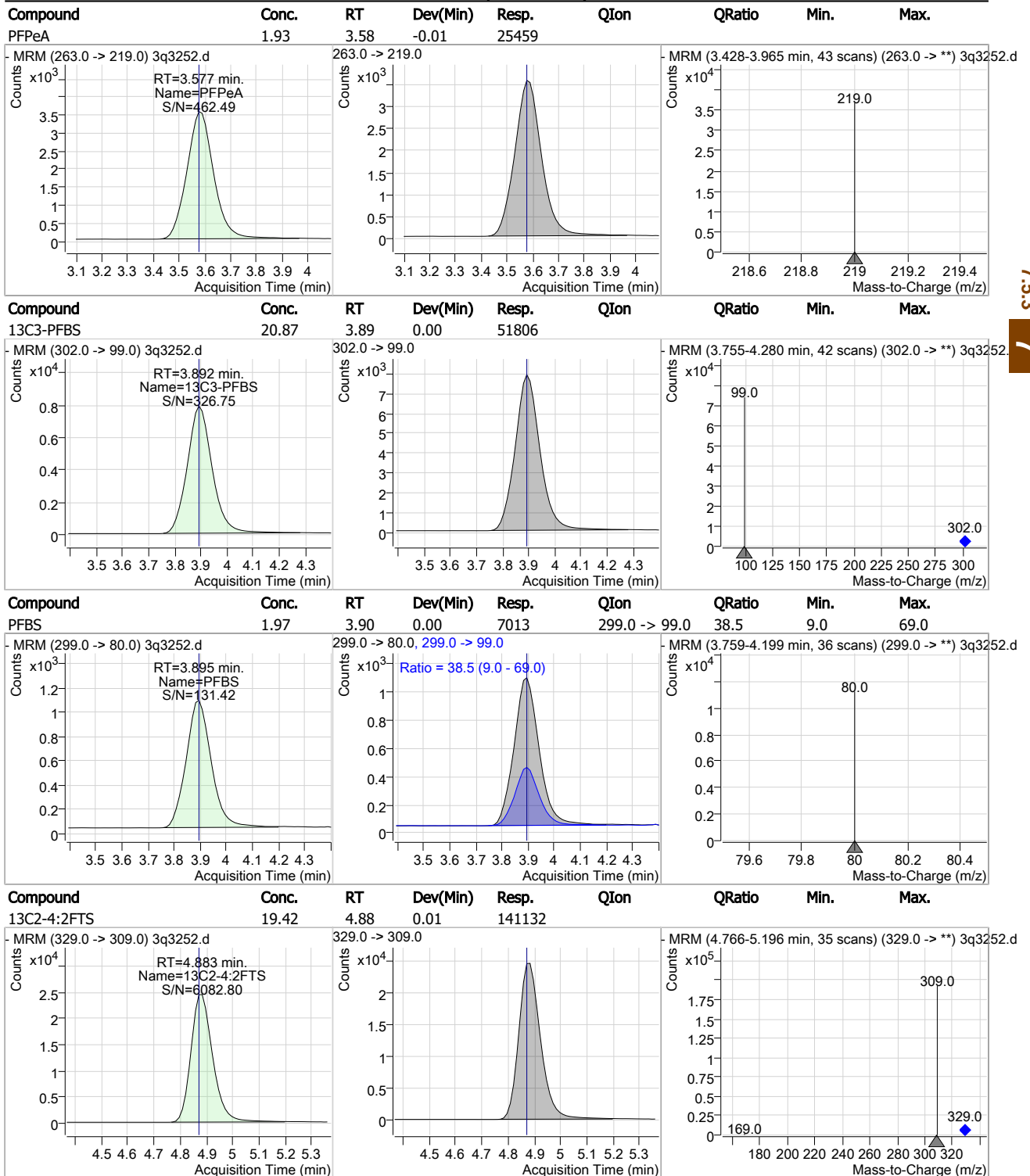
7.5.3

7

Cal Report:

3Q3252.D

Perfluorinated Compounds by LC/MS/MS



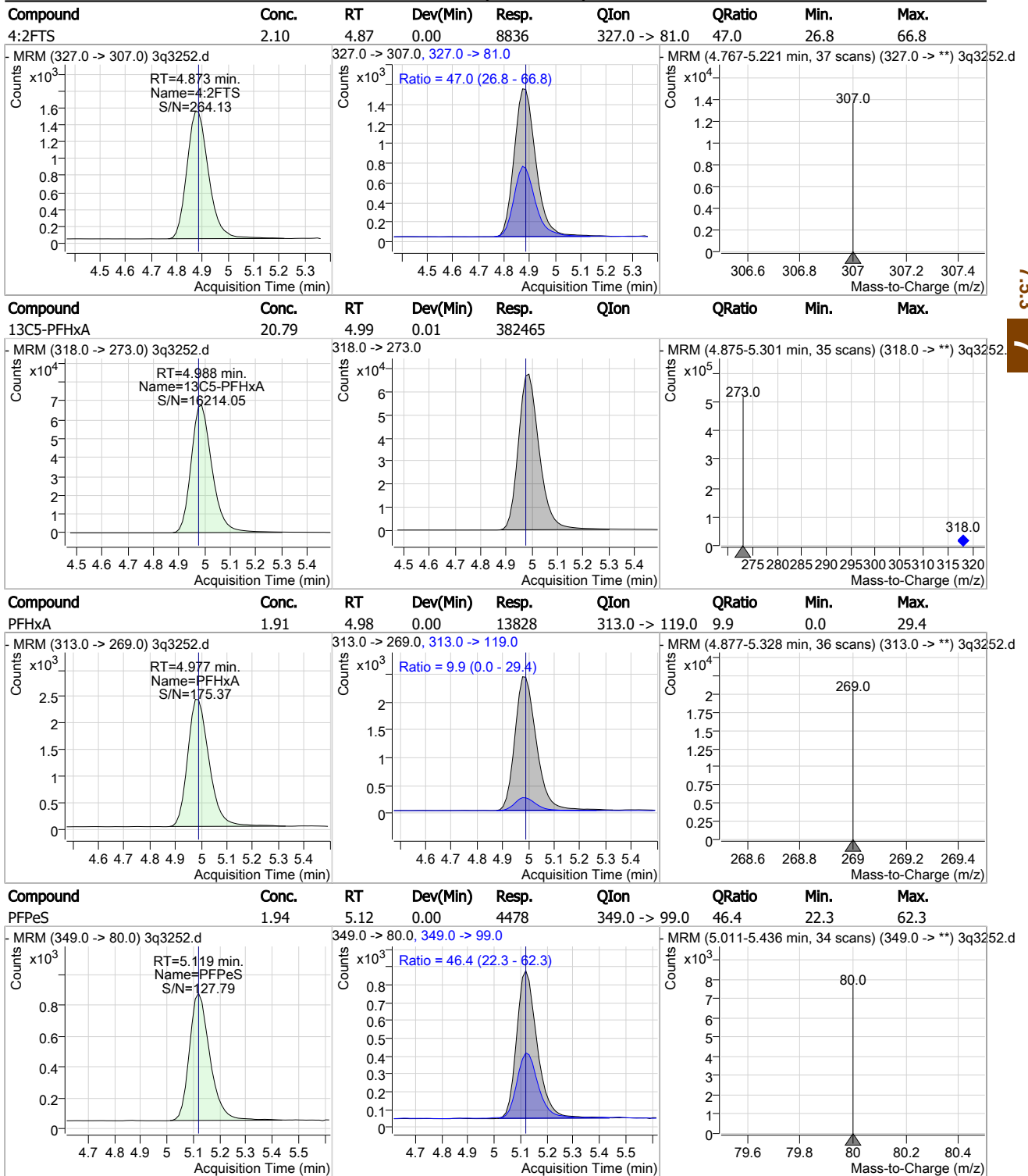
7.5.3

7

Cal Report:

3Q3252.D

Perfluorinated Compounds by LC/MS/MS



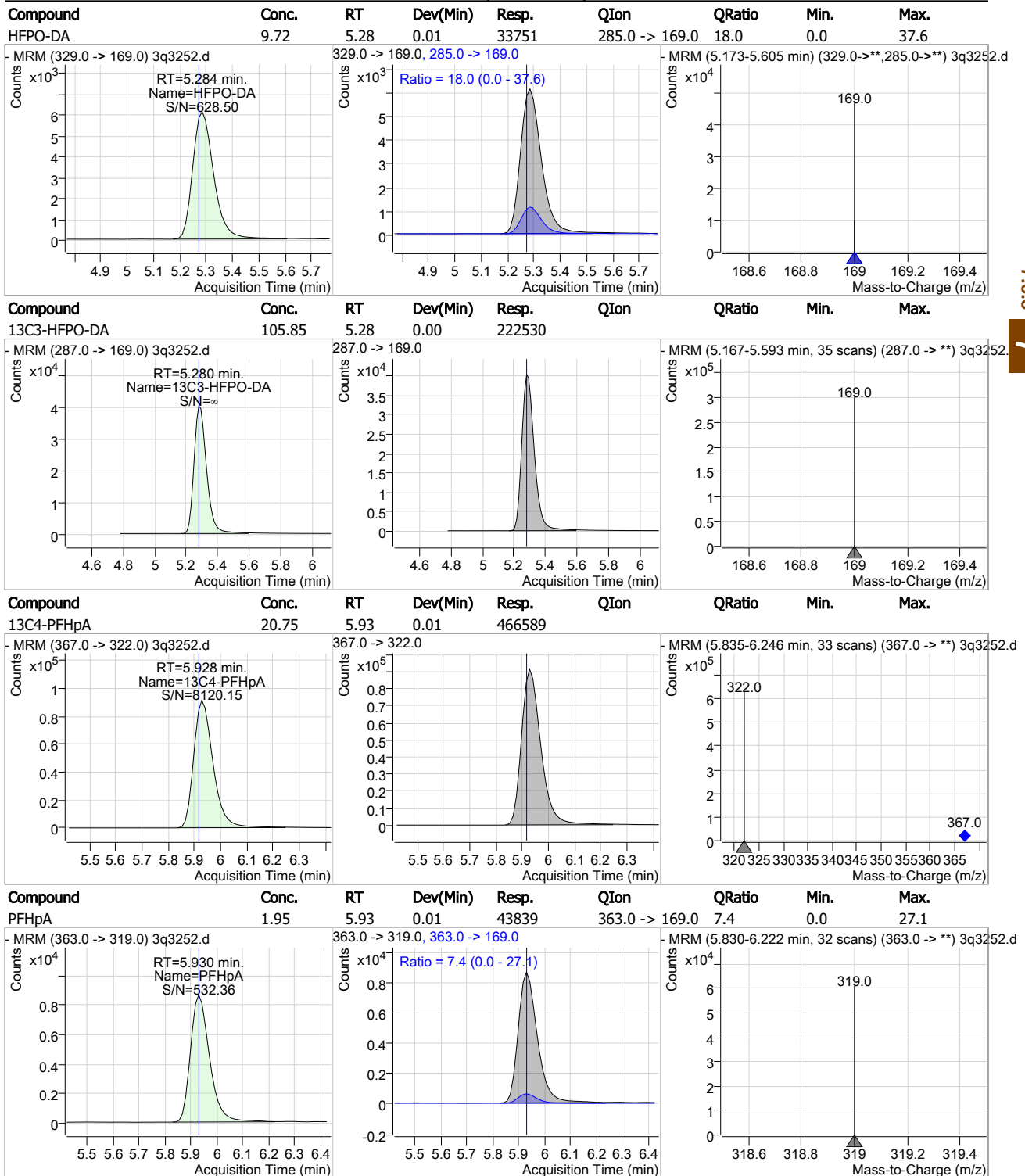
7.5.3

7

Cal Report:

3Q3252.D

Perfluorinated Compounds by LC/MS/MS

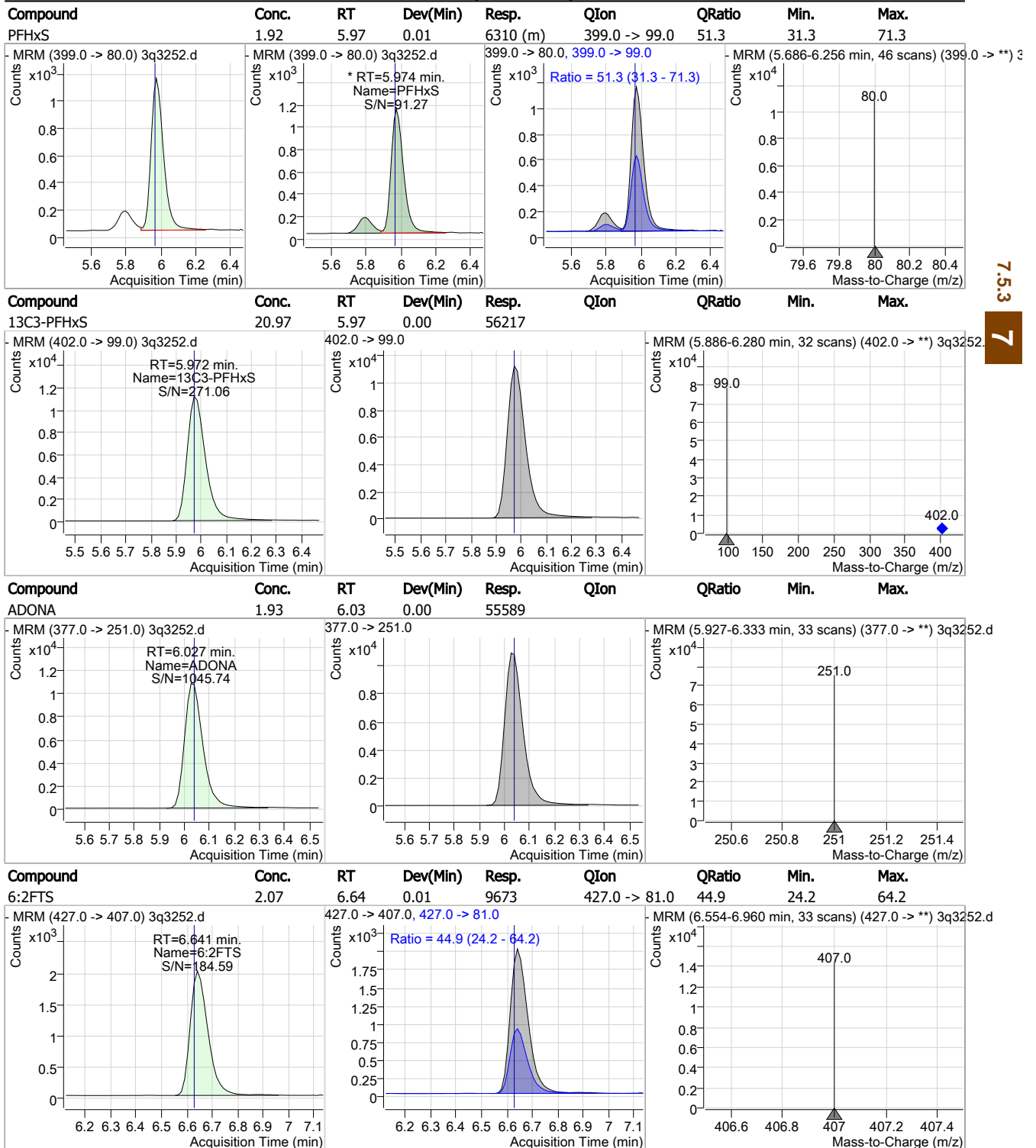


7.5.3
7

Cal Report:

3Q3252.D

Perfluorinated Compounds by LC/MS/MS



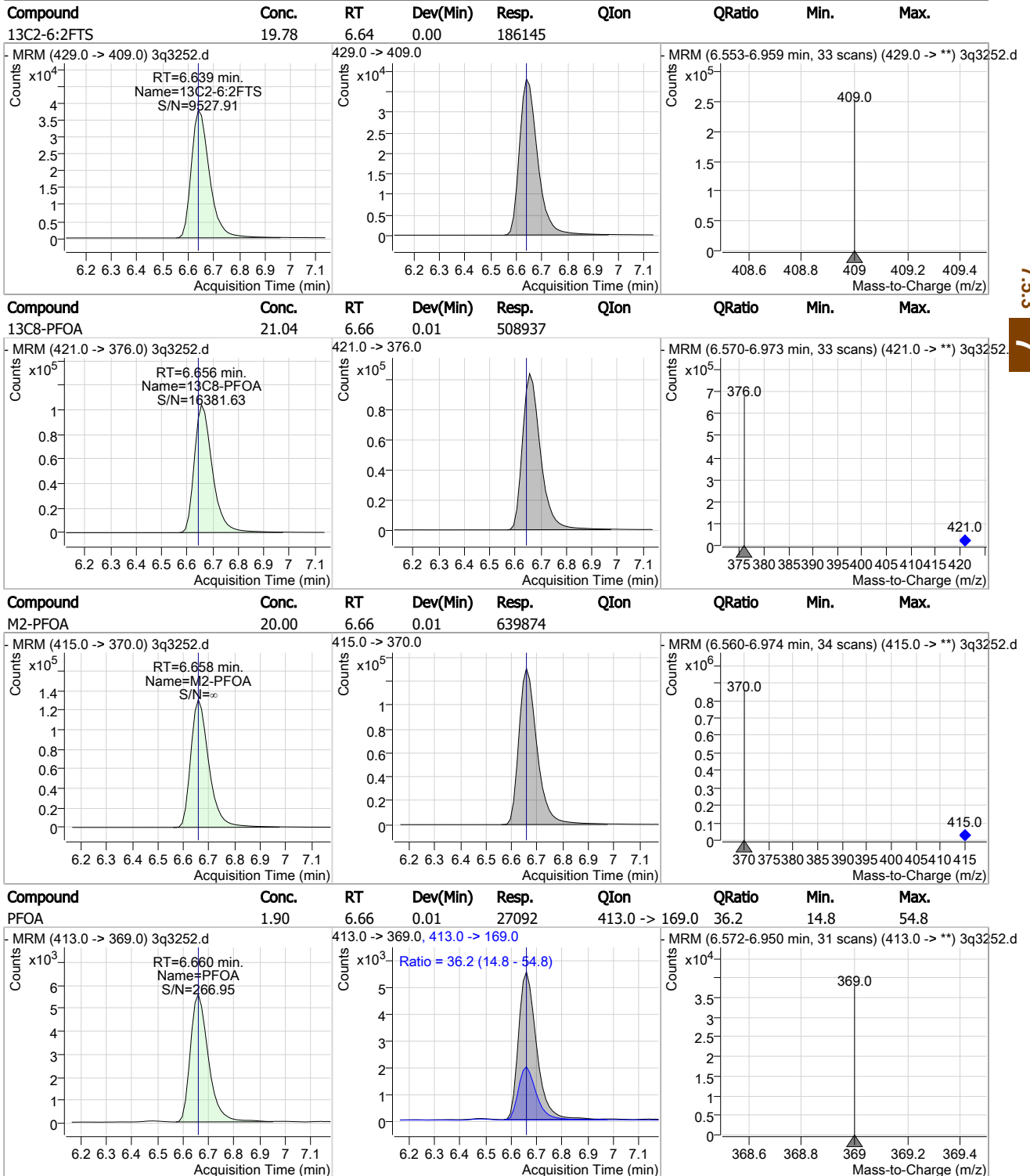
7.5.3

7

Cal Report:

3Q3252.D

Perfluorinated Compounds by LC/MS/MS

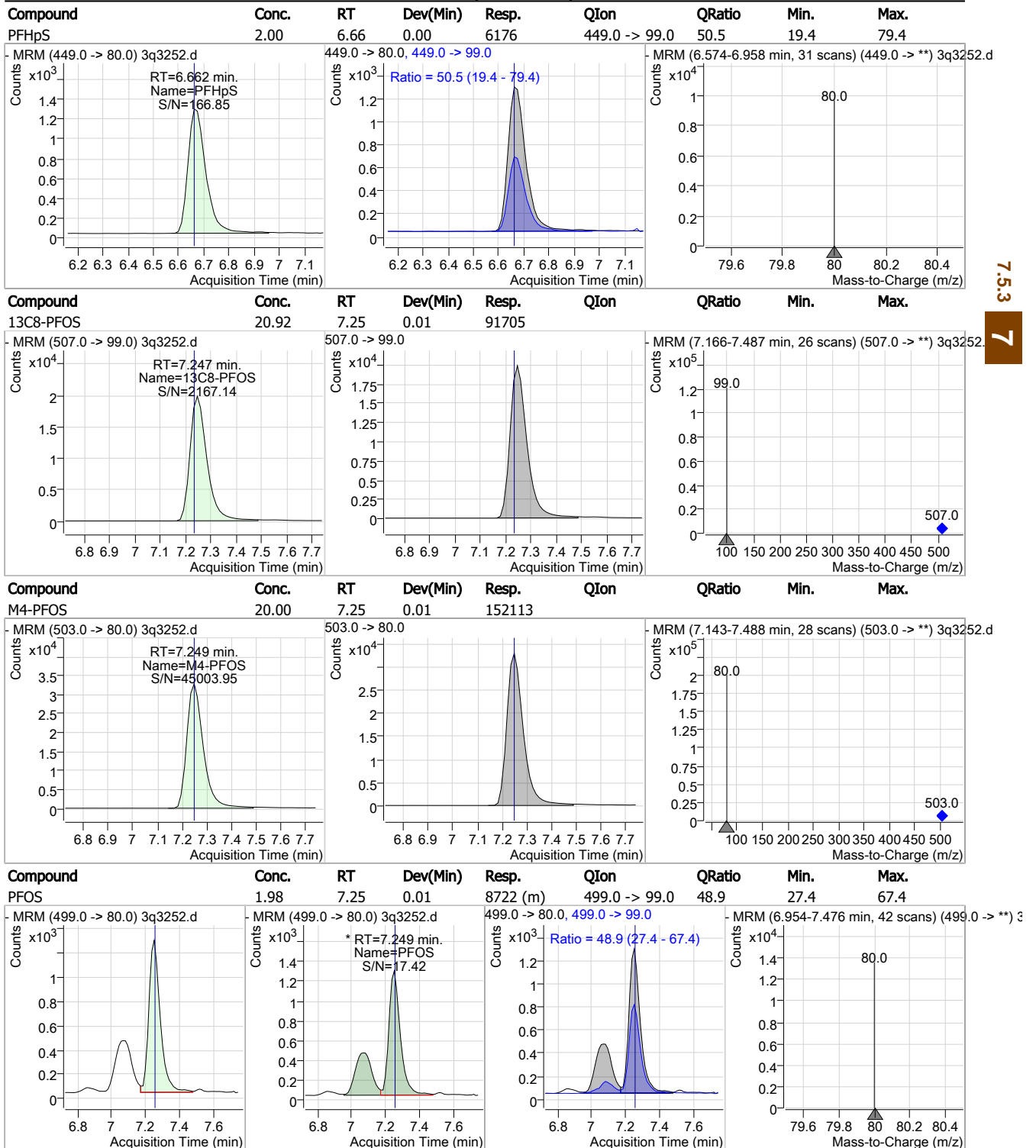


7.5.3
7

Cal Report:

3Q3252.D

Perfluorinated Compounds by LC/MS/MS

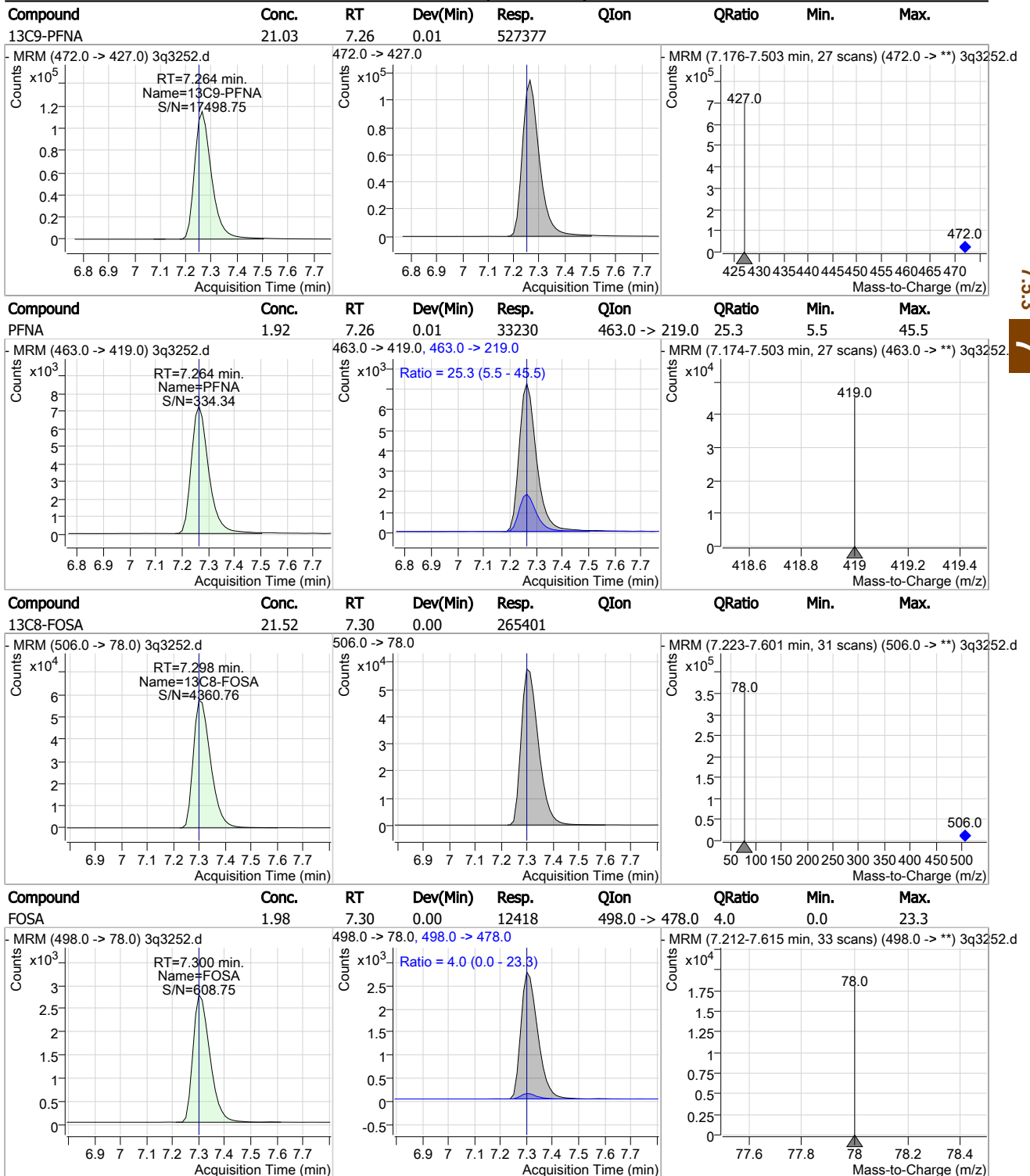


7.5.3
7

Cal Report:

3Q3252.D

Perfluorinated Compounds by LC/MS/MS



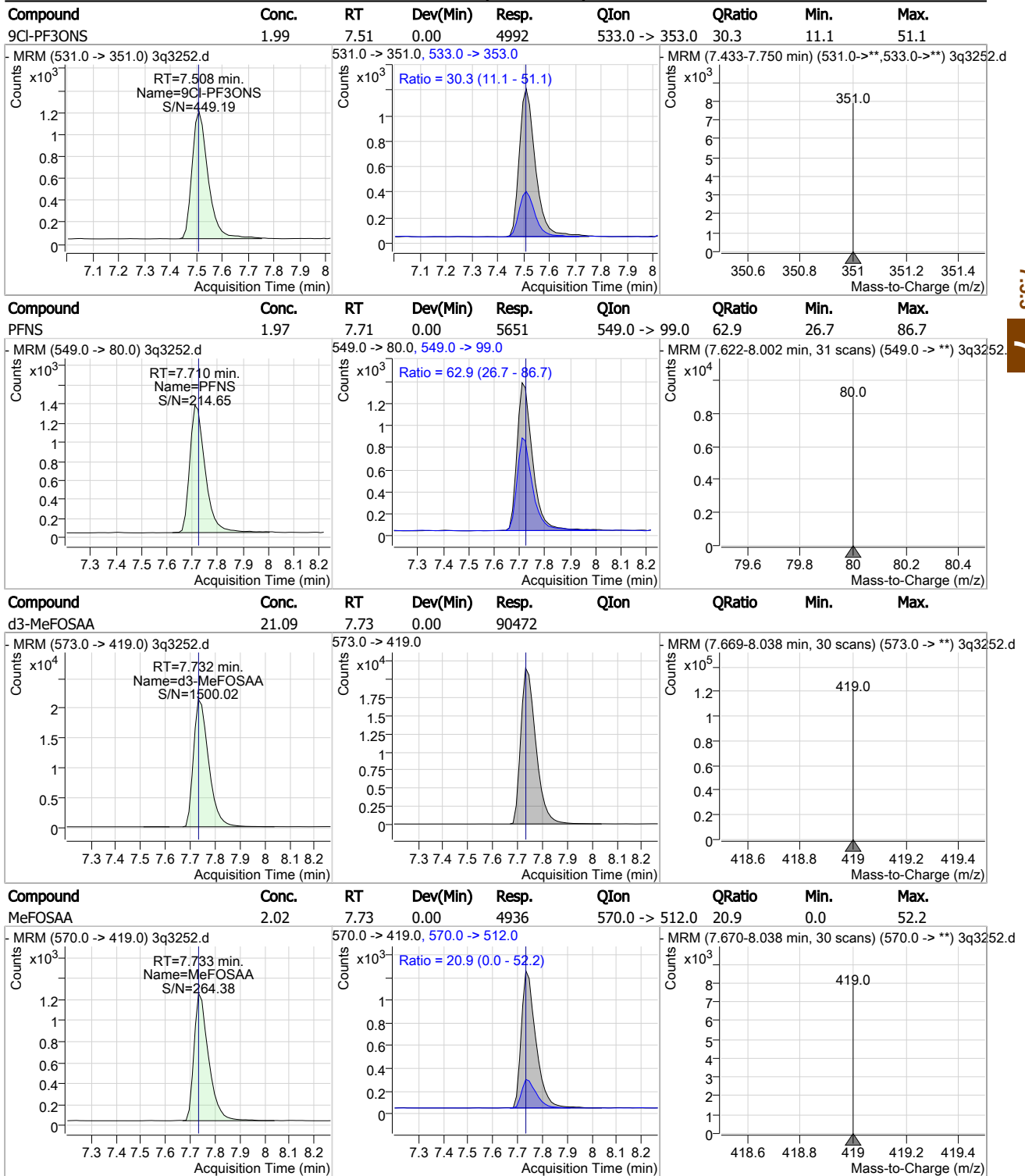
7.5.3

7

Cal Report:

3Q3252.D

Perfluorinated Compounds by LC/MS/MS



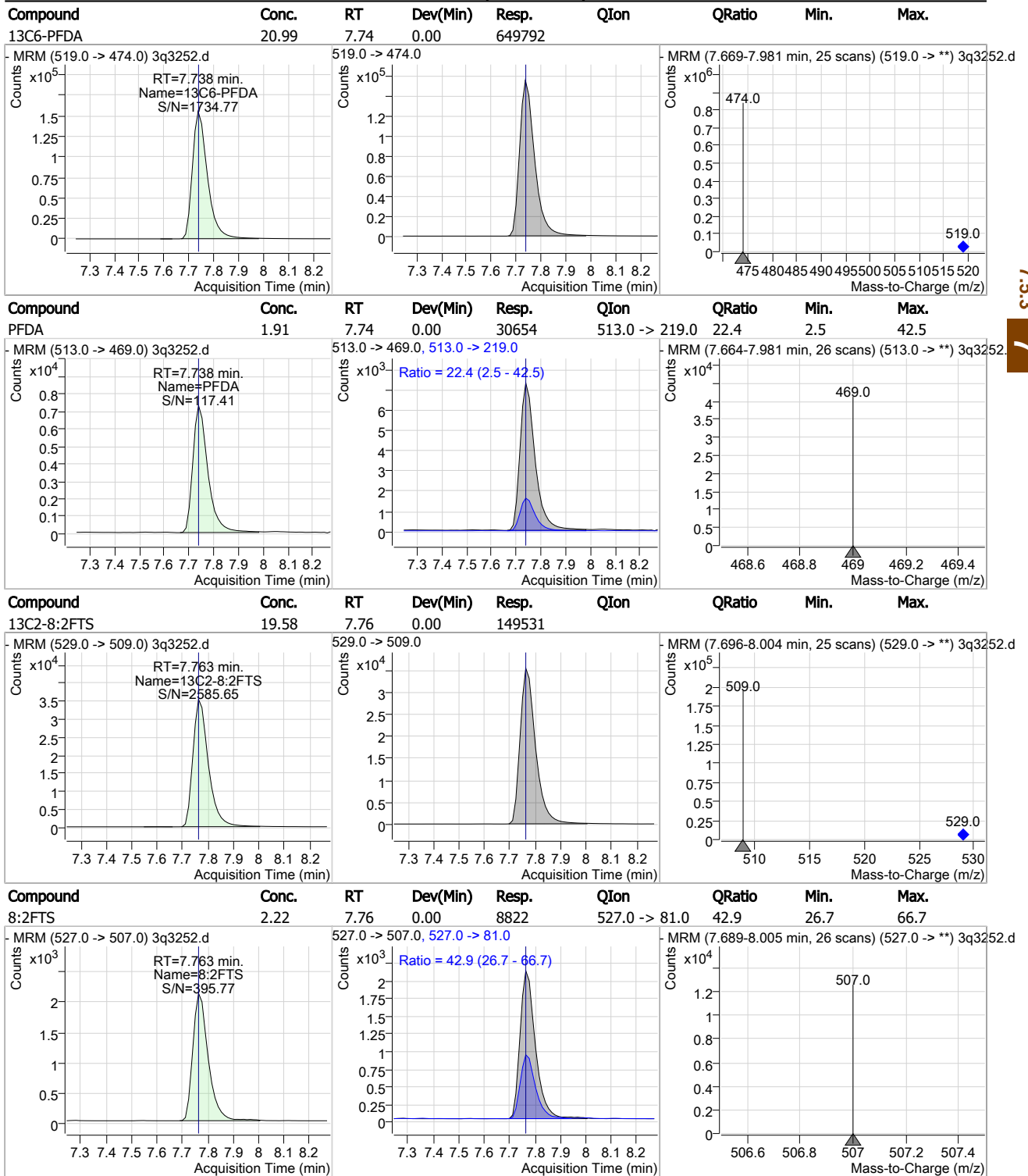
7.5.3

7

Cal Report:

3Q3252.D

Perfluorinated Compounds by LC/MS/MS

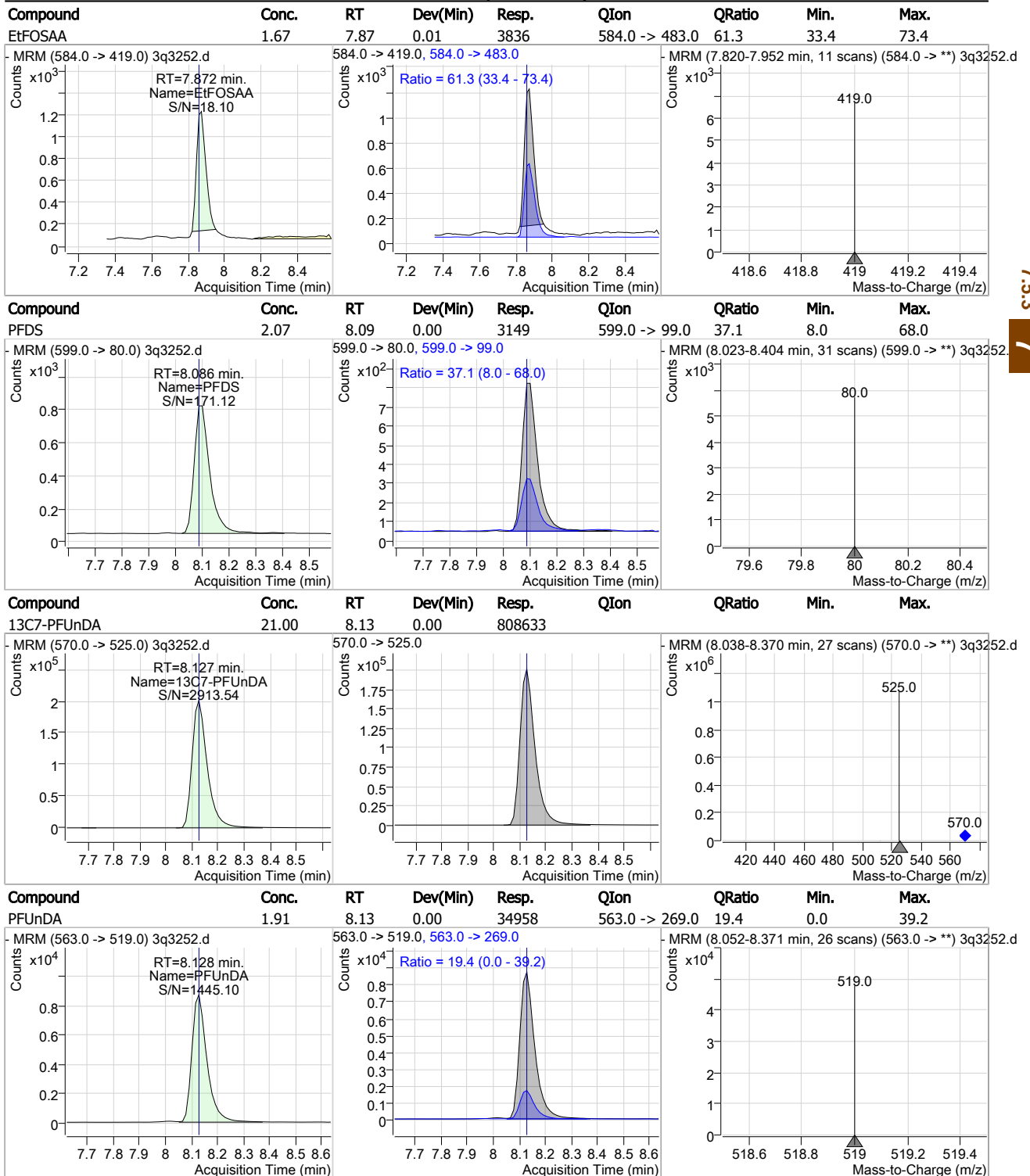


7.5.3
7

Cal Report:

3Q3252.D

Perfluorinated Compounds by LC/MS/MS

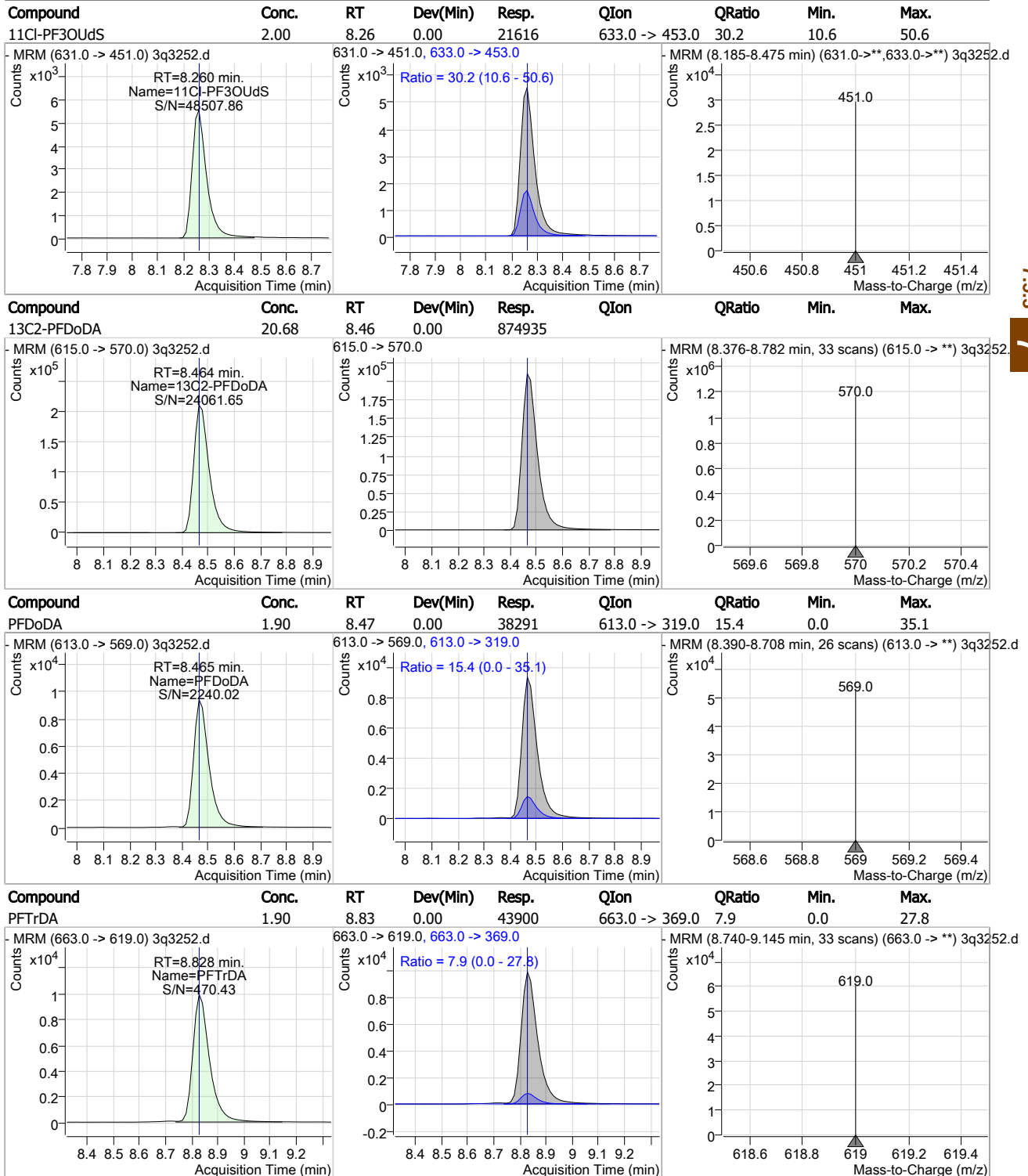


7.5.3
7

Cal Report:

3Q3252.D

Perfluorinated Compounds by LC/MS/MS



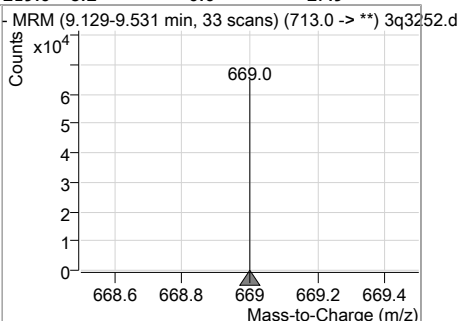
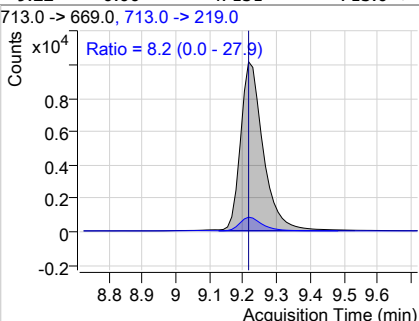
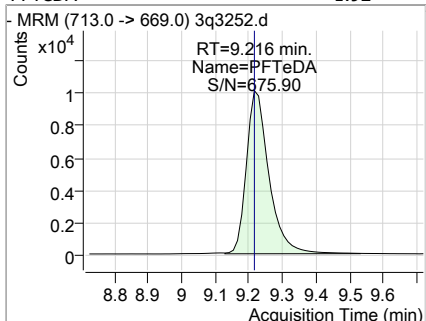
7.5.3
7

Cal Report:

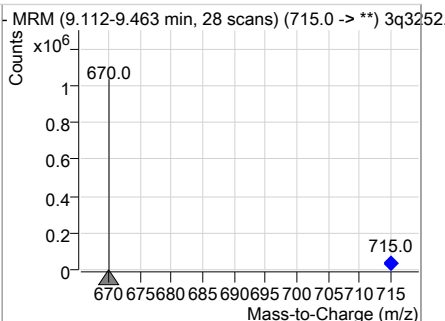
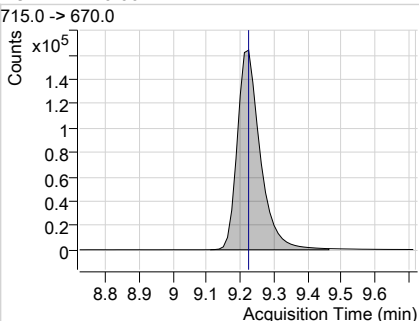
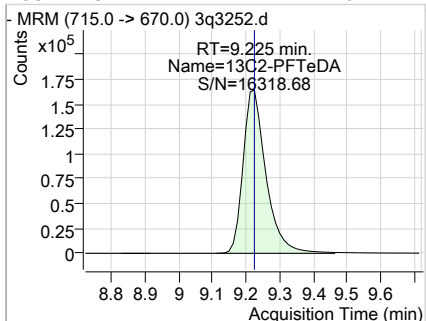
3Q3252.D

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.92	9.22	0.00	47151	713.0 -> 219.0	8.2	0.0	27.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.71	9.22	0.00	774112				



7.5.3
7

Manual Integration Approval Summary

Sample Number: S3Q83-IC83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3252.D **Analyst approved:** 04/26/19 09:23 Natasha Gumtie
Injection Time: 04/25/19 09:16 **Supervisor approved:** 04/26/19 16:14 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.97	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.25	Split peak

7.5.3.1

7

Cal Report:

3Q3253.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:14

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3253.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 9:32:32 AM
 Sample Name : ic83-5
 Vial : P3-A5
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74632,S3Q83,125,,,1.0,1,water

Compound	RT	QI on	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.714	217.0 -> 172.0	340786	20.00 µg/L	-0.013
M5-PFPeA	3.586	268.0 -> 223.0	248143	20.00 µg/L	0.000
M5-PFHxA	4.988	318.0 -> 273.0	373627	20.00 µg/L	0.012
M4-PFHpA	5.928	367.0 -> 322.0	458767	20.00 µg/L	0.011
M8-PFOA	6.656	421.0 -> 376.0	496622	20.00 µg/L	0.012
M9-PFNA	7.264	472.0 -> 427.0	509822	20.00 µg/L	0.012
M6-PFDA	7.738	519.0 -> 474.0	636303	20.00 µg/L	-0.002
M7-PFUnDA	8.127	570.0 -> 525.0	786165	20.00 µg/L	0.000
M2-PFDoDA	8.464	615.0 -> 570.0	860505	20.00 µg/L	-0.001
M2-PFTeDA	9.212	715.0 -> 670.0	757417	20.00 µg/L	-0.012
M8-FOSA	7.298	506.0 -> 78.0	257453	20.00 µg/L	0.000
M3-PFBS	3.892	302.0 -> 99.0	50302	20.00 µg/L	0.000
M3-PFHxS	5.972	402.0 -> 99.0	54320	20.00 µg/L	0.000
M8-PFOS	7.247	507.0 -> 99.0	87929	20.00 µg/L	0.012
M2-4:2FTS	4.883	329.0 -> 309.0	138890	20.00 µg/L	0.012
M2-6:2FTS	6.639	429.0 -> 409.0	182825	20.00 µg/L	0.000
M2-8:2FTS	7.763	529.0 -> 509.0	148462	20.00 µg/L	0.000
M3-MeFOSAA	7.732	573.0 -> 419.0	87486	20.00 µg/L	-0.001
M3-HFPO-DA	5.280	287.0 -> 169.0	220604	100.00 µg/L	0.000
13C2-PFOA	6.658	415.0 -> 370.0	659148	20.00 µg/L	0.012
13C4-PFOS	7.249	503.0 -> 80.0	154540	20.00 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	4.883	329.0 -> 309.0	137955	18.98 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C2-6:2FTS	6.639	429.0 -> 409.0	182961	19.44 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C2-8:2FTS	7.763	529.0 -> 509.0	147866	19.37 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C2-PFDoDA	8.464	615.0 -> 570.0	859885	20.33 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C2-PFTeDA	9.212	715.0 -> 670.0	757562	20.27 µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C3-PFBS	3.892	302.0 -> 99.0	49900	20.10 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C3-PFHxS	5.972	402.0 -> 99.0	54351	20.27 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C4-PFBA	1.714	217.0 -> 172.0	340502	20.13 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	5.928	367.0 -> 322.0	455279	20.25 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C5-PFHxA	4.988	318.0 -> 273.0	372539	20.25 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C5-PFPeA	3.586	268.0 -> 223.0	248214	20.05 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C6-PFDA	7.738	519.0 -> 474.0	635572	20.53 µg/L	-0.002

7.5.4
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Cal Report:

3Q3253.D

Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)	QValue
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%		
13C7-PFUnDA	8.127	570.0 -> 525.0	786492	20.43 µg/L	0.000	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C8-FOSA	7.298	506.0 -> 78.0	257639	20.89 µg/L	0.000	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.5%		
13C8-PFOA	6.656	421.0 -> 376.0	496805	20.54 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%		
13C8-PFOS	7.247	507.0 -> 99.0	87844	20.04 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
13C9-PFNA	7.264	472.0 -> 427.0	509127	20.30 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%		
d3-MeFOSAA	7.732	573.0 -> 419.0	87473	20.39 µg/L	-0.001	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C3-HFPO-DA	5.280	287.0 -> 169.0	220604	104.93 µg/L	0.000	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 104.9%		
M2-PFOA	6.658	415.0 -> 370.0	659148	20.00 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.249	503.0 -> 80.0	154540	20.00 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						QValue
4:2FTS	4.873	327.0 -> 307.0	20799	5.04 µg/L		100
6:2FTS	6.641	427.0 -> 407.0	23046	5.03 µg/L		97
8:2FTS	7.763	527.0 -> 507.0	19339	4.93 µg/L		99
EtFOSAA	7.872	584.0 -> 419.0	10328	4.66 µg/L		97
FOSA	7.300	498.0 -> 78.0	29778	4.89 µg/L		100
MeFOSAA	7.733	570.0 -> 419.0	11939	5.05 µg/L		96
PFBA	1.723	213.0 -> 169.0	15004	4.73 µg/L		100
PFBS	3.895	299.0 -> 80.0	16589	4.89 µg/L		99
PFDA	7.738	513.0 -> 469.0	73406	4.70 µg/L		100
PFDoDA	8.465	613.0 -> 569.0	92548	4.68 µg/L		99
PFDS	8.086	599.0 -> 80.0	6886	4.66 µg/L		96
PFHpA	5.930	363.0 -> 319.0	102707	4.68 µg/L		100
PFHpS	6.662	449.0 -> 80.0	14175	4.76 µg/L		97
PFHxA	4.990	313.0 -> 269.0	33134	4.73 µg/L		100
PFHxS	5.974	399.0 -> 80.0	14821	4.69 µg/L	m	100
PFNA	7.264	463.0 -> 419.0	79410	4.77 µg/L		100
PFNS	7.710	549.0 -> 80.0	13821	5.05 µg/L		98
PFOA	6.660	413.0 -> 369.0	64535	4.66 µg/L		99
PFOS	7.249	499.0 -> 80.0	19926	4.75 µg/L	m	99
PFPeA	3.577	263.0 -> 219.0	60619	4.70 µg/L		100
PFPeS	5.119	349.0 -> 80.0	10849	4.92 µg/L		97
PFTeDA	9.216	713.0 -> 669.0	112789	4.68 µg/L		99
PFTrDA	8.828	663.0 -> 619.0	106484	4.70 µg/L		100
PFUnDA	8.128	563.0 -> 519.0	82874	4.66 µg/L		100
11Cl-PF3OUdS	8.260	631.0 -> 451.0	50656	4.76 µg/L		100
9Cl-PF3ONS	7.508	531.0 -> 351.0	11554	4.72 µg/L		99
ADONA	6.027	377.0 -> 251.0	133137	4.77 µg/L		100
HFPO-DA	5.284	329.0 -> 169.0	81408	23.66 µg/L		99

7.5.4
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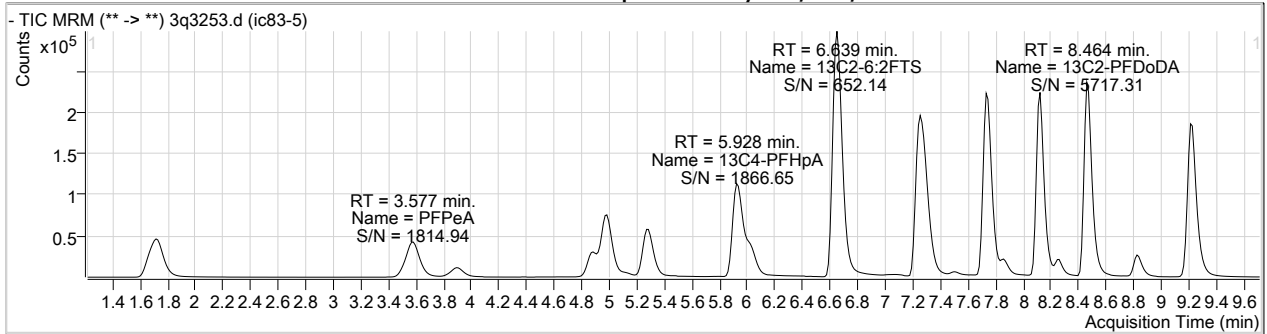
= Qualifier out of range, m = manually integrated, + = Area summed



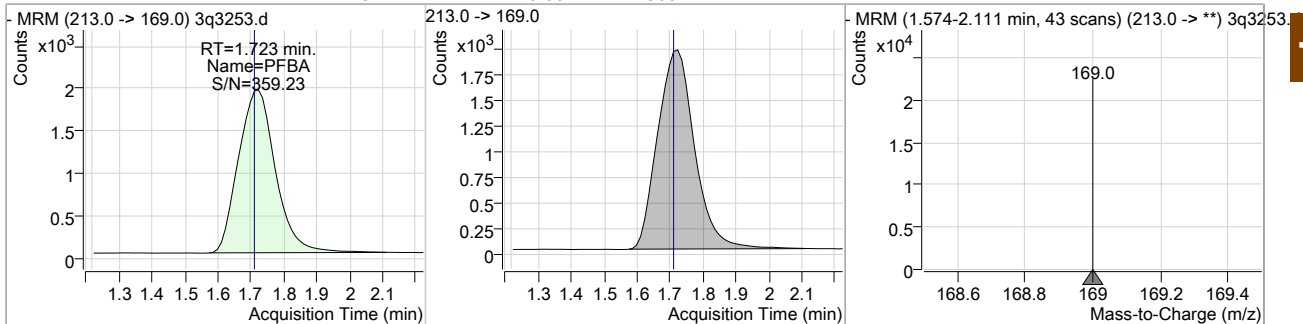
Cal Report:

3Q3253.D

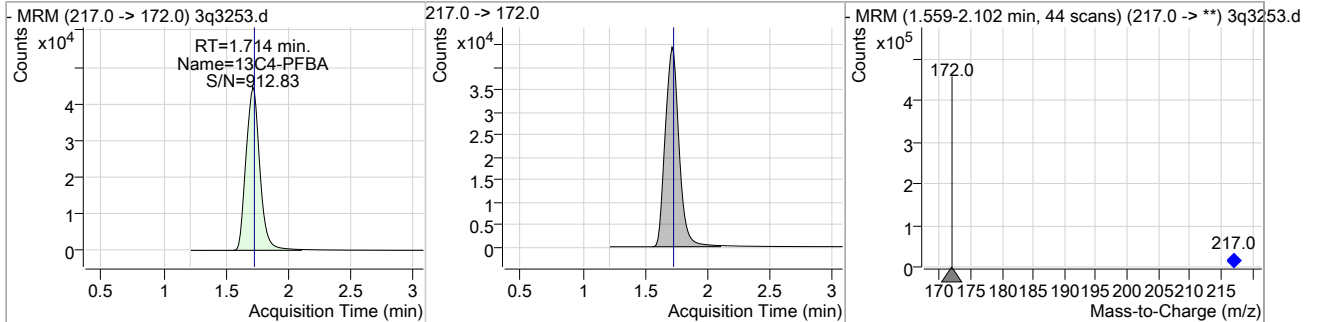
Perfluorinated Compounds by LC/MS/MS



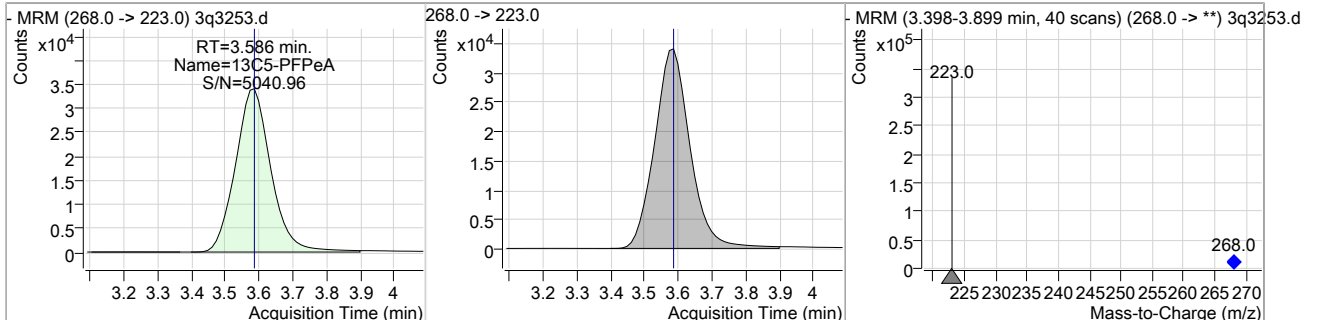
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	4.73	1.72	0.00	15004				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.13	1.71	-0.01	340502				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.05	3.59	0.00	248214				



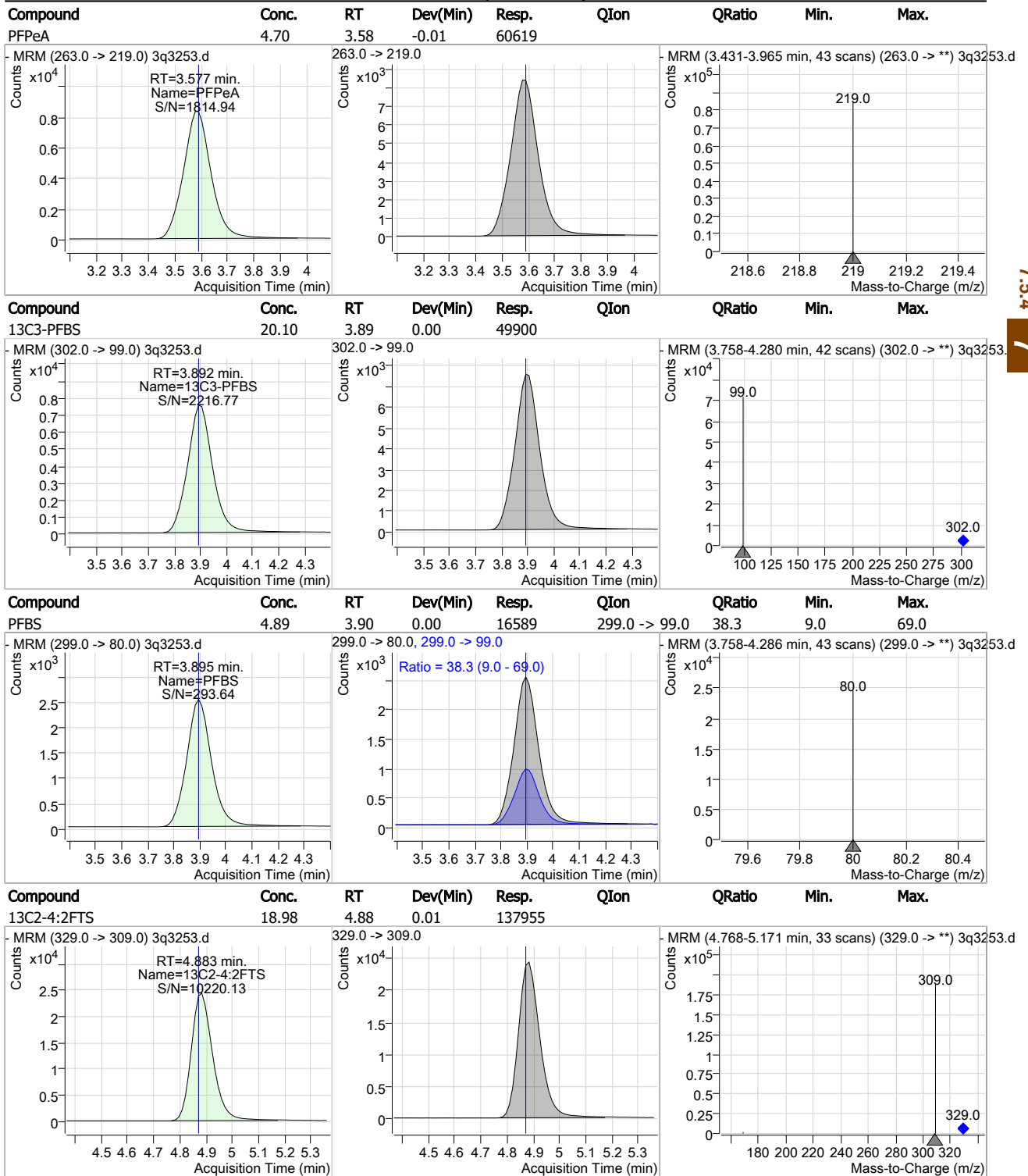
7.5.4

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Cal Report:

3Q3253.D

Perfluorinated Compounds by LC/MS/MS

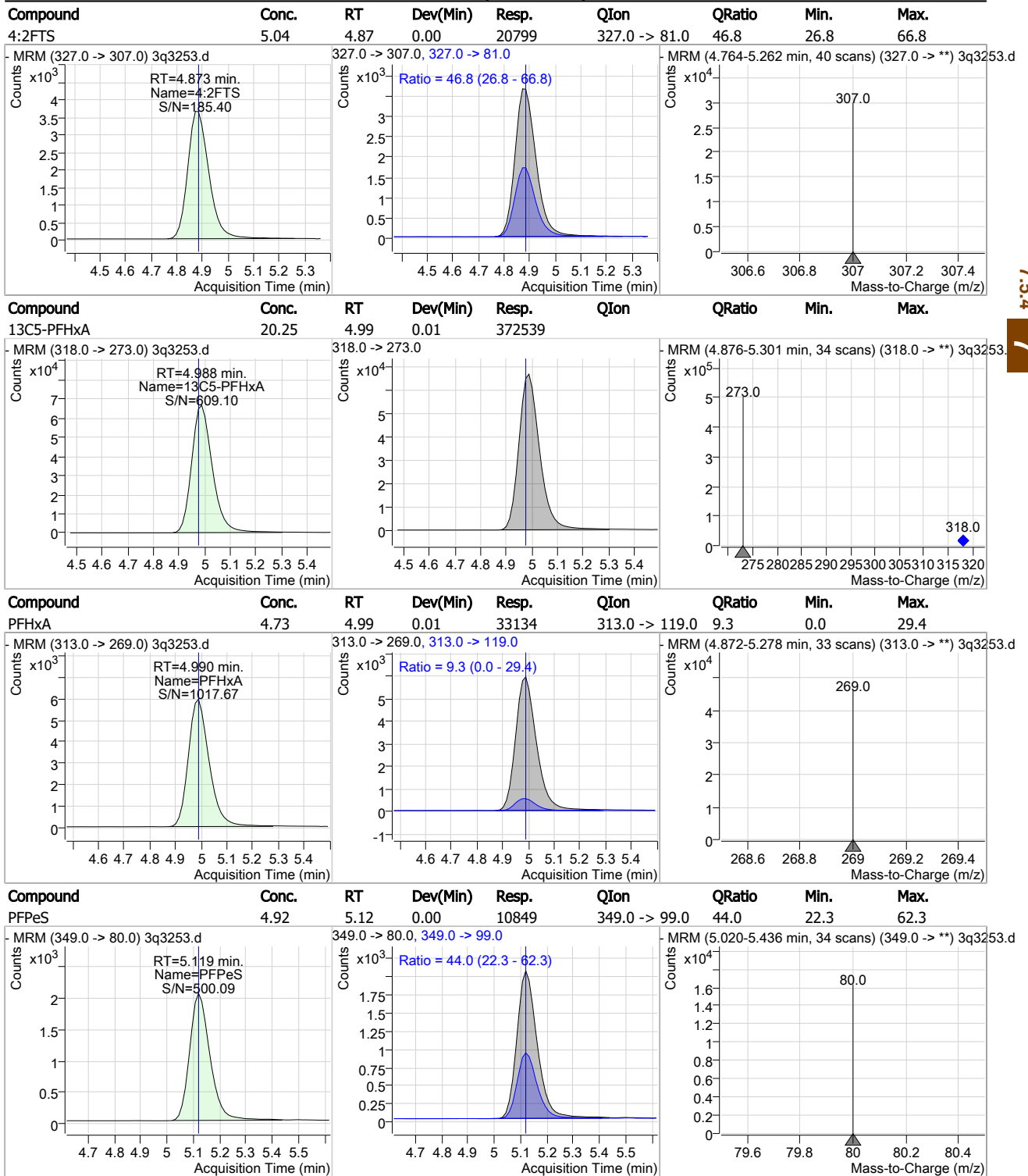


7.54
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Cal Report:

3Q3253.D

Perfluorinated Compounds by LC/MS/MS



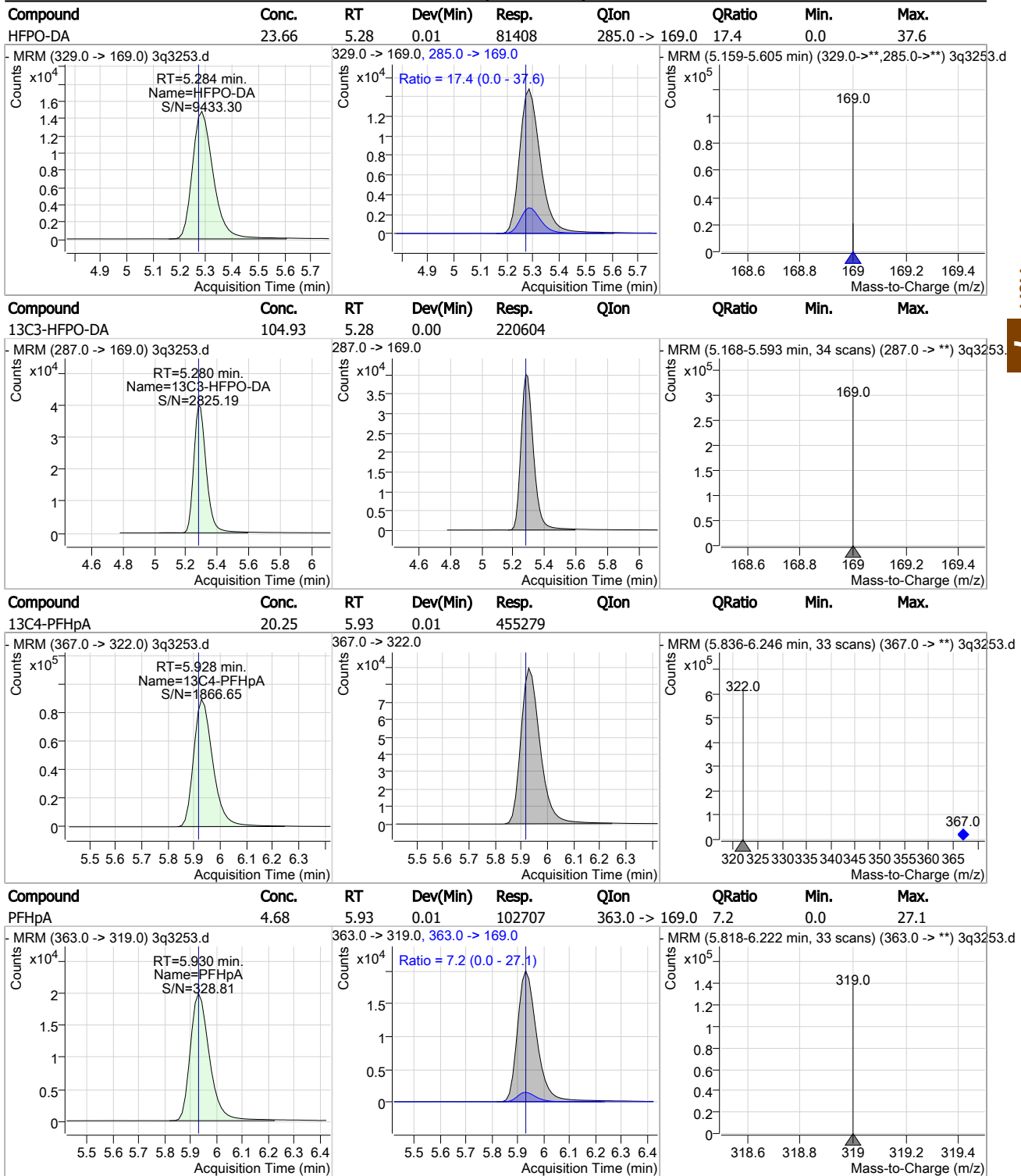
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Cal Report:

3Q3253.D

Perfluorinated Compounds by LC/MS/MS



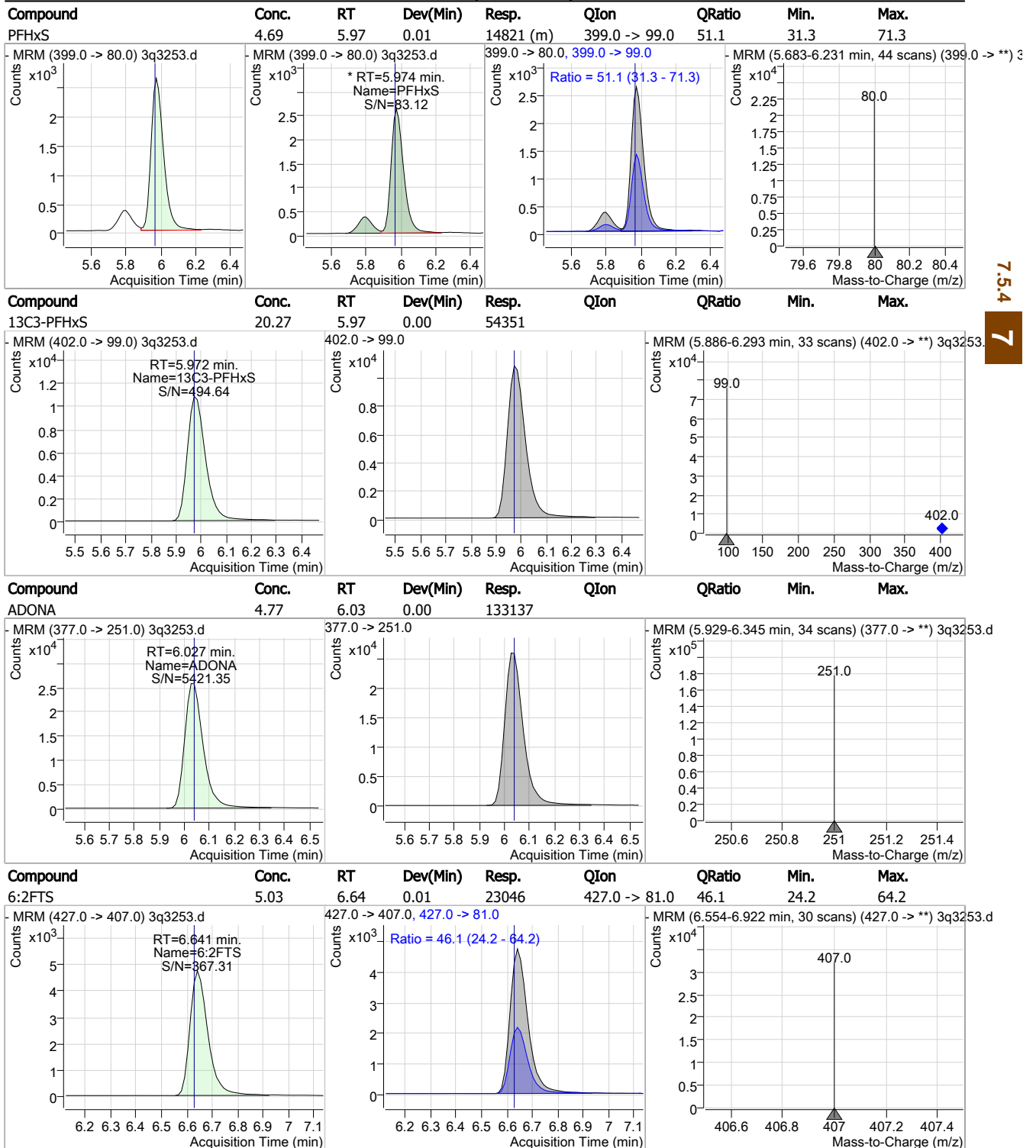
7.5.4
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Cal Report:

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Perfluorinated Compounds by LC/MS/MS



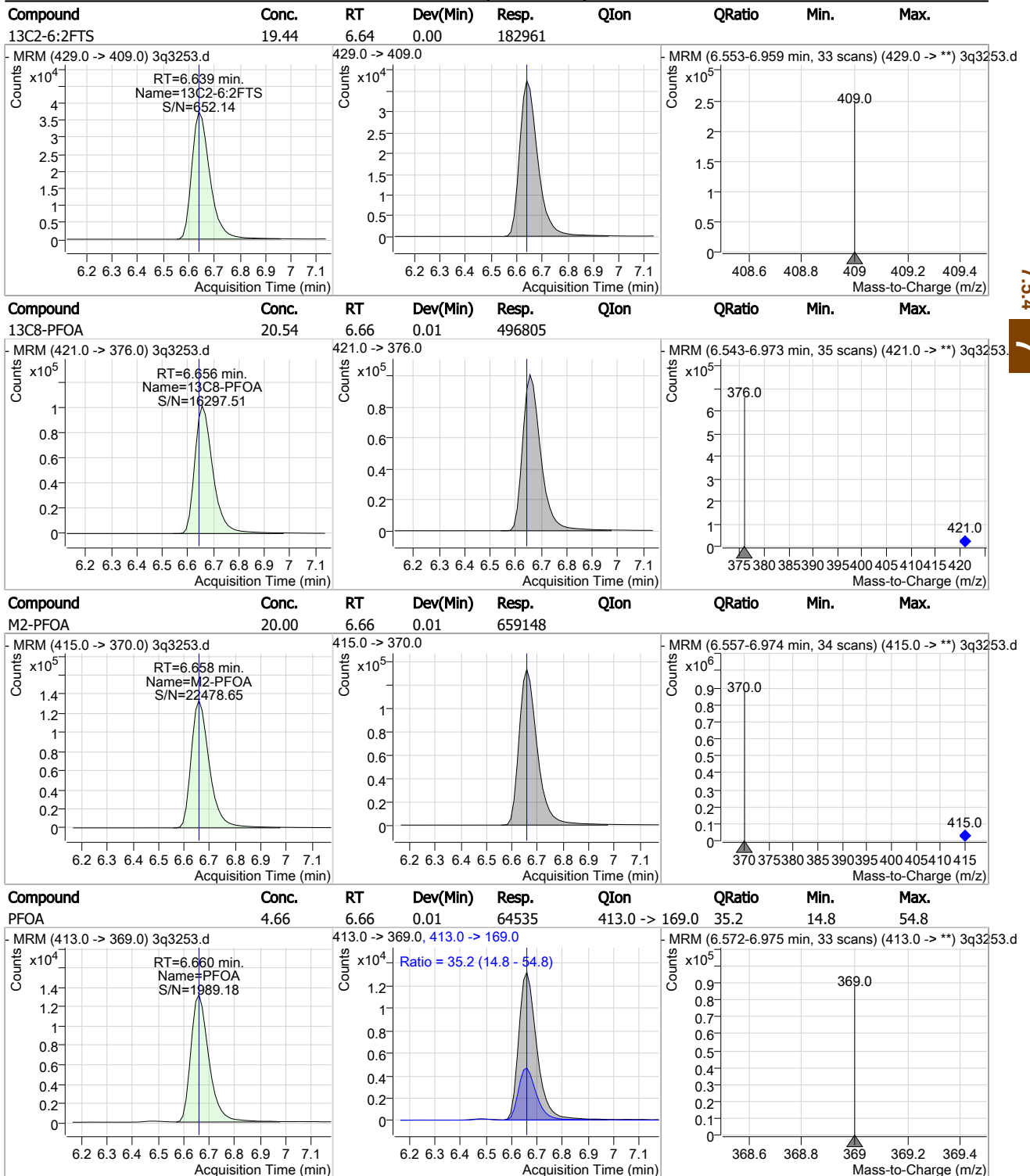
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Cal Report:

3Q3253.D

Perfluorinated Compounds by LC/MS/MS

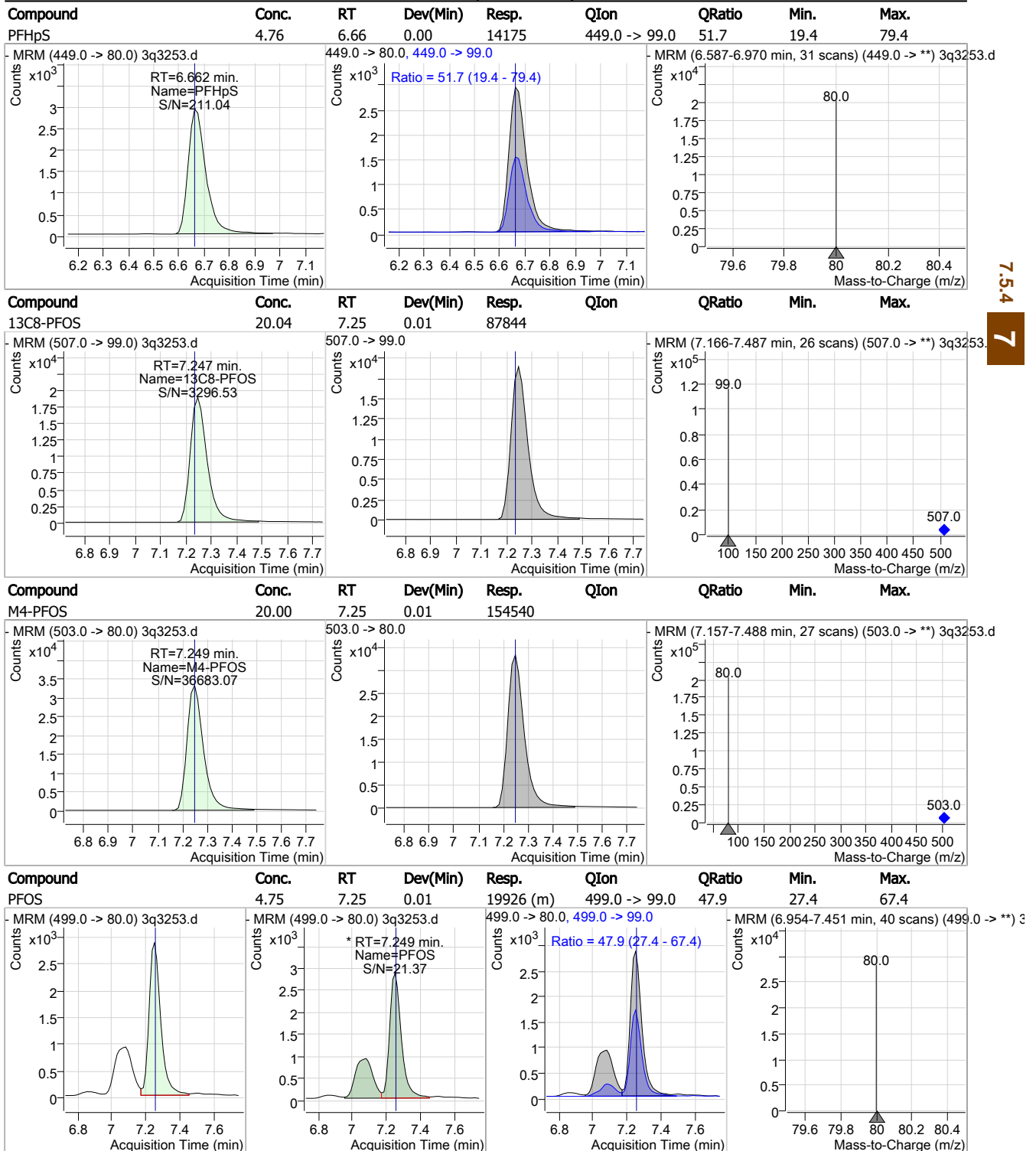


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Cal Report:

3Q3253.D

Perfluorinated Compounds by LC/MS/MS



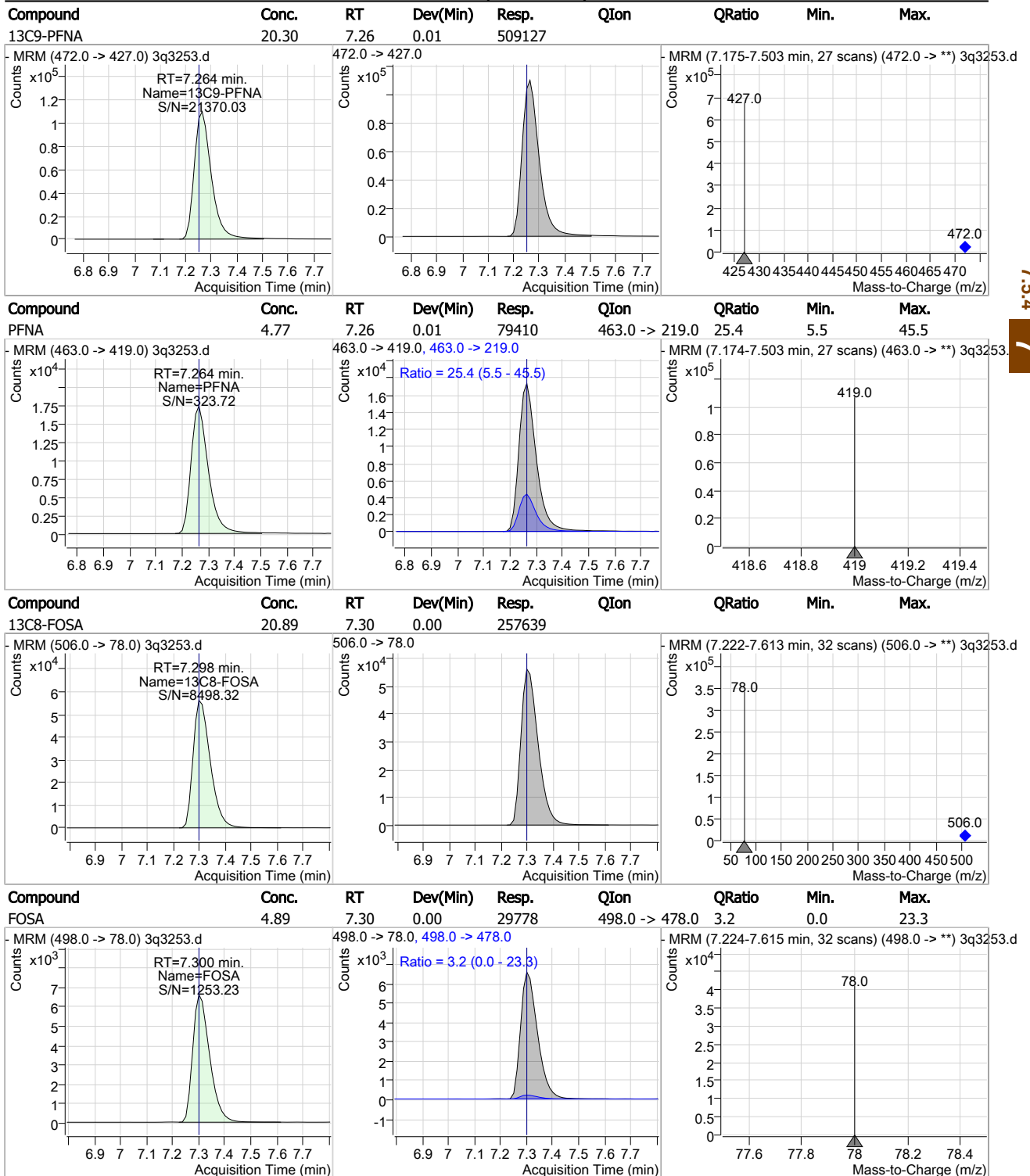
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Cal Report:

3Q3253.D

Perfluorinated Compounds by LC/MS/MS

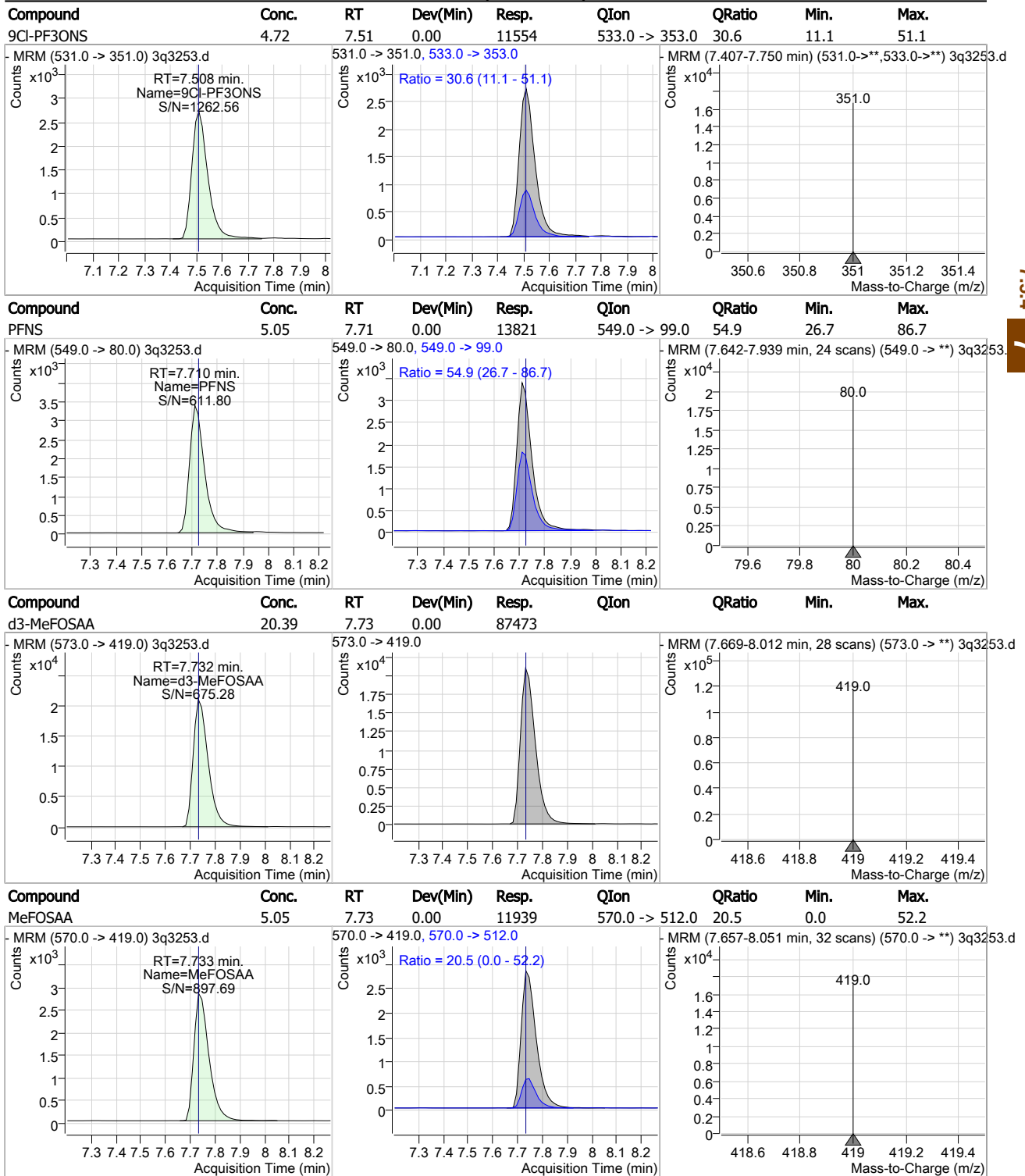


7.54
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Cal Report:

3Q3253.D

Perfluorinated Compounds by LC/MS/MS

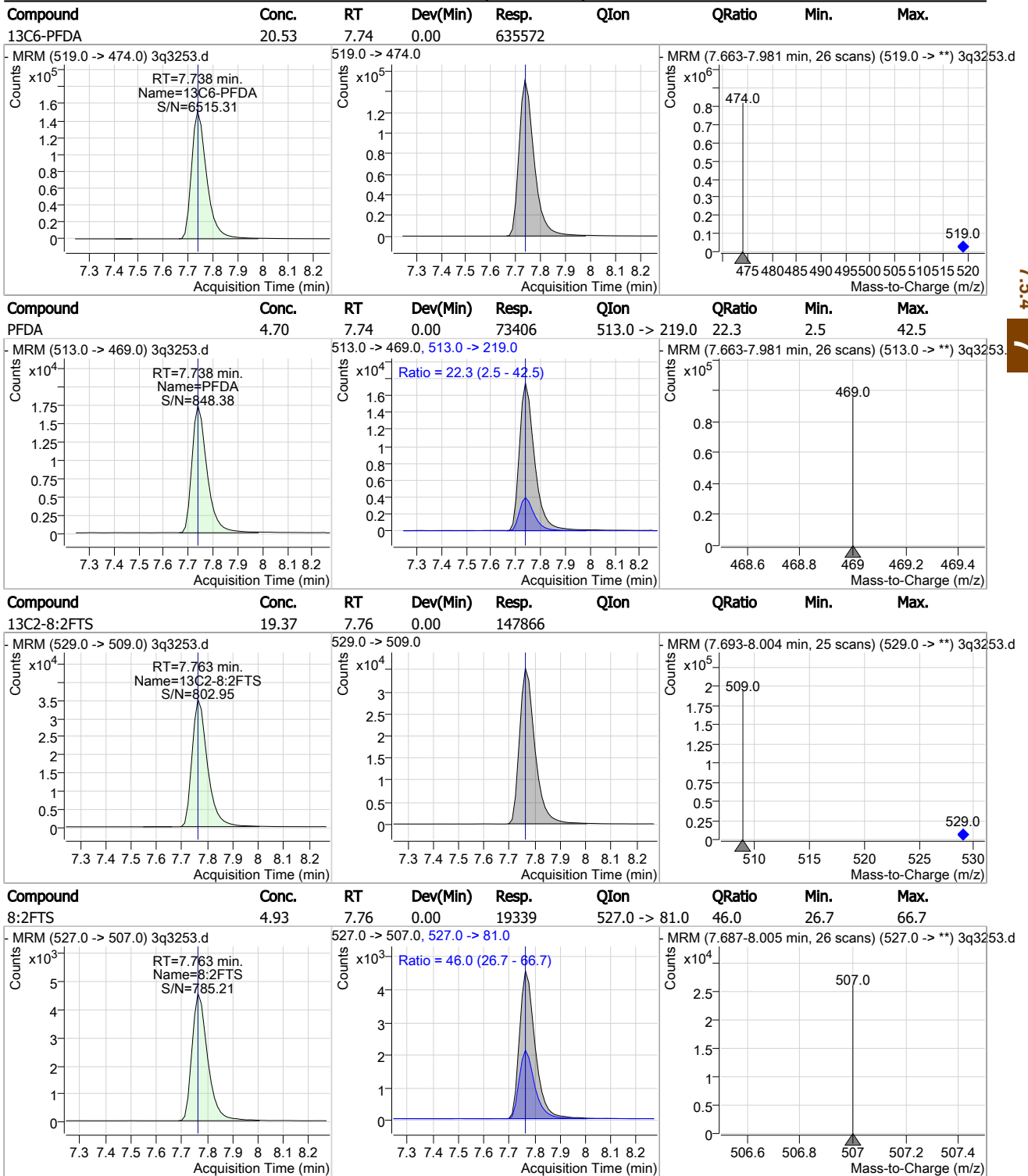


7.54
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Cal Report:

3Q3253.D

Perfluorinated Compounds by LC/MS/MS

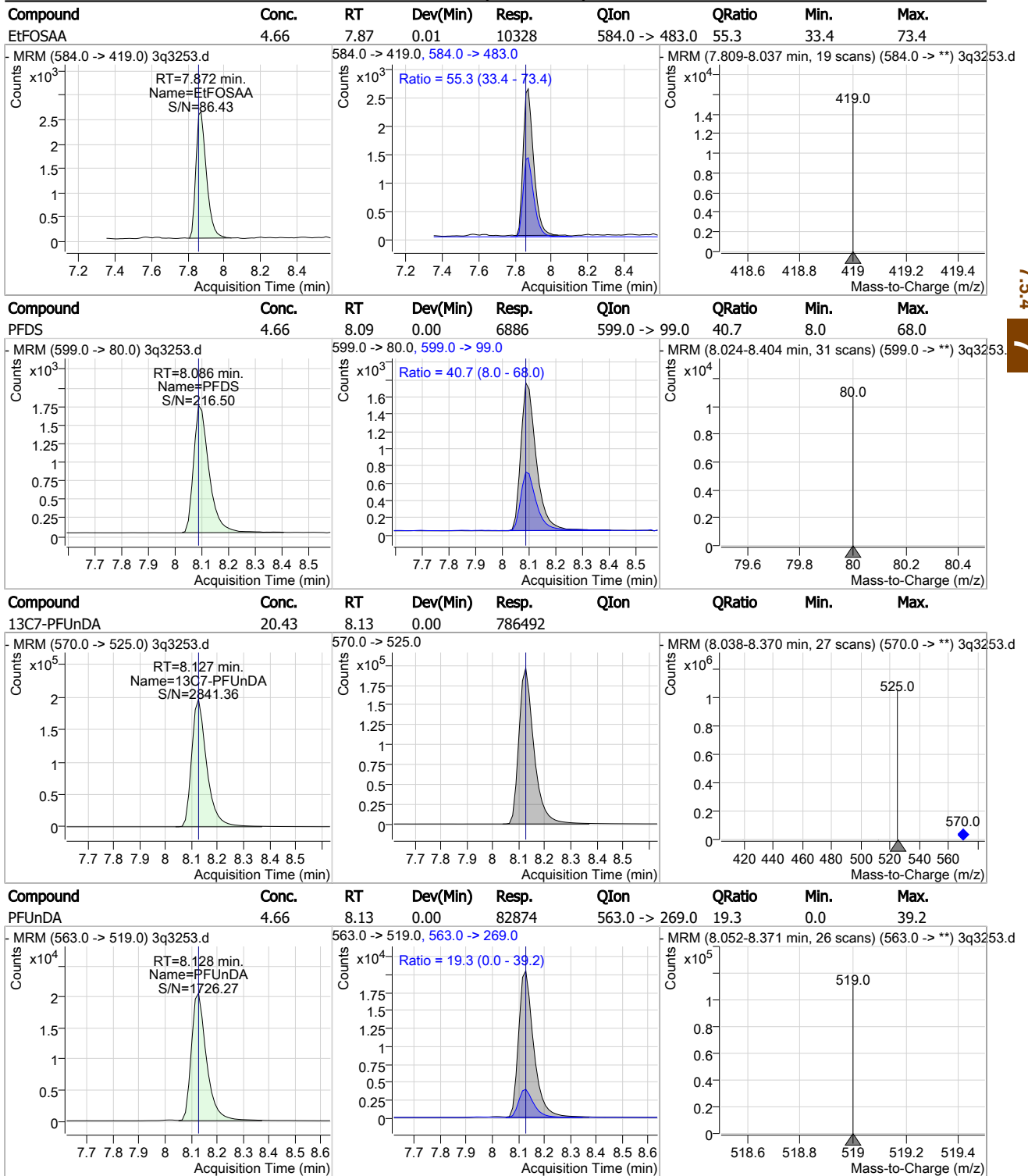


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Cal Report:

3Q3253.D

Perfluorinated Compounds by LC/MS/MS



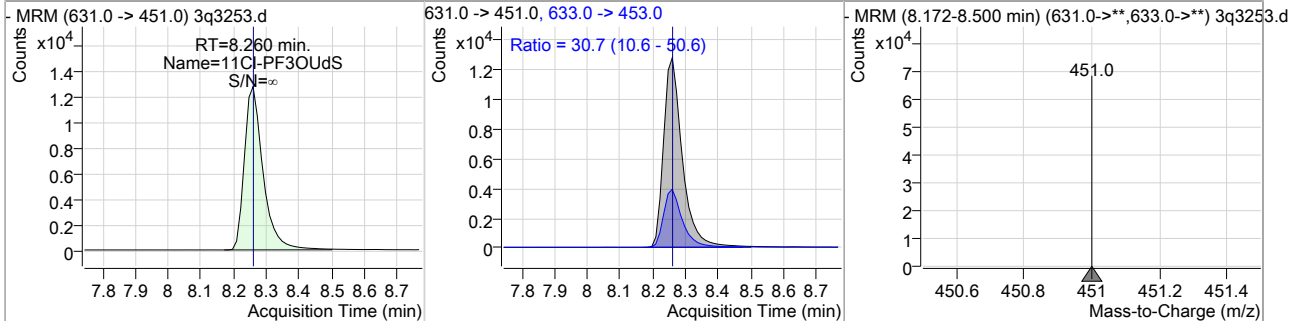
7.54
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Cal Report:

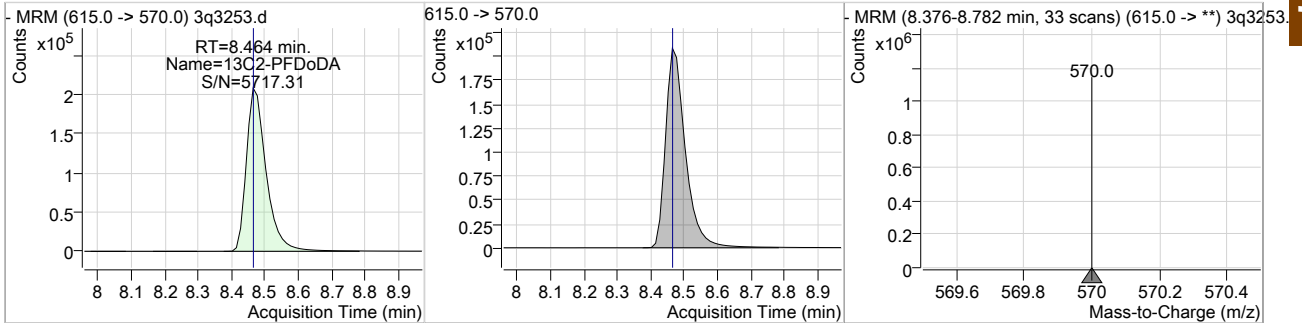
3Q3253.D

Perfluorinated Compounds by LC/MS/MS

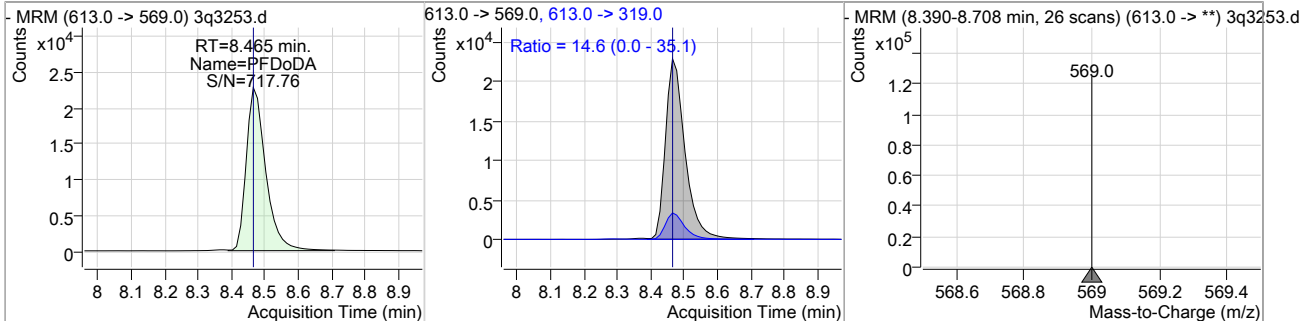
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11CI-PF3OUds	4.76	8.26	0.00	50656	633.0 -> 453.0	30.7	10.6	50.6



