NAVFAC
Naval Facilities Engineering Command

Drinking Water Sample Results, Level 4 Laboratory Report, Data Validation Report, Sample Location Figure, SDG FA38820

Bay Head Road Annex
NSWC Annapolis
Maryland

December 2020

e-Hardcopy 2.0
Automated Report

Technical Report for

AECOM

JU06; Bay Head Rd, Annapolis, MD

60444465

SGS Accutest Job Number: FA38820

Sampling Date: 11/16/16

Report to:

AECOM
3101 Wilson Blvd Suite 900
Arlington, VA 22201
kurt.vangelder@aecom.com; devon.chicoine@aecom.com;
paula.dimattei@aecom.com; robert.kennedy@aecom.com
ATTN: Kurt Vangelder

Total number of pages in report: **117**

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

Norm Farmer
Technical Director

Client Service contact: Andrea Colby 407-425-6700

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

Sections: 1 2 3 4 5 6 7

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Sample Summary

AECOM

Job No: FA38820

JU06; Bay Head Rd, Annapolis, MD
Project No: 60444465

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA38820-1	11/16/16	10:30	MG	11/17/16	DW	Drinking Water	DW-16-01-111616
FA38820-1D	11/16/16	10:30	MG	11/17/16	AQ	Water Matrix Spike	DW-16-01-111616
FA38820-1S	11/16/16	10:30	MG	11/17/16	AQ	Water Dup/MSD	DW-16-01-111616
FA38820-2	11/16/16	10:30	MG	11/17/16	DW	Drinking Water	DW-16-01-111616-FRB
FA38820-3	11/16/16	10:30	MG	11/17/16	DW	Drinking Water	DW-16-01-111616-DUP

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM **Job No:** FA38820

Site: JU06; Bay Head Rd, Annapolis, MD **Report Date:** 11/22/2016 5:24:41 PM

3 Sample(s) were collected on 11/16/2016 and were received at SGS Accutest Southeast (SASE) on 11/17/2016 properly preserved, at 3.3 Deg. C and intact. These Samples received an SASE job number of FA38820. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section.

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

Extractables by GCMS By Method EPA 537

Matrix: DW **Batch ID:** OP62792

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA38820-1MS, FA38820-1MSD were used as the QC samples indicated.

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

Narrative prepared by:

_____ Date: November 22, 2016

Kim Benham, Client Services (signature on file)

Manual Integration Summary

Lab Sample ID	Analysis Type	File ID	Manual Integrations
OP62792-BS	MSSEMI	Q28455.D	Perfluorohexanesulfonic acid, Perfluorooctanesulfonic acid
OP62792-MB	MSSEMI	Q28456.D	Perfluorooctanesulfonic acid
OP62792-MS	MSSEMI	Q28458.D	Perfluorohexanesulfonic acid, Perfluorooctanesulfonic acid
OP62792-MSD	MSSEMI	Q28459.D	Perfluorohexanesulfonic acid, Perfluorooctanesulfonic acid
SQ775-CC775	MSSEMI	Q28453.D	Perfluorohexanesulfonic acid, Perfluorooctanesulfonic acid
SQ775-IC775	MSSEMI	Q28423.D	13C2-PFDA, Perfluorohexanesulfonic acid, Perfluorooctanesulfonic acid
SQ775-IC775	MSSEMI	Q28424.D	Perfluorohexanesulfonic acid, Perfluorooctanesulfonic acid
SQ775-IC775	MSSEMI	Q28425.D	Perfluorohexanesulfonic acid, Perfluorooctanesulfonic acid
SQ775-IC775	MSSEMI	Q28426.D	Perfluorohexanesulfonic acid, Perfluorooctanesulfonic acid
SQ775-IC775	MSSEMI	Q28428.D	Perfluorohexanesulfonic acid, Perfluorooctanesulfonic acid
SQ775-IC775	MSSEMI	Q28429.D	Perfluorohexanesulfonic acid, Perfluorooctanesulfonic acid
SQ775-IC775	MSSEMI	Q28430.D	Perfluorohexanesulfonic acid, Perfluorooctanesulfonic acid
SQ775-ICC775	MSSEMI	Q28427.D	Perfluorohexanesulfonic acid, Perfluorooctanesulfonic acid

13 Manual Integrations were found for FA38820

Summary of Hits

Job Number: FA38820
Account: AECOM
Project: JU06; Bay Head Rd, Annapolis, MD
Collected: 11/16/16

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

FA38820-1 **DW-16-01-111616**

No hits reported in this sample.

FA38820-2 **DW-16-01-111616-FRB**

No hits reported in this sample.

FA38820-3 **DW-16-01-111616-DUP**

No hits reported in this sample.

Sample Results

Report of Analysis

SGS Accutest

Report of Analysis

Client Sample ID: DW-16-01-111616
Lab Sample ID: FA38820-1
Matrix: DW - Drinking Water
Method: EPA 537 EPA 537
Project: JU06; Bay Head Rd, Annapolis, MD

Date Sampled: 11/16/16
Date Received: 11/17/16
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q28457.D	1	11/21/16	NAF	11/21/16	OP62792	SQ775
Run #2							

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

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
335-67-1	Perfluorooctanoic acid	0.0032 U		0.0080	0.0032	0.0020	ug/l	
PERFLUOROALKYLSULFONATES								
375-73-5	Perfluorobutanesulfonic acid	0.0060 U		0.0080	0.0060	0.0040	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0032 U		0.0080	0.0032	0.0020	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	79%		70-130%
	13C2-PFDA	105%		70-130%

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

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

SGS Accutest

Report of Analysis

Client Sample ID: DW-16-01-111616-FRB
Lab Sample ID: FA38820-2
Matrix: DW - Drinking Water
Method: EPA 537 EPA 537
Project: JU06; Bay Head Rd, Annapolis, MD

Date Sampled: 11/16/16
Date Received: 11/17/16
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q28460.D	1	11/21/16	NAF	11/21/16	OP62792	SQ775
Run #2							

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

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
335-67-1	Perfluorooctanoic acid	0.0032 U		0.0080	0.0032	0.0020	ug/l	
PERFLUOROALKYLSULFONATES								
375-73-5	Perfluorobutanesulfonic acid	0.0060 U		0.0080	0.0060	0.0040	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0032 U		0.0080	0.0032	0.0020	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	86%		70-130%
	13C2-PFDA	130%		70-130%

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

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

SGS Accutest

Report of Analysis

Client Sample ID: DW-16-01-111616-DUP
Lab Sample ID: FA38820-3
Matrix: DW - Drinking Water
Method: EPA 537 EPA 537
Project: JU06; Bay Head Rd, Annapolis, MD

Date Sampled: 11/16/16
Date Received: 11/17/16
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q28461.D	1	11/21/16	NAF	11/21/16	OP62792	SQ775
Run #2							

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

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
335-67-1	Perfluorooctanoic acid	0.0032 U		0.0080	0.0032	0.0020	ug/l	
PERFLUOROALKYLSULFONATES								
375-73-5	Perfluorobutanesulfonic acid	0.0060 U		0.0080	0.0060	0.0040	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0032 U		0.0080	0.0032	0.0020	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	80%		70-130%
	13C2-PFDA	118%		70-130%

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

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

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5 Limits

SGS ACCUTEST

SGS Accutest Southeast Chain of Custody

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

COC # 111616 FA38820

SGS ACCUTEST JOB # : PAGE 1 OF 1

SGS Accutest Quote # SKIFF # 48630

Client / Reporting Information

Company Name: AECOM
Address: 3101 WILSON BLVD
City: ARLINGTON State: VA Zip: 22201
Project Contact: Kurt VonGelder Email:
Phone #: (703) 549-8728
Sampler(s) Name(s) (Printed)
Sampler 1: MIKE GLINSKI Sampler 2:

Project Information

Project Name: JU06 ANNAPOLIS, MD
Street 1661 Bay Head Rd.
City Annapolis State MD
Project # 60444465
Fax #
Client Purchase Order #

Analytical Information

PFOS/PFOA by LC537

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air

SGS Accutest Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY:	MATRIX	CONTAINER INFORMATION TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MeOH	LAB USE ONLY
1	DW-16-01-111616	11/16/16	1030	MG	DW	2	✓									
2	DW-16-01-111616-FRB					2	✓									
3	DW-16-01-111616-DUP					2	✓									
1	DW-16-01-111616-MS					2	✓									
1	DW-16-01-111616-MSD					2	✓									

Turnaround Time (Business days)

10 Day (Business)
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other

Approved By: / Date:

Rush T/A Data Available VIA: Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [ ] FULLT1 (EPA LEVEL 4)
- [ ] EDD'S

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	AECOM	11/16/16 1705	2 TRANSFER TO FEDEX	FX		930 11-17-16
5	Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time:	8 Received By/Affiliation

Lab Use Only : Cooler Temperature (s) Celsius: 3.3

SGS ACCUTEST - ORLANDO SAMPLE RECEIPT CONFIRMATION

SGS ACCUTEST'S JOB NUMBER: FA 38820 CLIENT: AECOM PROJECT: 60444465

DATE/TIME RECEIVED: 11-17-16 930 {MM/DD/YY 24:00} NUMBER OF COOLERS RECEIVED: 1

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER DELIVERY OTHER:

AIRBILL NUMBERS: 7846 6766 8755

COOLER INFORMATION

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

TRIP BLANK INFORMATION

- [ ] TRIP BLANK PROVIDED
- [X] TRIP BLANK NOT PROVIDED
- [X] TRIP BLANK NOT ON COC
- [ ] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [ ] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

MISC. INFORMATION

NUMBER OF ENCORES ? 25-GRAM 5-GRAM

NUMBER OF 5035 FIELD KITS ?

NUMBER OF LAB FILTERED METALS ?

TEMPERATURE INFORMATION

- [ ] IR THERM ID 1 CORR. FACTOR -0.4
- [ ] OBSERVED TEMPS: 3.7
- [ ] CORRECTED TEMPS: 3.3 (USED FOR LIMS)

SAMPLE INFORMATION

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

{APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS}

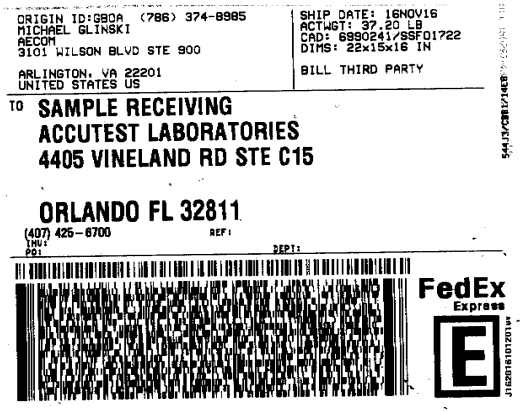
TEST STRIP LOT#s pH 0-3 230315 pH 10-12 219813A OTHER (specify)

SUMMARY OF COMMENTS:

TECHNICIAN SIGNATURE/DATE 11-17-16 REVIEWER SIGNATURE/DATE 11-17-16

NF 02/16 receipt confirmation 020116.xls

5.1 5



ORIGIN ID:G8DA (786) 374-8985
MICHAEL GLINSKI
AECOM
3101 WILSON BLVD STE 900

ARLINGTON, VA 22201
UNITED STATES US

SHIP DATE: 16NOV16
ACTWGT: 37.20 LB
CAD: 6990241/SSFO1722
DIMS: 22x15x16 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ACCUTEST LABORATORIES
4405 VINELAND RD STE C15

ORLANDO FL 32811
(407) 425-6700 REF:
INV:
PO: DEPT:

FedEx Express

THU - 17 NOV 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7846 6766 8755

XH ORLA

32811
FL-US MCO

FA38820: Chain of Custody
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QC Evaluation: DOD QSM5 Limits

Job Number: FA38820
Account: AECOM
Project: JU06; Bay Head Rd, Annapolis, MD
Collected: 11/16/16

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits

No Exceptions found.

* Sample used for QC is not from job FA38820

GC/MS Semi-volatiles

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QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: FA38820
Account: AECOMVAA AECOM
Project: JU06; Bay Head Rd, Annapolis, MD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP62792-MB	Q28456.D	1	11/21/16	NAF	11/21/16	OP62792	SQ775

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

FA38820-1, FA38820-2, FA38820-3

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

CAS No.	Surrogate Recoveries		Limits
	13C2-PFHxA	87%	70-130%
	13C2-PFDA	120%	70-130%

Blank Spike Summary

Job Number: FA38820
Account: AECOMVAA AECOM
Project: JU06; Bay Head Rd, Annapolis, MD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP62792-BS	Q28455.D	1	11/21/16	NAF	11/21/16	OP62792	SQ775

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

FA38820-1, FA38820-2, FA38820-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
335-67-1	Perfluorooctanoic acid	0.08	0.0700	88	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0743	93	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0687	86	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	88%	70-130%
	13C2-PFDA	109%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA38820
Account: AECOMVAA AECOM
Project: JU06; Bay Head Rd, Annapolis, MD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP62792-MS	Q28458.D	1	11/21/16	NAF	11/21/16	OP62792	SQ775
OP62792-MSD	Q28459.D	1	11/21/16	NAF	11/21/16	OP62792	SQ775
FA38820-1	Q28457.D	1	11/21/16	NAF	11/21/16	OP62792	SQ775

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

FA38820-1, FA38820-2, FA38820-3

CAS No.	Compound	FA38820-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
335-67-1	Perfluorooctanoic acid	0.0080	U	0.08	0.0761	95	0.08	0.0739	92	3	70-130/30
375-73-5	Perfluorobutanesulfonic acid	0.0080	U	0.08	0.0758	95	0.08	0.0792	99	4	70-130/30
1763-23-1	Perfluorooctanesulfonic acid	0.0080	U	0.08	0.0615	77	0.08	0.0688	86	11	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	FA38820-1	Limits
	13C2-PFHxA	83%	85%	79%	70-130%
	13C2-PFDA	108%	110%	105%	70-130%

* = Outside of Control Limits.

Semivolatile Internal Standard Area Summary

Job Number: FA38820
Account: AECOMVAA AECOM
Project: JU06; Bay Head Rd, Annapolis, MD

Check Std:	SQ775-CC775	**Injection Date:**	11/21/16
Lab File ID:	Q28453.D	**Injection Time:**	16:58
Instrument ID:	GCMSQ	**Method:**	EPA 537

	IS 1 AREA	RT	IS 2 AREA	RT
Initial Cal [a]	17393	3.26	5752	3.78
Check Std [b]	14652	3.20	5422	3.71
Upper Limit [c]	26090	4.20	8628	4.71
Lower Limit [d]	8697	2.20	2876	2.71

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT
OP62792-BS	15283	3.19	5747	3.70
OP62792-MB	14137	3.19	5437	3.70
FA38820-1	13453	3.18	5527	3.70
OP62792-MS	12418	3.18	5526	3.70
OP62792-MSD	12771	3.18	5479	3.70
FA38820-2	13397	3.18	5678	3.70
FA38820-3	12721	3.18	5522	3.70
ZZZZZZ	12348	3.18	5426	3.70
ZZZZZZ	12632	3.18	5422	3.69

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

(a) Initial Cal is: SQ775-ICC775 Q28427.D 11/21/16 11:53. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to + 50% of initial cal area.
(c) Upper Limit = + 50% of initial standard area; Retention time + 1 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -1 minutes of check standard.

Semivolatile Surrogate Recovery Summary

Job Number: FA38820
Account: AECOMVAA AECOM
Project: JU06; Bay Head Rd, Annapolis, MD

Method: EPA 537 **Matrix:** DW

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2
FA38820-1	Q28457.D	79	105
FA38820-2	Q28460.D	86	130
FA38820-3	Q28461.D	80	118
OP62792-BS	Q28455.D	88	109
OP62792-MB	Q28456.D	87	120
OP62792-MS	Q28458.D	83	108
OP62792-MSD	Q28459.D	85	110

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

Initial Calibration Summary

Job Number: FA38820
Account: AECOMVAA AECOM
Project: JU06; Bay Head Rd, Annapolis, MD

Sample: SQ775-ICC775
Lab FileID: Q28427.D

Initial Calibration ReSponse Factors - D:\MassHunter\Data\1121_UCMR3_SQ775\SQ775.batch.bin

Level ID : Calibration File
1 : D:\MassHunter\Data\1121_UCMR3_SQ775\Q28423.d
2 : D:\MassHunter\Data\1121_UCMR3_SQ775\Q28424.d
3 : D:\MassHunter\Data\1121_UCMR3_SQ775\Q28425.d
4 : D:\MassHunter\Data\1121_UCMR3_SQ775\Q28426.d
5 : D:\MassHunter\Data\1121_UCMR3_SQ775\Q28427.d
6 : D:\MassHunter\Data\1121_UCMR3_SQ775\Q28428.d
7 : D:\MassHunter\Data\1121_UCMR3_SQ775\Q28429.d
8 : D:\MassHunter\Data\1121_UCMR3_SQ775\Q28430.d

Compound	1	2	3	4	5	6	7	8	AvgRF	%RSD	r^2
5) 13C2-PFOA	----------ISTD----------										
2) 13C2-PFDA	1.0031	0.9501	0.9275	0.9265	0.8885	0.9498	0.9734	0.9213	0.9425	3.717	0.9990
4) 13C2-PFHxA	0.3970	0.3682	0.3583	0.3490	0.3339	0.3568	0.3567	0.3330	0.3566	5.703	0.9982
19) PFHpA	0.4714	0.3925	0.3919	0.3912	0.3641	0.3911	0.3899	0.3607	0.3941	8.594	0.9976
23) PFNA	0.4874	0.4357	0.4271	0.4162	0.3870	0.4110	0.4103	0.3813	0.4195	7.860	0.9978
24) PFOA	1.1621	1.0395	1.0063	1.0008	0.9377	1.0102	1.0307	0.9777	1.0206	6.403	0.9991
6) 13C4-PFOS	----------ISTD----------										
15) PFBS	0.8771	0.8042	0.8106	0.7949	0.7691	0.8246	0.8115	0.8017	0.8117	3.811	0.9997
22) PFHxS	1.0617	0.9645	0.9574	0.9366	0.9127	0.9624	0.9720	0.9481	0.9644	4.517	0.9997
25) PFOS	1.2343	1.0632	1.1154	1.1121	1.0443	1.1431	1.1515	1.1286	1.1241	5.161	0.9996

*(value) - Average RF below (value)

Initial Calibration Verification

Job Number: FA38820
Account: AECOMVAA AECOM
Project: JU06; Bay Head Rd, Annapolis, MD

Sample: SQ775-ICV775
Lab FileID: Q28431.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1121_UCMR3_SQ775\SQ775.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28423.d
2:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28424.d
3:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28425.d
4:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28426.d
5:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28427.d
6:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28428.d
7:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28429.d
8:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28430.d

Data File: Q28431
Type : QC
Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-PFDA	20.000	0.000	0.0	0.0
13C2-PFHxA	20.000	0.000	0.0	0.0
13C2-PFOA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
PFBS	20.000	17.630	-11.9	88.1
PFHpA	20.000	22.181	10.9	110.9
PFHxS	20.000	18.723	-6.4	93.6
PFNA	20.000	20.436	2.2	102.2
PFOA	20.000	21.422	7.1	107.1
PFOS	20.000	19.511	-2.4	97.6

CC Criteria: +/- 25%

Continuing Calibration Summary

Job Number: FA38820
Account: AECOMVAA AECOM
Project: JU06; Bay Head Rd, Annapolis, MD

Sample: SQ775-CC775
Lab FileID: Q28453.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1121_UCMR3_SQ775\SQ775.batch.bin

Level ID:Calibration File
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3:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28425.d
4:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28426.d
5:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28427.d
6:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28428.d
7:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28429.d
8:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28430.d

Data File: Q28453
Type : QC
Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-PFDA	20.000	22.105	10.5	110.5
13C2-PFHxA	20.000	18.159	-9.2	90.8
13C2-PFOA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
PFBS	20.000	20.034	0.2	100.2
PFHpA	20.000	19.185	-4.1	95.9
PFHxS	20.000	20.526	2.6	102.6
PFNA	20.000	20.632	3.2	103.2
PFOA	20.000	19.154	-4.2	95.8
PFOS	20.000	19.216	-3.9	96.1

CC Criteria: +/- 25%

Continuing Calibration Summary

Job Number: FA38820
Account: AECOMVAA AECOM
Project: JU06; Bay Head Rd, Annapolis, MD

Sample: SQ775-CC775
Lab FileID: Q28464.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1121_UCMR3_SQ775\SQ775.batch.bin

Level ID:Calibration File
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2:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28424.d
3:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28425.d
4:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28426.d
5:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28427.d
6:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28428.d
7:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28429.d
8:D:\MassHunter\Data\1121_UCMR3_SQ775\Q28430.d

Data File: Q28464
Type : QC
Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-PFDA	20.000	22.726	13.6	113.6
13C2-PFHxA	20.000	17.544	-12.3	87.7
13C2-PFOA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
PFBS	20.000	20.048	0.2	100.2
PFHpA	20.000	18.415	-7.9	92.1
PFHxS	20.000	20.614	3.1	103.1
PFNA	20.000	20.986	4.9	104.9
PFOA	20.000	18.946	-5.3	94.7
PFOS	20.000	19.275	-3.6	96.4

CC Criteria: +/- 25%

GC/MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS.

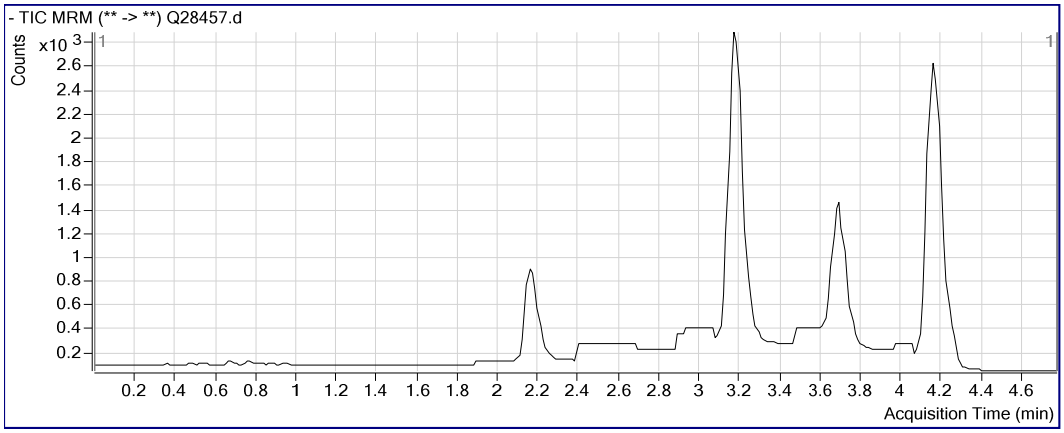
Data File	:	Q28457.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 17:41
Sample Name	:	FA38820-1
Vial	:	Vial 53
Sample Info	:	OP62792,SQ775,250,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
13C2-PFOA	3.177	415.0 -> 370.0	13453	20.000	µg/L	-0.085
13C4-PFOS	3.698	503.0 -> 80.0	5527	20.000	µg/L	-0.080
System Monitoring Compounds						
13C2-PFHxA	2.162	315.0 -> 270.0	3633	15.89	µg/L	-0.053
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 79.47%			
13C2-PFDA	4.166	515.0 -> 470.0	13169	20.99	µg/L	-0.107
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 104.97%			
Target Compounds						**Qvalue**

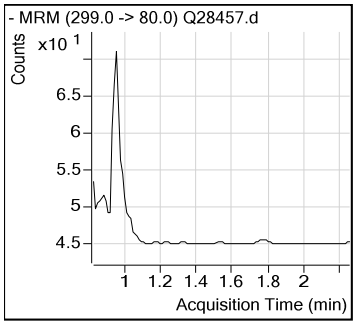
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

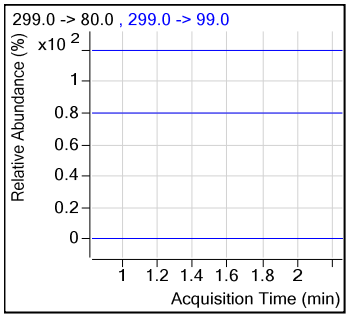
Perfluorinated Compounds by LC/MS/MS.

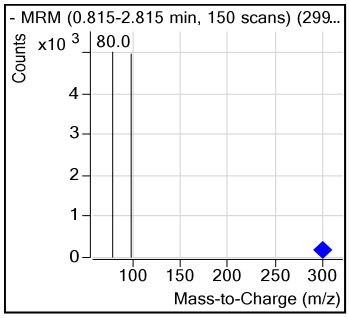
Data File	:	Q28457.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 17:41
Sample Name	:	FA38820-1
Vial	:	Vial 53
Sample Info	:	OP62792,SQ775,250,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



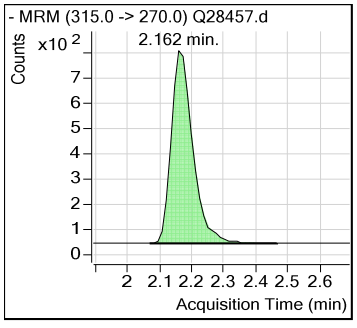
PFBS

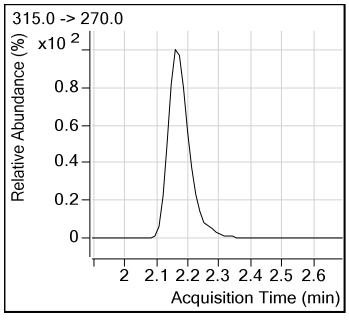


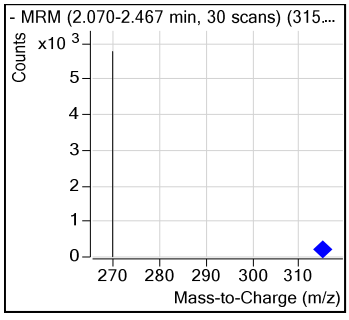




13C2-PFHxA

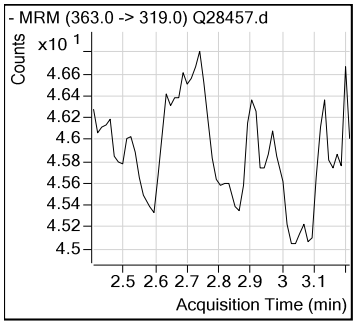


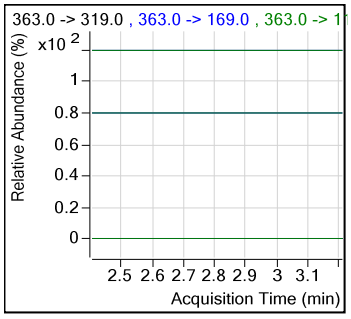


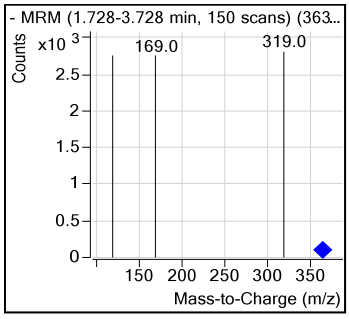


Perfluorinated Compounds by LC/MS/MS.

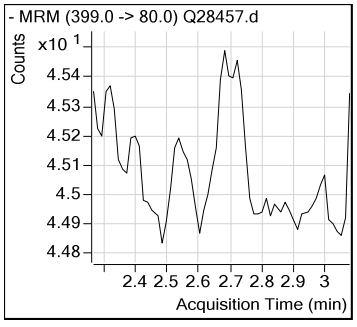
PFHpA

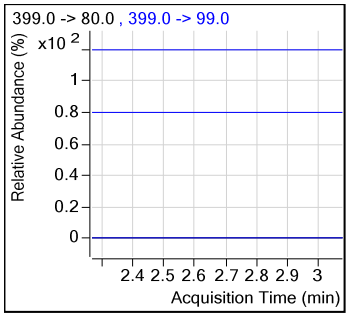


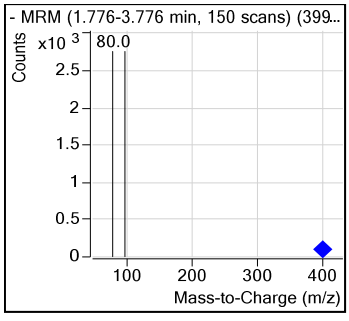




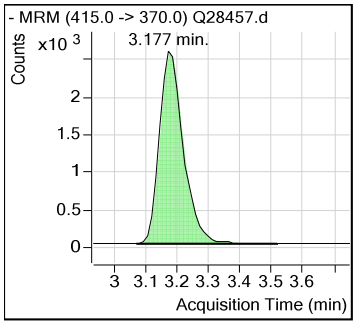
PFHxS

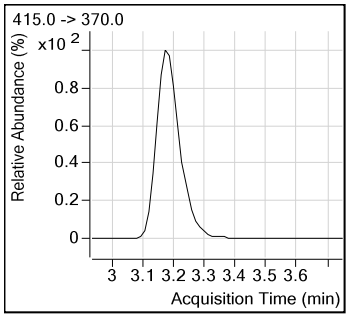


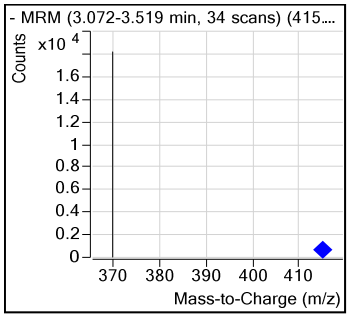




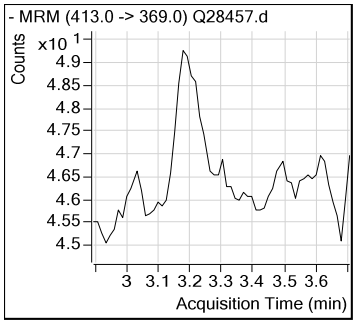
13C2-PFOA

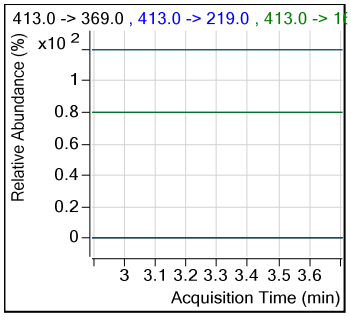


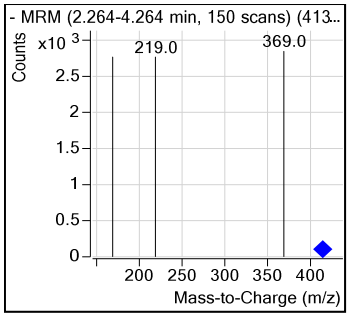




PFOA

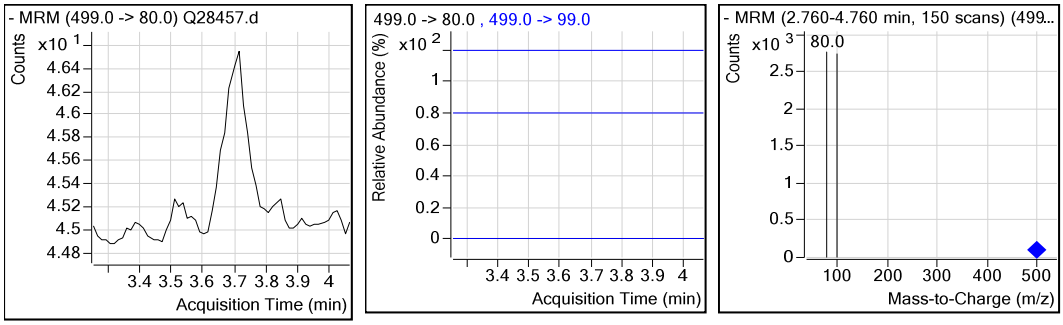




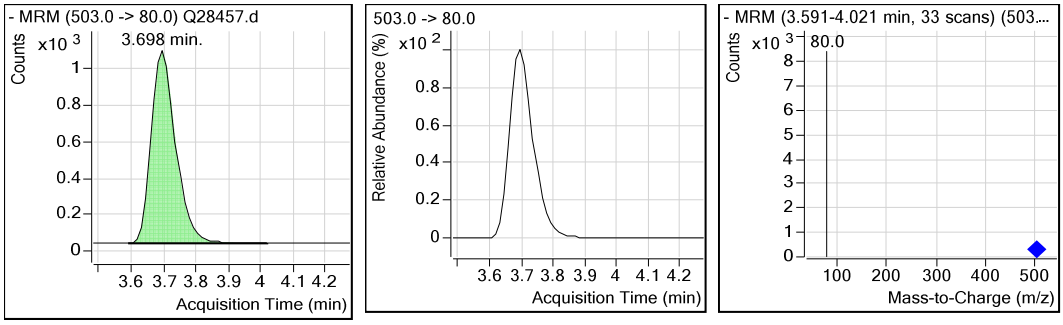


Perfluorinated Compounds by LC/MS/MS.

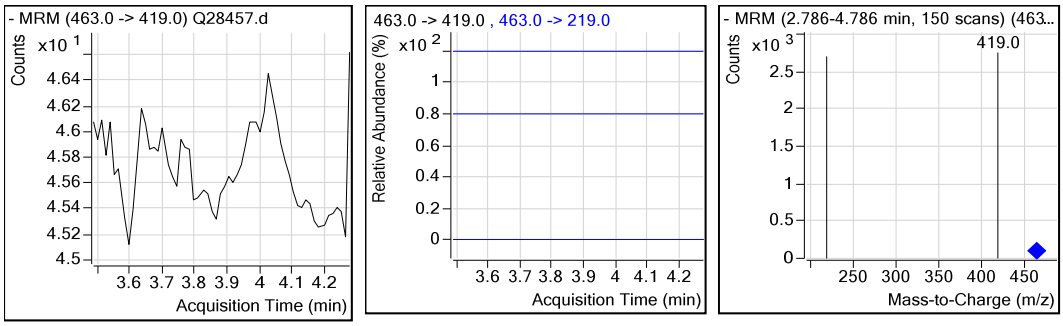
PFOS



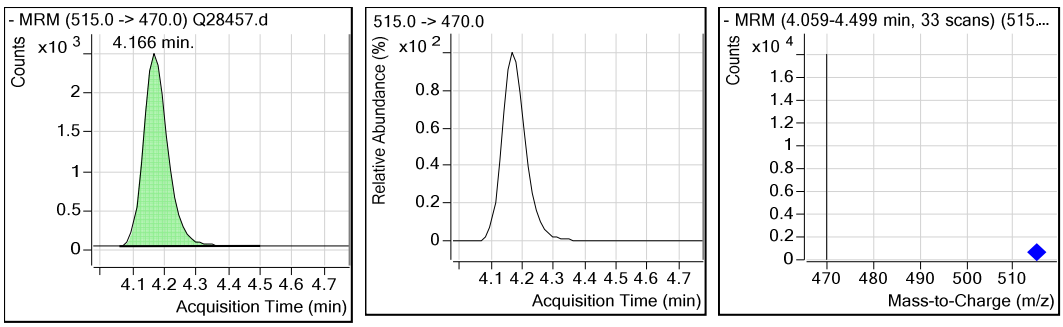
13C4-PFOS



PFNA



13C2-PFDA



Calibration Curve

Perfluorinated Compounds by LC/MS/MS.

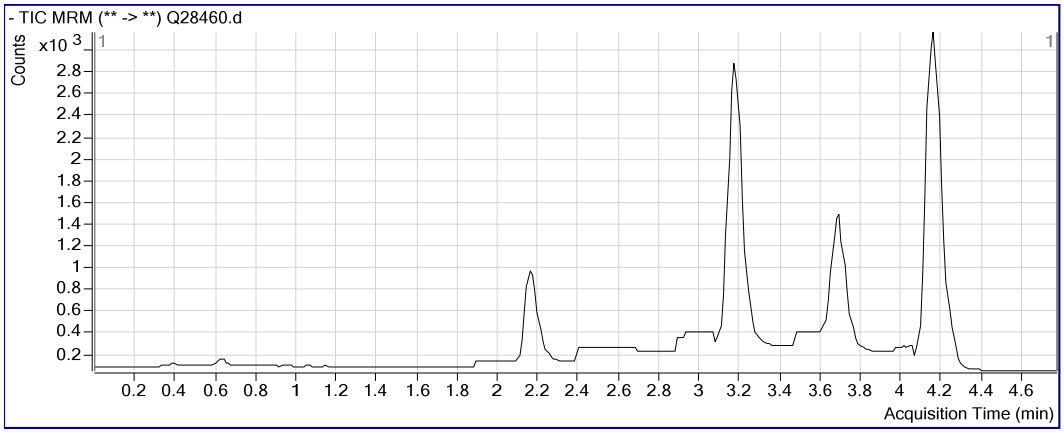
Data File	:	Q28460.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 18:14
Sample Name	:	FA38820-2
Vial	:	Vial 56
Sample Info	:	OP62792,SQ775,250,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
13C2-PFOA	3.177	415.0 -> 370.0	13397	20.000	µg/L	-0.085
13C4-PFOS	3.698	503.0 -> 80.0	5678	20.000	µg/L	-0.080
System Monitoring Compounds						
13C2-PFHxA	2.162	315.0 -> 270.0	3935	17.28	µg/L	-0.053
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 86.42%			
13C2-PFDA	4.166	515.0 -> 470.0	16186	25.91	µg/L	-0.107
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 129.57%			
Target Compounds						**Qvalue**

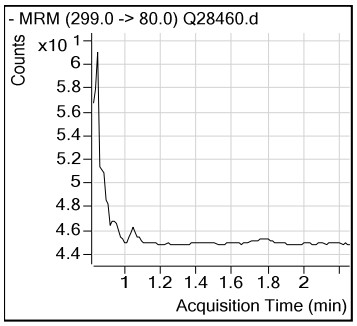
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

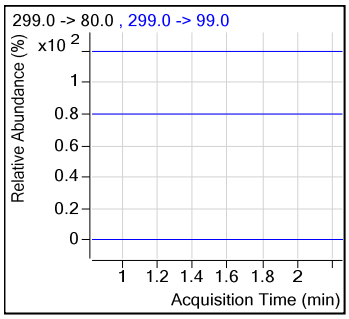
Perfluorinated Compounds by LC/MS/MS.

