Navy_CLEAN_PFAS_FOIA_request_covers.indd

NAVFAC
Naval Facilities Engineering Command

Off-Base Drinking Water Sample Results, Combined Level 2 and Level 4 Laboratory Report, Electronic Data Deliverable, Data Validation Report, and the Sample Location Figure, SDG 18-0299

Naval Air Station Willow Grove
Willow Grove, Pennsylvania

August 2019

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

N00158_000772
WILLOW_GROVE_NAS
SSIC 5000-33c

LABORATORY DATA PACKAGE, 18-0299 REVISION 01, NAWC WARMINSTER NAS WILLOW GROVE PA

05/21/2018

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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 18-0299

Package DP-18-0103

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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Naval Air Station Joint Reserve Base Willow Grove, PA

Project No 100117920-WE04

PFAS in drinking water

DW

Batch 18-0299

Package DP-18-0103

Submitted to:
Tetra Tech
661 Anderson Drive Foster Plaza 7
Pittsburgh, PA 15220 USA

NELAP Accreditation Number: E87856 (Florida Department of Health)

Submitted by:
Battelle Norwell Operations
141 Longwater Drive Suite 202
Norwell, MA 02061

Analyst Approval:		schumitzd@battelle.org 2018.05.16 15:11:50 -04'00'
QC Chemist Approval:		Digitally signed by devinec@battelle.org DN: cn=devinec@battelle.org Date: 2018.05.21 12:15:16 -04'00'
Project Manager Approval:		Digitally signed by Jonathan Thorn Date: 2018.05.21 13:07:31 -04'00'

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Naval Air Station Joint Reserve Base Willow Grove, PA

Project No 100117920-WE04

PFAS in drinking water

DW

Batch 18-0299

Package DP-18-0103

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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
FRANCO PALA			4-4-2018
Carla Devine		CRD	4/4/18
Denise Schumitz		DMS	4/4/18
Candice Penn McCoy		CPM	4/4/2018
Rich Rostucci		RR	4/4/2018
Michael Mears			4/4/2018
Christie Usher		cu	4/4/18
Kevin McInerney			4/4/18
Stephanie Schultz		SAS	4/4/18
Jordan Tower		JCT	4/4/18
KRISTEN NICHOLS		KN	4/4/18
Clinton H Brown		CB	4/4/18
Matt Schumitz		MS	4-4-18
Sam Guimaraes		SG	4-4-18
Lauren Griffith		LMG	4.4.18

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Battelle 2018 (2 of 2)
Signature Page

Name (Printed)	Signature	Initials	Date
KAVITHA DASU		KD	04/04/18
Kayla Lamarre		KAL	04/04/18
Weidong Li		W.L	04/04/18
Tracy W Stenner		TWS	04/04/18
Ellyn M Fitch		EMF	12-April-2018
Gail DeRuzzo		GD	4/18/18
Zachary Willenberg		ZJW	4/20/18

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@tetratech.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.

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:	*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*
Sample Size:	250 ml
SIS and LCS/MS Compounds:	Defined in Table 2.
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.

Table 2: SIS and LCS/MS Spiking Level

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.

1) 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.

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.

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	J6150	NAWC-050718-RW-180	05/07/2018 10:40 am	DW	R0118 (NA)			
3	J6152	NAWC-050718-RW-275	05/07/2018 11:10 am	DW	R0118 (NA)			
4	J6154	NAWC-050718-RW-145	05/07/2018 12:40 pm	DW	R0118 (NA)			
5	J6156	NAWC-050718-RW-357	05/07/2018 1:10 pm	DW	R0118 (NA)			
6	J6158	NAWC-050718-RW-162	05/07/2018 1:40 pm	DW	R0118 (NA)			
7	J6160	WGNA-050718-RW-0800	05/07/2018 2:10 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	J6162	WGNA-050718-RW-0335	05/07/2018 2:40 pm	DW	R0118 (NA)			
9	J6164	WGNA-050718-RW-3556	05/07/2018 3:10 pm	DW	R0118 (NA)			
10	J6166	NAWC-050718-RW-356	05/07/2018 3:40 pm	DW	R0118 (NA)			
11	J6168	NAWC-050718-RW-289	05/07/2018 4:10 pm	DW	R0118 (NA)			
12	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 anlyzed 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 Substition:	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	PFTrDA	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-butanesulfonate	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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WORK/QUALITY ASSURANCE PROJECT PLAN

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 Verfication 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

Degredation Check Criteria:

None

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 3: Method Quality Objectives

MQO Application	***Universal_LC***		
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.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Target is less than 5 times the Original	n	
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.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Target is less than 5 times the Original	n	
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).	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Target is less than 5 times the MDL	n	
Analytical Duplicate Precision	Organics results less than 30% Relative Percent Difference (RPD). Analyte concentration must be > 5x MDL.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Original is less than 5 times the MDL	n	

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 3: Method Quality Objectives

MQO Application	***Universal_LC***		
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.

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ShpNo SHP-180501-01

Battelle Project No:

Sample Receipt Form

Approved: ☐ Authorized ☐

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

SHIPMENT

Method of Delivery: Commercial Carrier **Tracking Number:** 7721 0074 3919

COC 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 ☑ Unknown

Initial 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.: UnKnown

Storage Location: Custody: Refrigerator - R0118 (NA) **BDO IDs Assigned:** J5964 - J5969

Samples logged in by: Schumitz, Matt **Date/Time:** 05/01/2018 11:45 AM

Approved By: _____ **Approved On:** _____

Authorized By: _____ **Authorized On:** _____

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ShpNo SHP-180501-01

Battelle Project No:

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
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Chain-of-Custody

Client Contact Information	Project Manager: Jonathan Thorn	Sampling Site: WE04	Site Information: NAS JRB Willow Grove/NAWC Warminster
Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170	Sampler Information (print name): Mary Kay Bond Phone: 610-382-1169 Email: mary.bond@tetratech.com Turnaround Time (TAT) Requested: 21 days	Preservative: Trizma	COC #
Project Name: WE04 Project No.: 112G08005-WE04	Normal ☑ Priority ☐ RUSH ☐ Time Zone: Eastern	Analysis: PFAS EPA 537 14 analytes	Page# 1 of 1

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	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

Receipt Temperature:(°C)	*Samples Intact: Yes - No*	*Samples on Ice: Yes - No*	*Receipt Comments:*

Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
Mary Kay Bond	Tetra Tech	4/30/2018 16:00	Matt Schumitz	Battelle	5-1-18 11:45

Comments: 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

SHIP DATE: 30APR18
ACTWGT: 40.00 LB
CAD: 111283035/INET3980
DIMS: 24x16x18 IN

BILL SENDER

TO JONATHAN THORN
BATTELLE
141 LONGWATER DRIVE
SUITE 202
NORWELL MA 02061
(781) 681-5565 REF 112G0800 WE 4 LT.WS
INV:
PO: DEPT:

1.90
Therm-2
5-18 11:45

FedEx Express

E

J181118912601uv

TUE - 01 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7721 0074 3919

EM XPUA

02061
MA-US BOS

RT 246 1 10:30 B
ST 4 3919
05.01

BATTELLE
It can be done

ShpNo SHP-180502-02

Battelle Project No:

Sample Receipt Form

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

SHIPMENT

Method of Delivery: Commercial Carrier **Tracking Number:** 7721 2279 0356

COC 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 ☑ Unknown

Initial 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.: UnKnown

Storage Location: Custody: Refrigerator - R0118 (NA) **BDO IDs Assigned:** J5970 - J5977

Samples logged in by: Schumitz, Matt **Date/Time:** 05/02/2018 11:30 AM

Approved By: **Approved On:**

Authorized By: **Authorized On:**

BATTELLE

It can be done

ShpNo SHP-180502-02

Battelle Project No:

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

The Business of Innovation

Chain-of-Custody

Client Contact Information
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
Project No.: 112G08005-WE04

Normal ☑
Priority ☐
RUSH ☐
Time Zone: Eastern

COC #

Page# 1 of 1

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	Preservative: Trizma	Analysis: PFAS EPA 537 14 analytes	
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)

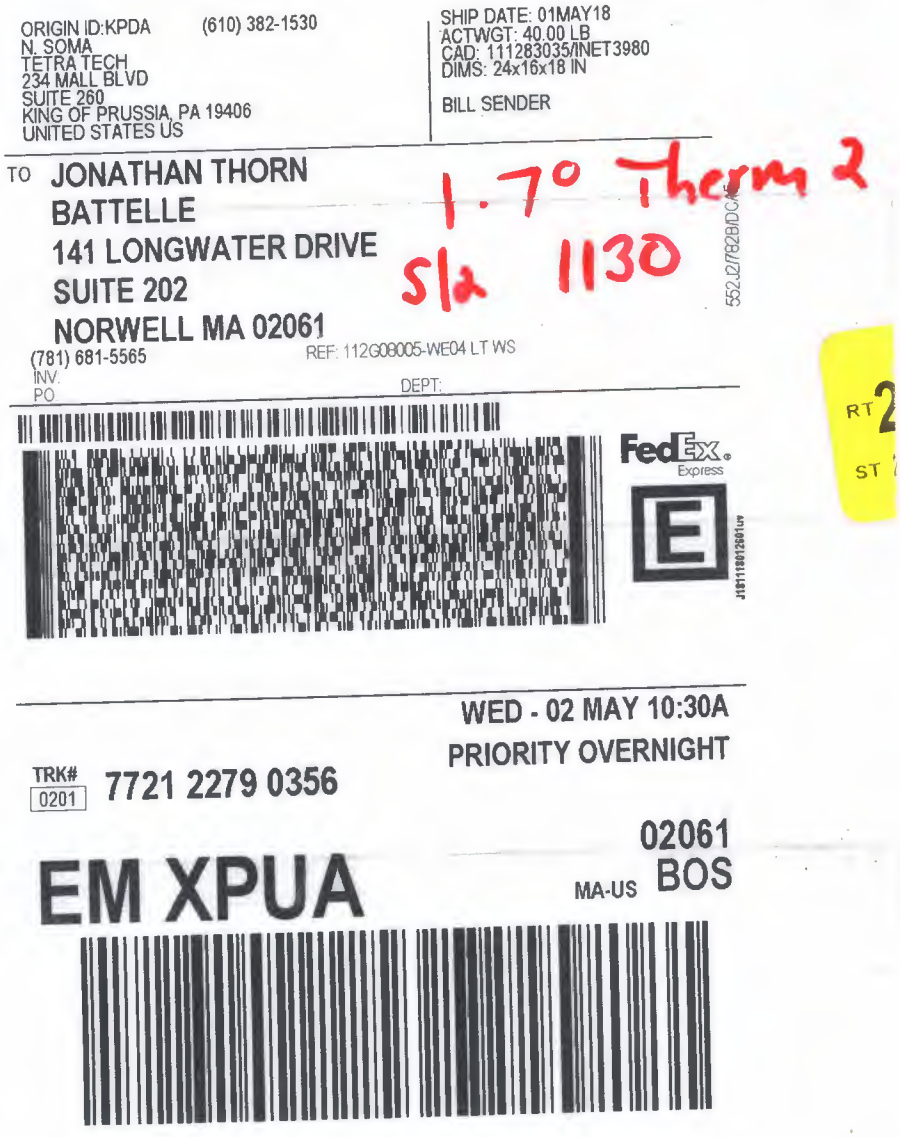
Samples Intact: Yes - No

Samples on Ice: Yes - No

Receipt Comments:

Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
Mary Kay Bond	Tetra Tech	05/01/2018 16:00		Battelle	5/2/18 1130

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
(781) 681-5565
INV.
PO
REF: 112G08005-WE04 LT WS
DEPT:

1.7° Therm 2
S/2 1130

552J2/782B/DC/

RT 2
ST

FedEx Express

E

J181118012601uv

WED - 02 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7721 2279 0356

02061
MA-US BOS

EM XPUA

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-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	0.21	0.47	2.36
PFHpA	2.32 J	0.32	0.94	2.36
PFOA	8.38	0.36	0.94	2.36
PFNA	2.24 J	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	3.91	0.20	0.47	2.36
PFHxS	4.94	0.32	0.94	2.36
PFOS	7.27	0.28	0.94	2.36
Surrogate Recoveries (%)				
13C2-PFHxA	122			
13C2-PFDA	104			
d5-EtFOSAA	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	0.21	0.47	2.36
PFHpA	2.10 J	0.32	0.94	2.36
PFOA	5.37	0.36	0.94	2.36
PFNA	0.71 J	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	1.69 J	0.20	0.47	2.36
PFHxS	0.94 J	0.32	0.94	2.36
PFOS	3.08	0.28	0.94	2.36
Surrogate Recoveries (%)				
13C2-PFHxA	111			
13C2-PFDA	94			
d5-EtFOSAA	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	0.20	0.45	2.27
PFHpA	4.27	0.31	0.91	2.27
PFOA	11.71	0.35	0.91	2.27
PFNA	1.68 J	0.34	0.91	2.27
PFDA	0.91 U	0.35	0.91	2.27
PFUnA	0.91 U	0.35	0.91	2.27
PFDoA	0.91 U	0.38	0.91	2.27
PFTrDA	0.91 U	0.38	0.91	2.27
PFTeDA	1.36 U	0.66	1.36	2.27
NMeFOSAA	0.91 U	0.38	0.91	2.27
NEtFOSAA	0.91 U	0.40	0.91	2.27
PFBS	7.62	0.19	0.45	2.27
PFHxS	6.35	0.31	0.91	2.27
PFOS	14.68	0.27	0.91	2.27
Surrogate Recoveries (%)				
13C2-PFHxA	125			
13C2-PFDA	97			
d5-EtFOSAA	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		0.20	0.45	2.23
PFHpA	4.40		0.30	0.89	2.23
PFOA	14.69		0.34	0.89	2.23
PFNA	1.49	J	0.33	0.89	2.23
PFDA	0.41	J	0.35	0.89	2.23
PFUnA	0.89	U	0.34	0.89	2.23
PFDoA	0.89	U	0.38	0.89	2.23
PFTrDA	0.89	U	0.38	0.89	2.23
PFTeDA	1.34	U	0.65	1.34	2.23
NMeFOSAA	0.89	U	0.38	0.89	2.23
NEtFOSAA	0.89	U	0.39	0.89	2.23
PFBS	2.53		0.19	0.45	2.23
PFHxS	3.12		0.30	0.89	2.23
PFOS	14.77		0.27	0.89	2.23
Surrogate Recoveries (%)					
13C2-PFHxA	118				
13C2-PFDA	97				
d5-EtFOSAA	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		0.19	0.44	2.19
PFHpA	2.25		0.30	0.88	2.19
PFOA	7.78		0.33	0.88	2.19
PFNA	0.87	J	0.32	0.88	2.19
PFDA	0.88	U	0.34	0.88	2.19
PFUnA	0.88	U	0.33	0.88	2.19
PFDoA	0.88	U	0.37	0.88	2.19
PFTrDA	0.88	U	0.37	0.88	2.19
PFTeDA	1.32	U	0.64	1.32	2.19
NMeFOSAA	0.88	U	0.37	0.88	2.19
NEtFOSAA	0.88	U	0.39	0.88	2.19
PFBS	4.74		0.18	0.44	2.19
PFHxS	6.86		0.30	0.88	2.19
PFOS	13.71		0.26	0.88	2.19
Surrogate Recoveries (%)					
13C2-PFHxA	124				
13C2-PFDA	98				
d5-EtFOSAA	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	0.20	0.45	2.27
PFHpA	4.20	0.31	0.91	2.27
PFOA	12.99	0.35	0.91	2.27
PFNA	1.57 J	0.34	0.91	2.27
PFDA	0.91 U	0.35	0.91	2.27
PFUnA	0.91 U	0.35	0.91	2.27
PFDoA	0.91 U	0.38	0.91	2.27
PFTrDA	0.91 U	0.38	0.91	2.27
PFTeDA	1.36 U	0.66	1.36	2.27
NMeFOSAA	0.91 U	0.38	0.91	2.27
NEtFOSAA	0.91 U	0.40	0.91	2.27
PFBS	6.75	0.19	0.45	2.27
PFHxS	6.71	0.31	0.91	2.27
PFOS	13.58	0.27	0.91	2.27
Surrogate Recoveries (%)				
13C2-PFHxA	114			
13C2-PFDA	88			
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-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		0.20	0.45	2.23
PFHpA	3.00		0.30	0.89	2.23
PFOA	8.62		0.34	0.89	2.23
PFNA	1.13	J	0.33	0.89	2.23
PFDA	0.89	U	0.35	0.89	2.23
PFUnA	0.89	U	0.34	0.89	2.23
PFDoA	0.89	U	0.38	0.89	2.23
PFTrDA	0.89	U	0.38	0.89	2.23
PFTeDA	1.34	U	0.65	1.34	2.23
NMeFOSAA	0.89	U	0.38	0.89	2.23
NEtFOSAA	0.89	U	0.39	0.89	2.23
PFBS	4.45		0.19	0.45	2.23
PFHxS	3.49		0.30	0.89	2.23
PFOS	6.53		0.27	0.89	2.23
Surrogate Recoveries (%)					
13C2-PFHxA	124				
13C2-PFDA	103				
d5-EtFOSAA	93				

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	0.50	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
PFDoA	1.00	U	0.42	1.00	2.50
PFTrDA	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	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				Control Limits	
Units	ng/L	Target	Recovery	Qual	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
PFTrDA	8.53	10.00	85		70	130
PFTeDA	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 (%)

13C2-PFHxA	106
13C2-PFDA	97
d5-EtFOSAA	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			Control Limits	
Units	ng/L		ng/L	Target	Recovery Qual	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	0.94	U	17.85	19.61	91	70	130
PFUnA	0.94	U	17.05	19.61	87	70	130
PFDoA	0.94	U	16.42	19.61	84	70	130
PFTrDA	0.94	U	17.69	19.61	90	70	130
PFTeDA	1.42	U	20.67	19.61	105	70	130
NMeFOSAA	0.94	U	19.12	19.61	98	70	130
NEtFOSAA	0.94	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 (%)							
13C2-PFHxA	122		128				
13C2-PFDA	104		107				
d5-EtFOSAA	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

			Control Limits					RPD
	Target	Recovery	Qual	Lower	Upper	RPD	Qual	Limit
PFHxA	19.61	111		70	130	0.9		≤ 30
PFHpA	19.61	101		70	130	2.9		≤ 30
PFOA	19.61	87		70	130	7.7		≤ 30
PFNA	19.61	91		70	130	0.0		≤ 30
PFDA	19.61	93		70	130	2.2		≤ 30
PFUnA	19.61	86		70	130	1.2		≤ 30
PFDoA	19.61	84		70	130	0.0		≤ 30
PFTrDA	19.61	90		70	130	0.0		≤ 30
PFTeDA	19.61	103		70	130	1.9		≤ 30
NMeFOSAA	19.61	99		70	130	1.0		≤ 30
NEtFOSAA	19.61	99		70	130	5.2		≤ 30
PFBS	17.35	104		70	130	2.8		≤ 30
PFHxS	18.53	99		70	130	2.0		≤ 30
PFOS	18.73	81		70	130	2.4		≤ 30

Surrogate Recoveries (%)

13C2-PFHxA	124
13C2-PFDA	106
d5-EtFOSAA	94

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 highers 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 18-0299

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 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	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.
$\leq$ 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 quadradic curve fitting.
R^2 >0.99 Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No exceedances noted.
	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 Low point 50-150% of true value	No exceedances noted.
	No comments.

BATTELLE
It can be done

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

BATTELLE
It can be done

BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title:	Naval Air Station Joint Reserve Base Wi	**Data Set Number:**	DP-18-0103
Project Number:	100117920-WE04	**Prep Batch Number:**	18-0299
Entered By:	Denise Schumitz	**Entered On:**	05/14/2018
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

Samples J5964, J5970, J5972, J5974 and J5976 have an ion ratio greater than 50% for PFOA.
DMS 5/18/2018

JV64 and JV65 have an ion ratio greater than 50% for PFDA.
DMS 5/21/2018

JV64 has an ion ratio greater then 50% for PFTeDA.
DMS 5/21/2018

Task Leader Approval:

SupervisorApproval:

PM Approval:



Digitally signed by Jonathan Thorn
Date: 2018.05.21 13:06:43 -04'00'

Example Calculation for PFAS

Calculation of final concentration from area:

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

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:	J5966-FS(0)
Client Sample ID:	NAWC-040318-RW-204
Sample Size:	0.265
Units:	L
Dilution Factor:	1
PIV (L):	0.001
Target Analyte:	PFOA
MRM Transition:	413.0 / 369.0
Data file:	18-0299_A.wiff
Result table:	18-0299_BASE
Area:	445164.3
IS Name:	13C2-PFOA
IS Area:	30659.63
IS Amount (ng/L):	100
y-intercept	0.03792
slope	1.01678

$$\text{Concentration} = \frac{[(445164.31/30659.63) - 0.03792]}{1.01678} * 100 * 0.001 * 1 / 0.265$$

ng/L = 5.37

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
Project No.: 100117920-WE04
Preparation Batch: 18-0299
Data Set: DP-18-0103

	CQ689PB-FS (Procedural Blank)	CQ690LCS-FS (Laboratory Control Sample)	J5964MS-FS (WGNA-043018-RW-3103)	J5964MSD-FS (WGNA-043018-RW-3103)	J5964-FS (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)
PFHxA	-	L	L	L	L	L	L	L	L	L	L
PFHpA	-	L	L	L	L	L	L	L	L	L	L
PFOA	-	L	L	L	L	L	L	L	L	L	L
PFNA	-	L	L	L	L	L	L	L	L	L	L
PFDA	-	L	L	L	L	L	L	L	L	L	L
PFUnA	-	L	L	L	L	L	L	L	L	L	L
PFDoA	-	L	L	L	L	L	L	L	L	L	L
PFTrDA	-	L	L	L	L	L	L	L	L	L	L
PFTeDA	-	L	L	L	L	L	L	L	L	L	L
NMeFOSAA	-	L	L	L	L	L	L	L	L	L	L
NEtFOSAA	-	L	L	L	L	L	L	L	L	L	L
PFBS	-	L	L	L	L	L	L	L	L	L	L
PFHxS	-	L	L	L	L	L	L	L	L	L	L
PFOS	-	L	Br	Br	Br	Br	Br	Br	Br	Br	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

BATTELLE
It can be done

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	Lower	Upper
116,048.25	58,024.13	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

BATTELLE
It can be done

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	Lower	Upper
37,623.47	18,811.74	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

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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	Lower	Upper
33,844.95	16,922.48	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	

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Summary Asymmetry Report

Created with Analyst Reporter
Printed: 14/05/2018 4:58:46 PM

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

BATTELLE

Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 14/05/2018 5:00:17 PM

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
PFDoA_1	613.0 / 569.0	3.81	63	>10
PFDoA_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

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Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 15/05/2018 10:45:16 AM

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

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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	10.90	1.24	3.72	9
PFHpA	375-85-9	11.47	1.22	3.66	9
PFOA	335-67-1	11.49	1.21	3.63	9
PFNA	375-95-1	11.37	1.11	3.33	9
PFDA	335-76-2	11.37	1.21	3.63	9
PFUnA	2058-94-8	11.15	1.54	4.62	9
PFDoA	307-55-1	10.91	1.81	5.43	9
PFTrDA	72629-94-8	10.81	1.77	5.31	9
PFTeDA	376-06-7	11.89	1.51	4.53	9
NMeFOSAA	2355-31-9	10.79	1.00	3.00	9
NEtFOSAA	2991-50-6	10.03	0.97	2.91	9
PFBS	375-73-5	8.89	1.37	4.11	9
PFHxS	355-46-4	10.69	1.30	3.90	9
PFOS	1763-23-1	9.97	1.21	3.63	9

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
PFTrDA	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
$^{13}C_2$-PFOA	NA	IS	415.0 / 270.0	NA
$^{13}C_4$-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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ID 626 04/18

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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
☑ CAD 0	0.5	0.4 to 1.1 x10^{-5} Torr
☑ CAD Low	1.9	Read Only
☑ CAD Medium	2.4	Read Only
☑ CAD High	3.4	Read Only
☑ 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. Record10mca.

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
☑ CAD 0	0.8	0.4 to 1.1 x10^{-5} Torr
☑ CAD Low	2.1	Read Only
☑ CAD Medium	2.6	Read Only
☑ CAD High	3.7	Read Only
☑ 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	Width Specs
	Value	Spec	Value	
Scan Rate 10 Da/s Record 10 mca				
Q1 175.133	5.94 e6	≥1.2^{e}6	0.6933	0.6 to 0.8
Q1 500.380	2.25 e7	≥9.0^{e}6	0.7444	0.6 to 0.8
Q1 906.673	2.74 e7	≥1.4^{e}7	0.7347	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8^{e}7	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	Width Specs
	Value	Spec	Value	
Scan Rate 10 Da/s Record 10 mca				
Q3 175.133	4.54 e6	≥1.2^{e}6	0.6390	0.6 to 0.8
Q3 500.380	2.13 e7	≥9.0^{e}6	0.7008	0.6 to 0.8
Q3 906.673	3.04 e7	≥1.4^{e}7	0.7683	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q3 906.673	1.51 e8	≥6.8^{e}7	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	Width Specs
	Value	Spec	Value	
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	≥1.0^e7	0.6895	0.6 to 0.8
Q1 933.636	1000	50	6.32 e7	≥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	≥8.0^e6	0.7665	0.6 to 0.8
Q3 933.636	1000	50	7.41 e7	≥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	≥7.2 ^e6	0.1302	<0.35
ER 922.010	0.05	3.89 e7	≥2.8 ^e6	0.2603	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05	2.55 e7	≥2.4 ^e7	0.3740	<0.65
ER 922.010	0.05	2.37 e8	≥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	≥4.4 ^e7	0.1840	<0.35
ER 601.978	0.05	7.74 e7	≥5.6 ^e7	0.1849	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 431.982	0.05	3.43 e8	≥1.2 ^e8	0.4382	<0.65
ER 601.978	0.05	2.55 e8	≥1.6 ^e8	0.6205	<0.65

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Canada H9P 1J8

Phone: 1.866.854.7988

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
☐ 236 OR ☑ 365	1000	1.19 e8	Fragment Intensity	> 4.4 e6	≥1.6x 10e6

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.

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BATTELLE
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:**	AgChem Laboratory - R0124
Quantity:	1 ea mL **% Moisture:**		
Description:	EPA-537IS		

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

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 (^{13}C) perfluoroalkylcarboxylic acid, a mass-labelled (^{13}C) perfluoroalkylsulfonate, and a mass-labelled (^{2}H) 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,...x_n on which it depends is:

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

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 ±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).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17025 ISO 17034 REFERENCE MATERIAL PRODUCER

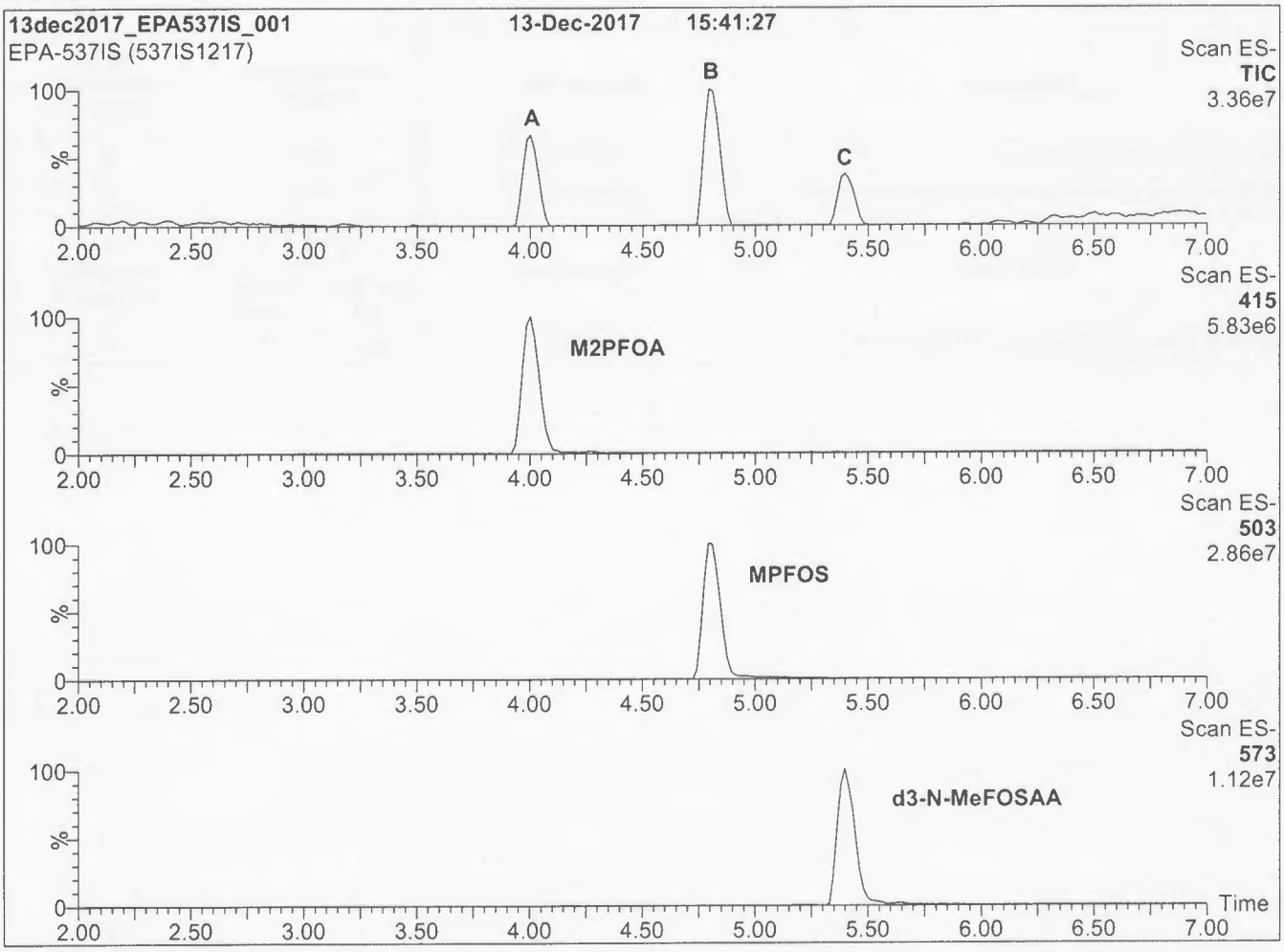
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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

Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
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: _____ **Date:** 12/22/2017
(mm/dd/yyyy)
B.G. Chittim, General Manager

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 RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc 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

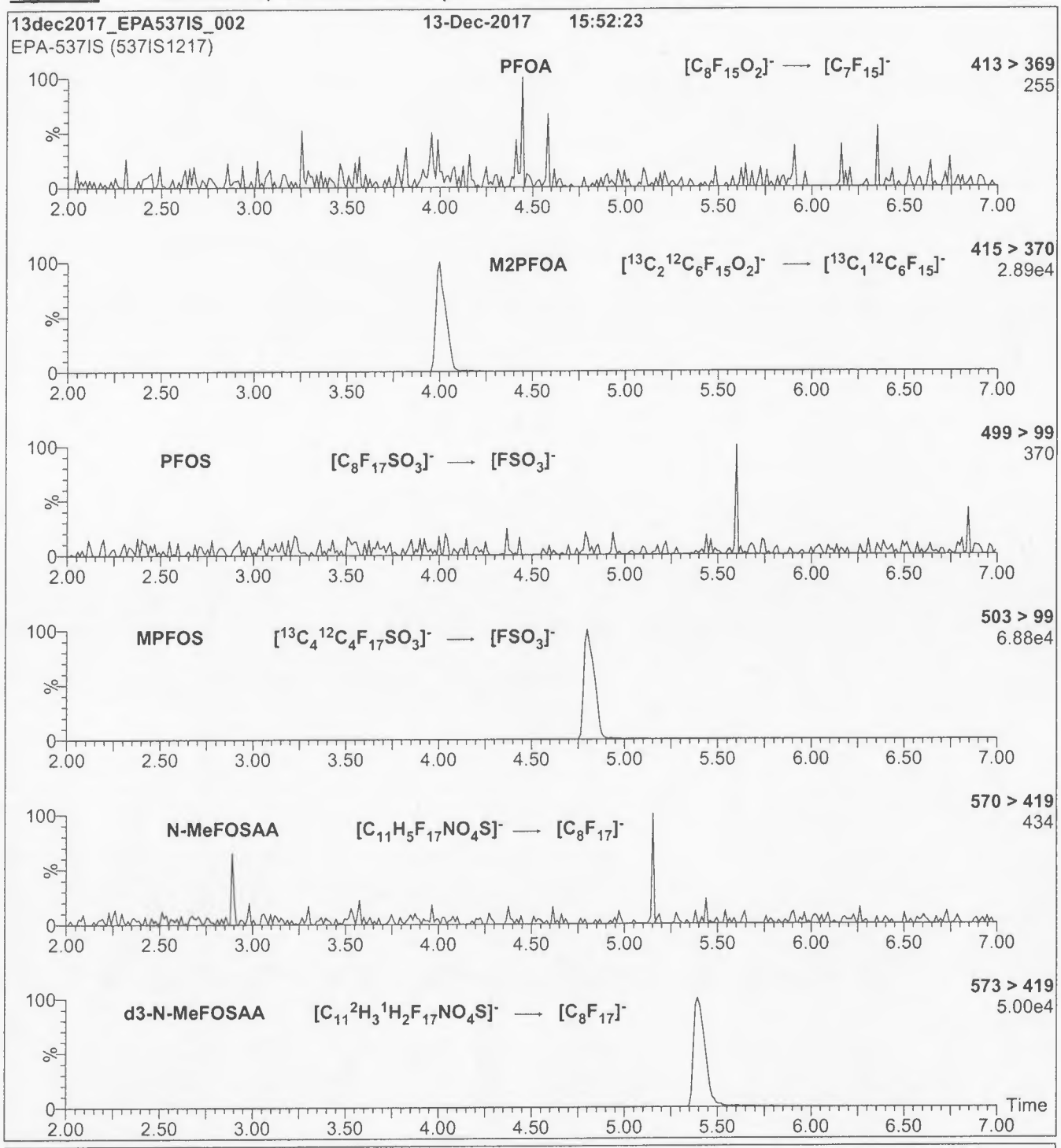
Flow: 300 µl/min

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 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3

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

BATTELLE
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:**	AgChem 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	--	--	☐			
13C2-PFHxA	BDO-2106	1.0000	100.00	--	--	☐			
d5-EtFOSAA	BDO-1839	4.0000	100.00	--	--	☐			

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 (^{13}C) perfluoroalkylcarboxylic acids and a mass-labelled (^{2}H) 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,...x_n on which it depends is:

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

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 ±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:

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

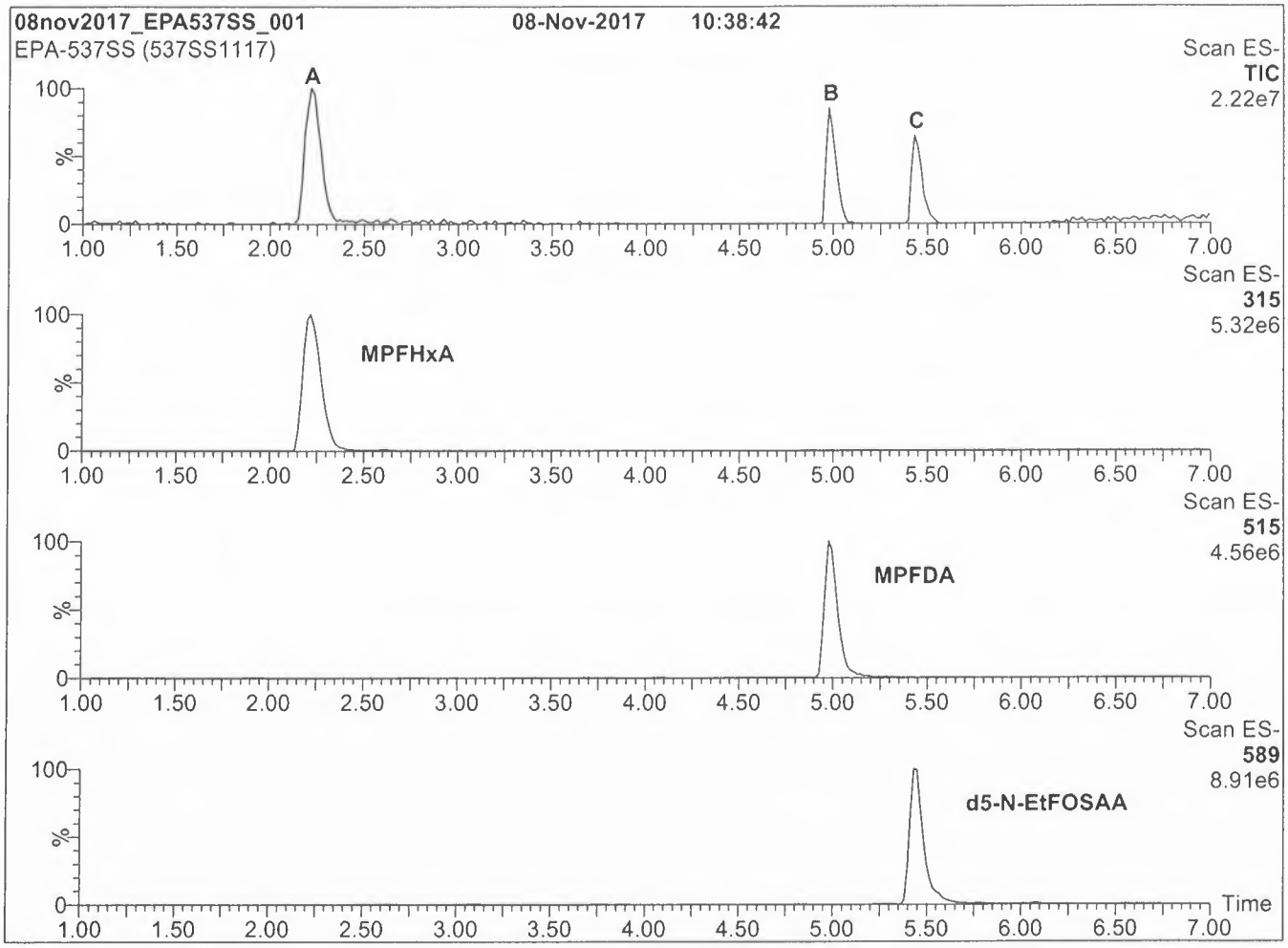
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-537SS; Components and Concentrations (ng/ml; ± 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: _____ **Date:** 11/13/2017
(mm/dd/yyyy)
B.G. Chittim, General Manager

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 RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% (80:20 MeOH:ACN) / 55% H_2O
(both with 10 mM NH_4OAc 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

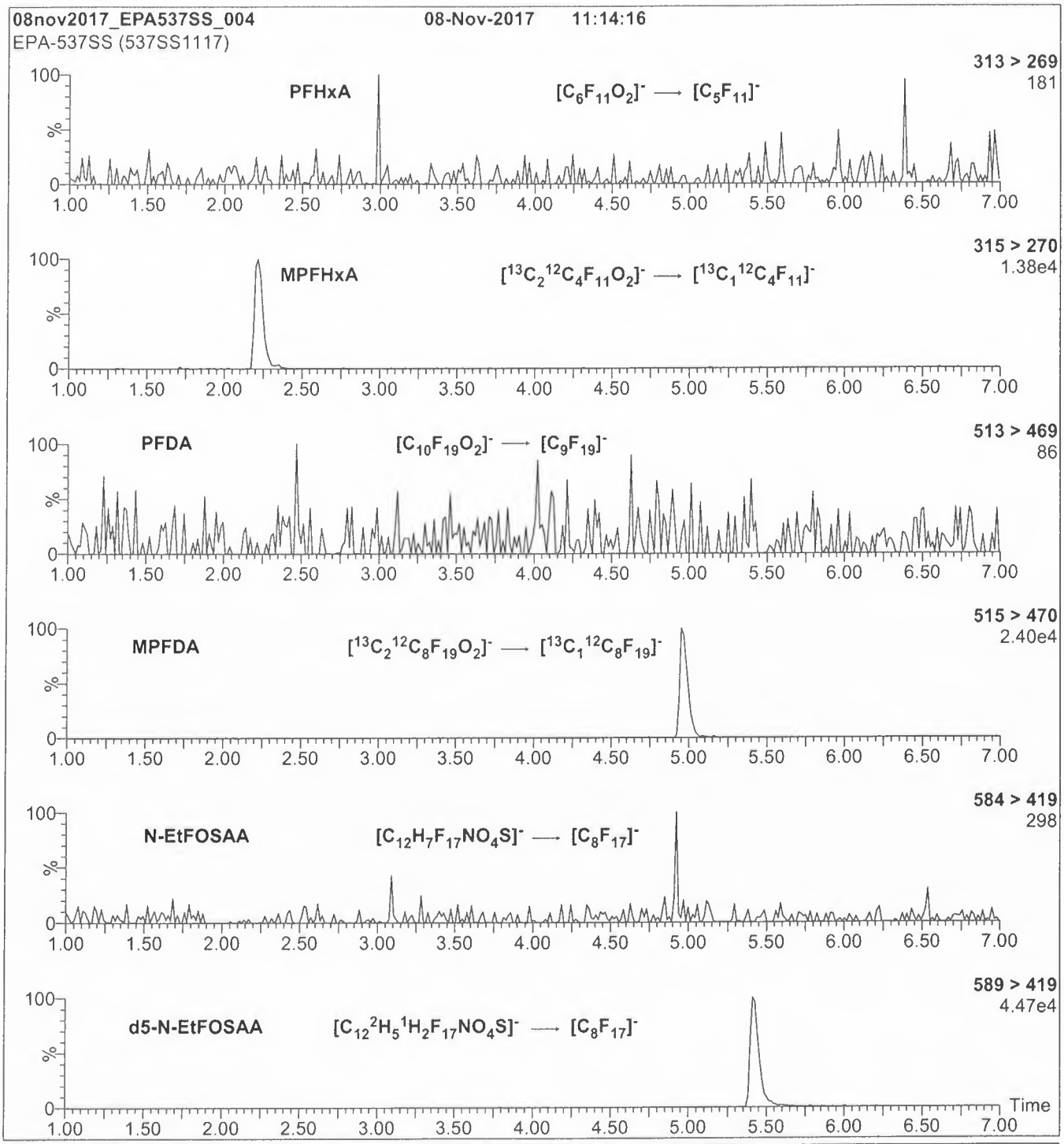
Flow: 300 µl/min

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 µl/min

MS Parameters

Collision Gas (mbar) = 3.50e-3

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

BATTELLE
It can be done

BDO Id: 180425-03

Reagent Receipt Report

Approved: ☑ **Authorized** ☐

Name: EPA-537PDS (calibration)
Vendor: Wellington Laboratories
Catalogue No: EPA-537PDS
Type: Solution
Lot No: 537PDS0318
Quantity: 1 ea ml **% Moisture:**
Description: EPA-537PDS

Received: 4/25/2018
Custodian: Schumitz, Matt
Expires: 3/5/2023
Consumed:
Stored In: AgChem Laboratory - R0124

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	--	--	☐				1
N-methylperfluoro-1-octanesulfonami	2355-31-9	2.0000	100.00	--	--	☐				2
Perfluoro-1-butanesulfonate	375-73-5	1.7700	100.00	--	--	☐				3
Perfluoro-1-hexanesulfonate	355-46-4	1.8240	100.00	--	--	☐				4
Perfluoro-1-octanesulfonate	1763-23-1	1.8510	100.00	--	--	☐				5
Perfluoro-n-decanoic Acid	335-76-2	2.0000	100.00	--	--	☐				
Perfluoro-n-dodecanoic acid	307-55-1	2.0000	100.00	--	--	☐				
Perfluoro-n-heptanoic Acid	375-85-9	2.0000	100.00	--	--	☐				
Perfluoro-n-hexanoic acid	307-24-4	2.0000	100.00	--	--	☐				
Perfluoro-n-nonanoic Acid	375-95-1	2.0000	100.00	--	--	☐				
Perfluoro-n-octanoic Acid	335-67-1	2.0000	100.00	--	--	☐				
Perfluoro-n-tetradecanoic acid	376-06-7	2.0000	100.00	--	--	☐				
Perfluoro-n-tridecanoic acid	72629-94-8	2.0000	100.00	--	--	☐				
Perfluoro-n-undecanoic acid	2058-94-8	2.0000	100.00	--	--	☐				

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-butanesulfonate	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 (C_6-C_{14}), three native perfluoroalkylsulfonates (C_4 linear; C_6 and C_8 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 $x_1, x_2, \ldots x_n$ on which it depends is:

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

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 ±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).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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; ± 5% in Methanol / Water (<1%))**

Compound	Abbreviation	Concentration * (ng/ml)		Peak Assignment in Figure 1
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: ∑ branched isomers	480		K
N-ethylperfluorooctanesulfonamidoacetic acid [b]	N-EtFOSAA: linear isomer	1550		N
	N-EtFOSAA: ∑ branched isomers	450		M
Compound	**Abbreviation**	**Concentration * (ng/ml)**		**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: ∑ branched isomers	378	344	D
Potassium perfluorooctanesulfonate [d]	PFOSK: linear isomer	1580	1460	I
	PFOSK: ∑ 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 ^{19}F-NMR)***

Isomer	Name	Structure	Percent Composition by ^{19}F-NMR	
1	N-methylperfluoro-1-octanesulfonamidoacetic acid	$CF_3(CF_2)_7SO_2N(CH_3)CH_2CO_2H$	76.0	76.0
2	N-methylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(CH_3)CH_2CO_2H$	0.7	24.0
3	N-methylperfluoro-4-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2N(CH_3)CH_2CO_2H$	2.0	
4	N-methylperfluoro-5-methylheptanesulfonamidoacetic acid	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2N(CH_3)CH_2CO_2H$	6.0	
5	N-methylperfluoro-6-methylheptanesulfonamidoacetic acid	$CF_3CF(CF_3)(CF_2)_5SO_2N(CH_3)CH_2CO_2H$	14.0	
6	N-methylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$CF_3C(CF_3)_2(CF_2)_4SO_2N(CH_3)CH_2CO_2H$	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 ^{19}F-NMR)***

Isomer	Name	Structure	Percent Composition by ^{19}F-NMR	
1	N-ethylperfluoro-1-octanesulfonamidoacetic acid	$CF_3(CF_2)_7SO_2N(C_2H_5)CH_2CO_2H$	77.5	77.5
2	N-ethylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(C_2H_5)CH_2CO_2H$	2.3	22.5
3	N-ethylperfluoro-4-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2N(C_2H_5)CH_2CO_2H$	2.2	
4	N-ethylperfluoro-5-methylheptanesulfonamidoacetic acid	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2N(C_2H_5)CH_2CO_2H$	5.4	
5	N-ethylperfluoro-6-methylheptanesulfonamidoacetic acid	$CF_3CF(CF_3)(CF_2)_5SO_2N(C_2H_5)CH_2CO_2H$	10.4	
6	N-ethylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$CF_3C(CF_3)_2(CF_2)_4SO_2N(C_2H_5)CH_2CO_2H$	0.3	
7	N-ethylperfluoro-4,5-dimethylhexanesulfonamidoacetic acid	$CF_3CF(CF_3)CF(CF_2)_3SO_2N(C_2H_5)CH_2CO_2H$	0.3	
8	N-ethylperfluoro-3,5-dimethylhexanesulfonamidoacetic acid	$CF_3CF(CF_3)CF_2CF(CF_2)_2SO_2N(C_2H_5)CH_2CO_2H$	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 ^{19}F-NMR)***

Isomer	Name	Structure	Percent Composition by ^{19}F-NMR	
1	Potassium perfluoro-1-hexanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	81.1	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$CF_3CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	2.9	18.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	1.4	
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	5.0	
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	8.9	
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$CF_3C(CF_3)_2CF_2CF_2SO_3^-K^+$	0.2	
7	Other Unidentified Isomers		0.5	

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

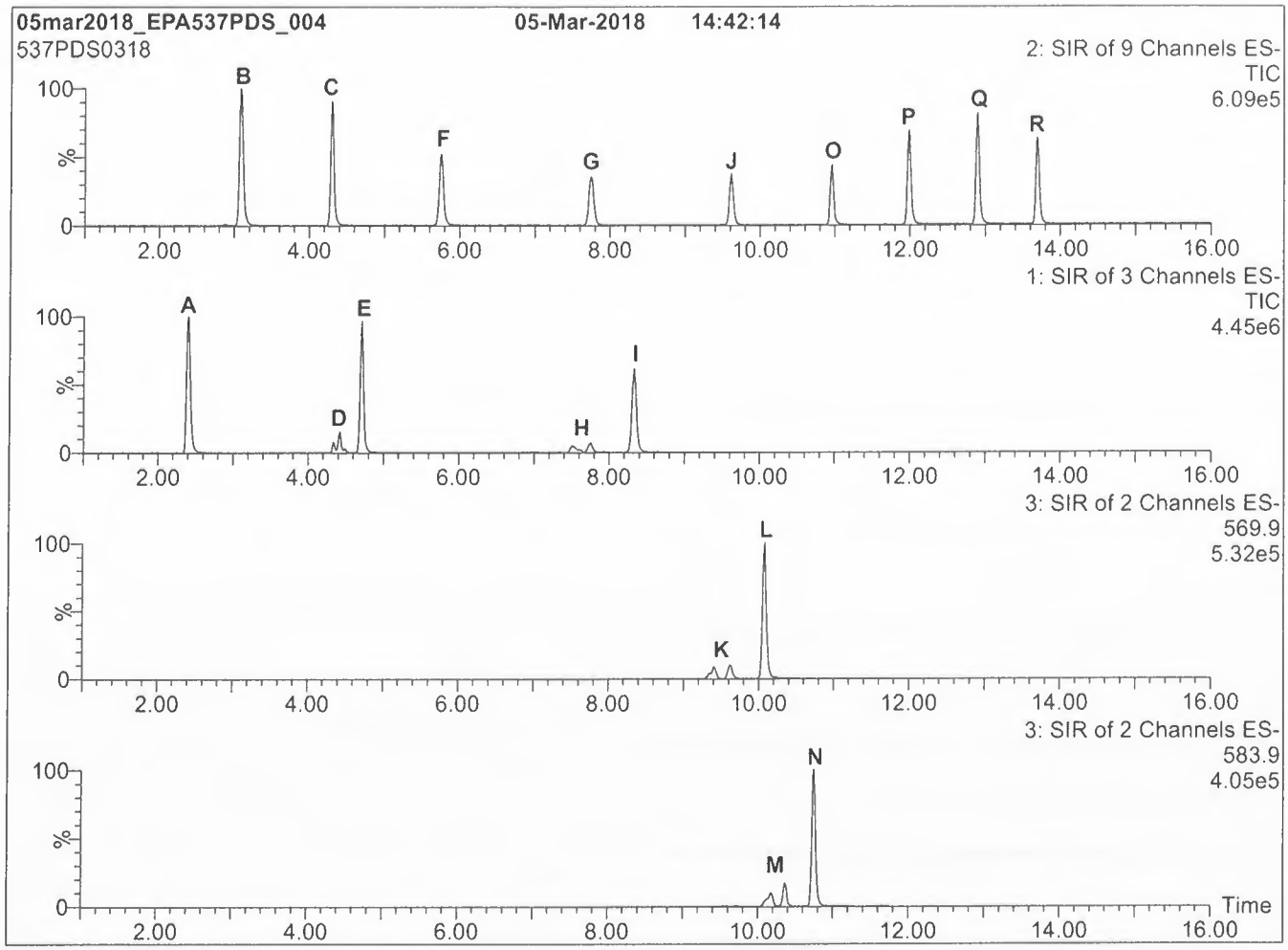
Table E: **PFOSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Name	Structure	Percent Composition by ^{19}F-NMR	
1	Potassium perfluoro-1-octanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	78.8	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2	21.1
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	0.6	
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	1.9	
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	2.2	
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	4.5	
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	10.0	
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3C(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	0.2	
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF_2C(CF_3)CF_2CF_2CF_2SO_3^-K^+$	0.03	
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	0.4	
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	0.07	

* Percent of total perfluorooctanesulfonate isomers only.
** Systematic Name: Potassium perfluorooctane-2-sulfonate.

