



**Groundwater Sample Results,
Combined Level 2 and Level 4 Laboratory Report,
Electronic Data Deliverable, Data Validation Report,
and the Sample Location Report, SDG 18-0312**

*Naval Air Warfare Center Warminster
Warminster, Pennsylvania*

August 2019

N62269_001183
WARMINSTER_NAWC
SSIC 5000-33c

**LABORATORY DATA PACKAGE, 18-0312 REVISION 01, NAS WILLOW
GROVE NAWC WARMINSTER PA**

05/22/2018
BATTELLE

Approved for public release: distribution unlimited.

**Naval Air Station Joint Reserve Base Willow Grove,
PA**

**Project No 100117920-WE04
PFAS in drinking water**

DW

Batch 18-0312

Package DP-18-0111

Submitted to:

Tetra Tech

661 Anderson Drive Foster Plaza 7

Pittsburgh, PA 15220 USA

Submitted by:

Battelle Norwell Operations
141 Longwater Drive Suite 202
Norwell, MA 02061

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PA**

Project No 100117920-WE04

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NELAP Accreditation Number: E87856 (Florida Department of Health)

Submitted by:

Battelle Norwell Operations

141 Longwater Drive Suite 202

Norwell, MA 02061

Analyst Approval:



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QC Chemist Approval:



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Date: 2018.05.21 14:47:04 -04'00'

Project Manager Approval:



Digitally signed by Jonathan Thorn
Date: 2018.05.22 07:45:31 -04'00'

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Naval Air Station Joint Reserve Base Willow Grove, PA

Project No 100117920-WE04 PFAS in drinking water DW

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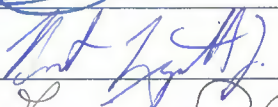
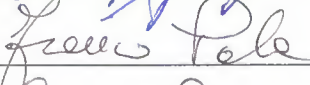





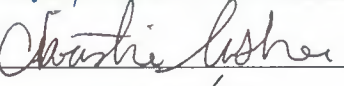

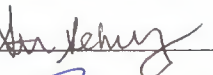

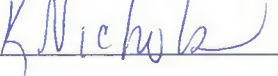



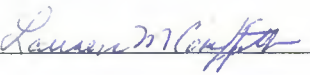
Package DP-18-0111

1	<i>Work Plan</i> Laboratory Work Plan, Addendums To Work Plan, Memos From Project Manager, Special Instructions, Chain-of-Custody Reports.	1
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Signature Page

Battelle 2018 (1 of 2) Signature Page			
Name (Printed)	Signature	Initials	Date
Jonathan Thorn		JRT	4/4/2018
Robert Lizotte, Jr.		BL	4-4-2018
FRANC PALA		FP	4-4-2018
Carla Devine		CRD	4/4/18
Denise Schumitz		DNS	4/4/18
Carol Ann McManis		CM	4/4/2018
Rich Rostucci		RR	4/4/2018
Michael Mena		MM	4/4/2018
Christie Usher		CU	4/4/18
Kevin Matroney		KM	4/4/18
Stephanie Schmitz		SAS	4/4/18
Jordan Tower		JT	4/4/18
KRISTEN NICHOLS		KN	4/4/18
Quimiao H Brown		CB	4/4/18
Matt Schumitz		MS	4-4-18
Sam Guimaraes		SG	4-4-18
Lauren Griffith		LMG	4.4.18

Work Plan



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WORK/QUALITY ASSURANCE PROJECT PLAN

1.0 GENERAL PROJECT INFORMATION

Project Title: WE04 PFAS Analysis
Project Number: 100117920-WE04
Client: Tetra Tech
 661 Anderson Drive Foster Plaza 7
 Pittsburgh, PA 15220
 USA

Client Contact Information: Andrew Frebowitz
 Project Manager
 (610) 382-1170(V)
 NA
 andy.frebowitz@tetrattech.com

Effective Date of QAPP: 5/4/2018
Version Number: 100117920-WE04(L)-01
Project Manager: Thorn, Jonathan
Laboratory Task Manager: Thorn, Jonathan
Deliverable Due Date: 5/22/2018

2.0 SCOPE OF WORK

Overview: Analysis of drinking water samples collected at Naval Air Station Joint Reserve Base Willow Grove.
Matrix: Water

2.1 TECHNICAL APPROACH

2.1.1 Sample Receipt, Storage, and Handling

The list of samples for this project plan are presented in Attachment 1.

Storage Directions: Store refrigerated.
Sub_Sampling: None
Procedures: NA
Contact: NA
Comment: NA
Archiving: Store for six months after delivery of final data. Notify client prior to disposal of samples.
Disposal: Dispose of samples in the proper waste stream.



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WORK/QUALITY ASSURANCE PROJECT PLAN

2.1.2 Sample Preparation

Up to 150 field samples and 150 field reagent blanks (FRB) per quarter. FRB samples will only be analyzed if the corresponding sample has detected levels of any PFAS analyte at or above the LOQ.

Samples Expected:	Samples Per Batch:	Batches Expected:
300	20	15

Batch quality control samples are defined in Table 1.

Target samples are presented in Attachment 1.

Table 1: Quality Control Samples

Type:	Description:	Count:	Rgt:	Reference:	Comment:
PB	Laboratory control reagent blank.	1 per batch	--	NA	Millipore water with Trizma
LCS	Laboratory Control Sample	1 per batch	No	NA	Millipore water with Trizma
MS	Spiked field sample for determining method accuracy in the presence of matrix.	1 per batch	--	NA	MS/MSD indicated on COC
MSD	Spiked field sample for determining method accuracy and precision in the presence of matrix.	1 per batch	--	NA	MS/MSD indicated on COC

2.1.3 Extraction/Preparation

2.1.3.1 Extraction

SOP No.-Rev:	5-371-03
SOP Title:	<i>ANALYSIS OF POLY AND PERFLUOROALKYL SUBSTANCES IN DRINKING WATER SAMPLES BY LIQUID CHROMATOGRAPHY AND TANDEM MASS SPECTROMETRY (LC-MS/MS) FOLLOWING EPA METHOD 537.1</i>
Sample Size:	250 ml
SIS and LCS/MS Compounds:	Defined in Table 2.
Deviations:	None
Comments:	<ul style="list-style-type: none"> • MQO requirements per SOP 5-371 (EPA Method 537 Version 1.1). • FRB samples will only be analyzed if associated field sample has hits above the LOQ for any individual analyte.

Table 2: SIS and LCS/MS Spiking Level



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Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - 537.1 Surrogate Solution	JV60 SIS	~ 0.100 - 0.40 ng	50 uL	NA
PFAS - 537.1 Second Source LCS/MS Solution	JV41 LCS/MS	~ 2.00 - 2.50	50 uL	LCS samples - vary each batch (50, 75, 100, 150 µL spikes)
PFAS - 537.1 Second Source LCS/MS Solution	JV41 LCS/MS	~ 3.00 - 3.8 ng	75 uL	MS/MSD samples - vary each batch (75, 100, 150 µL spikes)

2.1.3.2 Cleanup

None.

RIS spiking levels are presented in Table 3.

Extract PIV (uL): 1000

Table 3: RIS Spiking Level

Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - 537.1 Internal Standard Solution	JV59 RIS	~ 0.100 - 0.40 ng	50 uL	NA

2.1.4 Instrumental Analysis

The list of analytes along with data quality criteria are presented in Attachment 2.

- SOP_No-Rev: **5-371-03**

SOP_Title: *ANALYSIS OF POLY AND PERFLUOROALKYL SUBSTANCES IN DRINKING WATER SAMPLES BY LIQUID CHROMATOGRAPHY AND TANDEM MASS SPECTROMETRY (LC-MS/MS) FOLLOWING EPA METHOD 537.1*

Deviations: None

Comments:
 - MQO requirements per SOP 5-371 (EPA Method 537 Version 1.1).
 - FRB samples will only be analyzed if associated field sample has hits above the LOQ for any individual analyte.



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WORK/QUALITY ASSURANCE PROJECT PLAN

2.2. DELIVERABLES

Deliverables Due:	5/22/2018
LIMS Reports:	Yes
Histograms:	No
Excel Tables:	Yes
EICs:	No
Chromatograms:	No
EDDs:	Yes
Comments:	Each data set will be due 21 days from receipt of samples Full QSM data package showing all aspects of Table B-15 Tetra Tech EDD format

3.0 QUALITY

The Method Quality Objectives are defined in Attachment 3.

4.0 ORGANIZATION AND COMMUNICATION

4.1 ORGANIZATION

The project team is defined in Table 4. Supervisors may make substitutions with Project Manager concurrence.

Table 4: Project Team and Roles

Staff Member	Role	Comment
Jonathan R. Thorn	Project Manager	NA
Stephanie A. Schultz	Sample Preparation	NA
Denise M. Schumitz	LC-MS/MS Analysis	NA
Matt D. Schumitz	Sample Custody	NA
Carla R. Devine	Quality Control Officer	NA
Zachary J. Willenberg	Quality Assurance Officer	NA

4.2 COMMUNICATION

A kick-off meeting will be held to discuss project scope and goals.

5.0 SCHEDULE

The project schedule is presented in Table 5.



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WORK/QUALITY ASSURANCE PROJECT PLAN

Table 5. Schedule of Laboratory Activities

Activity:	Start Date:	End Date:	TAT (days):	Comment:
Sample Receipt	05/01/2018	12/31/2018	244	NA
Sample Preparation	05/04/2018	01/31/2019	272	NA
Instrument Analysis	05/07/2018	01/31/2019	269	NA
Quality Control Review	05/14/2018	01/31/2019	262	NA
Final Data Reporting	05/18/2018	01/31/2019	258	NA
Quality Assurance Review	05/21/2018	01/31/2019	255	NA

6.0 BUDGET

The labor budget for the analytical task is presented in Table 6.

Table 6. Labor Budget (Laboratory Analytical Task)

Labor Activity:	Hours/ Batch:	Batches:	Total Hours:	Comment:
Sample Receipt	2	1	2	All labor hours are based on a batch of 20 field samples.
Sample Preparation	8	1	8	All labor hours are based on a batch of 20 field samples.
Instrument Analysis	8	1	8	All labor hours are based on a batch of 20 field samples.
Quality Control Review	3	1	3	All labor hours are based on a batch of 20 field samples.
Final Data Reporting	1	1	1	All labor hours are based on a batch of 20 field samples.
Quality Assurance Review	1	1	1	All labor hours are based on a batch of 20 field samples.

7.0 STAFF DEVELOPMENT

None anticipated



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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 1: Target Samples

Shipment: SHP-180501-01
Status: Approved
Description: WE04
Range: J5964-J5969
Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J5964	WGNA-043018-RW-3103	04/30/2018 10:10 am	DW	R0118 (NA)			MSMSD
2	J5965	WGNA-043018-FRB-3103	04/30/2018 10:05 am	DW	R0118 (NA)			
3	J5966	NAWC-043018-RW-207	04/30/2018 10:40 am	DW	R0118 (NA)			
4	J5967	NAWC-043018-FRB-207	04/30/2018 10:35 am	DW	R0118 (NA)			
5	J5968	WGNA-043018-RW-3409	04/30/2018 1:40 pm	DW	R0118 (NA)			
6	J5969	WGNA-043018-FRB-3409	04/30/2018 1:35 pm	DW	R0118 (NA)			

Shipment: SHP-180502-02
Status: Approved
Description: WE04
Range: J5970-J5977
Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J5970	WGNA-050118-RW-3385	05/01/2018 9:10 am	DW	R0118 (NA)			
2	J5971	WGNA-050118-FRB-3385	05/01/2018 9:05 am	DW	R0118 (NA)			
3	J5972	WGNA-050118-RW-3178	05/01/2018 9:40 am	DW	R0118 (NA)			
4	J5973	WGNA-050118-FRB-3178	05/01/2018 9:35 am	DW	R0118 (NA)			
5	J5974	NAWC-050118-RW-304	05/01/2018 10:10 am	DW	R0118 (NA)			
6	J5975	NAWC-050118-FRB-304	05/01/2018 10:05 am	DW	R0118 (NA)			
7	J5976	NAWC-050118-RW-098	05/01/2018 10:40 am	DW	R0118 (NA)			
8	J5977	NAWC-050118-FRB-098	05/01/2018 10:35 am	DW	R0118 (NA)			

Shipment: SHP-180508-02
Status: Pending
Description: WE04
Range: J6148-J6170
Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J6148	NAWC-050718-RW-316	05/07/2018 10:10 am	DW	R0118 (NA)			
2	J6149	NAWC-050718-FRB-316	05/07/2018 10:05 am	DW	R0118 (NA)			
3	J6150	NAWC-050718-RW-180	05/07/2018 10:40 am	DW	R0118 (NA)			
4	J6151	NAWC-050718-FRB-180	05/07/2018 10:35 am	DW	R0118 (NA)			
5	J6152	NAWC-050718-RW-275	05/07/2018 11:10 am	DW	R0118 (NA)			
6	J6153	NAWC-050718-FRB-275	05/07/2018 11:05 am	DW	R0118 (NA)			
7	J6154	NAWC-050718-RW-145	05/07/2018 12:40 pm	DW	R0118 (NA)			



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WORK/QUALITY ASSURANCE PROJECT PLAN

Shipment: SHP-180508-02
Status: Pending
Description: WE04
Range: J6148-J6170
Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
8	J6155	NAWC-050718-FRB-145	05/07/2018 12:35 pm	DW	R0118 (NA)			
9	J6156	NAWC-050718-RW-357	05/07/2018 1:10 pm	DW	R0118 (NA)			
10	J6157	NAWC-050718-FRB-357	05/07/2018 1:05 pm	DW	R0118 (NA)			
11	J6158	NAWC-050718-RW-162	05/07/2018 1:40 pm	DW	R0118 (NA)			
12	J6159	NAWC-050718-FRB-162	05/07/2018 1:35 pm	DW	R0118 (NA)			
13	J6160	WGNA-050718-RW-0800	05/07/2018 2:10 pm	DW	R0118 (NA)			
14	J6161	WGNA-050718-FRB-0800	05/07/2018 2:05 pm	DW	R0118 (NA)			
15	J6162	WGNA-050718-RW-0335	05/07/2018 2:40 pm	DW	R0118 (NA)			
16	J6163	WGNA-050718-FRB-0335	05/07/2018 2:35 pm	DW	R0118 (NA)			
17	J6164	WGNA-050718-RW-3556	05/07/2018 3:10 pm	DW	R0118 (NA)			
18	J6165	WGNA-050718-FRB-3556	05/07/2018 3:05 pm	DW	R0118 (NA)			
19	J6166	NAWC-050718-RW-356	05/07/2018 3:40 pm	DW	R0118 (NA)			
20	J6167	NAWC-050718-FRB-356	05/07/2018 3:35 pm	DW	R0118 (NA)			
21	J6168	NAWC-050718-RW-289	05/07/2018 4:10 pm	DW	R0118 (NA)			
22	J6169	NAWC-050718-FRB-289	05/07/2018 4:05 pm	DW	R0118 (NA)			
23	J6170	WGNA-050718-DUP-35	05/07/2018 7:00 am	DW	R0118 (NA)			

Shipment: SHP-180511-02
Status: Pending
Description: WE04
Range: J6204-J6212
Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J6204	NAWC-051018-RW-303	05/10/2018 9:10 am	DW	R0118 (NA)			
2	J6206	WGNA-051018-RW-3220	05/10/2018 9:40 am	DW	R0118 (NA)			
3	J6208	NAWC-051018-RW-177	05/10/2018 10:40 am	DW	R0118 (NA)			
4	J6210	WGNA-051018-RW-3295	05/10/2018 3:10 pm	DW	R0118 (NA)			
5	J6212	WGNA-051018-DUP-36	05/10/2018 7:00 am	DW	R0118 (NA)			



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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

Project Test Code Name:	Master_371
SOP Reference:	5-371 - ANALYSIS OF POLY AND PERFLUOROALKYL SUBSTANCES IN DRINKING WATER SAMPLES BY LIQUID CHROMATOGRAPHY AND TANDEM MASS SPECTROMETRY (LC-MS/MS) FOLLOWING EPA METHOD 537.1
Description:	PFAS in drinking water
Matrix:	L - Liquid Samples, like water or sea water, prepared and analyzed under the same class of detection limits.
Detection Limit Study:	5-371
Instrument:	LC-MS/MS
MQO Criteria	Universal_LC
Standard Report:	Standard Result Report

Method Specific Reporting		Holding Times (days)		Data Flags
Result Units:	ng/L	Unit Conversion:	(none)	Sample: 14 DL_Flag: U
Weight Basis:	Liquid	Result Format:	Fixed Digits	Frozen: 40 RL_Flag: J
Standard Basis:	RIS	# of Figures/Digits:	2	Extract: 28 PB_Flag: B
Oil Weight Basis:	No	Oil Weight Source:	Oil Weight	DIL_Flag: D
U-Value Substitution:	U-Flag=MD	Histograms:	No	HT_Flag: T
ECD_Reporting:	No			

No:	Analyte:	Report Name:	Type	RIS	SIS	Hidden:	Graph:
1	Perfluoro-n-hexanoic acid	PFHxA	T	13C2-PFOA		No	No
2	Perfluoro-n-heptanoic Acid	PFHpA	T	13C2-PFOA		No	No
3	Perfluoro-n-octanoic Acid	PFOA	T	13C2-PFOA		No	No
4	Perfluorononanoic Acid	PFNA	T	13C2-PFOA		No	No
5	Perfluoro-n-decanoic Acid	PFDA	T	13C2-PFOA		No	No
6	Perfluoro-n-undecanoic acid	PFUnA	T	13C2-PFOA		No	No
7	Perfluoro-n-dodecanoic acid	PFDoA	T	13C2-PFOA		No	No
8	Perfluoro-n-tridecanoic acid	PFTTrDA	T	13C2-PFOA		No	No
9	Perfluoro-n-tetradecanoic acid	PFTeDA	T	13C2-PFOA		No	No
10	N-methylperfluoro-1-octanesulfonamidoacetic acid	NMeFOSAA	T	d3-MeFOSAA		No	No
11	N-ethylperfluoro-octanesulfonamidoacetic acid	NEtFOSAA	T	d3-MeFOSAA		No	No
12	Perfluoro-1-butanefulfonate	PFBS	T	13C4-PFOS		No	No
13	Perfluoro-1-octanesulfonate	PFOS	T	13C4-PFOS		No	No
14	Perfluoro-1-hexanesulfonate	PFHxS	T	13C4-PFOS		No	No
1	13C2-PFHxA	13C2-PFHxA	SIS			No	No
2	13C2-PFDA	13C2-PFDA	SIS			No	No



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Attachment 2: Test Codes

Project Test Code Name: Master_371

No:	Analyte:	Report Name:	Type	RIS	SIS	Hidden:	Graph:
3	d5-EtFOSAA	d5-EtFOSAA	SIS			No	No
Total Analytes:		17					

Subtract Peaks:

None

Sum Peaks:

None



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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

Project Test Code Name: Master_371

ICAL Acceptance Criteria:

Curve Fit:	Limit Mean(%):	Mean Qual:	Limit Ind.:	Ind. Qual:	Min Points:	Points Qual:	Comments:
Linear	NA	NA	0.995	N	5	N	NA
Average RF	15	N	25	N	5	N	NA
Linear (0,0)	NA	NA	0.995	N	5	N	NA
Quadratic	NA	NA	0.995	N	6	N	NA
Quadratic (0,0)	NA	NA	0.995	N	6	N	NA

Continuing Calibration Verification Criteria:

CCV Name: Standard

Frequency Hrs:	Mean PD(%):	Individual PD(%):	RIS/SIS RT Window (min):	Area Limit Low(%):	Area Limit High(%):	Comment:
12 (N)	20 (N)	25 (N)	0.07 (N)	-50	100 (N)	Lab Default Continuing Calibration Verification Criteria

Independent Calibration Verification:

ICC Name: Standard

Mean PD Limit(%):	Ind. PD Limit(%):	RIS/SIS Window Limit (Secs):	Area Limit High(%):	Area Limit Low(%):	Comment:
15 (N)	20 (N)	0.07 (N)	-50	100 (N)	Standard laboratory criteria for ICCs

Mass Discrimination Criteria:

None

Degradation Check Criteria:

None



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Attachment 3: Method Quality Objectives

MQO Application	<i>Universal_LC</i>		
MQO:	Acceptance Criteria	Qual:	Corrective Action:
Procedural Blank	Samples must be greater than five times the blank concentration (>5xPB).	B	Review with Project Manager; re-analyze or justify results in project records.
PB Measurement Quality Objective	Organic results in the Procedural Blank are less than 1/2 times the LOQ (<1/2xLOQ)	N	Review with Project Manager; re-analyze or justify results in project records.
Laboratory Control Sample	Recovery values 70-130%.	N	Review with project manager; re-analyze or justify reporting the results in project records.
Matrix Spike / Matrix Spike Duplicate Recovery	Organics 70-130%. Analyte concentration in MS/MSD must be greater than five times reported background concentration. Organics Results in the Target is less than 5 times the Original	N n	Review with Project Manager; re-analyze or justify reporting results in the project records.
Matrix Spike/Spike Duplicate Precision	Organics results less than 30% Relative Percent Difference (RPD). Analyte concentration in MS/MSD must be greater than five times reported background concentration. Organics Results in the Target is less than 5 times the Original	N n	Review with Project Manager; re-analyze or justify reporting results in the project records.
Standard Reference Material Accuracy	Organics Percent Difference less than 30% from a range of certified values on average. Analyte concentration must be greater than five times the Method Detection Limit (>5xMDL). Organics Results in the Target is less than 5 times the MDL	N n	Review with Project Manager; re-analyze or justify reporting results in the project records.
Analytical Duplicate Precision	Organics results less than 30% Relative Percent Difference (RPD). Analyte concentration must be > 5x MDL. Organics Results in the Original is less than 5 times the MDL	N n	Review with Project Manager; re-analyze or justify reporting results in the project records.



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Attachment 3: Method Quality Objectives

MQO Application	<i>Universal_LC</i>		
MQO:	Acceptance Criteria	Qual:	Corrective Action:
Analytical Triplicate Precision	Organics results less than 30% Relative Standard Deviation (RSD). Analyte concentration must be > 5x MDL. Organics Results in the Original is less than 5 times the MDL	N n	Review with Project Manager; re-analyze or justify reporting results in the project records.
Surrogate Compound Recovery	Recovery results between 50% and 150%.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
Control Oil	RPD < 30% for at least 90% of analytes	N	Results examined by project manager, task leader, or subcontractor lab manager. Reextraction, reanalysis, or justification documented.
Instrument Calibration	5-371-3: R-squared greater than or equal to 0.995 Mean RSD less than or equal to 15%, Individual RSD less than or equal to 25%	N	Results examined by project manager, task leader, or subcontractor lab manager. Reextraction, reanalysis, or justification documented.
Independent Calibration Check Solution	5-371-3: Individual PD less than or equal to 20%. Mean Percent Difference less than or equal to 15%.	N	Review with Project Manager; re-analyze or justify in project records.
Continuing Calibration Verification	5-371-3: Individual PD less than or equal to 25%. Mean Percent Difference less than or equal to 20%.	N	Review with Project Manager; re-analyze or justify in project records.

It can be done

Battelle Project No: _____

Sample Receipt Form

Approved: Authorized Project Number: 112G08005-WE04Client: Tetra TechReceived by: Schumitz, MattDate/Time Received: Tuesday, May 01, 2018 11:45 AMNo. of Shipping Containers: 1

SHIPMENT

Method of Delivery: Commercial CarrierTracking Number: 7721 0074 3919COC Forms: Shipped with samples No Forms

Cooler(s)/Box(es)

Cntr	Type	Tracking No.	Seal	Seal	Container	Therm.	Temp C	Smps
1 of 1	Cooler	7721 0074 3919	Custody Seals	Intact	Intact	Therm_2	1.9	6

Samples

Sample Labels: Sample labels agree with COC forms
 Discrepancies (see Sample Custody Corrective Action Form)Container Seals: Tape Custody Seals Other Seals (See sample Log)
 Seals intact for each shipping container
 Seals broken (See sample log for impacted samples)Condition of Samples: Sample containers intact
 Sample containers broken/leaking (See Custody Corrective Action Form)Temperature upon receipt (°C): 1.9 Temperature Blank used Yes No
*(Note: If temperature upon receipt differs from required conditions, see sample log comment field)*Samples Acidified: Yes No UnknownInitial pH 5-9?: Yes No NA
*If no, individual sample adjustments on the Auxiliary Sample Receipt Form*Total Residual Chlorine Present?: Yes No NA
*If yes, individual sample adjustments on the Auxiliary Sample Receipt Form*Head Space <1% in samples for water VOC analysis: Yes No NA
*Individual sample deviations noted on sample log*Samples Containers: Samples returned in PC-grade jars: Yes No Unknown /Lot No.: UnKnownStorage Location: Custody: Refrigerator - R0118 (NA) BDO IDs Assigned: J5964 - J5969Samples logged in by: Schumitz, Matt Date/Time: 05/01/2018 11:45 AM

Approved By: _____ Approved On: _____

Authorized By: _____ Authorized On: _____



It can be done

Sample Receipt Form Details

Approved:

Project Number: 112G08005-WE04 Client: Tetra Tech

Received by: Schumitz, Matt Date/Time Received: Tuesday, May 01, 2018 11:45 AM

No. of Shipping Containers: 1

BDO Id:	Client Sample ID:	Collection Date:	Login Date:	Ctrs:	Matrix:	Temp:	pH:	TRC:	VOC:	Stored In:	Loc:	No:	Comments:
J5964	WGNA-043018-RW-3103	04/30/18 10:10	05/01/18 14:43	6	DW	1.9	NA	NA	NA	R0118 (NA)			MSMSD
J5965	WGNA-043018-FRB-3103	04/30/18 10:05	05/01/18 14:43	2	DW	1.9	NA	NA	NA	R0118 (NA)			
J5966	NAWC-043018-RW-207	04/30/18 10:40	05/01/18 14:44	2	DW	1.9	NA	NA	NA	R0118 (NA)			
J5967	NAWC-043018-FRB-207	04/30/18 10:35	05/01/18 14:44	2	DW	1.9	NA	NA	NA	R0118 (NA)			
J5968	WGNA-043018-RW-3409	04/30/18 13:40	05/01/18 14:45	2	DW	1.9	NA	NA	NA	R0118 (NA)			
J5969	WGNA-043018-FRB-3409	04/30/18 13:35	05/01/18 14:45	2	DW	1.9	NA	NA	NA	R0118 (NA)			

Total Samples: 6

Battelle <i>The Business of Innovation</i>		<u>Chain-of-Custody</u>							
<u>Client Contact Information</u> Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170		Project Manager: Jonathan Thorn Sampler Information (print name): Mary Kay Bond Phone: 610-382-1169 Email: mary.bond@tetrattech.com Turnaround Time (TAT) Requested: 21 days			Sampling Site: WE04		Site Information: NAS JRB Willow Grove/NAWC Warminster		
Project Name: WE04		Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/>			Preservative Trizma		COC #		
Project No.: 112G08005-WE04		Time Zone: Eastern					Page# 1 of 1		
Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	Analysis PFAS EPA 537 14 analytes			
WGNA-043018-RW-3103 JS964	4/30/2018	10:10	G	DW	6	X		MS/MSD	
WGNA-043018-FRB-3103 JS965	4/30/2018	10:05	G	DW	2	X		Field Reagent Blank	
NAWC-043018-RW-207 JS966	4/30/2018	10:40	G	DW	2	X			
NAWC-043018-FRB-207 JS967	4/30/2018	10:35	G	DW	2	X		Field Reagent Blank	
WGNA-043018-RW-3409 JS968	4/30/2018	13:40	G	DW	2	X			
WGNA-043018-FRB-3409 JS969	4/30/2018	13:35	G	DW	2	X		Field Reagent Blank	
<u>Receipt Temperature:(°C)</u>		<u>Samples Intact:</u> Yes - No			<u>Samples on Ice:</u> Yes - No			<u>Receipt Comments:</u>	
<u>Relinquished by (Print/Sign):</u> Mary Kay Bond		<u>Company:</u> Tetra Tech		<u>Date/Time:</u> 4/30/2018 16:00		<u>Received by (Print/Sign):</u> Matt Schmitz MS		<u>Company:</u> Battelle	
<u>Relinquished by (Print/Sign):</u>		<u>Company:</u>		<u>Date/Time:</u>		<u>Received by (Print/Sign):</u>		<u>Date/Time:</u> 5-1-18 11:45	
<u>Relinquished by (Print/Sign):</u>		<u>Company:</u>		<u>Date/Time:</u>		<u>Received by (Print/Sign):</u>		<u>Date/Time:</u>	
<u>Comments:</u> FedEx Tracking # 7721 0074 3919									

ORIGIN ID: KPDA (610) 382-1530
N. SOMA
TETRA TECH
234 MALL BLVD
SUITE 260
KING OF PRUSSIA, PA 19406
UNITED STATES US

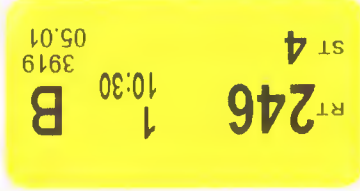
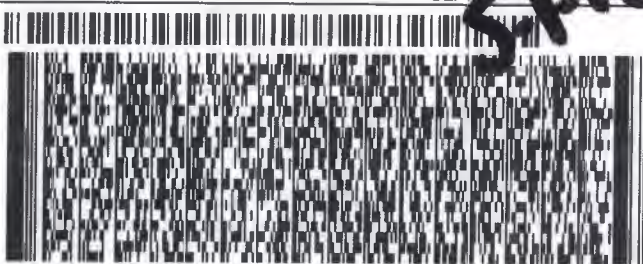
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CAD: 111283035/NET3980
DIMS: 24x16x18 IN
BILL SENDER

TO JONATHAN THORN
BATTELLE
141 LONGWATER DRIVE
SUITE 202
NORWELL MA 02061

(781) 681-5565
INV:
PO

REF 112G0800
DEPT

1.90
Therm-2
5-18 11:45

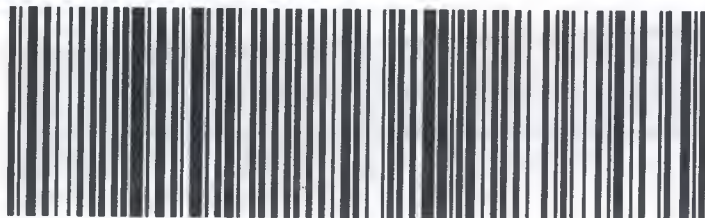


TUE - 01 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 7721 0074 3919
0201

EM XPUA

02061
MA-US BOS



It can be done

Battelle Project No: _____

Sample Receipt Form

Approved: Authorized Project Number: 112G08005-WE04Client: Tetra TechReceived by: Schumitz, MattDate/Time Received: Wednesday, May 02, 2018 11:30 AMNo. of Shipping Containers: 1

SHIPMENT

Method of Delivery: Commercial CarrierTracking Number: 7721 2279 0356COC Forms: Shipped with samples No Forms

Cooler(s)/Box(es)

Cntr	Type	Tracking No.	Seal	Seal	Container	Therm.	Temp C	Smps
1 of 1	Cooler	7721 2279 0356	Custody Seals	Intact	Intact	Therm_2	1.7	8

Samples

Sample Labels: Sample labels agree with COC forms
 Discrepancies (see Sample Custody Corrective Action Form)Container Seals: Tape Custody Seals Other Seals (See sample Log)
 Seals intact for each shipping container
 Seals broken (See sample log for impacted samples)Condition of Samples: Sample containers intact
 Sample containers broken/leaking (See Custody Corrective Action Form)Temperature upon receipt (°C): 1.7 Temperature Blank used Yes No
*(Note: If temperature upon receipt differs from required conditions, see sample log comment field)*Samples Acidified: Yes No UnknownInitial pH 5-9?: Yes No NA
*If no, individual sample adjustments on the Auxiliary Sample Receipt Form*Total Residual Chlorine Present?: Yes No NA
*If yes, individual sample adjustments on the Auxiliary Sample Receipt Form*Head Space <1% in samples for water VOC analysis: Yes No NA
*Individual sample deviations noted on sample log*Samples Containers: Samples returned in PC-grade jars: Yes No Unknown /Lot No.: UnKnownStorage Location: Custody: Refrigerator - R0118 (NA) BDO IDs Assigned: J5970 - J5977Samples logged in by: Schumitz, Matt Date/Time: 05/02/2018 11:30 AM

Approved By: _____ Approved On: _____

Authorized By: _____ Authorized On: _____



It can be done

Sample Receipt Form Details

Approved: Authorized

Project Number: 112G08005-WE04 Client: Tetra Tech

Received by: Schumitz, Matt Date/Time Received: Wednesday, May 02, 2018 11:30 AM

No. of Shipping Containers: 1

BDO Id:	Client Sample ID:	Collection Date:	Login Date:	Ctrs:	Matrix:	Temp:	pH:	TRC:	VOC:	Stored In:	Loc:	No:	Comments:
J5970	WGNA-050118-RW-3385	05/01/18 9:10	05/02/18 13:34	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J5971	WGNA-050118-FRB-3385	05/01/18 9:05	05/02/18 13:34	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J5972	WGNA-050118-RW-3178	05/01/18 9:40	05/02/18 13:34	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J5973	WGNA-050118-FRB-3178	05/01/18 9:35	05/02/18 13:34	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J5974	NAWC-050118-RW-304	05/01/18 10:10	05/02/18 13:35	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J5975	NAWC-050118-FRB-304	05/01/18 10:05	05/02/18 13:35	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J5976	NAWC-050118-RW-098	05/01/18 10:40	05/02/18 13:35	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J5977	NAWC-050118-FRB-098	05/01/18 10:35	05/02/18 13:36	2	DW	1.7	NA	NA	NA	R0118 (NA)			

Total Samples: 8

Battelle <i>The Business of Innovation</i>		<u>Chain-of-Custody</u>														
<u>Client Contact Information</u> Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170		Project Manager: Jonathan Thorn Sampler Information (print name): Mary Kay Bond Phone: 610-382-1169 Email: mary.bond@tetrattech.com Turnaround Time (TAT) Requested: 21 days					Sampling Site: WE04			Site Information: NAS JRB Willow Grove/NAWC Warminster						
Project Name: WE04		Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/>					Preservative Trizma			COC #						
Project No.: 112G08005-WE04		Time Zone: Eastern														
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	Analysis PFAS EPA 537 14 analytes			Page# 1 of 1						
WGNA-050118-RW-3385 JS970		5/1/2018	09:10	G	DW	2	X									
WGNA-050118-FRB-3385 JS971		5/1/2018	09:05	G	DW	2	X			Field Reagent Blank						
WGNA-050118-RW-3178 JS972		5/1/2018	09:40	G	DW	2	X									
WGNA-050118-FRB-3178 JS973		5/1/2018	09:35	G	DW	2	X			Field Reagent Blank						
NAWC-050118-RW-304 JS974		5/1/2018	10:10	G	DW	2	X									
NAWC-050118-FRB-304 JS975		5/1/2018	10:05	G	DW	2	X			Field Reagent Blank						
NAWC-050118-RW-098 JS976		5/1/2018	10:40	G	DW	2	X									
NAWC-050118-FRB-098 JS977		5/1/2018	10:35	G	DW	2	X			Field Reagent Blank						
Receipt Temperature:(°C)		Samples Intact: Yes - No					Samples on Ice: Yes - No					Receipt Comments:				
Relinquished by (Print/Sign): <i>Mary Kay Bond</i>		Company: Tetra Tech			Date/Time: 05/01/2018 16:00			Received by (Print/Sign): <i>[Signature]</i>			Company: Battelle		Date/Time: 5/2/18 1130			
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Relinquished by (Print/Sign):		Company:			Date/Time:			Received by (Print/Sign):			Company:		Date/Time:			
Comments: FedEx Tracking # 7721 2279 0356																

ORIGIN ID: KPDA (610) 382-1530
N. SOMA
TETRA TECH
234 MALL BLVD
SUITE 260
KING OF PRUSSIA, PA 19406
UNITED STATES US

SHIP DATE: 01MAY18
ACTWGT: 40.00 LB
CAD: 111283035/INET3980
DIMS: 24x16x18 IN
BILL SENDER

TO JONATHAN THORN
BATTELLE
141 LONGWATER DRIVE
SUITE 202
NORWELL MA 02061

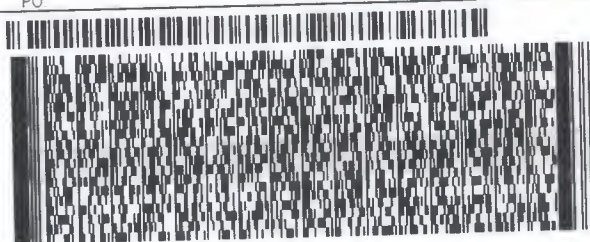
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SLA 1130

552121752BDC

(781) 681-5565
INV.
PO

REF: 112G08005-WE04 LT WS

DEPT:



FedEx Express



J1611881256109

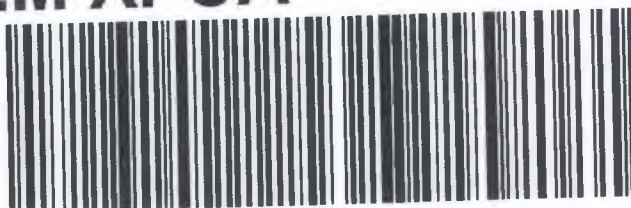


WED - 02 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 7721 2279 0356
0201

EM XPUA

02061
MA-US BOS



Data Tables



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID WGNA-043018-FRB-3103

Battelle ID J5965-FS
 Sample Type SA
 Collection Date 04/30/2018
 Extraction Date 05/09/2018
 Analysis Date 05/14/2018
 Analytical Instrument Sciex 5500 LC/MS/MS
 % Moisture NA
 Matrix DW
 Sample Size 0.250
 Size Unit-Basis L
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDaA	1.00 U	0.42	1.00	2.50
PFTTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	105
13C2-PFDA	109
d5-EtFOSAA	111



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-043018-FRB-207				
Battelle ID	J5967-FS				
Sample Type	SA				
Collection Date	04/30/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 U	0.22	0.50	2.50	
PFHpA	1.00 U	0.34	1.00	2.50	
PFOA	1.00 U	0.38	1.00	2.50	
PFNA	1.00 U	0.37	1.00	2.50	
PFDA	1.00 U	0.39	1.00	2.50	
PFUnA	1.00 U	0.38	1.00	2.50	
PFDaA	1.00 U	0.42	1.00	2.50	
PFTTrDA	1.00 U	0.42	1.00	2.50	
PFTeDA	1.50 U	0.73	1.50	2.50	
NMeFOSAA	1.00 U	0.42	1.00	2.50	
NEtFOSAA	1.00 U	0.44	1.00	2.50	
PFBS	0.50 U	0.21	0.50	2.50	
PFHxS	1.00 U	0.34	1.00	2.50	
PFOS	1.00 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C2-PFHxA	104
13C2-PFDA	101
d5-EtFOSAA	90



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID WGNA-043018-FRB-3409

Battelle ID J5969-FS
 Sample Type SA
 Collection Date 04/30/2018
 Extraction Date 05/09/2018
 Analysis Date 05/14/2018
 Analytical Instrument Sciex 5500 LC/MS/MS
 % Moisture NA
 Matrix DW
 Sample Size 0.250
 Size Unit-Basis L
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDaA	1.00 U	0.42	1.00	2.50
PFTTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	104
13C2-PFDA	102
d5-EtFOSAA	83



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID WGNA-050118-FRB-3385

Battelle ID J5971-FS
 Sample Type SA
 Collection Date 05/01/2018
 Extraction Date 05/09/2018
 Analysis Date 05/14/2018
 Analytical Instrument Sciex 5500 LC/MS/MS
 % Moisture NA
 Matrix DW
 Sample Size 0.250
 Size Unit-Basis L
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDaA	1.00 U	0.42	1.00	2.50
PFTTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	104
13C2-PFDA	100
d5-EtFOSAA	97



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID WGNA-050118-FRB-3178

Battelle ID J5973-FS
 Sample Type SA
 Collection Date 05/01/2018
 Extraction Date 05/09/2018
 Analysis Date 05/14/2018
 Analytical Instrument Sciex 5500 LC/MS/MS
 % Moisture NA
 Matrix DW
 Sample Size 0.250
 Size Unit-Basis L
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDaA	1.00 U	0.42	1.00	2.50
PFTTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	120
13C2-PFDA	106
d5-EtFOSAA	90



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-050118-FRB-304				
Battelle ID	J5975-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 U	0.22	0.50	2.50	
PFHpA	1.00 U	0.34	1.00	2.50	
PFOA	1.00 U	0.38	1.00	2.50	
PFNA	1.00 U	0.37	1.00	2.50	
PFDA	1.00 U	0.39	1.00	2.50	
PFUnA	1.00 U	0.38	1.00	2.50	
PFDaA	1.00 U	0.42	1.00	2.50	
PFTTrDA	1.00 U	0.42	1.00	2.50	
PFTeDA	1.50 U	0.73	1.50	2.50	
NMeFOSAA	1.00 U	0.42	1.00	2.50	
NEtFOSAA	1.00 U	0.44	1.00	2.50	
PFBS	0.50 U	0.21	0.50	2.50	
PFHxS	1.00 U	0.34	1.00	2.50	
PFOS	1.00 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C2-PFHxA	112
13C2-PFDA	100
d5-EtFOSAA	109



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-050118-FRB-098				
Battelle ID	J5977-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 U	0.22	0.50	2.50	
PFHpA	1.00 U	0.34	1.00	2.50	
PFOA	1.00 U	0.38	1.00	2.50	
PFNA	1.00 U	0.37	1.00	2.50	
PFDA	1.00 U	0.39	1.00	2.50	
PFUnA	1.00 U	0.38	1.00	2.50	
PFDaA	1.00 U	0.42	1.00	2.50	
PFTTrDA	1.00 U	0.42	1.00	2.50	
PFTeDA	1.50 U	0.73	1.50	2.50	
NMeFOSAA	1.00 U	0.42	1.00	2.50	
NEtFOSAA	1.00 U	0.44	1.00	2.50	
PFBS	0.50 U	0.21	0.50	2.50	
PFHxS	1.00 U	0.34	1.00	2.50	
PFOS	1.00 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C2-PFHxA	106
13C2-PFDA	103
d5-EtFOSAA	101



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	Procedural Blank			
Battelle ID	CQ753PB-FS			
Sample Type	PB			
Collection Date	05/09/2018			
Extraction Date	05/09/2018			
Analysis Date	05/14/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	WATER			
Sample Size	0.250			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDaA	1.00 U	0.42	1.00	2.50
PFTTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	115
13C2-PFDA	117
d5-EtFOSAA	105



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	Laboratory Control Sample					
Battelle ID	CQ754LCS-FS					
Sample Type	LCS					
Collection Date	05/09/2018					
Extraction Date	05/09/2018					
Analysis Date	05/14/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	WATER					
Sample Size	0.250					
Size Unit-Basis	L					
Units	ng/L	Target	Recovery	Qual	Control Limits	
					Lower	Upper
PFHxA	10.43	10.00	104		70	130
PFHpA	9.94	10.00	99		70	130
PFOA	10.21	10.00	102		70	130
PFNA	9.64	10.00	96		70	130
PFDA	9.74	10.00	97		70	130
PFUnA	9.74	10.00	97		70	130
PFDoA	9.50	10.00	95		70	130
PFTTrDA	9.88	10.00	99		70	130
PFTeDA	11.29	10.00	113		70	130
NMeFOSAA	11.25	10.00	113		70	130
NEtFOSAA	11.32	10.00	113		70	130
PFBS	10.15	8.85	115		70	130
PFHxS	9.51	9.45	101		70	130
PFOS	8.34	9.55	87		70	130

Surrogate Recoveries (%)

13C2-PFHxA	109
13C2-PFDA	99
d5-EtFOSAA	100



Glossary of Data Qualifiers

Flag: Application:

B	Analyte found in the sample at a concentration <10x the level found in the procedural blank
D	Dilution Run. Initial run outside the initial calibration range of the instrument
E	Estimate, result is greater than the highest concentration level in the calibration
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the Limit of Quantitation (LOQ)
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets secondary criteria
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not Applicable
T	Holding Time (HT) exceeded
U	Analyte not detected or detected below the Method detection limit (MDL) value, Limit of Detection (LOD) reported

Miscellaneous Documentation



Norwell Operations
 141 Longwater Drive, Suite 202
 Norwell, Massachusetts 02061
 Telephone: 781-681-5400

July 13th, 2018

This data package has been revised to include the following updates to the reporting format:

- Use of LOD values for non-detected values (in place of the MDL value that was used in the original report).
- Use of sample specific MDL, LOD, and LOQ values (adjusted for dilution and sample size variations as compared to the MDL, LOD, and LOQ studies)

In addition to non-detect (“U” qualified) data changing to use the sample specific LOD value (not included in the table below), the information in the following table changed from the original report to the new report. The reason for these changes is the variation in sample size for individual samples when using sample specific values. This table includes information on all SDG updated and resubmitted on 7/13/2018.

SDG	Lab Sample ID	Client ID	Analyte	New Result	New Qual	Old Result	Old Qual
18-0299	J5972-FS	WGNA-050118-RW-3178	PFHpA	2.25		2.25	J
18-0313	J6148-FS	NAWC-050718-RW-316	PFNA	2.26		2.26	J
18-0313	J6150-FS	NAWC-050718-RW-180	PFDA	0.37	J	0.39	U
18-0323	J6209-FS	NAWC-051018-FRB-177	PFOA	0.38	J	0.38	U
18-0343	J6264-FS	WGNA-052918-RW-3978	PFNA	2.34		2.34	J
18-0343	J6273-FS	NAWC-053018-RW-231	PFHxS	37.20	JD	37.20	D
18-0343	J6275-FS	WGNA-053018-RW-3933	PFNA	2.35		2.35	J
18-0343	J6285-FS	NAWC-053018-RW-196	PFHxS	2.31		2.31	J
18-0360	J6583-FS	NAWC-060418-FRB-230	PFHxS	0.33	J	1.00	U
18-0360	J6643-FS	WGNA-060718-FRB-0626	PFOS	2.48	B	2.48	J

The original data tables have been moved to the unused data section of this complete data package.

**QA/QC Summary
Batch 18-0312**

Project:	CTO-WE04 Naval Air Station Joint Reserve Base Willow Grove
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	DW
Data Set:	DP-18-0111
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody

Collection Date	Receipt Date	Temp (°C)
4/30/2018	5/1/2018	1.9
5/1/2018	5/2/2018	1.7

Corrective Actions	None
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	FRB samples related to field samples reported in SDG 13-0299

METHOD SUMMARIES

Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a weak ion exchange solid phase extraction (SPE) cartridge and eluted from the SPE with in methanol. Extracts were split and concentrated to dryness under nitrogen with a water bath set between 60 °C and 65 °C, reconstituted with 96:4 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	None.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on the Sciex 5500.

Holding Times	Extraction Date(s)	Analysis Date(s)
	5/9/2018	5/14/2018

Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.
≤ 1/3 the MRL	No exceedances noted. No comments.

QA/QC Summary
Batch 18-0312

Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
70-130% of true value	No exceedances noted. No comments.
Surrogates Standard Analytes	Labelled surrogate compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
70-130% of true value	No exceedances noted. No Comments.
Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
ICal high and low points RPD \leq 20%, 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted. No Comments.
Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadratic curve fitting.
R ² >0.99	No exceedances noted.
Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No comments.
Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted. No comments.
Continuing Calibration Verification (CCV)	Continuing calibration standards were run at the beginning and end of 10 injections and at the end of the sequence to ensure that initial calibration is still valid.
Target and SIS compounds +/- 30% of true value	No exceedances noted.
Low point 50-150% of true value	No comments.



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project Number: 100117920-WE04
 Preparation Batch: 18-0312
 Data Set: DP-18-0111
 Test Code: Master_371

QC Parameter:	Exceed:	Justification:
Procedural Blank	0	None
PB Measurement Quality Objective	0	None
Laboratory Control Sample	0	None
Matrix Spike / Matrix Spike Duplicate Recovery	N/A	None
Matrix Spike / Matrix Spike Duplicate Precision	0	None
Extracted Internal Standard Analytes (Surrogates)	0	None
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None



BATTELLE - NORWELL OPERATIONS MISCELLANEOUS DOCUMENTATION FORM

Project Title: Naval Air Station Joint Reserve Base Wi **Data Set Number:** DP-18-0111
Project Number: 100117920-WE04 **Prep Batch Number:** 18-0312
Entered By: Denise Schumitz **Entered On:** 05/16/2018
Test Code (Matrix Type): Master_371(L)

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
DMS 5/16/2018

JV64 is not being used in the calibration curve for PFHxA, PFHpA, NMeFOSAA and NEtFOSAA. There is no impact on the data once this point is removed from the calibration.
DMS 5/16/2018

Task Leader Approval:

Supervisor Approval:

PM Approval:

Digitally signed by Jonathan
Thorn

Date: 2018.05.22 07:24:01 -04'00'

Example Calculation for PFAS

Calculation of final concentration from area:

$$\text{Concentration} = \left[\frac{PA - b}{m} \right] * C_{IS} * PIV * DF / S$$

Where:

PA = Area of target / area of internal standard
 b = y intercept from calibration curve
 CIS = concentration of internal standard (ng/L)
 m = slope of calibration
 DF = dilution factor
 S = Sample Size
 PIV = Pre-injection volume (L)

Sample ID: CQ754LCS-FS(0)
 Client Sample ID: Laboratory Control Sample
 Sample Size: 0.25
 Units: L
 Dilution Factor: 1
 PIV (L): 0.001
 Target Analyte: PFNA
 MRM Transition: 463.0 / 419.0
 Data file: 18-0312.wiff
 Result table: 18-0312_BASE
 Area: 698989.3
 IS Name: 13C2-PFOS
 IS Area: 29190.46
 IS Amount (ng/L): 100
 y-intercept 0.08354
 slope 0.99005

$$\text{Concentration} = \frac{[(698989.28/29190.46) - 0.08354]}{0.99005} * 100 * 0.001 * 1 / 0.25$$

$$\text{ng/L} = 9.64$$



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04
 Preparation Batch: 18-0312
 Data Set: DP-18-0111

	CQ753PB-FS (Procedural Blank)	CQ754LCS-FS (Laboratory Control Sample)	J5965-FS (WGNA-043018-FRB-3103)	J5967-FS (NAWC-043018-FRB-207)	J5969-FS (WGNA-043018-FRB-3409)	J5971-FS (WGNA-050118-FRB-3385)	J5973-FS (WGNA-050118-FRB-3178)	J5975-FS (NAWC-050118-FRB-304)	J5977-FS (NAWC-050118-FRB-098)
PFHxA	-	L	-	-	-	-	-	-	-
PFHpA	-	L	-	-	-	-	-	-	-
PFOA	-	L	-	-	-	-	-	-	-
PFNA	-	L	-	-	-	-	-	-	-
PFDA	-	L	-	-	-	-	-	-	-
PFUnA	-	L	-	-	-	-	-	-	-
PFDoA	-	L	-	-	-	-	-	-	-
PFTTrDA	-	L	-	-	-	-	-	-	-
PFTeDA	-	L	-	-	-	-	-	-	-
NMeFOSAA	-	L	-	-	-	-	-	-	-
NEtFOSAA	-	L	-	-	-	-	-	-	-
PFBS	-	L	-	-	-	-	-	-	-
PFHxS	-	L	-	-	-	-	-	-	-
PFOS	-	Br	-	-	-	-	-	-	-

"L": Linear
 "Br": branched
 "L/Br": Linear/Branched
 "-": Not detected

Project Client: Tetra Tech

Project Client: Naval Air Station Joint Reserve Base Willow Grove, PA

Project Client: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV64	L1	5/14/18 16:27	13C4-PFOS	117,641.83	-
JV65	L2	5/14/18 16:36	13C4-PFOS	128,859.01	-
JV66	L3	5/14/18 16:45	13C4-PFOS	105,963.04	-
JV67	L4	5/14/18 16:53	13C4-PFOS	131,015.70	-
JV68	L5	5/14/18 17:02	13C4-PFOS	118,468.59	-
JV69	L6	5/14/18 17:11	13C4-PFOS	124,400.13	-
JV70	L7	5/14/18 17:20	13C4-PFOS	118,733.91	-
JV71	L8	5/14/18 17:29	13C4-PFOS	101,181.69	-
JV72	L9	5/14/18 17:38	13C4-PFOS	105,473.33	10.9

PASS

Average Lower Upper
116,859.69 58,429.85 175,289.54

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	5/14/18 16:27	13C4-PFOS	117,641.83	58,429.85	175,289.54		82,928.01	165,856.03	
JV65	L2	5/14/18 16:36	13C4-PFOS	128,859.01	58,429.85	175,289.54		82,928.01	165,856.03	
JV66	L3	5/14/18 16:45	13C4-PFOS	105,963.04	58,429.85	175,289.54		82,928.01	165,856.03	
JV67	L4	5/14/18 16:53	13C4-PFOS	131,015.70	58,429.85	175,289.54		82,928.01	165,856.03	
JV68	L5	5/14/18 17:02	13C4-PFOS	118,468.59	58,429.85	175,289.54		82,928.01	165,856.03	
JV69	L6	5/14/18 17:11	13C4-PFOS	124,400.13	58,429.85	175,289.54		82,928.01	165,856.03	
JV70	L7	5/14/18 17:20	13C4-PFOS	118,733.91	58,429.85	175,289.54		82,928.01	165,856.03	
JV71	L8	5/14/18 17:29	13C4-PFOS	101,181.69	58,429.85	175,289.54		82,928.01	165,856.03	
JV72	L9	5/14/18 17:38	13C4-PFOS	105,473.33	58,429.85	175,289.54		82,928.01	165,856.03	
JV63 ICC	ICC	5/14/18 17:47	13C4-PFOS	103,611.84	58,429.85	175,289.54		82,928.01	165,856.03	
CQ753PB-FS(0)	Procedural Blank	5/14/18 18:05	13C4-PFOS	103,853.95	58,429.85	175,289.54		82,928.01	165,856.03	
CQ754LCS-FS(0)	Laboratory Control Sample	5/14/18 18:14	13C4-PFOS	84,459.89	58,429.85	175,289.54		82,928.01	165,856.03	
J5965-FS(0)	WGNA-043018-FRB-3103	5/14/18 18:23	13C4-PFOS	116,949.30	58,429.85	175,289.54		82,928.01	165,856.03	
J5967-FS(0)	NAWC-043018-FRB-207	5/14/18 18:32	13C4-PFOS	94,129.68	58,429.85	175,289.54		82,928.01	165,856.03	
J5969-FS(0)	WGNA-043018-FRB-3409	5/14/18 18:41	13C4-PFOS	111,823.48	58,429.85	175,289.54		82,928.01	165,856.03	
J5971-FS(0)	WGNA-050118-FRB-3385	5/14/18 18:49	13C4-PFOS	90,706.52	58,429.85	175,289.54		82,928.01	165,856.03	
J5973-FS(0)	WGNA-050118-FRB-3178	5/14/18 18:58	13C4-PFOS	94,076.63	58,429.85	175,289.54		82,928.01	165,856.03	
J5975-FS(0)	NAWC-050118-FRB-304	5/14/18 19:07	13C4-PFOS	88,279.99	58,429.85	175,289.54		82,928.01	165,856.03	
J5977-FS(0)	NAWC-050118-FRB-098	5/14/18 19:16	13C4-PFOS	109,495.96	58,429.85	175,289.54		82,928.01	165,856.03	
JV68 CCV	CCV	5/14/18 19:25	13C4-PFOS	121,468.05	58,429.85	175,289.54		82,928.01	165,856.03	

Project Client: Tetra Tech
 Project Client: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project Client: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV64	L1	5/14/18 16:27	13C2-PFOA	38,439.74	-
JV65	L2	5/14/18 16:36	13C2-PFOA	39,205.09	-
JV66	L3	5/14/18 16:45	13C2-PFOA	34,066.69	-
JV67	L4	5/14/18 16:53	13C2-PFOA	39,739.37	-
JV68	L5	5/14/18 17:02	13C2-PFOA	34,175.48	-
JV69	L6	5/14/18 17:11	13C2-PFOA	38,237.89	-
JV70	L7	5/14/18 17:20	13C2-PFOA	39,542.23	-
JV71	L8	5/14/18 17:29	13C2-PFOA	35,226.63	-
JV72	L9	5/14/18 17:38	13C2-PFOA	38,024.48	1.1

PASS

Average 37,406.40 Lower 18,703.20 Upper 56,109.60

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	5/14/18 16:27	13C2-PFOA	38,439.74	18,703.20	56,109.60		23,922.84	47,845.67	
JV65	L2	5/14/18 16:36	13C2-PFOA	39,205.09	18,703.20	56,109.60		23,922.84	47,845.67	
JV66	L3	5/14/18 16:45	13C2-PFOA	34,066.69	18,703.20	56,109.60		23,922.84	47,845.67	
JV67	L4	5/14/18 16:53	13C2-PFOA	39,739.37	18,703.20	56,109.60		23,922.84	47,845.67	
JV68	L5	5/14/18 17:02	13C2-PFOA	34,175.48	18,703.20	56,109.60		23,922.84	47,845.67	
JV69	L6	5/14/18 17:11	13C2-PFOA	38,237.89	18,703.20	56,109.60		23,922.84	47,845.67	
JV70	L7	5/14/18 17:20	13C2-PFOA	39,542.23	18,703.20	56,109.60		23,922.84	47,845.67	
JV71	L8	5/14/18 17:29	13C2-PFOA	35,226.63	18,703.20	56,109.60		23,922.84	47,845.67	
JV72	L9	5/14/18 17:38	13C2-PFOA	38,024.48	18,703.20	56,109.60		23,922.84	47,845.67	
JV63 ICC	ICC	5/14/18 17:47	13C2-PFOA	35,637.34	18,703.20	56,109.60		23,922.84	47,845.67	
CQ753PB-FS(0)	Procedural Blank	5/14/18 18:05	13C2-PFOA	31,105.55	18,703.20	56,109.60		23,922.84	47,845.67	
CQ754LCS-FS(0)	Laboratory Control Sample	5/14/18 18:14	13C2-PFOA	29,190.46	18,703.20	56,109.60		23,922.84	47,845.67	
J5965-FS(0)	WGNA-043018-FRB-3103	5/14/18 18:23	13C2-PFOA	37,306.55	18,703.20	56,109.60		23,922.84	47,845.67	
J5967-FS(0)	NAWC-043018-FRB-207	5/14/18 18:32	13C2-PFOA	29,453.32	18,703.20	56,109.60		23,922.84	47,845.67	
J5969-FS(0)	WGNA-043018-FRB-3409	5/14/18 18:41	13C2-PFOA	33,204.68	18,703.20	56,109.60		23,922.84	47,845.67	
J5971-FS(0)	WGNA-050118-FRB-3385	5/14/18 18:49	13C2-PFOA	27,675.77	18,703.20	56,109.60		23,922.84	47,845.67	
J5973-FS(0)	WGNA-050118-FRB-3178	5/14/18 18:58	13C2-PFOA	27,255.88	18,703.20	56,109.60		23,922.84	47,845.67	
J5975-FS(0)	NAWC-050118-FRB-304	5/14/18 19:07	13C2-PFOA	28,391.02	18,703.20	56,109.60		23,922.84	47,845.67	
J5977-FS(0)	NAWC-050118-FRB-098	5/14/18 19:16	13C2-PFOA	34,760.01	18,703.20	56,109.60		23,922.84	47,845.67	
JV68 CCV	CCV	5/14/18 19:25	13C2-PFOA	36,497.99	18,703.20	56,109.60		23,922.84	47,845.67	

Project Client: Tetra Tech
 Project Client: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project Client: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV64	L1	5/14/18 16:27	d3-MeFOSAA	36,112.58	-
JV65	L2	5/14/18 16:36	d3-MeFOSAA	36,897.69	-
JV66	L3	5/14/18 16:45	d3-MeFOSAA	30,420.23	-
JV67	L4	5/14/18 16:53	d3-MeFOSAA	35,707.97	-
JV68	L5	5/14/18 17:02	d3-MeFOSAA	33,628.73	-
JV69	L6	5/14/18 17:11	d3-MeFOSAA	34,298.33	-
JV70	L7	5/14/18 17:20	d3-MeFOSAA	36,446.02	-
JV71	L8	5/14/18 17:29	d3-MeFOSAA	31,869.23	-
JV72	L9	5/14/18 17:38	d3-MeFOSAA	35,734.85	1.1

PASS

Average 34,568.40 Lower 17,284.20 Upper 51,852.60

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	5/14/18 16:27	d3-MeFOSAA	36,112.58	17,284.20	51,852.60		23,540.11	47,080.22	
JV65	L2	5/14/18 16:36	d3-MeFOSAA	36,897.69	17,284.20	51,852.60		23,540.11	47,080.22	
JV66	L3	5/14/18 16:45	d3-MeFOSAA	30,420.23	17,284.20	51,852.60		23,540.11	47,080.22	
JV67	L4	5/14/18 16:53	d3-MeFOSAA	35,707.97	17,284.20	51,852.60		23,540.11	47,080.22	
JV68	L5	5/14/18 17:02	d3-MeFOSAA	33,628.73	17,284.20	51,852.60		23,540.11	47,080.22	
JV69	L6	5/14/18 17:11	d3-MeFOSAA	34,298.33	17,284.20	51,852.60		23,540.11	47,080.22	
JV70	L7	5/14/18 17:20	d3-MeFOSAA	36,446.02	17,284.20	51,852.60		23,540.11	47,080.22	
JV71	L8	5/14/18 17:29	d3-MeFOSAA	31,869.23	17,284.20	51,852.60		23,540.11	47,080.22	
JV72	L9	5/14/18 17:38	d3-MeFOSAA	35,734.85	17,284.20	51,852.60		23,540.11	47,080.22	
JV63 ICC	ICC	5/14/18 17:47	d3-MeFOSAA	32,603.64	17,284.20	51,852.60		23,540.11	47,080.22	
CQ753PB-FS(0)	Procedural Blank	5/14/18 18:05	d3-MeFOSAA	33,816.55	17,284.20	51,852.60		23,540.11	47,080.22	
CQ754LCS-FS(0)	Laboratory Control Sample	5/14/18 18:14	d3-MeFOSAA	26,148.55	17,284.20	51,852.60		23,540.11	47,080.22	
J5965-FS(0)	WGNA-043018-FRB-3103	5/14/18 18:23	d3-MeFOSAA	33,389.17	17,284.20	51,852.60		23,540.11	47,080.22	
J5967-FS(0)	NAWC-043018-FRB-207	5/14/18 18:32	d3-MeFOSAA	29,381.71	17,284.20	51,852.60		23,540.11	47,080.22	
J5969-FS(0)	WGNA-043018-FRB-3409	5/14/18 18:41	d3-MeFOSAA	32,886.89	17,284.20	51,852.60		23,540.11	47,080.22	
J5971-FS(0)	WGNA-050118-FRB-3385	5/14/18 18:49	d3-MeFOSAA	26,728.75	17,284.20	51,852.60		23,540.11	47,080.22	
J5973-FS(0)	WGNA-050118-FRB-3178	5/14/18 18:58	d3-MeFOSAA	26,940.76	17,284.20	51,852.60		23,540.11	47,080.22	
J5975-FS(0)	NAWC-050118-FRB-304	5/14/18 19:07	d3-MeFOSAA	24,390.83	17,284.20	51,852.60		23,540.11	47,080.22	
J5977-FS(0)	NAWC-050118-FRB-098	5/14/18 19:16	d3-MeFOSAA	30,654.25	17,284.20	51,852.60		23,540.11	47,080.22	
JV68 CCV	CCV	5/14/18 19:25	d3-MeFOSAA	32,203.27	17,284.20	51,852.60		23,540.11	47,080.22	

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 5:20:42 PM	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.44	1.50	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.72	1.36	0.8 – 1.5

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 5:20:42 PM	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.44	24	>10
PFBS_2	298.9 / 99.0	1.44	24	>10
PFHxA_1	313.0 / 269.0	1.72	62	>10
PFHxA_2	313.0 / 119.0	1.72	57	>10
PFHpA_1	363.0 / 319.0	2.08	28	>10
PFHpA_2	363.0 / 169.0	2.08	45	>10
PFHxS_1	399.0 / 80.0	2.09	64	>10
PFHxS_2	399.0 / 99.0	2.10	52	>10
PFOA_1	413.0 / 369.0	2.46	62	>10
PFOA_2	413.0 / 169.0	2.46	55	>10
PFNA_1	463.0 / 419.0	2.83	54	>10
PFNA_2	463.0 / 219.0	2.83	51	>10
PFOS_1	499.0 / 80.0	2.82	70	>10
PFOS_2	499.0 / 99.0	2.83	67	>10
PFDA_1	513.0 / 469.0	3.18	51	>10
PFDA_2	513.0 / 219.0	3.18	46	>10
PFUnA_1	563.0 / 519.0	3.50	56	>10
PFUnA_2	563.0 / 269.0	3.50	29	>10
PFDaA_1	613.0 / 569.0	3.79	55	>10
PFDaA_2	613.0 / 319.0	3.79	37	>10
PFTrDA_1	663.0 / 619.0	4.04	62	>10
PFTrDA_2	663.0 / 169.0	4.04	39	>10
PFTeDA_1	713.0 / 669.0	4.26	71	>10
PFTeDA_2	713.0 / 169.0	4.26	48	>10
NMeFOSAA_1	570.0 / 419.0	3.33	58	>10
NMeFOSAA_2	570.0 / 512.0	3.33	52	>10
NEtFOSAA_1	584.0 / 419.0	3.50	47	>10
NEtFOSAA_2	584.0 / 483.0	3.49	39	>10

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 5:20:42 PM	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
13C2-PFHxA	315.0 / 270.0	1.71	40	>10
13C2-PFDA	515.0 / 470.0	3.17	39	>10
d5-EtFOSAA	589.0 / 419.0	3.49	36	>10



Precision and Bias at the LOQ for PFAS in Drinking Water

Analyte	CAS No.	Average (ng/L)	ST DEV	3 Sigma	n
PFHxA	307-24-4	10.85	1.18	3.54	10
PFHpA	375-85-9	11.32	1.25	3.75	10
PFOA	335-67-1	11.36	1.21	3.63	10
PFNA	375-95-1	11.19	1.18	3.54	10
PFDA	335-76-2	11.20	1.25	3.75	10
PFUnA	2058-94-8	11.01	1.52	4.56	10
PFDoA	307-55-1	10.77	1.77	5.31	10
PFTTrDA	72629-94-8	10.72	1.69	5.07	10
PFTeDA	376-06-7	11.83	1.43	4.29	10
NMeFOSAA	2355-31-9	10.84	0.95	2.85	10
NEtFOSAA	2991-50-6	10.16	1.00	3.00	10
PFBS	375-73-5	9.01	1.35	4.05	10
PFHxS	355-46-4	10.58	1.28	3.84	10
PFOS	1763-23-1	9.81	1.25	3.75	10

Analytical Transitions for PFAS in drinking water

SOP 5-371 (EPA 537 Version 1.1)

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
PFHxA	307-24-4	Target	313.0 / 269.0	313.0 / 119.0
PFHpA	375-85-9	Target	363.0 / 319.0	363.0 / 169.0
PFOA	335-67-1	Target	413.0 / 369.0	413.0 / 169.0
PFNA	375-95-1	Target	463.0 / 419.0	463.0 / 219.0
PFDA	335-76-2	Target	513.0 / 469.0	513.0 / 219.0
PFUnA	2058-94-8	Target	563.0 / 519.0	563.0 / 269.0
PFDoA	307-55-1	Target	613.0 / 569.0	613.0 / 319.0
PFTTrDA	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
PFTeDA	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
NMeFOSAA	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
NEtFOSAA	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
PFBS	375-73-5	Target	298.9.0 / 80.0	298.9.0 / 99.0
PFHxS	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
PFOS	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
¹³C₂-PFHxA	NA	SIS	315.0 / 270.0	NA
¹³C₂-PFDA	NA	SIS	515.0 / 470.0	NA
d₅-EtFOSAA	NA	SIS	589.0 / 419.0	NA
¹³C₂-PFOA	NA	IS	415.0 / 270.0	NA
¹³C₄-PFOS	NA	IS	503.0 / 80.0	NA
d₃-MeFOSAA	NA	IS	573.0 / 419.0	NA

BATTELLE DETECTION LIMITS FOR PFAS IN DRINKING WATER

Battelle SOP 5-371 (EPA Method 537 Version 1.1)

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)	MRL (ng/L)
PFHxA	307-24-4	0.22	0.5	2.5	2.5
PFHpA	375-85-9	0.34	1.0	2.5	2.5
PFOA	335-67-1	0.38	1.0	2.5	2.5
PFNA	375-95-1	0.37	1.0	2.5	2.5
PFDA	335-76-2	0.39	1.0	2.5	2.5
PFUnA	2058-94-8	0.38	1.0	2.5	2.5
PFDoA	307-55-1	0.42	1.0	2.5	2.5
PFTTrDA	72629-94-8	0.42	1.0	2.5	2.5
PFTeDA	376-06-7	0.73	1.5	2.5	2.5
NMeFOSAA	2355-31-9	0.42	1.0	2.5	2.5
NEtFOSAA	2991-50-6	0.44	1.0	2.5	2.5
PFBS	375-73-5	0.21	0.5	2.5	2.5
PFHxS	3871-99-6	0.34	1.0	2.5	2.5
PFOS	1763-23-1	0.30	1.0	2.5	2.5

Analytes on NELAP and ELAP QSM 5.1 Scope of accreditation



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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

QTRAP 5500 Preventive Maintenance Checklist

Preventive Maintenance Date:	22-Feb-2017
Request ID:	3683
Company Name:	Battelle Memorial Institute
Instrument ID:	X60666
Instrument Model:	QTRAP 5500
Instrument Serial Number:	AU23051004

PASS **FAIL**

Any failure will lead to an automatic Service Call being open to investigate fault.

Preventive Maintenance is performed twice every year unless specified in the Service Contract. It is designed to help maintain optimum system performance and to help diagnose any system deficiencies.

Engineer is required the assigned Request ID for this PM otherwise making this job invalid.

Comments: _____

Performed By: Kaustubh Dhayagude **Date:** 22-Feb-2017

Approved By : _____ **Date:** _____

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PRE PM PPG PERFORMANCE EVALUATION:

- Consult Customer concerning the unit overall performance.
- Check Logbook for Services recently performed.
- Check Vacuum Pressure:

CAD Settings	Vacuum Reading (x 10 ⁻⁵ Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.5	0.4 to 1.1 x10 ⁻⁵ Torr
<input checked="" type="checkbox"/> CAD Low	1.9	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.4	Read Only
<input checked="" type="checkbox"/> CAD High	3.4	Read Only
<input checked="" type="checkbox"/> CAD 12	3.4	2.4 to 4.5 x10 ⁻⁵ Torr

- Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification
 - No degradation or Sensitivity drop
- Check for Q3 contamination symptoms. Run Q3 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification
 - No degradation or Sensitivity drop

Pre PM PPG Test: Perform each of the following tests. Optimize ion source position only. The specifications listed for these Pre PM tests are guidelines only, not required to be met.

- Perform Q1 POS using POS PPG 2e-7M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Q1 175.133	1.64 e6	Read Only	0.8095	Read Only
Q1 500.380	2.40 e7	Read Only	0.8592	Read Only
Q1 906.673	2.86 e7	Read Only	0.9633	Read Only

- Perform Q3 POS using POS PPG 2e-7M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Q3 175.133	1.26 e6	Read Only	0.6252	Read Only
Q3 500.380	2.19 e7	Read Only	0.7275	Read Only
Q3 906.673	3.02 e7	Read Only	0.7662	Read Only

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QTRAP 5500**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

Perform MSMS POS in Product Ion scan with 609.3 parent and record daughter 195.1 using Reserpine 0.167 pmol/ul at the scan rate of 10 Da/s for 10 MCA. Calculate transmission efficiency comparing Q1POS 609 intensity. Transmission Efficiency: : 19.51% (Read Only)

Mass	MSMS Intensity		MSMS Width Value	Width Specs
	Value	Spec		
Q1 609.3	7.43 e7	Read Only	0.9981	Read Only
MS/MS 195.1	1.45 e7	Read Only	0.6582	Read Only

Perform Q1 NEG using NEG PPG 3e-5M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Q1 933.636	1.43 e7	Read Only	0.7330	Read Only

Perform Q3 NEG using NEG PPG 3e-5M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Q3 933.636	2.22 e7	Read Only	0.8138	Read Only

Perform Product Ion scan using NEG PPG 3e-5M. Record 10 mca.

Mass	Scan Rate	MCA	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.35 e6	Read Only	0.6495	Read Only

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QTRAP 5500**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

PREVENTIVE MAINTENANCE CHECKLIST:

- Check Cooling Fans for Turbo Pumps while MS is ON.
- Check QJet and QPS tuning voltage for reference.
- Record AC input Voltage while MS is OFF: _____(200-240VAC).
If Out-of-Range, notify customer.

- Clean Interface
 - Curtain Plate
 - Orifice Plate
 - QJet
 - Q0 Rods.

- Replace Roughing Pump Oil.
- Inspect Oil Exhaust Filter, if Applicable. N/A
- Clean and inspect built-in divert valve if used. N/A
- Check Multiplier Voltage, optimize if necessary.
- Replace four Air Filters at the bottom of the mass spectrometer.

- Pump down overnight if possible. N/A

- Perform Maintenance on Turbo V source.

- Replace Electrode, if necessary. N/A
- Check Turbo heaters resistances.
- Check if Temperature is reached at 500C with TIS Probe installed.
- Check if Temperature is reached at 500C with APCI Probe installed. N/A

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QTRAP 5500**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

POST PM PPG PERFORMANCE TESTS:

- Set-up Sample for Infusion.
- Check spray and adjust sprayer's position of the TIS source.
- Check Vacuum Pressure:

CAD Settings	Vacuum Reading (x 10 ⁻⁵ Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.8	0.4 to 1.1 x10 ⁻⁵ Torr
<input checked="" type="checkbox"/> CAD Low	2.1	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.6	Read Only
<input checked="" type="checkbox"/> CAD High	3.7	Read Only
<input checked="" type="checkbox"/> CAD 12	3.7	2.4 to 4.5 x10 ⁻⁵ Torr

- Perform Q1 POS using POS PPG 2e-7M. Mass calibrate to less than 0.1 amu.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q1 175.133	5.94 e6	≥1.2 ^{e6}	0.6933	0.6 to 0.8
Q1 500.380	2.25 e7	≥9.0 ^{e6}	0.7444	0.6 to 0.8
Q1 906.673	2.74 e7	≥1.4 ^{e7}	0.7347	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8 ^{e7}	0.7656	0.6 to 0.8

- Perform Q3 POS using POS PPG 2e-7M. Mass calibrate to less than 0.1 amu.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q3 175.133	4.54 e6	≥1.2 ^{e6}	0.6390	0.6 to 0.8
Q3 500.380	2.13 e7	≥9.0 ^{e6}	0.7008	0.6 to 0.8
Q3 906.673	3.04 e7	≥1.4 ^{e7}	0.7683	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q3 906.673	1.51 e8	≥6.8 ^{e7}	0.7118	0.6 to 0.8

- Perform "Product of 609.3" POS and record product ion 195.1 using Reserpine 0.167pmol/uL. Record 10 mca. Calculate Transmission efficiency comparing Q1POS 609 intensity.

Transmission Efficiency: 16.93% (≥ 10.0%)

Mass	MSMS Intensity		Width Value	Width Specs
	Value	Spec		
Q1 609.3	5.74 e7	N/A	0.7667	Read Only
MS/MS 195.1	9.72 e6	N/A	0.6751	Read Only

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QTRAP 5500**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

Perform Q1 NEG using NEG PPG 3e-5M. Mass calibrate to less than 0.1 amu.

Mass	Scan Rate	Mca	Q1 Intensity		Q1 Width Value	Width Specs
			Value	Spec		
Q1 933.636	10	10	1.31 e7	$\geq 1.0^{e7}$	0.6895	0.6 to 0.8
Q1 933.636	1000	50	6.32 e7	$\geq 4.0^{e7}$	0.6740	0.6 to 0.8

Perform Q3 NEG using NEG PPG 3e-5M. Mass calibrate to less than 0.1 amu.

Mass	Scan Rate	Mca	Q3 Intensity		Q3 Width Value	Width Specs
			Value	Spec		
Q3 933.636	10	10	1.70 e7	$\geq 8.0^{e6}$	0.7665	0.6 to 0.8
Q3 933.636	1000	50	7.41 e7	$\geq 4.0^{e7}$	0.7292	0.6 to 0.8

Perform Product Ion scan using NEG PPG 3e-5M.

Mass	Scan Rate	Mca	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.33 e6	Read Only	0.6387	Read Only

Perform ER POS 118.087 and 922.01 using ESI Tuning Mix 1:100 in ES Tuning Dilution Solvent. Apply suggested Scan Rate and Record number of MCA. Mass calibrate to less than 0.1 amu.

Mass	Fill Time (ms)	ER Intensity		ER Width Value	Width Specs
		Value	Spec		
ScanRate : 1000 Da/s ; 50 Mca					
ER 118.087	0.05	8.08 e6	$\geq 7.2^{e6}$	0.1302	<0.35
ER 922.010	0.05	3.89 e7	$\geq 2.8^{e6}$	0.2603	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05	2.55 e7	$\geq 2.4^{e7}$	0.3740	<0.65
ER 922.010	0.05	2.37 e8	$\geq 6.8^{e7}$	0.5407	<0.65

Perform ER NEG 431.982 and 601.978 using ESI Tuning Mix 1:100 in ES Tuning Dilution Solvent. Apply suggested Scan Rate and Record number of MCA. Mass calibrate to less than 0.1 amu.

Mass	Fill Time (ms)	ER Intensity		ER Width Value	Width Specs
		Value	Spec		
ScanRate : 1000 Da/s ; 50 Mca					
ER 431.982	0.05	1.05 e8	$\geq 4.4^{e7}$	0.1840	<0.35
ER 601.978	0.05	7.74 e7	$\geq 5.6^{e7}$	0.1849	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 431.982	0.05	3.43 e8	$\geq 1.2^{e8}$	0.4382	<0.65
ER 601.978	0.05	2.55 e8	$\geq 1.6^{e8}$	0.6205	<0.65

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QTRAP 5500**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

- Perform EPI POS 397.2 using Reserpine 0.167pmol/uL. Record 20 mca.

Mass	Scan Rate (Da/s)	Q0 Trapping OFF		Q0 Trapping ON	
		Intensity	Spec	Intensity	Spec
EPI 397.2	10000	> 3.5 e6	≥2.0 e6	> 4.0 e7	≥6.4 e6

- Perform MS3 POS full scan Fragmentation ON & OFF using Reserpine 0.167pmol/uL. Record 20 mca.

Mass	Scan Rate (Da/s)	Fragamentation OFF		Fragmentation ON	
		Intensity	Spec	Intensity	Spec
MS3 397.2	1000	3.2 e7	Contains only 397.2	N/A	N/A
<input type="checkbox"/> 236 OR <input checked="" type="checkbox"/> 365	1000	1.19 e8	Fragment Intensity	> 4.4 e6	≥1.6x 10 ^{e6}

REVIEW:

- Attach all spectrums printouts to this procedure.
- If any parameter setting access modes were changed during the PM, ensure they are returned to their normal access mode and that their offsets are adjusted to match optimized values from the post-PM acquisition files.
- Empty tuning cache folder, if necessary. N/A
- Update Service Work Order status
- Fill and replace PM Label.

END OF PREVENTIVE MAINTENANCE CHECKLIST**Document history:**

06 OCT 2016: Appendix ZEFPM003-2L: Removed requirements to fit Manufacturer's testing criteria.

It can be done

Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JV35**

Description: PFAS - 537.1 Internal Standard Stock

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
180425-01	EPA-537IS	Neat	~2.66666 6	12/13/22	---	---	1000 uL	1	10	~0.3000

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: _____ Date: _____



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JV35**

Description: PFAS - 537.1 Internal Standard Stock

Stock Id: **180425-01**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	1000	1.00	1	100.000	1	10	0.10000
13C4-PFOS	1000	2.87	1	100.000	1	10	0.28700
d3-MeFOSAA	1000	4.00	1	100.000	1	10	0.40000

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFOA	.10000
13C4-PFOS	.28700
d3-MeFOSAA	.40000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
180425-01	Pipette	I0793912B

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: _____ Date: _____

It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: **JV37**

Description: PFAS - 537.1 Surrogate Standard Stock

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
180425-02	EPA-537SS	Neat	~2.00000 0	11/08/22	---	---	1000 uL	1	10	~0.2000

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: _____ Date: _____



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JV37**

Description: PFAS - 537.1 Surrogate Standard Stock

Stock Id: **180425-02**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	1000	1.00	1	100.000	1	10	0.10000
13C2-PFHxA	1000	1.00	1	100.000	1	10	0.10000
d5-EtFOSAA	1000	4.00	1	100.000	1	10	0.40000

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.10000
13C2-PFHxA	.10000
d5-EtFOSAA	.40000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
180425-02	Pipette	C0982448K

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: _____ Date: _____

It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: JV41

Description: PFAS - 537.1 Second Source LCS/MS Solution

Assigned Lab ID (from receipt log)	Chemical Name:.	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
180425-04	EPA-537PDS-L (second source)	Neat	~2.00000 0	03/05/23	---	---	500 uL	1	20	~0.0500

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Thorn, Jonathan Date: 5/3/2018 8:26:00 AM



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: JV41

Description: PFAS - 537.1 Second Source LCS/MS Solution

Stock Id: 180425-04

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	500	2.00	1	100.000	1	20	0.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-1-butanedisulfonate	500	1.77	1	100.000	1	20	0.04425
Perfluoro-1-hexanesulfonate	500	1.89	1	100.000	1	20	0.04725
Perfluoro-1-octanesulfonate	500	1.91	1	100.000	1	20	0.04775
Perfluoro-n-decanoic Acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-dodecanoic acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-heptanoic Acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-hexanoic acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-octanoic Acid	500	2.00	1	100.000	1	20	0.05000
Perfluorononanoic Acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-tetradecanoic acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-tridecanoic acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-undecanoic acid	500	2.00	1	100.000	1	20	0.05000

Final Concentrations:

Analyte:	Conc (ug/mL):
N-ethylperfluoro-octanesulfonamidoacetic acid	.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.05000
Perfluoro-1-butanedisulfonate	.04425
Perfluoro-1-hexanesulfonate	.04725
Perfluoro-1-octanesulfonate	.04775
Perfluoro-n-decanoic Acid	.05000
Perfluoro-n-dodecanoic acid	.05000
Perfluoro-n-heptanoic Acid	.05000
Perfluoro-n-hexanoic acid	.05000
Perfluoro-n-octanoic Acid	.05000
Perfluorononanoic Acid	.05000
Perfluoro-n-tetradecanoic acid	.05000
Perfluoro-n-tridecanoic acid	.05000
Perfluoro-n-undecanoic acid	.05000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
180425-04	Pipette	B1100330B

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107		

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Thorn, Jonathan Date: 5/3/2018 8:26:00 AM

It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: JV42

Description: PFAS - 537.1 High ICAL Stock

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
180425-03	EPA-537PDS (calibration)	Neat	~2.00000 0	03/05/23	---	---	250 uL	1	10	~0.0500

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)
Approved By: Schumitz, Denise Date: 5/3/2018 3:21:00 PM



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: JV42

Description: PFAS - 537.1 High ICAL Stock

Stock Id: 180425-03

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	250	2.00	1	100.000	1	10	0.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	250	2.00	1	100.000	1	10	0.05000
Perfluoro-1-butanefluoride	250	1.77	1	100.000	1	10	0.04425
Perfluoro-1-hexanesulfonate	250	1.82	1	100.000	1	10	0.04560
Perfluoro-1-octanesulfonate	250	1.85	1	100.000	1	10	0.04628
Perfluoro-n-decanoic Acid	250	2.00	1	100.000	1	10	0.05000
Perfluoro-n-dodecanoic acid	250	2.00	1	100.000	1	10	0.05000
Perfluoro-n-heptanoic Acid	250	2.00	1	100.000	1	10	0.05000
Perfluoro-n-hexanoic acid	250	2.00	1	100.000	1	10	0.05000
Perfluoro-n-nonanoic Acid	250	2.00	1	100.000	1	10	0.05000
Perfluoro-n-octanoic Acid	250	2.00	1	100.000	1	10	0.05000
Perfluoro-n-tetradecanoic acid	250	2.00	1	100.000	1	10	0.05000
Perfluoro-n-tridecanoic acid	250	2.00	1	100.000	1	10	0.05000
Perfluoro-n-undecanoic acid	250	2.00	1	100.000	1	10	0.05000

Final Concentrations:

Analyte:	Conc (ug/mL):
N-ethylperfluoro-octanesulfonamidoacetic acid	.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.05000
Perfluoro-1-butanefluoride	.04425
Perfluoro-1-hexanesulfonate	.04560
Perfluoro-1-octanesulfonate	.04628
Perfluoro-n-decanoic Acid	.05000
Perfluoro-n-dodecanoic acid	.05000
Perfluoro-n-heptanoic Acid	.05000
Perfluoro-n-hexanoic acid	.05000
Perfluoro-n-nonanoic Acid	.05000
Perfluoro-n-octanoic Acid	.05000
Perfluoro-n-tetradecanoic acid	.05000
Perfluoro-n-tridecanoic acid	.05000
Perfluoro-n-undecanoic acid	.05000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
180425-03	Pipette	B1100330B

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:21:00 PM

It can be done

Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JV43**

Description: PFAS - 537.1 Low ICAL Stock

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
180425-03	EPA-537PDS (calibration)	Neat	~2.00000 0	03/05/23	---	---	250 uL	1	100	~0.0050

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 4 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:21:00 PM



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: JV43

Description: PFAS - 537.1 Low ICAL Stock

Stock Id: 180425-03

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	250	2.00	1	100.000	1	100	0.00500
N-methylperfluoro-1-octanesulfonamidoacetic acid	250	2.00	1	100.000	1	100	0.00500
Perfluoro-1-butanefulfonate	250	1.77	1	100.000	1	100	0.00443
Perfluoro-1-hexanesulfonate	250	1.82	1	100.000	1	100	0.00456
Perfluoro-1-octanesulfonate	250	1.85	1	100.000	1	100	0.00463
Perfluoro-n-decanoic Acid	250	2.00	1	100.000	1	100	0.00500
Perfluoro-n-dodecanoic acid	250	2.00	1	100.000	1	100	0.00500
Perfluoro-n-heptanoic Acid	250	2.00	1	100.000	1	100	0.00500
Perfluoro-n-hexanoic acid	250	2.00	1	100.000	1	100	0.00500
Perfluoro-n-nonanoic Acid	250	2.00	1	100.000	1	100	0.00500
Perfluoro-n-octanoic Acid	250	2.00	1	100.000	1	100	0.00500
Perfluoro-n-tetradecanoic acid	250	2.00	1	100.000	1	100	0.00500
Perfluoro-n-tridecanoic acid	250	2.00	1	100.000	1	100	0.00500
Perfluoro-n-undecanoic acid	250	2.00	1	100.000	1	100	0.00500

Final Concentrations:

Analyte:	Conc (ug/mL):
N-ethylperfluoro-octanesulfonamidoacetic acid	.00500
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00500
Perfluoro-1-butanefulfonate	.00443
Perfluoro-1-hexanesulfonate	.00456
Perfluoro-1-octanesulfonate	.00463
Perfluoro-n-decanoic Acid	.00500
Perfluoro-n-dodecanoic acid	.00500
Perfluoro-n-heptanoic Acid	.00500
Perfluoro-n-hexanoic acid	.00500
Perfluoro-n-nonanoic Acid	.00500
Perfluoro-n-octanoic Acid	.00500
Perfluoro-n-tetradecanoic acid	.00500
Perfluoro-n-tridecanoic acid	.00500
Perfluoro-n-undecanoic acid	.00500

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
180425-03	Pipette	B1100330B

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 4 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:21:00 PM

It can be done

Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JV59**

Description: PFAS - 537.1 Internal Standard Solution

Assigned Lab ID (from receipt lcg)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV35	PFAS - 537.1 Internal Standard Stock	Solution	~0	05/02/19	---	---	500 uL	1	25	~0.0000

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Thorn, Jonathan Date: 5/3/2018 8:27:00 AM



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JV59**

Description: PFAS - 537.1 Internal Standard Solution

Stock Id: **JV35**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	500	0.10	---	---	1	25	0.00200
13C4-PFOS	500	0.29	---	---	1	25	0.00574
d3-MeFOSAA	500	0.40	---	---	1	25	0.00800

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFOA	.00200
13C4-PFOS	.00574
d3-MeFOSAA	.00800

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV35	Pipette	I0400533B

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Thorn, Jonathan Date: 5/3/2018 8:27:00 AM

It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: **JV60**

Description: PFAS - 537.1 Surrogate Solution

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV37	PFAS - 537.1 Surrogate Standard Stock	Solution	~0	05/02/19	---	---	500 uL	1	25	~0.0000

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Thorn, Jonathan Date: 5/3/2018 8:27:00 AM



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JV60**

Description: PFAS - 537.1 Surrogate Solution

Stock Id: **JV37**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	500	0.10	---	---	1	25	0.00200
13C2-PFHxA	500	0.10	---	---	1	25	0.00200
d5-EtFOSAA	500	0.40	---	---	1	25	0.00800

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.00200
13C2-PFHxA	.00200
d5-EtFOSAA	.00800

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV37	Pipette	I0400533B

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107		

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Thorn, Jonathan Date: 5/3/2018 8:27:00 AM

It can be done

Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JV61**

Description: PFAS - 537.1 Internal Standard Calibration Stock Solution

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV35	PFAS - 537.1 Internal Standard Stock	Solution	~0	05/02/19	---	---	1000 uL	1	5	~0.0000

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:23:00 PM



It can be done

Standard Solution Concentrations Approved:

Standard Laboratory ID Number: **JV61**
 Description: PFAS - 537.1 Internal Standard Calibration Stock Solution

Stock Id: **JV35**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	1000	0.10	---	---	1	5	0.02000
13C4-PFOS	1000	0.29	---	---	1	5	0.05740
d3-MeFOSAA	1000	0.40	---	---	1	5	0.08000

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFOA	.02000
13C4-PFOS	.05740
d3-MeFOSAA	.08000

Syringes/Pipettes:

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107		

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:23:00 PM

It can be done

Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JV62**

Description: PFAS - 537.1 Surrogate Calibration Stock Solution

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV37	PFAS - 537.1 Surrogate Standard Stock	Solution	~0	05/02/19	---	---	1000 uL	1	5	~0.0000

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:23:00 PM



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JV62**

Description: PFAS - 537.1 Surrogate Calibration Stock Solution

Stock Id: **JV37**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	1000	0.10	---	---	1	5	0.02000
13C2-PFHxA	1000	0.10	---	---	1	5	0.02000
d5-EtFOSAA	1000	0.40	---	---	1	5	0.08000

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.02000
13C2-PFHxA	.02000
d5-EtFOSAA	.08000

Syringes/Pipettes:

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:23:00 PM

It can be done

Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JV63**

Description: PFAS - 537.1 ICC

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV41	PFAS - 537.1 Second Source LCS/MS Solution	Solution	~0	05/02/19	---	---	200 uL	1	10	~0.0000
JV59	PFAS - 537.1 Internal Standard Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JV60	PFAS - 537.1 Surrogate Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:23:00 PM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JV63**

Description: PFAS - 537.1 ICC

Stock Id: JV41

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	200	0.05	---	---	1	10	0.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-1-butanedisulfonate	200	0.04	---	---	1	10	0.00089
Perfluoro-1-hexanesulfonate	200	0.05	---	---	1	10	0.00095
Perfluoro-1-octanesulfonate	200	0.05	---	---	1	10	0.00095
Perfluoro-n-decanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-dodecanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-heptanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-hexanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-octanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluorononanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-tetradecanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-tridecanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-undecanoic acid	200	0.05	---	---	1	10	0.00100

Stock Id: JV59

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	50	0.00	---	---	1	10	0.00001
13C4-PFOS	50	0.01	---	---	1	10	0.00003
d3-MeFOSAA	50	0.01	---	---	1	10	0.00004

Stock Id: JV60

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	50	0.00	---	---	1	10	0.00001
13C2-PFHxA	50	0.00	---	---	1	10	0.00001
d5-EtFOSAA	50	0.01	---	---	1	10	0.00004

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.00001
13C2-PFHxA	.00001
13C2-PFOA	.00001
13C4-PFOS	.00003
d3-MeFOSAA	.00004
d5-EtFOSAA	.00004

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:23:00 PM



It can be done

Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JV63**

Description: PFAS - 537.1 ICC

N-ethylperfluoro-octanesulfonamidoacetic acid	.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00100
Perfluoro-1-butanefulfonate	.00089
Perfluoro-1-hexanesulfonate	.00095
Perfluoro-1-octanesulfonate	.00095
Perfluoro-n-decanoic Acid	.00100
Perfluoro-n-dodecanoic acid	.00100
Perfluoro-n-heptanoic Acid	.00100
Perfluoro-n-hexanoic acid	.00100
Perfluoro-n-octanoic Acid	.00100
Perfluorononanoic Acid	.00100
Perfluoro-n-tetradecanoic acid	.00100
Perfluoro-n-tridecanoic acid	.00100
Perfluoro-n-undecanoic acid	.00100

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV41	Pipette	G0792979B
JV59	Pipette	I0793912B
JV60	Pipette	I0793912B

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:23:00 PM

It can be done

Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JV64**

Description: PFAS - 537.1 ICAL L1

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV43	PFAS - 537.1 Low ICAL Stock	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JV61	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JV62	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JV64**

Description: PFAS - 537.1 ICAL L1

Stock Id: JV43

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	50	0.01	---	---	1	10	0.00003
N-methylperfluoro-1-octanesulfonamidoacetic acid	50	0.01	---	---	1	10	0.00003
Perfluoro-1-butanedisulfonate	50	0.00	---	---	1	10	0.00002
Perfluoro-1-hexanesulfonate	50	0.00	---	---	1	10	0.00002
Perfluoro-1-octanesulfonate	50	0.00	---	---	1	10	0.00002
Perfluoro-n-decanoic Acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-dodecanoic acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-heptanoic Acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-hexanoic acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-nonanoic Acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-octanoic Acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-tetradecanoic acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-tridecanoic acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-undecanoic acid	50	0.01	---	---	1	10	0.00003

Stock Id: JV61

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.06	---	---	1	10	0.00029
d3-MeFOSAA	50	0.08	---	---	1	10	0.00040

Stock Id: JV62

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	50	0.02	---	---	1	10	0.00010
13C2-PFHxA	50	0.02	---	---	1	10	0.00010
d5-EtFOSAA	50	0.08	---	---	1	10	0.00040

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.00010
13C2-PFHxA	.00010
13C2-PFOA	.00010
13C4-PFOS	.00029
d3-MeFOSAA	.00040
d5-EtFOSAA	.00040

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: JV64

Description: PFAS - 537.1 ICAL L1

N-ethylperfluoro-octanesulfonamidoacetic acid	.00003
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00003
Perfluoro-1-butanefluoride	.00002
Perfluoro-1-hexanesulfonate	.00002
Perfluoro-1-octanesulfonate	.00002
Perfluoro-n-decanoic Acid	.00003
Perfluoro-n-dodecanoic acid	.00003
Perfluoro-n-heptanoic Acid	.00003
Perfluoro-n-hexanoic acid	.00003
Perfluoro-n-nonanoic Acid	.00003
Perfluoro-n-octanoic Acid	.00003
Perfluoro-n-tetradecanoic acid	.00003
Perfluoro-n-tridecanoic acid	.00003
Perfluoro-n-undecanoic acid	.00003

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV43	Pipette	I0793912B
JV61	Pipette	I0793912B
JV62	Pipette	I0793912B

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM

It can be done

Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JV65**

Description: PFAS - 537.1 ICAL L2

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV43	PFAS - 537.1 Low ICAL Stock	Solution	~0	05/02/19	---	---	100 uL	1	10	~0.0000
JV61	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JV62	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM



It can be done

Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JV65**

Description: PFAS - 537.1 ICAL L2

Stock Id: JV43

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	100	0.01	---	---	1	10	0.00005
N-methylperfluoro-1-octanesulfonamidoacetic acid	100	0.01	---	---	1	10	0.00005
Perfluoro-1-butanefulfonate	100	0.00	---	---	1	10	0.00004
Perfluoro-1-hexanesulfonate	100	0.00	---	---	1	10	0.00005
Perfluoro-1-octanesulfonate	100	0.00	---	---	1	10	0.00005
Perfluoro-n-decanoic Acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-dodecanoic acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-heptanoic Acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-hexanoic acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-nonanoic Acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-octanoic Acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-tetradecanoic acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-tridecanoic acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-undecanoic acid	100	0.01	---	---	1	10	0.00005

Stock Id: JV61

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.06	---	---	1	10	0.00029
d3-MeFOSAA	50	0.08	---	---	1	10	0.00040

Stock Id: JV62

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	50	0.02	---	---	1	10	0.00010
13C2-PFHxA	50	0.02	---	---	1	10	0.00010
d5-EtFOSAA	50	0.08	---	---	1	10	0.00040

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.00010
13C2-PFHxA	.00010
13C2-PFOA	.00010
13C4-PFOS	.00029
d3-MeFOSAA	.00040
d5-EtFOSAA	.00040

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM



It can be done

Standard Solution Concentrations Approved:

Standard Laboratory ID Number: **JV65**

Description: PFAS - 537.1 ICAL L2

N-ethylperfluoro-octanesulfonamidoacetic acid	.00005
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00005
Perfluoro-1-butanefulfonate	.00004
Perfluoro-1-hexanesulfonate	.00005
Perfluoro-1-octanesulfonate	.00005
Perfluoro-n-decanoic Acid	.00005
Perfluoro-n-dodecanoic acid	.00005
Perfluoro-n-heptanoic Acid	.00005
Perfluoro-n-hexanoic acid	.00005
Perfluoro-n-nonanoic Acid	.00005
Perfluoro-n-octanoic Acid	.00005
Perfluoro-n-tetradecanoic acid	.00005
Perfluoro-n-tridecanoic acid	.00005
Perfluoro-n-undecanoic acid	.00005

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV43	Pipette	I0793912B
JV61	Pipette	I0793912B
JV62	Pipette	I0793912B

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM

It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: **JV66**

Description: PFAS - 537.1 ICAL L3

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV43	PFAS - 537.1 Low ICAL Stock	Solution	~0	05/02/19	---	---	200 uL	1	10	~0.0000
JV61	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JV62	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM



It can be done

Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JV66**

Description: PFAS - 537.1 ICAL L3

Stock Id: JV43

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	200	0.01	---	---	1	10	0.00010
N-methylperfluoro-1-octanesulfonamidoacetic acid	200	0.01	---	---	1	10	0.00010
Perfluoro-1-butanedisulfonate	200	0.00	---	---	1	10	0.00009
Perfluoro-1-hexanesulfonate	200	0.00	---	---	1	10	0.00009
Perfluoro-1-octanesulfonate	200	0.00	---	---	1	10	0.00009
Perfluoro-n-decanoic Acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-dodecanoic acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-heptanoic Acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-hexanoic acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-nonanoic Acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-octanoic Acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-tetradecanoic acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-tridecanoic acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-undecanoic acid	200	0.01	---	---	1	10	0.00010

Stock Id: JV61

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.06	---	---	1	10	0.00029
d3-MeFOSAA	50	0.08	---	---	1	10	0.00040

Stock Id: JV62

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	50	0.02	---	---	1	10	0.00010
13C2-PFHxA	50	0.02	---	---	1	10	0.00010
d5-EtFOSAA	50	0.08	---	---	1	10	0.00040

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.00010
13C2-PFHxA	.00010
13C2-PFOA	.00010
13C4-PFOS	.00029
d3-MeFOSAA	.00040
d5-EtFOSAA	.00040

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JV66**

Description: PFAS - 537.1 ICAL L3

N-ethylperfluoro-octanesulfonamidoacetic acid	.00010
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00010
Perfluoro-1-butanefulfonate	.00009
Perfluoro-1-hexanesulfonate	.00009
Perfluoro-1-octanesulfonate	.00009
Perfluoro-n-decanoic Acid	.00010
Perfluoro-n-dodecanoic acid	.00010
Perfluoro-n-heptanoic Acid	.00010
Perfluoro-n-hexanoic acid	.00010
Perfluoro-n-nonanoic Acid	.00010
Perfluoro-n-octanoic Acid	.00010
Perfluoro-n-tetradecanoic acid	.00010
Perfluoro-n-tridecanoic acid	.00010
Perfluoro-n-undecanoic acid	.00010

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV43	Pipette	G0792979B
JV61	Pipette	I0793912B
JV62	Pipette	I0793912B

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM

It can be done

Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JV67**

Description: PFAS - 537.1 ICAL L4

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV43	PFAS - 537.1 Low ICAL Stock	Solution	~0	05/02/19	---	---	500 uL	1	10	~0.0000
JV61	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JV62	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM



It can be done

Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JV67**

Description: PFAS - 537.1 ICAL L4

Stock Id: JV43

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	500	0.01	---	---	1	10	0.00025
N-methylperfluoro-1-octanesulfonamidoacetic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-1-butanefulfonate	500	0.00	---	---	1	10	0.00022
Perfluoro-1-hexanesulfonate	500	0.00	---	---	1	10	0.00023
Perfluoro-1-octanesulfonate	500	0.00	---	---	1	10	0.00023
Perfluoro-n-decanoic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-dodecanoic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-heptanoic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-hexanoic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-nonanoic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-octanoic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-tetradecanoic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-tridecanoic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-undecanoic acid	500	0.01	---	---	1	10	0.00025

Stock Id: JV61

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.06	---	---	1	10	0.00029
d3-MeFOSAA	50	0.08	---	---	1	10	0.00040

Stock Id: JV62

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	50	0.02	---	---	1	10	0.00010
13C2-PFHxA	50	0.02	---	---	1	10	0.00010
d5-EtFOSAA	50	0.08	---	---	1	10	0.00040

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.00010
13C2-PFHxA	.00010
13C2-PFOA	.00010
13C4-PFOS	.00029
d3-MeFOSAA	.00040
d5-EtFOSAA	.00040

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JV67**

Description: PFAS - 537.1 ICAL L4

N-ethylperfluoro-octanesulfonamidoacetic acid	.00025
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00025
Perfluoro-1-butanefulfonate	.00022
Perfluoro-1-hexanesulfonate	.00023
Perfluoro-1-octanesulfonate	.00023
Perfluoro-n-decanoic Acid	.00025
Perfluoro-n-dodecanoic acid	.00025
Perfluoro-n-heptanoic Acid	.00025
Perfluoro-n-hexanoic acid	.00025
Perfluoro-n-nonanoic Acid	.00025
Perfluoro-n-octanoic Acid	.00025
Perfluoro-n-tetradecanoic acid	.00025
Perfluoro-n-tridecanoic acid	.00025
Perfluoro-n-undecanoic acid	.00025

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV43	Pipette	I0400533B
JV61	Pipette	D1075429B
JV62	Pipette	I0793912B

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107		

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM

It can be done

Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JV68**

Description: PFAS - 537.1 ICAL L5

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV43	PFAS - 537.1 Low ICAL Stock	Solution	~0	05/02/19	---	---	1000 uL	1	10	~0.0000
JV61	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JV62	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date:

5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID:

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise

Date: 5/3/2018 3:22:00 PM



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: JV68

Description: PFAS - 537.1 ICAL L5

Stock Id: JV43

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	1000	0.01	---	---	1	10	0.00050
N-methylperfluoro-1-octanesulfonamidoacetic acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-1-butanedisulfonate	1000	0.00	---	---	1	10	0.00044
Perfluoro-1-hexanesulfonate	1000	0.00	---	---	1	10	0.00046
Perfluoro-1-octanesulfonate	1000	0.00	---	---	1	10	0.00046
Perfluoro-n-decanoic Acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-dodecanoic acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-heptanoic Acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-hexanoic acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-nonanoic Acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-octanoic Acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-tetradecanoic acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-tridecanoic acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-undecanoic acid	1000	0.01	---	---	1	10	0.00050

Stock Id: JV61

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.06	---	---	1	10	0.00029
d3-MeFOSAA	50	0.08	---	---	1	10	0.00040

Stock Id: JV62

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	50	0.02	---	---	1	10	0.00010
13C2-PFHxA	50	0.02	---	---	1	10	0.00010
d5-EtFOSAA	50	0.08	---	---	1	10	0.00040

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.00010
13C2-PFHxA	.00010
13C2-PFOA	.00010
13C4-PFOS	.00029
d3-MeFOSAA	.00040
d5-EtFOSAA	.00040

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JV68**

Description: PFAS - 537.1 ICAL L5

N-ethylperfluoro-octanesulfonamidoacetic acid	.00050
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00050
Perfluoro-1-butanefulfonate	.00044
Perfluoro-1-hexanesulfonate	.00046
Perfluoro-1-octanesulfonate	.00046
Perfluoro-n-decanoic Acid	.00050
Perfluoro-n-dodecanoic acid	.00050
Perfluoro-n-heptanoic Acid	.00050
Perfluoro-n-hexanoic acid	.00050
Perfluoro-n-nonanoic Acid	.00050
Perfluoro-n-octanoic Acid	.00050
Perfluoro-n-tetradecanoic acid	.00050
Perfluoro-n-tridecanoic acid	.00050
Perfluoro-n-undecanoic acid	.00050

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV43	Pipette	I0400533B
JV61	Pipette	I0793912B
JV62	Pipette	I0793912B

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM

It can be done

Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JV69**

Description: PFAS - 537.1 ICAL L6

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV42	PFAS - 537.1 High ICAL Stock	Solution	~0	05/02/19	---	---	200 uL	1	10	~0.0000
JV61	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JV62	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM



It can be done

Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JV69**

Description: PFAS - 537.1 ICAL L6

Stock Id: **JV42**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	200	0.05	---	---	1	10	0.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-1-butanedisulfonate	200	0.04	---	---	1	10	0.00089
Perfluoro-1-hexanesulfonate	200	0.05	---	---	1	10	0.00091
Perfluoro-1-octanesulfonate	200	0.05	---	---	1	10	0.00093
Perfluoro-n-decanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-dodecanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-heptanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-hexanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-nonanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-octanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-tetradecanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-tridecanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-undecanoic acid	200	0.05	---	---	1	10	0.00100

Stock Id: **JV61**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.06	---	---	1	10	0.00029
d3-MeFOSAA	50	0.08	---	---	1	10	0.00040

Stock Id: **JV62**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	50	0.02	---	---	1	10	0.00010
13C2-PFHxA	50	0.02	---	---	1	10	0.00010
d5-EtFOSAA	50	0.08	---	---	1	10	0.00040

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.00010
13C2-PFHxA	.00010
13C2-PFOA	.00010
13C4-PFOS	.00029
d3-MeFOSAA	.00040
d5-EtFOSAA	.00040

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM

BATTELLE

It can be done

Standard Solution ConcentrationsApproved: Standard Laboratory ID Number: **JV69**

Description: PFAS - 537.1 ICAL L6

N-ethylperfluoro-octanesulfonamidoacetic acid	.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00100
Perfluoro-1-butanedisulfonate	.00089
Perfluoro-1-hexanesulfonate	.00091
Perfluoro-1-octanesulfonate	.00093
Perfluoro-n-decanoic Acid	.00100
Perfluoro-n-dodecanoic acid	.00100
Perfluoro-n-heptanoic Acid	.00100
Perfluoro-n-hexanoic acid	.00100
Perfluoro-n-nonanoic Acid	.00100
Perfluoro-n-octanoic Acid	.00100
Perfluoro-n-tetradecanoic acid	.00100
Perfluoro-n-tridecanoic acid	.00100
Perfluoro-n-undecanoic acid	.00100

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV42	Pipette	G0792979B
JV61	Pipette	I0793912B
JV62	Pipette	I0793912B

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM

It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: JV70

Description: PFAS - 537.1 ICAL L7

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV42	PFAS - 537.1 High ICAL Stock	Solution	~0	05/02/19	---	---	500 uL	1	10	~0.0000
JV61	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JV62	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID:

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: JV70

Description: PFAS - 537.1 ICAL L7

Stock Id: JV42

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	500	0.05	---	---	1	10	0.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	500	0.05	---	---	1	10	0.00250
Perfluoro-1-butanefluorobutane	500	0.04	---	---	1	10	0.00221
Perfluoro-1-hexanesulfonate	500	0.05	---	---	1	10	0.00228
Perfluoro-1-octanesulfonate	500	0.05	---	---	1	10	0.00231
Perfluoro-n-decanoic Acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-dodecanoic acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-heptanoic Acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-hexanoic acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-nonanoic Acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-octanoic Acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-tetradecanoic acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-tridecanoic acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-undecanoic acid	500	0.05	---	---	1	10	0.00250

Stock Id: JV61

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.06	---	---	1	10	0.00029
d3-MeFOSAA	50	0.08	---	---	1	10	0.00040

Stock Id: JV62

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	50	0.02	---	---	1	10	0.00010
13C2-PFHxA	50	0.02	---	---	1	10	0.00010
d5-EtFOSAA	50	0.08	---	---	1	10	0.00040

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.00010
13C2-PFHxA	.00010
13C2-PFOA	.00010
13C4-PFOS	.00029
d3-MeFOSAA	.00040
d5-EtFOSAA	.00040

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JV70**

Description: PFAS - 537.1 ICAL L7

N-ethylperfluoro-octanesulfonamidoacetic acid	.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00250
Perfluoro-1-butanefulfonate	.00221
Perfluoro-1-hexanesulfonate	.00228
Perfluoro-1-octanesulfonate	.00231
Perfluoro-n-decanoic Acid	.00250
Perfluoro-n-dodecanoic acid	.00250
Perfluoro-n-heptanoic Acid	.00250
Perfluoro-n-hexanoic acid	.00250
Perfluoro-n-nonanoic Acid	.00250
Perfluoro-n-octanoic Acid	.00250
Perfluoro-n-tetradecanoic acid	.00250
Perfluoro-n-tridecanoic acid	.00250
Perfluoro-n-undecanoic acid	.00250

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV42	Pipette	I0400533B
JV61	Pipette	I0793912B
JV62	Pipette	I0793912B

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM

It can be done

Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JV71**

Description: PFAS - 537.1 ICAL L8

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV42	PFAS - 537.1 High ICAL Stock	Solution	~0	05/02/19	---	---	1000 uL	1	10	~0.0000
JV61	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JV62	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM

It can be done

Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JV71**

Description: PFAS - 537.1 ICAL L8

Stock Id: JV42

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	1000	0.05	---	---	1	10	0.00500
N-methylperfluoro-1-octanesulfonamidoacetic acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-1-butanefulfonate	1000	0.04	---	---	1	10	0.00443
Perfluoro-1-hexanesulfonate	1000	0.05	---	---	1	10	0.00456
Perfluoro-1-octanesulfonate	1000	0.05	---	---	1	10	0.00463
Perfluoro-n-decanoic Acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-dodecanoic acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-heptanoic Acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-hexanoic acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-nonanoic Acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-octanoic Acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-tetradecanoic acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-tridecanoic acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-undecanoic acid	1000	0.05	---	---	1	10	0.00500

Stock Id: JV61

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.06	---	---	1	10	0.00029
d3-MeFOSAA	50	0.08	---	---	1	10	0.00040

Stock Id: JV62

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	50	0.02	---	---	1	10	0.00010
13C2-PFHxA	50	0.02	---	---	1	10	0.00010
d5-EtFOSAA	50	0.08	---	---	1	10	0.00040

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.00010
13C2-PFHxA	.00010
13C2-PFOA	.00010
13C4-PFOS	.00029
d3-MeFOSAA	.00040
d5-EtFOSAA	.00040

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: JV71

Description: PFAS - 537.1 ICAL L8

N-ethylperfluoro-octanesulfonamidoacetic acid	.00500
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00500
Perfluoro-1-butanedisulfonate	.00443
Perfluoro-1-hexanesulfonate	.00456
Perfluoro-1-octanesulfonate	.00463
Perfluoro-n-decanoic Acid	.00500
Perfluoro-n-dodecanoic acid	.00500
Perfluoro-n-heptanoic Acid	.00500
Perfluoro-n-hexanoic acid	.00500
Perfluoro-n-nonanoic Acid	.00500
Perfluoro-n-octanoic Acid	.00500
Perfluoro-n-tetradecanoic acid	.00500
Perfluoro-n-tridecanoic acid	.00500
Perfluoro-n-undecanoic acid	.00500

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV42	Pipette	I0400533B
JV61	Pipette	I0793912B
JV62	Pipette	I0793912B

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:22:00 PM

It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: **JV72**

Description: PFAS - 537.1 ICAL L9

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV42	PFAS - 537.1 High ICAL Stock	Solution	~0	05/02/19	---	---	1000 uL	1	5	~0.0000
JV61	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	25 uL	1	5	~0.0000
JV62	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	25 uL	1	5	~0.0000

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:21:00 PM



It can be done

Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JV72**

Description: PFAS - 537.1 ICAL L9

Stock Id: **JV42**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	1000	0.05	---	---	1	5	0.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-1-butanedisulfonate	1000	0.04	---	---	1	5	0.00885
Perfluoro-1-hexanesulfonate	1000	0.05	---	---	1	5	0.00912
Perfluoro-1-octanesulfonate	1000	0.05	---	---	1	5	0.00925
Perfluoro-n-decanoic Acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-dodecanoic acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-heptanoic Acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-hexanoic acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-nonanoic Acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-octanoic Acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-tetradecanoic acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-tridecanoic acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-undecanoic acid	1000	0.05	---	---	1	5	0.01000

Stock Id: **JV61**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	25	0.02	---	---	1	5	0.00010
13C4-PFOS	25	0.06	---	---	1	5	0.00029
d3-MeFOSAA	25	0.08	---	---	1	5	0.00040

Stock Id: **JV62**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	25	0.02	---	---	1	5	0.00010
13C2-PFHxA	25	0.02	---	---	1	5	0.00010
d5-EtFOSAA	25	0.08	---	---	1	5	0.00040

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.00010
13C2-PFHxA	.00010
13C2-PFOA	.00010
13C4-PFOS	.00029
d3-MeFOSAA	.00040
d5-EtFOSAA	.00040

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:21:00 PM



It can be done

Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JV72**

Description: PFAS - 537.1 ICAL L9

N-ethylperfluoro-octanesulfonamidoacetic acid	.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.01000
Perfluoro-1-butanefulfonate	.00885
Perfluoro-1-hexanesulfonate	.00912
Perfluoro-1-octanesulfonate	.00925
Perfluoro-n-decanoic Acid	.01000
Perfluoro-n-dodecanoic acid	.01000
Perfluoro-n-heptanoic Acid	.01000
Perfluoro-n-hexanoic acid	.01000
Perfluoro-n-nonanoic Acid	.01000
Perfluoro-n-octanoic Acid	.01000
Perfluoro-n-tetradecanoic acid	.01000
Perfluoro-n-tridecanoic acid	.01000
Perfluoro-n-undecanoic acid	.01000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV42	Pipette	I0400533B
JV61	Pipette	I0793912B
JV62	Pipette	I0793912B

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/2/2018 Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180502-2)

Approved By: Schumitz, Denise Date: 5/3/2018 3:21:00 PM

It can be done

BDO Id: 180425-01

Reagent Receipt Report

Approved: Authorized

Name: EPA-537IS Received: 4/25/2018
Vendor: Wellington Laboratories Custodian: Schumitz, Matt
Catalogue No: EPA-537IS Expires: 12/13/2022
Type: Solution Consumed: _____
Lot No: 537IS1217 Stored In: AqChem Laboratory - R0124
Quantity: 1 ea mL % Moisture: _____
Description: EPA-537IS

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert Val:	Lower Limit:	Upper Limit:
d3-N-MeFOSAA	BDO-1838	4.0000	100.00	--	--	<input type="checkbox"/>		
M2PFOA	BDO-1842	1.0000	100.00	--	--	<input type="checkbox"/>		
MPFOS	BDO-1840	2.8700	100.00	--	--	<input type="checkbox"/>		

Total Analytes: 3

Notes:

Approved by: _____ Approved on: _____
Authorized by: _____ Authorized on: _____

**WELLINGTON
LABORATORIES****CERTIFICATE OF ANALYSIS
DOCUMENTATION****EPA-537IS****Internal Standard
Primary Dilution Standard**

PRODUCT CODE: EPA-537IS
LOT NUMBER: 537IS1217
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 12/13/2017
LAST TESTED: (mm/dd/yyyy) 12/13/2017
EXPIRY DATE: (mm/dd/yyyy) 12/13/2022
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

EPA-537IS is a solution/mixture of a mass-labelled (¹³C) perfluoroalkylcarboxylic acid, a mass-labelled (¹³C) perfluoroalkylsulfonate, and a mass-labelled (²H) perfluorooctanesulfonamidoacetic acid. The components and their concentrations are given in Table A.

The mass-labelled perfluoroalkylcarboxylic acid and the mass-labelled perfluoroalkylsulfonate both have chemical purities of >98% and isotopic purities of ≥99%. The mass-labelled perfluorooctanesulfonamidoacetic acid has a chemical purity of >98% and an isotopic purity of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

**Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com**

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

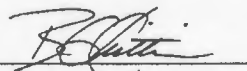


For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: EPA-5371S; Components and Concentrations (ng/ml; ± 5% in Methanol / Water (<1%))

Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Perfluoro-n-[1,2- ¹³ C ₂]octanoic acid	M2PFOA	1000		A
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	4000		C
Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Sodium perfluoro-1-[1,2,3,4- ¹³ C ₄]octanesulfonate	MPFOS	3000	2870	B

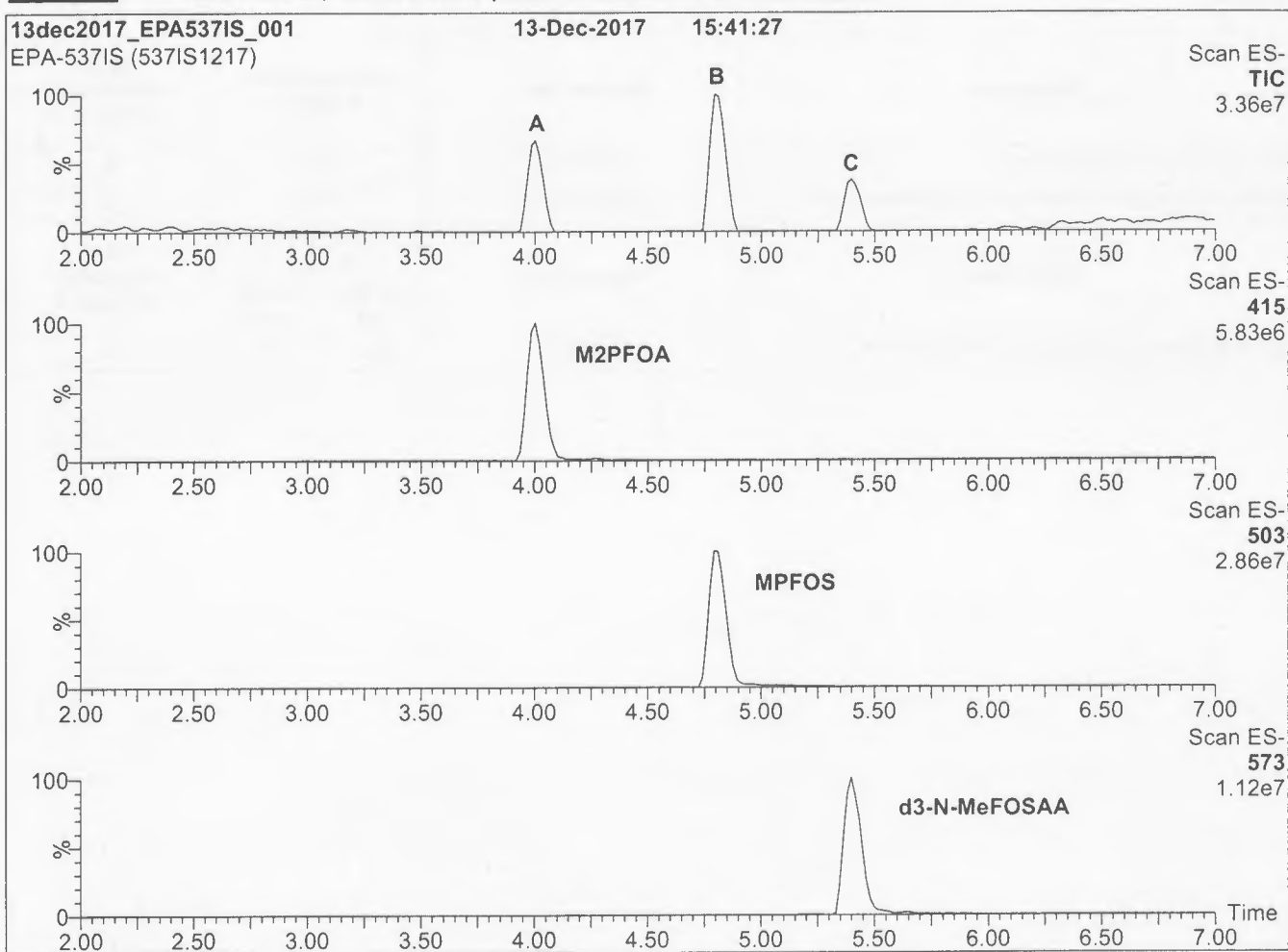
Certified By:



B.G. Chittim, General Manager

Date: 12/22/2017

(mm/dd/yyyy)

Figure 1: EPA-537IS; LC/MS Data (Total Ion Current Chromatogram)**Conditions for Figure 1:**

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

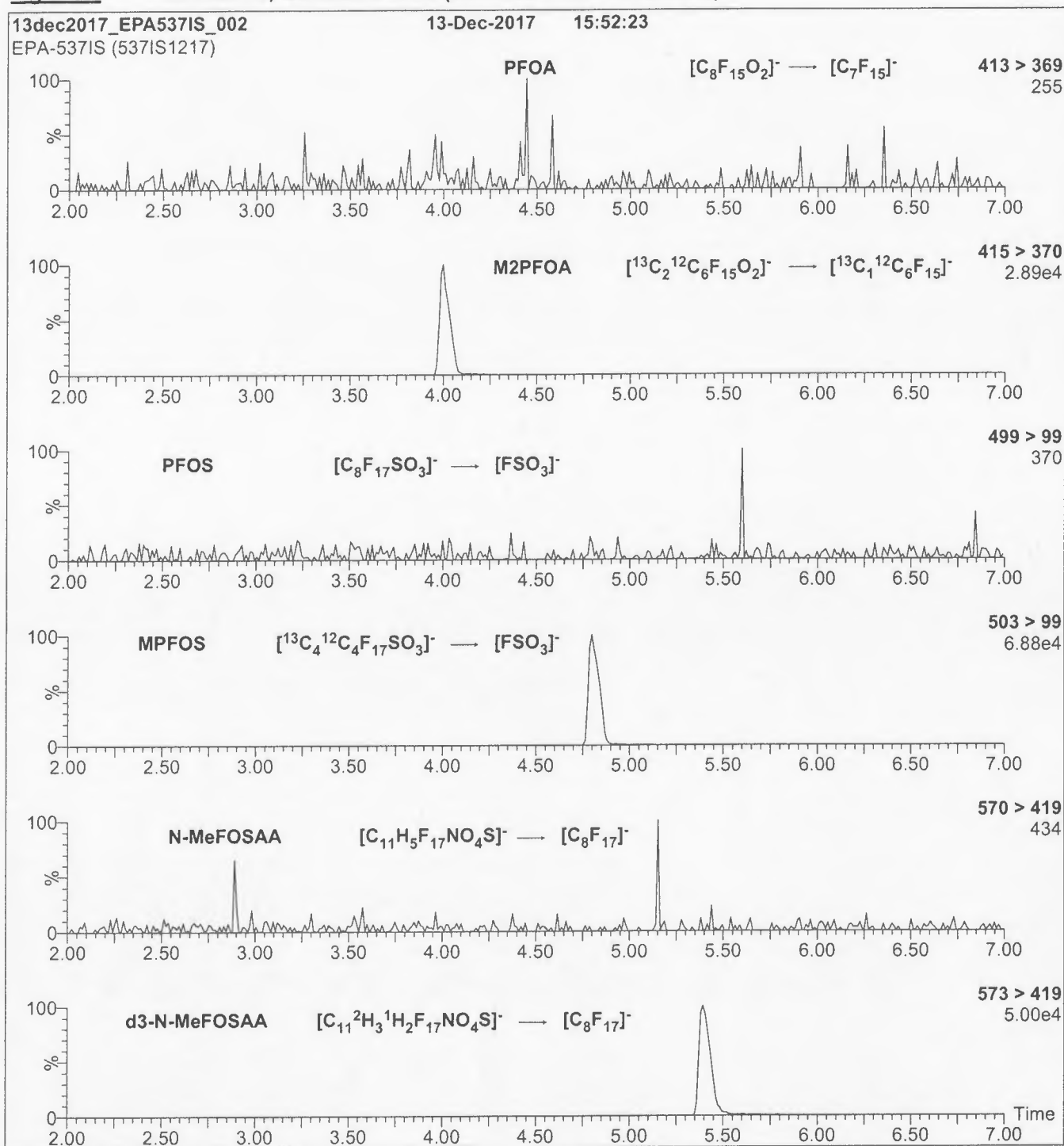
Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min
and hold for 2 min before returning
to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: EPA-537IS; LC/MS/MS Data (Selected MRM Transitions)**Conditions for Figure 2:**

Injection: On-column (EPA-537IS)

Mobile phase: Same as Figure 1

Flow: 300 μ l/min**MS Parameters**

Collision Gas (mbar) = 3.28e-3

Collision Energy (eV) = 11-40 (variable)

It can be done

BDO Id: 180425-02

Reagent Receipt Report

Approved: Authorized

Name: EPA-537SS Received: 4/25/2018
Vendor: Wellington Laboratories Custodian: Schumitz, Matt
Catalogue No: EPA-537SS Expires: 11/8/2022
Type: Solution Consumed: _____
Lot No: 537SS1117 Stored In: AqChem Laboratory - R0124
Quantity: 1 ea ml % Moisture: _____
Description: EPA-537SS

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-PFDA	BDO-2110	1.0000	100.00	--	--	<input type="checkbox"/>			
13C2-PFHxA	BDO-2106	1.0000	100.00	--	--	<input type="checkbox"/>			
d5-EtFOSAA	BDO-1839	4.0000	100.00	--	--	<input type="checkbox"/>			

Total Analytes: 3

Notes:

Approved by: Thorn, Jonathan Approved on: 5/2/2018 10:00:00 AM
Authorized by: _____ Authorized on: _____

**WELLINGTON**
LABORATORIES**CERTIFICATE OF ANALYSIS**
DOCUMENTATION**EPA-537SS****Surrogate Primary Dilution Standard**

PRODUCT CODE: EPA-537SS
LOT NUMBER: 537SS1117
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 11/06/2017
LAST TESTED: (mm/dd/yyyy) 11/08/2017
EXPIRY DATE: (mm/dd/yyyy) 11/08/2022
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

EPA-537SS is a solution/mixture of two mass-labelled (¹³C) perfluoroalkylcarboxylic acids and a mass-labelled (²H) perfluorooctanesulfonamidoacetic acid. The components and their concentrations are given in Table A.

The mass-labelled perfluoroalkylcarboxylic acids both have chemical purities of >98% and isotopic purities of ≥99%. The mass-labelled perfluorooctanesulfonamidoacetic acid has a chemical purity of >98% and an isotopic purity of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: EPA-537SS; Components and Concentrations (ng/ml; \pm 5% in Methanol / Water (<1%))

Compound	Abbreviation	Concentration (ng/ml)	Peak Assignment in Figure 1
Perfluoro-n-[1,2- ¹³ C ₂]hexanoic acid	MPFHxA	1000	A
Perfluoro-n-[1,2- ¹³ C ₂]decanoic acid	MPFDA	1000	B
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	4000	C

Certified By:

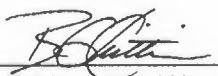
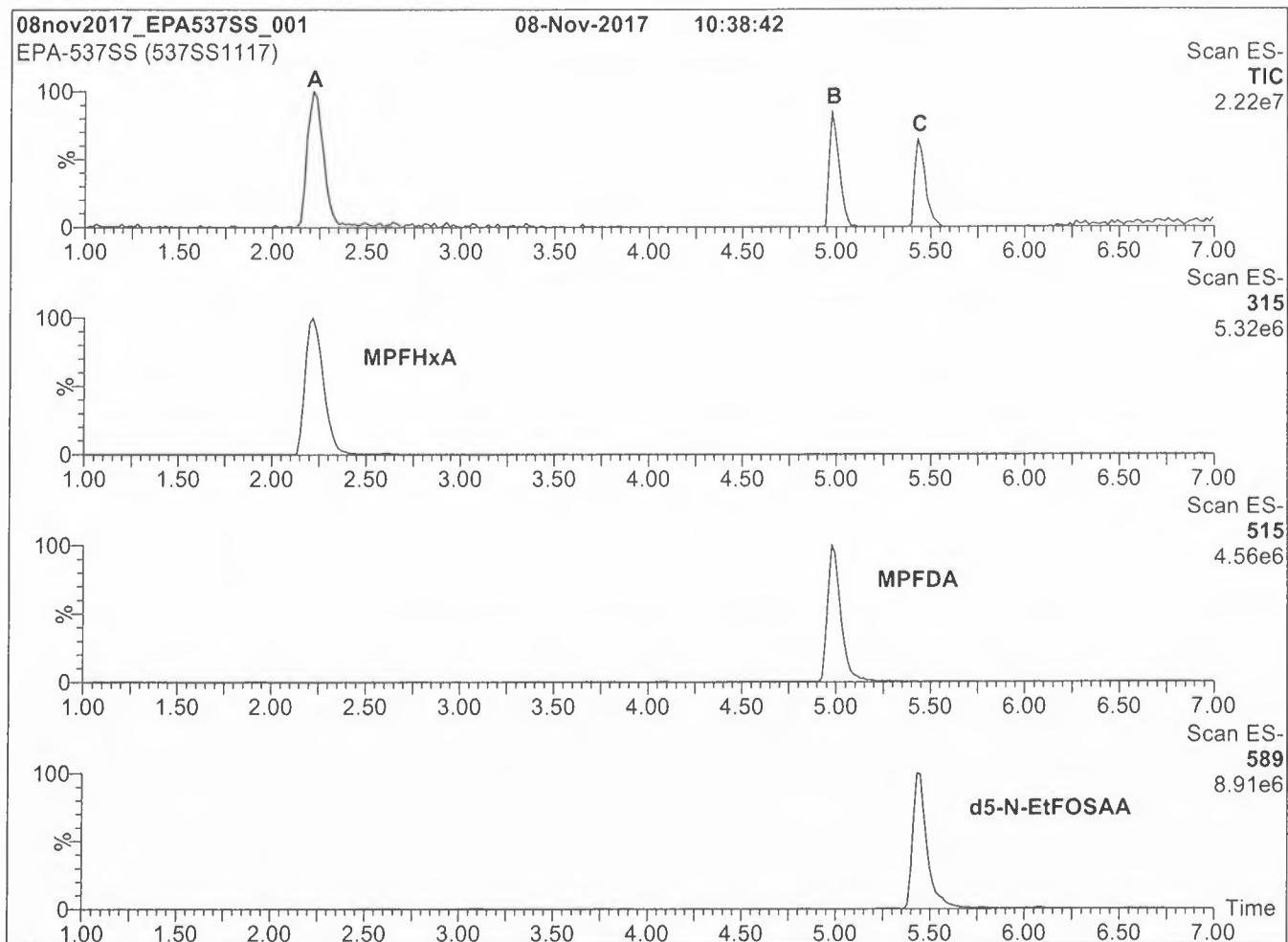

B.G. Chittim, General ManagerDate: 11/13/2017
(mm/dd/yyyy)

Figure 1: EPA-537SS; LC/MS Data (Total Ion Current Chromatogram)**Conditions for Figure 1:****LC:** Waters Acquity Ultra Performance LC**MS:** Micromass Quattro *micro* API MS**Chromatographic Conditions**Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 45% (80:20 MeOH:ACN) / 55% H₂O
(both with 10 mM NH₄OAc buffer)Ramp to 90% organic over 7 min
and hold for 2 min before returning
to initial conditions in 0.5 min.

Time: 10 min

Flow: 300 μ l/min**MS Parameters**

Experiment: Full Scan (225 - 850 amu)

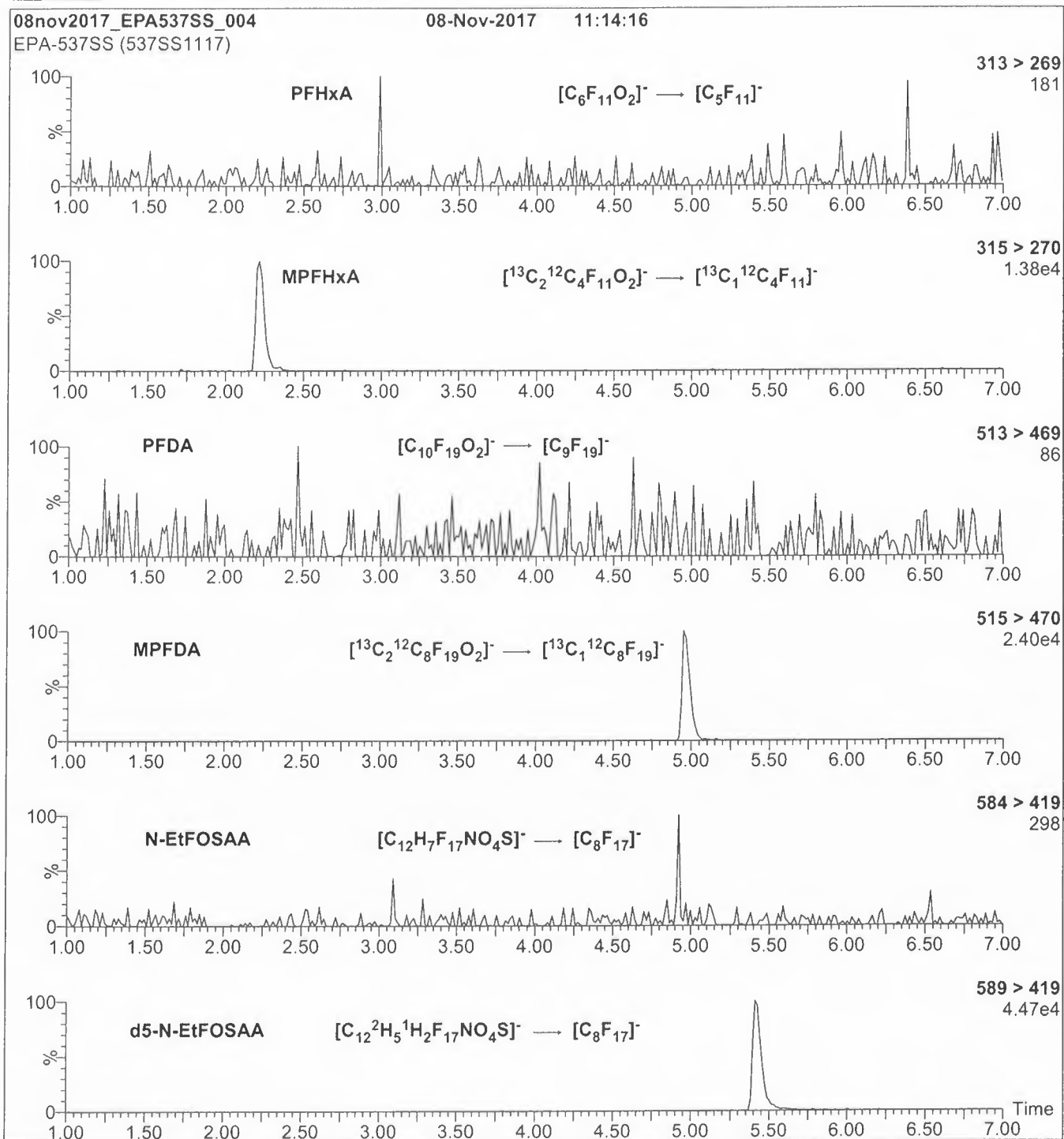
Source: Electrospray (negative)

Capillary Voltage (kV) = 3.00

Cone Voltage (V) = 25.00

Cone Gas Flow (l/hr) = 100

Desolvation Gas Flow (l/hr) = 750

Figure 2: EPA-537SS; LC/MS/MS Data (Selected MRM Transitions)**Conditions for Figure 2:**

Injection: On-column (EPA-537SS)

Mobile phase: Same as Figure 1

Flow: 300 μ l/min**MS Parameters**

Collision Gas (mbar) = 3.50e-3

Collision Energy (eV) = 9-40 (variable)

It can be done

BDO Id: 180425-03

Reagent Receipt Report

Approved: Authorized

Name: EPA-537PDS (calibration) Received: 4/25/2018
Vendor: Wellington Laboratories Custodian: Schumitz, Matt
Catalogue No: EPA-537PDS Expires: 3/5/2023
Type: Solution Consumed: _____
Lot No: 537PDS0318 Stored In: AqChem Laboratory - R0124
Quantity: 1 ea ml % Moisture: _____
Description: EPA-537PDS

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
N-ethylperfluoro-octanesulfonamidoa	2991-50-6	2.0000	100.00	--	--	<input type="checkbox"/>			1
N-methylperfluoro-1-octanesulfonami	2355-31-9	2.0000	100.00	--	--	<input type="checkbox"/>			2
Perfluoro-1-butanefulfonate	375-73-5	1.7700	100.00	--	--	<input type="checkbox"/>			3
Perfluoro-1-hexanesulfonate	355-46-4	1.8240	100.00	--	--	<input type="checkbox"/>			4
Perfluoro-1-octanesulfonate	1763-23-1	1.8510	100.00	--	--	<input type="checkbox"/>			5
Perfluoro-n-decanoic Acid	335-76-2	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-n-dodecanoic acid	307-55-1	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-n-heptanoic Acid	375-85-9	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-n-hexanoic acid	307-24-4	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-n-nonanoic Acid	375-95-1	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-n-octanoic Acid	335-67-1	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-n-tetradecanoic acid	376-06-7	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-n-tridecanoic acid	72629-94-8	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-n-undecanoic acid	2058-94-8	2.0000	100.00	--	--	<input type="checkbox"/>			

Total Analytes: 14

Notes:

Analyte:	Comment:
1 N-ethylperfluoro-octanesulfonamidoacetic acid	sum of branched and linear isomers
2 N-methylperfluoro-1-octanesulfonamidoacetic acid	sum of branched and linear isomers
3 Perfluoro-1-butanefulfonate	2000 ng/ml as the salt, 1770 ng/ml as the anion
4 Perfluoro-1-hexanesulfonate	1998 ng/ml as the salt, 1824 ng/ml as the anion. sum of branched and linear isomers.
5 Perfluoro-1-octanesulfonate	2002 ng/ml as the salt, 1851 ng/ml as the anion. sum of branched and linear isomers.

Approved by: Thorn, Jonathan Approved on: 5/2/2018 10:05:00 AM
Authorized by: _____ Authorized on: _____

**WELLINGTON**
LABORATORIES**CERTIFICATE OF ANALYSIS**
DOCUMENTATION**EPA-537PDS****Native PFAS Primary Dilution
Standard Solution/Mixture**

PRODUCT CODE: EPA-537PDS
LOT NUMBER: 537PDS0318
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 03/02/2018
LAST TESTED: (mm/dd/yyyy) 03/05/2018
EXPIRY DATE: (mm/dd/yyyy) 03/05/2023
RECOMMENDED STORAGE: Refrigerate ampoule

for calibration
JNT 5/2/2018

DESCRIPTION:

EPA-537PDS is a solution/mixture of nine native linear perfluoroalkylcarboxylic acids (C₆-C₁₄), three native perfluoroalkylsulfonates (C₄ linear; C₆ and C₈ linear and branched), and two native perfluorooctanesulfonamidoacetic acids (linear and branched). The components and their concentrations are given in Table A.

The native perfluoroalkylcarboxylic acids, native perfluoroalkylsulfonates, and native perfluorooctanesulfonamidoacetic acids have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Table B: Isomeric Components and Percent Composition of N-MeFOSAA
Table C: Isomeric Components and Percent Composition of N-EtFOSAA
Table D: Isomeric Components and Percent Composition of PFHxSK
Table E: Isomeric Components and Percent Composition of PFOSK
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2, \dots, x_n on which it depends is:

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: EPA-537PDS; Components and Concentrations (ng/ml; \pm 5% in Methanol / Water (<1%))

Compound	Abbreviation	Concentration *		Peak Assignment in Figure 1
		(ng/ml)		
Perfluoro-n-hexanoic acid ✓	PFHxA	2000		B
Perfluoro-n-heptanoic acid ✓	PFHpA	2000		C
Perfluoro-n-octanoic acid ✓	PFOA	2000		F
Perfluoro-n-nonanoic acid ✓	PFNA	2000		G
Perfluoro-n-decanoic acid ✓	PFDA	2000		J
Perfluoro-n-undecanoic acid ✓	PFUdA	2000		O
Perfluoro-n-dodecanoic acid ✓	PFDoA	2000		P
Perfluoro-n-tridecanoic acid ✓	PFTrDA	2000		Q
Perfluoro-n-tetradecanoic acid ✓	PFTeDA	2000		R
N-methylperfluorooctanesulfonamidoacetic acid ^a ✓	N-MeFOSAA: linear isomer ✓	1520		L
	N-MeFOSAA: Σ branched isomers	480		K
N-ethylperfluorooctanesulfonamidoacetic acid ^b ✓	N-EtFOSAA: linear isomer ✓	1550		N
	N-EtFOSAA: Σ branched isomers	450		M
Compound	Abbreviation	Concentration *		Peak Assignment in Figure 1
		as the salt	as the anion	
Potassium perfluoro-1-butanesulfonate ✓	L-PFBS ✓	2000	1770	A
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	1620	1480	E
	PFHxSK: Σ branched isomers	378	344	D
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	1580	1460	I
	PFOSK: Σ branched isomers	422	391	H

^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.

^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.

^c See Table D for percent composition of linear and branched PFHxSK isomers.

^d See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Table B: N-MeFOSAA; Isomeric Components and Percent Composition (by ¹⁹F-NMR)*

Isomer	Name	Structure	Percent Composition by ¹⁹ F-NMR	
1	N-methylperfluoro-1-octanesulfonamidoacetic acid	$\text{CF}_3(\text{CF}_2)_7\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ $\quad \quad \quad $ $\quad \quad \quad \text{CH}_3$	76.0	76.0
2	N-methylperfluoro-3-methylheptanesulfonamidoacetic acid	$\text{CF}_3(\text{CF}_2)_3\text{CF}(\text{CF}_2)_2\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ $\quad \quad \quad \quad \quad \quad $ $\quad \quad \quad \text{CF}_3 \quad \quad \quad \text{CH}_3$	0.7	24.0
3	N-methylperfluoro-4-methylheptanesulfonamidoacetic acid	$\text{CF}_3(\text{CF}_2)_2\text{CF}(\text{CF}_2)_3\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ $\quad \quad \quad \quad \quad \quad $ $\quad \quad \quad \text{CF}_3 \quad \quad \quad \text{CH}_3$	2.0	
4	N-methylperfluoro-5-methylheptanesulfonamidoacetic acid	$\text{CF}_3\text{CF}_2\text{CF}(\text{CF}_2)_4\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ $\quad \quad \quad \quad \quad \quad $ $\quad \quad \quad \text{CF}_3 \quad \quad \quad \text{CH}_3$	6.0	
5	N-methylperfluoro-6-methylheptanesulfonamidoacetic acid	$\text{CF}_3\text{CF}(\text{CF}_2)_5\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ $\quad \quad \quad \quad \quad \quad $ $\quad \quad \quad \text{CF}_3 \quad \quad \quad \text{CH}_3$	14.0	
6	N-methylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{C}(\text{CF}_2)_4\text{SO}_2\text{NCH}_2\text{CO}_2\text{H} \\ \\ \text{CF}_3 \end{array}$ $\quad \quad \quad $ $\quad \quad \quad \text{CH}_3$	0.2	
7	Other Unidentified Isomers		1.1	

* Percent of total N-methylperfluorooctanesulfonamidoacetic acid isomers only.

Table C: N-EtFOSAA; Isomeric Components and Percent Composition (by ¹⁹F-NMR)*

Isomer	Name	Structure	Percent Composition by ¹⁹ F-NMR	
1	N-ethylperfluoro-1-octanesulfonamidoacetic acid	$\text{CF}_3(\text{CF}_2)_7\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ C ₂ H ₅	77.5	77.5
2	N-ethylperfluoro-3-methylheptanesulfonamidoacetic acid	$\text{CF}_3(\text{CF}_2)_3\text{CF}(\text{CF}_2)_2\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF ₃ C ₂ H ₅	2.3	22.5
3	N-ethylperfluoro-4-methylheptanesulfonamidoacetic acid	$\text{CF}_3(\text{CF}_2)_2\text{CF}(\text{CF}_2)_3\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF ₃ C ₂ H ₅	2.2	
4	N-ethylperfluoro-5-methylheptanesulfonamidoacetic acid	$\text{CF}_3\text{CF}_2\text{CF}(\text{CF}_2)_4\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF ₃ C ₂ H ₅	5.4	
5	N-ethylperfluoro-6-methylheptanesulfonamidoacetic acid	$\text{CF}_3\text{CF}(\text{CF}_2)_5\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF ₃ C ₂ H ₅	10.4	
6	N-ethylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{C}(\text{CF}_2)_4\text{SO}_2\text{NCH}_2\text{CO}_2\text{H} \\ \\ \text{CF}_3 \end{array}$ C ₂ H ₅	0.3	
7	N-ethylperfluoro-4,5-dimethylhexanesulfonamidoacetic acid	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{CFCF}(\text{CF}_2)_3\text{SO}_2\text{NCH}_2\text{CO}_2\text{H} \\ \\ \text{CF}_3 \end{array}$ C ₂ H ₅	0.3	
8	N-ethylperfluoro-3,5-dimethylhexanesulfonamidoacetic acid	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{CFCF}_2\text{CF}(\text{CF}_2)_2\text{SO}_2\text{NCH}_2\text{CO}_2\text{H} \\ \\ \text{CF}_3 \end{array}$ C ₂ H ₅	0.3	
9	Other Unidentified Isomers		1.3	

* Percent of total N-ethylperfluorooctanesulfonamidoacetic acid isomers only.

Table D: PFHxSK; Isomeric Components and Percent Composition (by ¹⁹F-NMR)*

Isomer	Name	Structure	Percent Composition by ¹⁹ F-NMR	
1	Potassium perfluoro-1-hexanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ ⁻ K ⁺	81.1	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	CF ₃ CF ₂ CF ₂ CF ₂ CF(SO ₃ ⁻)K ⁺ CF ₃	2.9	18.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	CF ₃ CF ₂ CF ₂ CF(CF ₃)SO ₃ ⁻ K ⁺ CF ₃	1.4	
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	CF ₃ CF ₂ CF(CF ₃)CF ₂ SO ₃ ⁻ K ⁺ CF ₃	5.0	
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	CF ₃ CF(CF ₃)CF ₂ CF ₂ SO ₃ ⁻ K ⁺ CF ₃	8.9	
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	CF ₃ CF ₃ CCF ₂ CF ₂ SO ₃ ⁻ K ⁺ CF ₃	0.2	
7	Other Unidentified Isomers		0.5	

* Percent of total perfluorohexanesulfonate isomers only.
 ** Systematic Name: Potassium perfluorohexane-2-sulfonate.

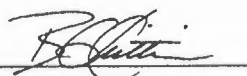
Table E: PFOSK; Isomeric Components and Percent Composition (by ¹⁹F-NMR)*

Isomer	Name	Structure	Percent Composition by ¹⁹ F-NMR	
1	Potassium perfluoro-1-octanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ ⁻ K ⁺	78.8	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ CF(SO ₃ ⁻)K ⁺ CF ₃	1.2	21.1
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF(CF ₃)SO ₃ ⁻ K ⁺ CF ₃	0.6	
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF(CF ₃)CF ₂ SO ₃ ⁻ K ⁺ CF ₃	1.9	
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	CF ₃ CF ₂ CF ₂ CF(CF ₃)CF ₂ CF ₂ SO ₃ ⁻ K ⁺ CF ₃	2.2	
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	CF ₃ CF ₂ CF(CF ₃)CF ₂ CF ₂ CF ₂ SO ₃ ⁻ K ⁺ CF ₃	4.5	
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	CF ₃ CF(CF ₃)CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ ⁻ K ⁺ CF ₃	10.0	
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	CF ₃ CF ₃ CCF ₂ CF ₂ CF ₂ CF ₂ SO ₃ ⁻ K ⁺ CF ₃	0.2	
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	CF ₃ CF ₃ CF ₂ CCF ₂ CF ₂ CF ₂ SO ₃ ⁻ K ⁺ CF ₃	0.03	
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	CF ₃ CF ₃ CF(CF ₃)CF ₂ CF ₂ CF ₂ SO ₃ ⁻ K ⁺ CF ₃	0.4	
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	CF ₃ CF ₃ CF(CF ₃)CF ₂ CF(CF ₃)CF ₂ SO ₃ ⁻ K ⁺ CF ₃	0.07	

* Percent of total perfluorooctanesulfonate isomers only.

** Systematic Name: Potassium perfluorooctane-2-sulfonate.

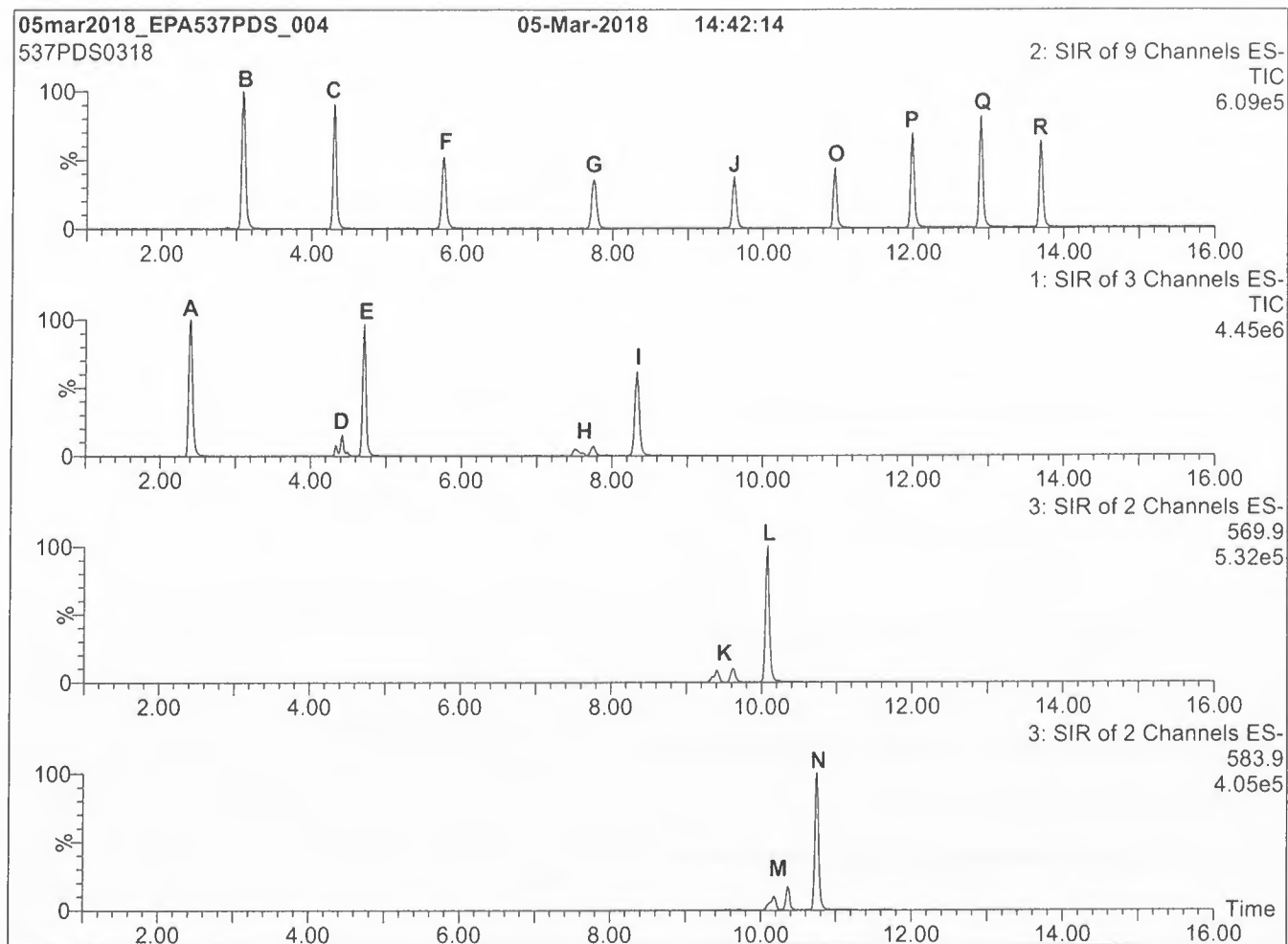
Certified By:



B.G. Chittim, General Manager

Date: 04/02/2018

(mm/dd/yyyy)

Figure 1: EPA-537PDS; LC/MS Data (SIR)**Conditions for Figure 1:****LC:** Waters Acquity Ultra Performance LC**MS:** Micromass Quattro *micro* API MS**Chromatographic Conditions**Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 40% (80:20 MeOH:ACN) / 60% H₂O
(both with 10 mM NH₄OAc buffer)

Ramp to 55% organic over 3.5 min.

Ramp to 70% organic over 6.5 min.

Ramp to 85% organic over 5 min and hold for

1 min before returning to initial conditions in 0.5 min.

Time: 17 min

Flow: 300 μ l/min**MS Parameters**

Experiment: SIR

Source: Electrospray (negative)

Capillary Voltage (kV) = 3.00

Cone Voltage (V) = variable (15-60)

Cone Gas Flow (l/hr) = 100

Desolvation Gas Flow (l/hr) = 750

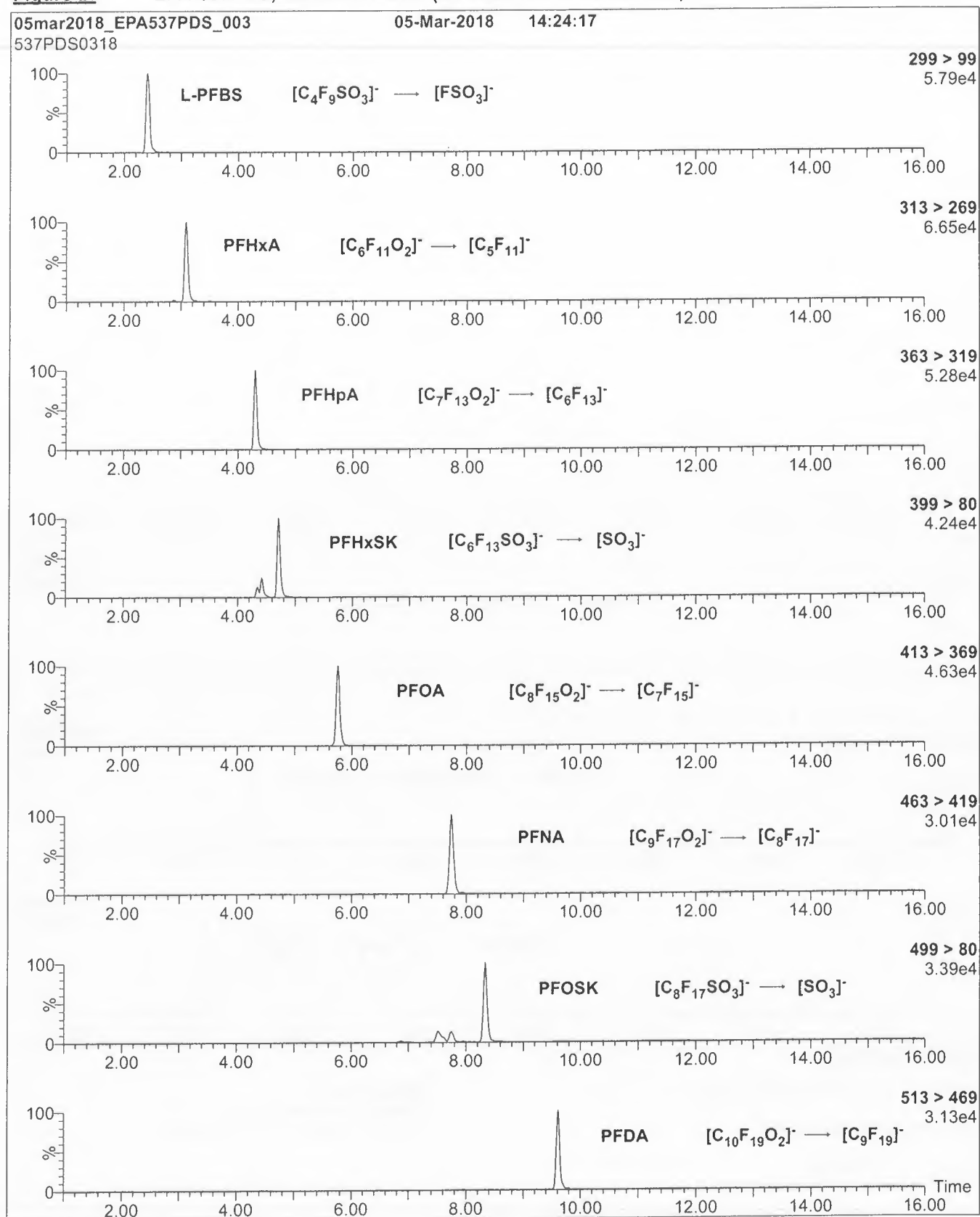
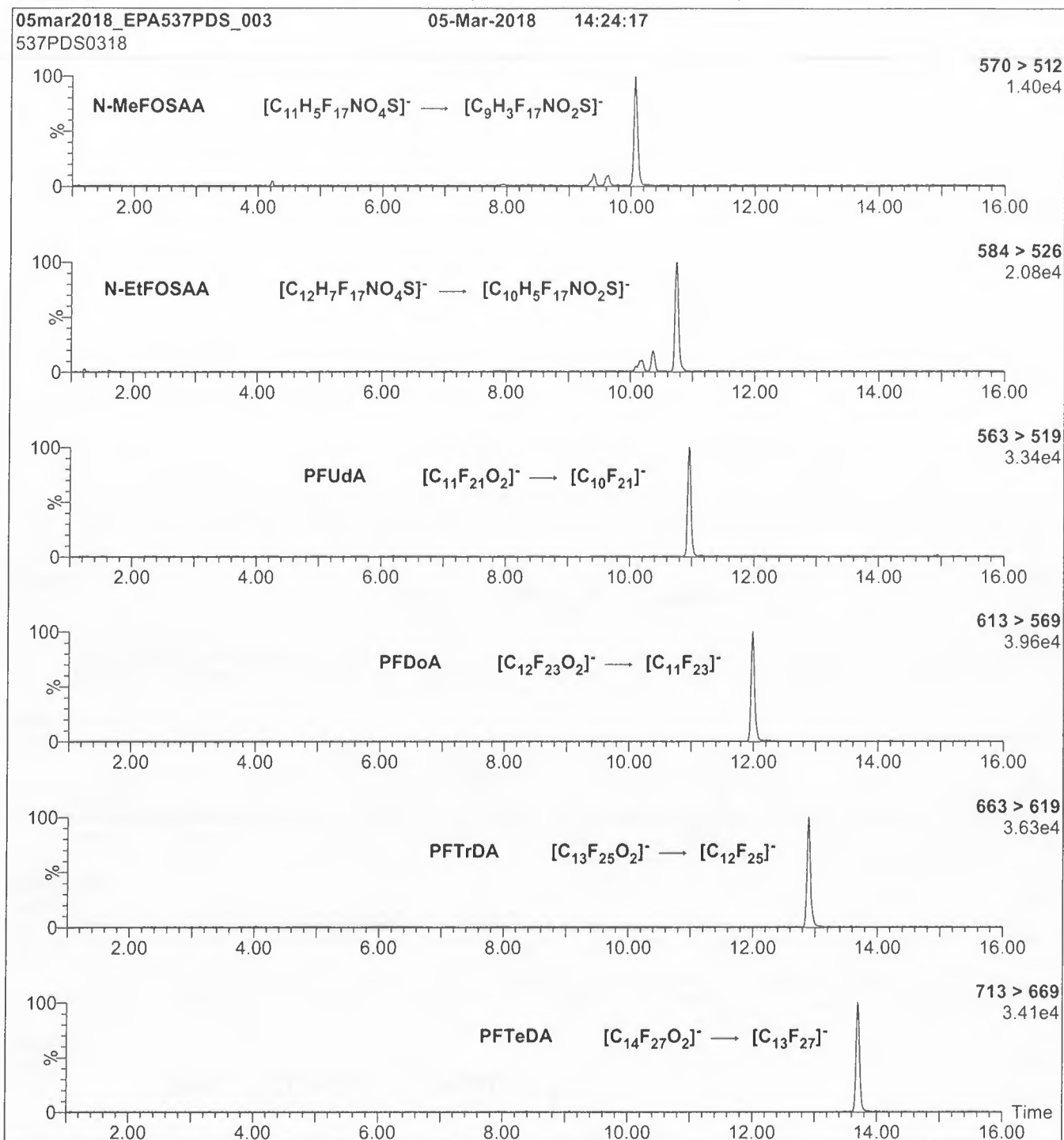
Figure 2: EPA-537PDS; LC/MS/MS Data (Selected MRM Transitions)

Figure 2: EPA-537PDS; LC/MS/MS Data (Selected MRM Transitions)**Conditions for Figure 2:**

Injection: On-column (EPA-537PDS)

Mobile phase: Same as Figure 1

Flow: 300 μ l/min**MS Parameters**

Collision Gas (mbar) = 3.10e-3

Collision Energy (eV) = 10-40 (variable)

It can be done

BDO Id: 180425-04

Reagent Receipt Report

Approved: Authorized

Name:	<u>EPA-537PDS-L (second source)</u>	Received:	<u>4/25/2018</u>
Vendor:	<u>Wellington Laboratories</u>	Custodian:	<u>Schumitz, Matt</u>
Catalogue No:	<u>EPA-537PDS-L</u>	Expires:	<u>3/5/2023</u>
Type:	<u>Solution</u>	Consumed:	<u></u>
Lot No:	<u>537PDSL0318</u>	Stored In:	<u>AqChem Laboratory - R0124</u>
Quantity:	<u>1 ea</u> ml	% Moisture:	<u></u>
Description:	<u>EPA-537PDS-L</u>		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
N-ethylperfluoro-octanesulfonamidoa	2991-50-6	2.0000	100.00	--	--	<input type="checkbox"/>			
N-methylperfluoro-1-octanesulfonami	2355-31-9	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-1-butanefulfonic Acid	375-73-5	2.0000	100.00	--	--	<input type="checkbox"/>			1
Perfluoro-n-decanoic Acid	335-76-2	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-n-dodecanoic acid	307-55-1	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-n-heptanoic Acid	375-85-9	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-n-hexanoic acid	307-24-4	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-n-octanoic Acid	335-67-1	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluorononanoic Acid	375-95-1	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-n-tetradecanoic acid	376-06-7	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-n-tridecanoic acid	72629-94-8	2.0000	100.00	--	--	<input type="checkbox"/>			
Perfluoro-n-undecanoic acid	2058-94-8	2.0000	100.00	--	--	<input type="checkbox"/>			
Sodium perfluoro-1-hexanesulfonate	82382-12-5	1.8900	100.00	--	--	<input type="checkbox"/>			2
Sodium perfluoro-1-octanesulfonate	4021-47-0	1.9100	100.00	--	--	<input type="checkbox"/>			3

Total Analytes: 14

Notes:

Analyte:	Comment:
1 Perfluoro-1-butanefulfonic Acid	2000 ng/ml as the salt, 1770 ng/ml as the anion
2 Sodium perfluoro-1-hexanesulfonate	2000 ng/ml as the salt, 1890 ng/ml as the anion
3 Sodium perfluoro-1-octanesulfonate	2000 ng/ml as the salt, 1910 ng/ml as the anion

Approved by: _____ Approved on: _____
 Authorized by: _____ Authorized on: _____

**WELLINGTON**
LABORATORIES**CERTIFICATE OF ANALYSIS**
DOCUMENTATION**EPA-537PDS-L****Native PFAS Linear Primary Dilution
Standard Solution/Mixture**

PRODUCT CODE: EPA-537PDS-L
LOT NUMBER: 537PDSL0318
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 03/02/2018
LAST TESTED: (mm/dd/yyyy) 03/05/2018
EXPIRY DATE: (mm/dd/yyyy) 03/05/2023
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

EPA-537PDS-L is a solution/mixture of native linear perfluoroalkylcarboxylic acids (C₆-C₁₄), native linear perfluoroalkylsulfonates (C₄, C₆, and C₈), and native linear perfluorooctanesulfonamidoacetic acids. The components and their concentrations are given in Table A.

The native perfluoroalkylcarboxylic acids, native perfluoroalkylsulfonates, and native perfluorooctanesulfonamidoacetic acids have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: EPA-537PDS-L; Components and Concentrations (ng/ml; ± 5% in Methanol / Water (<1%))

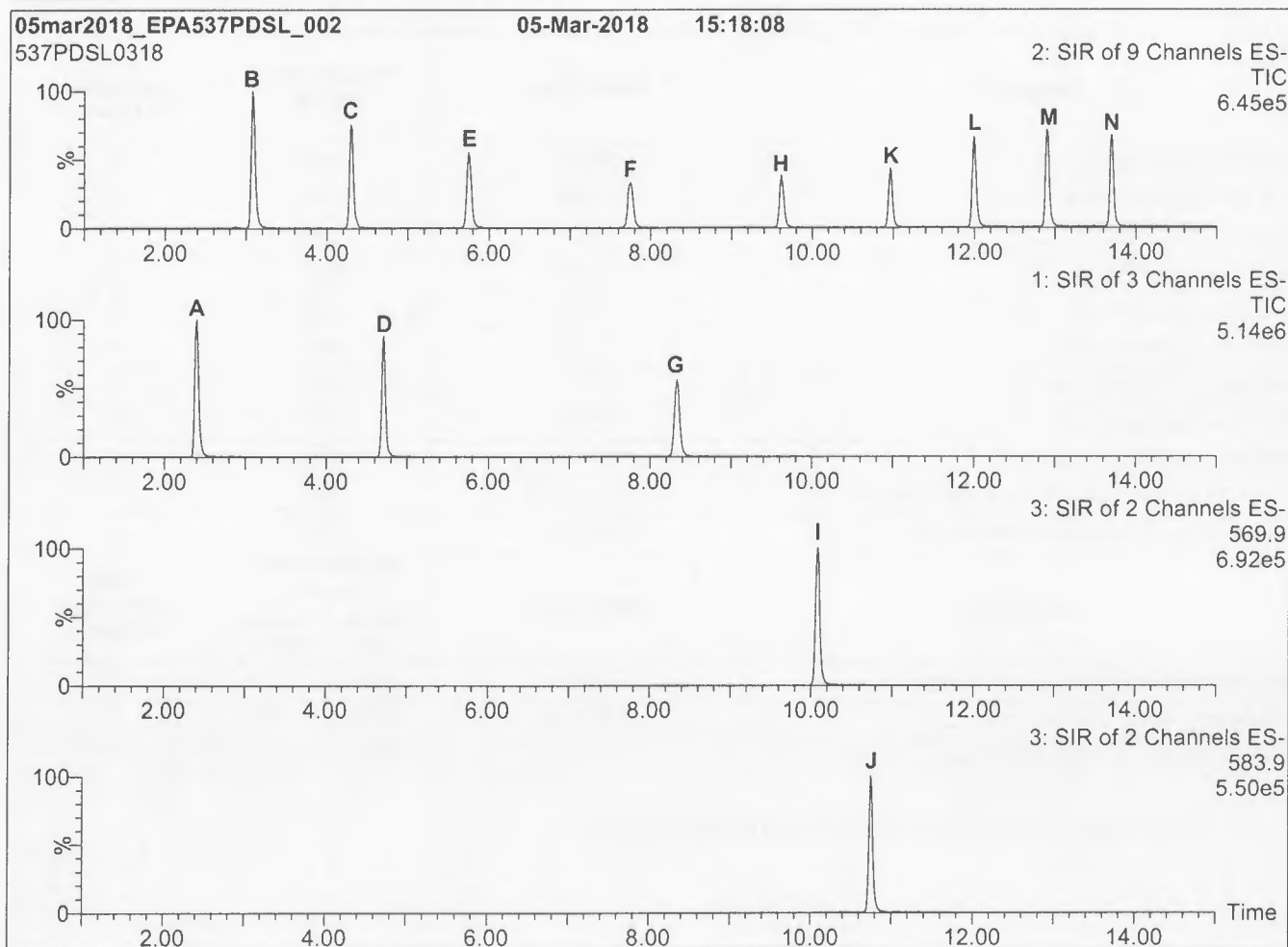
Compound	Abbreviation	Concentration *		Peak Assignment in Figure 1
		(ng/ml)		
Perfluoro-n-hexanoic acid ✓	PFHxA	2000		B
Perfluoro-n-heptanoic acid ✓	PFHpA	2000		C
Perfluoro-n-octanoic acid ✓	PFOA	2000		E
Perfluoro-n-nonanoic acid ✓	PFNA	2000		F
Perfluoro-n-decanoic acid ✓	PFDA	2000		H
Perfluoro-n-undecanoic acid ✓	PFUDA	2000		K
Perfluoro-n-dodecanoic acid ✓	PFDoA	2000		L
Perfluoro-n-tridecanoic acid ✓	PFTrDA	2000		M
Perfluoro-n-tetradecanoic acid ✓	PFTeDA	2000		N
N-methylperfluoro-1-octanesulfonamidoacetic acid ✓	N-MeFOSAA	2000		I
N-ethylperfluoro-1-octanesulfonamidoacetic acid ✓	N-EtFOSAA	2000		J
Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Potassium perfluoro-1-butanefulfonate ✓	L-PFBS	2000	1770	A
Sodium perfluoro-1-hexanesulfonate ✓	L-PFHxS	2000	1890	D
Sodium perfluoro-1-octanesulfonate ✓	L-PFOS	2000	1910	G

* Concentrations have been rounded to three significant figures.

Certified By: _____

B.G. Chittim, General Manager

Date: 04/02/2018
(mm/dd/yyyy)

Figure 1: EPA-537PDS-L; LC/MS Data (SIR)**Conditions for Figure 1:**

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 55% organic over 3.5 min.
Ramp to 70% organic over 6.5 min.
Ramp to 85% organic over 5 min and hold for
1 min before returning to initial conditions in 0.5 min.
Time: 17 min

Flow: 300 μ l/min

MS Parameters

Experiment: SIR

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = variable (15-60)
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

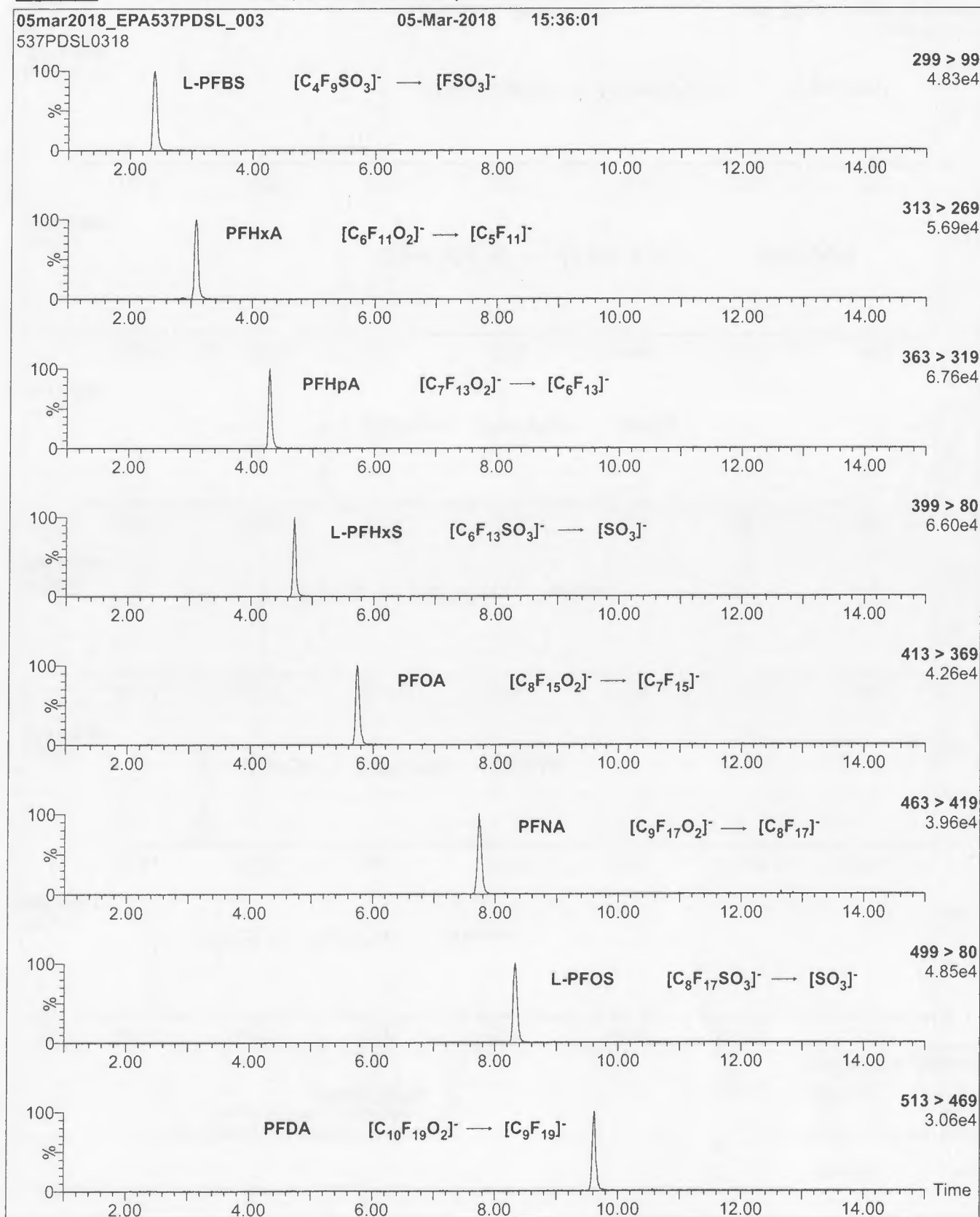
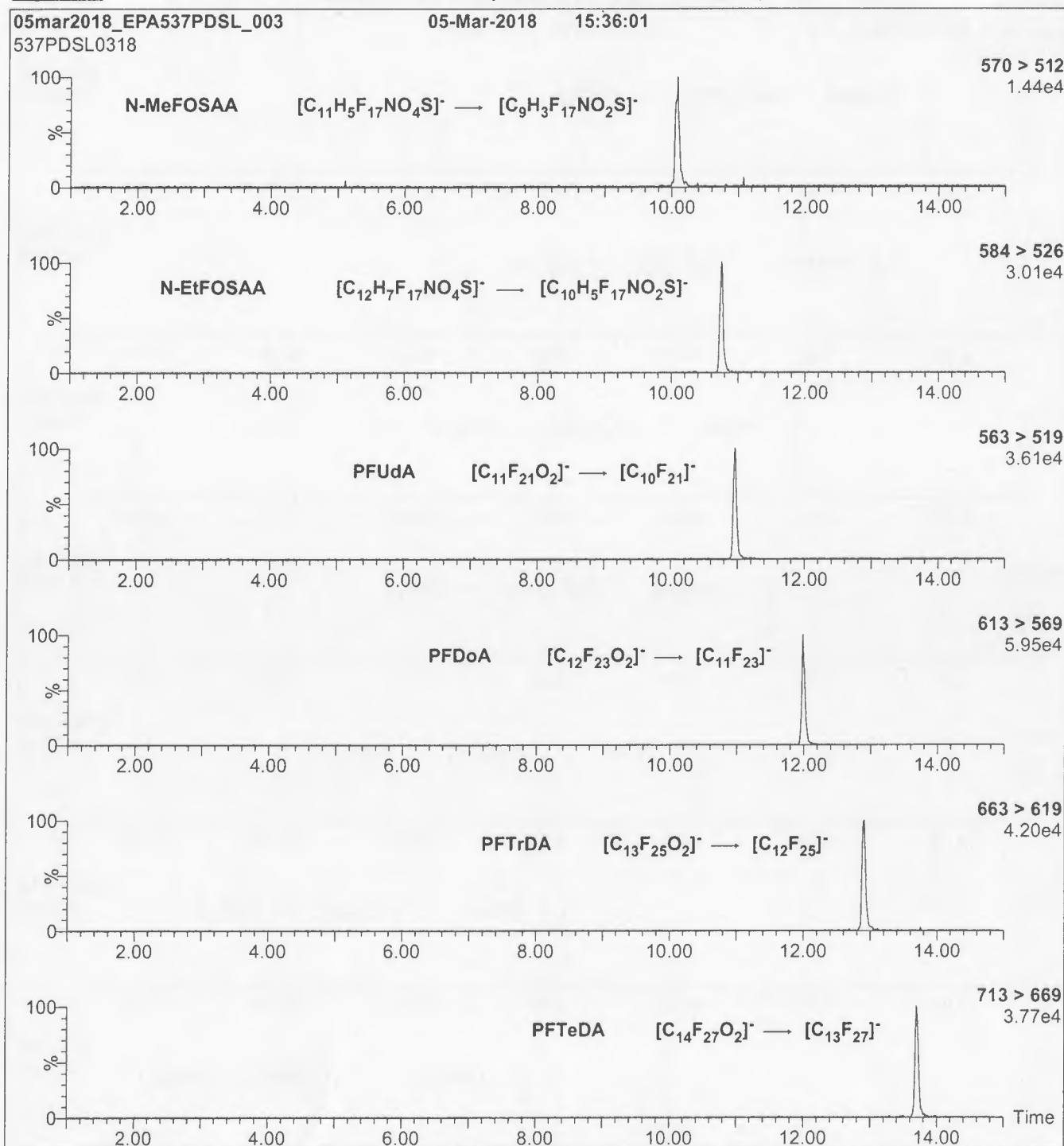
Figure 2: EPA-537PDS-L; LC/MS/MS Data (Selected MRM Transitions)

Figure 2: EPA-537PDS-L; LC/MS/MS Data (Selected MRM Transitions)**Conditions for Figure 2:**

Injection: On-column (EPA-537PDS-L)

Mobile phase: Same as Figure 1

Flow: 300 μ l/min**MS Parameters**

Collision Gas (mbar) = 3.17e-3

Collision Energy (eV) = 10-40 (variable)

Sample Preparation



It can be done

**BATTELLE - NORWELL OPERATIONS
SAMPLE PREPARATION RECORDS**

<u>Project Title(s)</u>	<u>Project No.(s)</u>
Naval Air Station Joint Reserve Base Willow Grove, PA	100117920- WE04
18-0312	
WE04 PFAS Analysis	
DW	
SOP Numbers (see workplan for modifications)	
VOASOP No.	5-371

This Batch Contains The Following Samples:	
CQ753PB-FS	J5973-FS
CQ754LCS-FS	J5975-FS
J5965-FS	J5977-FS
J5967-FS	
J5969-FS	
J5971-FS	

Laboratory Preparation Records
COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Denise Schumitz	05/16/2018	DMS



It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE IDENTIFICATION PAGE

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)100117920-
WE04**18-0312****WE04 PFAS Analysis****DW**

Sample ID	Description
CQ753PB-FS	Procedural Blank
CQ754LCS-FS	Laboratory Control Sample
J5965-FS	WGNA-043018-FRB-3103
J5967-FS	NAWC-043018-FRB-207
J5969-FS	WGNA-043018-FRB-3409
J5971-FS	WGNA-050118-FRB-3385
J5973-FS	WGNA-050118-FRB-3178
J5975-FS	NAWC-050118-FRB-304
J5977-FS	NAWC-050118-FRB-098

Samples Assigned By:

Stephanie Schultz

Date :

May 9, 2018

Comments:



It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE CUSTODY LOG

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)100117920-
WE04**18-0312****WE04 PFAS Analysis****DW**

Requested On/By: 05/09/2018 SAS	Purpose: Sample Preparation
Relinquished On/By: 05/09/2018 MDS	Last Activity: Transfer
Accepted On/By: 05/09/2018 SAS Stored In Facility: Sample Preparation Stored Until: 05/09/2018 Stored Comment: NA	Returned On/To: Returned To Facility: Returned Comment: NA

No.	BDO-ID:	Ctrs	*	Condition:	Custody Comment:	
1	J5965	1	C	Consumed	NA	
2	J5967	1	C	Consumed	NA	
3	J5969	1	C	Consumed	NA	
4	J5971	1	C	Consumed	NA	
5	J5973	1	C	Consumed	NA	
6	J5975	1	C	Consumed	NA	
7	J5977	1	C	Consumed	NA	
Total Samples		7		* "C" = Consumed Container		



It can be done

**BATTELLE - NORWELL OPERATIONS
LIQUID SAMPLE ID FORM**

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)

100117920-WE04

18-0312

WE04 PFAS Analysis

DW

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CQ753PB-FS	Procedural Blank	250.0	NA	--	05/09/18 SAS
CQ754LCS-FS	Laboratory Control Sample	250.0	NA	--	05/09/18 SAS
J5965-FS	WGNA-043018-FRB-3103	250.0	1	C	05/09/18 SAS
J5967-FS	NAWC-043018-FRB-207	250.0	1	C	05/09/18 SAS
J5969-FS	WGNA-043018-FRB-3409	250.0	1	C	05/09/18 SAS
J5971-FS	WGNA-050118-FRB-3385	250.0	1	C	05/09/18 SAS
J5973-FS	WGNA-050118-FRB-3178	250.0	1	C	05/09/18 SAS
J5975-FS	NAWC-050118-FRB-304	250.0	1	C	05/09/18 SAS
J5977-FS	NAWC-050118-FRB-098	250.0	1	C	05/09/18 SAS

Comments:

Sample ID:	Comments:
CQ753PB-FS	1.23g Trizma(170526-01) weighed on BAL-009
CQ754LCS-FS	1.24g Trizma(170526-01) weighed on BAL-009

Samples Assigned By

Stephanie Schultz

Date :

May 9, 2018

* - "C" = Sample is Consumed



It can be done

BATTELLE - NORWELL OPERATIONS SURROGATE SPIKE FORM

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)100117920-
WE04**18-0312****WE04 PFAS Analysis****DW**

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CQ753PB-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
CQ754LCS-FS	JV41	LCS/MS	1	50	05/09/18 SAS	JCT	NA
CQ754LCS-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
J5965-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
J5967-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
J5969-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
J5971-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
J5973-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
J5975-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
J5977-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV41	Pipette	I0793912B
JV60	Pipette	I0793912B



It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE EXTRACTION FORM

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)100117920-
WE04**18-0312****WE04 PFAS Analysis****DW**

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CQ753PB-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
CQ754LCS-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5965-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5967-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5969-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5971-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5973-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5975-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5977-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA

Solvents/Reagent Preparations:

Name	ID	Expires	Lot No	Procedure	Comments
Pre-packed SPE Column	RP-180509-2	05/09/18	S214-0071	Pre-packed SPE Column	

Solvents/Reagents:

Name	Lot No	Comments
Methanol (HPLC) (180227-02)	178212	



It can be done

BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)100117920-
WE04**18-0312****WE04 PFAS Analysis****DW****(N/A Fraction)**

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm . (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution*	Date Spiked/ Spiked By	Witn'd By
CQ753PB-FS(0)	950	50	JV59	50	1	1000	1.000	05/14/18 SAS	JCT
CQ754LCS-FS(0)	950	50	JV59	50	1	1000	1.000	05/14/18 SAS	JCT
J5965-FS(0)	950	50	JV59	50	1	1000	1.000	05/14/18 SAS	JCT
J5967-FS(0)	950	50	JV59	50	1	1000	1.000	05/14/18 SAS	JCT
J5969-FS(0)	950	50	JV59	50	1	1000	1.000	05/14/18 SAS	JCT
J5971-FS(0)	950	50	JV59	50	1	1000	1.000	05/14/18 SAS	JCT
J5973-FS(0)	950	50	JV59	50	1	1000	1.000	05/14/18 SAS	JCT
J5975-FS(0)	950	50	JV59	50	1	1000	1.000	05/14/18 SAS	JCT
J5977-FS(0)	950	50	JV59	50	1	1000	1.000	05/14/18 SAS	JCT

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV59	Pipette	I0793912B

Extract Id:	Comments:
CQ753PB-FS	Samples reconstituted in 96/4 Methanol/Milli-q Water (RP-180511-2)

* - Final Dilution is any HPLC, dilutions, or other manipulation

^ - Pre Injection Volume (PIV) includes any RIS spikes.



It can be done

BATTELLE - NORWELL OPERATIONS EXTRACT - INSTRUMENT FACILITY CUSTODY PAGE

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)100117920-
WE04**18-0312****WE04 PFAS Analysis****DW**

Purpose: LC-MS/MS TRANSFER		Last Activity: Prep->Inst			
Relinquished On/By: May 14 2018 11:13AM SAS		Received On/By: May 14 2018 3:22PM DMS			
Relinquished From: Sample Preparation: NA		Received Location: LC Laboratory: NA			
Relinquish Comment: NA		Received Comment: NA			
No.	BDO-ID:	PIV:	DF:	Condition:	Custody Comment:
1	CQ753PB-FS(0)	1000	1	Intact	NA
2	CQ754LCS-FS(0)	1000	1	Intact	NA
3	J5965-FS(0)	1000	1	Intact	NA
4	J5967-FS(0)	1000	1	Intact	NA
5	J5969-FS(0)	1000	1	Intact	NA
6	J5971-FS(0)	1000	1	Intact	NA
7	J5973-FS(0)	1000	1	Intact	NA
8	J5975-FS(0)	1000	1	Intact	NA
9	J5977-FS(0)	1000	1	Intact	NA
Total Extracts:		9			



It can be done

BATTELLE - NORWELL OPERATIONS PREPARATION EXTRACT SPLIT FORM

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)100117920-
WE04**18-0312****WE04 PFAS Analysis****DW**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CQ753PB-FS	0	--	5/9/2018 2:42:00 PM	NA		NA	NA	1.000	1.000	05/09/18 SAS
CQ754LCS-FS	0	--	5/9/2018 2:42:00 PM	NA		NA	NA	1.000	1.000	05/09/18 SAS
J5965-FS	0	--	5/9/2018 2:42:00 PM	NA		NA	NA	1.000	1.000	05/09/18 SAS
J5967-FS	0	--	5/9/2018 2:42:00 PM	NA		NA	NA	1.000	1.000	05/09/18 SAS
J5969-FS	0	--	5/9/2018 2:42:00 PM	NA		NA	NA	1.000	1.000	05/09/18 SAS
J5971-FS	0	--	5/9/2018 2:42:00 PM	NA		NA	NA	1.000	1.000	05/09/18 SAS
J5973-FS	0	--	5/9/2018 2:42:00 PM	NA		NA	NA	1.000	1.000	05/09/18 SAS
J5975-FS	0	--	5/9/2018 2:42:00 PM	NA		NA	NA	1.000	1.000	05/09/18 SAS
J5977-FS	0	--	5/9/2018 2:42:00 PM	NA		NA	NA	1.000	1.000	05/09/18 SAS

Total Oil = [Sample Volume (uL) / Aliquot Volume (uL)] * [Aliquot Weight (mg)]

Dilution Factor = [Sample Volume (uL) / Aliquot Volume (uL)] * Prior Dilution Factor

* - "C" = Extract is Consumed



It can be done

**BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM**

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)

100117920-
WE04

**18-0312
WE04 PFAS Analysis
DW**

Entered By: _____ On: _____

Task Leader Approval:

On:

SupervisorApproval:

On:

PM Approval:

On:



It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE SPECIFIC COMMENTS

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)100117920-
WE04**18-0312****WE04 PFAS Analysis****DW**

Sample ID:	Comment:	Date/Initials:
CQ753PB-FS	Sample extraction began at 2:42pm for all samples.	05/09/18 SAS
CQ753PB-FS	Sample extraction ended at 3:09pm	05/09/18 SAS
CQ754LCS-FS	Sample extraction ended at 3:09pm	05/09/18 SAS
J5965-FS	Sample extraction ended at 3:05pm	05/09/18 SAS
J5967-FS	Sample extraction ended at 3:06pm	05/09/18 SAS
J5969-FS	Sample extraction ended at 3:08pm	05/09/18 SAS
J5971-FS	Sample extraction ended at 3:09pm	05/09/18 SAS
J5973-FS	Sample extraction ended at 3:10pm	05/09/18 SAS
J5975-FS	Sample extraction ended at 3:07pm	05/09/18 SAS
J5977-FS	Sample extraction ended at 3:06pm	05/09/18 SAS

Analytical Calibrations

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		5/14/2018 4:18:10 PM	5-0371.dam	18-0313.wiff
2	JV64	L1	5/14/2018 4:27:07 PM	5-0371.dam	18-0313.wiff
3	JV65	L2	5/14/2018 4:36:03 PM	5-0371.dam	18-0313.wiff
4	JV66	L3	5/14/2018 4:45:01 PM	5-0371.dam	18-0313.wiff
5	JV67	L4	5/14/2018 4:53:56 PM	5-0371.dam	18-0313.wiff
6	JV68	L5	5/14/2018 5:02:52 PM	5-0371.dam	18-0313.wiff
7	JV69	L6	5/14/2018 5:11:47 PM	5-0371.dam	18-0313.wiff
8	JV70	L7	5/14/2018 5:20:42 PM	5-0371.dam	18-0313.wiff
9	JV71	L8	5/14/2018 5:29:36 PM	5-0371.dam	18-0313.wiff
10	JV72	L9	5/14/2018 5:38:30 PM	5-0371.dam	18-0313.wiff
11	JV63 ICC	ICC	5/14/2018 5:47:28 PM	5-0371.dam	18-0313.wiff
1	MeOH		5/14/2018 5:56:24 PM	5-0371.dam	18-0313.wiff
12	CQ753PB-FS(0)	Procedural Blank	5/14/2018 6:05:20 PM	5-0371.dam	18-0312.wiff
13	CQ754LCS-FS(0)	Laboratory Control Sample	5/14/2018 6:14:15 PM	5-0371.dam	18-0312.wiff
14	J5965-FS(0)	WGNA-043018-FRB-3103	5/14/2018 6:23:10 PM	5-0371.dam	18-0312.wiff
15	J5967-FS(0)	NAWC-043018-FRB-207	5/14/2018 6:32:06 PM	5-0371.dam	18-0312.wiff
16	J5969-FS(0)	WGNA-043018-FRB-3409	5/14/2018 6:41:03 PM	5-0371.dam	18-0312.wiff
17	J5971-FS(0)	WGNA-050118-FRB-3385	5/14/2018 6:49:59 PM	5-0371.dam	18-0312.wiff
18	J5973-FS(0)	WGNA-050118-FRB-3178	5/14/2018 6:58:53 PM	5-0371.dam	18-0312.wiff
19	J5975-FS(0)	NAWC-050118-FRB-304	5/14/2018 7:07:47 PM	5-0371.dam	18-0312.wiff
20	J5977-FS(0)	NAWC-050118-FRB-098	5/14/2018 7:16:43 PM	5-0371.dam	18-0312.wiff
6	JV68 CCV	CCV	5/14/2018 7:25:38 PM	5-0371.dam	18-0312.wiff



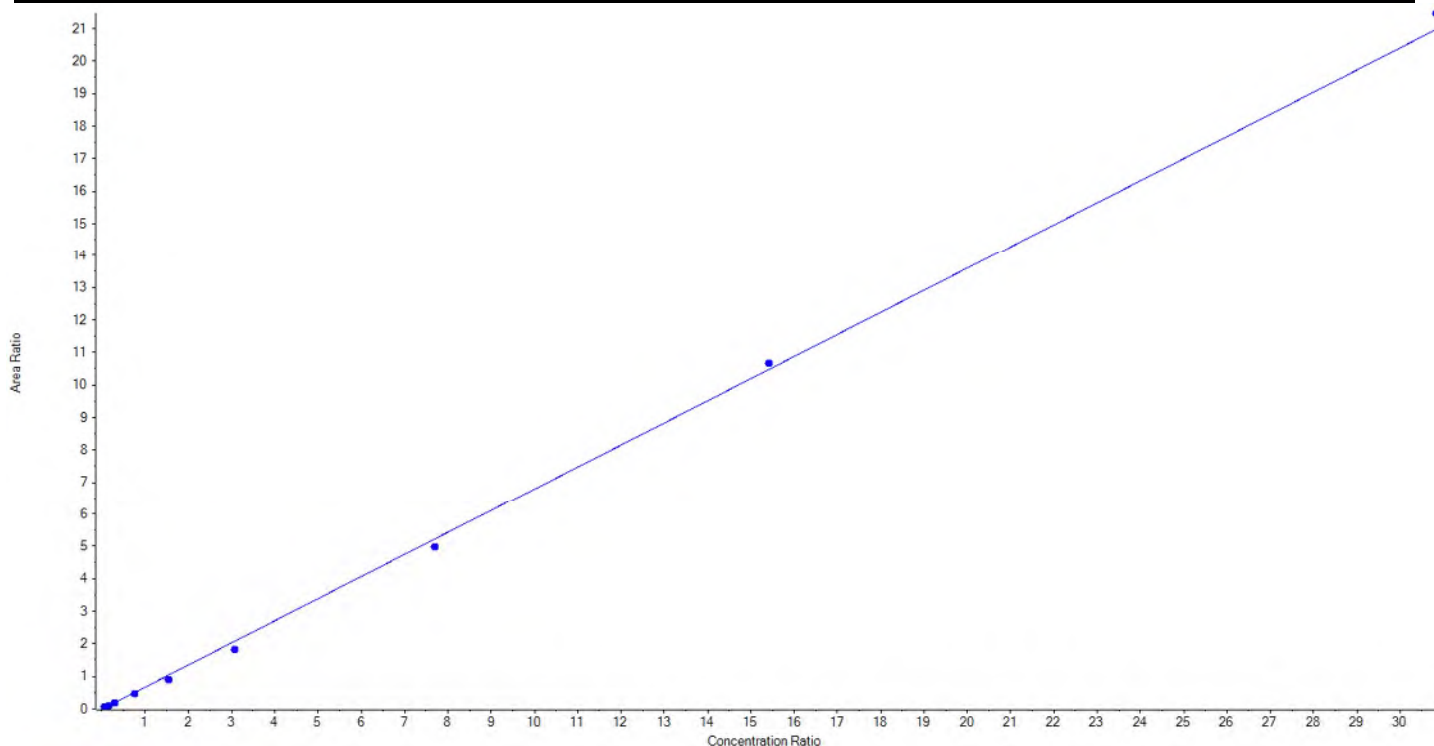
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFBS_1	Data File	18-0313.wiff
MRM Transition	298.9 / 80.0	Result Table	18-0312_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.68075x + -0.01541$ ($r = 0.99887$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.15	28.045095	126.6
3	JV65	L2	True	44.30	48.489227	109.5
4	JV66	L3	True	88.60	86.791512	98.0
5	JV67	L4	True	221.50	206.430305	93.2
6	JV68	L5	True	443.00	379.492245	85.7
7	JV69	L6	True	885.00	778.046261	87.9
8	JV70	L7	True	2212.50	2102.243811	95.0
9	JV71	L8	True	4425.00	4507.247954	101.9
10	JV72	L9	True	8850.00	9055.263589	102.3





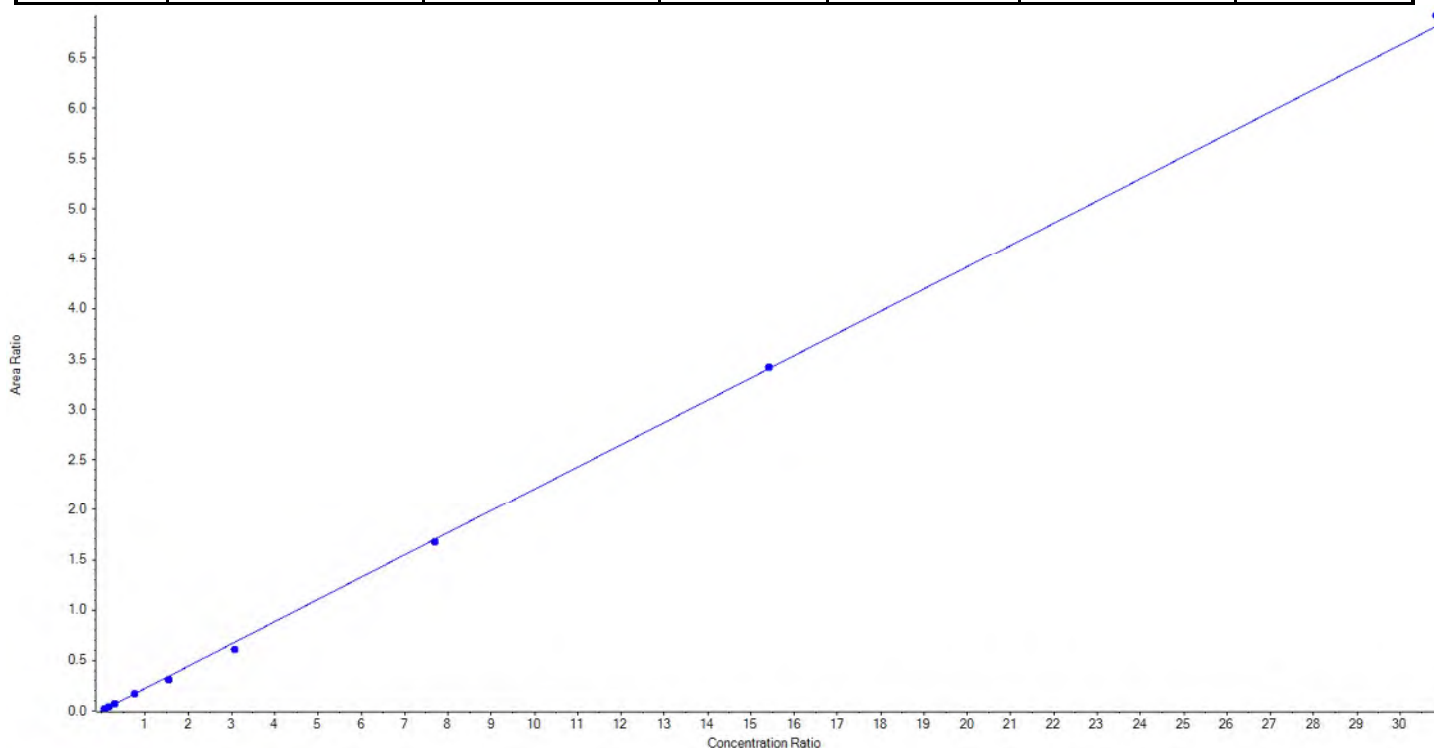
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFBS_2	Data File	18-0313.wiff
MRM Transition	298.9 / 99.0	Result Table	18-0312_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.22086 x + 3.23106e-4$ ($r = 0.99946$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.15	25.833478	116.6
3	JV65	L2	True	44.30	47.169014	106.5
4	JV66	L3	True	88.60	84.473566	95.3
5	JV67	L4	True	221.50	224.337631	101.3
6	JV68	L5	True	443.00	398.532474	90.0
7	JV69	L6	True	885.00	793.604509	89.7
8	JV70	L7	True	2212.50	2179.802809	98.5
9	JV71	L8	True	4425.00	4448.710926	100.5
10	JV72	L9	True	8850.00	8989.585593	101.6





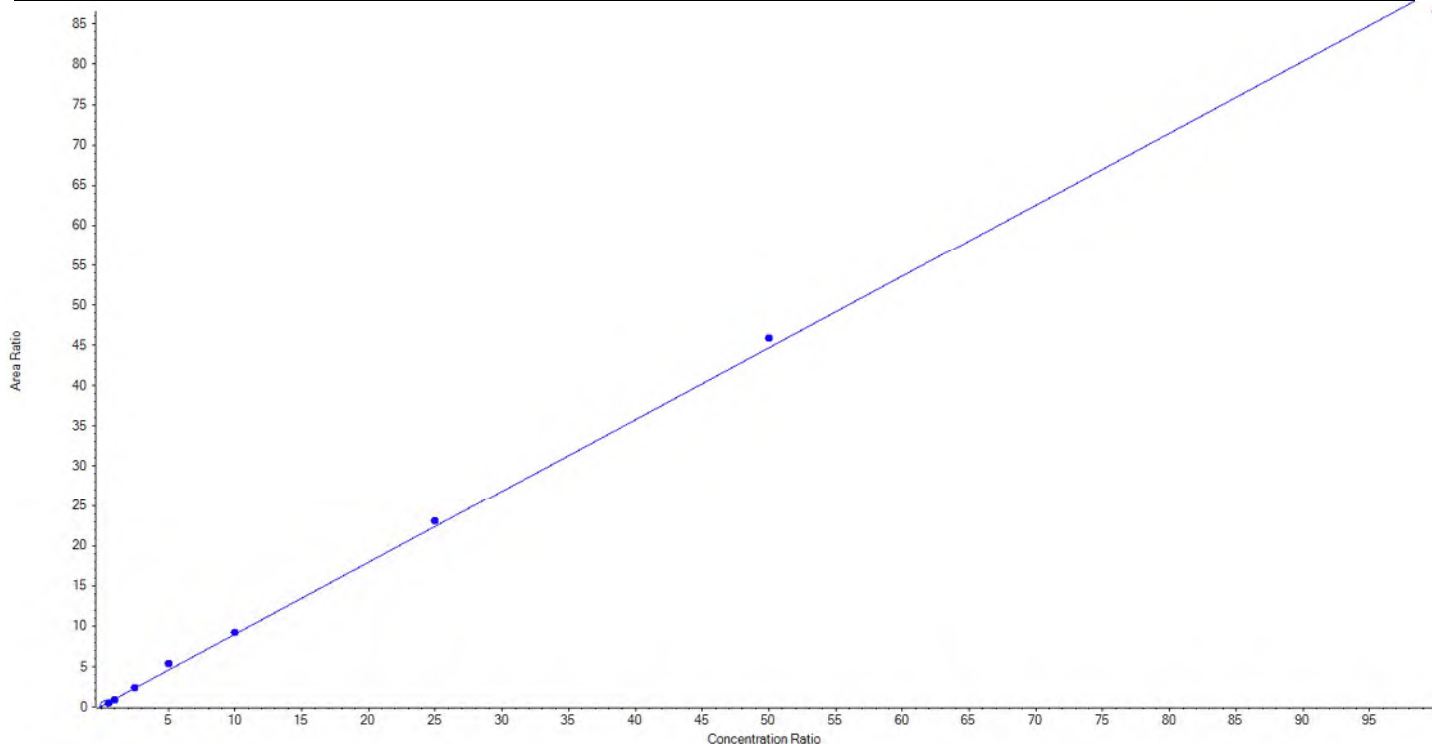
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFHxA_1	Data File	18-0313.wiff
MRM Transition	313.0 / 269.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.89190x + 0.09470$ ($r = 0.99902$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	18.657460	74.6
3	JV65	L2	True	50.00	42.893737	85.8
4	JV66	L3	True	100.00	88.393959	88.4
5	JV67	L4	True	250.00	258.426345	103.4
6	JV68	L5	True	500.00	590.552971	118.1
7	JV69	L6	True	1000.00	1017.252318	101.7
8	JV70	L7	True	2500.00	2574.231542	103.0
9	JV71	L8	True	5000.00	5136.044879	102.7
10	JV72	L9	True	10000.00	9692.204248	96.9





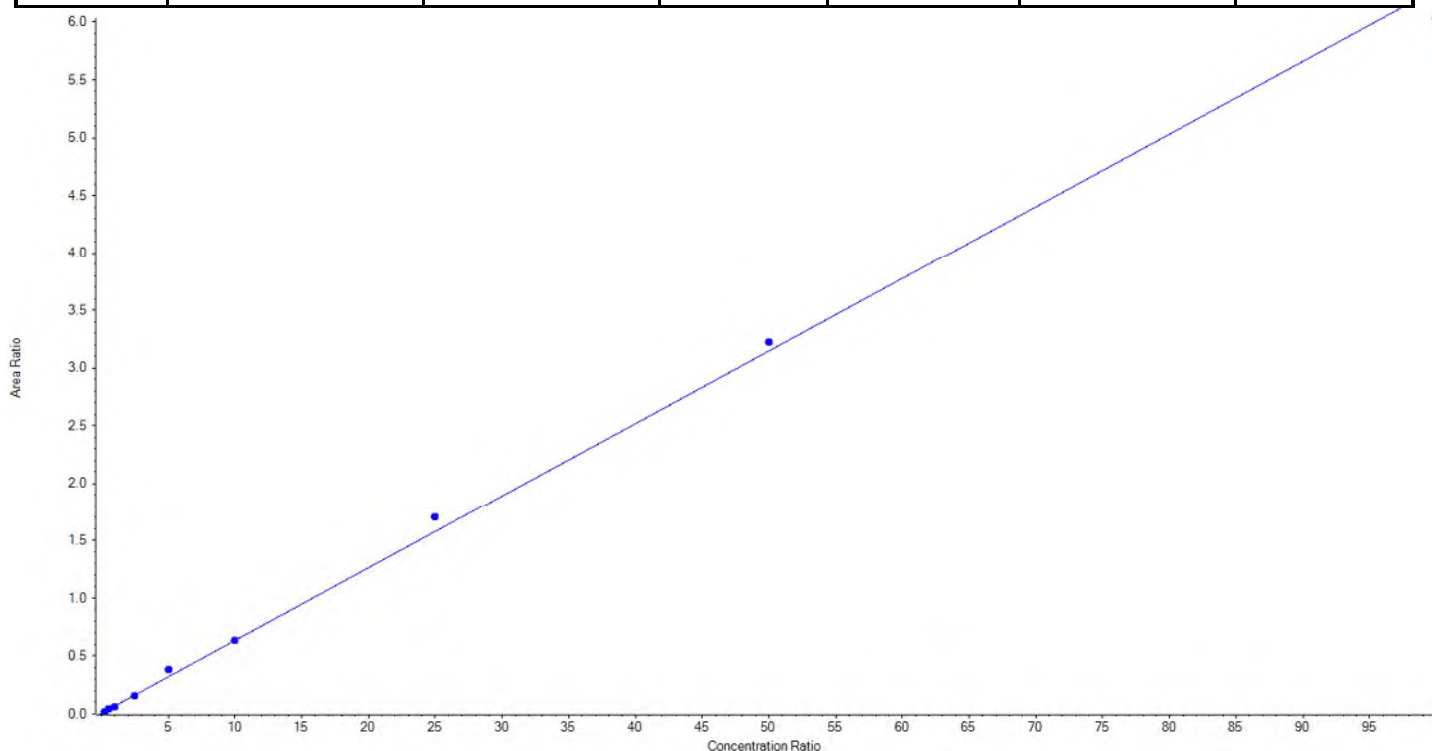
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFHxA_2	Data File	18-0313.wiff
MRM Transition	313.0 / 119.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06281 x + 0.00625$ (r = 0.99818) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	15.890183	63.6
3	JV65	L2	True	50.00	63.552557	127.1
4	JV66	L3	True	100.00	85.128911	85.1
5	JV67	L4	True	250.00	244.158146	97.7
6	JV68	L5	True	500.00	602.362054	120.5
7	JV69	L6	True	1000.00	994.796286	99.5
8	JV70	L7	True	2500.00	2705.114914	108.2
9	JV71	L8	True	5000.00	5124.538112	102.5
10	JV72	L9	True	10000.00	9589.458837	95.9





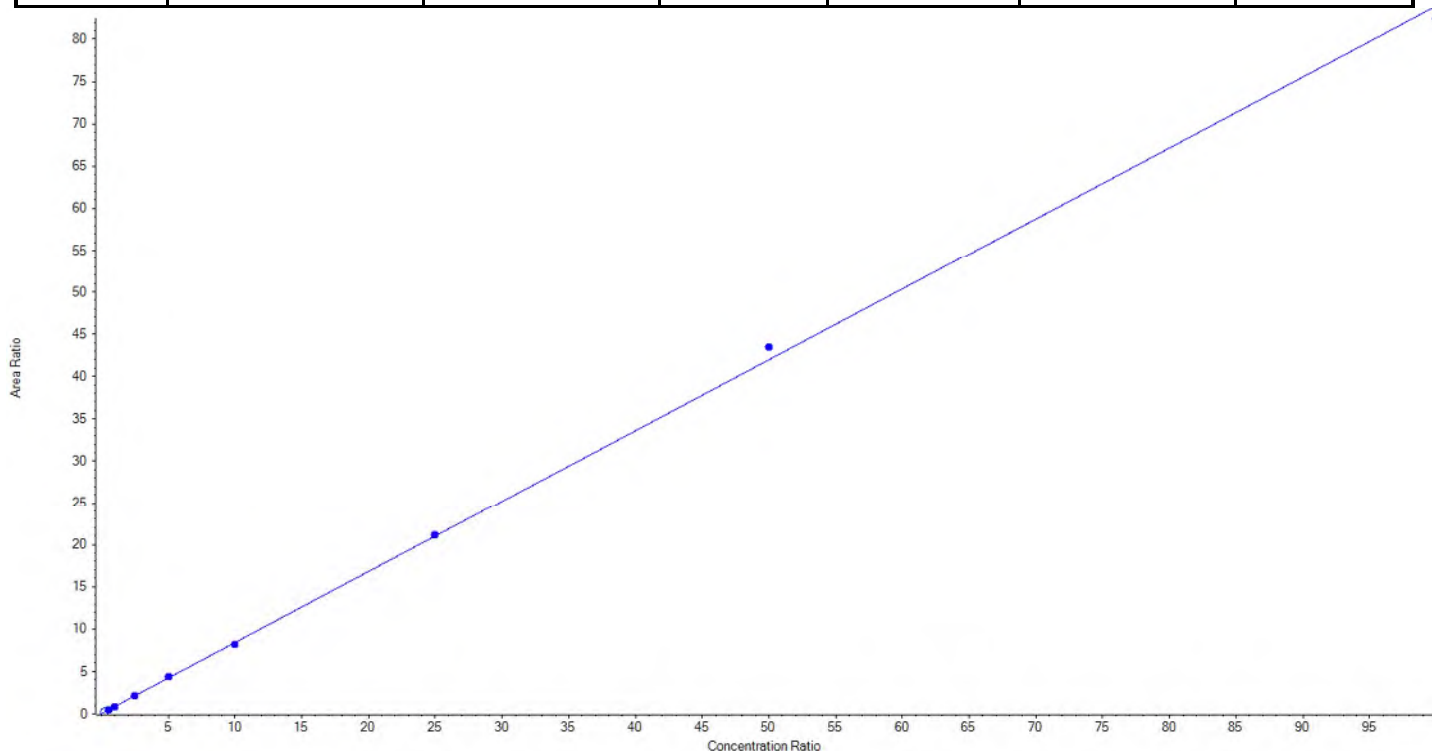
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Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFHpA_1	Data File	18-0313.wiff
MRM Transition	363.0 / 319.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.83876 x + 0.04371$ ($r = 0.99963$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	19.315174	77.3
3	JV65	L2	True	50.00	54.414136	108.8
4	JV66	L3	True	100.00	87.171830	87.2
5	JV67	L4	True	250.00	253.853561	101.5
6	JV68	L5	True	500.00	513.574414	102.7
7	JV69	L6	True	1000.00	973.658392	97.4
8	JV70	L7	True	2500.00	2512.774114	100.5
9	JV71	L8	True	5000.00	5182.125230	103.6
10	JV72	L9	True	10000.00	9822.428323	98.2





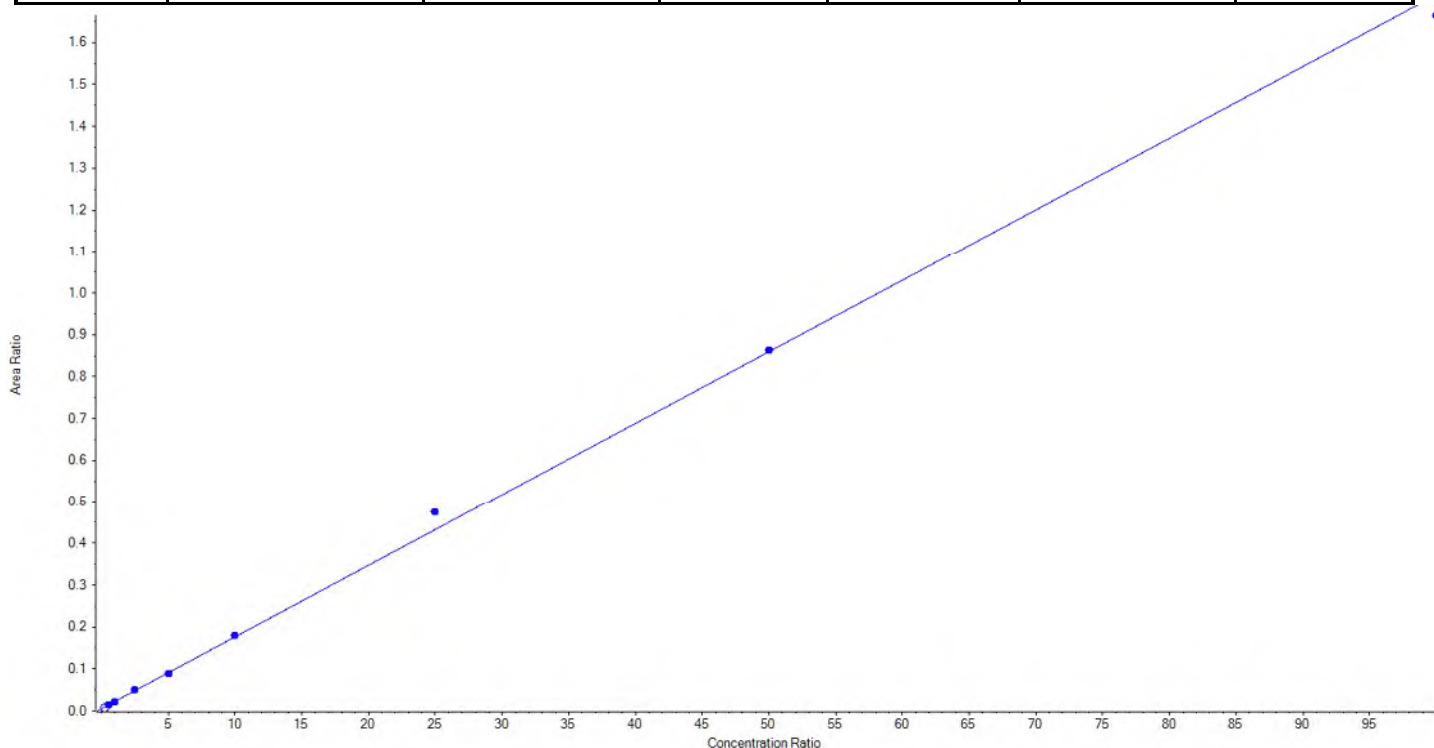
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Created with Analyst Reporter
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Analyte Name	PFHpA_2	Data File	18-0313.wiff
MRM Transition	363.0 / 169.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.01708x + 0.00552$ ($r = 0.99897$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	10.338123	41.4
3	JV65	L2	True	50.00	48.862884	97.7
4	JV66	L3	True	100.00	87.168294	87.2
5	JV67	L4	True	250.00	268.362349	107.3
6	JV68	L5	True	500.00	490.348842	98.1
7	JV69	L6	True	1000.00	1022.051246	102.2
8	JV70	L7	True	2500.00	2747.089212	109.9
9	JV71	L8	True	5000.00	5024.136423	100.5
10	JV72	L9	True	10000.00	9711.980749	97.1





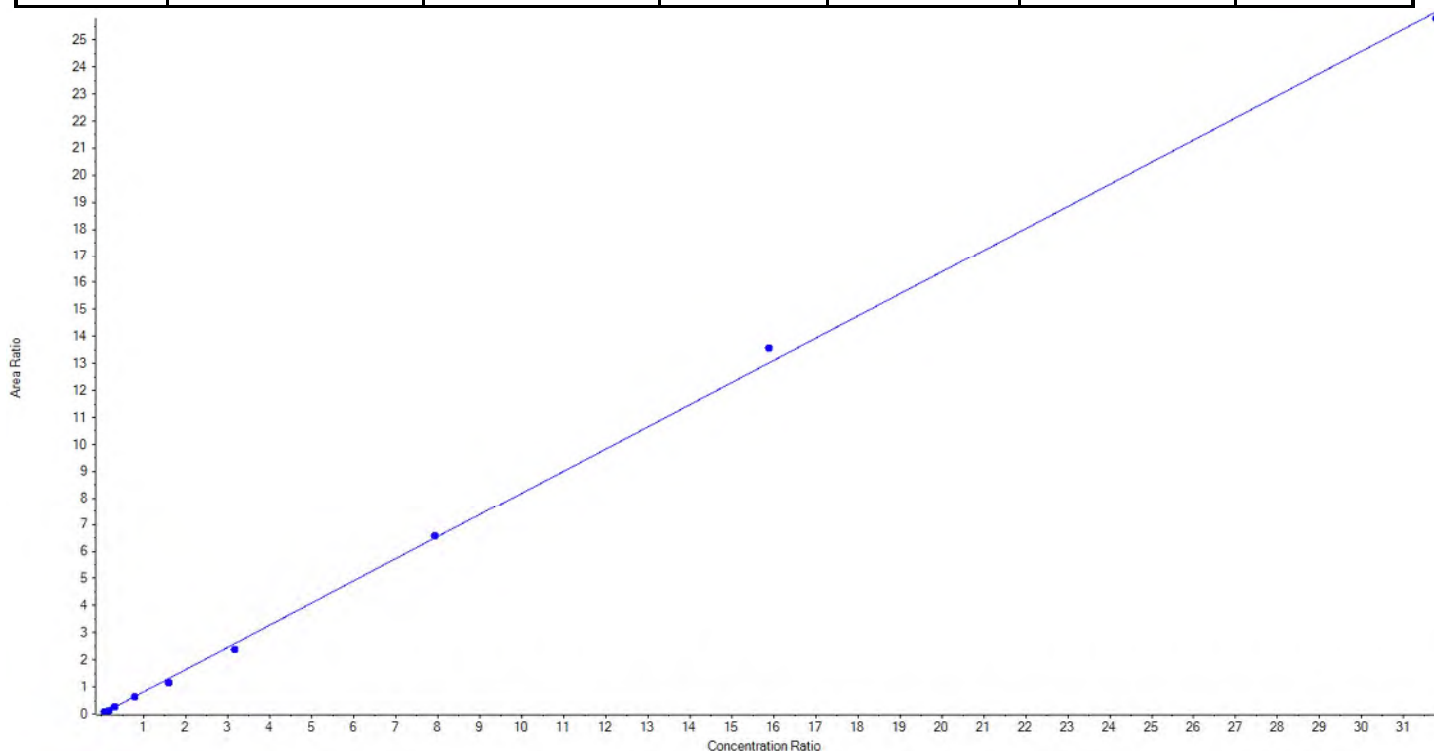
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Created with Analyst Reporter
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Analyte Name	PFHxS_1	Data File	18-0313.wiff
MRM Transition	399.0 / 80.0	Result Table	18-0312_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.81953x + -0.00434$ ($r = 0.99932$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.80	25.556500	112.1
3	JV65	L2	True	45.60	45.328748	99.4
4	JV66	L3	True	91.20	96.635739	106.0
5	JV67	L4	True	228.00	225.752955	99.0
6	JV68	L5	True	456.00	398.622698	87.4
7	JV69	L6	True	912.00	837.957539	91.9
8	JV70	L7	True	2280.00	2303.521436	101.0
9	JV71	L8	True	4560.00	4749.618935	104.2
10	JV72	L9	True	9120.00	9032.605450	99.0





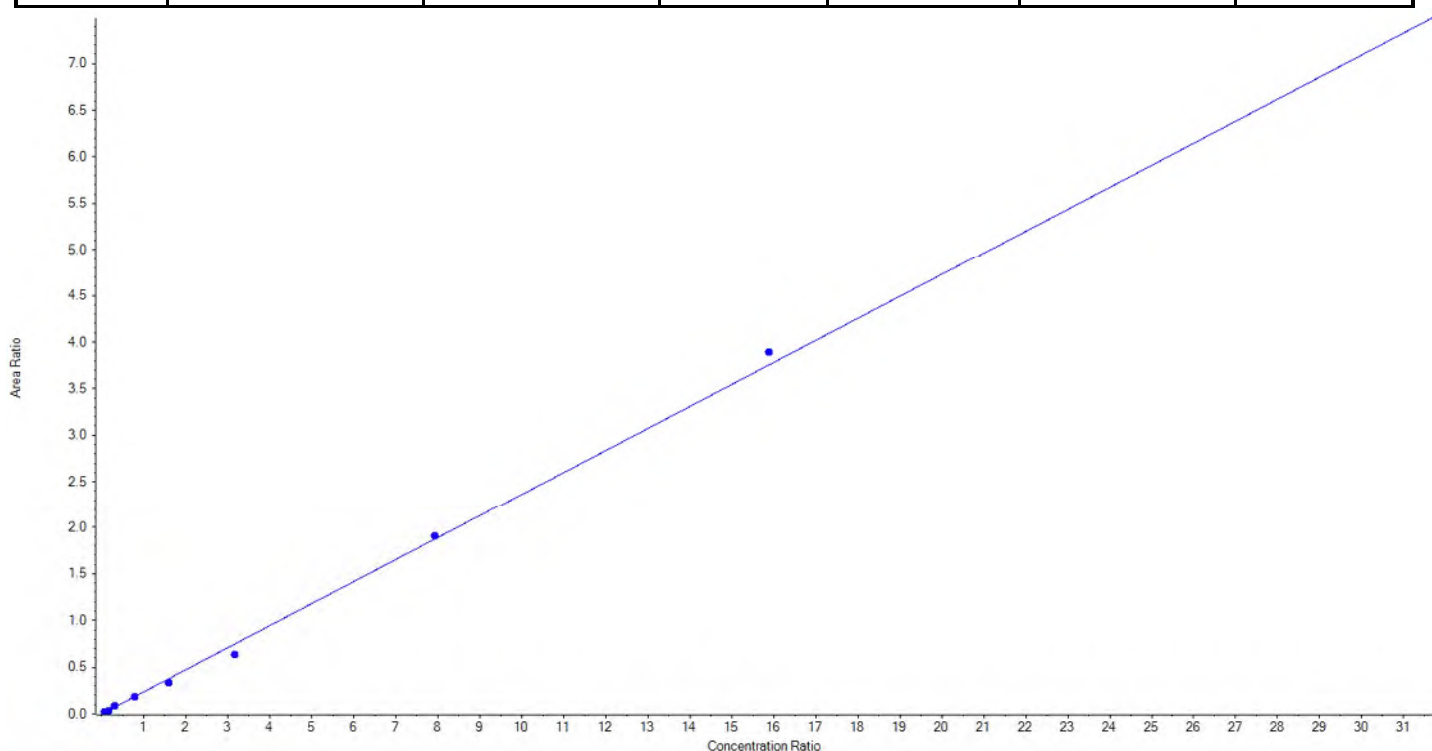
Calibration Summary Report

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Analyte Name	PFHxS_2	Data File	18-0313.wiff
MRM Transition	399.0 / 99.0	Result Table	18-0312_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.23641x + -9.70194e-4$ (r = 0.99901) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.80	24.128618	105.8
3	JV65	L2	True	45.60	45.498258	99.8
4	JV66	L3	True	91.20	106.207971	116.5
5	JV67	L4	True	228.00	222.356004	97.5
6	JV68	L5	True	456.00	410.686463	90.1
7	JV69	L6	True	912.00	779.306332	85.5
8	JV70	L7	True	2280.00	2318.419291	101.7
9	JV71	L8	True	4560.00	4724.397363	103.6
10	JV72	L9	True	9120.00	9084.599701	99.6





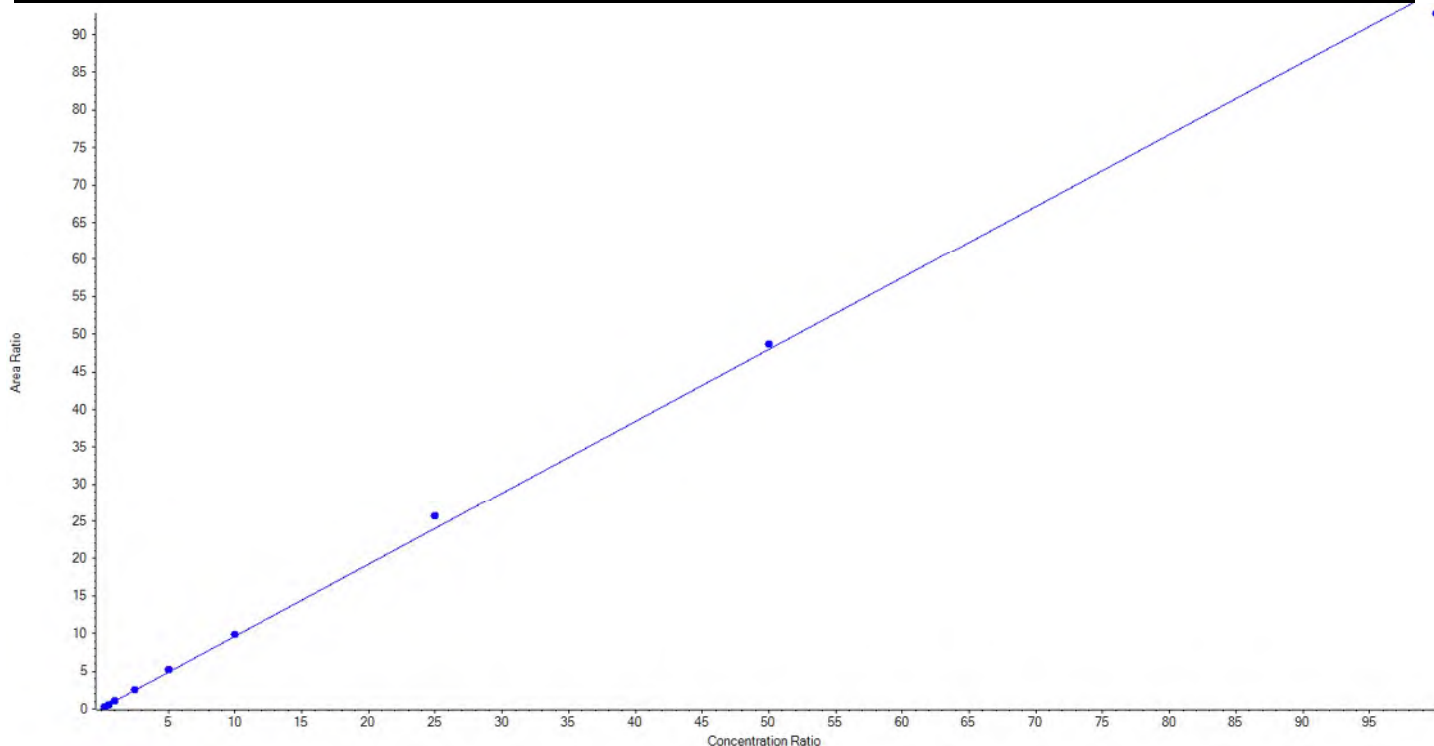
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Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFOA_1	Data File	18-0313.wiff
MRM Transition	413.0 / 369.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.95821 x + 0.07420$ (r = 0.99920) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	20.271455	81.1
3	JV65	L2	True	50.00	48.064799	96.1
4	JV66	L3	True	100.00	104.359044	104.4
5	JV67	L4	True	250.00	254.296931	101.7
6	JV68	L5	True	500.00	542.897965	108.6
7	JV69	L6	True	1000.00	1028.463388	102.9
8	JV70	L7	True	2500.00	2676.545515	107.1
9	JV71	L8	True	5000.00	5071.800474	101.4
10	JV72	L9	True	10000.00	9678.300429	96.8





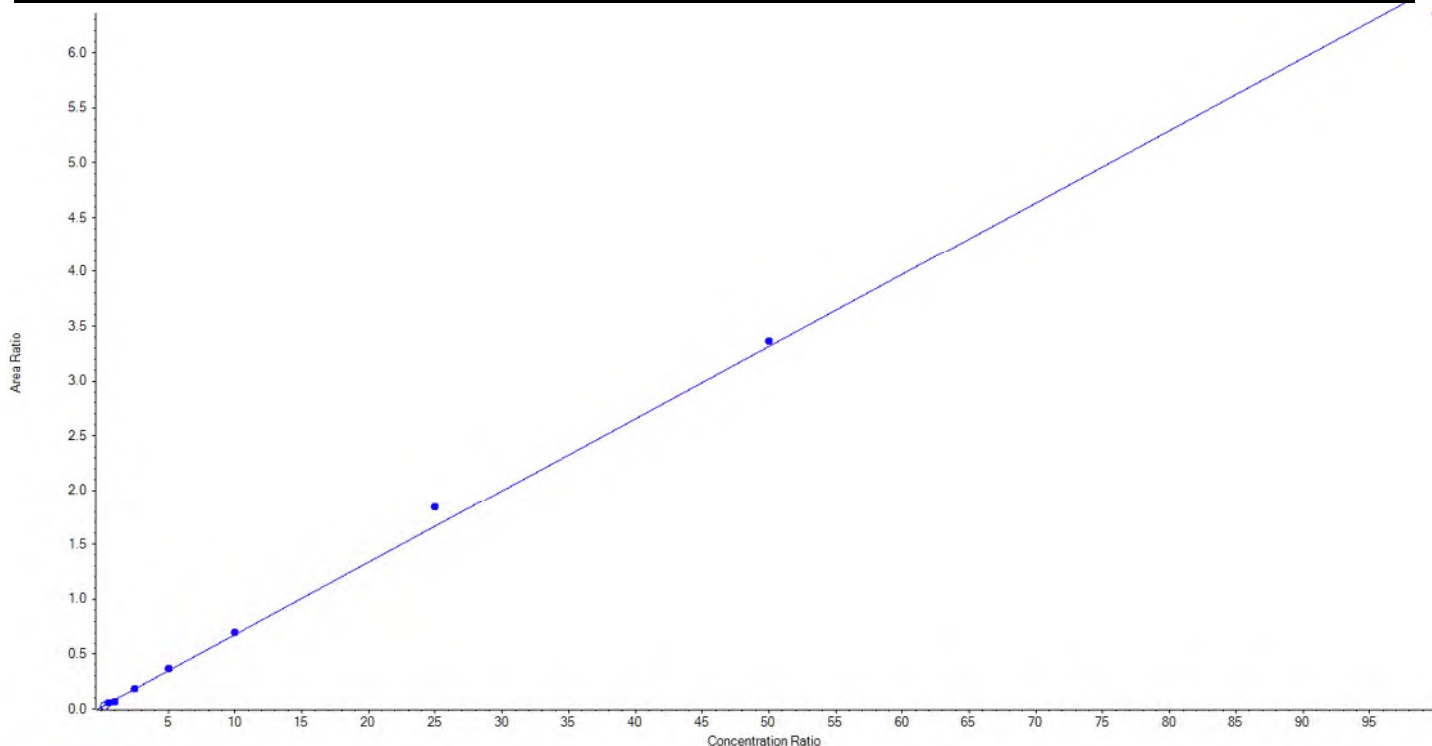
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Created with Analyst Reporter
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Analyte Name	PFOA_2	Data File	18-0313.wiff
MRM Transition	413.0 / 169.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06594 x + 0.01732$ (r = 0.99846) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	8.864133	35.5
3	JV65	L2	True	50.00	53.444479	106.9
4	JV66	L3	True	100.00	72.590674	72.6
5	JV67	L4	True	250.00	257.344048	102.9
6	JV68	L5	True	500.00	535.062840	107.0
7	JV69	L6	True	1000.00	1023.026817	102.3
8	JV70	L7	True	2500.00	2763.902729	110.6
9	JV71	L8	True	5000.00	5076.510630	101.5
10	JV72	L9	True	10000.00	9618.117783	96.2





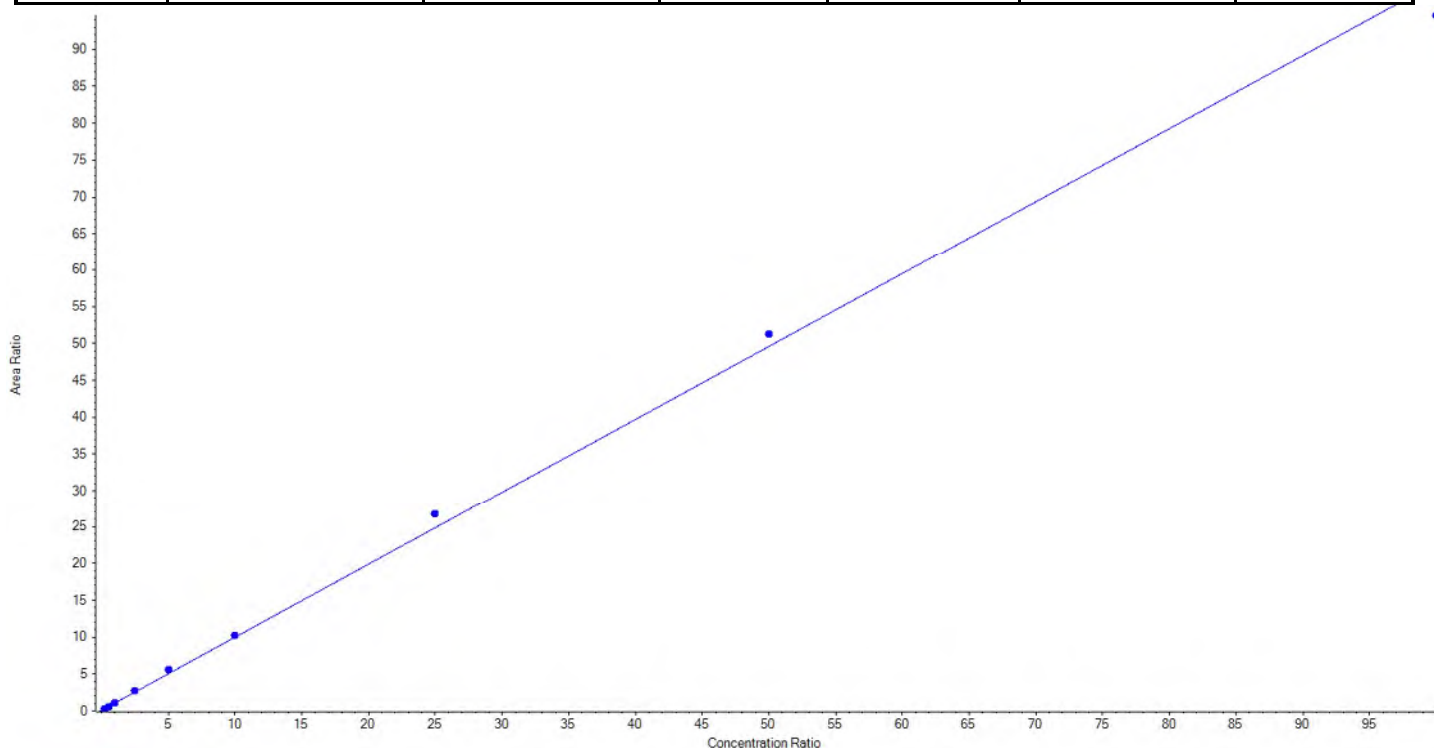
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Analyte Name	PFNA_1	Data File	18-0313.wiff
MRM Transition	463.0 / 419.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.99005x + 0.08354$ ($r = 0.99862$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	18.792753	75.2
3	JV65	L2	True	50.00	50.077219	100.2
4	JV66	L3	True	100.00	97.651904	97.7
5	JV67	L4	True	250.00	265.634549	106.3
6	JV68	L5	True	500.00	556.615759	111.3
7	JV69	L6	True	1000.00	1028.511506	102.9
8	JV70	L7	True	2500.00	2695.858545	107.8
9	JV71	L8	True	5000.00	5164.160418	103.3
10	JV72	L9	True	10000.00	9547.697347	95.5





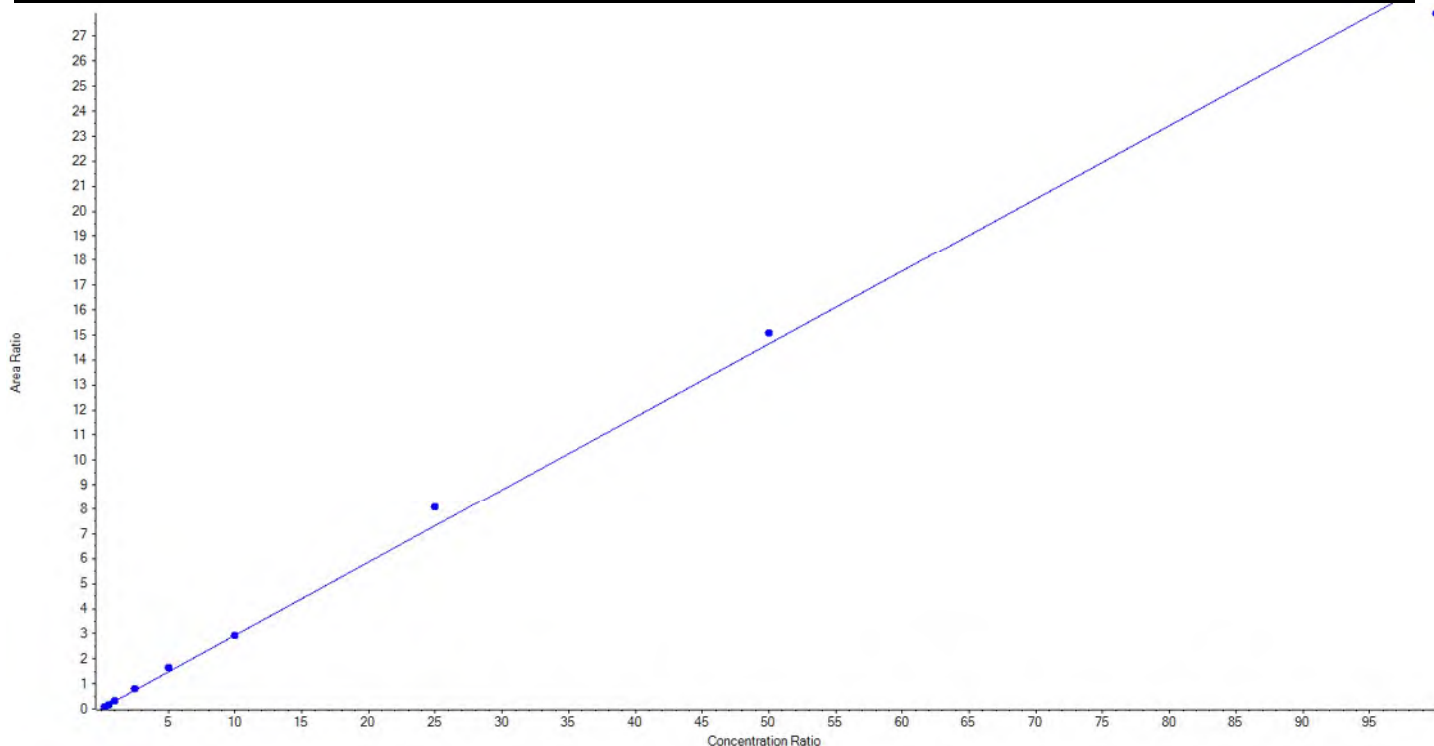
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Created with Analyst Reporter
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Analyte Name	PFNA_2	Data File	18-0313.wiff
MRM Transition	463.0 / 219.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.29260x + 0.01417$ ($r = 0.99832$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	18.357615	73.4
3	JV65	L2	True	50.00	50.945275	101.9
4	JV66	L3	True	100.00	98.707450	98.7
5	JV67	L4	True	250.00	267.249370	106.9
6	JV68	L5	True	500.00	552.006190	110.4
7	JV69	L6	True	1000.00	1000.117057	100.0
8	JV70	L7	True	2500.00	2760.876412	110.4
9	JV71	L8	True	5000.00	5145.638736	102.9
10	JV72	L9	True	10000.00	9531.101896	95.3





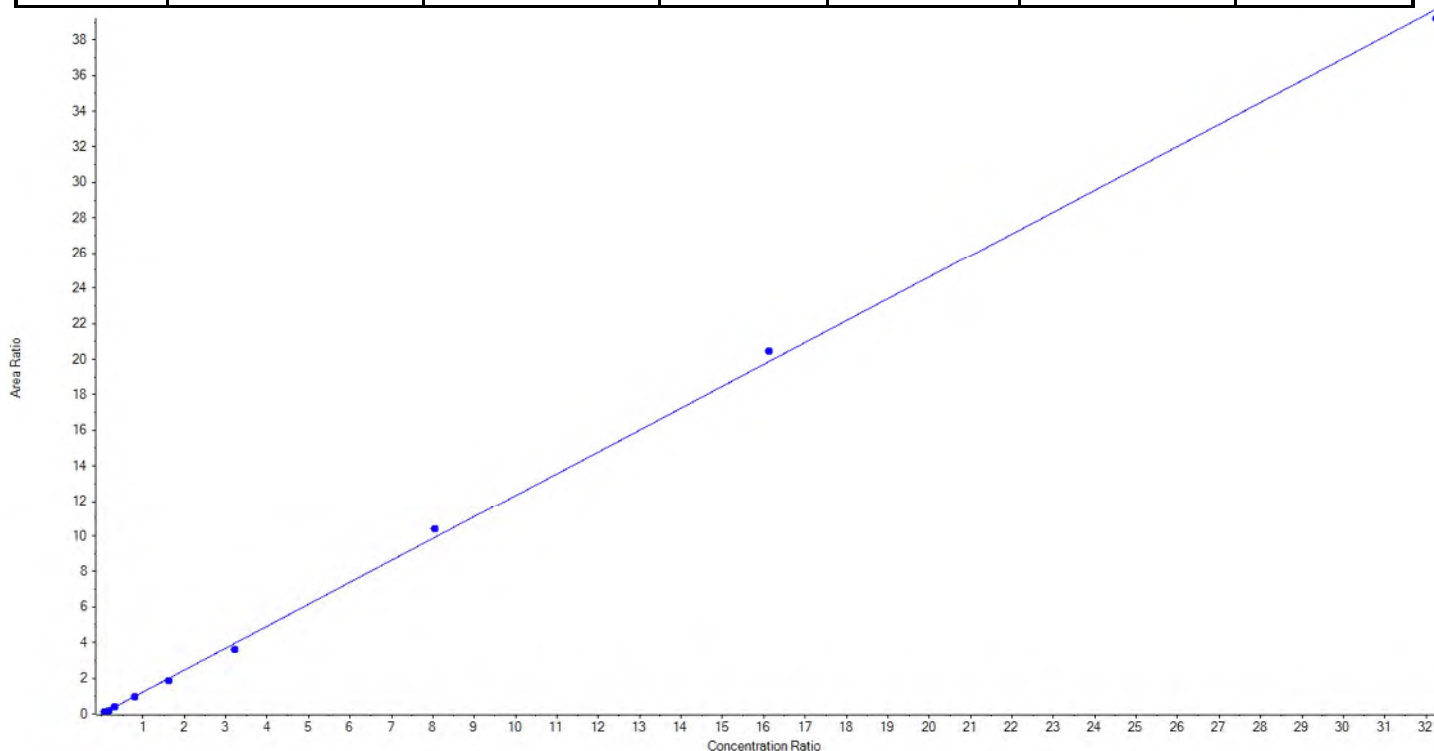
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Analyte Name	PFOS_1	Data File	18-0313.wiff
MRM Transition	499.0 / 80.0	Result Table	18-0312_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.23183x + -0.00456$ ($r = 0.99934$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	23.15	28.031094	121.1
3	JV65	L2	True	46.30	42.301066	91.4
4	JV66	L3	True	92.60	90.970659	98.2
5	JV67	L4	True	231.50	230.459461	99.6
6	JV68	L5	True	463.00	428.901519	92.6
7	JV69	L6	True	925.00	840.100698	90.8
8	JV70	L7	True	2314.00	2424.048404	104.8
9	JV71	L8	True	4628.00	4760.602564	102.9
10	JV72	L9	True	9256.00	9134.134535	98.7





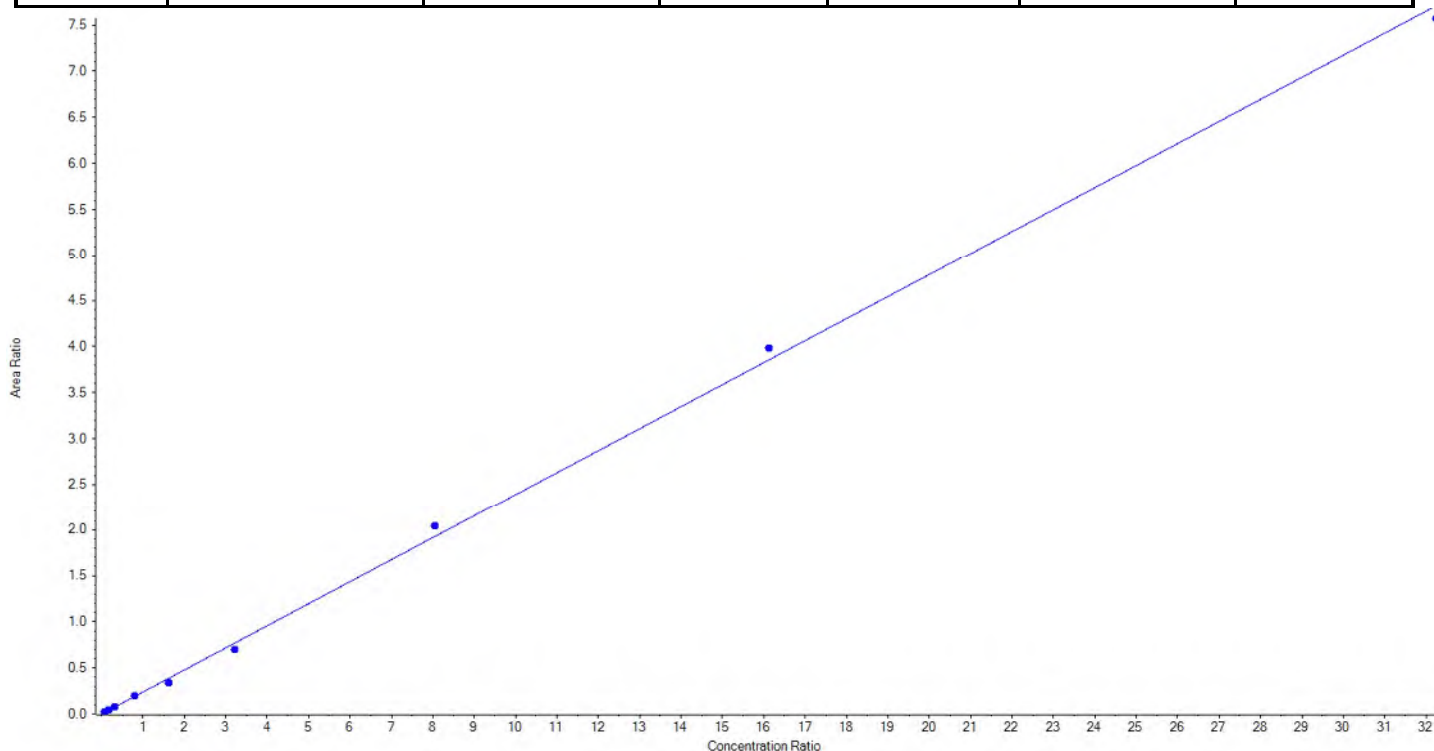
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Analyte Name	PFOS_2	Data File	18-0313.wiff
MRM Transition	499.0 / 99.0	Result Table	18-0312_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.23915x + -0.00150$ ($r = 0.99909$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	23.15	23.346458	100.9
3	JV65	L2	True	46.30	50.287062	108.6
4	JV66	L3	True	92.60	92.083626	99.4
5	JV67	L4	True	231.50	241.652806	104.4
6	JV68	L5	True	463.00	409.963845	88.6
7	JV69	L6	True	925.00	839.354013	90.7
8	JV70	L7	True	2314.00	2449.080596	105.8
9	JV71	L8	True	4628.00	4785.237481	103.4
10	JV72	L9	True	9256.00	9088.544113	98.2





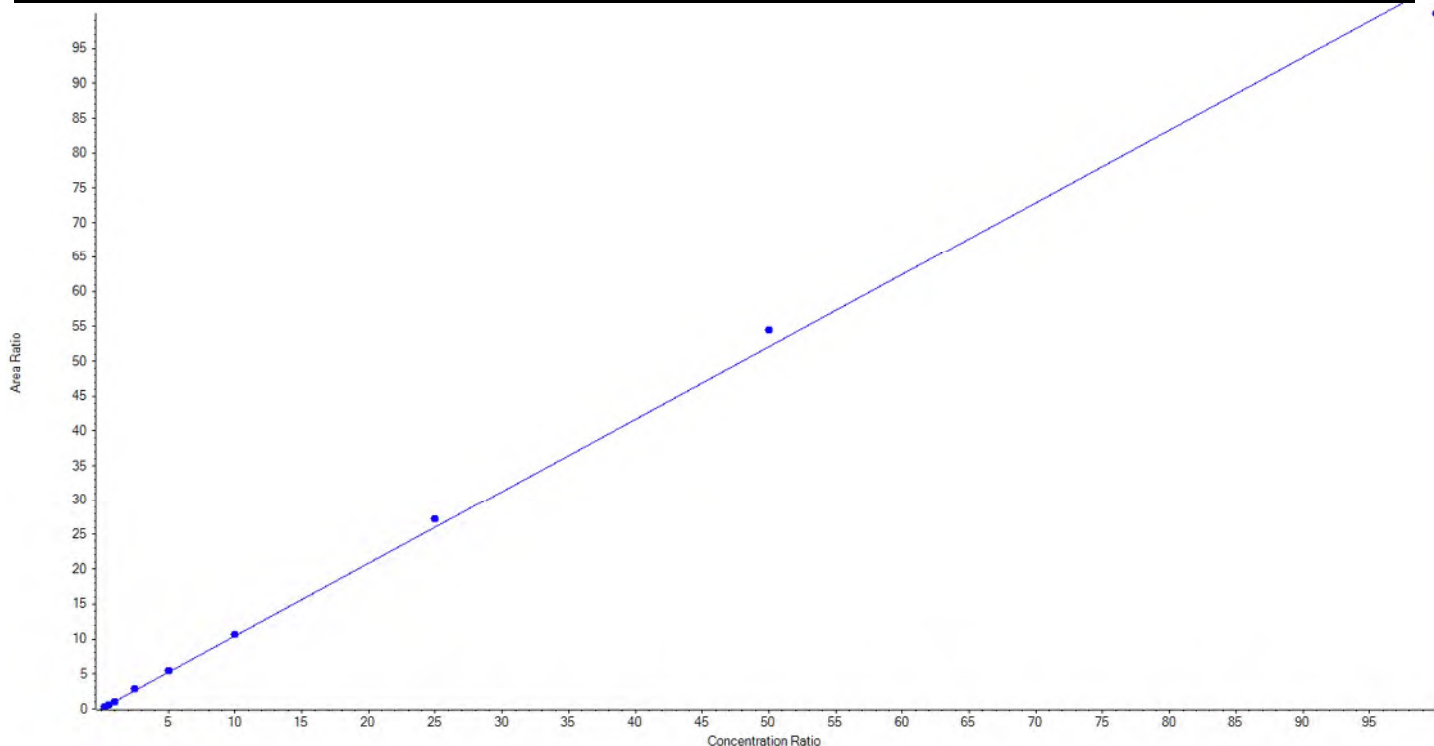
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Analyte Name	PFDA_1	Data File	18-0313.wiff
MRM Transition	513.0 / 469.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.04056x + 0.03653$ ($r = 0.99905$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	21.617757	86.5
3	JV65	L2	True	50.00	46.915581	93.8
4	JV66	L3	True	100.00	98.528321	98.5
5	JV67	L4	True	250.00	274.358579	109.7
6	JV68	L5	True	500.00	522.068312	104.4
7	JV69	L6	True	1000.00	1020.948522	102.1
8	JV70	L7	True	2500.00	2607.612929	104.3
9	JV71	L8	True	5000.00	5228.352489	104.6
10	JV72	L9	True	10000.00	9604.597509	96.1





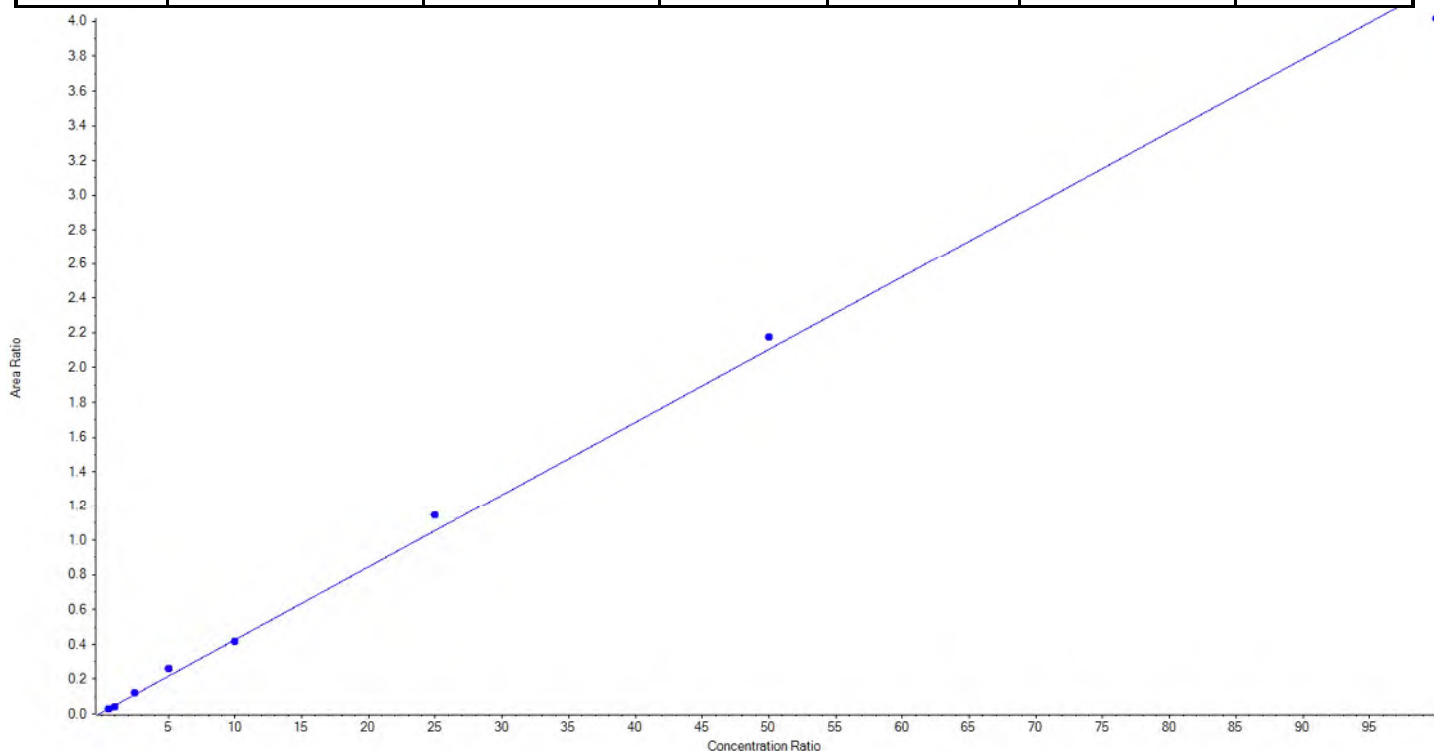
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Analyte Name	PFDA_2	Data File	18-0313.wiff
MRM Transition	513.0 / 219.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.04197 x + 0.00666$ (r = 0.99799) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	46.777482	93.6
4	JV66	L3	True	100.00	74.434538	74.4
5	JV67	L4	True	250.00	267.766863	107.1
6	JV68	L5	True	500.00	598.449884	119.7
7	JV69	L6	True	1000.00	978.090466	97.8
8	JV70	L7	True	2500.00	2713.219176	108.5
9	JV71	L8	True	5000.00	5166.334700	103.3
10	JV72	L9	True	10000.00	9554.926891	95.6