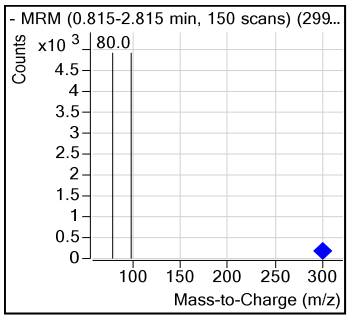
Data File	:	Q28460.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 18:14
Sample Name	:	FA38820-2
Vial	:	Vial 56
Sample Info	:	OP62792,SQ775,250,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



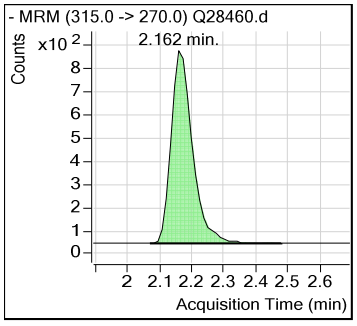
PFBS

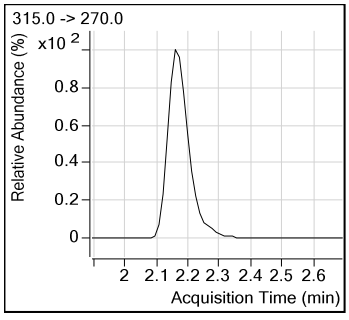


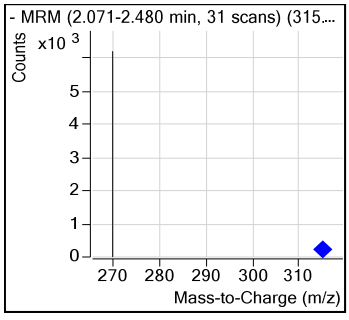




13C2-PFHxA

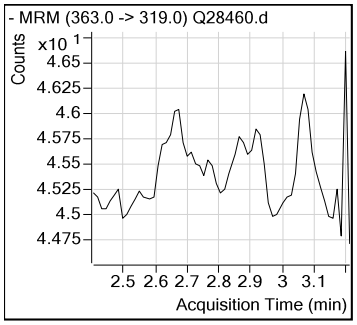


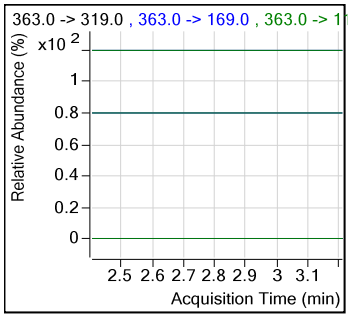


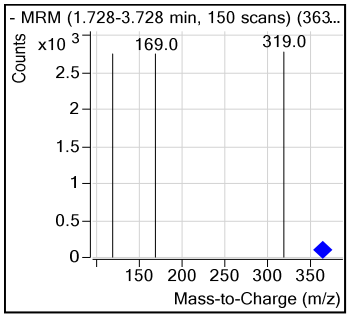


Perfluorinated Compounds by LC/MS/MS.

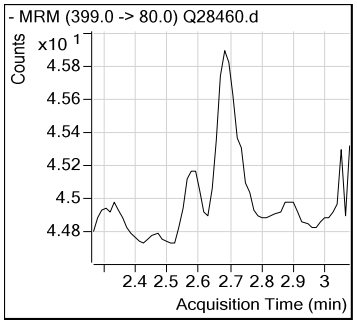
PFHpA

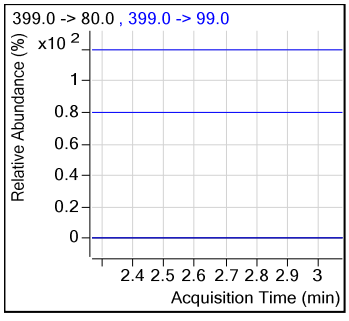


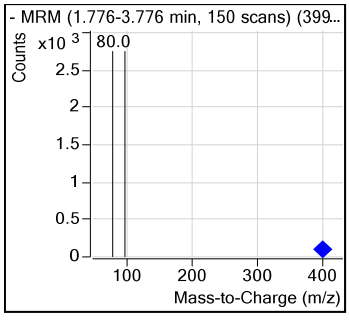




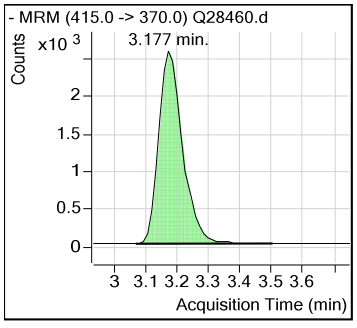
PFHxS

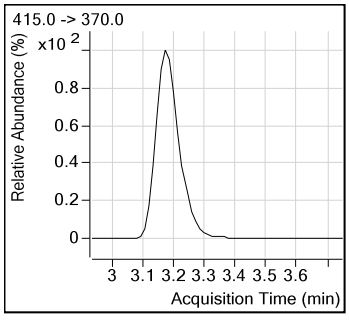


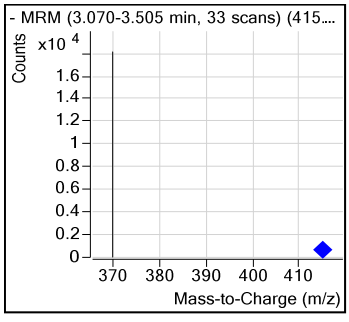




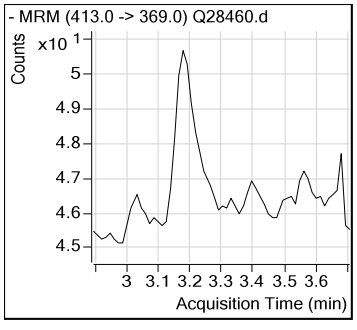
13C2-PFOA

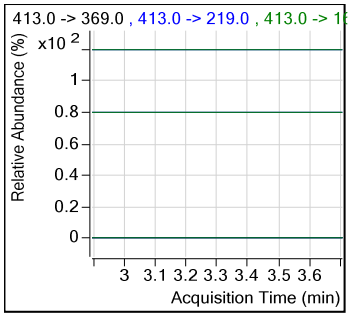


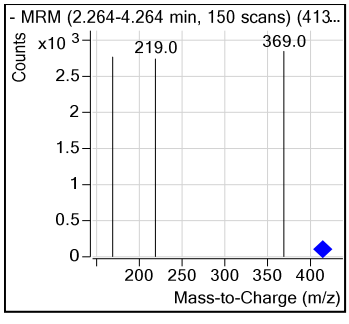




PFOA

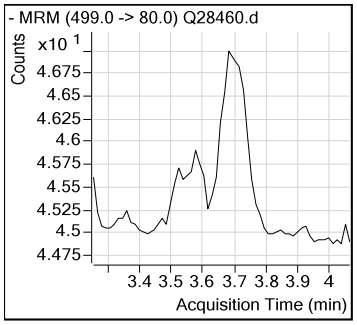


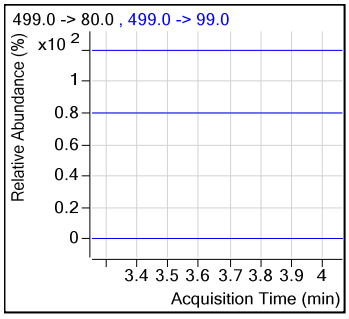


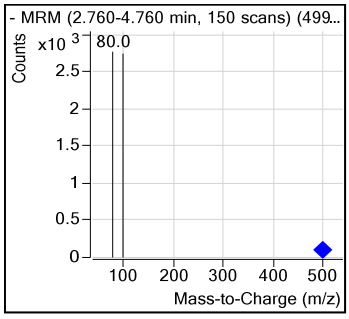


Perfluorinated Compounds by LC/MS/MS.

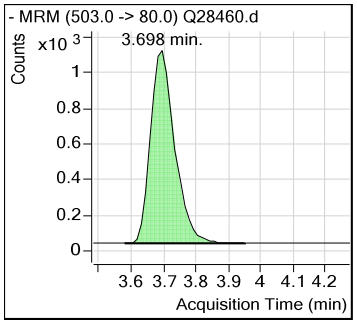
PFOS

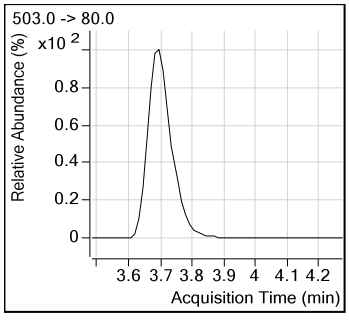


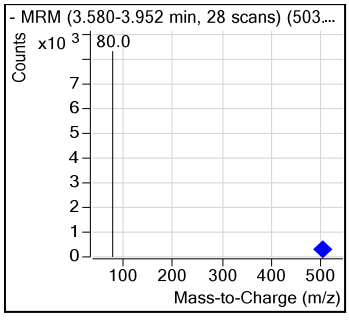




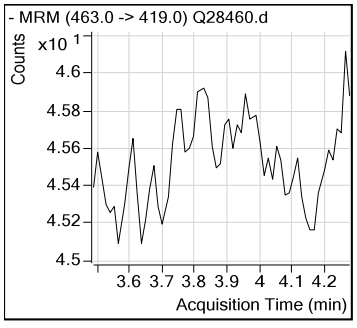
13C4-PFOS

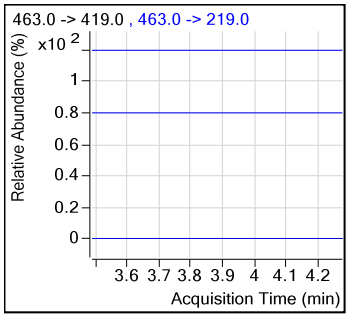


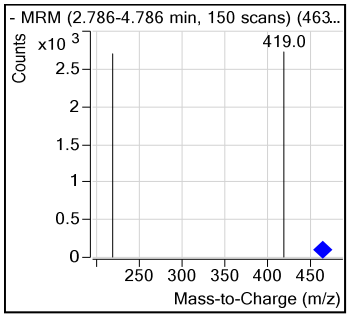




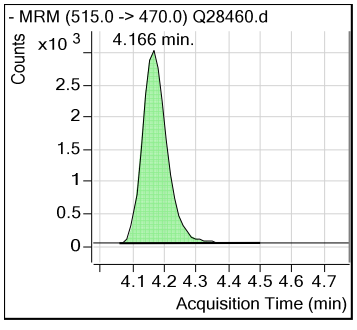
PFNA

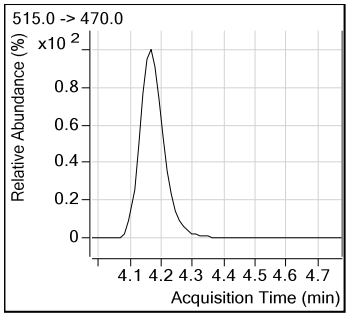


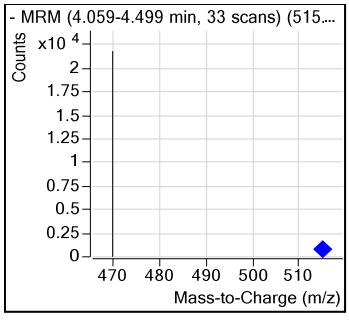




13C2-PFDA







Calibration Curve

Perfluorinated Compounds by LC/MS/MS.

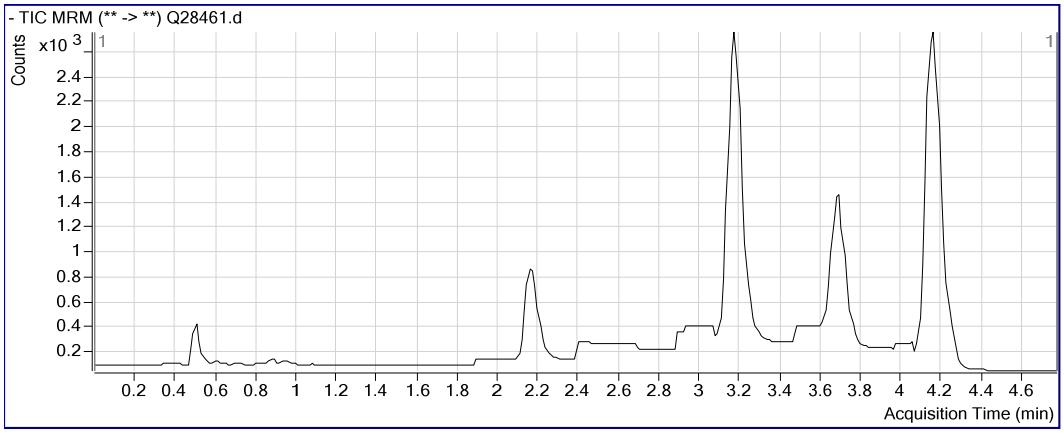
Data File	:	Q28461.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 18:25
Sample Name	:	FA38820-3
Vial	:	Vial 57
Sample Info	:	OP62792,SQ775,250,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.177	415.0 -> 370.0	12721	20.000	µg/L		-0.085
13C4-PFOS	3.698	503.0 -> 80.0	5522	20.000	µg/L		-0.080
System Monitoring Compounds							
13C2-PFHxA	2.162	315.0 -> 270.0	3476	16.08	µg/L		-0.053
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 80.40%				
13C2-PFDA	4.166	515.0 -> 470.0	14022	23.64	µg/L		-0.107
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 118.21%				
Target Compounds							**Qvalue**
PFBS	0.894	299.0 -> 80.0	0	0.000	µg/L	m	1

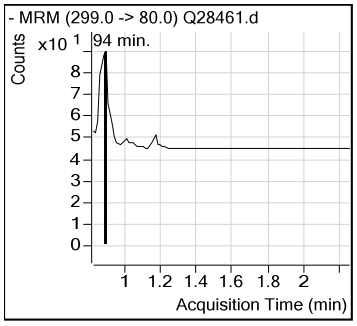
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

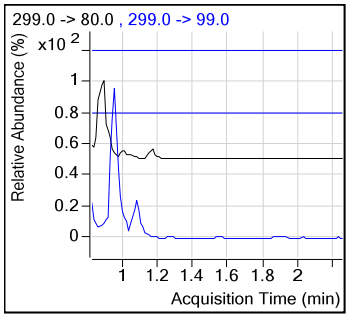
Perfluorinated Compounds by LC/MS/MS.

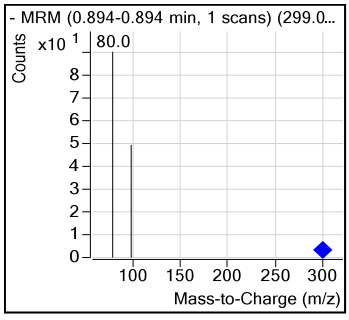
Data File	:	Q28461.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 18:25
Sample Name	:	FA38820-3
Vial	:	Vial 57
Sample Info	:	OP62792,SQ775,250,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



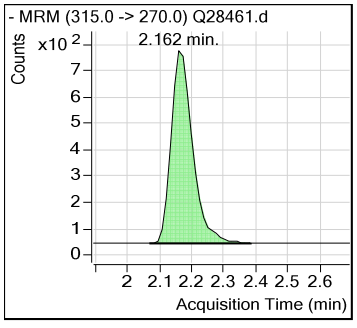
PFBS

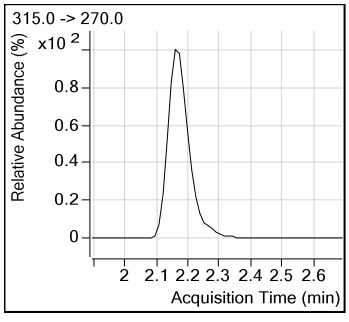


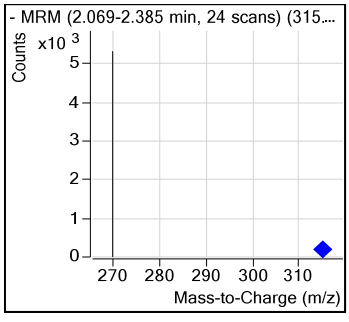




13C2-PFHxA

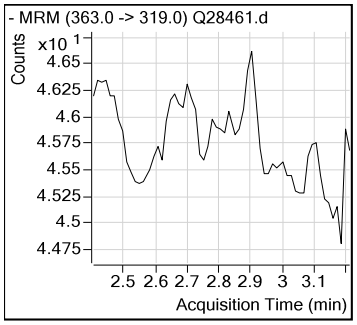


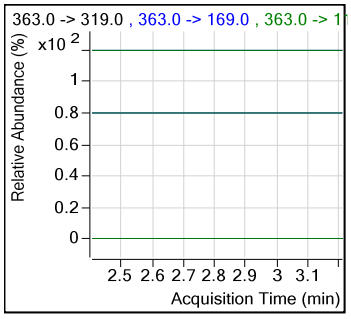


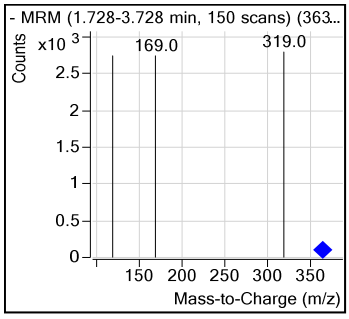


Perfluorinated Compounds by LC/MS/MS.

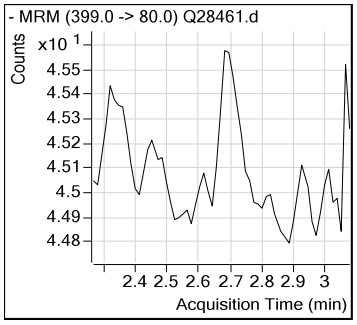
PFHpA

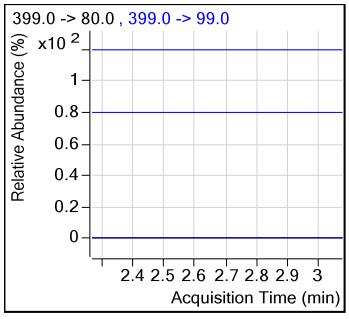


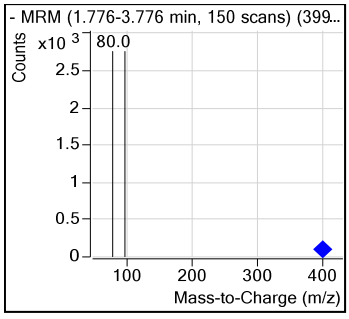




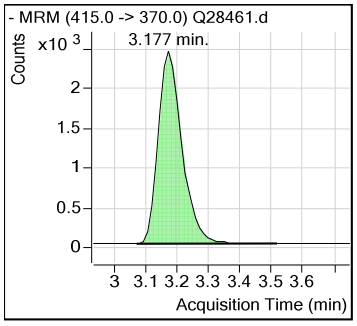
PFHxS

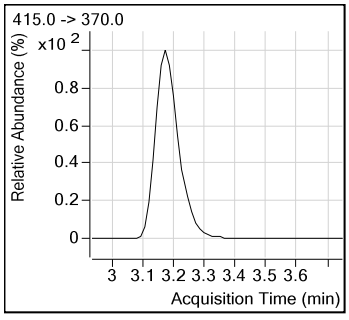


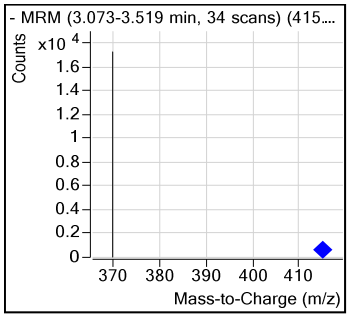




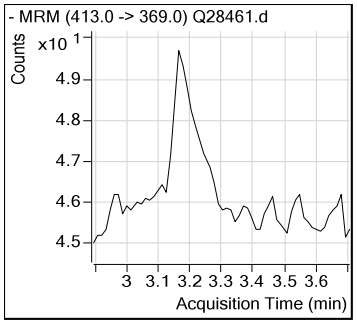
13C2-PFOA

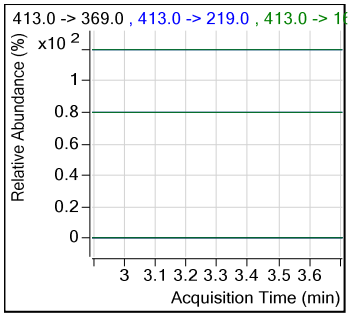


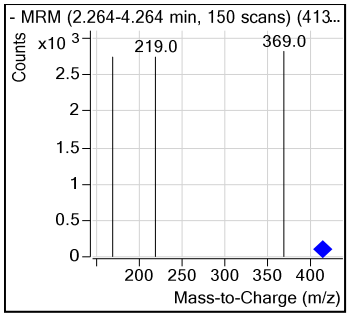




PFOA

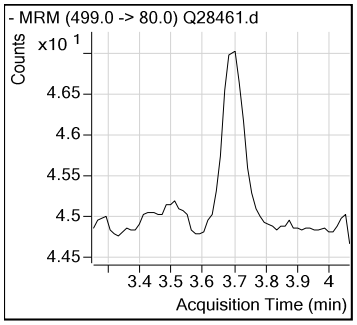


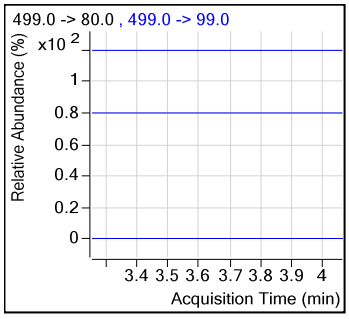


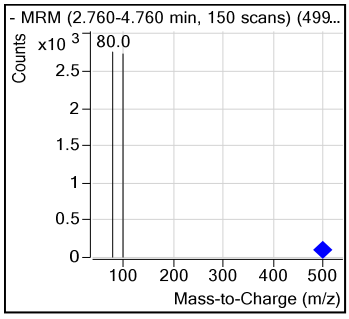


Perfluorinated Compounds by LC/MS/MS.

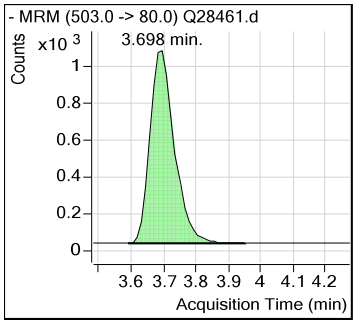
PFOS

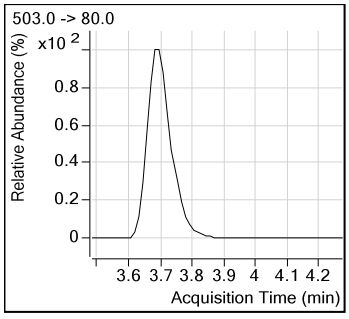


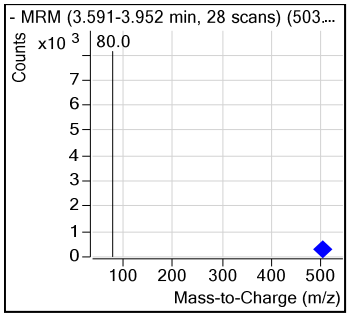




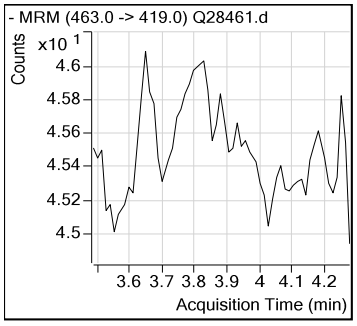
13C4-PFOS

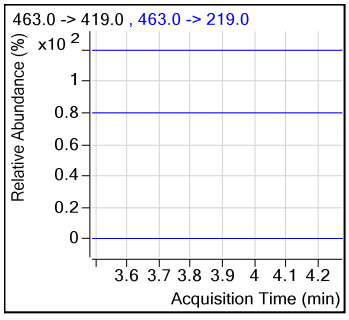


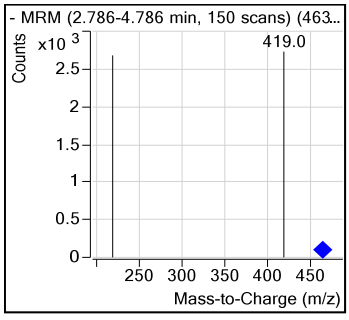




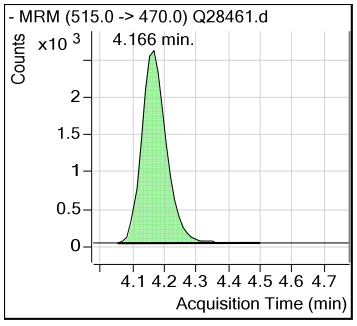
PFNA

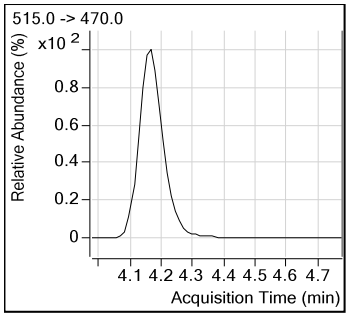


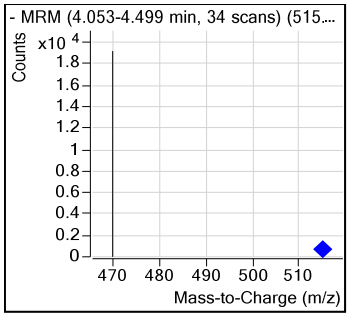




13C2-PFDA







Calibration Curve

Perfluorinated Compounds by LC/MS/MS.

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer 11/22/16 17:14

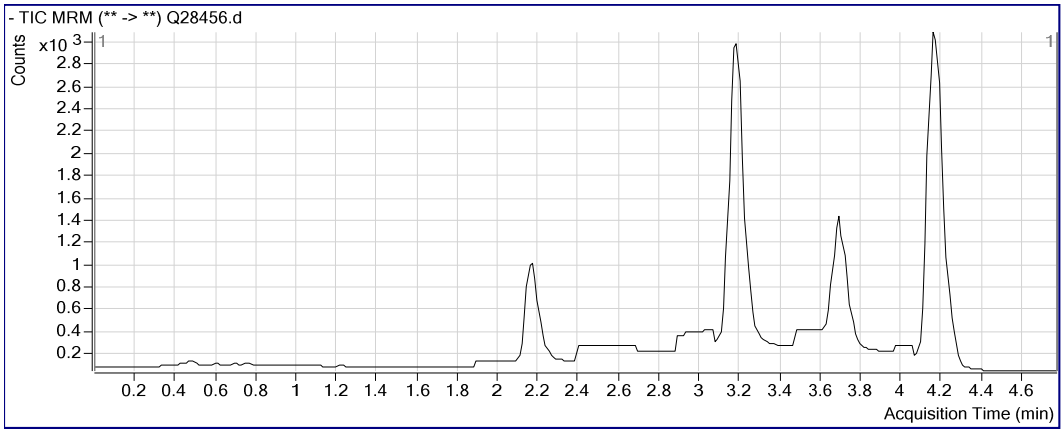
Data File	:	Q28456.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 17:30
Sample Name	:	OP62792-MB
Vial	:	Vial 52
Sample Info	:	OP62792,SQ775,250,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.190	415.0 -> 370.0	14137	20.000	µg/L		-0.071
13C4-PFOS	3.698	503.0 -> 80.0	5437	20.000	µg/L		-0.080
System Monitoring Compounds							
13C2-PFHxA	2.175	315.0 -> 270.0	4201	17.49	µg/L		-0.040
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 87.44%				
13C2-PFDA	4.166	515.0 -> 470.0	15782	23.94	µg/L		-0.107
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 119.72%				
Target Compounds							**Qvalue**
PFOS	3.700	499.0 -> 80.0	17	0.054	µg/L	m	97

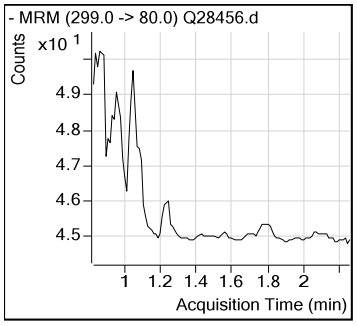
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

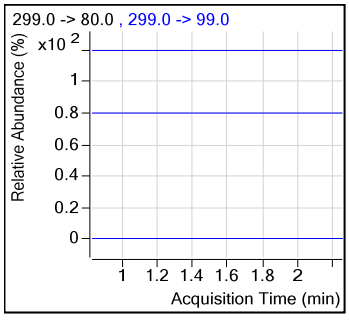
Perfluorinated Compounds by LC/MS/MS.

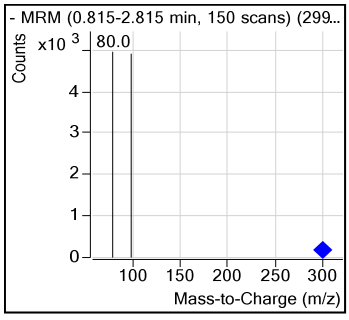
Data File	:	Q28456.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 17:30
Sample Name	:	OP62792-MB
Vial	:	Vial 52
Sample Info	:	OP62792,SQ775,250,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



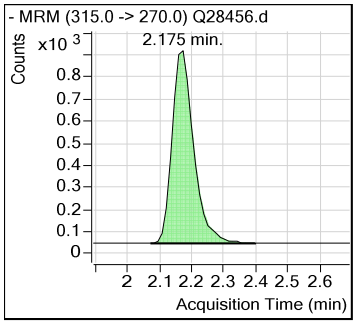
PFBS

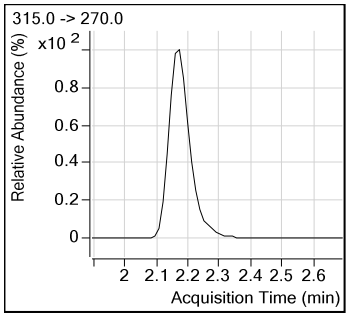


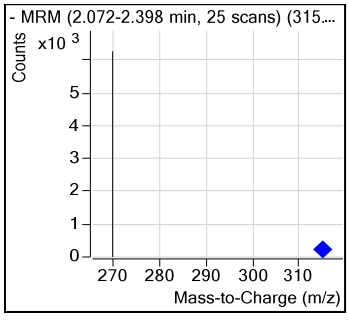




13C2-PFHxA

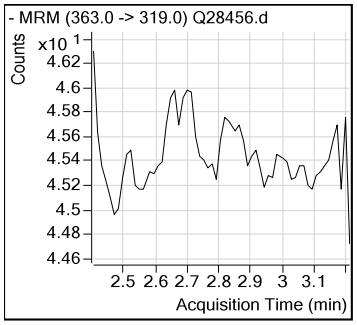


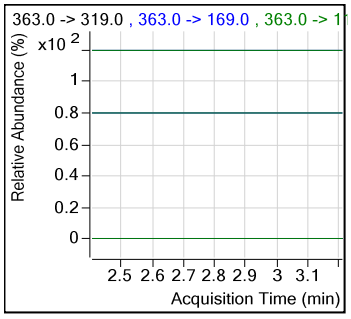


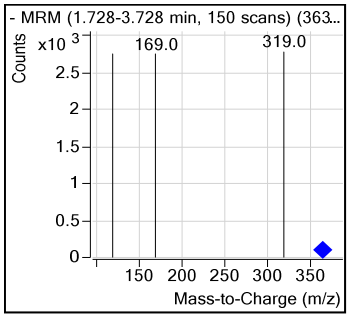


Perfluorinated Compounds by LC/MS/MS.

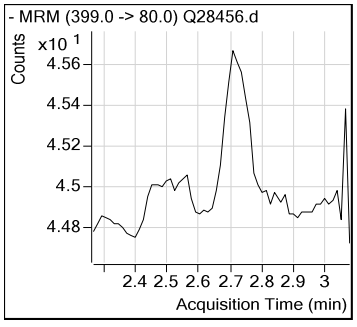
PFHpA

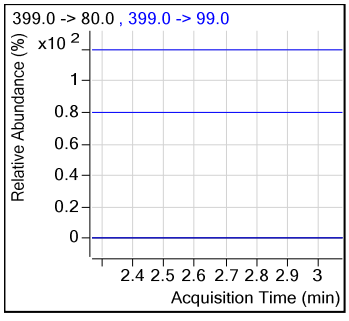


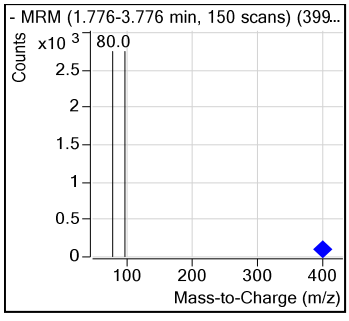




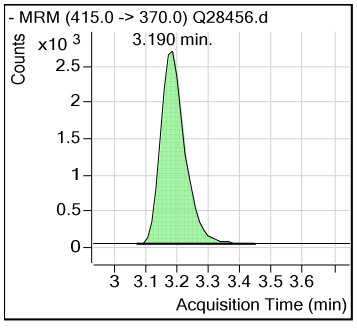
PFHxS

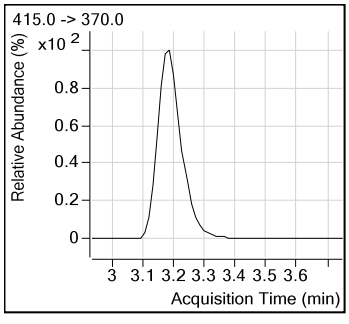


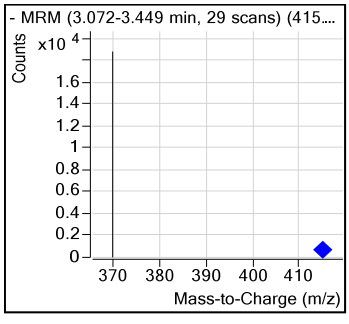




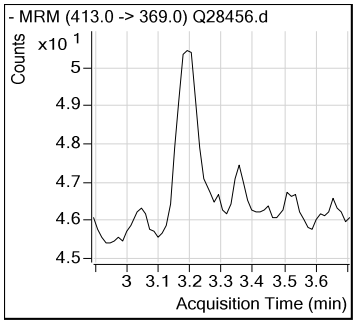
13C2-PFOA

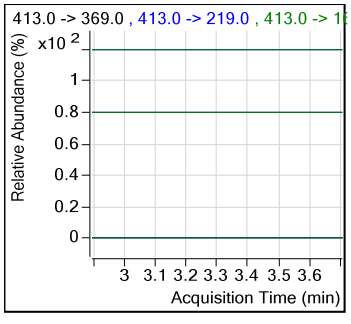


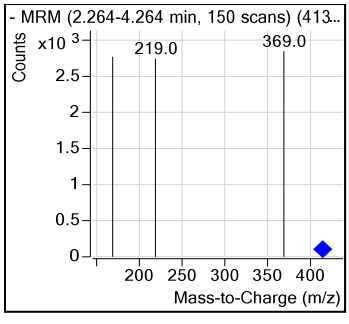




PFOA

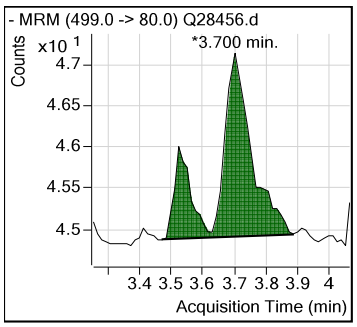


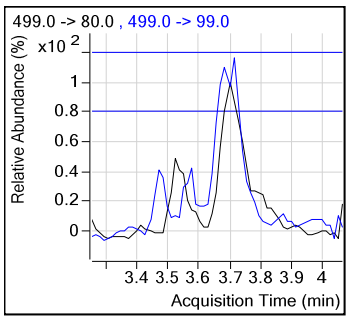


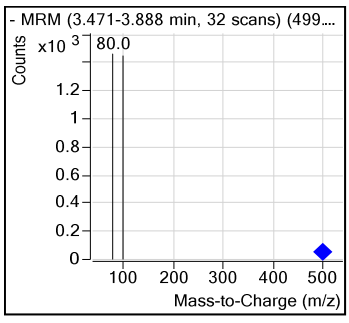


Perfluorinated Compounds by LC/MS/MS.