Certified By: _____ **Date:** 04/02/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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 RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc 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 µl/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)

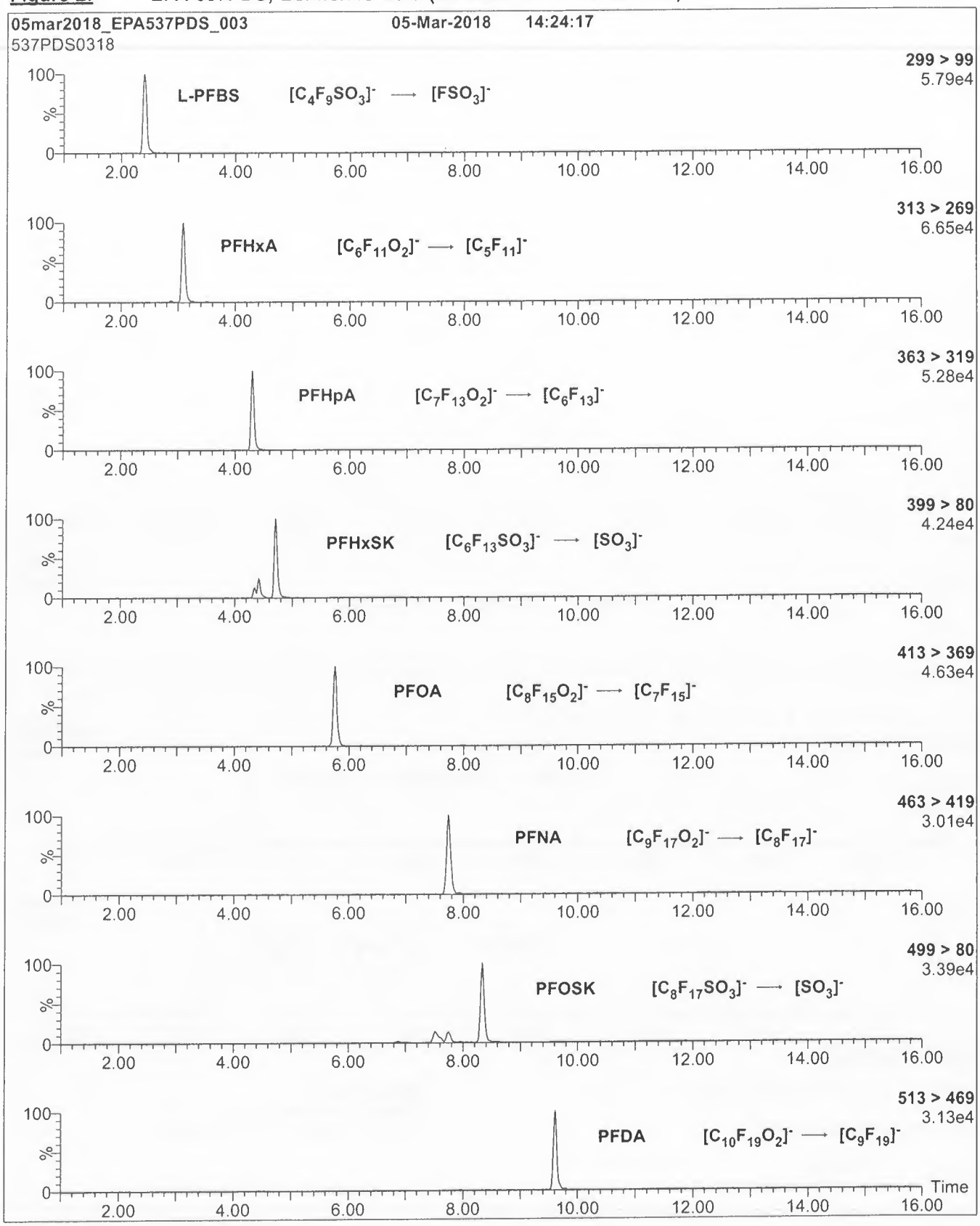
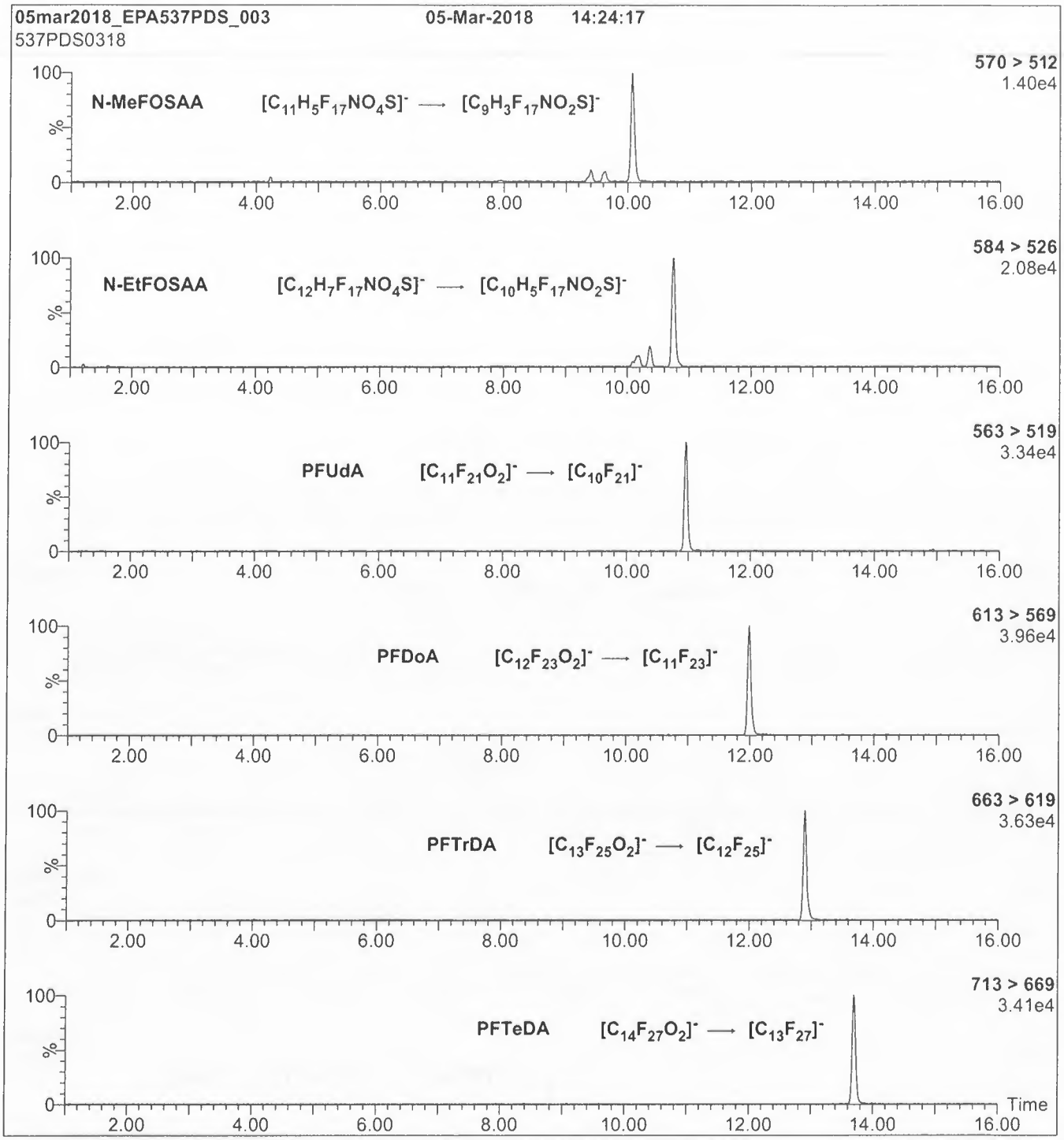


Figure 2: EPA-537PDS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (EPA-537PDS)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters
Collision Gas (mbar) = 3.10e-3
Collision Energy (eV) = 10-40 (variable)

BATTELLE
It can be done

BDO Id: 180425-04

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name: EPA-537PDS-L (second source)
Vendor: Wellington Laboratories
Catalogue No: EPA-537PDS-L
Type: Solution
Lot No: 537PDSL0318
Quantity: 1 ea ml **% Moisture:**
Description: EPA-537PDS-L

Received: 4/25/2018
Custodian: Schumitz, Matt
Expires: 3/5/2023
Consumed:
Stored In: AgChem Laboratory - R0124

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	--	--	☐			
N-methylperfluoro-1-octanesulfonami	2355-31-9	2.0000	100.00	--	--	☐			
Perfluoro-1-butanesulfonic Acid	375-73-5	2.0000	100.00	--	--	☐			1
Perfluoro-n-decanoic Acid	335-76-2	2.0000	100.00	--	--	☐			
Perfluoro-n-dodecanoic acid	307-55-1	2.0000	100.00	--	--	☐			
Perfluoro-n-heptanoic Acid	375-85-9	2.0000	100.00	--	--	☐			
Perfluoro-n-hexanoic acid	307-24-4	2.0000	100.00	--	--	☐			
Perfluoro-n-octanoic Acid	335-67-1	2.0000	100.00	--	--	☐			
Perfluorononanoic Acid	375-95-1	2.0000	100.00	--	--	☐			
Perfluoro-n-tetradecanoic acid	376-06-7	2.0000	100.00	--	--	☐			
Perfluoro-n-tridecanoic acid	72629-94-8	2.0000	100.00	--	--	☐			
Perfluoro-n-undecanoic acid	2058-94-8	2.0000	100.00	--	--	☐			
Sodium perfluoro-1-hexanesulfonate	82382-12-5	1.8900	100.00	--	--	☐			2
Sodium perfluoro-1-octanesulfonate	4021-47-0	1.9100	100.00	--	--	☐			3

Total Analytes: 14

Notes:

	Analyte:	Comment:
1	Perfluoro-1-butanesulfonic 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 (C_6-C_{14}), native linear perfluoroalkylsulfonates (C_4, C_6, and C_8), 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,...x_n on which it depends is:

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

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 ±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).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER

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 * (ng/ml)	Peak Assignment in Figure 1
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

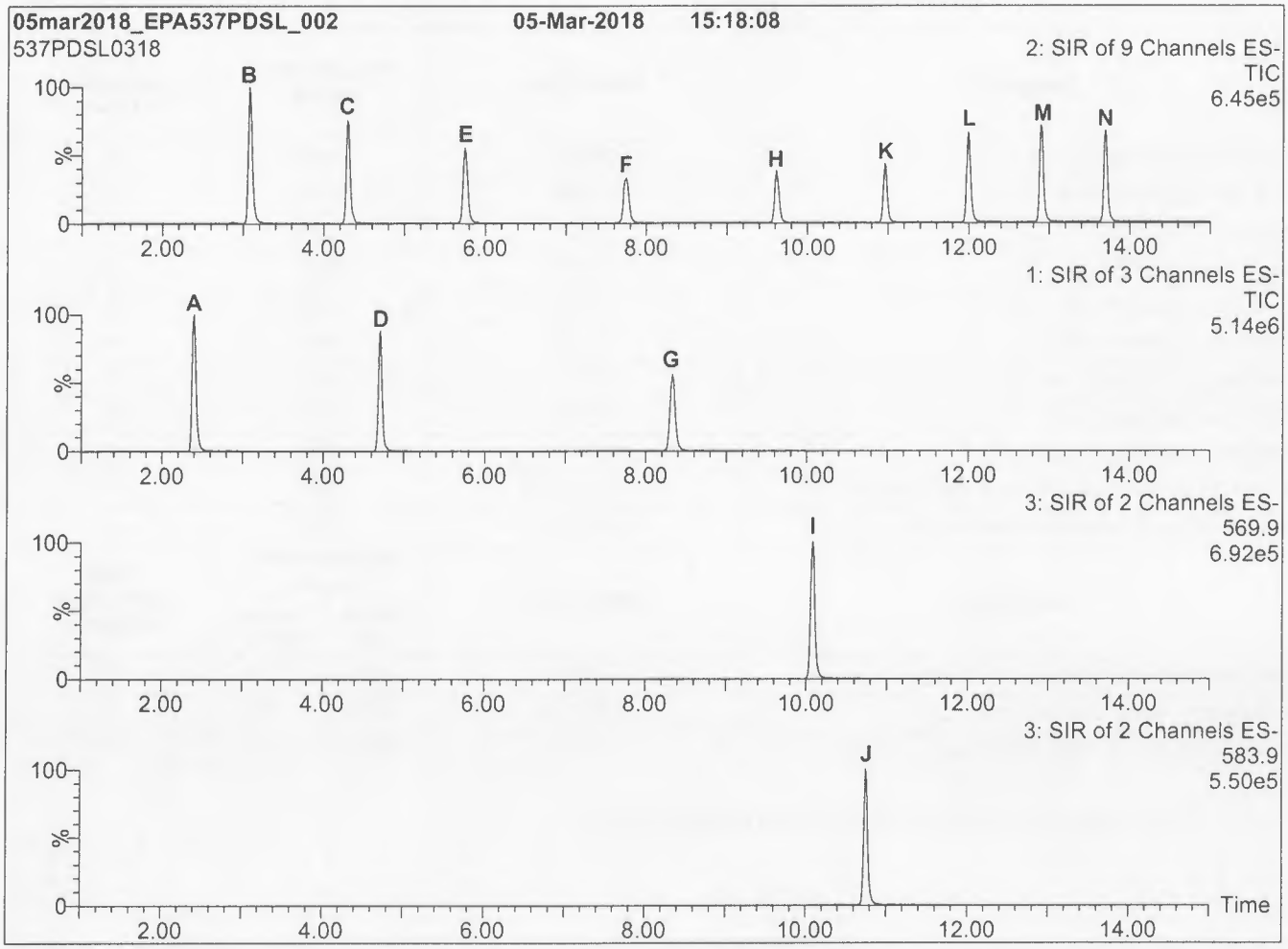
Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Potassium perfluoro-1-butanesulfonate ✓	L-PFBS	2000	1770	A
Sodium perfluoro-1-hexanesulfonate ✓	L-PFHxS	2000	1890	D
Sodium perfluoro-1-octanesulfonate ✓	L-PFOS	2000	1910	G

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 04/02/2018
(mm/dd/yyyy)

B.G. Chittim, General Manager

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 RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc 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 µl/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)

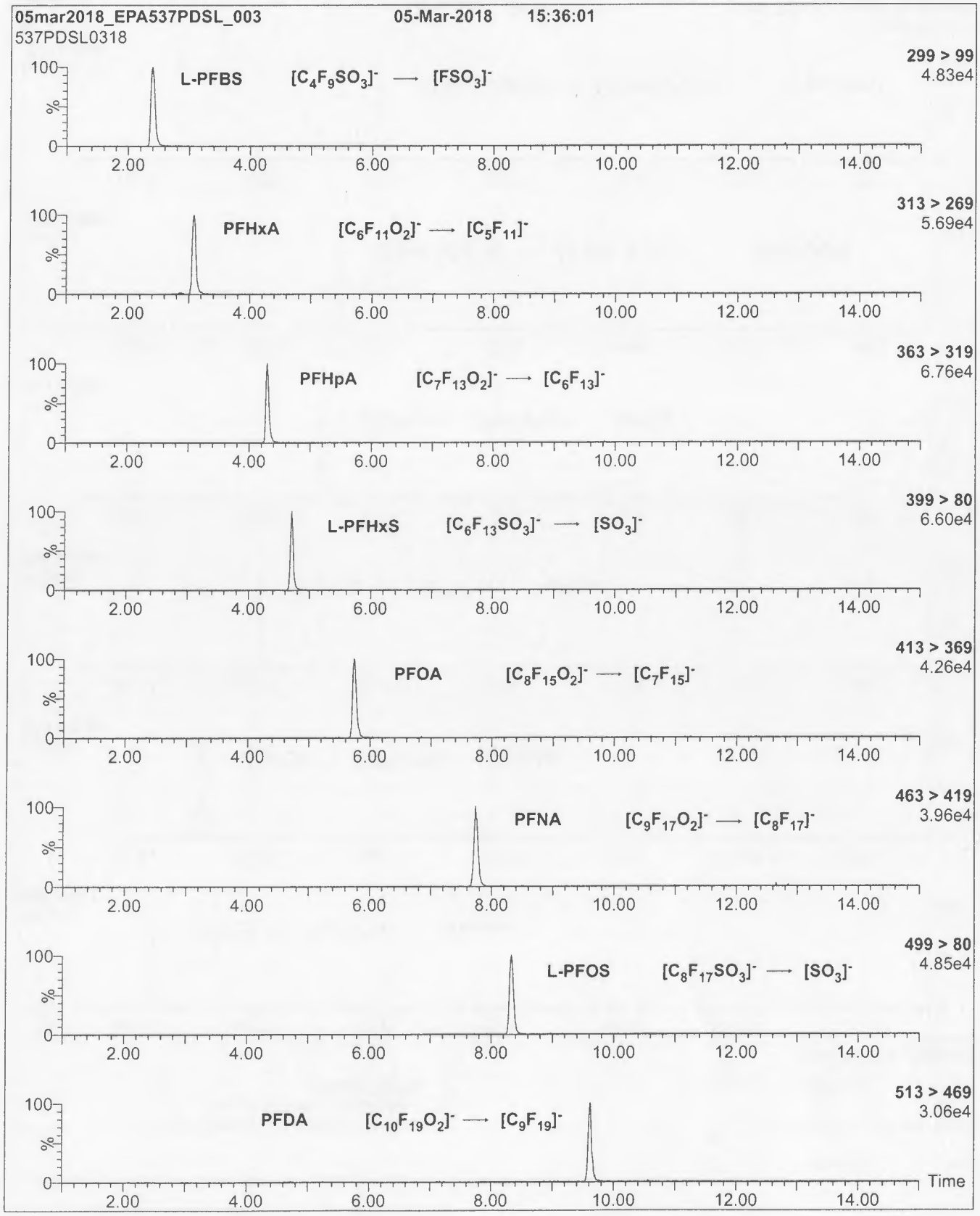
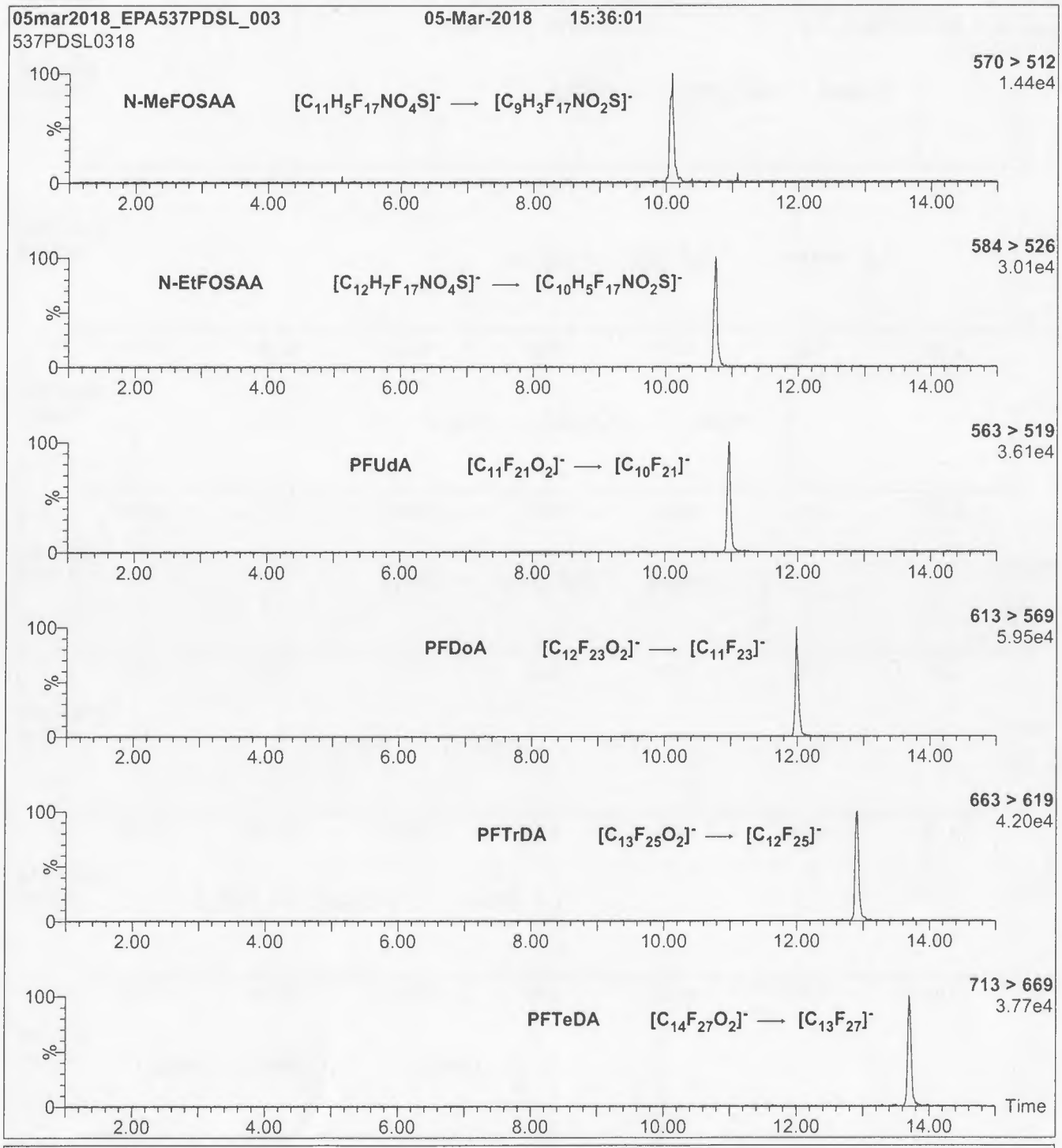


Figure 2: EPA-537PDS-L; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

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

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.17e-3

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

BATTELLE

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	~2.666666	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:** _____

BATTELLE

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:** _____

BATTELLE

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	~2.000000	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:** _____

BATTELLE

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:** _____

BATTELLE

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	~2.000000	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

BATTELLE

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-butanesulfonate	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-butanesulfonate	.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

BATTELLE

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	~2.000000	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

BATTELLE

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-butanesulfonate	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-butanesulfonate	.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

BATTELLE

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	~2.000000	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

BATTELLE

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-butanesulfonate	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-butanesulfonate	.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

BATTELLE

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 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	---	---	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

BATTELLE

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

BATTELLE

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

BATTELLE

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

BATTELLE

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

BATTELLE

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

BATTELLE

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

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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

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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

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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-butanesulfonate	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

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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-butanesulfonate	.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

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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-butanesulfonate	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

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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-butanesulfonate	.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

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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

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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-butanesulfonate	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

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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-butanesulfonate	.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

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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

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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-butanesulfonate	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

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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-butanesulfonate	.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

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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

BATTELLE

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-butanesulfonate	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

BATTELLE

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-butanesulfonate	.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

BATTELLE

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

BATTELLE

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-butanesulfonate	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

BATTELLE

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-butanesulfonate	.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

BATTELLE

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

BATTELLE

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-butanesulfonate	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 Concentrations

Approved: ☑

Standard Laboratory ID Number: JV69

Description: PFAS - 537.1 ICAL L6

N-ethylperfluoro-octanesulfonamidoacetic acid	.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00100
Perfluoro-1-butanesulfonate	.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

BATTELLE

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

BATTELLE

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-butanesulfonate	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-butanesulfonate	.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

BATTELLE

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

BATTELLE

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-butanesulfonate	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

BATTELLE

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-butanesulfonate	.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

BATTELLE

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

BATTELLE

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-butanesulfonate	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

BATTELLE
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-butanesulfonate	.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

Sample Preparation

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BATTELLE - NORWELL OPERATIONS
SAMPLE PREPARATION RECORDS

Project Title(s)	**Project No.(s)**
Naval Air Station Joint Reserve Base Willow Grove, PA	100117920-WE04

18-0299

WE04 PFAS Analysis

DW

SOP Numbers (see workplan for modifications)

VOASOP No. 5-371

This Batch Contains The Following Samples:	
CQ689PB-FS	J5968-FS
CQ690LCS-FS	J5970-FS
J5964-FS	J5972-FS
J5964MS-FS	J5974-FS
J5964MSD-FS	J5976-FS
J5966-FS	

Laboratory Preparation Records

COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Denise Schumitz	05/10/2018	DMS

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BATTELLE - NORWELL OPERATIONS
SAMPLE IDENTIFICATION PAGE

Project Title(s)	**Project No.(s)**
Naval Air Station Joint Reserve Base Willow Grove, PA	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:

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BATTELLE - NORWELL OPERATIONS
SAMPLE CUSTODY LOG

Project Title(s)
Naval Air Station Joint Reserve Base Willow Grove, PA

Project No.(s)
100117920-WE04

18-0299
WE04 PFAS Analysis
DW

Requested On/By:	05/04/2018 SAS	**Purpose:**	Sample Preparation
Relinquished On/By:	05/04/2018 MDS	**Last Activity:**	Transfer

Accepted On/By:	05/04/2018 SAS	**Returned On/To:**	
Stored In Facility:	Sample Preparation	**Returned To Facility:**	
Stored Until	05/04/2018		
Stored Comment:	NA	**Returned Comment:**	NA

No.	BDO-ID:	Ctrs	*	Condition:	Custody Comment:
1	J5964	1	C	Consumed	NA
2	J5966	1	C	Consumed	NA
3	J5968	1	C	Consumed	NA
4	J5970	1	C	Consumed	NA
5	J5972	1	C	Consumed	NA
6	J5974	1	C	Consumed	NA
7	J5976	1	C	Consumed	NA

Total Samples 7 * "C" = Consumed Container

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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

BATTELLE
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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

BATTELLE
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	

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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.

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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

18-0299
WE04 PFAS Analysis
DW

Purpose:	LC-MS/MS TRANSFER	**Last Activity:**	Prep->Inst
Relinquished On/By:	May 7 2018 5:19PM SAS	**Received On/By:**	May 7 2018 5:19PM 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	CQ689PB-FS(0)	1000	1	Intact	NA
2	CQ690LCS-FS(0)	1000	1	Intact	NA
3	J5964-FS(0)	1000	1	Intact	NA
4	J5964MS-FS(0)	1000	1	Intact	NA
5	J5964MSD-FS(0)	1000	1	Intact	NA
6	J5966-FS(0)	1000	1	Intact	NA
7	J5968-FS(0)	1000	1	Intact	NA
8	J5970-FS(0)	1000	1	Intact	NA
9	J5972-FS(0)	1000	1	Intact	NA
10	J5974-FS(0)	1000	1	Intact	NA
11	J5976-FS(0)	1000	1	Intact	NA

Total Extracts: 11

BATTELLE
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

18-0299
WE04 PFAS Analysis
DW

Purpose:	LC-MS/MS TRANSFER	**Last Activity:**	Prep->Inst
Relinquished On/By:	May 13 2018 9:34AM DMS	**Received On/By:**	May 13 2018 9:34AM DMS
Relinquished From:	Sample Preparation: NA	**Received Location:**	LC Laboratory: NA
Relinquish Comment:	NA	**Received Comment:**	Re-aliquot of original extracts.

No.	BDO-ID:	PIV:	DF:	Condition:	Custody Comment:
1	CQ689PB-FS(0)	1000	1	Intact	NA
2	CQ690LCS-FS(0)	1000	1	Intact	NA
3	J5964-FS(0)	1000	1	Intact	NA
4	J5964MS-FS(0)	1000	1	Intact	NA
5	J5964MSD-FS(0)	1000	1	Intact	NA
6	J5966-FS(0)	1000	1	Intact	NA
7	J5968-FS(0)	1000	1	Intact	NA
8	J5970-FS(0)	1000	1	Intact	NA
9	J5972-FS(0)	1000	1	Intact	NA
10	J5974-FS(0)	1000	1	Intact	NA
11	J5976-FS(0)	1000	1	Intact	NA

Total Extracts: 11

BATTELLE
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

18-0299

WE04 PFAS Analysis

DW

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CQ689PB-FS	0	--	5/4/2018 11:16:00 AM	NA		NA	NA	1.000	1.000	05/04/18 SAS
CQ690LCS-FS	0	--	5/4/2018 11:16:00 AM	NA		NA	NA	1.000	1.000	05/04/18 SAS
J5964-FS	0	--	5/4/2018 11:16:00 AM	NA		NA	NA	1.000	1.000	05/04/18 SAS
J5964MS-FS	0	--	5/4/2018 11:16:00 AM	NA		NA	NA	1.000	1.000	05/04/18 SAS
J5964MSD-FS	0	--	5/4/2018 11:16:00 AM	NA		NA	NA	1.000	1.000	05/04/18 SAS
J5966-FS	0	--	5/4/2018 11:16:00 AM	NA		NA	NA	1.000	1.000	05/04/18 SAS
J5968-FS	0	--	5/4/2018 11:16:00 AM	NA		NA	NA	1.000	1.000	05/04/18 SAS
J5970-FS	0	--	5/4/2018 11:16:00 AM	NA		NA	NA	1.000	1.000	05/04/18 SAS
J5972-FS	0	--	5/4/2018 11:16:00 AM	NA		NA	NA	1.000	1.000	05/04/18 SAS
J5974-FS	0	--	5/4/2018 11:16:00 AM	NA		NA	NA	1.000	1.000	05/04/18 SAS
J5976-FS	0	--	5/4/2018 11:16:00 AM	NA		NA	NA	1.000	1.000	05/04/18 SAS

Total Oil = [Sample Volume (uL) / Aliquot Volume (uL)] * [Aliquot Weight (mg)]
Dilution Factor = [Sample Volume (uL) / Aliqot Volume (uL))] * Prior Dilution Factor
* - "C" = Extract is Consumed

BATTELLE
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BATTELLE - NORWELL OPERATIONS
SAMPLE SPECIFIC COMMENTS

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:	Comment:	Date/Initials:
CQ689PB-FS	Sample extraction started at 11:16am for all samples.	05/04/18 SAS
CQ689PB-FS	Sample extraction ended at 11:40am	05/04/18 SAS
CQ690LCS-FS	Sample extraction ended at 11:41am	05/04/18 SAS
J5964-FS	Sample extraction ended at 11:44am	05/04/18 SAS
J5964MS-FS	Sample extraction ended at 11:45am	05/04/18 SAS
J5964MSD-FS	Sample extraction ended at 11:45am	05/04/18 SAS
J5966-FS	Sample extraction ended at 11:47am	05/04/18 SAS
J5968-FS	Sample extraction ended at 11:52am	05/04/18 SAS
J5970-FS	Sample extraction ended at 11:52am	05/04/18 SAS
J5972-FS	Sample contained particulates floating	05/04/18 SAS
J5972-FS	Sample extraction ended at 12:01am	05/04/18 SAS
J5974-FS	Sample extraction ended at 11:47am	05/04/18 SAS
J5976-FS	Sample extraction ended at 11:51am	05/04/18 SAS

BATTELLE
It can be done

BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title(s)	**Project No.(s)**
Naval Air Station Joint Reserve Base Willow Grove, PA	100117920-WE04

18-0299

WE04 PFAS Analysis

DW

Entered By:	**On:**

Task Leader Approval:	**On:**
SupervisorApproval:	**On:**
PM Approval:	**On:**

Analytical Calibrations

BATTELLE

Sequence Report

Created with Analyst Reporter
Printed: 15/05/2018 10:26:09 AM

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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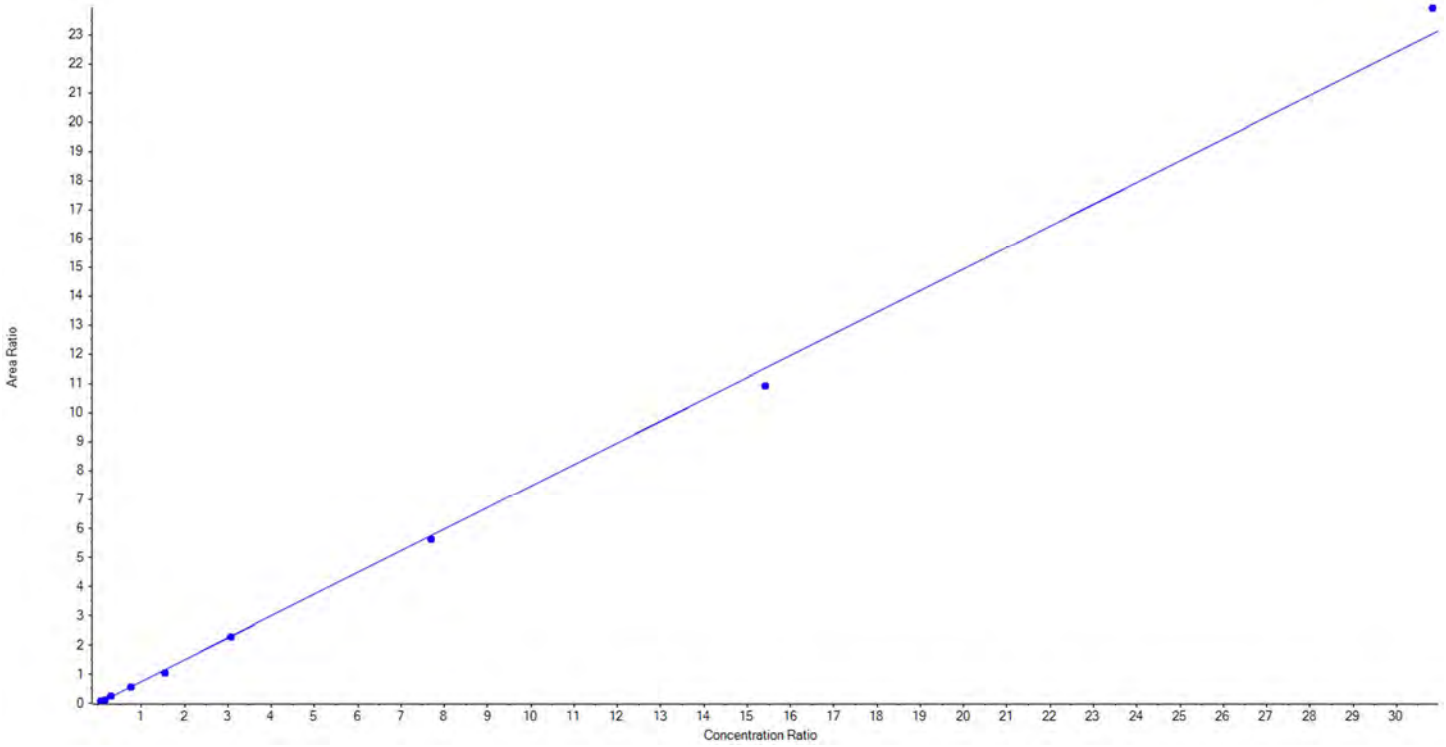
Calibration Summary Report

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 = 0.74710 x + -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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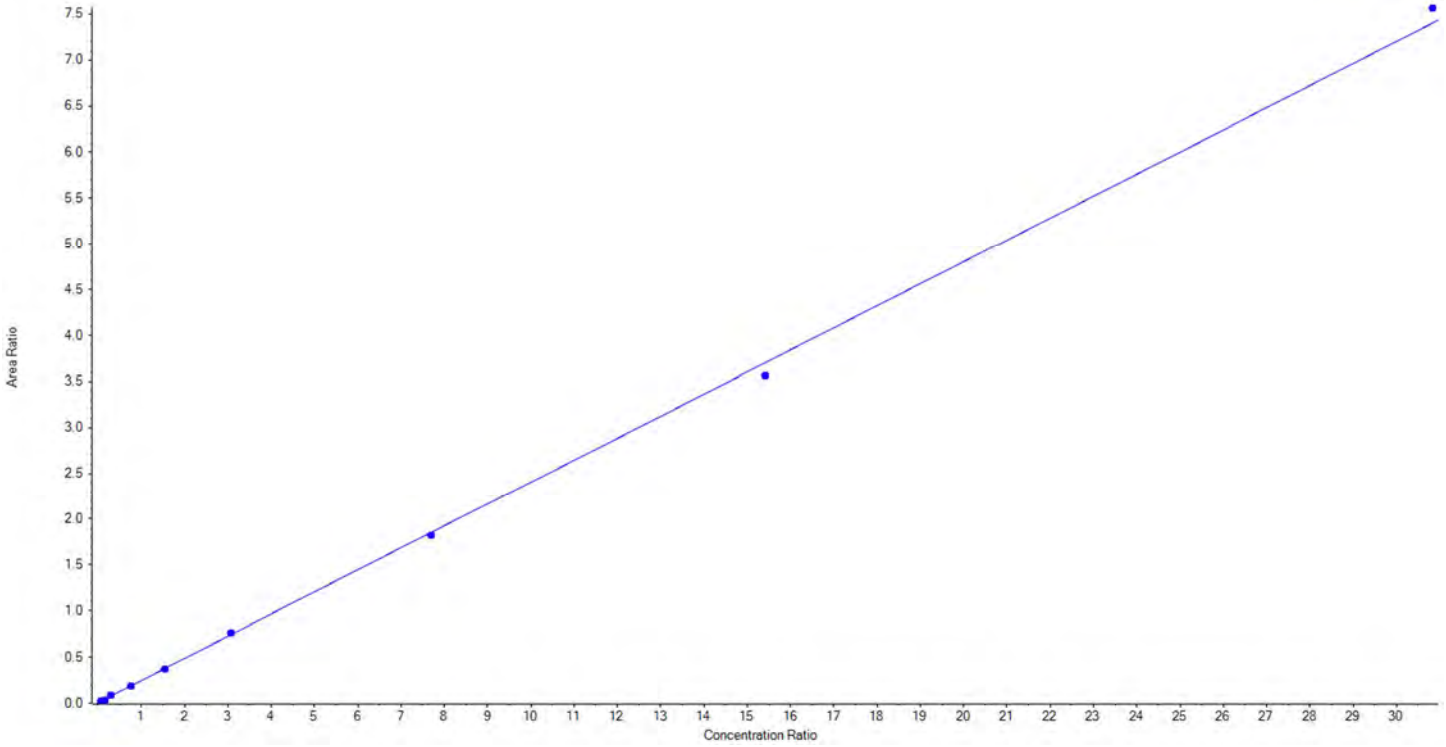
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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 = 0.23985 x + 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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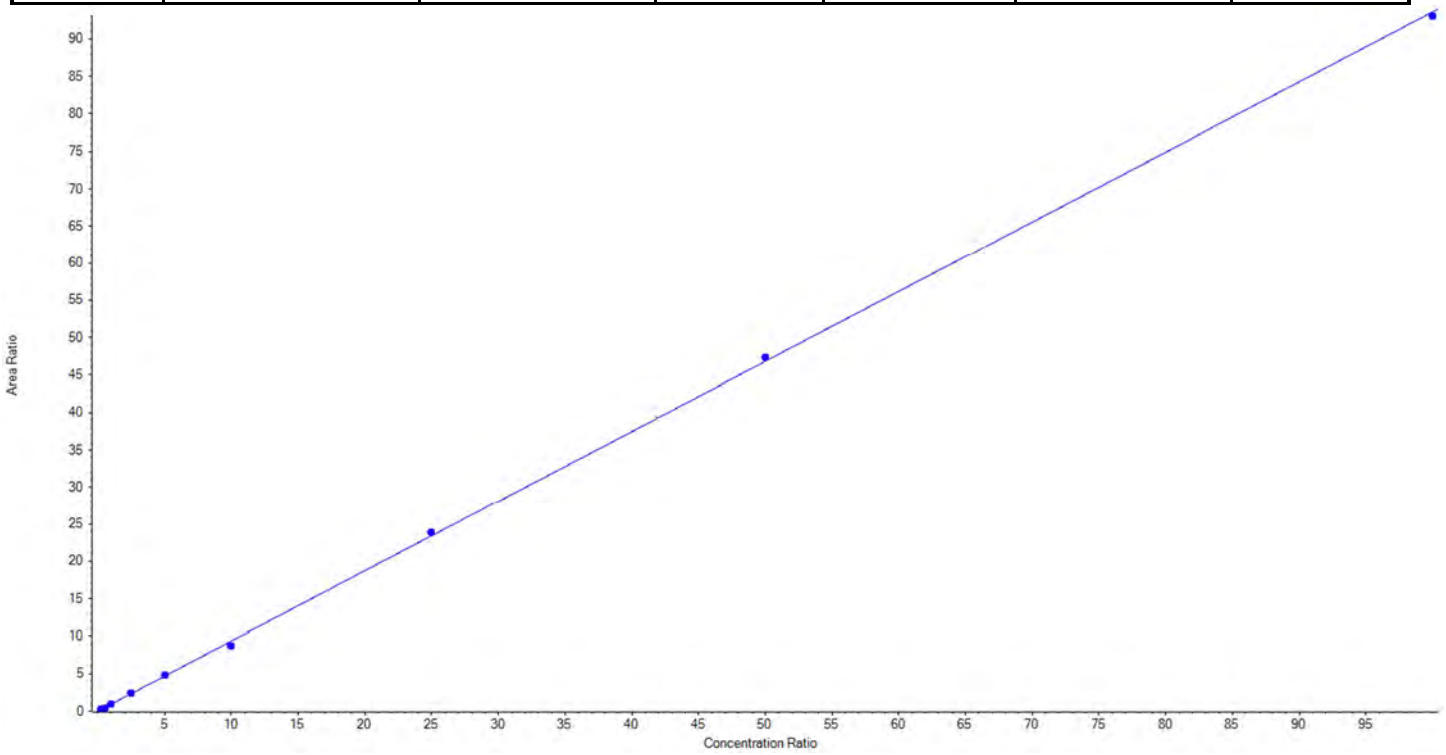
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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 = 0.93620 x + 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



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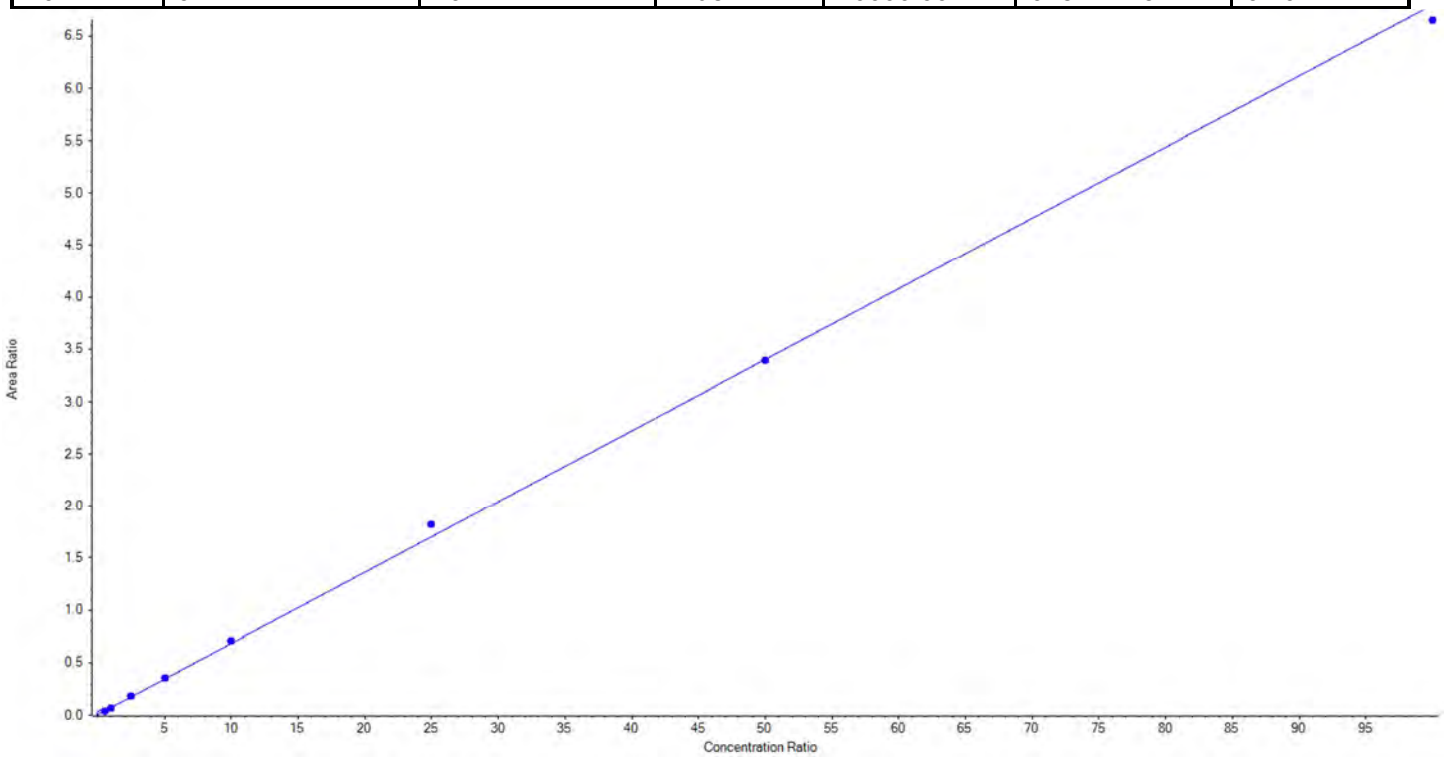
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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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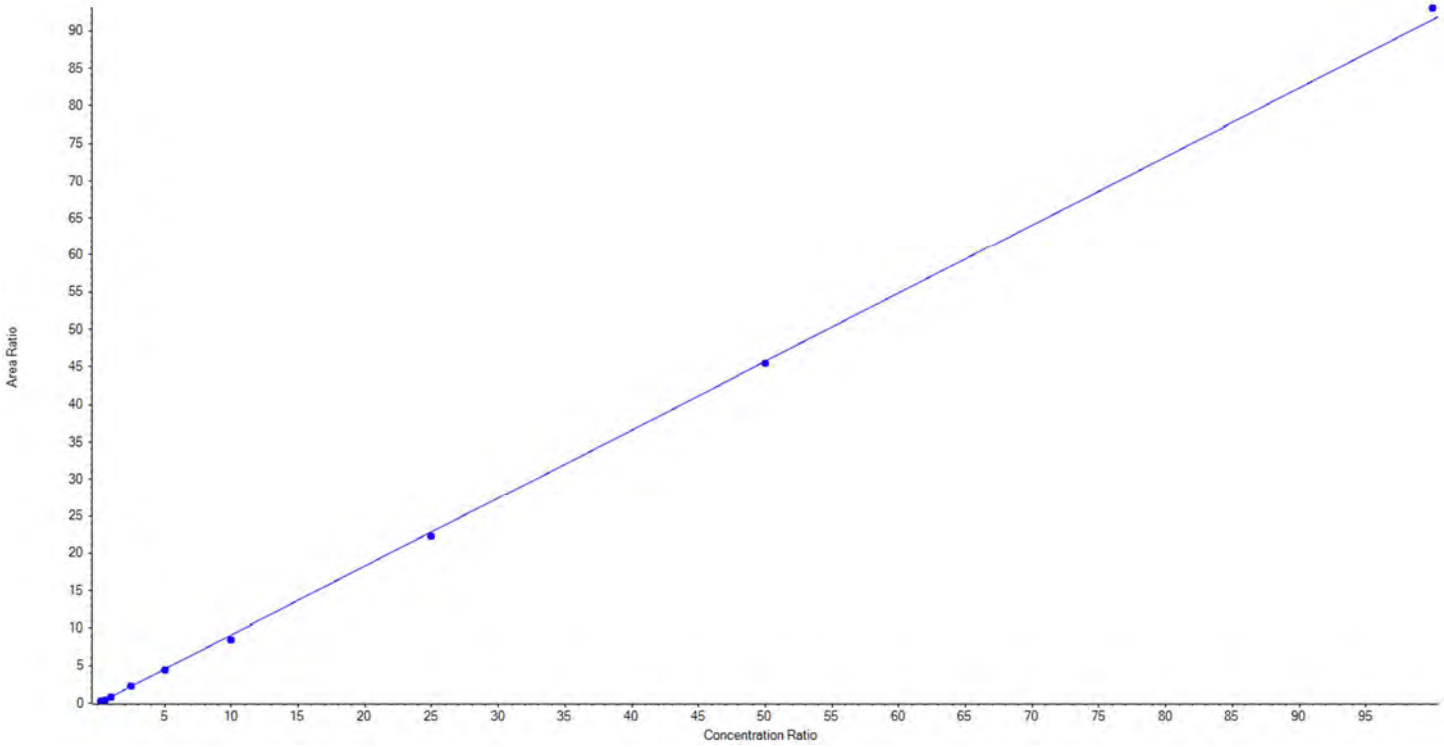
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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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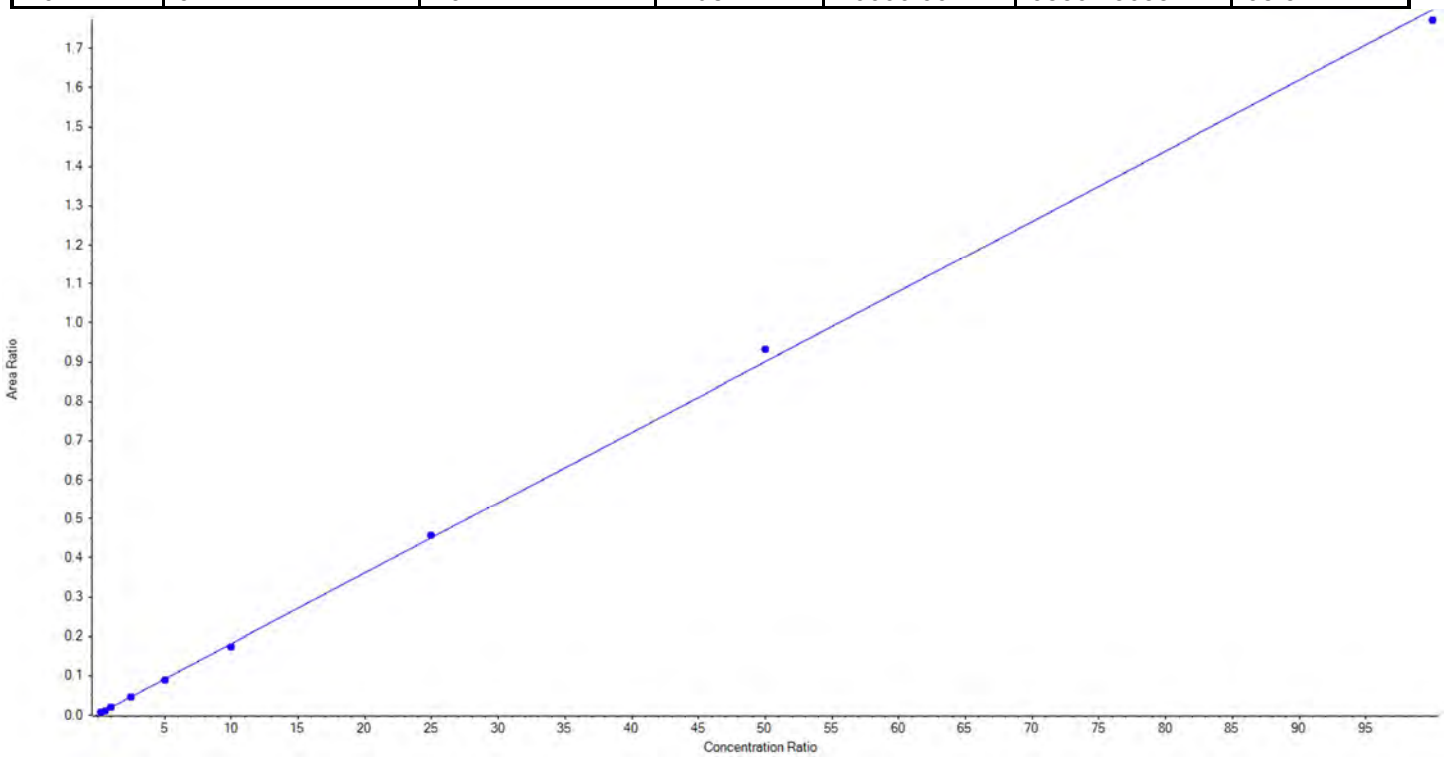
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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



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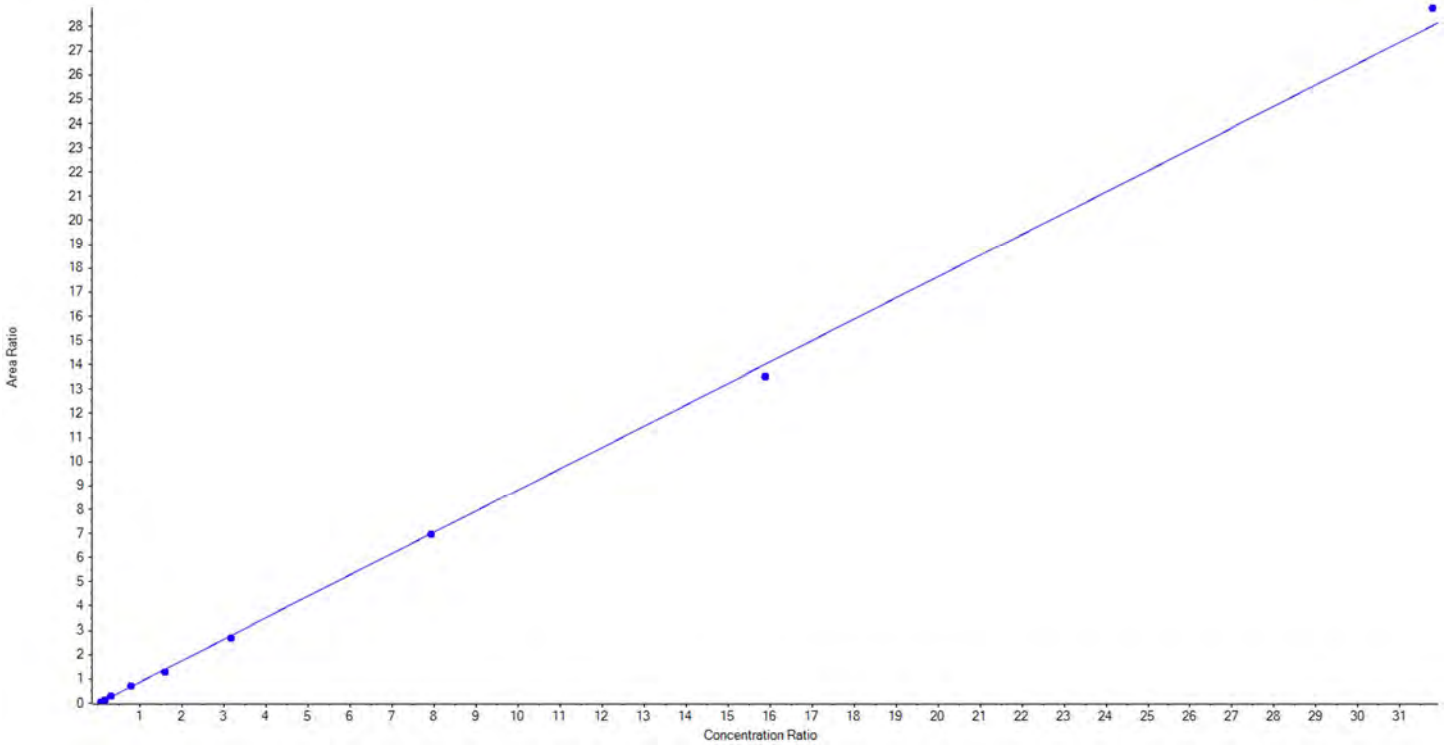
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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



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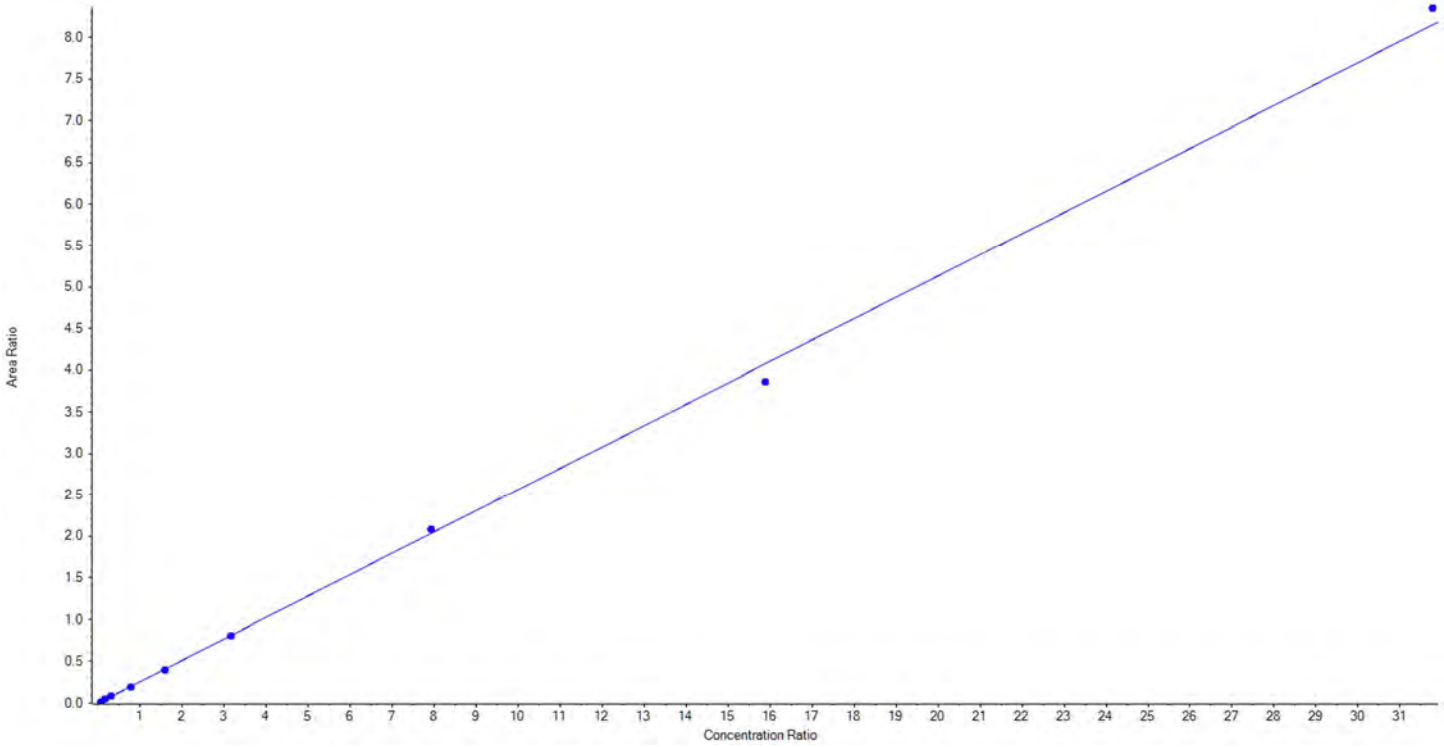
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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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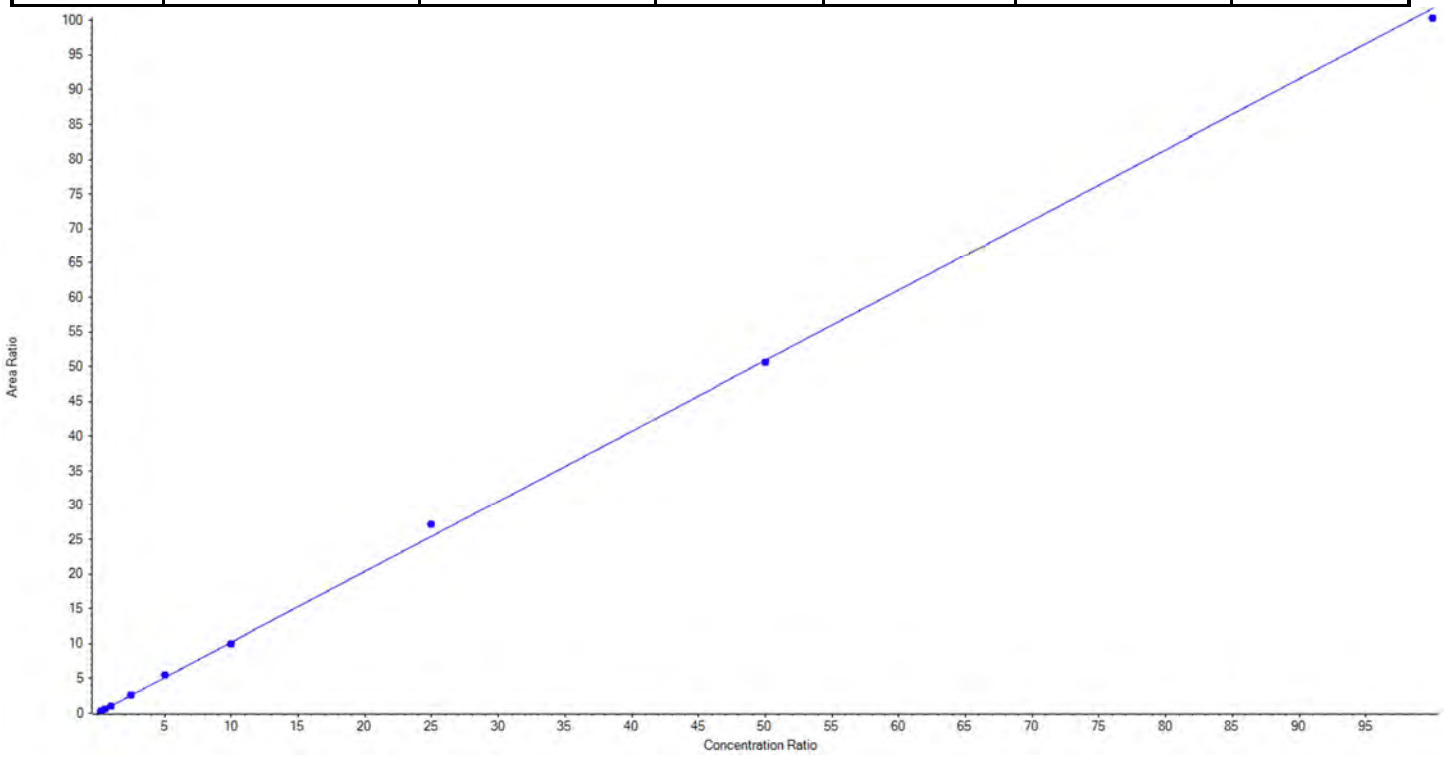
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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 = 1.01678 x + 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