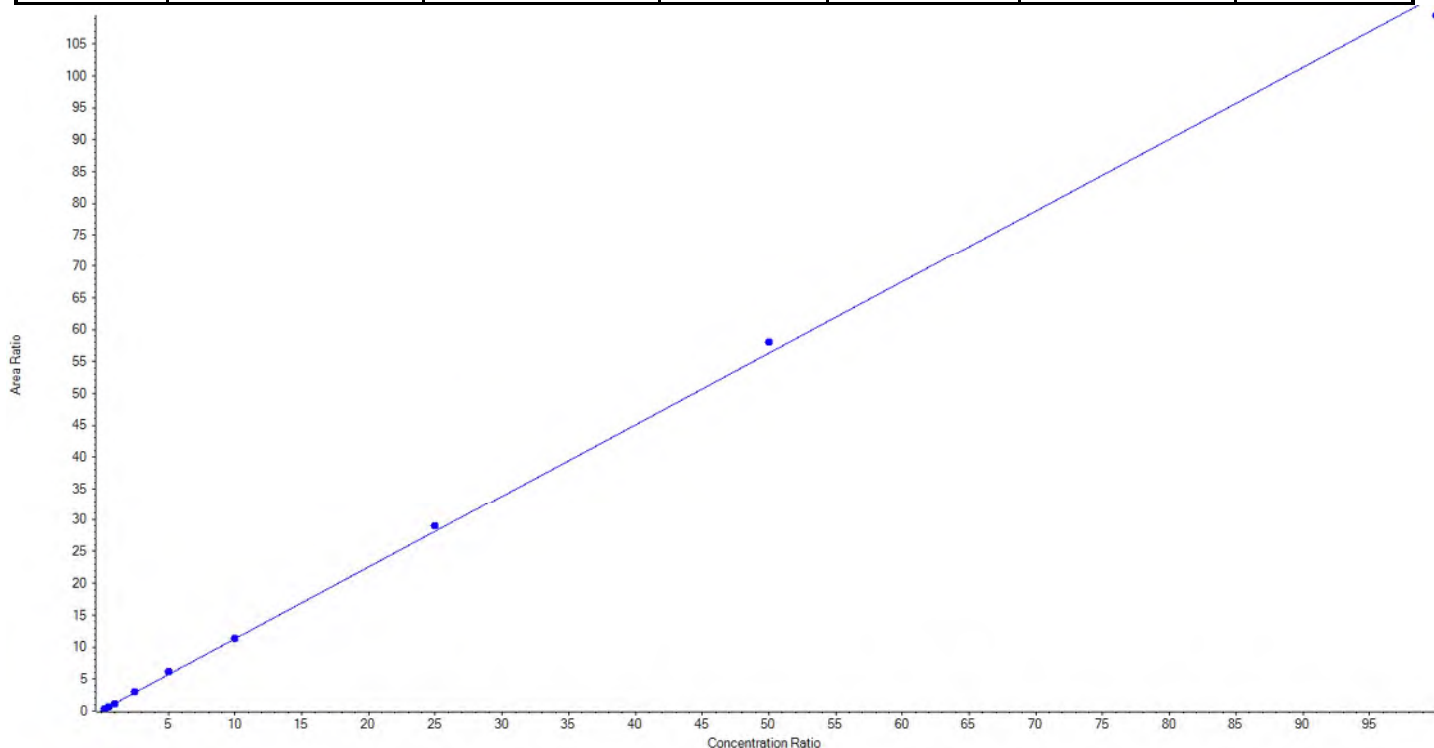
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Analyte Name	PFUnA_1	Data File	18-0313.wiff
MRM Transition	563.0 / 519.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.12524 x + 0.05385$ (r = 0.99945) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	24.089066	96.4
3	JV65	L2	True	50.00	45.924072	91.9
4	JV66	L3	True	100.00	93.739853	93.7
5	JV67	L4	True	250.00	263.505185	105.4
6	JV68	L5	True	500.00	546.212628	109.2
7	JV69	L6	True	1000.00	1000.964662	100.1
8	JV70	L7	True	2500.00	2576.763887	103.1
9	JV71	L8	True	5000.00	5150.610976	103.0
10	JV72	L9	True	10000.00	9723.189670	97.2





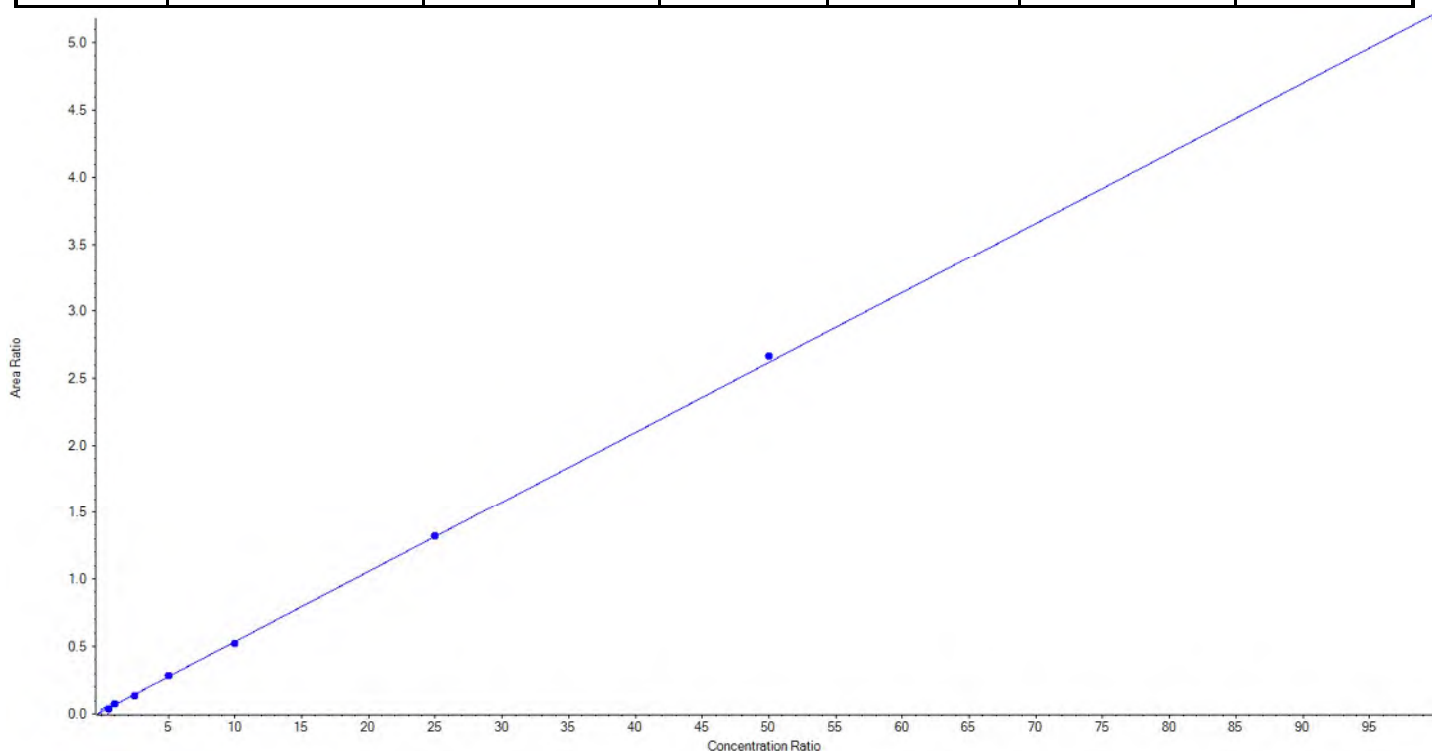
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Analyte Name	PFUnA_2	Data File	18-0313.wiff
MRM Transition	563.0 / 269.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05204 x + 0.01541$ (r = 0.99984) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	0.630758	2.5
3	JV65	L2	True	50.00	46.402649	92.8
4	JV66	L3	True	100.00	110.523860	110.5
5	JV67	L4	True	250.00	233.942859	93.6
6	JV68	L5	True	500.00	520.526486	104.1
7	JV69	L6	True	1000.00	978.427801	97.8
8	JV70	L7	True	2500.00	2507.249455	100.3
9	JV71	L8	True	5000.00	5082.637315	101.7
10	JV72	L9	True	10000.00	9920.289573	99.2





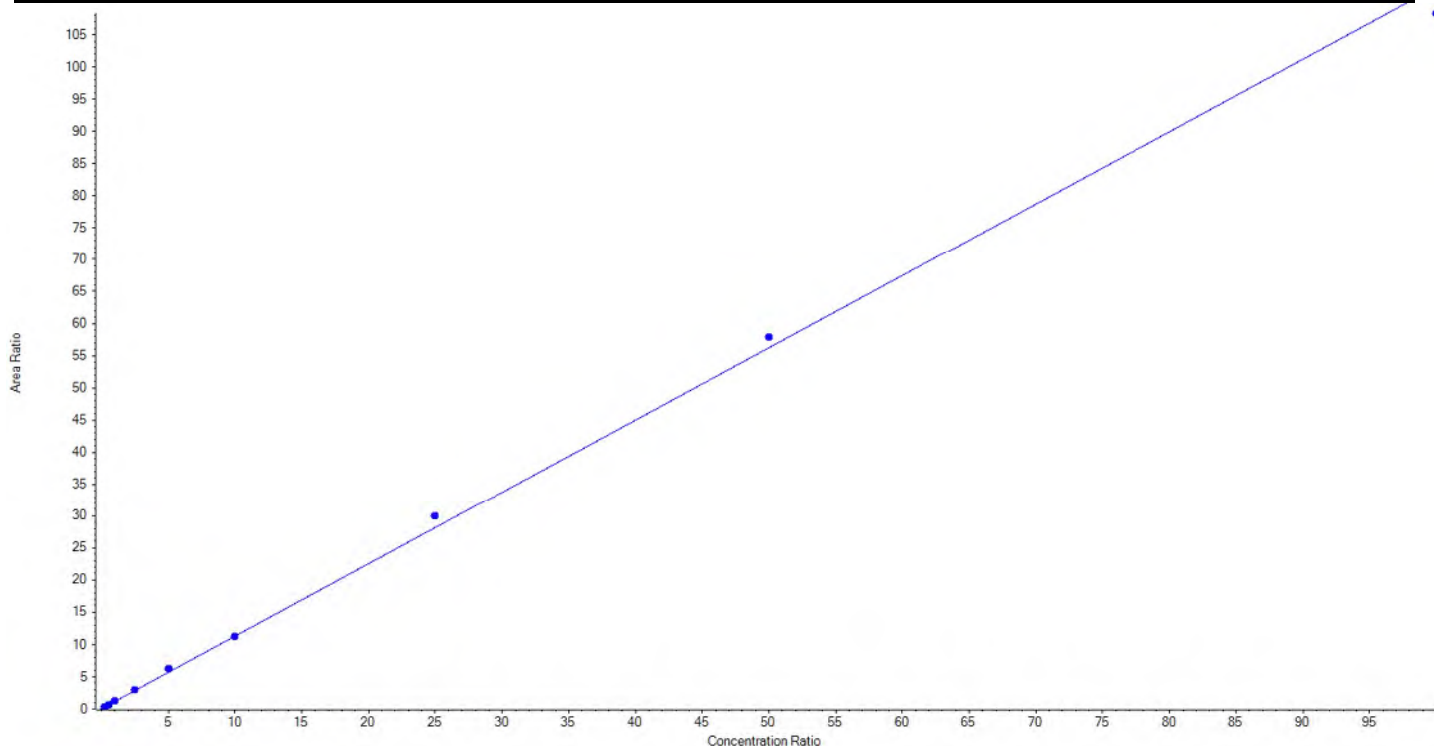
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Analyte Name	PFD _o A_1	Data File	18-0313.wiff
MRM Transition	613.0 / 569.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.12396x + 0.04546$ ($r = 0.99903$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	21.386025	85.5
3	JV65	L2	True	50.00	46.149854	92.3
4	JV66	L3	True	100.00	100.371982	100.4
5	JV67	L4	True	250.00	261.955860	104.8
6	JV68	L5	True	500.00	555.474506	111.1
7	JV69	L6	True	1000.00	1002.365324	100.2
8	JV70	L7	True	2500.00	2661.890707	106.5
9	JV71	L8	True	5000.00	5144.074612	102.9
10	JV72	L9	True	10000.00	9631.331130	96.3





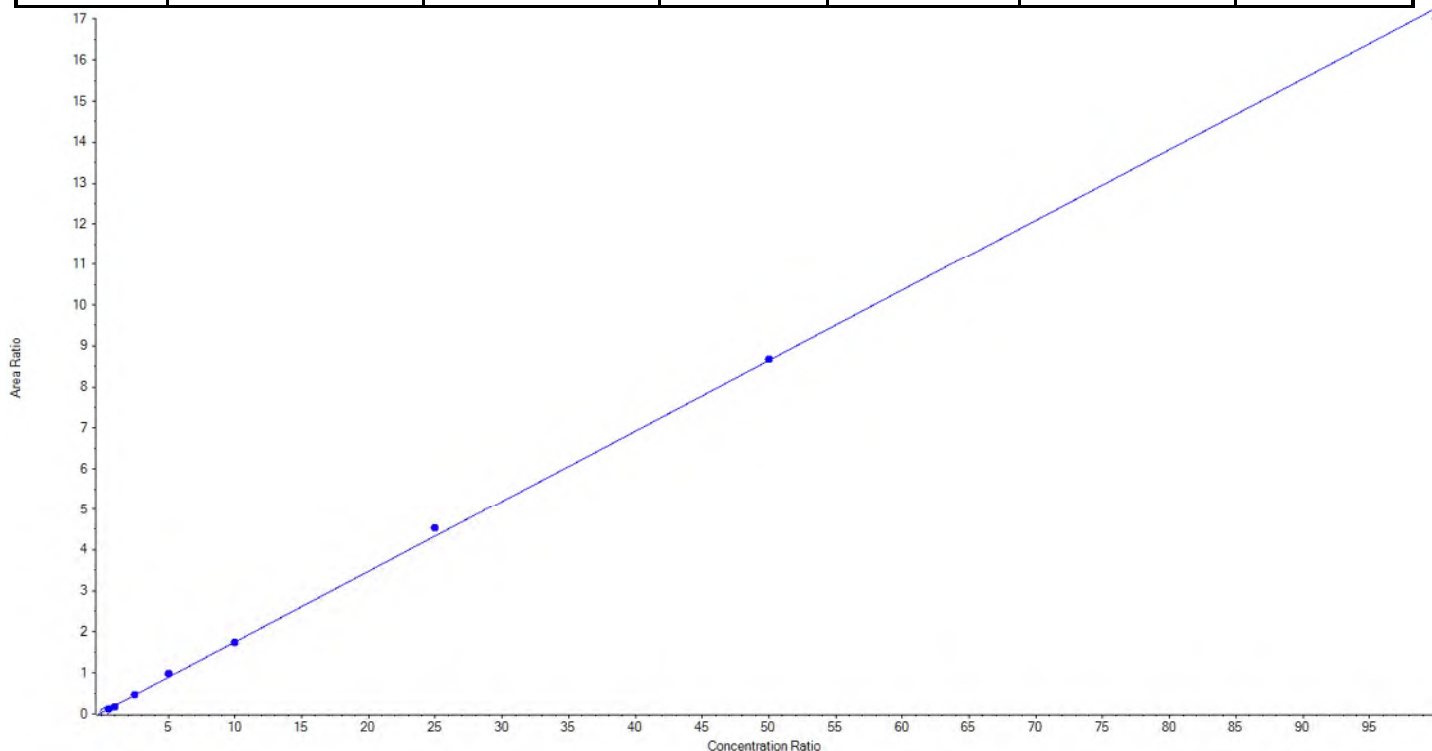
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFD _o A_2	Data File	18-0313.wiff
MRM Transition	613.0 / 319.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.17236 x + 0.02845$ (r = 0.99959) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	7.804720	31.2
3	JV65	L2	True	50.00	53.040734	106.1
4	JV66	L3	True	100.00	83.092603	83.1
5	JV67	L4	True	250.00	247.417961	99.0
6	JV68	L5	True	500.00	547.673098	109.5
7	JV69	L6	True	1000.00	991.539776	99.2
8	JV70	L7	True	2500.00	2607.895936	104.3
9	JV71	L8	True	5000.00	5016.091027	100.3
10	JV72	L9	True	10000.00	9853.248864	98.5





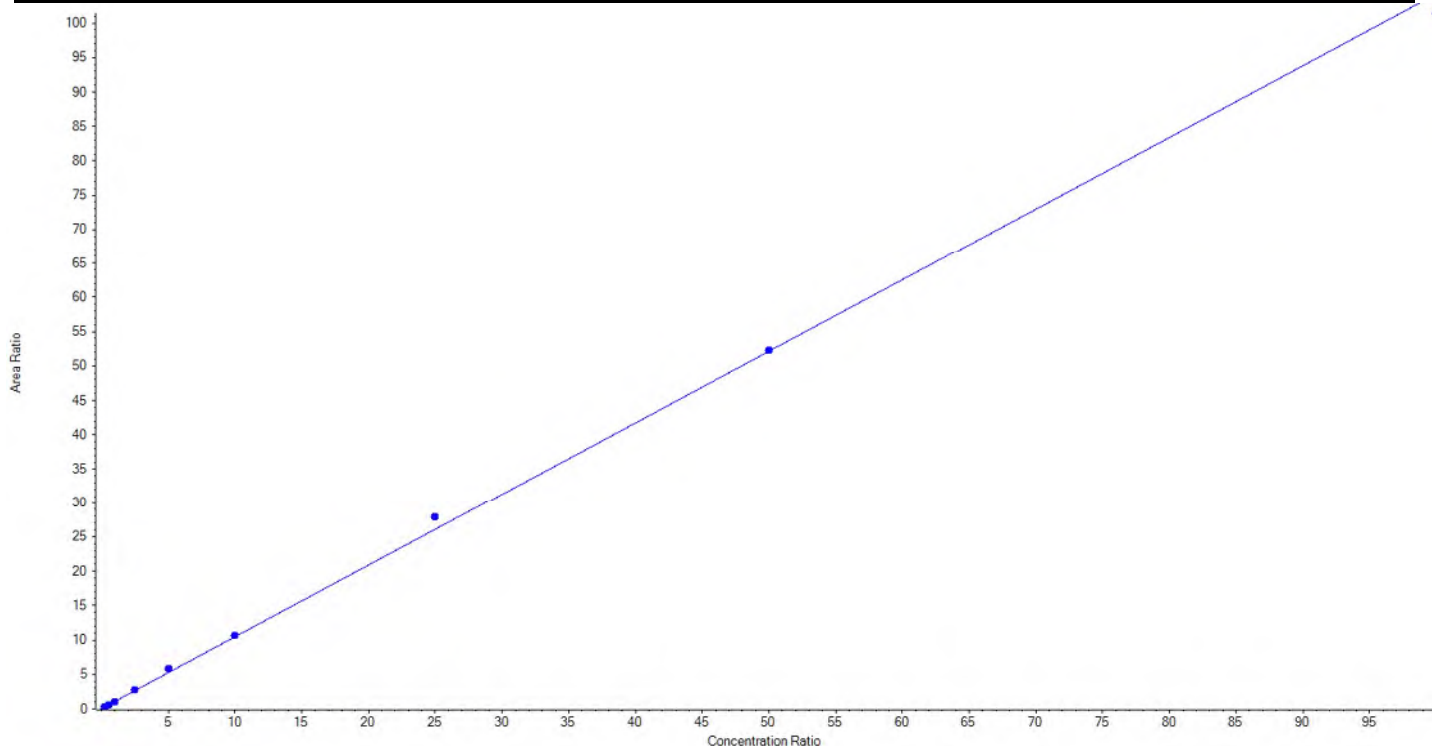
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFTrDA_1	Data File	18-0313.wiff
MRM Transition	663.0 / 619.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.04170 x + 0.05468$ (r = 0.99926) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	21.242461	85.0
3	JV65	L2	True	50.00	47.209992	94.4
4	JV66	L3	True	100.00	97.574463	97.6
5	JV67	L4	True	250.00	266.206145	106.5
6	JV68	L5	True	500.00	549.792324	110.0
7	JV69	L6	True	1000.00	1017.912346	101.8
8	JV70	L7	True	2500.00	2679.029289	107.2
9	JV71	L8	True	5000.00	5018.204996	100.4
10	JV72	L9	True	10000.00	9727.827984	97.3





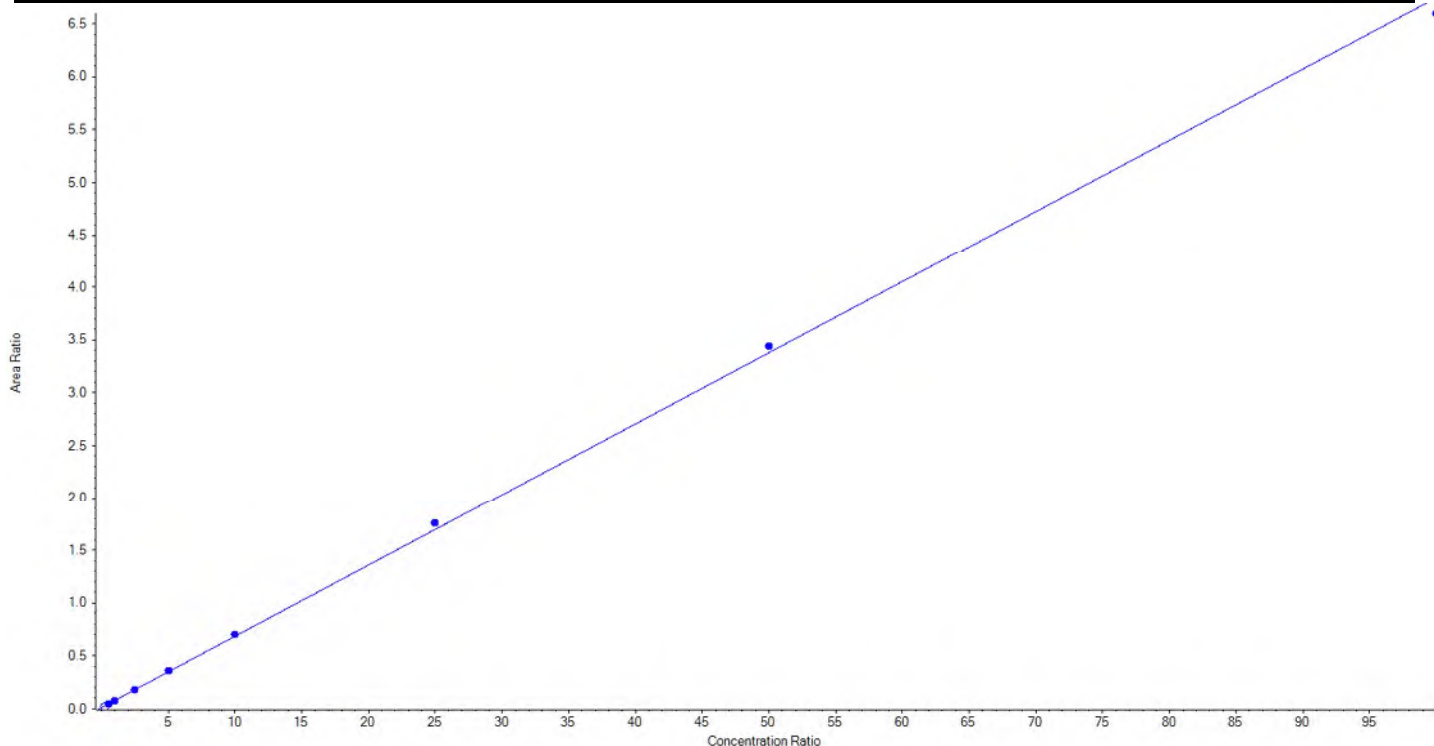
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFTTrDA_2	Data File	18-0313.wiff
MRM Transition	663.0 / 169.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06731 x + 0.01330$ (r = 0.99966) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	2.049840	8.2
3	JV65	L2	True	50.00	46.658919	93.3
4	JV66	L3	True	100.00	98.013127	98.0
5	JV67	L4	True	250.00	247.103066	98.8
6	JV68	L5	True	500.00	522.356398	104.5
7	JV69	L6	True	1000.00	1018.579760	101.9
8	JV70	L7	True	2500.00	2597.383911	103.9
9	JV71	L8	True	5000.00	5090.414923	101.8
10	JV72	L9	True	10000.00	9779.489896	97.8





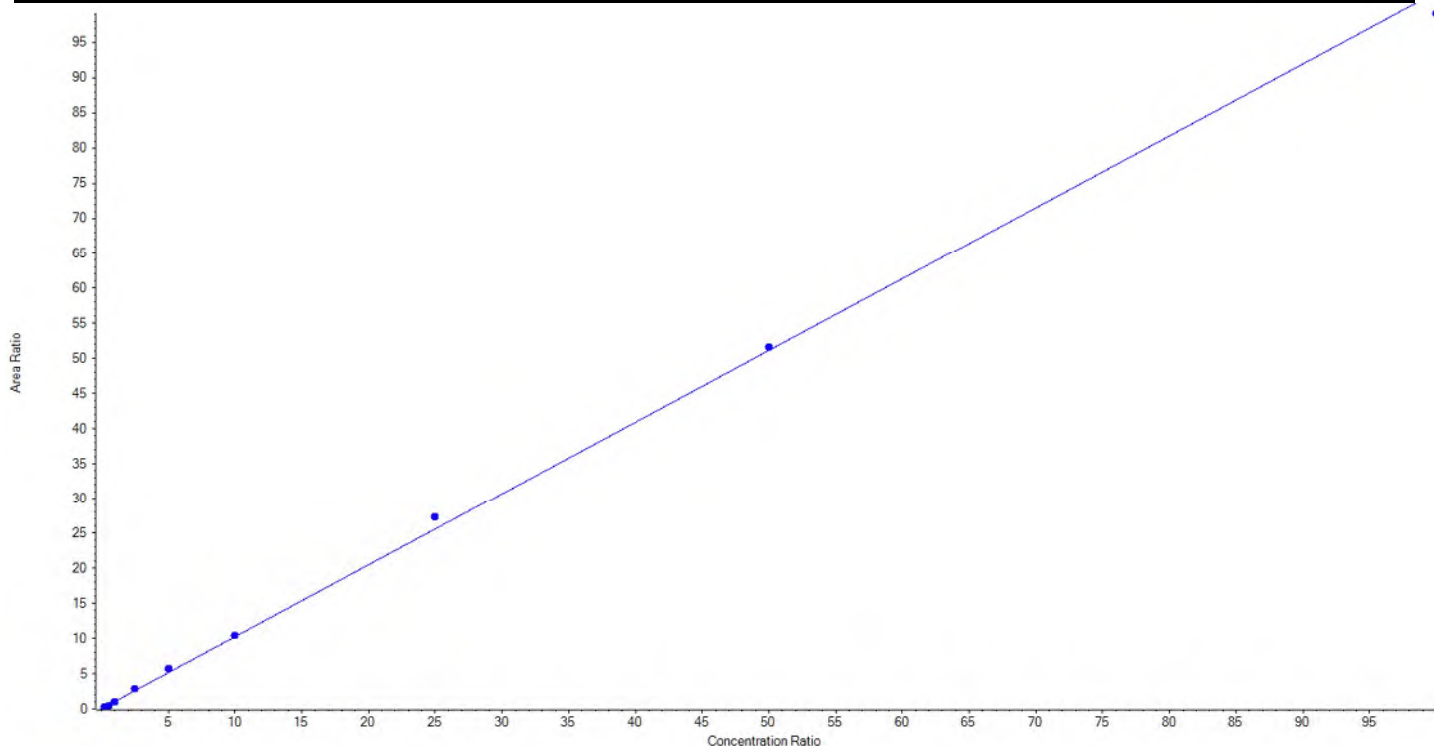
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFTeDA_1	Data File	18-0313.wiff
MRM Transition	713.0 / 669.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.02134 x + 0.03267$ (r = 0.99917) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	22.789628	91.2
3	JV65	L2	True	50.00	44.447403	88.9
4	JV66	L3	True	100.00	92.488743	92.5
5	JV67	L4	True	250.00	276.378112	110.6
6	JV68	L5	True	500.00	550.845491	110.2
7	JV69	L6	True	1000.00	1020.383286	102.0
8	JV70	L7	True	2500.00	2667.997144	106.7
9	JV71	L8	True	5000.00	5048.267960	101.0
10	JV72	L9	True	10000.00	9701.402232	97.0





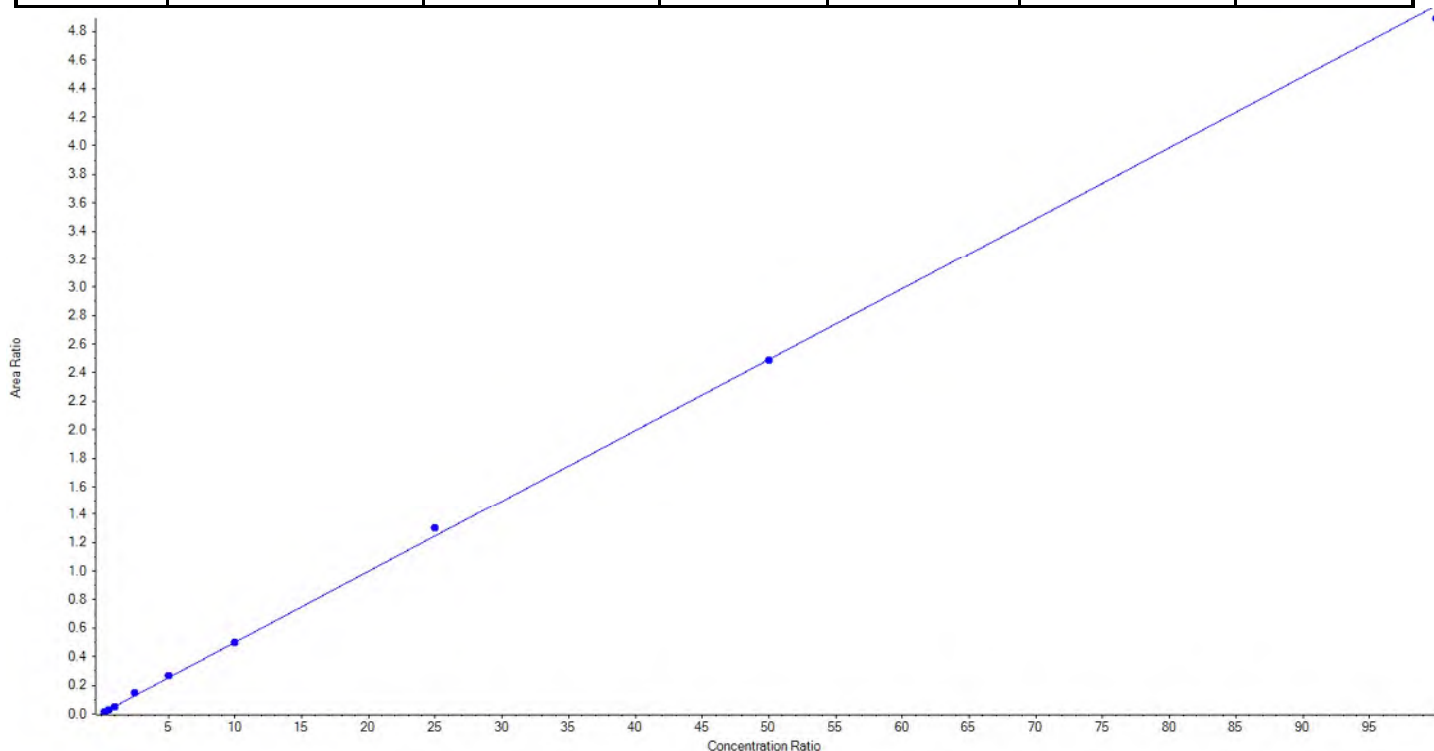
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFTeDA_2	Data File	18-0313.wiff
MRM Transition	713.0 / 169.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.04978 x + 0.00345$ (r = 0.99942) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	20.961194	83.8
3	JV65	L2	True	50.00	44.351644	88.7
4	JV66	L3	True	100.00	98.814825	98.8
5	JV67	L4	True	250.00	296.168648	118.5
6	JV68	L5	True	500.00	535.567580	107.1
7	JV69	L6	True	1000.00	1003.798782	100.4
8	JV70	L7	True	2500.00	2617.205633	104.7
9	JV71	L8	True	5000.00	4990.671418	99.8
10	JV72	L9	True	10000.00	9817.460276	98.2





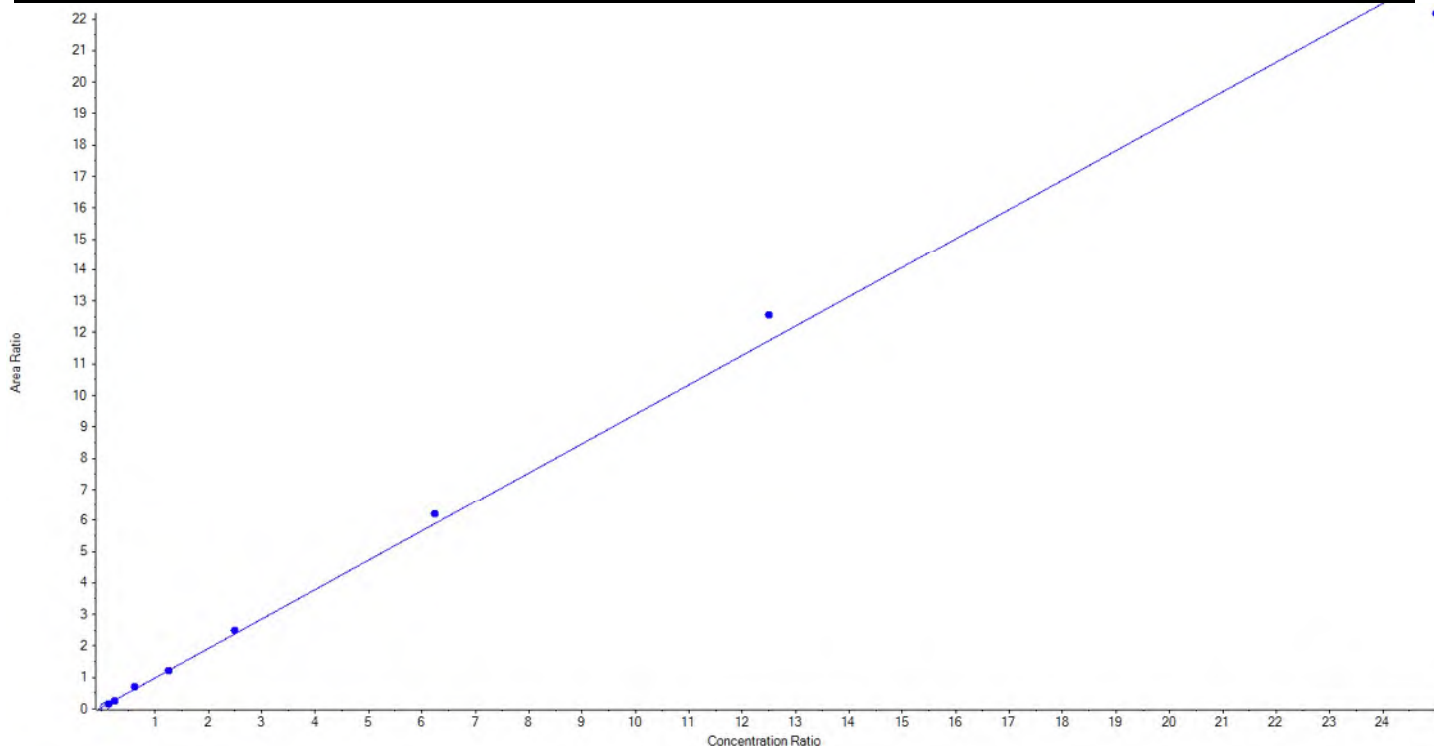
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	NMeFOSAA_1	Data File	18-0313.wiff
MRM Transition	570.0 / 419.0	Result Table	18-0312_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.93548x + 0.04710$ ($r = 0.99806$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	10.005275	40.0
3	JV65	L2	True	50.00	45.576655	91.2
4	JV66	L3	True	100.00	86.775272	86.8
5	JV67	L4	True	250.00	279.677441	111.9
6	JV68	L5	True	500.00	495.256714	99.1
7	JV69	L6	True	1000.00	1040.135137	104.0
8	JV70	L7	True	2500.00	2635.295656	105.4
9	JV71	L8	True	5000.00	5355.092820	107.1
10	JV72	L9	True	10000.00	9462.190305	94.6





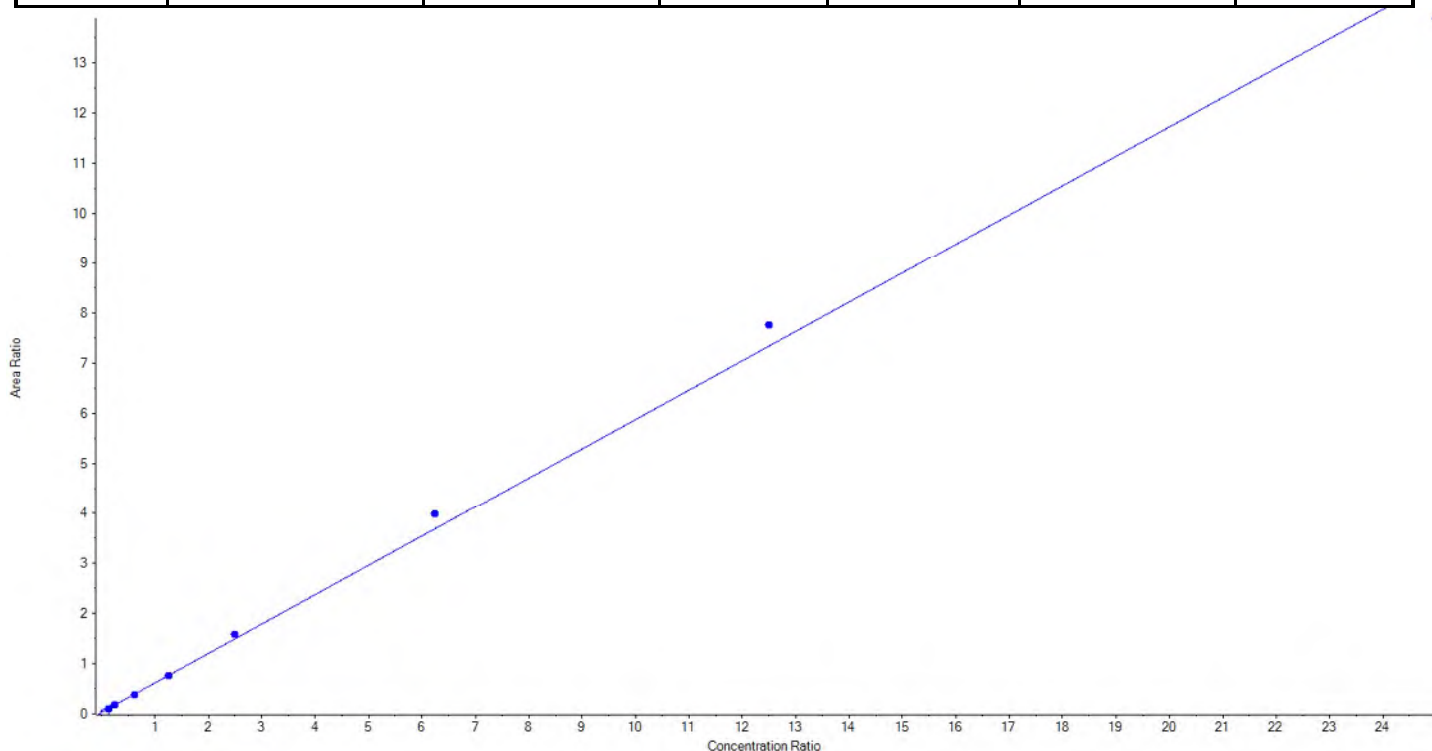
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	NMeFOSAA_2	Data File	18-0313.wiff
MRM Transition	570.0 / 512.0	Result Table	18-0312_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.58489x + 0.03127$ ($r = 0.99817$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	< 0	N/A
3	JV65	L2	True	50.00	47.530013	95.1
4	JV66	L3	True	100.00	97.243811	97.2
5	JV67	L4	True	250.00	235.372178	94.2
6	JV68	L5	True	500.00	496.856842	99.4
7	JV69	L6	True	1000.00	1055.751249	105.6
8	JV70	L7	True	2500.00	2699.865712	108.0
9	JV71	L8	True	5000.00	5293.236830	105.9
10	JV72	L9	True	10000.00	9474.143366	94.7





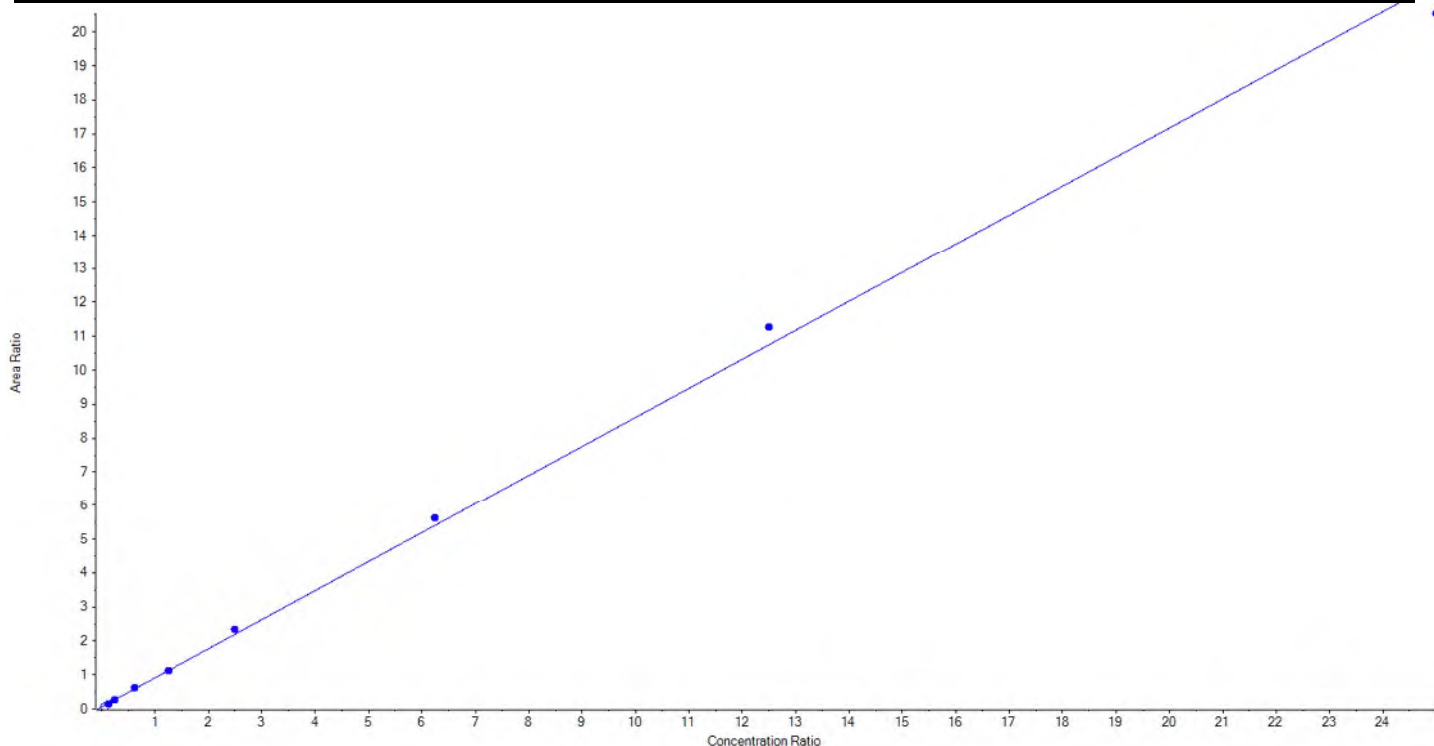
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	NEtFOSAA_1	Data File	18-0313.wiff
MRM Transition	584.0 / 419.0	Result Table	18-0312_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.85558x + 0.05717$ ($r = 0.99884$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	3.138261	12.6
3	JV65	L2	True	50.00	42.784938	85.6
4	JV66	L3	True	100.00	97.864659	97.9
5	JV67	L4	True	250.00	260.601917	104.2
6	JV68	L5	True	500.00	502.172020	100.4
7	JV69	L6	True	1000.00	1069.526868	107.0
8	JV70	L7	True	2500.00	2607.040747	104.3
9	JV71	L8	True	5000.00	5245.588850	104.9
10	JV72	L9	True	10000.00	9574.420001	95.7





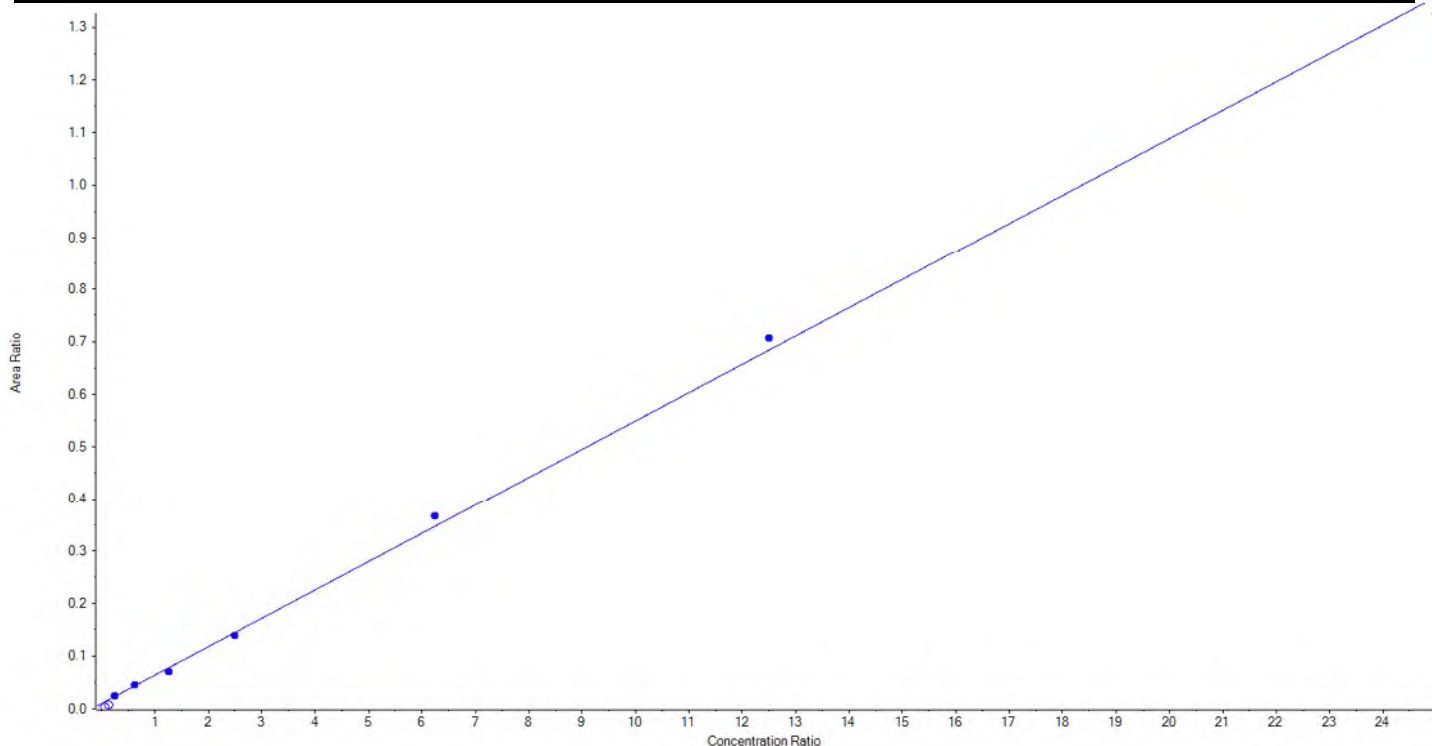
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	NEtFOSAA_2	Data File	18-0313.wiff
MRM Transition	584.0 / 483.0	Result Table	18-0312_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05390x + 0.01038$ ($r = 0.99914$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	< 0	N/A
3	JV65	L2	False	50.00	< 0	N/A
4	JV66	L3	True	100.00	102.682341	102.7
5	JV67	L4	True	250.00	263.060335	105.2
6	JV68	L5	True	500.00	448.299583	89.7
7	JV69	L6	True	1000.00	953.973248	95.4
8	JV70	L7	True	2500.00	2651.575627	106.1
9	JV71	L8	True	5000.00	5166.916956	103.3
10	JV72	L9	True	10000.00	9763.491910	97.6





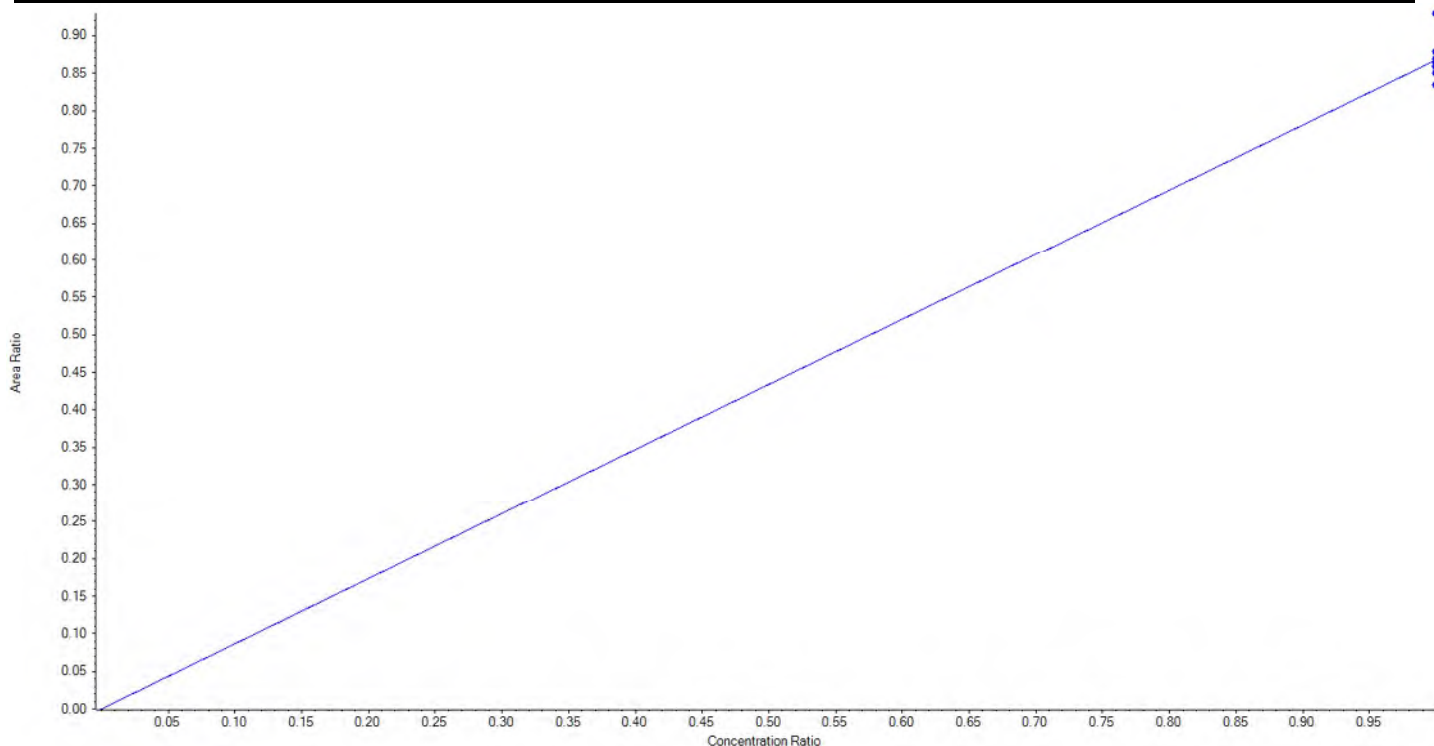
Calibration Summary Report

Created with Analyst Reporter
Printed: 16/05/2018 6:13:54 PM

Analyte Name	13C2-PFHxA	Data File	18-0313.wiff
MRM Transition	315.0 / 270.0	Result Table	18-0312_SIS
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.86776 x$ (std. dev. = 0.02626) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	100.00	98.020442	98.0
3	JV65	L2	True	100.00	99.755684	99.8
4	JV66	L3	True	100.00	96.076406	96.1
5	JV67	L4	True	100.00	101.261699	101.3
6	JV68	L5	True	100.00	107.090850	107.1
7	JV69	L6	True	100.00	98.981712	99.0
8	JV70	L7	True	100.00	100.110183	100.1
9	JV71	L8	True	100.00	99.582207	99.6
10	JV72	L9	True	100.00	99.120816	99.1





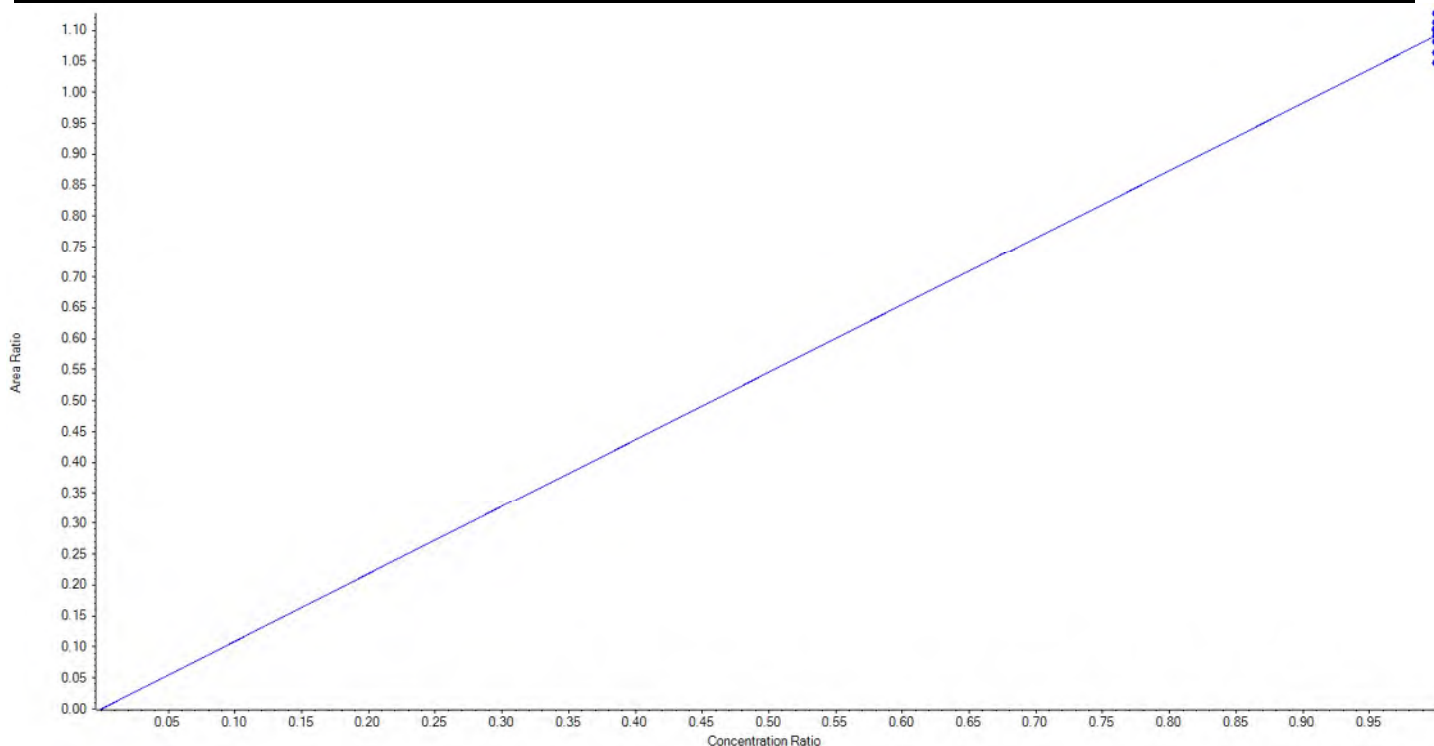
Calibration Summary Report

Created with Analyst Reporter
Printed: 16/05/2018 6:13:54 PM

Analyte Name	13C2-PFDA	Data File	18-0313.wiff
MRM Transition	515.0 / 470.0	Result Table	18-0312_SIS
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.09175 x$ (std. dev. = 0.02453) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	100.00	100.899994	100.9
3	JV65	L2	True	100.00	101.842030	101.8
4	JV66	L3	True	100.00	95.955385	96.0
5	JV67	L4	True	100.00	100.945624	101.0
6	JV68	L5	True	100.00	99.030618	99.0
7	JV69	L6	True	100.00	99.943881	99.9
8	JV70	L7	True	100.00	100.762815	100.8
9	JV71	L8	True	100.00	103.242191	103.2
10	JV72	L9	True	100.00	97.377461	97.4





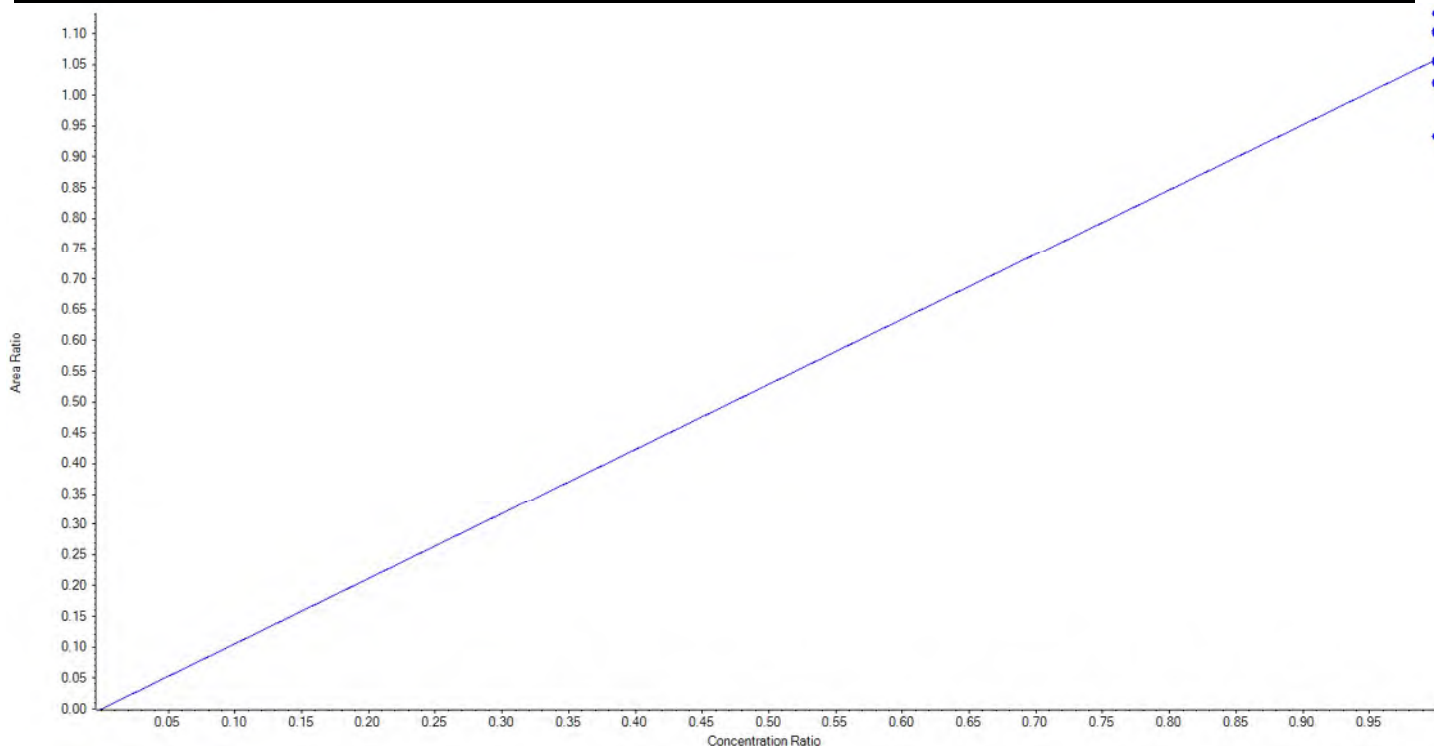
Calibration Summary Report

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Analyte Name	d5-EtFOSAA	Data File	18-0313.wiff
MRM Transition	589.0 / 419.0	Result Table	18-0312_SIS
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.05792 x$ (std. dev. = 0.06113) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	400.00	417.483654	104.4
3	JV65	L2	True	400.00	428.176230	107.0
4	JV66	L3	True	400.00	416.843259	104.2
5	JV67	L4	True	400.00	397.729721	99.4
6	JV68	L5	True	400.00	384.986316	96.3
7	JV69	L6	True	400.00	399.963901	100.0
8	JV70	L7	True	400.00	415.707146	103.9
9	JV71	L8	True	400.00	386.285043	96.6
10	JV72	L9	True	400.00	352.824731	88.2



Sample Name	JV64	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:27:07	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.45	6012.46	28.045095	141.4	true
PFBS_2	298.9 / 99.0	1.45	2376.78	25.833478	55.9	true
PFHxA_1	313.0 / 269.0	1.74	10036.96	18.657460	81.6	true
PFHxA_2	313.0 / 119.0	1.74	623.86	15.890183	54.1	true
PFHpA_1	363.0 / 319.0	2.09	7907.92	19.315174	32.9	true
PFHpA_2	363.0 / 169.0	2.10	280.19	10.338123	17.9	true
PFHxS_1	399.0 / 80.0	2.10	8074.83	25.556500	93.6	false
PFHxS_2	399.0 / 99.0	2.10	2224.06	24.128618	50.3	false
PFOA_1	413.0 / 369.0	2.47	10318.88	20.271455	48.7	true
PFOA_2	413.0 / 169.0	2.48	890.28	8.864133	31.0	true
PFNA_1	463.0 / 419.0	2.85	10363.27	18.792753	43.4	false
PFNA_2	463.0 / 219.0	2.85	2609.30	18.357615	49.8	false
PFOS_1	499.0 / 80.0	2.85	13616.79	28.031094	80.4	false
PFOS_2	499.0 / 99.0	2.85	2111.68	23.346458	65.7	false
PFDA_1	513.0 / 469.0	3.21	10050.99	21.617757	49.0	false
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	3.52	12489.37	24.089066	56.8	false
PFUnA_2	563.0 / 269.0	3.50	604.82	0.630758	27.4	false
PFDoA_1	613.0 / 569.0	3.81	10987.16	21.386025	70.8	false
PFDoA_2	613.0 / 319.0	3.81	1610.52	7.804720	45.9	false
PFTTrDA_1	663.0 / 619.0	4.06	10607.99	21.242461	97.7	false
PFTTrDA_2	663.0 / 169.0	4.06	564.17	2.049840	33.2	false
PFTeDA_1	713.0 / 669.0	4.28	10203.09	22.789628	141.0	false
PFTeDA_2	713.0 / 169.0	4.27	533.65	20.961194	45.6	false
NMeFOSAA_1	570.0 / 419.0	3.35	2545.83	10.005275	171.3	false
NMeFOSAA_2	570.0 / 512.0	3.35	668.28	< 0	27.6	false
NEtFOSAA_1	584.0 / 419.0	3.52	2307.12	3.138261	139.9	false
NEtFOSAA_2	584.0 / 483.0	3.89	163.85	< 0	18.5	false

Sample Name	JV64	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:27:07	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.72	32696.33	98.020442	623.4	false
13C2-PFDA	515.0 / 470.0	3.19	42344.22	100.899994	572.5	false
d5-EtFOSAA	589.0 / 419.0	3.51	39874.15	417.483654	298.0	false

Sample Name	JV65	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:36:03	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.45	12834.48	48.489227	207.5	true
PFBS_2	298.9 / 99.0	1.44	4719.14	47.169014	105.5	false
PFHxA_1	313.0 / 269.0	1.73	18711.51	42.893737	109.7	false
PFHxA_2	313.0 / 119.0	1.73	1810.00	63.552557	101.4	false
PFHpA_1	363.0 / 319.0	2.09	19607.26	54.414136	51.8	false
PFHpA_2	363.0 / 169.0	2.07	543.70	48.862884	38.9	false
PFHxS_1	399.0 / 80.0	2.10	16120.12	45.328748	115.4	false
PFHxS_2	399.0 / 99.0	2.10	4704.41	45.498258	90.3	false
PFOA_1	413.0 / 369.0	2.47	20965.43	48.064799	72.4	false
PFOA_2	413.0 / 169.0	2.47	2060.46	53.444479	102.8	false
PFNA_1	463.0 / 419.0	2.84	22712.64	50.077219	69.7	false
PFNA_2	463.0 / 219.0	2.84	6399.55	50.945275	89.1	false
PFOS_1	499.0 / 80.0	2.83	22807.50	42.301066	89.8	false
PFOS_2	499.0 / 99.0	2.83	5205.78	50.287062	101.8	false
PFDA_1	513.0 / 469.0	3.19	20571.42	46.915581	81.3	false
PFDA_2	513.0 / 219.0	3.21	1030.59	46.777482	42.6	false
PFUnA_1	563.0 / 519.0	3.51	22370.56	45.924072	84.0	false
PFUnA_2	563.0 / 269.0	3.51	1550.80	46.402649	39.6	false
PFDoA_1	613.0 / 569.0	3.80	22118.07	46.149854	96.8	false
PFDoA_2	613.0 / 319.0	3.80	4699.33	53.040734	98.8	false
PFTTrDA_1	663.0 / 619.0	4.05	21424.28	47.209992	133.9	false
PFTTrDA_2	663.0 / 169.0	4.04	1752.54	46.658919	71.4	false
PFTeDA_1	713.0 / 669.0	4.27	19078.40	44.447403	175.9	false
PFTeDA_2	713.0 / 169.0	4.26	1000.77	44.351644	79.1	false
NMeFOSAA_1	570.0 / 419.0	3.34	5670.73	45.576655	172.6	false
NMeFOSAA_2	570.0 / 512.0	3.33	3718.16	47.530013	104.7	false
NEtFOSAA_1	584.0 / 419.0	3.50	5486.30	42.784938	170.4	false
NEtFOSAA_2	584.0 / 483.0	3.50	299.25	< 0	25.4	false

Sample Name	JV65	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:36:03	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.72	33937.67	99.755684	1048.7	false
13C2-PFDA	515.0 / 470.0	3.18	43590.53	101.842030	470.0	false
d5-EtFOSAA	589.0 / 419.0	3.50	41784.49	428.176230	267.3	false

Sample Name	JV66	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:45:01	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.45	20180.95	86.791512	289.2	true
PFBS_2	298.9 / 99.0	1.45	6922.62	84.473566	128.9	true
PFHxA_1	313.0 / 269.0	1.73	30083.91	88.393959	161.0	false
PFHxA_2	313.0 / 119.0	1.73	2034.47	85.128911	83.5	false
PFHpA_1	363.0 / 319.0	2.09	26397.60	87.171830	59.8	false
PFHpA_2	363.0 / 169.0	2.08	695.28	87.168294	49.2	false
PFHxS_1	399.0 / 80.0	2.10	28780.26	96.635739	138.9	false
PFHxS_2	399.0 / 99.0	2.10	9167.58	106.207971	122.1	false
PFOA_1	413.0 / 369.0	2.47	36593.84	104.359044	87.3	false
PFOA_2	413.0 / 169.0	2.48	2220.48	72.590674	98.8	false
PFNA_1	463.0 / 419.0	2.84	35781.62	97.651904	90.0	false
PFNA_2	463.0 / 219.0	2.83	10321.72	98.707450	112.2	false
PFOS_1	499.0 / 80.0	2.83	40890.03	90.970659	128.5	false
PFOS_2	499.0 / 99.0	2.84	7971.30	92.083626	130.9	false
PFDA_1	513.0 / 469.0	3.19	36171.15	98.528321	103.7	false
PFDA_2	513.0 / 219.0	3.20	1290.91	74.434538	65.4	false
PFUnA_1	563.0 / 519.0	3.51	37767.85	93.739853	107.5	false
PFUnA_2	563.0 / 269.0	3.52	2484.41	110.523860	54.1	false
PFDoA_1	613.0 / 569.0	3.80	39980.56	100.371982	116.8	false
PFDoA_2	613.0 / 319.0	3.79	5847.96	83.092603	105.1	false
PFTTrDA_1	663.0 / 619.0	4.05	36489.21	97.574463	151.1	false
PFTTrDA_2	663.0 / 169.0	4.05	2700.36	98.013127	106.1	false
PFTeDA_1	713.0 / 669.0	4.27	33293.25	92.488743	242.9	false
PFTeDA_2	713.0 / 169.0	4.27	1793.20	98.814825	101.9	false
NMeFOSAA_1	570.0 / 419.0	3.34	7606.26	86.775272	256.7	false
NMeFOSAA_2	570.0 / 512.0	3.34	5276.76	97.243811	86.1	false
NEtFOSAA_1	584.0 / 419.0	3.51	8107.08	97.864659	181.2	false
NEtFOSAA_2	584.0 / 483.0	3.50	736.72	102.682341	68.4	false

Sample Name	JV66	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:45:01	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.72	28401.98	96.076406	804.1	false
13C2-PFDA	515.0 / 470.0	3.18	35687.97	95.955385	558.5	false
d5-EtFOSAA	589.0 / 419.0	3.50	33537.35	416.843259	194.1	false

Sample Name	JV67	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:53:56	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	62131.84	206.430305	593.0	true
PFBS_2	298.9 / 99.0	1.44	22661.03	224.337631	263.8	false
PFHxA_1	313.0 / 269.0	1.72	95358.92	258.426345	289.8	false
PFHxA_2	313.0 / 119.0	1.73	6342.83	244.158146	188.2	false
PFHpA_1	363.0 / 319.0	2.09	86351.57	253.853561	130.0	false
PFHpA_2	363.0 / 169.0	2.08	2040.70	268.362349	96.0	false
PFHxS_1	399.0 / 80.0	2.10	83889.62	225.752955	241.2	false
PFHxS_2	399.0 / 99.0	2.10	23869.98	222.356004	161.7	false
PFOA_1	413.0 / 369.0	2.46	99781.95	254.296931	208.8	false
PFOA_2	413.0 / 169.0	2.46	7431.38	257.344048	202.5	false
PFNA_1	463.0 / 419.0	2.84	107830.73	265.634549	133.5	false
PFNA_2	463.0 / 219.0	2.83	31638.25	267.249370	240.1	false
PFOS_1	499.0 / 80.0	2.83	128996.33	230.459461	203.1	false
PFOS_2	499.0 / 99.0	2.83	26184.76	241.652806	243.5	false
PFDA_1	513.0 / 469.0	3.19	114902.21	274.358579	170.1	false
PFDA_2	513.0 / 219.0	3.18	4730.06	267.766863	208.8	false
PFUnA_1	563.0 / 519.0	3.51	119969.50	263.505185	185.5	false
PFUnA_2	563.0 / 269.0	3.51	5450.70	233.942859	144.6	false
PFDoA_1	613.0 / 569.0	3.80	118810.04	261.955860	179.6	false
PFDoA_2	613.0 / 319.0	3.79	18077.08	247.417961	186.0	false
PFTTrDA_1	663.0 / 619.0	4.05	112372.62	266.206145	246.6	false
PFTTrDA_2	663.0 / 169.0	4.05	7137.80	247.103066	150.8	false
PFTeDA_1	713.0 / 669.0	4.26	113473.15	276.378112	381.5	false
PFTeDA_2	713.0 / 169.0	4.26	5995.88	296.168648	250.0	false
NMeFOSAA_1	570.0 / 419.0	3.34	25037.76	279.677441	380.9	false
NMeFOSAA_2	570.0 / 512.0	3.33	13406.09	235.372178	175.6	false
NEtFOSAA_1	584.0 / 419.0	3.51	21945.82	260.601917	258.1	false
NEtFOSAA_2	584.0 / 483.0	3.49	1636.48	263.060335	79.2	false

Sample Name	JV67	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:53:56	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.71	34919.51	101.261699	1017.6	false
13C2-PFDA	515.0 / 470.0	3.18	43795.66	100.945624	440.1	false
d5-EtFOSAA	589.0 / 419.0	3.50	37561.82	397.729721	236.8	false

Sample Name	JV68	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:02:52	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.45	104812.63	379.492245	798.4	true
PFBS_2	298.9 / 99.0	1.44	36371.94	398.532474	314.7	false
PFHxA_1	313.0 / 269.0	1.73	183243.64	590.552971	358.4	false
PFHxA_2	313.0 / 119.0	1.73	13144.17	602.362054	234.9	false
PFHpA_1	363.0 / 319.0	2.08	148710.97	513.574414	171.4	false
PFHpA_2	363.0 / 169.0	2.08	3050.53	490.348842	132.4	false
PFHxS_1	399.0 / 80.0	2.10	134335.48	398.622698	254.3	false
PFHxS_2	399.0 / 99.0	2.10	39962.51	410.686463	225.0	false
PFOA_1	413.0 / 369.0	2.46	180320.96	542.897965	251.5	false
PFOA_2	413.0 / 169.0	2.46	12649.20	535.062840	337.4	false
PFNA_1	463.0 / 419.0	2.83	191187.85	556.615759	217.6	false
PFNA_2	463.0 / 219.0	2.83	55683.78	552.006190	310.9	false
PFOS_1	499.0 / 80.0	2.82	217545.80	428.901519	249.8	false
PFOS_2	499.0 / 99.0	2.83	40292.28	409.963845	312.3	false
PFDA_1	513.0 / 469.0	3.18	186904.45	522.068312	184.4	false
PFDA_2	513.0 / 219.0	3.18	8810.46	598.449884	260.4	false
PFUnA_1	563.0 / 519.0	3.50	211889.25	546.212628	188.2	false
PFUnA_2	563.0 / 269.0	3.49	9784.88	520.526486	211.9	false
PFDoA_1	613.0 / 569.0	3.78	214921.24	555.474506	232.6	false
PFDoA_2	613.0 / 319.0	3.79	33232.43	547.673098	248.1	false
PFTTrDA_1	663.0 / 619.0	4.04	197597.30	549.792324	296.7	false
PFTTrDA_2	663.0 / 169.0	4.04	12469.98	522.356398	243.8	false
PFTeDA_1	713.0 / 669.0	4.25	193388.13	550.845491	455.3	false
PFTeDA_2	713.0 / 169.0	4.25	9229.15	535.567580	294.8	false
NMeFOSAA_1	570.0 / 419.0	3.33	40534.67	495.256714	507.1	false
NMeFOSAA_2	570.0 / 512.0	3.32	25483.38	496.856842	219.7	false
NEtFOSAA_1	584.0 / 419.0	3.49	38044.20	502.172020	388.0	false
NEtFOSAA_2	584.0 / 483.0	3.50	2380.62	448.299583	130.8	false

Sample Name	JV68	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:02:52	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.71	31759.15	107.090850	808.3	false
13C2-PFDA	515.0 / 470.0	3.17	36949.34	99.030618	670.5	false
d5-EtFOSAA	589.0 / 419.0	3.48	34241.22	384.986316	294.4	false

Sample Name	JV69	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:11:47	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	227662.97	778.046261	1170.7	true
PFBS_2	298.9 / 99.0	1.44	76014.58	793.604509	476.8	true
PFHxA_1	313.0 / 269.0	1.73	350548.82	1017.252318	557.0	false
PFHxA_2	313.0 / 119.0	1.73	24132.18	994.796286	313.1	false
PFHpA_1	363.0 / 319.0	2.09	313948.95	973.658392	246.4	false
PFHpA_2	363.0 / 169.0	2.09	6885.11	1022.051246	315.7	false
PFHxS_1	399.0 / 80.0	2.10	297124.53	837.957539	286.6	false
PFHxS_2	399.0 / 99.0	2.10	79736.77	779.306332	335.4	false
PFOA_1	413.0 / 369.0	2.46	379667.20	1028.463388	331.5	false
PFOA_2	413.0 / 169.0	2.46	26455.96	1023.026817	387.0	false
PFNA_1	463.0 / 419.0	2.84	392561.23	1028.511506	261.2	false
PFNA_2	463.0 / 219.0	2.84	112439.74	1000.117057	370.7	false
PFOS_1	499.0 / 80.0	2.83	447991.80	840.100698	290.6	false
PFOS_2	499.0 / 99.0	2.83	86820.14	839.354013	414.7	false
PFDA_1	513.0 / 469.0	3.19	407620.22	1020.948522	291.1	false
PFDA_2	513.0 / 219.0	3.19	15949.77	978.090466	427.6	false
PFUnA_1	563.0 / 519.0	3.51	432741.16	1000.964662	281.9	false
PFUnA_2	563.0 / 269.0	3.51	20060.62	978.427801	319.8	false
PFDoA_1	613.0 / 569.0	3.80	432532.43	1002.365324	313.8	false
PFDoA_2	613.0 / 319.0	3.80	66436.32	991.539776	274.5	false
PFTTrDA_1	663.0 / 619.0	4.05	407548.21	1017.912346	388.6	false
PFTTrDA_2	663.0 / 169.0	4.04	26723.53	1018.579760	333.5	false
PFTeDA_1	713.0 / 669.0	4.27	399748.93	1020.383286	555.4	false
PFTeDA_2	713.0 / 169.0	4.26	19238.84	1003.798782	427.1	false
NMeFOSAA_1	570.0 / 419.0	3.34	85048.52	1040.135137	369.6	false
NMeFOSAA_2	570.0 / 512.0	3.34	54020.37	1055.751249	278.7	false
NEtFOSAA_1	584.0 / 419.0	3.50	80424.45	1069.526868	338.8	false
NEtFOSAA_2	584.0 / 483.0	3.50	4765.15	953.973248	194.7	false

Sample Name	JV69	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:11:47	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.71	32843.60	98.981712	869.4	false
13C2-PFDA	515.0 / 470.0	3.18	41722.73	99.943881	454.4	false
d5-EtFOSAA	589.0 / 419.0	3.49	36281.67	399.963901	285.3	false

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:20:42	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	590230.90	2102.243811	2035.7	true
PFBS_2	298.9 / 99.0	1.44	199213.06	2179.802809	729.1	true
PFHxA_1	313.0 / 269.0	1.72	911617.65	2574.231542	790.4	false
PFHxA_2	313.0 / 119.0	1.72	67435.46	2705.114914	526.2	false
PFHpA_1	363.0 / 319.0	2.08	835130.90	2512.774114	333.2	false
PFHpA_2	363.0 / 169.0	2.08	18768.55	2747.089212	331.4	false
PFHxS_1	399.0 / 80.0	2.09	780484.32	2303.521436	370.9	false
PFHxS_2	399.0 / 99.0	2.10	226637.88	2318.419291	353.9	false
PFOA_1	413.0 / 369.0	2.46	1017075.48	2676.545515	422.8	false
PFOA_2	413.0 / 169.0	2.46	72748.84	2763.902729	621.2	false
PFNA_1	463.0 / 419.0	2.83	1058696.32	2695.858545	377.8	false
PFNA_2	463.0 / 219.0	2.83	319997.78	2760.876412	455.4	false
PFOS_1	499.0 / 80.0	2.82	1234790.84	2424.048404	402.5	false
PFOS_2	499.0 / 99.0	2.83	242129.11	2449.080596	411.9	false
PFDA_1	513.0 / 469.0	3.18	1074374.90	2607.612929	326.8	false
PFDA_2	513.0 / 219.0	3.18	45286.88	2713.219176	499.9	false
PFUnA_1	563.0 / 519.0	3.50	1148645.00	2576.763887	351.0	false
PFUnA_2	563.0 / 269.0	3.50	52207.58	2507.249455	303.3	false
PFDoA_1	613.0 / 569.0	3.79	1184842.70	2661.890707	370.0	false
PFDoA_2	613.0 / 319.0	3.79	178864.29	2607.895936	366.2	false
PFTrDA_1	663.0 / 619.0	4.04	1105680.40	2679.029289	424.6	false
PFTrDA_2	663.0 / 169.0	4.04	69654.68	2597.383911	411.8	false
PFTeDA_1	713.0 / 669.0	4.26	1078791.87	2667.997144	624.2	false
PFTeDA_2	713.0 / 169.0	4.26	51653.36	2617.205633	486.6	false
NMeFOSAA_1	570.0 / 419.0	3.33	226340.12	2635.295656	418.7	false
NMeFOSAA_2	570.0 / 512.0	3.33	145021.56	2699.865712	321.6	false
NEtFOSAA_1	584.0 / 419.0	3.50	205319.85	2607.040747	348.5	false
NEtFOSAA_2	584.0 / 483.0	3.49	13400.83	2651.575627	265.9	false

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:20:42	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.71	34351.16	100.110183	888.1	false
13C2-PFDA	515.0 / 470.0	3.17	43499.48	100.762815	638.6	false
d5-EtFOSAA	589.0 / 419.0	3.49	40071.08	415.707146	291.6	false

Sample Name	JV71	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:29:36	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.45	1080178.26	4507.247954	3186.6	true
PFBS_2	298.9 / 99.0	1.44	346433.03	4448.710926	1008.1	true
PFHxA_1	313.0 / 269.0	1.73	1617011.52	5136.044879	1110.1	false
PFHxA_2	313.0 / 119.0	1.73	113609.68	5124.538112	699.7	false
PFHpA_1	363.0 / 319.0	2.09	1532694.79	5182.125230	404.3	false
PFHpA_2	363.0 / 169.0	2.08	30418.15	5024.136423	351.7	false
PFHxS_1	399.0 / 80.0	2.10	1371846.24	4749.618935	376.3	false
PFHxS_2	399.0 / 99.0	2.10	393664.73	4724.397363	358.8	false
PFOA_1	413.0 / 369.0	2.46	1714583.27	5071.800474	461.4	false
PFOA_2	413.0 / 169.0	2.46	118525.69	5076.510630	538.1	false
PFNA_1	463.0 / 419.0	2.83	1803996.93	5164.160418	420.3	false
PFNA_2	463.0 / 219.0	2.83	530880.50	5145.638736	457.0	false
PFOS_1	499.0 / 80.0	2.83	2066972.71	4760.602564	381.6	false
PFOS_2	499.0 / 99.0	2.83	403302.53	4785.237481	479.3	false
PFDA_1	513.0 / 469.0	3.19	1917762.25	5228.352489	427.4	false
PFDA_2	513.0 / 219.0	3.19	76609.00	5166.334700	507.2	false
PFUnA_1	563.0 / 519.0	3.51	2043513.00	5150.610976	386.2	false
PFUnA_2	563.0 / 269.0	3.51	93725.92	5082.637315	400.6	false
PFDoA_1	613.0 / 569.0	3.79	2038307.21	5144.074612	373.1	false
PFDoA_2	613.0 / 319.0	3.79	305559.36	5016.091027	346.0	false
PFTTrDA_1	663.0 / 619.0	4.04	1843378.09	5018.204996	423.7	false
PFTTrDA_2	663.0 / 169.0	4.04	121162.66	5090.414923	385.6	false
PFTeDA_1	713.0 / 669.0	4.26	1817436.98	5048.267960	710.3	false
PFTeDA_2	713.0 / 169.0	4.26	87636.31	4990.671418	542.4	false
NMeFOSAA_1	570.0 / 419.0	3.34	400631.03	5355.092820	475.4	false
NMeFOSAA_2	570.0 / 512.0	3.33	247661.07	5293.236830	383.0	false
NEtFOSAA_1	584.0 / 419.0	3.50	359398.31	5245.588850	365.3	false
NEtFOSAA_2	584.0 / 483.0	3.49	22520.08	5166.916956	359.6	false

Sample Name	JV71	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:29:36	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.71	30440.72	99.582207	761.9	false
13C2-PFDA	515.0 / 470.0	3.18	39705.53	103.242191	615.2	false
d5-EtFOSAA	589.0 / 419.0	3.49	32559.14	386.285043	233.3	false

Sample Name	JV72	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:38:30	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	2263813.37	9055.263589	4954.4	true
PFBS_2	298.9 / 99.0	1.44	729700.76	8989.585593	1413.6	true
PFHxA_1	313.0 / 269.0	1.72	3290619.37	9692.204248	1470.9	false
PFHxA_2	313.0 / 119.0	1.72	229274.08	9589.458837	866.8	false
PFHpA_1	363.0 / 319.0	2.08	3134387.25	9822.428323	437.2	false
PFHpA_2	363.0 / 169.0	2.08	63274.43	9711.980749	435.0	false
PFHxS_1	399.0 / 80.0	2.10	2719983.73	9032.605450	396.2	false
PFHxS_2	399.0 / 99.0	2.10	789184.55	9084.599701	412.0	false
PFOA_1	413.0 / 369.0	2.46	3529169.20	9678.300429	642.0	false
PFOA_2	413.0 / 169.0	2.46	241809.19	9618.117783	663.9	false
PFNA_1	463.0 / 419.0	2.83	3597505.85	9547.697347	461.4	false
PFNA_2	463.0 / 219.0	2.83	1060974.41	9531.101896	512.9	false
PFOS_1	499.0 / 80.0	2.82	4134541.86	9134.134535	410.0	false
PFOS_2	499.0 / 99.0	2.82	798619.80	9088.544113	471.4	false
PFDA_1	513.0 / 469.0	3.18	3801617.95	9604.597509	407.9	false
PFDA_2	513.0 / 219.0	3.18	152723.48	9554.926891	421.9	false
PFUnA_1	563.0 / 519.0	3.50	4162267.36	9723.189670	388.1	false
PFUnA_2	563.0 / 269.0	3.50	196906.06	9920.289573	394.5	false
PFDoA_1	613.0 / 569.0	3.79	4117957.79	9631.331130	408.2	false
PFDoA_2	613.0 / 319.0	3.79	646847.79	9853.248864	385.0	false
PFTrDA_1	663.0 / 619.0	4.04	3855265.78	9727.827984	454.1	false
PFTrDA_2	663.0 / 169.0	4.04	250794.63	9779.489896	451.2	false
PFTeDA_1	713.0 / 669.0	4.26	3768874.99	9701.402232	643.7	false
PFTeDA_2	713.0 / 169.0	4.25	185960.35	9817.460276	619.9	false
NMeFOSAA_1	570.0 / 419.0	3.33	792470.19	9462.190305	443.0	false
NMeFOSAA_2	570.0 / 512.0	3.33	496163.71	9474.143366	433.6	false
NEtFOSAA_1	584.0 / 419.0	3.49	733868.29	9574.420001	425.2	false
NEtFOSAA_2	584.0 / 483.0	3.48	47385.98	9763.491910	365.5	false

Sample Name	JV72	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:38:30	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.71	32706.21	99.120816	747.9	false
13C2-PFDA	515.0 / 470.0	3.17	40424.47	97.377461	537.2	false
d5-EtFOSAA	589.0 / 419.0	3.49	33346.06	352.824731	259.6	false

Sample Name	JV64	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:27:07	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.45	PFBS	0.3480	0.3953	ü
PFHxA_1	313.0 / 269.0	1.74	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.74	PFHxA	0.0719	0.0622	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.10	PFHpA	0.0228	0.0354	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2754	ü
PFOA_1	413.0 / 369.0	2.47	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.48	PFOA	0.0728	0.0863	ü
PFNA_1	463.0 / 419.0	2.85	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.85	PFNA	0.2872	0.2518	ü
PFOS_1	499.0 / 80.0	2.85	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.85	PFOS	0.1938	0.1551	ü
PFDA_1	513.0 / 469.0	3.21	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	N/A	PFDA	0.0419	N/A	ü
PFUnA_1	563.0 / 519.0	3.52	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.50	PFUnA	0.0515	0.0484	ü
PFDoA_1	613.0 / 569.0	3.81	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.81	PFDoA	0.1596	0.1466	ü
PFTTrDA_1	663.0 / 619.0	4.06	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.06	PFTTrDA	0.0677	0.0532	ü
PFTeDA_1	713.0 / 669.0	4.28	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.27	PFTeDA	0.0503	0.0523	ü
NMeFOSAA_1	570.0 / 419.0	3.35	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.35	NMeFOSAA	0.6292	0.2625	ü
NEtFOSAA_1	584.0 / 419.0	3.52	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.89	NEtFOSSA	0.0685	0.0710	ü

Sample Name	JV65	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:36:03	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.3677	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.0719	0.0967	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.07	PFHpA	0.0228	0.0277	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2918	ü
PFOA_1	413.0 / 369.0	2.47	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.47	PFOA	0.0728	0.0983	ü
PFNA_1	463.0 / 419.0	2.84	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.84	PFNA	0.2872	0.2818	ü
PFOS_1	499.0 / 80.0	2.83	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.83	PFOS	0.1938	0.2282	ü
PFDA_1	513.0 / 469.0	3.19	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.21	PFDA	0.0419	0.0501	ü
PFUnA_1	563.0 / 519.0	3.51	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.51	PFUnA	0.0515	0.0693	ü
PFDoA_1	613.0 / 569.0	3.80	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.80	PFDoA	0.1596	0.2125	ü
PFTTrDA_1	663.0 / 619.0	4.05	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.04	PFTTrDA	0.0677	0.0818	ü
PFTeDA_1	713.0 / 669.0	4.27	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.26	PFTeDA	0.0503	0.0525	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.6292	0.6557	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.0685	0.0545	ü

Sample Name	JV66	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:45:01	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.45	PFBS	0.3480	0.3430	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.0719	0.0676	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.0228	0.0263	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.3185	ü
PFOA_1	413.0 / 369.0	2.47	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.48	PFOA	0.0728	0.0607	ü
PFNA_1	463.0 / 419.0	2.84	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.83	PFNA	0.2872	0.2885	ü
PFOS_1	499.0 / 80.0	2.83	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.84	PFOS	0.1938	0.1949	ü
PFDA_1	513.0 / 469.0	3.19	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.20	PFDA	0.0419	0.0357	ü
PFUnA_1	563.0 / 519.0	3.51	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.52	PFUnA	0.0515	0.0658	ü
PFDoA_1	613.0 / 569.0	3.80	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.1596	0.1463	ü
PFTTrDA_1	663.0 / 619.0	4.05	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.05	PFTTrDA	0.0677	0.0740	ü
PFTeDA_1	713.0 / 669.0	4.27	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.27	PFTeDA	0.0503	0.0539	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.6292	0.6937	ü
NEtFOSAA_1	584.0 / 419.0	3.51	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.0685	0.0909	ü

Sample Name	JV67	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:53:56	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.44	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.3647	ü
PFHxA_1	313.0 / 269.0	1.72	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.0719	0.0665	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.0228	0.0236	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2845	ü
PFOA_1	413.0 / 369.0	2.46	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.46	PFOA	0.0728	0.0745	ü
PFNA_1	463.0 / 419.0	2.84	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.83	PFNA	0.2872	0.2934	ü
PFOS_1	499.0 / 80.0	2.83	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.83	PFOS	0.1938	0.2030	ü
PFDA_1	513.0 / 469.0	3.19	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.18	PFDA	0.0419	0.0412	ü
PFUnA_1	563.0 / 519.0	3.51	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.51	PFUnA	0.0515	0.0454	ü
PFDoA_1	613.0 / 569.0	3.80	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.1596	0.1522	ü
PFTTrDA_1	663.0 / 619.0	4.05	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.05	PFTTrDA	0.0677	0.0635	ü
PFTeDA_1	713.0 / 669.0	4.26	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.26	PFTeDA	0.0503	0.0528	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.6292	0.5354	ü
NEtFOSAA_1	584.0 / 419.0	3.51	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.49	NEtFOSSA	0.0685	0.0746	ü

Sample Name	JV68	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:02:52	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.3470	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.0719	0.0717	ü
PFHpA_1	363.0 / 319.0	2.08	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.0228	0.0205	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2975	ü
PFOA_1	413.0 / 369.0	2.46	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.46	PFOA	0.0728	0.0701	ü
PFNA_1	463.0 / 419.0	2.83	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.83	PFNA	0.2872	0.2913	ü
PFOS_1	499.0 / 80.0	2.82	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.83	PFOS	0.1938	0.1852	ü
PFDA_1	513.0 / 469.0	3.18	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.18	PFDA	0.0419	0.0471	ü
PFUnA_1	563.0 / 519.0	3.50	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.49	PFUnA	0.0515	0.0462	ü
PFDoA_1	613.0 / 569.0	3.78	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.1596	0.1546	ü
PFTTrDA_1	663.0 / 619.0	4.04	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.04	PFTTrDA	0.0677	0.0631	ü
PFTeDA_1	713.0 / 669.0	4.25	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.25	PFTeDA	0.0503	0.0477	ü
NMeFOSAA_1	570.0 / 419.0	3.33	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.32	NMeFOSAA	0.6292	0.6287	ü
NEtFOSAA_1	584.0 / 419.0	3.49	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.0685	0.0626	ü

Sample Name	JV69	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:11:47	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.44	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.3339	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.0719	0.0688	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.09	PFHpA	0.0228	0.0219	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2684	ü
PFOA_1	413.0 / 369.0	2.46	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.46	PFOA	0.0728	0.0697	ü
PFNA_1	463.0 / 419.0	2.84	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.84	PFNA	0.2872	0.2864	ü
PFOS_1	499.0 / 80.0	2.83	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.83	PFOS	0.1938	0.1938	ü
PFDA_1	513.0 / 469.0	3.19	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.19	PFDA	0.0419	0.0391	ü
PFUnA_1	563.0 / 519.0	3.51	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.51	PFUnA	0.0515	0.0464	ü
PFDoA_1	613.0 / 569.0	3.80	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.80	PFDoA	0.1596	0.1536	ü
PFTTrDA_1	663.0 / 619.0	4.05	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.04	PFTTrDA	0.0677	0.0656	ü
PFTeDA_1	713.0 / 669.0	4.27	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.26	PFTeDA	0.0503	0.0481	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.6292	0.6352	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.0685	0.0592	ü

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:20:42	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.44	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.3375	ü
PFHxA_1	313.0 / 269.0	1.72	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.72	PFHxA	0.0719	0.0740	ü
PFHpA_1	363.0 / 319.0	2.08	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.0228	0.0225	ü
PFHxS_1	399.0 / 80.0	2.09	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2904	ü
PFOA_1	413.0 / 369.0	2.46	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.46	PFOA	0.0728	0.0715	ü
PFNA_1	463.0 / 419.0	2.83	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.83	PFNA	0.2872	0.3023	ü
PFOS_1	499.0 / 80.0	2.82	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.83	PFOS	0.1938	0.1961	ü
PFDA_1	513.0 / 469.0	3.18	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.18	PFDA	0.0419	0.0422	ü
PFUnA_1	563.0 / 519.0	3.50	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.50	PFUnA	0.0515	0.0455	ü
PFDoA_1	613.0 / 569.0	3.79	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.1596	0.1510	ü
PFTTrDA_1	663.0 / 619.0	4.04	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.04	PFTTrDA	0.0677	0.0630	ü
PFTeDA_1	713.0 / 669.0	4.26	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.26	PFTeDA	0.0503	0.0479	ü
NMeFOSAA_1	570.0 / 419.0	3.33	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.6292	0.6407	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.49	NEtFOSSA	0.0685	0.0653	ü

Sample Name	JV71	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:29:36	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.3207	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.0719	0.0703	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.0228	0.0198	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2870	ü
PFOA_1	413.0 / 369.0	2.46	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.46	PFOA	0.0728	0.0691	ü
PFNA_1	463.0 / 419.0	2.83	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.83	PFNA	0.2872	0.2943	ü
PFOS_1	499.0 / 80.0	2.83	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.83	PFOS	0.1938	0.1951	ü
PFDA_1	513.0 / 469.0	3.19	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.19	PFDA	0.0419	0.0399	ü
PFUnA_1	563.0 / 519.0	3.51	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.51	PFUnA	0.0515	0.0459	ü
PFDoA_1	613.0 / 569.0	3.79	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.1596	0.1499	ü
PFTTrDA_1	663.0 / 619.0	4.04	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.04	PFTTrDA	0.0677	0.0657	ü
PFTeDA_1	713.0 / 669.0	4.26	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.26	PFTeDA	0.0503	0.0482	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.6292	0.6182	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.49	NEtFOSSA	0.0685	0.0627	ü

Sample Name	JV72	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:38:30	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.44	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.3223	ü
PFHxA_1	313.0 / 269.0	1.72	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.72	PFHxA	0.0719	0.0697	ü
PFHpA_1	363.0 / 319.0	2.08	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.0228	0.0202	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2901	ü
PFOA_1	413.0 / 369.0	2.46	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.46	PFOA	0.0728	0.0685	ü
PFNA_1	463.0 / 419.0	2.83	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.83	PFNA	0.2872	0.2949	ü
PFOS_1	499.0 / 80.0	2.82	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.82	PFOS	0.1938	0.1932	ü
PFDA_1	513.0 / 469.0	3.18	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.18	PFDA	0.0419	0.0402	ü
PFUnA_1	563.0 / 519.0	3.50	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.50	PFUnA	0.0515	0.0473	ü
PFDoA_1	613.0 / 569.0	3.79	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.1596	0.1571	ü
PFTTrDA_1	663.0 / 619.0	4.04	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.04	PFTTrDA	0.0677	0.0651	ü
PFTeDA_1	713.0 / 669.0	4.26	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.25	PFTeDA	0.0503	0.0493	ü
NMeFOSAA_1	570.0 / 419.0	3.33	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.6292	0.6261	ü
NEtFOSAA_1	584.0 / 419.0	3.49	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.48	NEtFOSSA	0.0685	0.0646	ü

Sample Name	JV64	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:27:07	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.45	13C4-PFOS	503.0 / 80.0	117641.83	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	117641.83	287.00
PFHxA_1	313.0 / 269.0	1.74	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFHxA_2	313.0 / 119.0	1.74	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFHpA_2	363.0 / 169.0	2.10	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFHxS_1	399.0 / 80.0	2.10	13C4-PFOS	503.0 / 80.0	117641.83	287.00
PFHxS_2	399.0 / 99.0	2.10	13C4-PFOS	503.0 / 80.0	117641.83	287.00
PFOA_1	413.0 / 369.0	2.47	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFOA_2	413.0 / 169.0	2.48	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFNA_1	463.0 / 419.0	2.85	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFNA_2	463.0 / 219.0	2.85	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFOS_1	499.0 / 80.0	2.85	13C4-PFOS	503.0 / 80.0	117641.83	287.00
PFOS_2	499.0 / 99.0	2.85	13C4-PFOS	503.0 / 80.0	117641.83	287.00
PFDA_1	513.0 / 469.0	3.21	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFUnA_1	563.0 / 519.0	3.52	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFUnA_2	563.0 / 269.0	3.50	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFDaA_1	613.0 / 569.0	3.81	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFDaA_2	613.0 / 319.0	3.81	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFTTrDA_1	663.0 / 619.0	4.06	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFTTrDA_2	663.0 / 169.0	4.06	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFTeDA_1	713.0 / 669.0	4.28	13C2-PFOA	415.0 / 370.0	38439.74	100.00
PFTeDA_2	713.0 / 169.0	4.27	13C2-PFOA	415.0 / 370.0	38439.74	100.00
NMeFOSAA_1	570.0 / 419.0	3.35	d3-MeFOSAA	573.0 / 419.0	36112.58	400.00
NMeFOSAA_2	570.0 / 512.0	3.35	d3-MeFOSAA	573.0 / 419.0	36112.58	400.00
NEtFOSAA_1	584.0 / 419.0	3.52	d3-MeFOSAA	573.0 / 419.0	36112.58	400.00
NEtFOSAA_2	584.0 / 483.0	3.89	d3-MeFOSAA	573.0 / 419.0	36112.58	400.00

Sample Name	JV65	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:36:03	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.45	13C4-PFOS	503.0 / 80.0	128859.01	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	128859.01	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFHpA_2	363.0 / 169.0	2.07	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFHxS_1	399.0 / 80.0	2.10	13C4-PFOS	503.0 / 80.0	128859.01	287.00
PFHxS_2	399.0 / 99.0	2.10	13C4-PFOS	503.0 / 80.0	128859.01	287.00
PFOA_1	413.0 / 369.0	2.47	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFOA_2	413.0 / 169.0	2.47	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFNA_1	463.0 / 419.0	2.84	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFNA_2	463.0 / 219.0	2.84	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFOS_1	499.0 / 80.0	2.83	13C4-PFOS	503.0 / 80.0	128859.01	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	128859.01	287.00
PFDA_1	513.0 / 469.0	3.19	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFDA_2	513.0 / 219.0	3.21	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFUnA_1	563.0 / 519.0	3.51	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFUnA_2	563.0 / 269.0	3.51	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFDaA_1	613.0 / 569.0	3.80	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFDaA_2	613.0 / 319.0	3.80	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFTTrDA_1	663.0 / 619.0	4.05	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFTTrDA_2	663.0 / 169.0	4.04	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFTeDA_1	713.0 / 669.0	4.27	13C2-PFOA	415.0 / 370.0	39205.09	100.00
PFTeDA_2	713.0 / 169.0	4.26	13C2-PFOA	415.0 / 370.0	39205.09	100.00
NMeFOSAA_1	570.0 / 419.0	3.34	d3-MeFOSAA	573.0 / 419.0	36897.69	400.00
NMeFOSAA_2	570.0 / 512.0	3.33	d3-MeFOSAA	573.0 / 419.0	36897.69	400.00
NEtFOSAA_1	584.0 / 419.0	3.50	d3-MeFOSAA	573.0 / 419.0	36897.69	400.00
NEtFOSAA_2	584.0 / 483.0	3.50	d3-MeFOSAA	573.0 / 419.0	36897.69	400.00

Sample Name	JV66	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:45:01	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.45	13C4-PFOS	503.0 / 80.0	105963.04	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	105963.04	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFHpA_2	363.0 / 169.0	2.08	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFHxS_1	399.0 / 80.0	2.10	13C4-PFOS	503.0 / 80.0	105963.04	287.00
PFHxS_2	399.0 / 99.0	2.10	13C4-PFOS	503.0 / 80.0	105963.04	287.00
PFOA_1	413.0 / 369.0	2.47	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFOA_2	413.0 / 169.0	2.48	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFNA_1	463.0 / 419.0	2.84	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFOS_1	499.0 / 80.0	2.83	13C4-PFOS	503.0 / 80.0	105963.04	287.00
PFOS_2	499.0 / 99.0	2.84	13C4-PFOS	503.0 / 80.0	105963.04	287.00
PFDA_1	513.0 / 469.0	3.19	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFDA_2	513.0 / 219.0	3.20	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFUnA_1	563.0 / 519.0	3.51	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFUnA_2	563.0 / 269.0	3.52	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFDaA_1	613.0 / 569.0	3.80	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFDaA_2	613.0 / 319.0	3.79	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFTTrDA_1	663.0 / 619.0	4.05	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFTTrDA_2	663.0 / 169.0	4.05	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFTeDA_1	713.0 / 669.0	4.27	13C2-PFOA	415.0 / 370.0	34066.69	100.00
PFTeDA_2	713.0 / 169.0	4.27	13C2-PFOA	415.0 / 370.0	34066.69	100.00
NMeFOSAA_1	570.0 / 419.0	3.34	d3-MeFOSAA	573.0 / 419.0	30420.23	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	30420.23	400.00
NEtFOSAA_1	584.0 / 419.0	3.51	d3-MeFOSAA	573.0 / 419.0	30420.23	400.00
NEtFOSAA_2	584.0 / 483.0	3.50	d3-MeFOSAA	573.0 / 419.0	30420.23	400.00

Sample Name	JV67	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:53:56	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	131015.70	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	131015.70	287.00
PFHxA_1	313.0 / 269.0	1.72	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFHpA_2	363.0 / 169.0	2.08	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFHxS_1	399.0 / 80.0	2.10	13C4-PFOS	503.0 / 80.0	131015.70	287.00
PFHxS_2	399.0 / 99.0	2.10	13C4-PFOS	503.0 / 80.0	131015.70	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFOA_2	413.0 / 169.0	2.46	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFNA_1	463.0 / 419.0	2.84	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFOS_1	499.0 / 80.0	2.83	13C4-PFOS	503.0 / 80.0	131015.70	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	131015.70	287.00
PFDA_1	513.0 / 469.0	3.19	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFDA_2	513.0 / 219.0	3.18	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFUnA_1	563.0 / 519.0	3.51	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFUnA_2	563.0 / 269.0	3.51	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFDaA_1	613.0 / 569.0	3.80	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFDaA_2	613.0 / 319.0	3.79	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFTTrDA_1	663.0 / 619.0	4.05	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFTTrDA_2	663.0 / 169.0	4.05	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFTeDA_1	713.0 / 669.0	4.26	13C2-PFOA	415.0 / 370.0	39739.37	100.00
PFTeDA_2	713.0 / 169.0	4.26	13C2-PFOA	415.0 / 370.0	39739.37	100.00
NMeFOSAA_1	570.0 / 419.0	3.34	d3-MeFOSAA	573.0 / 419.0	35707.97	400.00
NMeFOSAA_2	570.0 / 512.0	3.33	d3-MeFOSAA	573.0 / 419.0	35707.97	400.00
NEtFOSAA_1	584.0 / 419.0	3.51	d3-MeFOSAA	573.0 / 419.0	35707.97	400.00
NEtFOSAA_2	584.0 / 483.0	3.49	d3-MeFOSAA	573.0 / 419.0	35707.97	400.00

Sample Name	JV68	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:02:52	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.45	13C4-PFOS	503.0 / 80.0	118468.59	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	118468.59	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFHpA_1	363.0 / 319.0	2.08	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFHpA_2	363.0 / 169.0	2.08	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFHxS_1	399.0 / 80.0	2.10	13C4-PFOS	503.0 / 80.0	118468.59	287.00
PFHxS_2	399.0 / 99.0	2.10	13C4-PFOS	503.0 / 80.0	118468.59	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFOA_2	413.0 / 169.0	2.46	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFNA_1	463.0 / 419.0	2.83	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFOS_1	499.0 / 80.0	2.82	13C4-PFOS	503.0 / 80.0	118468.59	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	118468.59	287.00
PFDA_1	513.0 / 469.0	3.18	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFDA_2	513.0 / 219.0	3.18	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFUnA_1	563.0 / 519.0	3.50	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFUnA_2	563.0 / 269.0	3.49	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFDaA_1	613.0 / 569.0	3.78	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFDaA_2	613.0 / 319.0	3.79	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFTTrDA_1	663.0 / 619.0	4.04	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFTTrDA_2	663.0 / 169.0	4.04	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFTeDA_1	713.0 / 669.0	4.25	13C2-PFOA	415.0 / 370.0	34175.48	100.00
PFTeDA_2	713.0 / 169.0	4.25	13C2-PFOA	415.0 / 370.0	34175.48	100.00
NMeFOSAA_1	570.0 / 419.0	3.33	d3-MeFOSAA	573.0 / 419.0	33628.73	400.00
NMeFOSAA_2	570.0 / 512.0	3.32	d3-MeFOSAA	573.0 / 419.0	33628.73	400.00
NEtFOSAA_1	584.0 / 419.0	3.49	d3-MeFOSAA	573.0 / 419.0	33628.73	400.00
NEtFOSAA_2	584.0 / 483.0	3.50	d3-MeFOSAA	573.0 / 419.0	33628.73	400.00

Sample Name	JV69	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:11:47	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	124400.13	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	124400.13	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFHpA_2	363.0 / 169.0	2.09	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFHxS_1	399.0 / 80.0	2.10	13C4-PFOS	503.0 / 80.0	124400.13	287.00
PFHxS_2	399.0 / 99.0	2.10	13C4-PFOS	503.0 / 80.0	124400.13	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFOA_2	413.0 / 169.0	2.46	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFNA_1	463.0 / 419.0	2.84	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFNA_2	463.0 / 219.0	2.84	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFOS_1	499.0 / 80.0	2.83	13C4-PFOS	503.0 / 80.0	124400.13	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	124400.13	287.00
PFDA_1	513.0 / 469.0	3.19	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFDA_2	513.0 / 219.0	3.19	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFUnA_1	563.0 / 519.0	3.51	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFUnA_2	563.0 / 269.0	3.51	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFDaA_1	613.0 / 569.0	3.80	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFDaA_2	613.0 / 319.0	3.80	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFTTrDA_1	663.0 / 619.0	4.05	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFTTrDA_2	663.0 / 169.0	4.04	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFTeDA_1	713.0 / 669.0	4.27	13C2-PFOA	415.0 / 370.0	38237.89	100.00
PFTeDA_2	713.0 / 169.0	4.26	13C2-PFOA	415.0 / 370.0	38237.89	100.00
NMeFOSAA_1	570.0 / 419.0	3.34	d3-MeFOSAA	573.0 / 419.0	34298.33	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	34298.33	400.00
NEtFOSAA_1	584.0 / 419.0	3.50	d3-MeFOSAA	573.0 / 419.0	34298.33	400.00
NEtFOSAA_2	584.0 / 483.0	3.50	d3-MeFOSAA	573.0 / 419.0	34298.33	400.00

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:20:42	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	118733.91	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	118733.91	287.00
PFHxA_1	313.0 / 269.0	1.72	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFHxA_2	313.0 / 119.0	1.72	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFHpA_1	363.0 / 319.0	2.08	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFHpA_2	363.0 / 169.0	2.08	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFHxS_1	399.0 / 80.0	2.09	13C4-PFOS	503.0 / 80.0	118733.91	287.00
PFHxS_2	399.0 / 99.0	2.10	13C4-PFOS	503.0 / 80.0	118733.91	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFOA_2	413.0 / 169.0	2.46	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFNA_1	463.0 / 419.0	2.83	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFOS_1	499.0 / 80.0	2.82	13C4-PFOS	503.0 / 80.0	118733.91	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	118733.91	287.00
PFDA_1	513.0 / 469.0	3.18	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFDA_2	513.0 / 219.0	3.18	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFUnA_1	563.0 / 519.0	3.50	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFUnA_2	563.0 / 269.0	3.50	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFDaA_1	613.0 / 569.0	3.79	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFDaA_2	613.0 / 319.0	3.79	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFTTrDA_1	663.0 / 619.0	4.04	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFTTrDA_2	663.0 / 169.0	4.04	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFTeDA_1	713.0 / 669.0	4.26	13C2-PFOA	415.0 / 370.0	39542.23	100.00
PFTeDA_2	713.0 / 169.0	4.26	13C2-PFOA	415.0 / 370.0	39542.23	100.00
NMeFOSAA_1	570.0 / 419.0	3.33	d3-MeFOSAA	573.0 / 419.0	36446.02	400.00
NMeFOSAA_2	570.0 / 512.0	3.33	d3-MeFOSAA	573.0 / 419.0	36446.02	400.00
NEtFOSAA_1	584.0 / 419.0	3.50	d3-MeFOSAA	573.0 / 419.0	36446.02	400.00
NEtFOSAA_2	584.0 / 483.0	3.49	d3-MeFOSAA	573.0 / 419.0	36446.02	400.00

Sample Name	JV71	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:29:36	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.45	13C4-PFOS	503.0 / 80.0	101181.69	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	101181.69	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFHpA_2	363.0 / 169.0	2.08	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFHxS_1	399.0 / 80.0	2.10	13C4-PFOS	503.0 / 80.0	101181.69	287.00
PFHxS_2	399.0 / 99.0	2.10	13C4-PFOS	503.0 / 80.0	101181.69	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFOA_2	413.0 / 169.0	2.46	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFNA_1	463.0 / 419.0	2.83	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFOS_1	499.0 / 80.0	2.83	13C4-PFOS	503.0 / 80.0	101181.69	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	101181.69	287.00
PFDA_1	513.0 / 469.0	3.19	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFDA_2	513.0 / 219.0	3.19	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFUnA_1	563.0 / 519.0	3.51	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFUnA_2	563.0 / 269.0	3.51	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFDaA_1	613.0 / 569.0	3.79	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFDaA_2	613.0 / 319.0	3.79	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFTTrDA_1	663.0 / 619.0	4.04	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFTTrDA_2	663.0 / 169.0	4.04	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFTeDA_1	713.0 / 669.0	4.26	13C2-PFOA	415.0 / 370.0	35226.63	100.00
PFTeDA_2	713.0 / 169.0	4.26	13C2-PFOA	415.0 / 370.0	35226.63	100.00
NMeFOSAA_1	570.0 / 419.0	3.34	d3-MeFOSAA	573.0 / 419.0	31869.23	400.00
NMeFOSAA_2	570.0 / 512.0	3.33	d3-MeFOSAA	573.0 / 419.0	31869.23	400.00
NEtFOSAA_1	584.0 / 419.0	3.50	d3-MeFOSAA	573.0 / 419.0	31869.23	400.00
NEtFOSAA_2	584.0 / 483.0	3.49	d3-MeFOSAA	573.0 / 419.0	31869.23	400.00

Sample Name	JV72	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:38:30	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	105473.33	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	105473.33	287.00
PFHxA_1	313.0 / 269.0	1.72	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFHxA_2	313.0 / 119.0	1.72	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFHpA_1	363.0 / 319.0	2.08	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFHpA_2	363.0 / 169.0	2.08	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFHxS_1	399.0 / 80.0	2.10	13C4-PFOS	503.0 / 80.0	105473.33	287.00
PFHxS_2	399.0 / 99.0	2.10	13C4-PFOS	503.0 / 80.0	105473.33	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFOA_2	413.0 / 169.0	2.46	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFNA_1	463.0 / 419.0	2.83	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFOS_1	499.0 / 80.0	2.82	13C4-PFOS	503.0 / 80.0	105473.33	287.00
PFOS_2	499.0 / 99.0	2.82	13C4-PFOS	503.0 / 80.0	105473.33	287.00
PFDA_1	513.0 / 469.0	3.18	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFDA_2	513.0 / 219.0	3.18	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFUnA_1	563.0 / 519.0	3.50	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFUnA_2	563.0 / 269.0	3.50	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFDaA_1	613.0 / 569.0	3.79	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFDaA_2	613.0 / 319.0	3.79	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFTTrDA_1	663.0 / 619.0	4.04	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFTTrDA_2	663.0 / 169.0	4.04	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFTeDA_1	713.0 / 669.0	4.26	13C2-PFOA	415.0 / 370.0	38024.48	100.00
PFTeDA_2	713.0 / 169.0	4.25	13C2-PFOA	415.0 / 370.0	38024.48	100.00
NMeFOSAA_1	570.0 / 419.0	3.33	d3-MeFOSAA	573.0 / 419.0	35734.85	400.00
NMeFOSAA_2	570.0 / 512.0	3.33	d3-MeFOSAA	573.0 / 419.0	35734.85	400.00
NEtFOSAA_1	584.0 / 419.0	3.49	d3-MeFOSAA	573.0 / 419.0	35734.85	400.00
NEtFOSAA_2	584.0 / 483.0	3.48	d3-MeFOSAA	573.0 / 419.0	35734.85	400.00

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:47:28	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.45	804.339298	885.00	90.89
PFBS_2	298.9 / 99.0	1.44	802.043754	885.00	90.63
PFHxA_1	313.0 / 269.0	1.73	969.289643	1000.00	96.93
PFHxA_2	313.0 / 119.0	1.72	925.770240	1000.00	92.58
PFHpA_1	363.0 / 319.0	2.08	924.919724	1000.00	92.49
PFHpA_2	363.0 / 169.0	2.09	888.021349	1000.00	88.80
PFHxS_1	399.0 / 80.0	2.11	876.341070	912.00	96.09
PFHxS_2	399.0 / 99.0	2.10	864.142918	912.00	94.75
PFOA_1	413.0 / 369.0	2.46	936.688375	1000.00	93.67
PFOA_2	413.0 / 169.0	2.46	930.333375	1000.00	93.03
PFNA_1	463.0 / 419.0	2.83	943.286988	1000.00	94.33
PFNA_2	463.0 / 219.0	2.83	1003.563557	1000.00	100.36
PFOS_1	499.0 / 80.0	2.83	792.672994	925.00	85.69
PFOS_2	499.0 / 99.0	2.83	849.682836	925.00	91.86
PFDA_1	513.0 / 469.0	3.18	979.295546	1000.00	97.93
PFDA_2	513.0 / 219.0	3.18	926.354949	1000.00	92.64
PFUnA_1	563.0 / 519.0	3.50	959.774620	1000.00	95.98
PFUnA_2	563.0 / 269.0	3.50	927.941985	1000.00	92.79
PFDoA_1	613.0 / 569.0	3.79	979.912690	1000.00	97.99
PFDoA_2	613.0 / 319.0	3.79	948.169769	1000.00	94.82
PFTTrDA_1	663.0 / 619.0	4.04	937.629546	1000.00	93.76
PFTTrDA_2	663.0 / 169.0	4.04	934.557623	1000.00	93.46
PFTeDA_1	713.0 / 669.0	4.25	952.033212	1000.00	95.20
PFTeDA_2	713.0 / 169.0	4.25	925.189660	1000.00	92.52
NMeFOSAA_1	570.0 / 419.0	3.33	1046.178270	1000.00	104.62
NMeFOSAA_2	570.0 / 512.0	3.34	1030.939699	1000.00	103.09
NEtFOSAA_1	584.0 / 419.0	3.50	1116.177819	1000.00	111.62
NEtFOSAA_2	584.0 / 483.0	3.50	1220.574679	1000.00	122.06

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:47:28	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.71	92.199053	100.00	92.20
13C2-PFDA	515.0 / 470.0	3.17	88.871352	100.00	88.87
d5-EtFOSAA	589.0 / 419.0	3.49	373.700865	400.00	93.43

Sample Name	JV68 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:25:38	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.46	393.941239	443.00	88.93
PFBS_2	298.9 / 99.0	1.45	389.069756	443.00	87.83
PFHxA_1	313.0 / 269.0	1.73	538.564060	500.00	107.71
PFHxA_2	313.0 / 119.0	1.73	494.472205	500.00	98.89
PFHpA_1	363.0 / 319.0	2.09	501.861924	500.00	100.37
PFHpA_2	363.0 / 169.0	2.09	526.266950	500.00	105.25
PFHxS_1	399.0 / 80.0	2.10	415.104170	456.00	91.03
PFHxS_2	399.0 / 99.0	2.10	417.708313	456.00	91.60
PFOA_1	413.0 / 369.0	2.46	508.842825	500.00	101.77
PFOA_2	413.0 / 169.0	2.46	513.589300	500.00	102.72
PFNA_1	463.0 / 419.0	2.83	503.011917	500.00	100.60
PFNA_2	463.0 / 219.0	2.83	512.620705	500.00	102.52
PFOS_1	499.0 / 80.0	2.82	433.102471	463.00	93.54
PFOS_2	499.0 / 99.0	2.82	438.321868	463.00	94.67
PFDA_1	513.0 / 469.0	3.18	516.203166	500.00	103.24
PFDA_2	513.0 / 219.0	3.18	479.335212	500.00	95.87
PFUnA_1	563.0 / 519.0	3.50	495.832201	500.00	99.17
PFUnA_2	563.0 / 269.0	3.49	527.429111	500.00	105.49
PFDoA_1	613.0 / 569.0	3.78	529.388851	500.00	105.88
PFDoA_2	613.0 / 319.0	3.78	527.919162	500.00	105.58
PFTTrDA_1	663.0 / 619.0	4.03	498.401940	500.00	99.68
PFTTrDA_2	663.0 / 169.0	4.03	504.822257	500.00	100.96
PFTeDA_1	713.0 / 669.0	4.25	522.276225	500.00	104.46
PFTeDA_2	713.0 / 169.0	4.25	515.611624	500.00	103.12
NMeFOSAA_1	570.0 / 419.0	3.33	537.634252	500.00	107.53
NMeFOSAA_2	570.0 / 512.0	3.33	546.797228	500.00	109.36
NEtFOSAA_1	584.0 / 419.0	3.49	511.007033	500.00	102.20
NEtFOSAA_2	584.0 / 483.0	3.47	606.078028	500.00	121.22

Sample Name	JV68 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:25:38	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.72	98.408789	100.00	98.41
13C2-PFDA	515.0 / 470.0	3.17	94.732022	100.00	94.73
d5-EtFOSAA	589.0 / 419.0	3.48	404.091728	400.00	101.02

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:47:28	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.45	196080.48	804.339298	1090.8	true
PFBS_2	298.9 / 99.0	1.44	63984.82	802.043754	427.6	true
PFHxA_1	313.0 / 269.0	1.73	311463.21	969.289643	524.6	false
PFHxA_2	313.0 / 119.0	1.72	20945.83	925.770240	348.1	false
PFHpA_1	363.0 / 319.0	2.08	278028.75	924.919724	222.1	false
PFHpA_2	363.0 / 169.0	2.09	5601.18	888.021349	216.4	false
PFHxS_1	399.0 / 80.0	2.11	258828.89	876.341070	402.4	false
PFHxS_2	399.0 / 99.0	2.10	73652.77	864.142918	347.7	false
PFOA_1	413.0 / 369.0	2.46	322506.64	936.688375	310.5	false
PFOA_2	413.0 / 169.0	2.46	22478.54	930.333375	298.3	false
PFNA_1	463.0 / 419.0	2.83	335793.82	943.286988	265.1	false
PFNA_2	463.0 / 219.0	2.83	105152.14	1003.563557	358.3	false
PFOS_1	499.0 / 80.0	2.83	352037.06	792.672994	317.2	false
PFOS_2	499.0 / 99.0	2.83	73203.54	849.682836	371.4	false
PFDA_1	513.0 / 469.0	3.18	364452.03	979.295546	288.6	false
PFDA_2	513.0 / 219.0	3.18	14091.30	926.354949	401.6	false
PFUnA_1	563.0 / 519.0	3.50	386793.19	959.774620	269.8	false
PFUnA_2	563.0 / 269.0	3.50	17759.93	927.941985	201.0	false
PFDoA_1	613.0 / 569.0	3.79	394122.68	979.912690	291.3	false
PFDoA_2	613.0 / 319.0	3.79	59254.05	948.169769	262.8	false
PFTTrDA_1	663.0 / 619.0	4.04	350027.41	937.629546	353.4	false
PFTTrDA_2	663.0 / 169.0	4.04	22890.67	934.557623	270.6	false
PFTeDA_1	713.0 / 669.0	4.25	347684.17	952.033212	491.8	false
PFTeDA_2	713.0 / 169.0	4.25	16535.88	925.189660	401.0	false
NMeFOSAA_1	570.0 / 419.0	3.33	81307.05	1046.178270	509.4	false
NMeFOSAA_2	570.0 / 512.0	3.34	50168.36	1030.939699	444.4	false
NEtFOSAA_1	584.0 / 419.0	3.50	79704.01	1116.177819	339.2	false
NEtFOSAA_2	584.0 / 483.0	3.50	5701.00	1220.574679	235.7	false

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:47:28	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.71	28512.40	92.199053	713.9	false
13C2-PFDA	515.0 / 470.0	3.17	34577.19	88.871352	518.3	false
d5-EtFOSAA	589.0 / 419.0	3.49	32224.32	373.700865	240.7	false

Sample Name	JV68 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:25:38	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.46	111629.36	393.941239	970.9	false
PFBS_2	298.9 / 99.0	1.45	36408.28	389.069756	317.5	false
PFHxA_1	313.0 / 269.0	1.73	178772.89	538.564060	413.4	false
PFHxA_2	313.0 / 119.0	1.73	11564.01	494.472205	223.4	false
PFHpA_1	363.0 / 319.0	2.09	155231.57	501.861924	170.0	false
PFHpA_2	363.0 / 169.0	2.09	3481.71	526.266950	155.2	false
PFHxS_1	399.0 / 80.0	2.10	143453.32	415.104170	229.7	false
PFHxS_2	399.0 / 99.0	2.10	41676.89	417.708313	263.8	false
PFOA_1	413.0 / 369.0	2.46	180665.23	508.842825	253.5	false
PFOA_2	413.0 / 169.0	2.46	12992.04	513.589300	269.7	false
PFNA_1	463.0 / 419.0	2.83	184811.08	503.011917	214.7	false
PFNA_2	463.0 / 219.0	2.83	55261.83	512.620705	276.8	false
PFOS_1	499.0 / 80.0	2.82	225243.92	433.102471	248.2	false
PFOS_2	499.0 / 99.0	2.82	44182.73	438.321868	315.0	false
PFDA_1	513.0 / 469.0	3.18	197378.71	516.203166	217.0	false
PFDA_2	513.0 / 219.0	3.18	7584.77	479.335212	231.9	false
PFUnA_1	563.0 / 519.0	3.50	205598.24	495.832201	206.1	false
PFUnA_2	563.0 / 269.0	3.49	10580.97	527.429111	210.1	false
PFDoA_1	613.0 / 569.0	3.78	218826.06	529.388851	257.8	false
PFDoA_2	613.0 / 319.0	3.78	34248.19	527.919162	183.1	false
PFTTrDA_1	663.0 / 619.0	4.03	191487.20	498.401940	302.0	false
PFTTrDA_2	663.0 / 169.0	4.03	12886.68	504.822257	230.7	false
PFTeDA_1	713.0 / 669.0	4.25	195880.77	522.276225	421.7	false
PFTeDA_2	713.0 / 169.0	4.25	9493.78	515.611624	303.1	false
NMeFOSAA_1	570.0 / 419.0	3.33	42008.10	537.634252	395.1	false
NMeFOSAA_2	570.0 / 512.0	3.33	26754.80	546.797228	322.3	false
NEtFOSAA_1	584.0 / 419.0	3.49	37040.15	511.007033	316.8	false
NEtFOSAA_2	584.0 / 483.0	3.47	2964.38	606.078028	185.7	true

Sample Name	JV68 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:25:38	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.72	31167.70	98.408789	966.6	false
13C2-PFDA	515.0 / 470.0	3.17	37747.52	94.732022	544.6	false
d5-EtFOSAA	589.0 / 419.0	3.48	34417.03	404.091728	251.3	false

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:47:28	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.45	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.326	0.348	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.72	PFHxA	0.067	0.072	ü
PFHpA_1	363.0 / 319.0	2.08	PFHpA			
PFHpA_2	363.0 / 169.0	2.09	PFHpA	0.020	0.023	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.285	0.289	ü
PFOA_1	413.0 / 369.0	2.46	PFOA			
PFOA_2	413.0 / 169.0	2.46	PFOA	0.070	0.073	ü
PFNA_1	463.0 / 419.0	2.83	PFNA			
PFNA_2	463.0 / 219.0	2.83	PFNA	0.313	0.287	ü
PFOS_1	499.0 / 80.0	2.83	PFOS			
PFOS_2	499.0 / 99.0	2.83	PFOS	0.208	0.194	ü
PFDA_1	513.0 / 469.0	3.18	PFDA			
PFDA_2	513.0 / 219.0	3.18	PFDA	0.039	0.042	ü
PFUnA_1	563.0 / 519.0	3.50	PFUnA			
PFUnA_2	563.0 / 269.0	3.50	PFUnA	0.046	0.052	ü
PFDaA_1	613.0 / 569.0	3.79	PFDaA			
PFDaA_2	613.0 / 319.0	3.79	PFDaA	0.150	0.160	ü
PFTrDA_1	663.0 / 619.0	4.04	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.04	PFTrDA	0.065	0.068	ü
PFTeDA_1	713.0 / 669.0	4.25	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.25	PFTeDA	0.048	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.33	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.617	0.629	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.072	0.069	ü

Sample Name	JV68 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:25:38	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.46	PFBS			
PFBS_2	298.9 / 99.0	1.45	PFBS	0.326	0.348	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.065	0.072	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA			
PFHpA_2	363.0 / 169.0	2.09	PFHpA	0.022	0.023	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS			
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.291	0.289	ü
PFOA_1	413.0 / 369.0	2.46	PFOA			
PFOA_2	413.0 / 169.0	2.46	PFOA	0.072	0.073	ü
PFNA_1	463.0 / 419.0	2.83	PFNA			
PFNA_2	463.0 / 219.0	2.83	PFNA	0.299	0.287	ü
PFOS_1	499.0 / 80.0	2.82	PFOS			
PFOS_2	499.0 / 99.0	2.82	PFOS	0.196	0.194	ü
PFDA_1	513.0 / 469.0	3.18	PFDA			
PFDA_2	513.0 / 219.0	3.18	PFDA	0.038	0.042	ü
PFUnA_1	563.0 / 519.0	3.50	PFUnA			
PFUnA_2	563.0 / 269.0	3.49	PFUnA	0.052	0.052	ü
PFDaA_1	613.0 / 569.0	3.78	PFDaA			
PFDaA_2	613.0 / 319.0	3.78	PFDaA	0.157	0.160	ü
PFTrDA_1	663.0 / 619.0	4.03	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.03	PFTrDA	0.067	0.068	ü
PFTeDA_1	713.0 / 669.0	4.25	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.25	PFTeDA	0.049	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.33	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.637	0.629	ü
NEtFOSAA_1	584.0 / 419.0	3.49	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.47	NEtFOSSA	0.080	0.069	ü

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:47:28	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.45	13C4-PFOS	503.0 / 80.0	103611.84	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	103611.84	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFHxA_2	313.0 / 119.0	1.72	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFHpA_1	363.0 / 319.0	2.08	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFHpA_2	363.0 / 169.0	2.09	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	103611.84	287.00
PFHxS_2	399.0 / 99.0	2.10	13C4-PFOS	503.0 / 80.0	103611.84	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFOA_2	413.0 / 169.0	2.46	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFNA_1	463.0 / 419.0	2.83	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFOS_1	499.0 / 80.0	2.83	13C4-PFOS	503.0 / 80.0	103611.84	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	103611.84	287.00
PFDA_1	513.0 / 469.0	3.18	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFDA_2	513.0 / 219.0	3.18	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFUnA_1	563.0 / 519.0	3.50	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFUnA_2	563.0 / 269.0	3.50	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFDaA_1	613.0 / 569.0	3.79	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFDaA_2	613.0 / 319.0	3.79	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFTTrDA_1	663.0 / 619.0	4.04	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFTTrDA_2	663.0 / 169.0	4.04	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFTeDA_1	713.0 / 669.0	4.25	13C2-PFOA	415.0 / 370.0	35637.34	100.00
PFTeDA_2	713.0 / 169.0	4.25	13C2-PFOA	415.0 / 370.0	35637.34	100.00
NMeFOSAA_1	570.0 / 419.0	3.33	d3-MeFOSAA	573.0 / 419.0	32603.64	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	32603.64	400.00
NEtFOSAA_1	584.0 / 419.0	3.50	d3-MeFOSAA	573.0 / 419.0	32603.64	400.00
NEtFOSAA_2	584.0 / 483.0	3.50	d3-MeFOSAA	573.0 / 419.0	32603.64	400.00

Sample Name	JV68 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:25:38	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.46	13C4-PFOS	503.0 / 80.0	121468.05	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	121468.05	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFHpA_2	363.0 / 169.0	2.09	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFHxS_1	399.0 / 80.0	2.10	13C4-PFOS	503.0 / 80.0	121468.05	287.00
PFHxS_2	399.0 / 99.0	2.10	13C4-PFOS	503.0 / 80.0	121468.05	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFOA_2	413.0 / 169.0	2.46	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFNA_1	463.0 / 419.0	2.83	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFOS_1	499.0 / 80.0	2.82	13C4-PFOS	503.0 / 80.0	121468.05	287.00
PFOS_2	499.0 / 99.0	2.82	13C4-PFOS	503.0 / 80.0	121468.05	287.00
PFDA_1	513.0 / 469.0	3.18	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFDA_2	513.0 / 219.0	3.18	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFUnA_1	563.0 / 519.0	3.50	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFUnA_2	563.0 / 269.0	3.49	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFDaA_1	613.0 / 569.0	3.78	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFDaA_2	613.0 / 319.0	3.78	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFTTrDA_1	663.0 / 619.0	4.03	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFTTrDA_2	663.0 / 169.0	4.03	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFTeDA_1	713.0 / 669.0	4.25	13C2-PFOA	415.0 / 370.0	36497.99	100.00
PFTeDA_2	713.0 / 169.0	4.25	13C2-PFOA	415.0 / 370.0	36497.99	100.00
NMeFOSAA_1	570.0 / 419.0	3.33	d3-MeFOSAA	573.0 / 419.0	32203.27	400.00
NMeFOSAA_2	570.0 / 512.0	3.33	d3-MeFOSAA	573.0 / 419.0	32203.27	400.00
NEtFOSAA_1	584.0 / 419.0	3.49	d3-MeFOSAA	573.0 / 419.0	32203.27	400.00
NEtFOSAA_2	584.0 / 483.0	3.47	d3-MeFOSAA	573.0 / 419.0	32203.27	400.00

Raw Analytical Data

Sample Name	CQ753PB-FS(0)	Injection Vial	12
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:05:20	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.45	5499.31	28.822603	75.7	true
PFBS_2	298.9 / 99.0	1.45	1855.42	22.795643	66.1	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	true
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	true
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	true
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true

Sample Name	CQ753PB-FS(0)	Injection Vial	12
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:05:20	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.72	115.223972	100.00	115.22
13C2-PFDA	515.0 / 470.0	3.17	117.194745	100.00	117.19
d5-EtFOSAA	589.0 / 419.0	3.49	418.143954	400.00	104.54

Sample Name	CQ754LCS-FS(0)	Injection Vial	13
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:14:15	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.45	506921.71	2536.854882	1353.5	false
PFBS_2	298.9 / 99.0	1.45	141046.55	2169.630168	690.2	true
PFHxA_1	313.0 / 269.0	1.73	681899.73	2608.549824	653.5	false
PFHxA_2	313.0 / 119.0	1.73	47804.17	2597.272054	411.2	false
PFHpA_1	363.0 / 319.0	2.09	609611.98	2484.634303	263.5	false
PFHpA_2	363.0 / 169.0	2.09	12294.81	2434.078670	219.4	false
PFHxS_1	399.0 / 80.0	2.11	573139.13	2377.953708	448.7	false
PFHxS_2	399.0 / 99.0	2.11	165627.49	2381.827259	452.3	false
PFOA_1	413.0 / 369.0	2.46	716212.02	2552.834225	389.7	false
PFOA_2	413.0 / 169.0	2.46	46920.44	2411.471307	388.4	false
PFNA_1	463.0 / 419.0	2.83	698989.28	2410.215694	334.8	false
PFNA_2	463.0 / 219.0	2.83	203591.02	2378.793845	373.6	false
PFOS_1	499.0 / 80.0	2.83	755433.26	2084.967155	361.7	false
PFOS_2	499.0 / 99.0	2.83	162110.71	2305.217997	415.4	false
PFDA_1	513.0 / 469.0	3.18	740500.47	2434.396633	287.3	false
PFDA_2	513.0 / 219.0	3.18	28978.40	2349.723723	267.7	false
PFUnA_1	563.0 / 519.0	3.50	801024.21	2433.926514	279.7	false
PFUnA_2	563.0 / 269.0	3.50	36906.18	2399.696505	257.4	false
PFDoA_1	613.0 / 569.0	3.79	780728.53	2375.584276	309.5	false
PFDoA_2	613.0 / 319.0	3.79	119582.17	2360.298378	289.7	false
PFTTrDA_1	663.0 / 619.0	4.04	752580.43	2469.727661	383.2	false
PFTTrDA_2	663.0 / 169.0	4.04	47626.08	2404.294946	321.7	false
PFTeDA_1	713.0 / 669.0	4.25	842707.15	2823.405574	636.7	false
PFTeDA_2	713.0 / 169.0	4.25	40996.53	2814.407744	555.2	false
NMeFOSAA_1	570.0 / 419.0	3.33	173294.50	2813.609698	432.9	false
NMeFOSAA_2	570.0 / 512.0	3.33	96740.74	2508.774501	414.2	false
NEtFOSAA_1	584.0 / 419.0	3.50	159731.46	2829.150255	339.9	false
NEtFOSAA_2	584.0 / 483.0	3.49	9013.97	2481.129197	398.7	false

Sample Name	CQ754LCS-FS(0)	Injection Vial	13
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:14:15	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.72	108.634377	100.00	108.63
13C2-PFDA	515.0 / 470.0	3.17	99.065487	100.00	99.07
d5-EtFOSAA	589.0 / 419.0	3.49	400.626986	400.00	100.16

Sample Name	J5965-FS(0)	Injection Vial	14
Sample ID	WGNA-043018-FRB-3103	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:23:10	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.45	2535.67	15.639199	60.4	true
PFBS_2	298.9 / 99.0	1.44	1105.31	11.861452	33.0	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	true
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	true
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	true
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true

Sample Name	J5965-FS(0)	Injection Vial	14
Sample ID	WGNA-043018-FRB-3103	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:23:10	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.71	105.444581	100.00	105.44
13C2-PFDA	515.0 / 470.0	3.17	108.550057	100.00	108.55
d5-EtFOSAA	589.0 / 419.0	3.49	443.136474	400.00	110.78

Sample Name	J5967-FS(0)	Injection Vial	15
Sample ID	NAWC-043018-FRB-207	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:32:06	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	true
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	true
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	true
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	true
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true

Sample Name	J5967-FS(0)	Injection Vial	15
Sample ID	NAWC-043018-FRB-207	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:32:06	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.72	103.781910	100.00	103.78
13C2-PFDA	515.0 / 470.0	3.17	101.314112	100.00	101.31
d5-EtFOSAA	589.0 / 419.0	3.48	359.714437	400.00	89.93

Sample Name	J5969-FS(0)	Injection Vial	16
Sample ID	WGNA-043018-FRB-3409	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:41:03	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.45	6186.06	29.820706	113.3	true
PFBS_2	298.9 / 99.0	1.45	2537.64	29.068777	51.6	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	true
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	true
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	true
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true

Sample Name	J5969-FS(0)	Injection Vial	16
Sample ID	WGNA-043018-FRB-3409	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:41:03	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.72	103.935285	100.00	103.94
13C2-PFDA	515.0 / 470.0	3.17	101.513784	100.00	101.51
d5-EtFOSAA	589.0 / 419.0	3.48	332.815599	400.00	83.20

Sample Name	J5971-FS(0)	Injection Vial	17
Sample ID	WGNA-050118-FRB-3385	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:49:59	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.46	1144.97	11.820022	23.1	true
PFBS_2	298.9 / 99.0	1.44	594.54	8.097354	16.4	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	true
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	true
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	true
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true

Sample Name	J5971-FS(0)	Injection Vial	17
Sample ID	WGNA-050118-FRB-3385	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:49:59	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.72	103.971446	100.00	103.97
13C2-PFDA	515.0 / 470.0	3.18	99.676584	100.00	99.68
d5-EtFOSAA	589.0 / 419.0	3.49	386.312573	400.00	96.58

Sample Name	J5973-FS(0)	Injection Vial	18
Sample ID	WGNA-050118-FRB-3178	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:58:53	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.45	1155.47	11.676447	29.7	true
PFBS_2	298.9 / 99.0	1.45	590.75	7.739934	23.2	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	true
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	true
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	true
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true

Sample Name	J5973-FS(0)	Injection Vial	18
Sample ID	WGNA-050118-FRB-3178	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:58:53	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.72	119.999780	100.00	120.00
13C2-PFDA	515.0 / 470.0	3.17	106.050936	100.00	106.05
d5-EtFOSAA	589.0 / 419.0	3.48	360.415182	400.00	90.10

Sample Name	J5975-FS(0)	Injection Vial	19
Sample ID	NAWC-050118-FRB-304	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:07:47	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.45	1268.41	12.555791	30.8	true
PFBS_2	298.9 / 99.0	1.45	600.28	8.416024	17.8	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	true
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	true
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	true
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true

Sample Name	J5975-FS(0)	Injection Vial	19
Sample ID	NAWC-050118-FRB-304	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:07:47	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.72	112.292408	100.00	112.29
13C2-PFDA	515.0 / 470.0	3.17	99.597565	100.00	99.60
d5-EtFOSAA	589.0 / 419.0	3.48	434.020632	400.00	108.51

Sample Name	J5977-FS(0)	Injection Vial	20
Sample ID	NAWC-050118-FRB-098	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:16:43	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.45	1219.77	11.194835	30.9	true
PFBS_2	298.9 / 99.0	1.42	594.80	6.638973	18.1	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	true
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	true
PFOA_1	413.0 / 369.0	2.46	11003.87	25.293704	48.5	true
PFOA_2	413.0 / 169.0	2.44	1018.30	18.167677	33.6	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	true
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	4.03	3376.17	4.074652	45.9	false
PFTTrDA_2	663.0 / 169.0	4.04	300.30	< 0	23.7	false
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true

Sample Name	J5977-FS(0)	Injection Vial	20
Sample ID		Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:16:43	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.72	105.843111	100.00	105.84
13C2-PFDA	515.0 / 470.0	3.17	103.277809	100.00	103.28
d5-EtFOSAA	589.0 / 419.0	3.48	405.504641	400.00	101.38

Sample Name	CQ753PB-FS(0)	Injection Vial	12
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:05:20	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.45	PFBS	0.3480	0.3374	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA	1.0000	N/A	ü
PFHxA_2	313.0 / 119.0	N/A	PFHxA	0.0719	N/A	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA	1.0000	N/A	ü
PFHpA_2	363.0 / 169.0	N/A	PFHpA	0.0228	N/A	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS	1.0000	N/A	ü
PFHxS_2	399.0 / 99.0	N/A	PFHxS	0.2893	N/A	ü
PFOA_1	413.0 / 369.0	N/A	PFOA	1.0000	N/A	ü
PFOA_2	413.0 / 169.0	N/A	PFOA	0.0728	N/A	ü
PFNA_1	463.0 / 419.0	N/A	PFNA	1.0000	N/A	ü
PFNA_2	463.0 / 219.0	N/A	PFNA	0.2872	N/A	ü
PFOS_1	499.0 / 80.0	N/A	PFOS	1.0000	N/A	ü
PFOS_2	499.0 / 99.0	N/A	PFOS	0.1938	N/A	ü
PFDA_1	513.0 / 469.0	N/A	PFDA	1.0000	N/A	ü
PFDA_2	513.0 / 219.0	N/A	PFDA	0.0419	N/A	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA	1.0000	N/A	ü
PFUnA_2	563.0 / 269.0	N/A	PFUnA	0.0515	N/A	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA	1.0000	N/A	ü
PFDoA_2	613.0 / 319.0	N/A	PFDoA	0.1596	N/A	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA	1.0000	N/A	ü
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	0.0677	N/A	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA	1.0000	N/A	ü
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	0.0503	N/A	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA	1.0000	N/A	ü
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	0.6292	N/A	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSSA	1.0000	N/A	ü
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSSA	0.0685	N/A	ü

Sample Name	CQ754LCS-FS(0)	Injection Vial	13
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:14:15	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.45	PFBS	0.3480	0.2782	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.0719	0.0701	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.09	PFHpA	0.0228	0.0202	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.2893	0.2890	ü
PFOA_1	413.0 / 369.0	2.46	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.46	PFOA	0.0728	0.0655	ü
PFNA_1	463.0 / 419.0	2.83	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.83	PFNA	0.2872	0.2913	ü
PFOS_1	499.0 / 80.0	2.83	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.83	PFOS	0.1938	0.2146	ü
PFDA_1	513.0 / 469.0	3.18	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.18	PFDA	0.0419	0.0391	ü
PFUnA_1	563.0 / 519.0	3.50	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.50	PFUnA	0.0515	0.0461	ü
PFDoA_1	613.0 / 569.0	3.79	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.1596	0.1532	ü
PFTrDA_1	663.0 / 619.0	4.04	PFTrDA	1.0000	1.0000	ü
PFTrDA_2	663.0 / 169.0	4.04	PFTrDA	0.0677	0.0633	ü
PFTeDA_1	713.0 / 669.0	4.25	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.25	PFTeDA	0.0503	0.0486	ü
NMeFOSAA_1	570.0 / 419.0	3.33	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.6292	0.5582	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.49	NEtFOSSA	0.0685	0.0564	ü

Sample Name	J5965-FS(0)	Injection Vial	14
Sample ID	WGNA-043018-FRB-3103	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:23:10	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.4359	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA	1.0000	N/A	ü
PFHxA_2	313.0 / 119.0	N/A	PFHxA	0.0719	N/A	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA	1.0000	N/A	ü
PFHpA_2	363.0 / 169.0	N/A	PFHpA	0.0228	N/A	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS	1.0000	N/A	ü
PFHxS_2	399.0 / 99.0	N/A	PFHxS	0.2893	N/A	ü
PFOA_1	413.0 / 369.0	N/A	PFOA	1.0000	N/A	ü
PFOA_2	413.0 / 169.0	N/A	PFOA	0.0728	N/A	ü
PFNA_1	463.0 / 419.0	N/A	PFNA	1.0000	N/A	ü
PFNA_2	463.0 / 219.0	N/A	PFNA	0.2872	N/A	ü
PFOS_1	499.0 / 80.0	N/A	PFOS	1.0000	N/A	ü
PFOS_2	499.0 / 99.0	N/A	PFOS	0.1938	N/A	ü
PFDA_1	513.0 / 469.0	N/A	PFDA	1.0000	N/A	ü
PFDA_2	513.0 / 219.0	N/A	PFDA	0.0419	N/A	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA	1.0000	N/A	ü
PFUnA_2	563.0 / 269.0	N/A	PFUnA	0.0515	N/A	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA	1.0000	N/A	ü
PFDoA_2	613.0 / 319.0	N/A	PFDoA	0.1596	N/A	ü
PFTTrDA_1	663.0 / 619.0	N/A	PFTTrDA	1.0000	N/A	ü
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	0.0677	N/A	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA	1.0000	N/A	ü
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	0.0503	N/A	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA	1.0000	N/A	ü
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	0.6292	N/A	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSSA	1.0000	N/A	ü
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSSA	0.0685	N/A	ü

Sample Name	J5967-FS(0)	Injection Vial	15
Sample ID	NAWC-043018-FRB-207	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:32:06	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	N/A	PFBS	1.0000	N/A	ü
PFBS_2	298.9 / 99.0	N/A	PFBS	0.3480	N/A	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA	1.0000	N/A	ü
PFHxA_2	313.0 / 119.0	N/A	PFHxA	0.0719	N/A	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA	1.0000	N/A	ü
PFHpA_2	363.0 / 169.0	N/A	PFHpA	0.0228	N/A	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS	1.0000	N/A	ü
PFHxS_2	399.0 / 99.0	N/A	PFHxS	0.2893	N/A	ü
PFOA_1	413.0 / 369.0	N/A	PFOA	1.0000	N/A	ü
PFOA_2	413.0 / 169.0	N/A	PFOA	0.0728	N/A	ü
PFNA_1	463.0 / 419.0	N/A	PFNA	1.0000	N/A	ü
PFNA_2	463.0 / 219.0	N/A	PFNA	0.2872	N/A	ü
PFOS_1	499.0 / 80.0	N/A	PFOS	1.0000	N/A	ü
PFOS_2	499.0 / 99.0	N/A	PFOS	0.1938	N/A	ü
PFDA_1	513.0 / 469.0	N/A	PFDA	1.0000	N/A	ü
PFDA_2	513.0 / 219.0	N/A	PFDA	0.0419	N/A	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA	1.0000	N/A	ü
PFUnA_2	563.0 / 269.0	N/A	PFUnA	0.0515	N/A	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA	1.0000	N/A	ü
PFDoA_2	613.0 / 319.0	N/A	PFDoA	0.1596	N/A	ü
PFTTrDA_1	663.0 / 619.0	N/A	PFTTrDA	1.0000	N/A	ü
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	0.0677	N/A	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA	1.0000	N/A	ü
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	0.0503	N/A	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA	1.0000	N/A	ü
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	0.6292	N/A	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSSA	1.0000	N/A	ü
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSSA	0.0685	N/A	ü

Sample Name	J5969-FS(0)	Injection Vial	16
Sample ID	WGNA-043018-FRB-3409	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:41:03	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.45	PFBS	0.3480	0.4102	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA	1.0000	N/A	ü
PFHxA_2	313.0 / 119.0	N/A	PFHxA	0.0719	N/A	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA	1.0000	N/A	ü
PFHpA_2	363.0 / 169.0	N/A	PFHpA	0.0228	N/A	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS	1.0000	N/A	ü
PFHxS_2	399.0 / 99.0	N/A	PFHxS	0.2893	N/A	ü
PFOA_1	413.0 / 369.0	N/A	PFOA	1.0000	N/A	ü
PFOA_2	413.0 / 169.0	N/A	PFOA	0.0728	N/A	ü
PFNA_1	463.0 / 419.0	N/A	PFNA	1.0000	N/A	ü
PFNA_2	463.0 / 219.0	N/A	PFNA	0.2872	N/A	ü
PFOS_1	499.0 / 80.0	N/A	PFOS	1.0000	N/A	ü
PFOS_2	499.0 / 99.0	N/A	PFOS	0.1938	N/A	ü
PFDA_1	513.0 / 469.0	N/A	PFDA	1.0000	N/A	ü
PFDA_2	513.0 / 219.0	N/A	PFDA	0.0419	N/A	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA	1.0000	N/A	ü
PFUnA_2	563.0 / 269.0	N/A	PFUnA	0.0515	N/A	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA	1.0000	N/A	ü
PFDoA_2	613.0 / 319.0	N/A	PFDoA	0.1596	N/A	ü
PFTTrDA_1	663.0 / 619.0	N/A	PFTTrDA	1.0000	N/A	ü
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	0.0677	N/A	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA	1.0000	N/A	ü
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	0.0503	N/A	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA	1.0000	N/A	ü
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	0.6292	N/A	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSSA	1.0000	N/A	ü
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSSA	0.0685	N/A	ü

Sample Name	J5971-FS(0)	Injection Vial	17
Sample ID	WGNA-050118-FRB-3385	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:49:59	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.46	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.5193	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA	1.0000	N/A	ü
PFHxA_2	313.0 / 119.0	N/A	PFHxA	0.0719	N/A	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA	1.0000	N/A	ü
PFHpA_2	363.0 / 169.0	N/A	PFHpA	0.0228	N/A	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS	1.0000	N/A	ü
PFHxS_2	399.0 / 99.0	N/A	PFHxS	0.2893	N/A	ü
PFOA_1	413.0 / 369.0	N/A	PFOA	1.0000	N/A	ü
PFOA_2	413.0 / 169.0	N/A	PFOA	0.0728	N/A	ü
PFNA_1	463.0 / 419.0	N/A	PFNA	1.0000	N/A	ü
PFNA_2	463.0 / 219.0	N/A	PFNA	0.2872	N/A	ü
PFOS_1	499.0 / 80.0	N/A	PFOS	1.0000	N/A	ü
PFOS_2	499.0 / 99.0	N/A	PFOS	0.1938	N/A	ü
PFDA_1	513.0 / 469.0	N/A	PFDA	1.0000	N/A	ü
PFDA_2	513.0 / 219.0	N/A	PFDA	0.0419	N/A	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA	1.0000	N/A	ü
PFUnA_2	563.0 / 269.0	N/A	PFUnA	0.0515	N/A	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA	1.0000	N/A	ü
PFDoA_2	613.0 / 319.0	N/A	PFDoA	0.1596	N/A	ü
PFTTrDA_1	663.0 / 619.0	N/A	PFTTrDA	1.0000	N/A	ü
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	0.0677	N/A	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA	1.0000	N/A	ü
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	0.0503	N/A	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA	1.0000	N/A	ü
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	0.6292	N/A	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSSA	1.0000	N/A	ü
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSSA	0.0685	N/A	ü

Sample Name	J5973-FS(0)	Injection Vial	18
Sample ID	WGNA-050118-FRB-3178	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:58:53	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.45	PFBS	0.3480	0.5113	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA	1.0000	N/A	ü
PFHxA_2	313.0 / 119.0	N/A	PFHxA	0.0719	N/A	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA	1.0000	N/A	ü
PFHpA_2	363.0 / 169.0	N/A	PFHpA	0.0228	N/A	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS	1.0000	N/A	ü
PFHxS_2	399.0 / 99.0	N/A	PFHxS	0.2893	N/A	ü
PFOA_1	413.0 / 369.0	N/A	PFOA	1.0000	N/A	ü
PFOA_2	413.0 / 169.0	N/A	PFOA	0.0728	N/A	ü
PFNA_1	463.0 / 419.0	N/A	PFNA	1.0000	N/A	ü
PFNA_2	463.0 / 219.0	N/A	PFNA	0.2872	N/A	ü
PFOS_1	499.0 / 80.0	N/A	PFOS	1.0000	N/A	ü
PFOS_2	499.0 / 99.0	N/A	PFOS	0.1938	N/A	ü
PFDA_1	513.0 / 469.0	N/A	PFDA	1.0000	N/A	ü
PFDA_2	513.0 / 219.0	N/A	PFDA	0.0419	N/A	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA	1.0000	N/A	ü
PFUnA_2	563.0 / 269.0	N/A	PFUnA	0.0515	N/A	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA	1.0000	N/A	ü
PFDoA_2	613.0 / 319.0	N/A	PFDoA	0.1596	N/A	ü
PFTTrDA_1	663.0 / 619.0	N/A	PFTTrDA	1.0000	N/A	ü
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	0.0677	N/A	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA	1.0000	N/A	ü
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	0.0503	N/A	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA	1.0000	N/A	ü
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	0.6292	N/A	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSSA	1.0000	N/A	ü
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSSA	0.0685	N/A	ü

Sample Name	J5975-FS(0)	Injection Vial	19
Sample ID	NAWC-050118-FRB-304	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:07:47	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.45	PFBS	0.3480	0.4733	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA	1.0000	N/A	ü
PFHxA_2	313.0 / 119.0	N/A	PFHxA	0.0719	N/A	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA	1.0000	N/A	ü
PFHpA_2	363.0 / 169.0	N/A	PFHpA	0.0228	N/A	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS	1.0000	N/A	ü
PFHxS_2	399.0 / 99.0	N/A	PFHxS	0.2893	N/A	ü
PFOA_1	413.0 / 369.0	N/A	PFOA	1.0000	N/A	ü
PFOA_2	413.0 / 169.0	N/A	PFOA	0.0728	N/A	ü
PFNA_1	463.0 / 419.0	N/A	PFNA	1.0000	N/A	ü
PFNA_2	463.0 / 219.0	N/A	PFNA	0.2872	N/A	ü
PFOS_1	499.0 / 80.0	N/A	PFOS	1.0000	N/A	ü
PFOS_2	499.0 / 99.0	N/A	PFOS	0.1938	N/A	ü
PFDA_1	513.0 / 469.0	N/A	PFDA	1.0000	N/A	ü
PFDA_2	513.0 / 219.0	N/A	PFDA	0.0419	N/A	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA	1.0000	N/A	ü
PFUnA_2	563.0 / 269.0	N/A	PFUnA	0.0515	N/A	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA	1.0000	N/A	ü
PFDoA_2	613.0 / 319.0	N/A	PFDoA	0.1596	N/A	ü
PFTTrDA_1	663.0 / 619.0	N/A	PFTTrDA	1.0000	N/A	ü
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	0.0677	N/A	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA	1.0000	N/A	ü
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	0.0503	N/A	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA	1.0000	N/A	ü
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	0.6292	N/A	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSSA	1.0000	N/A	ü
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSSA	0.0685	N/A	ü

Sample Name	J5977-FS(0)	Injection Vial	20
Sample ID	NAWC-050118-FRB-098	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:16:43	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.42	PFBS	0.3480	0.4876	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA	1.0000	N/A	ü
PFHxA_2	313.0 / 119.0	N/A	PFHxA	0.0719	N/A	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA	1.0000	N/A	ü
PFHpA_2	363.0 / 169.0	N/A	PFHpA	0.0228	N/A	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS	1.0000	N/A	ü
PFHxS_2	399.0 / 99.0	N/A	PFHxS	0.2893	N/A	ü
PFOA_1	413.0 / 369.0	2.46	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.44	PFOA	0.0728	0.0925	ü
PFNA_1	463.0 / 419.0	N/A	PFNA	1.0000	N/A	ü
PFNA_2	463.0 / 219.0	N/A	PFNA	0.2872	N/A	ü
PFOS_1	499.0 / 80.0	N/A	PFOS	1.0000	N/A	ü
PFOS_2	499.0 / 99.0	N/A	PFOS	0.1938	N/A	ü
PFDA_1	513.0 / 469.0	N/A	PFDA	1.0000	N/A	ü
PFDA_2	513.0 / 219.0	N/A	PFDA	0.0419	N/A	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA	1.0000	N/A	ü
PFUnA_2	563.0 / 269.0	N/A	PFUnA	0.0515	N/A	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA	1.0000	N/A	ü
PFDoA_2	613.0 / 319.0	N/A	PFDoA	0.1596	N/A	ü
PFTrDA_1	663.0 / 619.0	4.03	PFTrDA	1.0000	1.0000	ü
PFTrDA_2	663.0 / 169.0	4.04	PFTrDA	0.0677	0.0889	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA	1.0000	N/A	ü
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	0.0503	N/A	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA	1.0000	N/A	ü
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	0.6292	N/A	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSSA	1.0000	N/A	ü
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSSA	0.0685	N/A	ü

Sample Name	CQ753PB-FS(0)	Injection Vial	12
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:05:20	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.45	13C4-PFOS	503.0 / 80.0	103853.95	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	103853.95	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	103853.95	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	103853.95	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	103853.95	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	103853.95	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	31105.55	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	33816.55	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	33816.55	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	33816.55	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	33816.55	400.00

Sample Name	CQ754LCS-FS(0)	Injection Vial	13
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:14:15	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.45	13C4-PFOS	503.0 / 80.0	84459.89	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	84459.89	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFHpA_2	363.0 / 169.0	2.09	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	84459.89	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	84459.89	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFOA_2	413.0 / 169.0	2.46	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFNA_1	463.0 / 419.0	2.83	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFOS_1	499.0 / 80.0	2.83	13C4-PFOS	503.0 / 80.0	84459.89	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	84459.89	287.00
PFDA_1	513.0 / 469.0	3.18	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFDA_2	513.0 / 219.0	3.18	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFUnA_1	563.0 / 519.0	3.50	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFUnA_2	563.0 / 269.0	3.50	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFDoA_1	613.0 / 569.0	3.79	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFDoA_2	613.0 / 319.0	3.79	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFTTrDA_1	663.0 / 619.0	4.04	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFTTrDA_2	663.0 / 169.0	4.04	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFTeDA_1	713.0 / 669.0	4.25	13C2-PFOA	415.0 / 370.0	29190.46	100.00
PFTeDA_2	713.0 / 169.0	4.25	13C2-PFOA	415.0 / 370.0	29190.46	100.00
NMeFOSAA_1	570.0 / 419.0	3.33	d3-MeFOSAA	573.0 / 419.0	26148.55	400.00
NMeFOSAA_2	570.0 / 512.0	3.33	d3-MeFOSAA	573.0 / 419.0	26148.55	400.00
NEtFOSAA_1	584.0 / 419.0	3.50	d3-MeFOSAA	573.0 / 419.0	26148.55	400.00
NEtFOSAA_2	584.0 / 483.0	3.49	d3-MeFOSAA	573.0 / 419.0	26148.55	400.00

Sample Name	J5965-FS(0)	Injection Vial	14
Sample ID	WGNA-043018-FRB-3103	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:23:10	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.45	13C4-PFOS	503.0 / 80.0	116949.30	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	116949.30	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	116949.30	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	116949.30	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	116949.30	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	116949.30	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	37306.55	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	33389.17	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	33389.17	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	33389.17	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	33389.17	400.00

Sample Name	J5967-FS(0)	Injection Vial	15
Sample ID	NAWC-043018-FRB-207	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:32:06	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	94129.68	287.00
PFBS_2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	94129.68	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	94129.68	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	94129.68	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	94129.68	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	94129.68	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	29453.32	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	29381.71	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	29381.71	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	29381.71	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	29381.71	400.00

Sample Name	J5969-FS(0)	Injection Vial	16
Sample ID	WGNA-043018-FRB-3409	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:41:03	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.45	13C4-PFOS	503.0 / 80.0	111823.48	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	111823.48	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	111823.48	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	111823.48	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	111823.48	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	111823.48	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33204.68	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	32886.89	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	32886.89	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	32886.89	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	32886.89	400.00

Sample Name	J5971-FS(0)	Injection Vial	17
Sample ID	WGNA-050118-FRB-3385	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:49:59	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.46	13C4-PFOS	503.0 / 80.0	90706.52	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	90706.52	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	90706.52	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	90706.52	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	90706.52	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	90706.52	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	27675.77	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	26728.75	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	26728.75	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	26728.75	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	26728.75	400.00

Sample Name	J5973-FS(0)	Injection Vial	18
Sample ID	WGNA-050118-FRB-3178	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:58:53	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.45	13C4-PFOS	503.0 / 80.0	94076.63	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	94076.63	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	94076.63	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	94076.63	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	94076.63	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	94076.63	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	27255.88	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	26940.76	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	26940.76	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	26940.76	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	26940.76	400.00

Sample Name	J5975-FS(0)	Injection Vial	19
Sample ID	NAWC-050118-FRB-304	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:07:47	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.45	13C4-PFOS	503.0 / 80.0	88279.99	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	88279.99	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	88279.99	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	88279.99	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	88279.99	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	88279.99	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	28391.02	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	24390.83	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	24390.83	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	24390.83	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	24390.83	400.00

Sample Name	J5977-FS(0)	Injection Vial	20
Sample ID	NAWC-050118-FRB-098	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:16:43	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

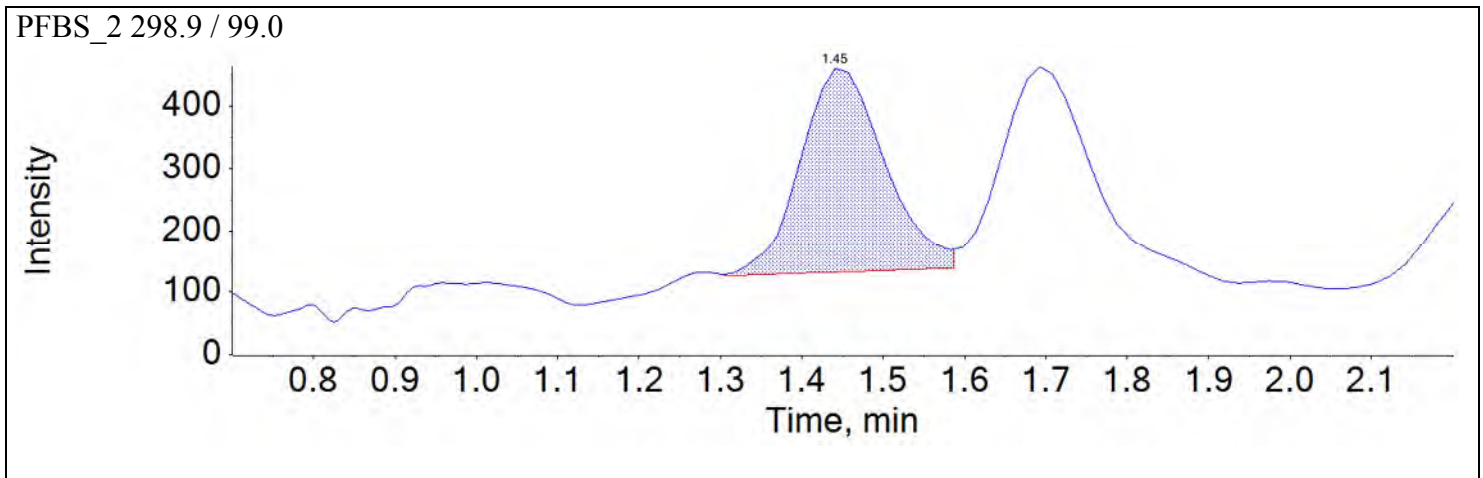
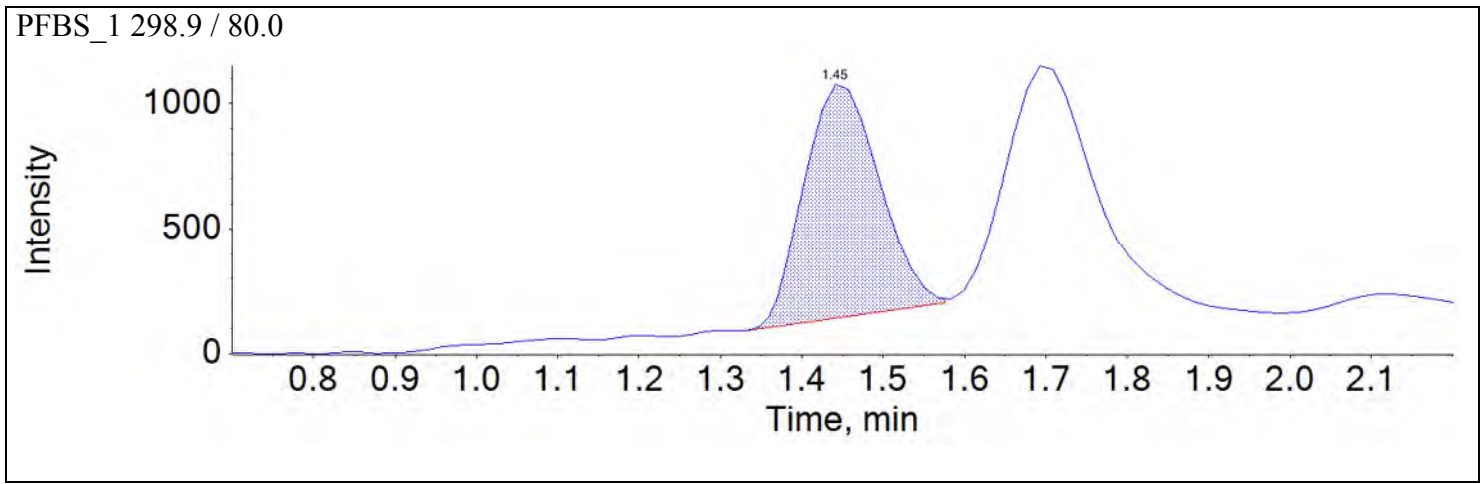
Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.45	13C4-PFOS	503.0 / 80.0	109495.96	287.00
PFBS_2	298.9 / 99.0	1.42	13C4-PFOS	503.0 / 80.0	109495.96	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	109495.96	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	109495.96	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFOA_2	413.0 / 169.0	2.44	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	109495.96	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	109495.96	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFTTrDA_1	663.0 / 619.0	4.03	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFTTrDA_2	663.0 / 169.0	4.04	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	34760.01	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	34760.01	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	30654.25	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	30654.25	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	30654.25	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	30654.25	400.00

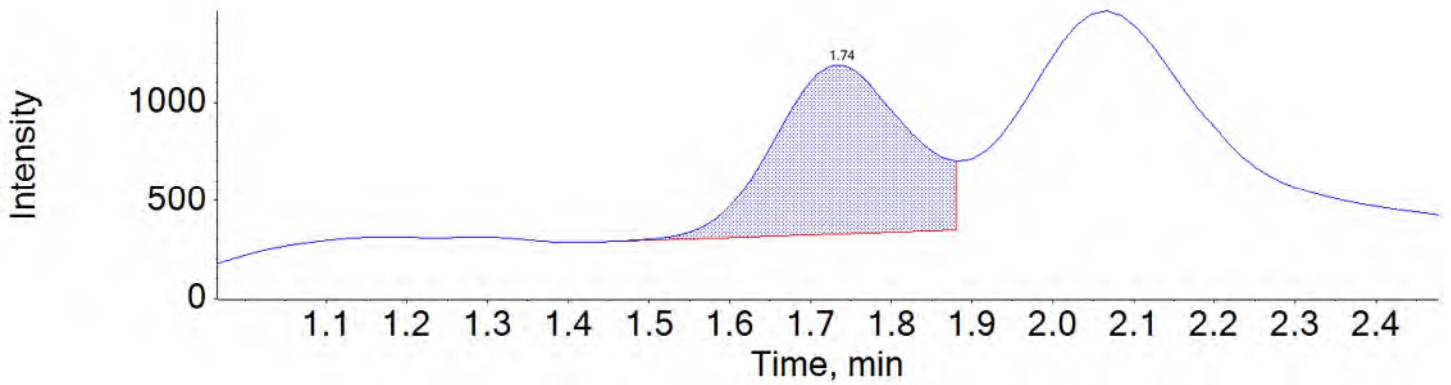
Chromatograms

Sample Name	JV64	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:27:07	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

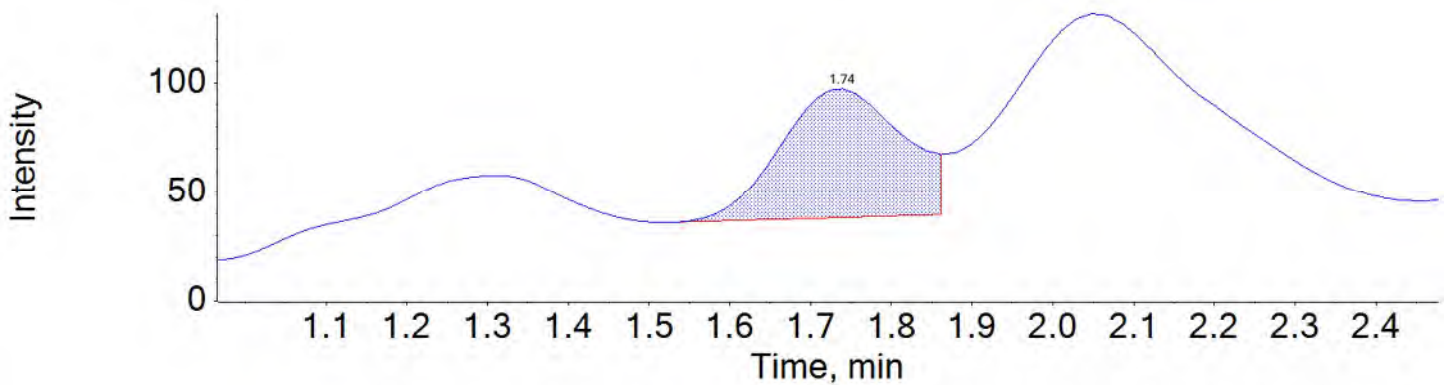
Chromatograms



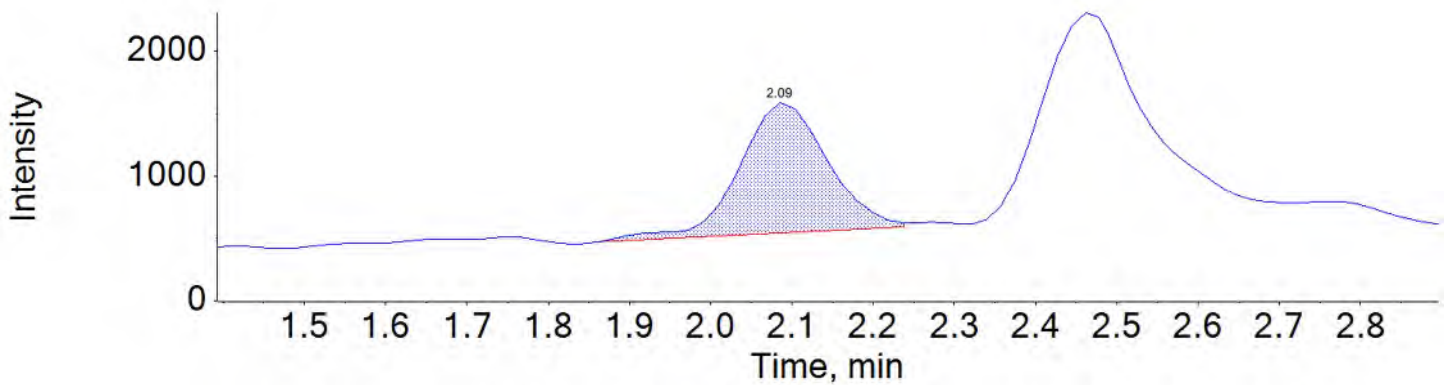
PFHxA_1 313.0 / 269.0



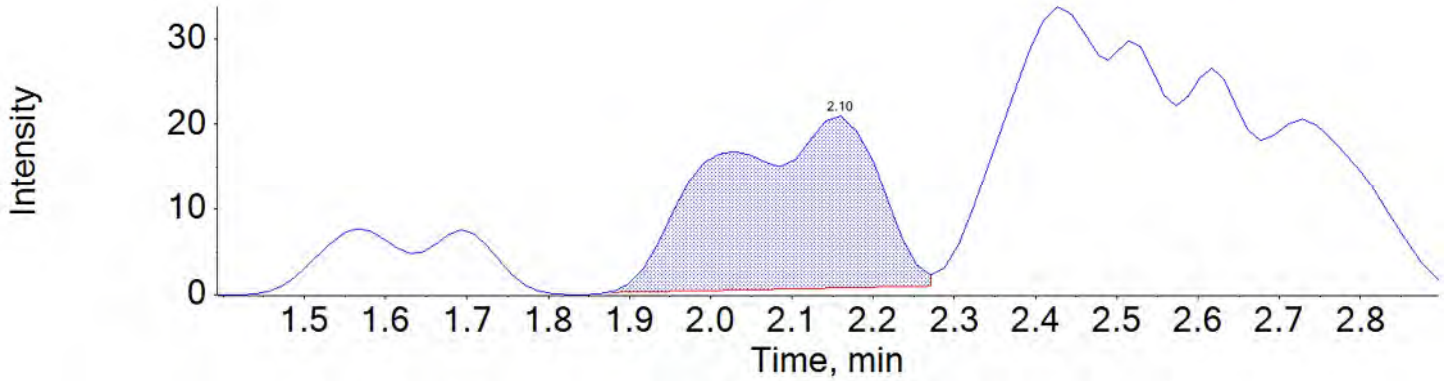
PFHxA_2 313.0 / 119.0



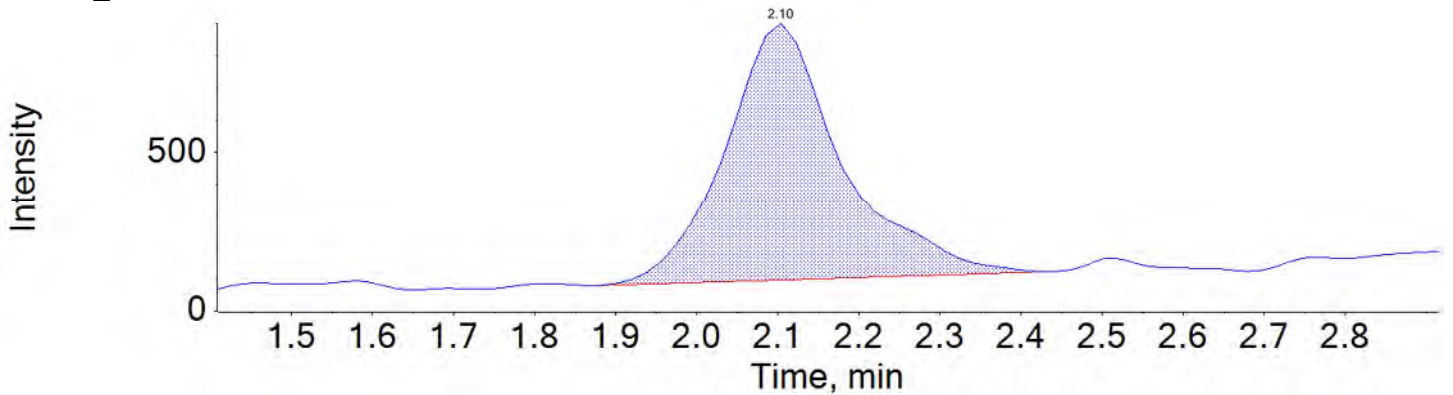
PFHpA_1 363.0 / 319.0



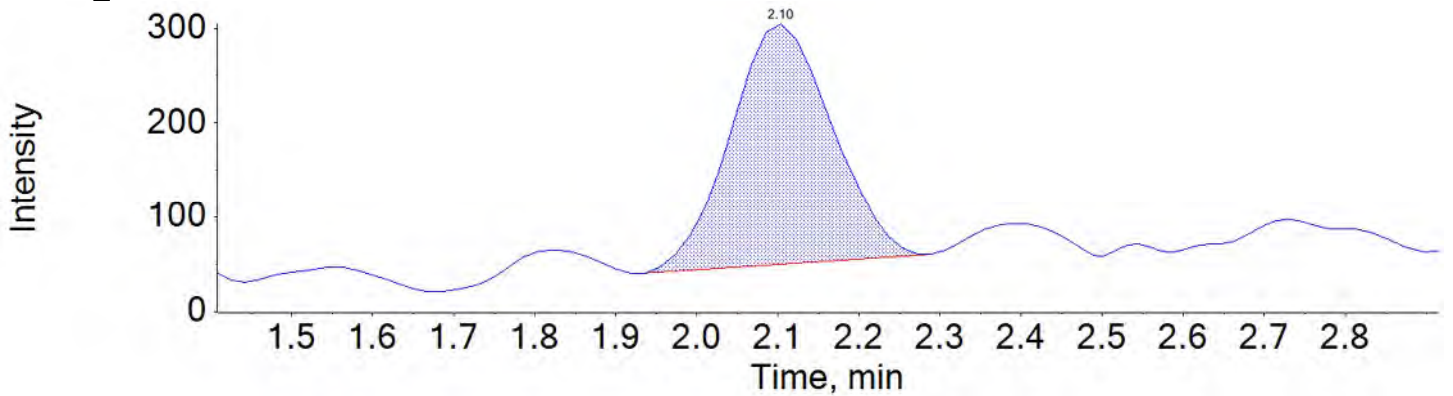
PFHpA_2 363.0 / 169.0



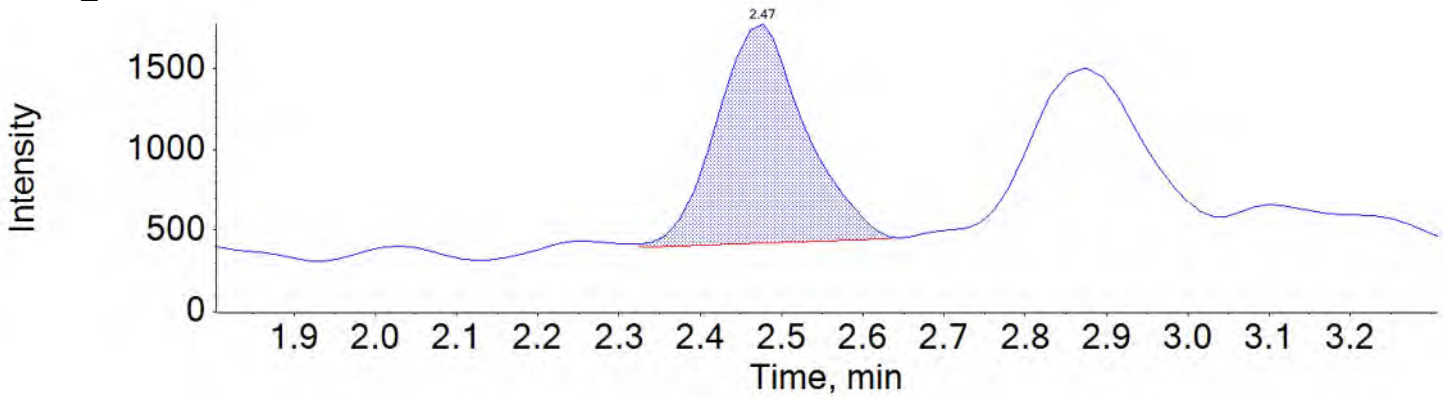
PFHxS_1 399.0 / 80.0



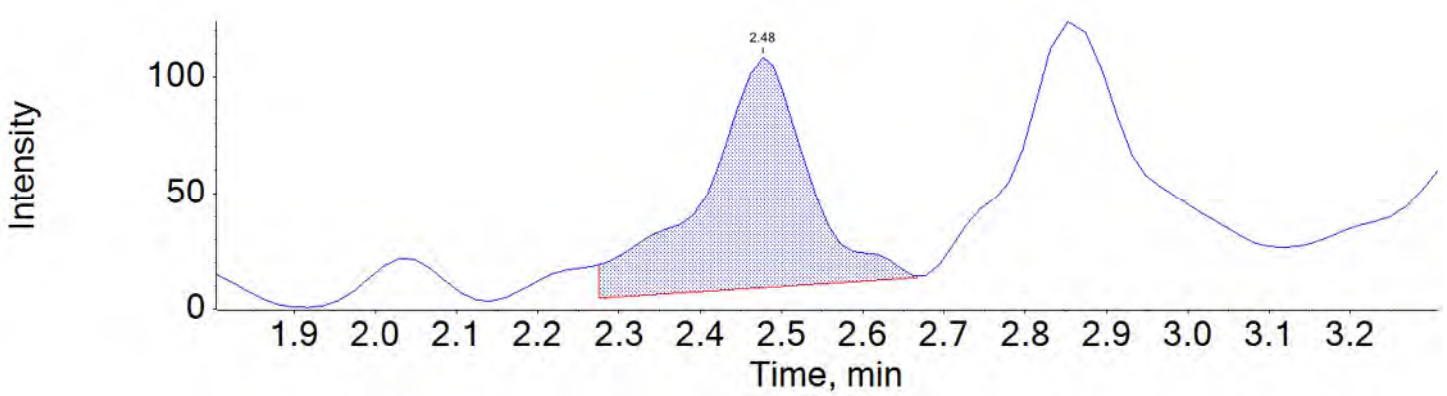
PFHxS_2 399.0 / 99.0



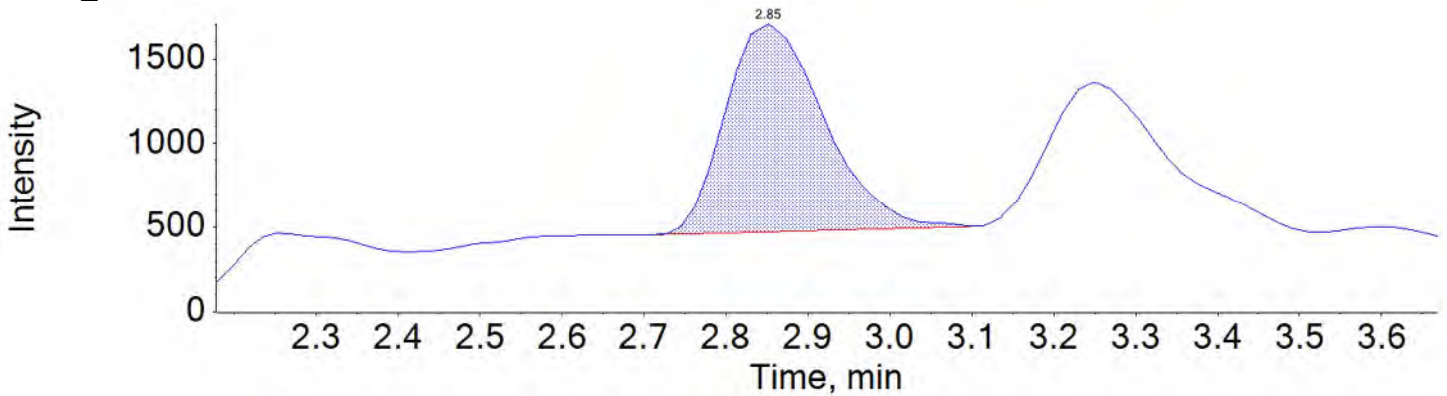
PFOA_1 413.0 / 369.0



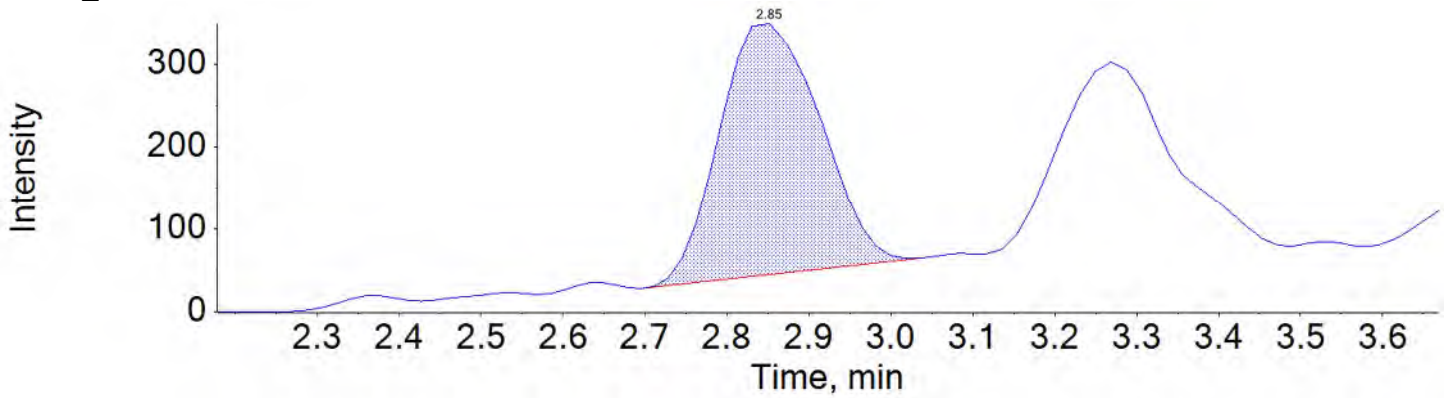
PFOA_2 413.0 / 169.0



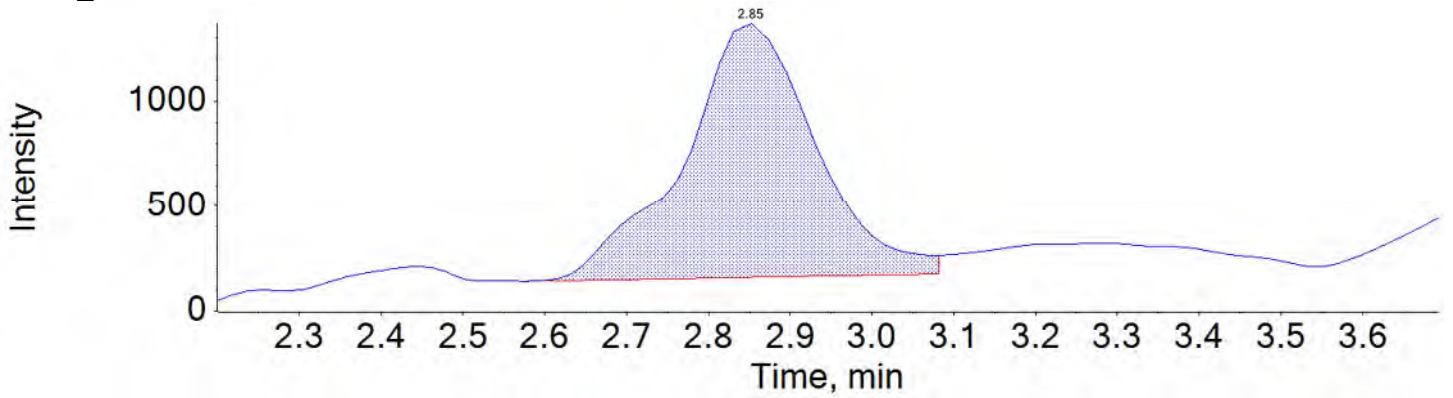
PFNA_1 463.0 / 419.0



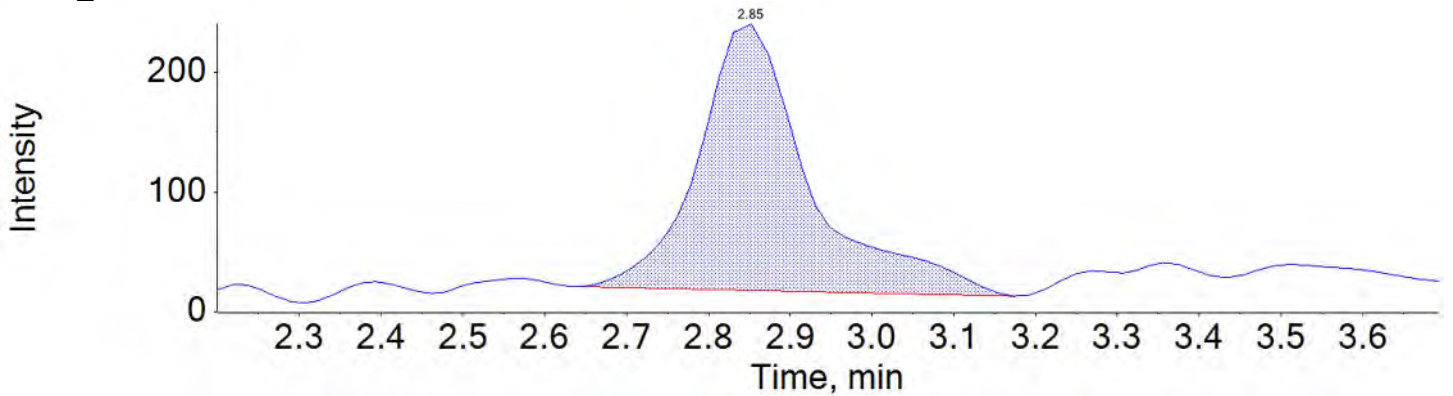
PFNA_2 463.0 / 219.0



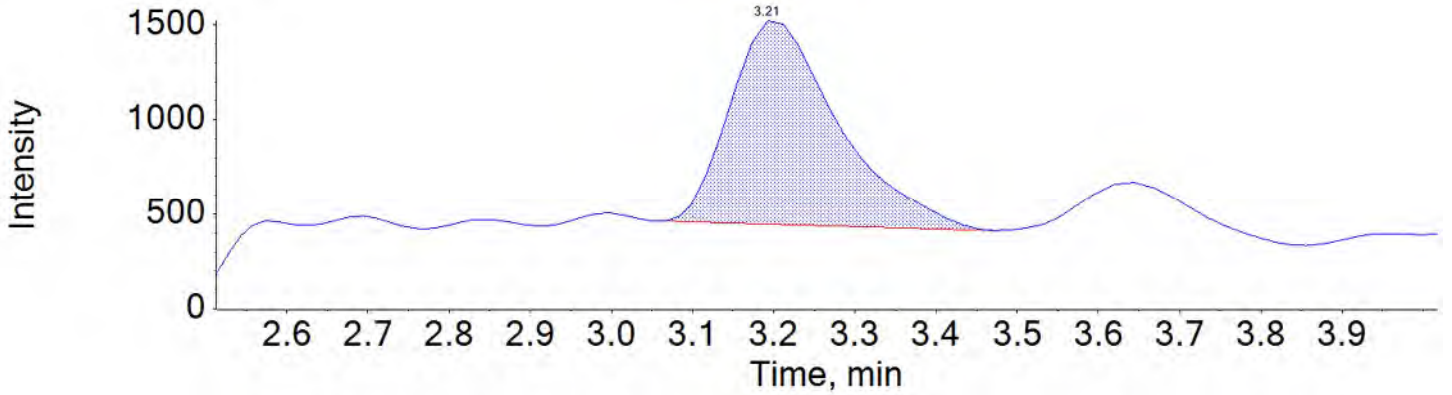
PFOS_1 499.0 / 80.0



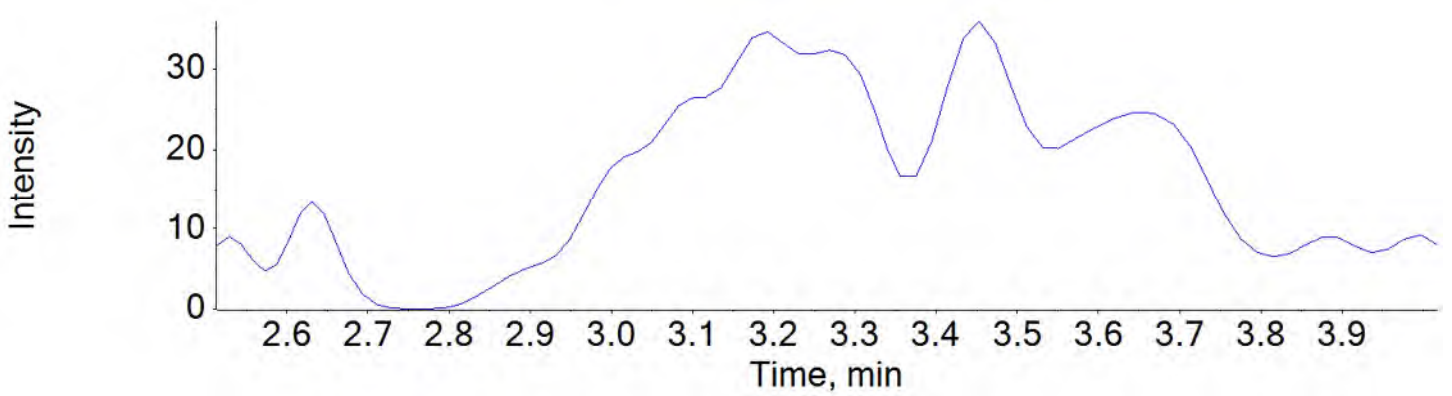
PFOS_2 499.0 / 99.0



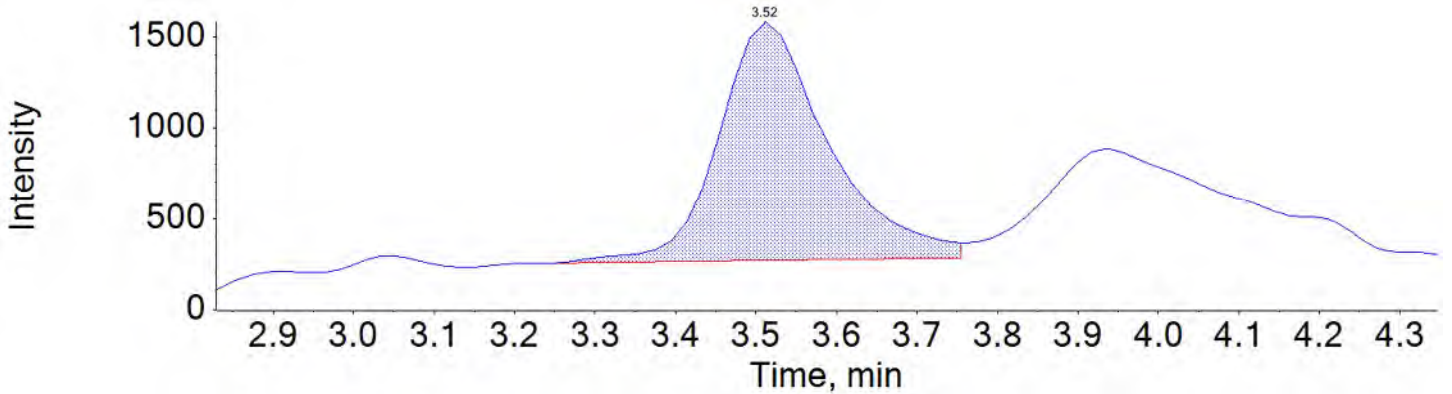
PFDA_1 513.0 / 469.0



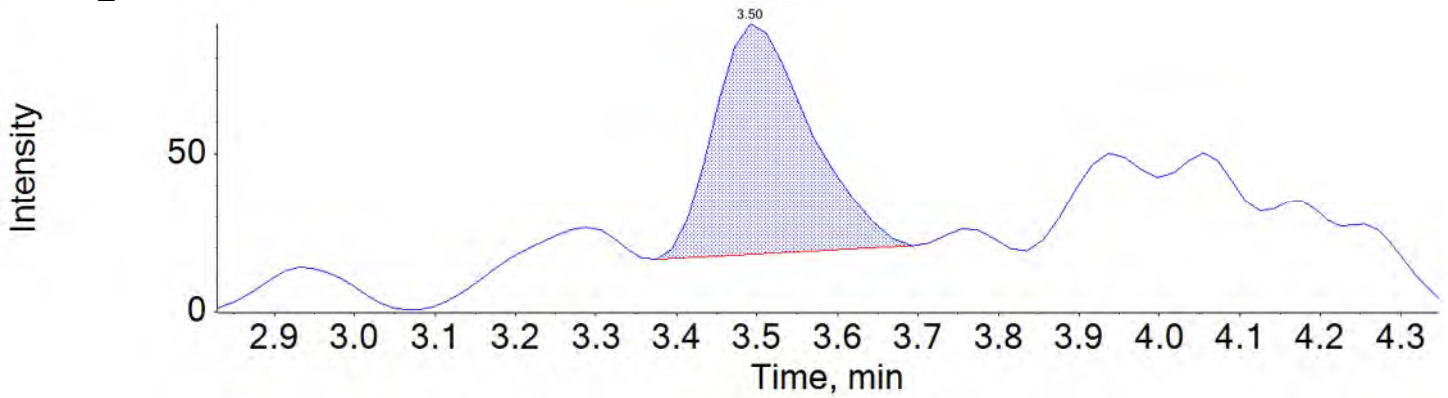
PFDA_2 513.0 / 219.0



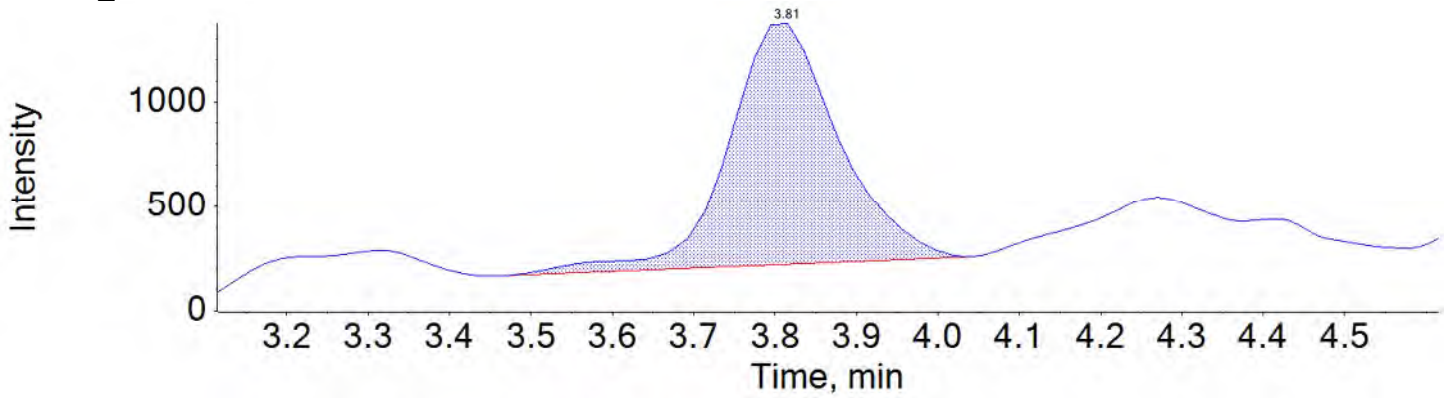
PFAUnA_1 563.0 / 519.0



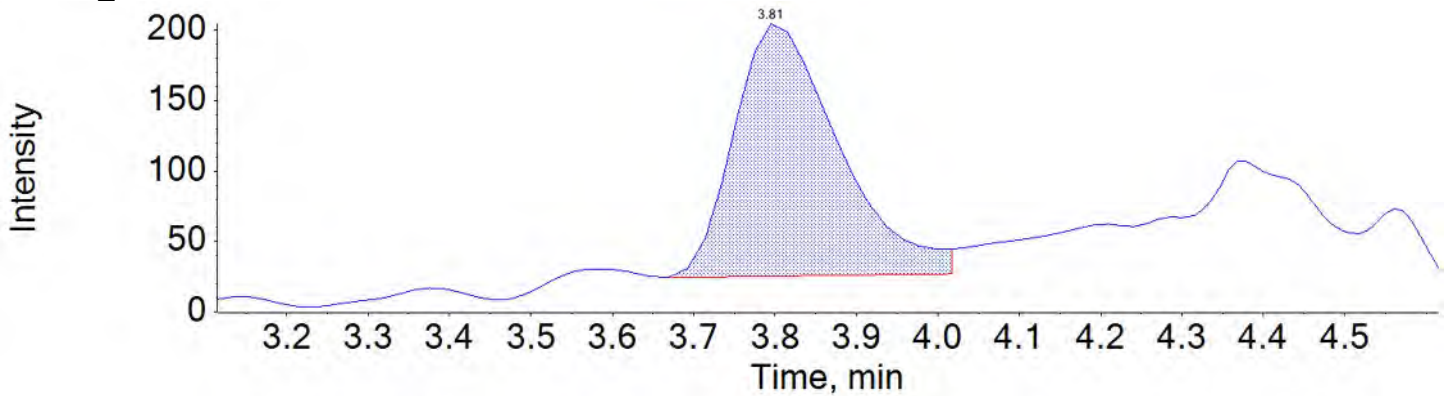
PFU_nA_2 563.0 / 269.0

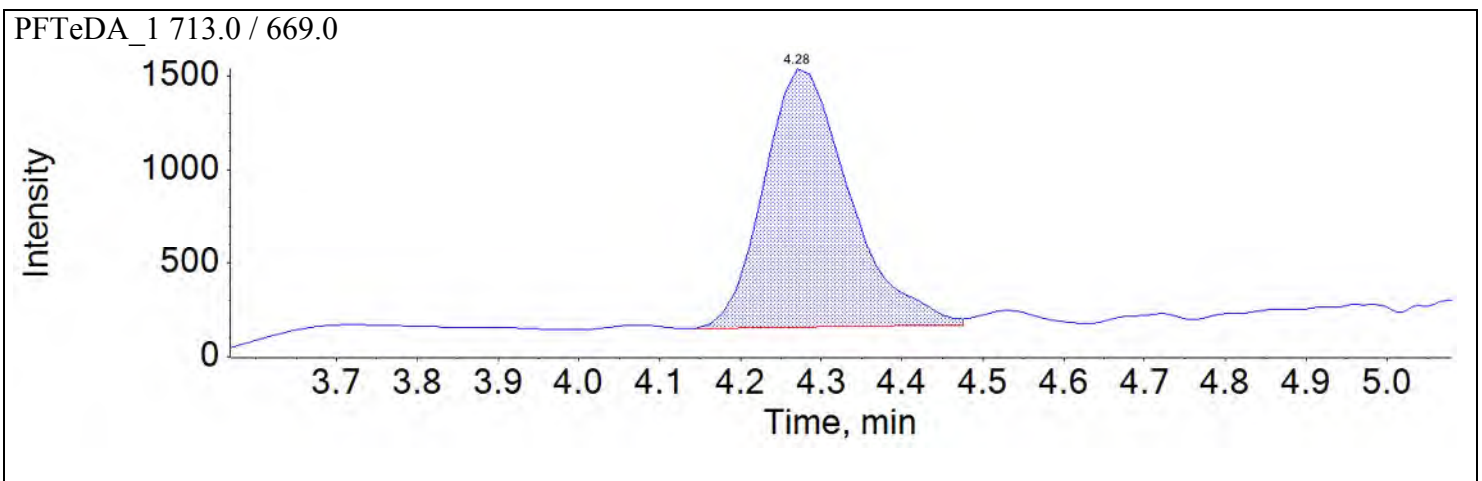
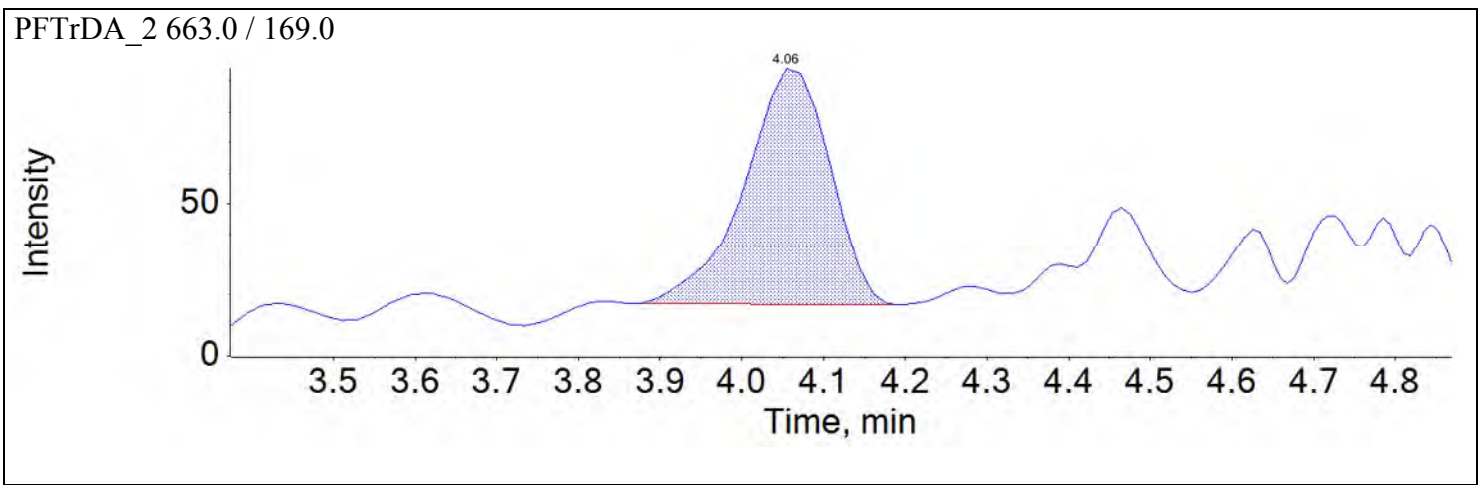
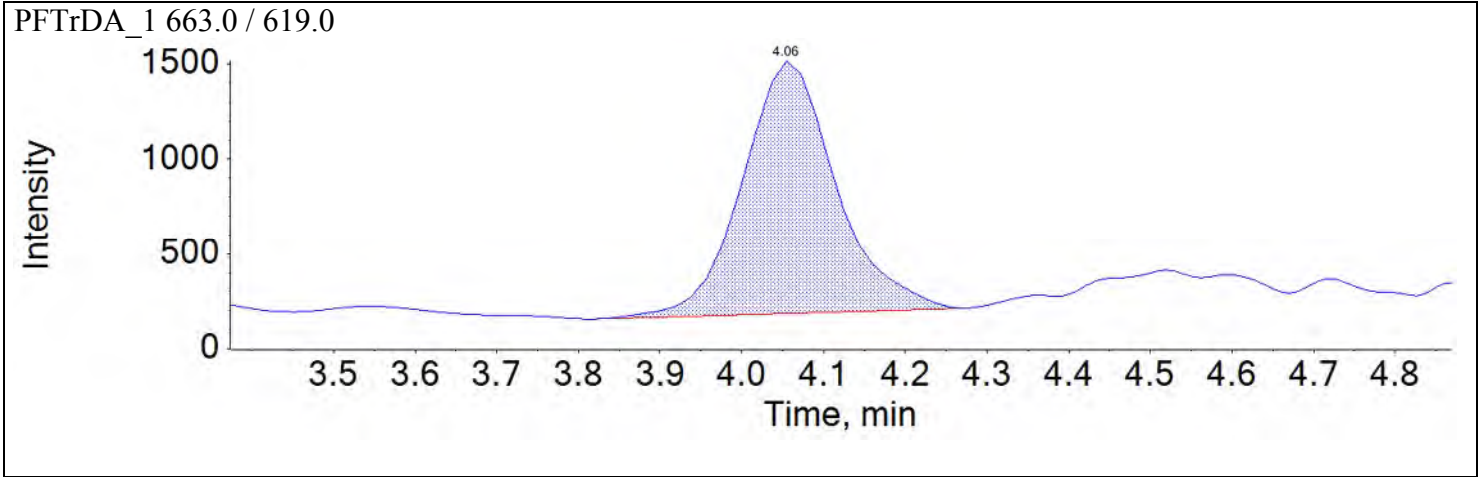


PFDoA_1 613.0 / 569.0

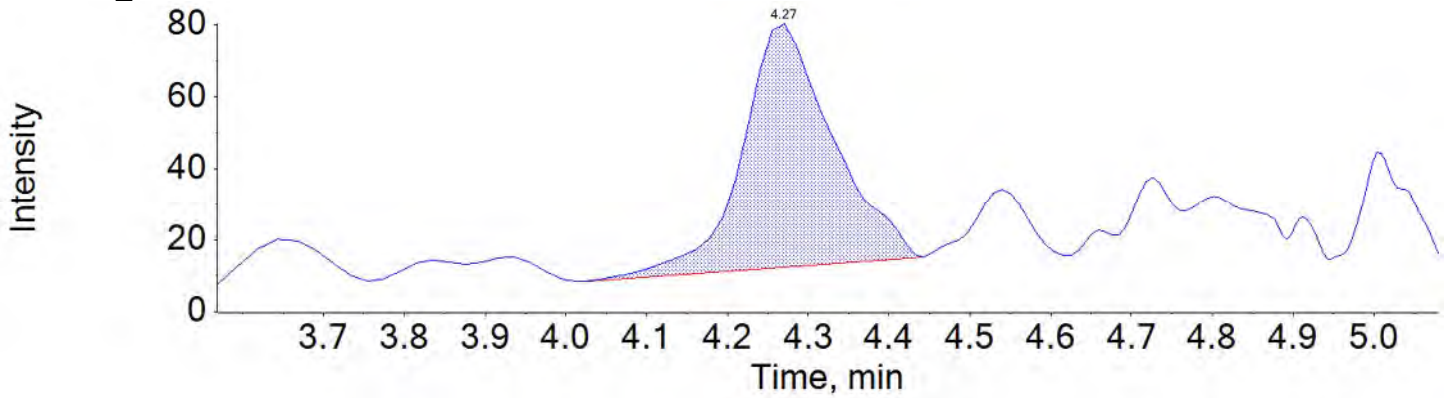


PFDoA_2 613.0 / 319.0

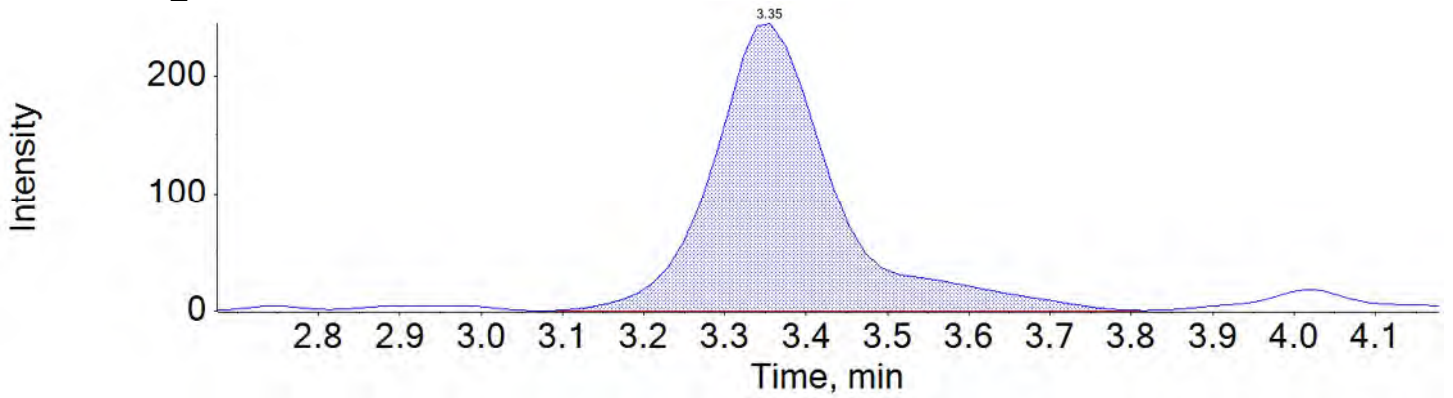




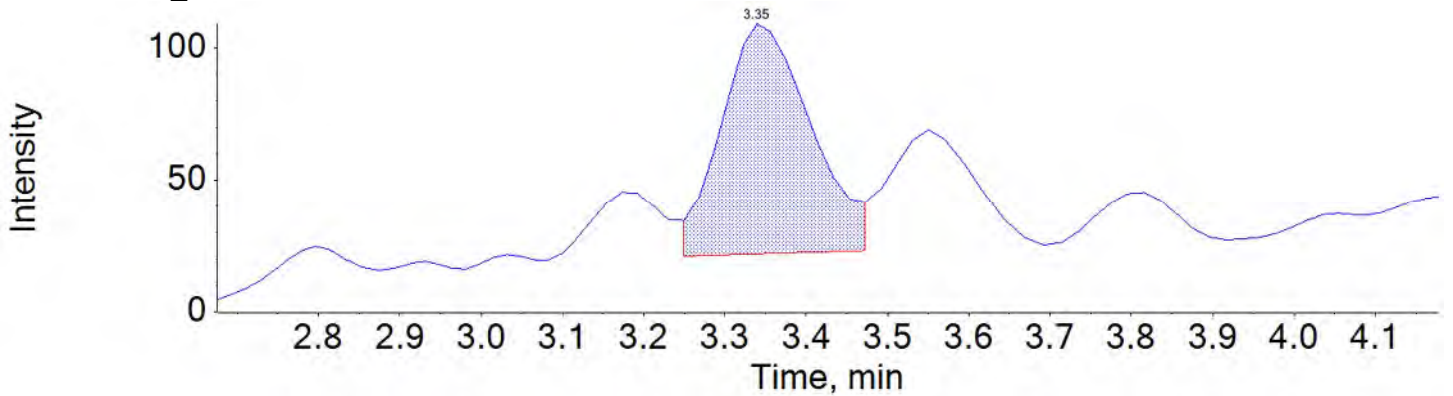
PFTeDA_2 713.0 / 169.0



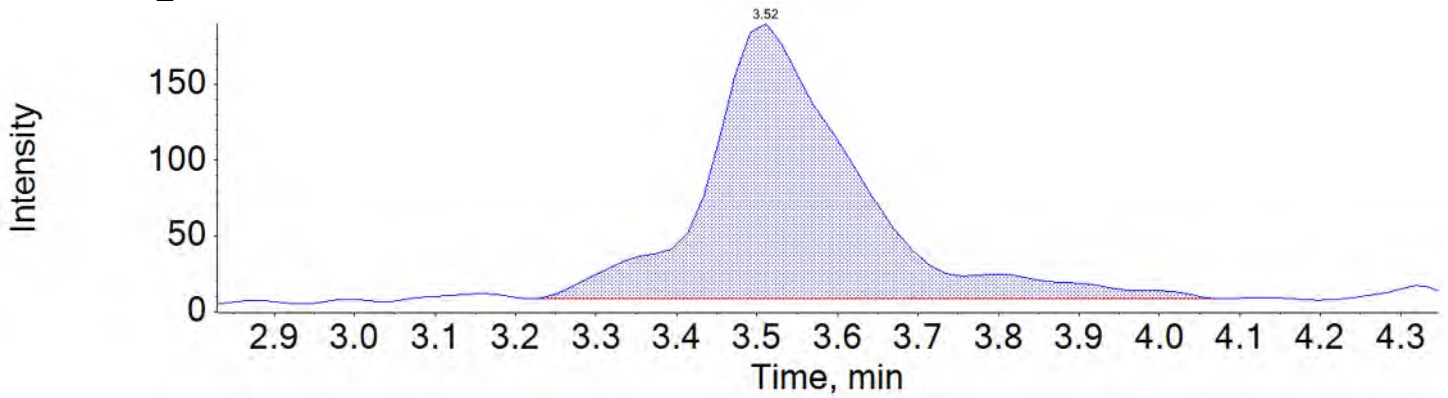
NMeFOSAA_1 570.0 / 419.0



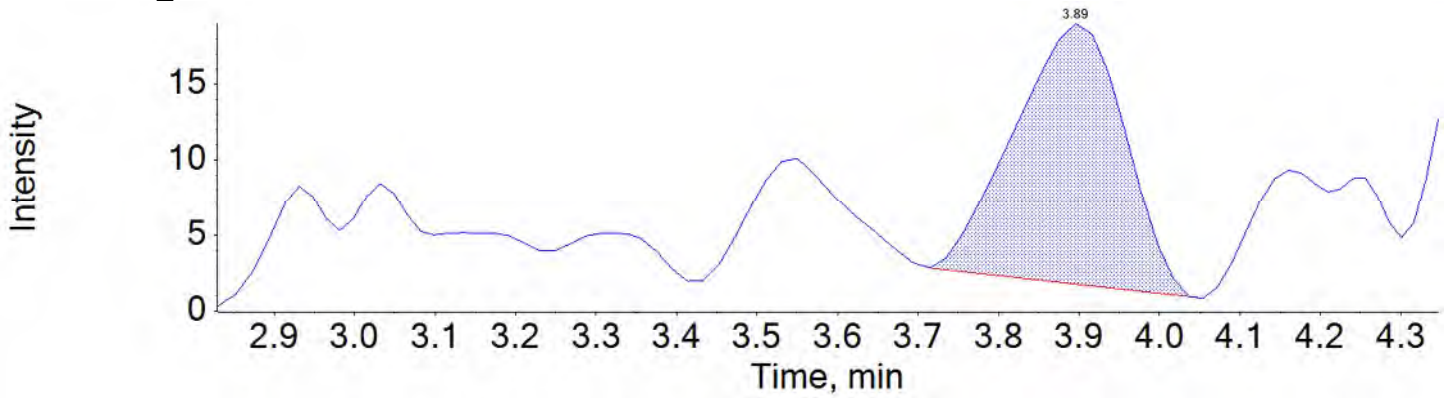
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

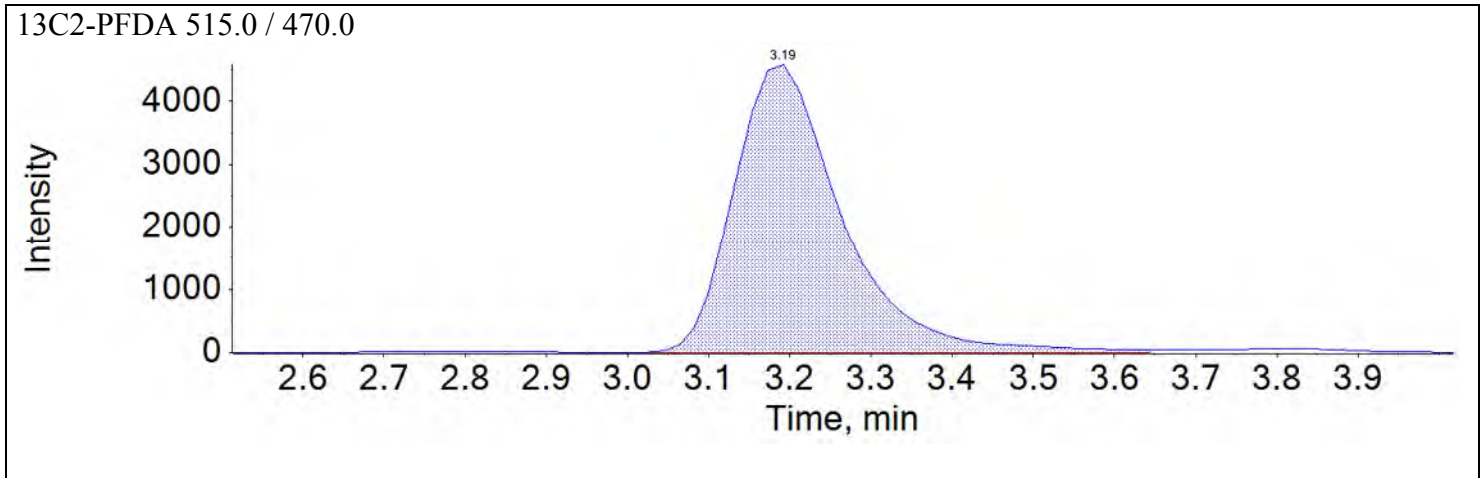
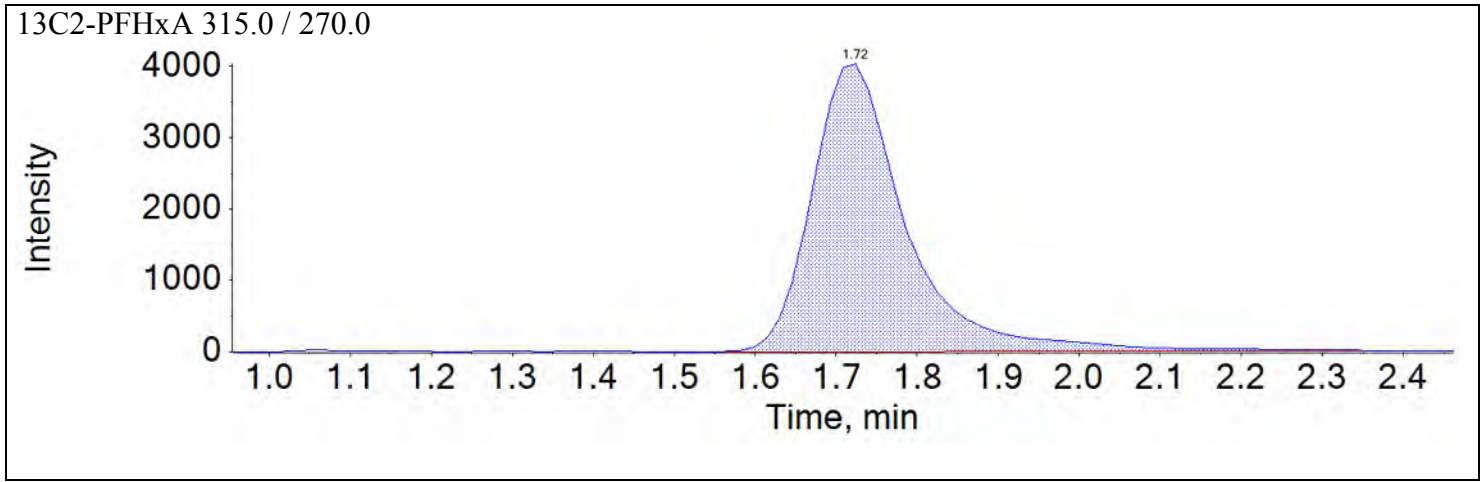


NEtFOSAA_2 584.0 / 483.0

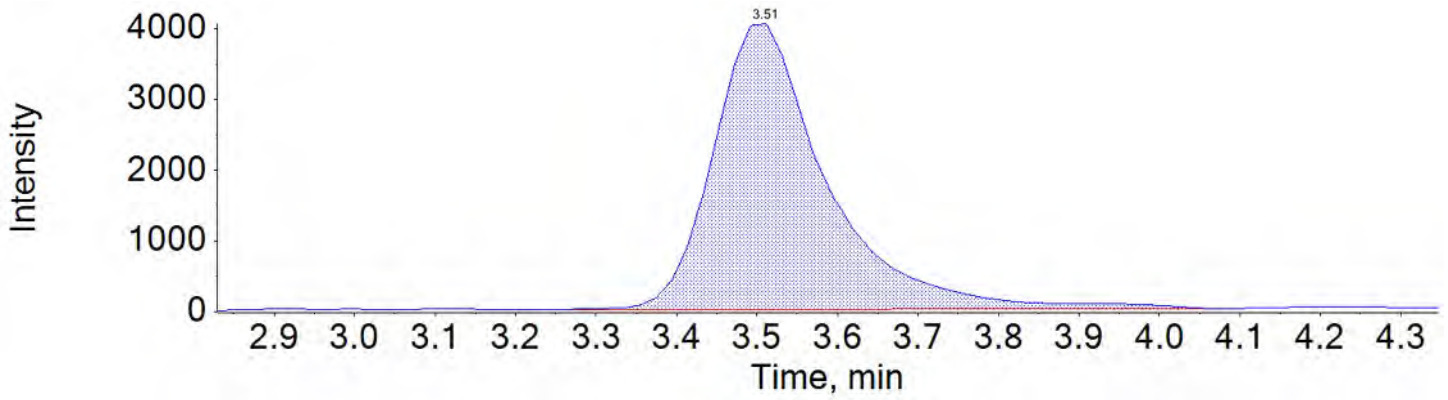


Sample Name	JV64	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:27:07	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms

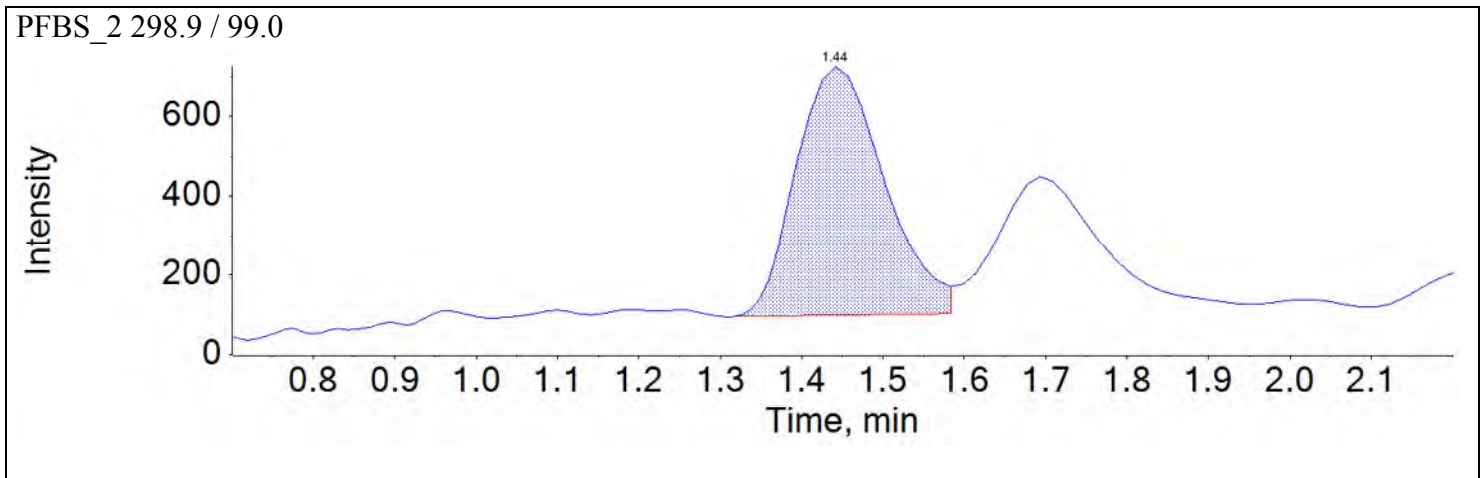
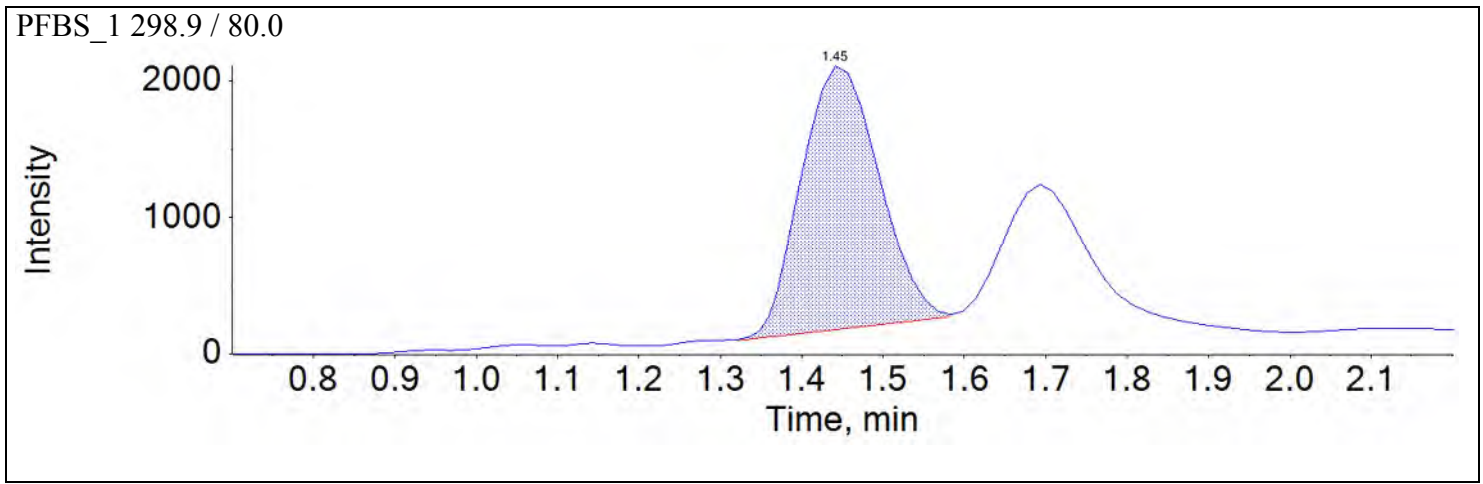


d5-EtFOSAA 589.0 / 419.0

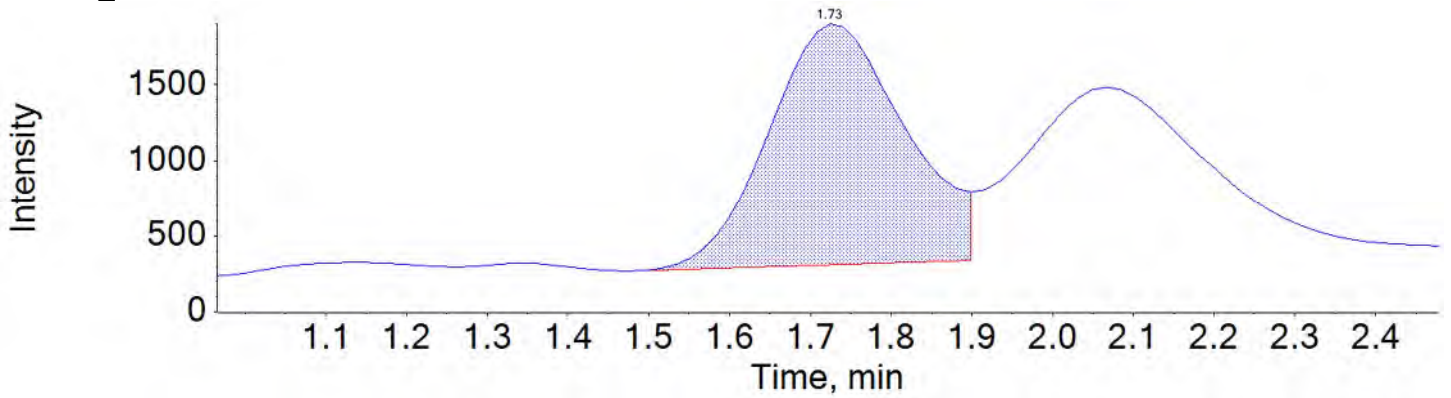


Sample Name	JV65	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:36:03	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

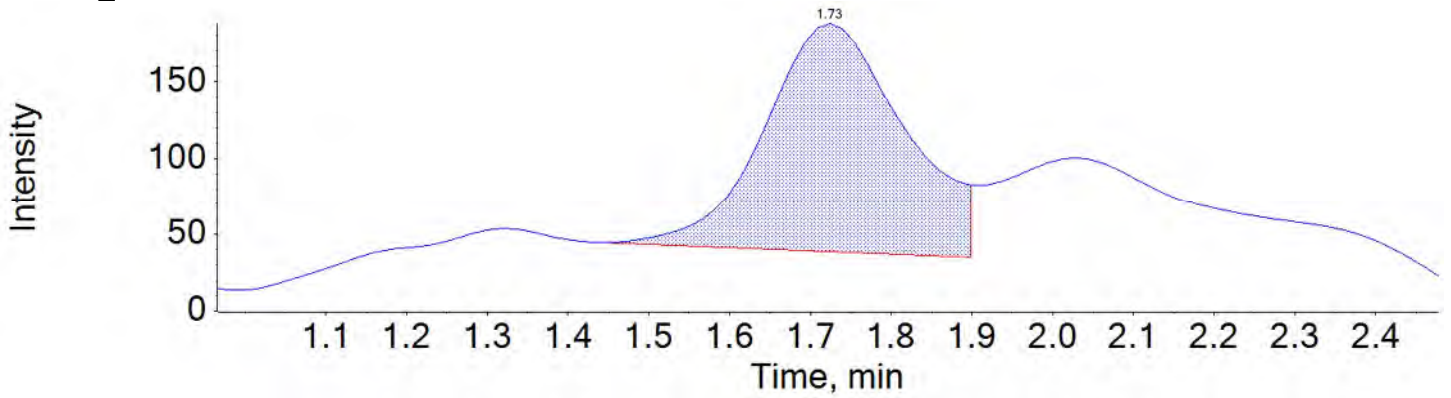
Chromatograms



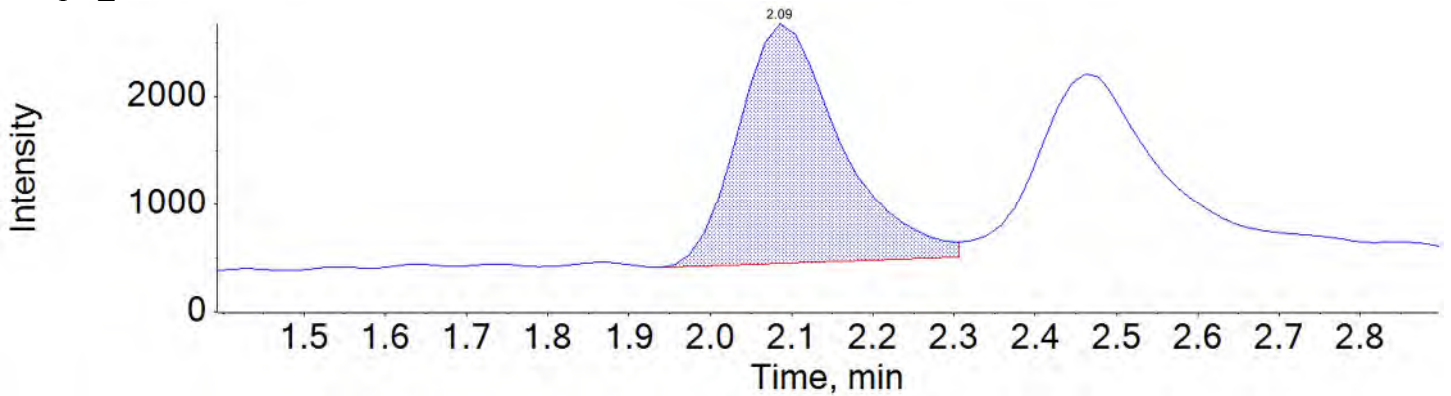
PFHxA_1 313.0 / 269.0



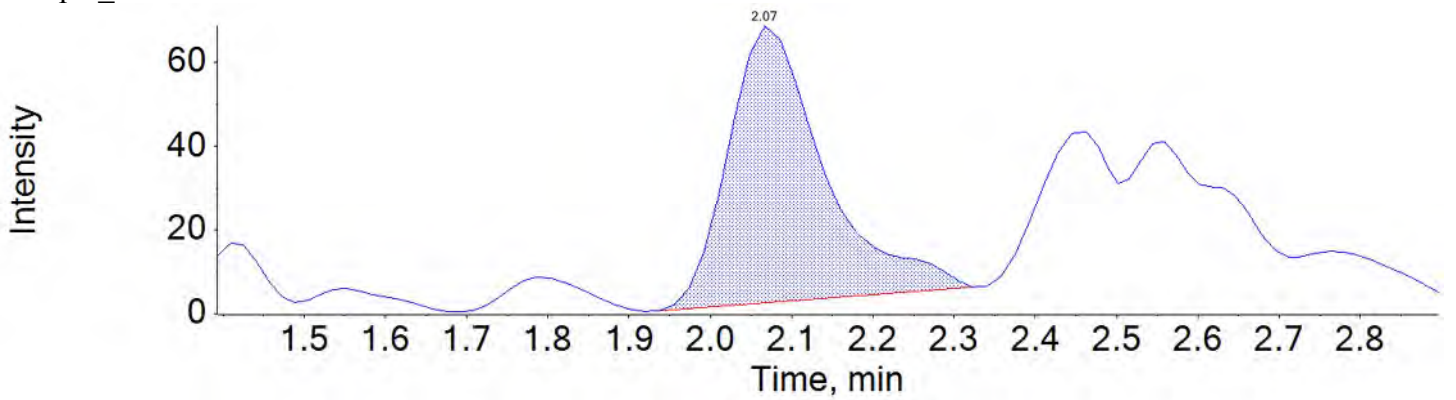
PFHxA_2 313.0 / 119.0



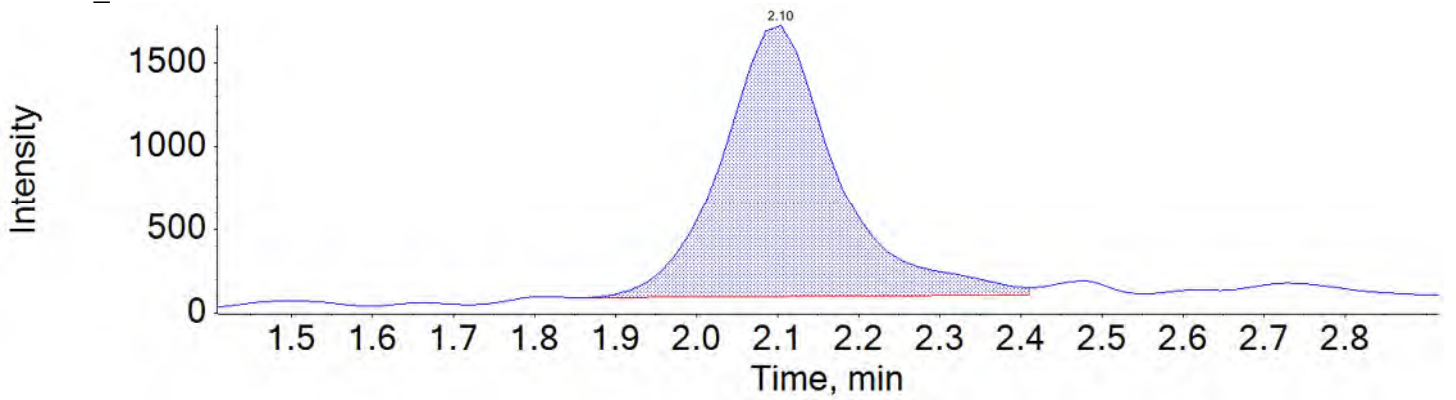
PFHpA_1 363.0 / 319.0



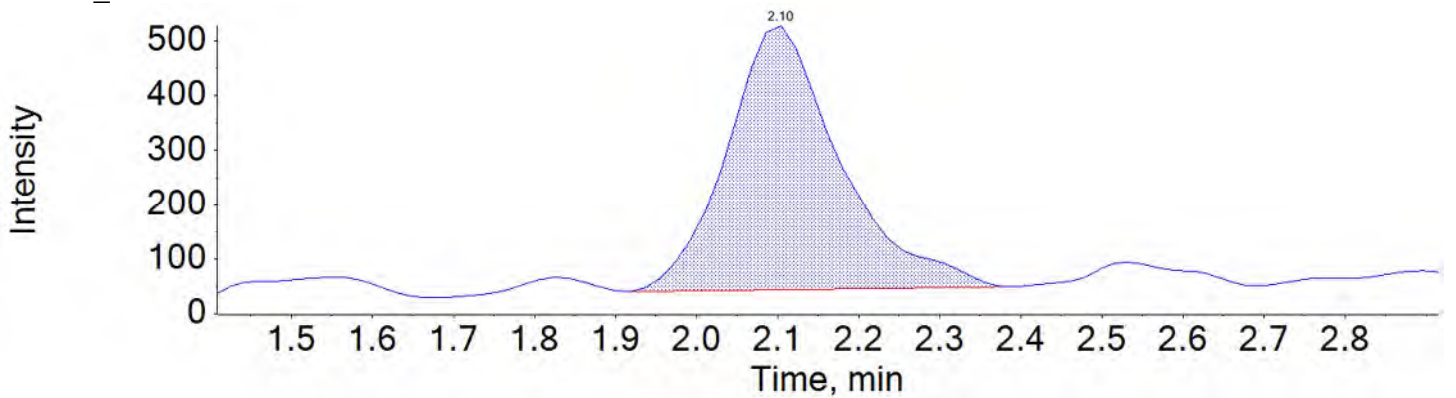
PFHpA_2 363.0 / 169.0



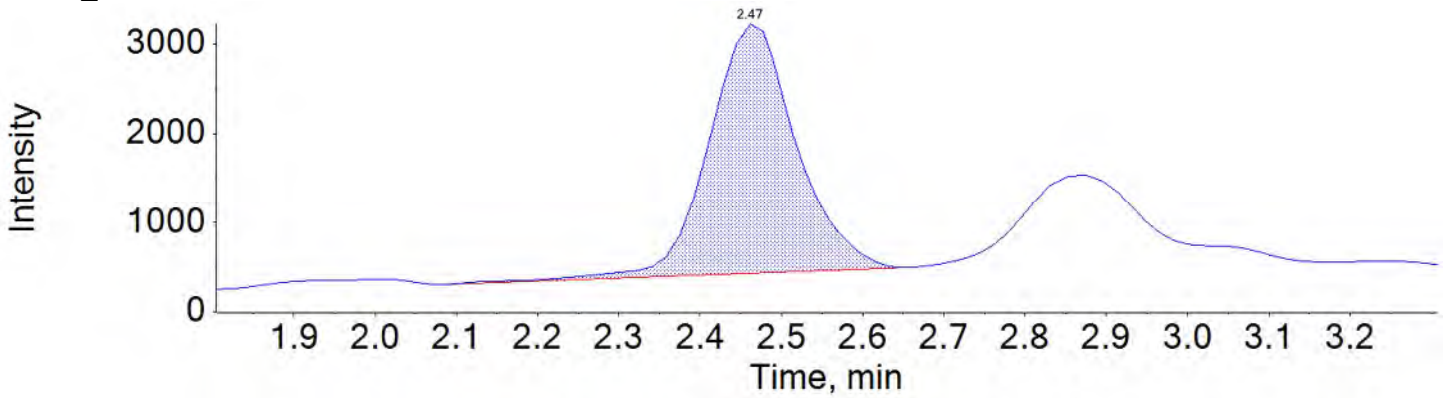
PFHxS_1 399.0 / 80.0



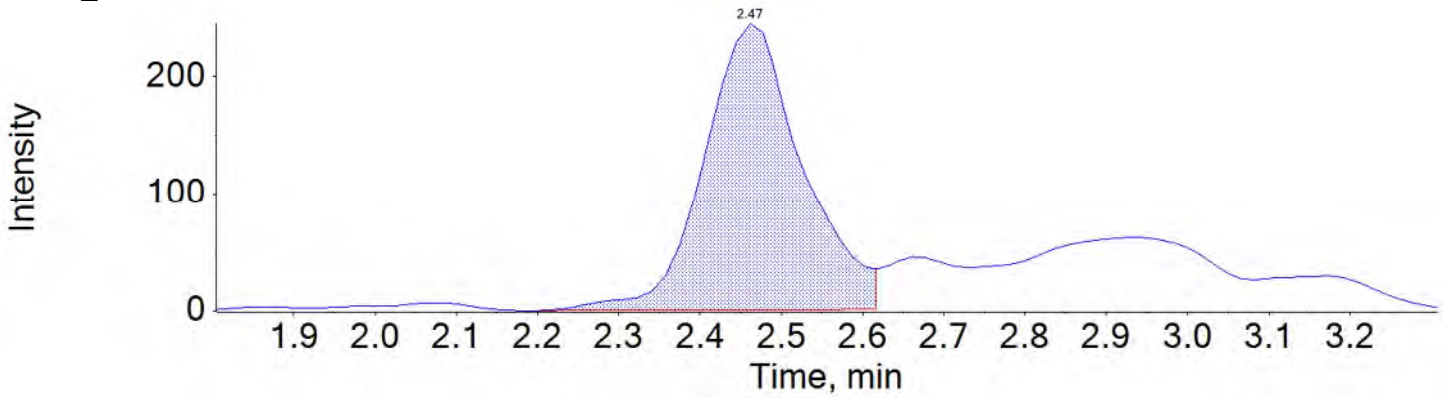
PFHxS_2 399.0 / 99.0



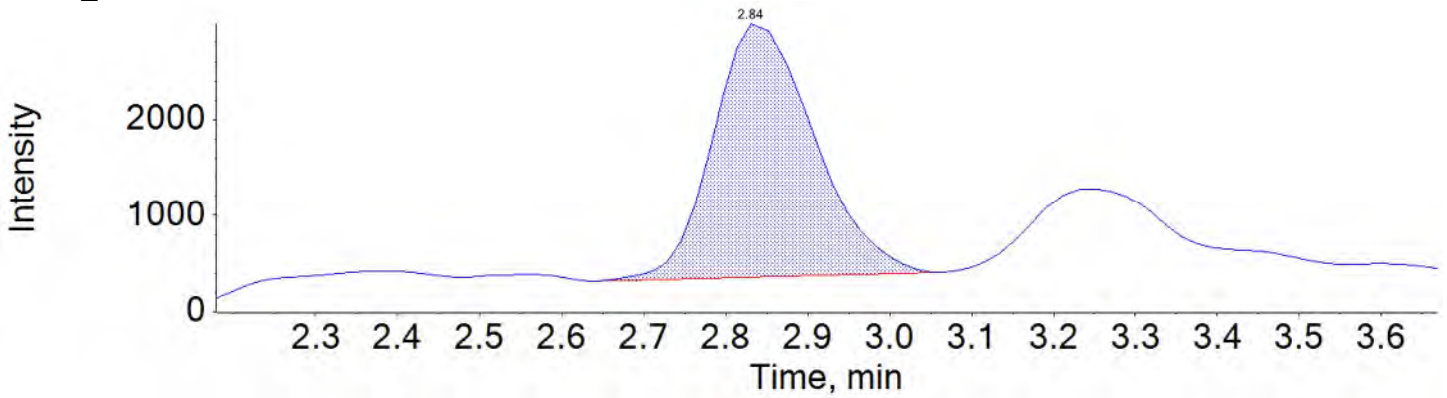
PFOA_1 413.0 / 369.0



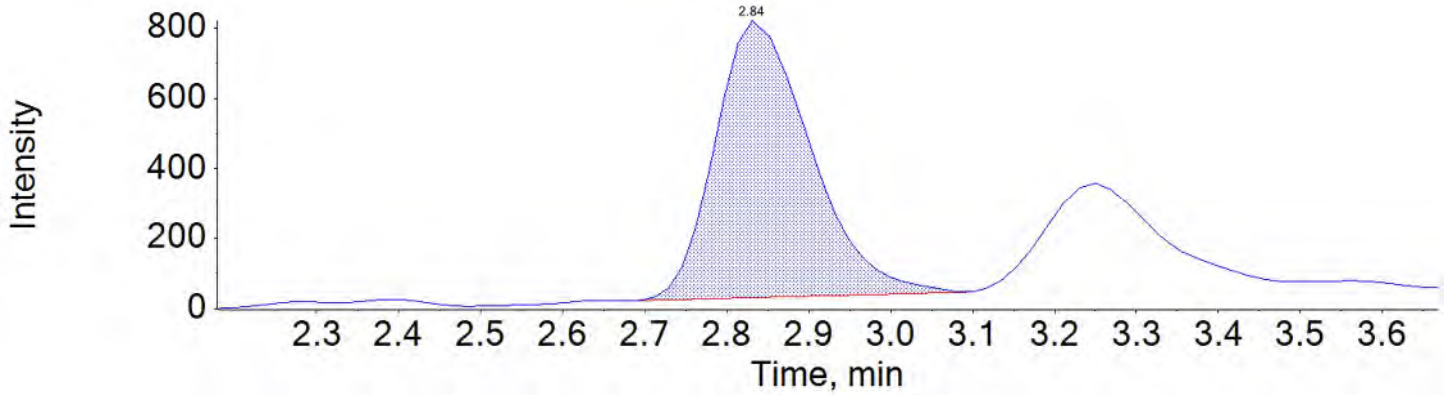
PFOA_2 413.0 / 169.0



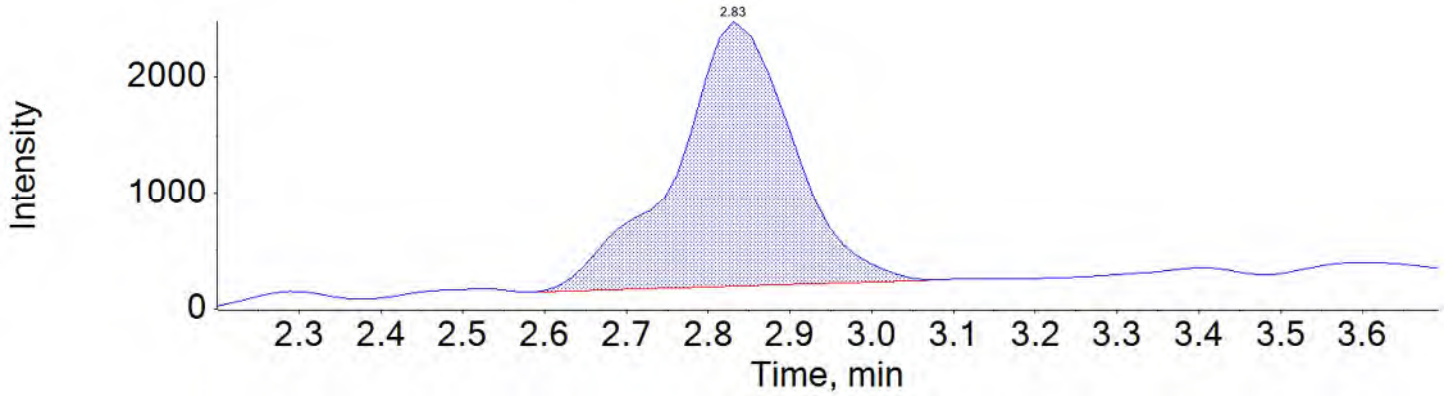
PFNA_1 463.0 / 419.0



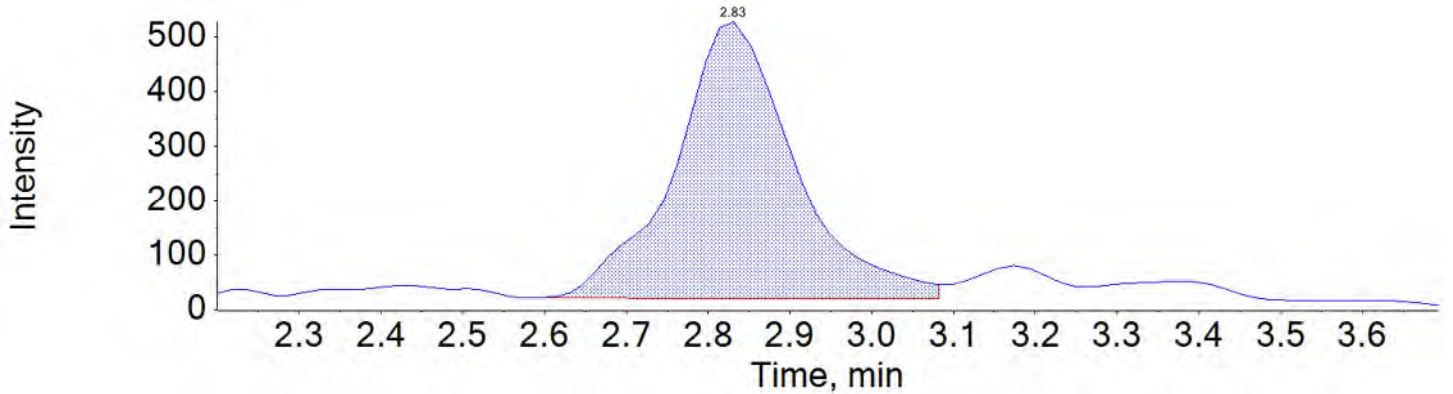
PFNA_2 463.0 / 219.0



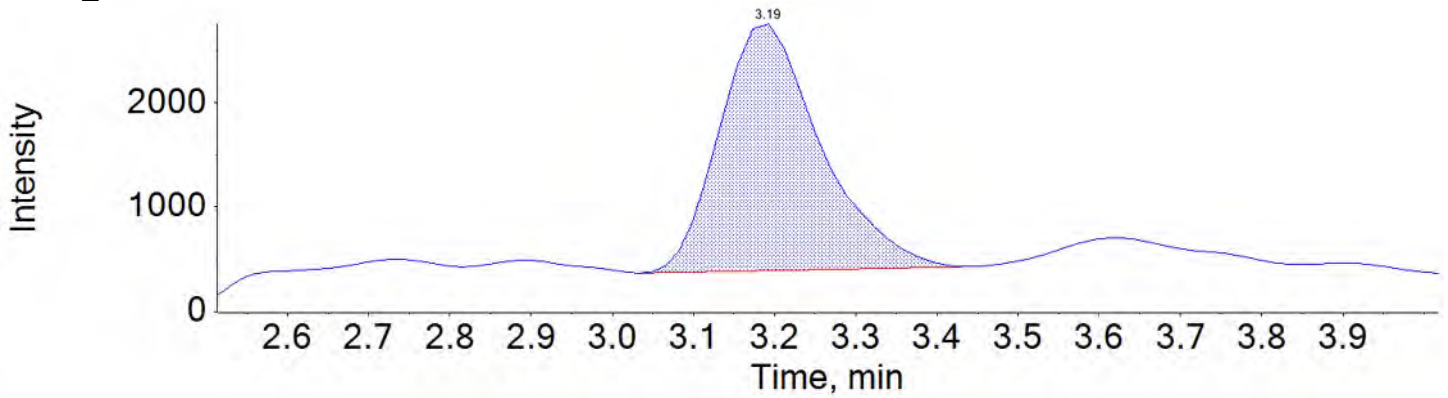
PFOS_1 499.0 / 80.0



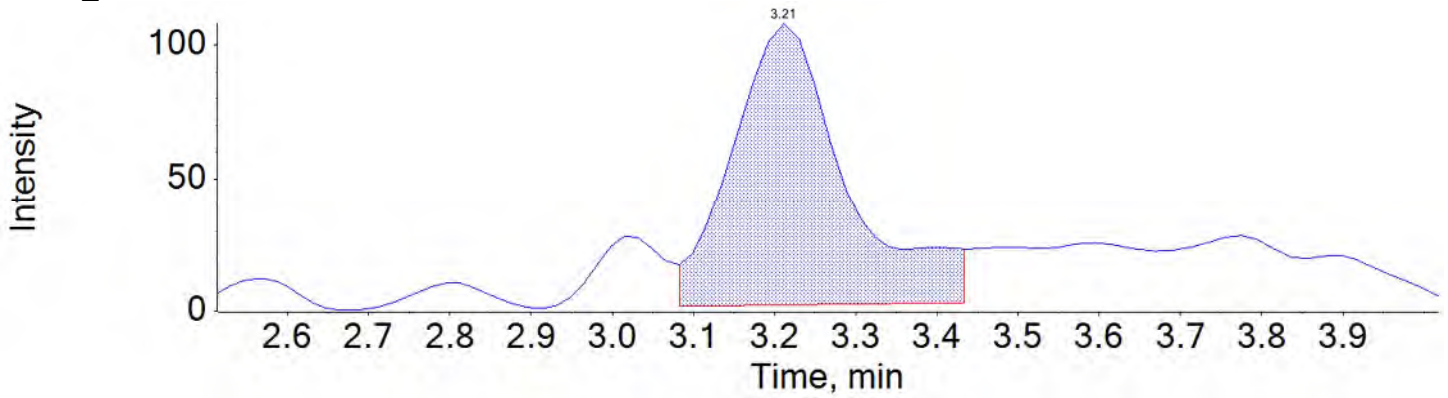
PFOS_2 499.0 / 99.0



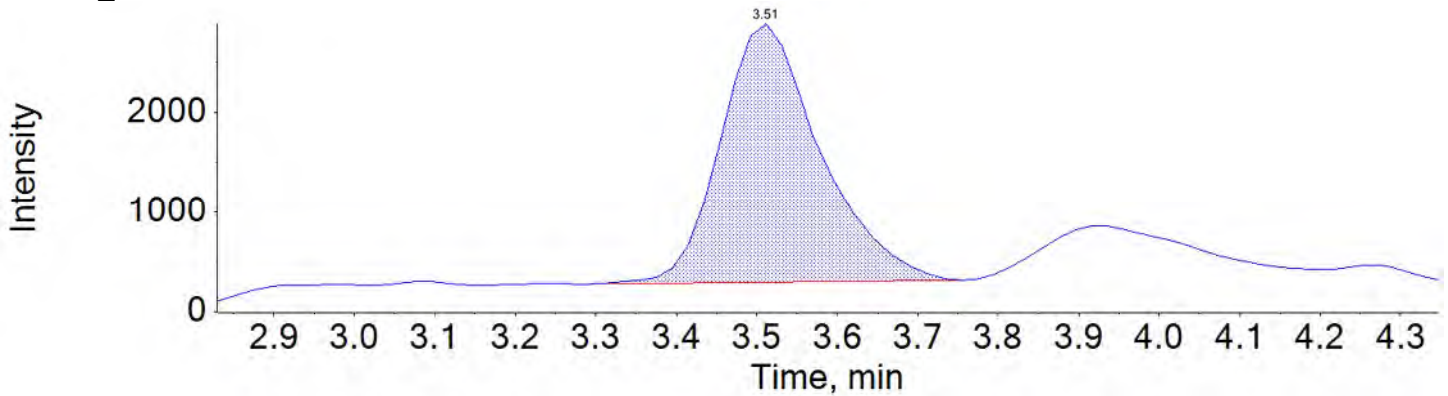
PFDA_1 513.0 / 469.0



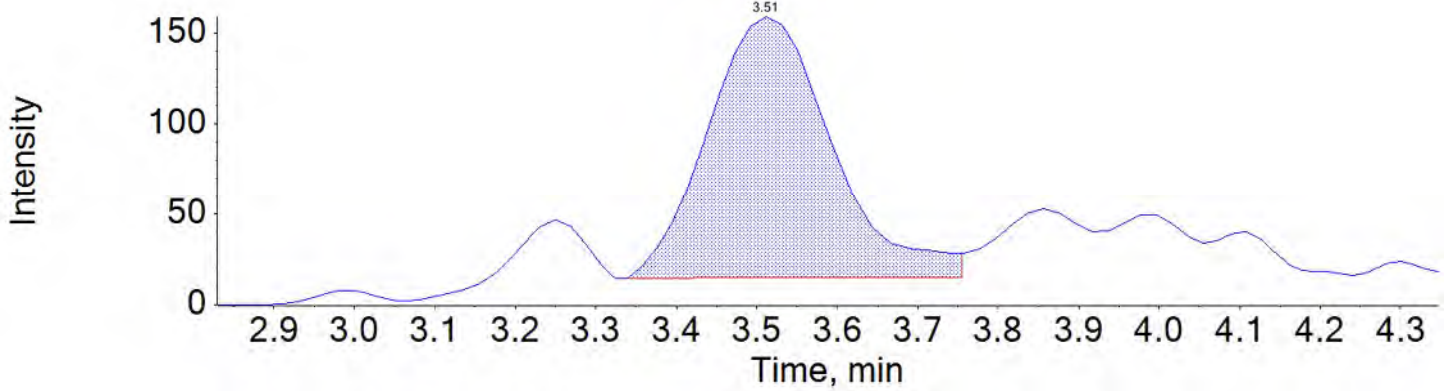
PFDA_2 513.0 / 219.0



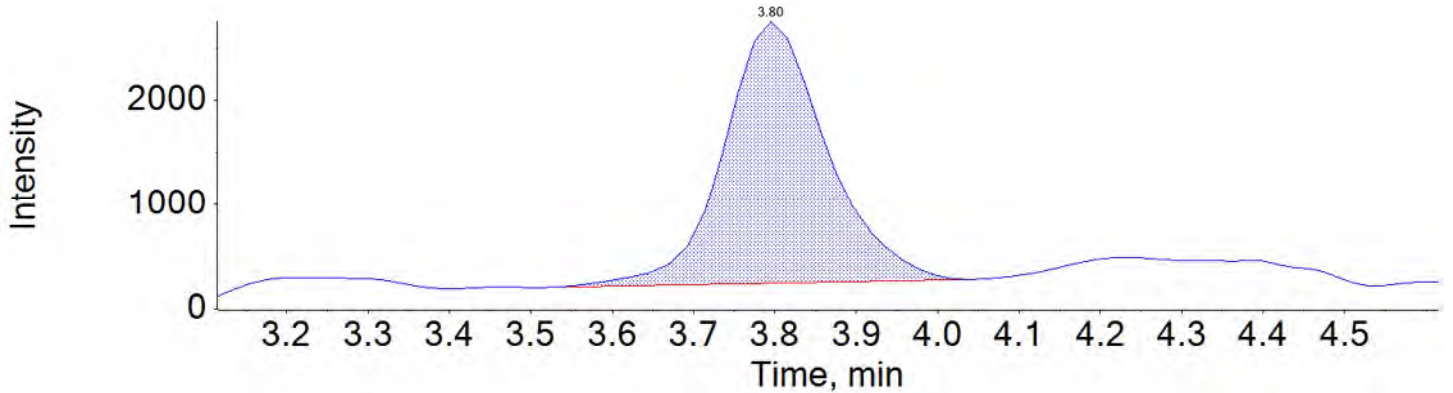
PFAUnA_1 563.0 / 519.0



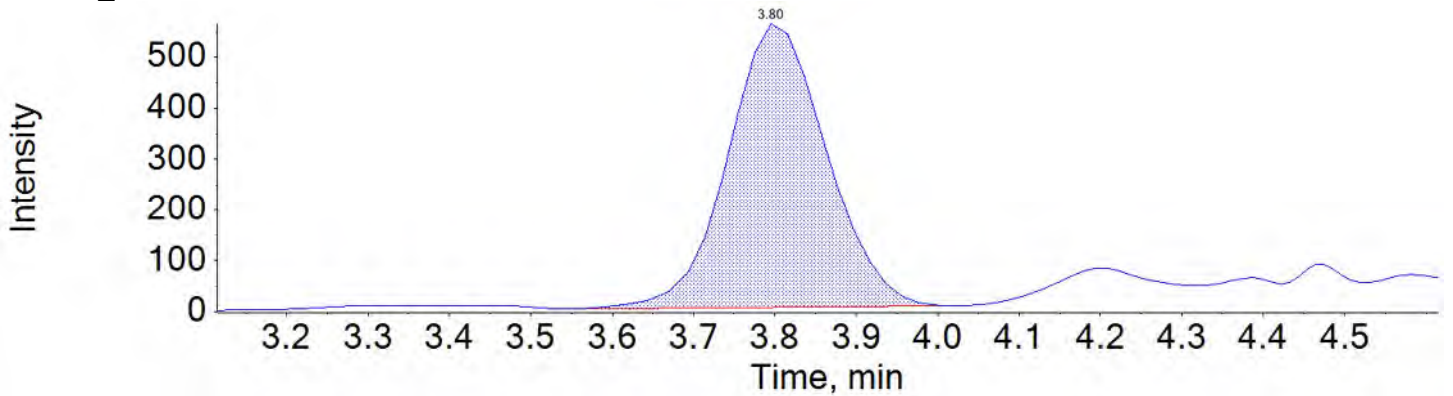
PFU_nA_2 563.0 / 269.0



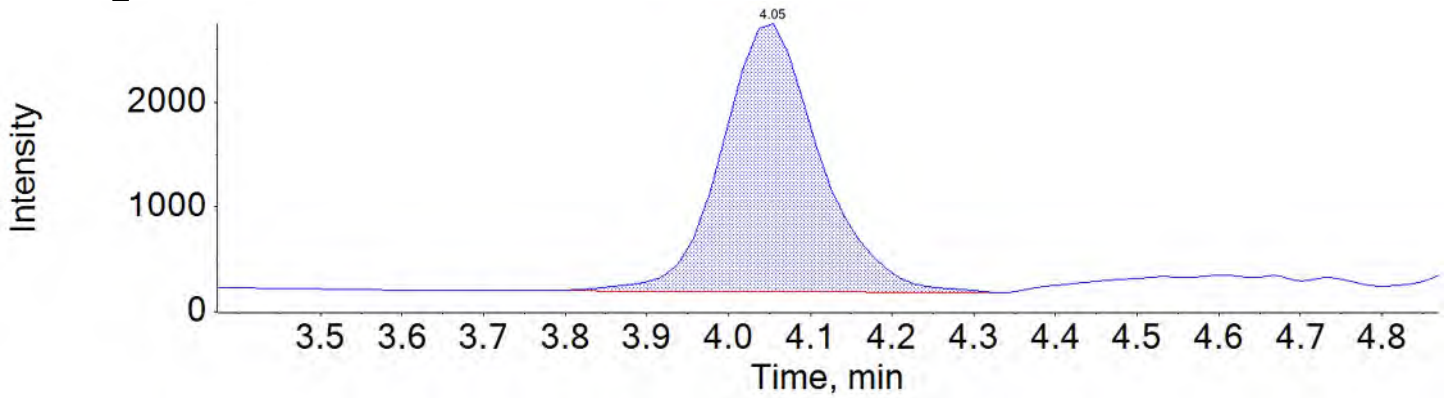
PFDoA_1 613.0 / 569.0



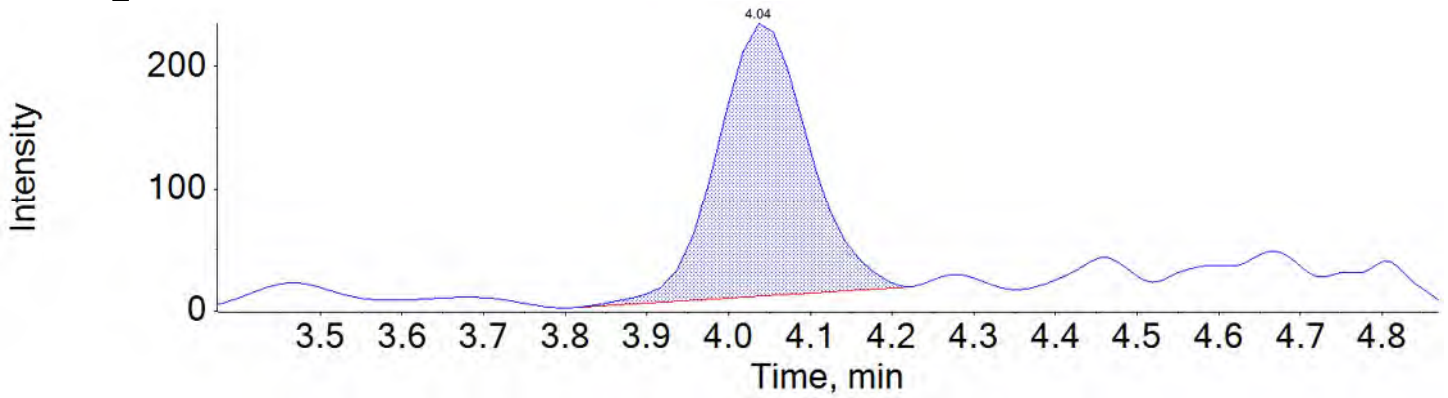
PFDoA_2 613.0 / 319.0



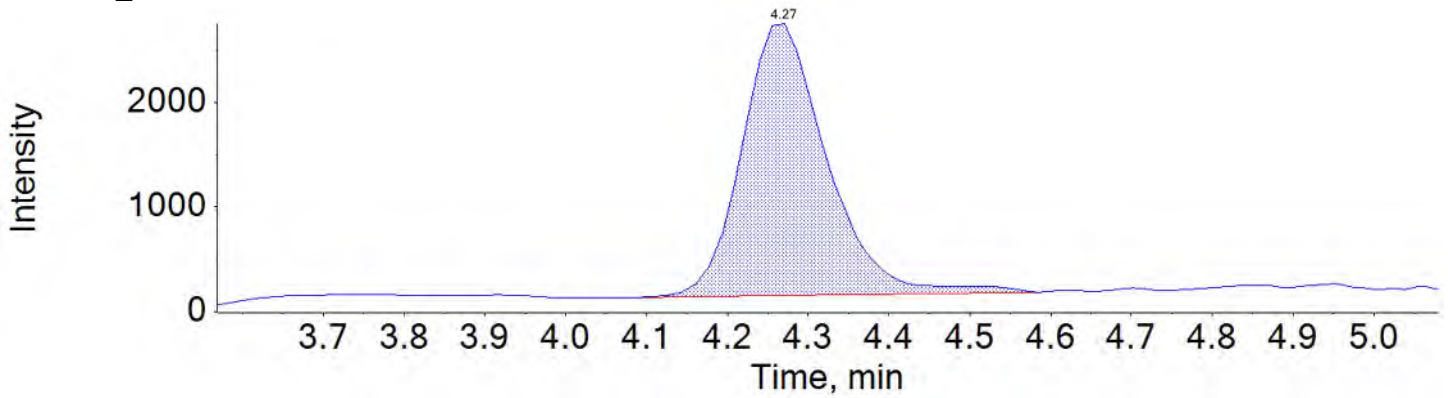
PFTTrDA_1 663.0 / 619.0



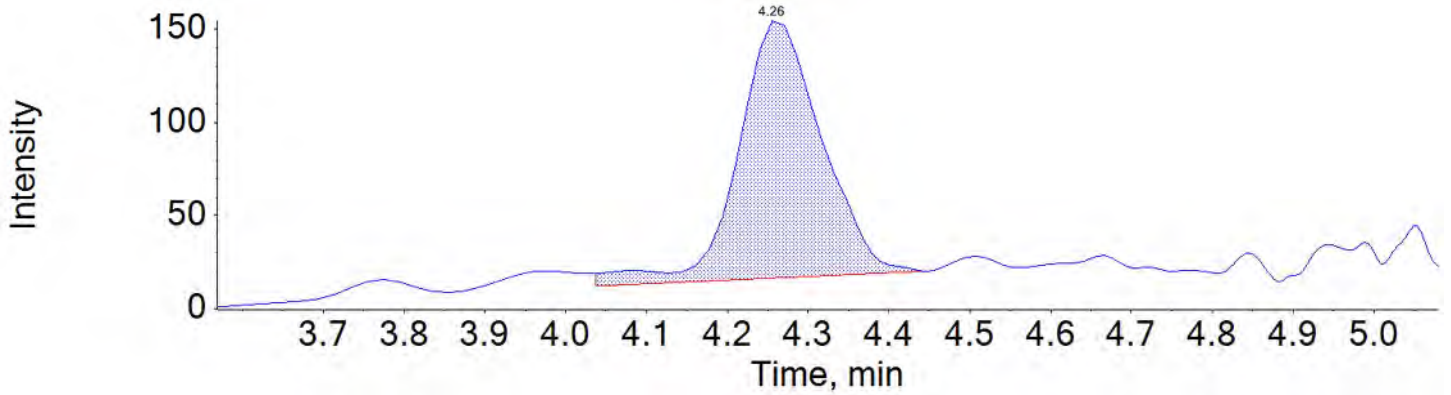
PFTTrDA_2 663.0 / 169.0



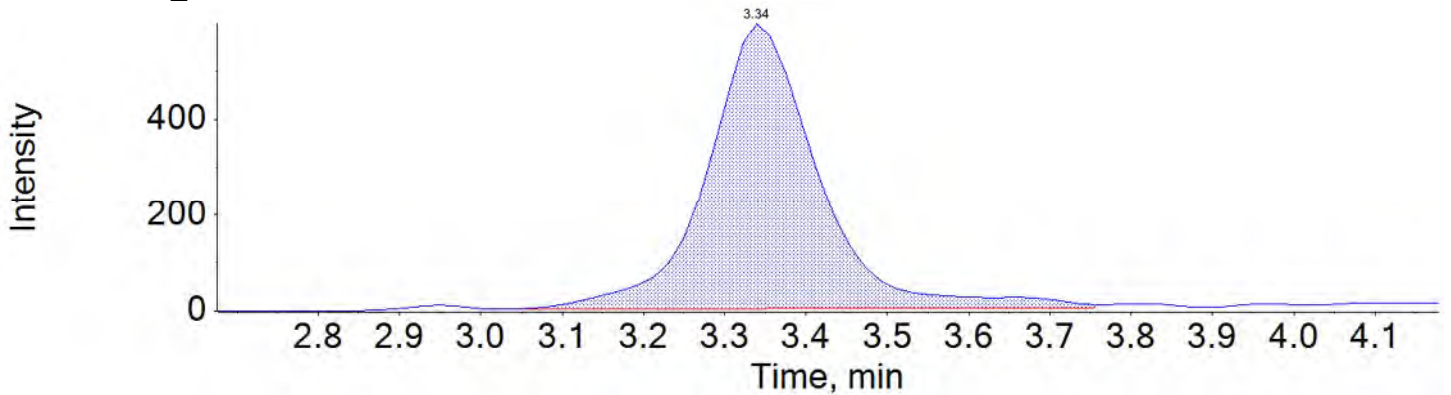
PFTTeDA_1 713.0 / 669.0



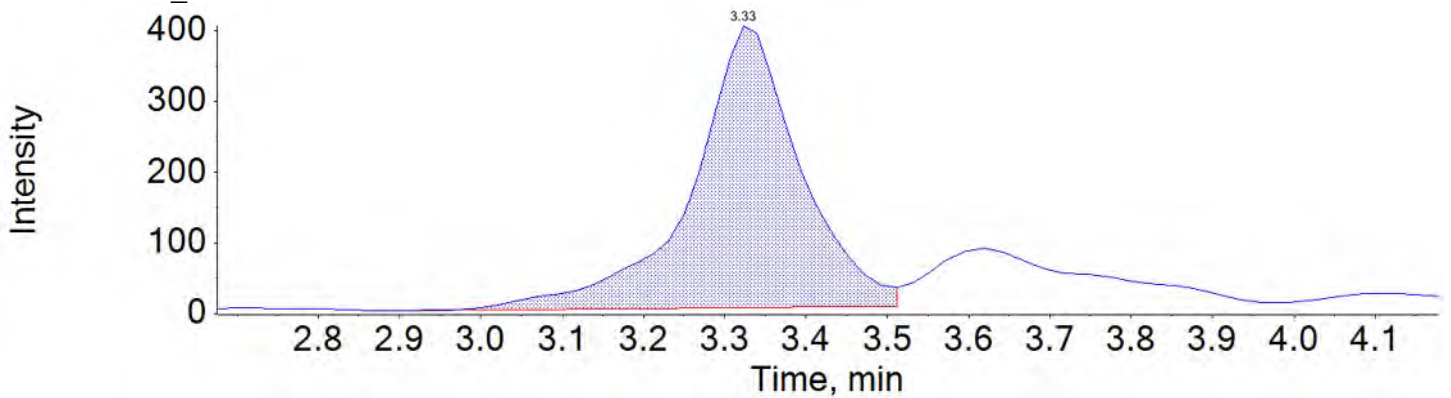
PFTeDA_2 713.0 / 169.0



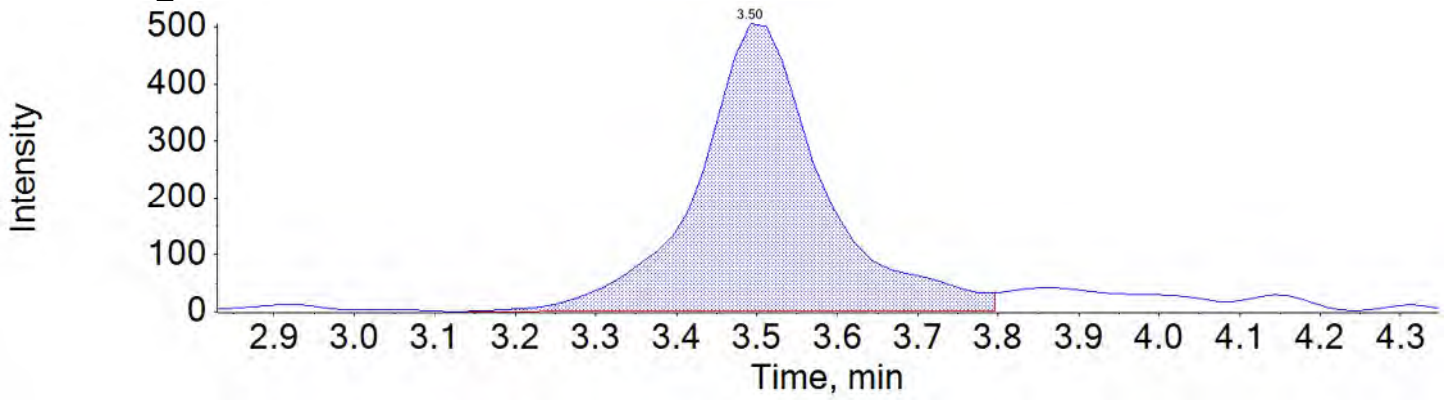
NMeFOSAA_1 570.0 / 419.0



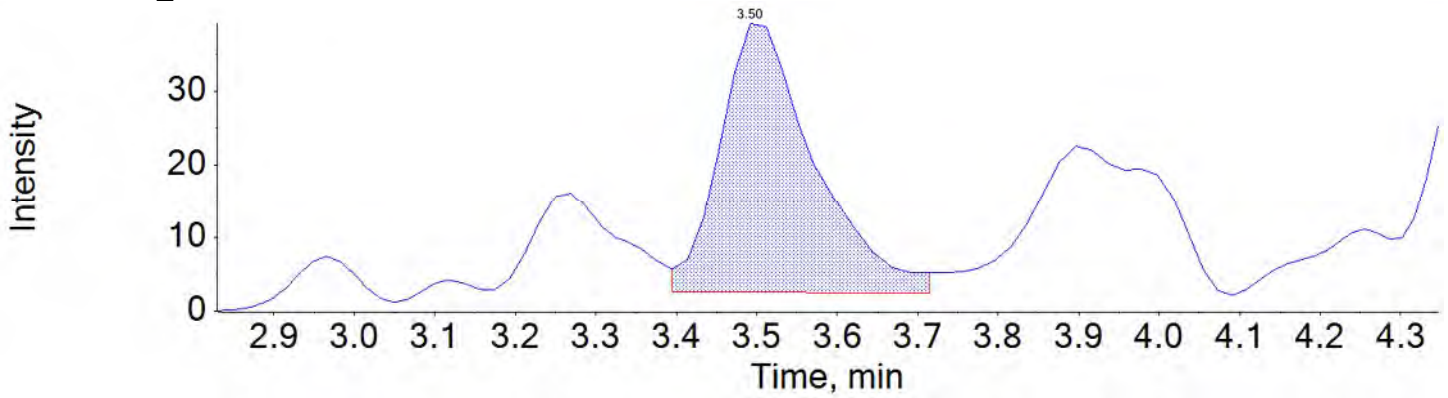
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