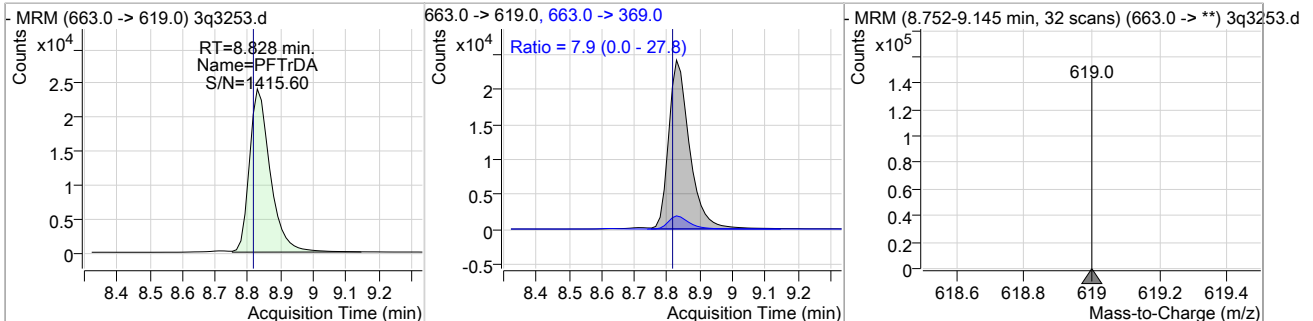
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.33	8.46	0.00	859885				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.68	8.47	0.00	92548	613.0 -> 319.0	14.6	0.0	35.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	4.70	8.83	0.00	106484	663.0 -> 369.0	7.9	0.0	27.8

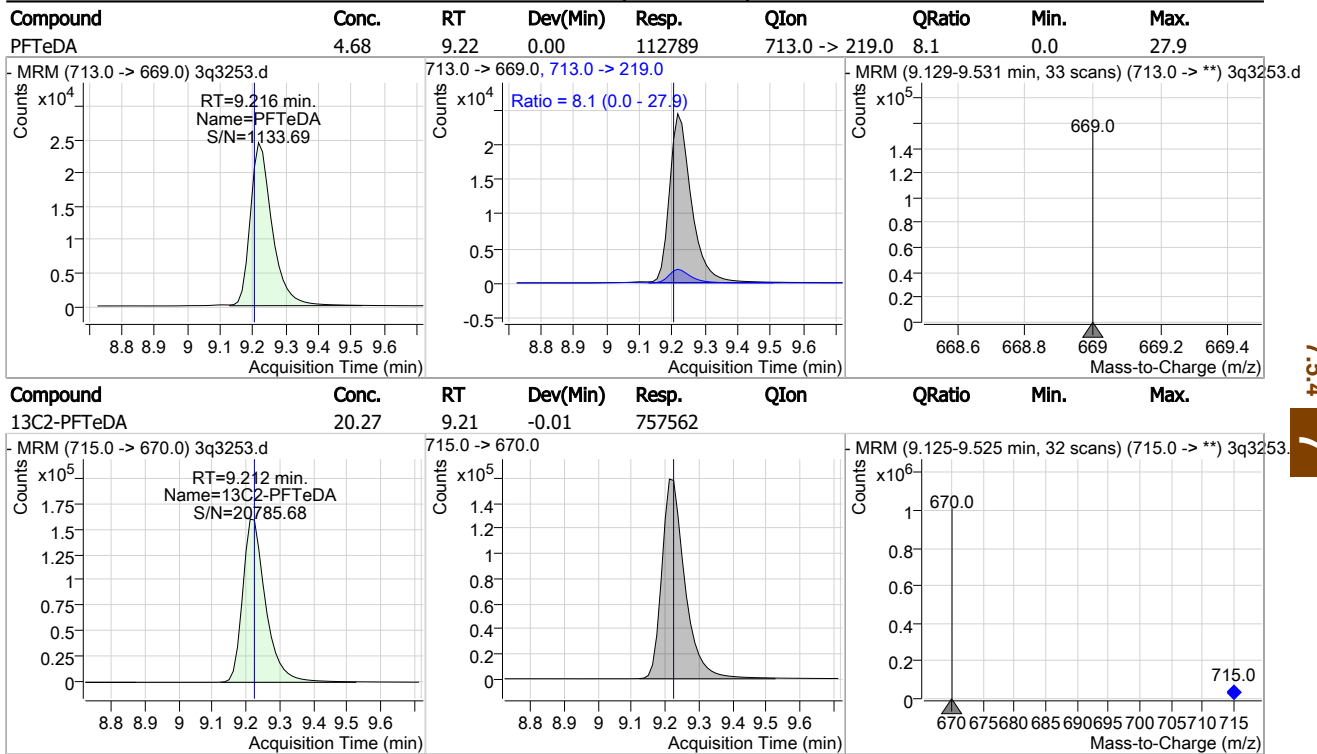


7.54
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Cal Report:

3Q3253.D

Perfluorinated Compounds by LC/MS/MS



7.5.4

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Manual Integration Approval Summary

Sample Number: S3Q83-IC83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3253.D **Analyst approved:** 04/26/19 09:23 Natasha Gumtie
Injection Time: 04/25/19 09:32 **Supervisor approved:** 04/26/19 16:14 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.97	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.25	Split peak

7.5.4.1



Cal Report:

3Q3254.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:14

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3254.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 9:48:09 AM
 Sample Name : ic83-10
 Vial : P3-A6
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74632,S3Q83,125,,,1.0,1,water

Compound	RT	QI on	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.714	217.0 -> 172.0	349485	20.00 µg/L	-0.013
M5-PFPeA	3.586	268.0 -> 223.0	253691	20.00 µg/L	0.000
M5-PFHxA	4.988	318.0 -> 273.0	384618	20.00 µg/L	0.012
M4-PFHpA	5.940	367.0 -> 322.0	470661	20.00 µg/L	0.024
M8-PFOA	6.668	421.0 -> 376.0	507092	20.00 µg/L	0.025
M9-PFNA	7.264	472.0 -> 427.0	524415	20.00 µg/L	0.012
M6-PFDA	7.752	519.0 -> 474.0	650702	20.00 µg/L	0.012
M7-PFUnDA	8.127	570.0 -> 525.0	814436	20.00 µg/L	0.000
M2-PFDoDA	8.477	615.0 -> 570.0	888923	20.00 µg/L	0.012
M2-PFTeDA	9.225	715.0 -> 670.0	795180	20.00 µg/L	0.000
M8-FOSA	7.311	506.0 -> 78.0	261613	20.00 µg/L	0.012
M3-PFBS	3.904	302.0 -> 99.0	51519	20.00 µg/L	0.012
M3-PFHxS	5.985	402.0 -> 99.0	56140	20.00 µg/L	0.012
M8-PFOS	7.247	507.0 -> 99.0	91021	20.00 µg/L	0.012
M2-4:2FTS	4.883	329.0 -> 309.0	146100	20.00 µg/L	0.012
M2-6:2FTS	6.651	429.0 -> 409.0	188739	20.00 µg/L	0.012
M2-8:2FTS	7.776	529.0 -> 509.0	153675	20.00 µg/L	0.013
M3-MeFOSAA	7.746	573.0 -> 419.0	89903	20.00 µg/L	0.012
M3-HFPO-DA	5.292	287.0 -> 169.0	216270	100.00 µg/L	0.012
13C2-PFOA	6.670	415.0 -> 370.0	652284	20.00 µg/L	0.025
13C4-PFOS	7.249	503.0 -> 80.0	154375	20.00 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	4.883	329.0 -> 309.0	145013	19.95 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C2-6:2FTS	6.651	429.0 -> 409.0	188109	19.99 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C2-8:2FTS	7.776	529.0 -> 509.0	153974	20.17 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C2-PFDoDA	8.477	615.0 -> 570.0	888417	21.00 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C2-PFTeDA	9.225	715.0 -> 670.0	796127	21.30 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C3-PFBS	3.904	302.0 -> 99.0	51343	20.68 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C3-PFHxS	5.985	402.0 -> 99.0	55558	20.72 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C4-PFBA	1.714	217.0 -> 172.0	349473	20.67 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C4-PFHpA	5.940	367.0 -> 322.0	467212	20.78 µg/L	0.024
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFHxA	4.988	318.0 -> 273.0	381400	20.73 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C5-PFPeA	3.586	268.0 -> 223.0	256902	20.75 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C6-PFDA	7.752	519.0 -> 474.0	650163	21.01 µg/L	0.012

7.5.5
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Cal Report:

3Q3254.D

Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)	QValue
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.0%		
13C7-PFUnDA	8.127	570.0 -> 525.0	814508	21.16 µg/L	0.000	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.8%		
13C8-FOSA	7.311	506.0 -> 78.0	261168	21.18 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.9%		
13C8-PFOA	6.668	421.0 -> 376.0	504938	20.88 µg/L	0.025	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.4%		
13C8-PFOS	7.247	507.0 -> 99.0	90803	20.71 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.6%		
13C9-PFNA	7.264	472.0 -> 427.0	522445	20.83 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.1%		
d3-MeFOSAA	7.746	573.0 -> 419.0	89987	20.98 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.9%		
13C3-HFPO-DA	5.292	287.0 -> 169.0	216270	102.87 µg/L	0.012	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 102.9%		
M2-PFOA	6.670	415.0 -> 370.0	652284	20.00 µg/L	0.025	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.249	503.0 -> 80.0	154375	20.00 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						QValue
4:2FTS	4.886	327.0 -> 307.0	42145	9.70 µg/L		98
6:2FTS	6.654	427.0 -> 407.0	46294	9.78 µg/L		98
8:2FTS	7.777	527.0 -> 507.0	38884	9.58 µg/L		100
EtFOSAA	7.872	584.0 -> 419.0	22059	9.69 µg/L		100
FOSA	7.313	498.0 -> 78.0	58798	9.48 µg/L		99
MeFOSAA	7.746	570.0 -> 419.0	23769	9.79 µg/L		100
PFBA	1.723	213.0 -> 169.0	29838	9.17 µg/L		100
PFBS	3.908	299.0 -> 80.0	32701	9.42 µg/L		100
PFDA	7.738	513.0 -> 469.0	148725	9.31 µg/L		100
PFDoDA	8.478	613.0 -> 569.0	188314	9.22 µg/L		99
PFDS	8.099	599.0 -> 80.0	14193	9.27 µg/L		99
PFHpA	5.942	363.0 -> 319.0	209277	9.30 µg/L		100
PFHpS	6.674	449.0 -> 80.0	28539	9.28 µg/L		98
PFHxA	4.990	313.0 -> 269.0	66435	9.21 µg/L		100
PFHxS	5.987	399.0 -> 80.0	29694	9.08 µg/L	m	99
PFNA	7.264	463.0 -> 419.0	158970	9.29 µg/L		99
PFNS	7.722	549.0 -> 80.0	27045	9.54 µg/L		99
PFOA	6.660	413.0 -> 369.0	130314	9.22 µg/L		99
PFOS	7.249	499.0 -> 80.0	39796	9.17 µg/L	m	99
PFPeA	3.590	263.0 -> 219.0	123536	9.37 µg/L		100
PFPeS	5.119	349.0 -> 80.0	21229	9.41 µg/L		98
PFTeDA	9.229	713.0 -> 669.0	232233	9.18 µg/L		100
PFTrDA	8.841	663.0 -> 619.0	216883	9.12 µg/L		100
PFUnDA	8.128	563.0 -> 519.0	166565	9.04 µg/L		100
11Cl-PF3OUdS	8.260	631.0 -> 451.0	104423	9.51 µg/L		100
9Cl-PF3ONS	7.508	531.0 -> 351.0	22982	9.16 µg/L		99
ADONA	6.039	377.0 -> 251.0	269848	9.43 µg/L		100
HFPO-DA	5.284	329.0 -> 169.0	161131	47.76 µg/L		100

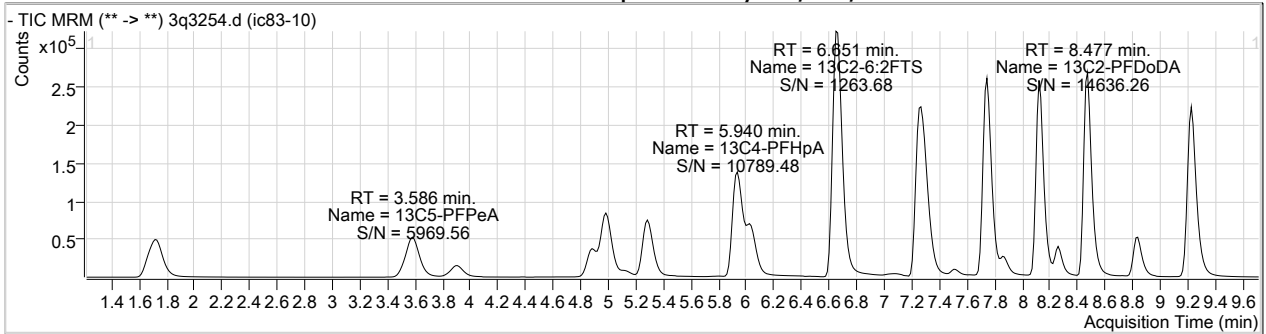
7.5.5
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= Qualifier out of range, m = manually integrated, + = Area summed

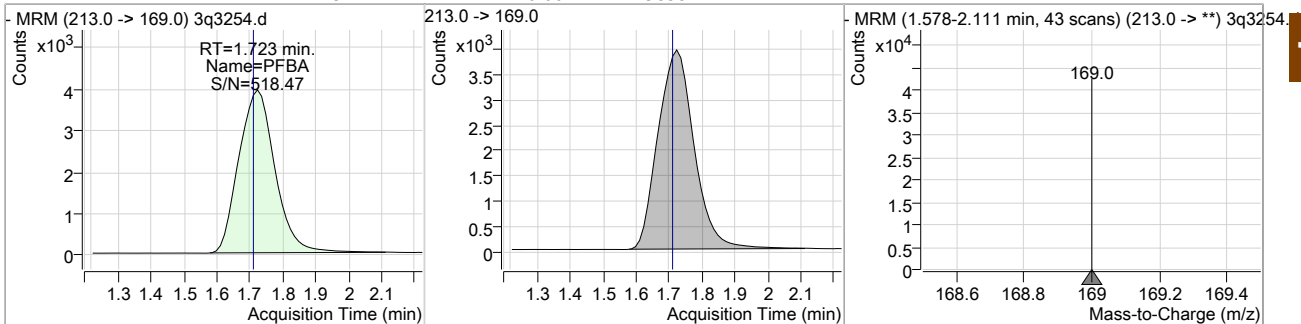
Cal Report:

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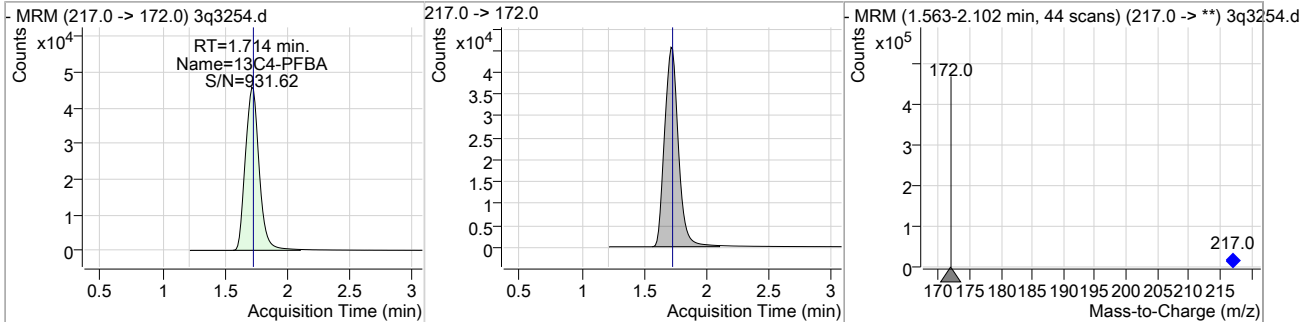
Perfluorinated Compounds by LC/MS/MS



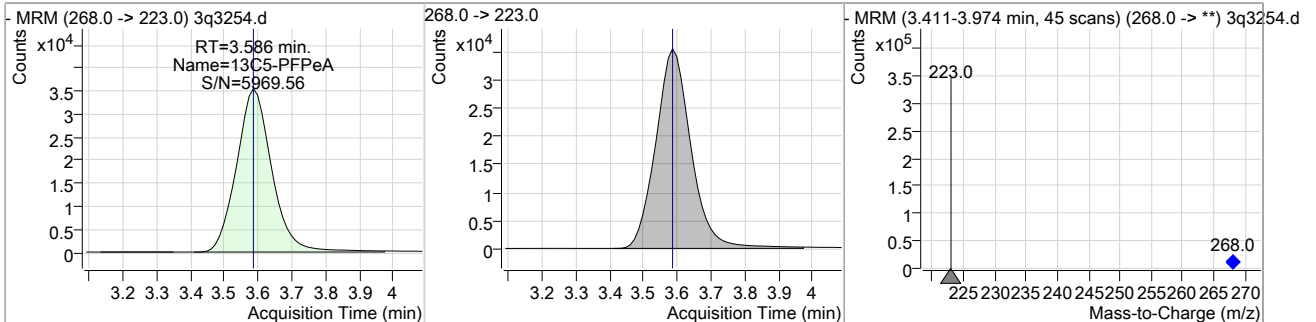
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	9.17	1.72	0.00	29838				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.67	1.71	-0.01	349473				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.75	3.59	0.00	256902				



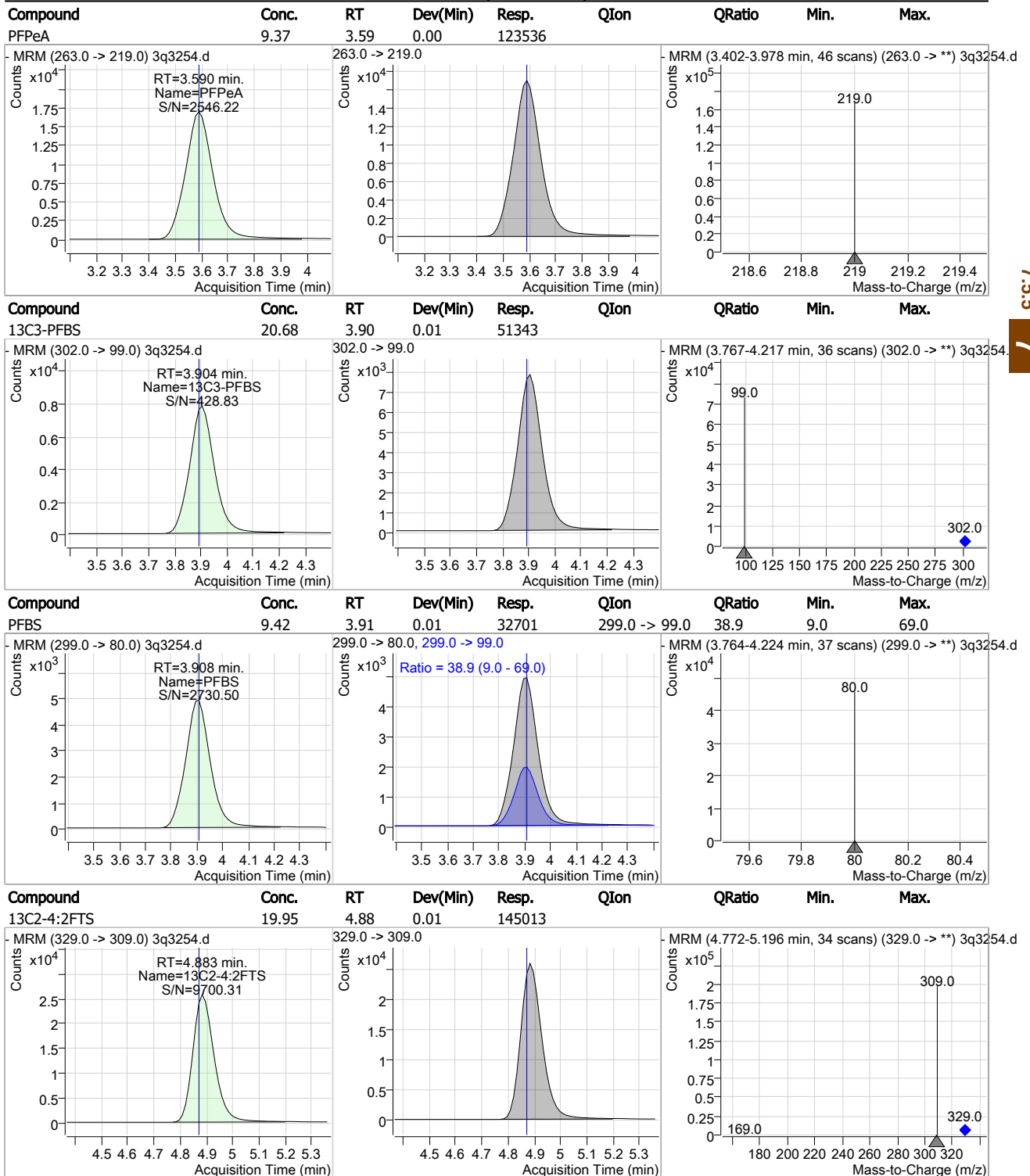
7.5.5

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Cal Report:

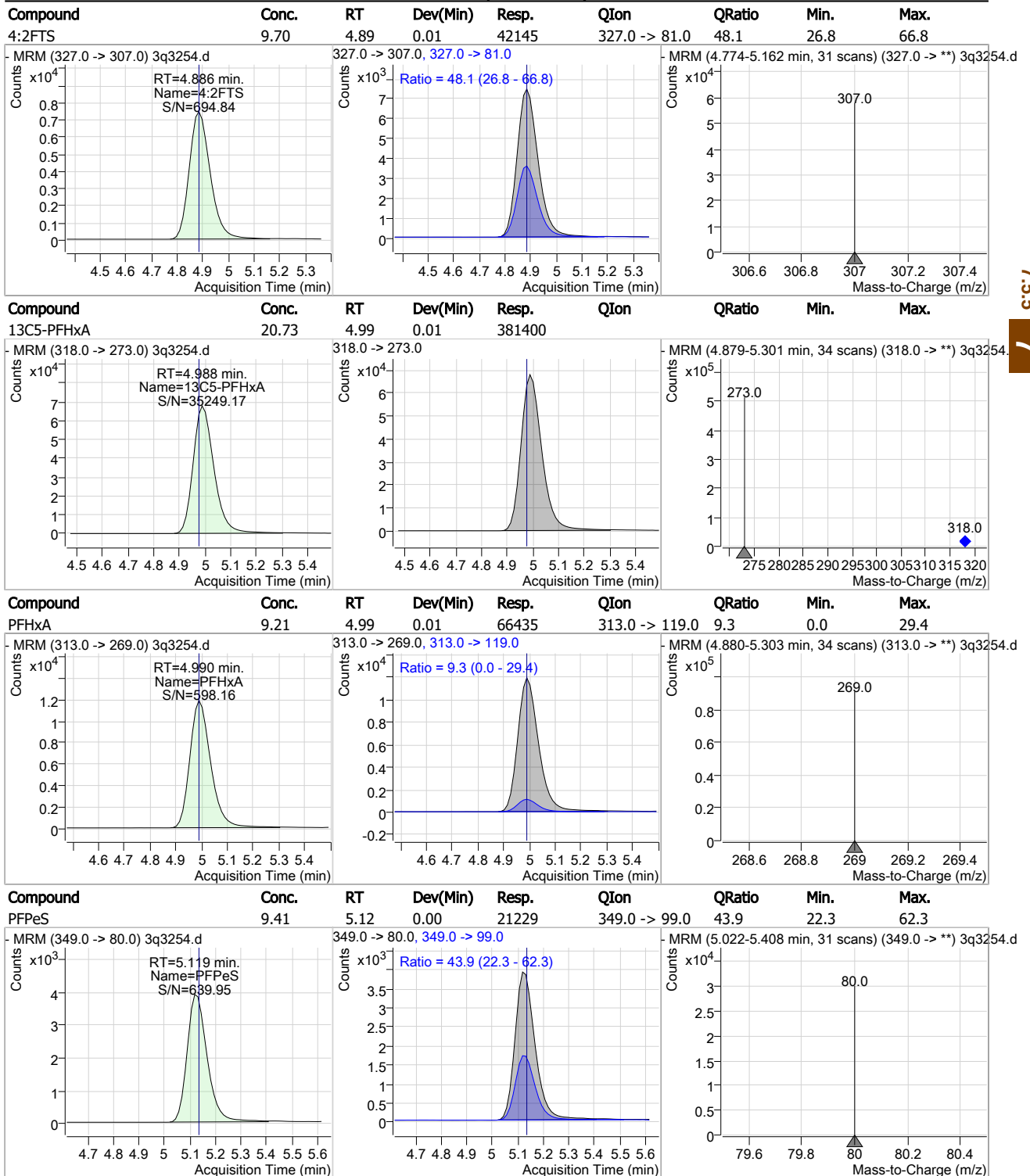
3Q3254.D

Perfluorinated Compounds by LC/MS/MS



7.55
7

Perfluorinated Compounds by LC/MS/MS

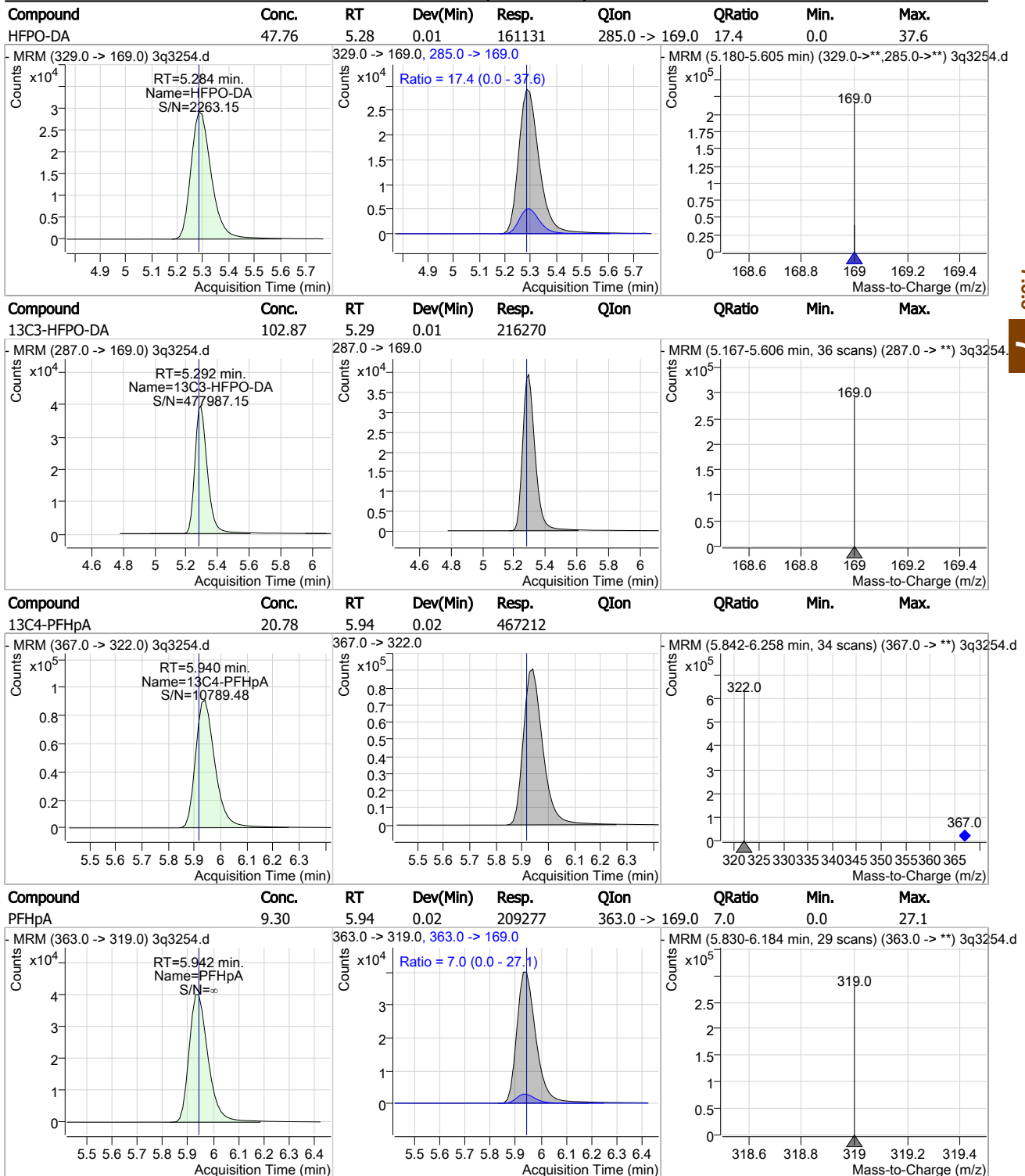


7.55
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Cal Report:

3Q3254.D

Perfluorinated Compounds by LC/MS/MS

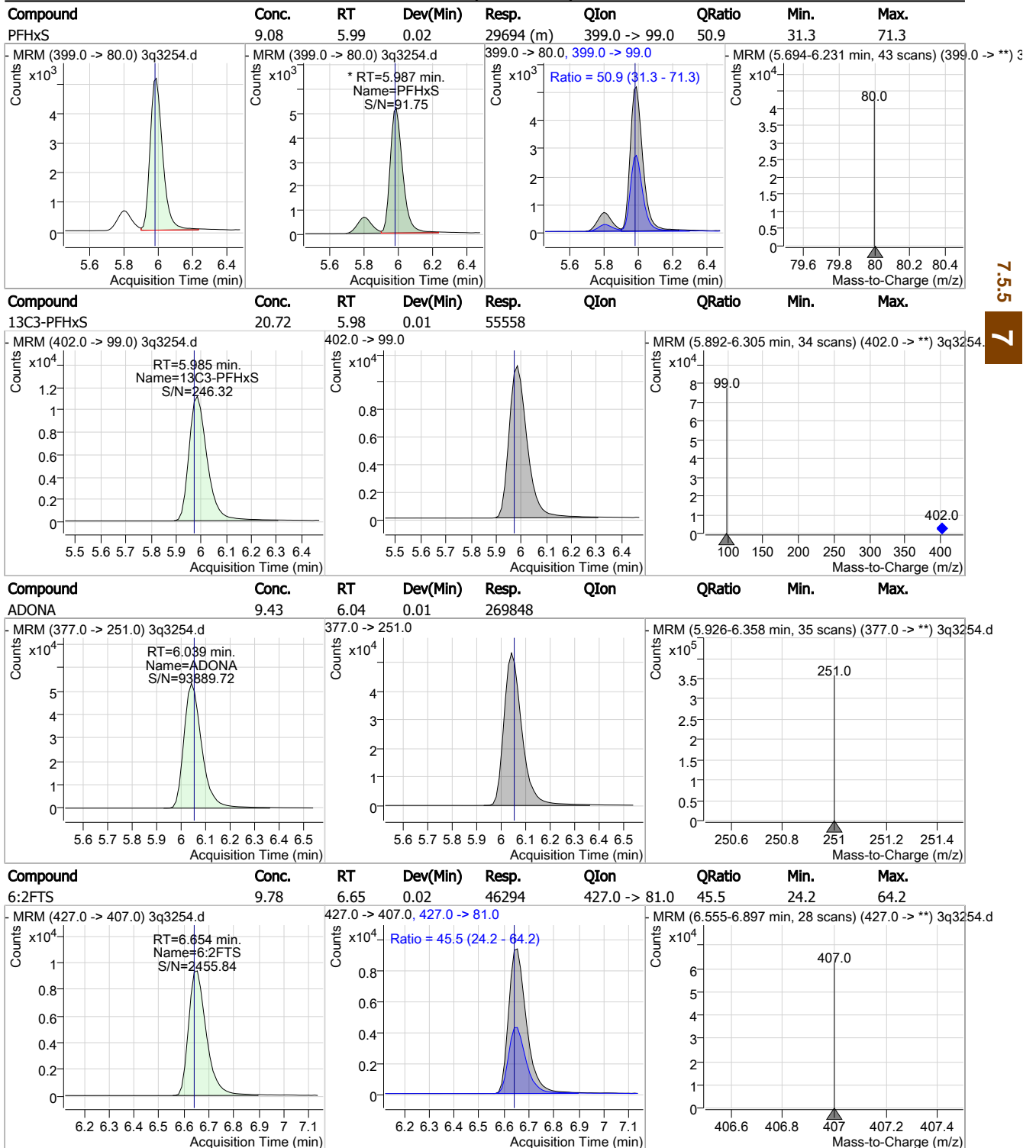


7.55 7

Cal Report:

3Q3254.D

Perfluorinated Compounds by LC/MS/MS

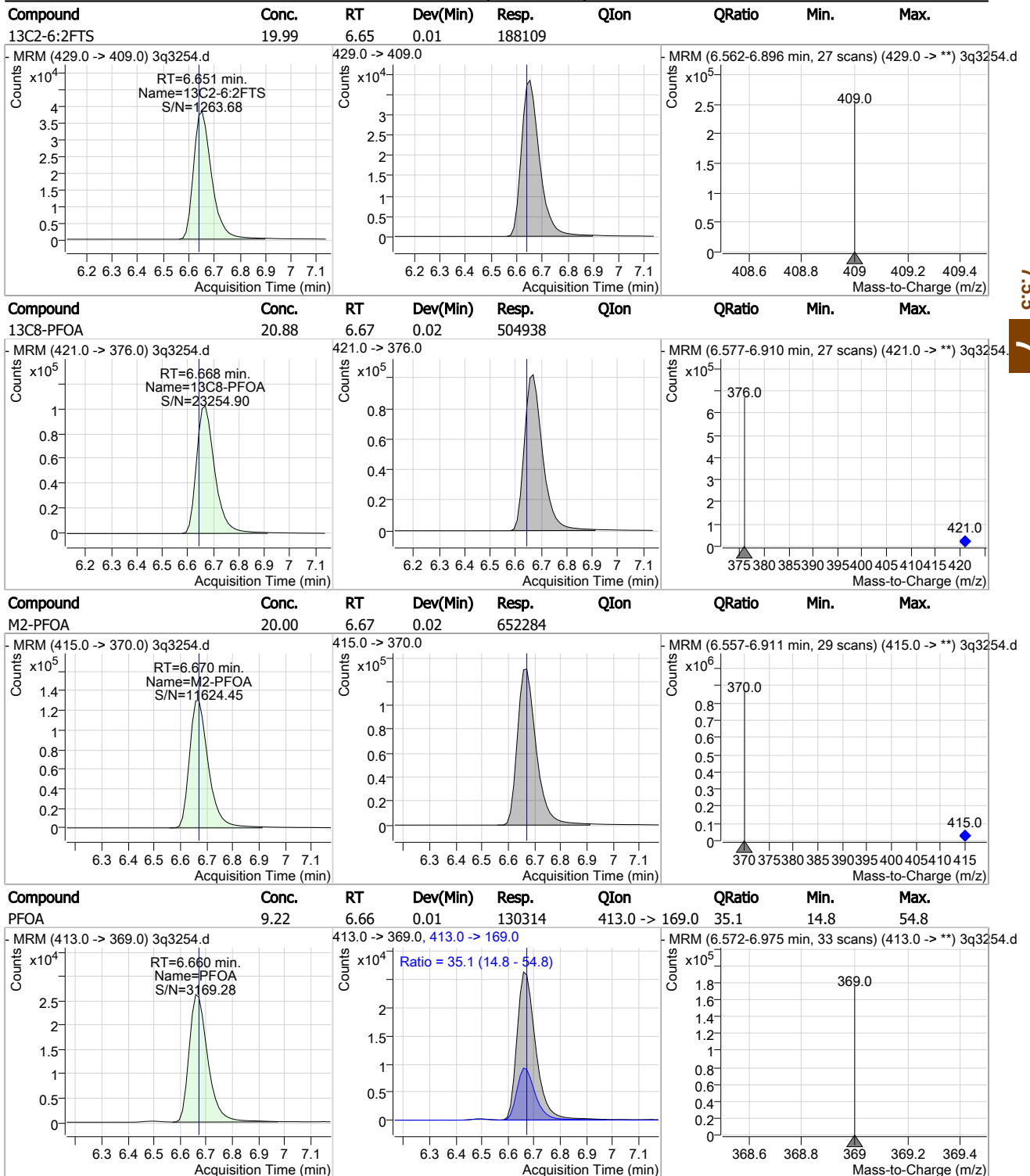


7.55
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Cal Report:

3Q3254.D

Perfluorinated Compounds by LC/MS/MS

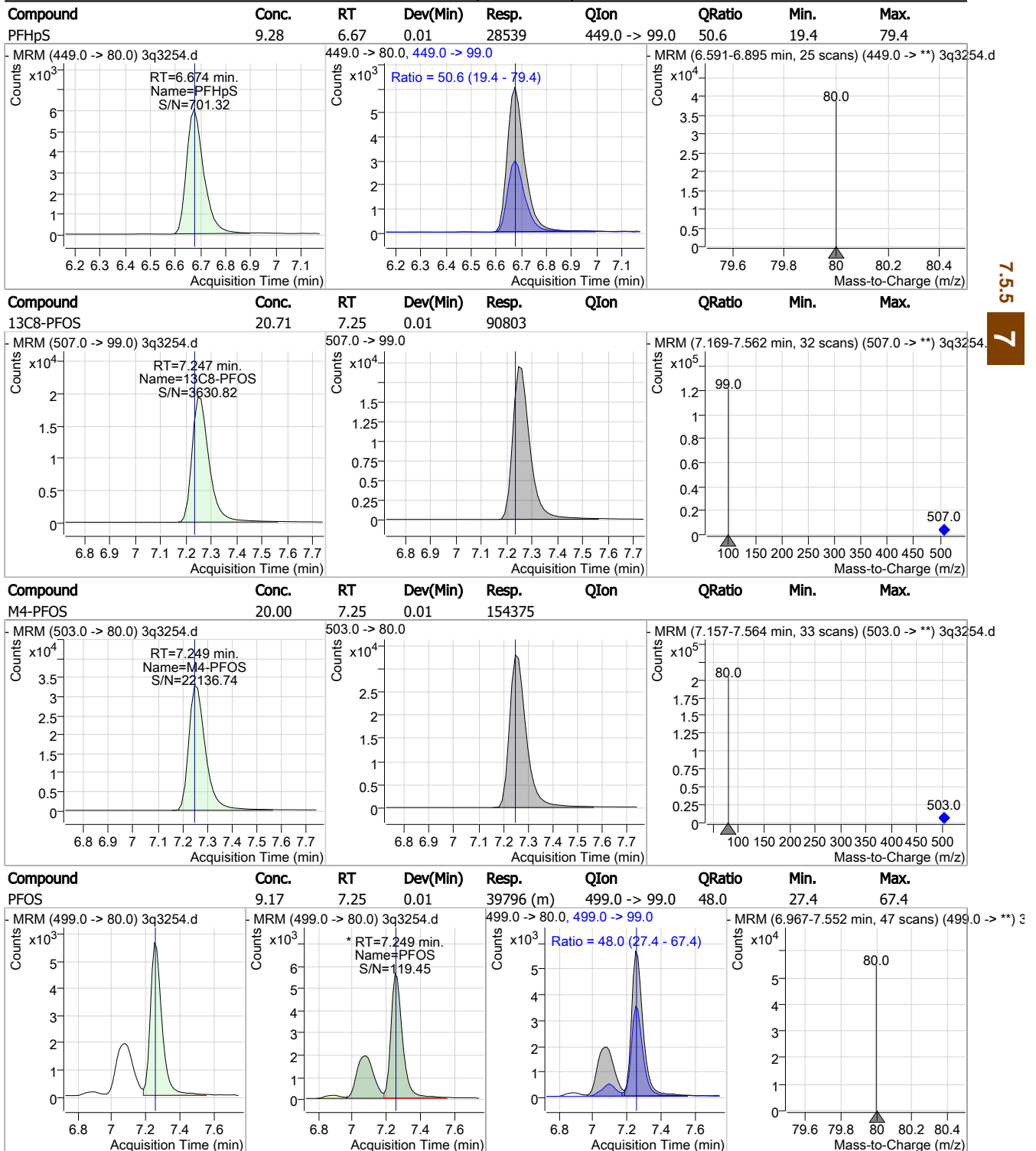


7.55
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Cal Report:

3Q3254.D

Perfluorinated Compounds by LC/MS/MS



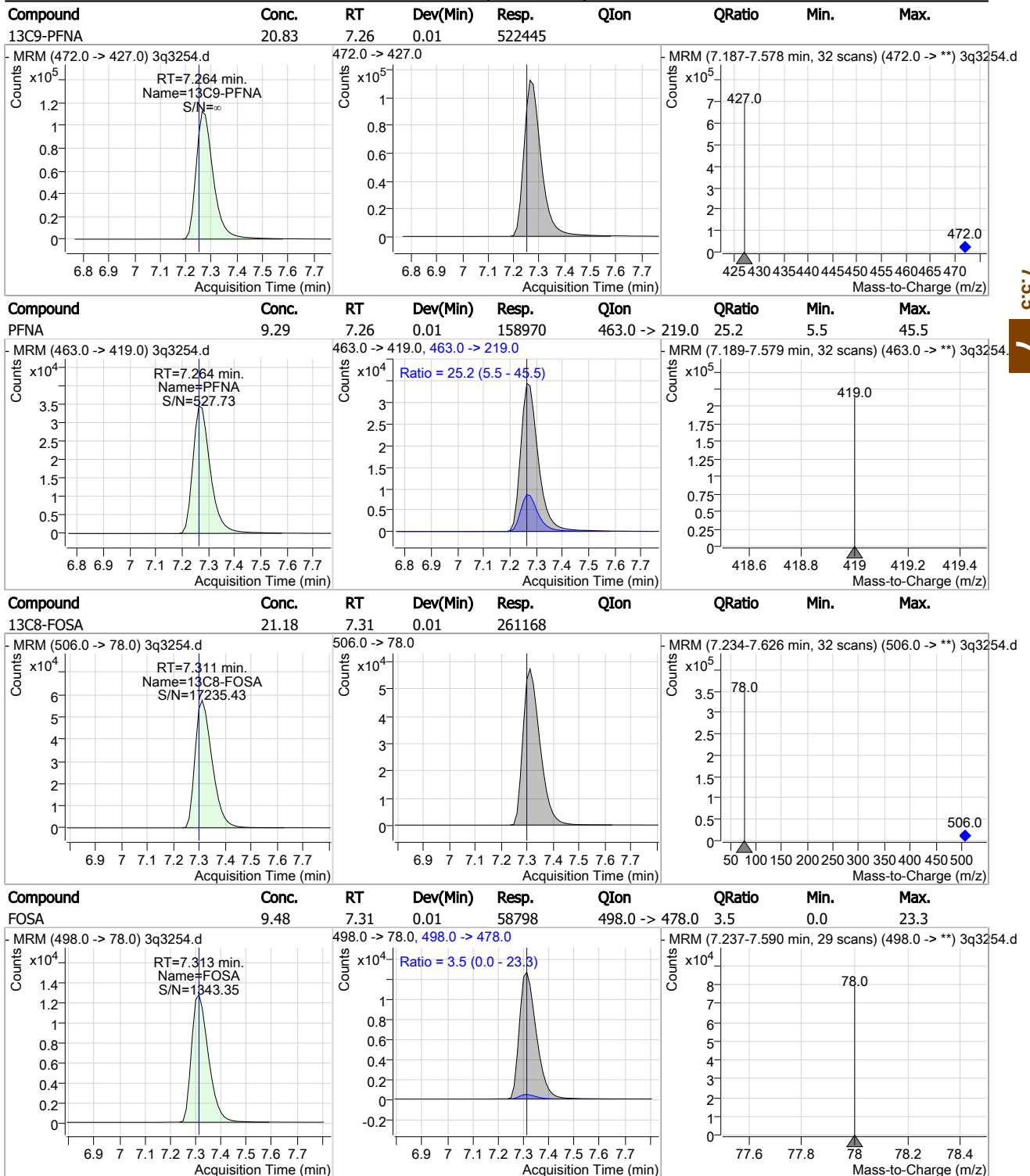
7.55

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Cal Report:

3Q3254.D

Perfluorinated Compounds by LC/MS/MS

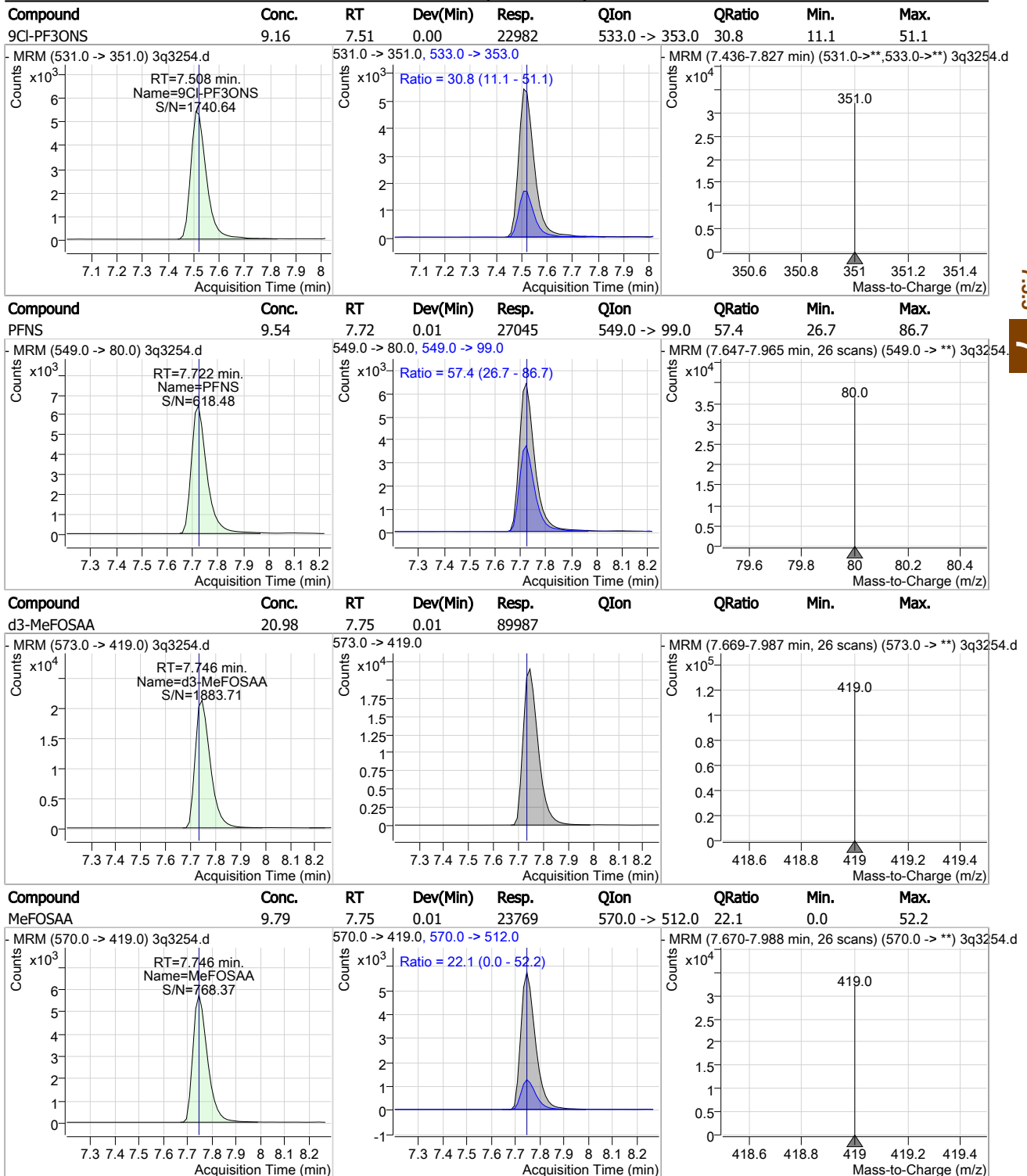


7.55
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Cal Report:

3Q3254.D

Perfluorinated Compounds by LC/MS/MS

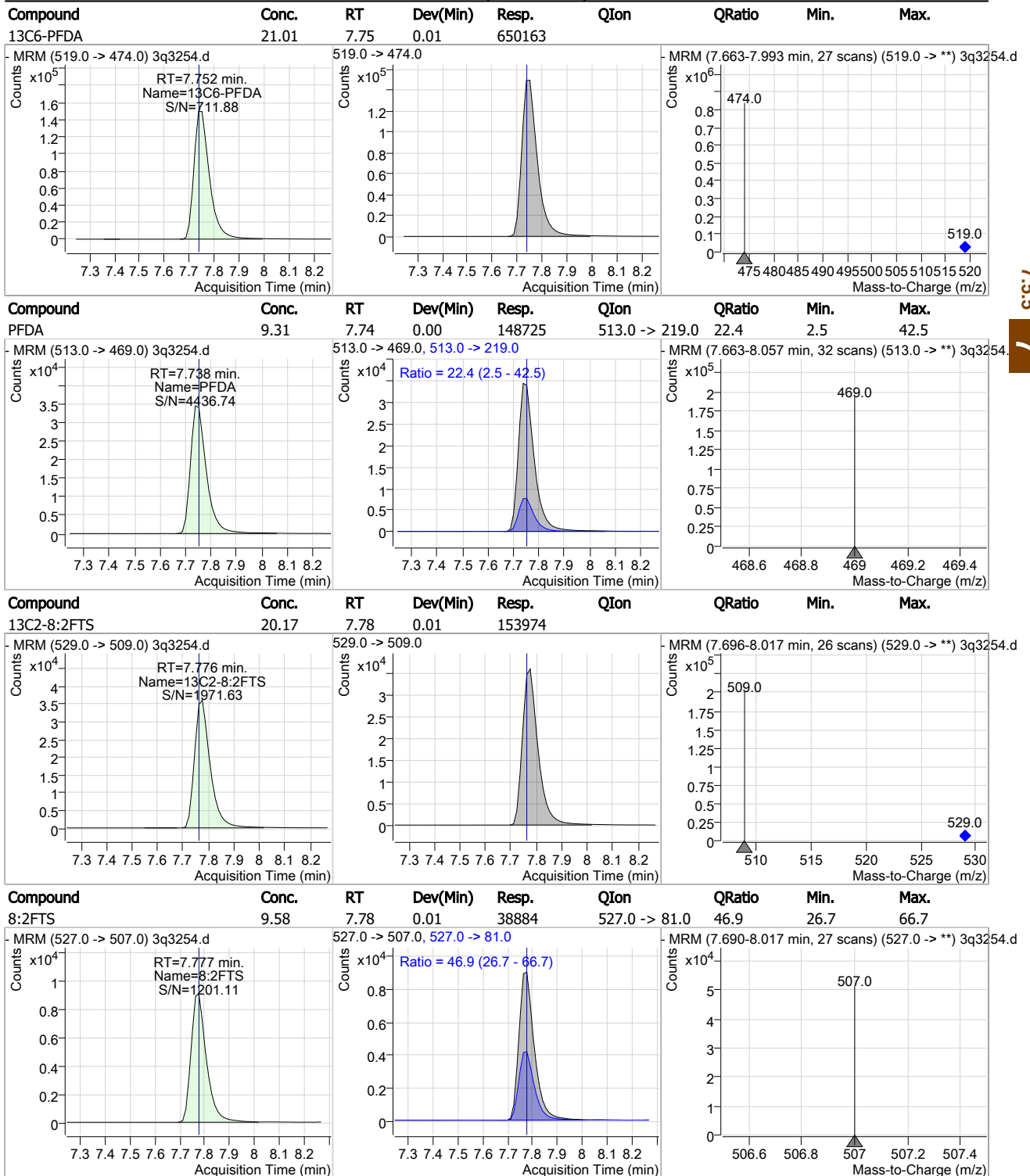


7.55
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Cal Report:

3Q3254.D

Perfluorinated Compounds by LC/MS/MS

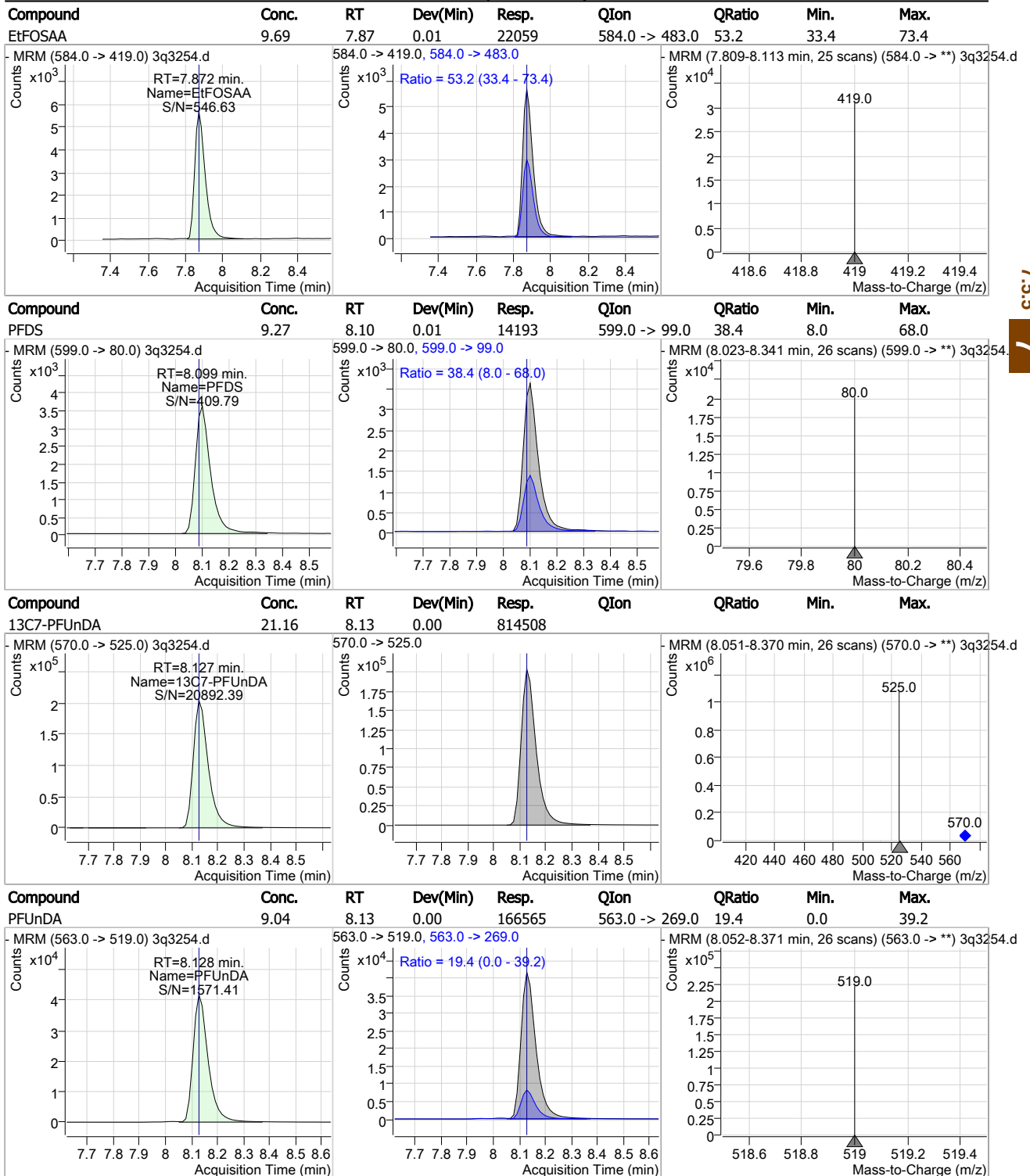


7.55
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Cal Report:

3Q3254.D

Perfluorinated Compounds by LC/MS/MS

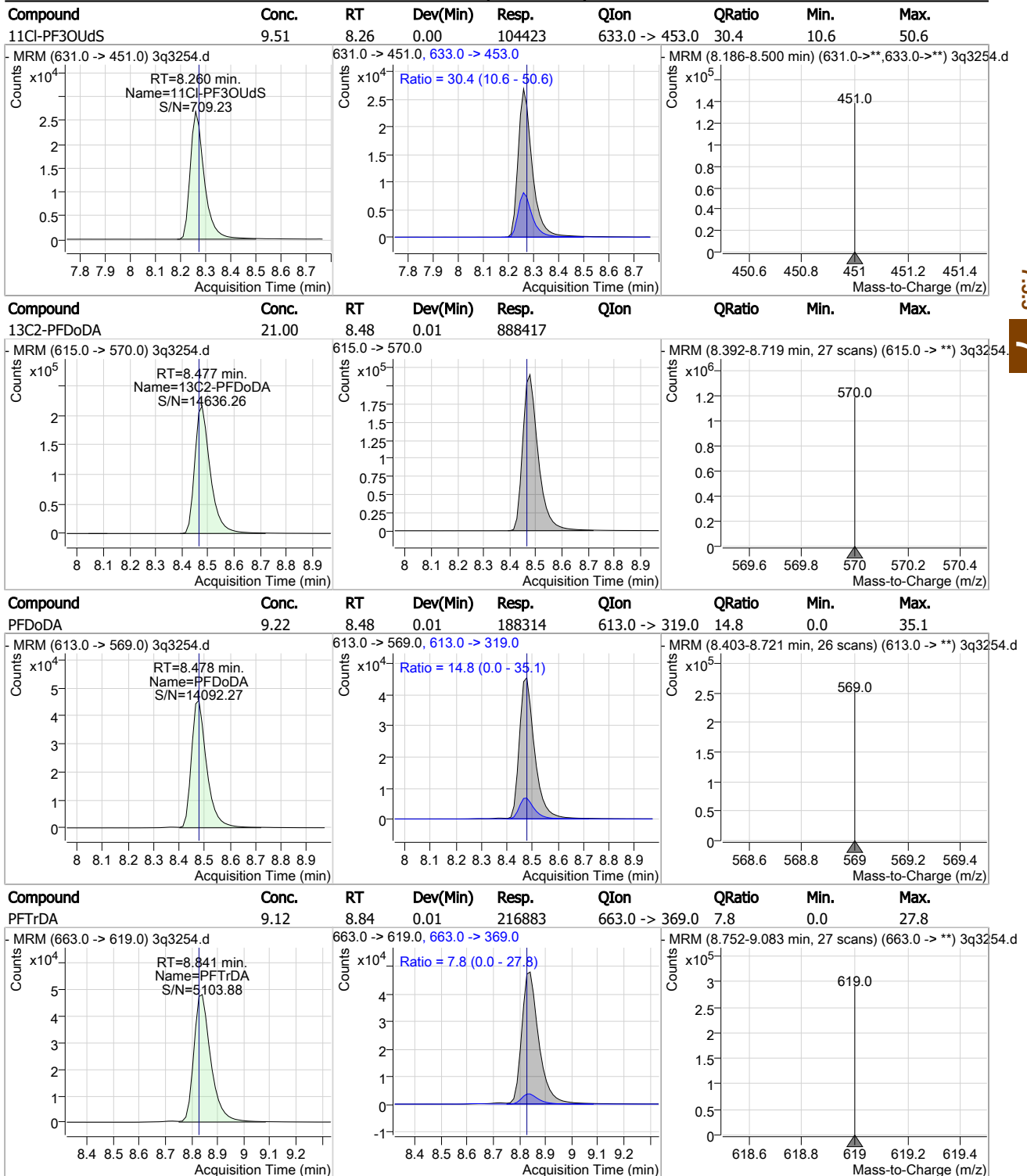


7.55
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Cal Report:

3Q3254.D

Perfluorinated Compounds by LC/MS/MS



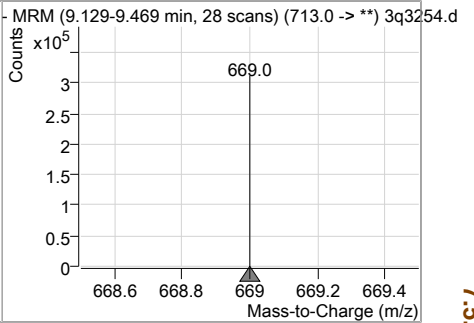
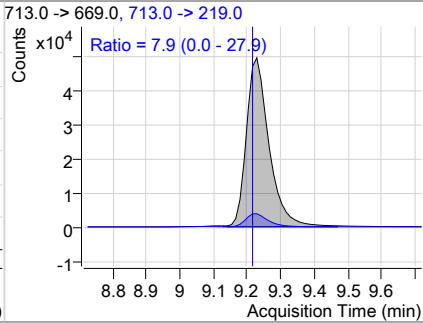
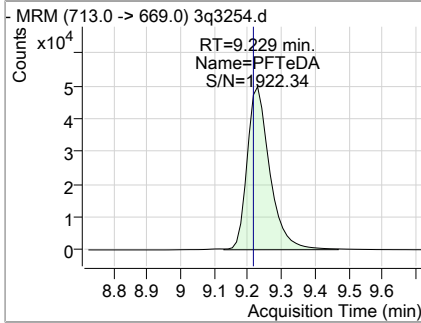
7.55
7

Cal Report:

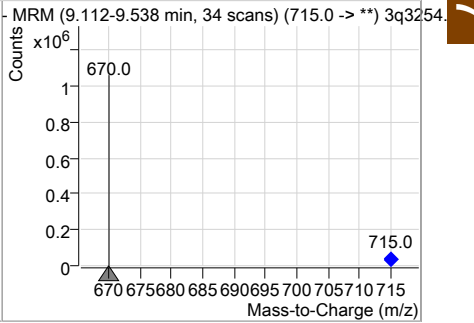
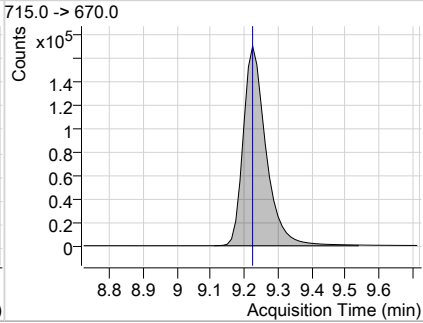
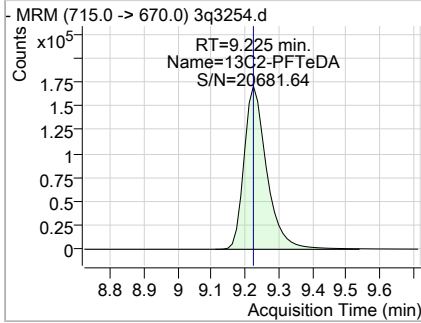
3Q3254.D

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	9.18	9.23	0.01	232233	713.0 -> 219.0	7.9	0.0	27.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	21.30	9.22	0.00	796127				



7.5.5
7

Manual Integration Approval Summary

Sample Number: S3Q83-IC83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3254.D **Analyst approved:** 04/26/19 09:23 Natasha Gumtie
Injection Time: 04/25/19 09:48 **Supervisor approved:** 04/26/19 16:14 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.99	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.25	Split peak

7.5.5.1



Cal Report:

3Q3255.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:14

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3255.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 10:03:46 AM
 Sample Name : icc83-20
 Vial : P3-A7
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74632,S3Q83,125,,,1.0,1,water

Compound	RT	QI on	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.714	217.0 -> 172.0	343051	20.00 µg/L	-0.013
M5-PFPeA	3.586	268.0 -> 223.0	250345	20.00 µg/L	0.000
M5-PFHxA	4.988	318.0 -> 273.0	378231	20.00 µg/L	0.012
M4-PFHpA	5.928	367.0 -> 322.0	462230	20.00 µg/L	0.011
M8-PFOA	6.656	421.0 -> 376.0	499023	20.00 µg/L	0.012
M9-PFNA	7.264	472.0 -> 427.0	518224	20.00 µg/L	0.012
M6-PFDA	7.738	519.0 -> 474.0	639062	20.00 µg/L	-0.002
M7-PFUnDA	8.127	570.0 -> 525.0	788091	20.00 µg/L	0.000
M2-PFDoDA	8.464	615.0 -> 570.0	869302	20.00 µg/L	-0.001
M2-PFTeDA	9.225	715.0 -> 670.0	774770	20.00 µg/L	0.000
M8-FOSA	7.311	506.0 -> 78.0	253312	20.00 µg/L	0.012
M3-PFBS	3.904	302.0 -> 99.0	51176	20.00 µg/L	0.012
M3-PFHxS	5.985	402.0 -> 99.0	54495	20.00 µg/L	0.012
M8-PFOS	7.247	507.0 -> 99.0	91031	20.00 µg/L	0.012
M2-4:2FTS	4.883	329.0 -> 309.0	147669	20.00 µg/L	0.012
M2-6:2FTS	6.639	429.0 -> 409.0	192524	20.00 µg/L	0.000
M2-8:2FTS	7.763	529.0 -> 509.0	155905	20.00 µg/L	0.000
M3-MeFOSAA	7.732	573.0 -> 419.0	89352	20.00 µg/L	-0.001
M3-HFPO-DA	5.280	287.0 -> 169.0	210720	100.00 µg/L	0.000
13C2-PFOA	6.658	415.0 -> 370.0	647669	20.00 µg/L	0.012
13C4-PFOS	7.249	503.0 -> 80.0	151944	20.00 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	4.883	329.0 -> 309.0	146533	20.16 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C2-6:2FTS	6.639	429.0 -> 409.0	191636	20.37 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C2-8:2FTS	7.763	529.0 -> 509.0	156022	20.43 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C2-PFDoDA	8.464	615.0 -> 570.0	871369	20.60 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C2-PFTeDA	9.225	715.0 -> 670.0	775070	20.74 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C3-PFBS	3.904	302.0 -> 99.0	50346	20.28 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C3-PFHxS	5.985	402.0 -> 99.0	54031	20.16 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C4-PFBA	1.714	217.0 -> 172.0	342884	20.28 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C4-PFHpA	5.928	367.0 -> 322.0	458821	20.41 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFHxA	4.988	318.0 -> 273.0	375067	20.39 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFPeA	3.586	268.0 -> 223.0	252605	20.40 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C6-PFDA	7.738	519.0 -> 474.0	635234	20.52 µg/L	-0.002

7.5.6
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Cal Report:

3Q3255.D

Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)	QValue
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%		
13C7-PFUnDA	8.127	570.0 -> 525.0	789011	20.49 µg/L	0.000	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C8-FOSA	7.311	506.0 -> 78.0	253329	20.54 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%		
13C8-PFOA	6.656	421.0 -> 376.0	496246	20.52 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%		
13C8-PFOS	7.247	507.0 -> 99.0	90675	20.68 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.4%		
13C9-PFNA	7.264	472.0 -> 427.0	515690	20.56 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.8%		
d3-MeFOSAA	7.732	573.0 -> 419.0	89307	20.82 µg/L	-0.001	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C3-HFPO-DA	5.280	287.0 -> 169.0	210720	100.23 µg/L	0.000	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
M2-PFOA	6.658	415.0 -> 370.0	647669	20.00 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.249	503.0 -> 80.0	151944	20.00 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						QValue
4:2FTS	4.886	327.0 -> 307.0	91512	20.84 µg/L		100
6:2FTS	6.641	427.0 -> 407.0	100791	20.88 µg/L		100
8:2FTS	7.763	527.0 -> 507.0	84239	20.45 µg/L		100
EtFOSAA	7.872	584.0 -> 419.0	47448	20.97 µg/L		100
FOSA	7.313	498.0 -> 78.0	125176	20.75 µg/L		100
MeFOSAA	7.746	570.0 -> 419.0	49664	20.59 µg/L		100
PFBA	1.723	213.0 -> 169.0	63937	20.02 µg/L		100
PFBS	3.895	299.0 -> 80.0	70045	20.31 µg/L		100
PFDA	7.738	513.0 -> 469.0	316172	20.16 µg/L		100
PFDoDA	8.465	613.0 -> 569.0	405528	20.30 µg/L		100
PFDS	8.099	599.0 -> 80.0	30400	20.52 µg/L		100
PFHpA	5.930	363.0 -> 319.0	445563	20.15 µg/L		100
PFHpS	6.674	449.0 -> 80.0	62115	20.80 µg/L		100
PFHxA	4.990	313.0 -> 269.0	142413	20.07 µg/L		100
PFHxS	5.974	399.0 -> 80.0	63866	20.13 µg/L	m	100
PFNA	7.264	463.0 -> 419.0	338424	20.01 µg/L		100
PFNS	7.710	549.0 -> 80.0	57167	20.17 µg/L		100
PFOA	6.660	413.0 -> 369.0	278688	20.04 µg/L		100
PFOS	7.249	499.0 -> 80.0	84377	19.44 µg/L	m	100
PFPeA	3.590	263.0 -> 219.0	262768	20.20 µg/L		100
PFPeS	5.119	349.0 -> 80.0	46158	20.59 µg/L		100
PFTeDA	9.216	713.0 -> 669.0	497063	20.17 µg/L		100
PFTrDA	8.828	663.0 -> 619.0	465478	20.08 µg/L		100
PFUnDA	8.128	563.0 -> 519.0	362178	20.31 µg/L		100
11Cl-PF3OUdS	8.260	631.0 -> 451.0	220345	20.51 µg/L		100
9Cl-PF3ONS	7.508	531.0 -> 351.0	49367	19.89 µg/L		100
ADONA	6.039	377.0 -> 251.0	573682	20.24 µg/L		100
HFPO-DA	5.284	329.0 -> 169.0	341426	103.87 µg/L		100

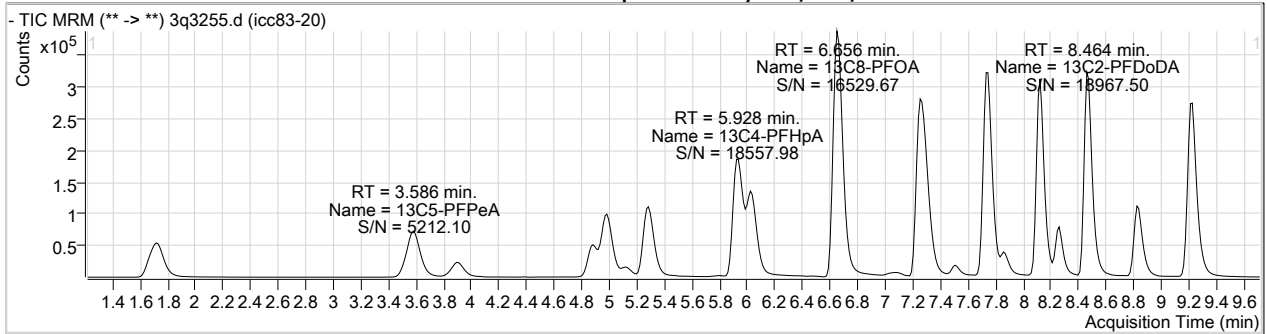
7.5.6
7

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

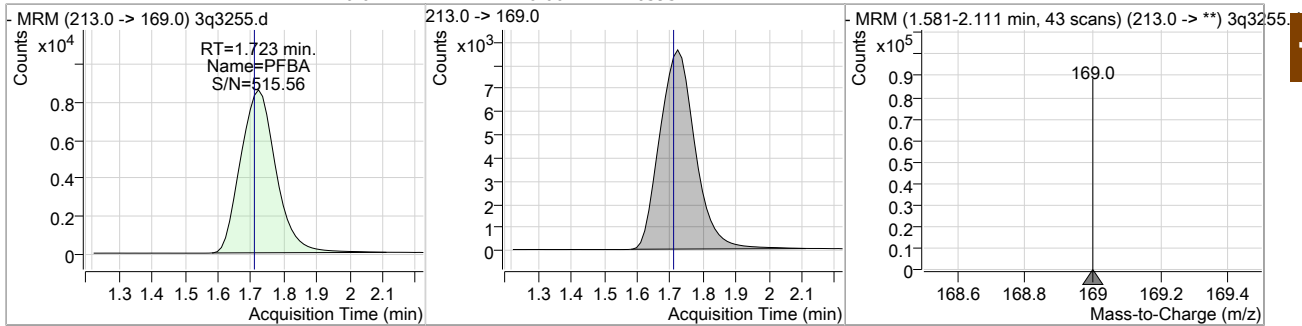
Cal Report:

3Q3255.D

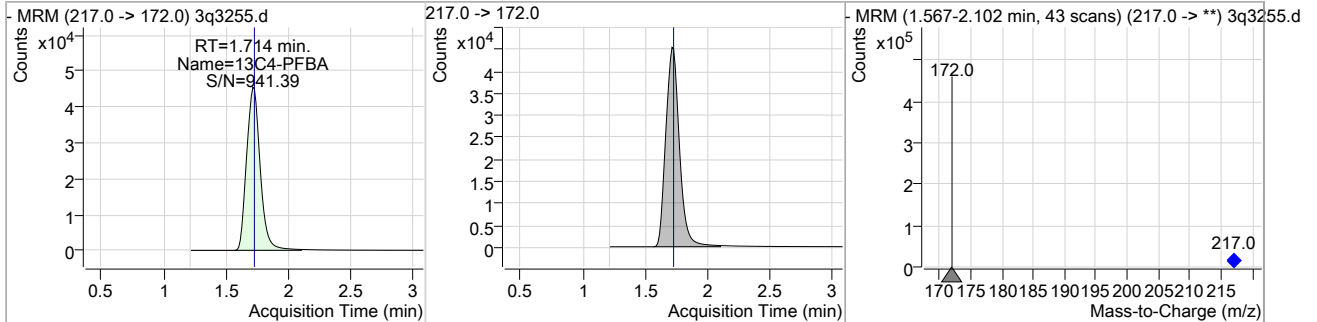
Perfluorinated Compounds by LC/MS/MS



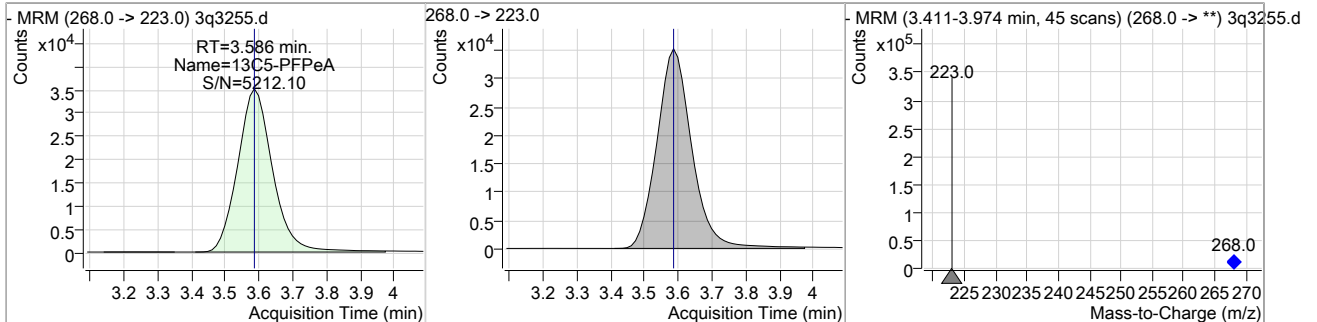
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	20.02	1.72	0.00	63937				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.28	1.71	-0.01	342884				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.40	3.59	0.00	252605				

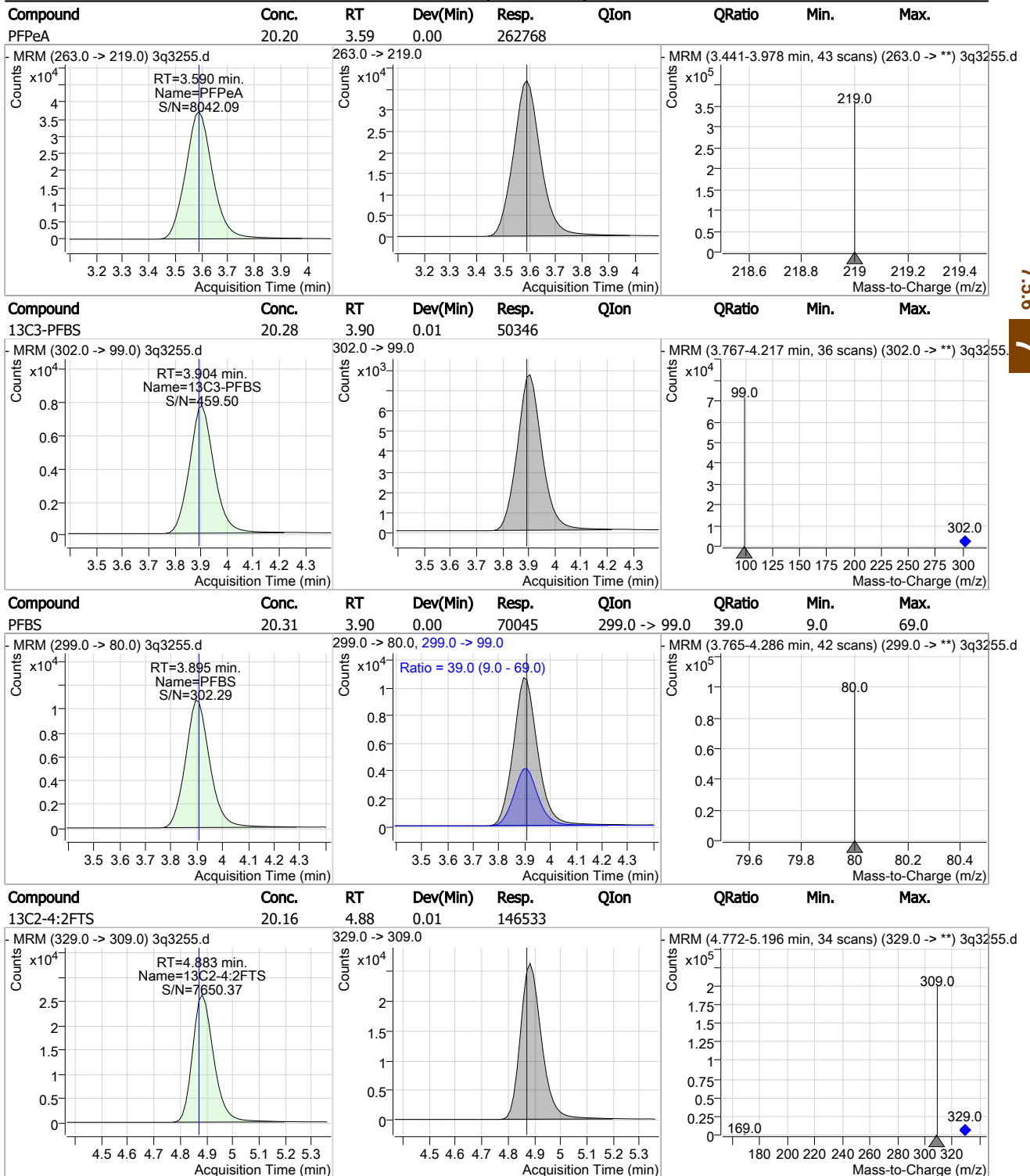


7.5.6
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Cal Report:

3Q3255.D

Perfluorinated Compounds by LC/MS/MS



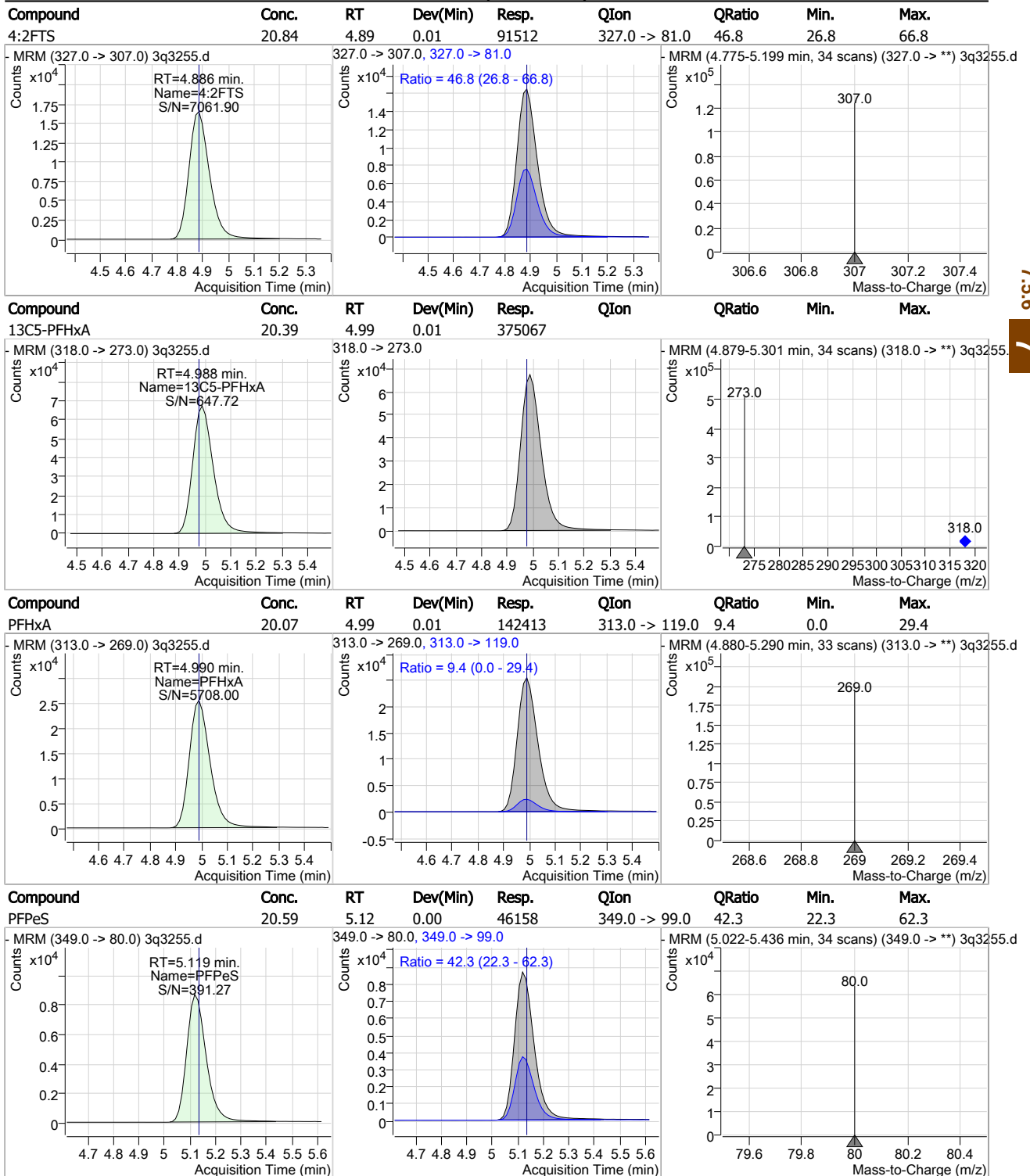
7.5.6

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Cal Report:

3Q3255.D

Perfluorinated Compounds by LC/MS/MS



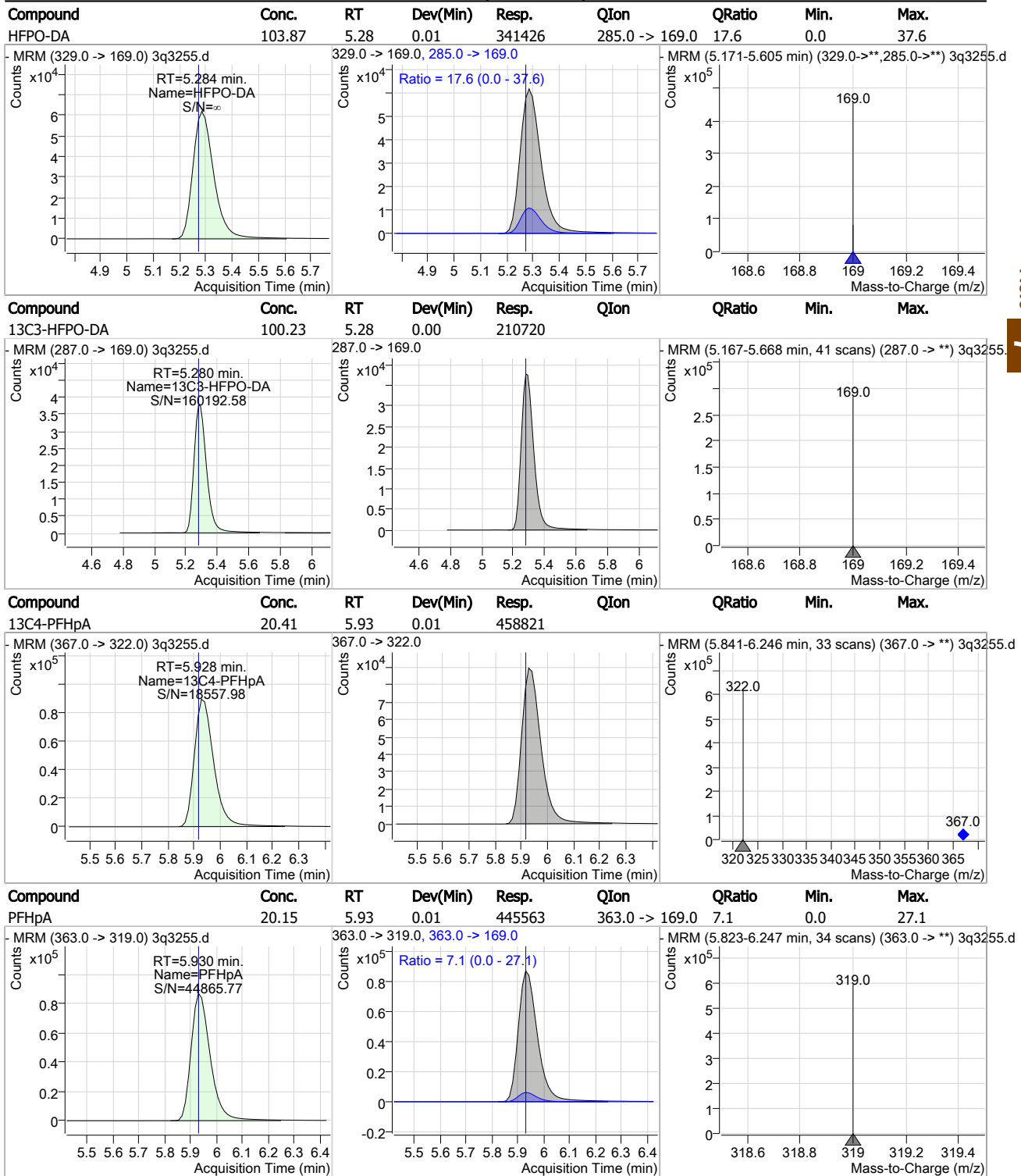
7.5.6

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Cal Report:

3Q3255.D

Perfluorinated Compounds by LC/MS/MS

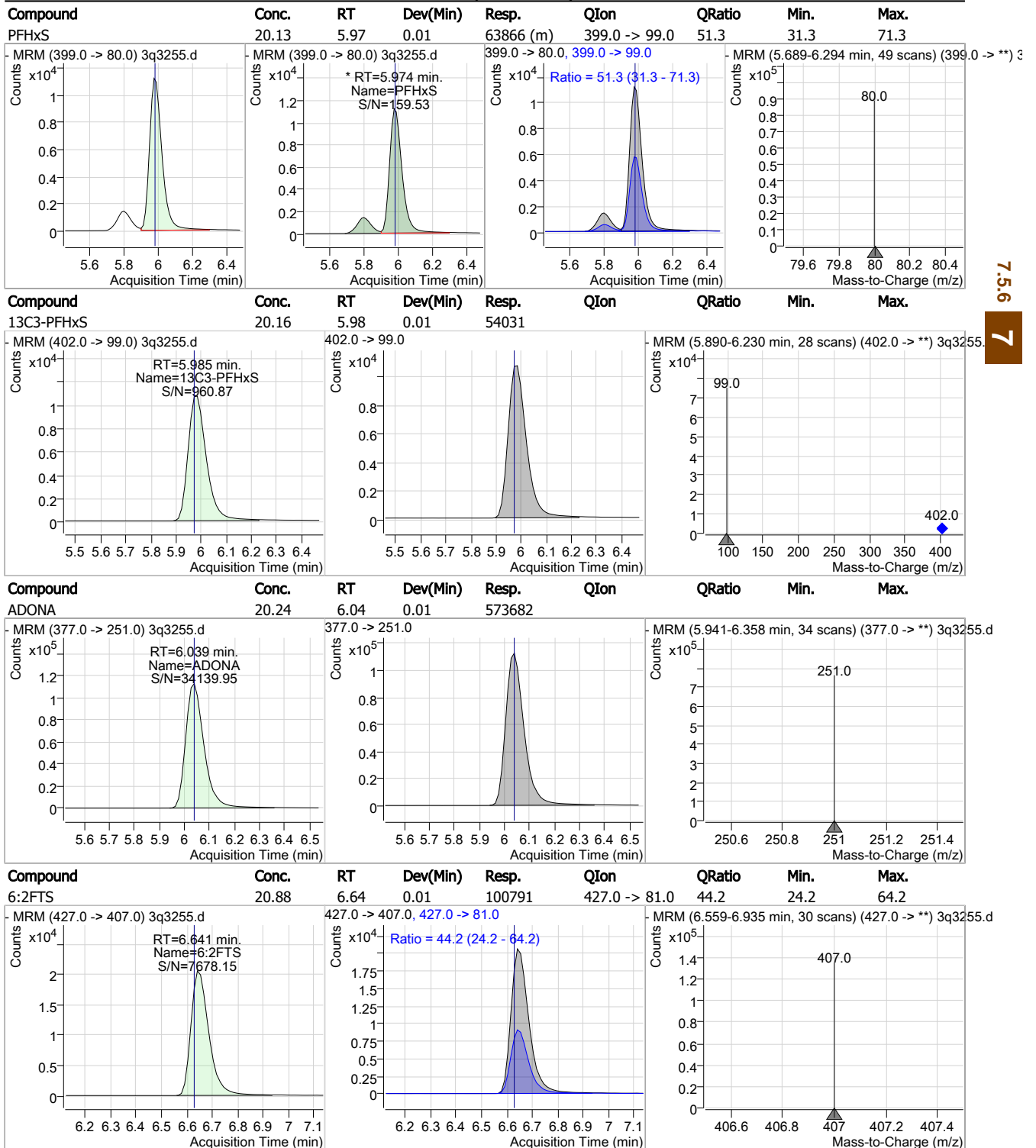


7.5.6
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Cal Report:

3Q3255.D

Perfluorinated Compounds by LC/MS/MS

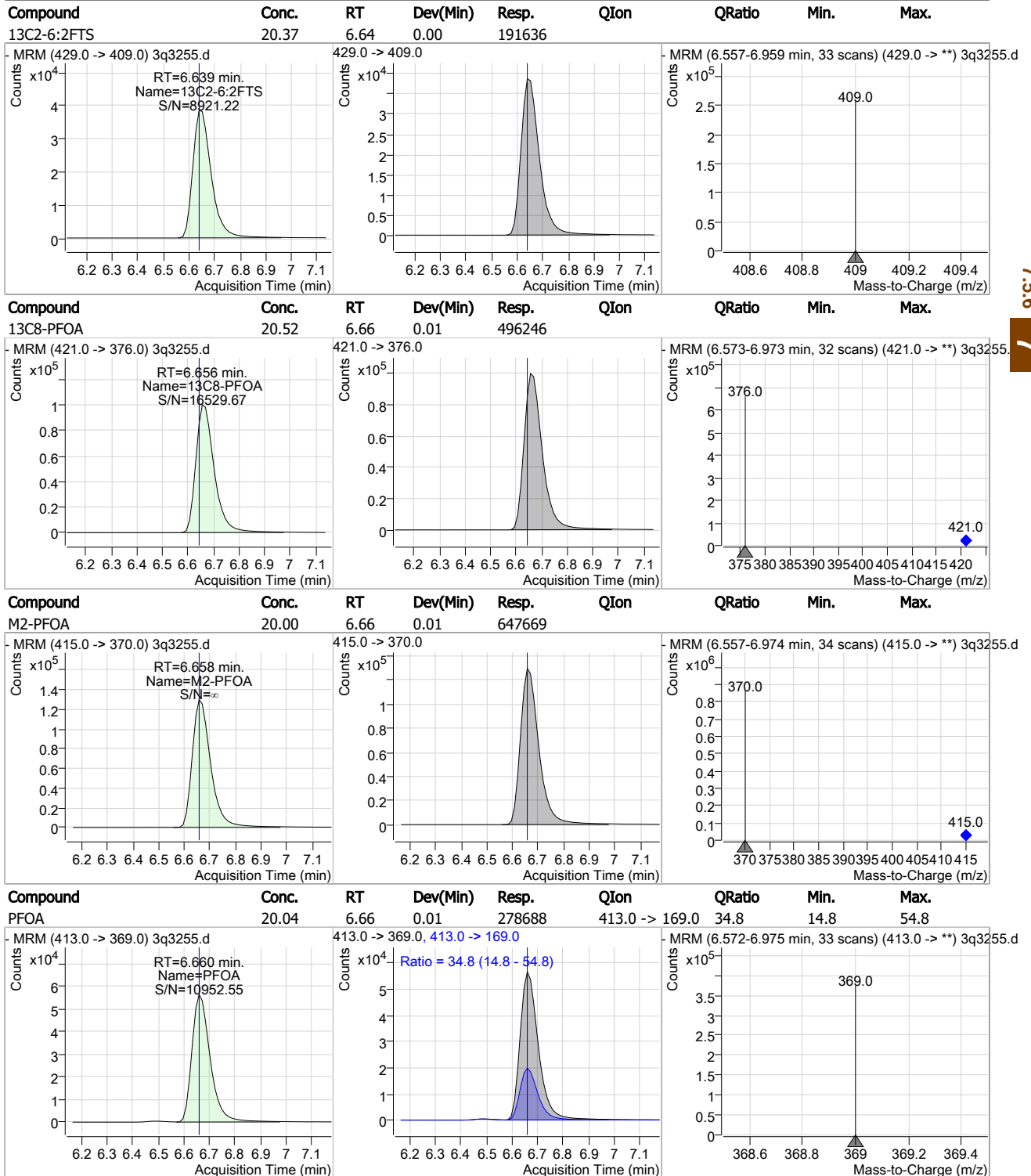


7.5.6
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Cal Report:

3Q3255.D

Perfluorinated Compounds by LC/MS/MS

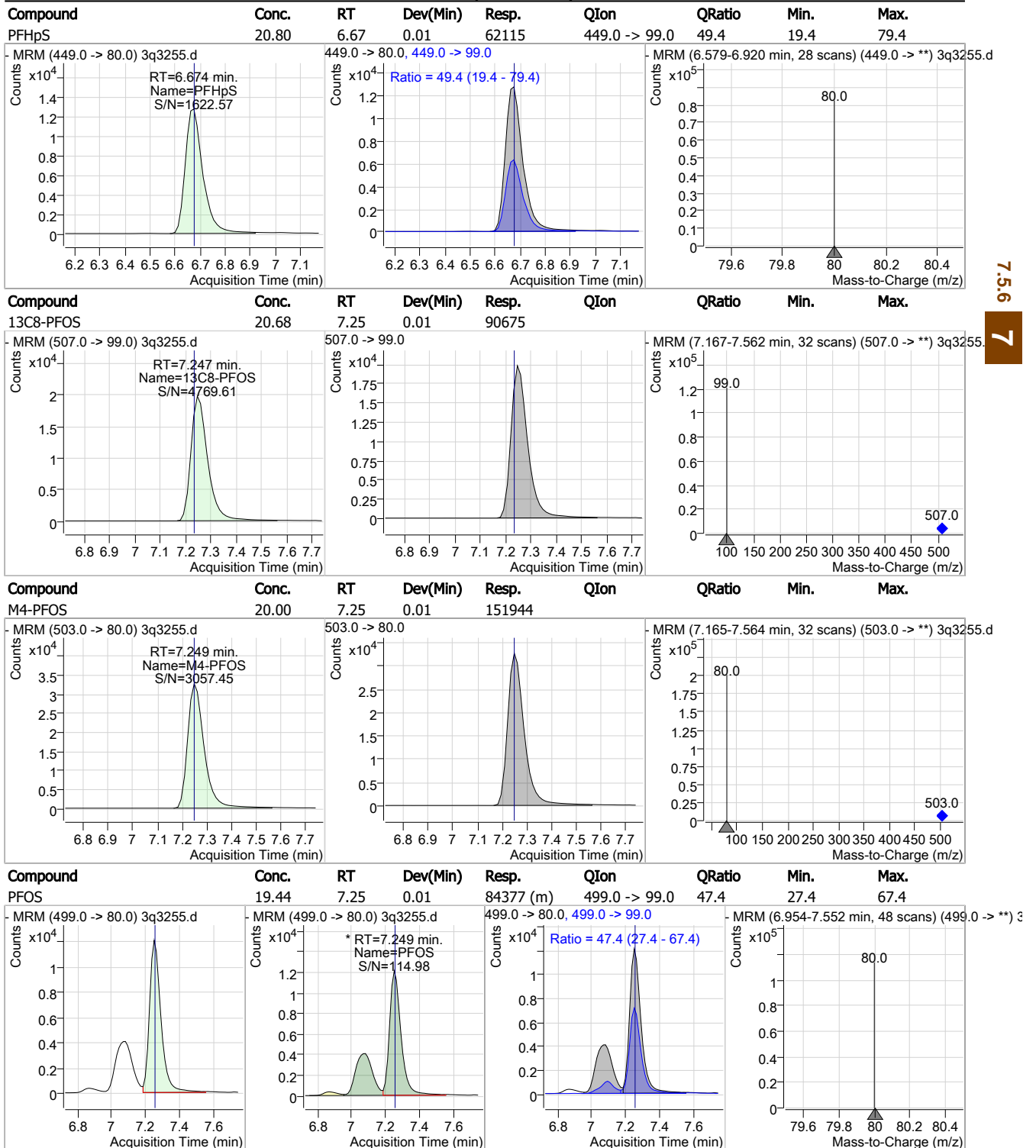


7.5.6
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Cal Report:

3Q3255.D

Perfluorinated Compounds by LC/MS/MS

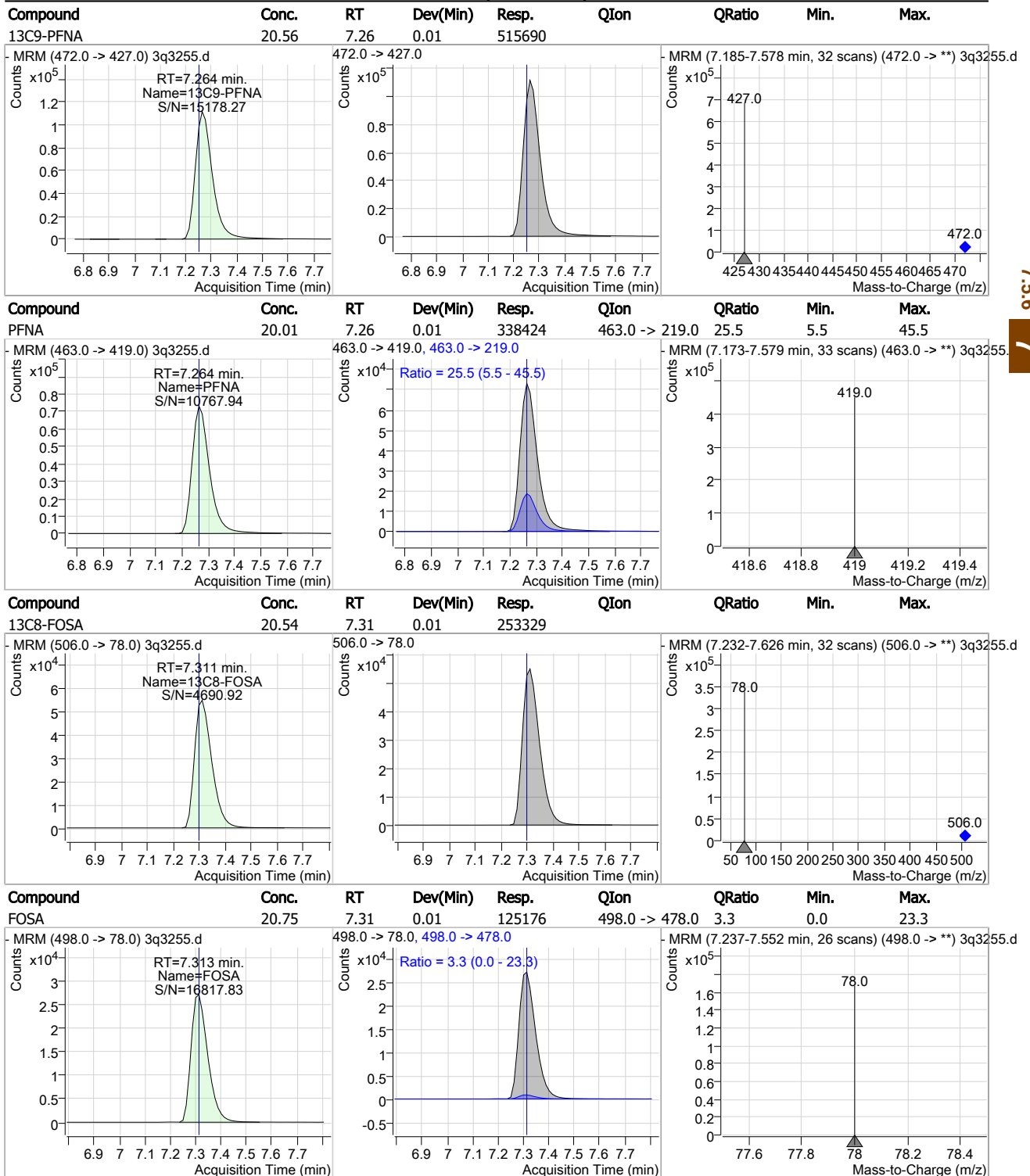


7.5.6
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Cal Report:

3Q3255.D

Perfluorinated Compounds by LC/MS/MS

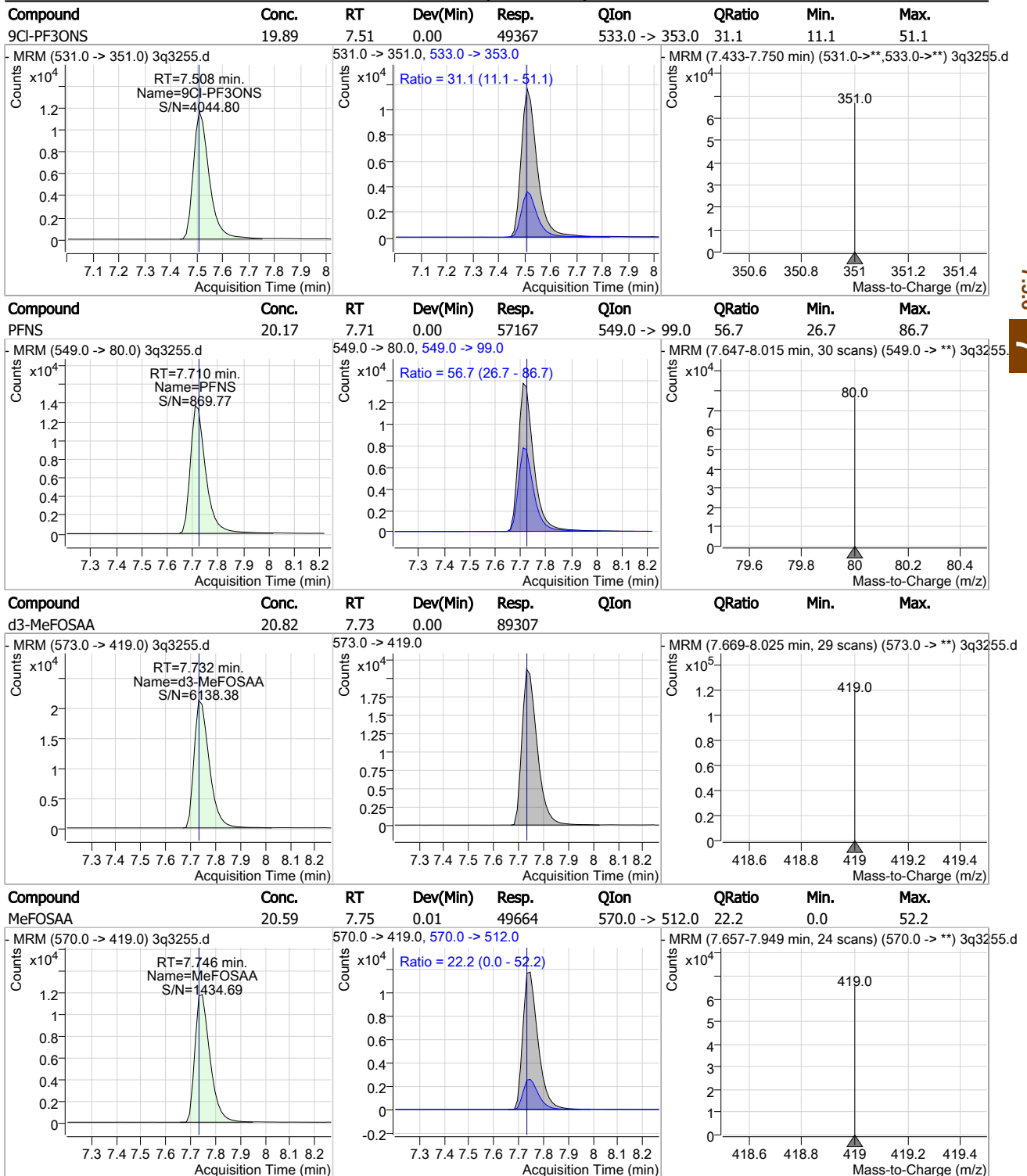


7.5.6
7

Cal Report:

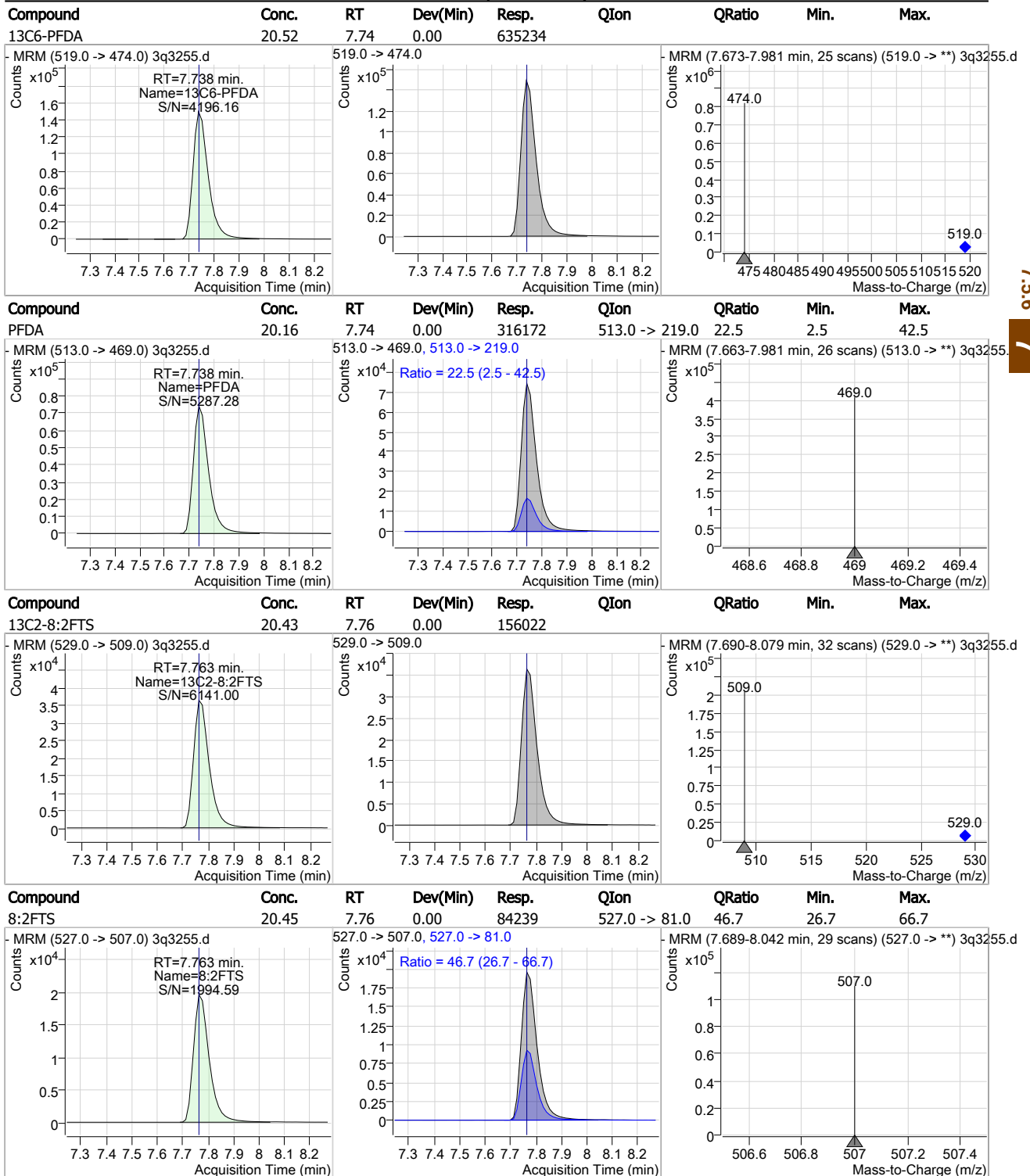
3Q3255.D

Perfluorinated Compounds by LC/MS/MS



7.56
7

Perfluorinated Compounds by LC/MS/MS

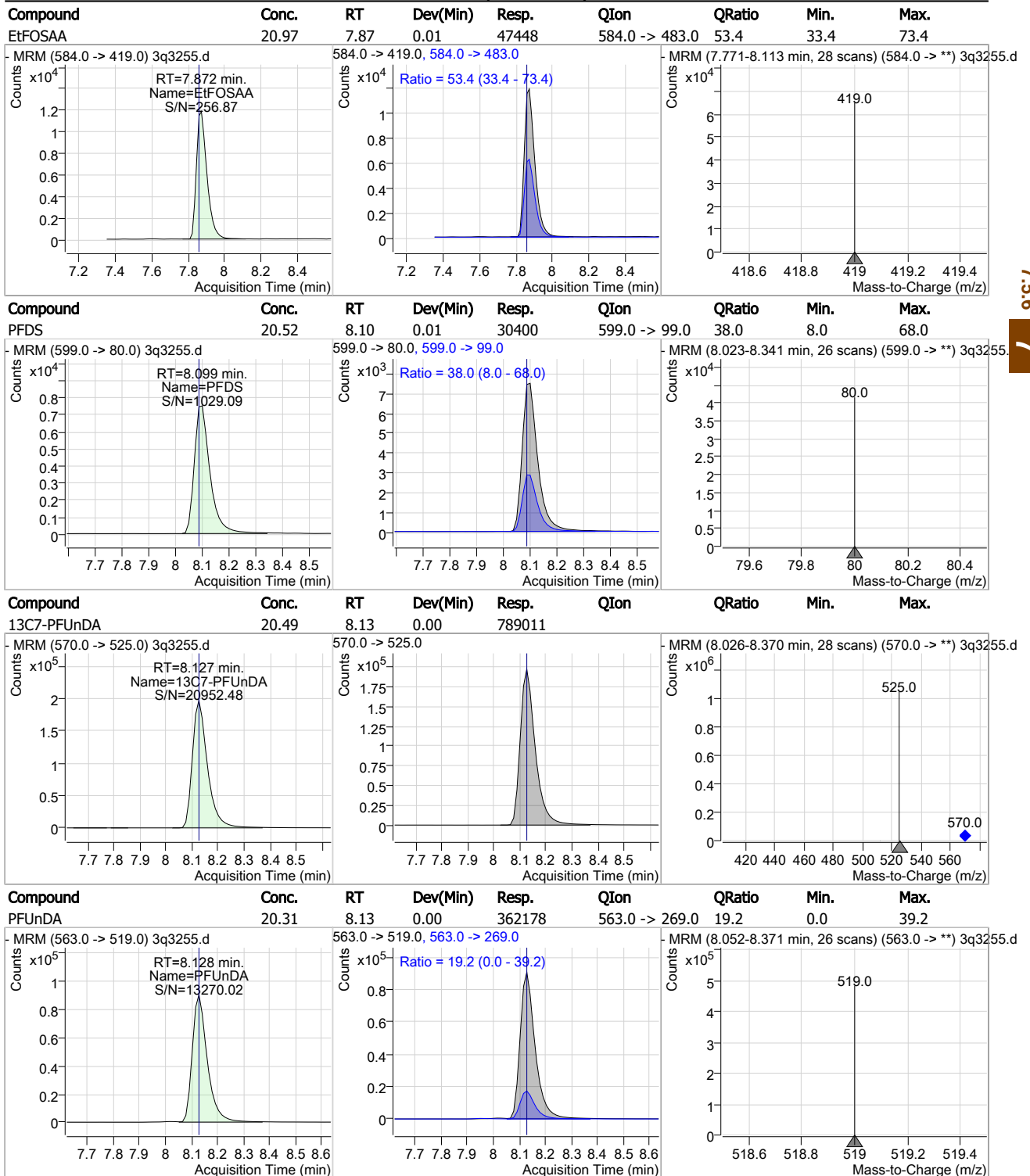


7.56
7

Cal Report:

3Q3255.D

Perfluorinated Compounds by LC/MS/MS

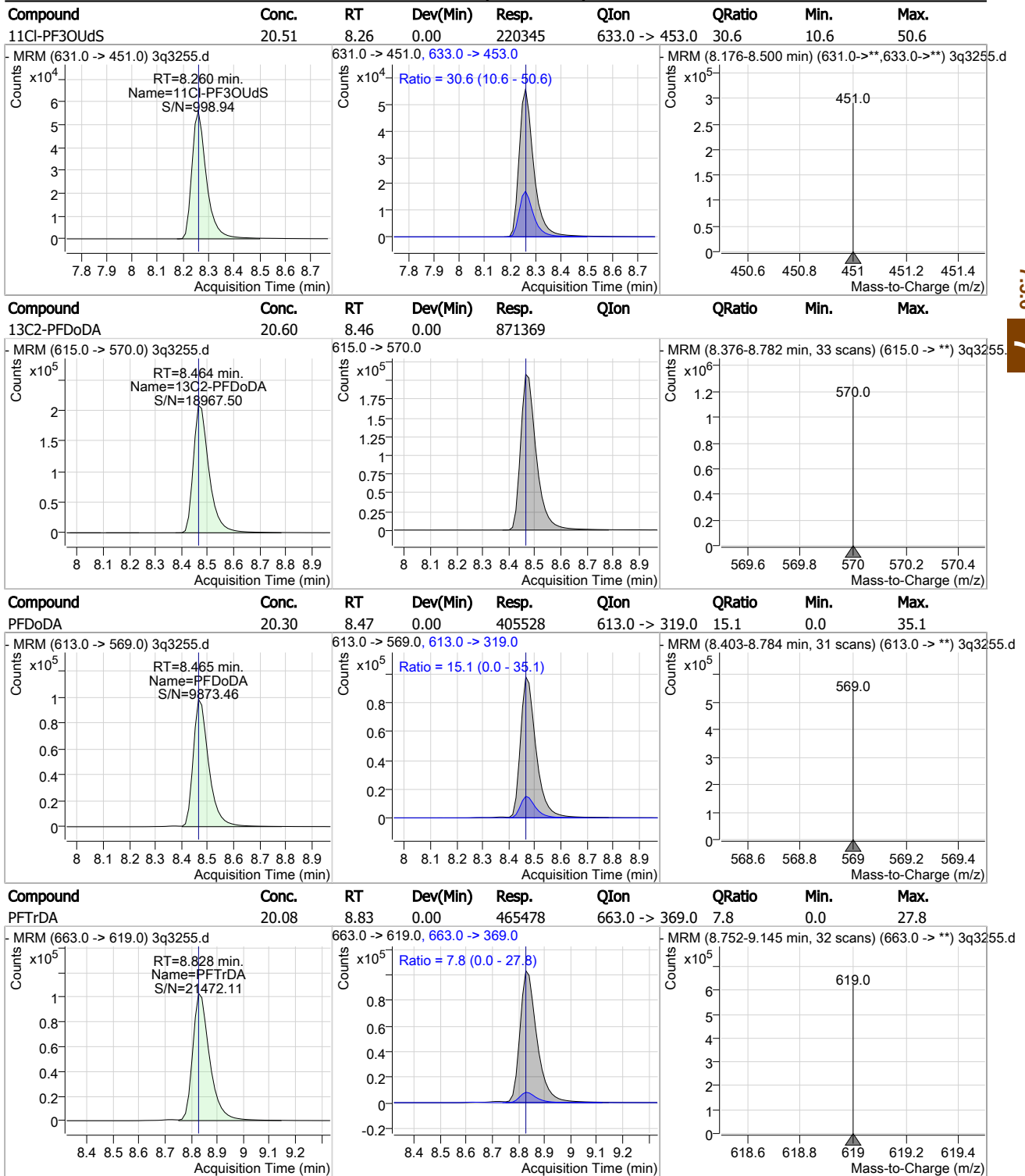


7.5.6
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Cal Report:

3Q3255.D

Perfluorinated Compounds by LC/MS/MS



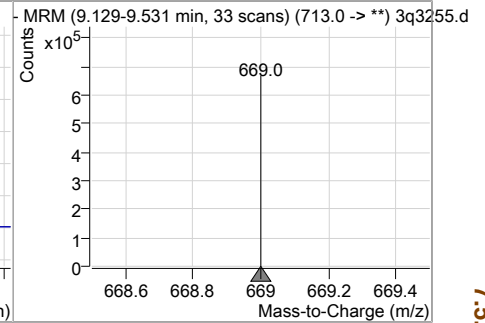
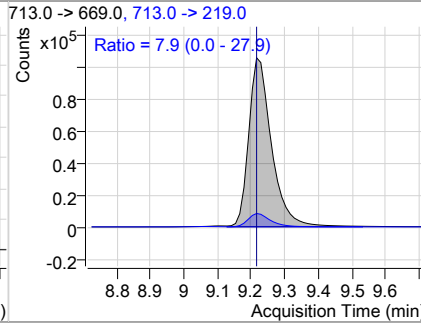
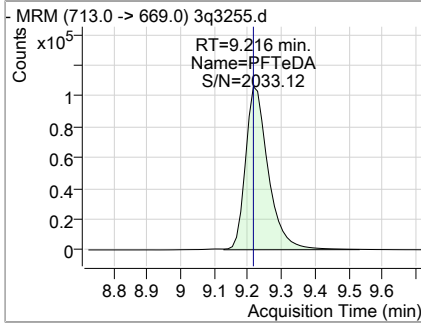
7.5.6
7

Cal Report:

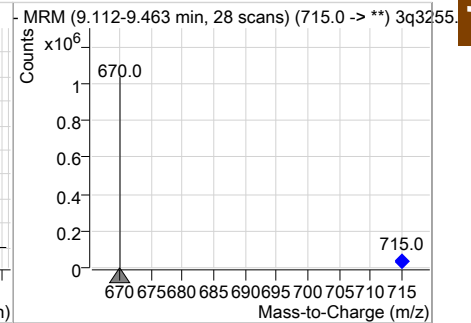
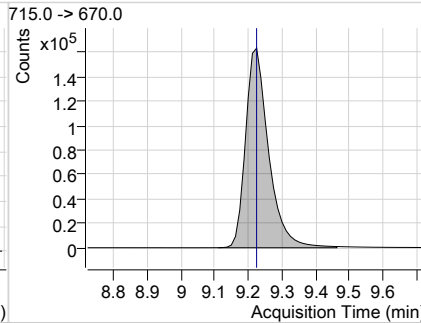
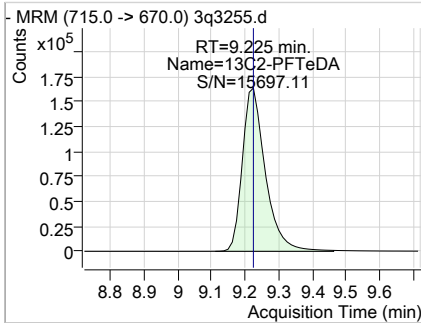
3Q3255.D

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.17	9.22	0.00	497063	713.0 -> 219.0	7.9	0.0	27.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.74	9.22	0.00	775070				



7.5.6

7

Manual Integration Approval Summary

Sample Number: S3Q83-ICC83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3255.D **Analyst approved:** 04/26/19 09:23 Natasha Gumtie
Injection Time: 04/25/19 10:03 **Supervisor approved:** 04/26/19 16:14 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.97	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.25	Split peak

7.5.6.1

7

Cal Report:

3Q3256.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:14

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3256.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 10:19:25 AM
 Sample Name : ic83-50
 Vial : P3-A8
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74632,S3Q83,125,,,1.0,1,water

Compound	RT	QI on	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.714	217.0 -> 172.0	345829	20.00 µg/L	-0.013
M5-PFPeA	3.586	268.0 -> 223.0	254884	20.00 µg/L	0.000
M5-PFHxA	4.988	318.0 -> 273.0	378988	20.00 µg/L	0.012
M4-PFHpA	5.940	367.0 -> 322.0	464178	20.00 µg/L	0.024
M8-PFOA	6.668	421.0 -> 376.0	489881	20.00 µg/L	0.025
M9-PFNA	7.264	472.0 -> 427.0	510095	20.00 µg/L	0.012
M6-PFDA	7.738	519.0 -> 474.0	624687	20.00 µg/L	-0.002
M7-PFUnDA	8.127	570.0 -> 525.0	779096	20.00 µg/L	0.000
M2-PFDoDA	8.477	615.0 -> 570.0	874329	20.00 µg/L	0.012
M2-PFTeDA	9.225	715.0 -> 670.0	769968	20.00 µg/L	0.000
M8-FOSA	7.311	506.0 -> 78.0	241540	20.00 µg/L	0.012
M3-PFBS	3.904	302.0 -> 99.0	50532	20.00 µg/L	0.012
M3-PFHxS	5.985	402.0 -> 99.0	54520	20.00 µg/L	0.012
M8-PFOS	7.247	507.0 -> 99.0	89343	20.00 µg/L	0.012
M2-4:2FTS	4.883	329.0 -> 309.0	160787	20.00 µg/L	0.012
M2-6:2FTS	6.651	429.0 -> 409.0	204715	20.00 µg/L	0.012
M2-8:2FTS	7.763	529.0 -> 509.0	168599	20.00 µg/L	0.000
M3-MeFOSAA	7.746	573.0 -> 419.0	86291	20.00 µg/L	0.012
M3-HFPO-DA	5.292	287.0 -> 169.0	205260	100.00 µg/L	0.012
13C2-PFOA	6.658	415.0 -> 370.0	627547	20.00 µg/L	0.012
13C4-PFOS	7.249	503.0 -> 80.0	147240	20.00 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	4.883	329.0 -> 309.0	159606	21.96 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C2-6:2FTS	6.651	429.0 -> 409.0	203978	21.68 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C2-8:2FTS	7.763	529.0 -> 509.0	168373	22.05 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C2-PFDoDA	8.477	615.0 -> 570.0	874035	20.66 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C2-PFTeDA	9.225	715.0 -> 670.0	769944	20.60 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C3-PFBS	3.904	302.0 -> 99.0	50242	20.24 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C3-PFHxS	5.985	402.0 -> 99.0	54428	20.30 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFBA	1.714	217.0 -> 172.0	345470	20.43 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C4-PFHpA	5.940	367.0 -> 322.0	461232	20.52 µg/L	0.024
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFHxA	4.988	318.0 -> 273.0	375943	20.43 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C5-PFPeA	3.586	268.0 -> 223.0	254884	20.58 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C6-PFDA	7.738	519.0 -> 474.0	624498	20.18 µg/L	-0.002

7.5.7
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Cal Report:

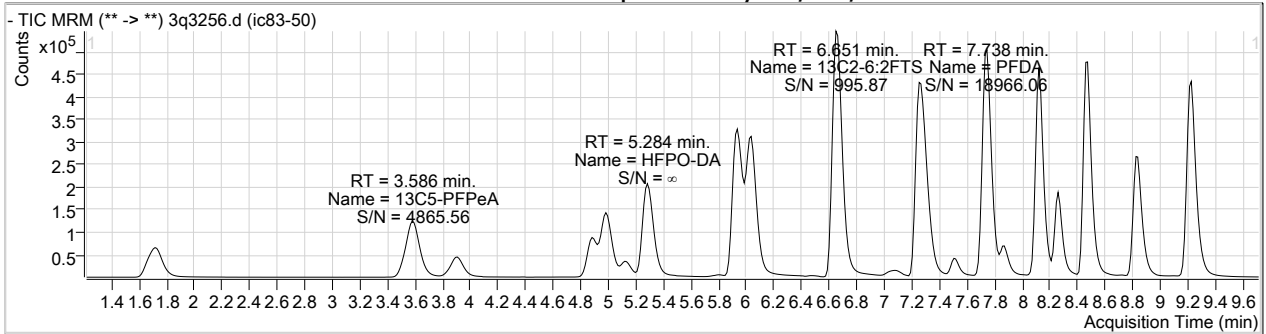
Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)	QValue
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C7-PFUnDA	8.127	570.0 -> 525.0	777881	20.21 µg/L	0.000	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C8-FOSA	7.311	506.0 -> 78.0	241531	19.58 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.9%		
13C8-PFOA	6.668	421.0 -> 376.0	487908	20.17 µg/L	0.025	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C8-PFOS	7.247	507.0 -> 99.0	88932	20.28 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C9-PFNA	7.264	472.0 -> 427.0	507715	20.24 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%		
d3-MeFOSAA	7.746	573.0 -> 419.0	86263	20.11 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
13C3-HFPO-DA	5.292	287.0 -> 169.0	205260	97.63 µg/L	0.012	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 97.6%		
M2-PFOA	6.658	415.0 -> 370.0	627547	20.00 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.249	503.0 -> 80.0	147240	20.00 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						
4:2FTS	4.886	327.0 -> 307.0	227615	47.60 µg/L	99	
6:2FTS	6.641	427.0 -> 407.0	243079	47.35 µg/L	99	
8:2FTS	7.763	527.0 -> 507.0	208778	46.87 µg/L	99	
EtFOSAA	7.872	584.0 -> 419.0	116406	53.28 µg/L	98	
FOSA	7.313	498.0 -> 78.0	289816	49.73 µg/L	99	
MeFOSAA	7.746	570.0 -> 419.0	118411	50.82 µg/L	98	
PFBA	1.723	213.0 -> 169.0	159475	49.53 µg/L	100	
PFBS	3.908	299.0 -> 80.0	172662	50.71 µg/L	100	
PFDA	7.738	513.0 -> 469.0	758658	49.48 µg/L	100	
PFDoDA	8.465	613.0 -> 569.0	998340	49.68 µg/L	100	
PFDS	8.099	599.0 -> 80.0	73560	50.24 µg/L	100	
PFHpA	5.942	363.0 -> 319.0	1095505	49.35 µg/L	100	
PFHpS	6.674	449.0 -> 80.0	149855	50.16 µg/L	98	
PFHxA	4.990	313.0 -> 269.0	353657	49.73 µg/L	100	
PFHxS	5.987	399.0 -> 80.0	156305	49.24 µg/L	m 100	
PFNA	7.264	463.0 -> 419.0	824246	49.50 µg/L	100	
PFNS	7.710	549.0 -> 80.0	136879	49.20 µg/L	100	
PFOA	6.660	413.0 -> 369.0	676163	49.54 µg/L	100	
PFOS	7.249	499.0 -> 80.0	206879	48.56 µg/L	m 100	
PFPeA	3.590	263.0 -> 219.0	655335	49.48 µg/L	100	
PFPeS	5.119	349.0 -> 80.0	113576	51.31 µg/L	99	
PFTeDA	9.229	713.0 -> 669.0	1214184	49.58 µg/L	100	
PFTrDA	8.828	663.0 -> 619.0	1141248	49.54 µg/L	100	
PFUnDA	8.128	563.0 -> 519.0	873936	49.57 µg/L	99	
11Cl-PF3OUdS	8.260	631.0 -> 451.0	542138	50.18 µg/L	100	
9Cl-PF3ONS	7.508	531.0 -> 351.0	124955	50.41 µg/L	97	
ADONA	6.039	377.0 -> 251.0	1421068	50.09 µg/L	100	
HFPO-DA	5.284	329.0 -> 169.0	819679	255.99 µg/L	100	

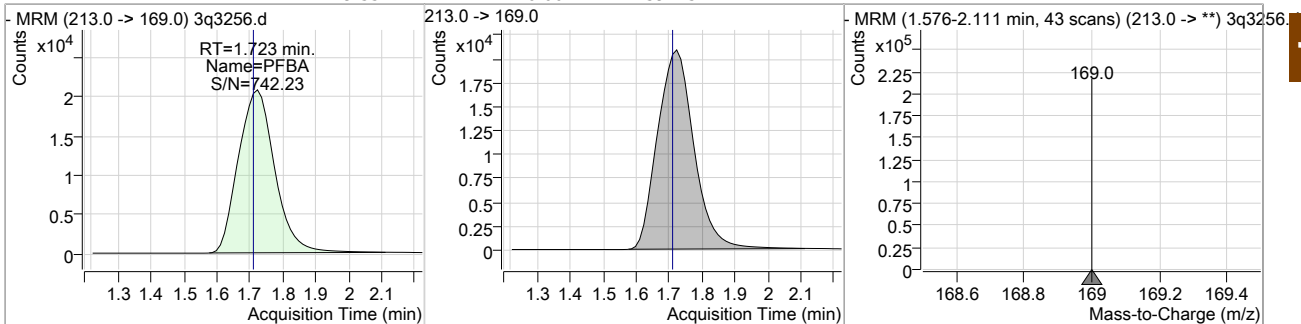
7.5.7
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= Qualifier out of range, m = manually integrated, + = Area summed

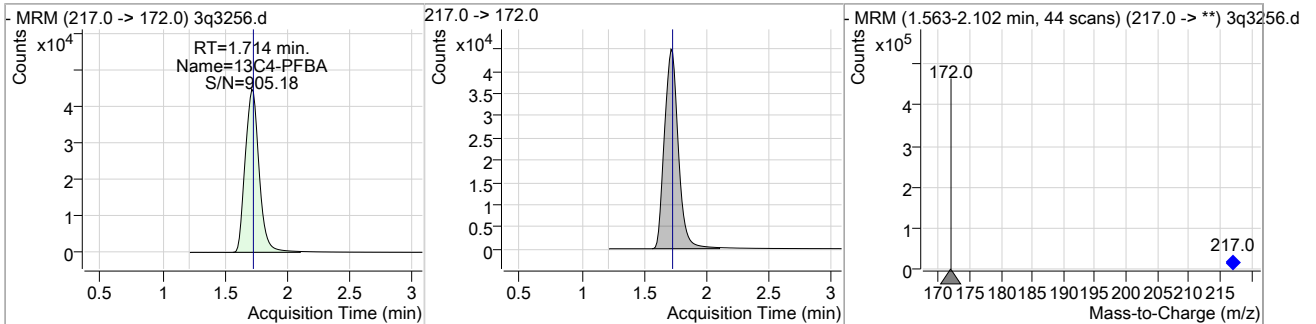
Perfluorinated Compounds by LC/MS/MS



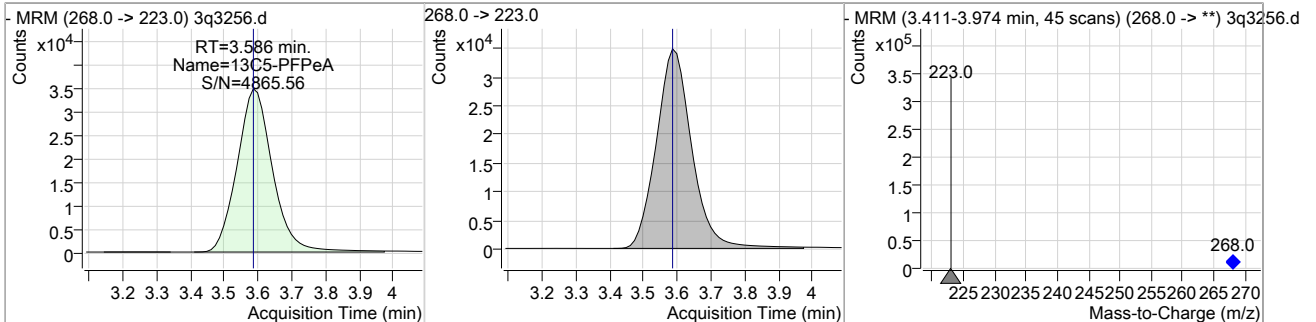
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	49.53	1.72	0.00	159475				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.43	1.71	-0.01	345470				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.58	3.59	0.00	254884				

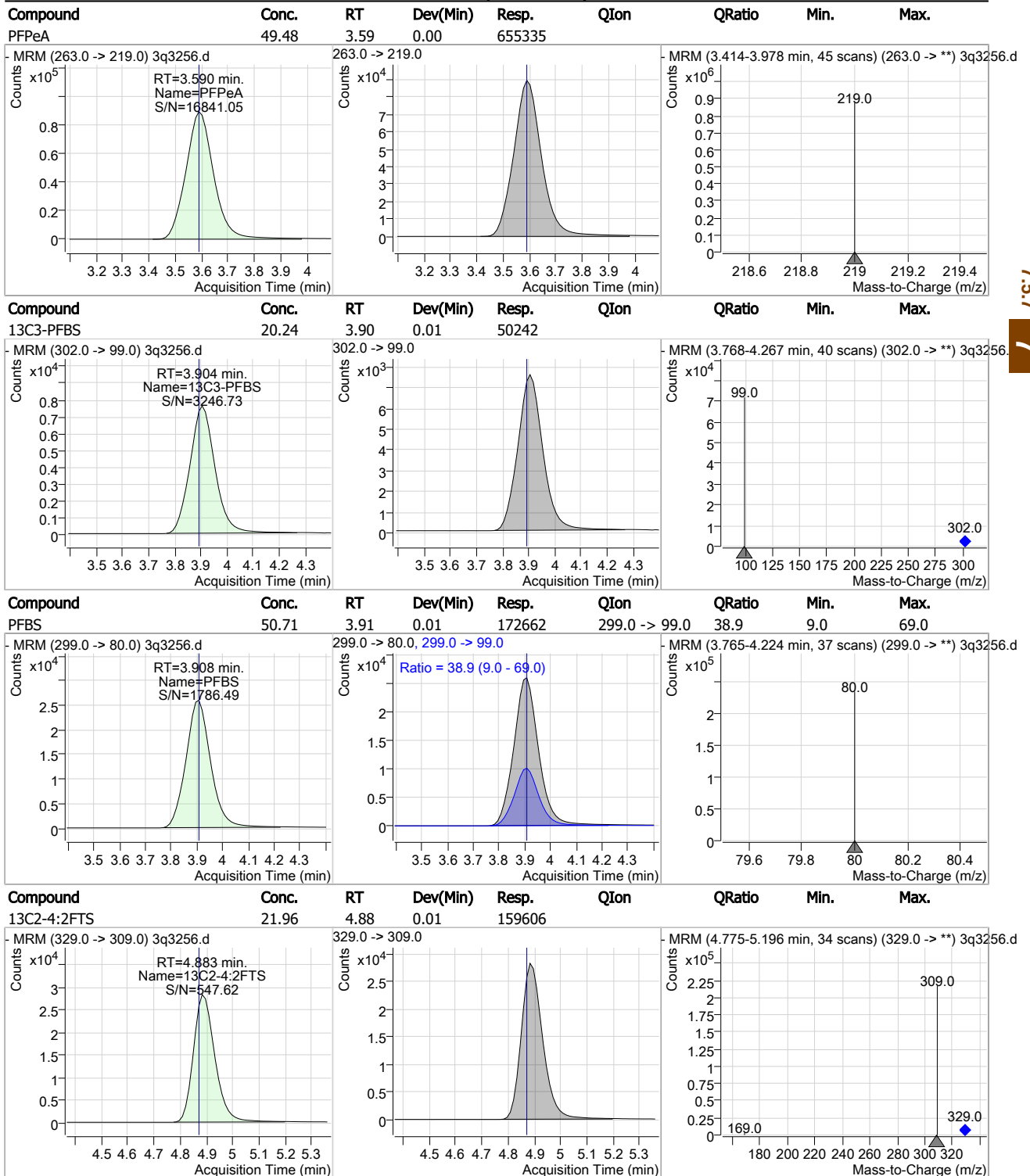


7.5.7

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Cal Report:

Perfluorinated Compounds by LC/MS/MS

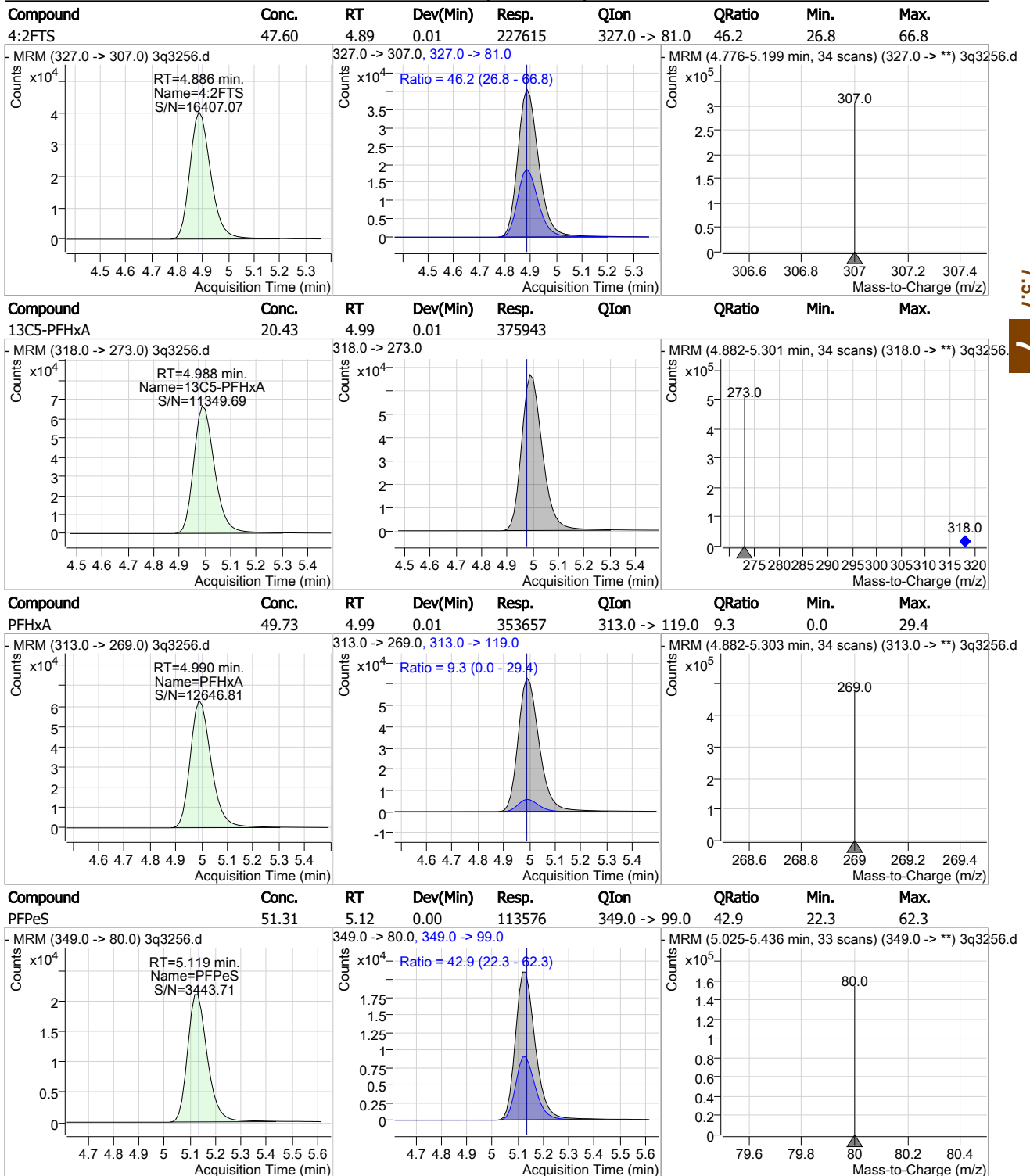


7.5.7

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Cal Report:

Perfluorinated Compounds by LC/MS/MS

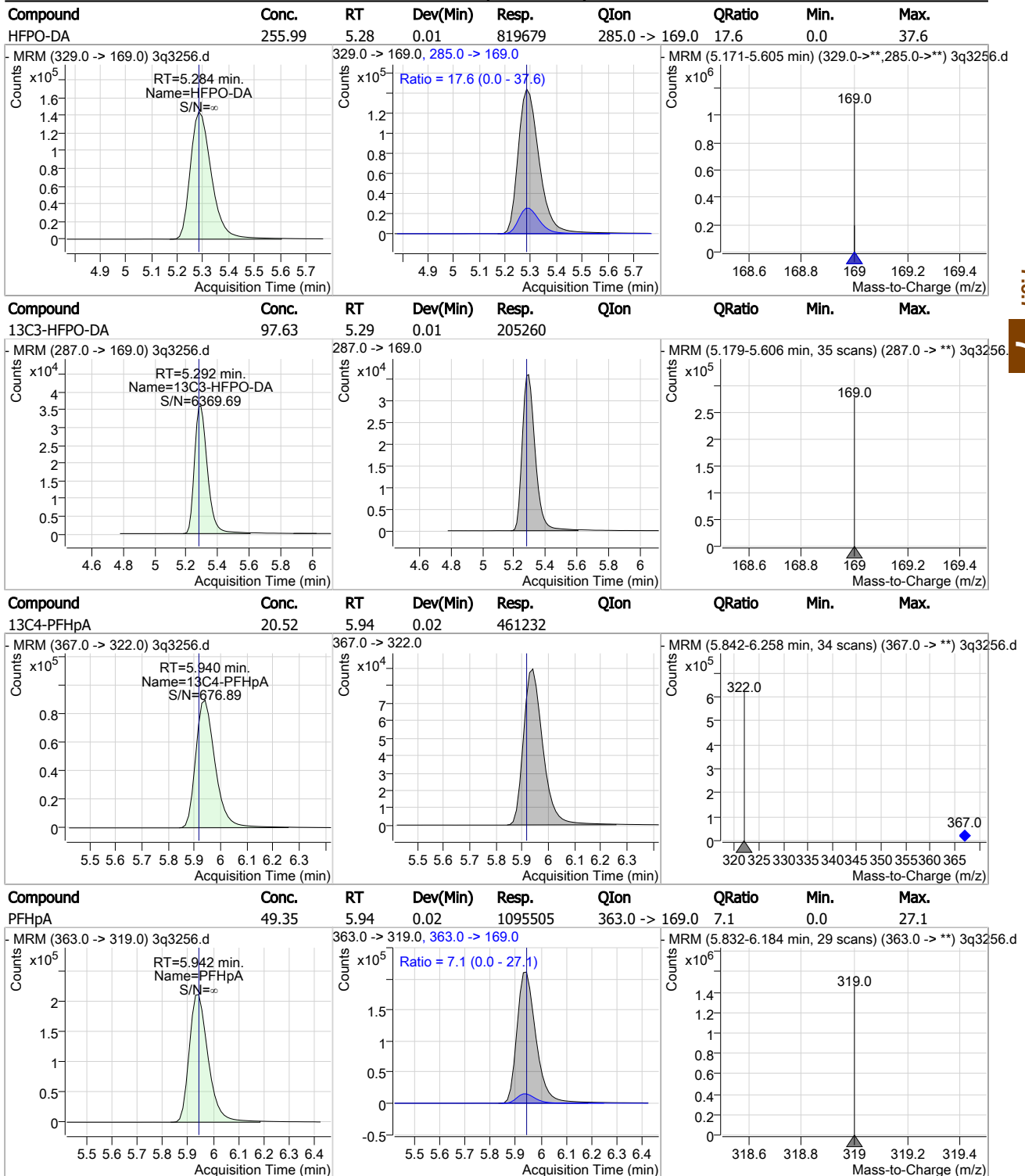


7.5.7

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Cal Report:

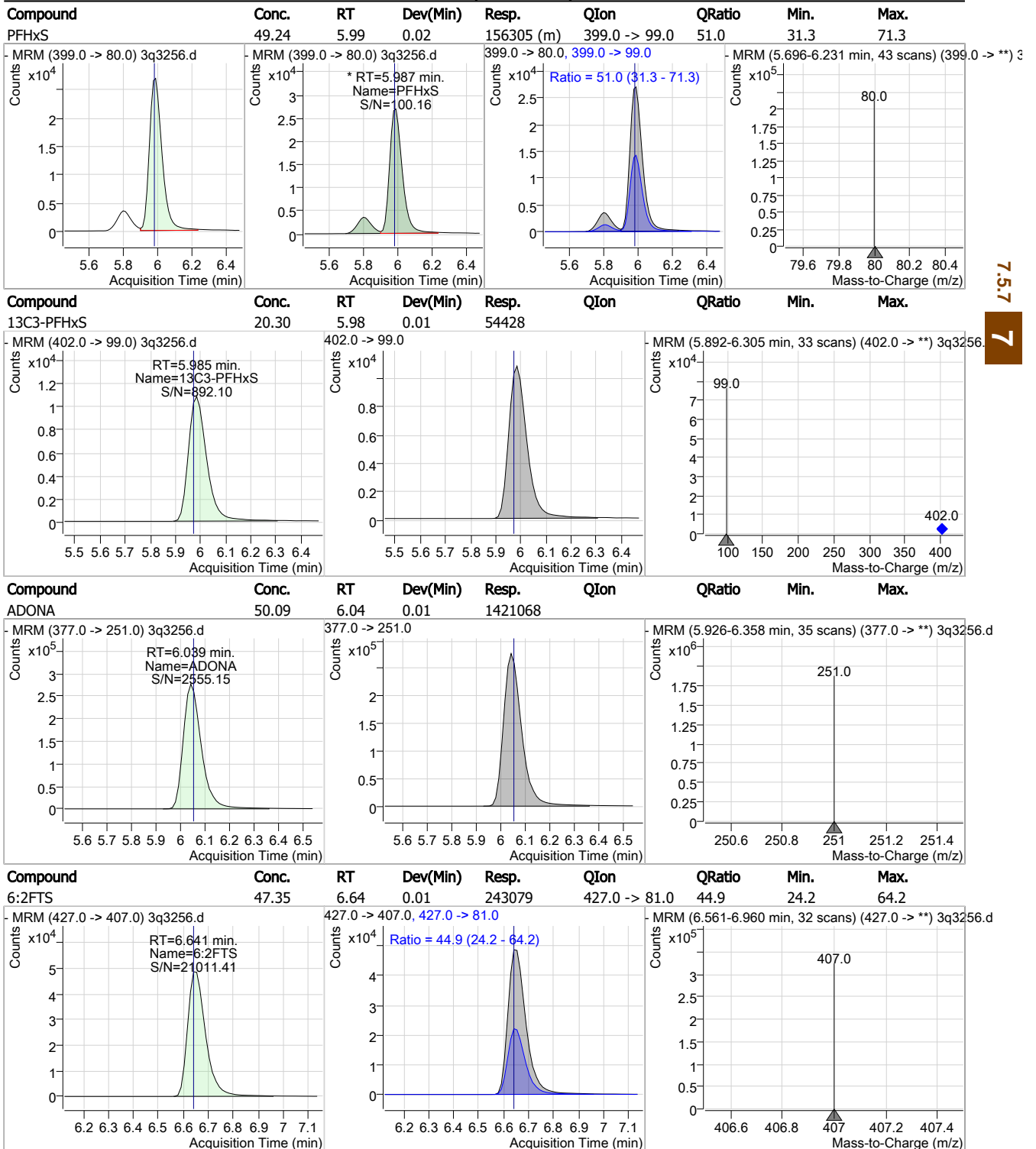
Perfluorinated Compounds by LC/MS/MS



7.5.7

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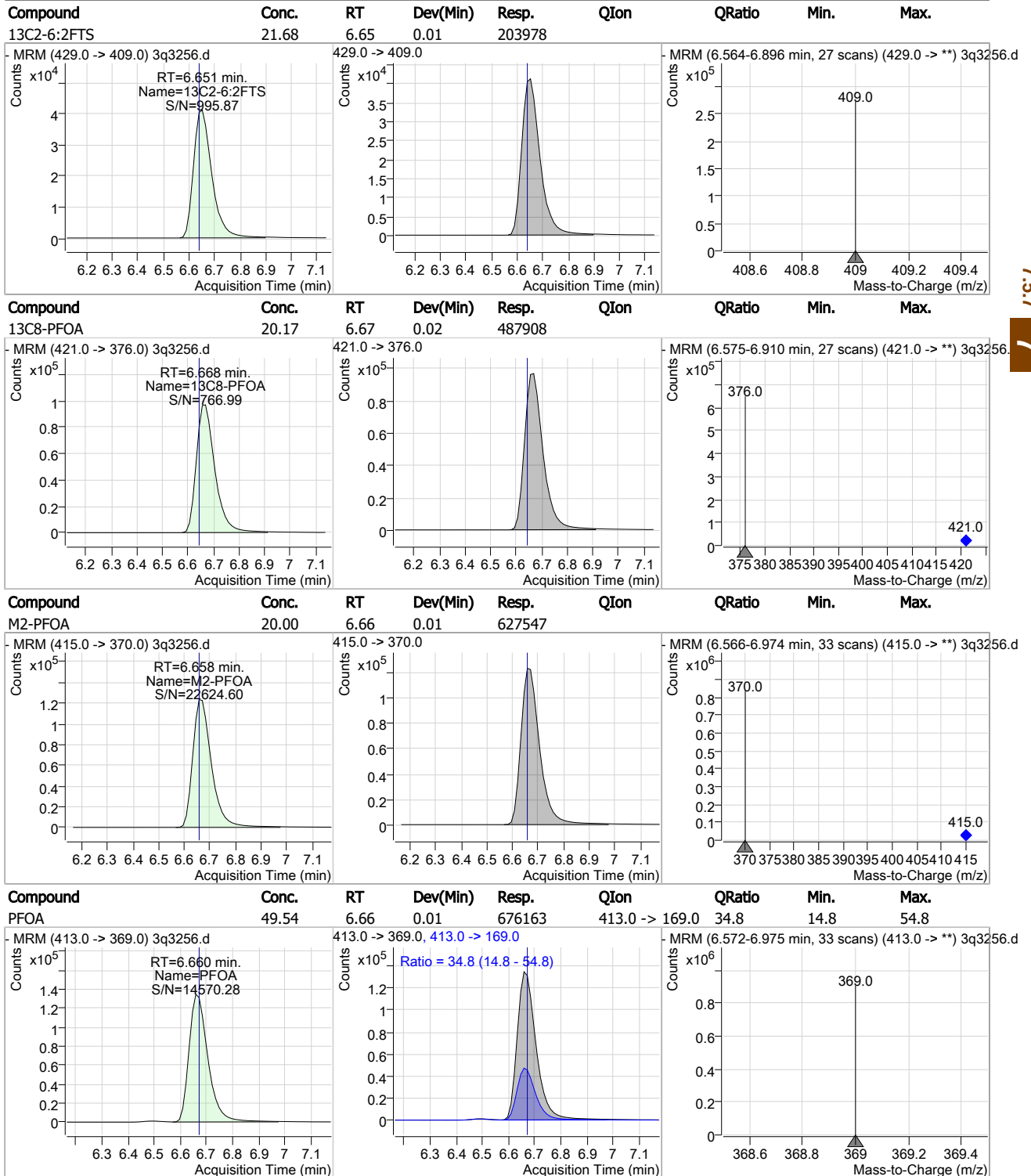
Perfluorinated Compounds by LC/MS/MS



7.5.7
7

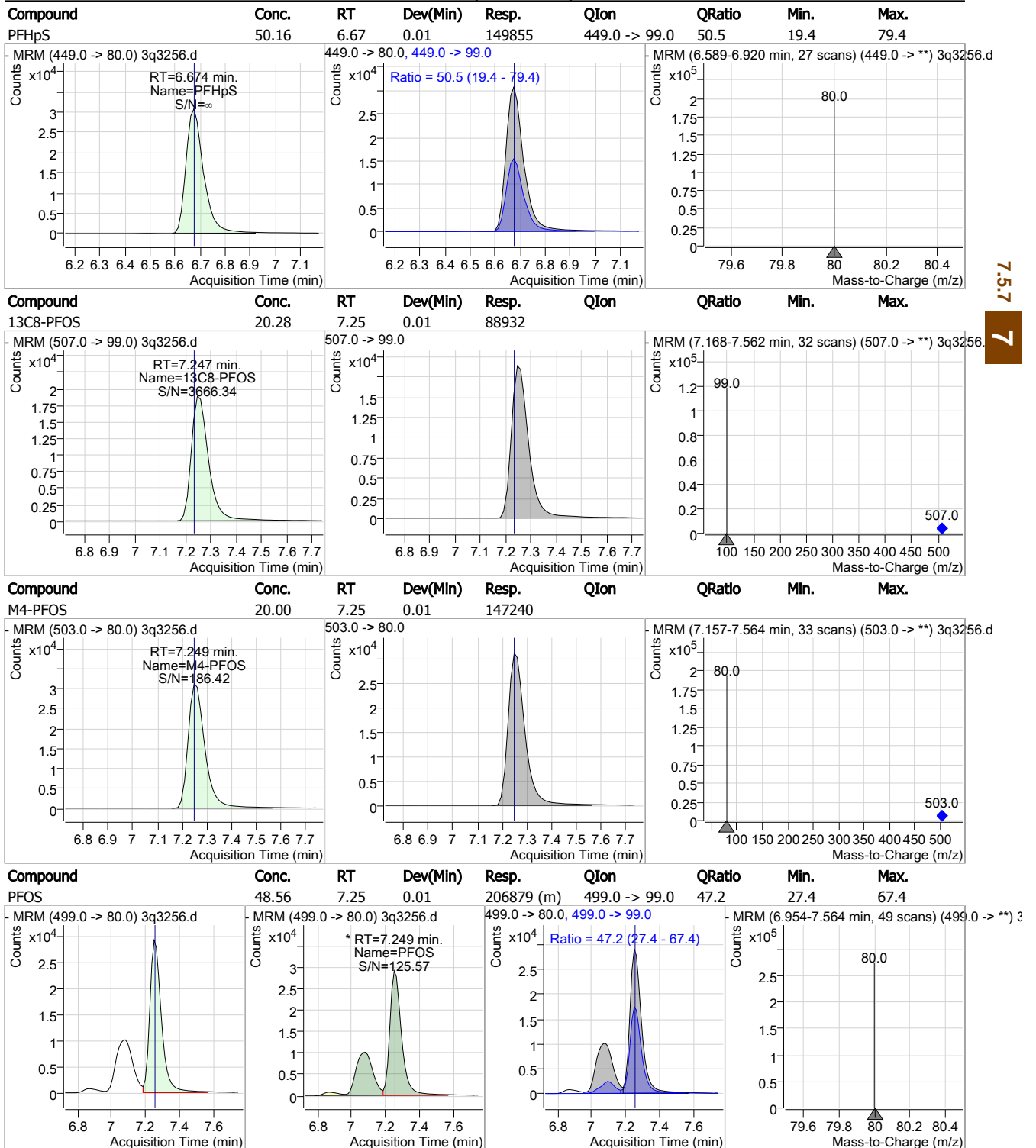
Cal Report:

Perfluorinated Compounds by LC/MS/MS



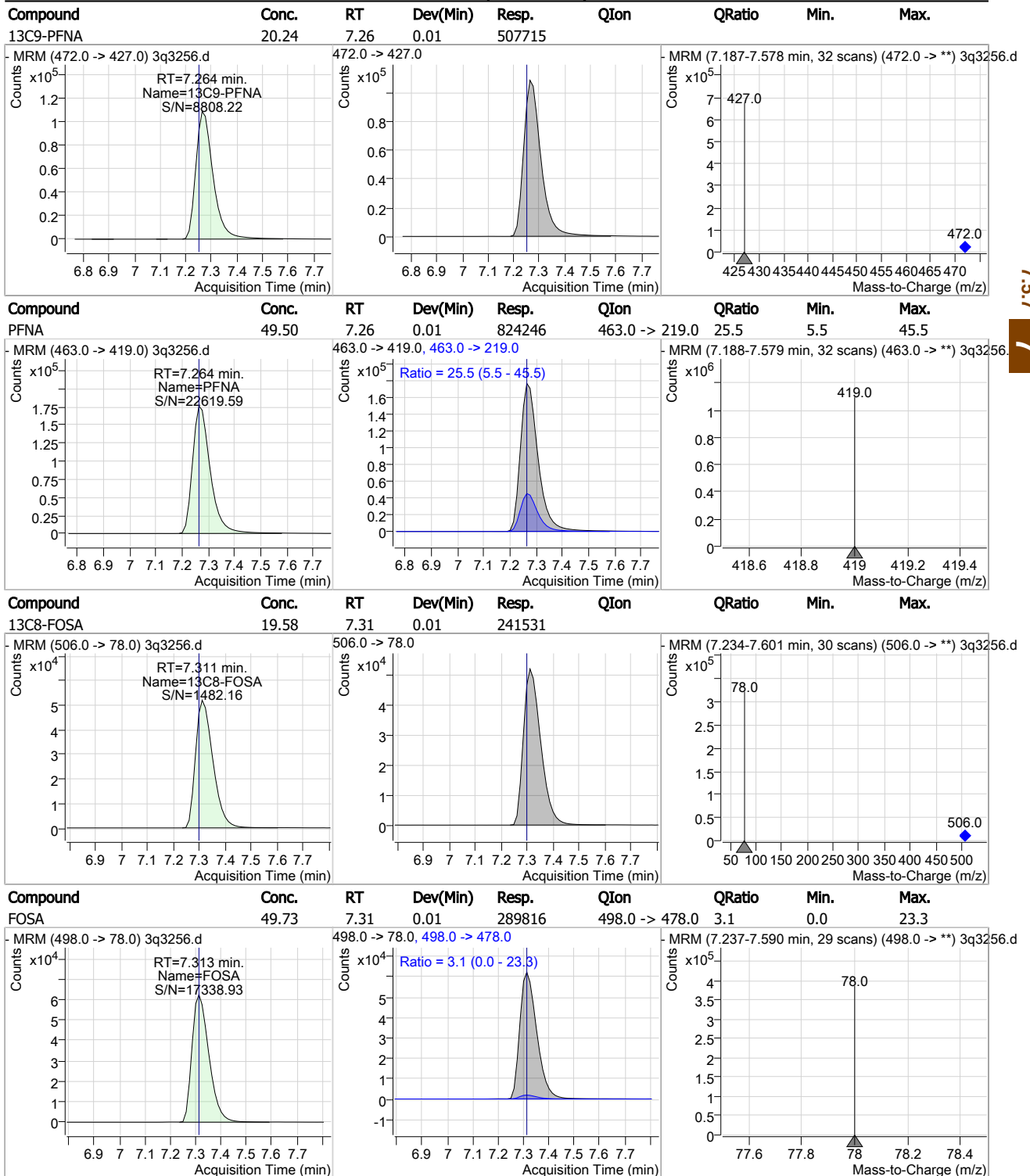
7.5.7
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Perfluorinated Compounds by LC/MS/MS



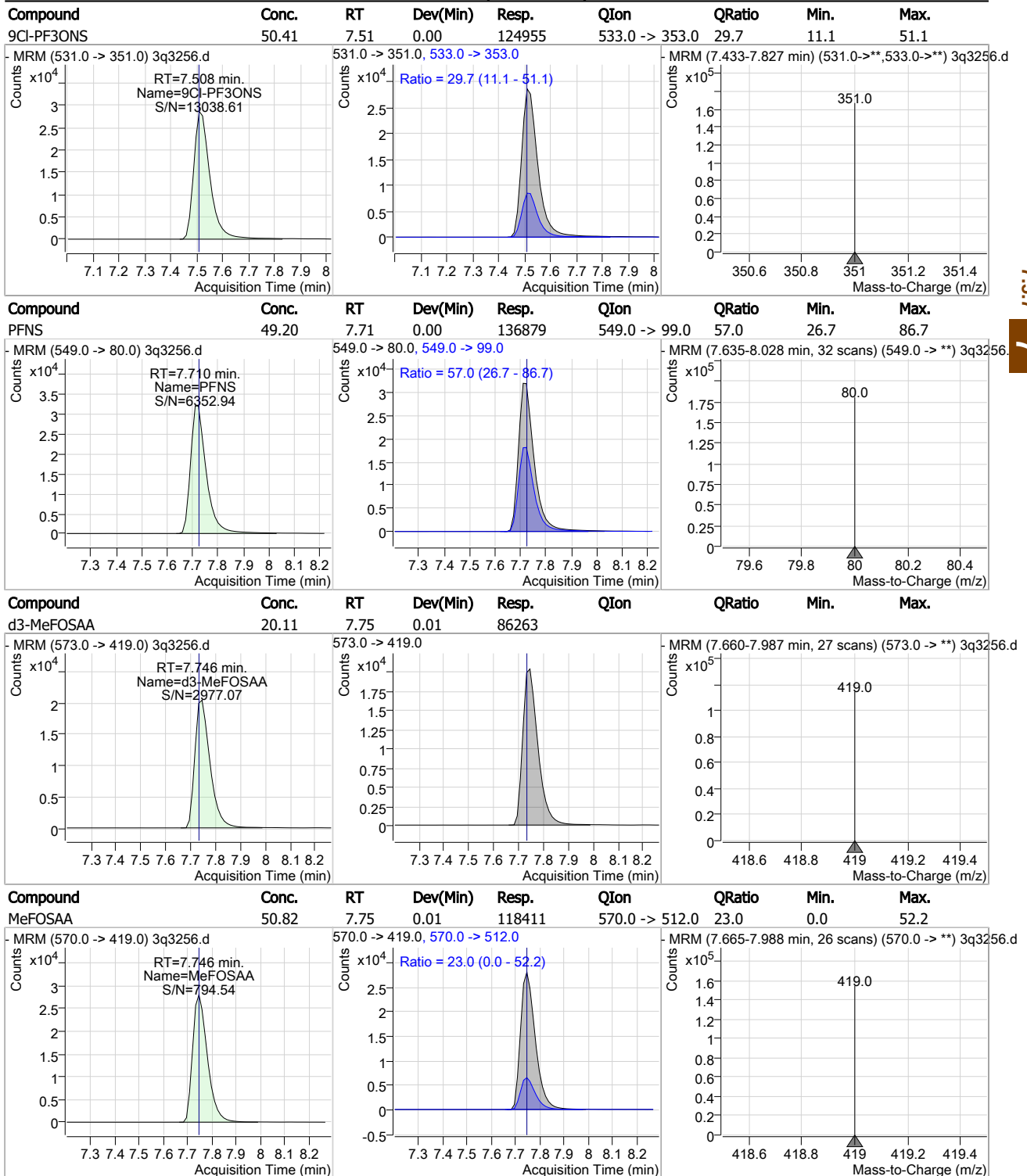
7.5.7

Perfluorinated Compounds by LC/MS/MS



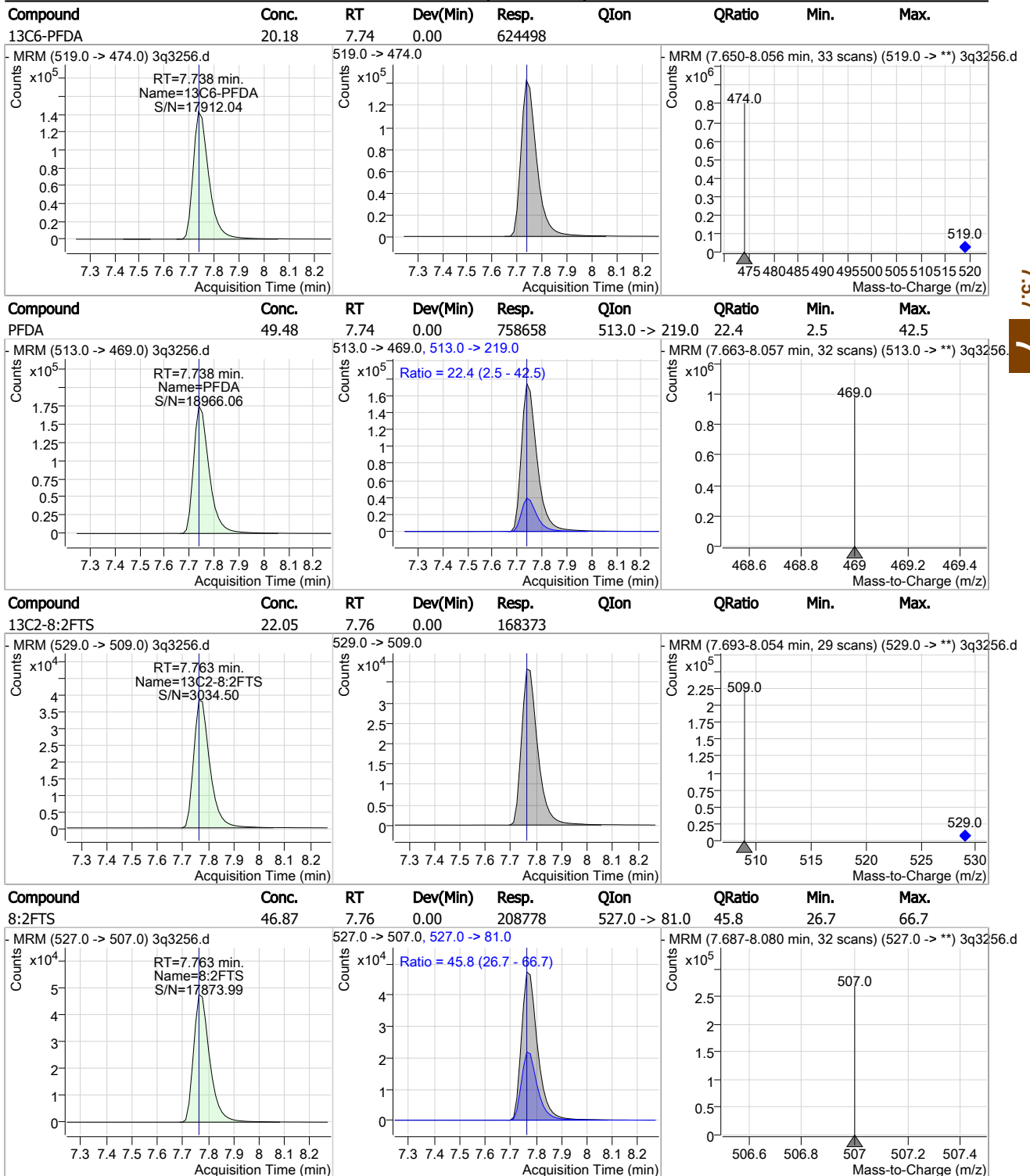
7.5.7
7

Perfluorinated Compounds by LC/MS/MS



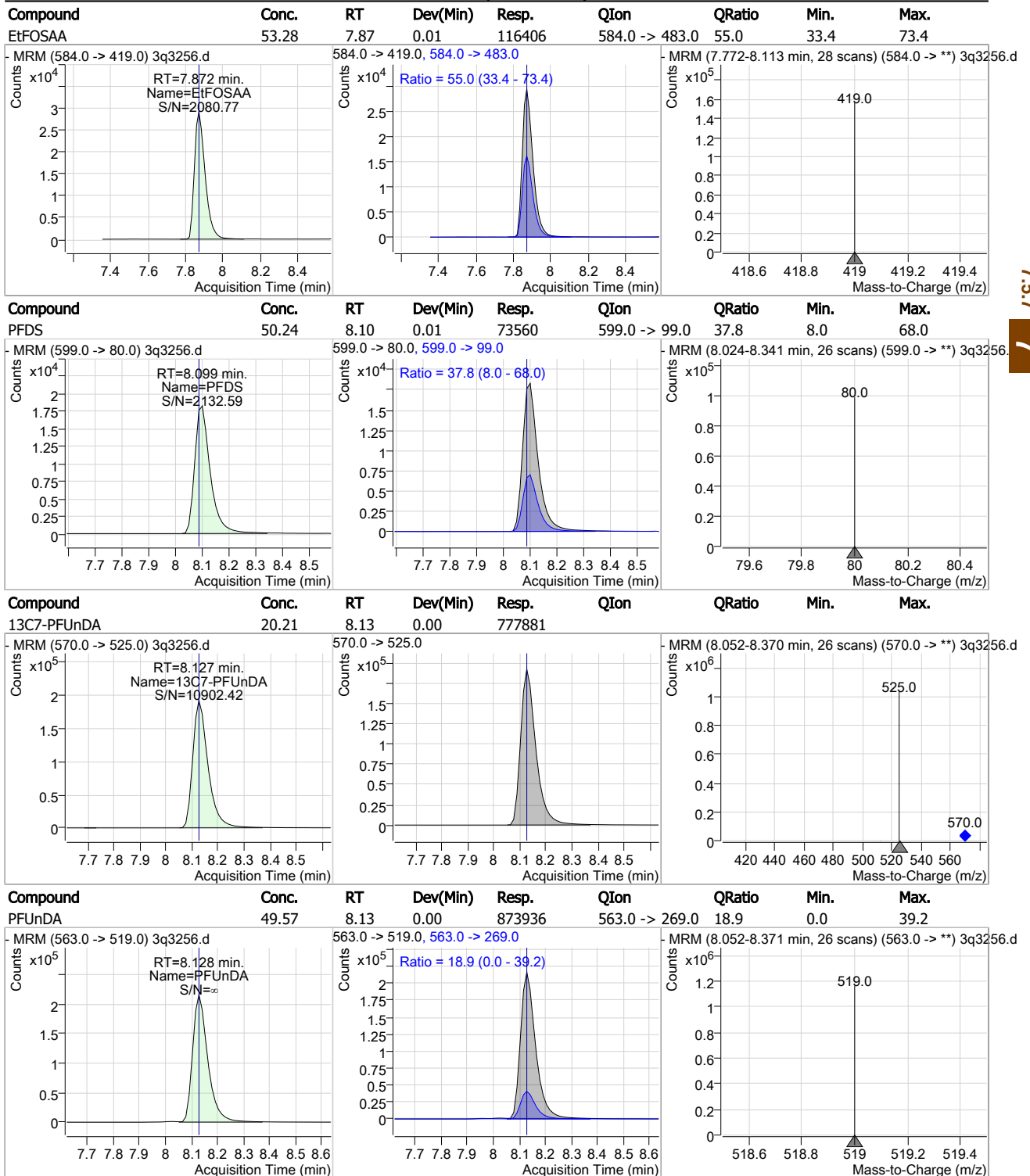
7.5.7
7

Perfluorinated Compounds by LC/MS/MS



7.5.7
7

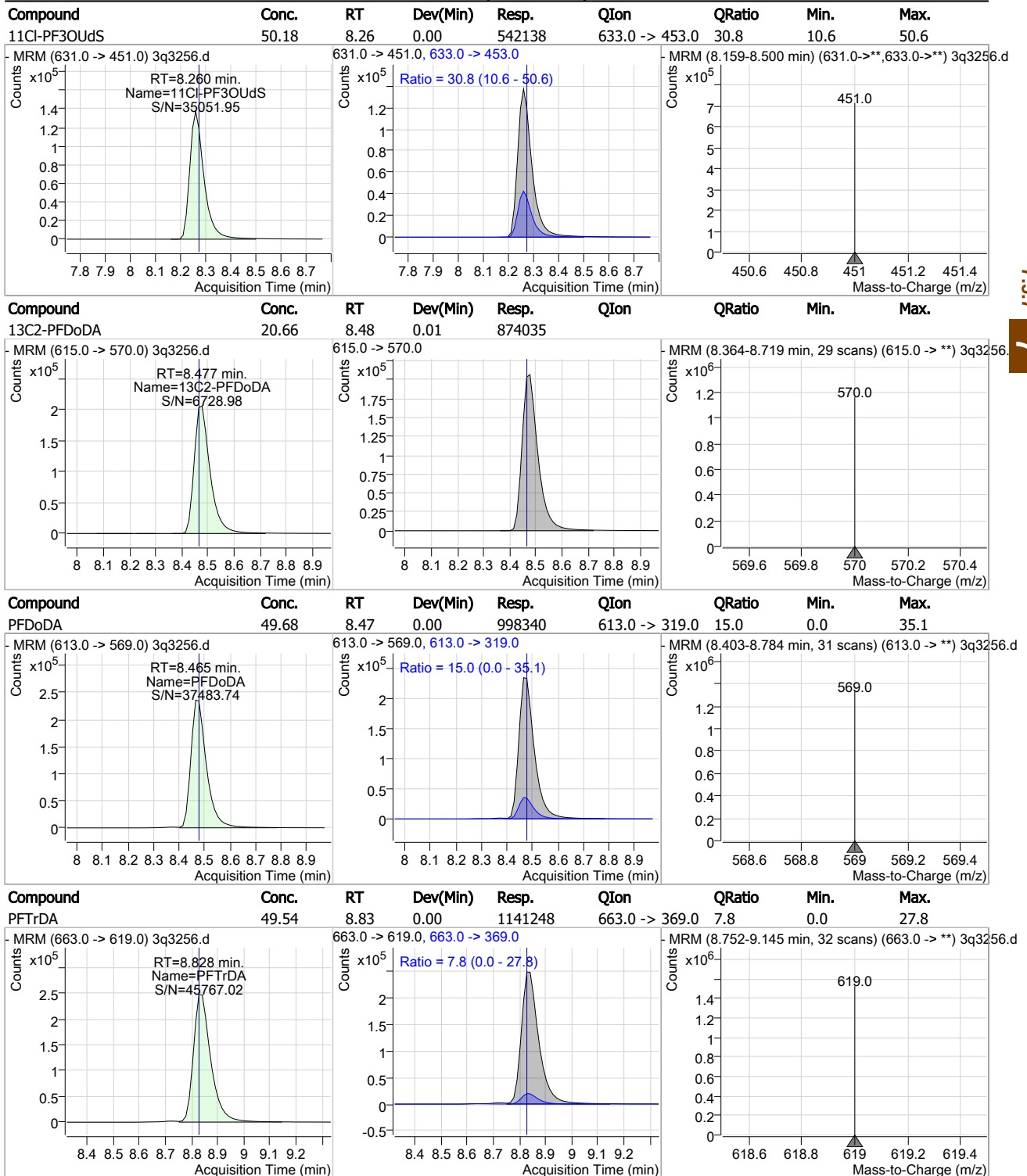
Perfluorinated Compounds by LC/MS/MS



7.5.7

Cal Report:

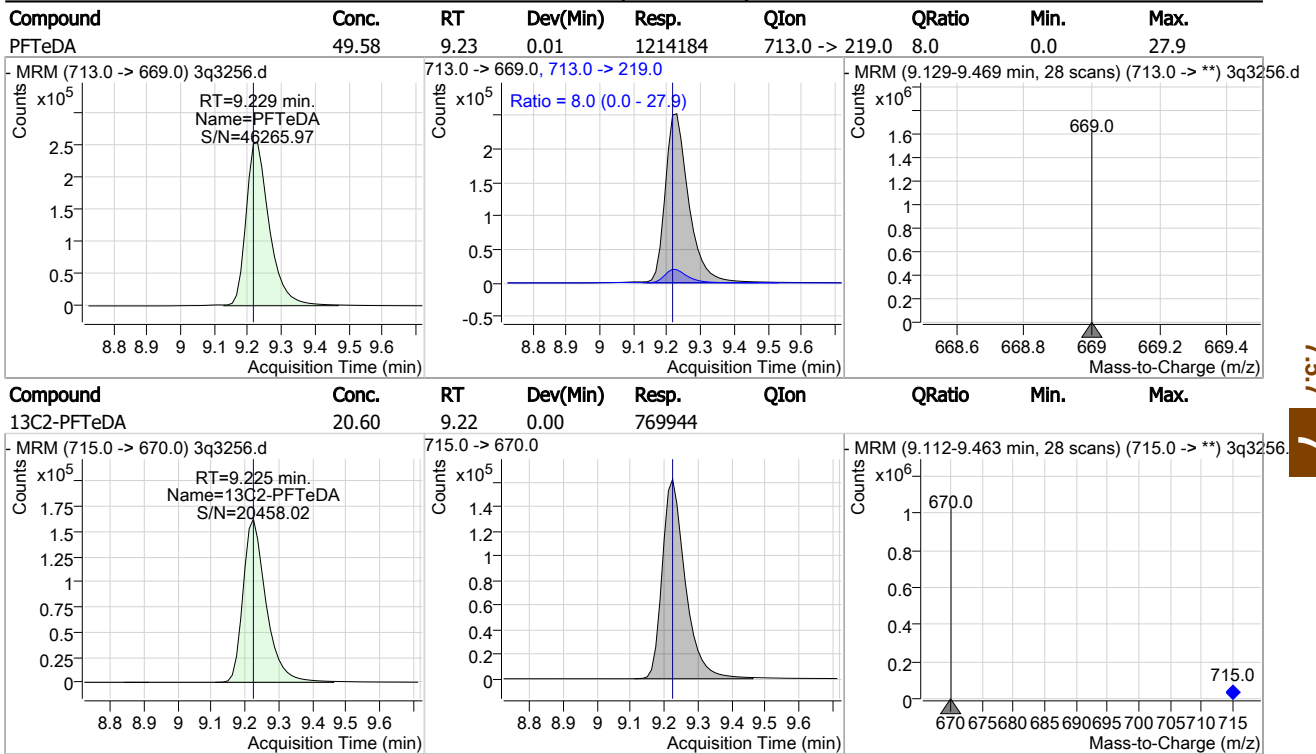
Perfluorinated Compounds by LC/MS/MS



7.5.7
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Cal Report:

Perfluorinated Compounds by LC/MS/MS



7.5.7
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Manual Integration Approval Summary

Sample Number: S3Q83-IC83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3256.D **Analyst approved:** 04/26/19 09:23 Natasha Gumtie
Injection Time: 04/25/19 10:19 **Supervisor approved:** 04/26/19 16:14 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.99	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.25	Split peak

7.5.7.1

7

Cal Report:

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:14

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3257.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 10:35:03 AM
 Sample Name : ic83-100
 Vial : P3-A9
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74632,S3Q83,125,,,1.0,1,water

Compound	RT	QI on	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.714	217.0 -> 172.0	332281	20.00 µg/L	-0.013
M5-PFPeA	3.586	268.0 -> 223.0	244656	20.00 µg/L	0.000
M5-PFHxA	4.988	318.0 -> 273.0	363624	20.00 µg/L	0.012
M4-PFHpA	5.940	367.0 -> 322.0	439365	20.00 µg/L	0.024
M8-PFOA	6.668	421.0 -> 376.0	458290	20.00 µg/L	0.025
M9-PFNA	7.264	472.0 -> 427.0	478736	20.00 µg/L	0.012
M6-PFDA	7.738	519.0 -> 474.0	575490	20.00 µg/L	-0.002
M7-PFUnDA	8.127	570.0 -> 525.0	727264	20.00 µg/L	0.000
M2-PFDoDA	8.464	615.0 -> 570.0	836553	20.00 µg/L	-0.001
M2-PFTeDA	9.212	715.0 -> 670.0	729955	20.00 µg/L	-0.012
M8-FOSA	7.311	506.0 -> 78.0	215086	20.00 µg/L	0.012
M3-PFBS	3.904	302.0 -> 99.0	49299	20.00 µg/L	0.012
M3-PFHxS	5.985	402.0 -> 99.0	51433	20.00 µg/L	0.012
M8-PFOS	7.260	507.0 -> 99.0	81096	20.00 µg/L	0.025
M2-4:2FTS	4.883	329.0 -> 309.0	176229	20.00 µg/L	0.012
M2-6:2FTS	6.651	429.0 -> 409.0	217074	20.00 µg/L	0.012
M2-8:2FTS	7.763	529.0 -> 509.0	178128	20.00 µg/L	0.000
M3-MeFOSAA	7.746	573.0 -> 419.0	79123	20.00 µg/L	0.012
M3-HFPO-DA	5.280	287.0 -> 169.0	196785	100.00 µg/L	0.000
13C2-PFOA	6.670	415.0 -> 370.0	598980	20.00 µg/L	0.025
13C4-PFOS	7.249	503.0 -> 80.0	141175	20.00 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	4.883	329.0 -> 309.0	174997	24.08 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 120.4%	
13C2-6:2FTS	6.651	429.0 -> 409.0	216265	22.98 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 114.9%	
13C2-8:2FTS	7.763	529.0 -> 509.0	178057	23.32 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 116.6%	
13C2-PFDoDA	8.464	615.0 -> 570.0	836524	19.77 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C2-PFTeDA	9.212	715.0 -> 670.0	727189	19.46 µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C3-PFBS	3.904	302.0 -> 99.0	48391	19.49 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C3-PFHxS	5.985	402.0 -> 99.0	51351	19.16 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C4-PFBA	1.714	217.0 -> 172.0	331961	19.63 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C4-PFHpA	5.940	367.0 -> 322.0	436404	19.41 µg/L	0.024
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C5-PFHxA	4.988	318.0 -> 273.0	361048	19.62 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C5-PFPeA	3.586	268.0 -> 223.0	244656	19.76 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C6-PFDA	7.738	519.0 -> 474.0	573933	18.54 µg/L	-0.002

7.5.8
7

Cal Report:

Perfluorinated Compounds by LC/MS/MS

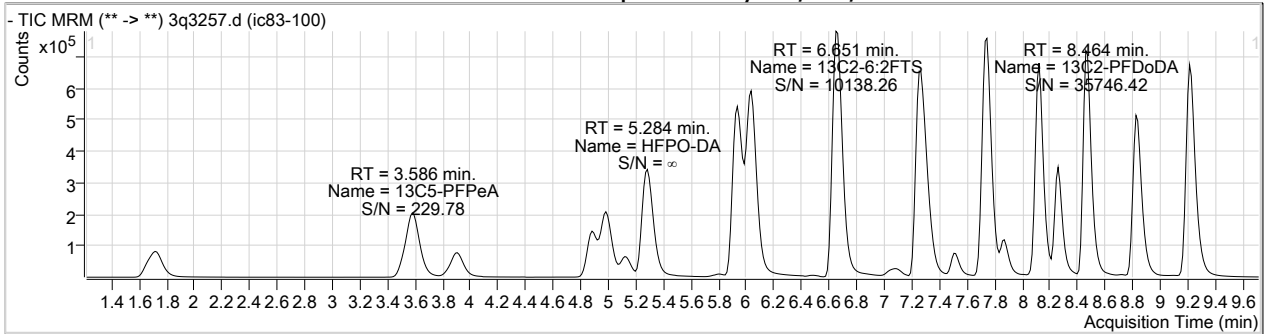
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.7%	
13C7-PFUnDA	8.127	570.0 -> 525.0	728383	18.92 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C8-FOSA	7.311	506.0 -> 78.0	215093	17.44 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.2%	
13C8-PFOA	6.668	421.0 -> 376.0	456394	18.87 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-PFOS	7.260	507.0 -> 99.0	80963	18.47 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C9-PFNA	7.264	472.0 -> 427.0	477858	19.05 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
d3-MeFOSAA	7.746	573.0 -> 419.0	79097	18.44 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C3-HFPO-DA	5.280	287.0 -> 169.0	196785	93.60 µg/L	0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 93.6%	
M2-PFOA	6.670	415.0 -> 370.0	598980	20.00 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
M4-PFOS	7.249	503.0 -> 80.0	141175	20.00 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
Target Compounds					QValue
4:2FTS	4.886	327.0 -> 307.0	441717	84.28 µg/L	99
6:2FTS	6.654	427.0 -> 407.0	461204	84.73 µg/L	99
8:2FTS	7.763	527.0 -> 507.0	394567	83.84 µg/L	98
EtFOSAA	7.872	584.0 -> 419.0	225830	112.72 µg/L	98
FOSA	7.313	498.0 -> 78.0	530630	100.04 µg/L	100
MeFOSAA	7.746	570.0 -> 419.0	219449	102.72 µg/L	99
PFBA	1.723	213.0 -> 169.0	310388	100.33 µg/L	100
PFBS	3.908	299.0 -> 80.0	334293	100.64 µg/L	100
PFDA	7.738	513.0 -> 469.0	1417045	100.32 µg/L	100
PFDoDA	8.465	613.0 -> 569.0	1926342	100.20 µg/L	100
PFDS	8.099	599.0 -> 80.0	135398	99.06 µg/L	100
PFHpA	5.942	363.0 -> 319.0	2109439	100.38 µg/L	100
PFHpS	6.674	449.0 -> 80.0	281416	99.85 µg/L	98
PFHxA	4.990	313.0 -> 269.0	683729	100.21 µg/L	99
PFHxS	5.987	399.0 -> 80.0	300886	100.47 µg/L	m 100
PFNA	7.264	463.0 -> 419.0	1567785	100.33 µg/L	100
PFNS	7.710	549.0 -> 80.0	253586	100.41 µg/L	99
PFOA	6.660	413.0 -> 369.0	1280966	100.32 µg/L	100
PFOS	7.249	499.0 -> 80.0	390253	100.93 µg/L	m 99
PFPeA	3.590	263.0 -> 219.0	1274997	100.30 µg/L	100
PFPeS	5.119	349.0 -> 80.0	219642	101.71 µg/L	100
PFTeDA	9.216	713.0 -> 669.0	2328201	100.28 µg/L	100
PFTrDA	8.828	663.0 -> 619.0	2190791	100.32 µg/L	100
PFUnDA	8.128	563.0 -> 519.0	1649964	100.27 µg/L	100
11Cl-PF3OUdS	8.260	631.0 -> 451.0	1032315	99.87 µg/L	100
9Cl-PF3ONS	7.508	531.0 -> 351.0	235976	99.92 µg/L	100
ADONA	6.039	377.0 -> 251.0	2737123	99.97 µg/L	100
HFPO-DA	5.284	329.0 -> 169.0	1524193	496.53 µg/L	100

7.5.8
7

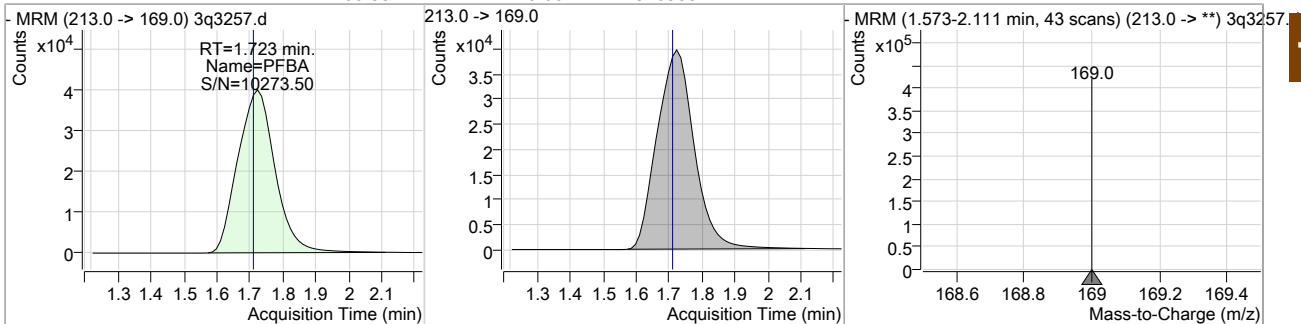
= Qualifier out of range, m = manually integrated, + = Area summed

Cal Report:

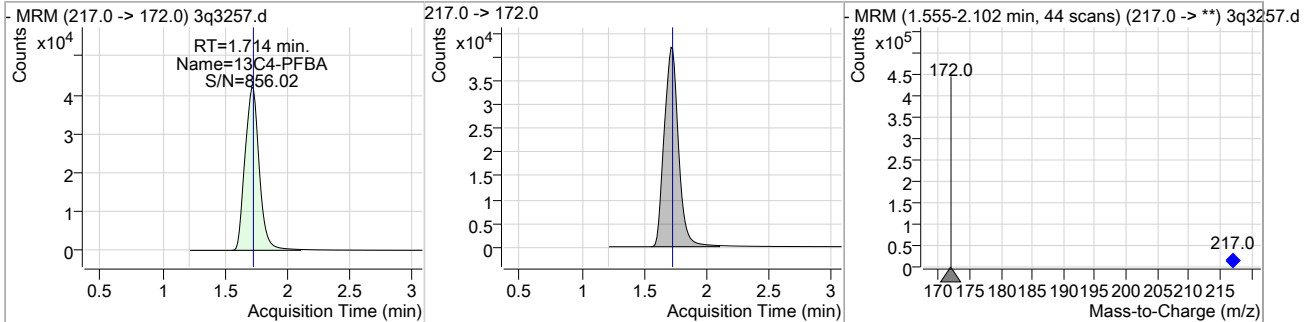
Perfluorinated Compounds by LC/MS/MS



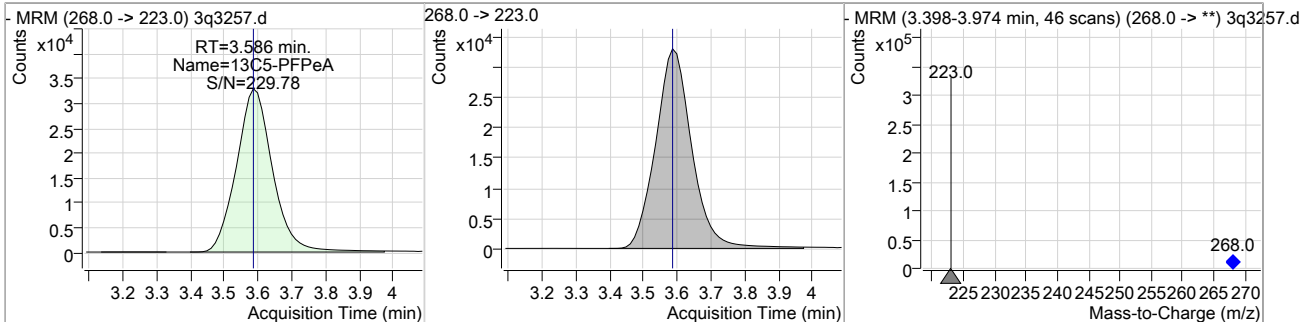
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	100.33	1.72	0.00	310388				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.63	1.71	-0.01	331961				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.76	3.59	0.00	244656				

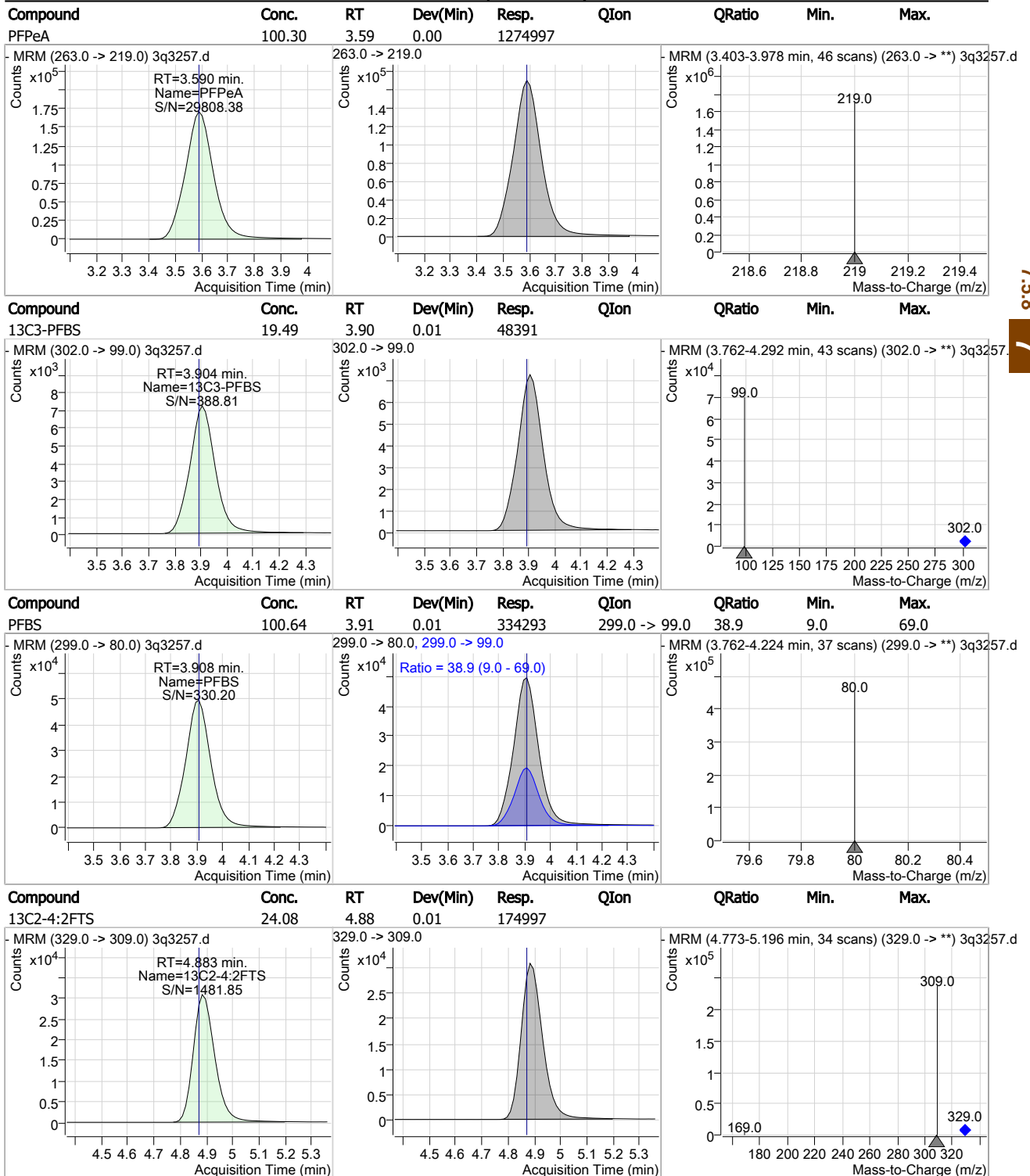


7.5.8

7

Cal Report:

Perfluorinated Compounds by LC/MS/MS

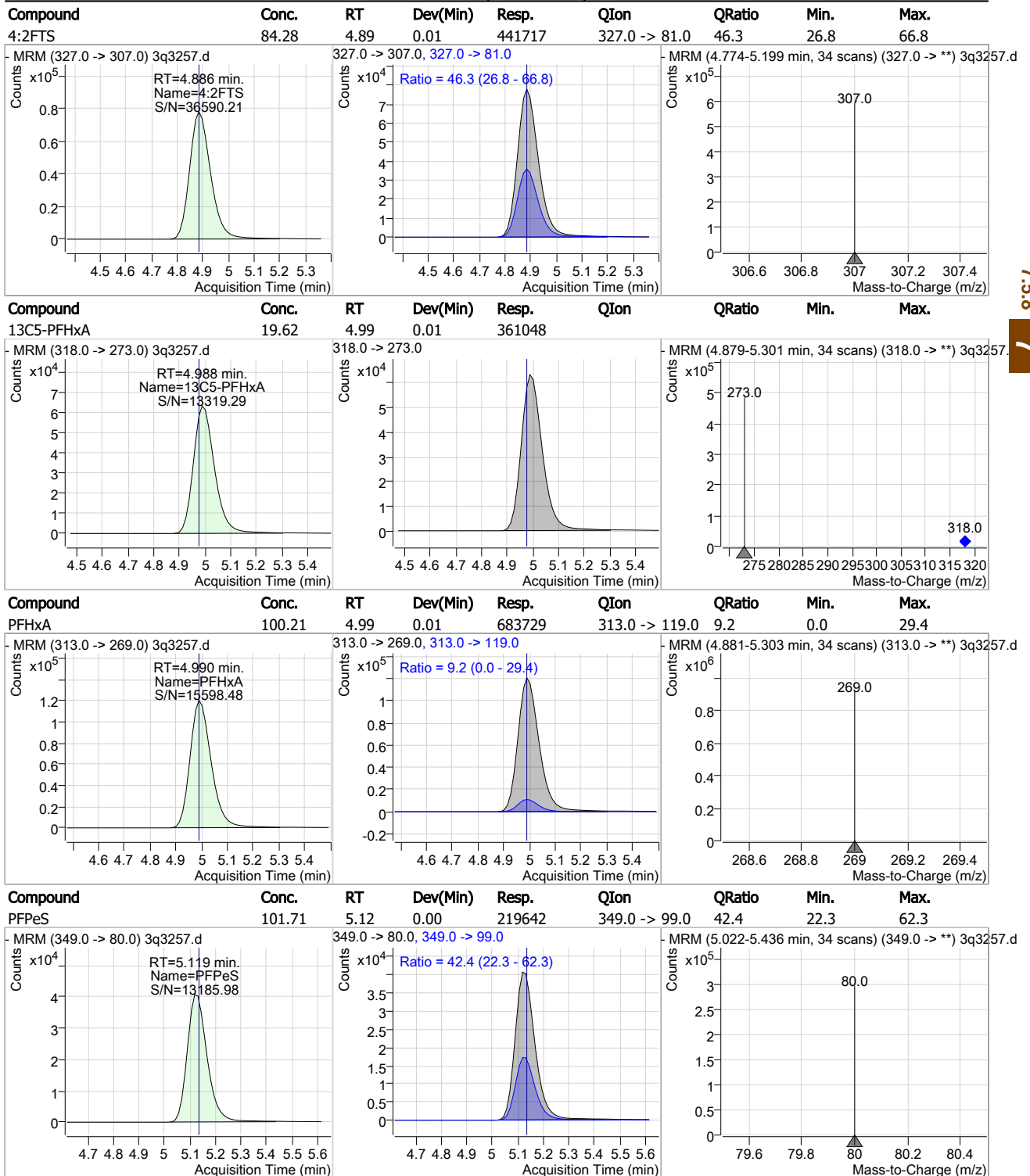


7.5.8

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Cal Report:

Perfluorinated Compounds by LC/MS/MS

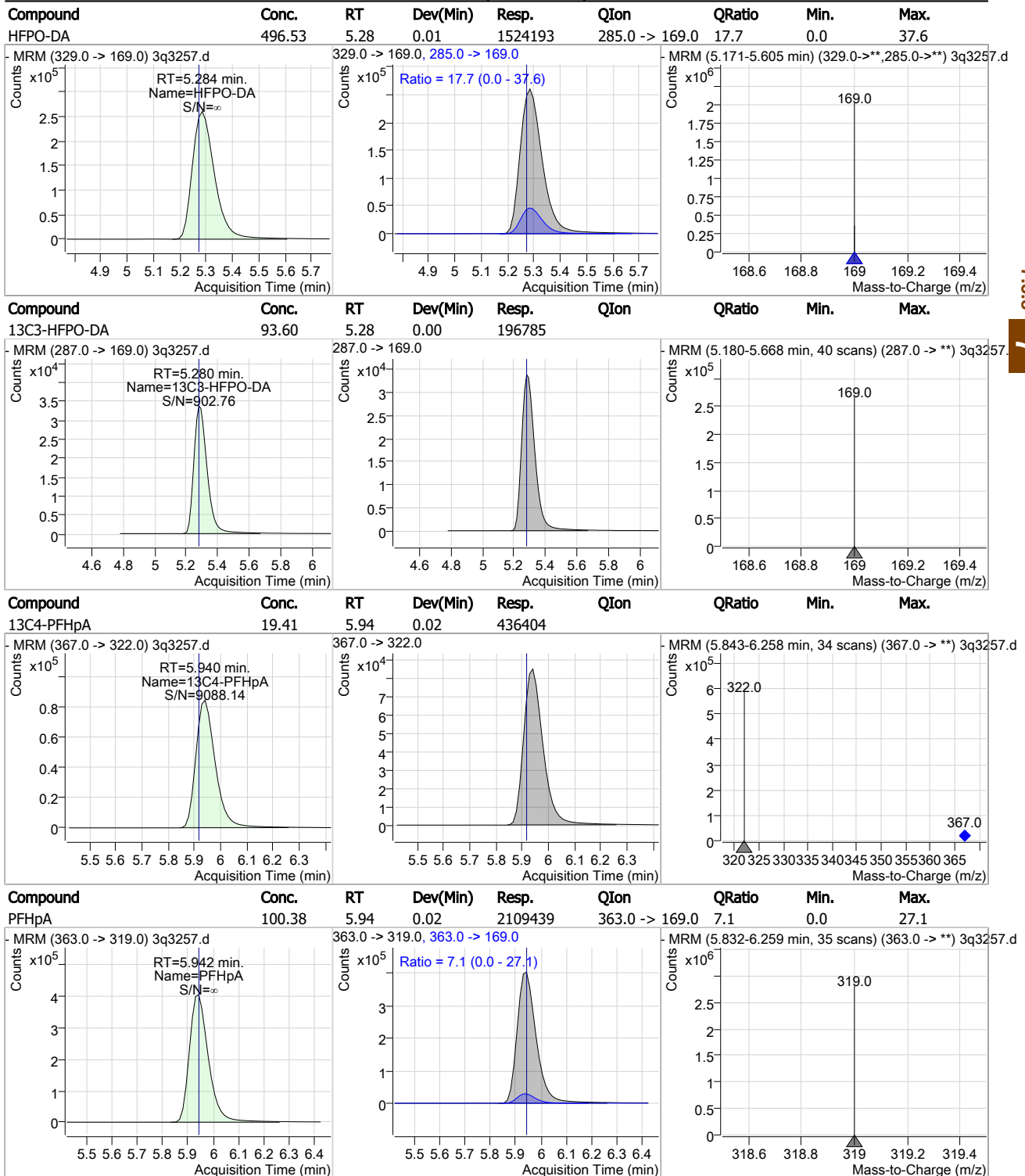


7.5.8

7

Cal Report:

Perfluorinated Compounds by LC/MS/MS

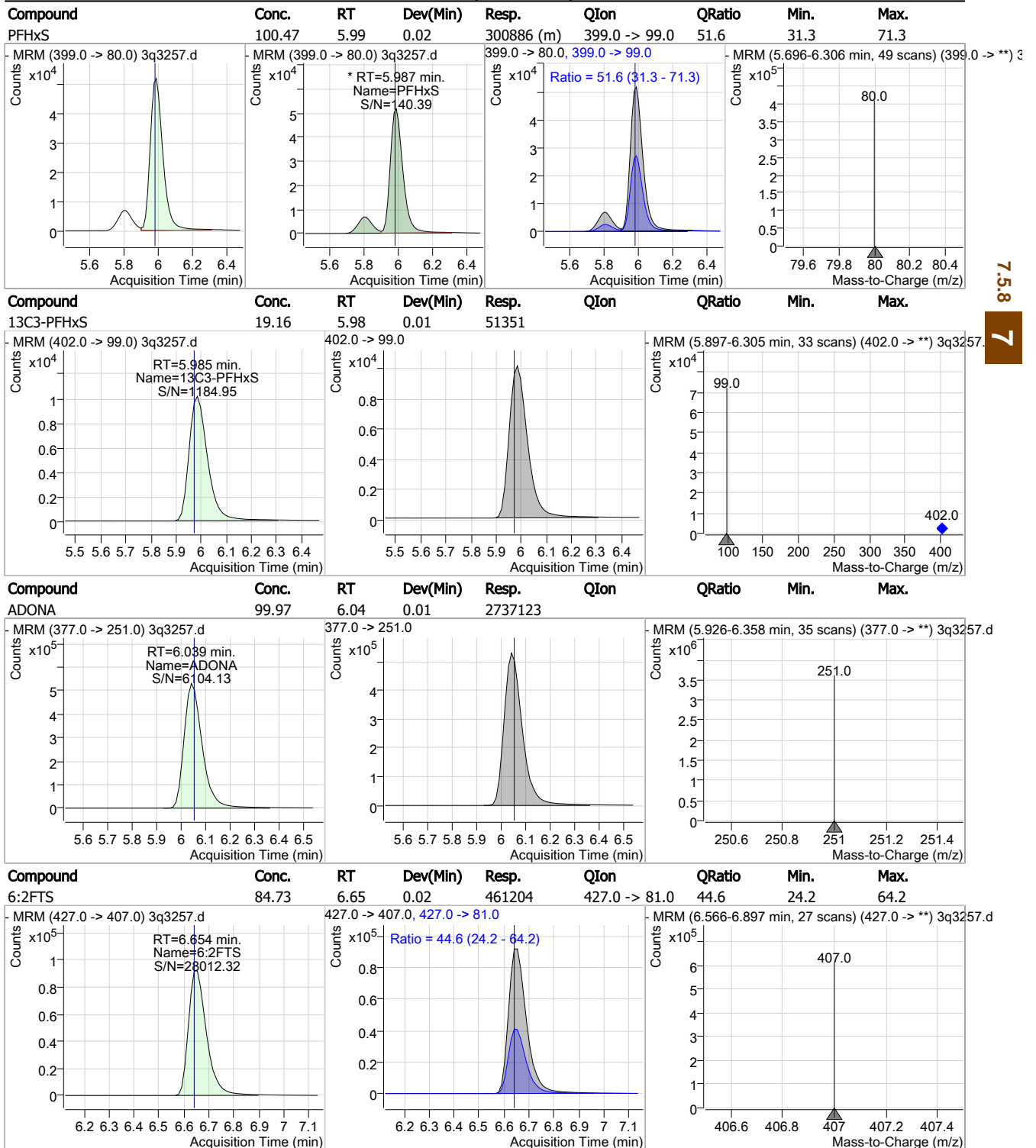


7.5.8

7

Cal Report:

Perfluorinated Compounds by LC/MS/MS



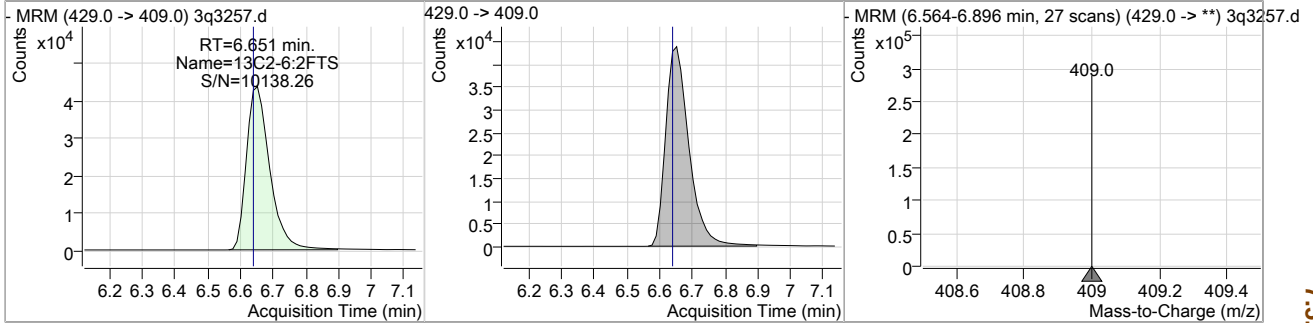
7.5.8

7

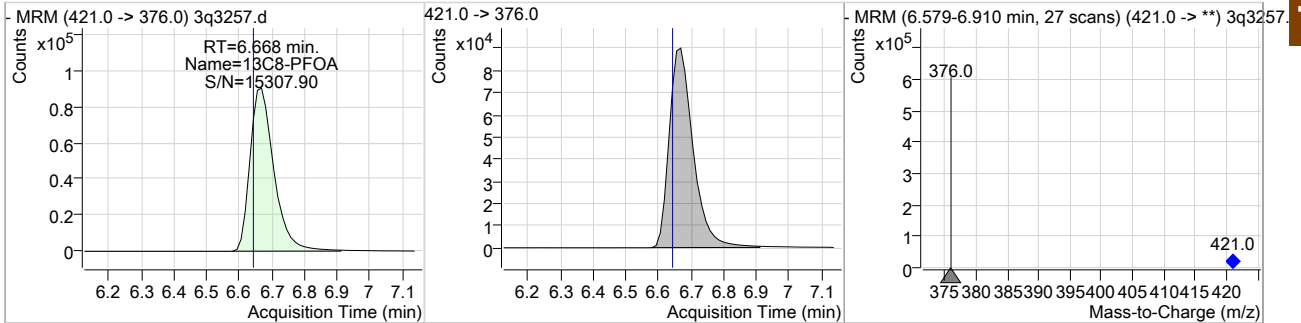
Cal Report:

Perfluorinated Compounds by LC/MS/MS

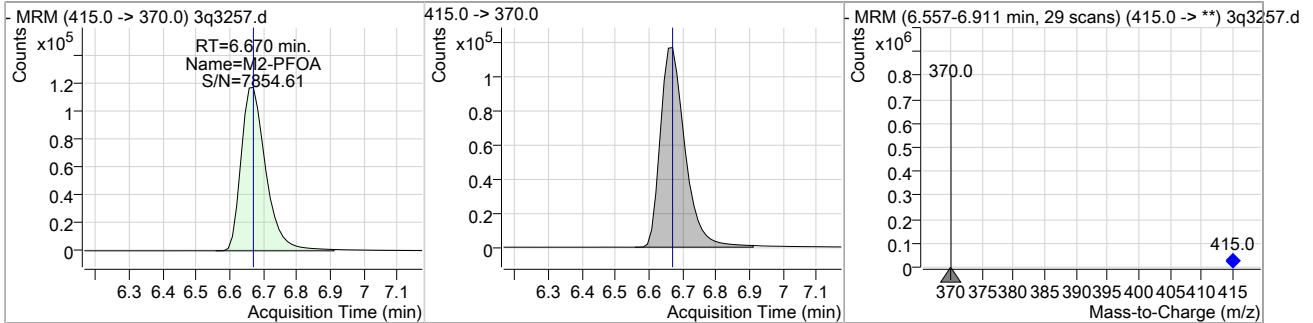
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	22.98	6.65	0.01	216265				



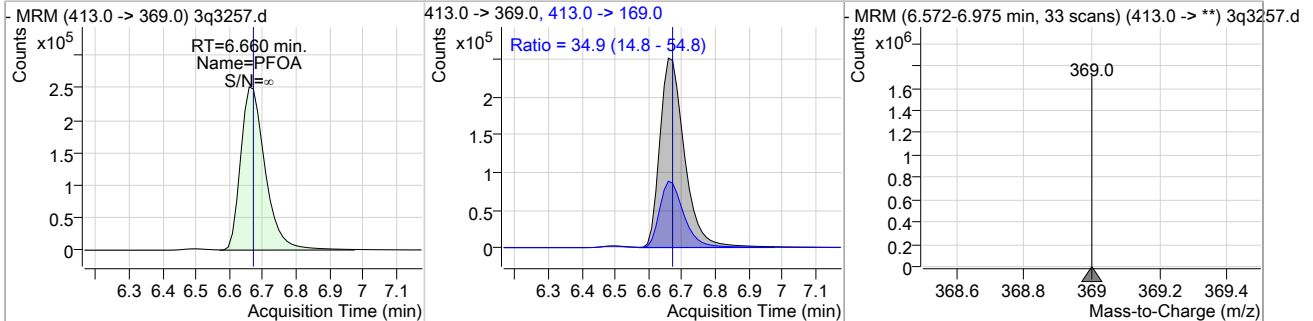
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	18.87	6.67	0.02	456394				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.67	0.02	598980				



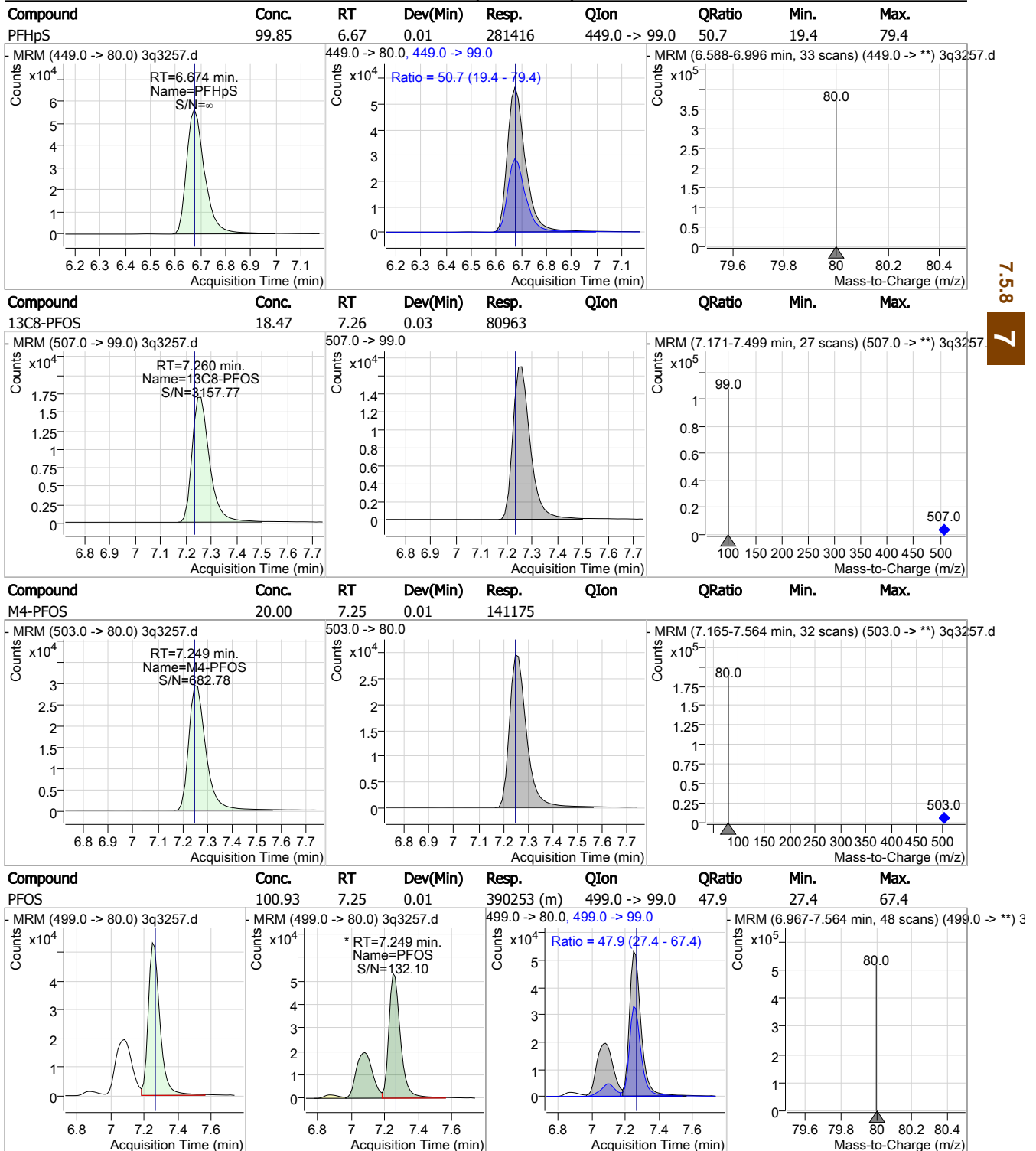
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	100.32	6.66	0.01	1280966	413.0 ->	169.0 34.9	14.8	54.8



7.5.8
7

Cal Report:

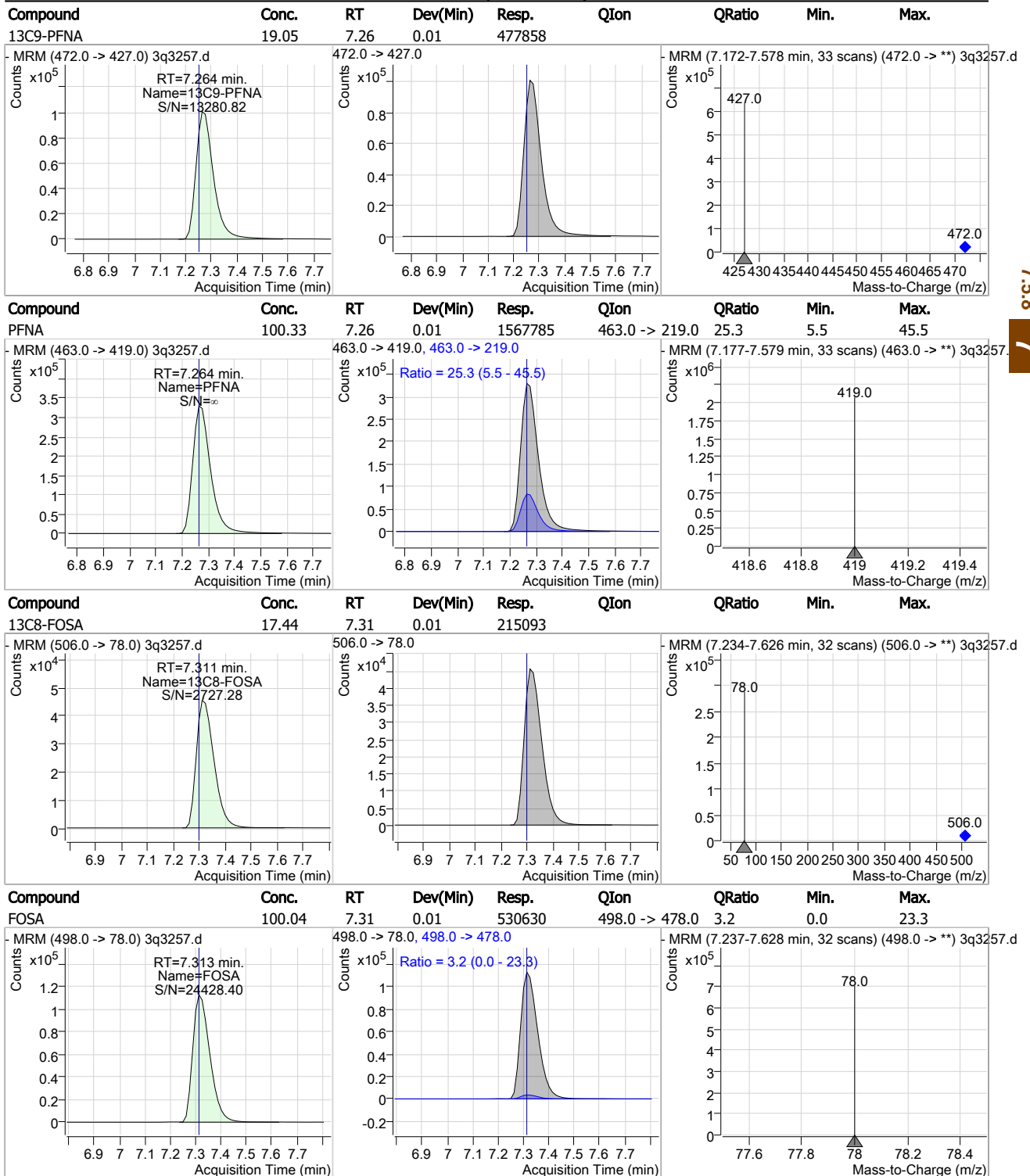
Perfluorinated Compounds by LC/MS/MS



7.58
7

Cal Report:

Perfluorinated Compounds by LC/MS/MS

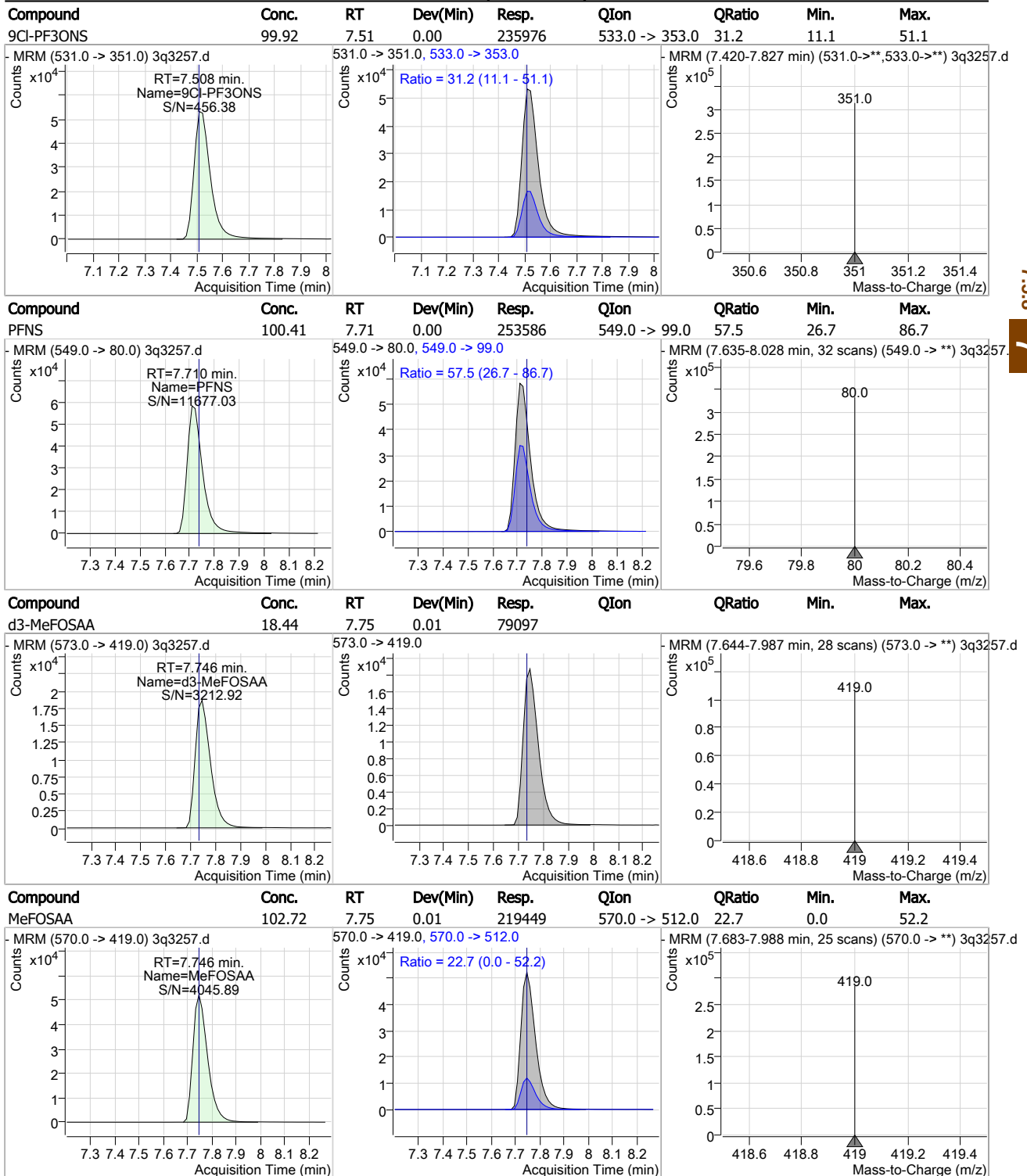


7.5.8

7

Cal Report:

Perfluorinated Compounds by LC/MS/MS

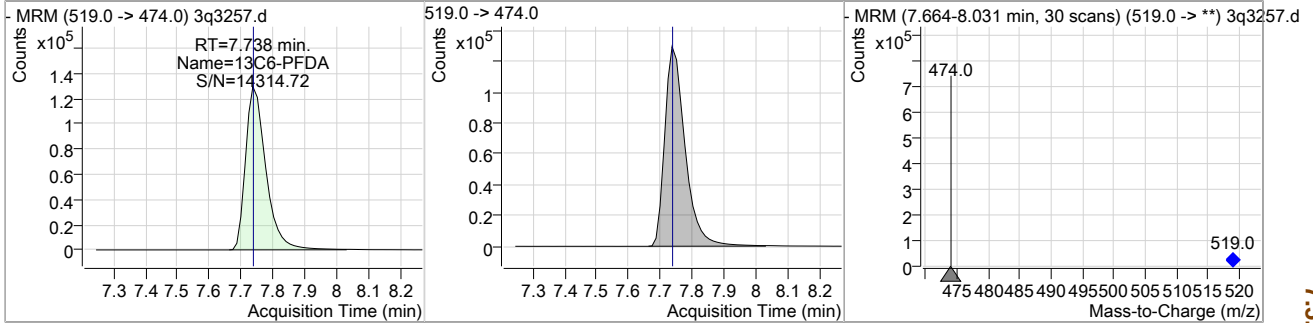


7.5.8
7

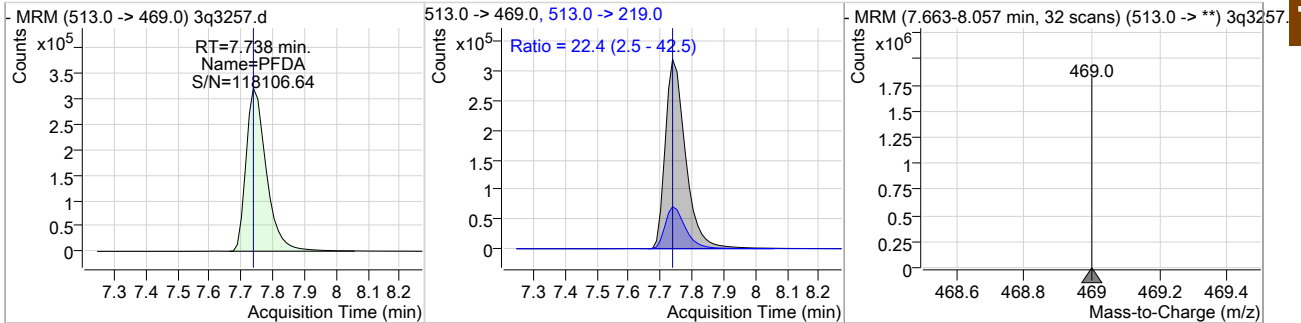
Cal Report:

Perfluorinated Compounds by LC/MS/MS

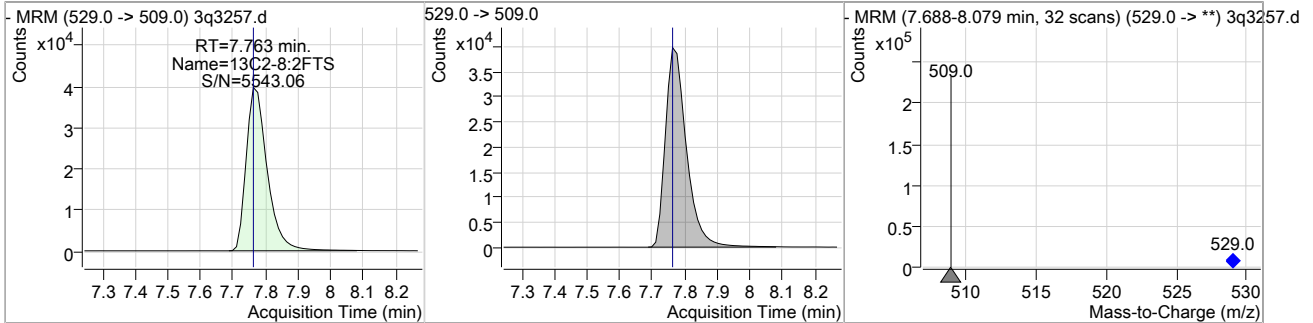
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	18.54	7.74	0.00	573933				



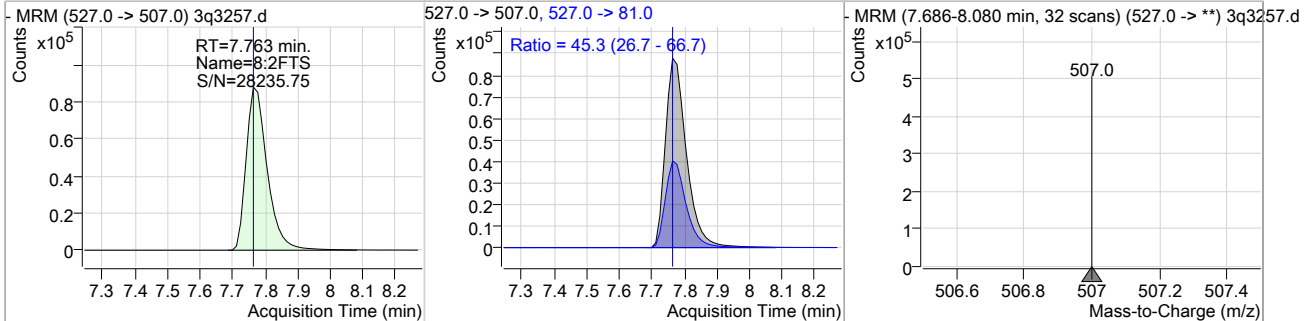
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	100.32	7.74	0.00	1417045	513.0 ->	219.0	22.4	2.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	23.32	7.76	0.00	178057				



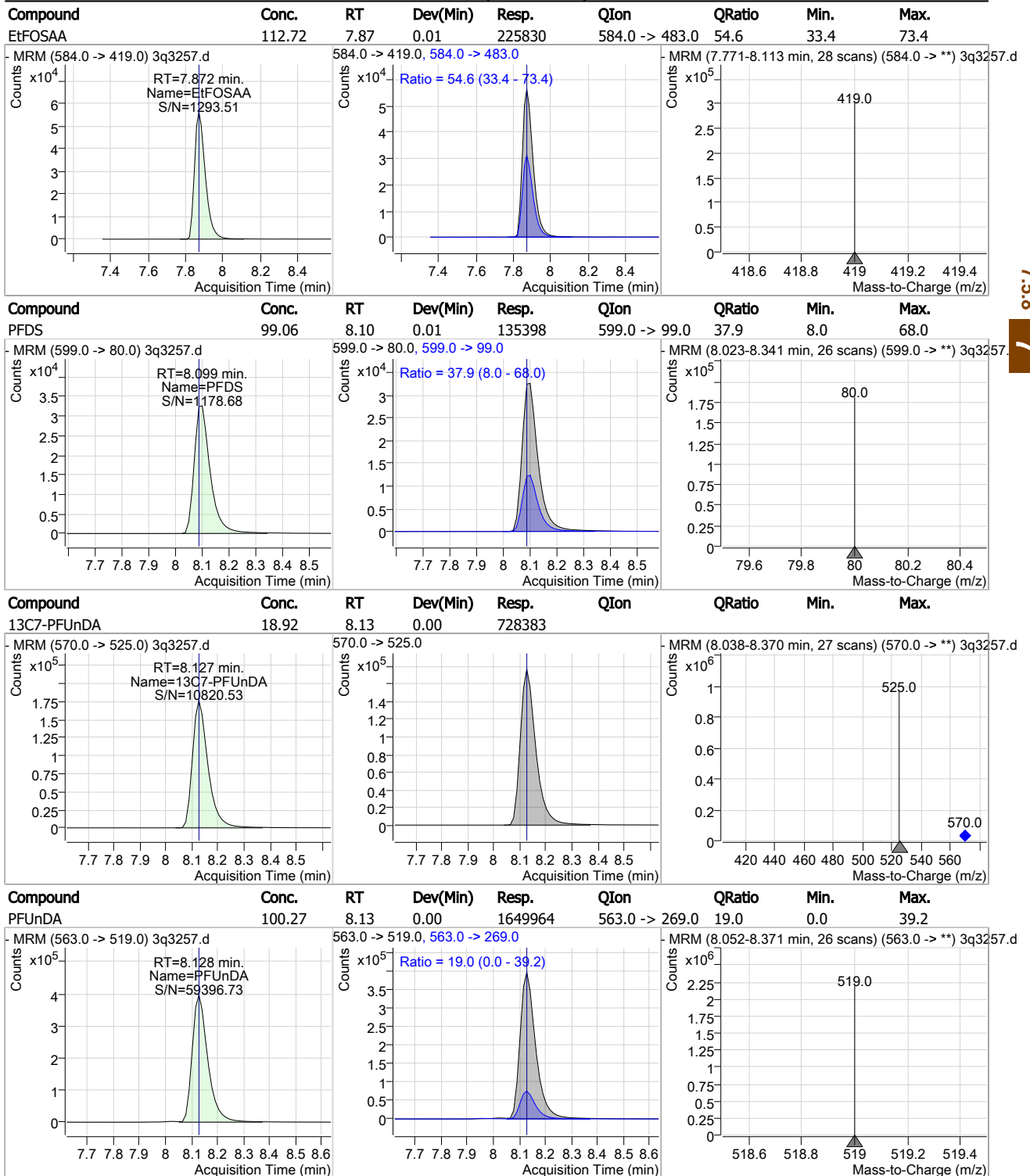
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	83.84	7.76	0.00	394567	527.0 ->	81.0	45.3	26.7



7.5.8
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Cal Report:

Perfluorinated Compounds by LC/MS/MS

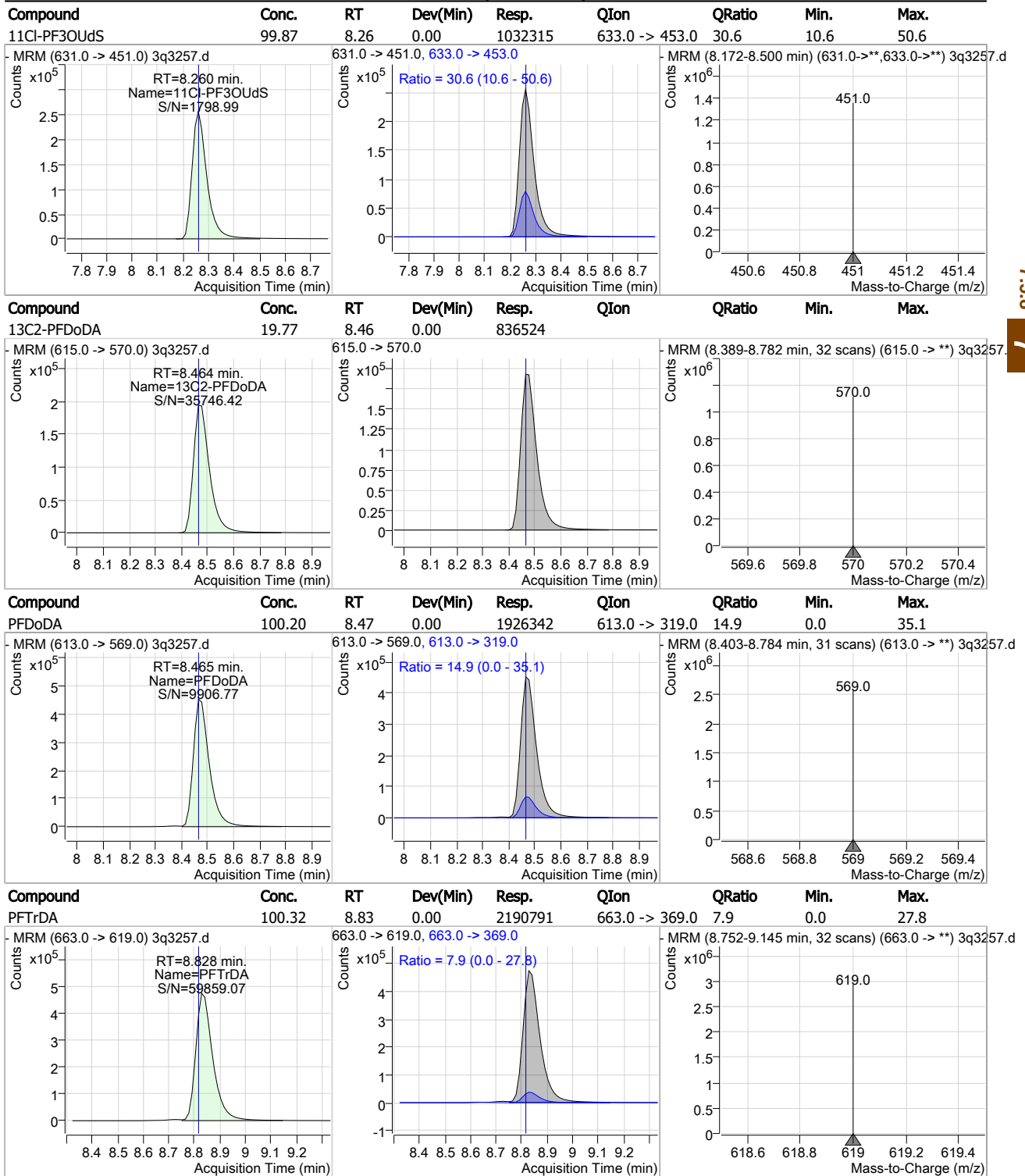


7.5.8

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Cal Report:

Perfluorinated Compounds by LC/MS/MS



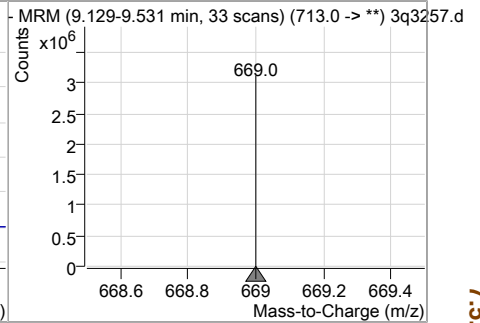
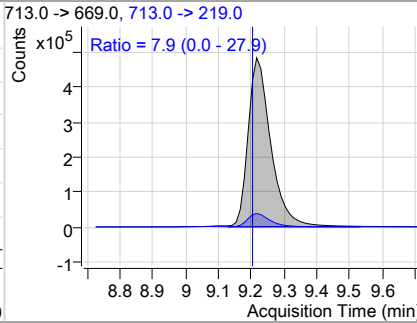
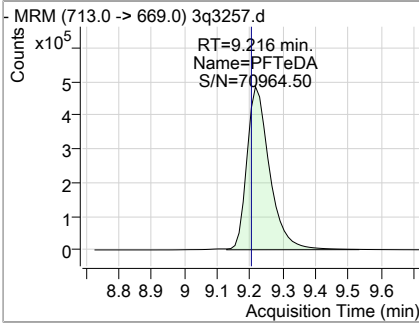
7.5.8

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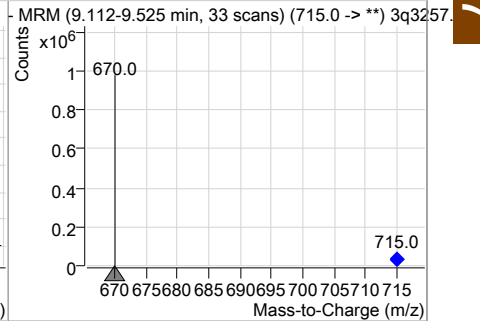
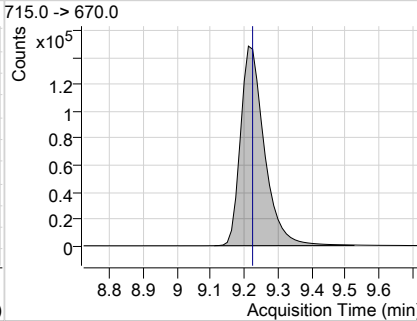
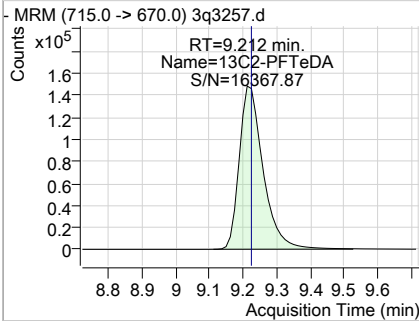
Cal Report:

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	100.28	9.22	0.00	2328201	713.0 -> 219.0	7.9	0.0	27.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.46	9.21	-0.01	727189				



7.5.8
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Manual Integration Approval Summary

Sample Number: S3Q83-IC83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3257.D **Analyst approved:** 04/26/19 09:23 Natasha Gumtie
Injection Time: 04/25/19 10:35 **Supervisor approved:** 04/26/19 16:14 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.99	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.25	Split peak

7.5.8.1



Cal Report: 3Q3259.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:14

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3259.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 11:04:50 AM
 Sample Name : icv83-20
 Vial : P3-B1
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74632,S3Q83,125,,,1.0,1,water

Compound	RT	QI on	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	338230	20.00 µg/L	0.000
M5-PFPeA	3.598	268.0 -> 223.0	251382	20.00 µg/L	0.012
M5-PFHxA	5.000	318.0 -> 273.0	375635	20.00 µg/L	0.025
M4-PFHpA	5.940	367.0 -> 322.0	462918	20.00 µg/L	0.024
M8-PFOA	6.668	421.0 -> 376.0	499165	20.00 µg/L	0.025
M9-PFNA	7.276	472.0 -> 427.0	522695	20.00 µg/L	0.025
M6-PFDA	7.752	519.0 -> 474.0	652513	20.00 µg/L	0.012
M7-PFUnDA	8.139	570.0 -> 525.0	818281	20.00 µg/L	0.012
M2-PFDoDA	8.477	615.0 -> 570.0	893029	20.00 µg/L	0.012
M2-PFTeDA	9.225	715.0 -> 670.0	800842	20.00 µg/L	0.000
M8-FOSA	7.323	506.0 -> 78.0	262335	20.00 µg/L	0.025
M3-PFBS	3.917	302.0 -> 99.0	50485	20.00 µg/L	0.025
M3-PFHxS	5.997	402.0 -> 99.0	52723	20.00 µg/L	0.025
M8-PFOS	7.260	507.0 -> 99.0	87908	20.00 µg/L	0.025
M2-4:2FTS	4.896	329.0 -> 309.0	138757	20.00 µg/L	0.025
M2-6:2FTS	6.664	429.0 -> 409.0	181706	20.00 µg/L	0.025
M2-8:2FTS	7.776	529.0 -> 509.0	148221	20.00 µg/L	0.013
M3-MeFOSAA	7.746	573.0 -> 419.0	94154	20.00 µg/L	0.012
M3-HFPO-DA	5.305	287.0 -> 169.0	216550	100.00 µg/L	0.025
13C2-PFOA	6.670	415.0 -> 370.0	659752	20.00 µg/L	0.025
13C4-PFOS	7.261	503.0 -> 80.0	151671	20.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	4.896	329.0 -> 309.0	137694	18.95 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C2-6:2FTS	6.664	429.0 -> 409.0	181049	19.24 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C2-8:2FTS	7.776	529.0 -> 509.0	148276	19.42 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C2-PFDoDA	8.477	615.0 -> 570.0	893269	21.12 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C2-PFTeDA	9.225	715.0 -> 670.0	801114	21.44 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C3-PFBS	3.917	302.0 -> 99.0	49796	20.06 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C3-PFHxS	5.997	402.0 -> 99.0	53296	19.88 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C4-PFBA	1.727	217.0 -> 172.0	337922	19.98 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	5.940	367.0 -> 322.0	459145	20.42 µg/L	0.024
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C5-PFHxA	5.000	318.0 -> 273.0	372286	20.23 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C5-PFPeA	3.598	268.0 -> 223.0	251350	20.30 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C6-PFDA	7.752	519.0 -> 474.0	652728	21.09 µg/L	0.012

7.5.9
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Cal Report: 3Q3259.D

Perfluorinated Compounds by LC/MS/MS

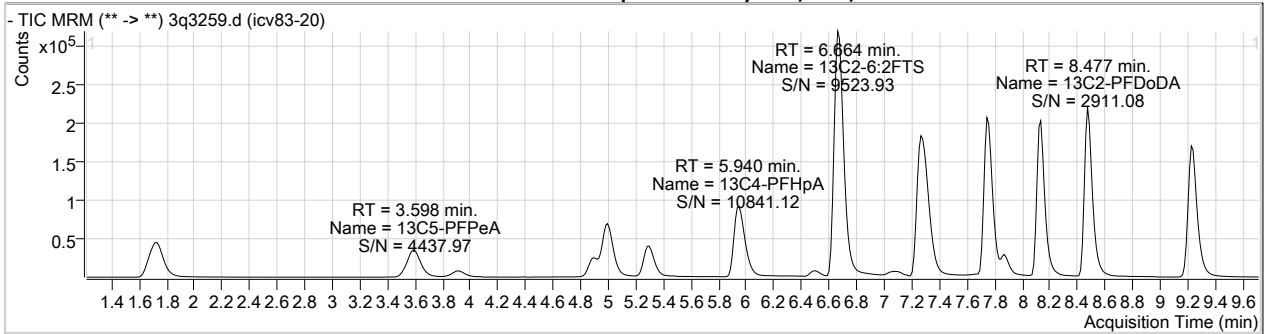
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C7-PFUnDA	8.139	570.0 -> 525.0	818206	21.25 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C8-FOSA	7.323	506.0 -> 78.0	262334	21.27 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C8-PFOA	6.668	421.0 -> 376.0	501503	20.73 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C8-PFOS	7.260	507.0 -> 99.0	87936	20.06 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C9-PFNA	7.276	472.0 -> 427.0	520806	20.76 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
d3-MeFOSAA	7.746	573.0 -> 419.0	94120	21.94 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C3-HFPO-DA	5.305	287.0 -> 169.0	216550	103.00 µg/L	0.025
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
M2-PFOA	6.670	415.0 -> 370.0	659752	20.00 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
M4-PFOS	7.261	503.0 -> 80.0	151671	20.00 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
Target Compounds					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	-	427.0 -> 407.0	-	N.D.	
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	7.872	584.0 -> 419.0	0	0.00 µg/L	m 1
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	7.746	570.0 -> 419.0	39487	15.53 µg/L	m 92
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	5.942	363.0 -> 319.0	0	0.00 µg/L	m 1
PFHpS	6.674	449.0 -> 80.0	0	0.00 µg/L	m 1
PFHxA	-	313.0 -> 269.0	-	N.D.	
PFHxS	5.999	399.0 -> 80.0	0	0.00 µg/L	m 1
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 80.0	-	N.D.	
PFOA	6.672	413.0 -> 369.0	211712	15.22 µg/L	m 96
PFOS	7.262	499.0 -> 80.0	73627	17.57 µg/L	m 95
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.0 -> 80.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
HFPO-DA	-	329.0 -> 169.0	-	N.D.	

7.5.9
7

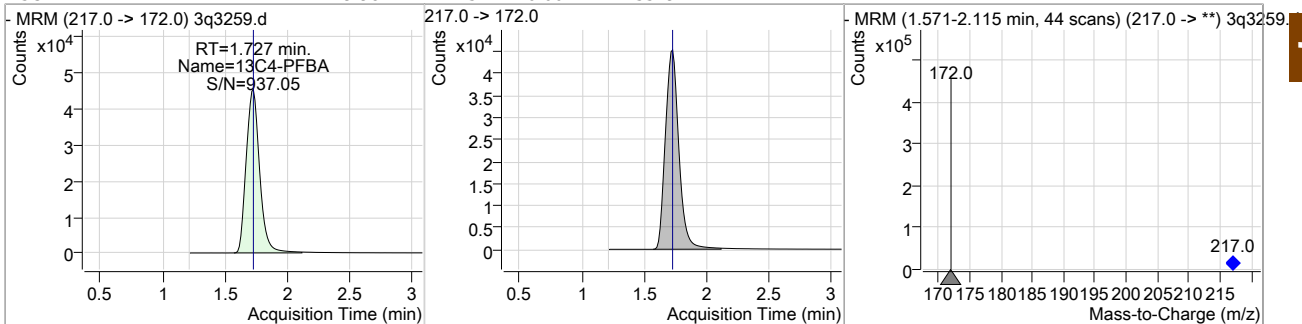
= Qualifier out of range, m = manually integrated, + = Area summed

Cal Report: 3Q3259.D

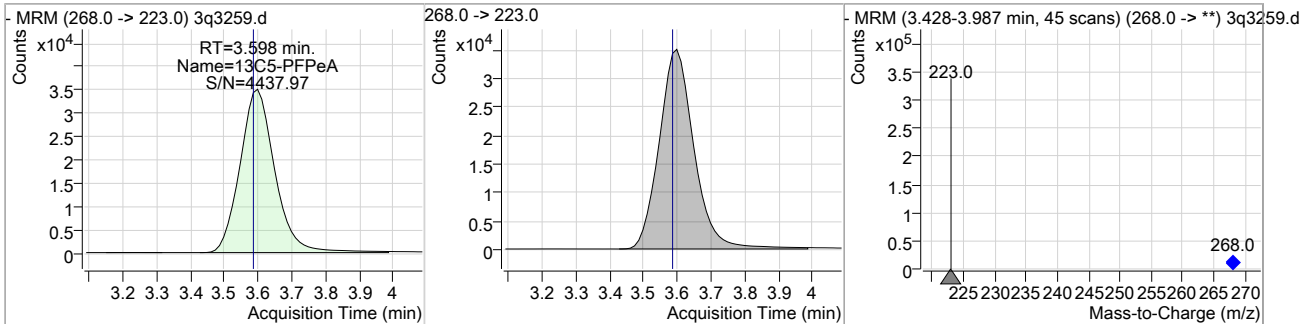
Perfluorinated Compounds by LC/MS/MS



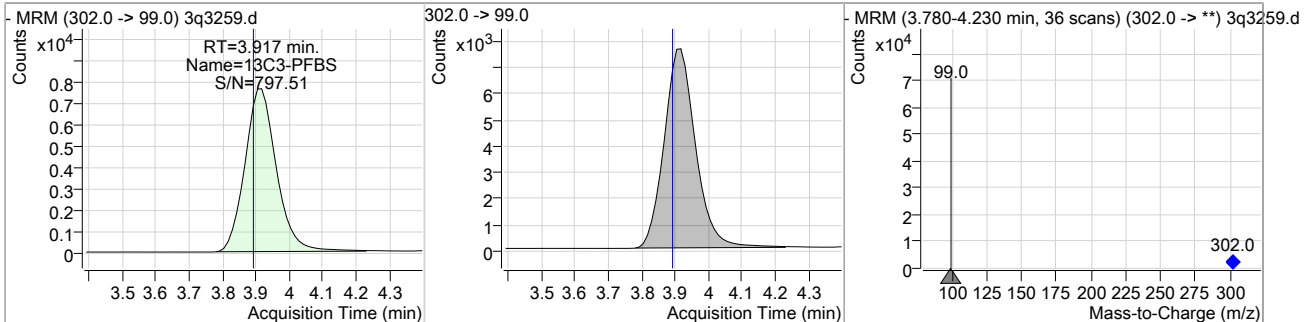
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.98	1.73	0.00	337922				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.30	3.60	0.01	251350				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.06	3.92	0.02	49796				



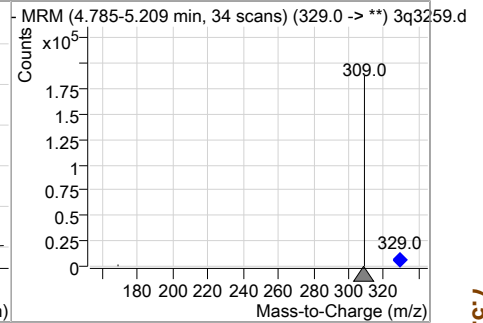
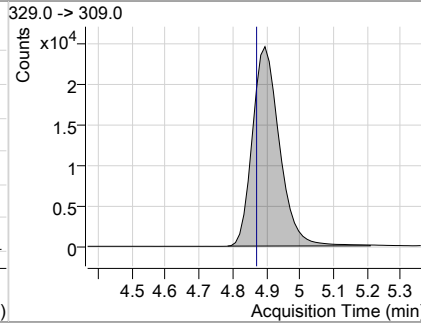
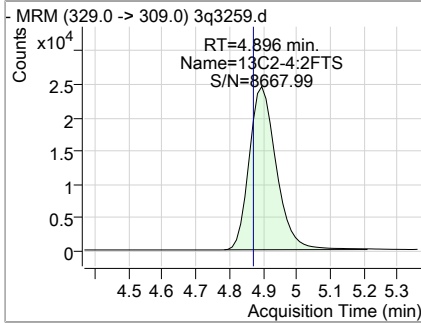
7.5.9

7

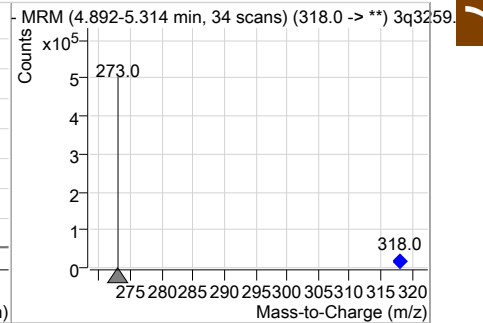
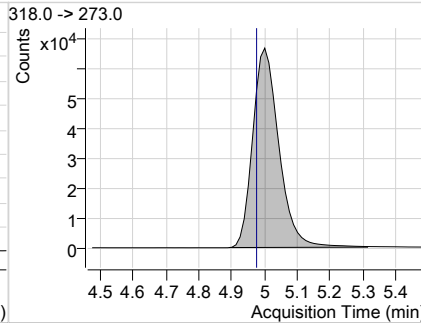
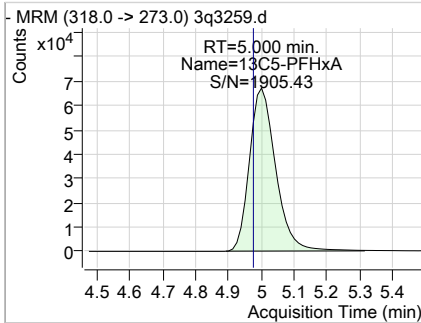
Cal Report: 3Q3259.D

Perfluorinated Compounds by LC/MS/MS

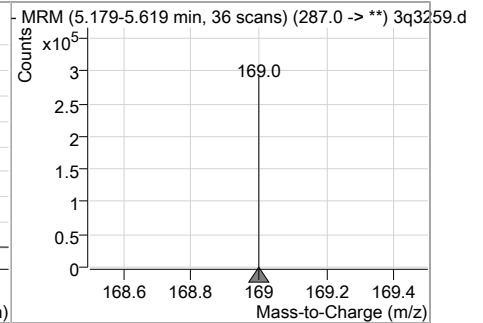
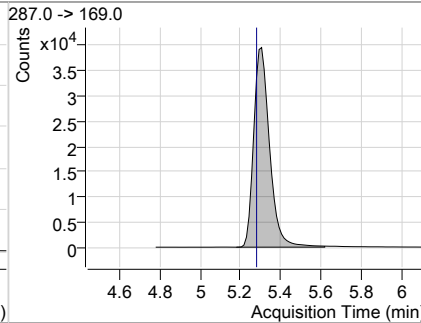
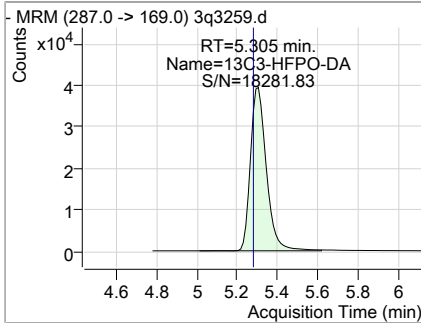
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.95	4.90	0.02	137694				



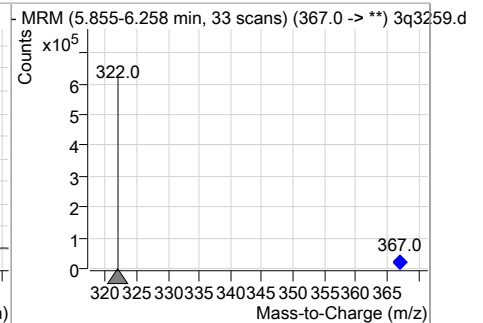
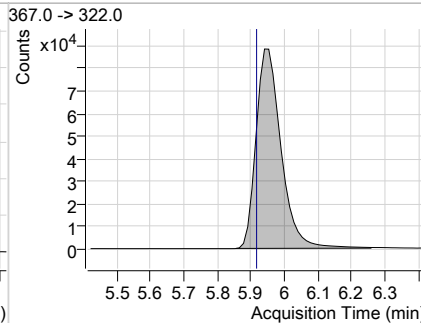
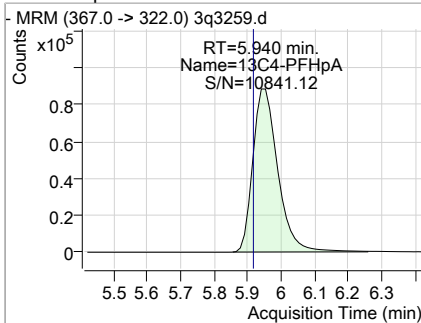
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.23	5.00	0.02	372286				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	103.00	5.30	0.02	216550				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.42	5.94	0.02	459145				



7.5.9

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Cal Report: 3Q3259.D

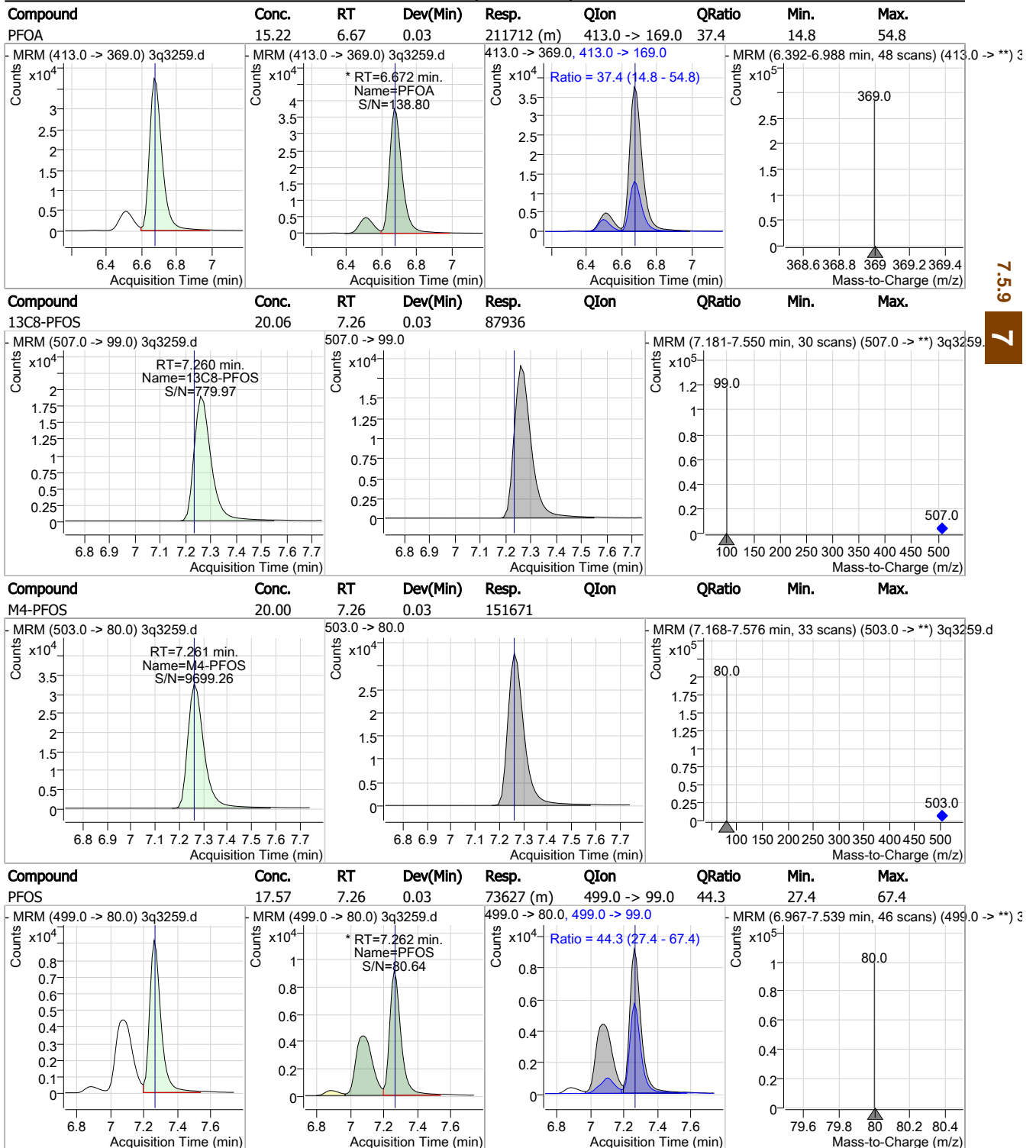
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.88	6.00	0.02	53296				
MRM (402.0 -> 99.0) 3q3259.d			402.0 -> 99.0			MRM (5.908-6.280 min, 30 scans) (402.0 -> **) 3q3259.d		
RT=5.997 min. Name=13C3-PFHxS S/N=260.87								
13C2-6:2FTS	19.24	6.66	0.02	181049				
MRM (429.0 -> 409.0) 3q3259.d			429.0 -> 409.0			MRM (6.573-6.908 min, 27 scans) (429.0 -> **) 3q3259.d		
RT=6.664 min. Name=13C2-6:2FTS S/N=9523.93								
13C8-PFOA	20.73	6.67	0.02	501503				
MRM (421.0 -> 376.0) 3q3259.d			421.0 -> 376.0			MRM (6.568-6.986 min, 34 scans) (421.0 -> **) 3q3259.d		
RT=6.668 min. Name=13C8-PFOA S/N=17890.86								
M2-PFOA	20.00	6.67	0.02	659752				
MRM (415.0 -> 370.0) 3q3259.d			415.0 -> 370.0			MRM (6.583-6.987 min, 33 scans) (415.0 -> **) 3q3259.d		
RT=6.670 min. Name=M2-PFOA S/N=675.48								

7.59
7

Cal Report: 3Q3259.D

Perfluorinated Compounds by LC/MS/MS



7.59

7

Cal Report: 3Q3259.D

Perfluorinated Compounds by LC/MS/MS

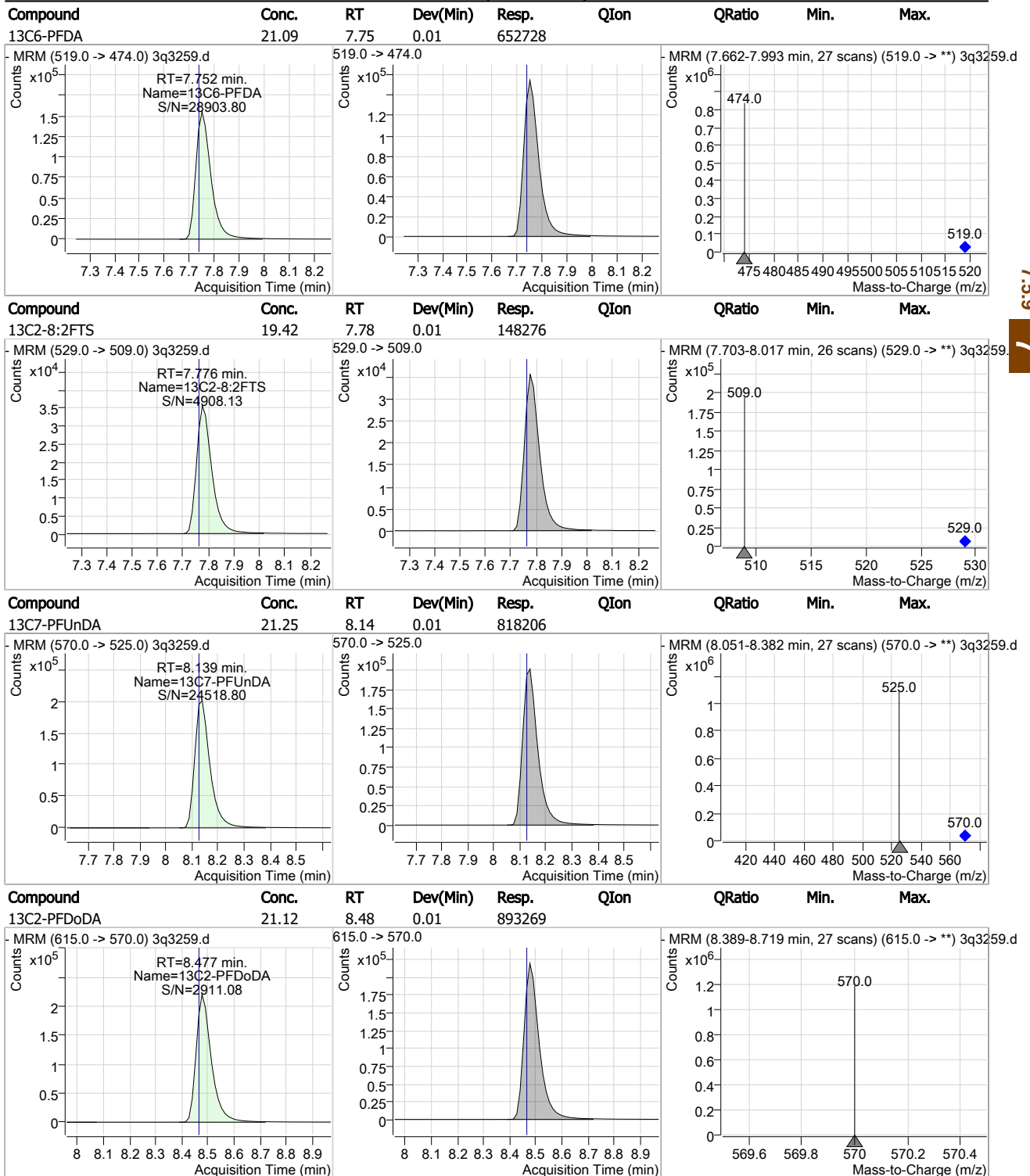
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.	
13C9-PFNA	20.76	7.28	0.03	520806					
13C8-FOSA	21.27	7.32	0.03	262334					
d3-MeFOSAA	21.94	7.75	0.01	94120					
MeFOSAA	15.53	7.75	0.01	39487 (m)	570.0 -> 512.0	25.9	0.0	52.2	

7.5.9

7

Cal Report: 3Q3259.D

Perfluorinated Compounds by LC/MS/MS



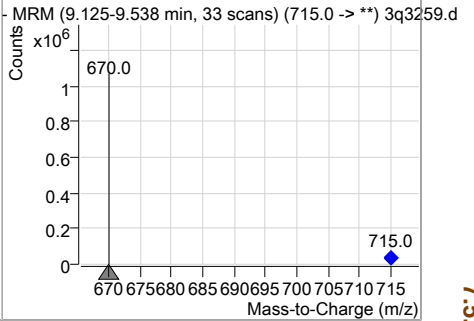
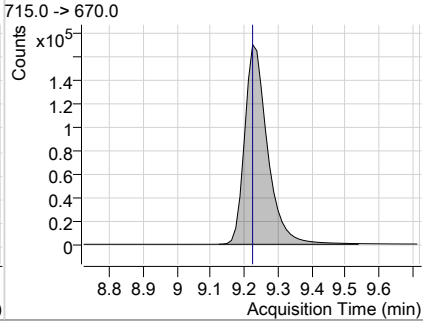
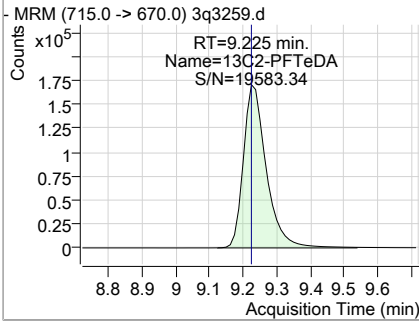
7.5.9

7

Cal Report: **3Q3259.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	21.44	9.22	0.00	801114				



7.5.9
7



Manual Integration Approval Summary

Sample Number: S3Q83-ICV83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3259.D **Analyst approved:** 04/26/19 09:23 Natasha Gumtie
Injection Time: 04/25/19 11:04 **Supervisor approved:** 04/26/19 16:14 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.67	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.26	Split peak
MeFOSAA	2355-31-9		7.75	Split peak

7.5.9.1



Cal Report: 3Q3260.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:14

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3260.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 11:20:27 AM
 Sample Name : icv83-20
 Vial : P3-B2
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74632,S3Q83,125,,,1.0,1,water

Compound	RT	QI _{on}	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	333784	20.00 µg/L	0.000
M5-PFPeA	3.598	268.0 -> 223.0	247513	20.00 µg/L	0.012
M5-PFHxA	5.000	318.0 -> 273.0	371271	20.00 µg/L	0.025
M4-PFHpA	5.953	367.0 -> 322.0	458208	20.00 µg/L	0.036
M8-PFOA	6.681	421.0 -> 376.0	492459	20.00 µg/L	0.038
M9-PFNA	7.276	472.0 -> 427.0	515181	20.00 µg/L	0.025
M6-PFDA	7.752	519.0 -> 474.0	635335	20.00 µg/L	0.012
M7-PFUnDA	8.139	570.0 -> 525.0	790914	20.00 µg/L	0.012
M2-PFDoDA	8.477	615.0 -> 570.0	873962	20.00 µg/L	0.012
M2-PFTeDA	9.225	715.0 -> 670.0	785405	20.00 µg/L	0.000
M8-FOSA	7.323	506.0 -> 78.0	254163	20.00 µg/L	0.025
M3-PFBS	3.917	302.0 -> 99.0	48931	20.00 µg/L	0.025
M3-PFHxS	5.997	402.0 -> 99.0	53083	20.00 µg/L	0.025
M8-PFOS	7.260	507.0 -> 99.0	87189	20.00 µg/L	0.025
M2-4:2FTS	4.896	329.0 -> 309.0	143777	20.00 µg/L	0.025
M2-6:2FTS	6.664	429.0 -> 409.0	187487	20.00 µg/L	0.025
M2-8:2FTS	7.776	529.0 -> 509.0	152786	20.00 µg/L	0.013
M3-MeFOSAA	7.746	573.0 -> 419.0	89797	20.00 µg/L	0.012
M3-HFPO-DA	5.305	287.0 -> 169.0	213675	100.00 µg/L	0.025
13C2-PFOA	6.670	415.0 -> 370.0	650913	20.00 µg/L	0.025
13C4-PFOS	7.261	503.0 -> 80.0	149437	20.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	4.896	329.0 -> 309.0	142716	19.64 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C2-6:2FTS	6.664	429.0 -> 409.0	186682	19.84 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C2-8:2FTS	7.776	529.0 -> 509.0	153960	20.16 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C2-PFDoDA	8.477	615.0 -> 570.0	873779	20.66 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C2-PFTeDA	9.225	715.0 -> 670.0	781807	20.92 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C3-PFBS	3.917	302.0 -> 99.0	48718	19.62 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C3-PFHxS	5.997	402.0 -> 99.0	53039	19.78 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C4-PFBA	1.727	217.0 -> 172.0	333470	19.72 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C4-PFHpA	5.953	367.0 -> 322.0	455090	20.24 µg/L	0.036
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C5-PFHxA	5.000	318.0 -> 273.0	367833	19.99 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C5-PFPeA	3.598	268.0 -> 223.0	247513	19.99 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C6-PFDA	7.752	519.0 -> 474.0	633789	20.48 µg/L	0.012

7.5.10
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Cal Report: 3Q3260.D

Perfluorinated Compounds by LC/MS/MS

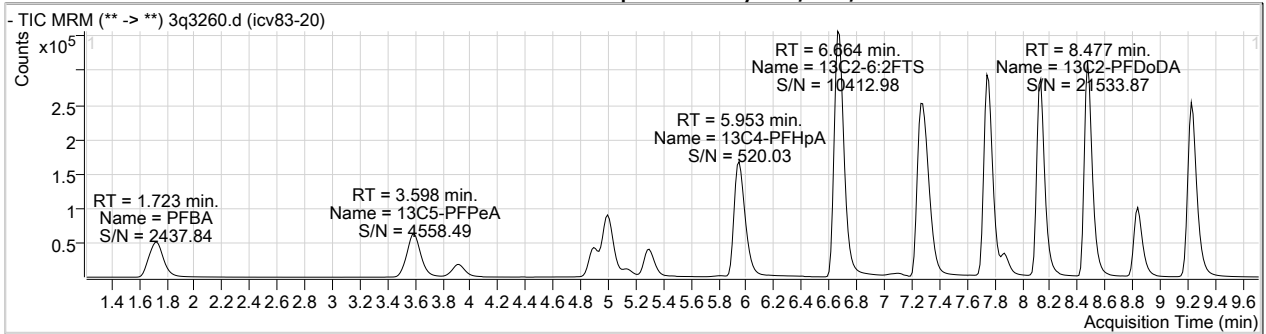
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)	QValue
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.4%		
13C7-PFUnDA	8.139	570.0 -> 525.0	791944	20.57 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%		
13C8-FOSA	7.323	506.0 -> 78.0	254313	20.62 µg/L	0.025	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.1%		
13C8-PFOA	6.681	421.0 -> 376.0	492609	20.37 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.8%		
13C8-PFOS	7.260	507.0 -> 99.0	87041	19.85 µg/L	0.025	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.3%		
13C9-PFNA	7.276	472.0 -> 427.0	512426	20.43 µg/L	0.025	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.2%		
d3-MeFOSAA	7.746	573.0 -> 419.0	89836	20.94 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.7%		
13C3-HFPO-DA	5.305	287.0 -> 169.0	213675	101.63 µg/L	0.025	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 101.6%		
M2-PFOA	6.670	415.0 -> 370.0	650913	20.00 µg/L	0.025	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.261	503.0 -> 80.0	149437	20.00 µg/L	0.025	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						
4:2FTS	4.898	327.0 -> 307.0	64247	15.03 µg/L	99	
6:2FTS	6.666	427.0 -> 407.0	76105	16.19 µg/L	100	
8:2FTS	7.777	527.0 -> 507.0	65801	16.30 µg/L	97	
EtFOSAA	7.872	584.0 -> 419.0	36907	16.23 µg/L	100	
FOSA	7.326	498.0 -> 78.0	101280	16.76 µg/L	100	
MeFOSAA	7.746	570.0 -> 419.0	40494	16.70 µg/L	95	
PFBA	1.723	213.0 -> 169.0	49704	15.99 µg/L	100	
PFBS	3.908	299.0 -> 80.0	48885	14.83 µg/L	99	
PFDA	7.752	513.0 -> 469.0	234106	15.01 µg/L	99	
PFDoDA	8.478	613.0 -> 569.0	347801	17.32 µg/L	100	
PFDS	8.099	599.0 -> 80.0	22181	14.92 µg/L	98	
PFHpA	5.955	363.0 -> 319.0	357156	16.30 µg/L	100	
PFHpS	6.687	449.0 -> 80.0	44034	15.14 µg/L	99	
PFHxA	5.002	313.0 -> 269.0	102874	14.77 µg/L	100	
PFHxS	5.999	399.0 -> 80.0	43321	14.02 µg/L	m 100	
PFNA	7.277	463.0 -> 419.0	247931	14.74 µg/L	100	
PFNS	7.722	549.0 -> 80.0	43054	15.86 µg/L	99	
PFOA	6.672	413.0 -> 369.0	221958	16.18 µg/L	100	
PFOS	7.262	499.0 -> 80.0	66800	16.07 µg/L	m 94	
PFPeA	3.602	263.0 -> 219.0	200155	15.56 µg/L	100	
PFPeS	5.132	349.0 -> 80.0	32269	15.05 µg/L	98	
PFTeDA	9.229	713.0 -> 669.0	375382	15.03 µg/L	100	
PFTrDA	8.841	663.0 -> 619.0	413708	17.61 µg/L	100	
PFUnDA	8.141	563.0 -> 519.0	300021	16.76 µg/L	99	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

7.5.10
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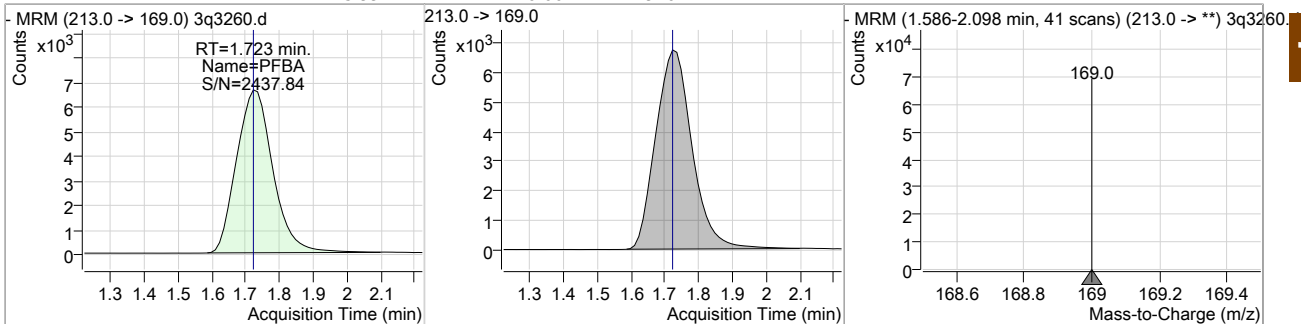
= Qualifier out of range, m = manually integrated, + = Area summed

Cal Report: 3Q3260.D

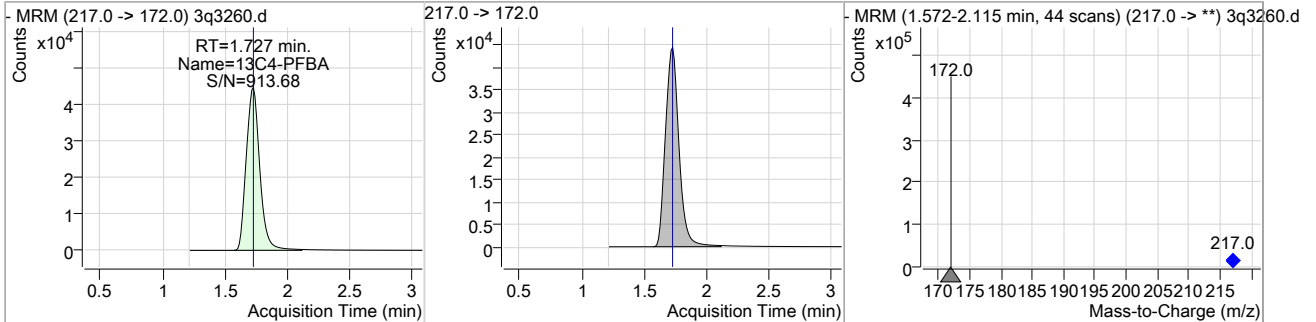
Perfluorinated Compounds by LC/MS/MS



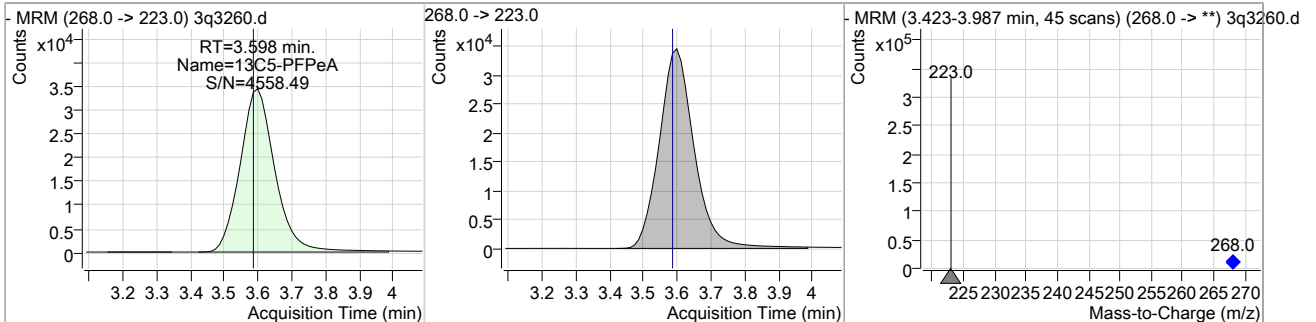
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	15.99	1.72	0.00	49704				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.72	1.73	0.00	333470				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.99	3.60	0.01	247513				

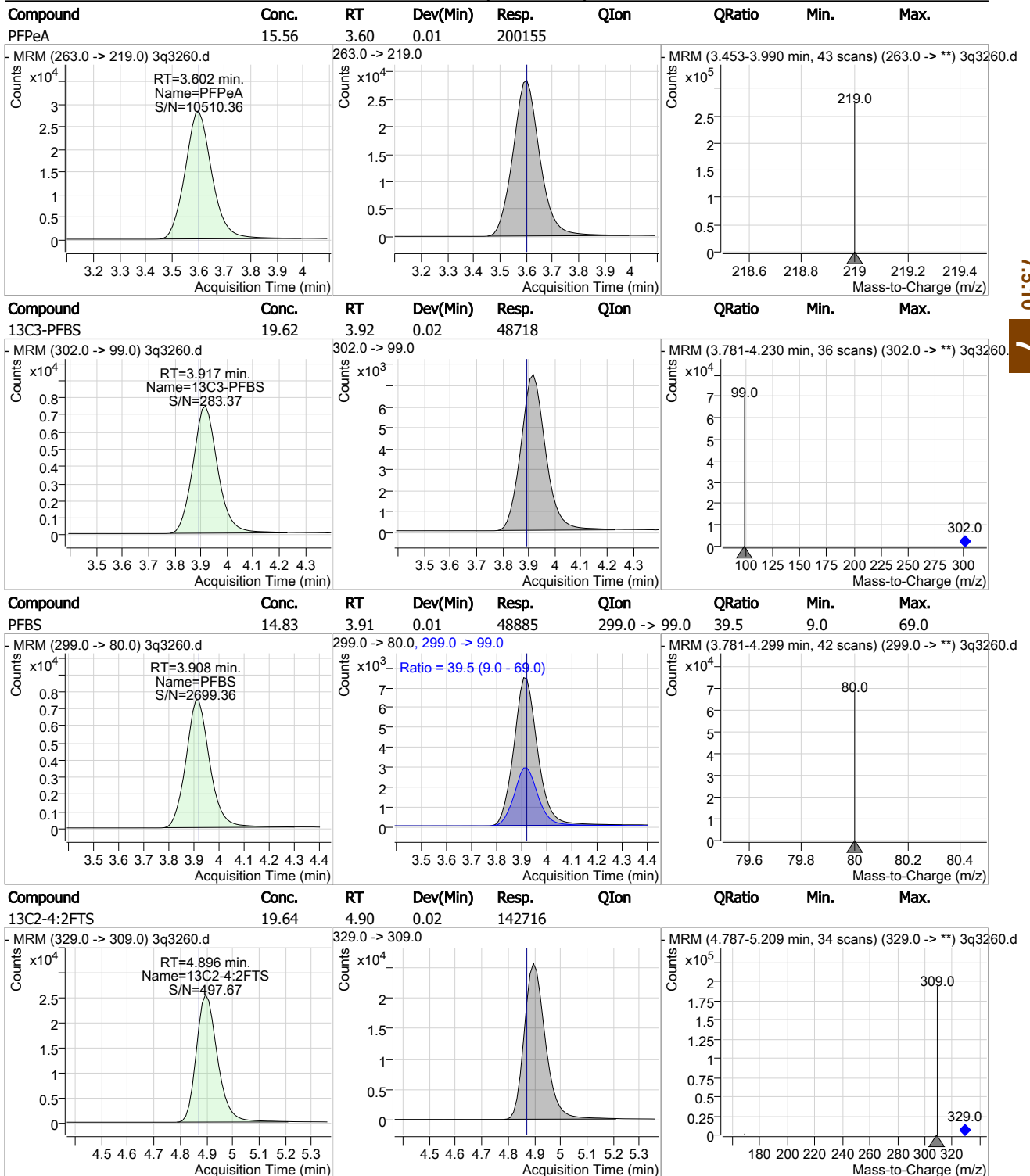


7.5.10

7

Cal Report: 3Q3260.D

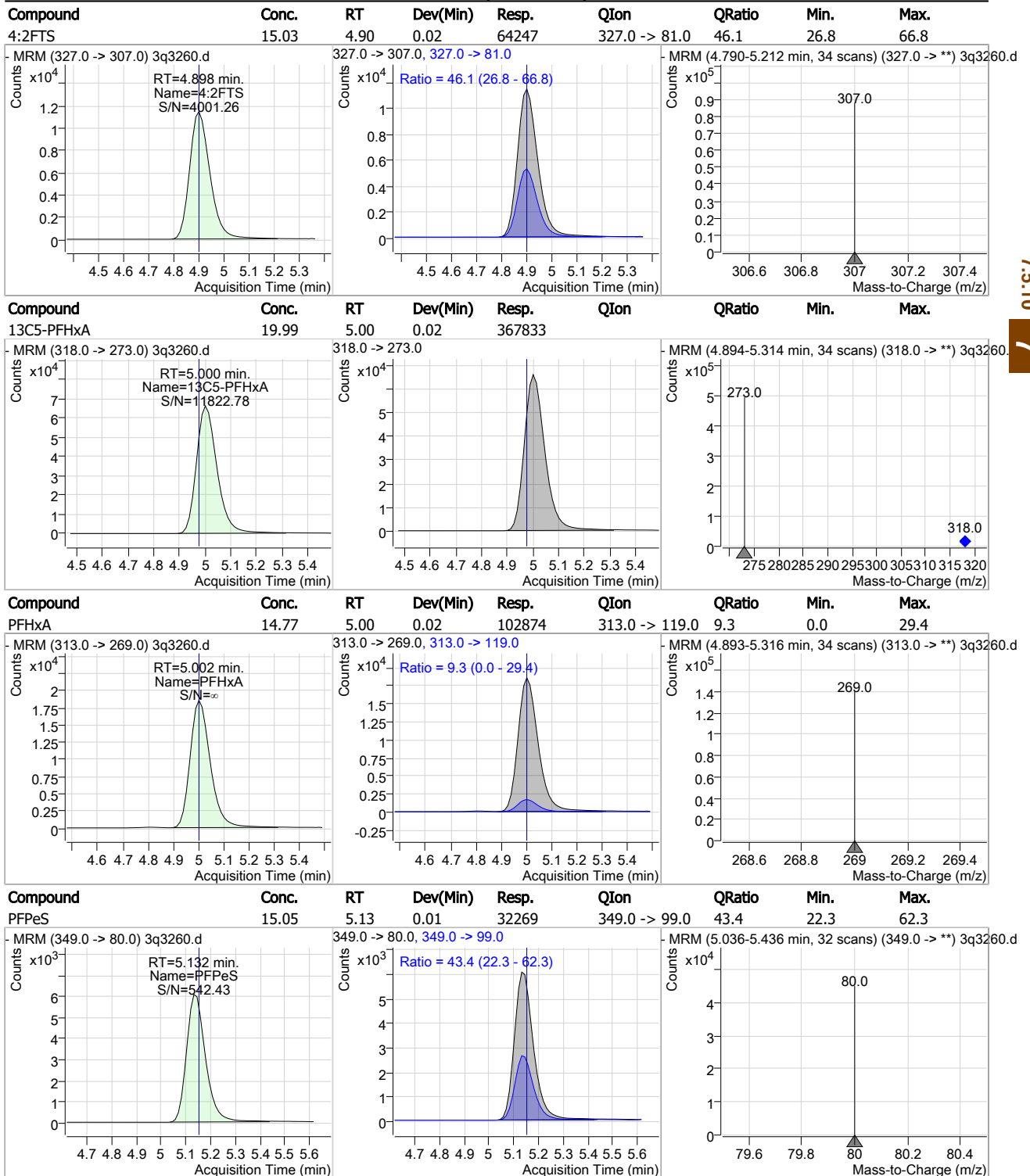
Perfluorinated Compounds by LC/MS/MS



7.5.10 7

Cal Report: 3Q3260.D

Perfluorinated Compounds by LC/MS/MS

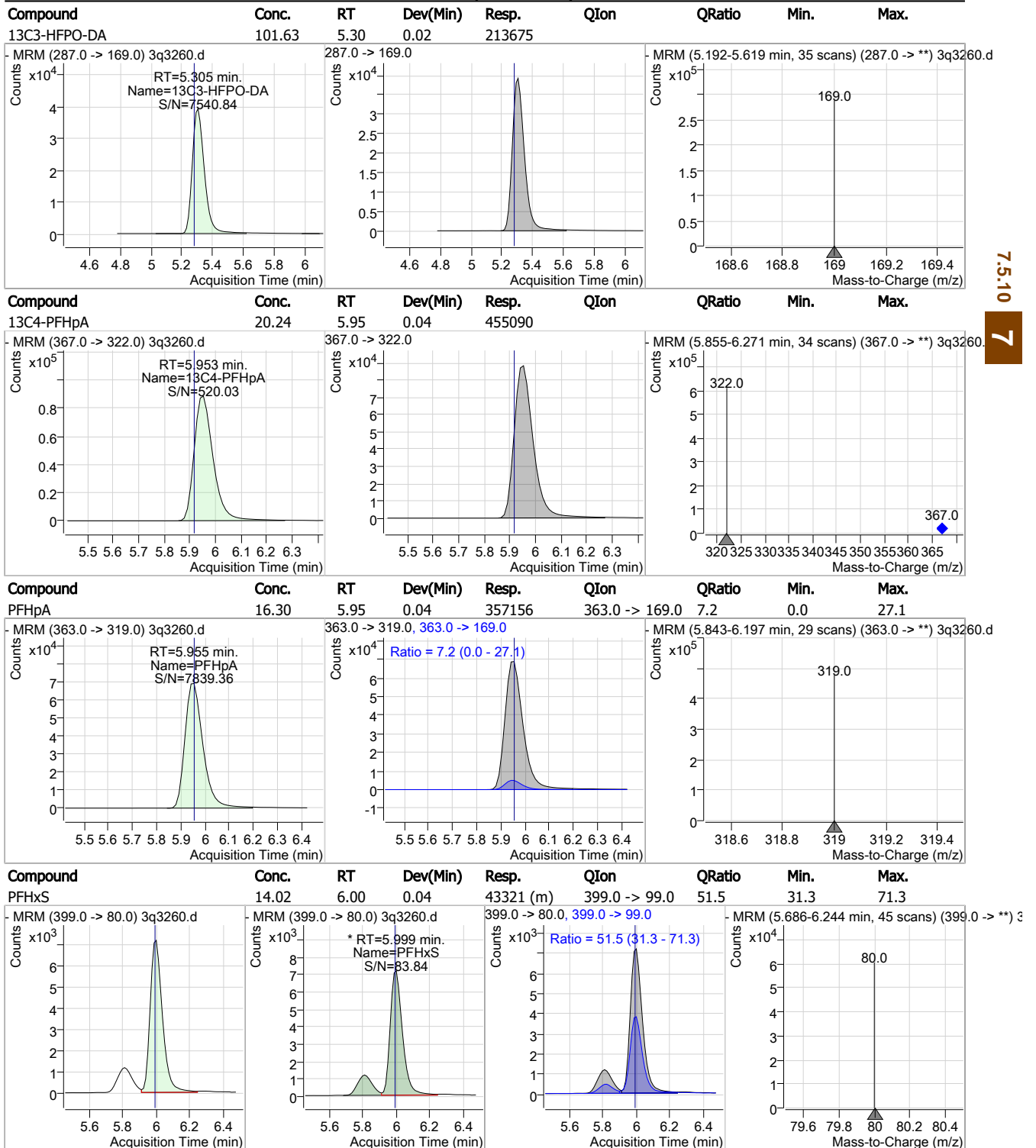


7.5.10

7

Cal Report: 3Q3260.D

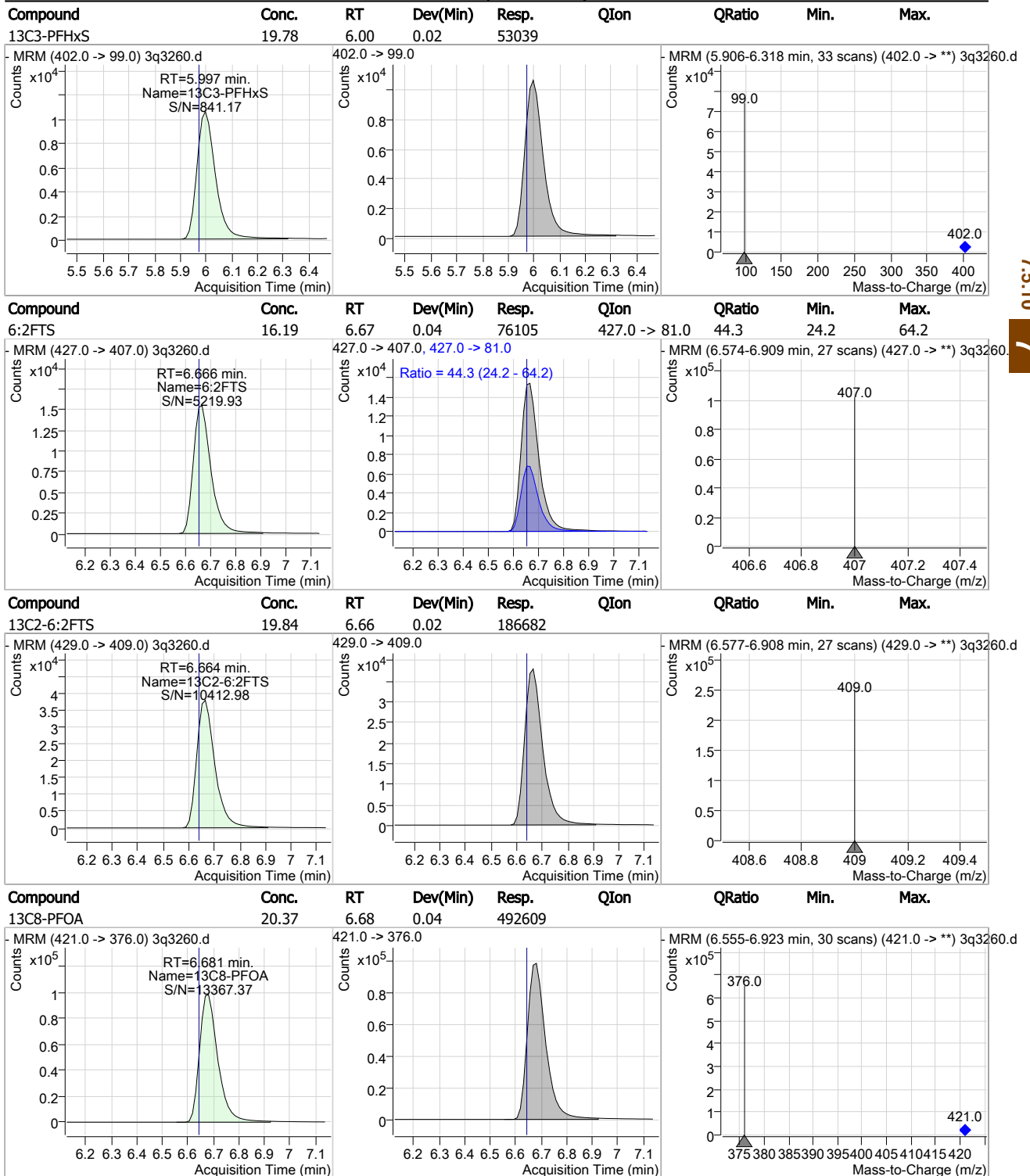
Perfluorinated Compounds by LC/MS/MS



7.5.10 7

Cal Report: 3Q3260.D

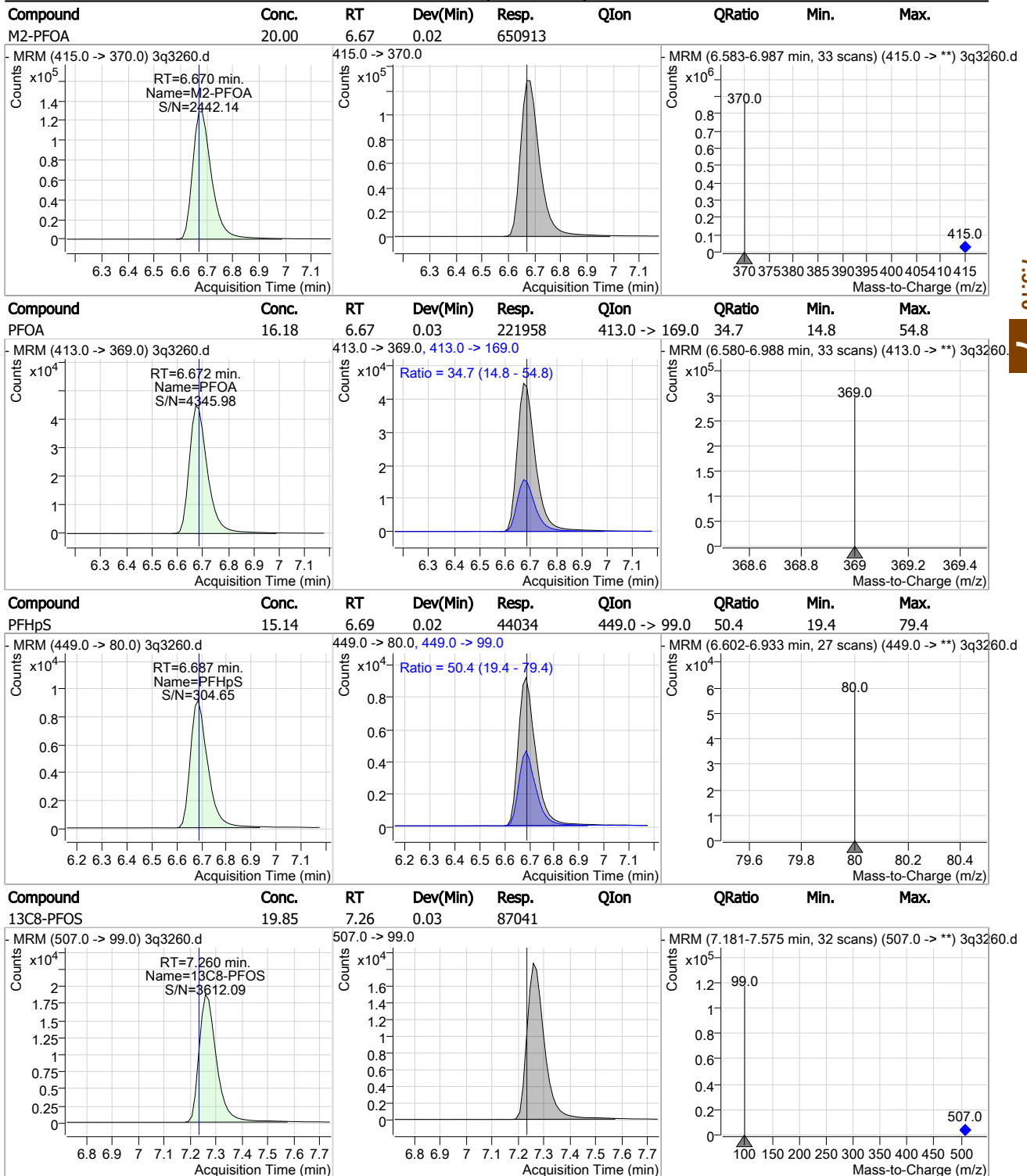
Perfluorinated Compounds by LC/MS/MS



7.5.10 7

Cal Report: 3Q3260.D

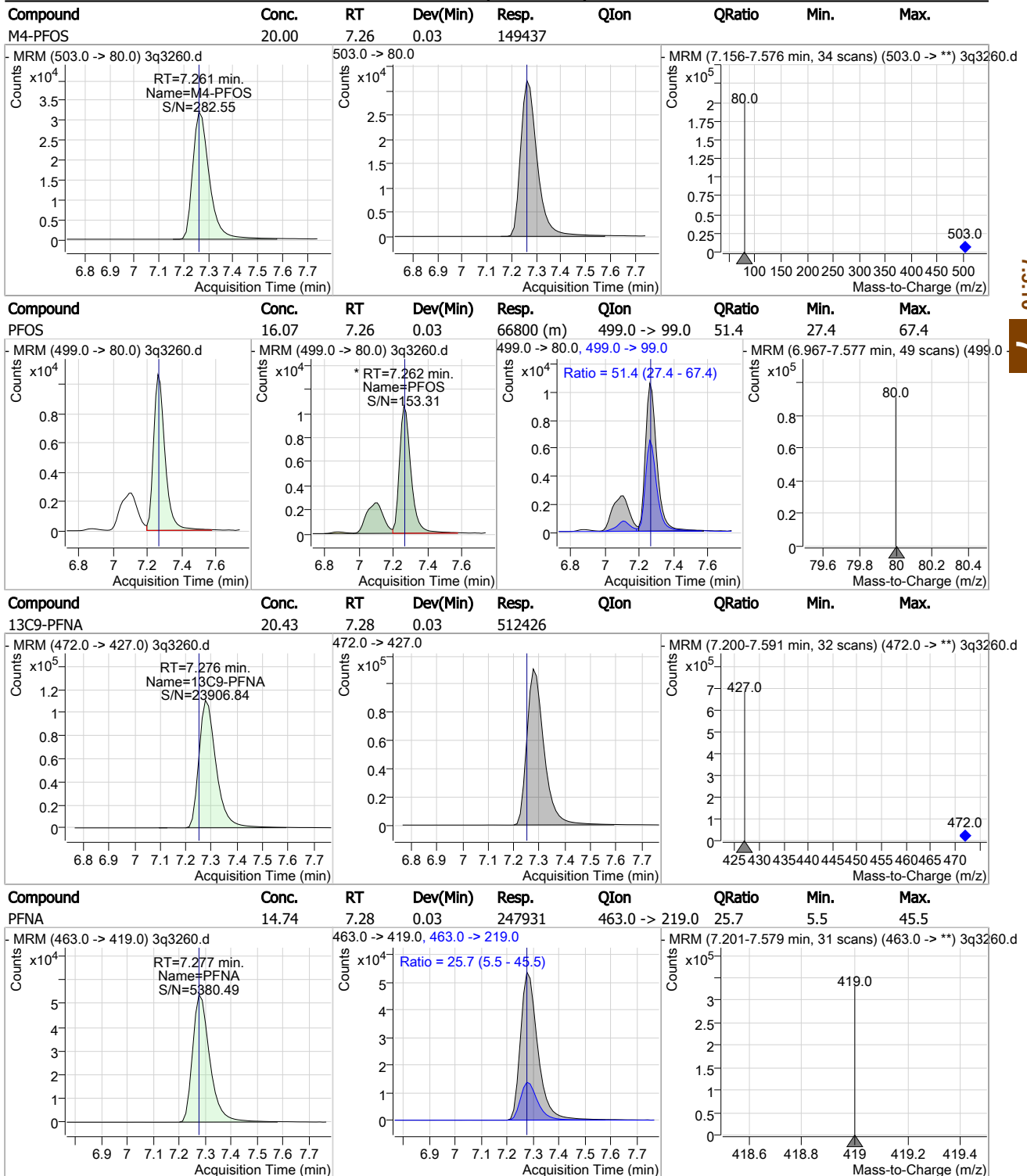
Perfluorinated Compounds by LC/MS/MS



7.5.10 7

Cal Report: 3Q3260.D

Perfluorinated Compounds by LC/MS/MS

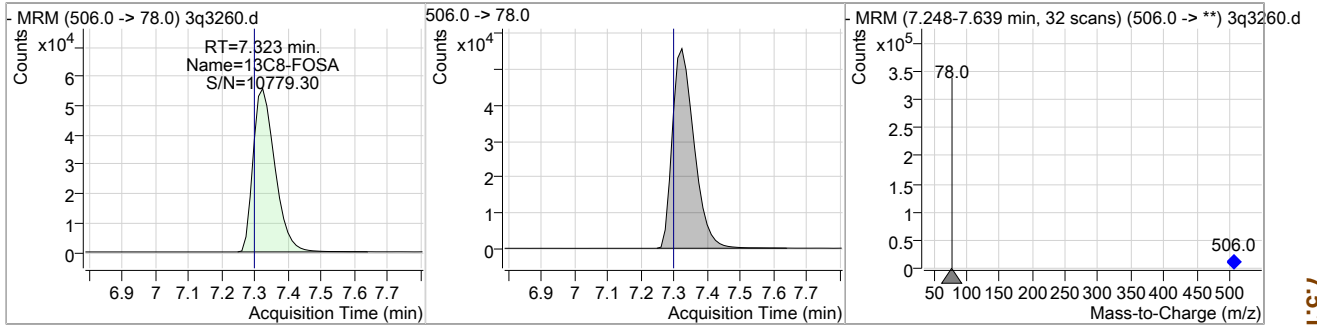


7.5.10 7

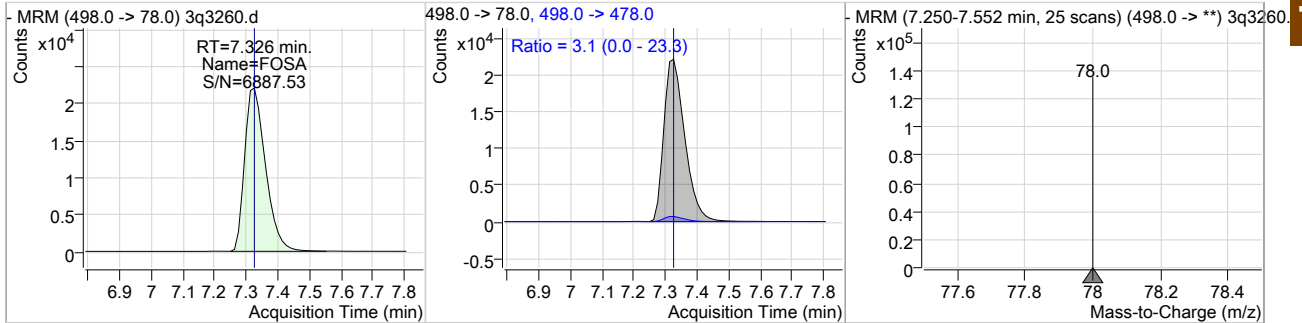
Cal Report: 3Q3260.D

Perfluorinated Compounds by LC/MS/MS

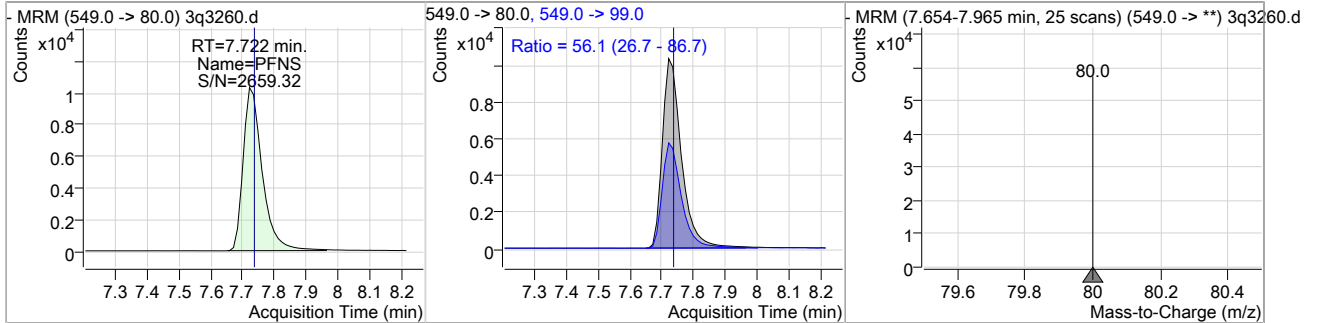
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.62	7.32	0.03	254313				