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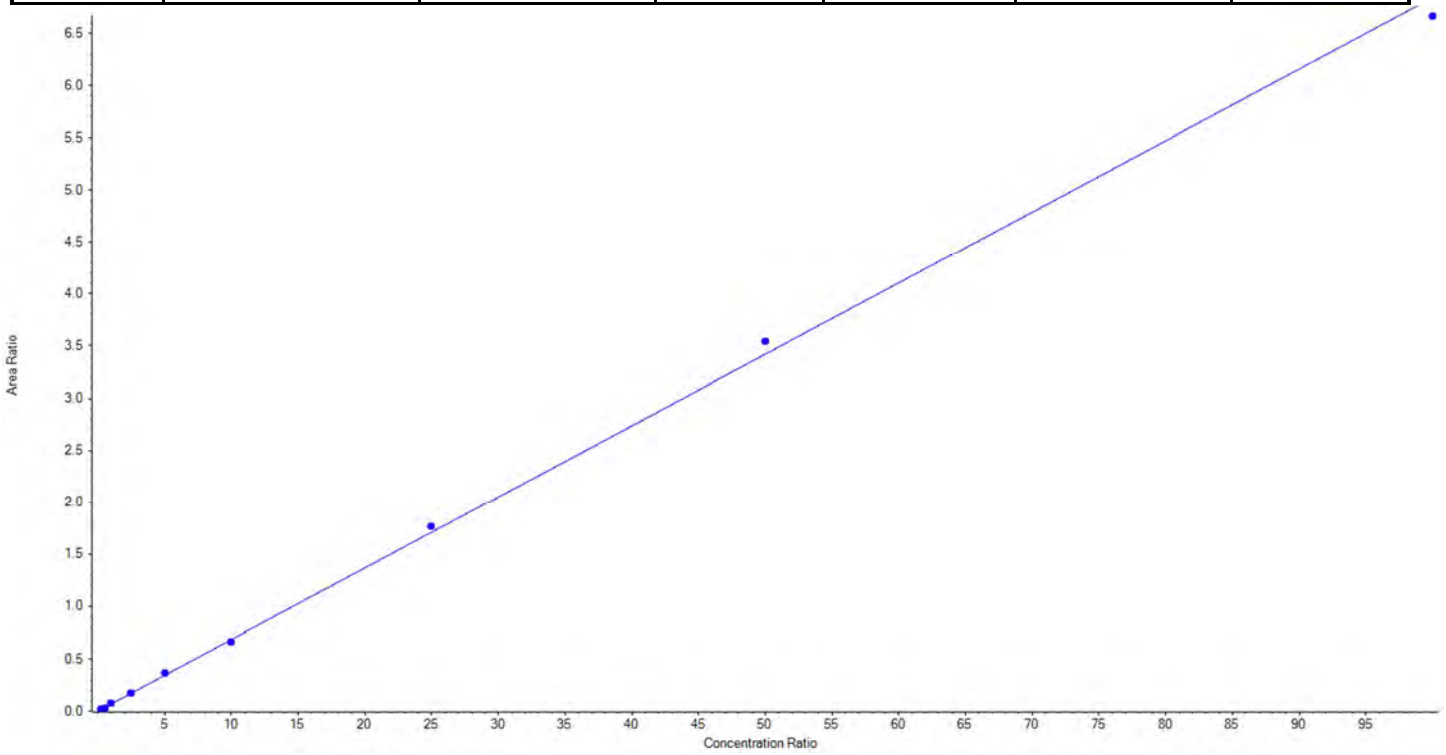
Calibration Summary Report

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 = 0.06839 x + 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



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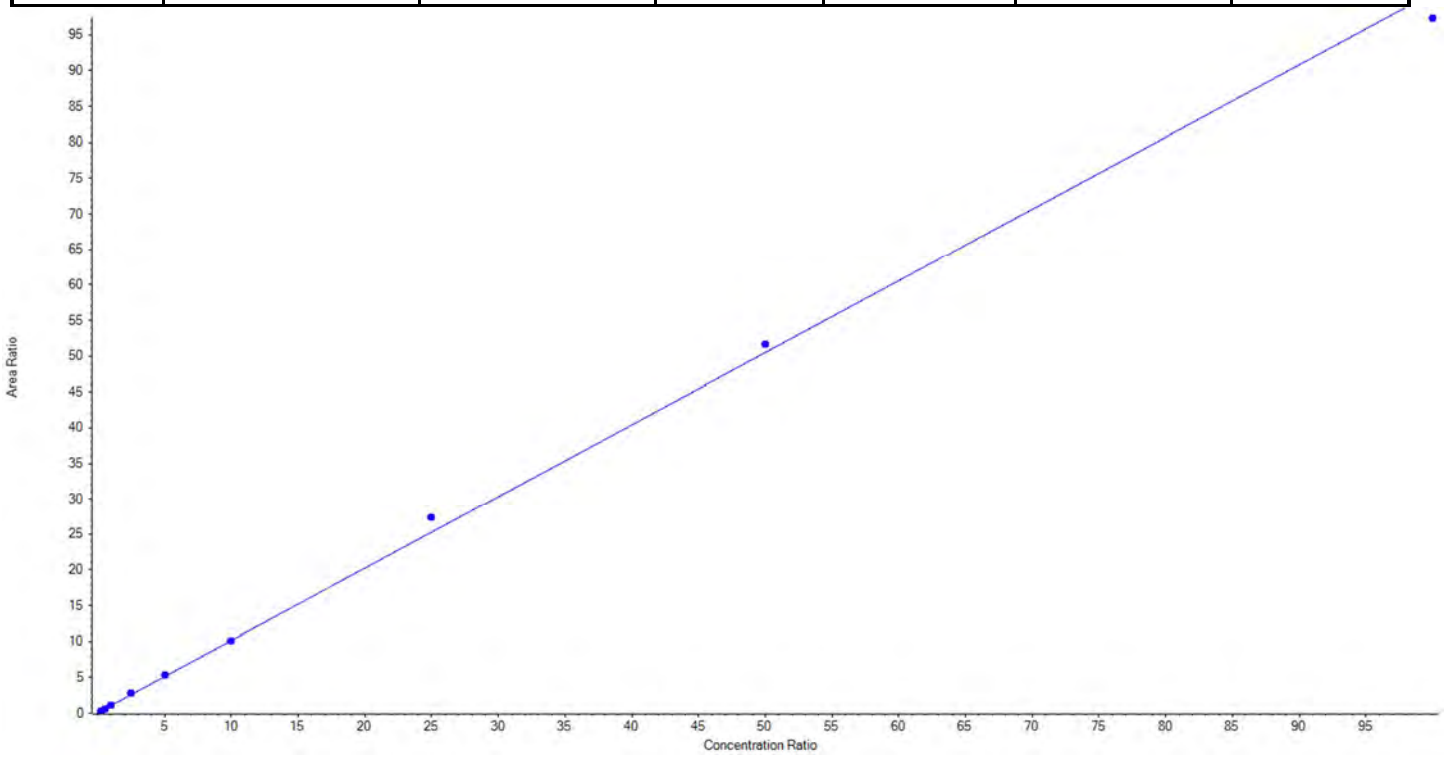
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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 = 1.00813 x + 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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Calibration Summary Report

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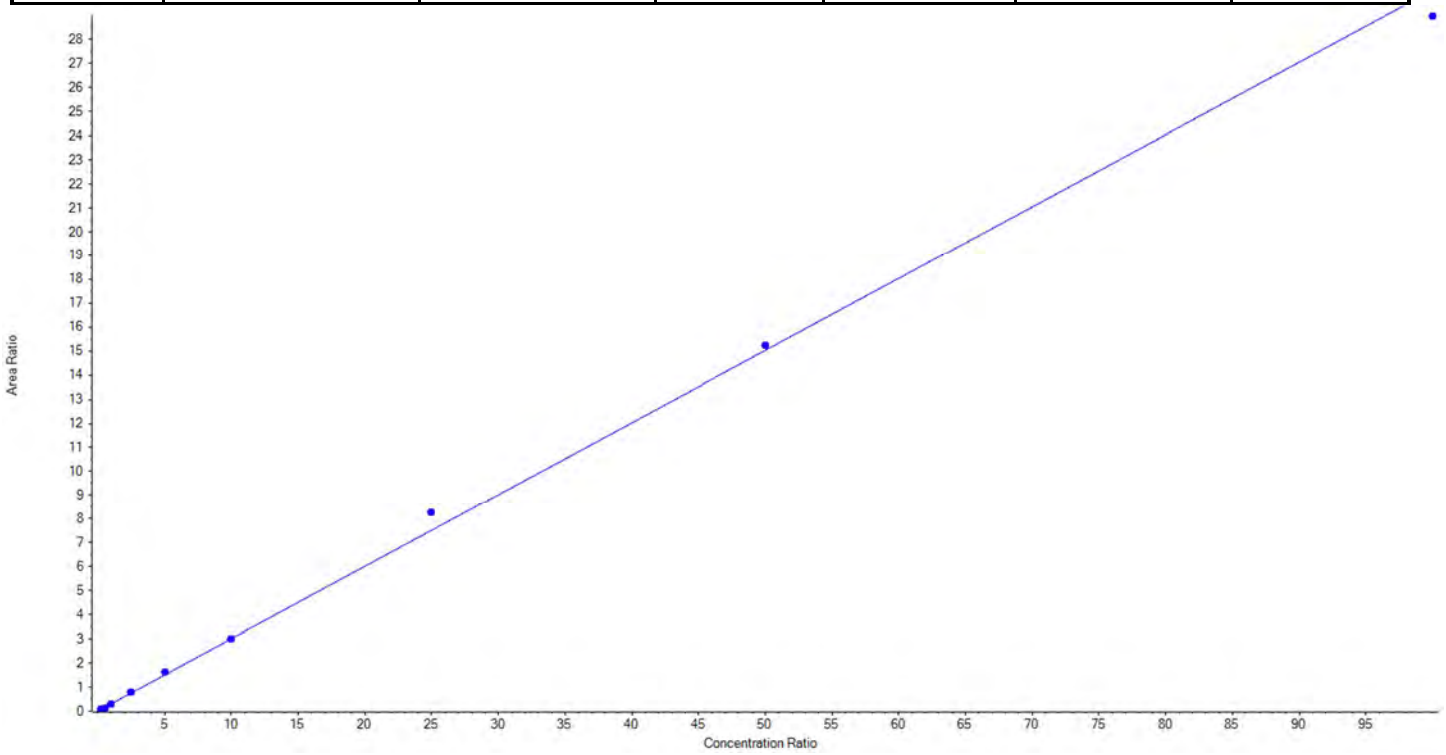
Printed: 21/05/2018 2:00:06 PM

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 = 0.30048 x + 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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Calibration Summary Report

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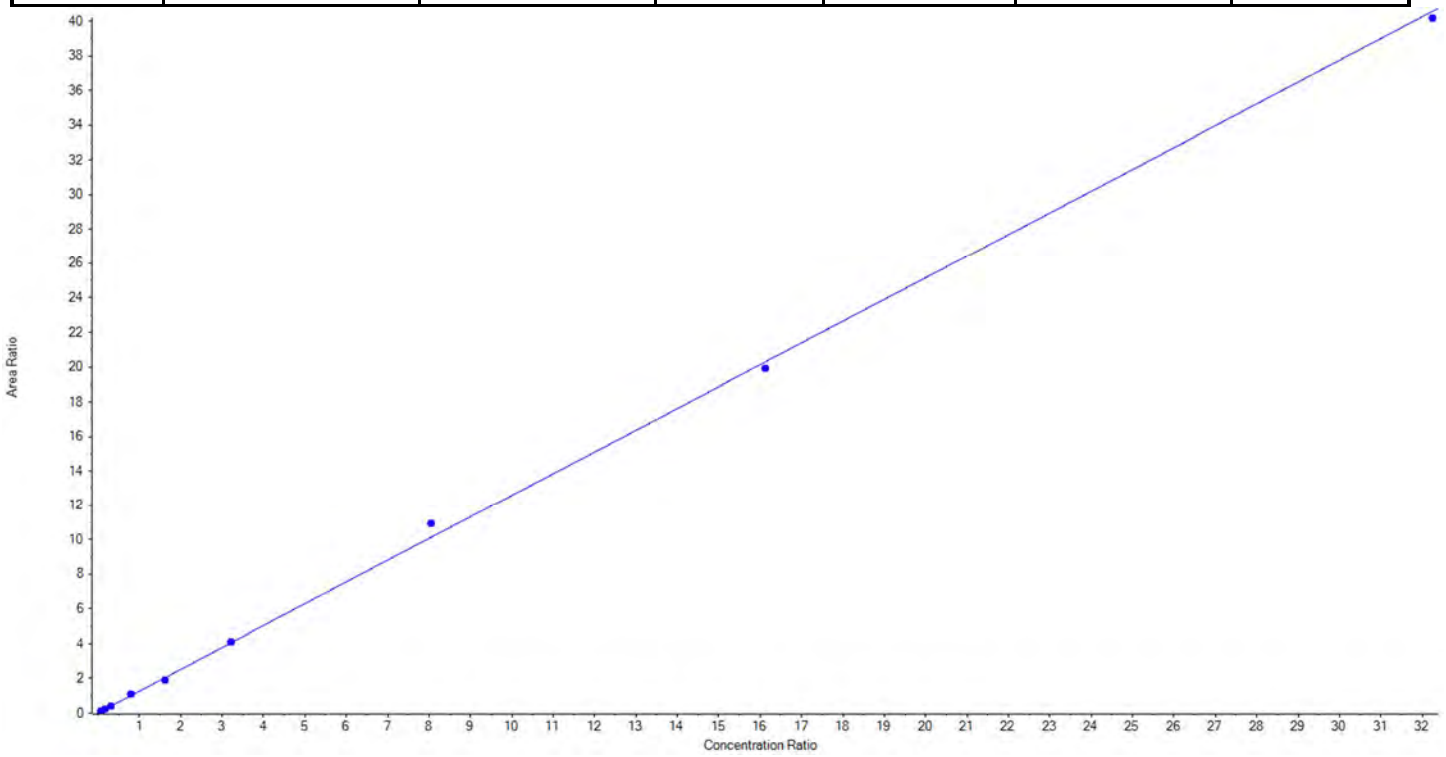
Analyte Name	PFOS_1	**Data File**	18-0299_A.wiff
MRM Transition	499.0 / 80.0	**Result Table**	18-0299_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	**Acquisition Method**	5-0371.dam

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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Calibration Summary Report

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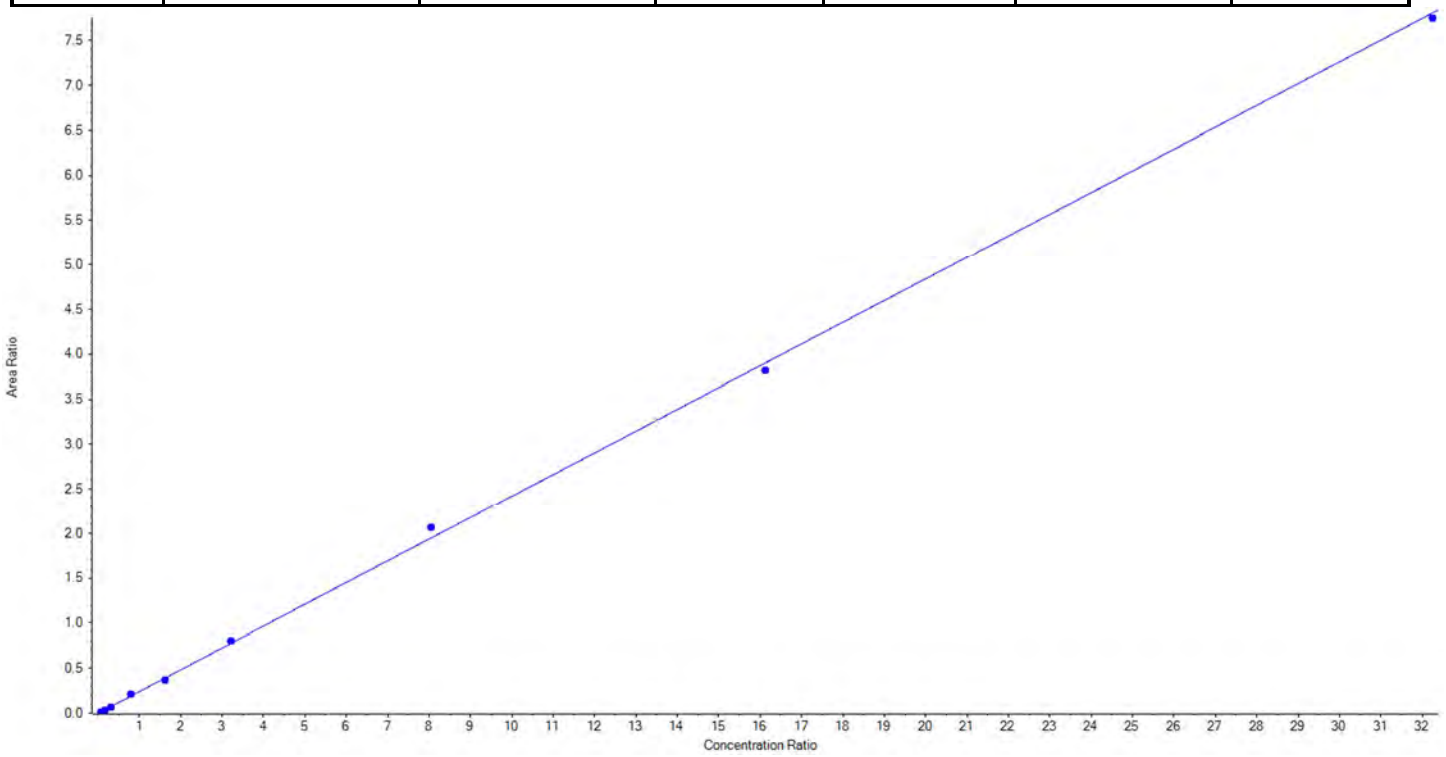
Analyte Name	PFOS_2	**Data File**	18-0299_A.wiff
MRM Transition	499.0 / 99.0	**Result Table**	18-0299_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.24213 x + -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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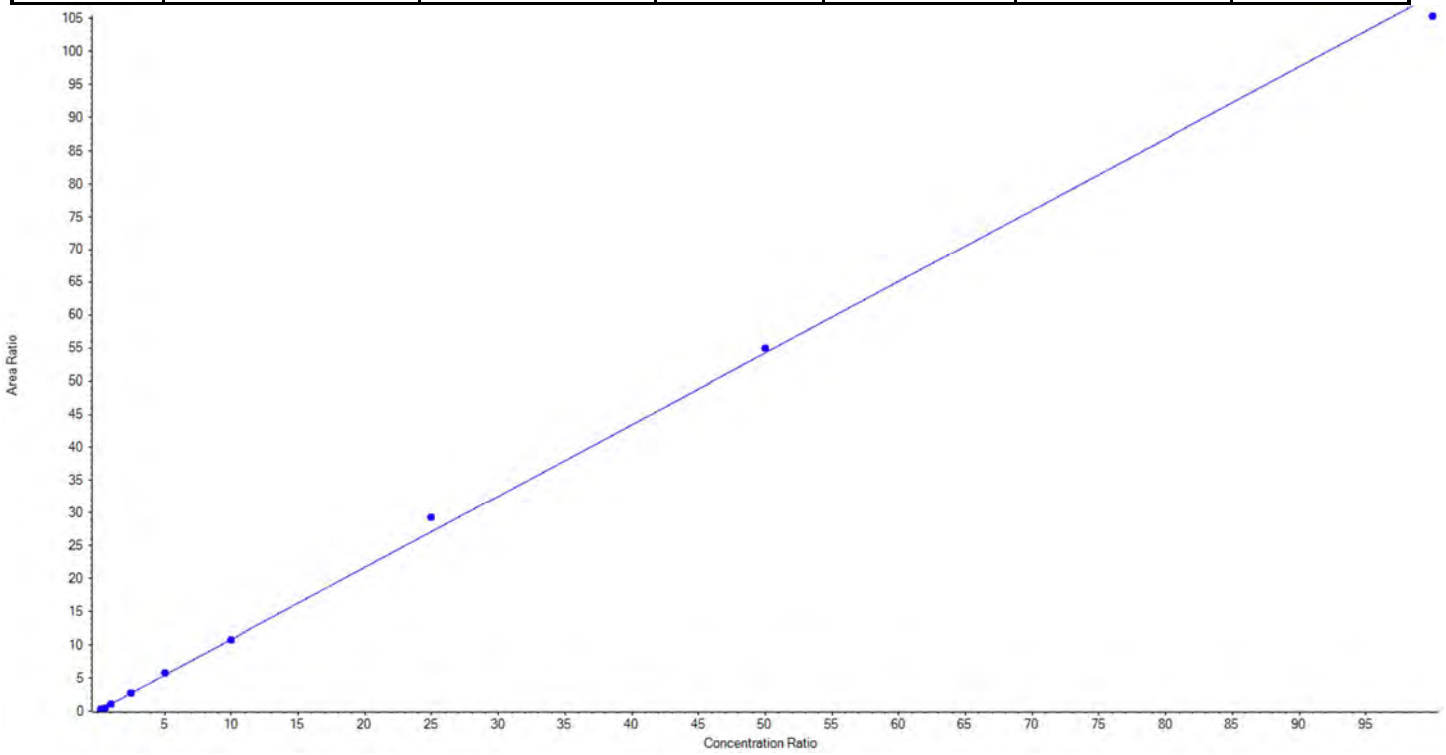
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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 = 1.08508 x + 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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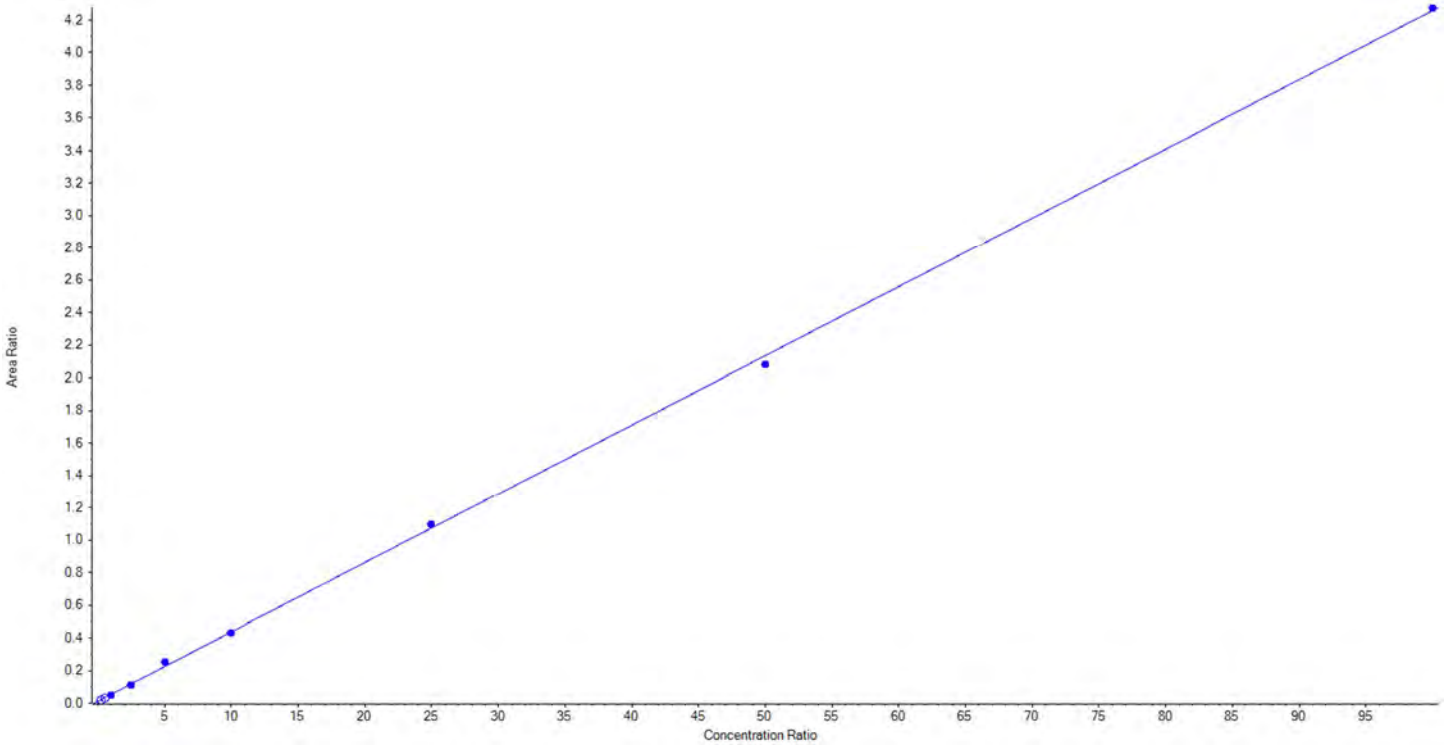
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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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Calibration Summary Report

Created with Analyst Reporter
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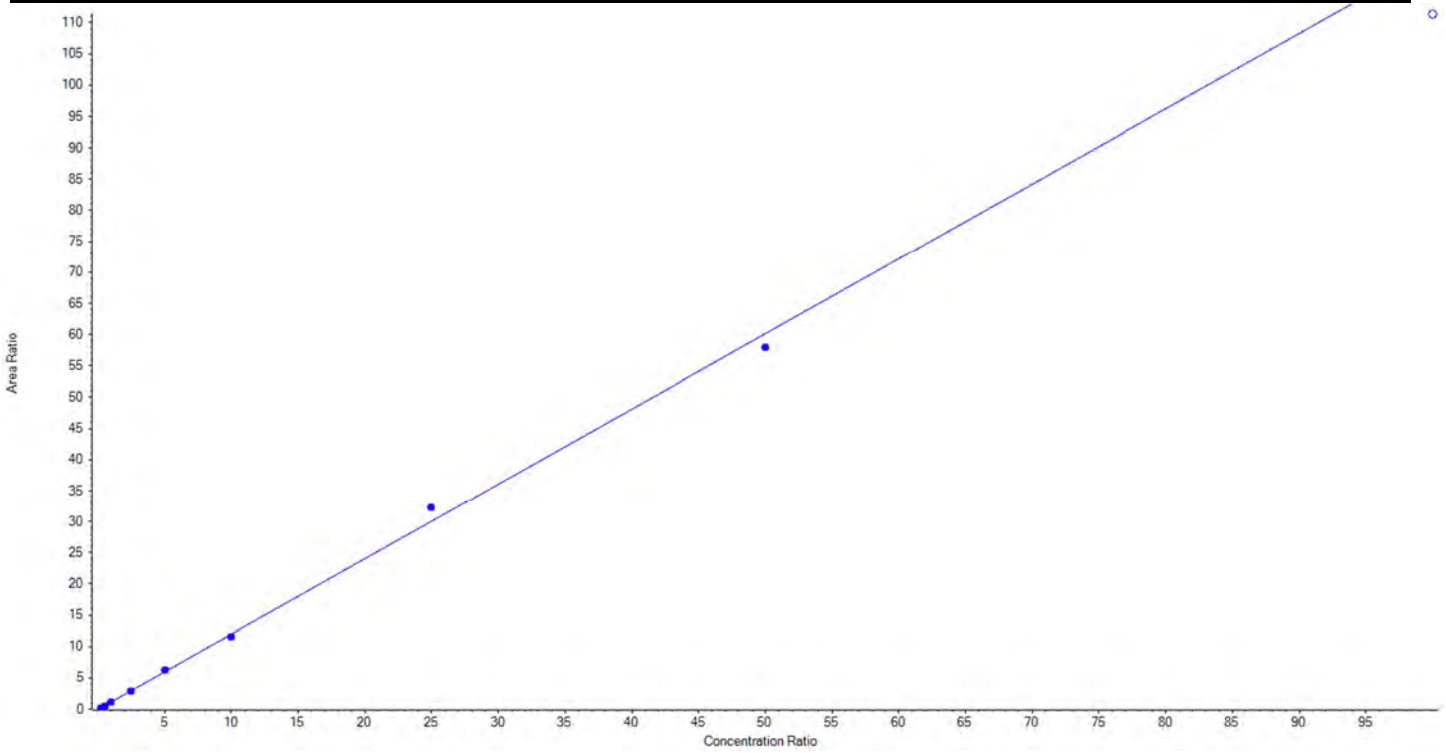
Analyte Name	PFUnA_1	**Data File**	18-0299_A.wiff
MRM Transition	563.0 / 519.0	**Result Table**	18-0299_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.20341 x + -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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Calibration Summary Report

Created with Analyst Reporter
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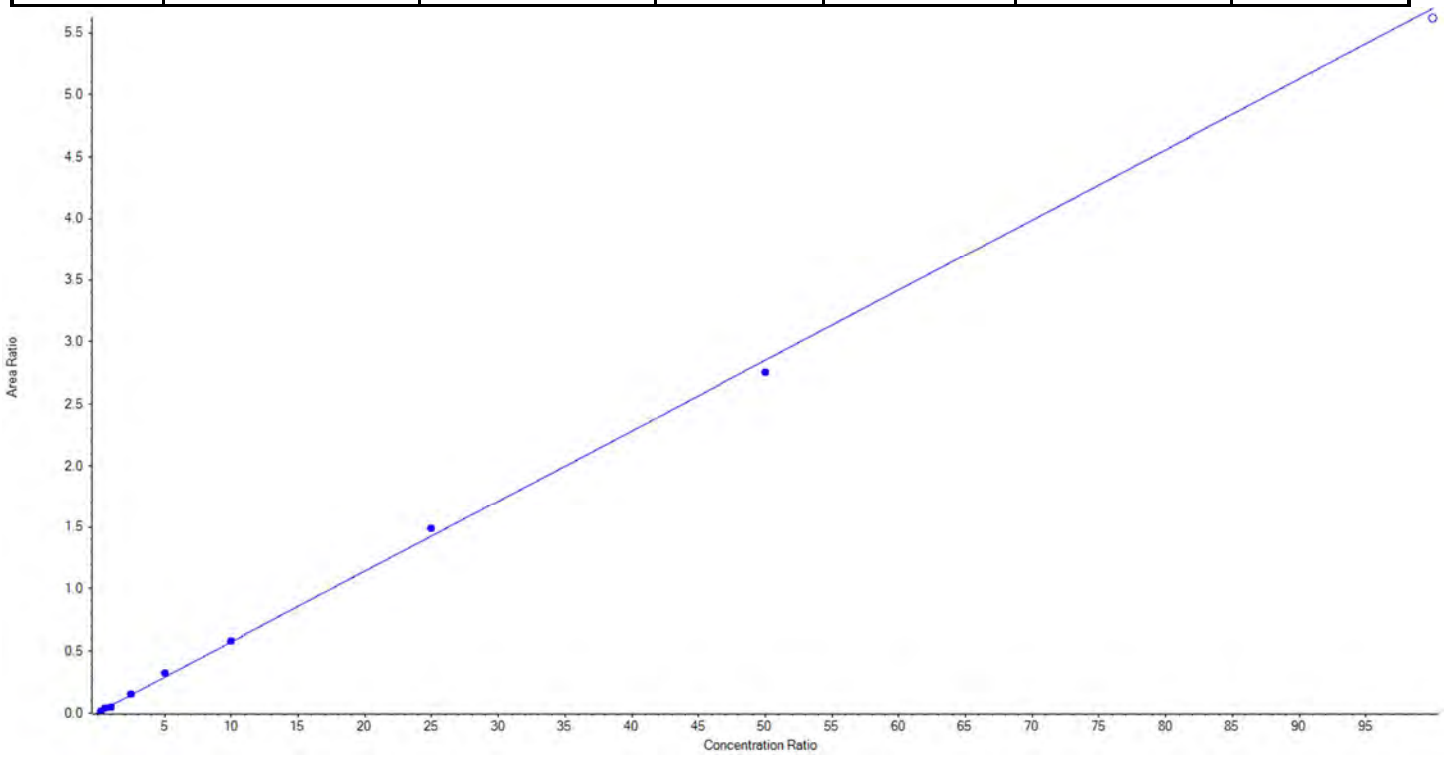
Analyte Name	PFUnA_2	**Data File**	18-0299_A.wiff
MRM Transition	563.0 / 269.0	**Result Table**	18-0299_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	**Acquisition Method**	5-0371.dam

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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Calibration Summary Report

Created with Analyst Reporter
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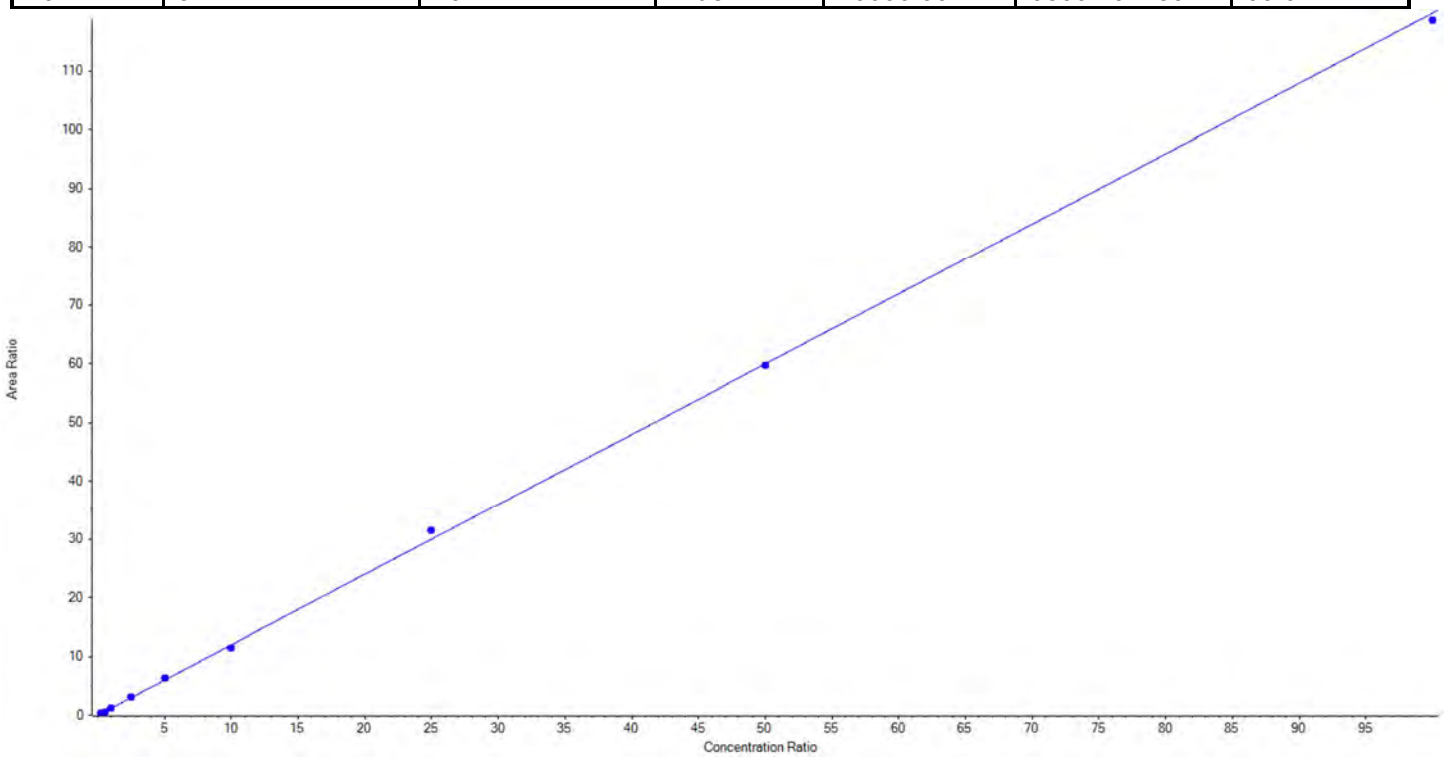
Analyte Name	PFDoA_1	**Data File**	18-0299_A.wiff
MRM Transition	613.0 / 569.0	**Result Table**	18-0299_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.19917 x + -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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Calibration Summary Report

Created with Analyst Reporter
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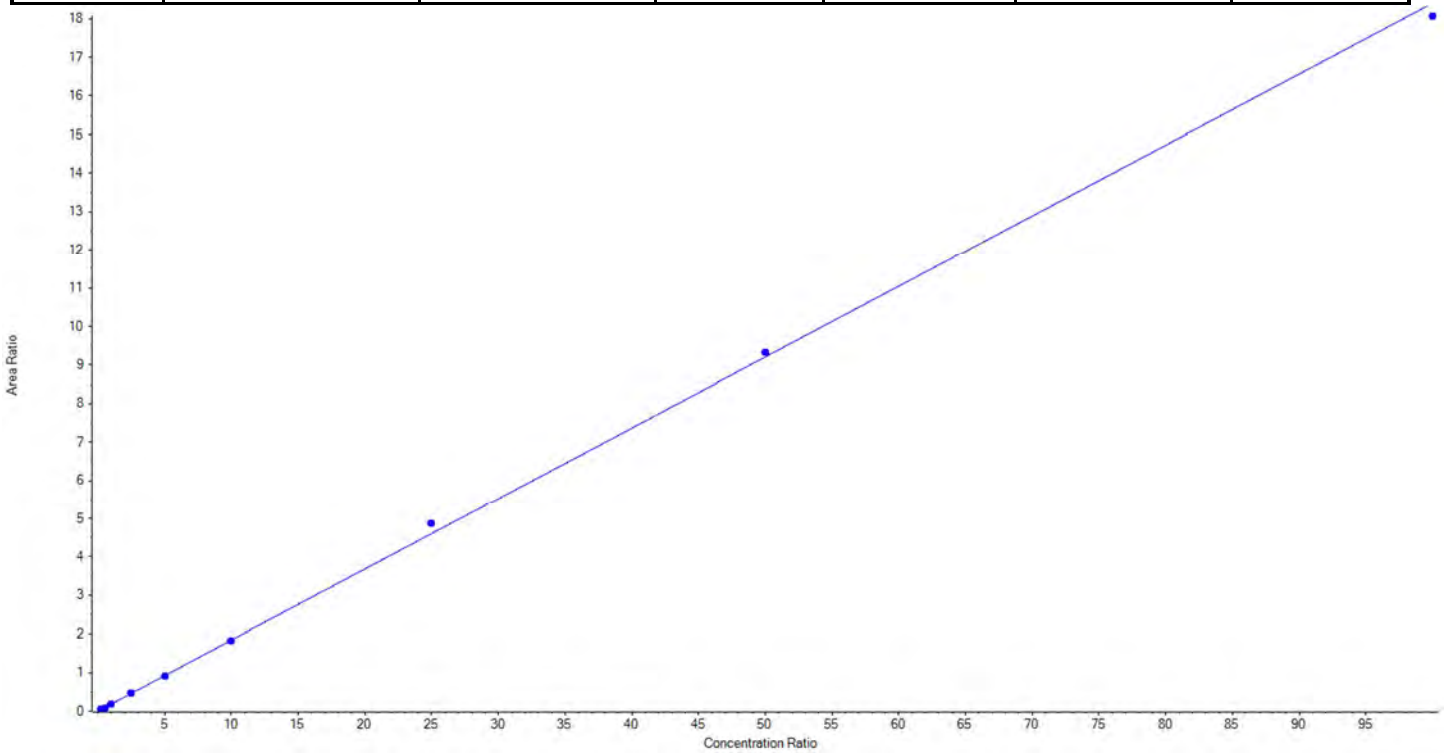
Analyte Name	PFDoA_2	**Data File**	18-0299_A.wiff
MRM Transition	613.0 / 319.0	**Result Table**	18-0299_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.18405 x + 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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Calibration Summary Report

Created with Analyst Reporter
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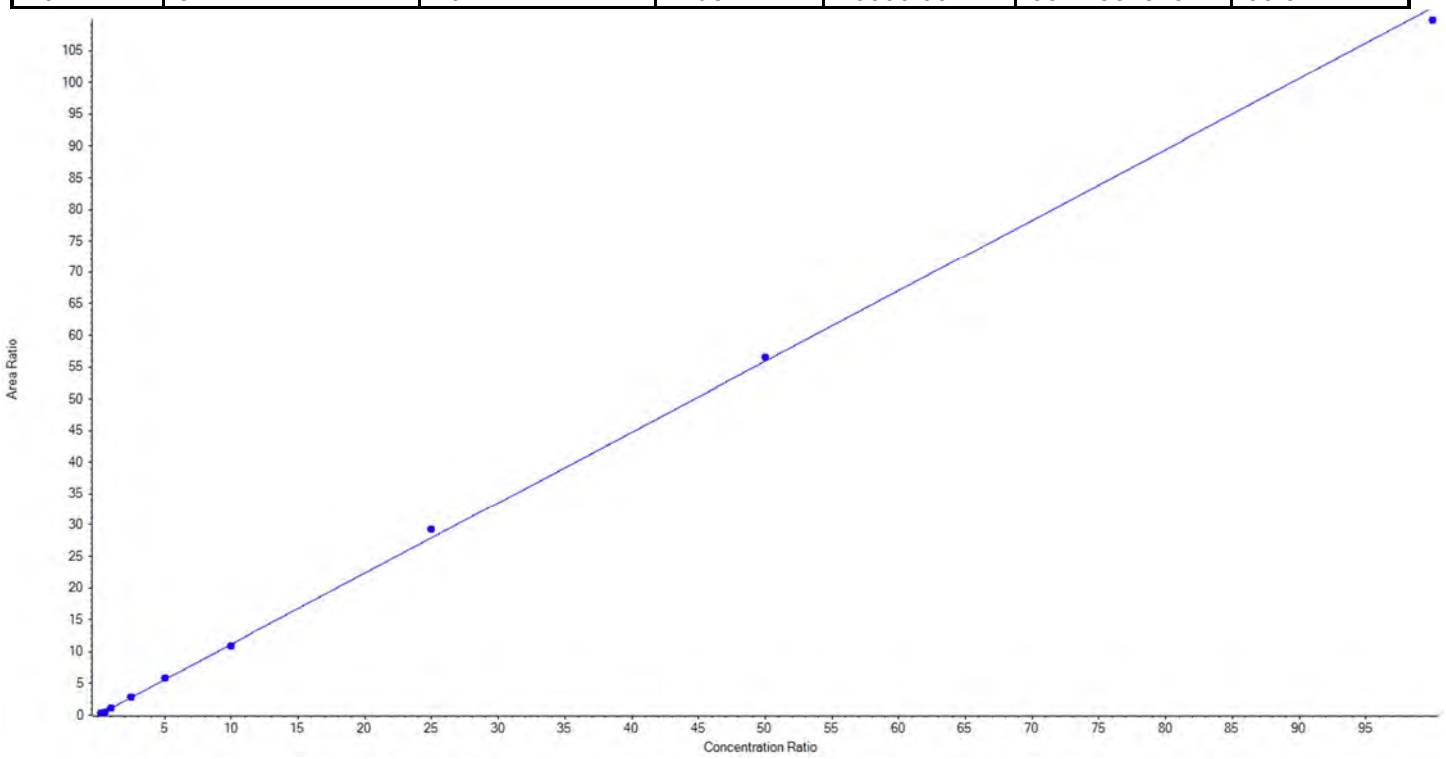
Analyte Name	PFTrDA_1	**Data File**	18-0299_A.wiff
MRM Transition	663.0 / 619.0	**Result Table**	18-0299_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	**Acquisition Method**	5-0371.dam

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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Calibration Summary Report

Created with Analyst Reporter
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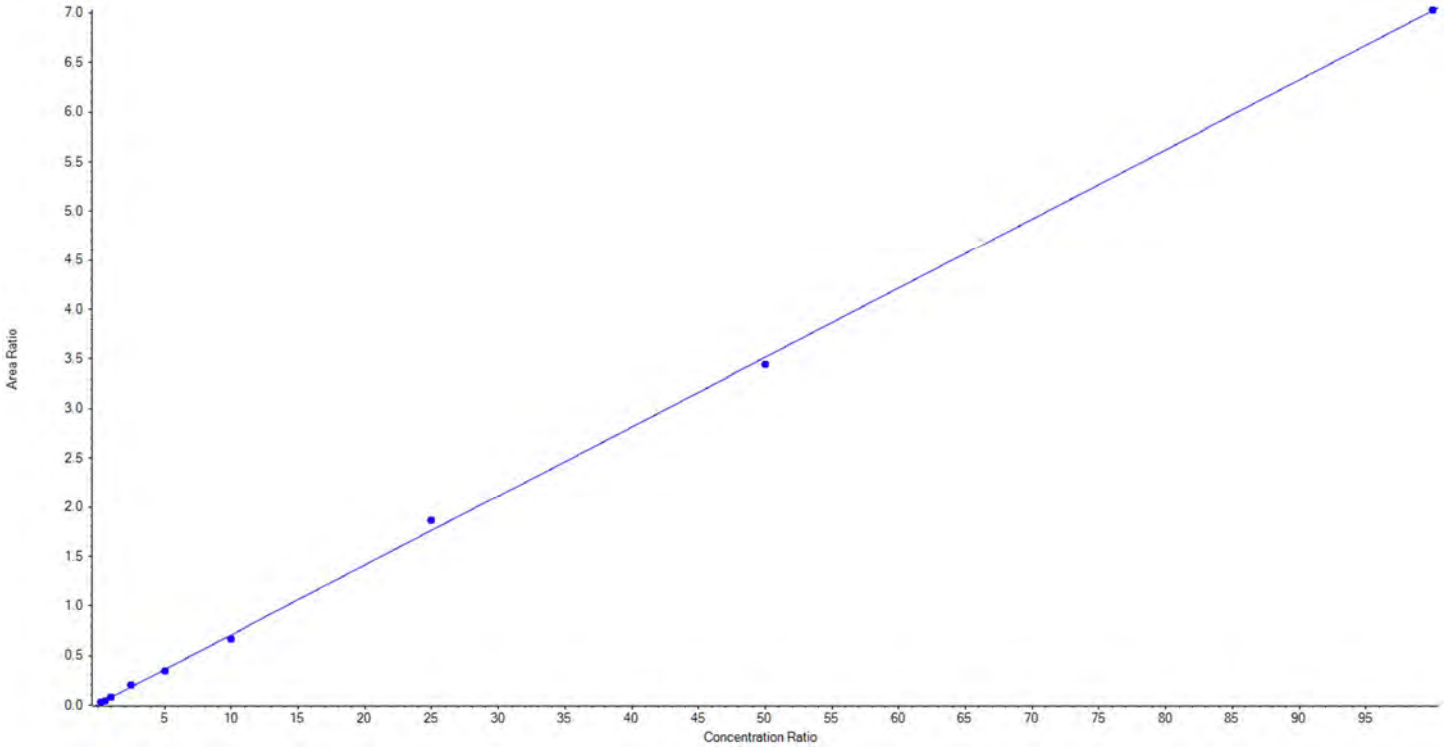
Analyte Name	PFTrDA_2	**Data File**	18-0299_A.wiff
MRM Transition	663.0 / 169.0	**Result Table**	18-0299_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.07015 x + 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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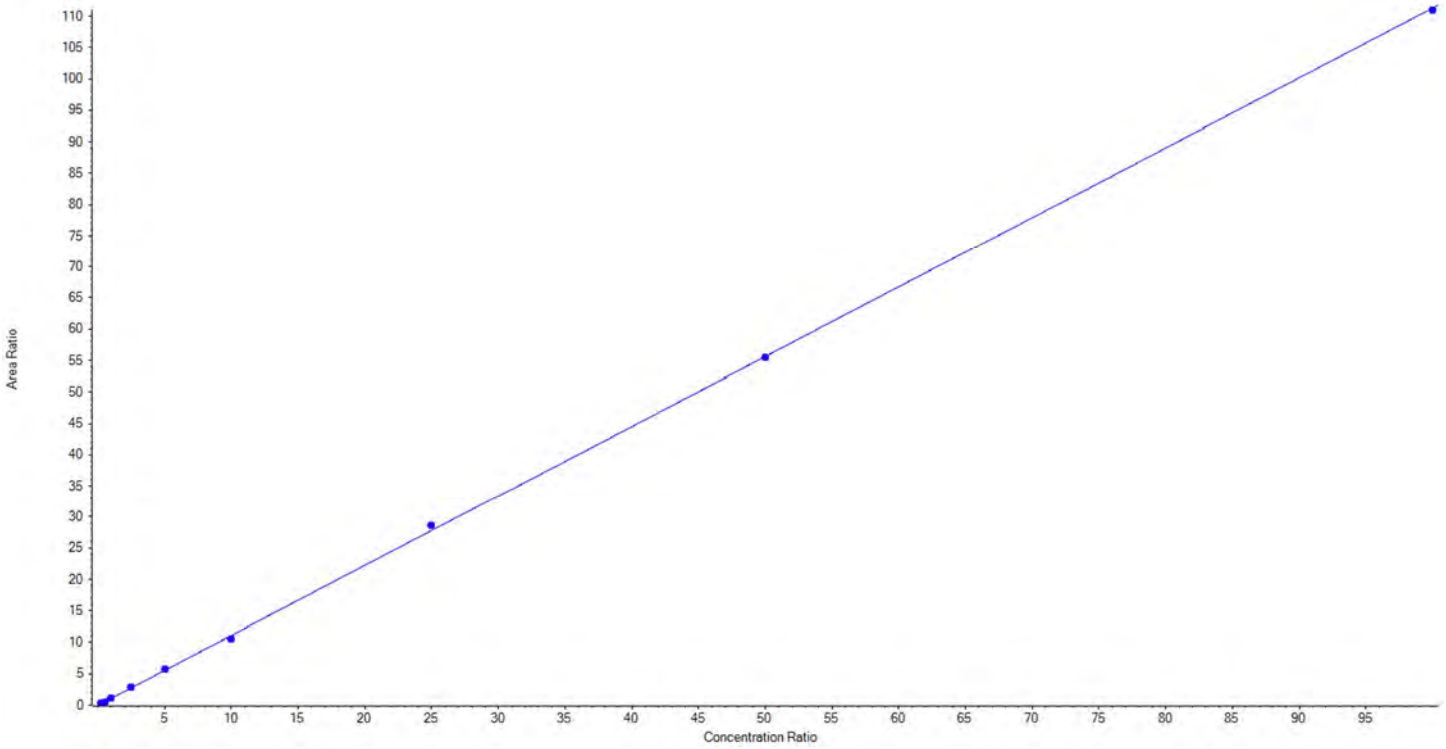
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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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Calibration Summary Report

Created with Analyst Reporter
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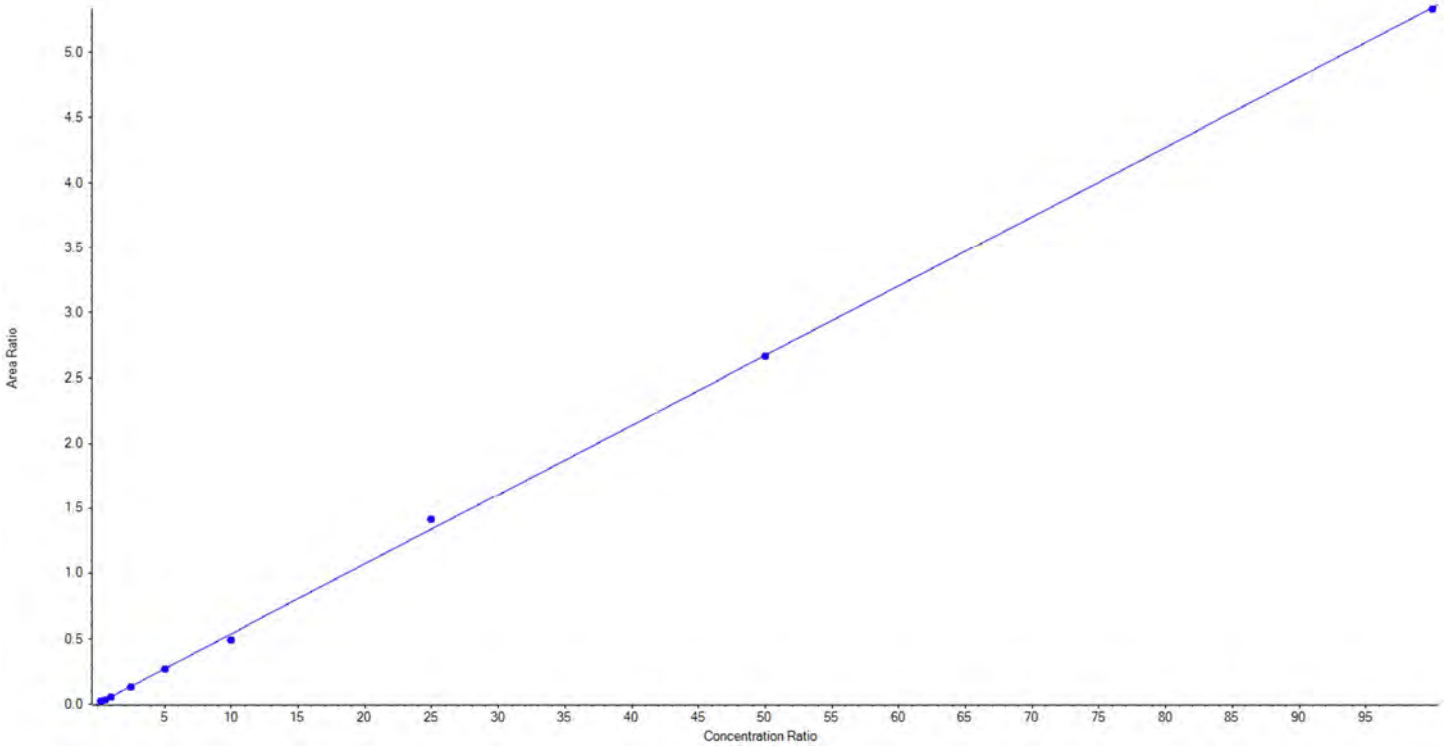
Analyte Name	PFTeDA_2	**Data File**	18-0299_A.wiff
MRM Transition	713.0 / 169.0	**Result Table**	18-0299_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	**Acquisition Method**	5-0371.dam

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



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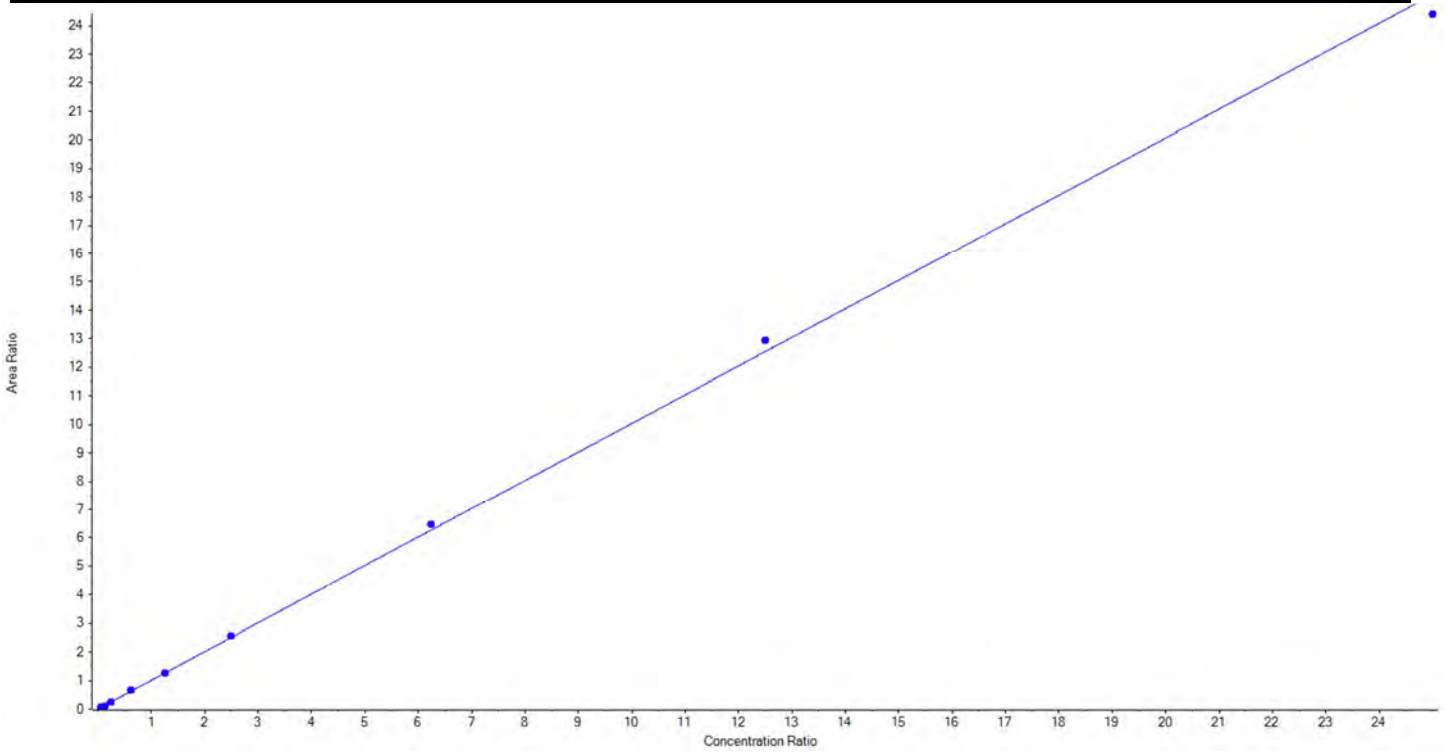
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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