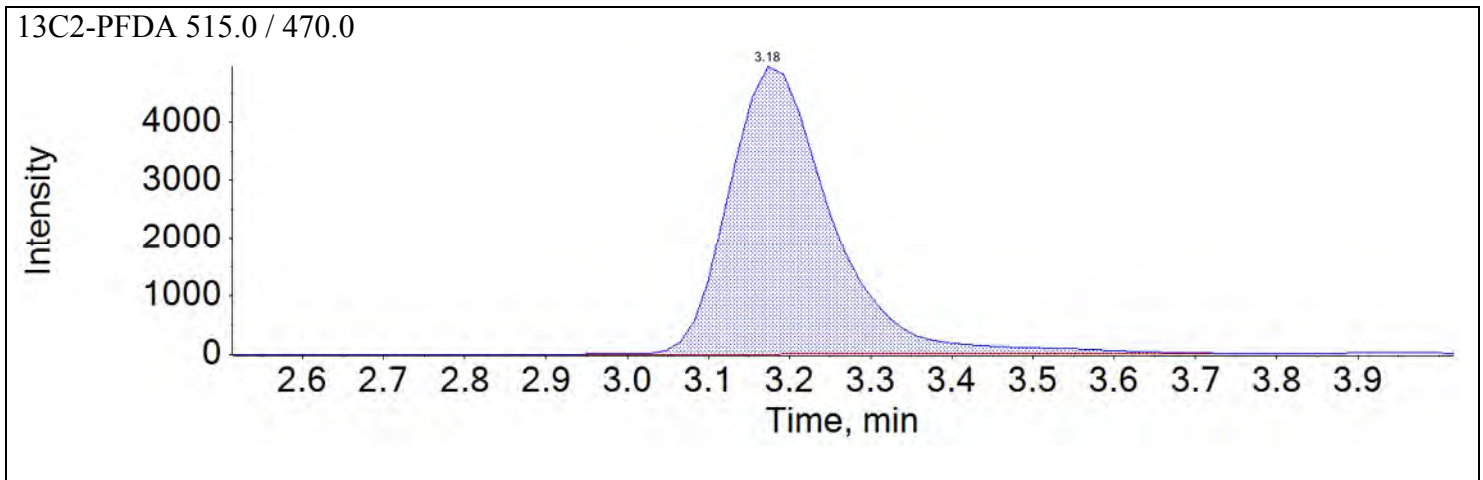
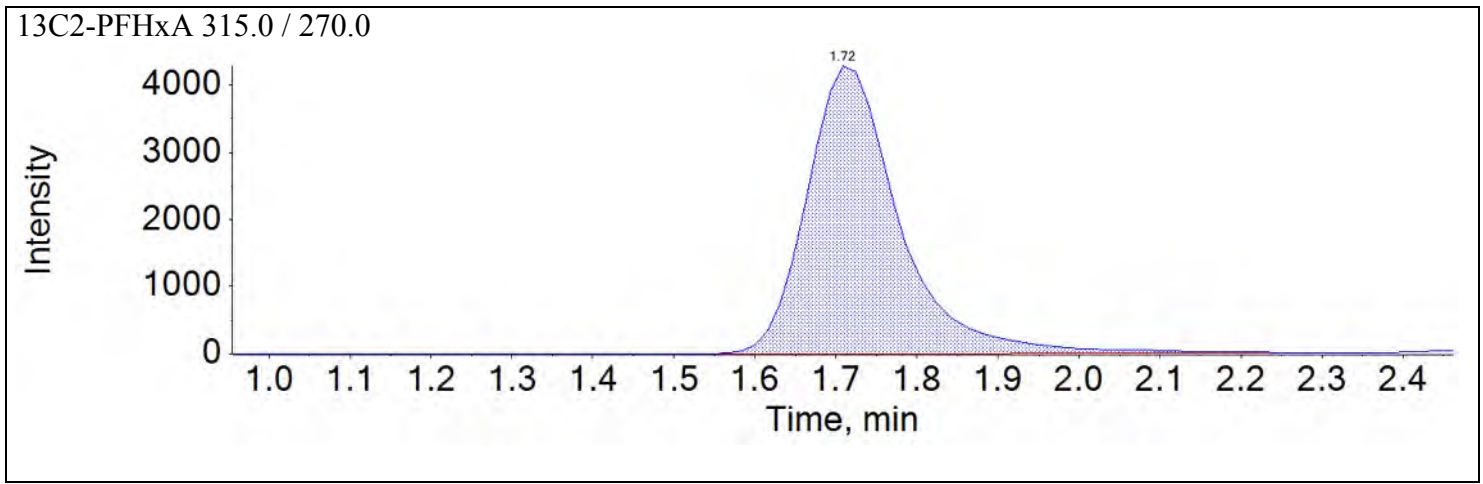


NEtFOSAA_2 584.0 / 483.0

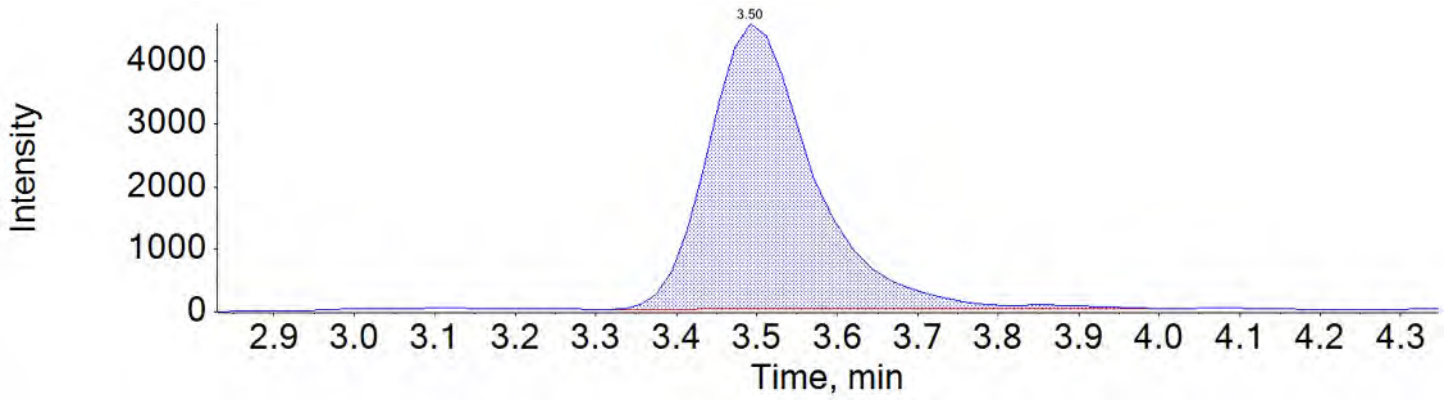


Sample Name	JV65	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:36:03	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms

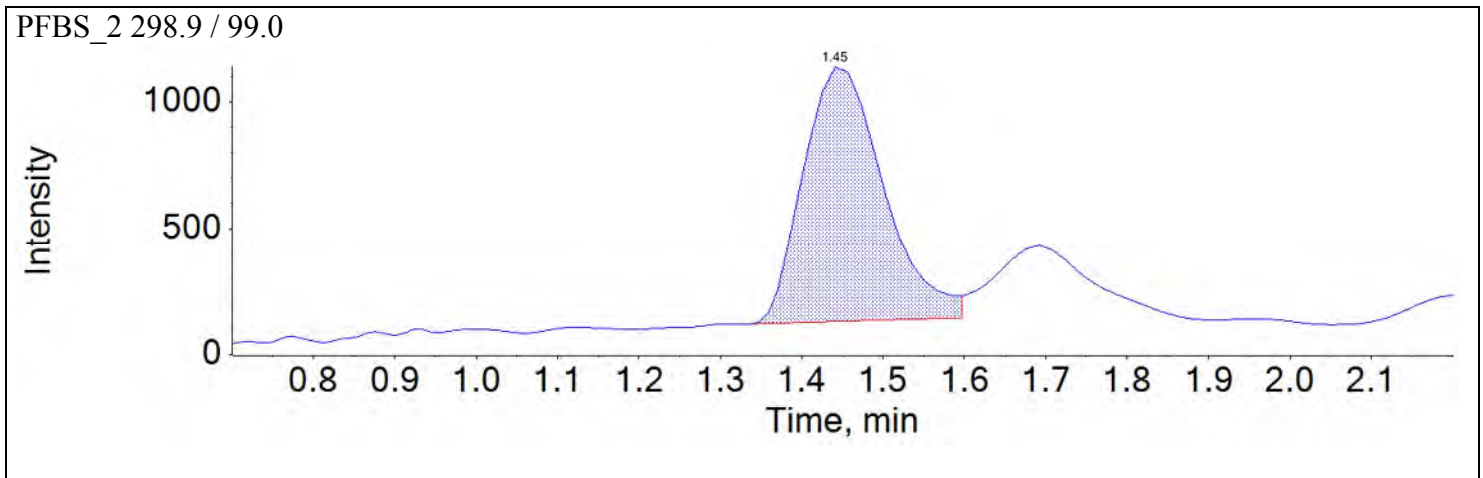
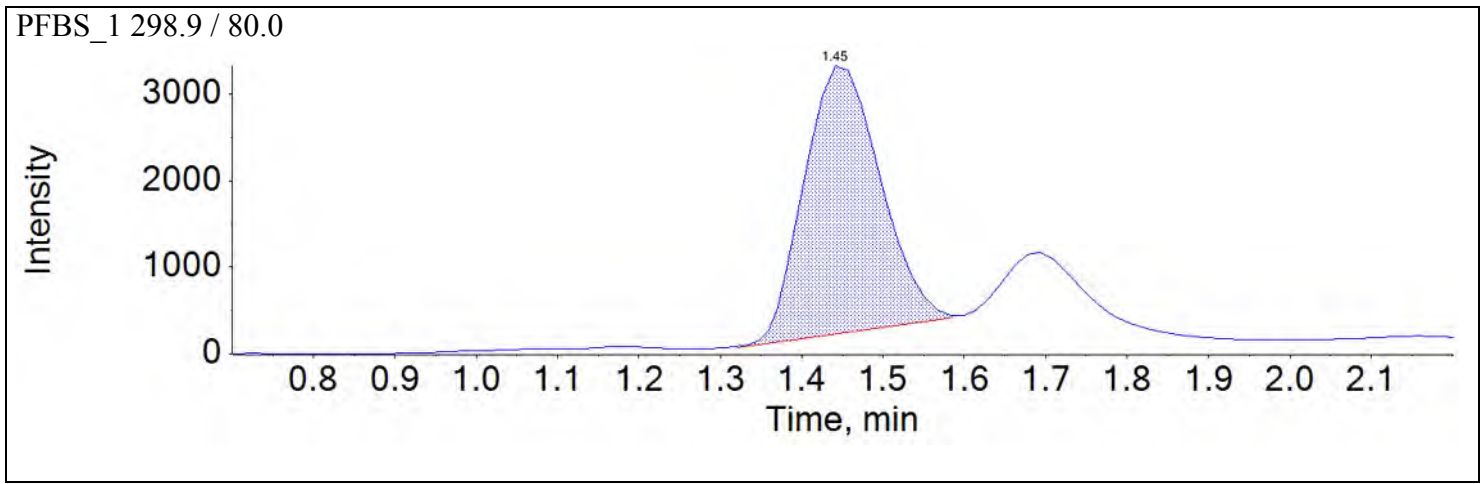


d5-EtFOSAA 589.0 / 419.0

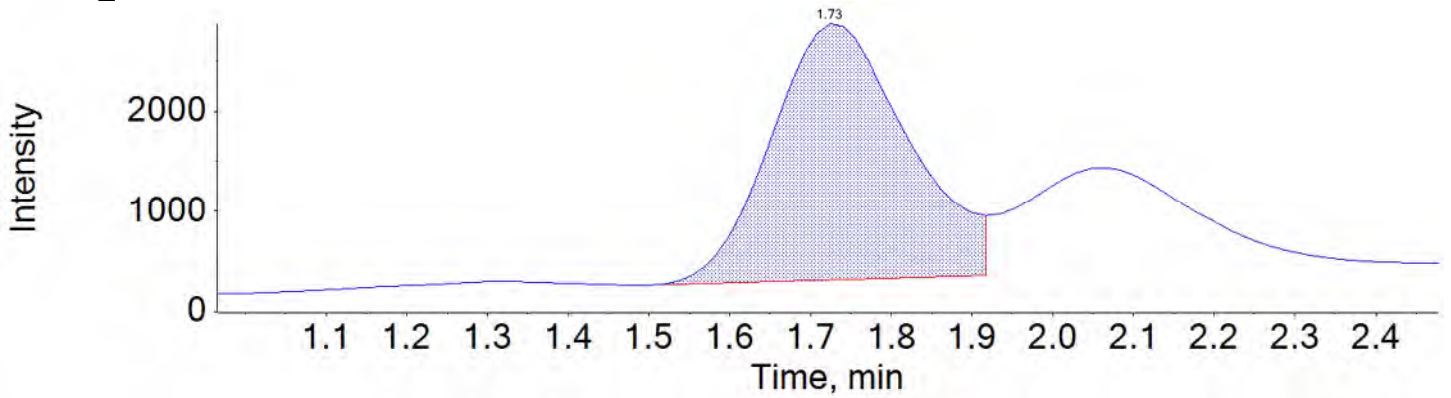


Sample Name	JV66	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:45:01	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

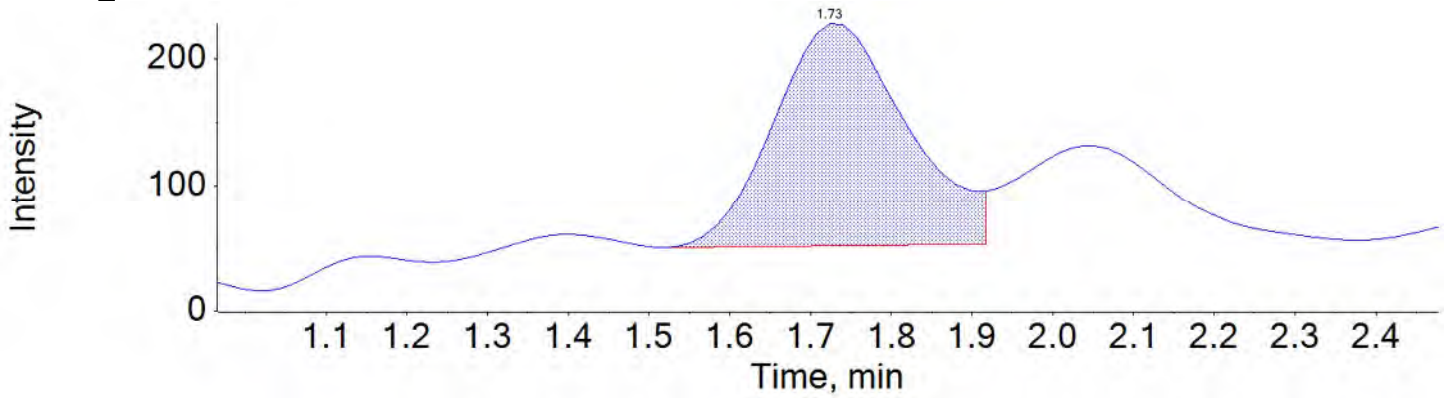
Chromatograms



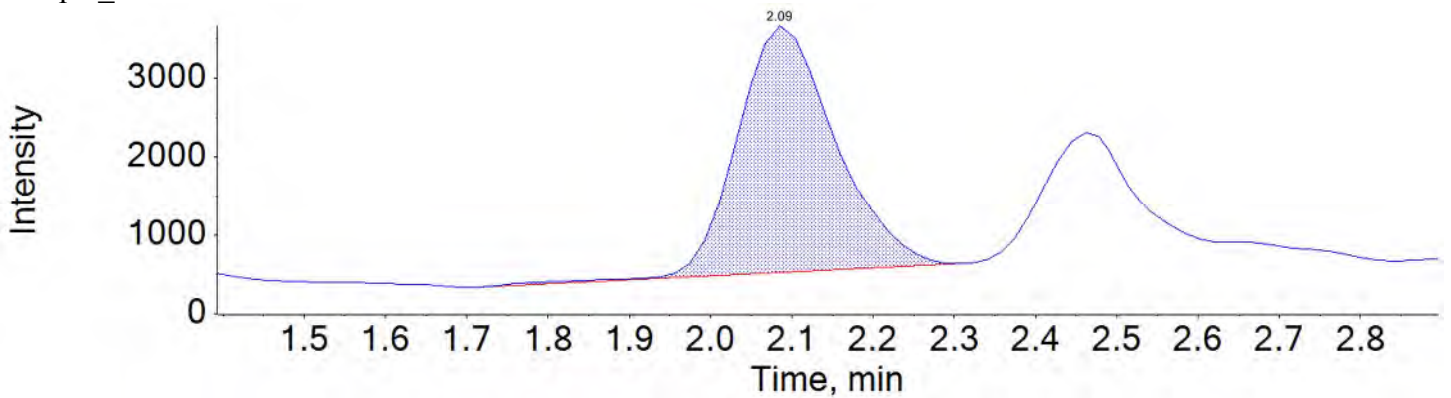
PFHxA_1 313.0 / 269.0



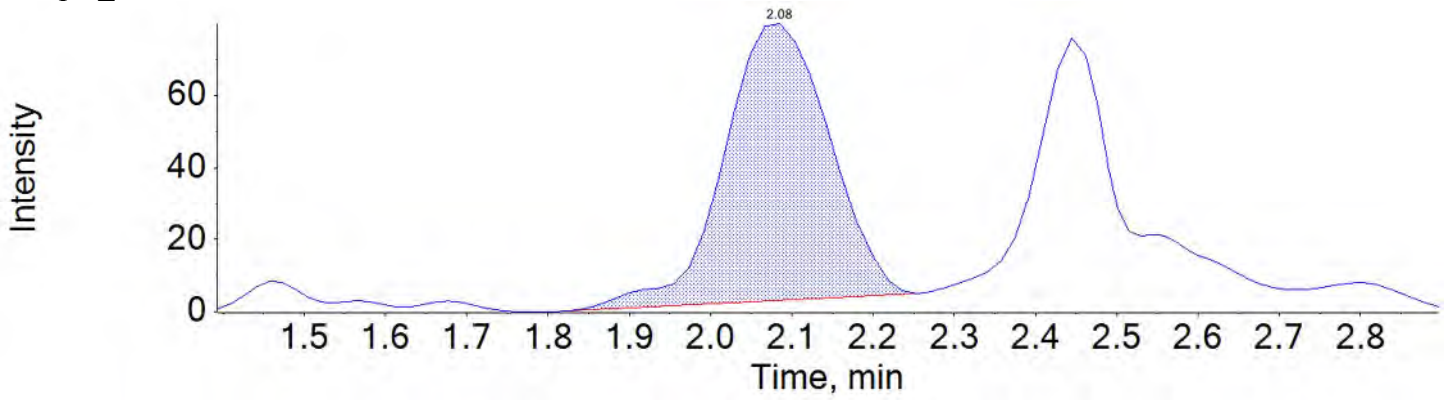
PFHxA_2 313.0 / 119.0



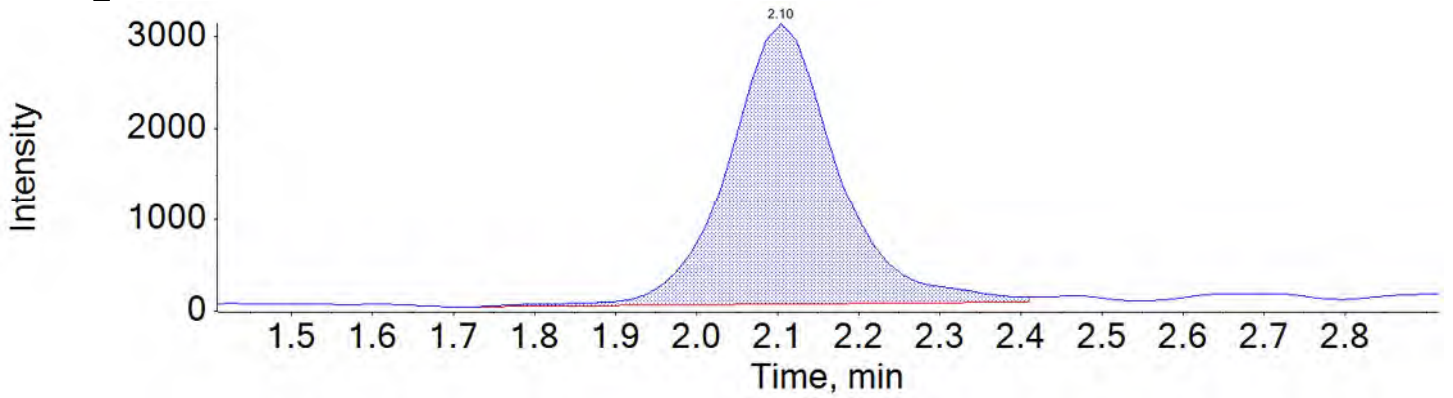
PFHpA_1 363.0 / 319.0



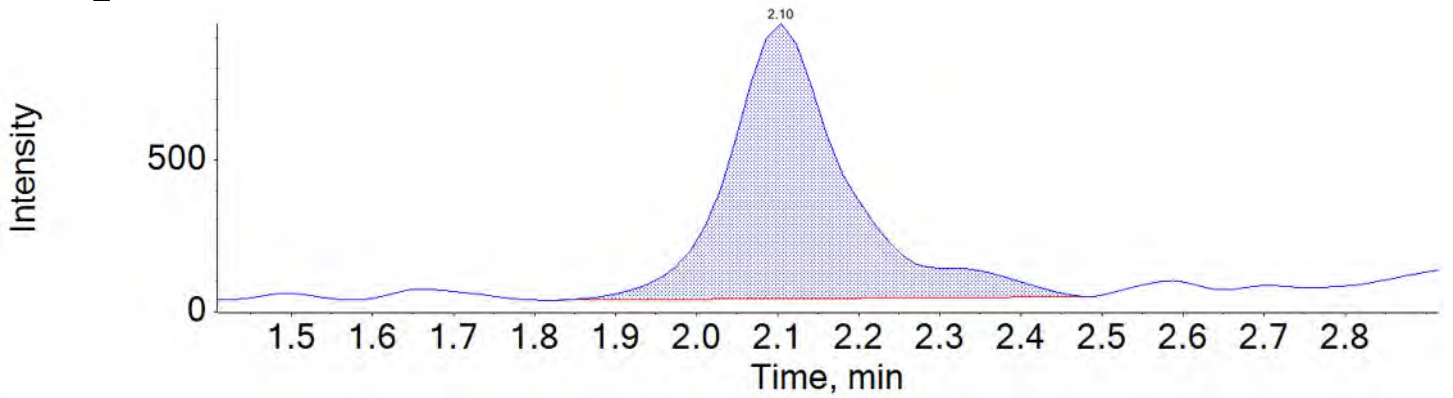
PFHpA_2 363.0 / 169.0



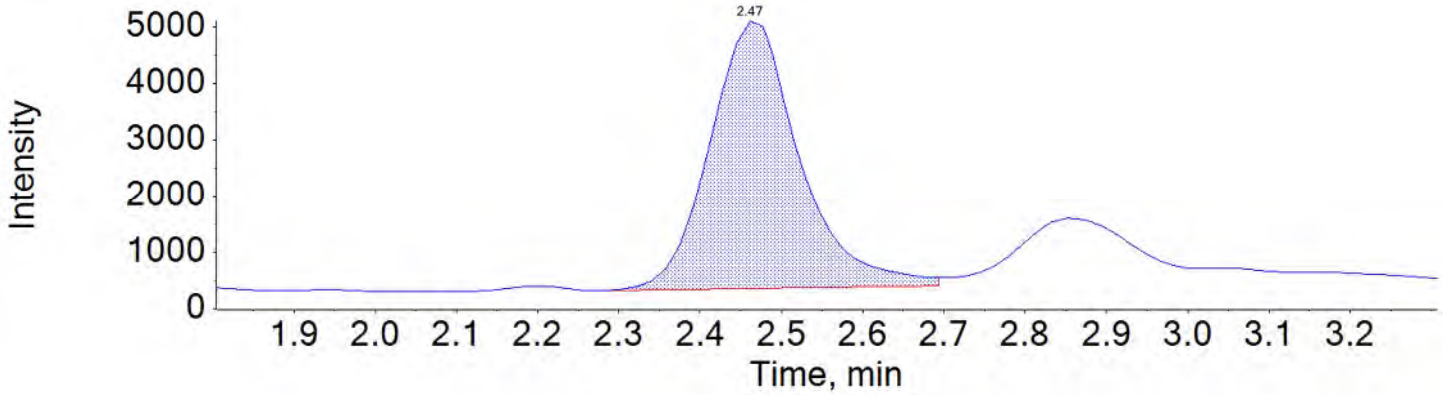
PFHxS_1 399.0 / 80.0



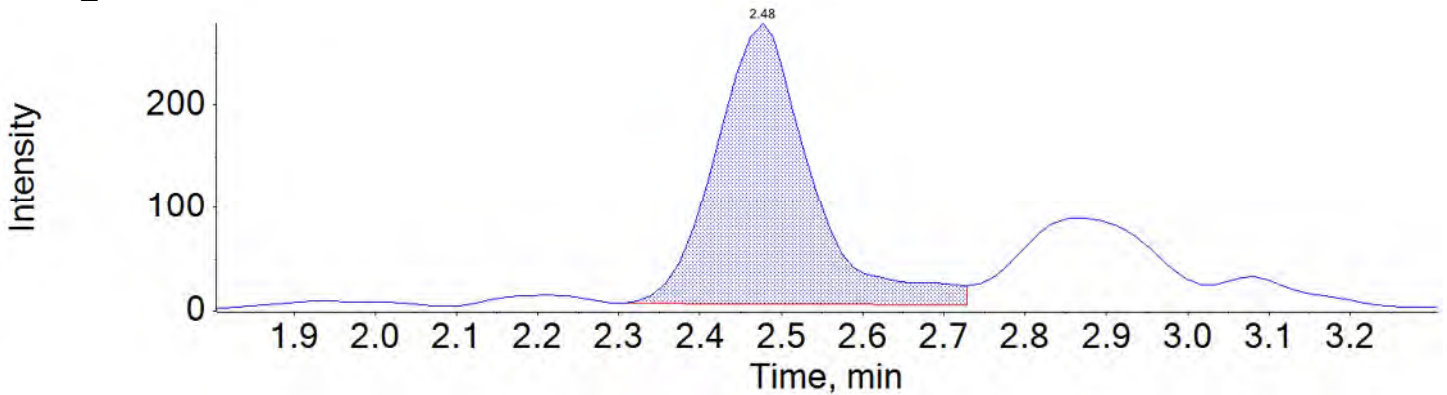
PFHxS_2 399.0 / 99.0



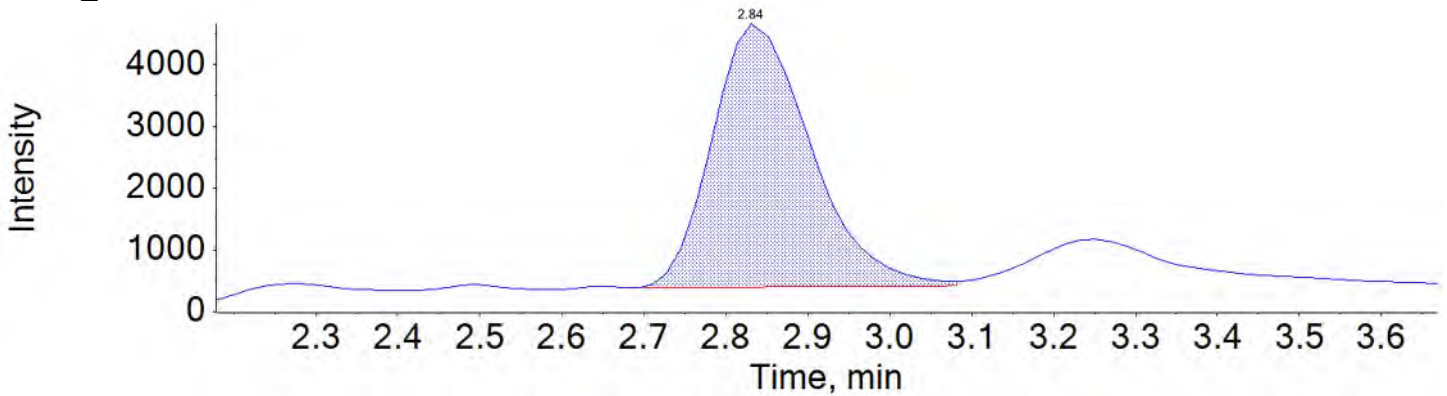
PFOA_1 413.0 / 369.0



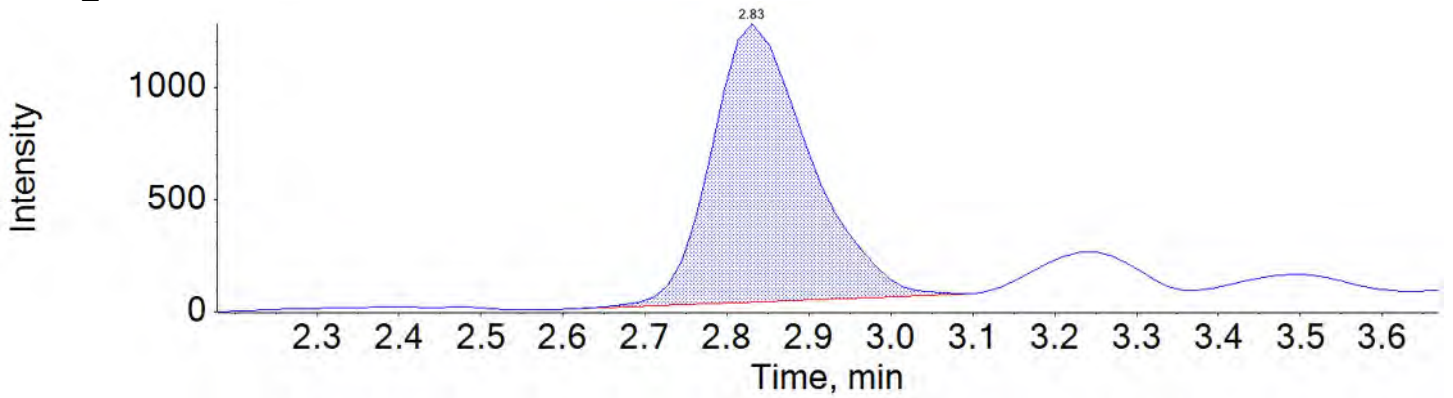
PFOA_2 413.0 / 169.0



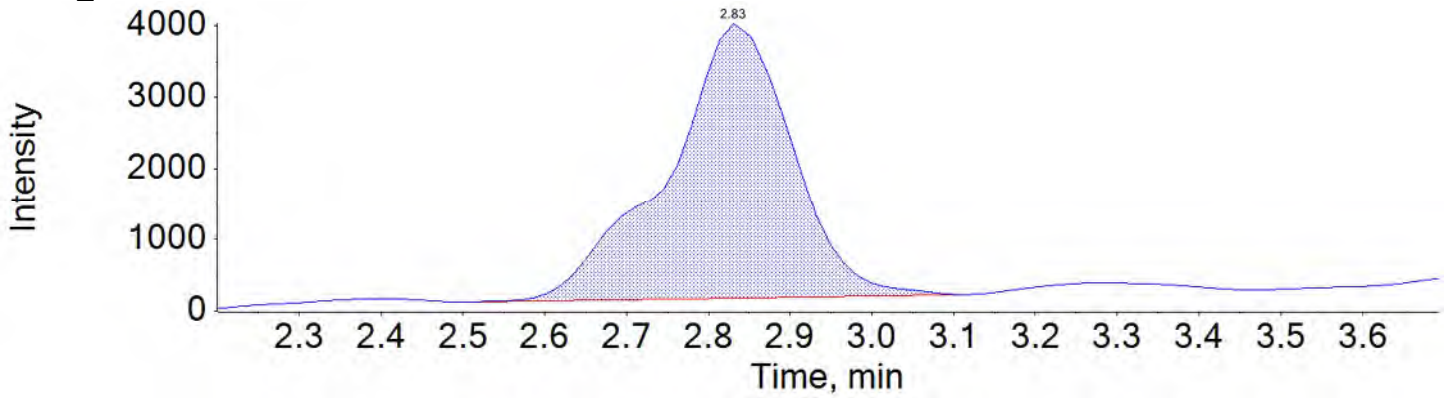
PFNA_1 463.0 / 419.0



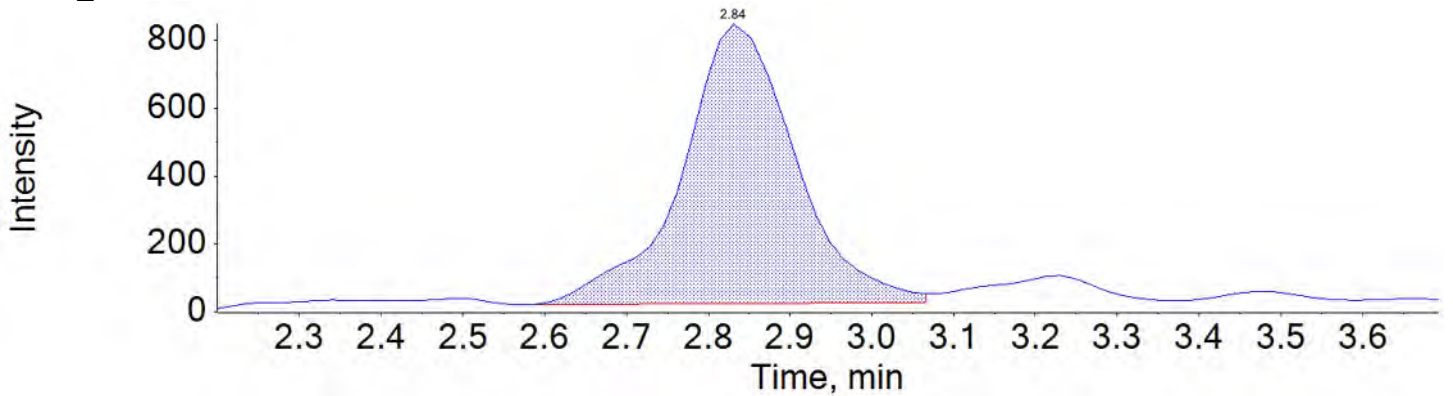
PFNA_2 463.0 / 219.0



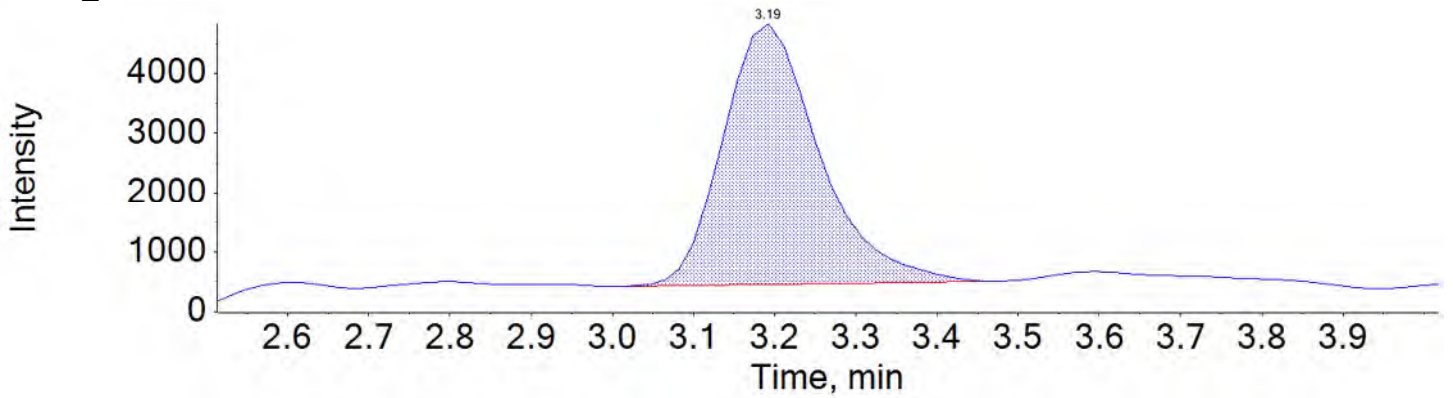
PFOS_1 499.0 / 80.0



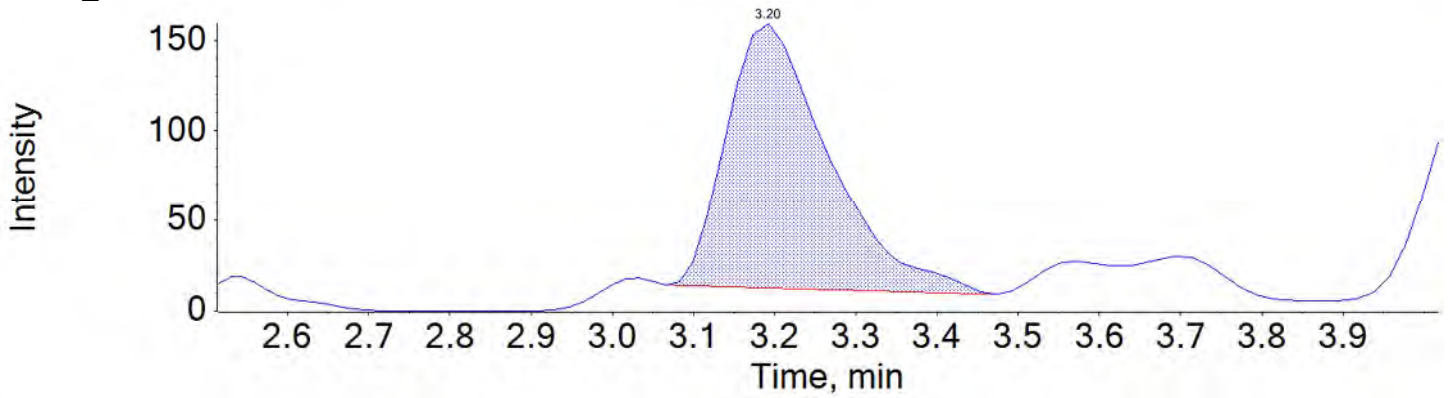
PFOS_2 499.0 / 99.0



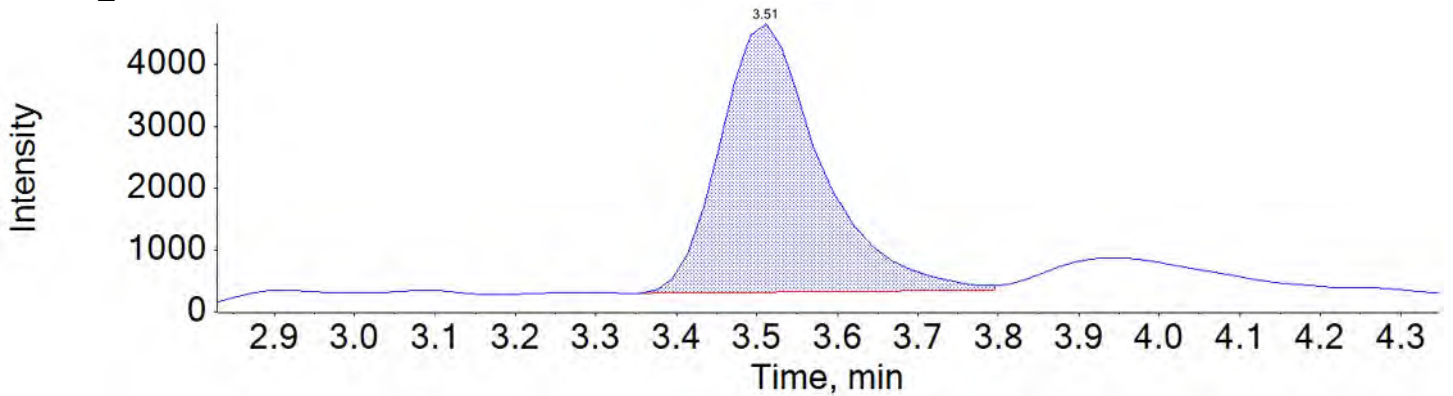
PFDA_1 513.0 / 469.0



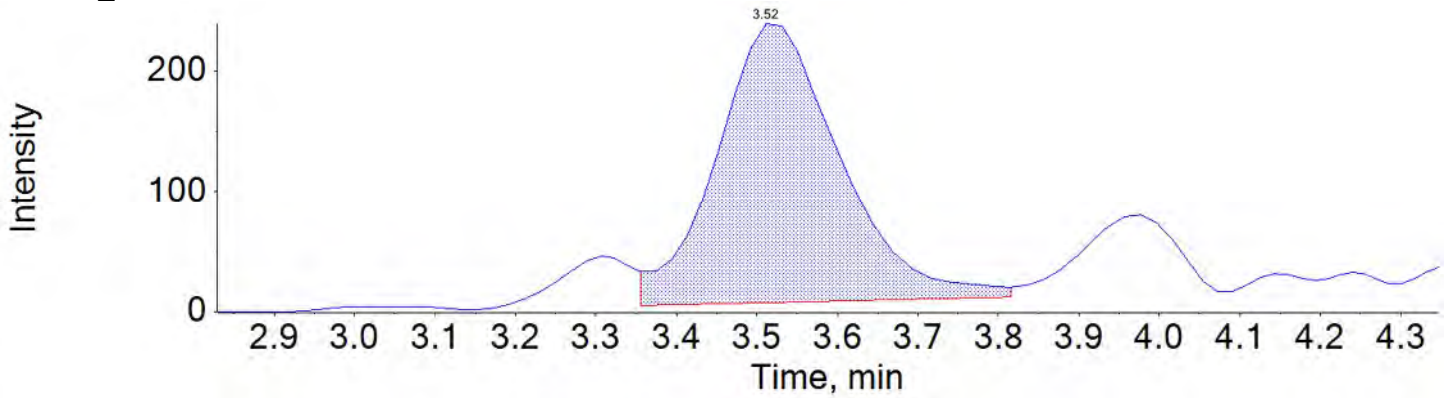
PFDA_2 513.0 / 219.0



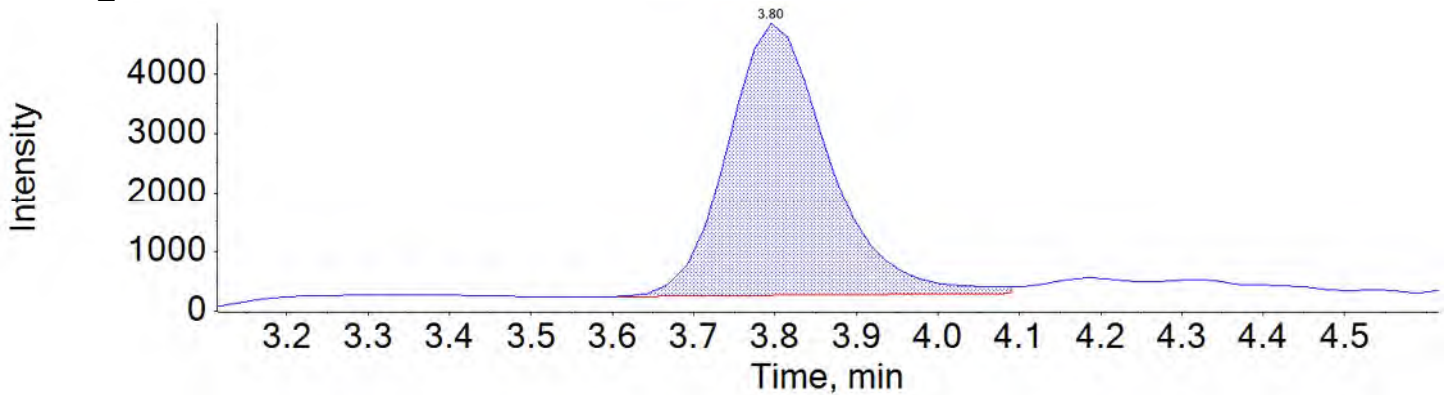
PFAUnA_1 563.0 / 519.0



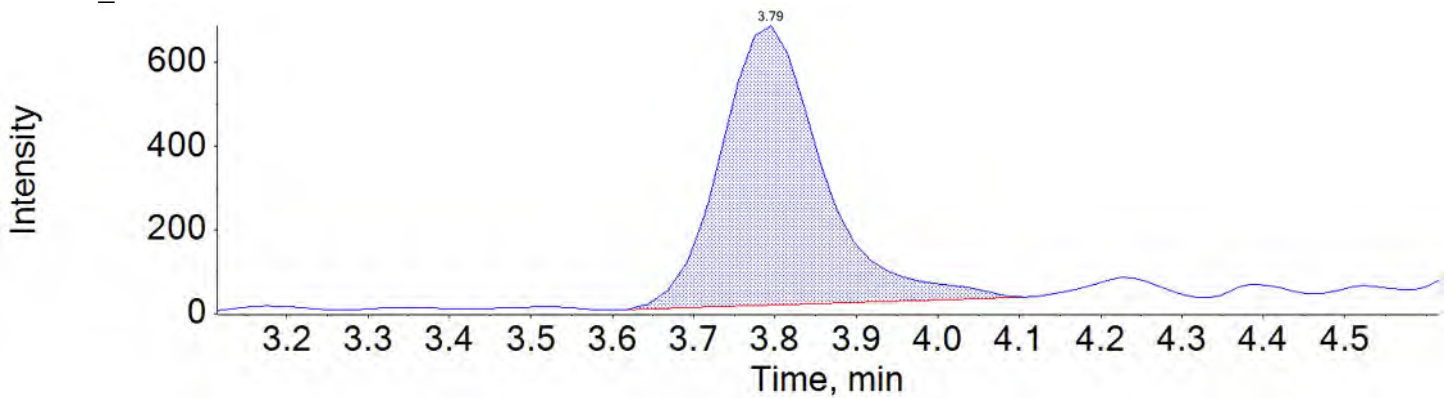
PFU_nA_2 563.0 / 269.0



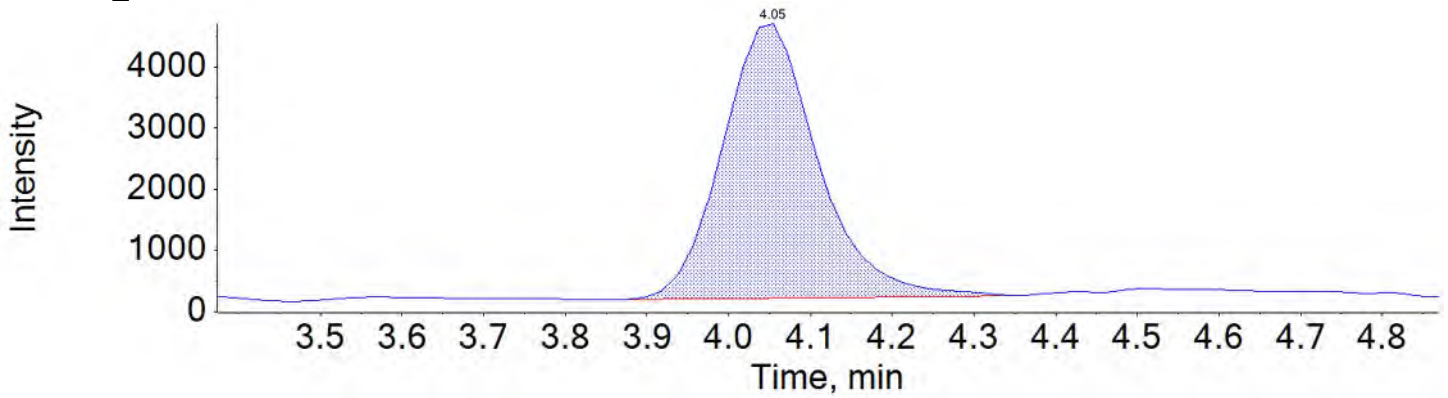
PFD_oA_1 613.0 / 569.0



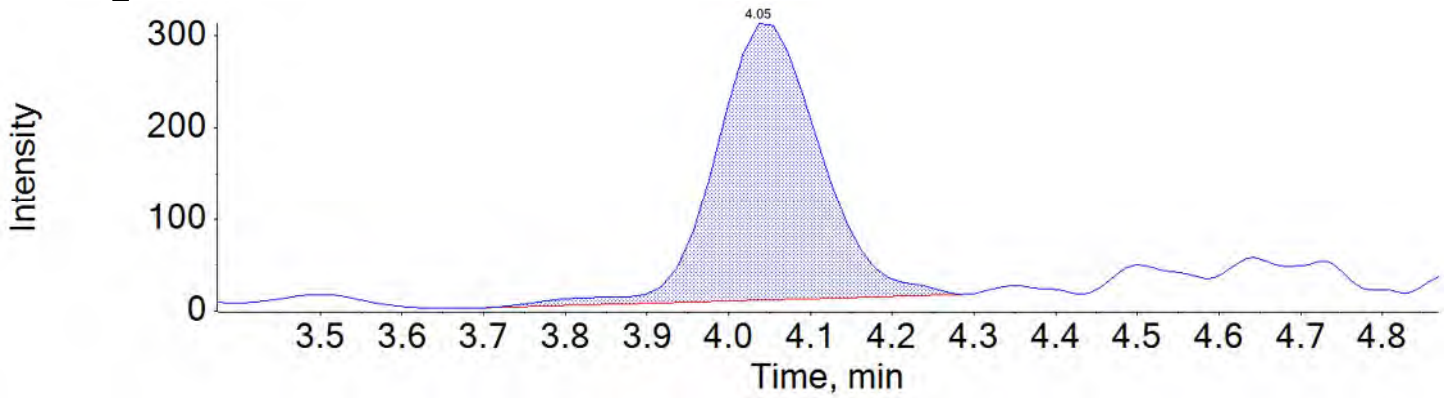
PFD_oA_2 613.0 / 319.0



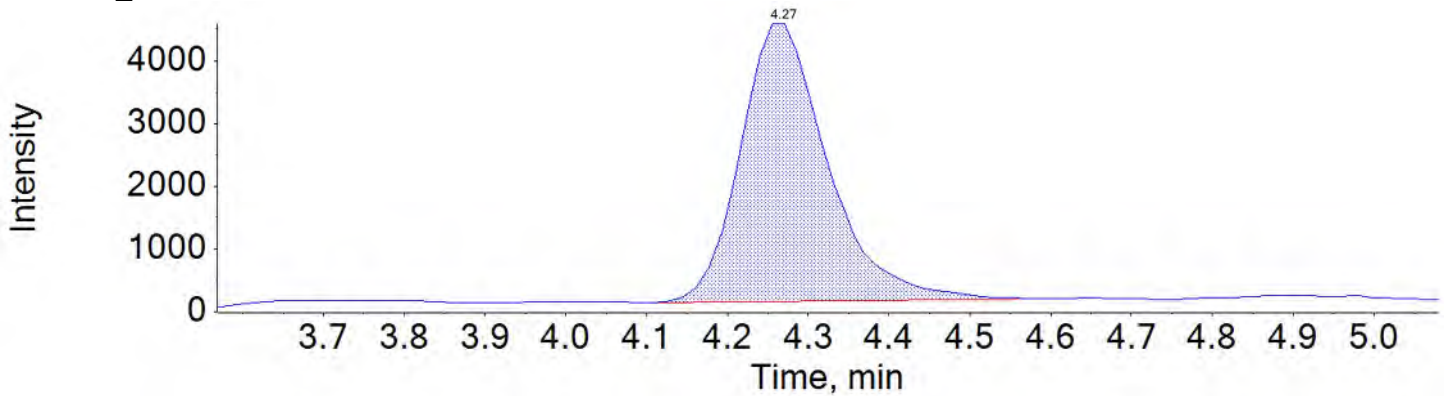
PFTTrDA_1 663.0 / 619.0



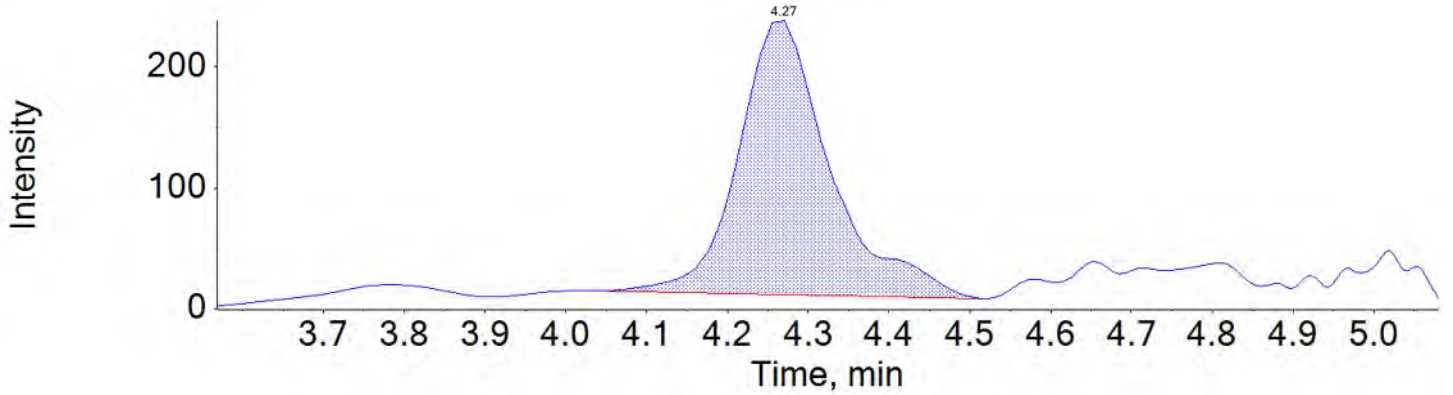
PFTTrDA_2 663.0 / 169.0



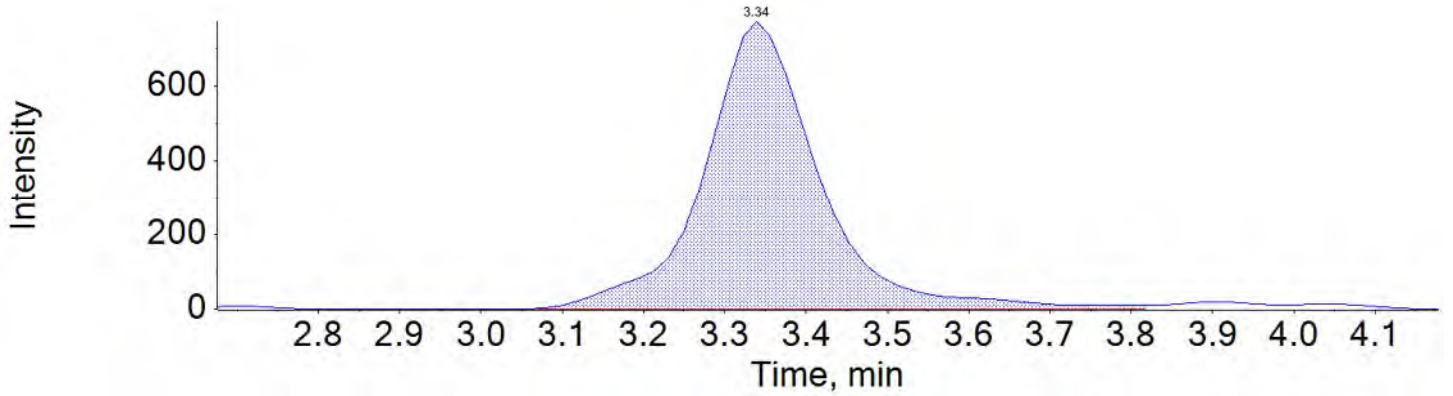
PFTTeDA_1 713.0 / 669.0



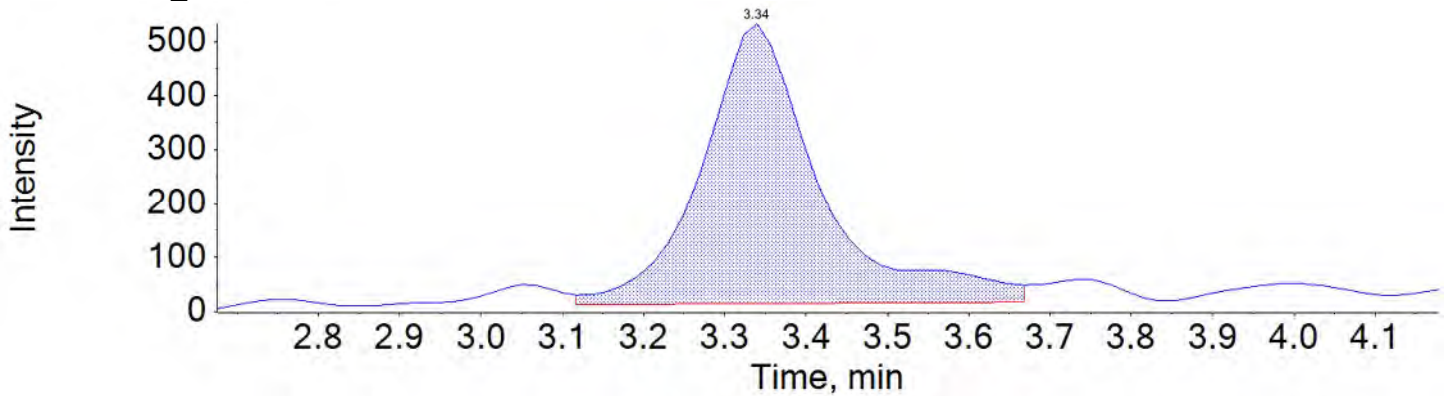
PFTeDA_2 713.0 / 169.0



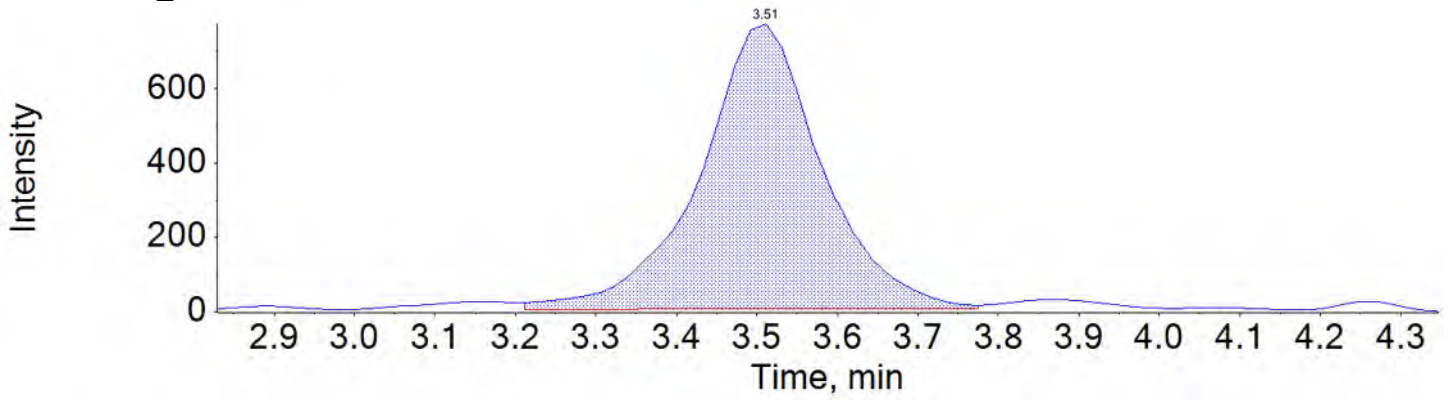
NMeFOSAA_1 570.0 / 419.0



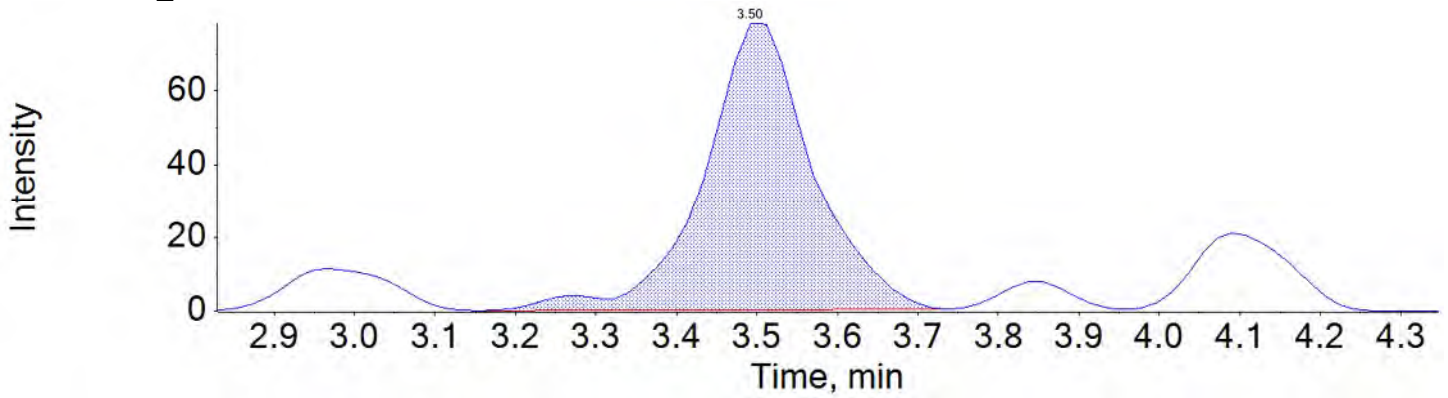
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

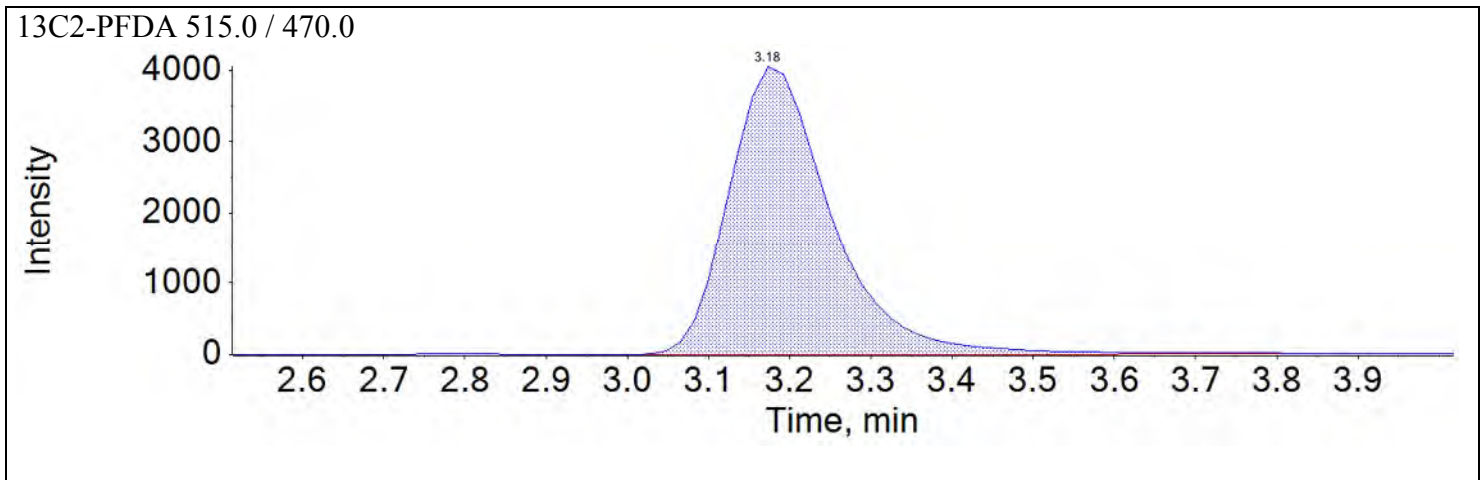
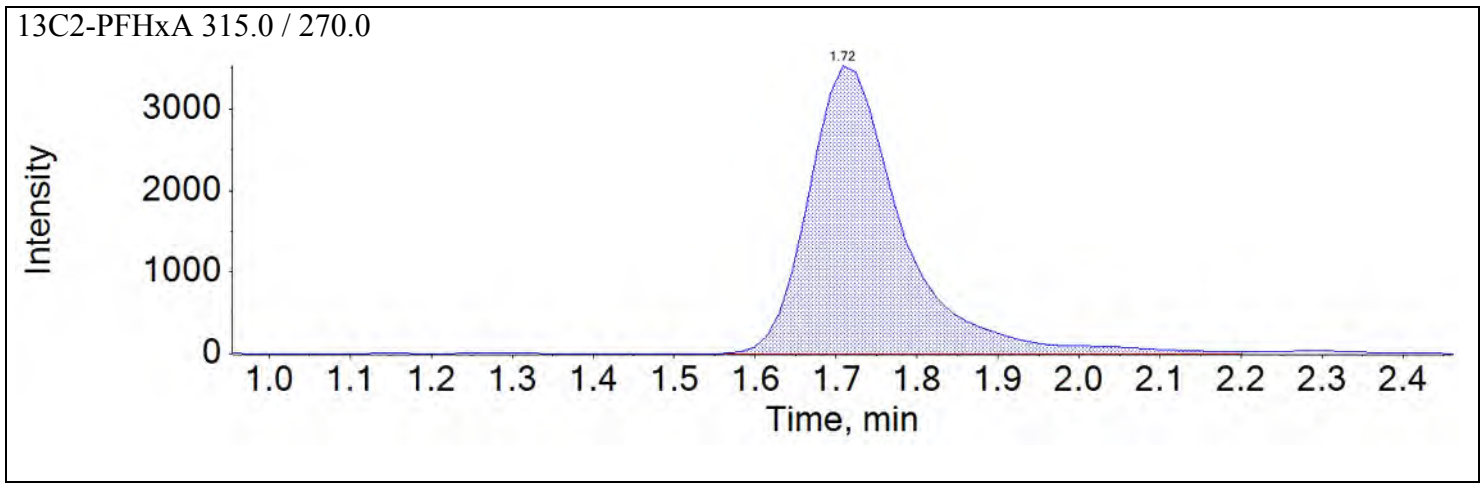


NEtFOSAA_2 584.0 / 483.0

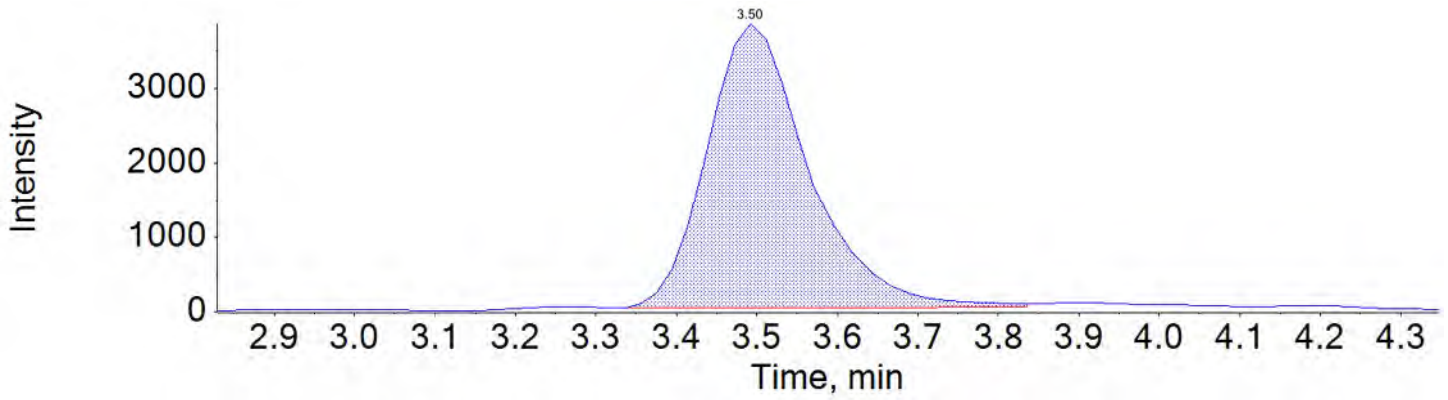


Sample Name	JV66	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:45:01	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms

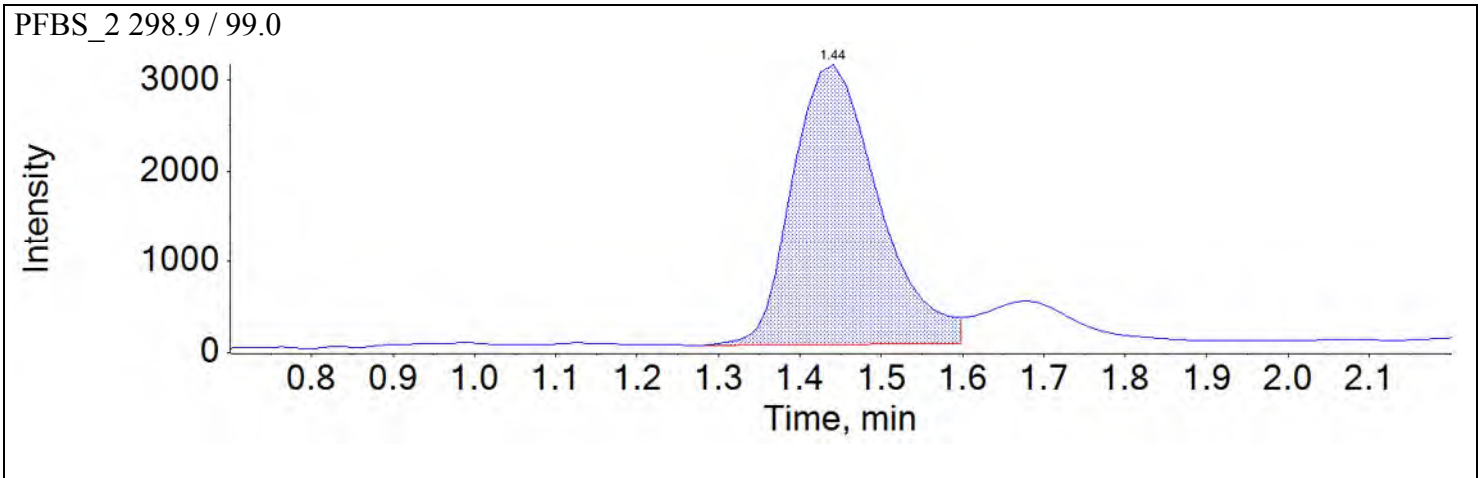
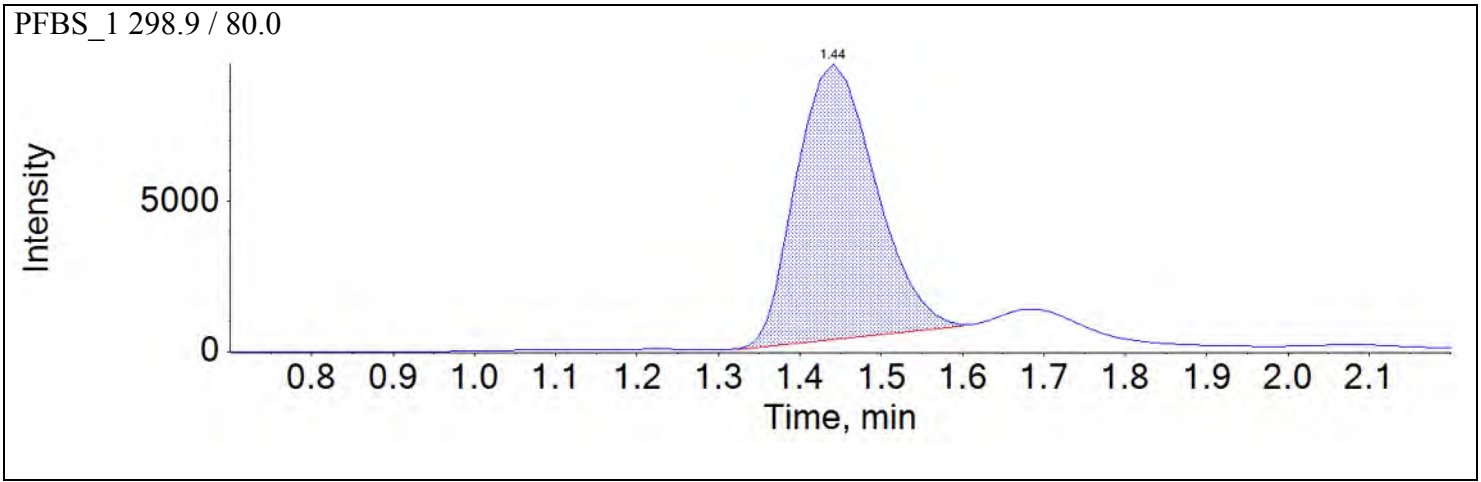


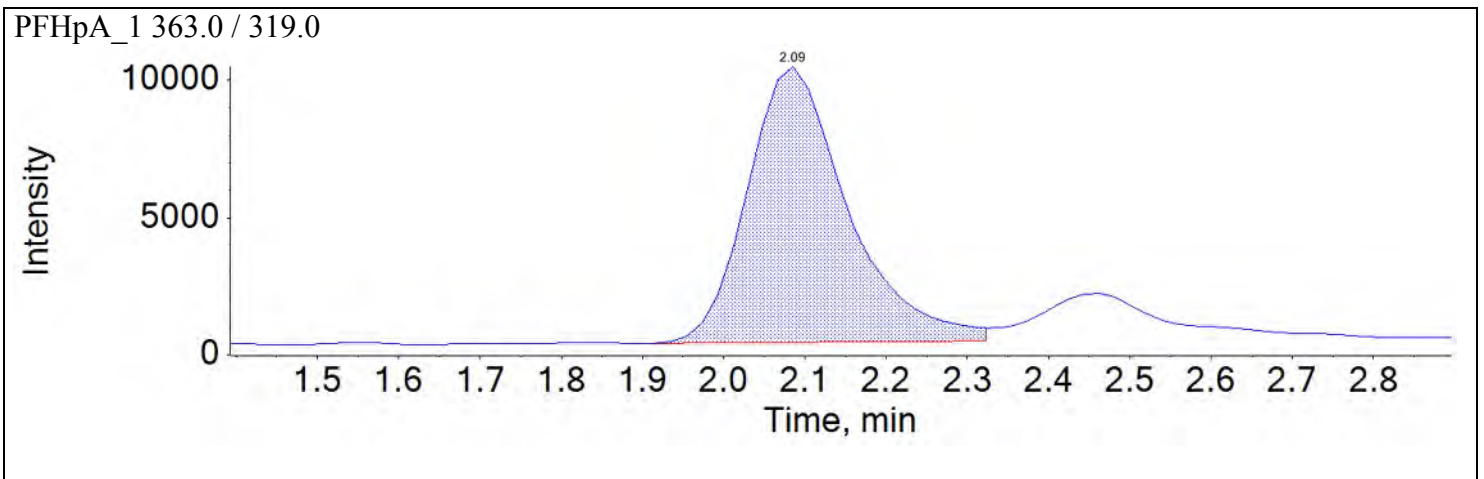
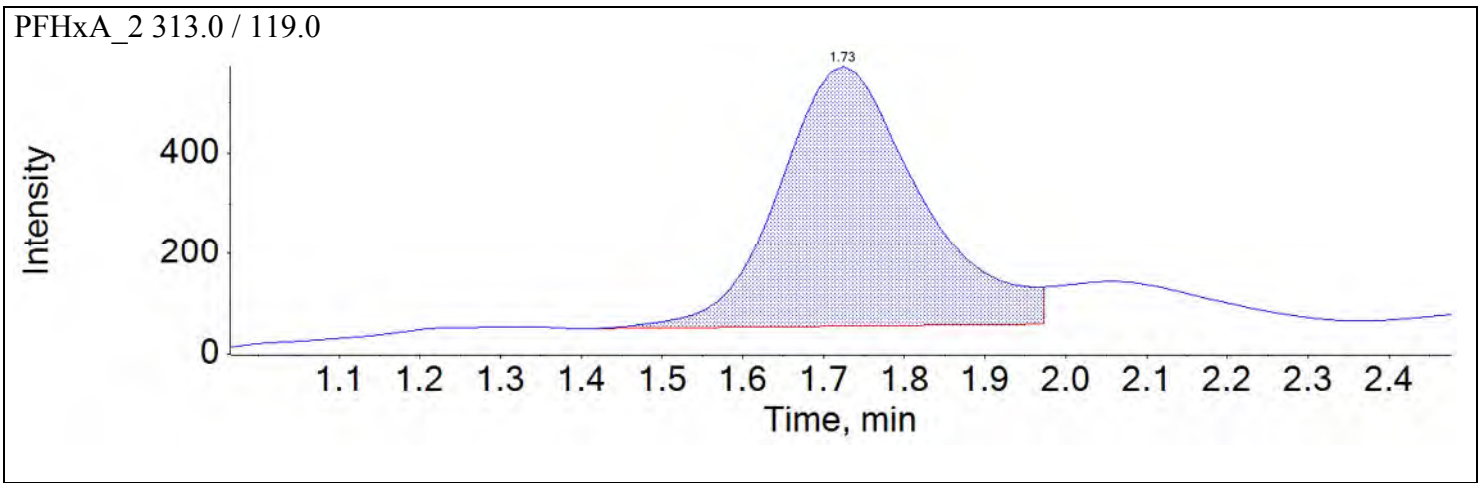
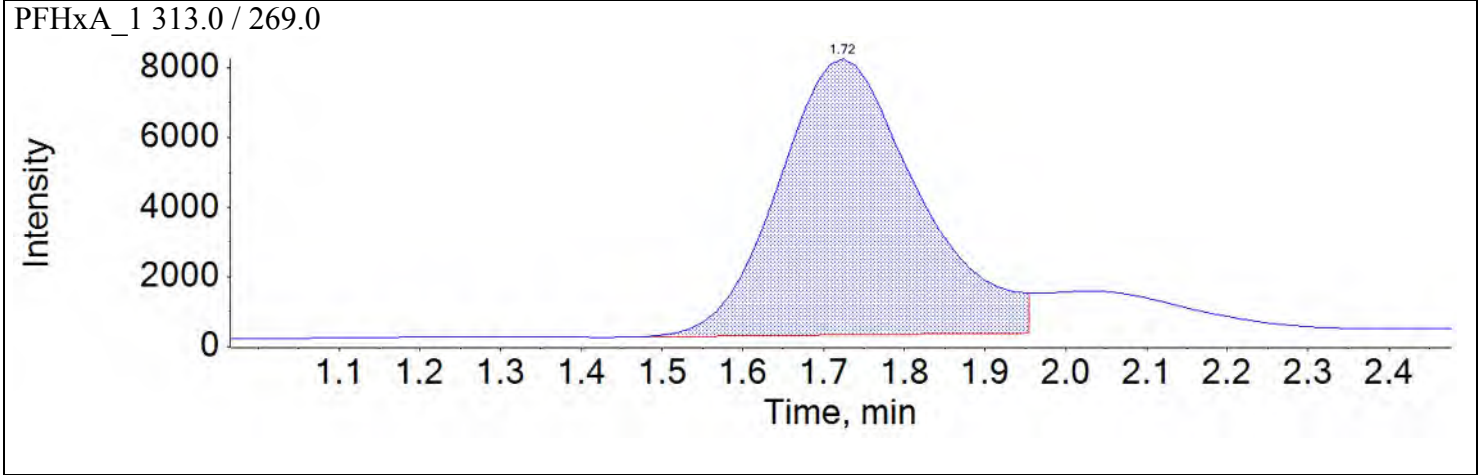
d5-EtFOSAA 589.0 / 419.0



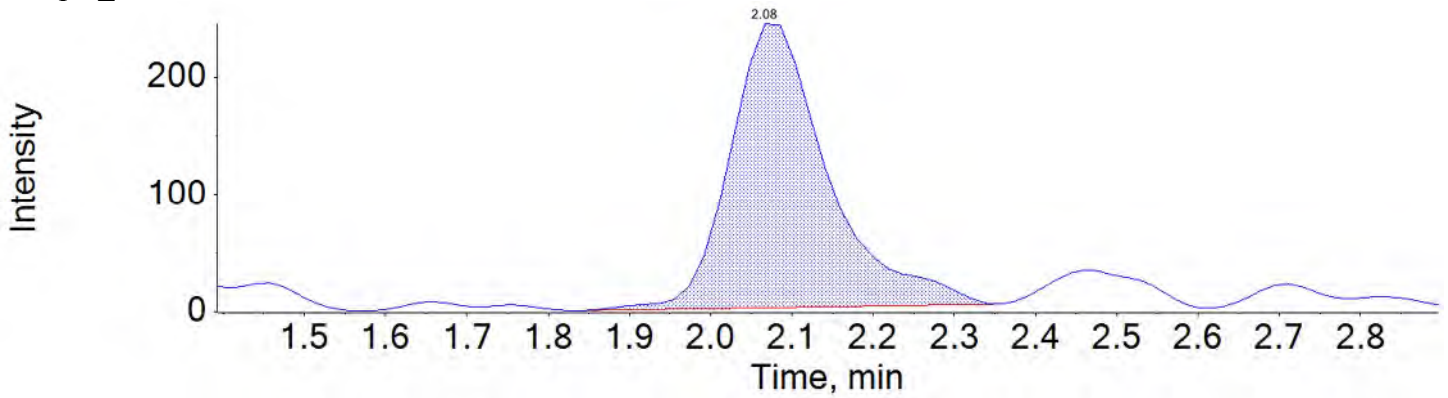
Sample Name	JV67	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:53:56	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Chromatograms

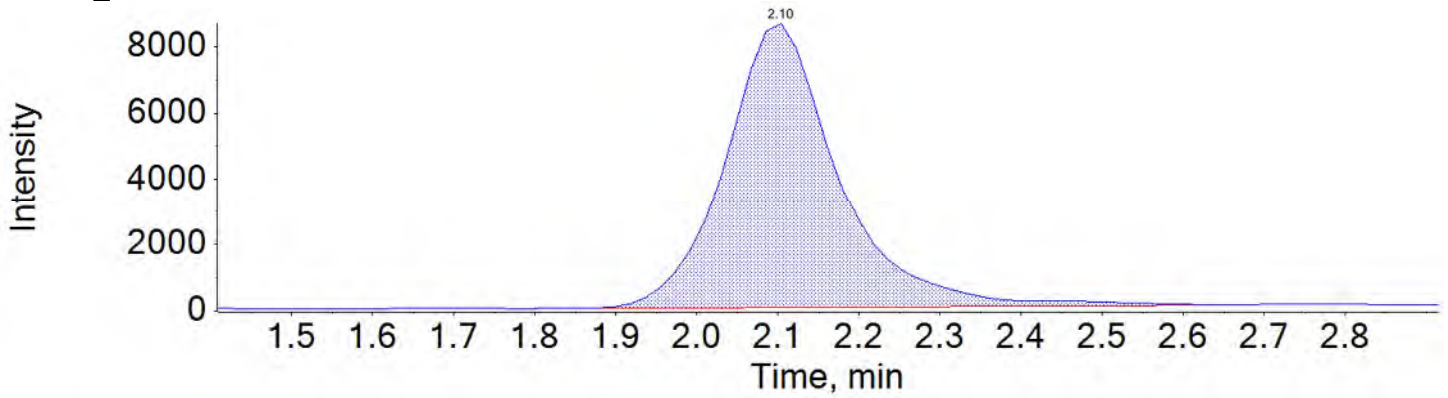




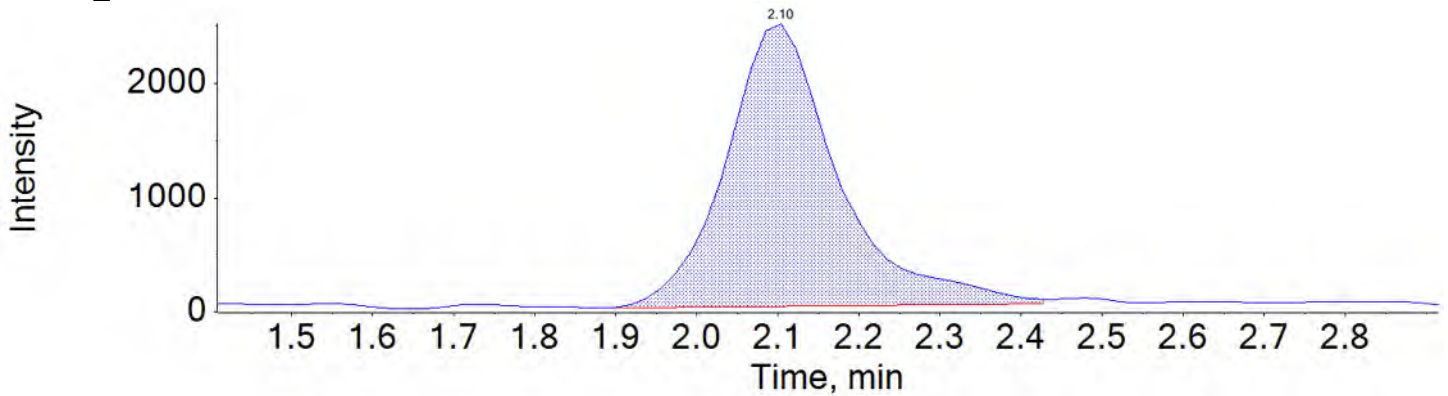
PFHpA_2 363.0 / 169.0



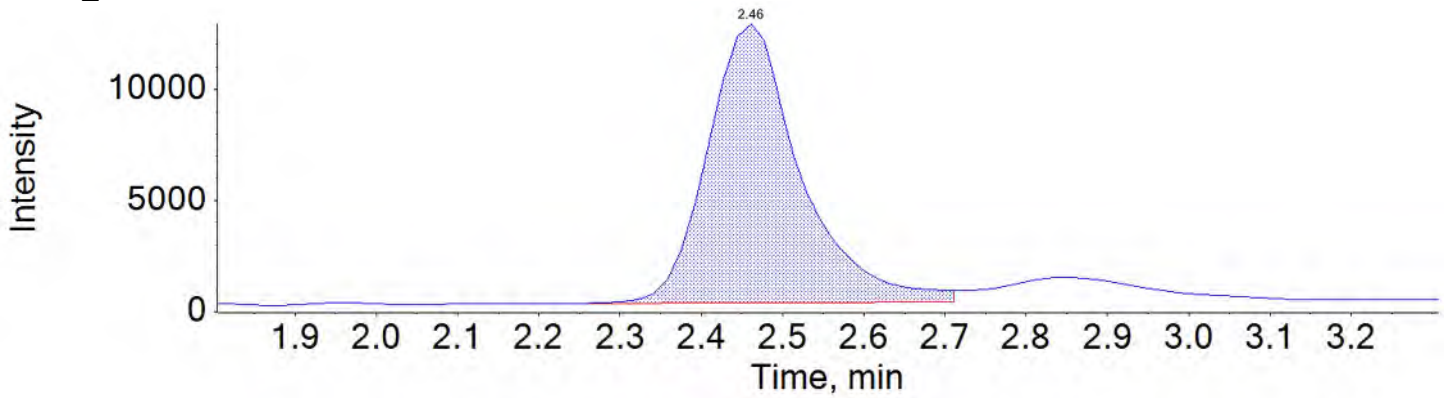
PFHxS_1 399.0 / 80.0



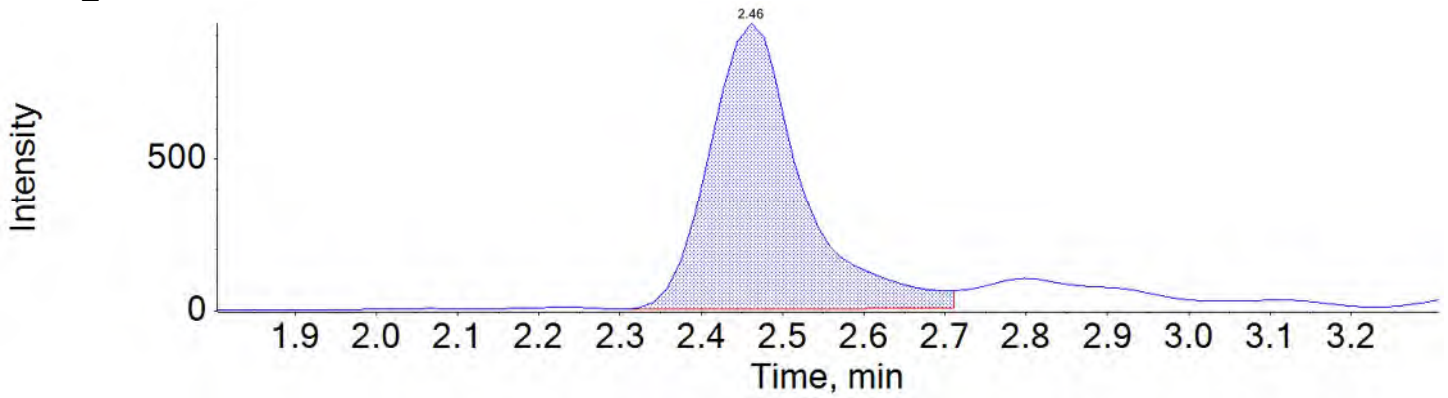
PFHxS_2 399.0 / 99.0



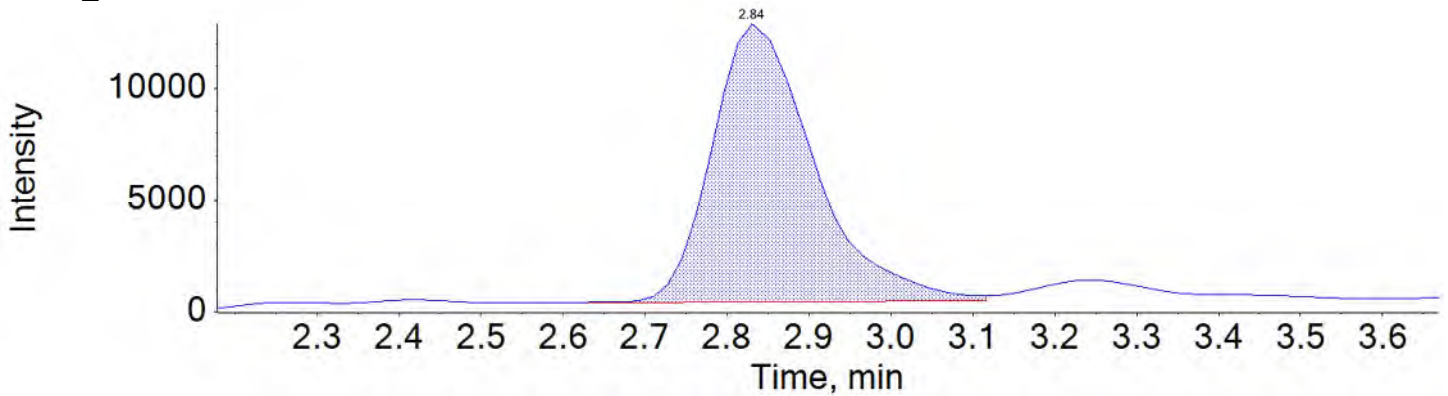
PFOA_1 413.0 / 369.0



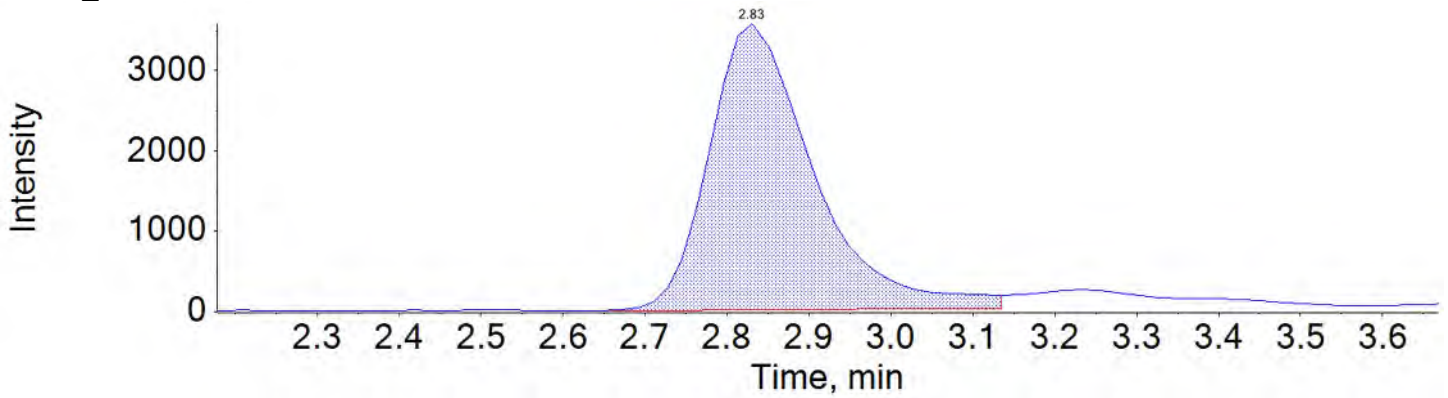
PFOA_2 413.0 / 169.0



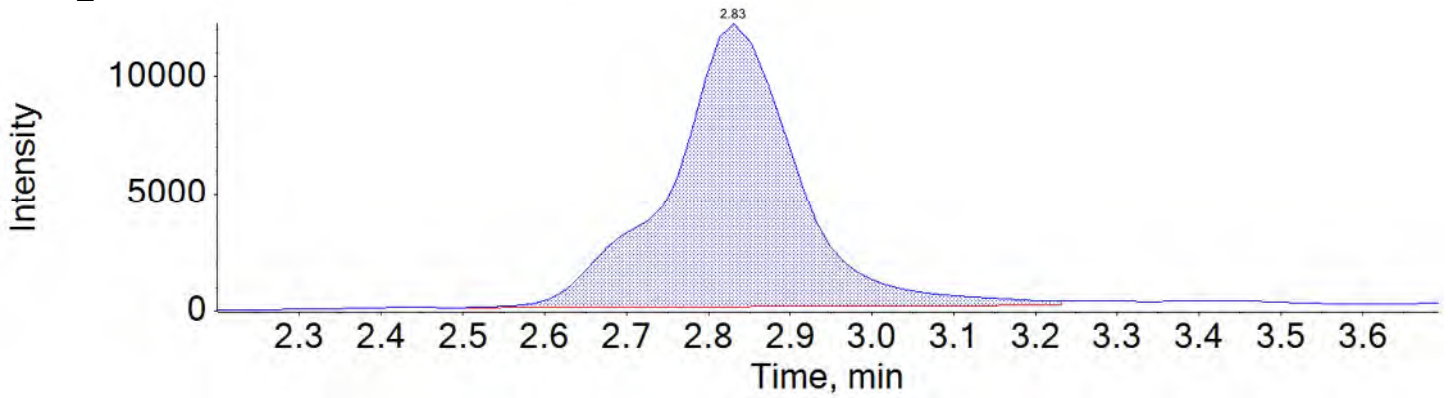
PFNA_1 463.0 / 419.0



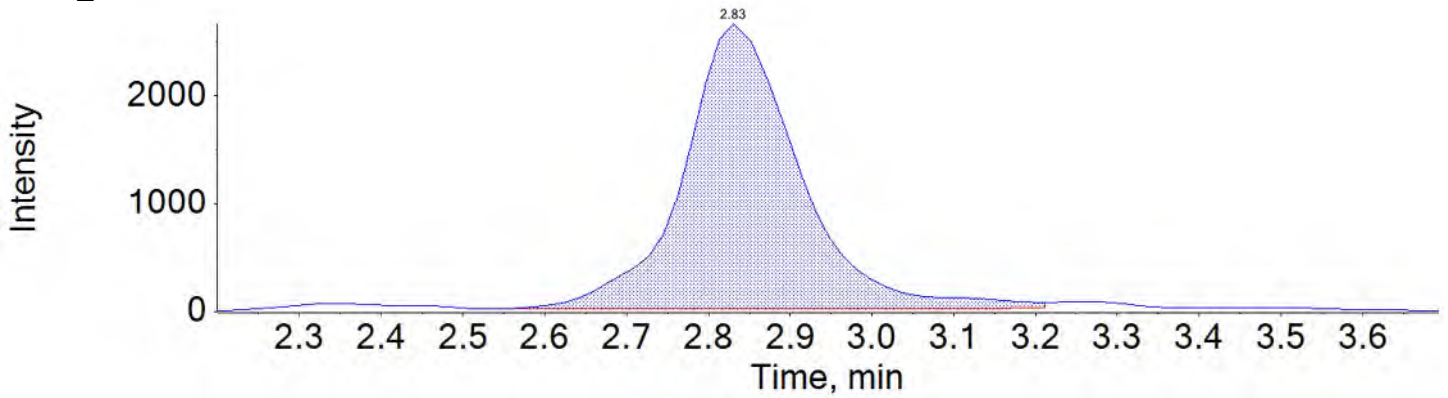
PFNA_2 463.0 / 219.0



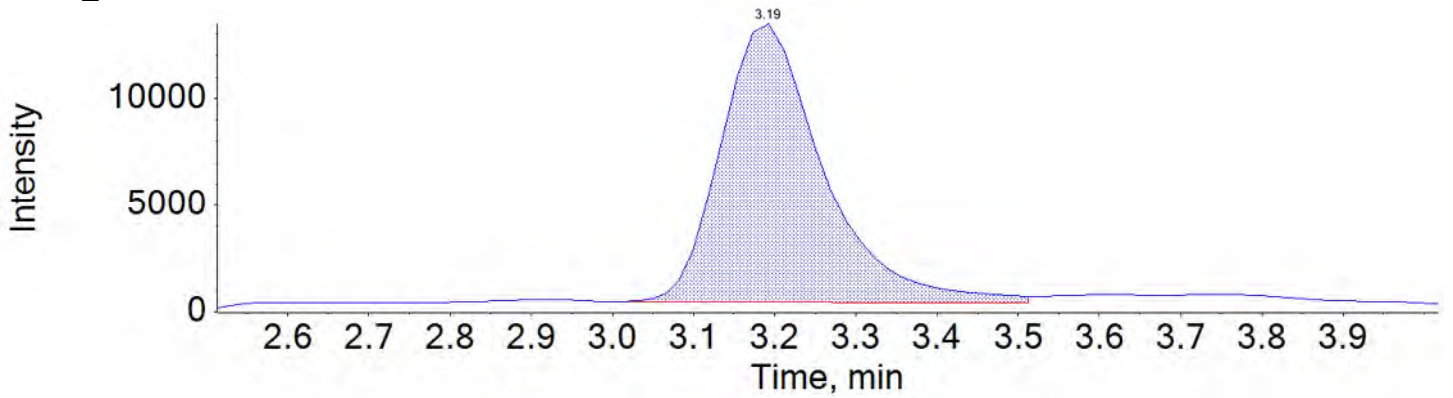
PFOS_1 499.0 / 80.0



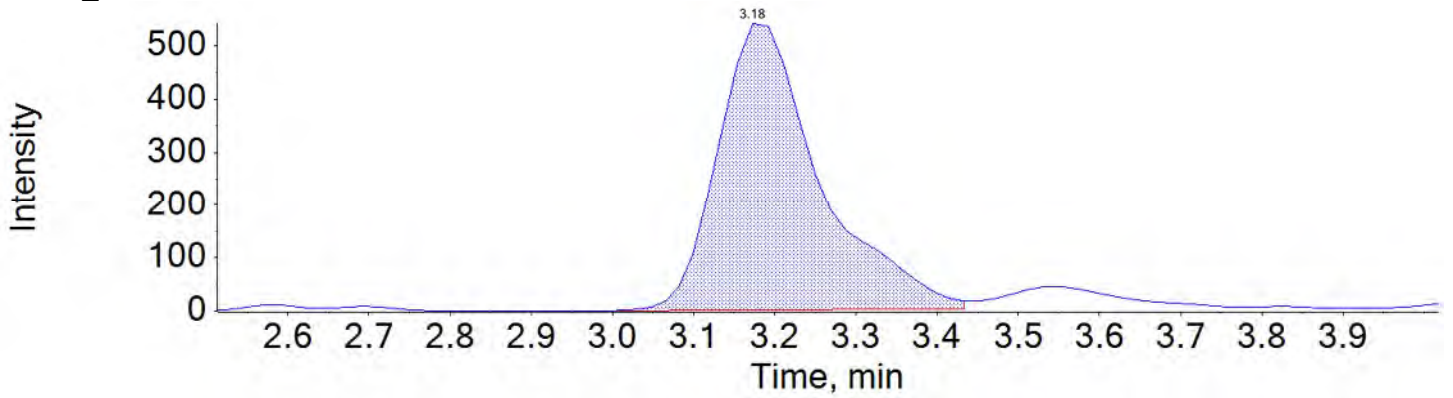
PFOS_2 499.0 / 99.0



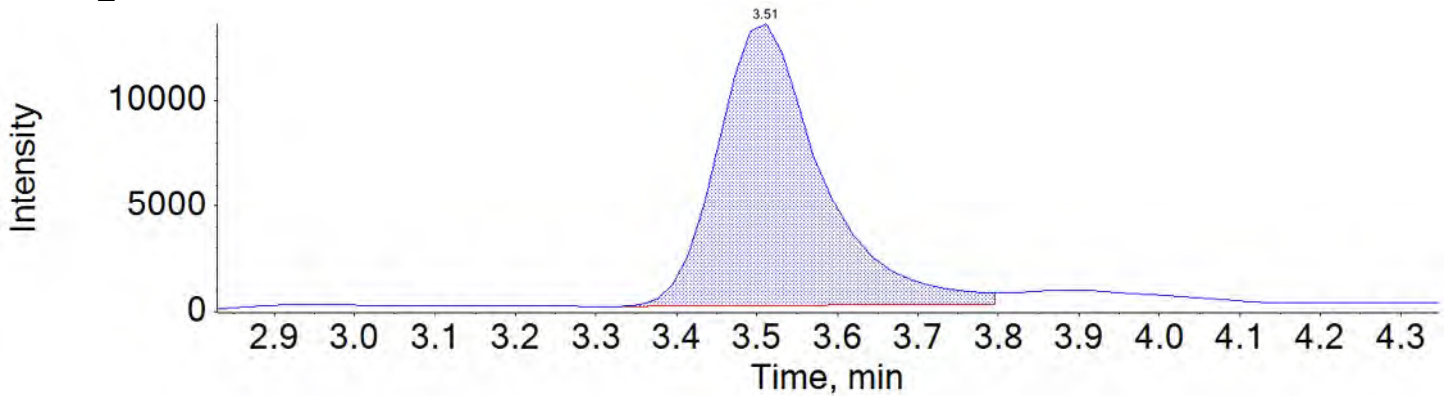
PFDA_1 513.0 / 469.0

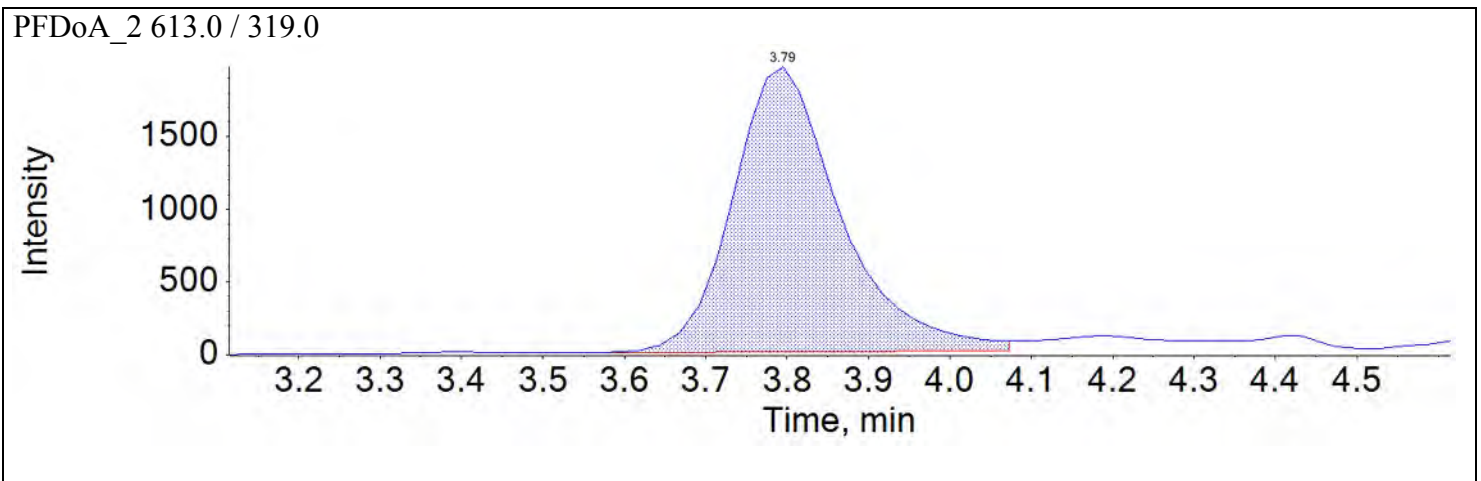
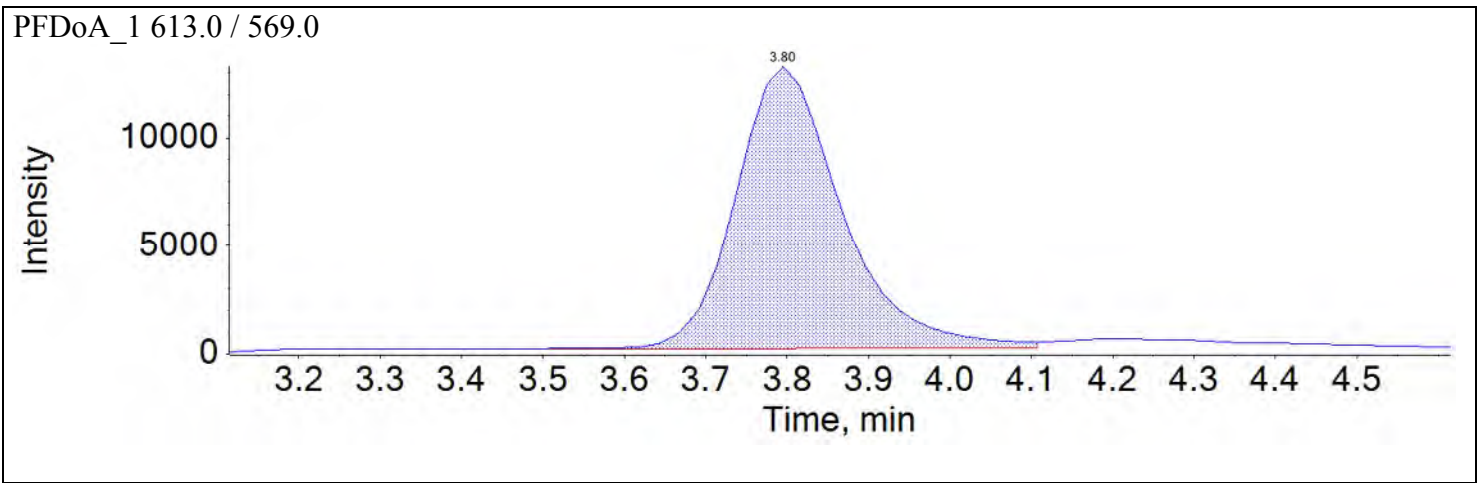
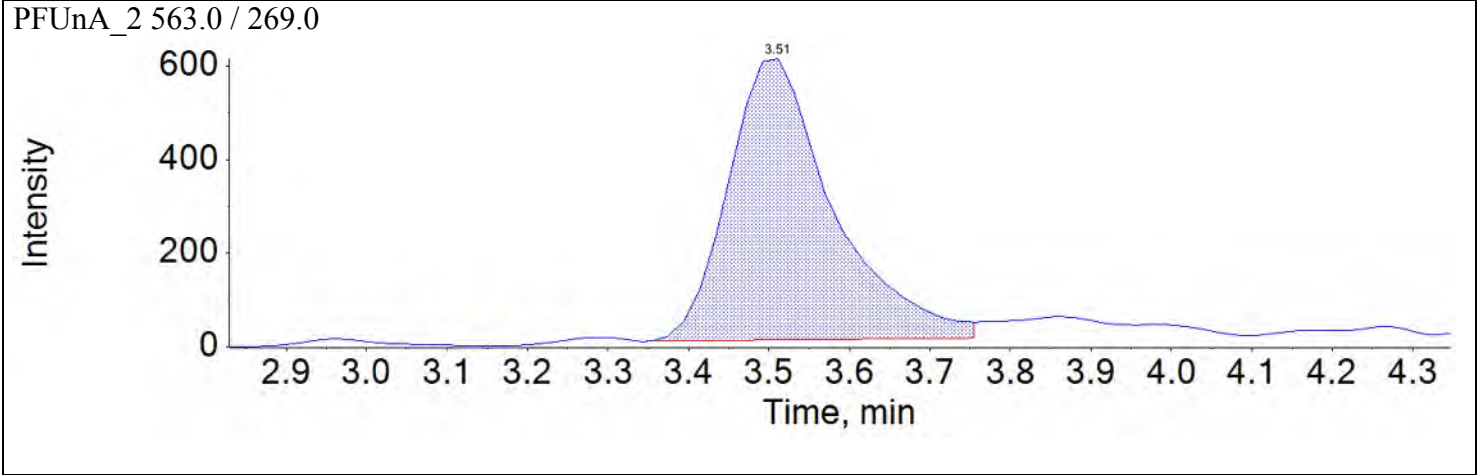


PFDA_2 513.0 / 219.0

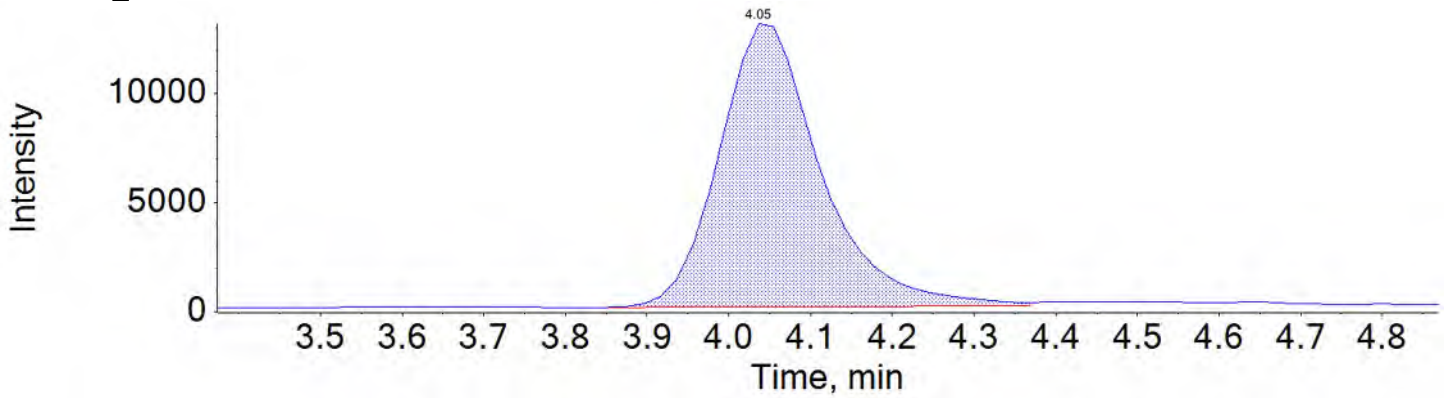


PFAUnA_1 563.0 / 519.0

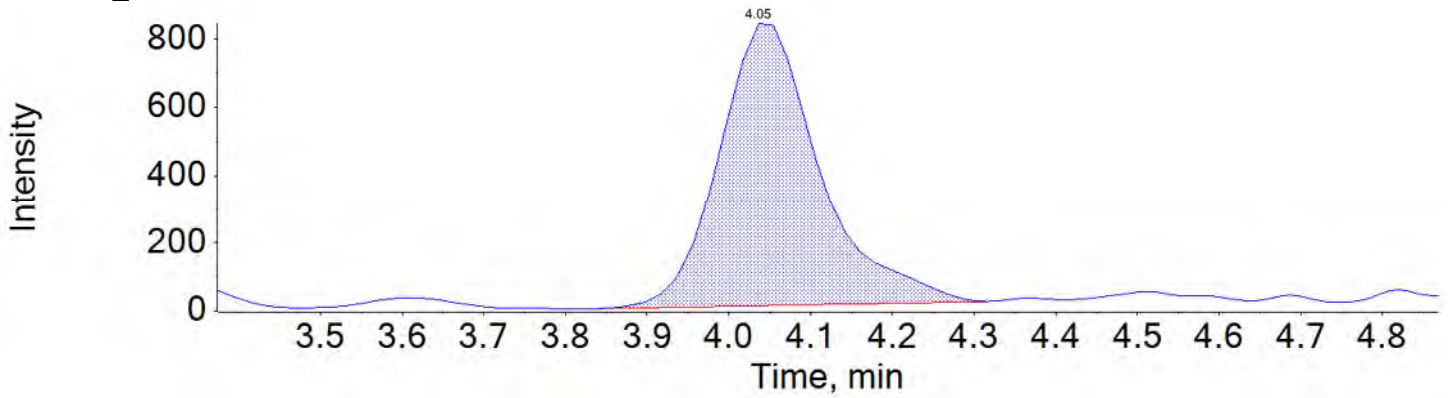




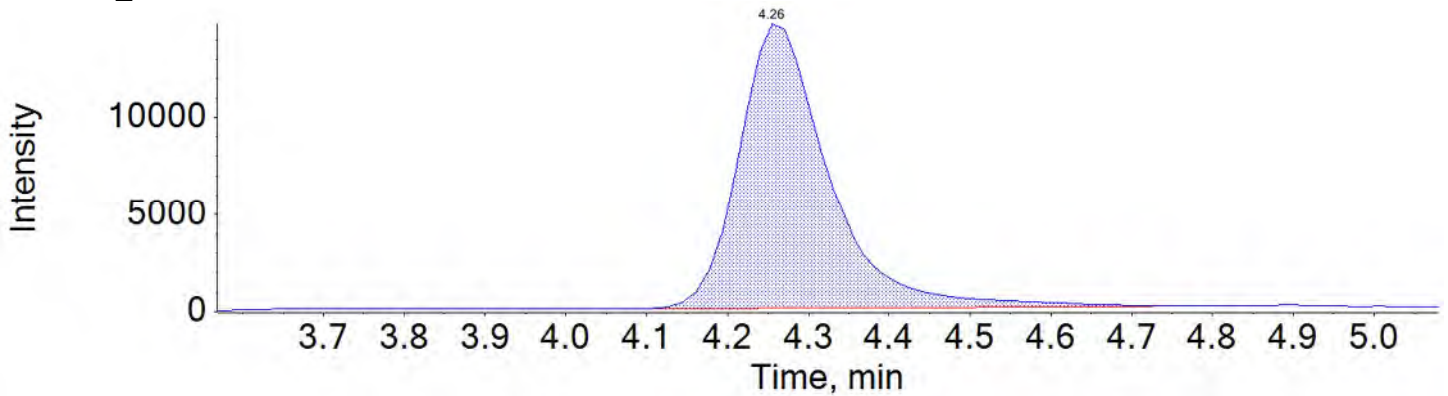
PFTTrDA_1 663.0 / 619.0



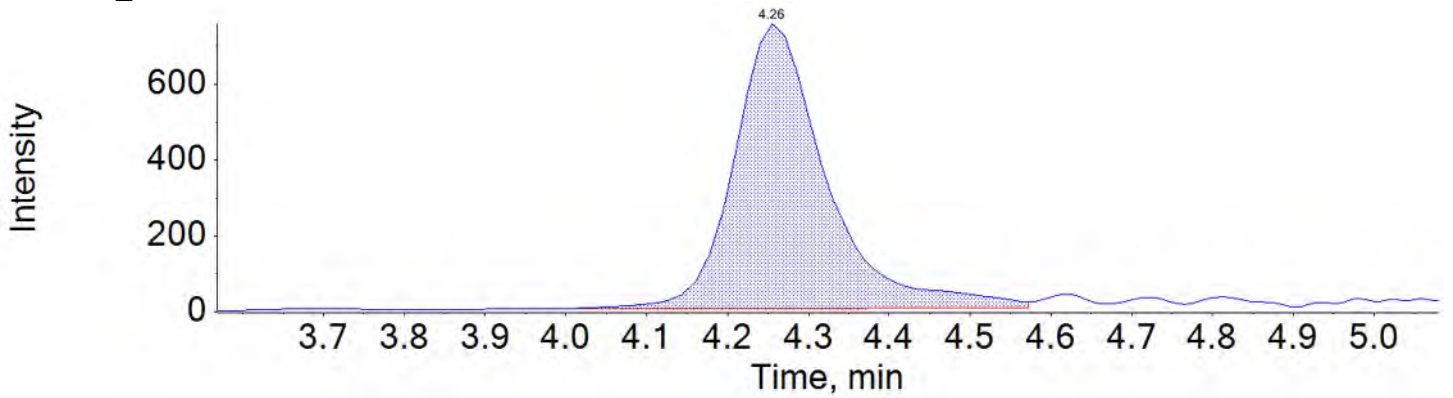
PFTTrDA_2 663.0 / 169.0



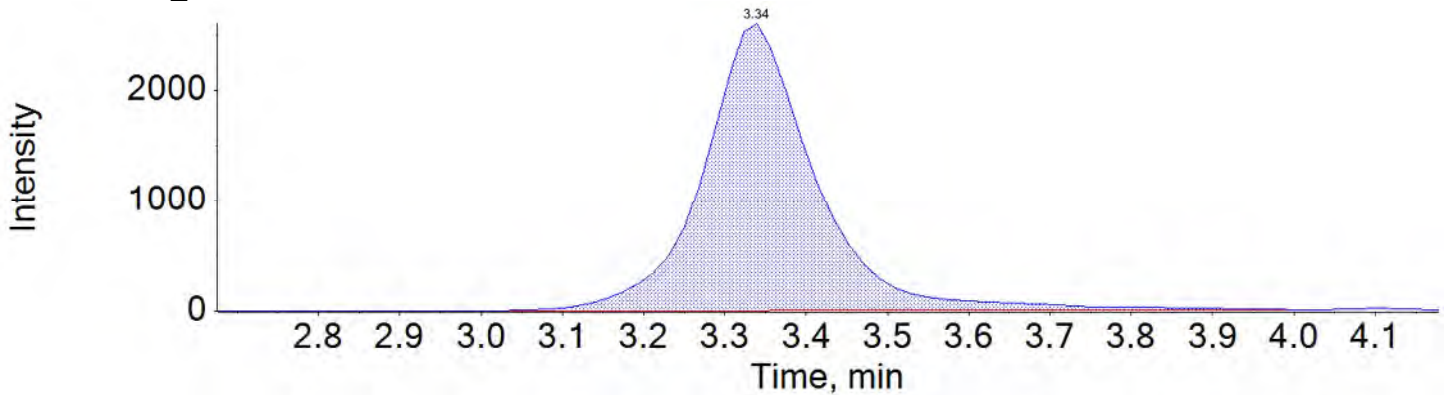
PFTeDA_1 713.0 / 669.0



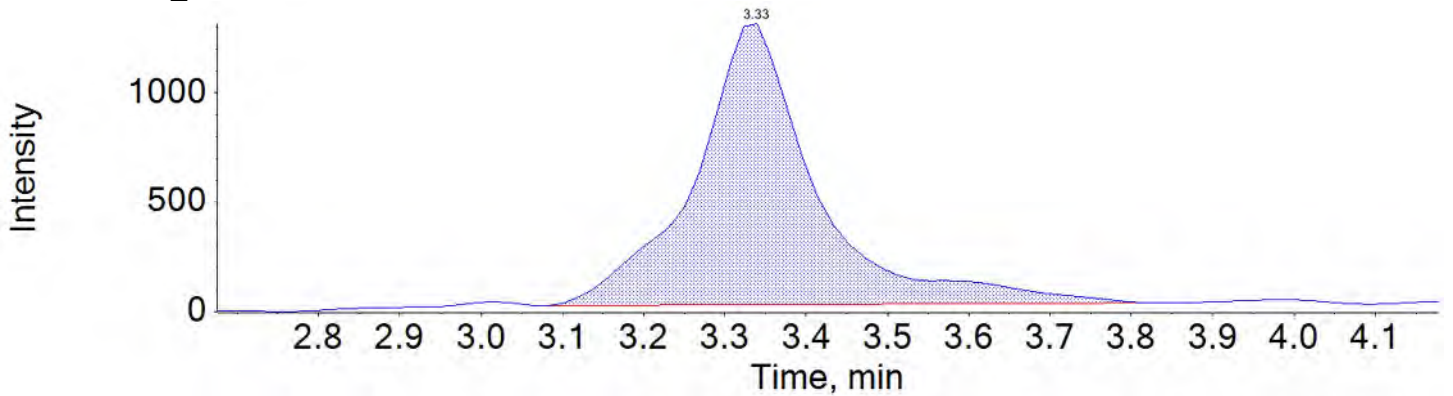
PFTeDA_2 713.0 / 169.0



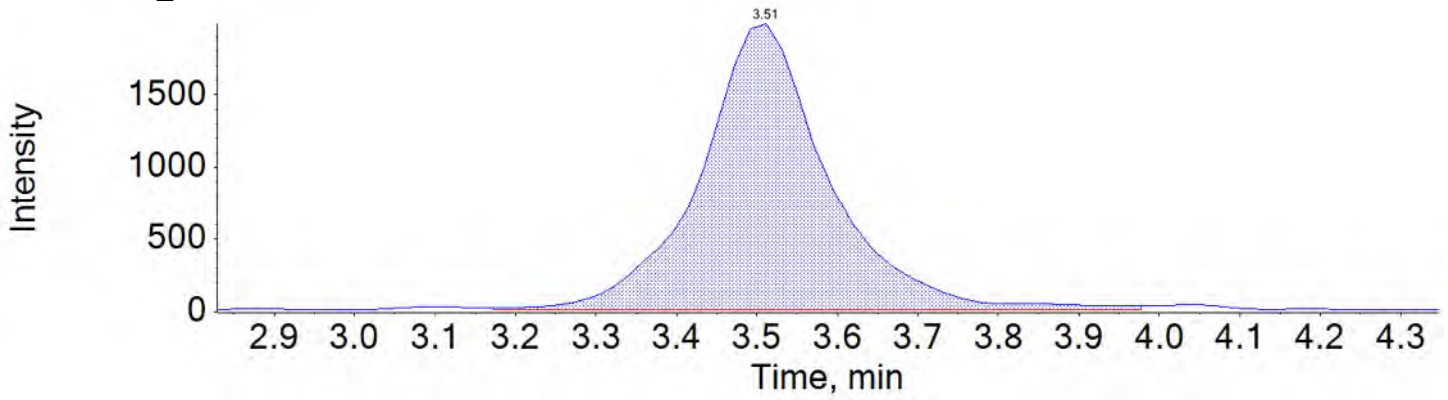
NMeFOSAA_1 570.0 / 419.0



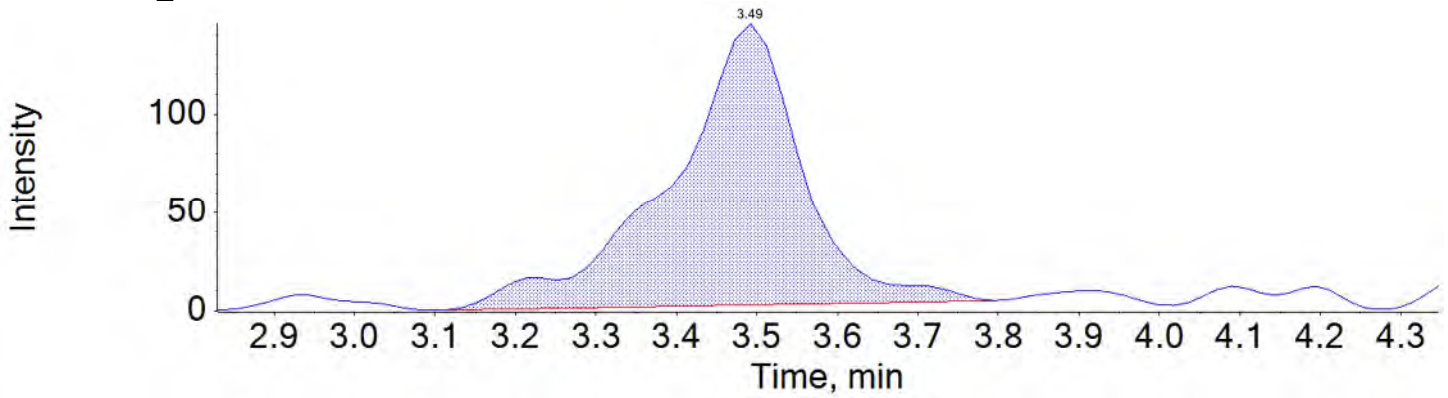
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

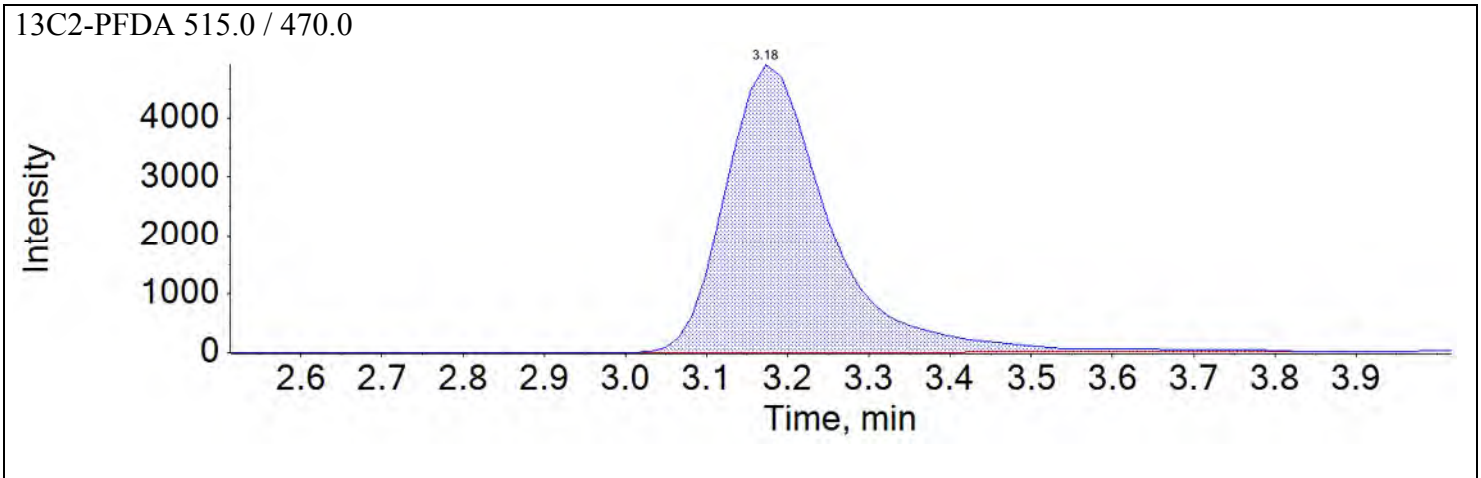
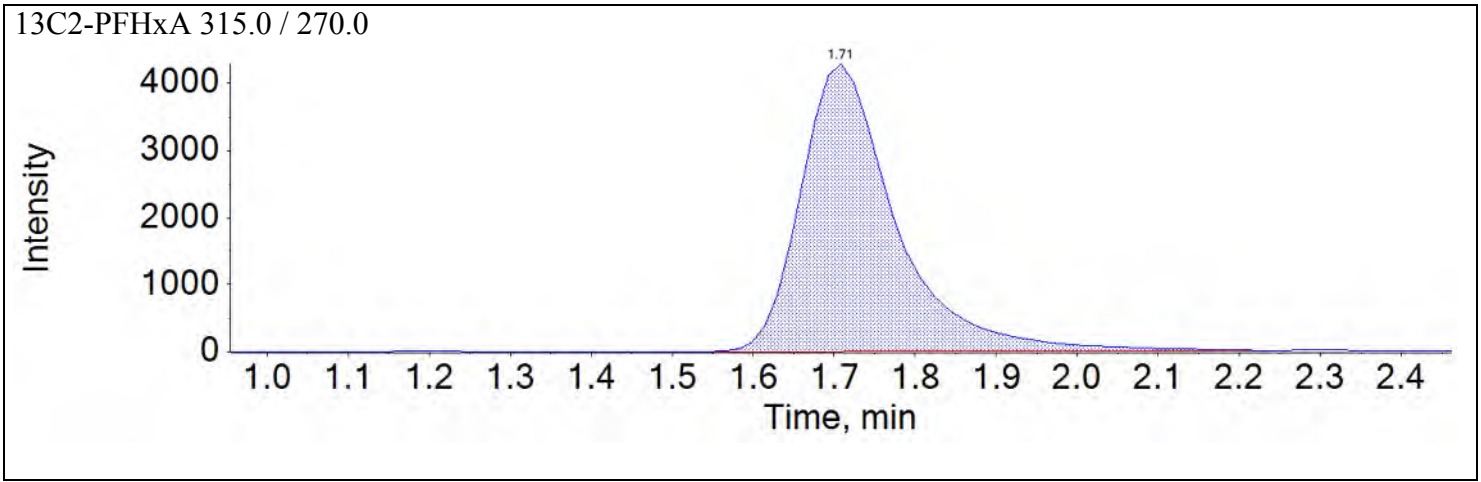


NEtFOSAA_2 584.0 / 483.0

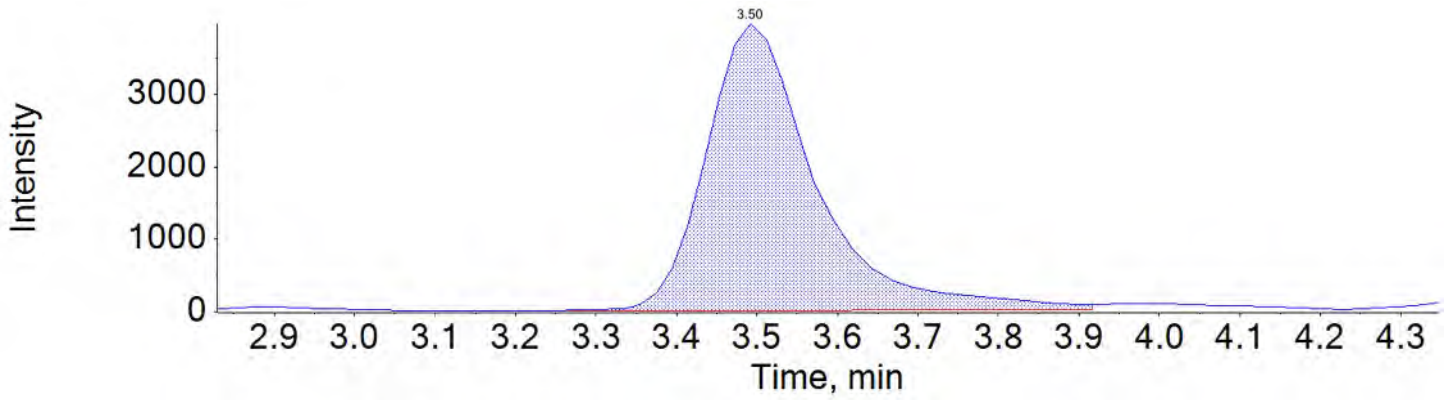


Sample Name	JV67	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:53:56	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms

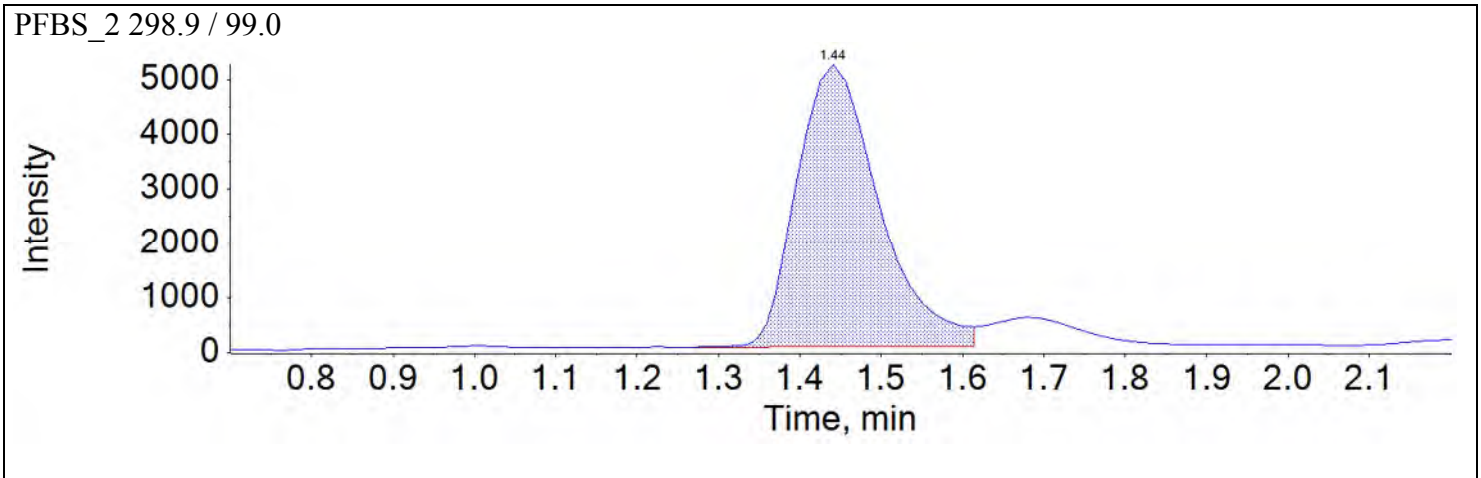
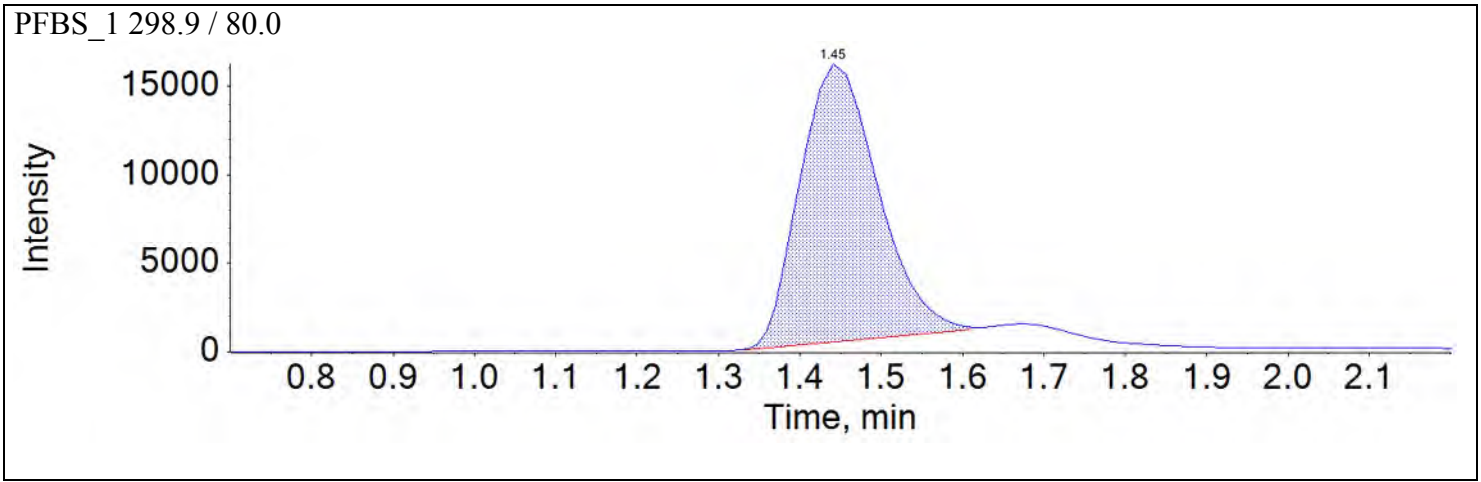


d5-EtFOSAA 589.0 / 419.0

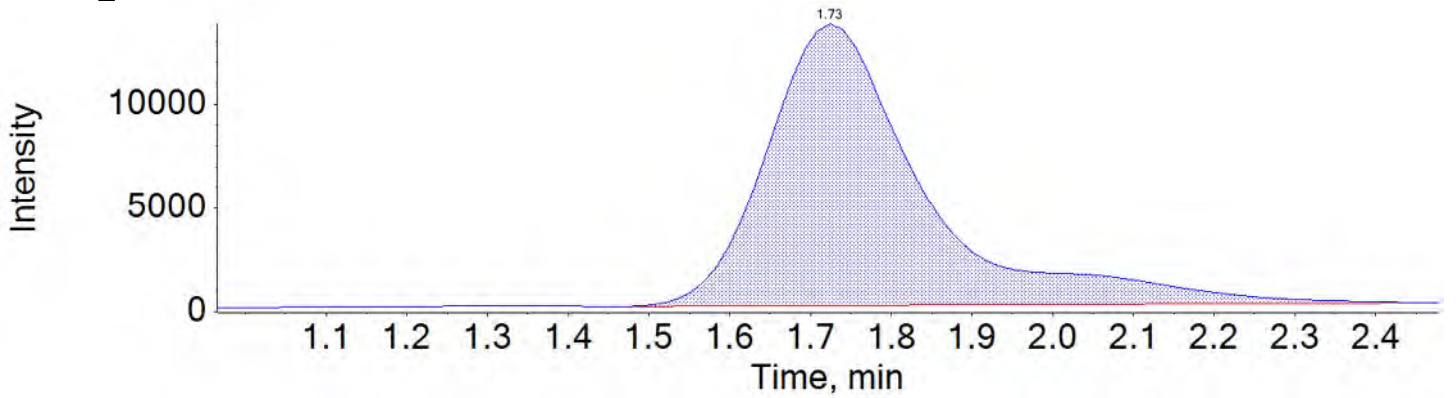


Sample Name	JV68	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:02:52	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

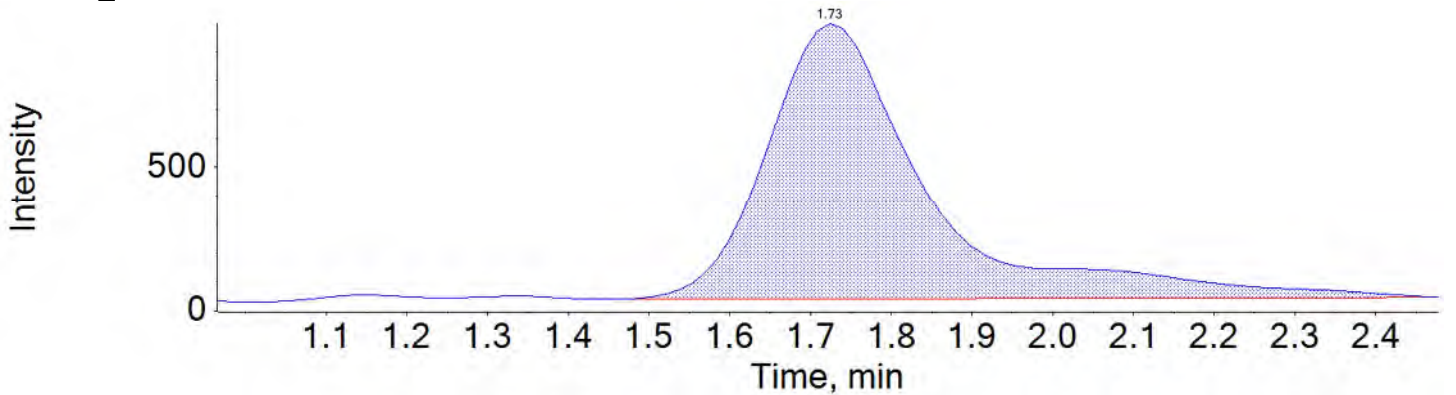
Chromatograms



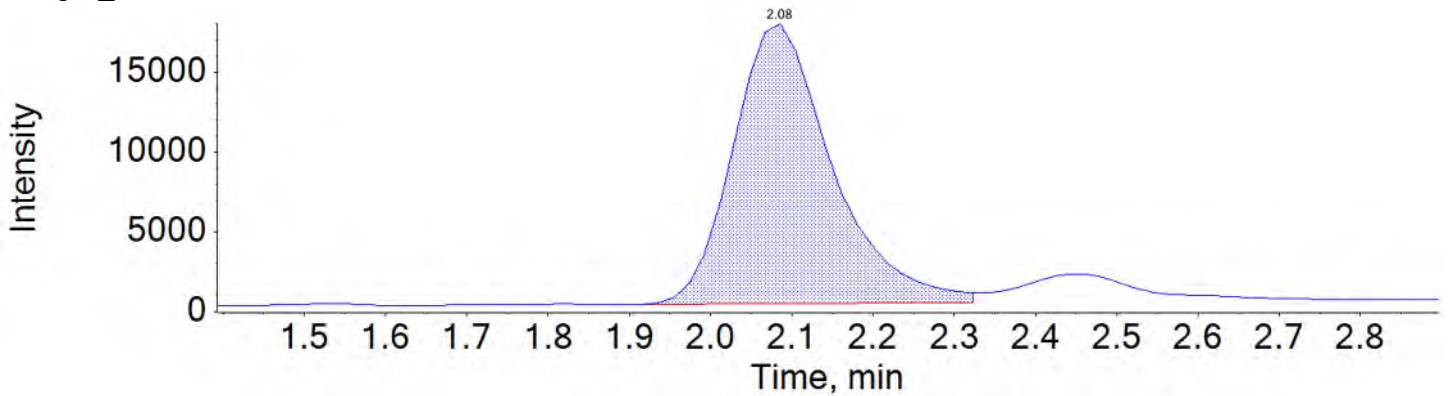
PFHxA_1 313.0 / 269.0



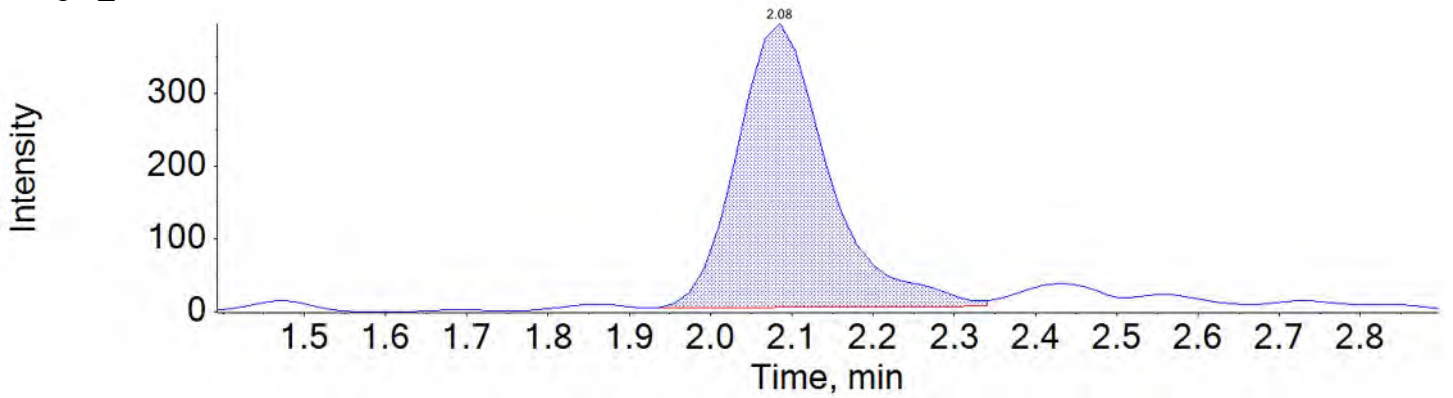
PFHxA_2 313.0 / 119.0



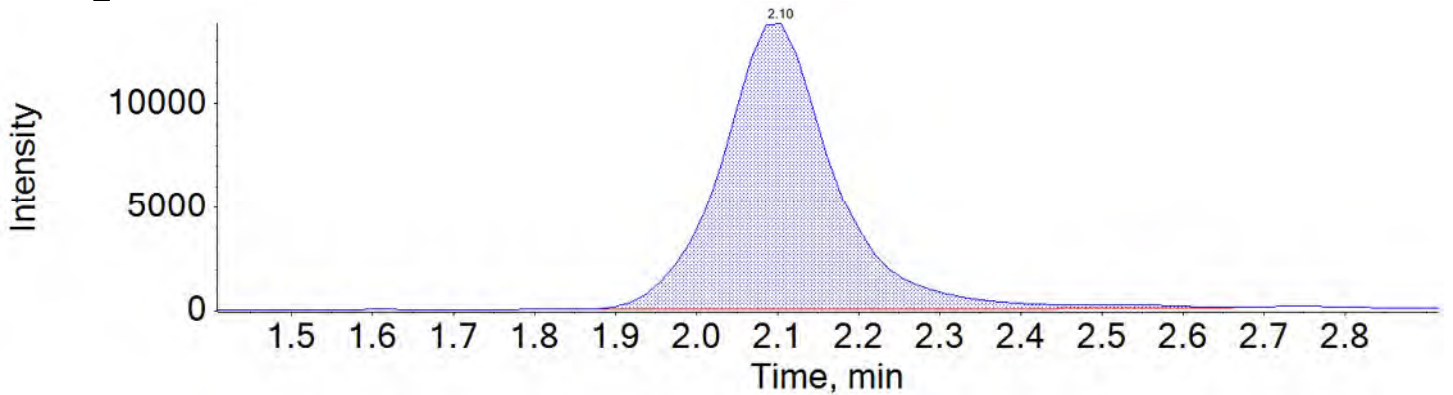
PFHpA_1 363.0 / 319.0



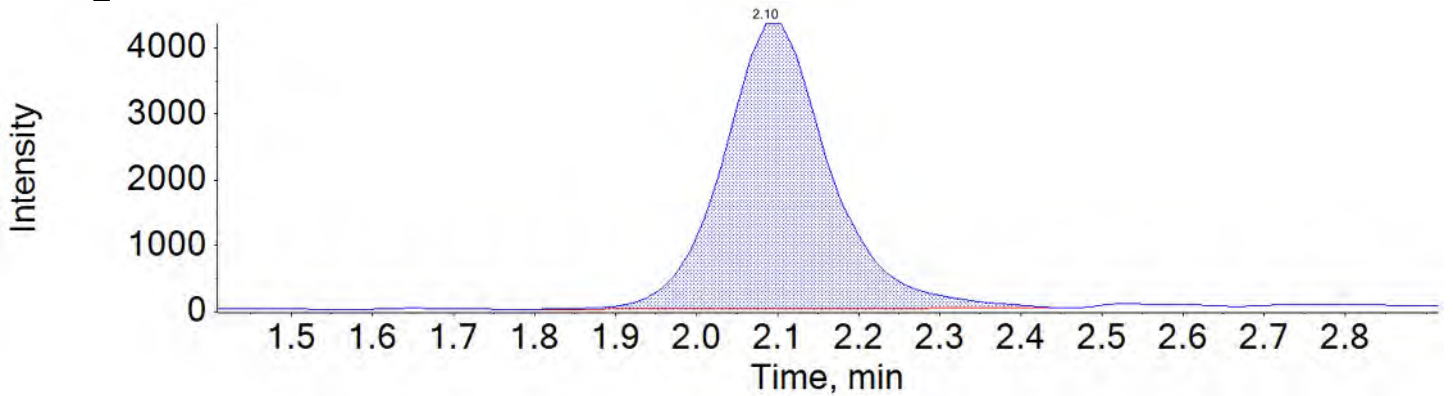
PFHpA_2 363.0 / 169.0



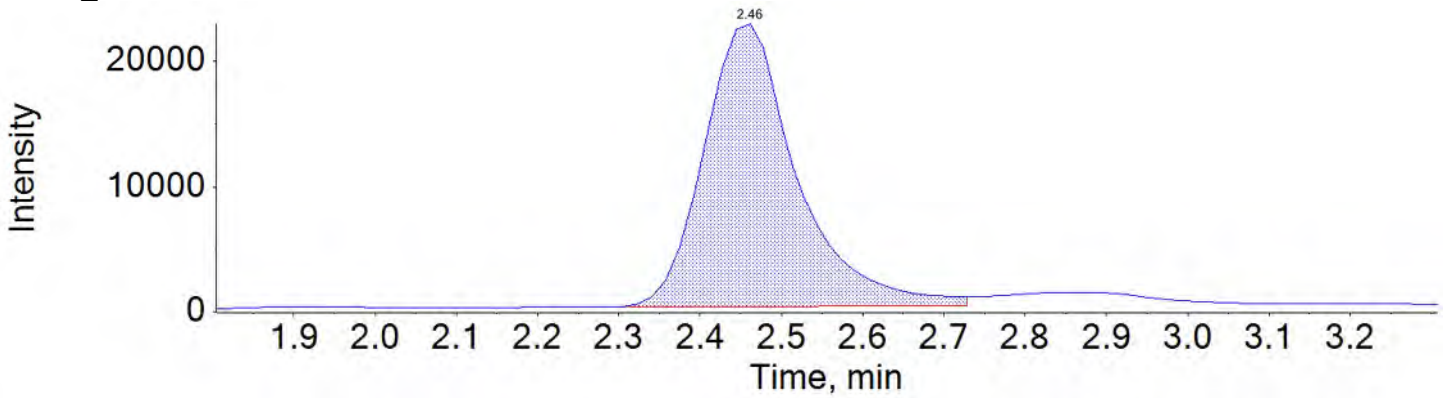
PFHxS_1 399.0 / 80.0



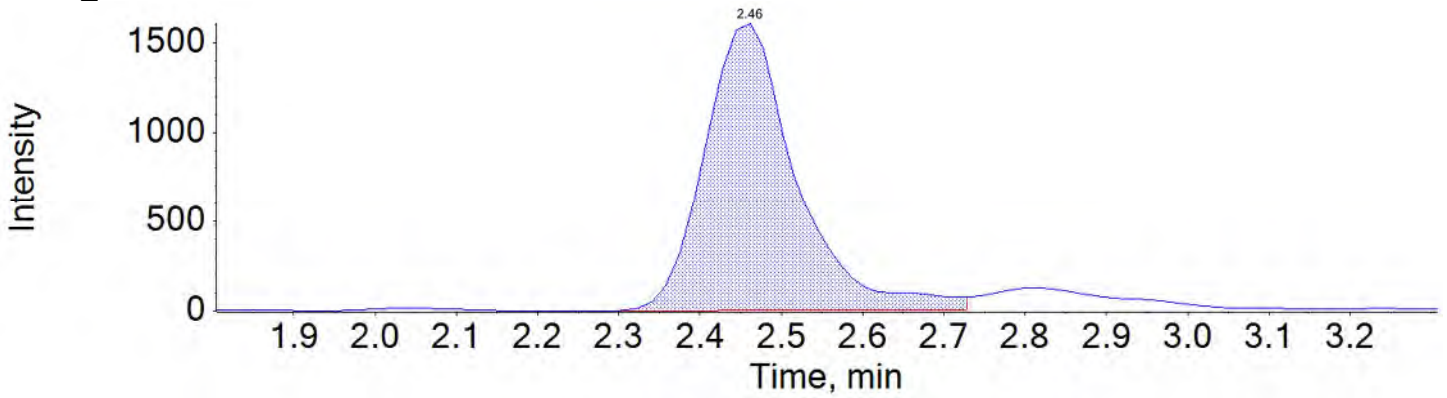
PFHxS_2 399.0 / 99.0



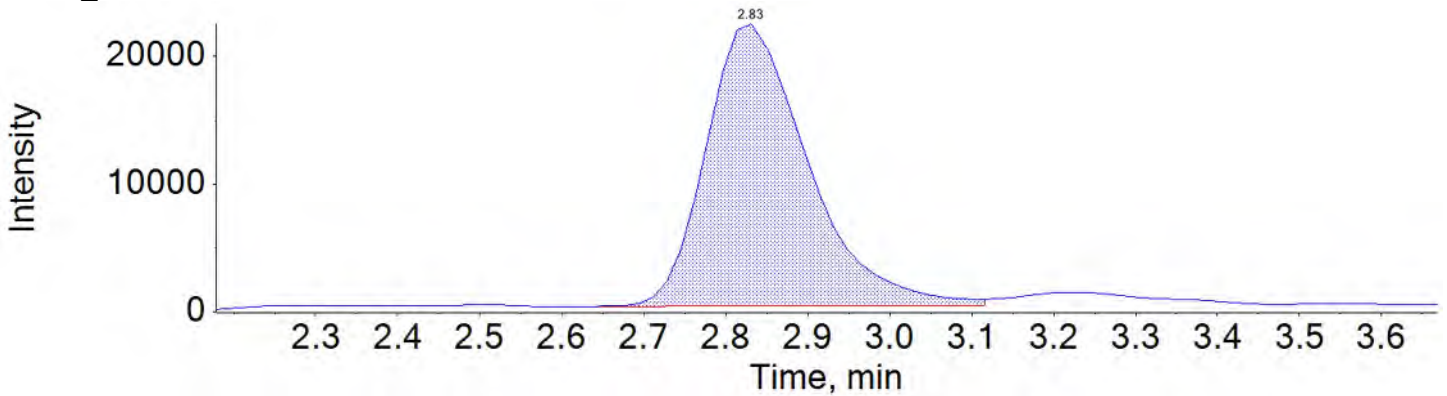
PFOA_1 413.0 / 369.0



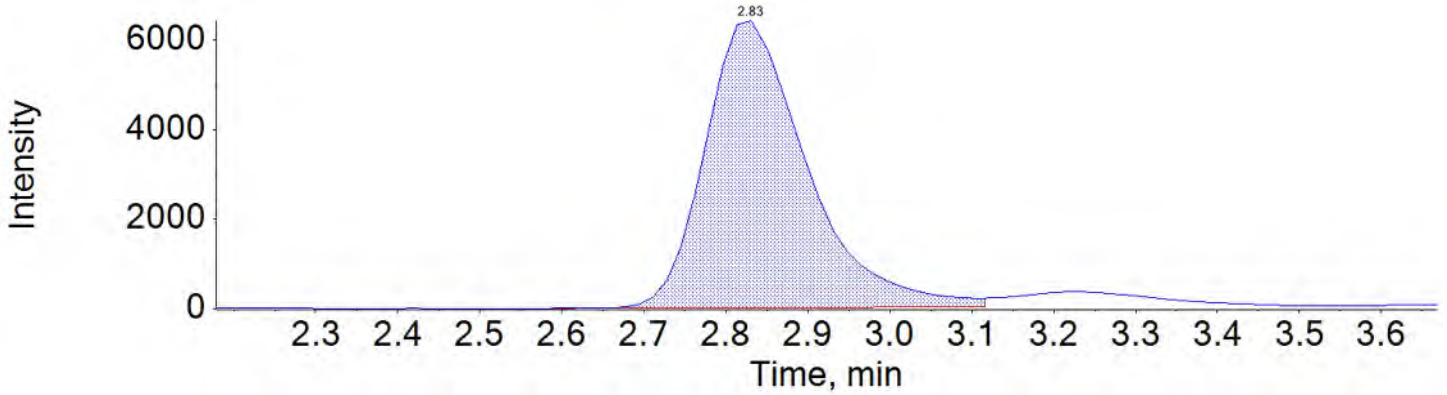
PFOA_2 413.0 / 169.0



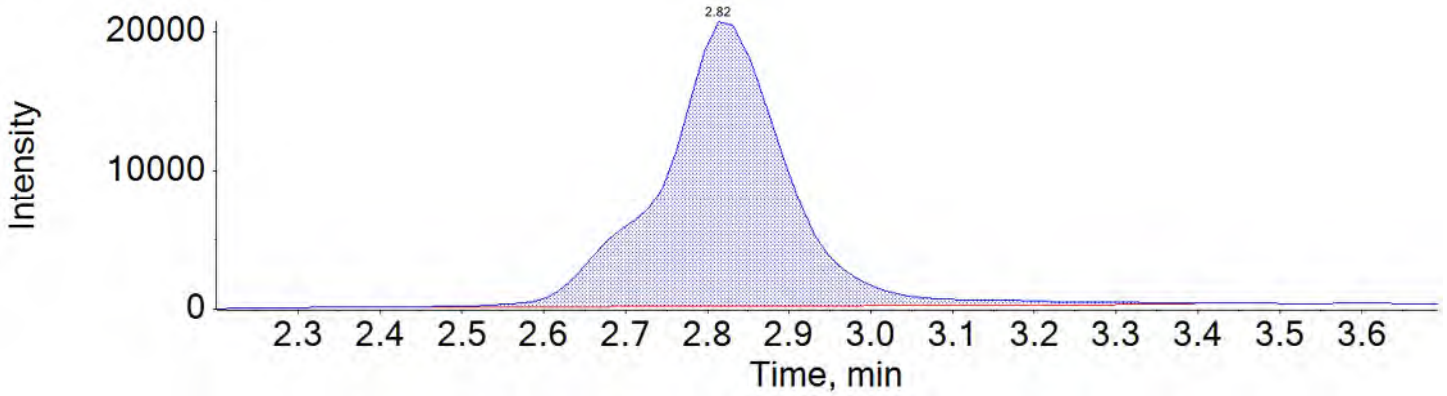
PFNA_1 463.0 / 419.0



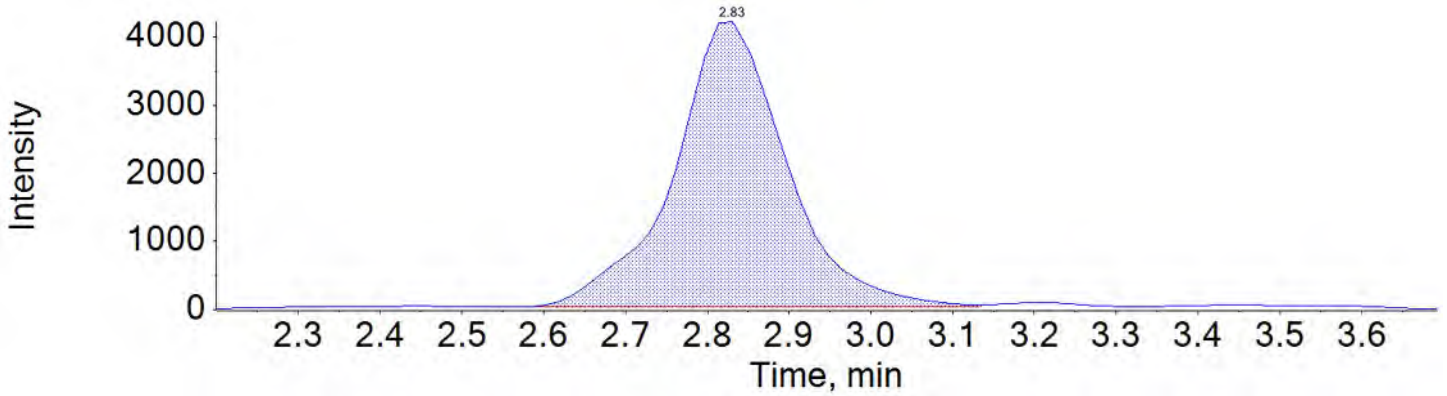
PFNA_2 463.0 / 219.0



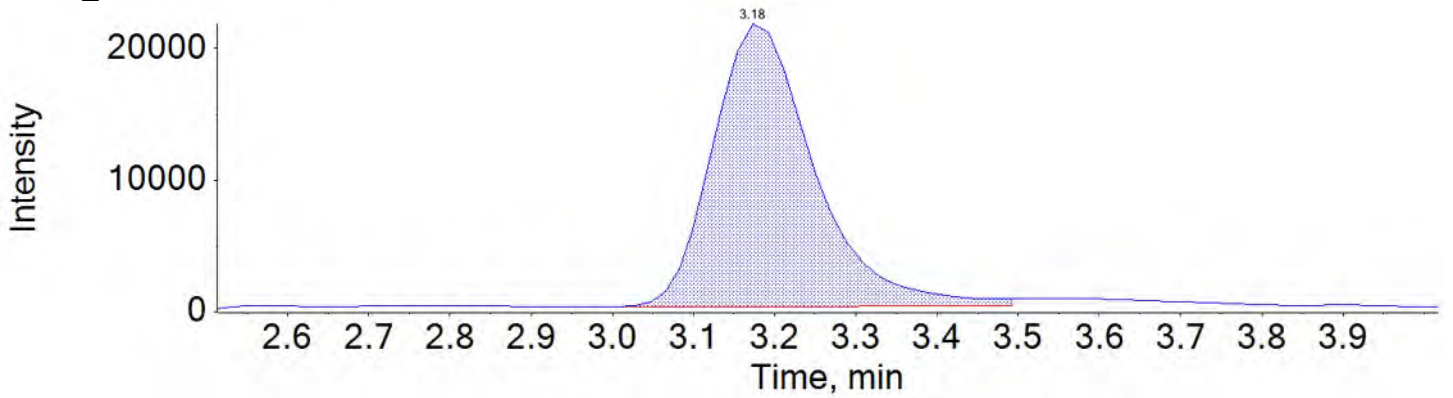
PFOS_1 499.0 / 80.0



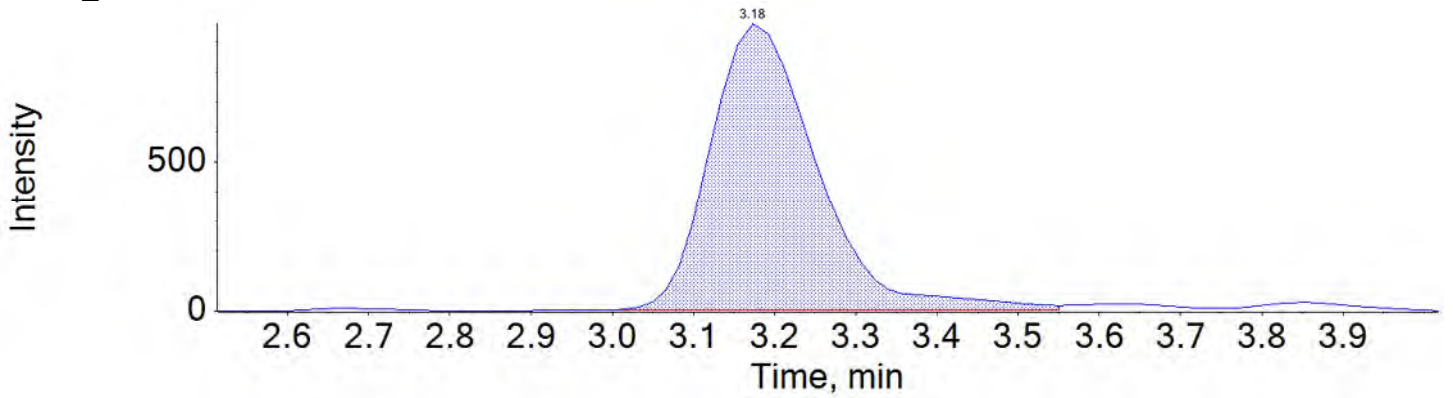
PFOS_2 499.0 / 99.0



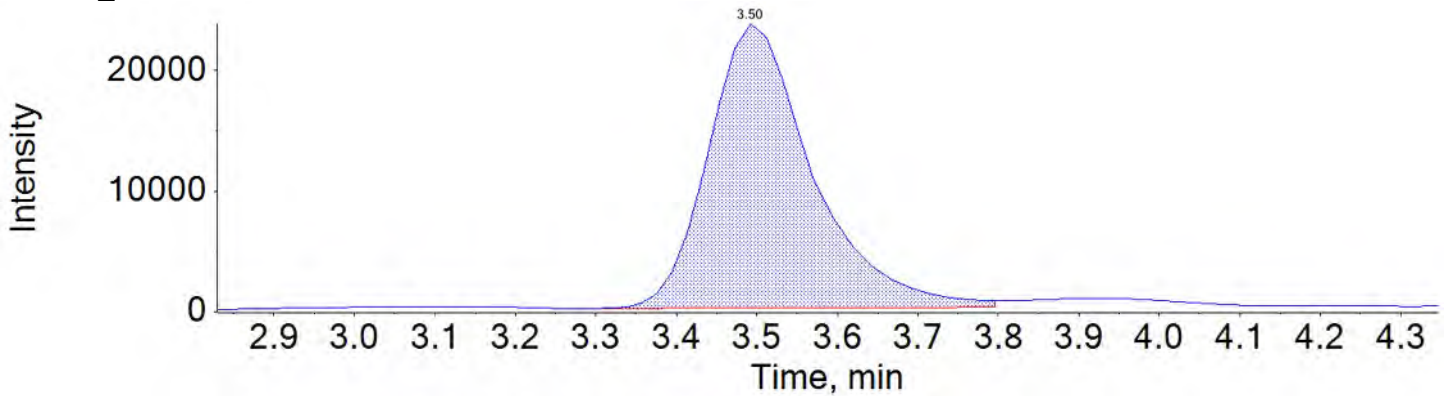
PFDA_1 513.0 / 469.0



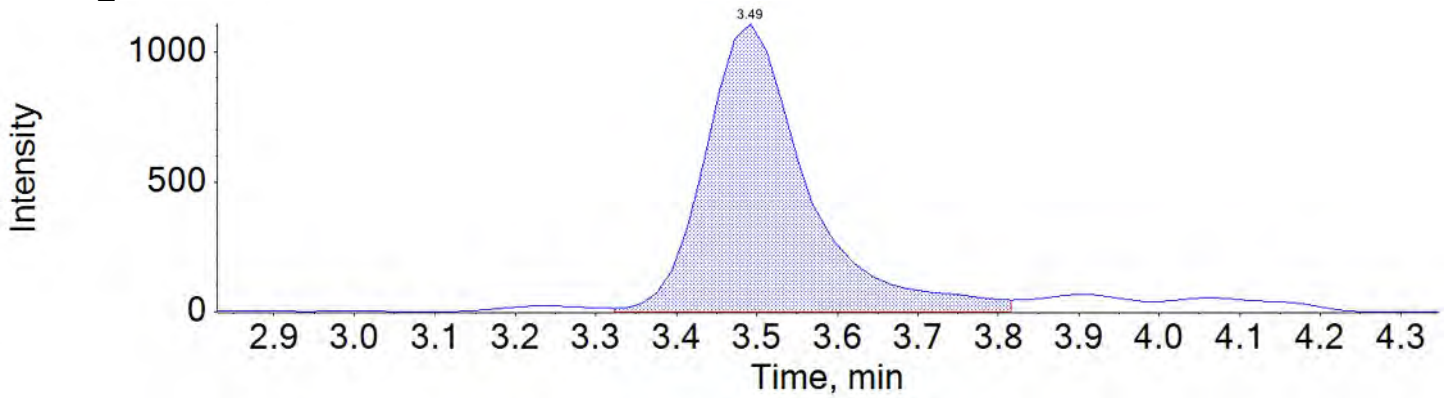
PFDA_2 513.0 / 219.0



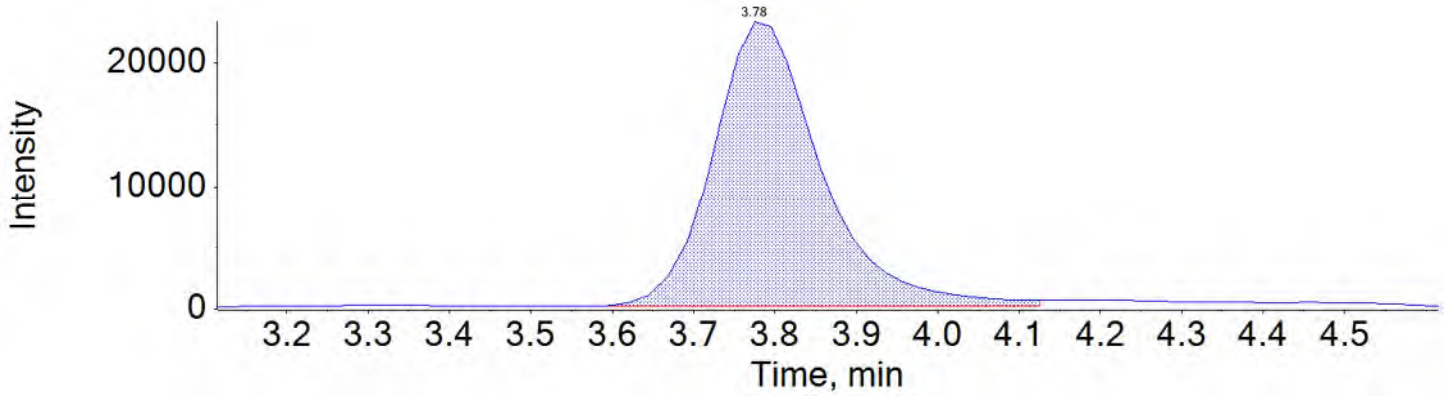
PFAUnA_1 563.0 / 519.0



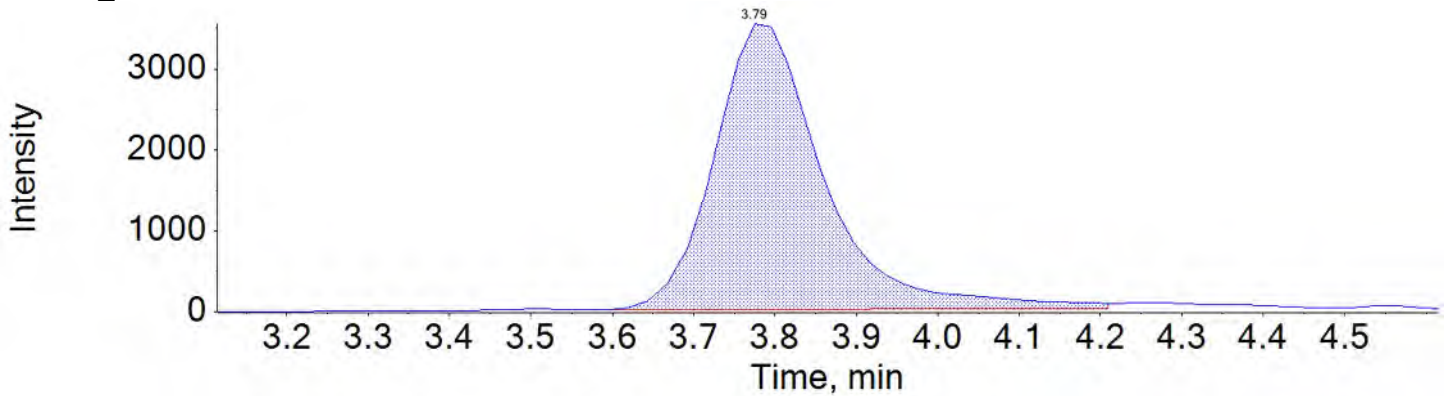
PFU_nA_2 563.0 / 269.0



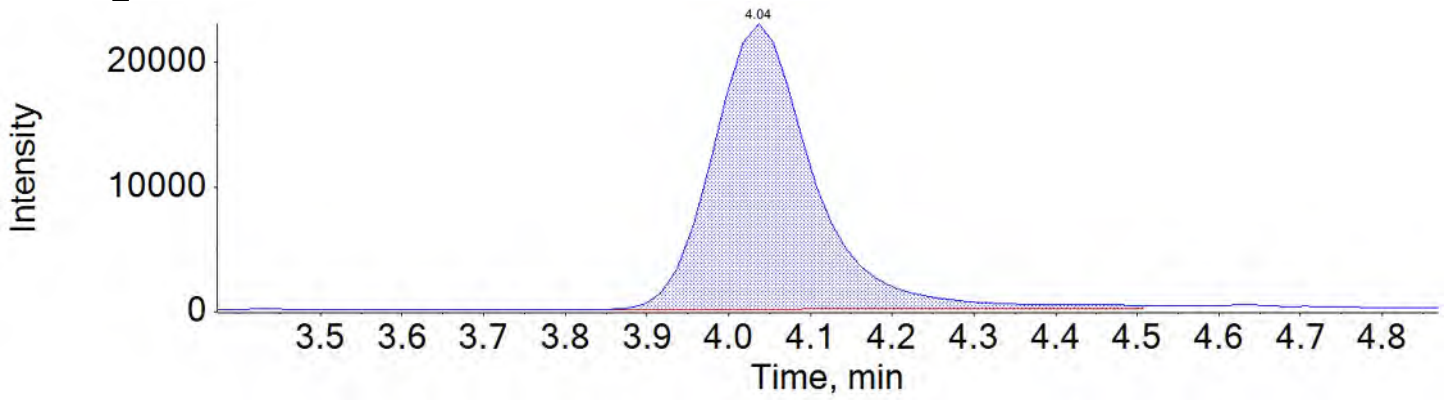
PFD_oA_1 613.0 / 569.0



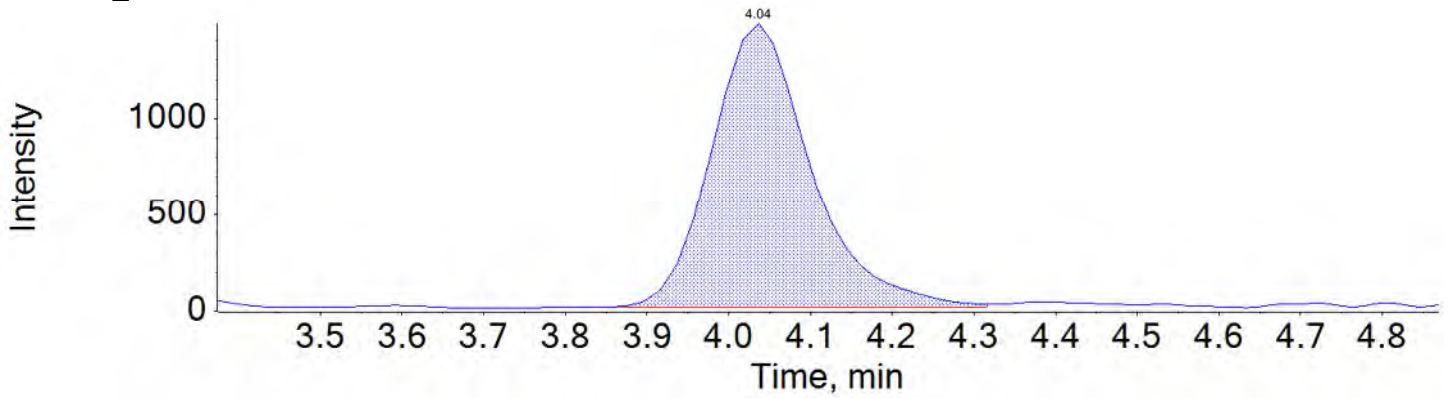
PFD_oA_2 613.0 / 319.0



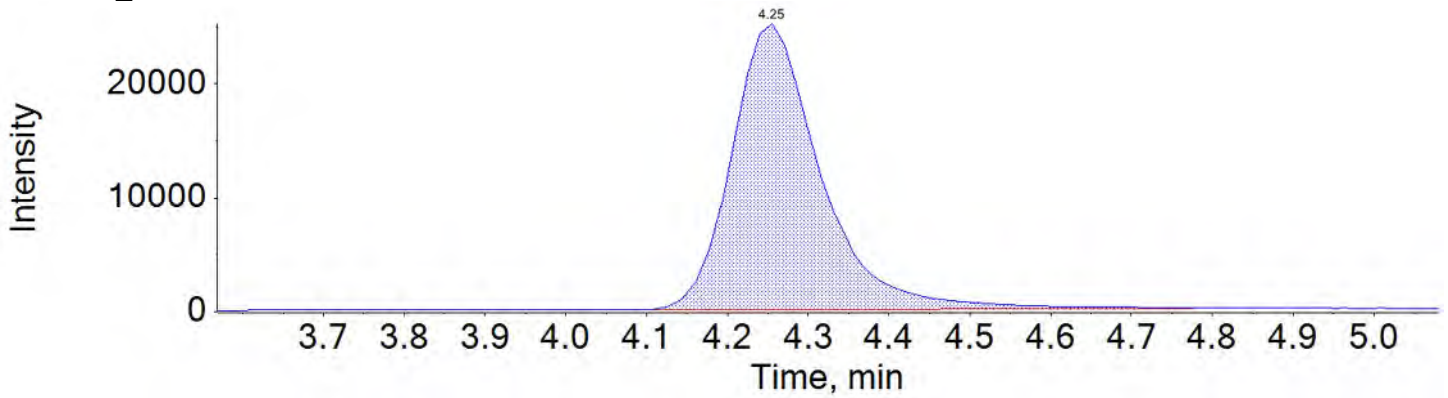
PFTTrDA_1 663.0 / 619.0



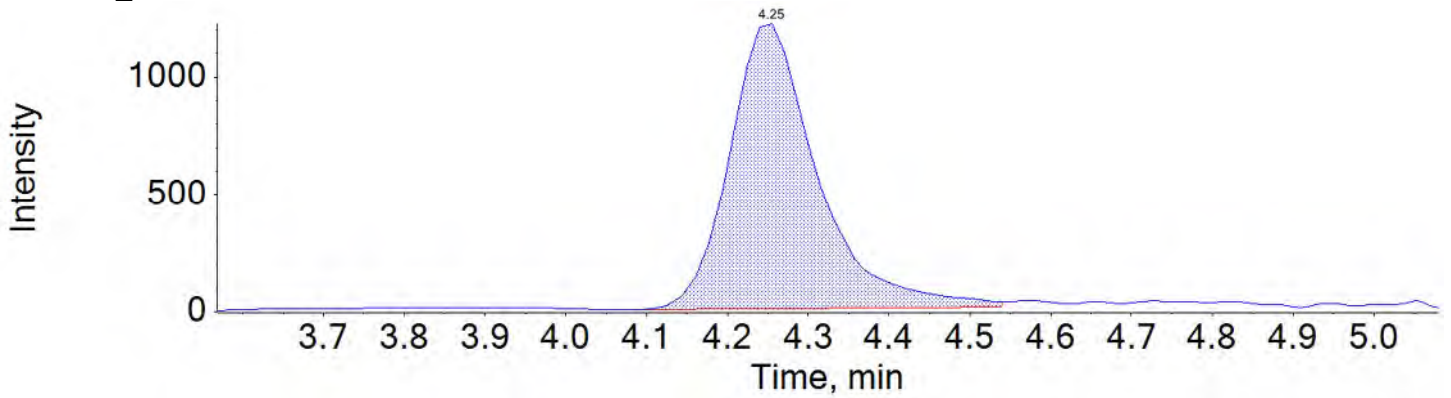
PFTTrDA_2 663.0 / 169.0



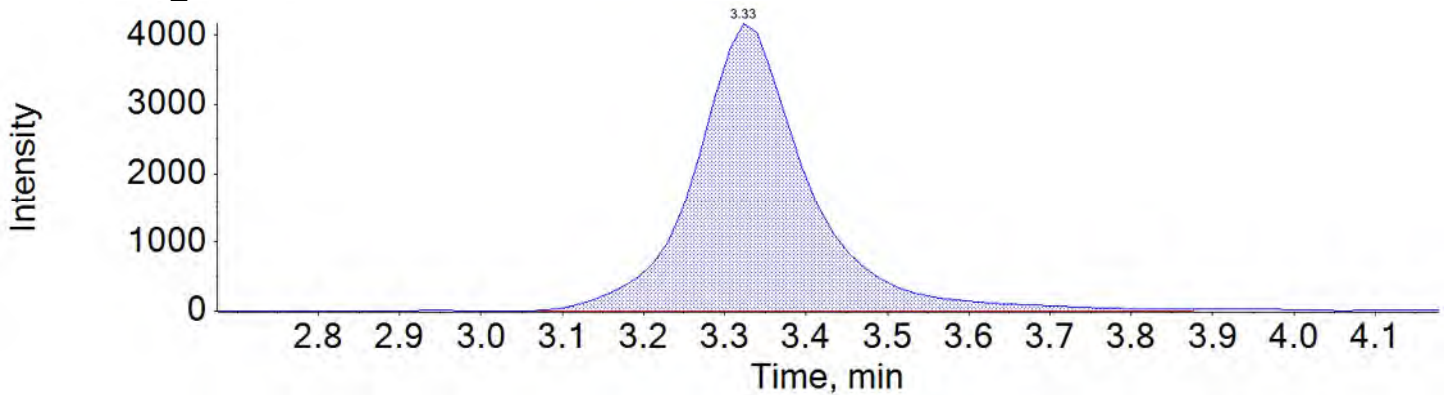
PFTeDA_1 713.0 / 669.0



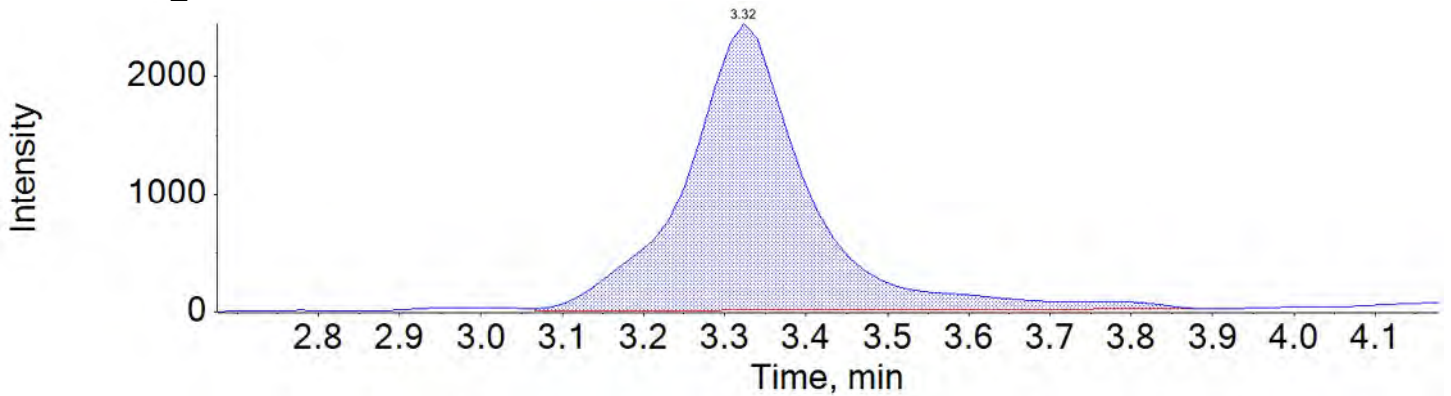
PFTeDA_2 713.0 / 169.0



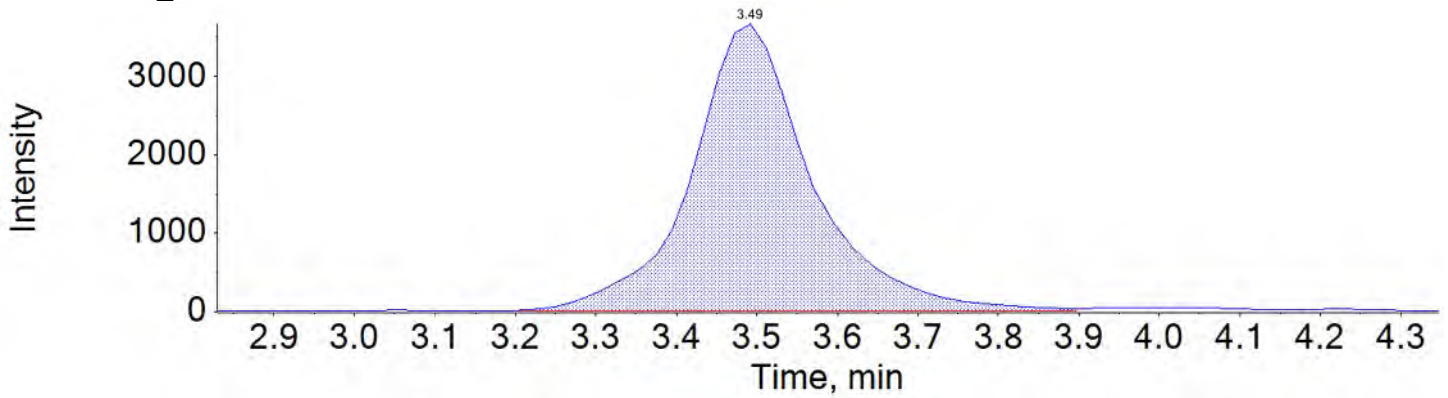
NMeFOSAA_1 570.0 / 419.0



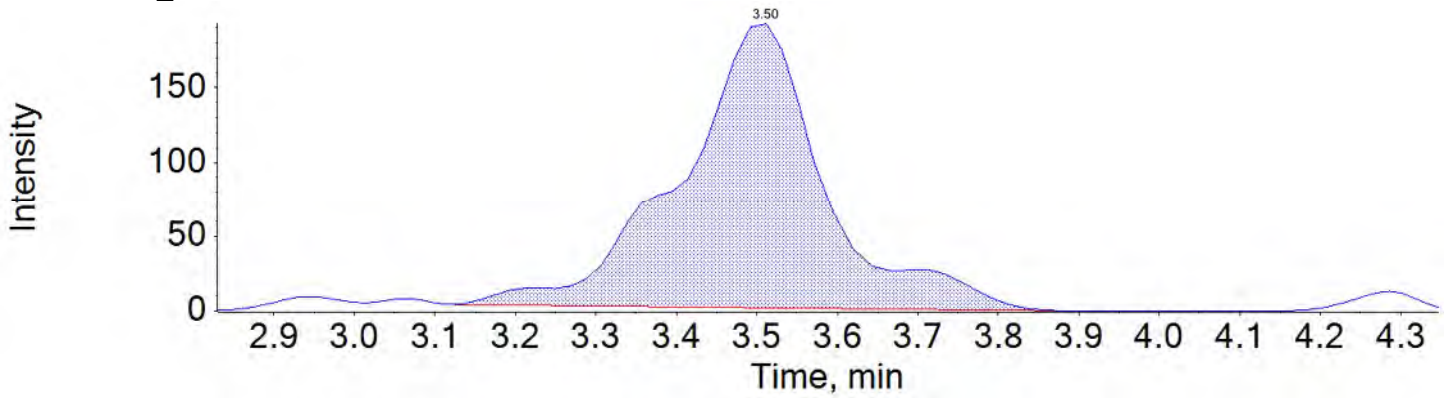
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

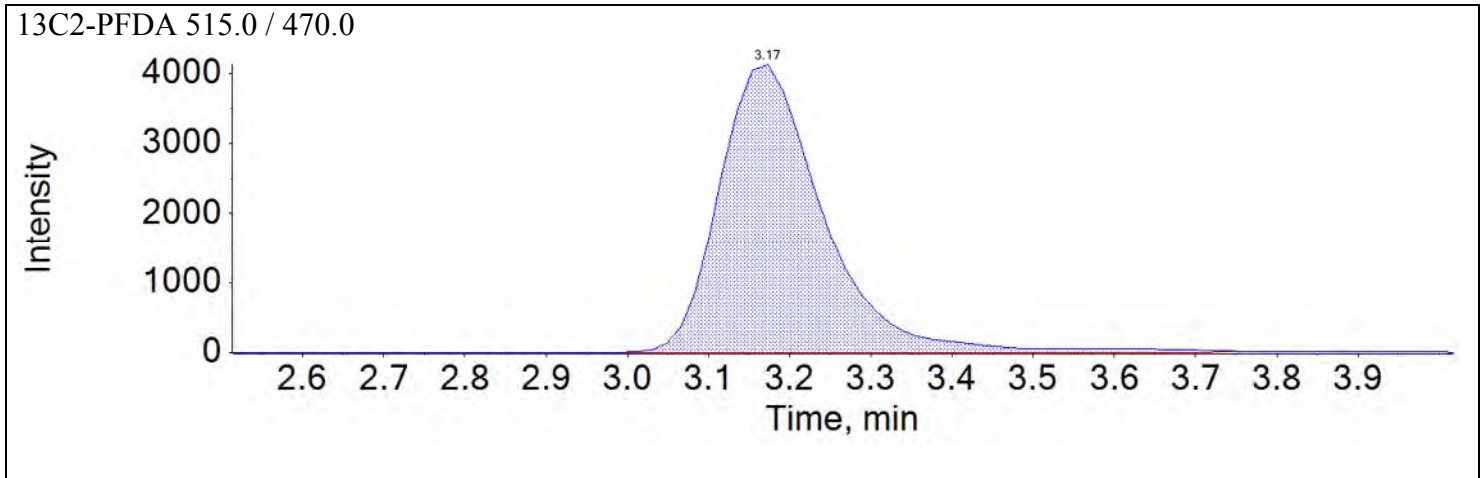
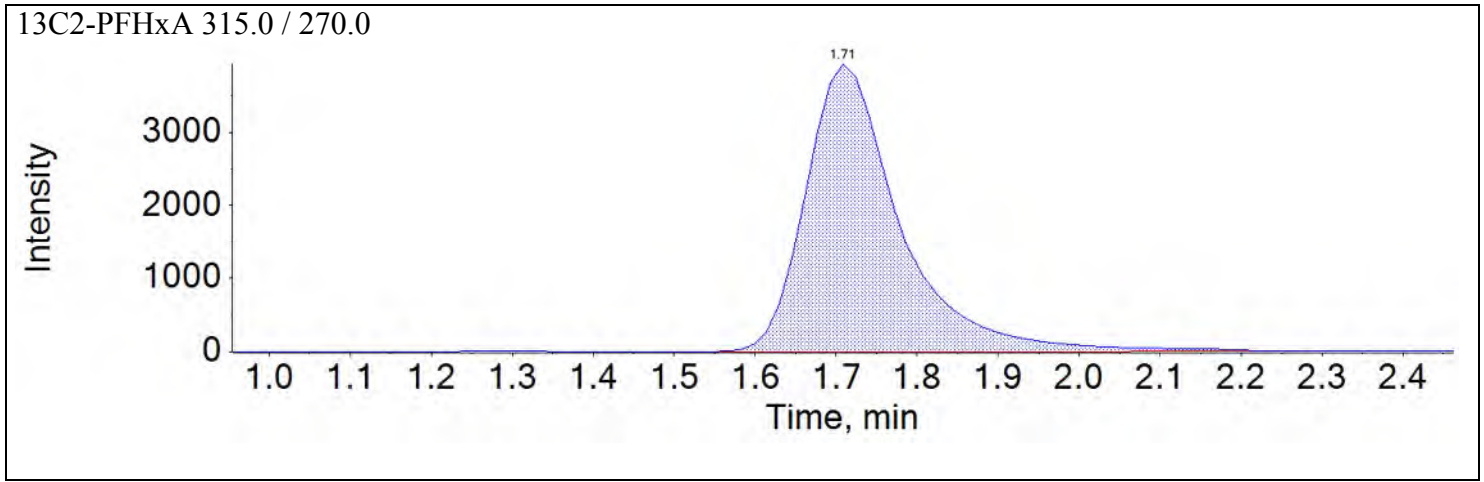


NEtFOSAA_2 584.0 / 483.0

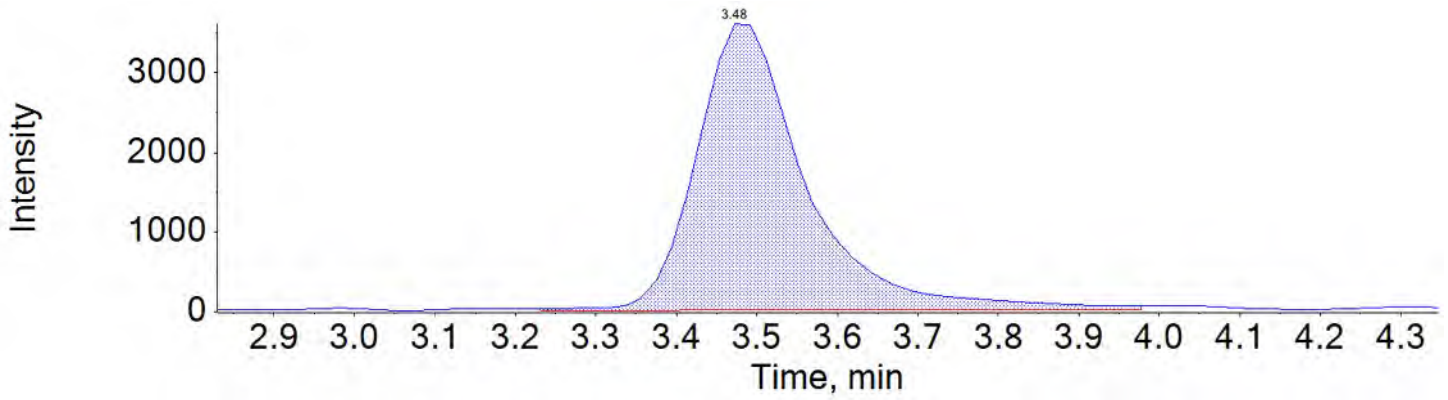


Sample Name	JV68	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:02:52	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms

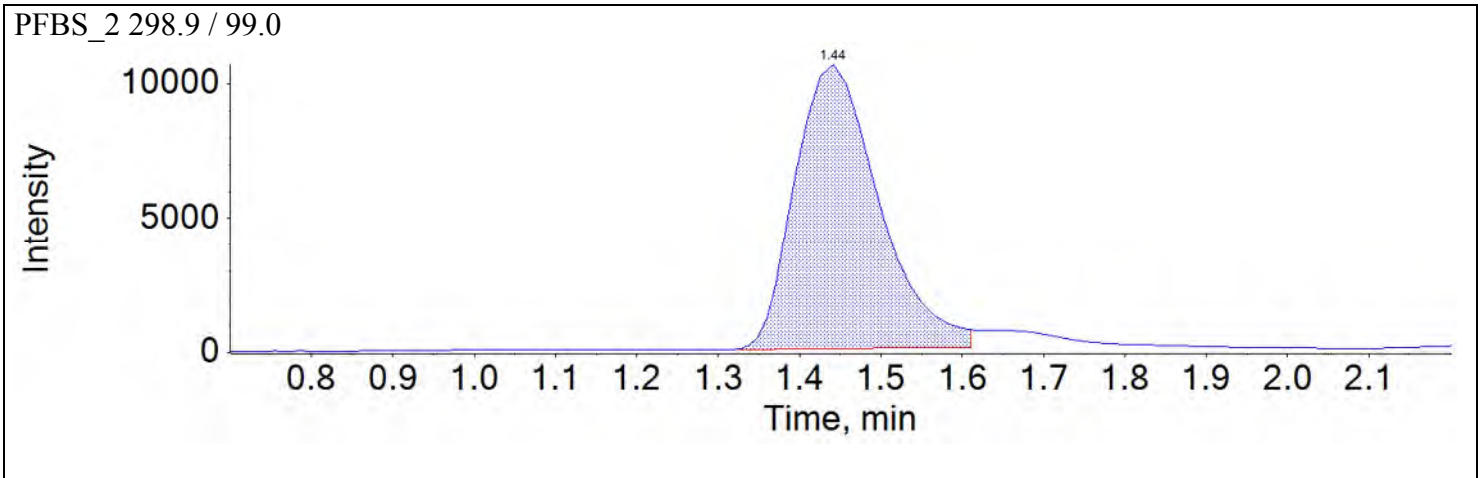
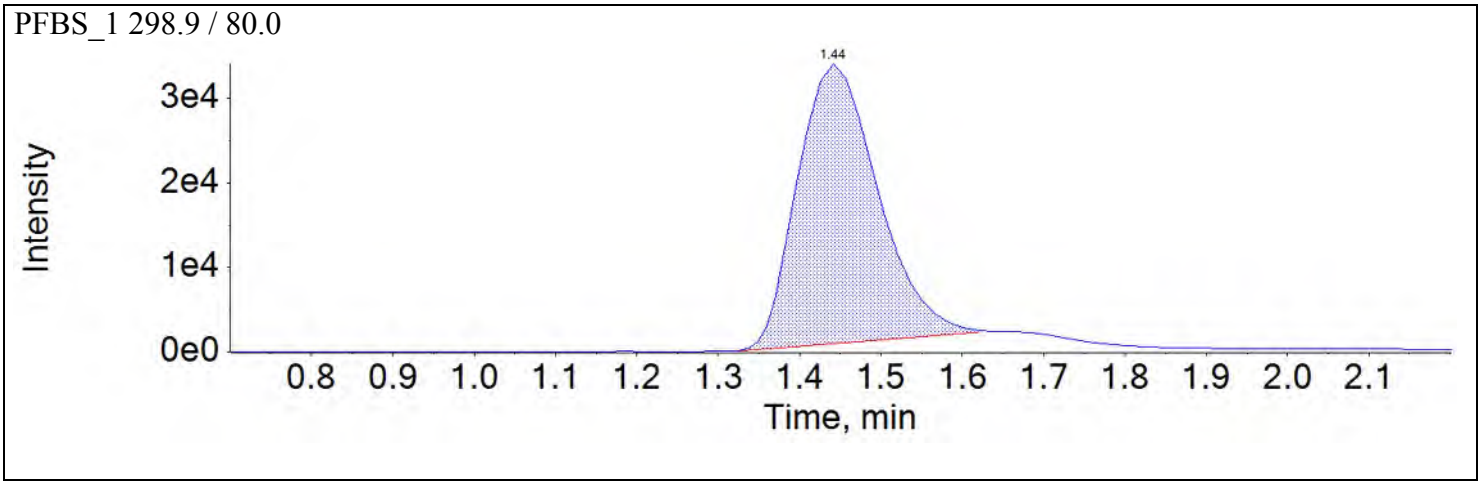


d5-EtFOSAA 589.0 / 419.0

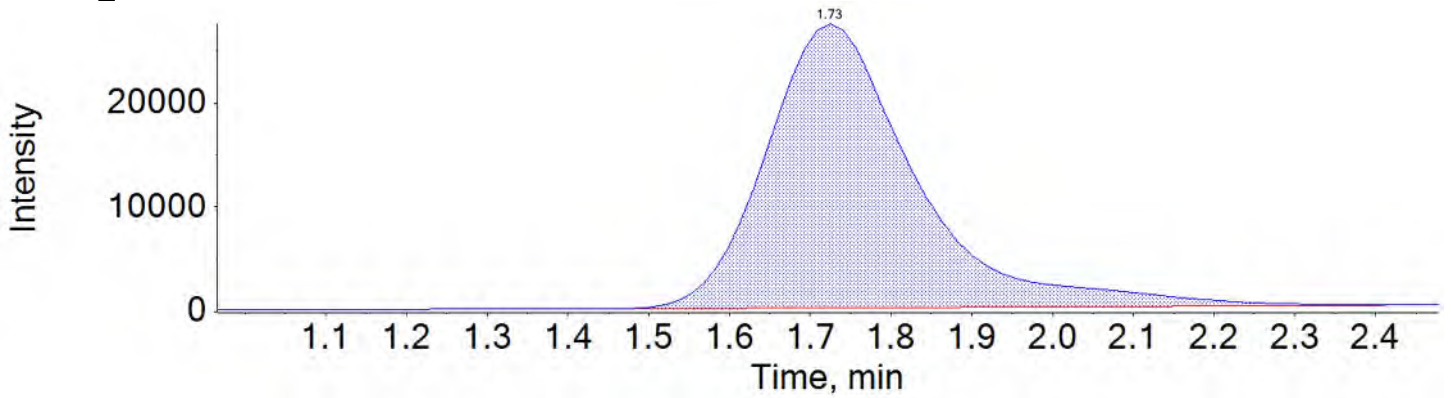


Sample Name	JV69	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:11:47	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

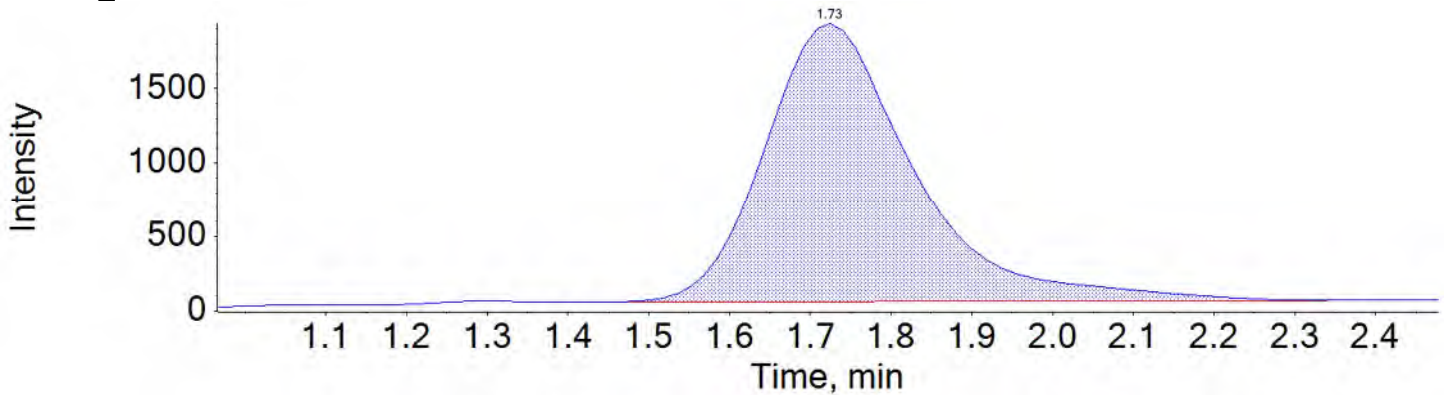
Chromatograms



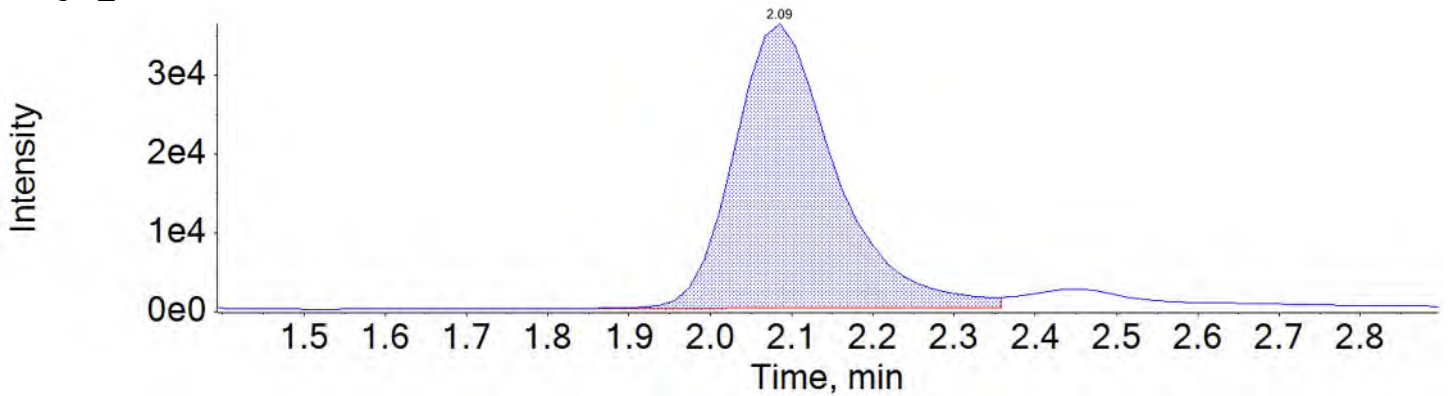
PFHxA_1 313.0 / 269.0



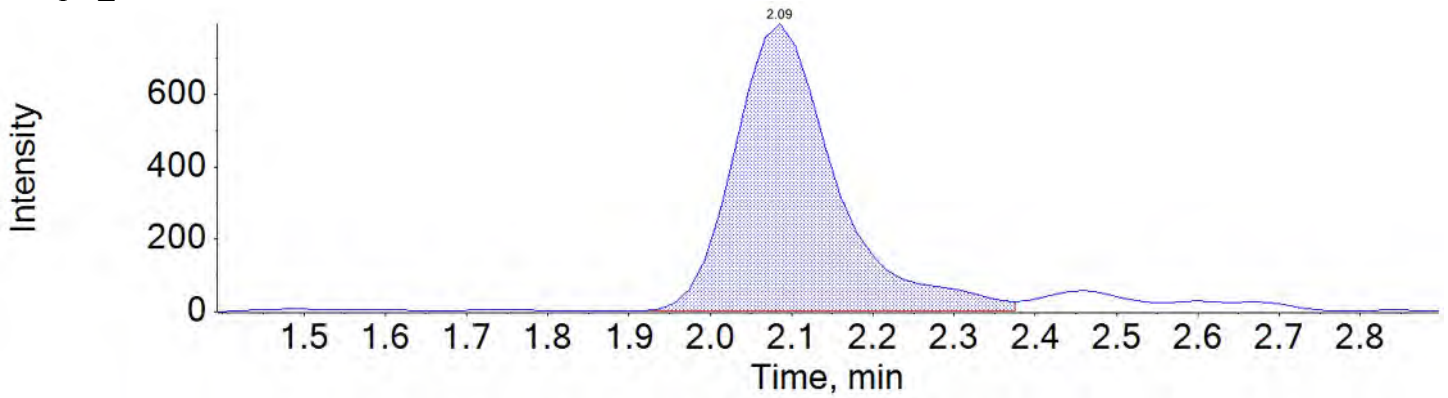
PFHxA_2 313.0 / 119.0



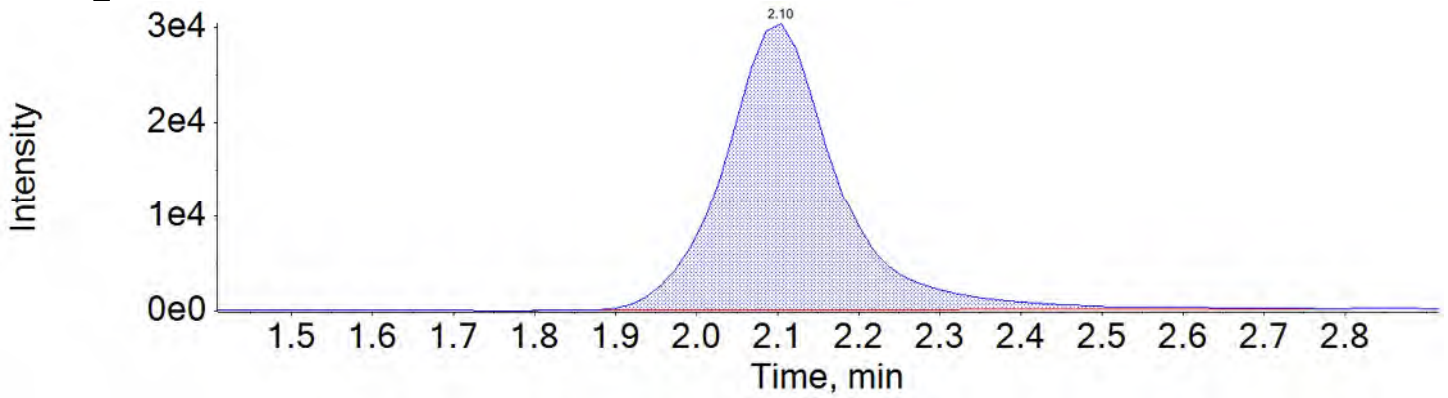
PFHpA_1 363.0 / 319.0



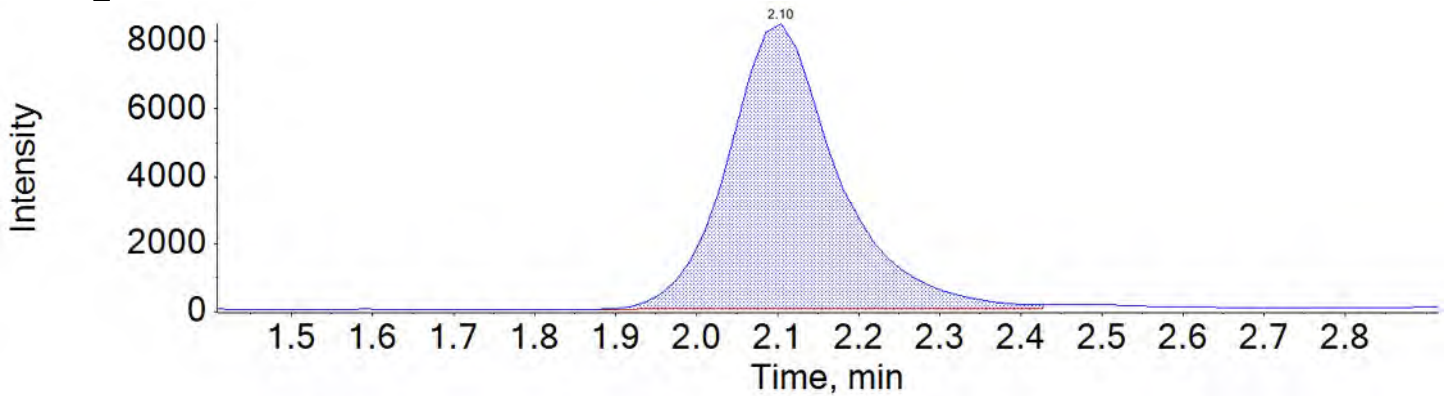
PFHpA_2 363.0 / 169.0



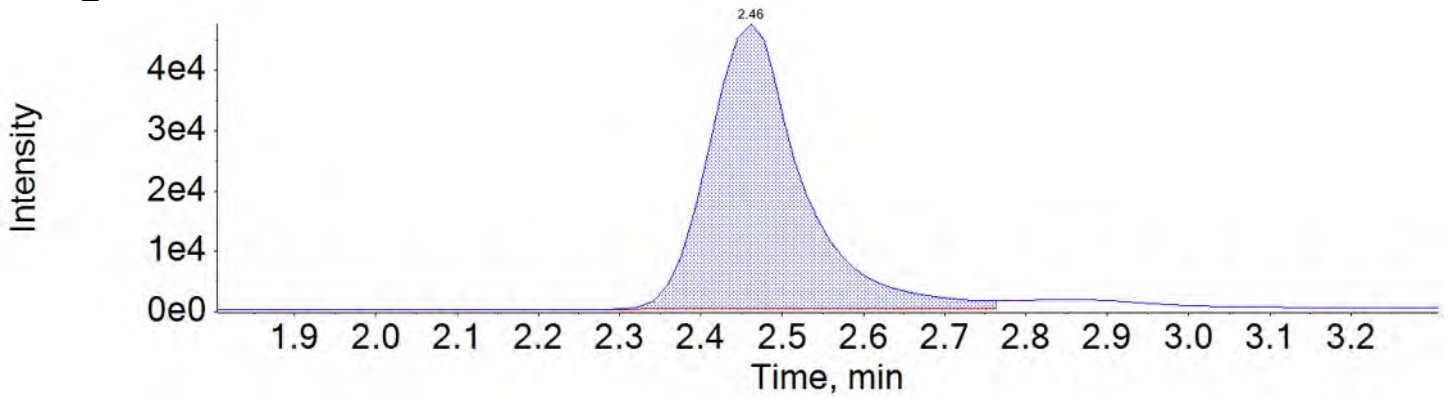
PFHxS_1 399.0 / 80.0



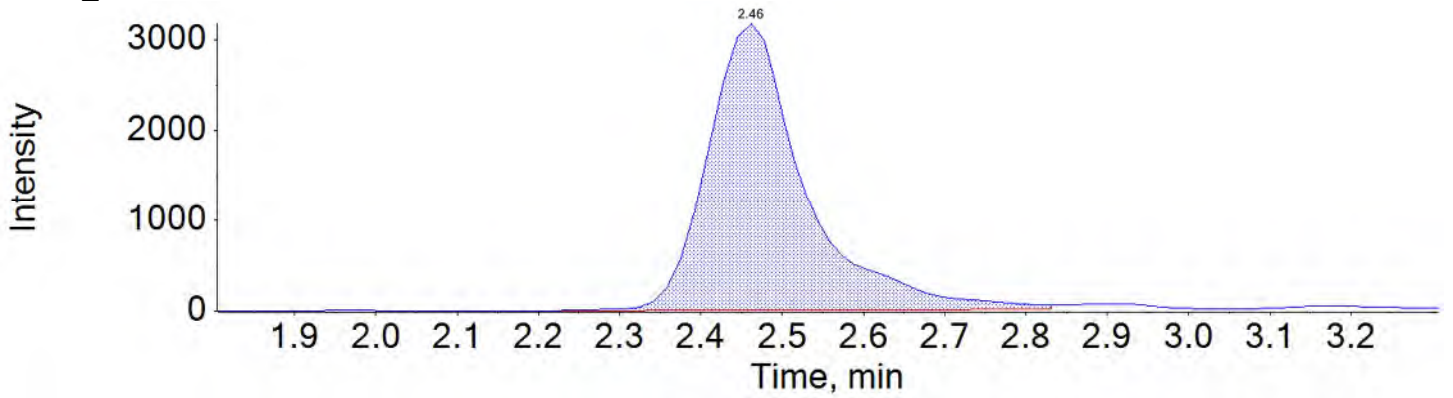
PFHxS_2 399.0 / 99.0



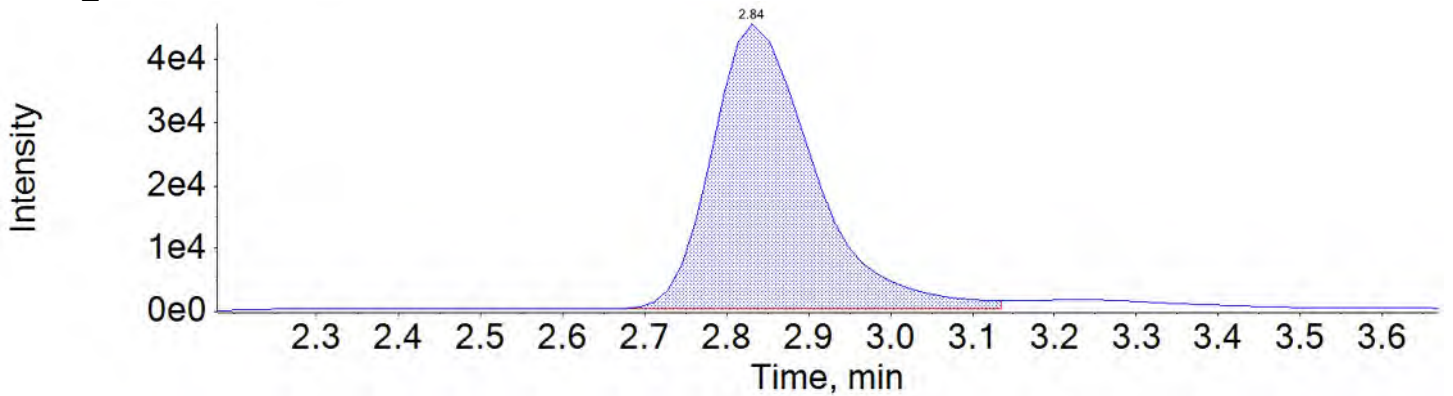
PFOA_1 413.0 / 369.0



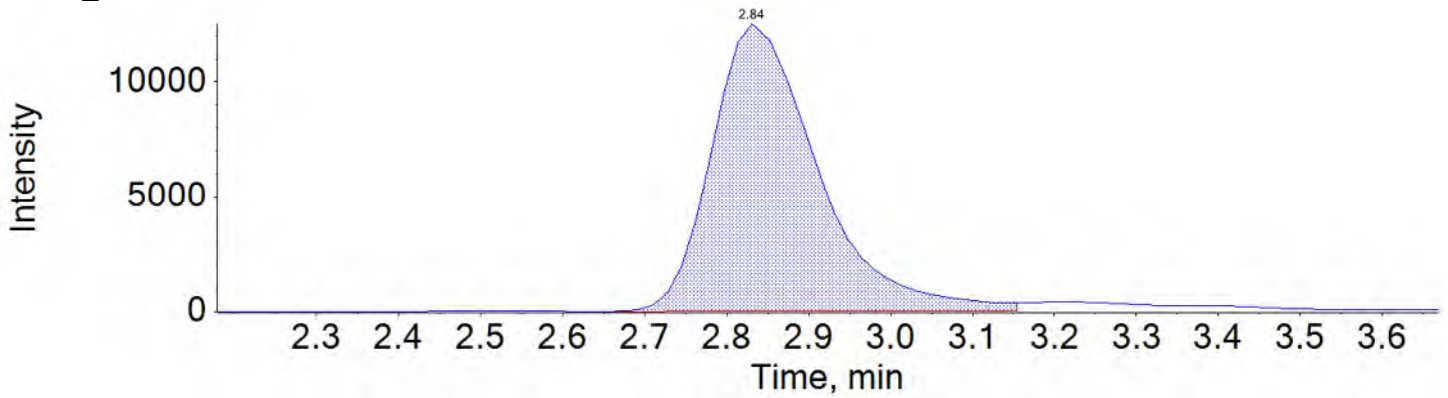
PFOA_2 413.0 / 169.0



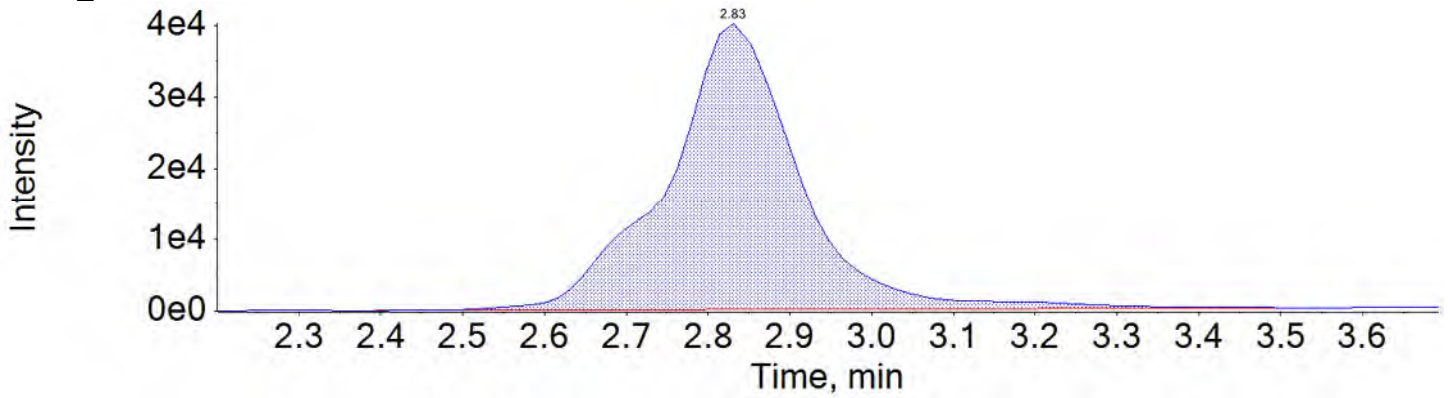
PFNA_1 463.0 / 419.0



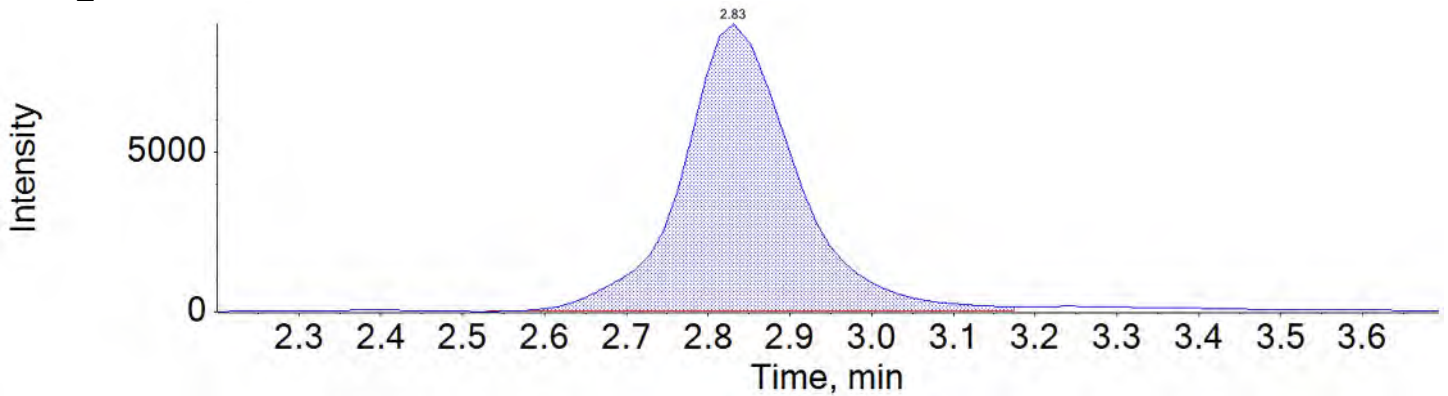
PFNA_2 463.0 / 219.0



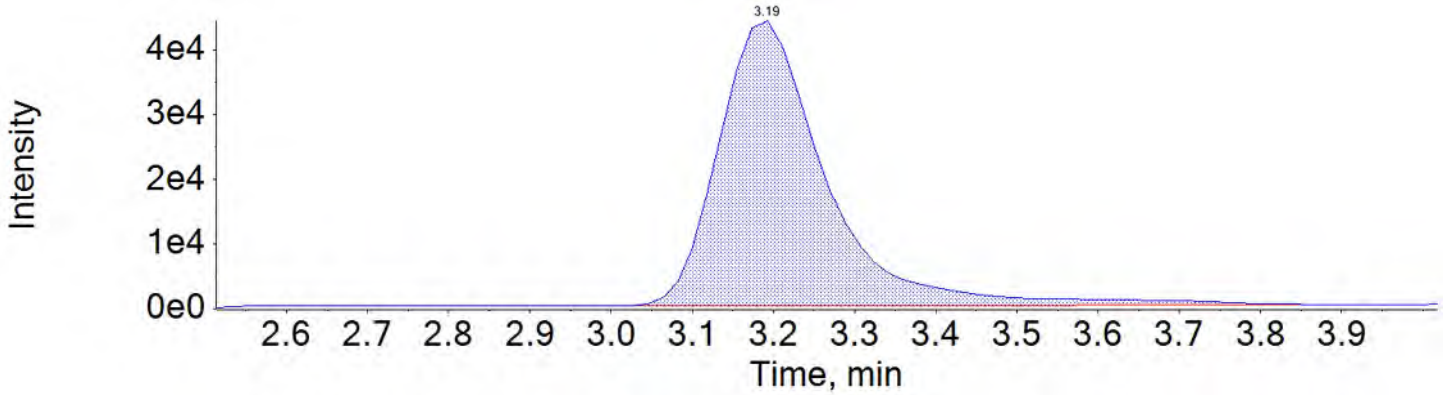
PFOS_1 499.0 / 80.0



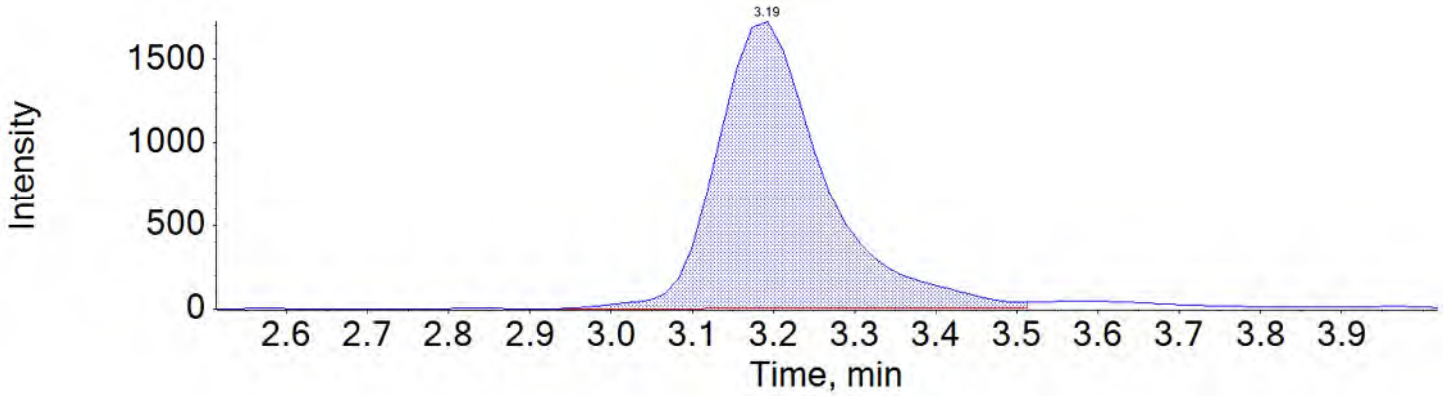
PFOS_2 499.0 / 99.0



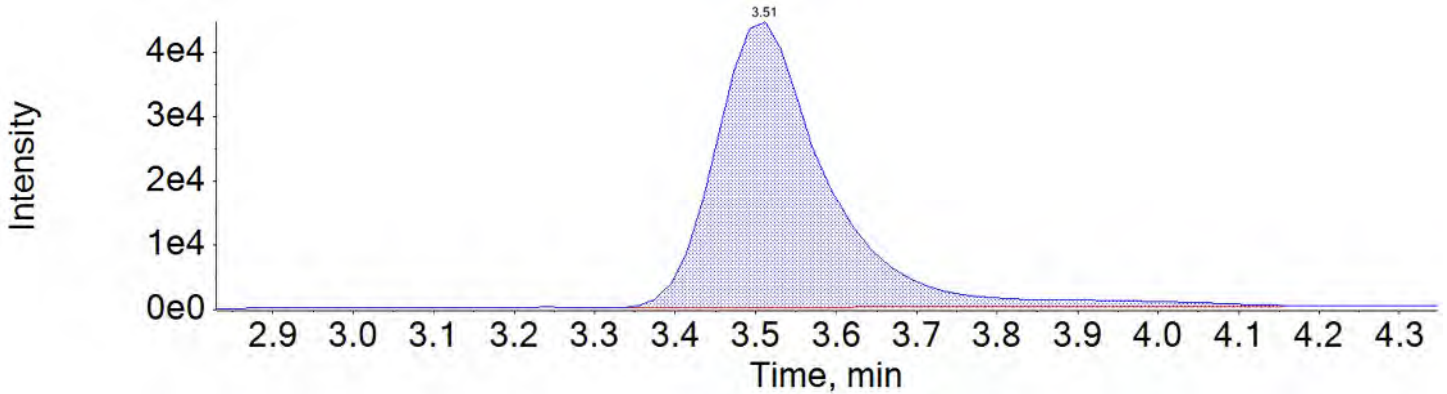
PFDA_1 513.0 / 469.0



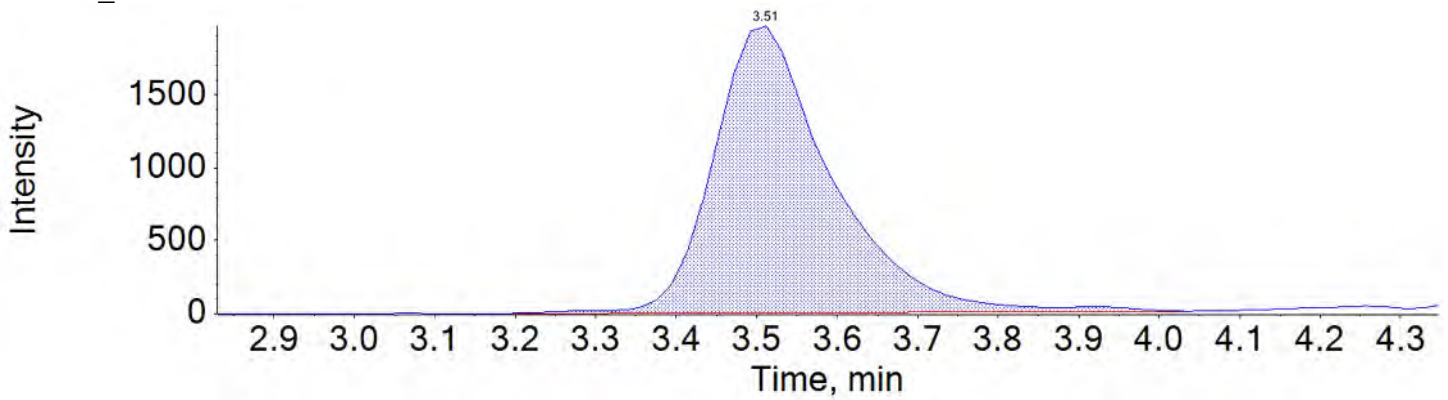
PFDA_2 513.0 / 219.0



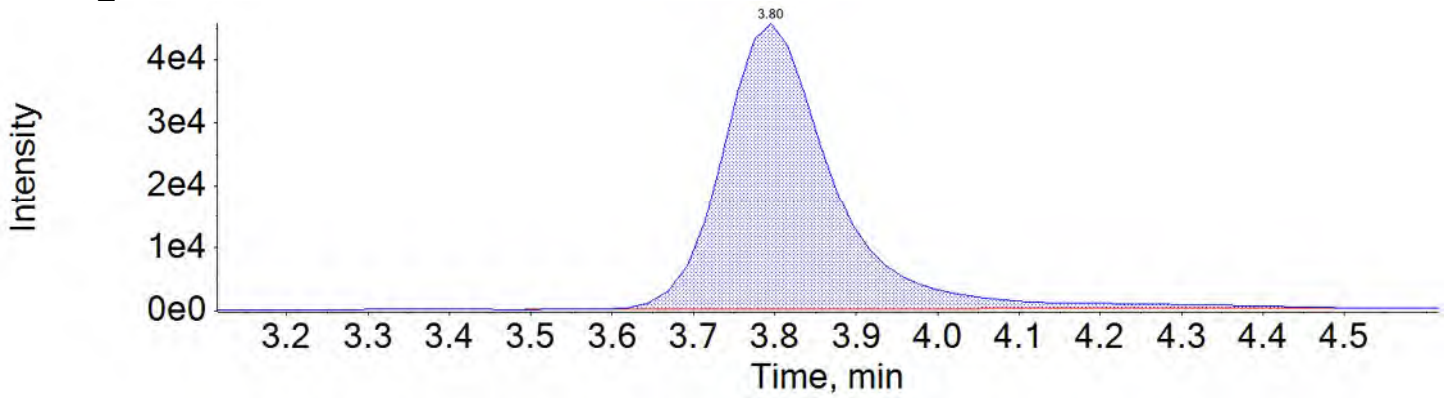
PFAUnA_1 563.0 / 519.0



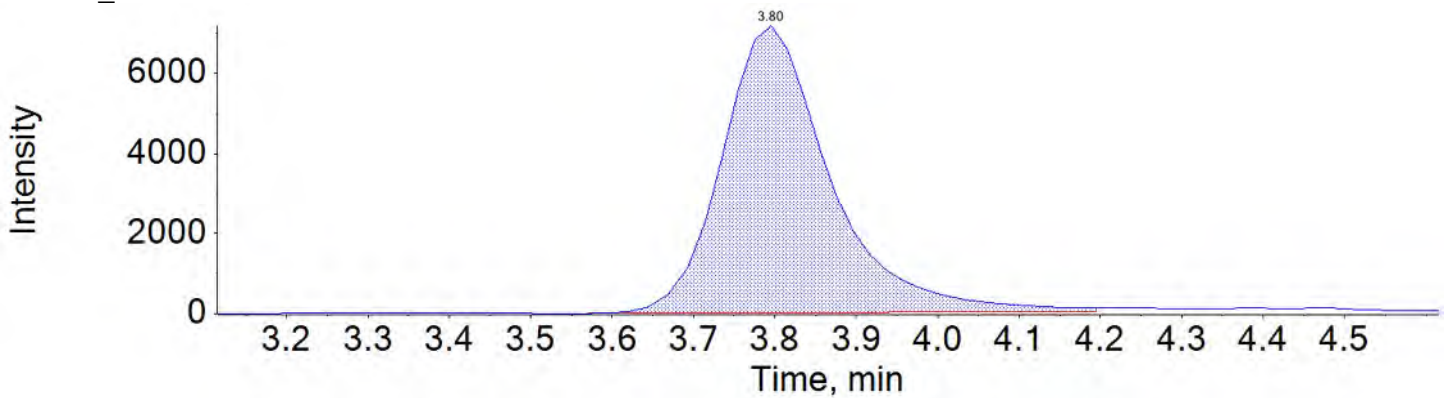
PFUnA_2 563.0 / 269.0



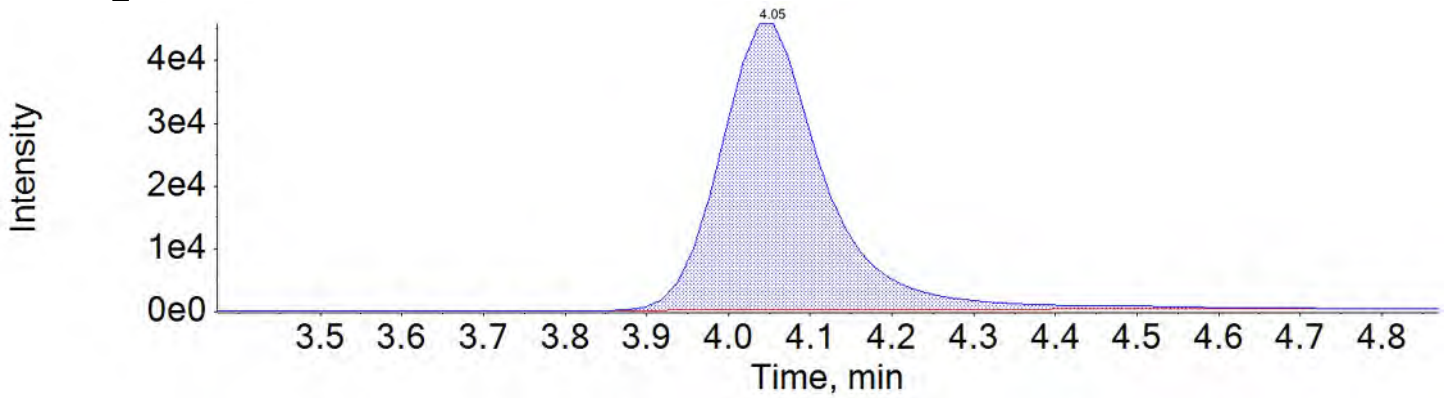
PFDaA_1 613.0 / 569.0



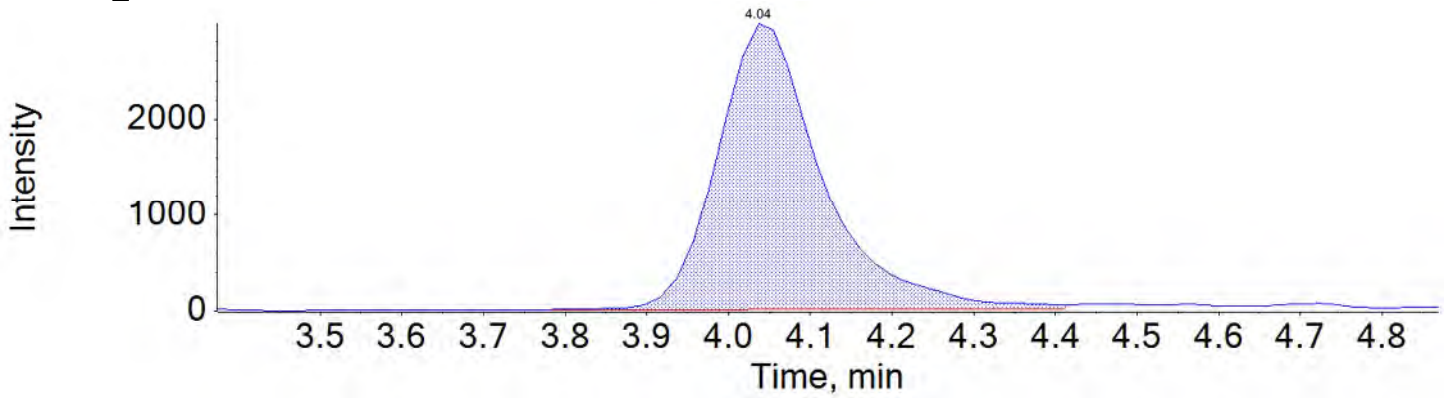
PFDaA_2 613.0 / 319.0



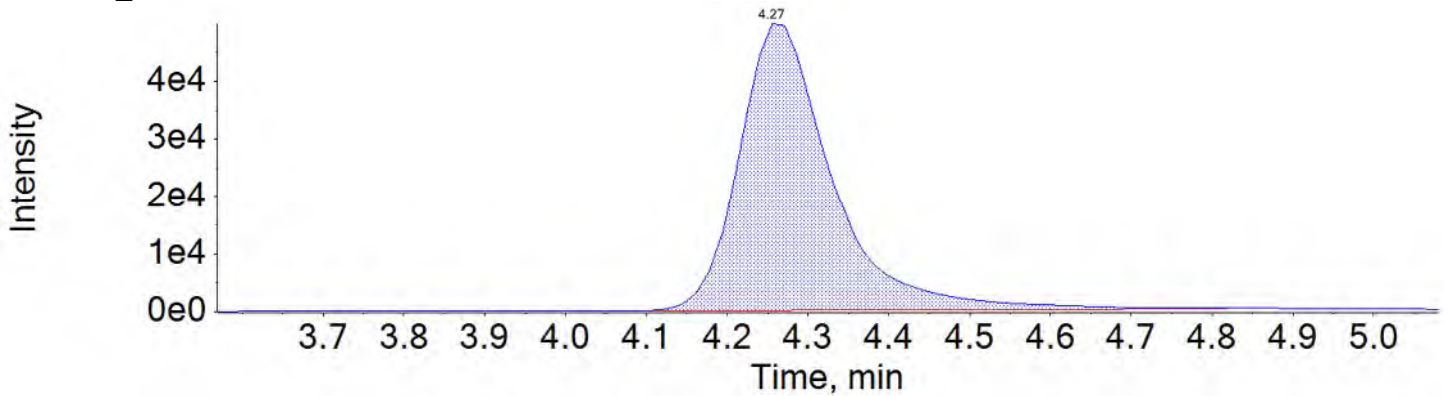
PFTTrDA_1 663.0 / 619.0



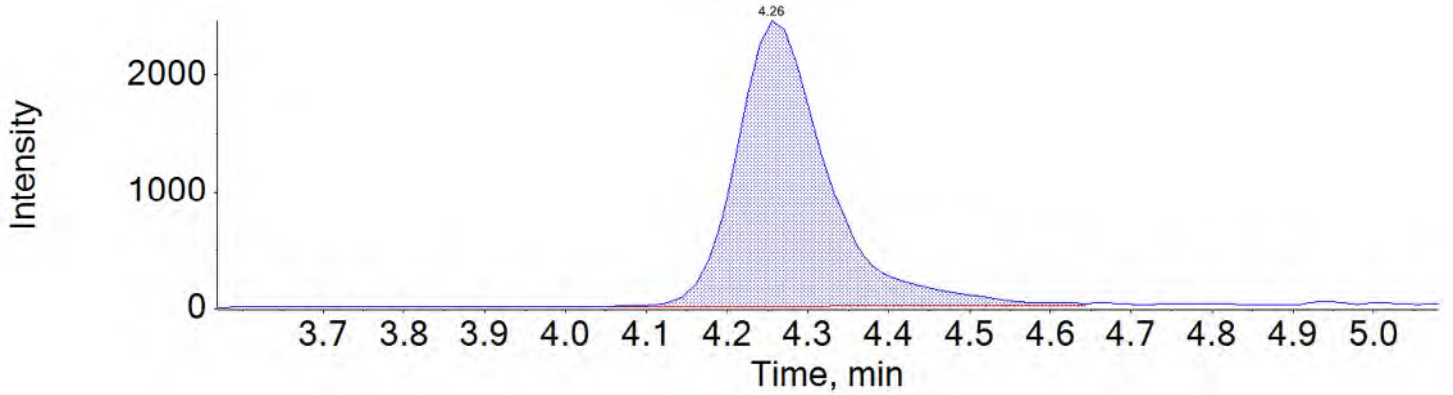
PFTTrDA_2 663.0 / 169.0



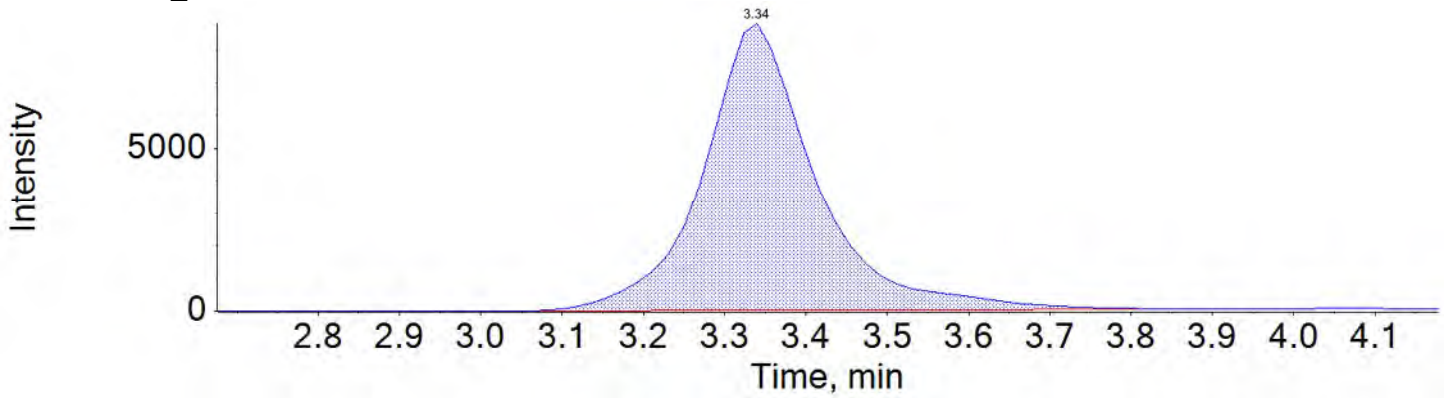
PFTTeDA_1 713.0 / 669.0



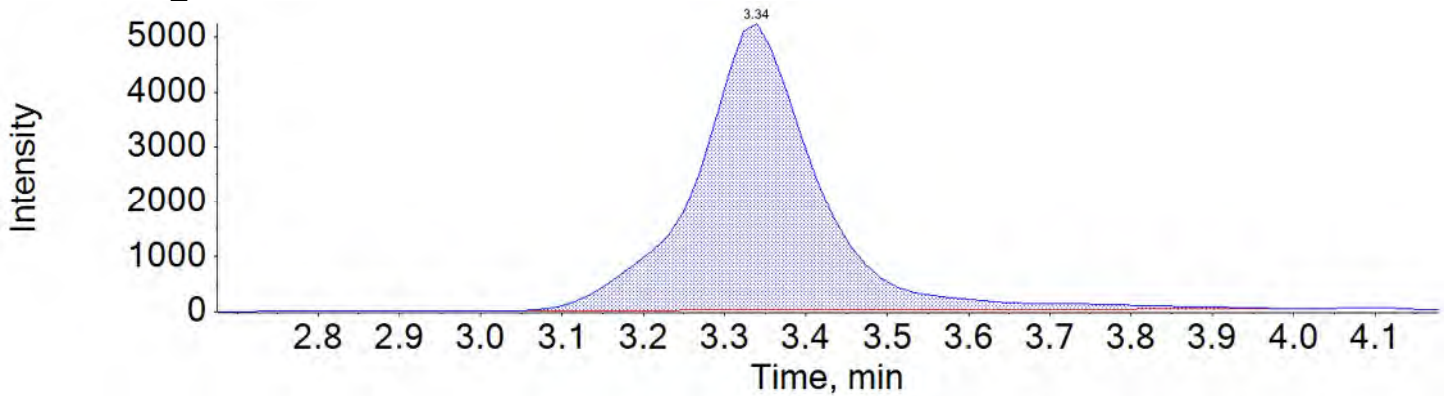
PFTeDA_2 713.0 / 169.0



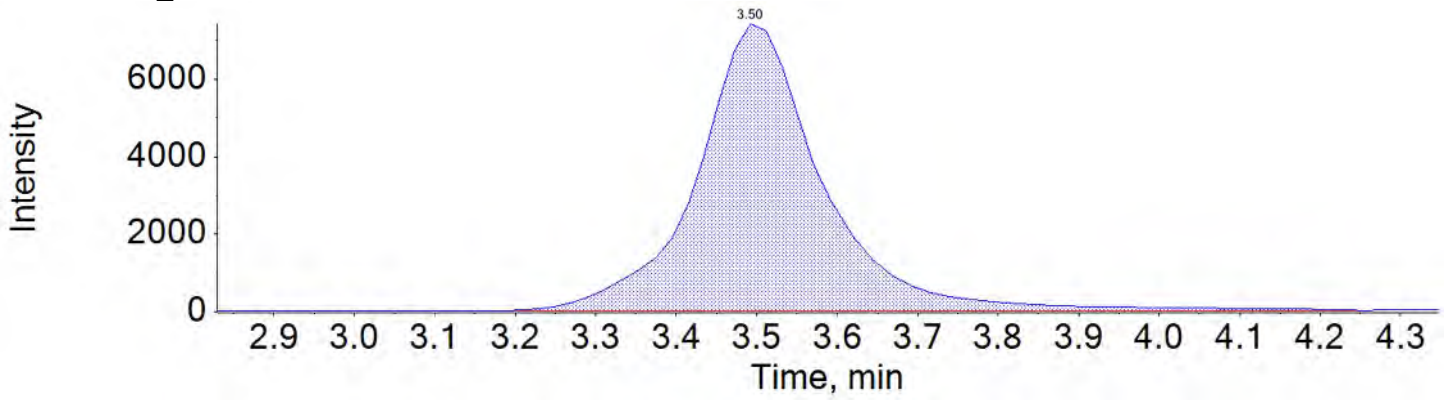
NMeFOSAA_1 570.0 / 419.0



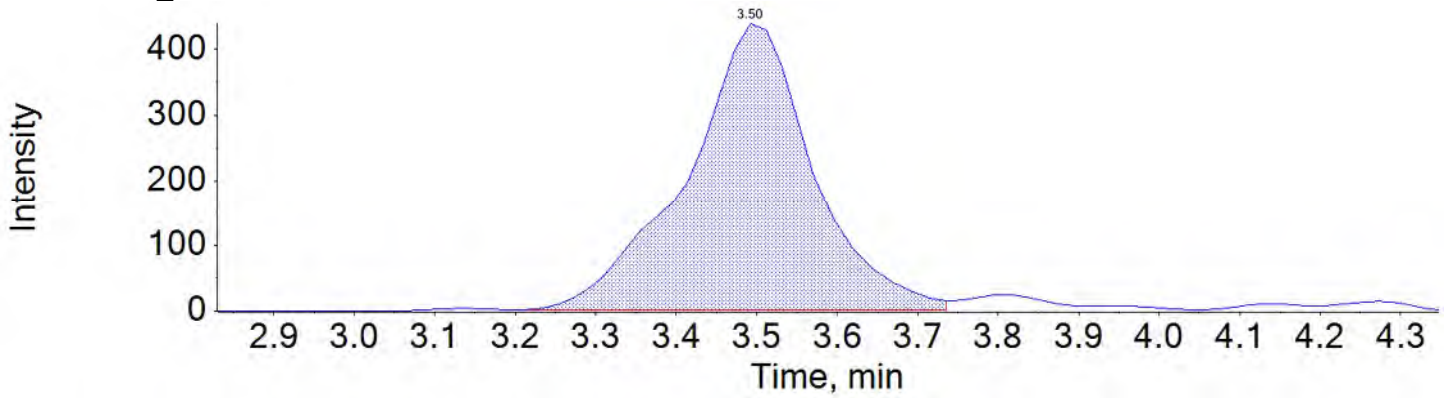
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