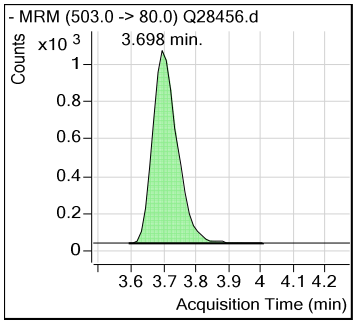
PFOS

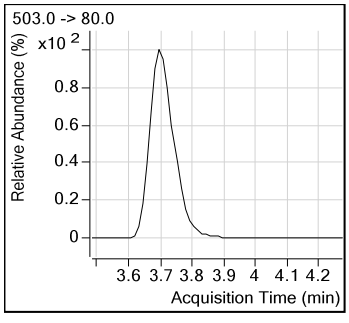


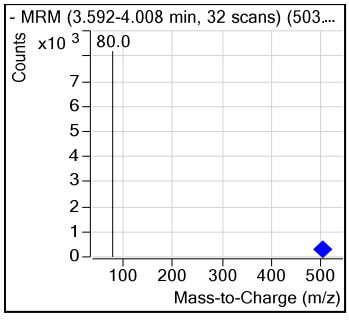




13C4-PFOS







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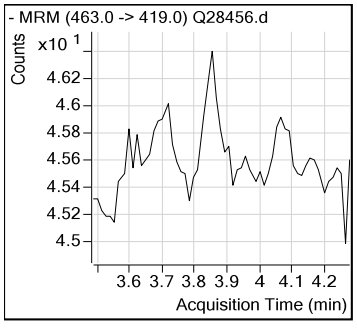
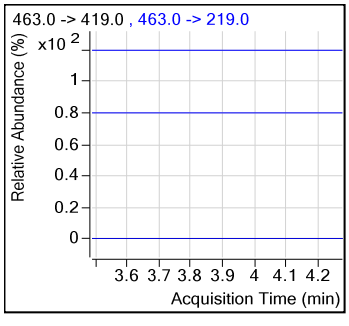
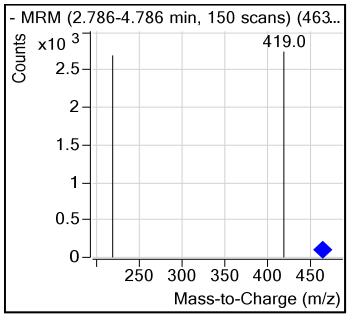
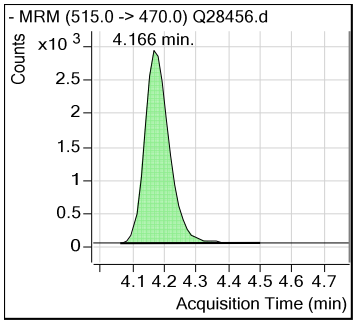
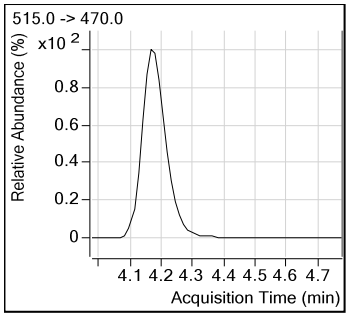


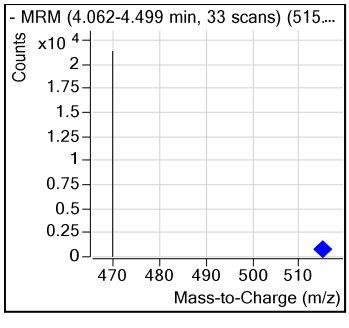




13C2-PFDA







Calibration Curve

Manual Integration Approval Summary

Sample Number:	OP62792-MB	**Method:**	EPA 537
Lab FileID:	Q28456.D	**Analyst approved:**	11/22/16 17:13 Norman Farmer
Injection Time:	11/21/16 17:30	**Supervisor approved:**	11/22/16 17:14 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		3.70	Split peak

Perfluorinated Compounds by LC/MS/MS.

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
11/22/16 17:14

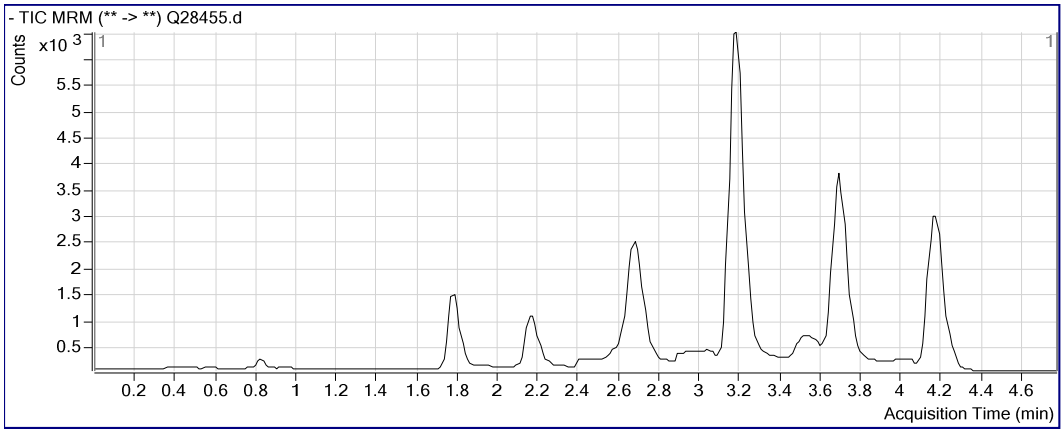
Data File	:	Q28455.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 17:20
Sample Name	:	OP62792-BS
Vial	:	Vial 51
Sample Info	:	OP62792,SQ775,250,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.190	415.0 -> 370.0	15283	20.000	µg/L		-0.071
13C4-PFOS	3.698	503.0 -> 80.0	5747	20.000	µg/L		-0.080
System Monitoring Compounds							
13C2-PFHxA	2.175	315.0 -> 270.0	4588	17.67	µg/L		-0.040
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 88.33%				
13C2-PFDA	4.179	515.0 -> 470.0	15517	21.78	µg/L		-0.093
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 108.88%				
Target Compounds							**Qvalue**
PFBS	1.775	299.0 -> 80.0	4299	18.587	µg/L		99
PFHpA	2.674	363.0 -> 319.0	5003	17.724	µg/L	#	92
PFHxS	2.696	399.0 -> 80.0	5277	19.276	µg/L	m	88
PFOA	3.192	413.0 -> 369.0	13232	17.502	µg/L		88
PFOS	3.700	499.0 -> 80.0	5587	17.181	µg/L	# m	82
PFNA	3.703	463.0 -> 419.0	5507	18.480	µg/L	#	80

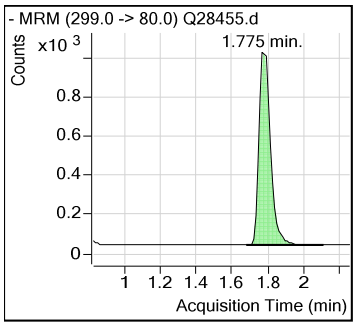
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

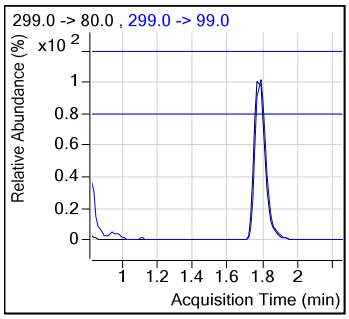
Perfluorinated Compounds by LC/MS/MS.

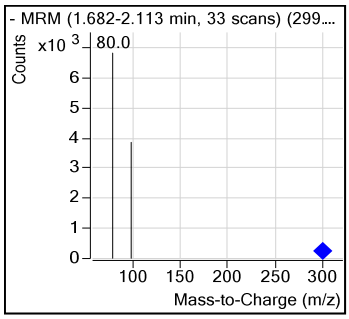
Data File	:	Q28455.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 17:20
Sample Name	:	OP62792-BS
Vial	:	Vial 51
Sample Info	:	OP62792,SQ775,250,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



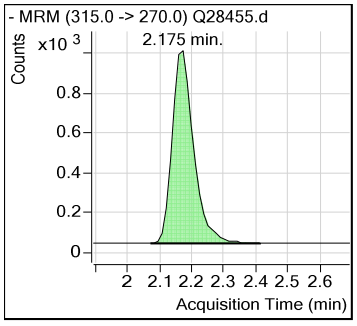
PFBS

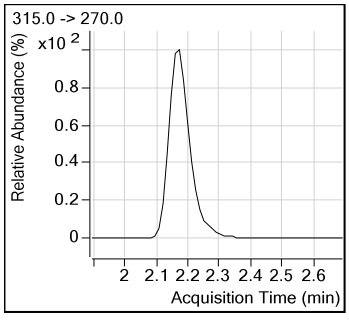


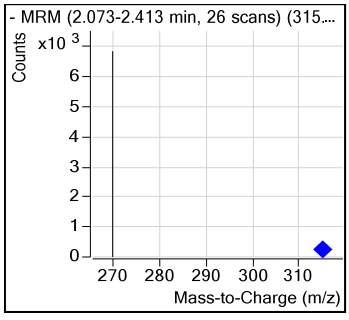




13C2-PFHxA

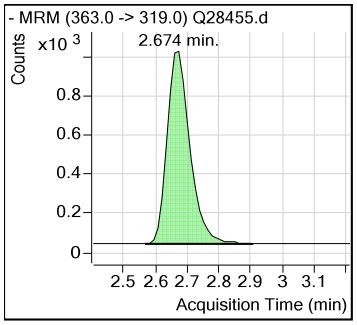


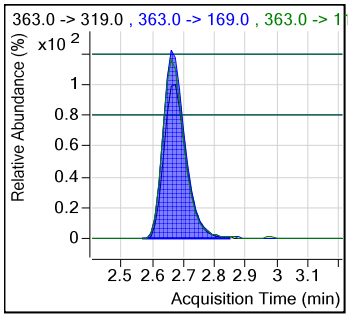


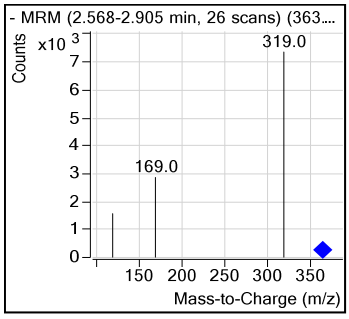


Perfluorinated Compounds by LC/MS/MS.

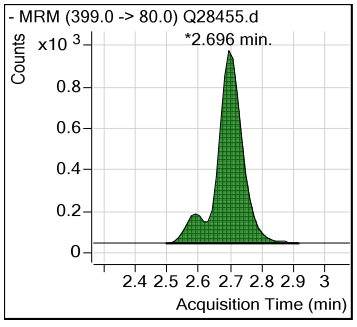
PFHpA

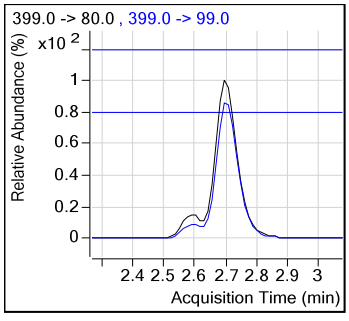


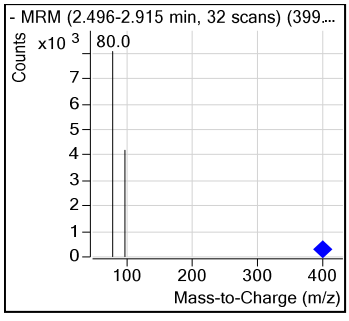




PFHxS







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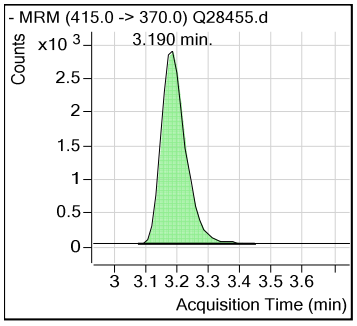
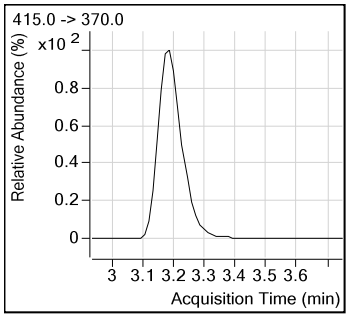
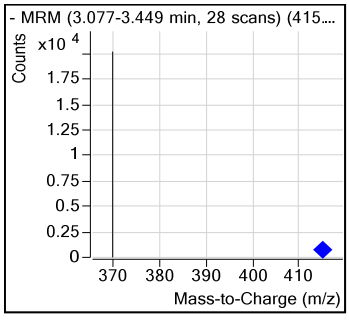
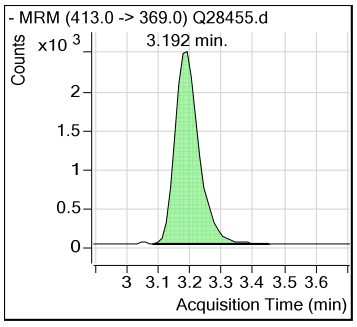
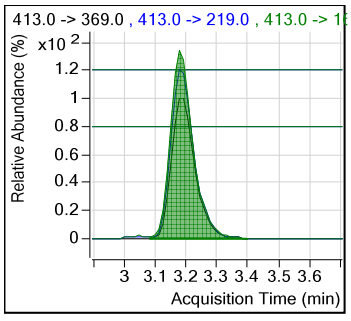


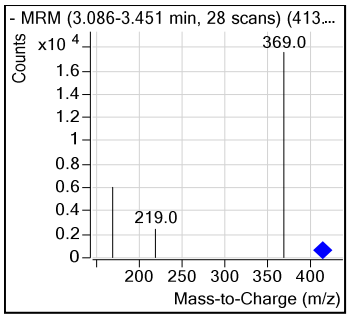




PFOA

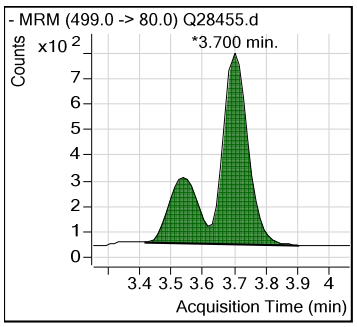


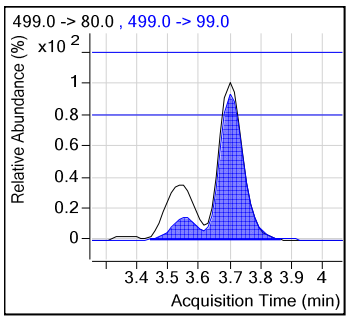


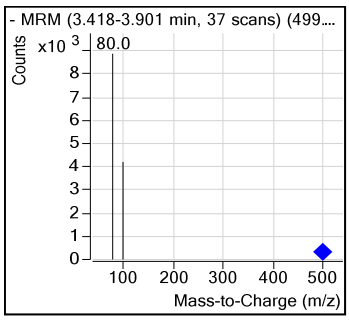


Perfluorinated Compounds by LC/MS/MS.

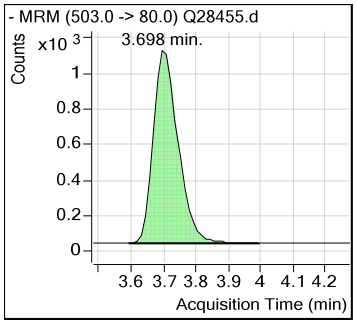
PFOS

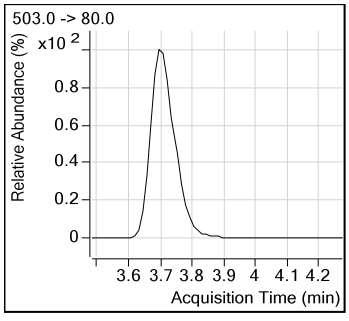


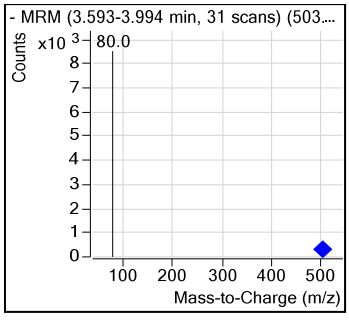




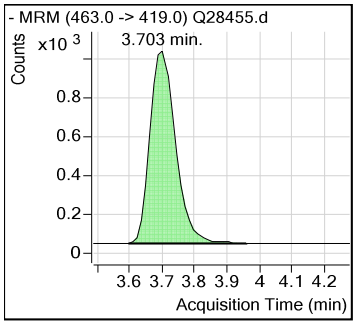
13C4-PFOS

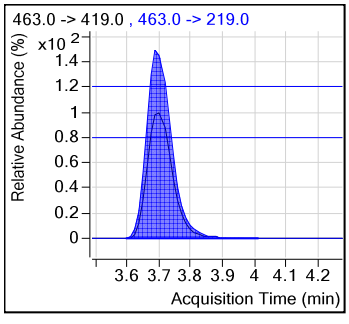


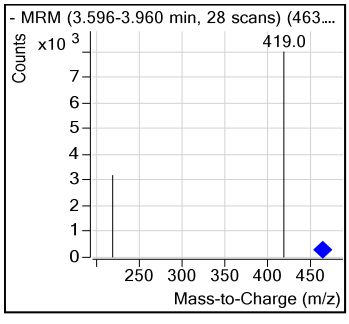




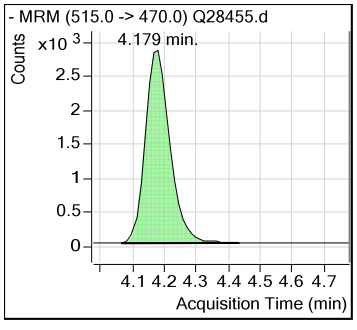
PFNA

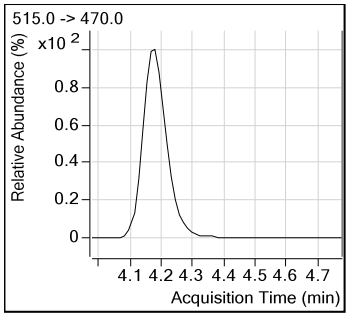


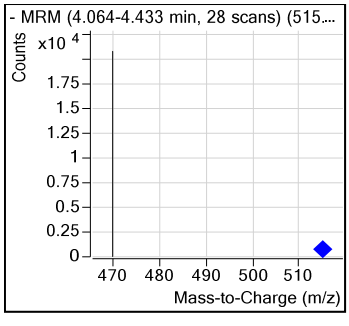




13C2-PFDA







Calibration Curve

Manual Integration Approval Summary

Sample Number: OP62792-BS
Lab FileID: Q28455.D
Injection Time: 11/21/16 17:20

Method: EPA 537
Analyst approved: 11/22/16 17:13 Norman Farmer
Supervisor approved: 11/22/16 17:14 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		2.70	Split peak
Perfluorooctanesulfonic acid	1763-23-1		3.70	Split peak

Perfluorinated Compounds by LC/MS/MS.

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer
11/22/16 17:14

Data File	:	Q28458.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 17:52
Sample Name	:	OP62792-MS
Vial	:	Vial 54
Sample Info	:	OP62792,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

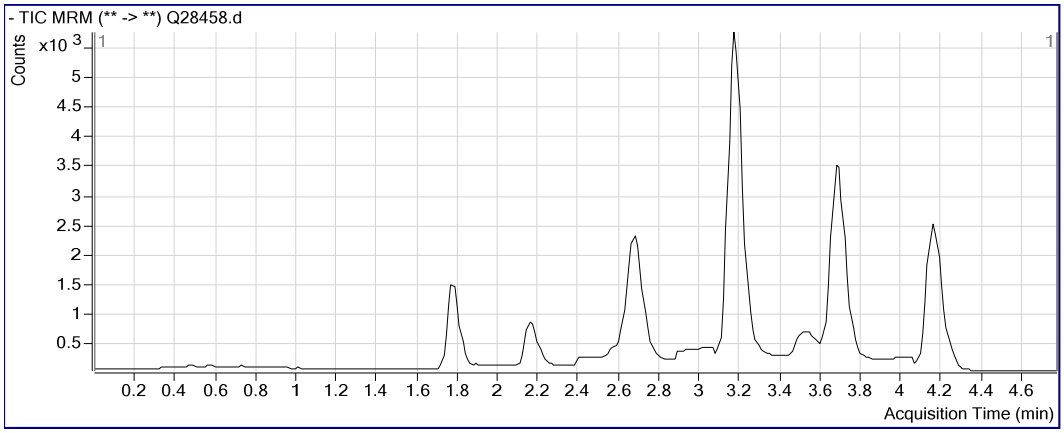
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.177	415.0 -> 370.0	12418	20.000	µg/L		-0.085
13C4-PFOS	3.698	503.0 -> 80.0	5526	20.000	µg/L		-0.080
System Monitoring Compounds							
13C2-PFHxA	2.162	315.0 -> 270.0	3486	16.52	µg/L		-0.053
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 82.61%				
13C2-PFDA	4.166	515.0 -> 470.0	12497	21.59	µg/L		-0.107
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 107.93%				
Target Compounds							**Qvalue**
PFBS	1.775	299.0 -> 80.0	4215	18.950	µg/L		99
PFHpA	2.661	363.0 -> 319.0	4114	17.937	µg/L		92
PFHxS	2.696	399.0 -> 80.0	5069	19.257	µg/L	m	90
PFOA	3.179	413.0 -> 369.0	11693	19.034	µg/L		89
PFNA	3.689	463.0 -> 419.0	5100	21.062	µg/L	#	80
PFOS	3.700	499.0 -> 80.0	4807	15.374	µg/L	# m	82

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

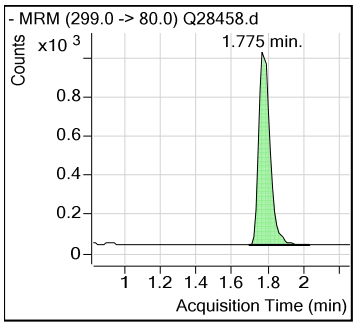
7.4.1
7

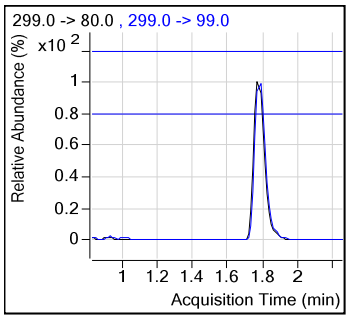
Perfluorinated Compounds by LC/MS/MS.

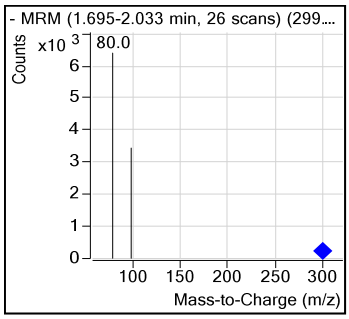
Data File	:	Q28458.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 17:52
Sample Name	:	OP62792-MS
Vial	:	Vial 54
Sample Info	:	OP62792,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



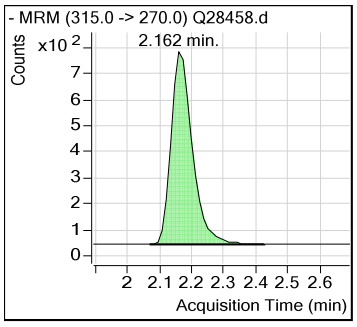
PFBS

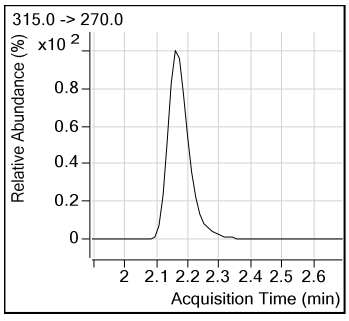


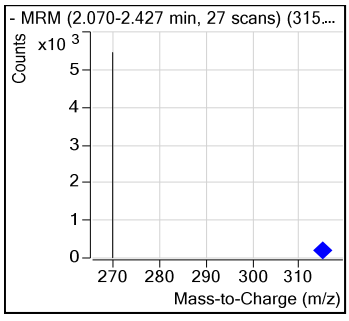




13C2-PFHxA

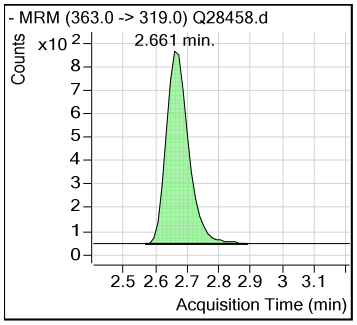


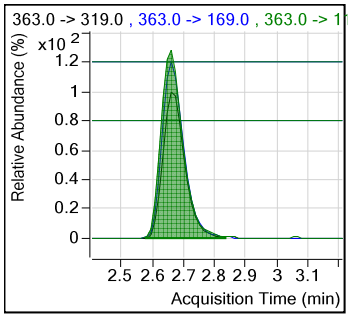


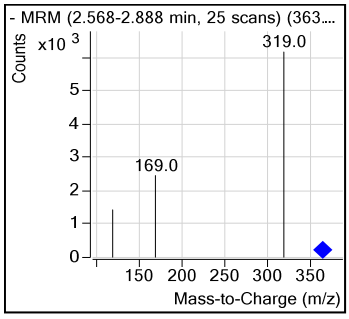


Perfluorinated Compounds by LC/MS/MS.

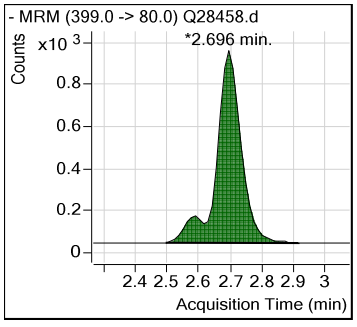
PFHpA

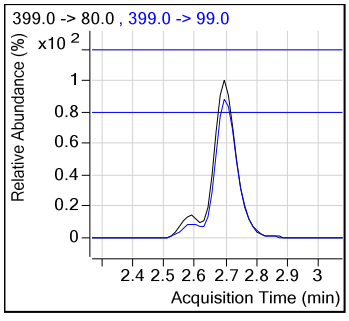


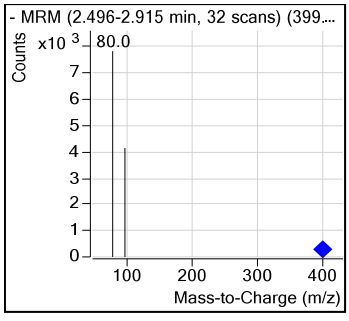




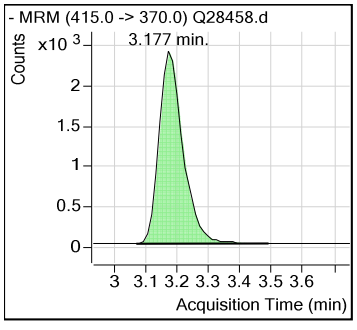
PFHxS

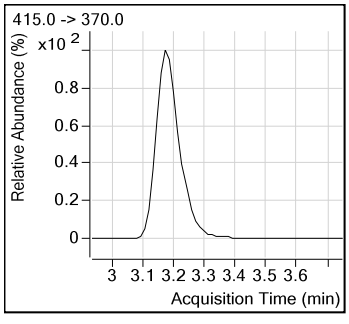


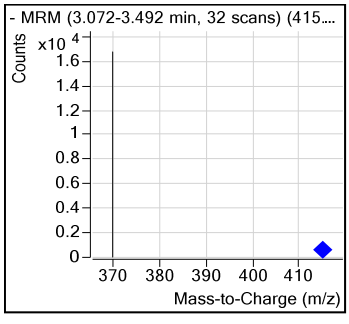




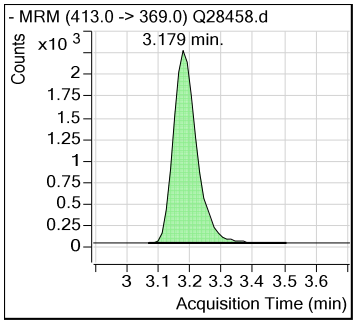
13C2-PFOA

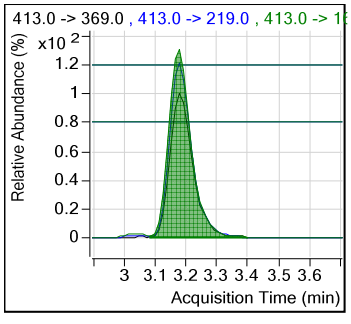


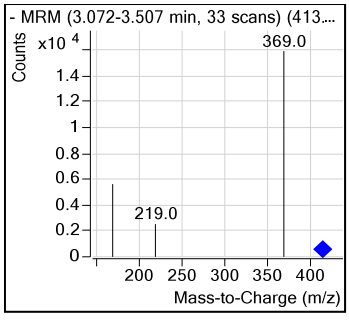




PFOA

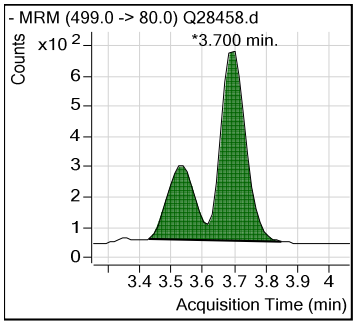


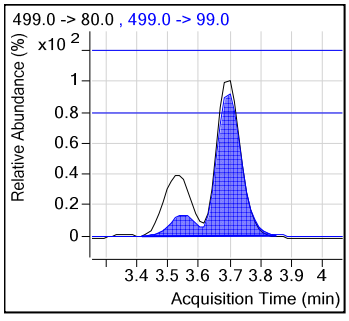


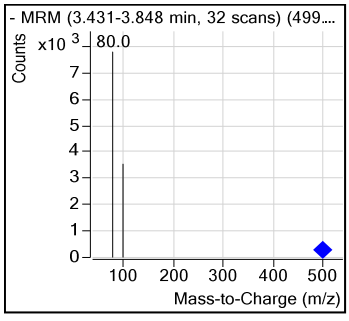


Perfluorinated Compounds by LC/MS/MS.

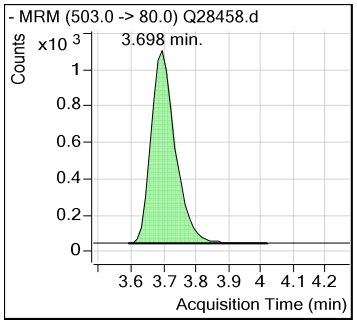
PFOS

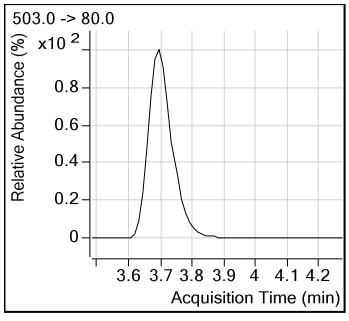


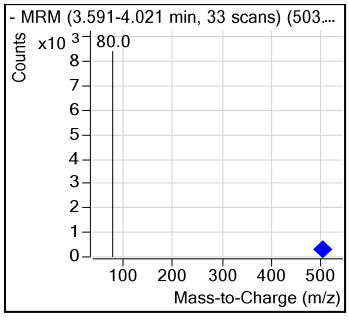




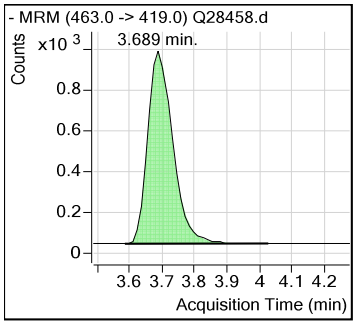
13C4-PFOS

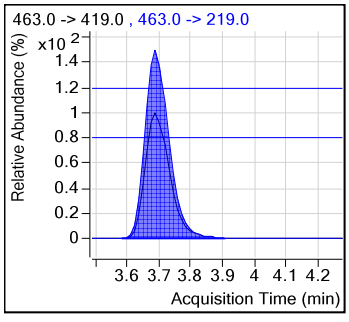


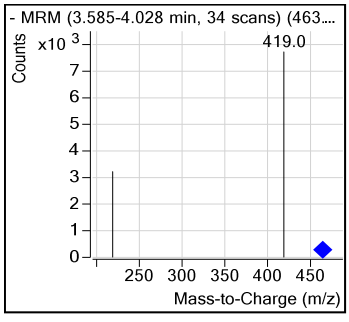




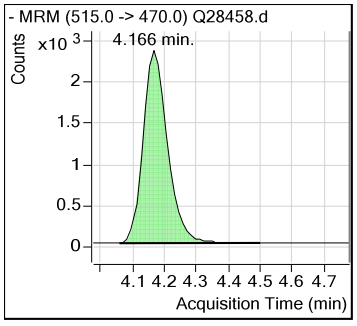
PFNA

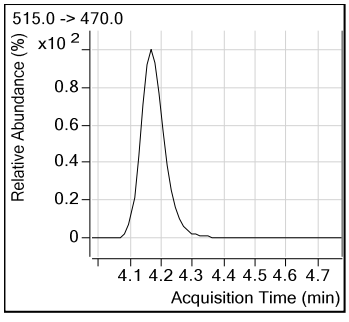


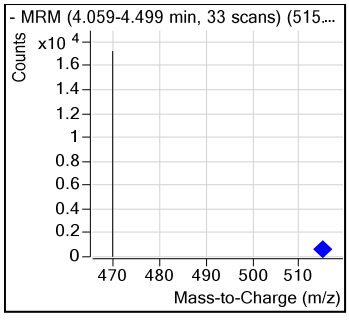




13C2-PFDA







Calibration Curve

Manual Integration Approval Summary

Sample Number: OP62792-MS
Lab FileID: Q28458.D
Injection Time: 11/21/16 17:52

Method: EPA 537
Analyst approved: 11/22/16 17:13 Norman Farmer
Supervisor approved: 11/22/16 17:14 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		2.70	Split peak
Perfluorooctanesulfonic acid	1763-23-1		3.70	Split peak

Perfluorinated Compounds by LC/MS/MS.

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer 11/22/16 17:14

Data File	:	Q28459.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 18:03
Sample Name	:	OP62792-MSD
Vial	:	Vial 55
Sample Info	:	OP62792,SQ775,250,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.177	415.0 -> 370.0	12771	20.000	µg/L		-0.085
13C4-PFOS	3.698	503.0 -> 80.0	5479	20.000	µg/L		-0.080
System Monitoring Compounds							
13C2-PFHxA	2.162	315.0 -> 270.0	3670	16.91	µg/L		-0.053
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 84.56%				
13C2-PFDA	4.166	515.0 -> 470.0	13125	22.04	µg/L		-0.107
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 110.22%				
Target Compounds							**Qvalue**
PFBS	1.775	299.0 -> 80.0	4365	19.794	µg/L		100
PFHpA	2.661	363.0 -> 319.0	4202	17.814	µg/L		92
PFHxS	2.696	399.0 -> 80.0	5177	19.836	µg/L	m	91
PFOA	3.179	413.0 -> 369.0	11675	18.479	µg/L		89
PFOS	3.686	499.0 -> 80.0	5330	17.195	µg/L	# m	81
PFNA	3.689	463.0 -> 419.0	5196	20.865	µg/L	#	81

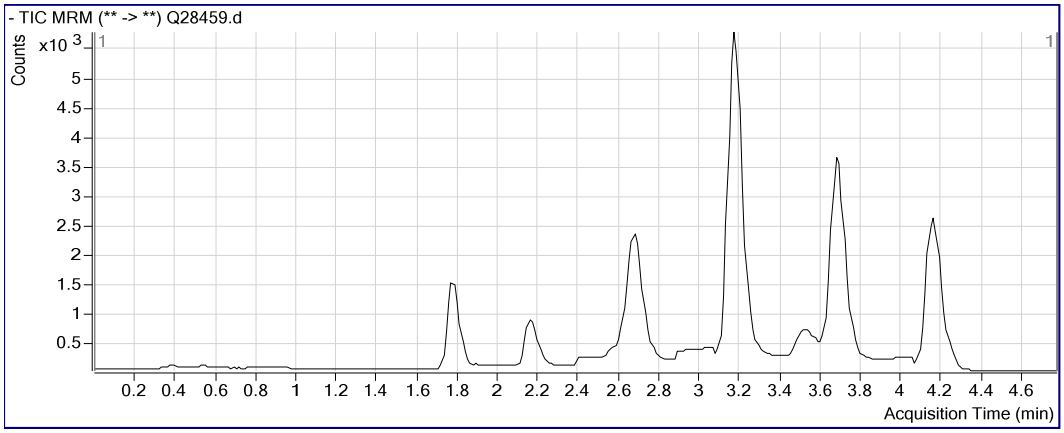
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

7.4.2

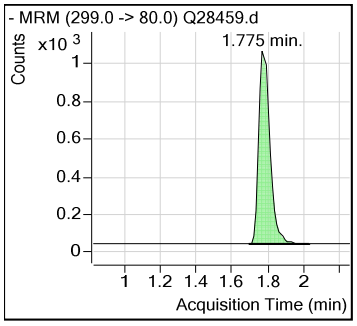
7

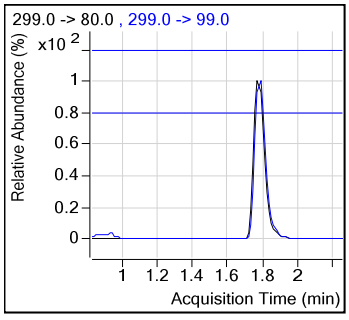
Perfluorinated Compounds by LC/MS/MS.

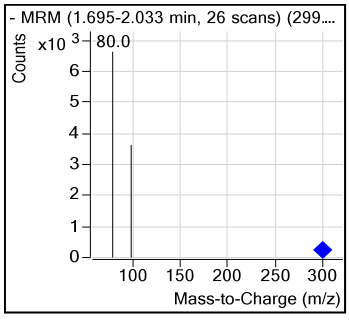
Data File	:	Q28459.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 18:03
Sample Name	:	OP62792-MSD
Vial	:	Vial 55
Sample Info	:	OP62792,SQ775,250,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



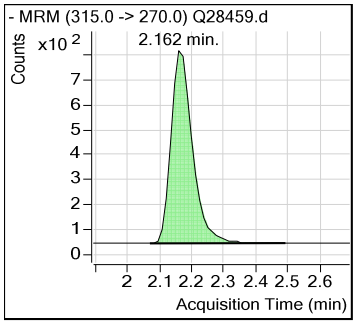
PFBS

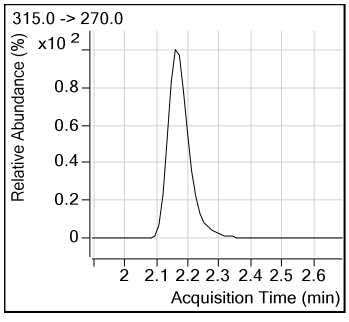


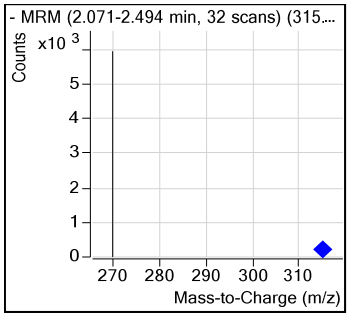




13C2-PFHxA

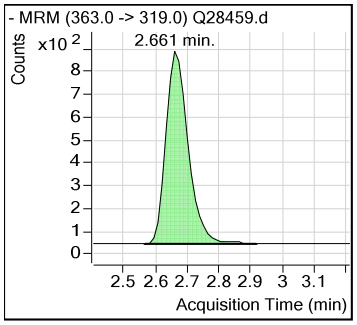


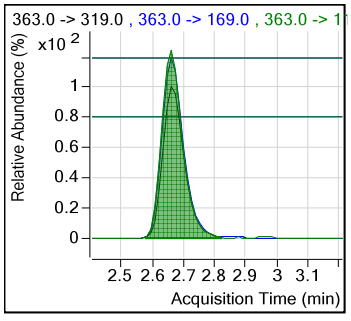


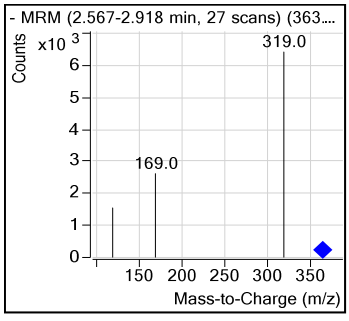


Perfluorinated Compounds by LC/MS/MS.