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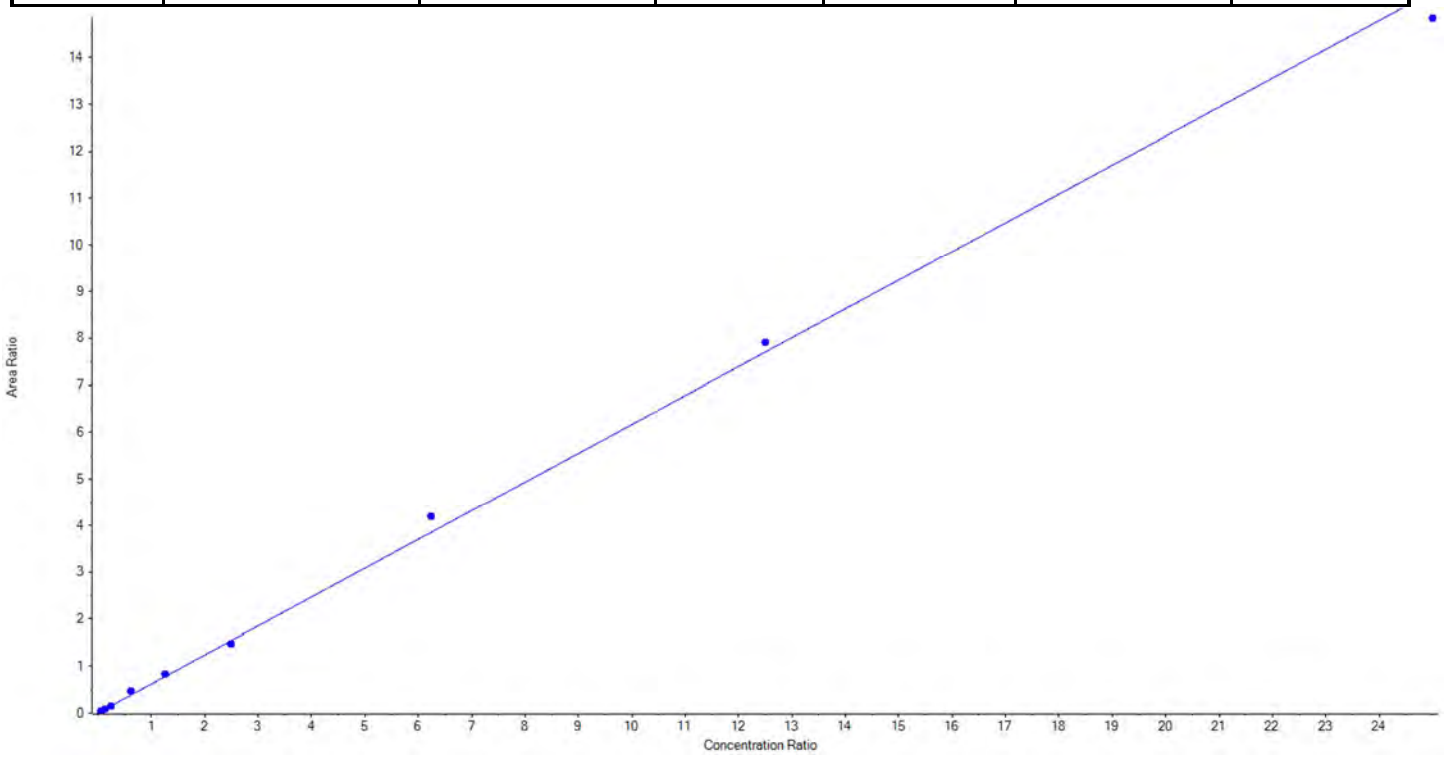
Calibration Summary Report

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



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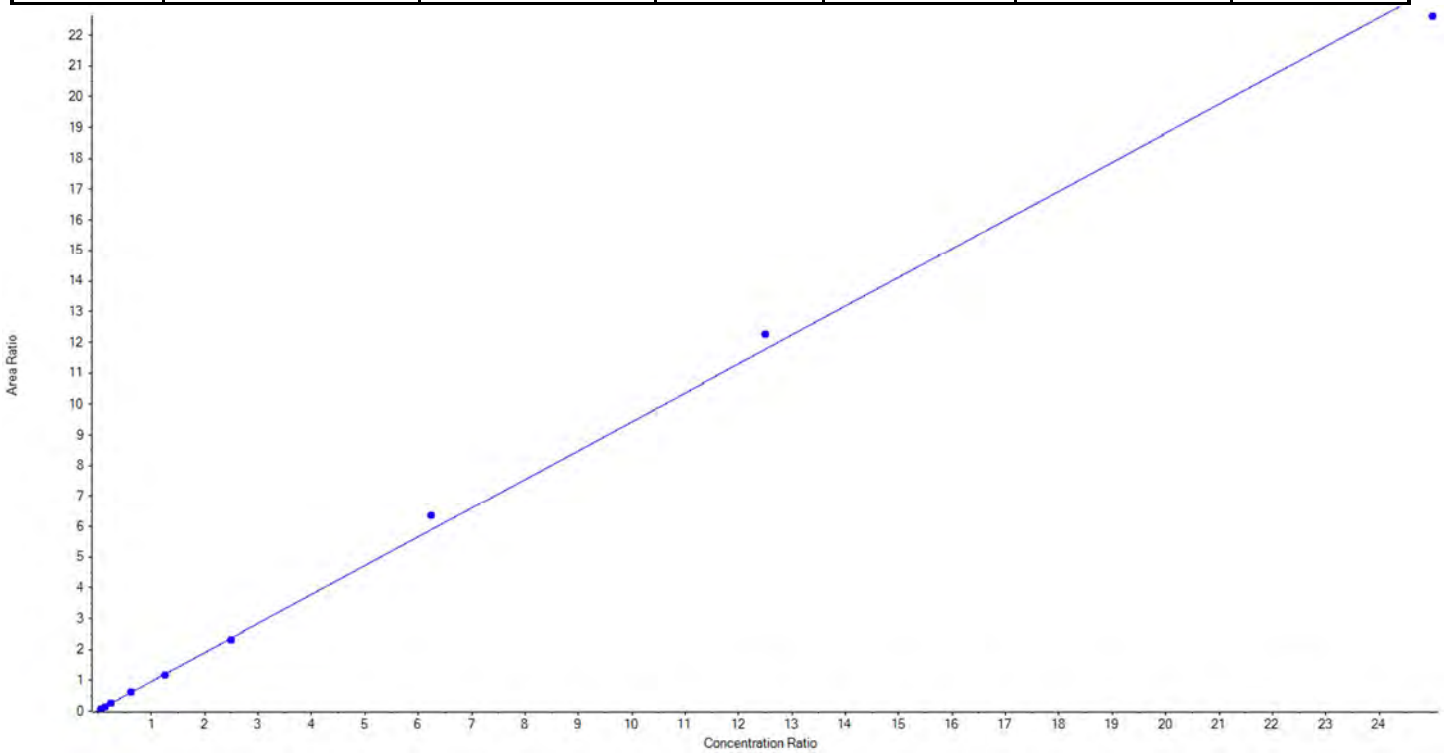
Calibration Summary Report

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



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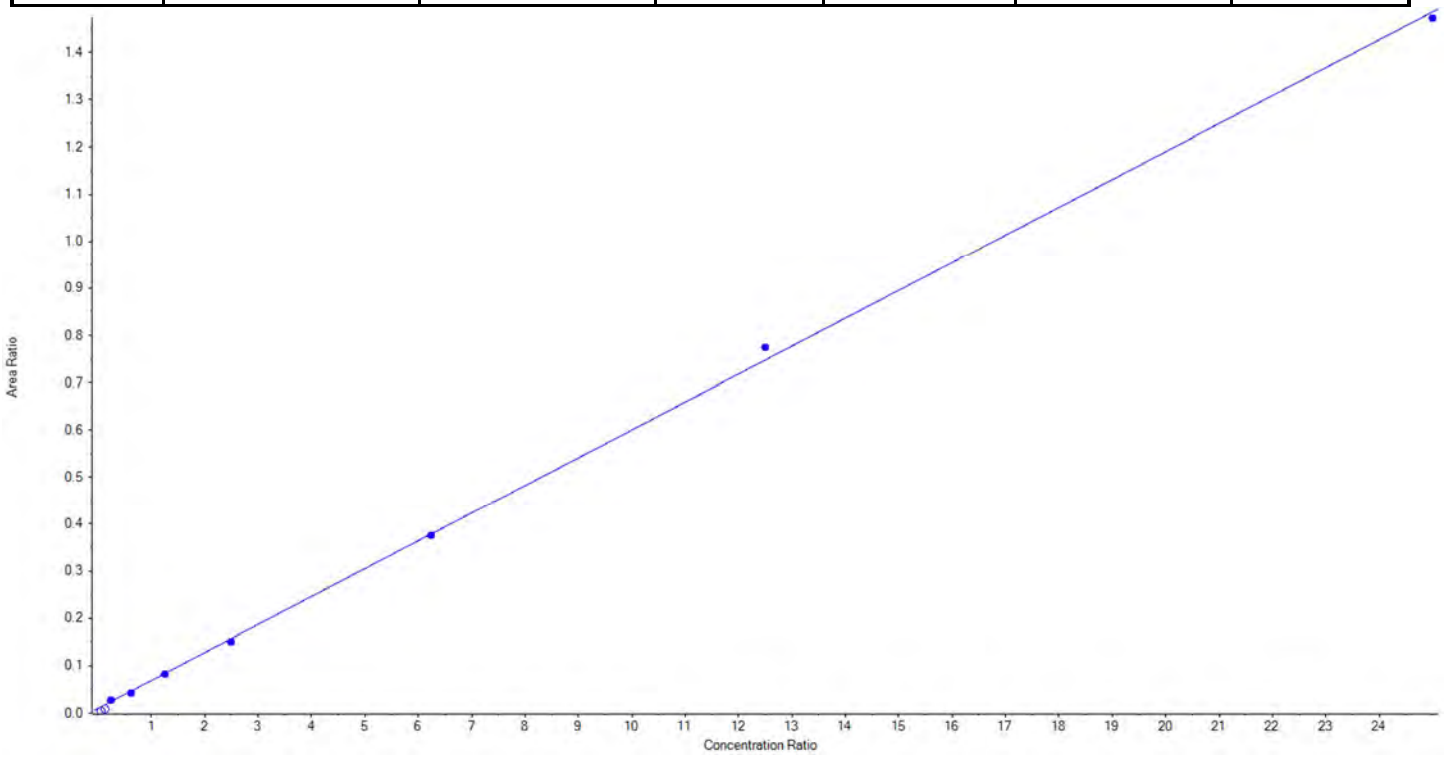
Calibration Summary Report

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



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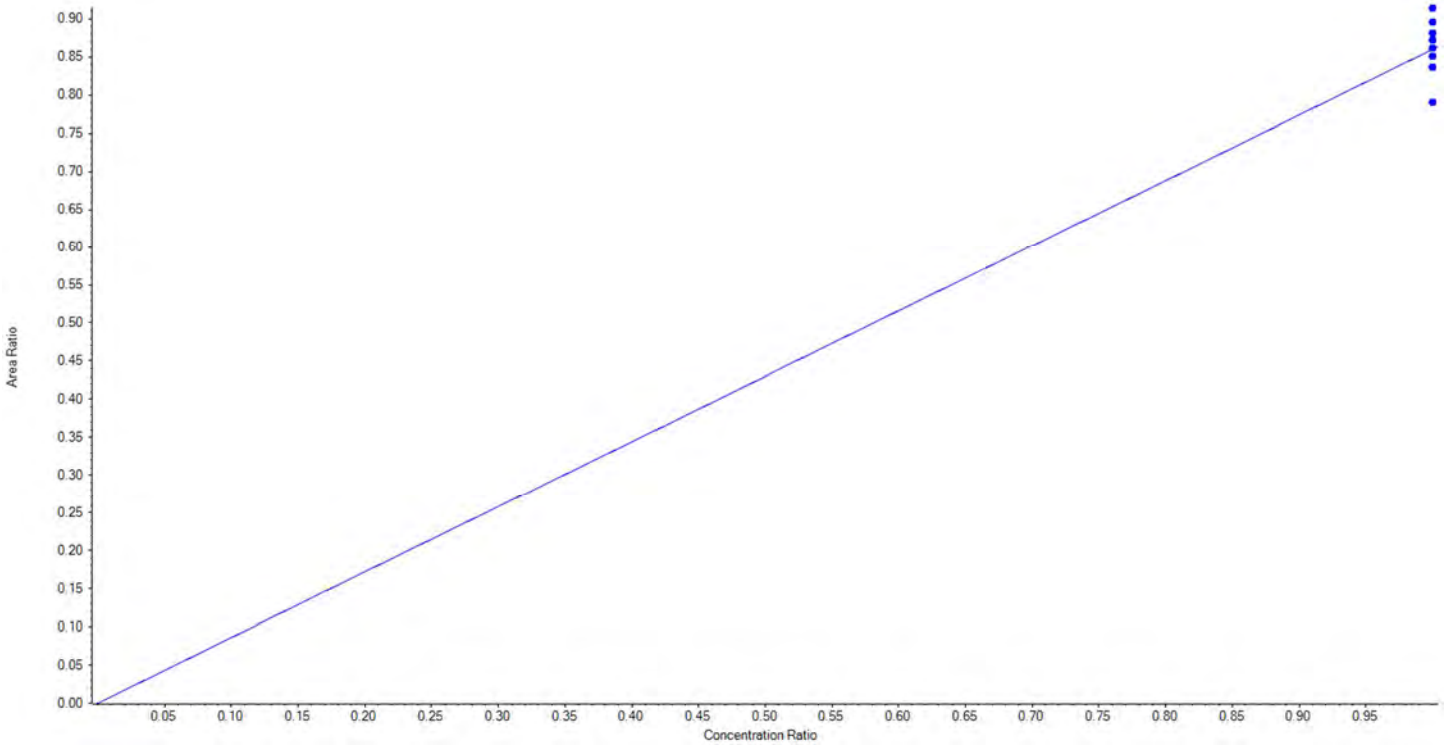
Calibration Summary Report

Created with Analyst Reporter
Printed: 15/05/2018 10:29:54 AM

Analyte Name	13C2-PFHxA	**Data File**	18-0299_A.wiff
MRM Transition	315.0/ 270.0	**Result Table**	18-0299_SIS
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 = 0.86000 x (std. dev. = 0.03670) (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	97.239489	97.2
3	JV65	L2	True	100.00	98.988978	99.0
4	JV66	L3	True	100.00	104.137637	104.1
5	JV67	L4	True	100.00	102.414766	102.4
6	JV68	L5	True	100.00	97.292480	97.3
7	JV69	L6	True	100.00	101.482130	101.5
8	JV70	L7	True	100.00	106.311873	106.3
9	JV71	L8	True	100.00	100.174239	100.2
10	JV72	L9	True	100.00	91.958408	92.0



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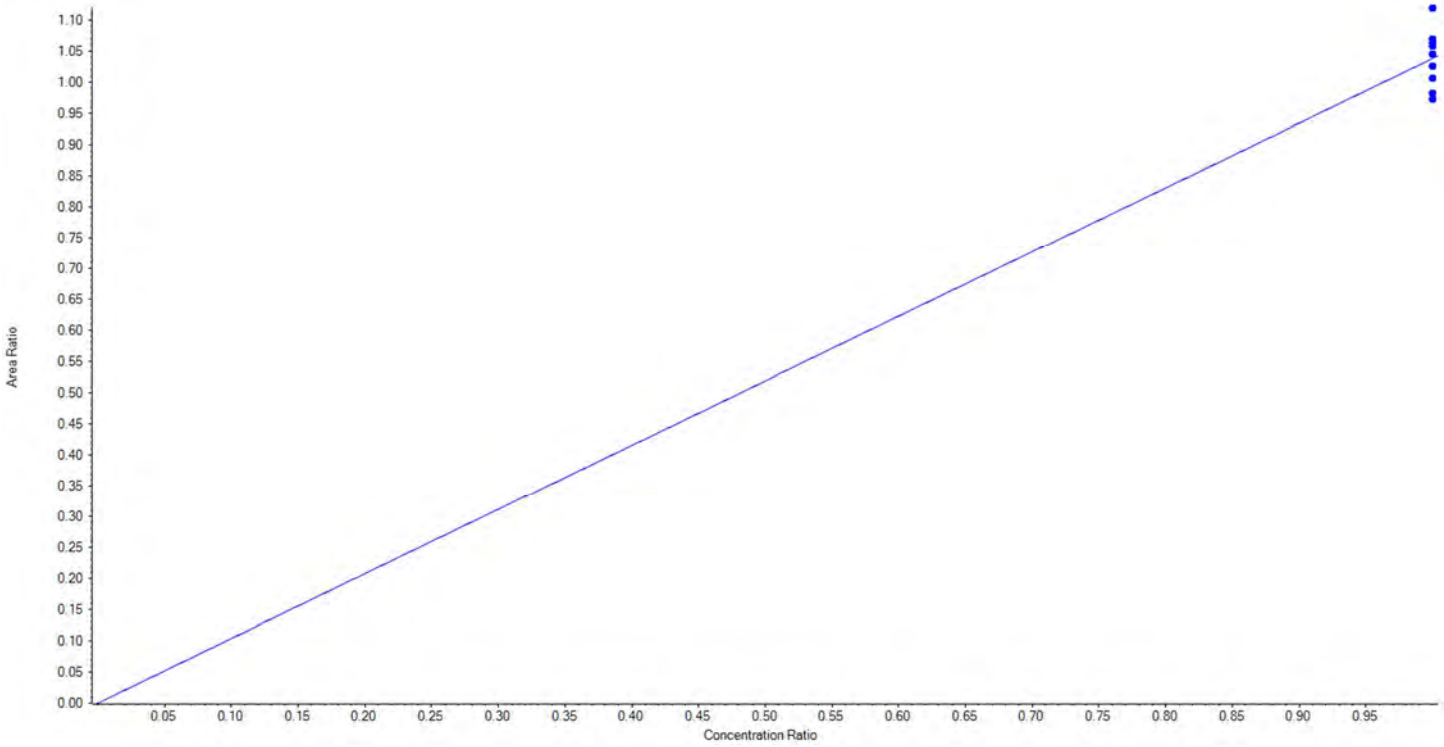
Calibration Summary Report

Created with Analyst Reporter
Printed: 15/05/2018 10:29:54 AM

Analyte Name	13C2-PFDA	**Data File**	18-0299_A.wiff
MRM Transition	515.0/ 470.0	**Result Table**	18-0299_SIS
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 = 1.03821 x (std. dev. = 0.04624) (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	93.723792	93.7
3	JV65	L2	True	100.00	94.593045	94.6
4	JV66	L3	True	100.00	98.869071	98.9
5	JV67	L4	True	100.00	97.012860	97.0
6	JV68	L5	True	100.00	100.715503	100.7
7	JV69	L6	True	100.00	103.041893	103.0
8	JV70	L7	True	100.00	107.814042	107.8
9	JV71	L8	True	100.00	102.363189	102.4
10	JV72	L9	True	100.00	101.866605	101.9



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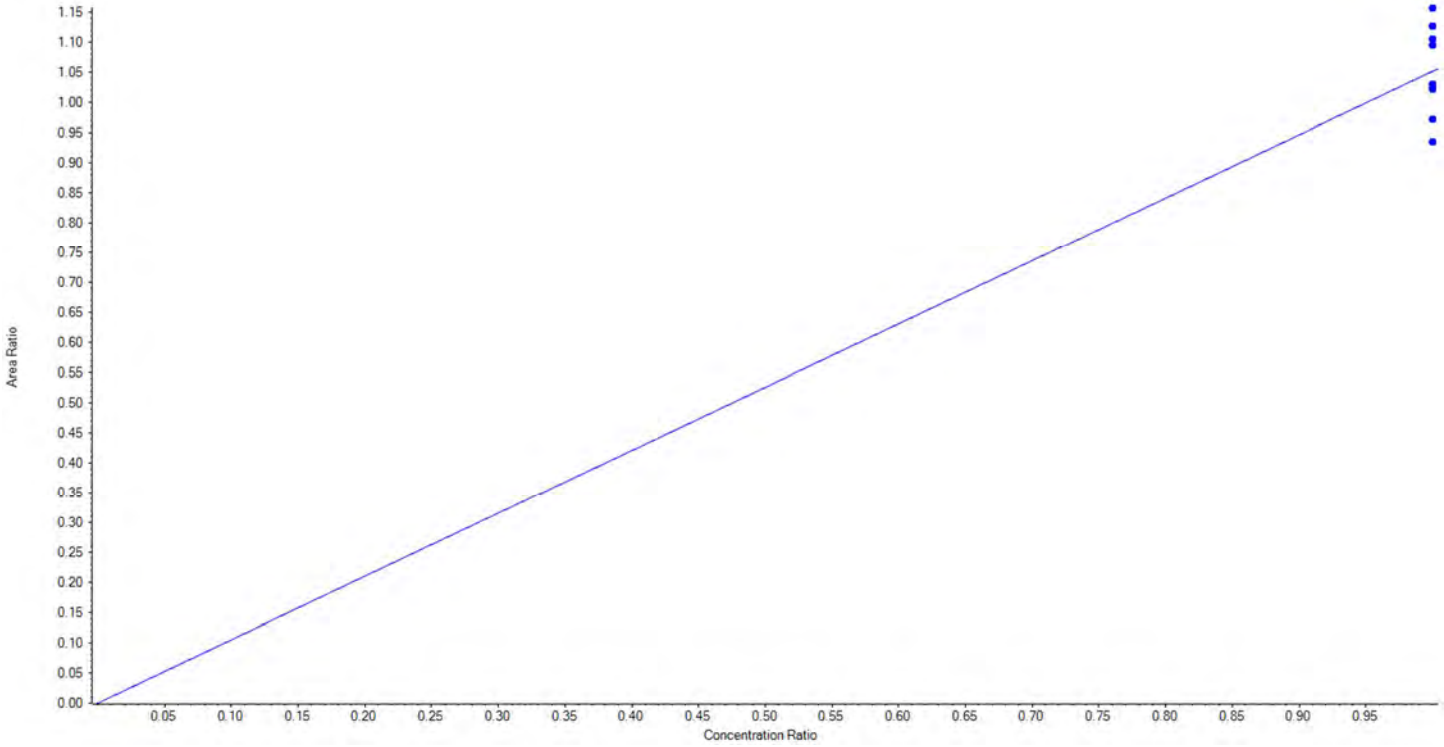
Calibration Summary Report

Created with Analyst Reporter
Printed: 15/05/2018 10:29:54 AM

Analyte Name	d5-EtFOSAA	**Data File**	18-0299_A.wiff
MRM Transition	589.0/ 419.0	**Result Table**	18-0299_SIS
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 = 1.05203 x (std. dev. = 0.07360) (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	439.951080	110.0
3	JV65	L2	True	400.00	388.330023	97.1
4	JV66	L3	True	400.00	416.401403	104.1
5	JV67	L4	True	400.00	428.314713	107.1
6	JV68	L5	True	400.00	390.082816	97.5
7	JV69	L6	True	400.00	391.526171	97.9
8	JV70	L7	True	400.00	420.084520	105.0
9	JV71	L8	True	400.00	369.669244	92.4
10	JV72	L9	True	400.00	355.640030	88.9



	Drinking Water Calibration Curve Concentrations (ng/L)								
	JV64	JV65	JV66	JV67	JV68	JV69	JV70	JV71	JV72
PFHxA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFHpA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFOA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFNA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFDA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFUnA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFDoA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFTrDA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFTeDA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
NMeFOSAA (branched)	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
NEtFOSAA (branched)	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFBS	22.15	44.30	88.60	221.50	443.00	885.00	2,212.50	4,425.00	8,850.00
PFHxS (branched)	22.80	45.60	91.20	228.00	456.00	912.00	2,280.00	4,560.00	9,120.00
PFOS (branched)	23.15	46.30	92.60	231.50	463.00	925.60	2,314.00	4,628.00	9,256.00
	Surrogates								
13C2-PFHxA	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
13C2-PFDA	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
d5-EtFOSAA	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00
	Internal Standards								
13C2-PFOA	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
13C4-PFOS	287.00	287.00	287.00	287.00	287.00	287.00	287.00	287.00	287.00
d3-MeFOSAA	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 9:55:30 AM

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	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.47	6602.43	26.086029	180.7	true
PFBS_2	298.9 / 99.0	1.47	2770.57	25.597219	96.5	true
PFHxA_1	313.0 / 269.0	1.75	7907.20	24.867979	57.7	true
PFHxA_2	313.0 / 119.0	1.75	453.02	12.761716	36.3	true
PFHpA_1	363.0 / 319.0	2.11	8074.86	30.376574	29.7	true
PFHpA_2	363.0 / 169.0	2.10	246.96	29.725633	14.8	true
PFHxS_1	399.0 / 80.0	2.11	5582.08	21.964158	72.4	true
PFHxS_2	399.0 / 99.0	2.11	1720.16	20.563117	44.7	false
PFOA_1	413.0 / 369.0	2.48	9527.88	24.183670	33.5	true
PFOA_2	413.0 / 169.0	2.52	614.28	26.539591	17.6	true
PFNA_1	463.0 / 419.0	2.85	10466.49	23.740151	29.5	true
PFNA_2	463.0 / 219.0	2.84	2430.30	22.662021	39.5	true
PFOS_1	499.0 / 80.0	2.85	11219.80	23.150192	66.6	false
PFOS_2	499.0 / 99.0	2.84	1597.26	21.053424	41.4	false
PFDA_1	513.0 / 469.0	3.21	8759.50	23.082339	41.1	false
PFDA_2	513.0 / 219.0	3.22	611.80	14.577888	31.4	false
PFUnA_1	563.0 / 519.0	3.53	7575.64	23.264189	32.5	true
PFUnA_2	563.0 / 269.0	3.50	596.02	21.888997	27.8	true
PFDoA_1	613.0 / 569.0	3.81	10059.88	25.967186	48.2	false
PFDoA_2	613.0 / 319.0	3.80	1849.95	29.863711	53.7	false
PFTrDA_1	663.0 / 619.0	4.07	8888.92	24.190968	70.8	false
PFTrDA_2	663.0 / 169.0	4.07	884.53	25.870465	30.1	false
PFTeDA_1	713.0 / 669.0	4.28	8168.47	24.963851	127.8	true
PFTeDA_2	713.0 / 169.0	4.28	662.67	28.901673	53.9	true
NMeFOSAA_1	570.0 / 419.0	3.35	2105.05	26.216312	96.3	false
NMeFOSAA_2	570.0 / 512.0	3.33	1069.77	20.864881	29.9	false
NEtFOSAA_1	584.0 / 419.0	3.52	2061.31	21.391576	91.2	true
NEtFOSAA_2	584.0 / 483.0	3.48	137.33	< 0	14.1	true

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:54:59 AM

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_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	28073.66	97.239489	575.7	false
13C2-PFDA	515.0 / 470.0	3.19	32665.60	93.723792	411.2	false
d5-EtFOSAA	589.0 / 419.0	3.51	32561.14	439.951080	180.7	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 9:55:32 AM

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	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.47	10534.53	41.308305	242.2	true
PFBS_2	298.9 / 99.0	1.47	3728.51	37.367171	112.1	false
PFHxA_1	313.0 / 269.0	1.74	14754.73	47.319166	92.3	true
PFHxA_2	313.0 / 119.0	1.75	1142.92	43.727148	57.9	true
PFHpA_1	363.0 / 319.0	2.10	12526.59	45.439028	35.6	true
PFHpA_2	363.0 / 169.0	2.08	340.19	45.978740	25.6	true
PFHxS_1	399.0 / 80.0	2.11	14092.68	49.398431	85.0	false
PFHxS_2	399.0 / 99.0	2.11	4723.71	53.831556	78.2	false
PFOA_1	413.0 / 369.0	2.48	16980.34	46.719992	42.4	false
PFOA_2	413.0 / 169.0	2.49	842.21	36.985333	25.0	true
PFNA_1	463.0 / 419.0	2.85	16739.74	42.975473	38.3	false
PFNA_2	463.0 / 219.0	2.84	4637.72	45.195262	56.9	false
PFOS_1	499.0 / 80.0	2.84	20732.08	44.854344	84.3	false
PFOS_2	499.0 / 99.0	2.85	3922.25	48.395966	67.3	false
PFDA_1	513.0 / 469.0	3.20	17052.14	46.509322	56.8	false
PFDA_2	513.0 / 219.0	3.19	1120.83	51.392828	59.7	true
PFUnA_1	563.0 / 519.0	3.52	17741.37	49.048218	57.8	false
PFUnA_2	563.0 / 269.0	3.55	1249.56	57.026228	41.8	false
PFDoA_1	613.0 / 569.0	3.81	17244.92	44.420766	70.2	false
PFDoA_2	613.0 / 319.0	3.81	2389.15	39.136838	49.6	false
PFTrDA_1	663.0 / 619.0	4.07	17003.57	46.449685	95.4	false
PFTrDA_2	663.0 / 169.0	4.06	1342.01	46.103574	53.8	false
PFTeDA_1	713.0 / 669.0	4.28	16244.30	47.189816	162.9	false
PFTeDA_2	713.0 / 169.0	4.29	1018.73	49.580004	68.2	false
NMeFOSAA_1	570.0 / 419.0	3.34	3504.73	43.262935	198.1	true
NMeFOSAA_2	570.0 / 512.0	3.35	2328.21	46.623952	52.4	false
NEtFOSAA_1	584.0 / 419.0	3.53	4360.28	52.162161	147.6	false
NEtFOSAA_2	584.0 / 483.0	3.55	276.09	< 0	22.9	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:55:01 AM

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_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	28180.45	98.988978	624.0	false
13C2-PFDA	515.0 / 470.0	3.19	32509.08	94.593045	482.1	false
d5-EtFOSAA	589.0 / 419.0	3.51	31155.23	388.330023	186.7	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 9:55:34 AM

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	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.46	30146.03	96.021884	406.8	true
PFBS_2	298.9 / 99.0	1.45	10276.29	93.848247	222.0	false
PFHxA_1	313.0 / 269.0	1.73	38111.43	103.981147	153.1	false
PFHxA_2	313.0 / 119.0	1.73	2724.56	95.641837	89.7	false
PFHpA_1	363.0 / 319.0	2.09	33378.26	97.496950	54.1	false
PFHpA_2	363.0 / 169.0	2.09	749.48	95.624568	53.8	false
PFHxS_1	399.0 / 80.0	2.11	35247.02	97.865642	153.6	false
PFHxS_2	399.0 / 99.0	2.11	10235.78	95.330404	108.9	false
PFOA_1	413.0 / 369.0	2.47	41925.13	101.886336	80.9	false
PFOA_2	413.0 / 169.0	2.46	2915.24	108.966567	103.2	true
PFNA_1	463.0 / 419.0	2.85	42651.70	101.182264	71.3	false
PFNA_2	463.0 / 219.0	2.85	11845.46	99.545416	99.4	false
PFOS_1	499.0 / 80.0	2.84	47941.62	87.630476	120.2	false
PFOS_2	499.0 / 99.0	2.84	8752.25	87.362064	103.1	false
PFDA_1	513.0 / 469.0	3.20	44333.61	103.688531	88.3	false
PFDA_2	513.0 / 219.0	3.22	1991.34	91.768016	93.9	false
PFUnA_1	563.0 / 519.0	3.52	46615.66	103.732205	94.4	false
PFUnA_2	563.0 / 269.0	3.51	1974.80	79.581698	56.9	true
PFDoA_1	613.0 / 569.0	3.81	46918.02	101.194737	112.8	false
PFDoA_2	613.0 / 319.0	3.80	7225.68	100.480568	88.2	false
PFTrDA_1	663.0 / 619.0	4.06	44854.55	103.263944	149.8	false
PFTrDA_2	663.0 / 169.0	4.06	3013.31	98.341516	74.1	false
PFTeDA_1	713.0 / 669.0	4.28	43279.19	102.694534	234.1	false
PFTeDA_2	713.0 / 169.0	4.27	2193.70	97.203998	106.9	false
NMeFOSAA_1	570.0 / 419.0	3.35	9016.42	97.560992	291.3	false
NMeFOSAA_2	570.0 / 512.0	3.34	5356.50	93.928839	107.6	false
NEtFOSAA_1	584.0 / 419.0	3.51	9443.11	103.244176	243.8	false
NEtFOSAA_2	584.0 / 483.0	3.50	962.70	114.536509	46.9	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:55:03 AM

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_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	37394.99	104.137637	780.8	false
13C2-PFDA	515.0 / 470.0	3.19	42859.85	98.869071	389.2	false
d5-EtFOSAA	589.0 / 419.0	3.51	40656.25	416.401403	211.8	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 9:55:36 AM

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	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.46	62440.02	208.146645	679.2	true
PFBS_2	298.9 / 99.0	1.46	21519.86	215.325493	363.0	true
PFHxA_1	313.0 / 269.0	1.74	91458.31	257.782122	234.2	false
PFHxA_2	313.0 / 119.0	1.73	6962.50	263.693056	158.5	false
PFHpA_1	363.0 / 319.0	2.10	85286.88	250.225261	97.8	false
PFHpA_2	363.0 / 169.0	2.10	1728.45	242.906065	81.7	false
PFHxS_1	399.0 / 80.0	2.11	80175.69	228.868301	217.7	false
PFHxS_2	399.0 / 99.0	2.11	21833.74	212.264019	157.6	false
PFOA_1	413.0 / 369.0	2.48	97445.17	249.445858	141.3	false
PFOA_2	413.0 / 169.0	2.48	6719.21	259.322647	136.0	false
PFNA_1	463.0 / 419.0	2.85	105315.46	268.785560	119.3	false
PFNA_2	463.0 / 219.0	2.85	29433.93	257.343516	146.0	false
PFOS_1	499.0 / 80.0	2.84	127843.44	249.641933	182.7	false
PFOS_2	499.0 / 99.0	2.85	24285.81	250.658478	187.7	false
PFDA_1	513.0 / 469.0	3.21	101739.51	246.728844	121.7	false
PFDA_2	513.0 / 219.0	3.21	4291.18	238.590038	157.2	false
PFUnA_1	563.0 / 519.0	3.52	109883.72	245.728477	147.5	false
PFUnA_2	563.0 / 269.0	3.52	5880.01	263.669538	111.4	false
PFDoA_1	613.0 / 569.0	3.81	113391.31	250.774680	147.4	false
PFDoA_2	613.0 / 319.0	3.81	17452.48	250.417323	145.3	false
PFTrDA_1	663.0 / 619.0	4.06	107221.63	253.836581	212.3	false
PFTrDA_2	663.0 / 169.0	4.06	7717.67	278.960178	146.9	false
PFTeDA_1	713.0 / 669.0	4.28	106818.03	256.610028	320.2	false
PFTeDA_2	713.0 / 169.0	4.28	4853.85	232.187833	209.9	false
NMeFOSAA_1	570.0 / 419.0	3.35	22641.10	262.440074	336.0	false
NMeFOSAA_2	570.0 / 512.0	3.34	15746.17	297.243177	175.8	false
NEtFOSAA_1	584.0 / 419.0	3.52	21232.03	256.585755	243.3	false
NEtFOSAA_2	584.0 / 483.0	3.51	1466.77	224.642239	83.7	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:55:05 AM

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_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	33340.72	102.414766	839.1	false
13C2-PFDA	515.0 / 470.0	3.19	38126.43	97.012860	357.7	false
d5-EtFOSAA	589.0 / 419.0	3.51	38373.82	428.314713	190.2	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 9:55:38 AM

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	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.46	140473.92	405.020980	905.8	true
PFBS_2	298.9 / 99.0	1.45	48926.08	431.256726	423.3	false
PFHxA_1	313.0 / 269.0	1.73	190392.75	514.874973	346.9	true
PFHxA_2	313.0 / 119.0	1.73	14012.06	515.484261	211.2	false
PFHpA_1	363.0 / 319.0	2.09	176798.04	493.346877	164.5	false
PFHpA_2	363.0 / 169.0	2.09	3510.71	483.731030	153.2	false
PFHxS_1	399.0 / 80.0	2.10	173108.25	425.120183	259.3	false
PFHxS_2	399.0 / 99.0	2.11	52325.70	439.490801	214.2	false
PFOA_1	413.0 / 369.0	2.47	214574.57	530.855181	185.4	false
PFOA_2	413.0 / 169.0	2.47	14367.33	531.937160	217.0	false
PFNA_1	463.0 / 419.0	2.85	208629.57	517.047940	155.5	false
PFNA_2	463.0 / 219.0	2.85	64437.00	541.800847	227.4	false
PFOS_1	499.0 / 80.0	2.84	256223.77	435.534206	224.9	false
PFOS_2	499.0 / 99.0	2.84	49566.84	442.003637	249.0	false
PFDA_1	513.0 / 469.0	3.20	228172.86	531.714602	180.3	false
PFDA_2	513.0 / 219.0	3.20	10021.45	569.414772	281.9	false
PFUnA_1	563.0 / 519.0	3.52	250035.84	530.835336	205.5	false
PFUnA_2	563.0 / 269.0	3.52	12674.56	554.929646	175.3	false
PFDoA_1	613.0 / 569.0	3.81	250311.05	529.744553	223.9	false
PFDoA_2	613.0 / 319.0	3.81	35569.98	489.477404	177.9	false
PFTrDA_1	663.0 / 619.0	4.06	228076.74	517.231413	257.4	false
PFTrDA_2	663.0 / 169.0	4.06	13697.33	482.960722	166.2	false
PFTeDA_1	713.0 / 669.0	4.28	224478.75	513.956500	399.0	false
PFTeDA_2	713.0 / 169.0	4.28	10502.79	490.456940	277.4	false
NMeFOSAA_1	570.0 / 419.0	3.35	46048.73	500.191836	382.0	false
NMeFOSAA_2	570.0 / 512.0	3.34	30450.21	538.566592	265.7	false
NEtFOSAA_1	584.0 / 419.0	3.51	42772.82	489.803136	311.5	false
NEtFOSAA_2	584.0 / 483.0	3.49	3010.77	491.538738	169.8	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:55:07 AM

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_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	36048.22	97.292480	832.6	false
13C2-PFDA	515.0 / 470.0	3.19	45049.02	100.715503	393.0	false
d5-EtFOSAA	589.0 / 419.0	3.51	41084.24	390.082816	197.1	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 9:55:40 AM

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	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.46	260367.01	877.849575	1232.2	true
PFBS_2	298.9 / 99.0	1.46	87443.65	910.253876	580.1	false
PFHxA_1	313.0 / 269.0	1.74	335872.38	934.548992	476.1	true
PFHxA_2	313.0 / 119.0	1.74	27271.04	1039.124444	299.1	false
PFHpA_1	363.0 / 319.0	2.10	323712.27	925.558519	175.3	false
PFHpA_2	363.0 / 169.0	2.10	6705.06	961.157631	210.0	false
PFHxS_1	399.0 / 80.0	2.11	306060.38	876.037044	275.6	false
PFHxS_2	399.0 / 99.0	2.11	91382.32	897.362513	296.8	false
PFOA_1	413.0 / 369.0	2.48	381214.06	973.222838	265.3	false
PFOA_2	413.0 / 169.0	2.48	25413.88	968.055899	257.5	false
PFNA_1	463.0 / 419.0	2.85	389485.83	999.530435	200.4	false
PFNA_2	463.0 / 219.0	2.85	116140.51	1005.731807	265.0	false
PFOS_1	499.0 / 80.0	2.84	471557.27	941.138109	274.4	false
PFOS_2	499.0 / 99.0	2.85	91599.13	953.967651	310.3	false
PFDA_1	513.0 / 469.0	3.21	414070.20	993.391259	203.8	false
PFDA_2	513.0 / 219.0	3.21	16572.45	988.478191	302.3	false
PFUnA_1	563.0 / 519.0	3.52	446011.65	970.257301	215.6	false
PFUnA_2	563.0 / 269.0	3.52	22394.88	1016.215001	226.6	false
PFDoA_1	613.0 / 569.0	3.81	441094.67	959.455534	225.2	false
PFDoA_2	613.0 / 319.0	3.81	69454.09	983.211792	231.9	false
PFTrDA_1	663.0 / 619.0	4.07	419482.84	978.097997	306.0	false
PFTrDA_2	663.0 / 169.0	4.07	25578.40	938.483509	258.2	false
PFTeDA_1	713.0 / 669.0	4.28	406540.24	954.781459	482.5	false
PFTeDA_2	713.0 / 169.0	4.28	19007.21	919.989421	345.1	false
NMeFOSAA_1	570.0 / 419.0	3.35	87888.33	1022.381129	410.5	false
NMeFOSAA_2	570.0 / 512.0	3.35	50348.52	953.461105	240.8	false
NEtFOSAA_1	584.0 / 419.0	3.52	79408.09	979.832668	288.0	false
NEtFOSAA_2	584.0 / 483.0	3.51	5160.62	955.724291	134.7	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:55:10 AM

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_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	33493.38	101.482130	897.3	false
13C2-PFDA	515.0 / 470.0	3.19	41055.16	103.041893	424.3	false
d5-EtFOSAA	589.0 / 419.0	3.51	36662.71	391.526171	178.6	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 9:55:42 AM

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	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.46	632145.58	2155.432631	1910.9	true
PFBS_2	298.9 / 99.0	1.45	205541.25	2174.982043	807.2	false
PFHxA_1	313.0 / 269.0	1.73	868987.90	2546.645589	697.1	true
PFHxA_2	313.0 / 119.0	1.73	66290.07	2670.924305	468.9	false
PFHpA_1	363.0 / 319.0	2.09	813308.10	2441.983591	289.5	false
PFHpA_2	363.0 / 169.0	2.09	16667.08	2534.040073	324.0	false
PFHxS_1	399.0 / 80.0	2.11	784586.02	2266.476902	362.6	false
PFHxS_2	399.0 / 99.0	2.11	234210.23	2325.261565	327.3	false
PFOA_1	413.0 / 369.0	2.47	989365.52	2666.217472	316.4	false
PFOA_2	413.0 / 169.0	2.47	64229.31	2576.703127	414.0	false
PFNA_1	463.0 / 419.0	2.85	996365.42	2704.725597	292.9	false
PFNA_2	463.0 / 219.0	2.84	300691.43	2744.428190	413.8	false
PFOS_1	499.0 / 80.0	2.84	1233915.63	2495.785437	357.6	false
PFOS_2	499.0 / 99.0	2.84	233524.65	2457.835156	408.5	false
PFDA_1	513.0 / 469.0	3.20	1069403.19	2703.309157	306.3	false
PFDA_2	513.0 / 219.0	3.20	40046.46	2559.041262	286.0	false
PFUnA_1	563.0 / 519.0	3.52	1173128.86	2679.386413	315.2	false
PFUnA_2	563.0 / 269.0	3.52	54215.64	2605.041713	266.5	false
PFDoA_1	613.0 / 569.0	3.81	1149255.15	2630.688671	336.6	false
PFDoA_2	613.0 / 319.0	3.81	177540.24	2646.724038	316.0	false
PFTrDA_1	663.0 / 619.0	4.06	1069293.68	2624.607976	376.7	false
PFTrDA_2	663.0 / 169.0	4.06	67960.05	2646.740377	318.5	false
PFTeDA_1	713.0 / 669.0	4.28	1040697.87	2568.486466	522.5	false
PFTeDA_2	713.0 / 169.0	4.27	51420.51	2635.801402	491.2	false
NMeFOSAA_1	570.0 / 419.0	3.35	212426.59	2580.979914	386.4	false
NMeFOSAA_2	570.0 / 512.0	3.34	137066.07	2712.415852	351.4	false
NEtFOSAA_1	584.0 / 419.0	3.51	208795.21	2701.999272	311.7	false
NEtFOSAA_2	584.0 / 483.0	3.50	12313.35	2478.112433	264.6	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:55:12 AM

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_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	33320.38	106.311873	846.3	false
13C2-PFDA	515.0 / 470.0	3.19	40793.21	107.814042	316.2	false
d5-EtFOSAA	589.0 / 419.0	3.50	36218.06	420.084520	223.2	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 9:55:44 AM

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	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.46	1353942.85	4193.522342	2343.2	true
PFBS_2	298.9 / 99.0	1.45	442275.64	4258.852824	1196.5	false
PFHxA_1	313.0 / 269.0	1.73	1925589.72	5055.023878	938.9	false
PFHxA_2	313.0 / 119.0	1.73	137999.88	4986.632621	650.4	false
PFHpA_1	363.0 / 319.0	2.09	1850205.79	4971.829107	359.4	false
PFHpA_2	363.0 / 169.0	2.09	37958.54	5181.105707	355.6	false
PFHxS_1	399.0 / 80.0	2.11	1675807.35	4394.803214	350.4	false
PFHxS_2	399.0 / 99.0	2.11	480022.56	4328.857532	353.1	false
PFOA_1	413.0 / 369.0	2.47	2057327.56	4969.395260	376.9	false
PFOA_2	413.0 / 169.0	2.47	144004.17	5174.930026	389.1	false
PFNA_1	463.0 / 419.0	2.84	2101790.74	5117.017892	358.2	false
PFNA_2	463.0 / 219.0	2.84	619820.92	5068.516419	410.1	false
PFOS_1	499.0 / 80.0	2.84	2467477.58	4536.443745	350.0	false
PFOS_2	499.0 / 99.0	2.84	473968.21	4530.670558	407.0	false
PFDA_1	513.0 / 469.0	3.20	2238364.45	5069.175999	407.6	false
PFDA_2	513.0 / 219.0	3.20	84598.83	4867.646769	590.5	false
PFUnA_1	563.0 / 519.0	3.52	2359121.81	4822.747861	350.8	false
PFUnA_2	563.0 / 269.0	3.51	111959.98	4826.647179	374.7	false
PFDoA_1	613.0 / 569.0	3.80	2430986.86	4983.556616	345.3	false
PFDoA_2	613.0 / 319.0	3.80	379534.61	5068.147886	343.5	false
PFTrDA_1	663.0 / 619.0	4.06	2298241.51	5052.456613	391.3	false
PFTrDA_2	663.0 / 169.0	4.06	140177.49	4899.989841	366.8	false
PFTeDA_1	713.0 / 669.0	4.27	2256446.61	4985.434252	550.9	false
PFTeDA_2	713.0 / 169.0	4.27	108571.74	4992.299518	531.4	false
NMeFOSAA_1	570.0 / 419.0	3.35	466233.35	5163.651353	381.3	false
NMeFOSAA_2	570.0 / 512.0	3.34	284336.68	5129.144605	356.1	false
NEtFOSAA_1	584.0 / 419.0	3.51	440420.03	5200.721822	346.1	false
NEtFOSAA_2	584.0 / 483.0	3.50	27833.68	5174.746301	329.1	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:55:14 AM

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_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	36314.59	100.174239	872.9	false
13C2-PFDA	515.0 / 470.0	3.18	44797.46	102.363189	326.9	false
d5-EtFOSAA	589.0 / 419.0	3.50	38200.94	369.669244	236.3	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 9:55:47 AM

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	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.46	2761805.14	9188.661608	3529.6	false
PFBS_2	298.9 / 99.0	1.45	873518.23	9044.566400	1720.8	false
PFHxA_1	313.0 / 269.0	1.73	3728009.07	9939.956154	1187.3	false
PFHxA_2	313.0 / 119.0	1.73	266430.02	9784.772327	845.5	false
PFHpA_1	363.0 / 319.0	2.09	3727507.83	10168.744092	402.3	false
PFHpA_2	363.0 / 169.0	2.09	70986.33	9850.730552	398.9	false
PFHxS_1	399.0 / 80.0	2.11	3321957.69	9355.066126	349.9	false
PFHxS_2	399.0 / 99.0	2.11	964482.79	9342.638493	383.5	false
PFOA_1	413.0 / 369.0	2.47	4018970.08	9863.073393	466.7	false
PFOA_2	413.0 / 169.0	2.47	266903.86	9741.559650	479.3	false
PFNA_1	463.0 / 419.0	2.84	3900117.26	9649.994688	399.3	false
PFNA_2	463.0 / 219.0	2.84	1160535.57	9639.776524	415.9	false
PFOS_1	499.0 / 80.0	2.83	4639485.15	9165.971558	377.6	false
PFOS_2	499.0 / 99.0	2.83	894914.75	9188.203066	410.1	false
PFDA_1	513.0 / 469.0	3.19	4220084.21	9707.399947	413.9	false
PFDA_2	513.0 / 219.0	3.19	171211.69	10035.060952	434.9	false
PFUnA_1	563.0 / 519.0	3.51	4461214.69	9258.449511	286.8	false
PFUnA_2	563.0 / 269.0	3.51	225051.26	9863.412905	235.7	false
PFDoA_1	613.0 / 569.0	3.80	4754991.63	9899.197259	361.1	false
PFDoA_2	613.0 / 319.0	3.80	723878.83	9817.540440	353.1	false
PFTrDA_1	663.0 / 619.0	4.06	4400532.03	9824.864823	404.2	false
PFTrDA_2	663.0 / 169.0	4.05	281544.56	10007.549817	373.3	false
PFTeDA_1	713.0 / 669.0	4.27	4444830.62	9970.883095	578.0	false
PFTeDA_2	713.0 / 169.0	4.27	213500.04	9978.579211	537.8	false
NMeFOSAA_1	570.0 / 419.0	3.34	865928.06	9728.315454	342.4	false
NMeFOSAA_2	570.0 / 512.0	3.34	526404.91	9632.750998	337.4	false
NEtFOSAA_1	584.0 / 419.0	3.50	802621.89	9619.259433	304.8	false
NEtFOSAA_2	584.0 / 483.0	3.50	52241.82	9910.699488	271.5	false

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Summary Quant Report

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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_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	34957.63	91.958408	806.2	false
13C2-PFDA	515.0 / 470.0	3.18	46748.40	101.866605	523.1	false
d5-EtFOSAA	589.0 / 419.0	3.50	35647.40	355.640030	228.6	false

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 17/05/2018 4:24:57 PM

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
PFDoA_1	613.0 / 569.0	3.81	PFDoA			
PFDoA_2	613.0 / 319.0	3.80	PFDoA	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

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Summary Ion Ratio Report

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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
PFDoA_1	613.0 / 569.0	3.81	PFDoA			
PFDoA_2	613.0 / 319.0	3.81	PFDoA	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

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Summary Ion Ratio Report

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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
PFDoA_1	613.0 / 569.0	3.81	PFDoA			
PFDoA_2	613.0 / 319.0	3.80	PFDoA	0.154	0.155	ü
PFTrDA_1	663.0 / 619.0	4.06	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.06	PFTrDA	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

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Summary Ion Ratio Report

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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
PFDoA_1	613.0 / 569.0	3.81	PFDoA			
PFDoA_2	613.0 / 319.0	3.81	PFDoA	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

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Summary Ion Ratio Report

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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
PFDoA_1	613.0 / 569.0	3.81	PFDoA			
PFDoA_2	613.0 / 319.0	3.81	PFDoA	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

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Summary Ion Ratio Report

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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
PFDoA_1	613.0 / 569.0	3.81	PFDoA			
PFDoA_2	613.0 / 319.0	3.81	PFDoA	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

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Summary Ion Ratio Report

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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
PFDoA_1	613.0 / 569.0	3.81	PFDoA			
PFDoA_2	613.0 / 319.0	3.81	PFDoA	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

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Summary Ion Ratio Report

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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
PFDoA_1	613.0 / 569.0	3.80	PFDoA			
PFDoA_2	613.0 / 319.0	3.80	PFDoA	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

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Summary Ion Ratio Report

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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
PFDoA_1	613.0 / 569.0	3.80	PFDoA			
PFDoA_2	613.0 / 319.0	3.80	PFDoA	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

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Summary Internal Standard Report

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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	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.47	13C4-PFOS	503.0 / 80.0	103556.52	287.00
PFBS_2	298.9 / 99.0	1.47	13C4-PFOS	503.0 / 80.0	103556.52	287.00
PFHxA_1	313.0 / 269.0	1.75	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFHxA_2	313.0 / 119.0	1.75	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFHpA_1	363.0 / 319.0	2.11	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFHpA_2	363.0 / 169.0	2.10	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	103556.52	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	103556.52	287.00
PFOA_1	413.0 / 369.0	2.48	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFOA_2	413.0 / 169.0	2.52	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFNA_1	463.0 / 419.0	2.85	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFNA_2	463.0 / 219.0	2.84	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFOS_1	499.0 / 80.0	2.85	13C4-PFOS	503.0 / 80.0	103556.52	287.00
PFOS_2	499.0 / 99.0	2.84	13C4-PFOS	503.0 / 80.0	103556.52	287.00
PFDA_1	513.0 / 469.0	3.21	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFDA_2	513.0 / 219.0	3.22	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFUnA_1	563.0 / 519.0	3.53	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFUnA_2	563.0 / 269.0	3.50	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFDoA_1	613.0 / 569.0	3.81	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFDoA_2	613.0 / 319.0	3.80	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFTrDA_1	663.0 / 619.0	4.07	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFTrDA_2	663.0 / 169.0	4.07	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFTeDA_1	713.0 / 669.0	4.28	13C2-PFOA	415.0 / 370.0	33570.37	100.00
PFTeDA_2	713.0 / 169.0	4.28	13C2-PFOA	415.0 / 370.0	33570.37	100.00
NMeFOSAA_1	570.0 / 419.0	3.35	d3-MeFOSAA	573.0 / 419.0	29182.21	400.00
NMeFOSAA_2	570.0 / 512.0	3.33	d3-MeFOSAA	573.0 / 419.0	29182.21	400.00
NEtFOSAA_1	584.0 / 419.0	3.52	d3-MeFOSAA	573.0 / 419.0	29182.21	400.00
NEtFOSAA_2	584.0 / 483.0	3.48	d3-MeFOSAA	573.0 / 419.0	29182.21	400.00

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Summary Internal Standard Report

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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	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.47	13C4-PFOS	503.0 / 80.0	101898.46	287.00
PFBS_2	298.9 / 99.0	1.47	13C4-PFOS	503.0 / 80.0	101898.46	287.00
PFHxA_1	313.0 / 269.0	1.74	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFHxA_2	313.0 / 119.0	1.75	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFHpA_1	363.0 / 319.0	2.10	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFHpA_2	363.0 / 169.0	2.08	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	101898.46	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	101898.46	287.00
PFOA_1	413.0 / 369.0	2.48	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFOA_2	413.0 / 169.0	2.49	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFNA_1	463.0 / 419.0	2.85	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFNA_2	463.0 / 219.0	2.84	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFOS_1	499.0 / 80.0	2.84	13C4-PFOS	503.0 / 80.0	101898.46	287.00
PFOS_2	499.0 / 99.0	2.85	13C4-PFOS	503.0 / 80.0	101898.46	287.00
PFDA_1	513.0 / 469.0	3.20	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFDA_2	513.0 / 219.0	3.19	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFUnA_1	563.0 / 519.0	3.52	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFUnA_2	563.0 / 269.0	3.55	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFDoA_1	613.0 / 569.0	3.81	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFDoA_2	613.0 / 319.0	3.81	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFTrDA_1	663.0 / 619.0	4.07	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFTrDA_2	663.0 / 169.0	4.06	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFTeDA_1	713.0 / 669.0	4.28	13C2-PFOA	415.0 / 370.0	33102.51	100.00
PFTeDA_2	713.0 / 169.0	4.29	13C2-PFOA	415.0 / 370.0	33102.51	100.00
NMeFOSAA_1	570.0 / 419.0	3.34	d3-MeFOSAA	573.0 / 419.0	30504.47	400.00
NMeFOSAA_2	570.0 / 512.0	3.35	d3-MeFOSAA	573.0 / 419.0	30504.47	400.00
NEtFOSAA_1	584.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	30504.47	400.00
NEtFOSAA_2	584.0 / 483.0	3.55	d3-MeFOSAA	573.0 / 419.0	30504.47	400.00

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Summary Internal Standard Report

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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	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.46	13C4-PFOS	503.0 / 80.0	122639.56	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	122639.56	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFHpA_2	363.0 / 169.0	2.09	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	122639.56	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	122639.56	287.00
PFOA_1	413.0 / 369.0	2.47	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFOA_2	413.0 / 169.0	2.46	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFNA_1	463.0 / 419.0	2.85	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFNA_2	463.0 / 219.0	2.85	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFOS_1	499.0 / 80.0	2.84	13C4-PFOS	503.0 / 80.0	122639.56	287.00
PFOS_2	499.0 / 99.0	2.84	13C4-PFOS	503.0 / 80.0	122639.56	287.00
PFDA_1	513.0 / 469.0	3.20	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFDA_2	513.0 / 219.0	3.22	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFUnA_1	563.0 / 519.0	3.52	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFUnA_2	563.0 / 269.0	3.51	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFDoA_1	613.0 / 569.0	3.81	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFDoA_2	613.0 / 319.0	3.80	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFTrDA_1	663.0 / 619.0	4.06	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFTrDA_2	663.0 / 169.0	4.06	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFTeDA_1	713.0 / 669.0	4.28	13C2-PFOA	415.0 / 370.0	39040.73	100.00
PFTeDA_2	713.0 / 169.0	4.27	13C2-PFOA	415.0 / 370.0	39040.73	100.00
NMeFOSAA_1	570.0 / 419.0	3.35	d3-MeFOSAA	573.0 / 419.0	35909.56	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	35909.56	400.00
NEtFOSAA_1	584.0 / 419.0	3.51	d3-MeFOSAA	573.0 / 419.0	35909.56	400.00
NEtFOSAA_2	584.0 / 483.0	3.50	d3-MeFOSAA	573.0 / 419.0	35909.56	400.00

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Summary Internal Standard Report

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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	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.46	13C4-PFOS	503.0 / 80.0	116127.04	287.00
PFBS_2	298.9 / 99.0	1.46	13C4-PFOS	503.0 / 80.0	116127.04	287.00
PFHxA_1	313.0 / 269.0	1.74	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFHpA_1	363.0 / 319.0	2.10	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFHpA_2	363.0 / 169.0	2.10	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	116127.04	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	116127.04	287.00
PFOA_1	413.0 / 369.0	2.48	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFOA_2	413.0 / 169.0	2.48	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFNA_1	463.0 / 419.0	2.85	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFNA_2	463.0 / 219.0	2.85	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFOS_1	499.0 / 80.0	2.84	13C4-PFOS	503.0 / 80.0	116127.04	287.00
PFOS_2	499.0 / 99.0	2.85	13C4-PFOS	503.0 / 80.0	116127.04	287.00
PFDA_1	513.0 / 469.0	3.21	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFDA_2	513.0 / 219.0	3.21	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFUnA_1	563.0 / 519.0	3.52	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFUnA_2	563.0 / 269.0	3.52	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFDoA_1	613.0 / 569.0	3.81	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFDoA_2	613.0 / 319.0	3.81	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFTrDA_1	663.0 / 619.0	4.06	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFTrDA_2	663.0 / 169.0	4.06	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFTeDA_1	713.0 / 669.0	4.28	13C2-PFOA	415.0 / 370.0	37854.04	100.00
PFTeDA_2	713.0 / 169.0	4.28	13C2-PFOA	415.0 / 370.0	37854.04	100.00
NMeFOSAA_1	570.0 / 419.0	3.35	d3-MeFOSAA	573.0 / 419.0	34064.77	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	34064.77	400.00
NEtFOSAA_1	584.0 / 419.0	3.52	d3-MeFOSAA	573.0 / 419.0	34064.77	400.00
NEtFOSAA_2	584.0 / 483.0	3.51	d3-MeFOSAA	573.0 / 419.0	34064.77	400.00