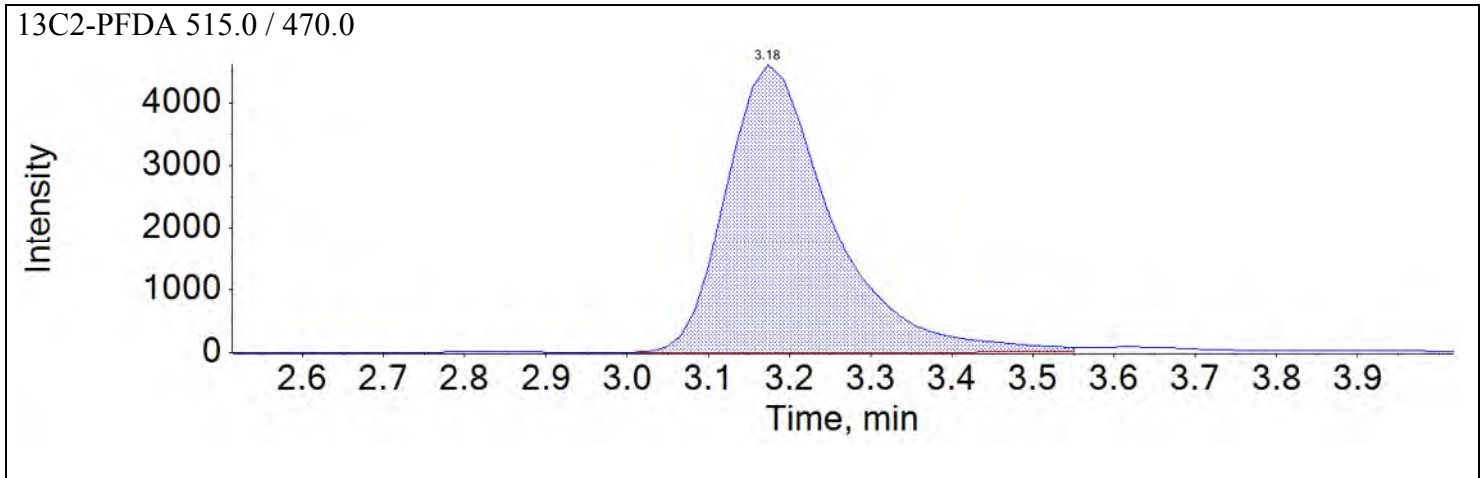
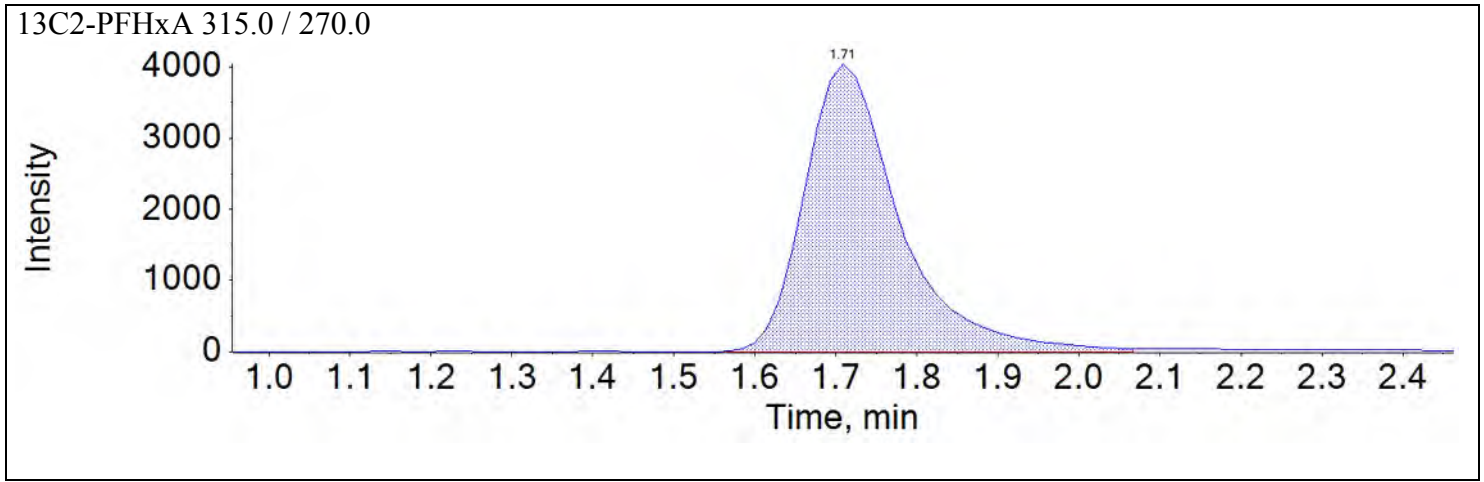


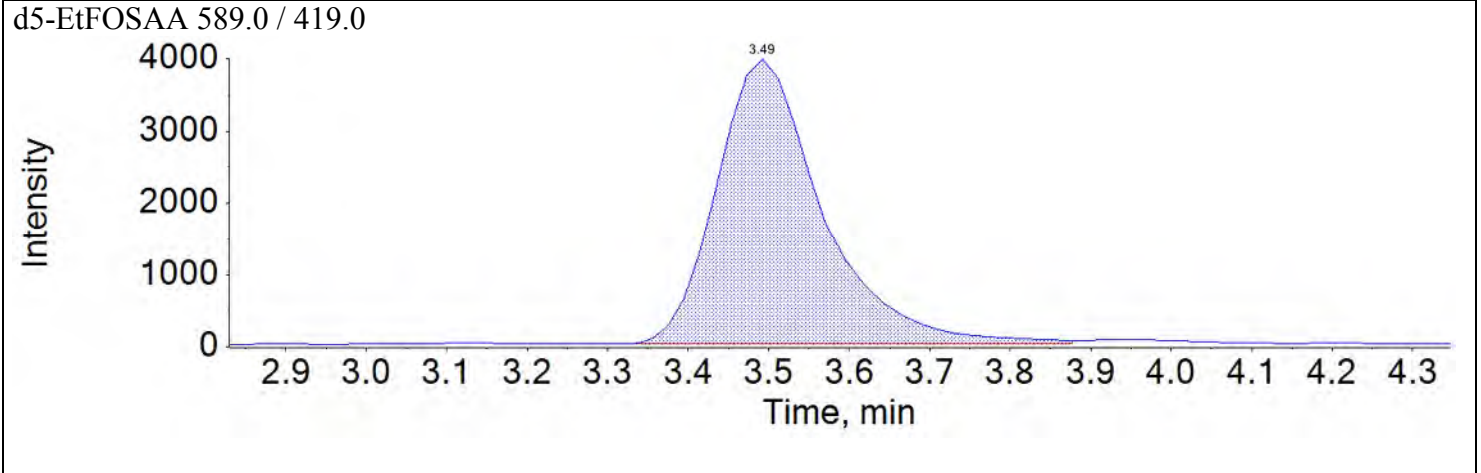
NEtFOSAA_2 584.0 / 483.0



Sample Name	JV69	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:11:47	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

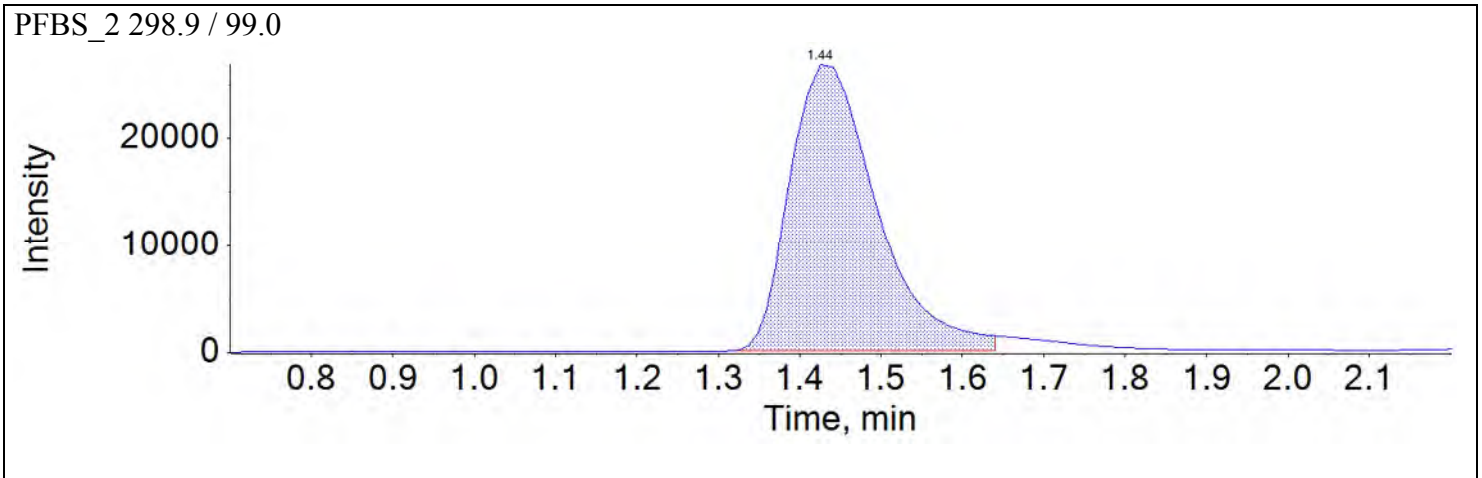
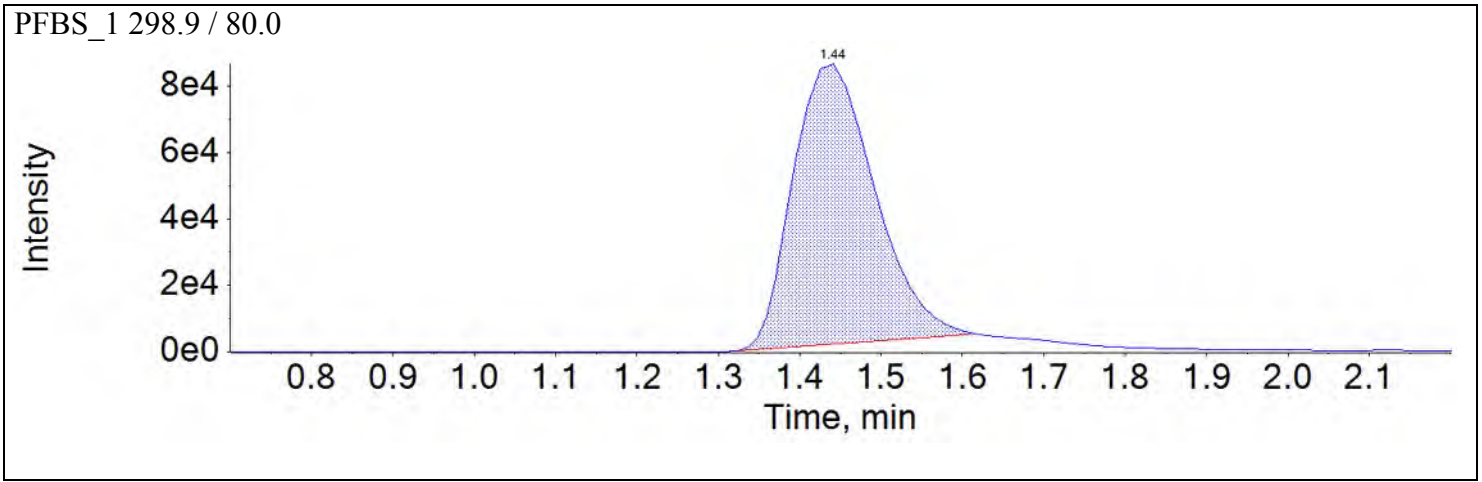
Chromatograms



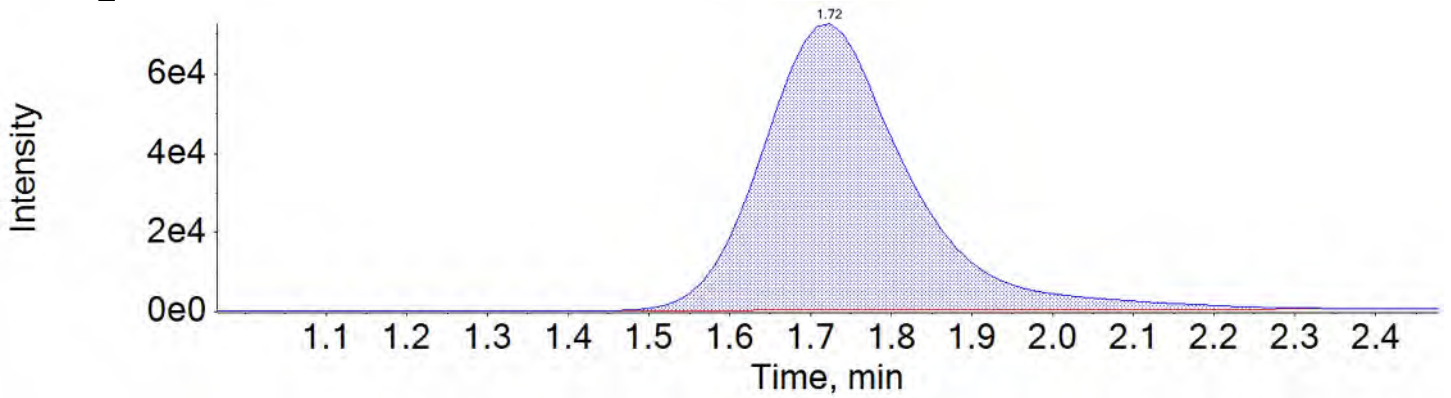


Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:20:42	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

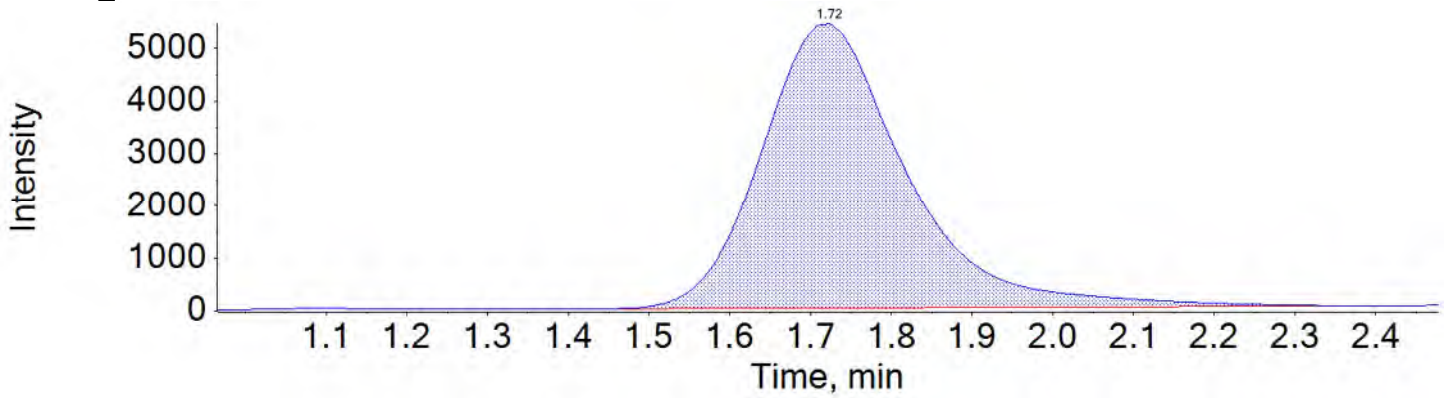
Chromatograms



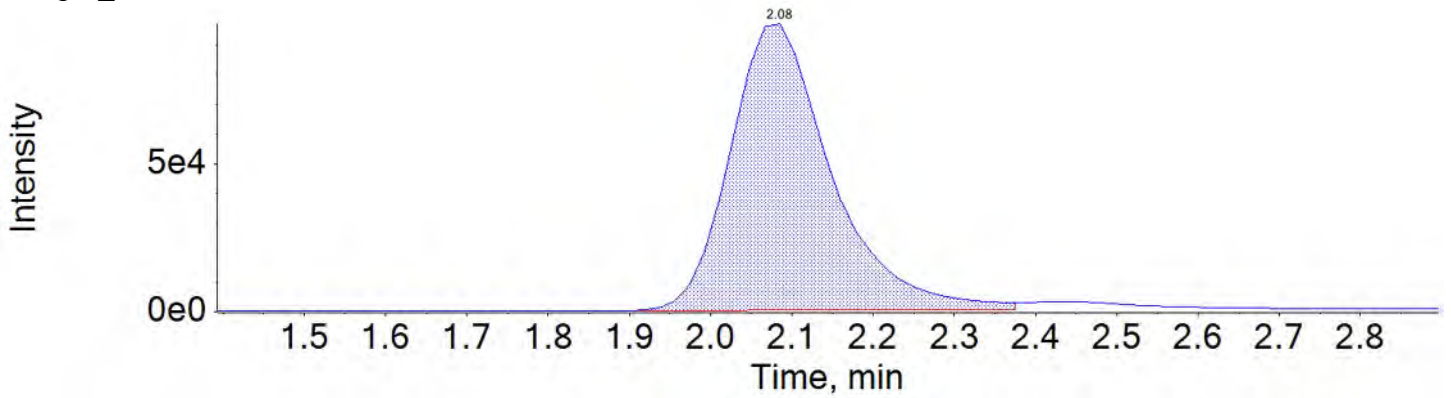
PFHxA_1 313.0 / 269.0



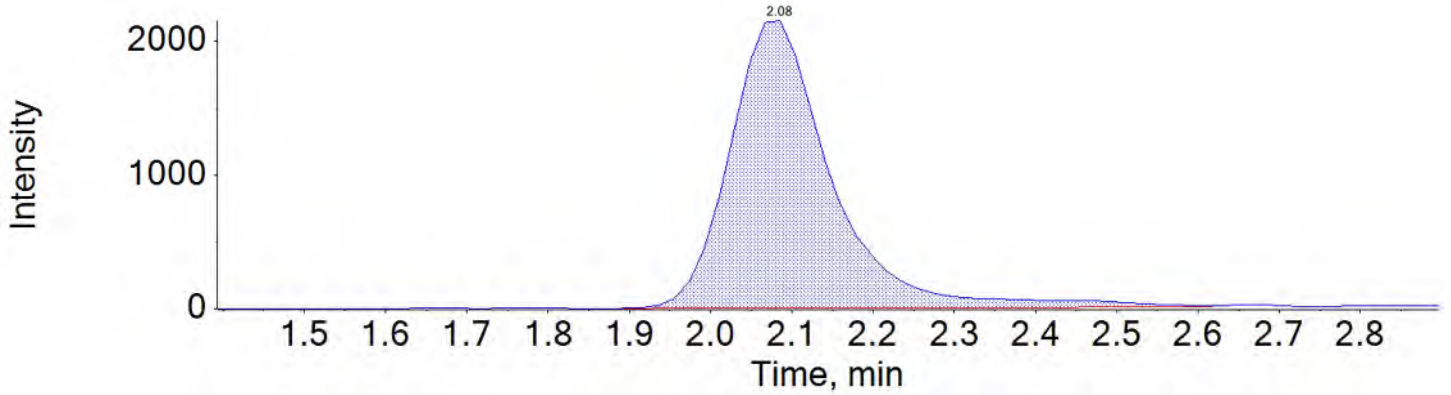
PFHxA_2 313.0 / 119.0



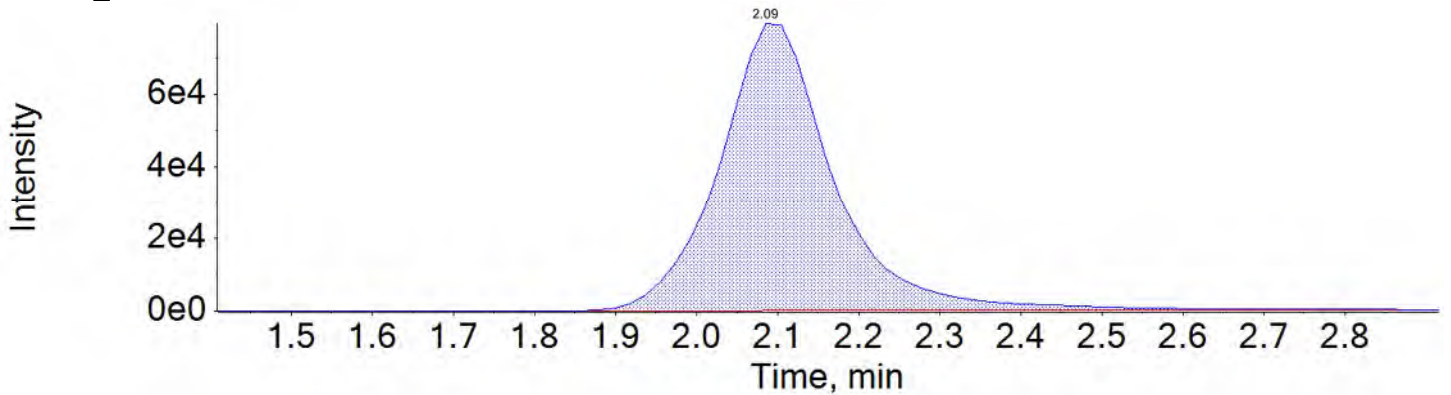
PFHpA_1 363.0 / 319.0



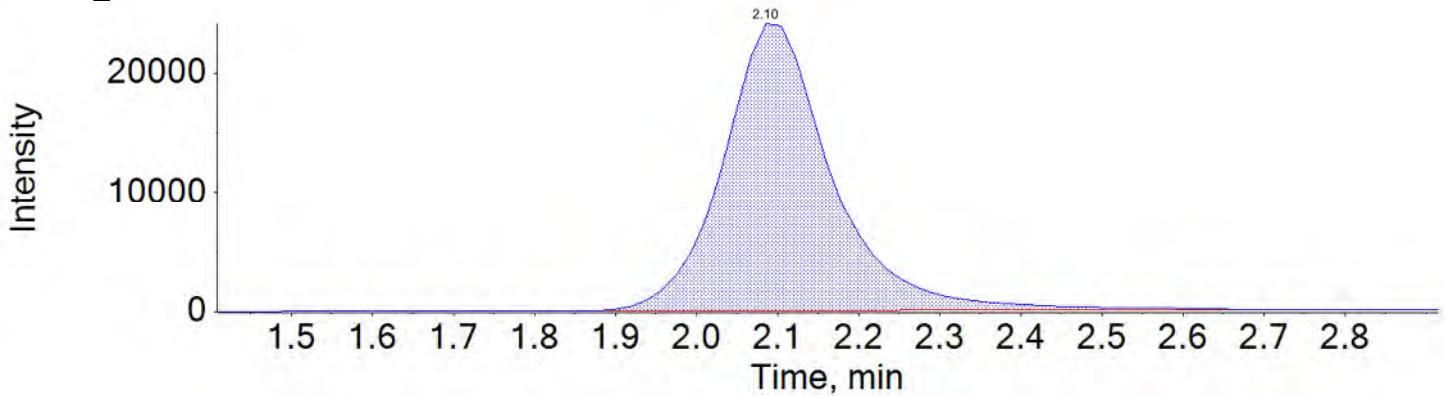
PFHpA_2 363.0 / 169.0



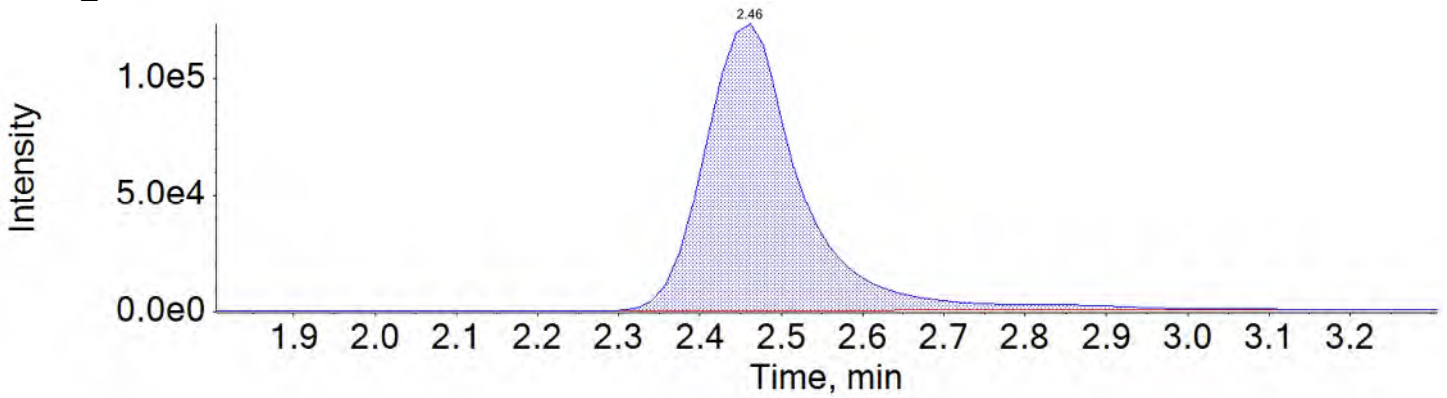
PFHxS_1 399.0 / 80.0



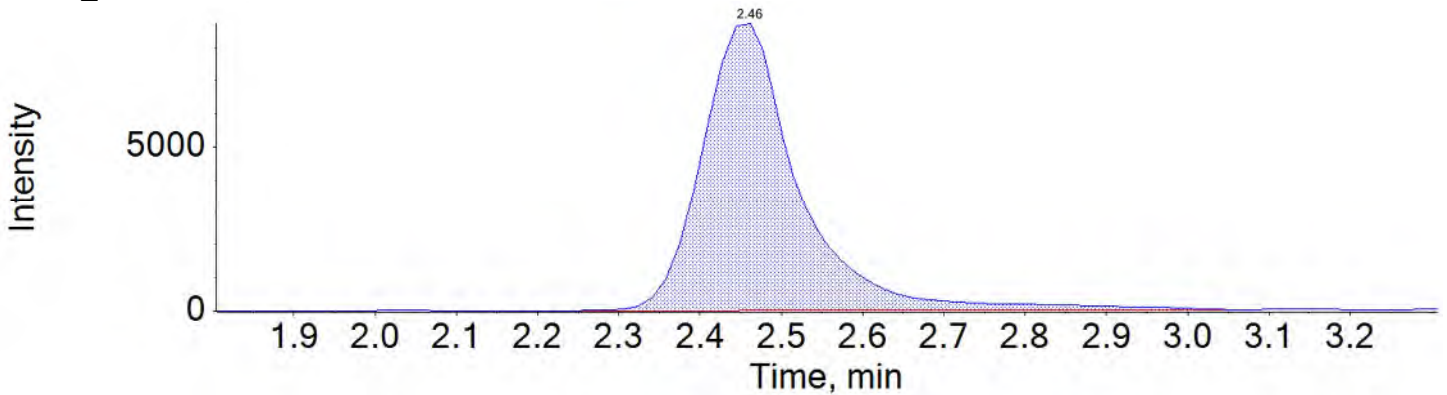
PFHxS_2 399.0 / 99.0



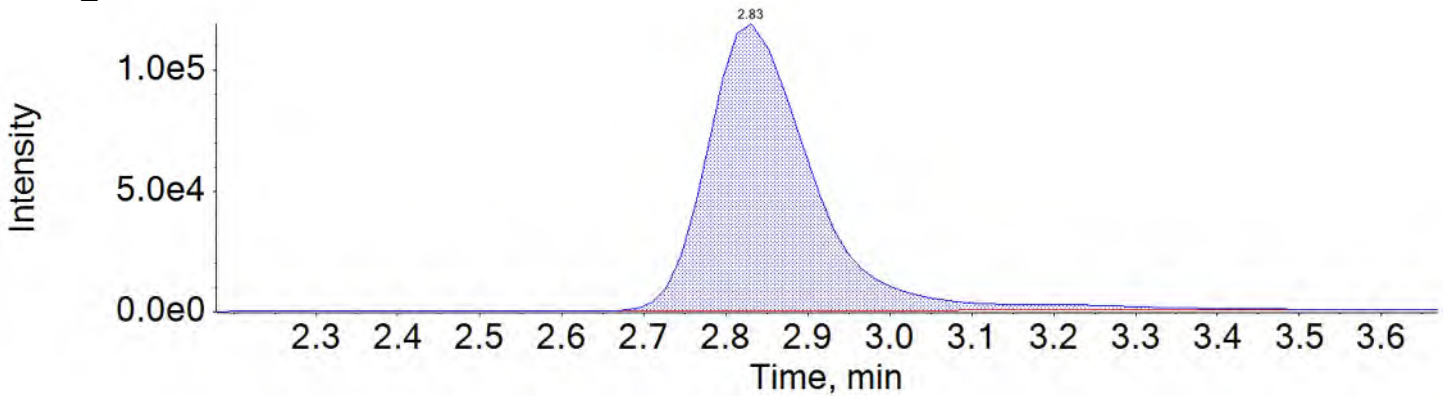
PFOA_1 413.0 / 369.0



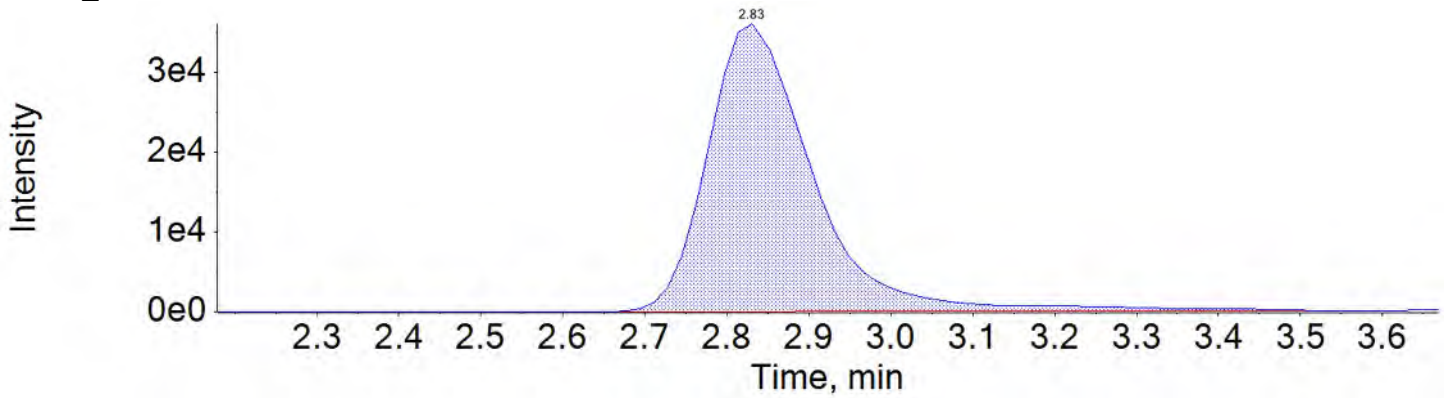
PFOA_2 413.0 / 169.0



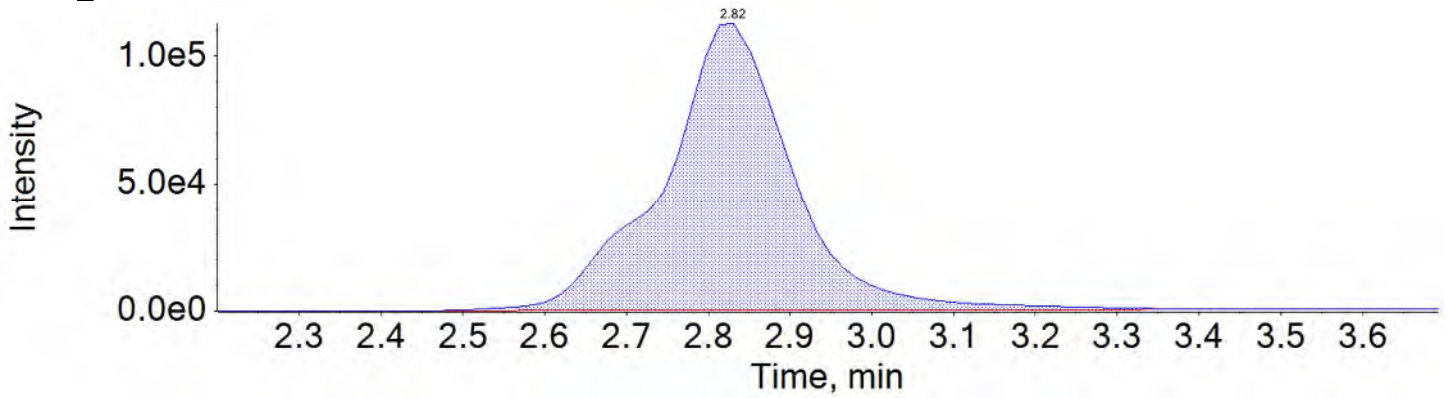
PFNA_1 463.0 / 419.0



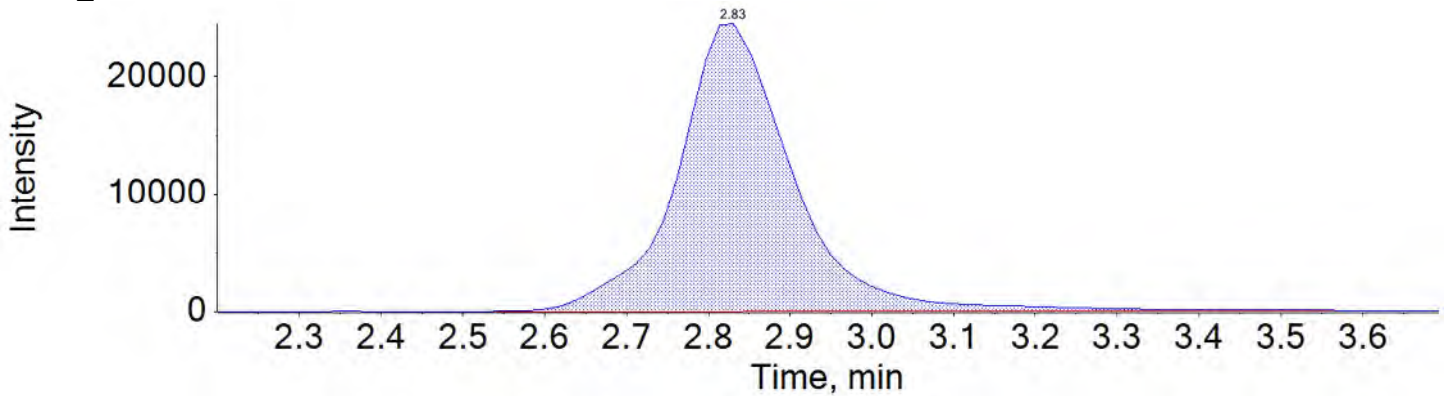
PFNA_2 463.0 / 219.0



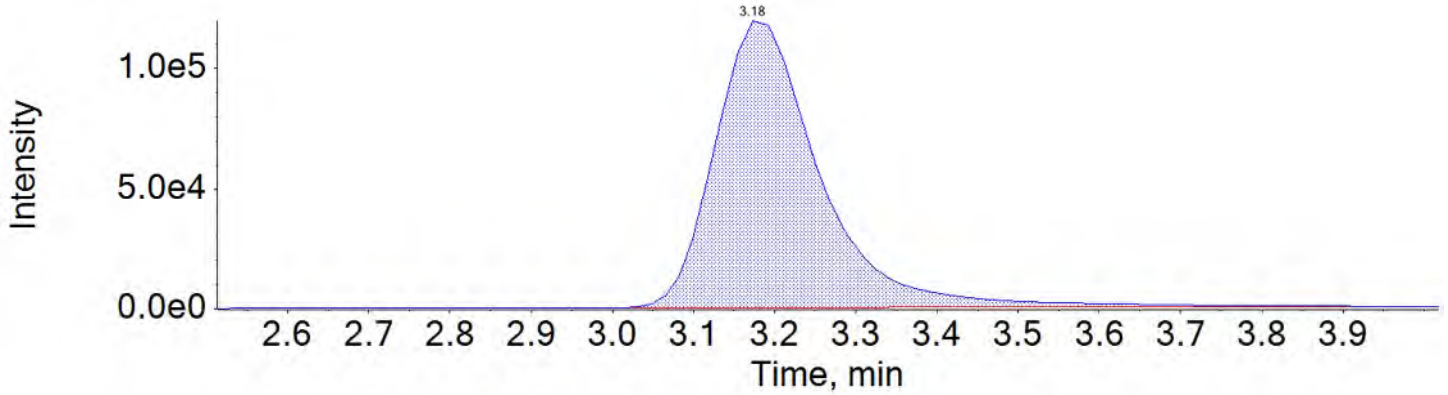
PFOS_1 499.0 / 80.0



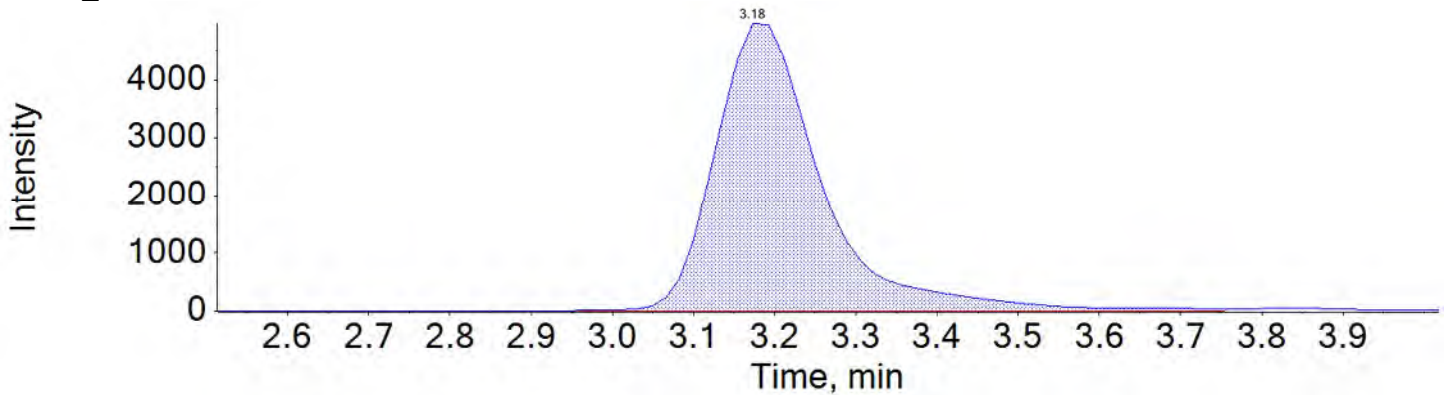
PFOS_2 499.0 / 99.0



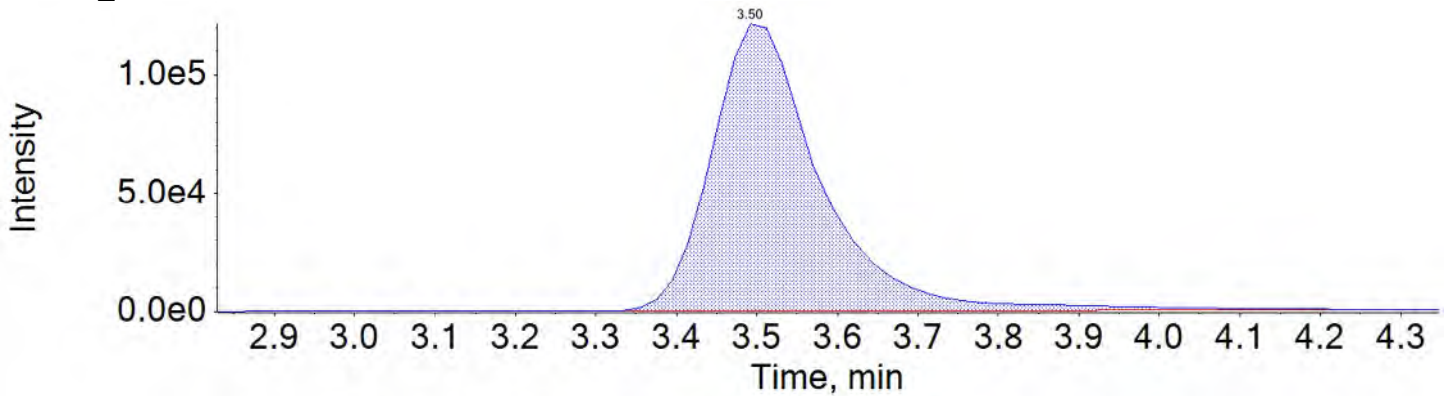
PFDA_1 513.0 / 469.0



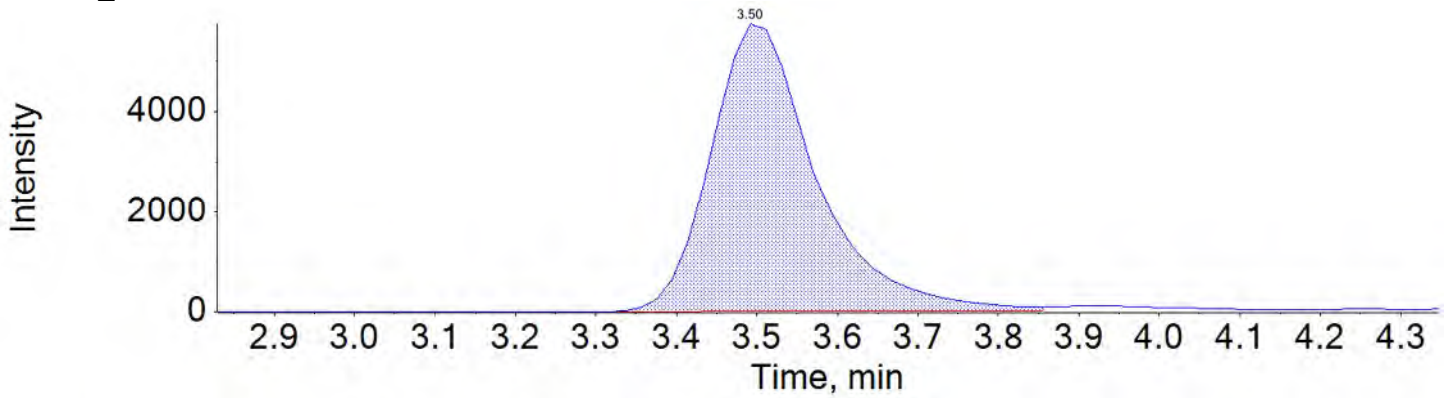
PFDA_2 513.0 / 219.0



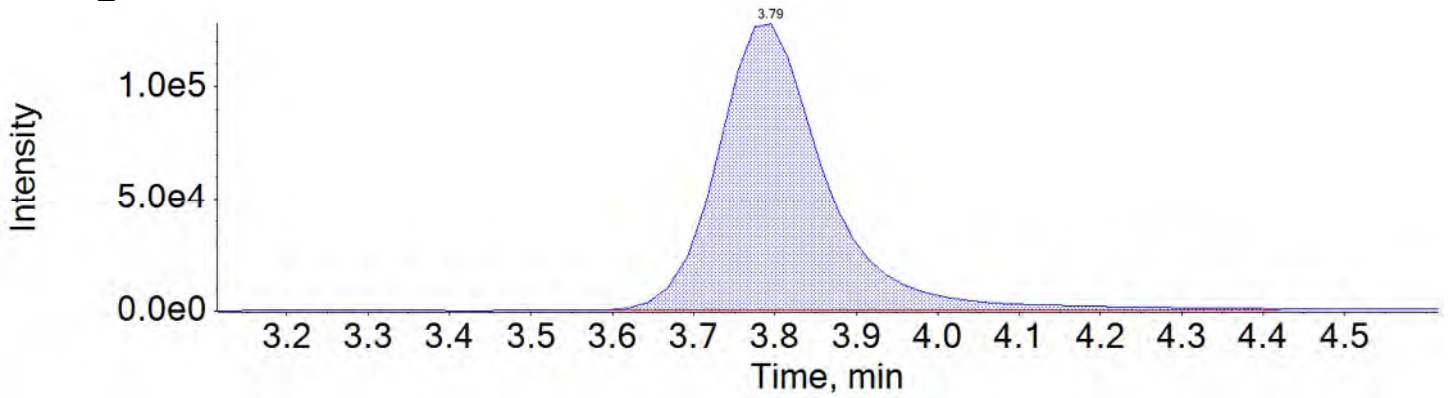
PFUnA_1 563.0 / 519.0



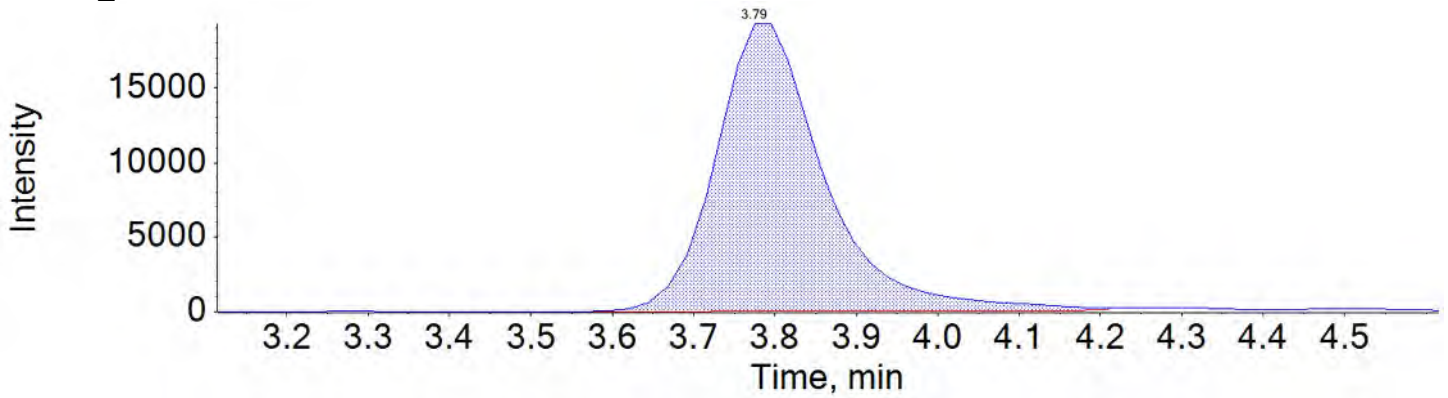
PFUnA_2 563.0 / 269.0



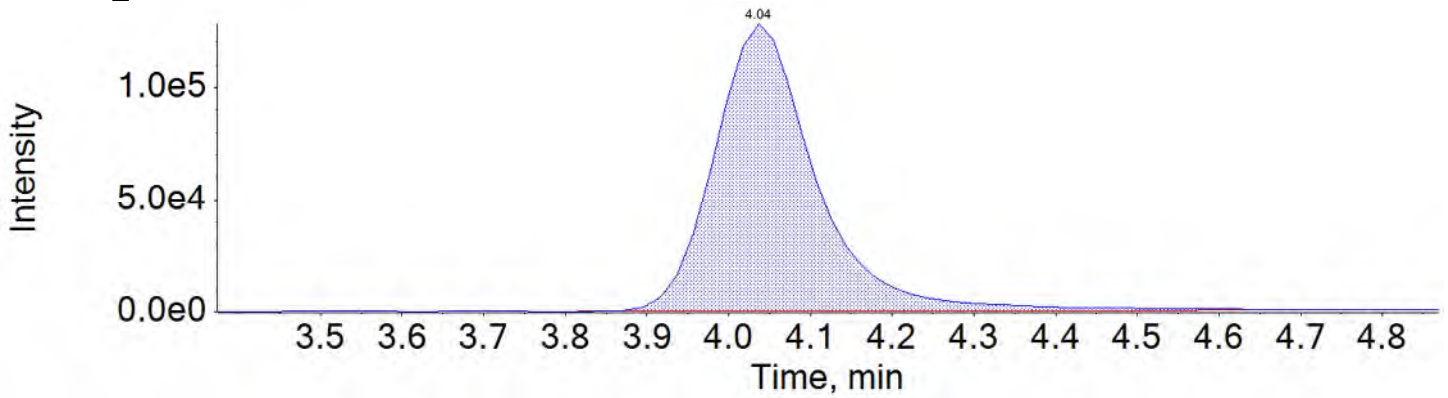
PFDoA_1 613.0 / 569.0



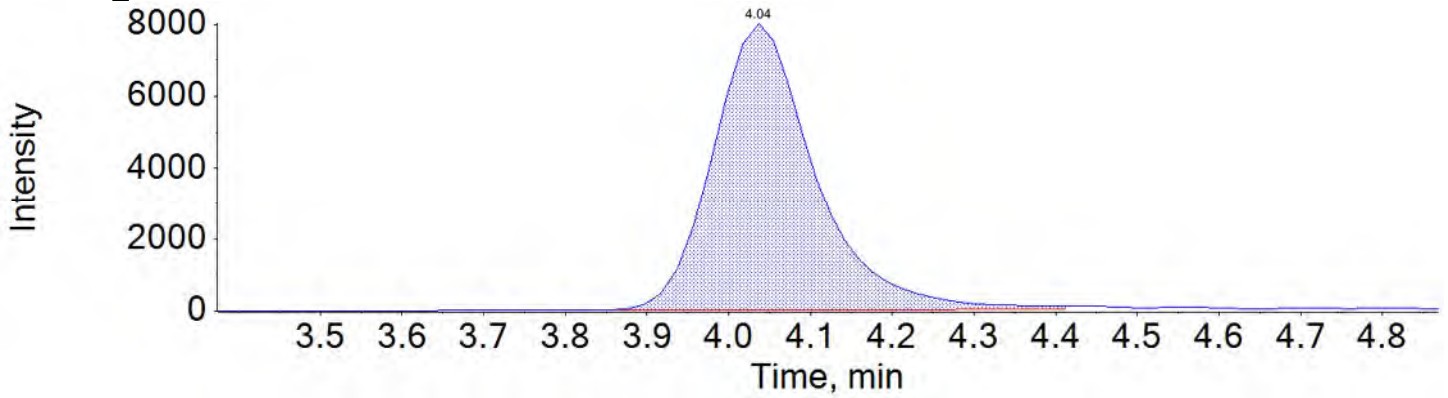
PFDoA_2 613.0 / 319.0



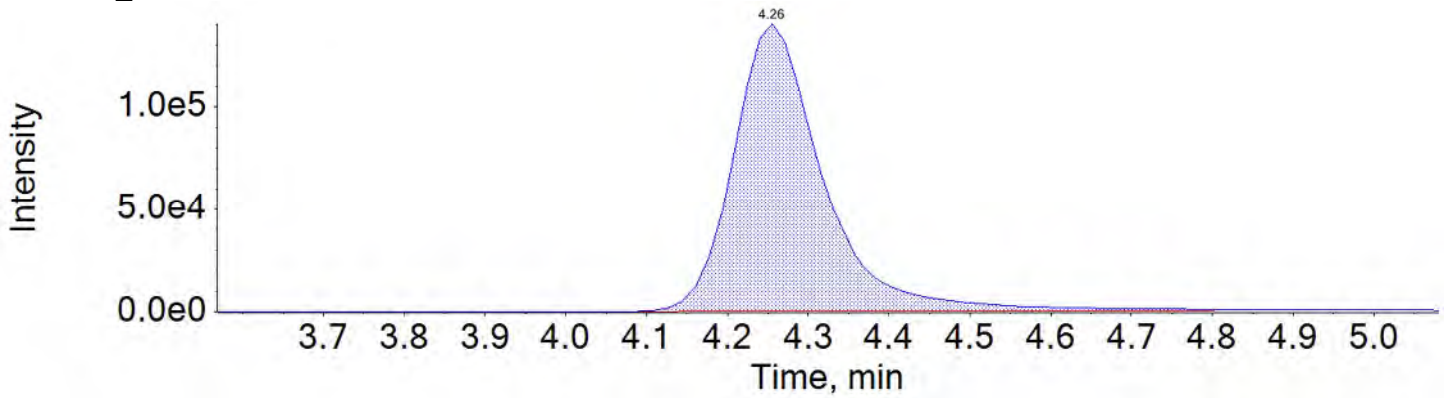
PFTTrDA_1 663.0 / 619.0



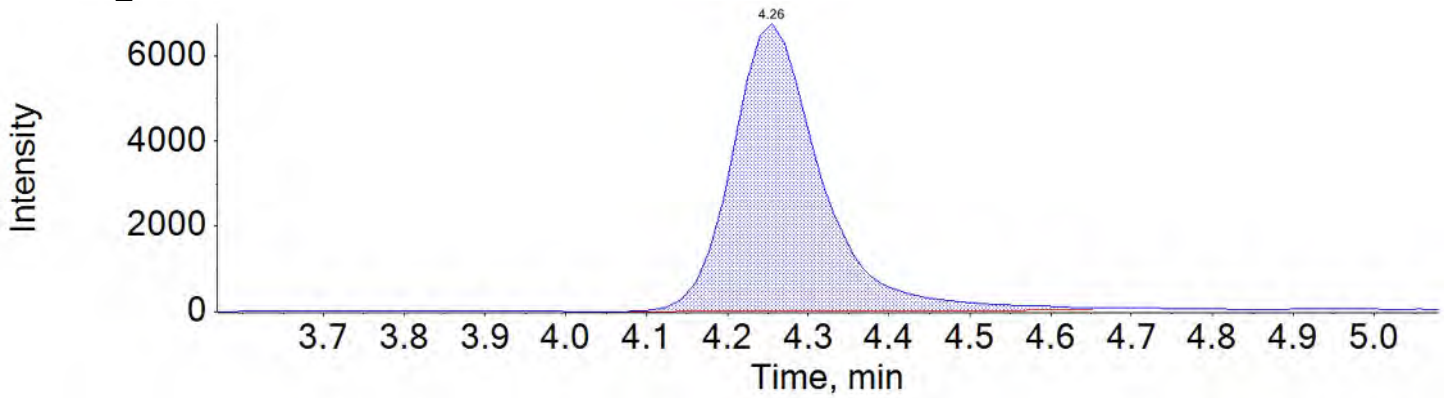
PFTTrDA_2 663.0 / 169.0



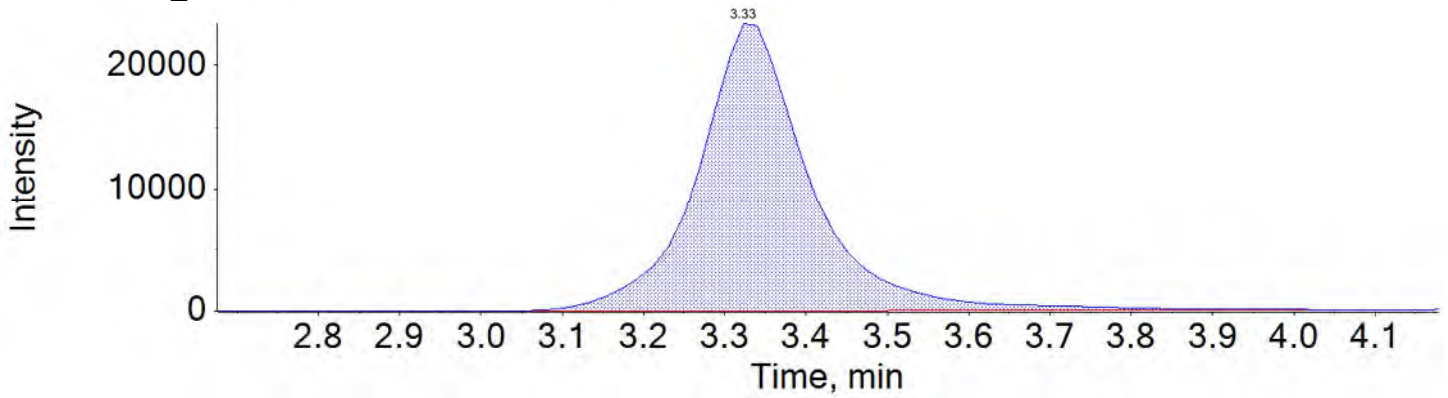
PFTeDA_1 713.0 / 669.0



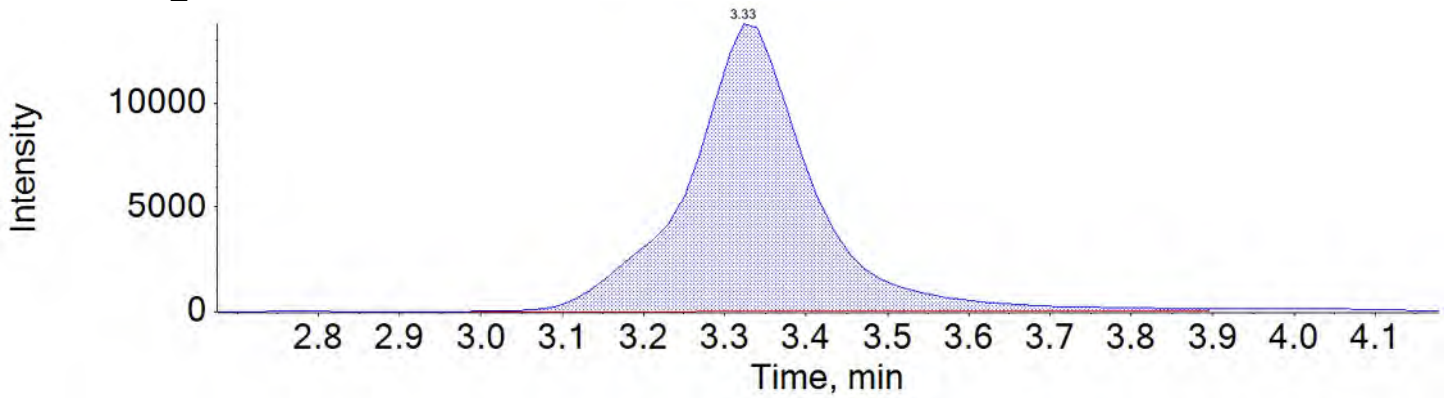
PFTeDA_2 713.0 / 169.0



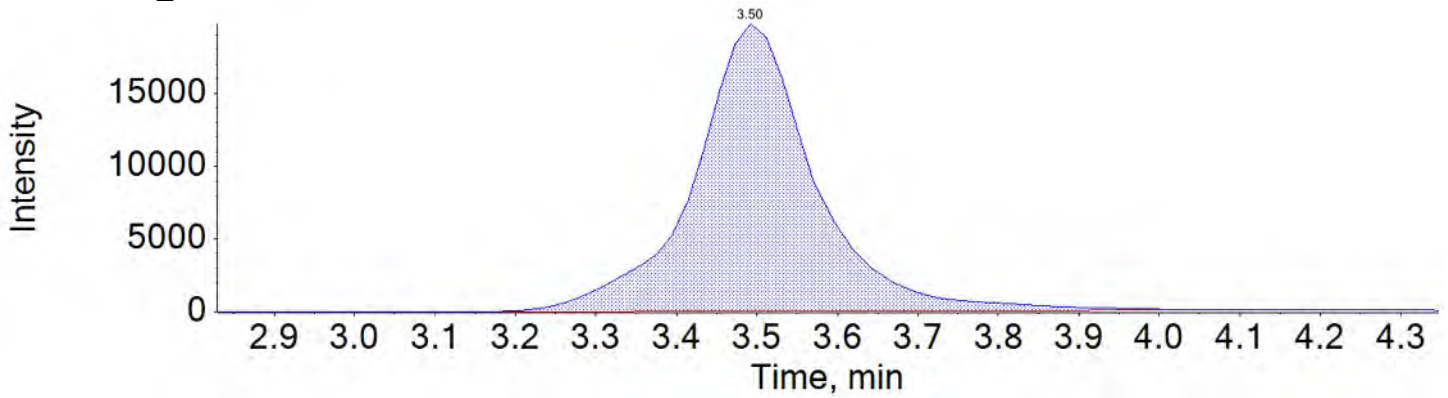
NMeFOSAA_1 570.0 / 419.0



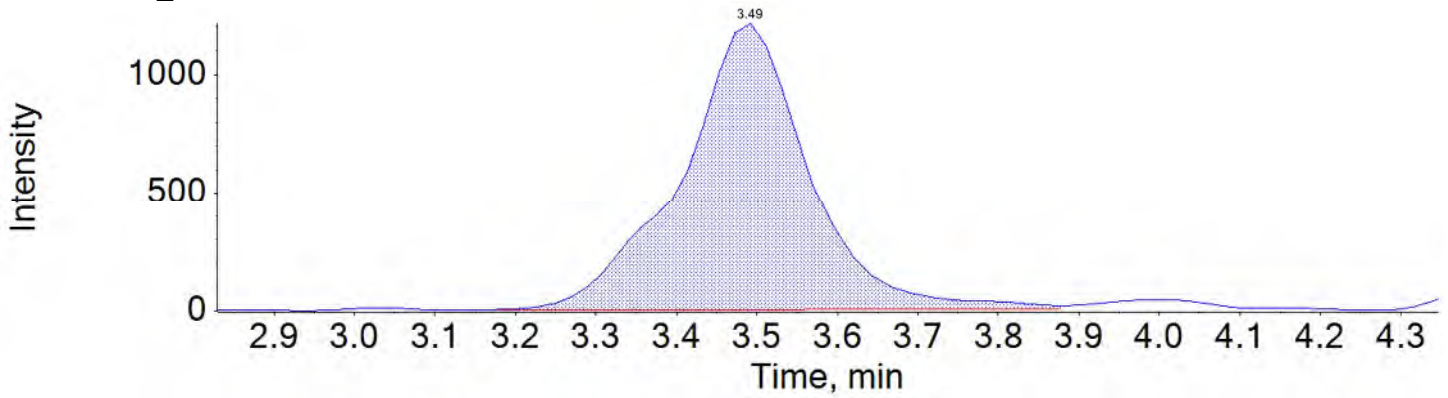
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

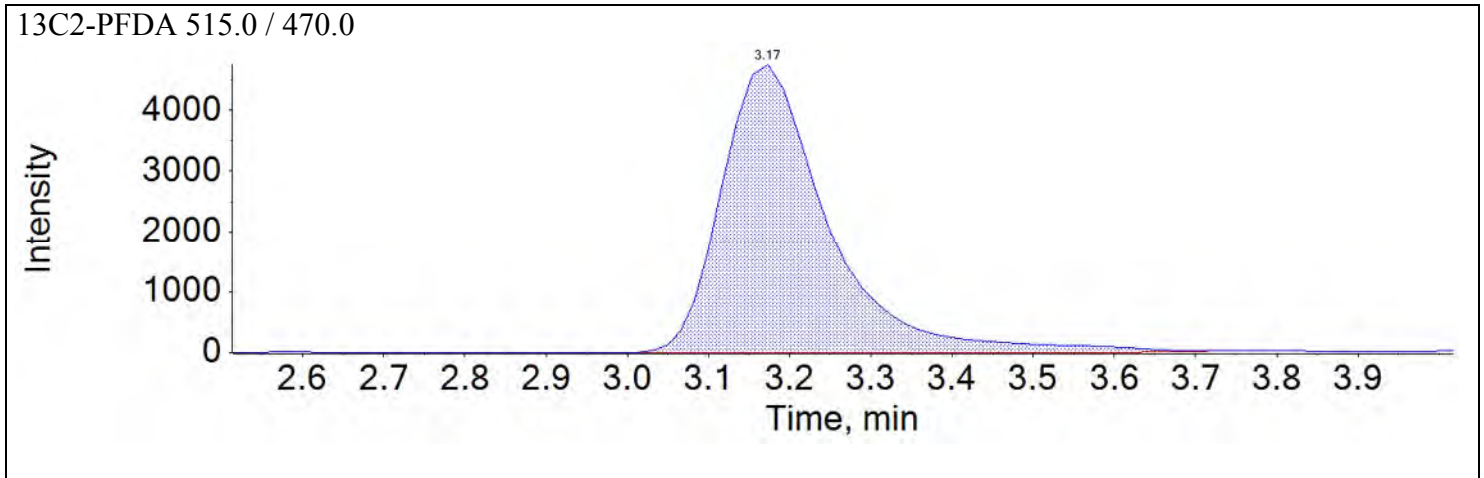
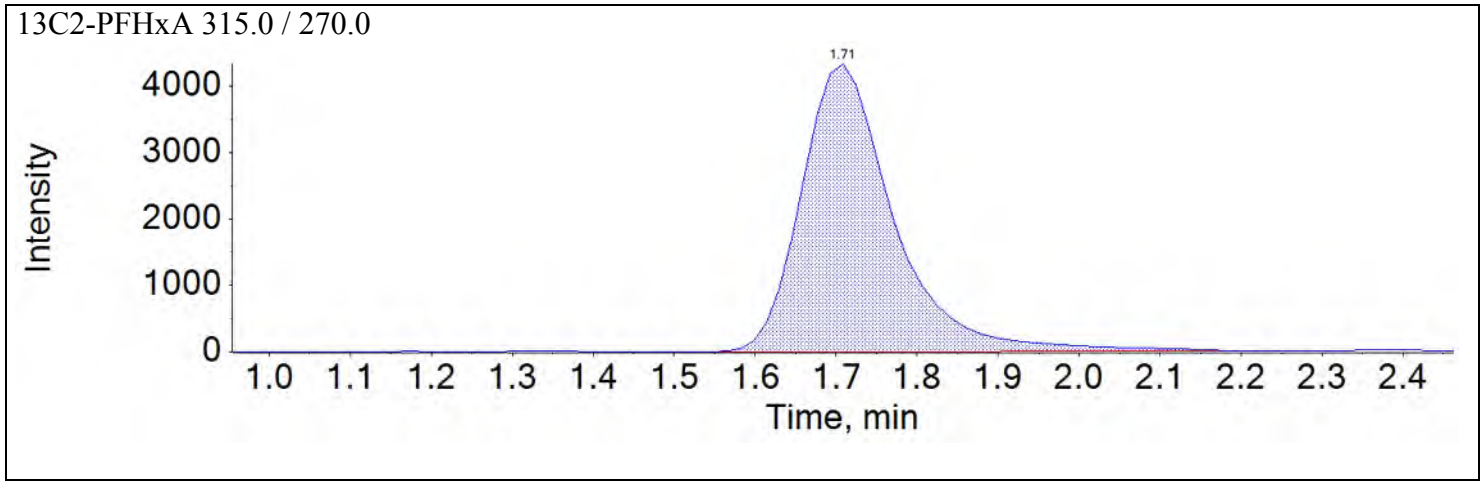


NEtFOSAA_2 584.0 / 483.0

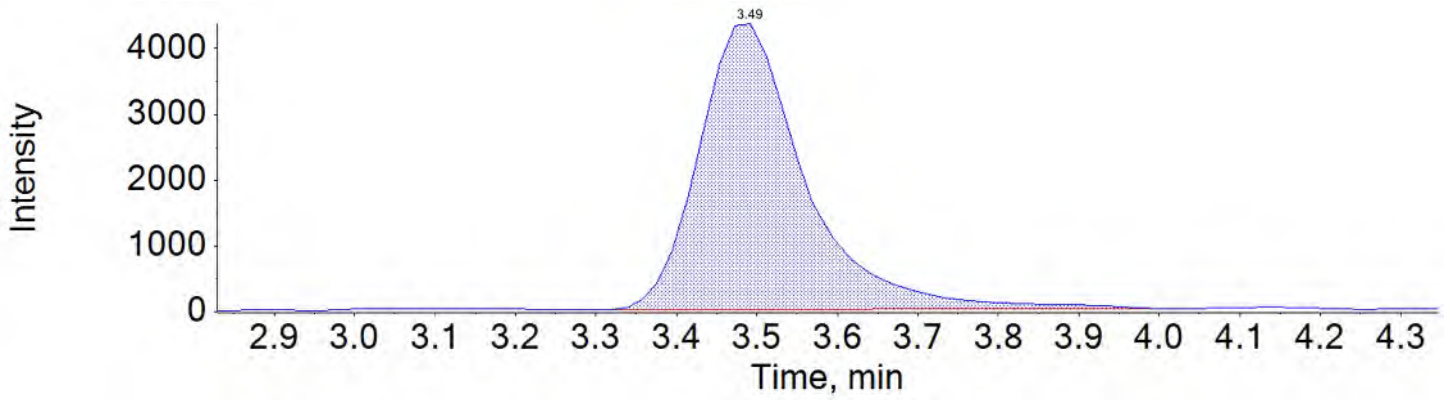


Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:20:42	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms

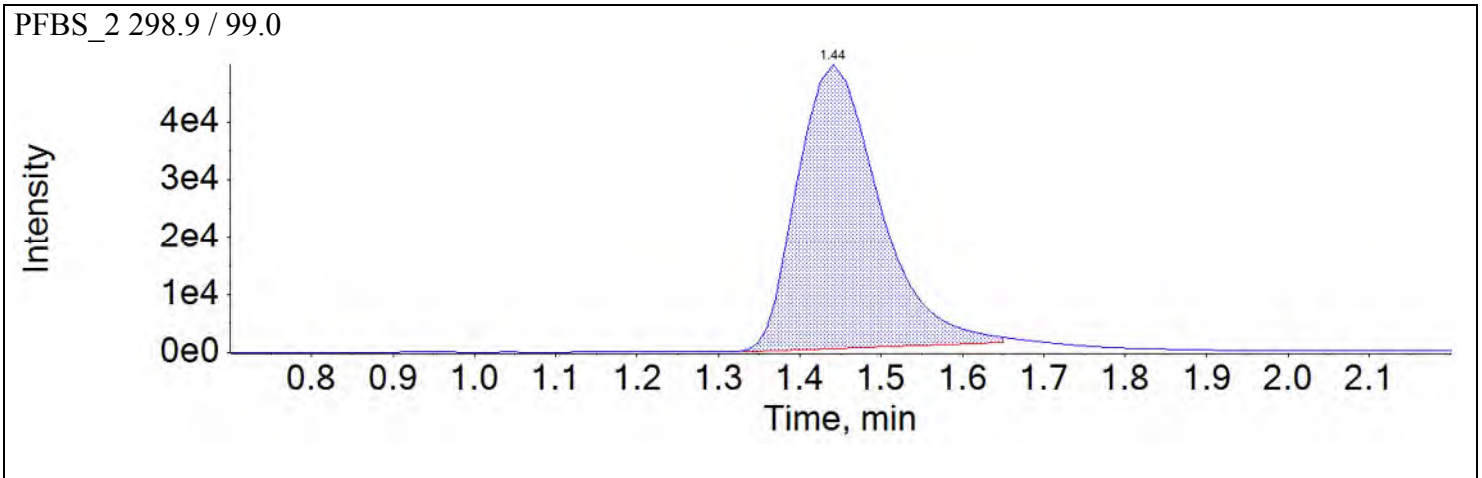
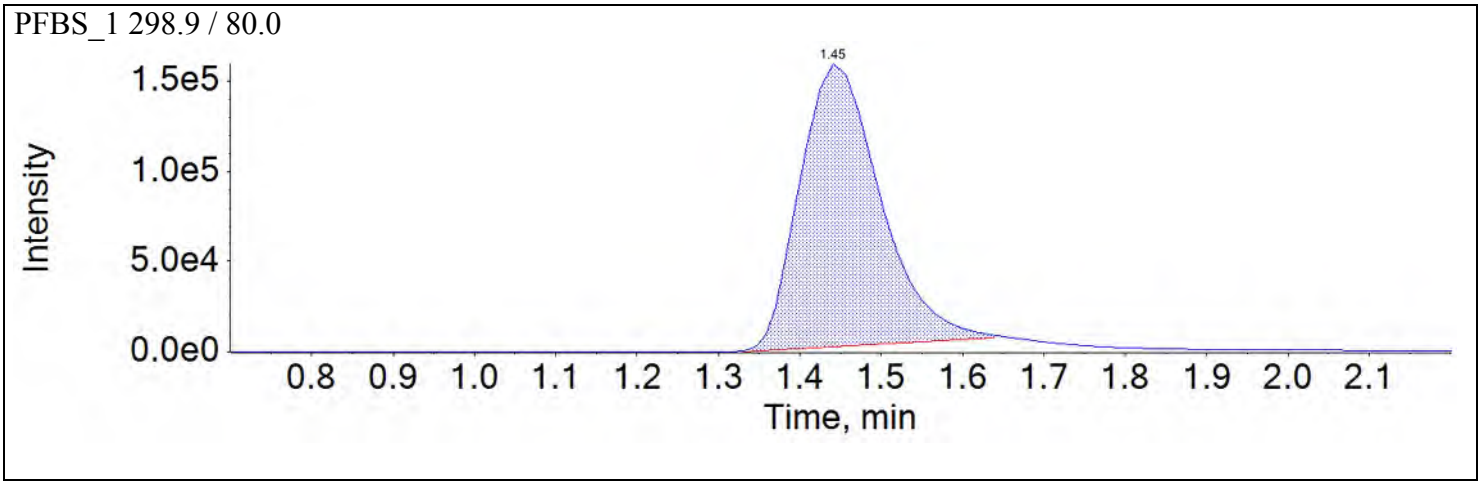


d5-EtFOSAA 589.0 / 419.0

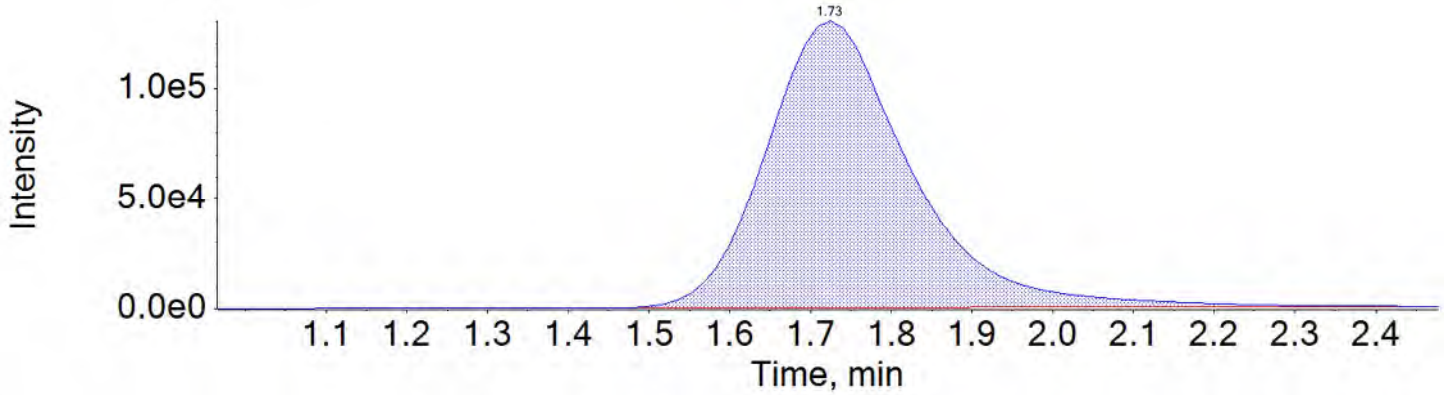


Sample Name	JV71	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:29:36	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

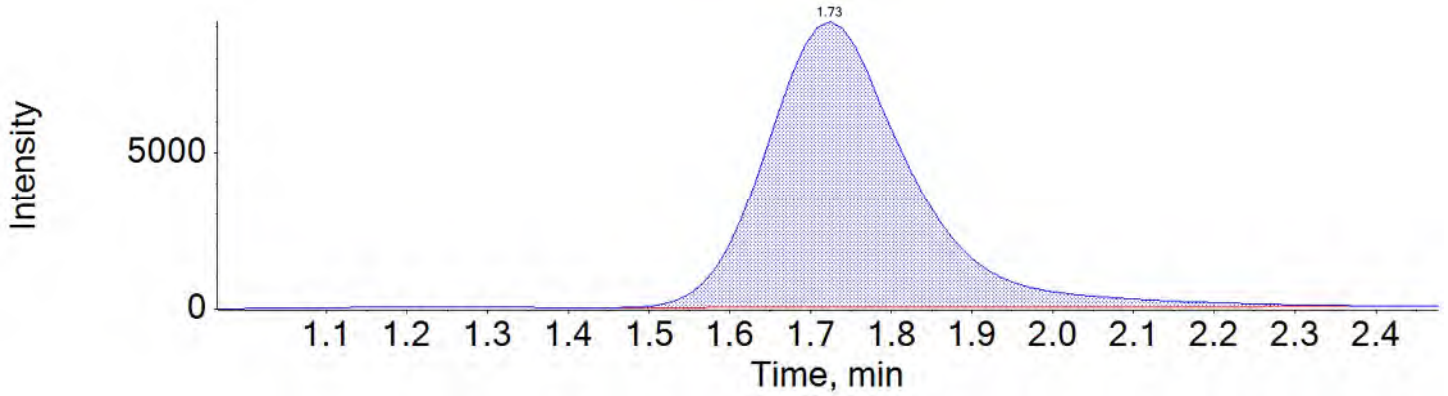
Chromatograms



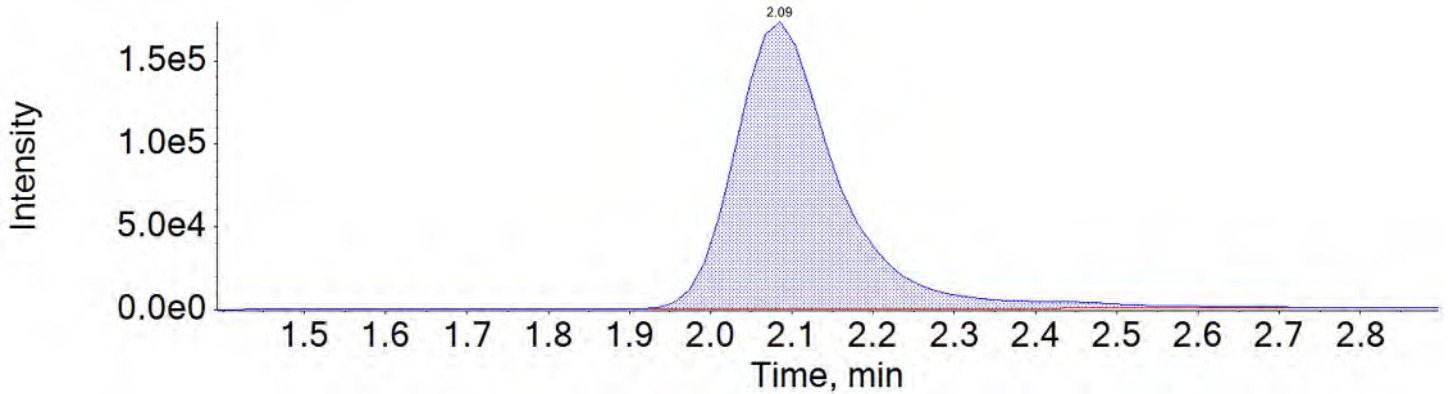
PFHxA_1 313.0 / 269.0



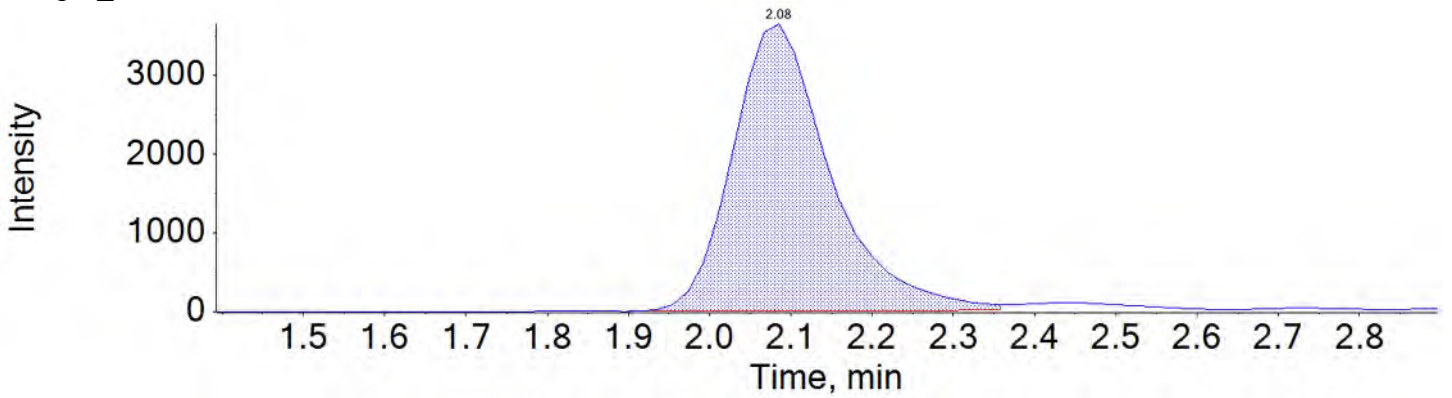
PFHxA_2 313.0 / 119.0



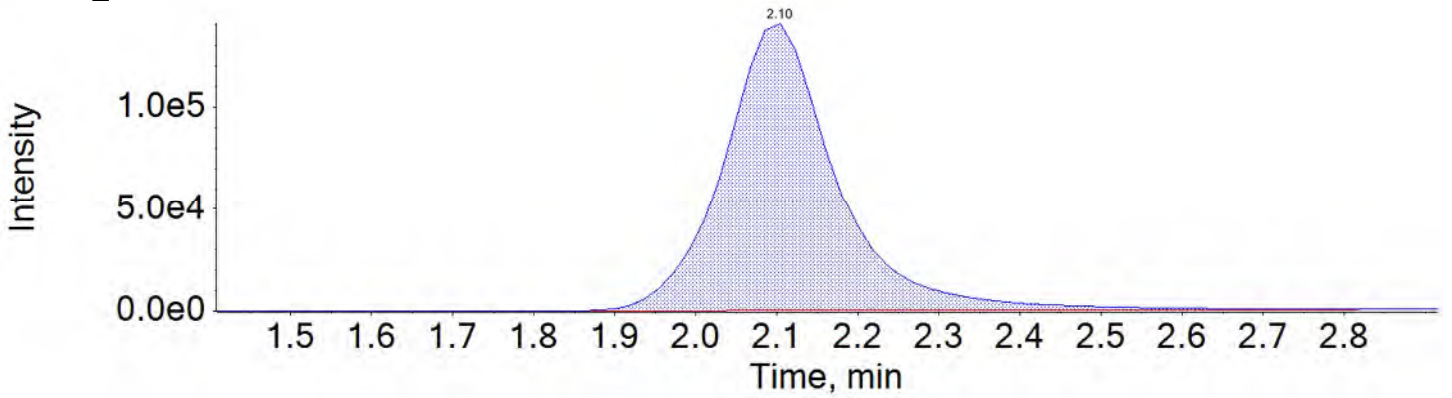
PFHpA_1 363.0 / 319.0



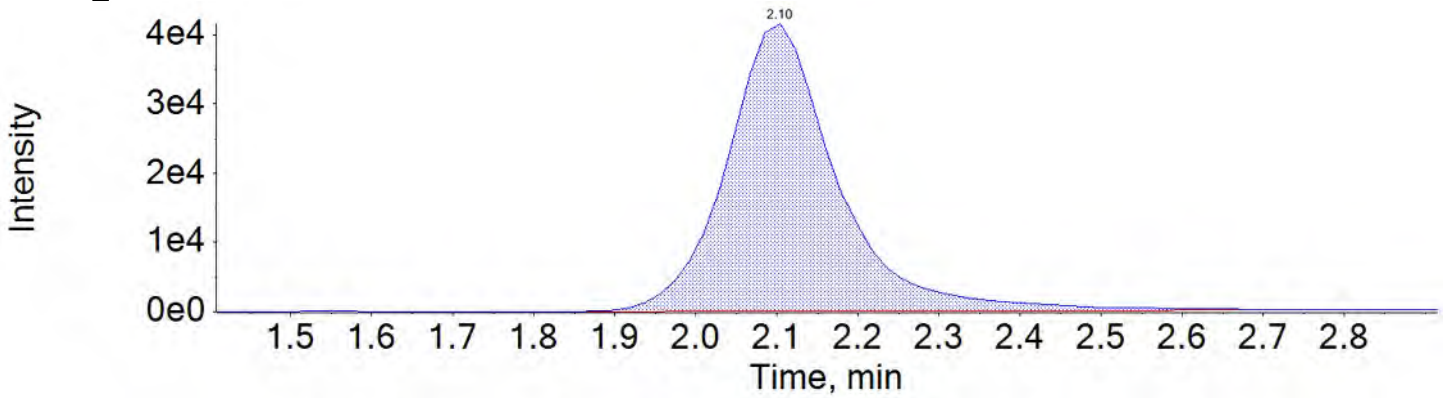
PFHpA_2 363.0 / 169.0



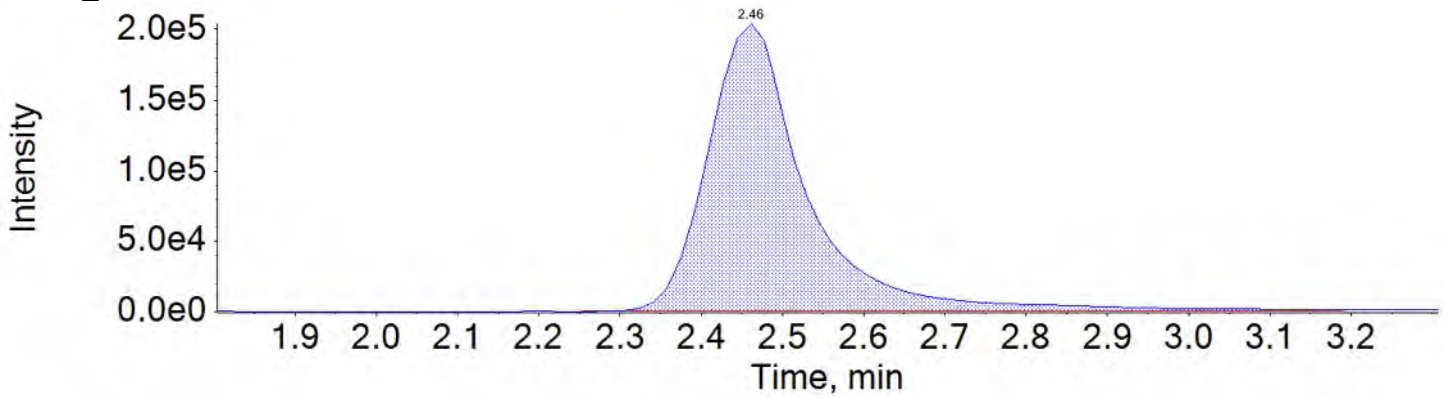
PFHxS_1 399.0 / 80.0



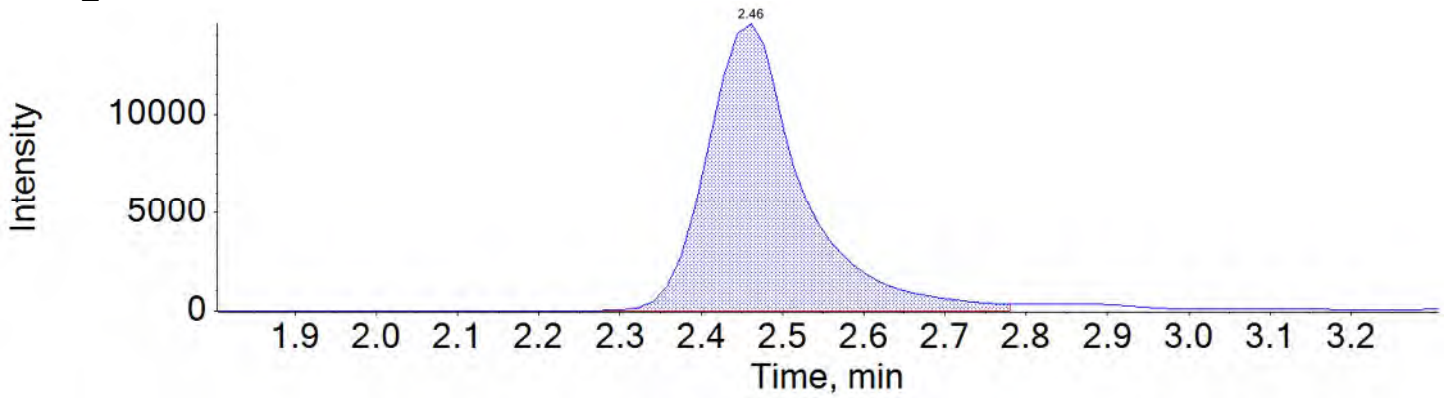
PFHxS_2 399.0 / 99.0



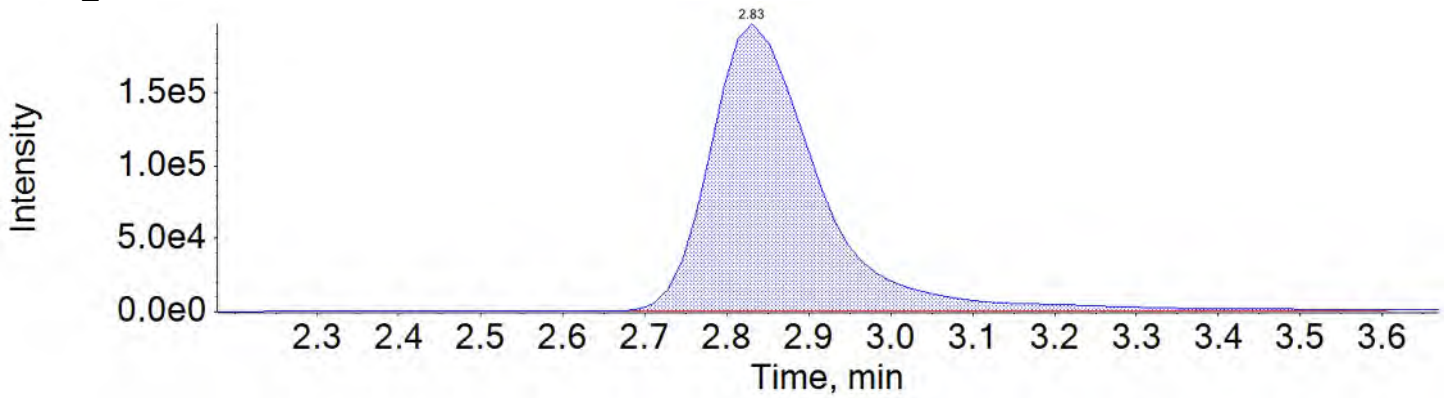
PFOA_1 413.0 / 369.0



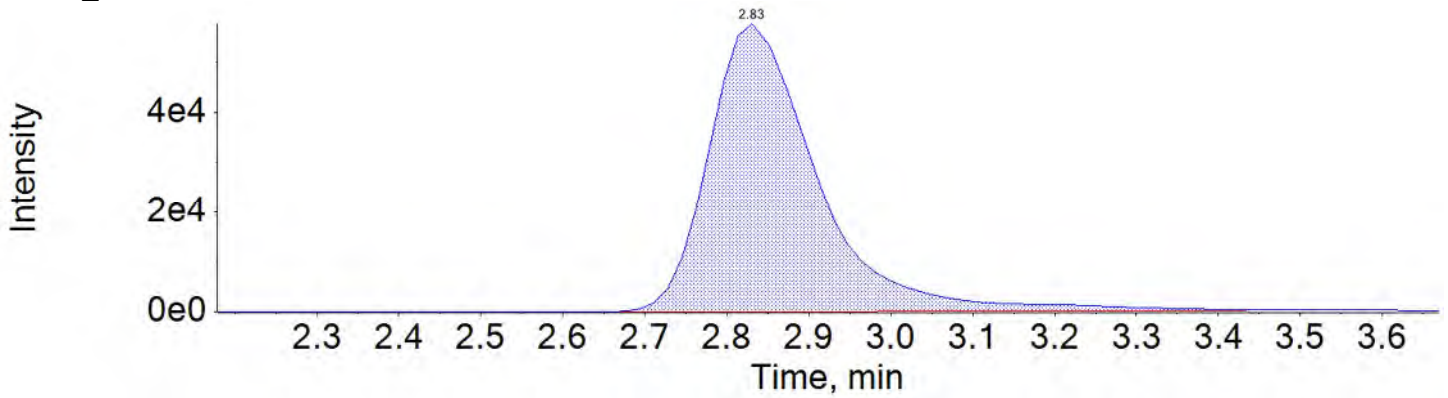
PFOA_2 413.0 / 169.0



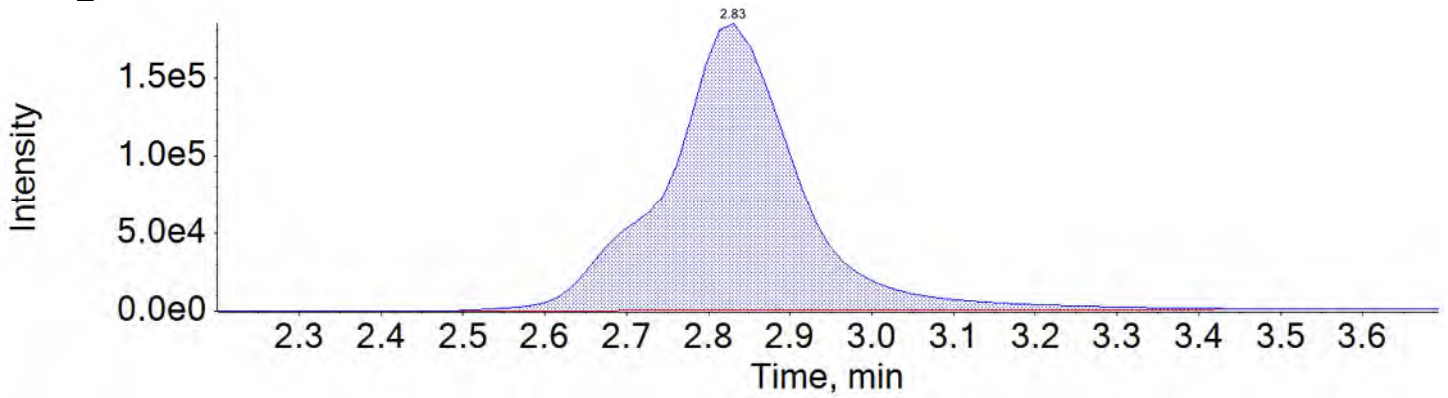
PFNA_1 463.0 / 419.0



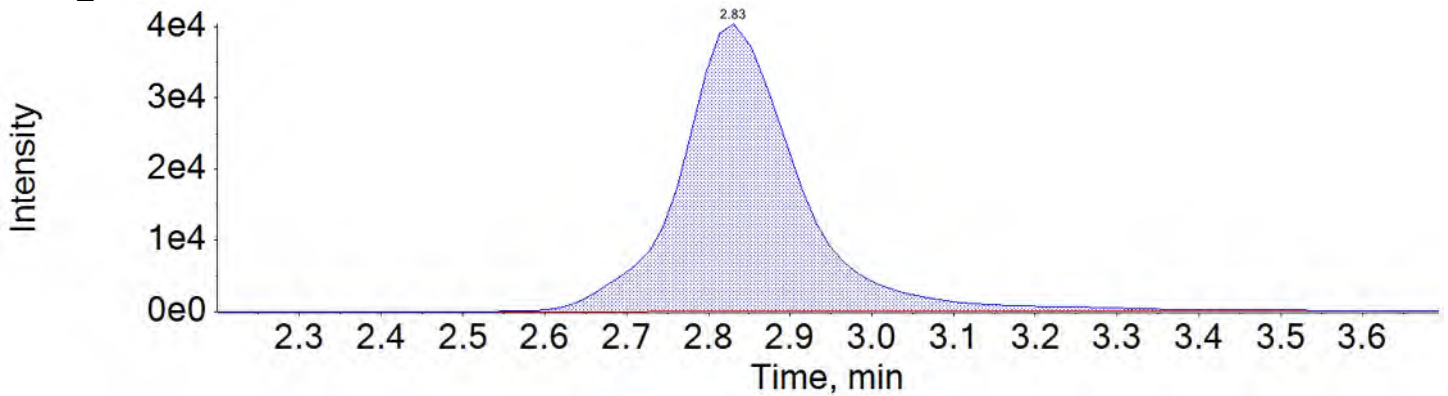
PFNA_2 463.0 / 219.0



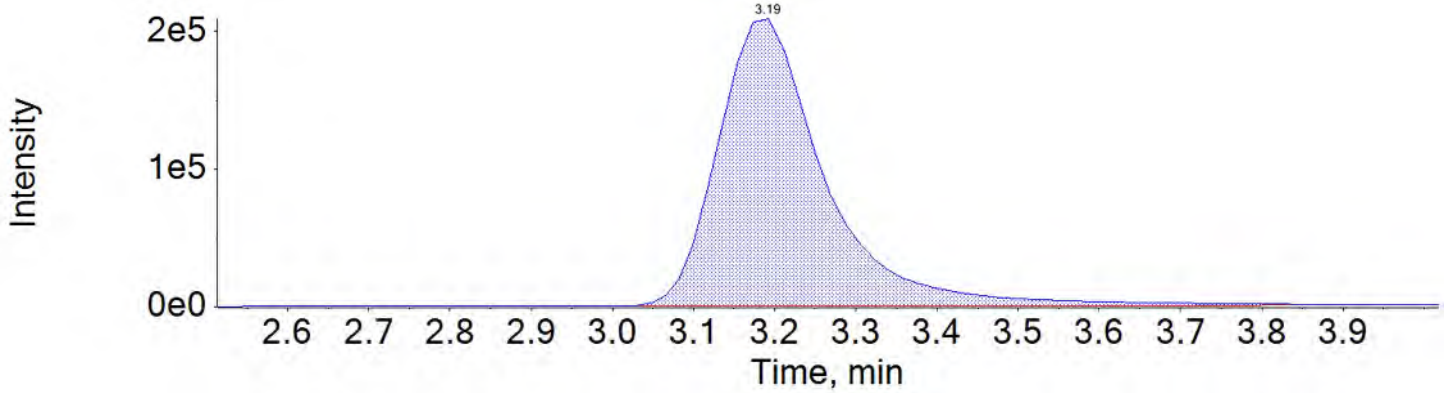
PFOS_1 499.0 / 80.0



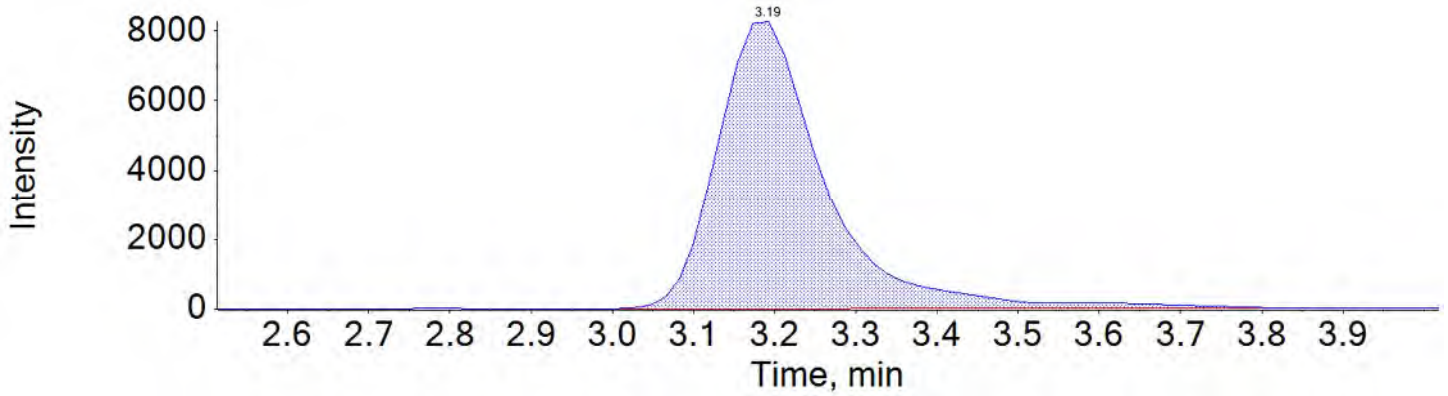
PFOS_2 499.0 / 99.0



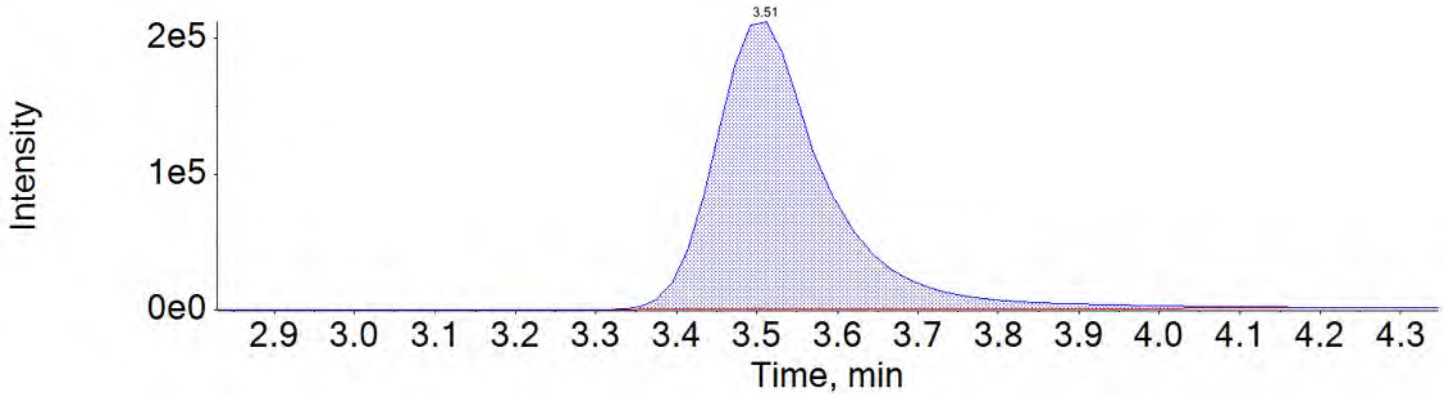
PFDA_1 513.0 / 469.0



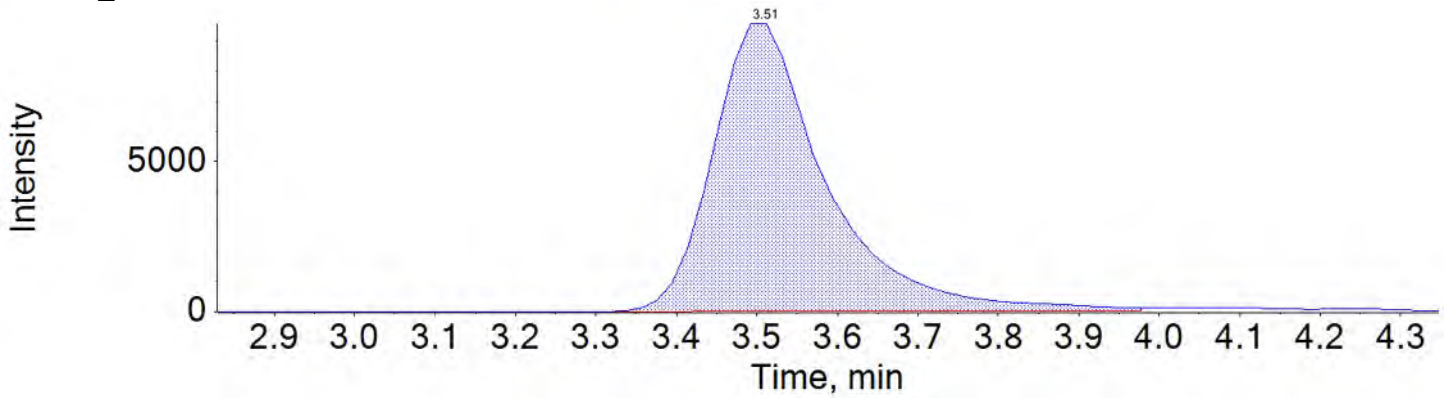
PFDA_2 513.0 / 219.0



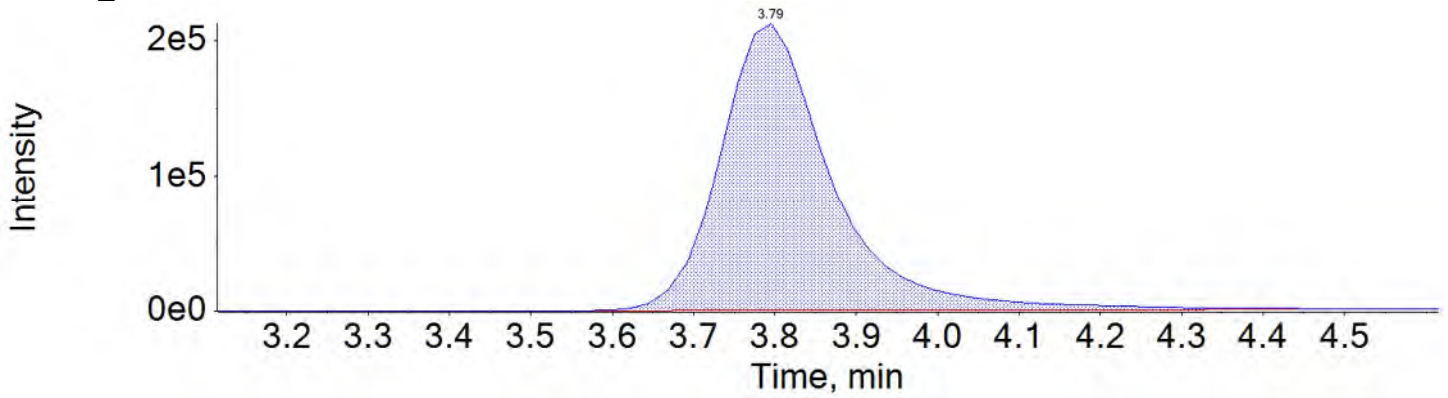
PFUnA_1 563.0 / 519.0



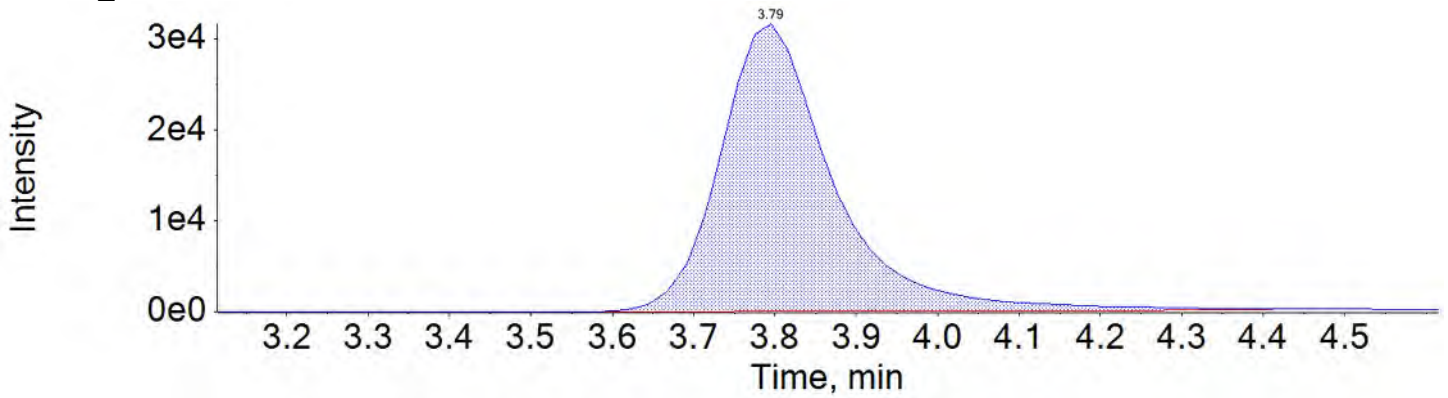
PFU_nA_2 563.0 / 269.0

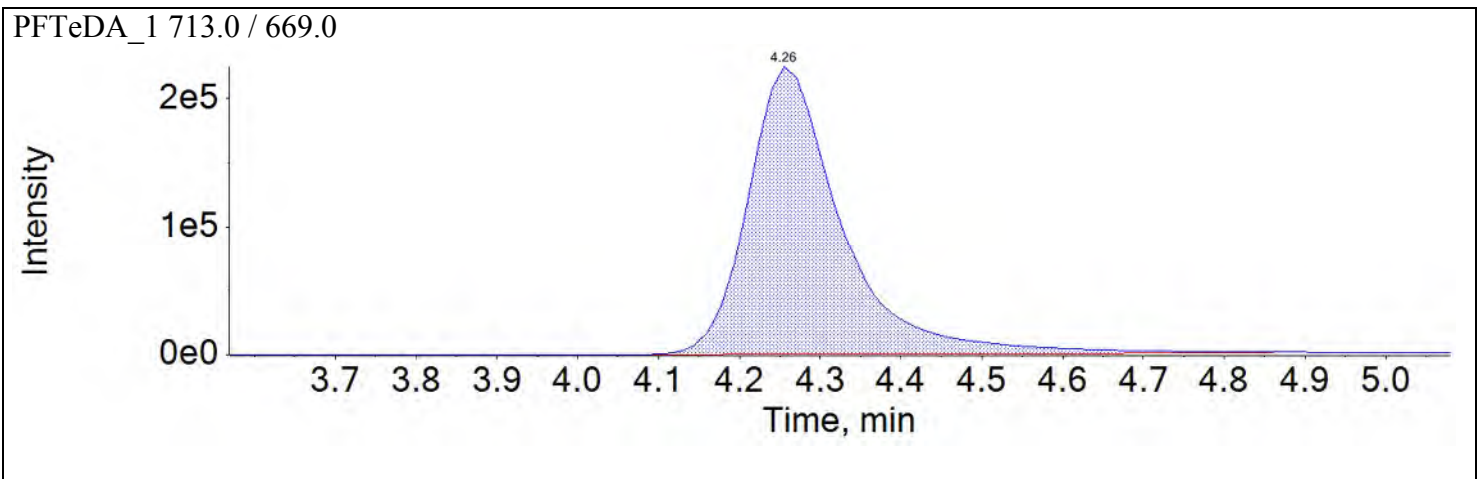
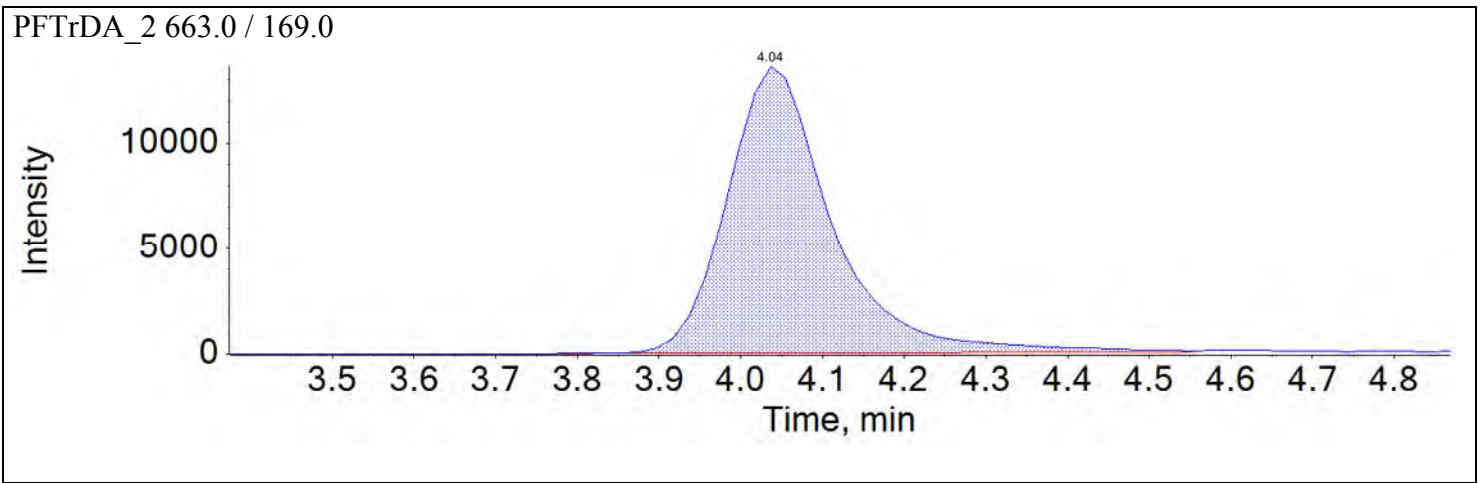
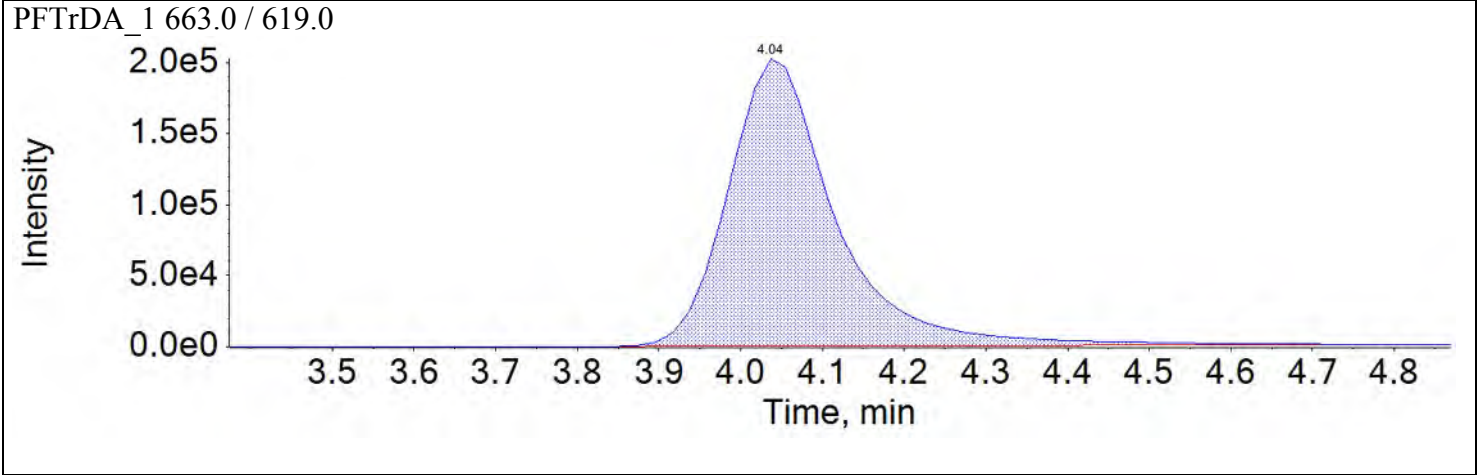


PFDoA_1 613.0 / 569.0

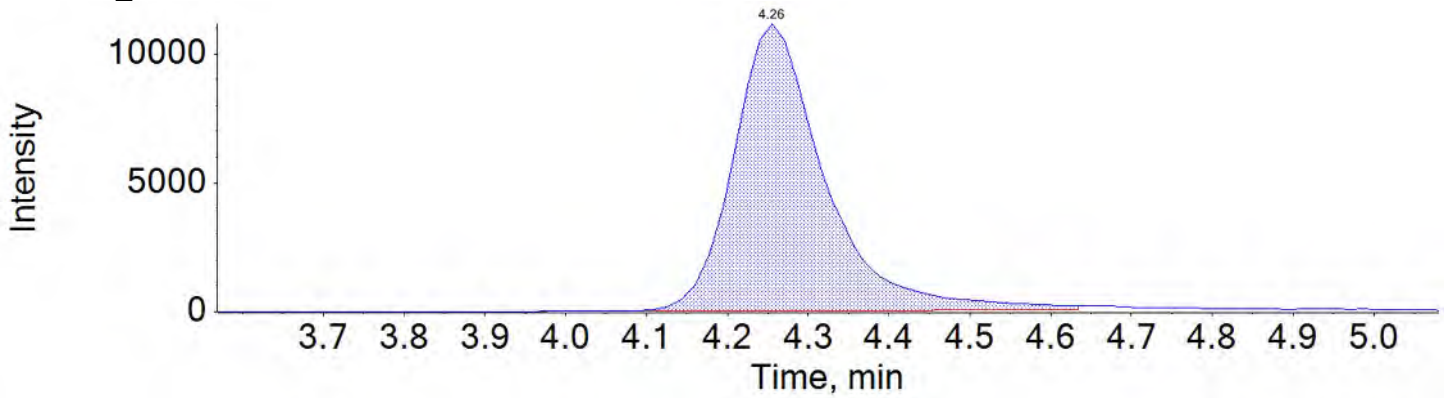


PFDoA_2 613.0 / 319.0

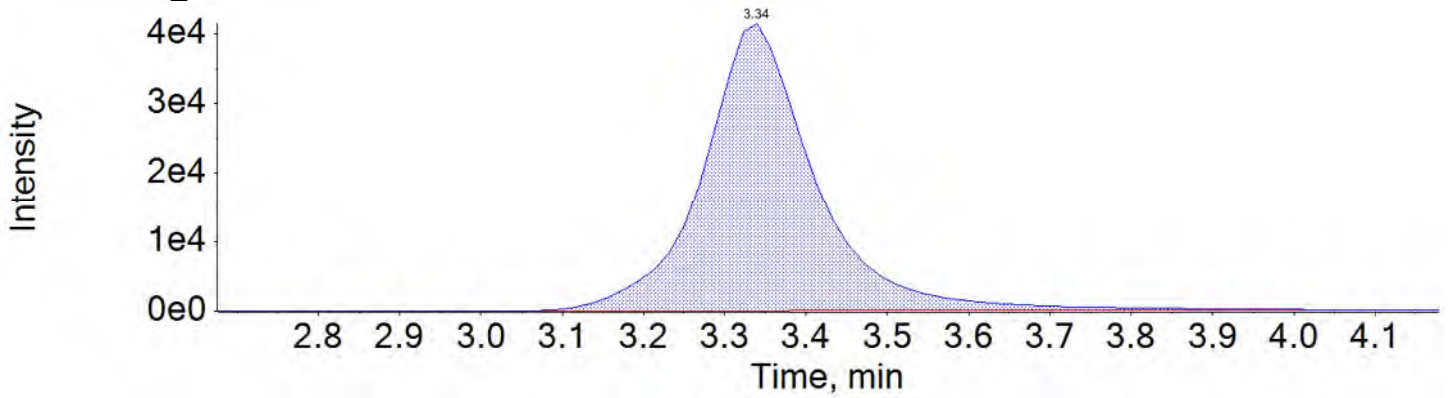




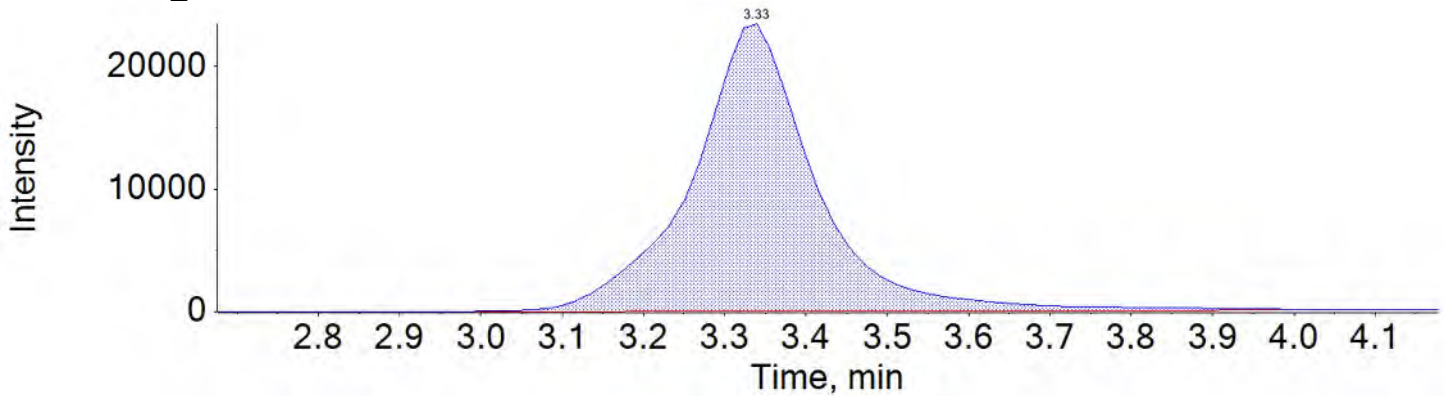
PFTeDA_2 713.0 / 169.0



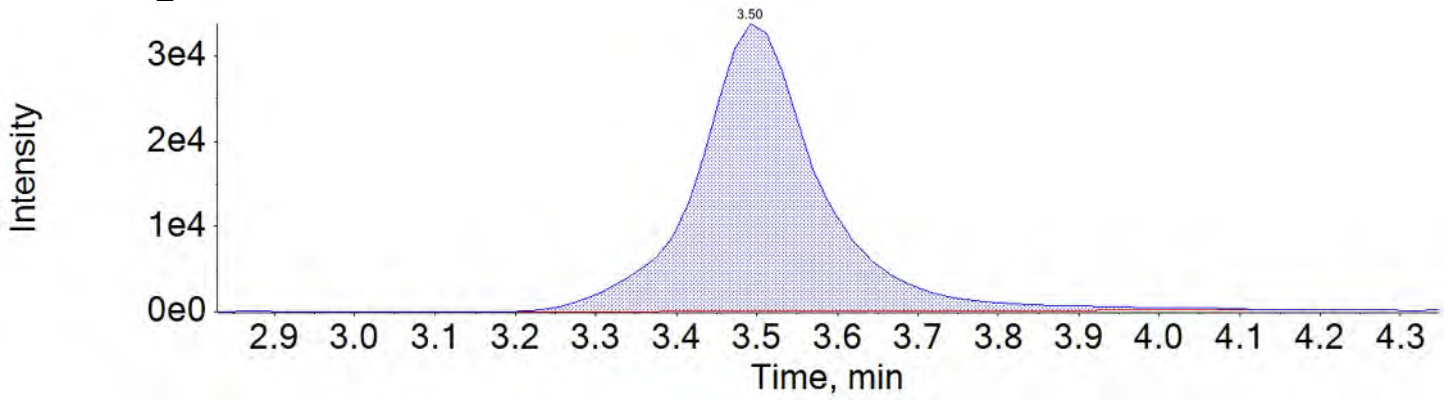
NMeFOSAA_1 570.0 / 419.0



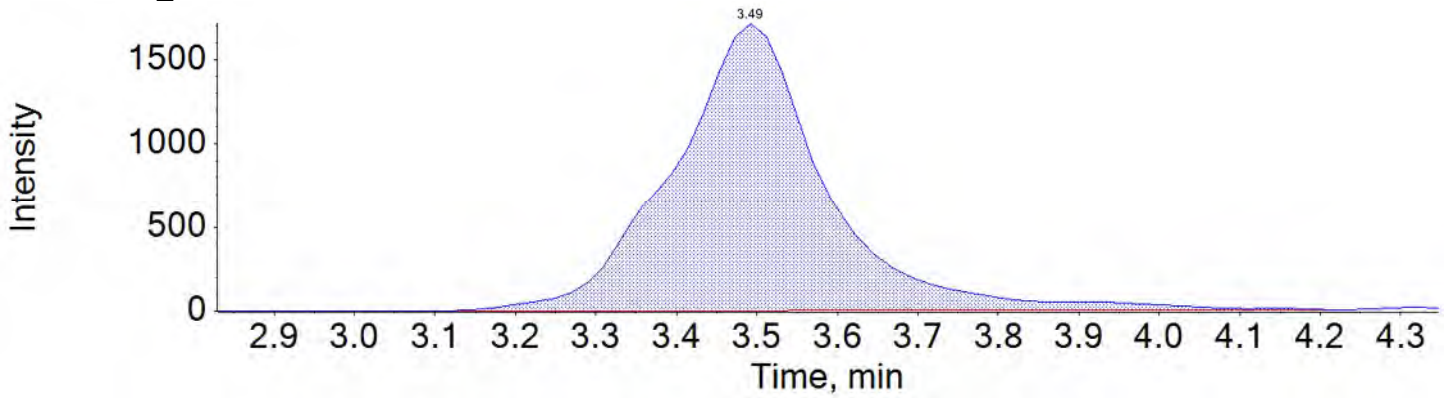
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

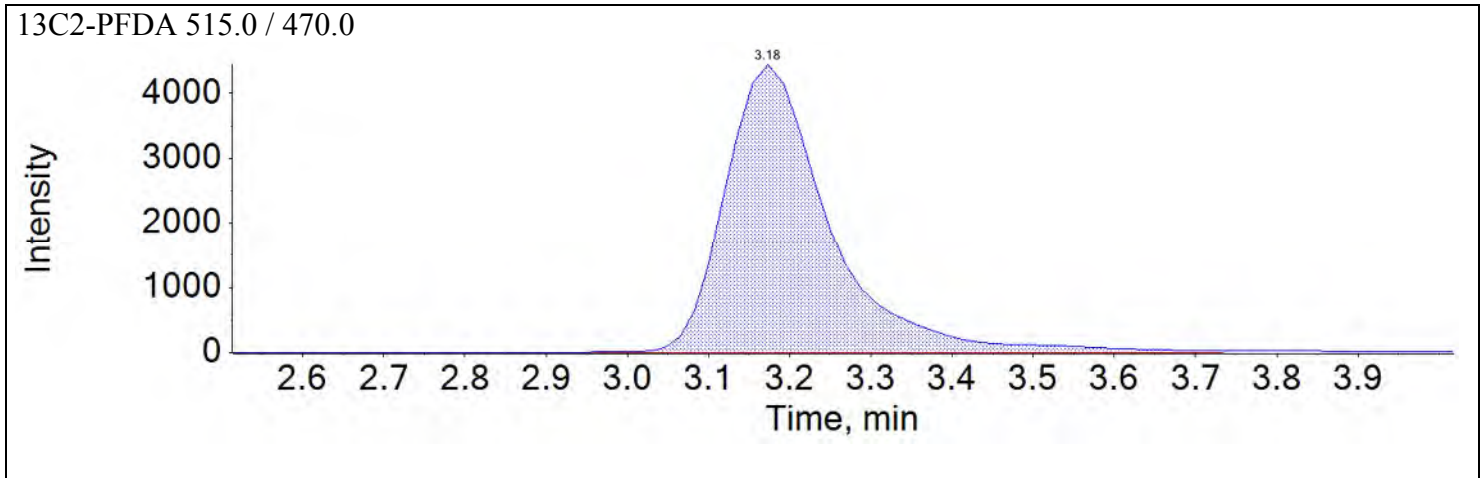
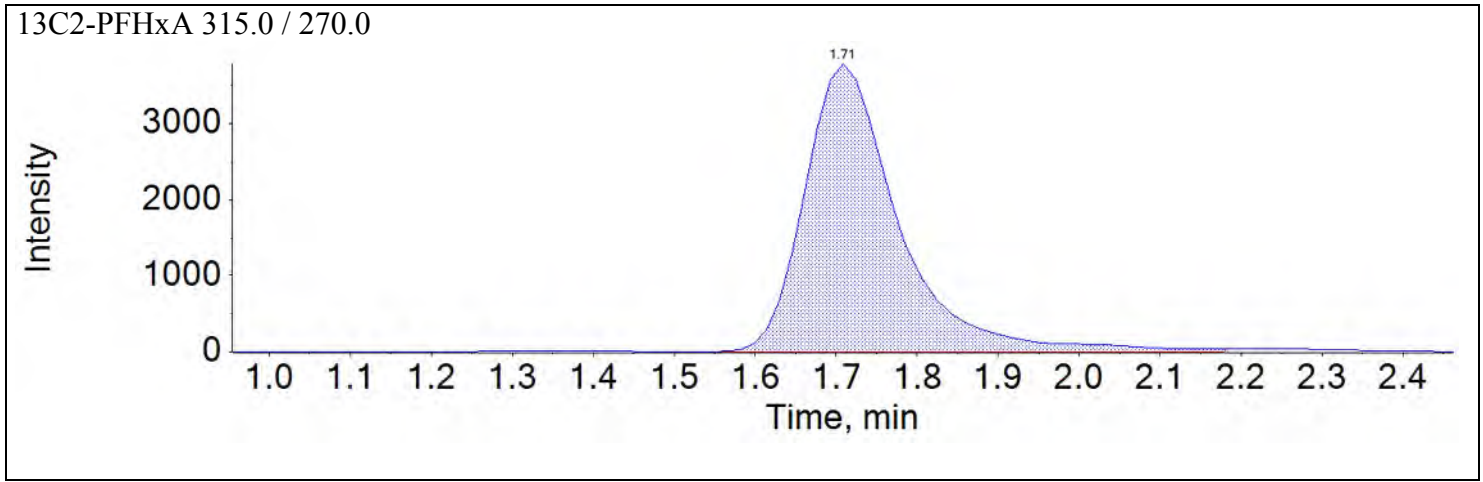


NEtFOSAA_2 584.0 / 483.0

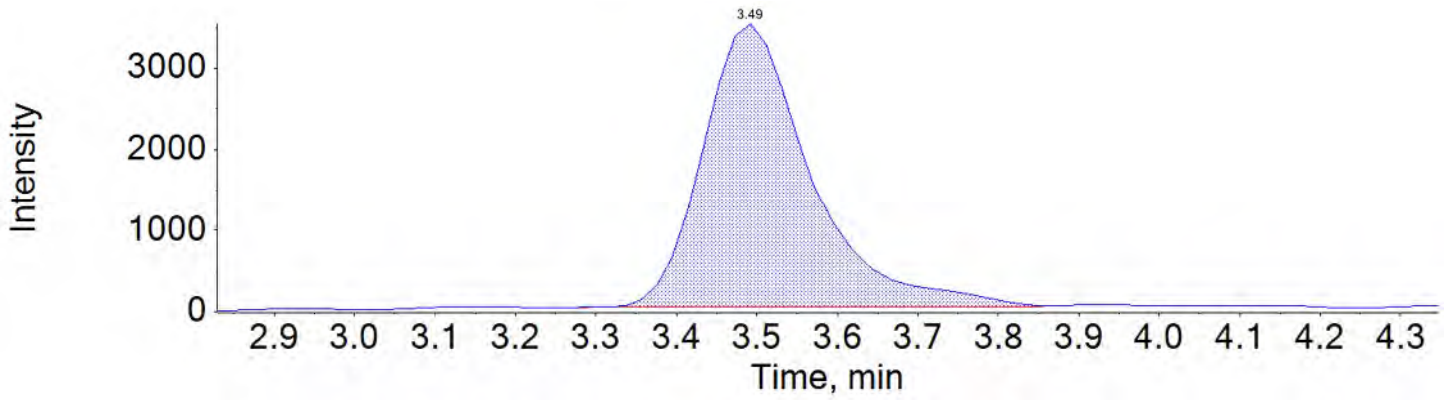


Sample Name	JV71	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:29:36	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms

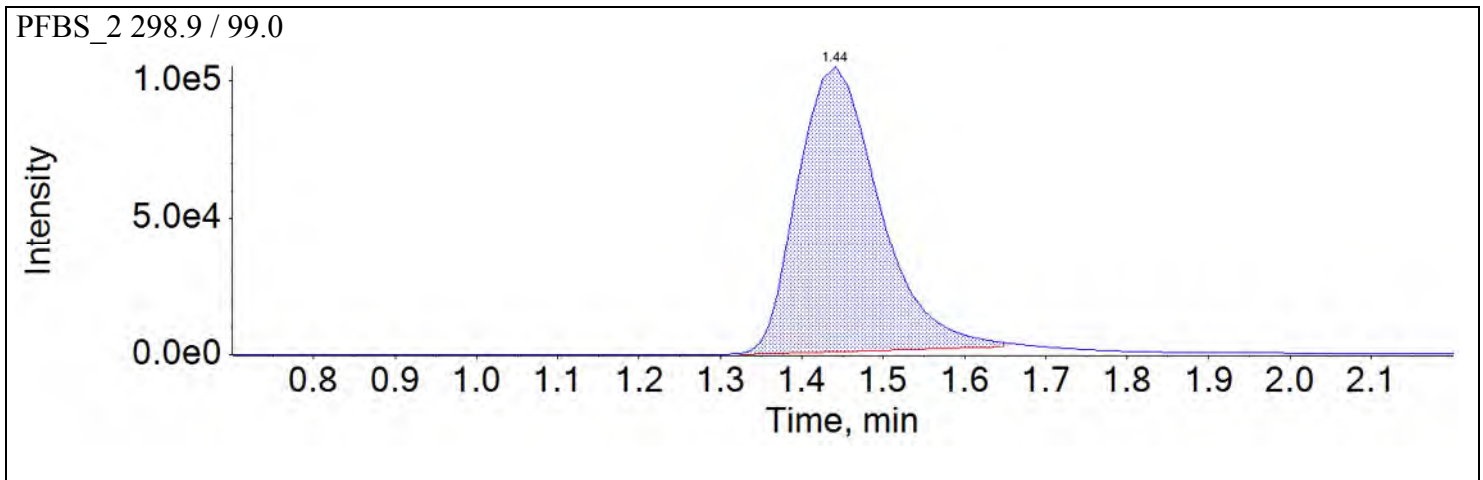
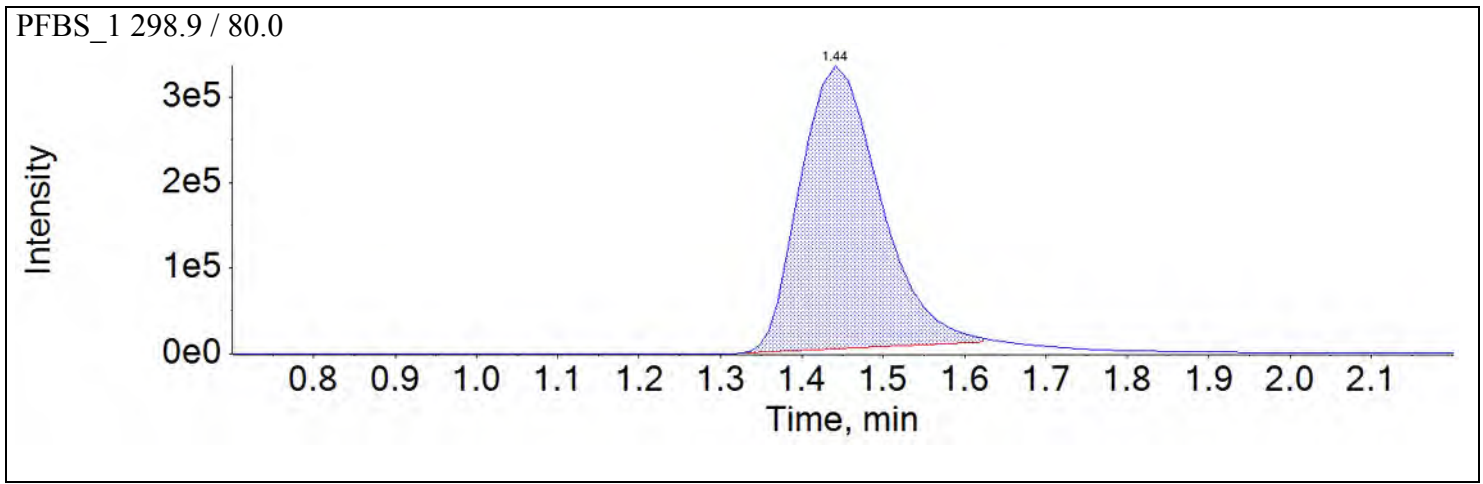


d5-EtFOSAA 589.0 / 419.0

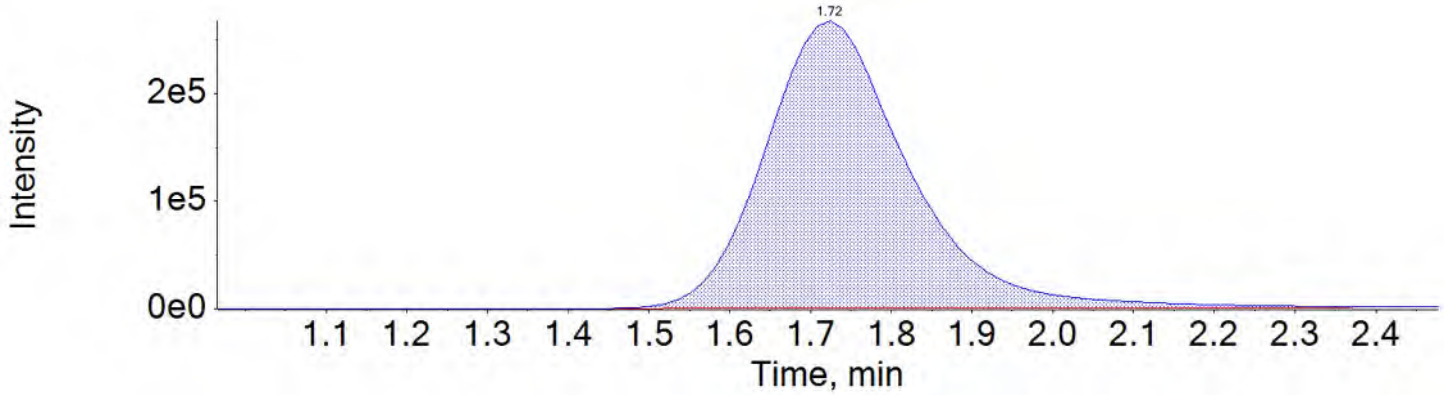


Sample Name	JV72	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:38:30	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

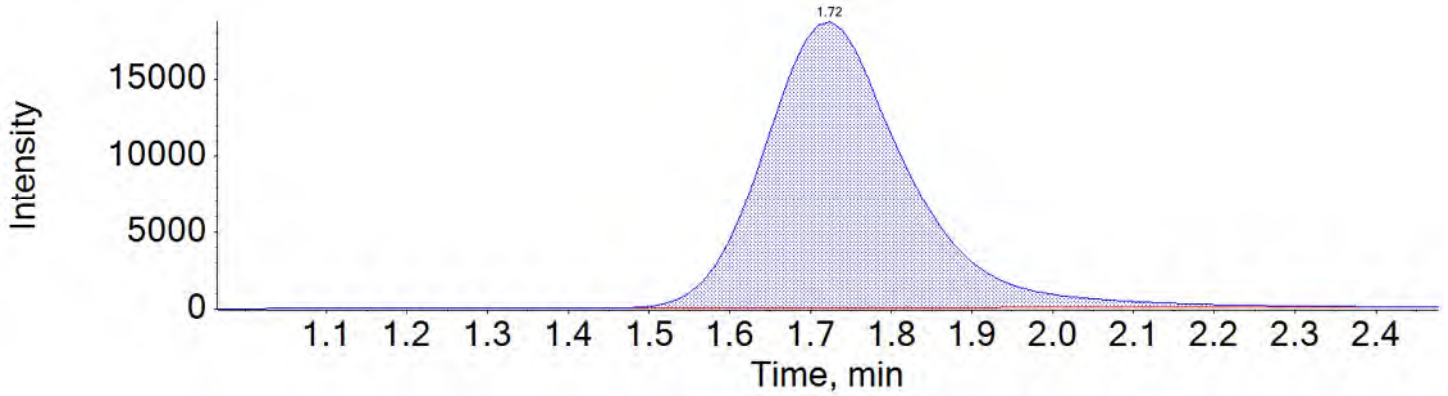
Chromatograms



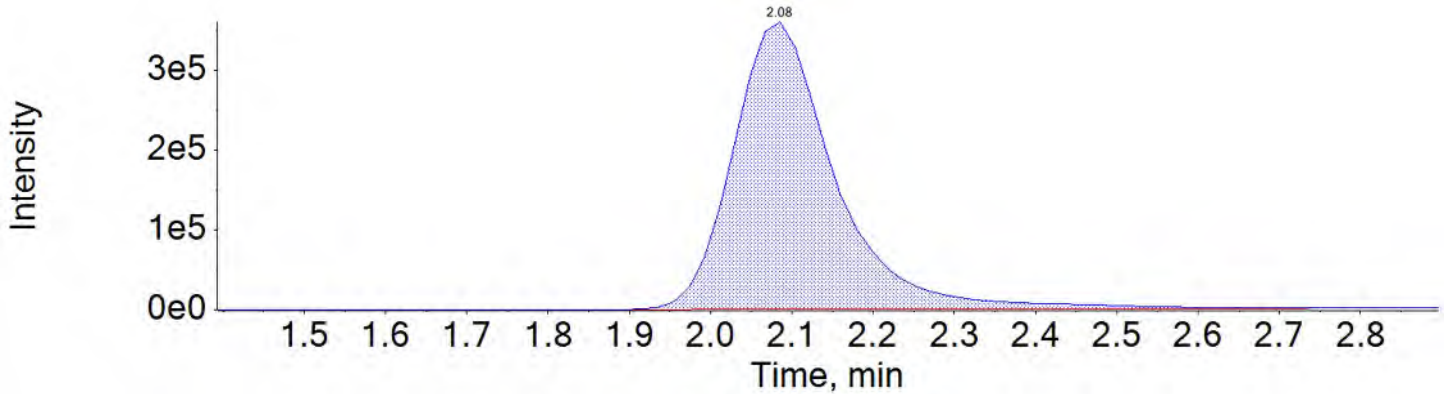
PFHxA_1 313.0 / 269.0



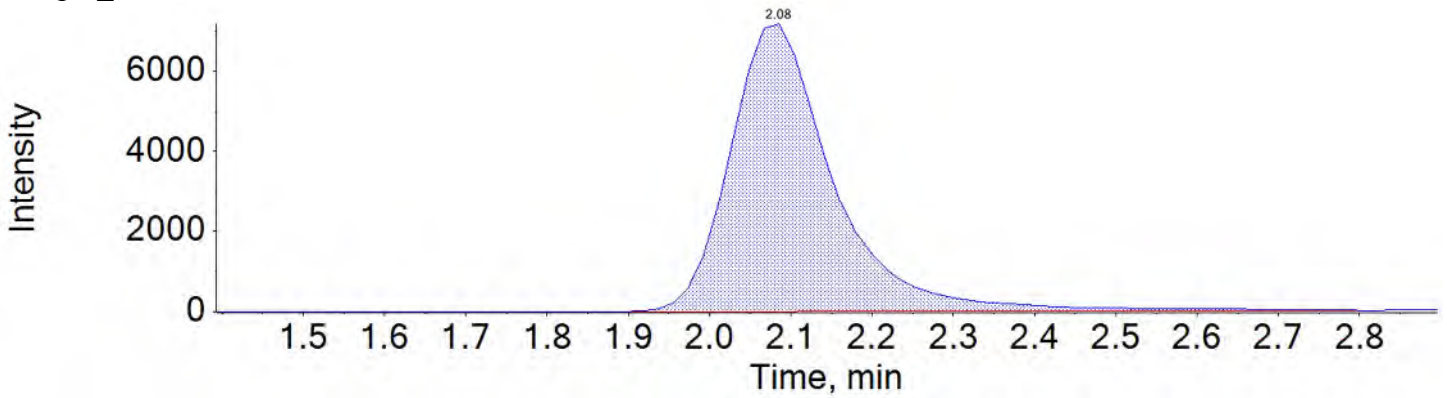
PFHxA_2 313.0 / 119.0



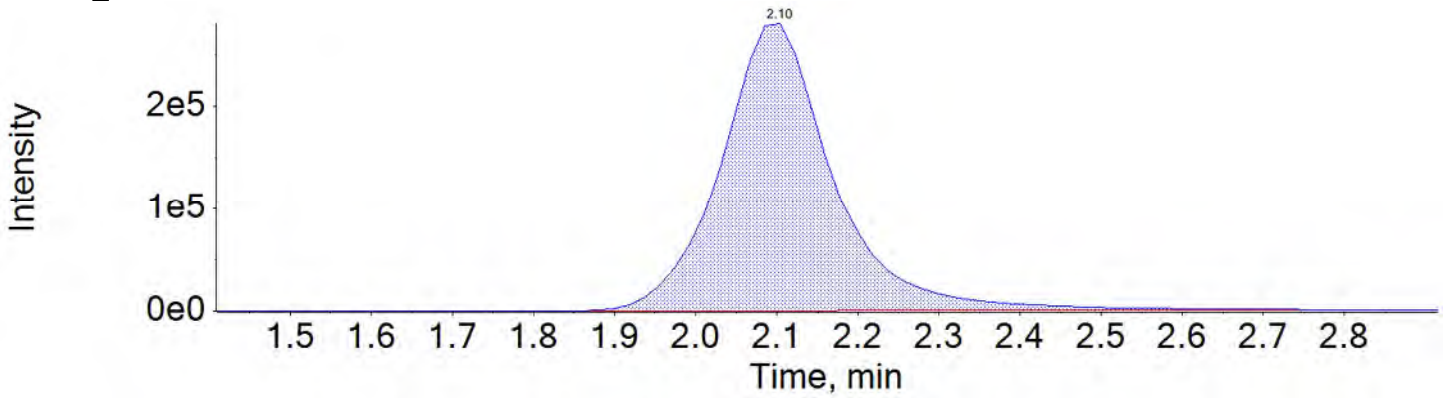
PFHpA_1 363.0 / 319.0



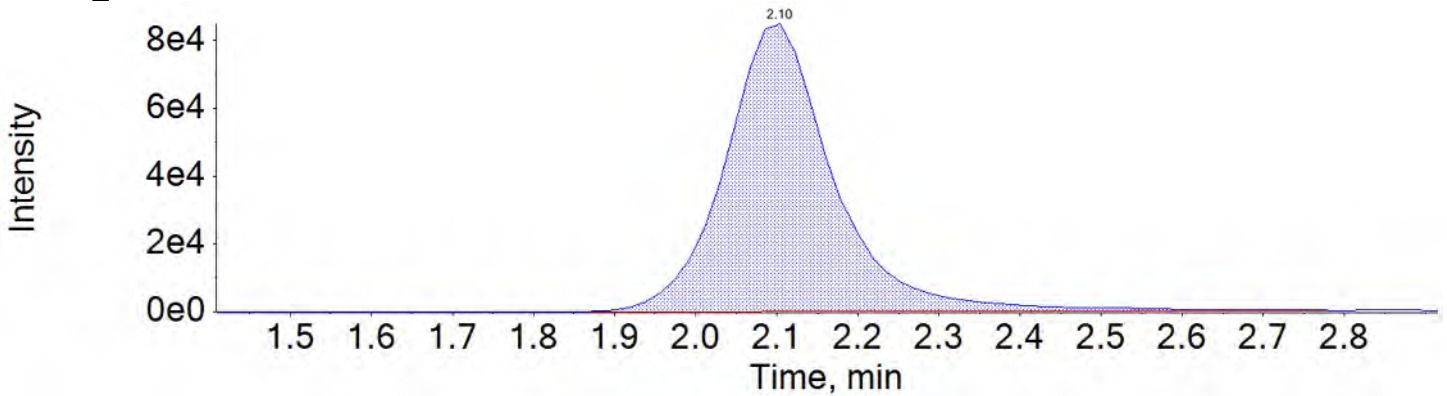
PFHpA_2 363.0 / 169.0



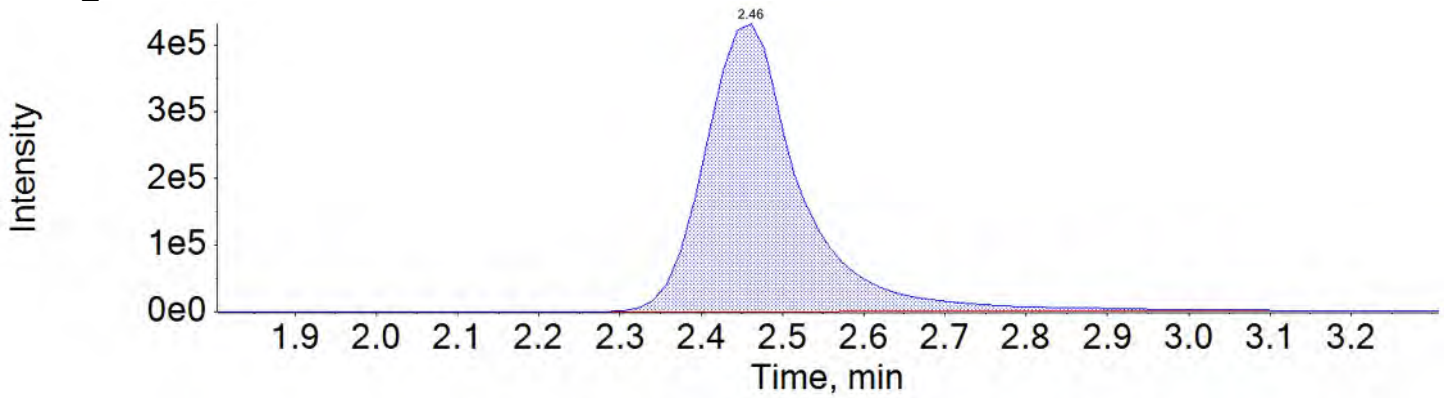
PFHxS_1 399.0 / 80.0



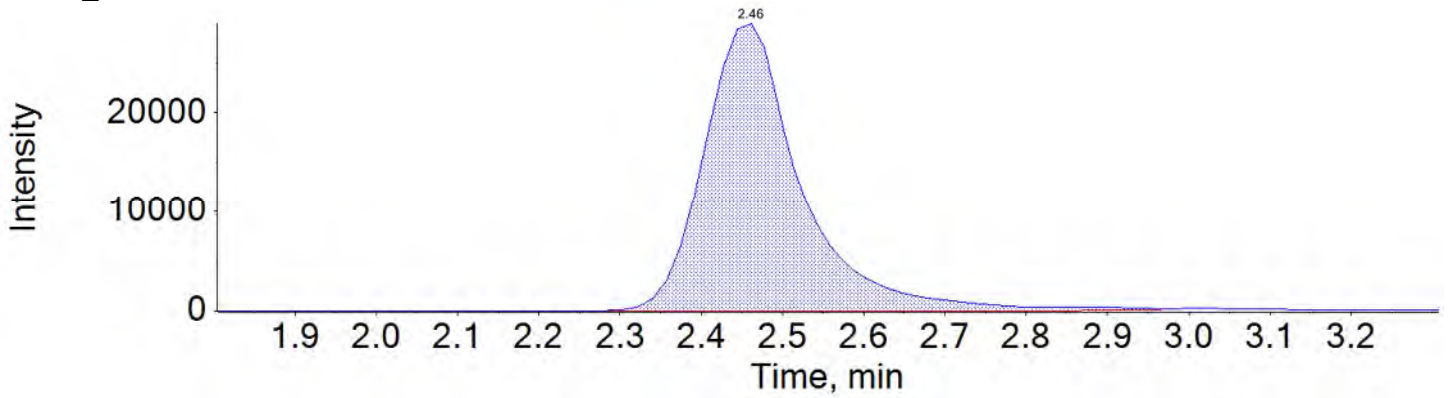
PFHxS_2 399.0 / 99.0



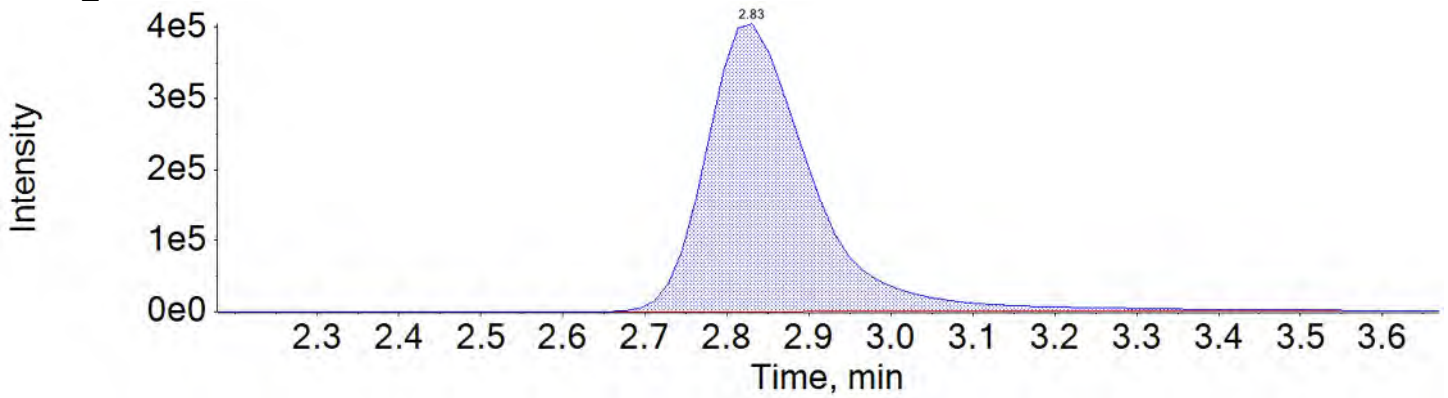
PFOA_1 413.0 / 369.0



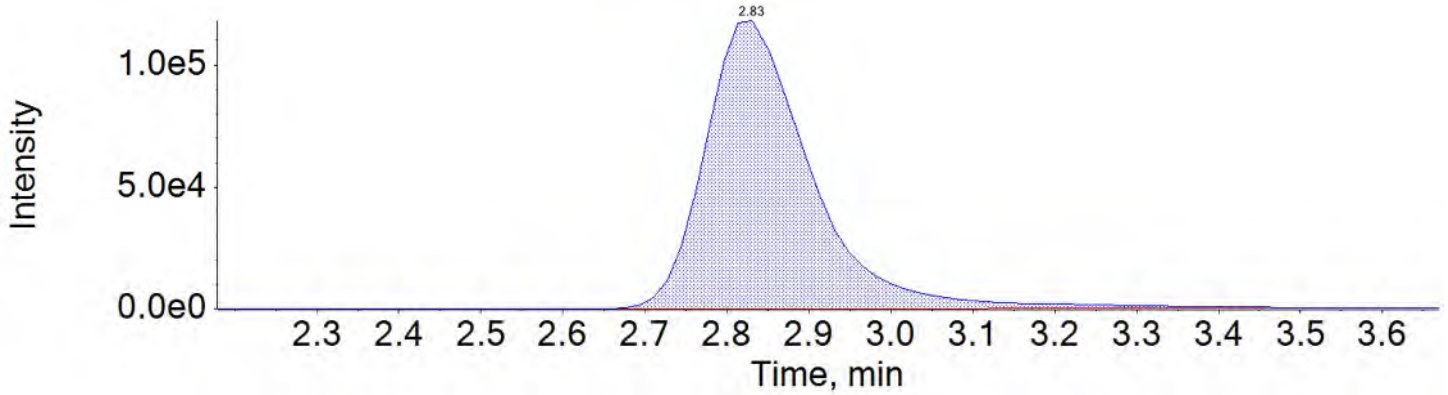
PFOA_2 413.0 / 169.0



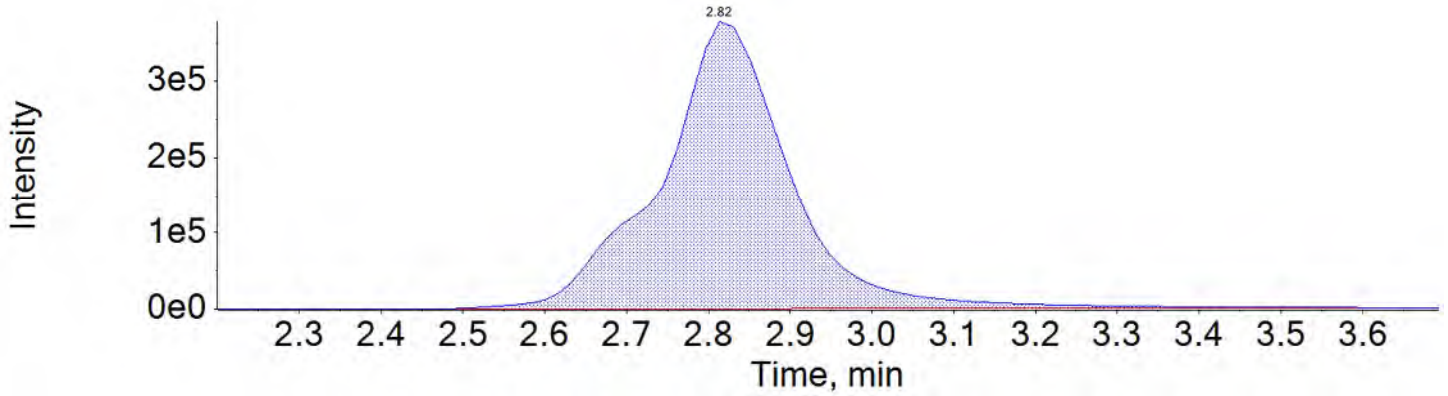
PFNA_1 463.0 / 419.0



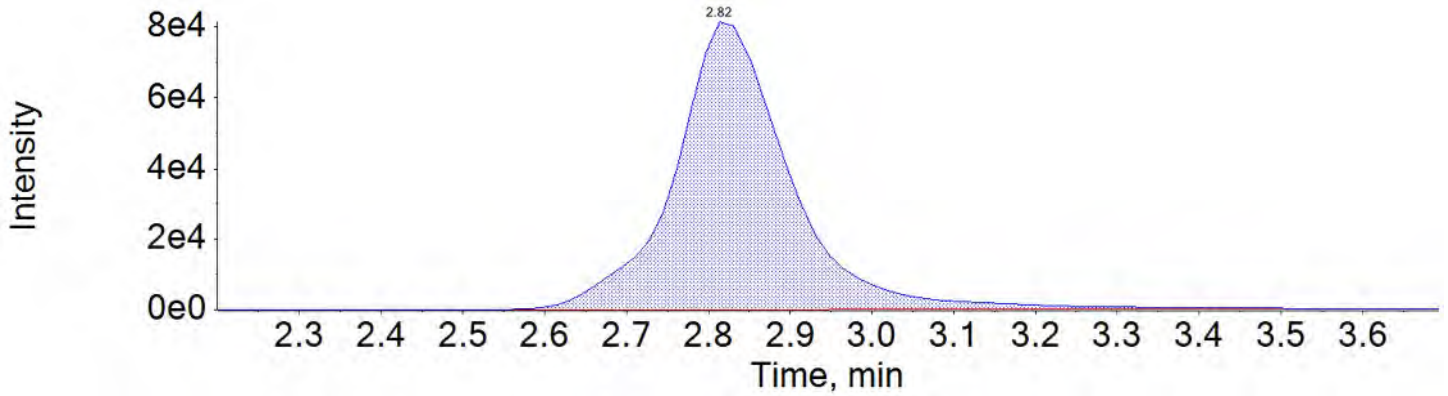
PFNA_2 463.0 / 219.0



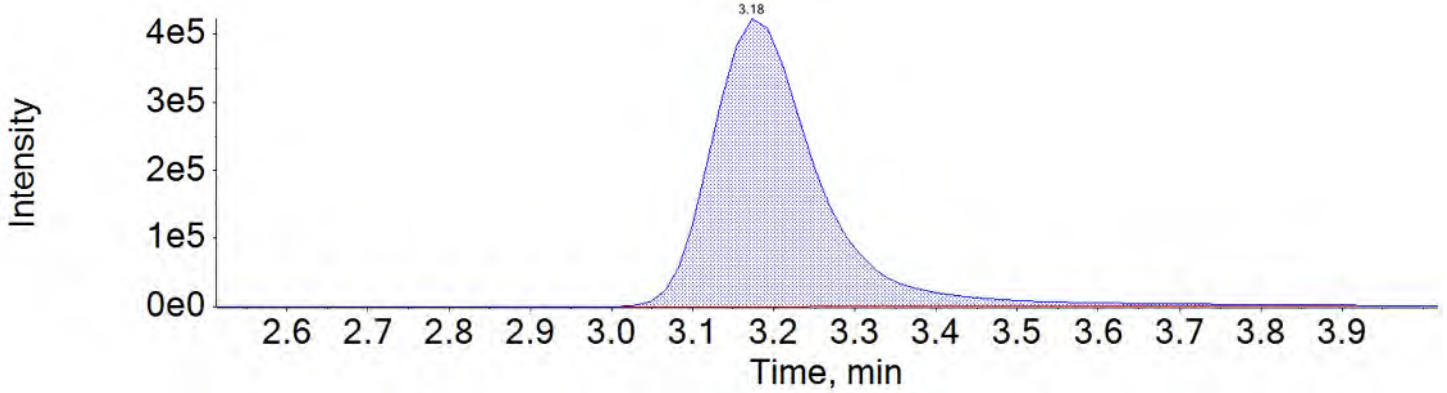
PFOS_1 499.0 / 80.0



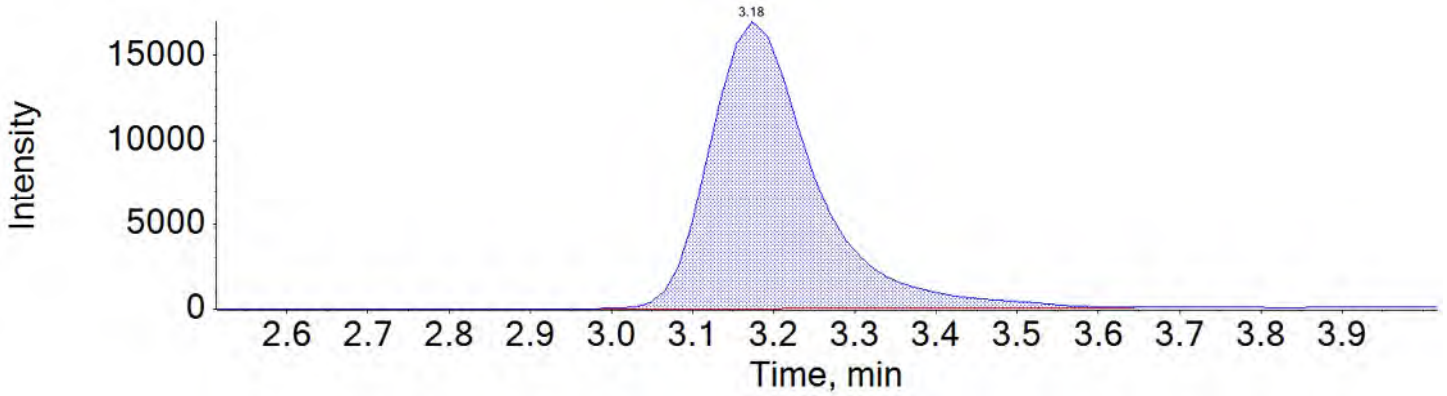
PFOS_2 499.0 / 99.0



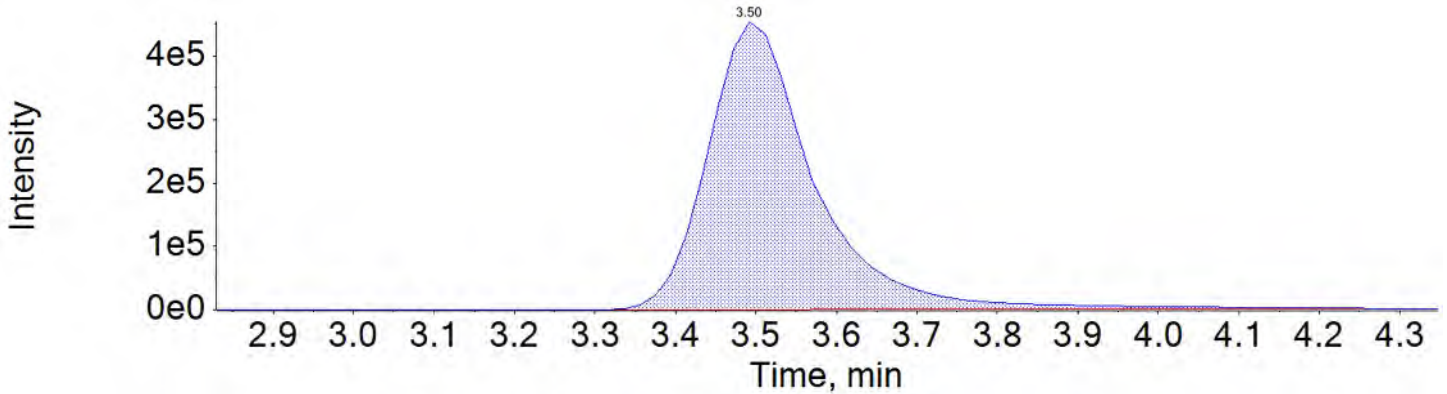
PFDA_1 513.0 / 469.0



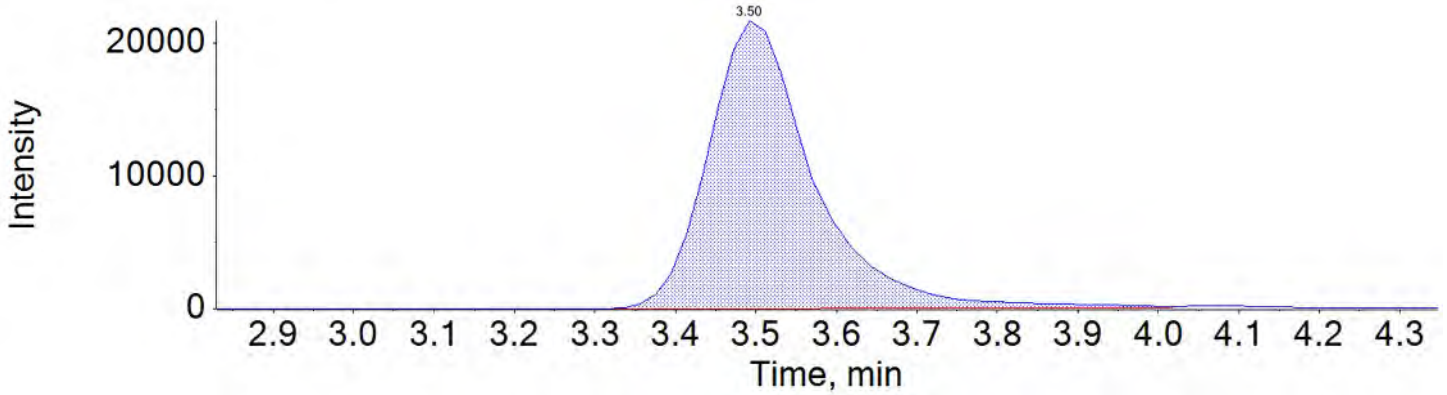
PFDA_2 513.0 / 219.0



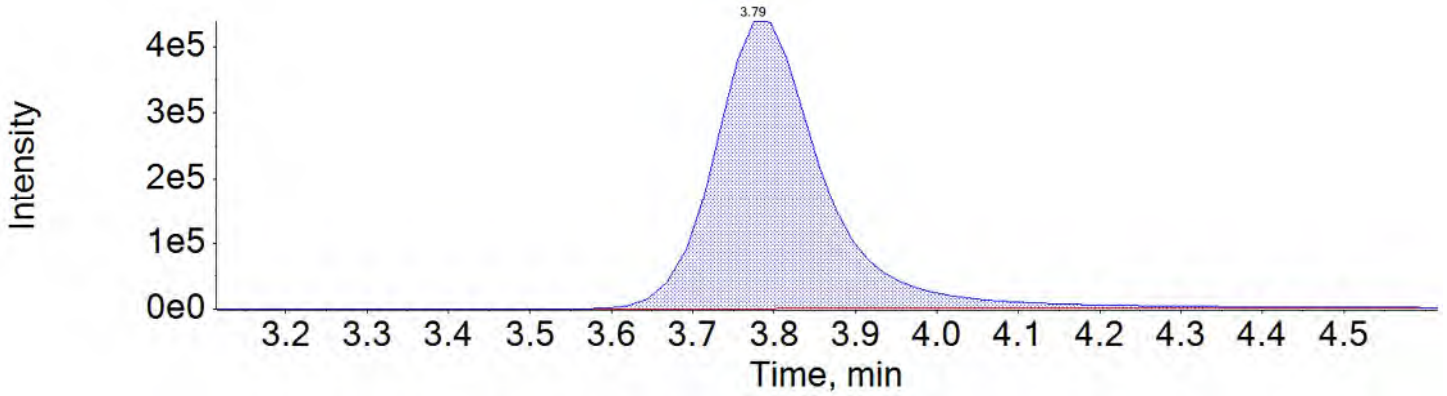
PFUnA_1 563.0 / 519.0



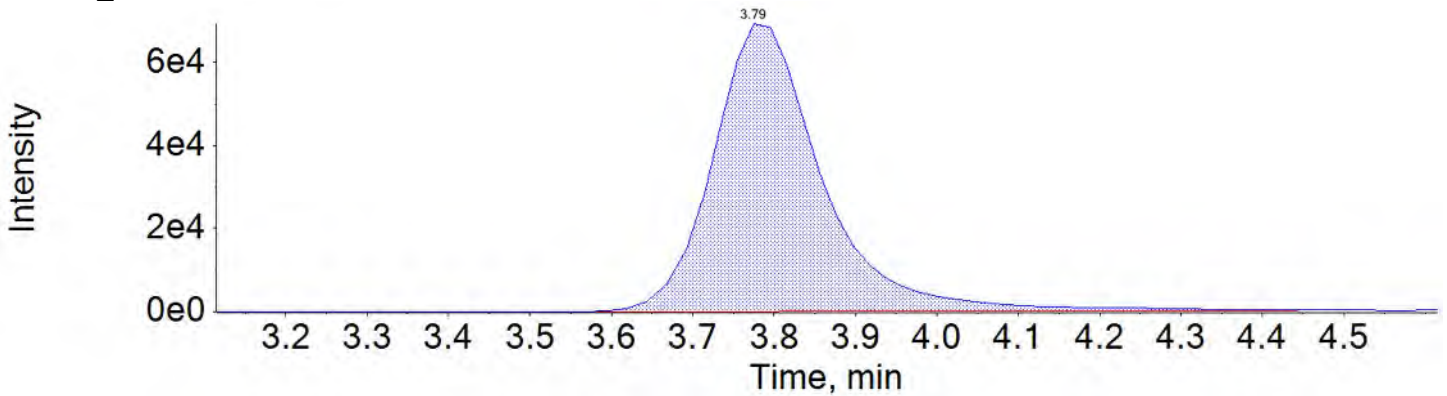
PFU_nA_2 563.0 / 269.0



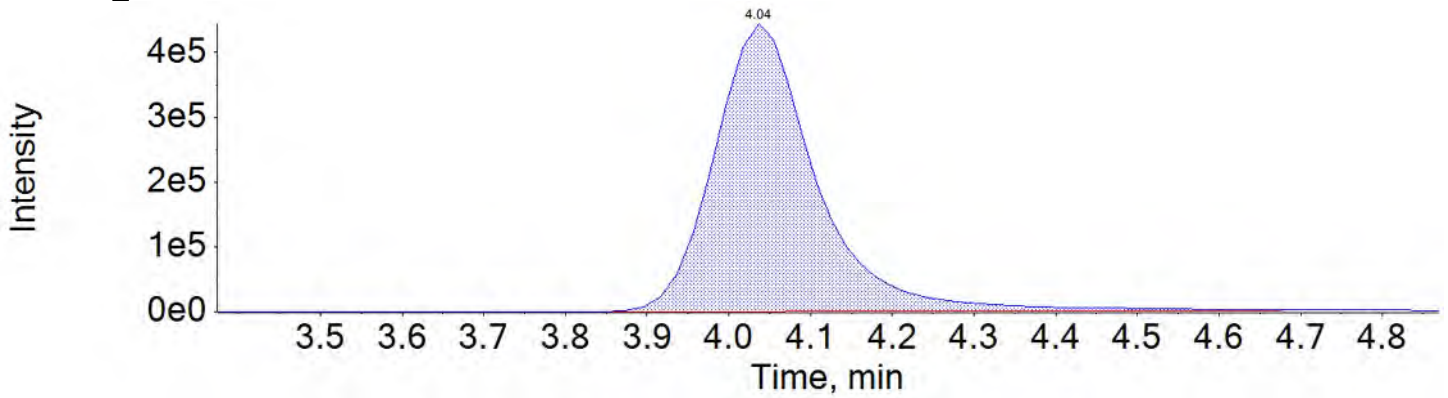
PFDoA_1 613.0 / 569.0



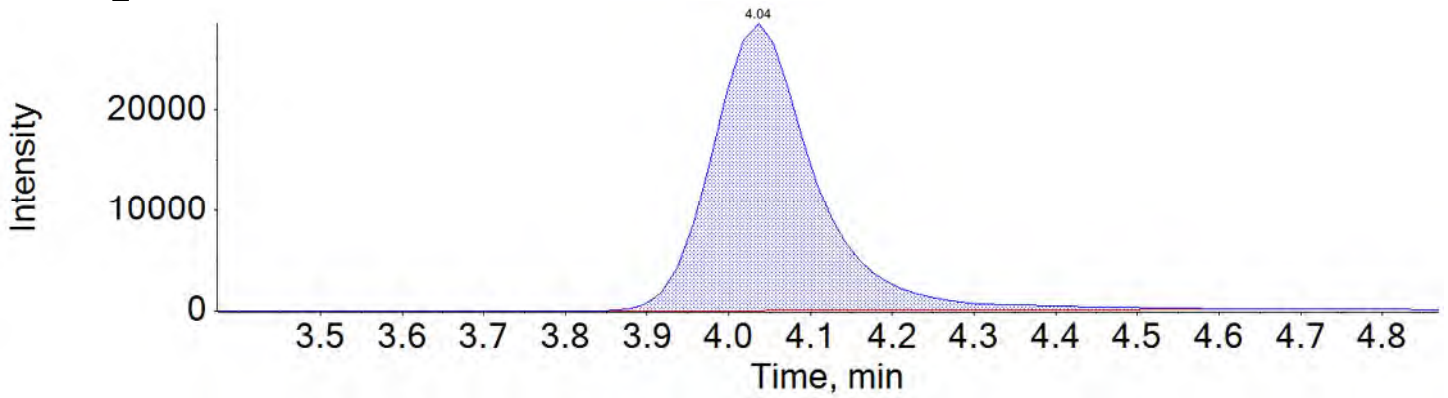
PFDoA_2 613.0 / 319.0



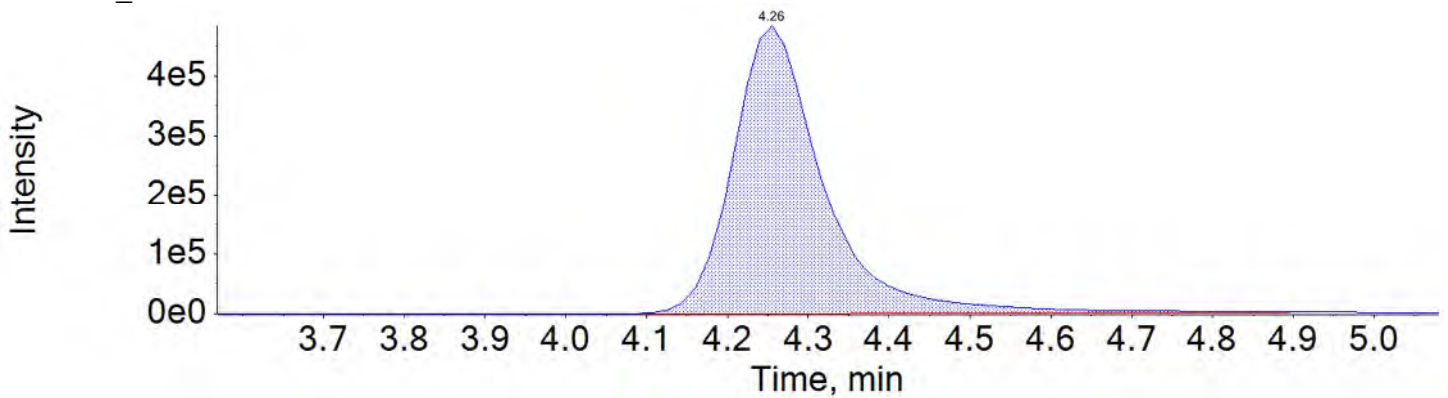
PFTTrDA_1 663.0 / 619.0



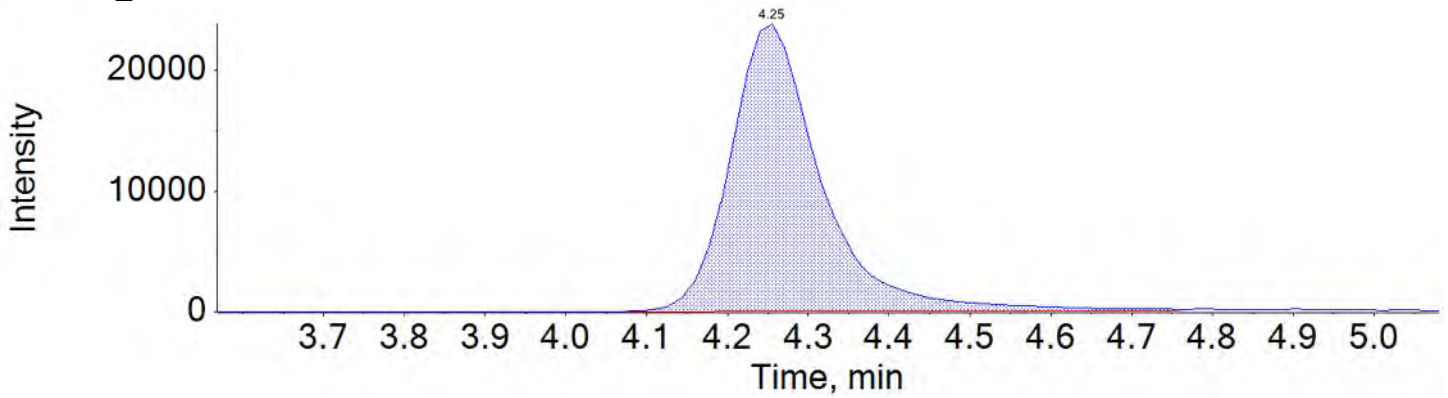
PFTTrDA_2 663.0 / 169.0



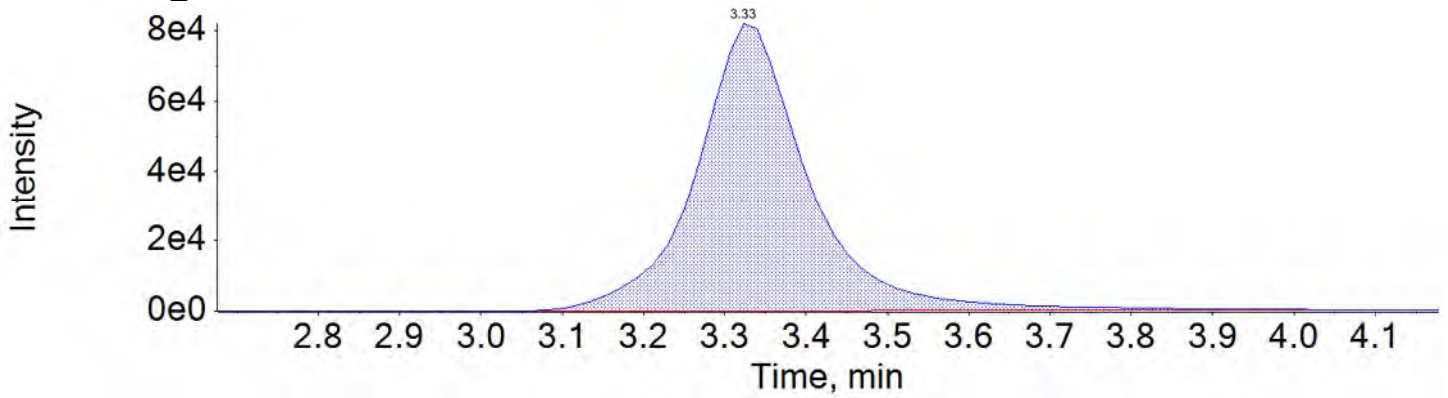
PFTTeDA_1 713.0 / 669.0



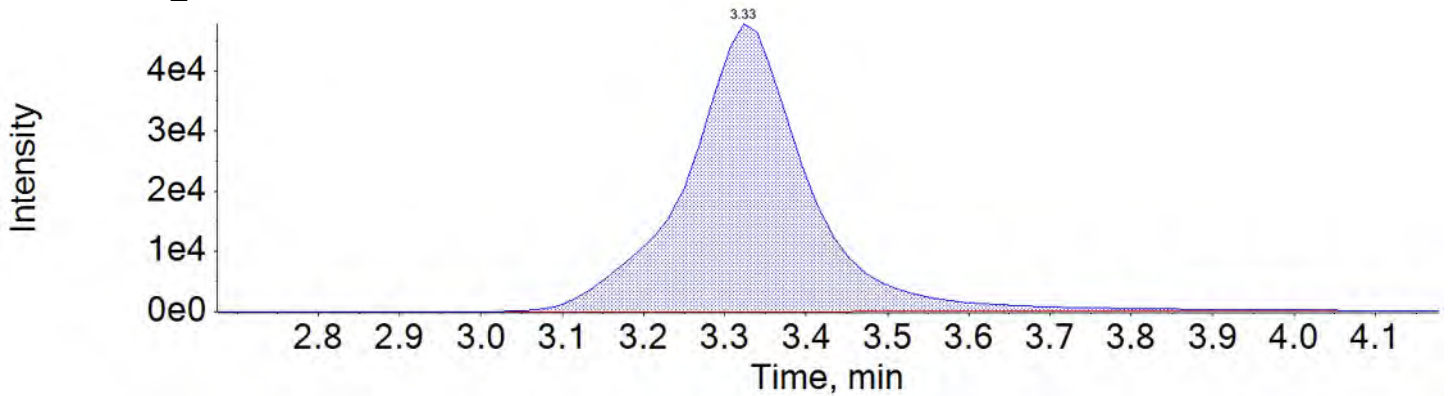
PFTeDA_2 713.0 / 169.0



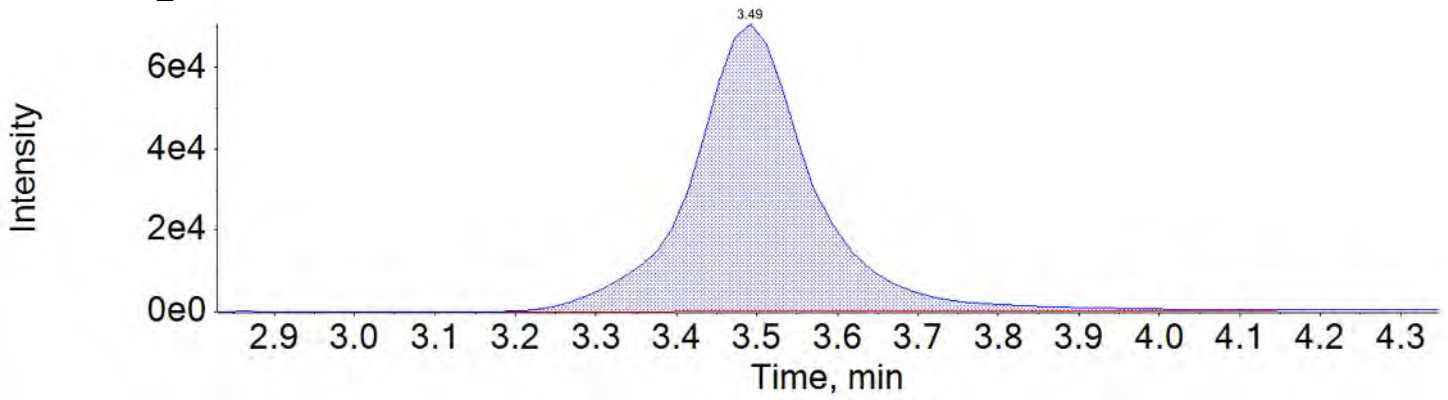
NMeFOSAA_1 570.0 / 419.0



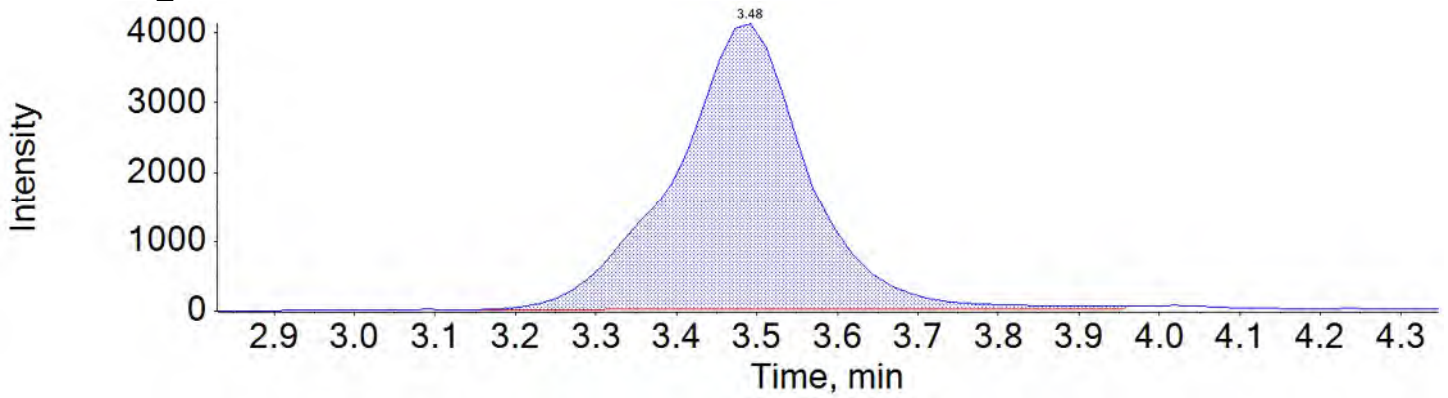
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

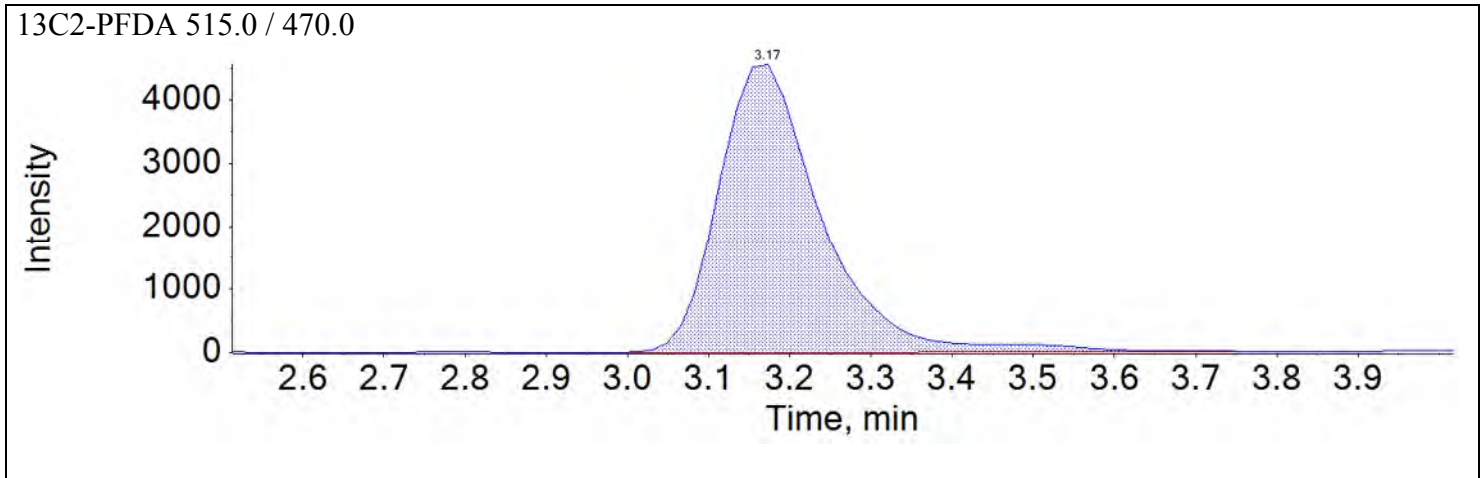
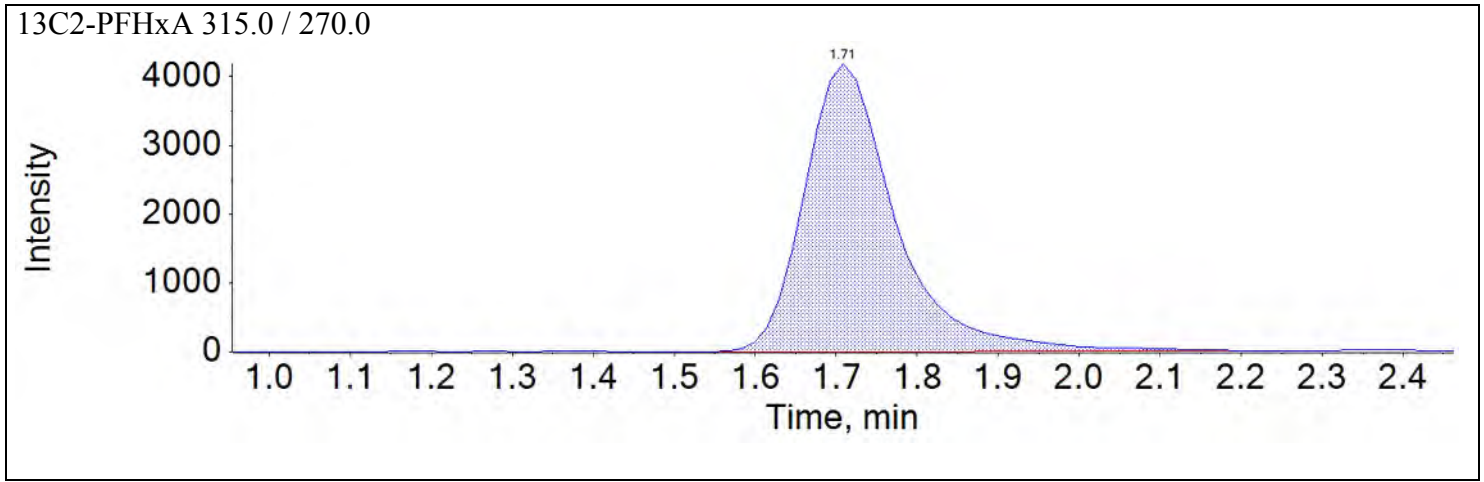


NEtFOSAA_2 584.0 / 483.0

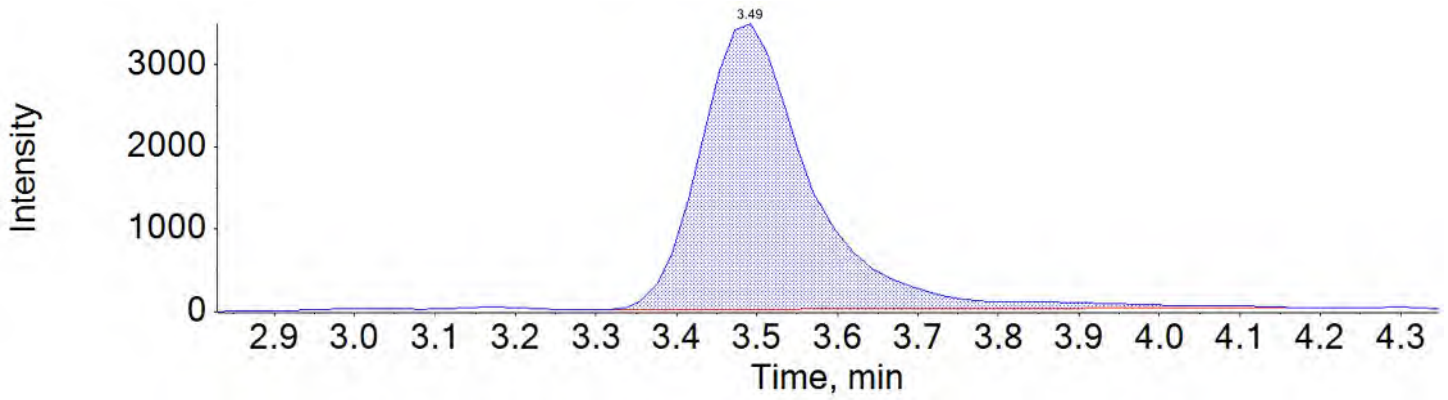


Sample Name	JV72	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:38:30	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms

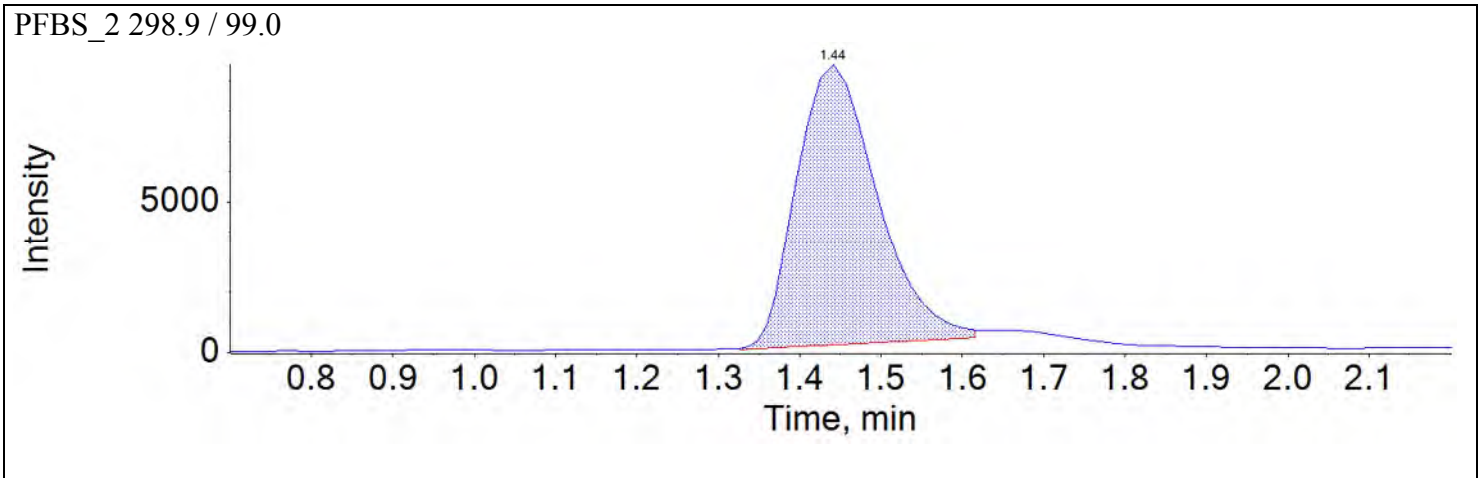
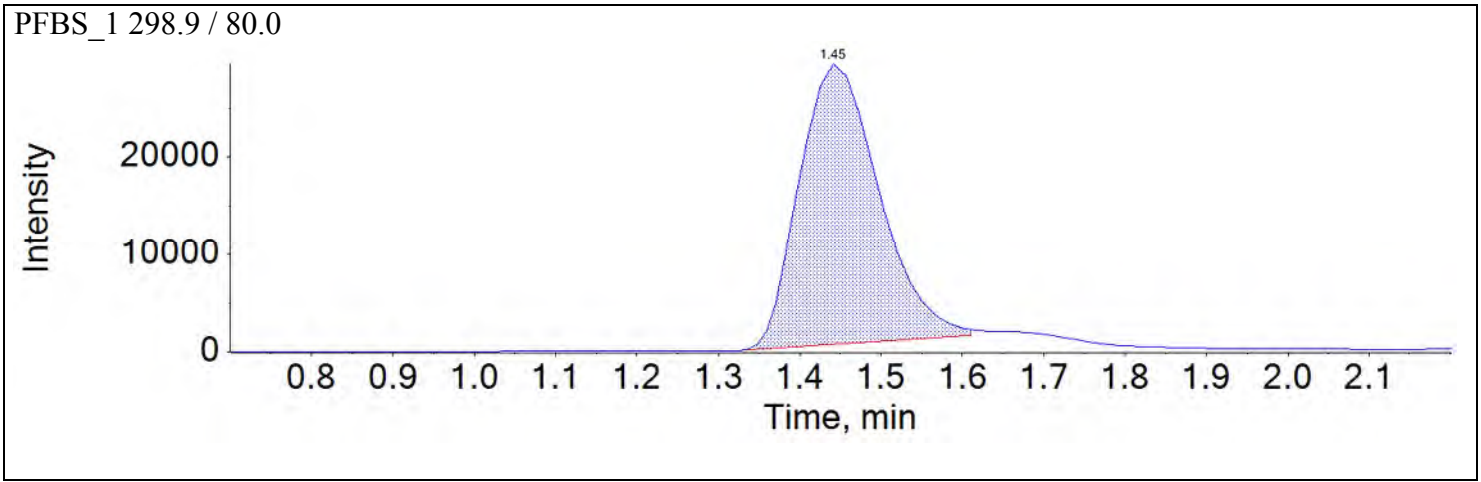


d5-EtFOSAA 589.0 / 419.0

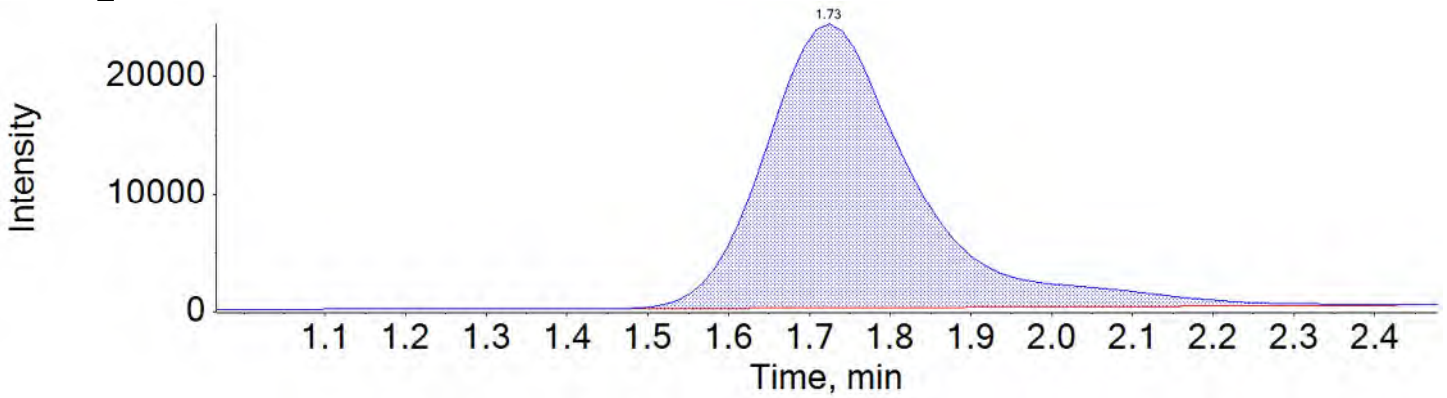


Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:47:28	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

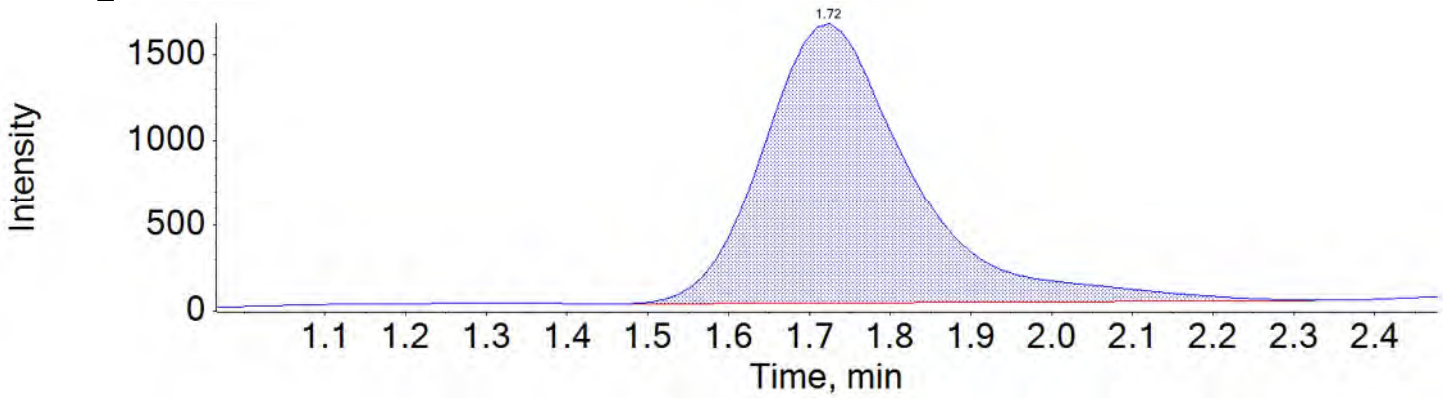
Chromatograms



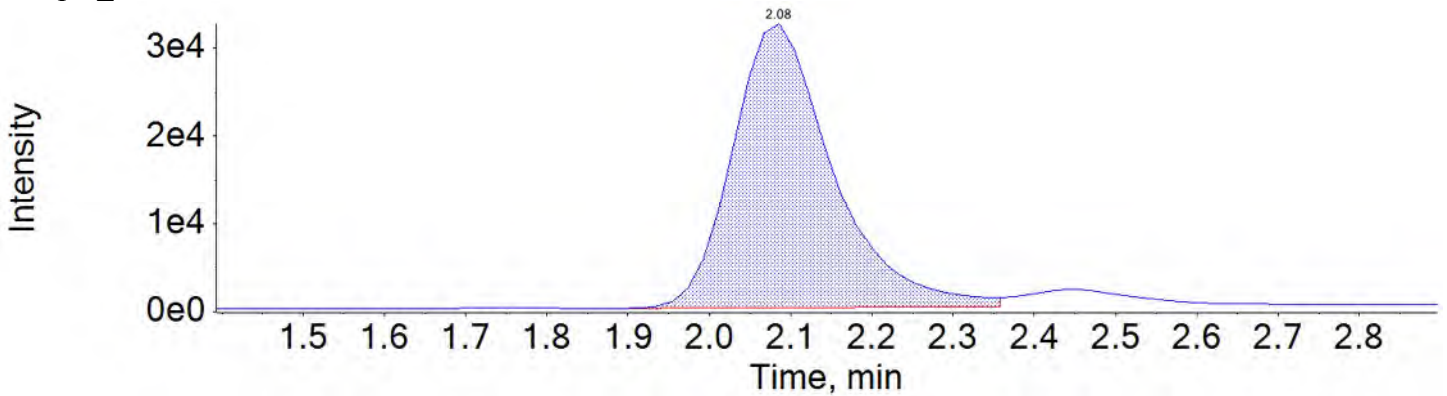
PFHxA_1 313.0 / 269.0



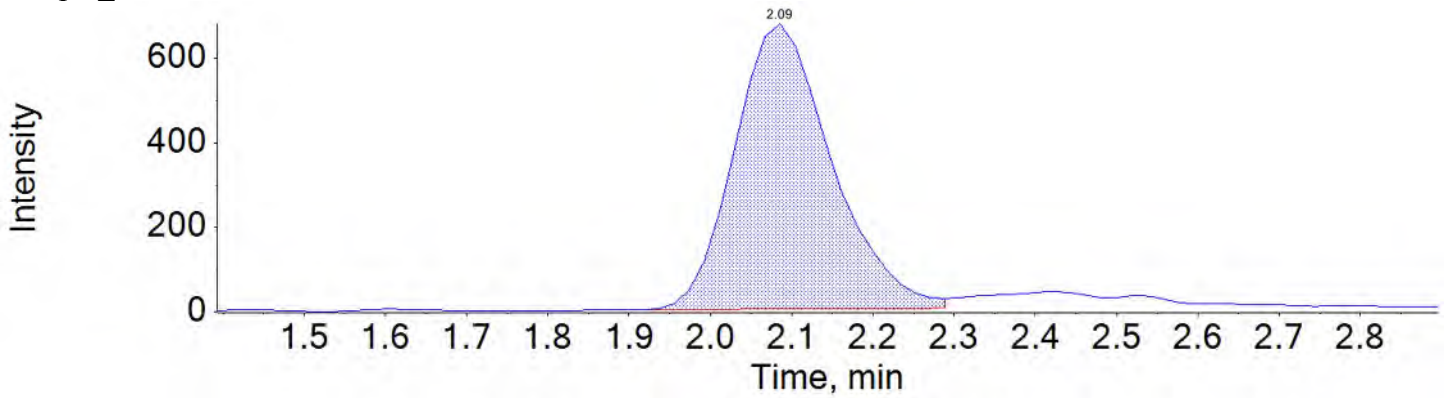
PFHxA_2 313.0 / 119.0



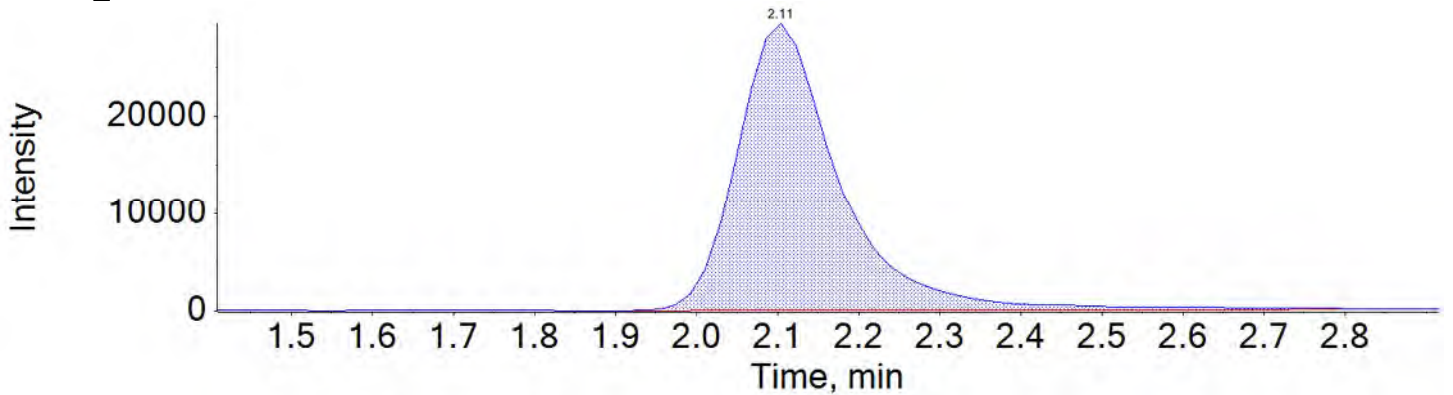
PFHpA_1 363.0 / 319.0



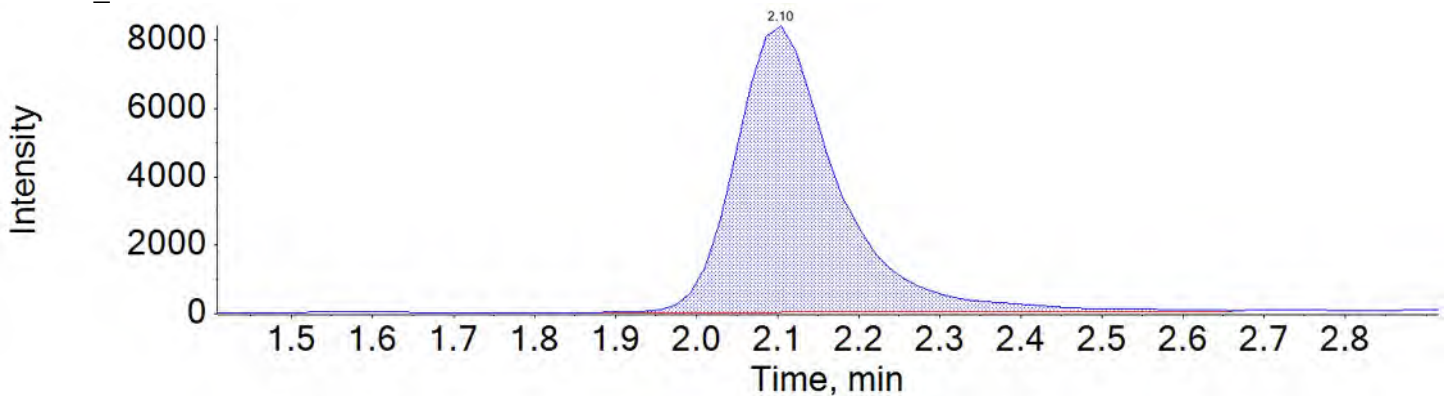
PFHpA_2 363.0 / 169.0



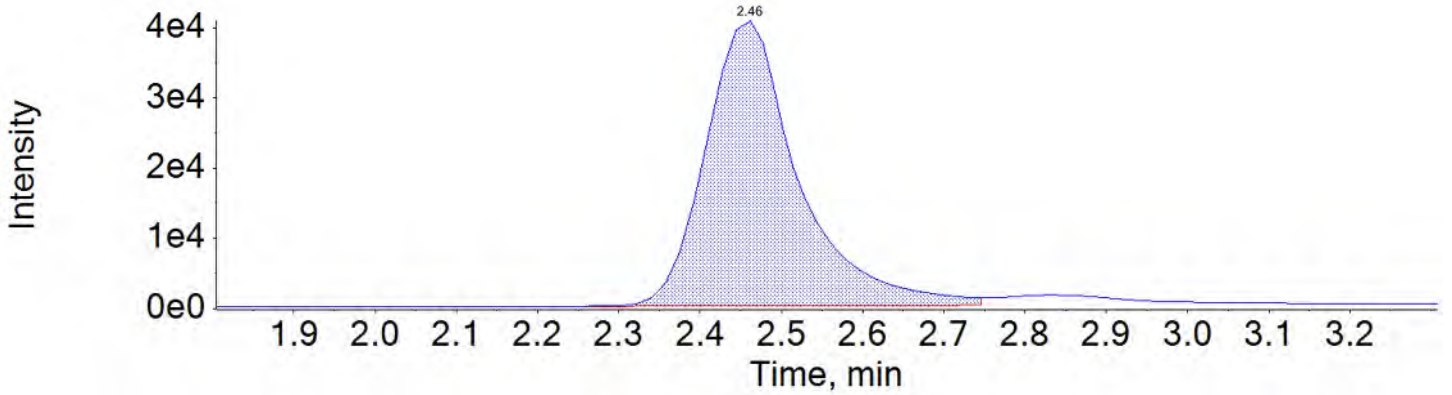
PFHxS_1 399.0 / 80.0



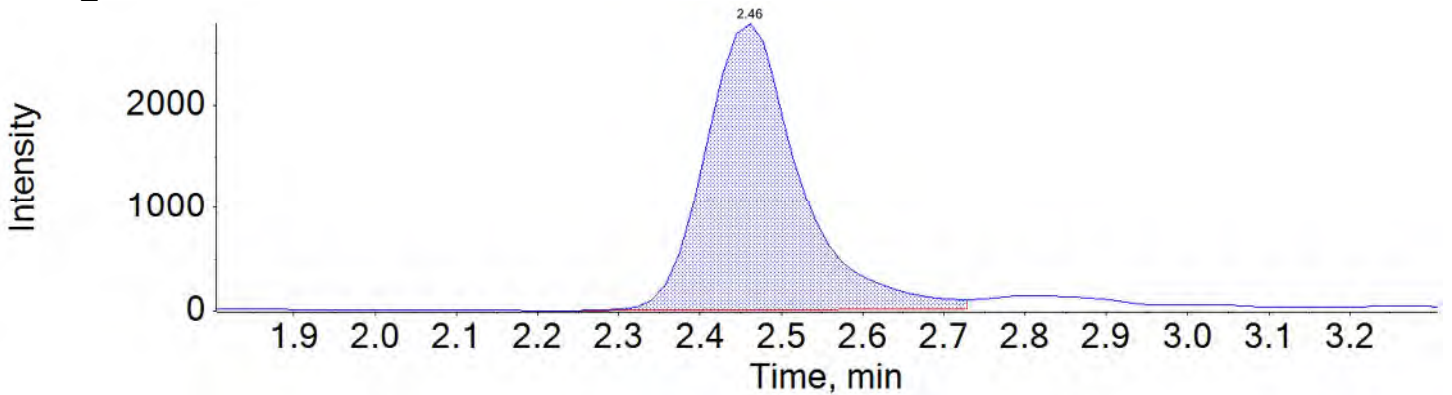
PFHxS_2 399.0 / 99.0



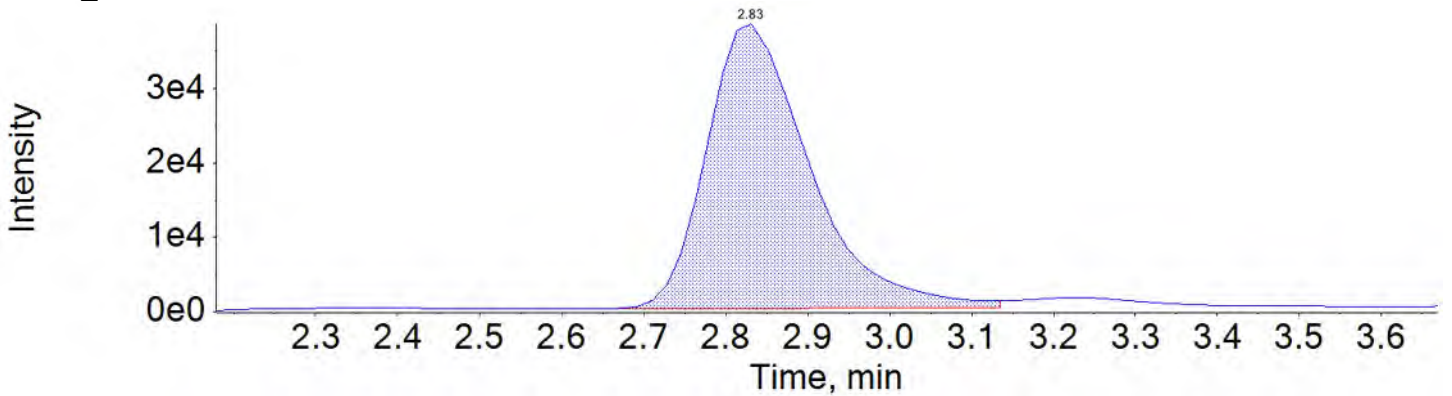
PFOA_1 413.0 / 369.0



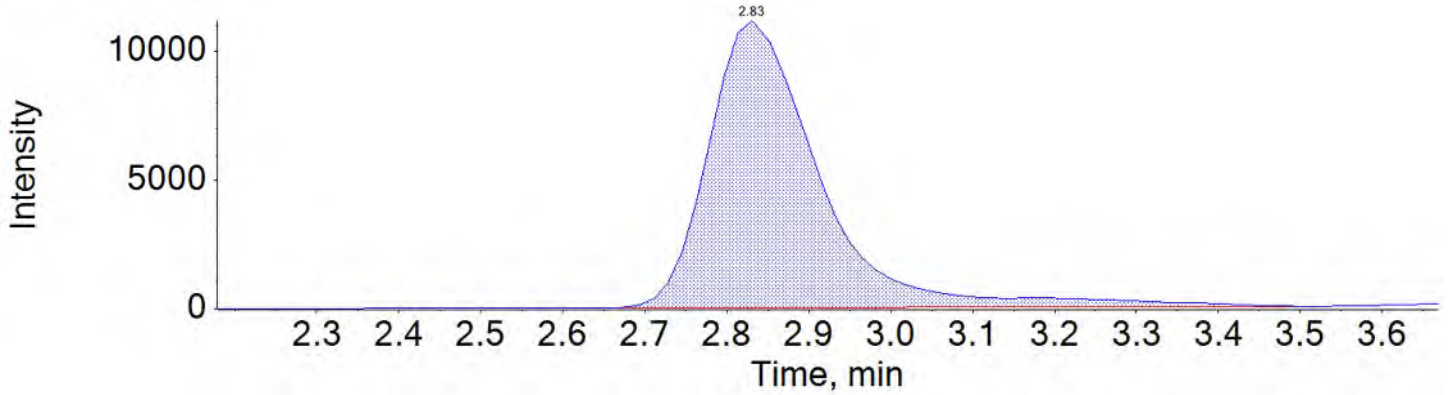
PFOA_2 413.0 / 169.0



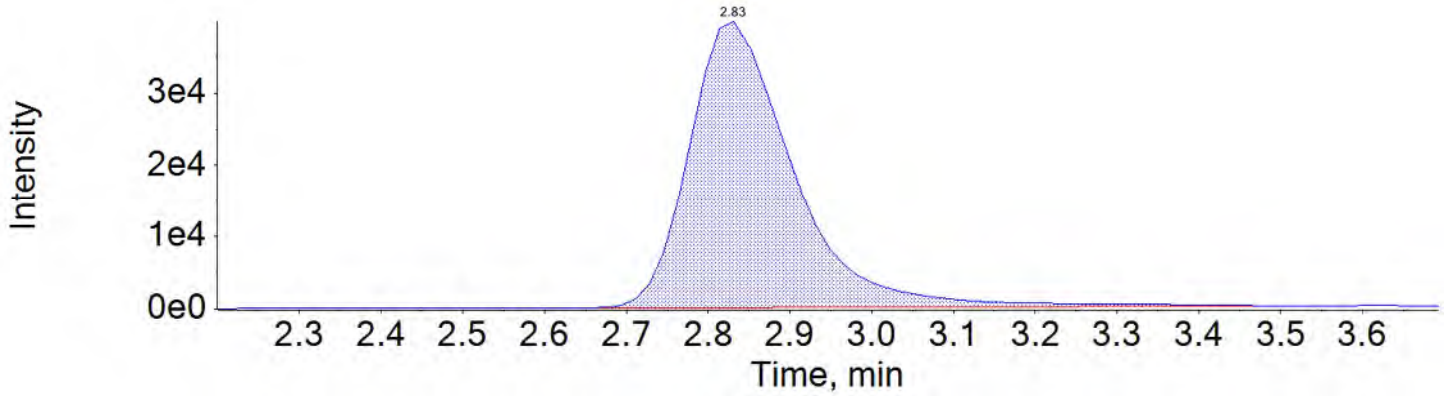
PFNA_1 463.0 / 419.0



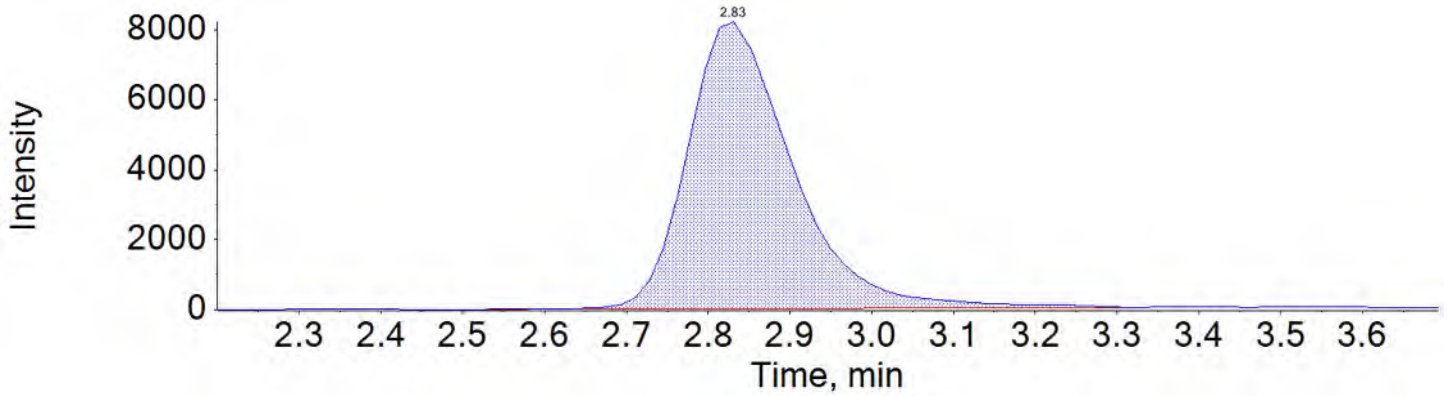
PFNA_2 463.0 / 219.0



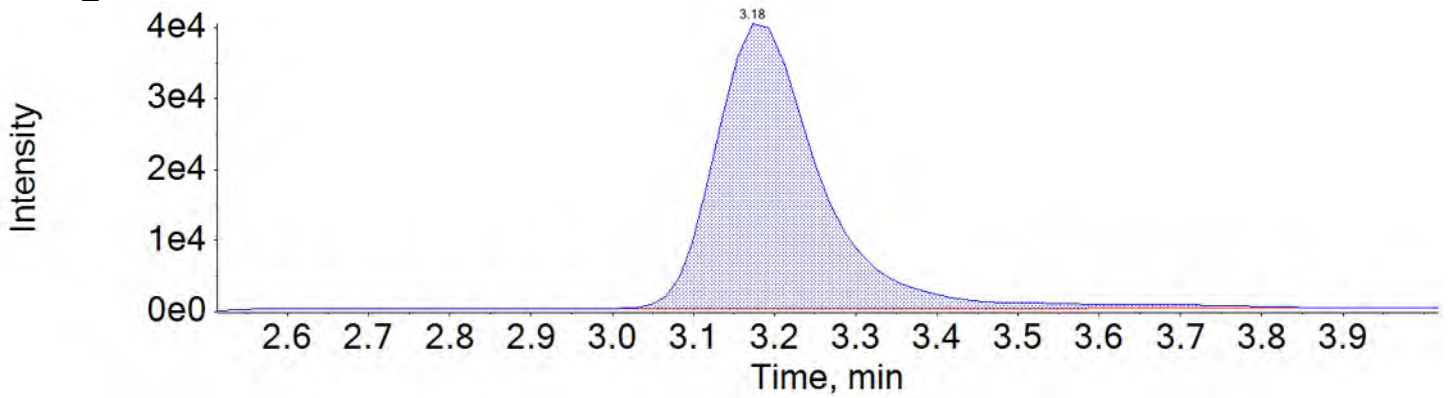
PFOS_1 499.0 / 80.0



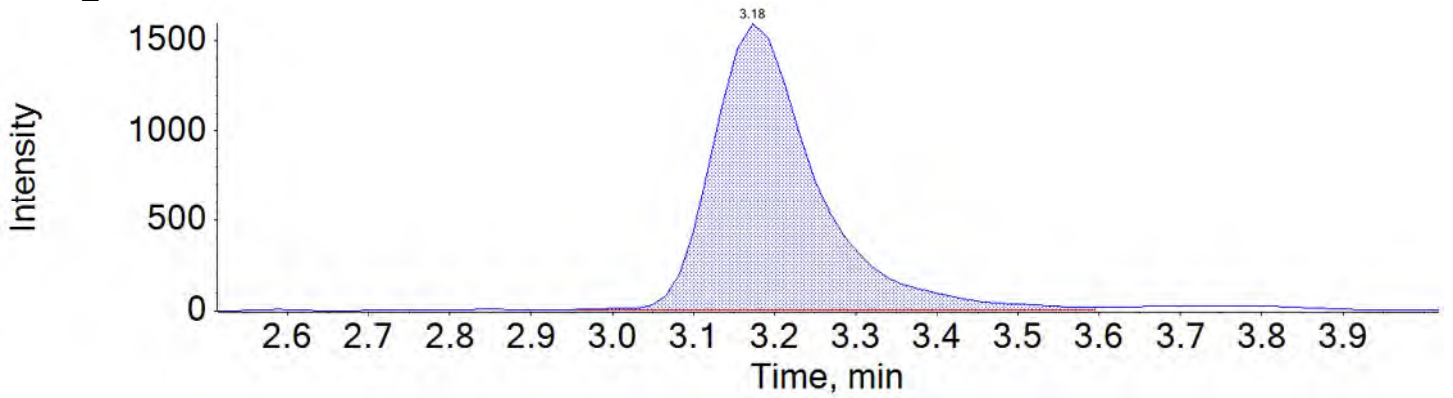
PFOS_2 499.0 / 99.0



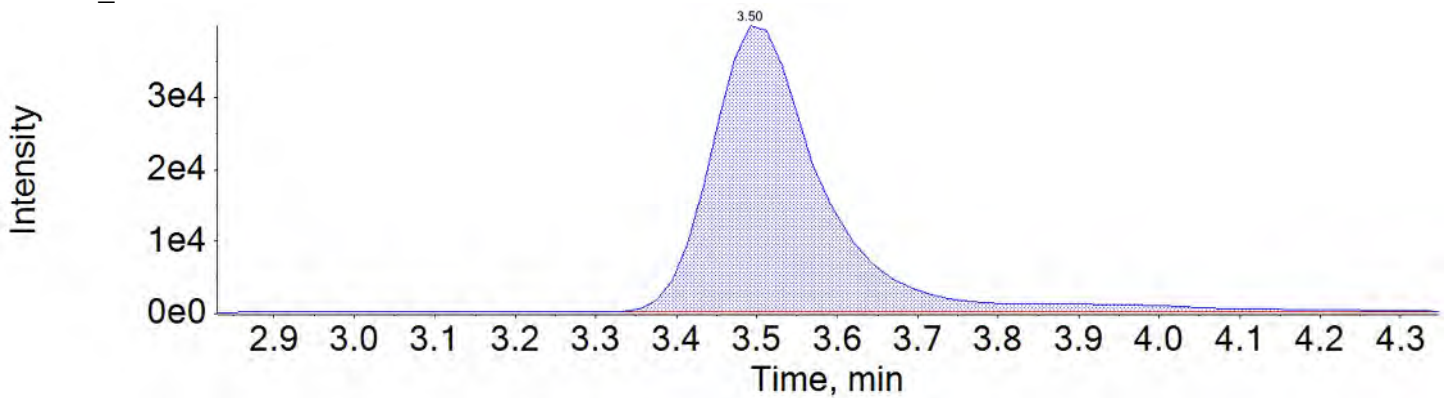
PFDA_1 513.0 / 469.0



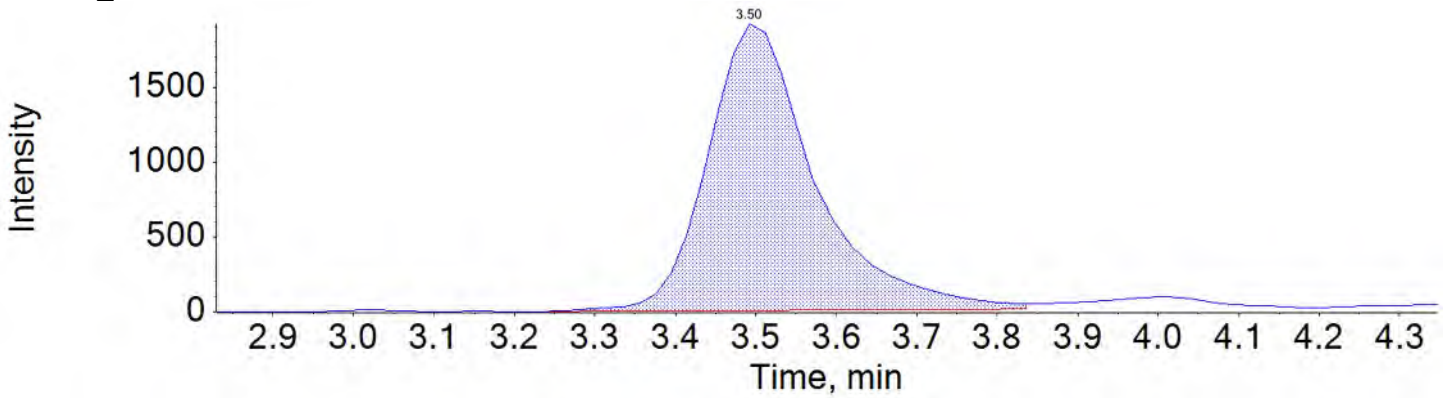
PFDA_2 513.0 / 219.0



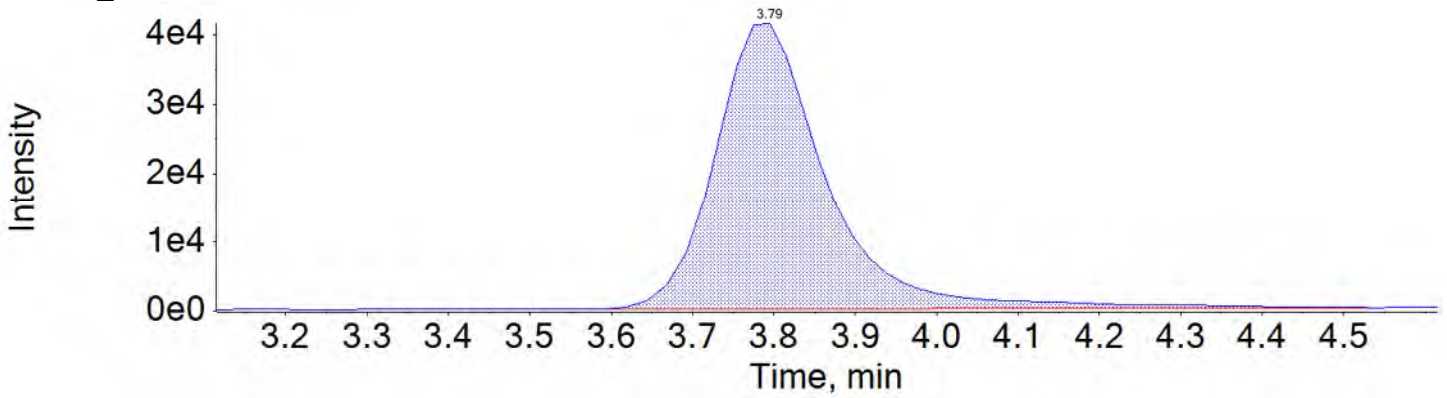
PFUnA_1 563.0 / 519.0



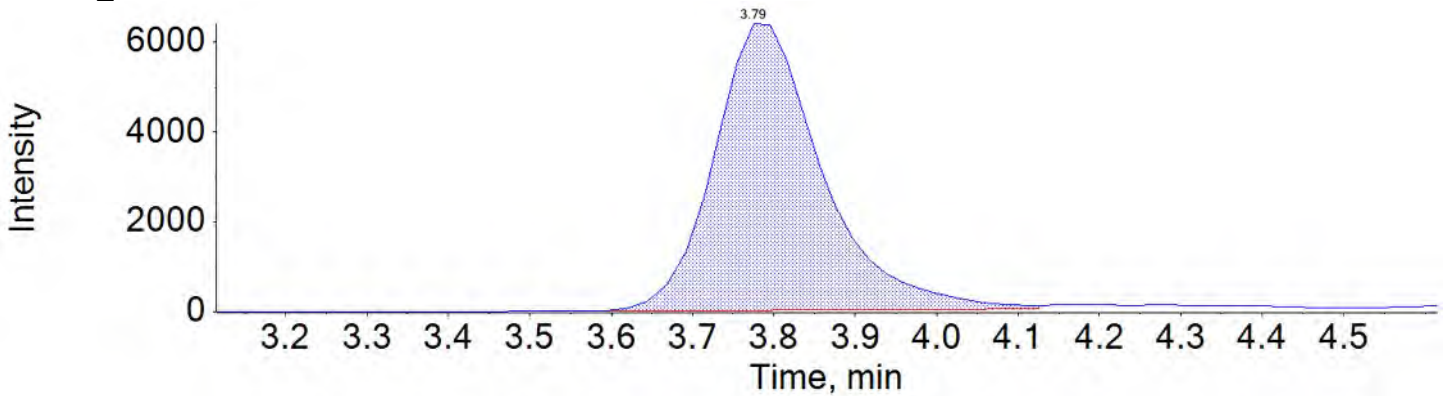
PFUnA_2 563.0 / 269.0



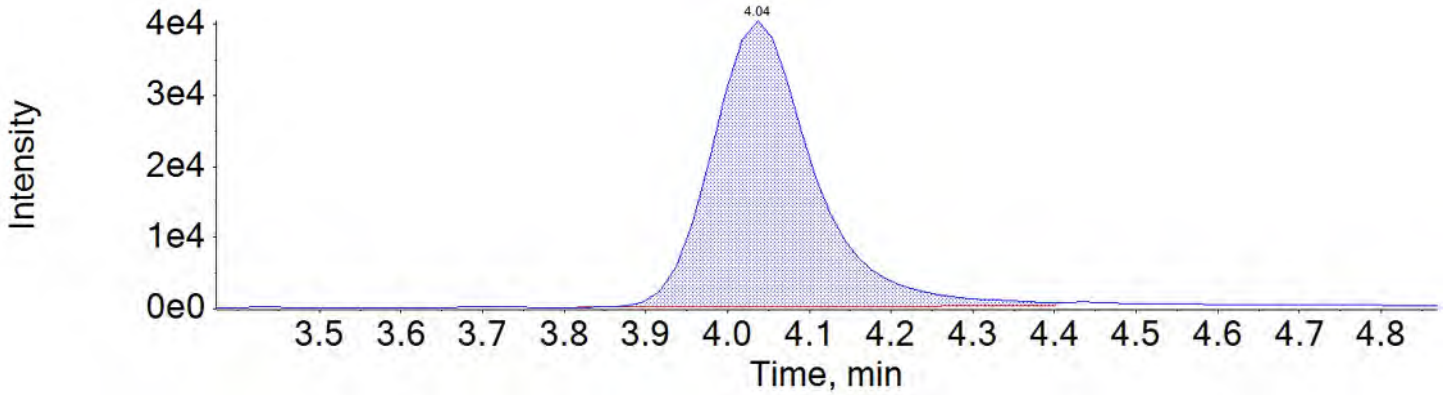
PFDaA_1 613.0 / 569.0



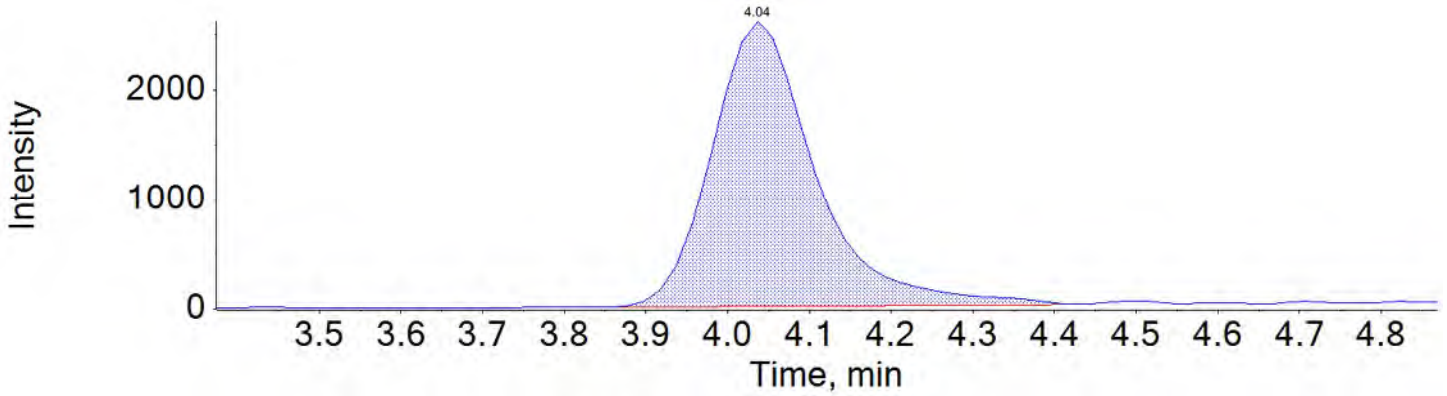
PFDaA_2 613.0 / 319.0



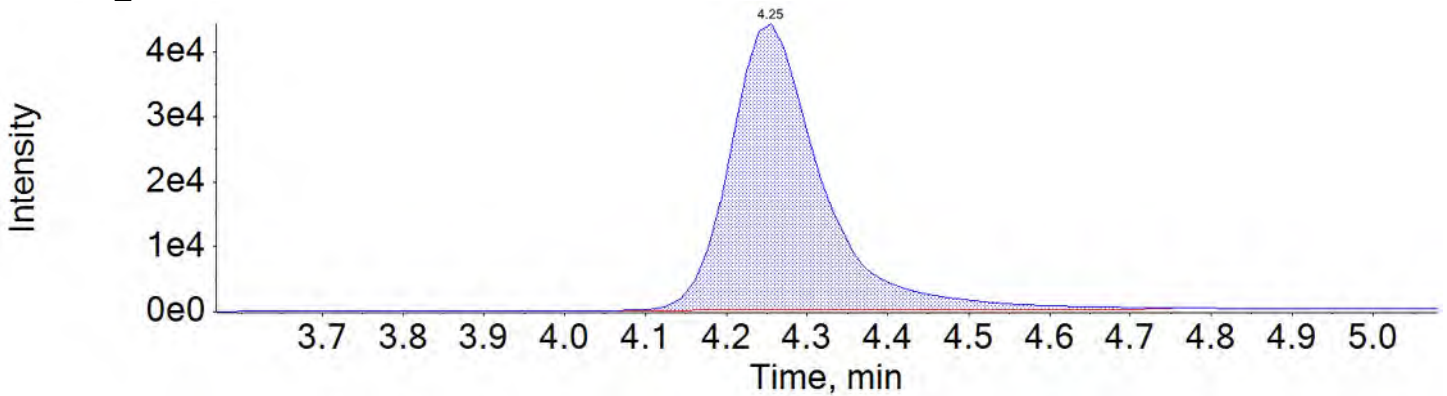
PFTTrDA_1 663.0 / 619.0



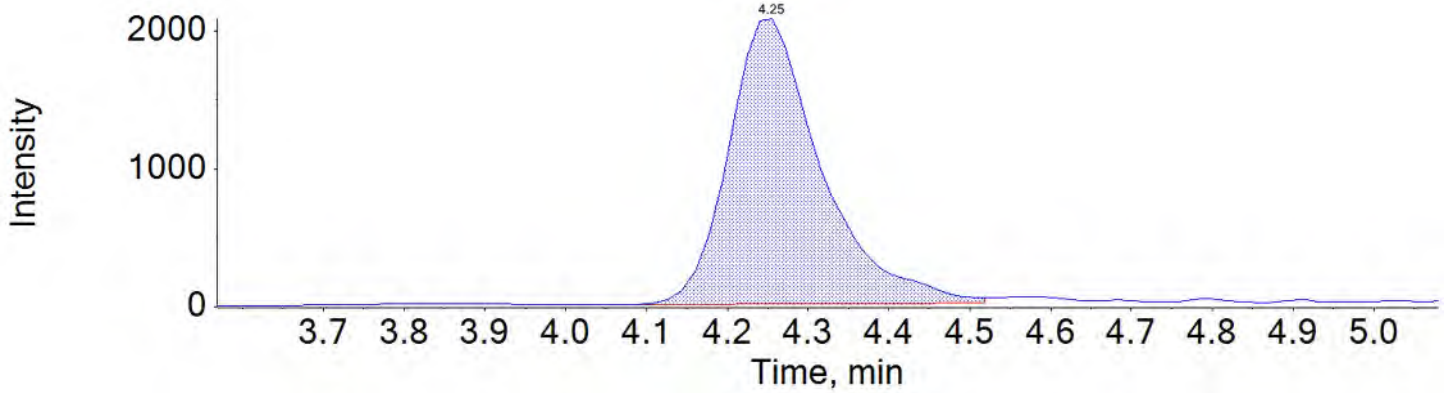
PFTTrDA_2 663.0 / 169.0



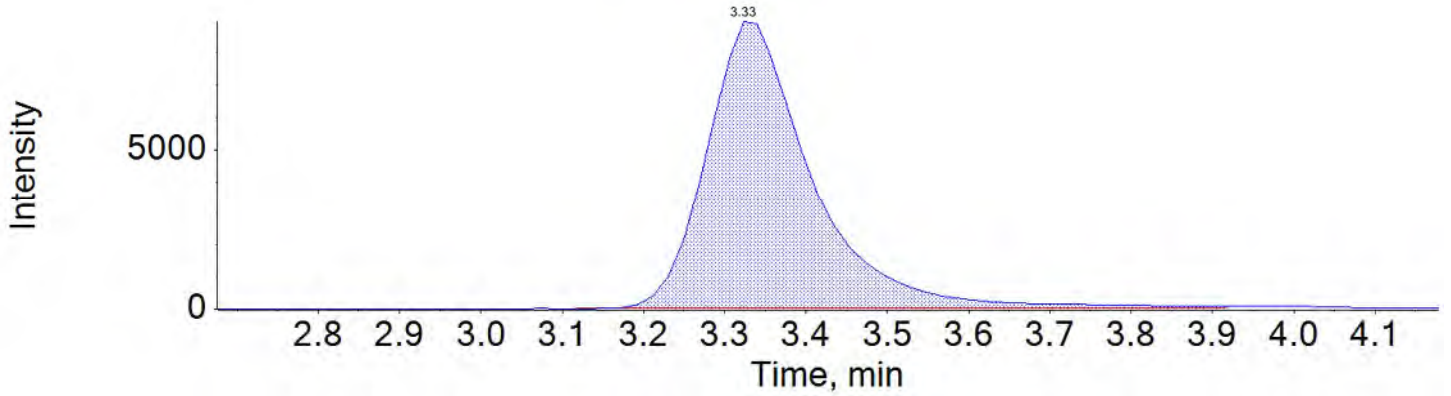
PFTeDA_1 713.0 / 669.0



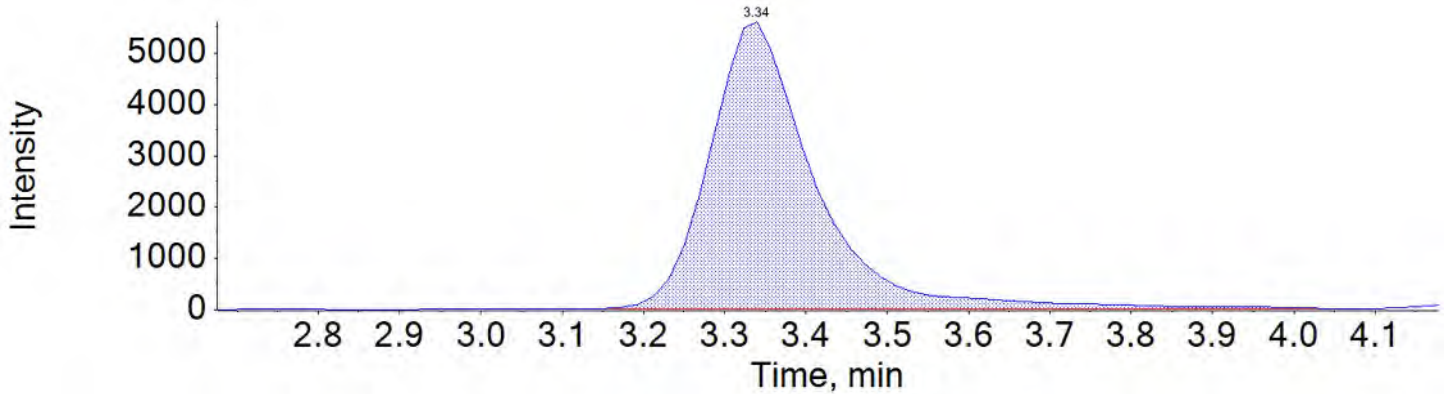
PFTeDA_2 713.0 / 169.0



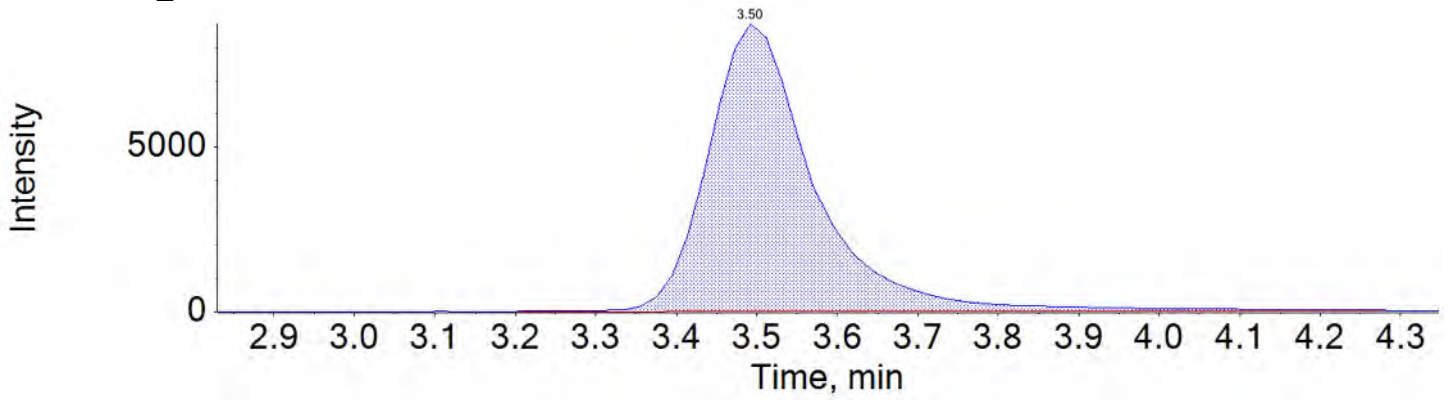
NMeFOSAA_1 570.0 / 419.0



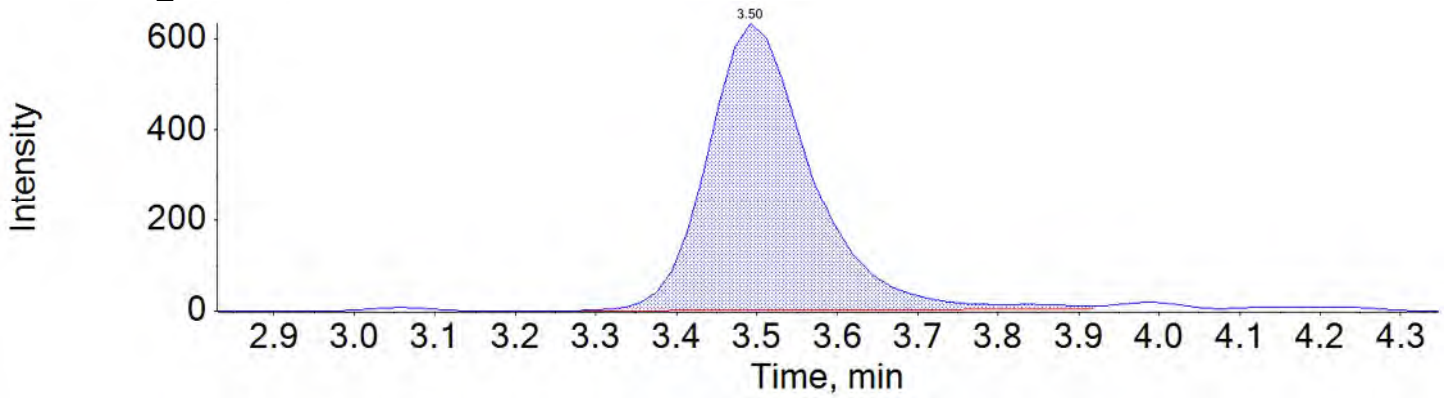
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