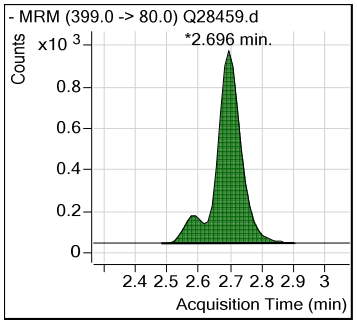
PFHpA

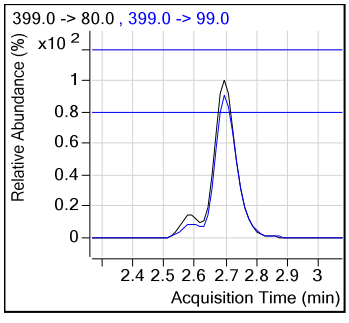


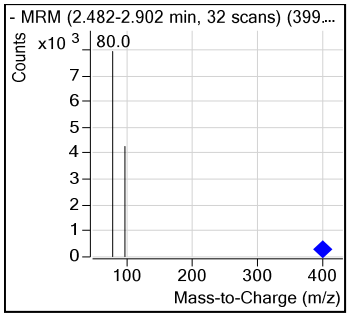




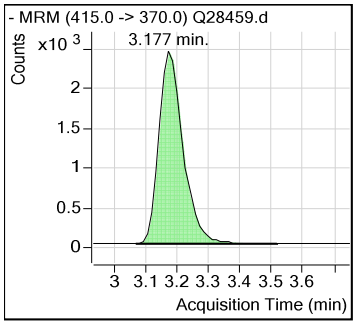
PFHxS

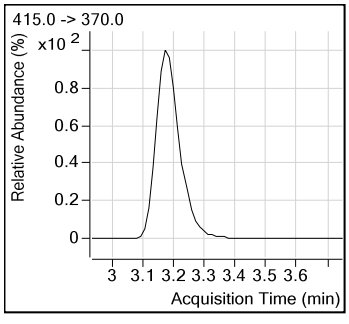


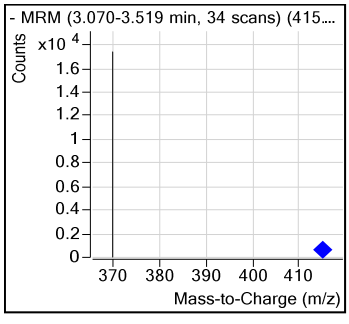




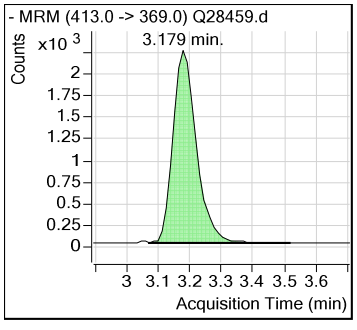
13C2-PFOA

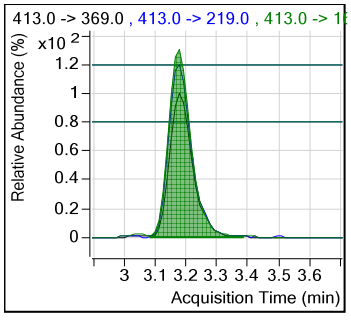


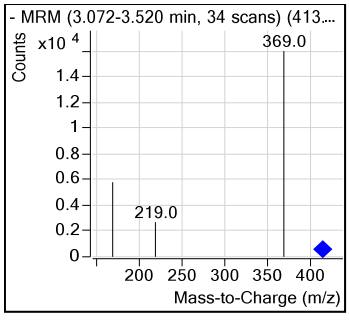




PFOA

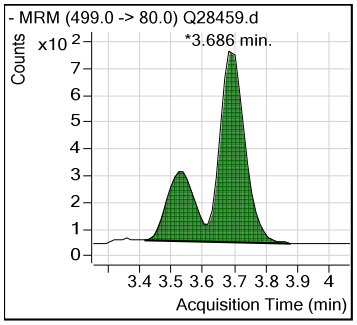


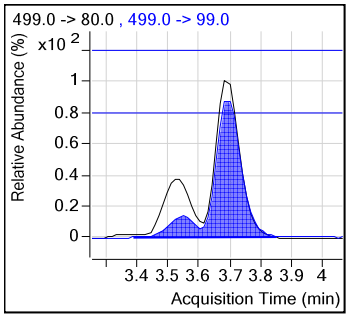


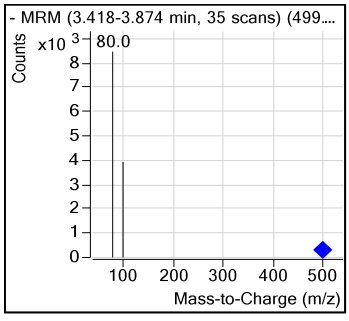


Perfluorinated Compounds by LC/MS/MS.

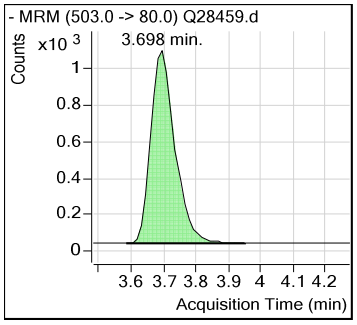
PFOS

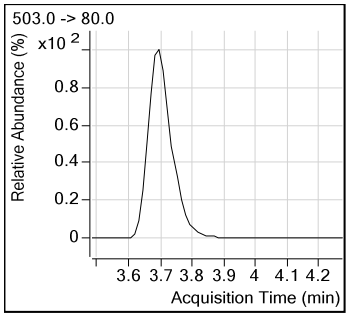


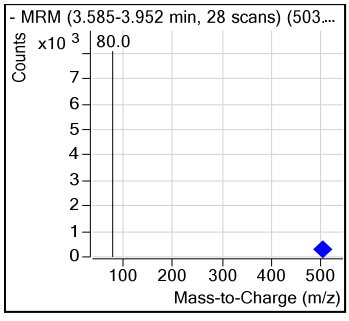




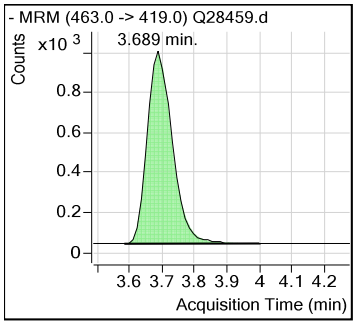
13C4-PFOS

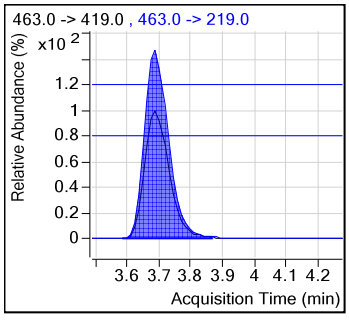


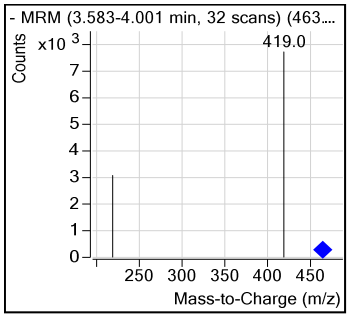




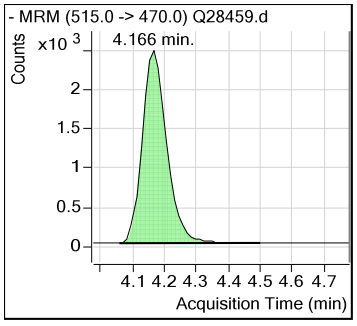
PFNA

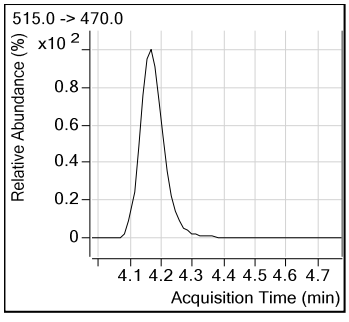


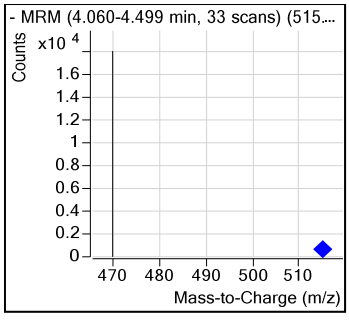




13C2-PFDA







Calibration Curve

Manual Integration Approval Summary

Sample Number:	OP62792-MSD	**Method:**	EPA 537
Lab FileID:	Q28459.D	**Analyst approved:**	11/22/16 17:13 Norman Farmer
Injection Time:	11/21/16 18:03	**Supervisor approved:**	11/22/16 17:14 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		2.70	Split peak
Perfluorooctanesulfonic acid	1763-23-1		3.69	Split peak

Perfluorinated Compounds by LC/MS/MS.

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
11/22/16 12:14

Data File	:	Q28423.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 11:09
Sample Name	:	IC775-1
Vial	:	Vial 2
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

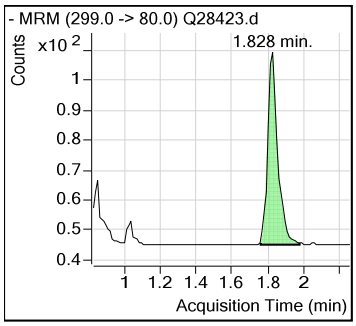
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.288	415.0 -> 370.0	19174	20.000	µg/L		0.027
13C4-PFOS	3.805	503.0 -> 80.0	6070	20.000	µg/L		0.027
System Monitoring Compounds							
13C2-PFHxA	2.229	315.0 -> 270.0	381	1.17	µg/L		0.013
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 5.84%				
13C2-PFDA	4.286	515.0 -> 470.0	962	1.08	µg/L		0.013
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 5.38%				
Target Compounds							**Qvalue**
PFBS	1.828	299.0 -> 80.0	266	1.090	µg/L		98
PFHpA	2.742	363.0 -> 319.0	452	1.276	µg/L		93
PFHxS	2.776	399.0 -> 80.0	322	1.114	µg/L	m	87
PFOA	3.277	413.0 -> 369.0	1114	1.175	µg/L		90
PFNA	3.800	463.0 -> 419.0	467	1.250	µg/L	#	86
PFOS	3.808	499.0 -> 80.0	375	1.091	µg/L	# m	84

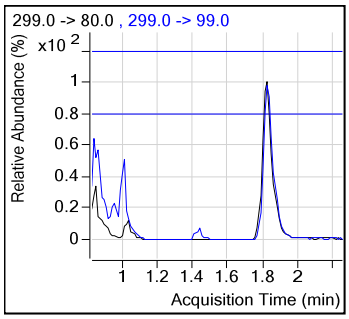
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

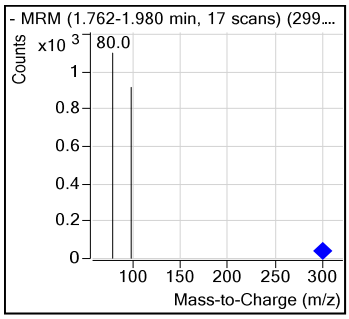
Perfluorinated Compounds by LC/MS/MS.

Data File	:	Q28423.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 11:09
Sample Name	:	IC775-1
Vial	:	Vial 2
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

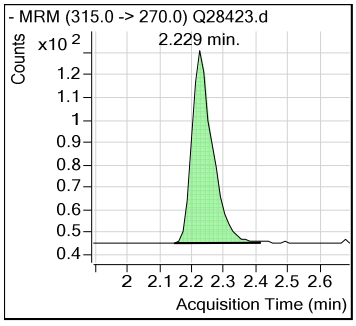
PFBS

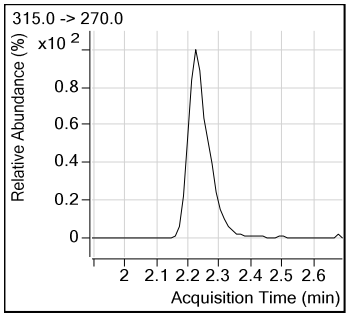


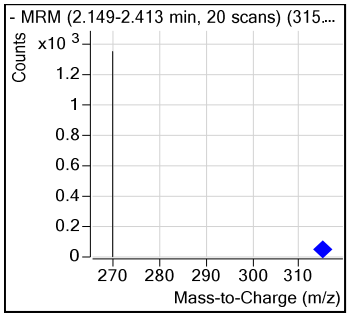




13C2-PFHxA

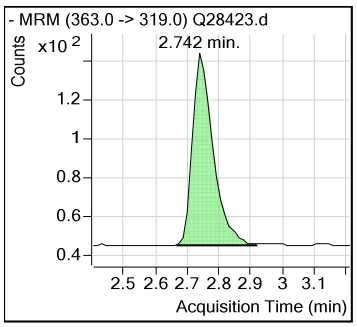


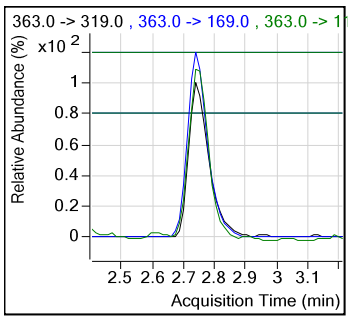


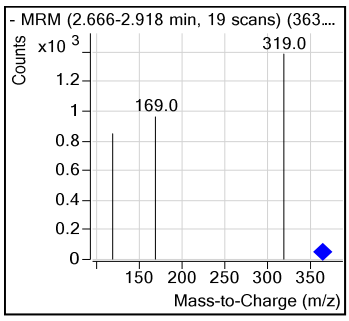


Perfluorinated Compounds by LC/MS/MS.

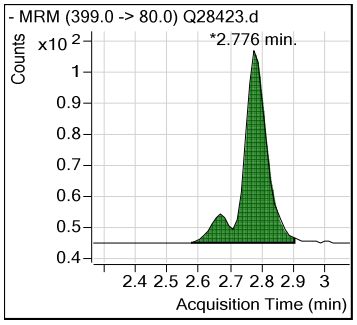
PFHpA

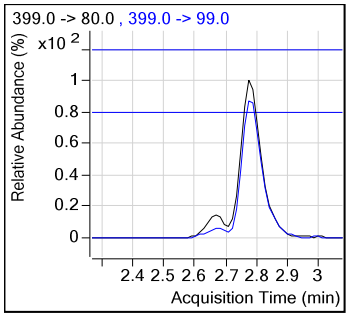


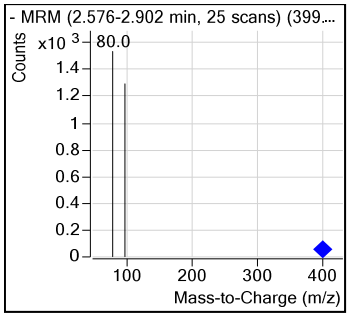




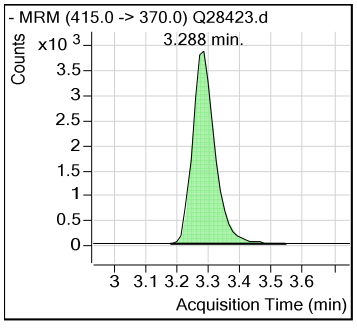
PFHxS

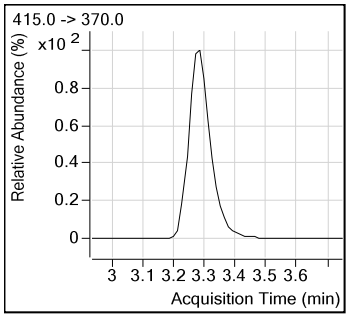


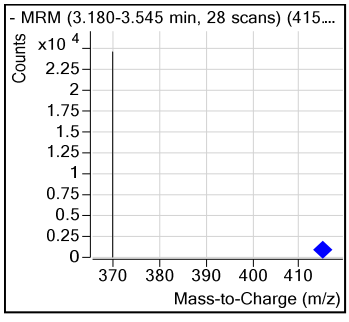




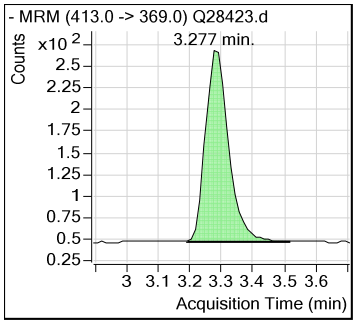
13C2-PFOA

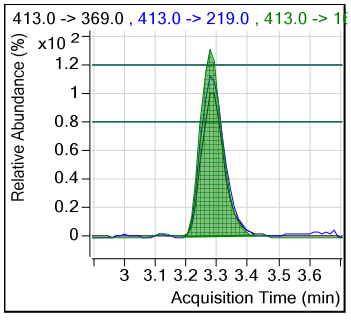


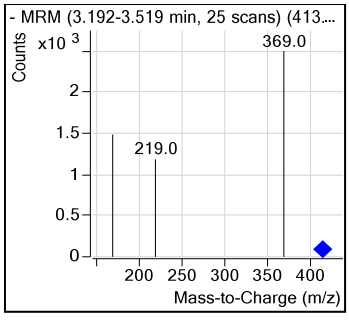




PFOA

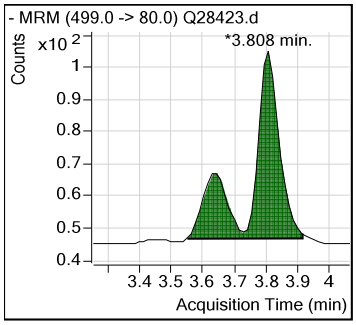


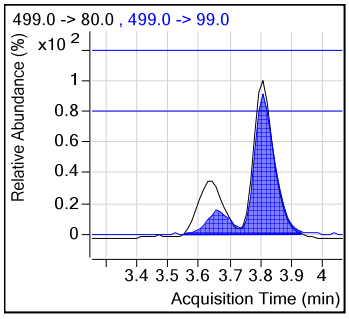


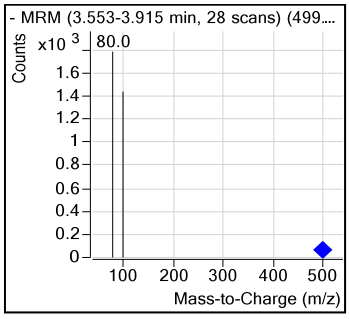


Perfluorinated Compounds by LC/MS/MS.

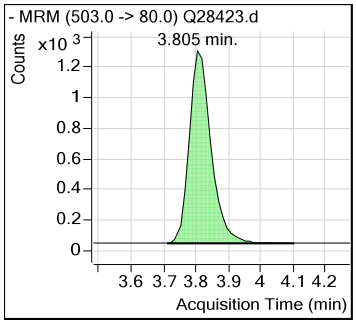
PFOS

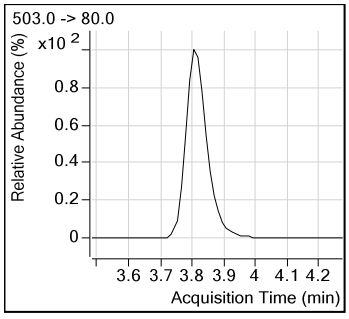


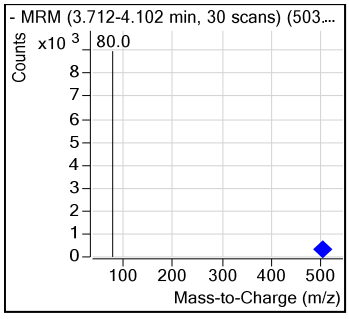




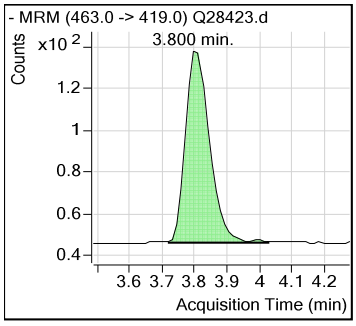
13C4-PFOS

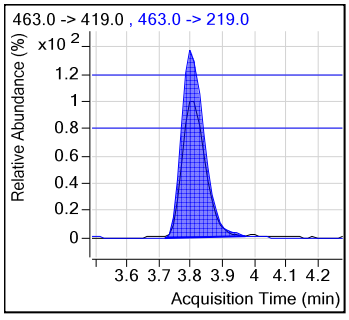


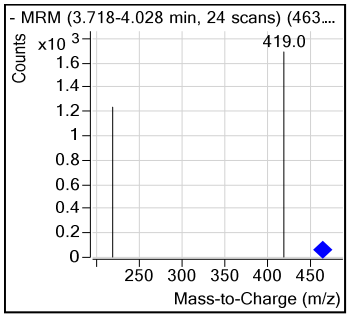




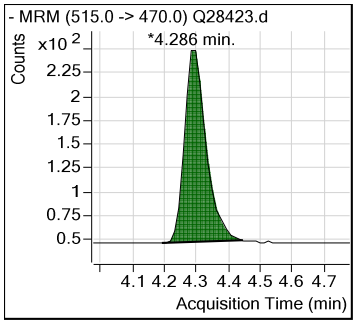
PFNA

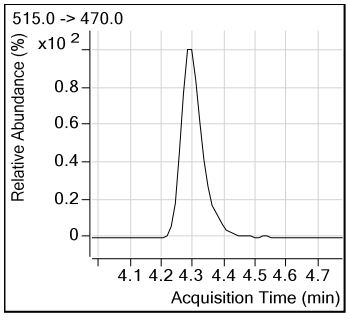


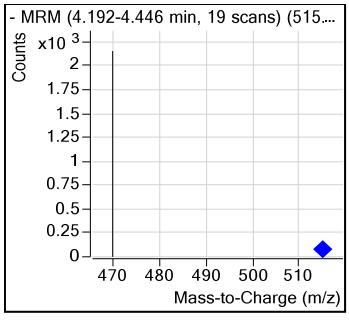




13C2-PFDA







Calibration Curve

Manual Integration Approval Summary

Sample Number: SQ775-IC775
Lab FileID: Q28423.D
Injection Time: 11/21/16 11:09

Method: EPA 537 MOD
Analyst approved: 11/22/16 10:55 Nancy Saunders
Supervisor approved: 11/22/16 12:14 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		2.78	Split peak
Perfluorooctanesulfonic acid	1763-23-1		3.81	Split peak
13C2-PFDA			4.29	Missed peak

Perfluorinated Compounds by LC/MS/MS.

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
11/22/16 12:14

Data File	:	Q28424.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 11:20
Sample Name	:	IC775-2
Vial	:	Vial 3
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

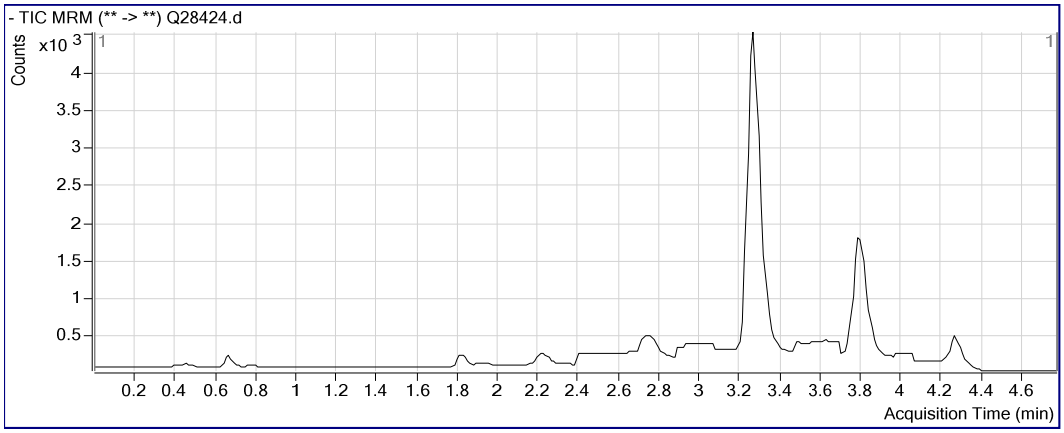
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.275	415.0 -> 370.0	18474	20.000	µg/L		0.013
13C4-PFOS	3.805	503.0 -> 80.0	6022	20.000	µg/L		0.027
System Monitoring Compounds							
13C2-PFHxA	2.229	315.0 -> 270.0	680	2.17	µg/L		0.013
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 10.84%				
13C2-PFDA	4.286	515.0 -> 470.0	1755	2.04	µg/L		0.013
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 10.19%				
Target Compounds							**Qvalue**
PFBS	1.828	299.0 -> 80.0	484	1.998	µg/L		99
PFHpA	2.742	363.0 -> 319.0	725	2.125	µg/L	#	88
PFHxS	2.776	399.0 -> 80.0	581	2.025	µg/L	m	86
PFOA	3.277	413.0 -> 369.0	1920	2.101	µg/L		86
PFOS	3.794	499.0 -> 80.0	640	1.879	µg/L	# m	84
PFNA	3.800	463.0 -> 419.0	805	2.234	µg/L	#	88

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

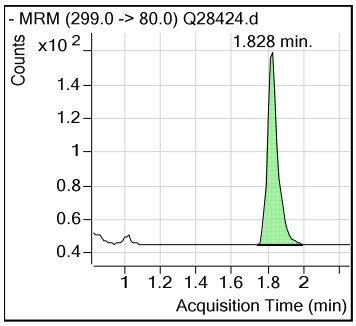
7.5.2
7

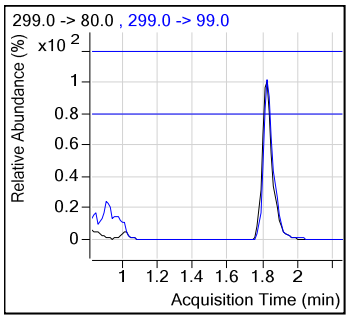
Perfluorinated Compounds by LC/MS/MS.

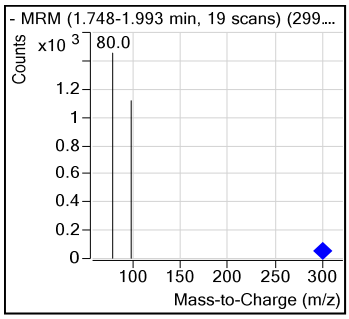
Data File	:	Q28424.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 11:20
Sample Name	:	IC775-2
Vial	:	Vial 3
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



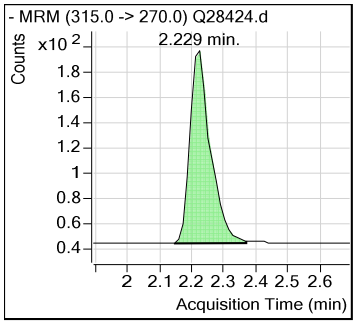
PFBS

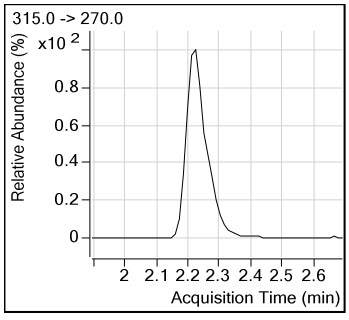


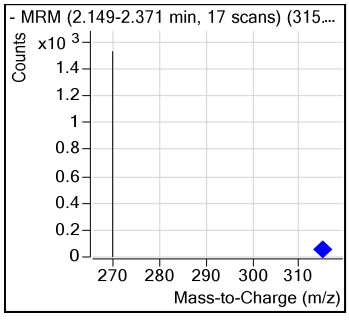




13C2-PFHxA

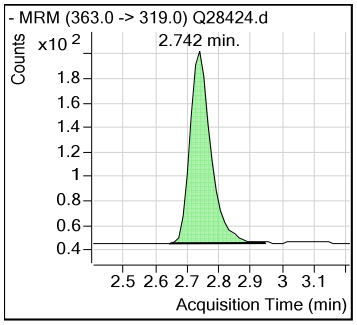


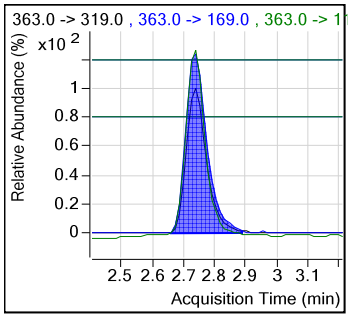


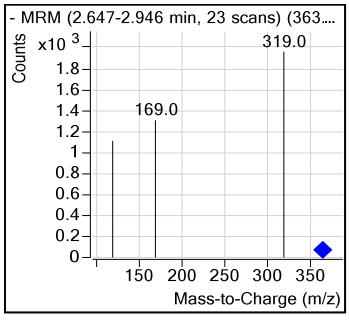


Perfluorinated Compounds by LC/MS/MS.

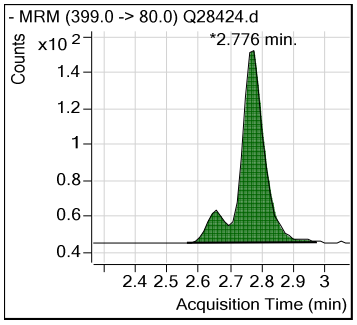
PFHpA

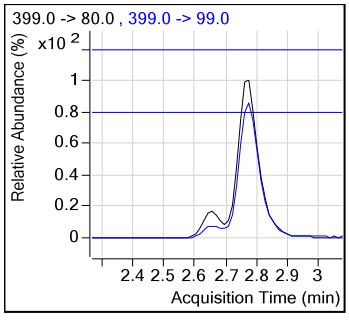


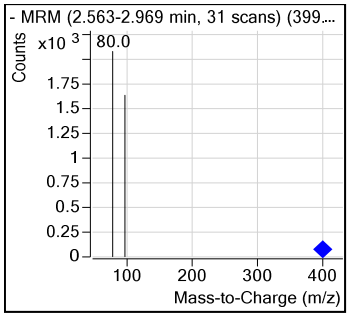




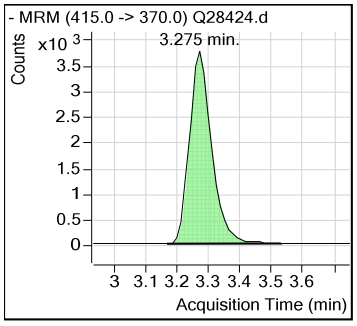
PFHxS

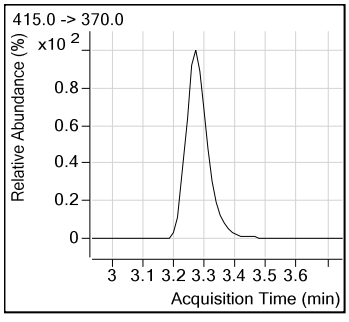


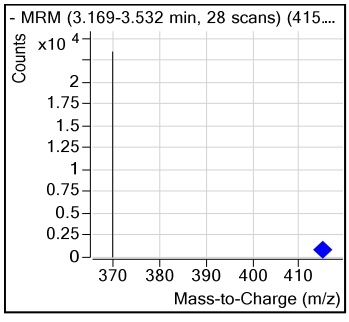




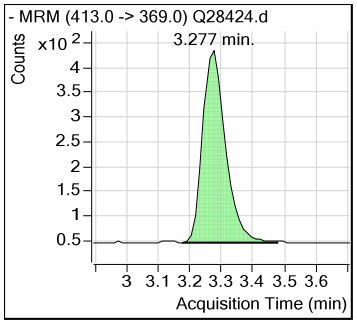
13C2-PFOA

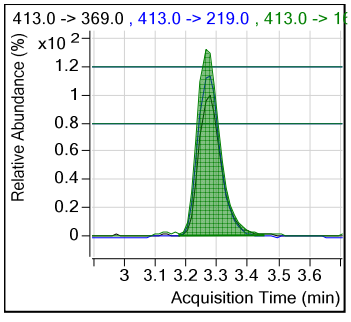


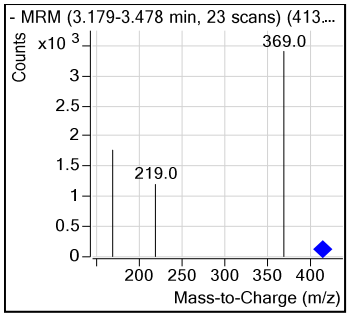




PFOA

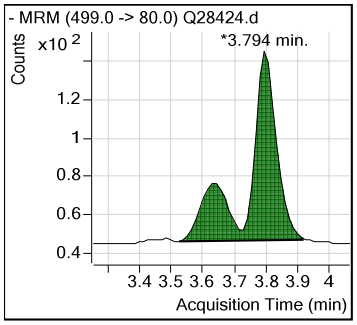


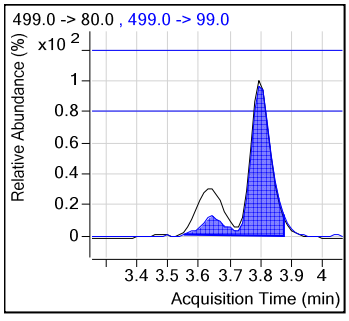


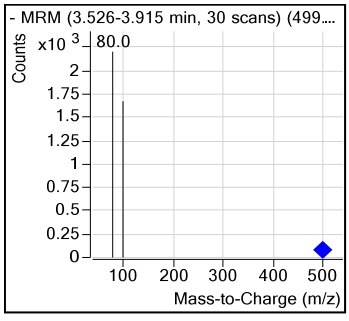


Perfluorinated Compounds by LC/MS/MS.

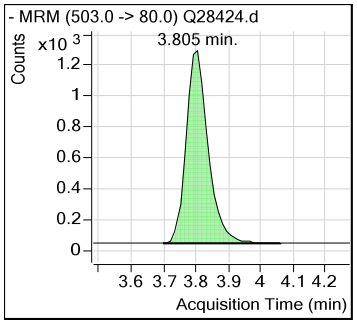
PFOS

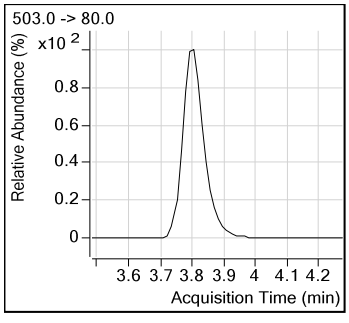


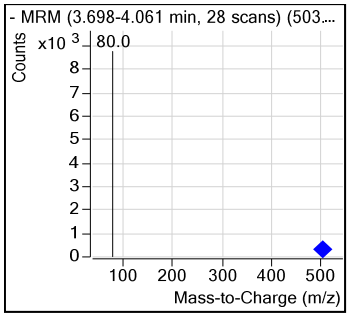




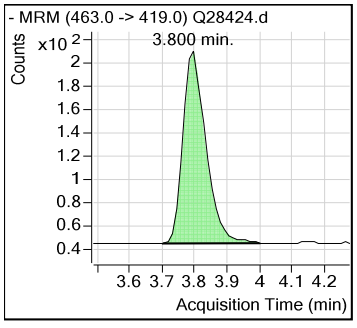
13C4-PFOS

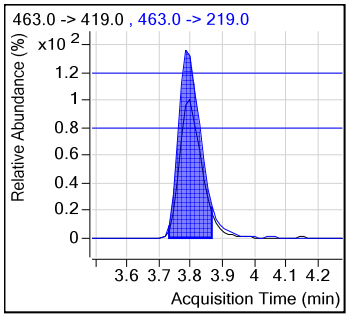


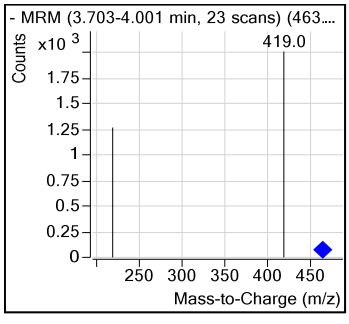




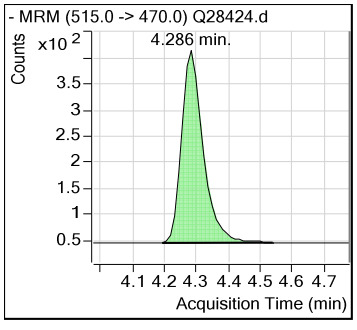
PFNA

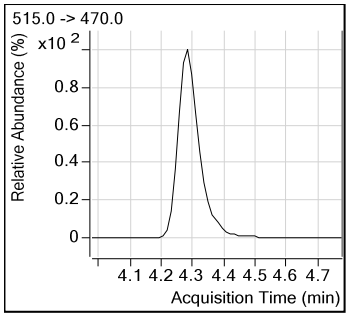


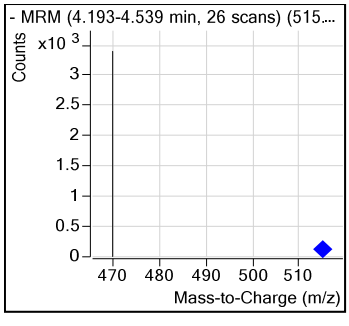




13C2-PFDA







Calibration Curve

Manual Integration Approval Summary

Sample Number: SQ775-IC775
Lab FileID: Q28424.D
Injection Time: 11/21/16 11:20

Method: EPA 537 MOD
Analyst approved: 11/22/16 10:55 Nancy Saunders
Supervisor approved: 11/22/16 12:14 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		2.78	Split peak
Perfluorooctanesulfonic acid	1763-23-1		3.79	Split peak

Perfluorinated Compounds by LC/MS/MS.