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Summary Internal Standard Report

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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	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.46	13C4-PFOS	503.0 / 80.0	133761.77	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	133761.77	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFHpA_2	363.0 / 169.0	2.09	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFHxS_1	399.0 / 80.0	2.10	13C4-PFOS	503.0 / 80.0	133761.77	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	133761.77	287.00
PFOA_1	413.0 / 369.0	2.47	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFOA_2	413.0 / 169.0	2.47	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFNA_1	463.0 / 419.0	2.85	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFNA_2	463.0 / 219.0	2.85	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFOS_1	499.0 / 80.0	2.84	13C4-PFOS	503.0 / 80.0	133761.77	287.00
PFOS_2	499.0 / 99.0	2.84	13C4-PFOS	503.0 / 80.0	133761.77	287.00
PFDA_1	513.0 / 469.0	3.20	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFDA_2	513.0 / 219.0	3.20	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFUnA_1	563.0 / 519.0	3.52	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFUnA_2	563.0 / 269.0	3.52	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFDoA_1	613.0 / 569.0	3.81	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFDoA_2	613.0 / 319.0	3.81	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFTrDA_1	663.0 / 619.0	4.06	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFTrDA_2	663.0 / 169.0	4.06	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFTeDA_1	713.0 / 669.0	4.28	13C2-PFOA	415.0 / 370.0	39476.20	100.00
PFTeDA_2	713.0 / 169.0	4.28	13C2-PFOA	415.0 / 370.0	39476.20	100.00
NMeFOSAA_1	570.0 / 419.0	3.35	d3-MeFOSAA	573.0 / 419.0	36517.78	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	36517.78	400.00
NEtFOSAA_1	584.0 / 419.0	3.51	d3-MeFOSAA	573.0 / 419.0	36517.78	400.00
NEtFOSAA_2	584.0 / 483.0	3.49	d3-MeFOSAA	573.0 / 419.0	36517.78	400.00

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Summary Internal Standard Report

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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	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.46	13C4-PFOS	503.0 / 80.0	114144.90	287.00
PFBS_2	298.9 / 99.0	1.46	13C4-PFOS	503.0 / 80.0	114144.90	287.00
PFHxA_1	313.0 / 269.0	1.74	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFHxA_2	313.0 / 119.0	1.74	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFHpA_1	363.0 / 319.0	2.10	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFHpA_2	363.0 / 169.0	2.10	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	114144.90	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	114144.90	287.00
PFOA_1	413.0 / 369.0	2.48	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFOA_2	413.0 / 169.0	2.48	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFNA_1	463.0 / 419.0	2.85	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFNA_2	463.0 / 219.0	2.85	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFOS_1	499.0 / 80.0	2.84	13C4-PFOS	503.0 / 80.0	114144.90	287.00
PFOS_2	499.0 / 99.0	2.85	13C4-PFOS	503.0 / 80.0	114144.90	287.00
PFDA_1	513.0 / 469.0	3.21	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFDA_2	513.0 / 219.0	3.21	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFUnA_1	563.0 / 519.0	3.52	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFUnA_2	563.0 / 269.0	3.52	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFDoA_1	613.0 / 569.0	3.81	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFDoA_2	613.0 / 319.0	3.81	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFTrDA_1	663.0 / 619.0	4.07	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFTrDA_2	663.0 / 169.0	4.07	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFTeDA_1	713.0 / 669.0	4.28	13C2-PFOA	415.0 / 370.0	38376.85	100.00
PFTeDA_2	713.0 / 169.0	4.28	13C2-PFOA	415.0 / 370.0	38376.85	100.00
NMeFOSAA_1	570.0 / 419.0	3.35	d3-MeFOSAA	573.0 / 419.0	34187.31	400.00
NMeFOSAA_2	570.0 / 512.0	3.35	d3-MeFOSAA	573.0 / 419.0	34187.31	400.00
NEtFOSAA_1	584.0 / 419.0	3.52	d3-MeFOSAA	573.0 / 419.0	34187.31	400.00
NEtFOSAA_2	584.0 / 483.0	3.51	d3-MeFOSAA	573.0 / 419.0	34187.31	400.00

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Summary Internal Standard Report

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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	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.46	13C4-PFOS	503.0 / 80.0	112747.09	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	112747.09	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFHpA_2	363.0 / 169.0	2.09	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	112747.09	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	112747.09	287.00
PFOA_1	413.0 / 369.0	2.47	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFOA_2	413.0 / 169.0	2.47	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFNA_1	463.0 / 419.0	2.85	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFNA_2	463.0 / 219.0	2.84	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFOS_1	499.0 / 80.0	2.84	13C4-PFOS	503.0 / 80.0	112747.09	287.00
PFOS_2	499.0 / 99.0	2.84	13C4-PFOS	503.0 / 80.0	112747.09	287.00
PFDA_1	513.0 / 469.0	3.20	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFDA_2	513.0 / 219.0	3.20	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFUnA_1	563.0 / 519.0	3.52	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFUnA_2	563.0 / 269.0	3.52	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFDoA_1	613.0 / 569.0	3.81	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFDoA_2	613.0 / 319.0	3.81	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFTrDA_1	663.0 / 619.0	4.06	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFTrDA_2	663.0 / 169.0	4.06	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFTeDA_1	713.0 / 669.0	4.28	13C2-PFOA	415.0 / 370.0	36444.16	100.00
PFTeDA_2	713.0 / 169.0	4.27	13C2-PFOA	415.0 / 370.0	36444.16	100.00
NMeFOSAA_1	570.0 / 419.0	3.35	d3-MeFOSAA	573.0 / 419.0	32780.98	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	32780.98	400.00
NEtFOSAA_1	584.0 / 419.0	3.51	d3-MeFOSAA	573.0 / 419.0	32780.98	400.00
NEtFOSAA_2	584.0 / 483.0	3.50	d3-MeFOSAA	573.0 / 419.0	32780.98	400.00

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Summary Internal Standard Report

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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	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.46	13C4-PFOS	503.0 / 80.0	124076.03	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	124076.03	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFHpA_2	363.0 / 169.0	2.09	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	124076.03	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	124076.03	287.00
PFOA_1	413.0 / 369.0	2.47	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFOA_2	413.0 / 169.0	2.47	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFNA_1	463.0 / 419.0	2.84	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFNA_2	463.0 / 219.0	2.84	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFOS_1	499.0 / 80.0	2.84	13C4-PFOS	503.0 / 80.0	124076.03	287.00
PFOS_2	499.0 / 99.0	2.84	13C4-PFOS	503.0 / 80.0	124076.03	287.00
PFDA_1	513.0 / 469.0	3.20	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFDA_2	513.0 / 219.0	3.20	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFUnA_1	563.0 / 519.0	3.52	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFUnA_2	563.0 / 269.0	3.51	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFDoA_1	613.0 / 569.0	3.80	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFDoA_2	613.0 / 319.0	3.80	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFTrDA_1	663.0 / 619.0	4.06	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFTrDA_2	663.0 / 169.0	4.06	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFTeDA_1	713.0 / 669.0	4.27	13C2-PFOA	415.0 / 370.0	40686.28	100.00
PFTeDA_2	713.0 / 169.0	4.27	13C2-PFOA	415.0 / 370.0	40686.28	100.00
NMeFOSAA_1	570.0 / 419.0	3.35	d3-MeFOSAA	573.0 / 419.0	35979.73	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	35979.73	400.00
NEtFOSAA_1	584.0 / 419.0	3.51	d3-MeFOSAA	573.0 / 419.0	35979.73	400.00
NEtFOSAA_2	584.0 / 483.0	3.50	d3-MeFOSAA	573.0 / 419.0	35979.73	400.00

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Summary Internal Standard Report

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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	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.46	13C4-PFOS	503.0 / 80.0	115482.86	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	115482.86	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFHpA_2	363.0 / 169.0	2.09	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	115482.86	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	115482.86	287.00
PFOA_1	413.0 / 369.0	2.47	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFOA_2	413.0 / 169.0	2.47	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFNA_1	463.0 / 419.0	2.84	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFNA_2	463.0 / 219.0	2.84	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFOS_1	499.0 / 80.0	2.83	13C4-PFOS	503.0 / 80.0	115482.86	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	115482.86	287.00
PFDA_1	513.0 / 469.0	3.19	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFDA_2	513.0 / 219.0	3.19	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFUnA_1	563.0 / 519.0	3.51	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFUnA_2	563.0 / 269.0	3.51	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFDoA_1	613.0 / 569.0	3.80	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFDoA_2	613.0 / 319.0	3.80	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFTrDA_1	663.0 / 619.0	4.06	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFTrDA_2	663.0 / 169.0	4.05	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFTeDA_1	713.0 / 669.0	4.27	13C2-PFOA	415.0 / 370.0	40060.11	100.00
PFTeDA_2	713.0 / 169.0	4.27	13C2-PFOA	415.0 / 370.0	40060.11	100.00
NMeFOSAA_1	570.0 / 419.0	3.34	d3-MeFOSAA	573.0 / 419.0	35477.74	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	35477.74	400.00
NEtFOSAA_1	584.0 / 419.0	3.50	d3-MeFOSAA	573.0 / 419.0	35477.74	400.00
NEtFOSAA_2	584.0 / 483.0	3.50	d3-MeFOSAA	573.0 / 419.0	35477.74	400.00

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QC Summary Report

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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
PFTrDA_1	663.0 / 619.0	4.05	915.967642	1000.00	91.60
PFTrDA_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

BATTELLE

QC Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:06:12 PM

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

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QC Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:04:40 PM

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
PFTrDA_1	663.0 / 619.0	4.05	1017.219205	1000.00	101.72
PFTrDA_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

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QC Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:06:27 PM

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

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QC Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:06:40 PM

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

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QC Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:04:43 PM

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_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
PFTrDA_1	663.0 / 619.0	4.04	519.782345	500.00	103.96
PFTrDA_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

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:36:01 AM

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	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.45	247924.79	809.809079	1134.6	false
PFBS_2	298.9 / 99.0	1.45	75049.64	755.655045	494.5	false
PFHxA_1	313.0 / 269.0	1.73	338601.78	951.504547	446.5	false
PFHxA_2	313.0 / 119.0	1.73	25375.13	976.056617	285.4	false
PFHpA_1	363.0 / 319.0	2.09	302227.71	872.945084	215.6	false
PFHpA_2	363.0 / 169.0	2.09	6224.79	900.472399	201.2	false
PFHxS_1	399.0 / 80.0	2.11	298943.04	829.070335	342.0	false
PFHxS_2	399.0 / 99.0	2.11	83413.53	793.652278	293.6	false
PFOA_1	413.0 / 369.0	2.47	350161.35	902.554040	263.6	false
PFOA_2	413.0 / 169.0	2.47	23611.57	908.321028	269.0	false
PFNA_1	463.0 / 419.0	2.84	367105.97	951.107113	249.4	false
PFNA_2	463.0 / 219.0	2.84	111034.02	971.010398	271.0	false
PFOS_1	499.0 / 80.0	2.84	429114.31	829.385489	300.8	false
PFOS_2	499.0 / 99.0	2.84	91397.73	922.111774	337.8	false
PFDA_1	513.0 / 469.0	3.19	400663.50	970.750770	276.8	false
PFDA_2	513.0 / 219.0	3.19	14942.96	897.604709	230.1	false
PFUnA_1	563.0 / 519.0	3.51	429061.59	942.781236	230.5	false
PFUnA_2	563.0 / 269.0	3.51	20422.57	935.184412	215.6	false
PFDoA_1	613.0 / 569.0	3.80	426719.73	937.427338	255.9	false
PFDoA_2	613.0 / 319.0	3.80	67535.48	965.543980	234.6	false
PFTrDA_1	663.0 / 619.0	4.05	388960.20	915.967642	296.6	false
PFTrDA_2	663.0 / 169.0	4.05	23471.57	868.878458	218.5	false
PFTeDA_1	713.0 / 669.0	4.27	393601.08	933.641680	455.9	false
PFTeDA_2	713.0 / 169.0	4.27	18356.30	897.107289	366.2	false
NMeFOSAA_1	570.0 / 419.0	3.34	91491.33	987.000603	474.3	false
NMeFOSAA_2	570.0 / 512.0	3.34	49871.28	875.674400	212.1	false
NEtFOSAA_1	584.0 / 419.0	3.51	84783.12	970.181857	291.8	false
NEtFOSAA_2	584.0 / 483.0	3.50	4893.43	832.410377	218.1	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 11:02:55 AM

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	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.71	29822.00	91.255435	970.0	false
13C2-PFDA	515.0 / 470.0	3.18	37126.65	94.107294	385.1	false
d5-EtFOSAA	589.0 / 419.0	3.50	34522.68	356.096301	245.1	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:36:04 AM

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	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.46	275879.48	857.952126	1169.1	true
PFBS_2	298.9 / 99.0	1.46	86751.43	832.372607	663.3	false
PFHxA_1	313.0 / 269.0	1.74	379842.79	1103.321529	452.3	false
PFHxA_2	313.0 / 119.0	1.73	26297.04	1046.024723	271.9	false
PFHpA_1	363.0 / 319.0	2.09	333466.91	994.975477	211.8	false
PFHpA_2	363.0 / 169.0	2.09	7442.52	1115.462289	192.9	false
PFHxS_1	399.0 / 80.0	2.11	316500.04	835.770344	286.1	false
PFHxS_2	399.0 / 99.0	2.11	94405.59	855.149811	263.4	false
PFOA_1	413.0 / 369.0	2.47	393945.94	1050.149668	303.0	false
PFOA_2	413.0 / 169.0	2.46	27649.52	1099.457433	341.0	false
PFNA_1	463.0 / 419.0	2.84	378131.56	1013.067622	254.7	false
PFNA_2	463.0 / 219.0	2.84	112478.51	1016.774026	312.3	false
PFOS_1	499.0 / 80.0	2.83	474581.58	873.503923	306.7	false
PFOS_2	499.0 / 99.0	2.83	88296.81	848.468626	295.9	false
PFDA_1	513.0 / 469.0	3.19	429128.42	1074.769319	269.3	false
PFDA_2	513.0 / 219.0	3.19	16678.35	1039.876267	294.5	false
PFUnA_1	563.0 / 519.0	3.51	447094.13	1015.078946	207.0	false
PFUnA_2	563.0 / 269.0	3.51	23911.58	1133.714697	242.9	false
PFDoA_1	613.0 / 569.0	3.80	450712.38	1023.327388	249.3	false
PFDoA_2	613.0 / 319.0	3.80	69748.43	1030.706414	246.3	false
PFTrDA_1	663.0 / 619.0	4.05	417931.75	1017.219205	318.0	false
PFTrDA_2	663.0 / 169.0	4.05	28128.10	1079.046641	280.1	false
PFTeDA_1	713.0 / 669.0	4.26	421682.30	1033.540714	467.7	false
PFTeDA_2	713.0 / 169.0	4.26	20467.02	1035.118117	340.6	false
NMeFOSAA_1	570.0 / 419.0	3.34	84622.91	1047.961387	291.9	false
NMeFOSAA_2	570.0 / 512.0	3.34	56043.24	1130.310814	267.0	false
NEtFOSAA_1	584.0 / 419.0	3.50	75183.33	987.616038	369.5	false
NEtFOSAA_2	584.0 / 483.0	3.50	4955.66	978.464009	198.6	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 11:03:10 AM

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	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.72	33687.83	102.116571	742.2	false
13C2-PFDA	515.0 / 470.0	3.18	42146.05	105.826776	457.3	false
d5-EtFOSAA	589.0 / 419.0	3.49	38097.03	441.065715	209.4	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:36:07 AM

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_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	157385.52	417.914638	905.9	false
PFBS_2	298.9 / 99.0	1.46	47610.18	385.869960	423.1	false
PFHxA_1	313.0 / 269.0	1.73	208217.94	518.610092	364.5	false
PFHxA_2	313.0 / 119.0	1.74	16705.00	566.713946	241.6	false
PFHpA_1	363.0 / 319.0	2.09	186537.65	479.530261	166.8	false
PFHpA_2	363.0 / 169.0	2.09	3790.73	481.000211	148.0	false
PFHxS_1	399.0 / 80.0	2.10	172241.64	389.977460	227.9	false
PFHxS_2	399.0 / 99.0	2.11	51249.43	396.671051	242.6	false
PFOA_1	413.0 / 369.0	2.47	210728.61	479.809379	226.7	false
PFOA_2	413.0 / 169.0	2.46	15016.76	512.062843	251.4	false
PFNA_1	463.0 / 419.0	2.84	223647.66	510.400948	209.7	false
PFNA_2	463.0 / 219.0	2.83	67499.25	522.674289	262.9	false
PFOS_1	499.0 / 80.0	2.83	268545.20	420.395326	238.7	false
PFOS_2	499.0 / 99.0	2.83	51686.96	424.640659	308.5	false
PFDA_1	513.0 / 469.0	3.18	240611.35	516.389069	197.8	false
PFDA_2	513.0 / 219.0	3.19	10043.29	523.404927	301.5	false
PFUnA_1	563.0 / 519.0	3.50	241280.56	472.292789	167.6	false
PFUnA_2	563.0 / 269.0	3.50	12565.48	505.894222	135.3	false
PFDoA_1	613.0 / 569.0	3.79	273333.03	532.774820	190.5	false
PFDoA_2	613.0 / 319.0	3.79	40816.95	517.324318	195.1	false
PFTrDA_1	663.0 / 619.0	4.04	248857.11	519.782345	261.7	false
PFTrDA_2	663.0 / 169.0	4.04	16151.81	525.531849	211.2	false
PFTeDA_1	713.0 / 669.0	4.26	244294.01	515.142696	429.1	false
PFTeDA_2	713.0 / 169.0	4.25	11898.52	512.102311	270.7	false
NMeFOSAA_1	570.0 / 419.0	3.33	49356.17	482.199675	364.9	false
NMeFOSAA_2	570.0 / 512.0	3.33	31863.80	506.812485	233.8	false
NEtFOSAA_1	584.0 / 419.0	3.50	49292.10	508.102875	294.0	false
NEtFOSAA_2	584.0 / 483.0	3.48	3009.10	435.168571	145.5	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 11:03:25 AM

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	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.72	37099.82	100.648179	772.8	false
13C2-PFDA	515.0 / 470.0	3.17	42461.06	95.420251	388.3	false
d5-EtFOSAA	589.0 / 419.0	3.49	41281.09	386.659468	215.2	false

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 17/05/2018 4:28:58 PM

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	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	1.45	PFBS	0.303	0.346	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.075	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	0.279	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	2.84	PFNA			
PFNA_2	463.0 / 219.0	2.84	PFNA	0.303	0.285	ü
PFOS_1	499.0 / 80.0	2.84	PFOS			
PFOS_2	499.0 / 99.0	2.84	PFOS	0.213	0.185	ü
PFDA_1	513.0 / 469.0	3.19	PFDA			
PFDA_2	513.0 / 219.0	3.19	PFDA	0.037	0.041	ü
PFUnA_1	563.0 / 519.0	3.51	PFUnA			
PFUnA_2	563.0 / 269.0	3.51	PFUnA	0.048	0.055	ü
PFDoA_1	613.0 / 569.0	3.80	PFDoA			
PFDoA_2	613.0 / 319.0	3.80	PFDoA	0.158	0.155	ü
PFTrDA_1	663.0 / 619.0	4.05	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.05	PFTrDA	0.060	0.070	ü
PFTeDA_1	713.0 / 669.0	4.27	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.27	PFTeDA	0.047	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.545	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.51	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.058	0.071	ü

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Summary Ion Ratio Report

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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	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	0.315	0.346	ü
PFHxA_1	313.0 / 269.0	1.74	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.069	0.075	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA			
PFHpA_2	363.0 / 169.0	2.09	PFHpA	0.022	0.022	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.298	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	2.84	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	0.186	0.185	ü
PFDA_1	513.0 / 469.0	3.19	PFDA			
PFDA_2	513.0 / 219.0	3.19	PFDA	0.039	0.041	ü
PFUnA_1	563.0 / 519.0	3.51	PFUnA			
PFUnA_2	563.0 / 269.0	3.51	PFUnA	0.054	0.055	ü
PFDoA_1	613.0 / 569.0	3.80	PFDoA			
PFDoA_2	613.0 / 319.0	3.80	PFDoA	0.155	0.155	ü
PFTrDA_1	663.0 / 619.0	4.05	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.05	PFTrDA	0.067	0.070	ü
PFTeDA_1	713.0 / 669.0	4.26	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.26	PFTeDA	0.049	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.662	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.066	0.071	ü

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Summary Ion Ratio Report

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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_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	0.303	0.346	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.74	PFHxA	0.080	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	0.298	0.298	ü
PFOA_1	413.0 / 369.0	2.47	PFOA			
PFOA_2	413.0 / 169.0	2.46	PFOA	0.071	0.065	ü
PFNA_1	463.0 / 419.0	2.84	PFNA			
PFNA_2	463.0 / 219.0	2.83	PFNA	0.302	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	3.18	PFDA			
PFDA_2	513.0 / 219.0	3.19	PFDA	0.042	0.041	ü
PFUnA_1	563.0 / 519.0	3.50	PFUnA			
PFUnA_2	563.0 / 269.0	3.50	PFUnA	0.052	0.055	ü
PFDoA_1	613.0 / 569.0	3.79	PFDoA			
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.149	0.155	ü
PFTrDA_1	663.0 / 619.0	4.04	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.04	PFTrDA	0.065	0.070	ü
PFTeDA_1	713.0 / 669.0	4.26	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.25	PFTeDA	0.049	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.33	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.646	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.48	NEtFOSSA	0.061	0.071	ü

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Summary Internal Standard Report

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Printed: 17/05/2018 4:29:45 PM

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	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.45	13C4-PFOS	503.0 / 80.0	117840.43	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	117840.43	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFHpA_2	363.0 / 169.0	2.09	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	117840.43	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	117840.43	287.00
PFOA_1	413.0 / 369.0	2.47	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFOA_2	413.0 / 169.0	2.47	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFNA_1	463.0 / 419.0	2.84	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFNA_2	463.0 / 219.0	2.84	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFOS_1	499.0 / 80.0	2.84	13C4-PFOS	503.0 / 80.0	117840.43	287.00
PFOS_2	499.0 / 99.0	2.84	13C4-PFOS	503.0 / 80.0	117840.43	287.00
PFDA_1	513.0 / 469.0	3.19	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFDA_2	513.0 / 219.0	3.19	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFUnA_1	563.0 / 519.0	3.51	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFUnA_2	563.0 / 269.0	3.51	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFDoA_1	613.0 / 569.0	3.80	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFDoA_2	613.0 / 319.0	3.80	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFTrDA_1	663.0 / 619.0	4.05	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFTrDA_2	663.0 / 169.0	4.05	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFTeDA_1	713.0 / 669.0	4.27	13C2-PFOA	415.0 / 370.0	37999.50	100.00
PFTeDA_2	713.0 / 169.0	4.27	13C2-PFOA	415.0 / 370.0	37999.50	100.00
NMeFOSAA_1	570.0 / 419.0	3.34	d3-MeFOSAA	573.0 / 419.0	36861.29	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	36861.29	400.00
NEtFOSAA_1	584.0 / 419.0	3.51	d3-MeFOSAA	573.0 / 419.0	36861.29	400.00
NEtFOSAA_2	584.0 / 483.0	3.50	d3-MeFOSAA	573.0 / 419.0	36861.29	400.00

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Summary Internal Standard Report

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Printed: 17/05/2018 4:29:47 PM

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	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.46	13C4-PFOS	503.0 / 80.0	123755.73	287.00
PFBS_2	298.9 / 99.0	1.46	13C4-PFOS	503.0 / 80.0	123755.73	287.00
PFHxA_1	313.0 / 269.0	1.74	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFHpA_2	363.0 / 169.0	2.09	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	123755.73	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	123755.73	287.00
PFOA_1	413.0 / 369.0	2.47	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFOA_2	413.0 / 169.0	2.46	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFNA_1	463.0 / 419.0	2.84	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFNA_2	463.0 / 219.0	2.84	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFOS_1	499.0 / 80.0	2.83	13C4-PFOS	503.0 / 80.0	123755.73	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	123755.73	287.00
PFDA_1	513.0 / 469.0	3.19	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFDA_2	513.0 / 219.0	3.19	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFUnA_1	563.0 / 519.0	3.51	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFUnA_2	563.0 / 269.0	3.51	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFDoA_1	613.0 / 569.0	3.80	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFDoA_2	613.0 / 319.0	3.80	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFTrDA_1	663.0 / 619.0	4.05	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFTrDA_2	663.0 / 169.0	4.05	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFTeDA_1	713.0 / 669.0	4.26	13C2-PFOA	415.0 / 370.0	36763.73	100.00
PFTeDA_2	713.0 / 169.0	4.26	13C2-PFOA	415.0 / 370.0	36763.73	100.00
NMeFOSAA_1	570.0 / 419.0	3.34	d3-MeFOSAA	573.0 / 419.0	32115.57	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	32115.57	400.00
NEtFOSAA_1	584.0 / 419.0	3.50	d3-MeFOSAA	573.0 / 419.0	32115.57	400.00
NEtFOSAA_2	584.0 / 483.0	3.50	d3-MeFOSAA	573.0 / 419.0	32115.57	400.00

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Summary Internal Standard Report

Created with Analyst Reporter
Printed: 17/05/2018 4:29:50 PM

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_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	145223.90	287.00
PFBS_2	298.9 / 99.0	1.46	13C4-PFOS	503.0 / 80.0	145223.90	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFHxA_2	313.0 / 119.0	1.74	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFHpA_2	363.0 / 169.0	2.09	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFHxS_1	399.0 / 80.0	2.10	13C4-PFOS	503.0 / 80.0	145223.90	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	145223.90	287.00
PFOA_1	413.0 / 369.0	2.47	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFOA_2	413.0 / 169.0	2.46	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFNA_1	463.0 / 419.0	2.84	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFOS_1	499.0 / 80.0	2.83	13C4-PFOS	503.0 / 80.0	145223.90	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	145223.90	287.00
PFDA_1	513.0 / 469.0	3.18	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFDA_2	513.0 / 219.0	3.19	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFUnA_1	563.0 / 519.0	3.50	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFUnA_2	563.0 / 269.0	3.50	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFDoA_1	613.0 / 569.0	3.79	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFDoA_2	613.0 / 319.0	3.79	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFTrDA_1	663.0 / 619.0	4.04	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFTrDA_2	663.0 / 169.0	4.04	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFTeDA_1	713.0 / 669.0	4.26	13C2-PFOA	415.0 / 370.0	42861.34	100.00
PFTeDA_2	713.0 / 169.0	4.25	13C2-PFOA	415.0 / 370.0	42861.34	100.00
NMeFOSAA_1	570.0 / 419.0	3.33	d3-MeFOSAA	573.0 / 419.0	40593.45	400.00
NMeFOSAA_2	570.0 / 512.0	3.33	d3-MeFOSAA	573.0 / 419.0	40593.45	400.00
NEtFOSAA_1	584.0 / 419.0	3.50	d3-MeFOSAA	573.0 / 419.0	40593.45	400.00
NEtFOSAA_2	584.0 / 483.0	3.48	d3-MeFOSAA	573.0 / 419.0	40593.45	400.00

Raw Analytical Data

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:39:51 AM

Sample Name	CQ689PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:13:32	**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	1.47	5476.19	16.888287	109.1	true
PFBS_2	298.9 / 99.0	1.45	2698.15	17.056383	92.7	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
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTrDA_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

BATTELLE

QC Summary Report

Created with Analyst Reporter
Printed: 16/05/2018 3:00:53 PM

Sample Name	CQ689PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:13:32	**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	110.750397	100.00	110.75
13C2-PFDA	515.0 / 470.0	3.18	108.545676	100.00	108.55
d5-EtFOSAA	589.0 / 419.0	3.49	381.441399	400.00	95.36

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:39:53 AM

Sample Name	CQ690LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:22:27	**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	452446.85	1843.691775	1201.7	false
PFBS_2	298.9 / 99.0	1.46	143140.01	1808.874004	687.1	false
PFHxA_1	313.0 / 269.0	1.74	650668.15	2422.673049	561.0	false
PFHxA_2	313.0 / 119.0	1.73	48354.80	2474.824767	304.7	false
PFHpA_1	363.0 / 319.0	2.09	587846.66	2242.846642	258.9	false
PFHpA_2	363.0 / 169.0	2.09	11881.14	2294.008936	224.1	false
PFHxS_1	399.0 / 80.0	2.11	547157.96	1889.481783	392.8	false
PFHxS_2	399.0 / 99.0	2.11	158220.09	1877.436063	339.0	false
PFOA_1	413.0 / 369.0	2.47	659306.15	2256.830335	310.1	false
PFOA_2	413.0 / 169.0	2.47	43490.42	2216.674368	419.6	false
PFNA_1	463.0 / 419.0	2.83	659573.95	2273.699011	278.8	false
PFNA_2	463.0 / 219.0	2.83	196642.55	2280.054700	365.1	false
PFOS_1	499.0 / 80.0	2.83	751450.38	1815.802899	339.8	false
PFOS_2	499.0 / 99.0	2.83	161740.20	2034.646724	374.3	false
PFDA_1	513.0 / 469.0	3.19	707742.24	2272.914237	317.4	false
PFDA_2	513.0 / 219.0	3.19	25021.89	2025.656431	319.1	false
PFUnA_1	563.0 / 519.0	3.51	718955.80	2087.289593	226.1	false
PFUnA_2	563.0 / 269.0	3.50	37199.13	2269.747251	224.1	false
PFDoA_1	613.0 / 569.0	3.80	713039.69	2073.925119	261.0	false
PFDoA_2	613.0 / 319.0	3.79	106637.90	2019.773042	223.4	false
PFTrDA_1	663.0 / 619.0	4.05	683584.67	2131.877658	346.1	false
PFTrDA_2	663.0 / 169.0	4.04	44185.44	2184.317116	323.0	false
PFTeDA_1	713.0 / 669.0	4.26	789898.30	2477.001284	574.3	false
PFTeDA_2	713.0 / 169.0	4.26	37683.84	2453.668635	555.2	false
NMeFOSAA_1	570.0 / 419.0	3.34	156267.12	2284.750521	412.5	false
NMeFOSAA_2	570.0 / 512.0	3.34	85832.28	2043.496386	282.6	false
NEtFOSAA_1	584.0 / 419.0	3.50	150373.66	2340.847172	337.9	false
NEtFOSAA_2	584.0 / 483.0	3.50	8025.31	1929.354400	183.9	false

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QC Summary Report

Created with Analyst Reporter
Printed: 16/05/2018 3:00:54 PM

Sample Name	CQ690LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:22:27	**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	105.716294	100.00	105.72
13C2-PFDA	515.0 / 470.0	3.17	96.917560	100.00	96.92
d5-EtFOSAA	589.0 / 419.0	3.49	368.355660	400.00	92.09

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:39:56 AM

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
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTrDA_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

BATTELLE

QC Summary Report

Created with Analyst Reporter
Printed: 16/05/2018 3:00:56 PM

Sample Name	J5964-FS(0)	**Injection Vial**	14
Sample ID	WGNA-043018-RW-3103	**Injection Volume**	10.00
Sample Type	Quality Control	**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_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	122.428756	100.00	122.43
13C2-PFDA	515.0 / 470.0	3.18	104.055979	100.00	104.06
d5-EtFOSAA	589.0 / 419.0	3.49	373.438746	400.00	93.36

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:39:58 AM

Sample Name	J5964MS-FS(0)	**Injection Vial**	15
Sample ID	WGNA-043018-RW-3103	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:40:20	**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	2319464.35	5737.349100	603.2	true
PFBS_2	298.9 / 99.0	1.46	746448.24	5743.248018	856.5	false
PFHxA_1	313.0 / 269.0	1.73	3311946.03	6629.790816	381.8	false
PFHxA_2	313.0 / 119.0	1.73	238862.61	6583.820054	472.4	false
PFHpA_1	363.0 / 319.0	2.09	2837587.18	5813.593295	340.3	false
PFHpA_2	363.0 / 169.0	2.09	56902.92	5924.018179	390.3	false
PFHxS_1	399.0 / 80.0	2.11	2873452.62	6017.142513	425.1	false
PFHxS_2	399.0 / 99.0	2.11	844264.39	6080.259120	469.3	false
PFOA_1	413.0 / 369.0	2.46	3701096.42	6818.204191	472.4	false
PFOA_2	413.0 / 169.0	2.46	294976.76	8083.043009	437.6	false
PFNA_1	463.0 / 419.0	2.83	2759515.14	5122.855566	337.0	false
PFNA_2	463.0 / 219.0	2.83	817782.15	5099.224918	388.7	false
PFOS_1	499.0 / 80.0	2.83	3951353.17	5802.703703	368.1	false
PFOS_2	499.0 / 99.0	2.83	747290.77	5704.762502	411.5	false
PFDA_1	513.0 / 469.0	3.18	2635756.04	4551.489637	322.3	false
PFDA_2	513.0 / 219.0	3.18	109825.42	4818.179170	490.6	false
PFUnA_1	563.0 / 519.0	3.50	2789152.14	4348.224502	303.7	false
PFUnA_2	563.0 / 269.0	3.50	138700.18	4558.918580	276.9	false
PFDoA_1	613.0 / 569.0	3.79	2678780.10	4187.561761	336.7	false
PFDoA_2	613.0 / 319.0	3.79	421786.68	4294.778213	308.8	false
PFTrDA_1	663.0 / 619.0	4.04	2690656.92	4510.468926	473.7	false
PFTrDA_2	663.0 / 169.0	4.04	173477.36	4623.267343	386.5	false
PFTeDA_1	713.0 / 669.0	4.26	3128483.25	5270.457404	708.9	false
PFTeDA_2	713.0 / 169.0	4.25	152150.15	5335.222840	647.3	false
NMeFOSAA_1	570.0 / 419.0	3.34	612121.26	4874.552863	435.2	false
NMeFOSAA_2	570.0 / 512.0	3.34	337449.26	4376.572778	428.8	false
NEtFOSAA_1	584.0 / 419.0	3.50	556118.26	4721.138353	359.4	false
NEtFOSAA_2	584.0 / 483.0	3.49	32135.77	4284.594768	362.3	false

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QC Summary Report

Created with Analyst Reporter
Printed: 16/05/2018 3:00:58 PM

Sample Name	J5964MS-FS(0)	**Injection Vial**	15
Sample ID	Matrix Spike	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:40:20	**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	127.979811	100.00	127.98
13C2-PFDA	515.0 / 470.0	3.17	107.270053	100.00	107.27
d5-EtFOSAA	589.0 / 419.0	3.49	365.555060	400.00	91.39

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:40:01 AM

Sample Name	J5964MSD-FS(0)	**Injection Vial**	16
Sample ID	WGNA-043018-RW-3103	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:49:16	**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	2187958.73	5599.728643	625.2	true
PFBS_2	298.9 / 99.0	1.46	724130.54	5764.715177	880.9	false
PFHxA_1	313.0 / 269.0	1.73	3144704.60	6537.816304	399.6	false
PFHxA_2	313.0 / 119.0	1.73	226034.09	6470.413909	462.8	false
PFHpA_1	363.0 / 319.0	2.09	2658139.05	5656.114775	332.2	false
PFHpA_2	363.0 / 169.0	2.08	56327.23	6090.588358	364.6	false
PFHxS_1	399.0 / 80.0	2.11	2730855.15	5916.865200	412.0	false
PFHxS_2	399.0 / 99.0	2.11	800838.87	5967.504537	438.5	false
PFOA_1	413.0 / 369.0	2.46	3397124.04	6499.439639	442.0	false
PFOA_2	413.0 / 169.0	2.46	280432.11	7980.888248	401.0	false
PFNA_1	463.0 / 419.0	2.83	2653891.43	5116.798497	340.0	false
PFNA_2	463.0 / 219.0	2.83	796793.88	5160.009714	374.5	false
PFOS_1	499.0 / 80.0	2.83	3768569.18	5726.124418	380.2	false
PFOS_2	499.0 / 99.0	2.83	730170.17	5767.280362	415.8	false
PFDA_1	513.0 / 469.0	3.18	2588796.09	4642.848954	338.8	false
PFDA_2	513.0 / 219.0	3.18	100905.13	4596.288607	282.9	false
PFUnA_1	563.0 / 519.0	3.50	2645333.52	4283.153062	306.5	false
PFUnA_2	563.0 / 269.0	3.50	136524.77	4660.710698	288.6	false
PFDoA_1	613.0 / 569.0	3.79	2586342.36	4199.005555	319.1	false
PFDoA_2	613.0 / 319.0	3.79	408280.35	4317.605443	325.2	false
PFTrDA_1	663.0 / 619.0	4.04	2573965.33	4481.288802	474.8	false
PFTrDA_2	663.0 / 169.0	4.04	165679.22	4585.659517	427.5	false
PFTeDA_1	713.0 / 669.0	4.26	2940281.19	5144.535352	805.1	false
PFTeDA_2	713.0 / 169.0	4.26	140909.43	5131.338726	596.5	false
NMeFOSAA_1	570.0 / 419.0	3.33	580938.72	4964.457714	423.8	false
NMeFOSAA_2	570.0 / 512.0	3.34	326744.45	4547.628051	369.9	false
NEtFOSAA_1	584.0 / 419.0	3.50	543262.37	4949.553231	380.2	false
NEtFOSAA_2	584.0 / 483.0	3.50	29116.56	4163.967116	318.8	false

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QC Summary Report

Created with Analyst Reporter
Printed: 16/05/2018 3:01:01 PM

Sample Name	J5964MSD-FS(0)	**Injection Vial**	16
Sample ID	Matrix Spike Suplicate	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:49:16	**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	124.371145	100.00	124.37
13C2-PFDA	515.0 / 470.0	3.17	106.430532	100.00	106.43
d5-EtFOSAA	589.0 / 419.0	3.49	375.574806	400.00	93.89

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:40:03 AM

Sample Name	J5966-FS(0)	**Injection Vial**	17
Sample ID	NAWC-0403018-RW-204	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:58:13	**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	1.47	110945.90	446.857668	350.2	true
PFBS_2	298.9 / 99.0	1.47	30927.93	380.214980	246.1	false
PFHxA_1	313.0 / 269.0	1.74	285646.39	994.871874	178.3	false
PFHxA_2	313.0 / 119.0	1.74	19222.29	915.960704	186.8	false
PFHpA_1	363.0 / 319.0	2.09	155171.10	556.978837	112.9	false
PFHpA_2	363.0 / 169.0	2.08	4343.28	777.191590	101.2	false
PFHxS_1	399.0 / 80.0	2.11	72382.75	250.254612	125.0	false
PFHxS_2	399.0 / 99.0	2.11	21410.78	252.156791	139.0	false
PFOA_1	413.0 / 369.0	2.47	445164.31	1424.267433	277.6	false
PFOA_2	413.0 / 169.0	2.45	43539.28	2076.178710	269.5	false
PFNA_1	463.0 / 419.0	2.84	60479.07	188.483235	82.8	false
PFNA_2	463.0 / 219.0	2.83	20636.40	222.571353	146.8	false
PFOS_1	499.0 / 80.0	2.76	342561.46	815.091898	211.0	false
PFOS_2	499.0 / 99.0	2.82	45162.11	562.031829	222.2	false
PFDA_1	513.0 / 469.0	3.19	15220.09	44.784995	53.2	false
PFDA_2	513.0 / 219.0	3.17	638.83	20.727990	44.1	false
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
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTrDA_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	3.32	459.43	4.302323	25.6	false
NMeFOSAA_2	570.0 / 512.0	3.33	228.10	2.594062	12.6	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

BATTELLE

QC Summary Report

Created with Analyst Reporter
Printed: 16/05/2018 3:01:03 PM

Sample Name	J5966-FS(0)	**Injection Vial**	17
Sample ID	NAWC-043018-RW-207	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:58:13	**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	1.73	111.249950	100.00	111.25
13C2-PFDA	515.0 / 470.0	3.18	94.123393	100.00	94.12
d5-EtFOSAA	589.0 / 419.0	3.49	356.940158	400.00	89.24

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:40:06 AM

Sample Name	J5968-FS(0)	**Injection Vial**	18
Sample ID	WGNA-043018-RW-3409	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:24:59	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.46	623651.93	2095.864500	365.8	true
PFBS_2	298.9 / 99.0	1.46	212182.46	2213.005865	474.8	false
PFHxA_1	313.0 / 269.0	1.73	752612.87	2112.440016	180.9	false
PFHxA_2	313.0 / 119.0	1.73	51362.25	1980.266464	216.2	false
PFHpA_1	363.0 / 319.0	2.09	407272.95	1173.361518	118.4	true
PFHpA_2	363.0 / 169.0	2.07	11830.40	1719.156213	152.7	false
PFHxS_1	399.0 / 80.0	2.11	612864.47	1745.918600	189.7	false
PFHxS_2	399.0 / 99.0	2.11	175591.05	1718.675099	302.4	false
PFOA_1	413.0 / 369.0	2.46	1246808.42	3218.925195	283.5	false
PFOA_2	413.0 / 169.0	2.44	118933.00	4570.014123	428.0	false
PFNA_1	463.0 / 419.0	2.83	180502.27	463.365882	128.4	false
PFNA_2	463.0 / 219.0	2.83	51488.06	448.900209	180.7	false
PFOS_1	499.0 / 80.0	2.78	2024236.26	4036.285351	294.3	false
PFOS_2	499.0 / 99.0	2.82	300415.17	3115.536689	358.7	false
PFDA_1	513.0 / 469.0	3.18	18164.34	43.029741	58.3	false
PFDA_2	513.0 / 219.0	3.21	614.52	9.693857	29.2	false
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
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTrDA_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	3.34	5674.44	61.745851	160.5	false
NMeFOSAA_2	570.0 / 512.0	3.33	4918.15	87.820594	64.3	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

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QC Summary Report

Created with Analyst Reporter
Printed: 16/05/2018 3:01:07 PM

Sample Name	J5968-FS(0)	**Injection Vial**	18
Sample ID	WGNA-0403018-RW-3409	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:24:59	**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	124.850358	100.00	124.85
13C2-PFDA	515.0 / 470.0	3.17	96.648033	100.00	96.65
d5-EtFOSAA	589.0 / 419.0	3.49	401.789310	400.00	100.45

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:40:08 AM

Sample Name	J5970-FS(0)	**Injection Vial**	19
Sample ID	WGNA-050118-RW-3385	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:33:54	**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	206988.51	707.920607	407.0	true
PFBS_2	298.9 / 99.0	1.46	61216.80	644.267457	335.6	false
PFHxA_1	313.0 / 269.0	1.73	550949.42	1591.625164	201.2	false
PFHxA_2	313.0 / 119.0	1.73	38154.90	1512.466256	239.0	false
PFHpA_1	363.0 / 319.0	2.09	415555.25	1232.078547	134.1	true
PFHpA_2	363.0 / 169.0	2.05	13868.51	2076.665541	206.6	true
PFHxS_1	399.0 / 80.0	2.11	301248.64	874.297739	184.1	false
PFHxS_2	399.0 / 99.0	2.11	85922.58	855.607511	229.4	false
PFOA_1	413.0 / 369.0	2.46	1547242.53	4112.583339	315.6	true
PFOA_2	413.0 / 169.0	2.43	159497.63	6308.280171	439.9	false
PFNA_1	463.0 / 419.0	2.83	158372.31	417.766112	144.0	false
PFNA_2	463.0 / 219.0	2.83	49749.49	446.437052	173.8	false
PFOS_1	499.0 / 80.0	2.80	2040705.75	4134.985437	343.7	false
PFOS_2	499.0 / 99.0	2.83	322823.62	3401.830507	365.4	false
PFDA_1	513.0 / 469.0	3.19	46312.64	114.490396	101.9	false
PFDA_2	513.0 / 219.0	3.17	1342.21	57.157025	42.7	false
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
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTrDA_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

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QC Summary Report

Created with Analyst Reporter
Printed: 16/05/2018 3:01:09 PM

Sample Name	J5970-FS(0)	**Injection Vial**	19
Sample ID	WGNA-050118-RW-3385	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:33:54	**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	117.700592	100.00	117.70
13C2-PFDA	515.0 / 470.0	3.18	96.898702	100.00	96.90
d5-EtFOSAA	589.0 / 419.0	3.49	357.577966	400.00	89.39

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:40:12 AM

Sample Name	J5972-FS(0)	**Injection Vial**	20
Sample ID	WGNA-050118-RW-3178	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:42:49	**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	313926.66	1351.204577	275.8	true
PFBS_2	298.9 / 99.0	1.46	99845.42	1330.635962	371.5	false
PFHxA_1	313.0 / 269.0	1.73	308458.26	1110.454706	148.0	false
PFHxA_2	313.0 / 119.0	1.73	21607.50	1065.364817	168.8	false
PFHpA_1	363.0 / 319.0	2.09	172756.08	640.316972	89.4	false
PFHpA_2	363.0 / 169.0	2.06	5629.57	1045.020654	112.3	true
PFHxS_1	399.0 / 80.0	2.11	536027.62	1954.421963	205.9	false
PFHxS_2	399.0 / 99.0	2.11	158746.44	1988.918365	253.2	false
PFOA_1	413.0 / 369.0	2.46	669515.87	2216.105223	222.6	true
PFOA_2	413.0 / 169.0	2.43	75398.21	3716.355182	322.0	false
PFNA_1	463.0 / 419.0	2.83	76598.19	248.960761	92.3	false
PFNA_2	463.0 / 219.0	2.83	25674.35	286.620959	143.3	false
PFOS_1	499.0 / 80.0	2.77	1530250.37	3906.315527	253.3	false
PFOS_2	499.0 / 99.0	2.82	226719.54	3010.254913	399.8	false
PFDA_1	513.0 / 469.0	3.18	13689.37	41.566469	50.1	false
PFDA_2	513.0 / 219.0	3.20	592.51	18.699481	23.5	false
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
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTrDA_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	4578.04	62.201625	335.7	false
NMeFOSAA_2	570.0 / 512.0	3.34	2800.98	61.583183	78.0	false
NEtFOSAA_1	584.0 / 419.0	3.50	1655.92	16.328953	75.8	false
NEtFOSAA_2	584.0 / 483.0	3.49	148.51	< 0	16.8	true

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QC Summary Report

Created with Analyst Reporter
Printed: 16/05/2018 3:01:11 PM

Sample Name	J5972-FS(0)	**Injection Vial**	20
Sample ID	WGNA-050118-RW-3178	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:42:49	**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	123.526240	100.00	123.53
13C2-PFDA	515.0 / 470.0	3.18	98.418217	100.00	98.42
d5-EtFOSAA	589.0 / 419.0	3.49	363.945292	400.00	90.99

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:40:15 AM

Sample Name	J5974-FS(0)	**Injection Vial**	21
Sample ID	NAWC-050118-RW-304	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:51:45	**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	469510.33	1856.094888	422.5	true
PFBS_2	298.9 / 99.0	1.46	148390.39	1819.276061	411.8	false
PFHxA_1	313.0 / 269.0	1.73	614592.27	2184.416035	202.9	false
PFHxA_2	313.0 / 119.0	1.73	44216.25	2159.353723	252.0	false
PFHpA_1	363.0 / 319.0	2.09	316365.27	1154.233971	128.6	false
PFHpA_2	363.0 / 169.0	2.06	9320.84	1715.134278	151.5	false
PFHxS_1	399.0 / 80.0	2.10	550472.59	1844.282951	233.3	false
PFHxS_2	399.0 / 99.0	2.11	157457.85	1812.679634	291.6	false
PFOA_1	413.0 / 369.0	2.46	1092961.13	3573.545409	291.2	true
PFOA_2	413.0 / 169.0	2.44	110105.99	5357.506080	364.0	false
PFNA_1	463.0 / 419.0	2.83	132988.18	431.820960	122.6	false
PFNA_2	463.0 / 219.0	2.83	36800.44	406.148252	154.9	false
PFOS_1	499.0 / 80.0	2.80	1592686.71	3735.328284	321.7	false
PFOS_2	499.0 / 99.0	2.83	274092.10	3343.278711	379.3	false
PFDA_1	513.0 / 469.0	3.18	20188.89	60.954299	58.9	false
PFDA_2	513.0 / 219.0	3.20	1219.76	67.247269	37.0	false
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
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTrDA_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

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QC Summary Report

Created with Analyst Reporter
Printed: 16/05/2018 3:01:13 PM

Sample Name	J5974-FS(0)	**Injection Vial**	21
Sample ID	NAWC-050118-RW-304	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:51:45	**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	114.251501	100.00	114.25
13C2-PFDA	515.0 / 470.0	3.17	87.781556	100.00	87.78
d5-EtFOSAA	589.0 / 419.0	3.49	359.027747	400.00	89.76

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:40:17 AM

Sample Name	J5976-FS(0)	**Injection Vial**	22
Sample ID	NAWC-050118-RW-098	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T16:00:39	**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	325616.70	1244.926641	406.6	true
PFBS_2	298.9 / 99.0	1.46	102619.19	1214.115796	379.3	false
PFHxA_1	313.0 / 269.0	1.73	472053.01	1636.497539	175.4	false
PFHxA_2	313.0 / 119.0	1.73	32541.15	1548.133853	215.1	false
PFHpA_1	363.0 / 319.0	2.09	235681.76	839.859571	106.0	false
PFHpA_2	363.0 / 169.0	2.05	7881.25	1412.635036	140.7	false
PFHxS_1	399.0 / 80.0	2.10	301046.18	977.136686	184.6	false
PFHxS_2	399.0 / 99.0	2.10	88511.00	985.944128	232.3	false
PFOA_1	413.0 / 369.0	2.46	757355.96	2414.198331	244.1	true
PFOA_2	413.0 / 169.0	2.43	84361.48	4003.922868	352.9	false
PFNA_1	463.0 / 419.0	2.83	100260.99	315.652968	106.0	false
PFNA_2	463.0 / 219.0	2.82	27731.85	298.163363	110.0	false
PFOS_1	499.0 / 80.0	2.76	806410.97	1827.522821	251.3	false
PFOS_2	499.0 / 99.0	2.82	117270.59	1384.439499	342.8	false
PFDA_1	513.0 / 469.0	3.18	20284.31	59.718358	65.5	false
PFDA_2	513.0 / 219.0	3.17	417.34	3.565523	16.5	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
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTrDA_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

BATTELLE

QC Summary Report

Created with Analyst Reporter
Printed: 16/05/2018 3:01:14 PM

Sample Name	J5976-FS(0)	**Injection Vial**	22
Sample ID	NAWC-050118-RW-098	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T16:00:39	**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	124.416396	100.00	124.42
13C2-PFDA	515.0 / 470.0	3.17	103.021262	100.00	103.02
d5-EtFOSAA	589.0 / 419.0	3.48	371.698279	400.00	92.92

BATTELLE

Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 17/05/2018 4:32:18 PM

Sample Name	CQ689PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:13:32	**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	1.45	PFBS	0.493	0.346	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.075	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.022	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.298	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.065	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.285	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.185	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.055	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.155	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.070	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.618	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSSA	N/A	0.071	ü

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Summary Ion Ratio Report

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Sample Name	CQ690LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:22:27	**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	0.316	0.346	ü
PFHxA_1	313.0 / 269.0	1.74	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	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.289	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	2.83	PFNA			
PFNA_2	463.0 / 219.0	2.83	PFNA	0.298	0.285	ü
PFOS_1	499.0 / 80.0	2.83	PFOS			
PFOS_2	499.0 / 99.0	2.83	PFOS	0.215	0.185	ü
PFDA_1	513.0 / 469.0	3.19	PFDA			
PFDA_2	513.0 / 219.0	3.19	PFDA	0.035	0.041	ü
PFUnA_1	563.0 / 519.0	3.51	PFUnA			
PFUnA_2	563.0 / 269.0	3.50	PFUnA	0.052	0.055	ü
PFDoA_1	613.0 / 569.0	3.80	PFDoA			
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.150	0.155	ü
PFTrDA_1	663.0 / 619.0	4.05	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.04	PFTrDA	0.065	0.070	ü
PFTeDA_1	713.0 / 669.0	4.26	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.26	PFTeDA	0.048	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.549	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.053	0.071	ü

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Summary Ion Ratio Report

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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	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	0.330	0.346	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.071	0.075	ü
PFHpA_1	363.0 / 319.0	2.08	PFHpA			
PFHpA_2	363.0 / 169.0	2.05	PFHpA	0.033	0.022	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS			
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.283	0.298	ü
PFOA_1	413.0 / 369.0	2.46	PFOA			
PFOA_2	413.0 / 169.0	2.42	PFOA	0.110	0.065	
PFNA_1	463.0 / 419.0	2.75	PFNA			
PFNA_2	463.0 / 219.0	2.75	PFNA	0.334	0.285	ü
PFOS_1	499.0 / 80.0	2.77	PFOS			
PFOS_2	499.0 / 99.0	2.82	PFOS	0.141	0.185	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.055	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.155	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.070	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.33	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.30	NMeFOSAA	0.603	0.618	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSSA	N/A	0.071	ü

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Summary Ion Ratio Report

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Sample Name	J5964MS-FS(0)	**Injection Vial**	15
Sample ID	WGNA-043018-RW-3103	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:40:20	**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	0.322	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	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.294	0.298	ü
PFOA_1	413.0 / 369.0	2.46	PFOA			
PFOA_2	413.0 / 169.0	2.46	PFOA	0.080	0.065	ü
PFNA_1	463.0 / 419.0	2.83	PFNA			
PFNA_2	463.0 / 219.0	2.83	PFNA	0.296	0.285	ü
PFOS_1	499.0 / 80.0	2.83	PFOS			
PFOS_2	499.0 / 99.0	2.83	PFOS	0.189	0.185	ü
PFDA_1	513.0 / 469.0	3.18	PFDA			
PFDA_2	513.0 / 219.0	3.18	PFDA	0.042	0.041	ü
PFUnA_1	563.0 / 519.0	3.50	PFUnA			
PFUnA_2	563.0 / 269.0	3.50	PFUnA	0.050	0.055	ü
PFDoA_1	613.0 / 569.0	3.79	PFDoA			
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.158	0.155	ü
PFTrDA_1	663.0 / 619.0	4.04	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.04	PFTrDA	0.065	0.070	ü
PFTeDA_1	713.0 / 669.0	4.26	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.25	PFTeDA	0.049	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.551	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.49	NEtFOSSA	0.058	0.071	ü

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Summary Ion Ratio Report

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Sample Name	J5964MSD-FS(0)	**Injection Vial**	16
Sample ID	WGNA-043018-RW-3103	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:49:16	**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	0.331	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	2.08	PFHpA	0.021	0.022	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.293	0.298	ü
PFOA_1	413.0 / 369.0	2.46	PFOA			
PFOA_2	413.0 / 169.0	2.46	PFOA	0.083	0.065	ü
PFNA_1	463.0 / 419.0	2.83	PFNA			
PFNA_2	463.0 / 219.0	2.83	PFNA	0.300	0.285	ü
PFOS_1	499.0 / 80.0	2.83	PFOS			
PFOS_2	499.0 / 99.0	2.83	PFOS	0.194	0.185	ü
PFDA_1	513.0 / 469.0	3.18	PFDA			
PFDA_2	513.0 / 219.0	3.18	PFDA	0.039	0.041	ü
PFUnA_1	563.0 / 519.0	3.50	PFUnA			
PFUnA_2	563.0 / 269.0	3.50	PFUnA	0.052	0.055	ü
PFDoA_1	613.0 / 569.0	3.79	PFDoA			
PFDoA_2	613.0 / 319.0	3.79	PFDoA	0.158	0.155	ü
PFTrDA_1	663.0 / 619.0	4.04	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.04	PFTrDA	0.064	0.070	ü
PFTeDA_1	713.0 / 669.0	4.26	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.26	PFTeDA	0.048	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.33	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.562	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.50	NEtFOSSA	0.054	0.071	ü

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Summary Ion Ratio Report

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Sample Name	J5966-FS(0)	**Injection Vial**	17
Sample ID	NAWC-0403018-RW-204	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:58:13	**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	0.279	0.346	ü
PFHxA_1	313.0 / 269.0	1.74	PFHxA			
PFHxA_2	313.0 / 119.0	1.74	PFHxA	0.067	0.075	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA			
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.028	0.022	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.296	0.298	ü
PFOA_1	413.0 / 369.0	2.47	PFOA			
PFOA_2	413.0 / 169.0	2.45	PFOA	0.098	0.065	ü
PFNA_1	463.0 / 419.0	2.84	PFNA			
PFNA_2	463.0 / 219.0	2.83	PFNA	0.341	0.285	ü
PFOS_1	499.0 / 80.0	2.76	PFOS			
PFOS_2	499.0 / 99.0	2.82	PFOS	0.132	0.185	ü
PFDA_1	513.0 / 469.0	3.19	PFDA			
PFDA_2	513.0 / 219.0	3.17	PFDA	0.042	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.055	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.155	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.070	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.32	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.497	0.618	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSSA	N/A	0.071	ü