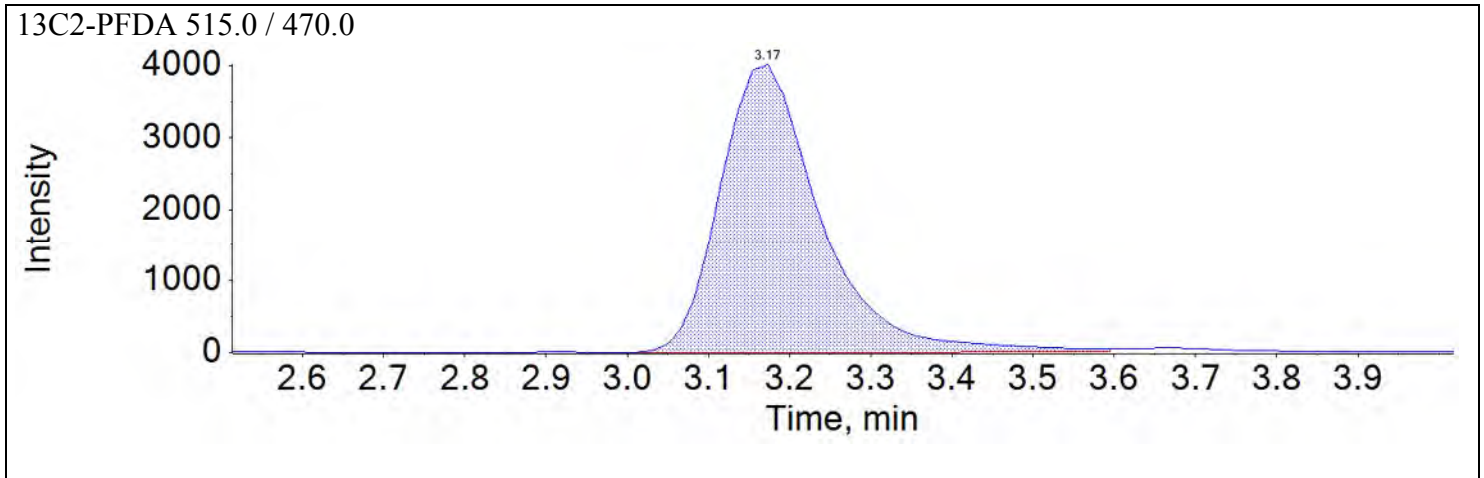
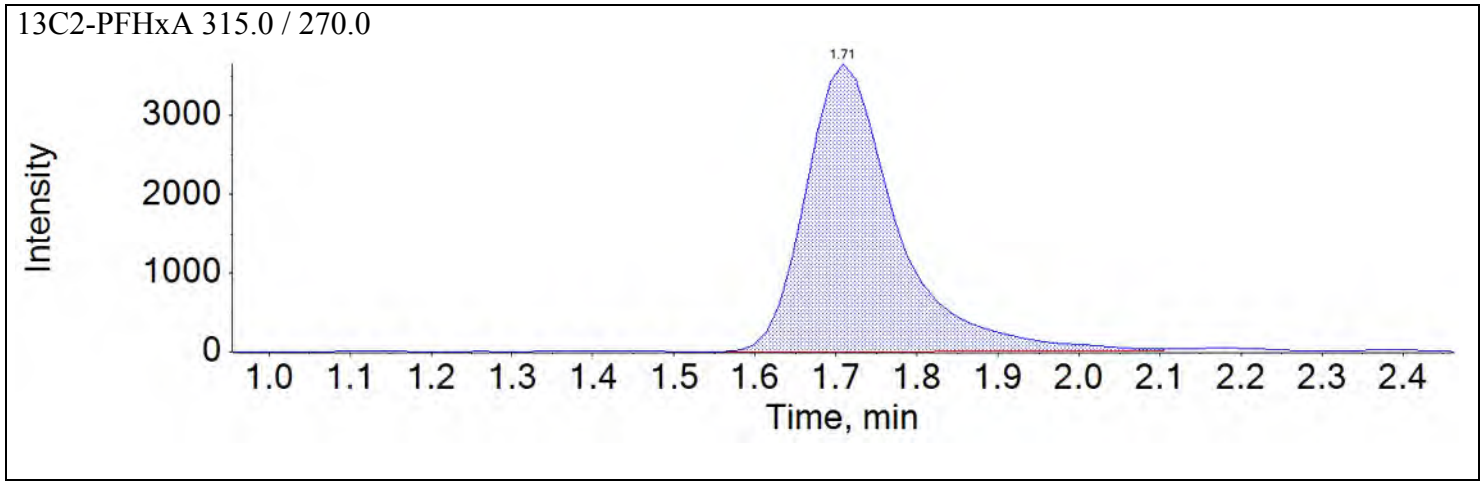


NEtFOSAA_2 584.0 / 483.0

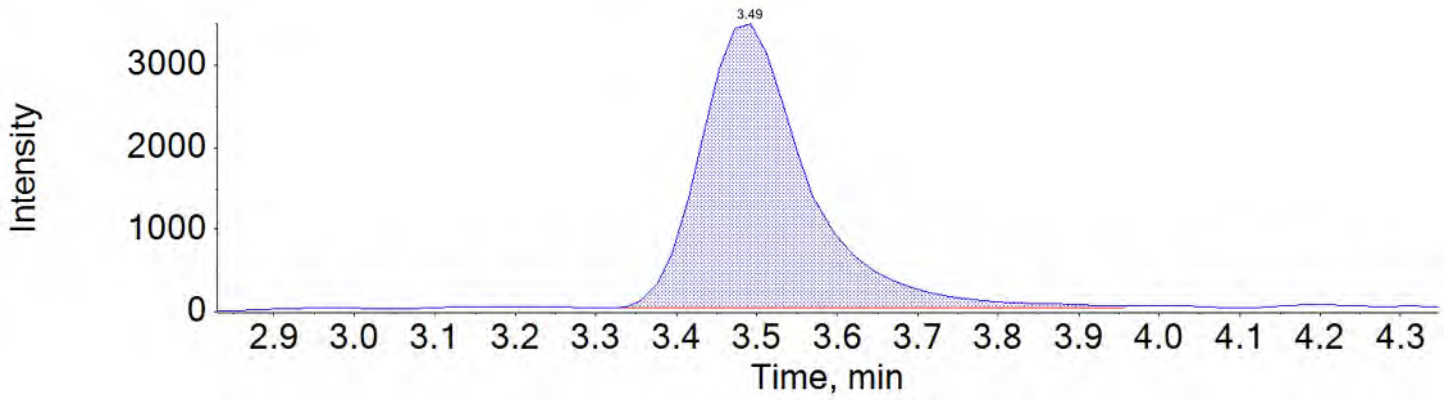


Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:47:28	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms



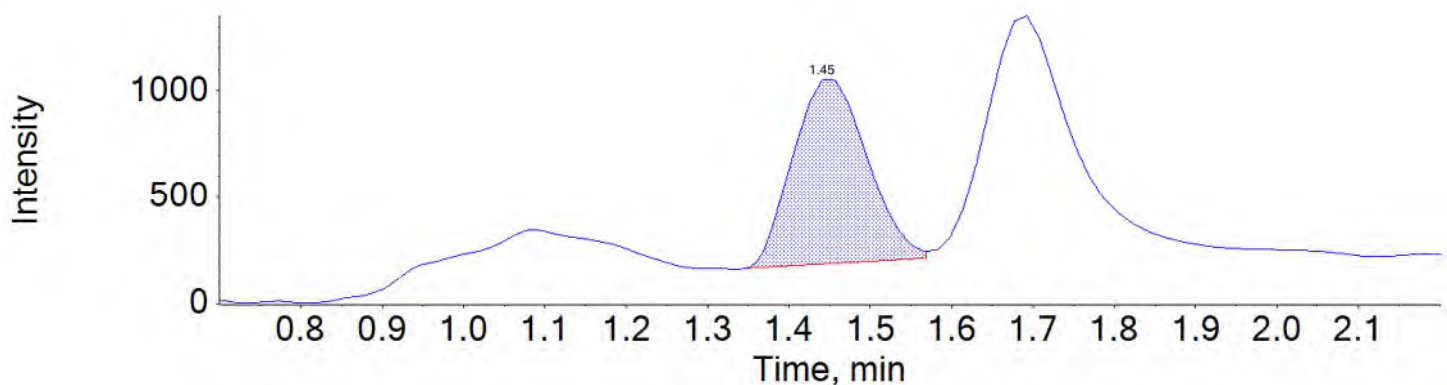
d5-EtFOSAA 589.0 / 419.0



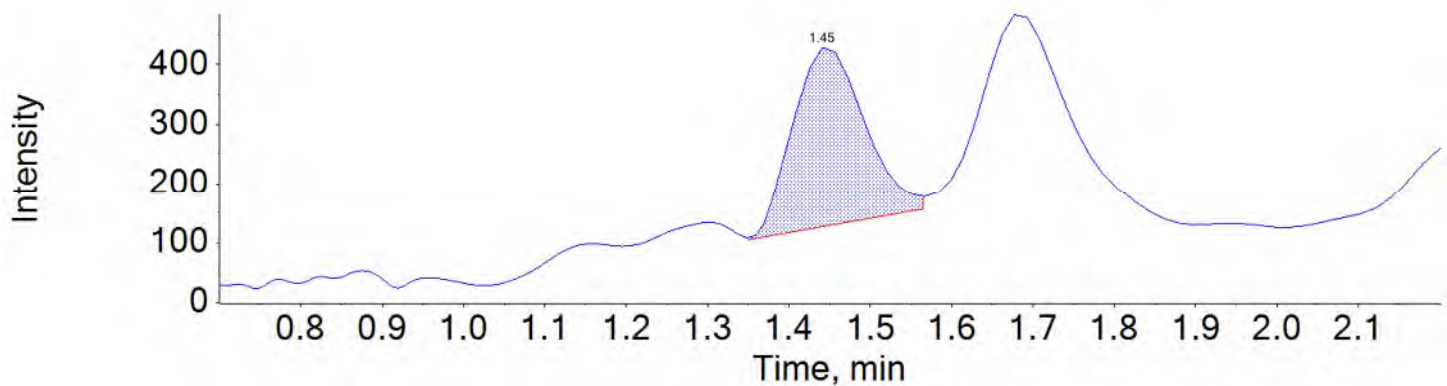
Sample Name	CQ753PB-FS(0)	Injection Vial	12
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:05:20	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

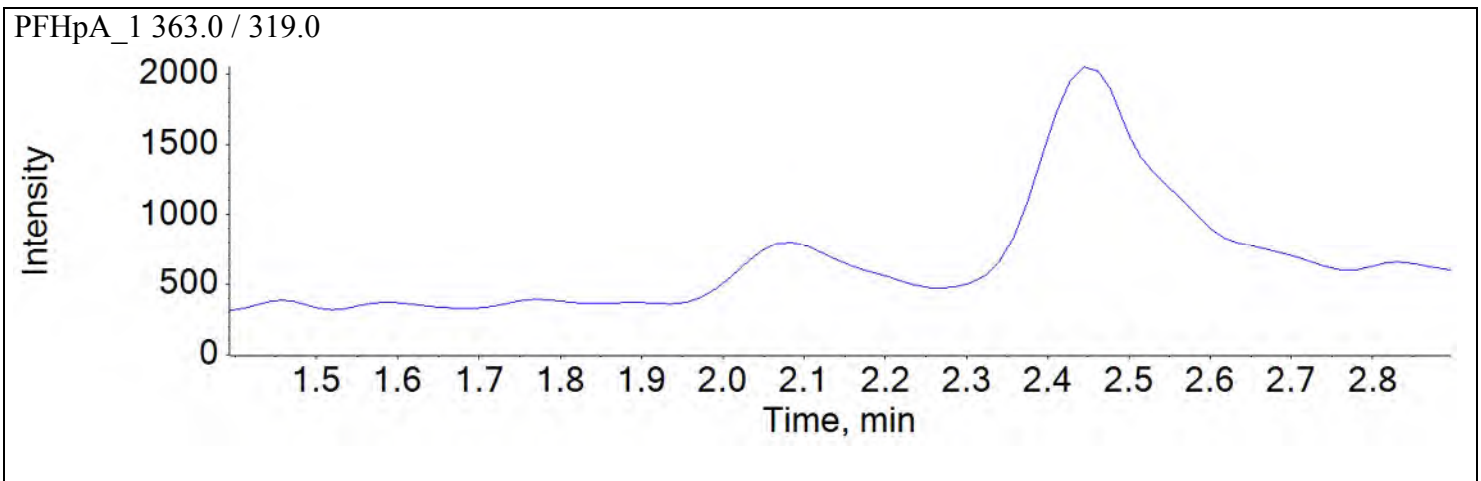
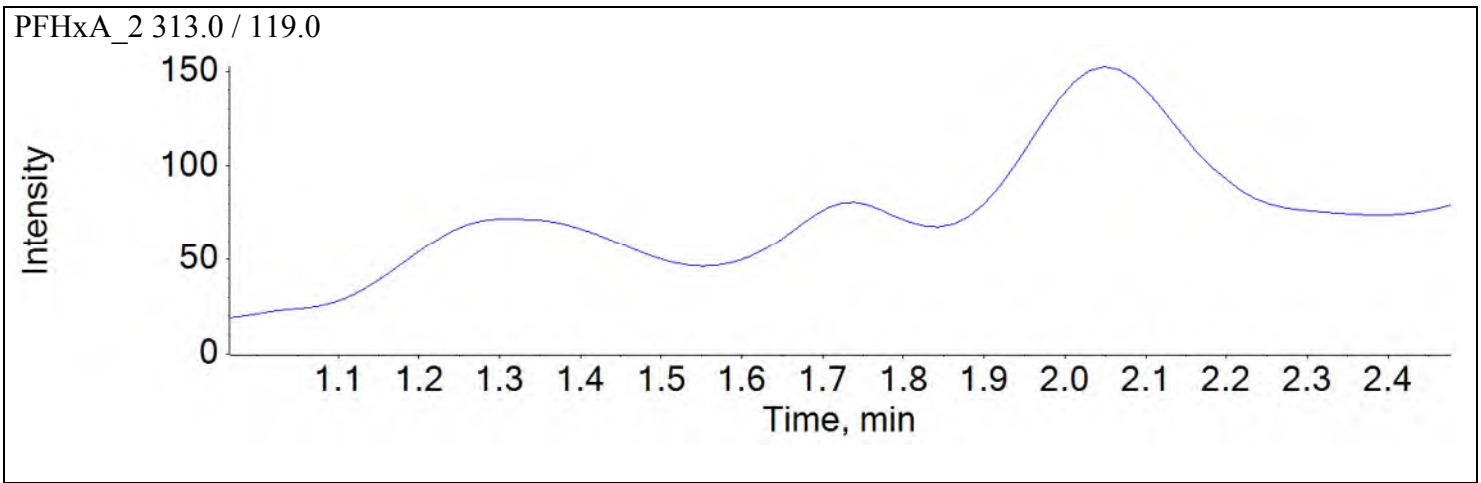
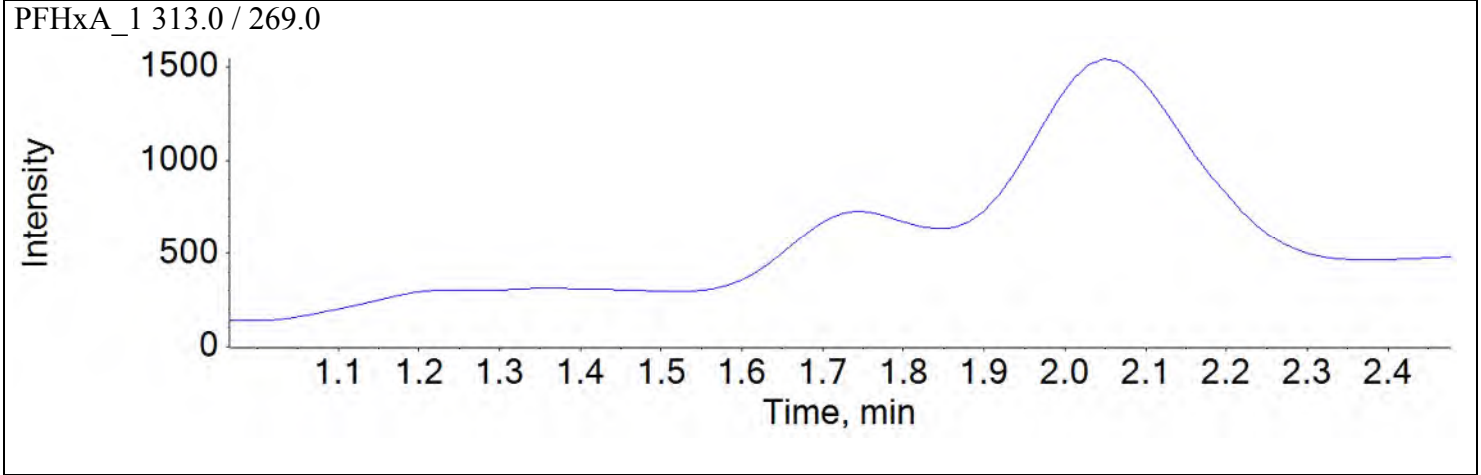
Chromatograms

PFBS_1 298.9 / 80.0

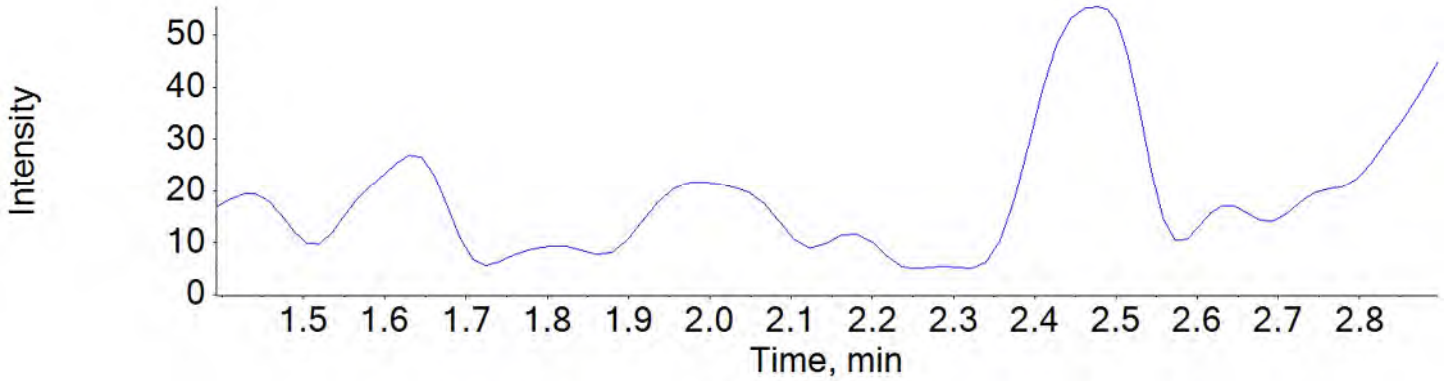


PFBS_2 298.9 / 99.0

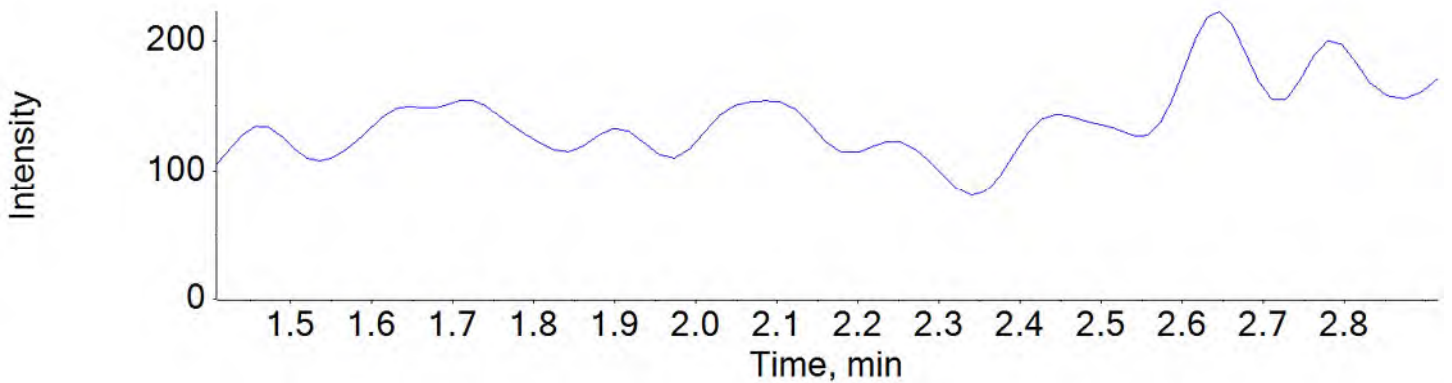




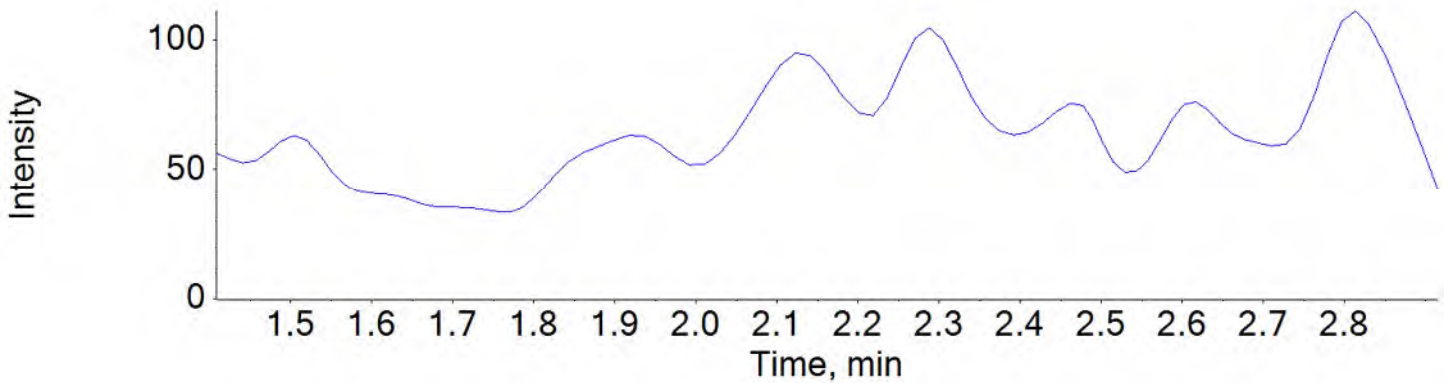
PFHpA_2 363.0 / 169.0



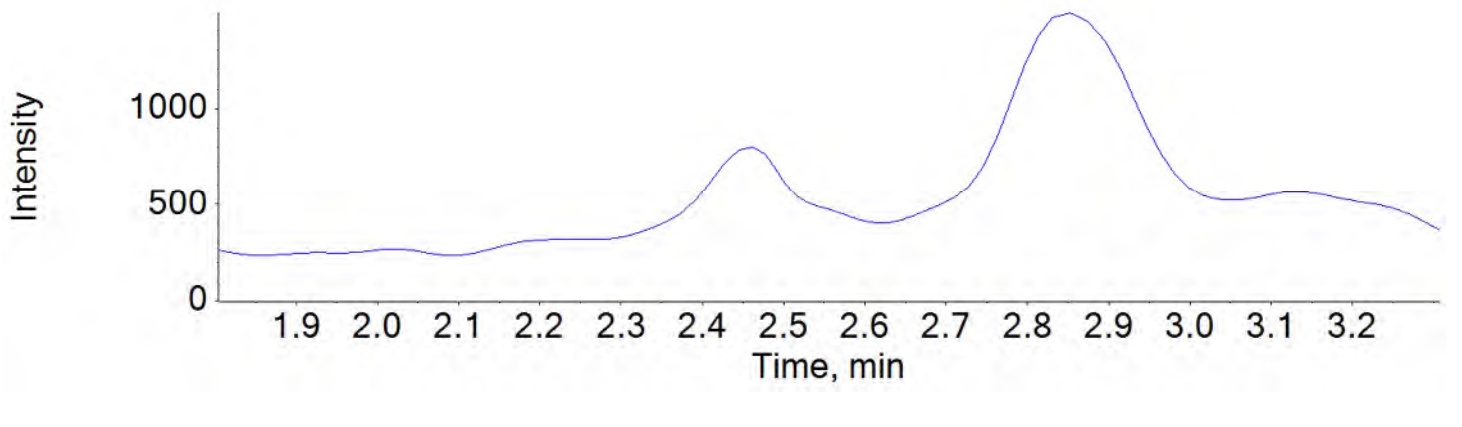
PFHxS_1 399.0 / 80.0



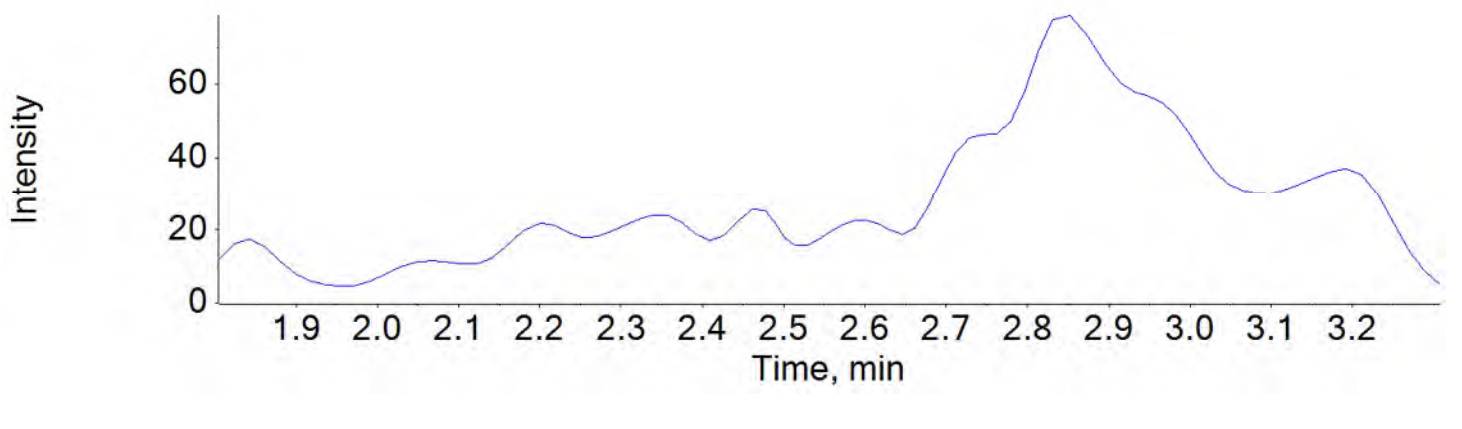
PFHxS_2 399.0 / 99.0



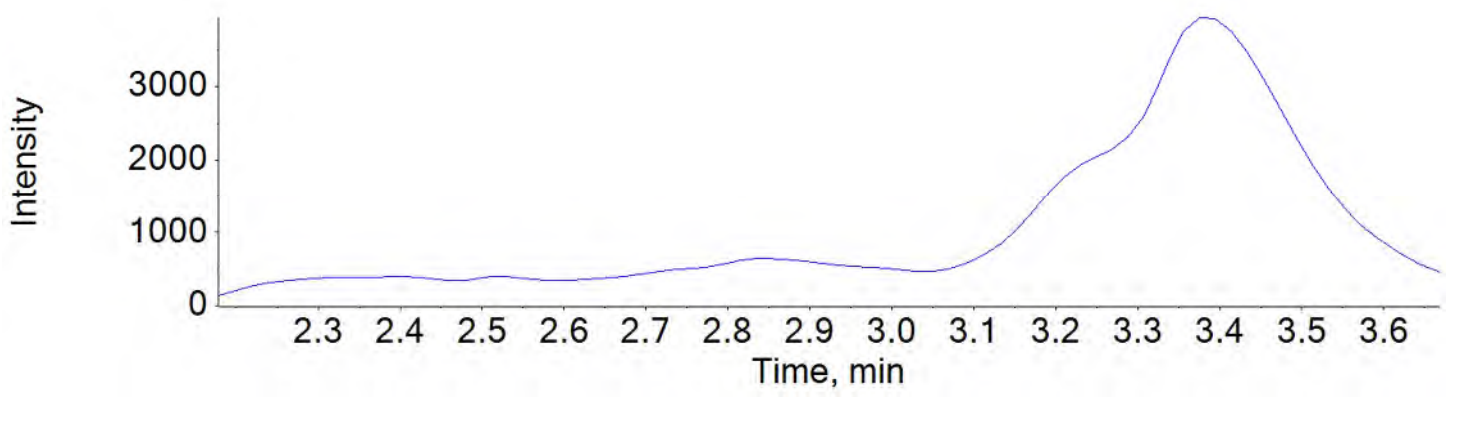
PFOA_1 413.0 / 369.0

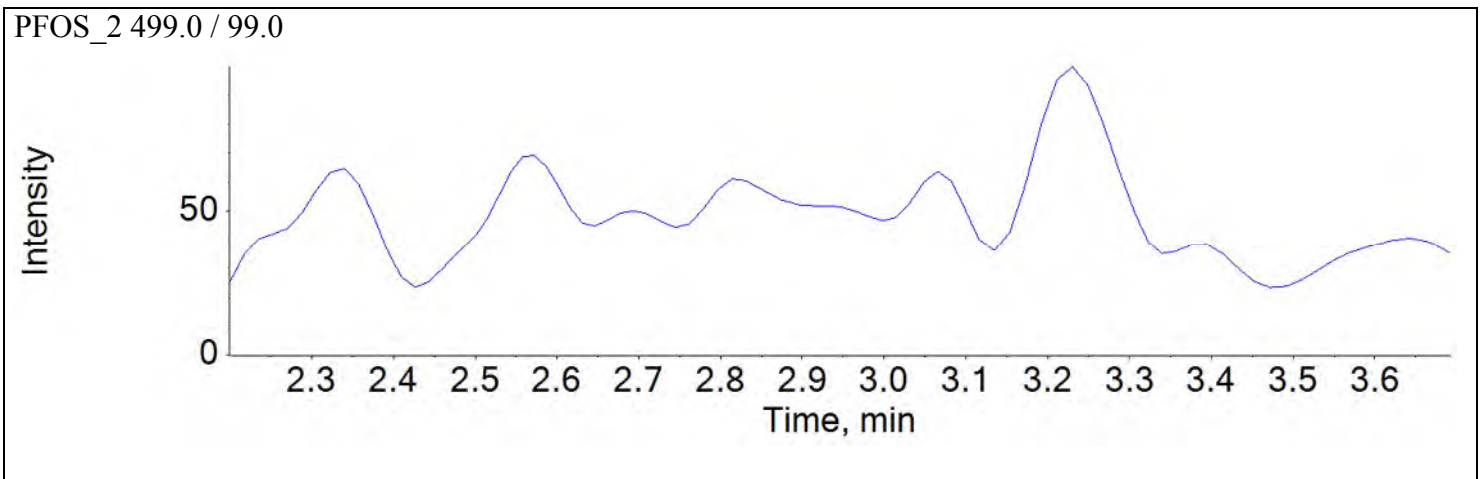
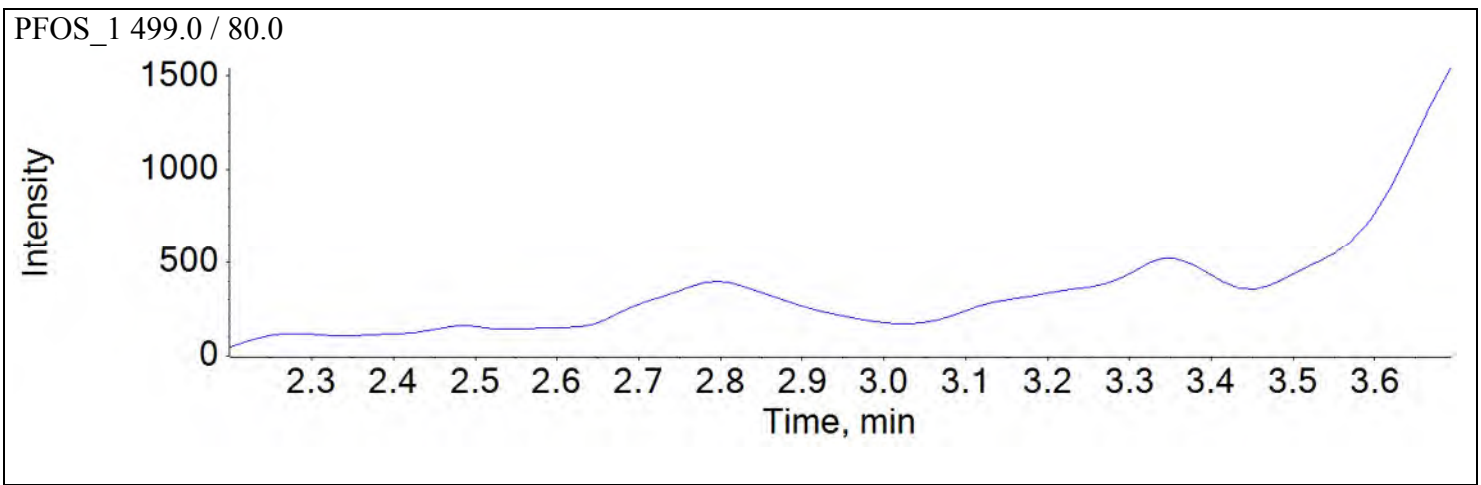
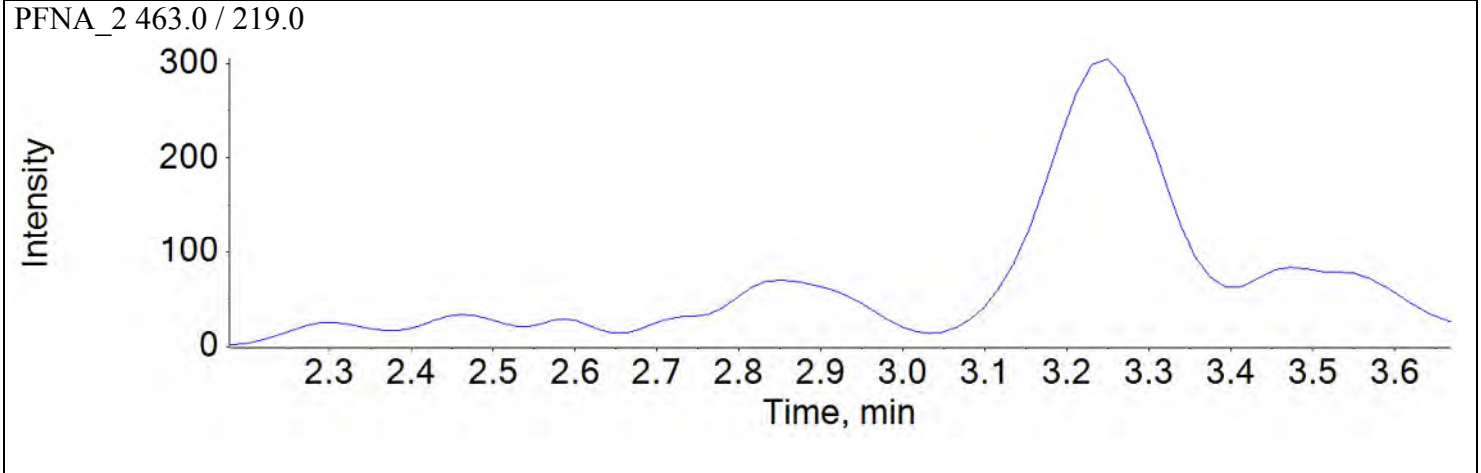


PFOA_2 413.0 / 169.0

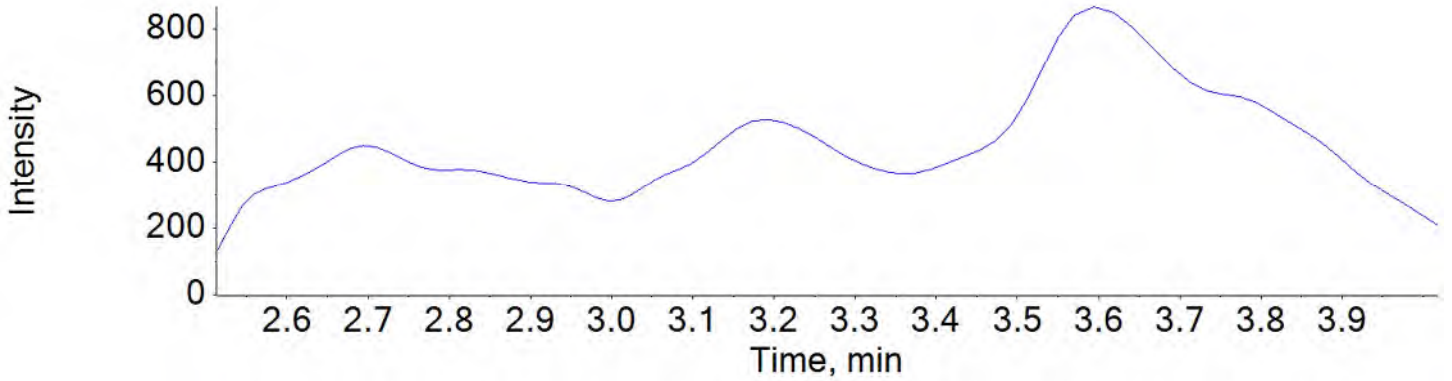


PFNA_1 463.0 / 419.0

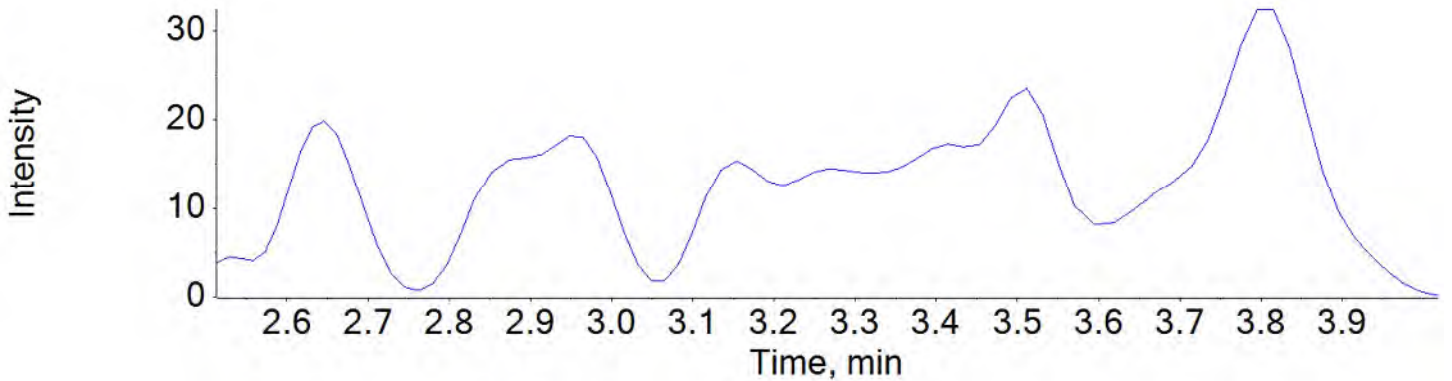




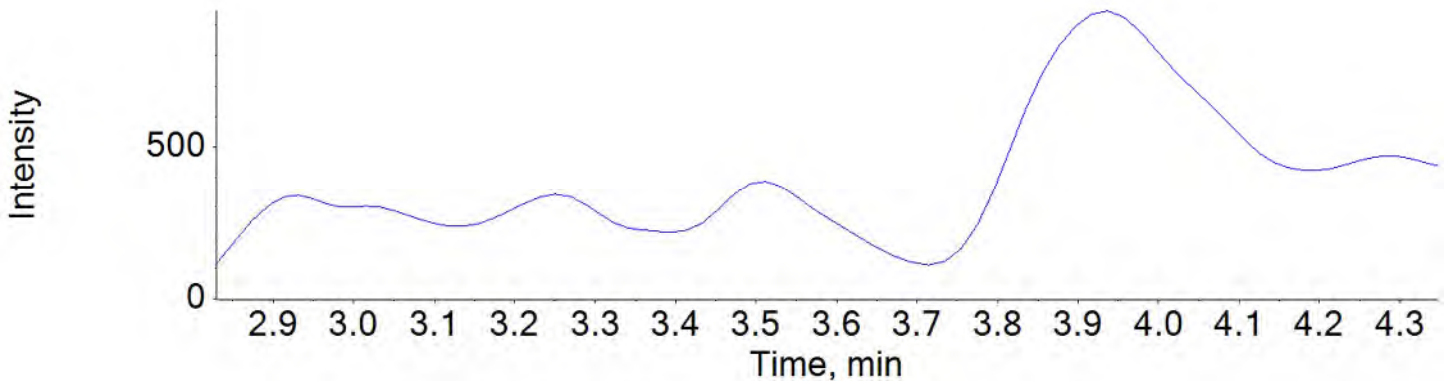
PFDA_1 513.0 / 469.0



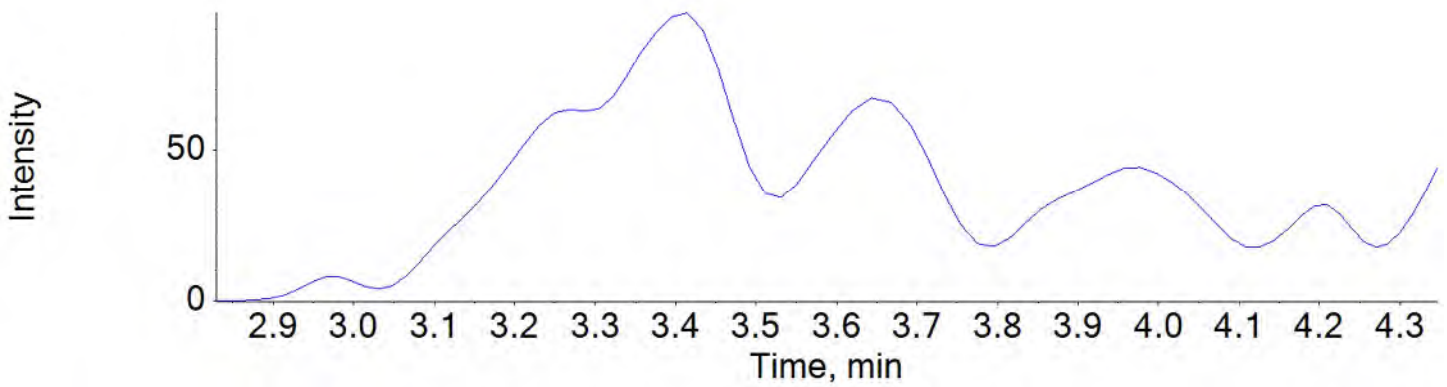
PFDA_2 513.0 / 219.0



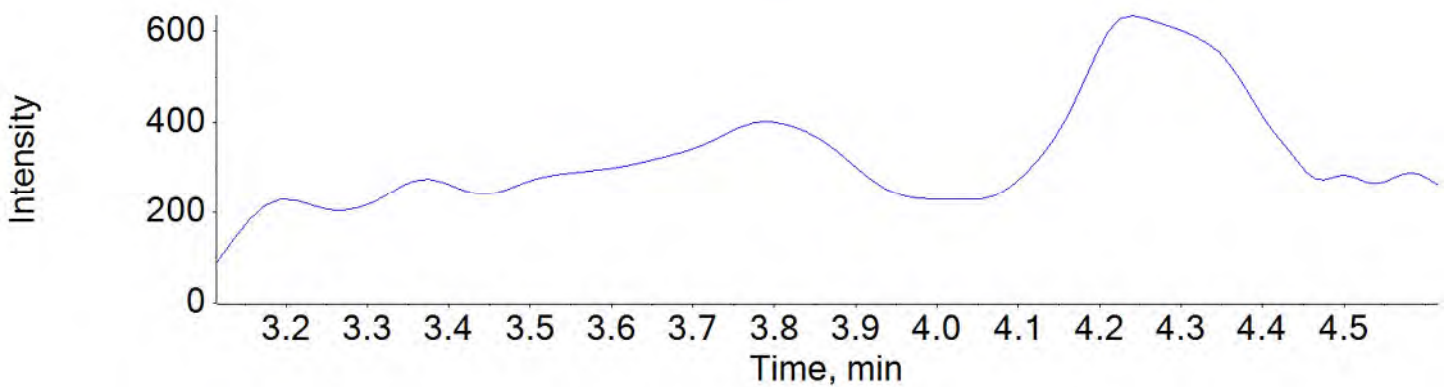
PFAUnA_1 563.0 / 519.0



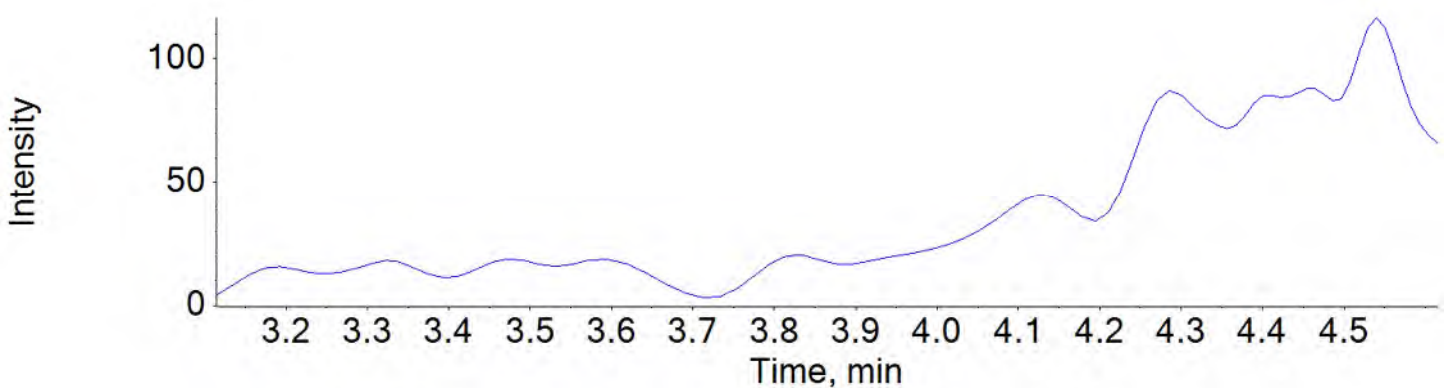
PFUnA_2 563.0 / 269.0



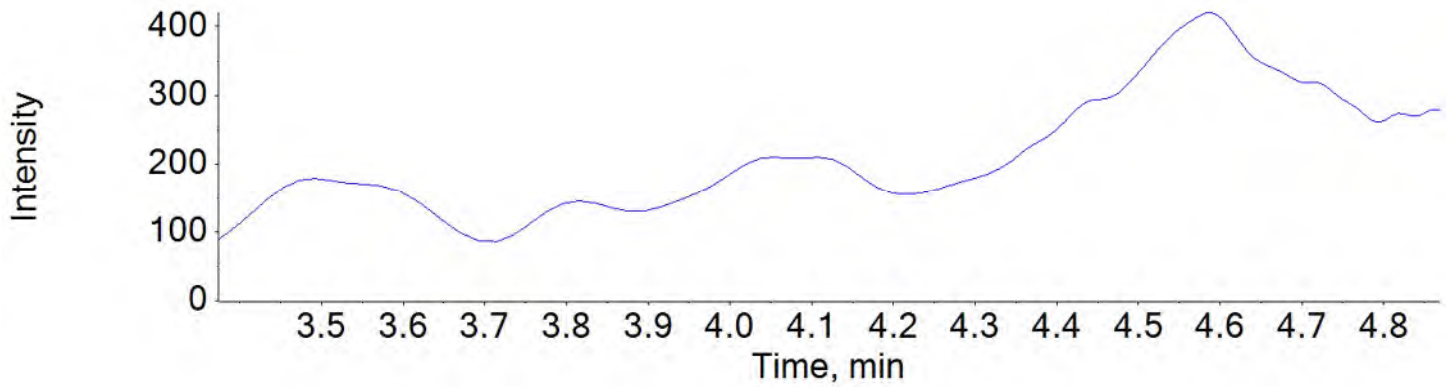
PFDaA_1 613.0 / 569.0



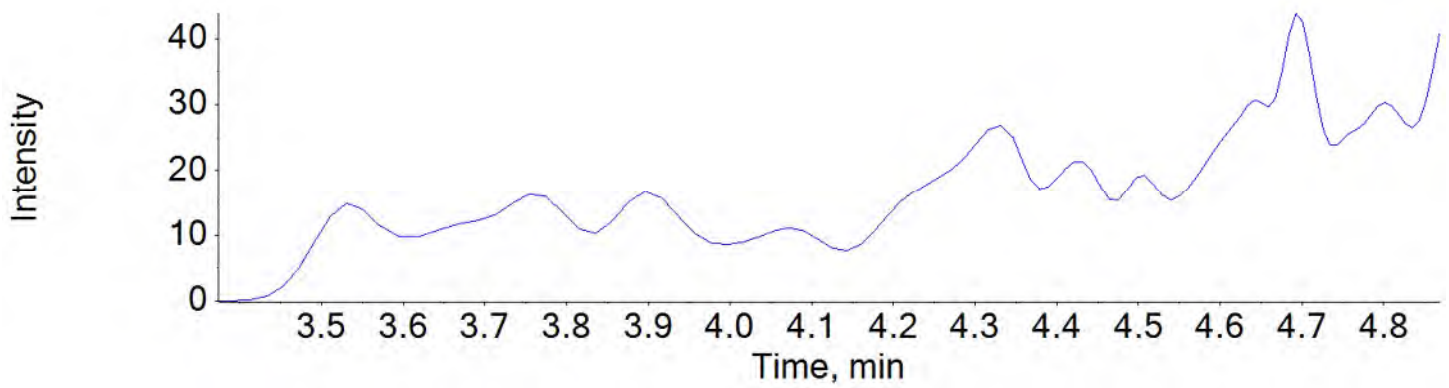
PFDaA_2 613.0 / 319.0



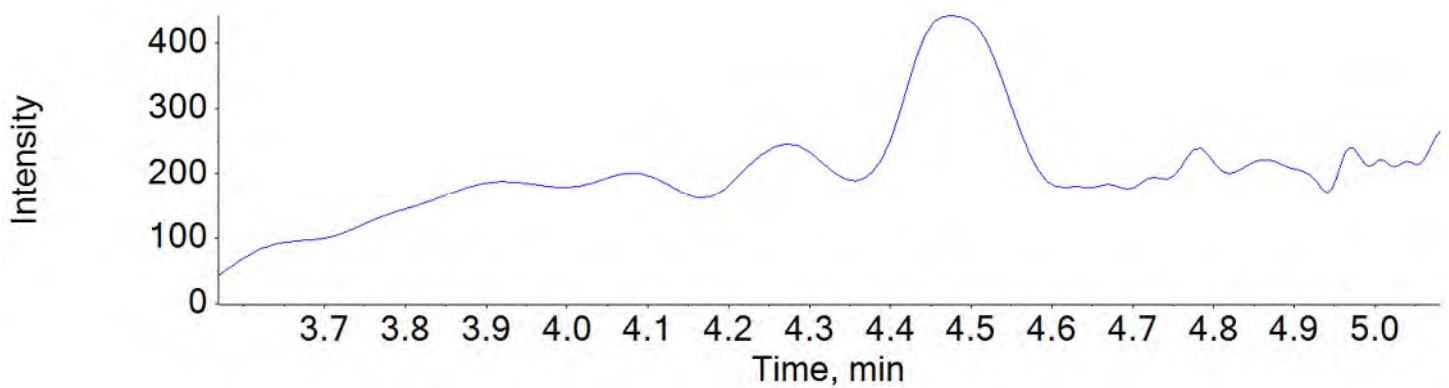
PFTTrDA_1 663.0 / 619.0



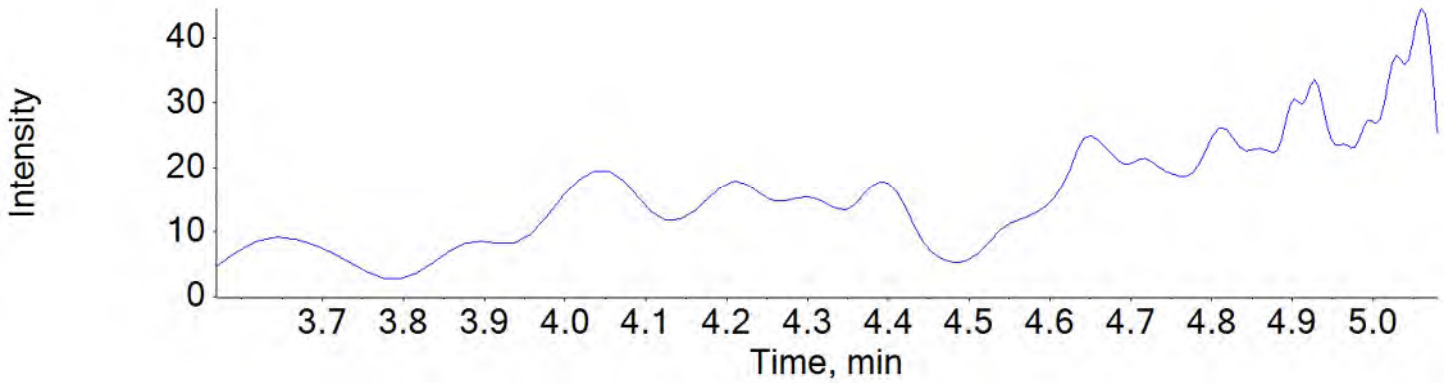
PFTTrDA_2 663.0 / 169.0



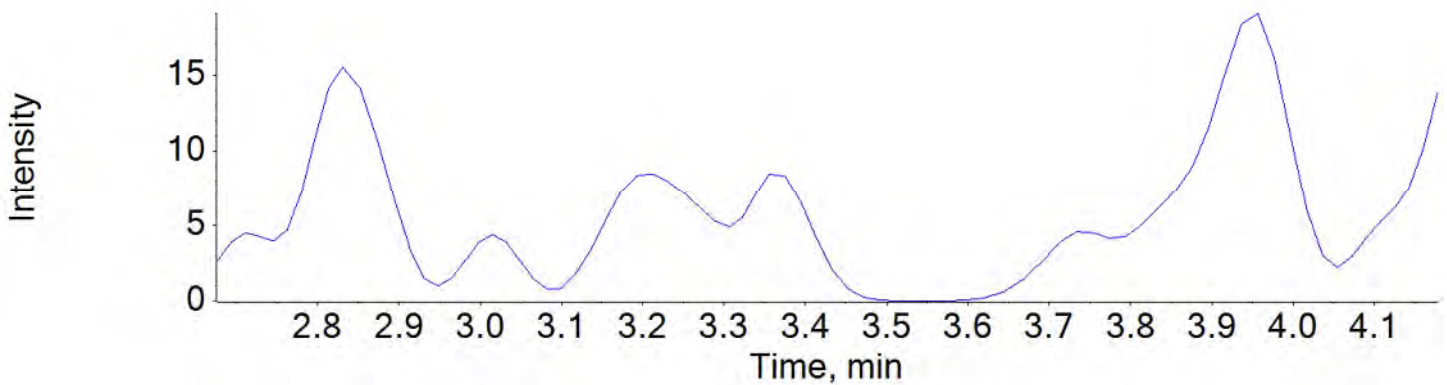
PFTTeDA_1 713.0 / 669.0



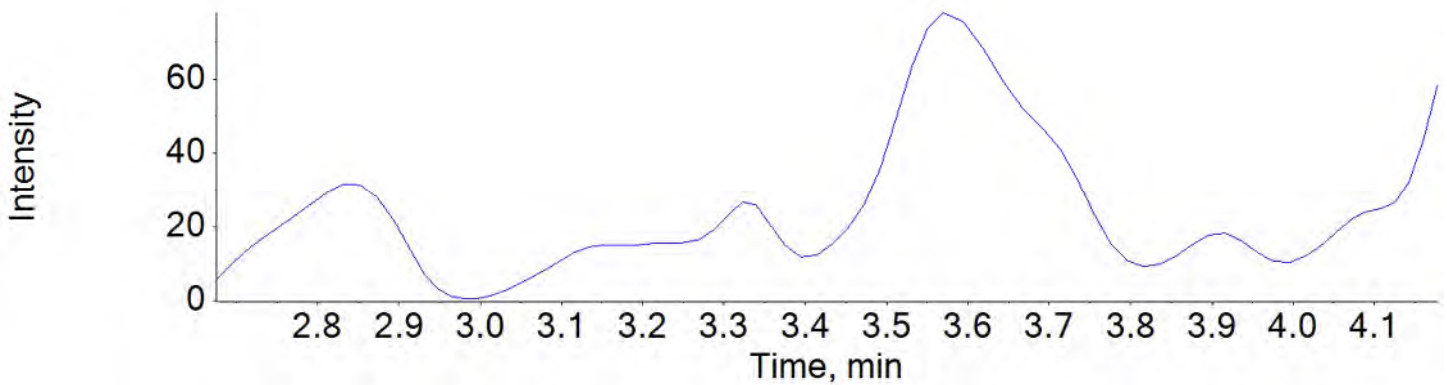
PFTeDA_2 713.0 / 169.0

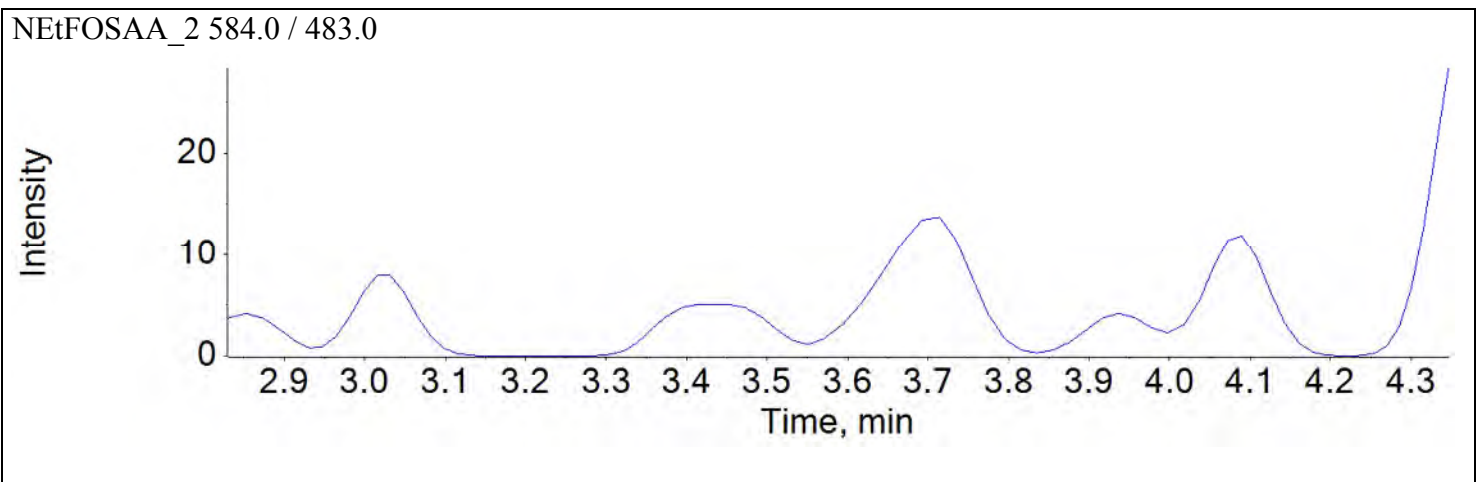
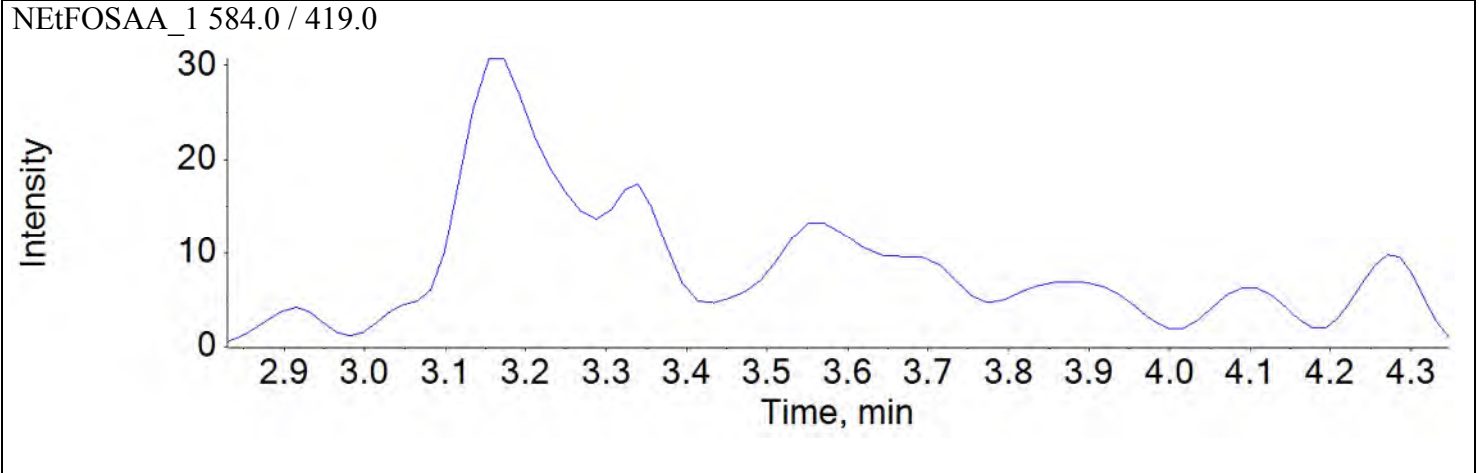


NMeFOSAA_1 570.0 / 419.0



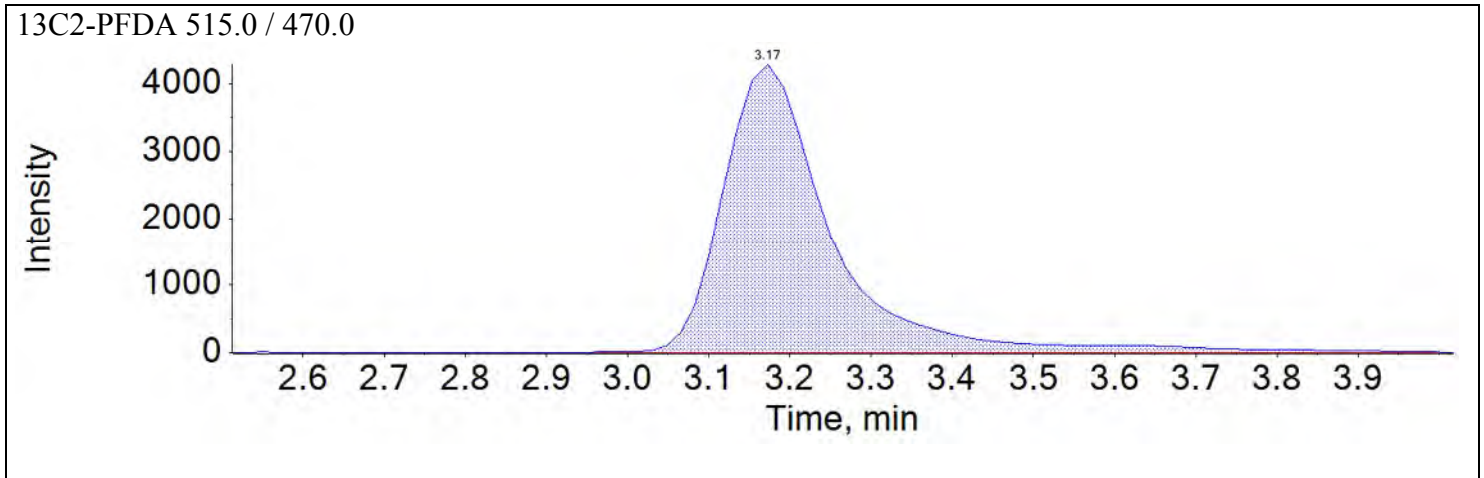
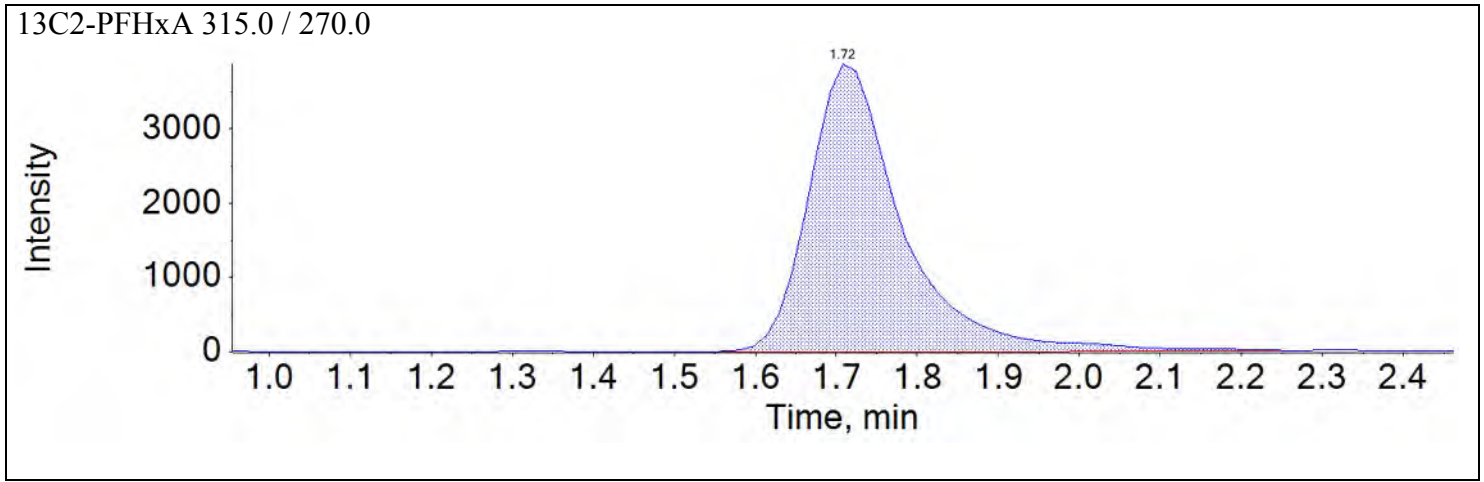
NMeFOSAA_2 570.0 / 512.0

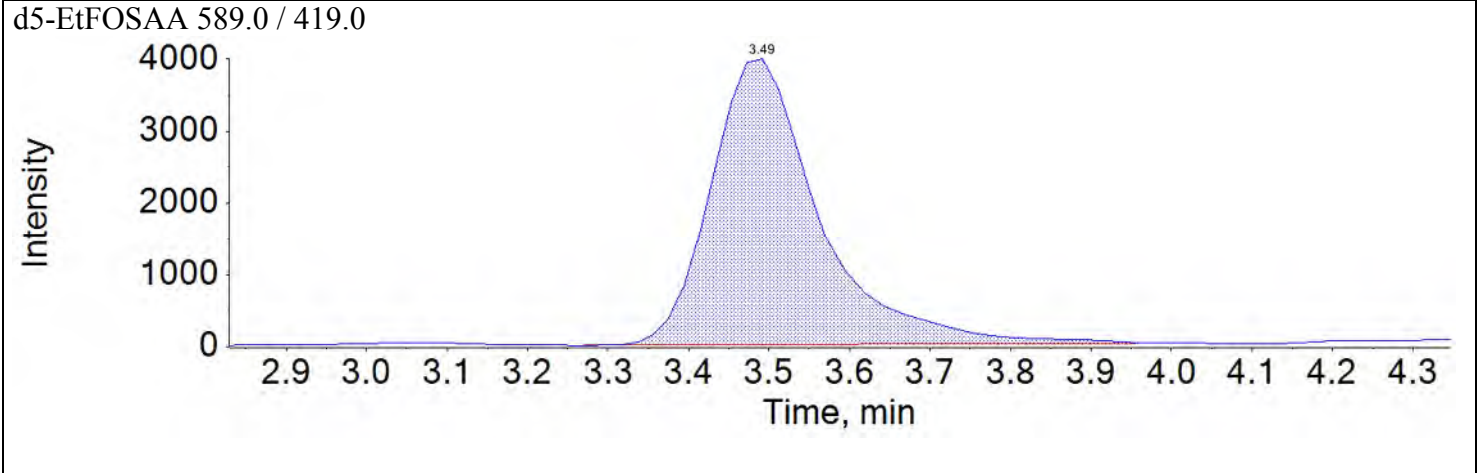




Sample Name	CQ753PB-FS(0)	Injection Vial	12
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:05:20	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

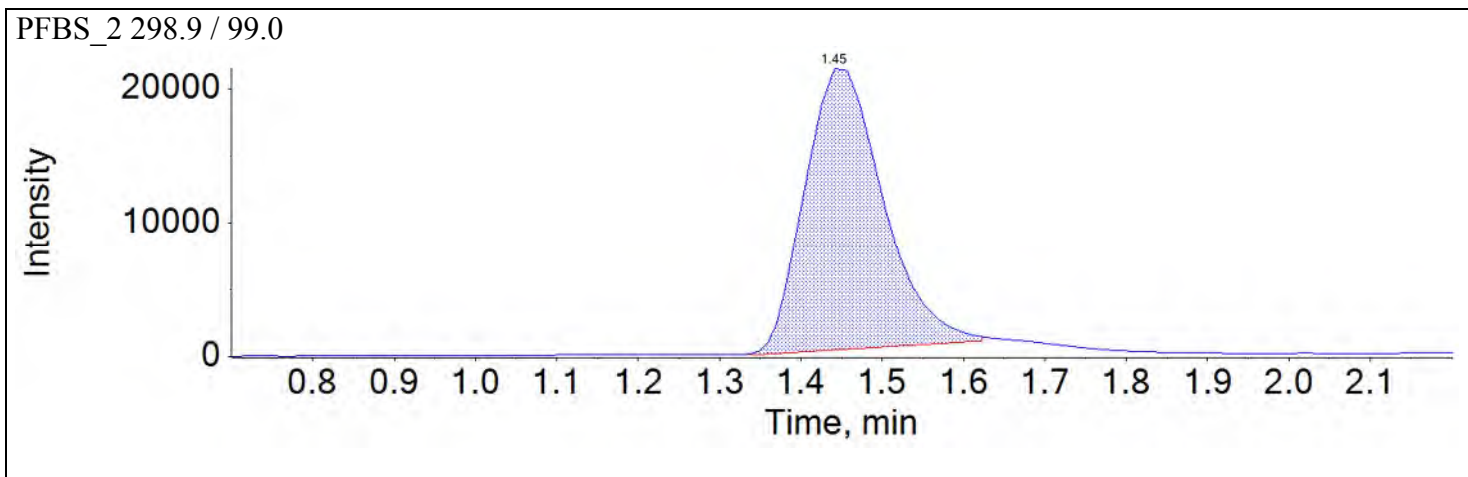
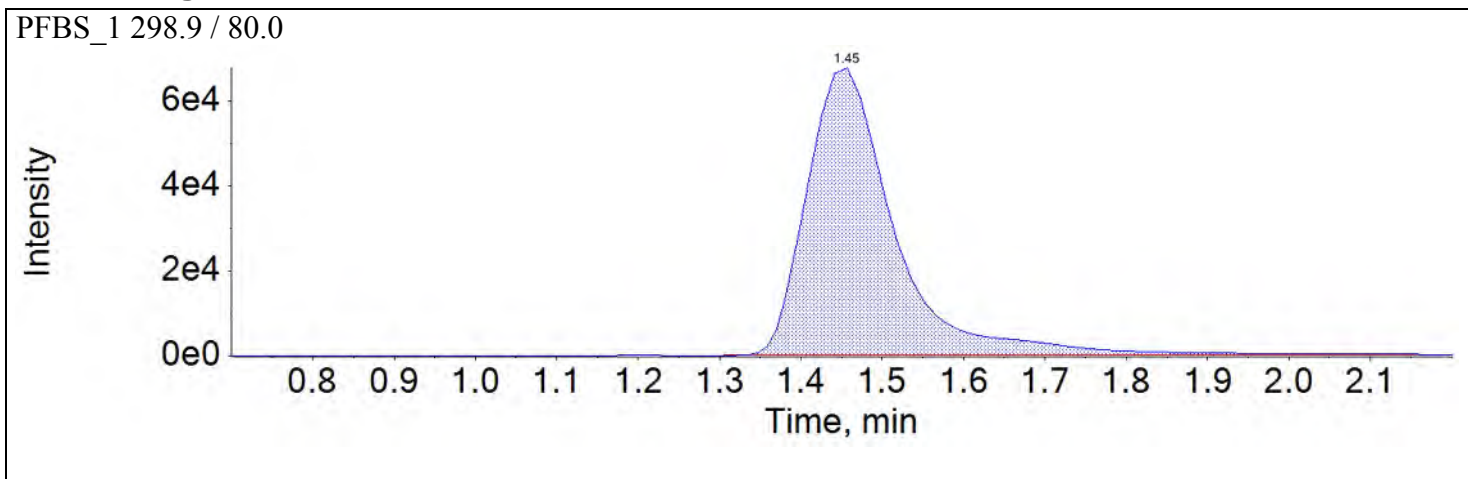
Chromatograms



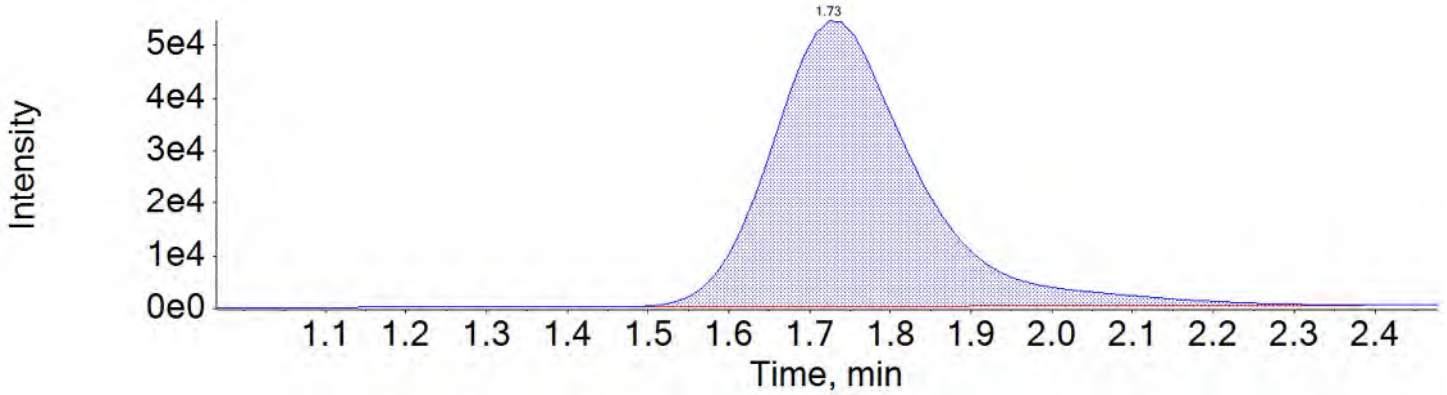


Sample Name	CQ754LCS-FS(0)	Injection Vial	13
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:14:15	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

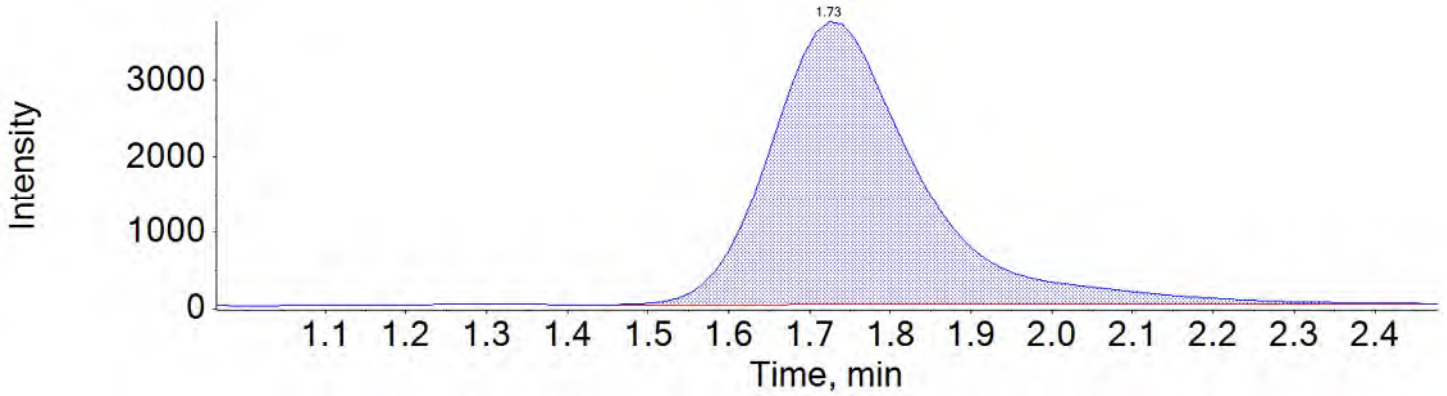
Chromatograms



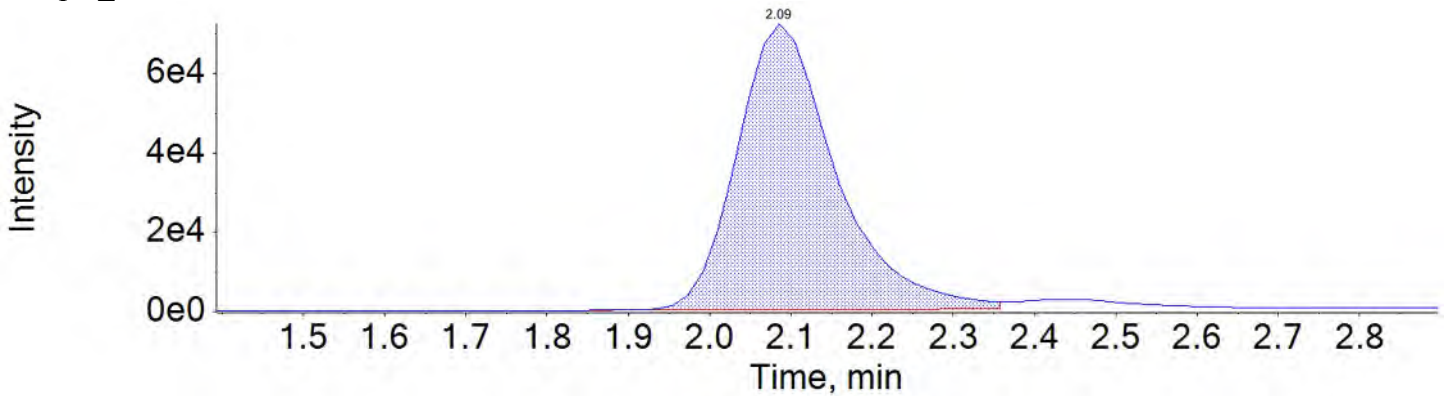
PFHxA_1 313.0 / 269.0



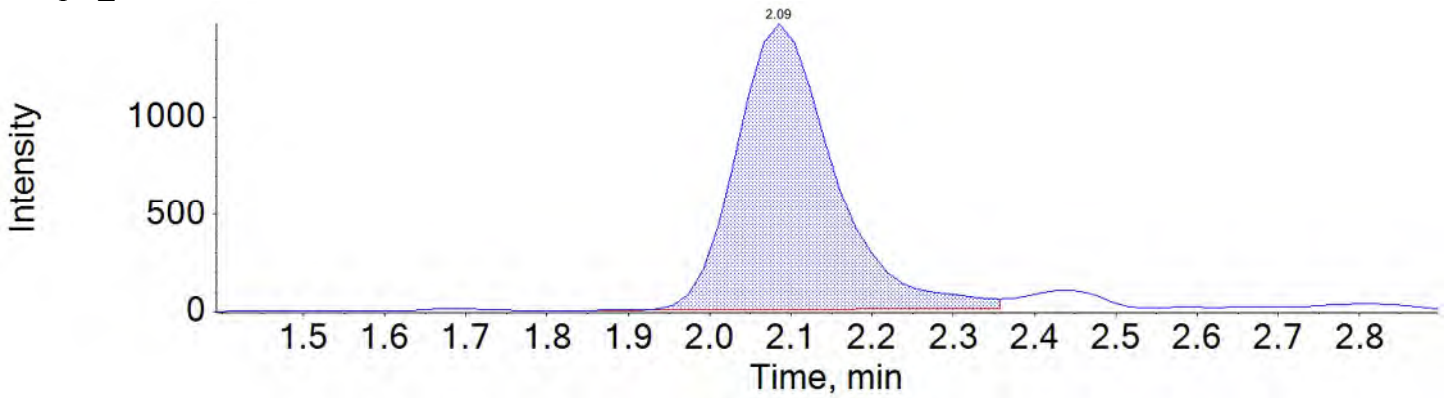
PFHxA_2 313.0 / 119.0



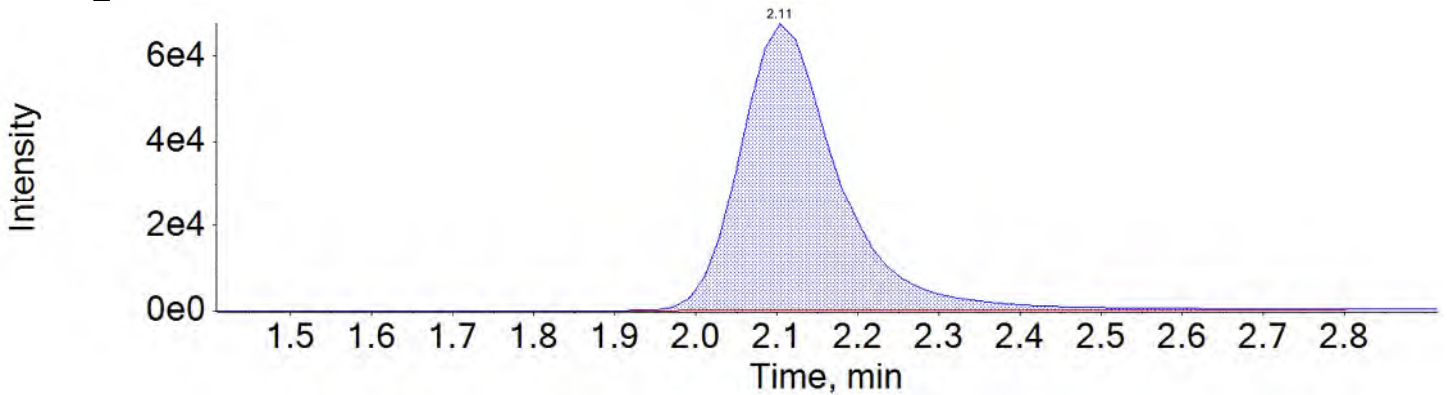
PFHpA_1 363.0 / 319.0



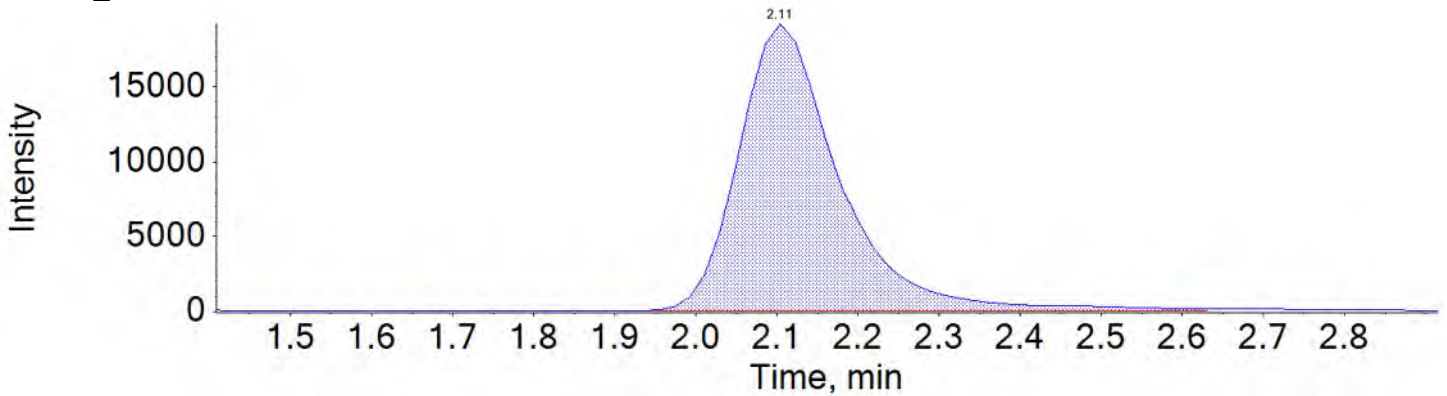
PFHpA_2 363.0 / 169.0



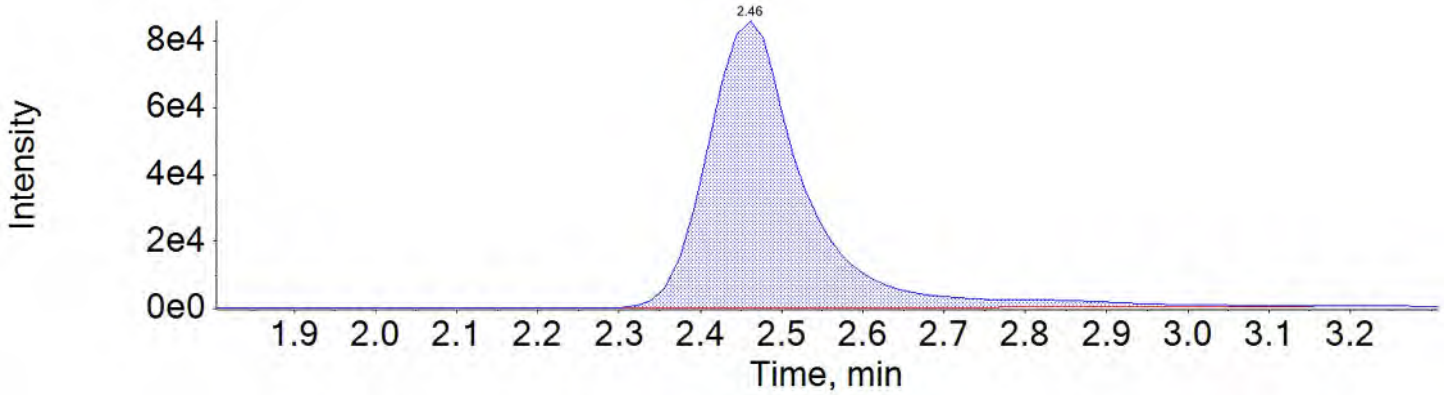
PFHxS_1 399.0 / 80.0



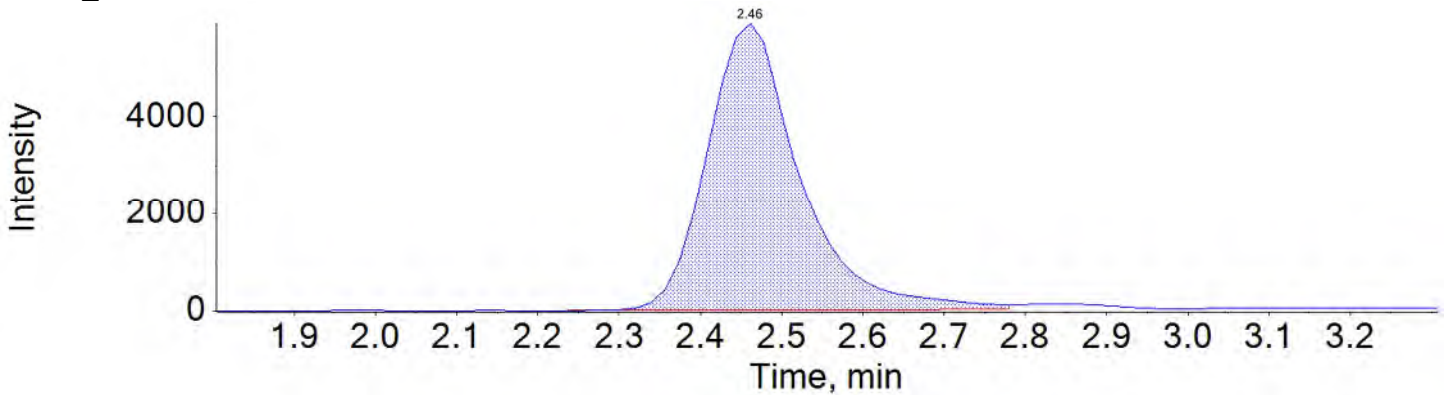
PFHxS_2 399.0 / 99.0



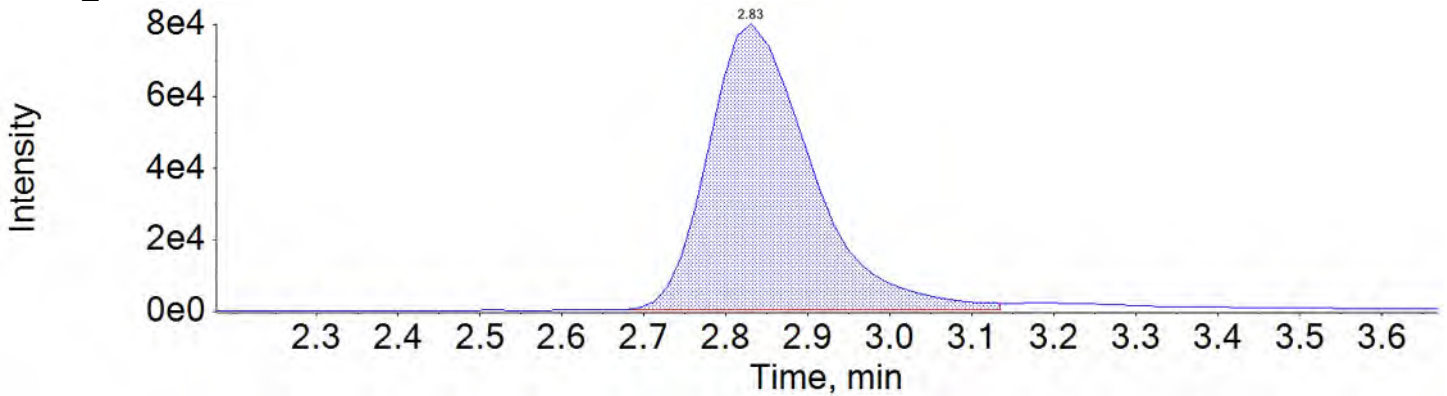
PFOA_1 413.0 / 369.0



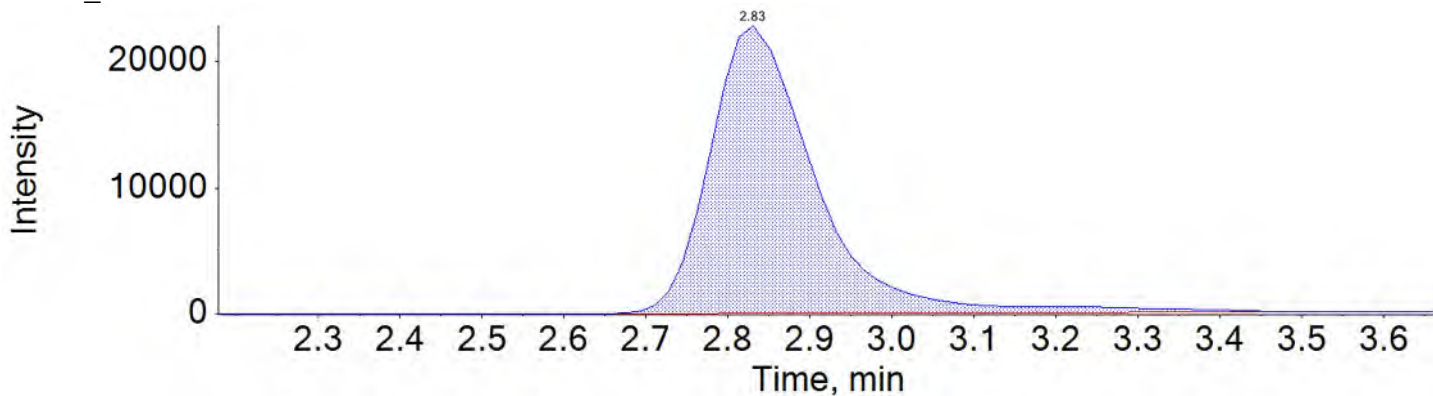
PFOA_2 413.0 / 169.0



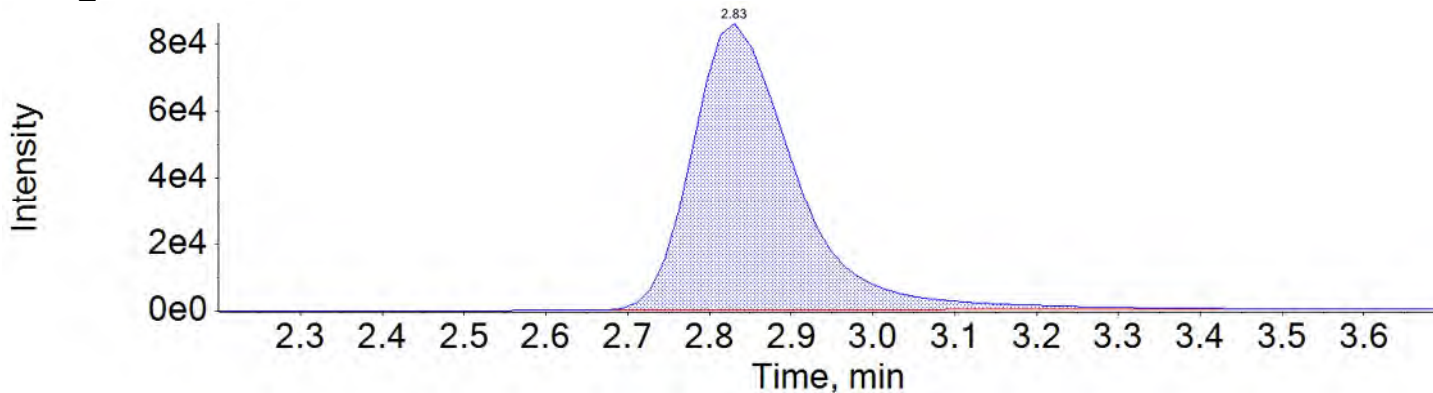
PFNA_1 463.0 / 419.0



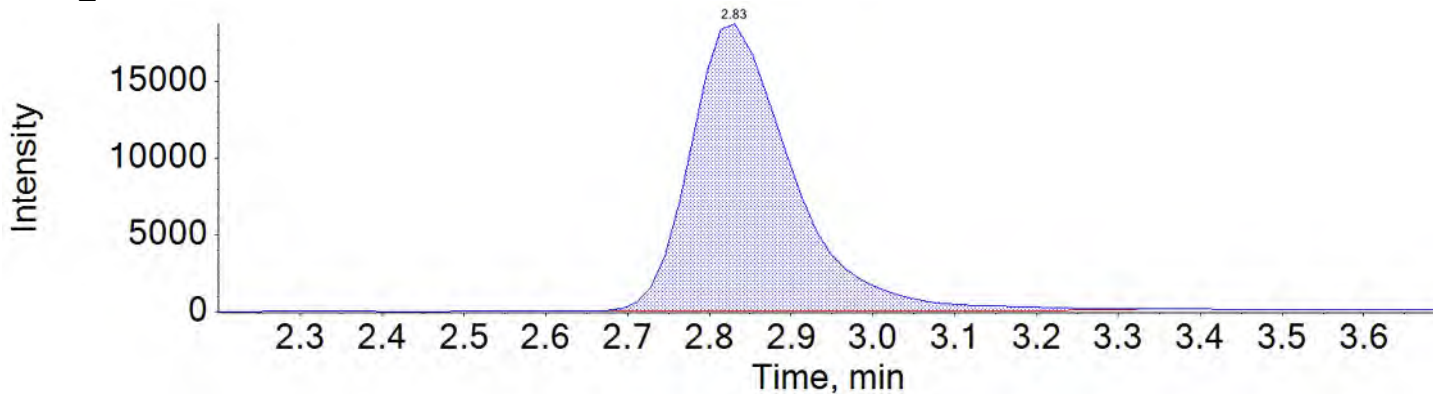
PFNA_2 463.0 / 219.0



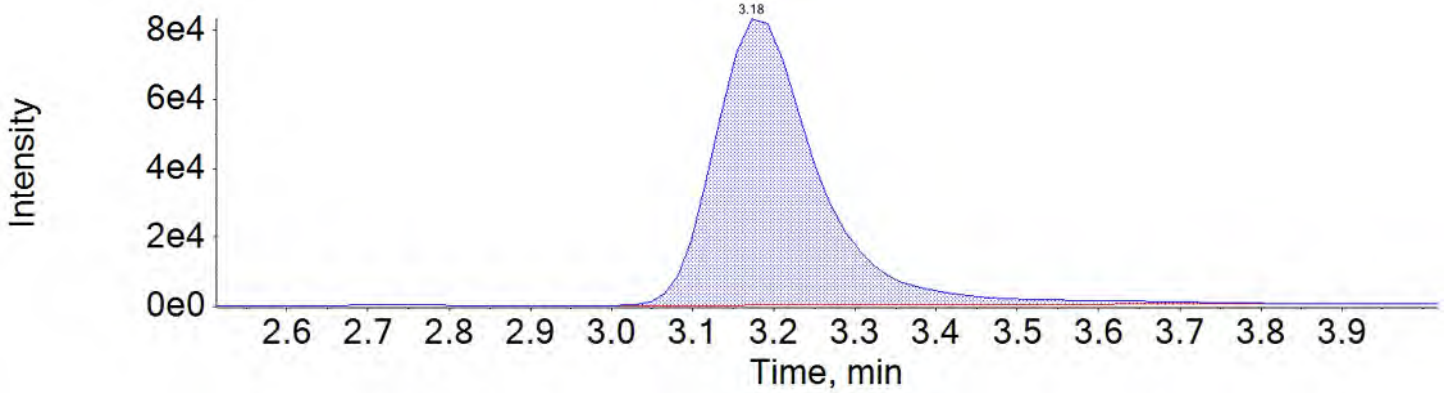
PFOS_1 499.0 / 80.0



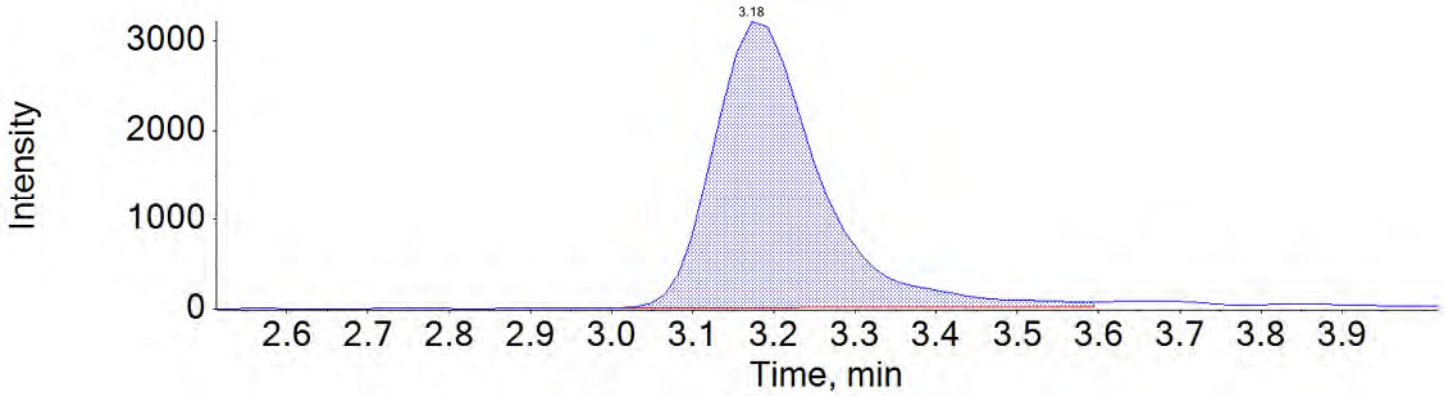
PFOS_2 499.0 / 99.0



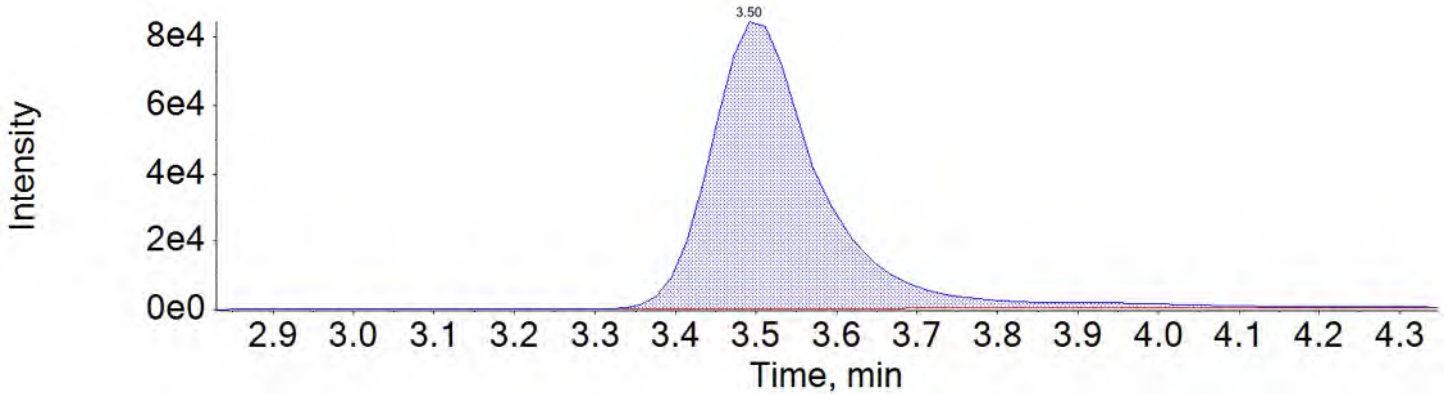
PFDA_1 513.0 / 469.0

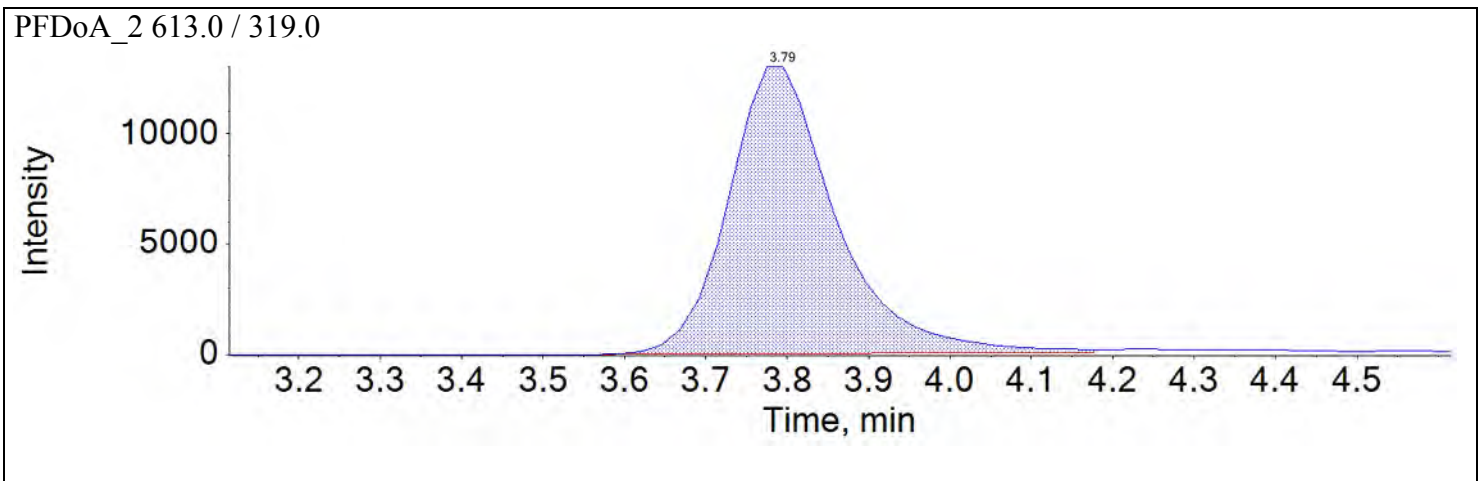
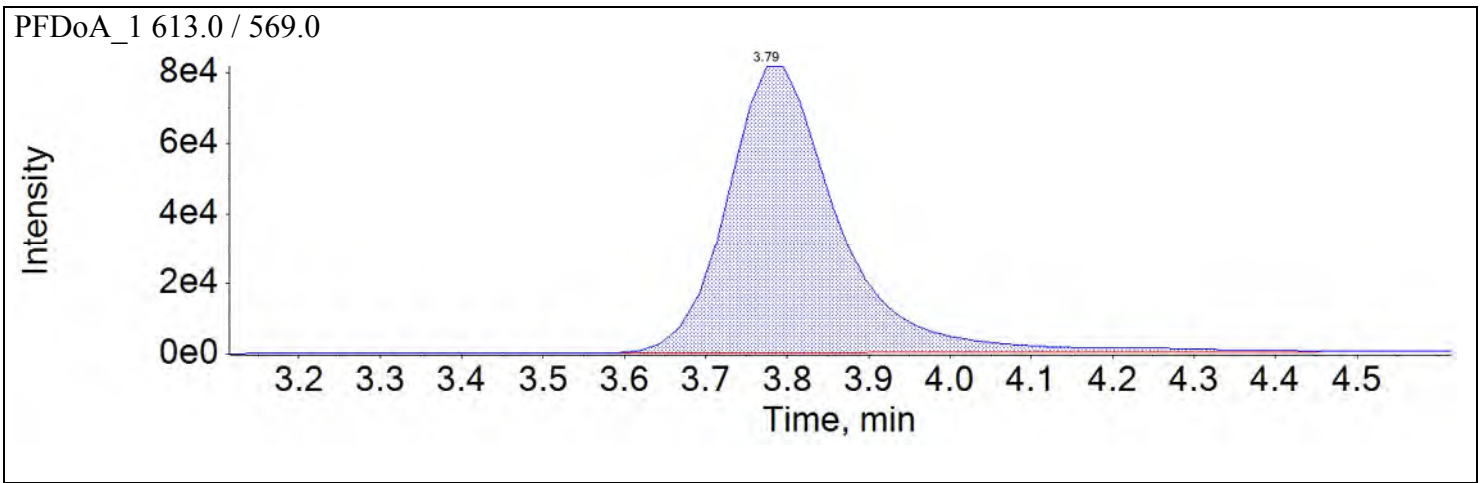
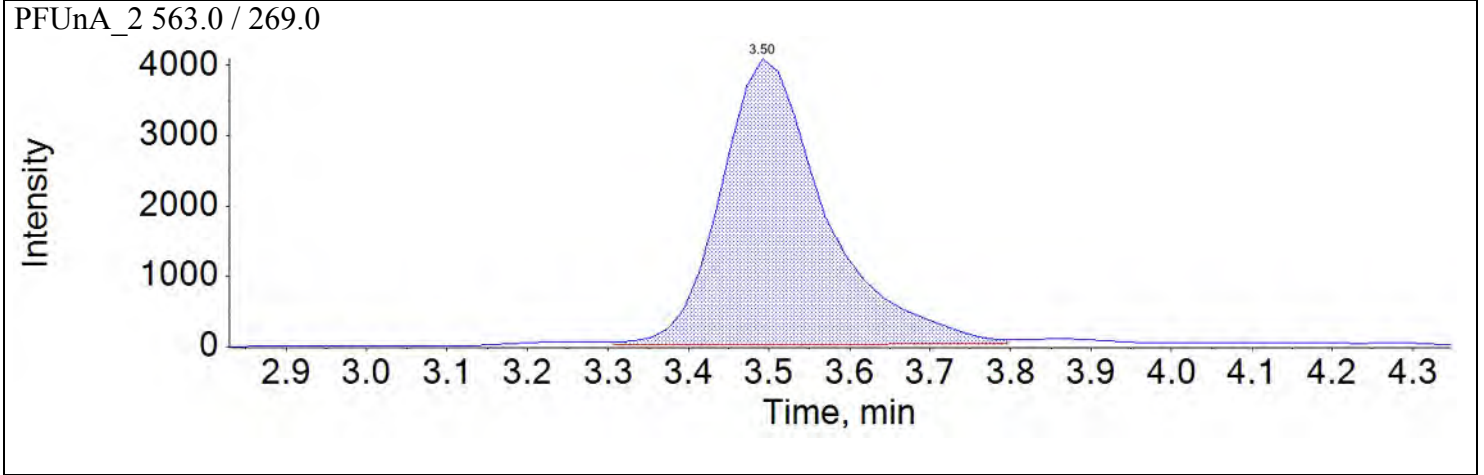


PFDA_2 513.0 / 219.0

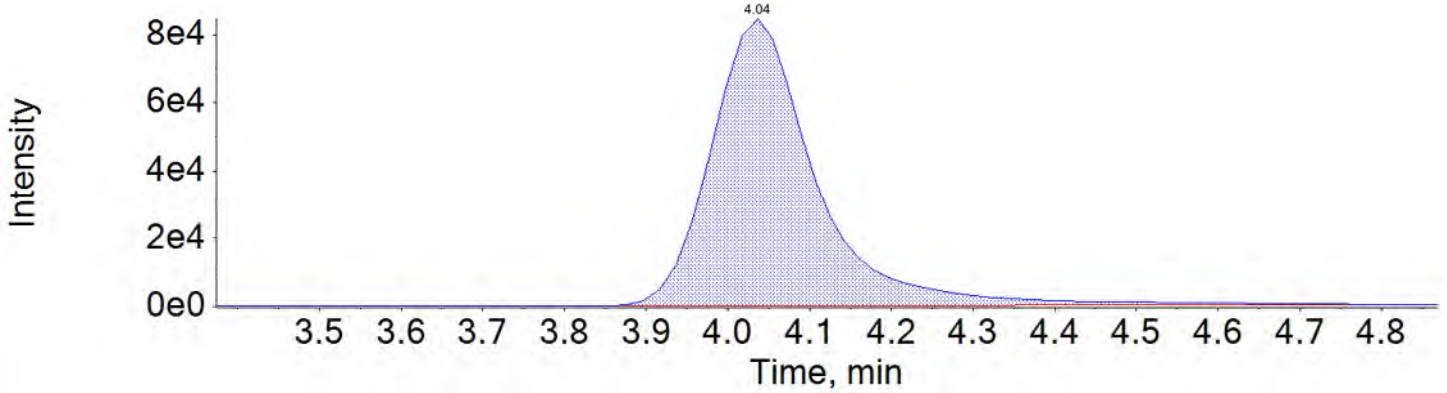


PFUnA_1 563.0 / 519.0

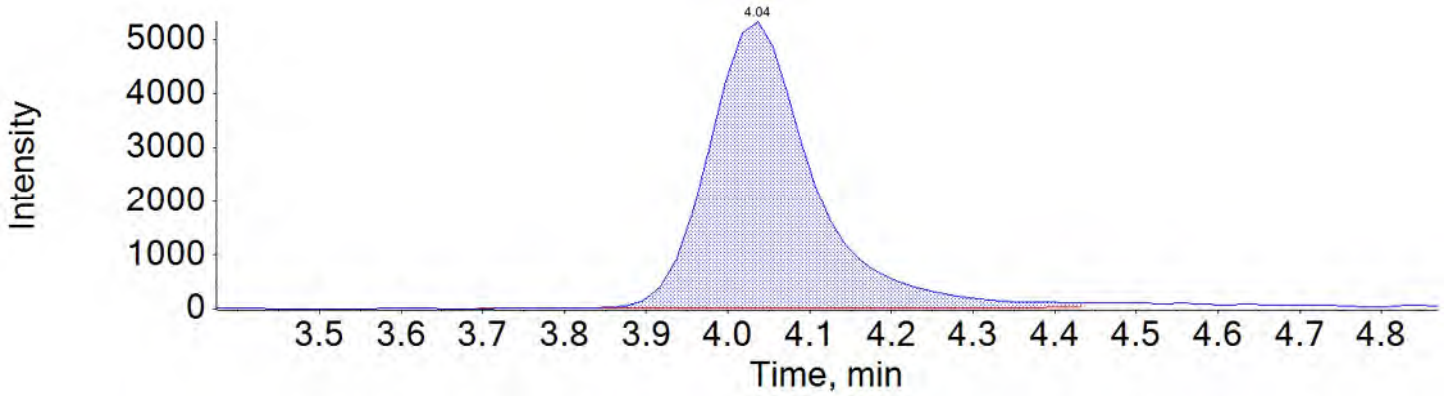




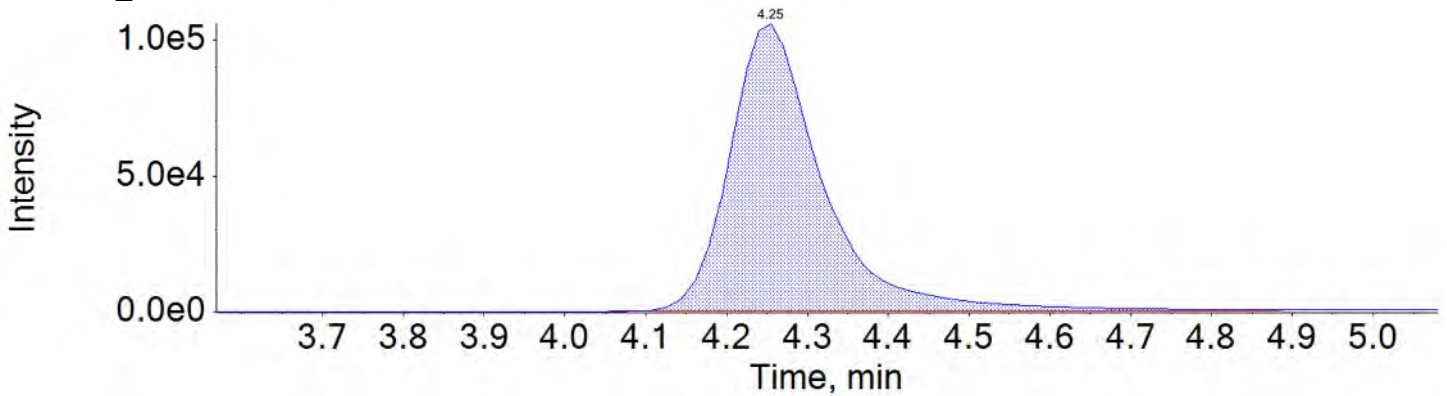
PFTTrDA_1 663.0 / 619.0



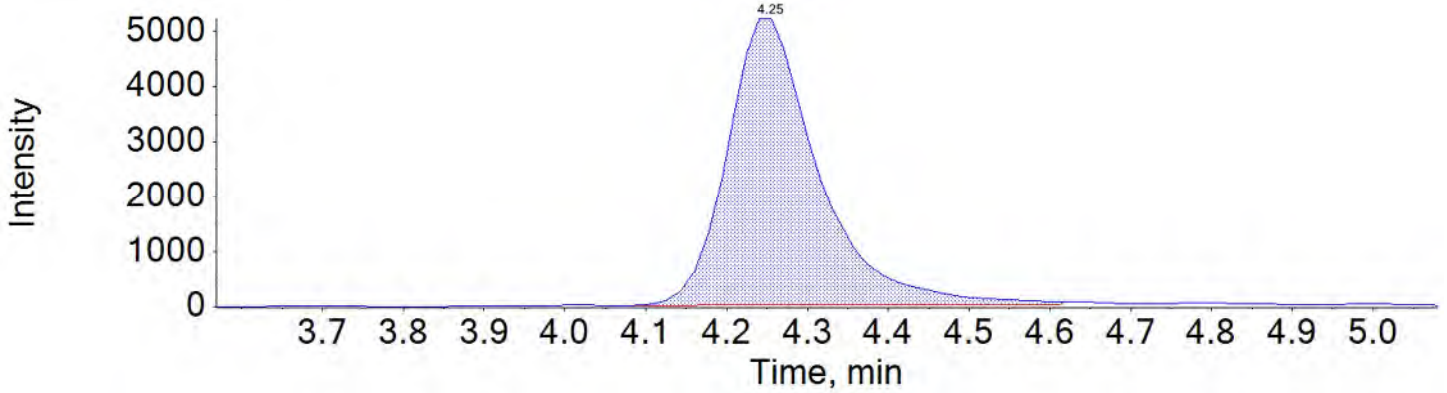
PFTTrDA_2 663.0 / 169.0



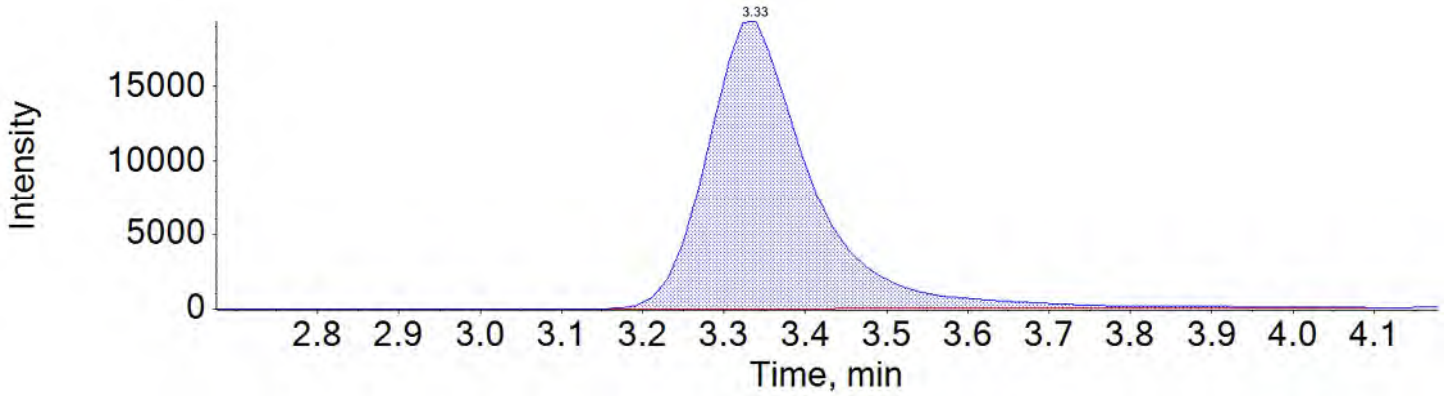
PFTeDA_1 713.0 / 669.0



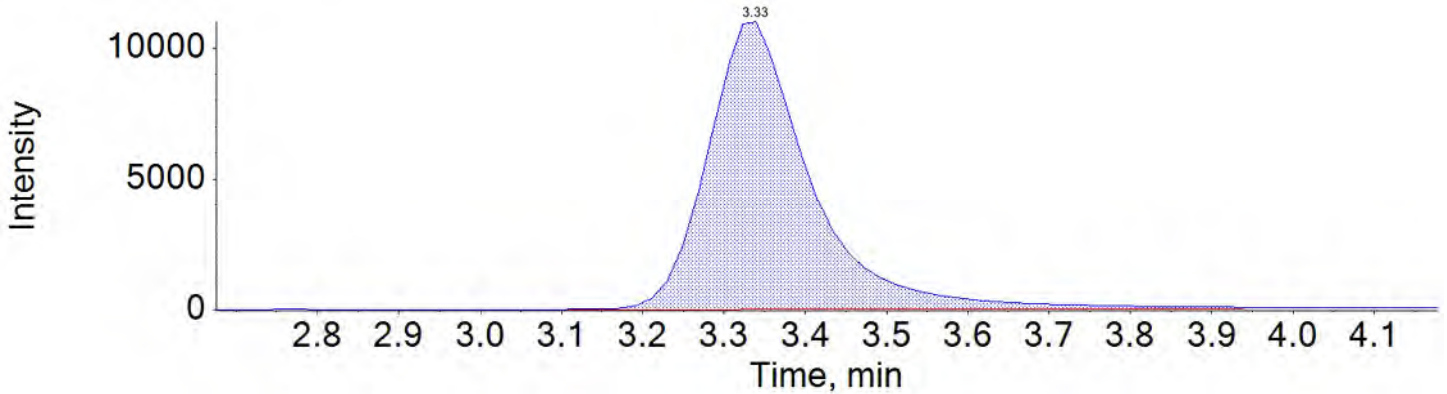
PFTeDA_2 713.0 / 169.0



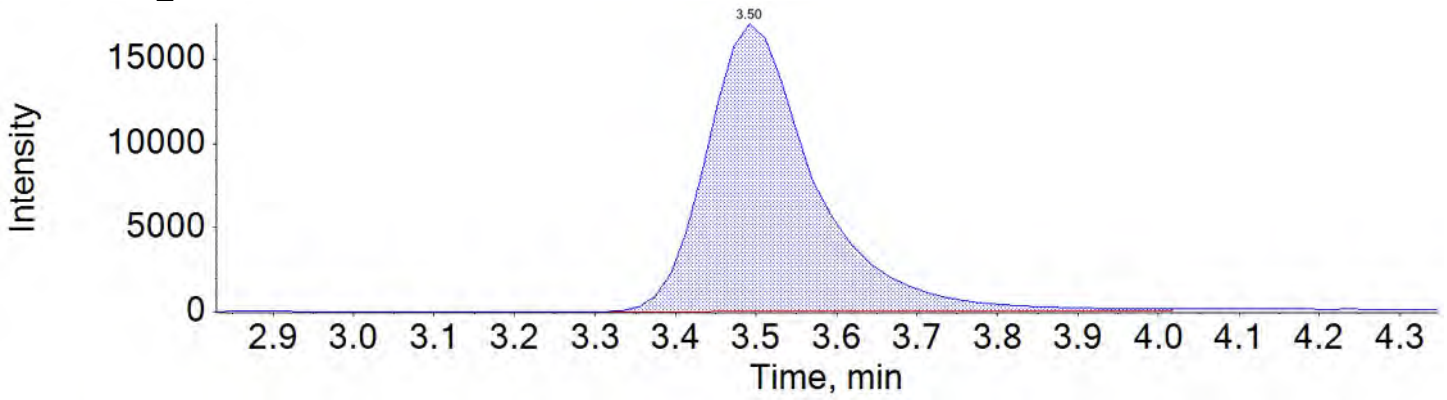
NMeFOSAA_1 570.0 / 419.0



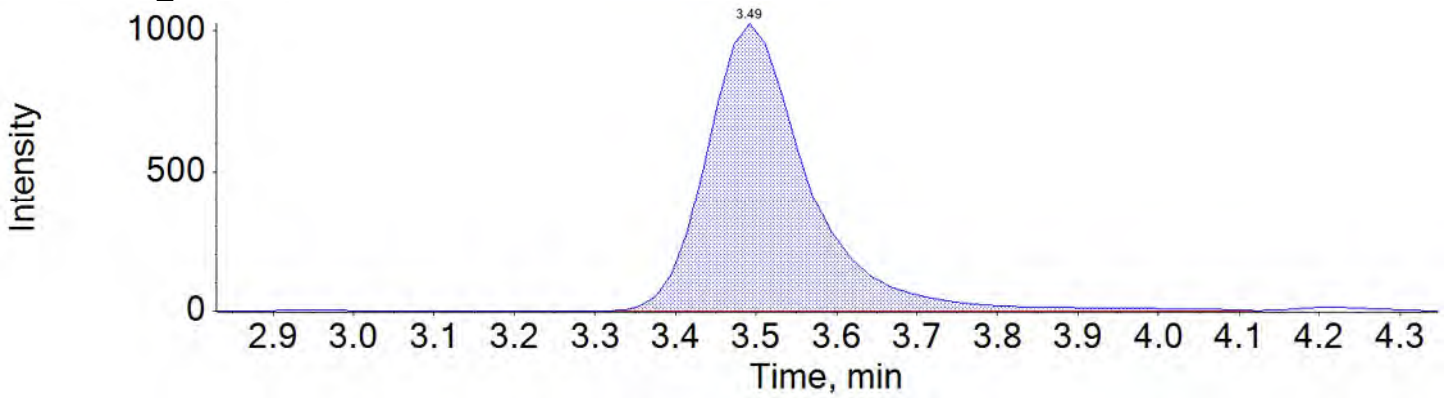
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

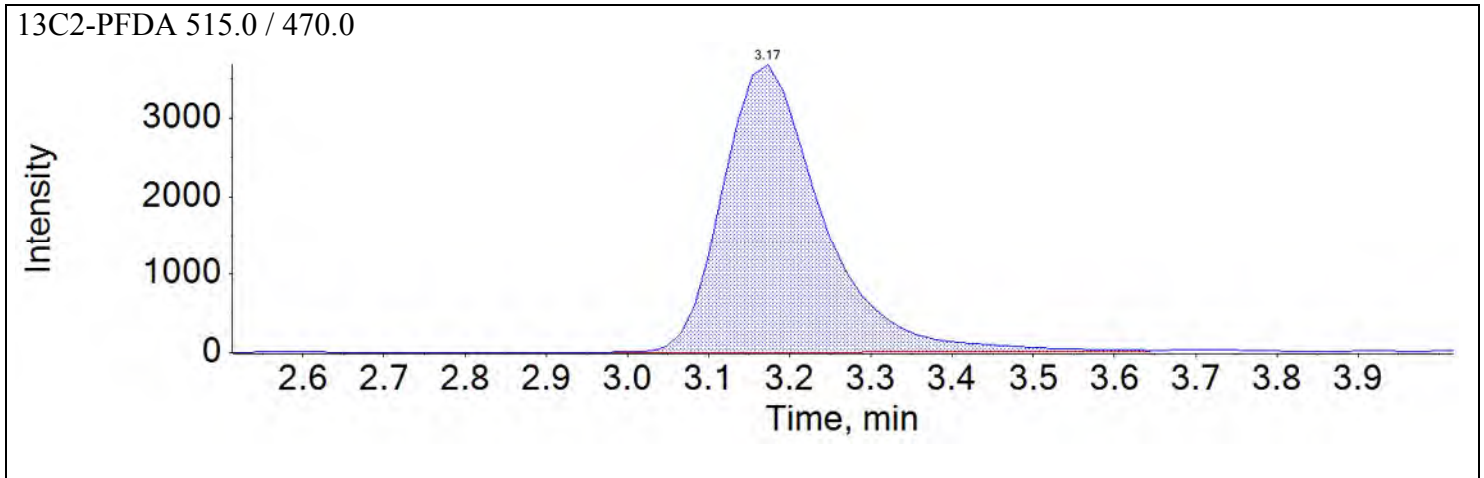
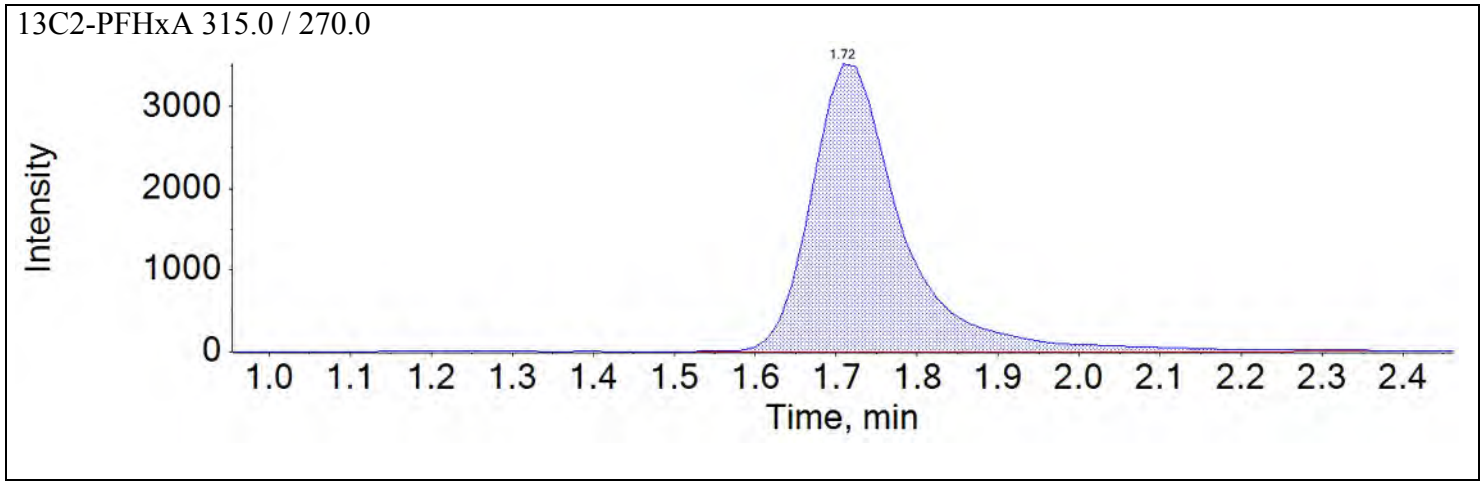


NEtFOSAA_2 584.0 / 483.0

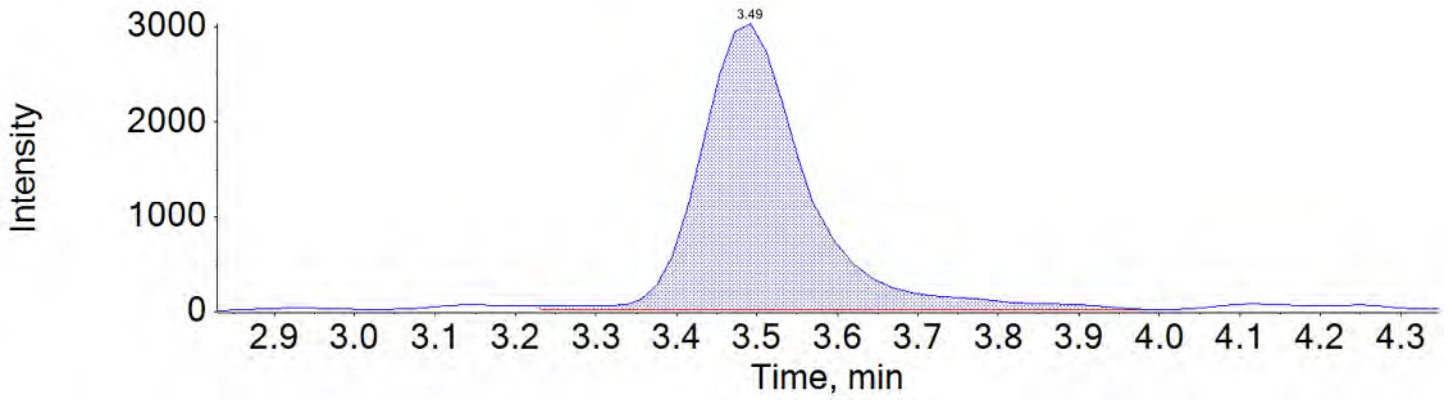


Sample Name	CQ754LCS-FS(0)	Injection Vial	13
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:14:15	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms

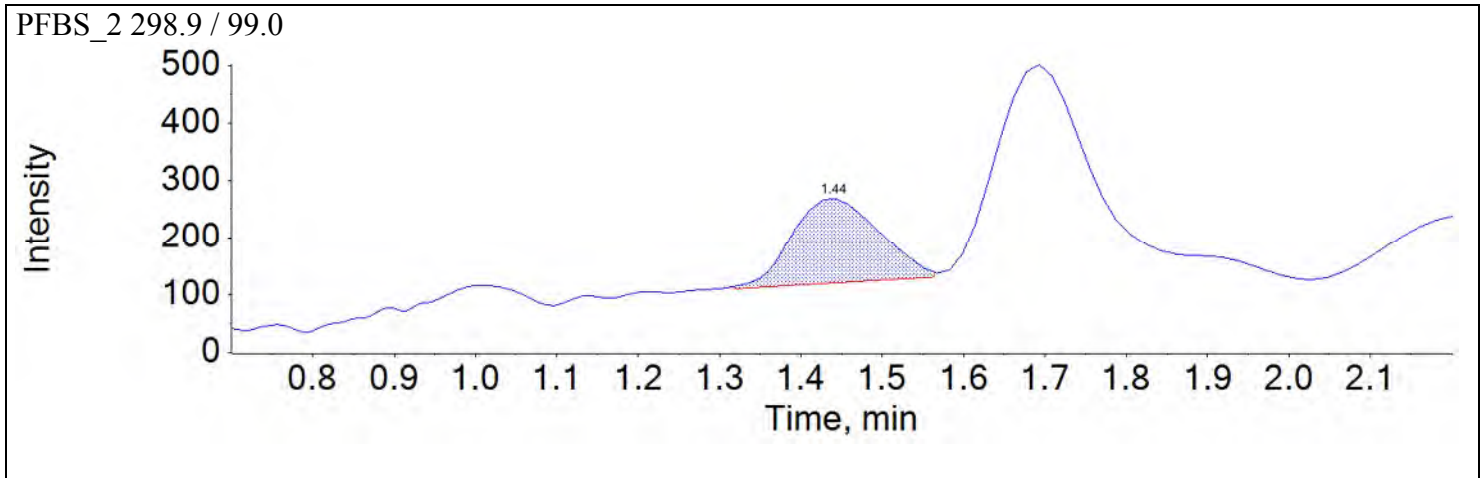
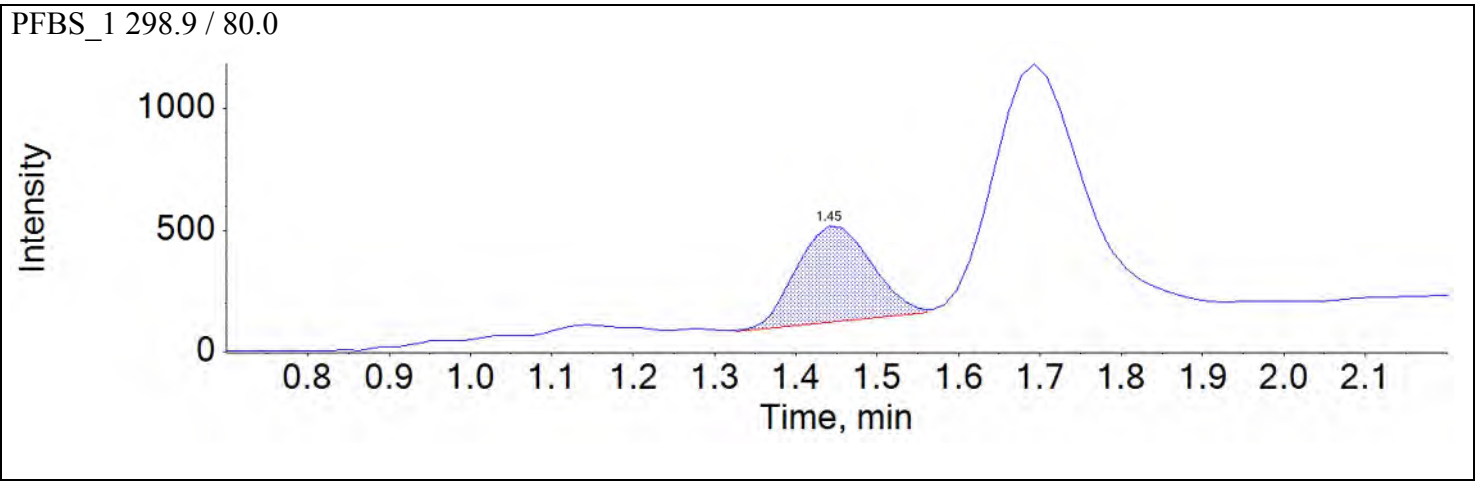


d5-EtFOSAA 589.0 / 419.0

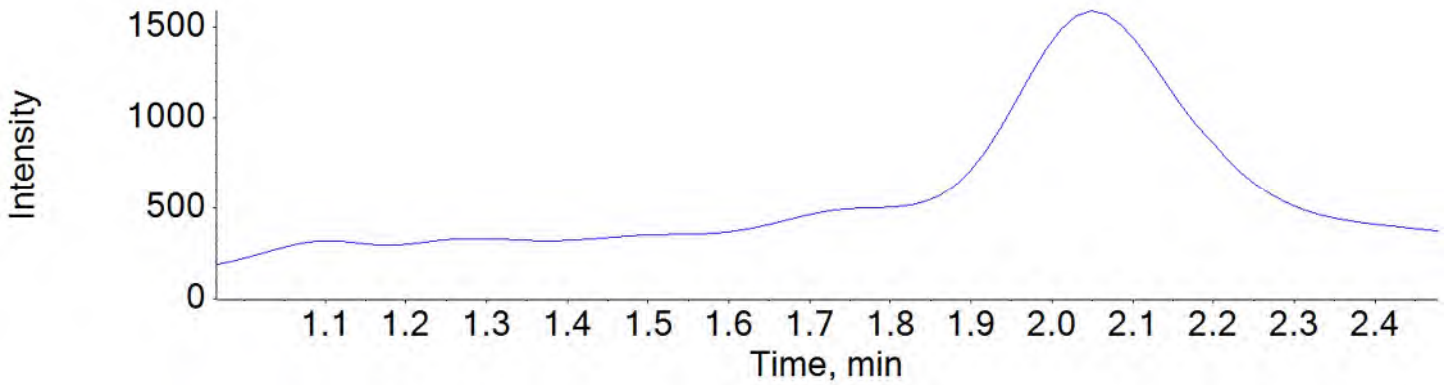


Sample Name	J5965-FS(0)	Injection Vial	14
Sample ID	WGNA-043018-FRB-3103	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:23:10	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

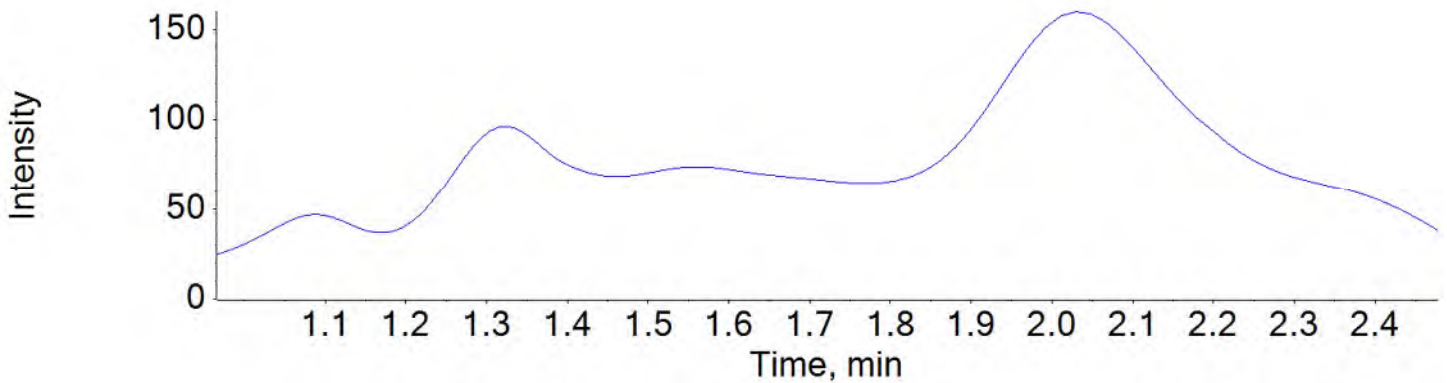
Chromatograms



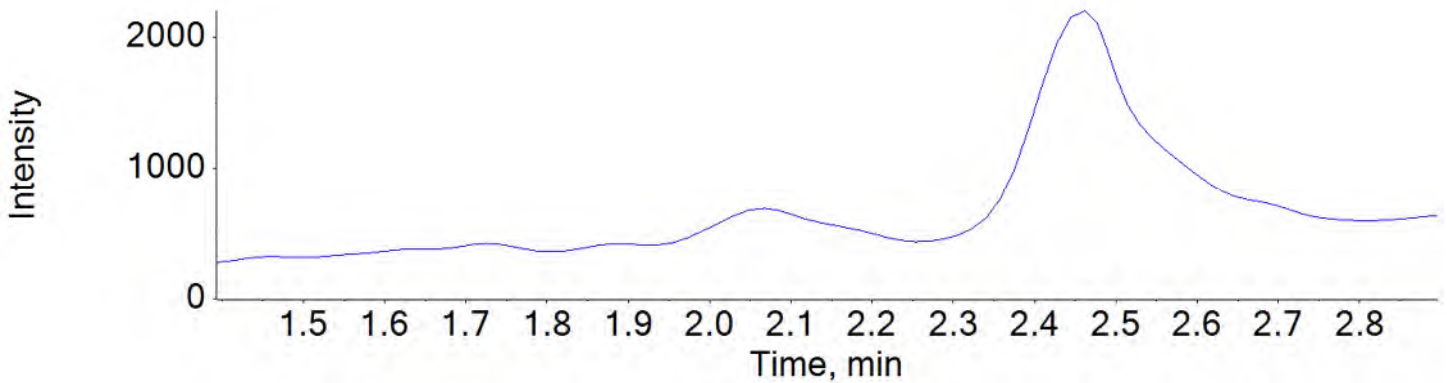
PFHxA_1 313.0 / 269.0



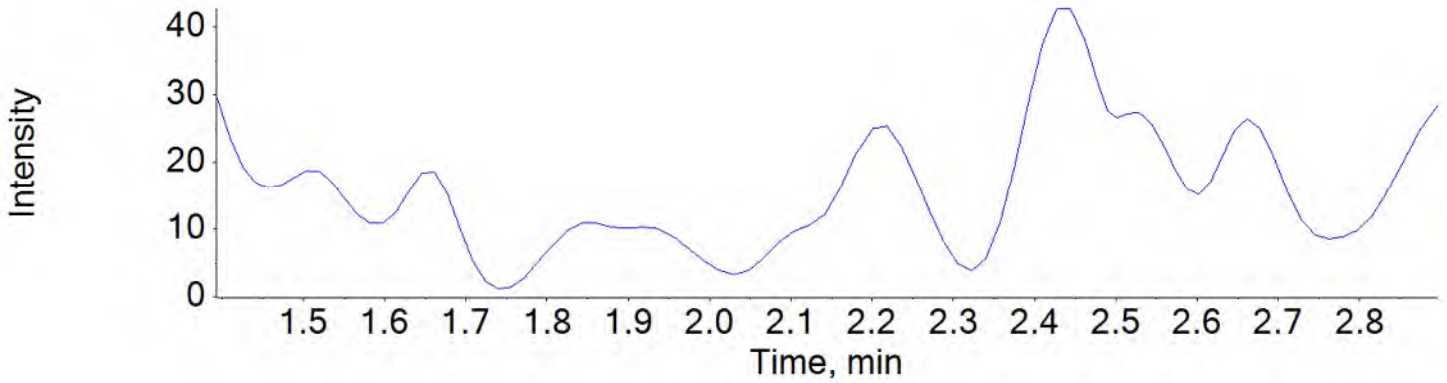
PFHxA_2 313.0 / 119.0



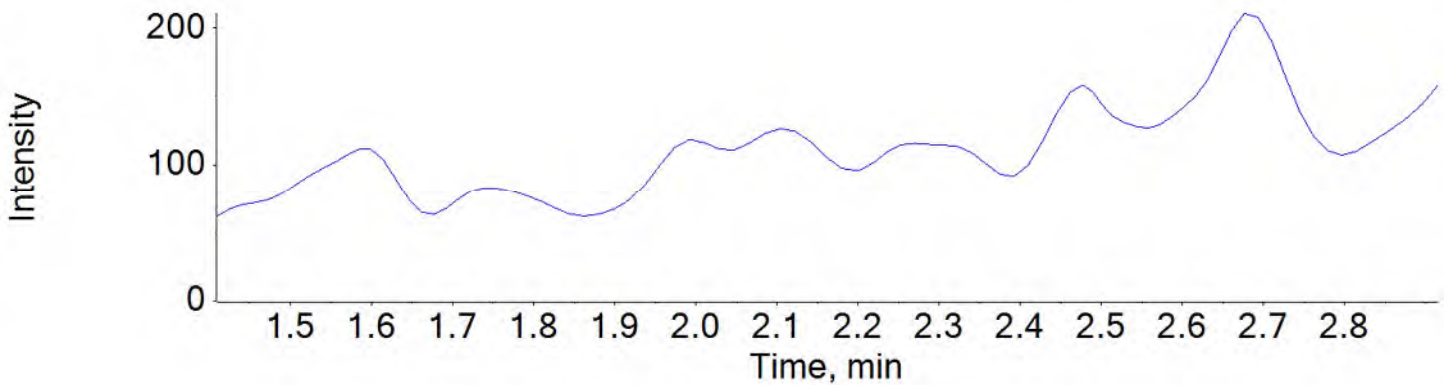
PFHpA_1 363.0 / 319.0



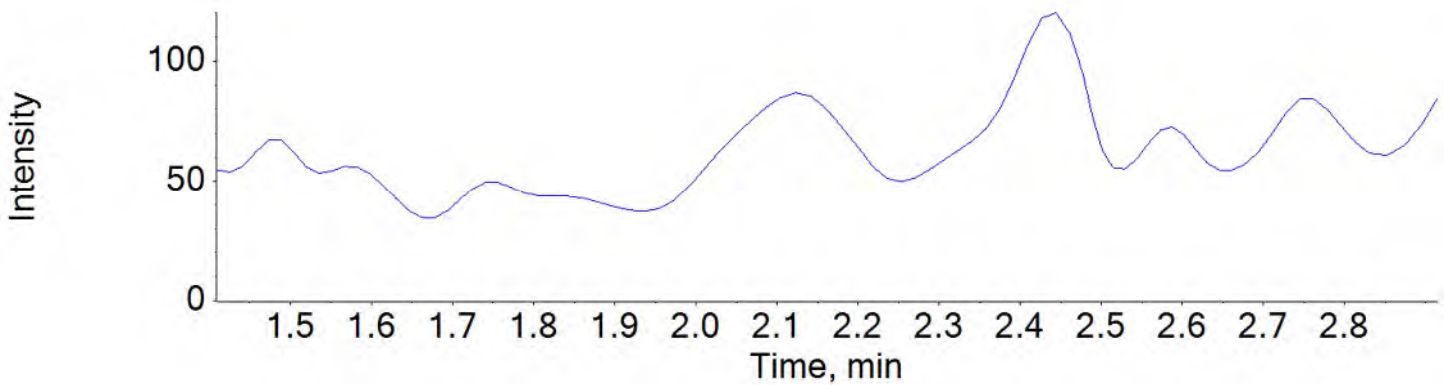
PFHpA_2 363.0 / 169.0



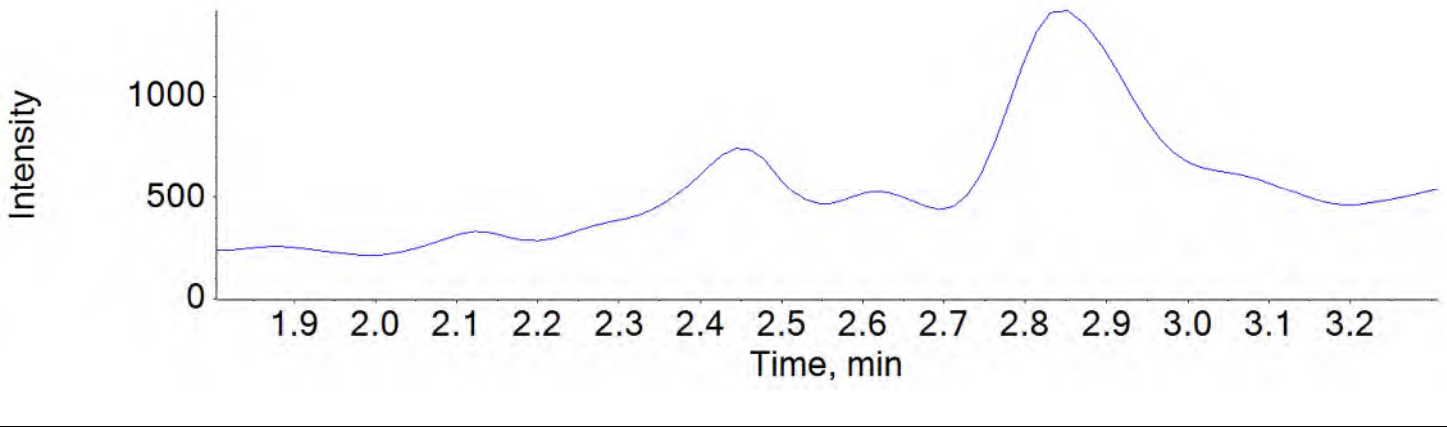
PFHxS_1 399.0 / 80.0



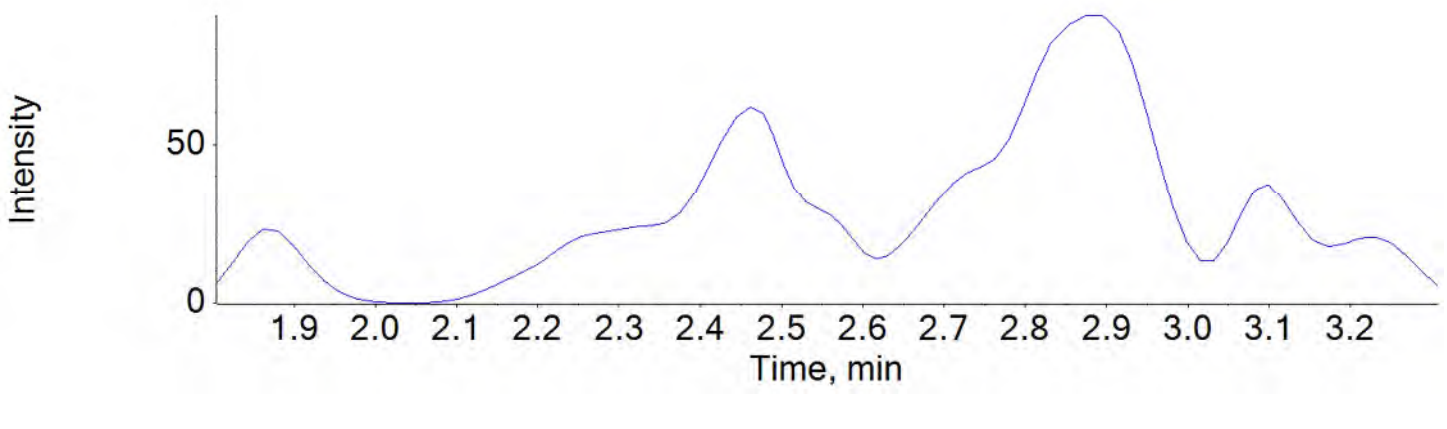
PFHxS_2 399.0 / 99.0



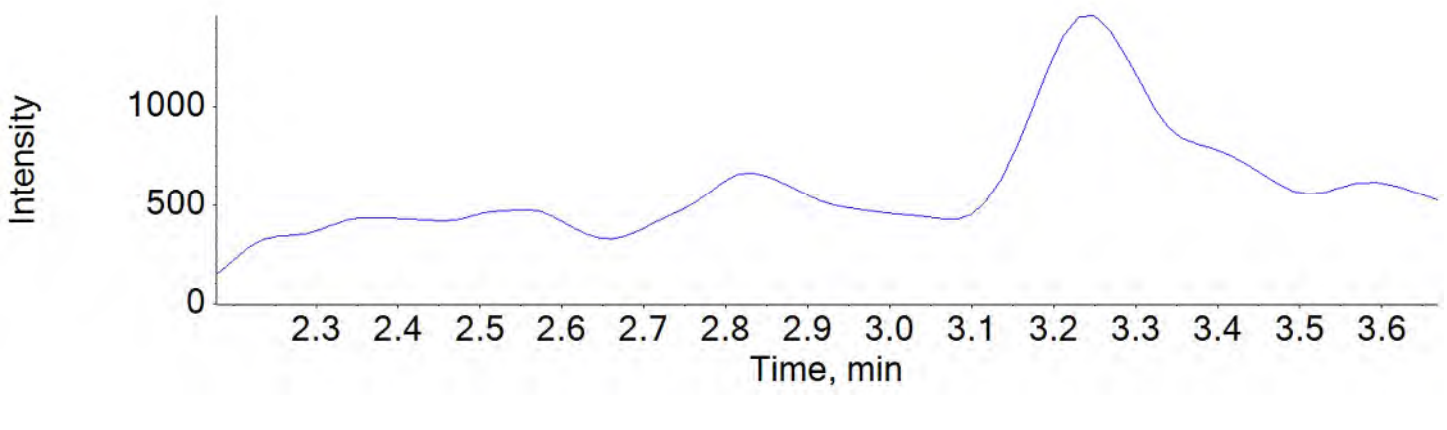
PFOA_1 413.0 / 369.0



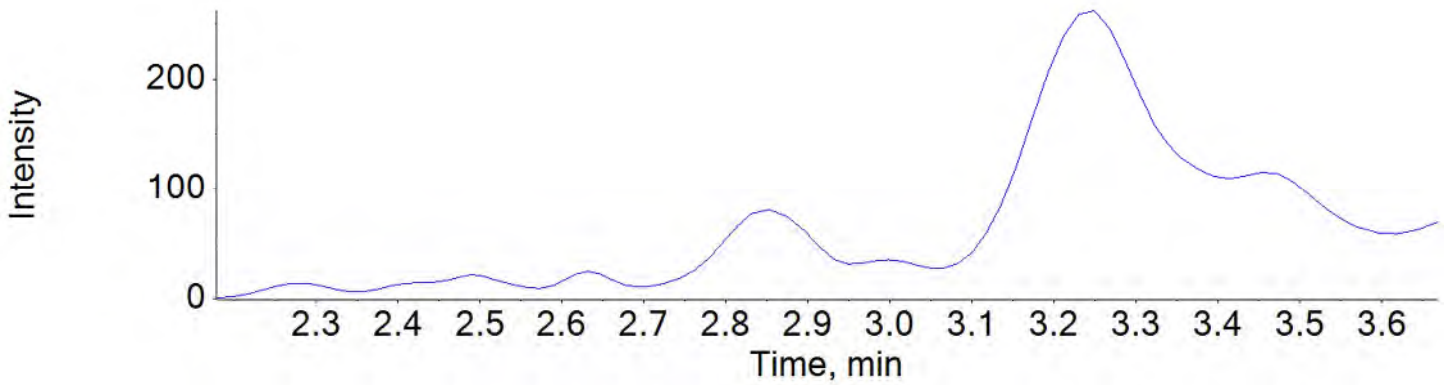
PFOA_2 413.0 / 169.0



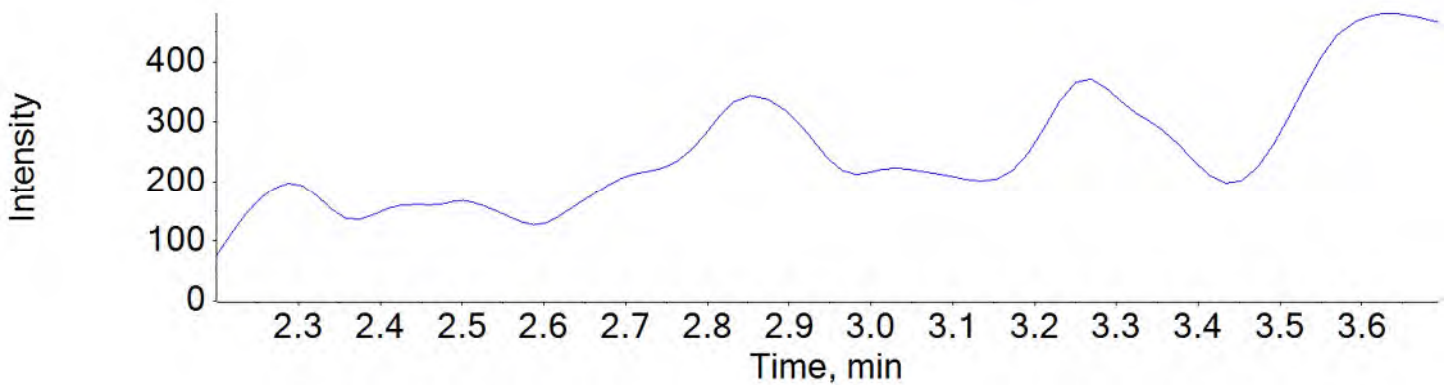
PFNA_1 463.0 / 419.0



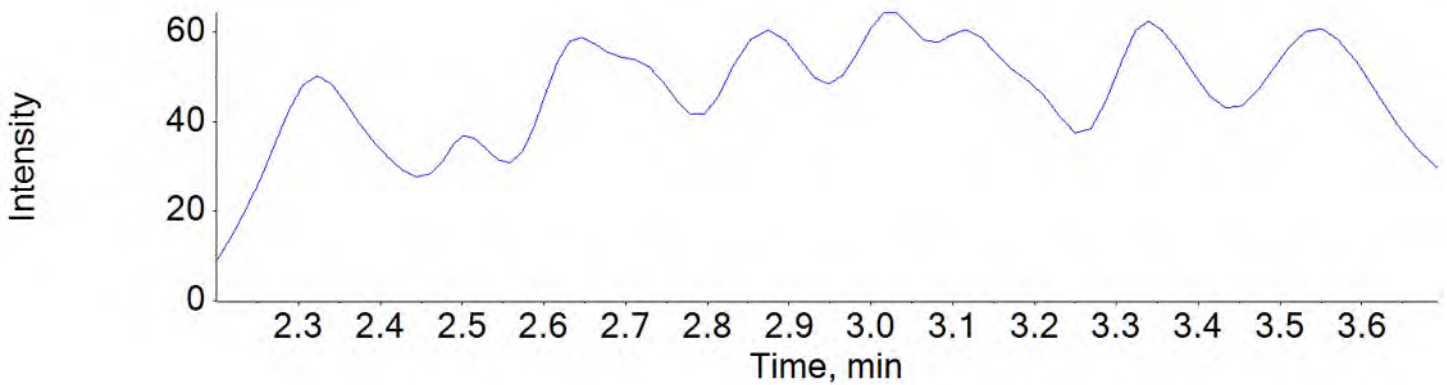
PFNA_2 463.0 / 219.0



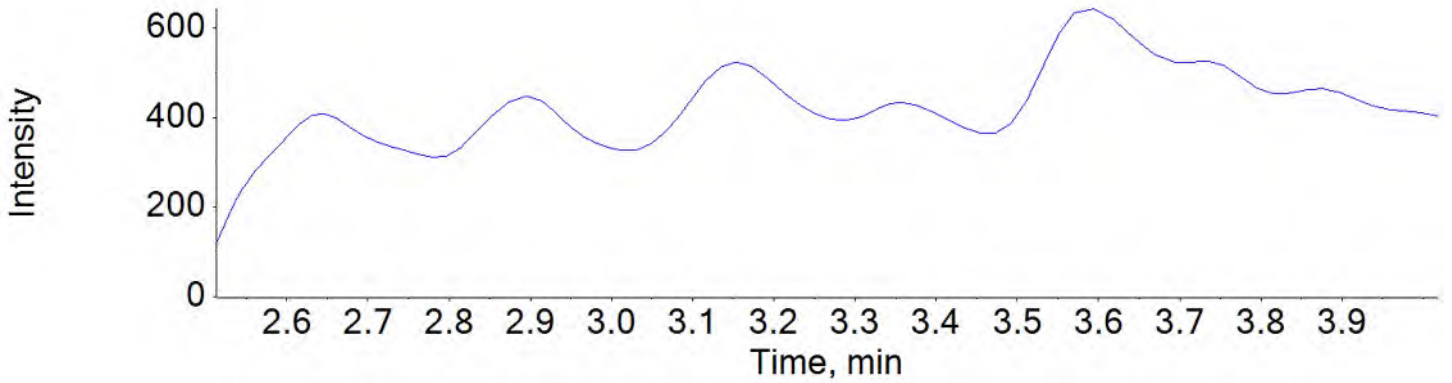
PFOS_1 499.0 / 80.0



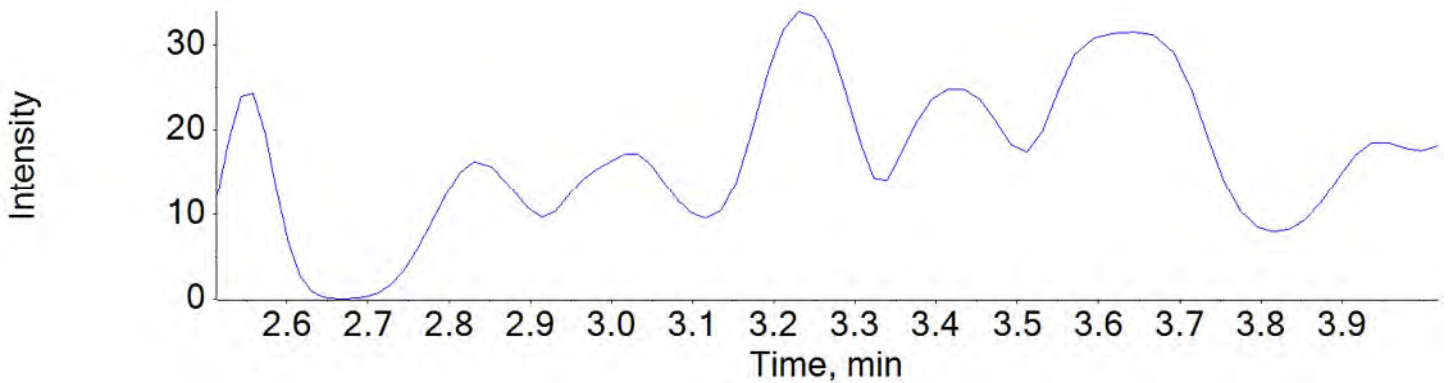
PFOS_2 499.0 / 99.0



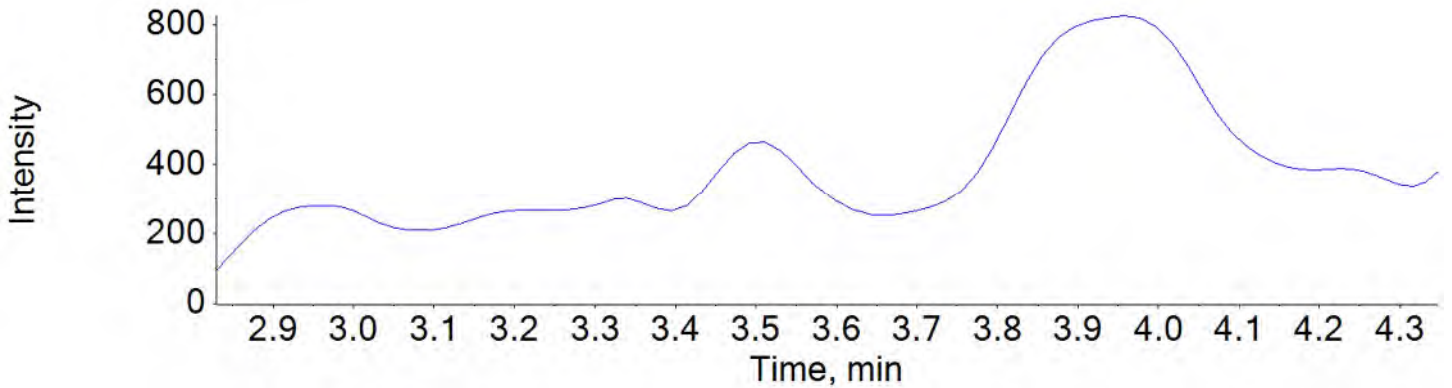
PFDA_1 513.0 / 469.0



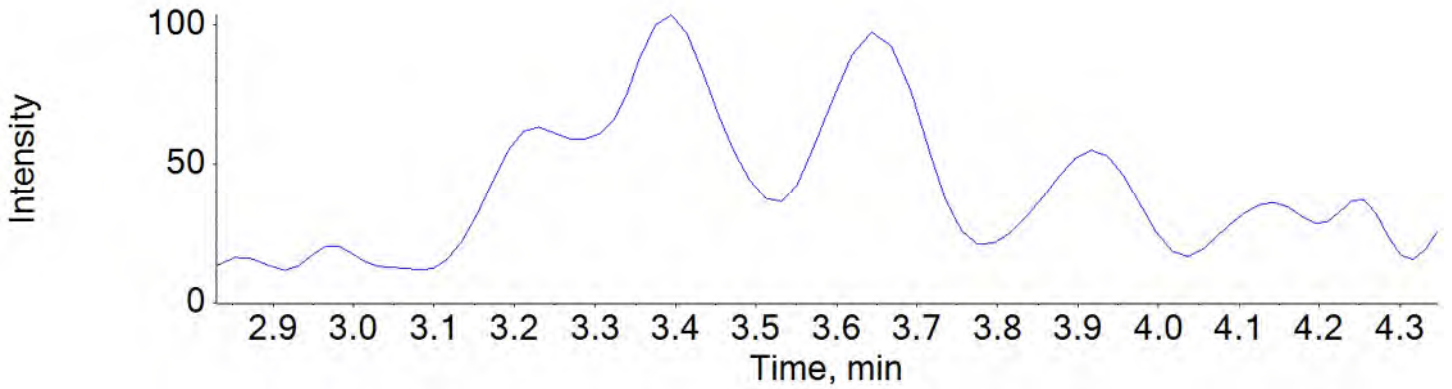
PFDA_2 513.0 / 219.0



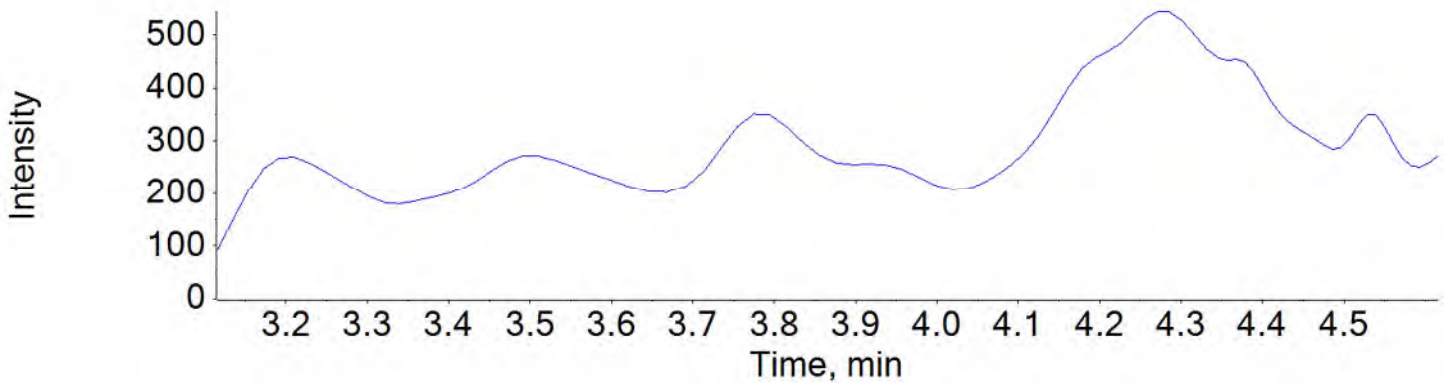
PFU_nA_1 563.0 / 519.0



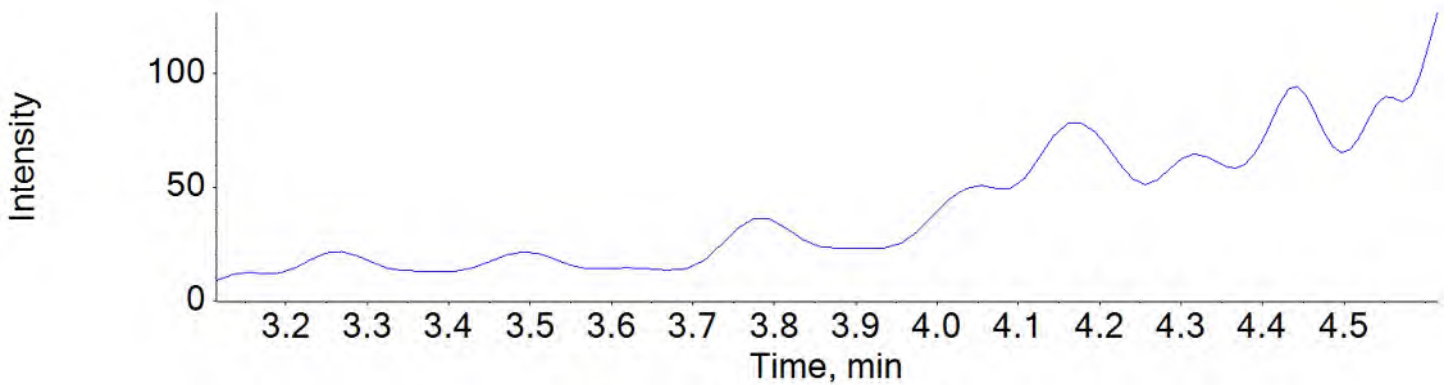
PFUnA_2 563.0 / 269.0



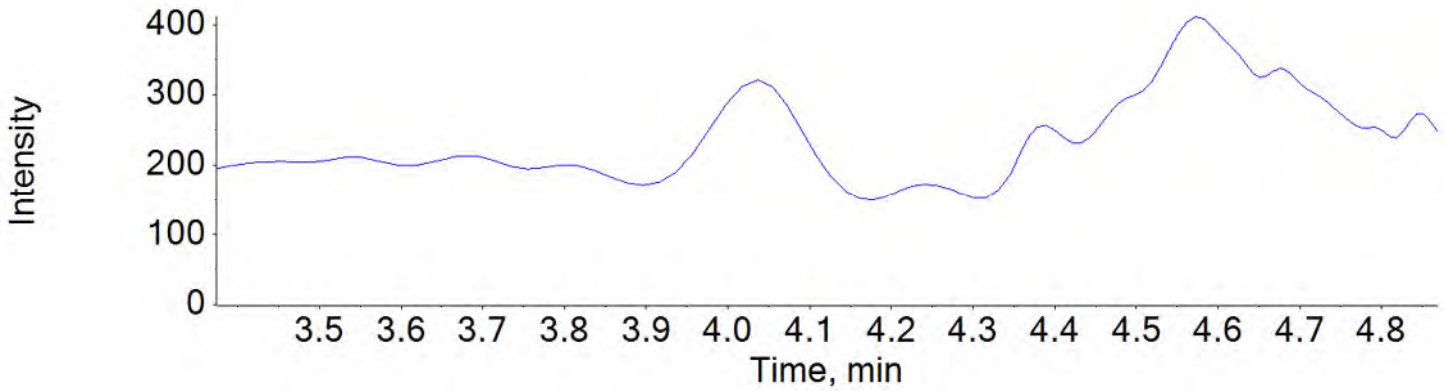
PFDaA_1 613.0 / 569.0



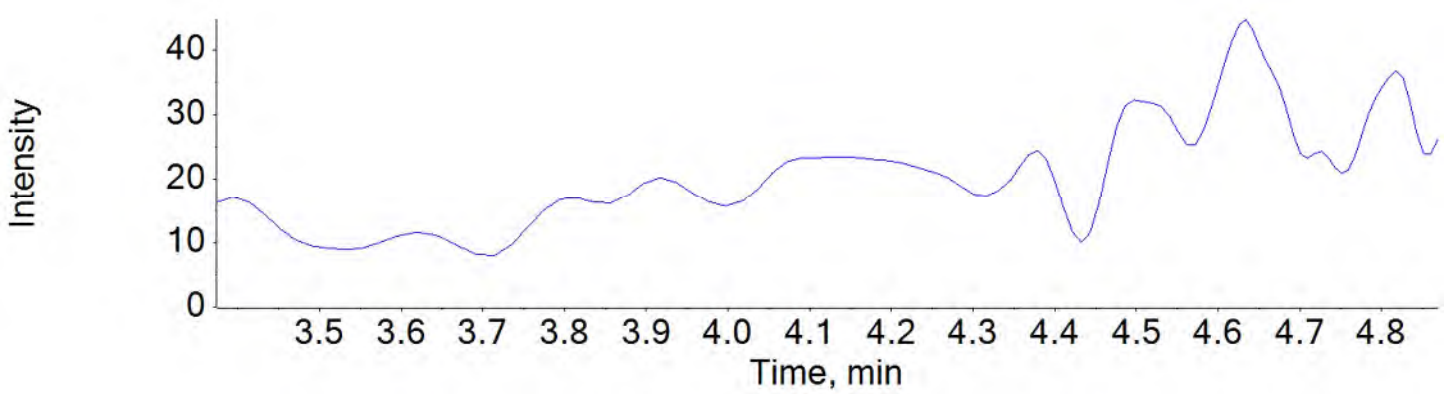
PFDaA_2 613.0 / 319.0



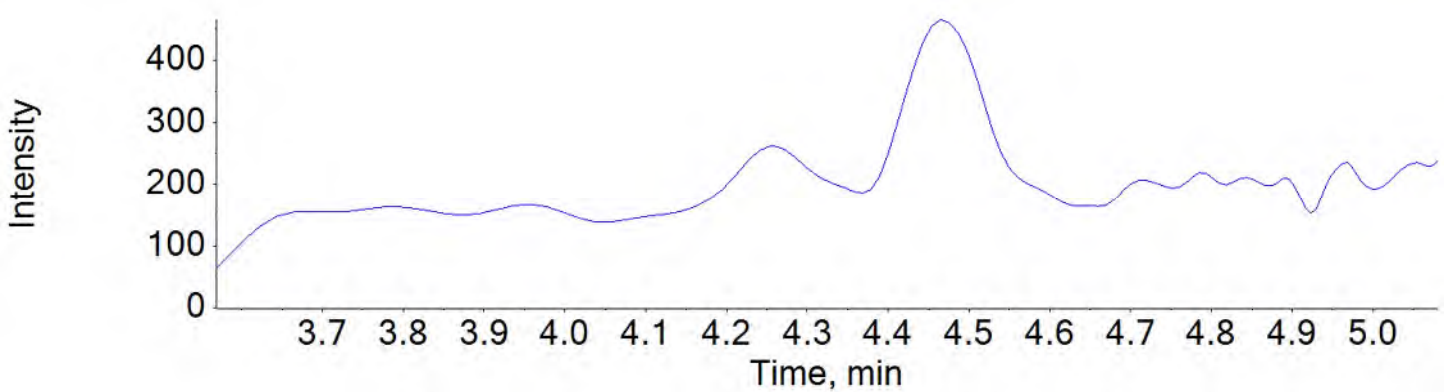
PFTTrDA_1 663.0 / 619.0



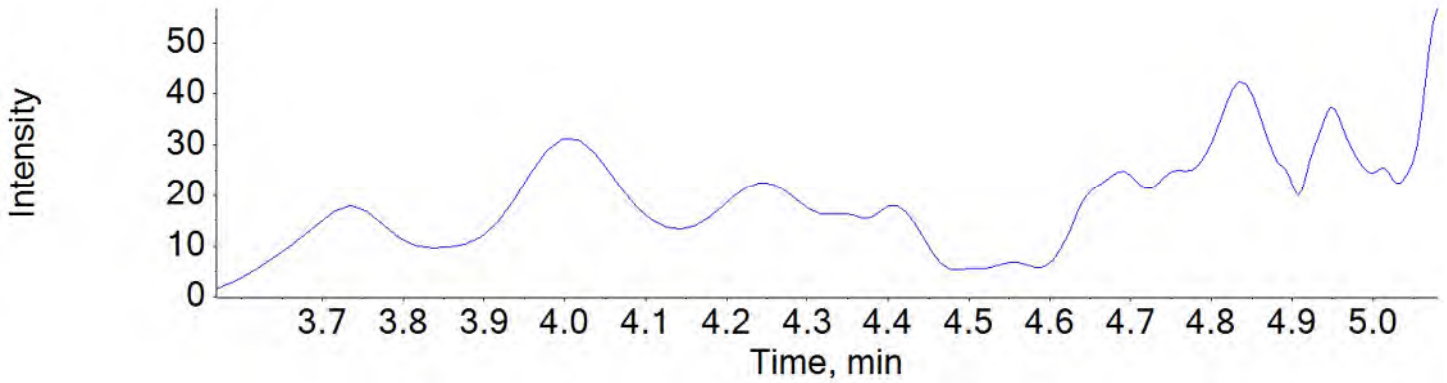
PFTTrDA_2 663.0 / 169.0



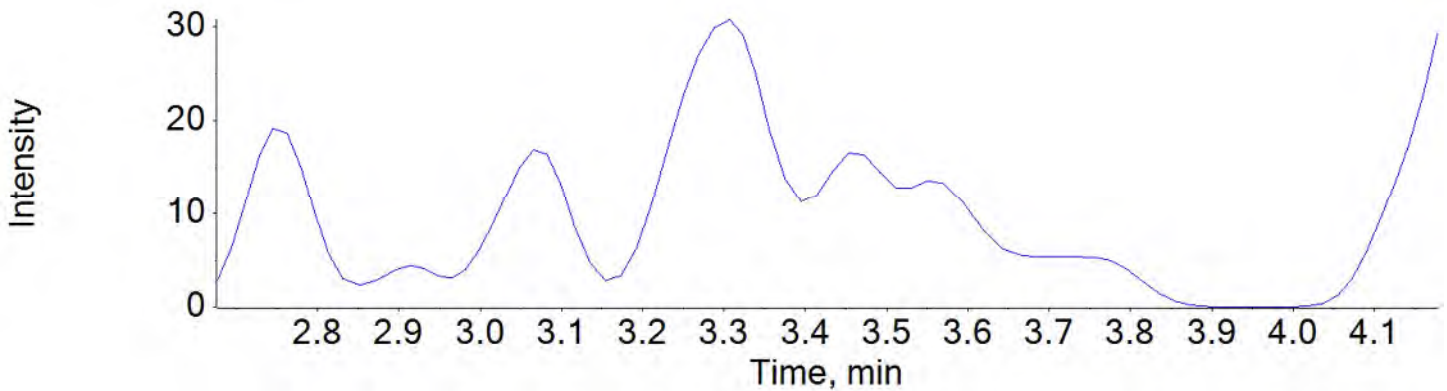
PFTTeDA_1 713.0 / 669.0



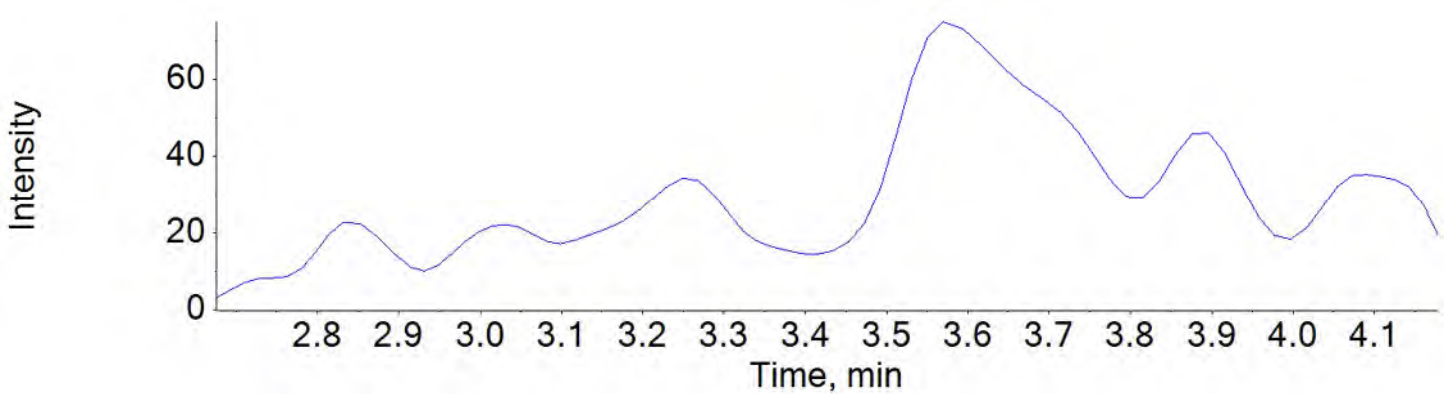
PFTeDA_2 713.0 / 169.0



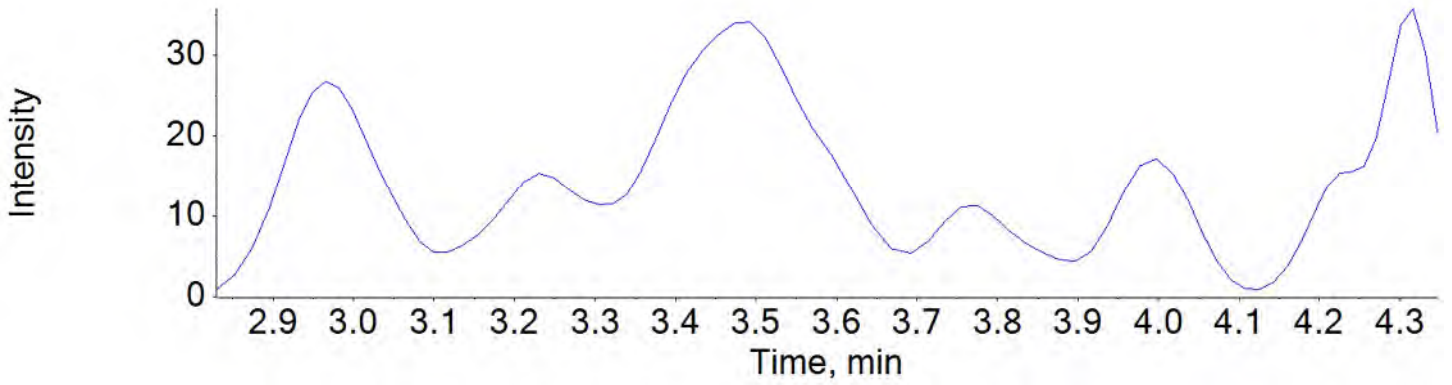
NMeFOSAA_1 570.0 / 419.0



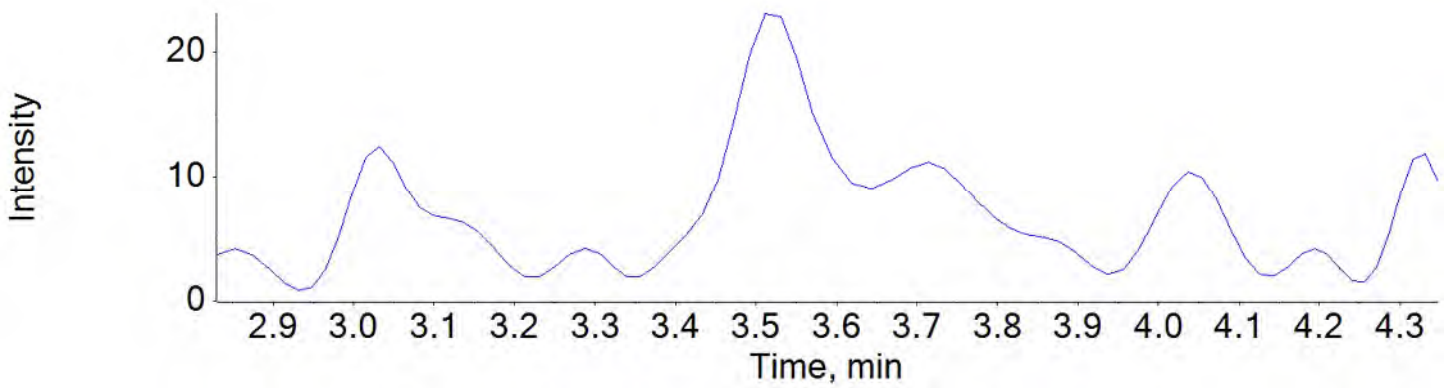
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

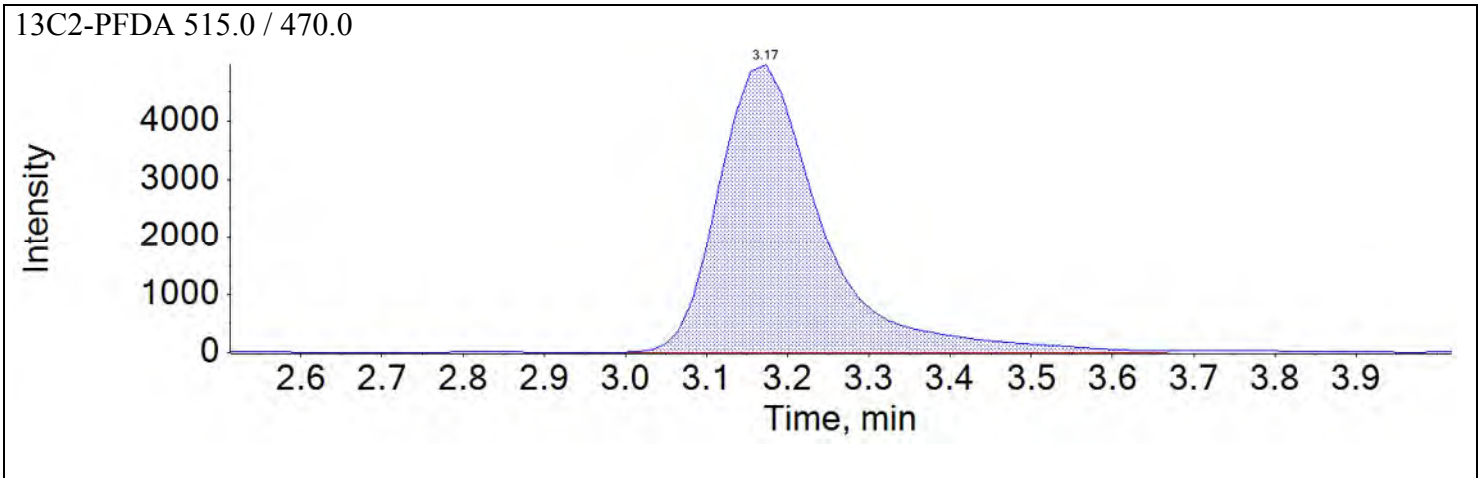
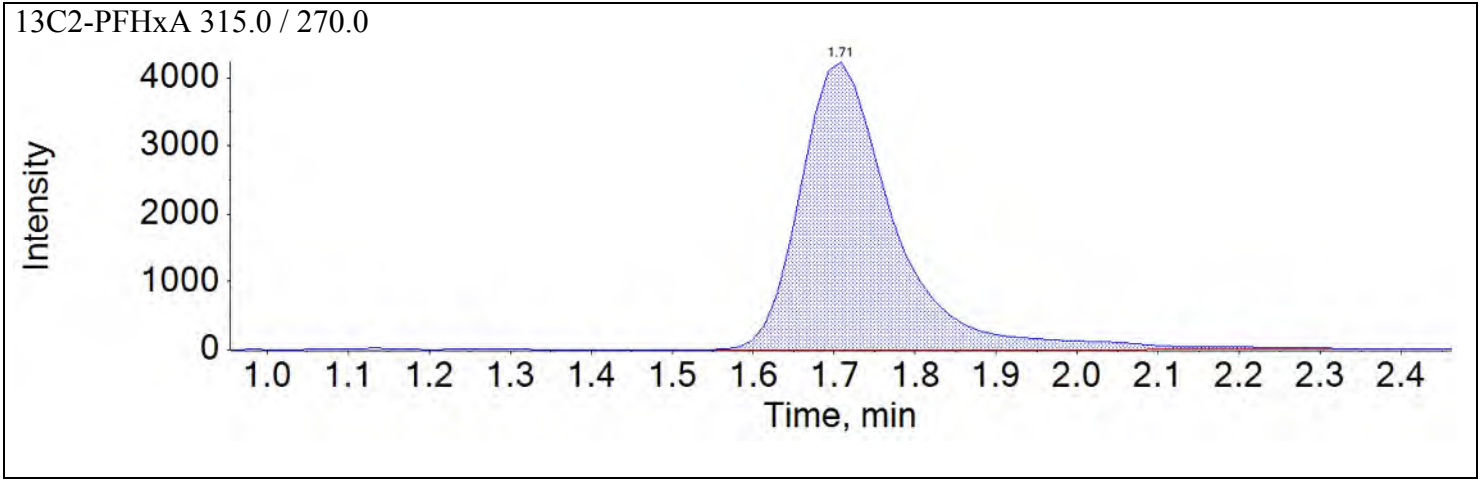


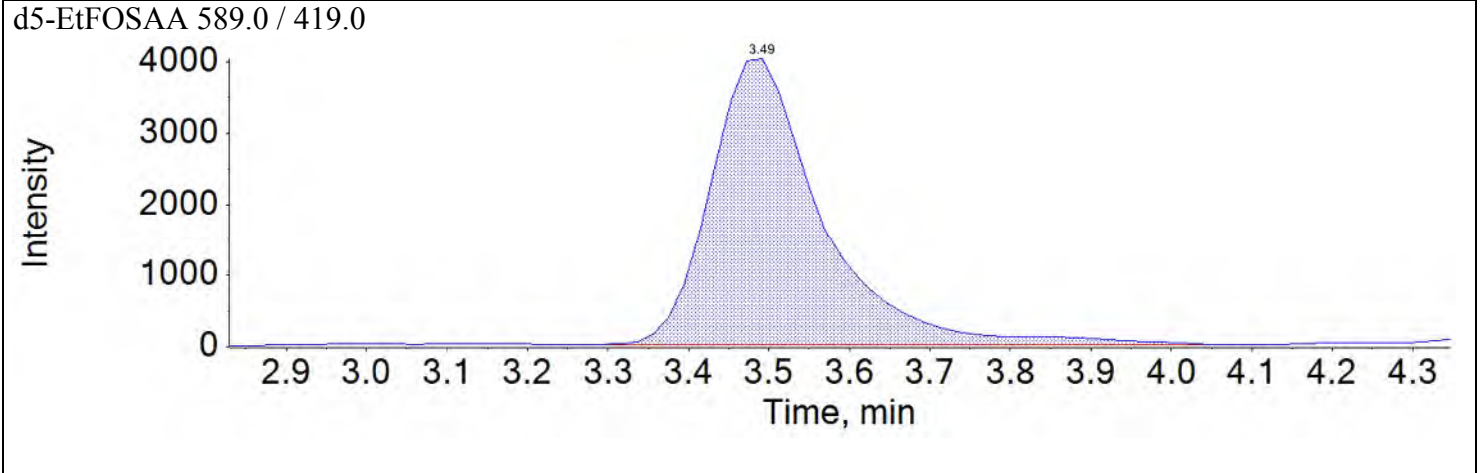
NEtFOSAA_2 584.0 / 483.0



Sample Name	J5965-FS(0)	Injection Vial	14
Sample ID	WGNA-043018-FRB-3103	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:23:10	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

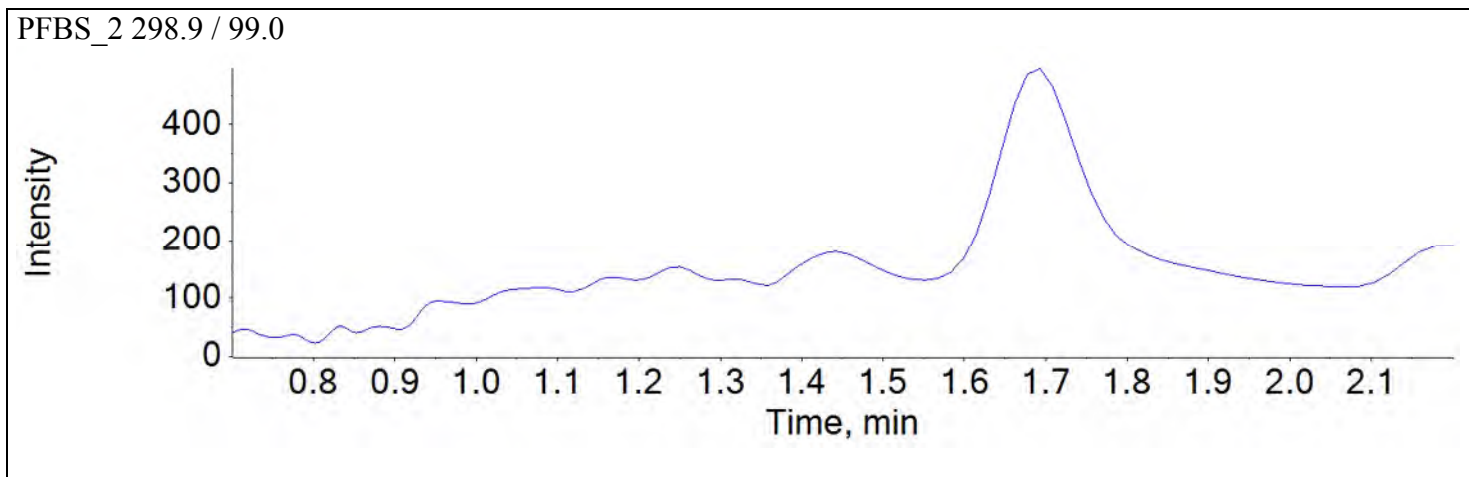
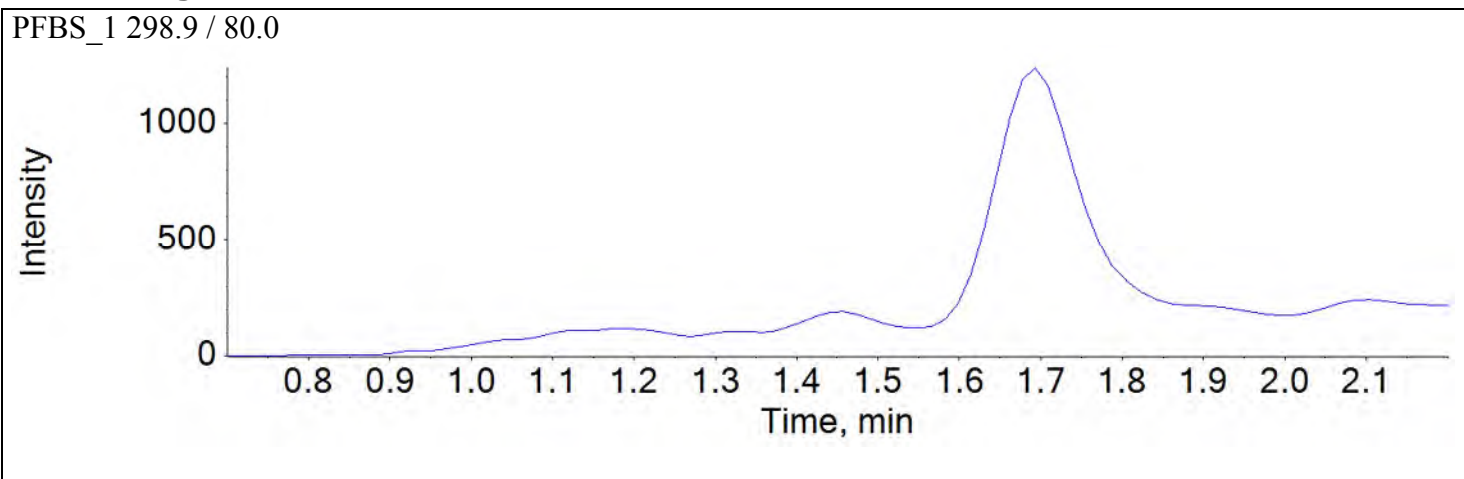
Chromatograms



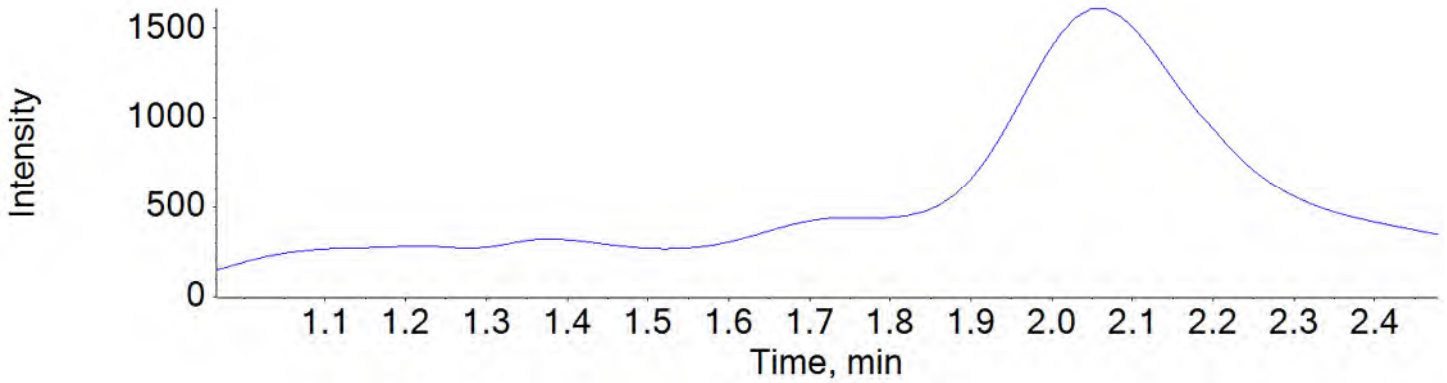


Sample Name	J5967-FS(0)	Injection Vial	15
Sample ID	NAWC-043018-FRB-207	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:32:06	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

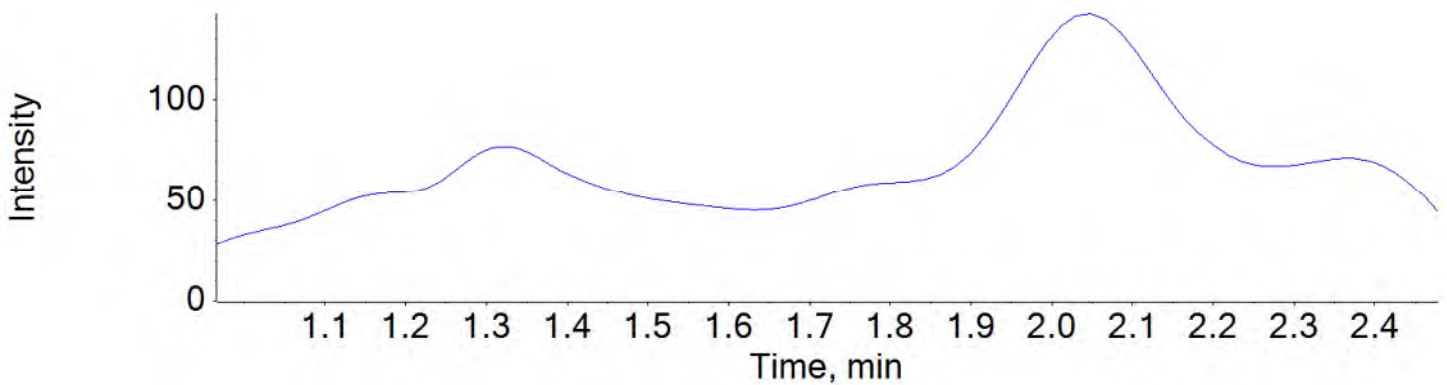
Chromatograms



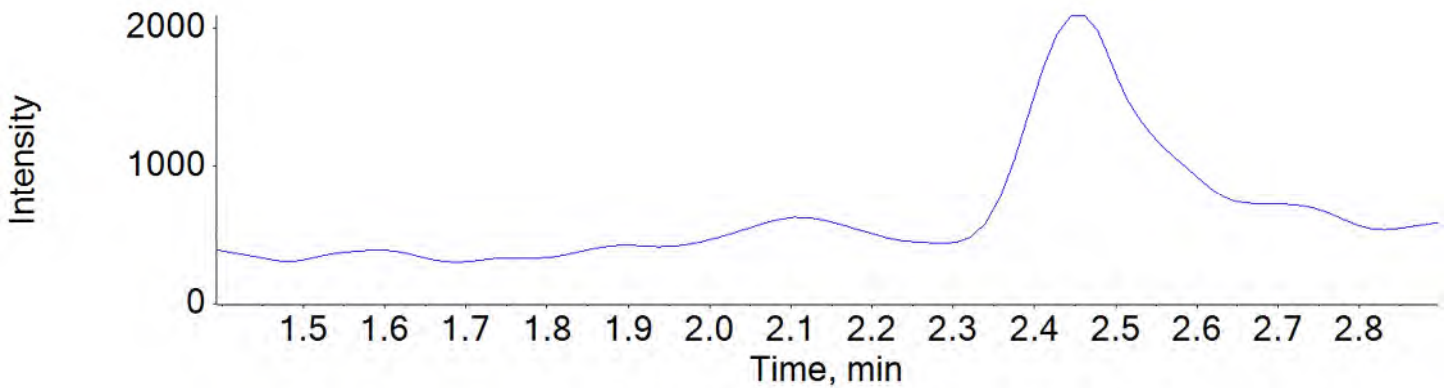
PFHxA_1 313.0 / 269.0



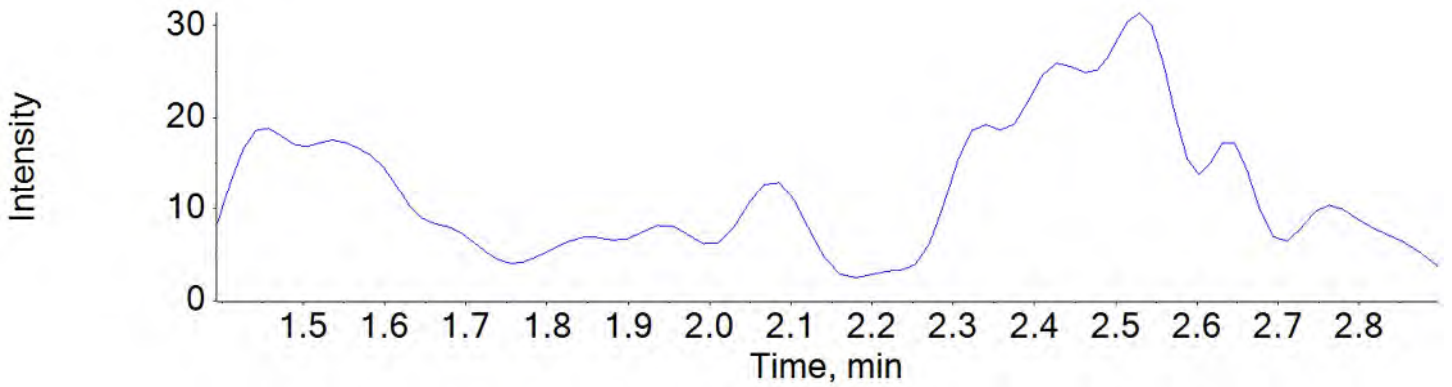
PFHxA_2 313.0 / 119.0



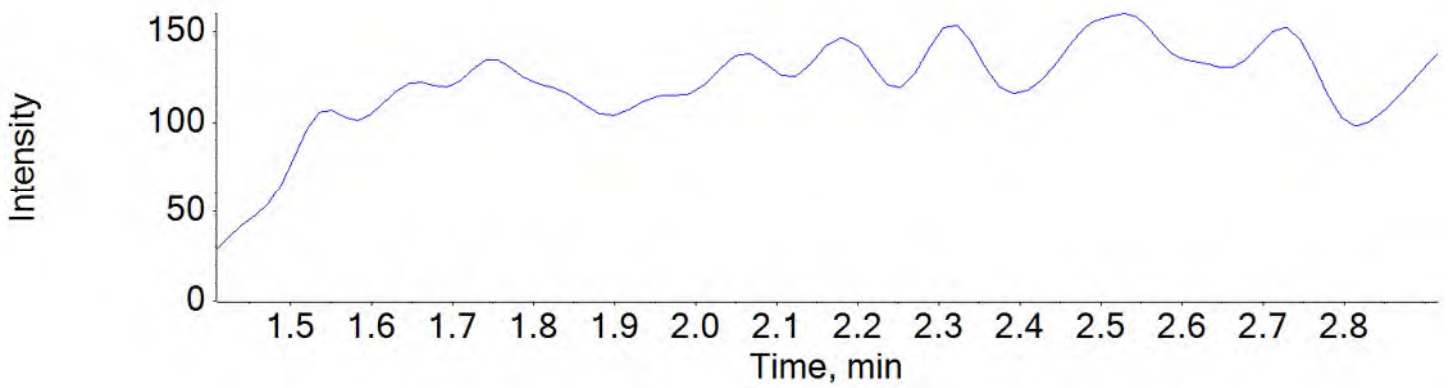
PFHpA_1 363.0 / 319.0



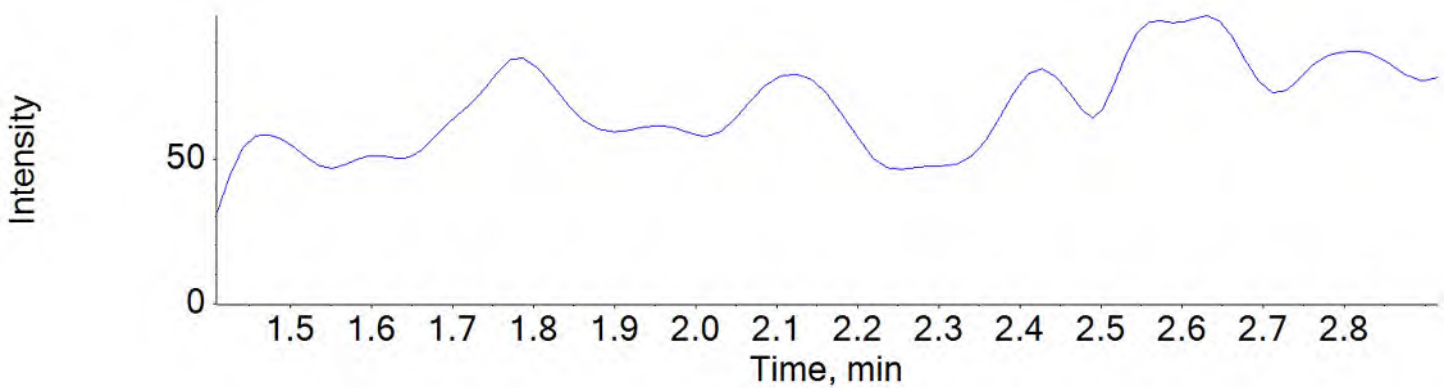
PFHpA_2 363.0 / 169.0



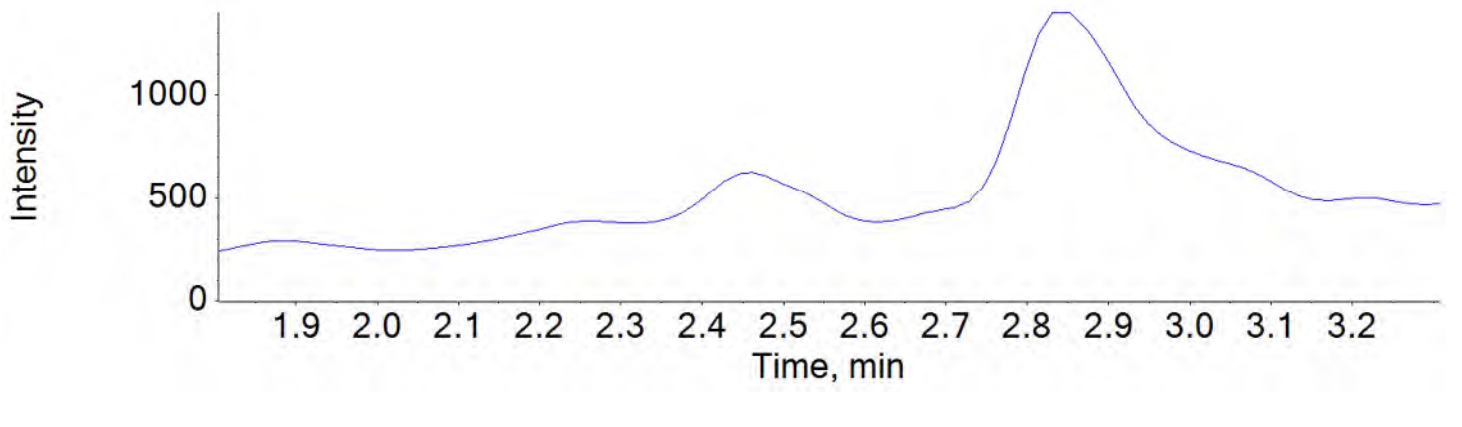
PFHxS_1 399.0 / 80.0



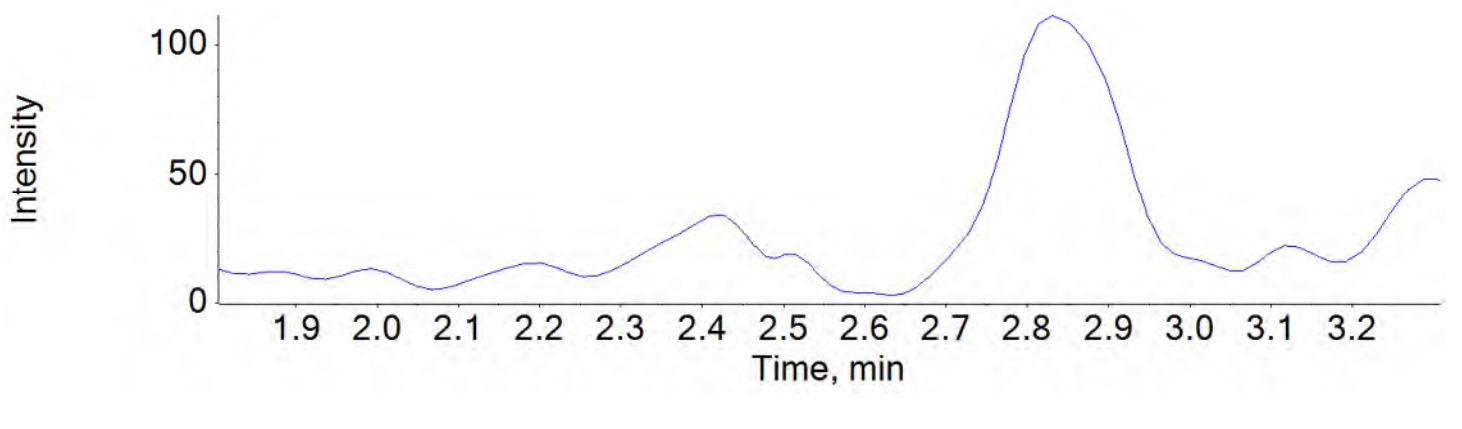
PFHxS_2 399.0 / 99.0



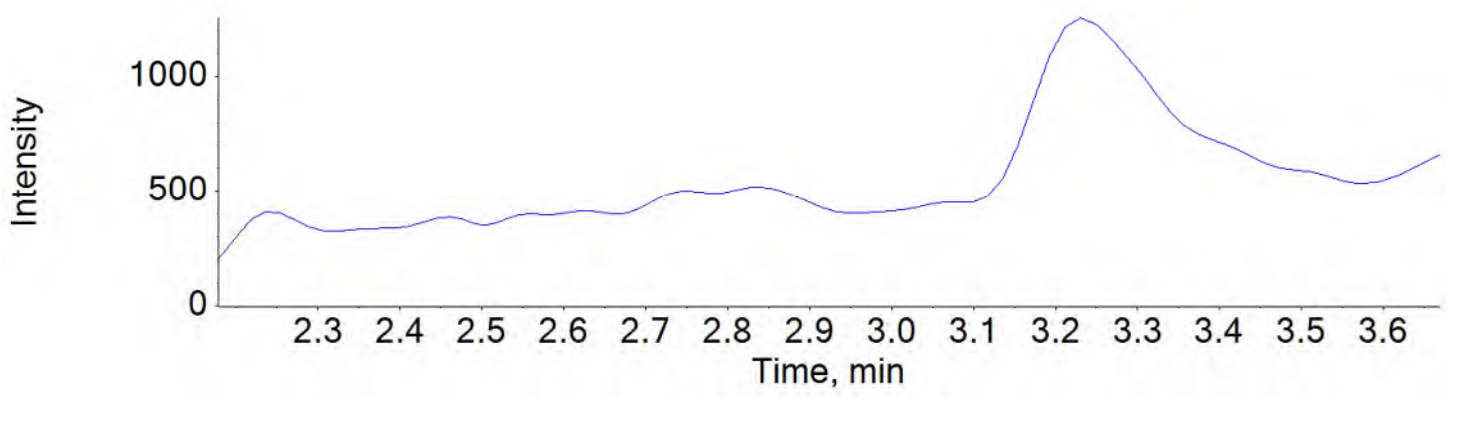
PFOA_1 413.0 / 369.0



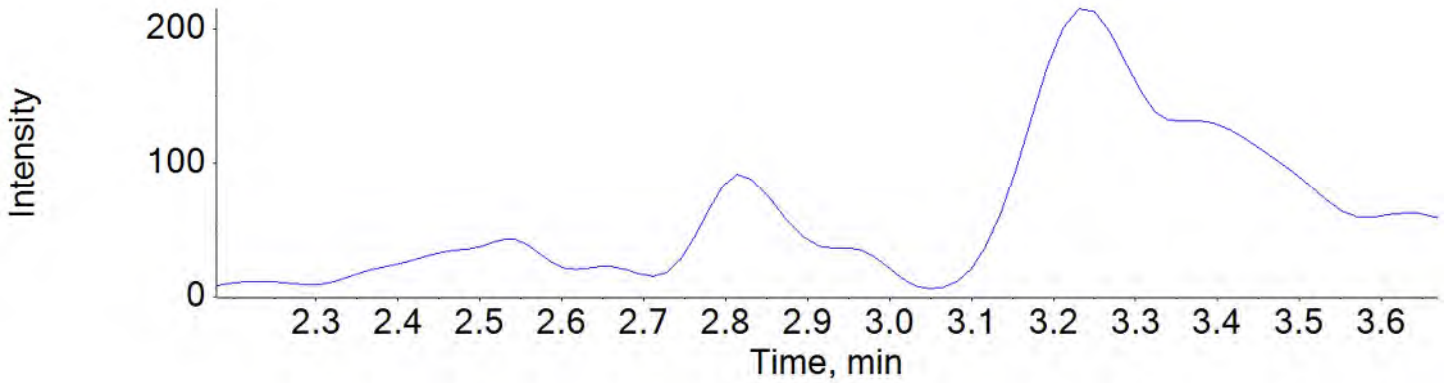
PFOA_2 413.0 / 169.0



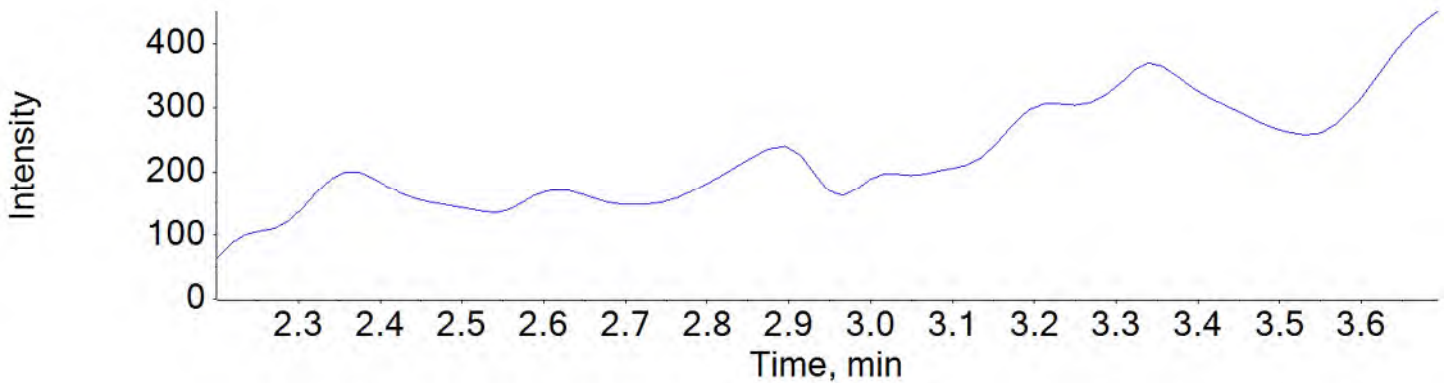
PFNA_1 463.0 / 419.0



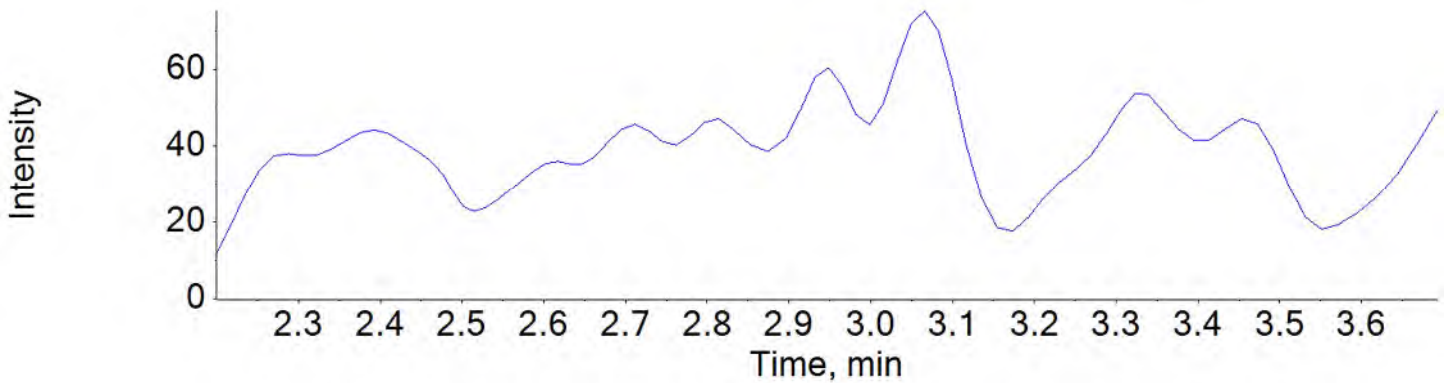
PFNA_2 463.0 / 219.0



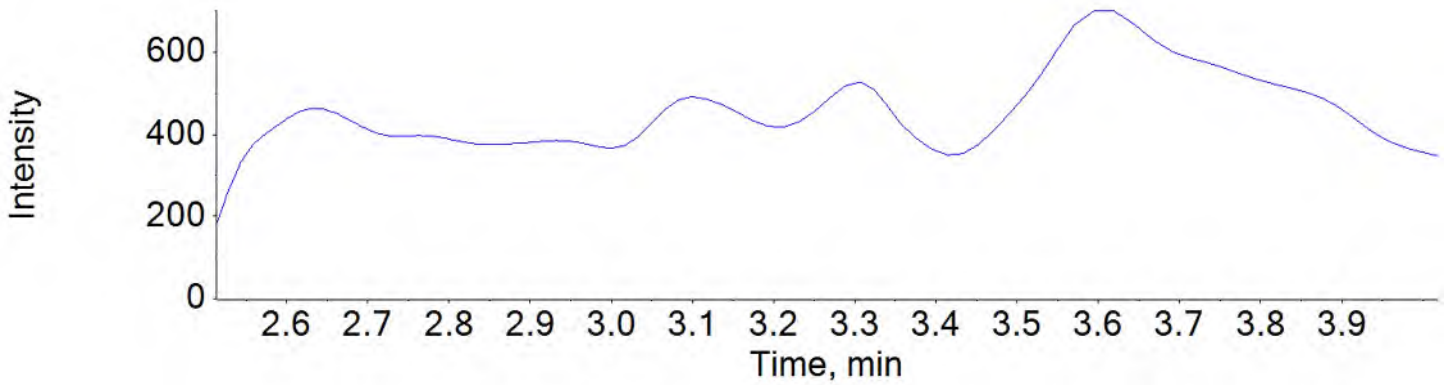
PFOS_1 499.0 / 80.0



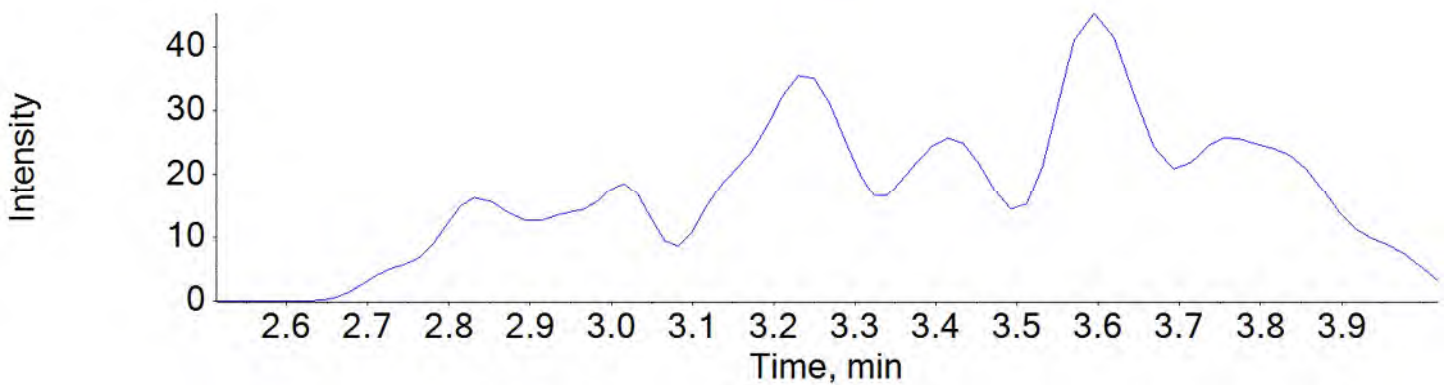
PFOS_2 499.0 / 99.0



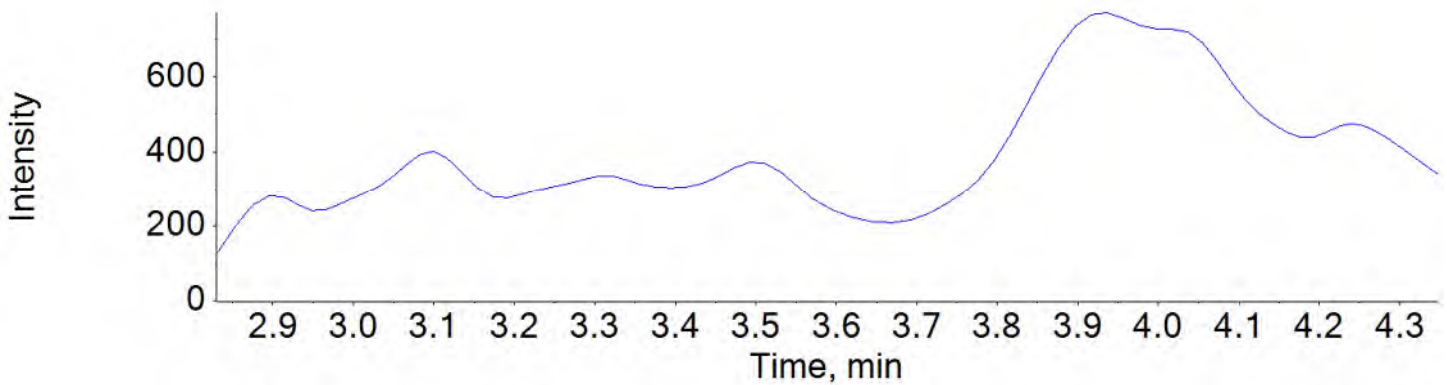
PFDA_1 513.0 / 469.0



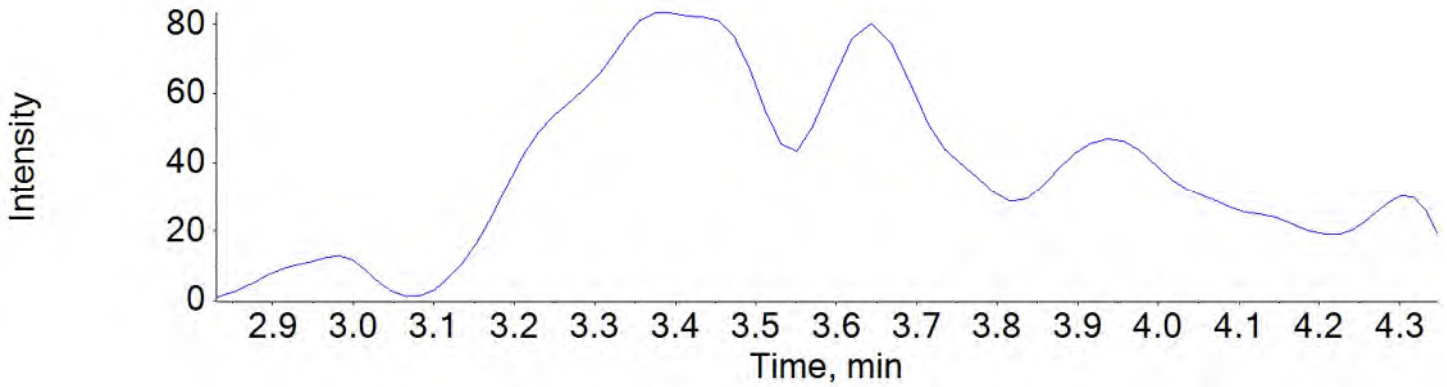
PFDA_2 513.0 / 219.0



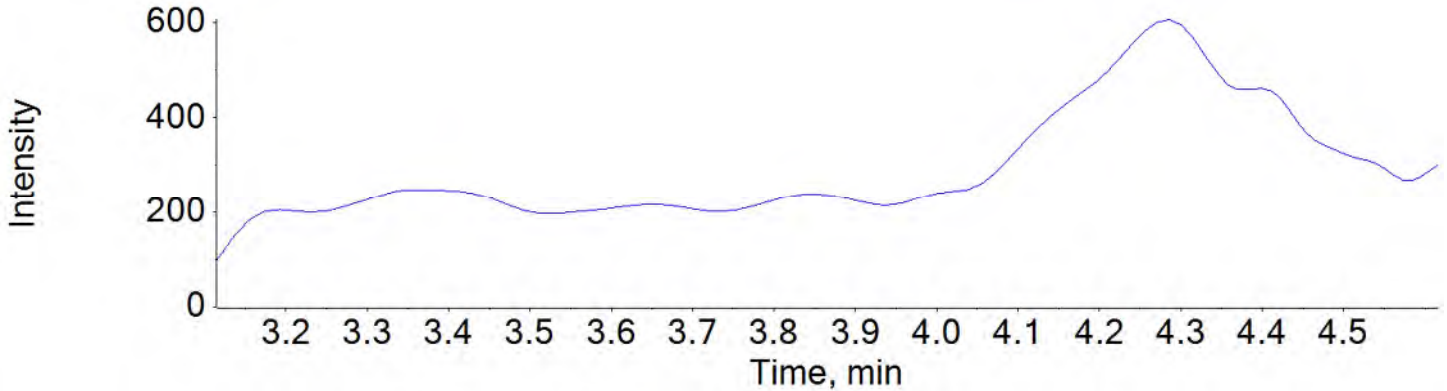
PFAUnA_1 563.0 / 519.0



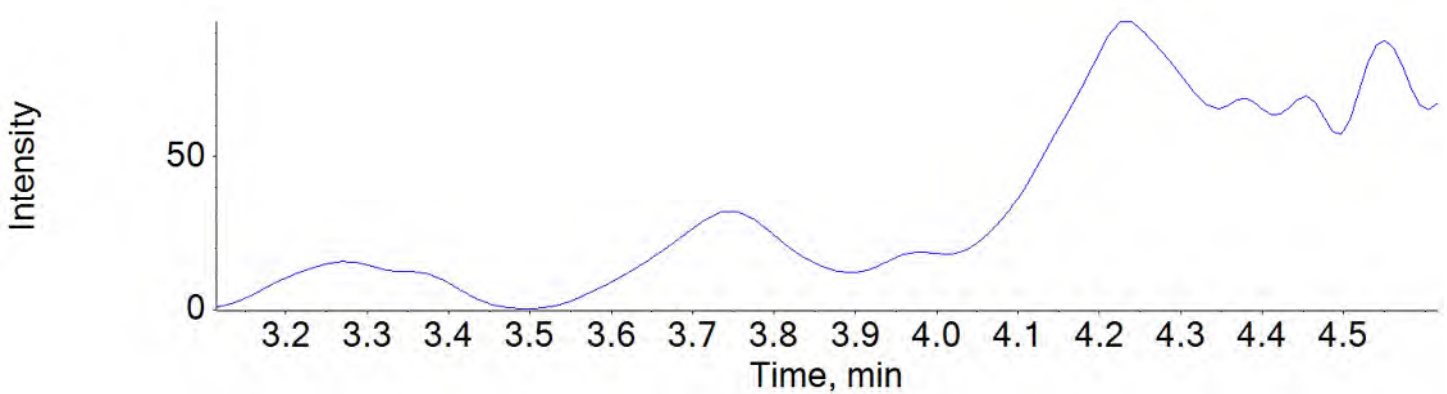
PFUnA_2 563.0 / 269.0



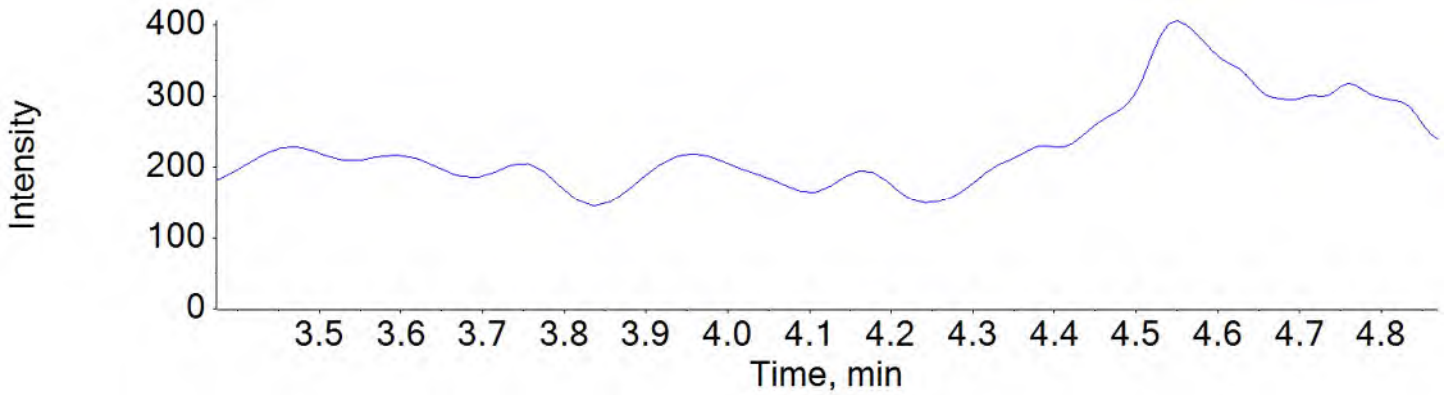
PFDaA_1 613.0 / 569.0



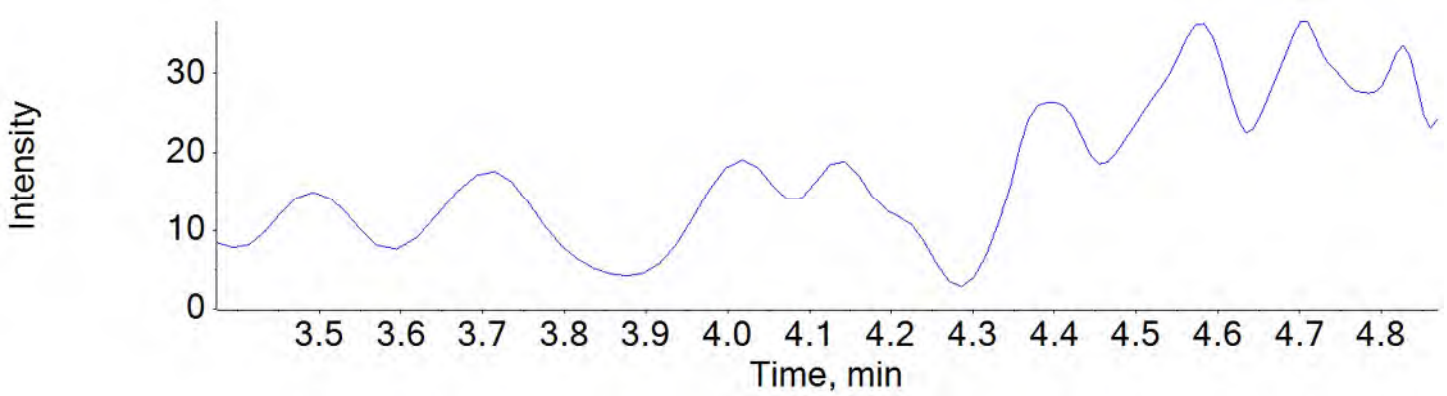
PFDaA_2 613.0 / 319.0



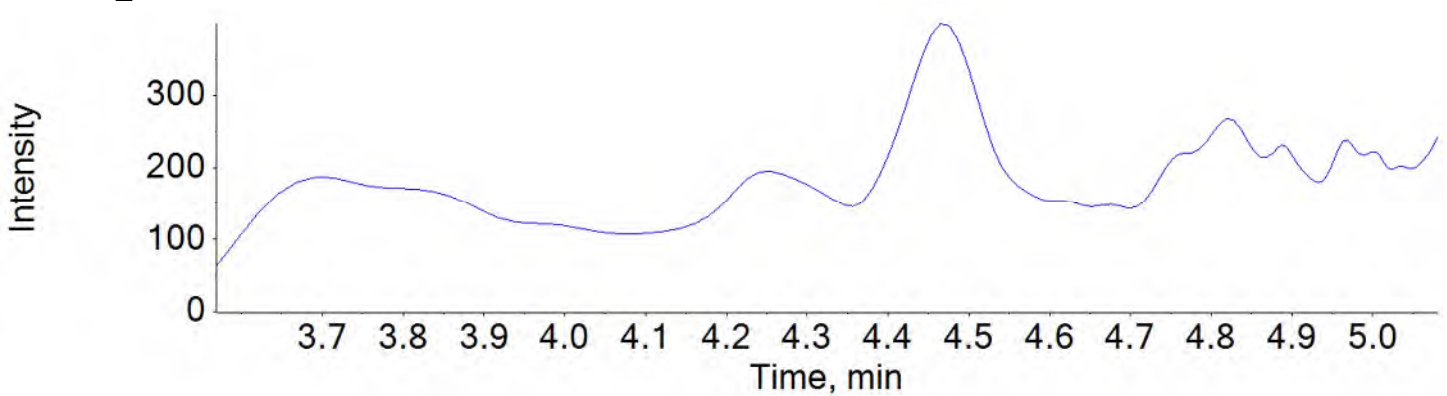
PFTTrDA_1 663.0 / 619.0



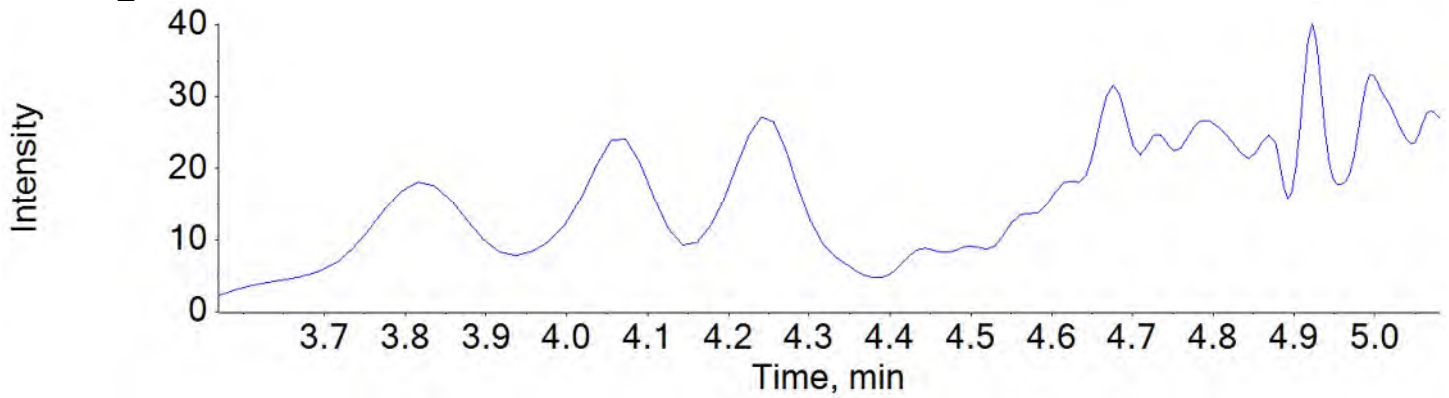
PFTTrDA_2 663.0 / 169.0



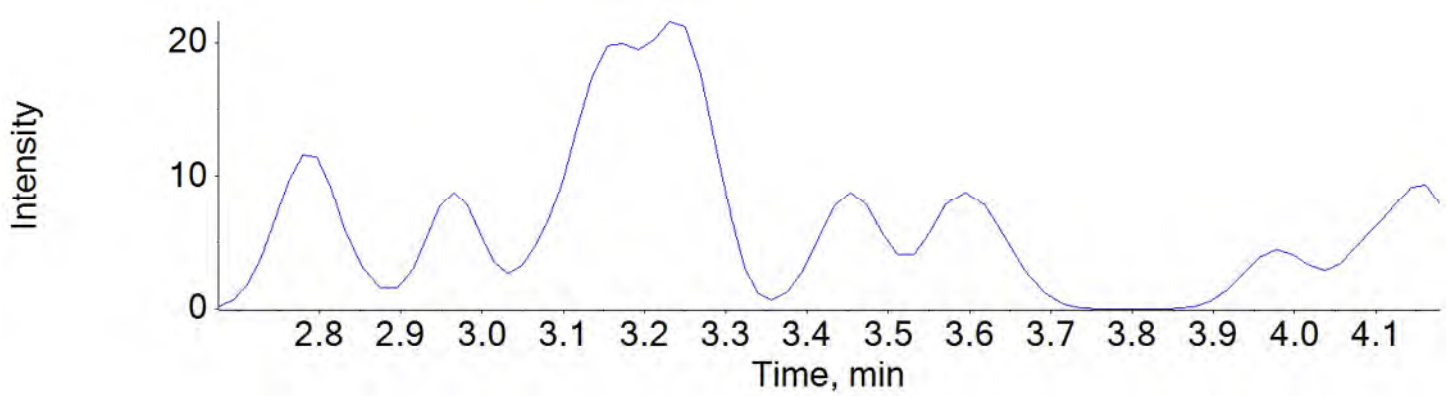
PFTTeDA_1 713.0 / 669.0



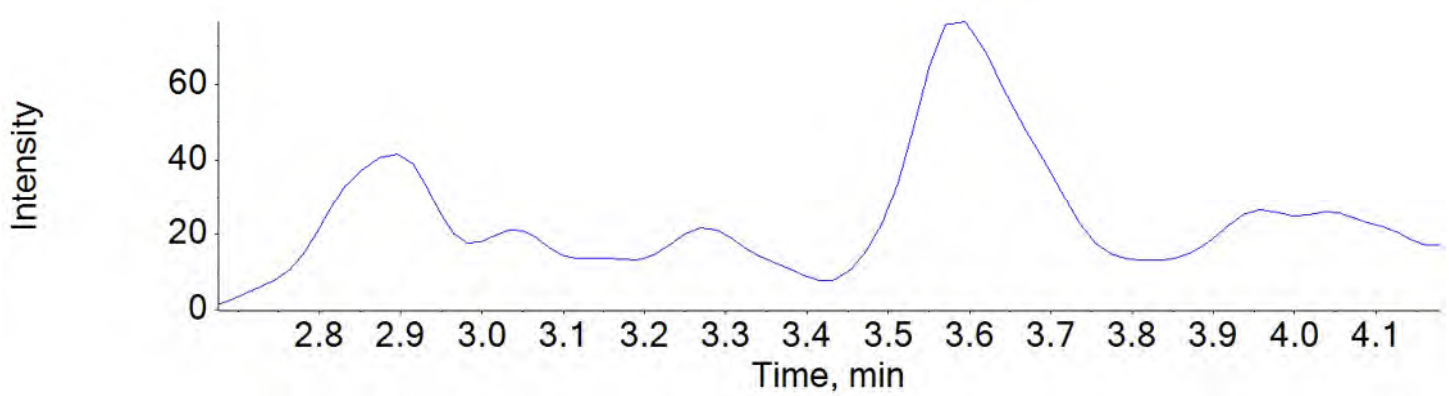
PFTeDA_2 713.0 / 169.0



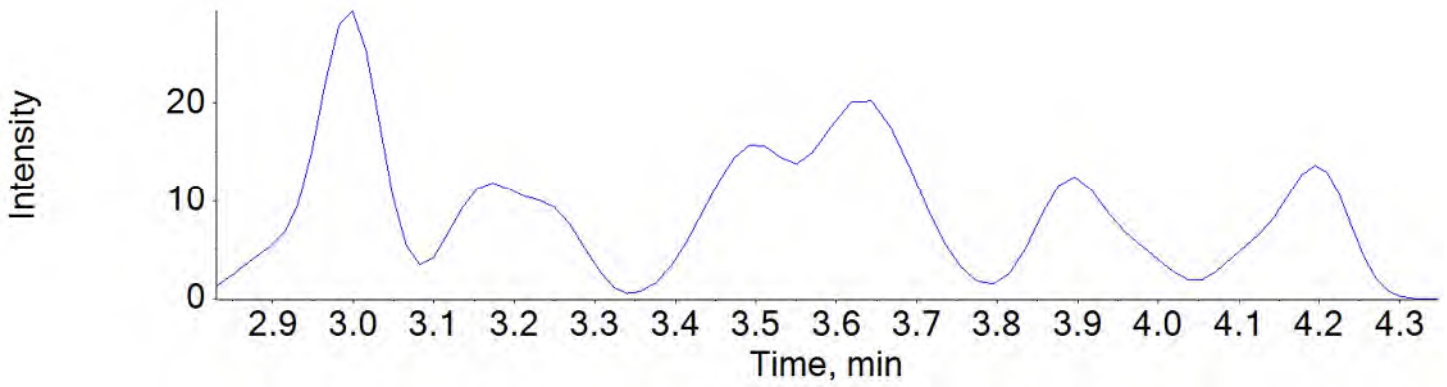
NMeFOSAA_1 570.0 / 419.0



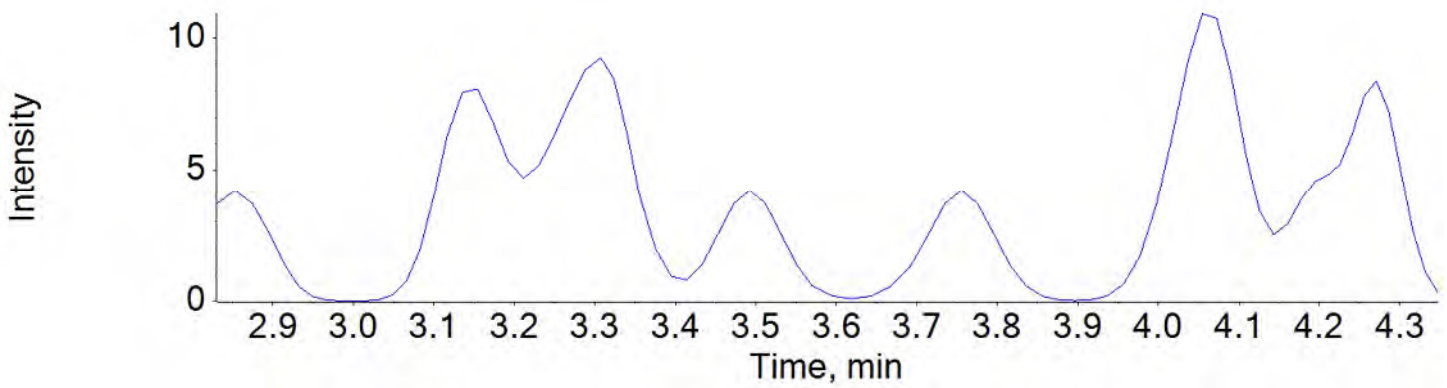
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

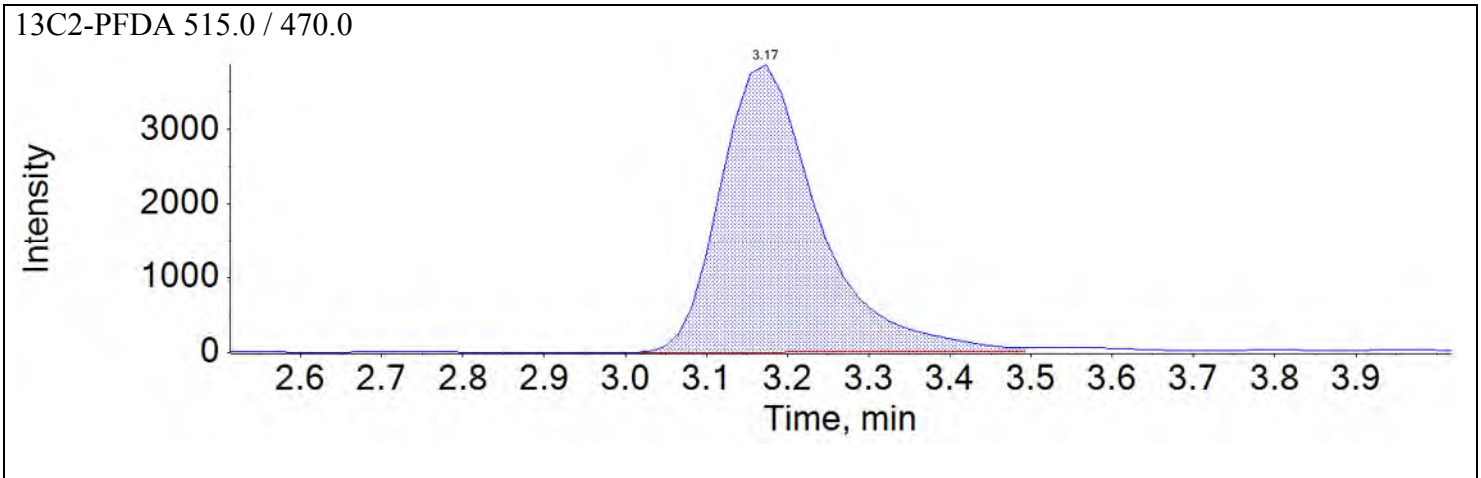
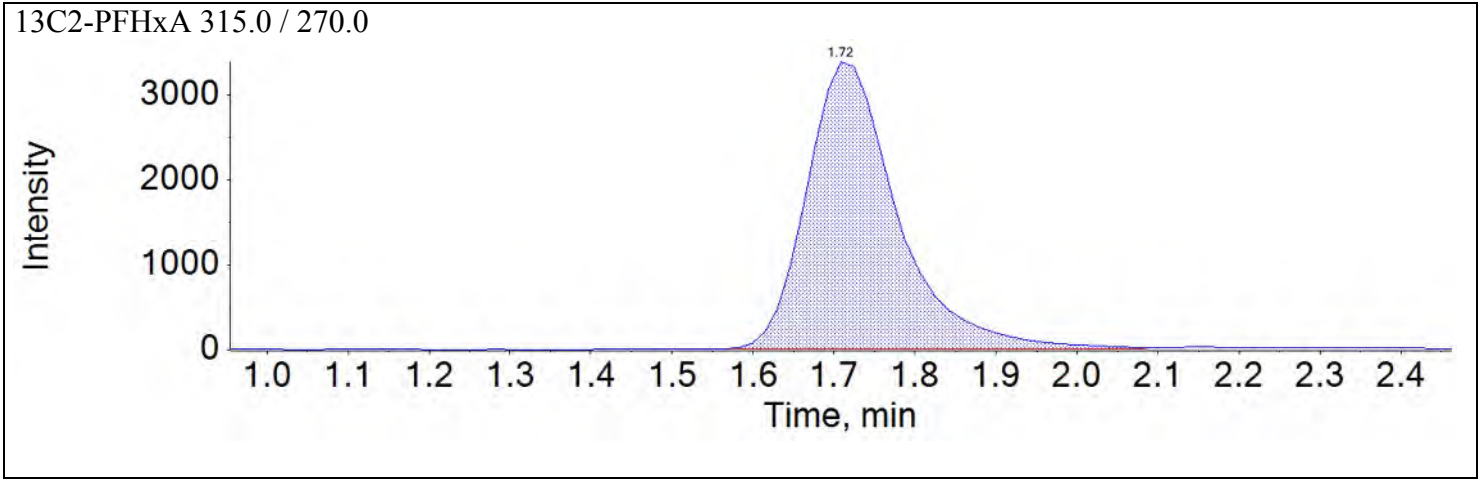


NEtFOSAA_2 584.0 / 483.0

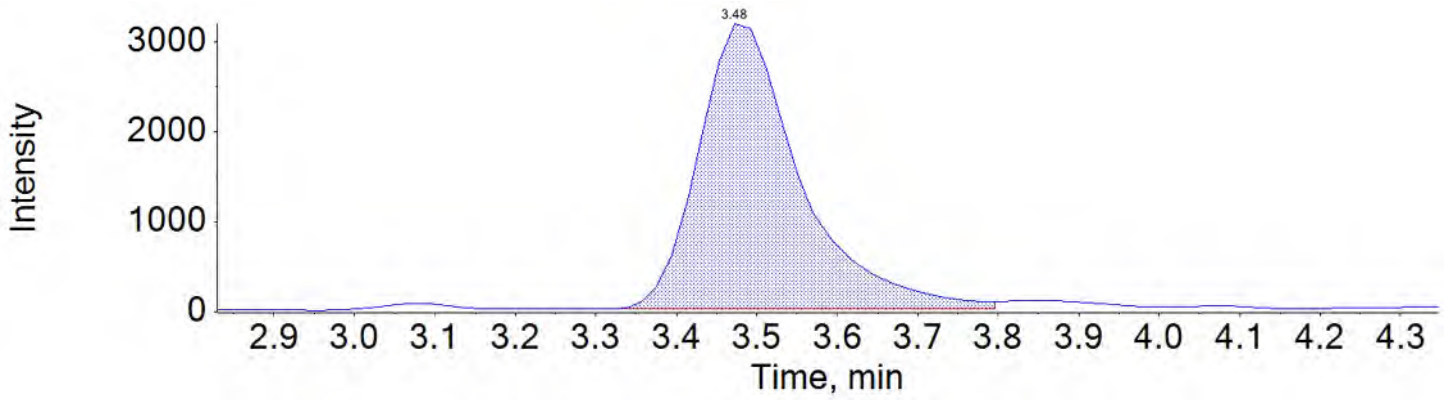


Sample Name	J5967-FS(0)	Injection Vial	15
Sample ID	NAWC-043018-FRB-207	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:32:06	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms