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
11/22/16 12:14

Data File	:	Q28425.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 11:31
Sample Name	:	IC775-5
Vial	:	Vial 4
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

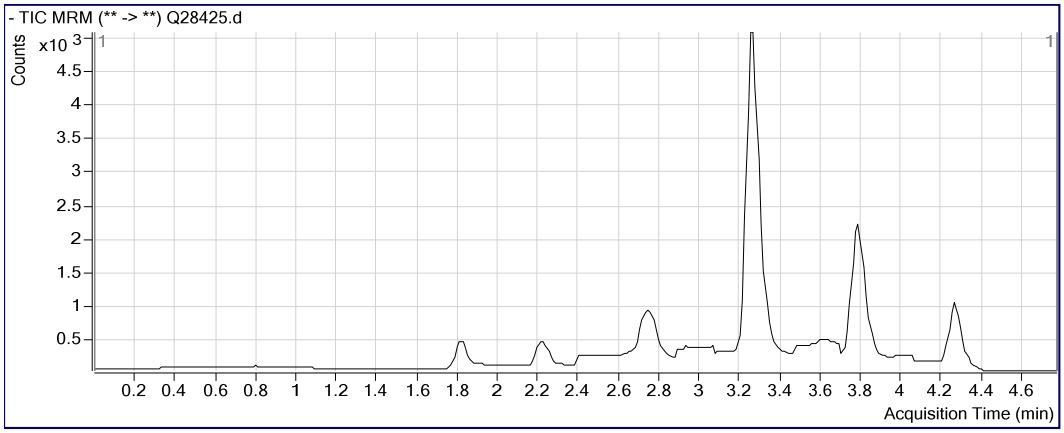
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.275	415.0 -> 370.0	18047	20.000	µg/L		0.013
13C4-PFOS	3.792	503.0 -> 80.0	5767	20.000	µg/L		0.013
System Monitoring Compounds							
13C2-PFHxA	2.229	315.0 -> 270.0	1617	5.27	µg/L		0.013
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 26.36%				
13C2-PFDA	4.272	515.0 -> 470.0	4185	4.97	µg/L		0.000
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 24.87%				
Target Compounds							**Qvalue**
PFBS	1.815	299.0 -> 80.0	1169	5.035	µg/L		100
PFHpA	2.742	363.0 -> 319.0	1768	5.305	µg/L	#	89
PFHxS	2.763	399.0 -> 80.0	1380	5.024	µg/L	m	90
PFOA	3.264	413.0 -> 369.0	4540	5.085	µg/L		87
PFNA	3.786	463.0 -> 419.0	1927	5.476	µg/L	#	82
PFOS	3.794	499.0 -> 80.0	1608	4.928	µg/L	# m	82

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

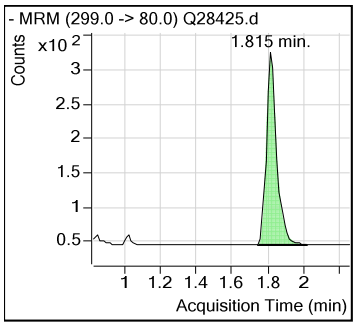
7.5.3
7

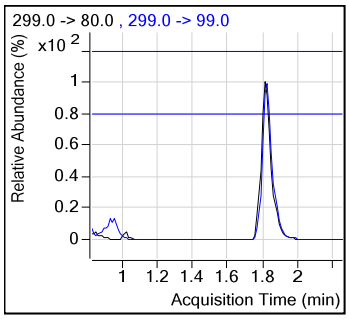
Perfluorinated Compounds by LC/MS/MS.

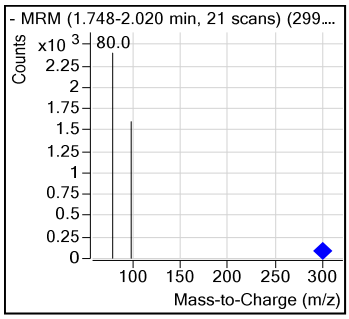
Data File	:	Q28425.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 11:31
Sample Name	:	IC775-5
Vial	:	Vial 4
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



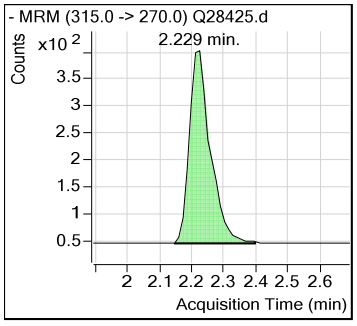
PFBS

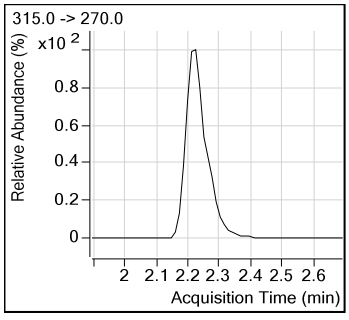


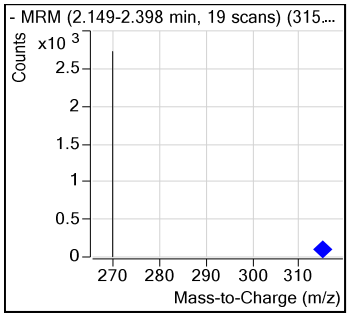




13C2-PFHxA

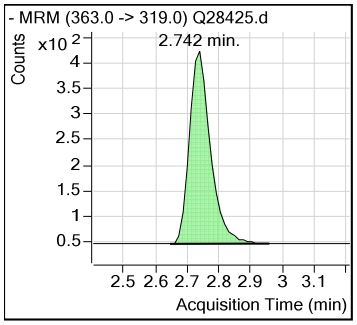


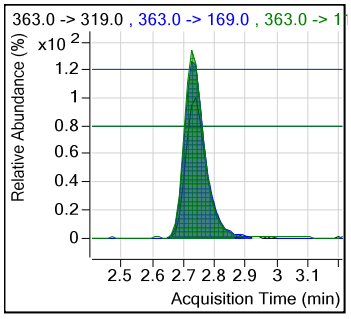


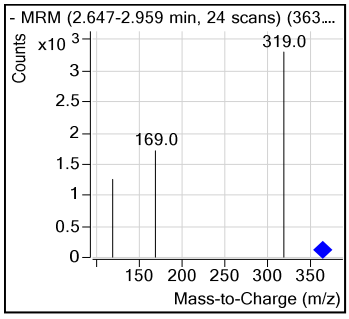


Perfluorinated Compounds by LC/MS/MS.

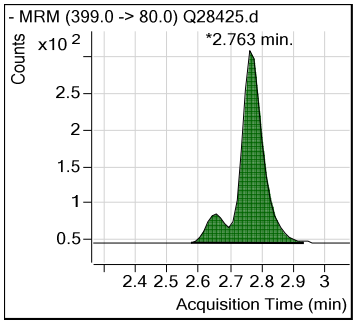
PFHpA

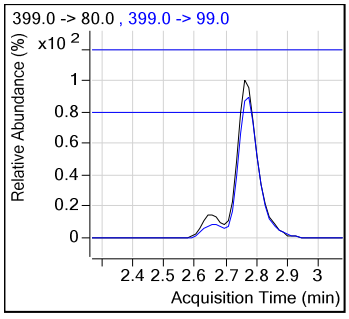


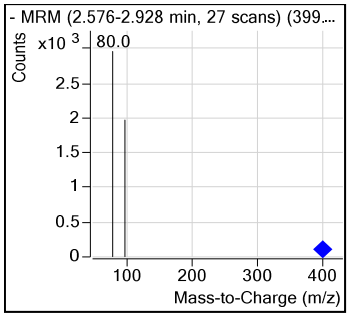




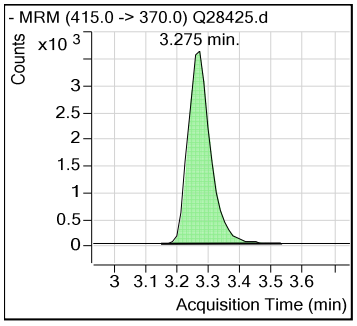
PFHxS

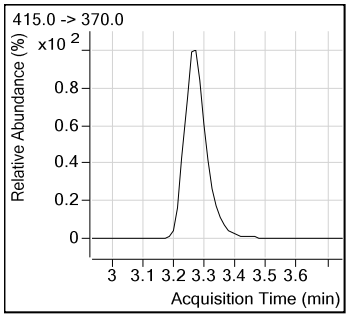


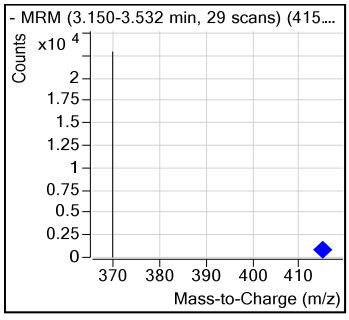




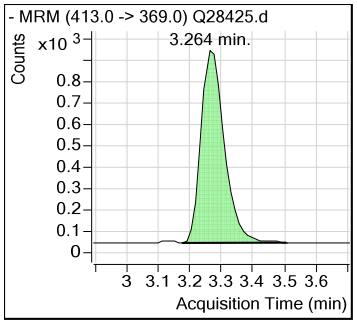
13C2-PFOA

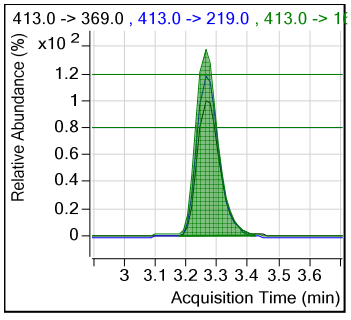


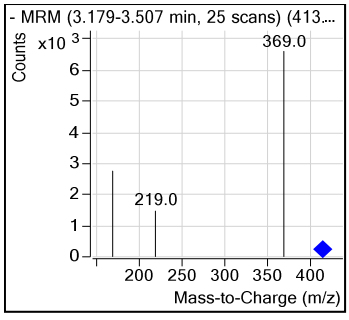




PFOA

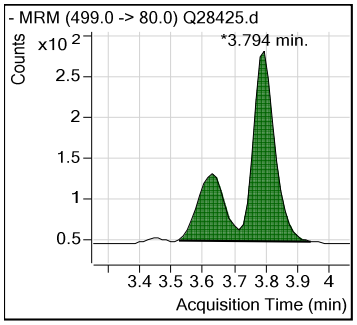


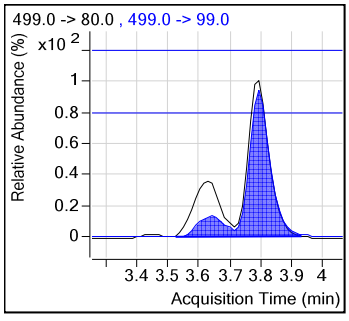


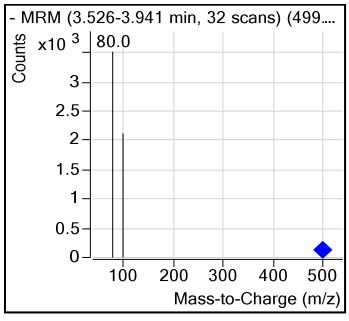


Perfluorinated Compounds by LC/MS/MS.

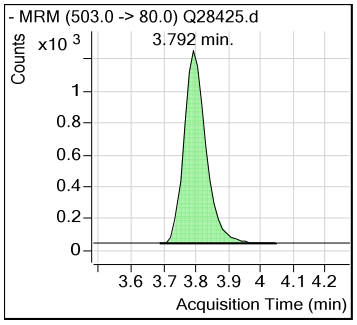
PFOS

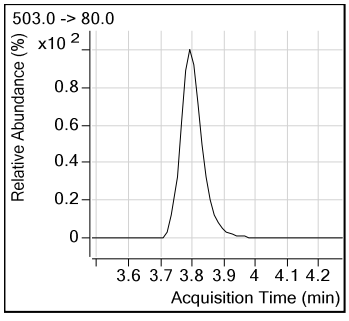


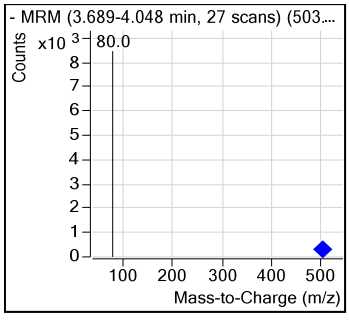




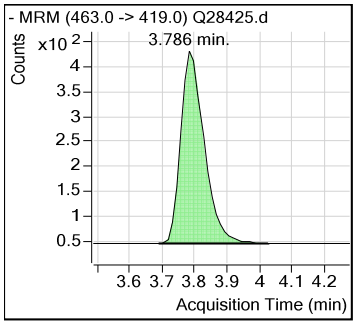
13C4-PFOS

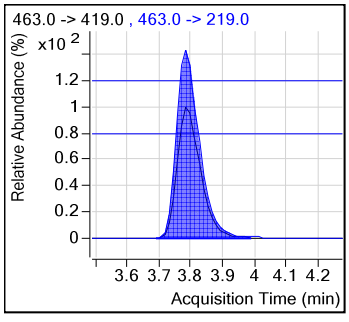


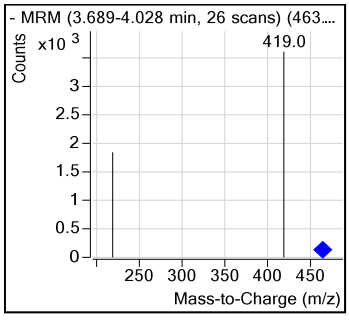




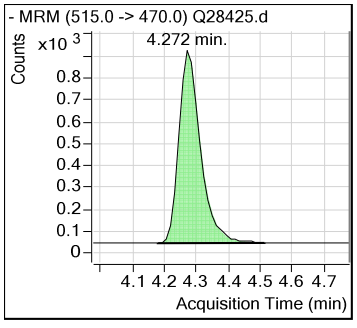
PFNA

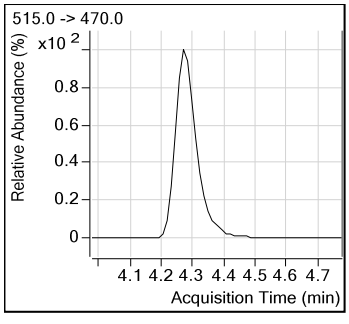


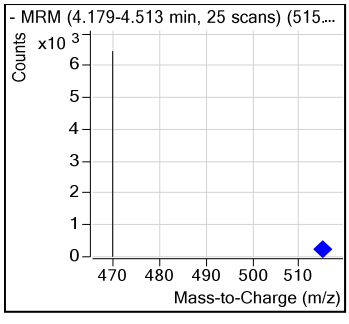




13C2-PFDA







Calibration Curve

Manual Integration Approval Summary

Sample Number: SQ775-IC775
Lab FileID: Q28425.D
Injection Time: 11/21/16 11:31

Method: EPA 537 MOD
Analyst approved: 11/22/16 10:55 Nancy Saunders
Supervisor approved: 11/22/16 12:14 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		2.76	Split peak
Perfluorooctanesulfonic acid	1763-23-1		3.79	Split peak

Perfluorinated Compounds by LC/MS/MS.

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
11/22/16 12:14

Data File	:	Q28426.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 11:42
Sample Name	:	IC775-10
Vial	:	Vial 5
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

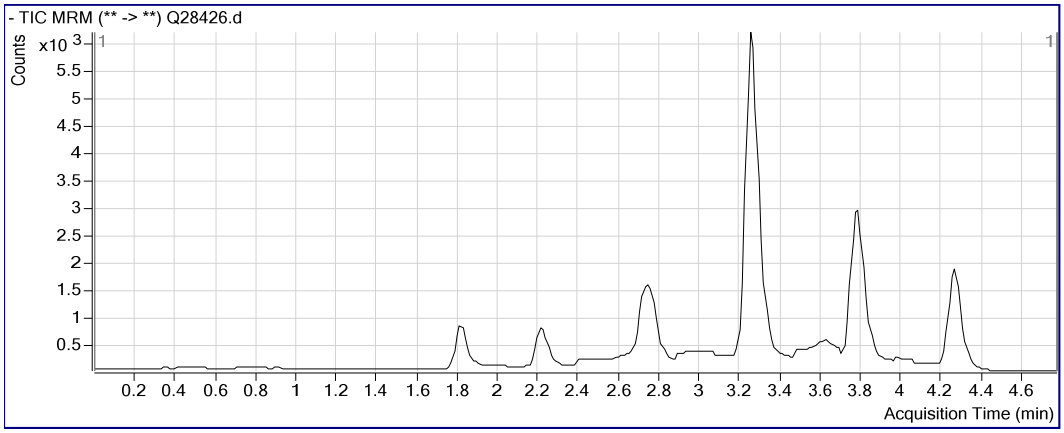
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.262	415.0 -> 370.0	17704	20.000	µg/L		0.000
13C4-PFOS	3.792	503.0 -> 80.0	5799	20.000	µg/L		0.013
System Monitoring Compounds							
13C2-PFHxA	2.215	315.0 -> 270.0	3089	10.27	µg/L		0.000
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 51.34%				
13C2-PFDA	4.272	515.0 -> 470.0	8202	9.94	µg/L		0.000
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 49.68%				
Target Compounds							**Qvalue**
PFBS	1.815	299.0 -> 80.0	2305	9.876	µg/L		99
PFHpA	2.728	363.0 -> 319.0	3463	10.590	µg/L	#	91
PFHxS	2.763	399.0 -> 80.0	2716	9.831	µg/L	m	89
PFOA	3.264	413.0 -> 369.0	8859	10.115	µg/L		87
PFOS	3.781	499.0 -> 80.0	3225	9.828	µg/L	# m	79
PFNA	3.786	463.0 -> 419.0	3685	10.673	µg/L	#	81

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

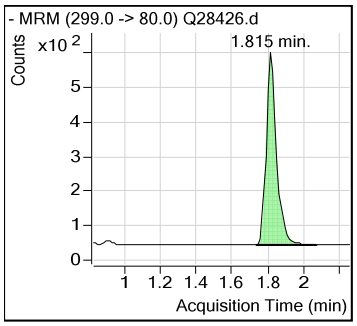
7.5.4
7

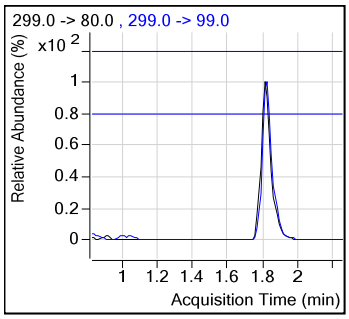
Perfluorinated Compounds by LC/MS/MS.

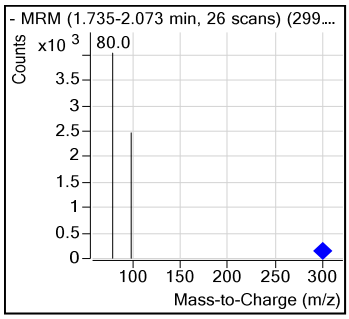
Data File	:	Q28426.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 11:42
Sample Name	:	IC775-10
Vial	:	Vial 5
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



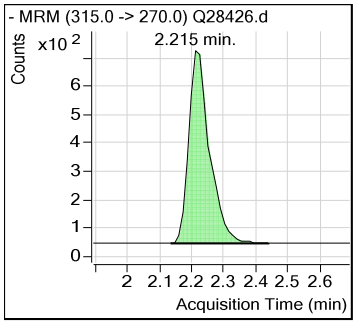
PFBS

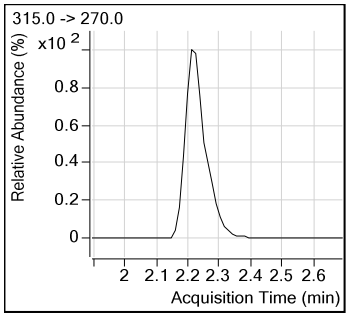


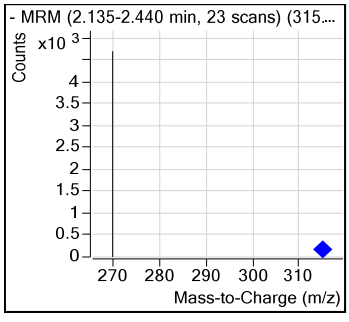




13C2-PFHxA

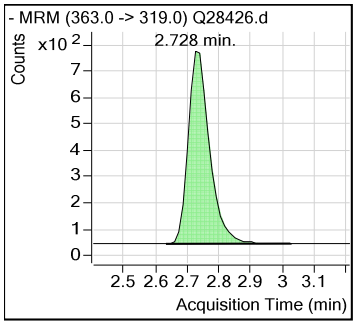


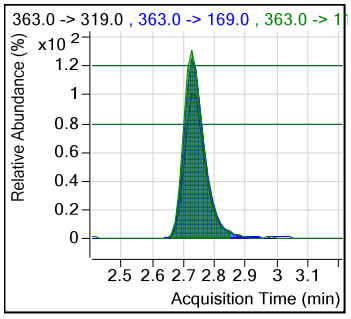


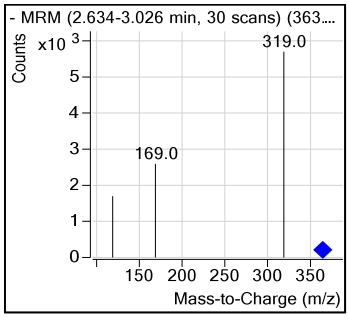


Perfluorinated Compounds by LC/MS/MS.

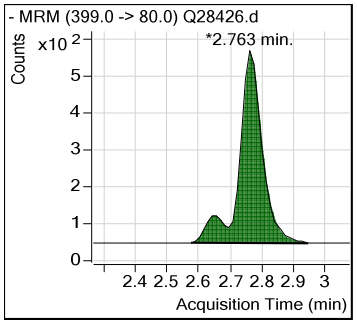
PFHpA

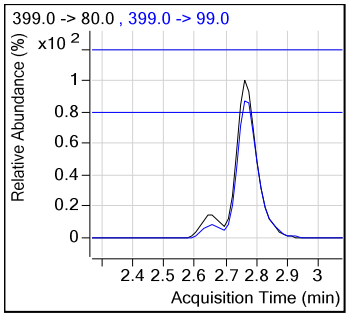


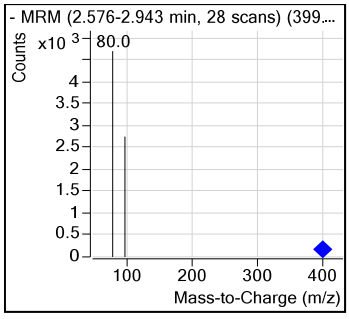




PFHxS







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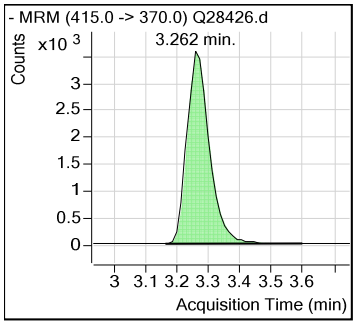
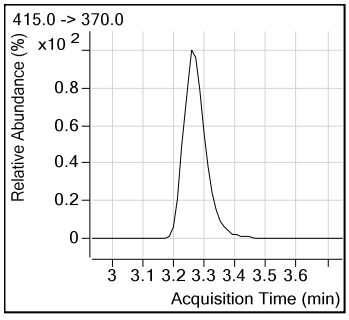
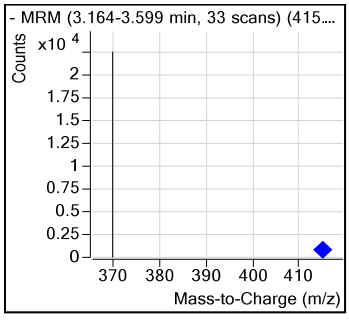
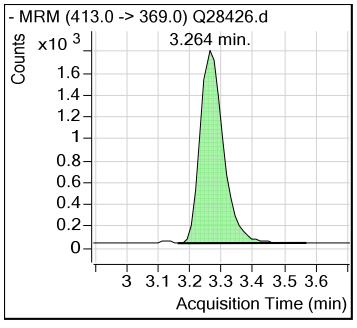
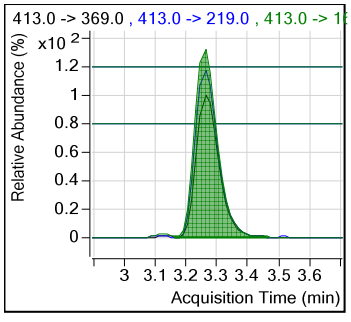


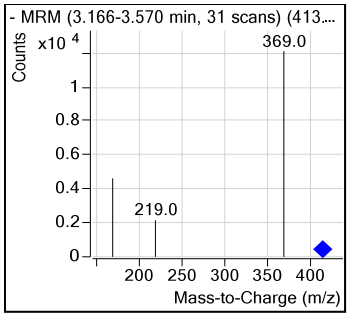




PFOA

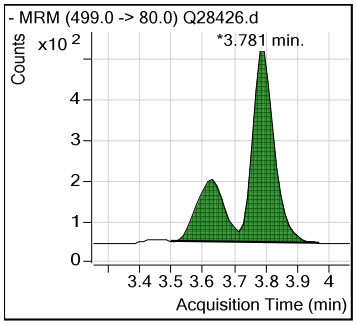


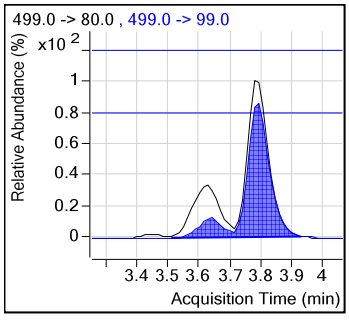


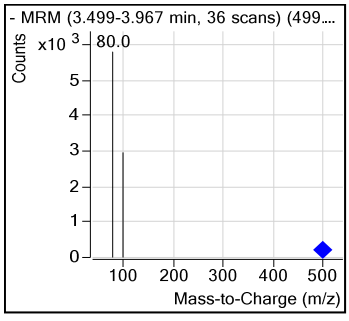


Perfluorinated Compounds by LC/MS/MS.

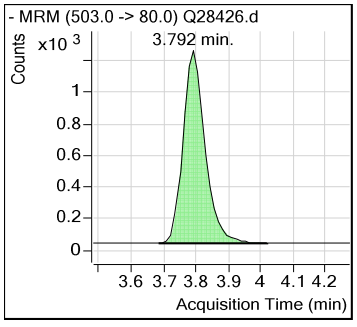
PFOS

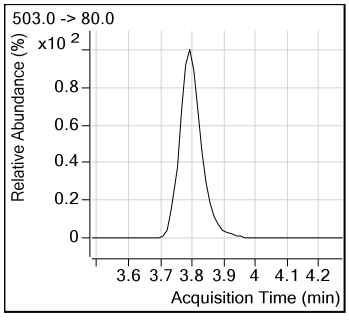


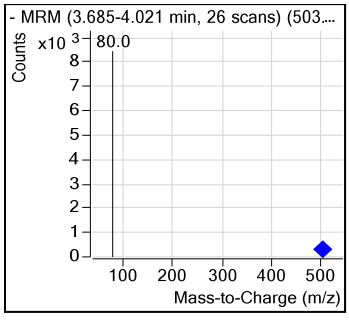




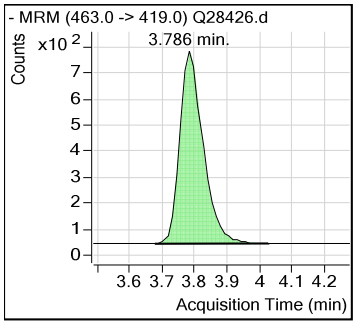
13C4-PFOS

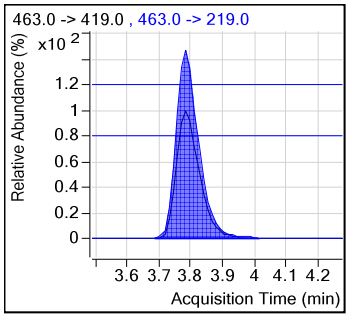


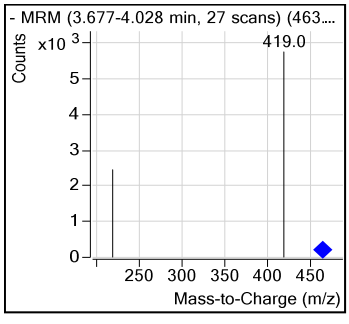




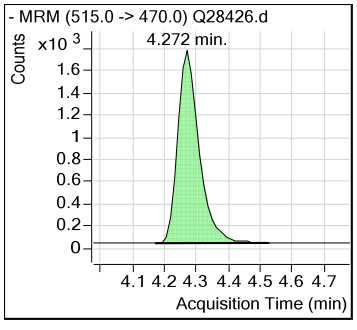
PFNA

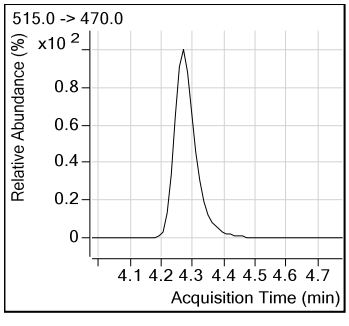


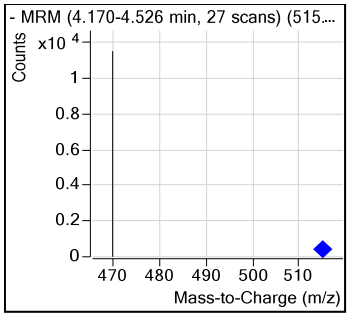




13C2-PFDA







Calibration Curve

Manual Integration Approval Summary

Sample Number:	SQ775-IC775	**Method:**	EPA 537 MOD
Lab FileID:	Q28426.D	**Analyst approved:**	11/22/16 10:55 Nancy Saunders
Injection Time:	11/21/16 11:42	**Supervisor approved:**	11/22/16 12:14 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		2.76	Split peak
Perfluorooctanesulfonic acid	1763-23-1		3.78	Split peak

Perfluorinated Compounds by LC/MS/MS.

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
11/22/16 12:14

Data File	:	Q28427.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 11:53
Sample Name	:	ICC775-20
Vial	:	Vial 6
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

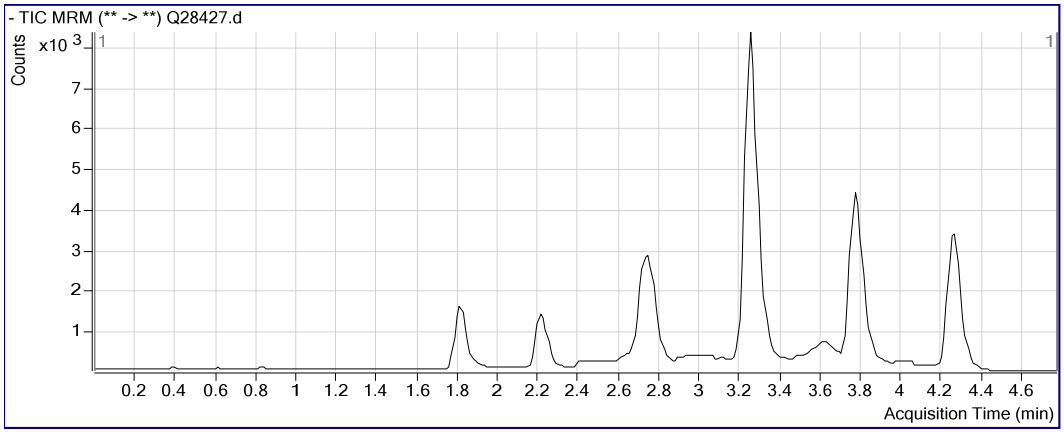
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.262	415.0 -> 370.0	17677	20.000	µg/L		0.000
13C4-PFOS	3.778	503.0 -> 80.0	5901	20.000	µg/L		0.000
System Monitoring Compounds							
13C2-PFHxA	2.215	315.0 -> 270.0	5903	19.65	µg/L		0.000
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 98.26%				
13C2-PFDA	4.272	515.0 -> 470.0	15705	19.06	µg/L		0.000
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 95.28%				
Target Compounds							**Qvalue**
PFBS	1.815	299.0 -> 80.0	4538	19.108	µg/L		99
PFHpA	2.728	363.0 -> 319.0	6436	19.711	µg/L	#	90
PFHxS	2.763	399.0 -> 80.0	5386	19.158	µg/L	m	88
PFOA	3.264	413.0 -> 369.0	16576	18.955	µg/L		88
PFOS	3.781	499.0 -> 80.0	6163	18.457	µg/L	# m	80
PFNA	3.786	463.0 -> 419.0	6840	19.845	µg/L	#	81

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

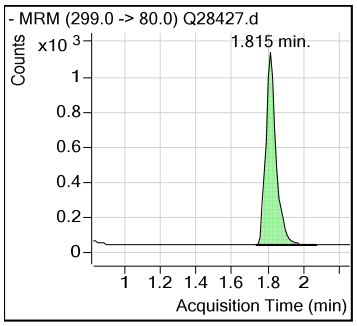
7.5.5
7

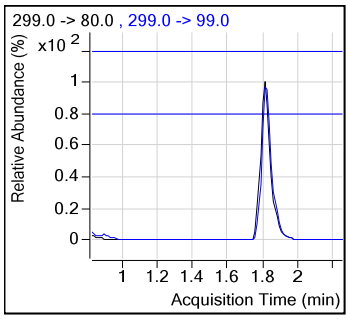
Perfluorinated Compounds by LC/MS/MS.

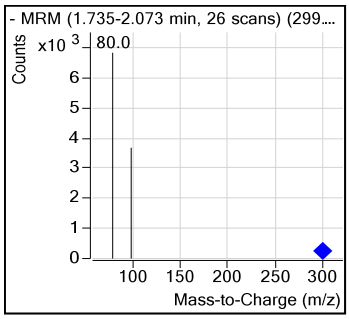
Data File	:	Q28427.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 11:53
Sample Name	:	ICC775-20
Vial	:	Vial 6
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



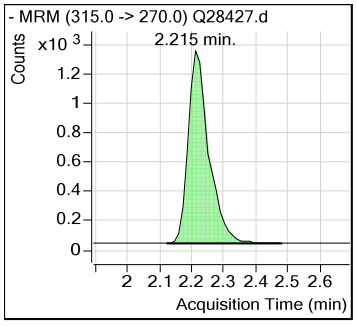
PFBS

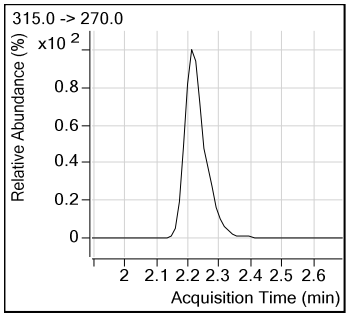


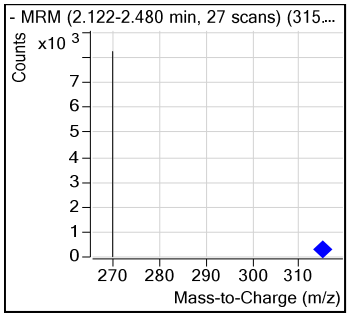




13C2-PFHxA

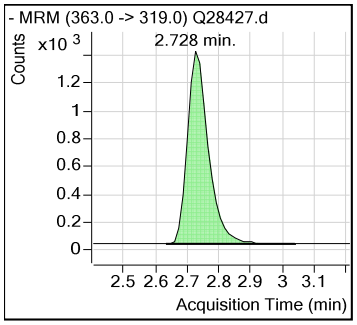


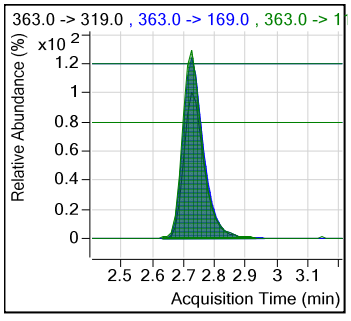


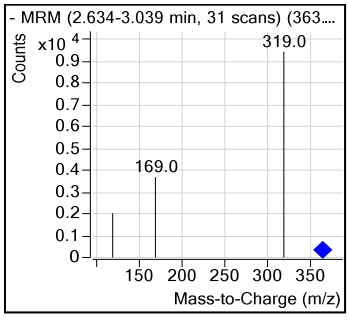


Perfluorinated Compounds by LC/MS/MS.