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Summary Ion Ratio Report

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Sample Name	J5968-FS(0)	**Injection Vial**	18
Sample ID	WGNA-043018-RW-3409	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:24:59	**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	1.46	PFBS			
PFBS_2	298.9 / 99.0	1.46	PFBS	0.340	0.346	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.068	0.075	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA			
PFHpA_2	363.0 / 169.0	2.07	PFHpA	0.029	0.022	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.287	0.298	ü
PFOA_1	413.0 / 369.0	2.46	PFOA			
PFOA_2	413.0 / 169.0	2.44	PFOA	0.095	0.065	ü
PFNA_1	463.0 / 419.0	2.83	PFNA			
PFNA_2	463.0 / 219.0	2.83	PFNA	0.285	0.285	ü
PFOS_1	499.0 / 80.0	2.78	PFOS			
PFOS_2	499.0 / 99.0	2.82	PFOS	0.148	0.185	ü
PFDA_1	513.0 / 469.0	3.18	PFDA			
PFDA_2	513.0 / 219.0	3.21	PFDA	0.034	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.055	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.155	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.070	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.33	NMeFOSAA	0.867	0.618	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSSA	N/A	0.071	ü

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Summary Ion Ratio Report

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Sample Name	J5970-FS(0)	**Injection Vial**	19
Sample ID	WGNA-050118-RW-3385	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:33:54	**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	0.296	0.346	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.069	0.075	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA			
PFHpA_2	363.0 / 169.0	2.05	PFHpA	0.033	0.022	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.285	0.298	ü
PFOA_1	413.0 / 369.0	2.46	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.103	0.065	
PFNA_1	463.0 / 419.0	2.83	PFNA			
PFNA_2	463.0 / 219.0	2.83	PFNA	0.314	0.285	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.83	PFOS	0.158	0.185	ü
PFDA_1	513.0 / 469.0	3.19	PFDA			
PFDA_2	513.0 / 219.0	3.17	PFDA	0.029	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.055	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.155	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.070	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.618	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSSA	N/A	0.071	ü

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Summary Ion Ratio Report

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Sample Name	J5972-FS(0)	**Injection Vial**	20
Sample ID	WGNA-050118-RW-3178	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:42:49	**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	0.318	0.346	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.070	0.075	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.033	0.022	ü
PFHxS_1	399.0 / 80.0	2.11	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.296	0.298	ü
PFOA_1	413.0 / 369.0	2.46	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.113	0.065	
PFNA_1	463.0 / 419.0	2.83	PFNA			
PFNA_2	463.0 / 219.0	2.83	PFNA	0.335	0.285	ü
PFOS_1	499.0 / 80.0	2.77	PFOS			
PFOS_2	499.0 / 99.0	2.82	PFOS	0.148	0.185	ü
PFDA_1	513.0 / 469.0	3.18	PFDA			
PFDA_2	513.0 / 219.0	3.20	PFDA	0.043	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.055	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.155	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.070	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.33	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.612	0.618	ü
NEtFOSAA_1	584.0 / 419.0	3.50	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.49	NEtFOSSA	0.090	0.071	ü

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Summary Ion Ratio Report

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Sample Name	J5974-FS(0)	**Injection Vial**	21
Sample ID	NAWC-050118-RW-304	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:51:45	**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	0.316	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	2.06	PFHpA	0.030	0.022	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.286	0.298	ü
PFOA_1	413.0 / 369.0	2.46	PFOA			
PFOA_2	413.0 / 169.0	2.44	PFOA	0.101	0.065	
PFNA_1	463.0 / 419.0	2.83	PFNA			
PFNA_2	463.0 / 219.0	2.83	PFNA	0.277	0.285	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.83	PFOS	0.172	0.185	ü
PFDA_1	513.0 / 469.0	3.18	PFDA			
PFDA_2	513.0 / 219.0	3.20	PFDA	0.060	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.055	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.155	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.070	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.618	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSSA	N/A	0.071	ü

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Summary Ion Ratio Report

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Sample Name	J5976-FS(0)	**Injection Vial**	22
Sample ID	NAWC-050118-RW-098	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T16:00:39	**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	0.315	0.346	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.069	0.075	ü
PFHpA_1	363.0 / 319.0	2.09	PFHpA			
PFHpA_2	363.0 / 169.0	2.05	PFHpA	0.033	0.022	ü
PFHxS_1	399.0 / 80.0	2.10	PFHxS			
PFHxS_2	399.0 / 99.0	2.10	PFHxS	0.294	0.298	ü
PFOA_1	413.0 / 369.0	2.46	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.111	0.065	
PFNA_1	463.0 / 419.0	2.83	PFNA			
PFNA_2	463.0 / 219.0	2.82	PFNA	0.277	0.285	ü
PFOS_1	499.0 / 80.0	2.76	PFOS			
PFOS_2	499.0 / 99.0	2.82	PFOS	0.145	0.185	ü
PFDA_1	513.0 / 469.0	3.18	PFDA			
PFDA_2	513.0 / 219.0	3.17	PFDA	0.021	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.055	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.155	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.070	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.618	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSSA	N/A	0.071	ü

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Summary Internal Standard Report

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Sample Name	CQ689PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:13:32	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_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	1.47	13C4-PFOS	503.0 / 80.0	137545.49	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	137545.49	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	137545.49	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	137545.49	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	137545.49	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	137545.49	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	37813.28	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	38457.65	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	38457.65	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	38457.65	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	38457.65	400.00

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Summary Internal Standard Report

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Sample Name	CQ690LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:22:27	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_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	94353.12	287.00
PFBS_2	298.9 / 99.0	1.46	13C4-PFOS	503.0 / 80.0	94353.12	287.00
PFHxA_1	313.0 / 269.0	1.74	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFHpA_2	363.0 / 169.0	2.09	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	94353.12	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	94353.12	287.00
PFOA_1	413.0 / 369.0	2.47	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFOA_2	413.0 / 169.0	2.47	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFNA_1	463.0 / 419.0	2.83	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFOS_1	499.0 / 80.0	2.83	13C4-PFOS	503.0 / 80.0	94353.12	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	94353.12	287.00
PFDA_1	513.0 / 469.0	3.19	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFDA_2	513.0 / 219.0	3.19	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFUnA_1	563.0 / 519.0	3.51	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFUnA_2	563.0 / 269.0	3.50	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFDoA_1	613.0 / 569.0	3.80	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFDoA_2	613.0 / 319.0	3.79	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFTrDA_1	663.0 / 619.0	4.05	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFTrDA_2	663.0 / 169.0	4.04	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFTeDA_1	713.0 / 669.0	4.26	13C2-PFOA	415.0 / 370.0	28684.35	100.00
PFTeDA_2	713.0 / 169.0	4.26	13C2-PFOA	415.0 / 370.0	28684.35	100.00
NMeFOSAA_1	570.0 / 419.0	3.34	d3-MeFOSAA	573.0 / 419.0	27237.74	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	27237.74	400.00
NEtFOSAA_1	584.0 / 419.0	3.50	d3-MeFOSAA	573.0 / 419.0	27237.74	400.00
NEtFOSAA_2	584.0 / 483.0	3.50	d3-MeFOSAA	573.0 / 419.0	27237.74	400.00

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Summary Internal Standard Report

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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	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.46	13C4-PFOS	503.0 / 80.0	107669.01	287.00
PFBS_2	298.9 / 99.0	1.46	13C4-PFOS	503.0 / 80.0	107669.01	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFHpA_1	363.0 / 319.0	2.08	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFHpA_2	363.0 / 169.0	2.05	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFHxS_1	399.0 / 80.0	2.10	13C4-PFOS	503.0 / 80.0	107669.01	287.00
PFHxS_2	399.0 / 99.0	2.10	13C4-PFOS	503.0 / 80.0	107669.01	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFOA_2	413.0 / 169.0	2.42	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFNA_1	463.0 / 419.0	2.75	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFNA_2	463.0 / 219.0	2.75	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFOS_1	499.0 / 80.0	2.77	13C4-PFOS	503.0 / 80.0	107669.01	287.00
PFOS_2	499.0 / 99.0	2.82	13C4-PFOS	503.0 / 80.0	107669.01	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	35415.11	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	35415.11	100.00
NMeFOSAA_1	570.0 / 419.0	3.33	d3-MeFOSAA	573.0 / 419.0	30250.69	400.00
NMeFOSAA_2	570.0 / 512.0	3.30	d3-MeFOSAA	573.0 / 419.0	30250.69	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	30250.69	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	30250.69	400.00

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Summary Internal Standard Report

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Sample Name	J5964MS-FS(0)	**Injection Vial**	15
Sample ID	WGNA-043018-RW-3103	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:40:20	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_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	155345.44	287.00
PFBS_2	298.9 / 99.0	1.46	13C4-PFOS	503.0 / 80.0	155345.44	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFHpA_2	363.0 / 169.0	2.09	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	155345.44	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	155345.44	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFOA_2	413.0 / 169.0	2.46	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFNA_1	463.0 / 419.0	2.83	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFOS_1	499.0 / 80.0	2.83	13C4-PFOS	503.0 / 80.0	155345.44	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	155345.44	287.00
PFDA_1	513.0 / 469.0	3.18	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFDA_2	513.0 / 219.0	3.18	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFUnA_1	563.0 / 519.0	3.50	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFUnA_2	563.0 / 269.0	3.50	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFDoA_1	613.0 / 569.0	3.79	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFDoA_2	613.0 / 319.0	3.79	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFTrDA_1	663.0 / 619.0	4.04	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFTrDA_2	663.0 / 169.0	4.04	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFTeDA_1	713.0 / 669.0	4.26	13C2-PFOA	415.0 / 370.0	53357.66	100.00
PFTeDA_2	713.0 / 169.0	4.25	13C2-PFOA	415.0 / 370.0	53357.66	100.00
NMeFOSAA_1	570.0 / 419.0	3.34	d3-MeFOSAA	573.0 / 419.0	50038.18	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	50038.18	400.00
NEtFOSAA_1	584.0 / 419.0	3.50	d3-MeFOSAA	573.0 / 419.0	50038.18	400.00
NEtFOSAA_2	584.0 / 483.0	3.49	d3-MeFOSAA	573.0 / 419.0	50038.18	400.00

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Summary Internal Standard Report

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Sample Name	J5964MSD-FS(0)	**Injection Vial**	16
Sample ID	WGNA-043018-RW-3103	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:49:16	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_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	150140.27	287.00
PFBS_2	298.9 / 99.0	1.46	13C4-PFOS	503.0 / 80.0	150140.27	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFHpA_2	363.0 / 169.0	2.08	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	150140.27	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	150140.27	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFOA_2	413.0 / 169.0	2.46	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFNA_1	463.0 / 419.0	2.83	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFOS_1	499.0 / 80.0	2.83	13C4-PFOS	503.0 / 80.0	150140.27	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	150140.27	287.00
PFDA_1	513.0 / 469.0	3.18	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFDA_2	513.0 / 219.0	3.18	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFUnA_1	563.0 / 519.0	3.50	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFUnA_2	563.0 / 269.0	3.50	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFDoA_1	613.0 / 569.0	3.79	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFDoA_2	613.0 / 319.0	3.79	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFTrDA_1	663.0 / 619.0	4.04	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFTrDA_2	663.0 / 169.0	4.04	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFTeDA_1	713.0 / 669.0	4.26	13C2-PFOA	415.0 / 370.0	51375.99	100.00
PFTeDA_2	713.0 / 169.0	4.26	13C2-PFOA	415.0 / 370.0	51375.99	100.00
NMeFOSAA_1	570.0 / 419.0	3.33	d3-MeFOSAA	573.0 / 419.0	46629.57	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	46629.57	400.00
NEtFOSAA_1	584.0 / 419.0	3.50	d3-MeFOSAA	573.0 / 419.0	46629.57	400.00
NEtFOSAA_2	584.0 / 483.0	3.50	d3-MeFOSAA	573.0 / 419.0	46629.57	400.00

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Sample Name	J5966-FS(0)	**Injection Vial**	17
Sample ID	NAWC-0403018-RW-204	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:58:13	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_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	1.47	13C4-PFOS	503.0 / 80.0	95718.36	287.00
PFBS_2	298.9 / 99.0	1.47	13C4-PFOS	503.0 / 80.0	95718.36	287.00
PFHxA_1	313.0 / 269.0	1.74	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFHxA_2	313.0 / 119.0	1.74	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFHpA_2	363.0 / 169.0	2.08	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	95718.36	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	95718.36	287.00
PFOA_1	413.0 / 369.0	2.47	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFOA_2	413.0 / 169.0	2.45	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFNA_1	463.0 / 419.0	2.84	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFOS_1	499.0 / 80.0	2.76	13C4-PFOS	503.0 / 80.0	95718.36	287.00
PFOS_2	499.0 / 99.0	2.82	13C4-PFOS	503.0 / 80.0	95718.36	287.00
PFDA_1	513.0 / 469.0	3.19	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFDA_2	513.0 / 219.0	3.17	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	30659.63	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30659.63	100.00
NMeFOSAA_1	570.0 / 419.0	3.32	d3-MeFOSAA	573.0 / 419.0	26759.87	400.00
NMeFOSAA_2	570.0 / 512.0	3.33	d3-MeFOSAA	573.0 / 419.0	26759.87	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	26759.87	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	26759.87	400.00

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Sample Name	J5968-FS(0)	**Injection Vial**	18
Sample ID	WGNA-043018-RW-3409	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:24:59	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.46	13C4-PFOS	503.0 / 80.0	114396.01	287.00
PFBS_2	298.9 / 99.0	1.46	13C4-PFOS	503.0 / 80.0	114396.01	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFHpA_2	363.0 / 169.0	2.07	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	114396.01	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	114396.01	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFOA_2	413.0 / 169.0	2.44	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFNA_1	463.0 / 419.0	2.83	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFOS_1	499.0 / 80.0	2.78	13C4-PFOS	503.0 / 80.0	114396.01	287.00
PFOS_2	499.0 / 99.0	2.82	13C4-PFOS	503.0 / 80.0	114396.01	287.00
PFDA_1	513.0 / 469.0	3.18	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFDA_2	513.0 / 219.0	3.21	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	38050.45	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	38050.45	100.00
NMeFOSAA_1	570.0 / 419.0	3.34	d3-MeFOSAA	573.0 / 419.0	35189.78	400.00
NMeFOSAA_2	570.0 / 512.0	3.33	d3-MeFOSAA	573.0 / 419.0	35189.78	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	35189.78	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	35189.78	400.00

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Summary Internal Standard Report

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Sample Name	J5970-FS(0)	**Injection Vial**	19
Sample ID	WGNA-050118-RW-3385	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:33:54	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_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	112575.01	287.00
PFBS_2	298.9 / 99.0	1.46	13C4-PFOS	503.0 / 80.0	112575.01	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFHpA_2	363.0 / 169.0	2.05	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	112575.01	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	112575.01	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFOA_2	413.0 / 169.0	2.43	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFNA_1	463.0 / 419.0	2.83	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFOS_1	499.0 / 80.0	2.80	13C4-PFOS	503.0 / 80.0	112575.01	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	112575.01	287.00
PFDA_1	513.0 / 469.0	3.19	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFDA_2	513.0 / 219.0	3.17	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	36967.82	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	36967.82	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	32815.03	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	32815.03	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	32815.03	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	32815.03	400.00

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Summary Internal Standard Report

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Sample Name	J5972-FS(0)	**Injection Vial**	20
Sample ID	WGNA-050118-RW-3178	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:42:49	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_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	89355.46	287.00
PFBS_2	298.9 / 99.0	1.46	13C4-PFOS	503.0 / 80.0	89355.46	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFHpA_2	363.0 / 169.0	2.06	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFHxS_1	399.0 / 80.0	2.11	13C4-PFOS	503.0 / 80.0	89355.46	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	89355.46	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFOA_2	413.0 / 169.0	2.43	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFNA_1	463.0 / 419.0	2.83	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFOS_1	499.0 / 80.0	2.77	13C4-PFOS	503.0 / 80.0	89355.46	287.00
PFOS_2	499.0 / 99.0	2.82	13C4-PFOS	503.0 / 80.0	89355.46	287.00
PFDA_1	513.0 / 469.0	3.18	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFDA_2	513.0 / 219.0	3.20	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	29662.93	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	29662.93	100.00
NMeFOSAA_1	570.0 / 419.0	3.33	d3-MeFOSAA	573.0 / 419.0	28190.62	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	28190.62	400.00
NEtFOSAA_1	584.0 / 419.0	3.50	d3-MeFOSAA	573.0 / 419.0	28190.62	400.00
NEtFOSAA_2	584.0 / 483.0	3.49	d3-MeFOSAA	573.0 / 419.0	28190.62	400.00

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Summary Internal Standard Report

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Sample Name	J5974-FS(0)	**Injection Vial**	21
Sample ID	NAWC-050118-RW-304	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:51:45	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_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	97256.69	287.00
PFBS_2	298.9 / 99.0	1.46	13C4-PFOS	503.0 / 80.0	97256.69	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFHpA_2	363.0 / 169.0	2.06	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFHxS_1	399.0 / 80.0	2.10	13C4-PFOS	503.0 / 80.0	97256.69	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	97256.69	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFOA_2	413.0 / 169.0	2.44	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFNA_1	463.0 / 419.0	2.83	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFNA_2	463.0 / 219.0	2.83	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFOS_1	499.0 / 80.0	2.80	13C4-PFOS	503.0 / 80.0	97256.69	287.00
PFOS_2	499.0 / 99.0	2.83	13C4-PFOS	503.0 / 80.0	97256.69	287.00
PFDA_1	513.0 / 469.0	3.18	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFDA_2	513.0 / 219.0	3.20	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	30048.74	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30048.74	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	28505.77	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	28505.77	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	28505.77	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	28505.77	400.00

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Summary Internal Standard Report

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Sample Name	J5976-FS(0)	**Injection Vial**	22
Sample ID	NAWC-050118-RW-098	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T16:00:39	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_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	100605.26	287.00
PFBS_2	298.9 / 99.0	1.46	13C4-PFOS	503.0 / 80.0	100605.26	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFHpA_1	363.0 / 319.0	2.09	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFHpA_2	363.0 / 169.0	2.05	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFHxS_1	399.0 / 80.0	2.10	13C4-PFOS	503.0 / 80.0	100605.26	287.00
PFHxS_2	399.0 / 99.0	2.10	13C4-PFOS	503.0 / 80.0	100605.26	287.00
PFOA_1	413.0 / 369.0	2.46	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFOA_2	413.0 / 169.0	2.43	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFNA_1	463.0 / 419.0	2.83	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFNA_2	463.0 / 219.0	2.82	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFOS_1	499.0 / 80.0	2.76	13C4-PFOS	503.0 / 80.0	100605.26	287.00
PFOS_2	499.0 / 99.0	2.82	13C4-PFOS	503.0 / 80.0	100605.26	287.00
PFDA_1	513.0 / 469.0	3.18	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFDA_2	513.0 / 219.0	3.17	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	30805.66	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30805.66	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	29098.01	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	29098.01	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	29098.01	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	29098.01	400.00

Chromatograms

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Chromatogram Report

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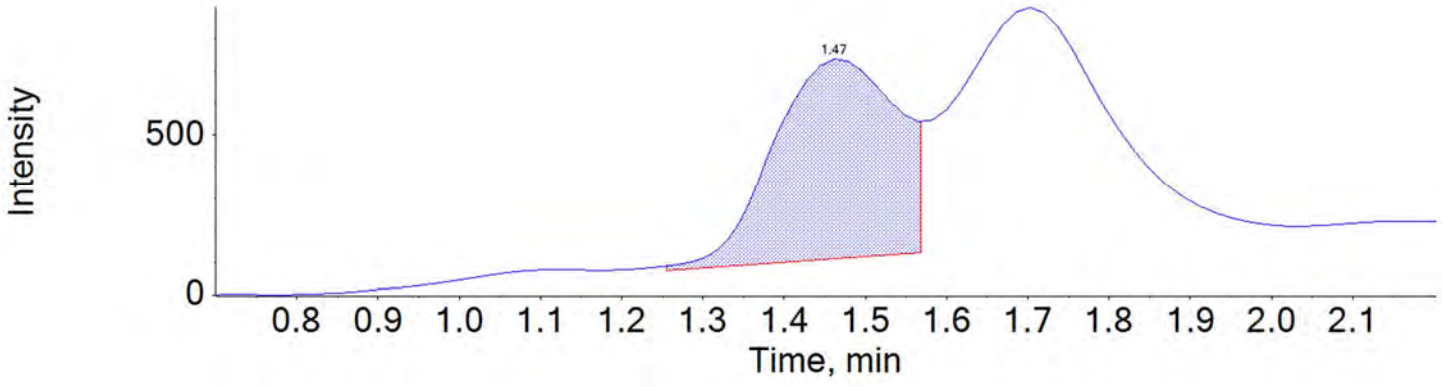
Printed: 17/05/2018 4:04:41 PM

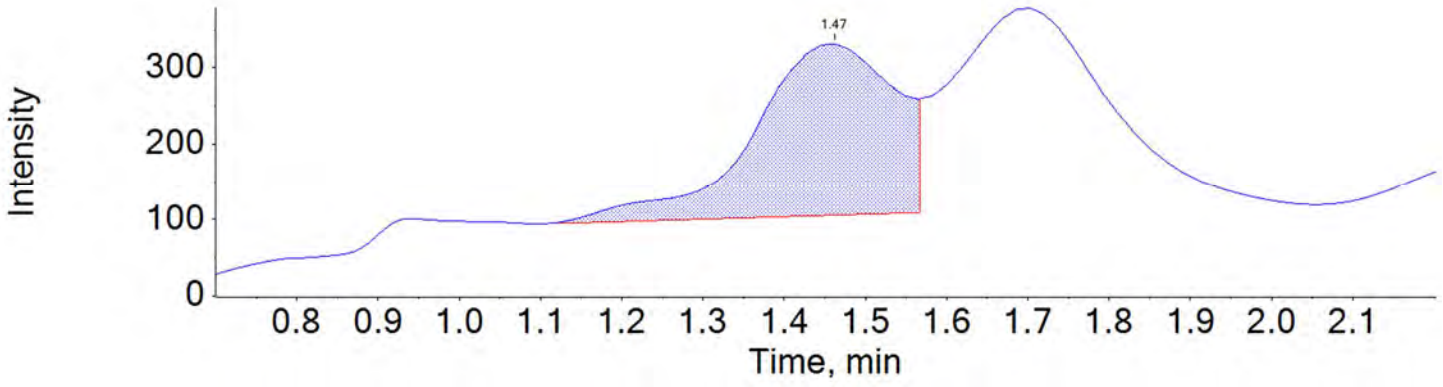
Sample Name	JV64	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T12:35:02	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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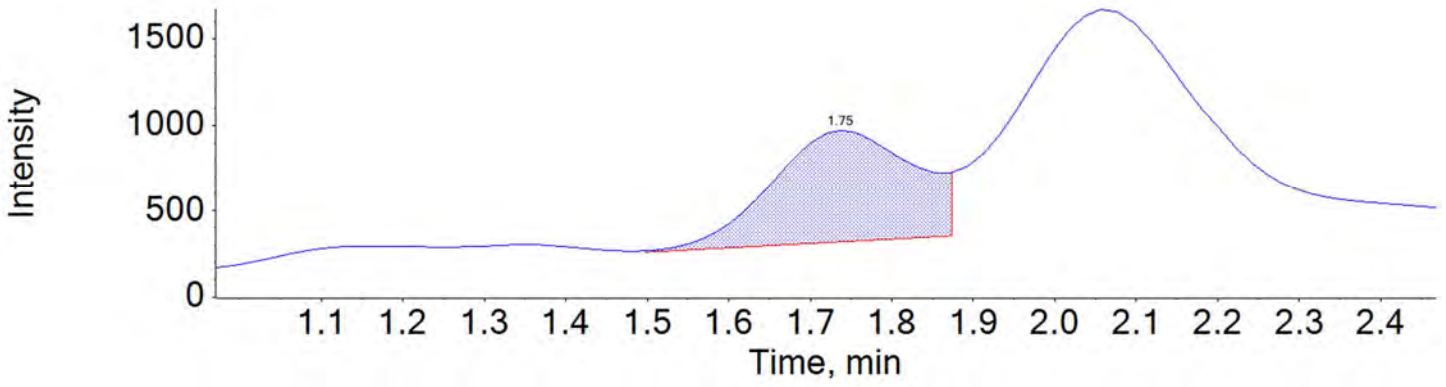
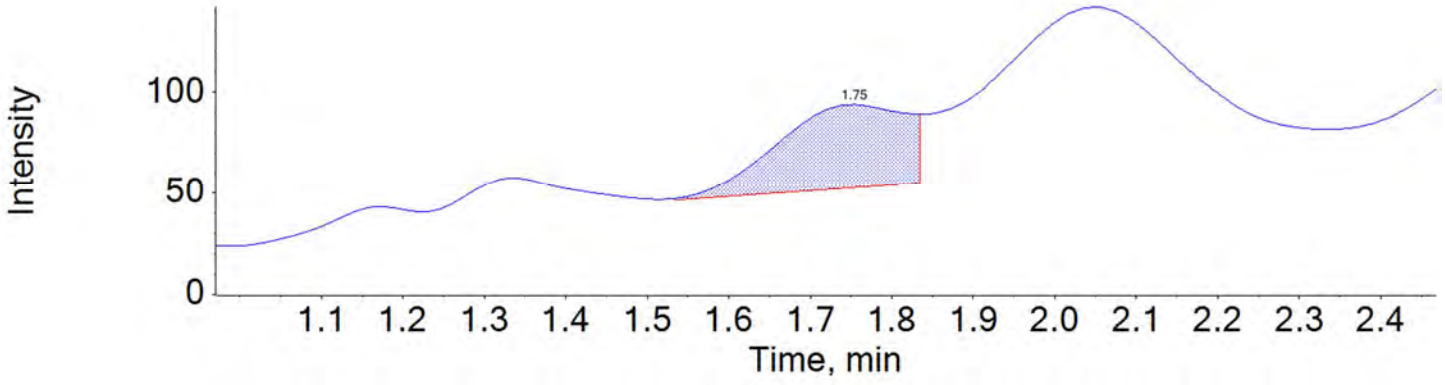
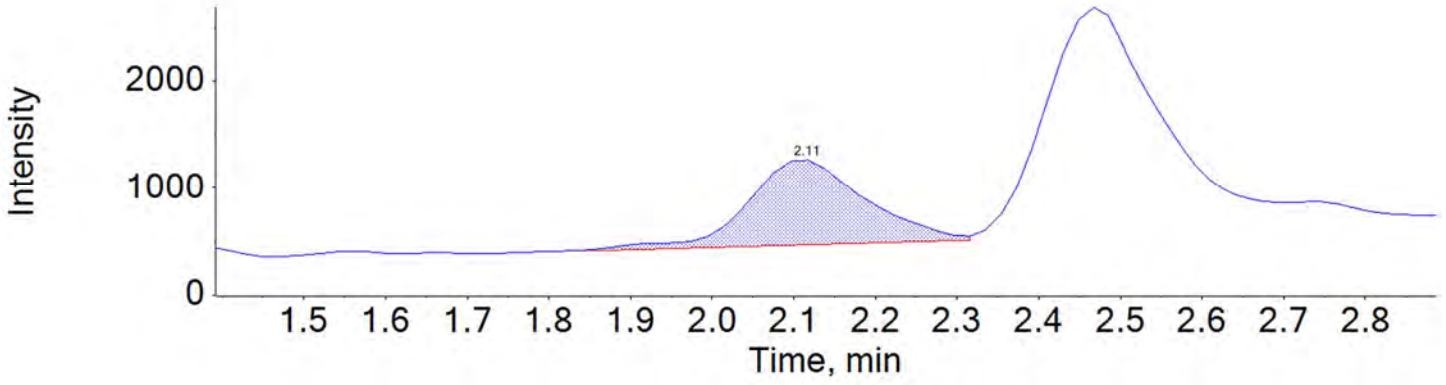
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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Chromatogram Report

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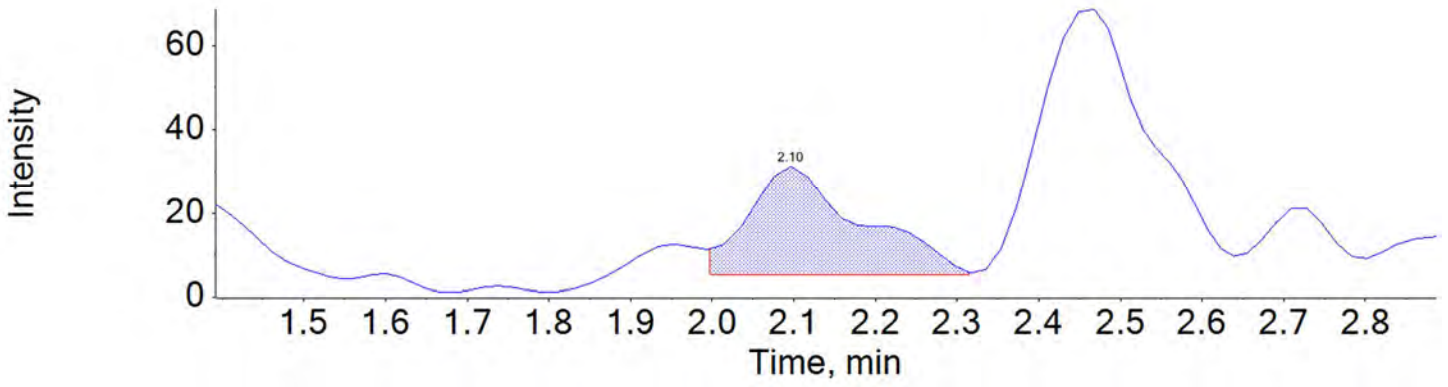
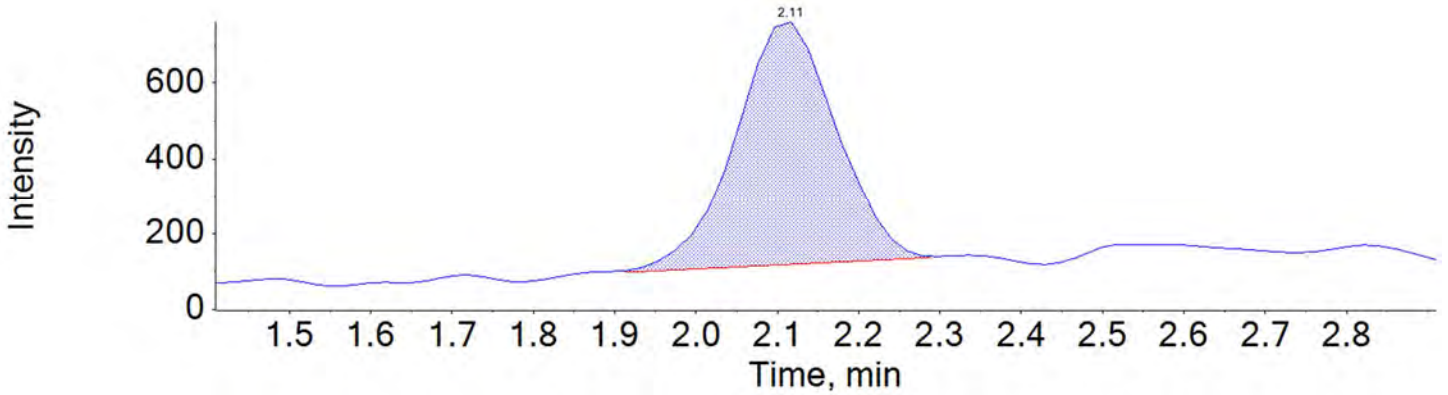
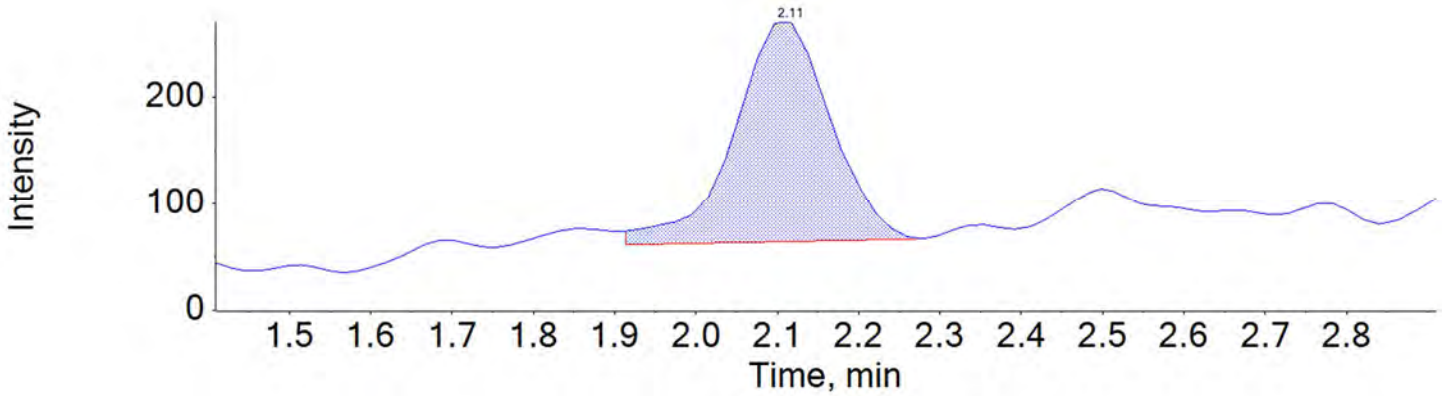
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



PFHxS_2 399.0 / 99.0



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Chromatogram Report

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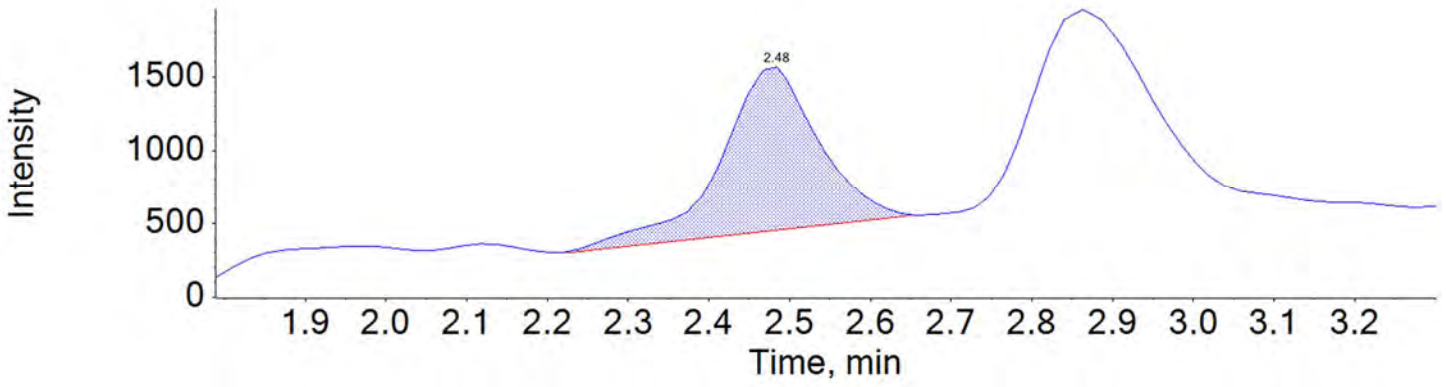
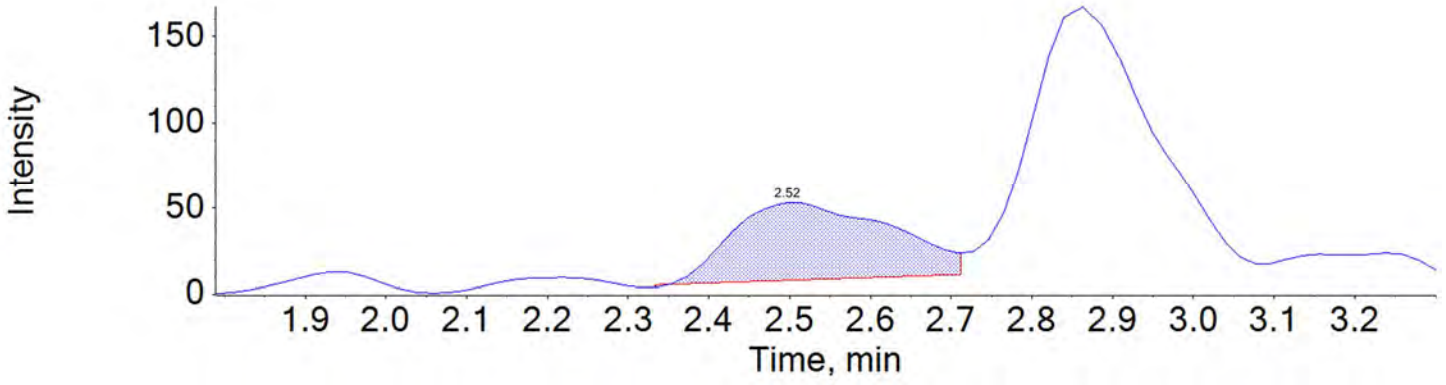
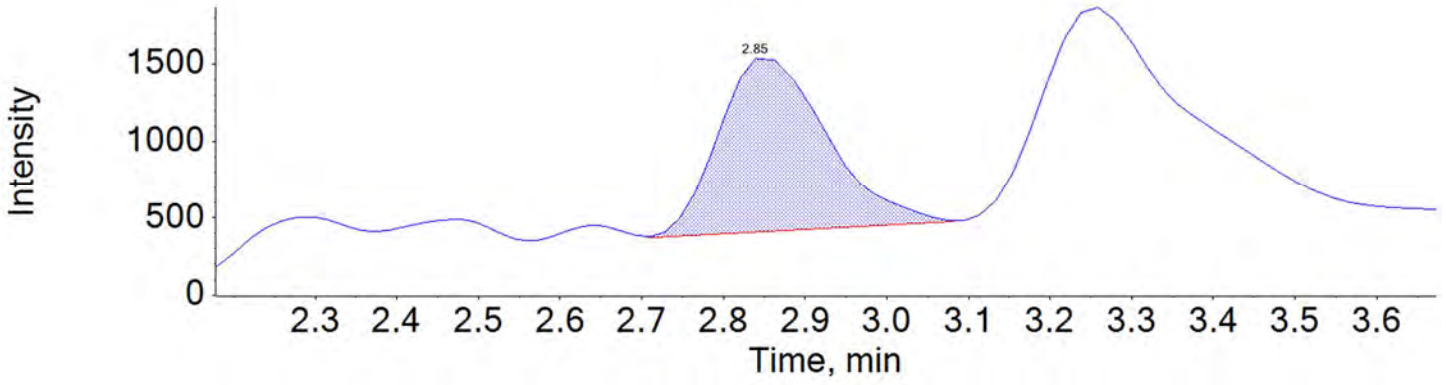
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



PFNA_1 463.0 / 419.0



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Chromatogram Report

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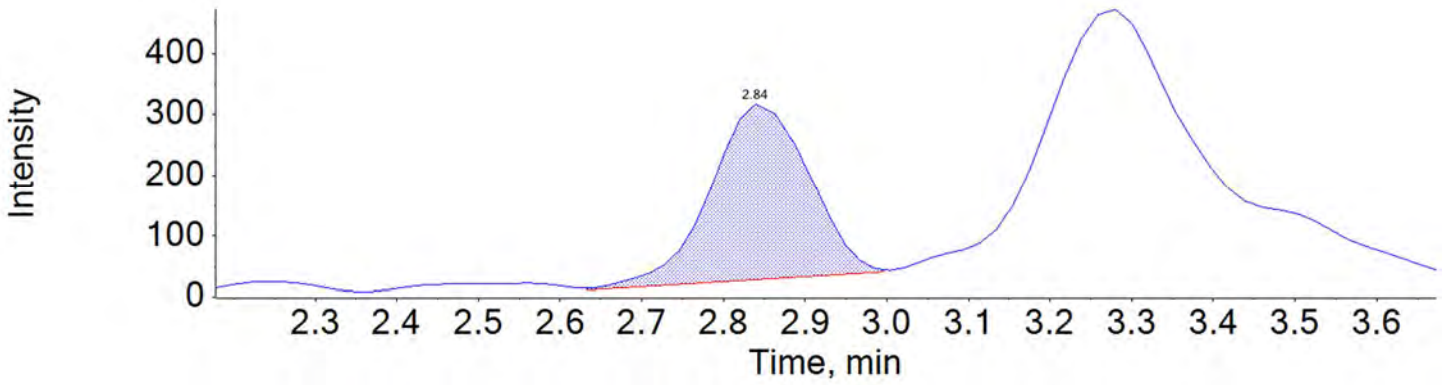
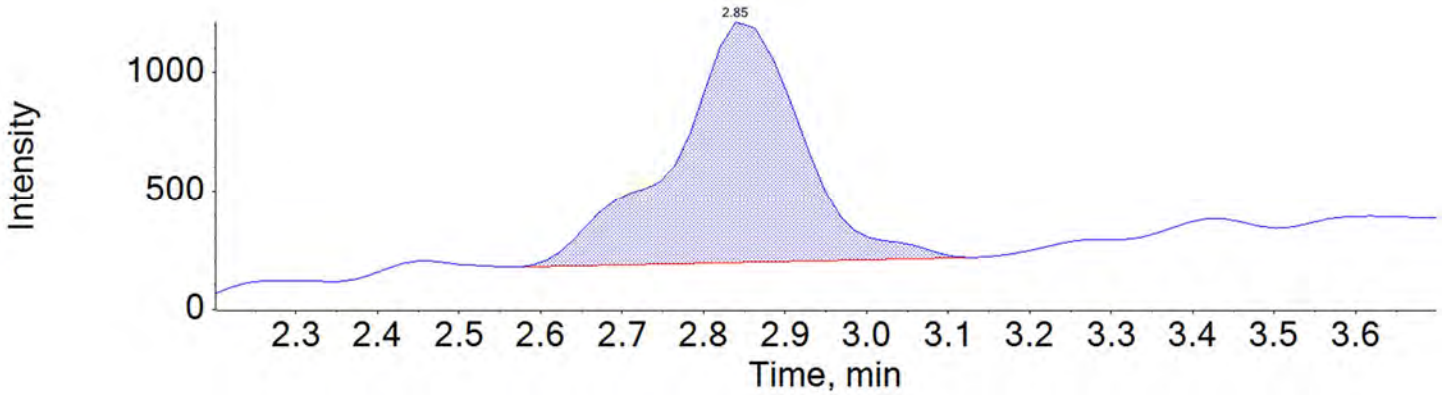
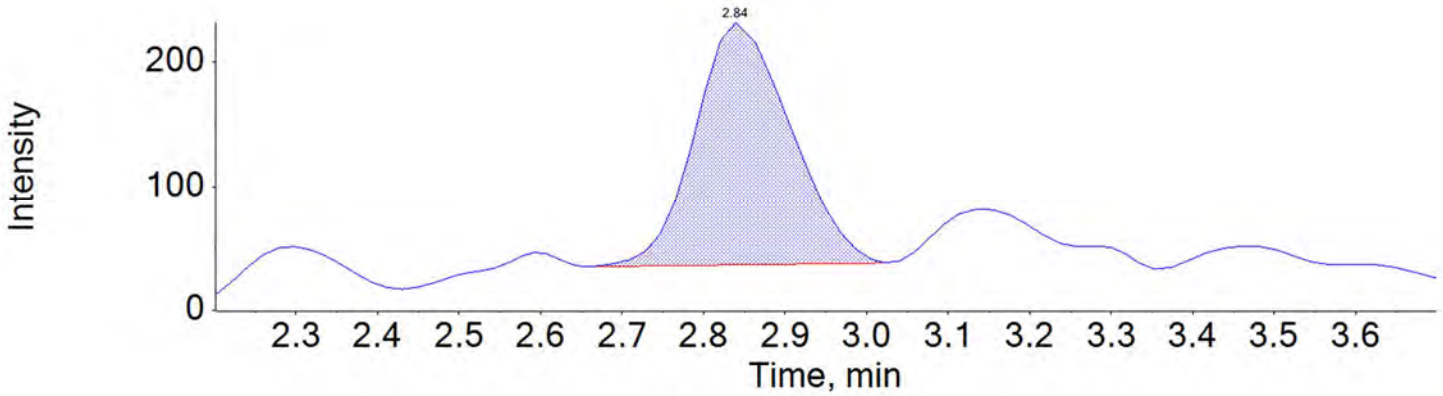
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



PFOS_2 499.0 / 99.0



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Chromatogram Report

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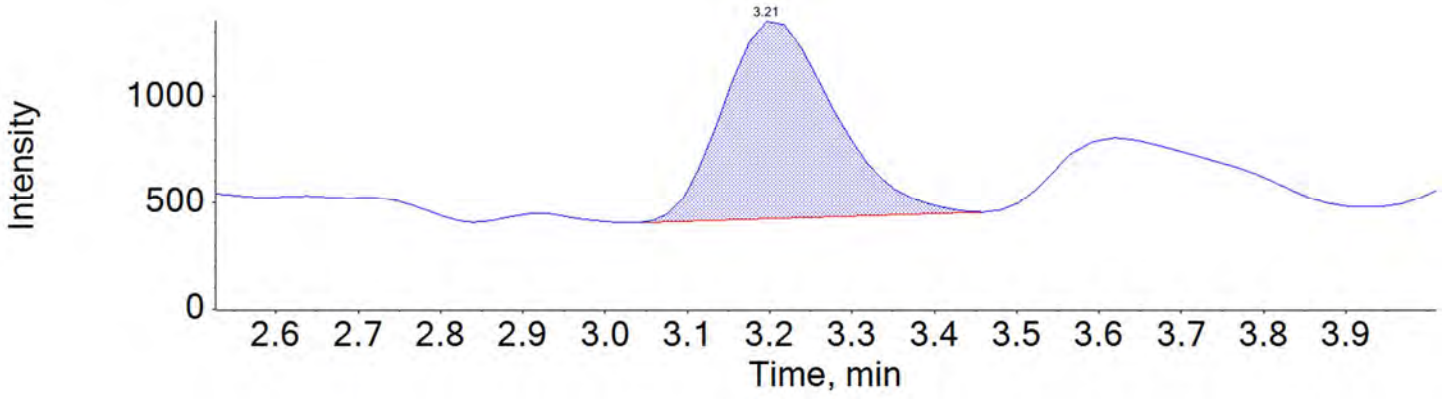
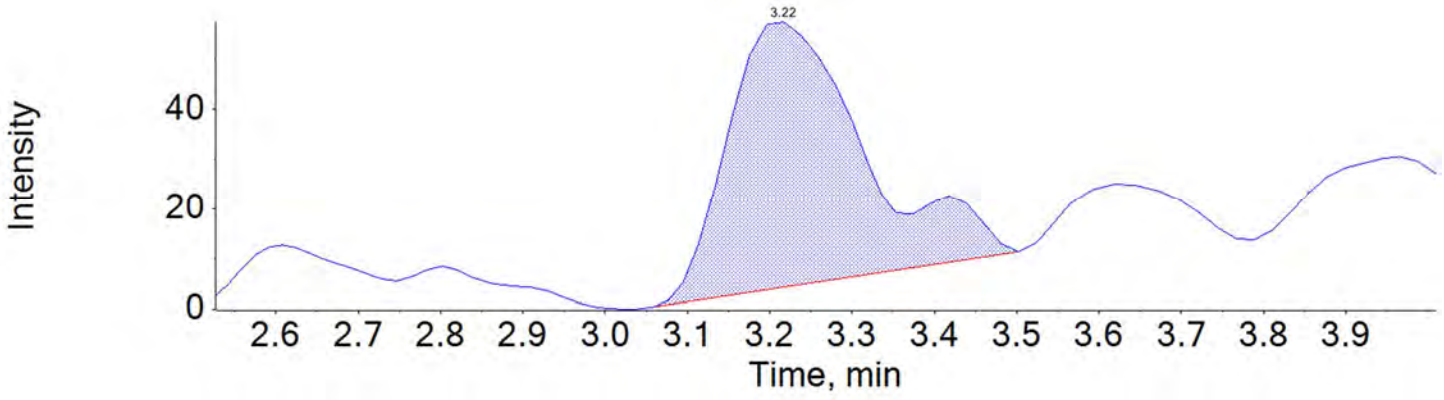
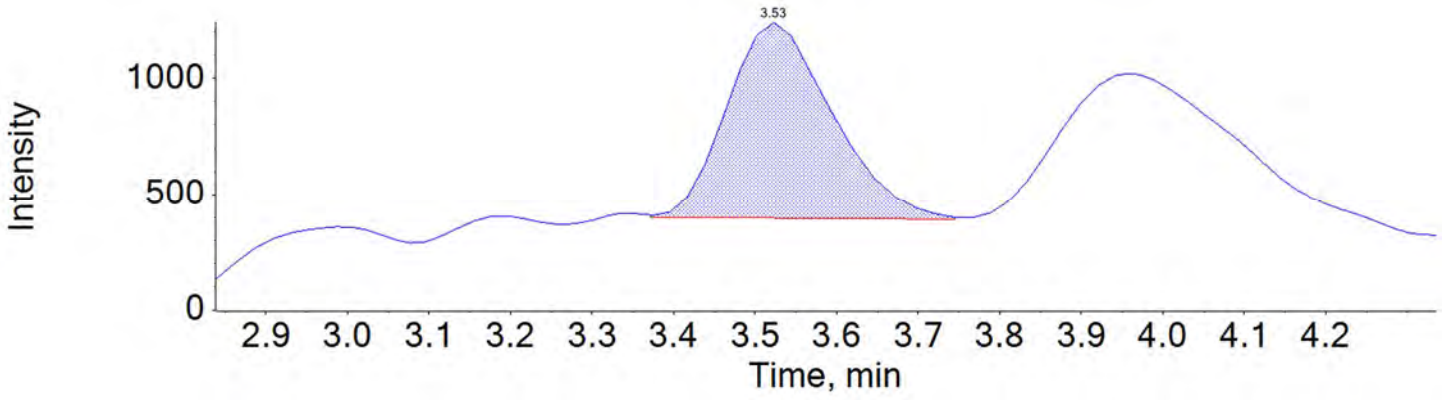
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



PFUnA_1 563.0 / 519.0



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Chromatogram Report

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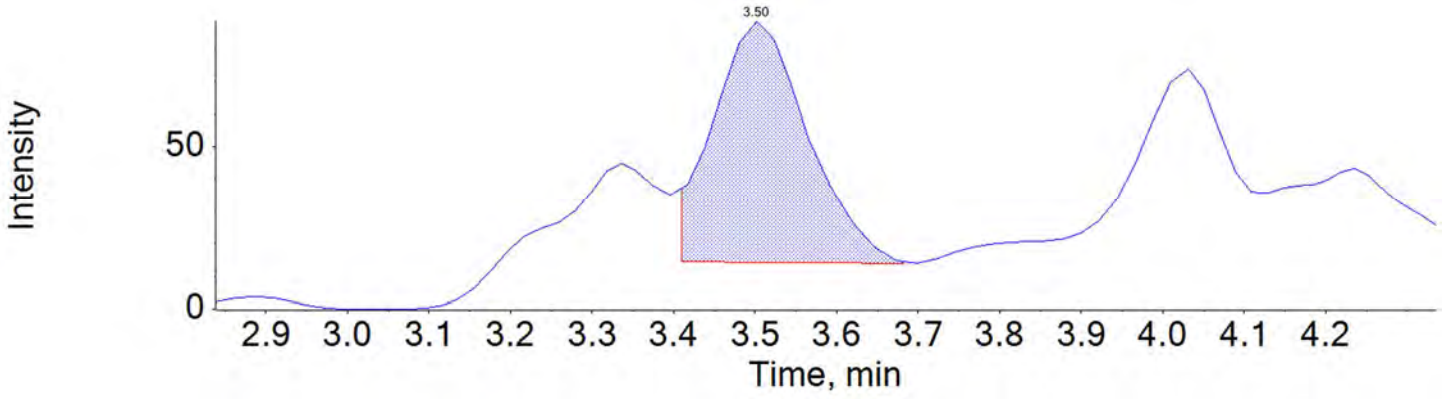
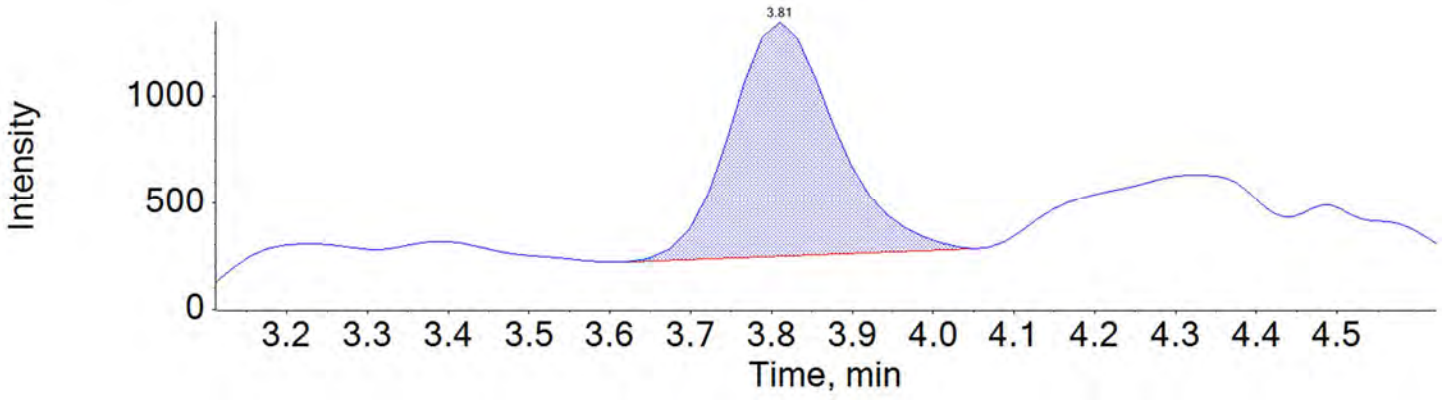
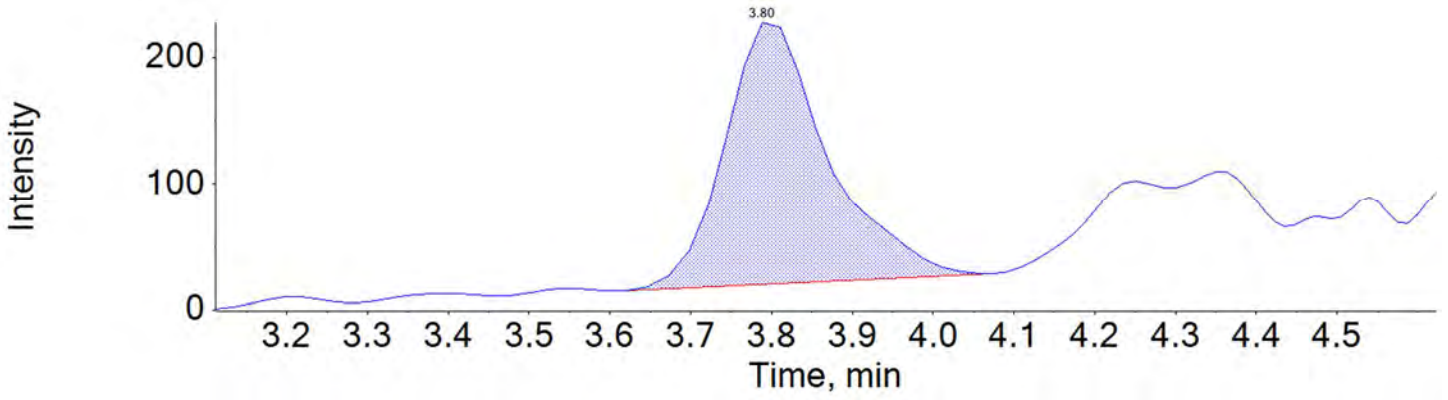
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