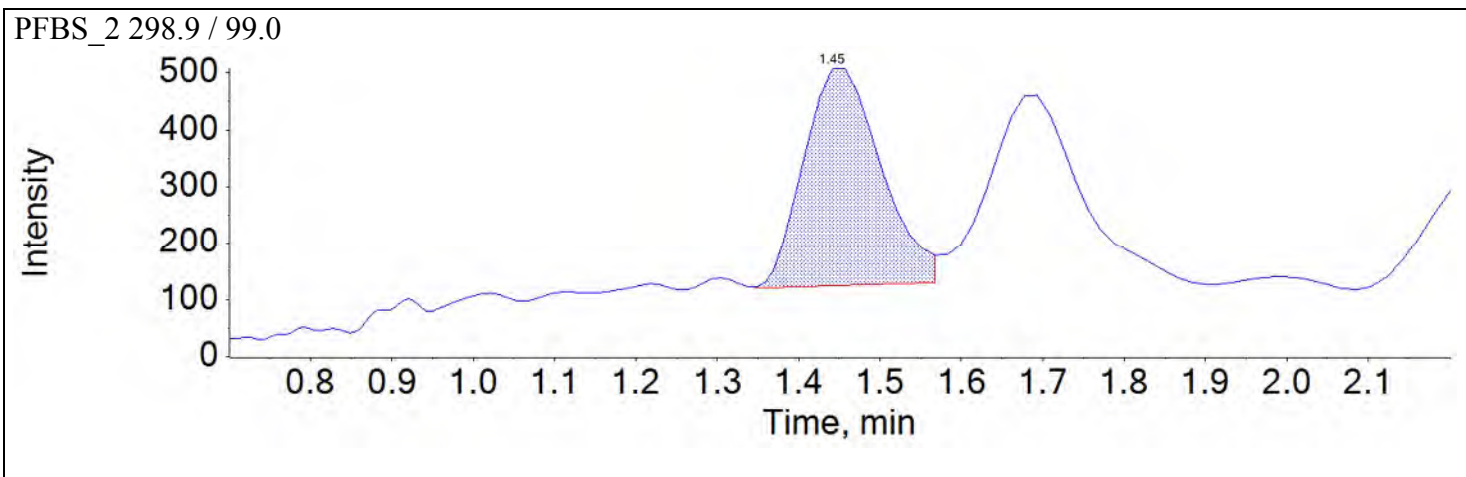
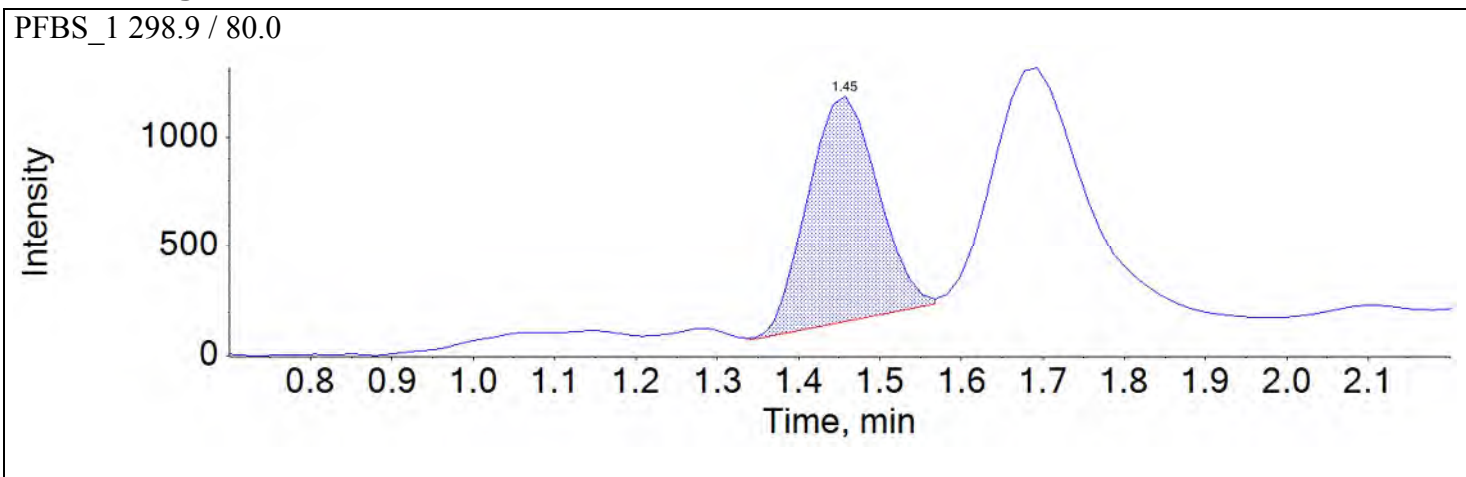


d5-EtFOSAA 589.0 / 419.0

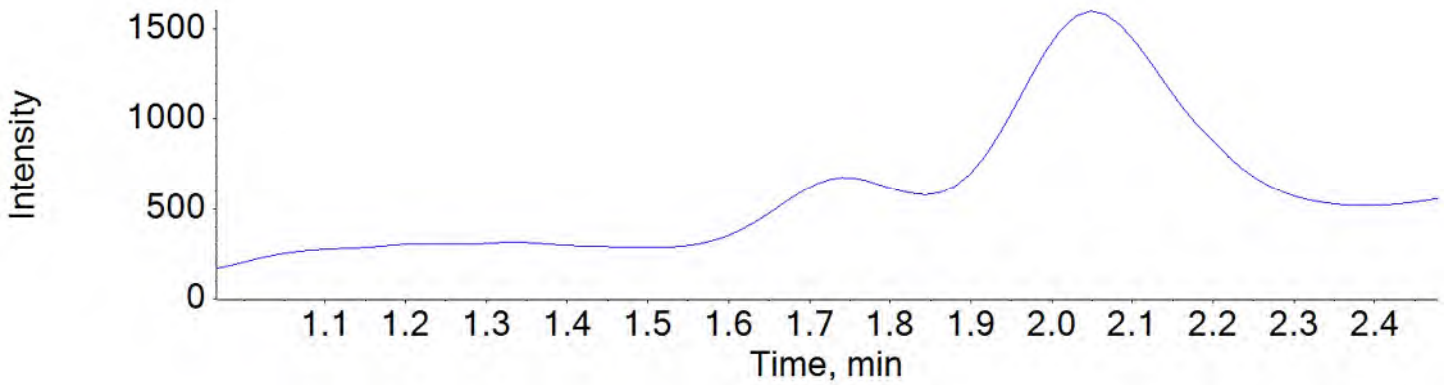


Sample Name	J5969-FS(0)	Injection Vial	16
Sample ID	WGNA-043018-FRB-3409	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:41:03	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

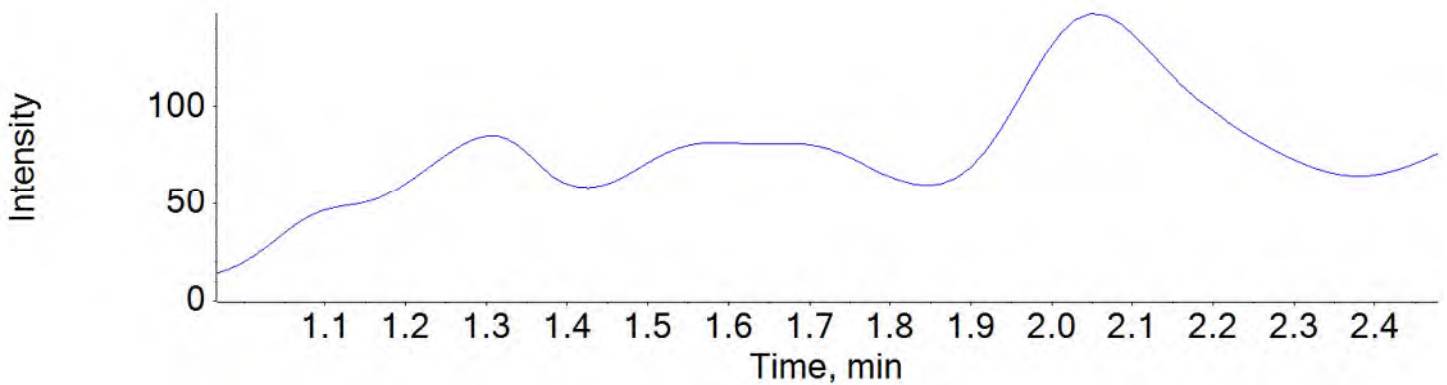
Chromatograms



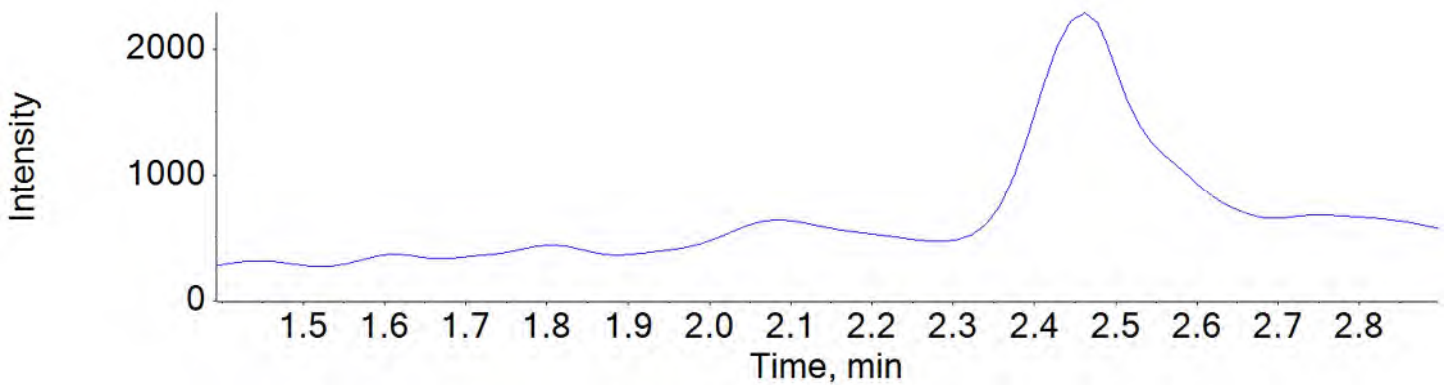
PFHxA_1 313.0 / 269.0



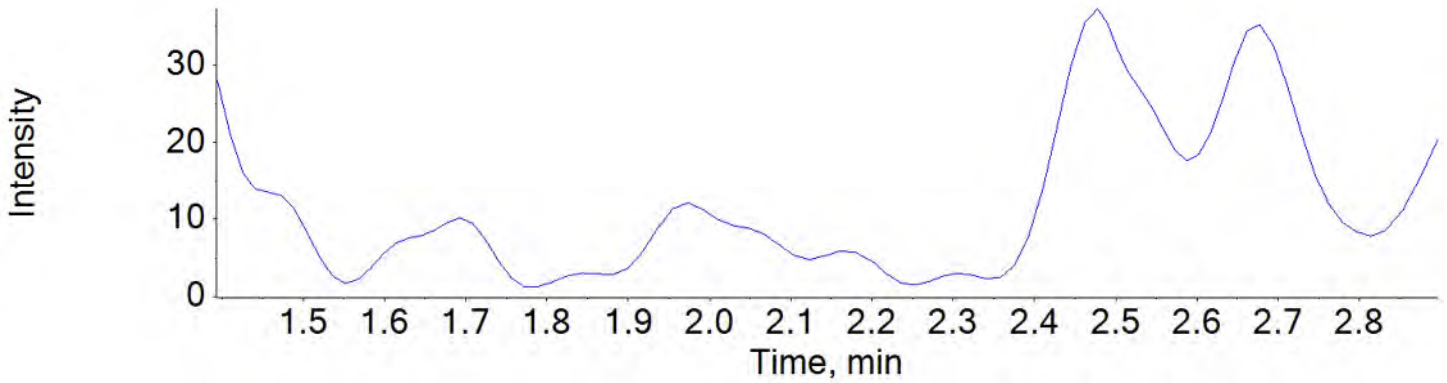
PFHxA_2 313.0 / 119.0



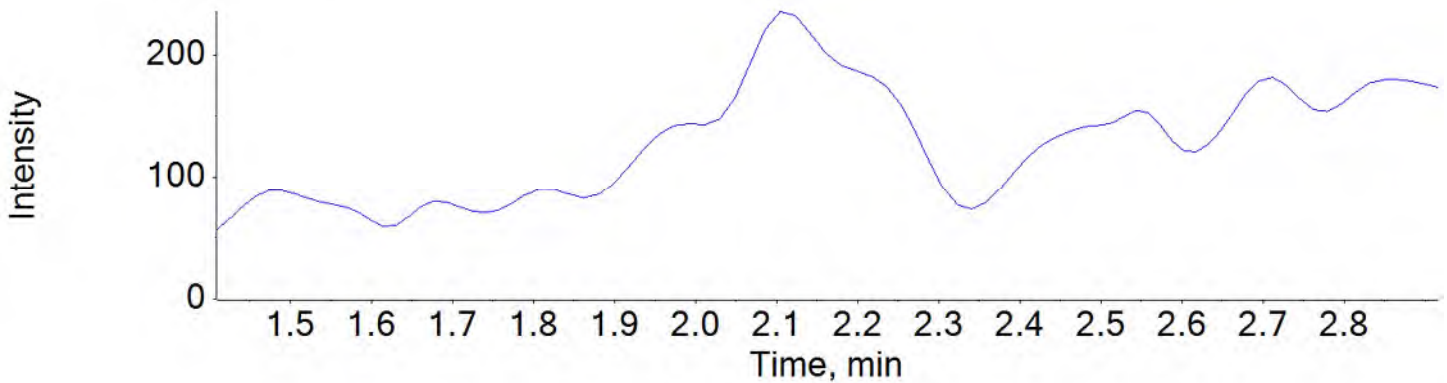
PFHpA_1 363.0 / 319.0



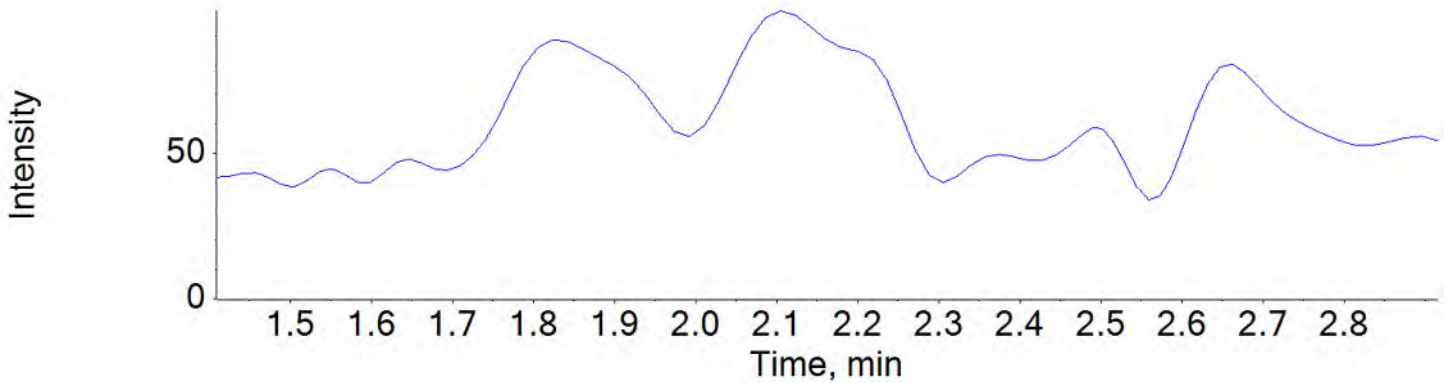
PFHpA_2 363.0 / 169.0

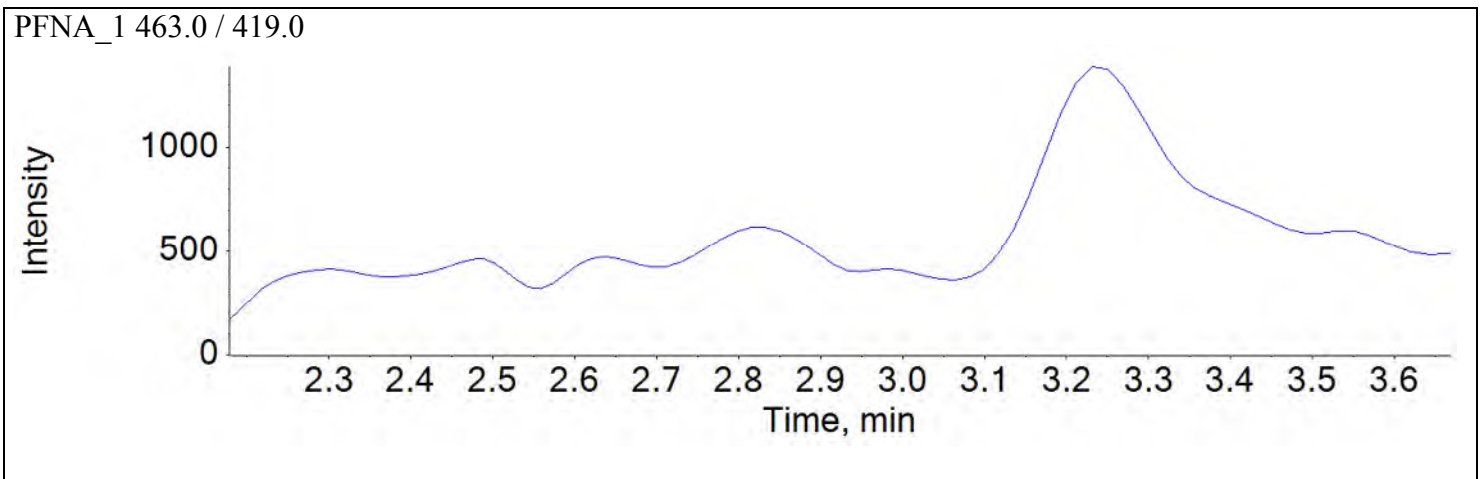
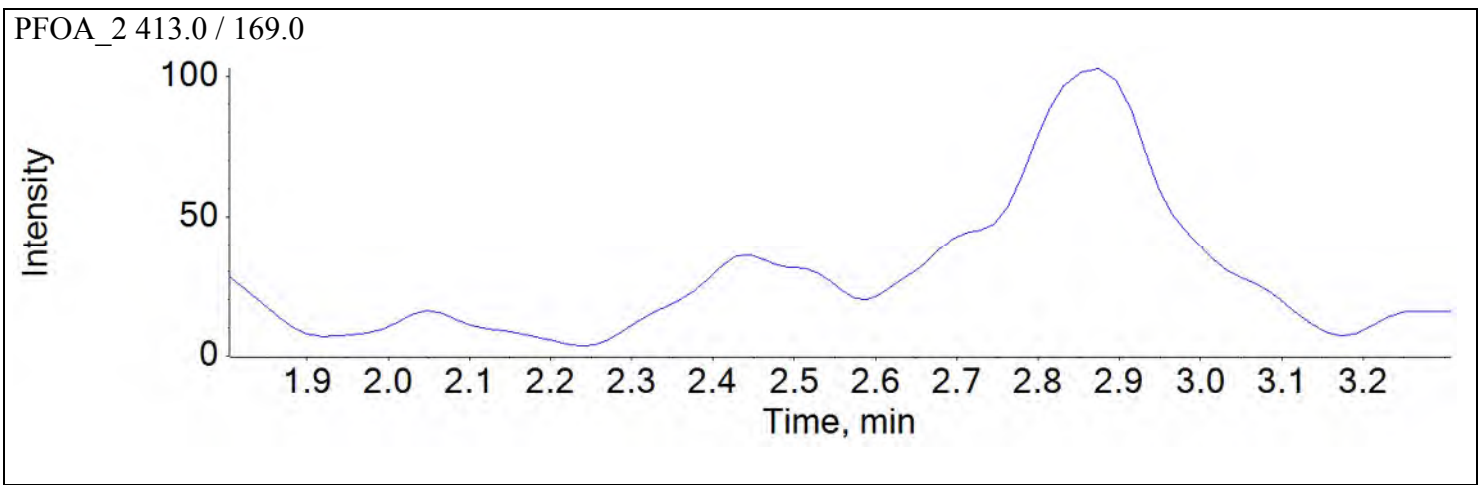
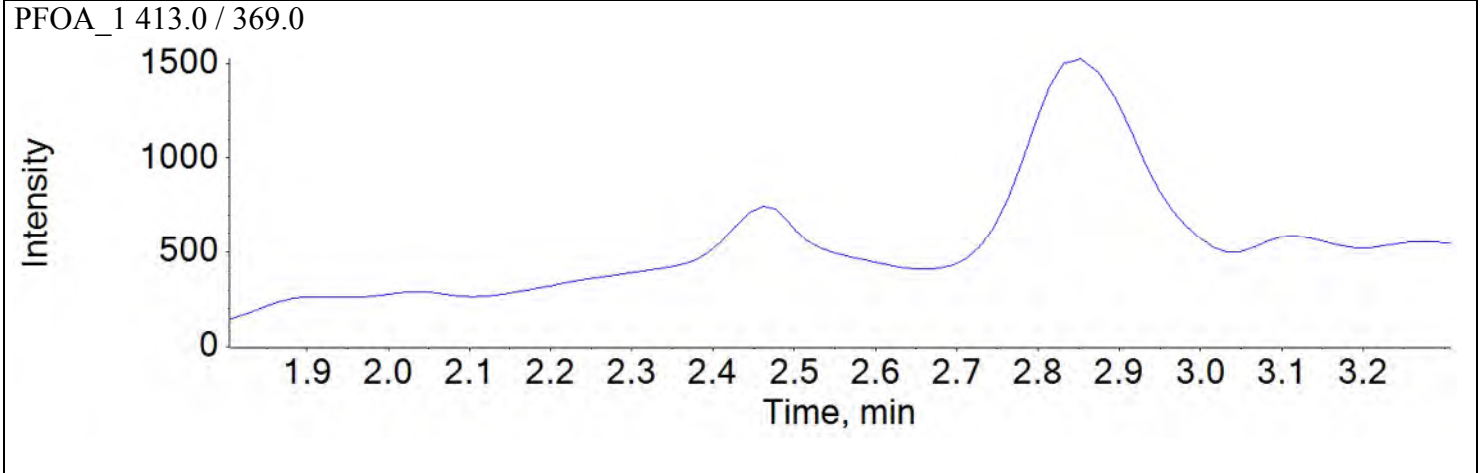


PFHxS_1 399.0 / 80.0

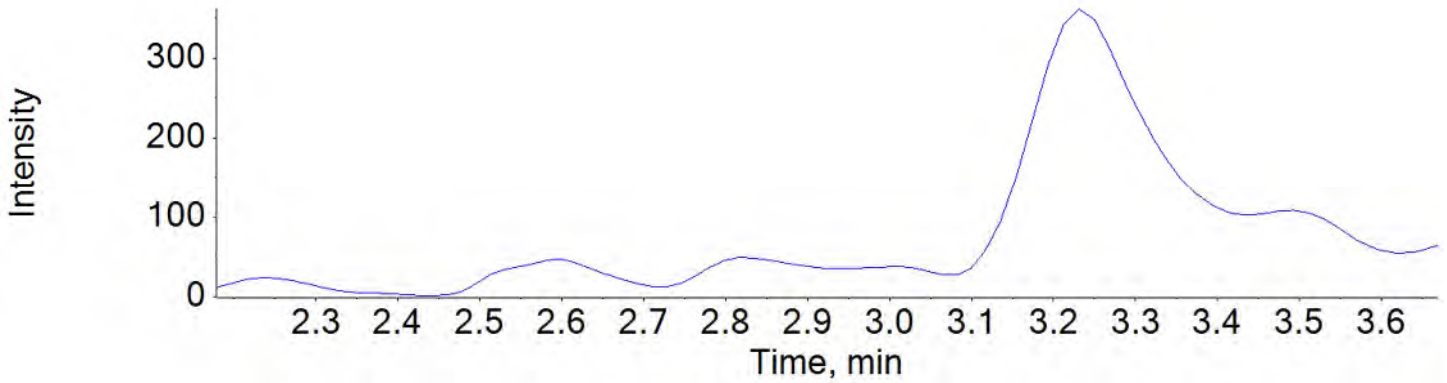


PFHxS_2 399.0 / 99.0

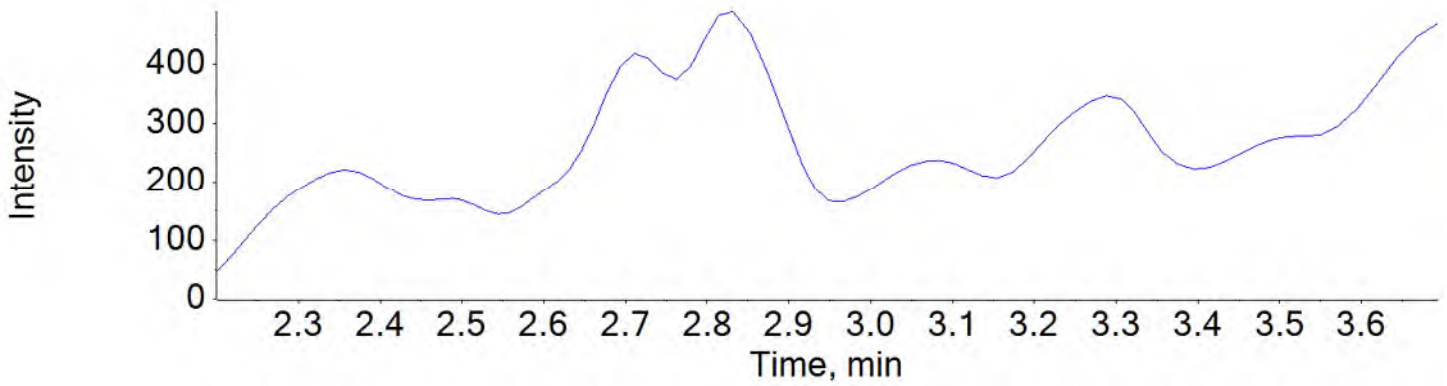




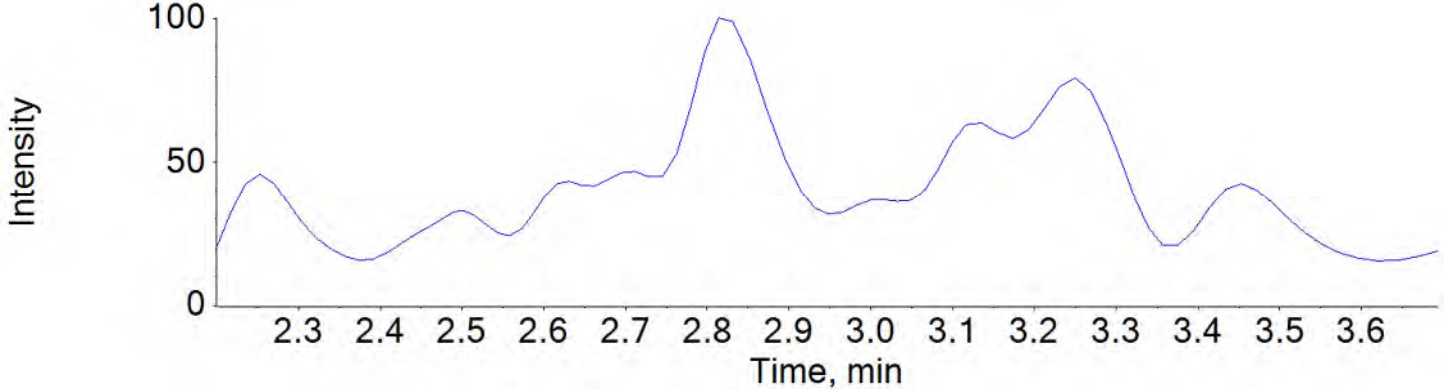
PFNA_2 463.0 / 219.0

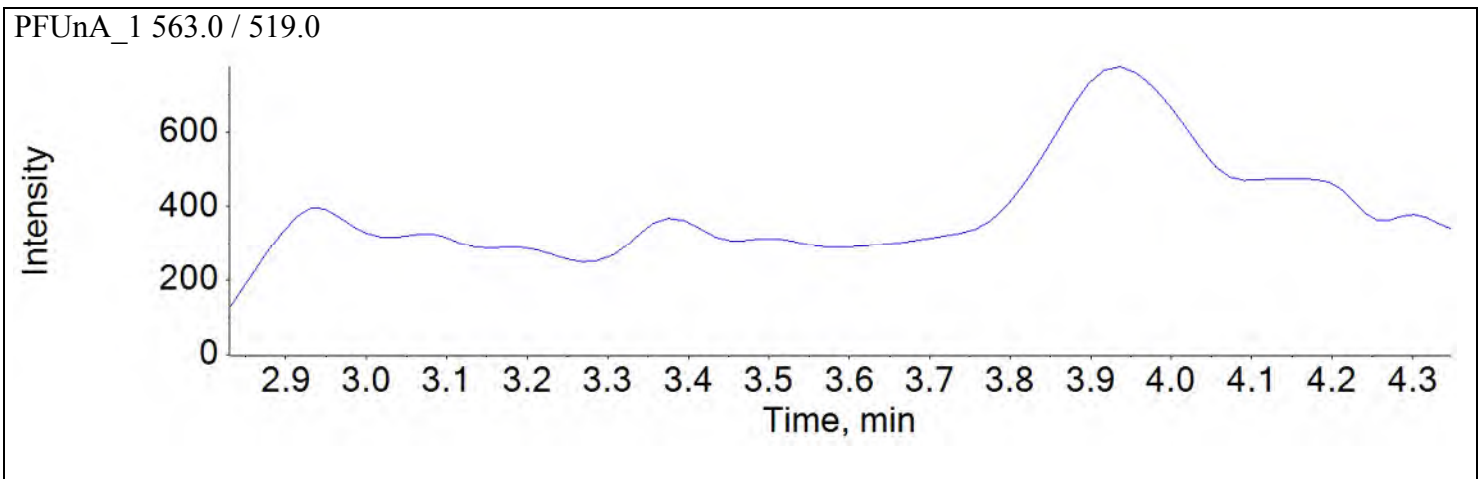
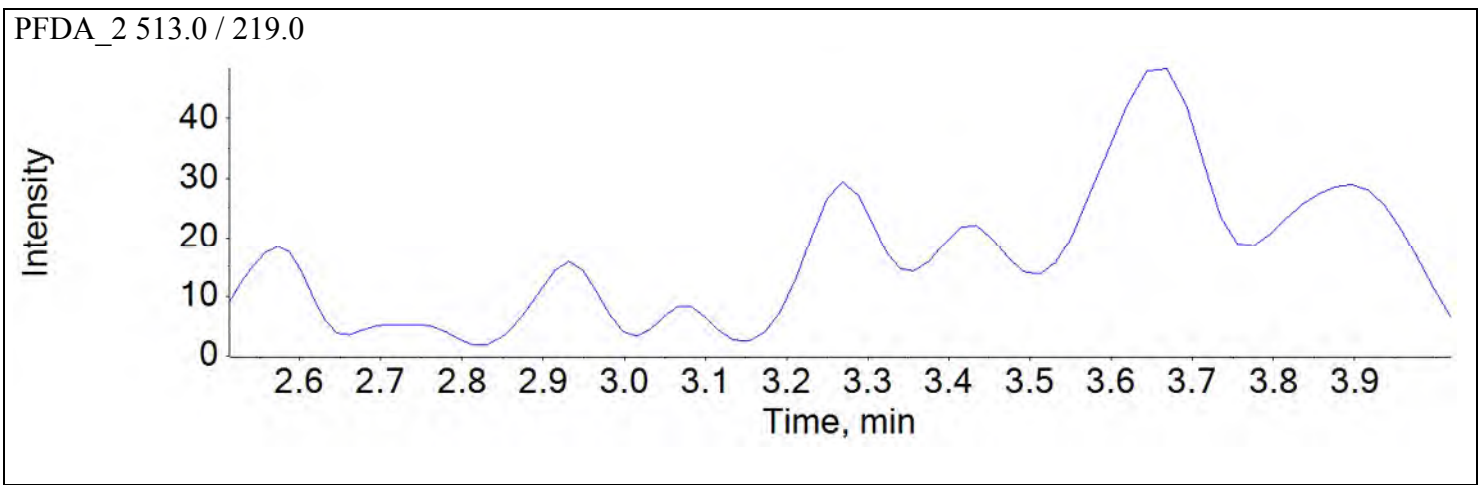
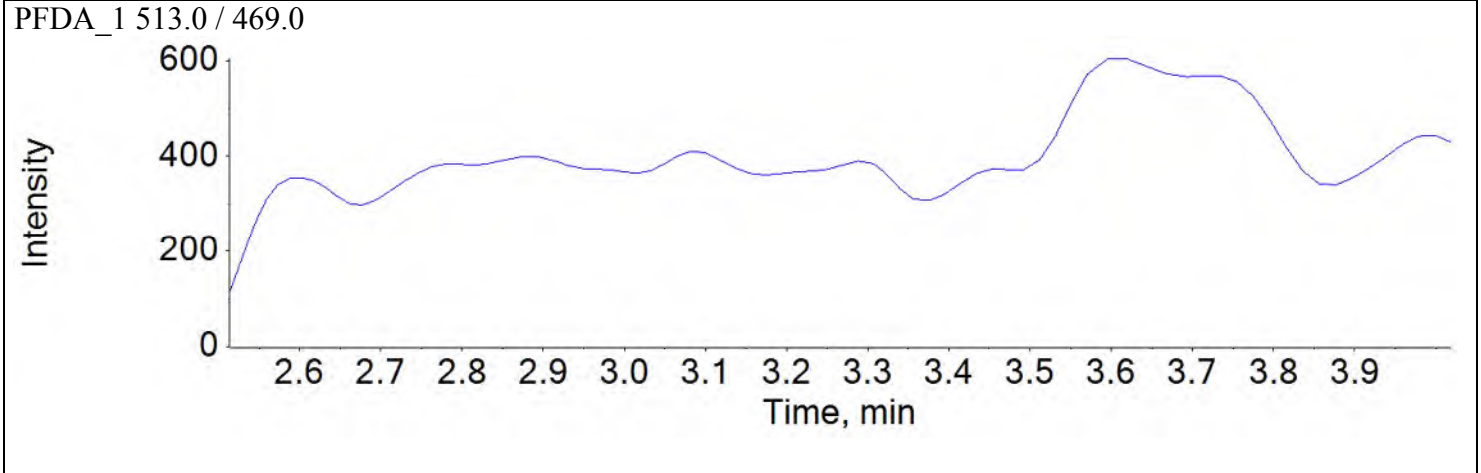


PFOS_1 499.0 / 80.0

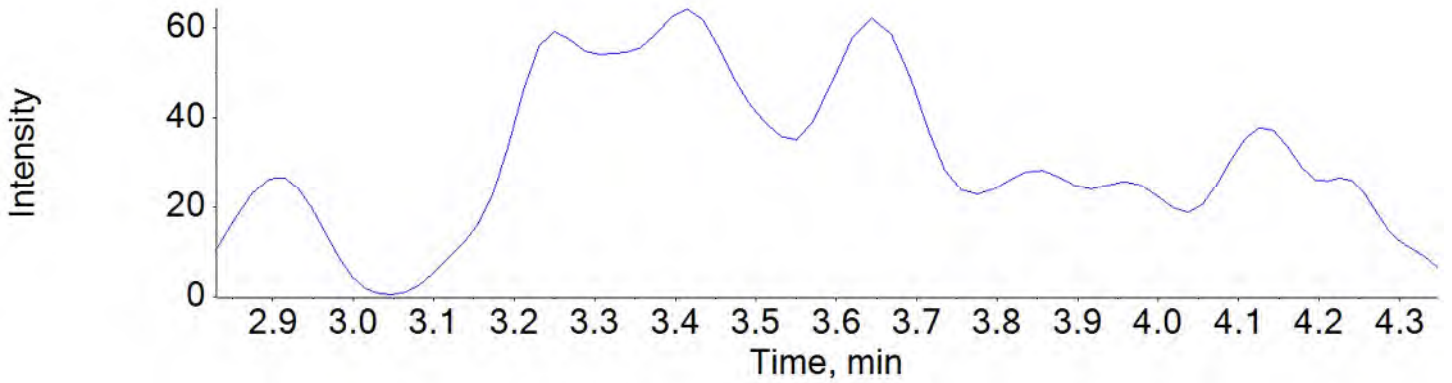


PFOS_2 499.0 / 99.0

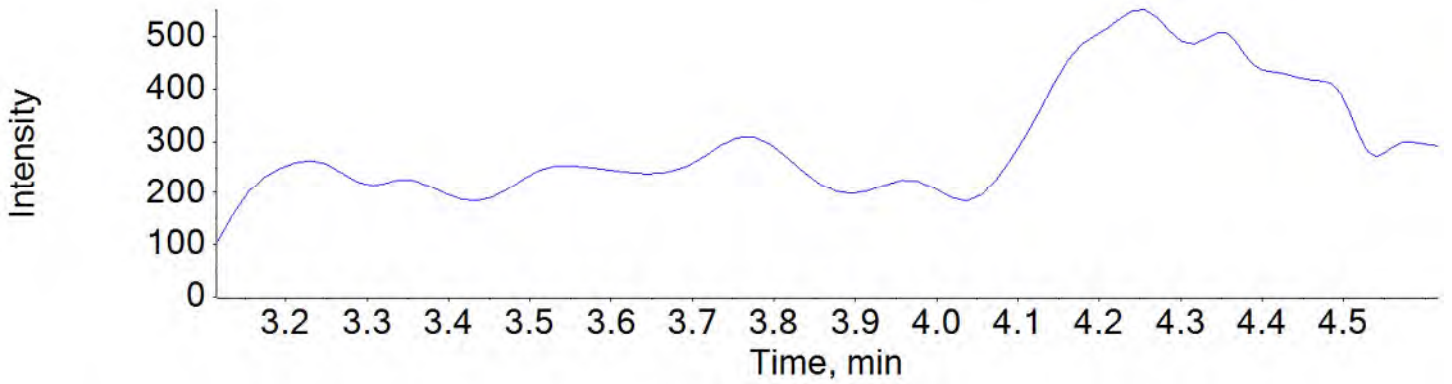




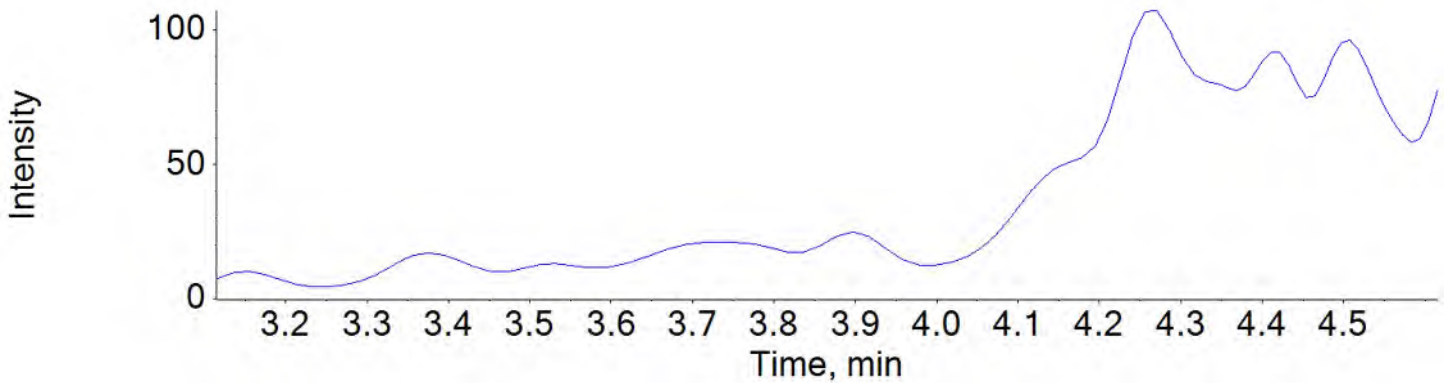
PFU_nA_2 563.0 / 269.0



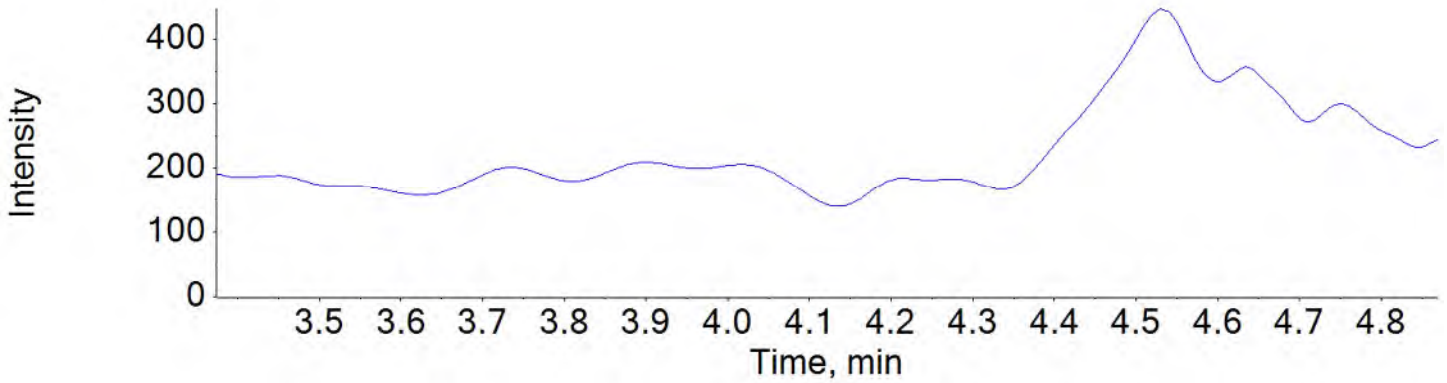
PFDoA_1 613.0 / 569.0



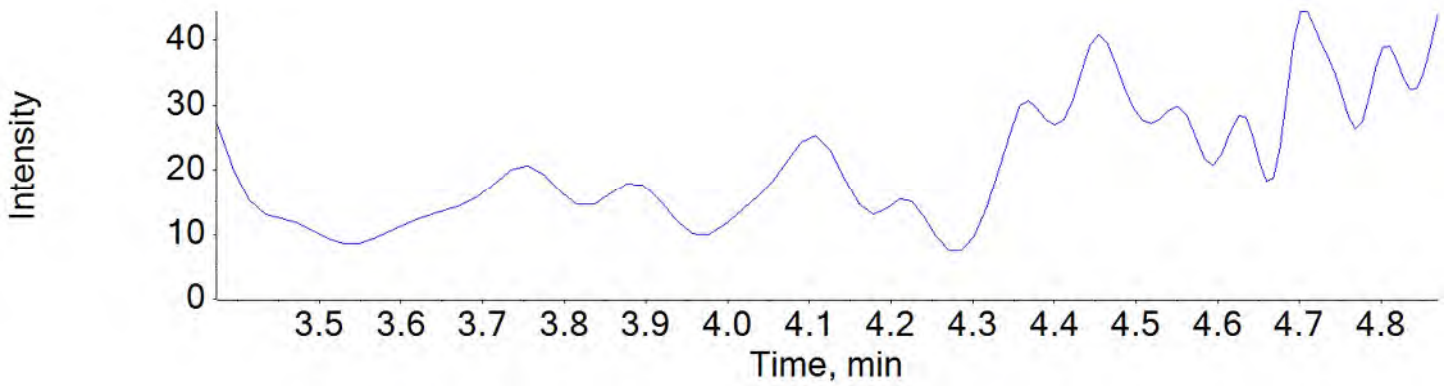
PFDoA_2 613.0 / 319.0



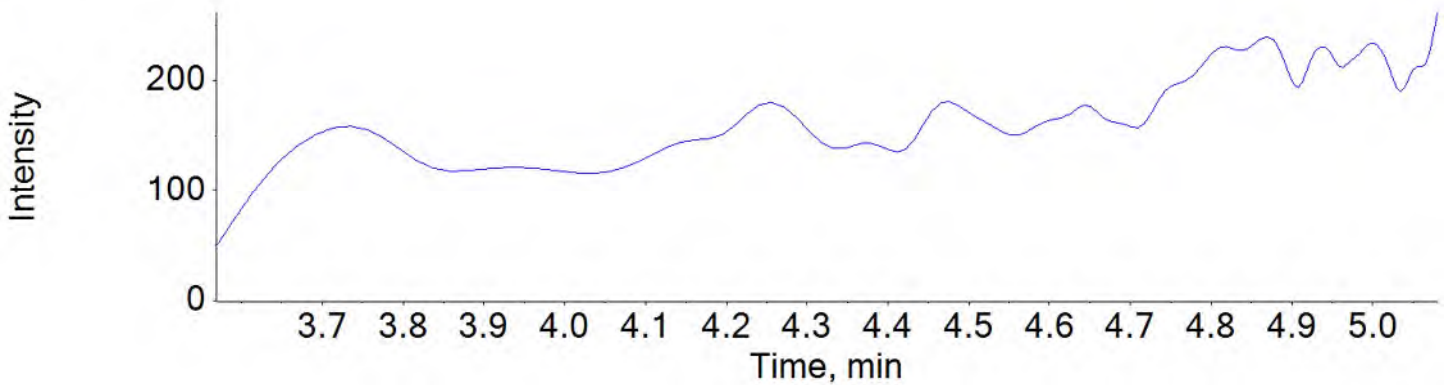
PFTTrDA_1 663.0 / 619.0



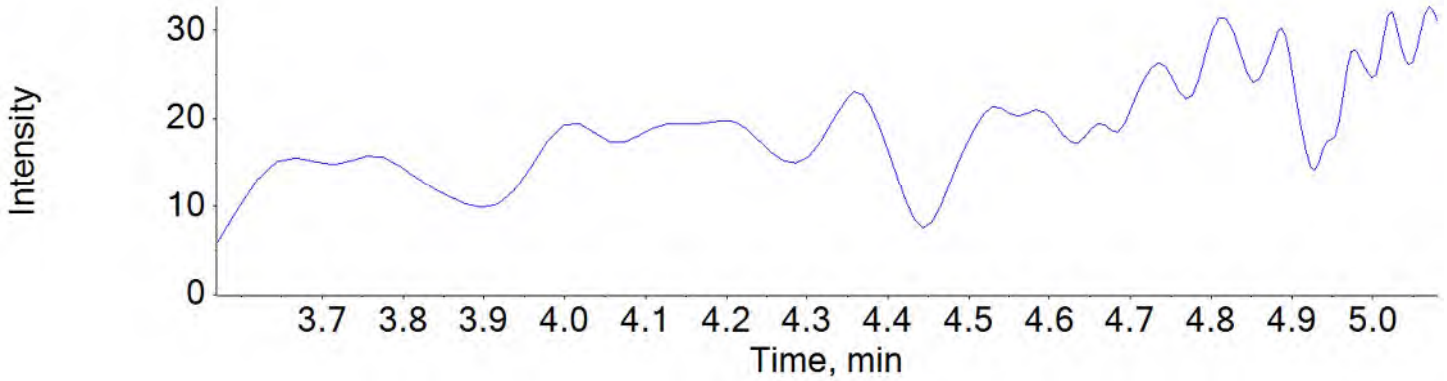
PFTTrDA_2 663.0 / 169.0



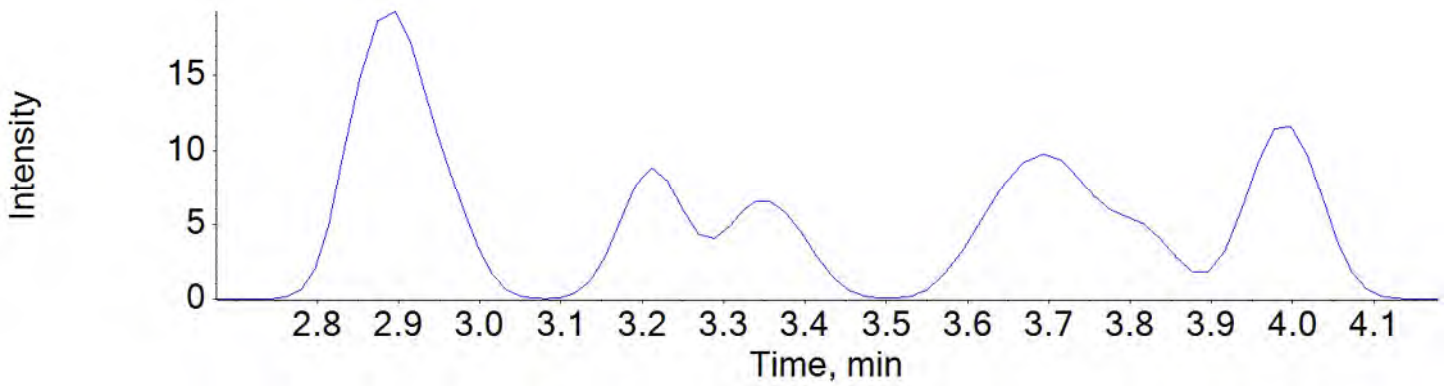
PFTTeDA_1 713.0 / 669.0



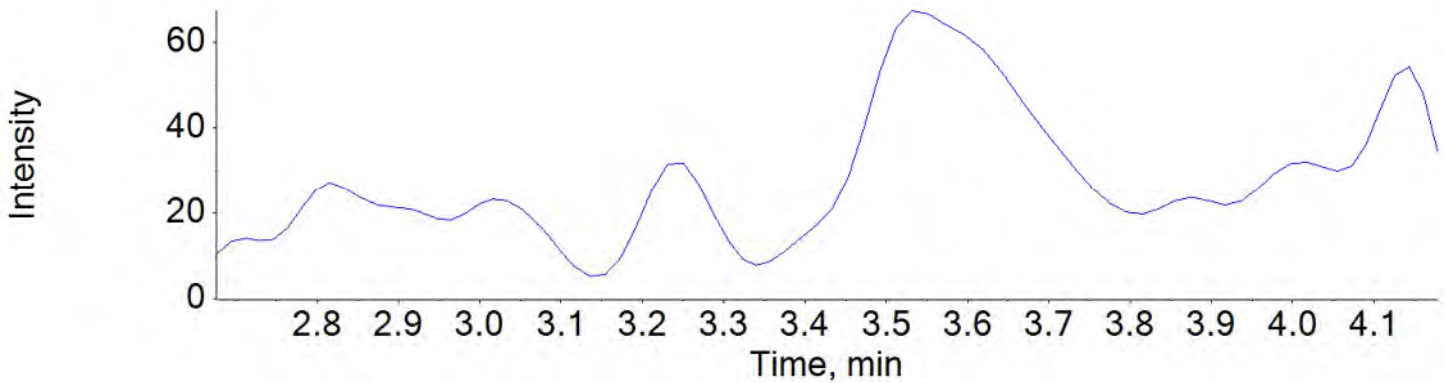
PFTeDA_2 713.0 / 169.0



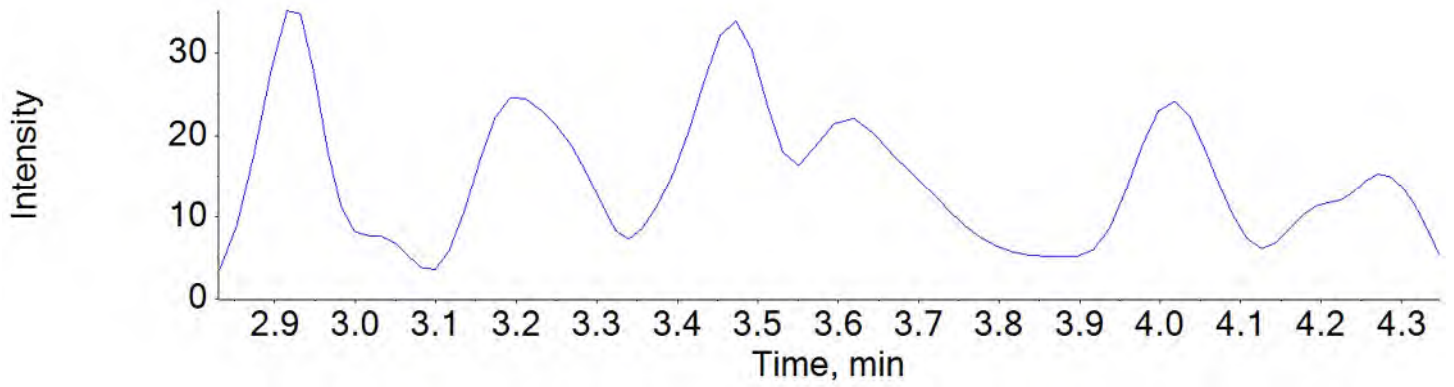
NMeFOSAA_1 570.0 / 419.0



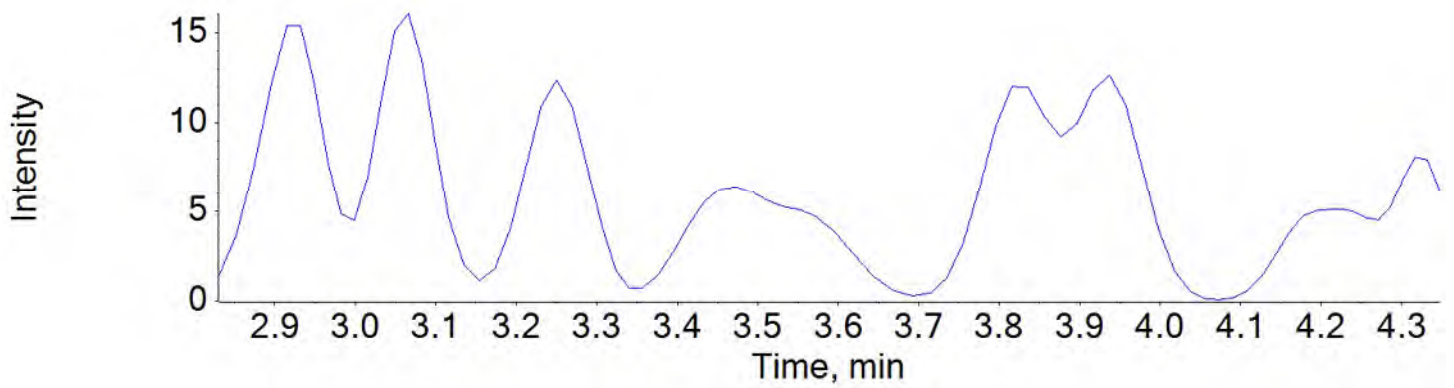
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

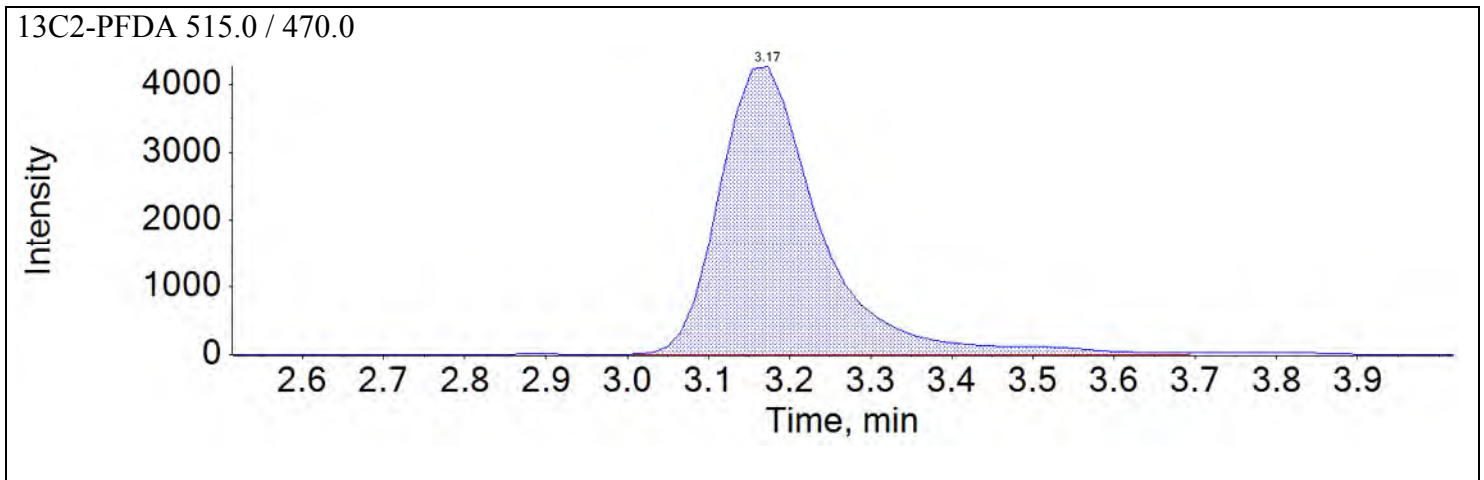
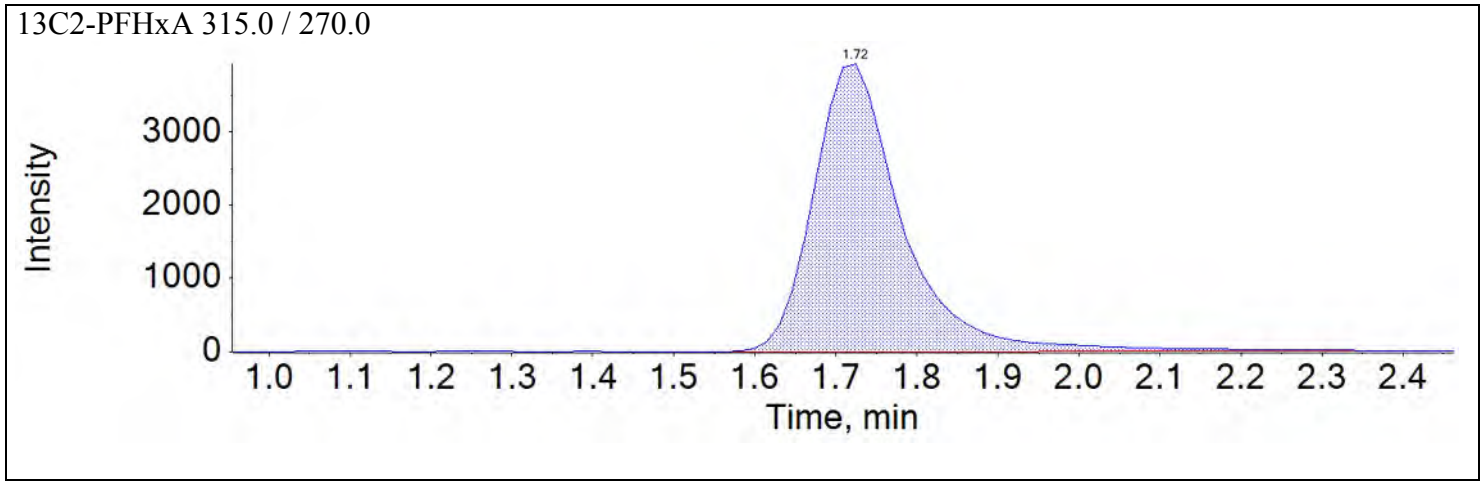


NEtFOSAA_2 584.0 / 483.0

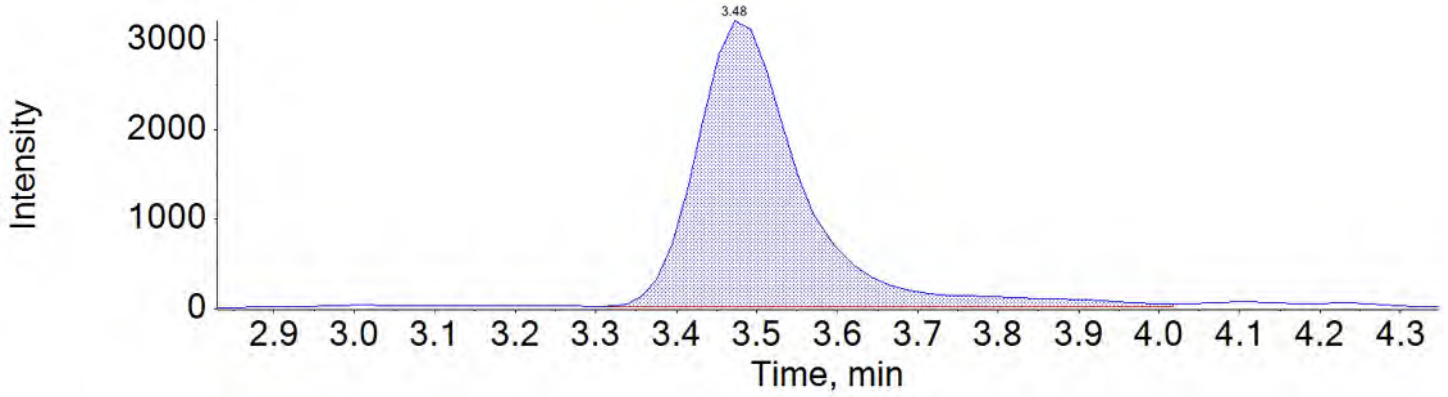


Sample Name	J5969-FS(0)	Injection Vial	16
Sample ID	WGNA-043018-FRB-3409	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:41:03	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms

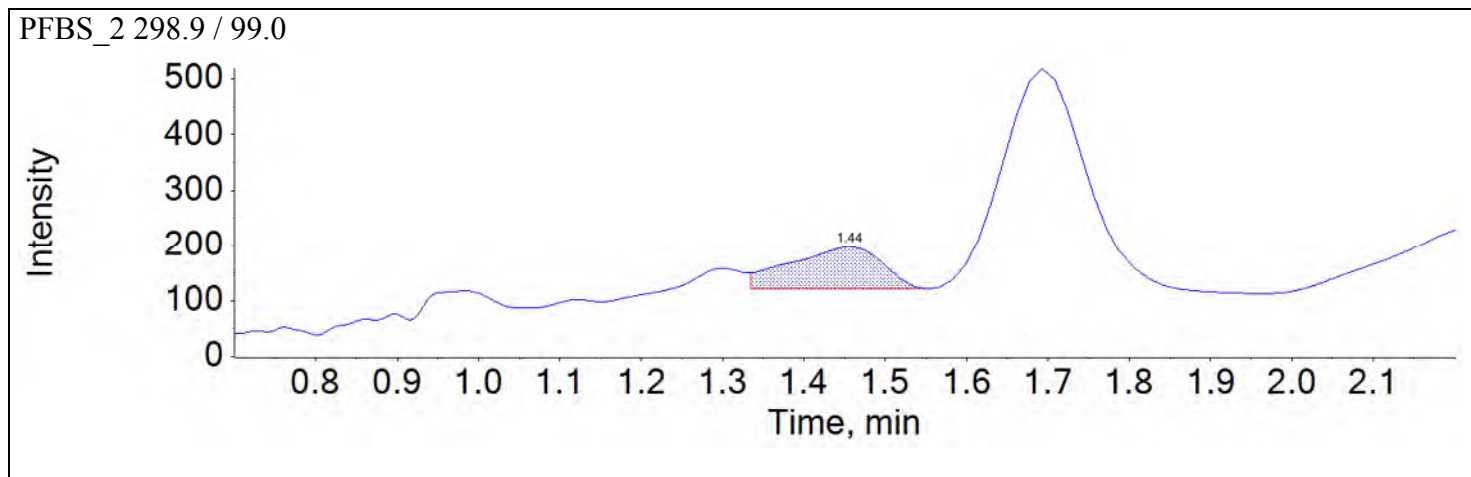
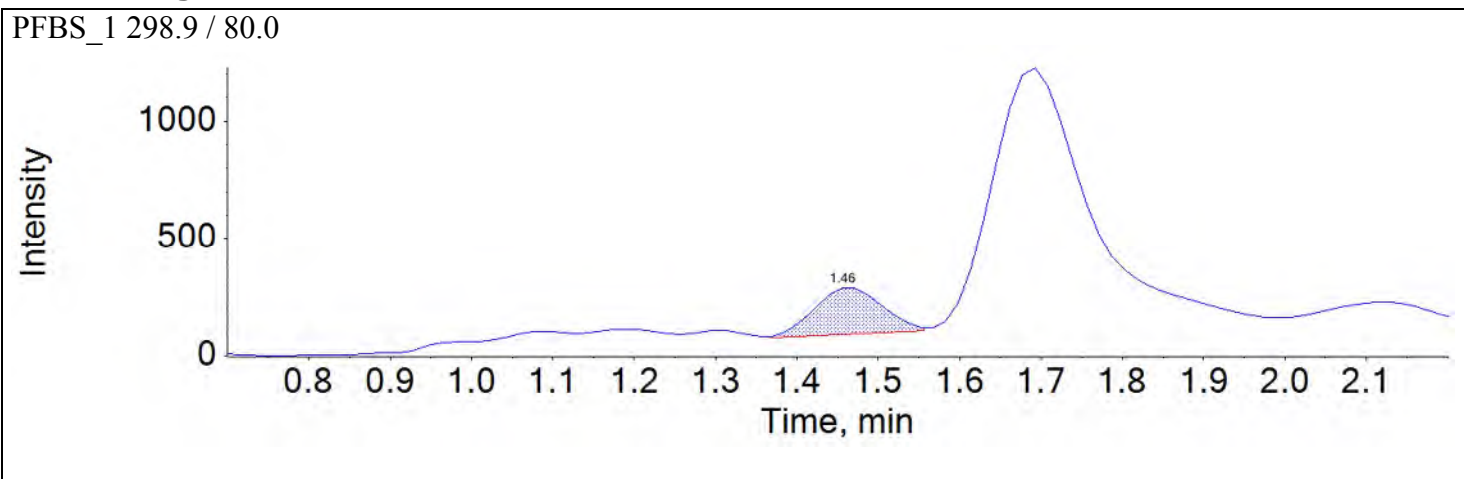


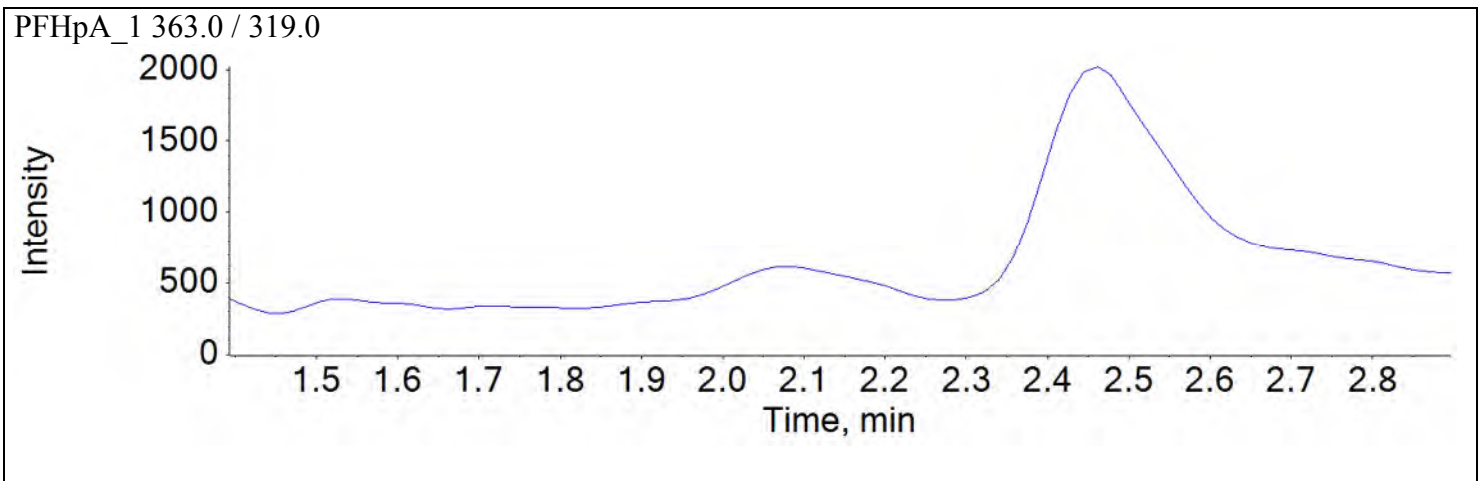
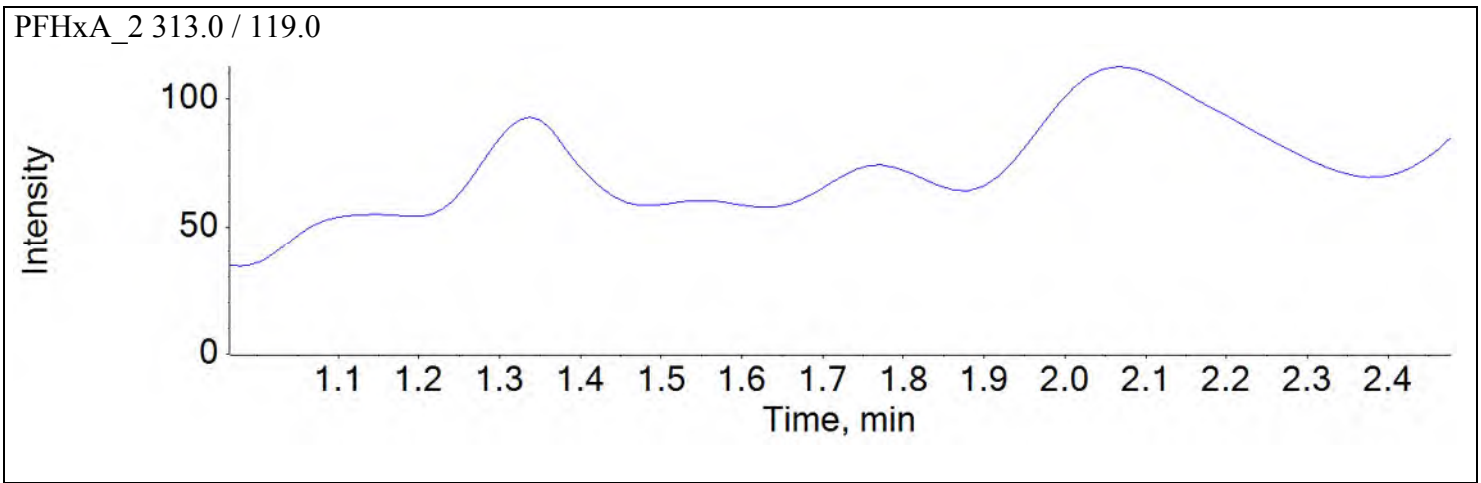
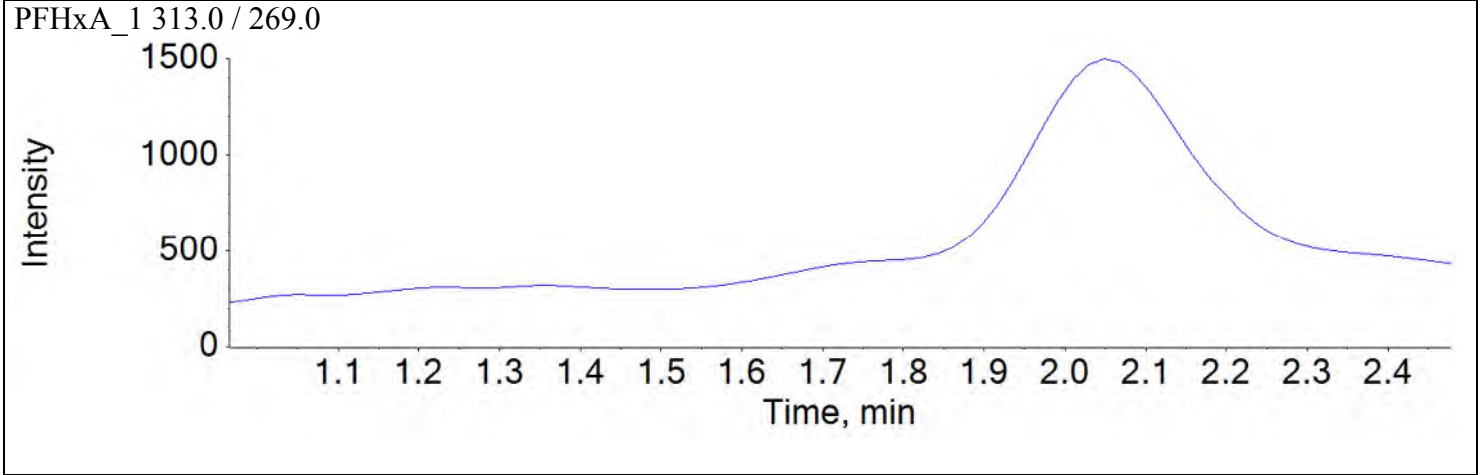
d5-EtFOSAA 589.0 / 419.0



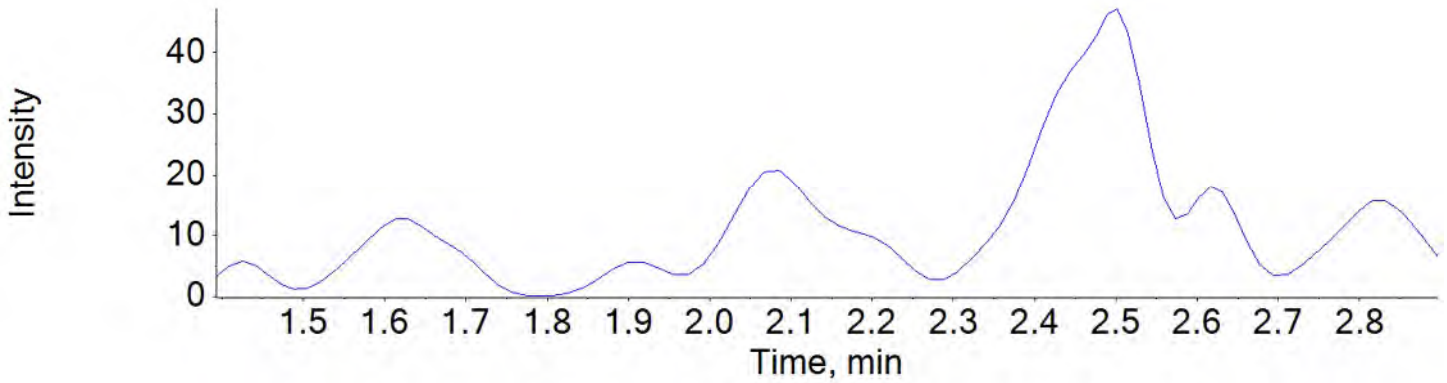
Sample Name	J5971-FS(0)	Injection Vial	17
Sample ID	WGNA-050118-FRB-3385	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:49:59	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Chromatograms

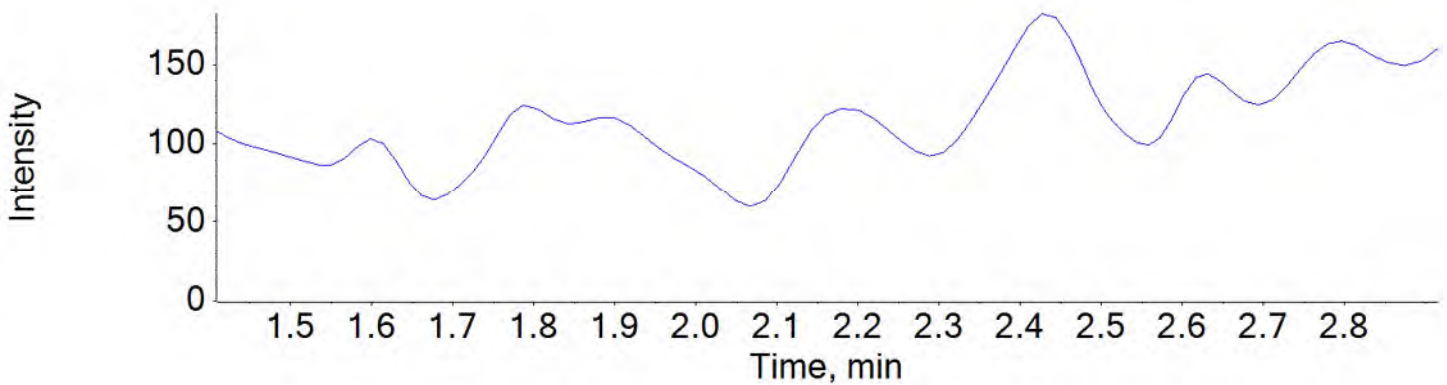




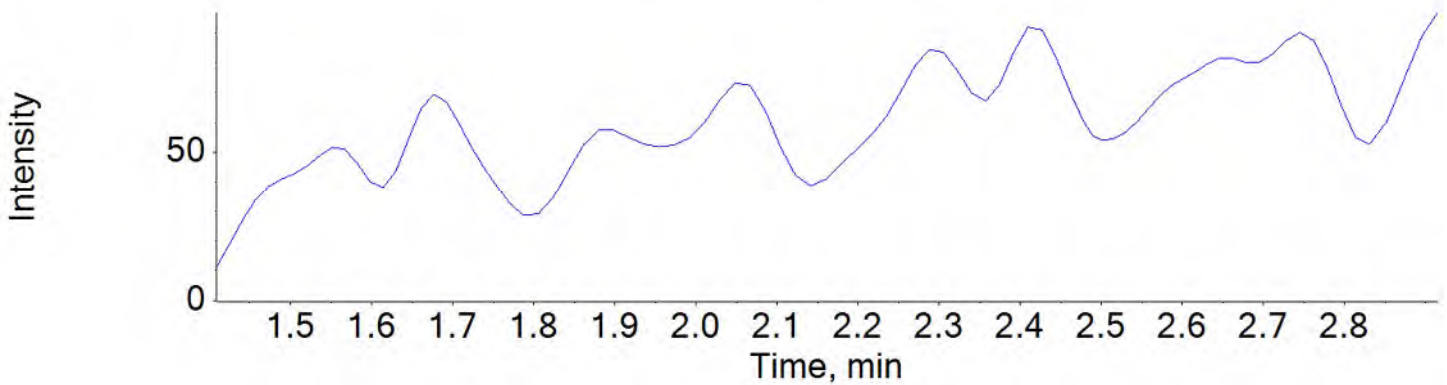
PFHpA_2 363.0 / 169.0



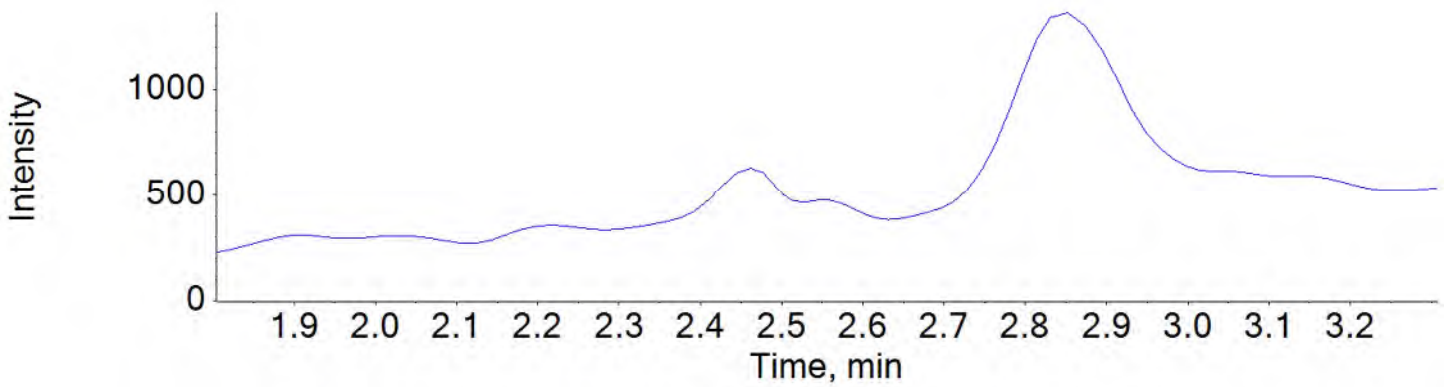
PFHxS_1 399.0 / 80.0



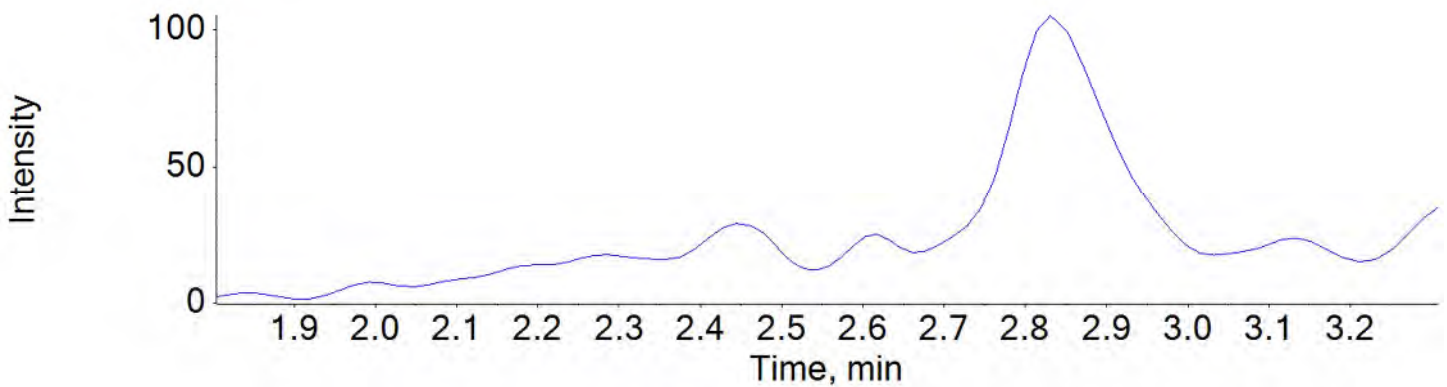
PFHxS_2 399.0 / 99.0



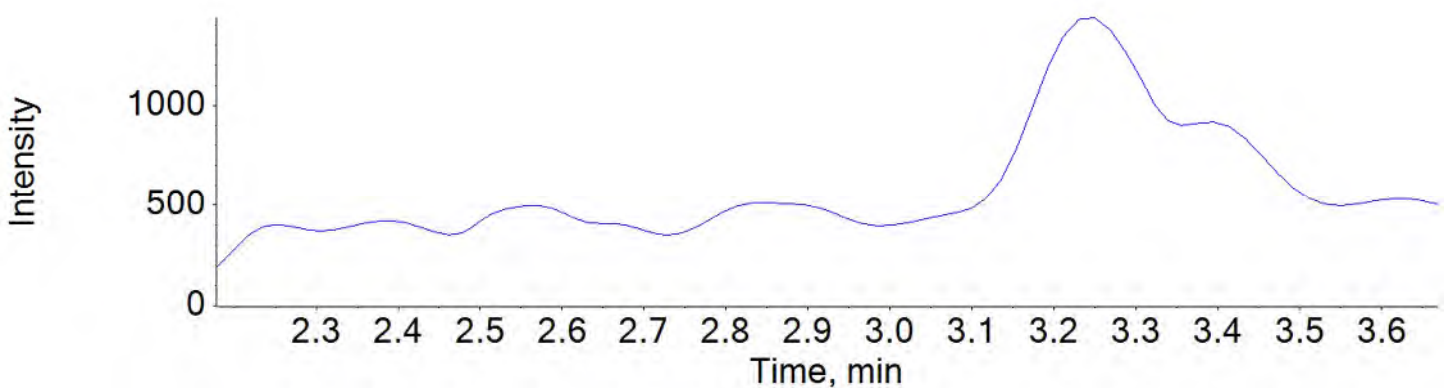
PFOA_1 413.0 / 369.0

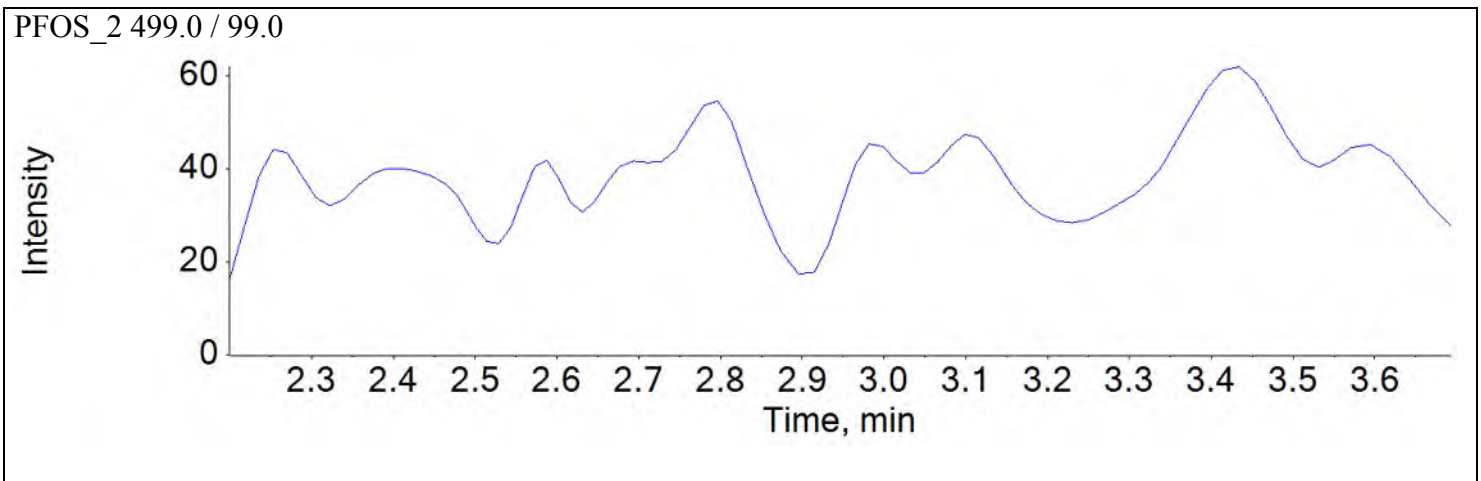
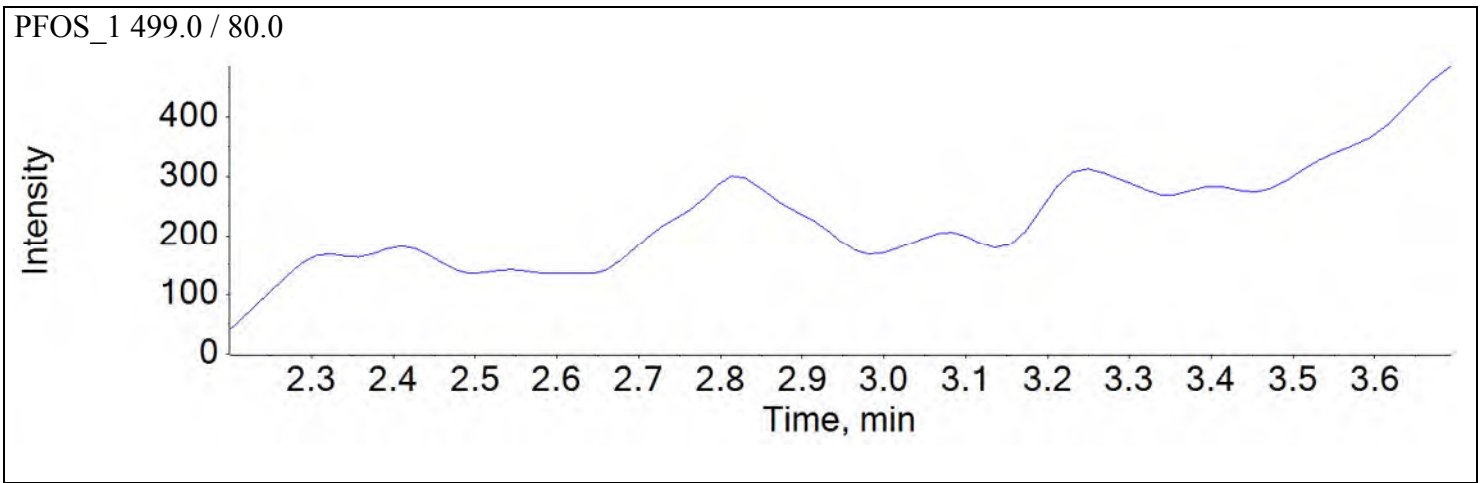
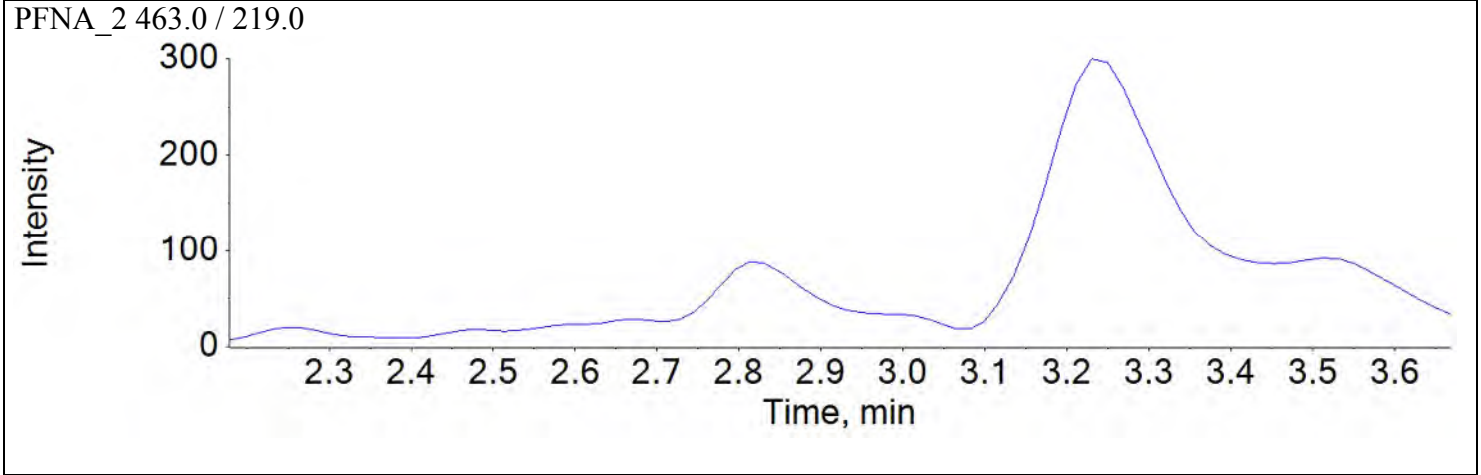


PFOA_2 413.0 / 169.0

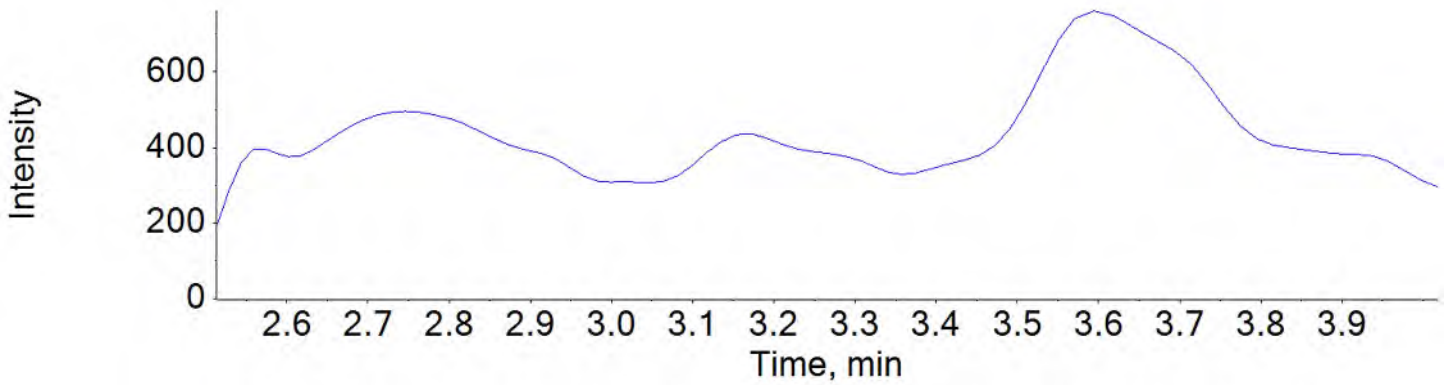


PFNA_1 463.0 / 419.0

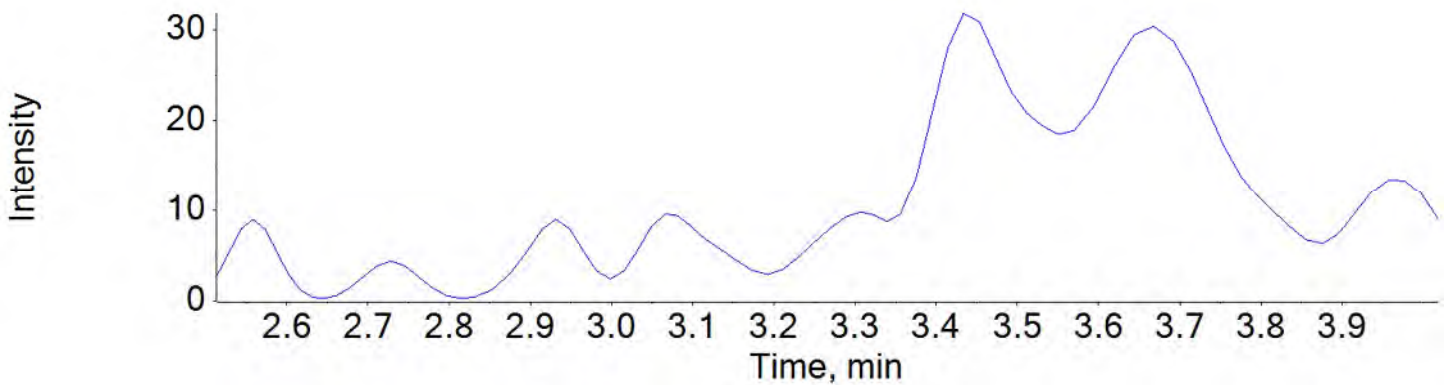




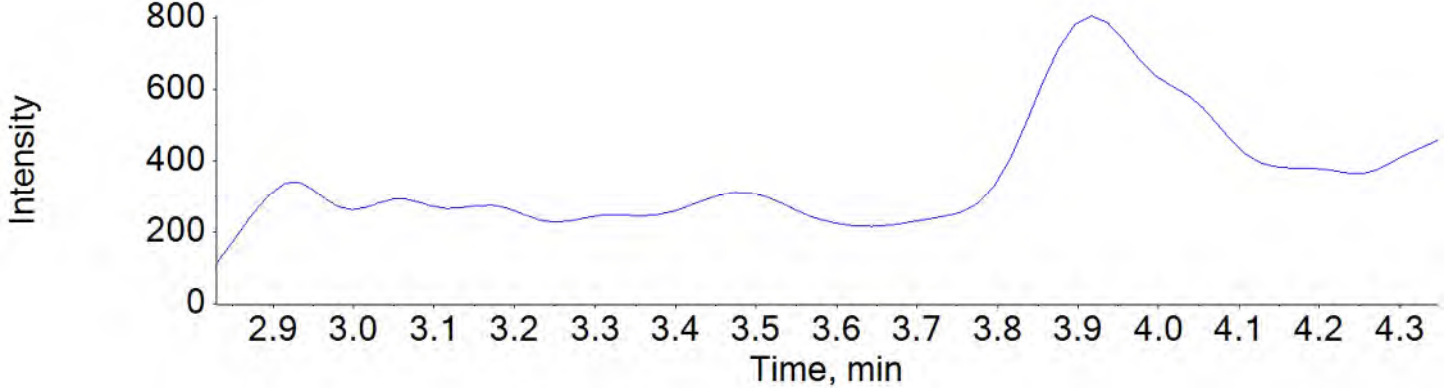
PFDA_1 513.0 / 469.0



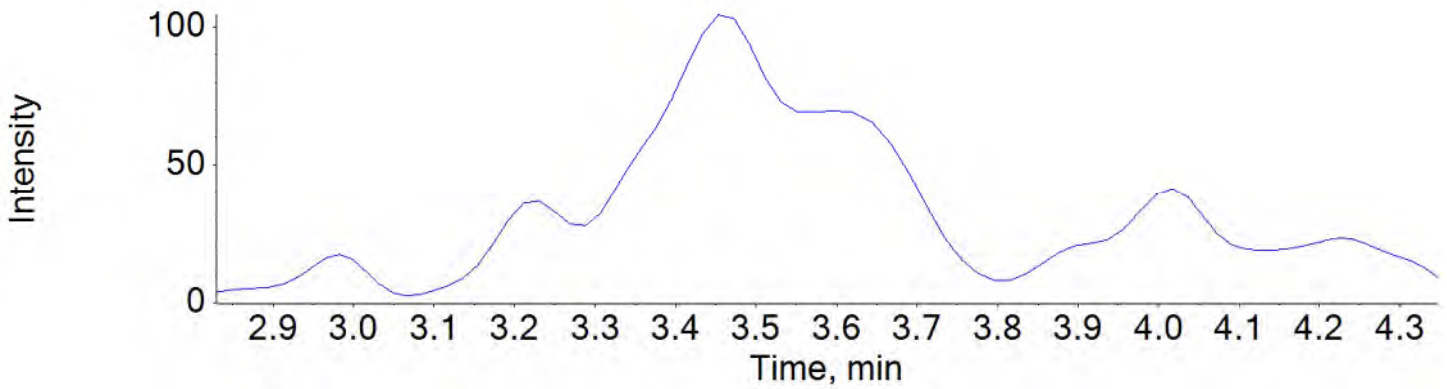
PFDA_2 513.0 / 219.0



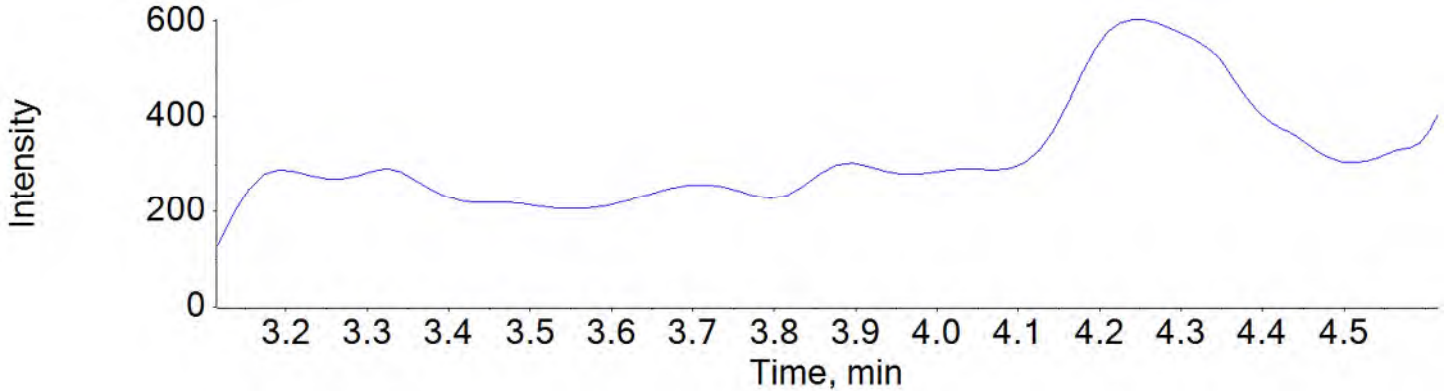
PFAUnA_1 563.0 / 519.0



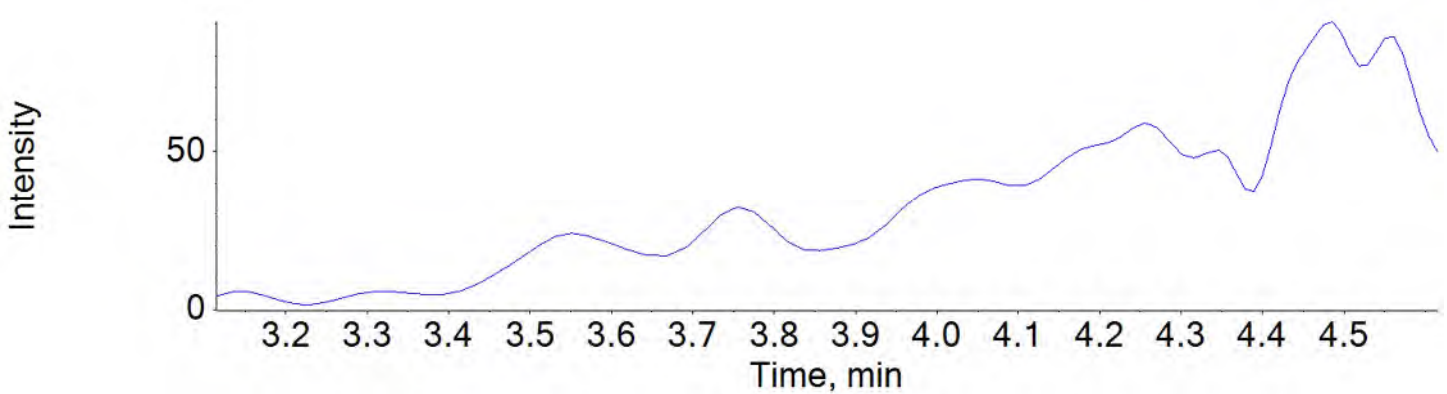
PFUnA_2 563.0 / 269.0



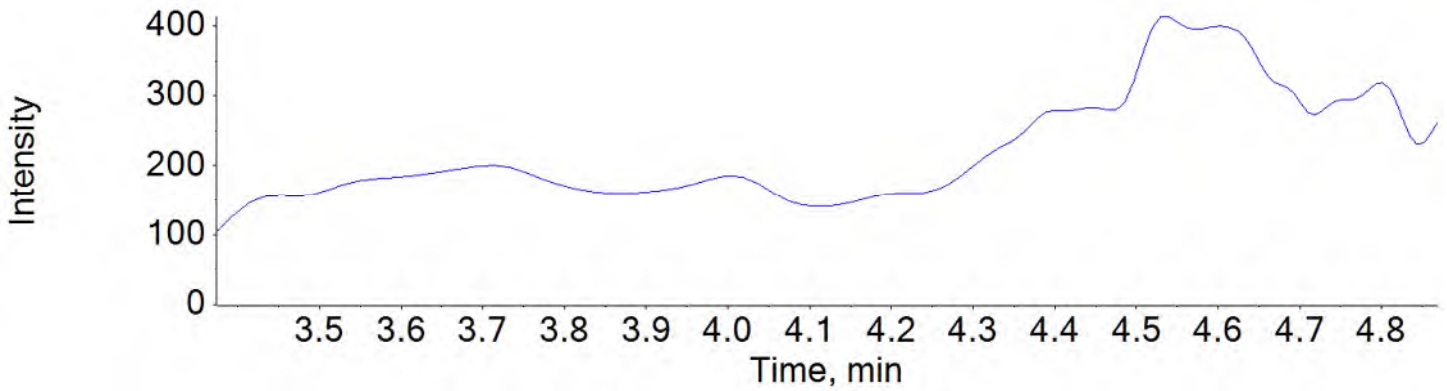
PFDaA_1 613.0 / 569.0



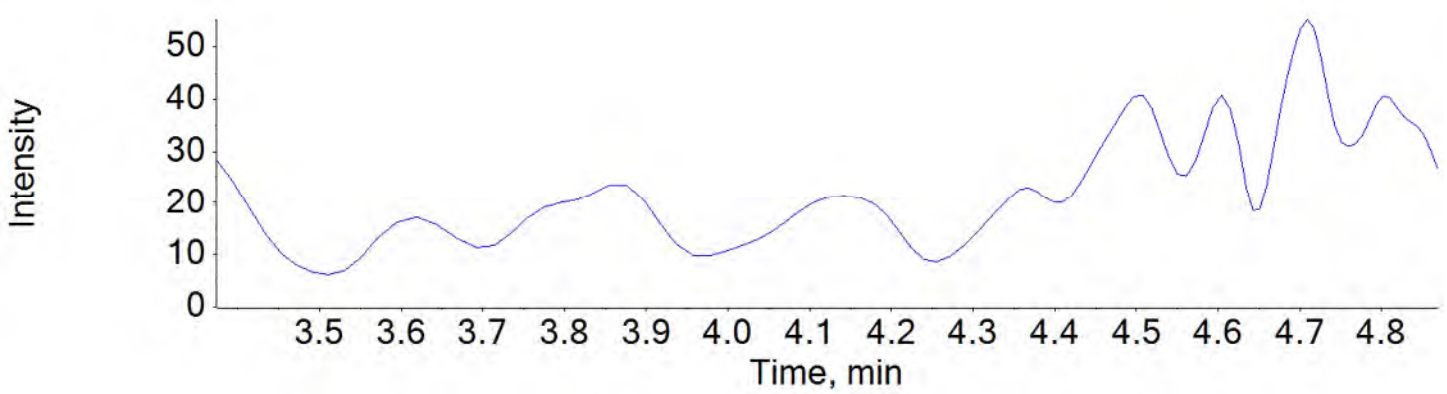
PFDaA_2 613.0 / 319.0



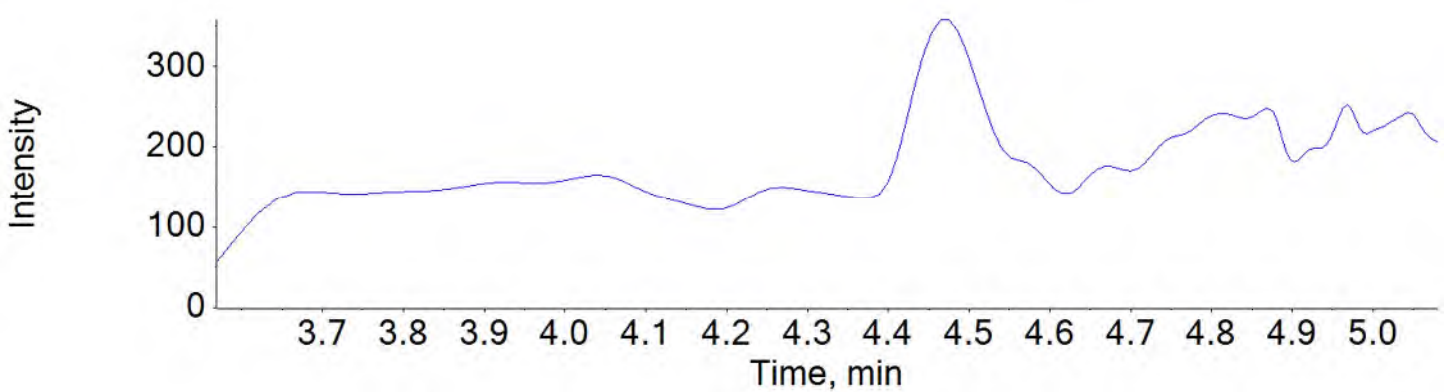
PFTTrDA_1 663.0 / 619.0



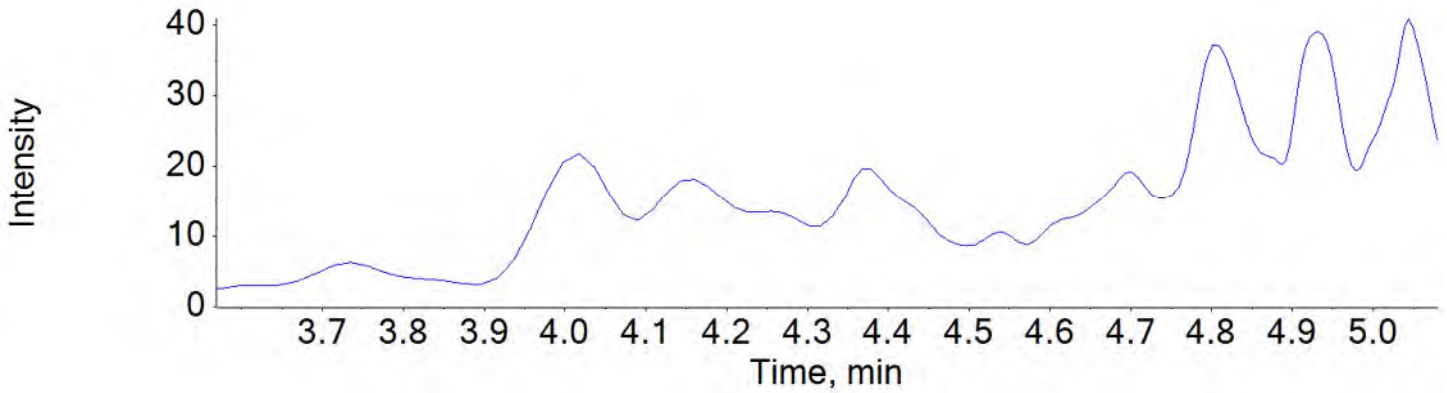
PFTTrDA_2 663.0 / 169.0



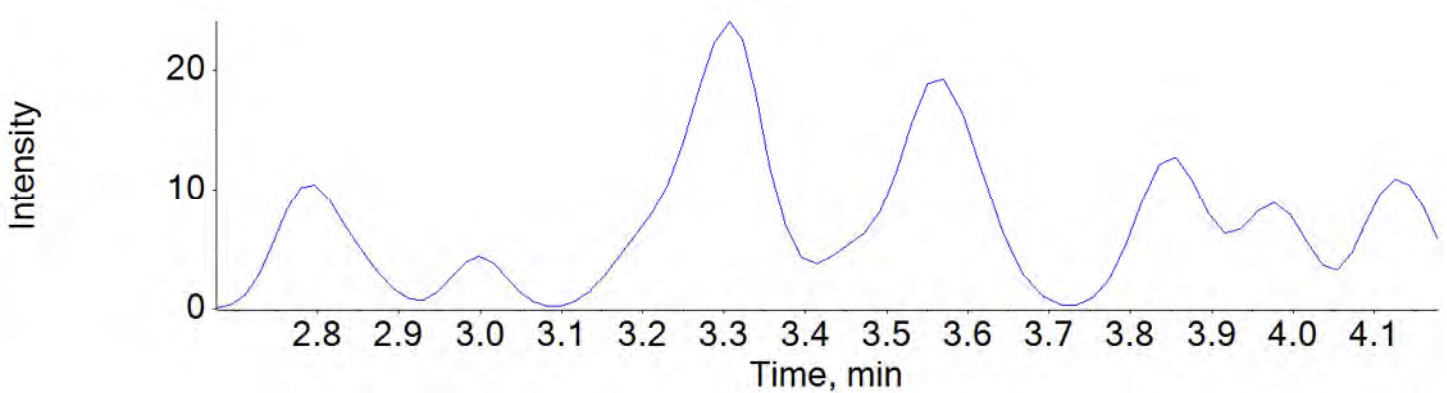
PFTeDA_1 713.0 / 669.0



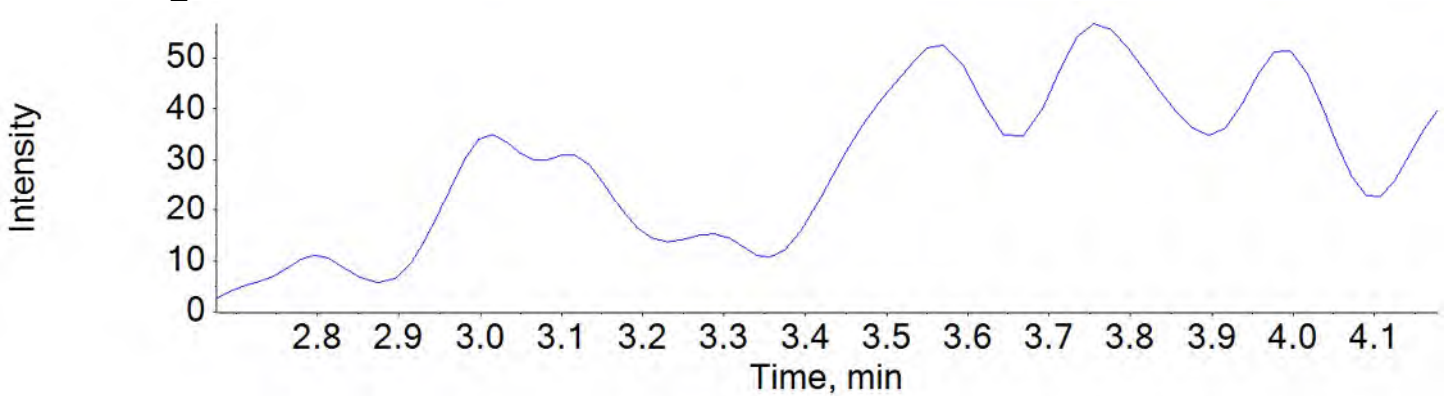
PFTeDA_2 713.0 / 169.0



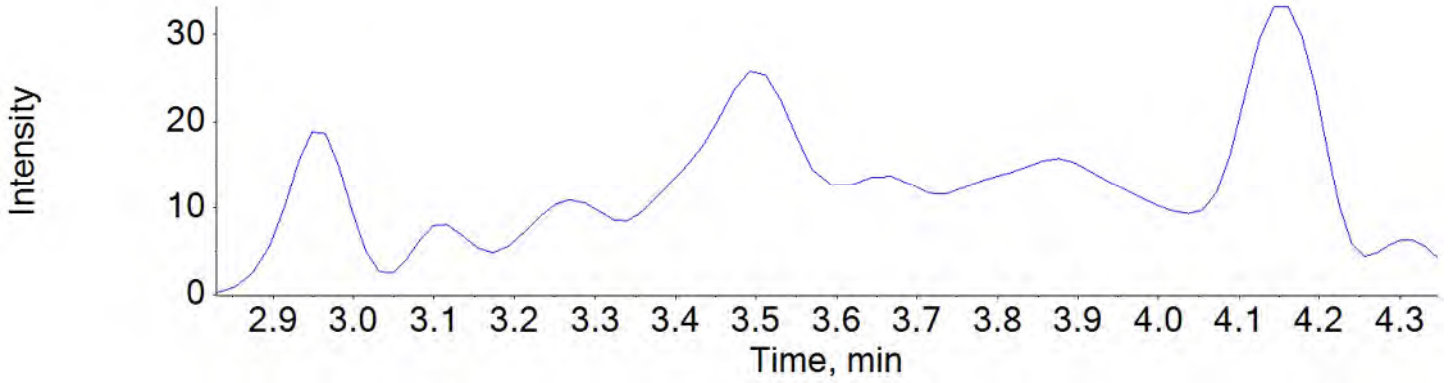
NMeFOSAA_1 570.0 / 419.0



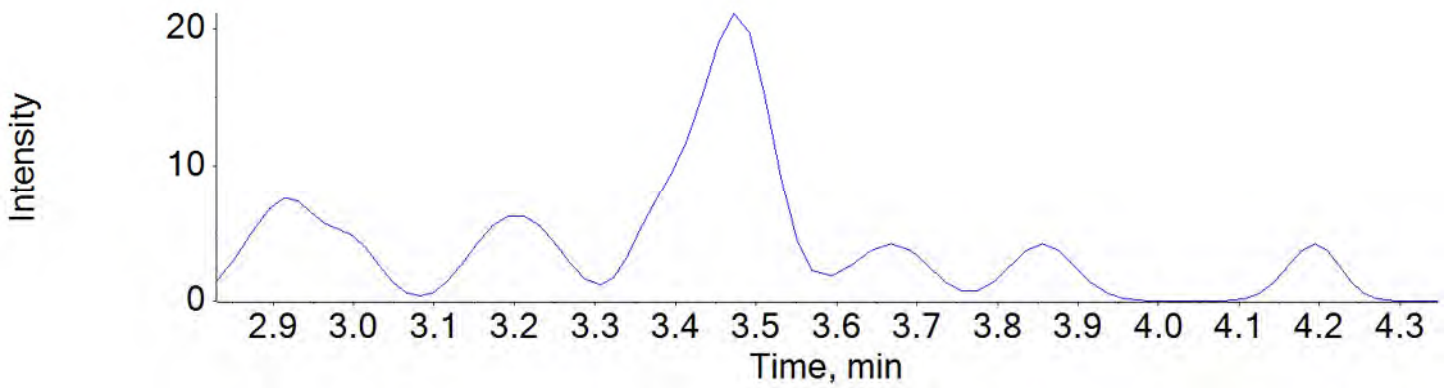
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

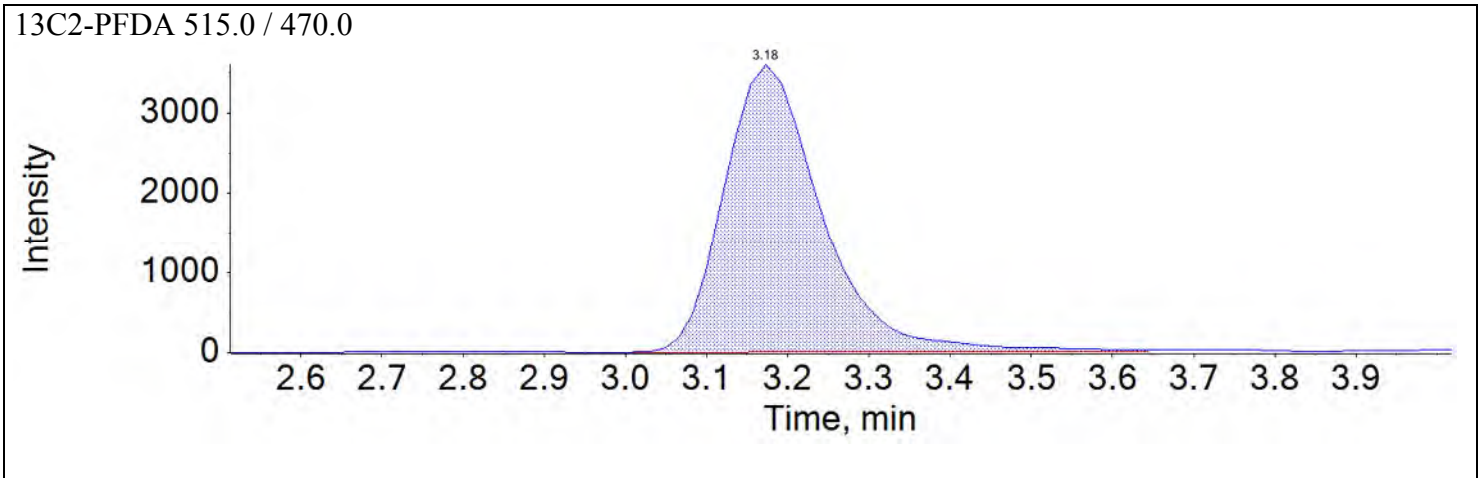
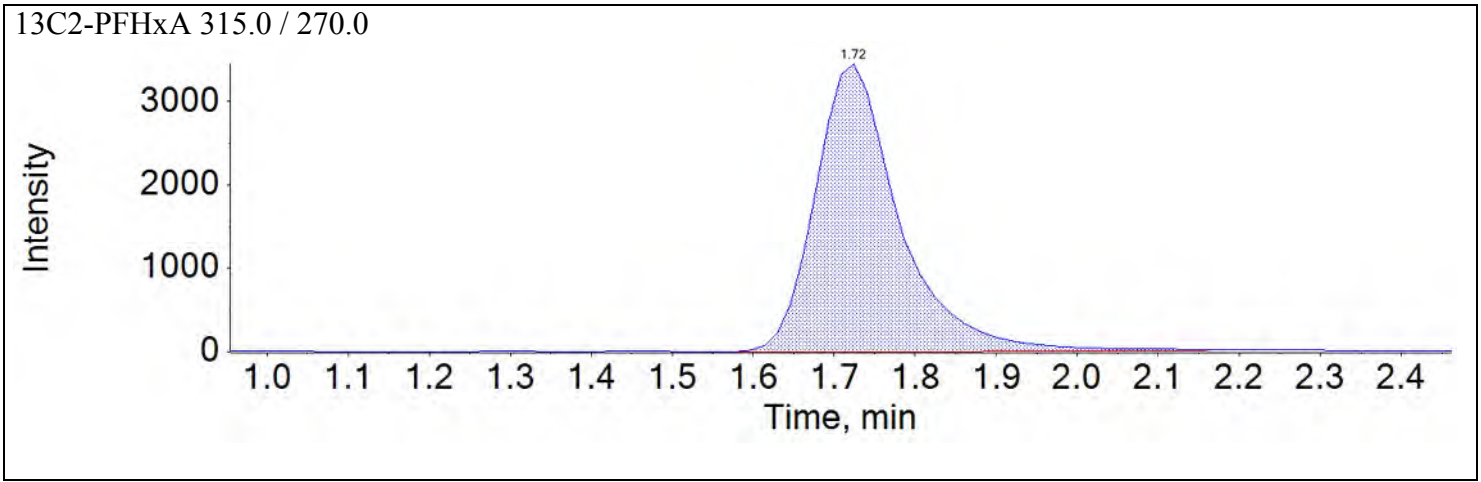


NEtFOSAA_2 584.0 / 483.0

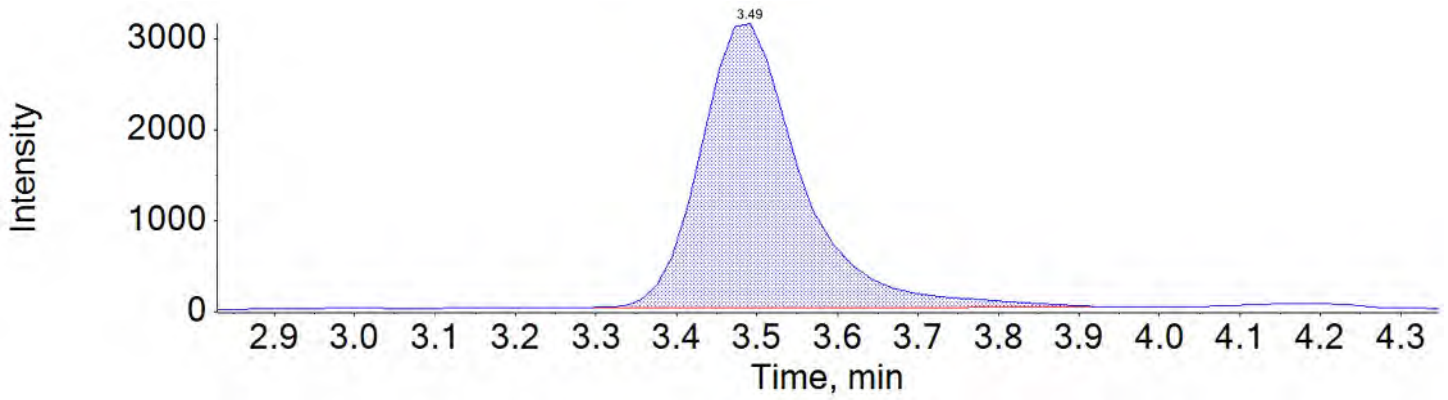


Sample Name	J5971-FS(0)	Injection Vial	17
Sample ID	WGNA-050118-FRB-3385	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:49:59	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms

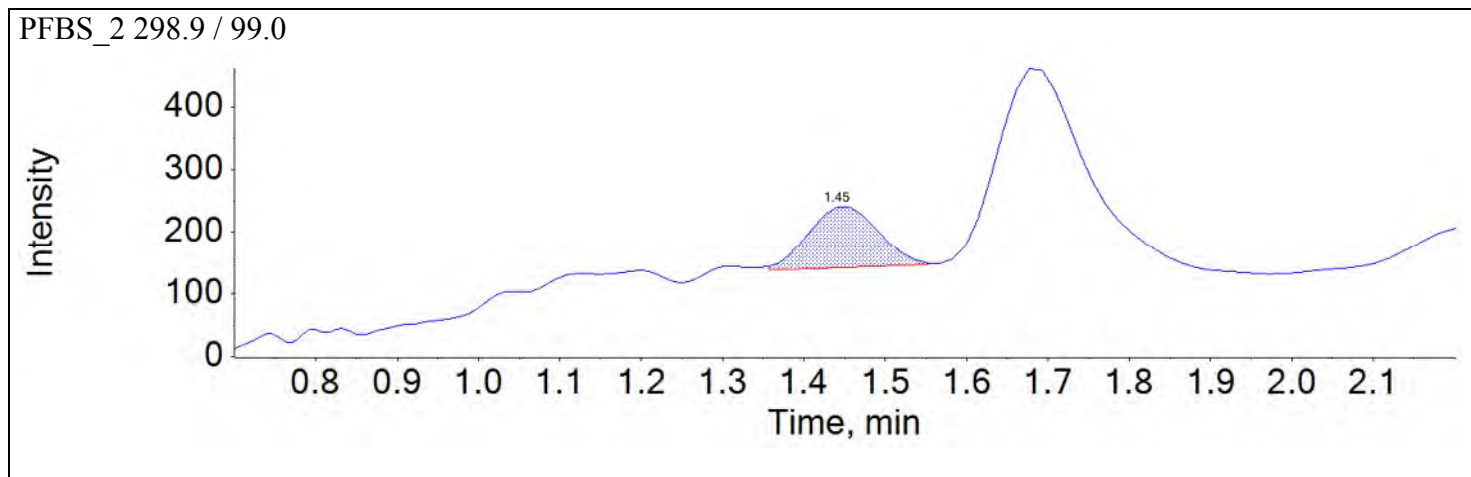
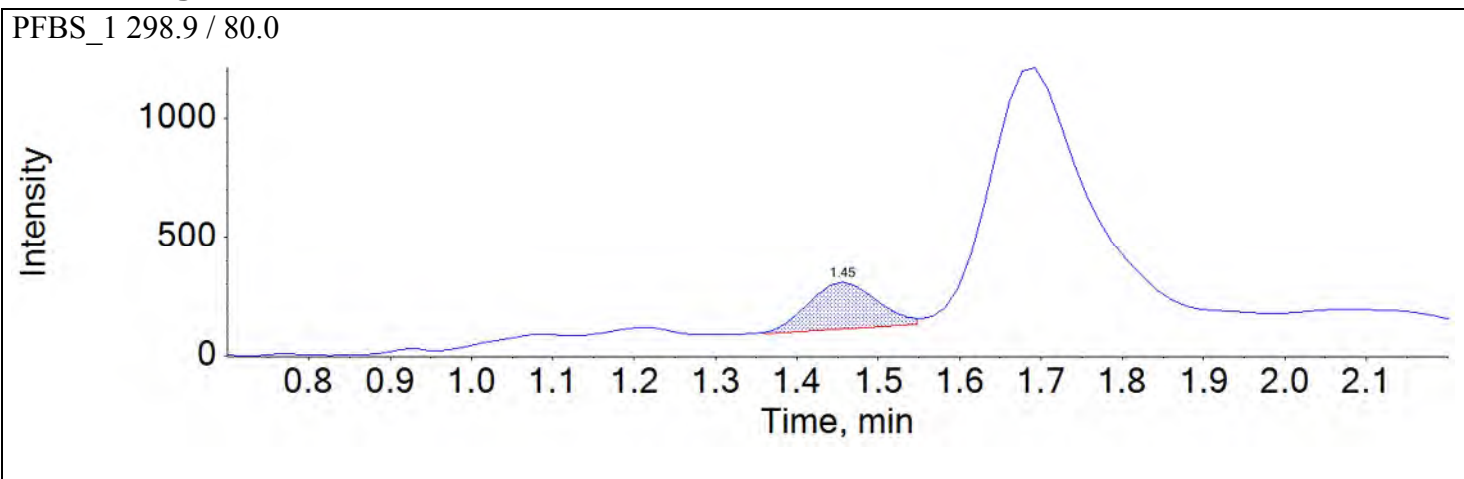


d5-EtFOSAA 589.0 / 419.0

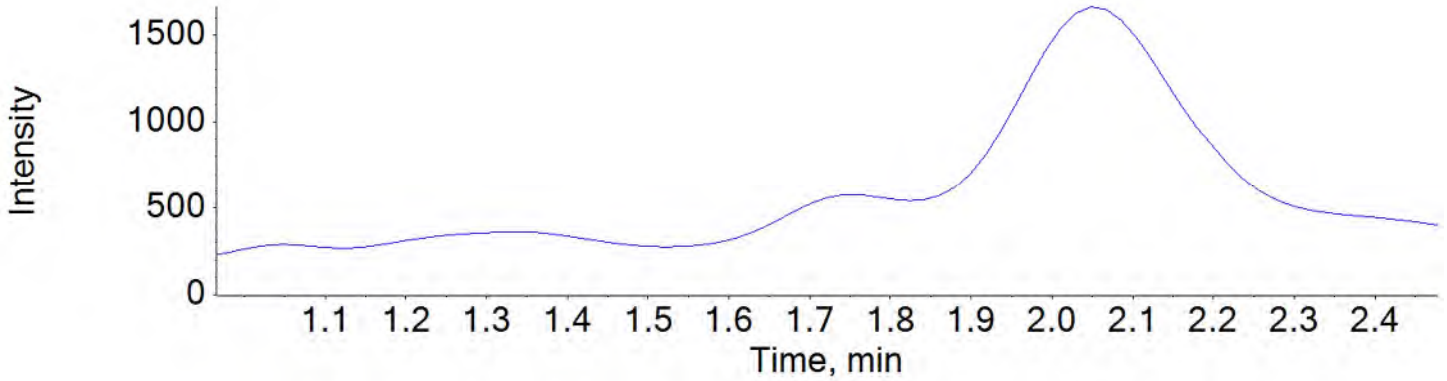


Sample Name	J5973-FS(0)	Injection Vial	18
Sample ID	WGNA-050118-FRB-3178	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:58:53	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

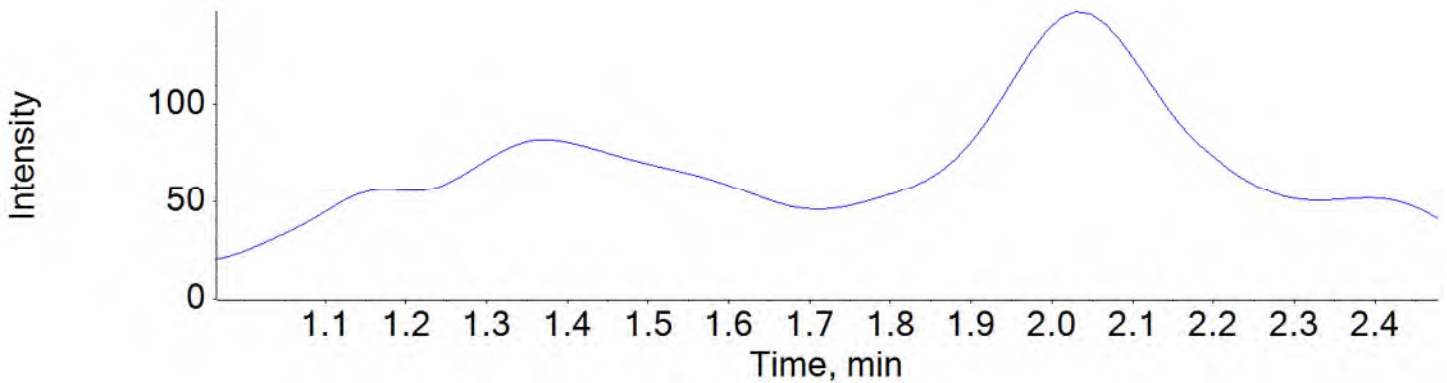
Chromatograms



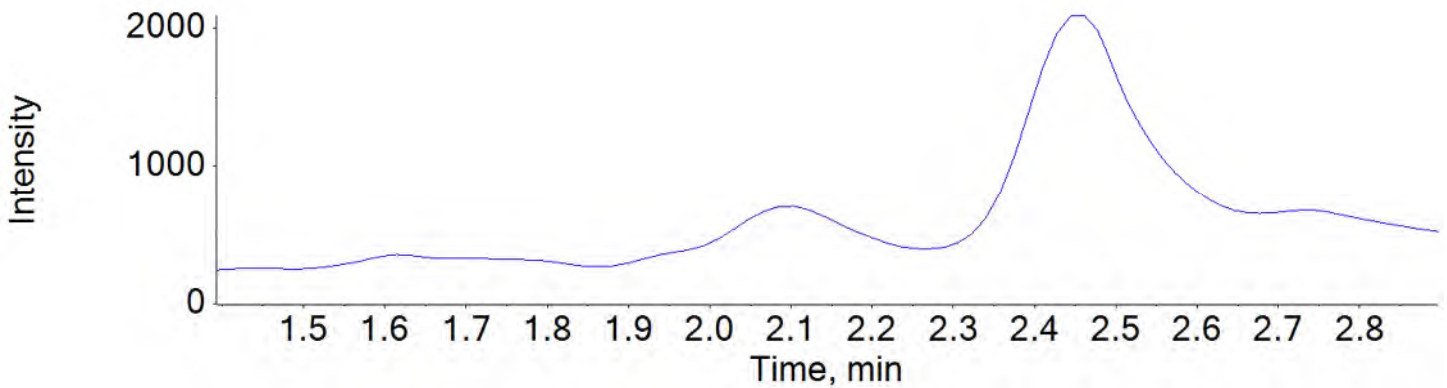
PFHxA_1 313.0 / 269.0



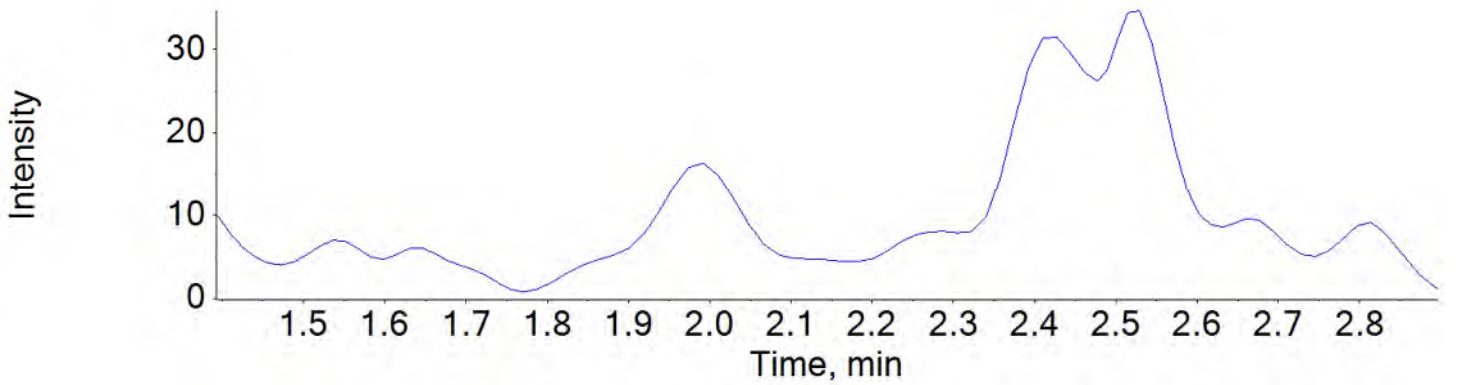
PFHxA_2 313.0 / 119.0



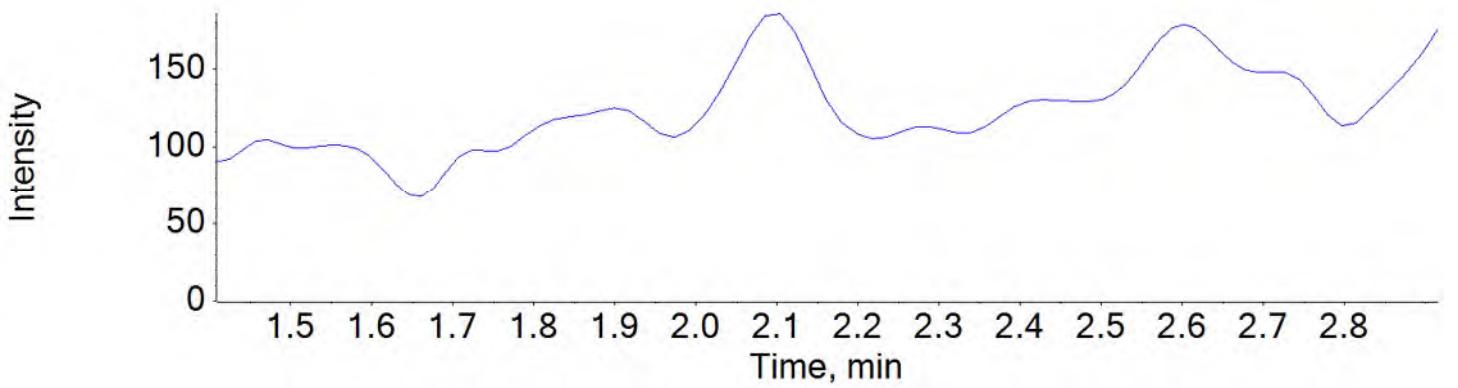
PFHpA_1 363.0 / 319.0



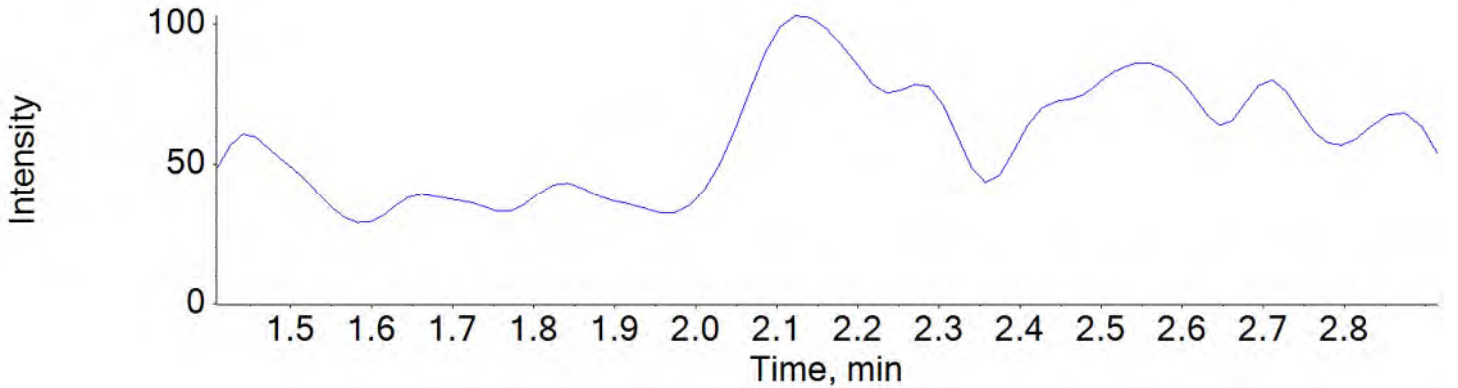
PFHpA_2 363.0 / 169.0



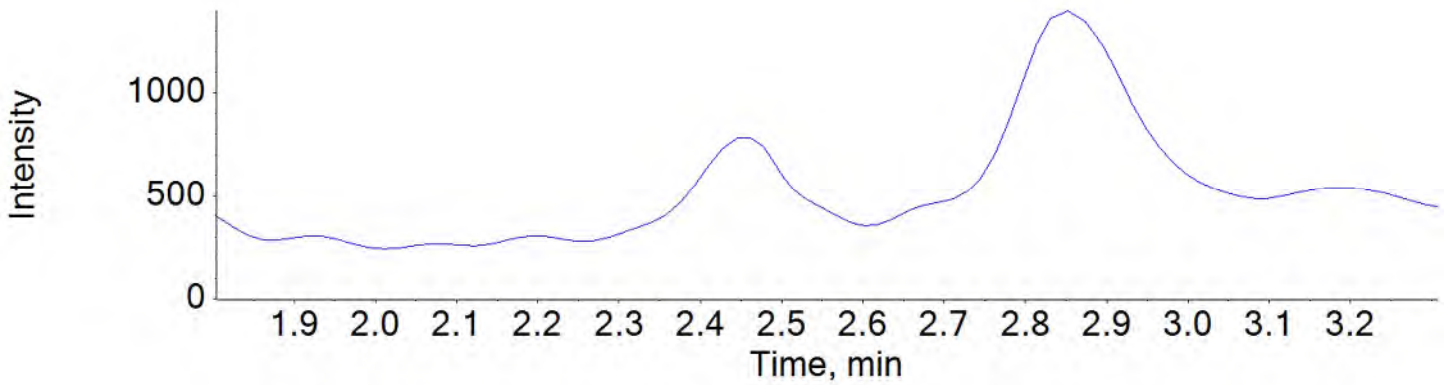
PFHxS_1 399.0 / 80.0



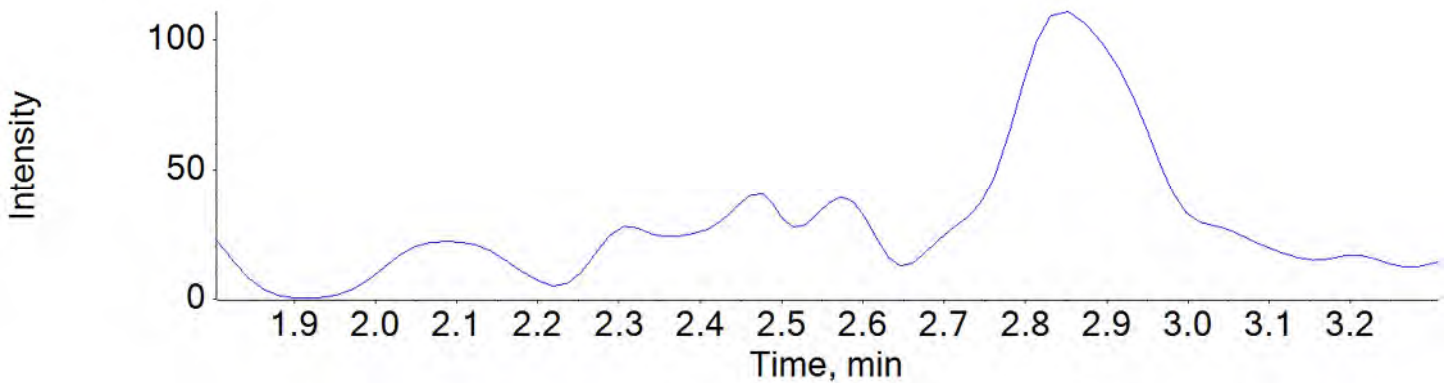
PFHxS_2 399.0 / 99.0



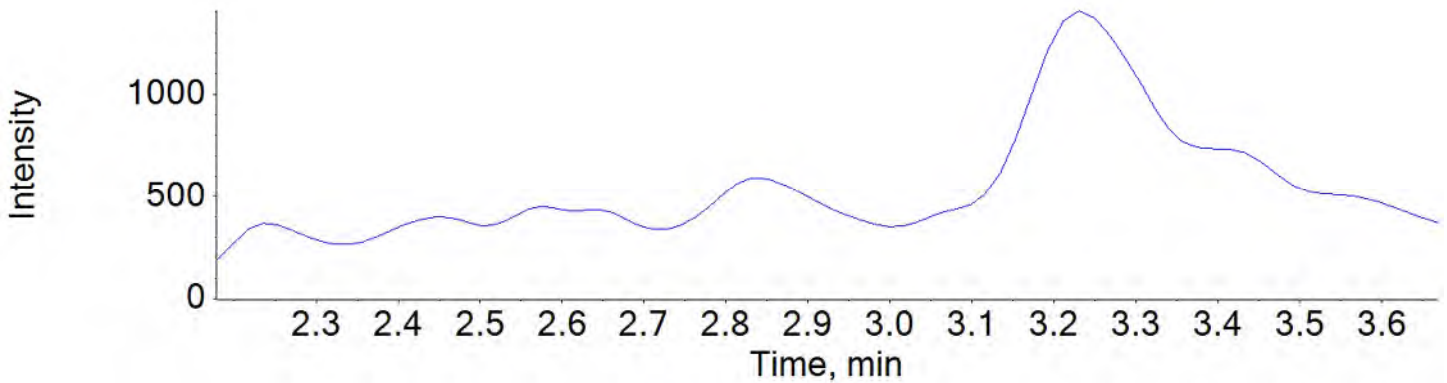
PFOA_1 413.0 / 369.0



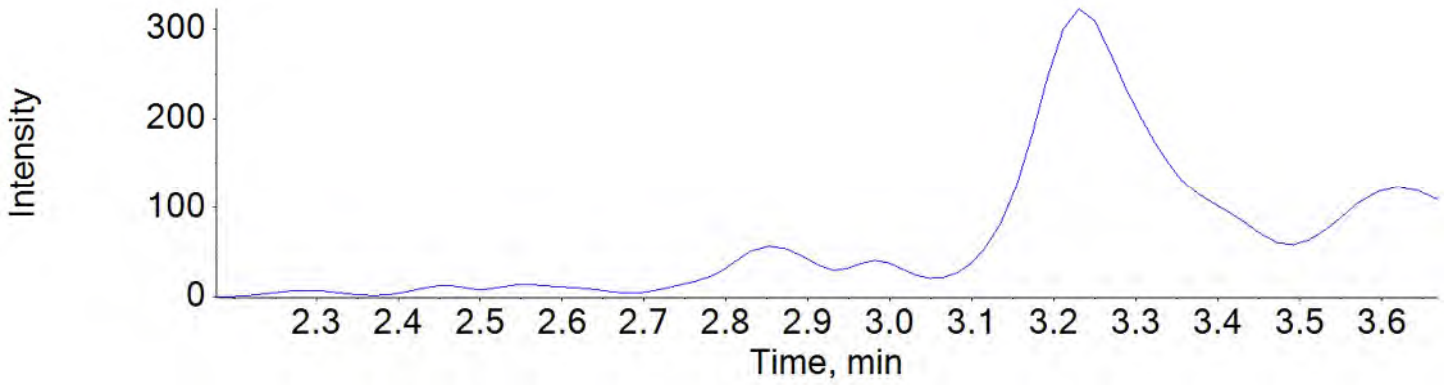
PFOA_2 413.0 / 169.0



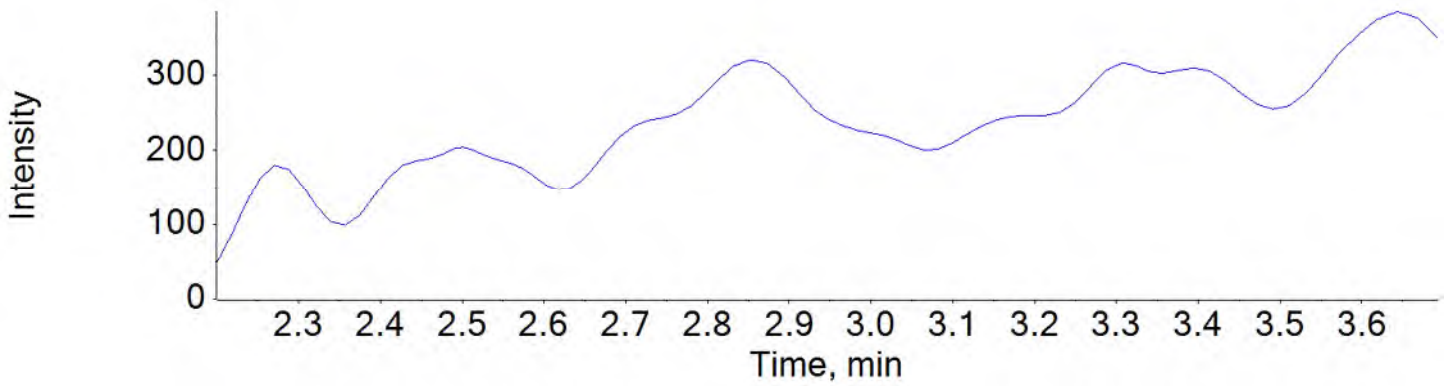
PFNA_1 463.0 / 419.0



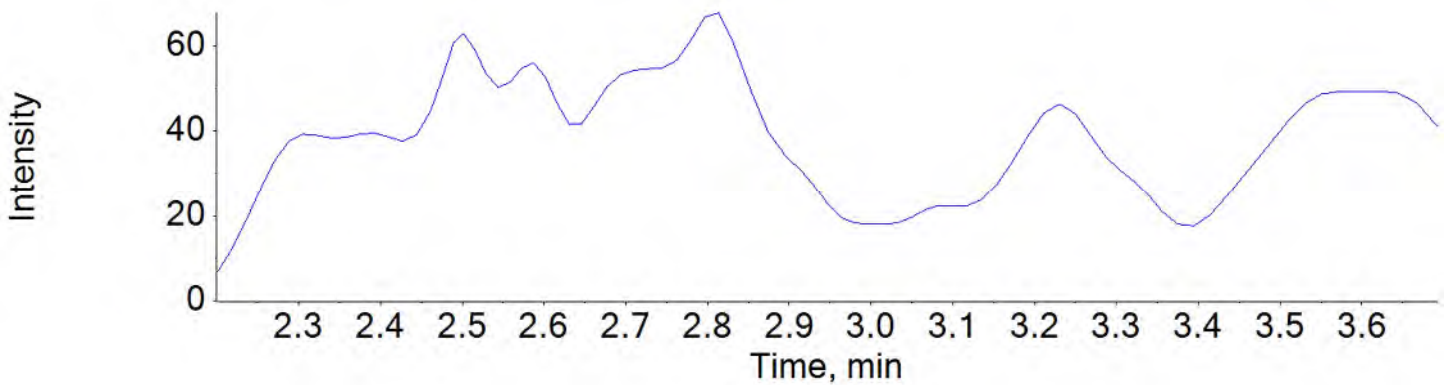
PFNA_2 463.0 / 219.0



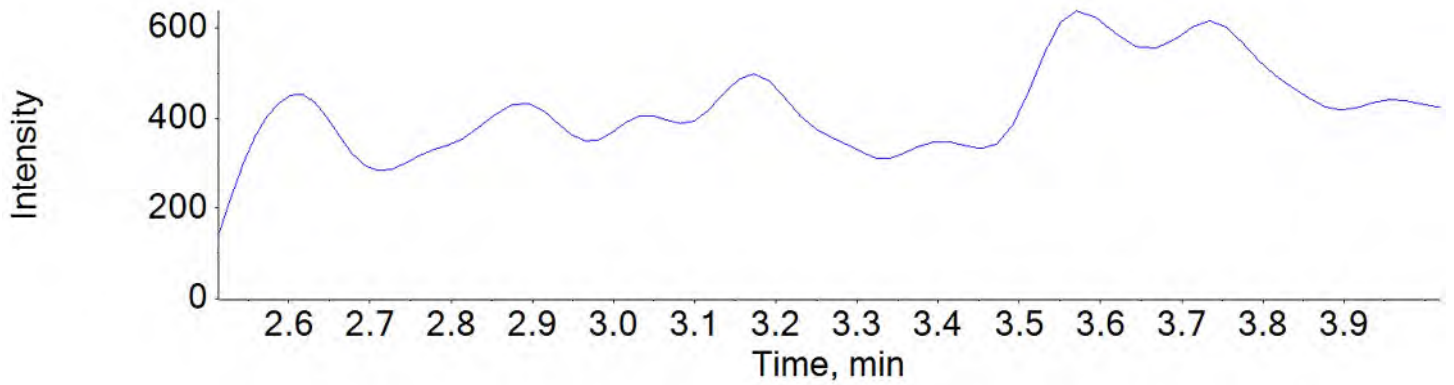
PFOS_1 499.0 / 80.0



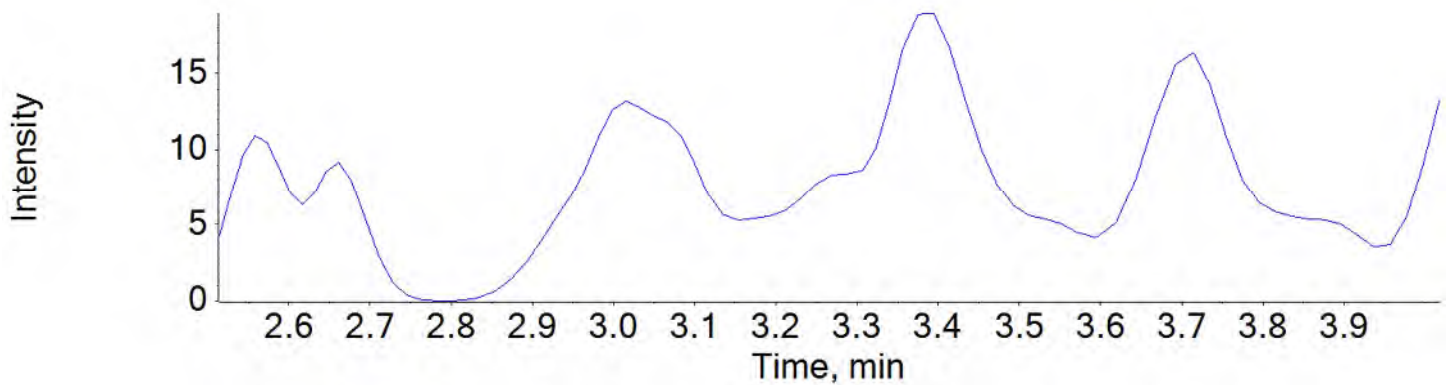
PFOS_2 499.0 / 99.0



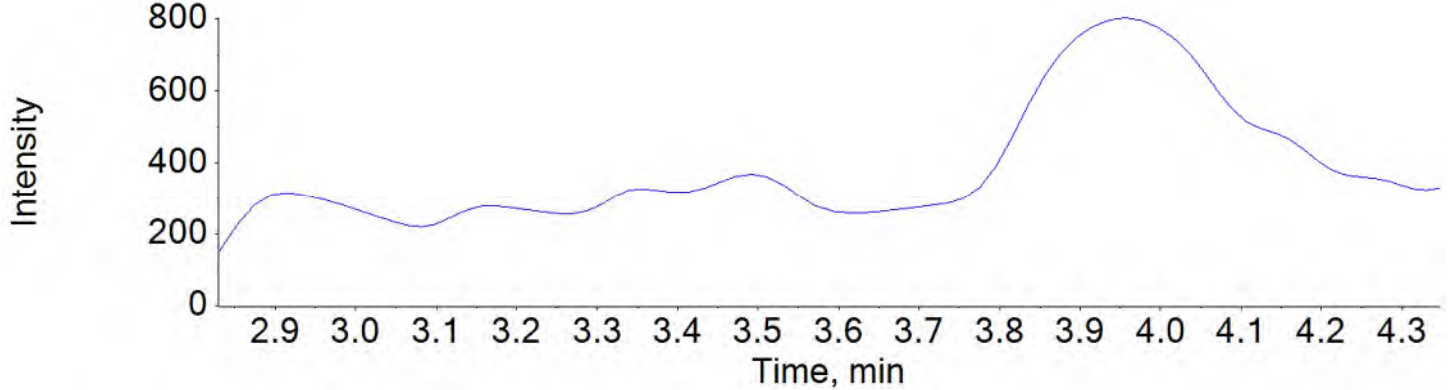
PFDA_1 513.0 / 469.0



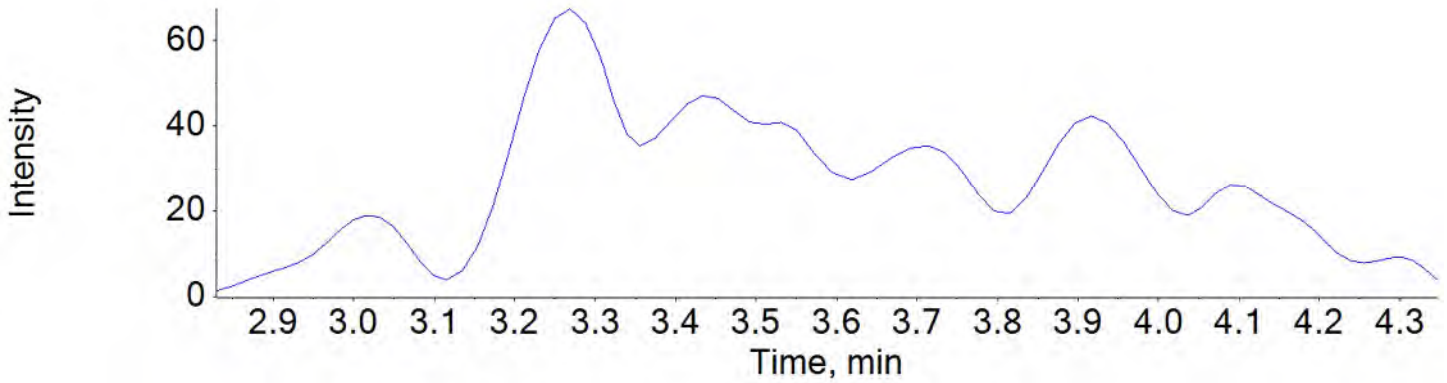
PFDA_2 513.0 / 219.0



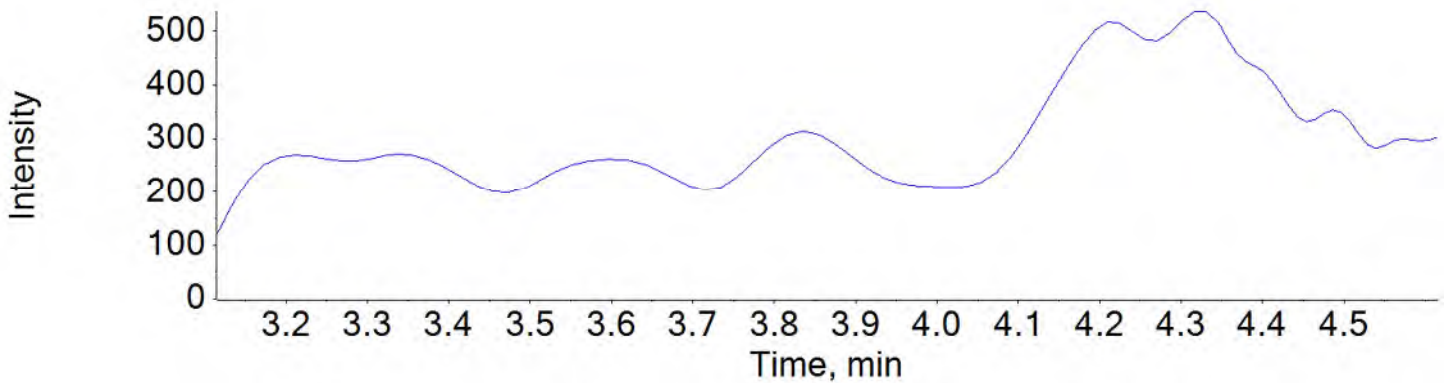
PFUnA_1 563.0 / 519.0



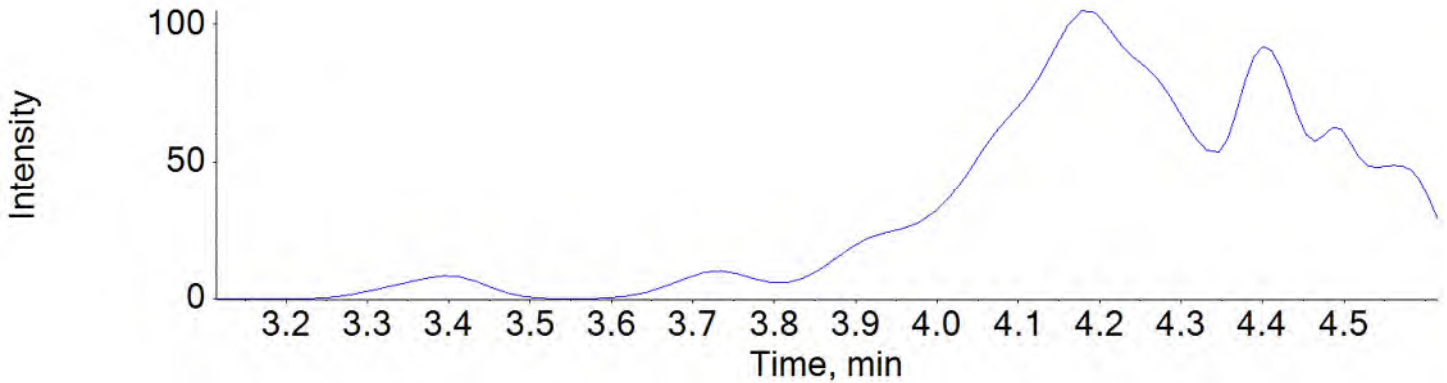
PFU_nA_2 563.0 / 269.0



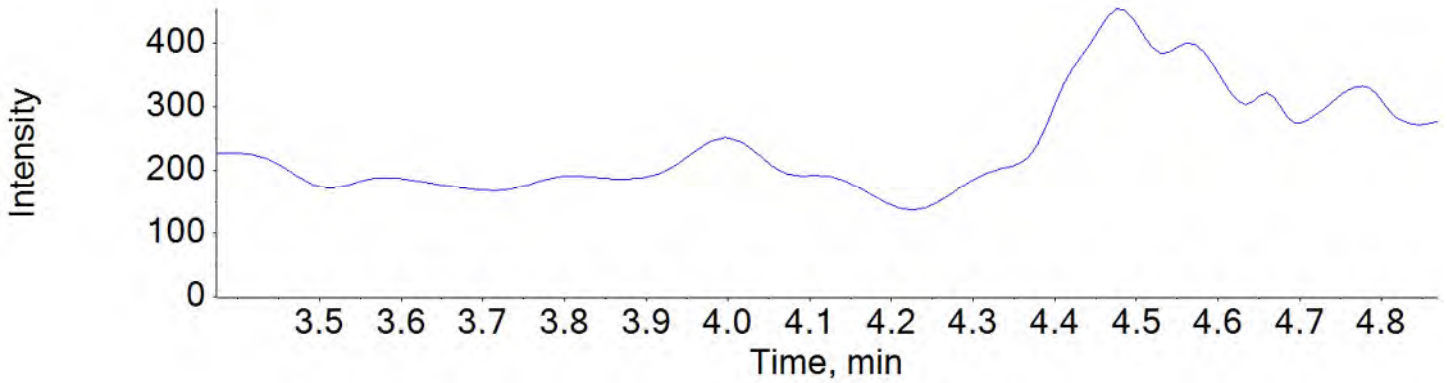
PFDoA_1 613.0 / 569.0



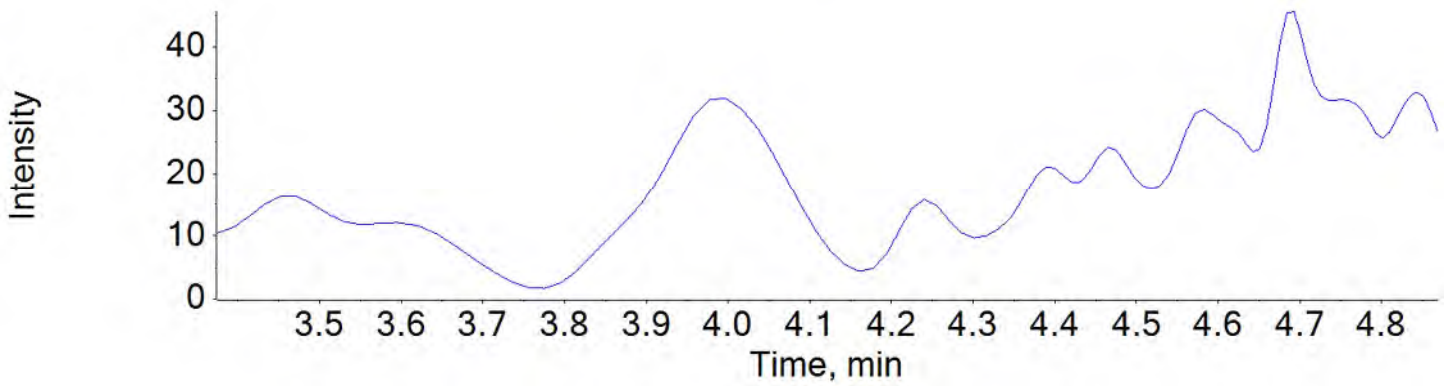
PFDoA_2 613.0 / 319.0



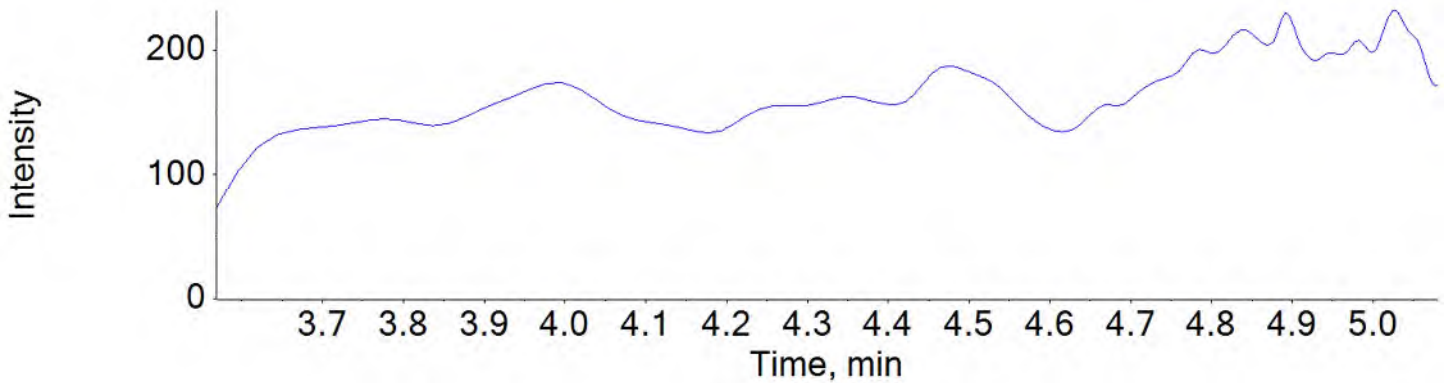
PFTTrDA_1 663.0 / 619.0



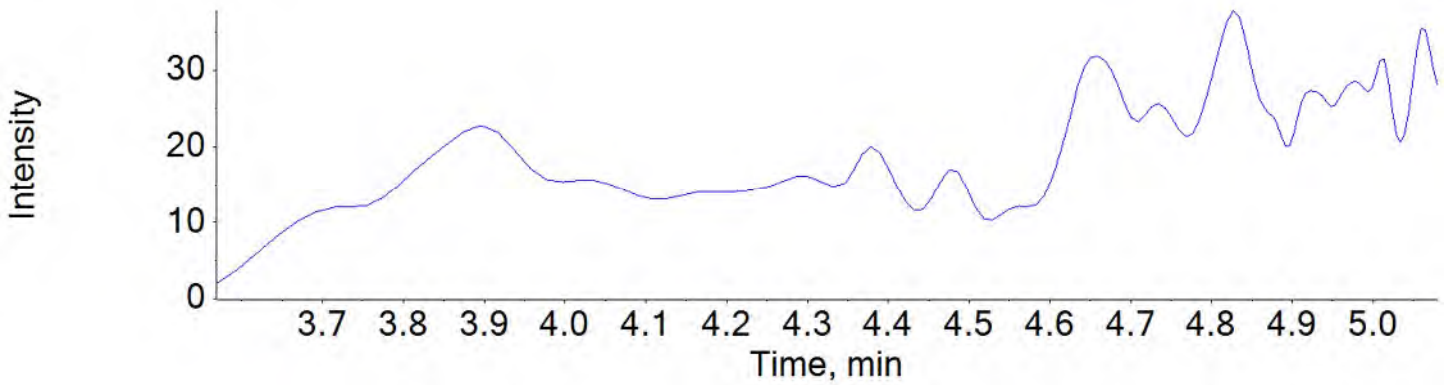
PFTTrDA_2 663.0 / 169.0



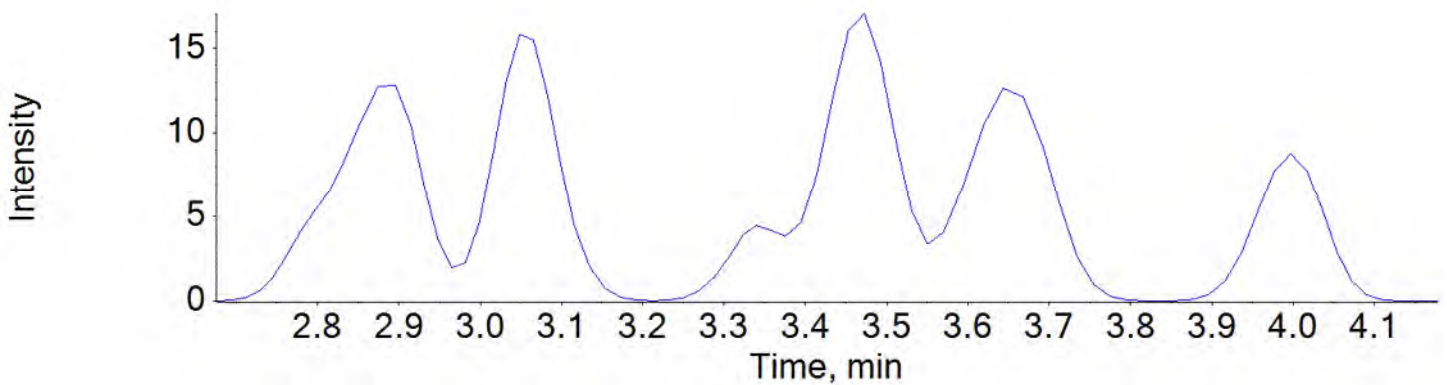
PFTTeDA_1 713.0 / 669.0



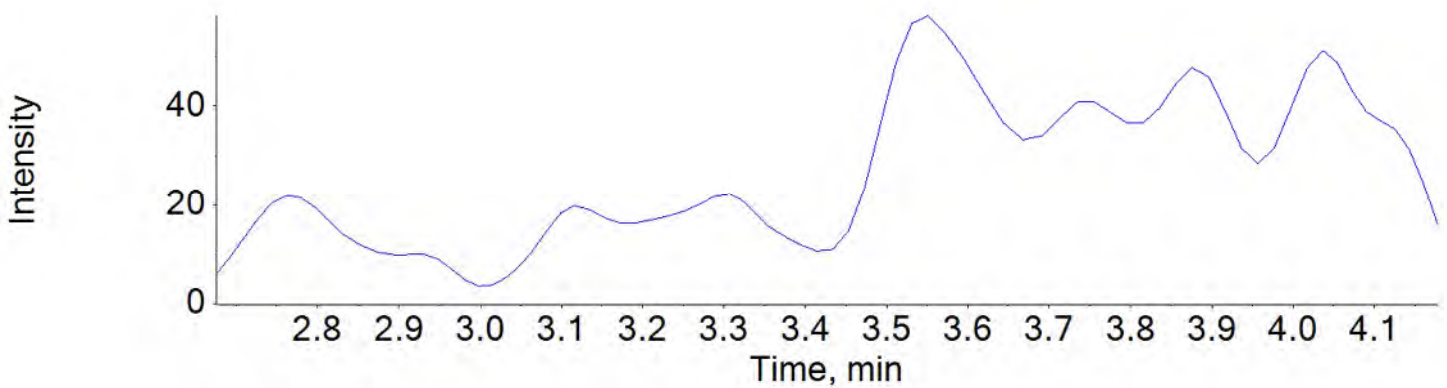
PFTeDA_2 713.0 / 169.0



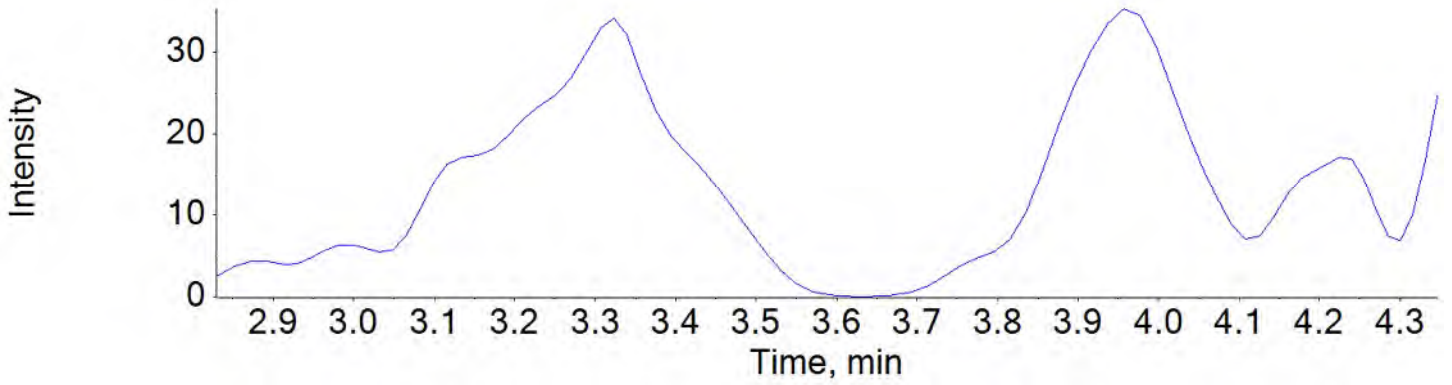
NMeFOSAA_1 570.0 / 419.0



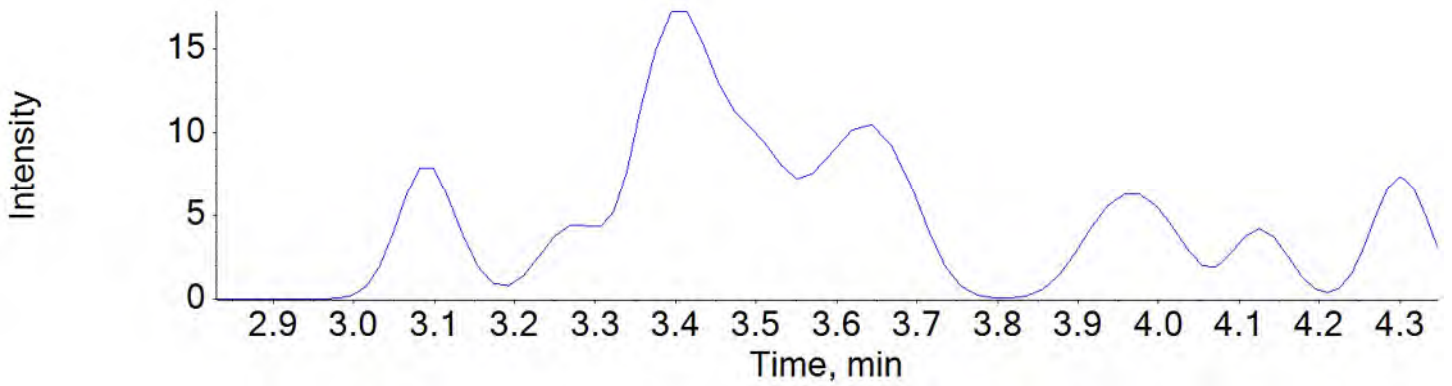
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

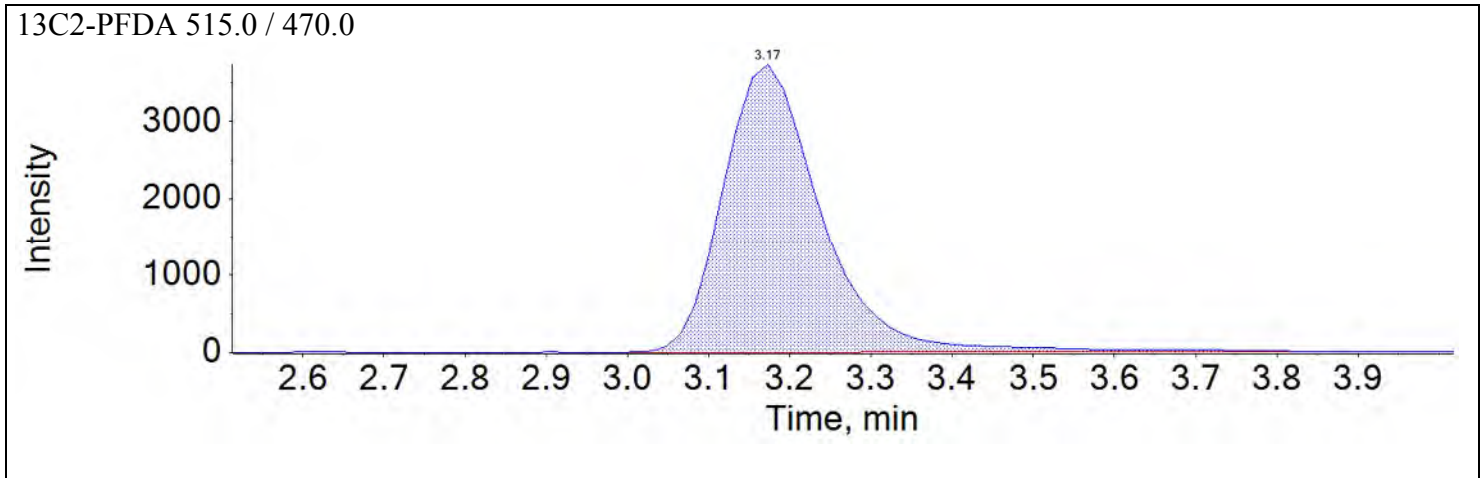
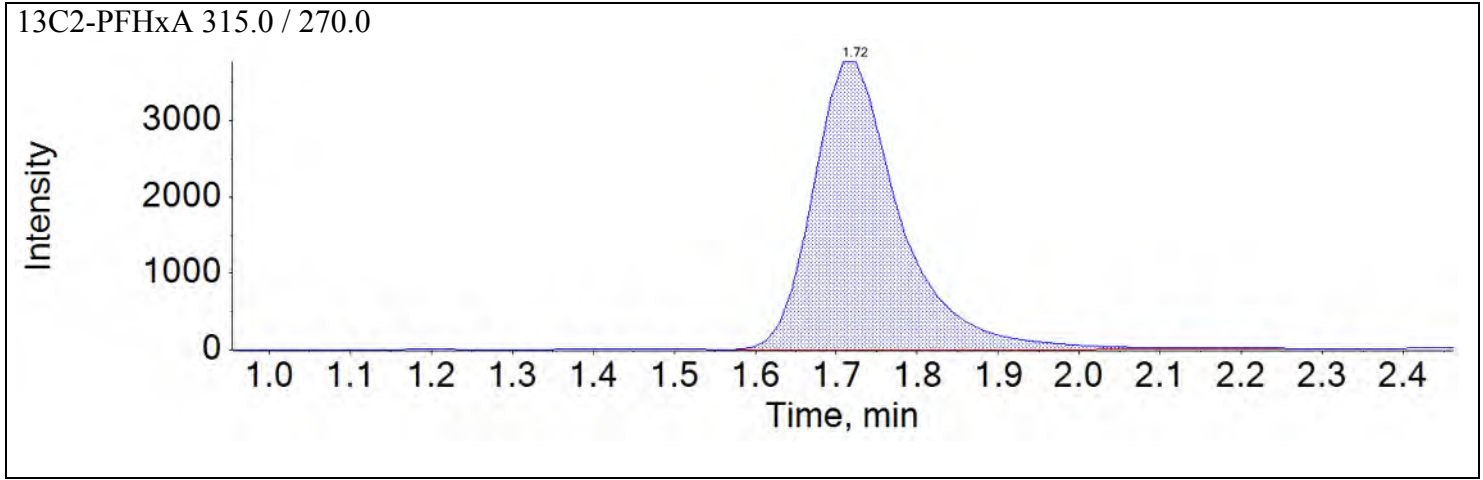


NEtFOSAA_2 584.0 / 483.0

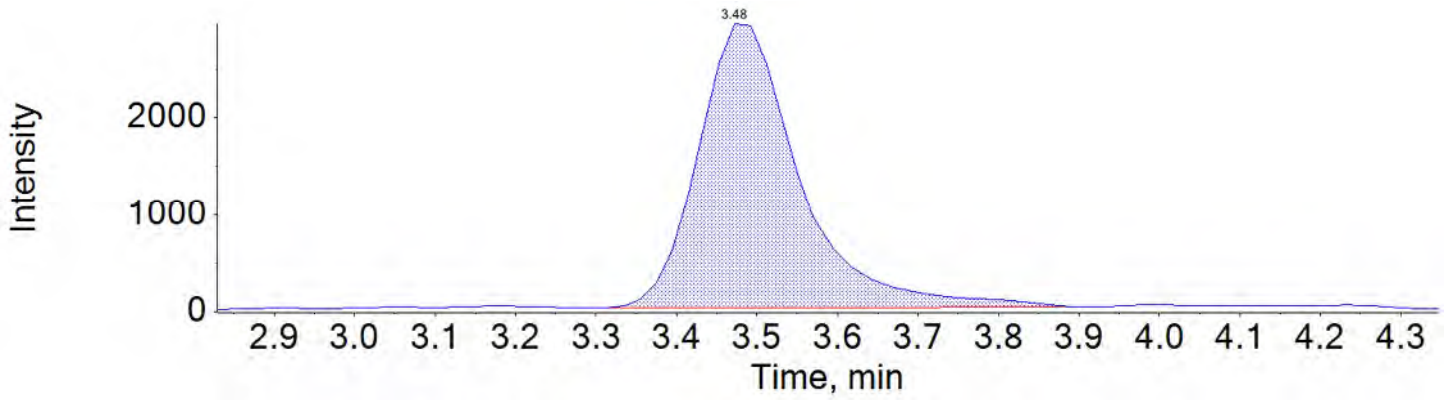


Sample Name	J5973-FS(0)	Injection Vial	18
Sample ID	WGNA-050118-FRB-3178	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T18:58:53	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms

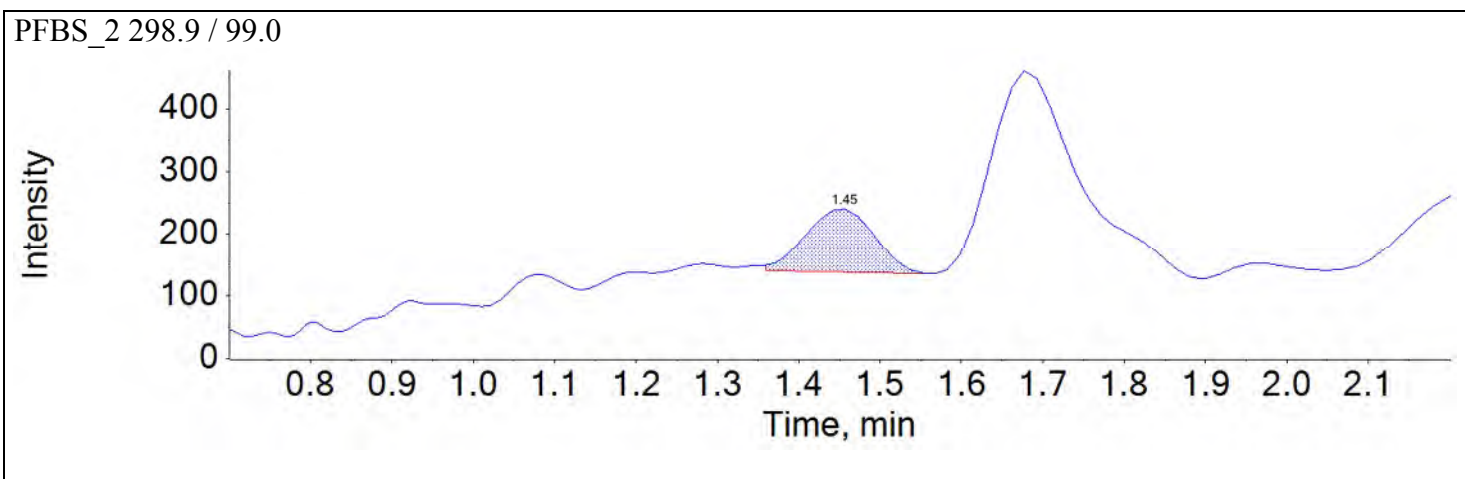
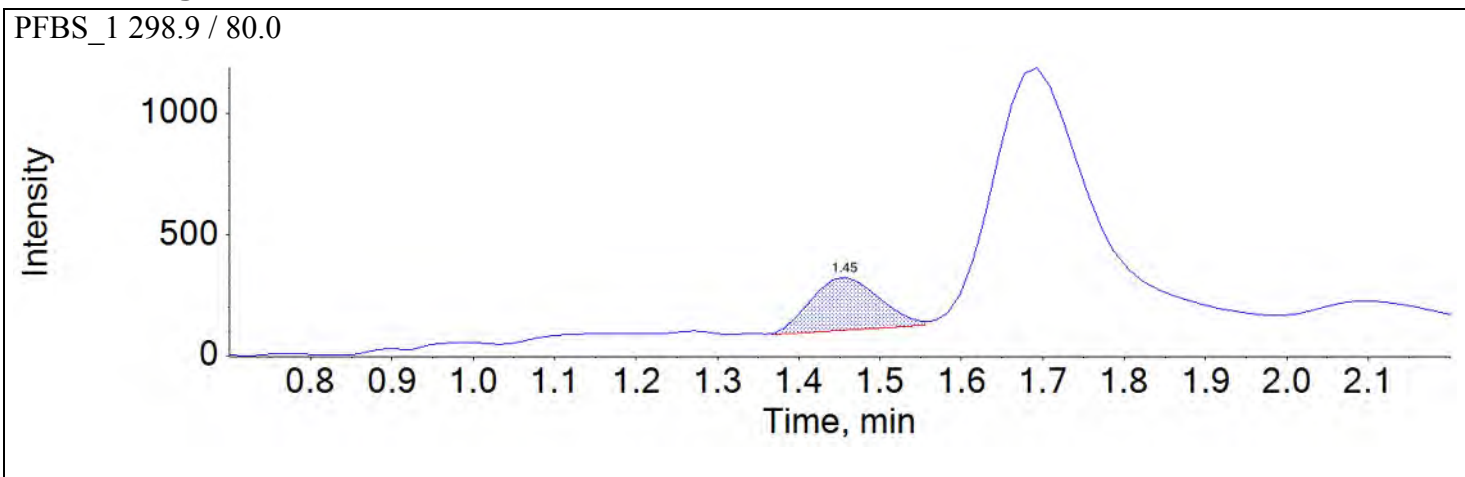


d5-EtFOSAA 589.0 / 419.0

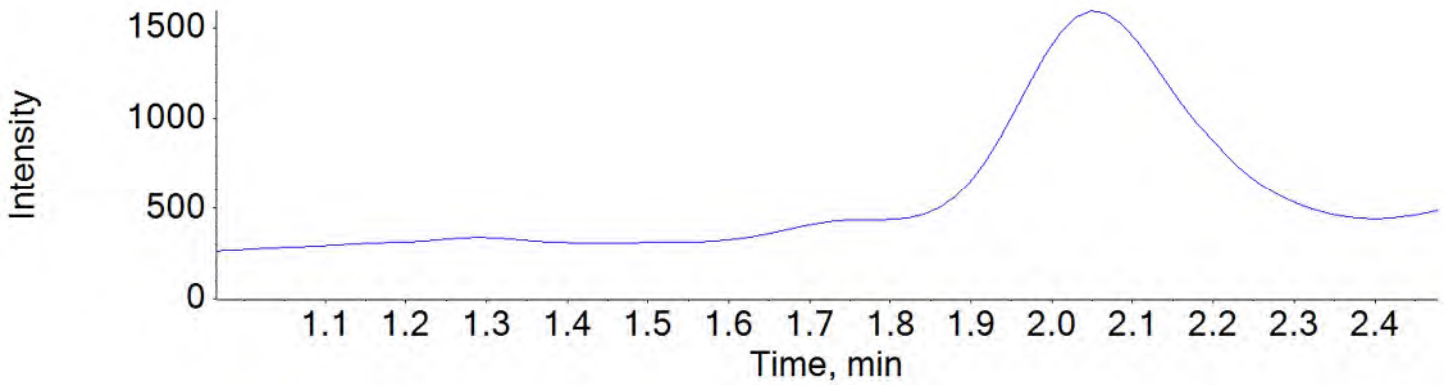


Sample Name	J5975-FS(0)	Injection Vial	19
Sample ID	NAWC-050118-FRB-304	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:07:47	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

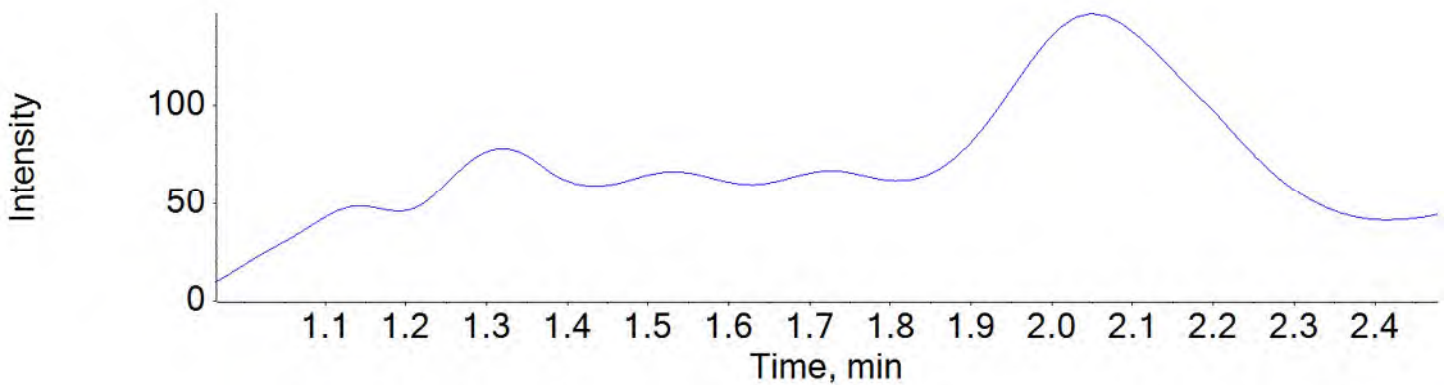
Chromatograms



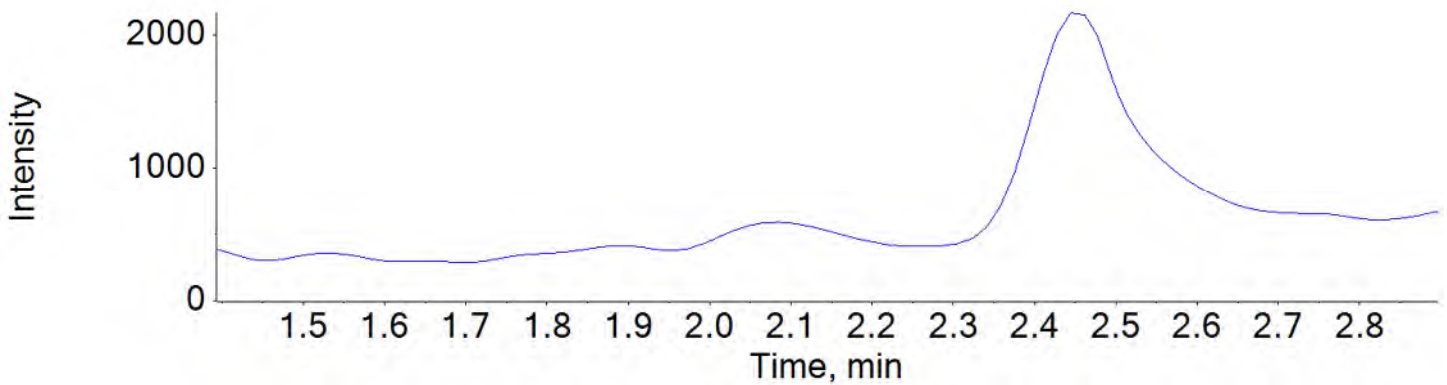
PFHxA_1 313.0 / 269.0



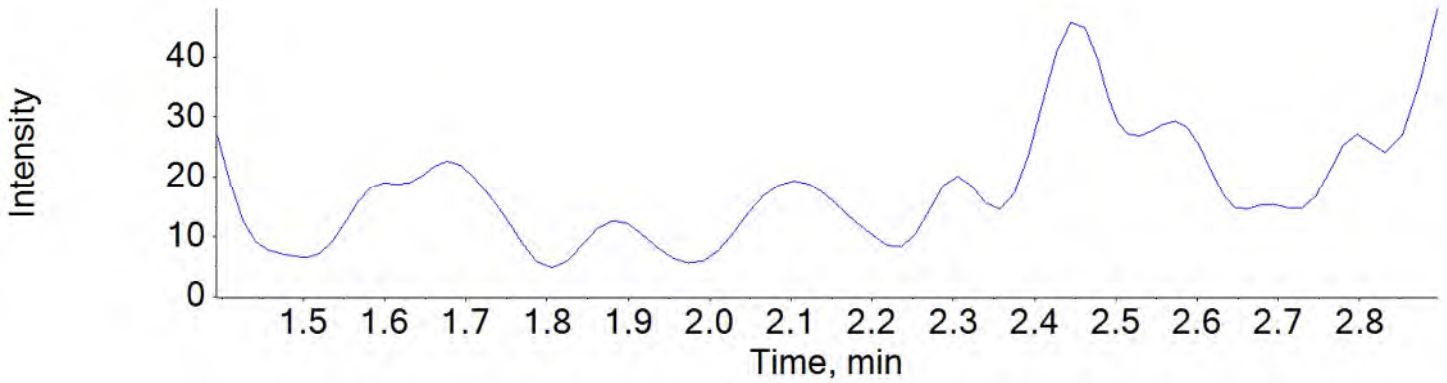
PFHxA_2 313.0 / 119.0



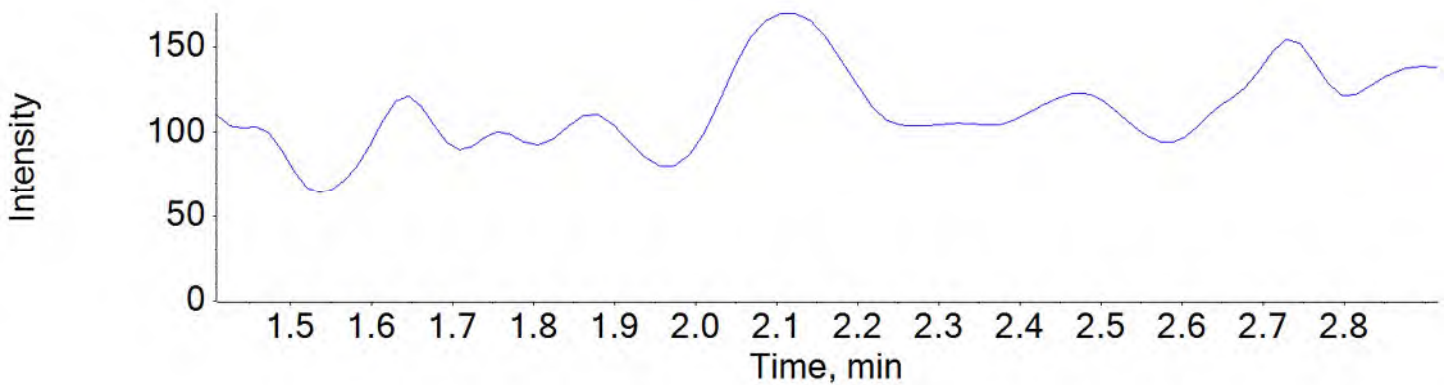
PFHpA_1 363.0 / 319.0



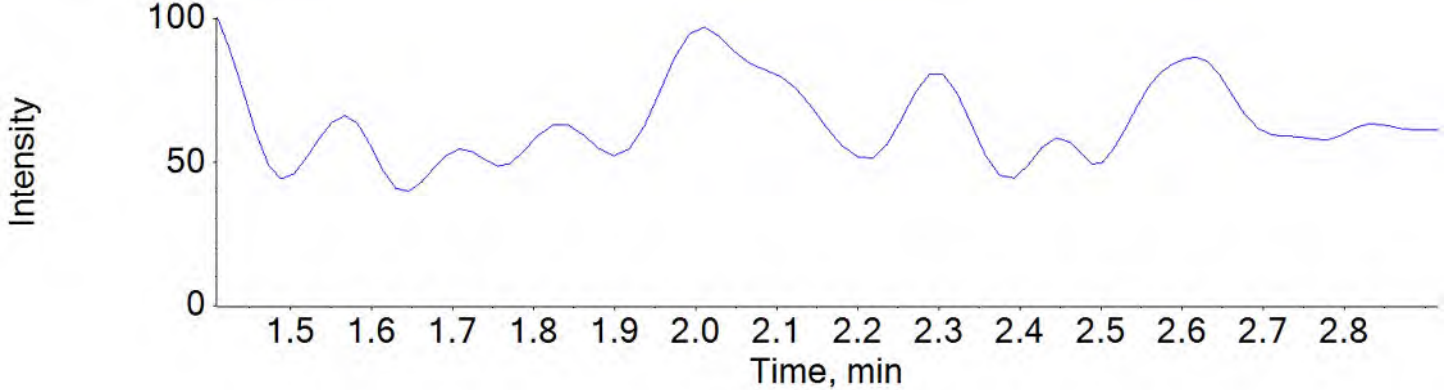
PFHpA_2 363.0 / 169.0



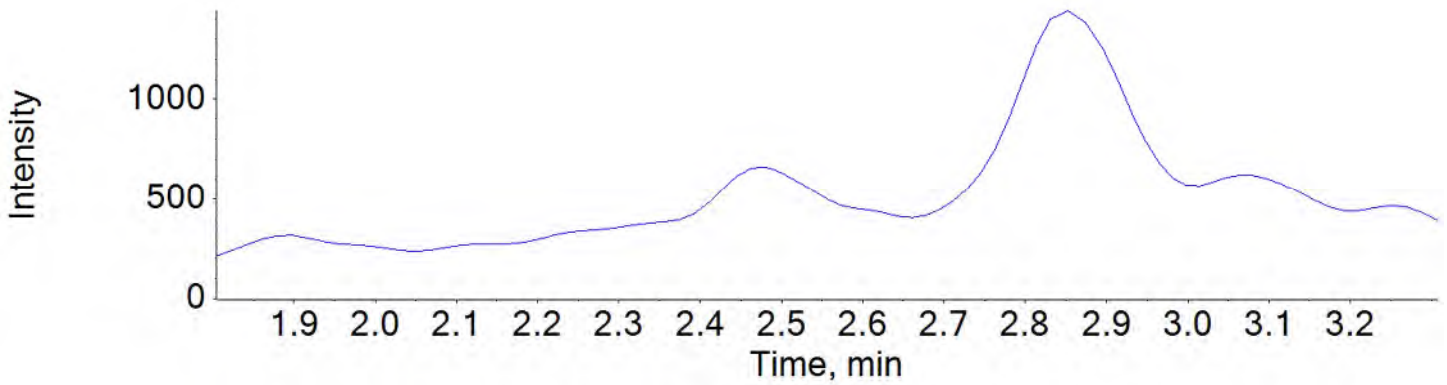
PFHxS_1 399.0 / 80.0



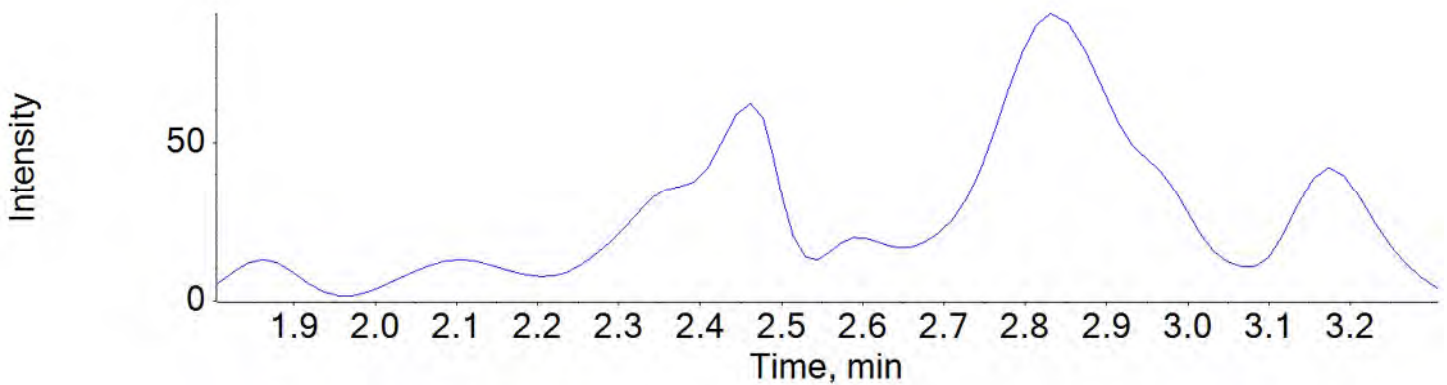
PFHxS_2 399.0 / 99.0



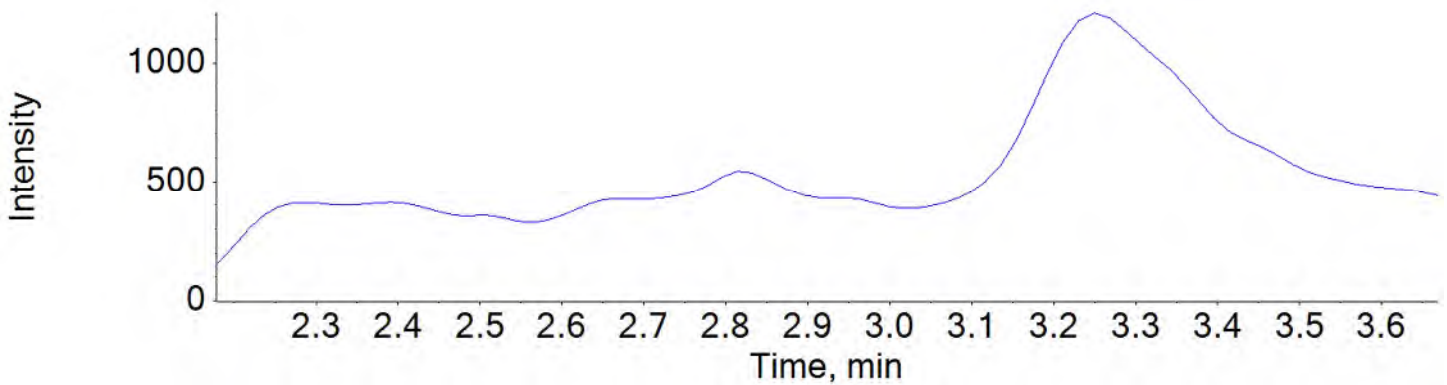
PFOA_1 413.0 / 369.0



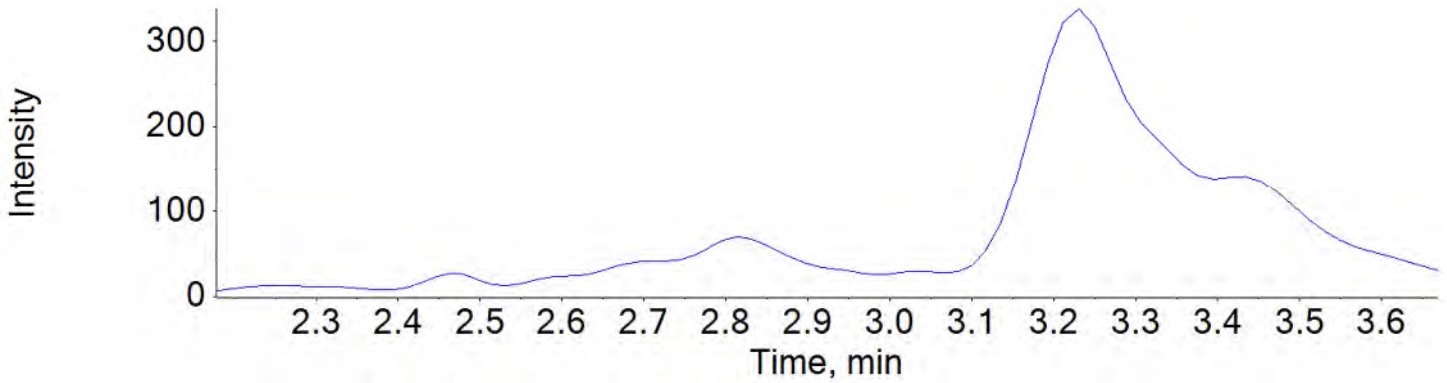
PFOA_2 413.0 / 169.0



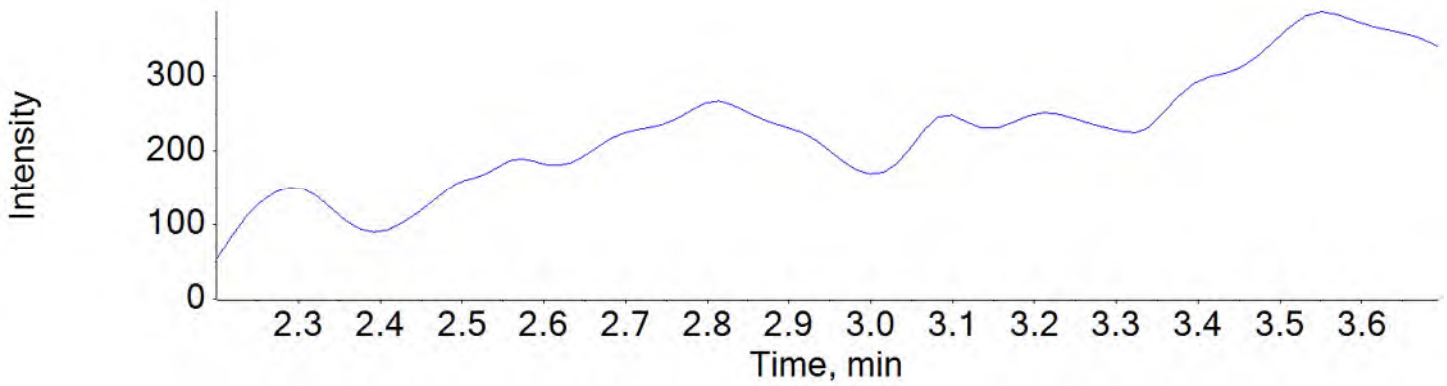
PFNA_1 463.0 / 419.0



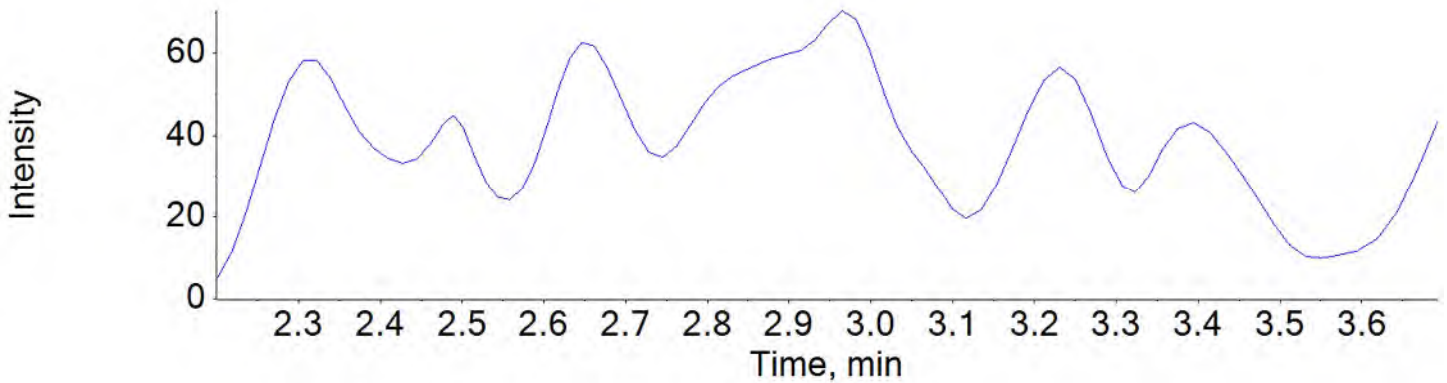
PFNA_2 463.0 / 219.0



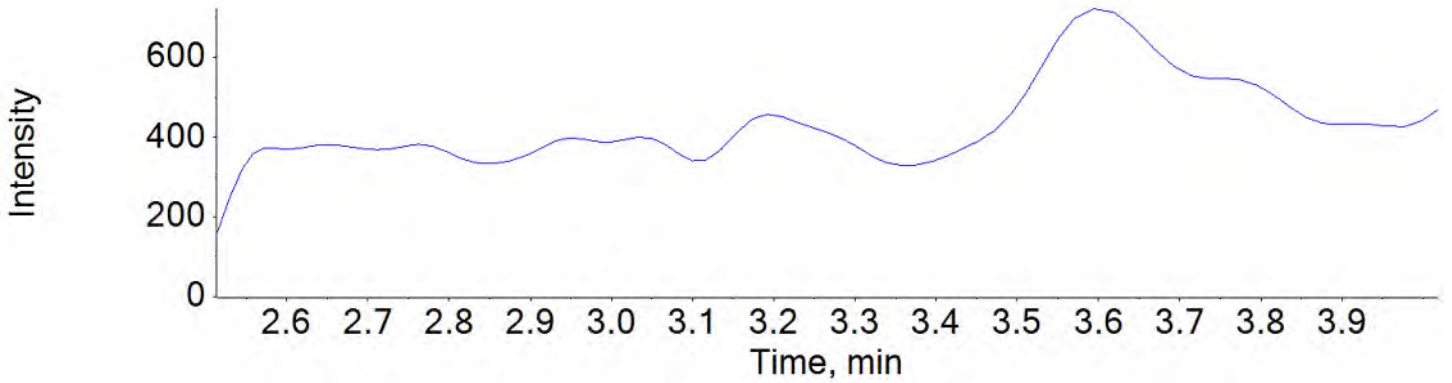
PFOS_1 499.0 / 80.0



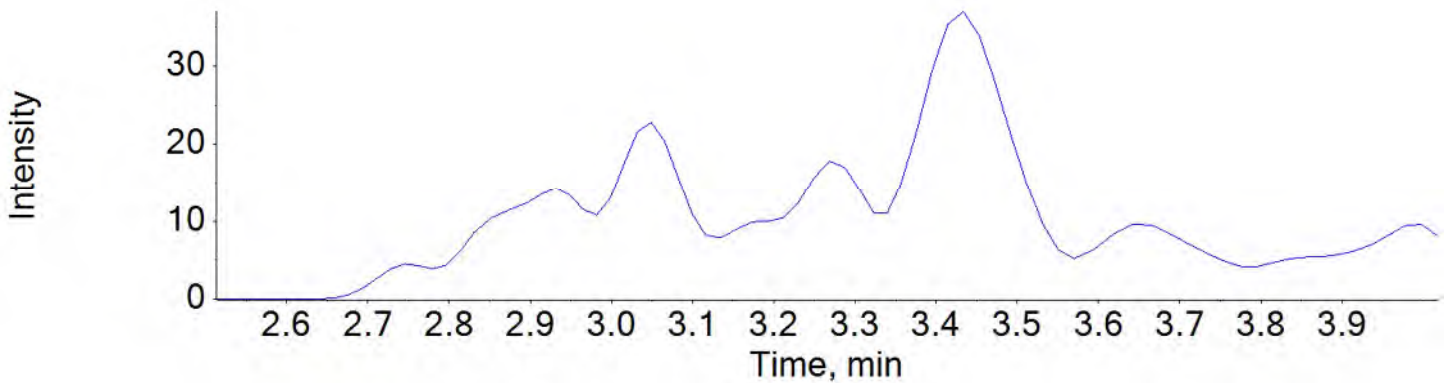
PFOS_2 499.0 / 99.0



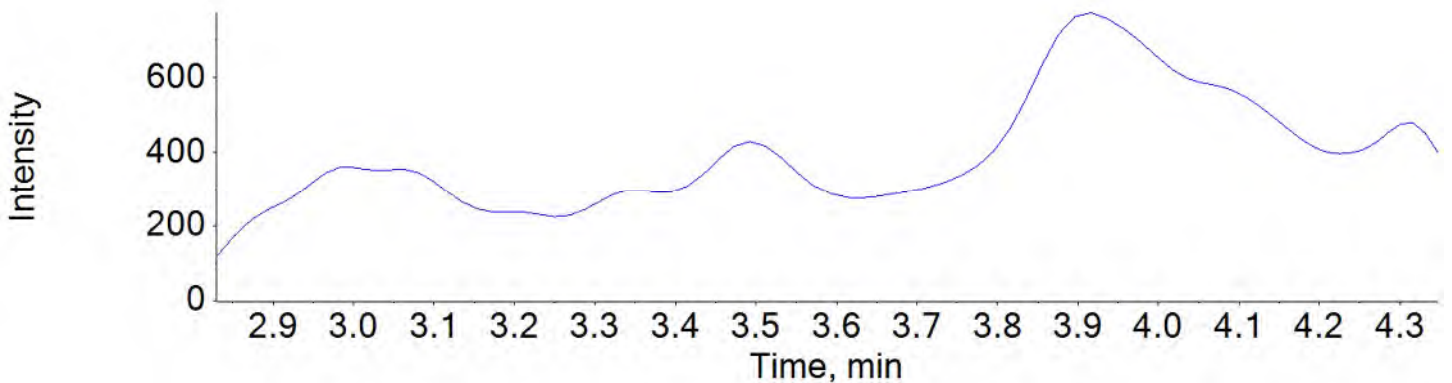
PFDA_1 513.0 / 469.0



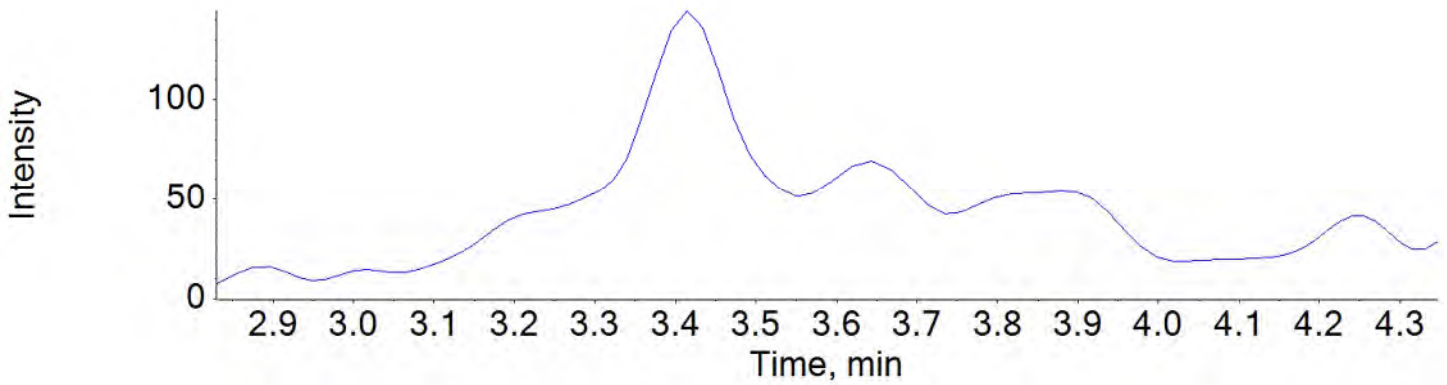
PFDA_2 513.0 / 219.0



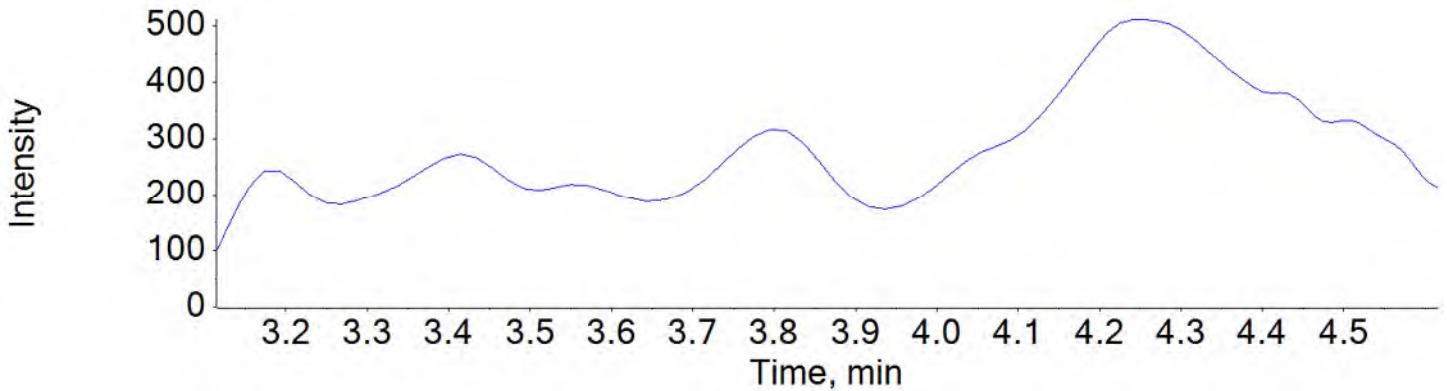
PFUnA_1 563.0 / 519.0



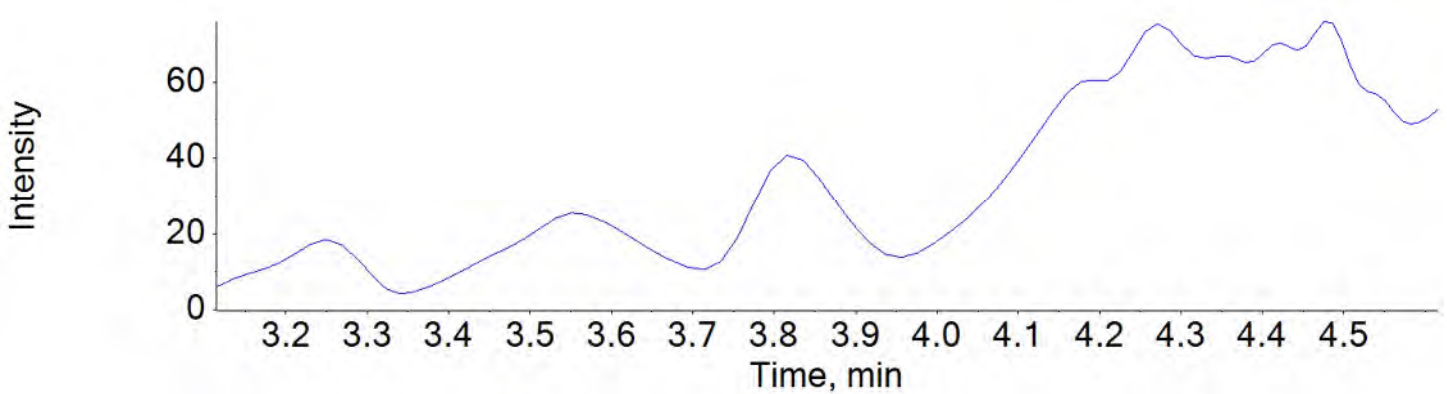
PFUnA_2 563.0 / 269.0



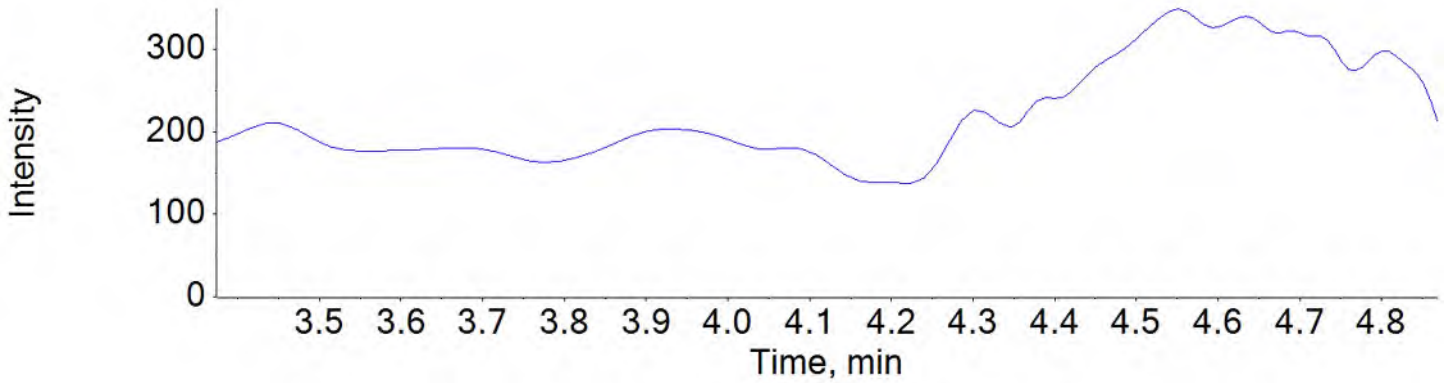
PFDaA_1 613.0 / 569.0



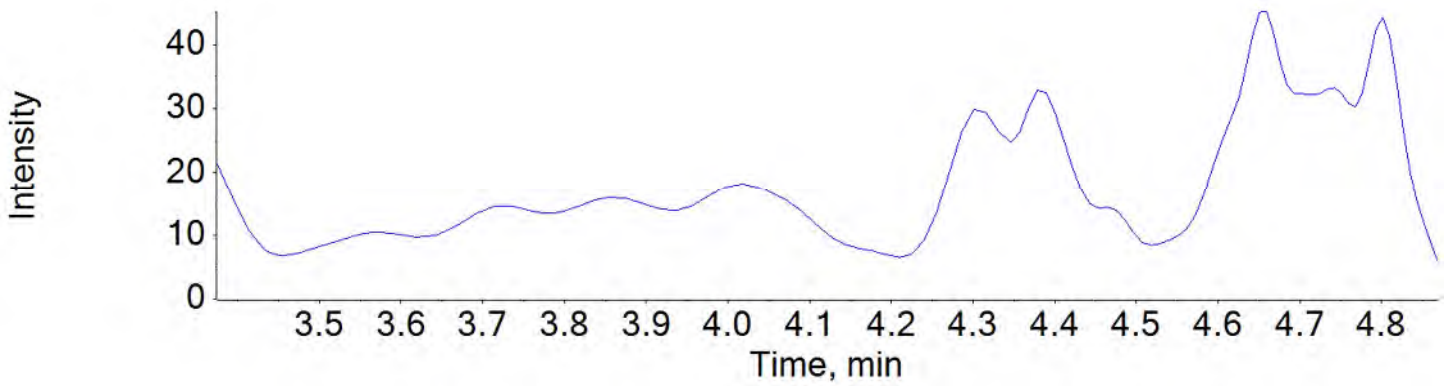
PFDaA_2 613.0 / 319.0



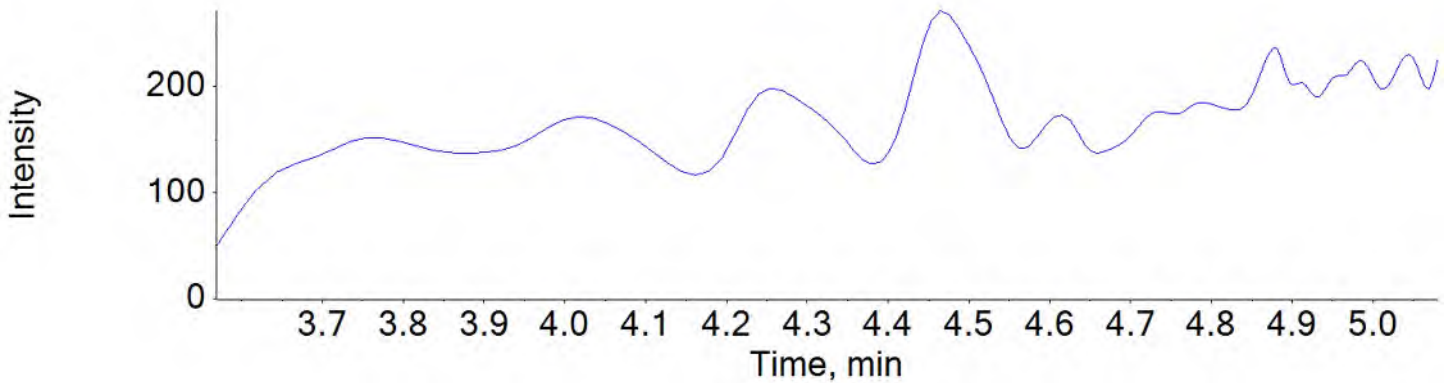
PFTTrDA_1 663.0 / 619.0



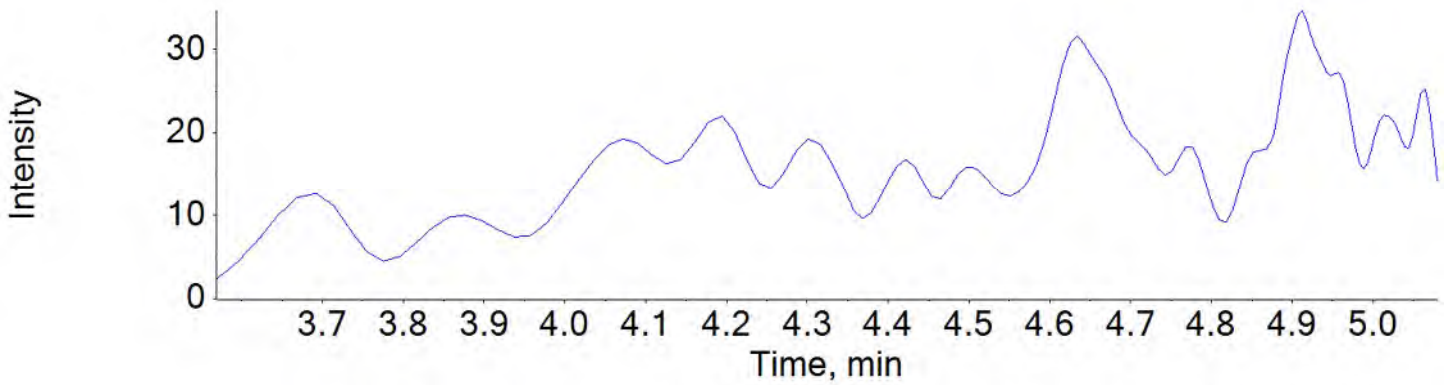
PFTTrDA_2 663.0 / 169.0



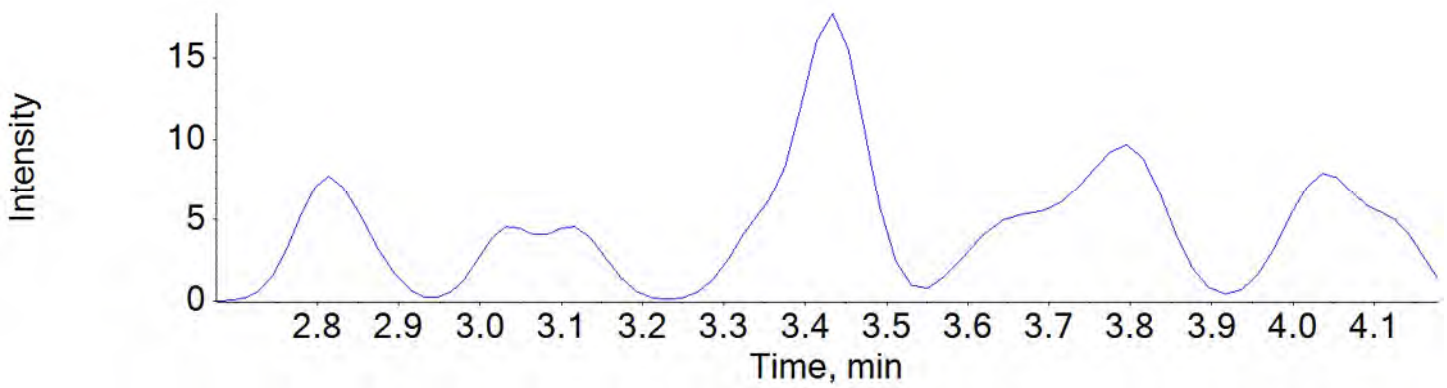
PFTTeDA_1 713.0 / 669.0



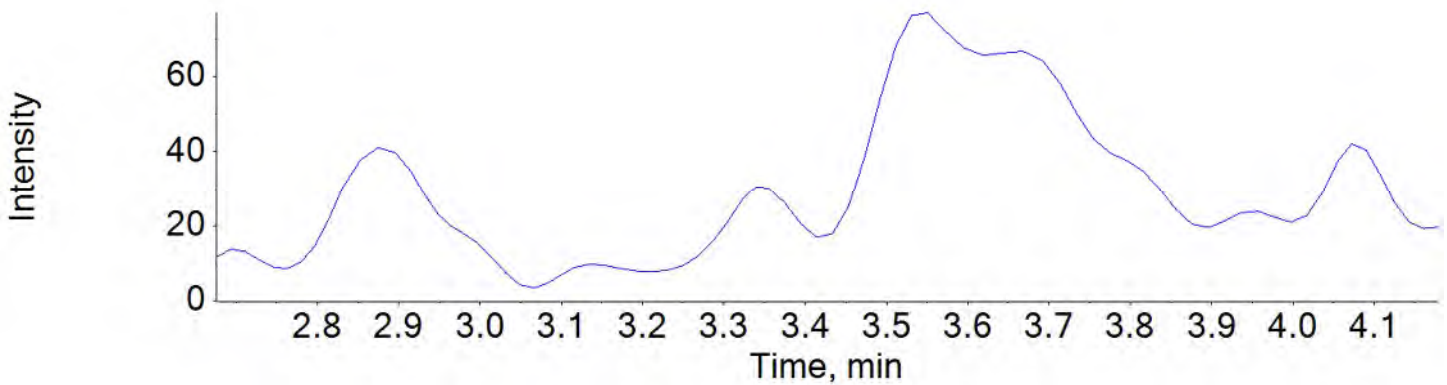
PFTeDA_2 713.0 / 169.0



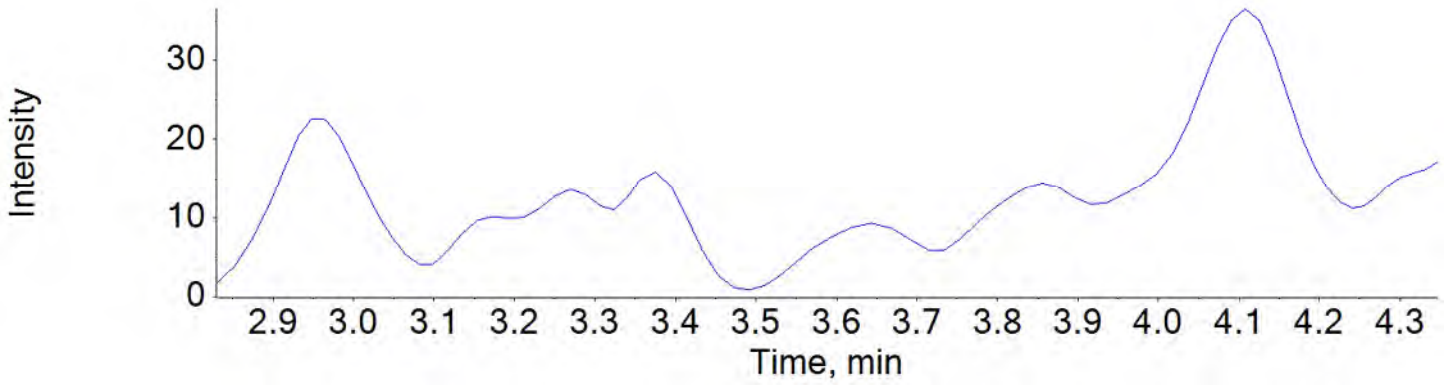
NMeFOSAA_1 570.0 / 419.0



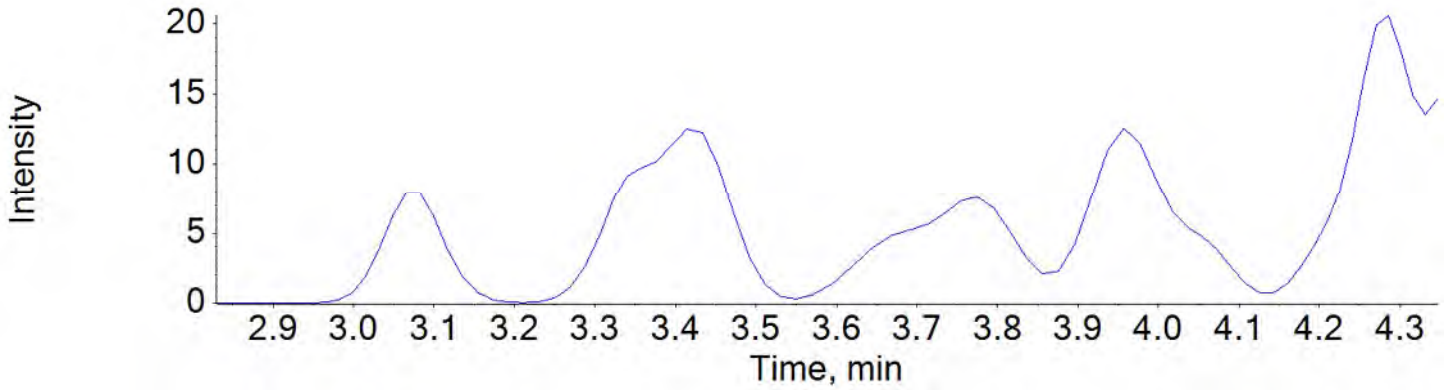
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

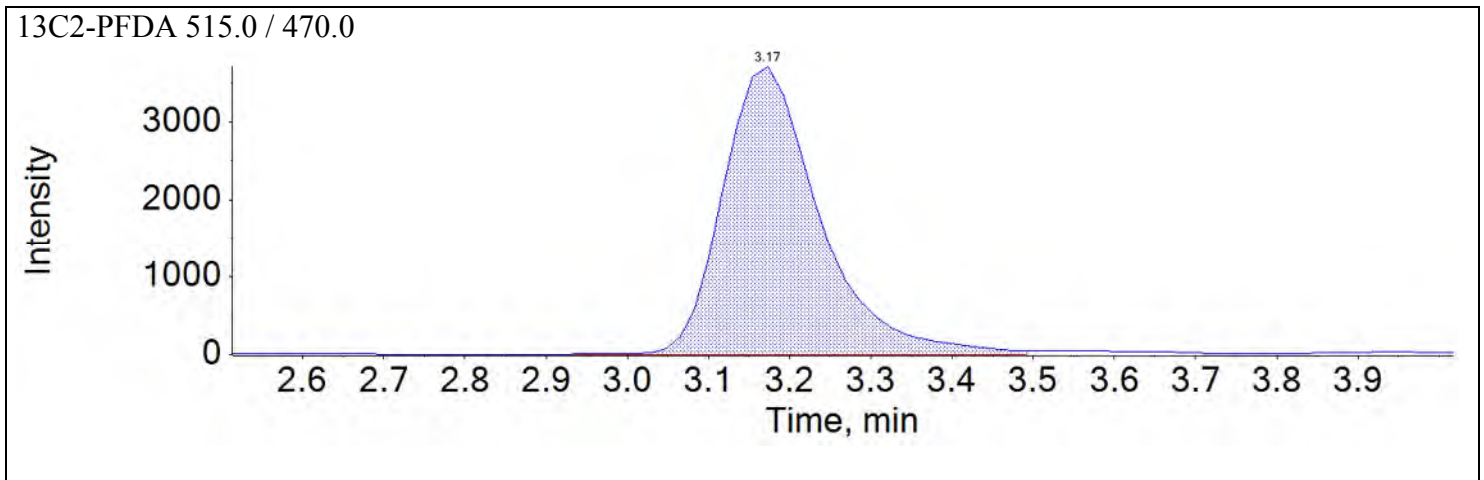
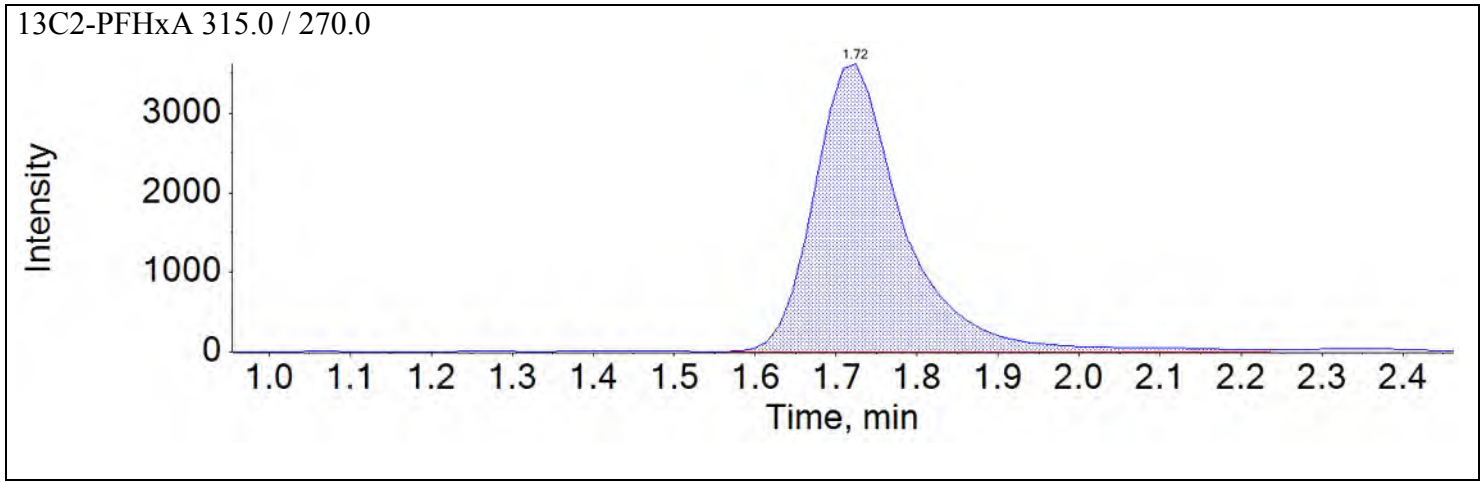


NEtFOSAA_2 584.0 / 483.0

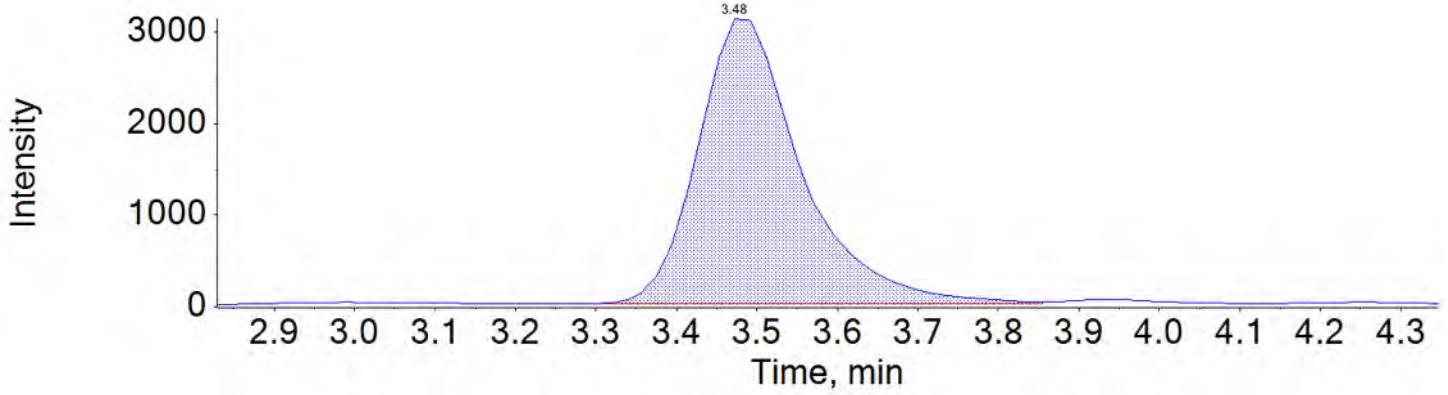


Sample Name	J5975-FS(0)	Injection Vial	19
Sample ID	NAWC-050118-FRB-304	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:07:47	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms

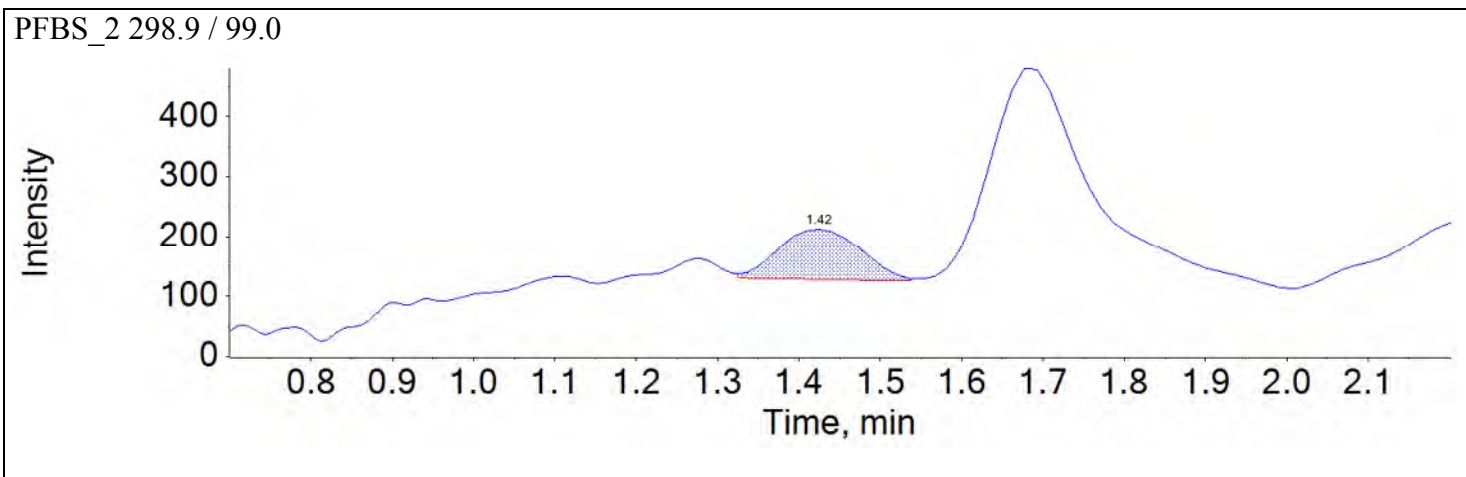
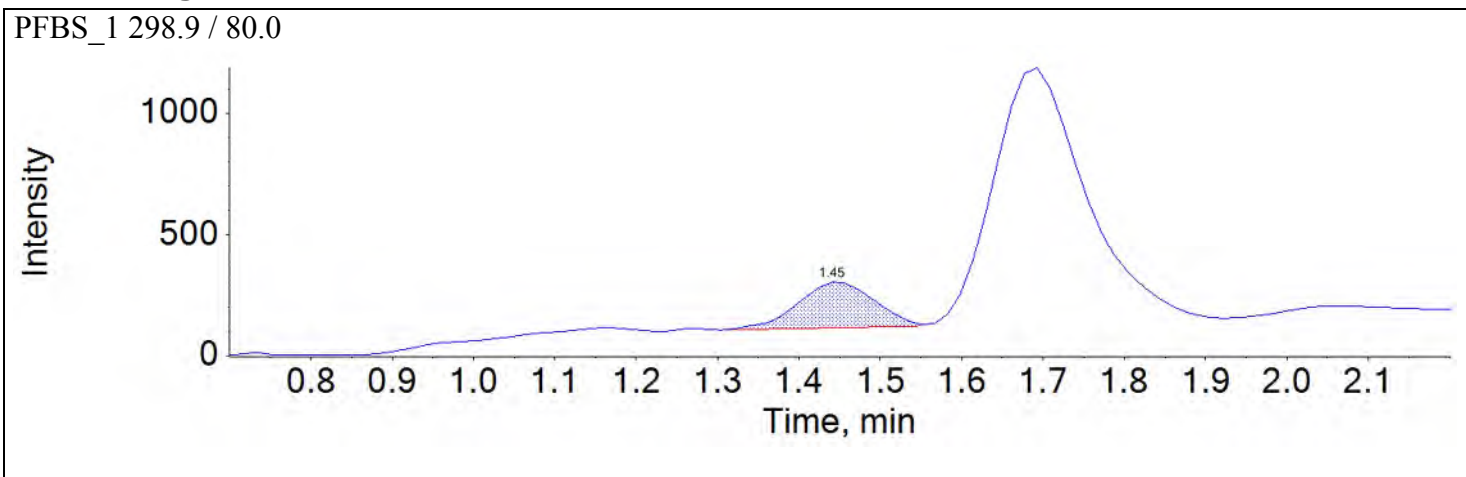


d5-EtFOSAA 589.0 / 419.0

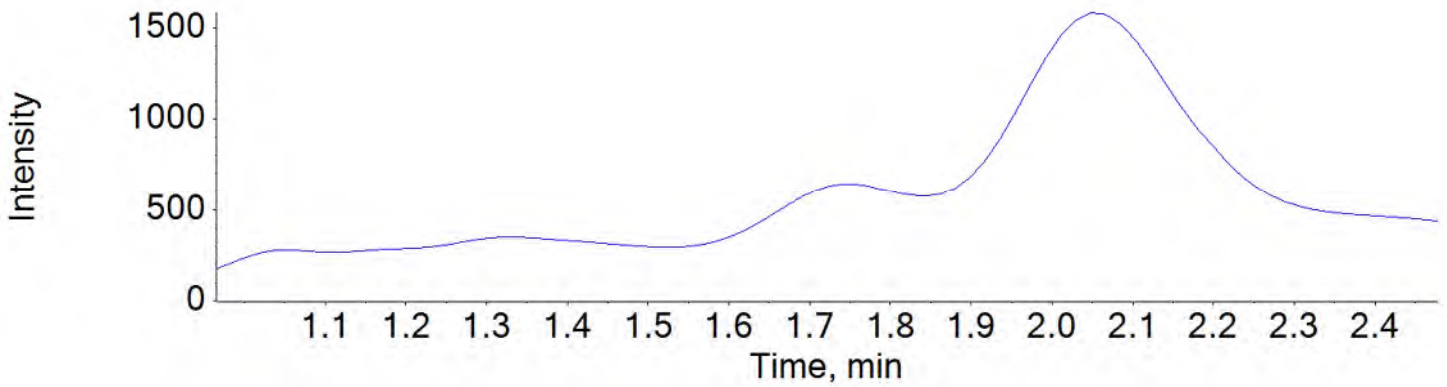


Sample Name	J5977-FS(0)	Injection Vial	20
Sample ID	NAWC-050118-FRB-098	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:16:43	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