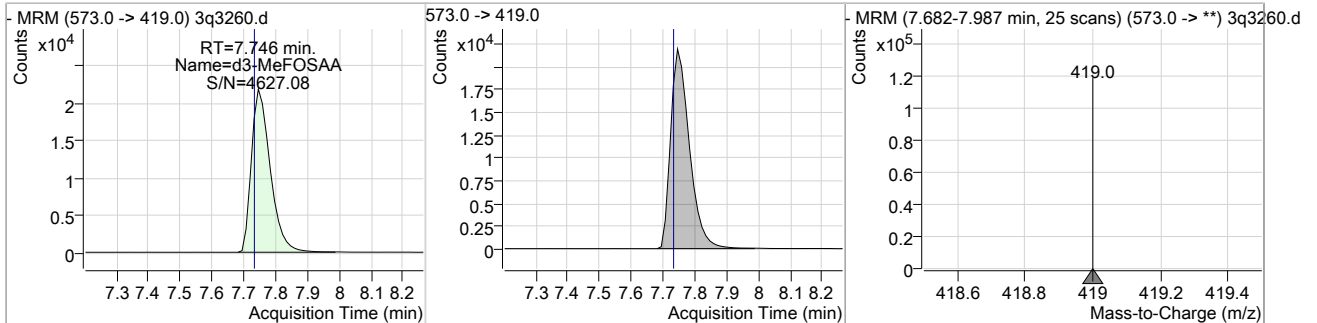
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	16.76	7.33	0.03	101280	498.0 -> 478.0	3.1	0.0	23.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	15.86	7.72	0.01	43054	549.0 -> 99.0	56.1	26.7	86.7



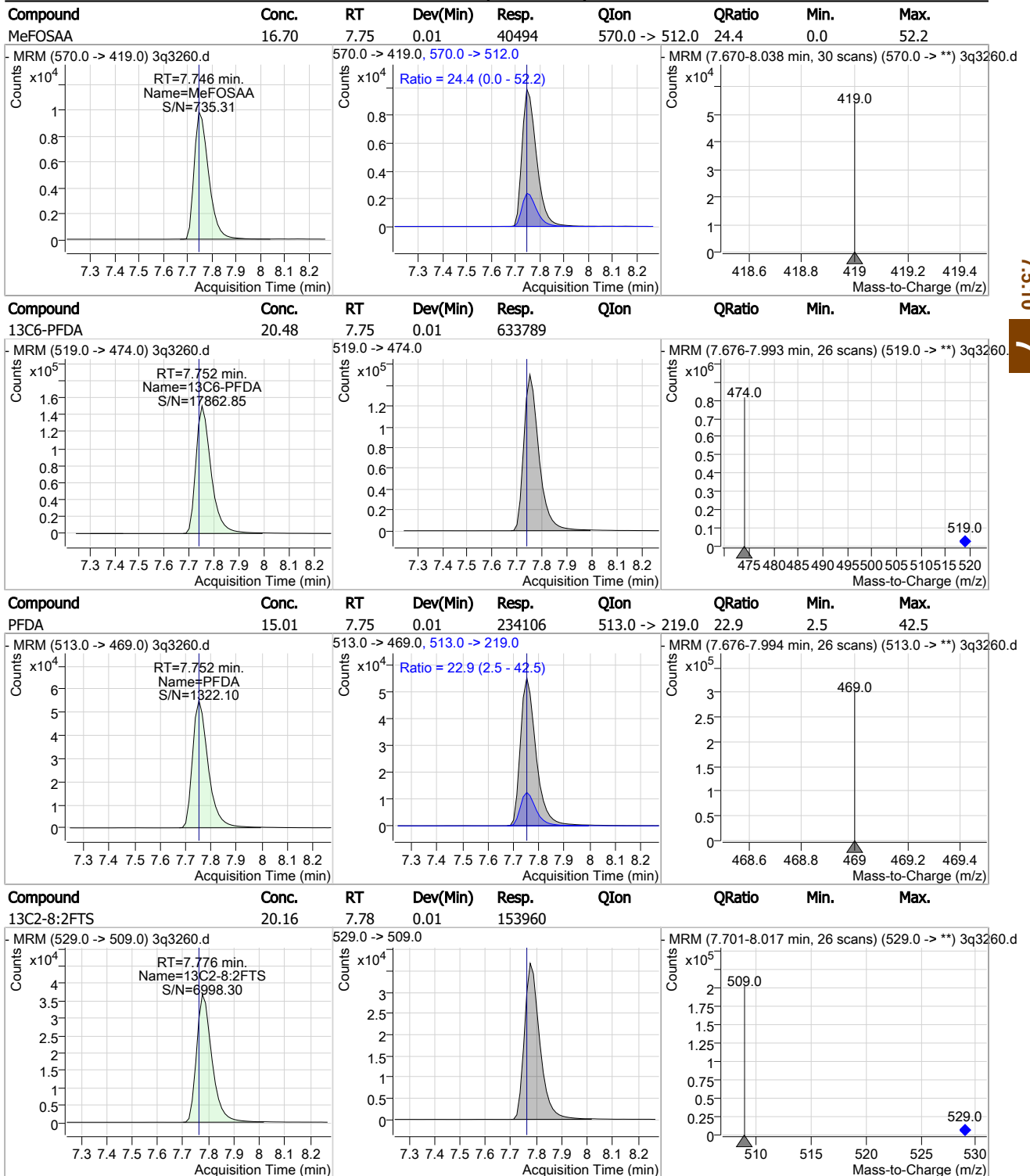
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.94	7.75	0.01	89836				



7.5.10 7

Cal Report: 3Q3260.D

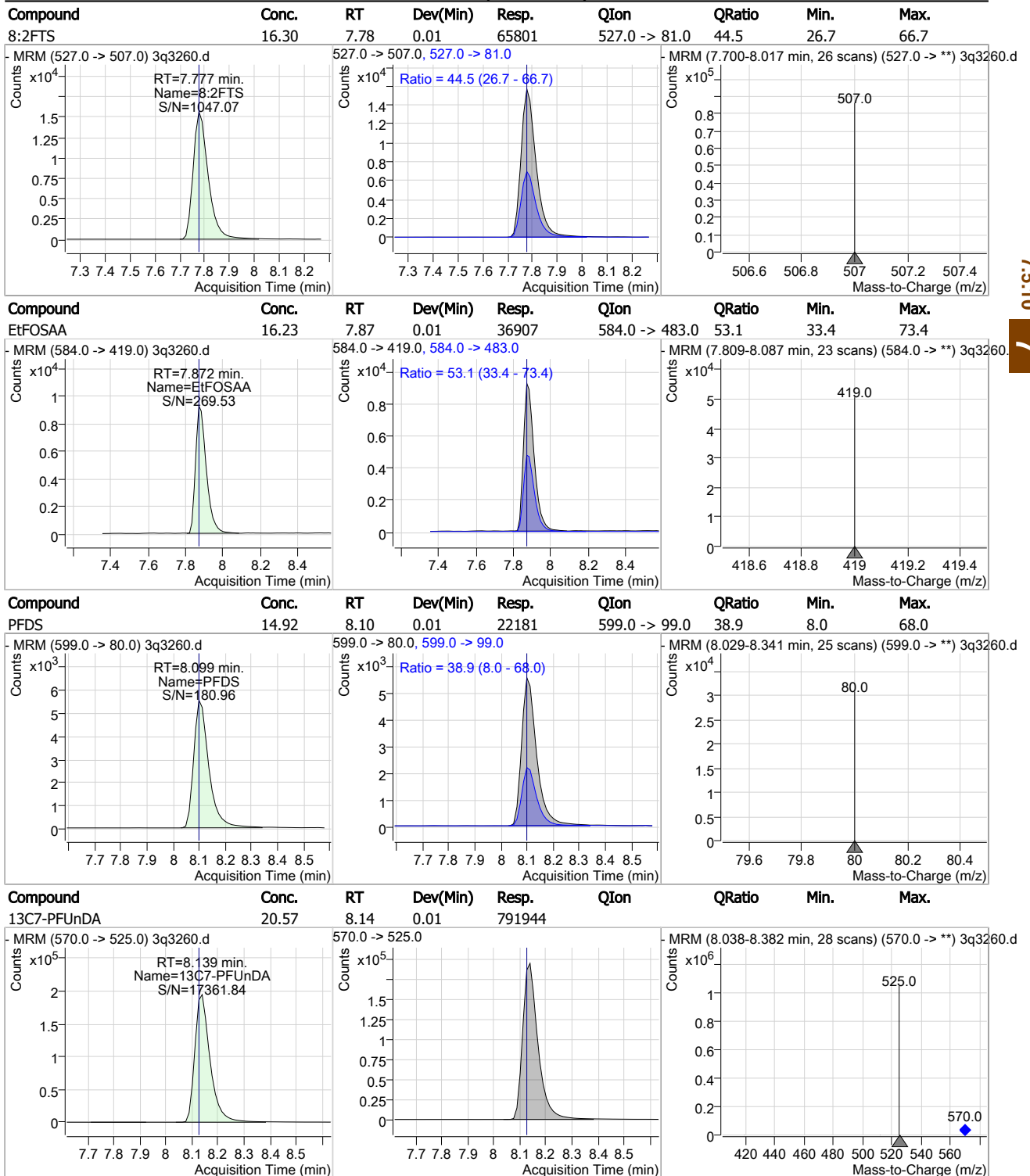
Perfluorinated Compounds by LC/MS/MS



7.5.10 7

Cal Report: 3Q3260.D

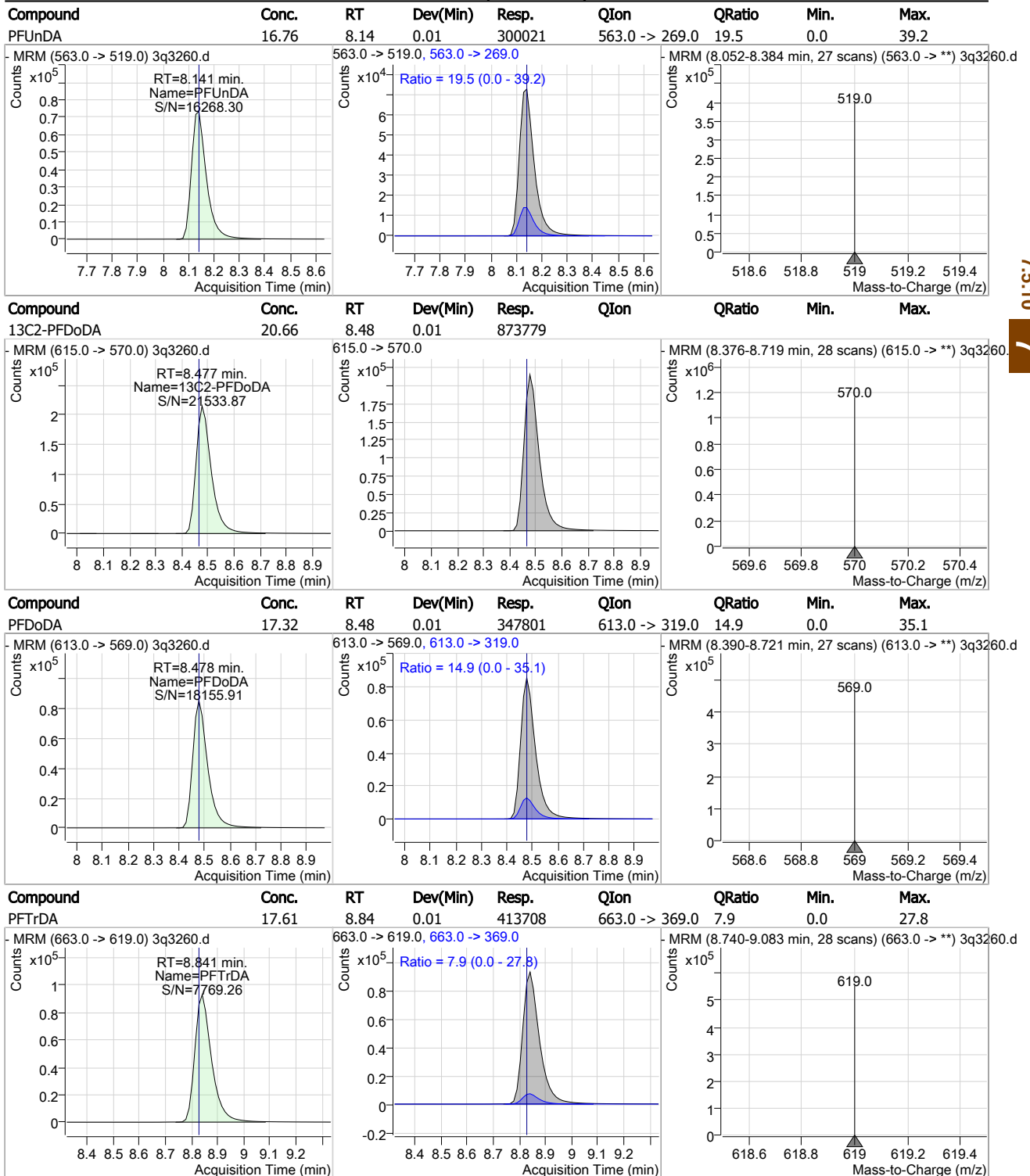
Perfluorinated Compounds by LC/MS/MS



7.5.10 7

Cal Report: 3Q3260.D

Perfluorinated Compounds by LC/MS/MS

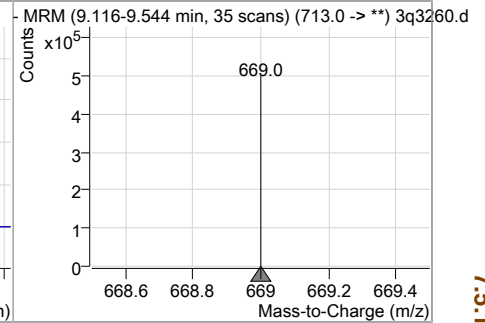
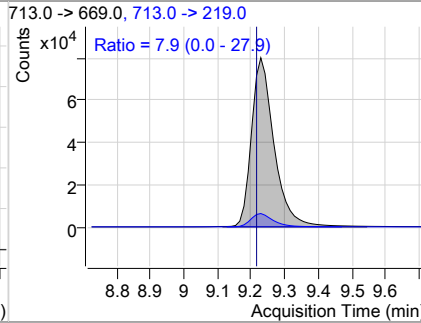
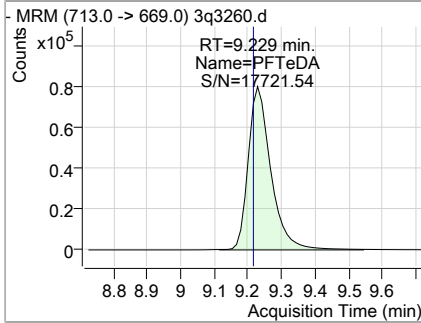


7.5.10
7

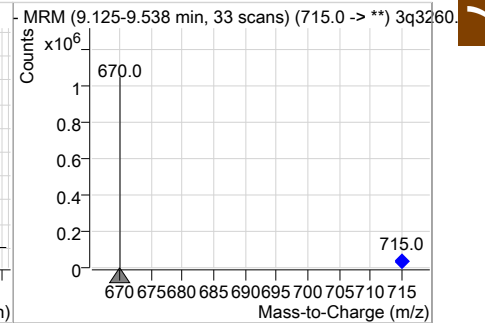
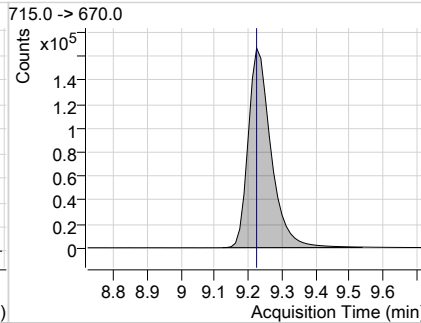
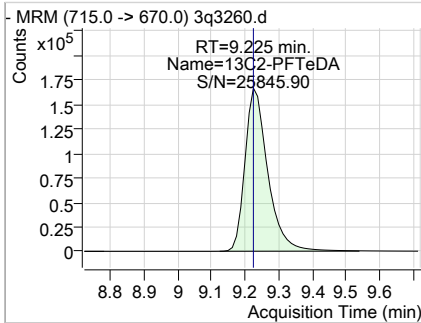
Cal Report: **3Q3260.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	15.03	9.23	0.01	375382	713.0 -> 219.0	7.9	0.0	27.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.92	9.22	0.00	781807				



7.5.10
7

Manual Integration Approval Summary

Sample Number: S3Q83-ICV83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3260.D **Analyst approved:** 04/26/19 09:23 Natasha Gumtie
Injection Time: 04/25/19 11:20 **Supervisor approved:** 04/26/19 16:14 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.00	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.26	Split peak

7.5.10.1

7

Cal Report: 3Q3261.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:14

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3261.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 11:36:03 AM
 Sample Name : icv83-20
 Vial : P3-B3
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74632,S3Q83,125,,,1.0,1,water

Compound	RT	QIion	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	341616	20.00 µg/L	0.000
M5-PFPeA	3.598	268.0 -> 223.0	247508	20.00 µg/L	0.012
M5-PFHxA	5.000	318.0 -> 273.0	381124	20.00 µg/L	0.025
M4-PFHpA	5.953	367.0 -> 322.0	467441	20.00 µg/L	0.036
M8-PFOA	6.681	421.0 -> 376.0	507129	20.00 µg/L	0.038
M9-PFNA	7.276	472.0 -> 427.0	527825	20.00 µg/L	0.025
M6-PFDA	7.752	519.0 -> 474.0	659795	20.00 µg/L	0.012
M7-PFUnDA	8.139	570.0 -> 525.0	811714	20.00 µg/L	0.012
M2-PFDoDA	8.477	615.0 -> 570.0	890639	20.00 µg/L	0.012
M2-PFTeDA	9.225	715.0 -> 670.0	810556	20.00 µg/L	0.000
M8-FOSA	7.323	506.0 -> 78.0	267859	20.00 µg/L	0.025
M3-PFBS	3.917	302.0 -> 99.0	50495	20.00 µg/L	0.025
M3-PFHxS	5.997	402.0 -> 99.0	53966	20.00 µg/L	0.025
M8-PFOS	7.260	507.0 -> 99.0	88282	20.00 µg/L	0.025
M2-4:2FTS	4.896	329.0 -> 309.0	141131	20.00 µg/L	0.025
M2-6:2FTS	6.664	429.0 -> 409.0	184100	20.00 µg/L	0.025
M2-8:2FTS	7.776	529.0 -> 509.0	150735	20.00 µg/L	0.013
M3-MeFOSAA	7.746	573.0 -> 419.0	93003	20.00 µg/L	0.012
M3-HFPO-DA	5.305	287.0 -> 169.0	210842	100.00 µg/L	0.025
13C2-PFOA	6.683	415.0 -> 370.0	667040	20.00 µg/L	0.038
13C4-PFOS	7.261	503.0 -> 80.0	152951	20.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	4.896	329.0 -> 309.0	139856	19.24 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C2-6:2FTS	6.664	429.0 -> 409.0	183303	19.48 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C2-8:2FTS	7.776	529.0 -> 509.0	150411	19.70 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C2-PFDoDA	8.477	615.0 -> 570.0	891523	21.07 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C2-PFTeDA	9.225	715.0 -> 670.0	810994	21.70 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C3-PFBS	3.917	302.0 -> 99.0	49717	20.03 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C3-PFHxS	5.997	402.0 -> 99.0	53478	19.95 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFBA	1.727	217.0 -> 172.0	341257	20.18 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C4-PFHpA	5.953	367.0 -> 322.0	463834	20.63 µg/L	0.036
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C5-PFHxA	5.000	318.0 -> 273.0	376686	20.47 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFPeA	3.598	268.0 -> 223.0	252758	20.41 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C6-PFDA	7.752	519.0 -> 474.0	658589	21.28 µg/L	0.012

7.5.11
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Cal Report: 3Q3261.D

Perfluorinated Compounds by LC/MS/MS

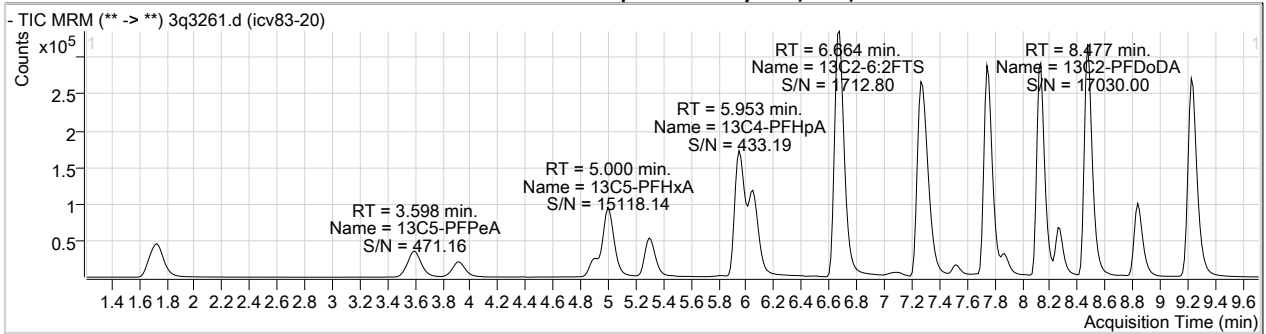
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C7-PFUnDA	8.139	570.0 -> 525.0	812065	21.09 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C8-FOSA	7.323	506.0 -> 78.0	267441	21.69 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C8-PFOA	6.681	421.0 -> 376.0	504980	20.88 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C8-PFOS	7.260	507.0 -> 99.0	89133	20.33 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C9-PFNA	7.276	472.0 -> 427.0	525667	20.96 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
d3-MeFOSAA	7.746	573.0 -> 419.0	93006	21.68 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C3-HFPO-DA	5.305	287.0 -> 169.0	210842	100.29 µg/L	0.025
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
M2-PFOA	6.683	415.0 -> 370.0	667040	20.00 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
M4-PFOS	7.261	503.0 -> 80.0	152951	20.00 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
Target Compounds					QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.	
6:2FTS	-	427.0 -> 407.0	-	N.D.	
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	7.872	584.0 -> 419.0	34901	14.82 µg/L	m 95
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	7.746	570.0 -> 419.0	38930	15.50 µg/L	m 92
PFBA	-	213.0 -> 169.0	-	N.D.	
PFBS	3.920	299.0 -> 80.0	60477	17.78 µg/L	100
PFDA	7.752	513.0 -> 469.0	276807	17.09 µg/L	100
PFDoDA	8.478	613.0 -> 569.0	349902	17.09 µg/L	100
PFDS	-	599.0 -> 80.0	-	N.D.	
PFHpA	5.955	363.0 -> 319.0	365492	16.35 µg/L	100
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	5.002	313.0 -> 269.0	120359	16.83 µg/L	100
PFHxS	5.999	399.0 -> 80.0	53491	17.02 µg/L	m 100
PFNA	7.277	463.0 -> 419.0	298421	17.32 µg/L	100
PFNS	-	549.0 -> 80.0	-	N.D.	
PFOA	6.685	413.0 -> 369.0	237853	16.83 µg/L	99
PFOS	7.262	499.0 -> 80.0	71508	16.99 µg/L	m 99
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.0 -> 80.0	-	N.D.	
PFTeDA	9.229	713.0 -> 669.0	435189	16.88 µg/L	100
PFTrDA	8.841	663.0 -> 619.0	413678	17.06 µg/L	100
PFUnDA	8.141	563.0 -> 519.0	317061	17.26 µg/L	100
11Cl-PF3OUdS	8.273	631.0 -> 451.0	190648	17.32 µg/L	100
9Cl-PF3ONS	7.521	531.0 -> 351.0	43136	16.87 µg/L	98
ADONA	6.052	377.0 -> 251.0	500946	17.42 µg/L	100
HFPO-DA	5.309	329.0 -> 169.0	63441	19.29 µg/L	100

7.5.11
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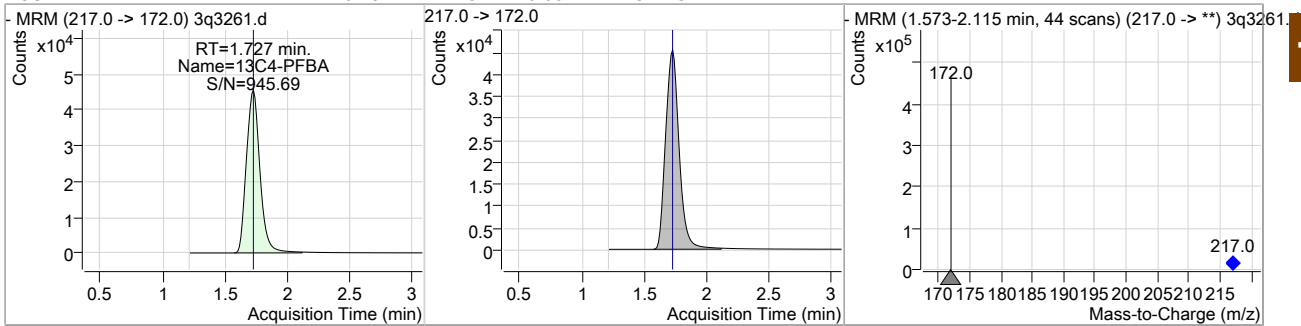
= Qualifier out of range, m = manually integrated, + = Area summed

Cal Report: 3Q3261.D

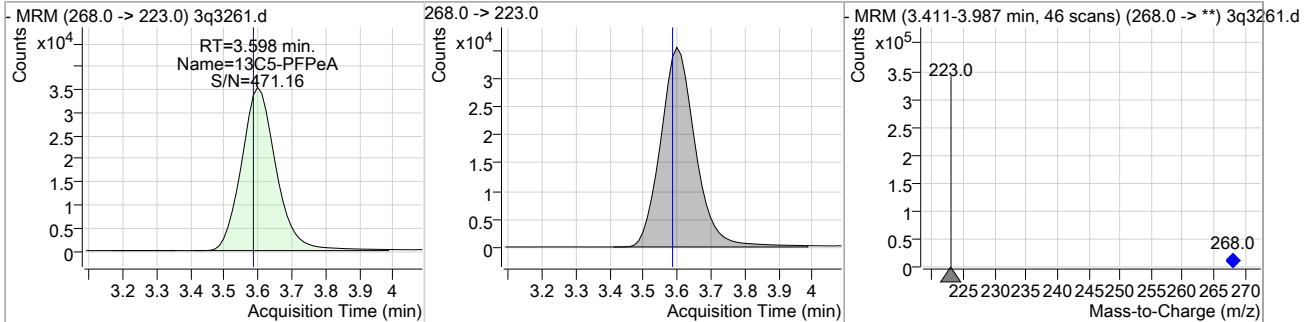
Perfluorinated Compounds by LC/MS/MS



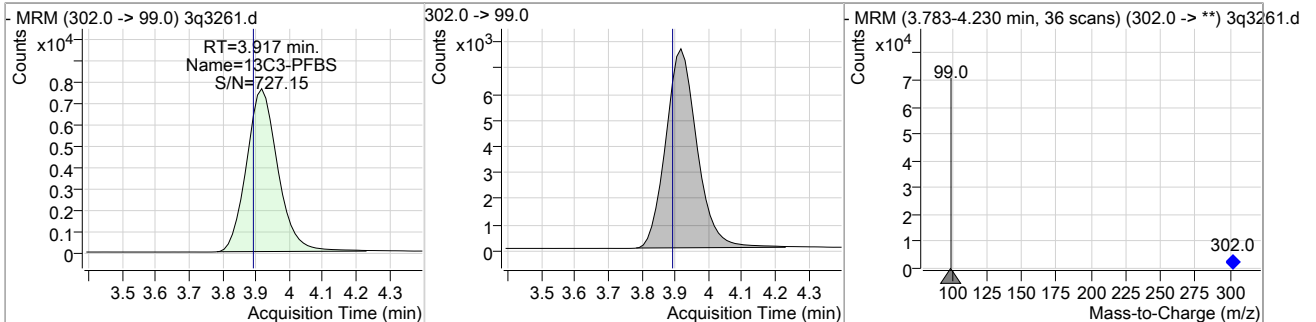
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.18	1.73	0.00	341257				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.41	3.60	0.01	252758				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.03	3.92	0.02	49717				

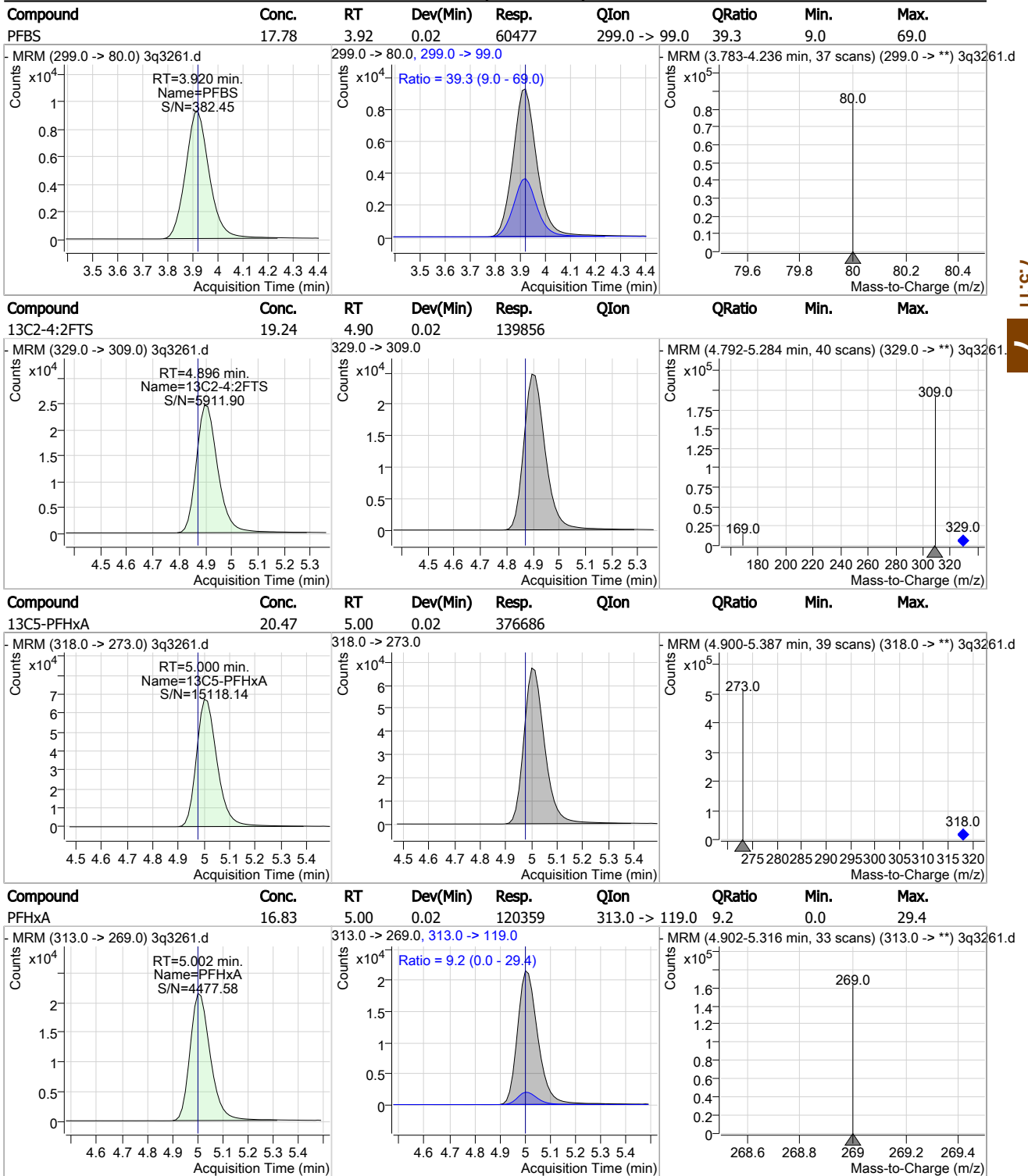


7.5.11

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Cal Report: 3Q3261.D

Perfluorinated Compounds by LC/MS/MS



7.5.11

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Cal Report: 3Q3261.D

Perfluorinated Compounds by LC/MS/MS

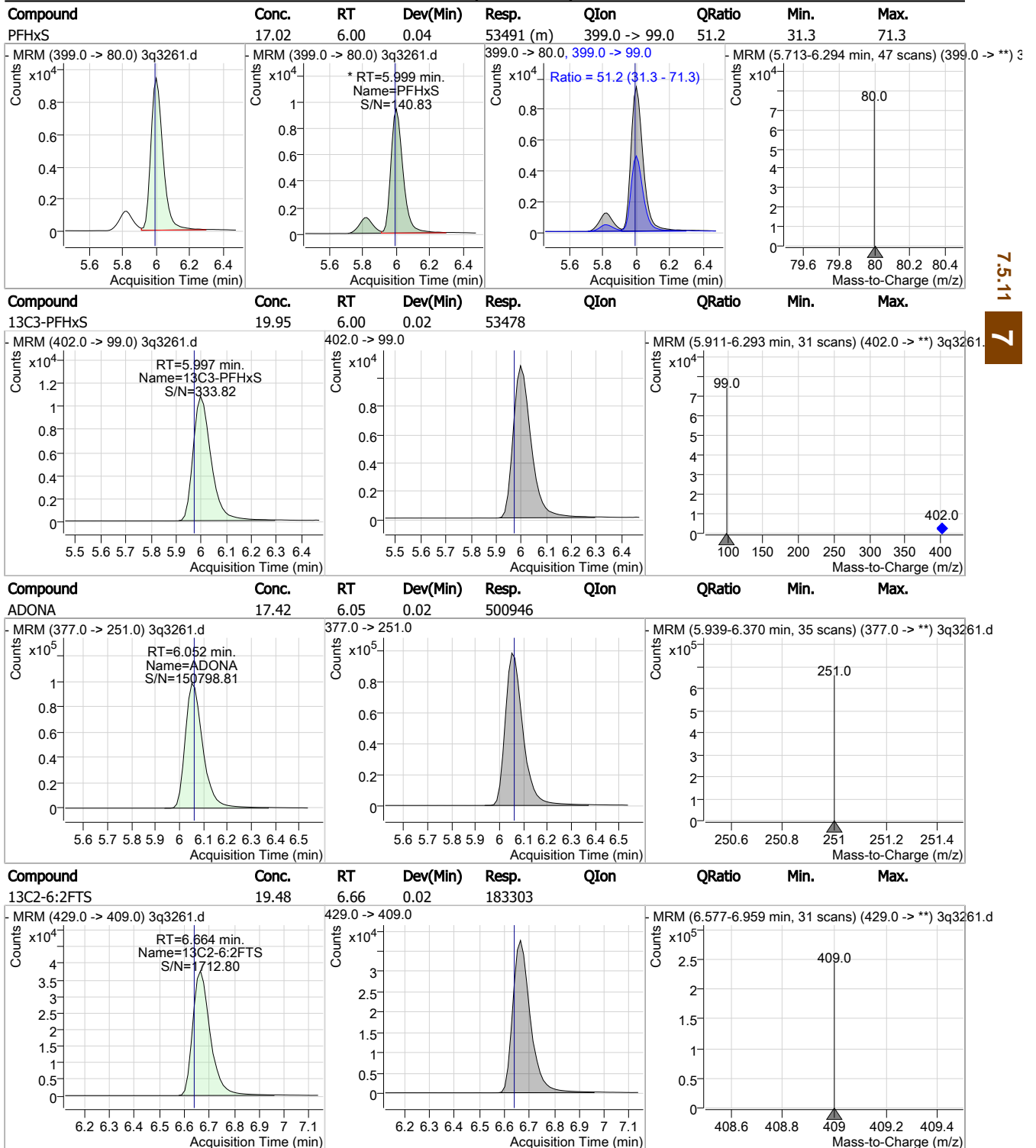
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.29	5.31	0.04	63441	285.0 -> 169.0	17.5	0.0	37.6
13C3-HFPO-DA	100.29	5.30	0.02	210842				
13C4-PFHpA	20.63	5.95	0.04	463834				
PFHpA	16.35	5.95	0.04	365492	363.0 -> 169.0	7.1	0.0	27.1

7.5.11

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Cal Report: 3Q3261.D

Perfluorinated Compounds by LC/MS/MS

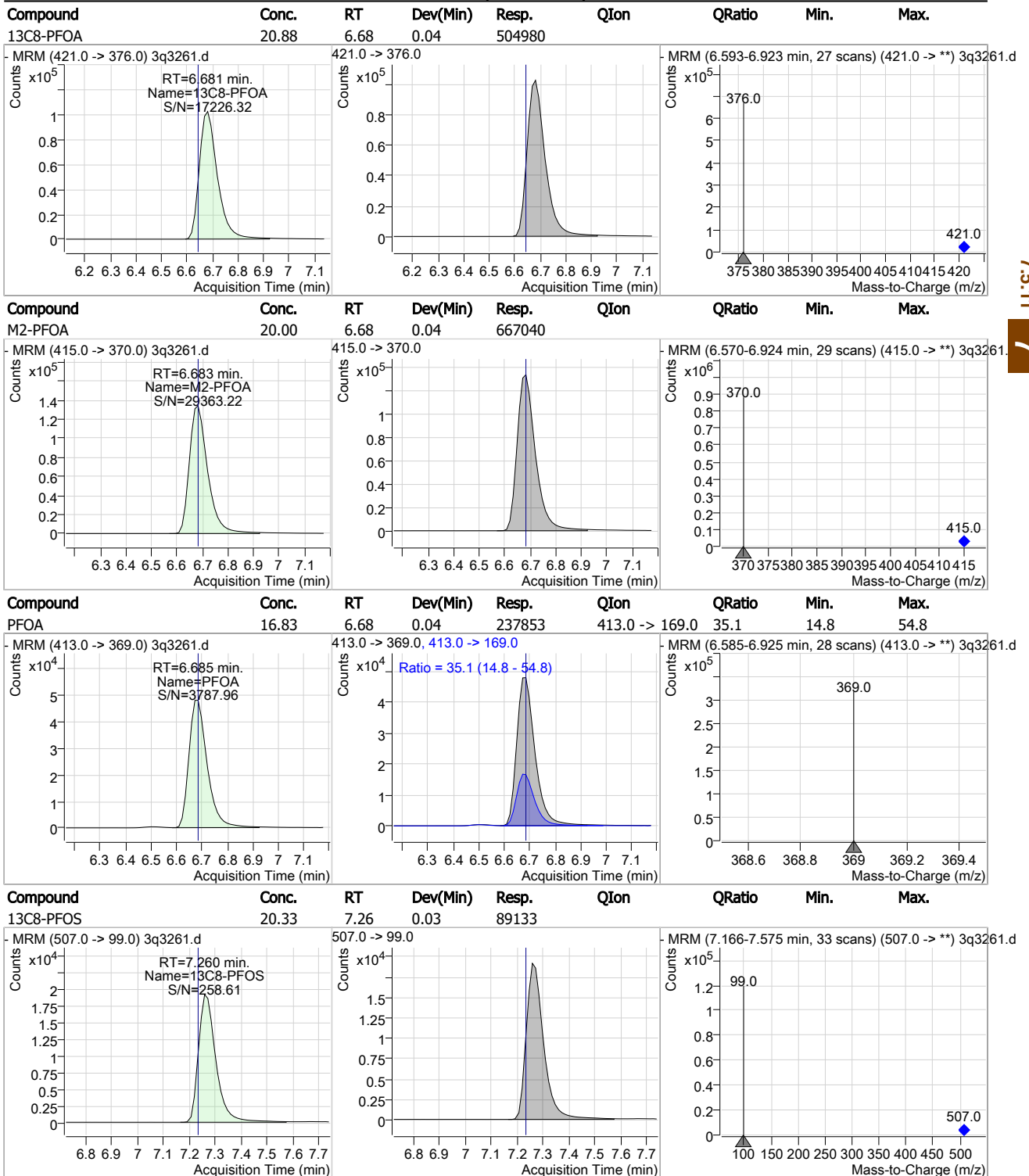


7.5.11

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Cal Report: 3Q3261.D

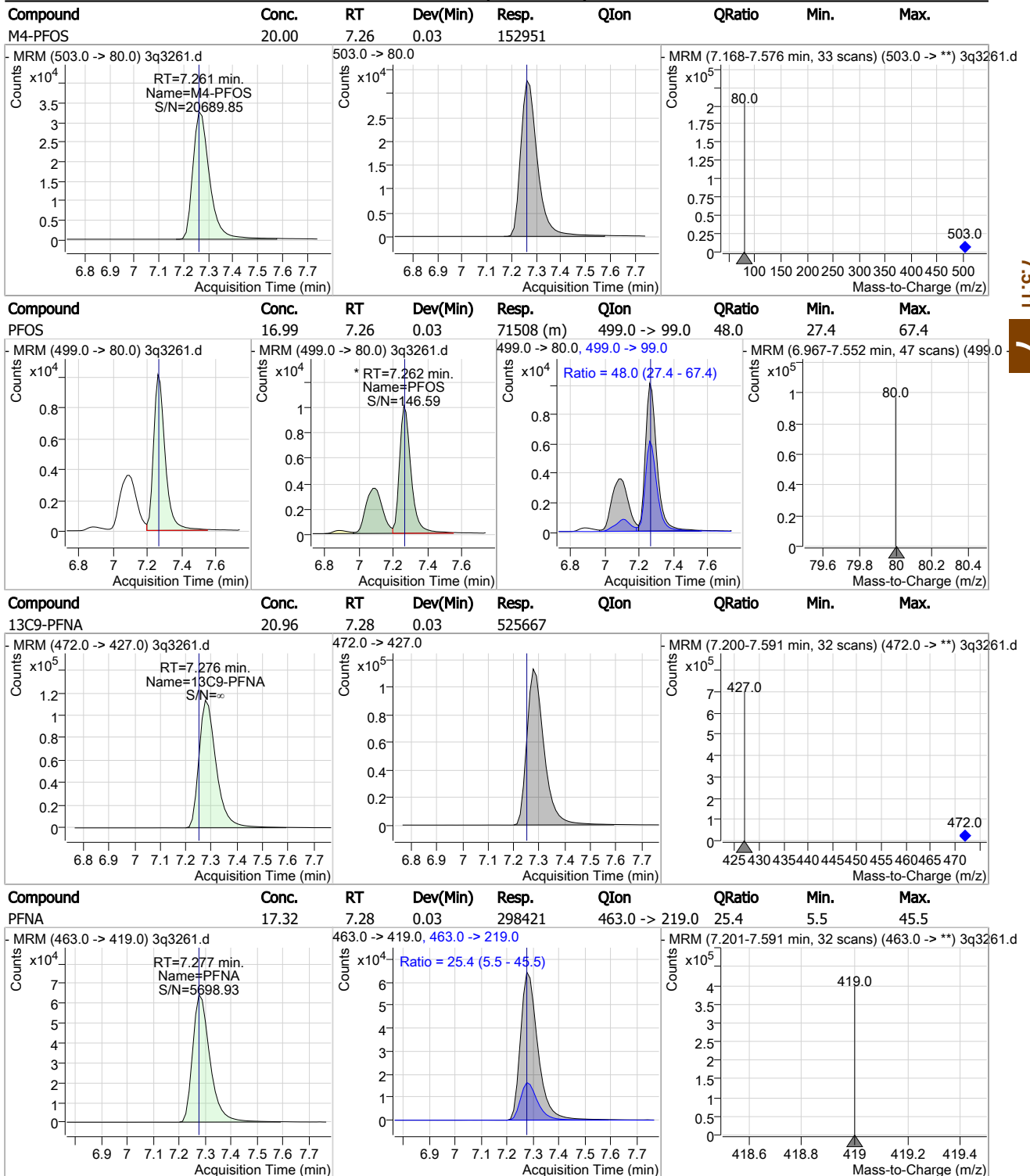
Perfluorinated Compounds by LC/MS/MS



7.5.11 7

Cal Report: 3Q3261.D

Perfluorinated Compounds by LC/MS/MS

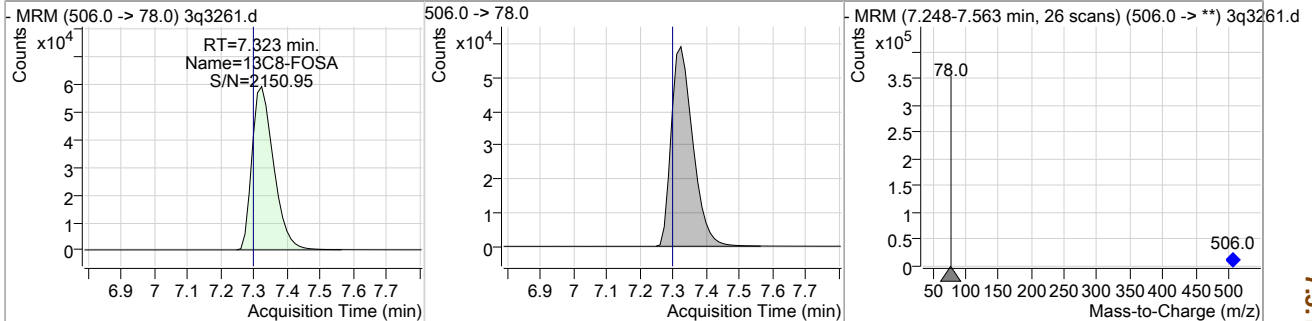


7.5.11 7

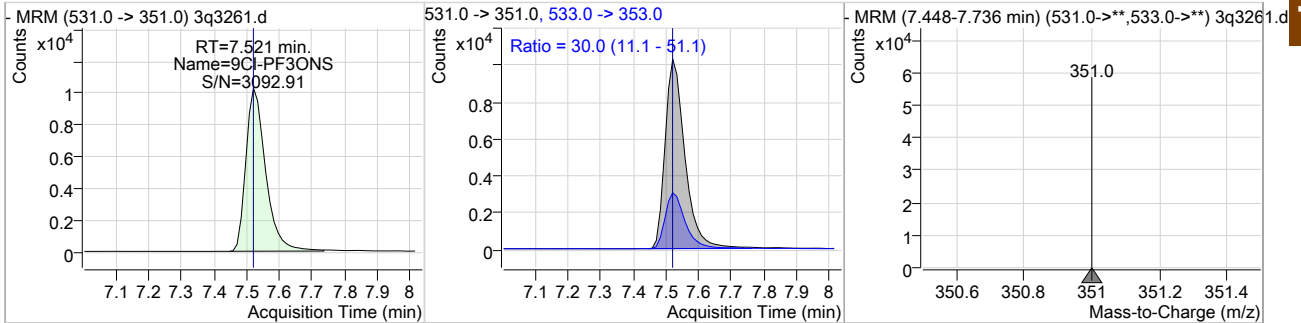
Cal Report: 3Q3261.D

Perfluorinated Compounds by LC/MS/MS

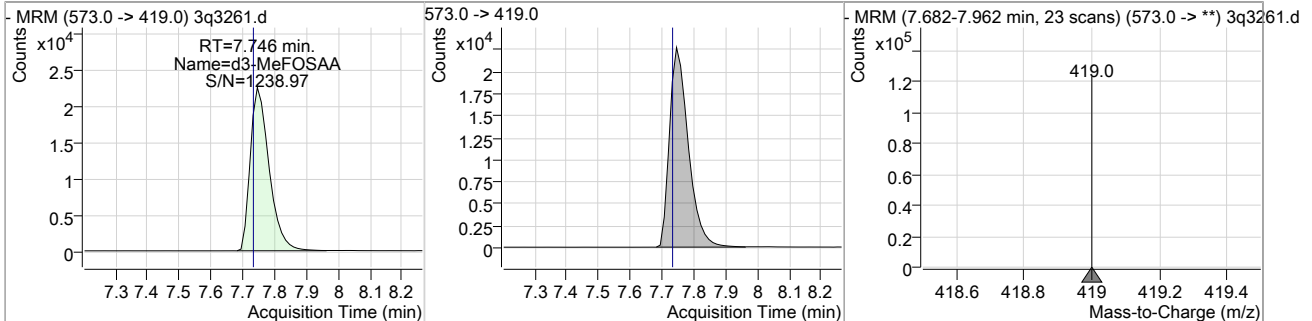
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.69	7.32	0.03	267441				



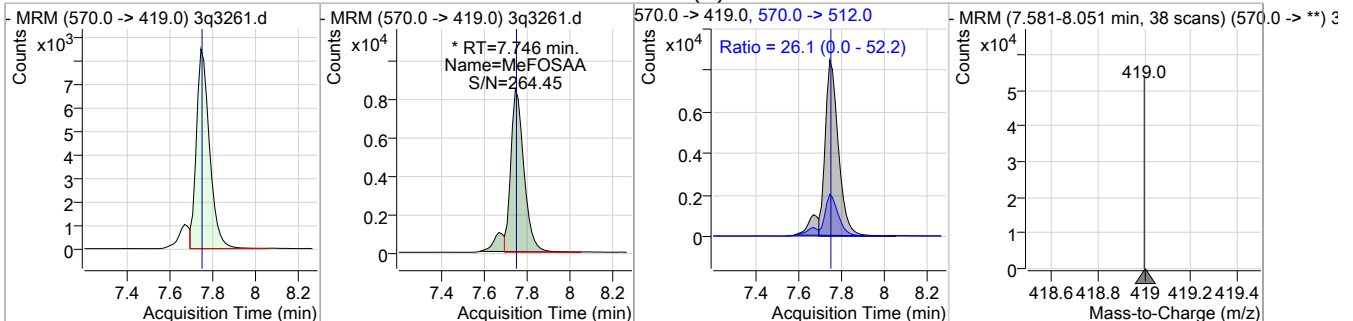
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	16.87	7.52	0.01	43136	533.0 -> 353.0	30.0	11.1	51.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	21.68	7.75	0.01	93006				



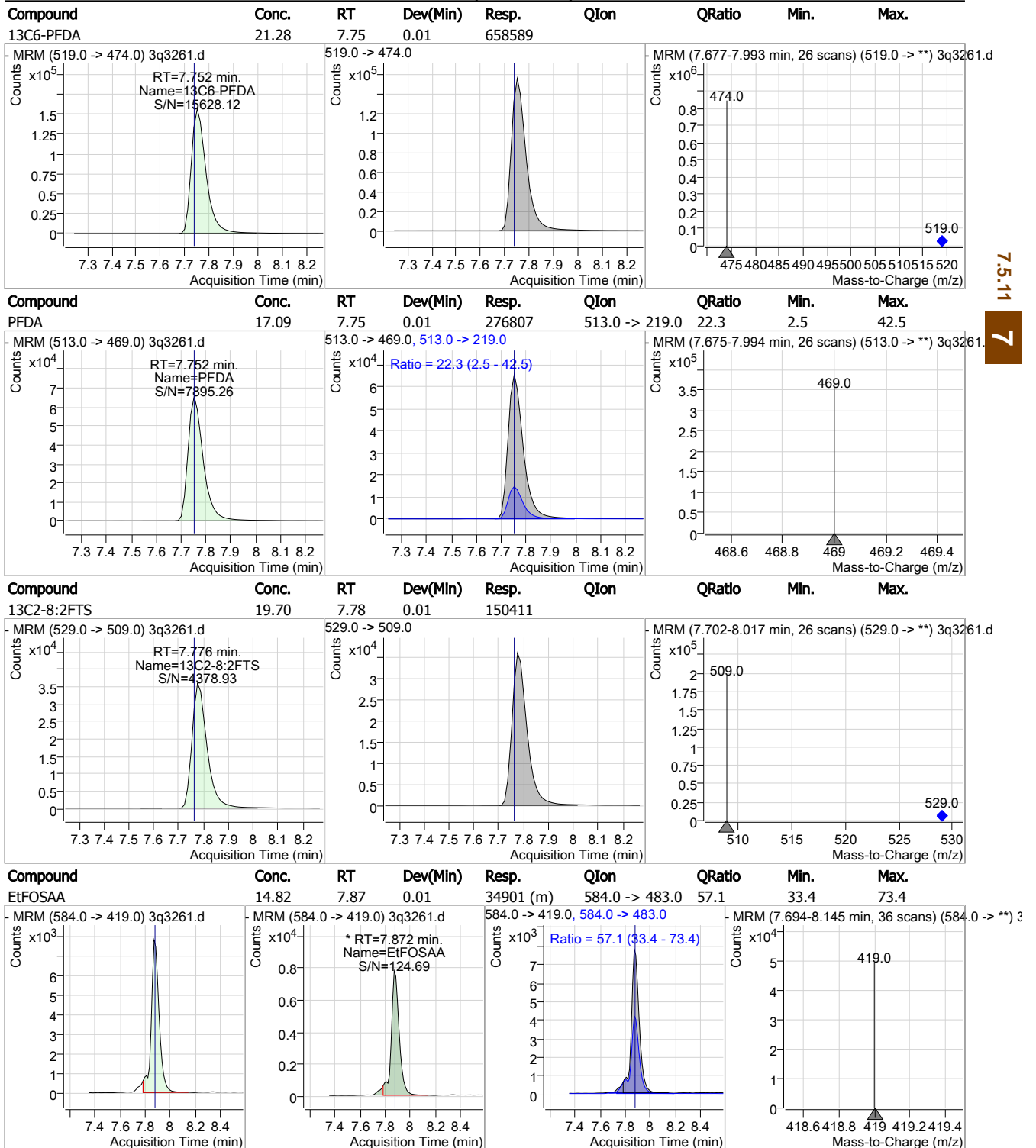
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	15.50	7.75	0.01	38930 (m)	570.0 -> 512.0	26.1	0.0	52.2



7.5.11
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Cal Report: 3Q3261.D

Perfluorinated Compounds by LC/MS/MS



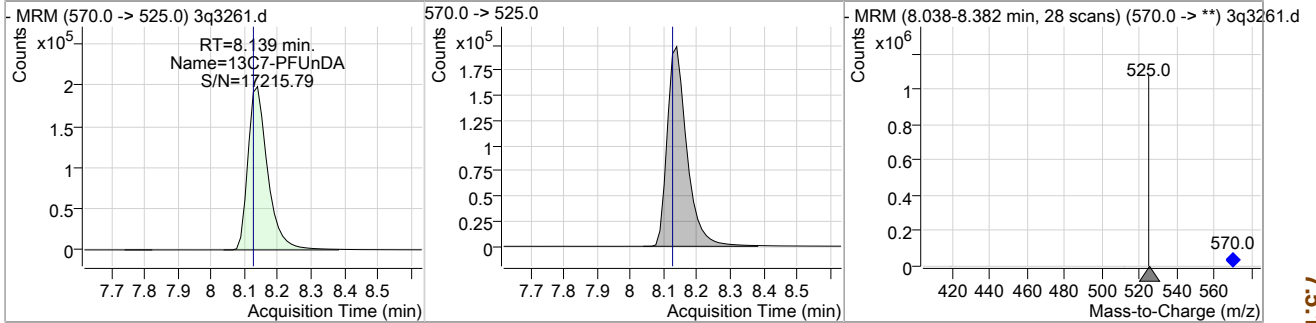
7.5.11

7

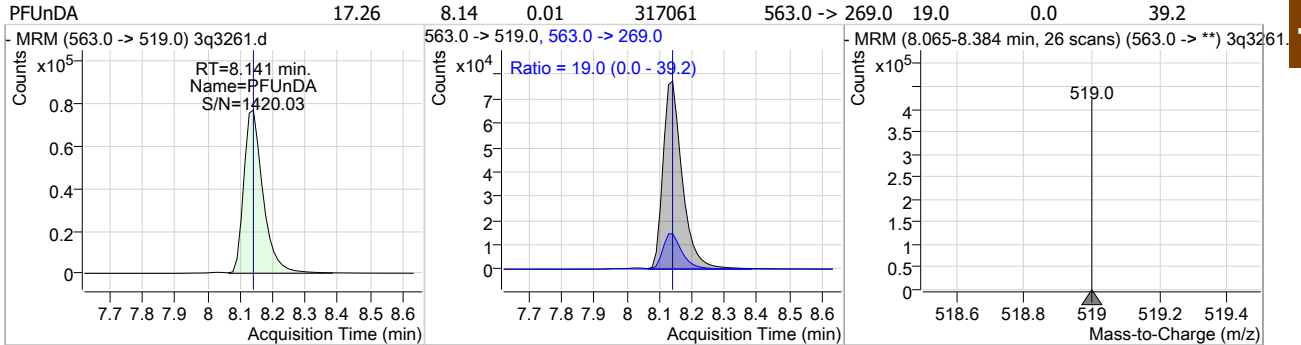
Cal Report: 3Q3261.D

Perfluorinated Compounds by LC/MS/MS

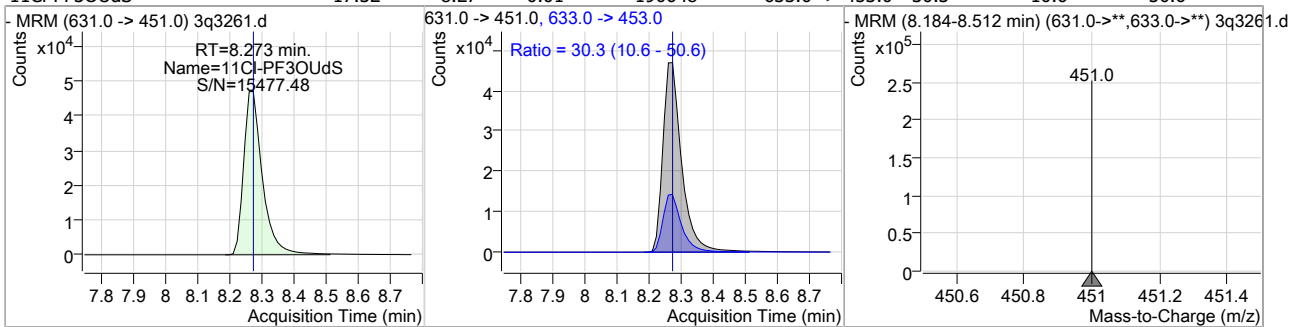
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	21.09	8.14	0.01	812065				



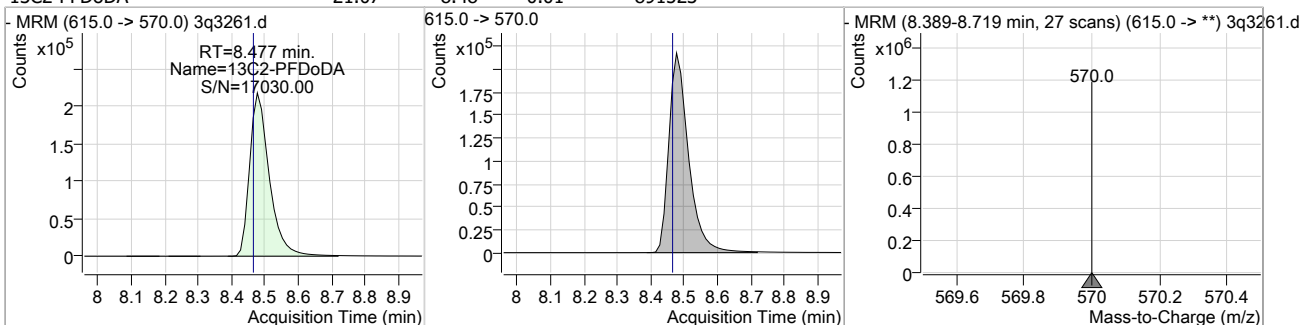
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	17.26	8.14	0.01	317061	563.0 -> 269.0	19.0	0.0	39.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	17.32	8.27	0.01	190648	633.0 -> 453.0	30.3	10.6	50.6



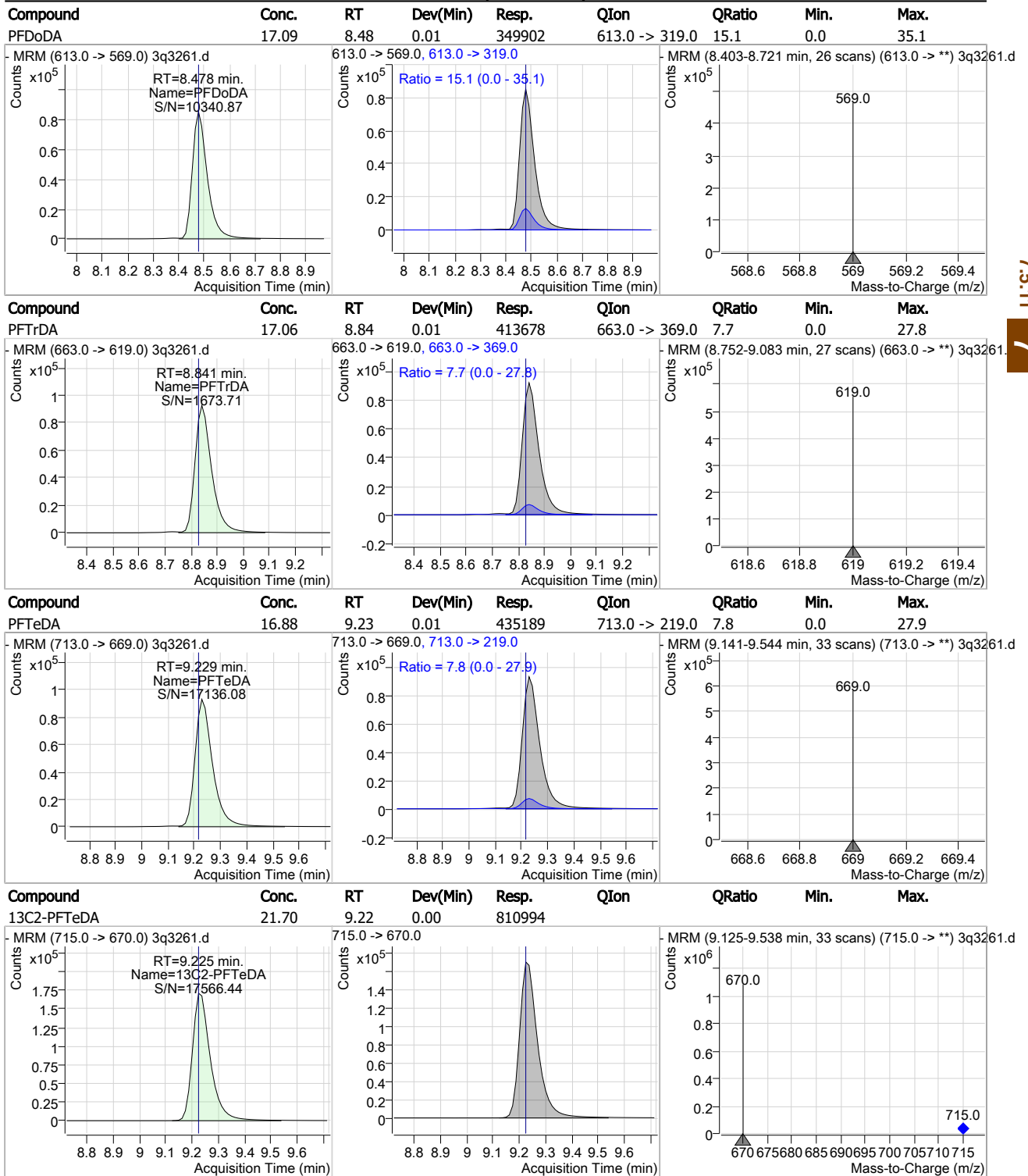
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	21.07	8.48	0.01	891523				



7.5.11 7

Cal Report: 3Q3261.D

Perfluorinated Compounds by LC/MS/MS



7.5.11

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Manual Integration Approval Summary

Sample Number: S3Q83-ICV83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3261.D **Analyst approved:** 04/26/19 09:23 Natasha Gumtie
Injection Time: 04/25/19 11:36 **Supervisor approved:** 04/26/19 16:14 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.00	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.26	Split peak
MeFOSAA	2355-31-9		7.75	Split peak
EtFOSAA	2991-50-6		7.87	Split peak

7.5.11.1

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Cal Report: 3Q3268.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:14

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3268.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 2:38:43 PM
 Sample Name : cc83-20
 Vial : P3-A7
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74736,S3Q83,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	341716	20.00 µg/L	0.000
M5-PFPeA	3.611	268.0 -> 223.0	251218	20.00 µg/L	0.025
M5-PFHxA	5.013	318.0 -> 273.0	384432	20.00 µg/L	0.037
M4-PFHpA	5.965	367.0 -> 322.0	476115	20.00 µg/L	0.049
M8-PFOA	6.693	421.0 -> 376.0	511810	20.00 µg/L	0.050
M9-PFNA	7.289	472.0 -> 427.0	532361	20.00 µg/L	0.038
M6-PFDA	7.764	519.0 -> 474.0	656912	20.00 µg/L	0.025
M7-PFUnDA	8.139	570.0 -> 525.0	788976	20.00 µg/L	0.012
M2-PFDoDA	8.489	615.0 -> 570.0	856593	20.00 µg/L	0.024
M2-PFTeDA	9.237	715.0 -> 670.0	769282	20.00 µg/L	0.013
M8-FOSA	7.323	506.0 -> 78.0	260849	20.00 µg/L	0.025
M3-PFBS	3.929	302.0 -> 99.0	50280	20.00 µg/L	0.037
M3-PFHxS	6.010	402.0 -> 99.0	55000	20.00 µg/L	0.038
M8-PFOS	7.272	507.0 -> 99.0	88080	20.00 µg/L	0.038
M2-4:2FTS	4.908	329.0 -> 309.0	153115	20.00 µg/L	0.037
M2-6:2FTS	6.677	429.0 -> 409.0	197509	20.00 µg/L	0.038
M2-8:2FTS	7.789	529.0 -> 509.0	160657	20.00 µg/L	0.026
M3-MeFOSAA	7.746	573.0 -> 419.0	91834	20.00 µg/L	0.012
M3-HFPO-DA	5.317	287.0 -> 169.0	196529	100.00 µg/L	0.037
13C2-PFOA	6.683	415.0 -> 370.0	667430	20.00 µg/L	0.038
13C4-PFOS	7.274	503.0 -> 80.0	152015	20.00 µg/L	0.038
System Monitoring Compounds					
13C2-4:2FTS	4.908	329.0 -> 309.0	151970	20.91 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C2-6:2FTS	6.677	429.0 -> 409.0	197430	20.98 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C2-8:2FTS	7.789	529.0 -> 509.0	160224	20.98 µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C2-PFDoDA	8.489	615.0 -> 570.0	858322	20.29 µg/L	0.024
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C2-PFTeDA	9.237	715.0 -> 670.0	769457	20.59 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C3-PFBS	3.929	302.0 -> 99.0	49381	19.89 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C3-PFHxS	6.010	402.0 -> 99.0	54333	20.27 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C4-PFBA	1.727	217.0 -> 172.0	341333	20.18 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C4-PFHpA	5.965	367.0 -> 322.0	472257	21.01 µg/L	0.049
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C5-PFHxA	5.013	318.0 -> 273.0	380758	20.70 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C5-PFPeA	3.611	268.0 -> 223.0	254185	20.53 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C6-PFDA	7.764	519.0 -> 474.0	657480	21.24 µg/L	0.025

7.5.12
7

Cal Report: 3Q3268.D

Perfluorinated Compounds by LC/MS/MS

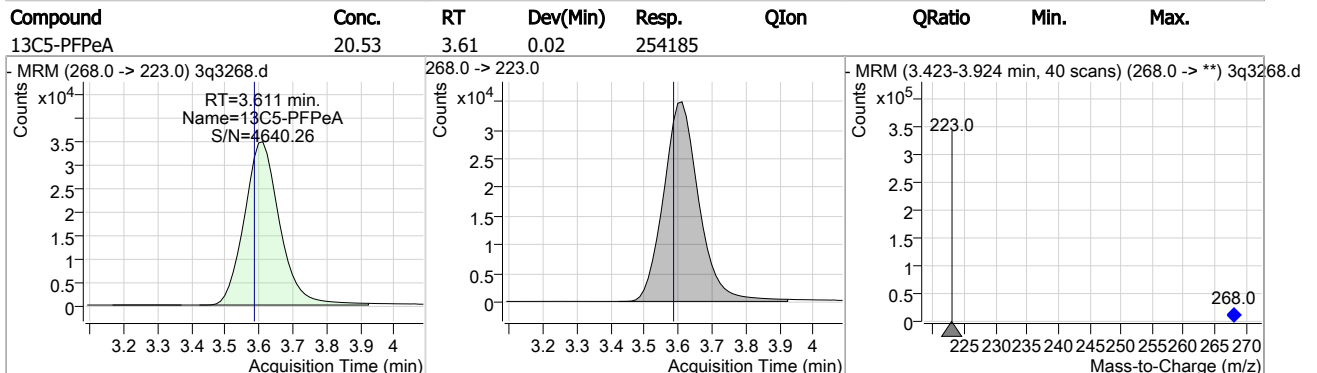
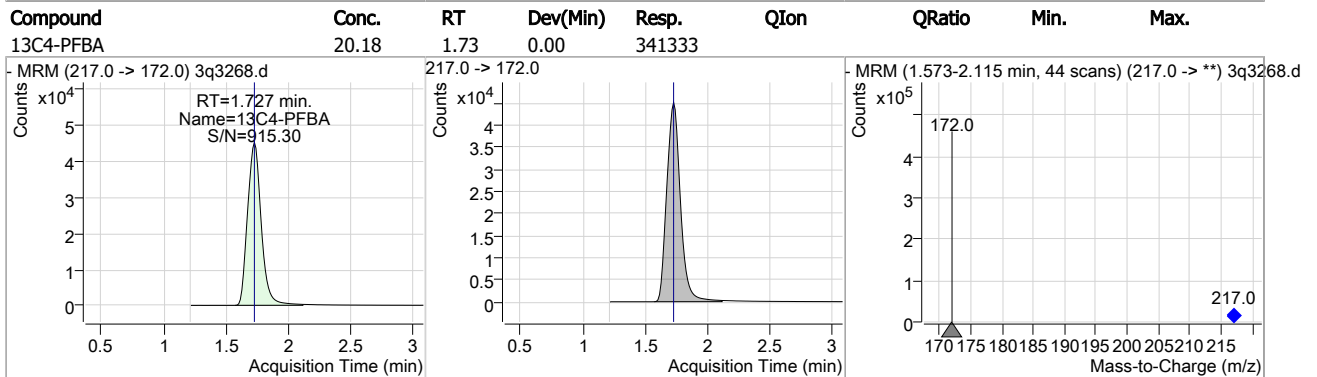
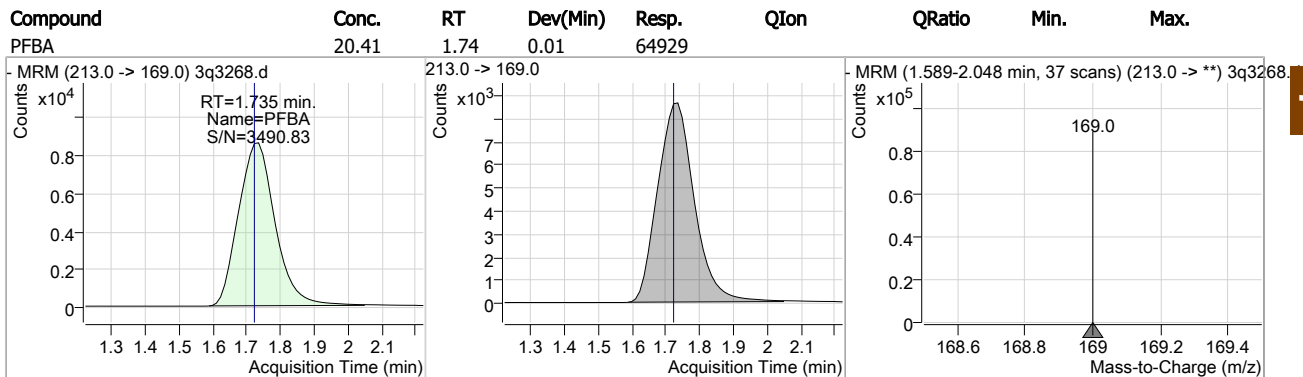
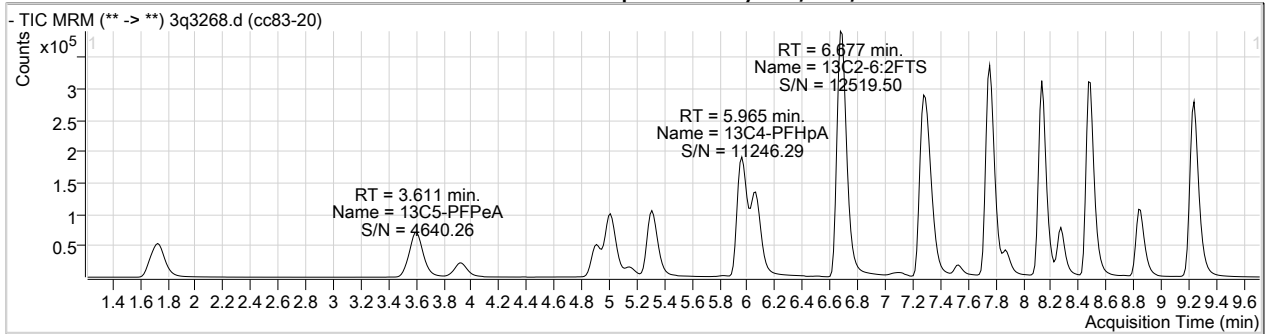
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)	QValue
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.2%		
13C7-PFUnDA	8.139	570.0 -> 525.0	790130	20.52 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%		
13C8-FOSA	7.323	506.0 -> 78.0	260484	21.12 µg/L	0.025	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.6%		
13C8-PFOA	6.693	421.0 -> 376.0	509807	21.08 µg/L	0.050	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.4%		
13C8-PFOS	7.272	507.0 -> 99.0	88120	20.10 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
13C9-PFNA	7.289	472.0 -> 427.0	531752	21.20 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.0%		
d3-MeFOSAA	7.746	573.0 -> 419.0	91999	21.44 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.2%		
13C3-HFPO-DA	5.317	287.0 -> 169.0	196529	93.48 µg/L	0.037	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 93.5%		
M2-PFOA	6.683	415.0 -> 370.0	667430	20.00 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.274	503.0 -> 80.0	152015	20.00 µg/L	0.038	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						
4:2FTS	4.911	327.0 -> 307.0	93645	20.57 µg/L	99	
6:2FTS	6.679	427.0 -> 407.0	103949	20.99 µg/L	100	
8:2FTS	7.789	527.0 -> 507.0	89252	21.03 µg/L	98	
EtFOSAA	7.884	584.0 -> 419.0	48653	20.92 µg/L	98	
FOSA	7.326	498.0 -> 78.0	129537	20.85 µg/L	100	
MeFOSAA	7.759	570.0 -> 419.0	52434	21.15 µg/L	100	
PFBA	1.735	213.0 -> 169.0	64929	20.41 µg/L	100	
PFBS	3.920	299.0 -> 80.0	68671	20.27 µg/L	100	
PFDA	7.765	513.0 -> 469.0	328226	20.36 µg/L	100	
PFDoDA	8.478	613.0 -> 569.0	396268	20.13 µg/L	100	
PFDS	8.111	599.0 -> 80.0	30566	20.61 µg/L	98	
PFHpA	5.967	363.0 -> 319.0	453557	19.92 µg/L	100	
PFHpS	6.700	449.0 -> 80.0	60355	20.02 µg/L	97	
PFHxA	5.015	313.0 -> 269.0	146304	20.28 µg/L	99	
PFHxS	6.012	399.0 -> 80.0	63919	19.96 µg/L	m 99	
PFNA	7.289	463.0 -> 419.0	340307	19.58 µg/L	100	
PFNS	7.735	549.0 -> 80.0	56119	20.46 µg/L	98	
PFOA	6.685	413.0 -> 369.0	286393	20.08 µg/L	100	
PFOS	7.275	499.0 -> 80.0	81937	19.51 µg/L	m 99	
PFPeA	3.615	263.0 -> 219.0	263887	20.22 µg/L	100	
PFPeS	5.145	349.0 -> 80.0	46106	20.93 µg/L	99	
PFTeDA	9.241	713.0 -> 669.0	488042	19.95 µg/L	100	
PFTrDA	8.841	663.0 -> 619.0	451523	19.62 µg/L	100	
PFUnDA	8.141	563.0 -> 519.0	364554	20.42 µg/L	100	
11Cl-PF3OUdS	8.273	631.0 -> 451.0	222324	21.00 µg/L	100	
9Cl-PF3ONS	7.533	531.0 -> 351.0	51473	20.17 µg/L	99	
ADONA	6.064	377.0 -> 251.0	585138	20.13 µg/L	100	
HFPO-DA	5.309	329.0 -> 169.0	330366	107.76 µg/L	99	

7.5.12
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= Qualifier out of range, m = manually integrated, + = Area summed

Cal Report: 3Q3268.D

Perfluorinated Compounds by LC/MS/MS



7.5.12 7

Cal Report: 3Q3268.D

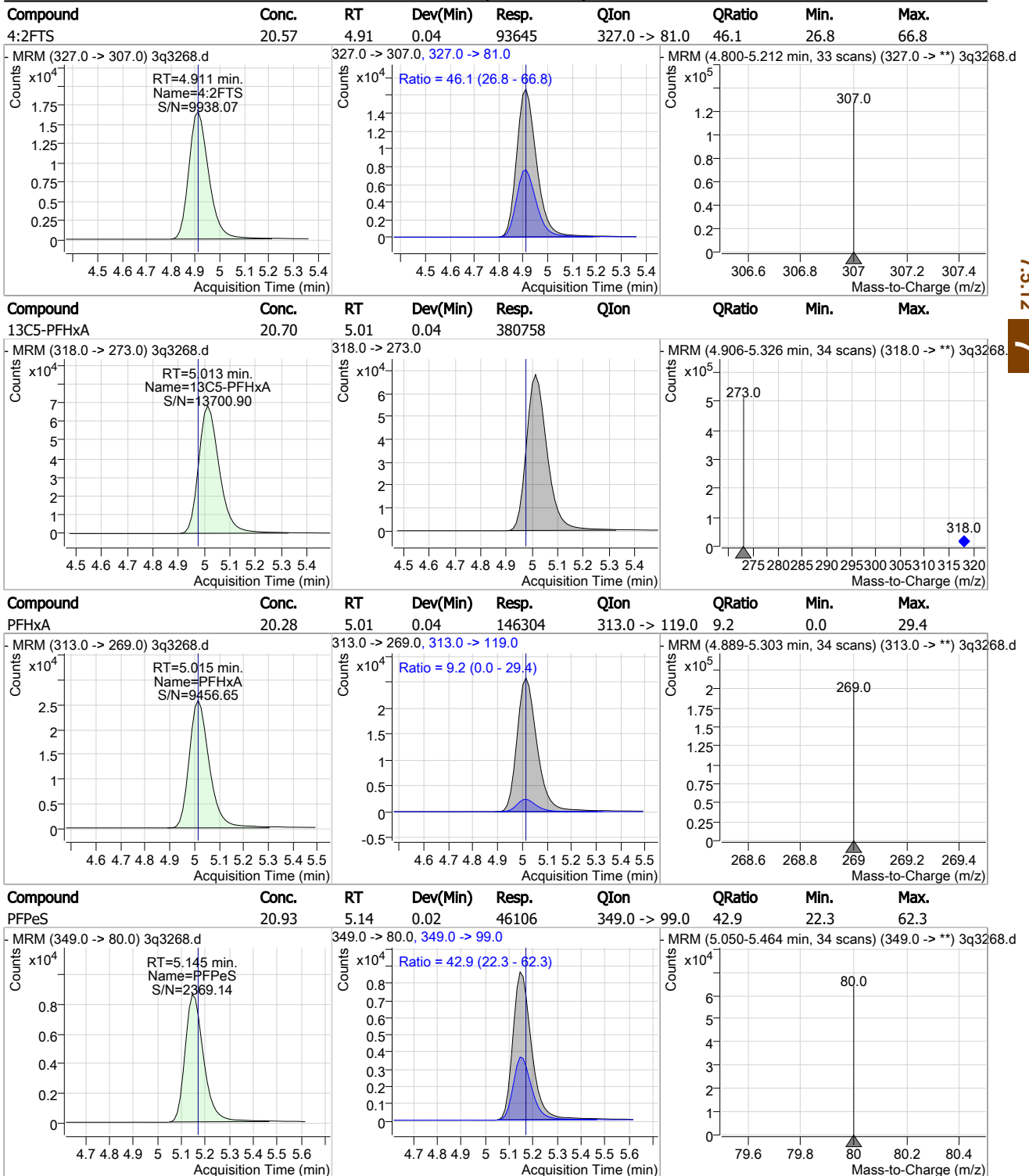
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.22	3.61	0.02	263887				
MRM (263.0 -> 219.0) 3q3268.d			263.0 -> 219.0			MRM (3.427-3.928 min, 40 scans) (263.0 -> **) 3q3268.d		
13C3-PFBS	19.89	3.93	0.04	49381				
MRM (302.0 -> 99.0) 3q3268.d			302.0 -> 99.0			MRM (3.792-4.242 min, 36 scans) (302.0 -> **) 3q3268.d		
PFBS	20.27	3.92	0.02	68671	299.0 -> 99.0	39.3	9.0	69.0
MRM (299.0 -> 80.0) 3q3268.d			299.0 -> 80.0, 299.0 -> 99.0			MRM (3.790-4.311 min, 42 scans) (299.0 -> **) 3q3268.d		
13C2-4:2FTS	20.91	4.91	0.04	151970				
MRM (329.0 -> 309.0) 3q3268.d			329.0 -> 309.0			MRM (4.799-5.222 min, 34 scans) (329.0 -> **) 3q3268.d		

7.5.12 7

Cal Report: 3Q3268.D

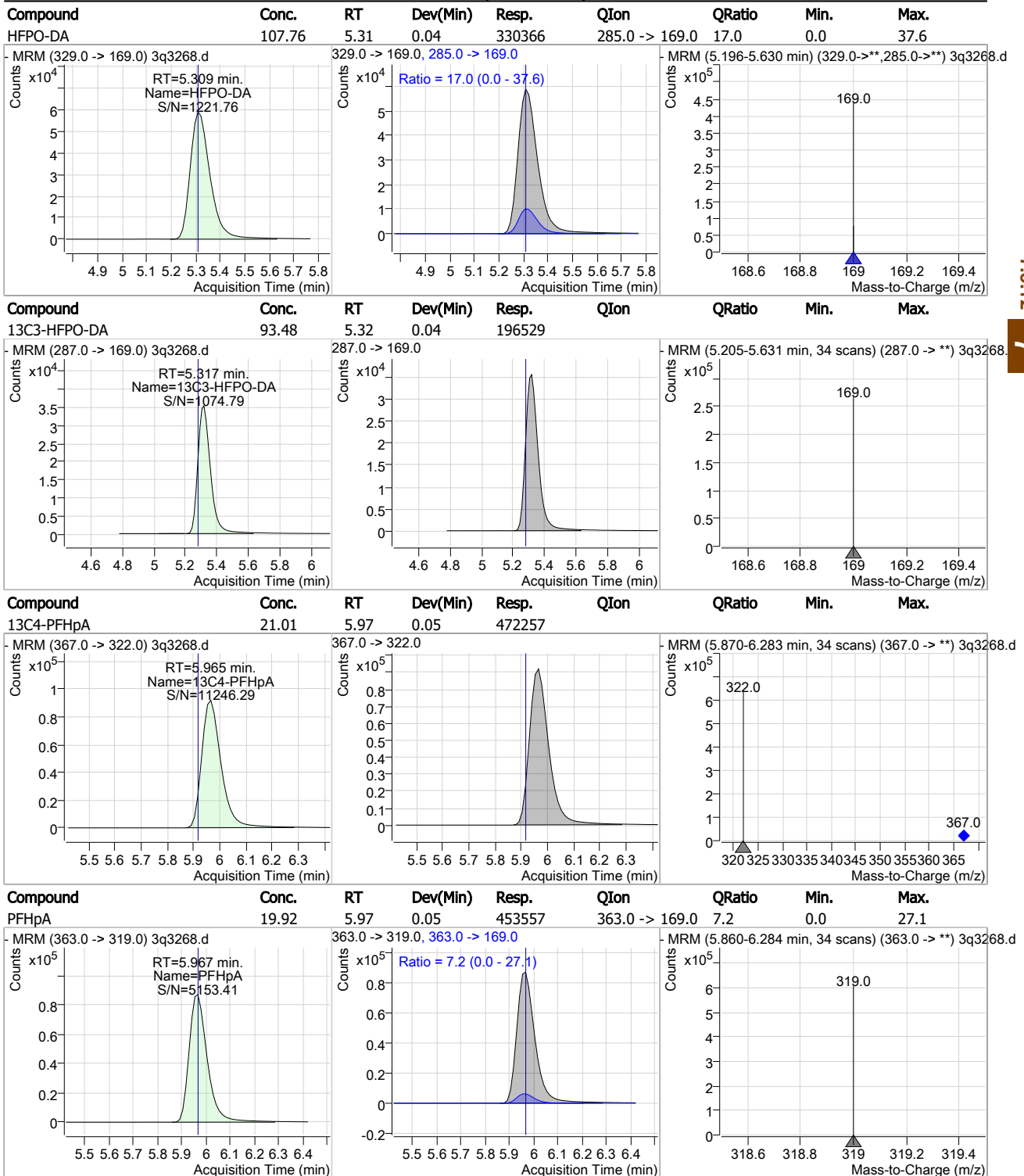
Perfluorinated Compounds by LC/MS/MS



7.5.12 7

Cal Report: 3Q3268.D

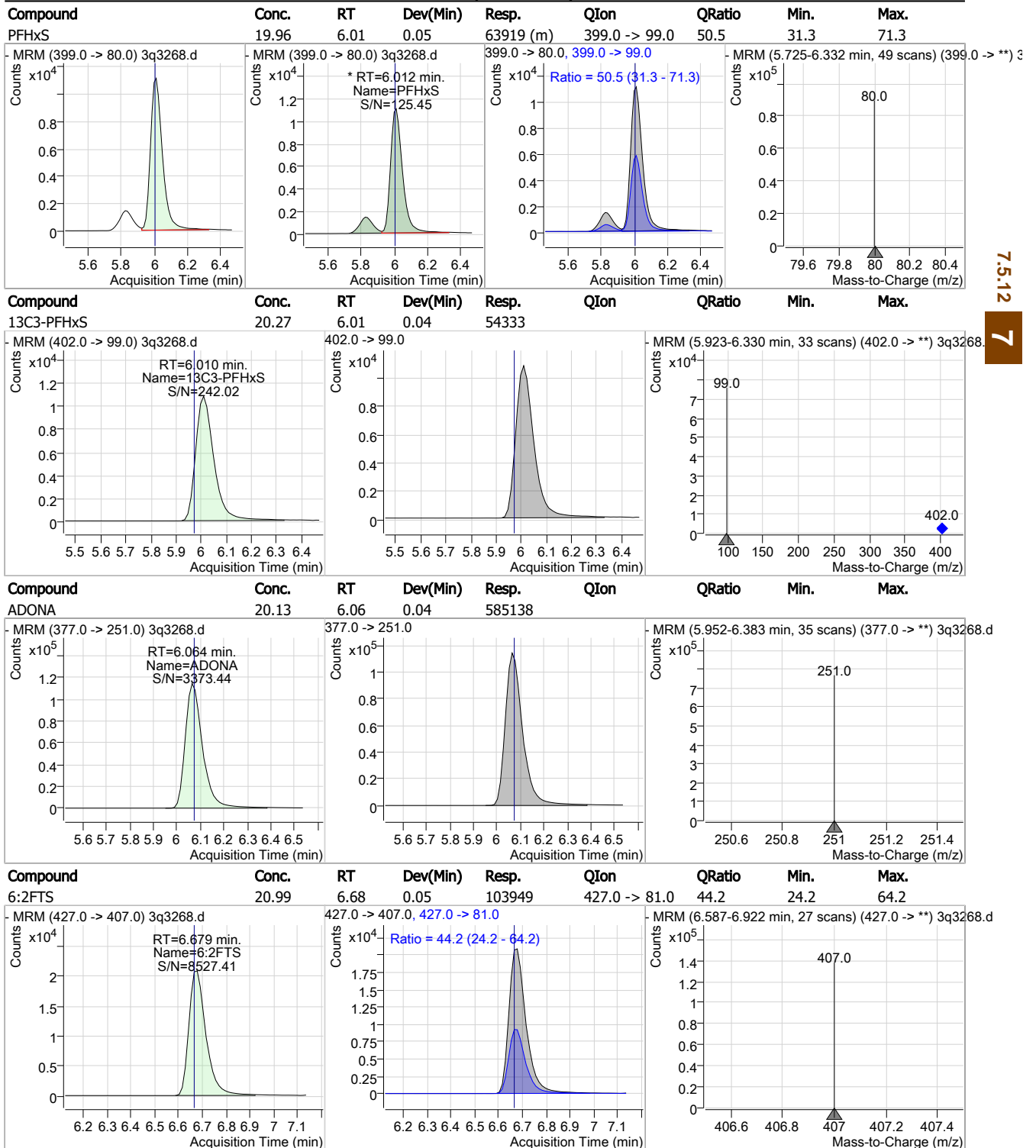
Perfluorinated Compounds by LC/MS/MS



7.5.12 7

Cal Report: 3Q3268.D

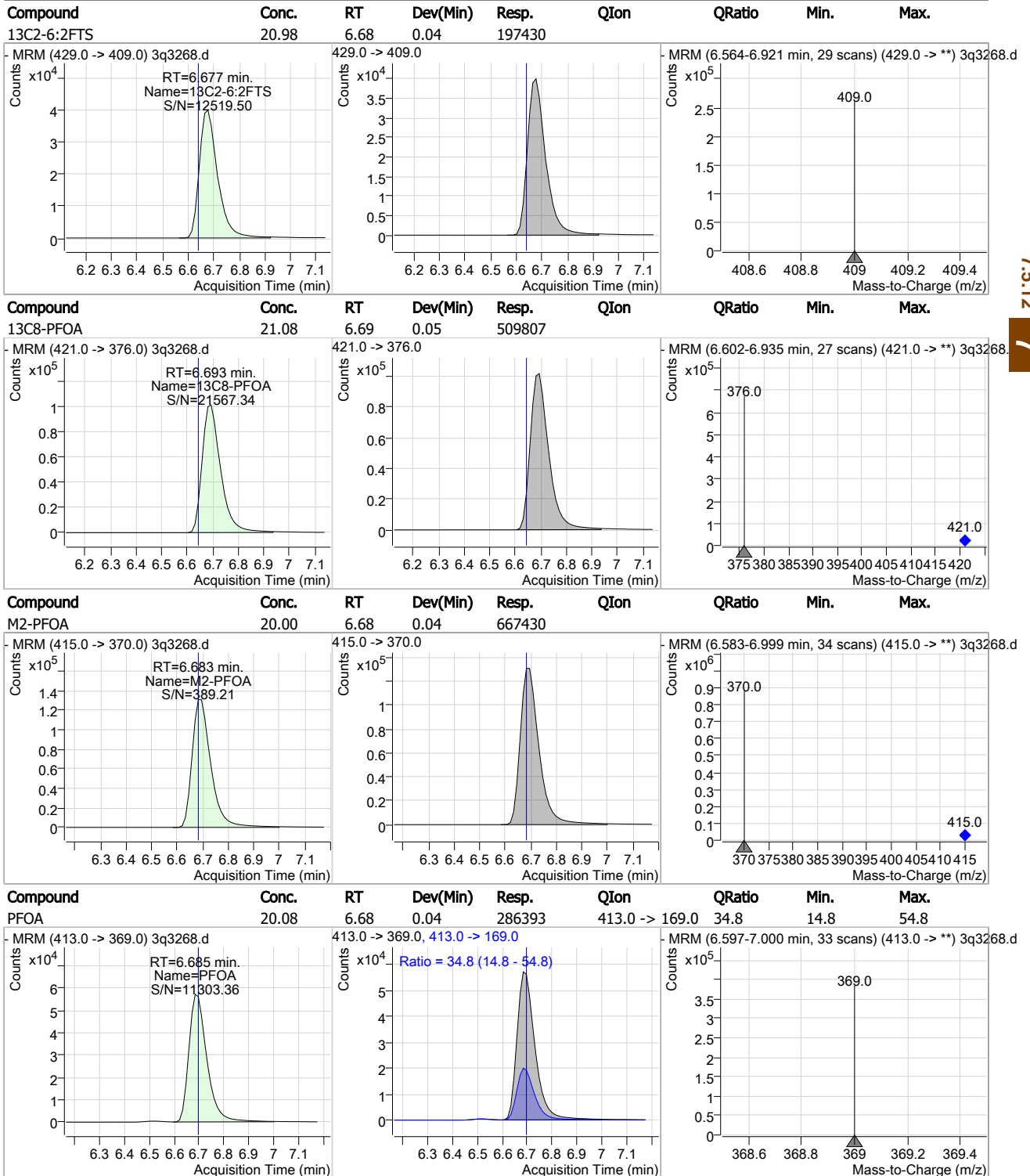
Perfluorinated Compounds by LC/MS/MS



7.5.12
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Cal Report: 3Q3268.D

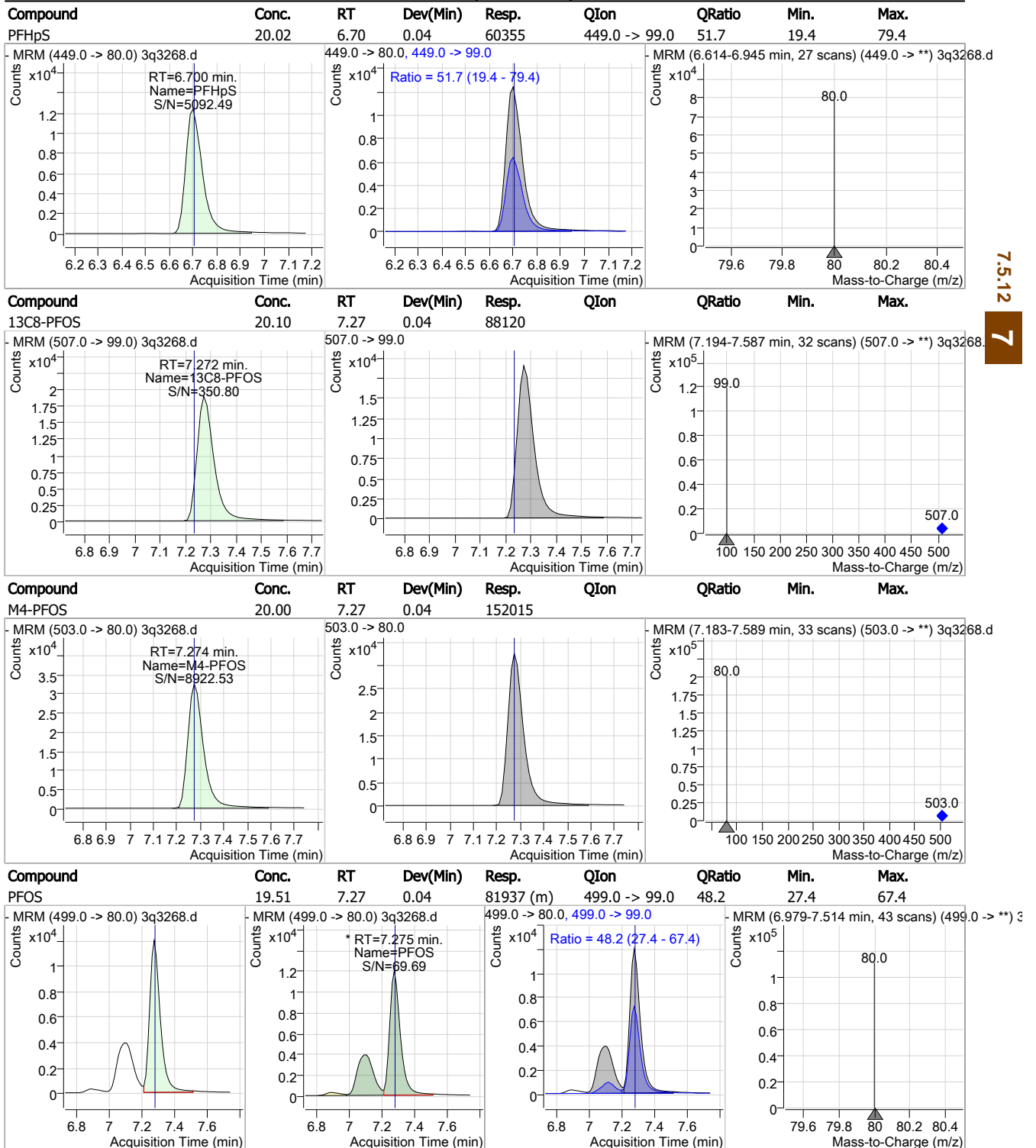
Perfluorinated Compounds by LC/MS/MS



7.5.12 7

Cal Report: 3Q3268.D

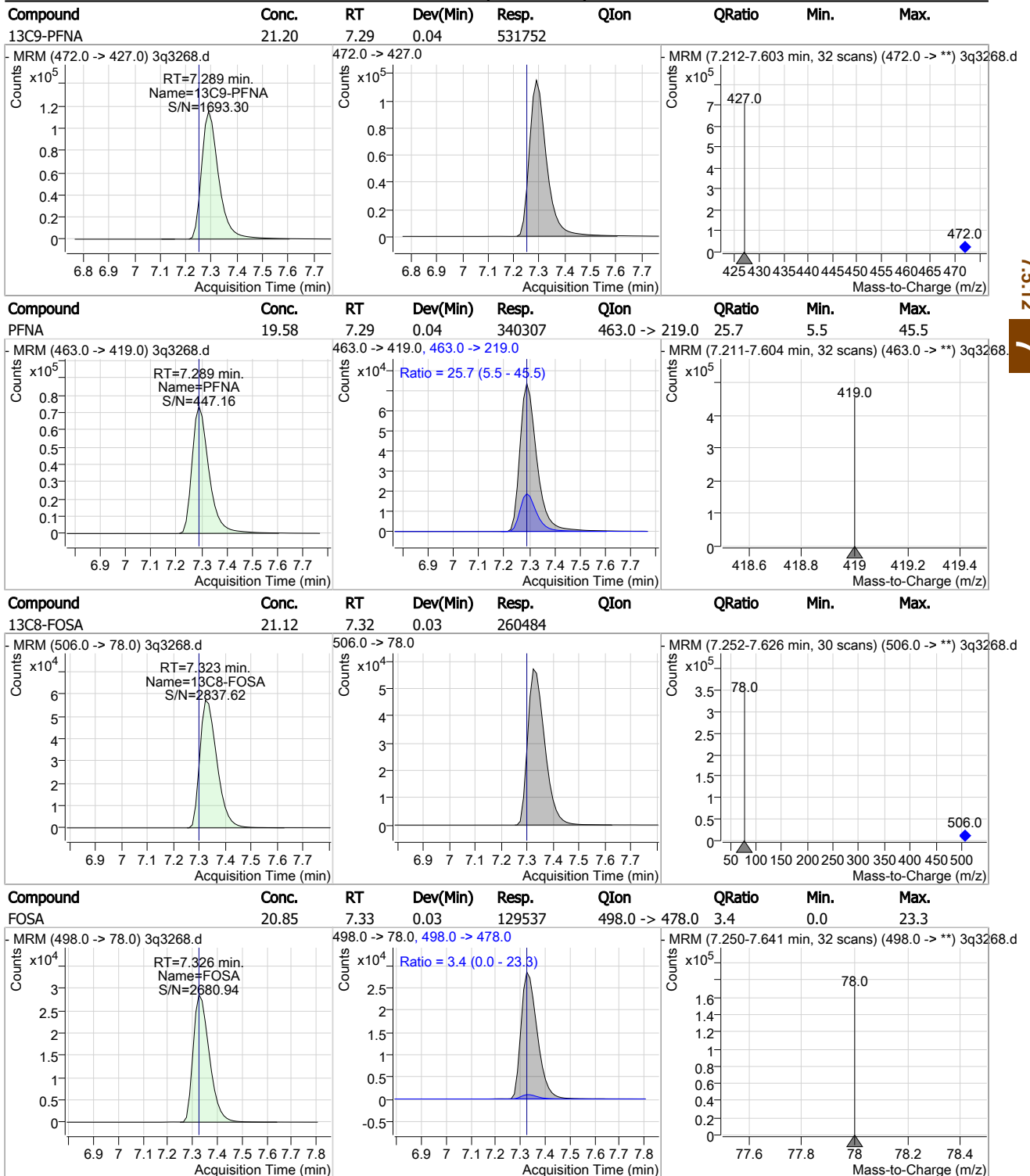
Perfluorinated Compounds by LC/MS/MS



7.5.12 7

Cal Report: 3Q3268.D

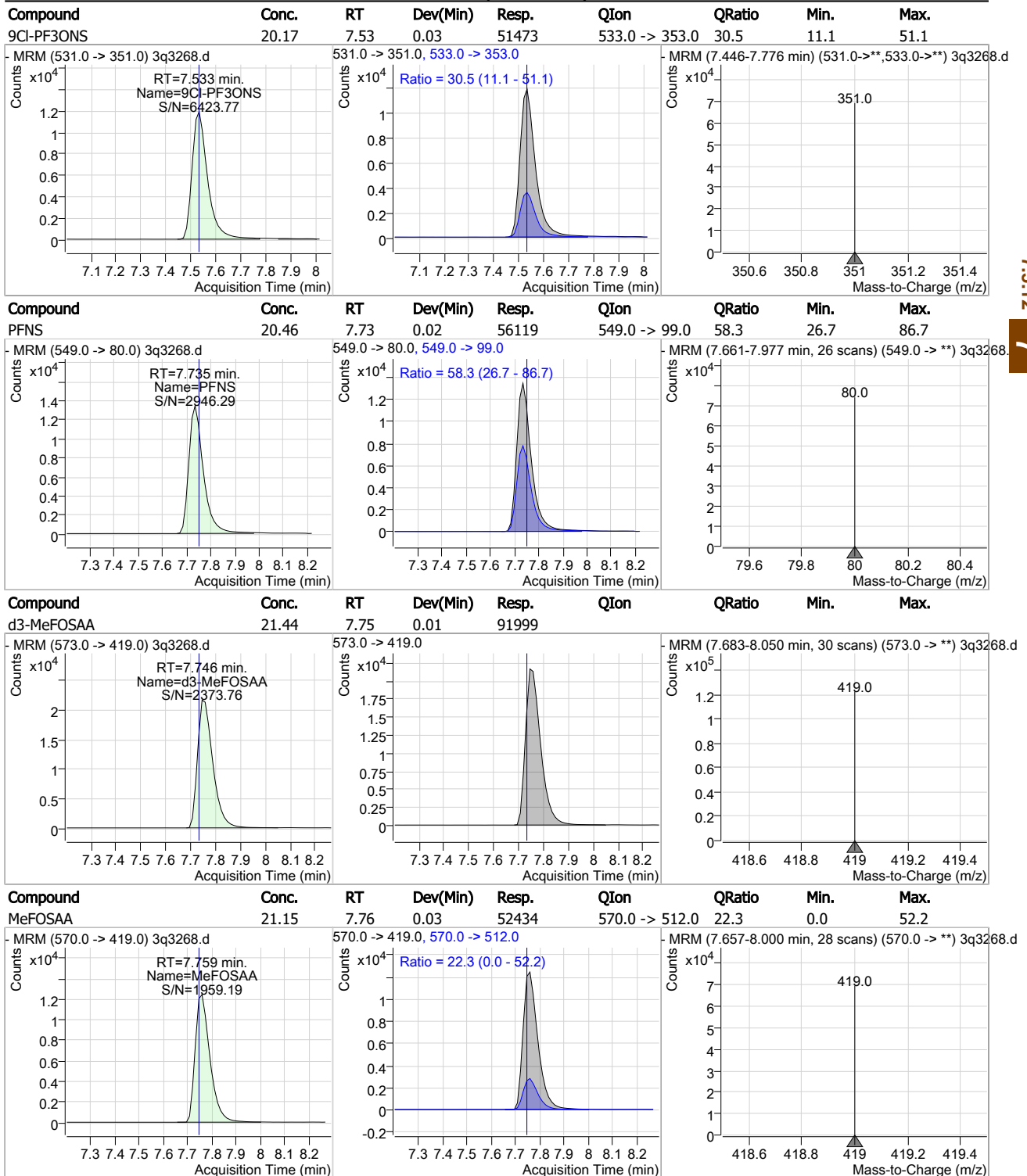
Perfluorinated Compounds by LC/MS/MS



7.5.12 7

Cal Report: 3Q3268.D

Perfluorinated Compounds by LC/MS/MS

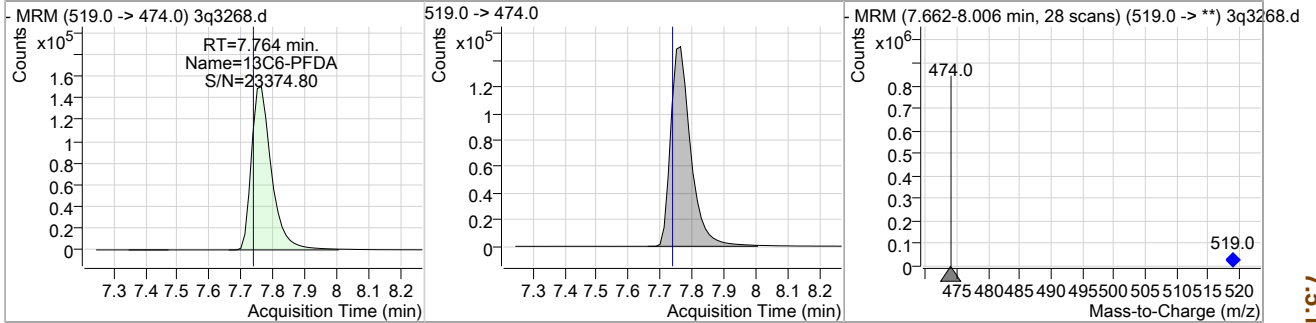


7.5.12 7

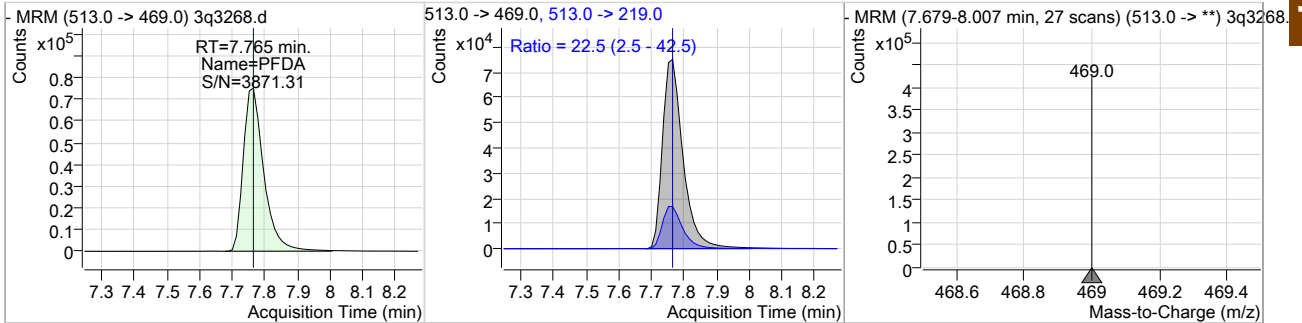
Cal Report: 3Q3268.D

Perfluorinated Compounds by LC/MS/MS

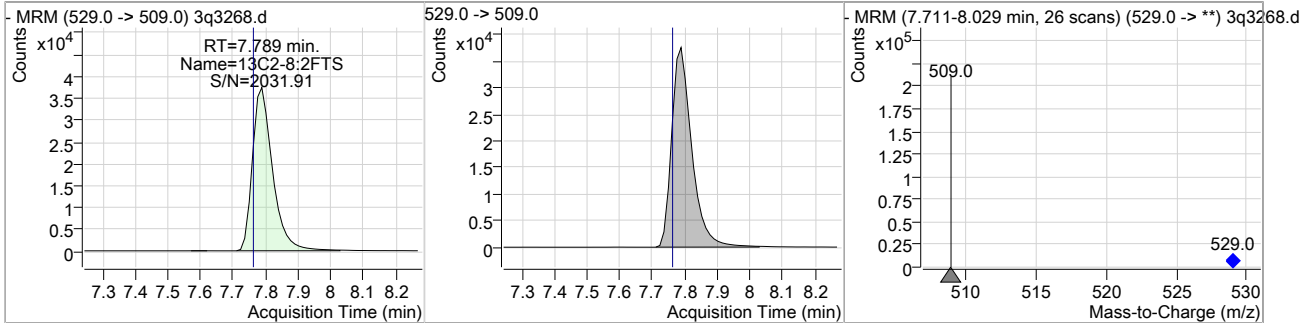
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	21.24	7.76	0.03	657480				