PFDoA_2 613.0 / 319.0



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Chromatogram Report

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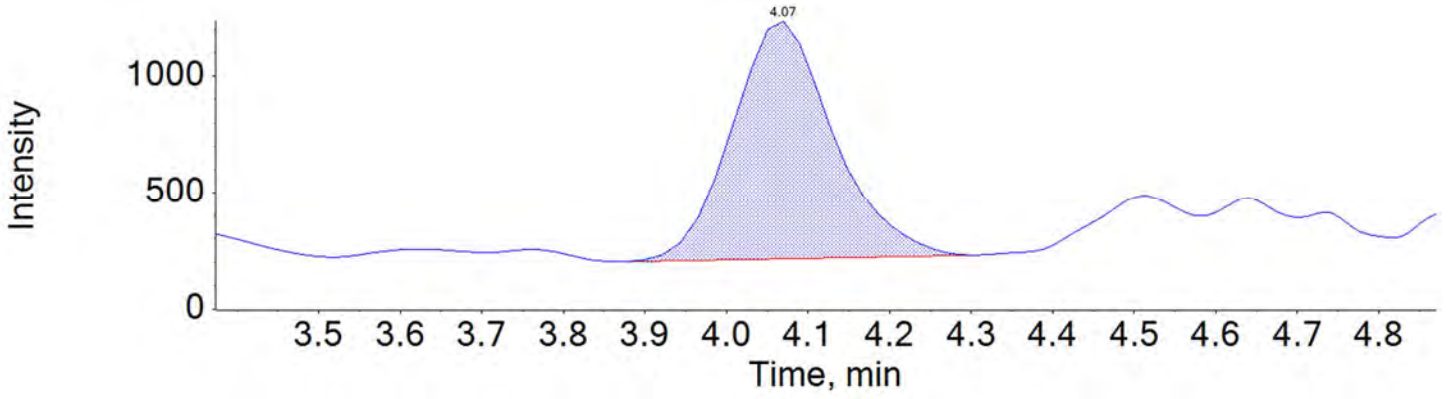
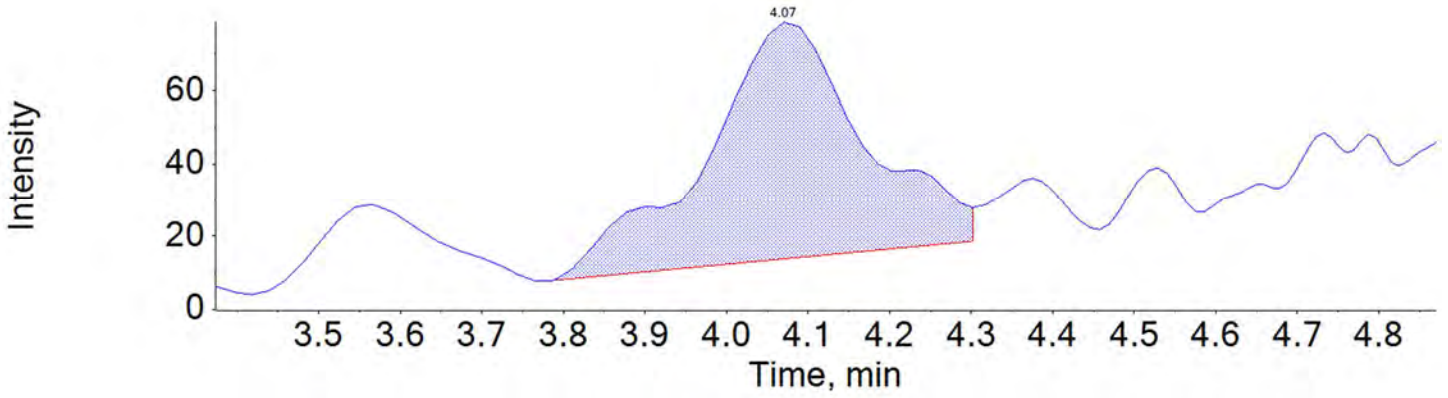
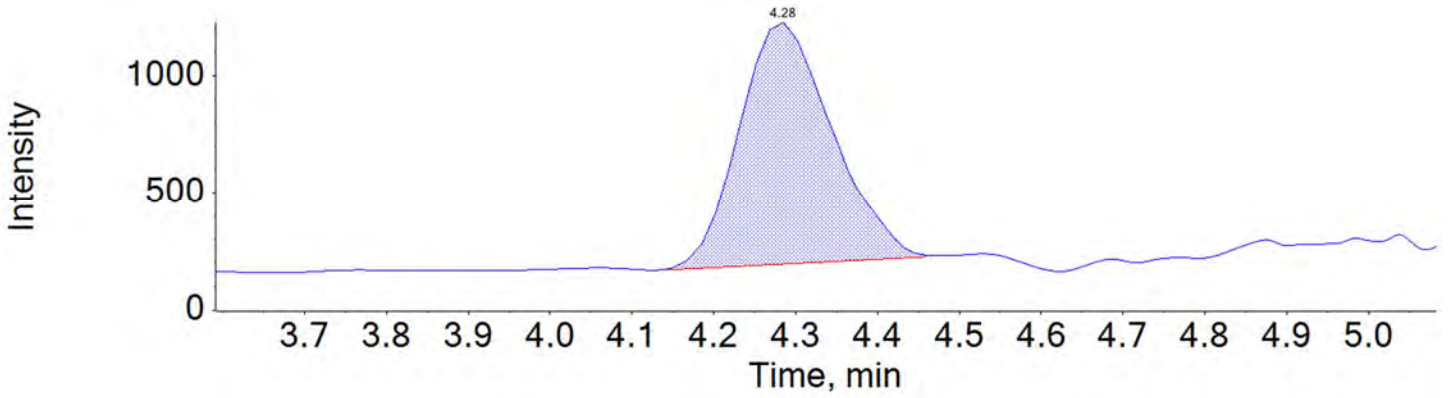
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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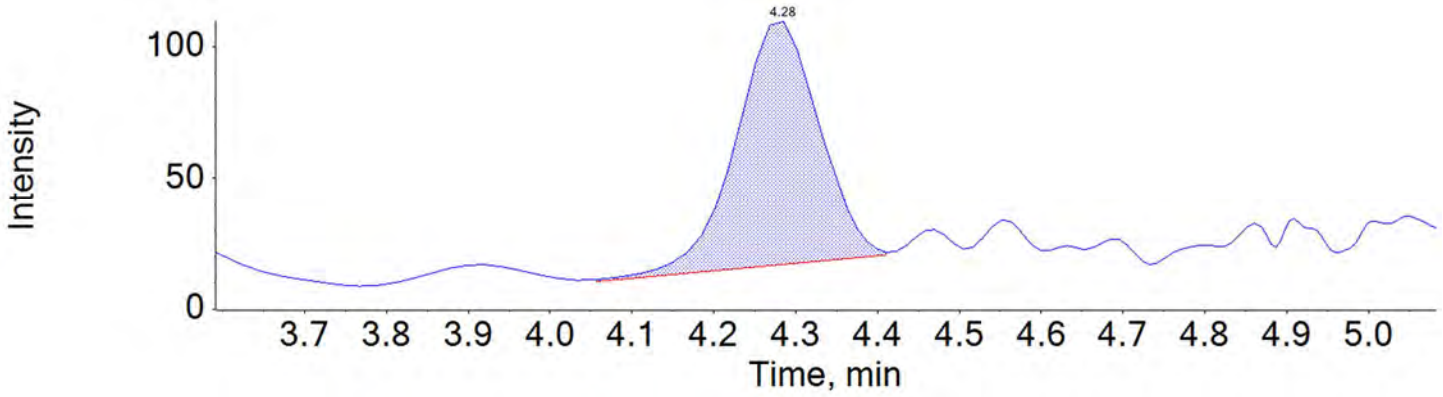
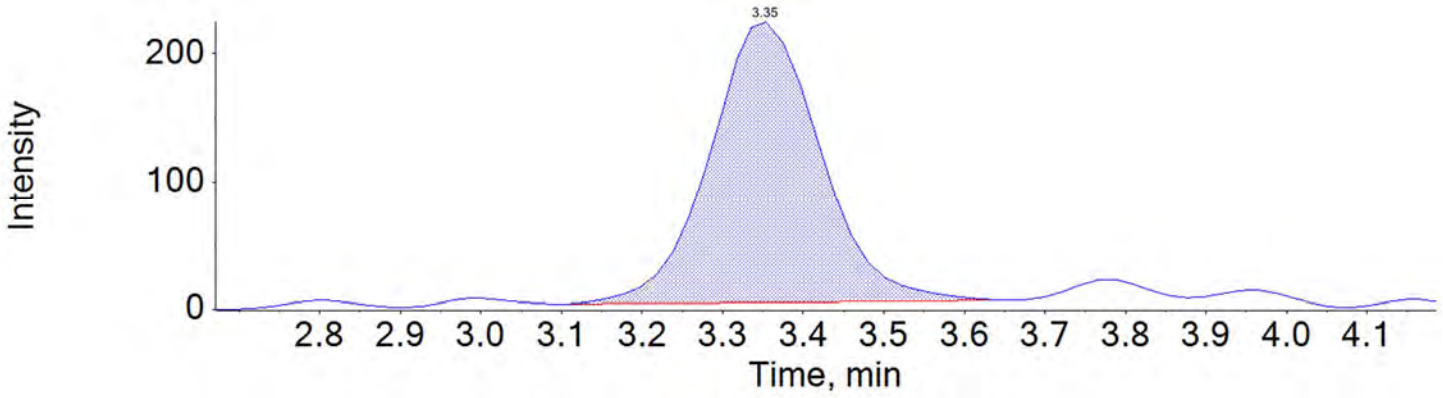
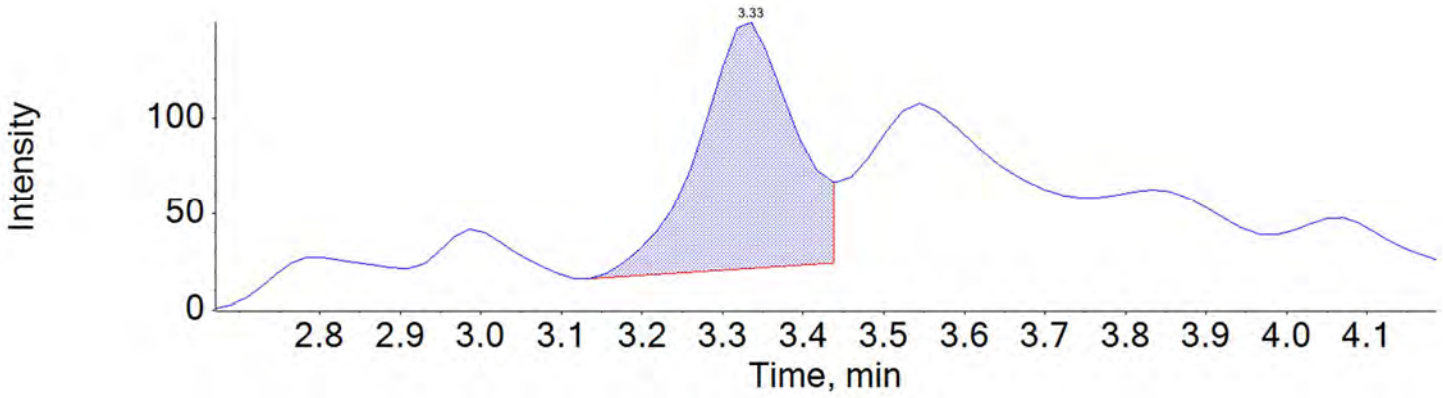
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

Created with Analyst Reporter
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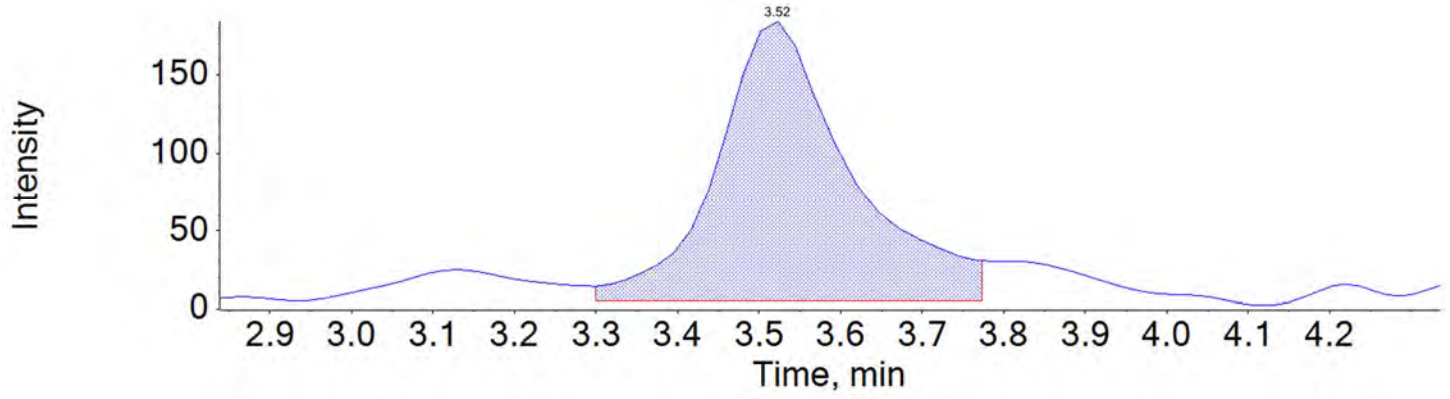
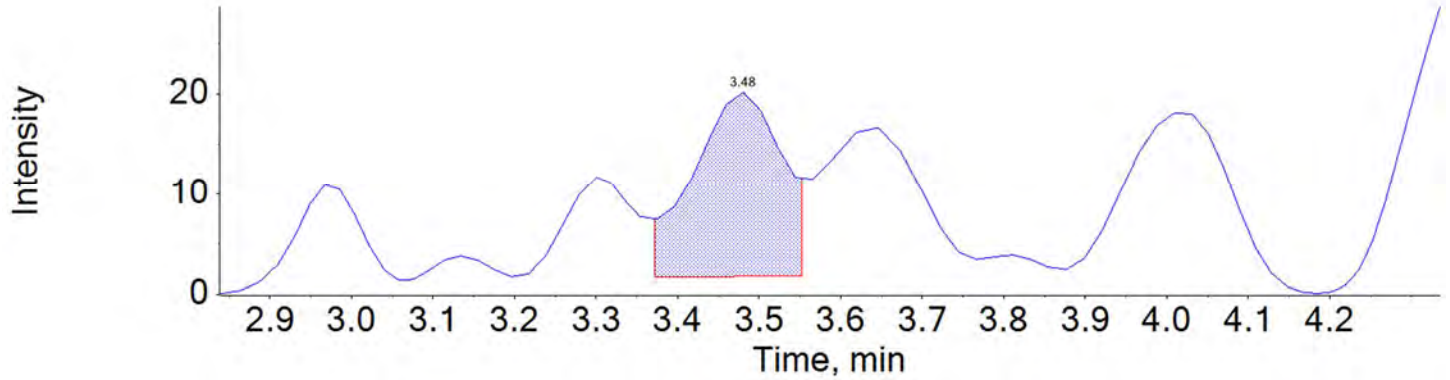
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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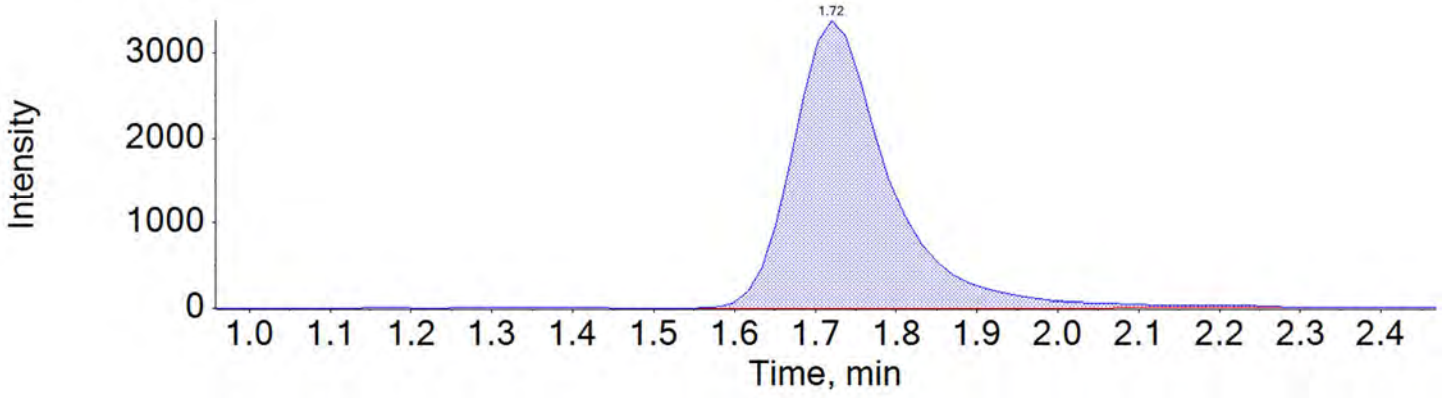
Chromatogram Report

Created with Analyst Reporter
Printed: 16/05/2018 7:11:23 PM

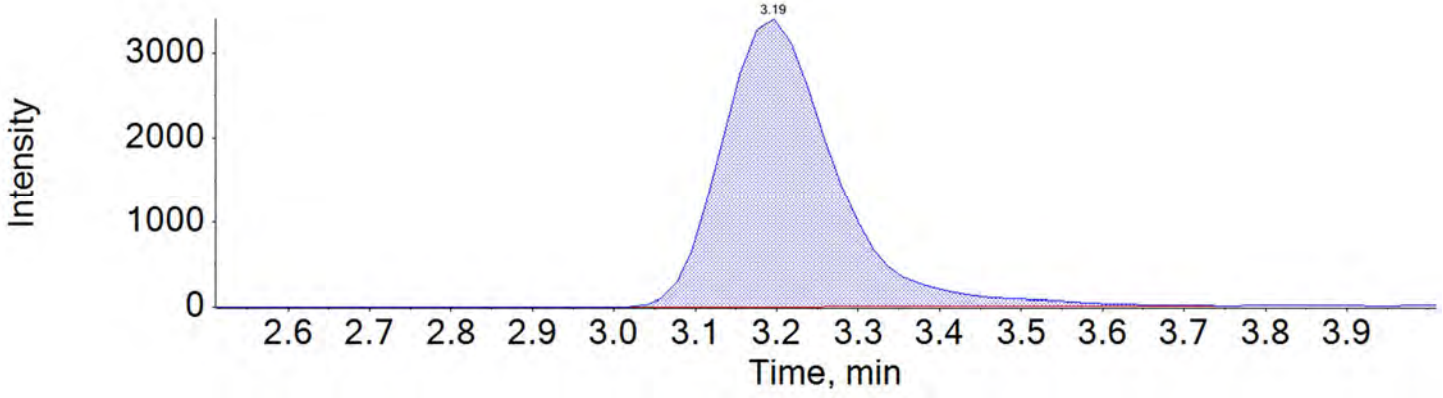
Sample Name	JV64	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T12:35:02	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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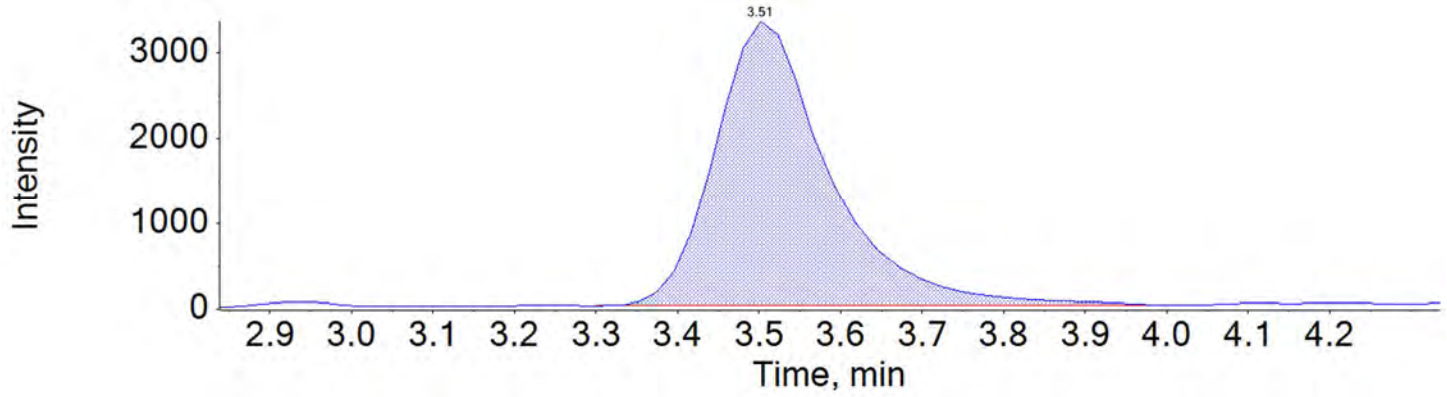
d5-EtFOSAA 589.0 / 419.0



BATTELLE

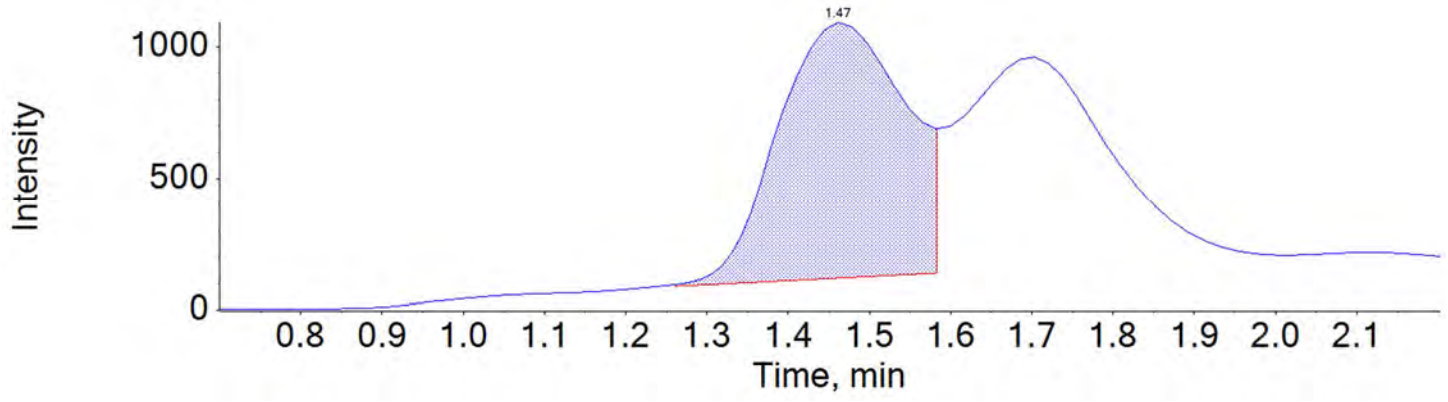
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:04:47 PM

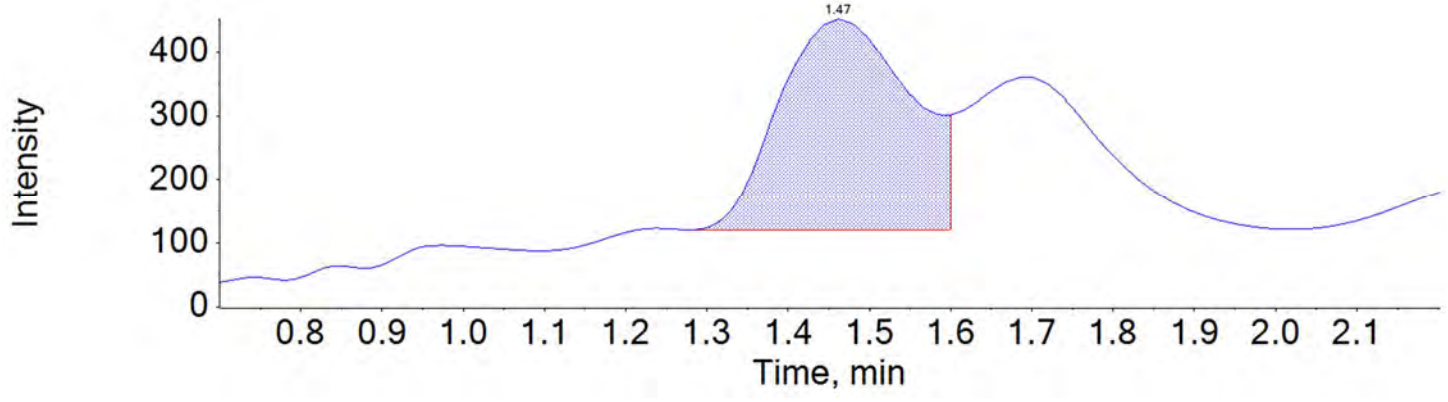
Sample Name	JV65	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T12:43:59	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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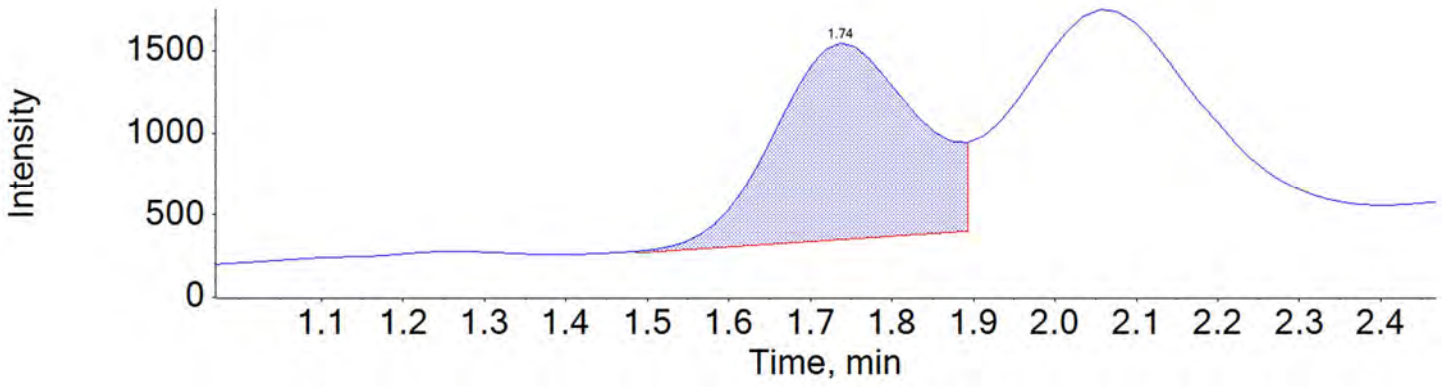
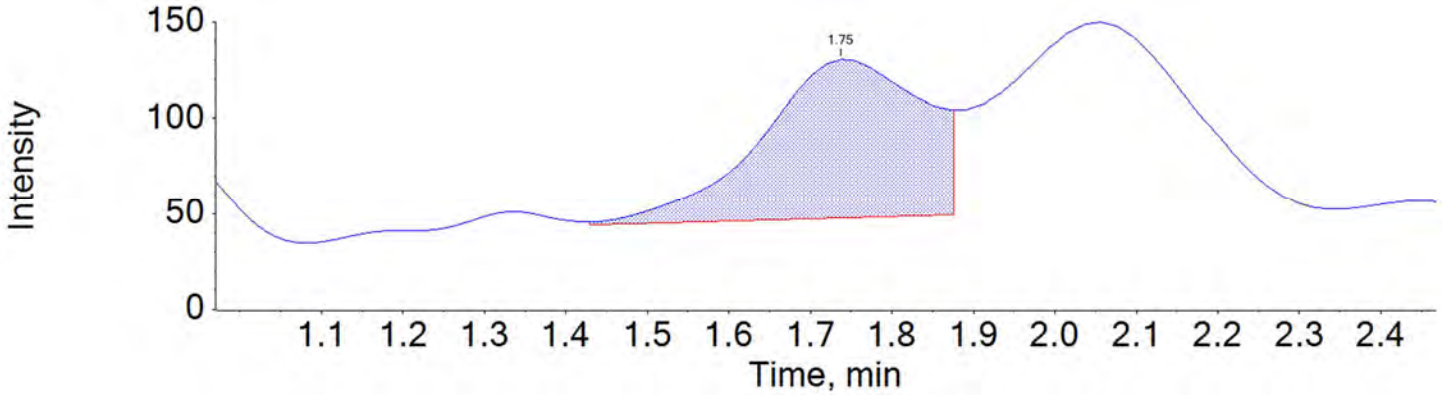
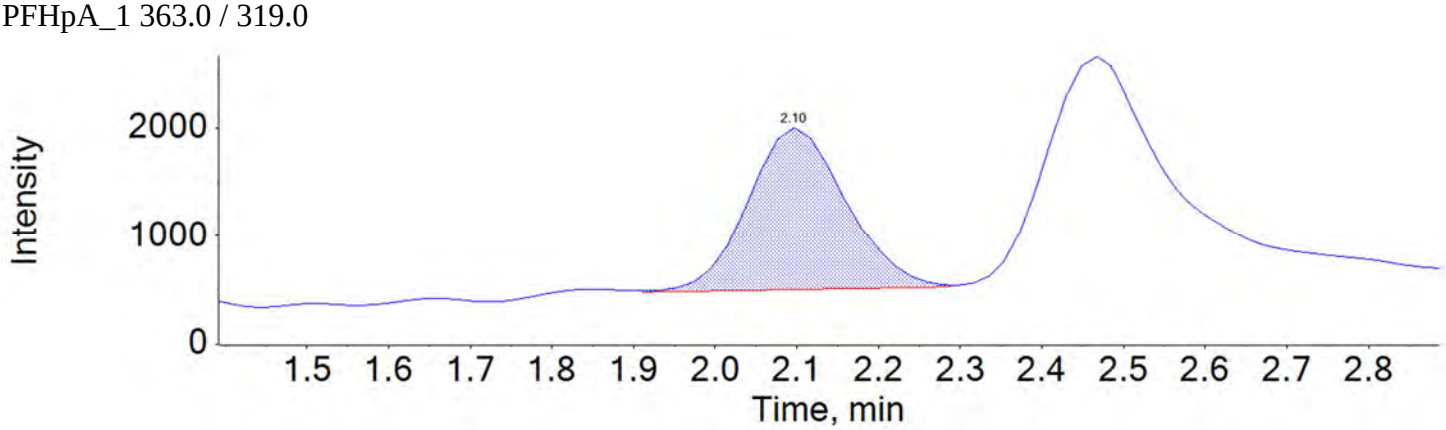
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



BATTELLE

Chromatogram Report

Created with Analyst Reporter
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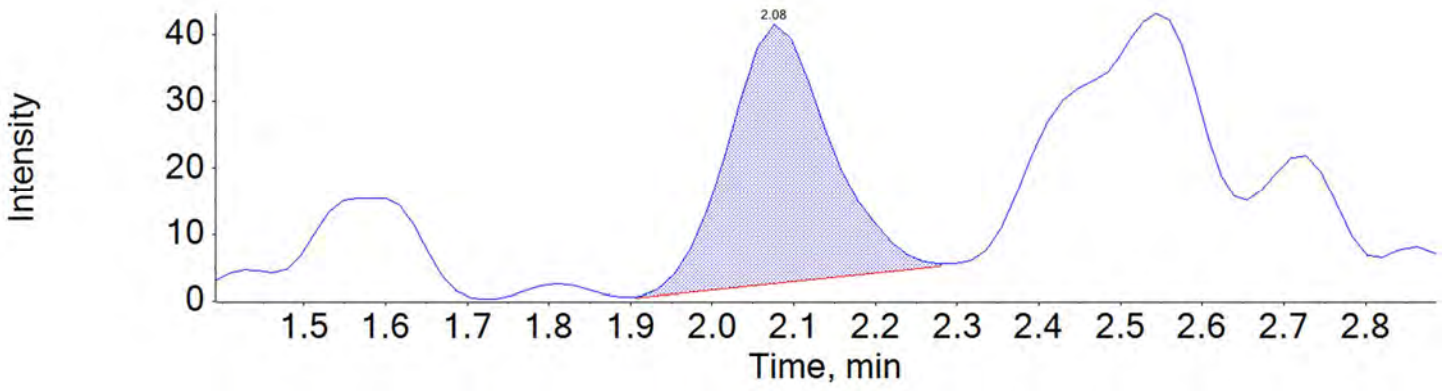
PFHpA_2 363.0 / 169.0



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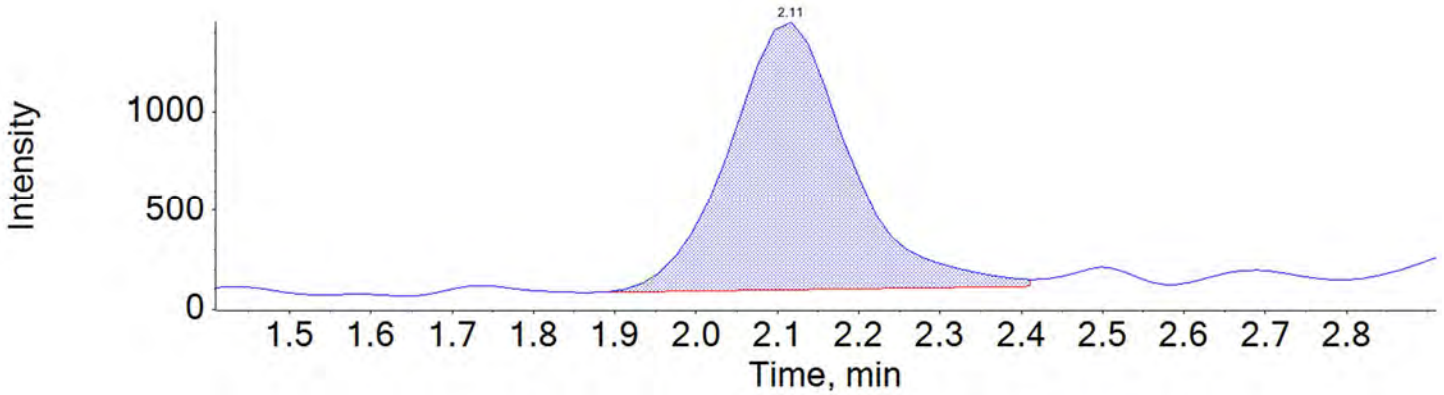

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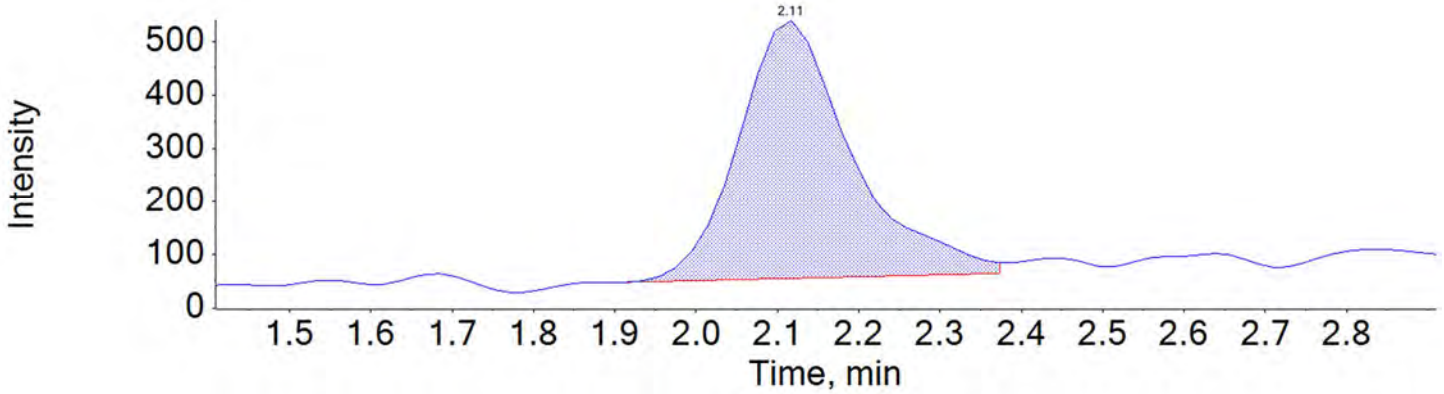

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Chromatogram Report

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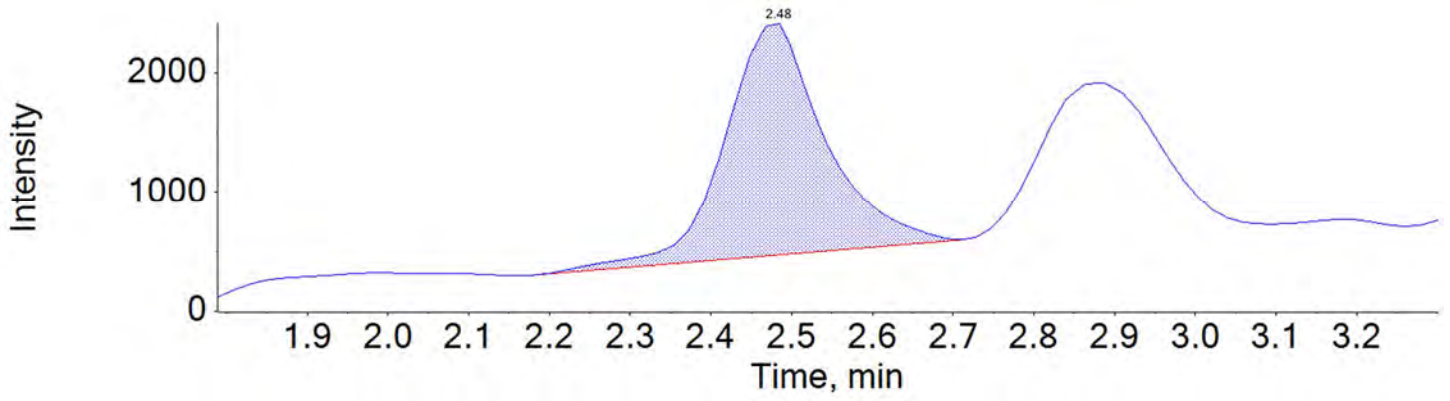
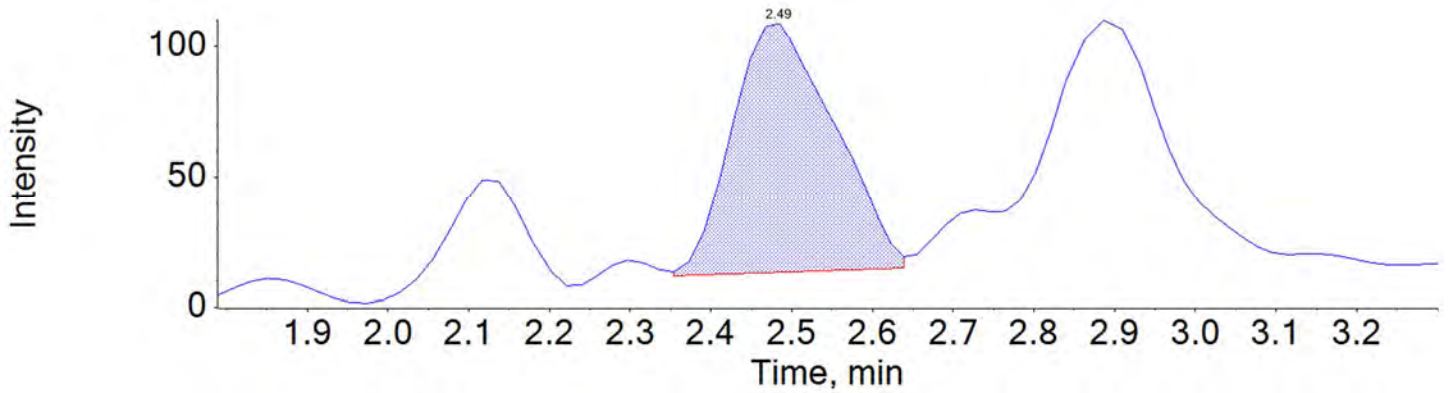
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



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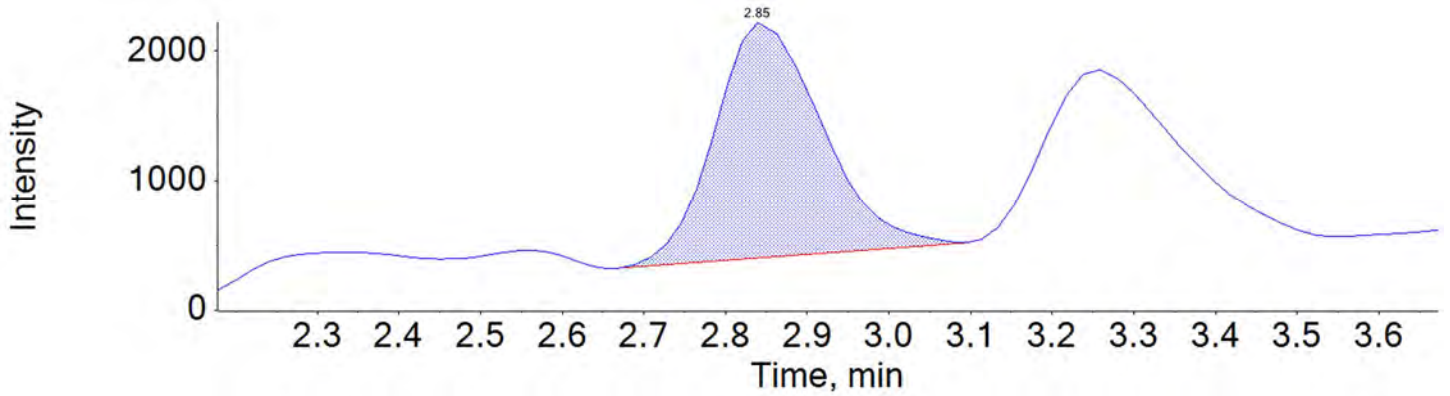

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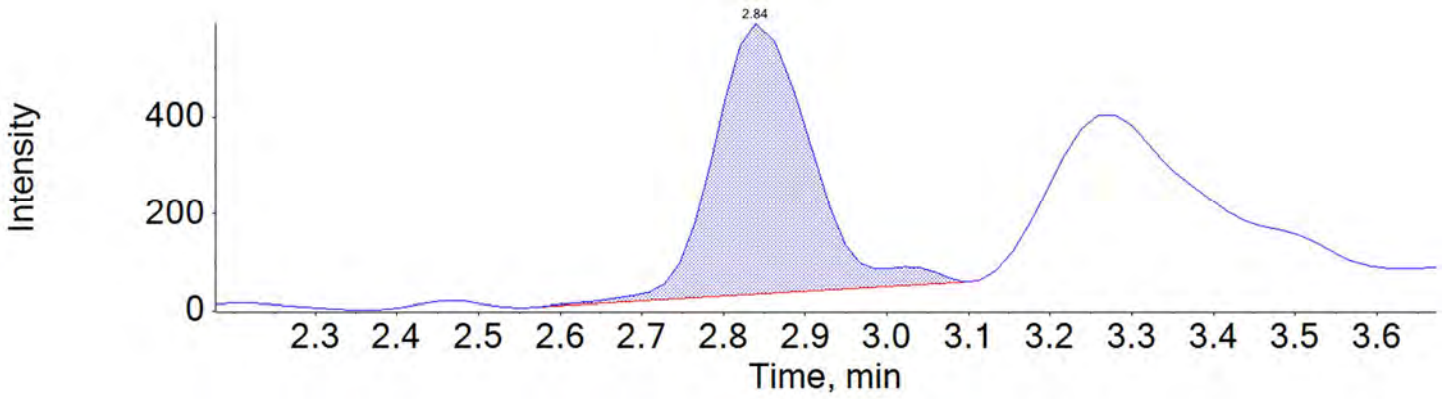
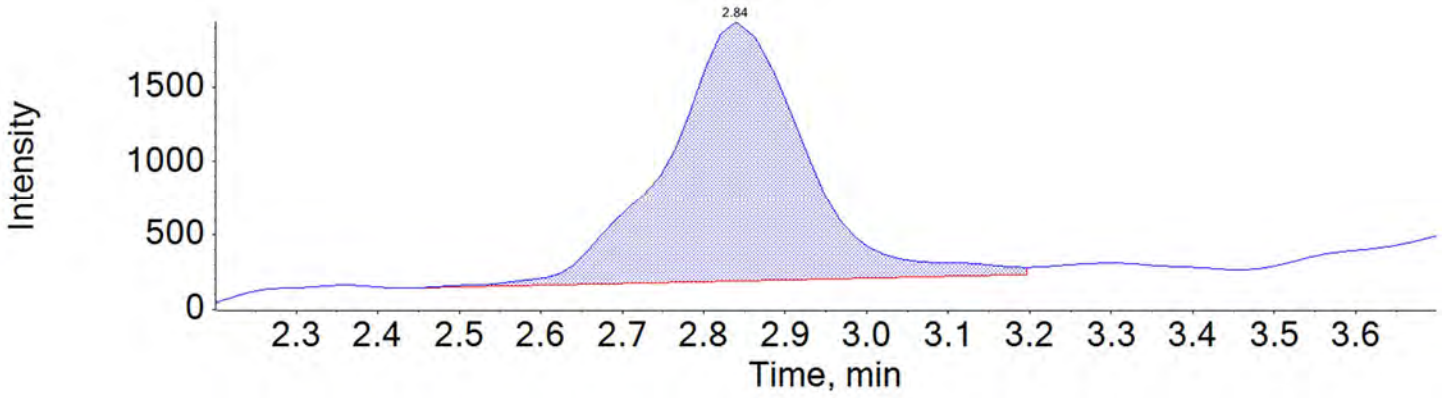
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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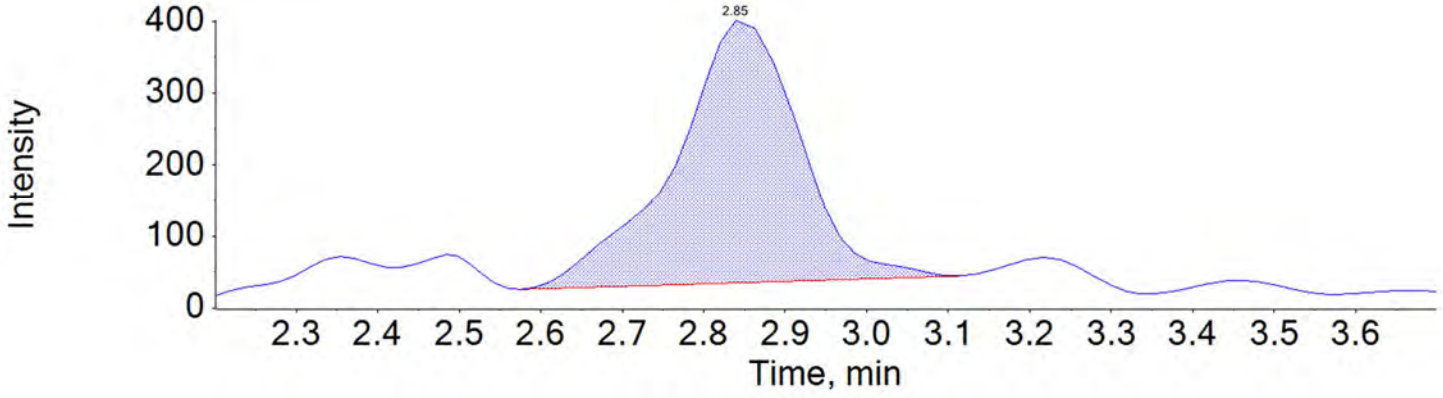

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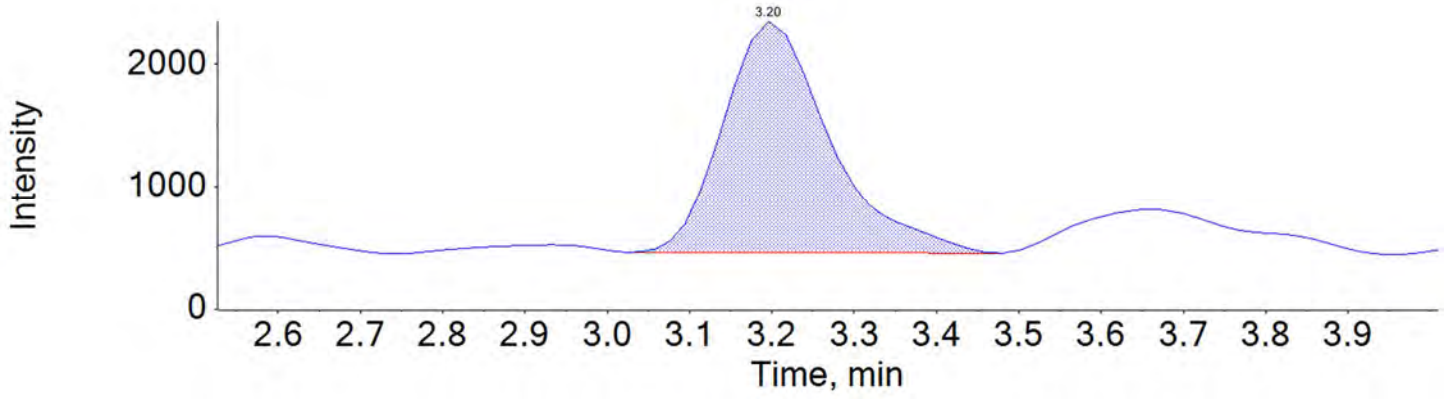
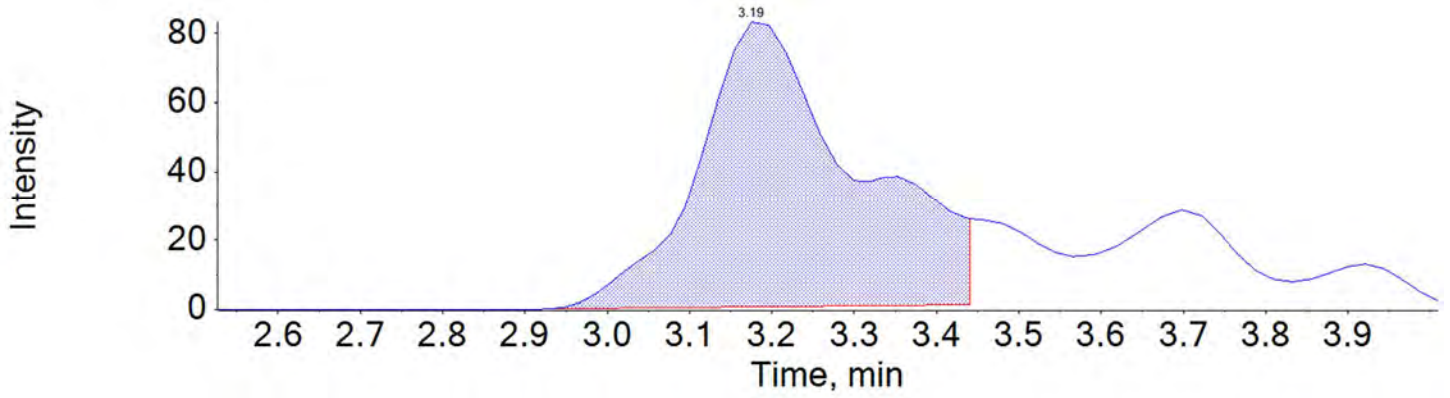
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



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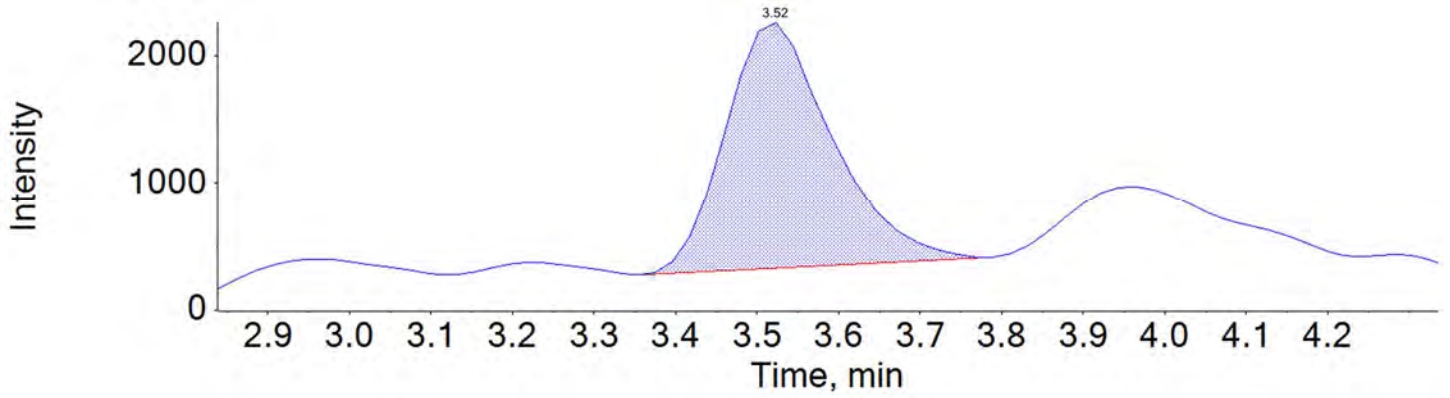

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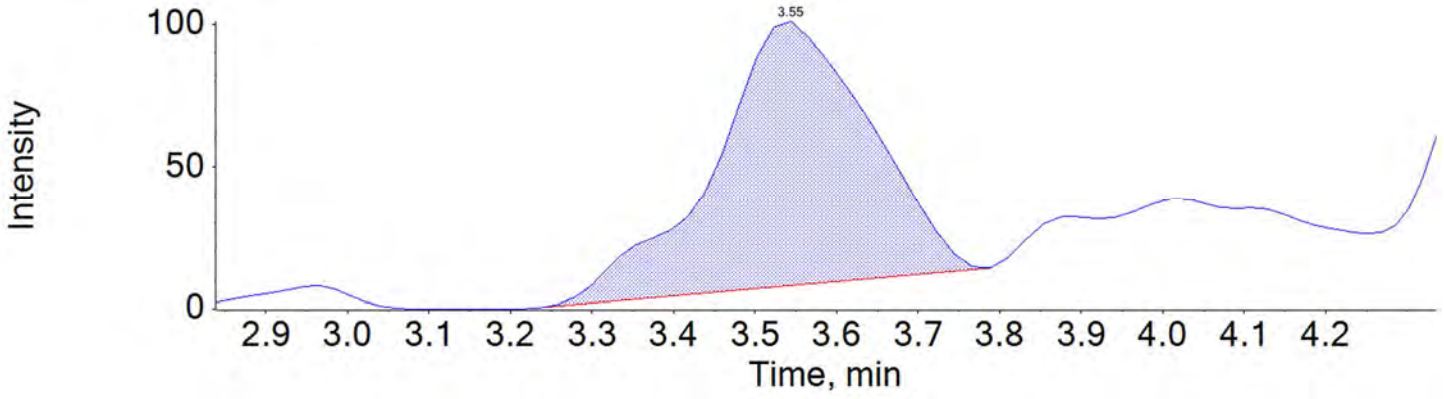
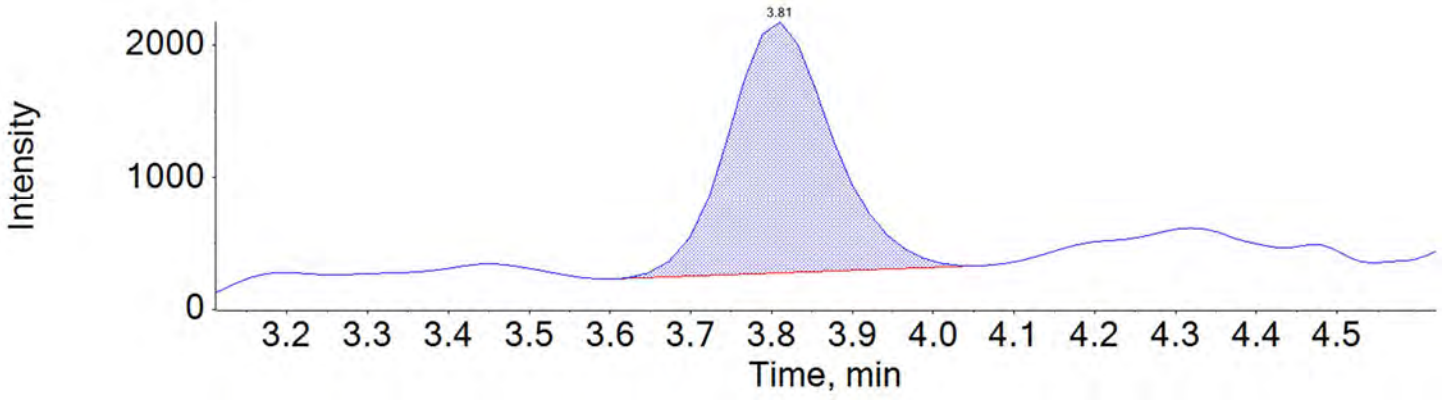


PFDoA_1 613.0 / 569.0



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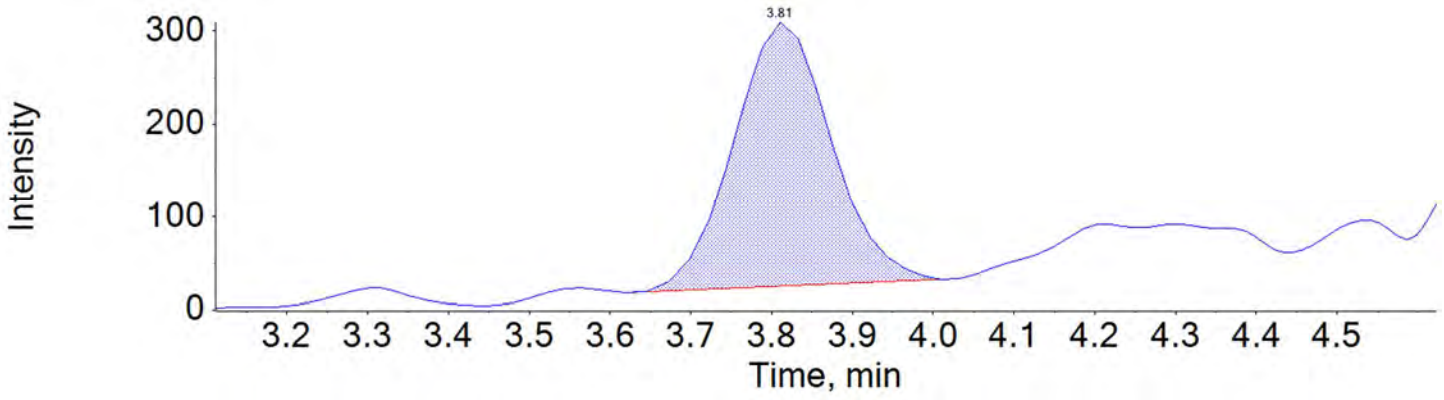

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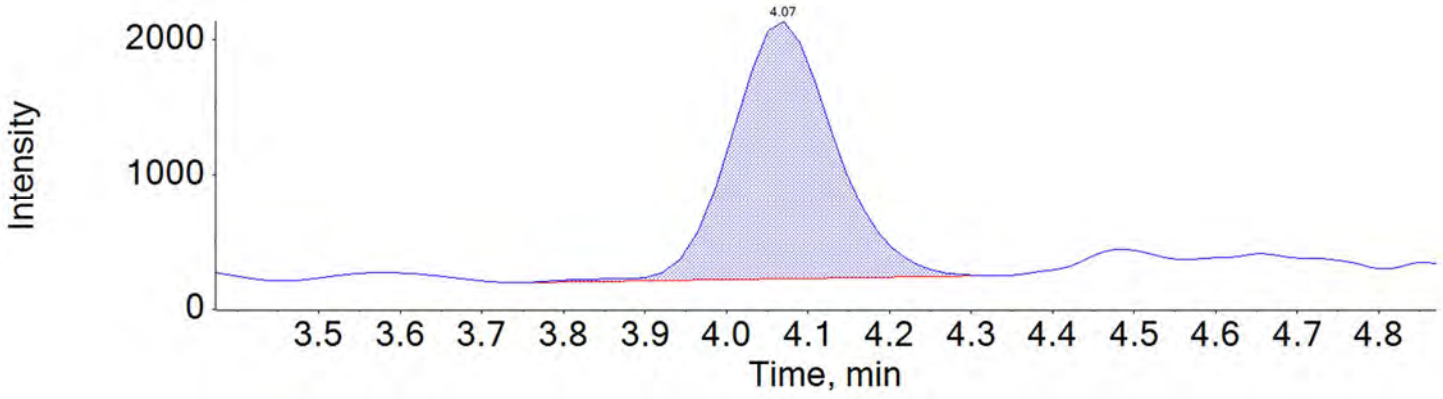
PFTrDA_1 663.0 / 619.0