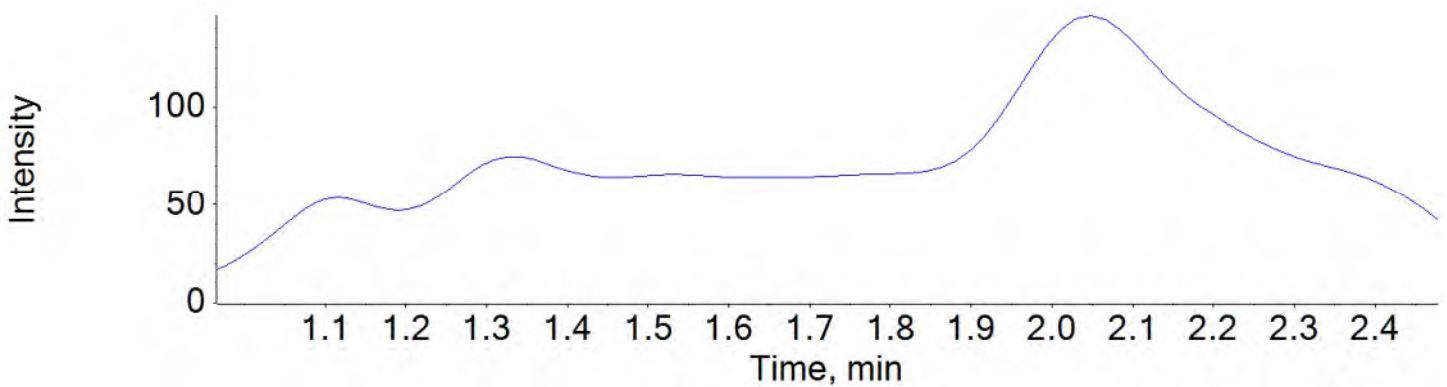
Chromatograms



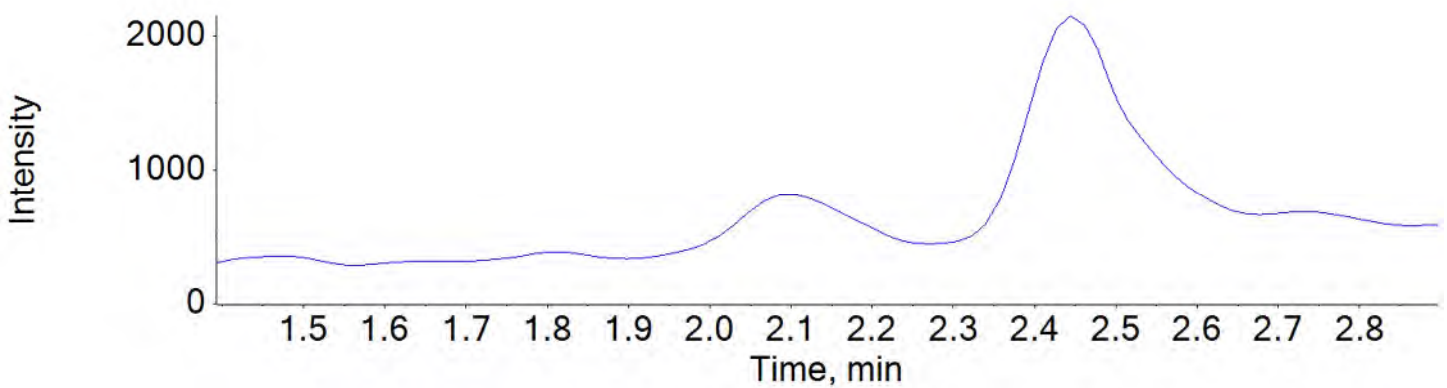
PFHxA_1 313.0 / 269.0



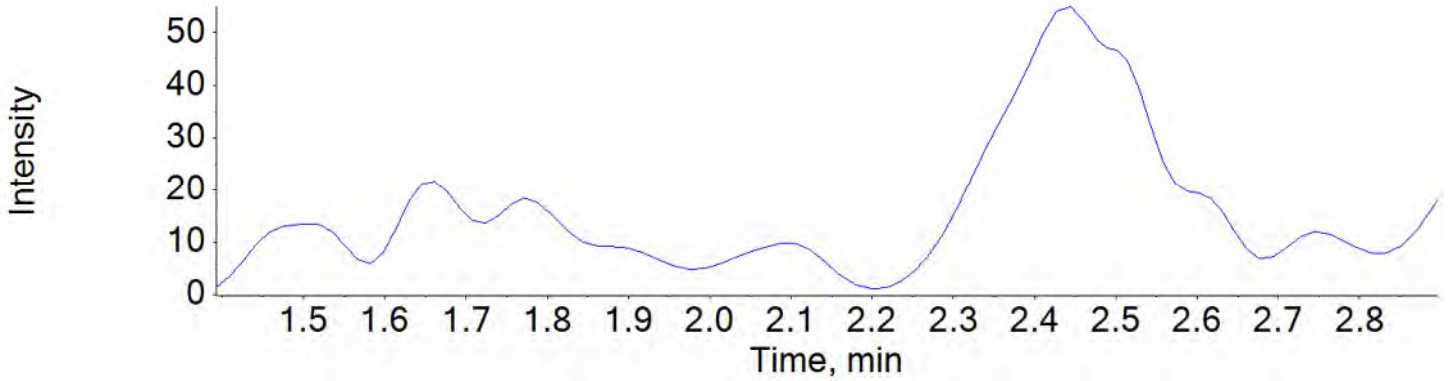
PFHxA_2 313.0 / 119.0



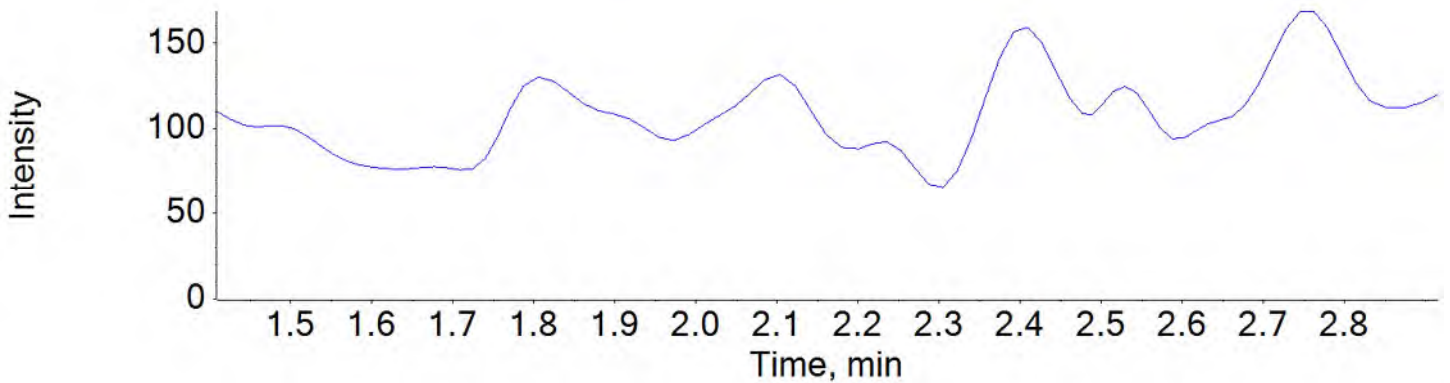
PFHpA_1 363.0 / 319.0



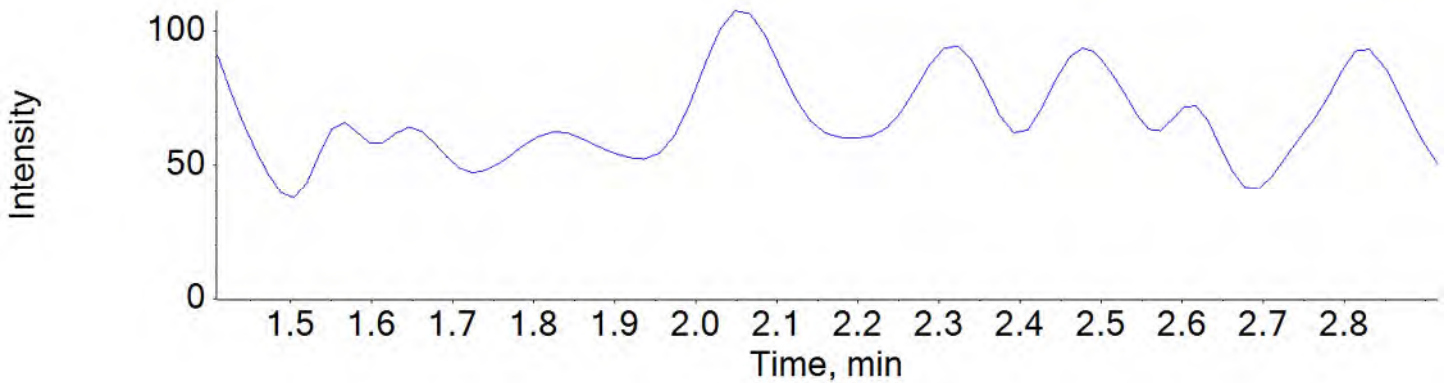
PFHpA_2 363.0 / 169.0



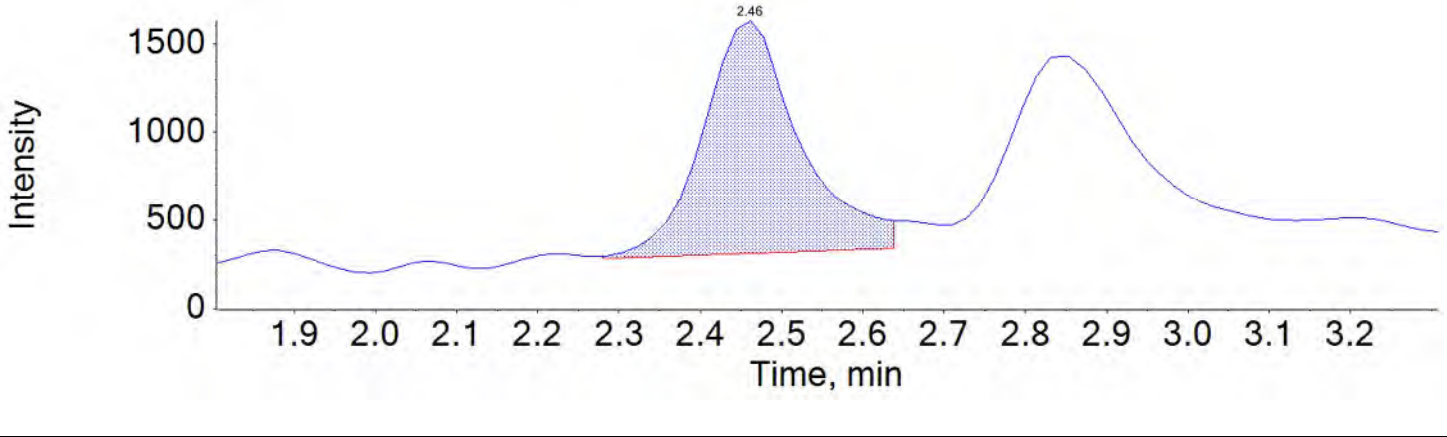
PFHxS_1 399.0 / 80.0



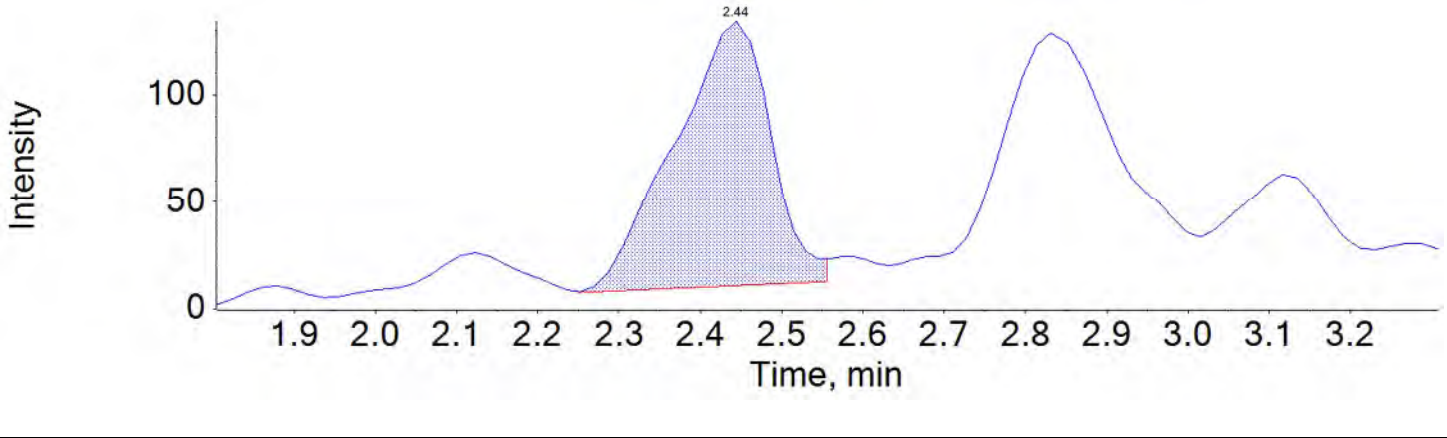
PFHxS_2 399.0 / 99.0



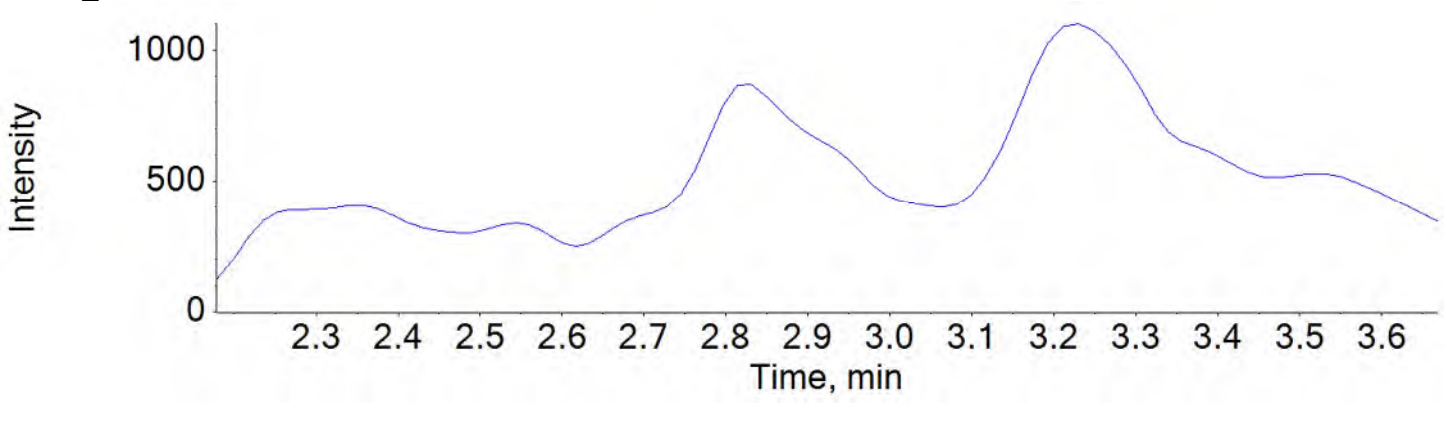
PFOA_1 413.0 / 369.0



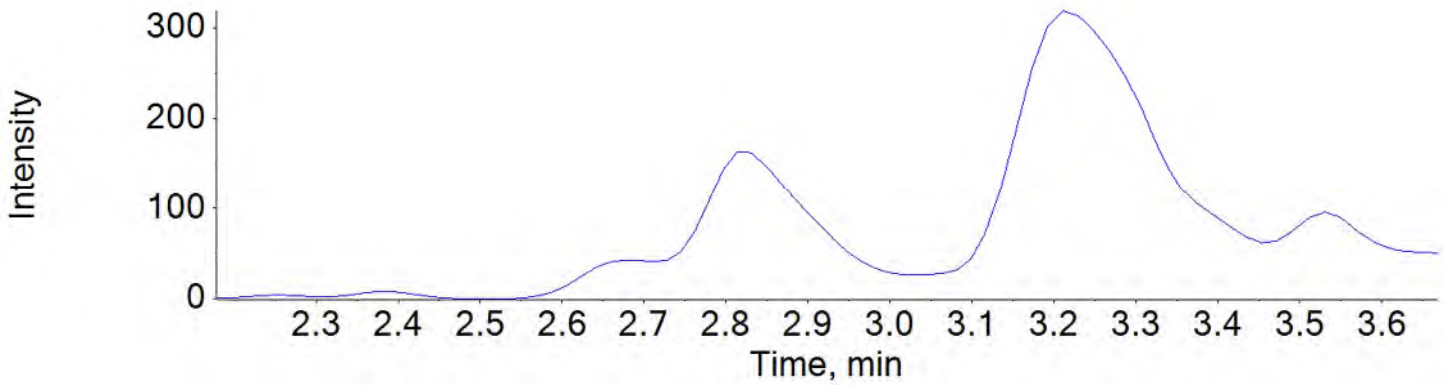
PFOA_2 413.0 / 169.0



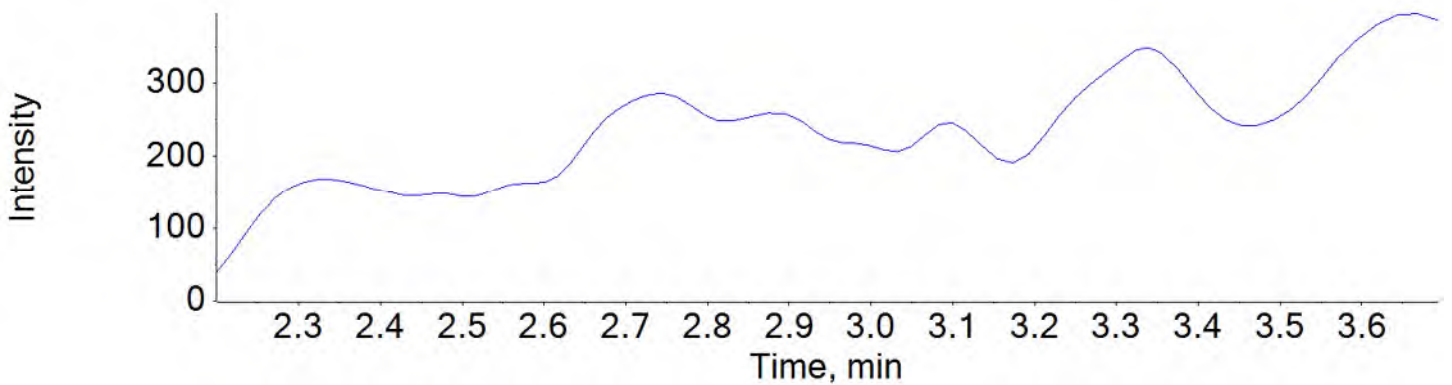
PFNA_1 463.0 / 419.0



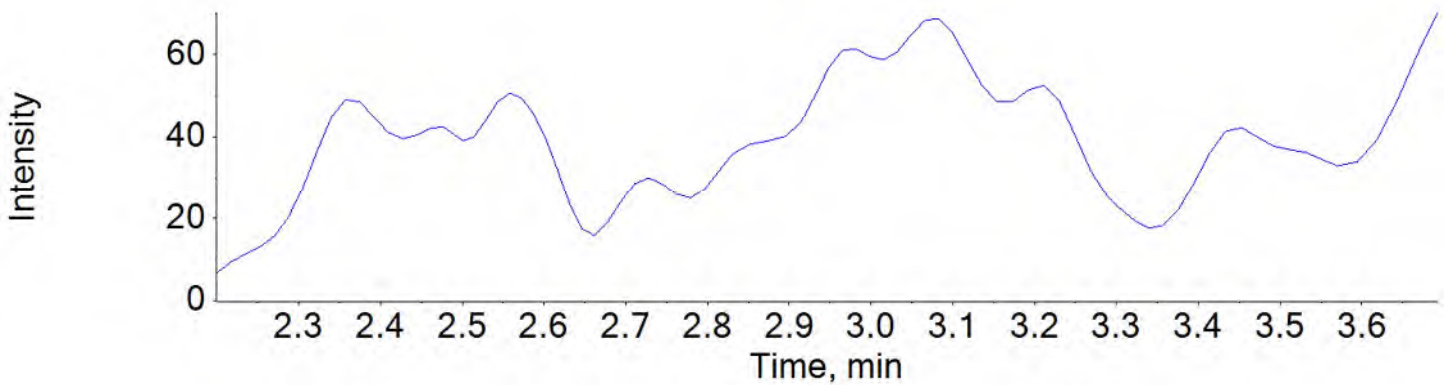
PFNA_2 463.0 / 219.0



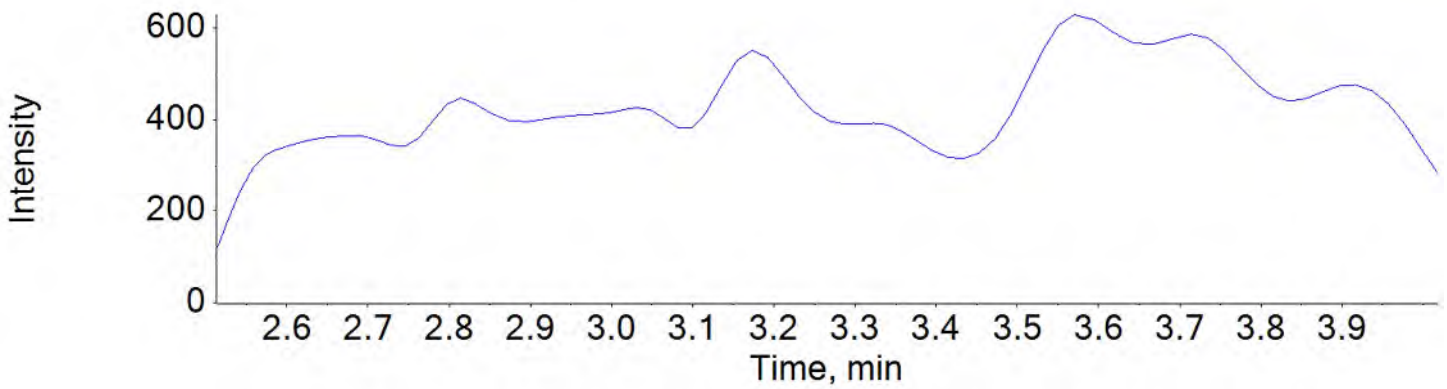
PFOS_1 499.0 / 80.0



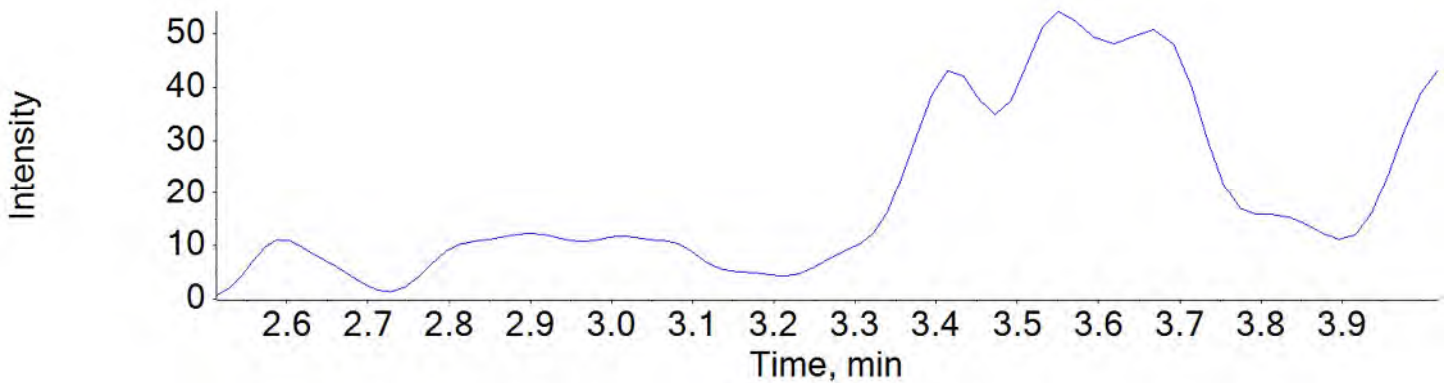
PFOS_2 499.0 / 99.0



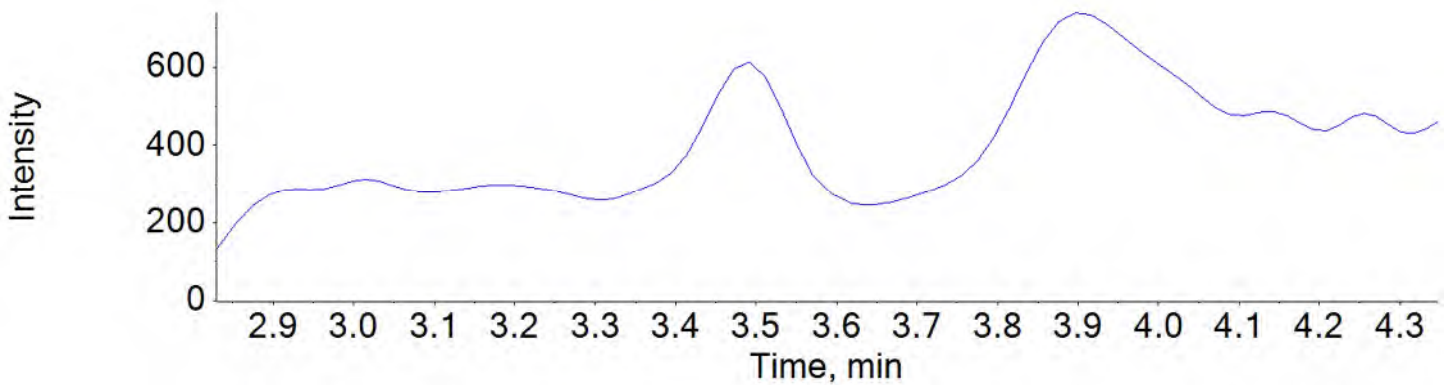
PFDA_1 513.0 / 469.0



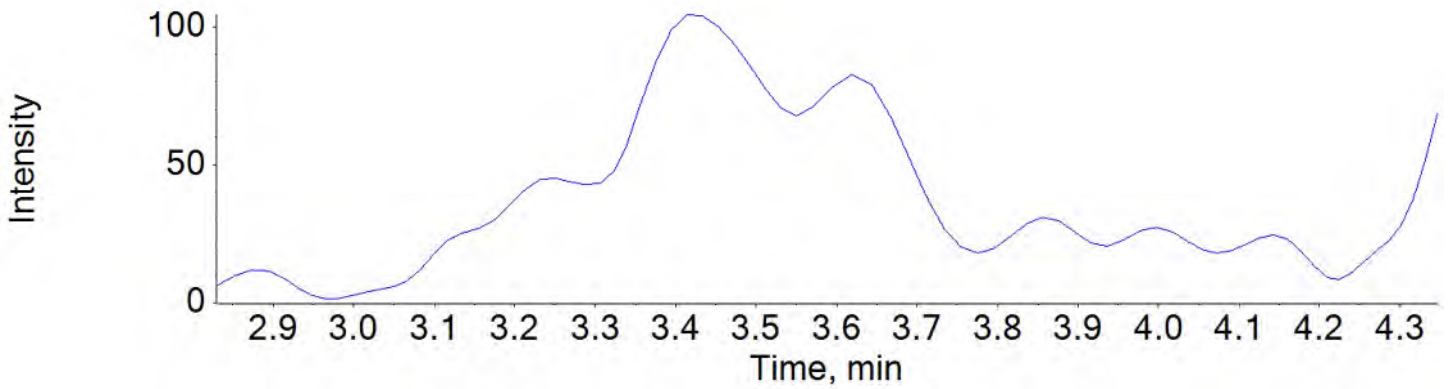
PFDA_2 513.0 / 219.0



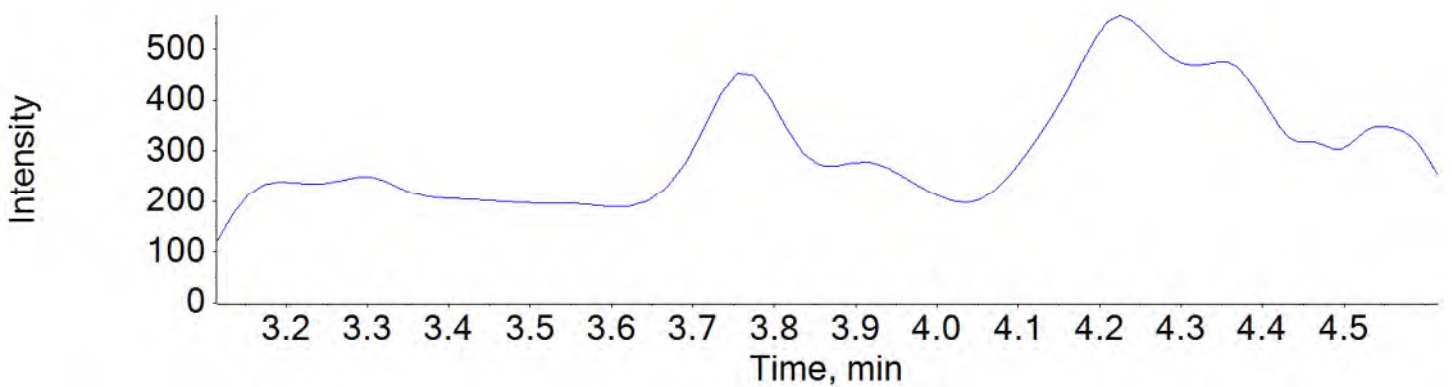
PFAUnA_1 563.0 / 519.0



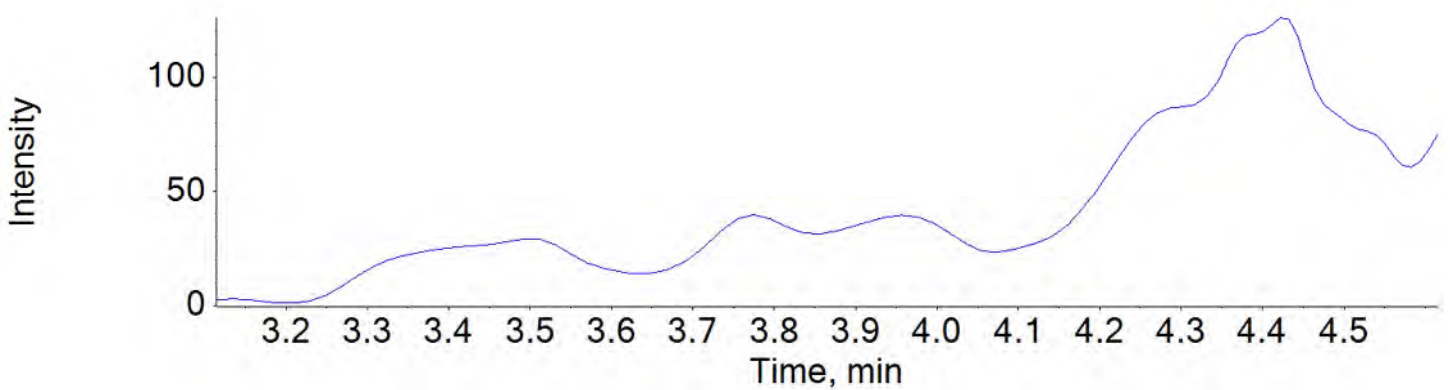
PFUnA_2 563.0 / 269.0



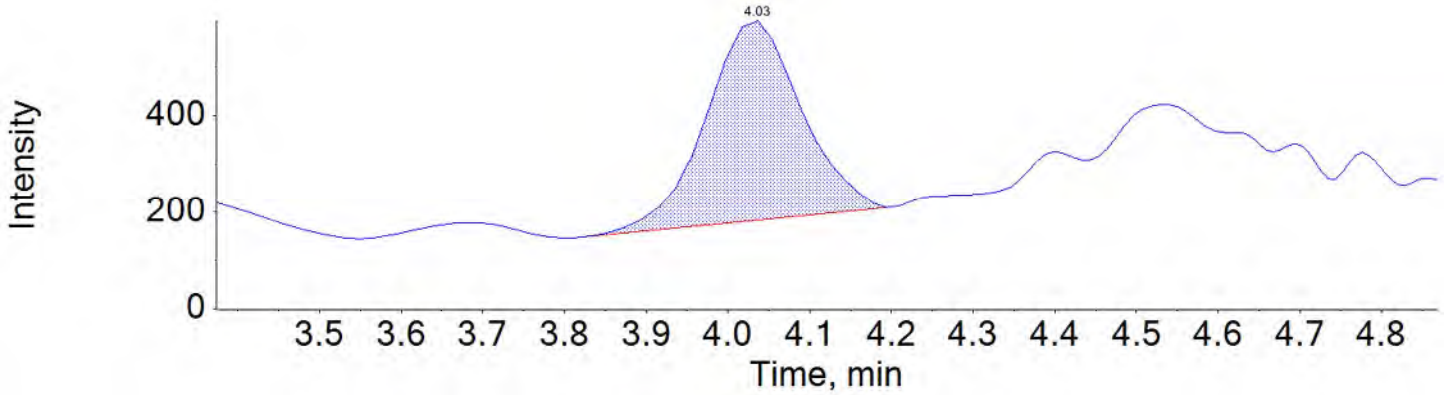
PFDaA_1 613.0 / 569.0



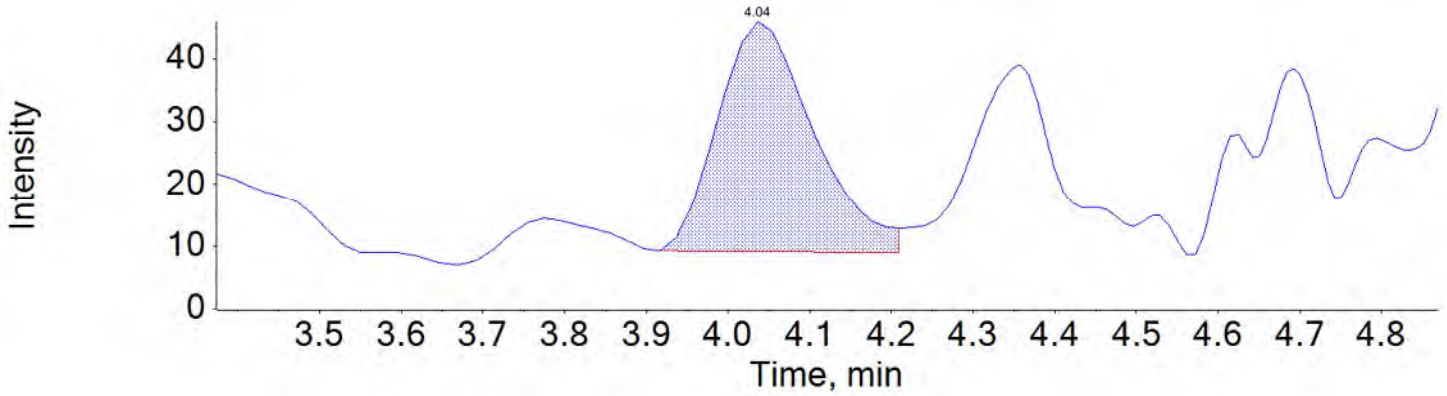
PFDaA_2 613.0 / 319.0



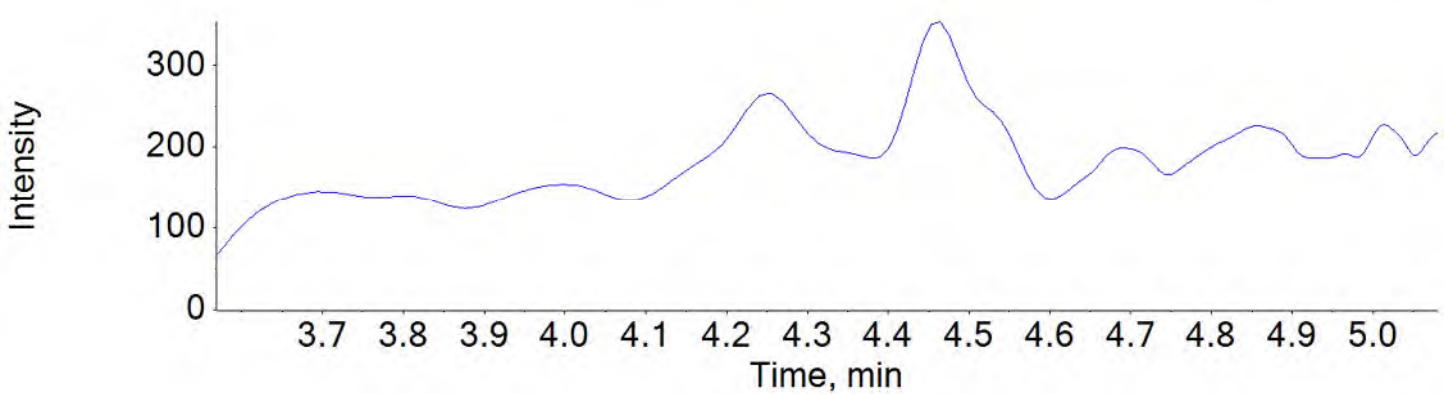
PFTTrDA_1 663.0 / 619.0



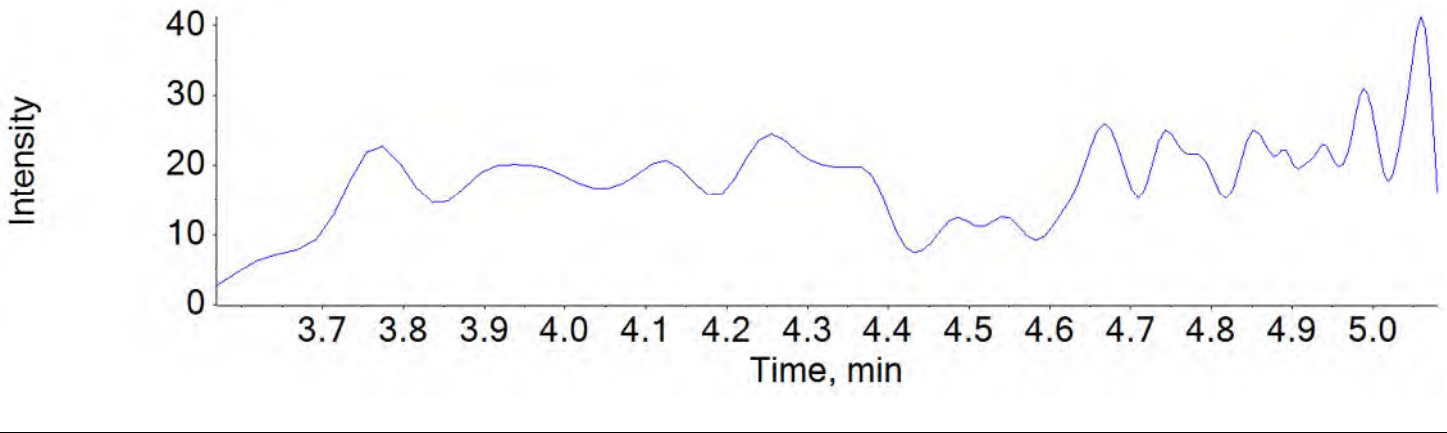
PFTTrDA_2 663.0 / 169.0



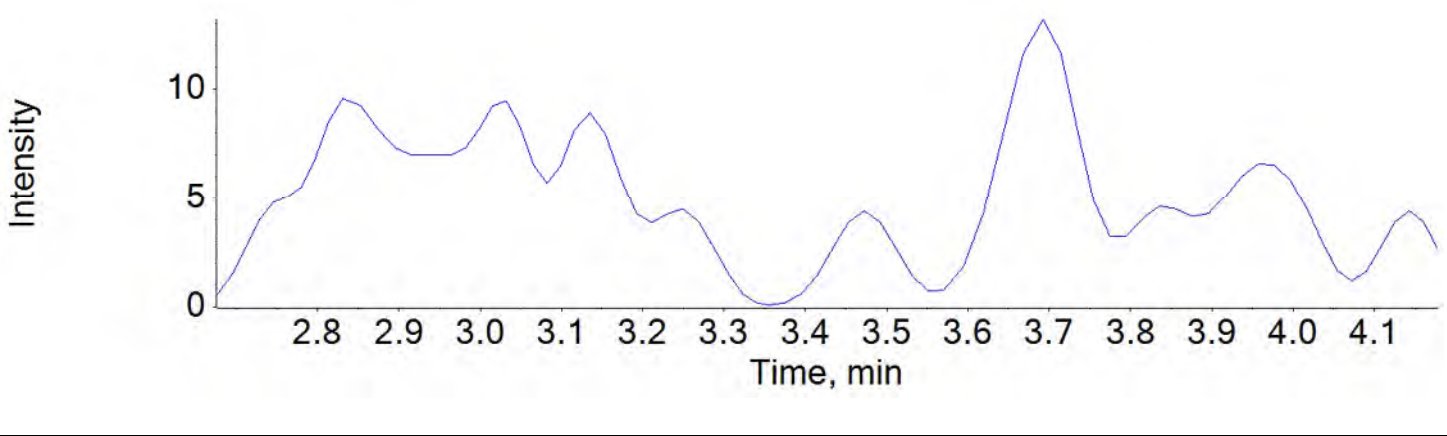
PFTeDA_1 713.0 / 669.0



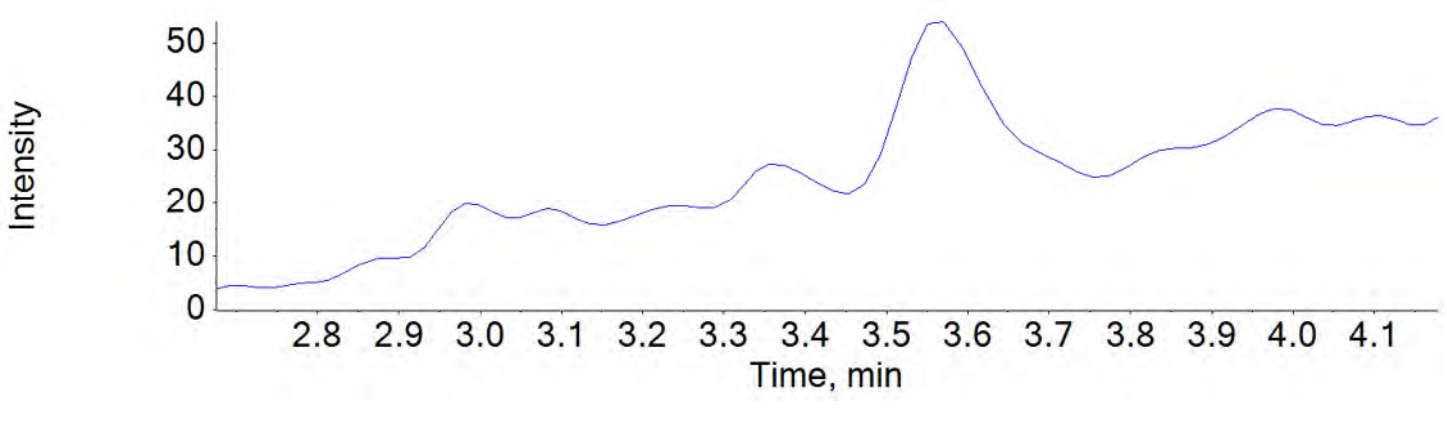
PFTeDA_2 713.0 / 169.0



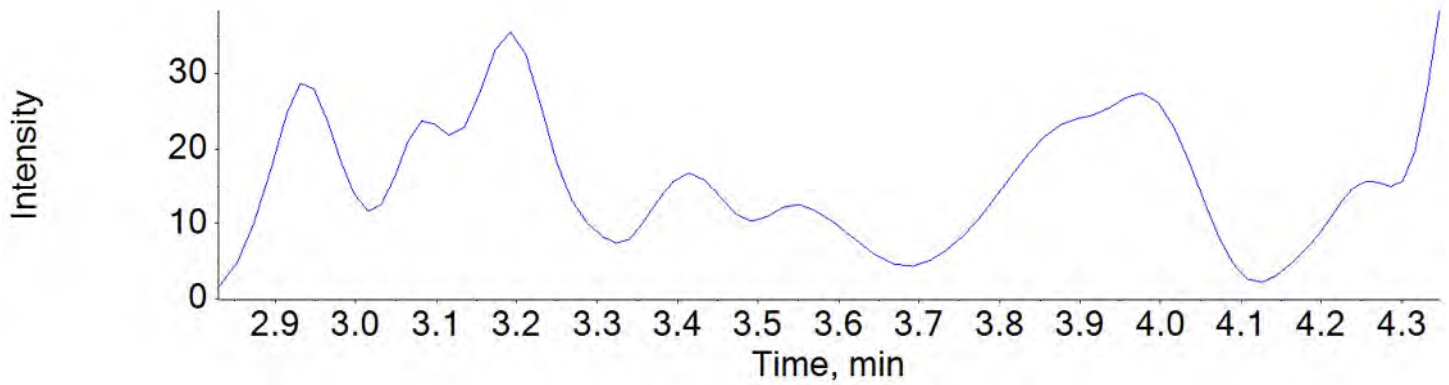
NMeFOSAA_1 570.0 / 419.0



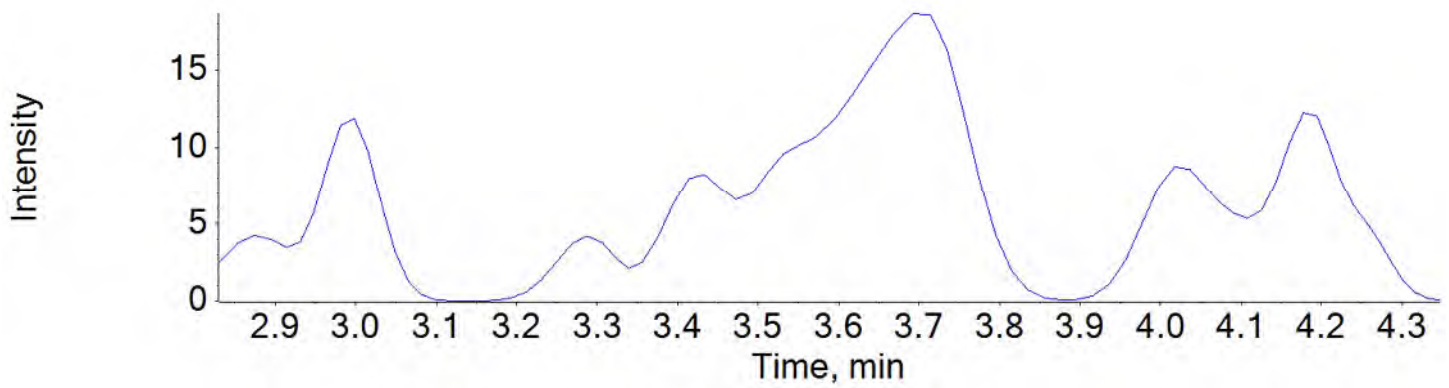
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

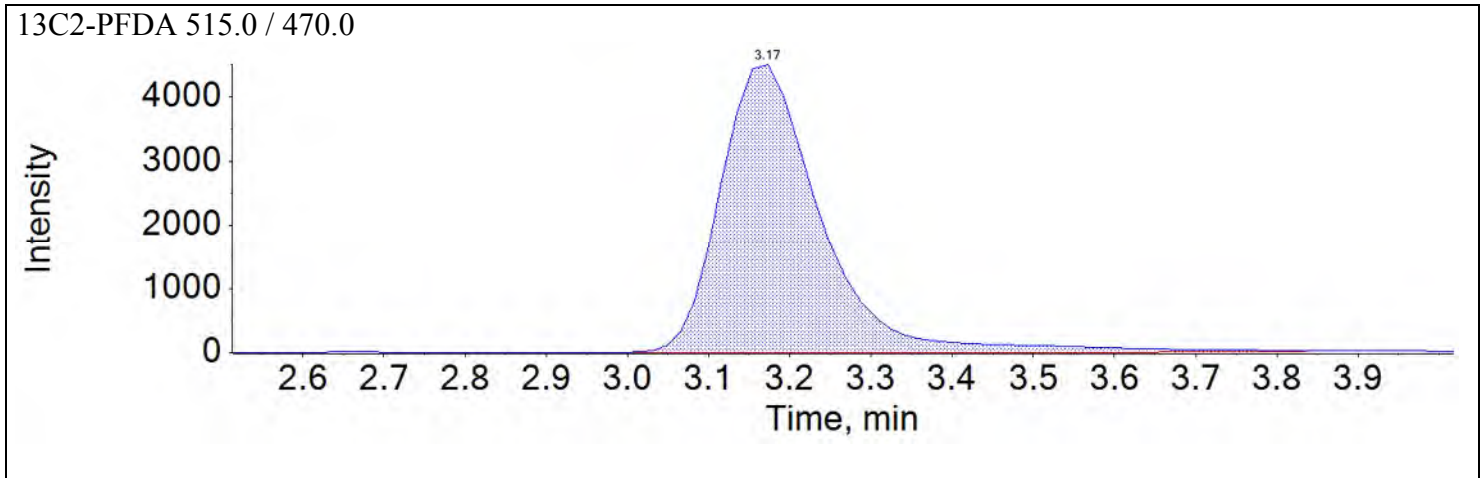
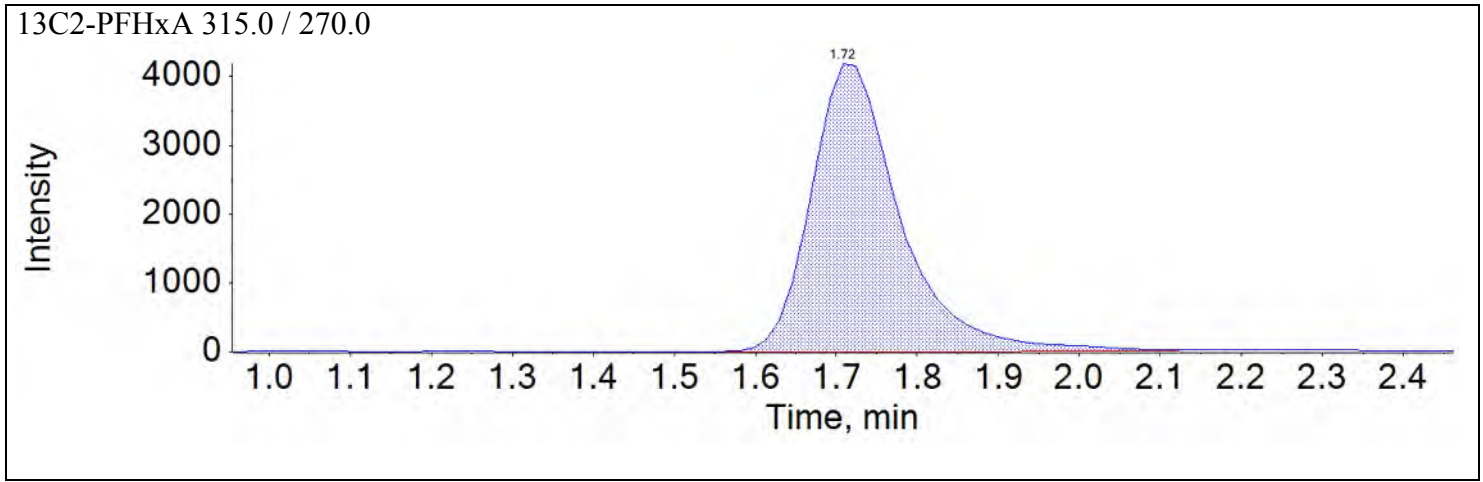


NEtFOSAA_2 584.0 / 483.0

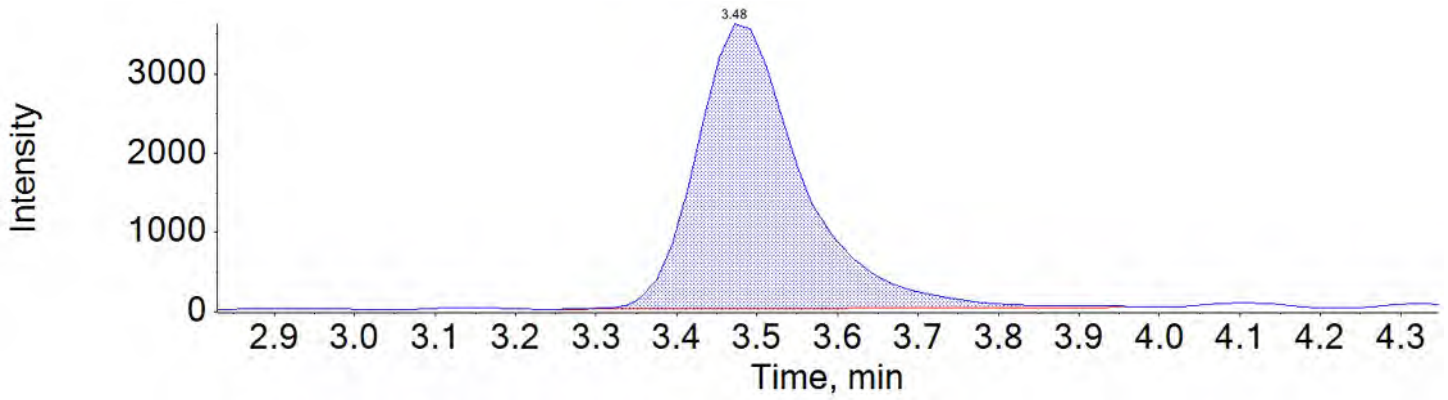


Sample Name	J5977-FS(0)	Injection Vial	20
Sample ID		Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:16:43	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms

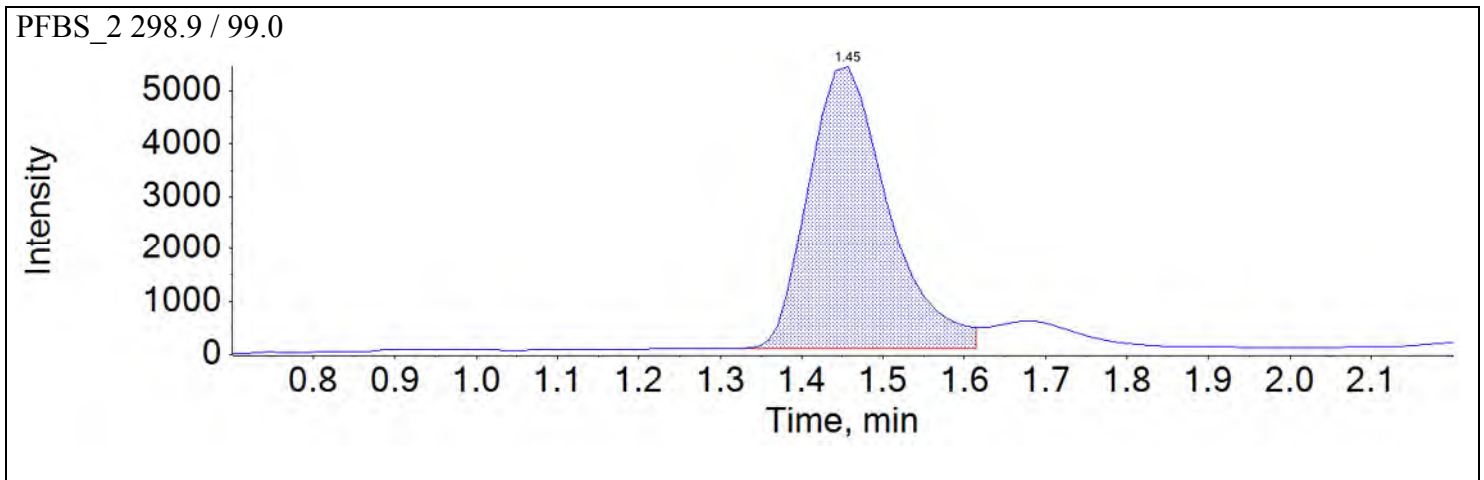
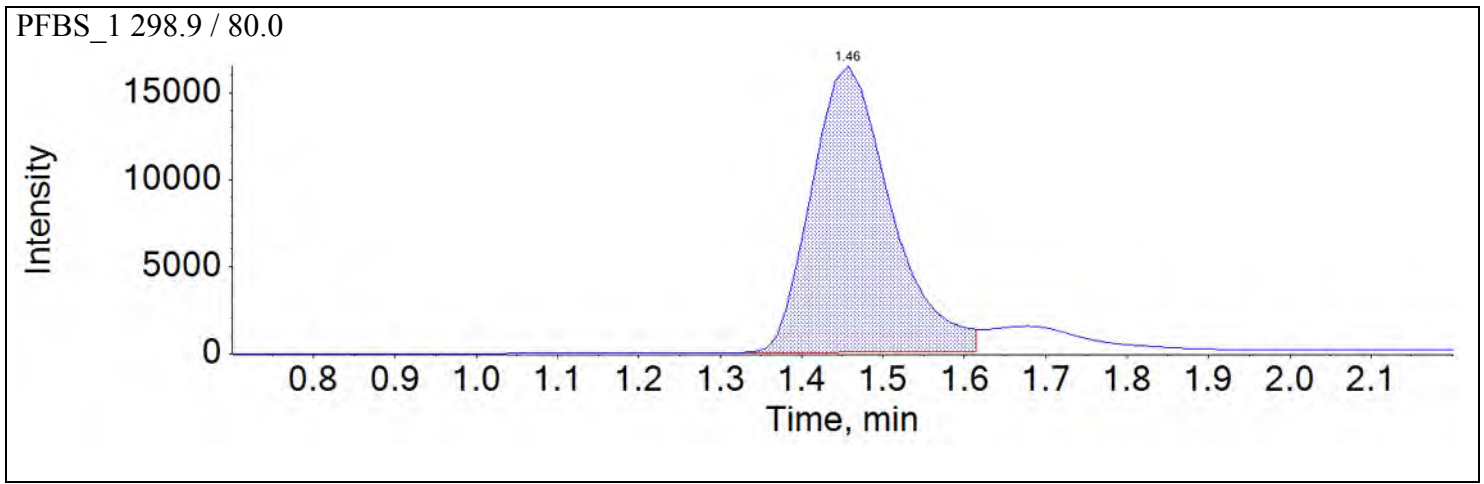


d5-EtFOSAA 589.0 / 419.0

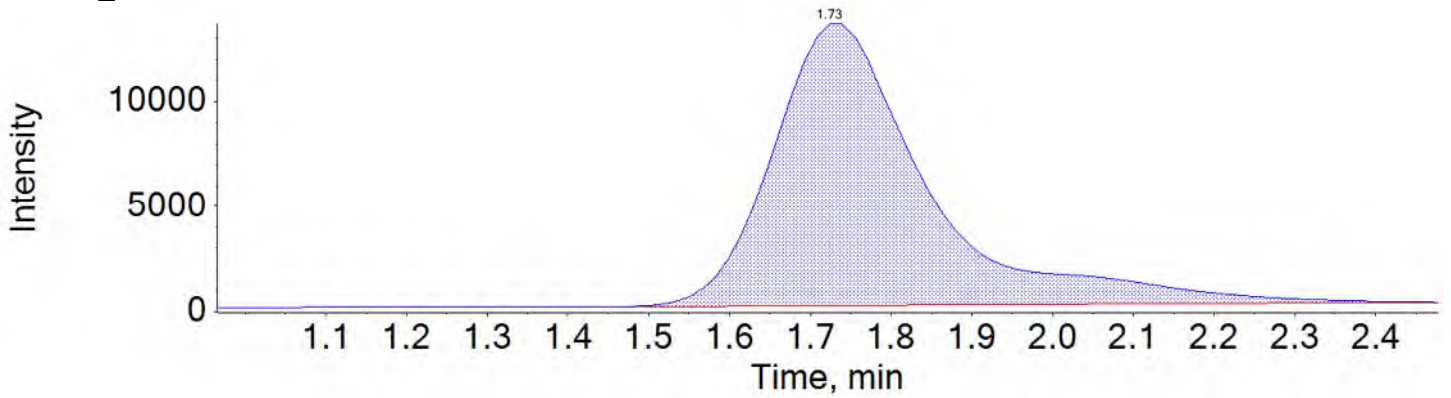


Sample Name	JV68 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:25:38	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

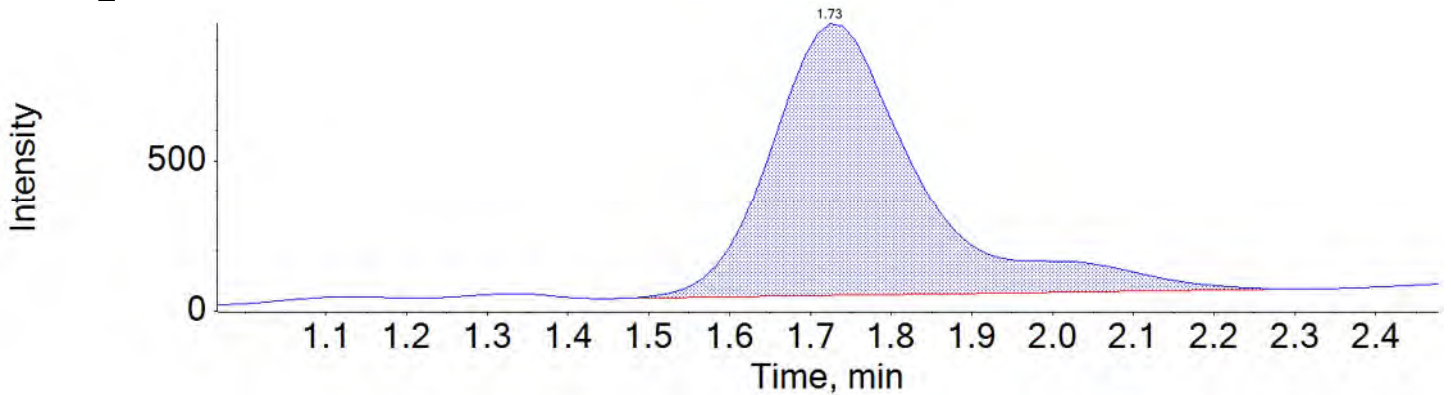
Chromatograms



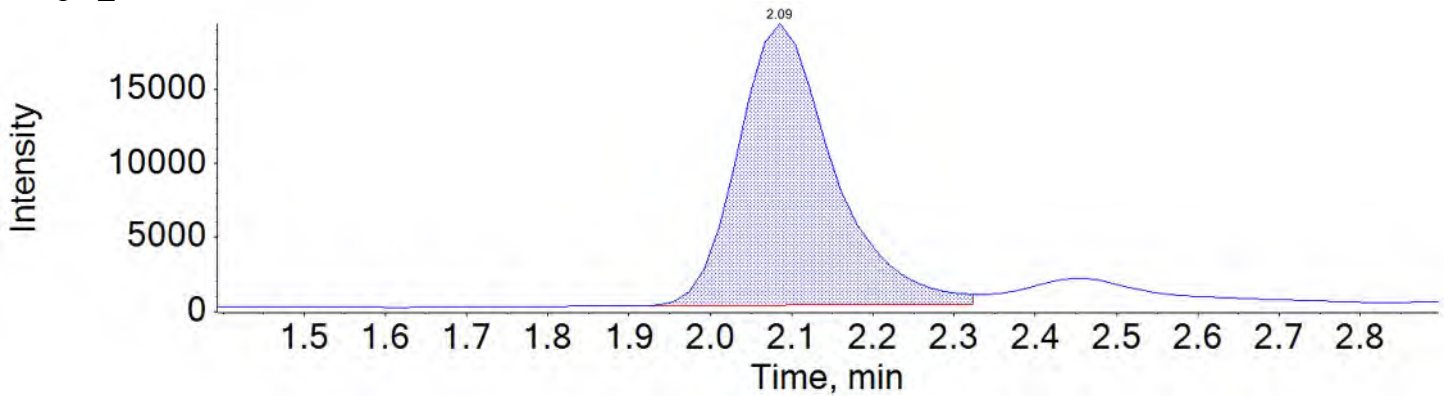
PFHxA_1 313.0 / 269.0



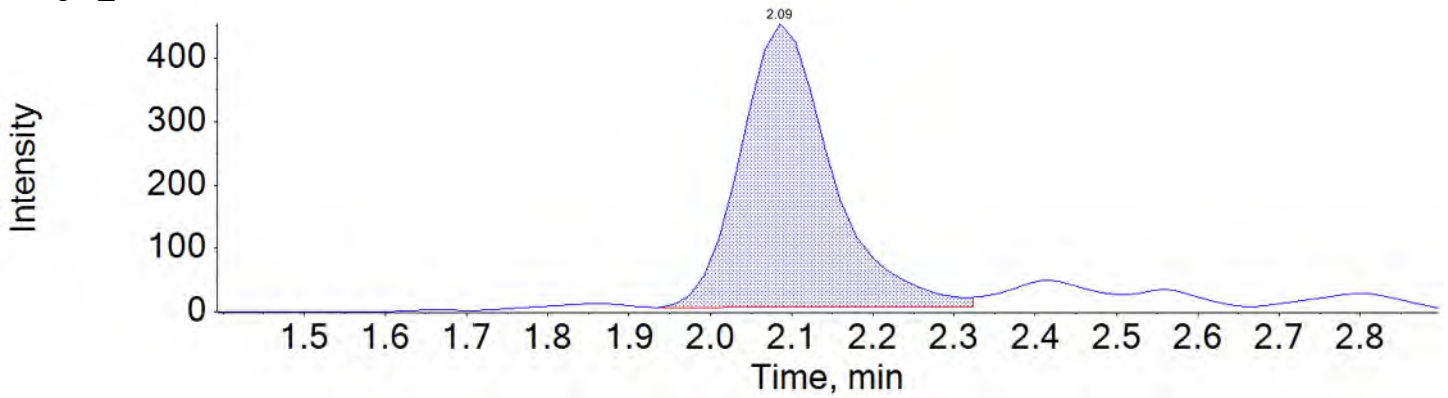
PFHxA_2 313.0 / 119.0



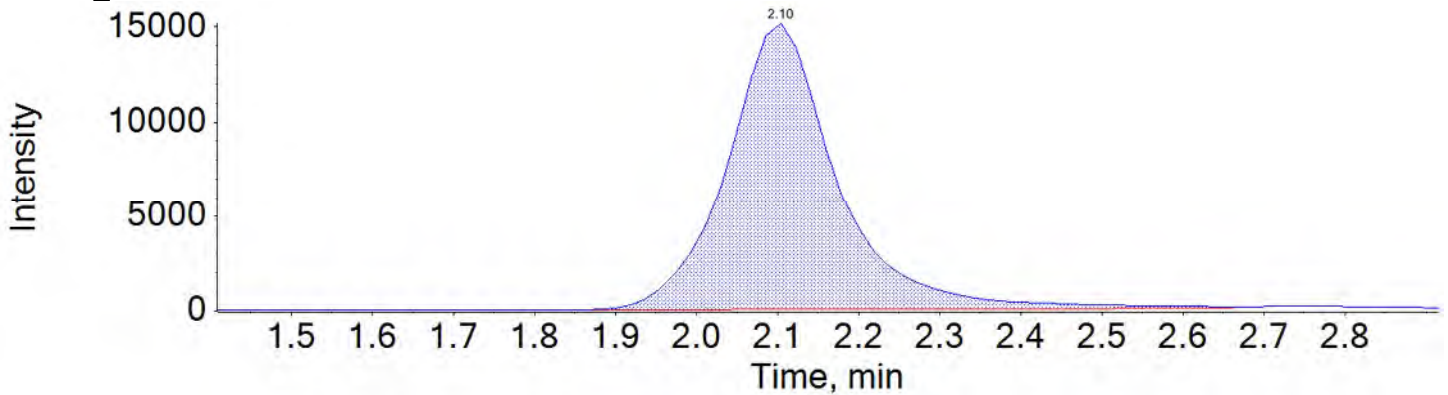
PFHpA_1 363.0 / 319.0



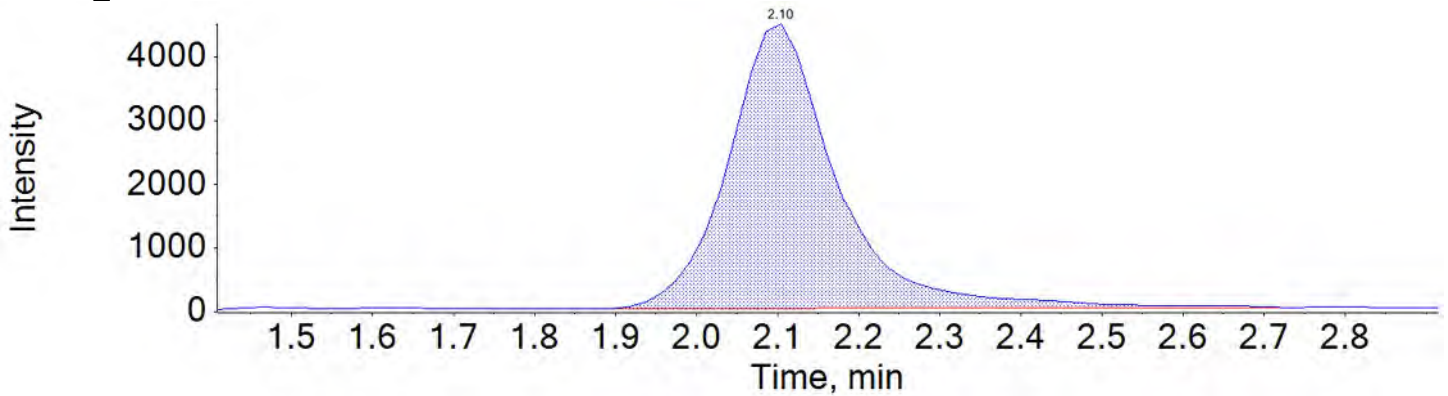
PFHpA_2 363.0 / 169.0



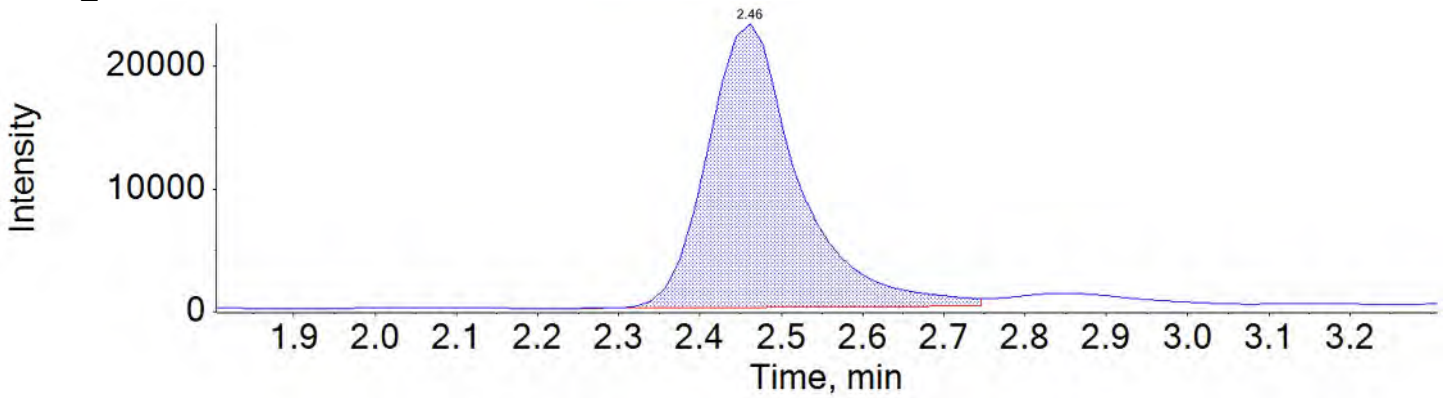
PFHxS_1 399.0 / 80.0



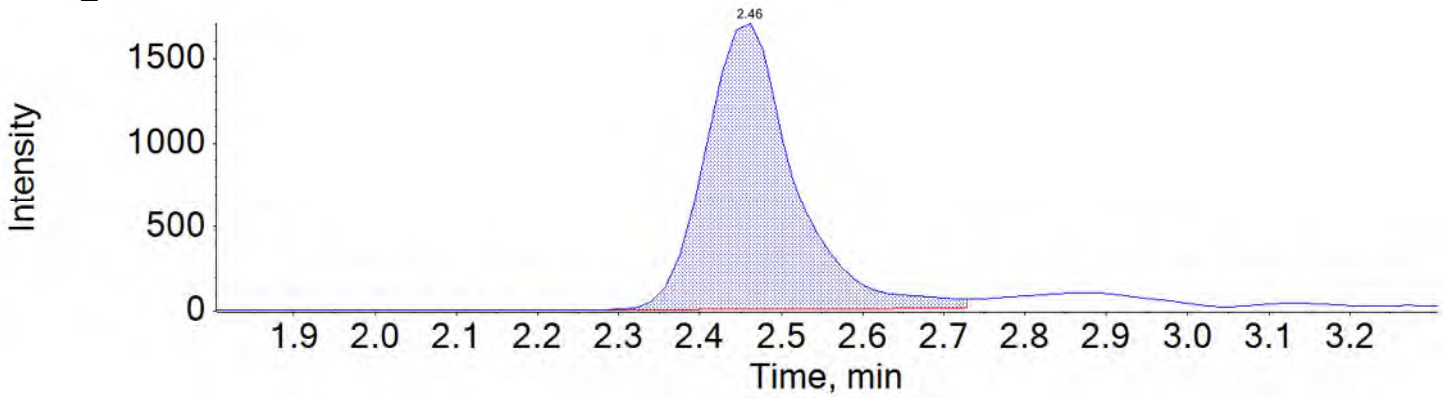
PFHxS_2 399.0 / 99.0



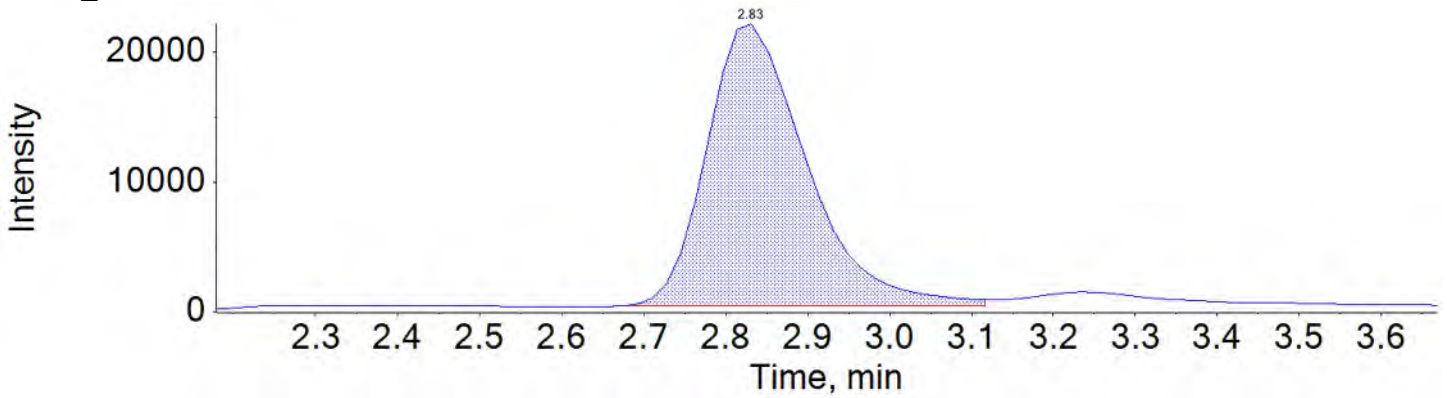
PFOA_1 413.0 / 369.0



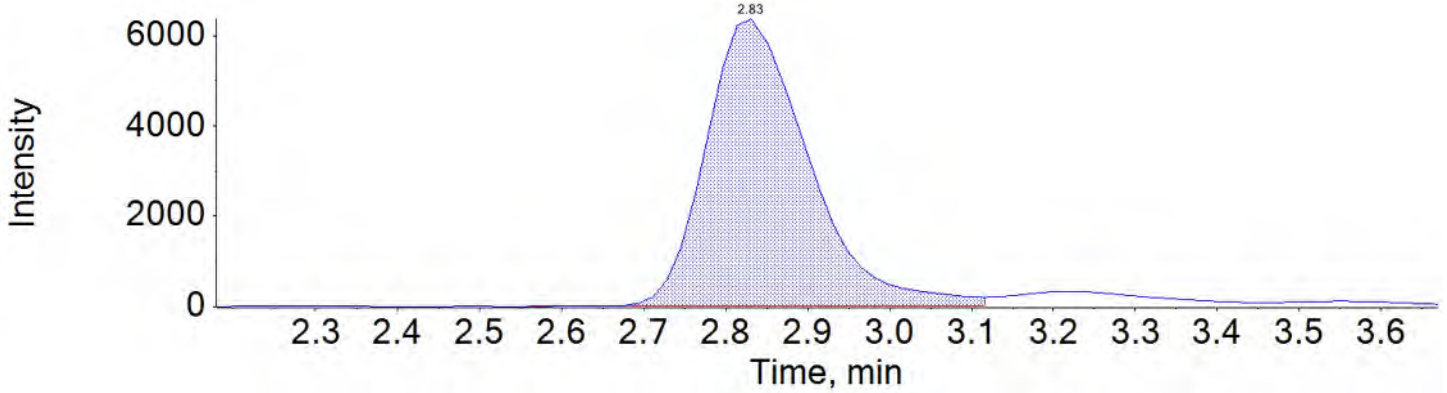
PFOA_2 413.0 / 169.0



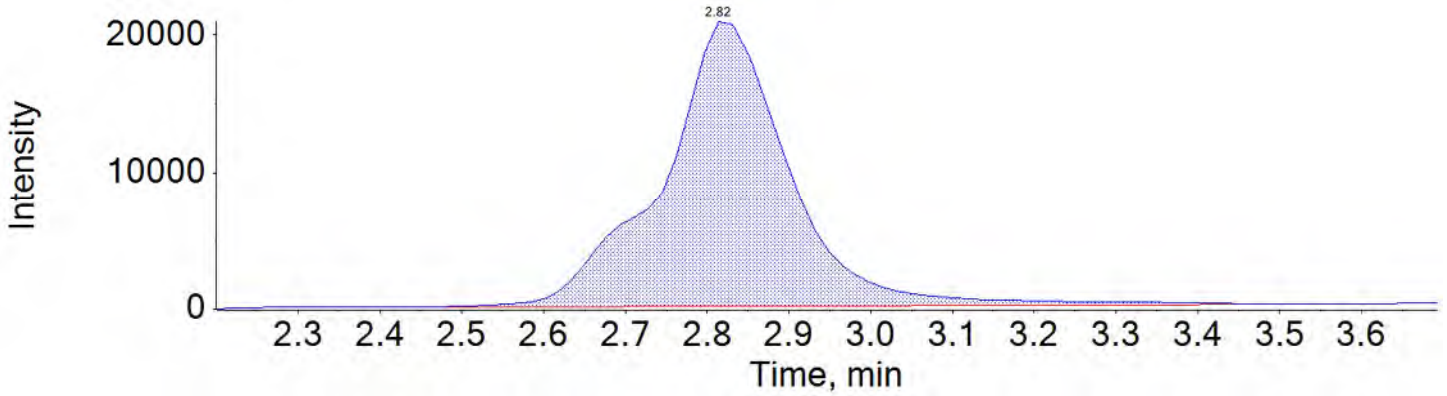
PFNA_1 463.0 / 419.0



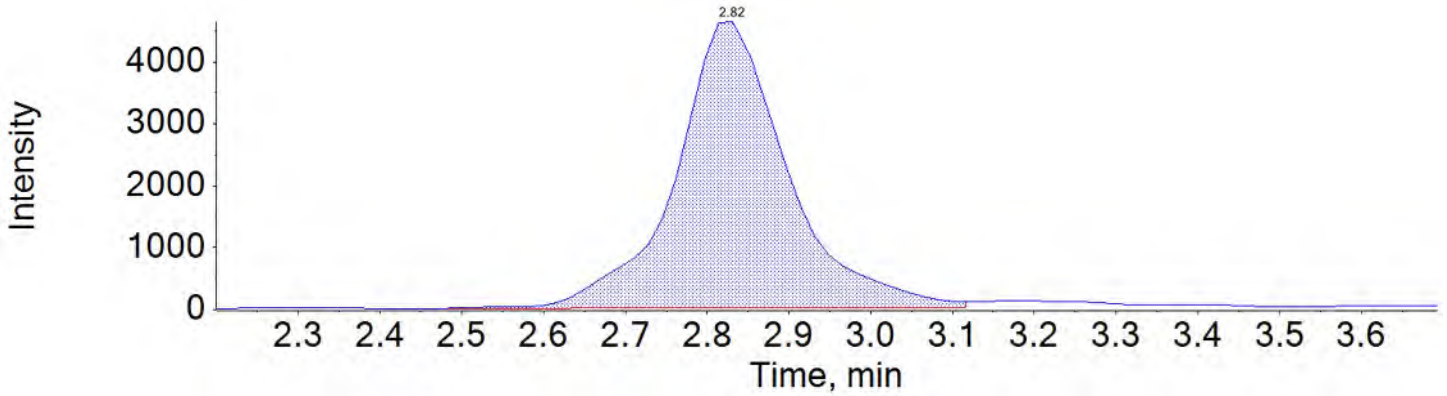
PFNA_2 463.0 / 219.0



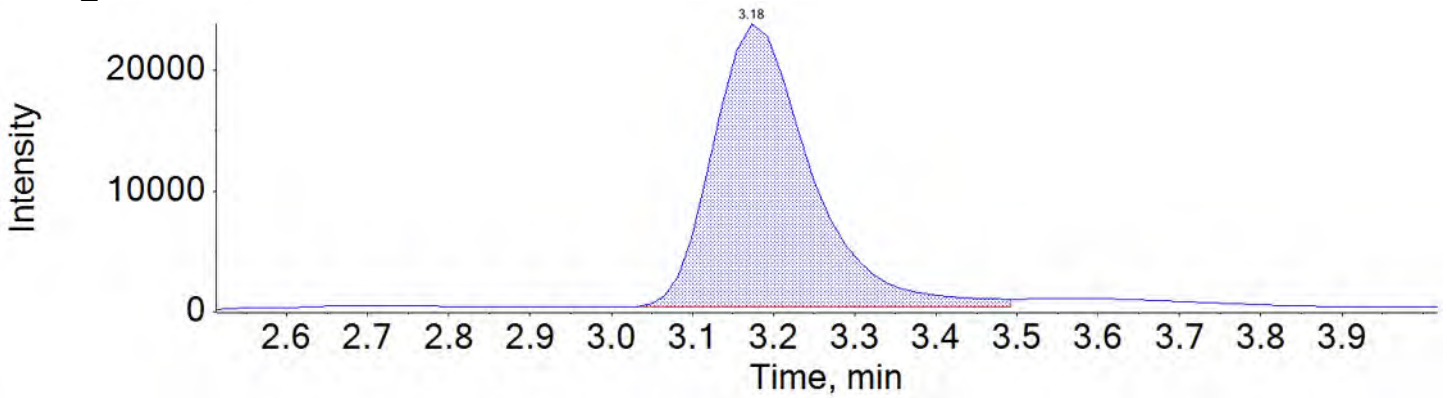
PFOS_1 499.0 / 80.0



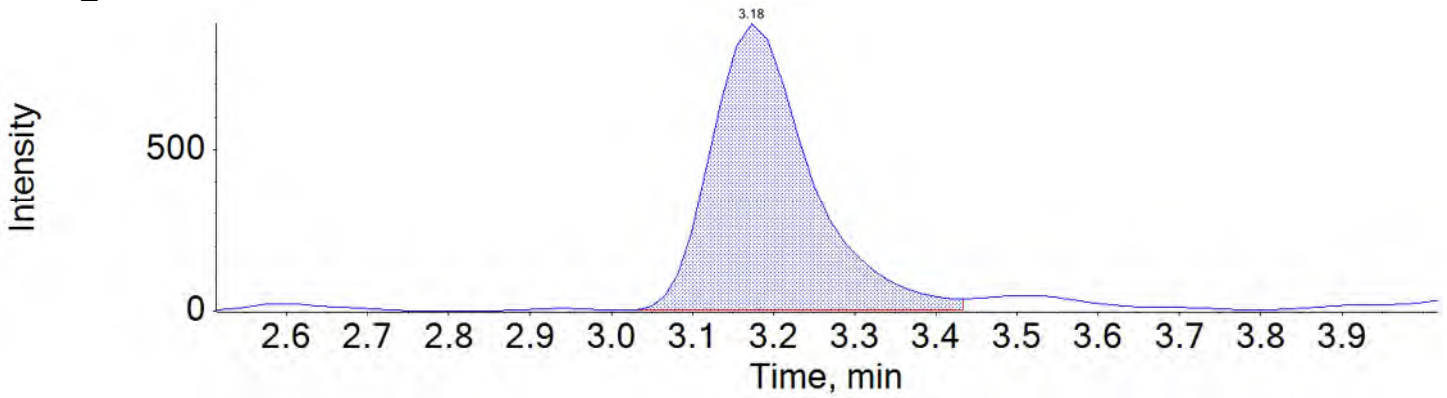
PFOS_2 499.0 / 99.0



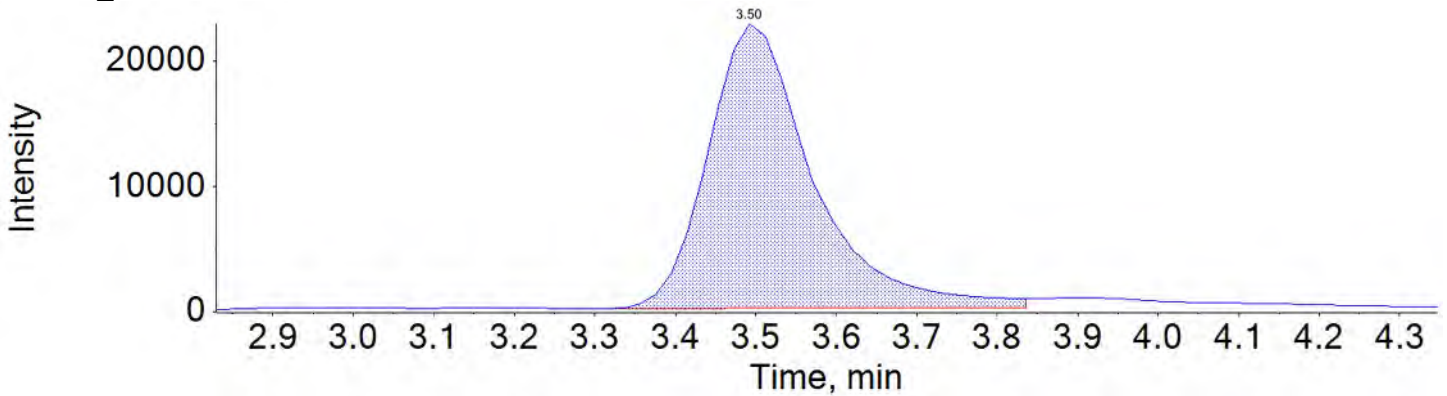
PFDA_1 513.0 / 469.0



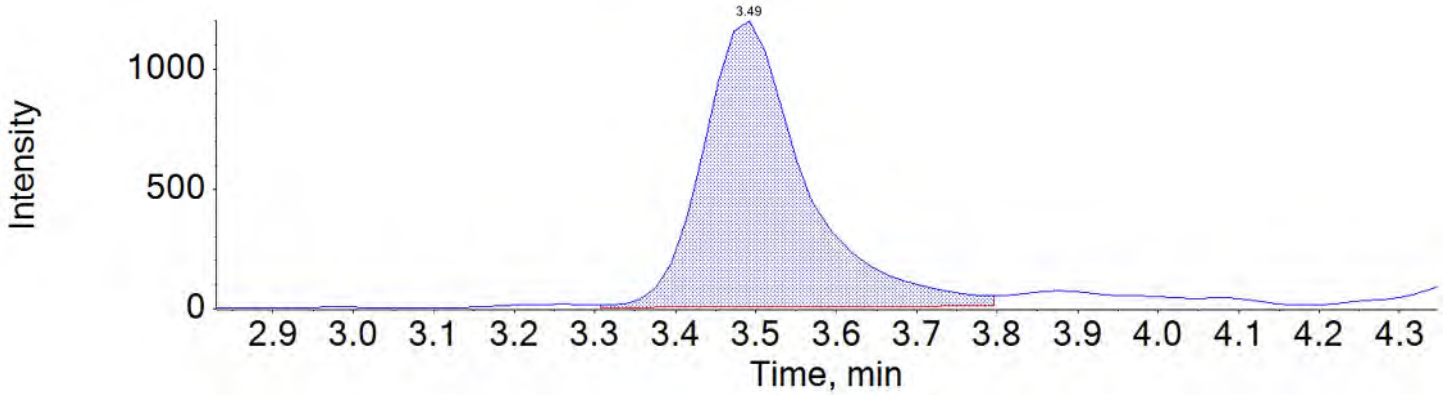
PFDA_2 513.0 / 219.0



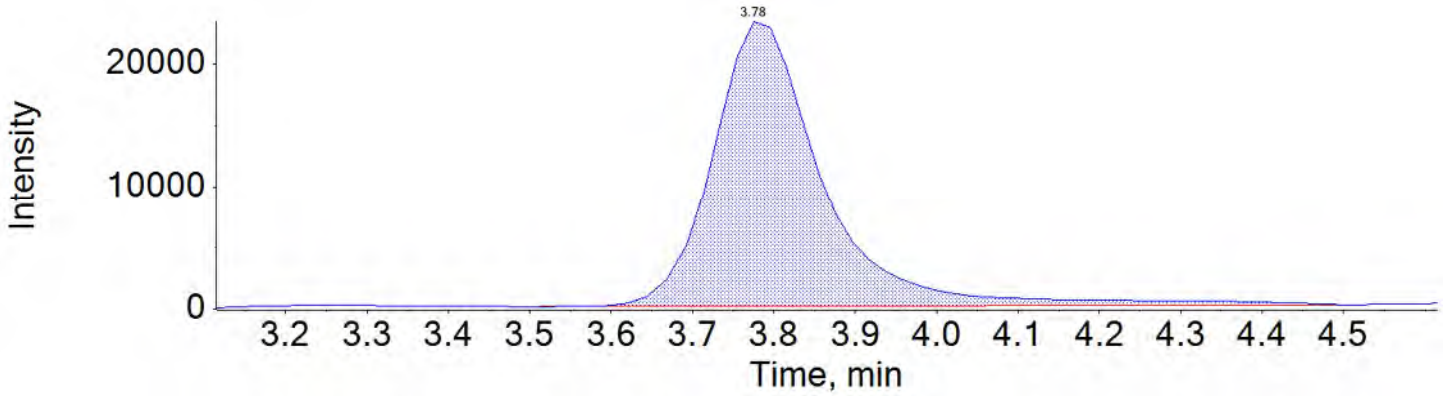
PFAUnA_1 563.0 / 519.0



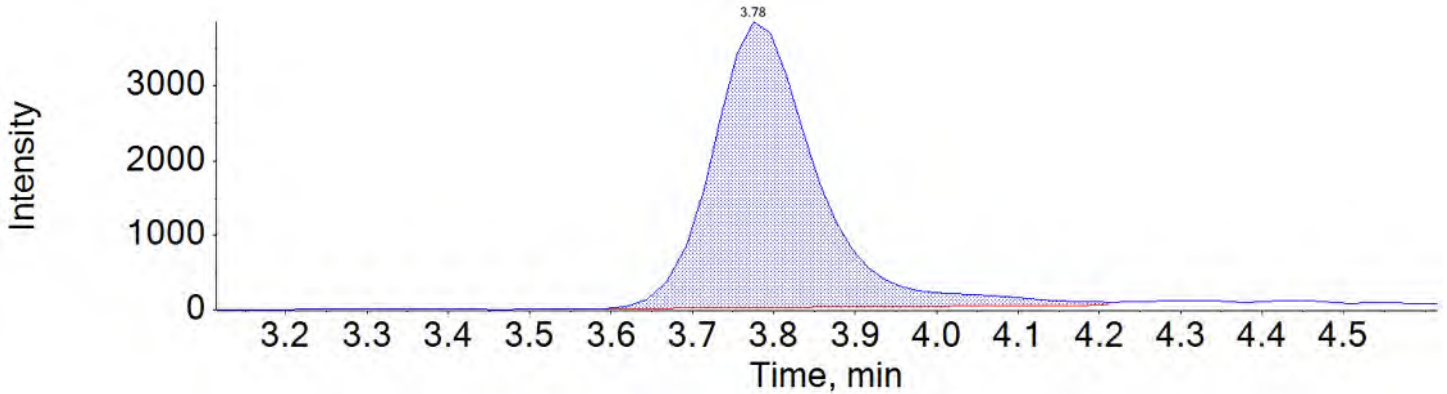
PFU_nA_2 563.0 / 269.0



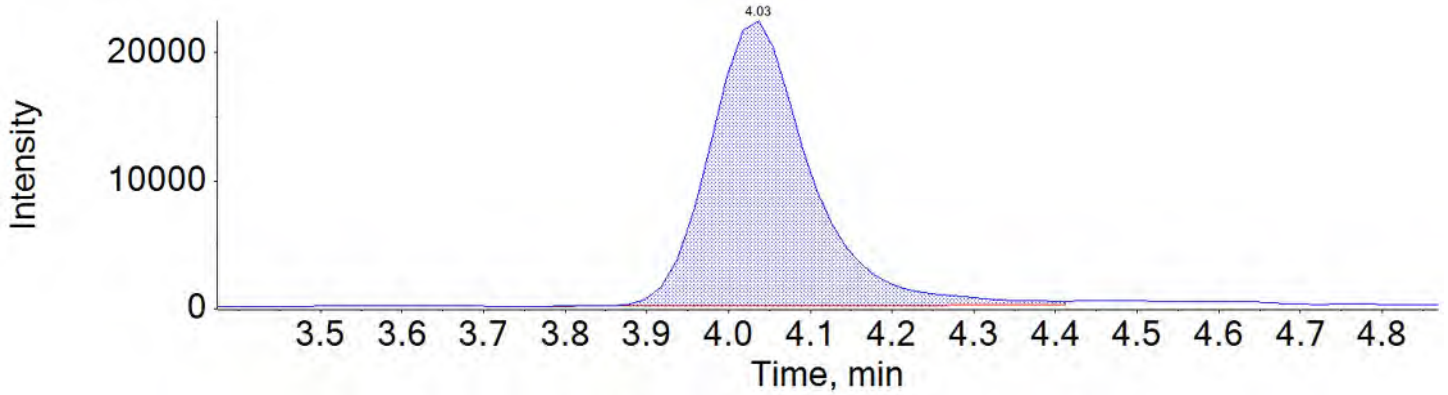
PFD_oA_1 613.0 / 569.0



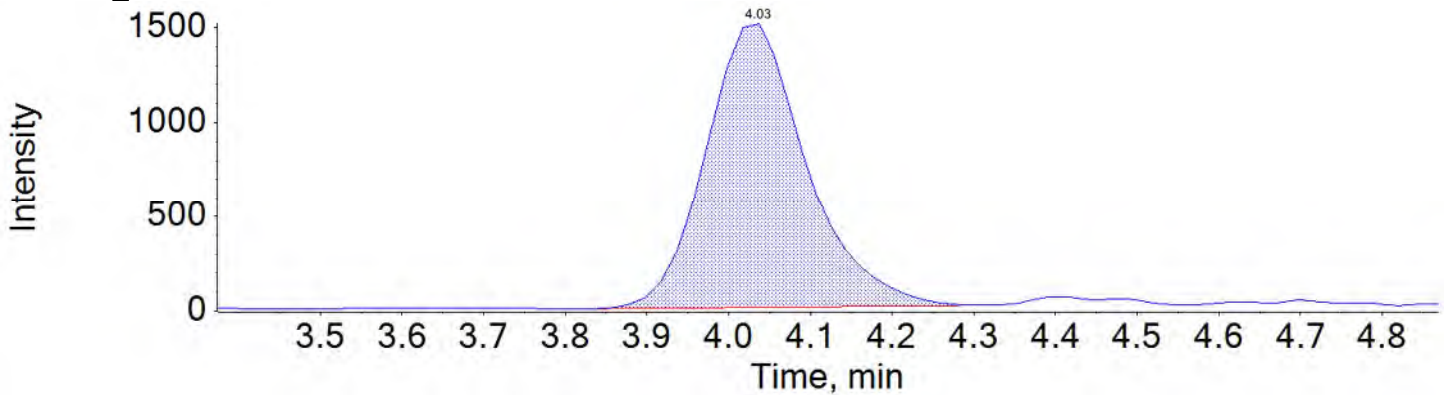
PFD_oA_2 613.0 / 319.0



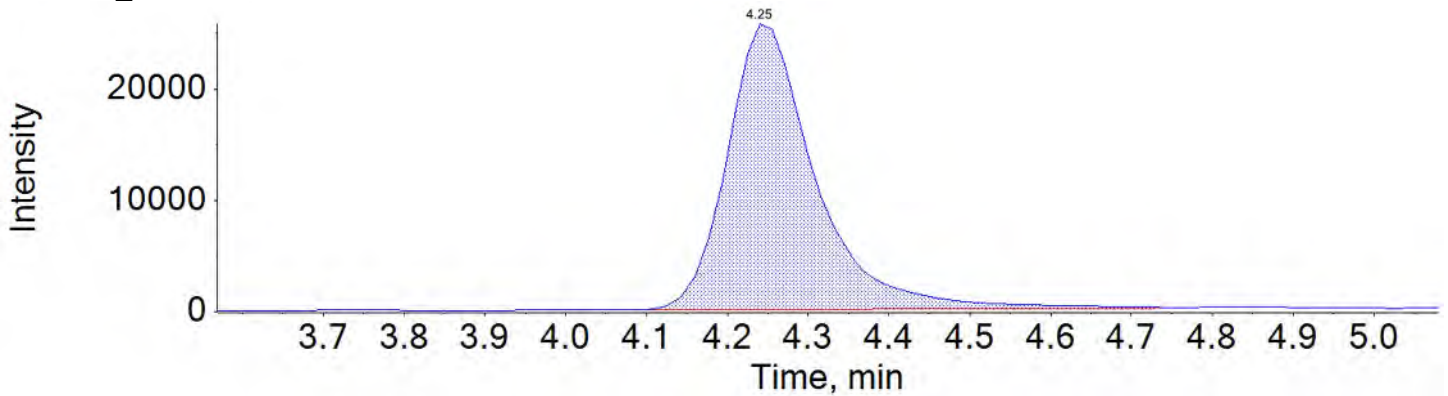
PFTTrDA_1 663.0 / 619.0



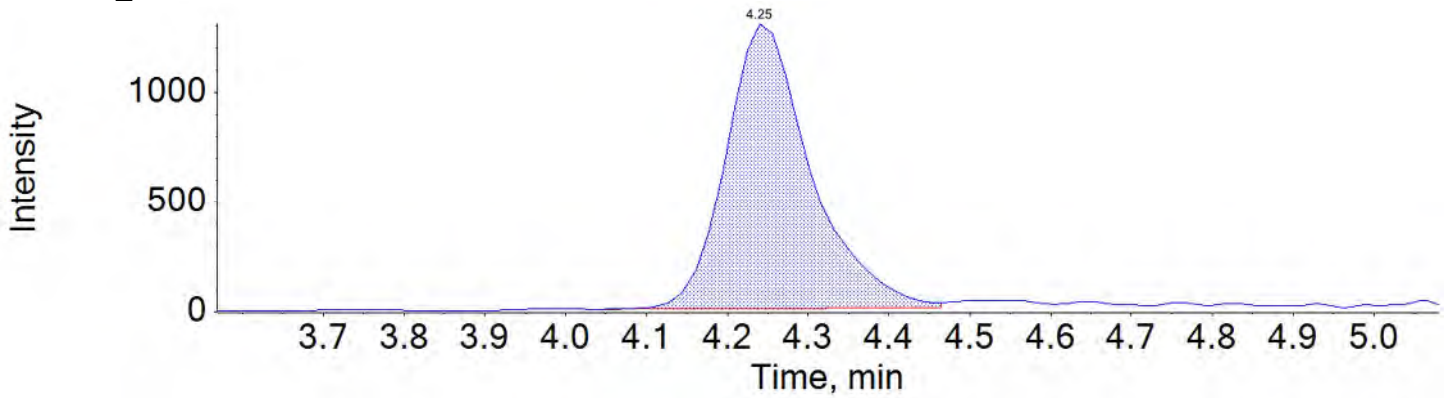
PFTTrDA_2 663.0 / 169.0



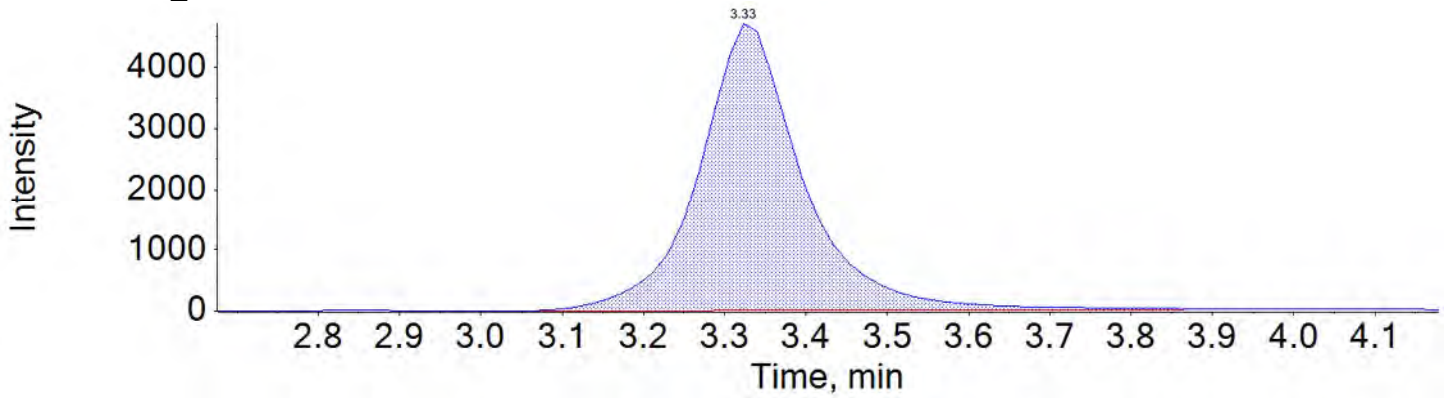
PFTeDA_1 713.0 / 669.0



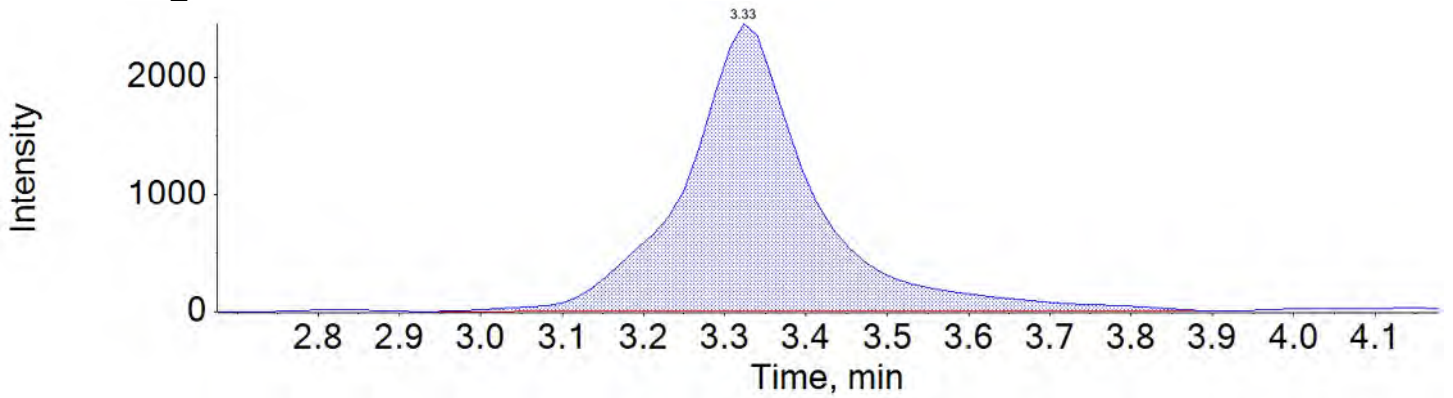
PFTeDA_2 713.0 / 169.0



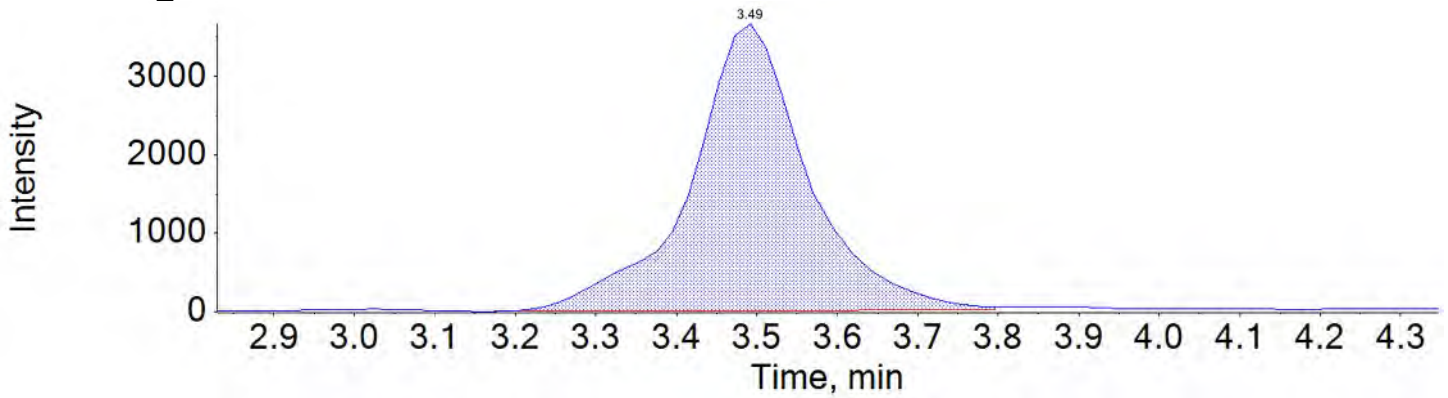
NMeFOSAA_1 570.0 / 419.0



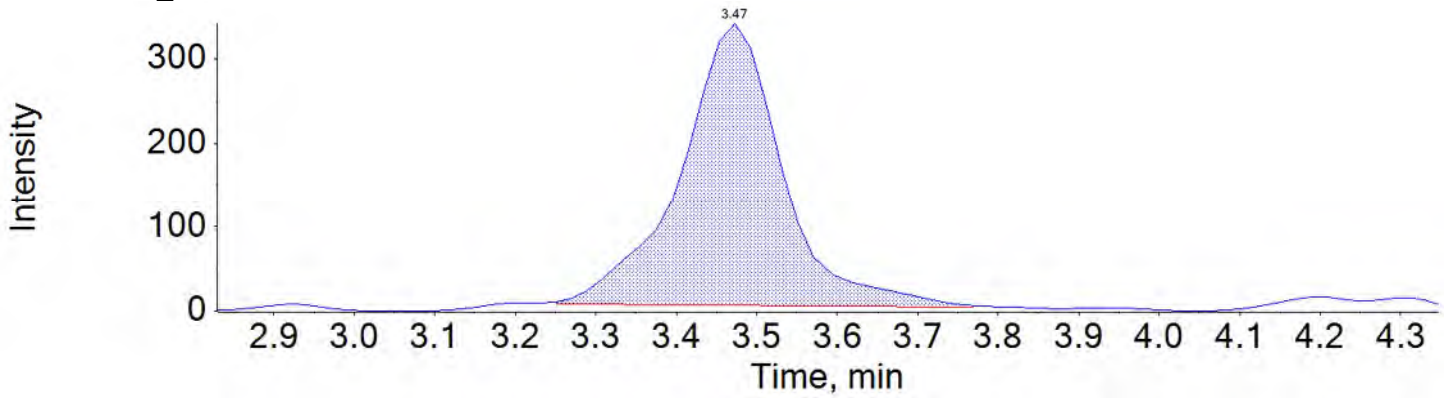
NMeFOSAA_2 570.0 / 512.0



NEtFOSAA_1 584.0 / 419.0

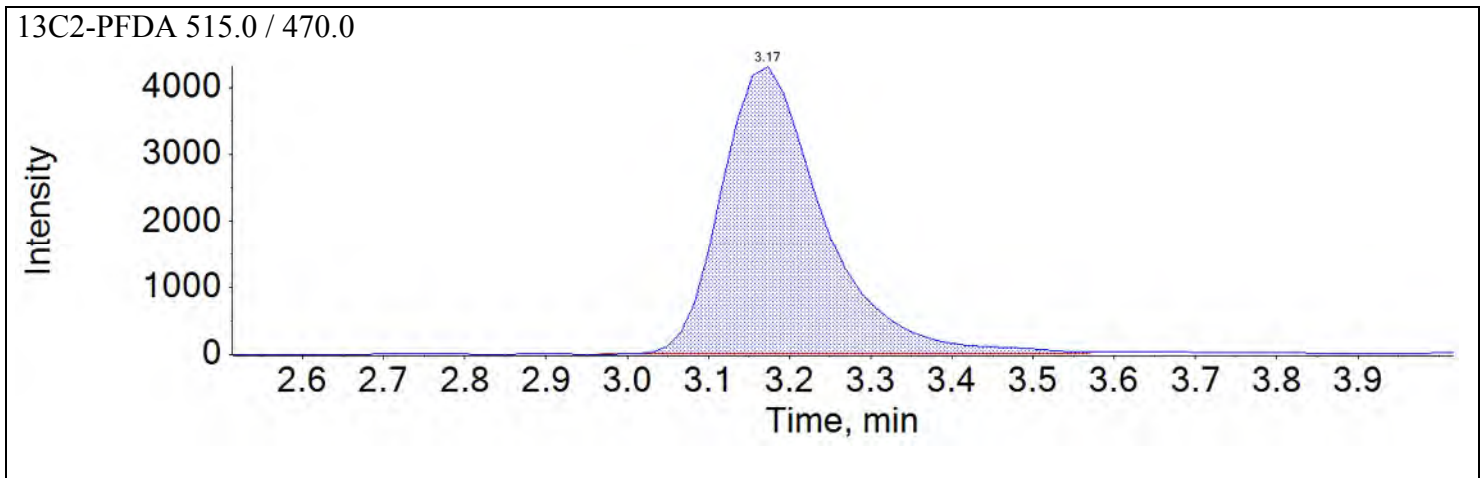
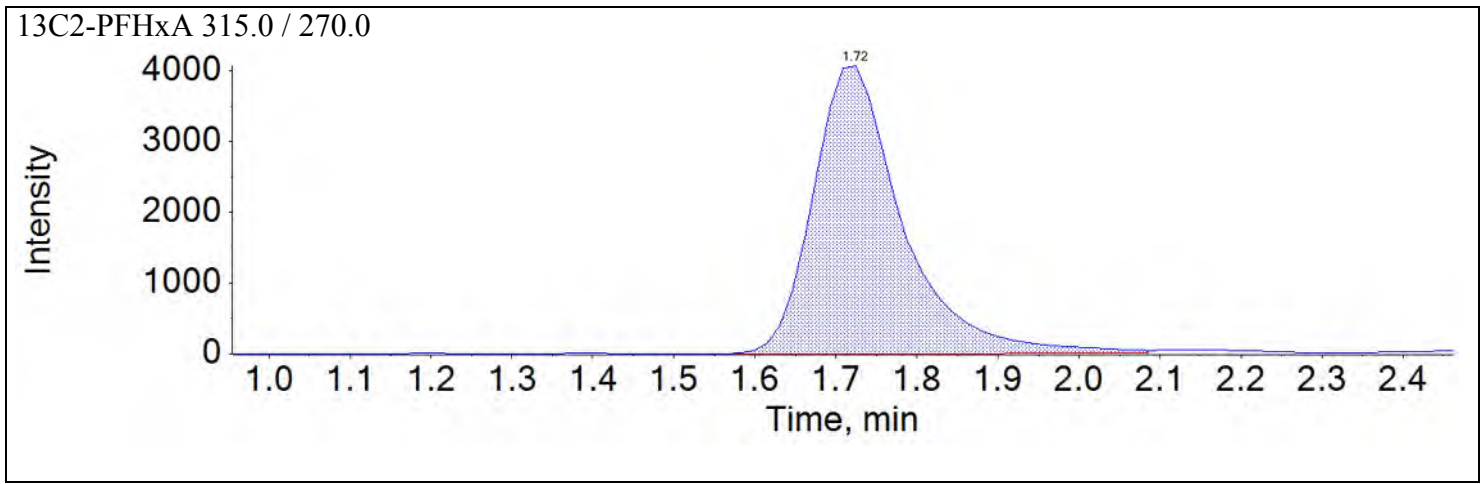


NEtFOSAA_2 584.0 / 483.0

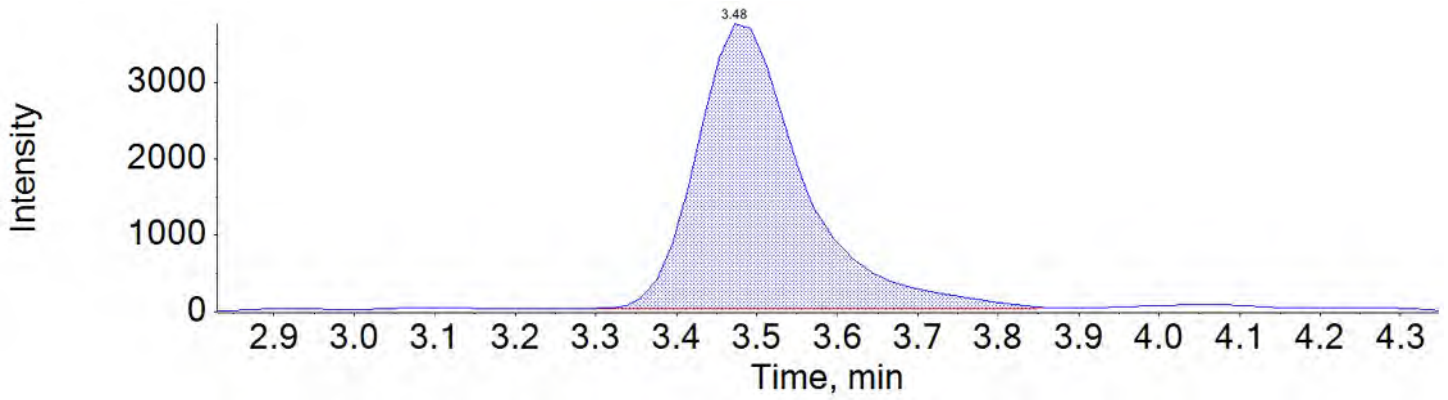


Sample Name	JV68 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:25:38	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Chromatograms



d5-EtFOSAA 589.0 / 419.0



Unused Data



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-043018-FRB-3103				
Battelle ID	J5965-FS				
Sample Type	SA				
Collection Date	04/30/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	105
13C5-PFPeA	109
13C5-PFHxA	111



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-043018-FRB-207				
Battelle ID	J5967-FS				
Sample Type	SA				
Collection Date	04/30/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	104
13C5-PFPeA	101
13C5-PFHxA	90



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-043018-FRB-3409				
Battelle ID	J5969-FS				
Sample Type	SA				
Collection Date	04/30/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	104
13C5-PFPeA	102
13C5-PFHxA	83



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-050118-FRB-3385				
Battelle ID	J5971-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	104
13C5-PFPeA	100
13C5-PFHxA	97



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-050118-FRB-3178				
Battelle ID	J5973-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	120
13C5-PFPeA	106
13C5-PFHxA	90



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-050118-FRB-304				
Battelle ID	J5975-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	
Surrogate Recoveries (%)					
13C4-PFBA		112			
13C5-PFPeA	100	100			
13C5-PFHxA		109			



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-050118-FRB-098				
Battelle ID	J5977-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	
Surrogate Recoveries (%)					
13C4-PFBA		106			
13C5-PFPeA	101	103			
13C5-PFHxA		101			



Project Client: Tetra Tech

Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.: 100117920-WE04

Client ID	Procedural Blank			
Battelle ID	CQ753PB-FS			
Sample Type	PB			
Collection Date	05/09/2018			
Extraction Date	05/09/2018			
Analysis Date	05/14/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	WATER			
Sample Size	0.250			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.22 U	0.22	0.50	2.50
PFHpA	0.34 U	0.34	1.00	2.50
PFOA	0.38 U	0.38	1.00	2.50
PFNA	0.37 U	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDoA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	0.21 U	0.21	0.50	2.50
PFHxS	0.34 U	0.34	1.00	2.50
PFOS	0.30 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	115
13C2-PFDA	117
d5-EtFOSAA	105



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	Laboratory Control Sample					
Battelle ID	CQ754LCS-FS					
Sample Type	LCS					
Collection Date	05/09/2018					
Extraction Date	05/09/2018					
Analysis Date	05/14/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	WATER					
Sample Size	0.250					
Size Unit-Basis	L					
Units	ng/L	Target	Recovery	Qual	Control Limits Lower	Upper
PFHxA	10.43	10.00	104		70	130
PFHpA	9.94	10.00	99		70	130
PFOA	10.21	10.00	102		70	130
PFNA	9.64	10.00	96		70	130
PFDA	9.74	10.00	97		70	130
PFUnA	9.74	10.00	97		70	130
PFDoA	9.50	10.00	95		70	130
PFTTrDA	9.88	10.00	99		70	130
PFTeDA	11.29	10.00	113		70	130
NMeFOSAA	11.25	10.00	113		70	130
NEtFOSAA	11.32	10.00	113		70	130
PFBS	10.15	8.85	115		70	130
PFHxS	9.51	9.45	101		70	130
PFOS	8.34	9.55	87		70	130
Surrogate Recoveries (%)						
13C4-PFBA	109					
13C5-PFPeA	99					
13C5-PFHxA	100					



Glossary of Data Qualifiers

Flag: Application:

B	Analyte found in the sample at a concentration <10x the level found in the procedural blank
D	Dilution Run. Initial run outside the initial calibration range of the instrument
E	Estimate, result is greater than the highest concentration level in the calibration
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the Limit of Quantitation (LOQ)
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets secondary criteria
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not Applicable
T	Holding Time (HT) exceeded
U	Analyte not detected or detected below the Method detection limit (MDL) value, MDL reported

"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"307-24-4"	"PFHxA"	".500000"	
"ng/L"	"U"	".220000"	"MDL"	""	"T"	""	""	"2.500000"
"LOQ"	"YES"	"-99.000000"	""					
".250000"	".000500"	".500000"	""					
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"375-85-9"	"PFHpA"	"1.000000"	
"ng/L"	"U"	".340000"	"MDL"	""	"T"	""	""	"2.500000"
"LOQ"	"YES"	"-99.000000"	""					
".250000"	".000500"	"1.000000"	""					
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"335-67-1"	"PFOA"	"1.000000"	
"ng/L"	"U"	".380000"	"MDL"	""	"T"	""	""	"2.500000"
"LOQ"	"YES"	"-99.000000"	""					
".250000"	".000500"	"1.000000"	""					
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"375-95-1"	"PFNA"	"1.000000"	
"ng/L"	"U"	".370000"	"MDL"	""	"T"	""	""	"2.500000"
"LOQ"	"YES"	"-99.000000"	""					
".250000"	".000500"	"1.000000"	""					
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"335-76-2"	"PFDA"	"1.000000"	
"ng/L"	"U"	".390000"	"MDL"	""	"T"	""	""	"2.500000"
"LOQ"	"YES"	"-99.000000"	""					
".250000"	".000500"	"1.000000"	""					
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"2058-94-8"	"PFUnA"	"1.000000"	
"ng/L"	"U"	".380000"	"MDL"	""	"T"	""	""	"2.500000"
"LOQ"	"YES"	"-99.000000"	""					
".250000"	".000500"	"1.000000"	""					
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"307-55-1"	"PFDoA"	"1.000000"	
"ng/L"	"U"	".420000"	"MDL"	""	"T"	""	""	"2.500000"
"LOQ"	"YES"	"-99.000000"	""					
".250000"	".000500"	"1.000000"	""					
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"72629-94-8"	"PFTTrDA"	"1.000000"	
"ng/L"	"U"	".420000"	"MDL"	""	"T"	""	""	"2.500000"
"LOQ"	"YES"	"-99.000000"	""					
".250000"	".000500"	"1.000000"	""					
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"376-06-7"	"PFTeDA"	"1.500000"	
"ng/L"	"U"	".730000"	"MDL"	""	"T"	""	""	"2.500000"
"LOQ"	"YES"	"-99.000000"	""					
".250000"	".000500"	"1.500000"	""					
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"2355-31-9"	"NMeFOSAA"		
"1.000000"	"ng/L"	"U"	".420000"	"MDL"	""	"T"	""	""
"-99.000000"	""	".250000"	".000500"	"1.000000"	""	""	""	"2.500000"
"LOQ"	"YES"							
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"2991-50-6"	"NEtFOSAA"	"1.000000"	
"ng/L"	"U"	".440000"	"MDL"	""	"T"	""	""	"2.500000"
"LOQ"	"YES"	"-99.000000"	""					
".250000"	".000500"	"1.000000"	""					
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"375-73-5"	"PFBS"	".500000"	"ng/L"
"U"	".210000"	"MDL"	""	"T"	""	""	""	""
"-99.000000"	""	".250000"	".000500"	"1.000000"	""	""	""	"2.500000"
"LOQ"	"YES"	"-99.000000"	""					
".000500"	".500000"	""	""					
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"1763-23-1"	"PFOS"	"1.000000"	
"ng/L"	"U"	".300000"	"MDL"	""	"T"	""	""	"2.500000"
"LOQ"	"YES"	"-99.000000"	""					
".250000"	".000500"	"1.000000"	""					
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"355-46-4"	"PFHxS"	"1.000000"	
"ng/L"	"U"	".340000"	"MDL"	""	"T"	""	""	"2.500000"
"LOQ"	"YES"	"-99.000000"	""					
".250000"	".000500"	"1.000000"	""					
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"BDO-2106"	"13C2-PFHxA"	".460000"	
"ng/L"	""	"-99.000000"	"NA"	""	"SIS"	"115.00"	""	"-99.000000"
"-99.000000"	""	"NA"	""	"SIS"	"115.00"	""	"-99.000000"	"NA"
".250000"	".000500"	".500000"	""					"YES"
"LOQ"	"YES"	".400000"	""					
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"BDO-2110"	"13C2-PFDA"	".470000"	
"ng/L"	""	"-99.000000"	"NA"	""	"SIS"	"117.00"	""	"-99.000000"
"-99.000000"	""	"NA"	""	"SIS"	"117.00"	""	"-99.000000"	"NA"
".250000"	".000500"	".500000"	""					"YES"
"LOQ"	"YES"	".400000"	""					
"CQ753PB-FS"	"SOP 5-369"	"Initial"	"CQ753PB-FS"	"BNO"	"BDO-1839"	"d5-EtFOSAA"		
"1.670000"	"ng/L"	""	"-99.000000"	"NA"	""	"SIS"	"105.00"	""
"-99.000000"	""	"NA"	""	"SIS"	"105.00"	""	"-99.000000"	"NA"
".250000"	".000500"	".500000"	""					"YES"
"LOQ"	"YES"	".400000"	""					
"CQ754LCS-FS"	"SOP 5-369"	"Initial"	"CQ754LCS-FS"	"BNO"	"307-24-4"	"PFHxA"	"10.430000"	
"ng/L"	""	".220000"	"MDL"	""	"T"	"104.00"	""	"2.500000"
"LOQ"	"YES"	"10.000000"	""					

".250000"	".000500"	"1.000000"	""						
"NAWC-043018-FRB-207"	"SOP 5-369"	"Initial"	"J5967-FS"	"BNO"	"375-95-1"	"PFNA"	"1.000000"		
"ng/L"	"U"	".370000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"
"-99.000000"	""	".250000"	".000500"	"1.000000"	""				
"NAWC-043018-FRB-207"	"SOP 5-369"	"Initial"	"J5967-FS"	"BNO"	"335-76-2"	"PFDA"	"1.000000"		
"ng/L"	"U"	".390000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"
"-99.000000"	""	".250000"	".000500"	"1.000000"	""				
"NAWC-043018-FRB-207"	"SOP 5-369"	"Initial"	"J5967-FS"	"BNO"	"2058-94-8"	"PFUnA"	"1.000000"		
"ng/L"	"U"	".380000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"
"-99.000000"	""	".250000"	".000500"	"1.000000"	""				
"NAWC-043018-FRB-207"	"SOP 5-369"	"Initial"	"J5967-FS"	"BNO"	"307-55-1"	"PFD _o A"	"1.000000"		
"ng/L"	"U"	".420000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"
"-99.000000"	""	".250000"	".000500"	"1.000000"	""				
"NAWC-043018-FRB-207"	"SOP 5-369"	"Initial"	"J5967-FS"	"BNO"	"72629-94-8"	"PFT _r DA"			
"1.000000"	"ng/L"	"U"	".420000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"
"-99.000000"	""	".250000"	".000500"	"1.000000"	""				
"NAWC-043018-FRB-207"	"SOP 5-369"	"Initial"	"J5967-FS"	"BNO"	"376-06-7"	"PFT _e DA"			
"1.500000"	"ng/L"	"U"	".730000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"
"-99.000000"	""	".250000"	".000500"	"1.500000"	""				
"NAWC-043018-FRB-207"	"SOP 5-369"	"Initial"	"J5967-FS"	"BNO"	"2355-31-9"	"NMeFOSAA"			
"1.000000"	"ng/L"	"U"	".420000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"
"-99.000000"	""	".250000"	".000500"	"1.000000"	""				
"NAWC-043018-FRB-207"	"SOP 5-369"	"Initial"	"J5967-FS"	"BNO"	"2991-50-6"	"NEtFOSAA"			
"1.000000"	"ng/L"	"U"	".440000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"
"-99.000000"	""	".250000"	".000500"	"1.000000"	""				
"NAWC-043018-FRB-207"	"SOP 5-369"	"Initial"	"J5967-FS"	"BNO"	"375-73-5"	"PFBS"	".500000"		
"ng/L"	"U"	".210000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"
"-99.000000"	""	".250000"	".000500"	".500000"	""				
"NAWC-043018-FRB-207"	"SOP 5-369"	"Initial"	"J5967-FS"	"BNO"	"1763-23-1"	"PFOS"	"1.000000"		
"ng/L"	"U"	".300000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"
"-99.000000"	""	".250000"	".000500"	"1.000000"	""				
"NAWC-043018-FRB-207"	"SOP 5-369"	"Initial"	"J5967-FS"	"BNO"	"355-46-4"	"PFH _x S"	"1.000000"		
"ng/L"	"U"	".340000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"
"-99.000000"	""	".250000"	".000500"	"1.000000"	""				
"NAWC-043018-FRB-207"	"SOP 5-369"	"Initial"	"J5967-FS"	"BNO"	"BDO-2106"	"13C2-PFH _x A"			
".420000"	"ng/L"	""	"-99.000000"	"NA"	""	"SIS"	"104.00"	""	"-99.000000"
"NA"	"YES"								
".400000"	""	".250000"	".000500"	".500000"	""				
"NAWC-043018-FRB-207"	"SOP 5-369"	"Initial"	"J5967-FS"	"BNO"	"BDO-2110"	"13C2-PFDA"			
".410000"	"ng/L"	""	"-99.000000"	"NA"	""	"SIS"	"101.00"	""	"-99.000000"
"NA"	"YES"								
".400000"	""	".250000"	".000500"	".500000"	""				
"NAWC-043018-FRB-207"	"SOP 5-369"	"Initial"	"J5967-FS"	"BNO"	"BDO-1839"	"d5-EtFOSAA"			
"1.440000"	"ng/L"	""	"-99.000000"	"NA"	""	"SIS"	"90.00"	""	"-99.000000"
"NA"	"YES"								
"1.600000"	""	".250000"	".000500"	".500000"	""				
"WGNA-043018-FRB-3409"	"SOP 5-369"	"Initial"	"J5969-FS"	"BNO"	"307-24-4"	"PFH _x A"	".500000"		
"ng/L"	"U"	".220000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"
"-99.000000"	""	".250000"	".000500"	".500000"	""				
"WGNA-043018-FRB-3409"	"SOP 5-369"	"Initial"	"J5969-FS"	"BNO"	"375-85-9"	"PFH _p A"	"1.000000"		
"ng/L"	"U"	".340000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"
"-99.000000"	""	".250000"	".000500"	"1.000000"	""				
"WGNA-043018-FRB-3409"	"SOP 5-369"	"Initial"	"J5969-FS"	"BNO"	"335-67-1"	"PFOA"	"1.000000"		
"ng/L"	"U"	".380000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"
"-99.000000"	""	".250000"	".000500"	"1.000000"	""				
"WGNA-043018-FRB-3409"	"SOP 5-369"	"Initial"	"J5969-FS"	"BNO"	"375-95-1"	"PFNA"	"1.000000"		
"ng/L"	"U"	".370000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"
"-99.000000"	""	".250000"	".000500"	"1.000000"	""				

".250000" ".000500" "1.000000" ""
"WGNA-043018-FRB-3409" "SOP 5-369" "Initial" "J5969-FS" "BNO" "335-76-2" "PFDA" "1.000000"
"ng/L" "U" ".390000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" "1.000000" ""
"WGNA-043018-FRB-3409" "SOP 5-369" "Initial" "J5969-FS" "BNO" "2058-94-8" "PFUnA"
"1.000000" "ng/L" "U" ".380000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES"
"-99.000000" "" ".250000" ".000500" "1.000000" ""
"WGNA-043018-FRB-3409" "SOP 5-369" "Initial" "J5969-FS" "BNO" "307-55-1" "PFDoA" "1.000000"
"ng/L" "U" ".420000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" "1.000000" ""
"WGNA-043018-FRB-3409" "SOP 5-369" "Initial" "J5969-FS" "BNO" "72629-94-8" "PFTTrDA"
"1.000000" "ng/L" "U" ".420000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES"
"-99.000000" "" ".250000" ".000500" "1.000000" ""
"WGNA-043018-FRB-3409" "SOP 5-369" "Initial" "J5969-FS" "BNO" "376-06-7" "PFTeDA"
"1.500000" "ng/L" "U" ".730000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES"
"-99.000000" "" ".250000" ".000500" "1.500000" ""
"WGNA-043018-FRB-3409" "SOP 5-369" "Initial" "J5969-FS" "BNO" "2355-31-9" "NMeFOSAA"
"1.000000" "ng/L" "U" ".420000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES"
"-99.000000" "" ".250000" ".000500" "1.000000" ""
"WGNA-043018-FRB-3409" "SOP 5-369" "Initial" "J5969-FS" "BNO" "2991-50-6" "NEtFOSAA"
"1.000000" "ng/L" "U" ".440000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES"
"-99.000000" "" ".250000" ".000500" "1.000000" ""
"WGNA-043018-FRB-3409" "SOP 5-369" "Initial" "J5969-FS" "BNO" "375-73-5" "PFBS" ".500000"
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".250000" ".000500" ".500000" ""
"WGNA-043018-FRB-3409" "SOP 5-369" "Initial" "J5969-FS" "BNO" "1763-23-1" "PFOS" "1.000000"
"ng/L" "U" ".300000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" "1.000000" ""
"WGNA-043018-FRB-3409" "SOP 5-369" "Initial" "J5969-FS" "BNO" "355-46-4" "PFHxS" "1.000000"
"ng/L" "U" ".340000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" "1.000000" ""
"WGNA-043018-FRB-3409" "SOP 5-369" "Initial" "J5969-FS" "BNO" "BDO-2106" "13C2-PFHxA"
".420000" "ng/L" "" "-99.000000" "NA" "" "SIS" "104.00" "" "-99.000000" "NA" "YES"
".400000" "" ".250000" ".000500" ".500000" ""
"WGNA-043018-FRB-3409" "SOP 5-369" "Initial" "J5969-FS" "BNO" "BDO-2110" "13C2-PFDA" ".410000"
"ng/L" "" "-99.000000" "NA" "" "SIS" "102.00" "" "-99.000000" "NA" "YES" ".400000"
"" ".250000" ".000500" ".500000" ""
"WGNA-043018-FRB-3409" "SOP 5-369" "Initial" "J5969-FS" "BNO" "BDO-1839" "d5-EtFOSAA"
"1.330000" "ng/L" "" "-99.000000" "NA" "" "SIS" "83.00" "" "-99.000000" "NA" "YES"
"1.600000" "" ".250000" ".000500" ".500000" ""
"WGNA-050118-FRB-3385" "SOP 5-369" "Initial" "J5971-FS" "BNO" "307-24-4" "PFHxA" ".500000"
"ng/L" "U" ".220000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" ".500000" ""
"WGNA-050118-FRB-3385" "SOP 5-369" "Initial" "J5971-FS" "BNO" "375-85-9" "PFHpA" "1.000000"
"ng/L" "U" ".340000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" "1.000000" ""
"WGNA-050118-FRB-3385" "SOP 5-369" "Initial" "J5971-FS" "BNO" "335-67-1" "PFOA" "1.000000"
"ng/L" "U" ".380000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" "1.000000" ""
"WGNA-050118-FRB-3385" "SOP 5-369" "Initial" "J5971-FS" "BNO" "375-95-1" "PFNA" "1.000000"
"ng/L" "U" ".370000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" "1.000000" ""
"WGNA-050118-FRB-3385" "SOP 5-369" "Initial" "J5971-FS" "BNO" "335-76-2" "PFDA" "1.000000"
"ng/L" "U" ".390000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""

".250000"	".000500"	"1.000000"	""							
"WGNA-050118-FRB-3385"	"SOP 5-369"	"Initial"	"J5971-FS"	"BNO"	"2058-94-8"	"PFUnA"	"1.000000"			
"ng/L"	"U"	".380000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"
".250000"	".000500"	"1.000000"	""							
"WGNA-050118-FRB-3385"	"SOP 5-369"	"Initial"	"J5971-FS"	"BNO"	"307-55-1"	"PFDoA"	"1.000000"			
"ng/L"	"U"	".420000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"
".250000"	".000500"	"1.000000"	""							
"WGNA-050118-FRB-3385"	"SOP 5-369"	"Initial"	"J5971-FS"	"BNO"	"72629-94-8"	"PFTTrDA"				
"1.000000"	"ng/L"	"U"	".420000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"
"-99.000000"	""	".250000"	".000500"	"1.000000"	""					
"WGNA-050118-FRB-3385"	"SOP 5-369"	"Initial"	"J5971-FS"	"BNO"	"376-06-7"	"PFTeDA"				
"1.500000"	"ng/L"	"U"	".730000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"
"-99.000000"	""	".250000"	".000500"	"1.500000"	""					
"WGNA-050118-FRB-3385"	"SOP 5-369"	"Initial"	"J5971-FS"	"BNO"	"2355-31-9"	"NMeFOSAA"				
"1.000000"	"ng/L"	"U"	".420000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"
"-99.000000"	""	".250000"	".000500"	"1.000000"	""					
"WGNA-050118-FRB-3385"	"SOP 5-369"	"Initial"	"J5971-FS"	"BNO"	"2991-50-6"	"NEtFOSAA"				
"1.000000"	"ng/L"	"U"	".440000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"
"-99.000000"	""	".250000"	".000500"	"1.000000"	""					
"WGNA-050118-FRB-3385"	"SOP 5-369"	"Initial"	"J5971-FS"	"BNO"	"375-73-5"	"PFBS"	".500000"			
"ng/L"	"U"	".210000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"
".250000"	".000500"	".500000"	""							
"WGNA-050118-FRB-3385"	"SOP 5-369"	"Initial"	"J5971-FS"	"BNO"	"1763-23-1"	"PFOS"	"1.000000"			
"ng/L"	"U"	".300000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"
".250000"	".000500"	"1.000000"	""							
"WGNA-050118-FRB-3385"	"SOP 5-369"	"Initial"	"J5971-FS"	"BNO"	"355-46-4"	"PFHxS"	"1.000000"			
"ng/L"	"U"	".340000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"
".250000"	".000500"	"1.000000"	""							
"WGNA-050118-FRB-3385"	"SOP 5-369"	"Initial"	"J5971-FS"	"BNO"	"BDO-2106"	"13C2-PFHxA"				
".420000"	"ng/L"	""	"-99.000000"	"NA"	""	"SIS"	"104.00"	""	"-99.000000"	"NA"
".400000"	""	".250000"	".000500"	".500000"	""					
"WGNA-050118-FRB-3385"	"SOP 5-369"	"Initial"	"J5971-FS"	"BNO"	"BDO-2110"	"13C2-PFDA"	".400000"			
"ng/L"	""	"-99.000000"	"NA"	""	"SIS"	"100.00"	""	"-99.000000"	"NA"	"YES"
""	".250000"	".000500"	".500000"	""						
"WGNA-050118-FRB-3385"	"SOP 5-369"	"Initial"	"J5971-FS"	"BNO"	"BDO-1839"	"d5-EtFOSAA"				
"1.550000"	"ng/L"	""	"-99.000000"	"NA"	""	"SIS"	"97.00"	""	"-99.000000"	"NA"
"1.600000"	""	".250000"	".000500"	".500000"	""					
"WGNA-050118-FRB-3178"	"SOP 5-369"	"Initial"	"J5973-FS"	"BNO"	"307-24-4"	"PFHxA"	".500000"			
"ng/L"	"U"	".220000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"
".250000"	".000500"	".500000"	""							
"WGNA-050118-FRB-3178"	"SOP 5-369"	"Initial"	"J5973-FS"	"BNO"	"375-85-9"	"PFHpA"	"1.000000"			
"ng/L"	"U"	".340000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"
".250000"	".000500"	"1.000000"	""							
"WGNA-050118-FRB-3178"	"SOP 5-369"	"Initial"	"J5973-FS"	"BNO"	"335-67-1"	"PFOA"	"1.000000"			
"ng/L"	"U"	".380000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"
".250000"	".000500"	"1.000000"	""							
"WGNA-050118-FRB-3178"	"SOP 5-369"	"Initial"	"J5973-FS"	"BNO"	"375-95-1"	"PFNA"	"1.000000"			
"ng/L"	"U"	".370000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"
".250000"	".000500"	"1.000000"	""							
"WGNA-050118-FRB-3178"	"SOP 5-369"	"Initial"	"J5973-FS"	"BNO"	"335-76-2"	"PFDA"	"1.000000"			
"ng/L"	"U"	".390000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"
".250000"	".000500"	"1.000000"	""							
"WGNA-050118-FRB-3178"	"SOP 5-369"	"Initial"	"J5973-FS"	"BNO"	"2058-94-8"	"PFUnA"	"1.000000"			
"ng/L"	"U"	".380000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"

".250000"	".000500"	"1.000000"	""								
"NAWC-050118-FRB-304"	"SOP 5-369"	"Initial"	"J5975-FS"	"BNO"	"72629-94-8"	"PFTTrDA"					
"1.000000"	"ng/L"	"U"	".420000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	
"-99.000000"	""	".250000"	".000500"	"1.000000"	""						
"NAWC-050118-FRB-304"	"SOP 5-369"	"Initial"	"J5975-FS"	"BNO"	"376-06-7"	"PFTeDA"					
"1.500000"	"ng/L"	"U"	".730000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	
"-99.000000"	""	".250000"	".000500"	"1.500000"	""						
"NAWC-050118-FRB-304"	"SOP 5-369"	"Initial"	"J5975-FS"	"BNO"	"2355-31-9"	"NMeFOSAA"					
"1.000000"	"ng/L"	"U"	".420000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	
"-99.000000"	""	".250000"	".000500"	"1.000000"	""						
"NAWC-050118-FRB-304"	"SOP 5-369"	"Initial"	"J5975-FS"	"BNO"	"2991-50-6"	"NEtFOSAA"					
"1.000000"	"ng/L"	"U"	".440000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	
"-99.000000"	""	".250000"	".000500"	"1.000000"	""						
"NAWC-050118-FRB-304"	"SOP 5-369"	"Initial"	"J5975-FS"	"BNO"	"375-73-5"	"PFBS"	".500000"				
"ng/L"	"U"	".210000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"	
".250000"	".000500"	".500000"	""								
"NAWC-050118-FRB-304"	"SOP 5-369"	"Initial"	"J5975-FS"	"BNO"	"1763-23-1"	"PFOS"	"1.000000"				
"ng/L"	"U"	".300000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"	
".250000"	".000500"	"1.000000"	""								
"NAWC-050118-FRB-304"	"SOP 5-369"	"Initial"	"J5975-FS"	"BNO"	"355-46-4"	"PFHxS"	"1.000000"				
"ng/L"	"U"	".340000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"	
".250000"	".000500"	"1.000000"	""								
"NAWC-050118-FRB-304"	"SOP 5-369"	"Initial"	"J5975-FS"	"BNO"	"BDO-2106"	"13C2-PFHxA"					
".450000"	"ng/L"	""	"-99.000000"	"NA"	""	"SIS"	"112.00"	""	"-99.000000"	"NA"	"YES"
".400000"	""	".250000"	".000500"	".500000"	""						
"NAWC-050118-FRB-304"	"SOP 5-369"	"Initial"	"J5975-FS"	"BNO"	"BDO-2110"	"13C2-PFDA"	".400000"				
"ng/L"	""	"-99.000000"	"NA"	""	"SIS"	"100.00"	"-99.000000"	"NA"	"YES"	".400000"	
""	".250000"	".000500"	".500000"	""							
"NAWC-050118-FRB-304"	"SOP 5-369"	"Initial"	"J5975-FS"	"BNO"	"BDO-1839"	"d5-EtFOSAA"					
"1.740000"	"ng/L"	""	"-99.000000"	"NA"	""	"SIS"	"109.00"	""	"-99.000000"	"NA"	"YES"
"1.600000"	""	".250000"	".000500"	".500000"	""						
"NAWC-050118-FRB-098"	"SOP 5-369"	"Initial"	"J5977-FS"	"BNO"	"307-24-4"	"PFHxA"	".500000"				
"ng/L"	"U"	".220000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"	
".250000"	".000500"	".500000"	""								
"NAWC-050118-FRB-098"	"SOP 5-369"	"Initial"	"J5977-FS"	"BNO"	"375-85-9"	"PFHpA"	"1.000000"				
"ng/L"	"U"	".340000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"	
".250000"	".000500"	"1.000000"	""								
"NAWC-050118-FRB-098"	"SOP 5-369"	"Initial"	"J5977-FS"	"BNO"	"335-67-1"	"PFOA"	"1.000000"				
"ng/L"	"U"	".380000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"	
".250000"	".000500"	"1.000000"	""								
"NAWC-050118-FRB-098"	"SOP 5-369"	"Initial"	"J5977-FS"	"BNO"	"375-95-1"	"PFNA"	"1.000000"				
"ng/L"	"U"	".370000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"	
".250000"	".000500"	"1.000000"	""								
"NAWC-050118-FRB-098"	"SOP 5-369"	"Initial"	"J5977-FS"	"BNO"	"335-76-2"	"PFDA"	"1.000000"				
"ng/L"	"U"	".390000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"	
".250000"	".000500"	"1.000000"	""								
"NAWC-050118-FRB-098"	"SOP 5-369"	"Initial"	"J5977-FS"	"BNO"	"2058-94-8"	"PFUnA"	"1.000000"				
"ng/L"	"U"	".380000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"	
".250000"	".000500"	"1.000000"	""								
"NAWC-050118-FRB-098"	"SOP 5-369"	"Initial"	"J5977-FS"	"BNO"	"307-55-1"	"PFDoA"	"1.000000"				
"ng/L"	"U"	".420000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	"-99.000000"	
".250000"	".000500"	"1.000000"	""								
"NAWC-050118-FRB-098"	"SOP 5-369"	"Initial"	"J5977-FS"	"BNO"	"72629-94-8"	"PFTTrDA"					
"1.000000"	"ng/L"	"U"	".420000"	"MDL"	""	"T"	""	"2.500000"	"LOQ"	"YES"	

"-99.000000" "" ".250000" ".000500" "1.000000" ""
 "NAWC-050118-FRB-098" "SOP 5-369" "Initial" "J5977-FS" "BNO" "376-06-7" "PFTeDA"
 "1.500000" "ng/L" "U" ".730000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES"
 "-99.000000" "" ".250000" ".000500" "1.500000" ""
 "NAWC-050118-FRB-098" "SOP 5-369" "Initial" "J5977-FS" "BNO" "2355-31-9" "NMeFOSAA"
 "1.000000" "ng/L" "U" ".420000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES"
 "-99.000000" "" ".250000" ".000500" "1.000000" ""
 "NAWC-050118-FRB-098" "SOP 5-369" "Initial" "J5977-FS" "BNO" "2991-50-6" "NEtFOSAA"
 "1.000000" "ng/L" "U" ".440000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES"
 "-99.000000" "" ".250000" ".000500" "1.000000" ""
 "NAWC-050118-FRB-098" "SOP 5-369" "Initial" "J5977-FS" "BNO" "375-73-5" "PFBS" ".500000"
 "ng/L" "U" ".210000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
 ".250000" ".000500" ".500000" ""
 "NAWC-050118-FRB-098" "SOP 5-369" "Initial" "J5977-FS" "BNO" "1763-23-1" "PFOS" "1.000000"
 "ng/L" "U" ".300000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
 ".250000" ".000500" "1.000000" ""
 "NAWC-050118-FRB-098" "SOP 5-369" "Initial" "J5977-FS" "BNO" "355-46-4" "PFHxS" "1.000000"
 "ng/L" "U" ".340000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
 ".250000" ".000500" "1.000000" ""
 "NAWC-050118-FRB-098" "SOP 5-369" "Initial" "J5977-FS" "BNO" "BDO-2106" "13C2-PFHxA"
 ".420000" "ng/L" "" "-99.000000" "NA" "" "SIS" "106.00" "" "-99.000000" "NA" "YES"
 ".400000" "" ".250000" ".000500" ".500000" ""
 "NAWC-050118-FRB-098" "SOP 5-369" "Initial" "J5977-FS" "BNO" "BDO-2110" "13C2-PFDA" ".410000"
 "ng/L" "" "-99.000000" "NA" "" "SIS" "103.00" "" "-99.000000" "NA" "YES" ".400000"
 "" ".250000" ".000500" ".500000" ""
 "NAWC-050118-FRB-098" "SOP 5-369" "Initial" "J5977-FS" "BNO" "BDO-1839" "d5-EtFOSAA"
 "1.620000" "ng/L" "" "-99.000000" "NA" "" "SIS" "101.00" "" "-99.000000" "NA" "YES"
 "1.600000" "" ".250000" ".000500" ".500000" ""
 "112G08005-WE04" "WE04 NAS Willow Grove" "CQ753PB-FS" "" "WATER" "CQ753PB-FS"
 "Method Bla" "" "-99.000000" "SOP 5-369" "Gen Prep" "Initial" "05/09/2018 14:42" "05/14/2018 18:05"
 "BNO" "COA" "NA" "T" "1.000" "NA" "NA" "" "100.000000" "18-0312" "18-0312" "DP-
 18-0111" "DP-18-0111" "18-0312" "05/09/2018 14:42" "07/13/2018 14:26" ""
 "112G08005-WE04" "WE04 NAS Willow Grove" "CQ754LCS-FS" "" "WATER" "CQ754LCS-FS"
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 "DP-18-0111" "18-0312" "05/09/2018 14:42" "07/13/2018 14:26" ""
 "112G08005-WE04" "WE04 NAS Willow Grove" "WGNA-043018-FRB-3103" "04/30/2018 10:05" "DW"
 "J5965-FS" "NM" "SHP-180501-01" "1.900000" "SOP 5-369" "Gen Prep" "Initial" "05/09/2018 14:42"
 "05/14/2018 18:23" "BNO" "COA" "NA" "T" "1.000" "NA" "NA" "" "100.000000" "18-0312"
 "18-0312" "DP-18-0111" "DP-18-0111" "18-0312" "05/01/2018 11:45" "07/13/2018 14:26" ""
 "112G08005-WE04" "WE04 NAS Willow Grove" "NAWC-043018-FRB-207" "04/30/2018 10:35" "DW"
 "J5967-FS" "NM" "SHP-180501-01" "1.900000" "SOP 5-369" "Gen Prep" "Initial" "05/09/2018 14:42"
 "05/14/2018 18:32" "BNO" "COA" "NA" "T" "1.000" "NA" "NA" "" "100.000000" "18-0312"
 "18-0312" "DP-18-0111" "DP-18-0111" "18-0312" "05/01/2018 11:45" "07/13/2018 14:26" ""
 "112G08005-WE04" "WE04 NAS Willow Grove" "WGNA-043018-FRB-3409" "04/30/2018 13:35" "DW"
 "J5969-FS" "NM" "SHP-180501-01" "1.900000" "SOP 5-369" "Gen Prep" "Initial" "05/09/2018 14:42"
 "05/14/2018 18:41" "BNO" "COA" "NA" "T" "1.000" "NA" "NA" "" "100.000000" "18-0312"
 "18-0312" "DP-18-0111" "DP-18-0111" "18-0312" "05/01/2018 11:45" "07/13/2018 14:26" ""
 "112G08005-WE04" "WE04 NAS Willow Grove" "WGNA-050118-FRB-3385" "05/01/2018 09:05" "DW"
 "J5971-FS" "NM" "SHP-180502-02" "1.700000" "SOP 5-369" "Gen Prep" "Initial" "05/09/2018 14:42"
 "05/14/2018 18:49" "BNO" "COA" "NA" "T" "1.000" "NA" "NA" "" "100.000000" "18-0312"
 "18-0312" "DP-18-0111" "DP-18-0111" "18-0312" "05/02/2018 11:30" "07/13/2018 14:26" ""
 "112G08005-WE04" "WE04 NAS Willow Grove" "WGNA-050118-FRB-3178" "05/01/2018 09:35" "DW"
 "J5973-FS" "NM" "SHP-180502-02" "1.700000" "SOP 5-369" "Gen Prep" "Initial" "05/09/2018 14:42"

"05/14/2018 18:58" "BNO" "COA" "NA" "T" "1.000" "NA" "NA" "" "100.000000" "18-0312"
"18-0312" "DP-18-0111" "DP-18-0111" "18-0312" "05/02/2018 11:30" "07/13/2018 14:26" ""
"112G08005-WE04" "WE04 NAS Willow Grove" "NAWC-050118-FRB-304" "05/01/2018 10:05" "DW"
"J5975-FS" "NM" "SHP-180502-02" "1.700000" "SOP 5-369" "Gen Prep" "Initial" "05/09/2018 14:42"
"05/14/2018 19:07" "BNO" "COA" "NA" "T" "1.000" "NA" "NA" "" "100.000000" "18-0312"
"18-0312" "DP-18-0111" "DP-18-0111" "18-0312" "05/02/2018 11:30" "07/13/2018 14:26" ""
"112G08005-WE04" "WE04 NAS Willow Grove" "NAWC-050118-FRB-098" "05/01/2018 10:35" "DW"
"J5977-FS" "NM" "SHP-180502-02" "1.700000" "SOP 5-369" "Gen Prep" "Initial" "05/09/2018 14:42"
"05/14/2018 19:16" "BNO" "COA" "NA" "T" "1.000" "NA" "NA" "" "100.000000" "18-0312"
"18-0312" "DP-18-0111" "DP-18-0111" "18-0312" "05/02/2018 11:30" "07/13/2018 14:26" ""

TO: A. FREBOWITZ
SDGS: 18-0299; 18-0312

PAGE 2

Notes

The laboratory uses a primary transition for the quantitation of each analyte and a secondary transition for confirmation.

Samples with detections and their associated FRBs are summarized below. No detected results were present in the FRBs.

<u>Sample</u>	<u>Associated FRB</u>
NAWC-043018-RW-207	NAWC-043018-FRB-207
NAWC-050118-RW-098	NAWC-043018-FRB-207
NAWC-050118-RW-304	NAWC-043018-FRB-207
WGNA-043018-RW-3103	WGNA-043018-FRB-3103
WGNA-043018-RW-3409	WGNA-043018-FRB-3103
WGNA-050118-RW-3178	WGNA-043018-FRB-3103
WGNA-050118-RW-3385	WGNA-043018-FRB-3103

Non-detected results were reported to the Limit of Detection (LOD).

The buffering agent Trizma was added to all drinking water samples.

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: Results below the RL were estimated.

The data for these analyses were reviewed with reference to the Environmental Protection Agency document EPA/600/R-08/092, Method 537, "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)", (September 2009), US EPA National Functional Guidelines for Organic Data Review (January 2017), and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories version 5.1" (2017) as applicable. The text of this report has been formulated to address only those areas affecting data quality.



Tetra Tech, Inc.
Terri L. Solomon
Chemist/Data Validator



Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Data Qualifier Definitions

The following definitions provide brief explanations of the validation qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted method detection limit for sample and method.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the reporting limit).
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
R	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
UR	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

Appendix A

Qualified Analytical Results

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues; i.e. chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors $>40\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $<30\%$
- Z = Uncertainty at 2 standard deviations is greater than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed
- Z3 = Tentatively Identified Compound aldol condensate
- Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
- Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

PROJ_NO: 08005-WE04 SDG: 18-0299 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-043018-RW-207			NAWC-050118-RW-098			NAWC-050118-RW-304			WGNA-043018-RW-3103		
	LAB_ID	J5966-FS			J5976-FS			J5974-FS			J5964-FS		
	SAMP_DATE	4/30/2018			5/1/2018			5/1/2018			4/30/2018		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	1	U		1	U		1	U		1	U		
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	1	U		1	U		1	U		1	U		
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	5.37			8.62			12.99			8.38			
PERFLUOROBUTANESULFONIC ACID (PFBS)	1.69	J	P	4.45			6.75			3.91			
PERFLUORODECANOIC ACID (PFDA)	1	U		1	U		1	U		1	U		
PERFLUORODODECANOIC ACID (PFDOA)	1	U		1	U		1	U		1	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	2.1	J	P	3			4.2			2.32	J	P	
PERFLUOROHEXANESULFONIC ACID (PFHXS)	0.94	J	P	3.49			6.71			4.94			
PERFLUOROHEXANOIC ACID (PFHXA)	3.75			5.84			7.94			3.96			
PERFLUORONONANOIC ACID (PFNA)	0.71	J	P	1.13	J	P	1.57	J	P	2.24	J	P	
PERFLUOROOCCTANESULFONIC ACID (PFOS)	3.08			6.53			13.58			7.27			
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.5	U		1.5	U		1.5	U		1.5	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)	1	U		1	U		1	U		1	U		
PERFLUOROUNDECANOIC ACID (PFUNA)	1	U		1	U		1	U		1	U		

PROJ_NO: 08005-WE04 SDG: 18-0299 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-043018-RW-3409			WGNA-050118-RW-3178			WGNA-050118-RW-3385		
	LAB_ID	J5968-FS			J5972-FS			J5970-FS		
	SAMP_DATE	4/30/2018			5/1/2018			5/1/2018		
	QC_TYPE	NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	1	U		1	U		1	U		
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	1	U		1	U		1	U		
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	11.71			7.78			14.69			
PERFLUOROBUTANESULFONIC ACID (PFBS)	7.62			4.74			2.53			
PERFLUORODECANOIC ACID (PFDA)	1	U		1	U		0.41	J	P	
PERFLUORODODECANOIC ACID (PFDOA)	1	U		1	U		1	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	4.27			2.25	J	P	4.4			
PERFLUOROHEXANESULFONIC ACID (PFHXS)	6.35			6.86			3.12			
PERFLUOROHEXANOIC ACID (PFHXA)	7.68			3.9			5.68			
PERFLUORONONANOIC ACID (PFNA)	1.68	J	P	0.87	J	P	1.49	J	P	
PERFLUOROOCCTANESULFONIC ACID (PFOS)	14.68			13.71			14.77			
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.5	U		1.5	U		1.5	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)	1	U		1	U		1	U		
PERFLUOROUNDECANOIC ACID (PFUNA)	1	U		1	U		1	U		

PROJ_NO: 08005-WE04 SDG: 18-0312 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-043018-FRB-207			NAWC-050118-FRB-098			NAWC-050118-FRB-304			WGNA-043018-FRB-3103		
	LAB_ID	J5967-FS			J5977-FS			J5975-FS			J5965-FS		
	SAMP_DATE	4/30/2018			5/1/2018			5/1/2018			4/30/2018		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	1	U		1	U		1	U		1	U		
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	1	U		1	U		1	U		1	U		
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	1	U		1	U		1	U		1	U		
PERFLUOROBUTANESULFONIC ACID (PFBS)	0.5	U		0.5	U		0.5	U		0.5	U		
PERFLUORODECANOIC ACID (PFDA)	1	U		1	U		1	U		1	U		
PERFLUORODODECANOIC ACID (PFDOA)	1	U		1	U		1	U		1	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	1	U		1	U		1	U		1	U		
PERFLUOROHEXANESULFONIC ACID (PFHXS)	1	U		1	U		1	U		1	U		
PERFLUOROHEXANOIC ACID (PFHXA)	0.5	U		0.5	U		0.5	U		0.5	U		
PERFLUORONONANOIC ACID (PFNA)	1	U		1	U		1	U		1	U		
PERFLUOROOCCTANESULFONIC ACID (PFOS)	1	U		1	U		1	U		1	U		
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.5	U		1.5	U		1.5	U		1.5	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)	1	U		1	U		1	U		1	U		
PERFLUOROUNDECANOIC ACID (PFUNA)	1	U		1	U		1	U		1	U		

PROJ_NO: 08005-WE04 SDG: 18-0312 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-043018-FRB-3409			WGNA-050118-FRB-3178			WGNA-050118-FRB-3385		
	LAB_ID	J5969-FS			J5973-FS			J5971-FS		
	SAMP_DATE	4/30/2018			5/1/2018			5/1/2018		
	QC_TYPE	NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	1	U		1	U		1	U		
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	1	U		1	U		1	U		
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	1	U		1	U		1	U		
PERFLUOROBUTANESULFONIC ACID (PFBS)	0.5	U		0.5	U		0.5	U		
PERFLUORODECANOIC ACID (PFDA)	1	U		1	U		1	U		
PERFLUORODODECANOIC ACID (PFDOA)	1	U		1	U		1	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	1	U		1	U		1	U		
PERFLUOROHEXANESULFONIC ACID (PFHXS)	1	U		1	U		1	U		
PERFLUOROHEXANOIC ACID (PFHXA)	0.5	U		0.5	U		0.5	U		
PERFLUORONONANOIC ACID (PFNA)	1	U		1	U		1	U		
PERFLUOROOCCTANESULFONIC ACID (PFOS)	1	U		1	U		1	U		
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.5	U		1.5	U		1.5	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)	1	U		1	U		1	U		
PERFLUOROUNDECANOIC ACID (PFUNA)	1	U		1	U		1	U		



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-043018-FRB-3103				
Battelle ID	J5965-FS				
Sample Type	SA				
Collection Date	04/30/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	105
13C5-PFPeA	109
13C5-PFHxA	111

Denise L. Schumitz
 05/30/2018



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-043018-FRB-207				
Battelle ID	J5967-FS				
Sample Type	SA				
Collection Date	04/30/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	104
13C5-PFPeA	101
13C5-PFHxA	90

Wendy L. Selmer
 05/30/2018



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-043018-FRB-3409				
Battelle ID	J5969-FS				
Sample Type	SA				
Collection Date	04/30/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	104
13C5-PFPeA	102
13C5-PFHxA	83

Wendy L. Selman
 05/30/2018



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-050118-FRB-3385				
Battelle ID	J5971-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	104
13C5-PFPeA	100
13C5-PFHxA	97

Denise L. Schumitz
 05/30/2018



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-050118-FRB-3178				
Battelle ID	J5973-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	120
13C5-PFPeA	106
13C5-PFHxA	90

Denise L. Schumitz
 05/30/2018



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-050118-FRB-304				
Battelle ID	J5975-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	112
13C5-PFPeA	100
13C5-PFHxA	109

Denise L. Schumitz
 05/30/2018



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-050118-FRB-098				
Battelle ID	J5977-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	106
13C5-PFPeA	103
13C5-PFHxA	101

Denise L. Schumitz
 05/30/2018



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-043018-RW-3103				
Battelle ID	J5964-FS				
Sample Type	SA				
Collection Date	04/30/2018				
Extraction Date	05/04/2018				
Analysis Date	05/13/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	3.96	0.22	0.50	2.50	
PFHpA	2.32 J	0.34	1.00	2.50	
PFOA	8.38	0.38	1.00	2.50	
PFNA	2.24 J	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	3.91	0.21	0.50	2.50	
PFHxS	4.94	0.34	1.00	2.50	
PFOS	7.27	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	122
13C5-PFPeA	104
13C5-PFHxA	93

Denise L. Schumitz
 05/30/2018



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-043018-RW-207				
Battelle ID	J5966-FS				
Sample Type	SA				
Collection Date	04/30/2018				
Extraction Date	05/04/2018				
Analysis Date	05/13/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	3.75	0.22	0.50	2.50	
PFHpA	2.10 J	0.34	1.00	2.50	
PFOA	5.37	0.38	1.00	2.50	
PFNA	0.71 J	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	1.69 J	0.21	0.50	2.50	
PFHxS	0.94 J	0.34	1.00	2.50	
PFOS	3.08	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	111
13C5-PFPeA	94
13C5-PFHxA	89

Denise L. Schumitz
 05/30/2018



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-043018-RW-3409			
Battelle ID	J5968-FS			
Sample Type	SA			
Collection Date	04/30/2018			
Extraction Date	05/04/2018			
Analysis Date	05/13/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.275			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	7.68	0.22	0.50	2.50
PFHpA	4.27	0.34	1.00	2.50
PFOA	11.71	0.38	1.00	2.50
PFNA	1.68 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDoA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	7.62	0.21	0.50	2.50
PFHxS	6.35	0.34	1.00	2.50
PFOS	14.68	0.30	1.00	2.50

Surrogate Recoveries (%)

13C4-PFBA	125
13C5-PFPeA	97
13C5-PFHxA	100

Marie L. Selman
 05/30/2018



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-050118-RW-3385			
Battelle ID	J5970-FS			
Sample Type	SA			
Collection Date	05/01/2018			
Extraction Date	05/04/2018			
Analysis Date	05/13/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.280			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	5.68	0.22	0.50	2.50
PFHpA	4.40	0.34	1.00	2.50
PFOA	14.69	0.38	1.00	2.50
PFNA	1.49 J	0.37	1.00	2.50
PFDA	0.41 J	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDoA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	2.53	0.21	0.50	2.50
PFHxS	3.12	0.34	1.00	2.50
PFOS	14.77	0.30	1.00	2.50

Surrogate Recoveries (%)

13C4-PFBA	118
13C5-PFPeA	97
13C5-PFHxA	89

Denise L. Schumitz
 05/30/2018



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-050118-RW-3178				
Battelle ID	J5972-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/04/2018				
Analysis Date	05/13/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.285				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	3.90	0.22	0.50	2.50	
PFHpA	2.25 J	0.34	1.00	2.50	
PFOA	7.78	0.38	1.00	2.50	
PFNA	0.87 J	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	4.74	0.21	0.50	2.50	
PFHxS	6.86	0.34	1.00	2.50	
PFOS	13.71	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	124
13C5-PFPeA	98
13C5-PFHxA	91

Steph L. Salomon
 05/30/2018



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-050118-RW-304			
Battelle ID	J5974-FS			
Sample Type	SA			
Collection Date	05/01/2018			
Extraction Date	05/04/2018			
Analysis Date	05/13/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.275			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	7.94	0.22	0.50	2.50
PFHpA	4.20	0.34	1.00	2.50
PFOA	12.99	0.38	1.00	2.50
PFNA	1.57 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDoA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	6.75	0.21	0.50	2.50
PFHxS	6.71	0.34	1.00	2.50
PFOS	13.58	0.30	1.00	2.50

Surrogate Recoveries (%)

13C4-PFBA	114
13C5-PFPeA	88
13C5-PFHxA	90

Wesley L. Selman
 05/30/2018



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-050118-RW-098				
Battelle ID	J5976-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/04/2018				
Analysis Date	05/13/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.280				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	5.84	0.22	0.50	2.50	
PFHpA	3.00	0.34	1.00	2.50	
PFOA	8.62	0.38	1.00	2.50	
PFNA	1.13 J	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	4.45	0.21	0.50	2.50	
PFHxS	3.49	0.34	1.00	2.50	
PFOS	6.53	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	124
13C5-PFPeA	103
13C5-PFHxA	93

Wendy L. Selman
 05/30/2018

Appendix B

Results as Reported by the Laboratory



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-043018-FRB-3103				
Battelle ID	J5965-FS				
Sample Type	SA				
Collection Date	04/30/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	105
13C5-PFPeA	109
13C5-PFHxA	111



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-043018-FRB-207				
Battelle ID	J5967-FS				
Sample Type	SA				
Collection Date	04/30/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	104
13C5-PFPeA	101
13C5-PFHxA	90



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-043018-FRB-3409				
Battelle ID	J5969-FS				
Sample Type	SA				
Collection Date	04/30/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	104
13C5-PFPeA	102
13C5-PFHxA	83



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-050118-FRB-3385				
Battelle ID	J5971-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	104
13C5-PFPeA	100
13C5-PFHxA	97



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-050118-FRB-3178				
Battelle ID	J5973-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	120
13C5-PFPeA	106
13C5-PFHxA	90



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-050118-FRB-304				
Battelle ID	J5975-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	112
13C5-PFPeA	100
13C5-PFHxA	109



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-050118-FRB-098				
Battelle ID	J5977-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/09/2018				
Analysis Date	05/14/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.22 U	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	106
13C5-PFPeA	103
13C5-PFHxA	101



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-043018-RW-3103				
Battelle ID	J5964-FS				
Sample Type	SA				
Collection Date	04/30/2018				
Extraction Date	05/04/2018				
Analysis Date	05/13/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	3.96	0.22	0.50	2.50	
PFHpA	2.32 J	0.34	1.00	2.50	
PFOA	8.38	0.38	1.00	2.50	
PFNA	2.24 J	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	3.91	0.21	0.50	2.50	
PFHxS	4.94	0.34	1.00	2.50	
PFOS	7.27	0.30	1.00	2.50	
Surrogate Recoveries (%)					
13C4-PFBA	122				
13C5-PFPeA	104				
13C5-PFHxA	93				



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-043018-RW-207				
Battelle ID	J5966-FS				
Sample Type	SA				
Collection Date	04/30/2018				
Extraction Date	05/04/2018				
Analysis Date	05/13/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	3.75	0.22	0.50	2.50	
PFHpA	2.10 J	0.34	1.00	2.50	
PFOA	5.37	0.38	1.00	2.50	
PFNA	0.71 J	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	1.69 J	0.21	0.50	2.50	
PFHxS	0.94 J	0.34	1.00	2.50	
PFOS	3.08	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	111
13C5-PFPeA	94
13C5-PFHxA	89



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-043018-RW-3409			
Battelle ID	J5968-FS			
Sample Type	SA			
Collection Date	04/30/2018			
Extraction Date	05/04/2018			
Analysis Date	05/13/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.275			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	7.68	0.22	0.50	2.50
PFHpA	4.27	0.34	1.00	2.50
PFOA	11.71	0.38	1.00	2.50
PFNA	1.68 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDoA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	7.62	0.21	0.50	2.50
PFHxS	6.35	0.34	1.00	2.50
PFOS	14.68	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C4-PFBA	125			
13C5-PFPeA	97			
13C5-PFHxA	100			



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-050118-RW-3385			
Battelle ID	J5970-FS			
Sample Type	SA			
Collection Date	05/01/2018			
Extraction Date	05/04/2018			
Analysis Date	05/13/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.280			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	5.68	0.22	0.50	2.50
PFHpA	4.40	0.34	1.00	2.50
PFOA	14.69	0.38	1.00	2.50
PFNA	1.49 J	0.37	1.00	2.50
PFDA	0.41 J	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDoA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	2.53	0.21	0.50	2.50
PFHxS	3.12	0.34	1.00	2.50
PFOS	14.77	0.30	1.00	2.50

Surrogate Recoveries (%)

13C4-PFBA	118
13C5-PFPeA	97
13C5-PFHxA	89



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-050118-RW-3178				
Battelle ID	J5972-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/04/2018				
Analysis Date	05/13/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.285				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	3.90	0.22	0.50	2.50	
PFHpA	2.25 J	0.34	1.00	2.50	
PFOA	7.78	0.38	1.00	2.50	
PFNA	0.87 J	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	4.74	0.21	0.50	2.50	
PFHxS	6.86	0.34	1.00	2.50	
PFOS	13.71	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	124
13C5-PFPeA	98
13C5-PFHxA	91



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-050118-RW-304			
Battelle ID	J5974-FS			
Sample Type	SA			
Collection Date	05/01/2018			
Extraction Date	05/04/2018			
Analysis Date	05/13/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.275			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	7.94	0.22	0.50	2.50
PFHpA	4.20	0.34	1.00	2.50
PFOA	12.99	0.38	1.00	2.50
PFNA	1.57 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDoA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	6.75	0.21	0.50	2.50
PFHxS	6.71	0.34	1.00	2.50
PFOS	13.58	0.30	1.00	2.50

Surrogate Recoveries (%)

13C4-PFBA	114
13C5-PFPeA	88
13C5-PFHxA	90



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	NAWC-050118-RW-098				
Battelle ID	J5976-FS				
Sample Type	SA				
Collection Date	05/01/2018				
Extraction Date	05/04/2018				
Analysis Date	05/13/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.280				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	5.84	0.22	0.50	2.50	
PFHpA	3.00	0.34	1.00	2.50	
PFOA	8.62	0.38	1.00	2.50	
PFNA	1.13 J	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDoA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	4.45	0.21	0.50	2.50	
PFHxS	3.49	0.34	1.00	2.50	
PFOS	6.53	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C4-PFBA	124
13C5-PFPeA	103
13C5-PFHxA	93

Appendix C

Support Documentation

Battelle <i>The Business of Innovation</i>		<u>Chain-of-Custody</u>									
<u>Client Contact Information</u> Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170		Project Manager: Jonathan Thorn Sampler Information (print name): Mary Kay Bond Phone: 610-382-1169 Email: mary.bond@tetratech.com Turnaround Time (TAT) Requested: 21 days			Sampling Site: WE04		Site Information: NAS JRB Willow Grove/NAWC Warminster				
Project Name: WE04		Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/>			Preservative Trizma		COC #				
Project No.: 112G08005-WE04		Time Zone: Eastern									
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	Analysis PFAS EPA 537 14 analytes	Page# 1 of 1			
WGNA-050118-RW-3385 JS970		5/1/2018	09:10	G	DW	2					
WGNA-050118-FRB-3385 JS971		5/1/2018	09:05	G	DW	2	X	Field Reagent Blank			
WGNA-050118-RW-3178 JS972		5/1/2018	09:40	G	DW	2	X				
WGNA-050118-FRB-3178 JS973		5/1/2018	09:35	G	DW	2	X	Field Reagent Blank			
NAWC-050118-RW-304 JS974		5/1/2018	10:10	G	DW	2	X				
NAWC-050118-FRB-304 JS975		5/1/2018	10:05	G	DW	2	X	Field Reagent Blank			
NAWC-050118-RW-098 JS976		5/1/2018	10:40	G	DW	2	X				
NAWC-050118-FRB-098 JS977		5/1/2018	10:35	G	DW	2	X	Field Reagent Blank			
Receipt Temperature:(°C)		Samples Intact: Yes - No			Samples on Ice: Yes - No			Receipt Comments:			
Relinquished by (Print/Sign): <i>Mary Kay Bond</i>		Company: Tetra Tech		Date/Time: 05/01/2018 16:00		Received by (Print/Sign): <i>[Signature]</i>		Company: Battelle		Date/Time: 5/2/18 1130	
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):		Company:		Date/Time:	
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):		Company:		Date/Time:	
Comments: FedEx Tracking # 7721 2279 0356											

QA/QC Summary Batch 18-0312

Project:	CTO-WE04 Naval Air Station Joint Reserve Base Willow Grove
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	DW
Data Set:	DP-18-0111
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody

Collection Date	Receipt Date	Temp (°C)
4/30/2018	5/1/2018	1.9
5/1/2018	5/2/2018	1.7

Corrective Actions	None
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	FRB samples related to field samples reported in SDG 13-0299

METHOD SUMMARIES

Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a weak ion exchange solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were split and concentrated to dryness under nitrogen with a water bath set between 60 °C and 65 °C, reconstituted with 96:4 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	None.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on the Sciex 5500.

Holding Times	Extraction Date(s)	Analysis Date(s)
	5/9/2018	5/14/2018

Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.
≤ 1/3 the MRL	No exceedances noted. No comments.

QA/QC Summary
Batch 18-0312

Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
70-130% of true value	No exceedances noted. No comments.
Surrogates Standard Analytes	Labelled surrogate compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
70-130% of true value	No exceedances noted. No Comments.
Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
ICal high and low points RPD \leq 20%, 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted. No Comments.
Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadratic curve fitting.
R ² >0.99	No exceedances noted.
Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No comments.
Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted. No comments.
Continuing Calibration Verification (CCV)	Continuing calibration standards were run at the beginning and end of 10 injections and at the end of the sequence to ensure that initial calibration is still valid.
Target and SIS compounds +/- 30% of true value	No exceedances noted.
Low point 50-150% of true value	No comments.



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project Number: 100117920-WE04
 Preparation Batch: 18-0312
 Data Set: DP-18-0111
 Test Code: Master_371

QC Parameter:	Exceed:	Justification:
Procedural Blank	0	None
PB Measurement Quality Objective	0	None
Laboratory Control Sample	0	None
Matrix Spike / Matrix Spike Duplicate Recovery	N/A	None
Matrix Spike / Matrix Spike Duplicate Precision	0	None
Extracted Internal Standard Analytes (Surrogates)	0	None
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None



It can be done

**BATTELLE - NORWELL OPERATIONS
SAMPLE IDENTIFICATION PAGE**

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)

100117920-
WE04

18-0312

WE04 PFAS Analysis

DW

Sample ID	Description
CQ753PB-FS	Procedural Blank
CQ754LCS-FS	Laboratory Control Sample
J5965-FS	WGNA-043018-FRB-3103
J5967-FS	NAWC-043018-FRB-207
J5969-FS	WGNA-043018-FRB-3409
J5971-FS	WGNA-050118-FRB-3385
J5973-FS	WGNA-050118-FRB-3178
J5975-FS	NAWC-050118-FRB-304
J5977-FS	NAWC-050118-FRB-098

Samples Assigned By:

Stephanie Schultz

Date :

May 9, 2018

Comments:



Project Client: Tetra Tech

Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.: 100117920-WE04

Client ID	Procedural Blank			
Battelle ID	CQ753PB-FS			
Sample Type	PB			
Collection Date	05/09/2018			
Extraction Date	05/09/2018			
Analysis Date	05/14/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	WATER			
Sample Size	0.250			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.22 U	0.22	0.50	2.50
PFHpA	0.34 U	0.34	1.00	2.50
PFOA	0.38 U	0.38	1.00	2.50
PFNA	0.37 U	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDoA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	0.21 U	0.21	0.50	2.50
PFHxS	0.34 U	0.34	1.00	2.50
PFOS	0.30 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	115
13C2-PFDA	117
d5-EtFOSAA	105



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	Laboratory Control Sample					
Battelle ID	CQ754LCS-FS					
Sample Type	LCS					
Collection Date	05/09/2018					
Extraction Date	05/09/2018					
Analysis Date	05/14/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	WATER					
Sample Size	0.250					
Size Unit-Basis	L					
Units	ng/L	Target	Recovery	Qual	Control Limits Lower	Upper
PFHxA	10.43	10.00	104		70	130
PFHpA	9.94	10.00	99		70	130
PFOA	10.21	10.00	102		70	130
PFNA	9.64	10.00	96		70	130
PFDA	9.74	10.00	97		70	130
PFUnA	9.74	10.00	97		70	130
PFDoA	9.50	10.00	95		70	130
PFTTrDA	9.88	10.00	99		70	130
PFTeDA	11.29	10.00	113		70	130
NMeFOSAA	11.25	10.00	113		70	130
NEtFOSAA	11.32	10.00	113		70	130
PFBS	10.15	8.85	115		70	130
PFHxS	9.51	9.45	101		70	130
PFOS	8.34	9.55	87		70	130

Surrogate Recoveries (%)

13C4-PFBA	109
13C5-PFPeA	99
13C5-PFHxA	100

Project Client: Tetra Tech
 Project Client: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project Client: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV64	L1	5/14/18 16:27	13C4-PFOS	117,641.83	-
JV65	L2	5/14/18 16:36	13C4-PFOS	128,859.01	-
JV66	L3	5/14/18 16:45	13C4-PFOS	105,963.04	-
JV67	L4	5/14/18 16:53	13C4-PFOS	131,015.70	-
JV68	L5	5/14/18 17:02	13C4-PFOS	118,468.59	-
JV69	L6	5/14/18 17:11	13C4-PFOS	124,400.13	-
JV70	L7	5/14/18 17:20	13C4-PFOS	118,733.91	-
JV71	L8	5/14/18 17:29	13C4-PFOS	101,181.69	-
JV72	L9	5/14/18 17:38	13C4-PFOS	105,473.33	10.9

PASS

Average Lower Upper
 116,859.69 58,429.85 175,289.54

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	5/14/18 16:27	13C4-PFOS	117,641.83	58,429.85	175,289.54		82,928.01	165,856.03	
JV65	L2	5/14/18 16:36	13C4-PFOS	128,859.01	58,429.85	175,289.54		82,928.01	165,856.03	
JV66	L3	5/14/18 16:45	13C4-PFOS	105,963.04	58,429.85	175,289.54		82,928.01	165,856.03	
JV67	L4	5/14/18 16:53	13C4-PFOS	131,015.70	58,429.85	175,289.54		82,928.01	165,856.03	
JV68	L5	5/14/18 17:02	13C4-PFOS	118,468.59	58,429.85	175,289.54		82,928.01	165,856.03	
JV69	L6	5/14/18 17:11	13C4-PFOS	124,400.13	58,429.85	175,289.54		82,928.01	165,856.03	
JV70	L7	5/14/18 17:20	13C4-PFOS	118,733.91	58,429.85	175,289.54		82,928.01	165,856.03	
JV71	L8	5/14/18 17:29	13C4-PFOS	101,181.69	58,429.85	175,289.54		82,928.01	165,856.03	
JV72	L9	5/14/18 17:38	13C4-PFOS	105,473.33	58,429.85	175,289.54		82,928.01	165,856.03	
JV63 ICC	ICC	5/14/18 17:47	13C4-PFOS	103,611.84	58,429.85	175,289.54		82,928.01	165,856.03	
CQ753PB-FS(0)	Procedural Blank	5/14/18 18:05	13C4-PFOS	103,853.95	58,429.85	175,289.54		82,928.01	165,856.03	
CQ754LCS-FS(0)	Laboratory Control Sample	5/14/18 18:14	13C4-PFOS	84,459.89	58,429.85	175,289.54		82,928.01	165,856.03	
J5965-FS(0)	WGNA-043018-FRB-3103	5/14/18 18:23	13C4-PFOS	116,949.30	58,429.85	175,289.54		82,928.01	165,856.03	
J5967-FS(0)	NAWC-043018-FRB-207	5/14/18 18:32	13C4-PFOS	94,129.68	58,429.85	175,289.54		82,928.01	165,856.03	
J5969-FS(0)	WGNA-043018-FRB-3409	5/14/18 18:41	13C4-PFOS	111,823.48	58,429.85	175,289.54		82,928.01	165,856.03	
J5971-FS(0)	WGNA-050118-FRB-3385	5/14/18 18:49	13C4-PFOS	90,706.52	58,429.85	175,289.54		82,928.01	165,856.03	
J5973-FS(0)	WGNA-050118-FRB-3178	5/14/18 18:58	13C4-PFOS	94,076.63	58,429.85	175,289.54		82,928.01	165,856.03	
J5975-FS(0)	NAWC-050118-FRB-304	5/14/18 19:07	13C4-PFOS	88,279.99	58,429.85	175,289.54		82,928.01	165,856.03	
J5977-FS(0)	NAWC-050118-FRB-098	5/14/18 19:16	13C4-PFOS	109,495.96	58,429.85	175,289.54		82,928.01	165,856.03	
JV68 CCV	CCV	5/14/18 19:25	13C4-PFOS	121,468.05	58,429.85	175,289.54		82,928.01	165,856.03	

Project Client: Tetra Tech

Project Client: Naval Air Station Joint Reserve Base Willow Grove, PA

Project Client: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV64	L1	5/14/18 16:27	13C2-PFOA	38,439.74	-
JV65	L2	5/14/18 16:36	13C2-PFOA	39,205.09	-
JV66	L3	5/14/18 16:45	13C2-PFOA	34,066.69	-
JV67	L4	5/14/18 16:53	13C2-PFOA	39,739.37	-
JV68	L5	5/14/18 17:02	13C2-PFOA	34,175.48	-
JV69	L6	5/14/18 17:11	13C2-PFOA	38,237.89	-
JV70	L7	5/14/18 17:20	13C2-PFOA	39,542.23	-
JV71	L8	5/14/18 17:29	13C2-PFOA	35,226.63	-
JV72	L9	5/14/18 17:38	13C2-PFOA	38,024.48	1.1

PASS

Average Lower Upper
 37,406.40 18,703.20 56,109.60

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	5/14/18 16:27	13C2-PFOA	38,439.74	18,703.20	56,109.60		23,922.84	47,845.67	
JV65	L2	5/14/18 16:36	13C2-PFOA	39,205.09	18,703.20	56,109.60		23,922.84	47,845.67	
JV66	L3	5/14/18 16:45	13C2-PFOA	34,066.69	18,703.20	56,109.60		23,922.84	47,845.67	
JV67	L4	5/14/18 16:53	13C2-PFOA	39,739.37	18,703.20	56,109.60		23,922.84	47,845.67	
JV68	L5	5/14/18 17:02	13C2-PFOA	34,175.48	18,703.20	56,109.60		23,922.84	47,845.67	
JV69	L6	5/14/18 17:11	13C2-PFOA	38,237.89	18,703.20	56,109.60		23,922.84	47,845.67	
JV70	L7	5/14/18 17:20	13C2-PFOA	39,542.23	18,703.20	56,109.60		23,922.84	47,845.67	
JV71	L8	5/14/18 17:29	13C2-PFOA	35,226.63	18,703.20	56,109.60		23,922.84	47,845.67	
JV72	L9	5/14/18 17:38	13C2-PFOA	38,024.48	18,703.20	56,109.60		23,922.84	47,845.67	
JV63 ICC	ICC	5/14/18 17:47	13C2-PFOA	35,637.34	18,703.20	56,109.60		23,922.84	47,845.67	
CQ753PB-FS(0)	Procedural Blank	5/14/18 18:05	13C2-PFOA	31,105.55	18,703.20	56,109.60		23,922.84	47,845.67	
CQ754LCS-FS(0)	Laboratory Control Sample	5/14/18 18:14	13C2-PFOA	29,190.46	18,703.20	56,109.60		23,922.84	47,845.67	
J5965-FS(0)	WGNA-043018-FRB-3103	5/14/18 18:23	13C2-PFOA	37,306.55	18,703.20	56,109.60		23,922.84	47,845.67	
J5967-FS(0)	NAWC-043018-FRB-207	5/14/18 18:32	13C2-PFOA	29,453.32	18,703.20	56,109.60		23,922.84	47,845.67	
J5969-FS(0)	WGNA-043018-FRB-3409	5/14/18 18:41	13C2-PFOA	33,204.68	18,703.20	56,109.60		23,922.84	47,845.67	
J5971-FS(0)	WGNA-050118-FRB-3385	5/14/18 18:49	13C2-PFOA	27,675.77	18,703.20	56,109.60		23,922.84	47,845.67	
J5973-FS(0)	WGNA-050118-FRB-3178	5/14/18 18:58	13C2-PFOA	27,255.88	18,703.20	56,109.60		23,922.84	47,845.67	
J5975-FS(0)	NAWC-050118-FRB-304	5/14/18 19:07	13C2-PFOA	28,391.02	18,703.20	56,109.60		23,922.84	47,845.67	
J5977-FS(0)	NAWC-050118-FRB-098	5/14/18 19:16	13C2-PFOA	34,760.01	18,703.20	56,109.60		23,922.84	47,845.67	
JV68 CCV	CCV	5/14/18 19:25	13C2-PFOA	36,497.99	18,703.20	56,109.60		23,922.84	47,845.67	

Project Client: Tetra Tech
 Project Client: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project Client: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV64	L1	5/14/18 16:27	d3-MeFOSAA	36,112.58	-
JV65	L2	5/14/18 16:36	d3-MeFOSAA	36,897.69	-
JV66	L3	5/14/18 16:45	d3-MeFOSAA	30,420.23	-
JV67	L4	5/14/18 16:53	d3-MeFOSAA	35,707.97	-
JV68	L5	5/14/18 17:02	d3-MeFOSAA	33,628.73	-
JV69	L6	5/14/18 17:11	d3-MeFOSAA	34,298.33	-
JV70	L7	5/14/18 17:20	d3-MeFOSAA	36,446.02	-
JV71	L8	5/14/18 17:29	d3-MeFOSAA	31,869.23	-
JV72	L9	5/14/18 17:38	d3-MeFOSAA	35,734.85	1.1

PASS

Average 34,568.40 Lower 17,284.20 Upper 51,852.60

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	5/14/18 16:27	d3-MeFOSAA	36,112.58	17,284.20	51,852.60		23,540.11	47,080.22	
JV65	L2	5/14/18 16:36	d3-MeFOSAA	36,897.69	17,284.20	51,852.60		23,540.11	47,080.22	
JV66	L3	5/14/18 16:45	d3-MeFOSAA	30,420.23	17,284.20	51,852.60		23,540.11	47,080.22	
JV67	L4	5/14/18 16:53	d3-MeFOSAA	35,707.97	17,284.20	51,852.60		23,540.11	47,080.22	
JV68	L5	5/14/18 17:02	d3-MeFOSAA	33,628.73	17,284.20	51,852.60		23,540.11	47,080.22	
JV69	L6	5/14/18 17:11	d3-MeFOSAA	34,298.33	17,284.20	51,852.60		23,540.11	47,080.22	
JV70	L7	5/14/18 17:20	d3-MeFOSAA	36,446.02	17,284.20	51,852.60		23,540.11	47,080.22	
JV71	L8	5/14/18 17:29	d3-MeFOSAA	31,869.23	17,284.20	51,852.60		23,540.11	47,080.22	
JV72	L9	5/14/18 17:38	d3-MeFOSAA	35,734.85	17,284.20	51,852.60		23,540.11	47,080.22	
JV63 ICC	ICC	5/14/18 17:47	d3-MeFOSAA	32,603.64	17,284.20	51,852.60		23,540.11	47,080.22	
CQ753PB-FS(0)	Procedural Blank	5/14/18 18:05	d3-MeFOSAA	33,816.55	17,284.20	51,852.60		23,540.11	47,080.22	
CQ754LCS-FS(0)	Laboratory Control Sample	5/14/18 18:14	d3-MeFOSAA	26,148.55	17,284.20	51,852.60		23,540.11	47,080.22	
J5965-FS(0)	WGNA-043018-FRB-3103	5/14/18 18:23	d3-MeFOSAA	33,389.17	17,284.20	51,852.60		23,540.11	47,080.22	
J5967-FS(0)	NAWC-043018-FRB-207	5/14/18 18:32	d3-MeFOSAA	29,381.71	17,284.20	51,852.60		23,540.11	47,080.22	
J5969-FS(0)	WGNA-043018-FRB-3409	5/14/18 18:41	d3-MeFOSAA	32,886.89	17,284.20	51,852.60		23,540.11	47,080.22	
J5971-FS(0)	WGNA-050118-FRB-3385	5/14/18 18:49	d3-MeFOSAA	26,728.75	17,284.20	51,852.60		23,540.11	47,080.22	
J5973-FS(0)	WGNA-050118-FRB-3178	5/14/18 18:58	d3-MeFOSAA	26,940.76	17,284.20	51,852.60		23,540.11	47,080.22	
J5975-FS(0)	NAWC-050118-FRB-304	5/14/18 19:07	d3-MeFOSAA	24,390.83	17,284.20	51,852.60		23,540.11	47,080.22	
J5977-FS(0)	NAWC-050118-FRB-098	5/14/18 19:16	d3-MeFOSAA	30,654.25	17,284.20	51,852.60		23,540.11	47,080.22	
JV68 CCV	CCV	5/14/18 19:25	d3-MeFOSAA	32,203.27	17,284.20	51,852.60		23,540.11	47,080.22	

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 5:20:42 PM	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.44	1.50	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.72	1.36	0.8 – 1.5

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 5:20:42 PM	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.44	24	>10
PFBS_2	298.9 / 99.0	1.44	24	>10
PFHxA_1	313.0 / 269.0	1.72	62	>10
PFHxA_2	313.0 / 119.0	1.72	57	>10
PFHpA_1	363.0 / 319.0	2.08	28	>10
PFHpA_2	363.0 / 169.0	2.08	45	>10
PFHxS_1	399.0 / 80.0	2.09	64	>10
PFHxS_2	399.0 / 99.0	2.10	52	>10
PFOA_1	413.0 / 369.0	2.46	62	>10
PFOA_2	413.0 / 169.0	2.46	55	>10
PFNA_1	463.0 / 419.0	2.83	54	>10
PFNA_2	463.0 / 219.0	2.83	51	>10
PFOS_1	499.0 / 80.0	2.82	70	>10
PFOS_2	499.0 / 99.0	2.83	67	>10
PFDA_1	513.0 / 469.0	3.18	51	>10
PFDA_2	513.0 / 219.0	3.18	46	>10
PFUnA_1	563.0 / 519.0	3.50	56	>10
PFUnA_2	563.0 / 269.0	3.50	29	>10
PFDaA_1	613.0 / 569.0	3.79	55	>10
PFDaA_2	613.0 / 319.0	3.79	37	>10
PFTrDA_1	663.0 / 619.0	4.04	62	>10
PFTrDA_2	663.0 / 169.0	4.04	39	>10
PFTeDA_1	713.0 / 669.0	4.26	71	>10
PFTeDA_2	713.0 / 169.0	4.26	48	>10
NMeFOSAA_1	570.0 / 419.0	3.33	58	>10
NMeFOSAA_2	570.0 / 512.0	3.33	52	>10
NEtFOSAA_1	584.0 / 419.0	3.50	47	>10
NEtFOSAA_2	584.0 / 483.0	3.49	39	>10

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 5:20:42 PM	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
13C2-PFHxA	315.0 / 270.0	1.71	40	>10
13C2-PFDA	515.0 / 470.0	3.17	39	>10
d5-EtFOSAA	589.0 / 419.0	3.49	36	>10

Analytical Transitions for PFAS in drinking water

SOP 5-371 (EPA 537 Version 1.1)

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
PFHxA	307-24-4	Target	313.0 / 269.0	313.0 / 119.0
PFHpA	375-85-9	Target	363.0 / 319.0	363.0 / 169.0
PFOA	335-67-1	Target	413.0 / 369.0	413.0 / 169.0
PFNA	375-95-1	Target	463.0 / 419.0	463.0 / 219.0
PFDA	335-76-2	Target	513.0 / 469.0	513.0 / 219.0
PFUnA	2058-94-8	Target	563.0 / 519.0	563.0 / 269.0
PFDoA	307-55-1	Target	613.0 / 569.0	613.0 / 319.0
PFTTrDA	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
PFTeDA	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
NMeFOSAA	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
NEtFOSAA	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
PFBS	375-73-5	Target	298.9.0 / 80.0	298.9.0 / 99.0
PFHxS	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
PFOS	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
¹³C₂-PFHxA	NA	SIS	315.0 / 270.0	NA
¹³C₂-PFDA	NA	SIS	515.0 / 470.0	NA
d₅-EtFOSAA	NA	SIS	589.0 / 419.0	NA
¹³C₂-PFOA	NA	IS	415.0 / 270.0	NA
¹³C₄-PFOS	NA	IS	503.0 / 80.0	NA
d₃-MeFOSAA	NA	IS	573.0 / 419.0	NA

BATTELLE DETECTION LIMITS FOR PFAS IN DRINKING WATER

Battelle SOP 5-371 (EPA Method 537 Version 1.1)

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)	MRL (ng/L)
PFHxA	307-24-4	0.22	0.5	2.5	2.5
PFHpA	375-85-9	0.34	1.0	2.5	2.5
PFOA	335-67-1	0.38	1.0	2.5	2.5
PFNA	375-95-1	0.37	1.0	2.5	2.5
PFDA	335-76-2	0.39	1.0	2.5	2.5
PFUnA	2058-94-8	0.38	1.0	2.5	2.5
PFDoA	307-55-1	0.42	1.0	2.5	2.5
PFTrDA	72629-94-8	0.42	1.0	2.5	2.5
PFTeDA	376-06-7	0.73	1.5	2.5	2.5
NMeFOSAA	2355-31-9	0.42	1.0	2.5	2.5
NEtFOSAA	2991-50-6	0.44	1.0	2.5	2.5
PFBS	375-73-5	0.21	0.5	2.5	2.5
PFHxS	3871-99-6	0.34	1.0	2.5	2.5
PFOS	1763-23-1	0.30	1.0	2.5	2.5

Analytes on NELAP and ELAP QSM 5.1 Scope of accreditation



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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

Mass calibration and tune check

QTRAP 5500 Preventive Maintenance Checklist

Preventive Maintenance Date:	22-Feb-2017
Request ID:	3683
Company Name:	Battelle Memorial Institute
Instrument ID:	X60666
Instrument Model:	QTRAP 5500
Instrument Serial Number:	AU23051004

PASS **FAIL**

Any failure will lead to an automatic Service Call being open to investigate fault.

Preventive Maintenance is performed twice every year unless specified in the Service Contract. It is designed to help maintain optimum system performance and to help diagnose any system deficiencies.

Engineer is required the assigned Request ID for this PM otherwise making this job invalid.

Comments: _____

Performed By: Kaustubh Dhayagude **Date:** 22-Feb-2017

Approved By : _____ **Date:** _____

**Zef Scientific Inc.**

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PRE PM PPG PERFORMANCE EVALUATION:

- Consult Customer concerning the unit overall performance.
- Check Logbook for Services recently performed.
- Check Vacuum Pressure:

CAD Settings	Vacuum Reading (x 10 ⁻⁵ Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.5	0.4 to 1.1 x10 ⁻⁵ Torr
<input checked="" type="checkbox"/> CAD Low	1.9	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.4	Read Only
<input checked="" type="checkbox"/> CAD High	3.4	Read Only
<input checked="" type="checkbox"/> CAD 12	3.4	2.4 to 4.5 x10 ⁻⁵ Torr

- Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification
 - No degradation or Sensitivity drop
- Check for Q3 contamination symptoms. Run Q3 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification
 - No degradation or Sensitivity drop

Pre PM PPG Test: Perform each of the following tests. Optimize ion source position only. The specifications listed for these Pre PM tests are guidelines only, not required to be met.

- Perform Q1 POS using POS PPG 2e-7M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Q1 175.133	1.64 e6	Read Only	0.8095	Read Only
Q1 500.380	2.40 e7	Read Only	0.8592	Read Only
Q1 906.673	2.86 e7	Read Only	0.9633	Read Only

- Perform Q3 POS using POS PPG 2e-7M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Q3 175.133	1.26 e6	Read Only	0.6252	Read Only
Q3 500.380	2.19 e7	Read Only	0.7275	Read Only
Q3 906.673	3.02 e7	Read Only	0.7662	Read Only

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QTRAP 5500**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

Perform MSMS POS in Product Ion scan with 609.3 parent and record daughter 195.1 using Reserpine 0.167 pmol/ul at the scan rate of 10 Da/s for 10 MCA. Calculate transmission efficiency comparing Q1POS 609 intensity. Transmission Efficiency: : 19.51% (Read Only)

Mass	MSMS Intensity		MSMS Width Value	Width Specs
	Value	Spec		
Q1 609.3	7.43 e7	Read Only	0.9981	Read Only
MS/MS 195.1	1.45 e7	Read Only	0.6582	Read Only

Perform Q1 NEG using NEG PPG 3e-5M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Q1 933.636	1.43 e7	Read Only	0.7330	Read Only

Perform Q3 NEG using NEG PPG 3e-5M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Q3 933.636	2.22 e7	Read Only	0.8138	Read Only

Perform Product Ion scan using NEG PPG 3e-5M. Record 10 mca.

Mass	Scan Rate	MCA	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.35 e6	Read Only	0.6495	Read Only

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PREVENTIVE MAINTENANCE CHECKLIST:

- Check Cooling Fans for Turbo Pumps while MS is ON.
- Check QJet and QPS tuning voltage for reference.
- Record AC input Voltage while MS is OFF: _____(200-240VAC).
If Out-of-Range, notify customer.

- Clean Interface
 - Curtain Plate
 - Orifice Plate
 - QJet
 - Q0 Rods.

- Replace Roughing Pump Oil.
- Inspect Oil Exhaust Filter, if Applicable. N/A
- Clean and inspect built-in divert valve if used. N/A
- Check Multiplier Voltage, optimize if necessary.
- Replace four Air Filters at the bottom of the mass spectrometer.

- Pump down overnight if possible. N/A

- Perform Maintenance on Turbo V source.

- Replace Electrode, if necessary. N/A
- Check Turbo heaters resistances.
- Check if Temperature is reached at 500C with TIS Probe installed.
- Check if Temperature is reached at 500C with APCI Probe installed. N/A

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QTRAP 5500**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

POST PM PPG PERFORMANCE TESTS:

- Set-up Sample for Infusion.
- Check spray and adjust sprayer's position of the TIS source.
- Check Vacuum Pressure:

CAD Settings	Vacuum Reading (x 10 ⁻⁵ Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.8	0.4 to 1.1 x10 ⁻⁵ Torr
<input checked="" type="checkbox"/> CAD Low	2.1	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.6	Read Only
<input checked="" type="checkbox"/> CAD High	3.7	Read Only
<input checked="" type="checkbox"/> CAD 12	3.7	2.4 to 4.5 x10 ⁻⁵ Torr

- Perform Q1 POS using POS PPG 2e-7M. Mass calibrate to less than 0.1 amu.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q1 175.133	5.94 e6	≥1.2 ^{e6}	0.6933	0.6 to 0.8
Q1 500.380	2.25 e7	≥9.0 ^{e6}	0.7444	0.6 to 0.8
Q1 906.673	2.74 e7	≥1.4 ^{e7}	0.7347	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8 ^{e7}	0.7656	0.6 to 0.8

- Perform Q3 POS using POS PPG 2e-7M. Mass calibrate to less than 0.1 amu.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q3 175.133	4.54 e6	≥1.2 ^{e6}	0.6390	0.6 to 0.8
Q3 500.380	2.13 e7	≥9.0 ^{e6}	0.7008	0.6 to 0.8
Q3 906.673	3.04 e7	≥1.4 ^{e7}	0.7683	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q3 906.673	1.51 e8	≥6.8 ^{e7}	0.7118	0.6 to 0.8

- Perform "Product of 609.3" POS and record product ion 195.1 using Reserpine 0.167pmol/uL. Record 10 mca. Calculate Transmission efficiency comparing Q1POS 609 intensity.

Transmission Efficiency: 16.93% (≥ 10.0%)

Mass	MSMS Intensity		Width Value	Width Specs
	Value	Spec		
Q1 609.3	5.74 e7	N/A	0.7667	Read Only
MS/MS 195.1	9.72 e6	N/A	0.6751	Read Only

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QTRAP 5500**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

Perform Q1 NEG using NEG PPG 3e-5M. Mass calibrate to less than 0.1 amu.

Mass	Scan Rate	Mca	Q1 Intensity		Q1 Width Value	Width Specs
			Value	Spec		
Q1 933.636	10	10	1.31 e7	$\geq 1.0^{e7}$	0.6895	0.6 to 0.8
Q1 933.636	1000	50	6.32 e7	$\geq 4.0^{e7}$	0.6740	0.6 to 0.8

Perform Q3 NEG using NEG PPG 3e-5M. Mass calibrate to less than 0.1 amu.

Mass	Scan Rate	Mca	Q3 Intensity		Q3 Width Value	Width Specs
			Value	Spec		
Q3 933.636	10	10	1.70 e7	$\geq 8.0^{e6}$	0.7665	0.6 to 0.8
Q3 933.636	1000	50	7.41 e7	$\geq 4.0^{e7}$	0.7292	0.6 to 0.8

Perform Product Ion scan using NEG PPG 3e-5M.

Mass	Scan Rate	Mca	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.33 e6	Read Only	0.6387	Read Only

Perform ER POS 118.087 and 922.01 using ESI Tuning Mix 1:100 in ES Tuning Dilution Solvent. Apply suggested Scan Rate and Record number of MCA. Mass calibrate to less than 0.1 amu.

Mass	Fill Time (ms)	ER Intensity		ER Width Value	Width Specs
		Value	Spec		
ScanRate : 1000 Da/s ; 50 Mca					
ER 118.087	0.05	8.08 e6	$\geq 7.2^{e6}$	0.1302	<0.35
ER 922.010	0.05	3.89 e7	$\geq 2.8^{e6}$	0.2603	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05	2.55 e7	$\geq 2.4^{e7}$	0.3740	<0.65
ER 922.010	0.05	2.37 e8	$\geq 6.8^{e7}$	0.5407	<0.65

Perform ER NEG 431.982 and 601.978 using ESI Tuning Mix 1:100 in ES Tuning Dilution Solvent. Apply suggested Scan Rate and Record number of MCA. Mass calibrate to less than 0.1 amu.

Mass	Fill Time (ms)	ER Intensity		ER Width Value	Width Specs
		Value	Spec		
ScanRate : 1000 Da/s ; 50 Mca					
ER 431.982	0.05	1.05 e8	$\geq 4.4^{e7}$	0.1840	<0.35
ER 601.978	0.05	7.74 e7	$\geq 5.6^{e7}$	0.1849	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 431.982	0.05	3.43 e8	$\geq 1.2^{e8}$	0.4382	<0.65
ER 601.978	0.05	2.55 e8	$\geq 1.6^{e8}$	0.6205	<0.65

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QTRAP 5500**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

- Perform EPI POS 397.2 using Reserpine 0.167pmol/uL. Record 20 mca.

Mass	Scan Rate (Da/s)	Q0 Trapping OFF		Q0 Trapping ON	
		Intensity	Spec	Intensity	Spec
EPI 397.2	10000	> 3.5 e6	≥2.0 e6	> 4.0 e7	≥6.4 e6

- Perform MS3 POS full scan Fragmentation ON & OFF using Reserpine 0.167pmol/uL. Record 20 mca.

Mass	Scan Rate (Da/s)	Fragamentation OFF		Fragmentation ON	
		Intensity	Spec	Intensity	Spec
MS3 397.2	1000	3.2 e7	Contains only 397.2	N/A	N/A
<input type="checkbox"/> 236 OR <input checked="" type="checkbox"/> 365	1000	1.19 e8	Fragment Intensity	> 4.4 e6	≥1.6x 10 ^{e6}

REVIEW:

- Attach all spectrums printouts to this procedure.
- If any parameter setting access modes were changed during the PM, ensure they are returned to their normal access mode and that their offsets are adjusted to match optimized values from the post-PM acquisition files.
- Empty tuning cache folder, if necessary. N/A
- Update Service Work Order status
- Fill and replace PM Label.

END OF PREVENTIVE MAINTENANCE CHECKLIST**Document history:**

06 OCT 2016: Appendix ZEFPM003-2L: Removed requirements to fit Manufacturer's testing criteria.



It can be done

BATTELLE - NORWELL OPERATIONS
LIQUID SAMPLE ID FORM

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)

100117920-WE04

18-0312

WE04 PFAS Analysis

DW

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CQ753PB-FS	Procedural Blank	250.0	NA	--	05/09/18 SAS
CQ754LCS-FS	Laboratory Control Sample	250.0	NA	--	05/09/18 SAS
J5965-FS	WGNA-043018-FRB-3103	250.0	1	C	05/09/18 SAS
J5967-FS	NAWC-043018-FRB-207	250.0	1	C	05/09/18 SAS
J5969-FS	WGNA-043018-FRB-3409	250.0	1	C	05/09/18 SAS
J5971-FS	WGNA-050118-FRB-3385	250.0	1	C	05/09/18 SAS
J5973-FS	WGNA-050118-FRB-3178	250.0	1	C	05/09/18 SAS
J5975-FS	NAWC-050118-FRB-304	250.0	1	C	05/09/18 SAS
J5977-FS	NAWC-050118-FRB-098	250.0	1	C	05/09/18 SAS

Comments:

Sample ID:	Comments:
CQ753PB-FS	1.23g Trizma(170526-01) weighed on BAL-009
CQ754LCS-FS	1.24g Trizma(170526-01) weighed on BAL-009

Samples Assigned By

Stephanie Schultz

Date :

May 9, 2018

* - "C" = Sample is Consumed



It can be done

BATTELLE - NORWELL OPERATIONS SURROGATE SPIKE FORM

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)100117920-
WE04**18-0312****WE04 PFAS Analysis****DW**

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CQ753PB-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
CQ754LCS-FS	JV41	LCS/MS	1	50	05/09/18 SAS	JCT	NA
CQ754LCS-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
J5965-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
J5967-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
J5969-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
J5971-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
J5973-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
J5975-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA
J5977-FS	JV60	SIS	1	50	05/09/18 SAS	JCT	NA

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV41	Pipette	I0793912B
JV60	Pipette	I0793912B



It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE EXTRACTION FORM

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)100117920-
WE04**18-0312****WE04 PFAS Analysis****DW**

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CQ753PB-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
CQ754LCS-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5965-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5967-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5969-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5971-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5973-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5975-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5977-FS	05/09/18 SAS	NA	NA	NA	NA	NA	NA	NA

Solvents/Reagent Preparations:

Name	ID	Expires	Lot No	Procedure	Comments
Pre-packed SPE Column	RP-180509-2	05/09/18	S214-0071	Pre-packed SPE Column	

Solvents/Reagents:

Name	Lot No	Comments
Methanol (HPLC) (180227-02)	178212	

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		5/14/2018 4:18:10 PM	5-0371.dam	18-0313.wiff
2	JV64	L1	5/14/2018 4:27:07 PM	5-0371.dam	18-0313.wiff
3	JV65	L2	5/14/2018 4:36:03 PM	5-0371.dam	18-0313.wiff
4	JV66	L3	5/14/2018 4:45:01 PM	5-0371.dam	18-0313.wiff
5	JV67	L4	5/14/2018 4:53:56 PM	5-0371.dam	18-0313.wiff
6	JV68	L5	5/14/2018 5:02:52 PM	5-0371.dam	18-0313.wiff
7	JV69	L6	5/14/2018 5:11:47 PM	5-0371.dam	18-0313.wiff
8	JV70	L7	5/14/2018 5:20:42 PM	5-0371.dam	18-0313.wiff
9	JV71	L8	5/14/2018 5:29:36 PM	5-0371.dam	18-0313.wiff
10	JV72	L9	5/14/2018 5:38:30 PM	5-0371.dam	18-0313.wiff
11	JV63 ICC	ICC	5/14/2018 5:47:28 PM	5-0371.dam	18-0313.wiff
1	MeOH		5/14/2018 5:56:24 PM	5-0371.dam	18-0313.wiff
12	CQ753PB-FS(0)	Procedural Blank	5/14/2018 6:05:20 PM	5-0371.dam	18-0312.wiff
13	CQ754LCS-FS(0)	Laboratory Control Sample	5/14/2018 6:14:15 PM	5-0371.dam	18-0312.wiff
14	J5965-FS(0)	WGNA-043018-FRB-3103	5/14/2018 6:23:10 PM	5-0371.dam	18-0312.wiff
15	J5967-FS(0)	NAWC-043018-FRB-207	5/14/2018 6:32:06 PM	5-0371.dam	18-0312.wiff
16	J5969-FS(0)	WGNA-043018-FRB-3409	5/14/2018 6:41:03 PM	5-0371.dam	18-0312.wiff
17	J5971-FS(0)	WGNA-050118-FRB-3385	5/14/2018 6:49:59 PM	5-0371.dam	18-0312.wiff
18	J5973-FS(0)	WGNA-050118-FRB-3178	5/14/2018 6:58:53 PM	5-0371.dam	18-0312.wiff
19	J5975-FS(0)	NAWC-050118-FRB-304	5/14/2018 7:07:47 PM	5-0371.dam	18-0312.wiff
20	J5977-FS(0)	NAWC-050118-FRB-098	5/14/2018 7:16:43 PM	5-0371.dam	18-0312.wiff
6	JV68 CCV	CCV	5/14/2018 7:25:38 PM	5-0371.dam	18-0312.wiff



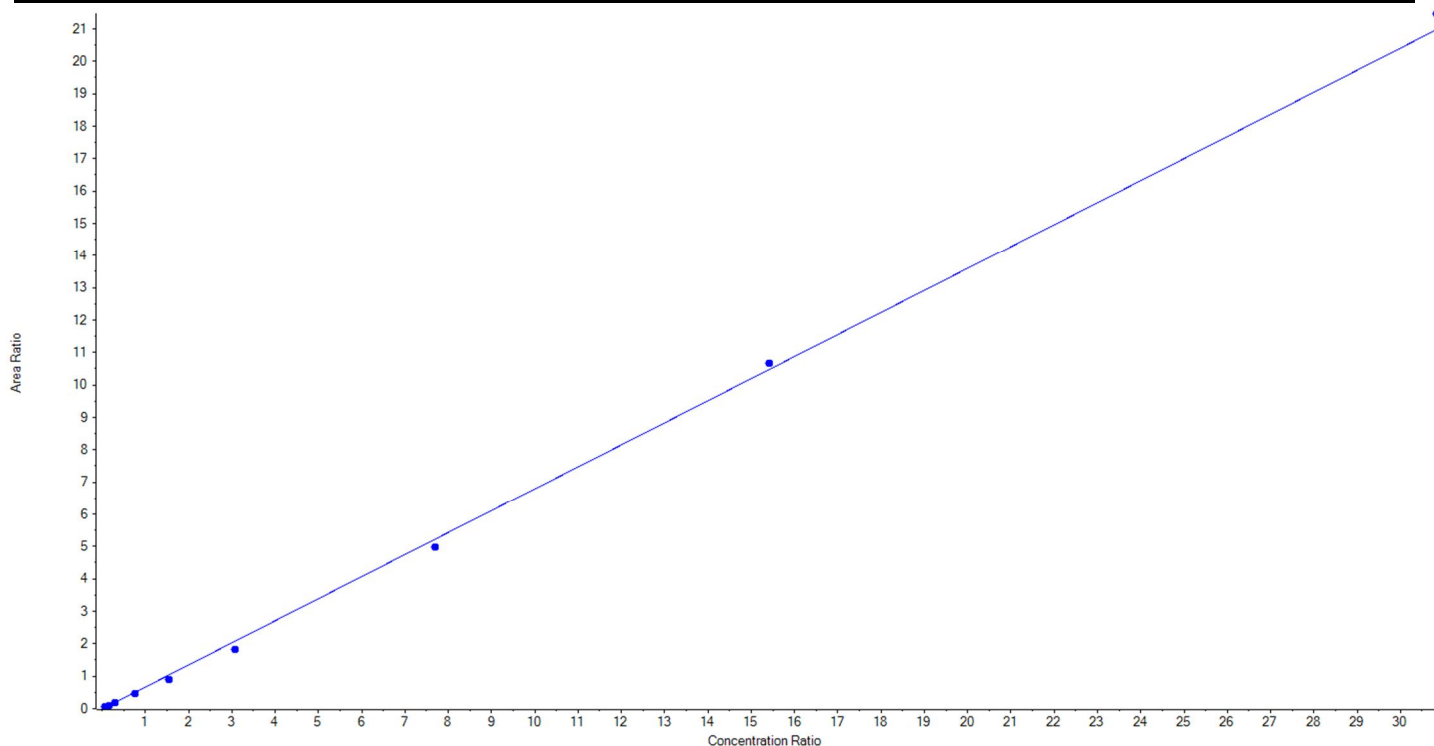
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Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFBS_1	Data File	18-0313.wiff
MRM Transition	298.9 / 80.0	Result Table	18-0312_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.68075x + -0.01541$ ($r = 0.99887$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.15	28.045095	126.6
3	JV65	L2	True	44.30	48.489227	109.5
4	JV66	L3	True	88.60	86.791512	98.0
5	JV67	L4	True	221.50	206.430305	93.2
6	JV68	L5	True	443.00	379.492245	85.7
7	JV69	L6	True	885.00	778.046261	87.9
8	JV70	L7	True	2212.50	2102.243811	95.0
9	JV71	L8	True	4425.00	4507.247954	101.9
10	JV72	L9	True	8850.00	9055.263589	102.3





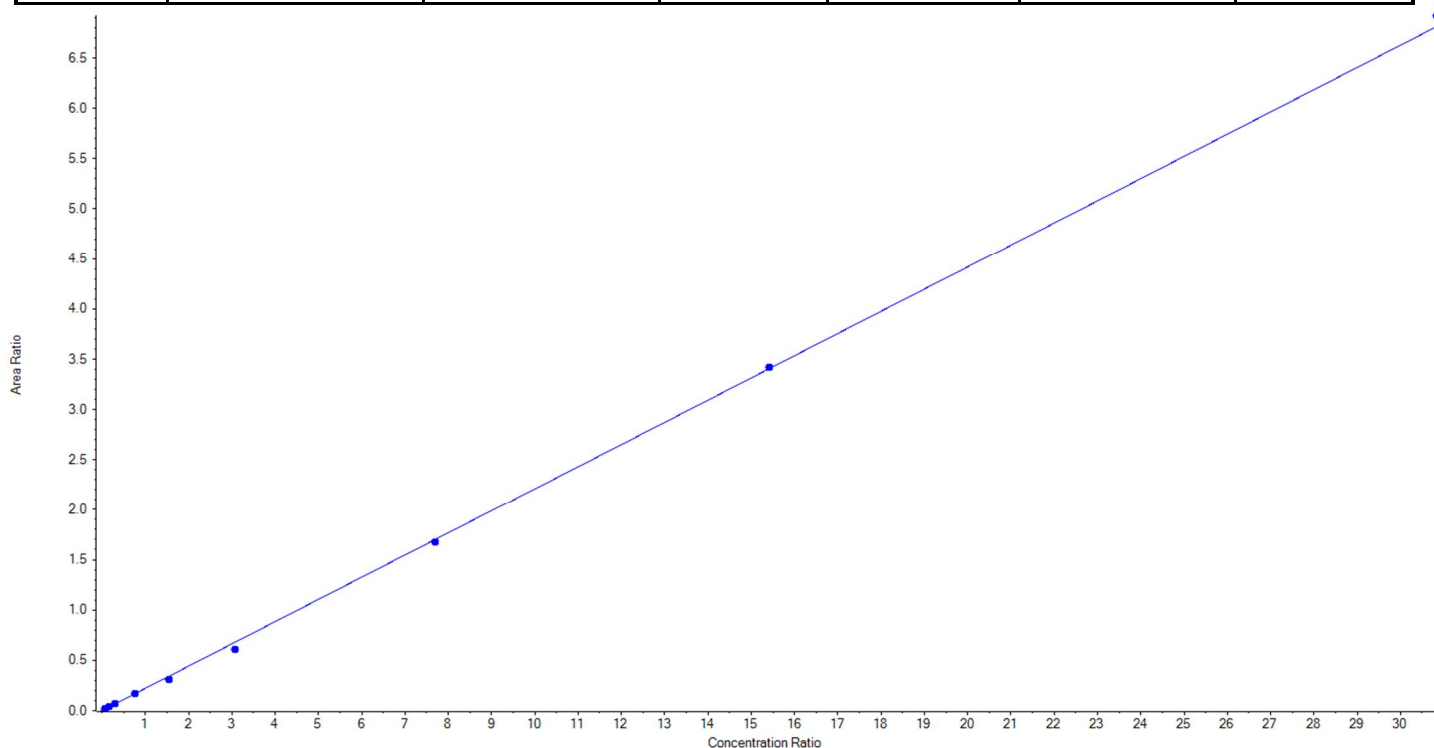
Calibration Summary Report

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Analyte Name	PFBS_2	Data File	18-0313.wiff
MRM Transition	298.9 / 99.0	Result Table	18-0312_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.22086 x + 3.23106e-4$ ($r = 0.99946$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.15	25.833478	116.6
3	JV65	L2	True	44.30	47.169014	106.5
4	JV66	L3	True	88.60	84.473566	95.3
5	JV67	L4	True	221.50	224.337631	101.3
6	JV68	L5	True	443.00	398.532474	90.0
7	JV69	L6	True	885.00	793.604509	89.7
8	JV70	L7	True	2212.50	2179.802809	98.5
9	JV71	L8	True	4425.00	4448.710926	100.5
10	JV72	L9	True	8850.00	8989.585593	101.6





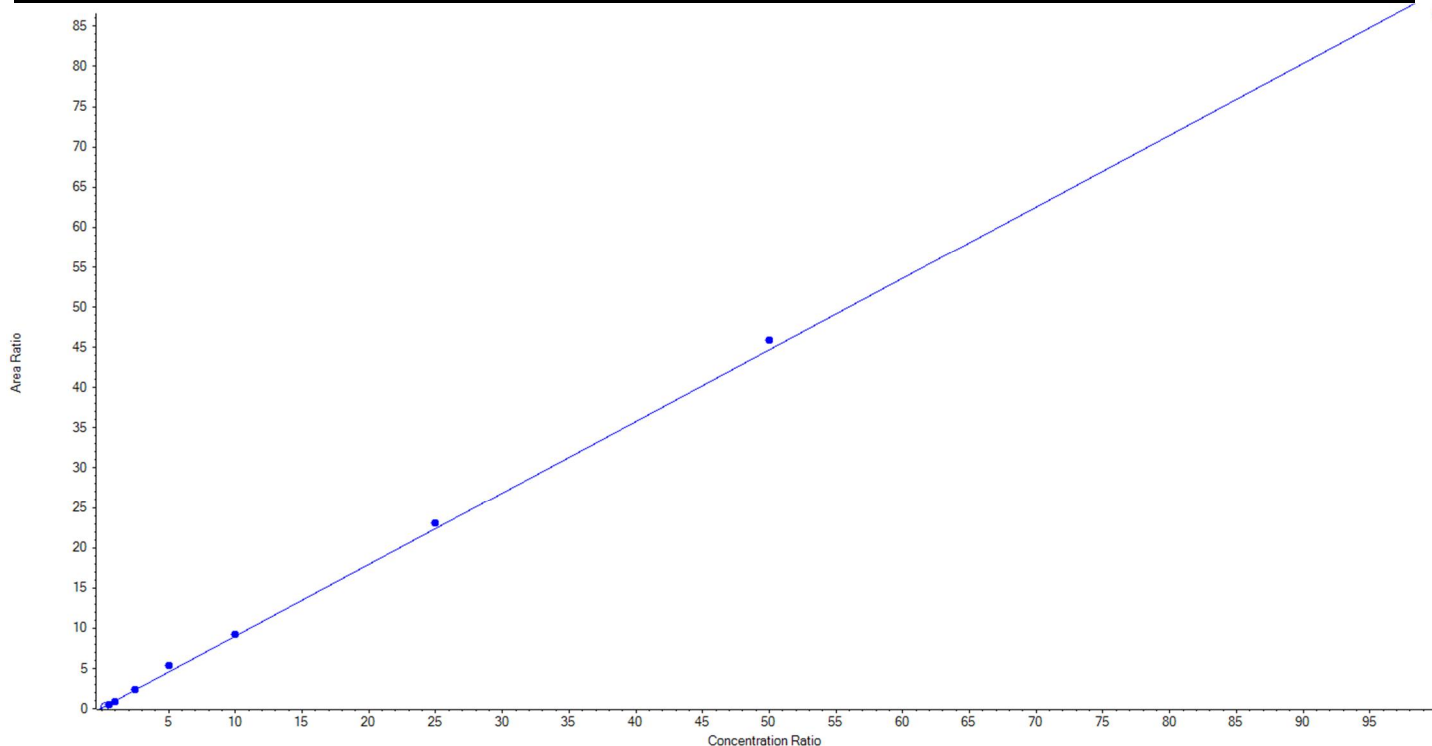
Calibration Summary Report

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Analyte Name	PFHxA_1	Data File	18-0313.wiff
MRM Transition	313.0 / 269.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.89190x + 0.09470$ ($r = 0.99902$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	18.657460	74.6
3	JV65	L2	True	50.00	42.893737	85.8
4	JV66	L3	True	100.00	88.393959	88.4
5	JV67	L4	True	250.00	258.426345	103.4
6	JV68	L5	True	500.00	590.552971	118.1
7	JV69	L6	True	1000.00	1017.252318	101.7
8	JV70	L7	True	2500.00	2574.231542	103.0
9	JV71	L8	True	5000.00	5136.044879	102.7
10	JV72	L9	True	10000.00	9692.204248	96.9





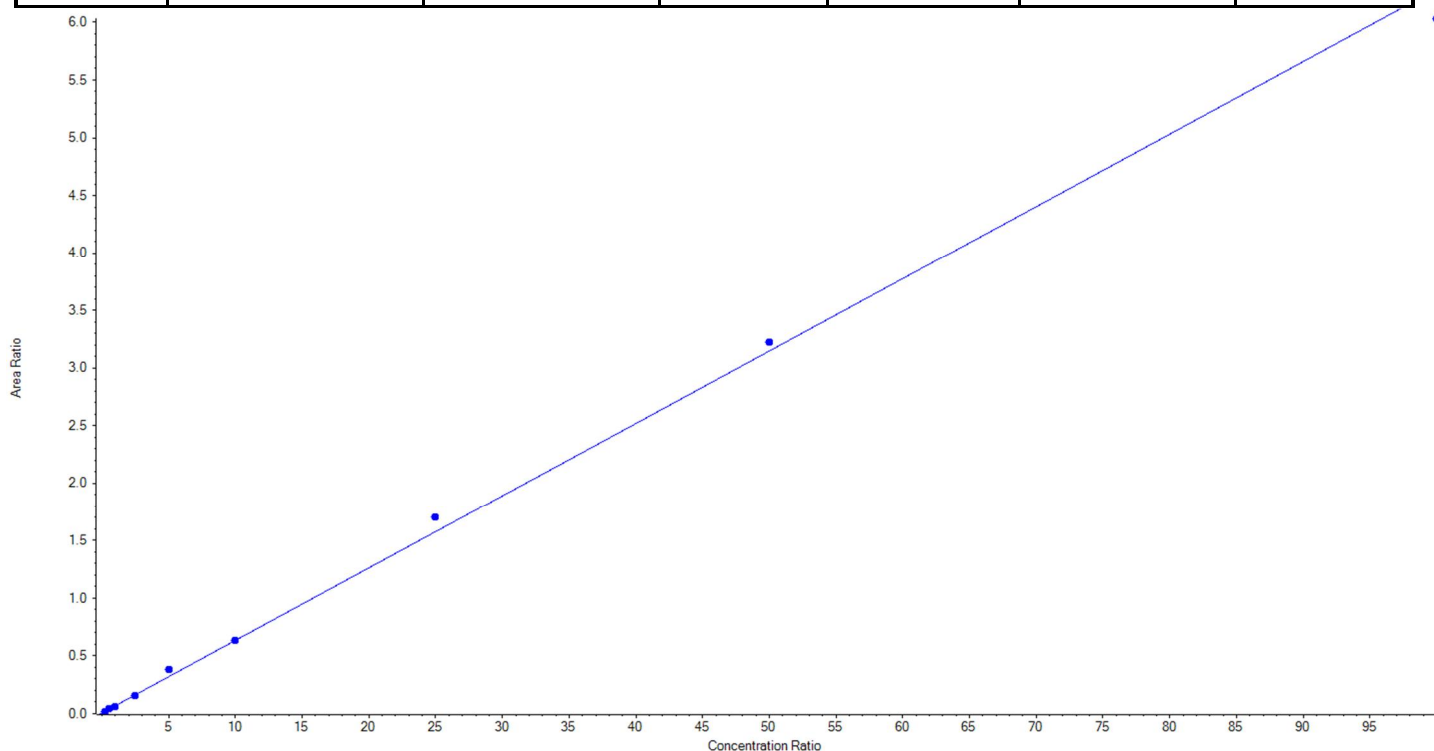
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MRM Transition	313.0 / 119.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06281 x + 0.00625$ (r = 0.99818) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	15.890183	63.6
3	JV65	L2	True	50.00	63.552557	127.1
4	JV66	L3	True	100.00	85.128911	85.1
5	JV67	L4	True	250.00	244.158146	97.7
6	JV68	L5	True	500.00	602.362054	120.5
7	JV69	L6	True	1000.00	994.796286	99.5
8	JV70	L7	True	2500.00	2705.114914	108.2
9	JV71	L8	True	5000.00	5124.538112	102.5
10	JV72	L9	True	10000.00	9589.458837	95.9





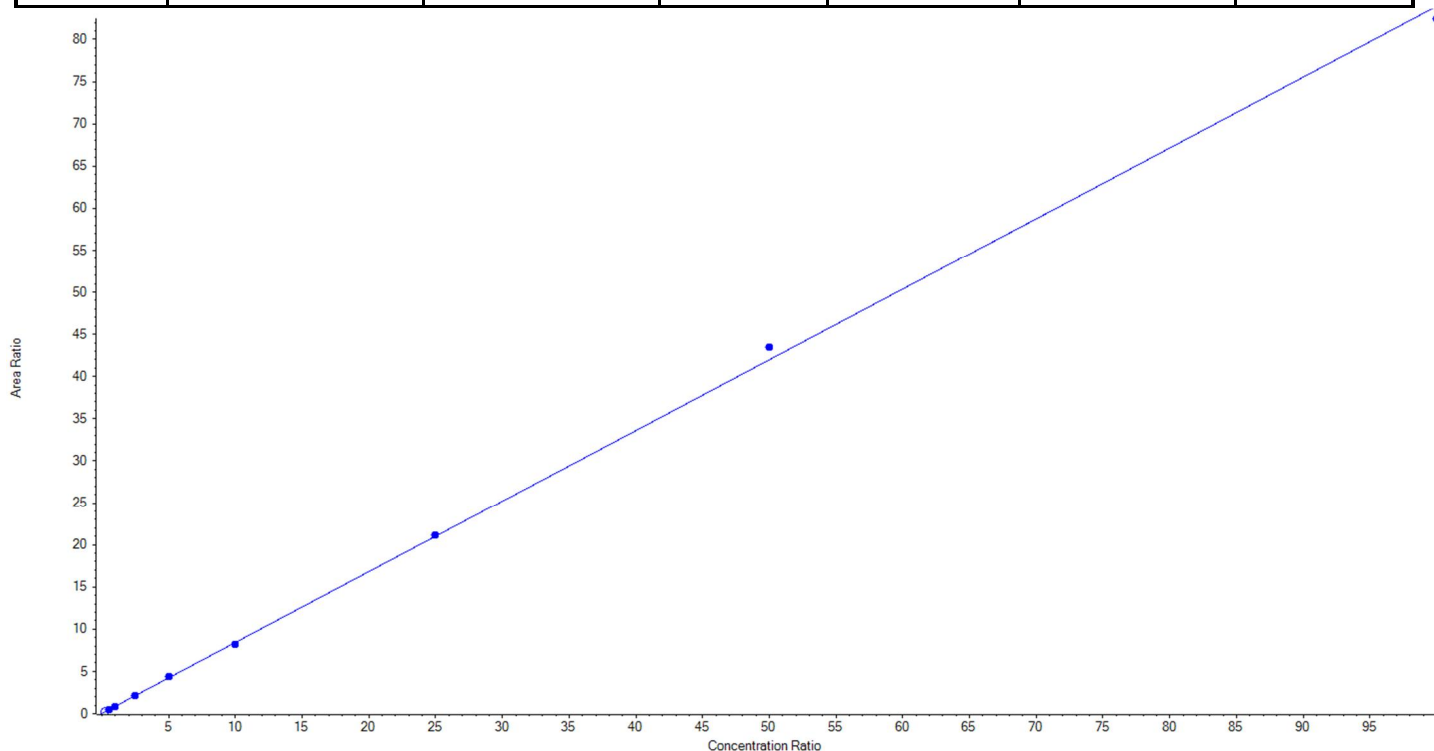
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Analyte Name	PFHpA_1	Data File	18-0313.wiff
MRM Transition	363.0 / 319.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.83876 x + 0.04371$ (r = 0.99963) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	19.315174	77.3
3	JV65	L2	True	50.00	54.414136	108.8
4	JV66	L3	True	100.00	87.171830	87.2
5	JV67	L4	True	250.00	253.853561	101.5
6	JV68	L5	True	500.00	513.574414	102.7
7	JV69	L6	True	1000.00	973.658392	97.4
8	JV70	L7	True	2500.00	2512.774114	100.5
9	JV71	L8	True	5000.00	5182.125230	103.6
10	JV72	L9	True	10000.00	9822.428323	98.2





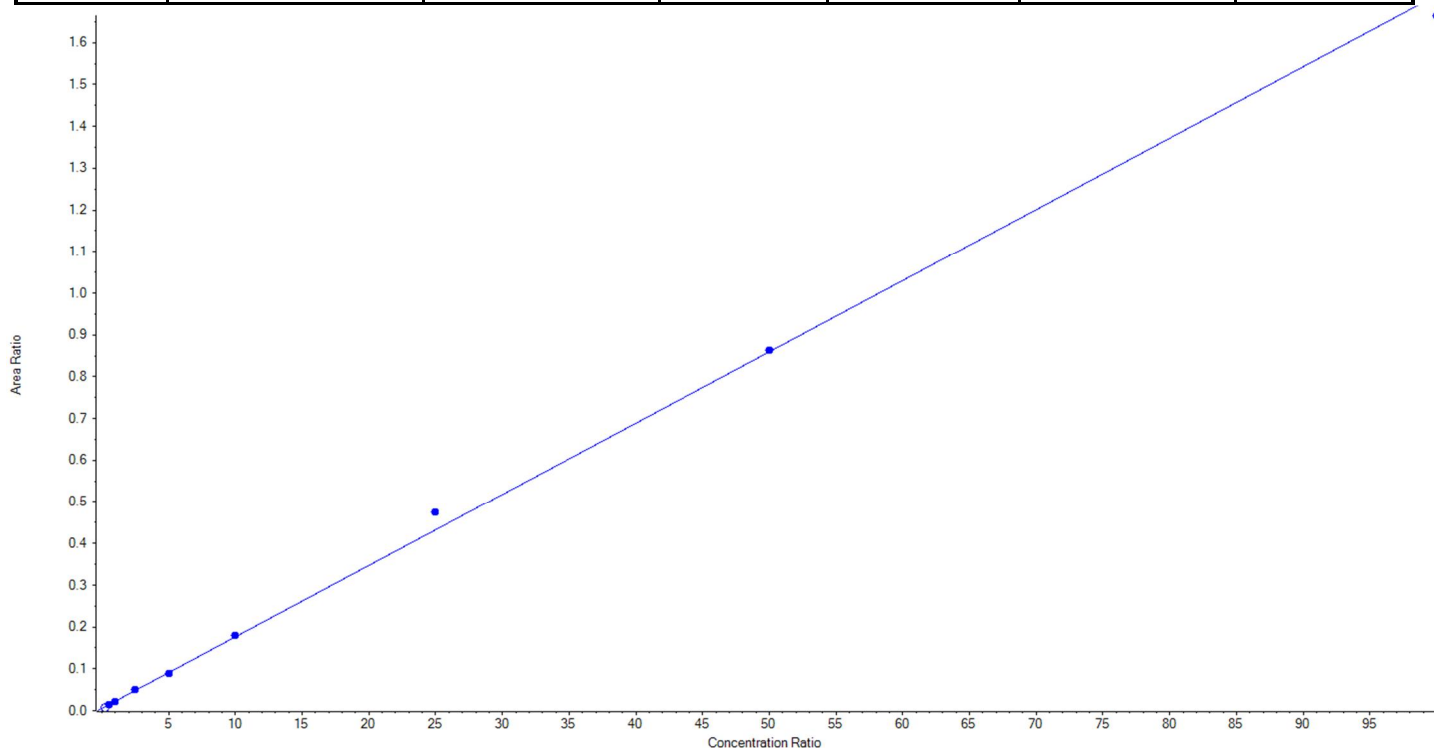
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFHpA_2	Data File	18-0313.wiff
MRM Transition	363.0 / 169.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.01708x + 0.00552$ ($r = 0.99897$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	10.338123	41.4
3	JV65	L2	True	50.00	48.862884	97.7
4	JV66	L3	True	100.00	87.168294	87.2
5	JV67	L4	True	250.00	268.362349	107.3
6	JV68	L5	True	500.00	490.348842	98.1
7	JV69	L6	True	1000.00	1022.051246	102.2
8	JV70	L7	True	2500.00	2747.089212	109.9
9	JV71	L8	True	5000.00	5024.136423	100.5
10	JV72	L9	True	10000.00	9711.980749	97.1





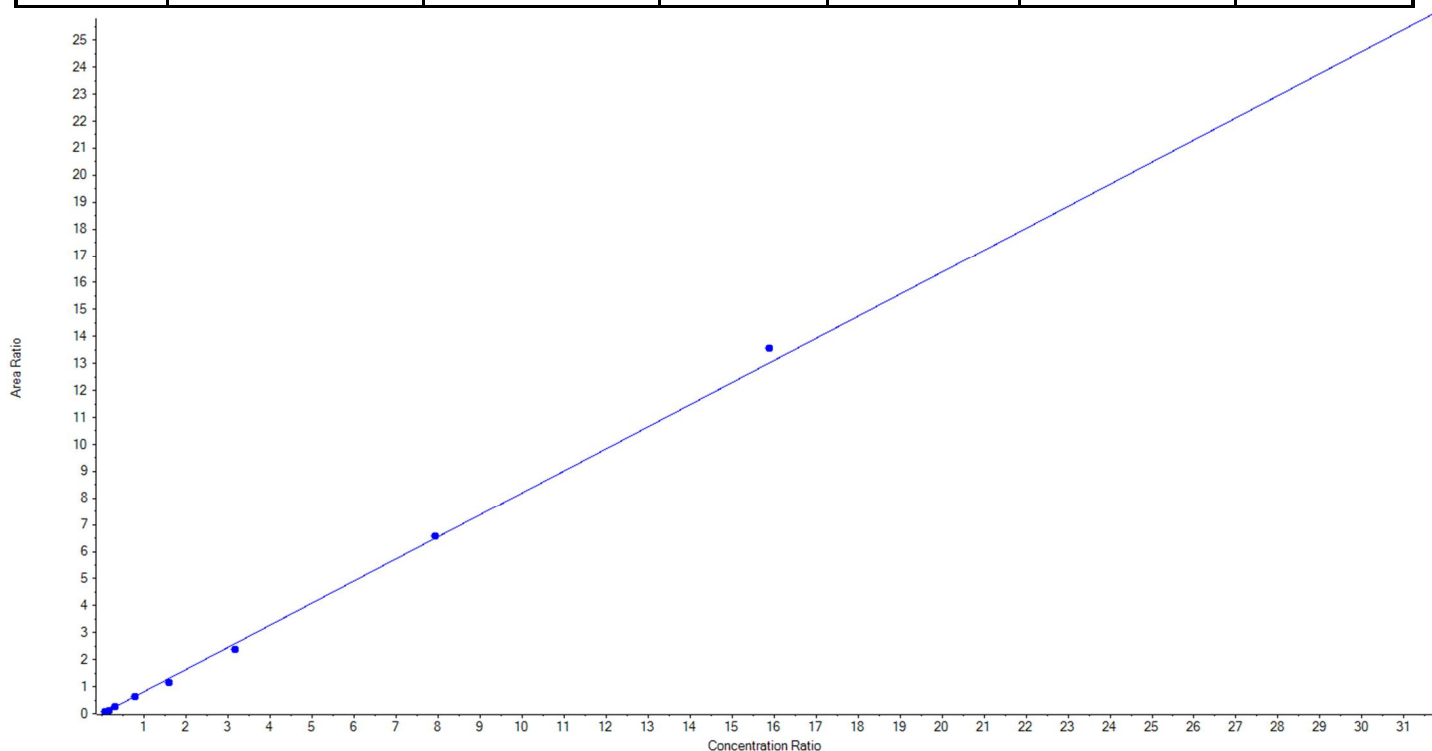
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFHxS_1	Data File	18-0313.wiff
MRM Transition	399.0 / 80.0	Result Table	18-0312_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.81953x + -0.00434$ ($r = 0.99932$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.80	25.556500	112.1
3	JV65	L2	True	45.60	45.328748	99.4
4	JV66	L3	True	91.20	96.635739	106.0
5	JV67	L4	True	228.00	225.752955	99.0
6	JV68	L5	True	456.00	398.622698	87.4
7	JV69	L6	True	912.00	837.957539	91.9
8	JV70	L7	True	2280.00	2303.521436	101.0
9	JV71	L8	True	4560.00	4749.618935	104.2
10	JV72	L9	True	9120.00	9032.605450	99.0





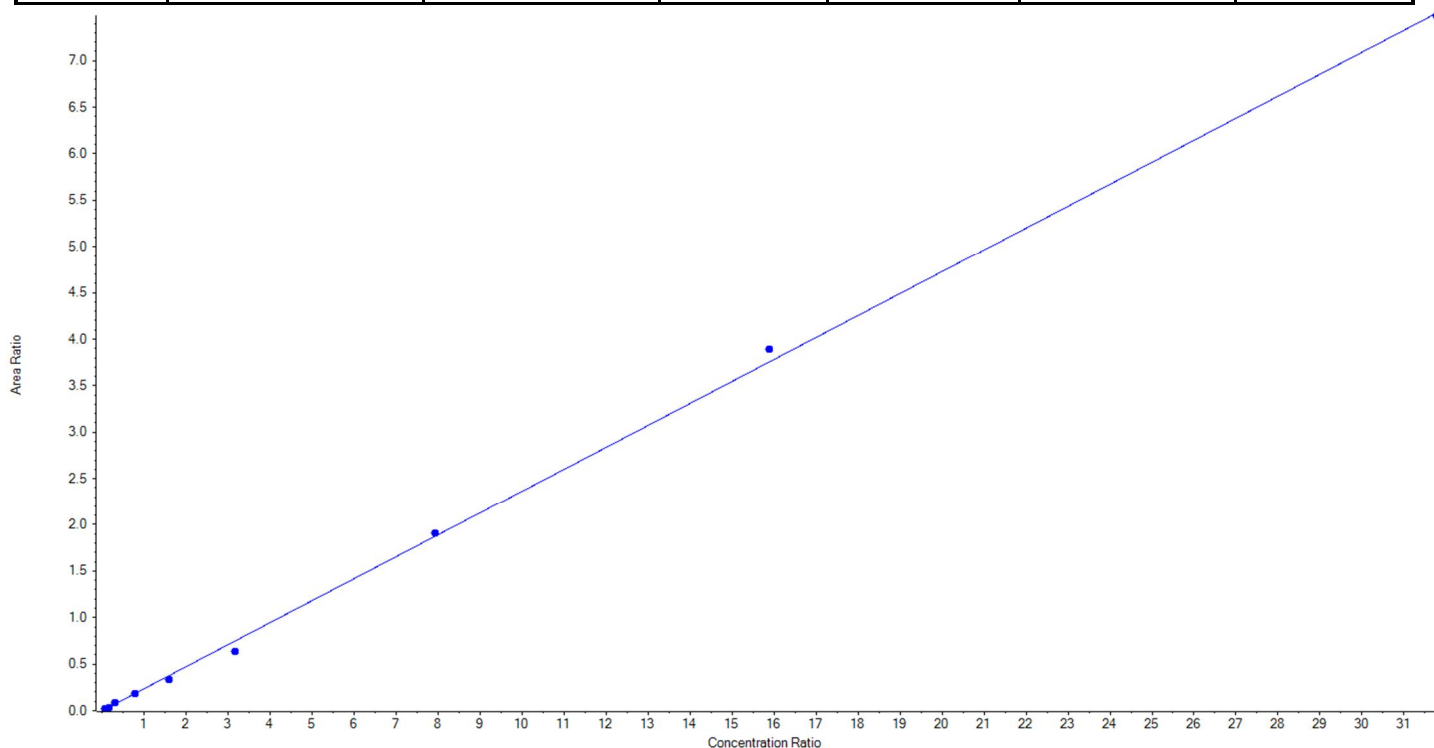
Calibration Summary Report

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Analyte Name	PFHxS_2	Data File	18-0313.wiff
MRM Transition	399.0 / 99.0	Result Table	18-0312_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.23641x + -9.70194e-4$ (r = 0.99901) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.80	24.128618	105.8
3	JV65	L2	True	45.60	45.498258	99.8
4	JV66	L3	True	91.20	106.207971	116.5
5	JV67	L4	True	228.00	222.356004	97.5
6	JV68	L5	True	456.00	410.686463	90.1
7	JV69	L6	True	912.00	779.306332	85.5
8	JV70	L7	True	2280.00	2318.419291	101.7
9	JV71	L8	True	4560.00	4724.397363	103.6
10	JV72	L9	True	9120.00	9084.599701	99.6





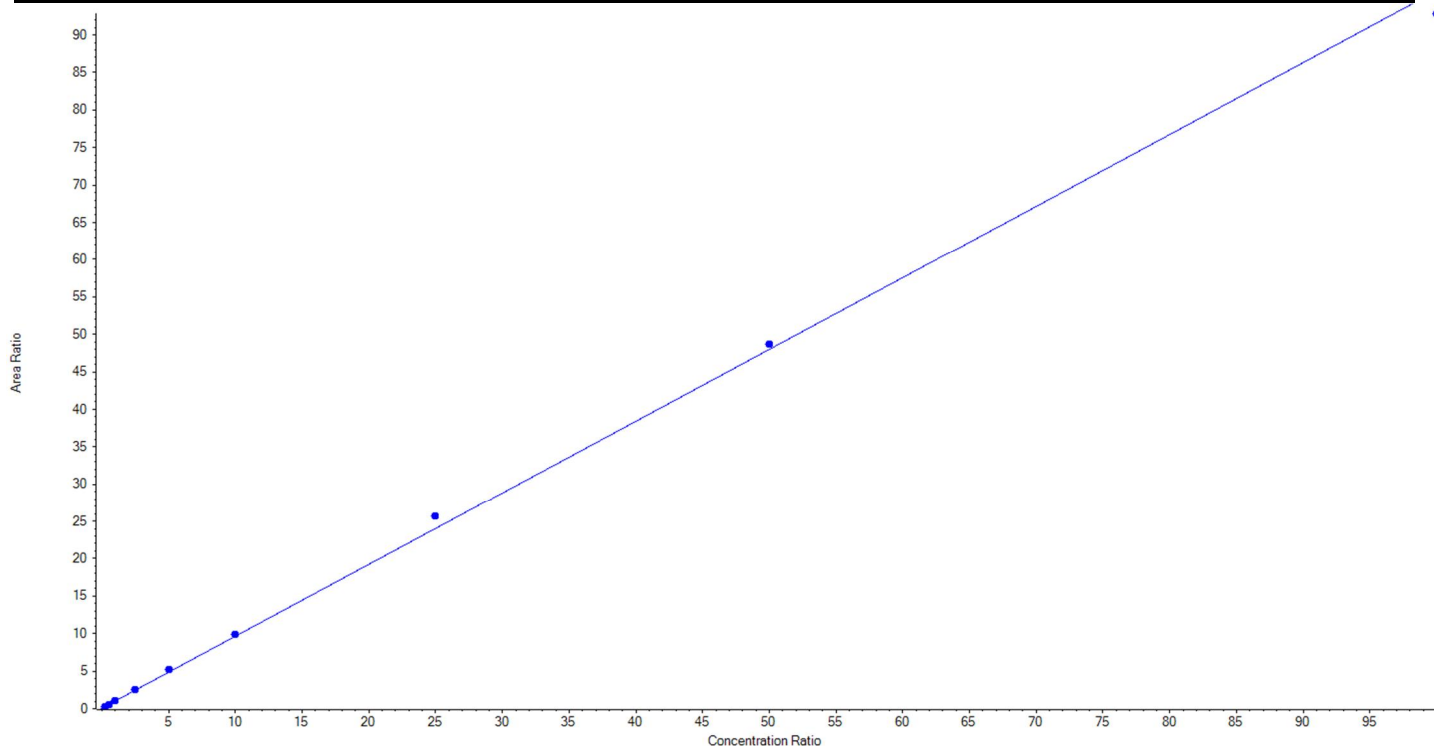
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFOA_1	Data File	18-0313.wiff
MRM Transition	413.0 / 369.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.95821 x + 0.07420$ (r = 0.99920) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	20.271455	81.1
3	JV65	L2	True	50.00	48.064799	96.1
4	JV66	L3	True	100.00	104.359044	104.4
5	JV67	L4	True	250.00	254.296931	101.7
6	JV68	L5	True	500.00	542.897965	108.6
7	JV69	L6	True	1000.00	1028.463388	102.9
8	JV70	L7	True	2500.00	2676.545515	107.1
9	JV71	L8	True	5000.00	5071.800474	101.4
10	JV72	L9	True	10000.00	9678.300429	96.8





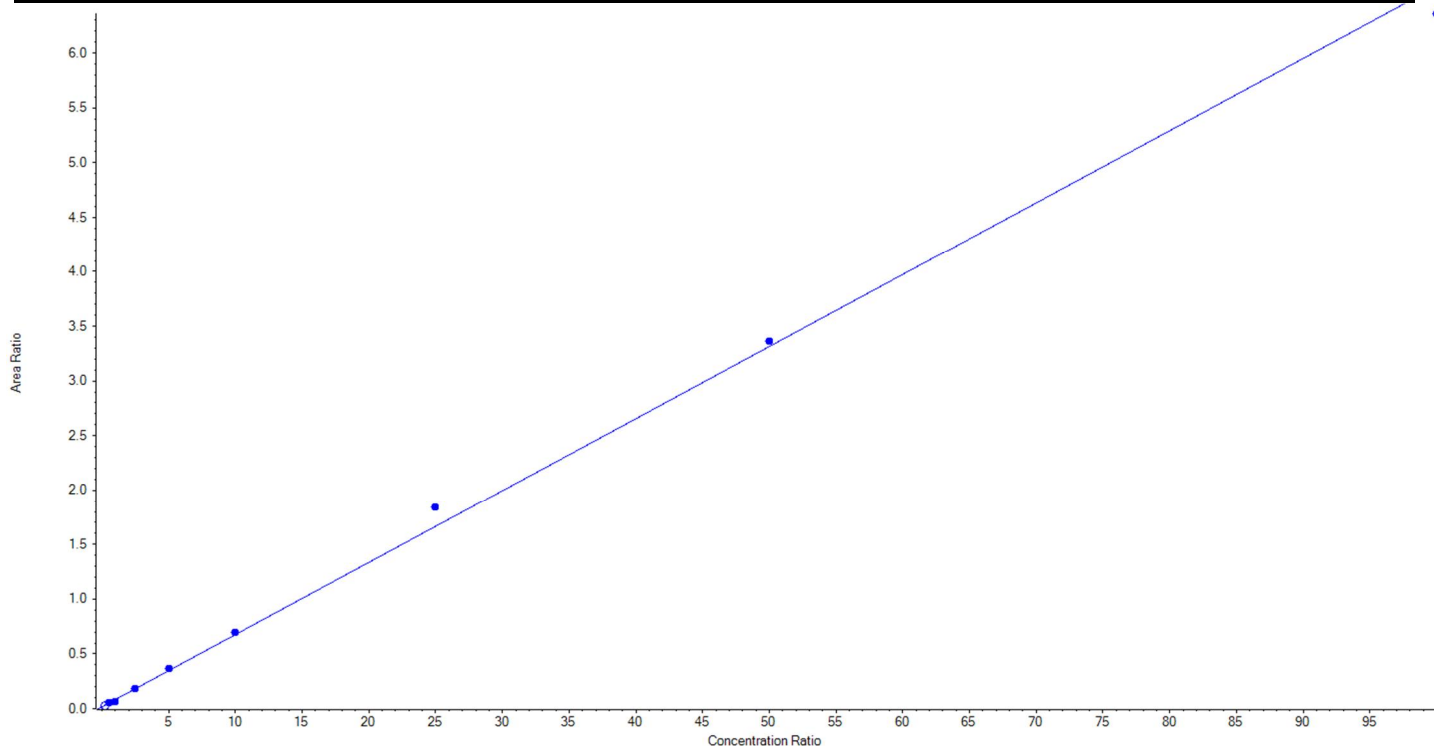
Calibration Summary Report

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Analyte Name	PFOA_2	Data File	18-0313.wiff
MRM Transition	413.0 / 169.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06594 x + 0.01732$ (r = 0.99846) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	8.864133	35.5
3	JV65	L2	True	50.00	53.444479	106.9
4	JV66	L3	True	100.00	72.590674	72.6
5	JV67	L4	True	250.00	257.344048	102.9
6	JV68	L5	True	500.00	535.062840	107.0
7	JV69	L6	True	1000.00	1023.026817	102.3
8	JV70	L7	True	2500.00	2763.902729	110.6
9	JV71	L8	True	5000.00	5076.510630	101.5
10	JV72	L9	True	10000.00	9618.117783	96.2





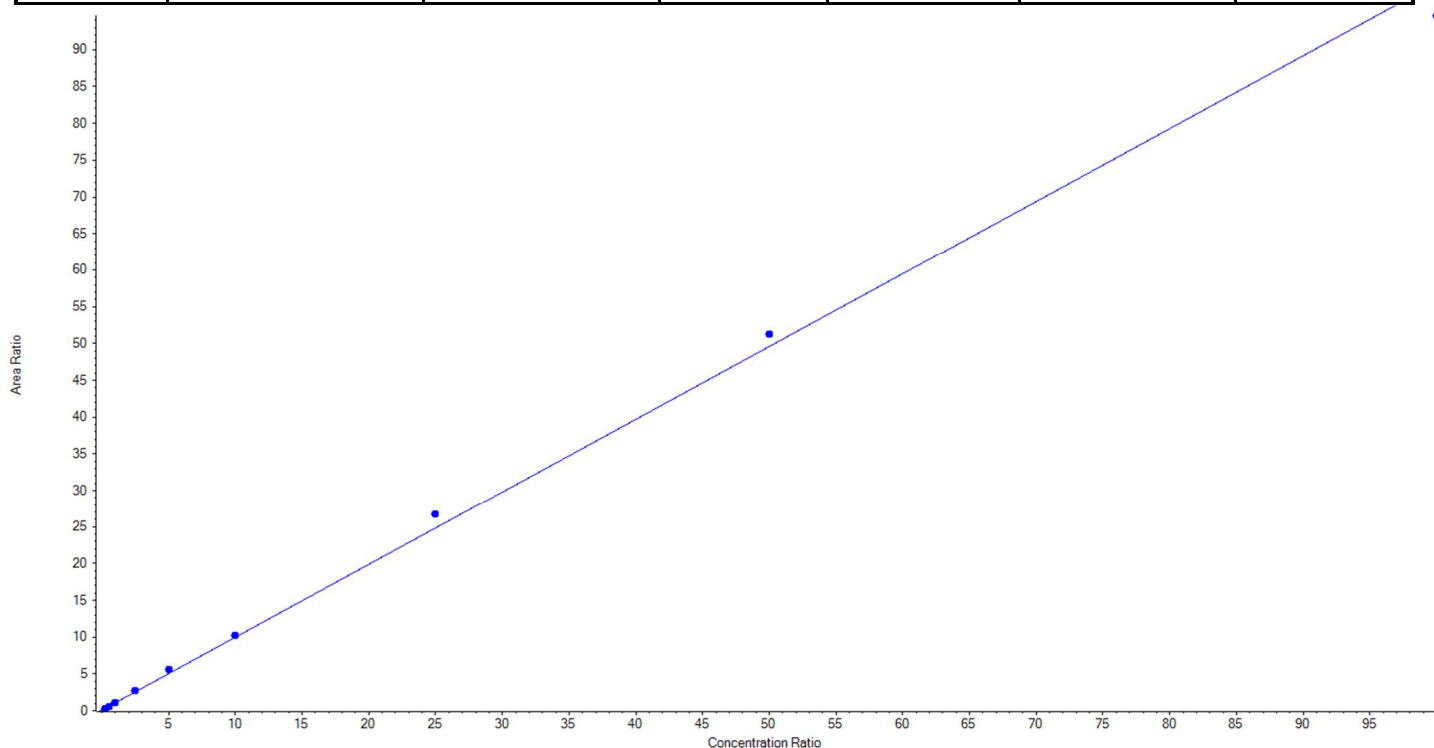
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Analyte Name	PFNA_1	Data File	18-0313.wiff
MRM Transition	463.0 / 419.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.99005x + 0.08354$ ($r = 0.99862$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	18.792753	75.2
3	JV65	L2	True	50.00	50.077219	100.2
4	JV66	L3	True	100.00	97.651904	97.7
5	JV67	L4	True	250.00	265.634549	106.3
6	JV68	L5	True	500.00	556.615759	111.3
7	JV69	L6	True	1000.00	1028.511506	102.9
8	JV70	L7	True	2500.00	2695.858545	107.8
9	JV71	L8	True	5000.00	5164.160418	103.3
10	JV72	L9	True	10000.00	9547.697347	95.5





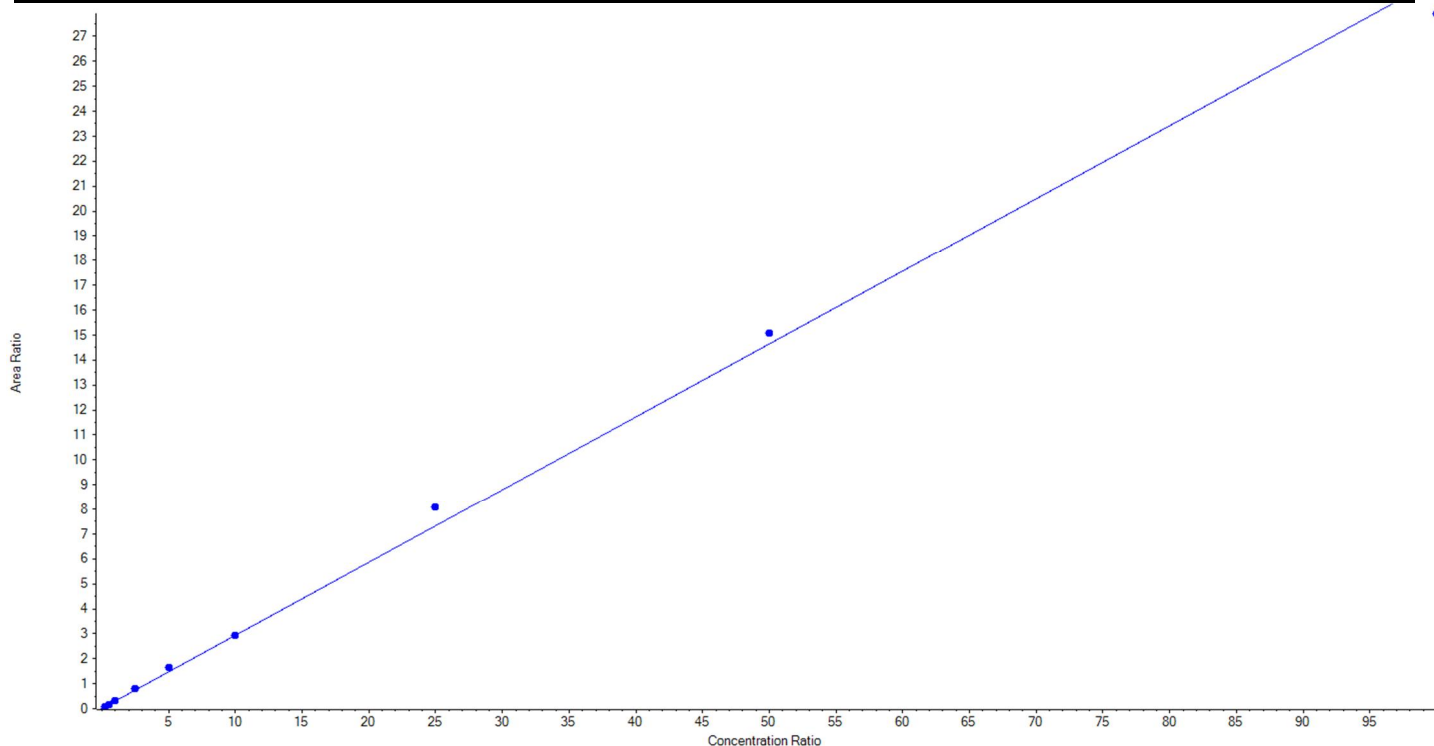
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Analyte Name	PFNA_2	Data File	18-0313.wiff
MRM Transition	463.0 / 219.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.29260x + 0.01417$ ($r = 0.99832$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	18.357615	73.4
3	JV65	L2	True	50.00	50.945275	101.9
4	JV66	L3	True	100.00	98.707450	98.7
5	JV67	L4	True	250.00	267.249370	106.9
6	JV68	L5	True	500.00	552.006190	110.4
7	JV69	L6	True	1000.00	1000.117057	100.0
8	JV70	L7	True	2500.00	2760.876412	110.4
9	JV71	L8	True	5000.00	5145.638736	102.9
10	JV72	L9	True	10000.00	9531.101896	95.3





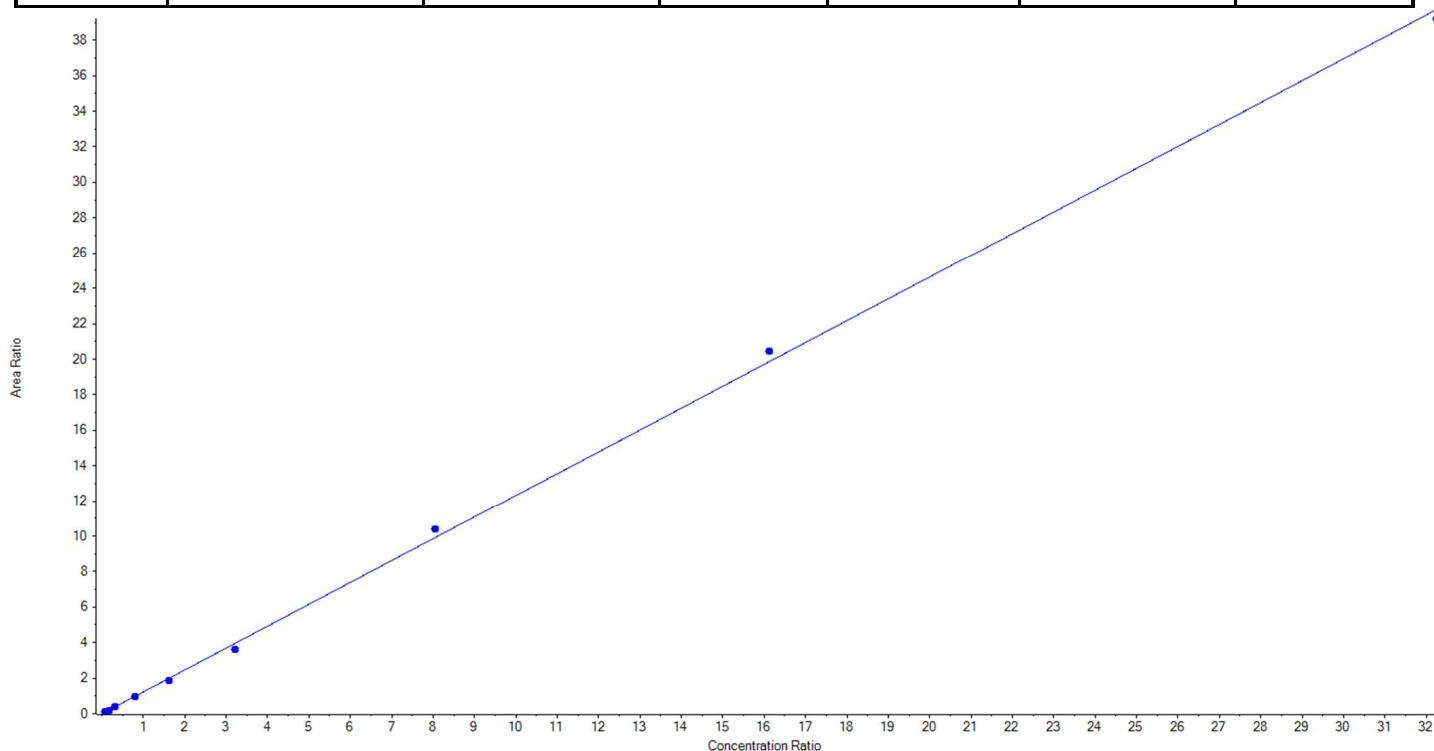
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Analyte Name	PFOS_1	Data File	18-0313.wiff
MRM Transition	499.0 / 80.0	Result Table	18-0312_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.23183x + -0.00456$ ($r = 0.99934$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	23.15	28.031094	121.1
3	JV65	L2	True	46.30	42.301066	91.4
4	JV66	L3	True	92.60	90.970659	98.2
5	JV67	L4	True	231.50	230.459461	99.6
6	JV68	L5	True	463.00	428.901519	92.6
7	JV69	L6	True	925.00	840.100698	90.8
8	JV70	L7	True	2314.00	2424.048404	104.8
9	JV71	L8	True	4628.00	4760.602564	102.9
10	JV72	L9	True	9256.00	9134.134535	98.7





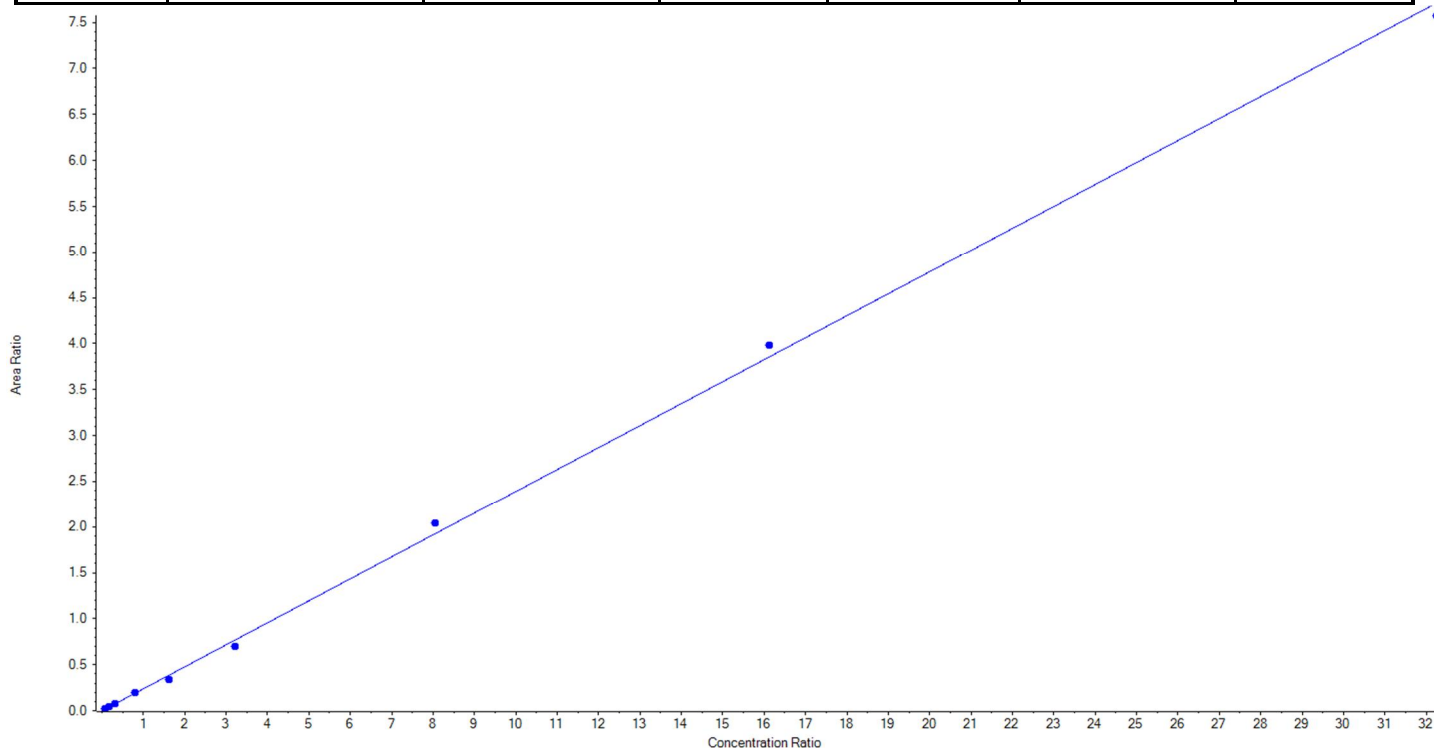
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Analyte Name	PFOS_2	Data File	18-0313.wiff
MRM Transition	499.0 / 99.0	Result Table	18-0312_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.23915x + -0.00150$ ($r = 0.99909$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	23.15	23.346458	100.9
3	JV65	L2	True	46.30	50.287062	108.6
4	JV66	L3	True	92.60	92.083626	99.4
5	JV67	L4	True	231.50	241.652806	104.4
6	JV68	L5	True	463.00	409.963845	88.6
7	JV69	L6	True	925.00	839.354013	90.7
8	JV70	L7	True	2314.00	2449.080596	105.8
9	JV71	L8	True	4628.00	4785.237481	103.4
10	JV72	L9	True	9256.00	9088.544113	98.2





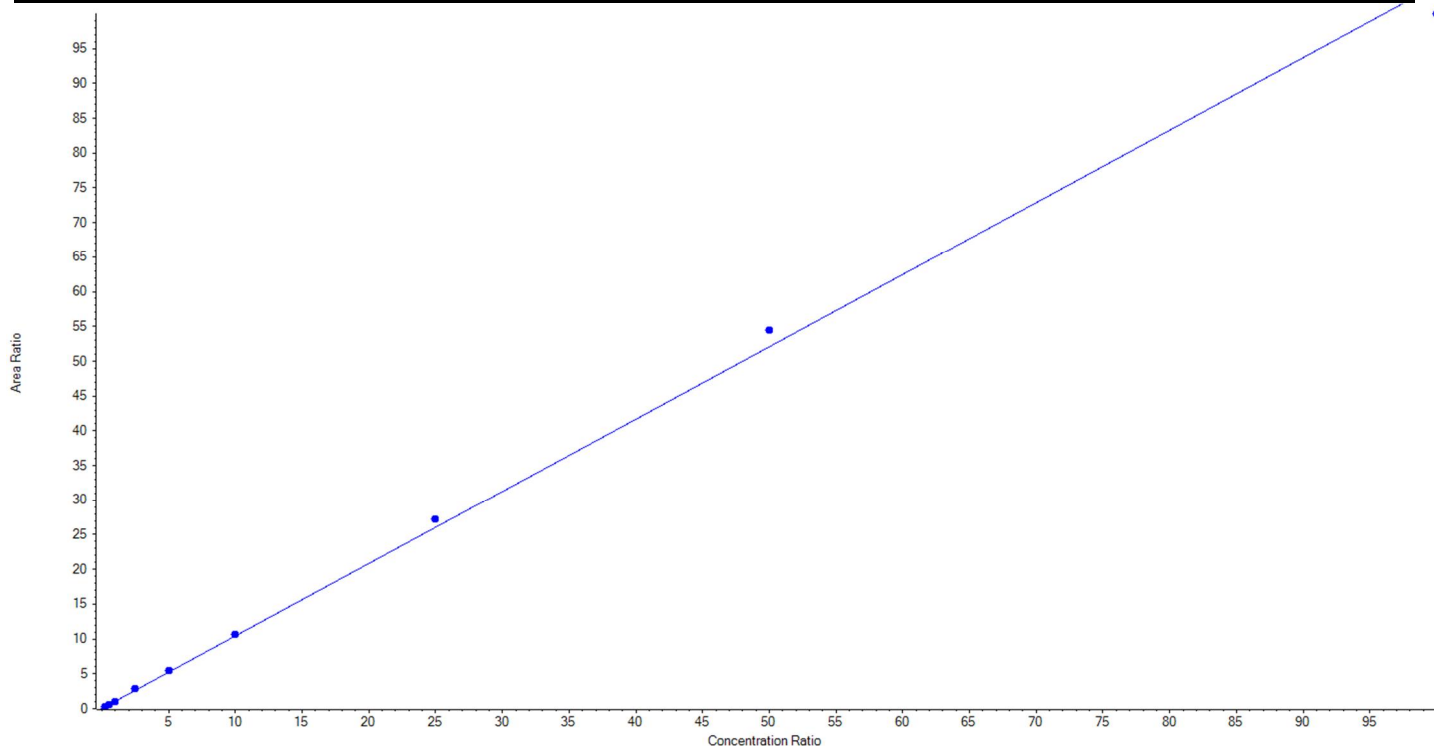
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Analyte Name	PFDA_1	Data File	18-0313.wiff
MRM Transition	513.0 / 469.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.04056x + 0.03653$ ($r = 0.99905$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	21.617757	86.5
3	JV65	L2	True	50.00	46.915581	93.8
4	JV66	L3	True	100.00	98.528321	98.5
5	JV67	L4	True	250.00	274.358579	109.7
6	JV68	L5	True	500.00	522.068312	104.4
7	JV69	L6	True	1000.00	1020.948522	102.1
8	JV70	L7	True	2500.00	2607.612929	104.3
9	JV71	L8	True	5000.00	5228.352489	104.6
10	JV72	L9	True	10000.00	9604.597509	96.1