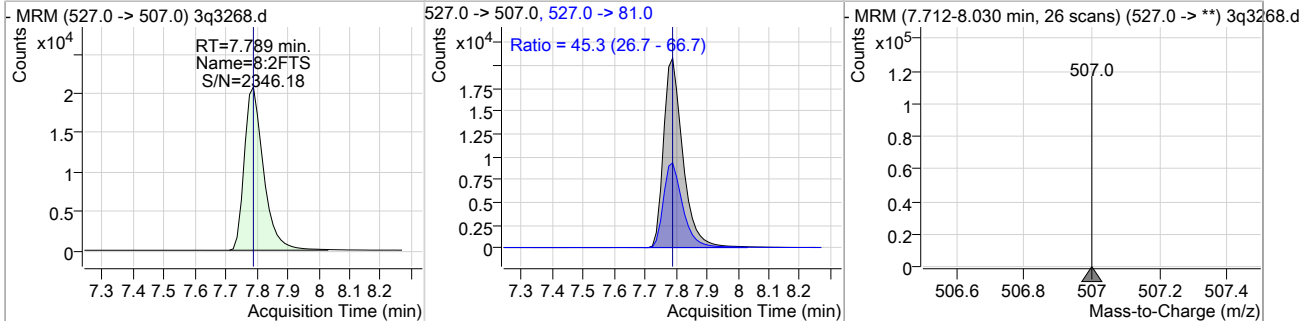
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.36	7.76	0.03	328226	513.0 ->	219.0 22.5	2.5	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	20.98	7.79	0.03	160224				



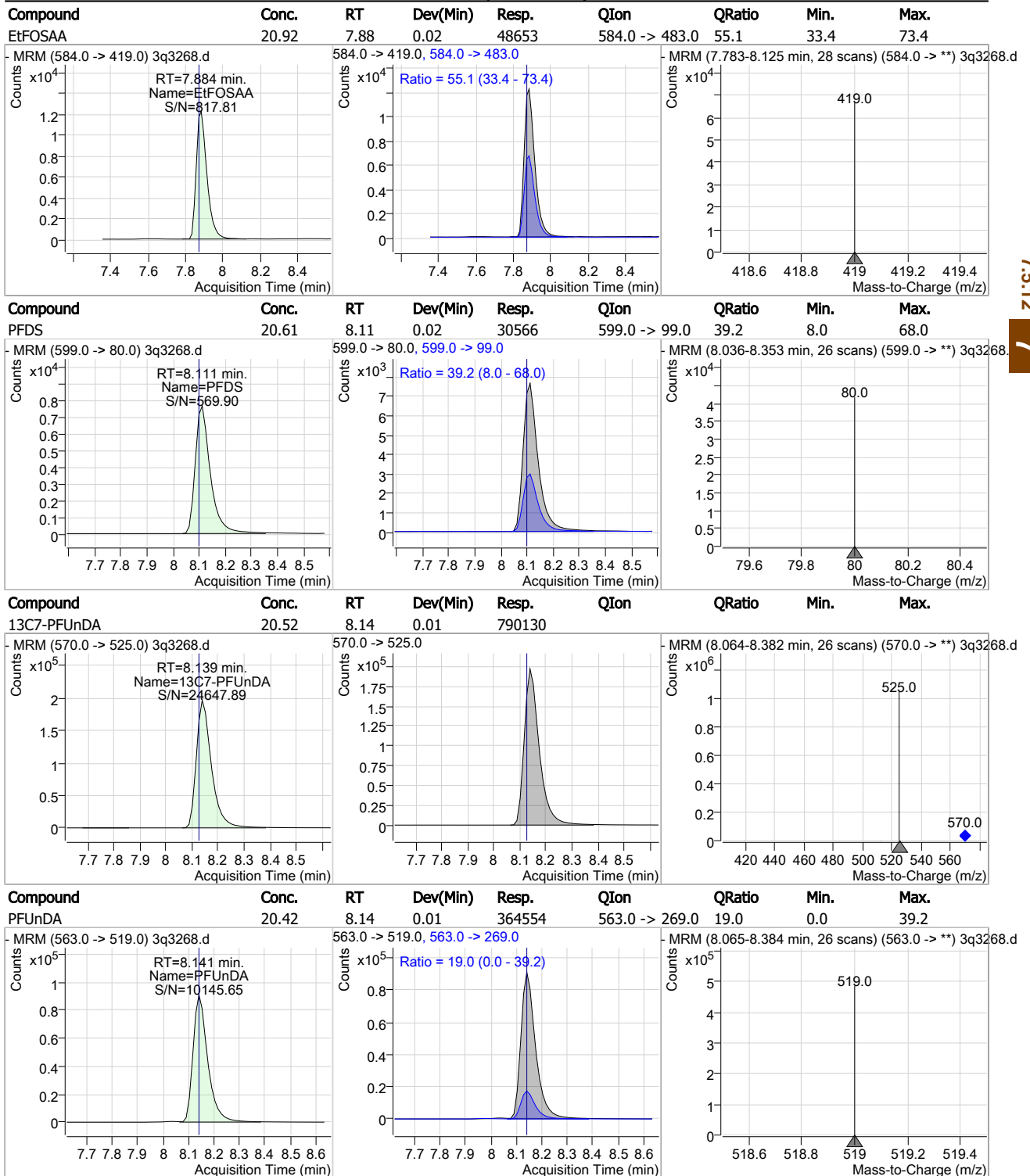
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.03	7.79	0.03	89252	527.0 ->	81.0 45.3	26.7	66.7



7.5.12 7

Cal Report: 3Q3268.D

Perfluorinated Compounds by LC/MS/MS

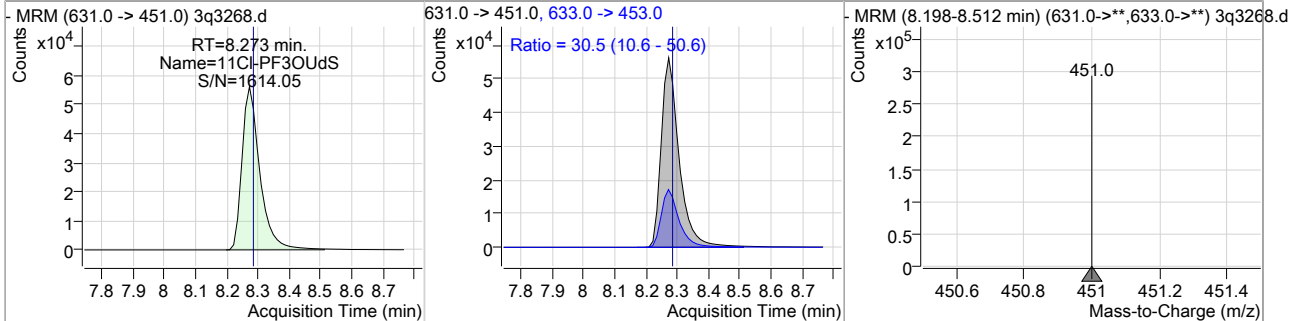


7.5.12 7

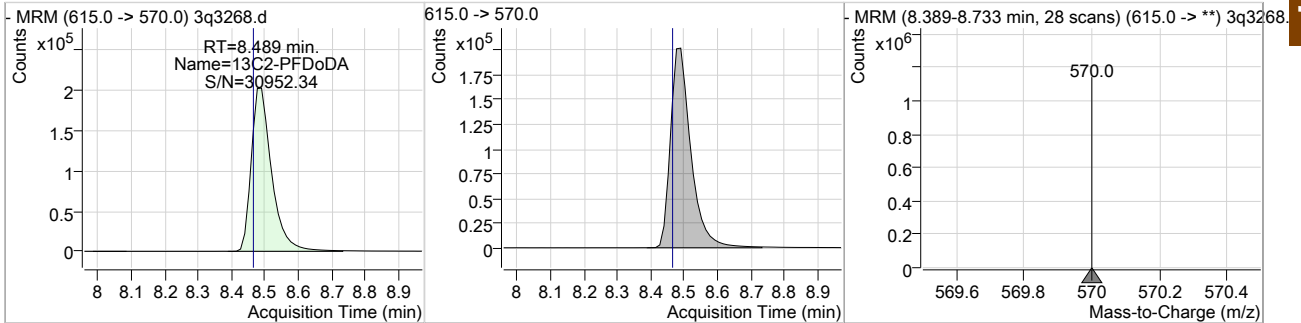
Cal Report: 3Q3268.D

Perfluorinated Compounds by LC/MS/MS

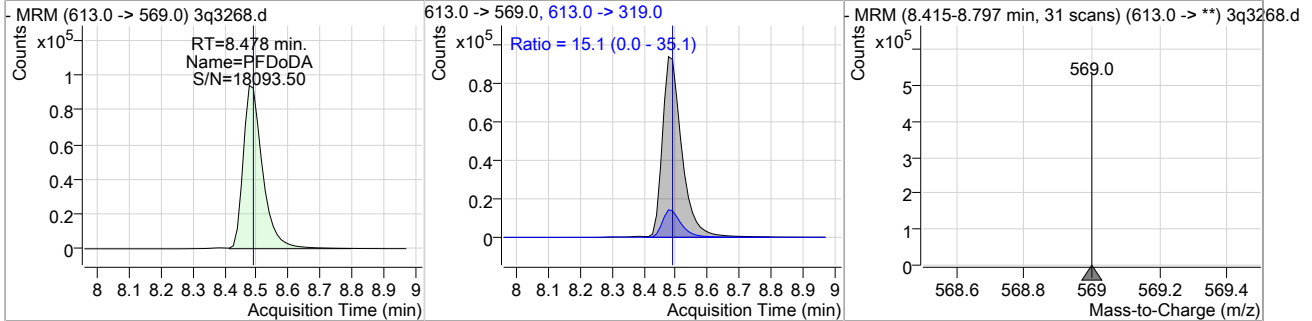
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	21.00	8.27	0.01	222324	633.0 -> 453.0	30.5	10.6	50.6



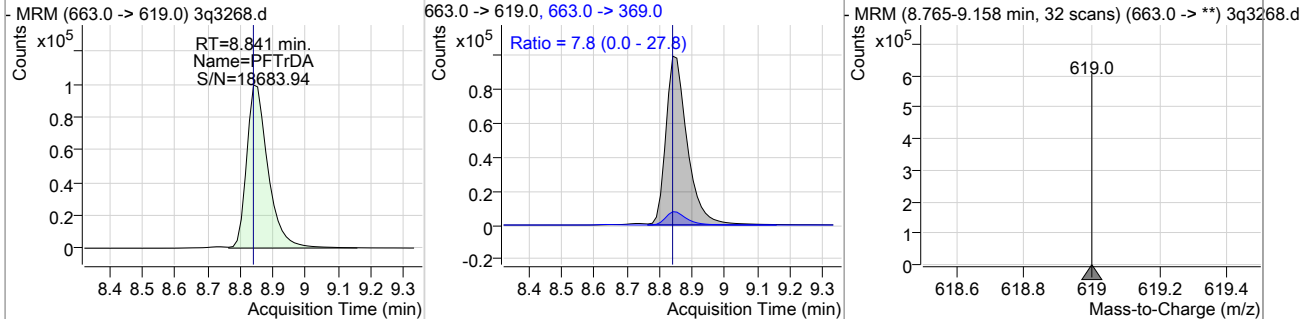
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.29	8.49	0.02	858322				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.13	8.48	0.01	396268	613.0 -> 319.0	15.1	0.0	35.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.62	8.84	0.01	451523	663.0 -> 369.0	7.8	0.0	27.8

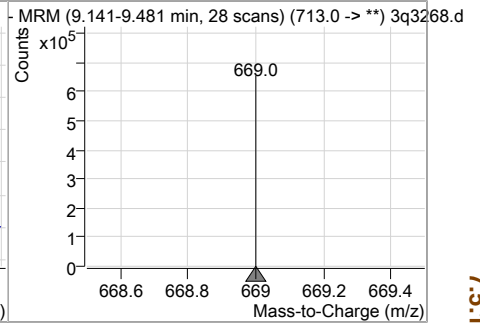
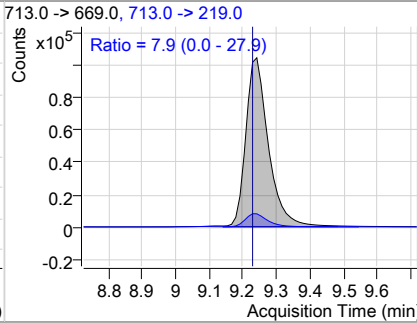
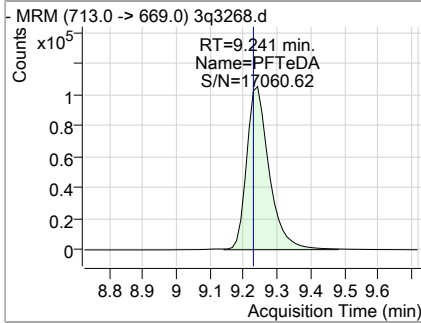


7.5.12
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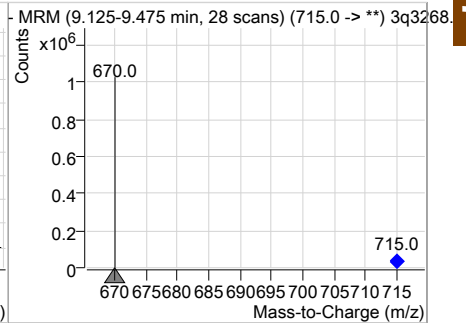
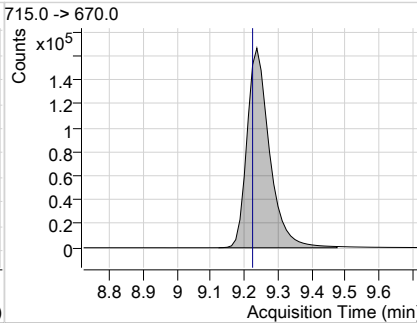
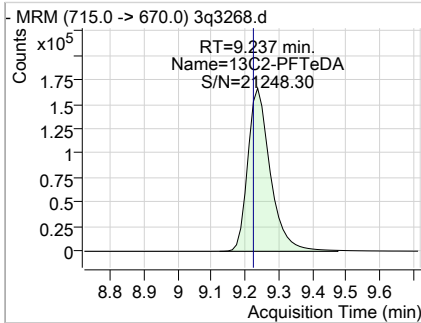
Cal Report: **3Q3268.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.95	9.24	0.03	488042	713.0 -> 219.0	7.9	0.0	27.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
¹³ C2-PFTeDA	20.59	9.24	0.01	769457				



7.5.12 7



Manual Integration Approval Summary

Sample Number: S3Q83-CC83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3268.D **Analyst approved:** 04/26/19 09:29 Natasha Gumtie
Injection Time: 04/25/19 14:38 **Supervisor approved:** 04/26/19 16:14 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

7.5.12.1



Cal Report: 3Q3278.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/26/19 16:14

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3278.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/25/2019 5:14:50 PM
 Sample Name : cc83-20
 Vial : P3-A7
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q83.batch.bin
 Sample Information : op74736,S3Q83,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.727	217.0 -> 172.0	342459	20.00 µg/L	0.000
M5-PFPeA	3.611	268.0 -> 223.0	256981	20.00 µg/L	0.025
M5-PFHxA	5.025	318.0 -> 273.0	386110	20.00 µg/L	0.050
M4-PFHpA	5.978	367.0 -> 322.0	476463	20.00 µg/L	0.061
M8-PFOA	6.693	421.0 -> 376.0	513009	20.00 µg/L	0.050
M9-PFNA	7.301	472.0 -> 427.0	529105	20.00 µg/L	0.050
M6-PFDA	7.764	519.0 -> 474.0	649124	20.00 µg/L	0.025
M7-PFUnDA	8.139	570.0 -> 525.0	756336	20.00 µg/L	0.012
M2-PFDoDA	8.489	615.0 -> 570.0	812174	20.00 µg/L	0.024
M2-PFTeDA	9.237	715.0 -> 670.0	745286	20.00 µg/L	0.013
M8-FOSA	7.336	506.0 -> 78.0	257731	20.00 µg/L	0.038
M3-PFBS	3.929	302.0 -> 99.0	50219	20.00 µg/L	0.037
M3-PFHxS	6.022	402.0 -> 99.0	53423	20.00 µg/L	0.050
M8-PFOS	7.285	507.0 -> 99.0	86999	20.00 µg/L	0.050
M2-4:2FTS	4.921	329.0 -> 309.0	152370	20.00 µg/L	0.050
M2-6:2FTS	6.677	429.0 -> 409.0	198369	20.00 µg/L	0.038
M2-8:2FTS	7.789	529.0 -> 509.0	155478	20.00 µg/L	0.026
M3-MeFOSAA	7.758	573.0 -> 419.0	89517	20.00 µg/L	0.025
M3-HFPO-DA	5.330	287.0 -> 169.0	195003	100.00 µg/L	0.050
13C2-PFOA	6.695	415.0 -> 370.0	670323	20.00 µg/L	0.050
13C4-PFOS	7.286	503.0 -> 80.0	149293	20.00 µg/L	0.050
System Monitoring Compounds					
13C2-4:2FTS	4.921	329.0 -> 309.0	151159	20.80 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C2-6:2FTS	6.677	429.0 -> 409.0	197700	21.01 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C2-8:2FTS	7.789	529.0 -> 509.0	155285	20.34 µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C2-PFDoDA	8.489	615.0 -> 570.0	812173	19.20 µg/L	0.024
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C2-PFTeDA	9.237	715.0 -> 670.0	742864	19.88 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C3-PFBS	3.929	302.0 -> 99.0	49194	19.82 µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C3-PFHxS	6.022	402.0 -> 99.0	53369	19.91 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFBA	1.727	217.0 -> 172.0	342087	20.23 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C4-PFHpA	5.978	367.0 -> 322.0	473405	21.06 µg/L	0.061
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C5-PFHxA	5.025	318.0 -> 273.0	382192	20.77 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFPeA	3.611	268.0 -> 223.0	256981	20.75 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C6-PFDA	7.764	519.0 -> 474.0	648170	20.94 µg/L	0.025

7.5.13
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Cal Report: 3Q3278.D

Perfluorinated Compounds by LC/MS/MS

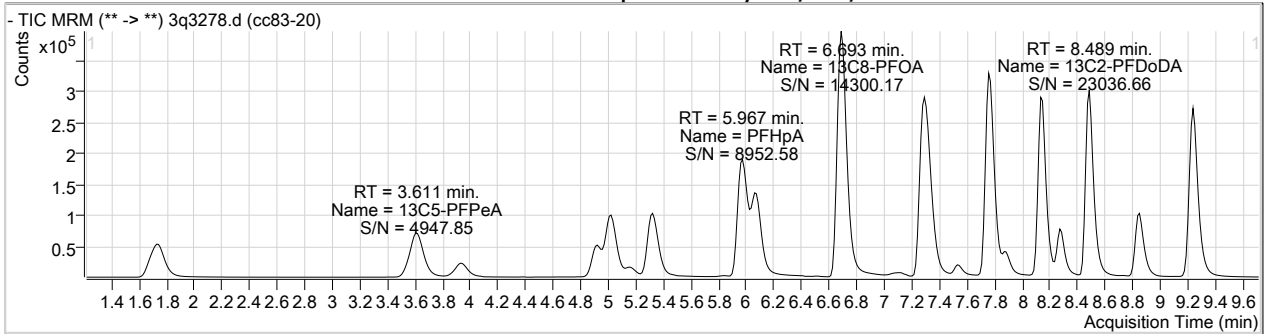
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C7-PFUnDA	8.139	570.0 -> 525.0	756397	19.65 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-FOSA	7.336	506.0 -> 78.0	257405	20.87 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C8-PFOA	6.693	421.0 -> 376.0	511023	21.13 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C8-PFOS	7.285	507.0 -> 99.0	86701	19.77 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C9-PFNA	7.301	472.0 -> 427.0	527513	21.03 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
d3-MeFOSAA	7.758	573.0 -> 419.0	89515	20.87 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C3-HFPO-DA	5.330	287.0 -> 169.0	195003	92.75 µg/L	0.050
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 92.8%	
M2-PFOA	6.695	415.0 -> 370.0	670323	20.00 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
M4-PFOS	7.286	503.0 -> 80.0	149293	20.00 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
Target Compounds					QValue
4:2FTS	4.923	327.0 -> 307.0	93758	20.69 µg/L	100
6:2FTS	6.679	427.0 -> 407.0	103244	20.76 µg/L	100
8:2FTS	7.789	527.0 -> 507.0	84388	20.54 µg/L	99
EtFOSAA	7.884	584.0 -> 419.0	47240	20.84 µg/L	100
FOSA	7.338	498.0 -> 78.0	128849	20.99 µg/L	100
MeFOSAA	7.759	570.0 -> 419.0	50234	20.78 µg/L	98
PFBA	1.735	213.0 -> 169.0	65277	20.47 µg/L	100
PFBS	3.933	299.0 -> 80.0	68265	20.17 µg/L	100
PFDA	7.765	513.0 -> 469.0	321493	20.18 µg/L	99
PFDoDA	8.491	613.0 -> 569.0	376345	20.16 µg/L	100
PFDS	8.111	599.0 -> 80.0	30181	21.23 µg/L	98
PFHpA	5.967	363.0 -> 319.0	450341	19.76 µg/L	99
PFHpS	6.700	449.0 -> 80.0	61532	21.02 µg/L	100
PFHxA	5.027	313.0 -> 269.0	144246	19.91 µg/L	100
PFHxS	6.024	399.0 -> 80.0	63389	20.38 µg/L	m 99
PFNA	7.302	463.0 -> 419.0	339529	19.66 µg/L	99
PFNS	7.735	549.0 -> 80.0	57322	21.16 µg/L	100
PFOA	6.697	413.0 -> 369.0	286275	20.03 µg/L	100
PFOS	7.287	499.0 -> 80.0	81915	19.75 µg/L	m 98
PFPeA	3.615	263.0 -> 219.0	264273	19.79 µg/L	100
PFPeS	5.157	349.0 -> 80.0	46001	20.91 µg/L	99
PFTeDA	9.241	713.0 -> 669.0	469678	19.81 µg/L	100
PFTrDA	8.853	663.0 -> 619.0	426802	19.14 µg/L	100
PFUnDA	8.141	563.0 -> 519.0	347340	20.30 µg/L	100
11Cl-PF3OUdS	8.273	631.0 -> 451.0	220486	21.97 µg/L	100
9Cl-PF3ONS	7.533	531.0 -> 351.0	50459	20.01 µg/L	100
ADONA	6.077	377.0 -> 251.0	584016	20.04 µg/L	100
HFPO-DA	5.322	329.0 -> 169.0	326292	107.26 µg/L	98

7.5.13
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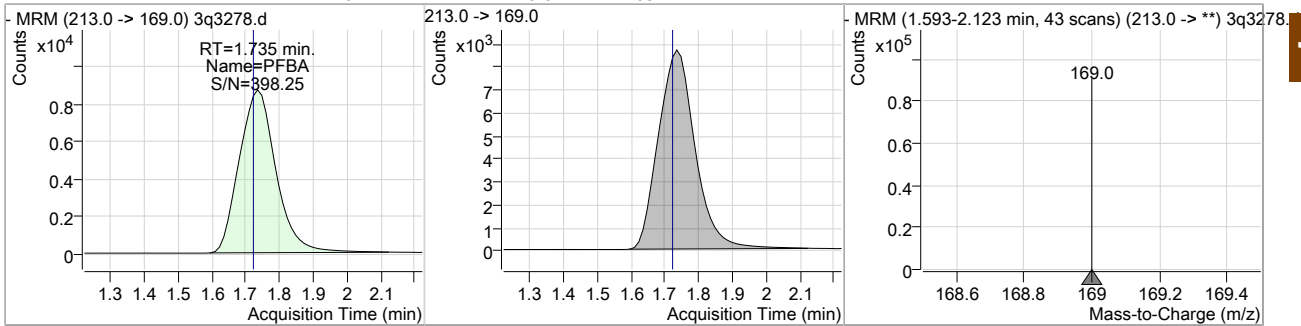
= Qualifier out of range, m = manually integrated, + = Area summed

Cal Report: 3Q3278.D

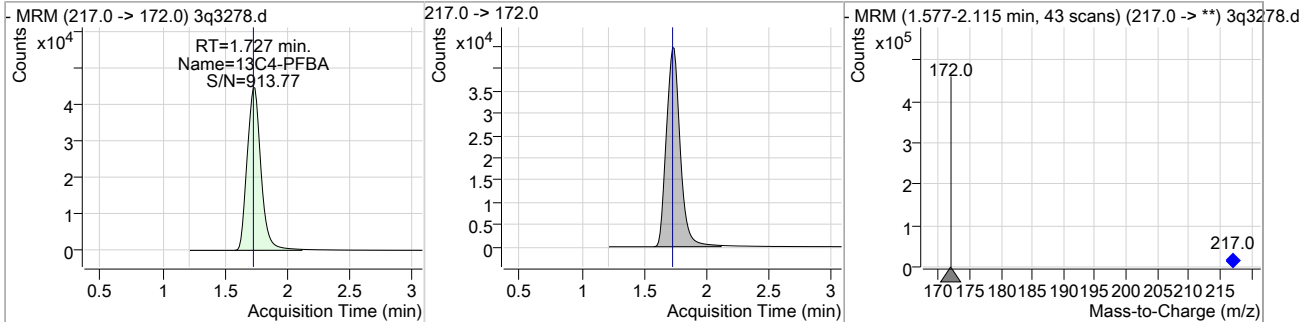
Perfluorinated Compounds by LC/MS/MS



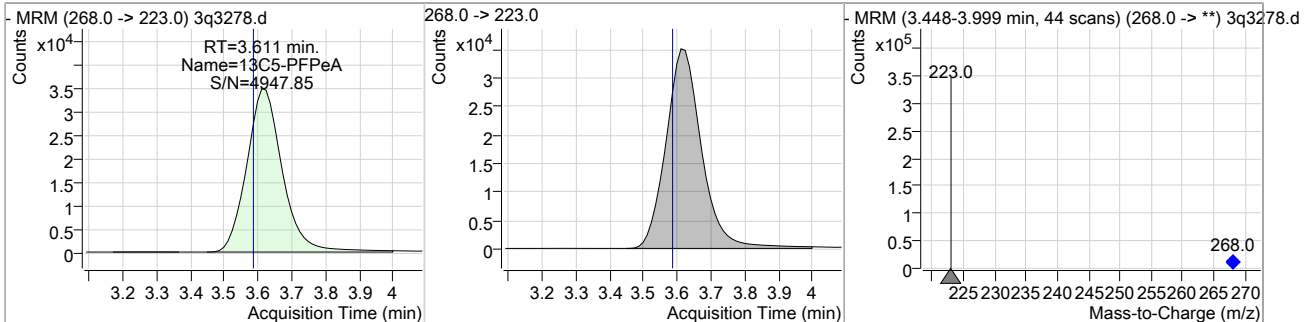
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	20.47	1.74	0.01	65277				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.23	1.73	0.00	342087				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.75	3.61	0.02	256981				



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Cal Report: 3Q3278.D

Perfluorinated Compounds by LC/MS/MS

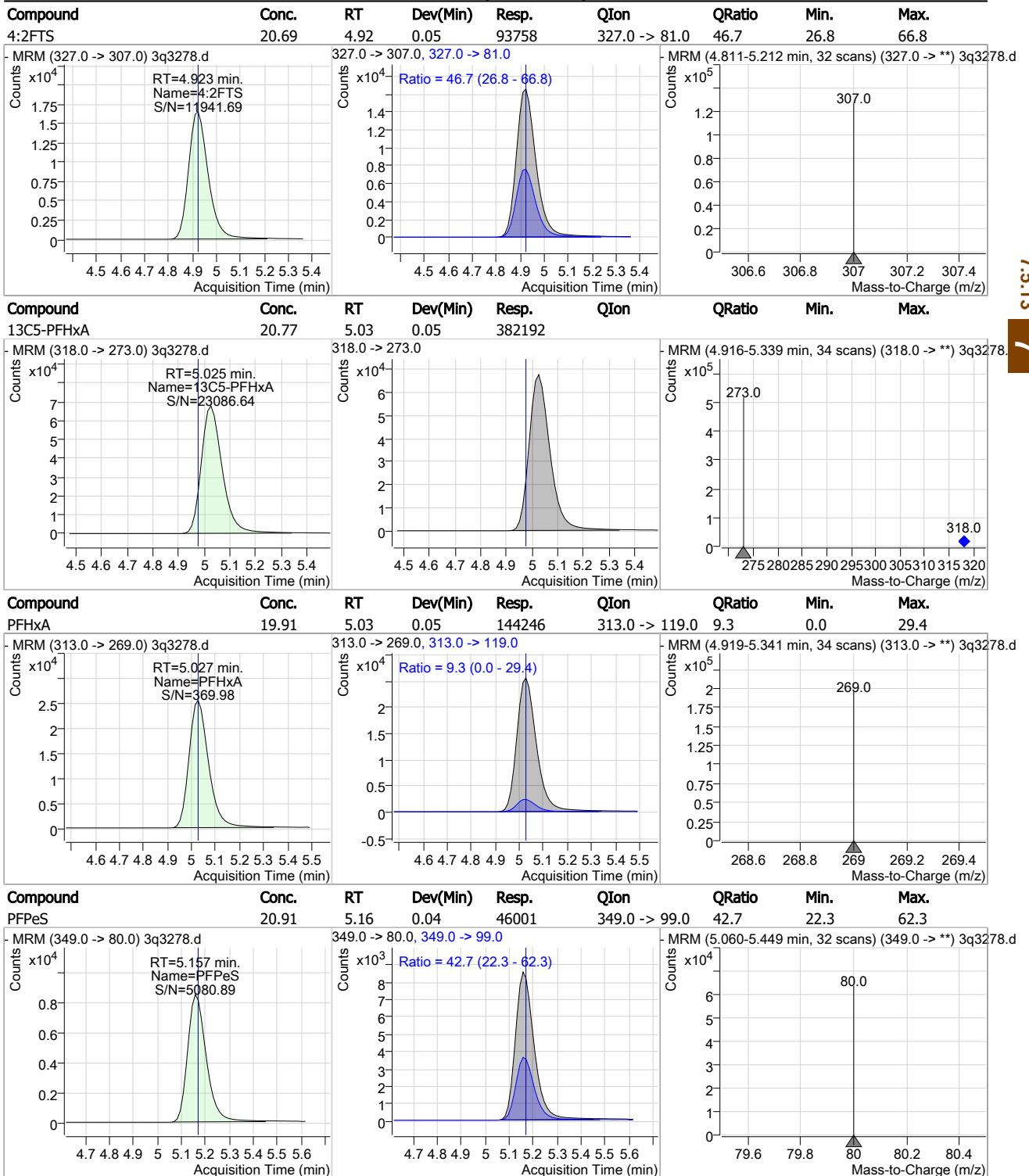
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.79	3.61	0.02	264273				
MRM (263.0 -> 219.0) 3q3278.d			263.0 -> 219.0			MRM (3.452-4.003 min, 44 scans) (263.0 -> **) 3q3278.d		
13C3-PFBS	19.82	3.93	0.04	49194				
MRM (302.0 -> 99.0) 3q3278.d			302.0 -> 99.0			MRM (3.799-4.317 min, 42 scans) (302.0 -> **) 3q3278.d		
PFBS	20.17	3.93	0.04	68265	299.0 -> 99.0	38.9	9.0	69.0
MRM (299.0 -> 80.0) 3q3278.d			299.0 -> 80.0, 299.0 -> 99.0			MRM (3.799-4.324 min, 42 scans) (299.0 -> **) 3q3278.d		
13C2-4:2FTS	20.80	4.92	0.05	151159				
MRM (329.0 -> 309.0) 3q3278.d			329.0 -> 309.0			MRM (4.810-5.234 min, 34 scans) (329.0 -> **) 3q3278.d		

7.5.13

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Cal Report: 3Q3278.D

Perfluorinated Compounds by LC/MS/MS



7.5.13

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Cal Report: 3Q3278.D

Perfluorinated Compounds by LC/MS/MS

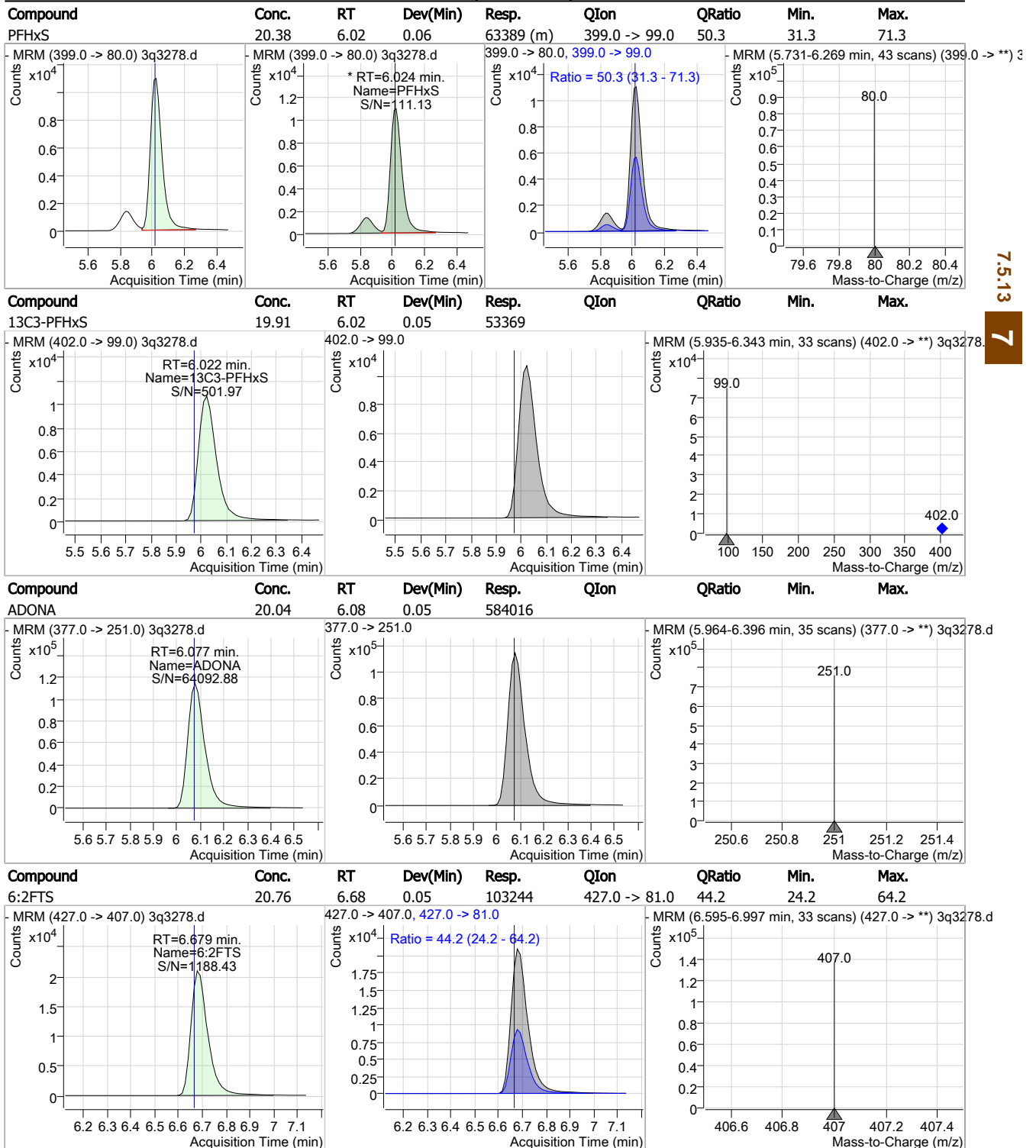
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	107.26	5.32	0.05	326292	285.0 -> 169.0	16.8	0.0	37.6
13C3-HFPO-DA	92.75	5.33	0.05	195003				
13C4-PFHpA	21.06	5.98	0.06	473405				
PFHpA	19.76	5.97	0.05	450341	363.0 -> 169.0	7.3	0.0	27.1

7.5.13

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Cal Report: 3Q3278.D

Perfluorinated Compounds by LC/MS/MS



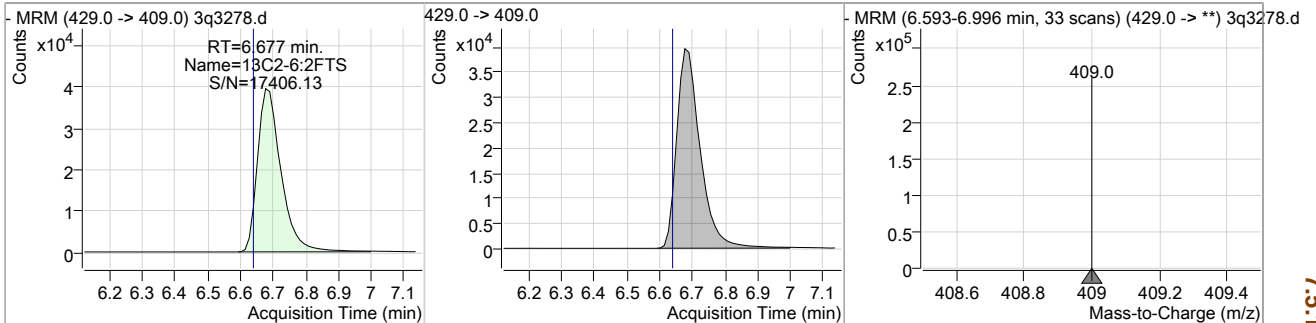
7.5.13

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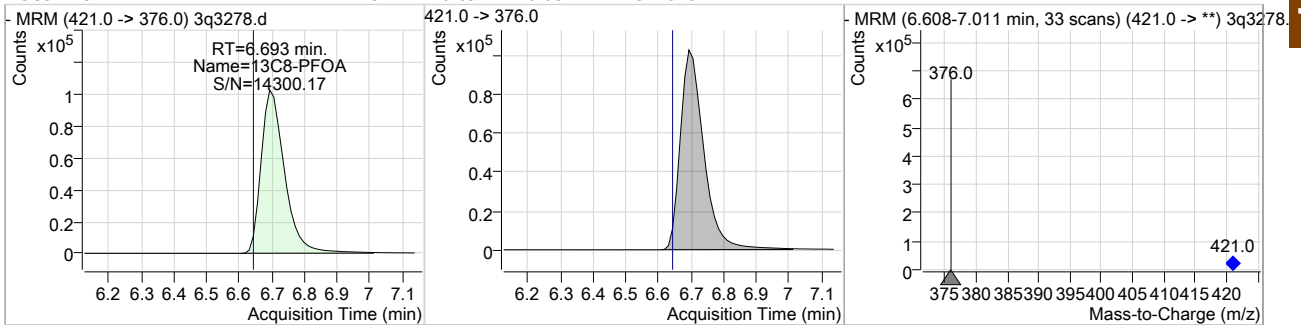
Cal Report: 3Q3278.D

Perfluorinated Compounds by LC/MS/MS

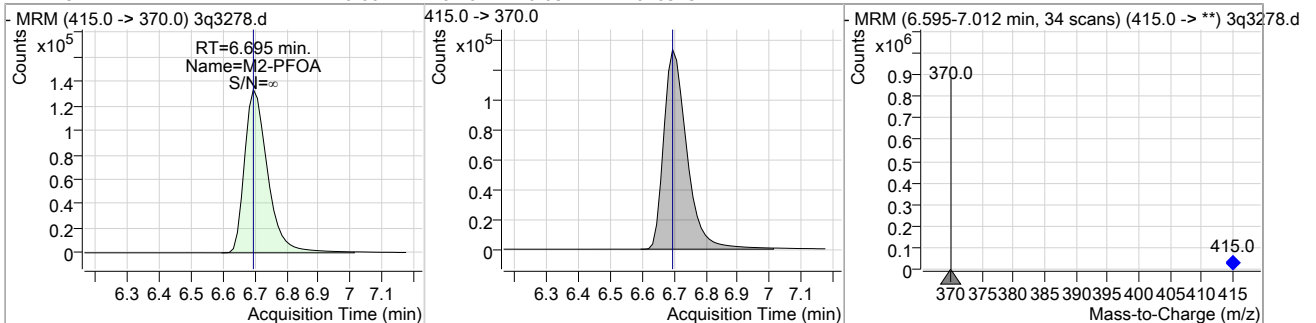
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	21.01	6.68	0.04	197700				



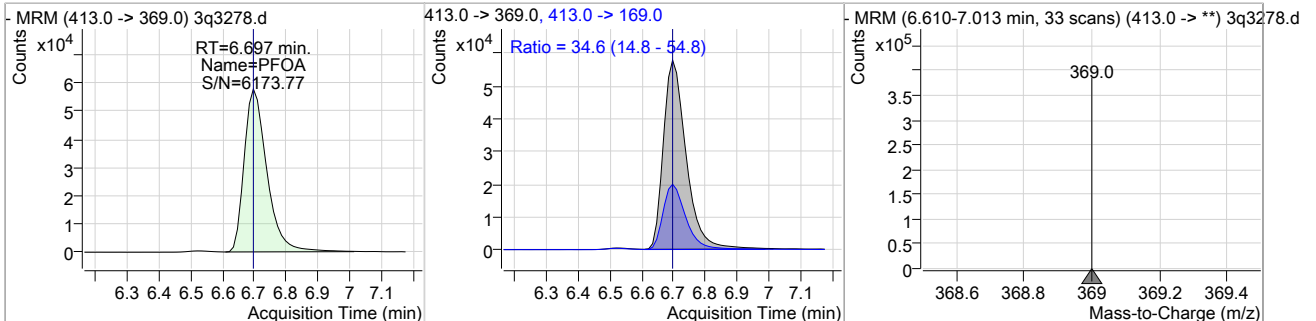
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	21.13	6.69	0.05	511023				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.70	0.05	670323				



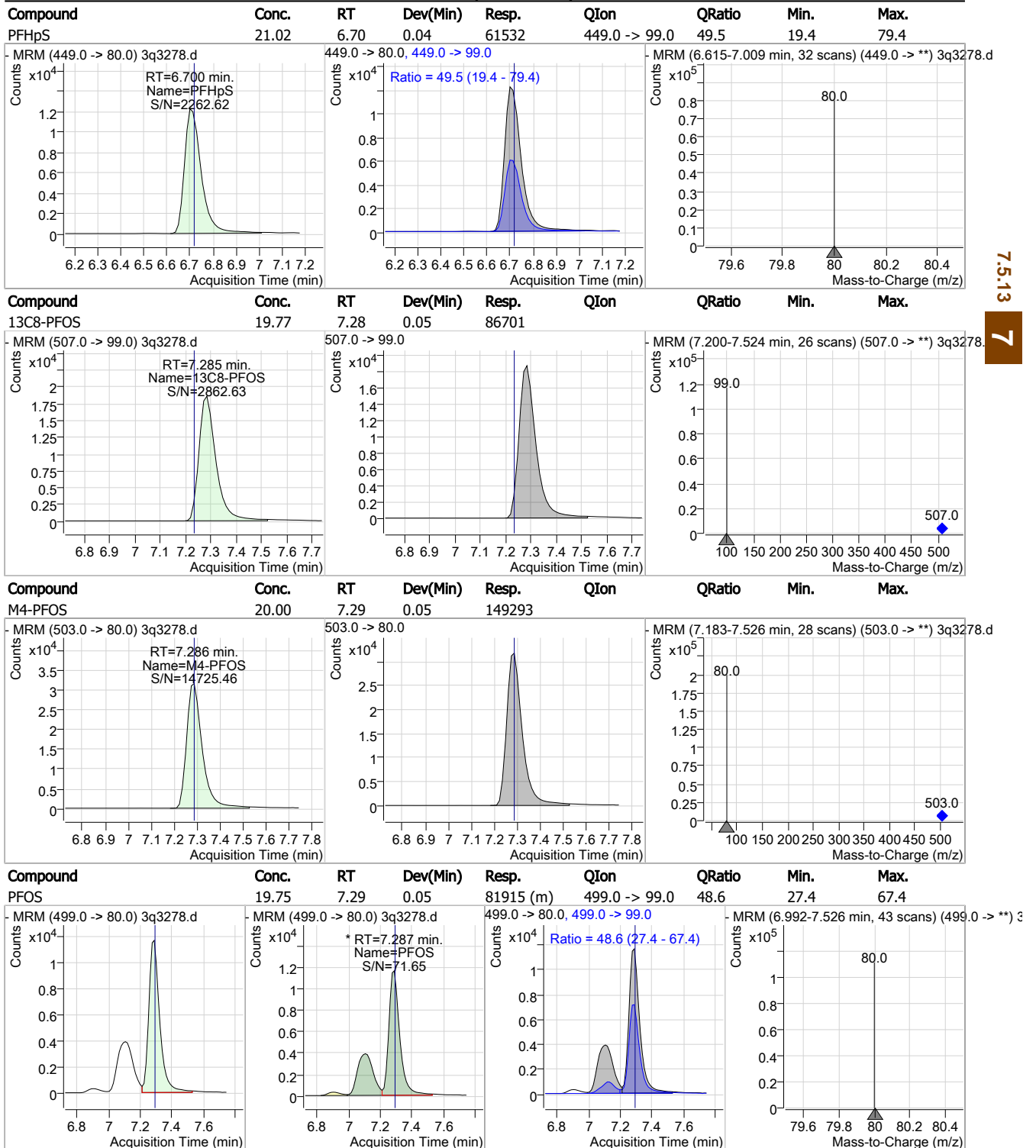
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.03	6.70	0.05	286275	413.0 ->	169.0 34.6	14.8	54.8



7.5.13 7

Cal Report: 3Q3278.D

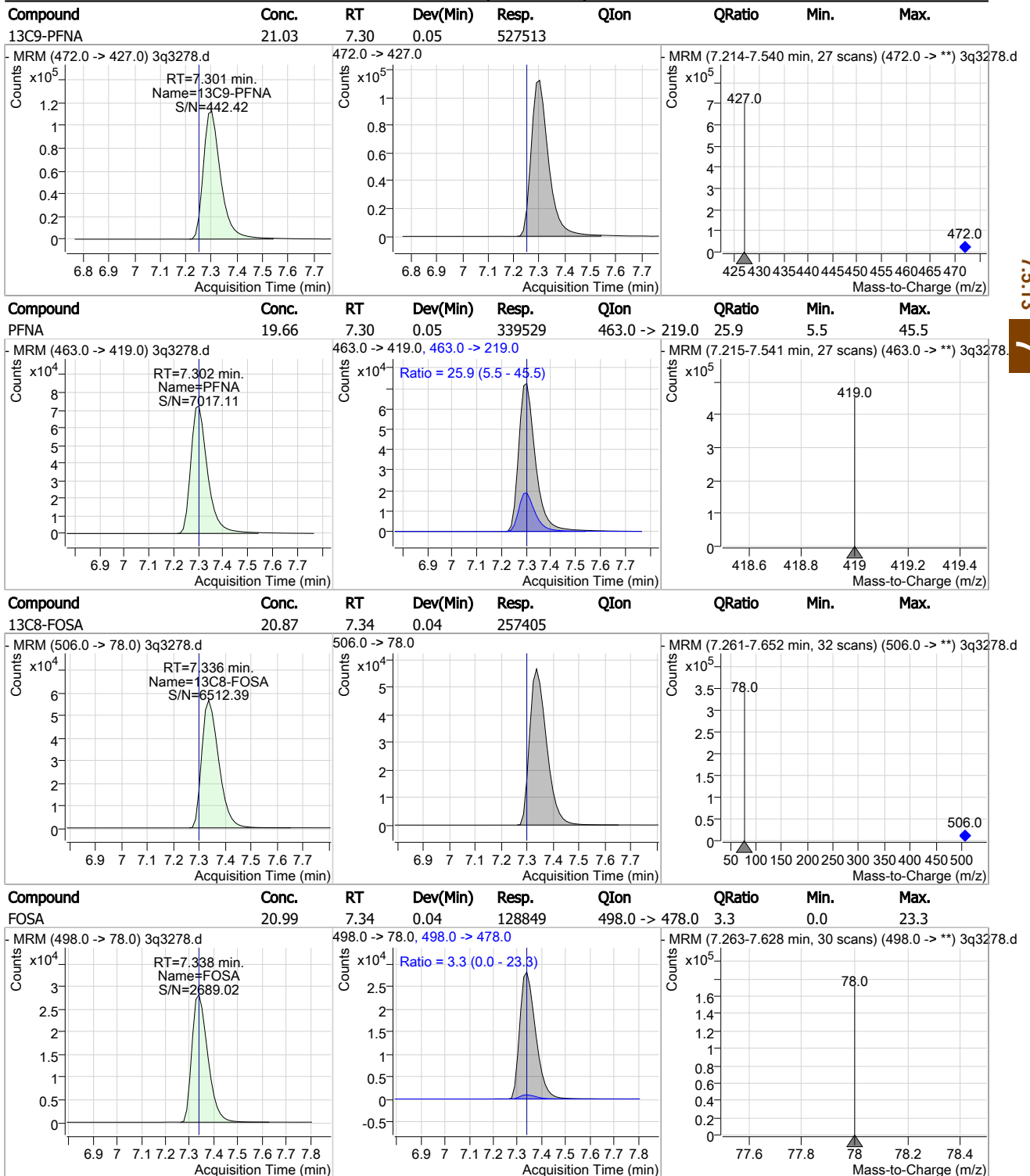
Perfluorinated Compounds by LC/MS/MS



7.5.13
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Cal Report: 3Q3278.D

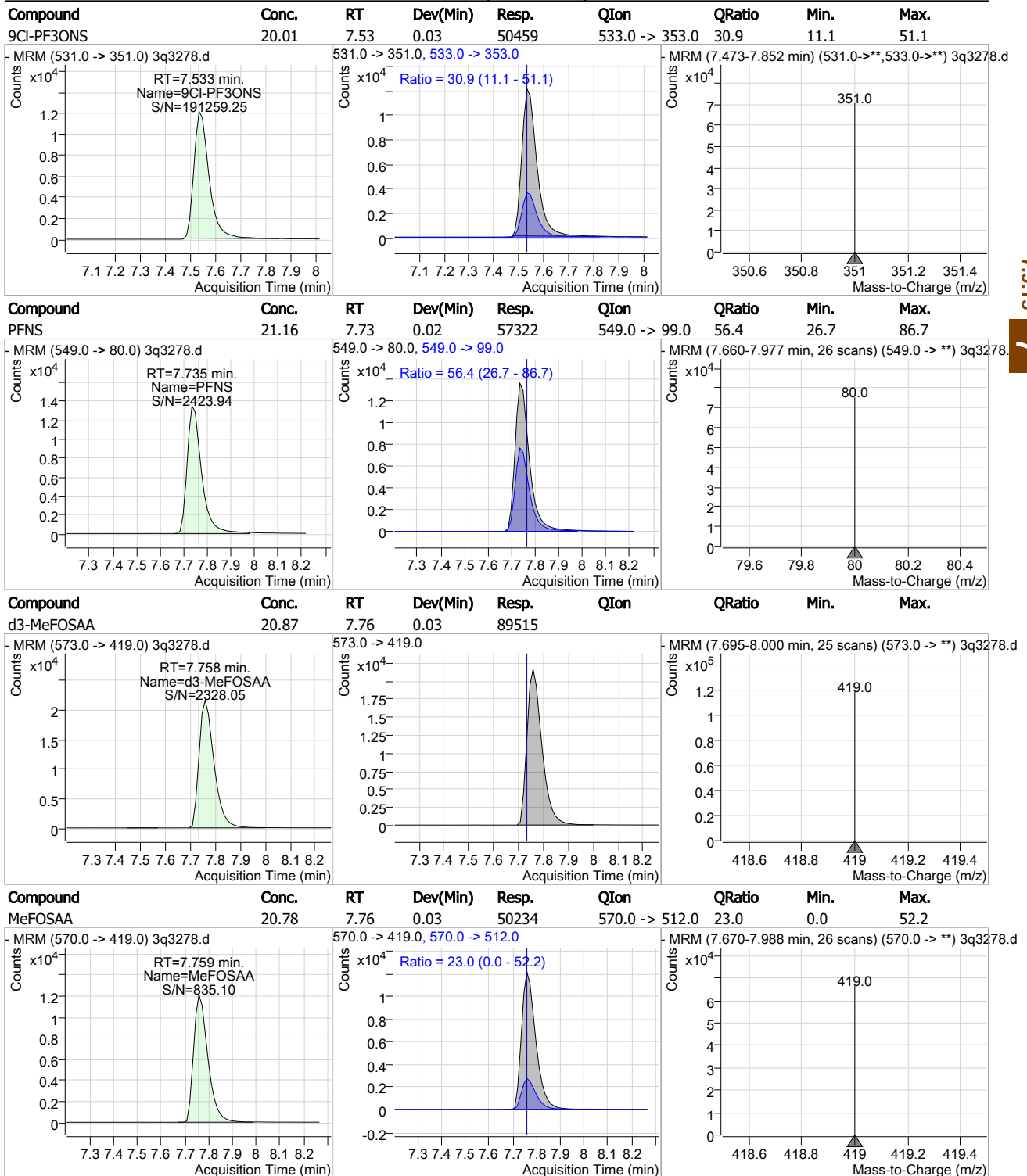
Perfluorinated Compounds by LC/MS/MS



7.5.13
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Cal Report: 3Q3278.D

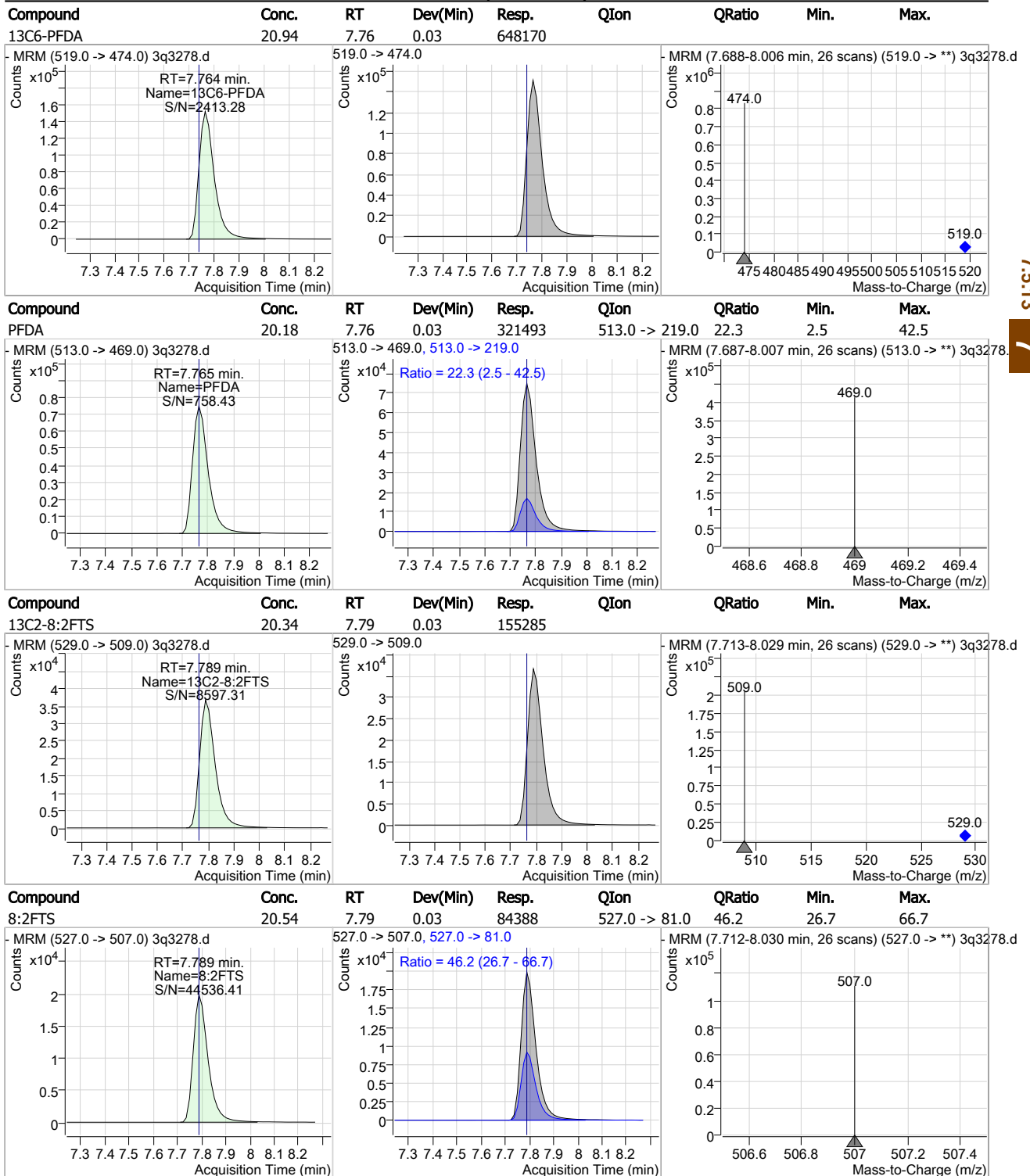
Perfluorinated Compounds by LC/MS/MS



7.5.13
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Cal Report: 3Q3278.D

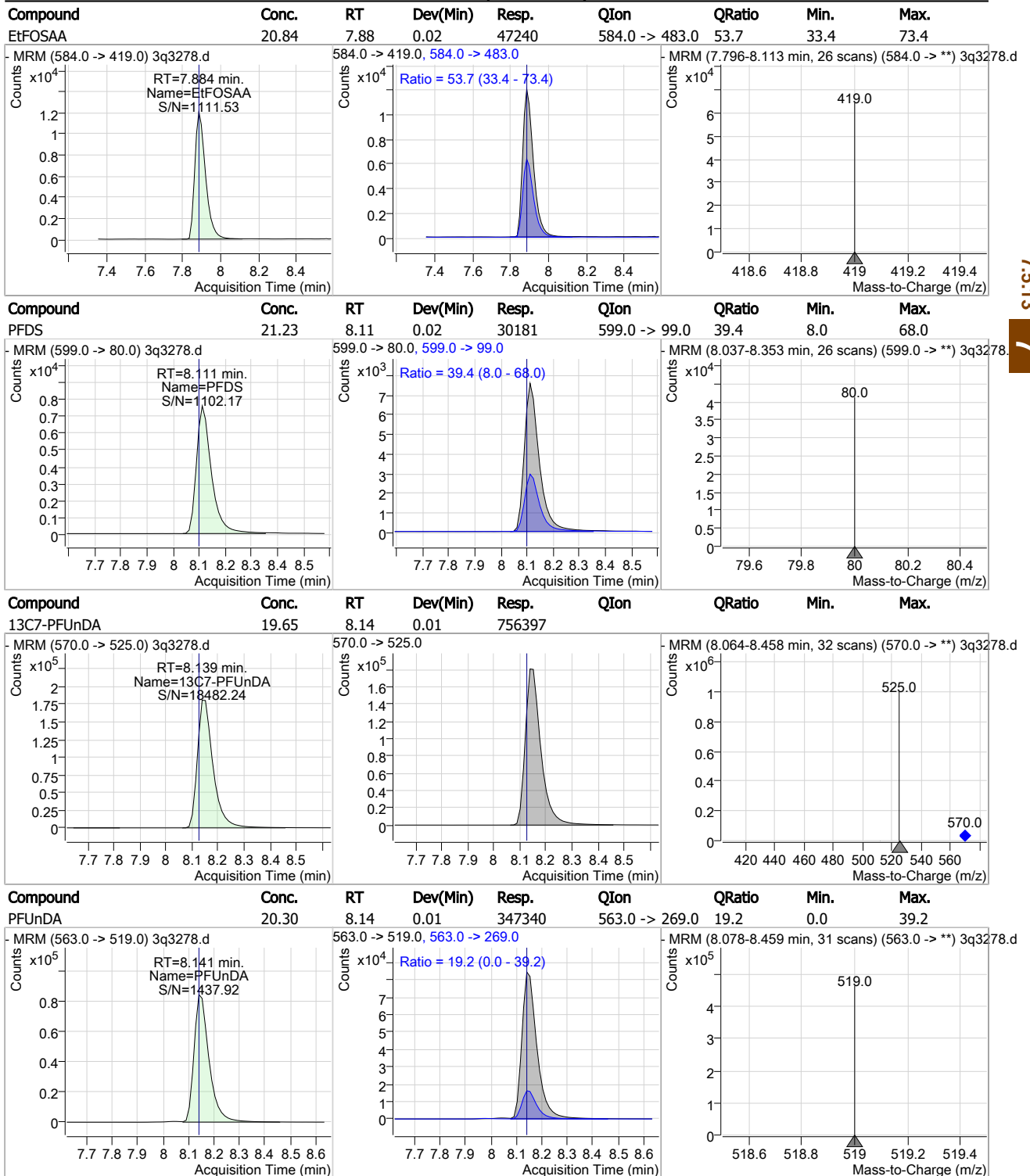
Perfluorinated Compounds by LC/MS/MS



7.5.13
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Cal Report: 3Q3278.D

Perfluorinated Compounds by LC/MS/MS

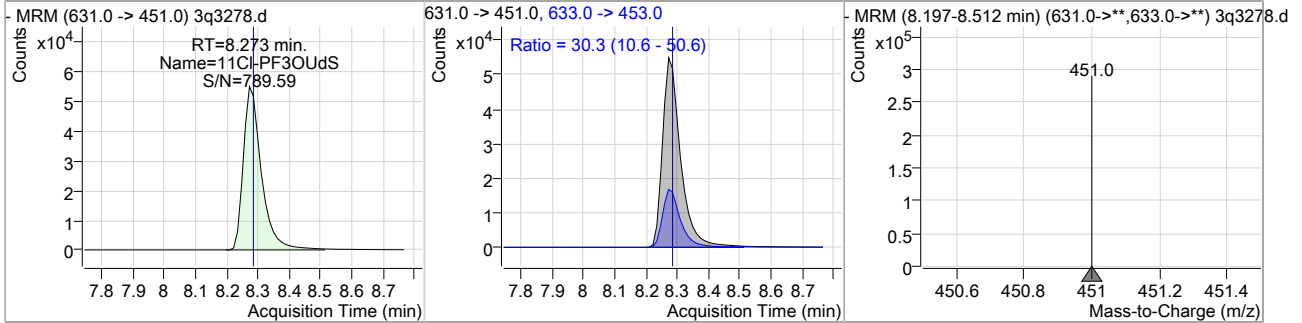


7.5.13
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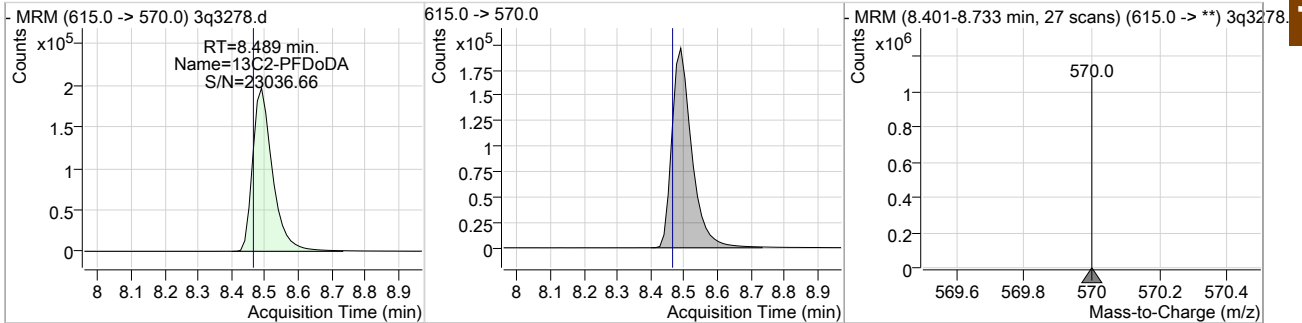
Cal Report: 3Q3278.D

Perfluorinated Compounds by LC/MS/MS

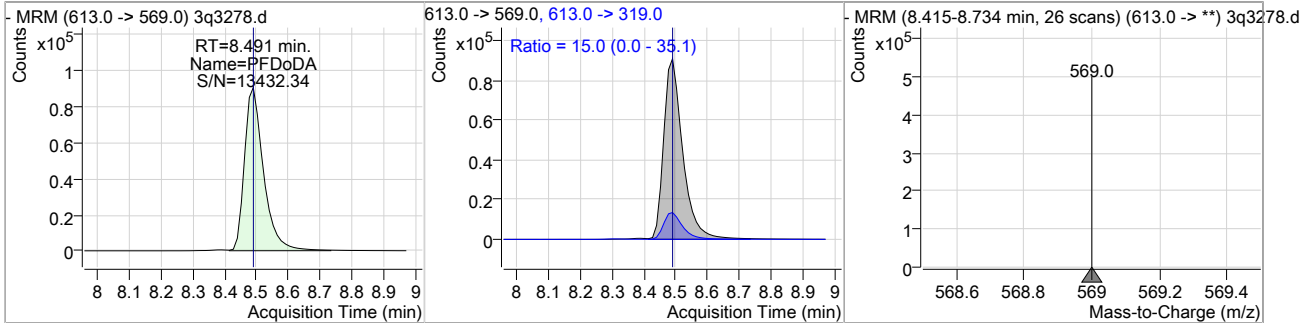
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	21.97	8.27	0.01	220486	633.0 -> 453.0	30.3	10.6	50.6



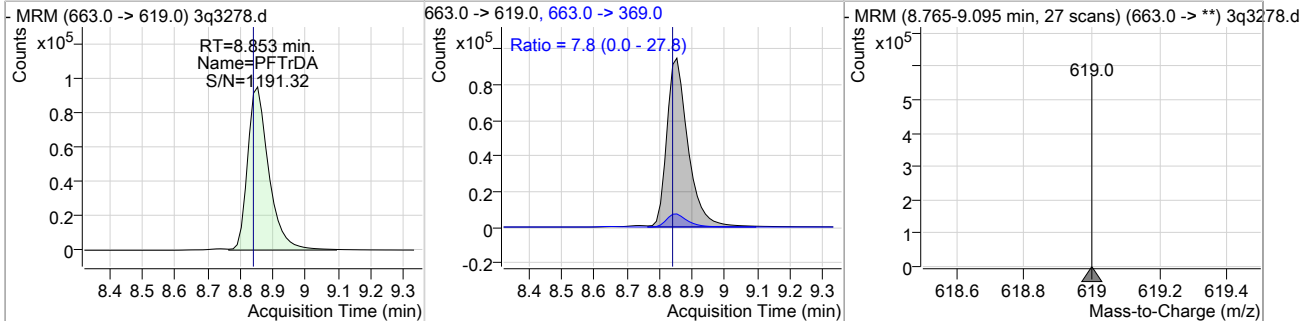
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.20	8.49	0.02	812173				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.16	8.49	0.02	376345	613.0 -> 319.0	15.0	0.0	35.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.14	8.85	0.03	426802	663.0 -> 369.0	7.8	0.0	27.8



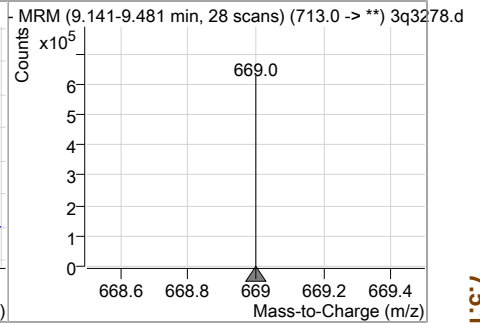
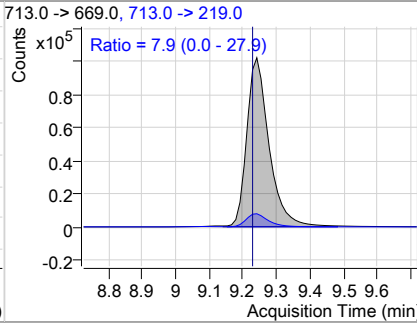
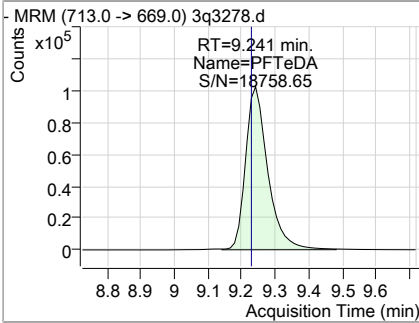
7.5.13

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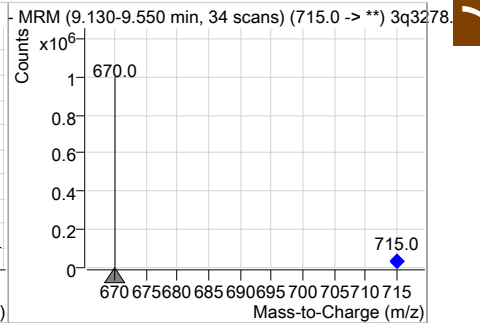
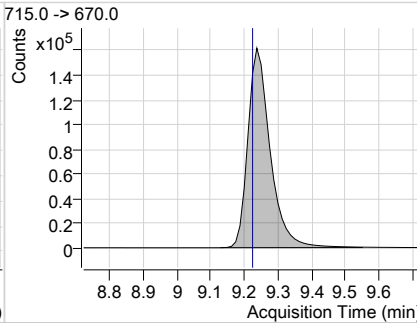
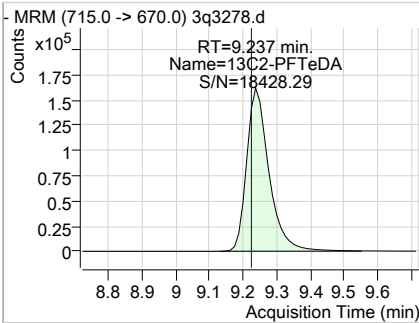
Cal Report: **3Q3278.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.81	9.24	0.03	469678	713.0 -> 219.0	7.9	0.0	27.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
¹³ C2-PFTeDA	19.88	9.24	0.01	742864				



7.5.13
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Manual Integration Approval Summary

Sample Number: S3Q83-CC83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3278.D **Analyst approved:** 04/26/19 09:29 Natasha Gumtie
Injection Time: 04/25/19 17:14 **Supervisor approved:** 04/26/19 16:14 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.02	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.29	Split peak

7.5.13.1

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Cal Report: 3Q3300.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/29/19 15:02

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3300.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/26/2019 9:36:13 AM
 Sample Name : cc83-1
 Vial : P3-A3
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q84.batch.bin
 Sample Information : op74736,S3Q84,125,,,1.0,1,water

Compound	RT	QI on	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.714	217.0 -> 172.0	336253	20.00 µg/L	-0.013
M5-PFPeA	3.573	268.0 -> 223.0	246097	20.00 µg/L	-0.013
M5-PFHxA	4.975	318.0 -> 273.0	365358	20.00 µg/L	0.000
M4-PFHpA	5.928	367.0 -> 322.0	460001	20.00 µg/L	0.011
M8-PFOA	6.656	421.0 -> 376.0	488106	20.00 µg/L	0.012
M9-PFNA	7.251	472.0 -> 427.0	513538	20.00 µg/L	0.000
M6-PFDA	7.738	519.0 -> 474.0	623549	20.00 µg/L	-0.002
M7-PFUnDA	8.114	570.0 -> 525.0	748618	20.00 µg/L	-0.013
M2-PFDoDA	8.464	615.0 -> 570.0	772734	20.00 µg/L	-0.001
M2-PFTeDA	9.212	715.0 -> 670.0	644253	20.00 µg/L	-0.012
M8-FOSA	7.298	506.0 -> 78.0	245591	20.00 µg/L	0.000
M3-PFBS	3.879	302.0 -> 99.0	49539	20.00 µg/L	-0.013
M3-PFHxS	5.972	402.0 -> 99.0	53497	20.00 µg/L	0.000
M8-PFOS	7.247	507.0 -> 99.0	85003	20.00 µg/L	0.012
M2-4:2FTS	4.871	329.0 -> 309.0	137370	20.00 µg/L	0.000
M2-6:2FTS	6.639	429.0 -> 409.0	176168	20.00 µg/L	0.000
M2-8:2FTS	7.763	529.0 -> 509.0	136396	20.00 µg/L	0.000
M3-MeFOSAA	7.732	573.0 -> 419.0	85688	20.00 µg/L	-0.001
M3-HFPO-DA	5.280	287.0 -> 169.0	205748	100.00 µg/L	0.000
13C2-PFOA	6.658	415.0 -> 370.0	642608	20.00 µg/L	0.012
13C4-PFOS	7.235	503.0 -> 80.0	149048	20.00 µg/L	-0.001
System Monitoring Compounds					
13C2-4:2FTS	4.871	329.0 -> 309.0	136182	18.74 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C2-6:2FTS	6.639	429.0 -> 409.0	175545	18.66 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C2-8:2FTS	7.763	529.0 -> 509.0	136368	17.86 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.3%	
13C2-PFDoDA	8.464	615.0 -> 570.0	774260	18.30 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.5%	
13C2-PFTeDA	9.212	715.0 -> 670.0	644350	17.24 µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.2%	
13C3-PFBS	3.879	302.0 -> 99.0	48488	19.53 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C3-PFHxS	5.972	402.0 -> 99.0	52741	19.67 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C4-PFBA	1.714	217.0 -> 172.0	335839	19.86 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C4-PFHpA	5.928	367.0 -> 322.0	455842	20.28 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C5-PFHxA	4.975	318.0 -> 273.0	361518	19.65 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C5-PFPeA	3.573	268.0 -> 223.0	246477	19.91 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C6-PFDA	7.738	519.0 -> 474.0	621820	20.09 µg/L	-0.002

7.5.14
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Cal Report: 3Q3300.D

Perfluorinated Compounds by LC/MS/MS

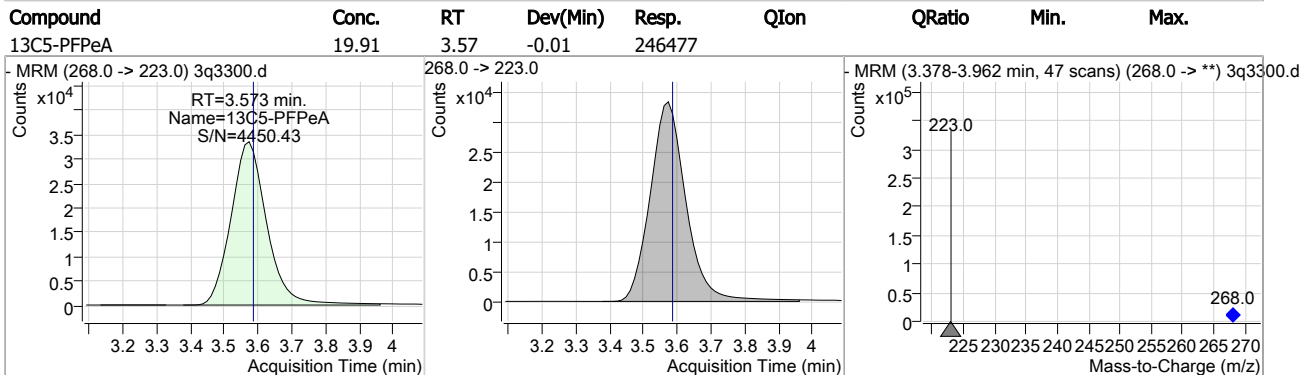
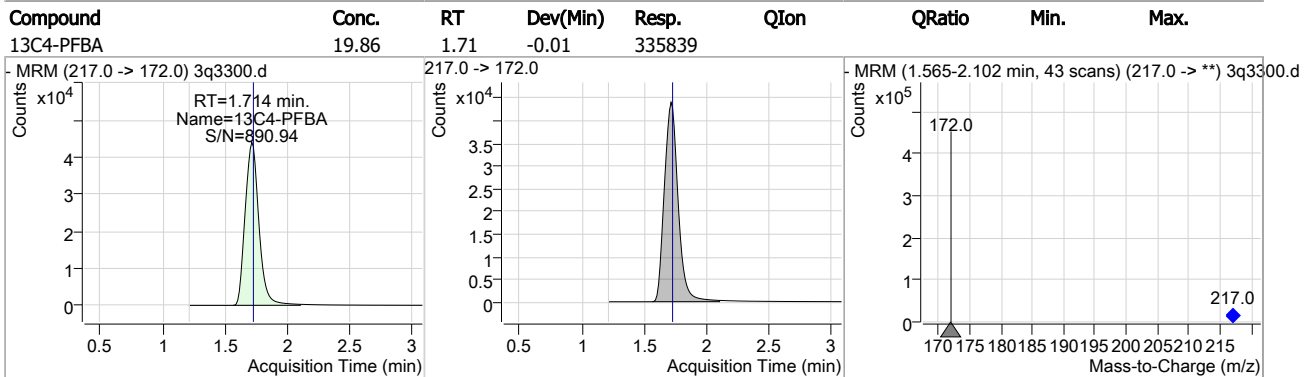
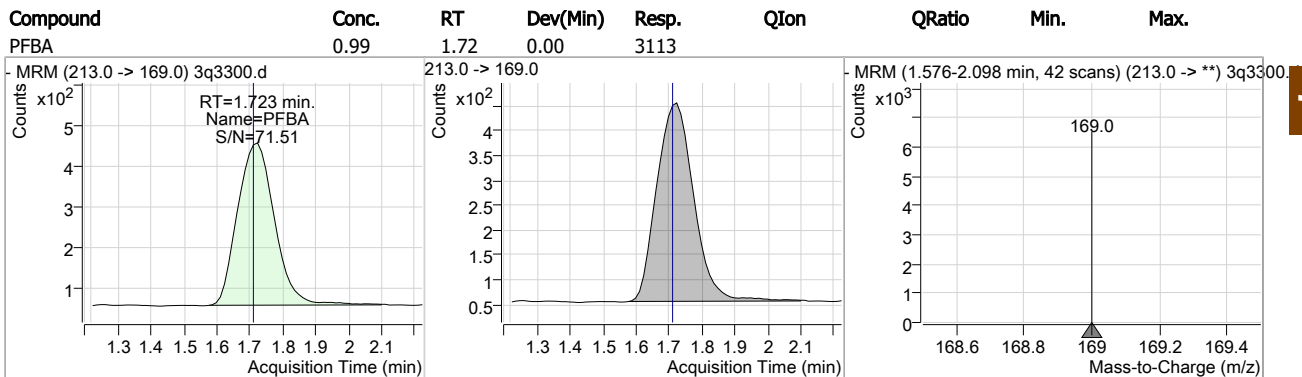
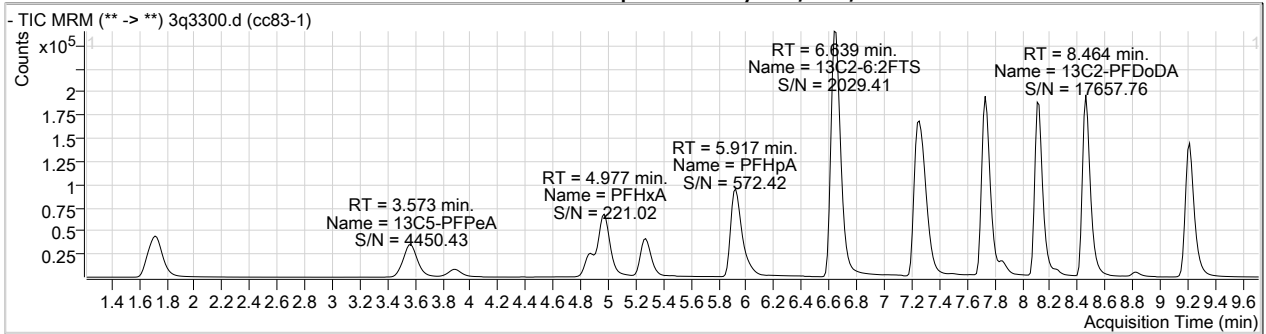
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)	QValue
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C7-PFUnDA	8.114	570.0 -> 525.0	748466	19.44 µg/L	-0.013	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.2%		
13C8-FOSA	7.298	506.0 -> 78.0	248909	20.18 µg/L	0.000	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C8-PFOA	6.656	421.0 -> 376.0	485473	20.07 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C8-PFOS	7.247	507.0 -> 99.0	85329	19.46 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.3%		
13C9-PFNA	7.251	472.0 -> 427.0	511791	20.40 µg/L	0.000	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
d3-MeFOSAA	7.732	573.0 -> 419.0	85544	19.94 µg/L	-0.001	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C3-HFPO-DA	5.280	287.0 -> 169.0	205748	97.86 µg/L	0.000	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 97.9%		
M2-PFOA	6.658	415.0 -> 370.0	642608	20.00 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.235	503.0 -> 80.0	149048	20.00 µg/L	-0.001	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						
4:2FTS	4.873	327.0 -> 307.0	4374	1.07 µg/L	96	
6:2FTS	6.641	427.0 -> 407.0	4814	1.09 µg/L	99	
8:2FTS	7.763	527.0 -> 507.0	4009	1.11 µg/L	100	
EtFOSAA	7.859	584.0 -> 419.0	2219	1.02 µg/L	99	
FOSA	7.300	498.0 -> 78.0	6125	1.06 µg/L	98	
MeFOSAA	7.733	570.0 -> 419.0	2509	1.08 µg/L	100	
PFBA	1.723	213.0 -> 169.0	3113	0.99 µg/L	100	
PFBS	3.883	299.0 -> 80.0	3261	0.98 µg/L	98	
PFDA	7.738	513.0 -> 469.0	15514	1.01 µg/L	98	
PFDoDA	8.465	613.0 -> 569.0	17395	0.98 µg/L	98	
PFDS	8.086	599.0 -> 80.0	1571	1.12 µg/L	98	
PFHpA	5.917	363.0 -> 319.0	21303	0.97 µg/L	99	
PFHpS	6.662	449.0 -> 80.0	3027	1.03 µg/L	95	
PFHxA	4.977	313.0 -> 269.0	6973	1.02 µg/L	97	
PFHxS	5.974	399.0 -> 80.0	3175	1.02 µg/L	99	m
PFNA	7.252	463.0 -> 419.0	16807	1.00 µg/L	98	
PFNS	7.710	549.0 -> 80.0	2766	1.04 µg/L	90	
PFOA	6.647	413.0 -> 369.0	13575	1.00 µg/L	100	
PFOS	7.236	499.0 -> 80.0	4383	1.08 µg/L	99	m
PFPeA	3.577	263.0 -> 219.0	12786	1.00 µg/L	100	
PFPeS	5.107	349.0 -> 80.0	2309	1.06 µg/L	92	
PFTeDA	9.204	713.0 -> 669.0	20974	1.02 µg/L	99	
PFTrDA	8.828	663.0 -> 619.0	19302	1.00 µg/L	99	
PFUnDA	8.116	563.0 -> 519.0	16127	0.95 µg/L	99	
11Cl-PF3OUdS	8.247	631.0 -> 451.0	10593	1.11 µg/L	94	
9Cl-PF3ONS	7.508	531.0 -> 351.0	2378	1.00 µg/L	97	
ADONA	6.027	377.0 -> 251.0	27240	0.99 µg/L	100	
HFPO-DA	5.272	329.0 -> 169.0	16097	5.02 µg/L	100	