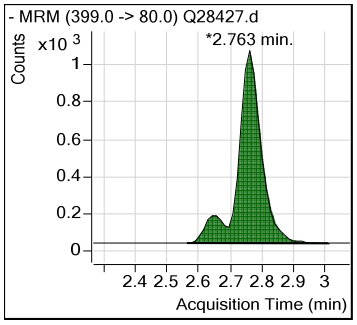
PFHpA

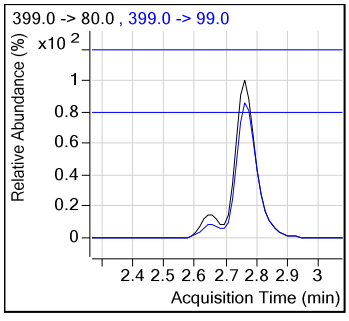


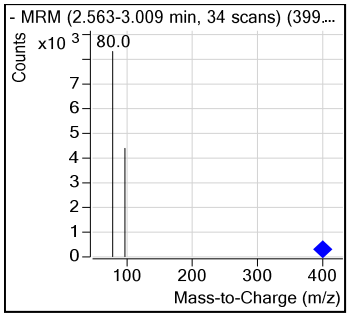




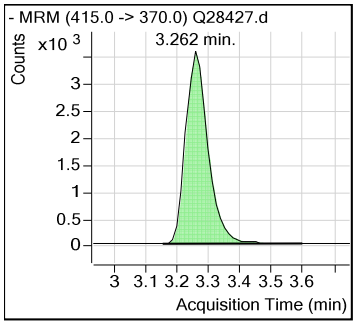
PFHxS

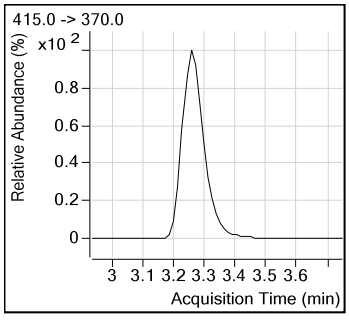


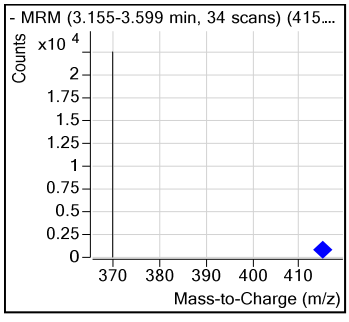




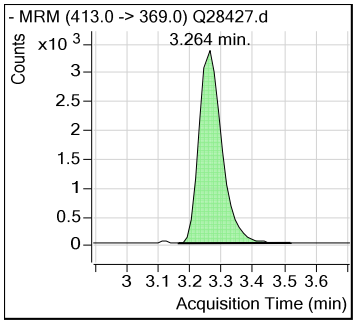
13C2-PFOA

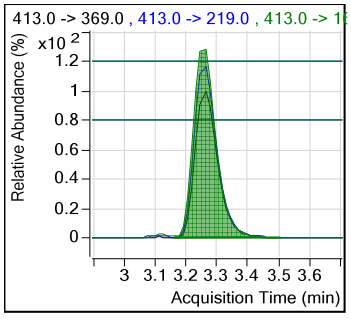


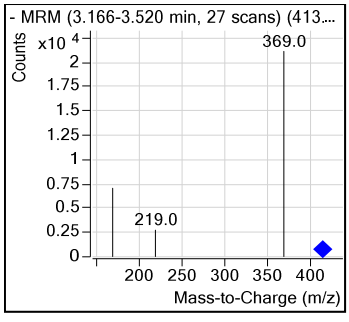




PFOA

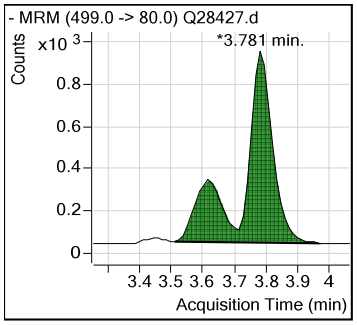


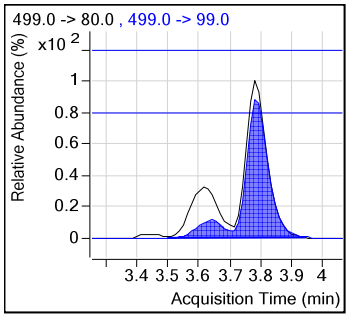


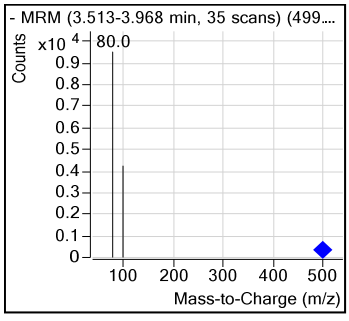


Perfluorinated Compounds by LC/MS/MS.

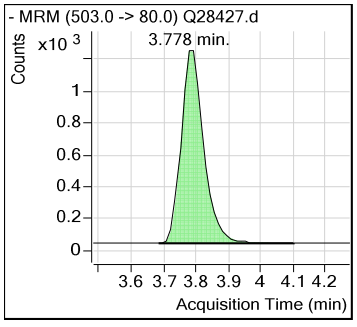
PFOS

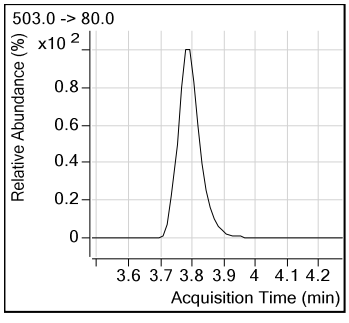


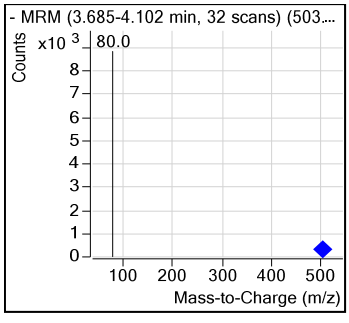




13C4-PFOS







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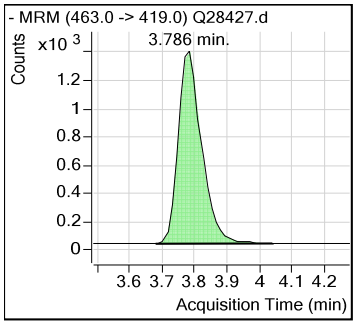
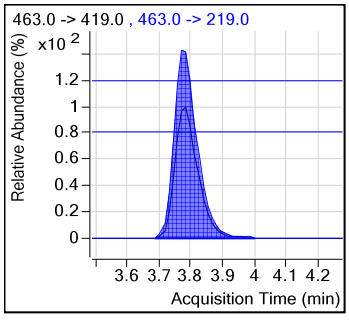
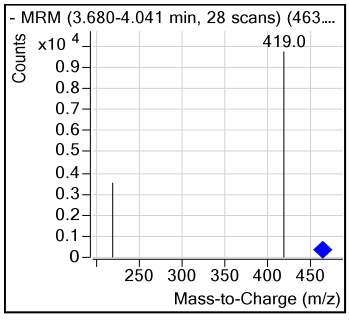
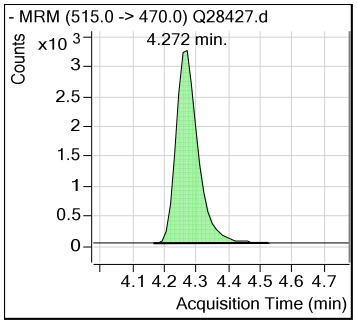
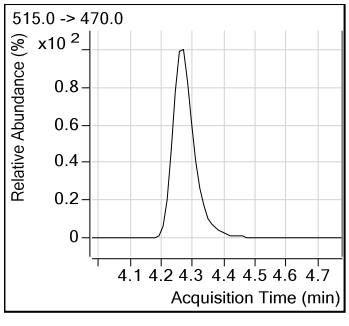


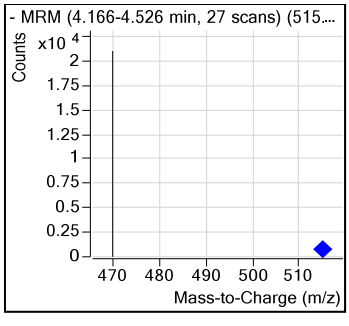




13C2-PFDA







Calibration Curve

Manual Integration Approval Summary

Sample Number:	SQ775-ICC775	**Method:**	EPA 537 MOD
Lab FileID:	Q28427.D	**Analyst approved:**	11/22/16 10:55 Nancy Saunders
Injection Time:	11/21/16 11:53	**Supervisor approved:**	11/22/16 12:14 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		2.76	Split peak
Perfluorooctanesulfonic acid	1763-23-1		3.78	Split peak

Perfluorinated Compounds by LC/MS/MS.

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
11/22/16 12:14

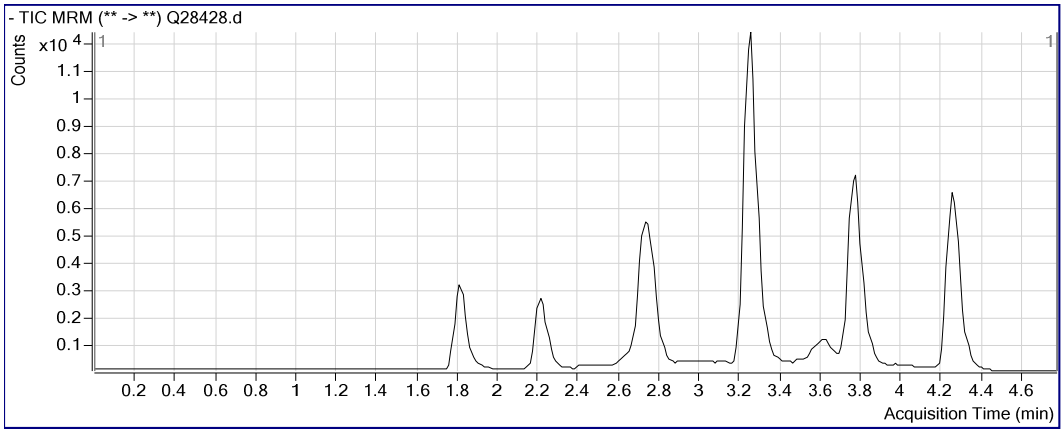
Data File	:	Q28428.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 12:03
Sample Name	:	IC775-40
Vial	:	Vial 7
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.262	415.0 -> 370.0	16349	20.000	µg/L		0.000
13C4-PFOS	3.778	503.0 -> 80.0	5555	20.000	µg/L		0.000
System Monitoring Compounds							
13C2-PFHxA	2.215	315.0 -> 270.0	11666	41.99	µg/L		0.000
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 209.96%				
13C2-PFDA	4.259	515.0 -> 470.0	31056	40.74	µg/L		-0.013
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 203.72%				
Target Compounds							**Qvalue**
PFBS	1.815	299.0 -> 80.0	9162	40.978	µg/L		99
PFHpA	2.728	363.0 -> 319.0	12787	42.346	µg/L	#	90
PFHxS	2.763	399.0 -> 80.0	10693	40.405	µg/L	m	89
PFOA	3.264	413.0 -> 369.0	33032	40.841	µg/L	#	87
PFNA	3.773	463.0 -> 419.0	13438	42.152	µg/L	#	81
PFOS	3.781	499.0 -> 80.0	12701	40.405	µg/L	# m	80

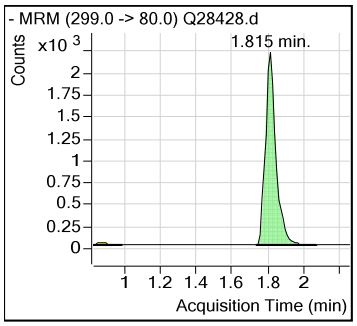
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

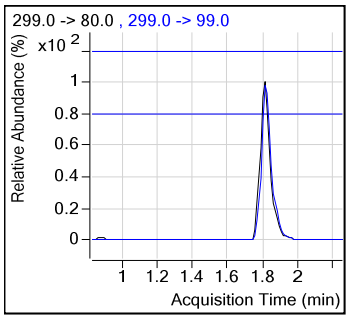
Perfluorinated Compounds by LC/MS/MS.

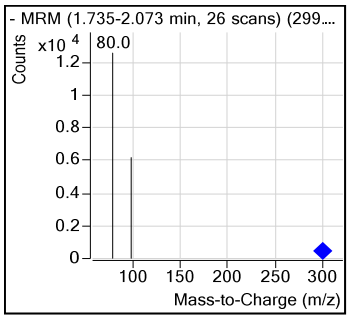
Data File	:	Q28428.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 12:03
Sample Name	:	IC775-40
Vial	:	Vial 7
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



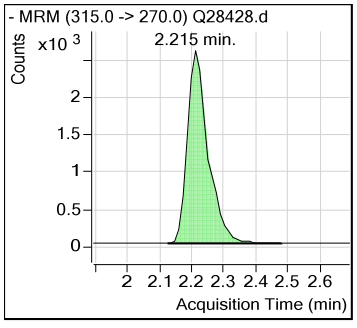
PFBS

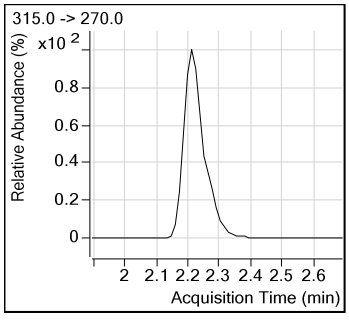


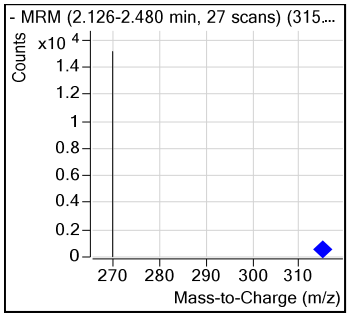




13C2-PFHxA

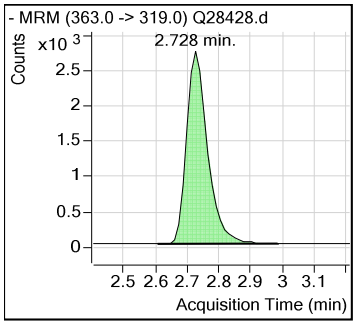


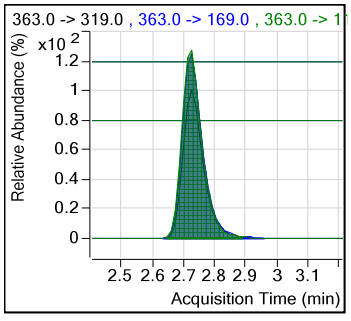


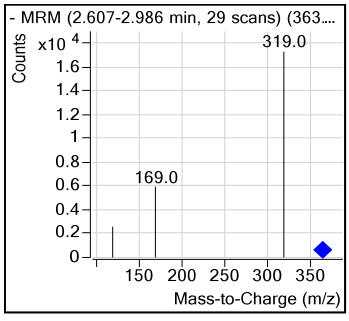


Perfluorinated Compounds by LC/MS/MS.

PFHpA







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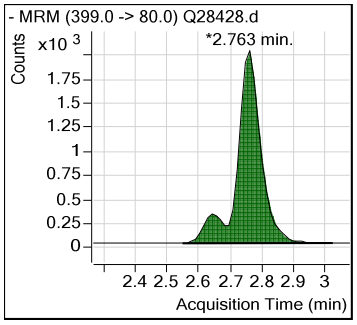
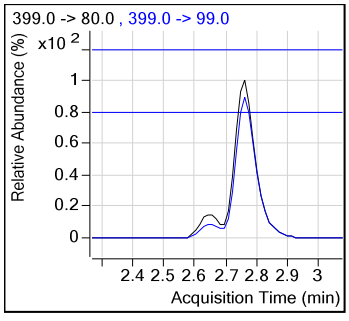
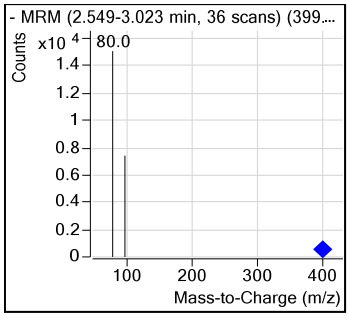
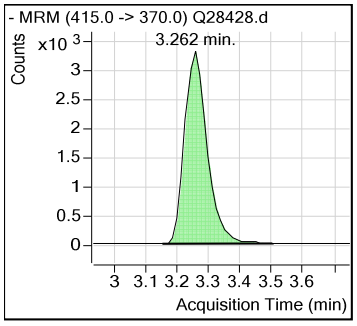
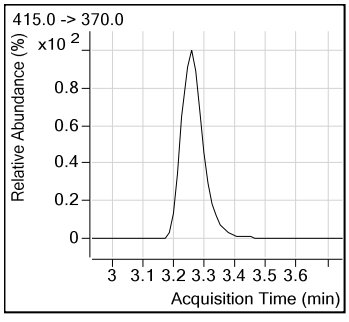


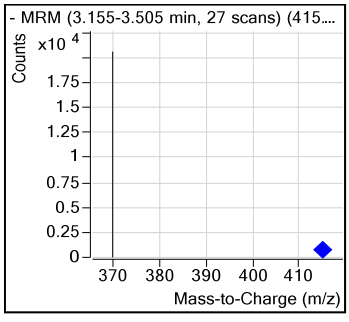




13C2-PFOA







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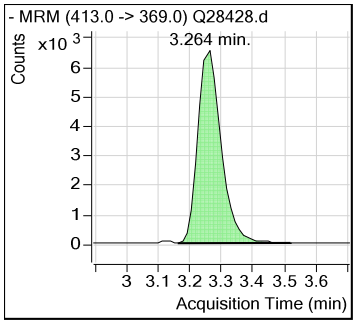
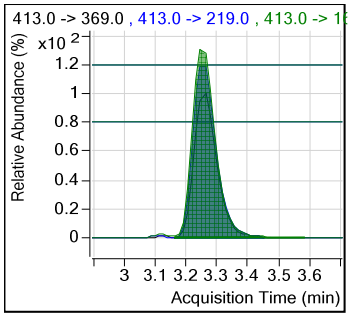
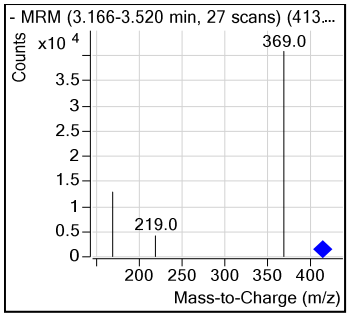
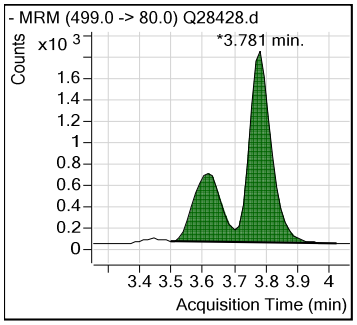


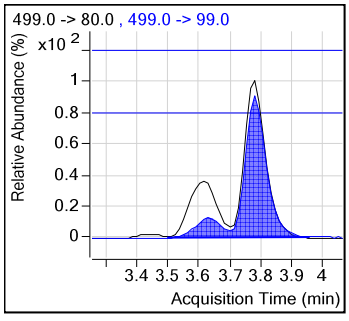


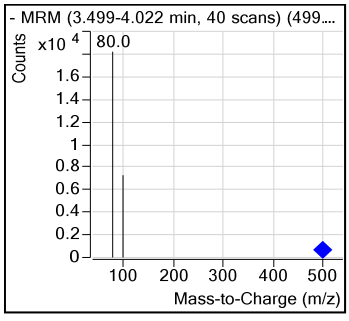


Perfluorinated Compounds by LC/MS/MS.

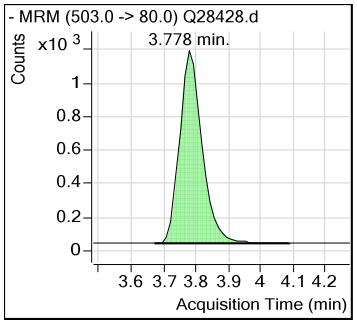
PFOS

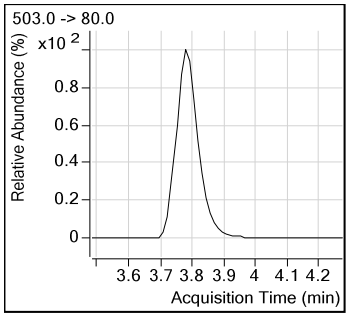


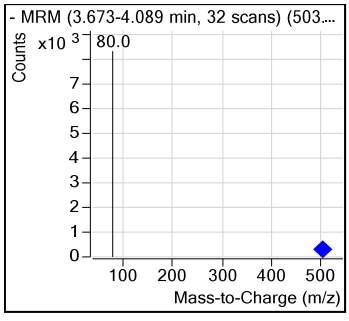




13C4-PFOS







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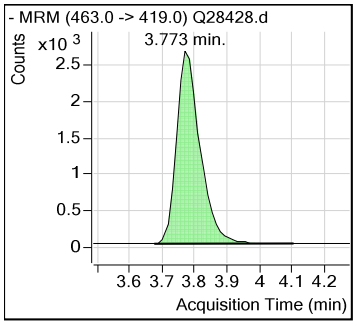
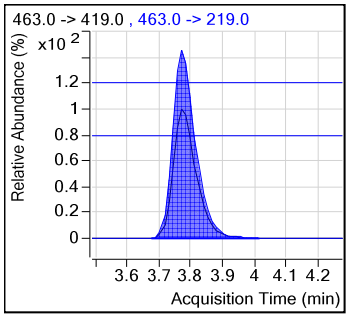
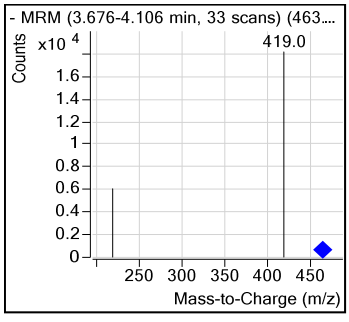
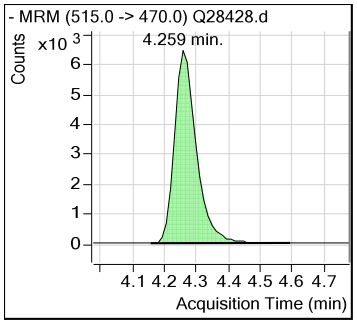
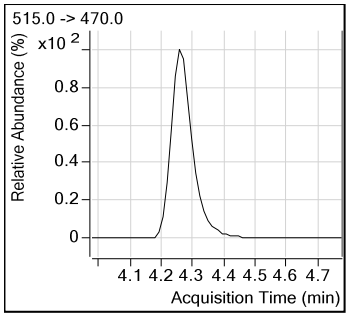


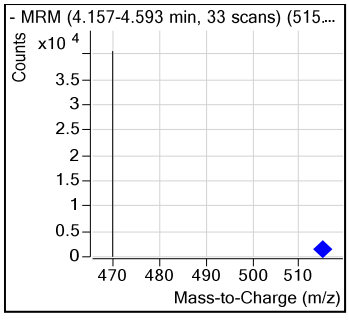




13C2-PFDA







Calibration Curve

Manual Integration Approval Summary

Sample Number:	SQ775-IC775	**Method:**	EPA 537 MOD
Lab FileID:	Q28428.D	**Analyst approved:**	11/22/16 10:55 Nancy Saunders
Injection Time:	11/21/16 12:03	**Supervisor approved:**	11/22/16 12:14 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		2.76	Split peak
Perfluorooctanesulfonic acid	1763-23-1		3.78	Split peak

Q28429.D

Manual Integrations APPROVED (compounds with "m" flag)

Mike Eger 11/22/16 12:14

Perfluorinated Compounds by LC/MS/MS.

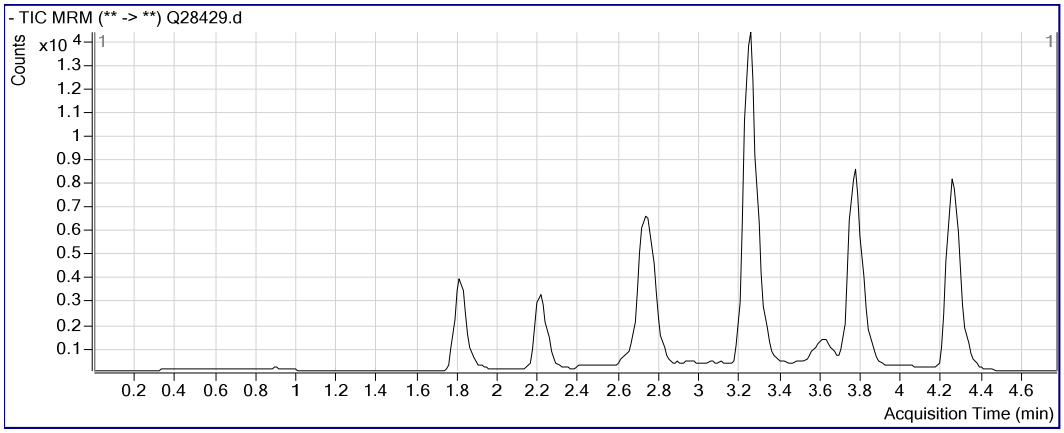
Data File	:	Q28429.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 12:14
Sample Name	:	IC775-50
Vial	:	Vial 8
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.262	415.0 -> 370.0	15916	20.000	µg/L		0.000
13C4-PFOS	3.778	503.0 -> 80.0	5528	20.000	µg/L		0.000
System Monitoring Compounds							
13C2-PFHxA	2.215	315.0 -> 270.0	14193	52.48	µg/L		0.000
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 262.39%				
13C2-PFDA	4.259	515.0 -> 470.0	38730	52.19	µg/L		-0.013
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 260.97%				
Target Compounds							**Qvalue**
PFBS	1.815	299.0 -> 80.0	11215	50.407	µg/L		99
PFHpA	2.728	363.0 -> 319.0	15514	52.776	µg/L	#	90
PFHxS	2.763	399.0 -> 80.0	13434	51.012	µg/L	m	89
PFOA	3.264	413.0 -> 369.0	41009	52.083	µg/L		87
PFNA	3.773	463.0 -> 419.0	16326	52.604	µg/L	#	79
PFOS	3.781	499.0 -> 80.0	15915	50.879	µg/L	# m	80

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

Perfluorinated Compounds by LC/MS/MS.

Data File	:	Q28429.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 12:14
Sample Name	:	IC775-50
Vial	:	Vial 8
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



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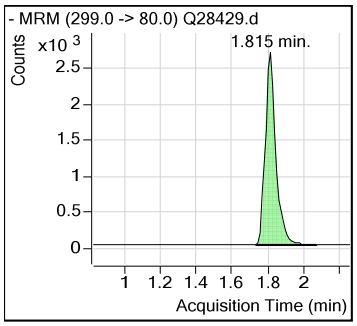
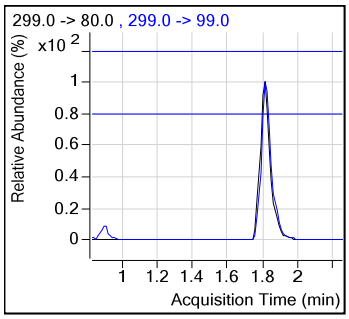
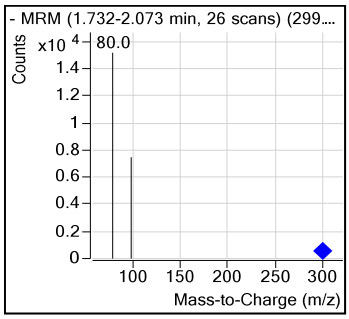
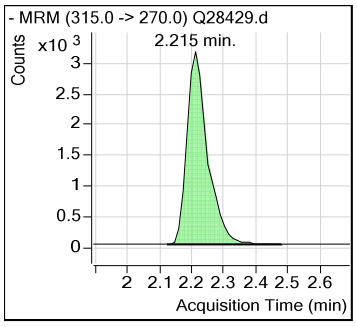
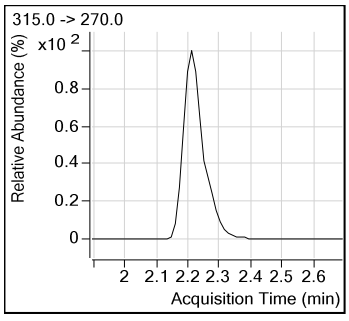


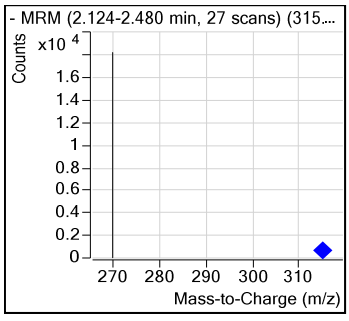




13C2-PFHxA

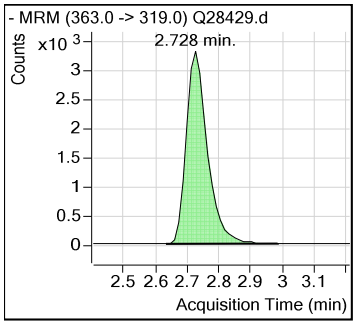


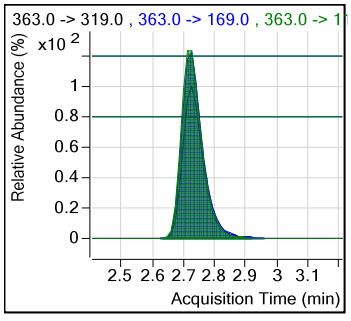


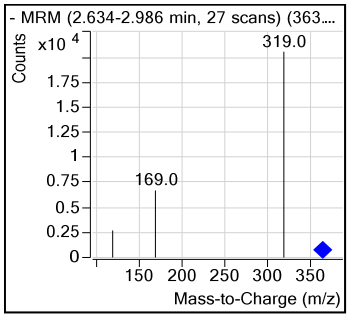


Perfluorinated Compounds by LC/MS/MS.

PFHpA







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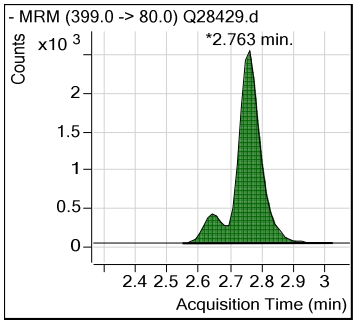

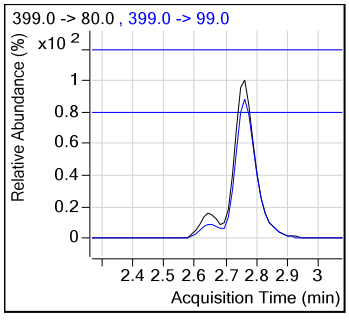

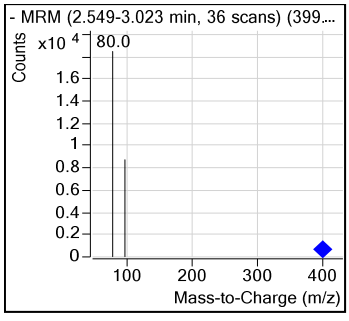

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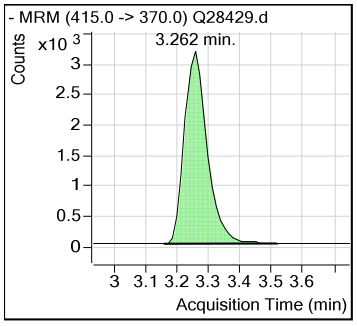
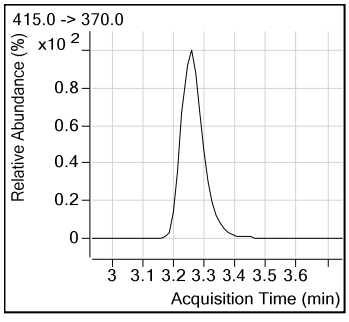
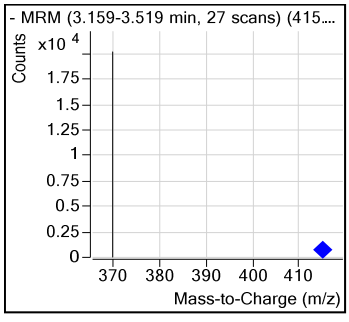
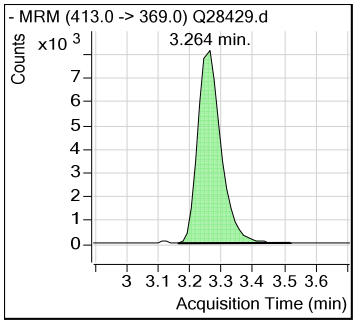
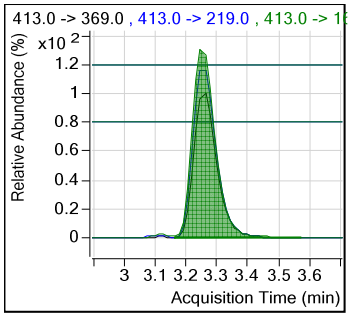


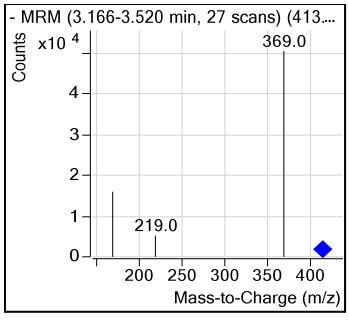




PFOA

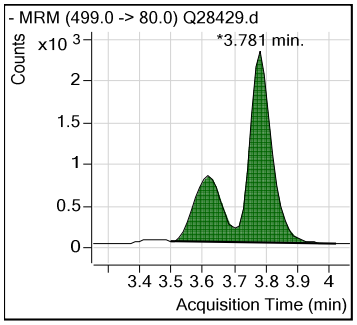


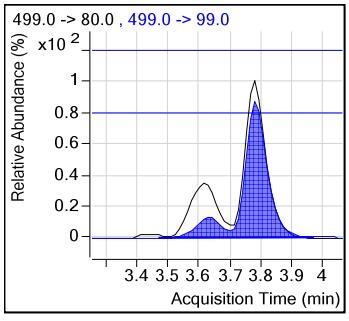


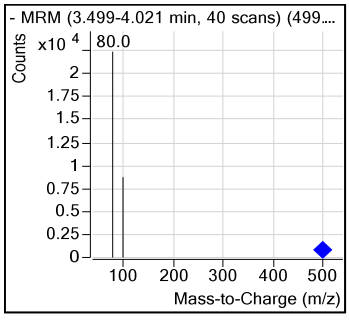


Perfluorinated Compounds by LC/MS/MS.

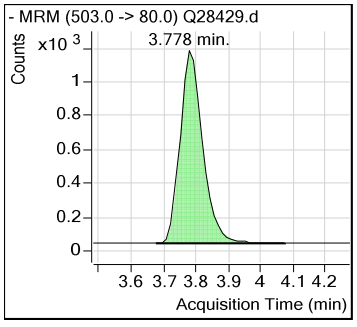
PFOS

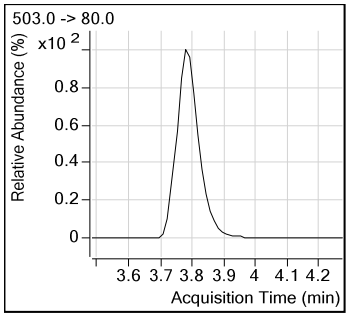


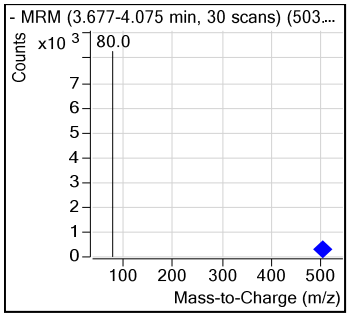




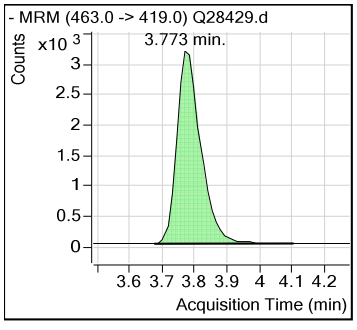
13C4-PFOS

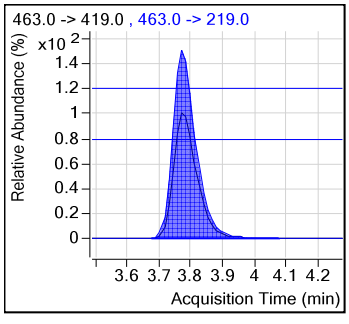


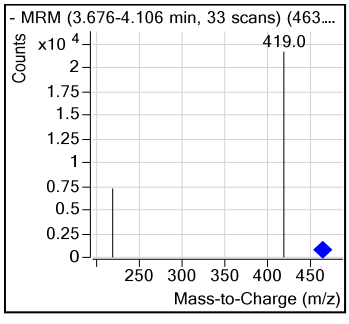




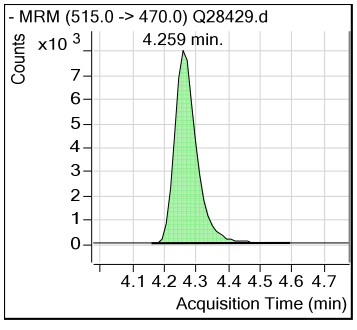
PFNA

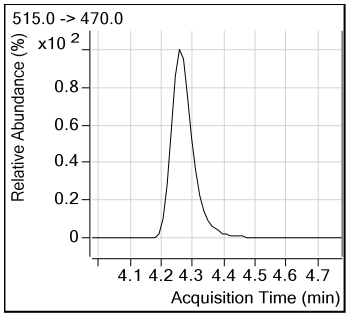


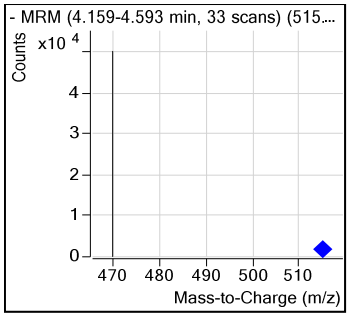




13C2-PFDA







Calibration Curve

Manual Integration Approval Summary

Sample Number:	SQ775-IC775	**Method:**	EPA 537 MOD
Lab FileID:	Q28429.D	**Analyst approved:**	11/22/16 10:55 Nancy Saunders
Injection Time:	11/21/16 12:14	**Supervisor approved:**	11/22/16 12:14 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		2.76	Split peak
Perfluorooctanesulfonic acid	1763-23-1		3.78	Split peak

Perfluorinated Compounds by LC/MS/MS.