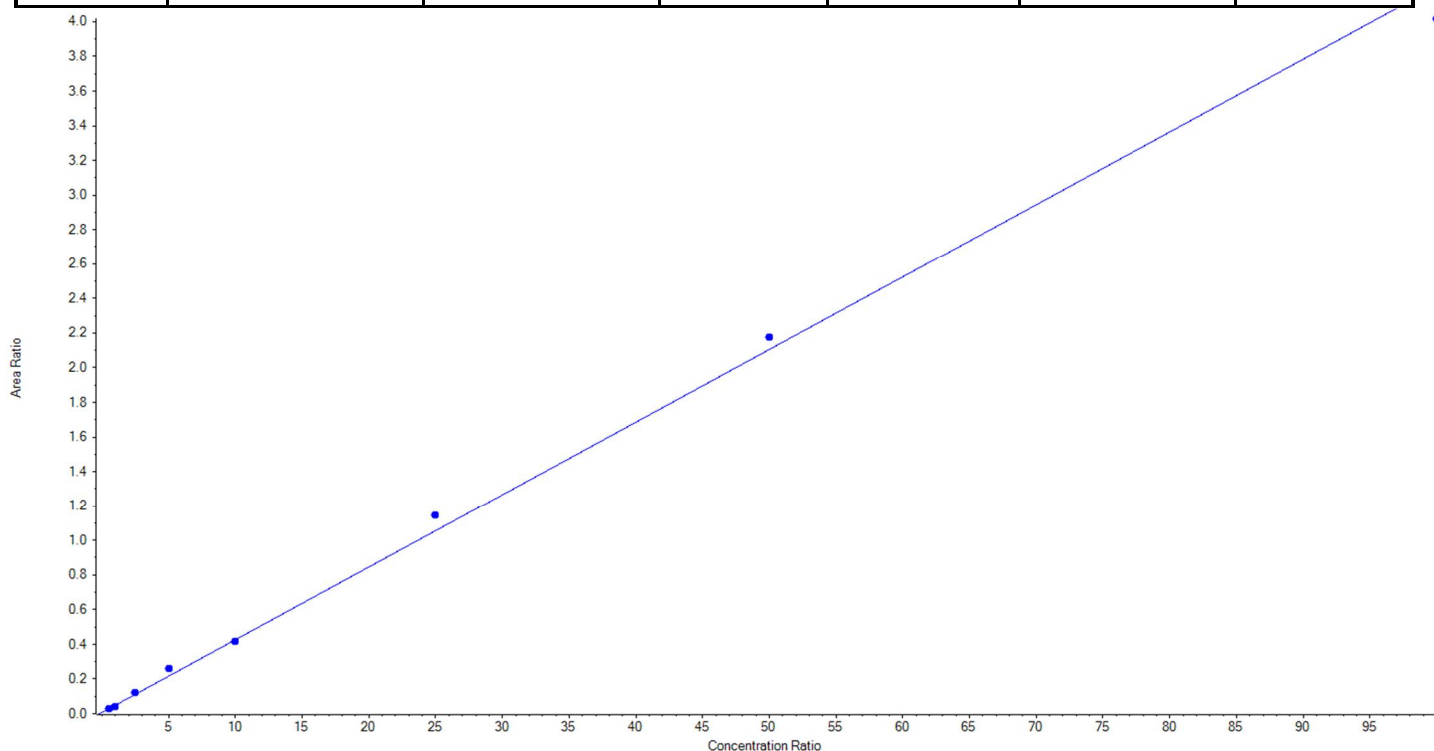
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Analyte Name	PFDA_2	Data File	18-0313.wiff
MRM Transition	513.0 / 219.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.04197 x + 0.00666$ (r = 0.99799) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	46.777482	93.6
4	JV66	L3	True	100.00	74.434538	74.4
5	JV67	L4	True	250.00	267.766863	107.1
6	JV68	L5	True	500.00	598.449884	119.7
7	JV69	L6	True	1000.00	978.090466	97.8
8	JV70	L7	True	2500.00	2713.219176	108.5
9	JV71	L8	True	5000.00	5166.334700	103.3
10	JV72	L9	True	10000.00	9554.926891	95.6





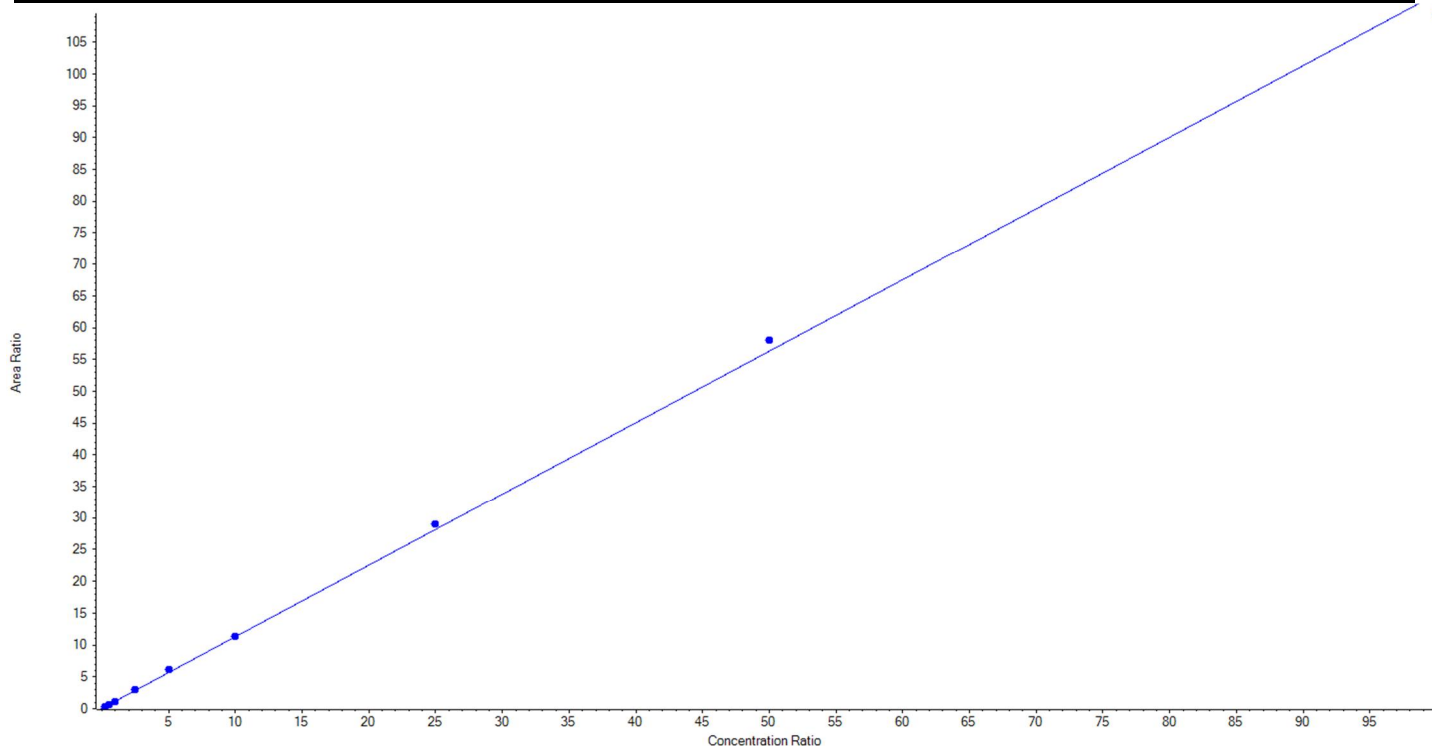
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Analyte Name	PFUnA_1	Data File	18-0313.wiff
MRM Transition	563.0 / 519.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.12524 x + 0.05385$ (r = 0.99945) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	24.089066	96.4
3	JV65	L2	True	50.00	45.924072	91.9
4	JV66	L3	True	100.00	93.739853	93.7
5	JV67	L4	True	250.00	263.505185	105.4
6	JV68	L5	True	500.00	546.212628	109.2
7	JV69	L6	True	1000.00	1000.964662	100.1
8	JV70	L7	True	2500.00	2576.763887	103.1
9	JV71	L8	True	5000.00	5150.610976	103.0
10	JV72	L9	True	10000.00	9723.189670	97.2





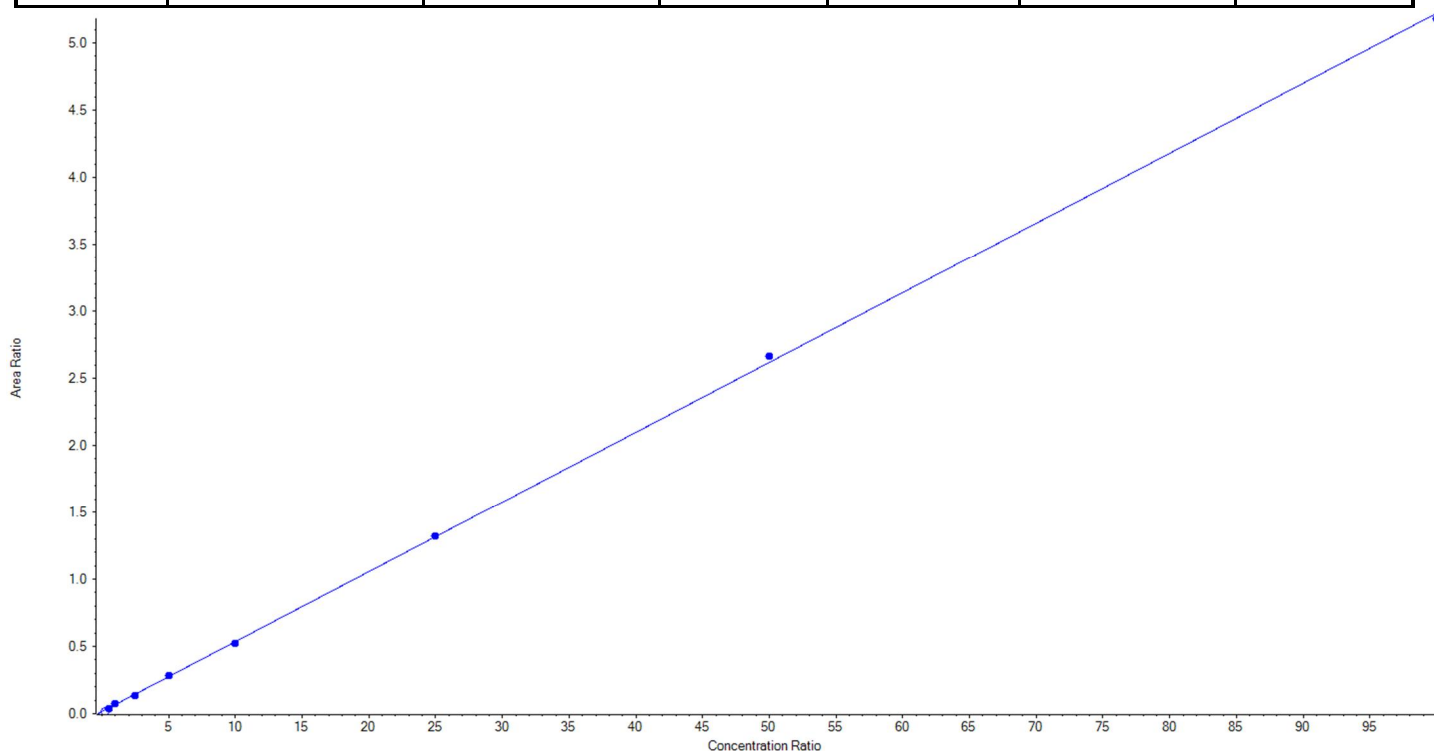
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Analyte Name	PFUnA_2	Data File	18-0313.wiff
MRM Transition	563.0 / 269.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05204 x + 0.01541$ ($r = 0.99984$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	0.630758	2.5
3	JV65	L2	True	50.00	46.402649	92.8
4	JV66	L3	True	100.00	110.523860	110.5
5	JV67	L4	True	250.00	233.942859	93.6
6	JV68	L5	True	500.00	520.526486	104.1
7	JV69	L6	True	1000.00	978.427801	97.8
8	JV70	L7	True	2500.00	2507.249455	100.3
9	JV71	L8	True	5000.00	5082.637315	101.7
10	JV72	L9	True	10000.00	9920.289573	99.2





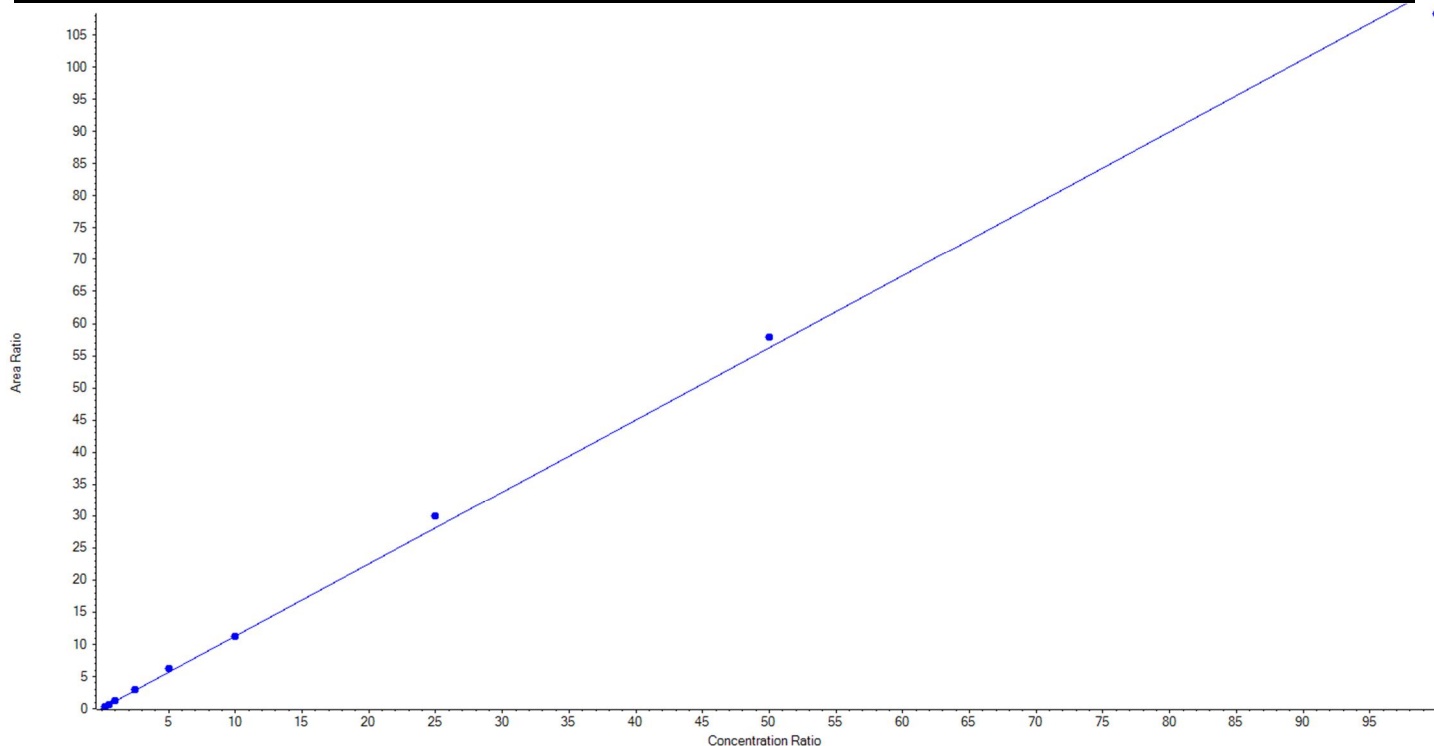
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Analyte Name	PFD _o A_1	Data File	18-0313.wiff
MRM Transition	613.0 / 569.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.12396 x + 0.04546$ (r = 0.99903) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	21.386025	85.5
3	JV65	L2	True	50.00	46.149854	92.3
4	JV66	L3	True	100.00	100.371982	100.4
5	JV67	L4	True	250.00	261.955860	104.8
6	JV68	L5	True	500.00	555.474506	111.1
7	JV69	L6	True	1000.00	1002.365324	100.2
8	JV70	L7	True	2500.00	2661.890707	106.5
9	JV71	L8	True	5000.00	5144.074612	102.9
10	JV72	L9	True	10000.00	9631.331130	96.3





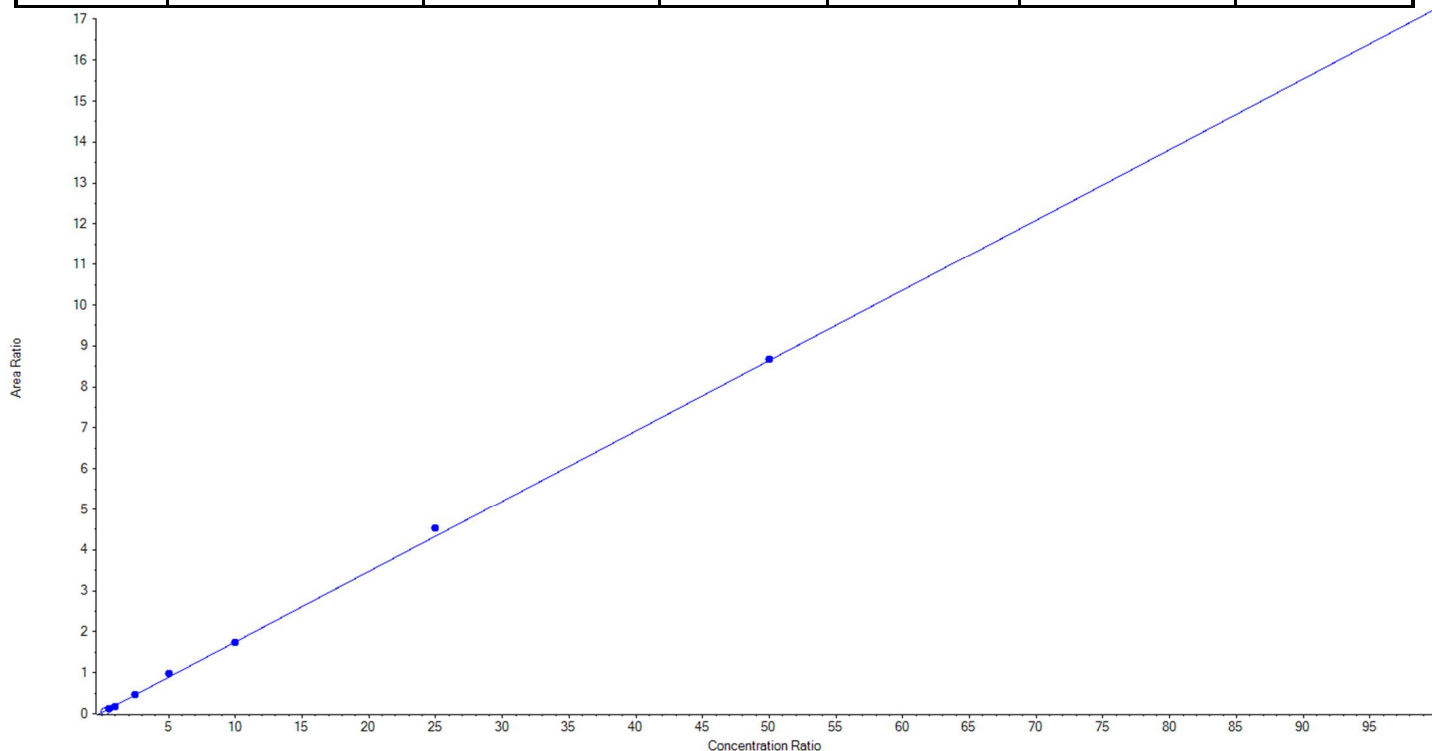
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Analyte Name	PFD _o A_2	Data File	18-0313.wiff
MRM Transition	613.0 / 319.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.17236 x + 0.02845$ (r = 0.99959) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	7.804720	31.2
3	JV65	L2	True	50.00	53.040734	106.1
4	JV66	L3	True	100.00	83.092603	83.1
5	JV67	L4	True	250.00	247.417961	99.0
6	JV68	L5	True	500.00	547.673098	109.5
7	JV69	L6	True	1000.00	991.539776	99.2
8	JV70	L7	True	2500.00	2607.895936	104.3
9	JV71	L8	True	5000.00	5016.091027	100.3
10	JV72	L9	True	10000.00	9853.248864	98.5





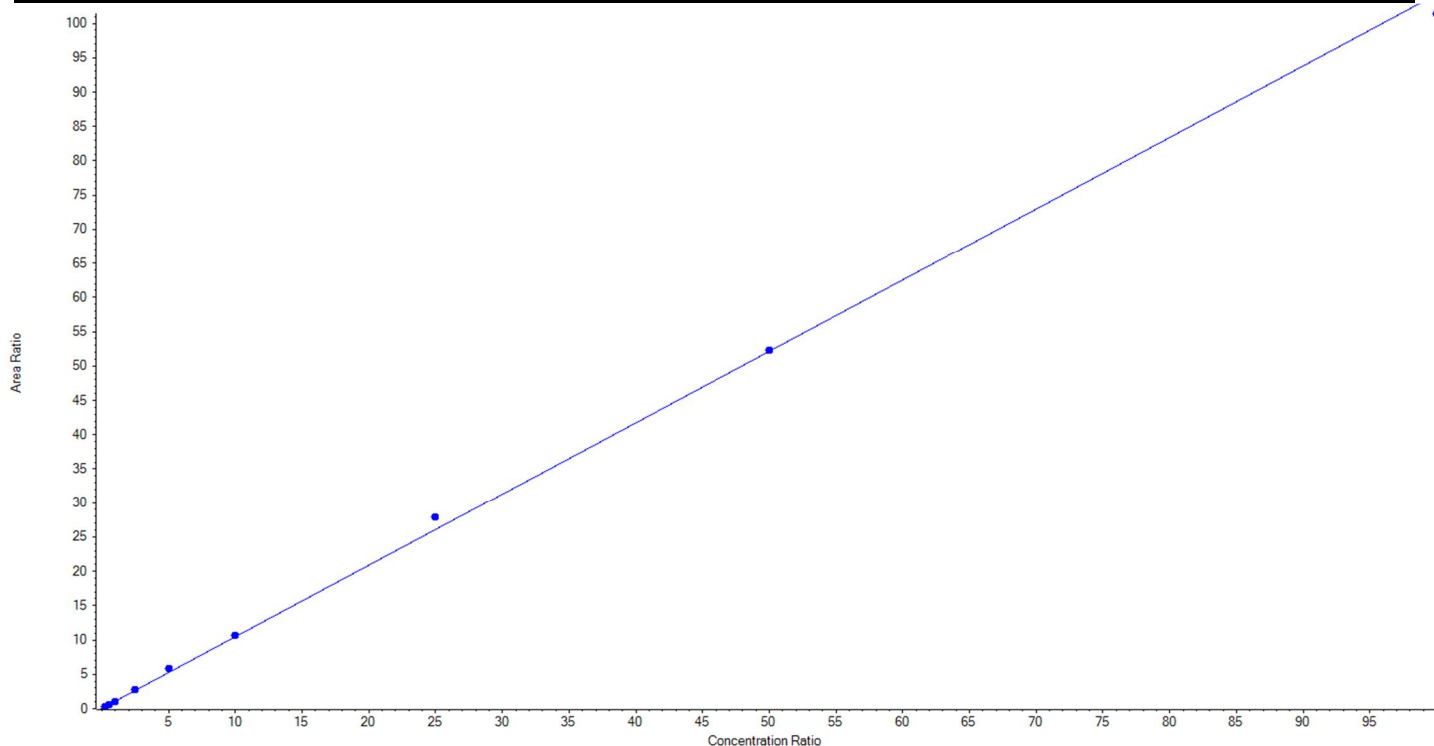
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Analyte Name	PFTrDA_1	Data File	18-0313.wiff
MRM Transition	663.0 / 619.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.04170x + 0.05468$ ($r = 0.99926$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	21.242461	85.0
3	JV65	L2	True	50.00	47.209992	94.4
4	JV66	L3	True	100.00	97.574463	97.6
5	JV67	L4	True	250.00	266.206145	106.5
6	JV68	L5	True	500.00	549.792324	110.0
7	JV69	L6	True	1000.00	1017.912346	101.8
8	JV70	L7	True	2500.00	2679.029289	107.2
9	JV71	L8	True	5000.00	5018.204996	100.4
10	JV72	L9	True	10000.00	9727.827984	97.3





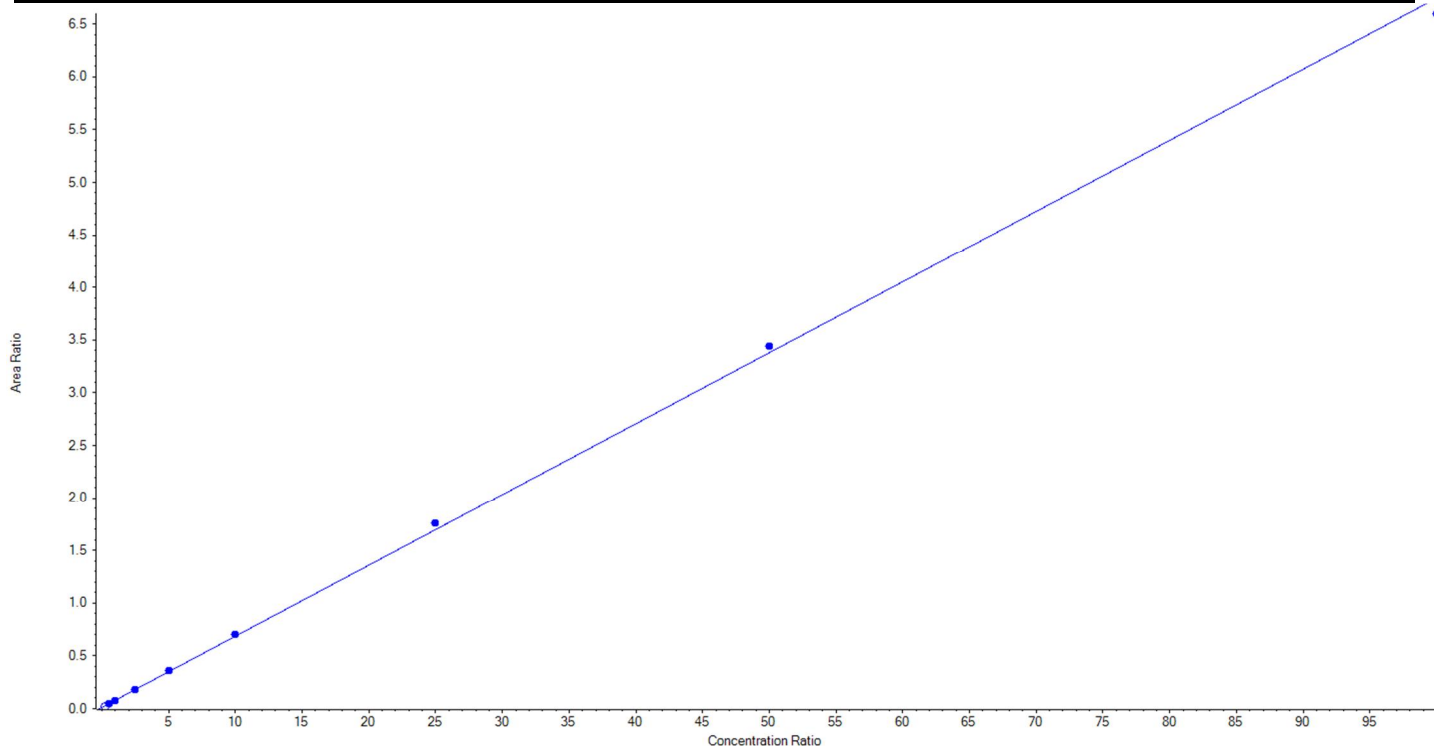
Calibration Summary Report

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Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFTrDA_2	Data File	18-0313.wiff
MRM Transition	663.0 / 169.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06731 x + 0.01330$ (r = 0.99966) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	2.049840	8.2
3	JV65	L2	True	50.00	46.658919	93.3
4	JV66	L3	True	100.00	98.013127	98.0
5	JV67	L4	True	250.00	247.103066	98.8
6	JV68	L5	True	500.00	522.356398	104.5
7	JV69	L6	True	1000.00	1018.579760	101.9
8	JV70	L7	True	2500.00	2597.383911	103.9
9	JV71	L8	True	5000.00	5090.414923	101.8
10	JV72	L9	True	10000.00	9779.489896	97.8





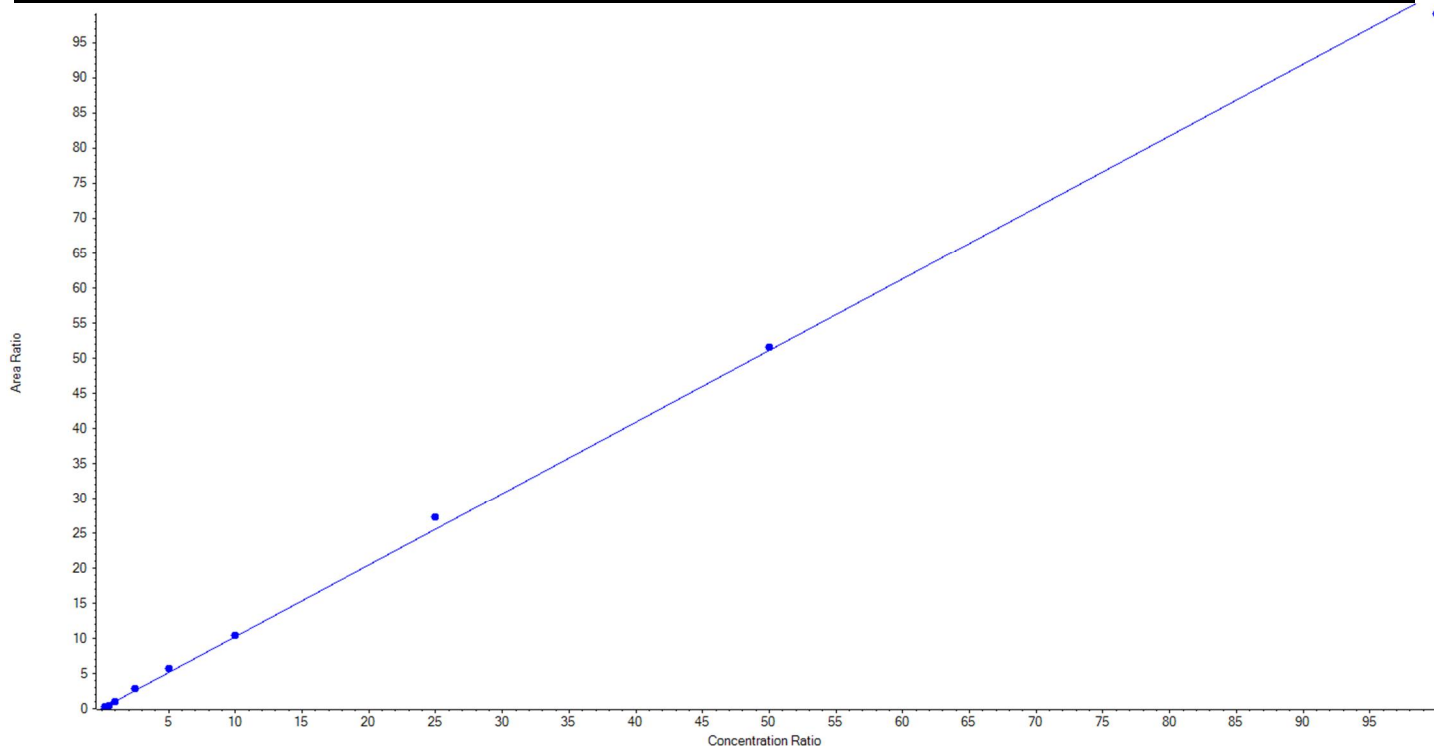
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	PFTeDA_1	Data File	18-0313.wiff
MRM Transition	713.0 / 669.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.02134 x + 0.03267$ (r = 0.99917) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	22.789628	91.2
3	JV65	L2	True	50.00	44.447403	88.9
4	JV66	L3	True	100.00	92.488743	92.5
5	JV67	L4	True	250.00	276.378112	110.6
6	JV68	L5	True	500.00	550.845491	110.2
7	JV69	L6	True	1000.00	1020.383286	102.0
8	JV70	L7	True	2500.00	2667.997144	106.7
9	JV71	L8	True	5000.00	5048.267960	101.0
10	JV72	L9	True	10000.00	9701.402232	97.0





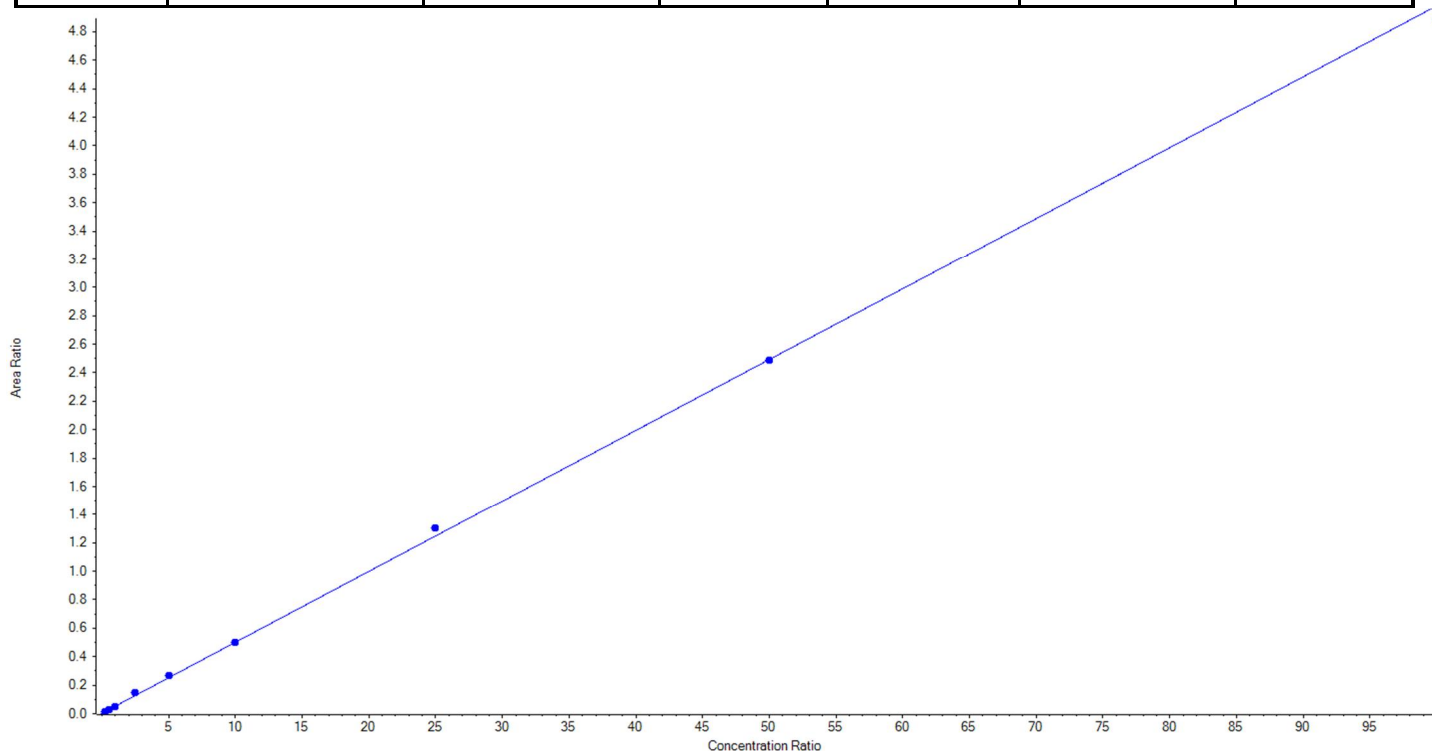
Calibration Summary Report

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Analyte Name	PFTeDA_2	Data File	18-0313.wiff
MRM Transition	713.0 / 169.0	Result Table	18-0312_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.04978x + 0.00345$ ($r = 0.99942$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	20.961194	83.8
3	JV65	L2	True	50.00	44.351644	88.7
4	JV66	L3	True	100.00	98.814825	98.8
5	JV67	L4	True	250.00	296.168648	118.5
6	JV68	L5	True	500.00	535.567580	107.1
7	JV69	L6	True	1000.00	1003.798782	100.4
8	JV70	L7	True	2500.00	2617.205633	104.7
9	JV71	L8	True	5000.00	4990.671418	99.8
10	JV72	L9	True	10000.00	9817.460276	98.2





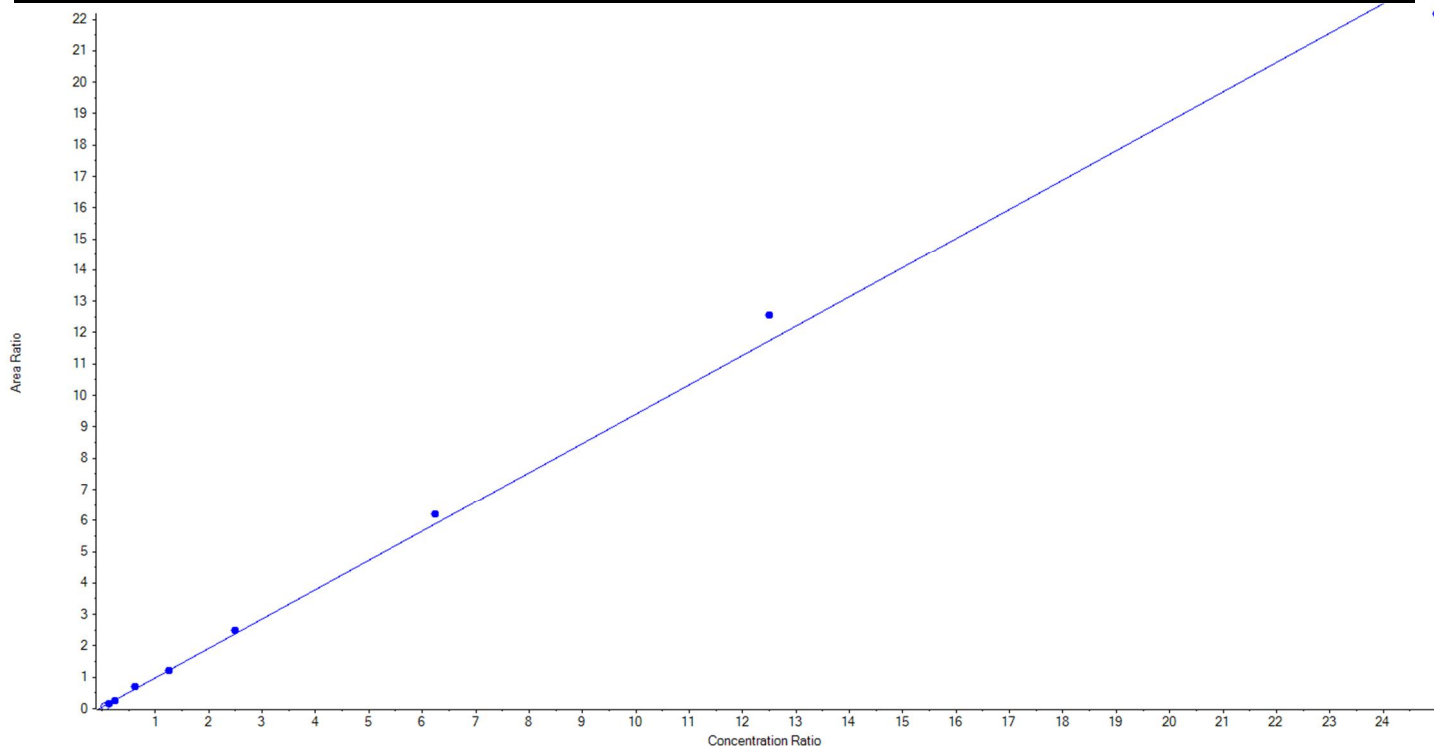
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	NMeFOSAA_1	Data File	18-0313.wiff
MRM Transition	570.0 / 419.0	Result Table	18-0312_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.93548x + 0.04710$ ($r = 0.99806$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	10.005275	40.0
3	JV65	L2	True	50.00	45.576655	91.2
4	JV66	L3	True	100.00	86.775272	86.8
5	JV67	L4	True	250.00	279.677441	111.9
6	JV68	L5	True	500.00	495.256714	99.1
7	JV69	L6	True	1000.00	1040.135137	104.0
8	JV70	L7	True	2500.00	2635.295656	105.4
9	JV71	L8	True	5000.00	5355.092820	107.1
10	JV72	L9	True	10000.00	9462.190305	94.6





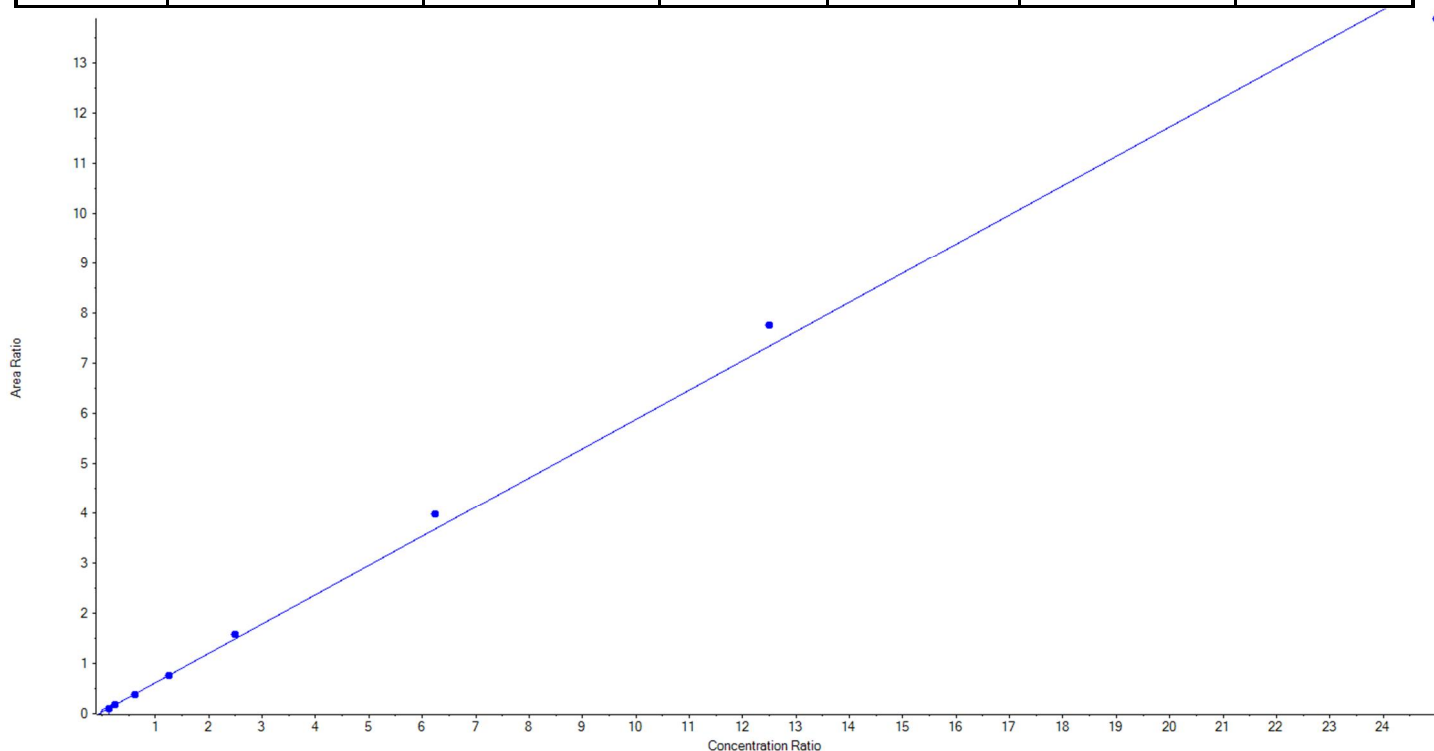
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	NMeFOSAA_2	Data File	18-0313.wiff
MRM Transition	570.0 / 512.0	Result Table	18-0312_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.58489x + 0.03127$ ($r = 0.99817$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	< 0	N/A
3	JV65	L2	True	50.00	47.530013	95.1
4	JV66	L3	True	100.00	97.243811	97.2
5	JV67	L4	True	250.00	235.372178	94.2
6	JV68	L5	True	500.00	496.856842	99.4
7	JV69	L6	True	1000.00	1055.751249	105.6
8	JV70	L7	True	2500.00	2699.865712	108.0
9	JV71	L8	True	5000.00	5293.236830	105.9
10	JV72	L9	True	10000.00	9474.143366	94.7





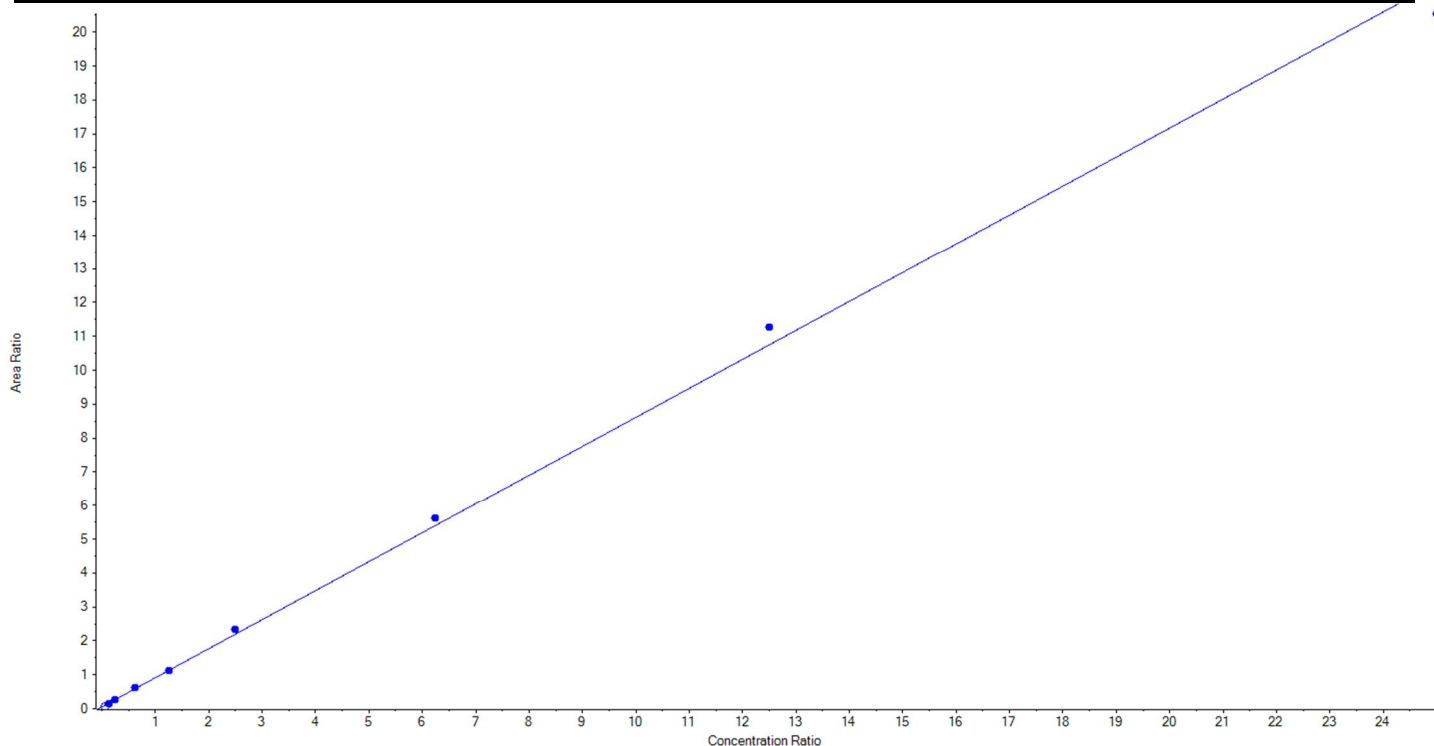
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/05/2018 3:49:00 PM

Analyte Name	NEtFOSAA_1	Data File	18-0313.wiff
MRM Transition	584.0 / 419.0	Result Table	18-0312_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.85558x + 0.05717$ ($r = 0.99884$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	3.138261	12.6
3	JV65	L2	True	50.00	42.784938	85.6
4	JV66	L3	True	100.00	97.864659	97.9
5	JV67	L4	True	250.00	260.601917	104.2
6	JV68	L5	True	500.00	502.172020	100.4
7	JV69	L6	True	1000.00	1069.526868	107.0
8	JV70	L7	True	2500.00	2607.040747	104.3
9	JV71	L8	True	5000.00	5245.588850	104.9
10	JV72	L9	True	10000.00	9574.420001	95.7





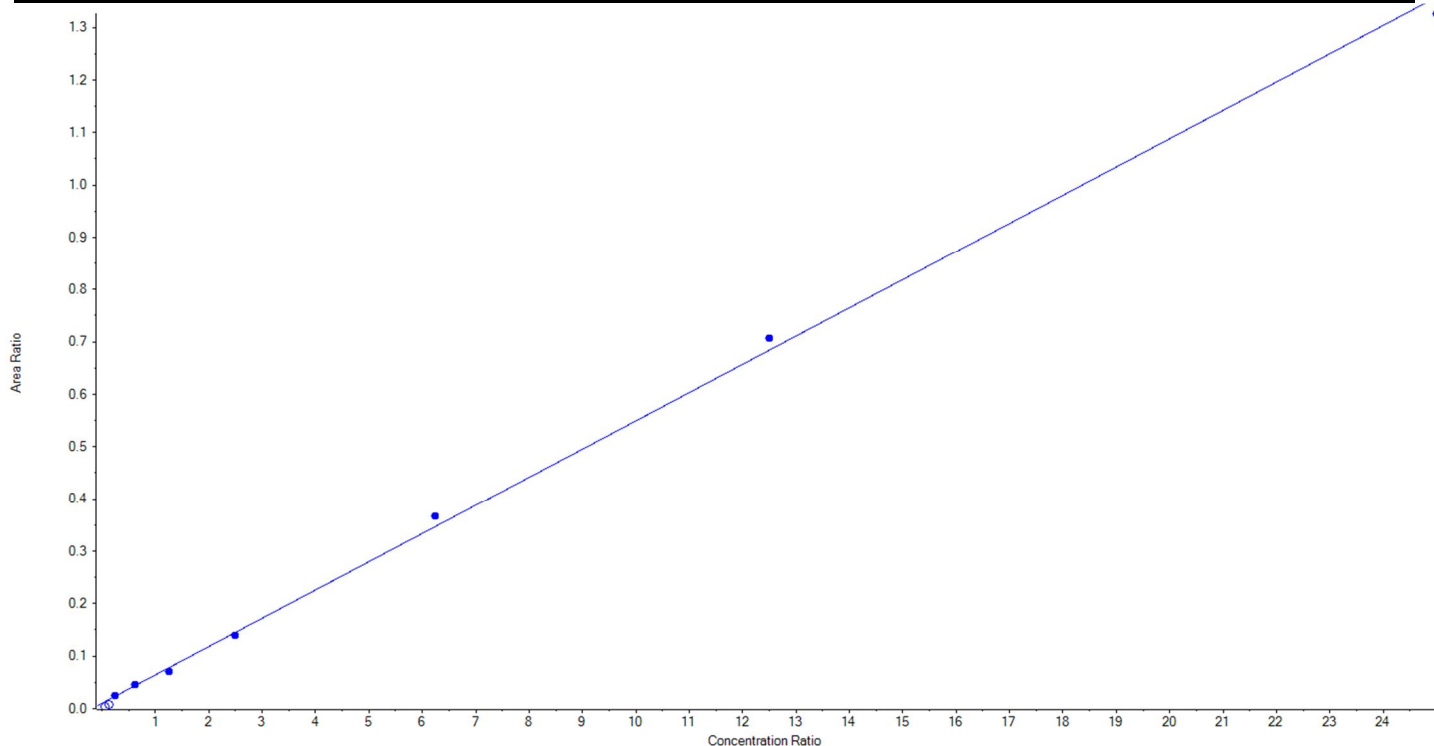
Calibration Summary Report

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Printed: 18/05/2018 3:49:00 PM

Analyte Name	NEtFOSAA_2	Data File	18-0313.wiff
MRM Transition	584.0 / 483.0	Result Table	18-0312_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05390x + 0.01038$ ($r = 0.99914$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	< 0	N/A
3	JV65	L2	False	50.00	< 0	N/A
4	JV66	L3	True	100.00	102.682341	102.7
5	JV67	L4	True	250.00	263.060335	105.2
6	JV68	L5	True	500.00	448.299583	89.7
7	JV69	L6	True	1000.00	953.973248	95.4
8	JV70	L7	True	2500.00	2651.575627	106.1
9	JV71	L8	True	5000.00	5166.916956	103.3
10	JV72	L9	True	10000.00	9763.491910	97.6



Sample Name	JV64	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:27:07	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.45	PFBS	0.3480	0.3953	ü
PFHxA_1	313.0 / 269.0	1.74	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.74	PFHxA	0.0719	0.0622	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.10	PFHpA	0.0228	0.0354	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2754	ü
PFOA_1	413.0 / 369.0	2.47	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.48	PFOA	0.0728	0.0863	ü
PFNA_1	463.0 / 419.0	2.85	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.85	PFNA	0.2872	0.2518	ü
PFOS_1	499.0 / 80.0	2.85	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.85	PFOS	0.1938	0.1551	ü
PFDA_1	513.0 / 469.0	3.21	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	N/A	PFDA	0.0419	N/A	ü
PFUnA_1	563.0 / 519.0	3.52	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.50	PFUnA	0.0515	0.0484	ü
PFDoA_1	613.0 / 569.0	3.81	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.81	PFDoA	0.1596	0.1466	ü
PFTTrDA_1	663.0 / 619.0	4.06	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.06	PFTTrDA	0.0677	0.0532	ü
PFTeDA_1	713.0 / 669.0	4.28	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.27	PFTeDA	0.0503	0.0523	ü
NMeFOSAA_1	570.0 / 419.0	3.35	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.35	NMeFOSAA	0.6292	0.2625	ü
NEtFOSAA_1	584.0 / 419.0	3.52	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.89	NEtFOSSA	0.0685	0.0710	ü

Sample Name	JV65	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:36:03	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.3677	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.0719	0.0967	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.07	PFHpA	0.0228	0.0277	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2918	ü
PFOA_1	413.0 / 369.0	2.47	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.47	PFOA	0.0728	0.0983	ü
PFNA_1	463.0 / 419.0	2.84	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.84	PFNA	0.2872	0.2818	ü
PFOS_1	499.0 / 80.0	2.83	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.83	PFOS	0.1938	0.2282	ü
PFDA_1	513.0 / 469.0	3.19	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.21	PFDA	0.0419	0.0501	ü
PFUnA_1	563.0 / 519.0	3.51	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.51	PFUnA	0.0515	0.0693	ü
PFDoA_1	613.0 / 569.0	3.80	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.80	PFDoA	0.1596	0.2125	ü
PFTTrDA_1	663.0 / 619.0	4.05	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.04	PFTTrDA	0.0677	0.0818	ü
PFTeDA_1	713.0 / 669.0	4.27	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.26	PFTeDA	0.0503	0.0525	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.6292	0.6557	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.0685	0.0545	ü

Sample Name	JV66	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:45:01	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.45	PFBS	0.3480	0.3430	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.0719	0.0676	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.0228	0.0263	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.3185	ü
PFOA_1	413.0 / 369.0	2.47	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.48	PFOA	0.0728	0.0607	ü
PFNA_1	463.0 / 419.0	2.84	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.83	PFNA	0.2872	0.2885	ü
PFOS_1	499.0 / 80.0	2.83	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.84	PFOS	0.1938	0.1949	ü
PFDA_1	513.0 / 469.0	3.19	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.20	PFDA	0.0419	0.0357	ü
PFUnA_1	563.0 / 519.0	3.51	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.52	PFUnA	0.0515	0.0658	ü
PFDoA_1	613.0 / 569.0	3.80	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.1596	0.1463	ü
PFTTrDA_1	663.0 / 619.0	4.05	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.05	PFTTrDA	0.0677	0.0740	ü
PFTeDA_1	713.0 / 669.0	4.27	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.27	PFTeDA	0.0503	0.0539	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.6292	0.6937	ü
NEtFOSAA_1	584.0 / 419.0	3.51	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.0685	0.0909	ü

Sample Name	JV67	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T16:53:56	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.44	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.3647	ü
PFHxA_1	313.0 / 269.0	1.72	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.0719	0.0665	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.0228	0.0236	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2845	ü
PFOA_1	413.0 / 369.0	2.46	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.46	PFOA	0.0728	0.0745	ü
PFNA_1	463.0 / 419.0	2.84	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.83	PFNA	0.2872	0.2934	ü
PFOS_1	499.0 / 80.0	2.83	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.83	PFOS	0.1938	0.2030	ü
PFDA_1	513.0 / 469.0	3.19	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.18	PFDA	0.0419	0.0412	ü
PFUnA_1	563.0 / 519.0	3.51	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.51	PFUnA	0.0515	0.0454	ü
PFDoA_1	613.0 / 569.0	3.80	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.1596	0.1522	ü
PFTTrDA_1	663.0 / 619.0	4.05	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.05	PFTTrDA	0.0677	0.0635	ü
PFTeDA_1	713.0 / 669.0	4.26	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.26	PFTeDA	0.0503	0.0528	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.6292	0.5354	ü
NEtFOSAA_1	584.0 / 419.0	3.51	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.49	NEtFOSSA	0.0685	0.0746	ü

Sample Name	JV68	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:02:52	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.3470	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.0719	0.0717	ü
PFHpA_1	363.0 / 319.0	2.08	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.0228	0.0205	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2975	ü
PFOA_1	413.0 / 369.0	2.46	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.46	PFOA	0.0728	0.0701	ü
PFNA_1	463.0 / 419.0	2.83	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.83	PFNA	0.2872	0.2913	ü
PFOS_1	499.0 / 80.0	2.82	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.83	PFOS	0.1938	0.1852	ü
PFDA_1	513.0 / 469.0	3.18	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.18	PFDA	0.0419	0.0471	ü
PFUnA_1	563.0 / 519.0	3.50	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.49	PFUnA	0.0515	0.0462	ü
PFDoA_1	613.0 / 569.0	3.78	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.1596	0.1546	ü
PFTTrDA_1	663.0 / 619.0	4.04	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.04	PFTTrDA	0.0677	0.0631	ü
PFTeDA_1	713.0 / 669.0	4.25	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.25	PFTeDA	0.0503	0.0477	ü
NMeFOSAA_1	570.0 / 419.0	3.33	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.32	NMeFOSAA	0.6292	0.6287	ü
NEtFOSAA_1	584.0 / 419.0	3.49	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.0685	0.0626	ü

Sample Name	JV69	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:11:47	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.44	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.3339	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.0719	0.0688	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.09	PFHpA	0.0228	0.0219	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2684	ü
PFOA_1	413.0 / 369.0	2.46	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.46	PFOA	0.0728	0.0697	ü
PFNA_1	463.0 / 419.0	2.84	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.84	PFNA	0.2872	0.2864	ü
PFOS_1	499.0 / 80.0	2.83	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.83	PFOS	0.1938	0.1938	ü
PFDA_1	513.0 / 469.0	3.19	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.19	PFDA	0.0419	0.0391	ü
PFUnA_1	563.0 / 519.0	3.51	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.51	PFUnA	0.0515	0.0464	ü
PFDoA_1	613.0 / 569.0	3.80	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.80	PFDoA	0.1596	0.1536	ü
PFTTrDA_1	663.0 / 619.0	4.05	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.04	PFTTrDA	0.0677	0.0656	ü
PFTeDA_1	713.0 / 669.0	4.27	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.26	PFTeDA	0.0503	0.0481	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.6292	0.6352	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.0685	0.0592	ü

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:20:42	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.44	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.3375	ü
PFHxA_1	313.0 / 269.0	1.72	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.72	PFHxA	0.0719	0.0740	ü
PFHpA_1	363.0 / 319.0	2.08	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.0228	0.0225	ü
PFHxS_1	399.0 / 80.0	2.09	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2904	ü
PFOA_1	413.0 / 369.0	2.46	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.46	PFOA	0.0728	0.0715	ü
PFNA_1	463.0 / 419.0	2.83	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.83	PFNA	0.2872	0.3023	ü
PFOS_1	499.0 / 80.0	2.82	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.83	PFOS	0.1938	0.1961	ü
PFDA_1	513.0 / 469.0	3.18	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.18	PFDA	0.0419	0.0422	ü
PFUnA_1	563.0 / 519.0	3.50	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.50	PFUnA	0.0515	0.0455	ü
PFDoA_1	613.0 / 569.0	3.79	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.1596	0.1510	ü
PFTTrDA_1	663.0 / 619.0	4.04	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.04	PFTTrDA	0.0677	0.0630	ü
PFTeDA_1	713.0 / 669.0	4.26	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.26	PFTeDA	0.0503	0.0479	ü
NMeFOSAA_1	570.0 / 419.0	3.33	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.6292	0.6407	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.49	NEtFOSSA	0.0685	0.0653	ü

Sample Name	JV71	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:29:36	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.45	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.3207	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.0719	0.0703	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.0228	0.0198	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2870	ü
PFOA_1	413.0 / 369.0	2.46	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.46	PFOA	0.0728	0.0691	ü
PFNA_1	463.0 / 419.0	2.83	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.83	PFNA	0.2872	0.2943	ü
PFOS_1	499.0 / 80.0	2.83	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.83	PFOS	0.1938	0.1951	ü
PFDA_1	513.0 / 469.0	3.19	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.19	PFDA	0.0419	0.0399	ü
PFUnA_1	563.0 / 519.0	3.51	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.51	PFUnA	0.0515	0.0459	ü
PFDoA_1	613.0 / 569.0	3.79	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.1596	0.1499	ü
PFTTrDA_1	663.0 / 619.0	4.04	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.04	PFTTrDA	0.0677	0.0657	ü
PFTeDA_1	713.0 / 669.0	4.26	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.26	PFTeDA	0.0503	0.0482	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.6292	0.6182	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.49	NEtFOSSA	0.0685	0.0627	ü

Sample Name	JV72	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:38:30	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Expected Ion Ratio	Ion Ratio	Ratio Pass (<50% RPD)
PFBS_1	298.9 / 80.0	1.44	PFBS	1.0000	1.0000	ü
PFBS_2	298.9 / 99.0	1.44	PFBS	0.3480	0.3223	ü
PFHxA_1	313.0 / 269.0	1.72	PFHxA	1.0000	1.0000	ü
PFHxA_2	313.0 / 119.0	1.72	PFHxA	0.0719	0.0697	ü
PFHpA_1	363.0 / 319.0	2.08	PFHpA	1.0000	1.0000	ü
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.0228	0.0202	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS	1.0000	1.0000	ü
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.2893	0.2901	ü
PFOA_1	413.0 / 369.0	2.46	PFOA	1.0000	1.0000	ü
PFOA_2	413.0 / 169.0	2.46	PFOA	0.0728	0.0685	ü
PFNA_1	463.0 / 419.0	2.83	PFNA	1.0000	1.0000	ü
PFNA_2	463.0 / 219.0	2.83	PFNA	0.2872	0.2949	ü
PFOS_1	499.0 / 80.0	2.82	PFOS	1.0000	1.0000	ü
PFOS_2	499.0 / 99.0	2.82	PFOS	0.1938	0.1932	ü
PFDA_1	513.0 / 469.0	3.18	PFDA	1.0000	1.0000	ü
PFDA_2	513.0 / 219.0	3.18	PFDA	0.0419	0.0402	ü
PFUnA_1	563.0 / 519.0	3.50	PFUnA	1.0000	1.0000	ü
PFUnA_2	563.0 / 269.0	3.50	PFUnA	0.0515	0.0473	ü
PFDoA_1	613.0 / 569.0	3.79	PFDoA	1.0000	1.0000	ü
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.1596	0.1571	ü
PFTTrDA_1	663.0 / 619.0	4.04	PFTTrDA	1.0000	1.0000	ü
PFTTrDA_2	663.0 / 169.0	4.04	PFTTrDA	0.0677	0.0651	ü
PFTeDA_1	713.0 / 669.0	4.26	PFTeDA	1.0000	1.0000	ü
PFTeDA_2	713.0 / 169.0	4.25	PFTeDA	0.0503	0.0493	ü
NMeFOSAA_1	570.0 / 419.0	3.33	NMeFOSAA	1.0000	1.0000	ü
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.6292	0.6261	ü
NEtFOSAA_1	584.0 / 419.0	3.49	NEtFOSSA	1.0000	1.0000	ü
NEtFOSAA_2	584.0 / 483.0	3.48	NEtFOSSA	0.0685	0.0646	ü

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:47:28	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.45	804.339298	885.00	90.89
PFBS_2	298.9 / 99.0	1.44	802.043754	885.00	90.63
PFHxA_1	313.0 / 269.0	1.73	969.289643	1000.00	96.93
PFHxA_2	313.0 / 119.0	1.72	925.770240	1000.00	92.58
PFHpA_1	363.0 / 319.0	2.08	924.919724	1000.00	92.49
PFHpA_2	363.0 / 169.0	2.09	888.021349	1000.00	88.80
PFHxS_1	399.0 / 80.0	2.11	876.341070	912.00	96.09
PFHxS_2	399.0 / 99.0	2.10	864.142918	912.00	94.75
PFOA_1	413.0 / 369.0	2.46	936.688375	1000.00	93.67
PFOA_2	413.0 / 169.0	2.46	930.333375	1000.00	93.03
PFNA_1	463.0 / 419.0	2.83	943.286988	1000.00	94.33
PFNA_2	463.0 / 219.0	2.83	1003.563557	1000.00	100.36
PFOS_1	499.0 / 80.0	2.83	792.672994	925.00	85.69
PFOS_2	499.0 / 99.0	2.83	849.682836	925.00	91.86
PFDA_1	513.0 / 469.0	3.18	979.295546	1000.00	97.93
PFDA_2	513.0 / 219.0	3.18	926.354949	1000.00	92.64
PFUnA_1	563.0 / 519.0	3.50	959.774620	1000.00	95.98
PFUnA_2	563.0 / 269.0	3.50	927.941985	1000.00	92.79
PFDoA_1	613.0 / 569.0	3.79	979.912690	1000.00	97.99
PFDoA_2	613.0 / 319.0	3.79	948.169769	1000.00	94.82
PFTTrDA_1	663.0 / 619.0	4.04	937.629546	1000.00	93.76
PFTTrDA_2	663.0 / 169.0	4.04	934.557623	1000.00	93.46
PFTeDA_1	713.0 / 669.0	4.25	952.033212	1000.00	95.20
PFTeDA_2	713.0 / 169.0	4.25	925.189660	1000.00	92.52
NMeFOSAA_1	570.0 / 419.0	3.33	1046.178270	1000.00	104.62
NMeFOSAA_2	570.0 / 512.0	3.34	1030.939699	1000.00	103.09
NEtFOSAA_1	584.0 / 419.0	3.50	1116.177819	1000.00	111.62
NEtFOSAA_2	584.0 / 483.0	3.50	1220.574679	1000.00	122.06

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T17:47:28	Data File	18-0313.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.71	92.199053	100.00	92.20
13C2-PFDA	515.0 / 470.0	3.17	88.871352	100.00	88.87
d5-EtFOSAA	589.0 / 419.0	3.49	373.700865	400.00	93.43

Sample Name	JV68 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:25:38	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.46	393.941239	443.00	88.93
PFBS_2	298.9 / 99.0	1.45	389.069756	443.00	87.83
PFHxA_1	313.0 / 269.0	1.73	538.564060	500.00	107.71
PFHxA_2	313.0 / 119.0	1.73	494.472205	500.00	98.89
PFHpA_1	363.0 / 319.0	2.09	501.861924	500.00	100.37
PFHpA_2	363.0 / 169.0	2.09	526.266950	500.00	105.25
PFHxS_1	399.0 / 80.0	2.10	415.104170	456.00	91.03
PFHxS_2	399.0 / 99.0	2.10	417.708313	456.00	91.60
PFOA_1	413.0 / 369.0	2.46	508.842825	500.00	101.77
PFOA_2	413.0 / 169.0	2.46	513.589300	500.00	102.72
PFNA_1	463.0 / 419.0	2.83	503.011917	500.00	100.60
PFNA_2	463.0 / 219.0	2.83	512.620705	500.00	102.52
PFOS_1	499.0 / 80.0	2.82	433.102471	463.00	93.54
PFOS_2	499.0 / 99.0	2.82	438.321868	463.00	94.67
PFDA_1	513.0 / 469.0	3.18	516.203166	500.00	103.24
PFDA_2	513.0 / 219.0	3.18	479.335212	500.00	95.87
PFUnA_1	563.0 / 519.0	3.50	495.832201	500.00	99.17
PFUnA_2	563.0 / 269.0	3.49	527.429111	500.00	105.49
PFDoA_1	613.0 / 569.0	3.78	529.388851	500.00	105.88
PFDoA_2	613.0 / 319.0	3.78	527.919162	500.00	105.58
PFTTrDA_1	663.0 / 619.0	4.03	498.401940	500.00	99.68
PFTTrDA_2	663.0 / 169.0	4.03	504.822257	500.00	100.96
PFTeDA_1	713.0 / 669.0	4.25	522.276225	500.00	104.46
PFTeDA_2	713.0 / 169.0	4.25	515.611624	500.00	103.12
NMeFOSAA_1	570.0 / 419.0	3.33	537.634252	500.00	107.53
NMeFOSAA_2	570.0 / 512.0	3.33	546.797228	500.00	109.36
NEtFOSAA_1	584.0 / 419.0	3.49	511.007033	500.00	102.20
NEtFOSAA_2	584.0 / 483.0	3.47	606.078028	500.00	121.22

Sample Name	JV68 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-14T19:25:38	Data File	18-0312.wiff
Acquisition Method	5-0371.dam	Result Table	18-0312_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.72	98.408789	100.00	98.41
13C2-PFDA	515.0 / 470.0	3.17	94.732022	100.00	94.73
d5-EtFOSAA	589.0 / 419.0	3.48	404.091728	400.00	101.02

QA/QC Summary Batch 18-0299

Project:	CTO-WE04 Naval Air Station Joint Reserve Base Willow Grove
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	DW
Data Set:	DP-18-0103
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody

Collection Date	Receipt Date	Temp (°C)
4/30/2018	5/1/2018	1.9
5/1/2018	5/2/2018	1.7

Corrective Actions	None
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	FRB samples are extracted in SDG 18-0312

METHOD SUMMARIES

Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a weak ion exchange solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were split and concentrated to dryness under nitrogen with a water bath set between 60 °C and 65 °C, reconstituted with 96:4 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	Sample WGNA-050118-RW-3178 contained particulate matter.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on the Sciex 5500.

Holding Times	Extraction Date(s)	Analysis Date(s)
	5/4/2018	5/13/2018

Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.
≤ 1/3 the MRL	No exceedances noted. No comments.

QA/QC Summary
Batch 18-0299

Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
70-130% of true value	No exceedances noted. No comments.
Matrix Spike (MS) / Duplicate (MSD)	A MS/MSD were prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy. The relative percent difference was calculated to measure precision.
70-130% of true value, RPD \leq 30%	No exceedances noted. No Comments.
Surrogates Standard Analytes	Labelled surrogate compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
70-130% of true value	No exceedances noted. No Comments.
Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
ICal high and low points RPD \leq 20%, 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted. No Comments.
Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadratic curve fitting.
R ² >0.99	No exceedances noted.
Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No comments.
Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted. No comments.

QA/QC Summary
Batch 18-0299

Continuing Calibration Verification (CCV)	Continuing calibration standards were run at the beginning and end of 10 injections and at the end of the sequence to ensure that initial calibration is still valid.
Target and SIS compounds +/- 30% of true value	No exceedances noted.
Low point 50-150% of true value	No comments.



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project Number: 100117920-WE04
 Preparation Batch: 18-0299
 Data Set: DP-18-0103
 Test Code: Master_371

QC Parameter:	Exceed:	Justification:
Procedural Blank	0	None
PB Measurement Quality Objective	0	None
Laboratory Control Sample	0	None
Matrix Spike / Matrix Spike Duplicate Recovery	0	None
Matrix Spike / Matrix Spike Duplicate Precision	0	None
Extracted Internal Standard Analytes (Surrogates)	0	None
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None



It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE IDENTIFICATION PAGE

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)100117920-
WE04**18-0299****WE04 PFAS Analysis****DW**

Sample ID	Description
CQ689PB-FS	Procedural Blank
CQ690LCS-FS	Laboratory Control Sample
J5964-FS	WGNA-043018-RW-3103
J5964MS-FS	Matrix Spike of WGNA-043018-RW-3103
J5964MSD-FS	Matrix Spike Duplicate of WGNA-043018-RW-3103
J5966-FS	NAWC-043018-RW-207
J5968-FS	WGNA-043018-RW-3409
J5970-FS	WGNA-050118-RW-3385
J5972-FS	WGNA-050118-RW-3178
J5974-FS	NAWC-050118-RW-304
J5976-FS	NAWC-050118-RW-098

Samples Assigned By:

Stephanie Schultz

Date :

May 4, 2018

Comments:



Project Client: Tetra Tech

Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.: 100117920-WE04

Client ID	Procedural Blank			
Battelle ID	CQ689PB-FS			
Sample Type	PB			
Collection Date	05/04/2018			
Extraction Date	05/04/2018			
Analysis Date	05/13/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	WATER			
Sample Size	0.250			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.22 U	0.22	0.50	2.50
PFHpA	0.34 U	0.34	1.00	2.50
PFOA	0.38 U	0.38	1.00	2.50
PFNA	0.37 U	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDoA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	0.21 U	0.21	0.50	2.50
PFHxS	0.34 U	0.34	1.00	2.50
PFOS	0.30 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	111
13C2-PFDA	109
d5-EtFOSAA	95



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	Laboratory Control Sample					
Battelle ID	CQ690LCS-FS					
Sample Type	LCS					
Collection Date	05/04/2018					
Extraction Date	05/04/2018					
Analysis Date	05/13/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	WATER					
Sample Size	0.250					
Size Unit-Basis	L					
Units	ng/L	Target	Recovery	Qual	Control Limits	
					Lower	Upper
PFHxA	9.69	10.00	97		70	130
PFHpA	8.97	10.00	90		70	130
PFOA	9.03	10.00	90		70	130
PFNA	9.09	10.00	91		70	130
PFDA	9.09	10.00	91		70	130
PFUnA	8.35	10.00	84		70	130
PFDoA	8.30	10.00	83		70	130
PFTTrDA	8.53	10.00	85		70	130
PFTTeDA	9.91	10.00	99		70	130
NMeFOSAA	9.14	10.00	91		70	130
NEtFOSAA	9.36	10.00	94		70	130
PFBS	7.37	8.85	83		70	130
PFHxS	7.56	9.45	80		70	130
PFOS	7.26	9.55	76		70	130

Surrogate Recoveries (%)

13C4-PFBA	106
13C5-PFPeA	97
13C5-PFHxA	92



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID	WGNA-043018-RW-3103	WGNA-043018-RW-3103						
Battelle ID	J5964-FS	J5964MS-FS						
Sample Type	SA	MS						
Collection Date	04/30/2018	04/30/2018						
Extraction Date	05/04/2018	05/04/2018						
Analysis Date	05/13/2018	05/13/2018						
Analytical Instrument	Sciex 5500 LC/MS/MS	Sciex 5500 LC/MS/MS						
% Moisture	NA	NA						
Matrix	DW	DW						
Sample Size	0.265	0.255						
Size Unit-Basis	L	L						
Units	ng/L	ng/L	Target	Recovery	Qual	Control Limits		
						Lower	Upper	
PFHxA	3.96	26.00	19.61	112		70	130	
PFHpA	2.32 J	22.80	19.61	104		70	130	
PFOA	8.38	26.74	19.61	94		70	130	
PFNA	2.24 J	20.09	19.61	91		70	130	
PFDA	0.39 U	17.85	19.61	91		70	130	
PFUnA	0.38 U	17.05	19.61	87		70	130	
PFDoA	0.42 U	16.42	19.61	84		70	130	
PFTTrDA	0.42 U	17.69	19.61	90		70	130	
PFTeDA	0.73 U	20.67	19.61	105		70	130	
NMeFOSAA	0.42 U	19.12	19.61	98		70	130	
NETFOSAA	0.44 U	18.51	19.61	94		70	130	
PFBS	3.91	22.50	17.35	107		70	130	
PFHxS	4.94	23.60	18.53	101		70	130	
PFOS	7.27	22.76	18.73	83		70	130	
Surrogate Recoveries (%)								
13C4-PFBA	122	128						
13C5-PFPeA	104	107						
13C5-PFHxA	93	91						



Project Client: Tetra Tech
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project No.: 100117920-WE04

Client ID		WGNA-043018-RW-3103								
Battelle ID	J5964MSD-FS									
Sample Type	MSD									
Collection Date	04/30/2018									
Extraction Date	05/04/2018									
Analysis Date	05/13/2018									
Analytical Instrument	Sciex 5500 LC/MS/MS									
% Moisture	NA									
Matrix	DW									
Sample Size	0.255									
Size Unit-Basis	L									
Units	ng/L	Target	Recovery	Qual	Control Limits		RPD	Qual	RPD	Limit
					Lower	Upper				
PFHxA	25.64	19.61	111		70	130	0.9			≤ 30
PFHpA	22.18	19.61	101		70	130	2.9			≤ 30
PFOA	25.49	19.61	87		70	130	7.7			≤ 30
PFNA	20.07	19.61	91		70	130	0.0			≤ 30
PFDA	18.21	19.61	93		70	130	2.2			≤ 30
PFOxA	16.80	19.61	86		70	130	1.2			≤ 30
PFDoA	16.47	19.61	84		70	130	0.0			≤ 30
PFTTrDA	17.57	19.61	90		70	130	0.0			≤ 30
PFTeDA	20.17	19.61	103		70	130	1.9			≤ 30
NMeFOSAA	19.47	19.61	99		70	130	1.0			≤ 30
NEtFOSAA	19.41	19.61	99		70	130	5.2			≤ 30
PFBS	21.96	17.35	104		70	130	2.8			≤ 30
PFHxS	23.20	18.53	99		70	130	2.0			≤ 30
PFOS	22.46	18.73	81		70	130	2.4			≤ 30
Surrogate Recoveries (%)										
13C4-PFBA	124									
13C5-PFPeA	106									
13C5-PFHxA	94									

Project Client: Tetra Tech
 Project Client: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project Client: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV64	L1	5/13/18 12:35	13C4-PFOS	103,556.52	-
JV65	L2	5/13/18 12:43	13C4-PFOS	101,898.46	-
JV66	L3	5/13/18 12:52	13C4-PFOS	122,639.56	-
JV67	L4	5/13/18 13:01	13C4-PFOS	116,127.04	-
JV68	L5	5/13/18 13:10	13C4-PFOS	133,761.77	-
JV69	L6	5/13/18 13:19	13C4-PFOS	114,144.90	-
JV70	L7	5/13/18 13:28	13C4-PFOS	112,747.09	-
JV71	L8	5/13/18 13:37	13C4-PFOS	124,076.03	-
JV72	L9	5/13/18 13:46	13C4-PFOS	115,482.86	10.9

PASS

Average 116,048.25 Lower 58,024.13 Upper 174,072.38

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	5/13/18 12:35	13C4-PFOS	103,556.52	58,024.13	174,072.38		93,633.24	187,266.48	
JV65	L2	5/13/18 12:43	13C4-PFOS	101,898.46	58,024.13	174,072.38		93,633.24	187,266.48	
JV66	L3	5/13/18 12:52	13C4-PFOS	122,639.56	58,024.13	174,072.38		93,633.24	187,266.48	
JV67	L4	5/13/18 13:01	13C4-PFOS	116,127.04	58,024.13	174,072.38		93,633.24	187,266.48	
JV68	L5	5/13/18 13:10	13C4-PFOS	133,761.77	58,024.13	174,072.38		93,633.24	187,266.48	
JV69	L6	5/13/18 13:19	13C4-PFOS	114,144.90	58,024.13	174,072.38		93,633.24	187,266.48	
JV70	L7	5/13/18 13:28	13C4-PFOS	112,747.09	58,024.13	174,072.38		93,633.24	187,266.48	
JV71	L8	5/13/18 13:37	13C4-PFOS	124,076.03	58,024.13	174,072.38		93,633.24	187,266.48	
JV72	L9	5/13/18 13:46	13C4-PFOS	115,482.86	58,024.13	174,072.38		93,633.24	187,266.48	
JV63 ICC	ICC	5/13/18 13:55	13C4-PFOS	117,840.43	58,024.13	174,072.38		93,633.24	187,266.48	
CQ689PB-FS(0)	Procedural Blank	5/13/18 14:13	13C4-PFOS	137,545.49	58,024.13	174,072.38		93,633.24	187,266.48	
CQ690LCS-FS(0)	Laboratory Control Sample	5/13/18 14:22	13C4-PFOS	94,353.12	58,024.13	174,072.38		93,633.24	187,266.48	
J5964-FS(0)	WGNA-043018-RW-3103	5/13/18 14:31	13C4-PFOS	107,669.01	58,024.13	174,072.38		93,633.24	187,266.48	
J5964MS-FS(0)	WGNA-043018-RW-3103	5/13/18 14:40	13C4-PFOS	155,345.44	58,024.13	174,072.38		93,633.24	187,266.48	
J5964MSD-FS(0)	WGNA-043018-RW-3103	5/13/18 14:49	13C4-PFOS	150,140.27	58,024.13	174,072.38		93,633.24	187,266.48	
J5966-FS(0)	NAWC-0403018-RW-204	5/13/18 14:58	13C4-PFOS	95,718.36	58,024.13	174,072.38		93,633.24	187,266.48	
JV69 CCV	CCV	5/13/18 15:07	13C4-PFOS	123,755.73	58,024.13	174,072.38		93,633.24	187,266.48	
J5968-FS(0)	WGNA-043018-RW-3409	5/13/18 15:24	13C4-PFOS	114,396.01	58,024.13	174,072.38		86,629.01	173,258.02	
J5970-FS(0)	WGNA-050118-RW-3385	5/13/18 15:33	13C4-PFOS	112,575.01	58,024.13	174,072.38		86,629.01	173,258.02	
J5972-FS(0)	WGNA-050118-RW-3178	5/13/18 15:42	13C4-PFOS	89,355.46	58,024.13	174,072.38		86,629.01	173,258.02	
J5974-FS(0)	NAWC-050118-RW-304	5/13/18 15:51	13C4-PFOS	97,256.69	58,024.13	174,072.38		86,629.01	173,258.02	
J5976-FS(0)	NAWC-050118-RW-098	5/13/18 16:00	13C4-PFOS	100,605.26	58,024.13	174,072.38		86,629.01	173,258.02	
JV68 CCV	CCV	5/13/18 16:09	13C4-PFOS	145,223.90	58,024.13	174,072.38		86,629.01	173,258.02	

Project Client: Tetra Tech
 Project Client: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project Client: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV64	L1	5/13/18 12:35	13C2-PFOA	33,570.37	-
JV65	L2	5/13/18 12:43	13C2-PFOA	33,102.51	-
JV66	L3	5/13/18 12:52	13C2-PFOA	39,040.73	-
JV67	L4	5/13/18 13:01	13C2-PFOA	37,854.04	-
JV68	L5	5/13/18 13:10	13C2-PFOA	39,476.20	-
JV69	L6	5/13/18 13:19	13C2-PFOA	38,376.85	-
JV70	L7	5/13/18 13:28	13C2-PFOA	36,444.16	-
JV71	L8	5/13/18 13:37	13C2-PFOA	40,686.28	-
JV72	L9	5/13/18 13:46	13C2-PFOA	40,060.11	17.6

PASS

Average 37,623.47 Lower 18,811.74 Upper 56,435.21

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	5/13/18 12:35	13C2-PFOA	33,570.37	18,811.74	56,435.21		27,633.34	55,266.68	
JV65	L2	5/13/18 12:43	13C2-PFOA	33,102.51	18,811.74	56,435.21		27,633.34	55,266.68	
JV66	L3	5/13/18 12:52	13C2-PFOA	39,040.73	18,811.74	56,435.21		27,633.34	55,266.68	
JV67	L4	5/13/18 13:01	13C2-PFOA	37,854.04	18,811.74	56,435.21		27,633.34	55,266.68	
JV68	L5	5/13/18 13:10	13C2-PFOA	39,476.20	18,811.74	56,435.21		27,633.34	55,266.68	
JV69	L6	5/13/18 13:19	13C2-PFOA	38,376.85	18,811.74	56,435.21		27,633.34	55,266.68	
JV70	L7	5/13/18 13:28	13C2-PFOA	36,444.16	18,811.74	56,435.21		27,633.34	55,266.68	
JV71	L8	5/13/18 13:37	13C2-PFOA	40,686.28	18,811.74	56,435.21		27,633.34	55,266.68	
JV72	L9	5/13/18 13:46	13C2-PFOA	40,060.11	18,811.74	56,435.21		27,633.34	55,266.68	
JV63 ICC	ICC	5/13/18 13:55	13C2-PFOA	37,999.50	18,811.74	56,435.21		27,633.34	55,266.68	
CQ689PB-FS(0)	Procedural Blank	5/13/18 14:13	13C2-PFOA	37,813.28	18,811.74	56,435.21		27,633.34	55,266.68	
CQ690LCS-FS(0)	Laboratory Control Sample	5/13/18 14:22	13C2-PFOA	28,684.35	18,811.74	56,435.21		27,633.34	55,266.68	
J5964-FS(0)	WGNA-043018-RW-3103	5/13/18 14:31	13C2-PFOA	35,415.11	18,811.74	56,435.21		27,633.34	55,266.68	
J5964MS-FS(0)	WGNA-043018-RW-3103	5/13/18 14:40	13C2-PFOA	53,357.66	18,811.74	56,435.21		27,633.34	55,266.68	
J5964MSD-FS(0)	WGNA-043018-RW-3103	5/13/18 14:49	13C2-PFOA	51,375.99	18,811.74	56,435.21		27,633.34	55,266.68	
J5966-FS(0)	NAWC-0403018-RW-204	5/13/18 14:58	13C2-PFOA	30,659.63	18,811.74	56,435.21		27,633.34	55,266.68	
JV69 CCV	CCV	5/13/18 15:07	13C2-PFOA	36,763.73	18,811.74	56,435.21		27,633.34	55,266.68	
J5968-FS(0)	WGNA-043018-RW-3409	5/13/18 15:24	13C2-PFOA	38,050.45	18,811.74	56,435.21		25,734.61	51,469.22	
J5970-FS(0)	WGNA-050118-RW-3385	5/13/18 15:33	13C2-PFOA	36,967.82	18,811.74	56,435.21		25,734.61	51,469.22	
J5972-FS(0)	WGNA-050118-RW-3178	5/13/18 15:42	13C2-PFOA	29,662.93	18,811.74	56,435.21		25,734.61	51,469.22	
J5974-FS(0)	NAWC-050118-RW-304	5/13/18 15:51	13C2-PFOA	30,048.74	18,811.74	56,435.21		25,734.61	51,469.22	
J5976-FS(0)	NAWC-050118-RW-098	5/13/18 16:00	13C2-PFOA	30,805.66	18,811.74	56,435.21		25,734.61	51,469.22	
JV68 CCV	CCV	5/13/18 16:09	13C2-PFOA	42,861.34	18,811.74	56,435.21		25,734.61	51,469.22	

Project Client: Tetra Tech
 Project Client: Naval Air Station Joint Reserve Base Willow Grove, PA
 Project Client: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV64	L1	5/13/18 12:35	d3-MeFOSAA	29,182.21	-
JV65	L2	5/13/18 12:43	d3-MeFOSAA	30,504.47	-
JV66	L3	5/13/18 12:52	d3-MeFOSAA	35,909.56	-
JV67	L4	5/13/18 13:01	d3-MeFOSAA	34,064.77	-
JV68	L5	5/13/18 13:10	d3-MeFOSAA	36,517.78	-
JV69	L6	5/13/18 13:19	d3-MeFOSAA	34,187.31	-
JV70	L7	5/13/18 13:28	d3-MeFOSAA	32,780.98	-
JV71	L8	5/13/18 13:37	d3-MeFOSAA	35,979.73	-
JV72	L9	5/13/18 13:46	d3-MeFOSAA	35,477.74	19.5

PASS

Average 33,844.95 Lower 16,922.48 Upper 50,767.43

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	5/13/18 12:35	d3-MeFOSAA	29,182.21	16,922.48	50,767.43		25,562.45	51,124.89	
JV65	L2	5/13/18 12:43	d3-MeFOSAA	30,504.47	16,922.48	50,767.43		25,562.45	51,124.89	
JV66	L3	5/13/18 12:52	d3-MeFOSAA	35,909.56	16,922.48	50,767.43		25,562.45	51,124.89	
JV67	L4	5/13/18 13:01	d3-MeFOSAA	34,064.77	16,922.48	50,767.43		25,562.45	51,124.89	
JV68	L5	5/13/18 13:10	d3-MeFOSAA	36,517.78	16,922.48	50,767.43		25,562.45	51,124.89	
JV69	L6	5/13/18 13:19	d3-MeFOSAA	34,187.31	16,922.48	50,767.43		25,562.45	51,124.89	
JV70	L7	5/13/18 13:28	d3-MeFOSAA	32,780.98	16,922.48	50,767.43		25,562.45	51,124.89	
JV71	L8	5/13/18 13:37	d3-MeFOSAA	35,979.73	16,922.48	50,767.43		25,562.45	51,124.89	
JV72	L9	5/13/18 13:46	d3-MeFOSAA	35,477.74	16,922.48	50,767.43		25,562.45	51,124.89	
JV63 ICC	ICC	5/13/18 13:55	d3-MeFOSAA	36,861.29	16,922.48	50,767.43		25,562.45	51,124.89	
CQ689PB-FS(0)	Procedural Blank	5/13/18 14:13	d3-MeFOSAA	38,457.65	16,922.48	50,767.43		25,562.45	51,124.89	
CQ690LCS-FS(0)	Laboratory Control Sample	5/13/18 14:22	d3-MeFOSAA	27,237.74	16,922.48	50,767.43		25,562.45	51,124.89	
J5964-FS(0)	WGNA-043018-RW-3103	5/13/18 14:31	d3-MeFOSAA	30,250.69	16,922.48	50,767.43		25,562.45	51,124.89	
J5964MS-FS(0)	WGNA-043018-RW-3103	5/13/18 14:40	d3-MeFOSAA	50,038.18	16,922.48	50,767.43		25,562.45	51,124.89	
J5964MSD-FS(0)	WGNA-043018-RW-3103	5/13/18 14:49	d3-MeFOSAA	46,629.57	16,922.48	50,767.43		25,562.45	51,124.89	
J5966-FS(0)	NAWC-0403018-RW-204	5/13/18 14:58	d3-MeFOSAA	26,759.87	16,922.48	50,767.43		25,562.45	51,124.89	
JV69 CCV	CCV	5/13/18 15:07	d3-MeFOSAA	32,115.57	16,922.48	50,767.43		25,562.45	51,124.89	
J5968-FS(0)	WGNA-043018-RW-3409	5/13/18 15:24	d3-MeFOSAA	35,189.78	16,922.48	50,767.43		22,480.90	44,961.80	
J5970-FS(0)	WGNA-050118-RW-3385	5/13/18 15:33	d3-MeFOSAA	32,815.03	16,922.48	50,767.43		22,480.90	44,961.80	
J5972-FS(0)	WGNA-050118-RW-3178	5/13/18 15:42	d3-MeFOSAA	28,190.62	16,922.48	50,767.43		22,480.90	44,961.80	
J5974-FS(0)	NAWC-050118-RW-304	5/13/18 15:51	d3-MeFOSAA	28,505.77	16,922.48	50,767.43		22,480.90	44,961.80	
J5976-FS(0)	NAWC-050118-RW-098	5/13/18 16:00	d3-MeFOSAA	29,098.01	16,922.48	50,767.43		22,480.90	44,961.80	
JV68 CCV	CCV	5/13/18 16:09	d3-MeFOSAA	40,593.45	16,922.48	50,767.43		22,480.90	44,961.80	

Summary Asymmetry Report

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T13:28:47	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	N/A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.46	1.44	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.73	1.35	0.8 – 1.5

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 1:28:47 PM	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	N/A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.46	32	>10
PFBS_2	298.9 / 99.0	1.45	101	>10
PFHxA_1	313.0 / 269.0	1.73	31	>10
PFHxA_2	313.0 / 119.0	1.73	62	>10
PFHpA_1	363.0 / 319.0	2.09	26	>10
PFHpA_2	363.0 / 169.0	2.09	46	>10
PFHxS_1	399.0 / 80.0	2.11	54	>10
PFHxS_2	399.0 / 99.0	2.11	55	>10
PFOA_1	413.0 / 369.0	2.47	60	>10
PFOA_2	413.0 / 169.0	2.47	29	>10
PFNA_1	463.0 / 419.0	2.85	50	>10
PFNA_2	463.0 / 219.0	2.84	51	>10
PFOS_1	499.0 / 80.0	2.84	55	>10
PFOS_2	499.0 / 99.0	2.84	54	>10
PFDA_1	513.0 / 469.0	3.20	49	>10
PFDA_2	513.0 / 219.0	3.20	45	>10
PFUnA_1	563.0 / 519.0	3.52	50	>10
PFUnA_2	563.0 / 269.0	3.52	32	>10
PFDaA_1	613.0 / 569.0	3.81	63	>10
PFDaA_2	613.0 / 319.0	3.81	37	>10
PFTrDA_1	663.0 / 619.0	4.06	67	>10
PFTrDA_2	663.0 / 169.0	4.06	36	>10
PFTeDA_1	713.0 / 669.0	4.28	73	>10
PFTeDA_2	713.0 / 169.0	4.27	42	>10
NMeFOSAA_1	570.0 / 419.0	3.35	49	>10
NMeFOSAA_2	570.0 / 512.0	3.34	53	>10
NEtFOSAA_1	584.0 / 419.0	3.51	53	>10
NEtFOSAA_2	584.0 / 483.0	3.50	34	>10

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 1:28:47 PM	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
13C2-PFHxA	315.0 / 270.0	1.72	54	>10
13C2-PFDA	515.0 / 470.0	3.19	40	>10
d5-EtFOSAA	589.0 / 419.0	3.50	28	>10

Analytical Transitions for PFAS in drinking water

SOP 5-371 (EPA 537 Version 1.1)

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
PFHxA	307-24-4	Target	313.0 / 269.0	313.0 / 119.0
PFHpA	375-85-9	Target	363.0 / 319.0	363.0 / 169.0
PFOA	335-67-1	Target	413.0 / 369.0	413.0 / 169.0
PFNA	375-95-1	Target	463.0 / 419.0	463.0 / 219.0
PFDA	335-76-2	Target	513.0 / 469.0	513.0 / 219.0
PFUnA	2058-94-8	Target	563.0 / 519.0	563.0 / 269.0
PFDoA	307-55-1	Target	613.0 / 569.0	613.0 / 319.0
PFTTrDA	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
PFTeDA	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
NMeFOSAA	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
NEtFOSAA	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
PFBS	375-73-5	Target	298.9.0 / 80.0	298.9.0 / 99.0
PFHxS	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
PFOS	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
¹³C₂-PFHxA	NA	SIS	315.0 / 270.0	NA
¹³C₂-PFDA	NA	SIS	515.0 / 470.0	NA
d₅-EtFOSAA	NA	SIS	589.0 / 419.0	NA
¹³C₂-PFOA	NA	IS	415.0 / 270.0	NA
¹³C₄-PFOS	NA	IS	503.0 / 80.0	NA
d₃-MeFOSAA	NA	IS	573.0 / 419.0	NA

BATTELLE DETECTION LIMITS FOR PFAS IN DRINKING WATER

Battelle SOP 5-371 (EPA Method 537 Version 1.1)

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)	MRL (ng/L)
PFHxA	307-24-4	0.22	0.5	2.5	2.5
PFHpA	375-85-9	0.34	1.0	2.5	2.5
PFOA	335-67-1	0.38	1.0	2.5	2.5
PFNA	375-95-1	0.37	1.0	2.5	2.5
PFDA	335-76-2	0.39	1.0	2.5	2.5
PFUnA	2058-94-8	0.38	1.0	2.5	2.5
PFDoA	307-55-1	0.42	1.0	2.5	2.5
PFTTrDA	72629-94-8	0.42	1.0	2.5	2.5
PFTeDA	376-06-7	0.73	1.5	2.5	2.5
NMeFOSAA	2355-31-9	0.42	1.0	2.5	2.5
NEtFOSAA	2991-50-6	0.44	1.0	2.5	2.5
PFBS	375-73-5	0.21	0.5	2.5	2.5
PFHxS	3871-99-6	0.34	1.0	2.5	2.5
PFOS	1763-23-1	0.30	1.0	2.5	2.5

Analytes on NELAP and ELAP QSM 5.1 Scope of accreditation



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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

Mass calibration and tune check

QTRAP 5500 Preventive Maintenance Checklist

Preventive Maintenance Date:	22-Feb-2017
Request ID:	3683
Company Name:	Battelle Memorial Institute
Instrument ID:	X60666
Instrument Model:	QTRAP 5500
Instrument Serial Number:	AU23051004

PASS **FAIL**

Any failure will lead to an automatic Service Call being open to investigate fault.

Preventive Maintenance is performed twice every year unless specified in the Service Contract. It is designed to help maintain optimum system performance and to help diagnose any system deficiencies.

Engineer is required the assigned Request ID for this PM otherwise making this job invalid.

Comments: _____

Performed By: Kaustubh Dhayagude **Date:** 22-Feb-2017

Approved By : _____ **Date:** _____

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QTRAP 5500**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

PRE PM PPG PERFORMANCE EVALUATION:

- Consult Customer concerning the unit overall performance.
- Check Logbook for Services recently performed.
- Check Vacuum Pressure:

CAD Settings	Vacuum Reading (x 10 ⁻⁵ Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.5	0.4 to 1.1 x10 ⁻⁵ Torr
<input checked="" type="checkbox"/> CAD Low	1.9	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.4	Read Only
<input checked="" type="checkbox"/> CAD High	3.4	Read Only
<input checked="" type="checkbox"/> CAD 12	3.4	2.4 to 4.5 x10 ⁻⁵ Torr

- Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification
 - No degradation or Sensitivity drop
- Check for Q3 contamination symptoms. Run Q3 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification
 - No degradation or Sensitivity drop

Pre PM PPG Test: Perform each of the following tests. Optimize ion source position only. The specifications listed for these Pre PM tests are guidelines only, not required to be met.

- Perform Q1 POS using POS PPG 2e-7M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Q1 175.133	1.64 e6	Read Only	0.8095	Read Only
Q1 500.380	2.40 e7	Read Only	0.8592	Read Only
Q1 906.673	2.86 e7	Read Only	0.9633	Read Only

- Perform Q3 POS using POS PPG 2e-7M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Q3 175.133	1.26 e6	Read Only	0.6252	Read Only
Q3 500.380	2.19 e7	Read Only	0.7275	Read Only
Q3 906.673	3.02 e7	Read Only	0.7662	Read Only

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QTRAP 5500**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

Perform MSMS POS in Product Ion scan with 609.3 parent and record daughter 195.1 using Reserpine 0.167 pmol/ul at the scan rate of 10 Da/s for 10 MCA. Calculate transmission efficiency comparing Q1POS 609 intensity. Transmission Efficiency: : 19.51% (Read Only)

Mass	MSMS Intensity		MSMS Width Value	Width Specs
	Value	Spec		
Q1 609.3	7.43 e7	Read Only	0.9981	Read Only
MS/MS 195.1	1.45 e7	Read Only	0.6582	Read Only

Perform Q1 NEG using NEG PPG 3e-5M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Q1 933.636	1.43 e7	Read Only	0.7330	Read Only

Perform Q3 NEG using NEG PPG 3e-5M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Q3 933.636	2.22 e7	Read Only	0.8138	Read Only

Perform Product Ion scan using NEG PPG 3e-5M. Record 10 mca.

Mass	Scan Rate	MCA	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.35 e6	Read Only	0.6495	Read Only

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PREVENTIVE MAINTENANCE CHECKLIST:

- Check Cooling Fans for Turbo Pumps while MS is ON.
- Check QJet and QPS tuning voltage for reference.
- Record AC input Voltage while MS is OFF: _____(200-240VAC).
If Out-of-Range, notify customer.

- Clean Interface
 - Curtain Plate
 - Orifice Plate
 - QJet
 - Q0 Rods.

- Replace Roughing Pump Oil.
- Inspect Oil Exhaust Filter, if Applicable. N/A
- Clean and inspect built-in divert valve if used. N/A
- Check Multiplier Voltage, optimize if necessary.
- Replace four Air Filters at the bottom of the mass spectrometer.

- Pump down overnight if possible. N/A

- Perform Maintenance on Turbo V source.

- Replace Electrode, if necessary. N/A
- Check Turbo heaters resistances.
- Check if Temperature is reached at 500C with TIS Probe installed.
- Check if Temperature is reached at 500C with APCI Probe installed. N/A

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QTRAP 5500**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

POST PM PPG PERFORMANCE TESTS:

- Set-up Sample for Infusion.
- Check spray and adjust sprayer's position of the TIS source.
- Check Vacuum Pressure:

CAD Settings	Vacuum Reading (x 10 ⁻⁵ Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.8	0.4 to 1.1 x10 ⁻⁵ Torr
<input checked="" type="checkbox"/> CAD Low	2.1	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.6	Read Only
<input checked="" type="checkbox"/> CAD High	3.7	Read Only
<input checked="" type="checkbox"/> CAD 12	3.7	2.4 to 4.5 x10 ⁻⁵ Torr

- Perform Q1 POS using POS PPG 2e-7M. Mass calibrate to less than 0.1 amu.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q1 175.133	5.94 e6	≥1.2 ^{e6}	0.6933	0.6 to 0.8
Q1 500.380	2.25 e7	≥9.0 ^{e6}	0.7444	0.6 to 0.8
Q1 906.673	2.74 e7	≥1.4 ^{e7}	0.7347	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8 ^{e7}	0.7656	0.6 to 0.8

- Perform Q3 POS using POS PPG 2e-7M. Mass calibrate to less than 0.1 amu.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q3 175.133	4.54 e6	≥1.2 ^{e6}	0.6390	0.6 to 0.8
Q3 500.380	2.13 e7	≥9.0 ^{e6}	0.7008	0.6 to 0.8
Q3 906.673	3.04 e7	≥1.4 ^{e7}	0.7683	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q3 906.673	1.51 e8	≥6.8 ^{e7}	0.7118	0.6 to 0.8

- Perform "Product of 609.3" POS and record product ion 195.1 using Reserpine 0.167pmol/uL. Record 10 mca. Calculate Transmission efficiency comparing Q1POS 609 intensity.

Transmission Efficiency: 16.93% (≥ 10.0%)

Mass	MSMS Intensity		Width Value	Width Specs
	Value	Spec		
Q1 609.3	5.74 e7	N/A	0.7667	Read Only
MS/MS 195.1	9.72 e6	N/A	0.6751	Read Only

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QTRAP 5500**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

- Perform Q1 NEG using NEG PPG 3e-5M. Mass calibrate to less than 0.1 amu.

Mass	Scan Rate	Mca	Q1 Intensity		Q1 Width Value	Width Specs
			Value	Spec		
Q1 933.636	10	10	1.31 e7	$\geq 1.0^{e7}$	0.6895	0.6 to 0.8
Q1 933.636	1000	50	6.32 e7	$\geq 4.0^{e7}$	0.6740	0.6 to 0.8

- Perform Q3 NEG using NEG PPG 3e-5M. Mass calibrate to less than 0.1 amu.

Mass	Scan Rate	Mca	Q3 Intensity		Q3 Width Value	Width Specs
			Value	Spec		
Q3 933.636	10	10	1.70 e7	$\geq 8.0^{e6}$	0.7665	0.6 to 0.8
Q3 933.636	1000	50	7.41 e7	$\geq 4.0^{e7}$	0.7292	0.6 to 0.8

- Perform Product Ion scan using NEG PPG 3e-5M.

Mass	Scan Rate	Mca	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.33 e6	Read Only	0.6387	Read Only

- Perform ER POS 118.087 and 922.01 using ESI Tuning Mix 1:100 in ES Tuning Dilution Solvent. Apply suggested Scan Rate and Record number of MCA. Mass calibrate to less than 0.1 amu.

Mass	Fill Time (ms)	ER Intensity		ER Width Value	Width Specs
		Value	Spec		
ScanRate : 1000 Da/s ; 50 Mca					
ER 118.087	0.05	8.08 e6	$\geq 7.2^{e6}$	0.1302	<0.35
ER 922.010	0.05	3.89 e7	$\geq 2.8^{e6}$	0.2603	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05	2.55 e7	$\geq 2.4^{e7}$	0.3740	<0.65
ER 922.010	0.05	2.37 e8	$\geq 6.8^{e7}$	0.5407	<0.65

- Perform ER NEG 431.982 and 601.978 using ESI Tuning Mix 1:100 in ES Tuning Dilution Solvent. Apply suggested Scan Rate and Record number of MCA. Mass calibrate to less than 0.1 amu.

Mass	Fill Time (ms)	ER Intensity		ER Width Value	Width Specs
		Value	Spec		
ScanRate : 1000 Da/s ; 50 Mca					
ER 431.982	0.05	1.05 e8	$\geq 4.4^{e7}$	0.1840	<0.35
ER 601.978	0.05	7.74 e7	$\geq 5.6^{e7}$	0.1849	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 431.982	0.05	3.43 e8	$\geq 1.2^{e8}$	0.4382	<0.65
ER 601.978	0.05	2.55 e8	$\geq 1.6^{e8}$	0.6205	<0.65

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QTRAP 5500**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

- Perform EPI POS 397.2 using Reserpine 0.167pmol/uL. Record 20 mca.

Mass	Scan Rate (Da/s)	Q0 Trapping OFF		Q0 Trapping ON	
		Intensity	Spec	Intensity	Spec
EPI 397.2	10000	> 3.5 e6	≥2.0 e6	> 4.0 e7	≥6.4 e6

- Perform MS3 POS full scan Fragmentation ON & OFF using Reserpine 0.167pmol/uL. Record 20 mca.

Mass	Scan Rate (Da/s)	Fragamentation OFF		Fragmentation ON	
		Intensity	Spec	Intensity	Spec
MS3 397.2	1000	3.2 e7	Contains only 397.2	N/A	N/A
<input type="checkbox"/> 236 OR <input checked="" type="checkbox"/> 365	1000	1.19 e8	Fragment Intensity	> 4.4 e6	≥1.6x 10 ^{e6}

REVIEW:

- Attach all spectrums printouts to this procedure.
- If any parameter setting access modes were changed during the PM, ensure they are returned to their normal access mode and that their offsets are adjusted to match optimized values from the post-PM acquisition files.
- Empty tuning cache folder, if necessary. N/A
- Update Service Work Order status
- Fill and replace PM Label.

END OF PREVENTIVE MAINTENANCE CHECKLIST**Document history:**

06 OCT 2016: Appendix ZEFPM003-2L: Removed requirements to fit Manufacturer's testing criteria.



It can be done

BATTELLE - NORWELL OPERATIONS LIQUID SAMPLE ID FORM

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)100117920-
WE04**18-0299****WE04 PFAS Analysis****DW**

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CQ689PB-FS	Procedural Blank	250.0	NA	--	05/04/18 SAS
CQ690LCS-FS	Laboratory Control Sample	250.0	NA	--	05/04/18 SAS
J5964-FS	WGNA-043018-RW-3103	265.0	1	C	05/04/18 SAS
J5964MS-FS	Matrix Spike	255.0	3	C	05/04/18 SAS
J5964MSD-FS	Matrix Spike Duplicate	255.0	5	C	05/04/18 SAS
J5966-FS	NAWC-043018-RW-207	265.0	1	C	05/04/18 SAS
J5968-FS	WGNA-043018-RW-3409	275.0	1	C	05/04/18 SAS
J5970-FS	WGNA-050118-RW-3385	280.0	1	C	05/04/18 SAS
J5972-FS	WGNA-050118-RW-3178	285.0	1	C	05/04/18 SAS
J5974-FS	NAWC-050118-RW-304	275.0	1	C	05/04/18 SAS
J5976-FS	NAWC-050118-RW-098	280.0	1	C	05/04/18 SAS

Comments:

Sample ID:	Comments:
CQ689PB-FS	1.24g Trizma (170526-01) weighed on BAL-009
CQ690LCS-FS	1.24g Trizma (170526-01) weighed on BAL-009

Samples Assigned By

Stephanie Schultz

Date :

May 4, 2018

* - "C" = Sample is Consumed



It can be done

BATTELLE - NORWELL OPERATIONS SURROGATE SPIKE FORM

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)100117920-
WE04**18-0299****WE04 PFAS Analysis****DW**

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CQ689PB-FS	JV60	SIS	1	50	05/04/18 SAS	JCT	NA
CQ690LCS-FS	JV41	LCS/MS	1	50	05/04/18 SAS	JCT	NA
CQ690LCS-FS	JV60	SIS	1	50	05/04/18 SAS	JCT	NA
J5964-FS	JV60	SIS	1	50	05/04/18 SAS	JCT	NA
J5964MS-FS	JV41	LCS/MS	1	100	05/04/18 SAS	JCT	NA
J5964MS-FS	JV60	SIS	1	50	05/04/18 SAS	JCT	NA
J5964MSD-FS	JV41	LCS/MS	1	100	05/04/18 SAS	JCT	NA
J5964MSD-FS	JV60	SIS	1	50	05/04/18 SAS	JCT	NA
J5966-FS	JV60	SIS	1	50	05/04/18 SAS	JCT	NA
J5968-FS	JV60	SIS	1	50	05/04/18 SAS	JCT	NA
J5970-FS	JV60	SIS	1	50	05/04/18 SAS	JCT	NA
J5972-FS	JV60	SIS	1	50	05/04/18 SAS	JCT	NA
J5974-FS	JV60	SIS	1	50	05/04/18 SAS	JCT	NA
J5976-FS	JV60	SIS	1	50	05/04/18 SAS	JCT	NA

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV41	Pipette	I0793912B
JV60	Pipette	I0793912B



It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE EXTRACTION FORM

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)100117920-
WE04**18-0299****WE04 PFAS Analysis****DW**

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CQ689PB-FS	05/04/18 SAS	NA	NA	NA	NA	NA	NA	NA
CQ690LCS-FS	05/04/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5964-FS	05/04/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5964MS-FS	05/04/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5964MSD-FS	05/04/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5966-FS	05/04/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5968-FS	05/04/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5970-FS	05/04/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5972-FS	05/04/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5974-FS	05/04/18 SAS	NA	NA	NA	NA	NA	NA	NA
J5976-FS	05/04/18 SAS	NA	NA	NA	NA	NA	NA	NA

Solvents/Reagent Preparations:

Name	ID	Expires	Lot No	Procedure	Comments
Pre-packed SPE Column	RP-180504-1	05/04/18	S214-0071	Pre-packed SPE Column	

Solvents/Reagents:

Name	Lot No	Comments
Methanol (HPLC) (180227-02)	178212	



It can be done

BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

Project Title(s)

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)100117920-
WE04**18-0299****WE04 PFAS Analysis****DW****(N/A Fraction)**

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm . (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution*	Date Spiked/ Spiked By	Witn'd By
CQ689PB-FS(0)	950	50	JV59	50	1	1000	1.000	05/07/18 SAS	LMG
CQ690LCS-FS(0)	950	50	JV59	50	1	1000	1.000	05/07/18 SAS	LMG
J5964-FS(0)	950	50	JV59	50	1	1000	1.000	05/07/18 SAS	LMG
J5964MS-FS(0)	950	50	JV59	50	1	1000	1.000	05/07/18 SAS	LMG
J5964MSD-FS(0)	950	50	JV59	50	1	1000	1.000	05/07/18 SAS	LMG
J5966-FS(0)	950	50	JV59	50	1	1000	1.000	05/07/18 SAS	LMG
J5968-FS(0)	950	50	JV59	50	1	1000	1.000	05/07/18 SAS	LMG
J5970-FS(0)	950	50	JV59	50	1	1000	1.000	05/07/18 SAS	LMG
J5972-FS(0)	950	50	JV59	50	1	1000	1.000	05/07/18 SAS	LMG
J5974-FS(0)	950	50	JV59	50	1	1000	1.000	05/07/18 SAS	LMG
J5976-FS(0)	950	50	JV59	50	1	1000	1.000	05/07/18 SAS	LMG

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV59	Pipette	I0793912B

Extract Id:	Comments:
CQ689PB-FS	Samples reconstituted in 96/4 methanol/milli-q (RP-180507-1)

* - Final Dilution is any HPLC, dilutions, or other manipulation

^ - Pre Injection Volume (PIV) includes any RIS spikes.

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		5/13/2018 12:26:05 PM	5-0371.dam	18-0299_A.wiff
2	JV64	L1	5/13/2018 12:35:02 PM	5-0371.dam	18-0299_A.wiff
3	JV65	L2	5/13/2018 12:43:59 PM	5-0371.dam	18-0299_A.wiff
4	JV66	L3	5/13/2018 12:52:57 PM	5-0371.dam	18-0299_A.wiff
5	JV67	L4	5/13/2018 1:01:55 PM	5-0371.dam	18-0299_A.wiff
6	JV68	L5	5/13/2018 1:10:53 PM	5-0371.dam	18-0299_A.wiff
7	JV69	L6	5/13/2018 1:19:50 PM	5-0371.dam	18-0299_A.wiff
8	JV70	L7	5/13/2018 1:28:47 PM	5-0371.dam	18-0299_A.wiff
9	JV71	L8	5/13/2018 1:37:43 PM	5-0371.dam	18-0299_A.wiff
10	JV72	L9	5/13/2018 1:46:40 PM	5-0371.dam	18-0299_A.wiff
11	JV63 ICC	ICC	5/13/2018 1:55:37 PM	5-0371.dam	18-0299_A.wiff
1	MeOH		5/13/2018 2:04:35 PM	5-0371.dam	18-0299_A.wiff
12	CQ689PB-FS(0)	Procedural Blank	5/13/2018 2:13:32 PM	5-0371.dam	18-0299_A.wiff
13	CQ690LCS-FS(0)	Laboratory Control Sample	5/13/2018 2:22:27 PM	5-0371.dam	18-0299_A.wiff
14	J5964-FS(0)	WGNA-043018-RW-3103	5/13/2018 2:31:24 PM	5-0371.dam	18-0299_A.wiff
15	J5964MS-FS(0)	WGNA-043018-RW-3103	5/13/2018 2:40:20 PM	5-0371.dam	18-0299_A.wiff
16	J5964MSD-FS(0)	WGNA-043018-RW-3103	5/13/2018 2:49:16 PM	5-0371.dam	18-0299_A.wiff
17	J5966-FS(0)	NAWC-0403018-RW-204	5/13/2018 2:58:13 PM	5-0371.dam	18-0299_A.wiff
7	JV69 CCV	CCV	5/13/2018 3:07:07 PM	5-0371.dam	18-0299_A.wiff
1	MeOH		5/13/2018 3:16:03 PM	5-0371.dam	18-0299_A.wiff
18	J5968-FS(0)	WGNA-043018-RW-3409	5/13/2018 3:24:59 PM	5-0371.dam	18-0299_A.wiff
19	J5970-FS(0)	WGNA-050118-RW-3385	5/13/2018 3:33:54 PM	5-0371.dam	18-0299_A.wiff
20	J5972-FS(0)	WGNA-050118-RW-3178	5/13/2018 3:42:49 PM	5-0371.dam	18-0299_A.wiff
21	J5974-FS(0)	NAWX-050118-RW-304	5/13/2018 3:51:45 PM	5-0371.dam	18-0299_A.wiff
22	J5976-FS(0)	NAWC-050118-RW-098	5/13/2018 4:00:39 PM	5-0371.dam	18-0299_A.wiff
6	JV68 CCV	CCV	5/13/2018 4:09:36 PM	5-0371.dam	18-0299_A.wiff



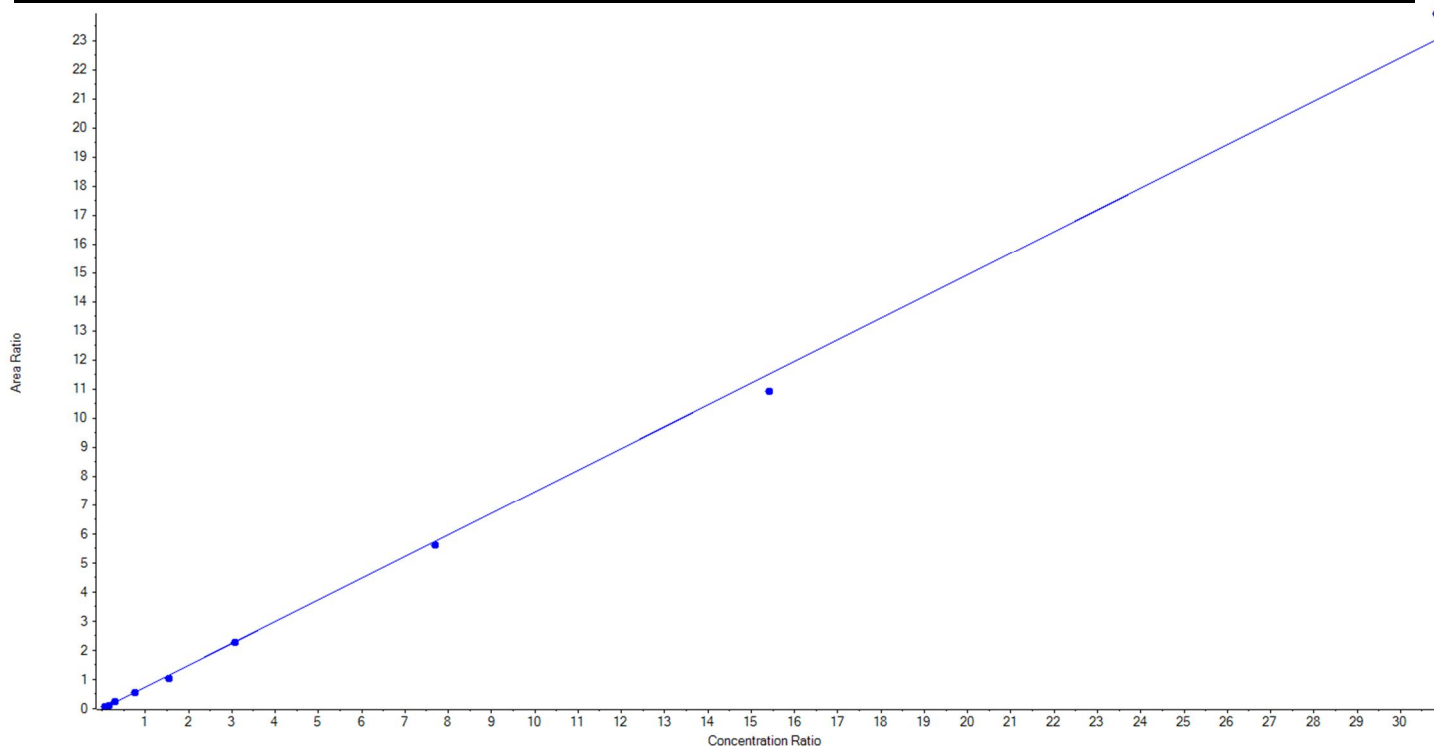
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Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

Analyte Name	PFBS_1	Data File	18-0299_A.wiff
MRM Transition	298.9 / 80.0	Result Table	18-0299_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.74710x + -0.00415$ ($r = 0.99901$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.15	26.086029	117.8
3	JV65	L2	True	44.30	41.308305	93.3
4	JV66	L3	True	88.60	96.021884	108.4
5	JV67	L4	True	221.50	208.146645	94.0
6	JV68	L5	True	443.00	405.020980	91.4
7	JV69	L6	True	885.00	877.849575	99.2
8	JV70	L7	True	2212.50	2155.432631	97.4
9	JV71	L8	True	4425.00	4193.522342	94.8
10	JV72	L9	True	8850.00	9188.661608	103.8





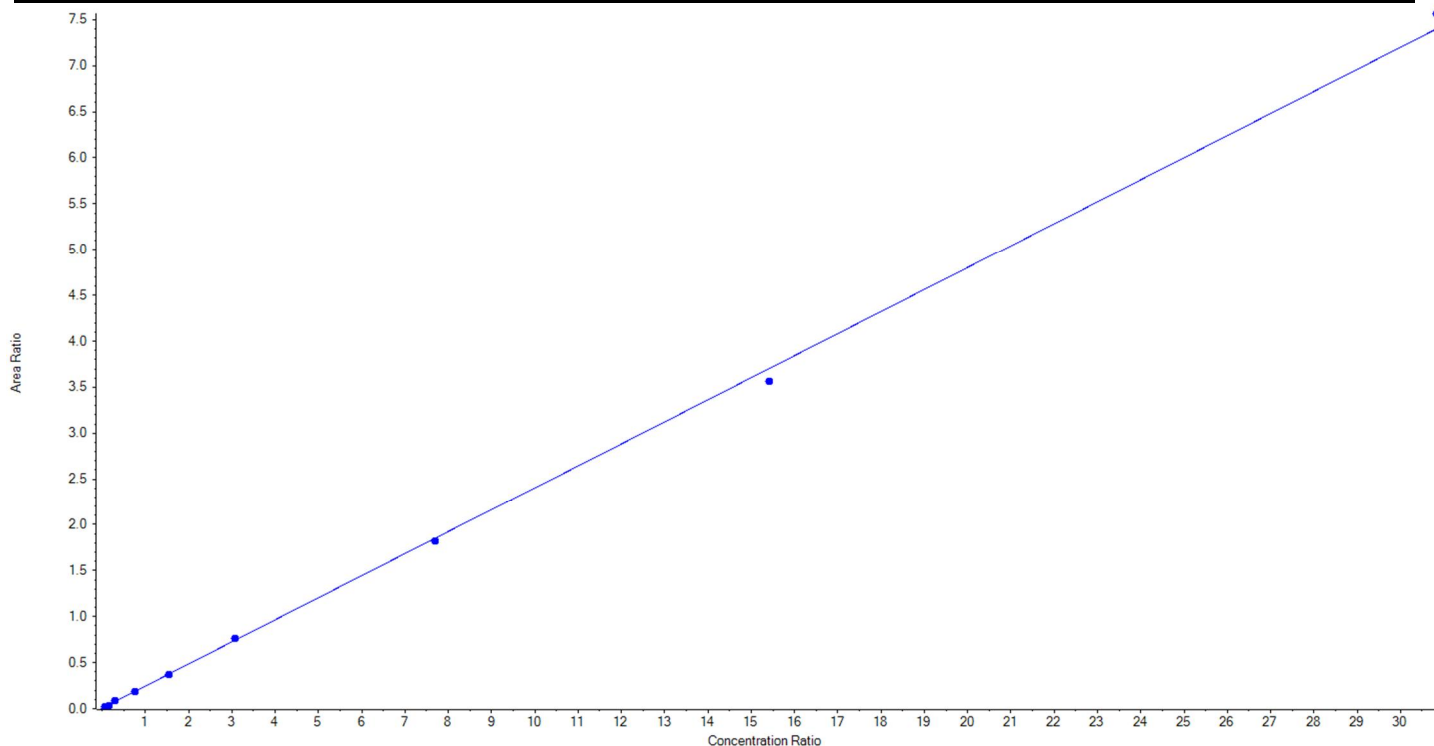
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Analyte Name	PFBS_2	Data File	18-0299_A.wiff
MRM Transition	298.9 / 99.0	Result Table	18-0299_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.23985x + 0.00536$ ($r = 0.99956$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.15	25.597219	115.6
3	JV65	L2	True	44.30	37.367171	84.4
4	JV66	L3	True	88.60	93.848247	105.9
5	JV67	L4	True	221.50	215.325493	97.2
6	JV68	L5	True	443.00	431.256726	97.4
7	JV69	L6	True	885.00	910.253876	102.9
8	JV70	L7	True	2212.50	2174.982043	98.3
9	JV71	L8	True	4425.00	4258.852824	96.3
10	JV72	L9	True	8850.00	9044.566400	102.2





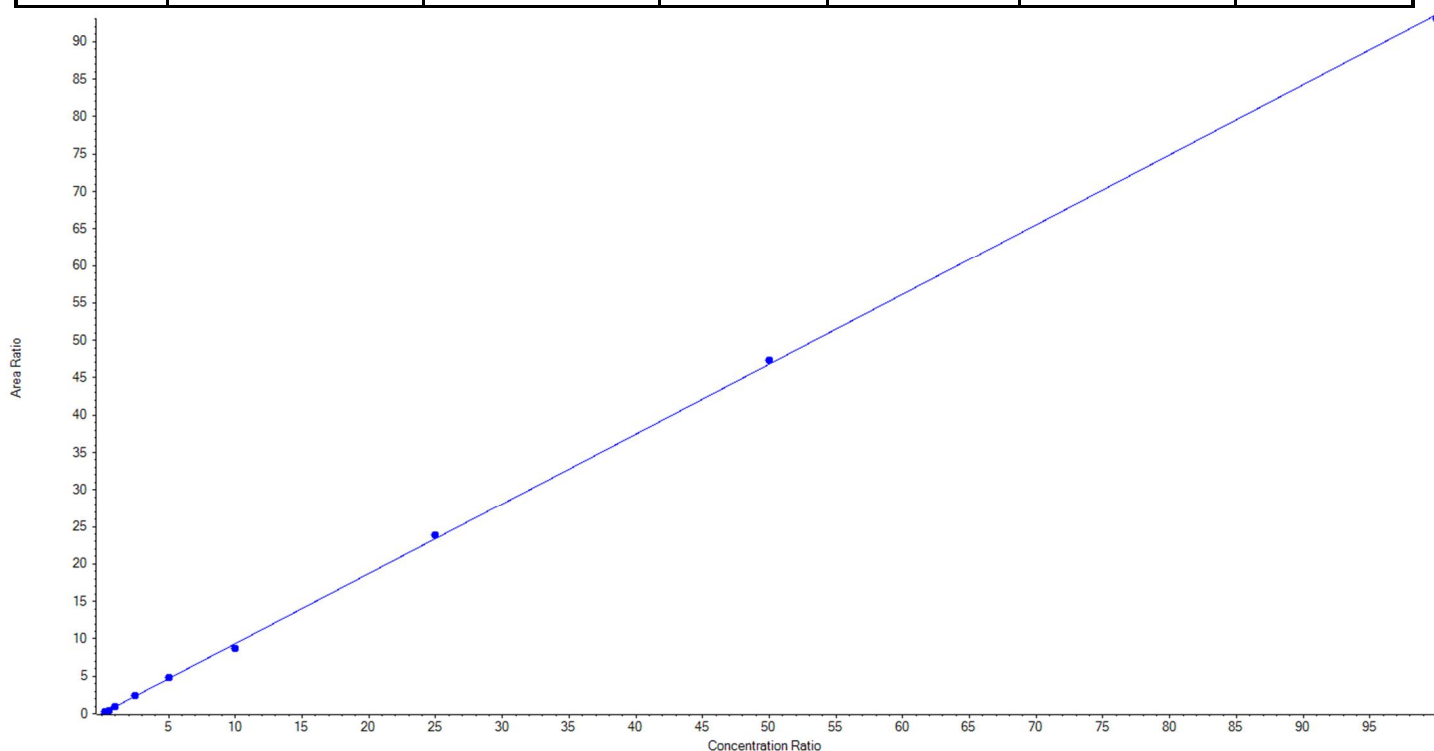
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Analyte Name	PFHxA_1	Data File	18-0299_A.wiff
MRM Transition	313.0 / 269.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.93620x + 0.00273$ ($r = 0.99981$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	24.867979	99.5
3	JV65	L2	True	50.00	47.319166	94.6
4	JV66	L3	True	100.00	103.981147	104.0
5	JV67	L4	True	250.00	257.782122	103.1
6	JV68	L5	True	500.00	514.874973	103.0
7	JV69	L6	True	1000.00	934.548992	93.5
8	JV70	L7	True	2500.00	2546.645589	101.9
9	JV71	L8	True	5000.00	5055.023878	101.1
10	JV72	L9	True	10000.00	9939.956154	99.4





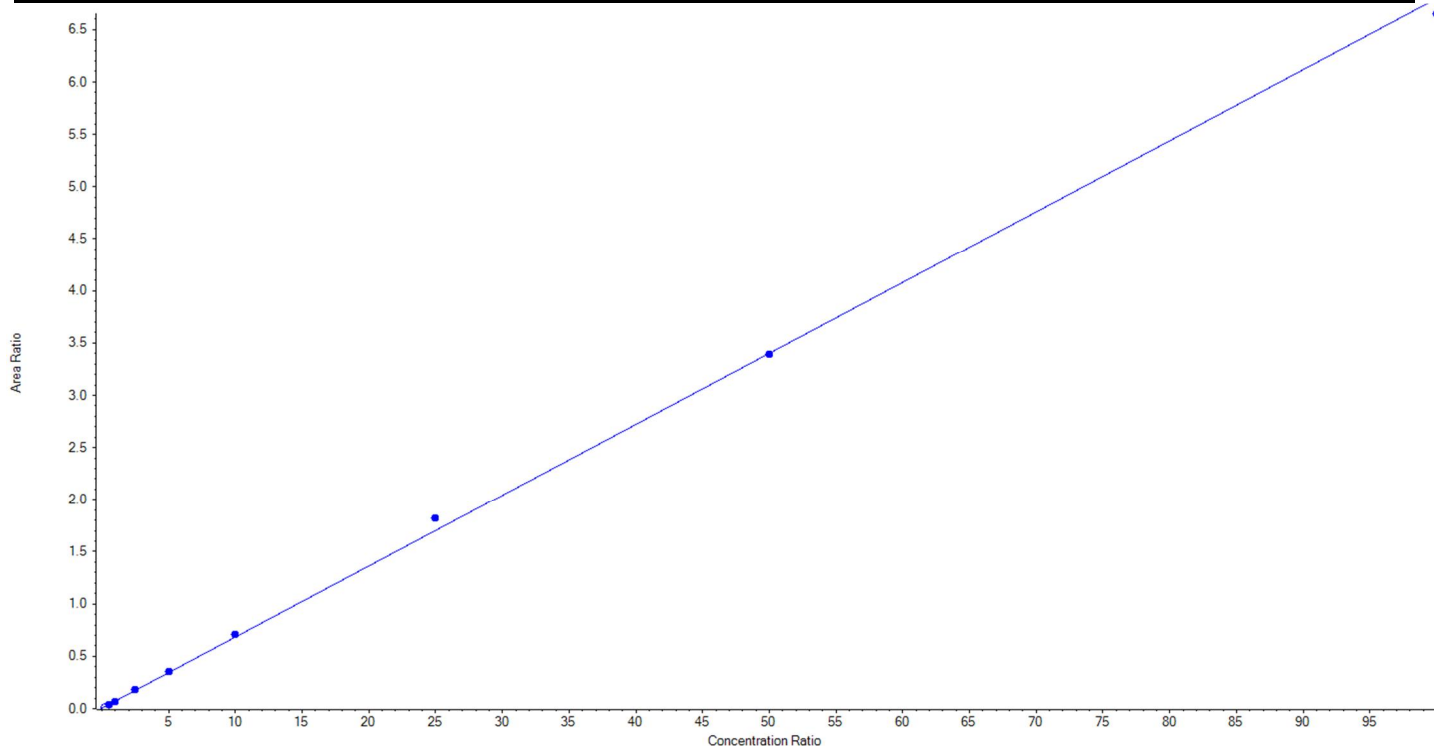
Calibration Summary Report

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Analyte Name	PFHxA_2	Data File	18-0299_A.wiff
MRM Transition	313.0 / 119.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06792 x + 0.00483$ (r = 0.99943) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	12.761716	51.1
3	JV65	L2	True	50.00	43.727148	87.5
4	JV66	L3	True	100.00	95.641837	95.6
5	JV67	L4	True	250.00	263.693056	105.5
6	JV68	L5	True	500.00	515.484261	103.1
7	JV69	L6	True	1000.00	1039.124444	103.9
8	JV70	L7	True	2500.00	2670.924305	106.8
9	JV71	L8	True	5000.00	4986.632621	99.7
10	JV72	L9	True	10000.00	9784.772327	97.9





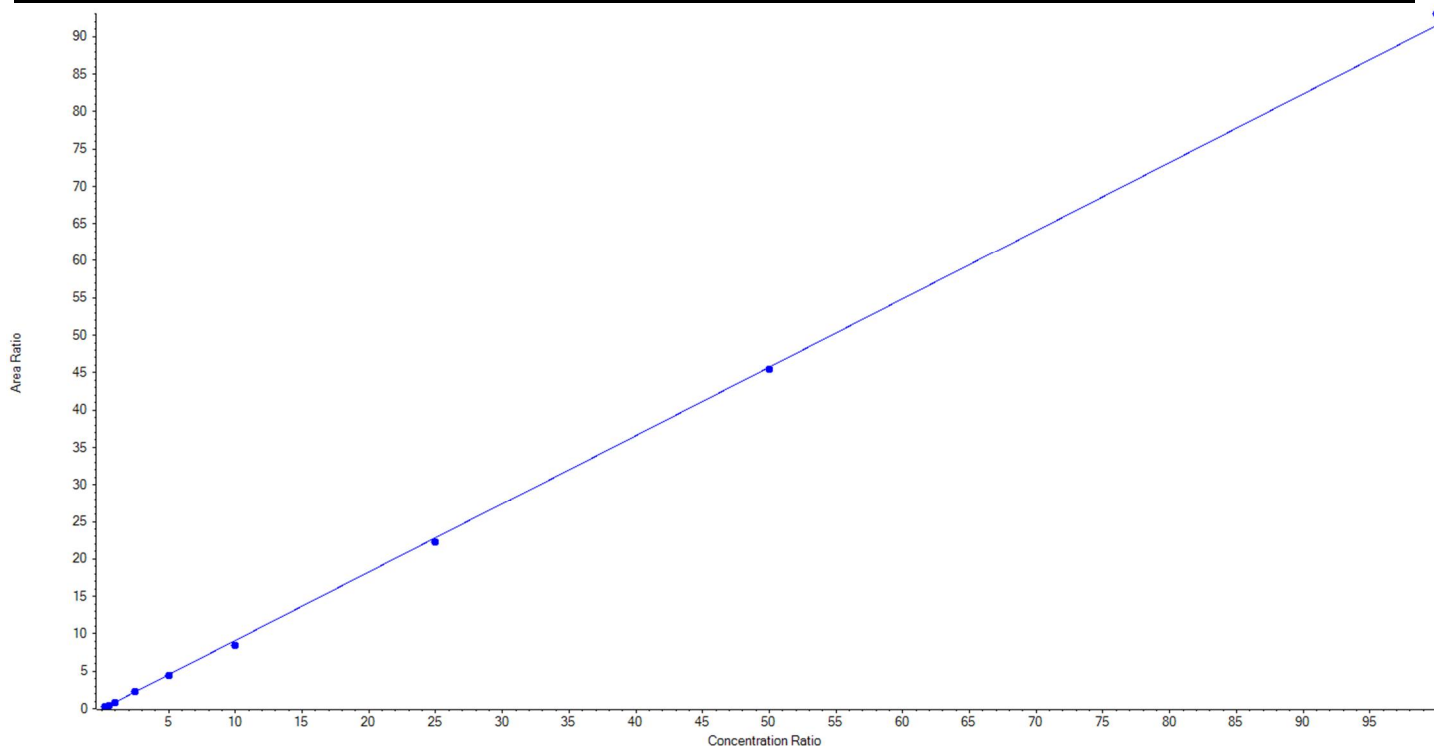
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Analyte Name	PFHpA_1	Data File	18-0299_A.wiff
MRM Transition	363.0 / 319.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.91541 x + -0.03753$ ($r = 0.99968$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	30.376574	121.5
3	JV65	L2	True	50.00	45.439028	90.9
4	JV66	L3	True	100.00	97.496950	97.5
5	JV67	L4	True	250.00	250.225261	100.1
6	JV68	L5	True	500.00	493.346877	98.7
7	JV69	L6	True	1000.00	925.558519	92.6
8	JV70	L7	True	2500.00	2441.983591	97.7
9	JV71	L8	True	5000.00	4971.829107	99.4
10	JV72	L9	True	10000.00	10168.744092	101.7





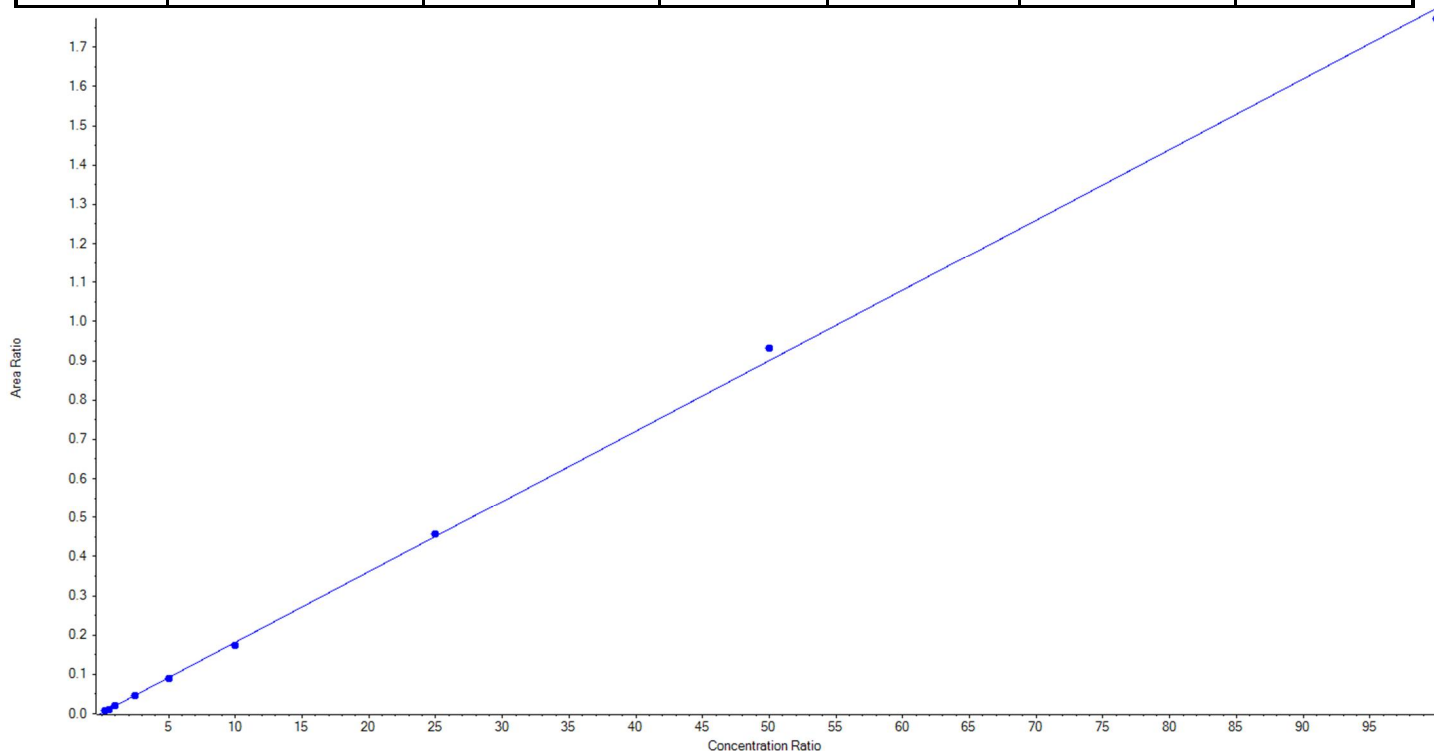
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Analyte Name	PFHpA_2	Data File	18-0299_A.wiff
MRM Transition	363.0 / 169.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.01797 x + 0.00202$ ($r = 0.99965$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	29.725633	118.9
3	JV65	L2	True	50.00	45.978740	92.0
4	JV66	L3	True	100.00	95.624568	95.6
5	JV67	L4	True	250.00	242.906065	97.2
6	JV68	L5	True	500.00	483.731030	96.8
7	JV69	L6	True	1000.00	961.157631	96.1
8	JV70	L7	True	2500.00	2534.040073	101.4
9	JV71	L8	True	5000.00	5181.105707	103.6
10	JV72	L9	True	10000.00	9850.730552	98.5





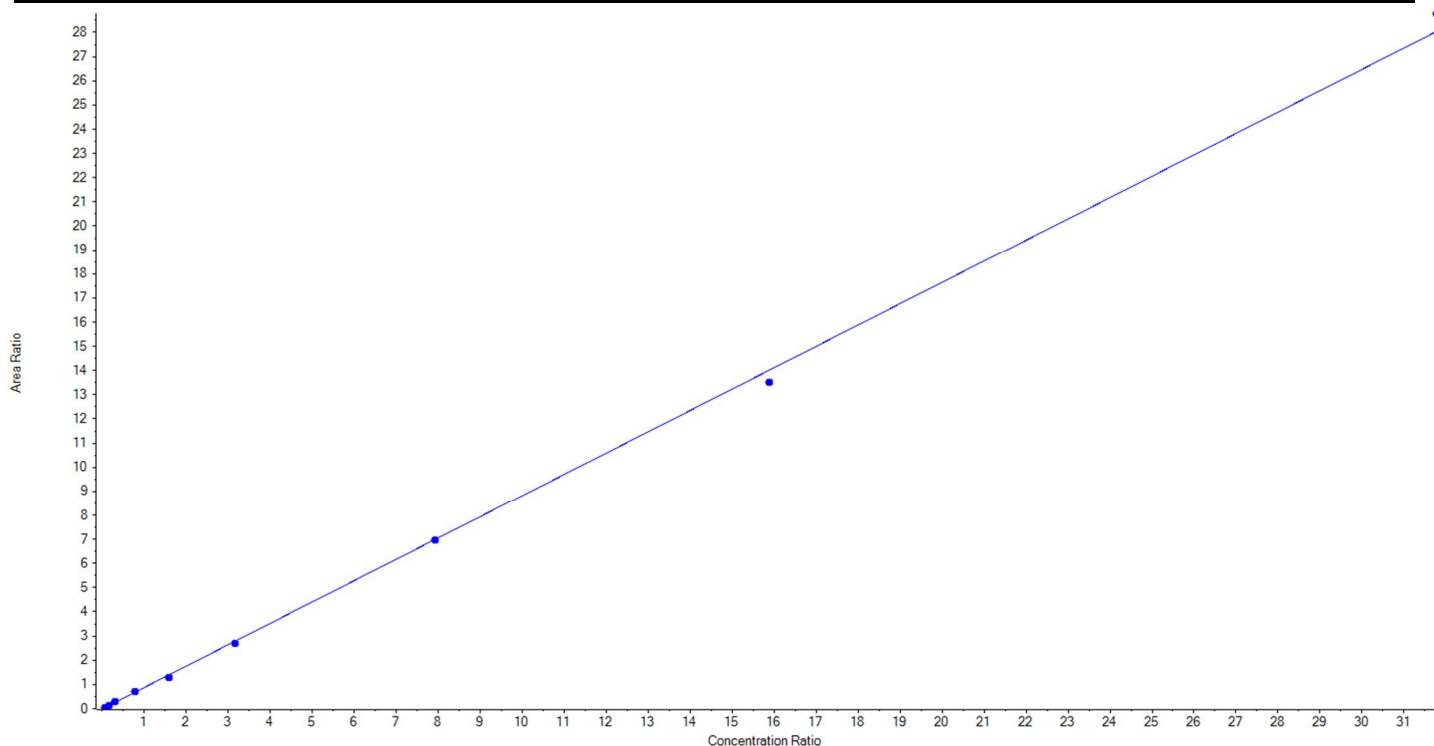
Calibration Summary Report

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Analyte Name	PFHxS_1	Data File	18-0299_A.wiff
MRM Transition	399.0 / 80.0	Result Table	18-0299_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.88291 x + -0.01367$ ($r = 0.99951$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.80	21.964158	96.3
3	JV65	L2	True	45.60	49.398431	108.3
4	JV66	L3	True	91.20	97.865642	107.3
5	JV67	L4	True	228.00	228.868301	100.4
6	JV68	L5	True	456.00	425.120183	93.2
7	JV69	L6	True	912.00	876.037044	96.1
8	JV70	L7	True	2280.00	2266.476902	99.4
9	JV71	L8	True	4560.00	4394.803214	96.4
10	JV72	L9	True	9120.00	9355.066126	102.6





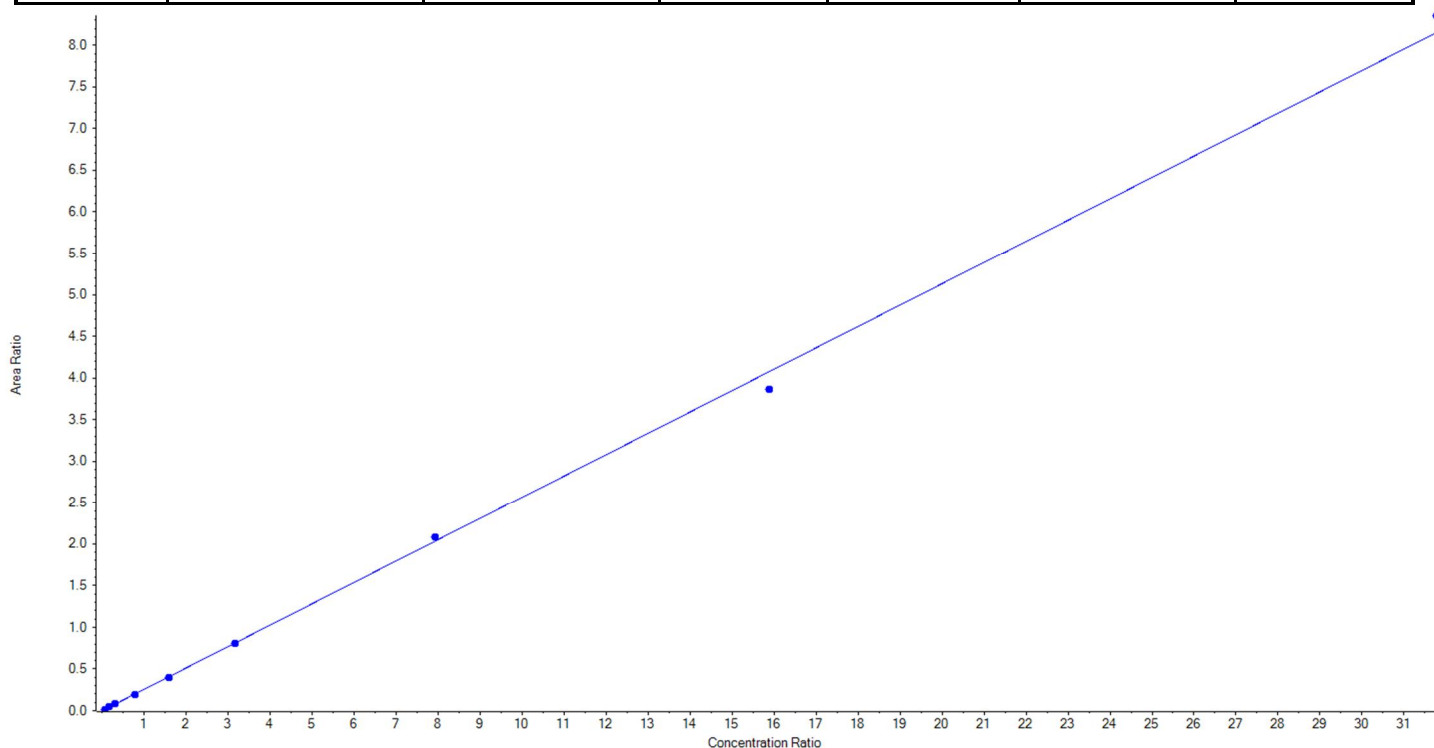
Calibration Summary Report

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Analyte Name	PFHxS_2	Data File	18-0299_A.wiff
MRM Transition	399.0 / 99.0	Result Table	18-0299_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.25661 x + -0.00178$ ($r = 0.99935$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.80	20.563117	90.2
3	JV65	L2	True	45.60	53.831556	118.1
4	JV66	L3	True	91.20	95.330404	104.5
5	JV67	L4	True	228.00	212.264019	93.1
6	JV68	L5	True	456.00	439.490801	96.4
7	JV69	L6	True	912.00	897.362513	98.4
8	JV70	L7	True	2280.00	2325.261565	102.0
9	JV71	L8	True	4560.00	4328.857532	94.9
10	JV72	L9	True	9120.00	9342.638493	102.4





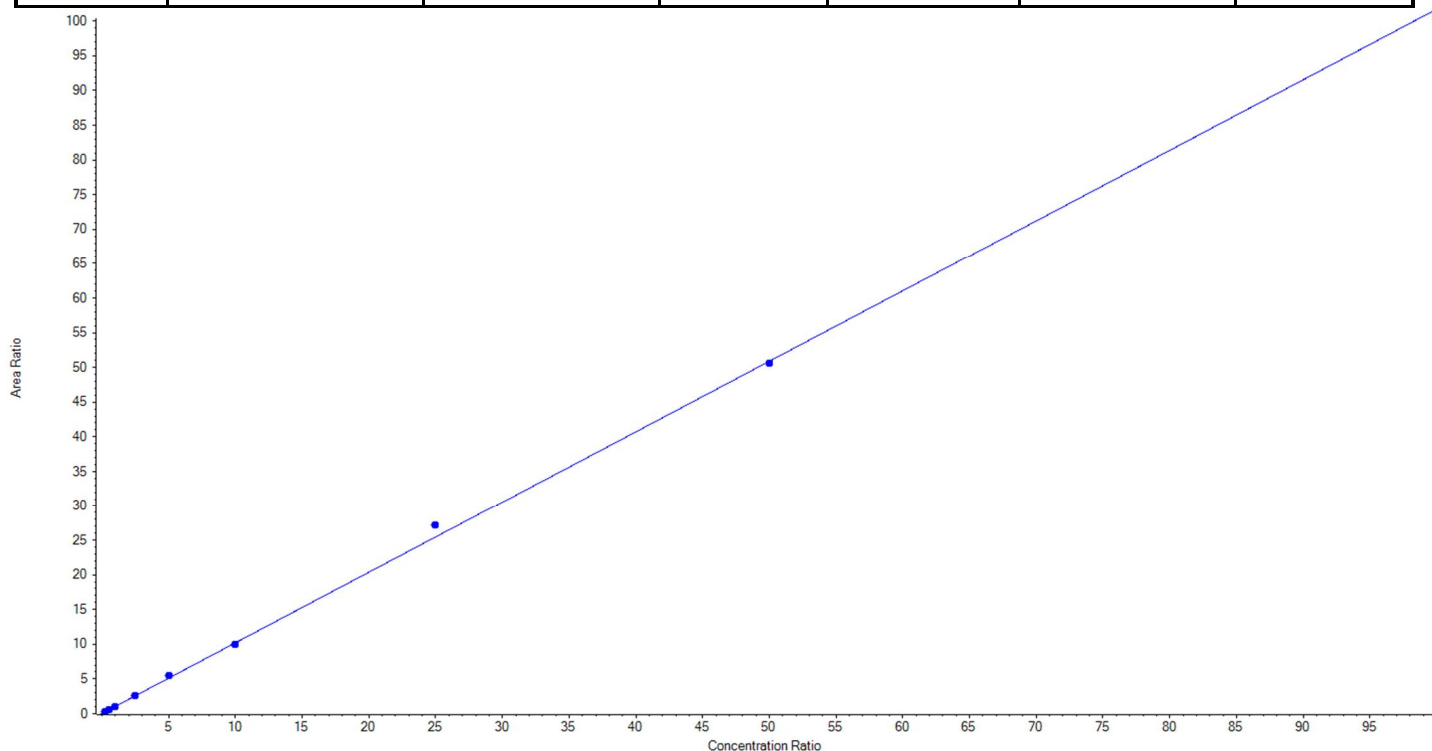
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Analyte Name	PFOA_1	Data File	18-0299_A.wiff
MRM Transition	413.0 / 369.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.01678x + 0.03792$ (r = 0.99956) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	24.183670	96.7
3	JV65	L2	True	50.00	46.719992	93.4
4	JV66	L3	True	100.00	101.886336	101.9
5	JV67	L4	True	250.00	249.445858	99.8
6	JV68	L5	True	500.00	530.855181	106.2
7	JV69	L6	True	1000.00	973.222838	97.3
8	JV70	L7	True	2500.00	2666.217472	106.7
9	JV71	L8	True	5000.00	4969.395260	99.4
10	JV72	L9	True	10000.00	9863.073393	98.6





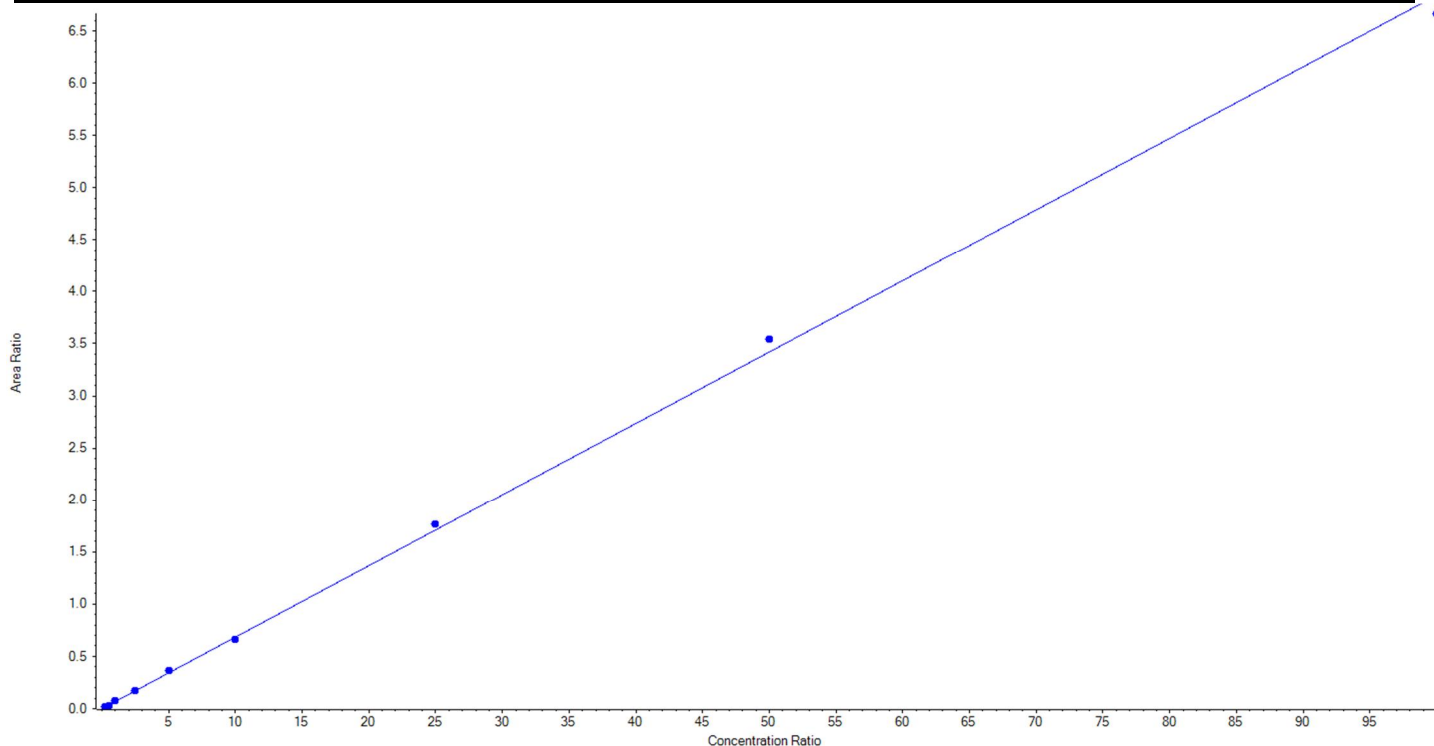
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

Analyte Name	PFOA_2	Data File	18-0299_A.wiff
MRM Transition	413.0 / 169.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06839x + 1.47376e-4$ ($r = 0.99938$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	26.539591	106.2
3	JV65	L2	True	50.00	36.985333	74.0
4	JV66	L3	True	100.00	108.966567	109.0
5	JV67	L4	True	250.00	259.322647	103.7
6	JV68	L5	True	500.00	531.937160	106.4
7	JV69	L6	True	1000.00	968.055899	96.8
8	JV70	L7	True	2500.00	2576.703127	103.1
9	JV71	L8	True	5000.00	5174.930026	103.5
10	JV72	L9	True	10000.00	9741.559650	97.4





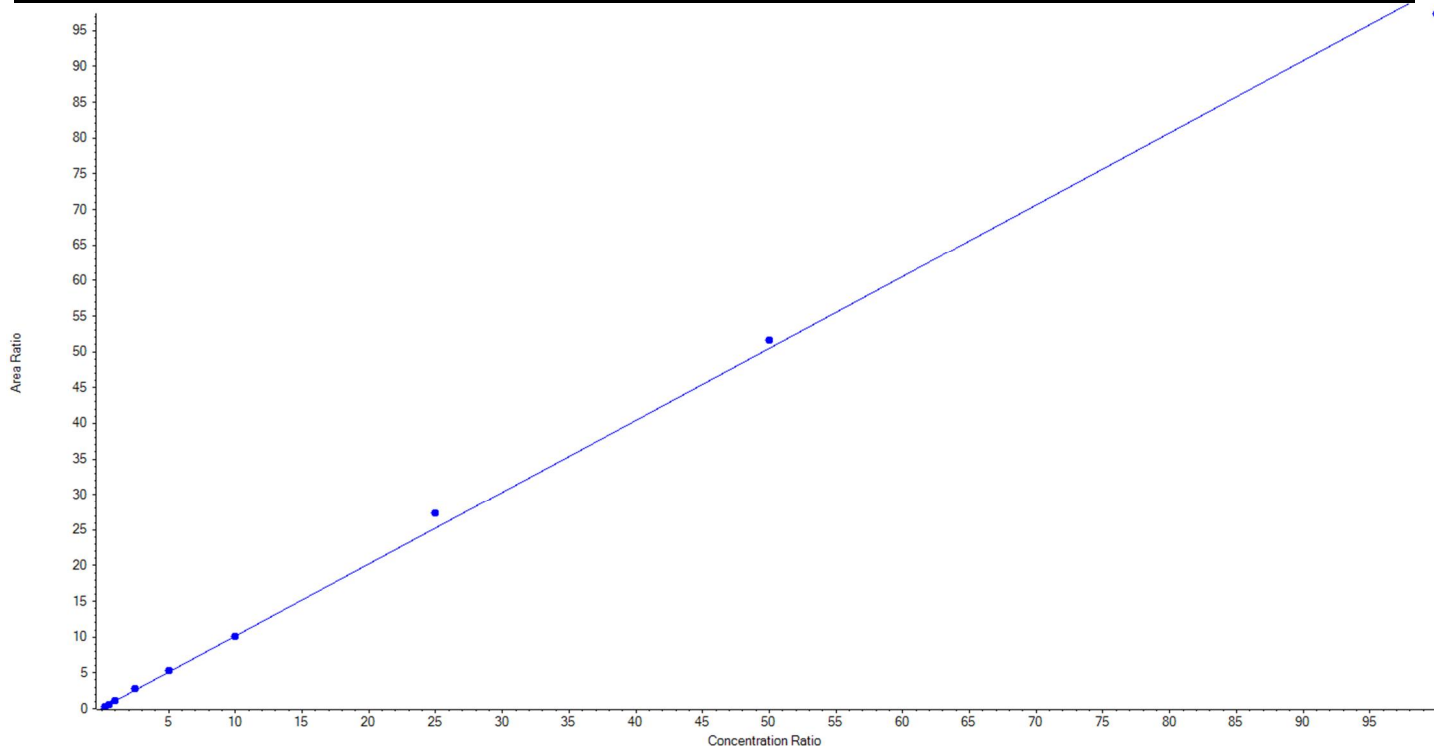
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFNA_1	Data File	18-0299_A.wiff
MRM Transition	463.0 / 419.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.00813x + 0.07245$ ($r = 0.99905$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	23.740151	95.0
3	JV65	L2	True	50.00	42.975473	86.0
4	JV66	L3	True	100.00	101.182264	101.2
5	JV67	L4	True	250.00	268.785560	107.5
6	JV68	L5	True	500.00	517.047940	103.4
7	JV69	L6	True	1000.00	999.530435	100.0
8	JV70	L7	True	2500.00	2704.725597	108.2
9	JV71	L8	True	5000.00	5117.017892	102.3
10	JV72	L9	True	10000.00	9649.994688	96.5





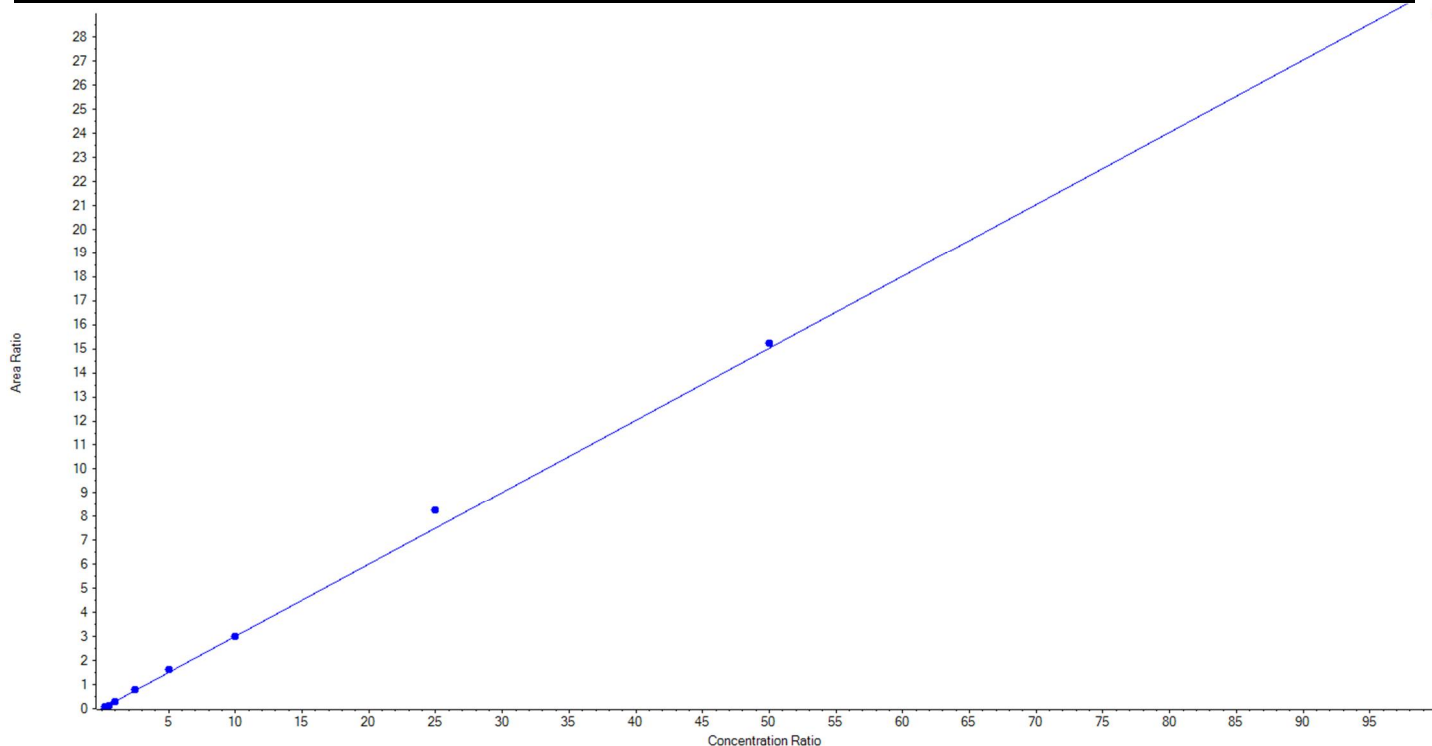
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Analyte Name	PFNA_2	Data File	18-0299_A.wiff
MRM Transition	463.0 / 219.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.30048x + 0.00430$ ($r = 0.99885$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	22.662021	90.7
3	JV65	L2	True	50.00	45.195262	90.4
4	JV66	L3	True	100.00	99.545416	99.6
5	JV67	L4	True	250.00	257.343516	102.9
6	JV68	L5	True	500.00	541.800847	108.4
7	JV69	L6	True	1000.00	1005.731807	100.6
8	JV70	L7	True	2500.00	2744.428190	109.8
9	JV71	L8	True	5000.00	5068.516419	101.4
10	JV72	L9	True	10000.00	9639.776524	96.4





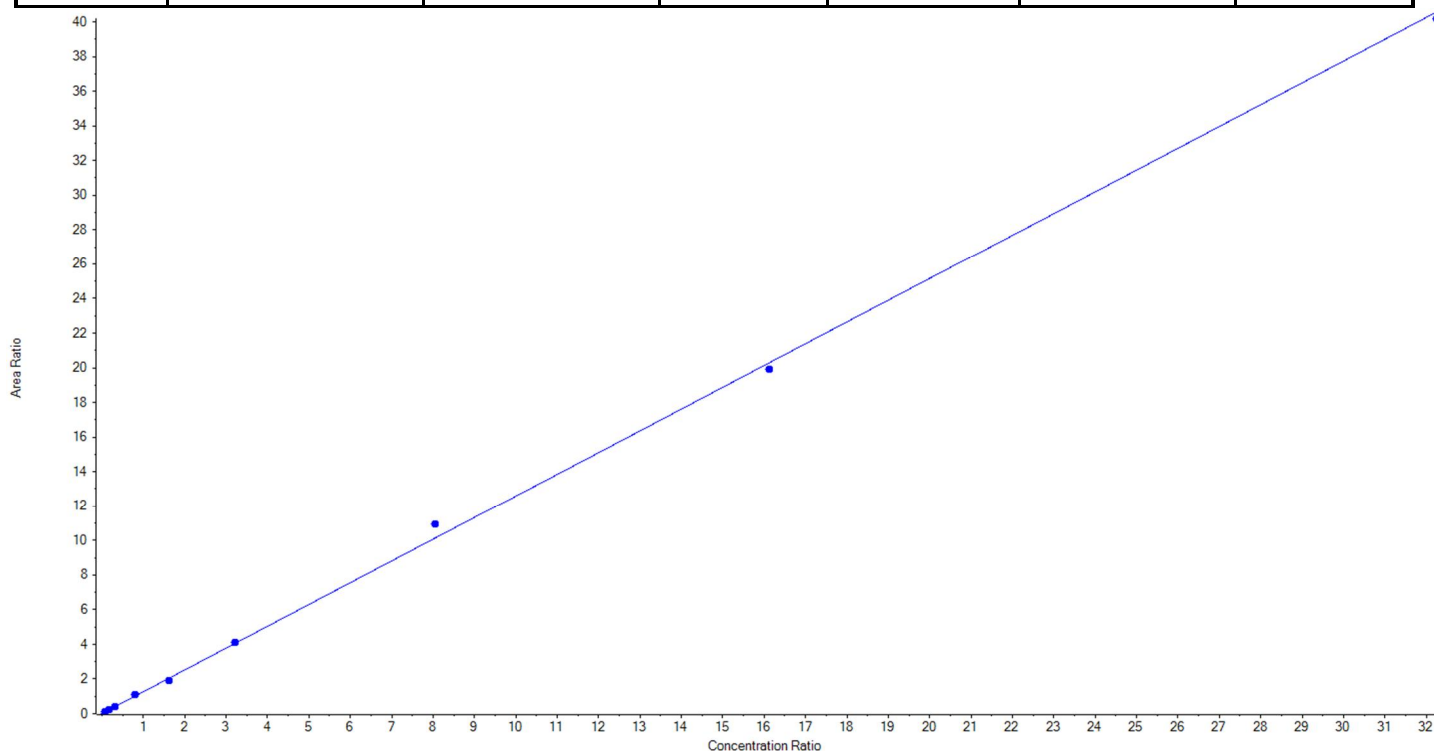
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Analyte Name	PFOS_1	Data File	18-0299_A.wiff
MRM Transition	499.0 / 80.0	Result Table	18-0299_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.25771 x + 0.00689$ (r = 0.99940) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	23.15	23.150192	100.0
3	JV65	L2	True	46.30	44.854344	96.9
4	JV66	L3	True	92.60	87.630476	94.6
5	JV67	L4	True	231.50	249.641933	107.8
6	JV68	L5	True	463.00	435.534206	94.1
7	JV69	L6	True	925.60	941.138109	101.7
8	JV70	L7	True	2314.00	2495.785437	107.9
9	JV71	L8	True	4628.00	4536.443745	98.0
10	JV72	L9	True	9256.00	9165.971558	99.0





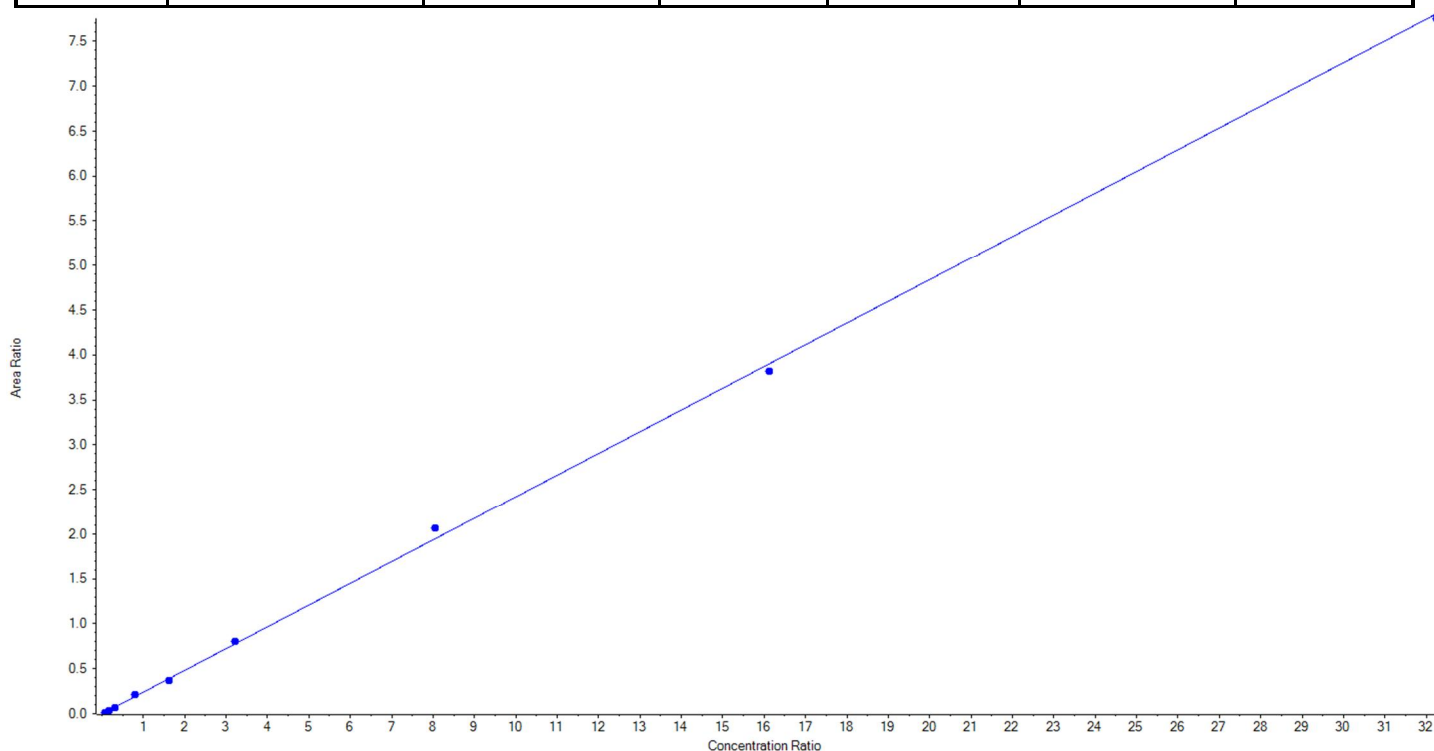
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Analyte Name	PFOS_2	Data File	18-0299_A.wiff
MRM Transition	499.0 / 99.0	Result Table	18-0299_BASE
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.24213x + -0.00234$ ($r = 0.99955$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	23.15	21.053424	90.9
3	JV65	L2	True	46.30	48.395966	104.5
4	JV66	L3	True	92.60	87.362064	94.3
5	JV67	L4	True	231.50	250.658478	108.3
6	JV68	L5	True	463.00	442.003637	95.5
7	JV69	L6	True	925.60	953.967651	103.1
8	JV70	L7	True	2314.00	2457.835156	106.2
9	JV71	L8	True	4628.00	4530.670558	97.9
10	JV72	L9	True	9256.00	9188.203066	99.3





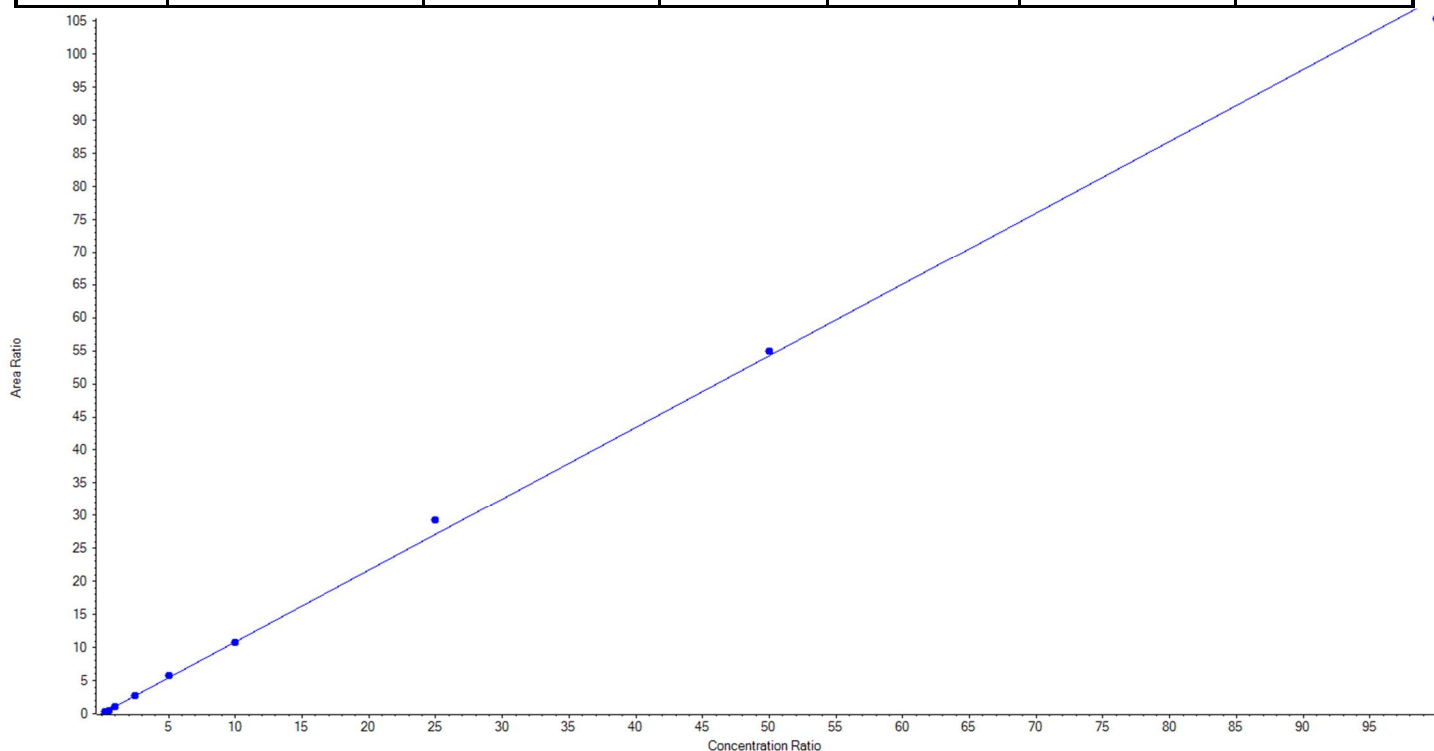
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Analyte Name	PFDA_1	Data File	18-0299_A.wiff
MRM Transition	513.0 / 469.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.08508x + 0.01047$ ($r = 0.99922$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	23.082339	92.3
3	JV65	L2	True	50.00	46.509322	93.0
4	JV66	L3	True	100.00	103.688531	103.7
5	JV67	L4	True	250.00	246.728844	98.7
6	JV68	L5	True	500.00	531.714602	106.3
7	JV69	L6	True	1000.00	993.391259	99.3
8	JV70	L7	True	2500.00	2703.309157	108.1
9	JV71	L8	True	5000.00	5069.175999	101.4
10	JV72	L9	True	10000.00	9707.399947	97.1





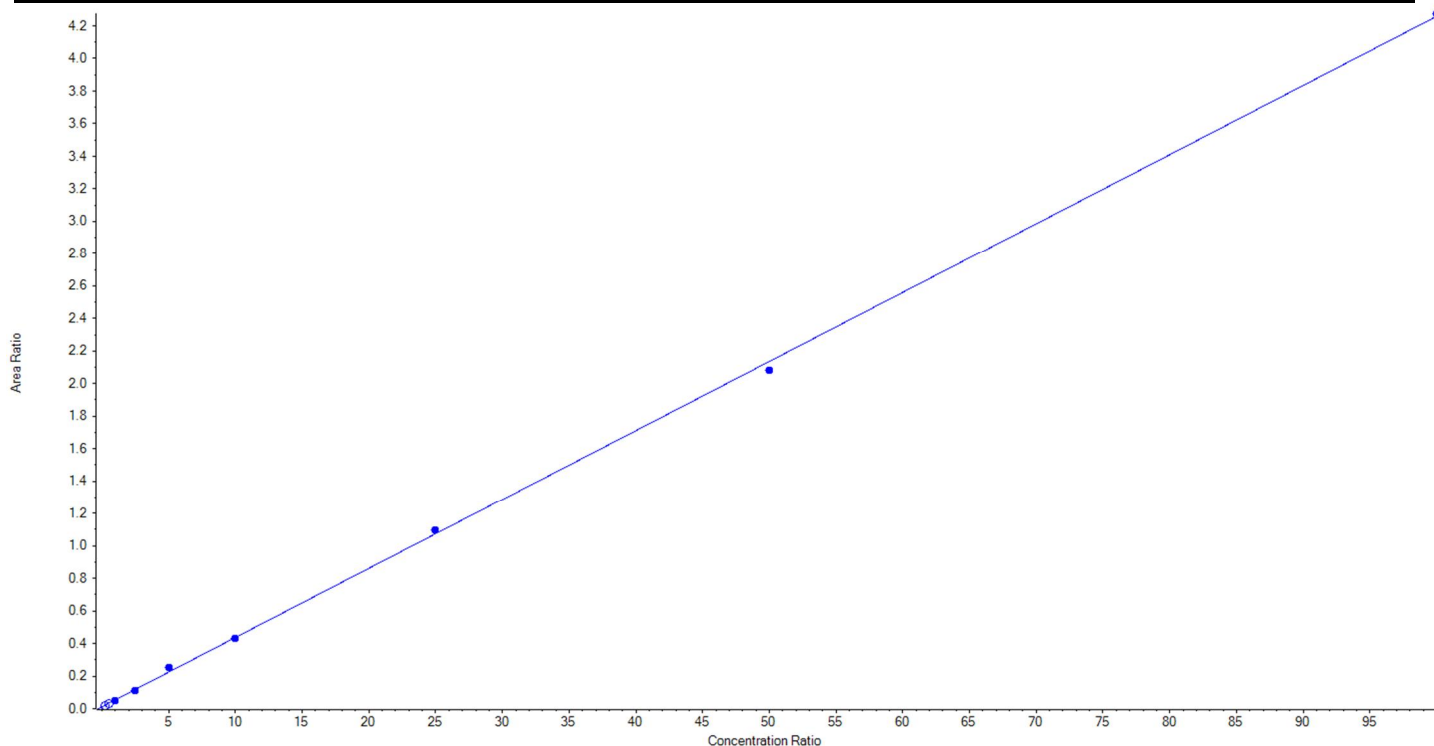
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Analyte Name	PFDA_2	Data File	18-0299_A.wiff
MRM Transition	513.0 / 219.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.04247 x + 0.01203$ (r = 0.99952) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	14.577888	58.3
3	JV65	L2	False	50.00	51.392828	102.8
4	JV66	L3	True	100.00	91.768016	91.8
5	JV67	L4	True	250.00	238.590038	95.4
6	JV68	L5	True	500.00	569.414772	113.9
7	JV69	L6	True	1000.00	988.478191	98.9
8	JV70	L7	True	2500.00	2559.041262	102.4
9	JV71	L8	True	5000.00	4867.646769	97.4
10	JV72	L9	True	10000.00	10035.060952	100.4





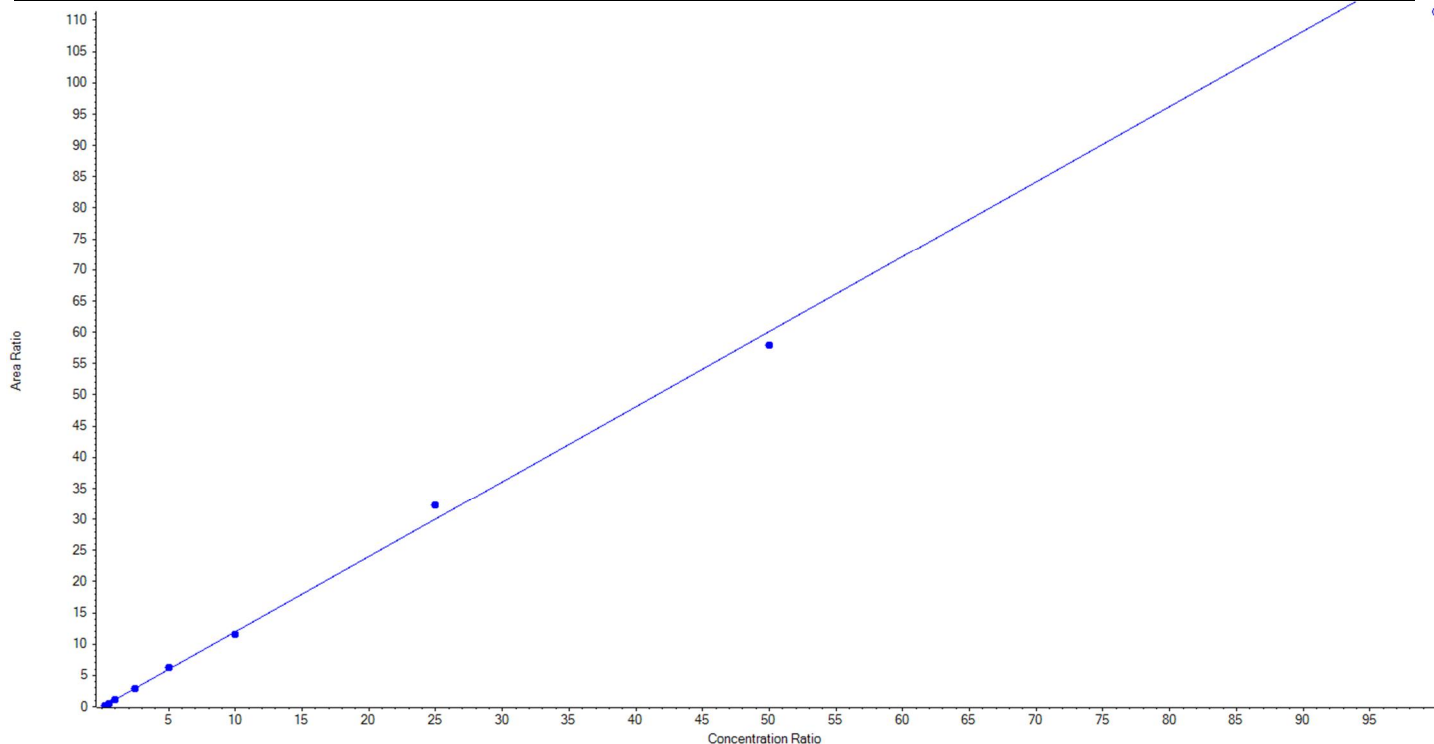
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Analyte Name	PFUnA_1	Data File	18-0299_A.wiff
MRM Transition	563.0 / 519.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.20341x + -0.05430$ ($r = 0.99871$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	23.264189	93.1
3	JV65	L2	True	50.00	49.048218	98.1
4	JV66	L3	True	100.00	103.732205	103.7
5	JV67	L4	True	250.00	245.728477	98.3
6	JV68	L5	True	500.00	530.835336	106.2
7	JV69	L6	True	1000.00	970.257301	97.0
8	JV70	L7	True	2500.00	2679.386413	107.2
9	JV71	L8	True	5000.00	4822.747861	96.5
10	JV72	L9	False	10000.00	9258.449511	92.6





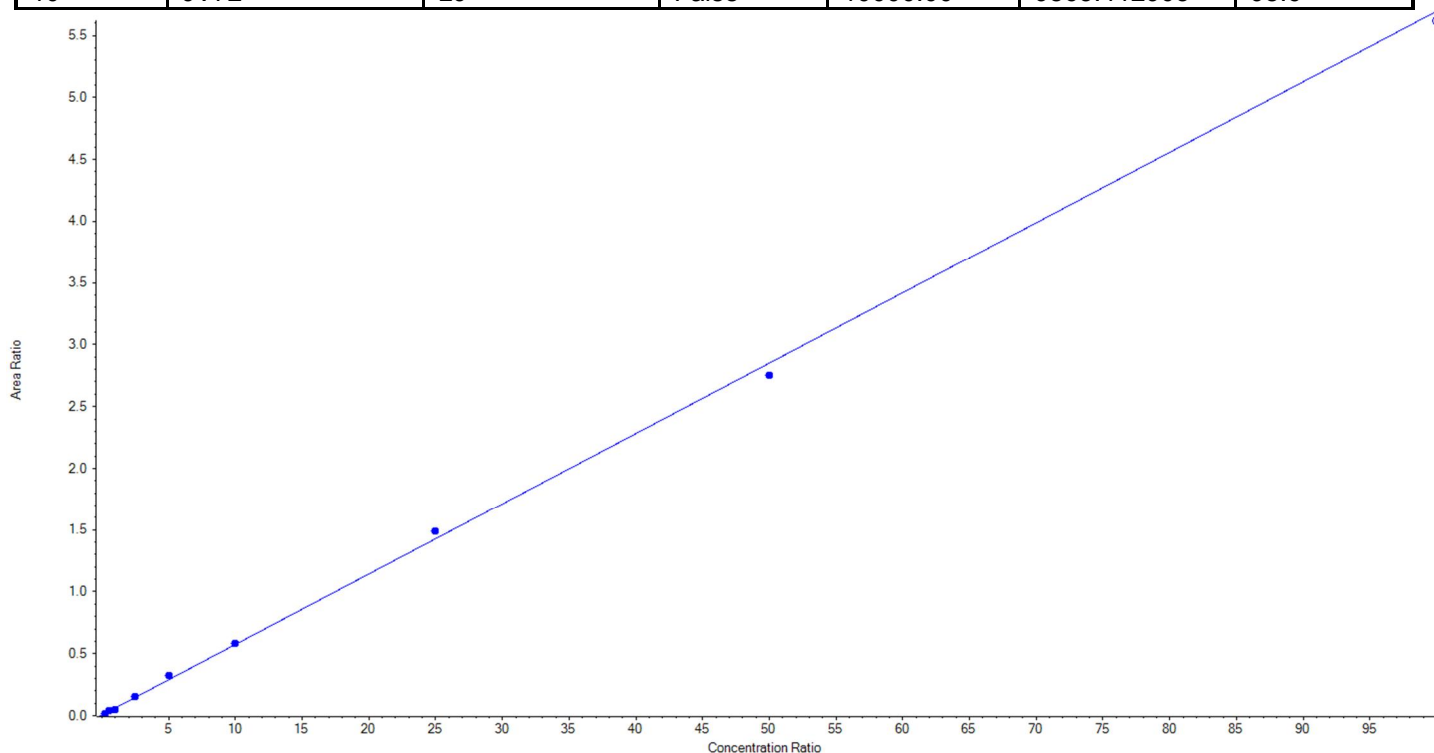
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Analyte Name	PFUnA_2	Data File	18-0299_A.wiff
MRM Transition	563.0 / 269.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05690 x + 0.00530$ ($r = 0.99866$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	21.888997	87.6
3	JV65	L2	True	50.00	57.026228	114.1
4	JV66	L3	True	100.00	79.581698	79.6
5	JV67	L4	True	250.00	263.669538	105.5
6	JV68	L5	True	500.00	554.929646	111.0
7	JV69	L6	True	1000.00	1016.215001	101.6
8	JV70	L7	True	2500.00	2605.041713	104.2
9	JV71	L8	True	5000.00	4826.647179	96.5
10	JV72	L9	False	10000.00	9863.412905	98.6





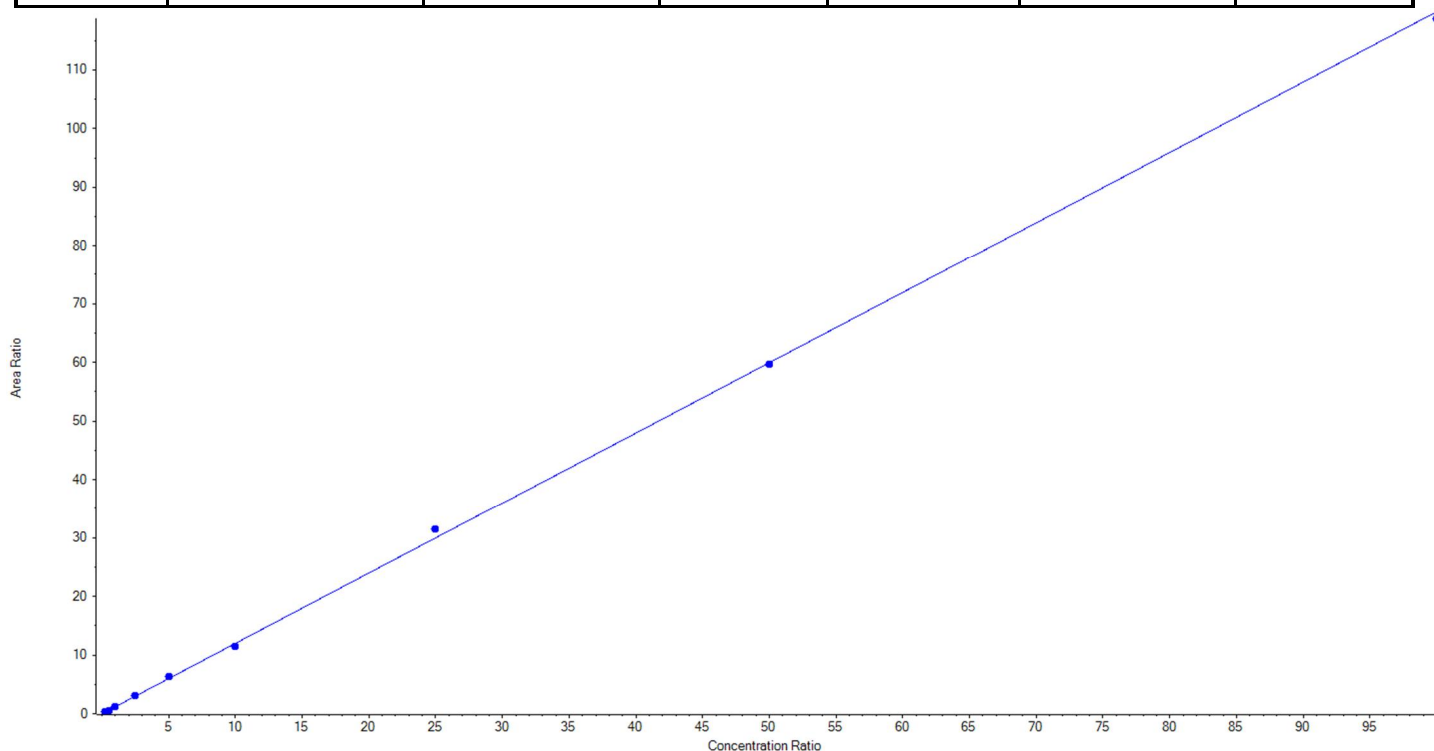
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Analyte Name	PFD _o A_1	Data File	18-0299_A.wiff
MRM Transition	613.0 / 569.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.19917x + -0.01173$ ($r = 0.99967$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	25.967186	103.9
3	JV65	L2	True	50.00	44.420766	88.8
4	JV66	L3	True	100.00	101.194737	101.2
5	JV67	L4	True	250.00	250.774680	100.3
6	JV68	L5	True	500.00	529.744553	106.0
7	JV69	L6	True	1000.00	959.455534	96.0
8	JV70	L7	True	2500.00	2630.688671	105.2
9	JV71	L8	True	5000.00	4983.556616	99.7
10	JV72	L9	True	10000.00	9899.197259	99.0





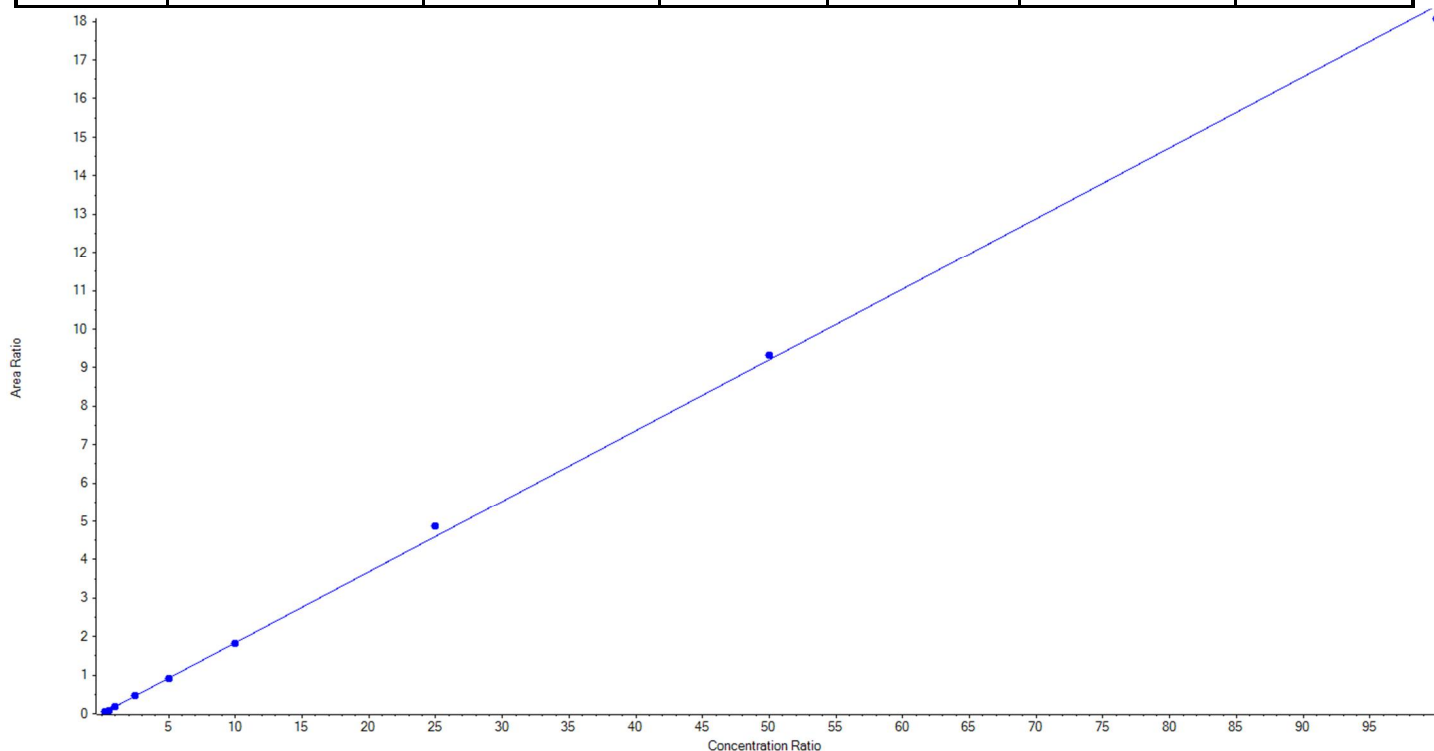
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Analyte Name	PFD _o A_2	Data File	18-0299_A.wiff
MRM Transition	613.0 / 319.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.18405x + 1.41024e-4$ ($r = 0.99955$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	29.863711	119.5
3	JV65	L2	True	50.00	39.136838	78.3
4	JV66	L3	True	100.00	100.480568	100.5
5	JV67	L4	True	250.00	250.417323	100.2
6	JV68	L5	True	500.00	489.477404	97.9
7	JV69	L6	True	1000.00	983.211792	98.3
8	JV70	L7	True	2500.00	2646.724038	105.9
9	JV71	L8	True	5000.00	5068.147886	101.4
10	JV72	L9	True	10000.00	9817.540440	98.2





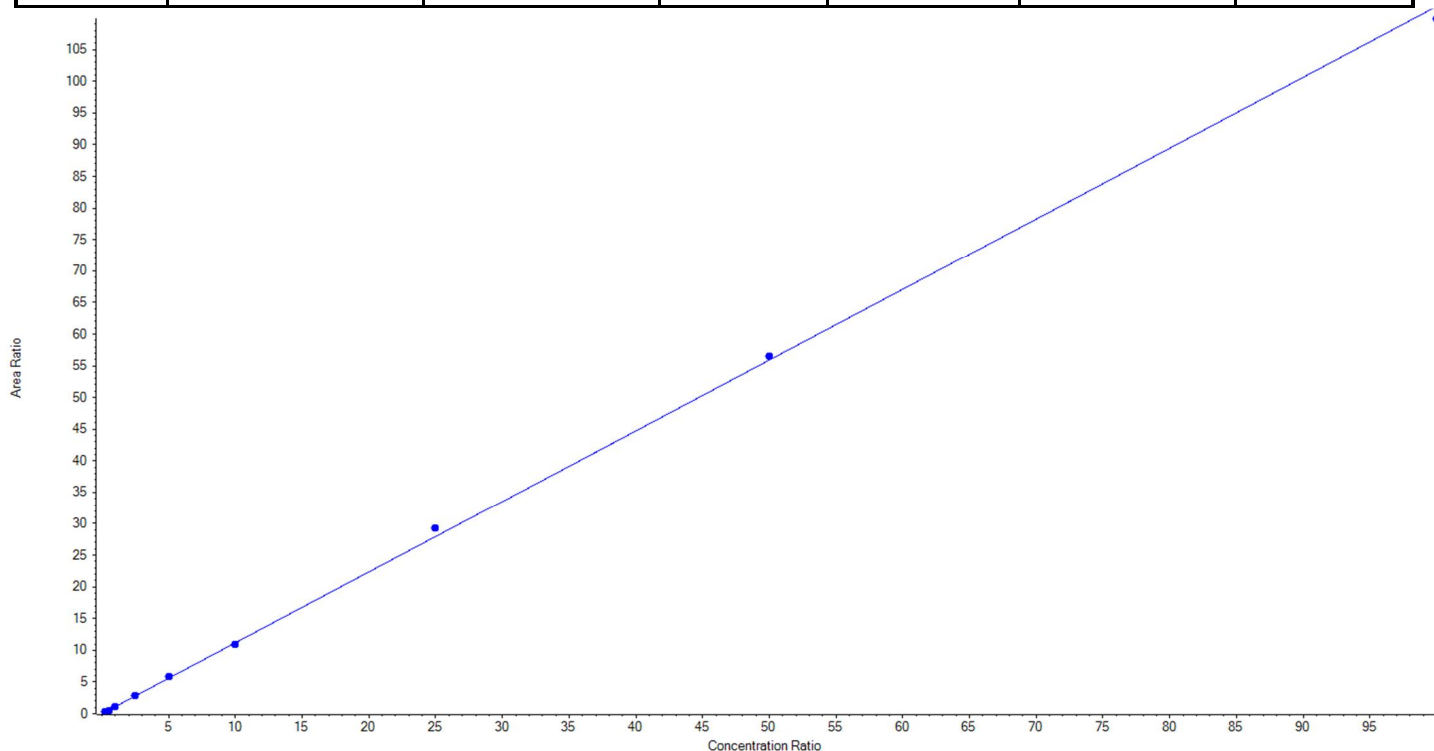
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Analyte Name	PFTTrDA_1	Data File	18-0299_A.wiff
MRM Transition	663.0 / 619.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.11812 x + -0.00570$ ($r = 0.99969$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	24.190968	96.8
3	JV65	L2	True	50.00	46.449685	92.9
4	JV66	L3	True	100.00	103.263944	103.3
5	JV67	L4	True	250.00	253.836581	101.5
6	JV68	L5	True	500.00	517.231413	103.5
7	JV69	L6	True	1000.00	978.097997	97.8
8	JV70	L7	True	2500.00	2624.607976	105.0
9	JV71	L8	True	5000.00	5052.456613	101.1
10	JV72	L9	True	10000.00	9824.864823	98.3





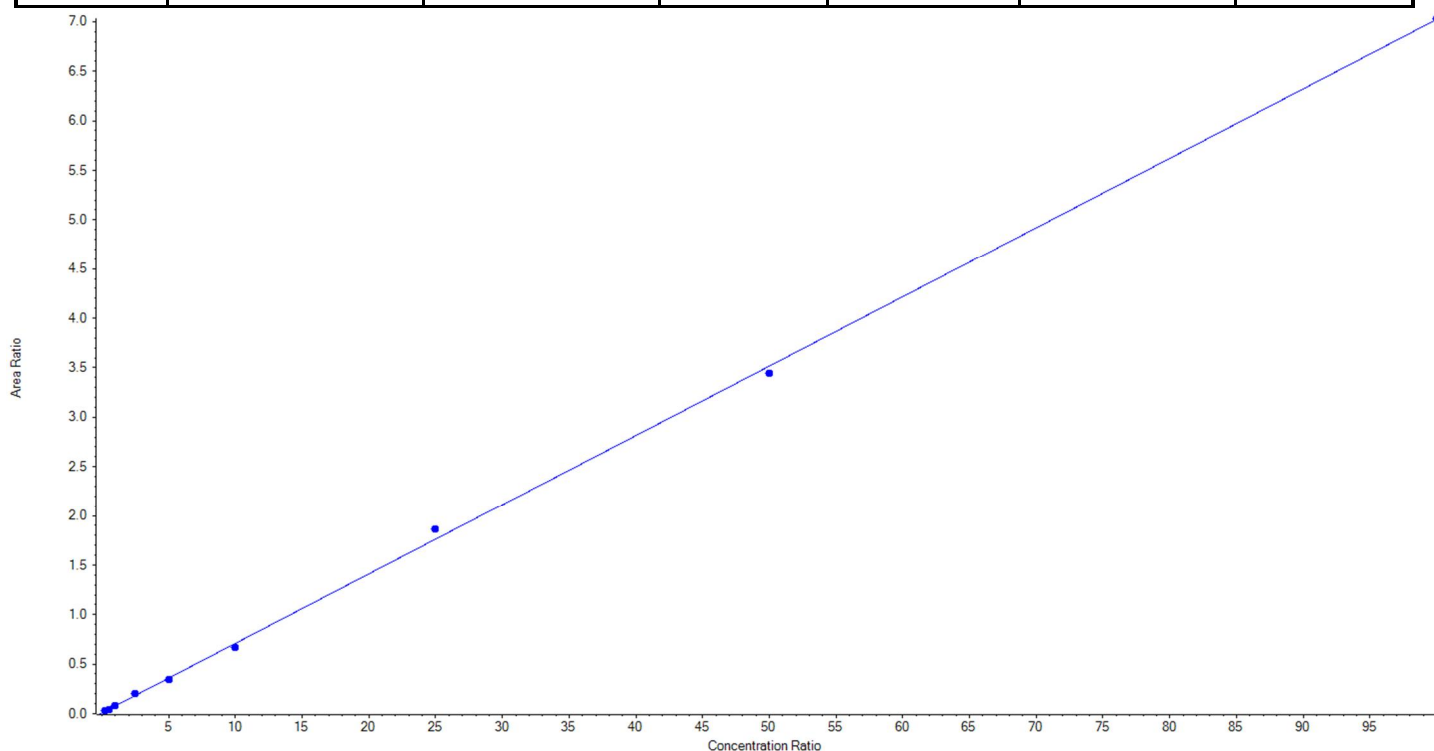
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Analyte Name	PFTrDA_2	Data File	18-0299_A.wiff
MRM Transition	663.0 / 169.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.07015x + 0.00820$ ($r = 0.99949$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	25.870465	103.5
3	JV65	L2	True	50.00	46.103574	92.2
4	JV66	L3	True	100.00	98.341516	98.3
5	JV67	L4	True	250.00	278.960178	111.6
6	JV68	L5	True	500.00	482.960722	96.6
7	JV69	L6	True	1000.00	938.483509	93.9
8	JV70	L7	True	2500.00	2646.740377	105.9
9	JV71	L8	True	5000.00	4899.989841	98.0
10	JV72	L9	True	10000.00	10007.549817	100.1





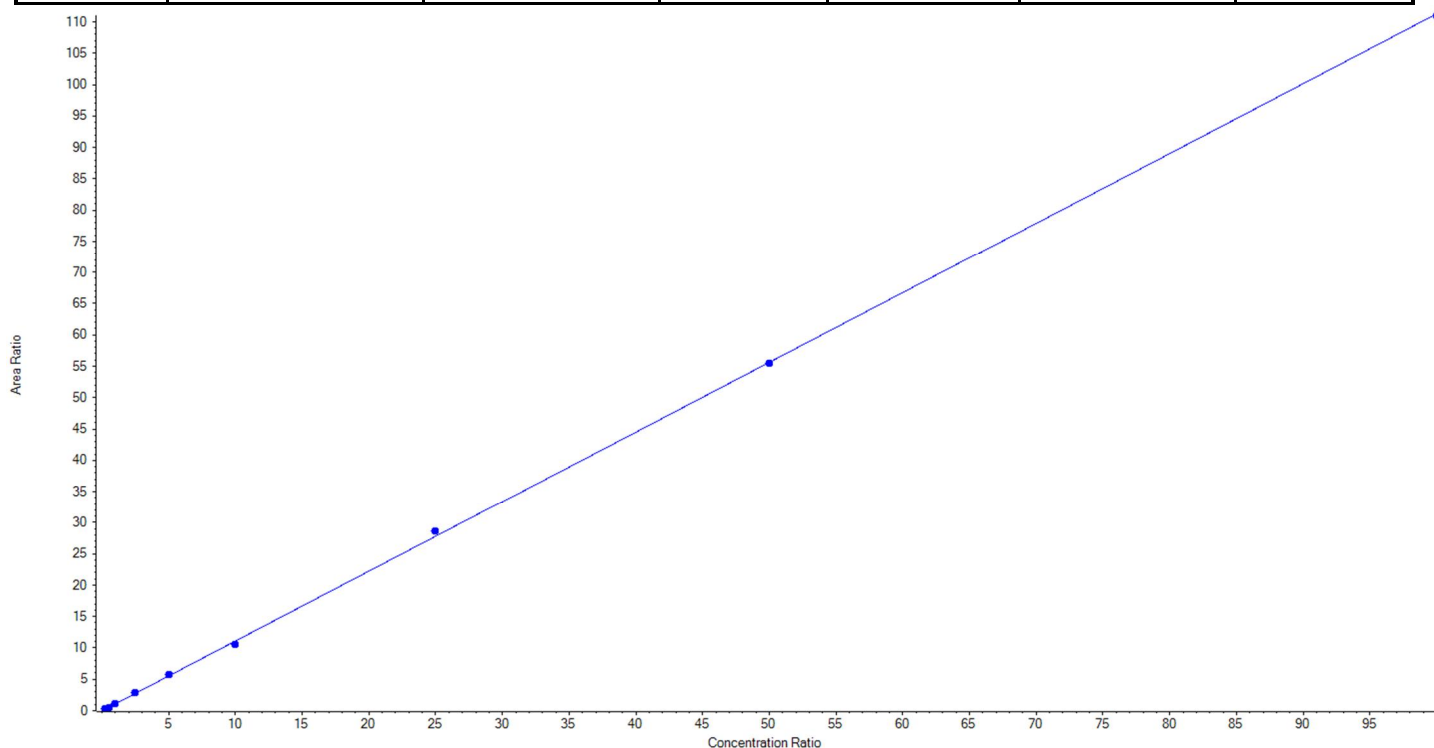
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Analyte Name	PFTeDA_1	Data File	18-0299_A.wiff
MRM Transition	713.0 / 669.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.11313 x + -0.03456$ ($r = 0.99987$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	24.963851	99.9
3	JV65	L2	True	50.00	47.189816	94.4
4	JV66	L3	True	100.00	102.694534	102.7
5	JV67	L4	True	250.00	256.610028	102.6
6	JV68	L5	True	500.00	513.956500	102.8
7	JV69	L6	True	1000.00	954.781459	95.5
8	JV70	L7	True	2500.00	2568.486466	102.7
9	JV71	L8	True	5000.00	4985.434252	99.7
10	JV72	L9	True	10000.00	9970.883095	99.7





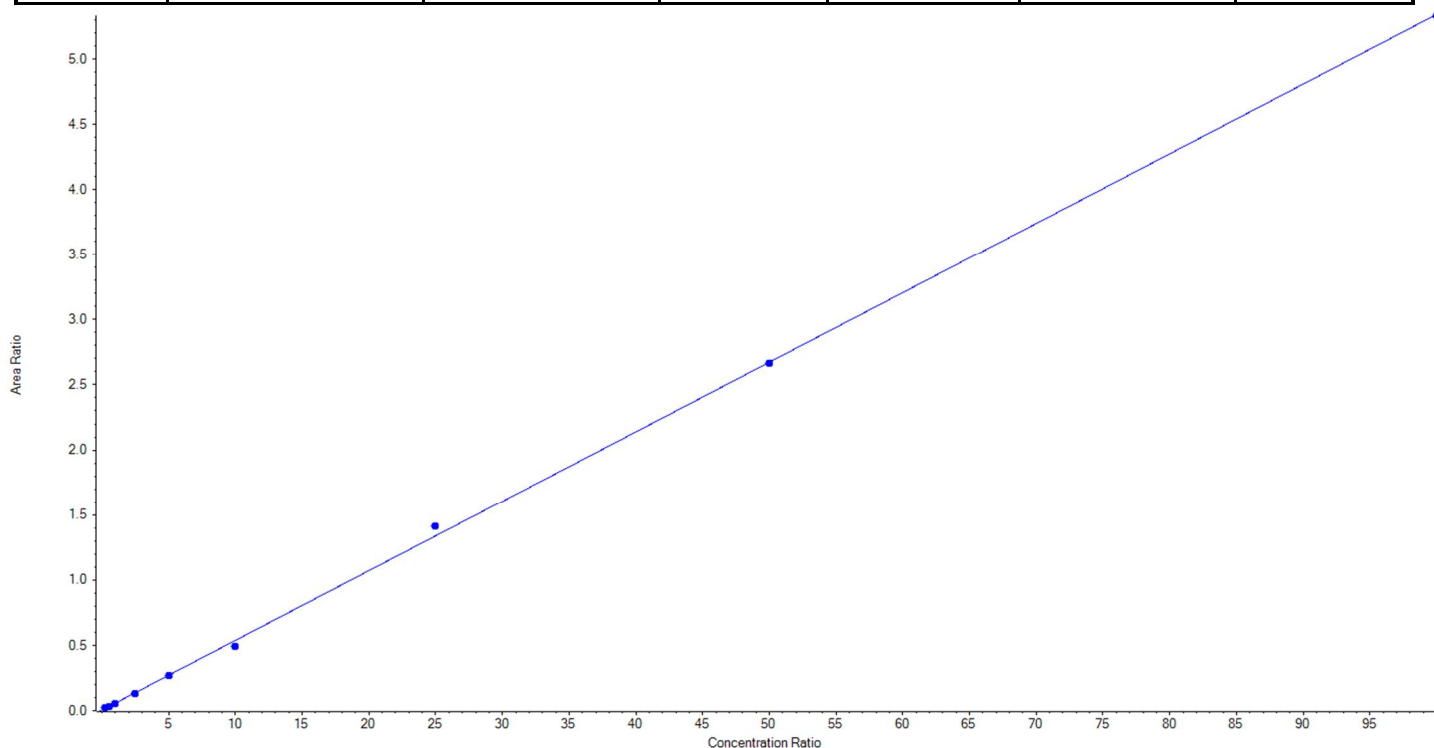
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Analyte Name	PFTeDA_2	Data File	18-0299_A.wiff
MRM Transition	713.0 / 169.0	Result Table	18-0299_BASE
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05337 x + 0.00432$ ($r = 0.99957$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	28.901673	115.6
3	JV65	L2	True	50.00	49.580004	99.2
4	JV66	L3	True	100.00	97.203998	97.2
5	JV67	L4	True	250.00	232.187833	92.9
6	JV68	L5	True	500.00	490.456940	98.1
7	JV69	L6	True	1000.00	919.989421	92.0
8	JV70	L7	True	2500.00	2635.801402	105.4
9	JV71	L8	True	5000.00	4992.299518	99.9
10	JV72	L9	True	10000.00	9978.579211	99.8





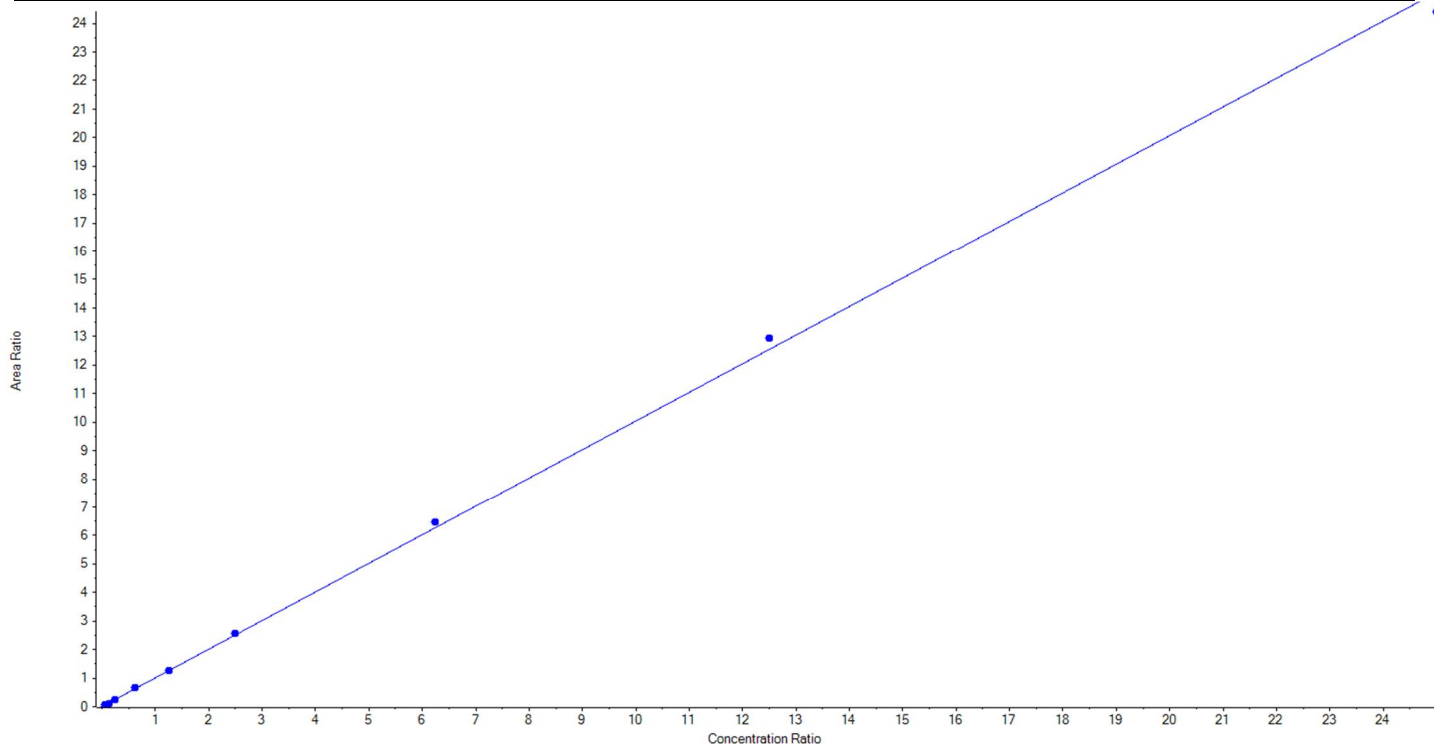
Calibration Summary Report

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Analyte Name	NMeFOSAA_1	Data File	18-0299_A.wiff
MRM Transition	570.0 / 419.0	Result Table	18-0299_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.00331 x + 0.00638$ (r = 0.99952) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	26.216312	104.9
3	JV65	L2	True	50.00	43.262935	86.5
4	JV66	L3	True	100.00	97.560992	97.6
5	JV67	L4	True	250.00	262.440074	105.0
6	JV68	L5	True	500.00	500.191836	100.0
7	JV69	L6	True	1000.00	1022.381129	102.2
8	JV70	L7	True	2500.00	2580.979914	103.2
9	JV71	L8	True	5000.00	5163.651353	103.3
10	JV72	L9	True	10000.00	9728.315454	97.3





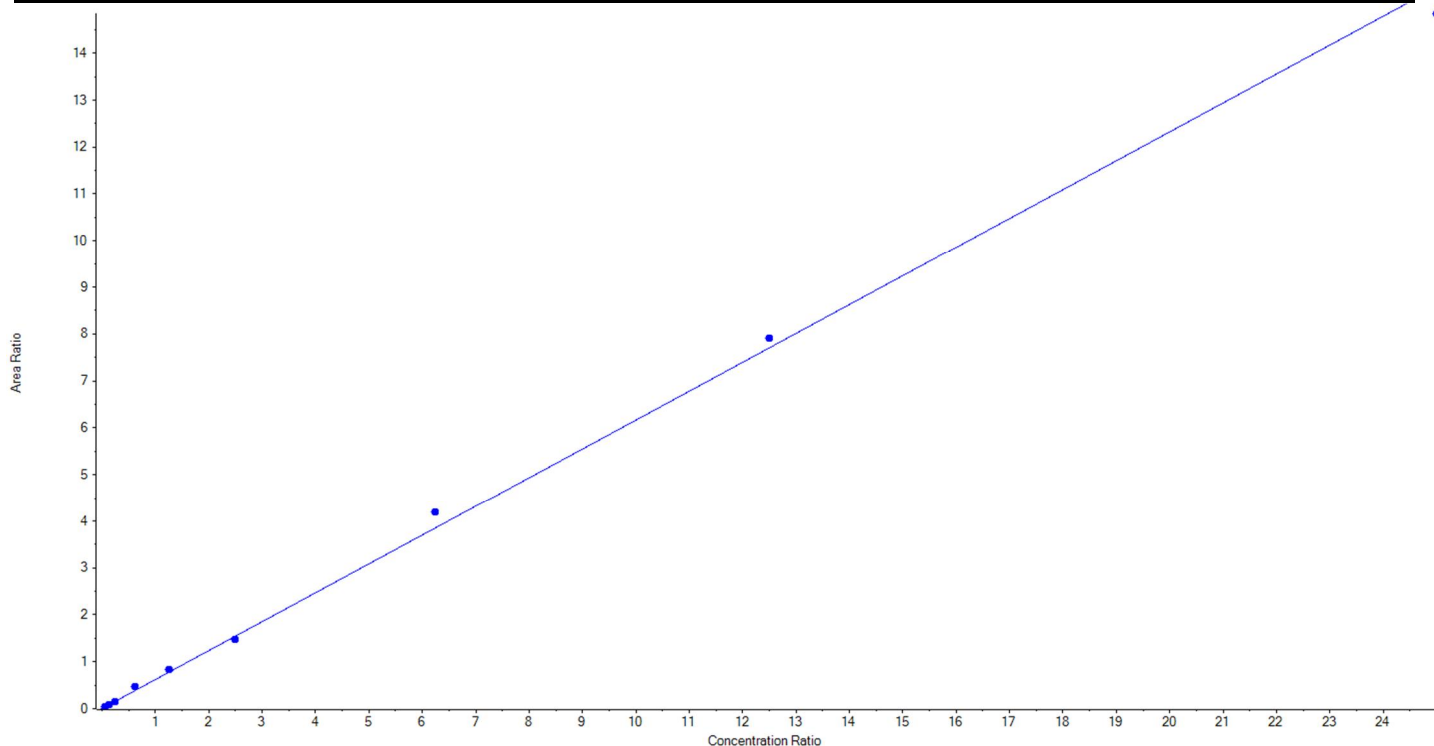
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

Analyte Name	NMeFOSAA_2	Data File	18-0299_A.wiff
MRM Transition	570.0 / 512.0	Result Table	18-0299_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.61594 x + 0.00453$ (r = 0.99864) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	20.864881	83.5
3	JV65	L2	True	50.00	46.623952	93.3
4	JV66	L3	True	100.00	93.928839	93.9
5	JV67	L4	True	250.00	297.243177	118.9
6	JV68	L5	True	500.00	538.566592	107.7
7	JV69	L6	True	1000.00	953.461105	95.4
8	JV70	L7	True	2500.00	2712.415852	108.5
9	JV71	L8	True	5000.00	5129.144605	102.6
10	JV72	L9	True	10000.00	9632.750998	96.3





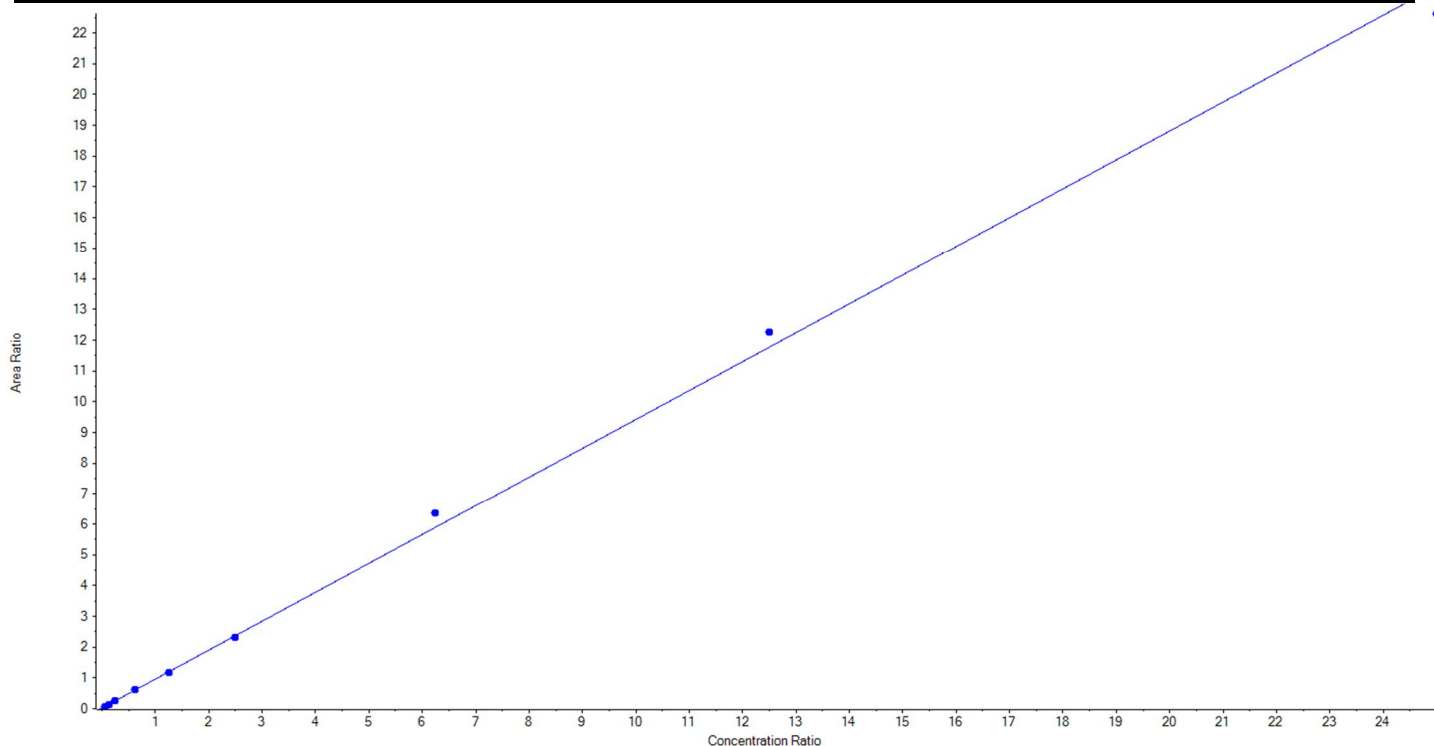
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

Analyte Name	NEtFOSAA_1	Data File	18-0299_A.wiff
MRM Transition	584.0 / 419.0	Result Table	18-0299_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.93990 x + 0.02037$ (r = 0.99890) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	21.391576	85.6
3	JV65	L2	True	50.00	52.162161	104.3
4	JV66	L3	True	100.00	103.244176	103.2
5	JV67	L4	True	250.00	256.585755	102.6
6	JV68	L5	True	500.00	489.803136	98.0
7	JV69	L6	True	1000.00	979.832668	98.0
8	JV70	L7	True	2500.00	2701.999272	108.1
9	JV71	L8	True	5000.00	5200.721822	104.0
10	JV72	L9	True	10000.00	9619.259433	96.2





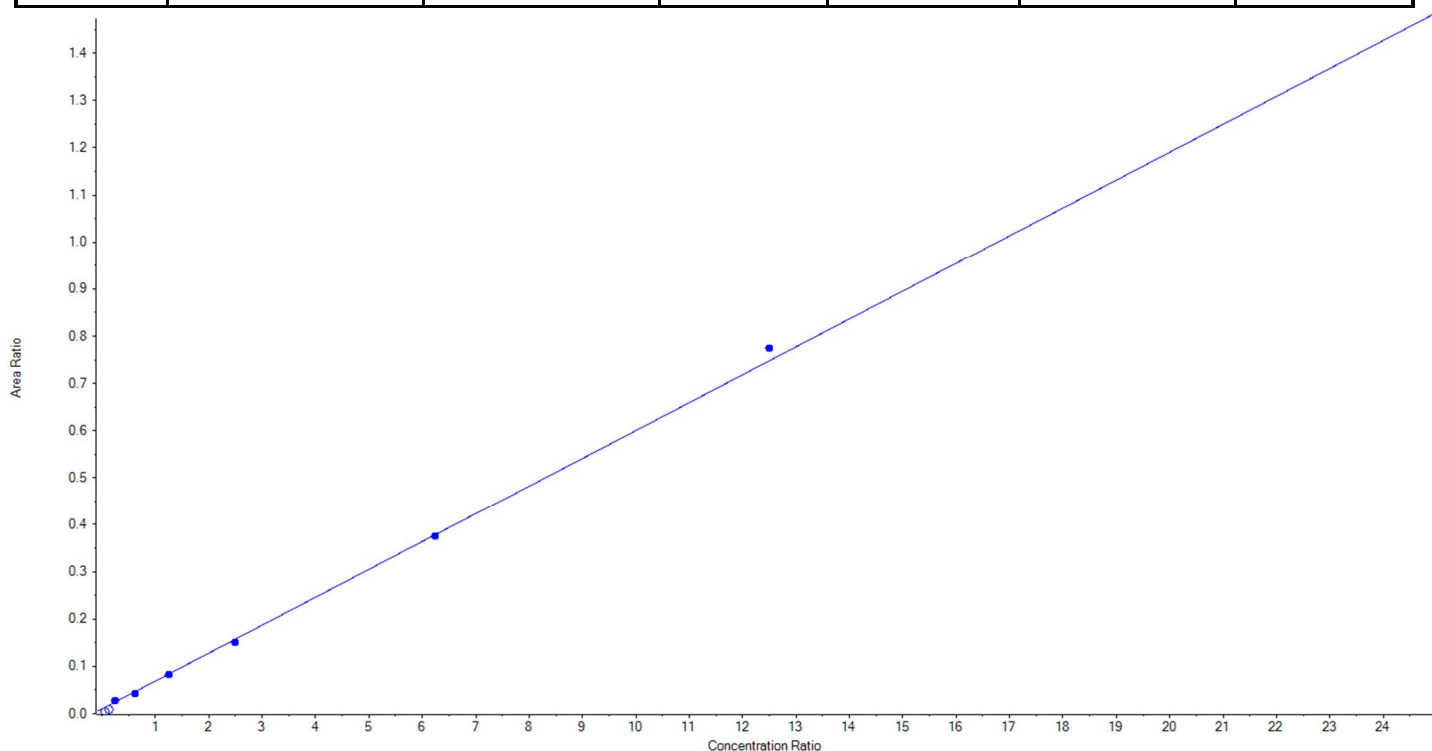
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

Analyte Name	NEtFOSAA_2	Data File	18-0299_A.wiff
MRM Transition	584.0 / 483.0	Result Table	18-0299_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05903 x + 0.00991$ (r = 0.99958) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	< 0	N/A
3	JV65	L2	False	50.00	< 0	N/A
4	JV66	L3	True	100.00	114.536509	114.5
5	JV67	L4	True	250.00	224.642239	89.9
6	JV68	L5	True	500.00	491.538738	98.3
7	JV69	L6	True	1000.00	955.724291	95.6
8	JV70	L7	True	2500.00	2478.112433	99.1
9	JV71	L8	True	5000.00	5174.746301	103.5
10	JV72	L9	True	10000.00	9910.699488	99.1



Sample Name	JV64	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T12:35:02	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.47	PFBS			
PFBS_2	298.9 / 99.0	1.47	PFBS	0.420	0.346	ü
PFHxA_1	313.0 / 269.0	1.75	PFHxA			
PFHxA_2	313.0 / 119.0	1.75	PFHxA	0.057	0.075	ü
PFHpA_1	363.0 / 319.0	2.11	PFHpA			
PFHpA_2	363.0 / 169.0	2.10	PFHpA	0.031	0.022	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.308	0.298	ü
PFOA_1	413.0 / 369.0	2.48	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.065	0.065	ü
PFNA_1	463.0 / 419.0	2.85	PFNA			
PFNA_2	463.0 / 219.0	2.84	PFNA	0.232	0.285	ü
PFOS_1	499.0 / 80.0	2.85	PFOS			
PFOS_2	499.0 / 99.0	2.84	PFOS	0.142	0.185	ü
PFDA_1	513.0 / 469.0	3.21	PFDA			
PFDA_2	513.0 / 219.0	3.22	PFDA	0.070	0.041	
PFUnA_1	563.0 / 519.0	3.53	PFUnA			
PFUnA_2	563.0 / 269.0	3.50	PFUnA	0.079	0.055	ü
PFDaA_1	613.0 / 569.0	3.81	PFDaA			
PFDaA_2	613.0 / 319.0	3.80	PFDaA	0.184	0.155	ü
PFTrDA_1	663.0 / 619.0	4.07	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.07	PFTrDA	0.100	0.070	ü
PFTeDA_1	713.0 / 669.0	4.28	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.28	PFTeDA	0.081	0.053	
NMeFOSAA_1	570.0 / 419.0	3.35	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.508	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.52	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.48	NEtFOSSA	0.067	0.071	ü

Sample Name	JV65	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T12:43:59	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.47	PFBS			
PFBS_2	298.9 / 99.0	1.47	PFBS	0.354	0.346	ü
PFHxA_1	313.0 / 269.0	1.74	PFHxA			
PFHxA_2	313.0 / 119.0	1.75	PFHxA	0.078	0.075	ü
PFHpA_1	363.0 / 319.0	2.10	PFHpA			
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.027	0.022	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.335	0.298	ü
PFOA_1	413.0 / 369.0	2.48	PFOA			
PFOA_2	413.0 / 169.0	2.49	PFOA	0.050	0.065	ü
PFNA_1	463.0 / 419.0	2.85	PFNA			
PFNA_2	463.0 / 219.0	2.84	PFNA	0.277	0.285	ü
PFOS_1	499.0 / 80.0	2.84	PFOS			
PFOS_2	499.0 / 99.0	2.85	PFOS	0.189	0.185	ü
PFDA_1	513.0 / 469.0	3.20	PFDA			
PFDA_2	513.0 / 219.0	3.19	PFDA	0.066	0.041	
PFUnA_1	563.0 / 519.0	3.52	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.070	0.055	ü
PFDaA_1	613.0 / 569.0	3.81	PFDaA			
PFDaA_2	613.0 / 319.0	3.81	PFDaA	0.139	0.155	ü
PFTrDA_1	663.0 / 619.0	4.07	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.06	PFTrDA	0.079	0.070	ü
PFTeDA_1	713.0 / 669.0	4.28	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.29	PFTeDA	0.063	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.35	NMeFOSAA	0.664	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.53	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.55	NEtFOSSA	0.063	0.071	ü

Sample Name	JV66	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T12:52:57	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.46	PFBS			
PFBS_2	298.9 / 99.0	1.45	PFBS	0.341	0.346	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.072	0.075	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA			
PFHpA_2	363.0 / 169.0	2.09	PFHpA	0.023	0.022	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.290	0.298	ü
PFOA_1	413.0 / 369.0	2.47	PFOA			
PFOA_2	413.0 / 169.0	2.46	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	2.85	PFNA			
PFNA_2	463.0 / 219.0	2.85	PFNA	0.278	0.285	ü
PFOS_1	499.0 / 80.0	2.84	PFOS			
PFOS_2	499.0 / 99.0	2.84	PFOS	0.183	0.185	ü
PFDA_1	513.0 / 469.0	3.20	PFDA			
PFDA_2	513.0 / 219.0	3.22	PFDA	0.045	0.041	ü
PFUnA_1	563.0 / 519.0	3.52	PFUnA			
PFUnA_2	563.0 / 269.0	3.51	PFUnA	0.042	0.055	ü
PFDaA_1	613.0 / 569.0	3.81	PFDaA			
PFDaA_2	613.0 / 319.0	3.80	PFDaA	0.154	0.155	ü
PFTTrDA_1	663.0 / 619.0	4.06	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.06	PFTTrDA	0.067	0.070	ü
PFTeDA_1	713.0 / 669.0	4.28	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.27	PFTeDA	0.051	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.35	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.594	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.51	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.102	0.071	ü

Sample Name	JV67	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T13:01:55	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.46	PFBS			
PFBS_2	298.9 / 99.0	1.46	PFBS	0.345	0.346	ü
PFHxA_1	313.0 / 269.0	1.74	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.076	0.075	ü
PFHpA_1	363.0 / 319.0	2.10	PFHpA			
PFHpA_2	363.0 / 169.0	2.10	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.272	0.298	ü
PFOA_1	413.0 / 369.0	2.48	PFOA			
PFOA_2	413.0 / 169.0	2.48	PFOA	0.069	0.065	ü
PFNA_1	463.0 / 419.0	2.85	PFNA			
PFNA_2	463.0 / 219.0	2.85	PFNA	0.280	0.285	ü
PFOS_1	499.0 / 80.0	2.84	PFOS			
PFOS_2	499.0 / 99.0	2.85	PFOS	0.190	0.185	ü
PFDA_1	513.0 / 469.0	3.21	PFDA			
PFDA_2	513.0 / 219.0	3.21	PFDA	0.042	0.041	ü
PFUnA_1	563.0 / 519.0	3.52	PFUnA			
PFUnA_2	563.0 / 269.0	3.52	PFUnA	0.054	0.055	ü
PFDaA_1	613.0 / 569.0	3.81	PFDaA			
PFDaA_2	613.0 / 319.0	3.81	PFDaA	0.154	0.155	ü
PFTrDA_1	663.0 / 619.0	4.06	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.06	PFTrDA	0.072	0.070	ü
PFTeDA_1	713.0 / 669.0	4.28	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.28	PFTeDA	0.045	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.35	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.696	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.52	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.51	NEtFOSSA	0.069	0.071	ü

Sample Name	JV68	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T13:10:53	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.46	PFBS			
PFBS_2	298.9 / 99.0	1.45	PFBS	0.348	0.346	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.074	0.075	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA			
PFHpA_2	363.0 / 169.0	2.09	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.302	0.298	ü
PFOA_1	413.0 / 369.0	2.47	PFOA			
PFOA_2	413.0 / 169.0	2.47	PFOA	0.067	0.065	ü
PFNA_1	463.0 / 419.0	2.85	PFNA			
PFNA_2	463.0 / 219.0	2.85	PFNA	0.309	0.285	ü
PFOS_1	499.0 / 80.0	2.84	PFOS			
PFOS_2	499.0 / 99.0	2.84	PFOS	0.194	0.185	ü
PFDA_1	513.0 / 469.0	3.20	PFDA			
PFDA_2	513.0 / 219.0	3.20	PFDA	0.044	0.041	ü
PFUnA_1	563.0 / 519.0	3.52	PFUnA			
PFUnA_2	563.0 / 269.0	3.52	PFUnA	0.051	0.055	ü
PFDaA_1	613.0 / 569.0	3.81	PFDaA			
PFDaA_2	613.0 / 319.0	3.81	PFDaA	0.142	0.155	ü
PFTrDA_1	663.0 / 619.0	4.06	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.06	PFTrDA	0.060	0.070	ü
PFTeDA_1	713.0 / 669.0	4.28	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.28	PFTeDA	0.047	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.35	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.661	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.51	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.49	NEtFOSSA	0.070	0.071	ü

Sample Name	JV69	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T13:19:50	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.46	PFBS			
PFBS_2	298.9 / 99.0	1.46	PFBS	0.336	0.346	ü
PFHxA_1	313.0 / 269.0	1.74	PFHxA			
PFHxA_2	313.0 / 119.0	1.74	PFHxA	0.081	0.075	ü
PFHpA_1	363.0 / 319.0	2.10	PFHpA			
PFHpA_2	363.0 / 169.0	2.10	PFHpA	0.021	0.022	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.299	0.298	ü
PFOA_1	413.0 / 369.0	2.48	PFOA			
PFOA_2	413.0 / 169.0	2.48	PFOA	0.067	0.065	ü
PFNA_1	463.0 / 419.0	2.85	PFNA			
PFNA_2	463.0 / 219.0	2.85	PFNA	0.298	0.285	ü
PFOS_1	499.0 / 80.0	2.84	PFOS			
PFOS_2	499.0 / 99.0	2.85	PFOS	0.194	0.185	ü
PFDA_1	513.0 / 469.0	3.21	PFDA			
PFDA_2	513.0 / 219.0	3.21	PFDA	0.040	0.041	ü
PFUnA_1	563.0 / 519.0	3.52	PFUnA			
PFUnA_2	563.0 / 269.0	3.52	PFUnA	0.050	0.055	ü
PFDaA_1	613.0 / 569.0	3.81	PFDaA			
PFDaA_2	613.0 / 319.0	3.81	PFDaA	0.158	0.155	ü
PFTrDA_1	663.0 / 619.0	4.07	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.07	PFTrDA	0.061	0.070	ü
PFTeDA_1	713.0 / 669.0	4.28	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.28	PFTeDA	0.047	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.35	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.35	NMeFOSAA	0.573	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.52	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.51	NEtFOSSA	0.065	0.071	ü

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T13:28:47	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.46	PFBS			
PFBS_2	298.9 / 99.0	1.45	PFBS	0.325	0.346	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.076	0.075	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA			
PFHpA_2	363.0 / 169.0	2.09	PFHpA	0.021	0.022	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.299	0.298	ü
PFOA_1	413.0 / 369.0	2.47	PFOA			
PFOA_2	413.0 / 169.0	2.47	PFOA	0.065	0.065	ü
PFNA_1	463.0 / 419.0	2.85	PFNA			
PFNA_2	463.0 / 219.0	2.84	PFNA	0.302	0.285	ü
PFOS_1	499.0 / 80.0	2.84	PFOS			
PFOS_2	499.0 / 99.0	2.84	PFOS	0.189	0.185	ü
PFDA_1	513.0 / 469.0	3.20	PFDA			
PFDA_2	513.0 / 219.0	3.20	PFDA	0.037	0.041	ü
PFUnA_1	563.0 / 519.0	3.52	PFUnA			
PFUnA_2	563.0 / 269.0	3.52	PFUnA	0.046	0.055	ü
PFDaA_1	613.0 / 569.0	3.81	PFDaA			
PFDaA_2	613.0 / 319.0	3.81	PFDaA	0.155	0.155	ü
PFTrDA_1	663.0 / 619.0	4.06	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.06	PFTrDA	0.064	0.070	ü
PFTeDA_1	713.0 / 669.0	4.28	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.27	PFTeDA	0.049	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.35	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.645	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.51	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.059	0.071	ü

Sample Name	JV71	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T13:37:43	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.46	PFBS			
PFBS_2	298.9 / 99.0	1.45	PFBS	0.327	0.346	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.072	0.075	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA			
PFHpA_2	363.0 / 169.0	2.09	PFHpA	0.021	0.022	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.286	0.298	ü
PFOA_1	413.0 / 369.0	2.47	PFOA			
PFOA_2	413.0 / 169.0	2.47	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	2.84	PFNA			
PFNA_2	463.0 / 219.0	2.84	PFNA	0.295	0.285	ü
PFOS_1	499.0 / 80.0	2.84	PFOS			
PFOS_2	499.0 / 99.0	2.84	PFOS	0.192	0.185	ü
PFDA_1	513.0 / 469.0	3.20	PFDA			
PFDA_2	513.0 / 219.0	3.20	PFDA	0.038	0.041	ü
PFUnA_1	563.0 / 519.0	3.52	PFUnA			
PFUnA_2	563.0 / 269.0	3.51	PFUnA	0.048	0.055	ü
PFDaA_1	613.0 / 569.0	3.80	PFDaA			
PFDaA_2	613.0 / 319.0	3.80	PFDaA	0.156	0.155	ü
PFTrDA_1	663.0 / 619.0	4.06	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.06	PFTrDA	0.061	0.070	ü
PFTeDA_1	713.0 / 669.0	4.27	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.27	PFTeDA	0.048	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.35	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.610	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.51	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.063	0.071	ü

Sample Name	JV72	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T13:46:40	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.46	PFBS			
PFBS_2	298.9 / 99.0	1.45	PFBS	0.316	0.346	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.072	0.075	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA			
PFHpA_2	363.0 / 169.0	2.09	PFHpA	0.019	0.022	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.290	0.298	ü
PFOA_1	413.0 / 369.0	2.47	PFOA			
PFOA_2	413.0 / 169.0	2.47	PFOA	0.066	0.065	ü
PFNA_1	463.0 / 419.0	2.84	PFNA			
PFNA_2	463.0 / 219.0	2.84	PFNA	0.298	0.285	ü
PFOS_1	499.0 / 80.0	2.83	PFOS			
PFOS_2	499.0 / 99.0	2.83	PFOS	0.193	0.185	ü
PFDA_1	513.0 / 469.0	3.19	PFDA			
PFDA_2	513.0 / 219.0	3.19	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.51	PFUnA			
PFUnA_2	563.0 / 269.0	3.51	PFUnA	0.050	0.055	ü
PFDaA_1	613.0 / 569.0	3.80	PFDaA			
PFDaA_2	613.0 / 319.0	3.80	PFDaA	0.152	0.155	ü
PFTrDA_1	663.0 / 619.0	4.06	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.05	PFTrDA	0.064	0.070	ü
PFTeDA_1	713.0 / 669.0	4.27	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.27	PFTeDA	0.048	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.608	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.065	0.071	ü

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T13:55:37	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.45	809.809079	885.00	91.50
PFBS_2	298.9 / 99.0	1.45	755.655045	885.00	85.38
PFHxA_1	313.0 / 269.0	1.73	951.504547	1000.00	95.15
PFHxA_2	313.0 / 119.0	1.73	976.056617	1000.00	97.61
PFHpA_1	363.0 / 319.0	2.09	872.945084	1000.00	87.29
PFHpA_2	363.0 / 169.0	2.09	900.472399	1000.00	90.05
PFHxS_1	399.0 / 80.0	2.11	829.070335	912.00	90.91
PFHxS_2	399.0 / 99.0	2.11	793.652278	912.00	87.02
PFOA_1	413.0 / 369.0	2.47	902.554040	1000.00	90.26
PFOA_2	413.0 / 169.0	2.47	908.321028	1000.00	90.83
PFNA_1	463.0 / 419.0	2.84	951.107113	1000.00	95.11
PFNA_2	463.0 / 219.0	2.84	971.010398	1000.00	97.10
PFOS_1	499.0 / 80.0	2.84	829.385489	925.60	89.61
PFOS_2	499.0 / 99.0	2.84	922.111774	925.60	99.62
PFDA_1	513.0 / 469.0	3.19	970.750770	1000.00	97.08
PFDA_2	513.0 / 219.0	3.19	897.604709	1000.00	89.76
PFUnA_1	563.0 / 519.0	3.51	942.781236	1000.00	94.28
PFUnA_2	563.0 / 269.0	3.51	935.184412	1000.00	93.52
PFDoA_1	613.0 / 569.0	3.80	937.427338	1000.00	93.74
PFDoA_2	613.0 / 319.0	3.80	965.543980	1000.00	96.55
PFTTrDA_1	663.0 / 619.0	4.05	915.967642	1000.00	91.60
PFTTrDA_2	663.0 / 169.0	4.05	868.878458	1000.00	86.89
PFTeDA_1	713.0 / 669.0	4.27	933.641680	1000.00	93.36
PFTeDA_2	713.0 / 169.0	4.27	897.107289	1000.00	89.71
NMeFOSAA_1	570.0 / 419.0	3.34	987.000603	1000.00	98.70
NMeFOSAA_2	570.0 / 512.0	3.34	875.674400	1000.00	87.57
NEtFOSAA_1	584.0 / 419.0	3.51	970.181857	1000.00	97.02
NEtFOSAA_2	584.0 / 483.0	3.50	832.410377	1000.00	83.24

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T13:55:37	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.71	91.255435	100.00	91.26
13C2-PFDA	515.0 / 470.0	3.18	94.107294	100.00	94.11
d5-EtFOSAA	589.0 / 419.0	3.50	356.096301	400.00	89.02

Sample Name	JV69 CCV	Injection Vial	7
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T15:07:07	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.46	857.952126	885.00	96.94
PFBS_2	298.9 / 99.0	1.46	832.372607	885.00	94.05
PFHxA_1	313.0 / 269.0	1.74	1103.321529	1000.00	110.33
PFHxA_2	313.0 / 119.0	1.73	1046.024723	1000.00	104.60
PFHpA_1	363.0 / 319.0	2.09	994.975477	1000.00	99.50
PFHpA_2	363.0 / 169.0	2.09	1115.462289	1000.00	111.55
PFHxS_1	399.0 / 80.0	2.11	835.770344	912.00	91.64
PFHxS_2	399.0 / 99.0	2.11	855.149811	912.00	93.77
PFOA_1	413.0 / 369.0	2.47	1050.149668	1000.00	105.01
PFOA_2	413.0 / 169.0	2.46	1099.457433	1000.00	109.95
PFNA_1	463.0 / 419.0	2.84	1013.067622	1000.00	101.31
PFNA_2	463.0 / 219.0	2.84	1016.774026	1000.00	101.68
PFOS_1	499.0 / 80.0	2.83	873.503923	925.60	94.37
PFOS_2	499.0 / 99.0	2.83	848.468626	925.60	91.67
PFDA_1	513.0 / 469.0	3.19	1074.769319	1000.00	107.48
PFDA_2	513.0 / 219.0	3.19	1039.876267	1000.00	103.99
PFUnA_1	563.0 / 519.0	3.51	1015.078946	1000.00	101.51
PFUnA_2	563.0 / 269.0	3.51	1133.714697	1000.00	113.37
PFDoA_1	613.0 / 569.0	3.80	1023.327388	1000.00	102.33
PFDoA_2	613.0 / 319.0	3.80	1030.706414	1000.00	103.07
PFTTrDA_1	663.0 / 619.0	4.05	1017.219205	1000.00	101.72
PFTTrDA_2	663.0 / 169.0	4.05	1079.046641	1000.00	107.90
PFTeDA_1	713.0 / 669.0	4.26	1033.540714	1000.00	103.35
PFTeDA_2	713.0 / 169.0	4.26	1035.118117	1000.00	103.51
NMeFOSAA_1	570.0 / 419.0	3.34	1047.961387	1000.00	104.80
NMeFOSAA_2	570.0 / 512.0	3.34	1130.310814	1000.00	113.03
NEtFOSAA_1	584.0 / 419.0	3.50	987.616038	1000.00	98.76
NEtFOSAA_2	584.0 / 483.0	3.50	978.464009	1000.00	97.85

Sample Name	JV69 CCV	Injection Vial	7
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T15:07:07	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.72	102.116571	100.00	102.12
13C2-PFDA	515.0 / 470.0	3.18	105.826776	100.00	105.83
d5-EtFOSAA	589.0 / 419.0	3.49	441.065715	400.00	110.27

Sample Name	IV68 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T16:09:36	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.46	417.914638	443.00	94.34
PFBS_2	298.9 / 99.0	1.46	385.869960	443.00	87.10
PFHxA_1	313.0 / 269.0	1.73	518.610092	500.00	103.72
PFHxA_2	313.0 / 119.0	1.74	566.713946	500.00	113.34
PFHpA_1	363.0 / 319.0	2.09	479.530261	500.00	95.91
PFHpA_2	363.0 / 169.0	2.09	481.000211	500.00	96.20
PFHxS_1	399.0 / 80.0	2.10	389.977460	456.00	85.52
PFHxS_2	399.0 / 99.0	2.11	396.671051	456.00	86.99
PFOA_1	413.0 / 369.0	2.47	479.809379	500.00	95.96
PFOA_2	413.0 / 169.0	2.46	512.062843	500.00	102.41
PFNA_1	463.0 / 419.0	2.84	510.400948	500.00	102.08
PFNA_2	463.0 / 219.0	2.83	522.674289	500.00	104.53
PFOS_1	499.0 / 80.0	2.83	420.395326	463.00	90.80
PFOS_2	499.0 / 99.0	2.83	424.640659	463.00	91.72
PFDA_1	513.0 / 469.0	3.18	516.389069	500.00	103.28
PFDA_2	513.0 / 219.0	3.19	523.404927	500.00	104.68
PFUnA_1	563.0 / 519.0	3.50	472.292789	500.00	94.46
PFUnA_2	563.0 / 269.0	3.50	505.894222	500.00	101.18
PFDoA_1	613.0 / 569.0	3.79	532.774820	500.00	106.55
PFDoA_2	613.0 / 319.0	3.79	517.324318	500.00	103.46
PFTTrDA_1	663.0 / 619.0	4.04	519.782345	500.00	103.96
PFTTrDA_2	663.0 / 169.0	4.04	525.531849	500.00	105.11
PFTeDA_1	713.0 / 669.0	4.26	515.142696	500.00	103.03
PFTeDA_2	713.0 / 169.0	4.25	512.102311	500.00	102.42
NMeFOSAA_1	570.0 / 419.0	3.33	482.199675	500.00	96.44
NMeFOSAA_2	570.0 / 512.0	3.33	506.812485	500.00	101.36
NEtFOSAA_1	584.0 / 419.0	3.50	508.102875	500.00	101.62
NEtFOSAA_2	584.0 / 483.0	3.48	435.168571	500.00	87.03

Sample Name	JV68 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T16:09:36	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.72	100.648179	100.00	100.65
13C2-PFDA	515.0 / 470.0	3.17	95.420251	100.00	95.42
d5-EtFOSAA	589.0 / 419.0	3.49	386.659468	400.00	96.66

Sample calculation

Sample Name	J5964-FS(0)	Injection Vial	14
Sample ID	WGNA-043018-RW-3103	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-13T14:31:24	Data File	18-0299_A.wiff
Acquisition Method	5-0371.dam	Result Table	18-0299_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.46	290066.85	1036.518610	408.6	true
PFBS_2	298.9 / 99.0	1.46	95801.63	1058.274464	397.1	false
PFHxA_1	313.0 / 269.0	1.73	347851.32	1048.858540	175.0	false
PFHxA_2	313.0 / 119.0	1.73	24744.82	1021.598386	205.6	false
PFHpA_1	363.0 / 319.0	2.08	197931.91	614.638751	110.8	false
PFHpA_2	363.0 / 169.0	2.05	6595.78	1025.302554	118.5	false
PFHxS_1	399.0 / 80.0	2.10	431775.76	1308.003760	211.7	false
PFHxS_2	399.0 / 99.0	2.10	122106.38	1270.361115	280.1	false
PFOA_1	413.0 / 369.0	2.46	801424.37	2221.874100	254.5	true
PFOA_2	413.0 / 169.0	2.42	87758.79	3623.028028	266.9	true
PFNA_1	463.0 / 419.0	2.75	214314.88	593.086512	197.2	false
PFNA_2	463.0 / 219.0	2.75	71577.22	671.191725	212.2	false
PFOS_1	499.0 / 80.0	2.77	909205.57	1925.384251	235.3	false
PFOS_2	499.0 / 99.0	2.82	128260.69	1414.782669	340.7	false
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	3.33	285.23	1.216713	26.4	true
NMeFOSAA_2	570.0 / 512.0	3.30	172.10	0.753304	8.5	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true

Sample calc PFOA 8.38 ng/L
y=1.01678x+0.03792

$$((801424.57/35415.11)-0.03792)/1.01678 * 100 * 0.001 / 0.265 = 8.38 \text{ ng/L}$$

MS PFOA 94% 26.74-8.38/19.61*100=93.6%
MSD PFOA 87% 25.49-8.38/19.61*100=87.2%
MS/MSD RPD 7.7% (94-87)/(94+87/2)*100=7.73%

LCS PFOA 90% 9.03/10.0*100=90.3%

DODCMD_ID	INSTALLATION_ID	SDG	SITE_NAME	NORM_SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	CONTRACT_ID	DO_CTO_NUMBER	CONTR_NAME	SAMPLE_NAME	SAMPLE_MATRIX_DESC	SAMPLE_TYPE_DESC	COLLECT_DATE	ANALYTICAL_METHOD	ANALYTICAL_METHOD_GRP_DESC
MID_ATLANTIC	WARMINSTER_NAWC	18-0312							N6247016D9008	WE04	TETRA TECH, INC.	NAWC-050118-FRB-304	Water for QC samples	Field Reagent Blank	1-May-18	PFAS_QSMS.1	Perfluoroalkyl Compounds
MID_ATLANTIC	WARMINSTER_NAWC	18-0312							N6247016D9008	WE04	TETRA TECH, INC.	NAWC-043018-FRB-207	Water for QC samples	Field Reagent Blank	30-Apr-18	PFAS_QSMS.1	Perfluoroalkyl Compounds
MID_ATLANTIC	WARMINSTER_NAWC	18-0312							N6247016D9008	WE04	TETRA TECH, INC.	NAWC-050118-FRB-098	Water for QC samples	Field Reagent Blank	1-May-18	PFAS_QSMS.1	Perfluoroalkyl Compounds