7.5.14
7

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

Cal Report: 3Q3300.D

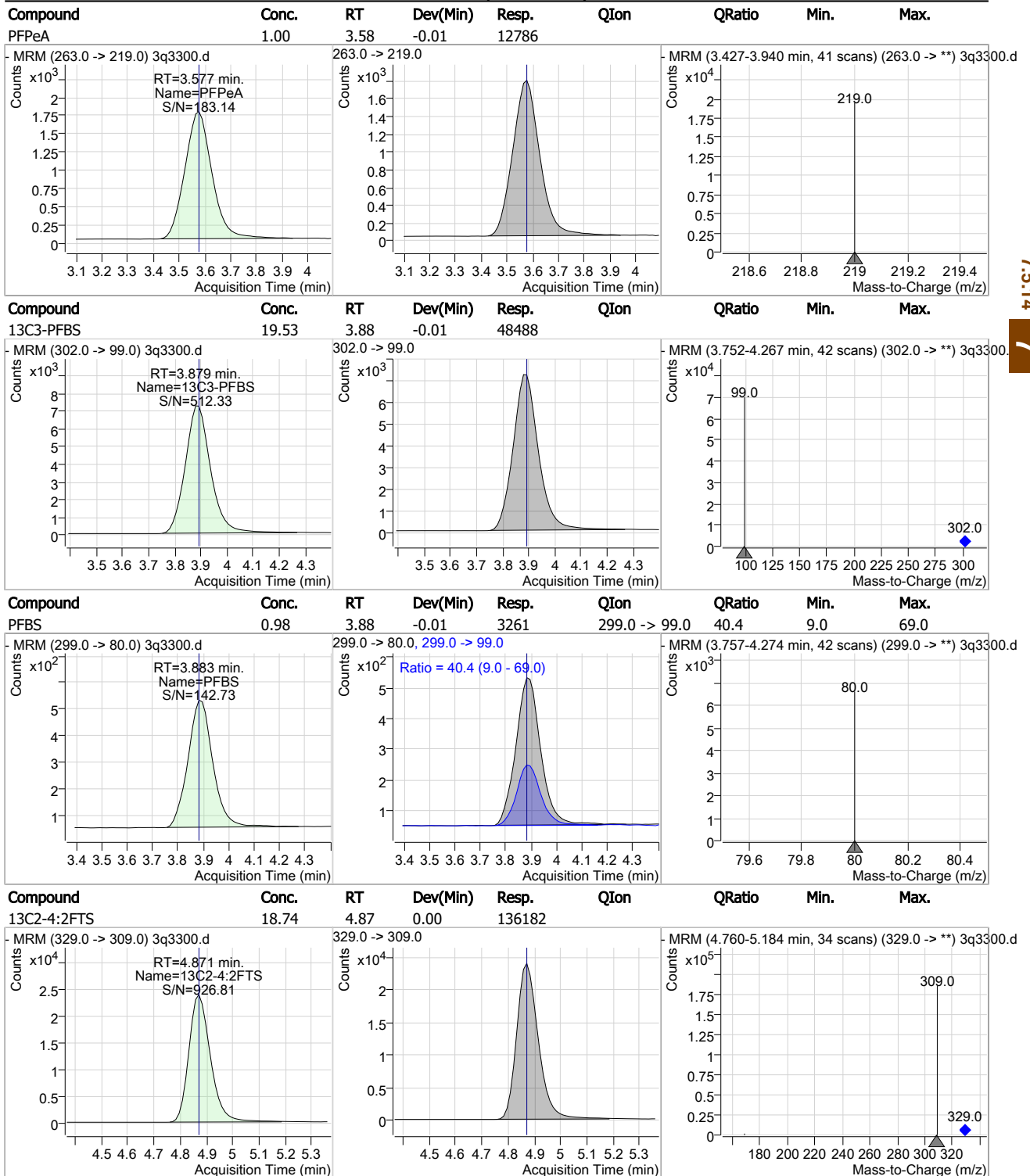
Perfluorinated Compounds by LC/MS/MS



7.5.14 7

Cal Report: 3Q3300.D

Perfluorinated Compounds by LC/MS/MS

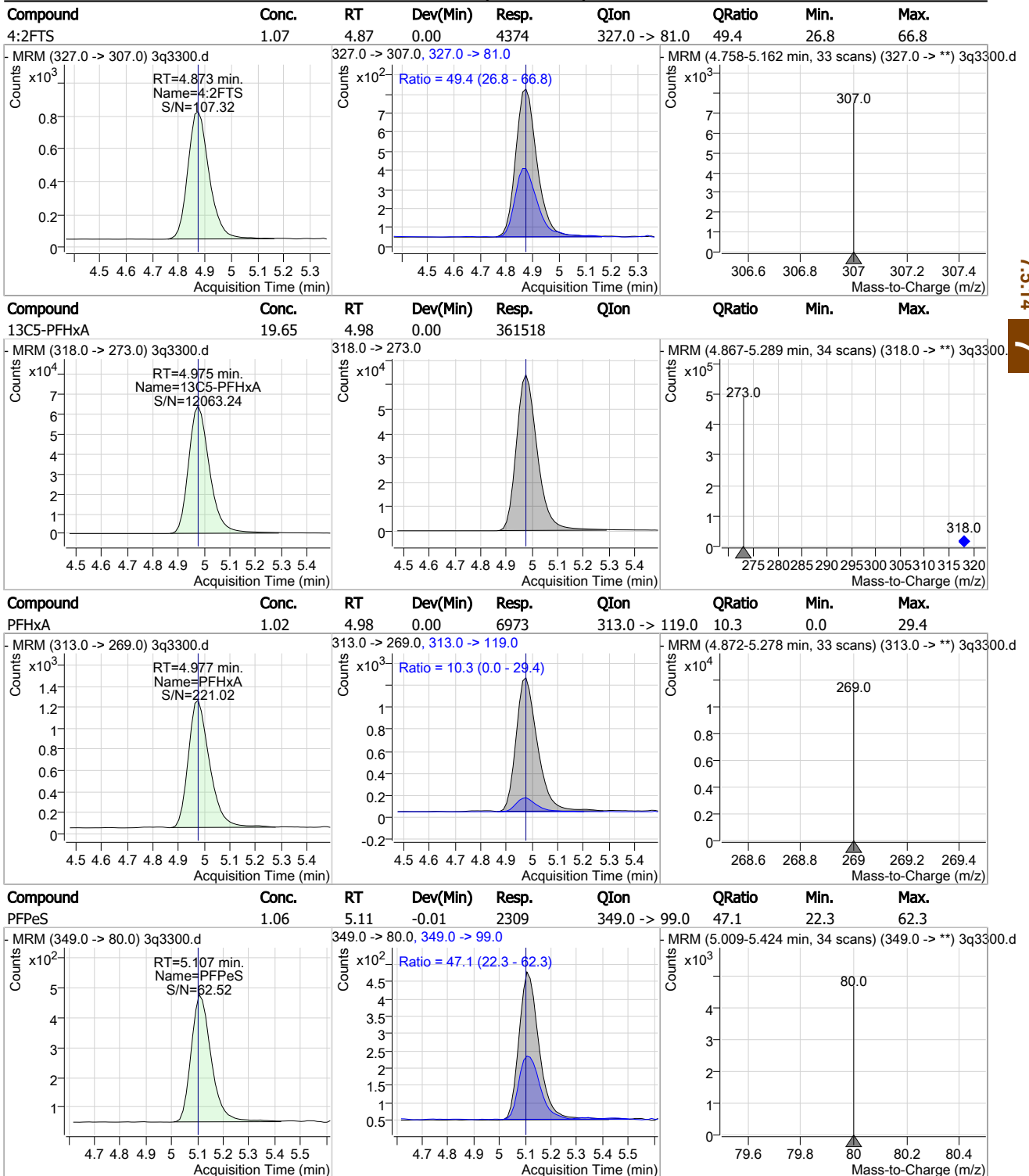


7.5.14

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Cal Report: 3Q3300.D

Perfluorinated Compounds by LC/MS/MS

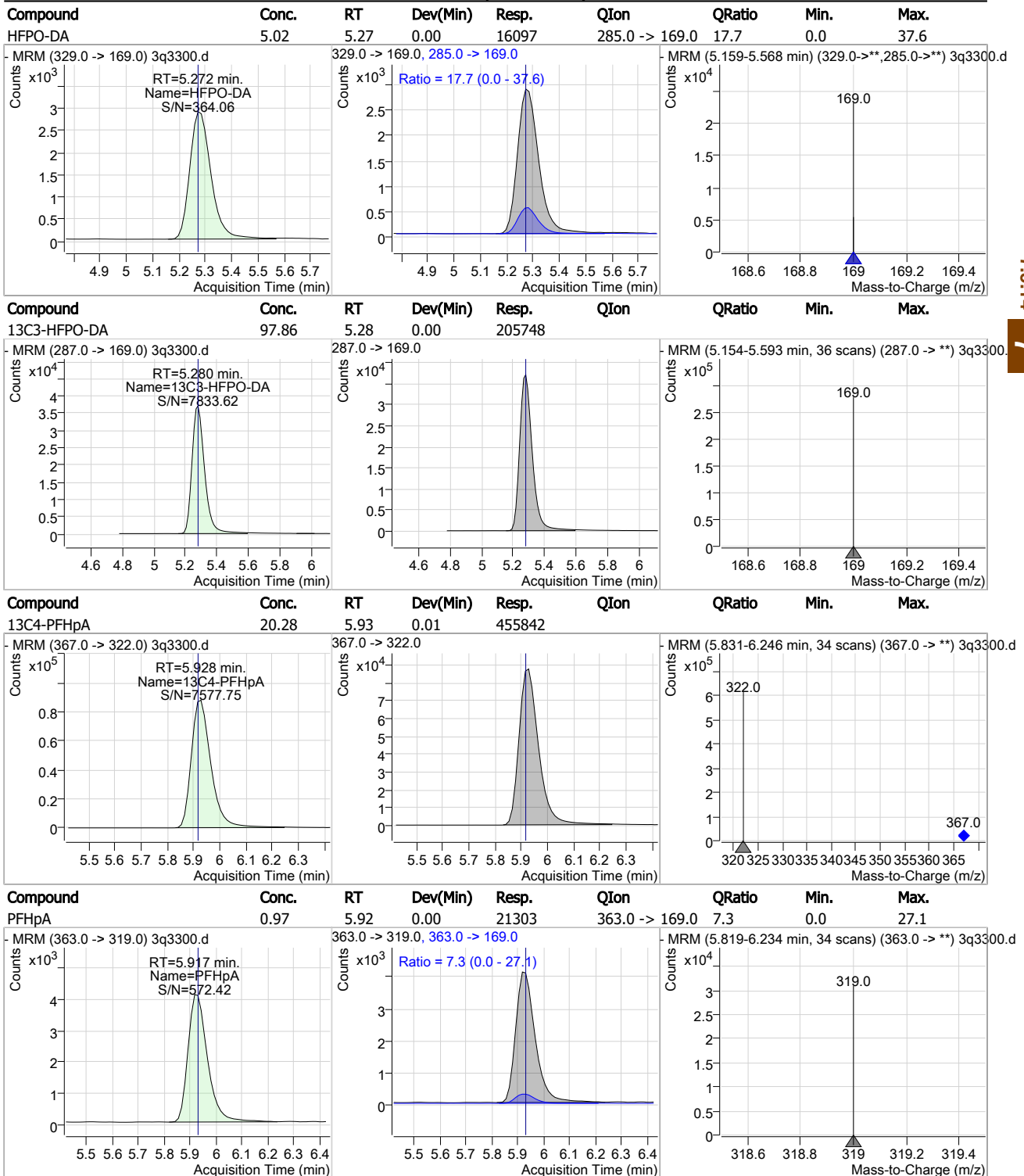


7.5.14

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Cal Report: 3Q3300.D

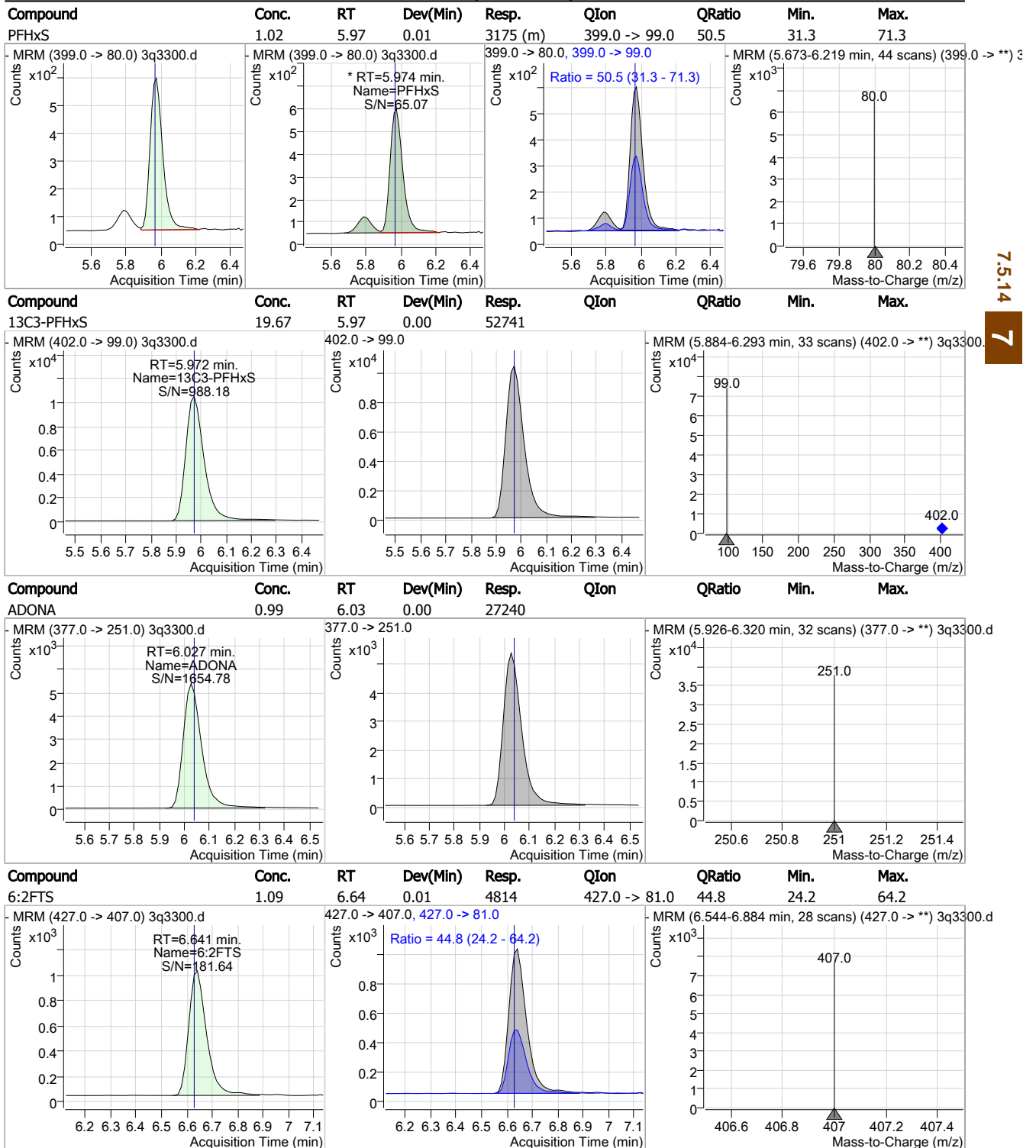
Perfluorinated Compounds by LC/MS/MS



7.5.14
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Cal Report: 3Q3300.D

Perfluorinated Compounds by LC/MS/MS

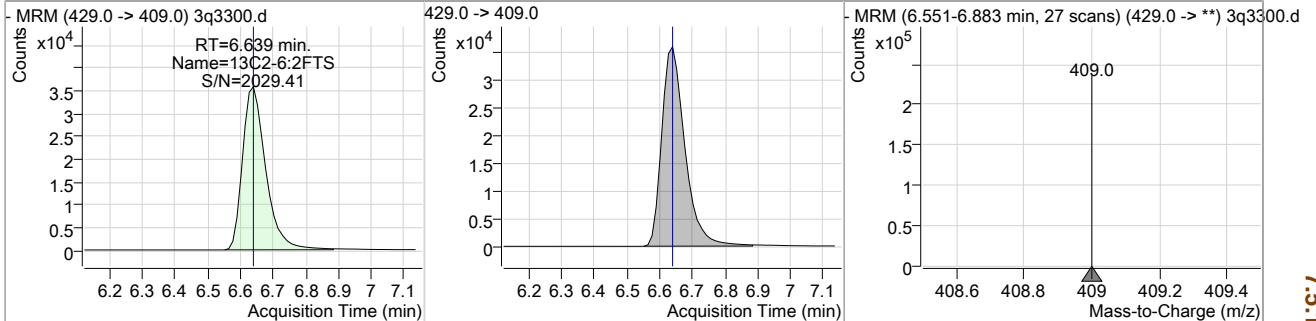


7.5.14 7

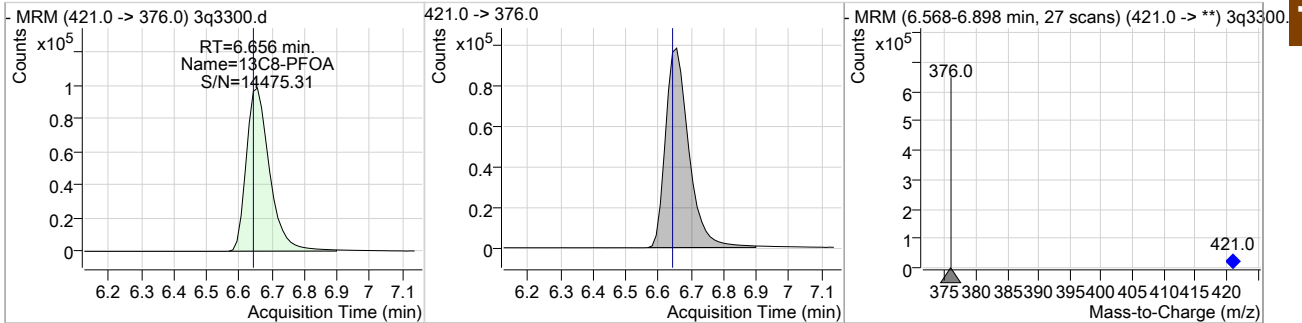
Cal Report: 3Q3300.D

Perfluorinated Compounds by LC/MS/MS

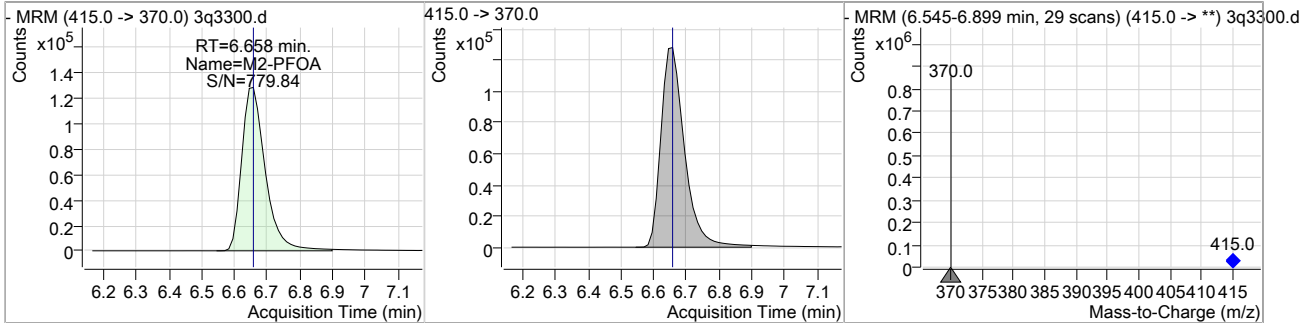
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.66	6.64	0.00	175545				



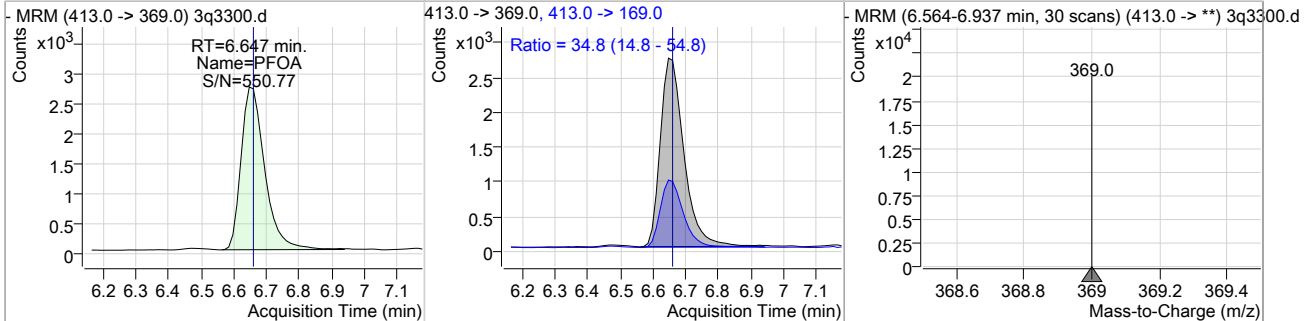
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.07	6.66	0.01	485473				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.66	0.01	642608				



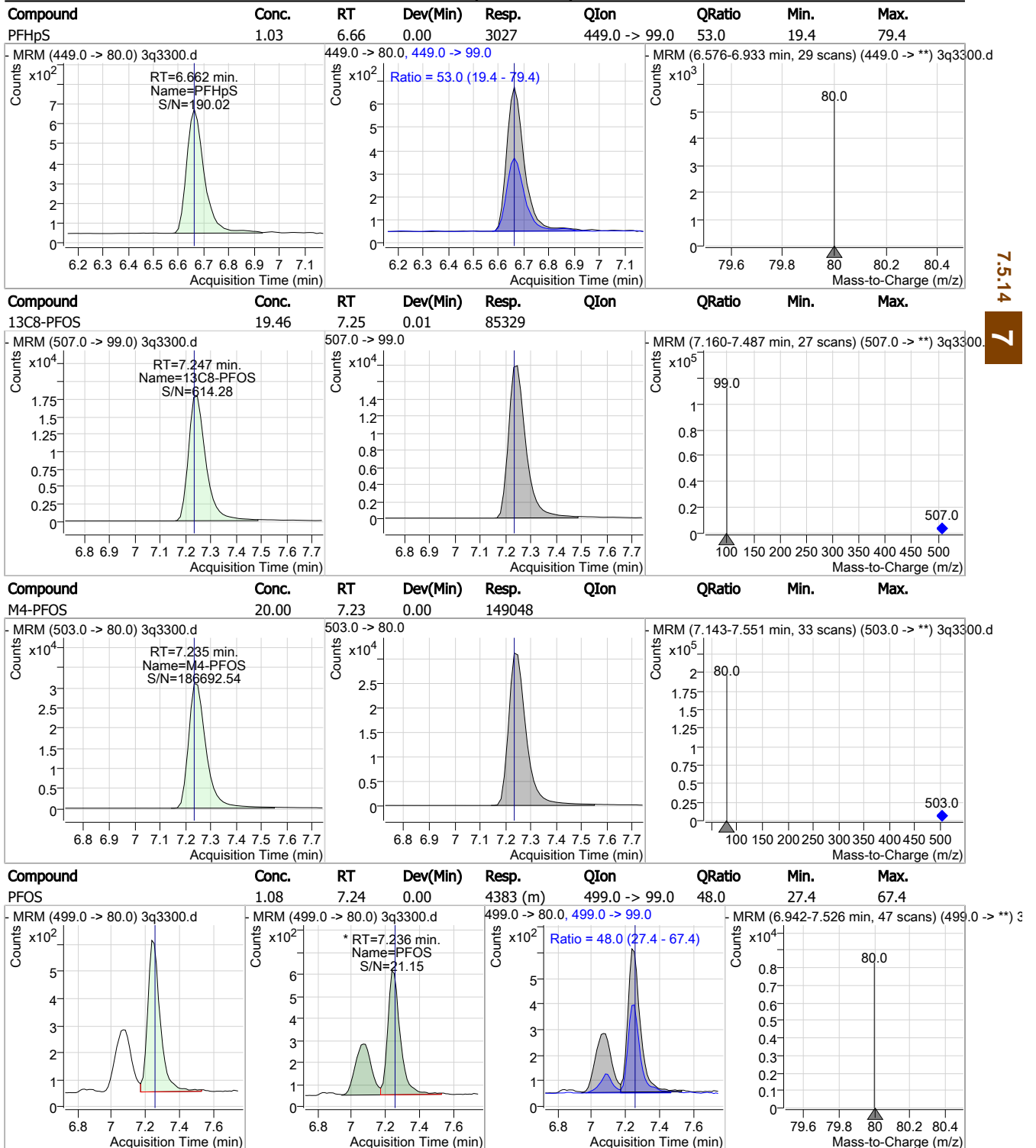
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.00	6.65	0.00	13575	413.0 ->	169.0 34.8	14.8	54.8



7.5.14 7

Cal Report: 3Q3300.D

Perfluorinated Compounds by LC/MS/MS

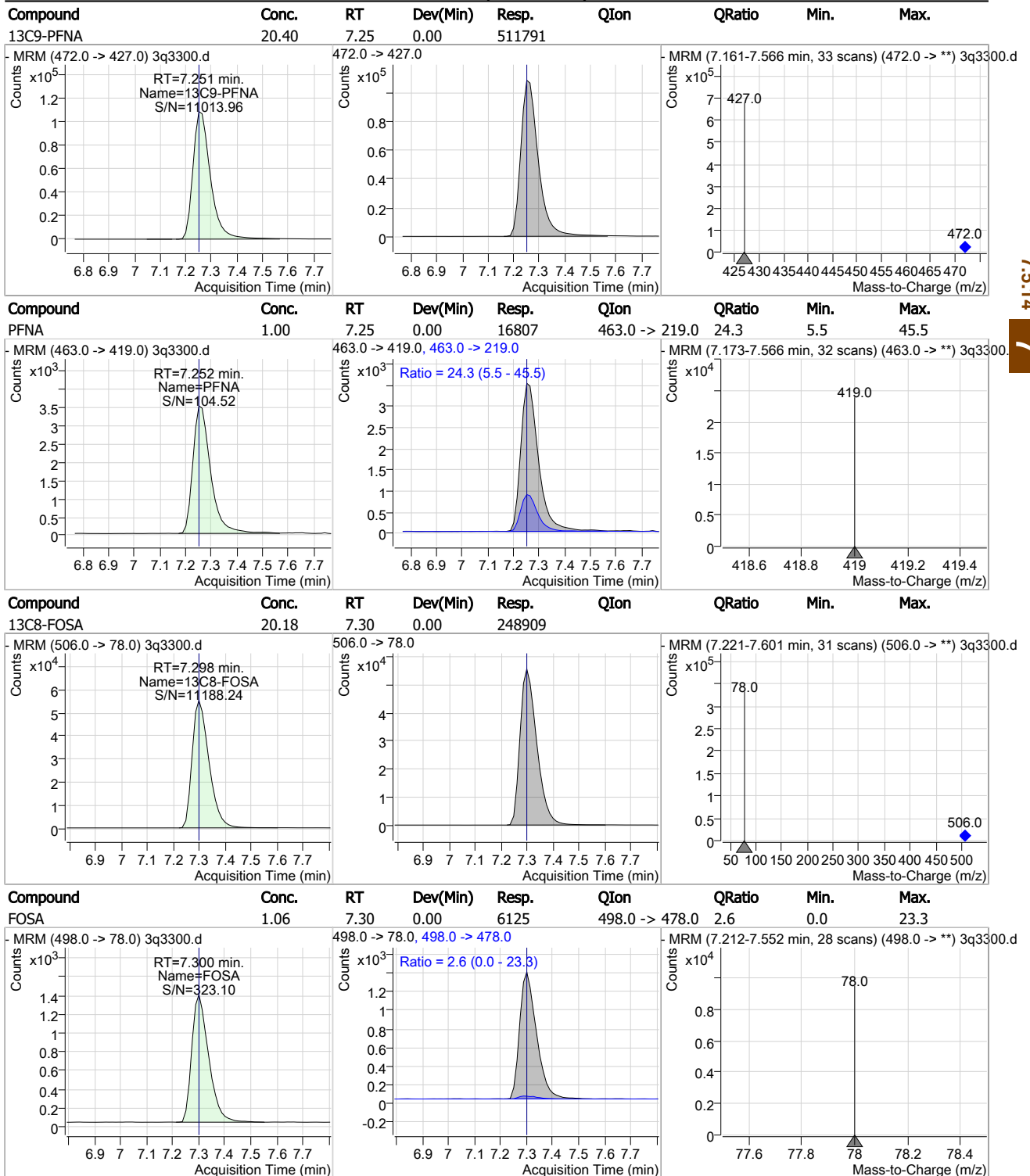


7.5.14

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Cal Report: 3Q3300.D

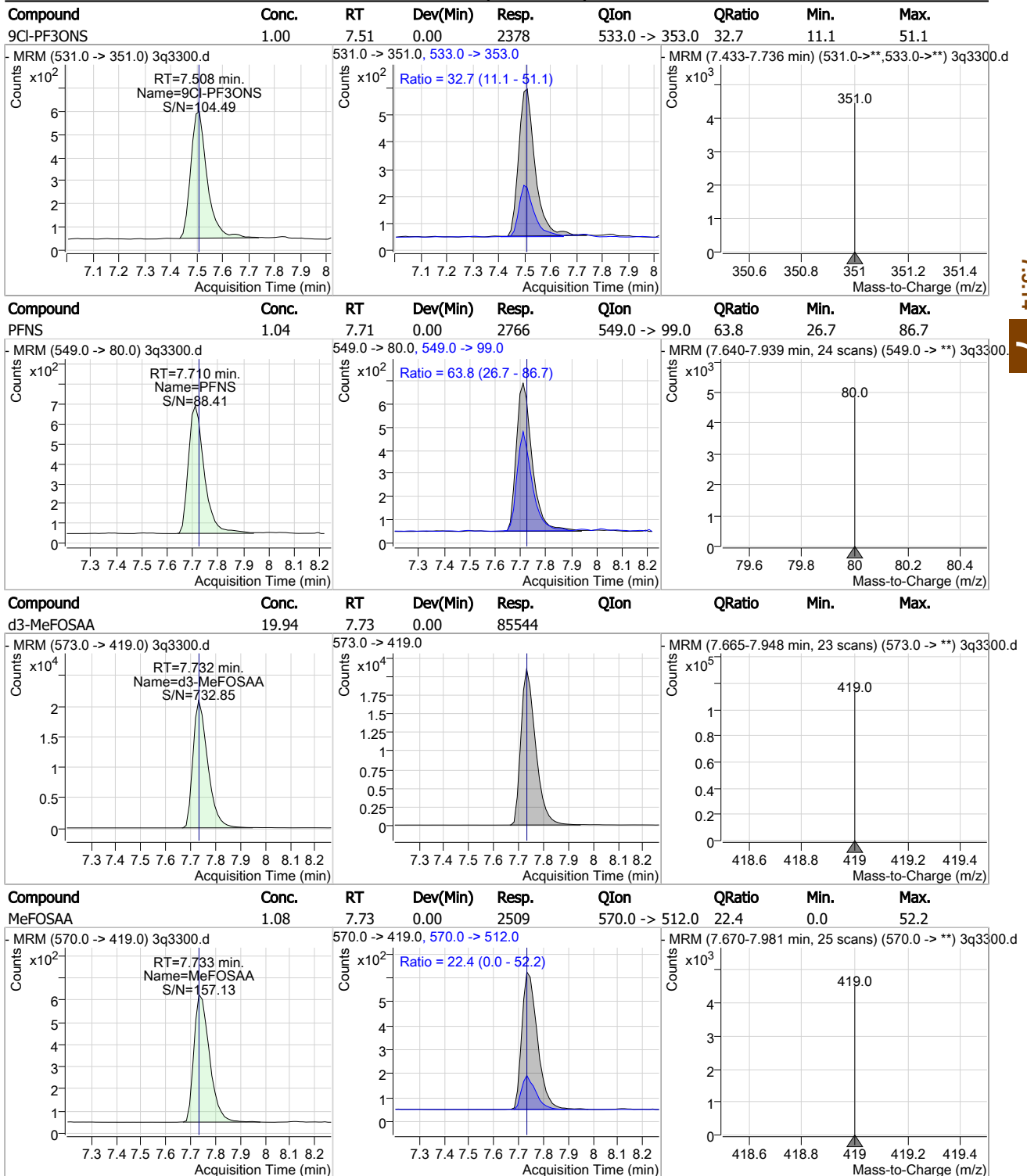
Perfluorinated Compounds by LC/MS/MS



7.5.14
7

Cal Report: 3Q3300.D

Perfluorinated Compounds by LC/MS/MS

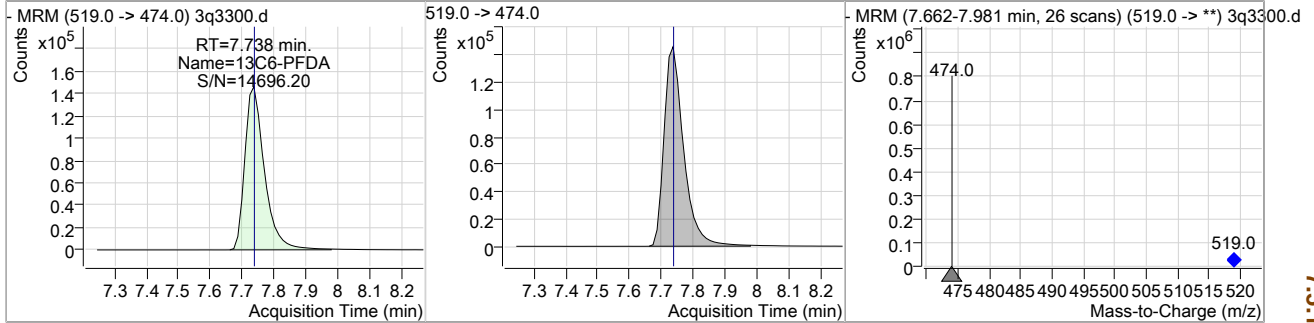


7.5.14 7

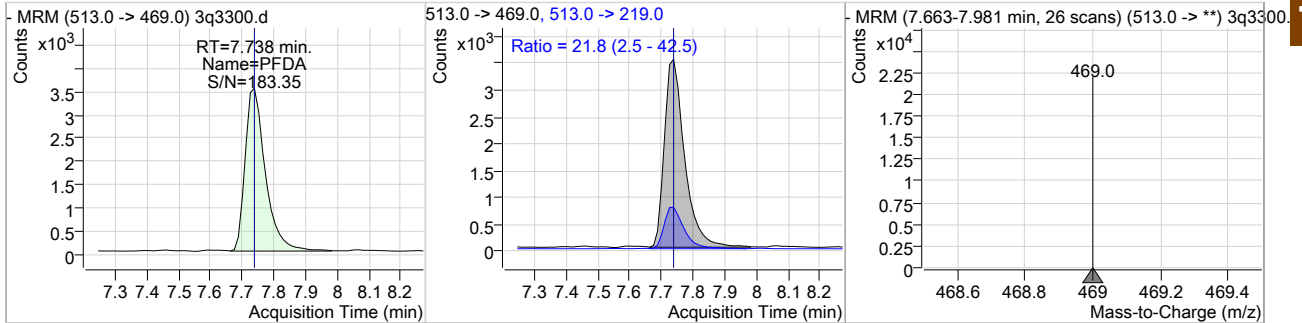
Cal Report: 3Q3300.D

Perfluorinated Compounds by LC/MS/MS

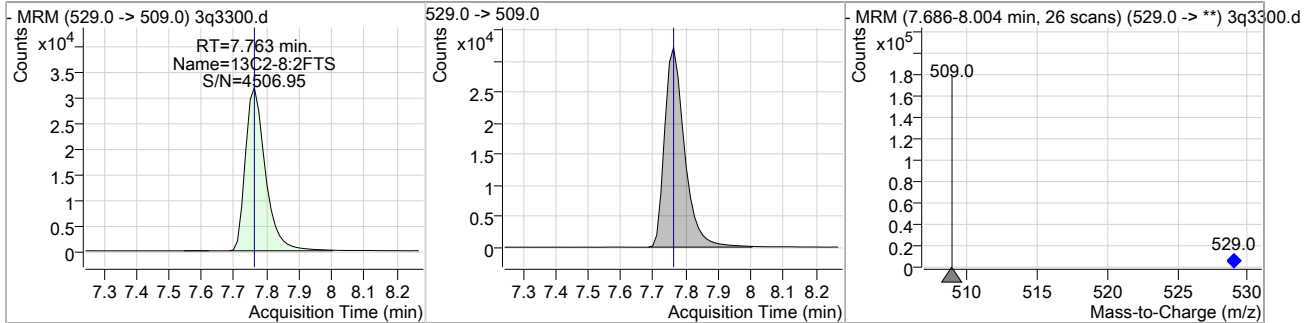
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.09	7.74	0.00	621820				



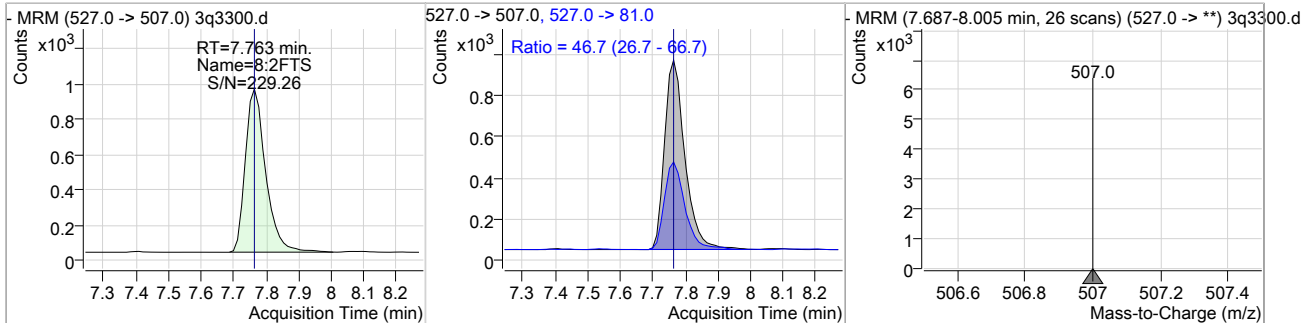
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.01	7.74	0.00	15514	513.0 -> 219.0	21.8	2.5	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	17.86	7.76	0.00	136368				



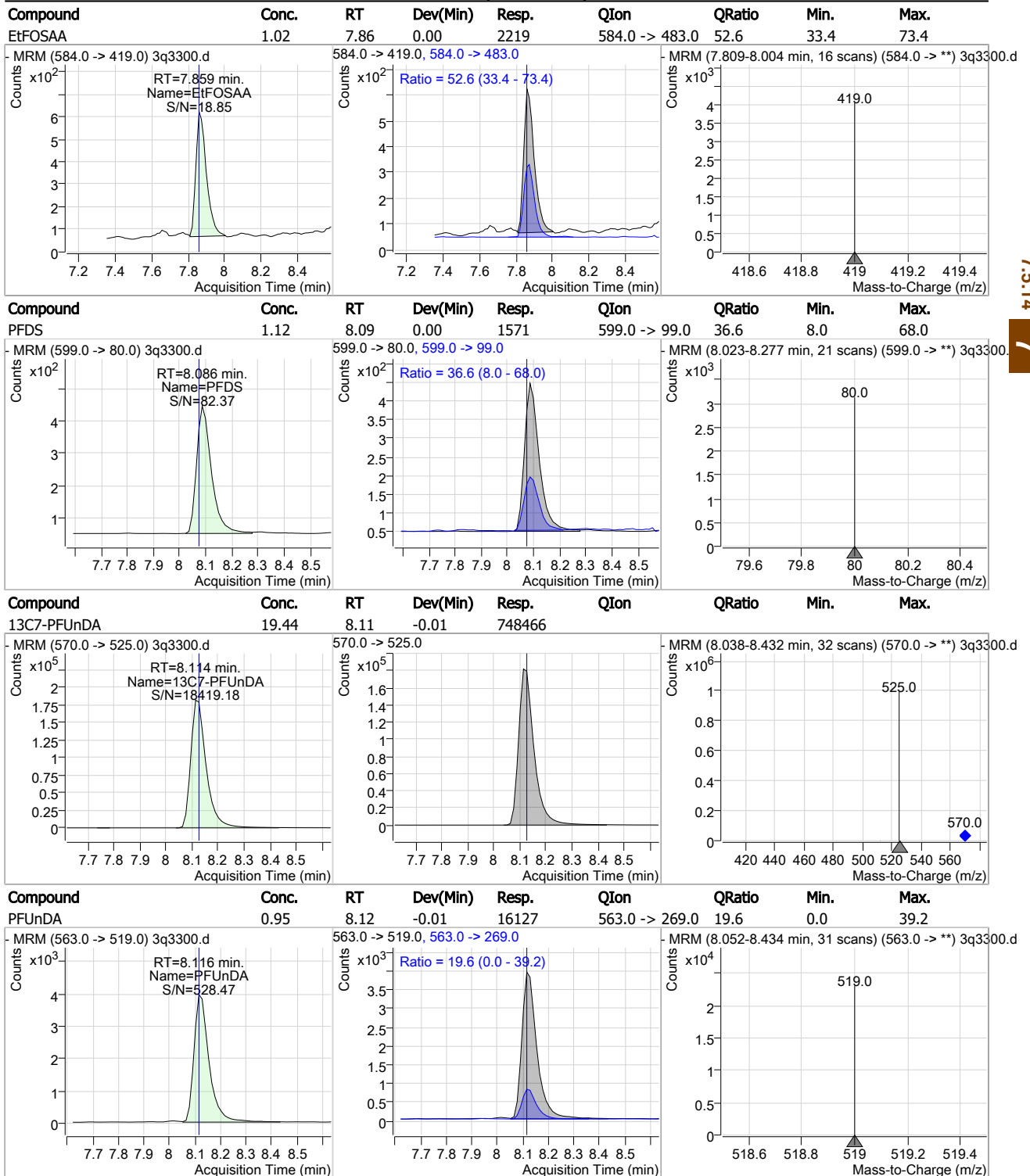
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.11	7.76	0.00	4009	527.0 -> 81.0	46.7	26.7	66.7



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Cal Report: 3Q3300.D

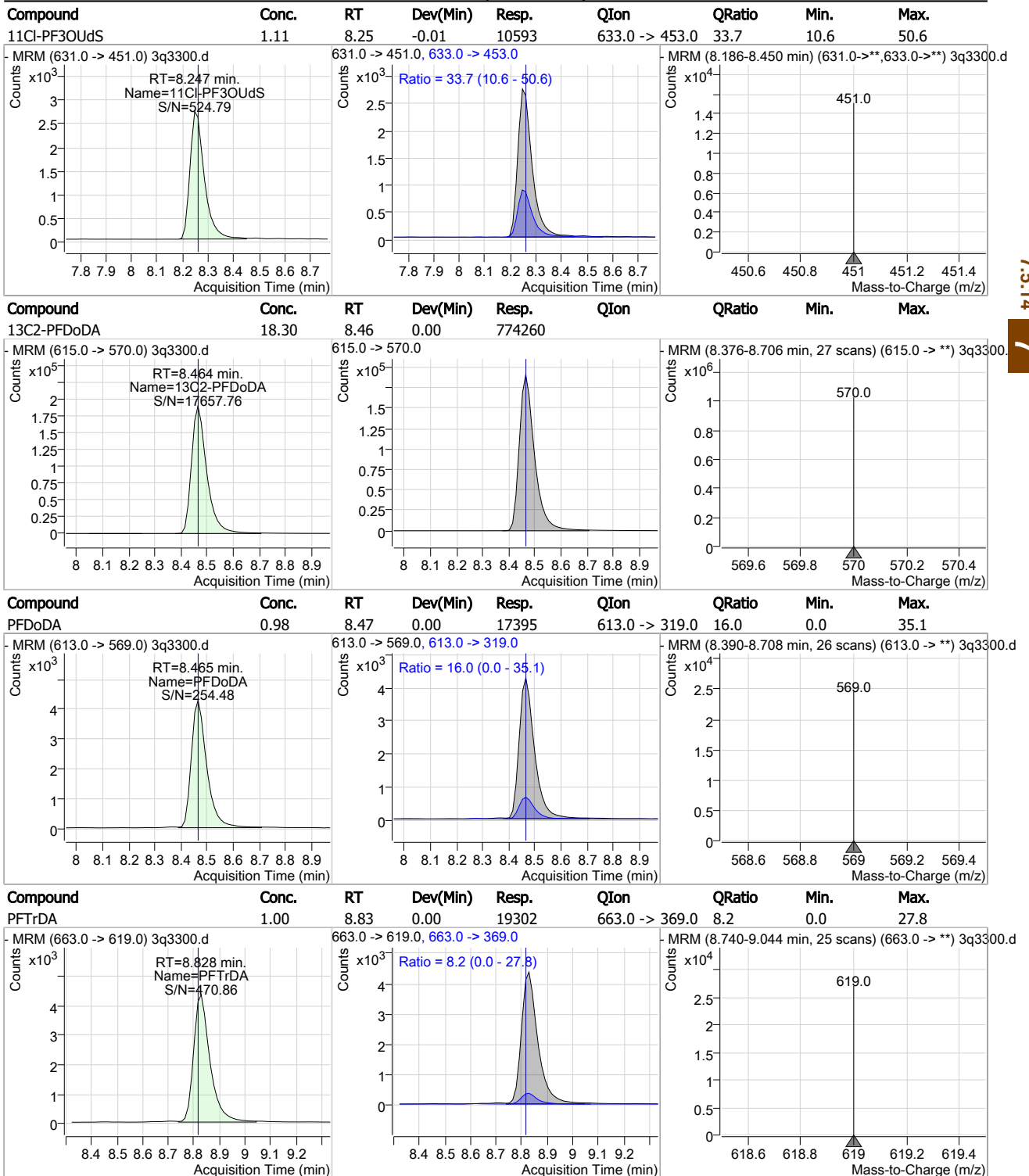
Perfluorinated Compounds by LC/MS/MS



7.5.14
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Cal Report: 3Q3300.D

Perfluorinated Compounds by LC/MS/MS



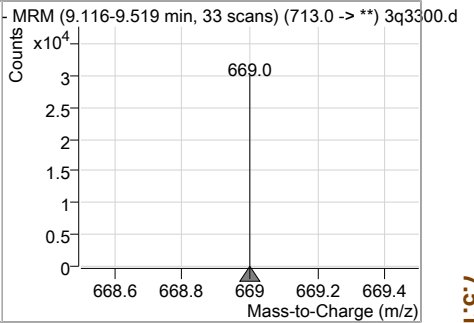
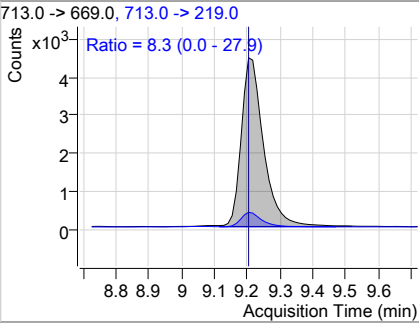
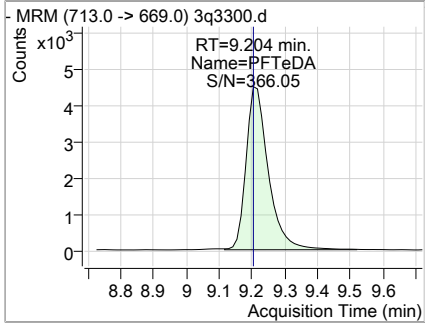
7.5.14

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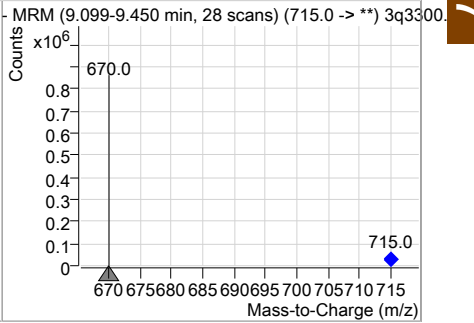
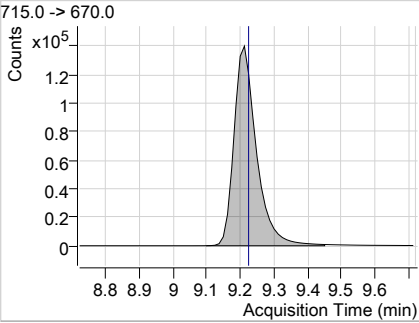
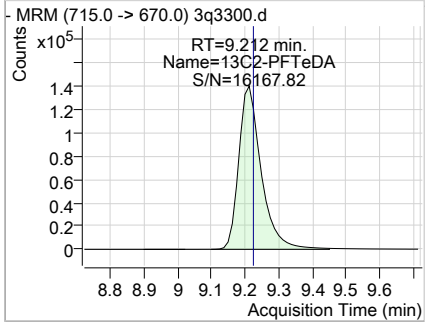
Cal Report: **3Q3300.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.02	9.20	-0.01	20974	713.0 -> 219.0	8.3	0.0	27.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	17.24	9.21	-0.01	644350				



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Manual Integration Approval Summary

Sample Number: S3Q84-CC83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3300.D **Analyst approved:** 04/29/19 11:47 Natasha Gumtie
Injection Time: 04/26/19 09:36 **Supervisor approved:** 04/29/19 15:02 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.97	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.24	Split peak

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Cal Report: 3Q3301.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/29/19 15:02

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3301.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/26/2019 9:51:50 AM
 Sample Name : cc83-20
 Vial : P3-A7
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q84.batch.bin
 Sample Information : op74736,S3Q84,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.714	217.0 -> 172.0	345073	20.00 µg/L	-0.013
M5-PFPeA	3.573	268.0 -> 223.0	249998	20.00 µg/L	-0.013
M5-PFHxA	4.975	318.0 -> 273.0	377654	20.00 µg/L	0.000
M4-PFHpA	5.928	367.0 -> 322.0	467641	20.00 µg/L	0.011
M8-PFOA	6.656	421.0 -> 376.0	497416	20.00 µg/L	0.012
M9-PFNA	7.264	472.0 -> 427.0	519075	20.00 µg/L	0.012
M6-PFDA	7.738	519.0 -> 474.0	627026	20.00 µg/L	-0.002
M7-PFUnDA	8.127	570.0 -> 525.0	764561	20.00 µg/L	0.000
M2-PFDoDA	8.464	615.0 -> 570.0	807141	20.00 µg/L	-0.001
M2-PFTeDA	9.212	715.0 -> 670.0	669676	20.00 µg/L	-0.012
M8-FOSA	7.298	506.0 -> 78.0	248720	20.00 µg/L	0.000
M3-PFBS	3.892	302.0 -> 99.0	49905	20.00 µg/L	0.000
M3-PFHxS	5.972	402.0 -> 99.0	54645	20.00 µg/L	0.000
M8-PFOS	7.247	507.0 -> 99.0	86600	20.00 µg/L	0.012
M2-4:2FTS	4.871	329.0 -> 309.0	150030	20.00 µg/L	0.000
M2-6:2FTS	6.639	429.0 -> 409.0	191425	20.00 µg/L	0.000
M2-8:2FTS	7.763	529.0 -> 509.0	151961	20.00 µg/L	0.000
M3-MeFOSAA	7.732	573.0 -> 419.0	89153	20.00 µg/L	-0.001
M3-HFPO-DA	5.280	287.0 -> 169.0	201100	100.00 µg/L	0.000
13C2-PFOA	6.658	415.0 -> 370.0	646782	20.00 µg/L	0.012
13C4-PFOS	7.249	503.0 -> 80.0	148240	20.00 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	4.871	329.0 -> 309.0	148555	20.44 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-6:2FTS	6.639	429.0 -> 409.0	190444	20.24 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C2-8:2FTS	7.763	529.0 -> 509.0	151964	19.90 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C2-PFDoDA	8.464	615.0 -> 570.0	808358	19.11 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C2-PFTeDA	9.212	715.0 -> 670.0	667684	17.87 µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 89.3%		
13C3-PFBS	3.892	302.0 -> 99.0	49723	20.03 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	5.972	402.0 -> 99.0	54014	20.15 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C4-PFBA	1.714	217.0 -> 172.0	344724	20.38 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C4-PFHpA	5.928	367.0 -> 322.0	464039	20.64 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C5-PFHxA	4.975	318.0 -> 273.0	372790	20.26 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C5-PFPeA	3.573	268.0 -> 223.0	253411	20.47 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C6-PFDA	7.738	519.0 -> 474.0	627035	20.26 µg/L	-0.002

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Cal Report: 3Q3301.D

Perfluorinated Compounds by LC/MS/MS

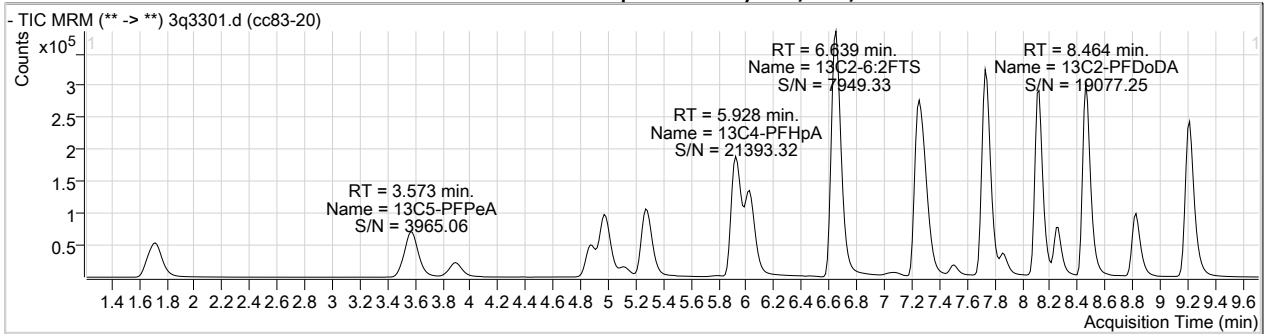
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)	QValue
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C7-PFUnDA	8.127	570.0 -> 525.0	764805	19.87 µg/L	0.000	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.3%		
13C8-FOSA	7.298	506.0 -> 78.0	248435	20.14 µg/L	0.000	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C8-PFOA	6.656	421.0 -> 376.0	495008	20.46 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C8-PFOS	7.247	507.0 -> 99.0	86468	19.72 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.6%		
13C9-PFNA	7.264	472.0 -> 427.0	516806	20.60 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.0%		
d3-MeFOSAA	7.732	573.0 -> 419.0	89313	20.82 µg/L	-0.001	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C3-HFPO-DA	5.280	287.0 -> 169.0	201100	95.65 µg/L	0.000	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 95.7%		
M2-PFOA	6.658	415.0 -> 370.0	646782	20.00 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.249	503.0 -> 80.0	148240	20.00 µg/L	0.012	
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						
4:2FTS	4.873	327.0 -> 307.0	92822	20.80 µg/L	99	
6:2FTS	6.641	427.0 -> 407.0	99653	20.76 µg/L	100	
8:2FTS	7.763	527.0 -> 507.0	83549	20.81 µg/L	97	
EtFOSAA	7.872	584.0 -> 419.0	44426	19.68 µg/L	98	
FOSA	7.300	498.0 -> 78.0	125424	21.17 µg/L	100	
MeFOSAA	7.733	570.0 -> 419.0	48312	20.07 µg/L	99	
PFBA	1.723	213.0 -> 169.0	65010	20.23 µg/L	100	
PFBS	3.895	299.0 -> 80.0	69161	20.57 µg/L	100	
PFDA	7.738	513.0 -> 469.0	311642	20.25 µg/L	99	
PFDoDA	8.465	613.0 -> 569.0	370726	19.99 µg/L	100	
PFDS	8.086	599.0 -> 80.0	29821	20.75 µg/L	99	
PFHpA	5.930	363.0 -> 319.0	452216	20.22 µg/L	100	
PFHpS	6.662	449.0 -> 80.0	61789	20.63 µg/L	98	
PFHxA	4.977	313.0 -> 269.0	142531	20.11 µg/L	100	
PFHxS	5.974	399.0 -> 80.0	64577	20.29 µg/L	m 99	
PFNA	7.264	463.0 -> 419.0	340507	20.10 µg/L	100	
PFNS	7.710	549.0 -> 80.0	57030	21.15 µg/L	98	
PFOA	6.660	413.0 -> 369.0	276401	19.94 µg/L	99	
PFOS	7.249	499.0 -> 80.0	82823	20.06 µg/L	m 99	
PFPeA	3.577	263.0 -> 219.0	267266	20.58 µg/L	100	
PFPeS	5.119	349.0 -> 80.0	47232	21.61 µg/L	99	
PFTeDA	9.216	713.0 -> 669.0	429981	20.19 µg/L	100	
PFTrDA	8.828	663.0 -> 619.0	406410	20.28 µg/L	100	
PFUnDA	8.128	563.0 -> 519.0	344504	19.91 µg/L	99	
11Cl-PF3OUdS	8.260	631.0 -> 451.0	223713	22.43 µg/L	99	
9Cl-PF3ONS	7.508	531.0 -> 351.0	50372	20.67 µg/L	100	
ADONA	6.027	377.0 -> 251.0	579812	20.51 µg/L	100	
HFPO-DA	5.284	329.0 -> 169.0	335472	106.94 µg/L	99	

7.5.15
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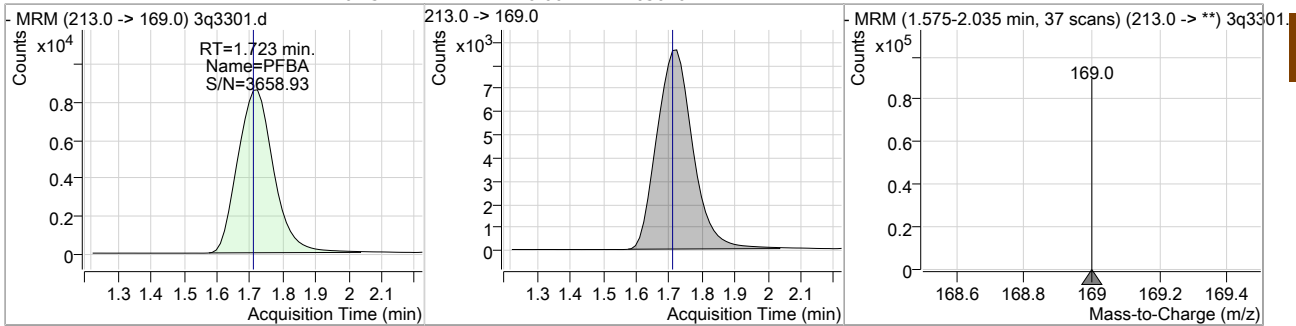
= Qualifier out of range, m = manually integrated, + = Area summed

Cal Report: 3Q3301.D

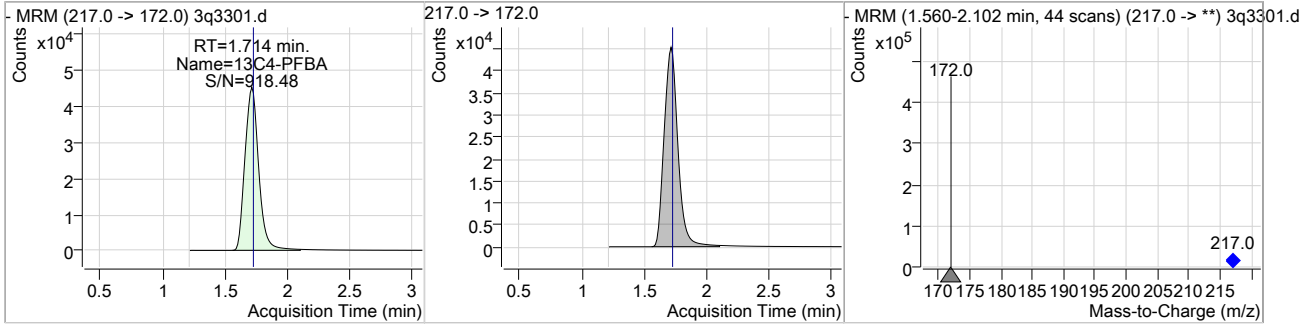
Perfluorinated Compounds by LC/MS/MS



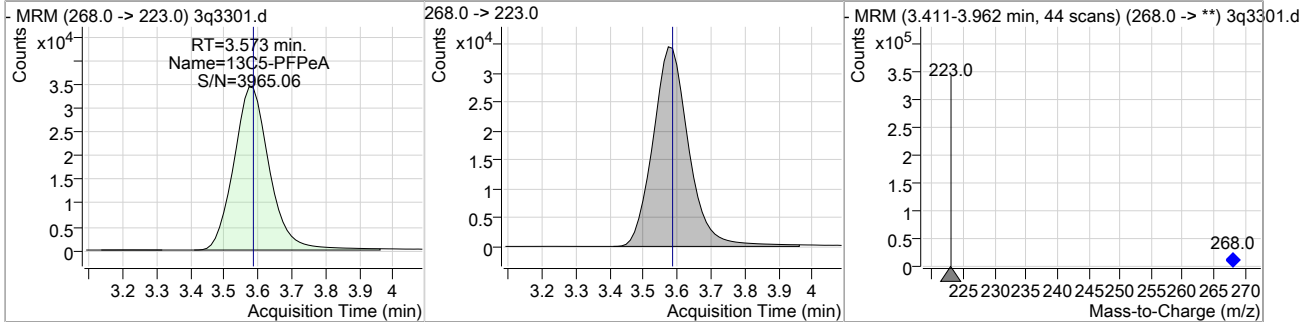
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	20.23	1.72	0.00	65010				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.38	1.71	-0.01	344724				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.47	3.57	-0.01	253411				

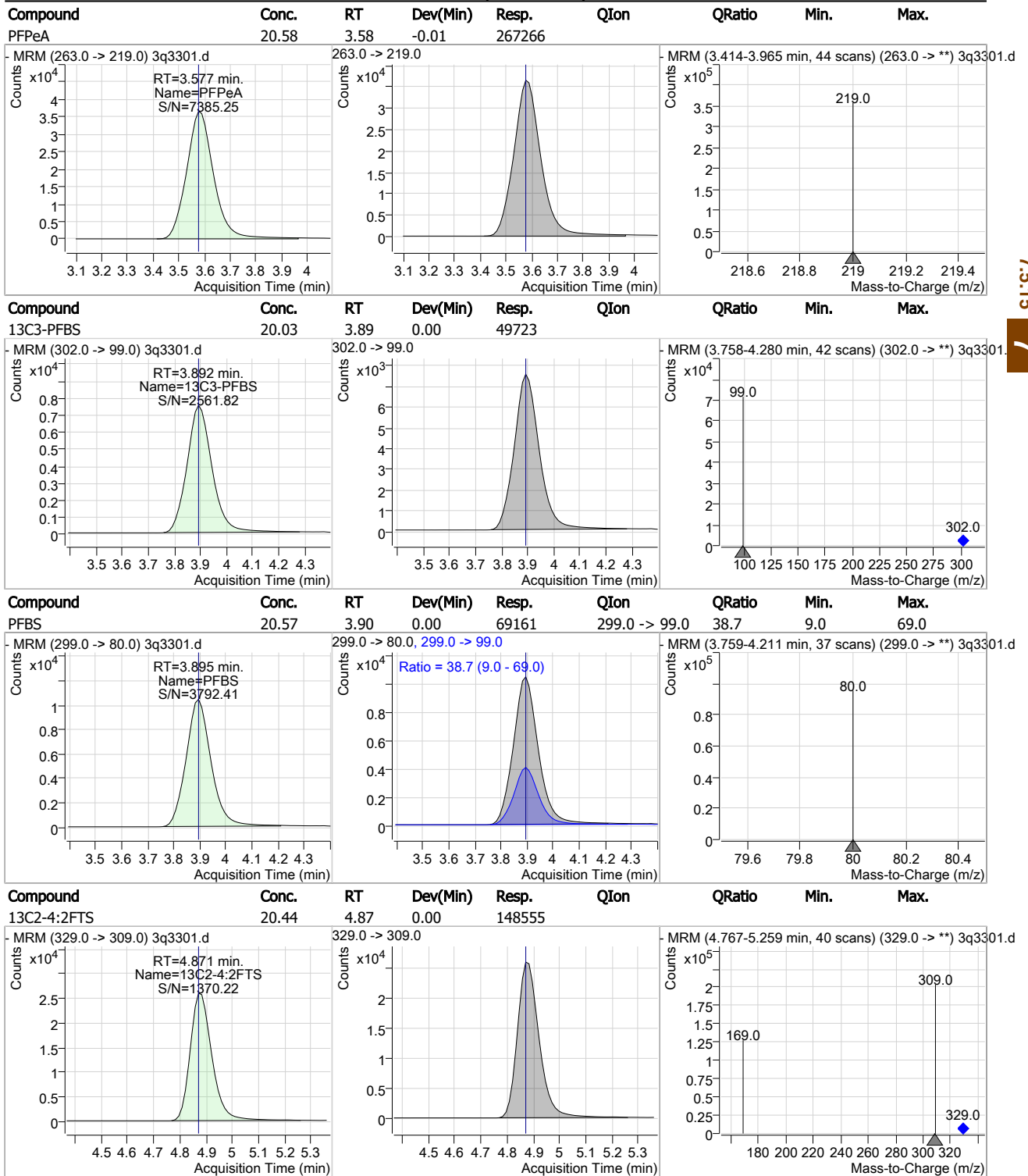


7.5.15

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Cal Report: 3Q3301.D

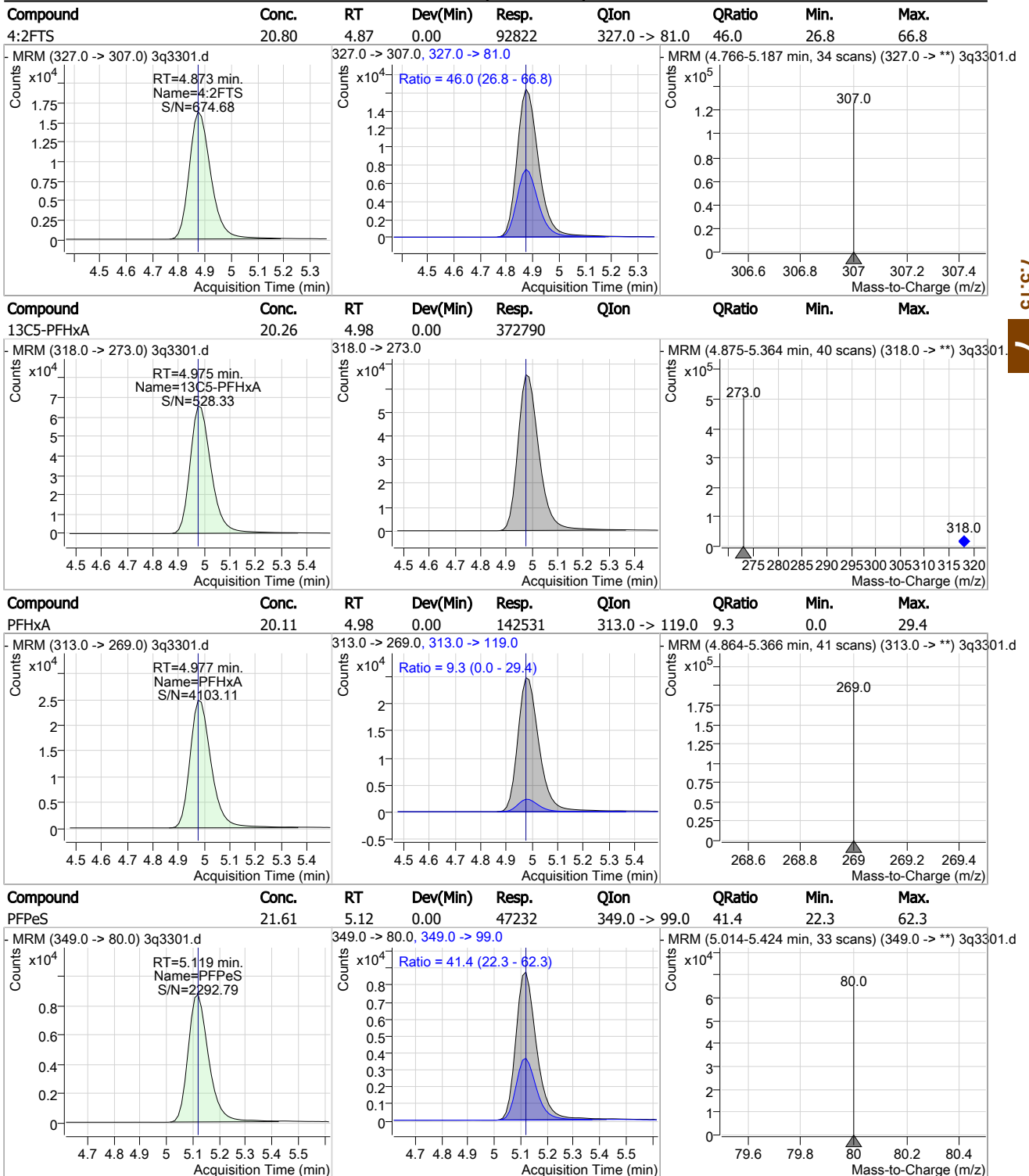
Perfluorinated Compounds by LC/MS/MS



7.5.15 7

Cal Report: 3Q3301.D

Perfluorinated Compounds by LC/MS/MS

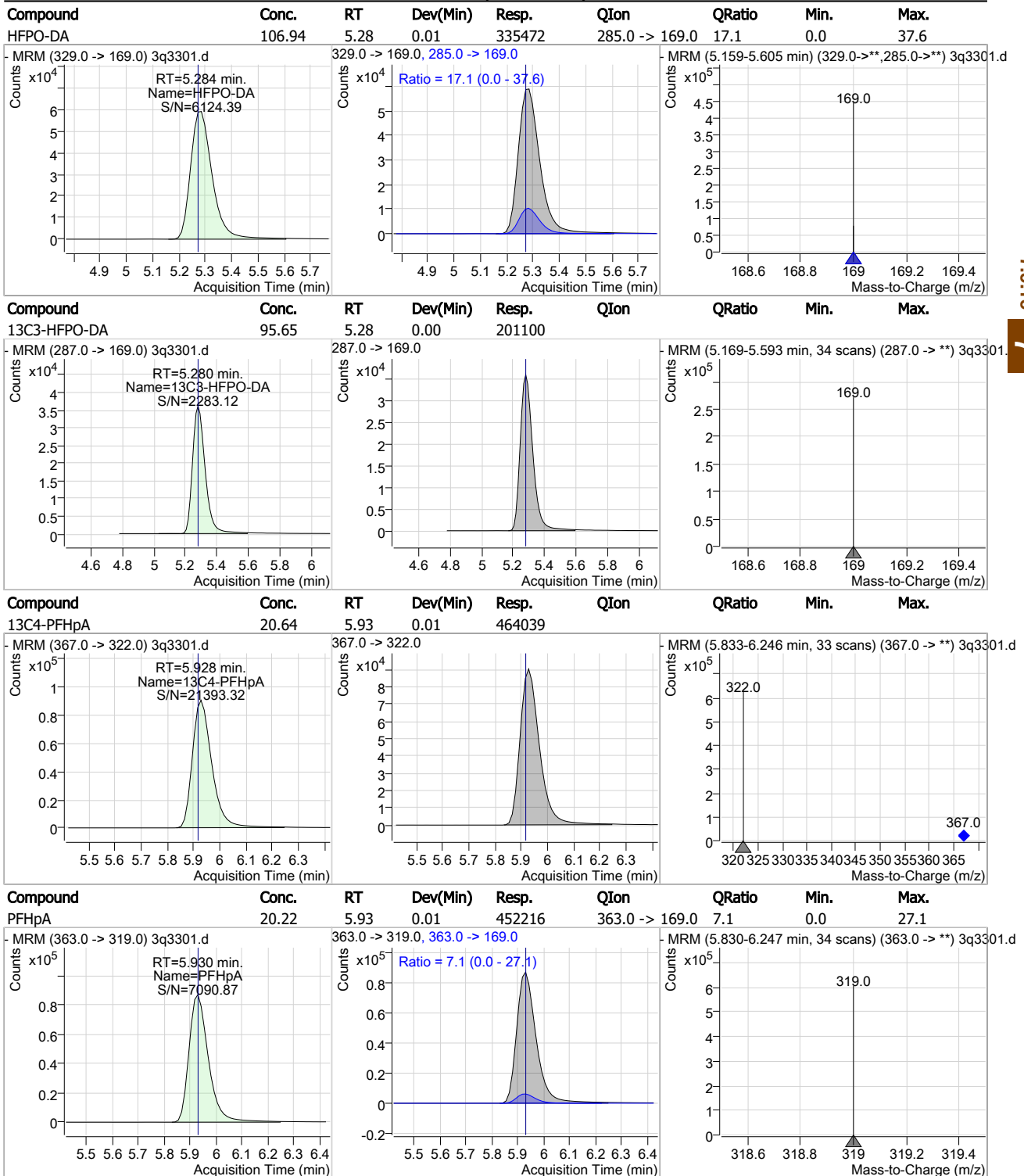


7.5.15

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Cal Report: 3Q3301.D

Perfluorinated Compounds by LC/MS/MS

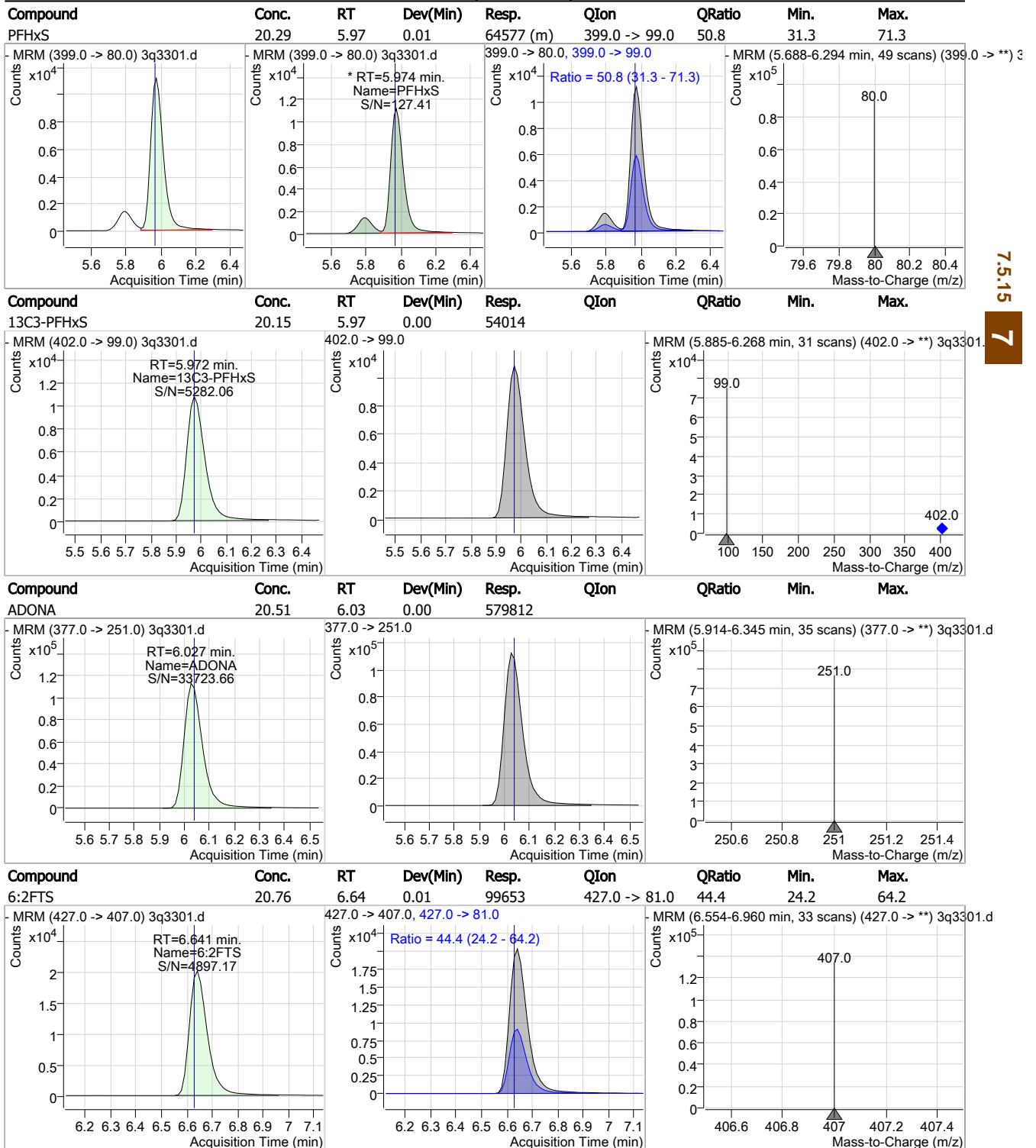


7.5.15

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Cal Report: 3Q3301.D

Perfluorinated Compounds by LC/MS/MS

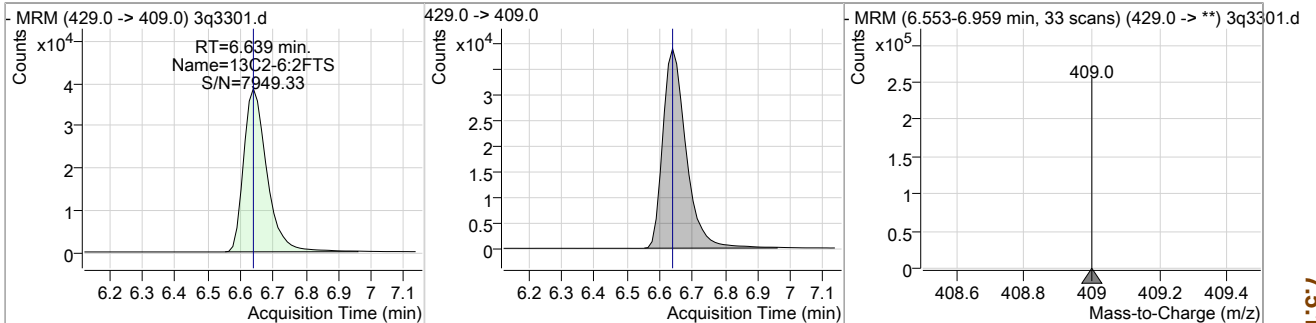


7.5.15
7

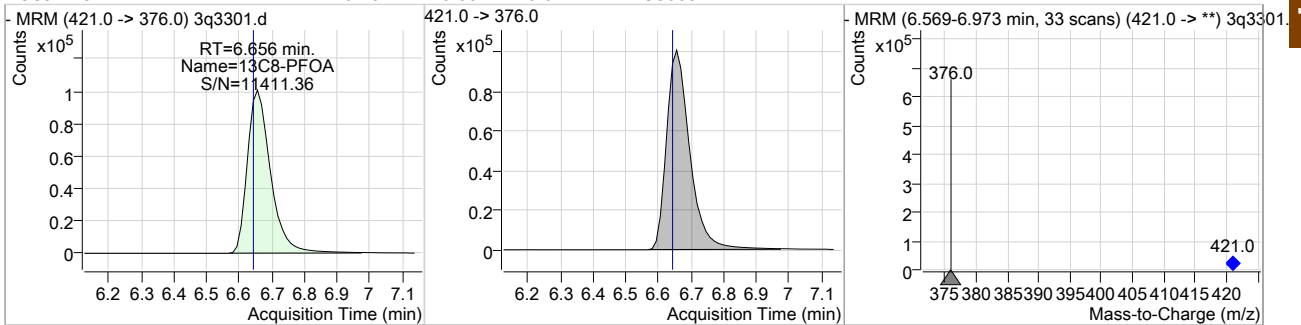
Cal Report: 3Q3301.D

Perfluorinated Compounds by LC/MS/MS

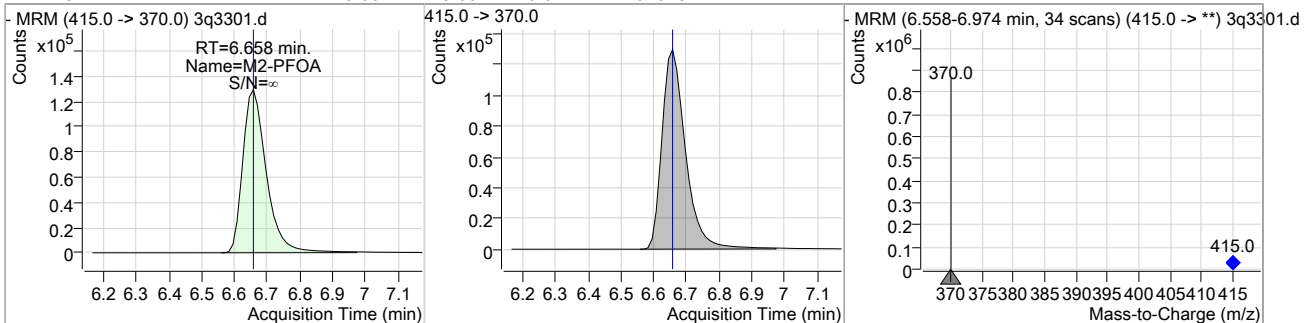
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.24	6.64	0.00	190444				



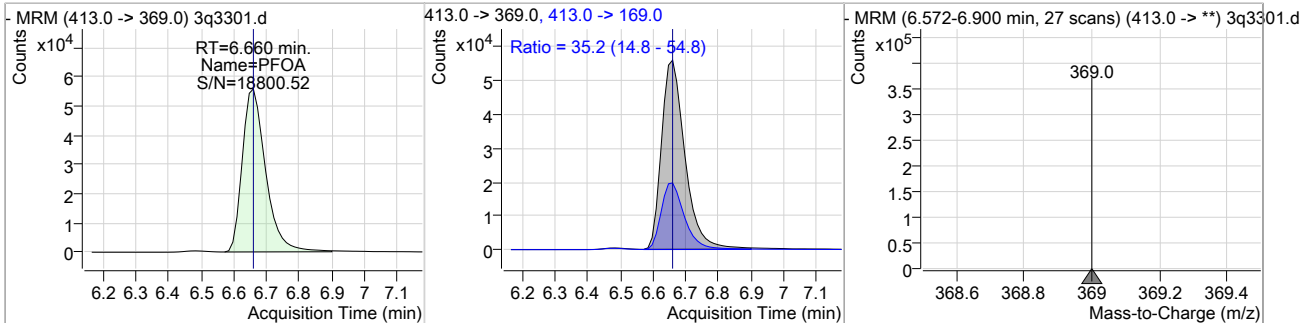
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.46	6.66	0.01	495008				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.66	0.01	646782				



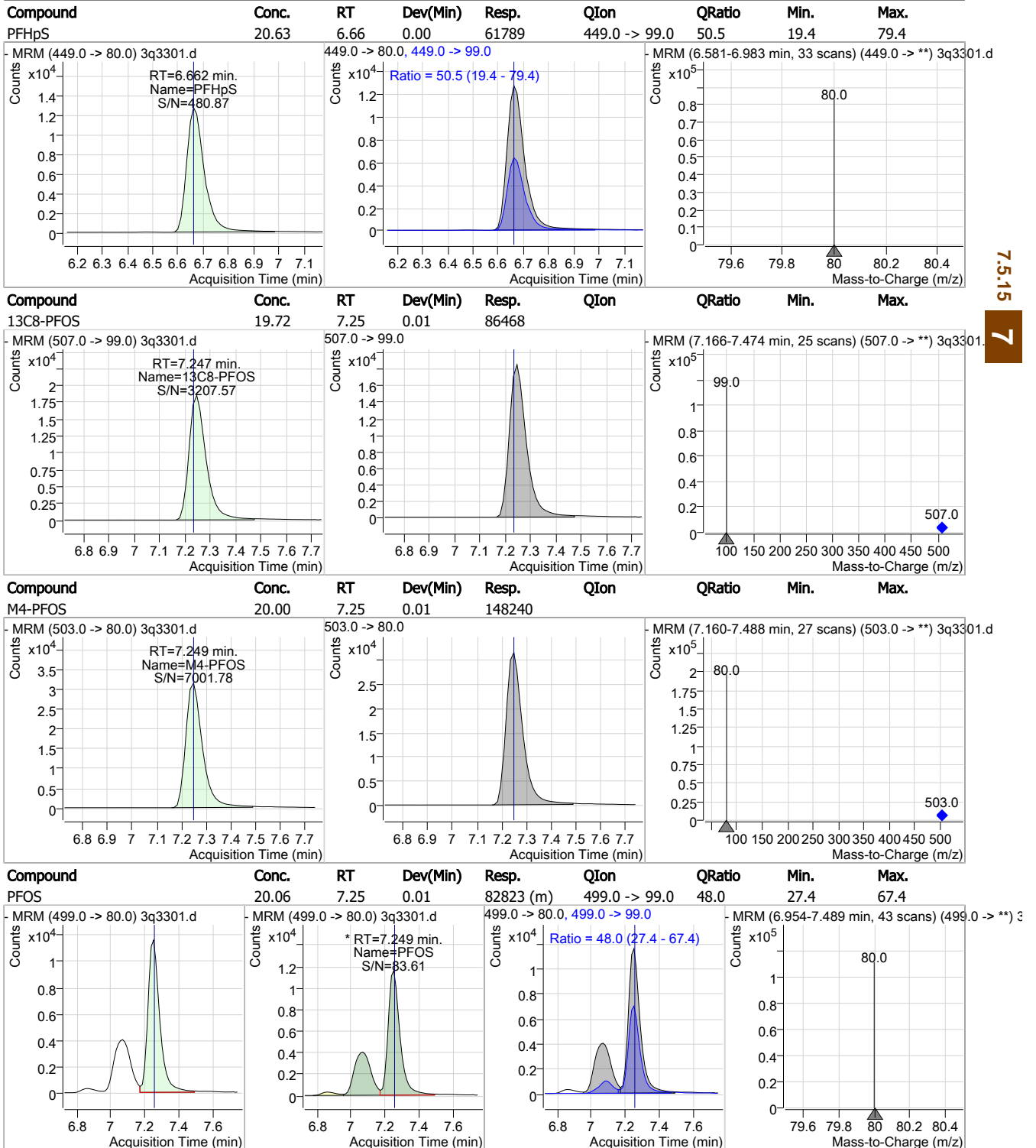
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.94	6.66	0.01	276401	413.0 ->	169.0 35.2	14.8	54.8



7.5.15 7

Cal Report: 3Q3301.D

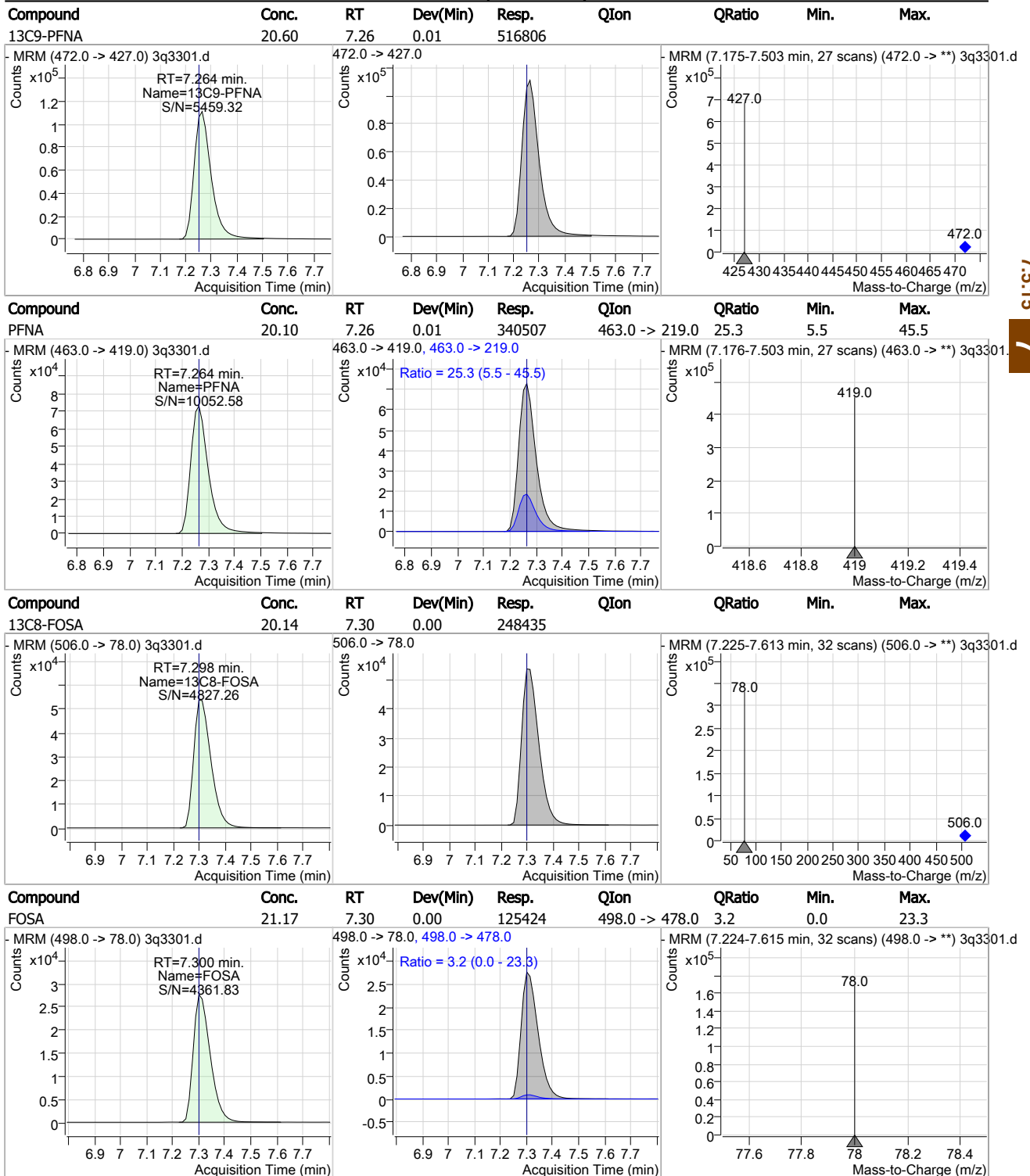
Perfluorinated Compounds by LC/MS/MS



7.5.15 7

Cal Report: 3Q3301.D

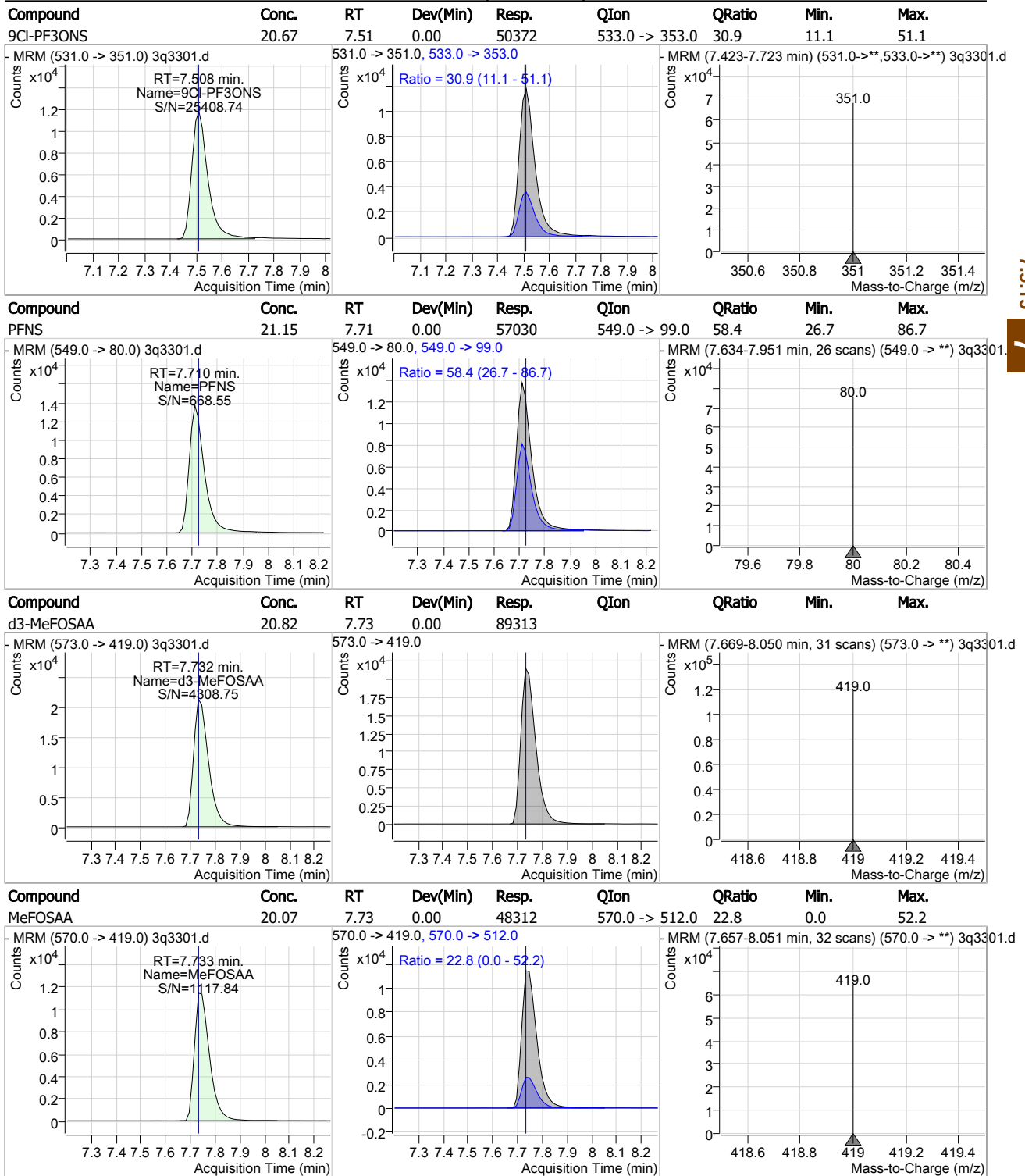
Perfluorinated Compounds by LC/MS/MS



7.5.15 7

Cal Report: 3Q3301.D

Perfluorinated Compounds by LC/MS/MS

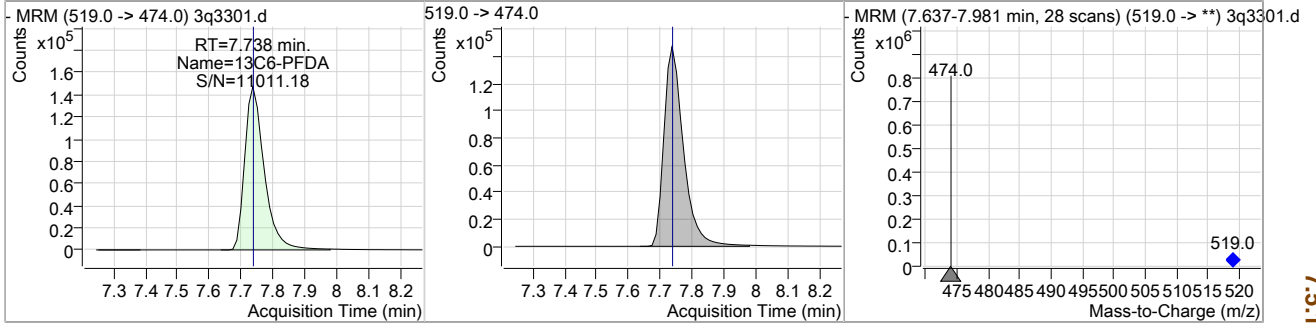


7.5.15 7

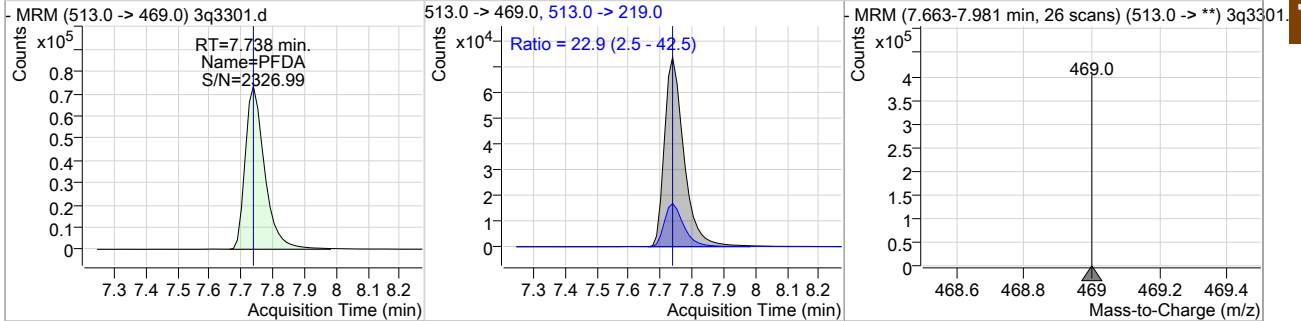
Cal Report: 3Q3301.D

Perfluorinated Compounds by LC/MS/MS

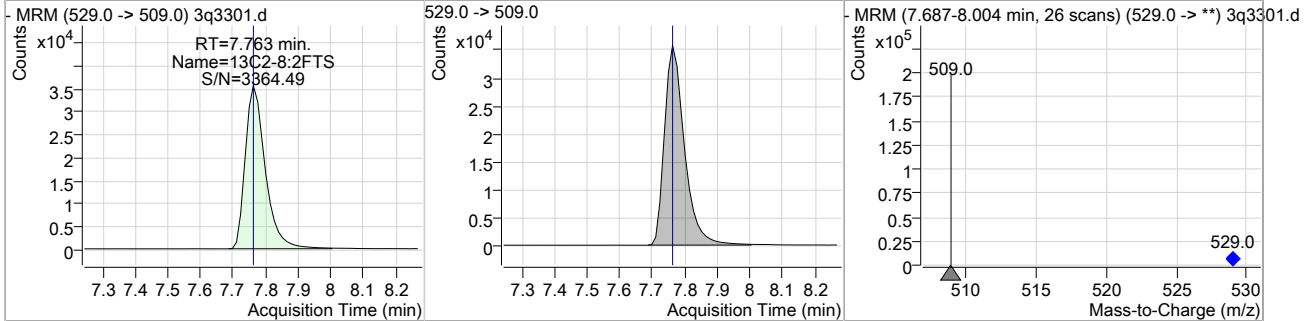
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.26	7.74	0.00	627035				



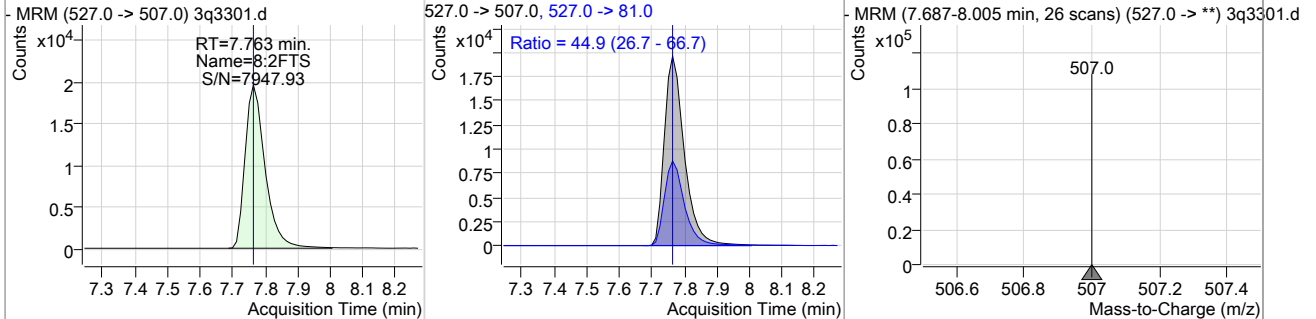
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.25	7.74	0.00	311642	513.0 ->	219.0 22.9	2.5	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.90	7.76	0.00	151964				



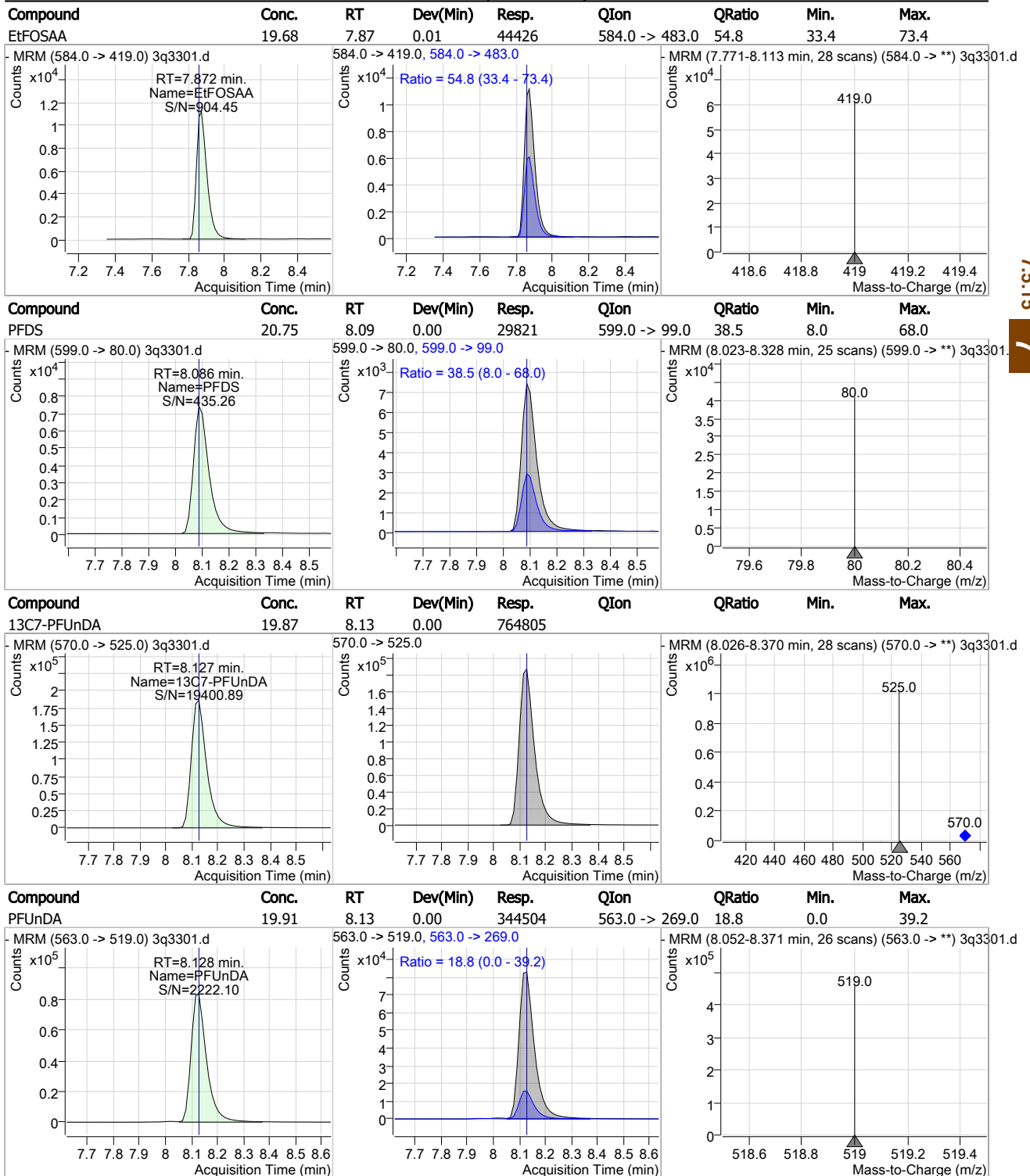
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.81	7.76	0.00	83549	527.0 ->	81.0 44.9	26.7	66.7



7.5.15
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Cal Report: 3Q3301.D

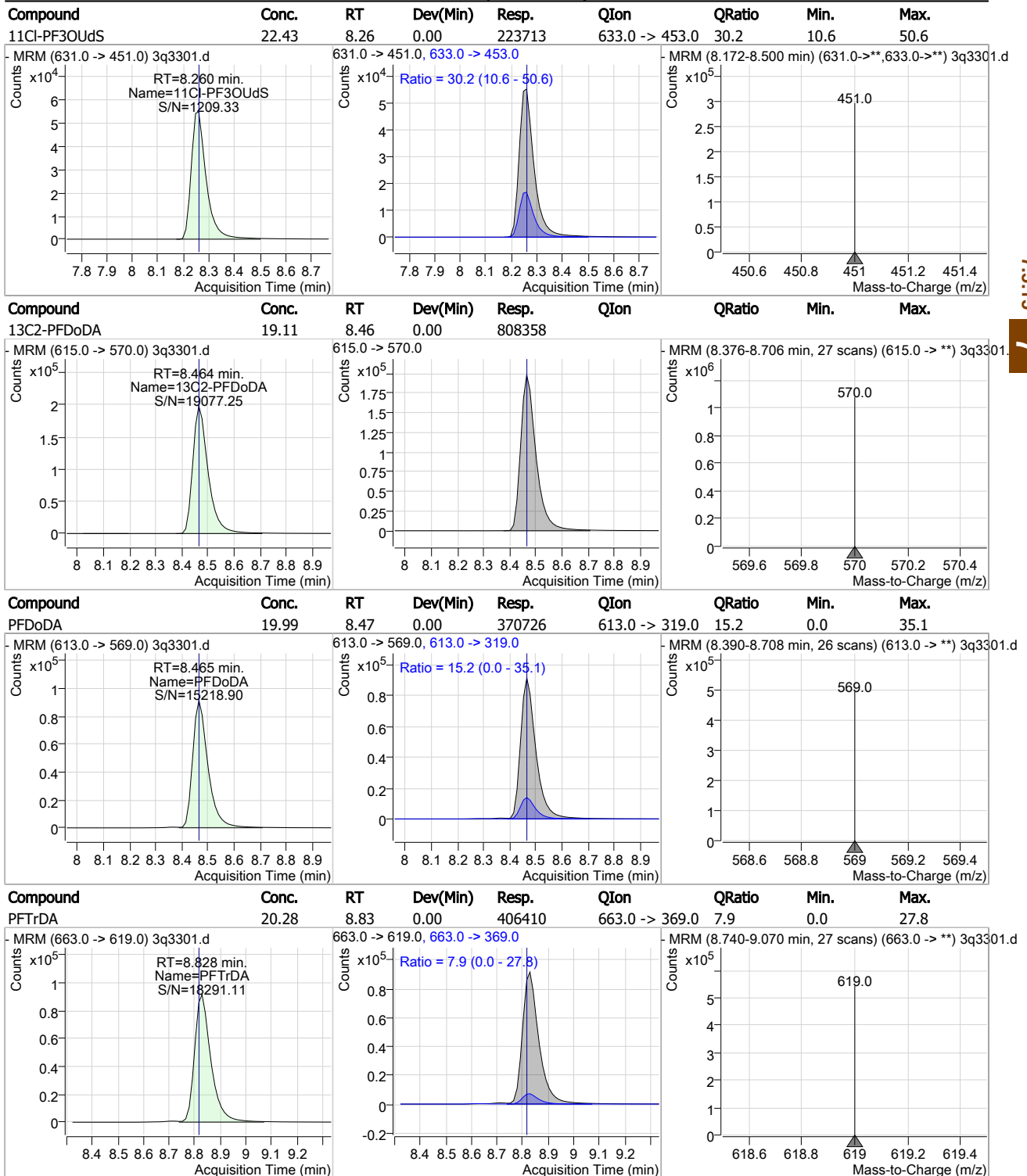
Perfluorinated Compounds by LC/MS/MS



7.5.15
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Cal Report: 3Q3301.D

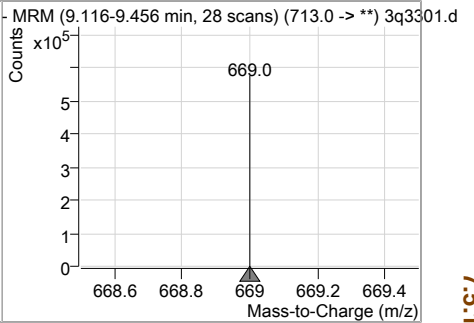
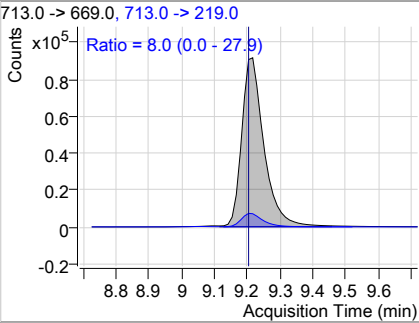
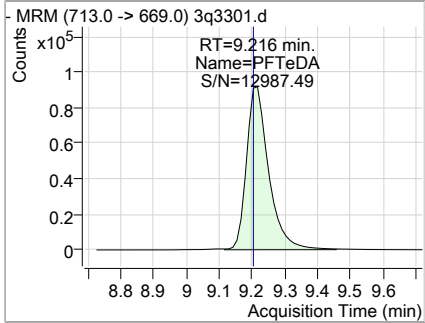
Perfluorinated Compounds by LC/MS/MS