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
11/22/16 12:14

Data File	:	Q28430.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 12:25
Sample Name	:	IC775-100
Vial	:	Vial 9
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

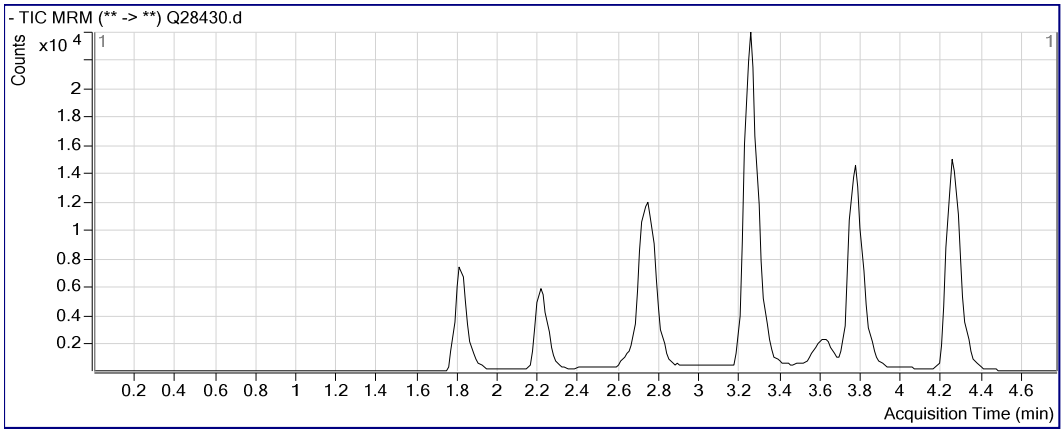
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.262	415.0 -> 370.0	15803	20.000	µg/L		0.000
13C4-PFOS	3.778	503.0 -> 80.0	5373	20.000	µg/L		0.000
System Monitoring Compounds							
13C2-PFHxA	2.215	315.0 -> 270.0	26313	97.99	µg/L		0.000
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 489.94%				
13C2-PFDA	4.259	515.0 -> 470.0	72793	98.80	µg/L		-0.013
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 494.00%				
Target Compounds							**Qvalue**
PFBS	1.815	299.0 -> 80.0	21536	99.593	µg/L		99
PFHpA	2.728	363.0 -> 319.0	28502	97.652	µg/L	#	90
PFHxS	2.763	399.0 -> 80.0	25470	99.515	µg/L	m	89
PFOA	3.264	413.0 -> 369.0	77249	98.811	µg/L	#	88
PFOS	3.781	499.0 -> 80.0	30318	99.730	µg/L	# m	81
PFNA	3.786	463.0 -> 419.0	30128	97.770	µg/L	#	83

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

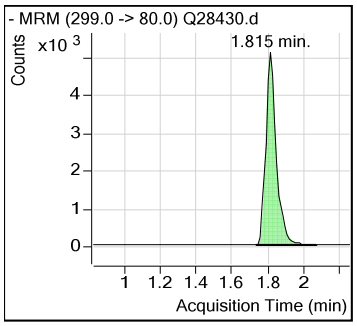
7.5.8
7

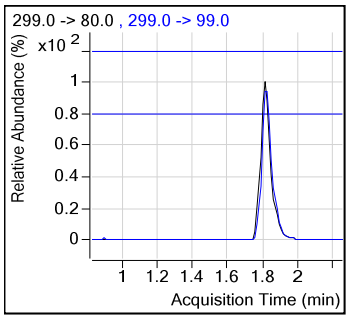
Perfluorinated Compounds by LC/MS/MS.

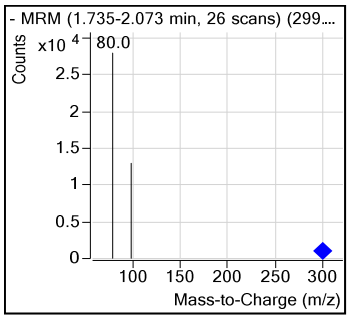
Data File	:	Q28430.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 12:25
Sample Name	:	IC775-100
Vial	:	Vial 9
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



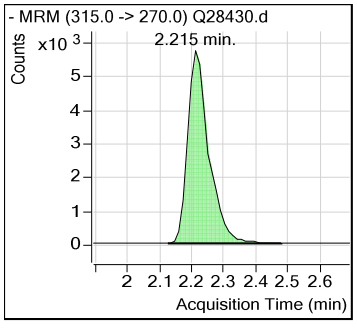
PFBS

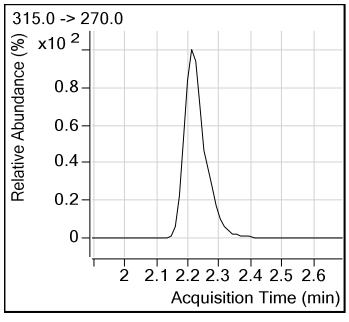


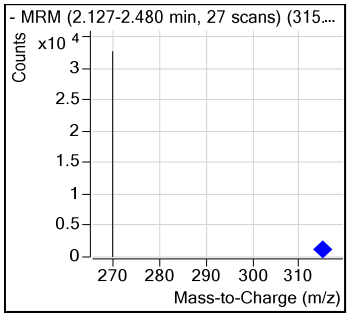




13C2-PFHxA

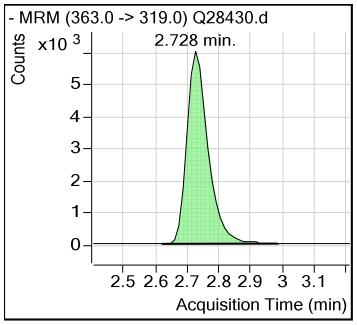


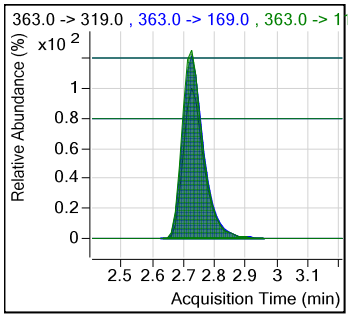


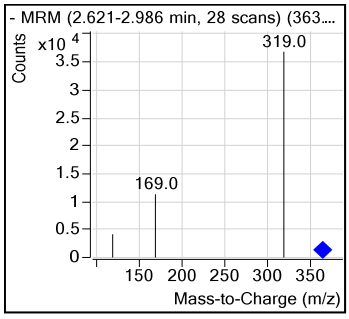


Perfluorinated Compounds by LC/MS/MS.

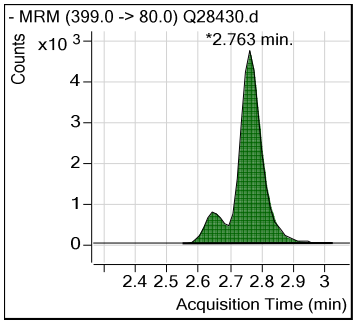
PFHpA

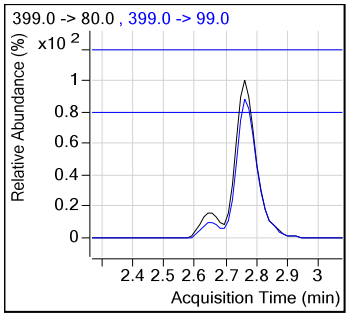


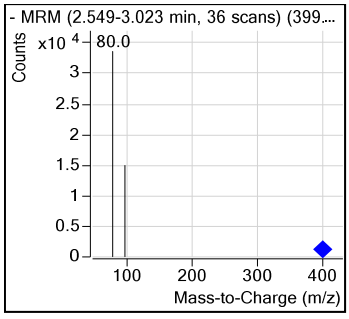




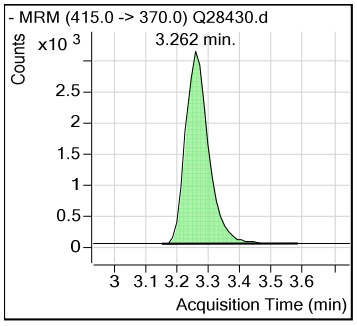
PFHxS

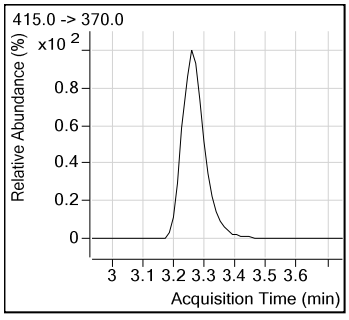


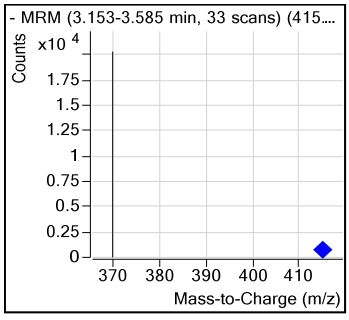




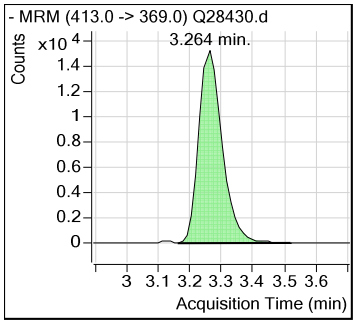
13C2-PFOA

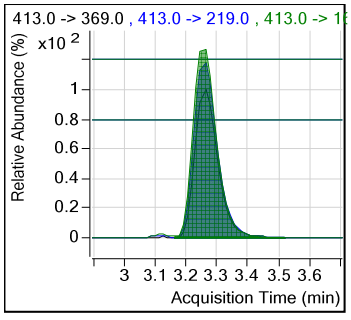


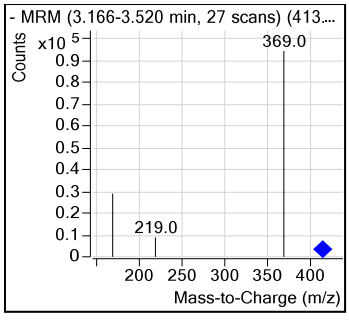




PFOA

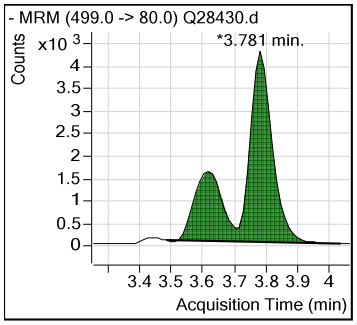


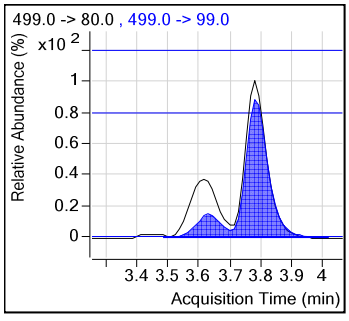


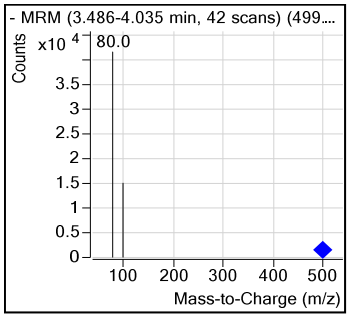


Perfluorinated Compounds by LC/MS/MS.

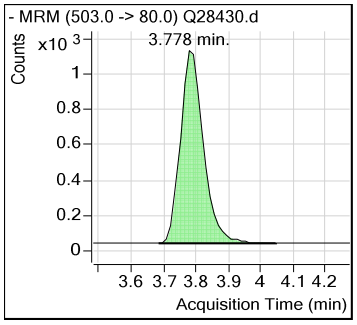
PFOS

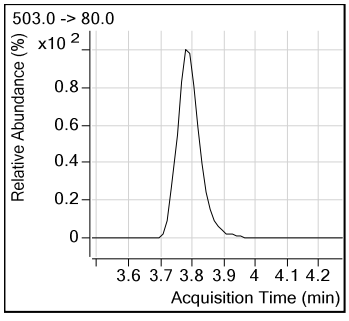


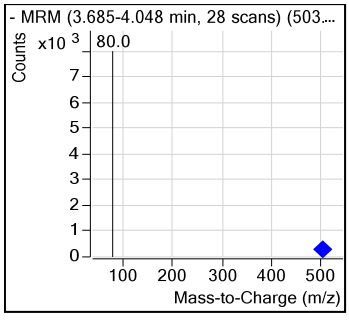




13C4-PFOS







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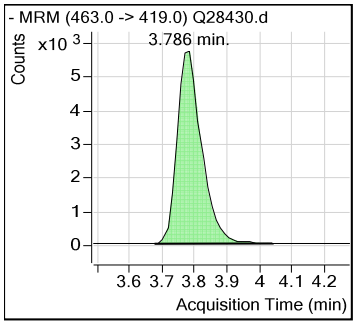
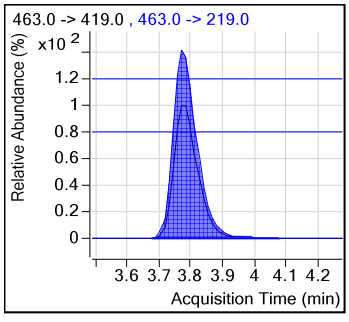
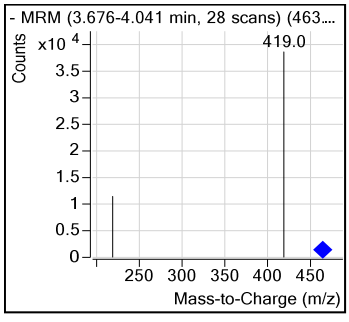
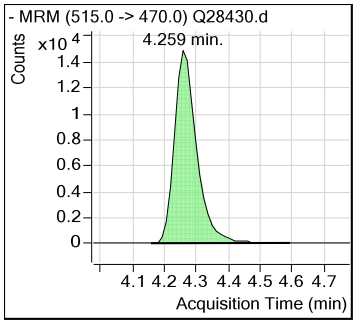
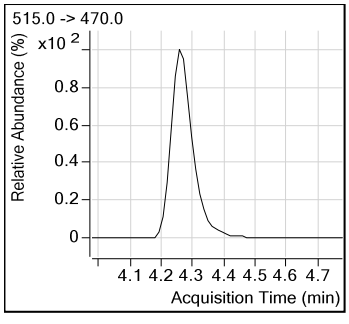


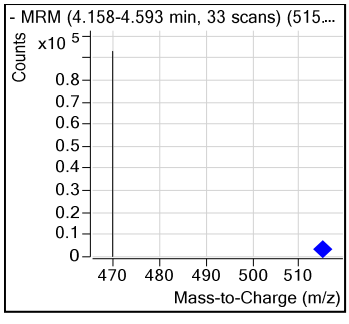




13C2-PFDA







Calibration Curve

Manual Integration Approval Summary

Sample Number:	SQ775-IC775	**Method:**	EPA 537 MOD
Lab FileID:	Q28430.D	**Analyst approved:**	11/22/16 10:55 Nancy Saunders
Injection Time:	11/21/16 12:25	**Supervisor approved:**	11/22/16 12:14 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		2.76	Split peak
Perfluorooctanesulfonic acid	1763-23-1		3.78	Split peak

Perfluorinated Compounds by LC/MS/MS.

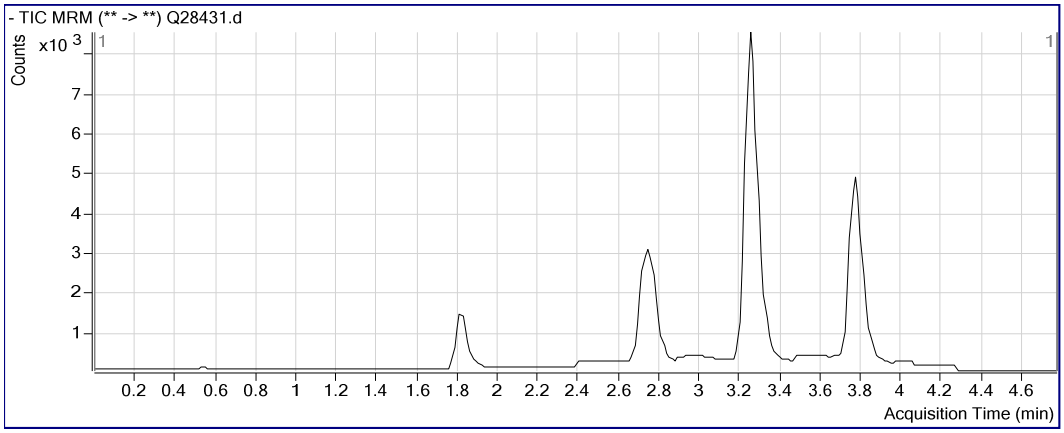
Data File	:	Q28431.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 12:36
Sample Name	:	ICV775-20
Vial	:	Vial 10
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.262	415.0 -> 370.0	16838	20.000	µg/L		0.000
13C4-PFOS	3.778	503.0 -> 80.0	5714	20.000	µg/L		0.000
System Monitoring Compounds							
Target Compounds							**Qvalue**
PFBS	1.815	299.0 -> 80.0	4055	17.630	µg/L		99
PFHpA	2.728	363.0 -> 319.0	6898	22.181	µg/L	#	90
PFHxS	2.763	399.0 -> 80.0	5097	18.723	µg/L		88
PFOA	3.264	413.0 -> 369.0	17845	21.422	µg/L	#	87
PFNA	3.773	463.0 -> 419.0	6710	20.436	µg/L	#	82
PFOS	3.781	499.0 -> 80.0	6309	19.511	µg/L		89

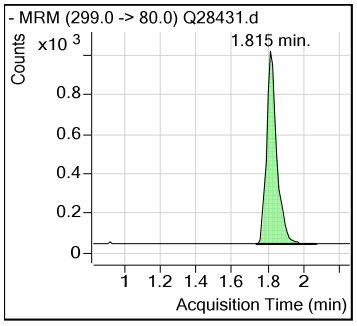
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

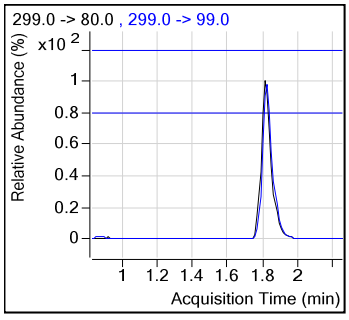
Perfluorinated Compounds by LC/MS/MS.

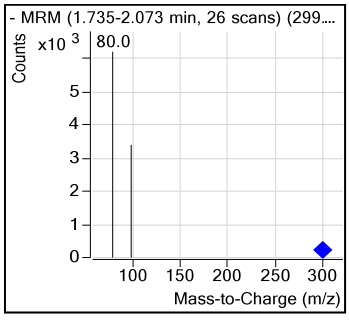
Data File	:	Q28431.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 12:36
Sample Name	:	ICV775-20
Vial	:	Vial 10
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



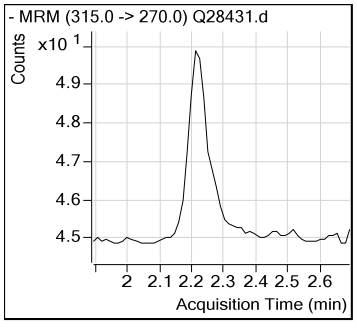
PFBS

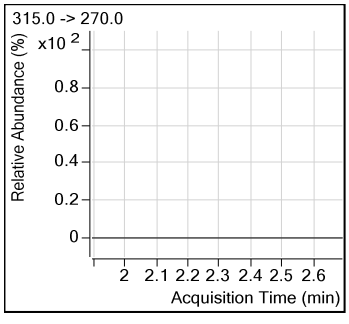


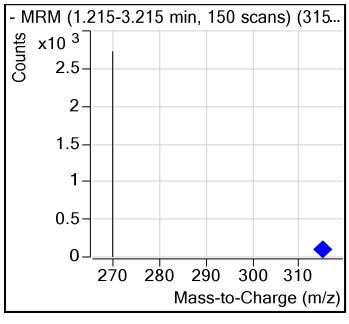




13C2-PFHxA

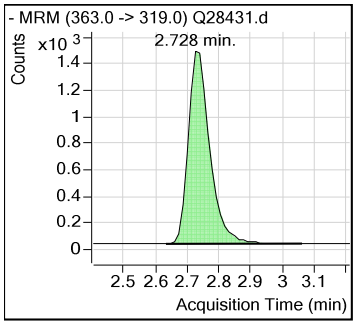


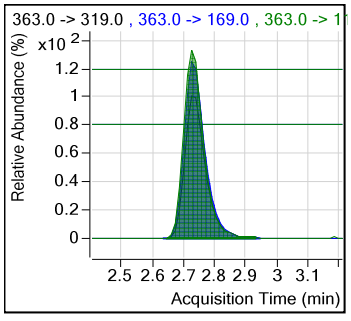


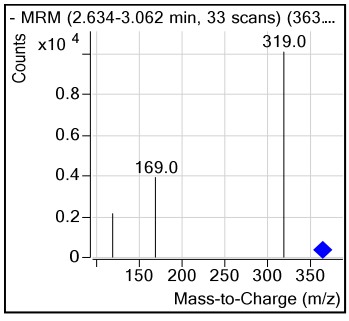


Perfluorinated Compounds by LC/MS/MS.

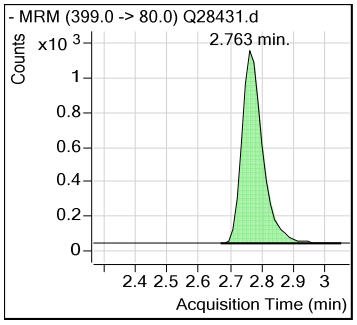
PFHpA

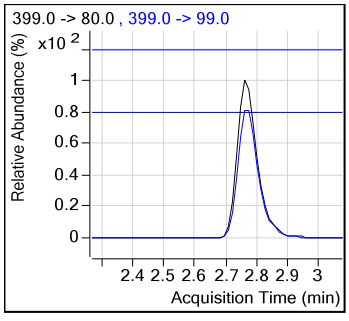


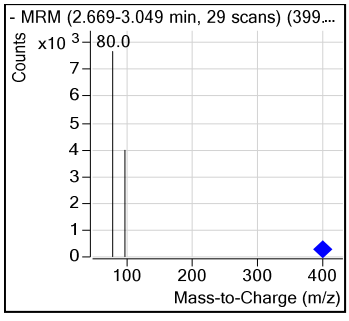




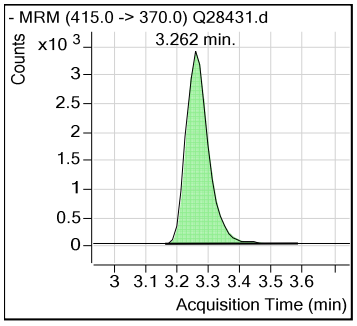
PFHxS

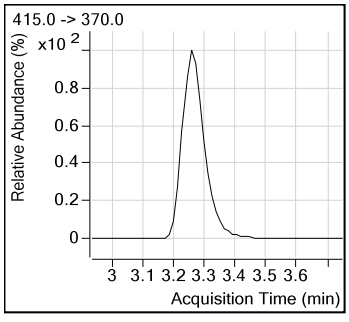


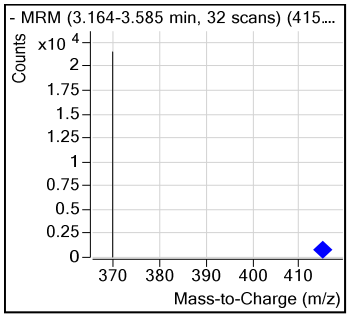




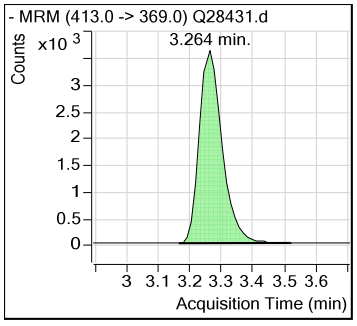
13C2-PFOA

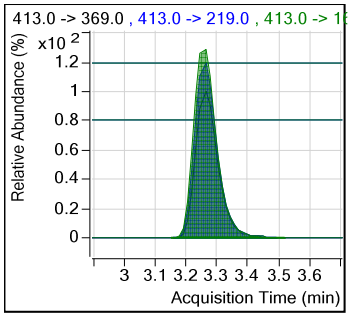


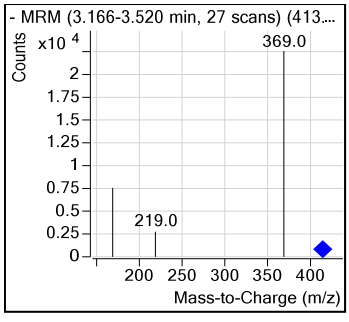




PFOA

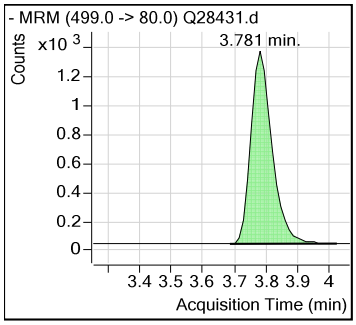


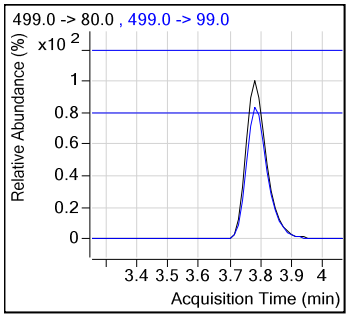


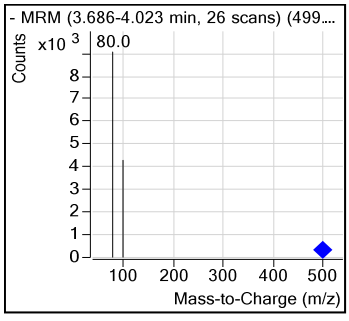


Perfluorinated Compounds by LC/MS/MS.

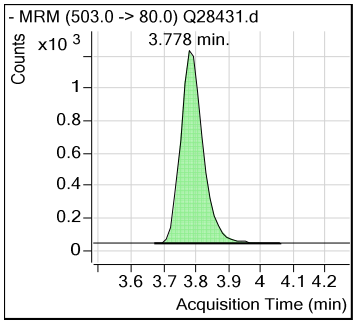
PFOS

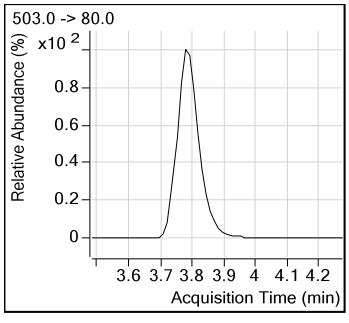


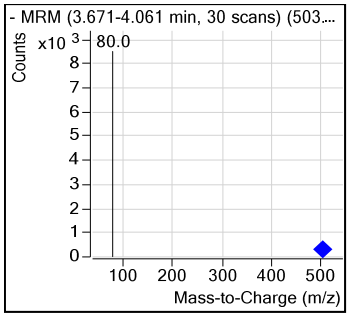




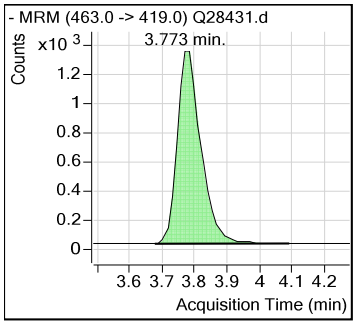
13C4-PFOS

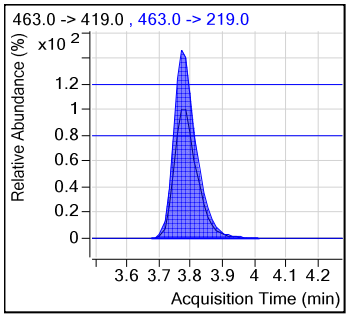


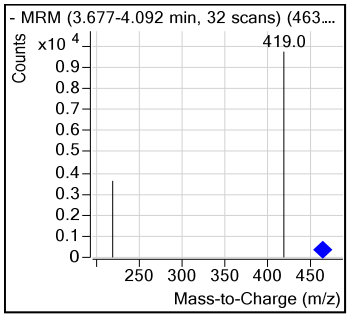




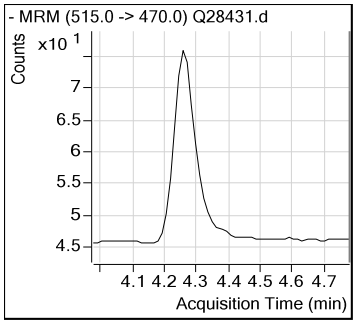
PFNA

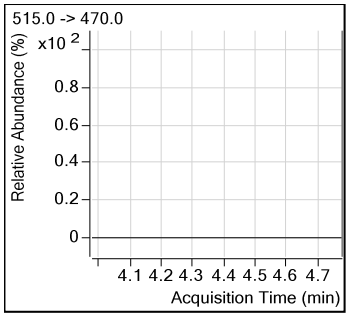


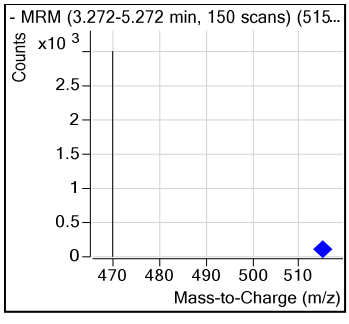




13C2-PFDA







Calibration Curve

Perfluorinated Compounds by LC/MS/MS.

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
11/22/16 12:14

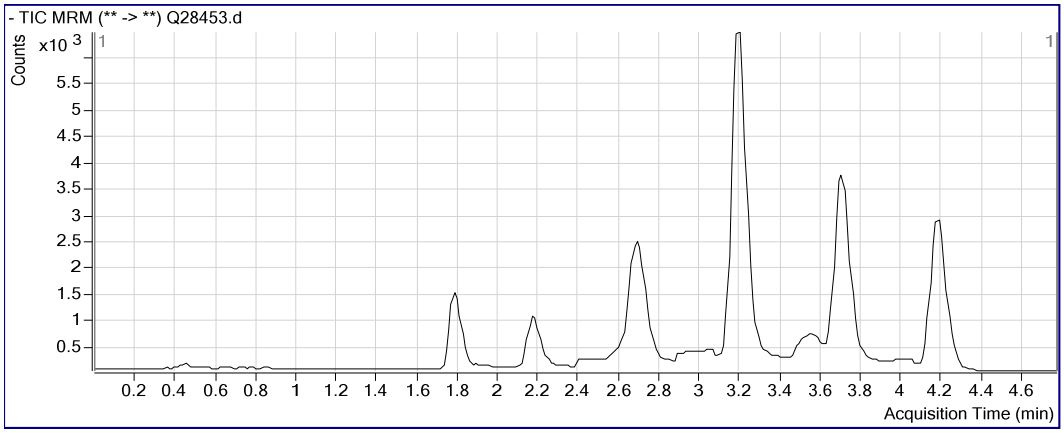
Data File	:	Q28453.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 16:58
Sample Name	:	CC775-20
Vial	:	Vial 6
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.204	415.0 -> 370.0	14652	20.000	µg/L		-0.058
13C4-PFOS	3.712	503.0 -> 80.0	5422	20.000	µg/L		-0.067
System Monitoring Compounds							
13C2-PFHxA	2.175	315.0 -> 270.0	4521	18.16	µg/L		-0.040
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 90.80%				
13C2-PFDA	4.192	515.0 -> 470.0	15101	22.11	µg/L		-0.080
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 110.53%				
Target Compounds							**Qvalue**
PFBS	1.788	299.0 -> 80.0	4372	20.034	µg/L		100
PFHpA	2.674	363.0 -> 319.0	5192	19.185	µg/L	#	91
PFHxS	2.710	399.0 -> 80.0	5302	20.526	µg/L	m	88
PFOA	3.206	413.0 -> 369.0	13884	19.154	µg/L		90
PFOS	3.714	499.0 -> 80.0	5895	19.216	µg/L	# m	80
PFNA	3.718	463.0 -> 419.0	5895	20.632	µg/L	#	82

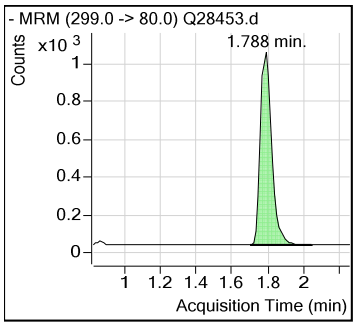
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

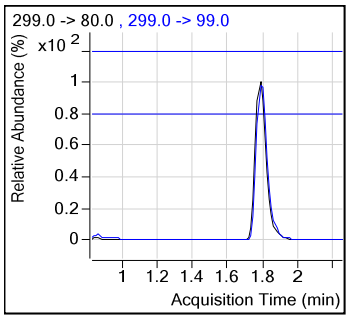
Perfluorinated Compounds by LC/MS/MS.

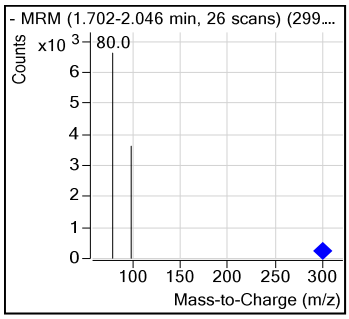
Data File	:	Q28453.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 16:58
Sample Name	:	CC775-20
Vial	:	Vial 6
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



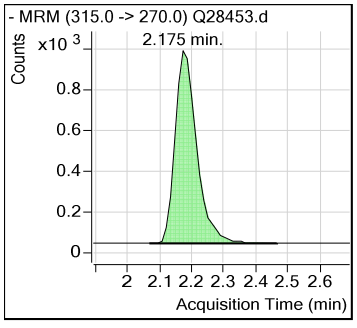
PFBS

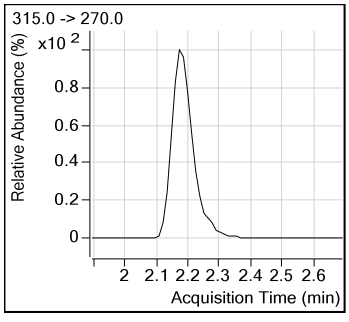


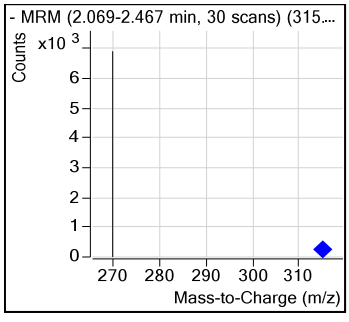




13C2-PFHxA

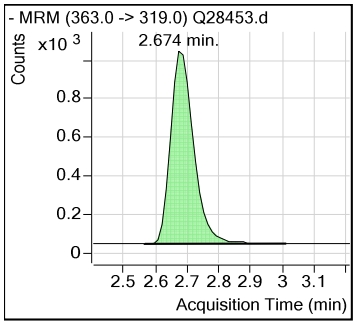


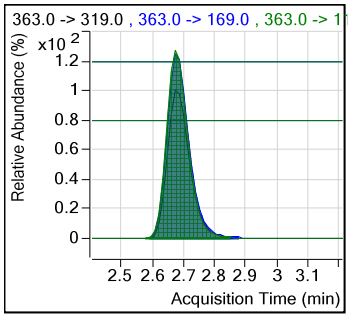


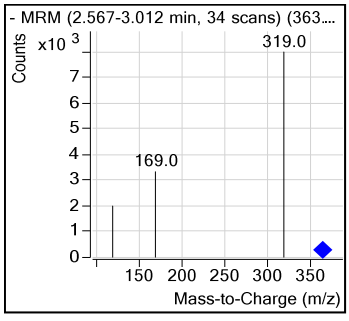


Perfluorinated Compounds by LC/MS/MS.

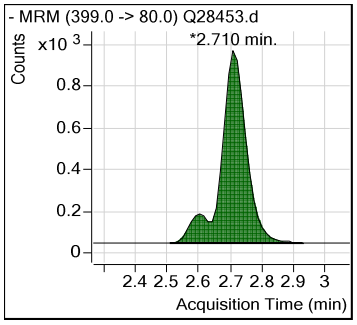
PFHpA

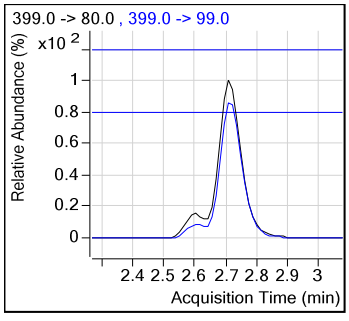


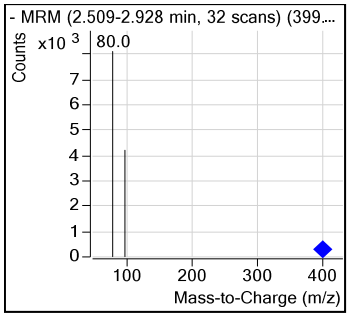




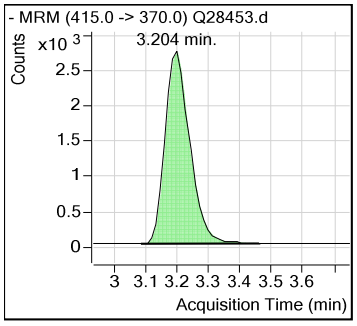
PFHxS

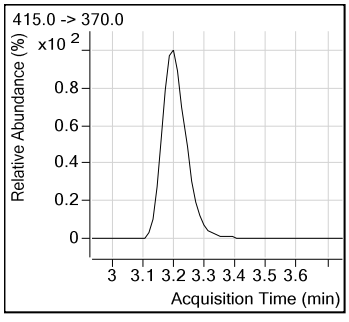


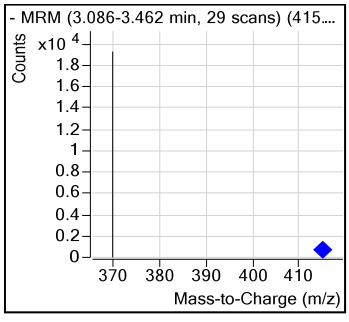




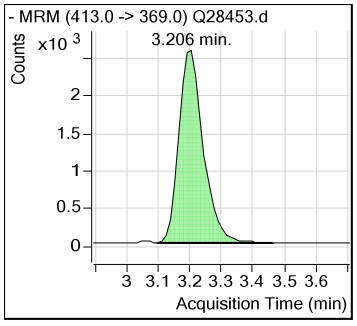
13C2-PFOA

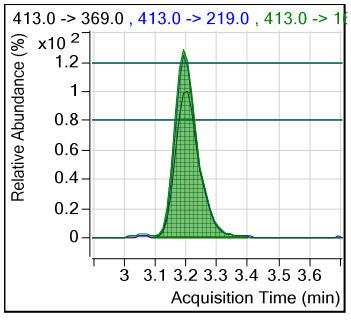


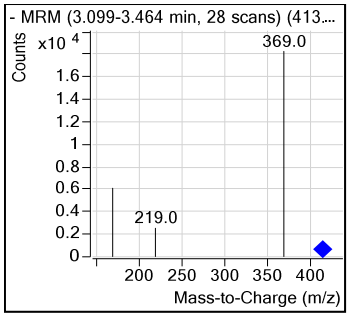




PFOA

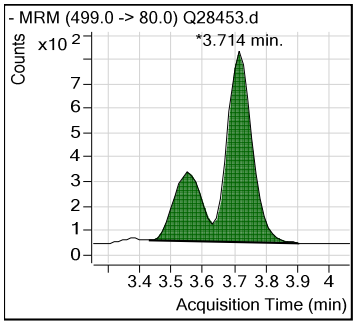


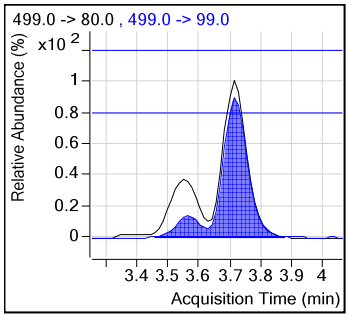


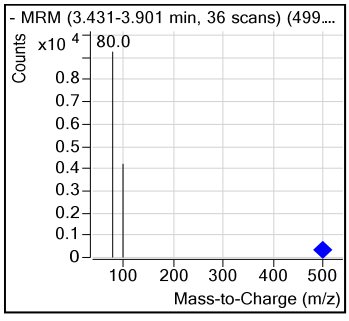


Perfluorinated Compounds by LC/MS/MS.