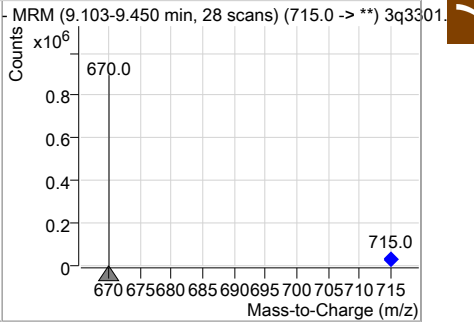
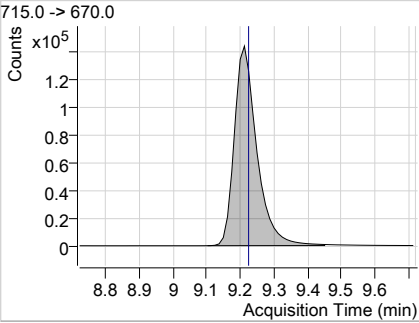
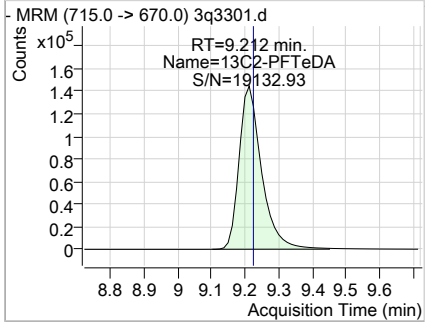
Cal Report: **3Q3301.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.19	9.22	0.00	429981	713.0 -> 219.0	8.0	0.0	27.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	17.87	9.21	-0.01	667684				



7.5.15

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Manual Integration Approval Summary

Sample Number: S3Q84-CC83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3301.D **Analyst approved:** 04/29/19 11:47 Natasha Gumtie
Injection Time: 04/26/19 09:51 **Supervisor approved:** 04/29/19 15:02 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.97	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.25	Split peak

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Cal Report: 3Q3307.D

Manual Integrations
 APPROVED
 (compounds with "m" flag)
 Mike Eger
 04/29/19 15:02

Perfluorinated Compounds by LC/MS/MS

Data File : 3q3307.d
 Operator : natashag
 Acq. Method : 537_ID.m
 Acq. Date-Time : 4/26/2019 11:25:32 AM
 Sample Name : cc83-20
 Vial : P3-A7
 DA Method File : 537_ID_042519_S3Q83.quantmethod.xml
 Batch Name : s3q84.batch.bin
 Sample Information : op74736,S3Q84,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	1.714	217.0 -> 172.0	346854	20.00 µg/L	-0.013
M5-PFPeA	3.586	268.0 -> 223.0	254307	20.00 µg/L	0.000
M5-PFHxA	4.988	318.0 -> 273.0	385133	20.00 µg/L	0.012
M4-PFHpA	5.940	367.0 -> 322.0	474603	20.00 µg/L	0.024
M8-PFOA	6.668	421.0 -> 376.0	508258	20.00 µg/L	0.025
M9-PFNA	7.276	472.0 -> 427.0	524197	20.00 µg/L	0.025
M6-PFDA	7.752	519.0 -> 474.0	646122	20.00 µg/L	0.012
M7-PFUnDA	8.127	570.0 -> 525.0	773987	20.00 µg/L	0.000
M2-PFDoDA	8.477	615.0 -> 570.0	817921	20.00 µg/L	0.012
M2-PFTeDA	9.212	715.0 -> 670.0	693475	20.00 µg/L	-0.012
M8-FOSA	7.311	506.0 -> 78.0	257783	20.00 µg/L	0.012
M3-PFBS	3.904	302.0 -> 99.0	50654	20.00 µg/L	0.012
M3-PFHxS	5.985	402.0 -> 99.0	54827	20.00 µg/L	0.012
M8-PFOS	7.260	507.0 -> 99.0	87230	20.00 µg/L	0.025
M2-4:2FTS	4.883	329.0 -> 309.0	152624	20.00 µg/L	0.012
M2-6:2FTS	6.651	429.0 -> 409.0	195588	20.00 µg/L	0.012
M2-8:2FTS	7.776	529.0 -> 509.0	154457	20.00 µg/L	0.013
M3-MeFOSAA	7.746	573.0 -> 419.0	88927	20.00 µg/L	0.012
M3-HFPO-DA	5.292	287.0 -> 169.0	204531	100.00 µg/L	0.012
13C2-PFOA	6.670	415.0 -> 370.0	657986	20.00 µg/L	0.025
13C4-PFOS	7.261	503.0 -> 80.0	148937	20.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	4.883	329.0 -> 309.0	151108	20.79 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C2-6:2FTS	6.651	429.0 -> 409.0	195238	20.75 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C2-8:2FTS	7.776	529.0 -> 509.0	154345	20.21 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C2-PFDoDA	8.477	615.0 -> 570.0	817925	19.33 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C2-PFTeDA	9.212	715.0 -> 670.0	690966	18.49 µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C3-PFBS	3.904	302.0 -> 99.0	49505	19.94 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C3-PFHxS	5.985	402.0 -> 99.0	54665	20.39 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C4-PFBA	1.714	217.0 -> 172.0	346495	20.49 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C4-PFHpA	5.940	367.0 -> 322.0	470887	20.94 µg/L	0.024
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C5-PFHxA	4.988	318.0 -> 273.0	380372	20.67 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C5-PFPeA	3.586	268.0 -> 223.0	257141	20.77 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C6-PFDA	7.752	519.0 -> 474.0	645218	20.85 µg/L	0.012

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Cal Report: 3Q3307.D

Perfluorinated Compounds by LC/MS/MS

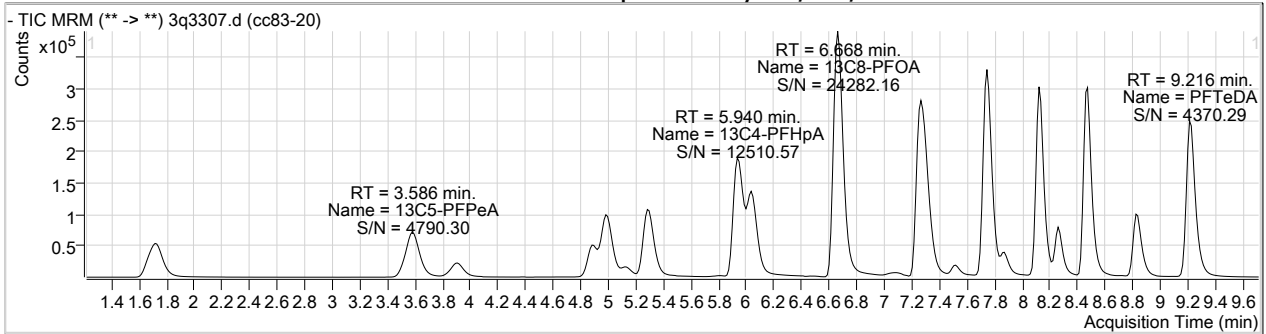
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C7-PFUnDA	8.127	570.0 -> 525.0	774213	20.11 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C8-FOSA	7.311	506.0 -> 78.0	257967	20.92 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C8-PFOA	6.668	421.0 -> 376.0	505192	20.89 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C8-PFOS	7.260	507.0 -> 99.0	86955	19.83 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C9-PFNA	7.276	472.0 -> 427.0	522704	20.84 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
d3-MeFOSAA	7.746	573.0 -> 419.0	88963	20.74 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C3-HFPO-DA	5.292	287.0 -> 169.0	204531	97.28 µg/L	0.012
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
M2-PFOA	6.670	415.0 -> 370.0	657986	20.00 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
M4-PFOS	7.261	503.0 -> 80.0	148937	20.00 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
Target Compounds					QValue
4:2FTS	4.886	327.0 -> 307.0	93506	20.60 µg/L	100
6:2FTS	6.654	427.0 -> 407.0	102239	20.85 µg/L	100
8:2FTS	7.777	527.0 -> 507.0	84310	20.66 µg/L	98
EtFOSAA	7.872	584.0 -> 419.0	46986	20.87 µg/L	99
FOSA	7.313	498.0 -> 78.0	126895	20.67 µg/L	99
MeFOSAA	7.746	570.0 -> 419.0	50184	20.90 µg/L	99
PFBA	1.723	213.0 -> 169.0	65627	20.32 µg/L	100
PFBS	3.908	299.0 -> 80.0	68977	20.21 µg/L	100
PFDA	7.752	513.0 -> 469.0	319469	20.14 µg/L	100
PFDoDA	8.478	613.0 -> 569.0	380950	20.27 µg/L	100
PFDS	8.099	599.0 -> 80.0	29700	20.42 µg/L	96
PFHpA	5.942	363.0 -> 319.0	454897	20.04 µg/L	100
PFHpS	6.674	449.0 -> 80.0	62336	20.75 µg/L	99
PFHxA	4.990	313.0 -> 269.0	143678	19.88 µg/L	100
PFHxS	5.987	399.0 -> 80.0	64250	20.12 µg/L	m 100
PFNA	7.277	463.0 -> 419.0	342101	19.99 µg/L	100
PFNS	7.722	549.0 -> 80.0	58028	21.36 µg/L	99
PFOA	6.672	413.0 -> 369.0	282856	19.97 µg/L	99
PFOS	7.262	499.0 -> 80.0	82058	19.73 µg/L	m 99
PFPeA	3.590	263.0 -> 219.0	267708	20.26 µg/L	100
PFPeS	5.132	349.0 -> 80.0	47850	21.57 µg/L	98
PFTeDA	9.216	713.0 -> 669.0	437646	19.84 µg/L	100
PFTrDA	8.828	663.0 -> 619.0	416732	20.09 µg/L	100
PFUnDA	8.128	563.0 -> 519.0	352361	20.12 µg/L	100
11Cl-PF3OUdS	8.260	631.0 -> 451.0	221506	21.92 µg/L	99
9Cl-PF3ONS	7.521	531.0 -> 351.0	51278	20.42 µg/L	98
ADONA	6.052	377.0 -> 251.0	579564	20.07 µg/L	100
HFPO-DA	5.297	329.0 -> 169.0	336940	105.61 µg/L	99

7.5.16
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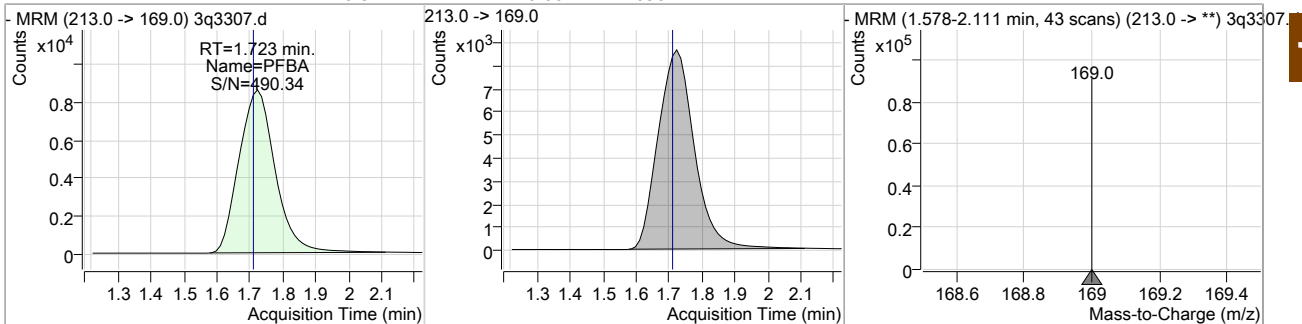
= Qualifier out of range, m = manually integrated, + = Area summed

Cal Report: 3Q3307.D

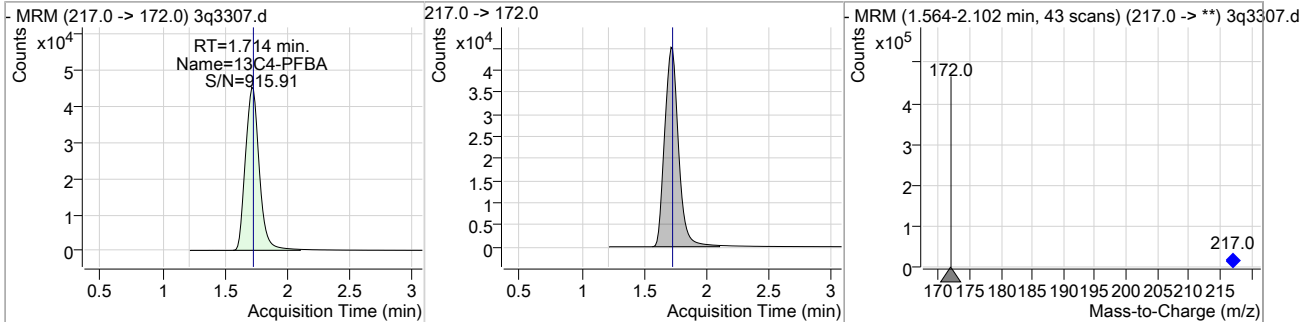
Perfluorinated Compounds by LC/MS/MS



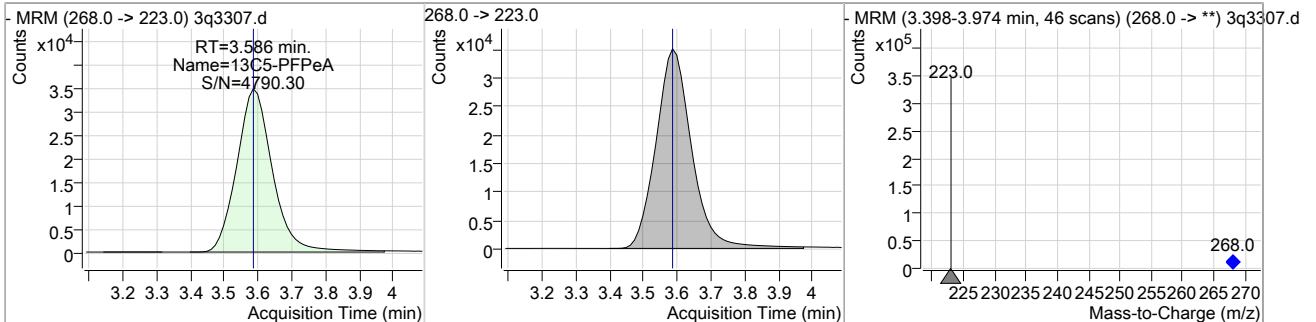
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	20.32	1.72	0.00	65627				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.49	1.71	-0.01	346495				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.77	3.59	0.00	257141				

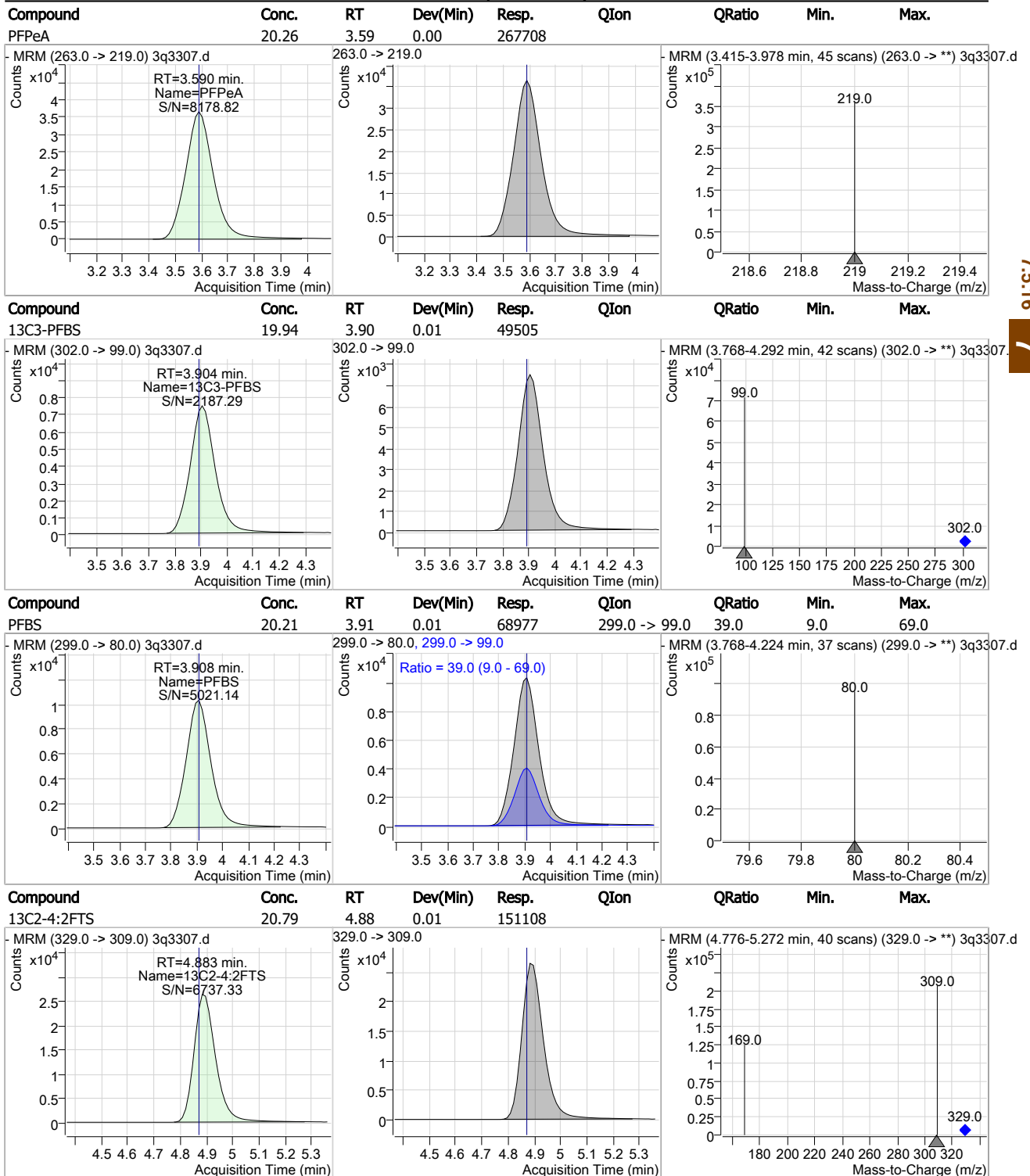


7.5.16

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Cal Report: 3Q3307.D

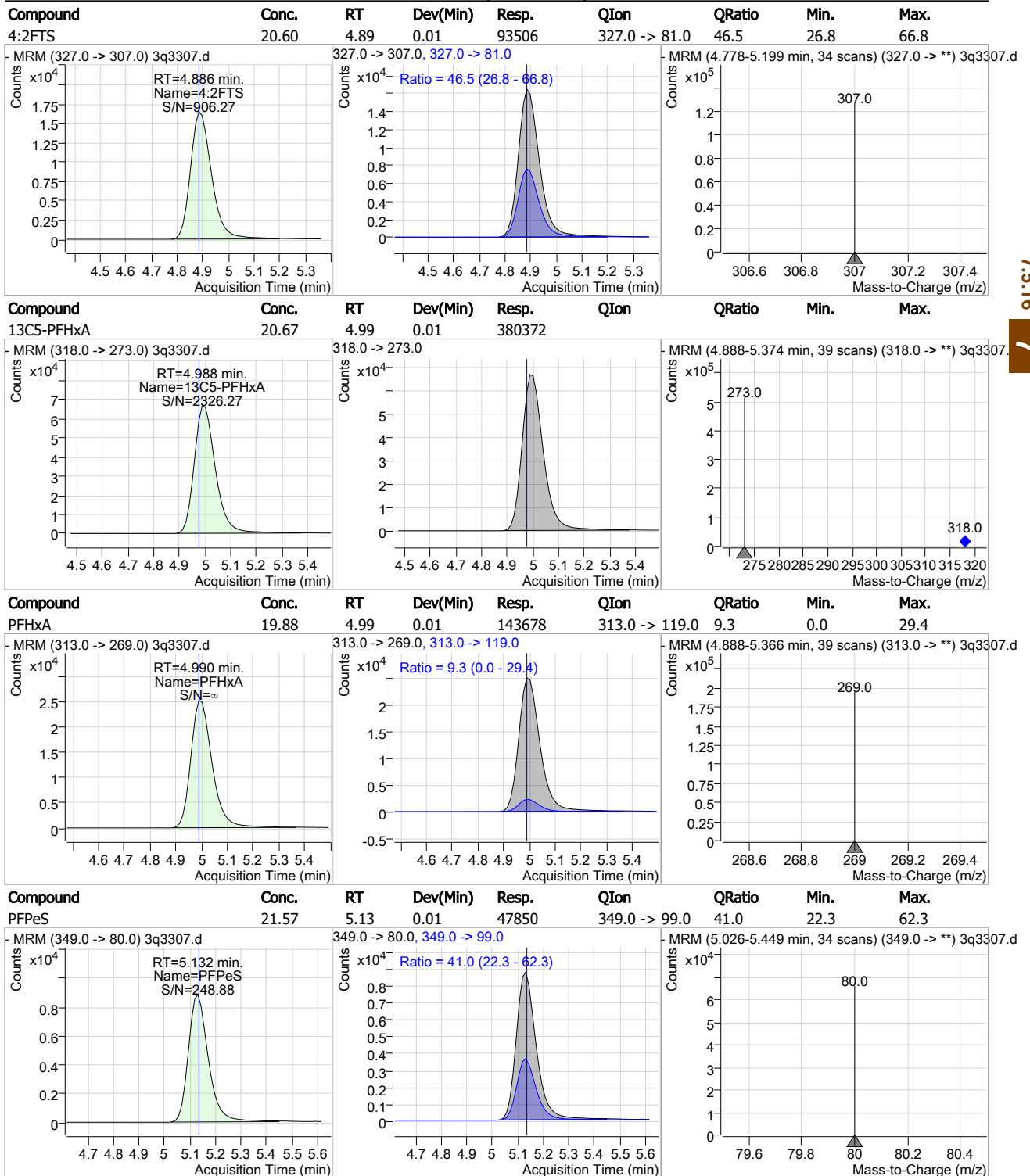
Perfluorinated Compounds by LC/MS/MS



7.5.16
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Cal Report: 3Q3307.D

Perfluorinated Compounds by LC/MS/MS

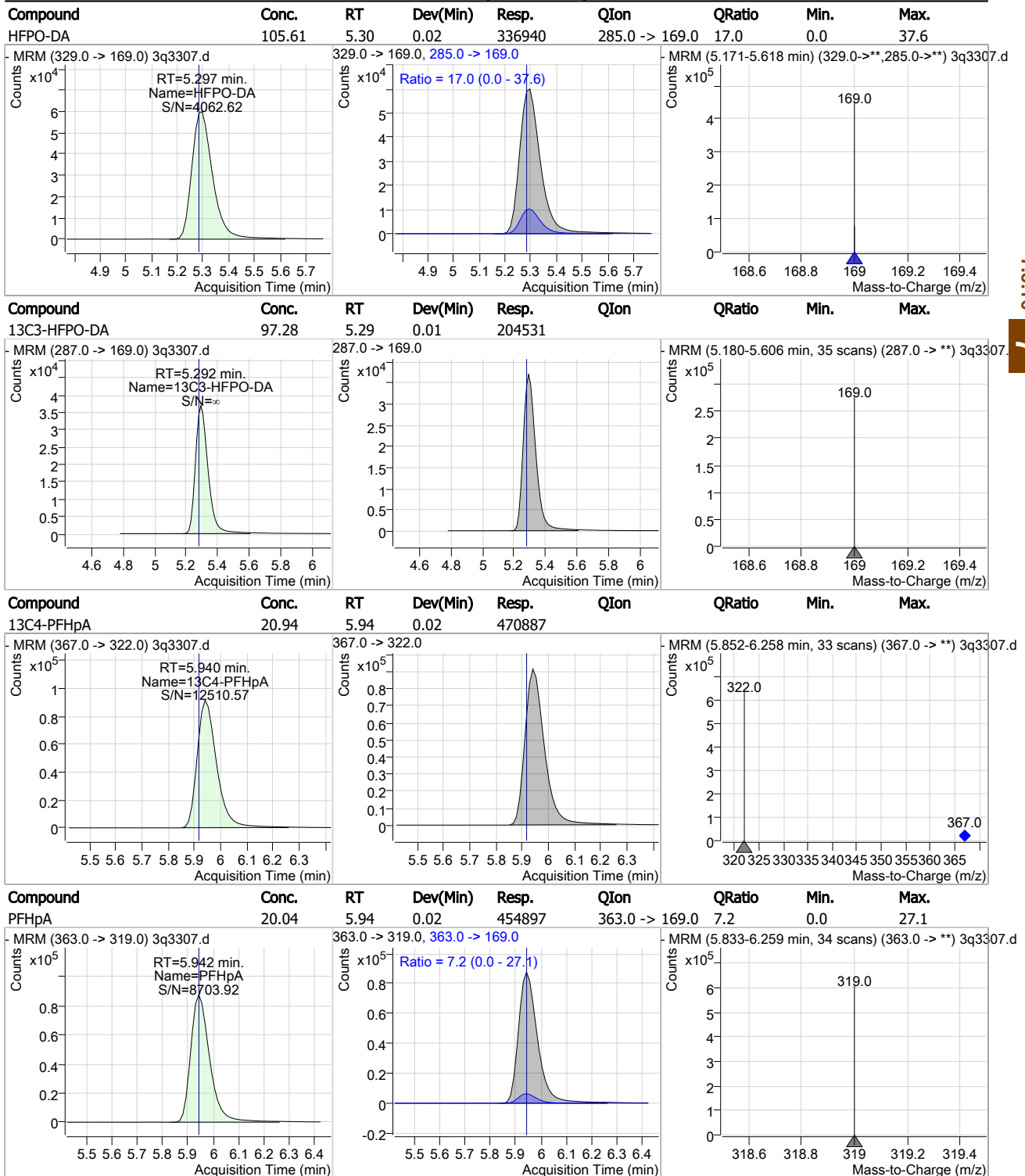


7.5.16

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Cal Report: 3Q3307.D

Perfluorinated Compounds by LC/MS/MS

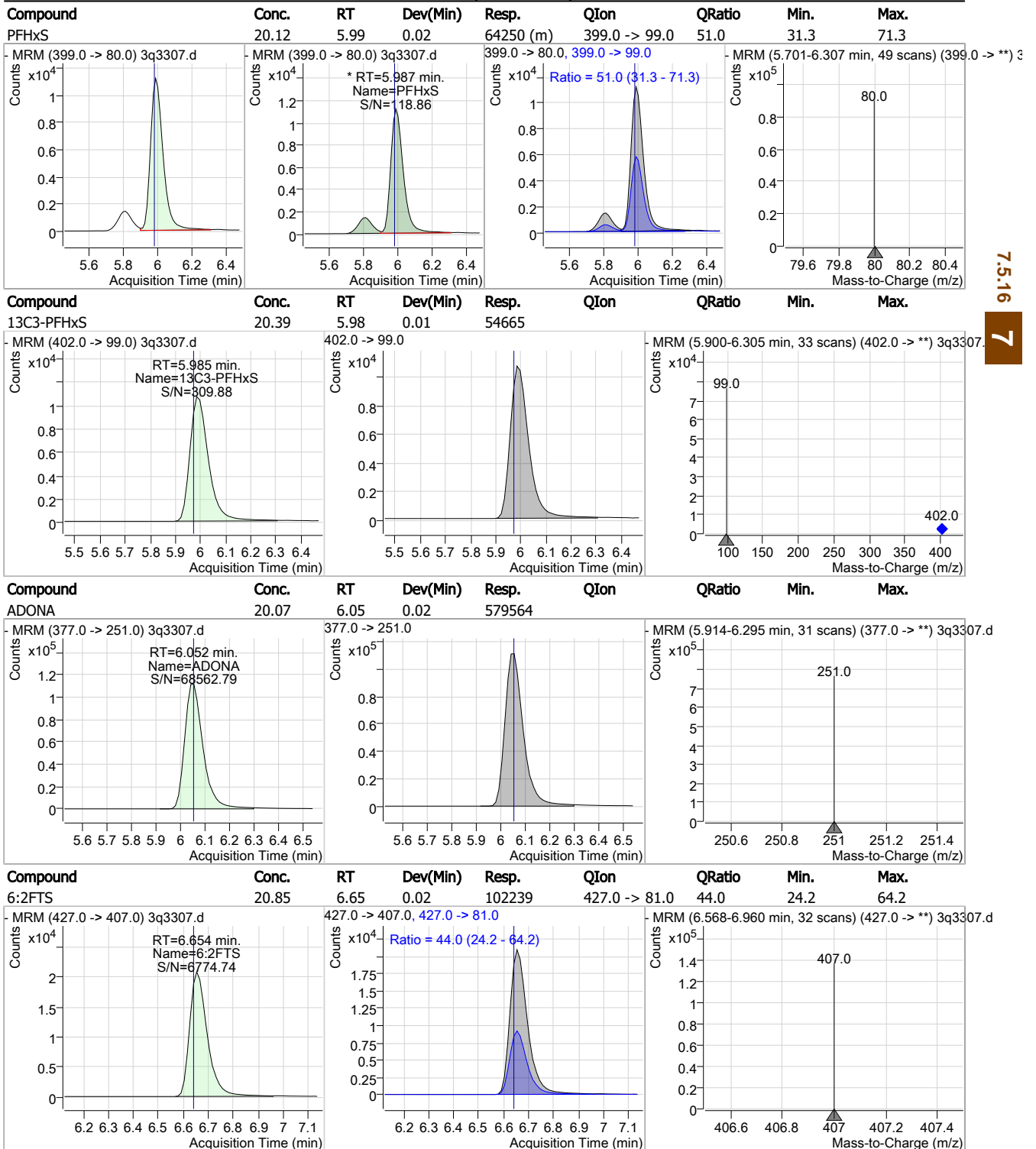


7.5.16

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Cal Report: 3Q3307.D

Perfluorinated Compounds by LC/MS/MS

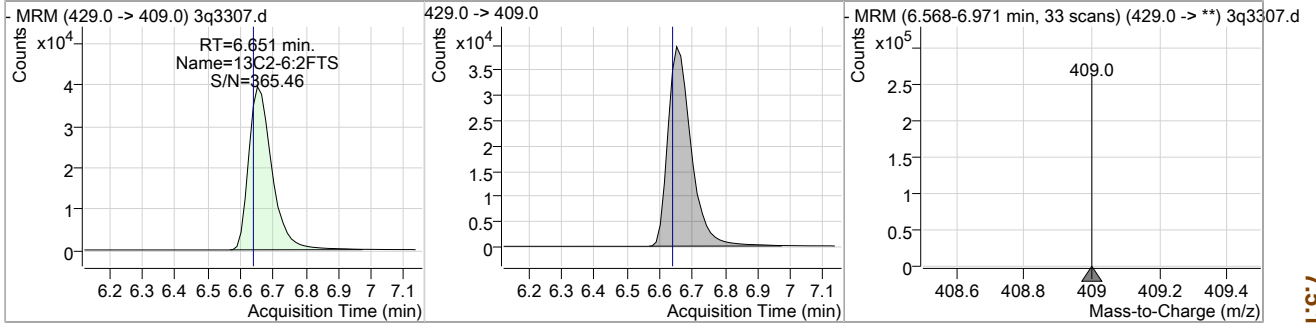


7.5.16 7

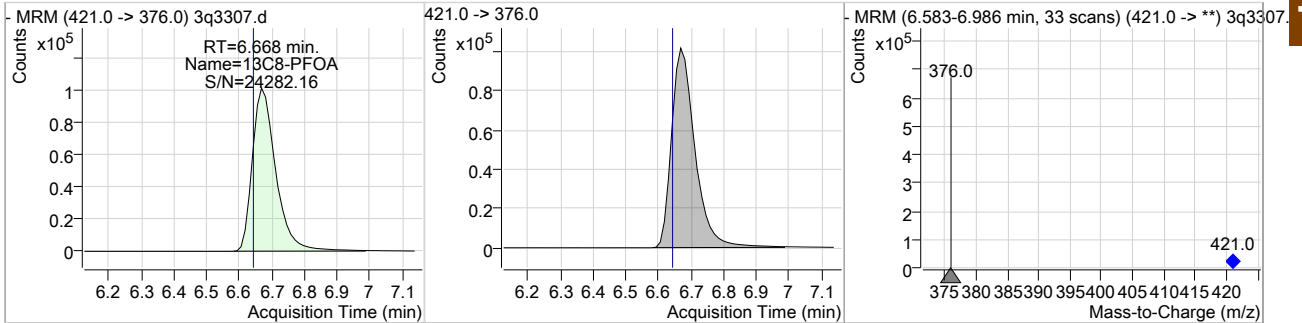
Cal Report: 3Q3307.D

Perfluorinated Compounds by LC/MS/MS

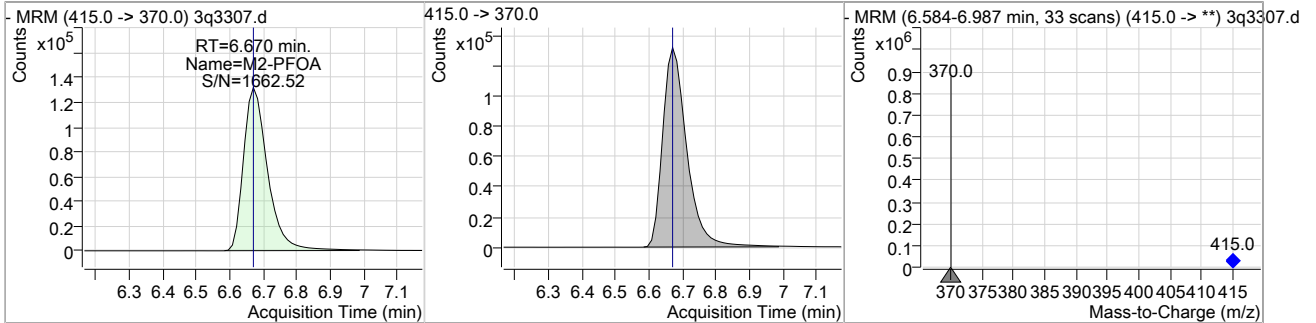
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.75	6.65	0.01	195238				



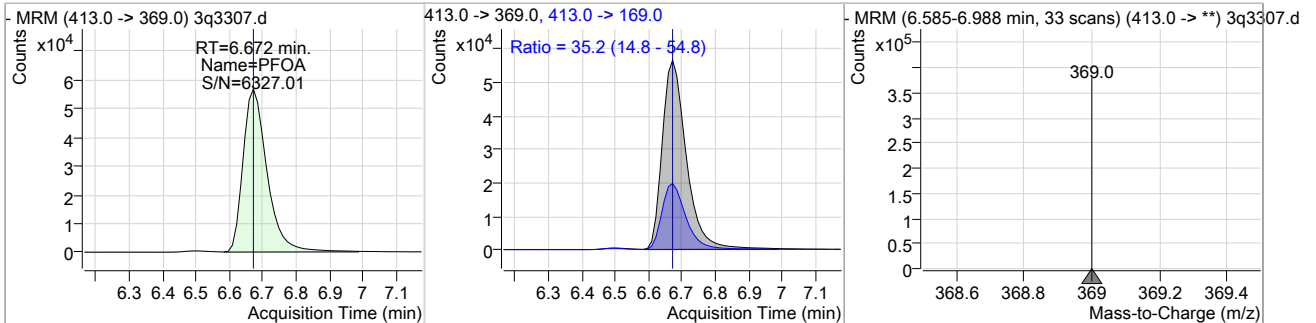
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.89	6.67	0.02	505192				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.67	0.02	657986				



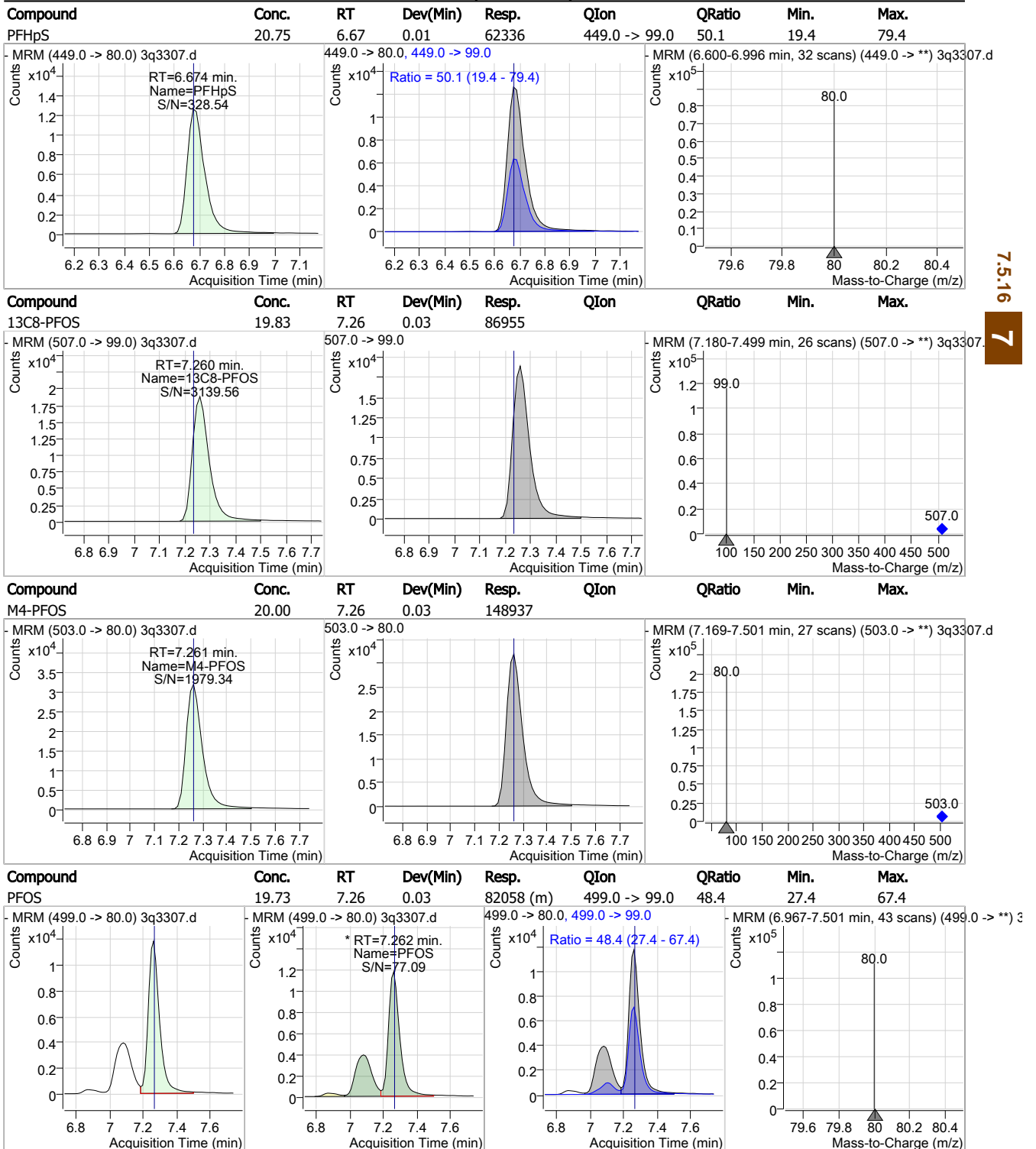
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.97	6.67	0.03	282856	413.0 ->	169.0 35.2	14.8	54.8



7.5.16 7

Cal Report: 3Q3307.D

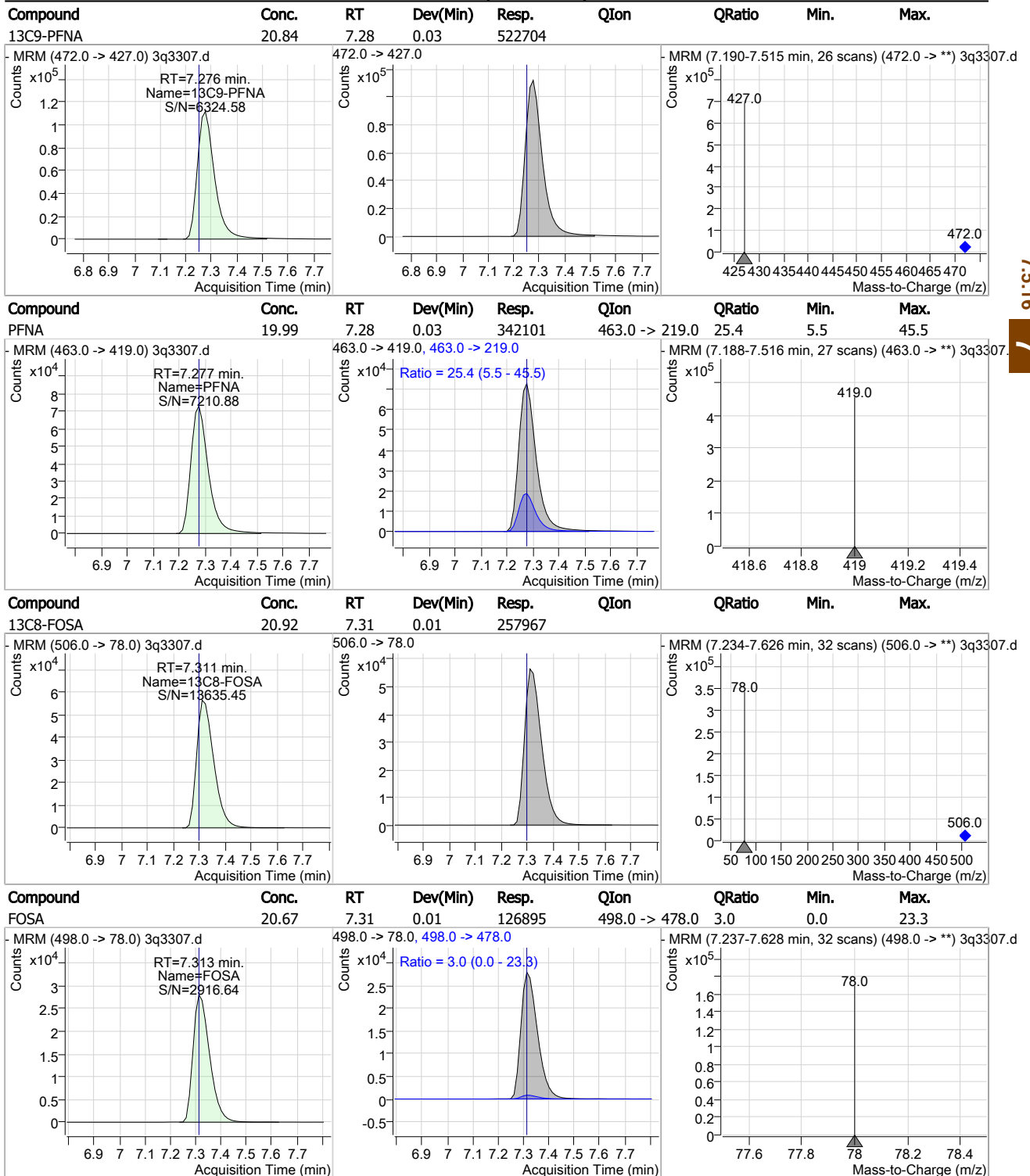
Perfluorinated Compounds by LC/MS/MS



7.5.16
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Cal Report: 3Q3307.D

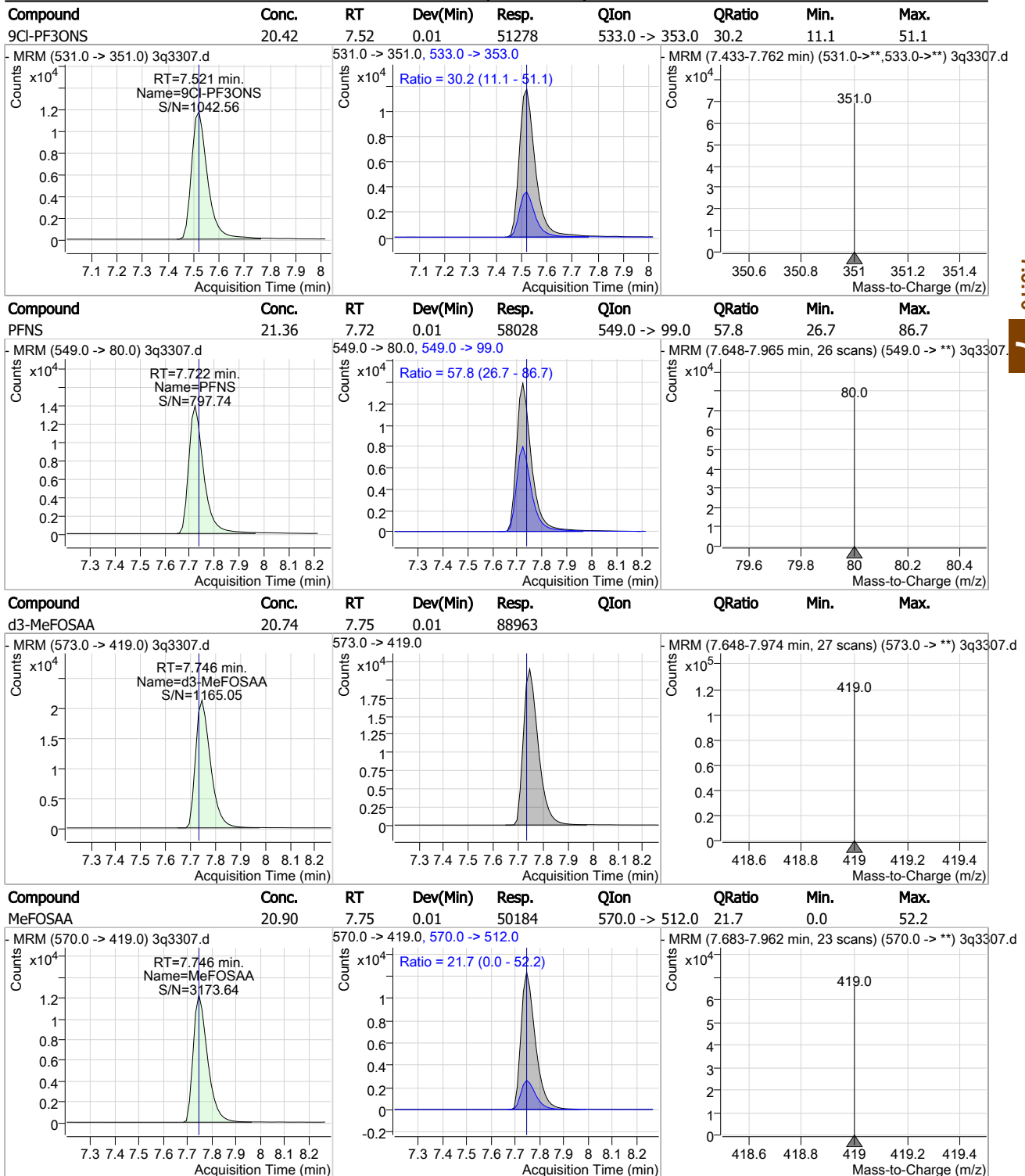
Perfluorinated Compounds by LC/MS/MS



7.5.16
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Cal Report: 3Q3307.D

Perfluorinated Compounds by LC/MS/MS

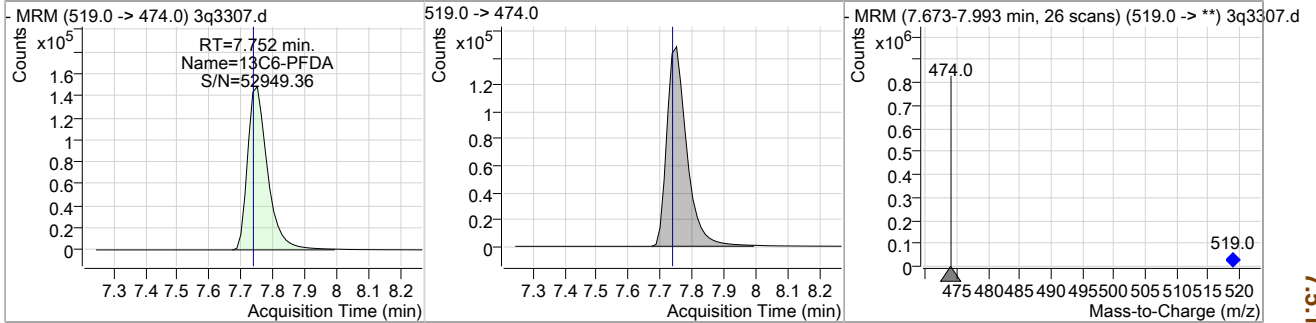


7.5.16 7

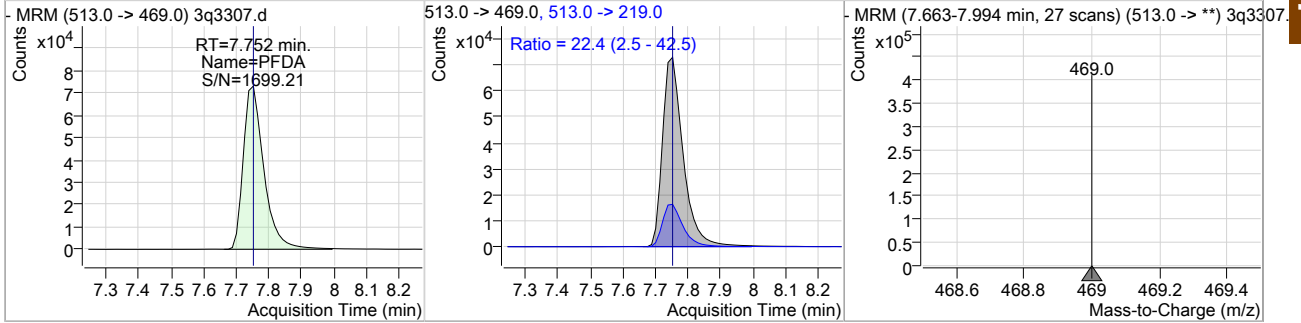
Cal Report: 3Q3307.D

Perfluorinated Compounds by LC/MS/MS

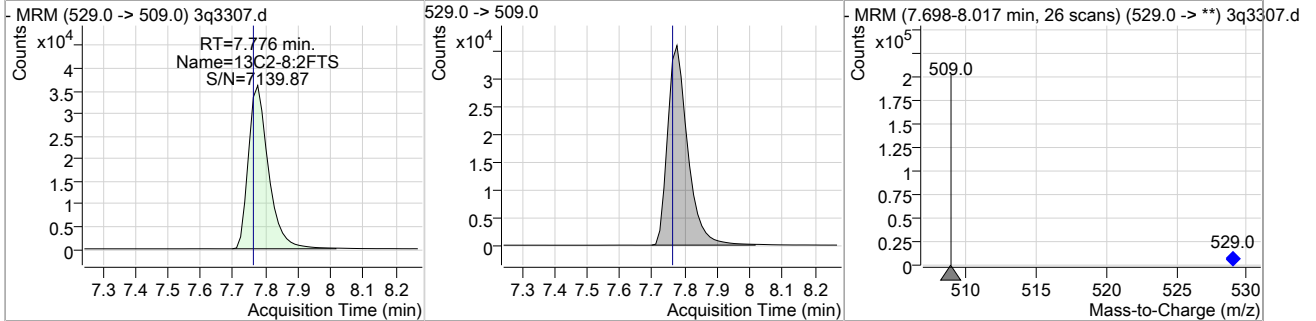
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.85	7.75	0.01	645218				



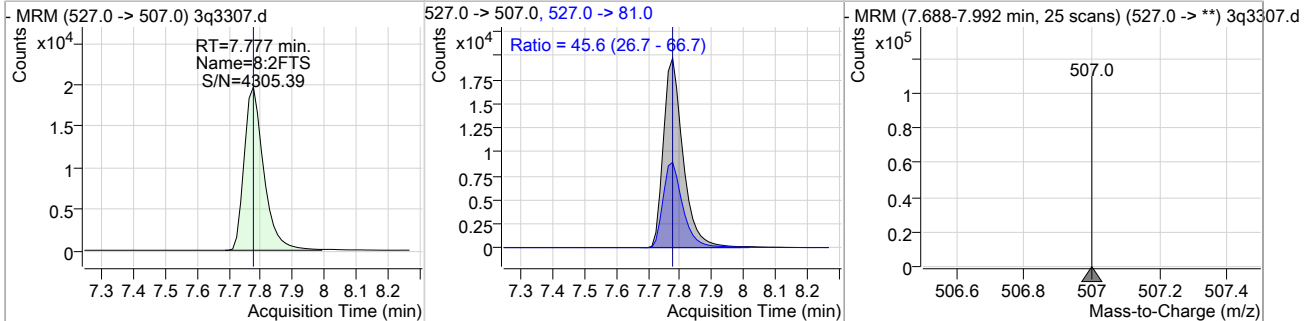
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.14	7.75	0.01	319469	513.0 -> 219.0	22.4	2.5	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	20.21	7.78	0.01	154345				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.66	7.78	0.01	84310	527.0 -> 81.0	45.6	26.7	66.7

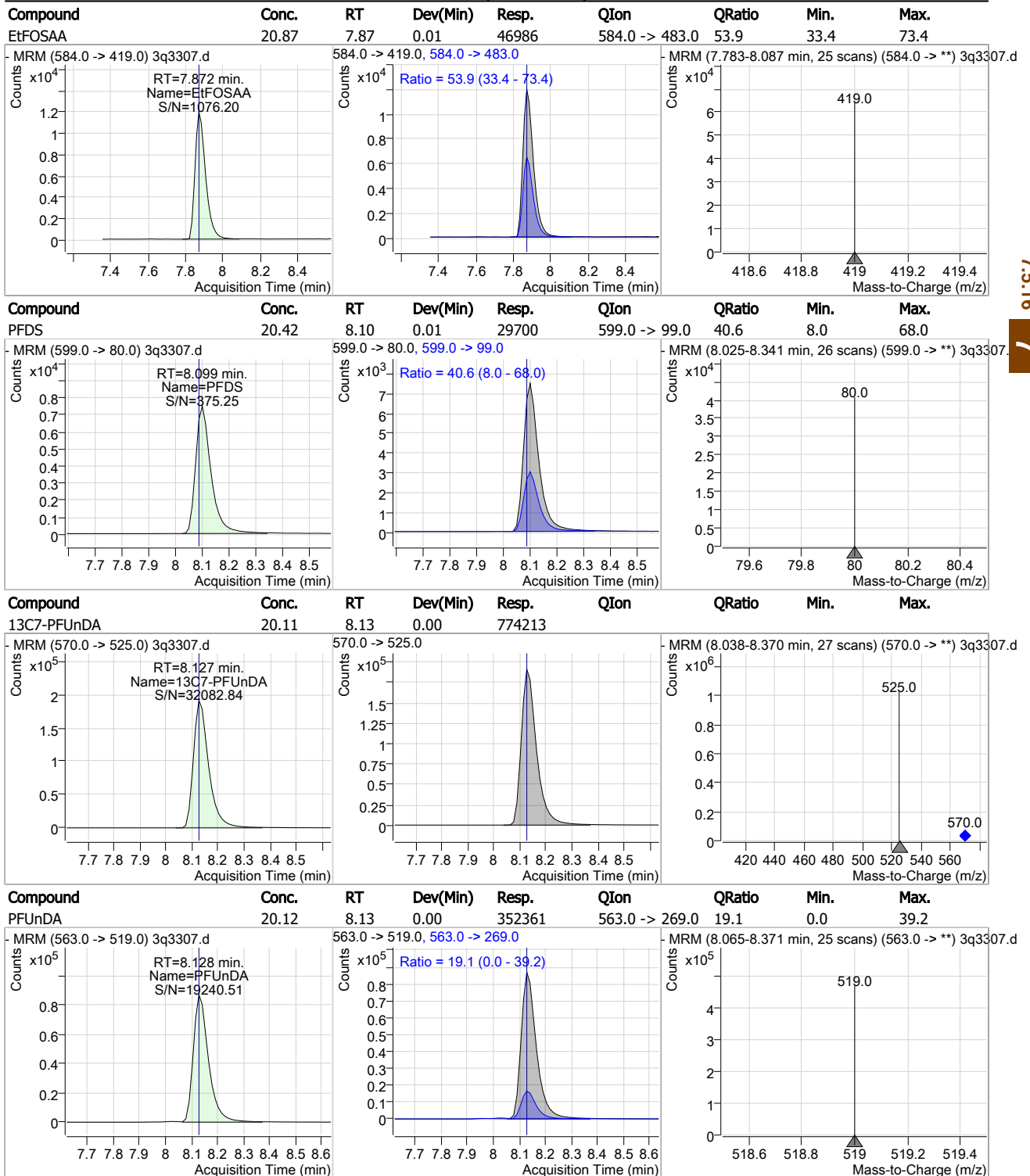


7.5.16
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Cal Report: 3Q3307.D

Perfluorinated Compounds by LC/MS/MS

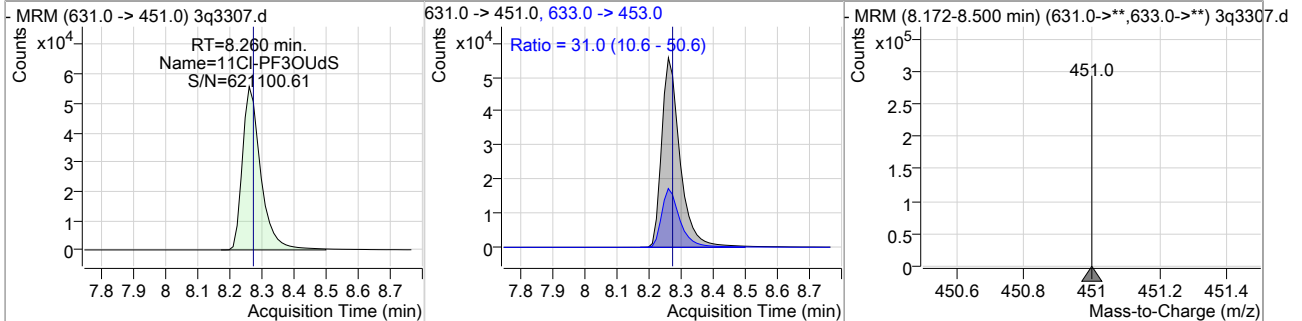


7.5.16 7

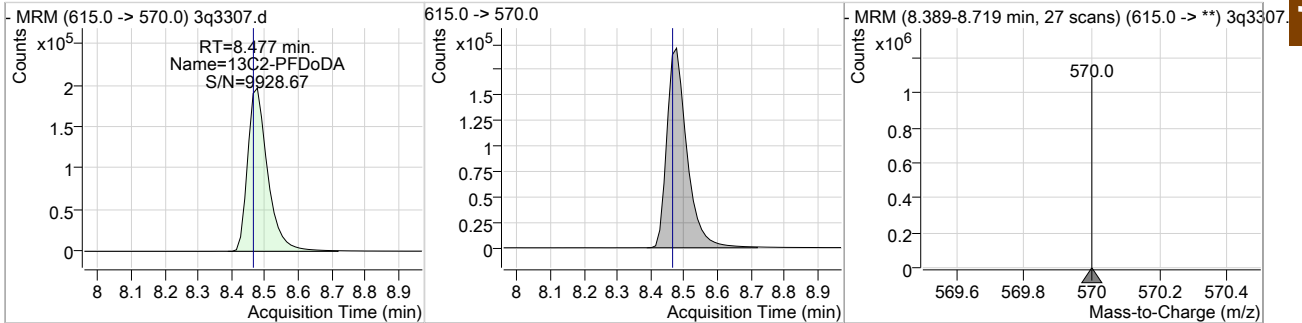
Cal Report: 3Q3307.D

Perfluorinated Compounds by LC/MS/MS

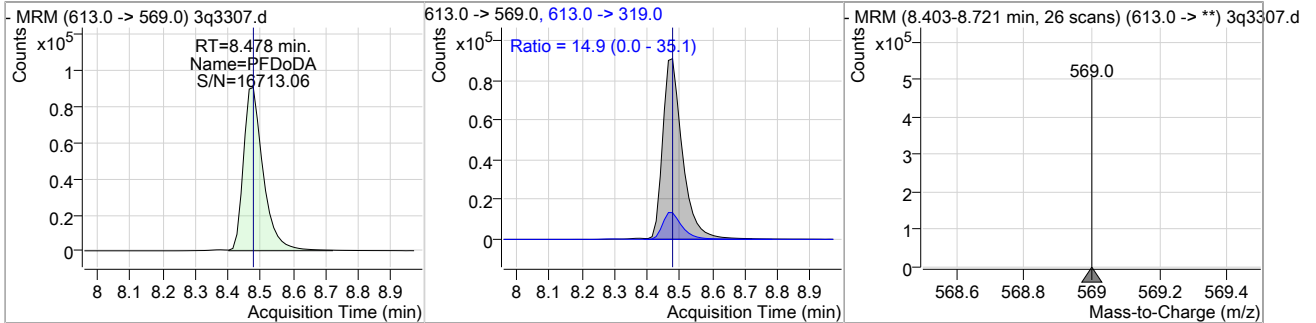
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	21.92	8.26	0.00	221506	633.0 -> 453.0	31.0	10.6	50.6



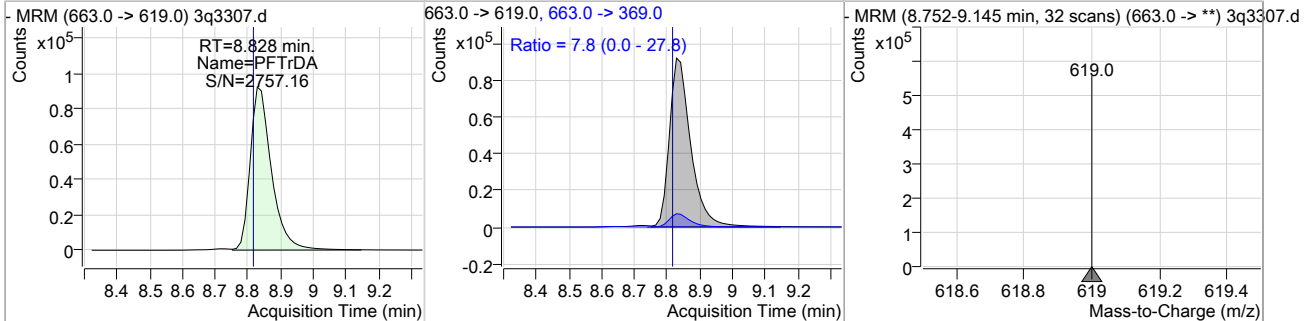
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.33	8.48	0.01	817925				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.27	8.48	0.01	380950	613.0 -> 319.0	14.9	0.0	35.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	20.09	8.83	0.00	416732	663.0 -> 369.0	7.8	0.0	27.8

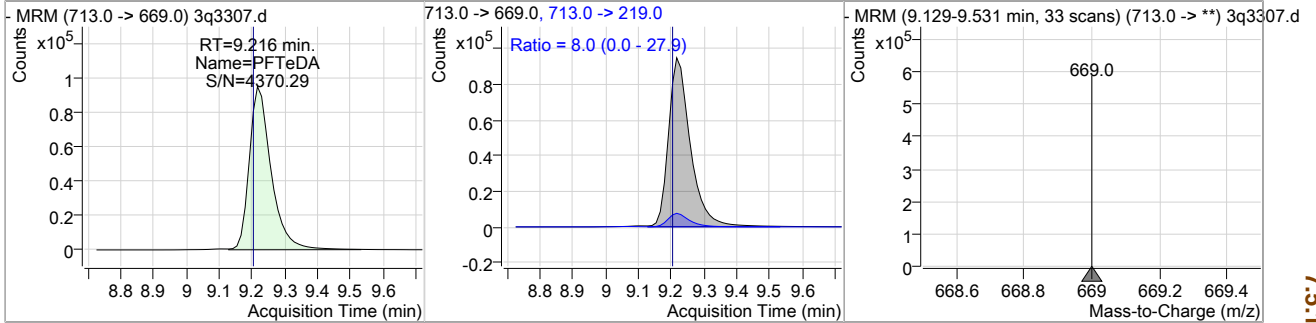


7.5.16
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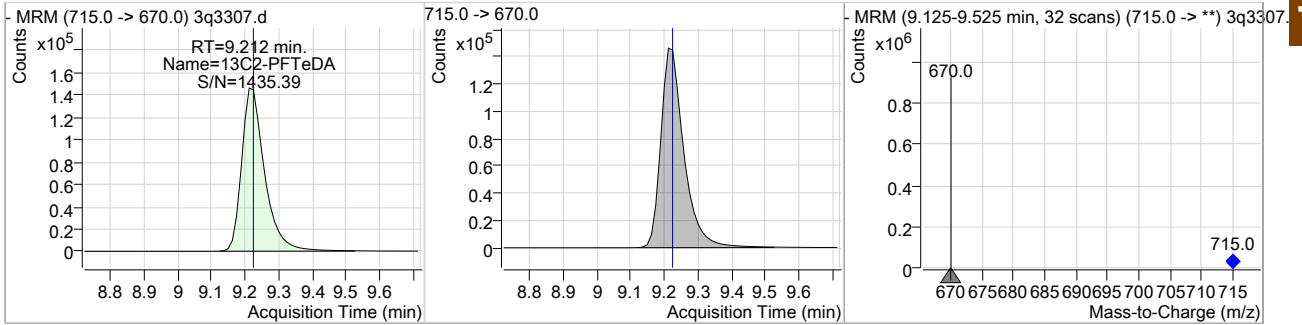
Cal Report: **3Q3307.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.84	9.22	0.00	437646	713.0 -> 219.0	8.0	0.0	27.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.49	9.21	-0.01	690966				



7.5.16
7



Manual Integration Approval Summary

Sample Number: S3Q84-CC83 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 3Q3307.D **Analyst approved:** 04/29/19 11:47 Natasha Gumtie
Injection Time: 04/26/19 11:25 **Supervisor approved:** 04/29/19 15:02 Mike Eger

Parameter	CAS	Sig#	R. T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.99	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.26	Split peak

7.5.16.1

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Instrument Run Log S3Q83 page 1 of 3

SGS - ORLANDO

DATE:	04/25/19
COLUMN TYPE:	Parashell GC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS3-3Q
HEAD PRESSURE:	390

LCMS3-3Q ANALYSIS LOG

METHODS:	S37-ID
ACQ. METHOD:	S37-ID
PROC. METHOD:	S37-ID-042519-S3Q83
CALIB. DATE:	04/25/19
RUN BATCH:	S3Q 83

ANALYST:	NG
ELUENT A LOT #:	190455 w/AA
ELUENT B LOT #:	187805 ↓
ISTD Lot # / amount added:	LCMS 1260
INJ STD Lot # / amount added:	20 ul

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ISTD DILUTION	ION RATIO	MANUAL INTEGRATIONS*	SCON <CL**	COMMENTS
3Q 3247	B3A1	ccb	Pfc-ID							
3Q 48	A7	rt								
3Q 49	A1	ccb								
3Q 50	A2	1c83-0.5			LCMS261	2.5/500				updated
3Q 51	A3	-1				5/500				
3Q 52	A4	-2				10/500				
3Q 53	A5	-5				2.5/500				
3Q 54	A6	↓ -10				50/500				
3Q 55	A7	1c83-20				100/500				
3Q 56	A8	1c83-50				250/500				
3Q 57	A9	1c83-100				1X				
3Q 58	A1	ib1k								
3Q 59	B1	1cV83-20			LC1204	100/500				pass
3Q 60	B2	1cV83-20			LC1190C	5/500				pass
3Q 61	B3	1cV83-20			9119B	5/500				pass
3Q 62	B4	OP74736-bs			OP74736	1X				✓
3Q 63	B5	↓ -mb								✓
3Q 64	B6	FA63507-1								✓
3Q 65	B7	FA63518-1								✓ RTA r5x, 20x 5x
3Q ↓ 66	↓ B8	↓ -2								✓

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

Analyst's Signature: *Notarbo*



Instrument Run Log S3Q83 page 2 of 3

SGS - ORLANDO

DATE:	04/25/19
COLUMN TYPE:	Poroshell 120
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS3-3Q
HEAD PRESSURE:	390

LCMS3-3Q ANALYSIS LOG

METHODS:	537-ID
ACQ. METHOD:	537-ID
PROC. METHOD:	537-ID-042519-S3Q83
CALIB. DATE:	04/25/19
RUN BATCH:	S3Q 83

ANALYST:	NG
ELUENT A LOT #:	1010455 w/AA
ELUENT B LOT #:	87805 ↓
ISTD Lot # / amount added:	LCMS 1260
INJ STD Lot # / amount added:	20 ul

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ISTD DILUTION	ION RATIO	MANUAL INTEGRATIONS*	SCON <CL**	COMMENTS
3Q 3267	1389	FA63518-3	PFC-ID	Op74736	1X					✓ RTA rrsx, 20x
3Q 68	A7	CC83-20			LCMS 1260	100/500				pass
3Q 69	A1	ccb								✓
3Q 70	C1	FA63526-1		Op74736	1X					✓
3Q 71	C2	↓ -2								✓
3Q 72	C3	↓ -3								✓
3Q 73	C4	↓ -4								✓
3Q 74	C5	Op74736-ms								✓
3Q 75	C6	↓ -msd								✓
3Q 76	C7	FA63526-S								✓ comb r r 10x hrs, rrsx 10
3Q 77	C8	↓ -6								✓ NO
3Q 78	A7	CC83-20			LCMS 1260	100/500				pass
3Q 79	A1	ccb								✓
3Q 80	C9	Op74737-6S		Op74737	1X					No spike batch redo
3Q 81	D1	↓ -mb								✓
3Q 82	D2	FA63527-1								✓
3Q 83	D3	FA63531-1								✓
3Q 84	D4	Op74737-ms								✓
3Q 85	D5	FA63531-2								✓
3Q 86	D6	Op74737-dup								✓

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

Instrument Run Log S3Q84 page 1 of 4

SGS - ORLANDO

DATE:	04/26/19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS3-3Q
HEAD PRESSURE:	390


LCMS3-3Q ANALYSIS LOG

METHODS:	537-ID
ACQ. METHOD:	537-ID
PROC. METHOD:	537-ID-042519-S3Q83
CALIB. DATE:	04/25/19
RUN BATCH:	S3Q

ANALYST:	NG
ELUENT A LOT #:	190455 w/ AA
ELUENT B LOT #:	187805 ↓
ISTD Lot # / amount added:	LCMS 1260
INJ STD Lot # / amount added:	20 ul

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ISTD DILUTION	ION RATIO	MANUAL INTEGRATIONS*	SCON <CL**	COMMENTS
3Q 3297	R3A1	ccb	PR-ID							—
3Q ↓ 08	A9	high std								—
3Q ↓ 09	A1	iblk								—
3Q 3300	A3	CC83-1		LCMS1260	100	500				PASS
3Q ↓ 01	A7	↓ -20								PASS
3Q ↓ 02	E4	FA63518-1		OP74730			SX			✓
3Q ↓ 03	E5	↓ -1					20X			✓
3Q ↓ 04	E6	↓ -3					SX			✓
3Q ↓ 05	E7	↓ -3					20X			✓
3Q ↓ 06	E8	FA63526-5					10X			✓
3Q ↓ 07	A7	CC83-20		LCMS1260	100	500				PASS
3Q ↓ 08	A1	ccb								—
3Q ↓ 09	E9	OP74801-mb		OP74801			1X			✓
3Q ↓ 10	F1	FA63261-13								✓
3Q ↓ 11	F2	↓ -14								✓
3Q ↓ 12	F3	↓ -15								✓
3Q ↓ 13	A7	CC83-20		LCMS1260	100	500				PASS
3Q ↓ 14	↓ A1	ccb								—
3Q ↓ 15	P4A1	OP74756-bs		OP74756			1X			✓ PASS
3Q ↓ 16	↓ A2	↓ -mb								ND

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

Analyst's Signature: 



Instrument Run Log S3Q84 page 2 of 4

SGS - ORLANDO

DATE:	04/26/19
COLUMN TYPE:	Pomshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS3-3Q
HEAD PRESSURE:	390

LCMS3-3Q ANALYSIS LOG

METHODS:	S37-ID
ACQ. METHOD:	S37-ID
PROC. METHOD:	S37-ID-040519-S3Q83
CALIB. DATE:	04/25/19
RUN BATCH:	S3Q 89

ANALYST:	NS
ELUENT A LOT #:	190455 w/AA
ELUENT B LOT #:	187805 ↓
ISTD Lot # / amount added:	LCMS 1260
INJ STD Lot # / amount added:	20ul

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ISTD DILUTION	ION RATIO	MANUAL INTEGRATIONS*	SCON <CL**	COMMENTS
3Q 3317	PA3	JC86674-1	Pfc-ID	Op74756	1X					✓
3Q 18	A4	↓ -2								✓
3Q 19	A5	↓ -3								PfOS ↓ re
3Q 20	A6	↓ -4								✓
3Q 21	A7	↓ -5								PfOS ↓ re
3Q 22	A8	↓ -6								PfOS ↓ re
3Q 23	A9	↓ -7								✓
3Q 24	B1	↓ -8								✓
3Q 25	P3A7	CC83-20		LCMS1261	100/500					pass
3Q 26	↓ A1	Ccb								
3Q 27	PA2	JC86674-9		Op74756	1X					✓
3Q 28	B3	↓ -10								✓
3Q 29	B4	↓ -11								PfOS ↓ re
3Q 30	B5	↓ -12								✓
3Q 31	B6	Op74756-MS								✓
3Q 32	B7	JC86674-13								PfOS ↓ re
3Q 33	B8	↓ -14								✓
3Q 34	B9	↓ -15								✓
3Q 35	C1	Op74756-dup								✓
3Q 36	C2	JC86674-16								PfOS ↓ re

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

Instrument Run Log S3Q84 page 3 of 4

LCMS3-3Q ANALYSIS LOG

SGS - ORLANDO

DATE:	04/26/19
COLUMN TYPE:	Poroshell/ECLX
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS3-3Q
HEAD PRESSURE:	390

METHODS:	S37-ID
ACQ. METHOD:	S37-ID
PROC. METHOD:	S37-ID-042519-53083
CALIB. DATE:	04/25/19
RUN BATCH:	S3Q 89

ANALYST:	NG
ELUENT A LOT #:	190455 w/AA
ELUENT B LOT #:	181805 ↓
ISTD Lot # / amount added:	LCMS 1200
INJ STD Lot # / amount added:	200L

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ISTD DILUTION	ION RATIO	MANUAL INTEGRATIONS*	SCON <CL**	COMMENTS
3Q 3337	P3A7	CC83-20	PFC-ID	LCMS1200	100/500					PASS
3Q 38	↓ A1	CCb								
3Q 39	P4C3	JC86674-17		Op7473	IX					PFOA, PFOS ↓
3Q 40	C4	↓ -18								PFOS ↓
3Q 41	C5	↓ -19								PFOS ↓
3Q 42	↓ C6	↓ -20								PASS
3Q 43	P3A7	CC83-20		LCMS1200	100/500					
3Q 44	↓ A1	CCb								✓ PASS
3Q 45	P4C7	Op74773-bs		Op7473	IX					✓
3Q 46	C8	↓ -mb								✓
3Q 47	C9	JC86674-21								✓
3Q 48	D1	↓ -22								✓
3Q 49	D2	↓ -23								✓
3Q 50	D3	Op74773-ms								✓
3Q 51	D4	JC86674-24								✓
3Q 52	D5	↓ -25								✓
3Q 53	↓ D6	Op74773-dup								✓
3Q 54	P3A7	CC83-20		LCMS1200	100/500					PASS
3Q 55	↓ A1	CCb								✓
3Q 56	P4D7	JC86674-26	✓	Op7473	IX					✓

red
red
red

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

Analyst's Signature: *Notation*



SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 04-24-19 7:30
 Started (mm/dd/yy 24:00)

Prep Method: 3535A or 537 or 537MOD (circle)

Date/Time: 04/25/19 1100
 Finished (mm/dd/yy 24:00)

Analytical Method: CC 537 (QSM)

Batch#: 0074736 Ext. By: MV Conc. By: MB Viald By: MV

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP74736 MB	X	130	6	NA	20ul		1 ml	C	
OP74736 BS	X	130				50ul			
FA63507-1	1	250							
FA63518-1	1	125							
-2	1	125							
-3	1	125							
FA63526-1	1	125							
-2	1	125							
-3	1	125							
-4	1	125							
-5	1	125							
-6	1	125	↓	↓	↓				
MB 04/25/19									
FA63526-4MS	2	125	6	NA	20ul	50ul	1-1	C	
-4 MSD	3	125	↓	↓	↓	↓	↓	↓	
DUP									

Comments: "Hold Time Passing through Cartridge"

Surr.1 ID: <u>LCMS1259A</u>	Conc: <u>1.0ppm</u>	Exp. Date: <u>04-12-20</u>	Inj. By: <u>MV</u>	Ver. By: <u>MV</u>
Spk.1 ID: <u>LCMS1262</u>	Conc: <u>400ppb</u>	Exp. Date: <u>10-19-19</u>	Inj. By: <u>MV</u>	Ver. By: <u>MV</u>
Spk.2 ID: <u>✓</u>	Conc: <u>✓</u>	Exp. Date: <u>✓</u>	Inj. By: <u>✓</u>	Ver. By: <u>✓</u>
Spk.3 ID: <u>✓</u>	Conc: <u>✓</u>	Exp. Date: <u>✓</u>	Inj. By: <u>✓</u>	Ver. By: <u>✓</u>

TurboVap Temp (Therm ID): TU #12 N-Evap Temp (Therm ID): ---
 Observed Temp °C: 45°C Corr. Temp °C: --- Observed Temp °C: --- Corr. Temp °C: ---

Methanol Lot # 187805 SPE Lot # 6441956-01 pH Paper # 212218
 Acetonitrile Lot # ✓ Syringe filter Lot # ✓ Reagent # 264104 187805
 Water Lot# 0073908 Pre-filter Lot# ✓ Reagent # 29011404 718050
 Solvent# ✓ Carbon Lot# ✓ Other ✓

Relinquished By: [Signature] Date: 04/25/19
 Accepted By: [Signature] Date: 04/25/19 @ 12:24

ORLD-EXT-0001-3-08-FORM-extwater_spe.xls 032718

7.7.1
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LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

NOREAS, Inc.
16361 Scientific Way
Irvine, CA 92618
ATTN: Ms. Sevda Aleckson
Sevda.Aleckson@NOREASINC.com

May 17, 2019

SUBJECT: MCAS El Toro, Site 18 & 24, Data Validation

Dear Ms. Aleckson,

Enclosed is the final validation report for the fraction listed below. This SDG was received on May 1, 2019. Attachment 1 is a summary of the samples that were reviewed for analysis.

LDC Project #44907:

<u>SDG #</u>	<u>Fraction</u>
FA63526	Perfluoroalkyl & Polyfluoroalkyl Substances

These data validations were performed under Stage 4 guidelines. These analyses were validated using the following documents, as applicable to each method:

- Final Addendum 4 to the Final Performance Monitoring and Sampling and Analysis Plan for OU1 and OU2A Groundwater Remedy, Former MCAS El Toro, Irvine, California; March 2015 and FCRF-2438-002; August 2018
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.1; 2017
- USEPA National Functional Guidelines for Organic Superfund Methods Data Review; January 2017

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng
pgeng@lab-data.com
Project Manager/Senior Chemist

LDC Report# 44907A96

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: El Toro, Sites 18 & 24
LDC Report Date: May 13, 2019
Parameters: Perfluoroalkyl & Polyfluoroalkyl Substances
Validation Level: Stage 4
Laboratory: SGS North America, Inc.
Sample Delivery Group (SDG): FA63526

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
07DBMW43B	FA63526-1	Water	04/22/19
07DBMW43B-FD	FA63526-2	Water	04/22/19
07DBMW70	FA63526-3	Water	04/22/19
12UGMW31	FA63526-4	Water	04/22/19
24EX12A	FA63526-5	Water	04/22/19
QCEB	FA63526-6	Water	04/22/19
12UGMW31MS	FA63526-4MS	Water	04/22/19
12UGMW31MSD	FA63526-4MSD	Water	04/22/19

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Addendum 4 to the Final Performance Monitoring and Sampling and Analysis Plan for OU1 and OU2A Groundwater Remedy, Former MCAS El Toro, Irvine, California (March 2015) and FCRF-2438-002 (August 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) by Environmental Protection Agency (EPA) Method 537M QSM5.1 B-15 via LC/MS/MS.

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Codes

- 1 Holding Times Exceeded
- 2 Sample Preservation / Cooler Temperature Exceeded Acceptance Criteria
- 3 Sample Custody Potentially Compromised Sample Integrity
- 4 Missing/Incomplete Deliverables
- 5 Calibration Did Not Meet Method Criteria
- 6 Equipment/Field Blank Contamination
- 7 Laboratory Method or Calibration Blank Contamination
- 8 Matrix Spike % Recovery Exceeded Acceptance Criteria
- 9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis) Exceeded Acceptance Criteria
- 10A Laboratory Control Sample % Recovery Exceeded Acceptance Criteria
- 10B Laboratory Control Sample Duplicate (RPD) Exceeded Acceptance Criteria
- 11 ICP Interference Check Analysis Exceeded Method Criteria
- 12 RPD Between Two Columns (Pesticides/PCBs only)
- 13 Surrogate Recoveries Exceeded Acceptance Criteria
- 14 Field Duplicates RPD Exceeded Project Criteria
- 15 Peak Resolution did not meet method criteria
- 16 Serial Dilution Analysis Exceeded Method Criteria
- 17 Chemical Recoveries Exceeded Acceptance Criteria
- 18 Trip Blank Contamination
- 19 Internal Standards Did Not Meet Method Criteria
- 20 Calibration Range exceeded Method Criteria
- 21 Potential False Positives
- 22 Do not use, other result more technically sound (overall assessment)
- 23 Estimated Maximum Possible Concentration
- 24 Trace Detection Below the LOQ (RL) and Above the DL (MDL)
- 25 Other

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. LC/MS Instrument Performance Check

Instrument performance was checked and the requirements were met.

III. Initial Calibration and Initial Calibration Verification

Initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

For each calibration standard, all compounds were within 70-130% of their true value.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration and Instrument Sensitivity Check

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

The percent differences (%D) of the instrument sensitivity check (ISC) were less than or equal to 30.0% for all compounds.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample QCEB was identified as an equipment blank. No contaminants were found.

VII. Matrix Spike/Duplicate Sample Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. For 12UGMW31MS/MSD, no data were qualified for perfluorohexanesulfonic acid percent recoveries (%R) outside the QC limits since the parent sample results were greater than 4X the spike concentration. Relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples 07DBMW43B and 07DBMW43B-FD were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ng/L)		RPD (Limits)
	07DBMW43B	07DBMW43B-FD	
Perfluorohexanoic acid	0.129	0.131	2 (≤35)
Perfluoroheptanoic acid	0.0205	0.0204	0 (≤35)
Perfluorooctanoic acid	0.265	0.270	2 (≤35)
Perfluorobutanesulfonic acid	0.0246	0.0241	2 (≤35)
Perfluorohexanesulfonic acid	0.0688	0.0688	0 (≤35)
Perfluorooctanesulfonic acid	0.00336	0.0040U	Not calculable

NC = RPD not calculated when one or both results are less than 10X the limit of quantitation (LOQ).

X. Labeled Compounds

All percent recoveries (%R) for labeled compounds used to quantitate target compounds were within QC limits.

XI. Compound Quantitation

All compound quantitations met validation criteria.

The laboratory indicated that PFAs are currently being reported as the sum of the branched and linear isomers so both peaks were integrated.

XII. Target Compound Identifications

All target compound identifications met validation criteria.

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method, DoD QSM version 5.1, and project SAP. This review also included verification of analytes, methods, reporting limits, instrument performance and method QC acceptance limits, which were found to be compliant with the project documents. No results were rejected.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

**El Toro, Sites 18 & 24
Perfluoroalkyl & Polyfluoroalkyl Substances - Data Qualification Summary - SDG
FA63526**

No Sample Data Qualified in this SDG

**El Toro, Sites 18 & 24
Perfluoroalkyl & Polyfluoroalkyl Substances - Laboratory Blank Data Qualification
Summary - SDG FA63526**

No Sample Data Qualified in this SDG

**El Toro, Sites 18 & 24
Perfluoroalkyl & Polyfluoroalkyl Substances - Field Blank Data Qualification
Summary - SDG FA63526**

No Sample Data Qualified in this SDG

LDC #: 44907A96 **VALIDATION COMPLETENESS WORKSHEET**
 SDG #: FA63526 Stage 4
 Laboratory: SGS North America, Inc.

Date: 5/10/19
 Page: 1 of 1
 Reviewer: _____
 2nd Reviewer: TC

METHOD: LC/MS Perfluoroalkyl and Polyfluoroalkyl Substances (EPA Method 537M)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A, A	RSO ≤ 20% Y? Two/ICV ≤ 30%
IV.	Continuing calibration/ISC	A, A	CCV/ISC ≤ 30%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	EB = 6
VII.	Matrix spike/Matrix spike duplicates	M	
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	M	D = 1+2
X.	Labeled Compounds	A	
XI.	Compound quantitation RL/LOQ/LODs	A	
XII.	Target compound identification	A	
XIII.	System performance	A	
XIV.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
 N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
 SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	07DBMW43B	FA63526-1	Water	04/22/19
2	07DBMW43B-FD	FA63526-2	Water	04/22/19
3	07DBMW70	FA63526-3	Water	04/22/19
4	12UGMW31	FA63526-4	Water	04/22/19
5	K.M 24EX12A	FA63526-5	Water	04/22/19
6	QCEB	FA63526-6	Water	04/22/19
7	12UGMW31MS	FA63526-4MS	Water	04/22/19
8	12UGMW31MSD	FA63526-4MSD	Water	04/22/19
9				
10				

Notes:

LDC #: 44907A96

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

Method: LCMS (EPA Method 537 Modified)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was cooler temperature criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
II. LC/MS Instrument performance check				
Were the instrument performance reviewed and found to be within the validation criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) \leq 20%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit criteria of > 0.990 ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all analytes within 70-130% or percent differences (%D) \leq 30% of their true value for each calibration standard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $<$ 30%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
IV. Continuing calibration				
Was a continuing calibration analyzed daily?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) of the continuing calibration $<$ 30%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) of the Instrument Sensitivity Check $<$ 30%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a laboratory blank analyzed for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the laboratory blanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
VI. Field blanks				
Were field blanks identified in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were target compounds detected in the field blanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
VIII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IX. Laboratory control samples				
Was an LCS analyzed per extraction batch for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

LDC #: 44907A 96

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	/			
Were target compounds detected in the field duplicates?	/			
XI. Labeled compounds				
Were labeled compound percent recoveries (%R) within the QC limits?	/			
XII. Compound quantitation				
Did the laboratory reporting limits (RL) meet the QAPP RLs?	/			
Did reported results include both branched and linear isomers?	/			
Were the correct ion transition, labeled compound and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
XIII. Target compound identification				
Were two transitions and the ion transition ratio per analyte monitored and documented with the exception of PFBA and PFPeA?	/			
XIV. System performance				
System performance was found to be acceptable.	/			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	/			

TARGET COMPOUND WORKSHEET

METHOD: PFOS/PFOAs

A. Perfluorohexanoic acid (PFHxA)			
B. Perfluoroheptanoic acid (PFHpA)			
C. Perfluorooctanoic acid (PFOA)			
D. Perfluorononanoic acid (PFNA)			
E. Perfluorodecanoic acid (PFDA)			
F. Perfluoroundecanoic acid (PFUnA)			
G. Perfluorododecanoic acid (PFDoA)			
H. Perfluorotridecanoic acid (PFTriDA)			
I. Perfluorotetradecanoic acid (PFTeDA)			
J. Perfluorobutanesulfonic acid (PFBS)			
K. Perfluorohexanesulfonic acid (PFHxS)			
L. Perfluoroheptanesulfonic acid (PFHpS)			
M. Perfluorooctanesulfonic acid (PFOS)			
N. Perfluorodecanesulfonic acid (PFDS)			
O. Perfluorooctane Sulfonamide (FOSA)			
P. Perfluorobutanoic acid (PFBA)			
Q. Perfluoropentanoic acid (PFPeA)			
R. 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2FTS)			
S. 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2 FTS)			
T. N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)			
U. N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)			
V. 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)			

LDC#: 44907A96

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: LC MS PFCs (EPA Method 537-Mod)

Y N NA Were field duplicate pairs identified in this SDG?

Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ng/L)		RPD (≤35%)
	1	2	
A	0.129	0.131	2
B	0.0205	0.0204	0
C	0.265	0.270	2
J	0.0246	0.0241	2
K	0.0688	0.0688	0
M	0.00336	0.0040U	NC

LDC: AAOTA 96

VALIDATION FINDINGS WORKSHEET
 Initial Calibration Calculation Verification

Page: 1 of 2
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

Method: PFACs (EPA Method 537)

Calibration Date	Analyte	Standard	(Y) Concentration	(X) Area
4/25/2019	PFOA	1	0.025	0.01337800
		2	0.050	0.02741320
		3	0.100	0.05293490
		4	0.250	0.12994790
		5	0.500	0.25698290
		6	1.000	0.55846720
		7	2.500	1.38025960
		8	5.000	2.7950991

Linear through the origin

	<i>calculated</i>	<i>Reported</i>
Constant	0.000000	0.0000
X Coefficient(s)	0.55724453	0.557244
Correlation Coefficient	0.999960	0.99988
Coefficient of Determination (r ²)	0.999920	

LDC: AA907A96

VALIDATION FINDINGS WORKSHEET
 Initial Calibration Calculation Verification

Page: 2 of 2
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Method: PFACs (EPA Method 537)

Calibration Date	Analyte	Standard	(Y) Concentration	(X) Area
4/25/2019	PFOS	1	0.025	0.0249513
		2	0.050	0.0477168
		3	0.100	0.0946017
		4	0.250	0.2266146
		5	0.500	0.4372177
		6	1.000	0.9269040
		7	2.500	2.3155591
		8	5.000	4.8122348

Linear through the origin

	<i>calculated</i>	<i>Reported</i>
Constant	0.000000	0.0000
X Coefficient(s)	0.95361817	0.953613
Correlation Coefficient	0.999847	0.99954
Coefficient of Determination (r ²)	0.999694	

LDC # 11907A 96

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
 Reviewer: [Signature]
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METHOD: LC/MS PFAS (EPA Method 537M)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = $100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$
 $\text{RRF} = (A_x)(C_{is}) / (A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
 RRF = continuing calibration RRF
 A_x = Area of compound, A_{is} = Area of associated internal standard
 C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported	Recalculated	Reported	Recalculated
					RRF	RRF	%D	%D
1	303255	<u>4/25/19</u>	PFOA ($^{13}\text{C}_2$ -PFOA)					
			PFOS ($^{13}\text{C}_8$ -PFOS)					
2	303268	<u>4/25/19</u>	PFOA ($^{13}\text{C}_2$ -PFOA)	<u>20.00</u>	<u>20.083</u>	<u>20.083</u>	<u>0.4</u>	<u>0.4</u>
			PFOS ($^{13}\text{C}_8$ -PFOS)	<u>U</u>	<u>19.510</u>	<u>19.510</u>	<u>2.4</u>	<u>2.4</u>
3	303300	<u>4/26/19</u>	PFOA ($^{13}\text{C}_2$ -PFOA)	<u>1.000</u>	<u>0.998</u>	<u>0.998</u>	<u>0.2</u>	<u>0.2</u>
			PFOS ($^{13}\text{C}_8$ -PFOS)	<u>U</u>	<u>1.081</u>	<u>1.081</u>	<u>8.1</u>	<u>8.1</u>
4			PFOA ($^{13}\text{C}_2$ -PFOA)					
			PFOS ($^{13}\text{C}_8$ -PFOS)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results

LDC #: 4490457

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: LC/MS PFAS (EPA Method 537M)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA

Where: SSC = Spiked sample concentration
 SA = Spike added

SC = Sample concentration

RPD = |MSC - MSC1| * 2 / (MSC + MSC1)

MSC = Matrix spike concentration

MSC1 = Matrix spike duplicate concentration

MS/MSD samples: 7/8

Compound	Spike Added		Sample Concentration	Spiked Sample Concentration		Matrix Spike		Matrix Spike Duplicate		MS/MSD	
	MS	MSD		MS	MSD	Percent Recovery		Percent Recovery		RPD	
						Reported	Recalc	Reported	Recalc	Reported	Recalculated
PFOA	0.16	0.16	0.137	0.284	0.288	92	92	94	94	1	1
PFOS	↓	↓	0.0600	0.203	0.202	89	89	89	89	0	0

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

EI Toro, Sites 18 and 24 - LDC 44907

SDG: FA63526

Sample ID		07DBMW43B								
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
537_MOD	HEPTADEC AFLUOROACTANESULFONIC ACID (PFOS)	20190422	20190425	0.00336	UG_L	J	J		0.004	0.004
537_MOD	N-ETHYL PERFLUORO OCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20190422	20190425	0.016	UG_L	U	U		0.016	0.016
537_MOD	N-METHYL PERFLUORO OCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20190422	20190425	0.016	UG_L	U	U		0.016	0.016
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20190422	20190425	0.0246	UG_L				0.004	0.004
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20190422	20190425	0.0205	UG_L				0.004	0.004
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20190422	20190425	0.0688	UG_L				0.004	0.004
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20190422	20190425	0.129	UG_L				0.004	0.004
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUORO OCTANOIC ACID (PFOA)	20190422	20190425	0.265	UG_L				0.004	0.004
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROUND ECANOIC ACID (PFUNA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004

Sample ID		07DBMW43B-FD								
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
537_MOD	HEPTADEC AFLUOROACTANESULFONIC ACID (PFOS)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	N-ETHYL PERFLUORO OCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20190422	20190425	0.016	UG_L	U	U		0.016	0.016
537_MOD	N-METHYL PERFLUORO OCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20190422	20190425	0.016	UG_L	U	U		0.016	0.016
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20190422	20190425	0.0241	UG_L				0.004	0.004
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004

SDG: FA63526

Sample ID										
07DBMW43B-FD										
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20190422	20190425	0.0204	UG_L				0.004	0.004
537_MOD	PERFLUOROHXANESULFONIC ACID (PFHXS)	20190422	20190425	0.0688	UG_L				0.004	0.004
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20190422	20190425	0.131	UG_L				0.004	0.004
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROOCCTANOIC ACID (PFOA)	20190422	20190425	0.27	UG_L				0.004	0.004
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROUNDDECANOIC ACID (PFUNA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
Sample ID										
07DBMW70										
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
537_MOD	HEPTADEC AFLUOROACTANESULFONIC ACID (PFOS)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	N-ETHYL PERFLUOROOCCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20190422	20190425	0.016	UG_L	U	U		0.016	0.016
537_MOD	N-METHYL PERFLUOROOCCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20190422	20190425	0.016	UG_L	U	U		0.016	0.016
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20190422	20190425	0.0312	UG_L				0.004	0.004
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20190422	20190425	0.00728	UG_L	J	J		0.004	0.004
537_MOD	PERFLUOROHXANESULFONIC ACID (PFHXS)	20190422	20190425	0.0119	UG_L				0.004	0.004
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20190422	20190425	0.0758	UG_L				0.004	0.004
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROOCCTANOIC ACID (PFOA)	20190422	20190425	0.0288	UG_L				0.004	0.004
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROUNDDECANOIC ACID (PFUNA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004

SDG: FA63526

Sample ID		12UGMW31								
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
537_MOD	HEPTADEC AFLUOROACTANESULFONIC ACID (PFOS)	20190422	20190425	0.06	UG_L				0.004	0.004
537_MOD	N-ETHYL PERFLUORO OCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20190422	20190425	0.016	UG_L	U	U		0.016	0.016
537_MOD	N-METHYL PERFLUORO OCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20190422	20190425	0.016	UG_L	U	U		0.016	0.016
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20190422	20190425	0.0946	UG_L				0.004	0.004
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20190422	20190425	0.0363	UG_L				0.004	0.004
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20190422	20190425	0.609	UG_L				0.004	0.004
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20190422	20190425	0.179	UG_L				0.004	0.004
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUORO OCTANOIC ACID (PFOA)	20190422	20190425	0.137	UG_L				0.004	0.004
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROUND ECANOIC ACID (PFUNA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERLUOROTRIDE CANOIC ACID (PFTRA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004

Sample ID		24EX12A								
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
537_MOD	N-ETHYL PERFLUORO OCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20190422	20190425	0.016	UG_L	U	U		0.016	0.016
537_MOD	N-METHYL PERFLUORO OCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20190422	20190425	0.016	UG_L	U	U		0.016	0.016
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20190422	20190425	0.231	UG_L				0.004	0.004
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20190422	20190425	0.212	UG_L				0.004	0.004
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20190422	20190425	0.701	UG_L				0.004	0.004

SDG: FA63526

Sample ID										
24EX12A										
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20190422	20190425	0.0344	UG_L				0.004	0.004
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20190422	20190425	0.359	UG_L				0.004	0.004
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	HEPTADEC AFLUOROACTANESULFONIC ACID (PFOS)	20190422	20190426	2.8	UG_L				0.04	0.04
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20190422	20190426	0.844	UG_L				0.04	0.04

Sample ID										
QCEB										
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
537_MOD	HEPTADEC AFLUOROACTANESULFONIC ACID (PFOS)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20190422	20190425	0.016	UG_L	U	U		0.016	0.016
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20190422	20190425	0.016	UG_L	U	U		0.016	0.016
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20190422	20190425	0.004	UG_L	U	U		0.004	0.004

INSTALLATION_ID	SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	SAMPLE_NAME	SAMPLE_MATRIX_DESC	COLLECT_DATE	ANALYTICAL_METHOD_GRP_DESC	SDG
EL_TORO_MCAS						QCEB	Water for QC samples	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	07_DBMW70	Well	610675.23	2189520.64	07DBMW70-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	12_UGMW31	Well	6108720.96	2189244.46	12UGMW31-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	24EX12A	Monitoring well	6105720.54	2190982.86	24EX12A-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	07DBMW43B	Monitoring well	6110701.167	2188814.201	07DBMW43B-FD	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS						QCEB	Water for QC samples	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	07DBMW43B	Monitoring well	6110701.167	2188814.201	07DBMW43B-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	07DBMW43B	Monitoring well	6110701.167	2188814.201	07DBMW43B-FD	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	24EX12A	Monitoring well	6105720.54	2190982.86	24EX12A-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	07_DBMW70	Well	610675.23	2189520.64	07DBMW70-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	07DBMW43B	Monitoring well	6110701.167	2188814.201	07DBMW43B-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	07_DBMW70	Well	610675.23	2189520.64	07DBMW70-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS						QCEB	Water for QC samples	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	12_UGMW31	Well	6108720.96	2189244.46	12UGMW31-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	07DBMW43B	Monitoring well	6110701.167	2188814.201	07DBMW43B-FD	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	07DBMW43B	Monitoring well	6110701.167	2188814.201	07DBMW43B-FD	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS						QCEB	Water for QC samples	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	24EX12A	Monitoring well	6105720.54	2190982.86	24EX12A-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	07_DBMW70	Well	610675.23	2189520.64	07DBMW70-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	12_UGMW31	Well	6108720.96	2189244.46	12UGMW31-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	07DBMW43B	Monitoring well	6110701.167	2188814.201	07DBMW43B-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	07DBMW43B	Monitoring well	6110701.167	2188814.201	07DBMW43B-FD	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS						QCEB	Water for QC samples	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	24EX12A	Monitoring well	6105720.54	2190982.86	24EX12A-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	12_UGMW31	Well	6108720.96	2189244.46	12UGMW31-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526
EL_TORO_MCAS	SITE 00024	07_DBMW70	Well	610675.23	2189520.64	07DBMW70-042219	Ground water	22-Apr-19	Perfluoroalkyl Compounds	FA63526