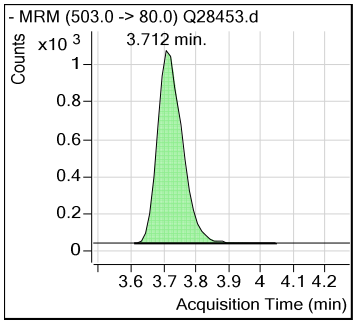
PFOS

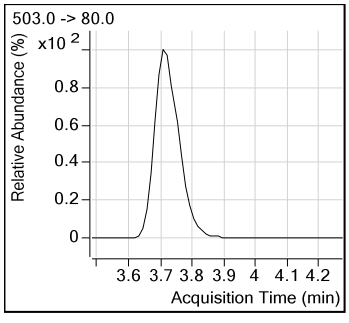


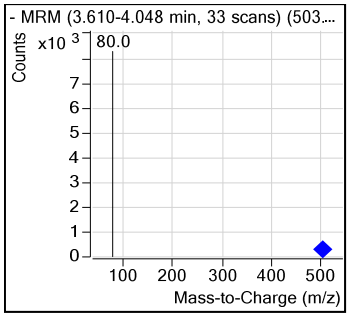




13C4-PFOS







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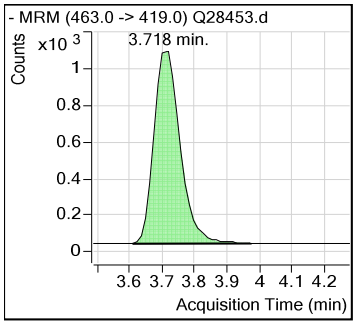
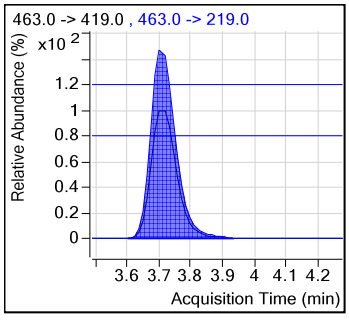
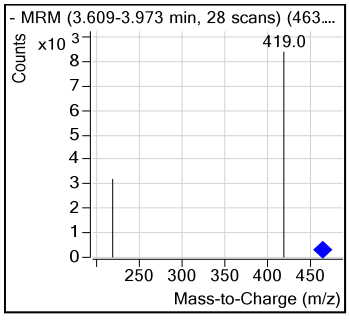
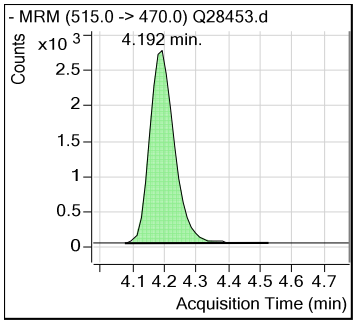
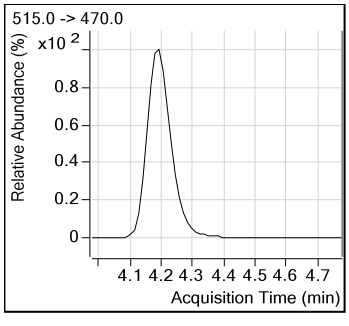


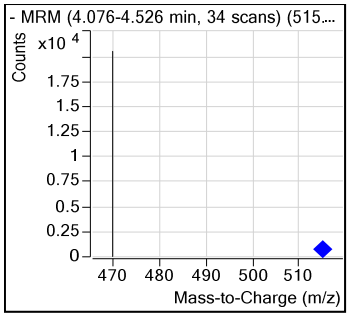




13C2-PFDA







Calibration Curve

Manual Integration Approval Summary

Sample Number:	SQ775-CC775	**Method:**	EPA 537 MOD
Lab FileID:	Q28453.D	**Analyst approved:**	11/22/16 10:55 Nancy Saunders
Injection Time:	11/21/16 16:58	**Supervisor approved:**	11/22/16 12:14 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		2.71	Split peak
Perfluorooctanesulfonic acid	1763-23-1		3.71	Split peak

Perfluorinated Compounds by LC/MS/MS.

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
11/22/16 12:14

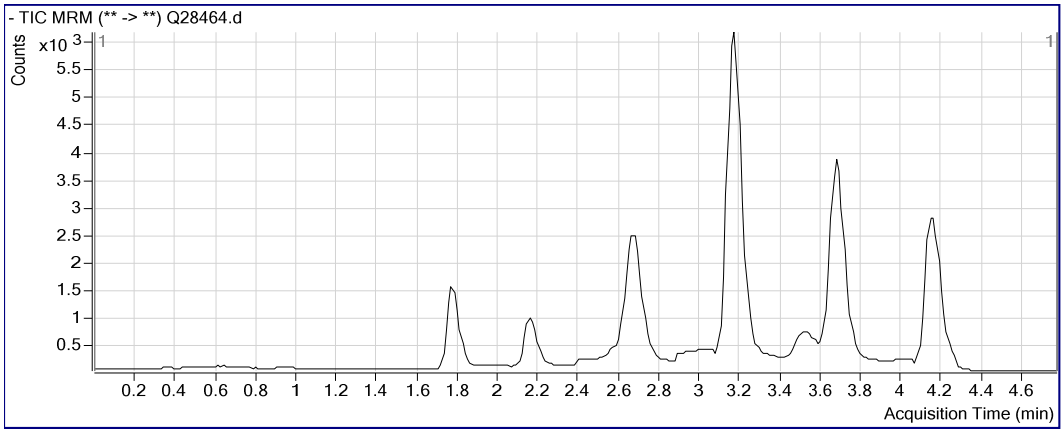
Data File	:	Q28464.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 18:57
Sample Name	:	CC775-20
Vial	:	Vial 6
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
13C2-PFOA	3.177	415.0 -> 370.0	13789	20.000	µg/L		-0.085
13C4-PFOS	3.685	503.0 -> 80.0	5507	20.000	µg/L		-0.094
System Monitoring Compounds							
13C2-PFHxA	2.162	315.0 -> 270.0	4111	17.54	µg/L		-0.053
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 87.72%				
13C2-PFDA	4.166	515.0 -> 470.0	14610	22.73	µg/L		-0.107
Spiked Amount: 20.000	Range: 0 - 0		Recovery = 113.63%				
Target Compounds							**Qvalue**
PFBS	1.775	299.0 -> 80.0	4443	20.048	µg/L		99
PFHpA	2.661	363.0 -> 319.0	4690	18.415	µg/L	#	89
PFHxS	2.696	399.0 -> 80.0	5408	20.614	µg/L	m	90
PFOA	3.179	413.0 -> 369.0	12924	18.946	µg/L		89
PFOS	3.686	499.0 -> 80.0	6006	19.275	µg/L	# m	79
PFNA	3.689	463.0 -> 419.0	5643	20.986	µg/L	#	78

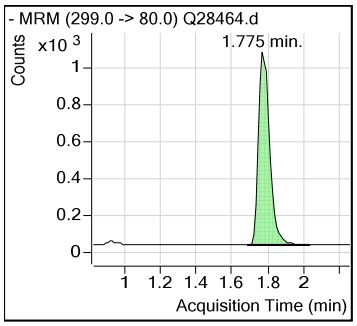
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

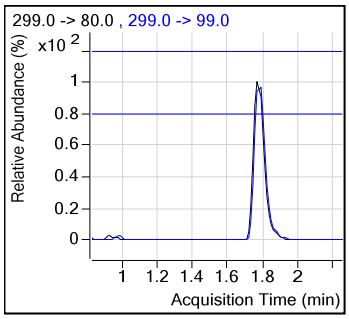
Perfluorinated Compounds by LC/MS/MS.

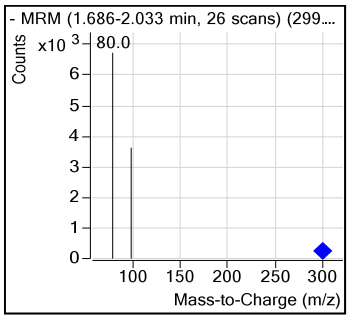
Data File	:	Q28464.d
Operator	:	NANCYF
Acq Method Name	:	dMRM_UCMR3_GEMINI.m
Acquisition date	:	2016-11-21 18:57
Sample Name	:	CC775-20
Vial	:	Vial 6
Sample Info	:	OP62629,SQ775,130,,,1.0,,WATER
Quant Method	:	UCMR3_GEMINI_1121_SQ775.quantmethod.xml
Quant Batch Name	:	SQ775.batch.bin
Last Calib Update	:	2016-11-21 17:27



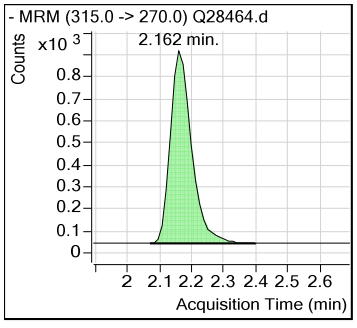
PFBS

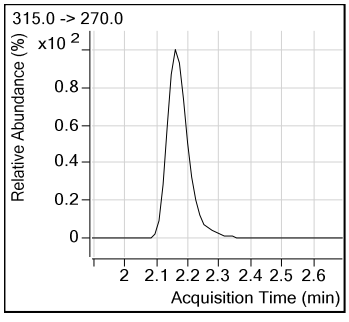


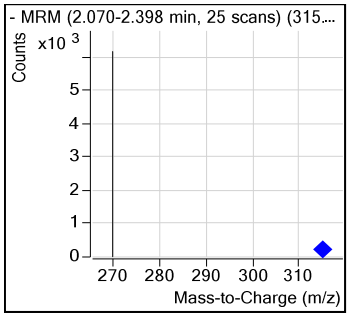




13C2-PFHxA

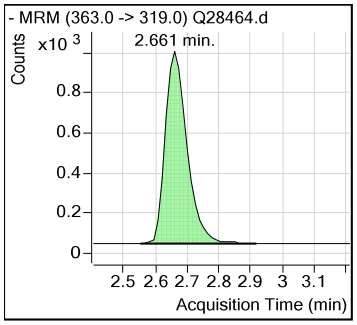


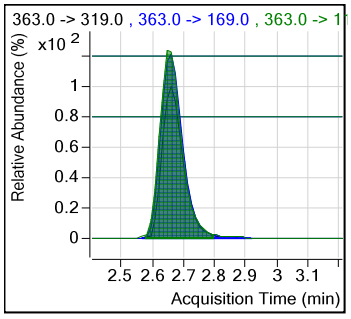


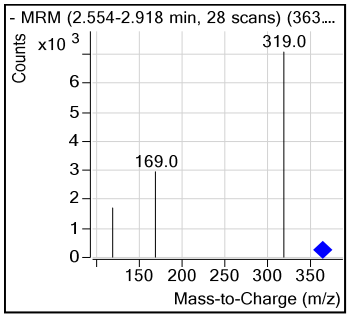


Perfluorinated Compounds by LC/MS/MS.

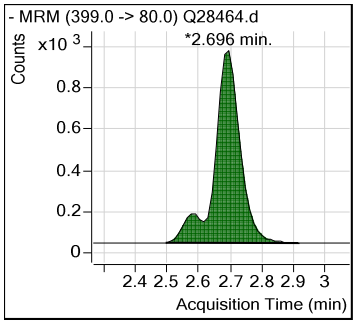
PFHpA

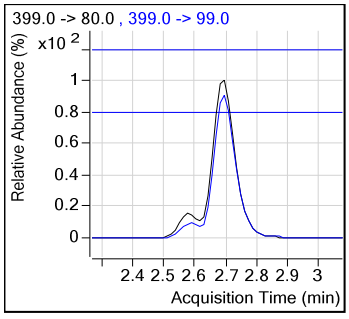


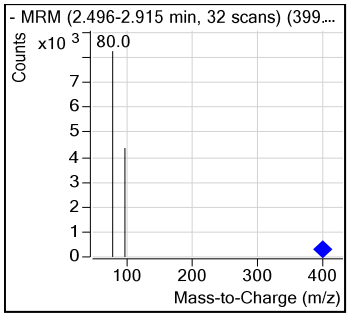




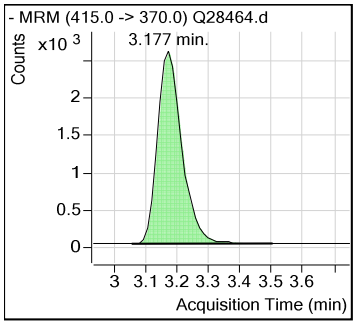
PFHxS

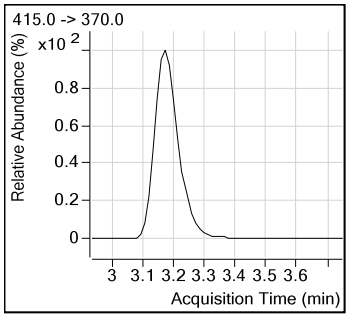


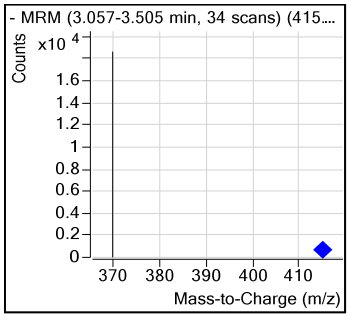




13C2-PFOA







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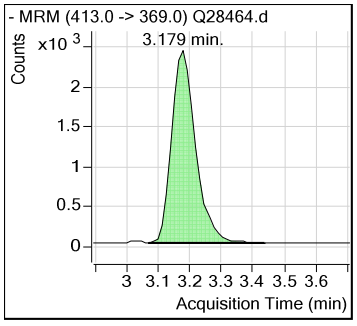
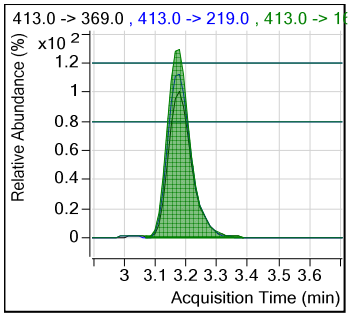
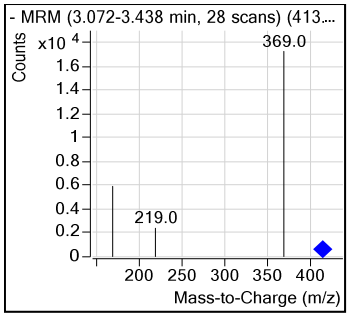
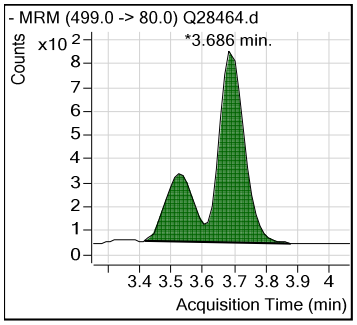


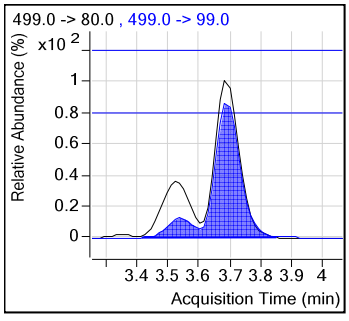


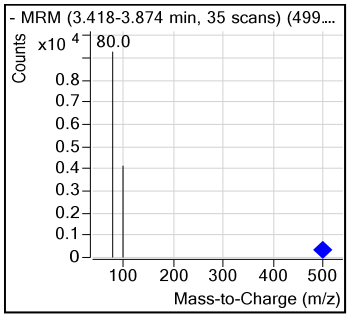


Perfluorinated Compounds by LC/MS/MS.

PFOS







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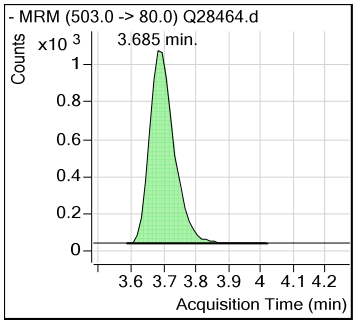
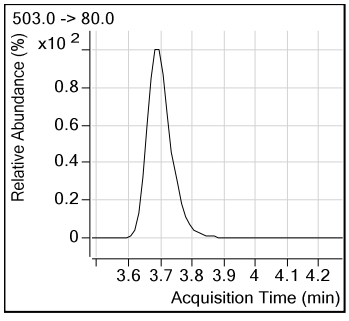
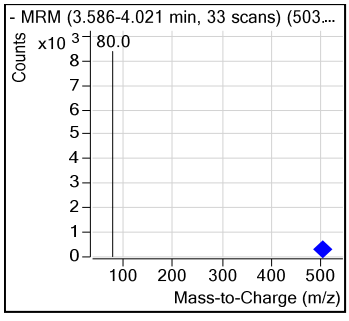
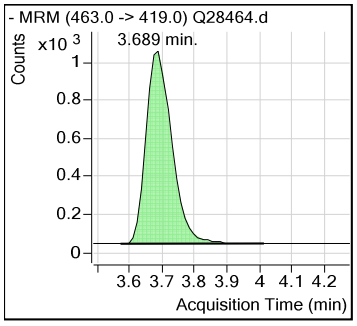
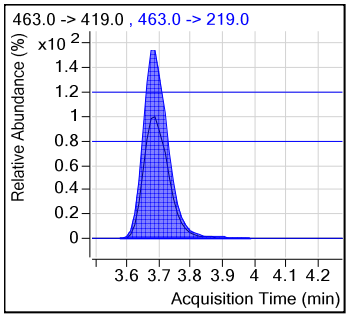


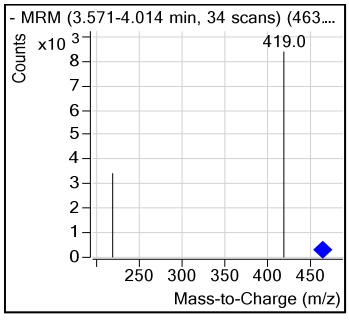




PFNA







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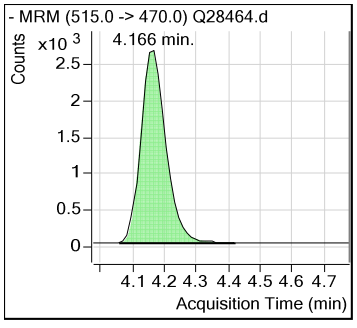

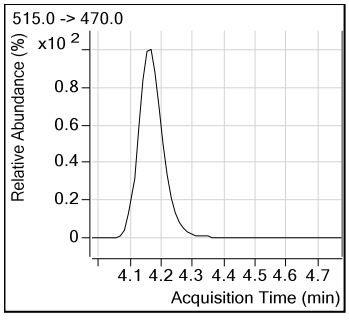

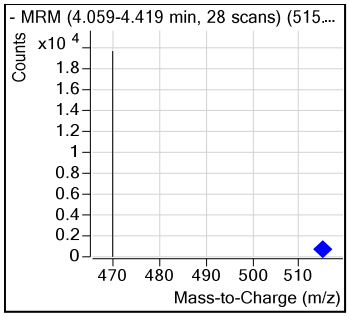

Calibration Curve

Manual Integration Approval Summary

Sample Number:	SQ775-CC775	**Method:**	EPA 537 MOD
Lab FileID:	Q28464.D	**Analyst approved:**	11/22/16 10:55 Nancy Saunders
Injection Time:	11/21/16 18:57	**Supervisor approved:**	11/22/16 12:14 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		2.70	Split peak
Perfluorooctanesulfonic acid	1763-23-1		3.69	Split peak

SGS ACCUTEST-ORLANDO

DATE:	11-21-16
COLUMN TYPE:	Gemini EPH
AMOUNT INJECTED:	7.5 ul
INSTRUMENT:	LCMS1-Q
HEAD PRESSURE:	300

LCMS1-Q ANALYSIS LOG

METHODS:	537 mod
ACQ. METHOD:	AMRM UCMRB Gemini
PROC. METHOD:	UCMRB Gemini 1121SQ775
CALIB. DATE:	11-21-16
RUN BATCH: SQ	775

ANALYST:	NAS
ELUENT A LOT #:	165829 w Amm Ac
ELUENT B LOT #:	165076
WATER LOT #:	165829
ISTD Lot #:	LC779

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
Q 25416	1	CCB	PFC	—	—				✓ IS ↑ Am
Q 17	1	CCB		—	—				✓ UCMRB
Q 18	2	RT		LC742	100/TKO				✓ Curve
Q 19	1	CCB		—	—				✓
Q 20	1	CCB		—	—				✓
Q 21	1	CCB		—	—				✓
Q 22	1	CCB		—	—				✓
Q 23	2	IC 775-1		LC742	5/TKO		SP MP		✓
Q 24	3	-2			10/TKO		SP		✓
Q 25	4	-5			25/TKO		SP		✓
Q 26	5	-10			50/TKO		SP		✓
Q 27	6	IC 775-20			100/TKO		SP		✓
Q 28	7	IC 775-110			200/TKO		SP		✓
Q 29	8	-50			250/TKO		SP		✓
Q 30	9	-100		↓	1X		SP		✓
Q 31	10	ICV 775-20		B114.B	5/TKO				Pass
Q 32	11	OP62685-55		OP62685	1X				✓
Q 33	12	-MB		↓	↓				ND
Q 34	13	FA 38509-2							ND
Q 35	14	-3	↓	↓	↓				ND

*< Conductivity Limit For Perchlorate by SW846 6850

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

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

Analyst's Signature: _____

SGS ACCUTEST-ORLANDO

DATE:	11-21-16
COLUMN TYPE:	Gemini C18
AMOUNT INJECTED:	7.5 ul
INSTRUMENT:	LCMS1-Q
HEAD PRESSURE:	300

LCMS1-Q ANALYSIS LOG

METHODS:	537 mod
ACQ. METHOD:	dMRM UCMR3 Gemini
PROC. METHOD:	UCMR3 Gemini 11213277
CALIB. DATE:	11-21-16
RUN BATCH:	SQ 775

ANALYST:	NAS
ELUENT A LOT #:	165829 w/ Amm Ac
ELUENT B LOT #:	165076
WATER LOT #:	165829
ISTD Lot #:	LC779

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
Q 28436	15	FA39509-4	PFC	OP62657	1x				ND
Q 37	16	-5	↓	↓	↓		SP		✓
Q 38	17	-7							ND
Q 39	18	-8							ND
Q 40	19	-9							ND
Q 41	20	-10					SP		✓
Q 42	6	CC775-20		LC742	100/500		SP		Poss
Q 43	1	CCB		—	—				ND
Q 44	21	FA39388-1		OP62685	1x		SP		✓
Q 45	22	-2		↓	↓		SP		✓
Q 46	23	-3					SP		✓
Q 47	24	-4					SP		✓
Q 48	25	-5					SP		✓
Q 49	26	OP62685-MS					SP		✓
Q 50	27	-MSD					SP		✓
Q 51	28	FA39388-6							✓
Q 52	29	-7							✓
Q 53	6	CC775-20		LC792	100/500		SP		Poss
Q 54	1	CCB		—	—				ND
Q 55	51	OP62792-BS	↓	OP62792	1x		SP		✓

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

LCMS1_Q_log.xls ME rev. 06/16

Analyst's Signature: [signature]

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SGS ACCUTEST-ORLANDO

DATE:	11-21-16
COLUMN TYPE:	Gemini PEEK
AMOUNT INJECTED:	7.5 ul
INSTRUMENT:	LCMS1-Q
HEAD PRESSURE:	300

LCMS1-Q ANALYSIS LOG

METHODS:	537 mod
ACQ. METHOD:	dmrm ucm23 Gemini
PROC. METHOD:	ucm23 Gemini 121 SQ775
CALIB. DATE:	11-21-16
RUN BATCH:	SQ 775

ANALYST:	NAS
ELUENT A LOT #:	165829 w NH4Ac
ELUENT B LOT #:	165076
WATER LOT #:	165829
ISTD Lot #:	LC779

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
Q 284576	52	OP62792-MS	PFC	OP62792	1		SP		ND
Q 57	53	FA38820-1							ND
Q 58	54	OP62746-MS					SP v		✓
Q 59	55	-MSD					SP ✓		✓
Q 60	56	FA38820-2							ND
Q 61	57	-3							ND
Q 62	58	FA38917-1							ND
Q 63	59	-2			↓	↓			ND
Q 64	6	CC775-20		LC792	100/1		SP		Pass
Q 65	1	CCB		—	—				ND
Q 66	30	OP62713-MS		OP62713	1				✓
Q 67	31	-MSD							ND
Q 68	32	FA38952-33							ND
Q 69	33	-34							ND
Q 70	34	-1					SP		✓
Q 71	35	-2					SP		✓
Q 72	36	-3					SP		✓
Q 73	37	-11					SP		✓
Q 74	38	OP62713-MS2					SP		✓ BFORT 11/22/16
Q 75	39	-MSD2	↓	↓	↓		SP		✓ PFDASST

*< Conductivity Limit For Perchlorate by SW846 6850

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

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

Analyst's Signature: _____

SGS ACCUTEST-ORLANDO

DATE:	11-21-16
COLUMN TYPE:	Gemini Fcc18
AMOUNT INJECTED:	7.5 ul
INSTRUMENT:	LCMS1-Q
HEAD PRESSURE:	3000

LCMS1-Q ANALYSIS LOG

METHODS:	537 mod
ACQ. METHOD:	dmem ucmrs Gemini
PROC. METHOD:	ucmrs Gemini 1121 SQ775
CALIB. DATE:	11-21-16
RUN BATCH:	SQ 775

ANALYST:	NAS
ELUENT A LOT #:	161829 w Amm Ac
ELUENT B LOT #:	161076
WATER LOT #:	161829
ISTD Lot #:	LL779

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
Q 236176	6	CC775-20	PFC	LL742	100/200		SP		PASS
Q 77	1	CCB		—	—				ND
Q 78	40	FA35452-12		OP62713	1X		SP		✓
Q 79	41	-16					SP		✓
Q 80	42	-17					SP		RR 10X SST PFDA
Q 81	43	-18					SP		RR 5X
Q 82	44	-19					SP		RR 10X
Q 83	45	-20					SP		RR 2X
Q 84	46	OP62713-IMS4							✓
Q 85	47	MP11246 -IMS04							✓
Q 86	48	FA38452-21					SP		RR 2X SS PFDA
Q 87	49	-22					SP		✓ RR 1X
Q 88	6	CC775-20		LL742	100/200		SP		PASS
Q 89	1	CCB		—	—				ND
Q 90	50	FA35452-23		OP62713	1X		SP		✓
Q 91	6	FCC775-20		LL742	100/200		SP		PASS
Q 92	1	CCB		—	—				ND
Q									
Q									
Q							NAS 11-22-16		

*< Conductivity Limit For Perchlorate by SW846 6850

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

LCMS1_Q_log.xls ME rev. 06/16

Analyst's Signature:

SGS ACCUTEST - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 11/21/16 0930
Started {mm/dd/yy 24:00}

Date/Time: 11/21/16 1500
Finished {mm/dd/yy 24:00}

Prep Method: 3535A or (Method circle)

Analytical Method: LC 537

Batch#: OP 62792 MB 11/20/16 Ext. By: MB, KC (TRAINER - TRAINEE) Conc. By: SP Vialed By: MB

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Comments
OP62792 MB	X	250	6	N/A	20ul		1ml	
OP62792 BS	X	250	↓	↓	↓	80ul	↓	
FA38820-1	1	250						
-2	1	250						
-3	1	250						
FA38917-1	1	250						
-2	1	250						
MB 11/21/16								
FA38820-1 MS	2	250	6	N/A	20ul	80ul	1ml	
-1 MSD	3	250	↓	↓	↓	↓	↓	
DUP								

Comments:

Surr.1 ID: LC 781	Conc: 1ppm	Exp. Date: 05/01/17	Inj. By: MB	Ver. By KC
Surr.2 ID: —	Conc: —	Exp. Date: —	Inj. By: —	Ver. By —
Spk.1 ID: LC 773	Conc: 250ppb	Exp. Date: 04/20/17	Inj. By: MB	Ver. By KC
Spk.2 ID: —	Conc: —	Exp. Date: —	Inj. By: —	Ver. By —

Initial Bath Temp (Therm ID): ______
Observed Temp °C: ______ Corr. Temp °C: ______

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

Methanol Lot # 165076 | SPE Lot # S300-0220 | pH Paper # 234215
Acetonitrile Lot # — | SPE Lot # — | Reagent # —
Water Lot# OP62629 | Syringe Filter Lot# — | Solvent # —

Relinquished By: [signature] Date: 11/21/16
Accepted By: [signature] Date: 11/21/16 15:58

NF 02/16 extwater_spe 020116.xls

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Data Validation Report

Project:	Former Bay Head Road Annex- Annapolis, MD
Laboratory:	Accutest Laboratories – Orlando, FL
Job Number:	FA38820
Analyses/Method:	Perfluorinated Compounds (PFCs) by Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS)/ EPA Method 537
Validation Level:	Limited
Resolution Consultants Project Number:	60444465-DM.DE
Prepared by:	Paula DiMattei/Resolution Consultants Completed on: 11/30/16
Reviewed by:	Robert Kennedy/Resolution Consultants Completed on: 12/01/16
File Name: FA38820_PFC memo.docx	

SUMMARY

The samples listed below were collected by Resolution Consultants from the Former Bay Head Road Annex site in Annapolis, MD on November 16, 2016.

Sample ID	Matrix/Sample Type
DW-16-01-111616	Drinking water
DW-16-01-111616-DUP	Field duplicate of DW-16-01-111616
DW-16-01-111616-FRB	Field reagent blank

Data validation activities were conducted with reference to:

- Accutest Laboratories SOP: Standard Operating Procedure for the Extraction of Perfluorinated Alkyl Acids from Potable and Finished Drinking Water Samples for LC/MS/MS Analysis; OP 064.2, Rev. Date: 09/16
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (September 2016);
- Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (DoD, July 2013); and
- The project-specific Sampling and Analysis Plan.

In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity
- ✓ Holding times/sample preservation
- ✓ Initial calibration/initial and continuing calibration verification
- ✓ Laboratory method blanks/field reagent blanks
- ✓ Surrogate recoveries
- ✓ Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS) results
- ✓ Field duplicate results
- ✓ Internal standard results
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. An "NA" indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (✗) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Qualification of the data was not required on the basis of this data review.

RESULTS

Data Completeness (chain-of-custody (COC)/Sample Integrity

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

Initial Calibration/Initial and Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD) or correlation coefficient (r) or coefficient of determination (r^2) method acceptance criteria were met;
- the initial calibration verification standard (ICV) percent recovery acceptance criteria were met; and
- the continuing calibration verification standard (CCV) frequency and method percent difference or percent drift (%D) criteria were met.

All QC acceptance criteria were met.

Laboratory Method Blanks/Field Reagent Blanks

Laboratory method blanks and field reagent blanks are evaluated as to whether there are contaminants detected above the detection limit (DL). Target compounds were not detected in the laboratory method blank or the field reagent blank associated with the samples in this data set.

Surrogate Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

MS/MSD Results

The MS/MSD %Rs and relative percent differences (RPDs) were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

LCS Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

Field Duplicate Results

Field duplicate RPDs are reviewed for conformance with the RESCON QC acceptance limit of $\leq$ 30% [if both results are greater than five times the LOQ] for aqueous matrices. Target compounds were not detected in either sample of the field duplicate pair. Precision is deemed acceptable.

Internal Standard Results

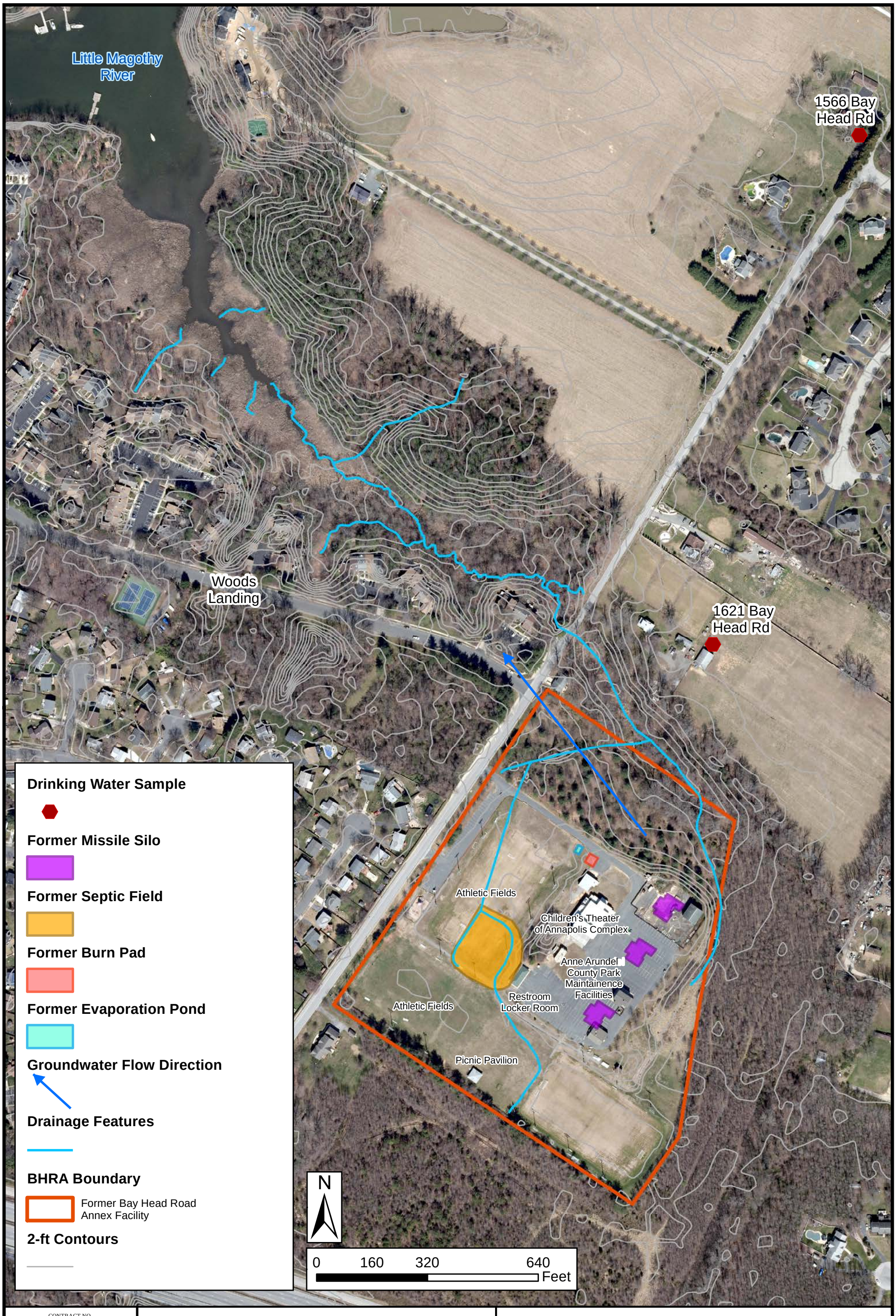
The internal standard results were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

Sample Results/Reporting Issues

If applicable, compounds detected at concentrations less than the limit of quantitation (LOQ) but greater than the detection limit (DL) are qualified by the laboratory as estimated (J). This "J" qualifier is retained during data validation.

QUALIFICATION ACTIONS

Qualification of the data was not required on this basis of this data review.



CONTRACT NO	60444465
CARTOGRAPHY BY	B. Norris
CHECKED BY	S. Tjan
DATE	November, 2019
SCALE	1 " = 250 '
SHEET	1 of 1
Document Name: Fig_2_SiteLayout	

Figure 1-2
Site Layout and RI Study Area
Former Bay Head Road Annex Facility
Annapolis, MD

AECOM

Source: ESRI, 2015; USGS National Hydrography Dataset, 2005