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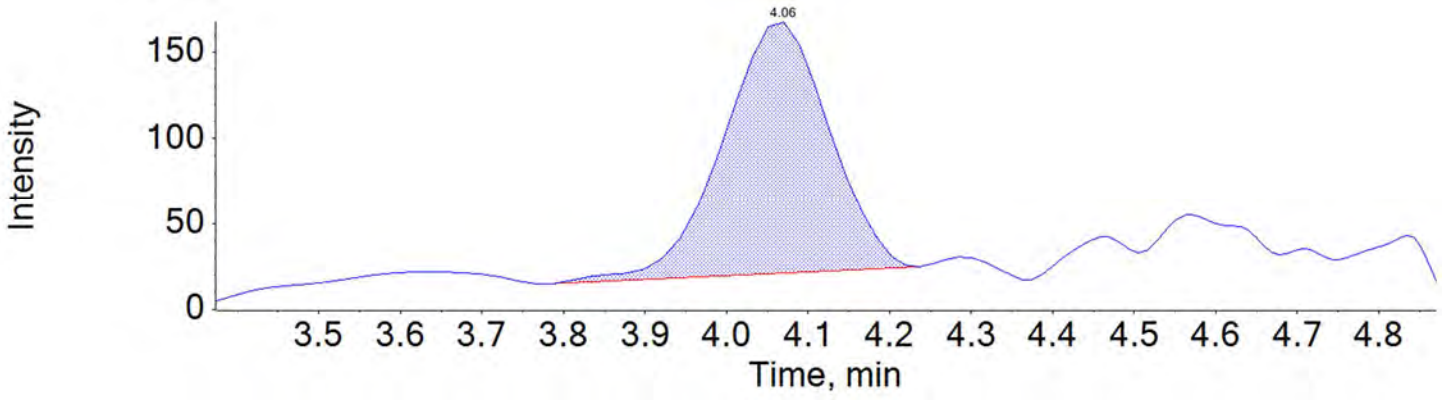

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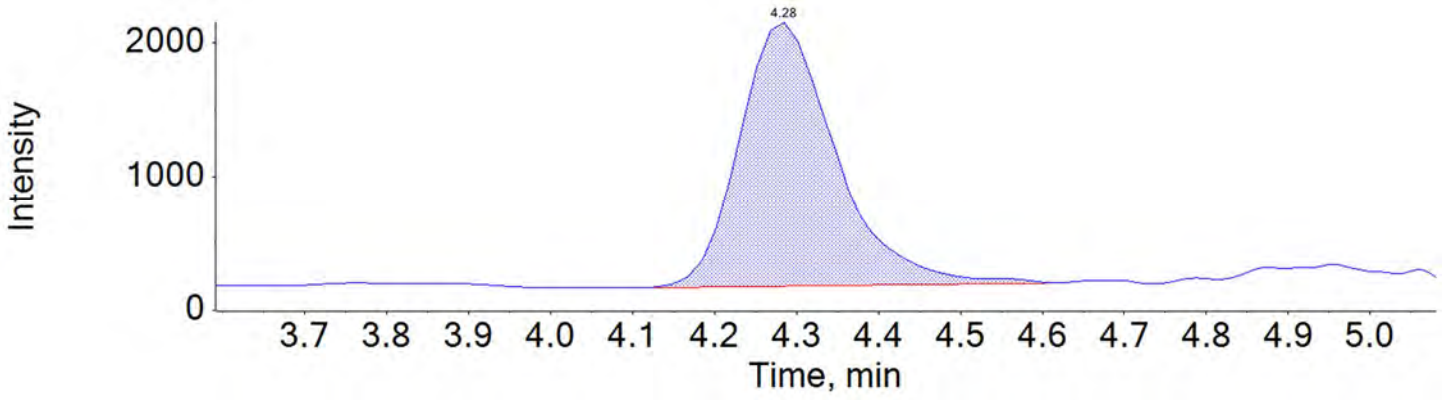

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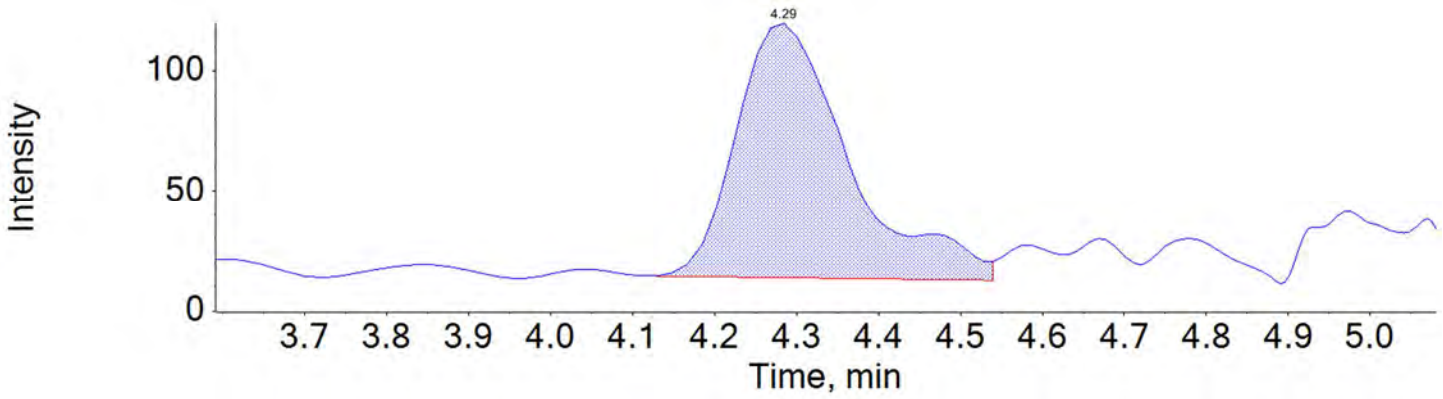
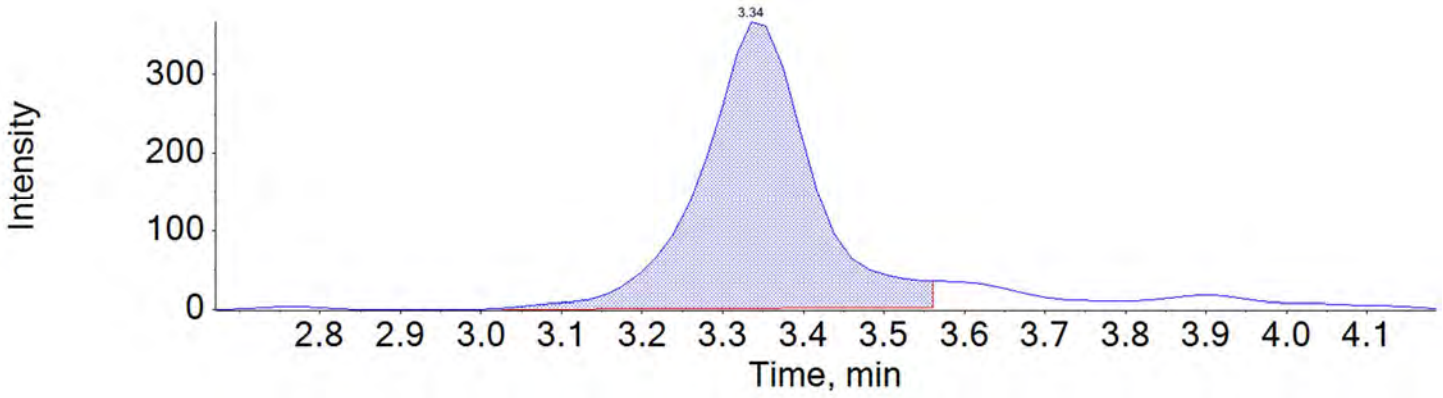


NMeFOSAA_1 570.0 / 419.0



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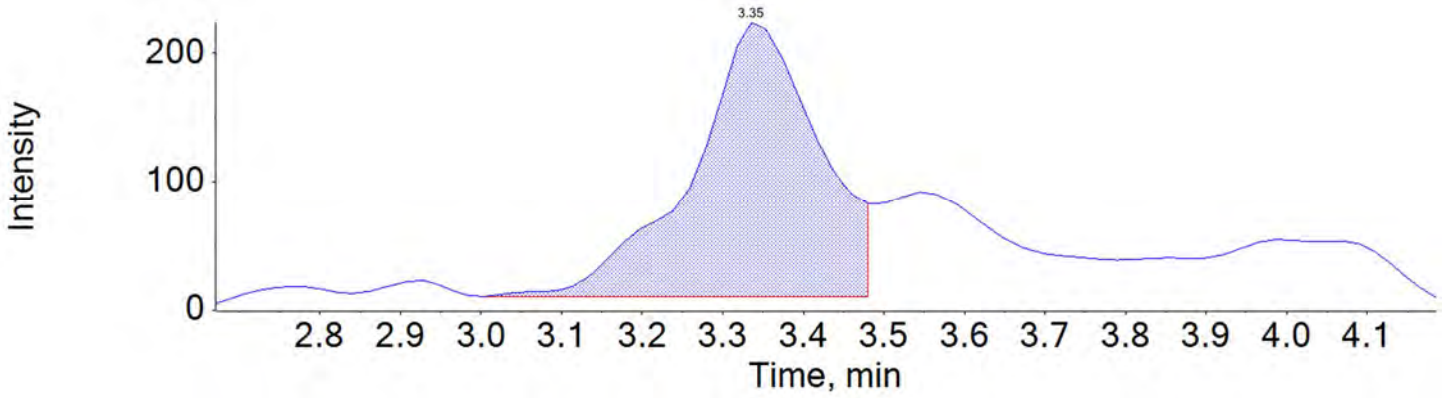

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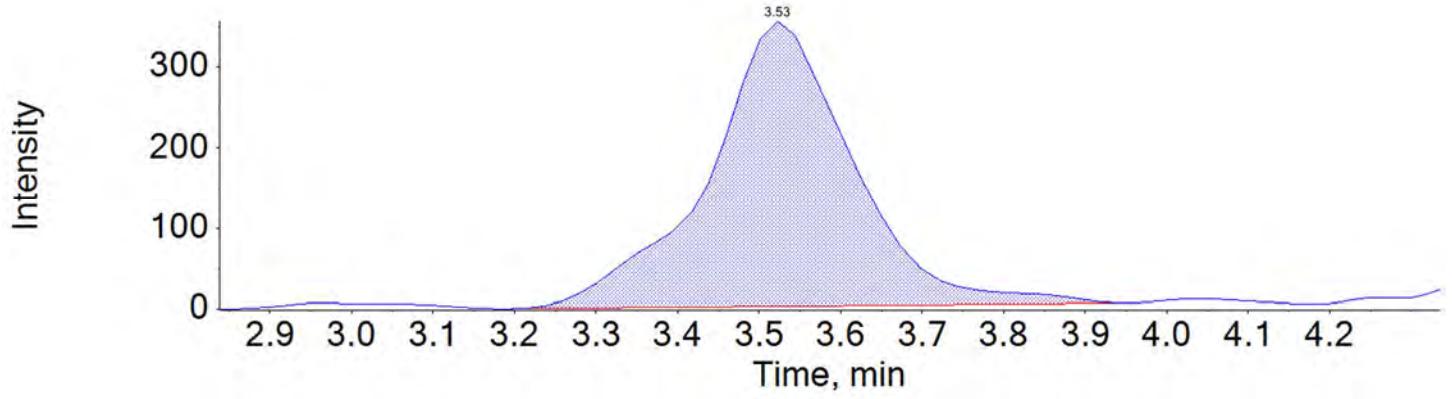

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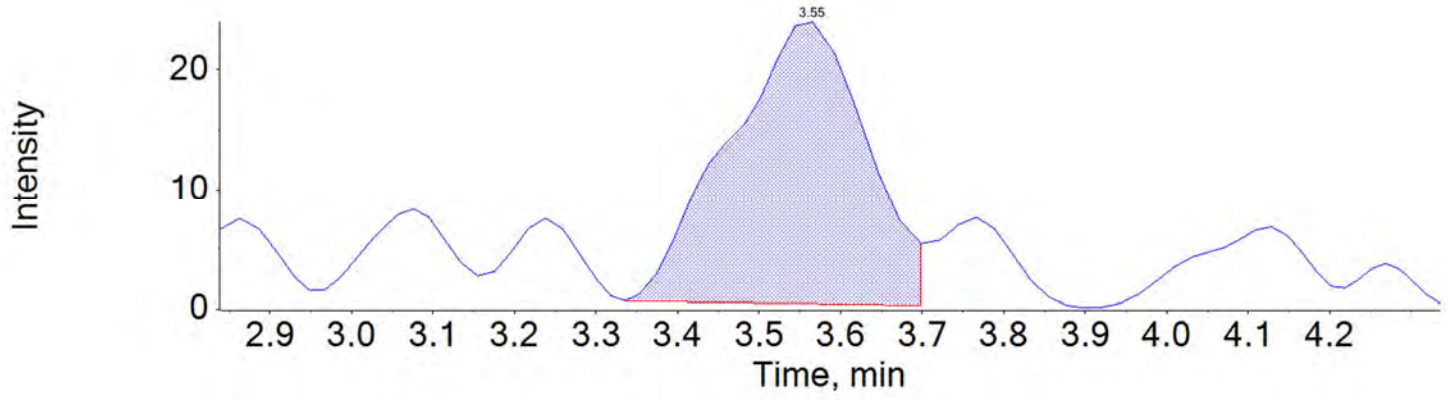

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Chromatogram Report

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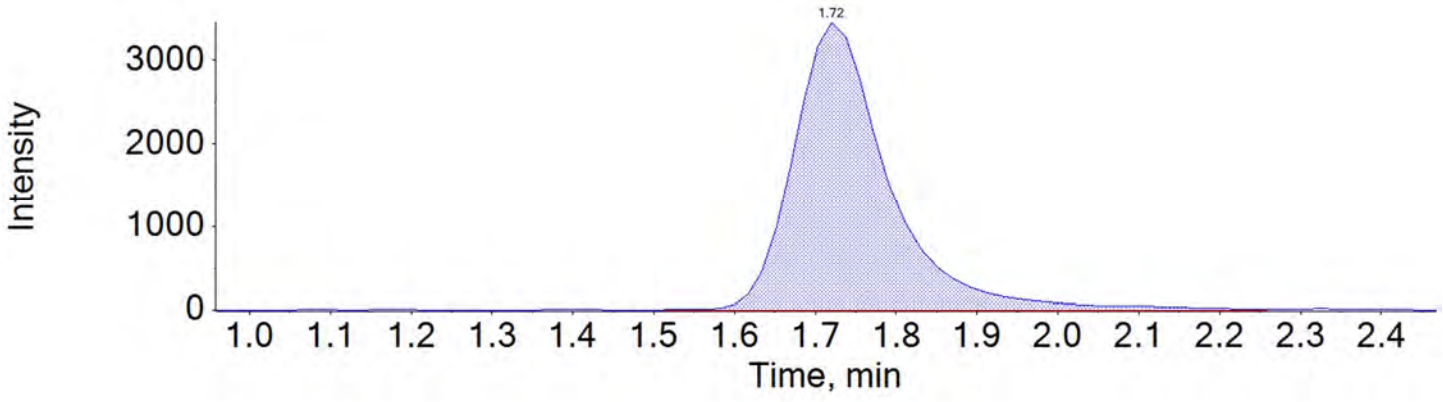
Sample Name	JV65	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T12:43:59	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



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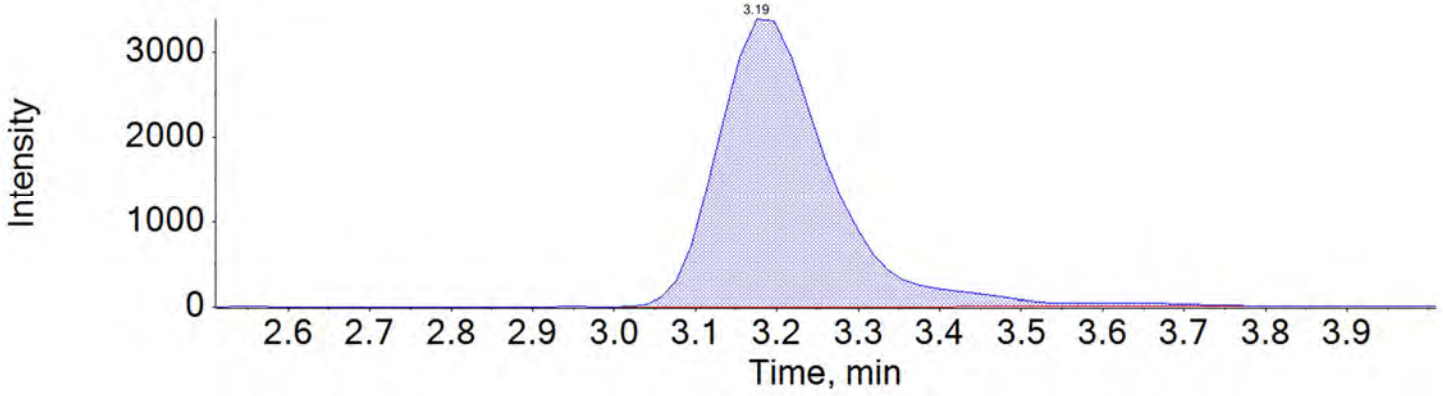

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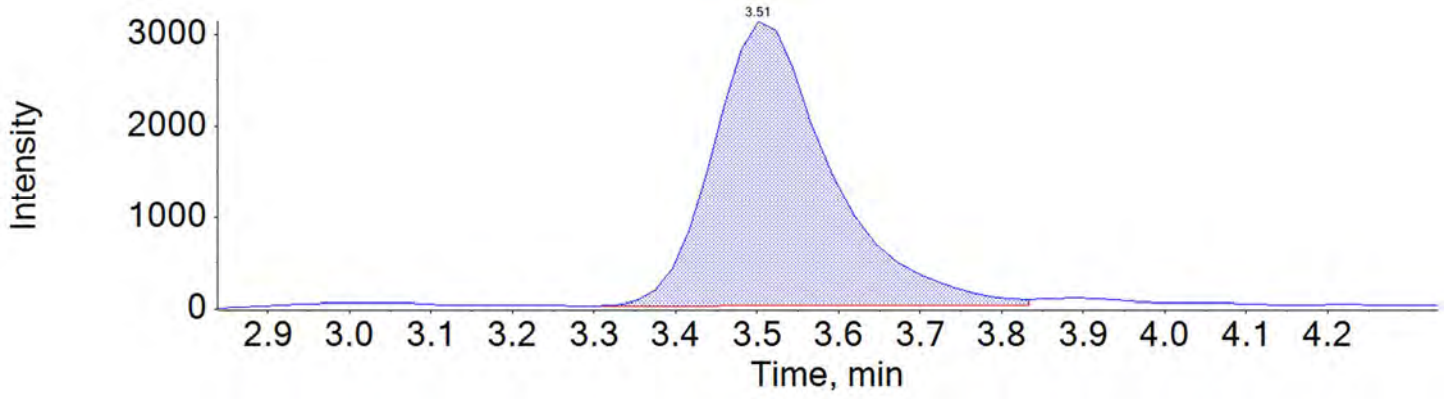
d5-EtFOSAA 589.0 / 419.0



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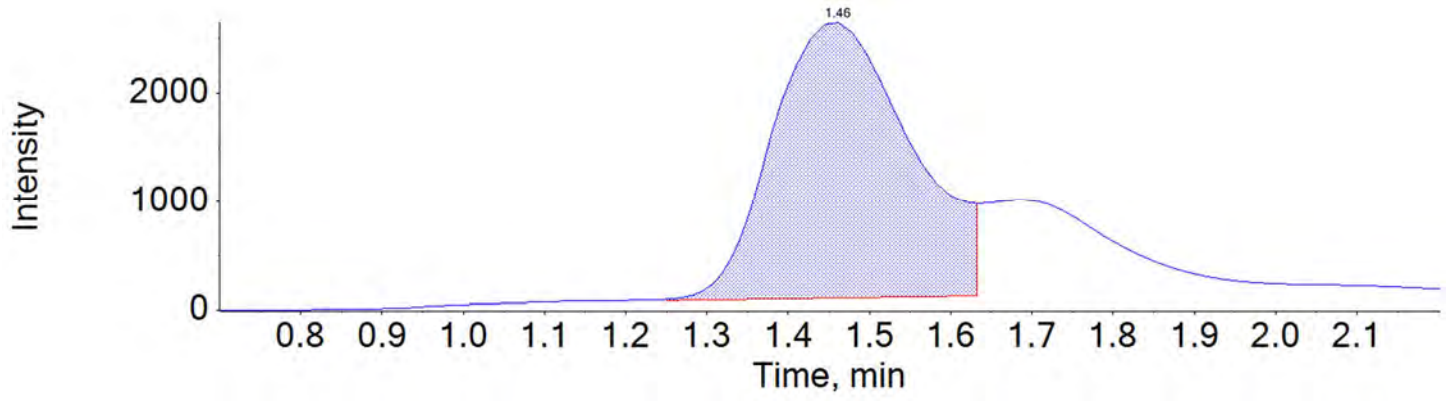
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:04:53 PM

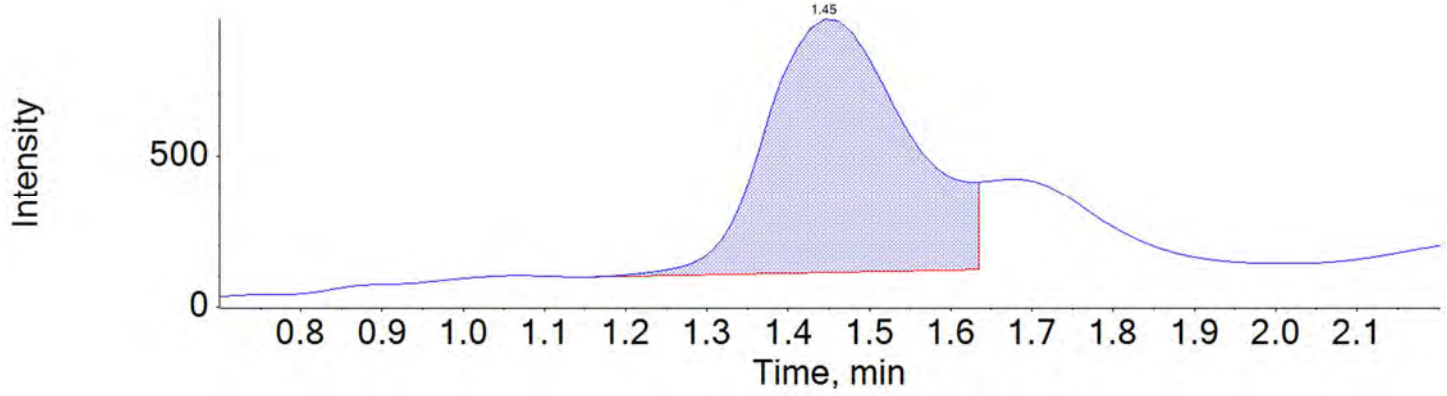
Sample Name	JV66	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T12:52:57	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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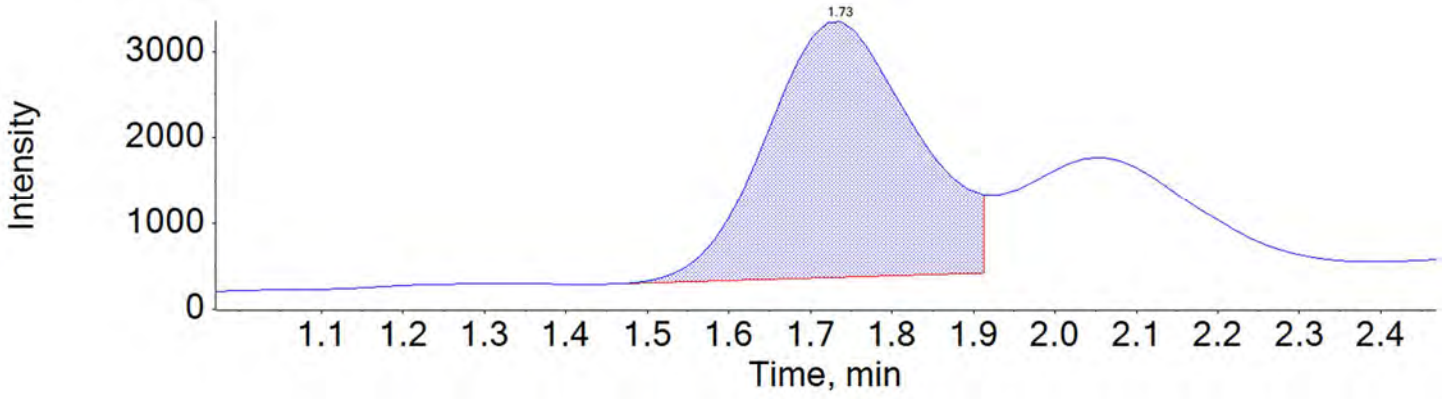
PFHxA_1 313.0 / 269.0



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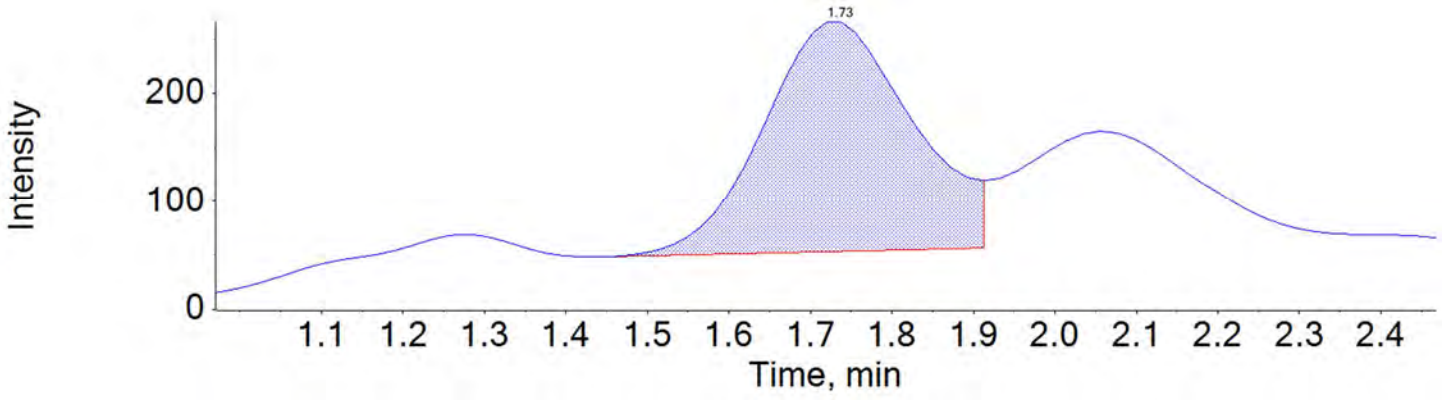
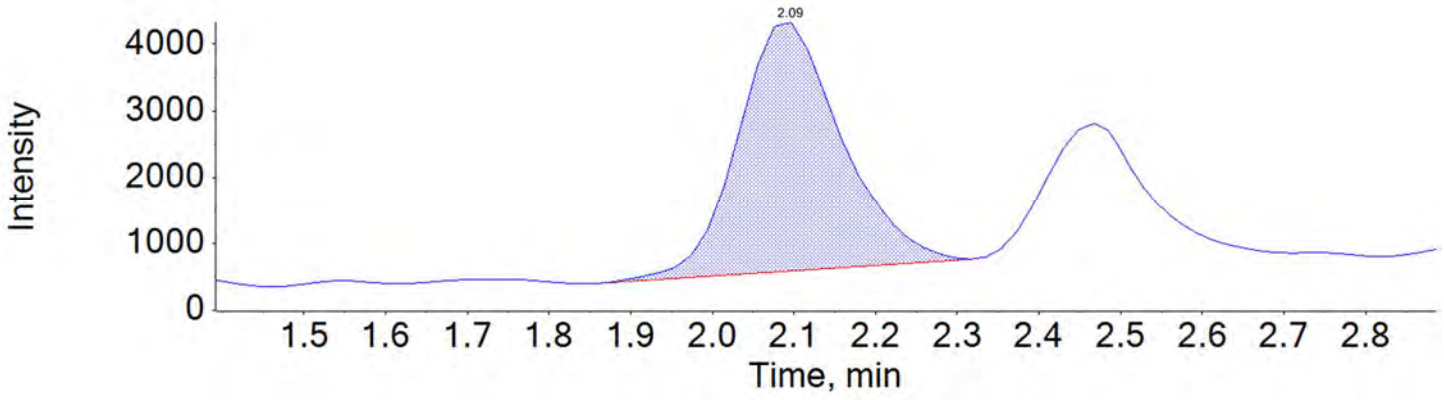


PFHpA_1 363.0 / 319.0



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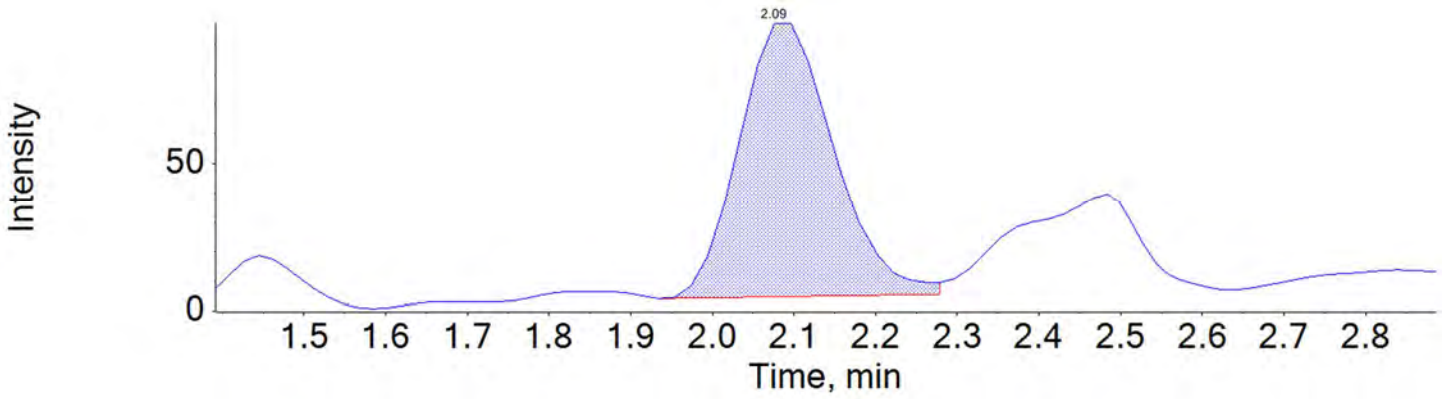
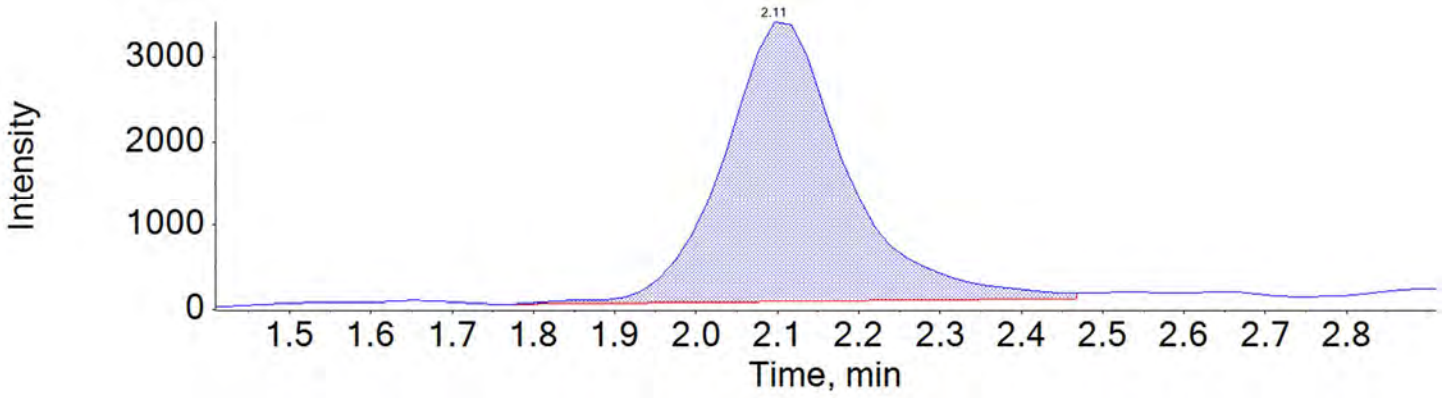


PFHxS_1 399.0 / 80.0



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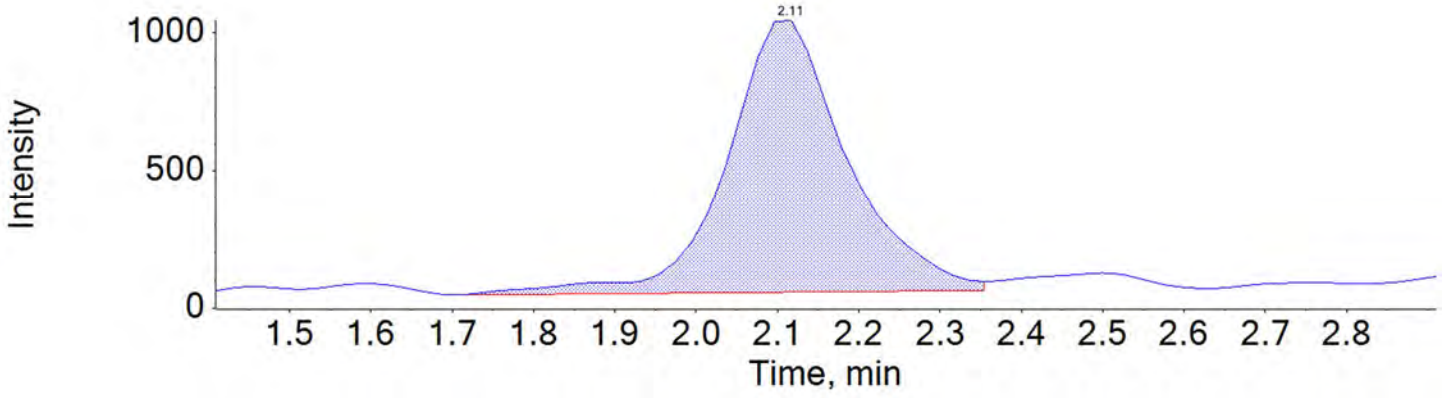

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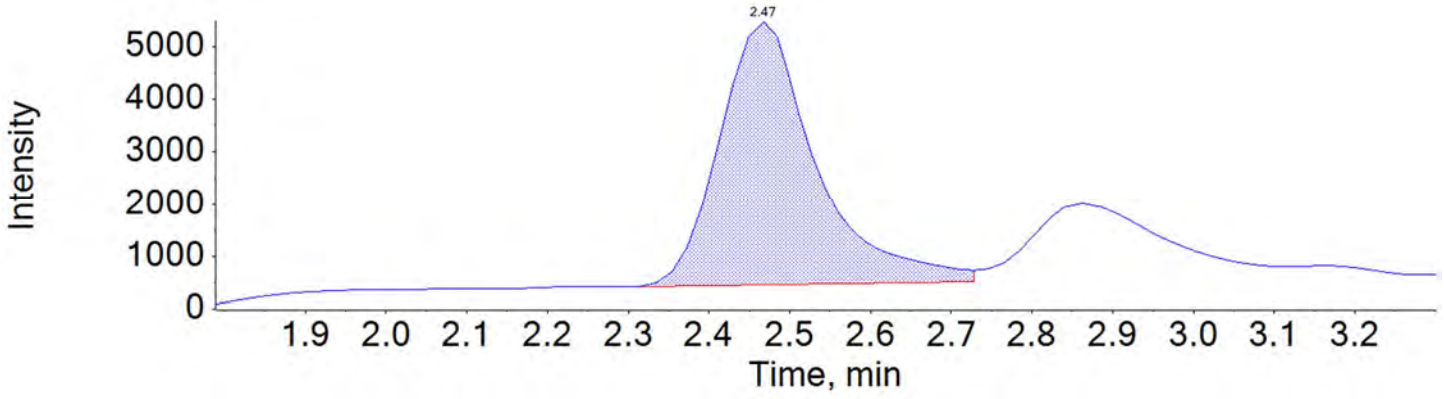

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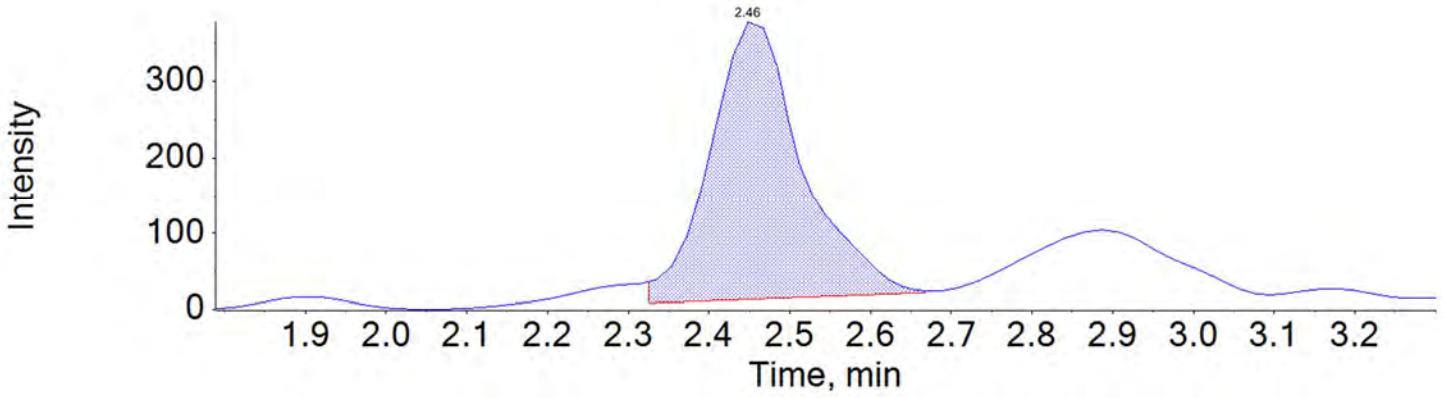
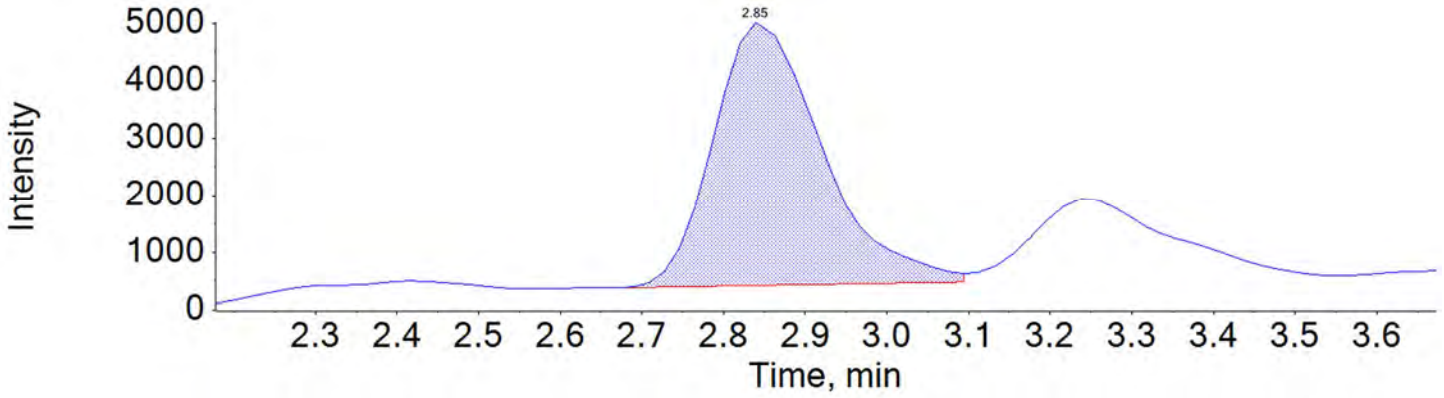


PFNA_1 463.0 / 419.0



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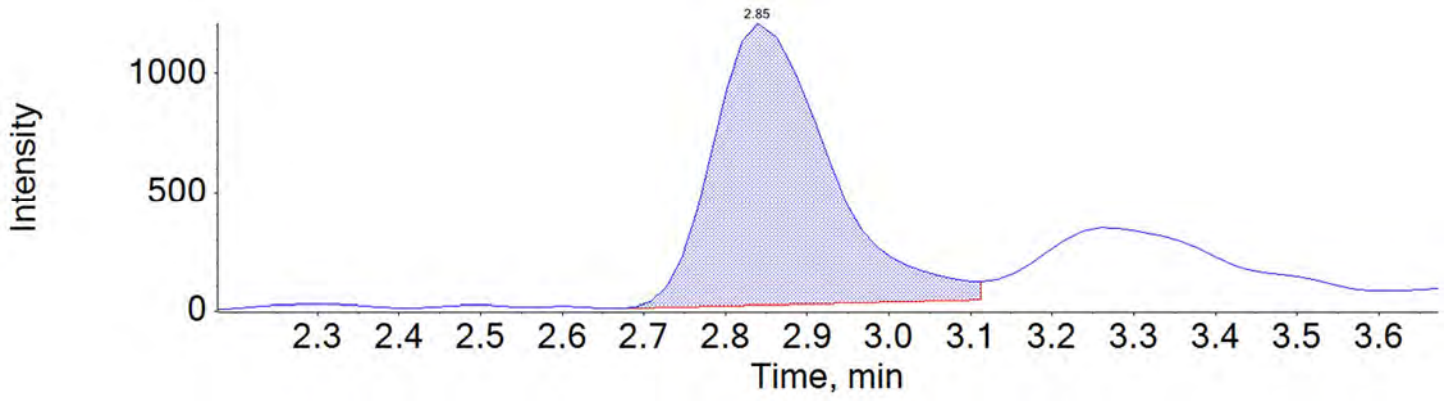
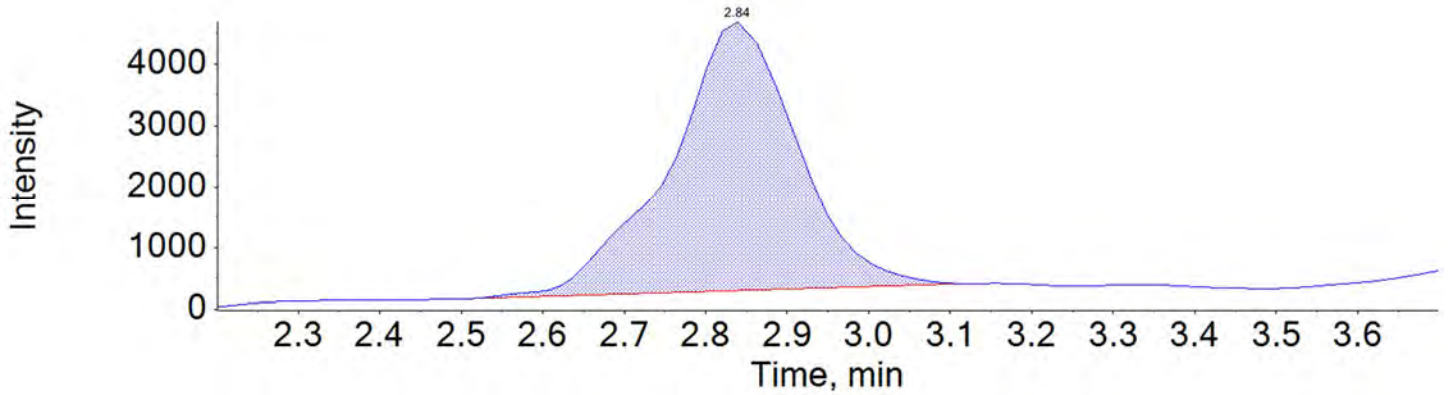


PFOS_1 499.0 / 80.0



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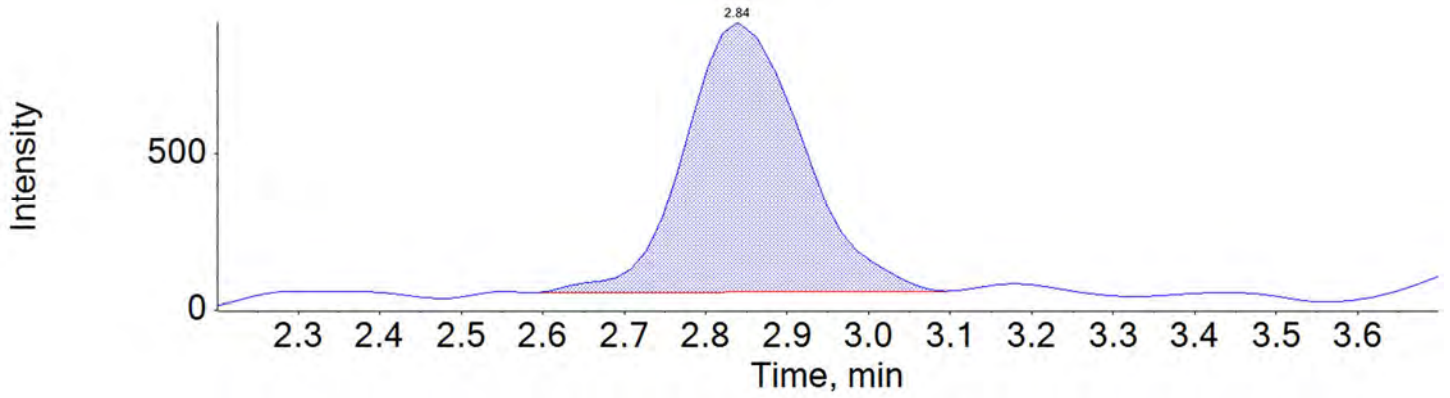

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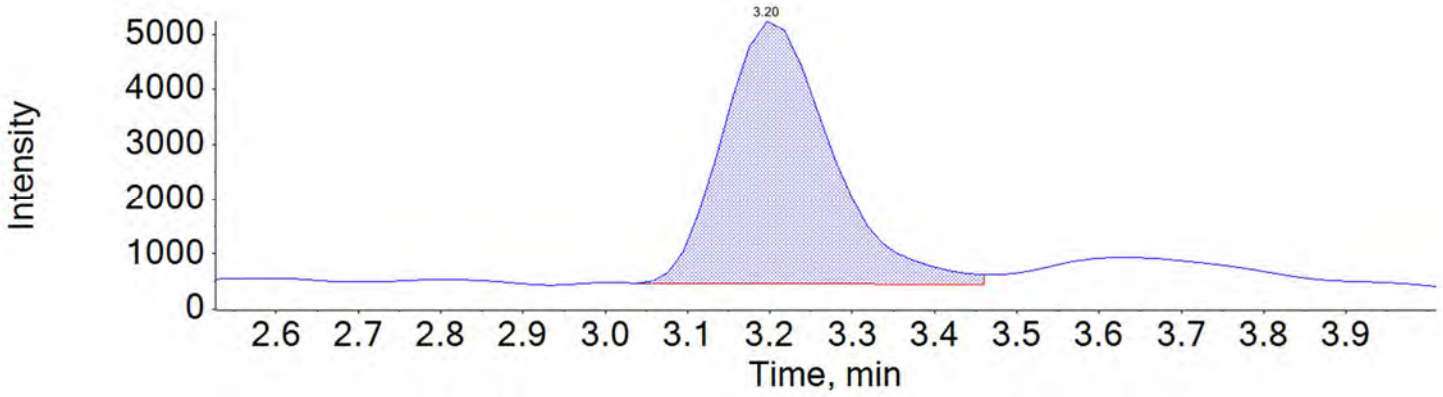

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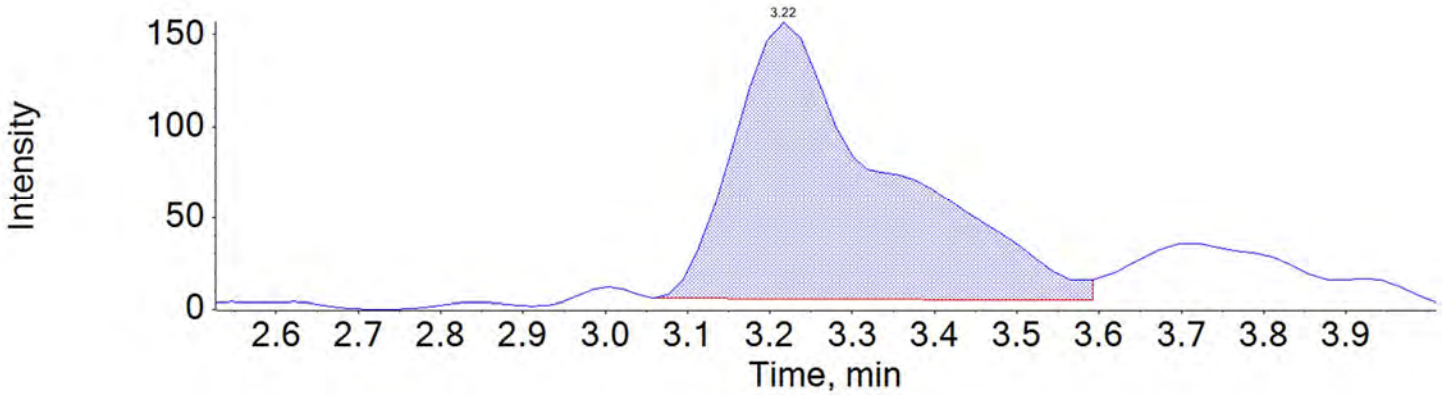
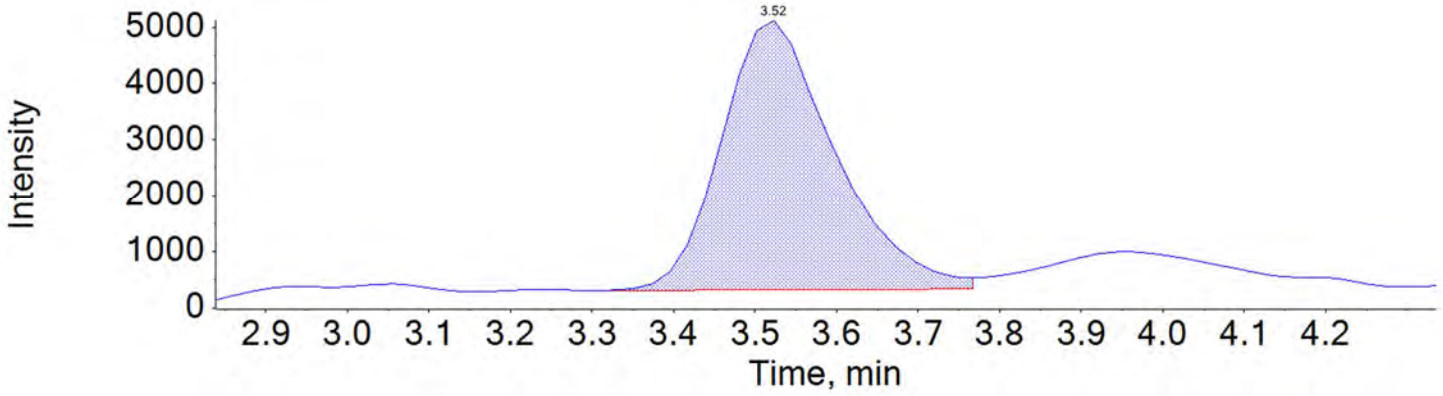


PFUnA_1 563.0 / 519.0



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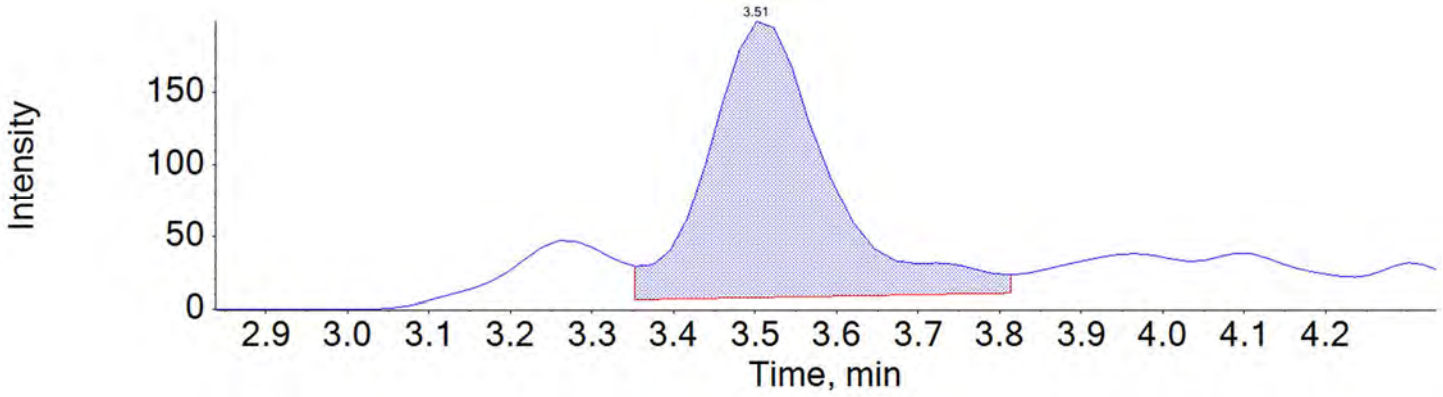

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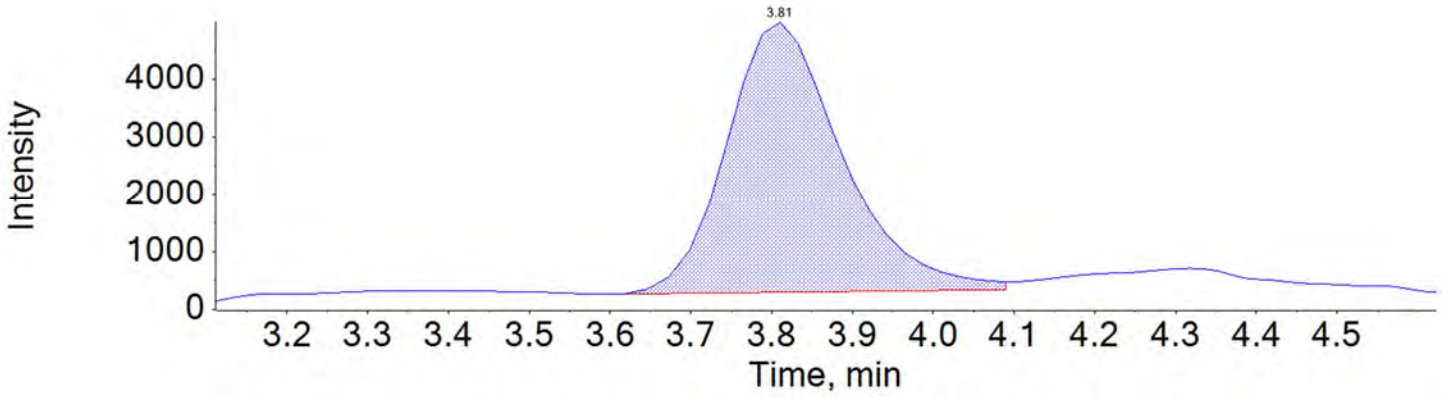

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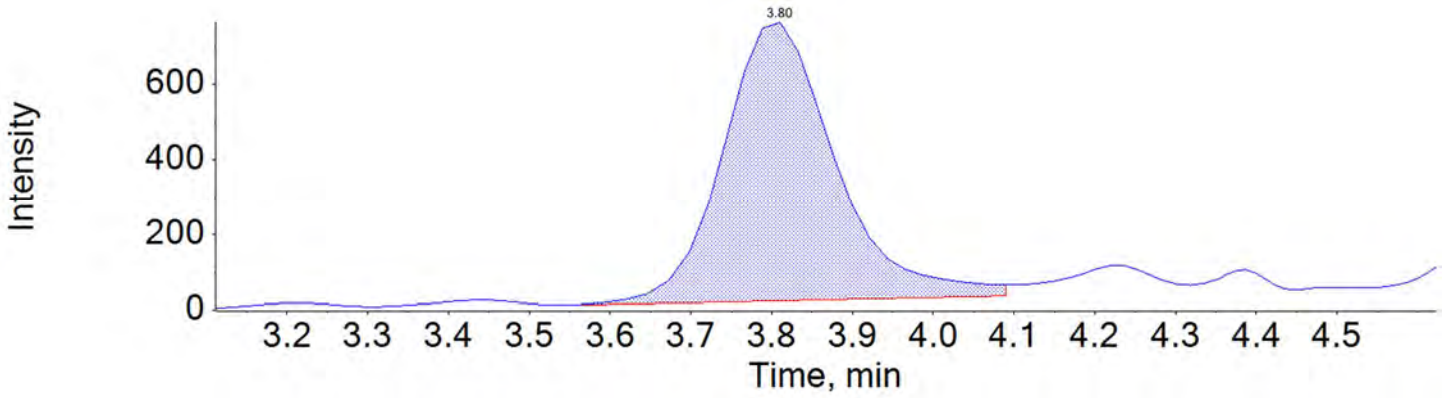

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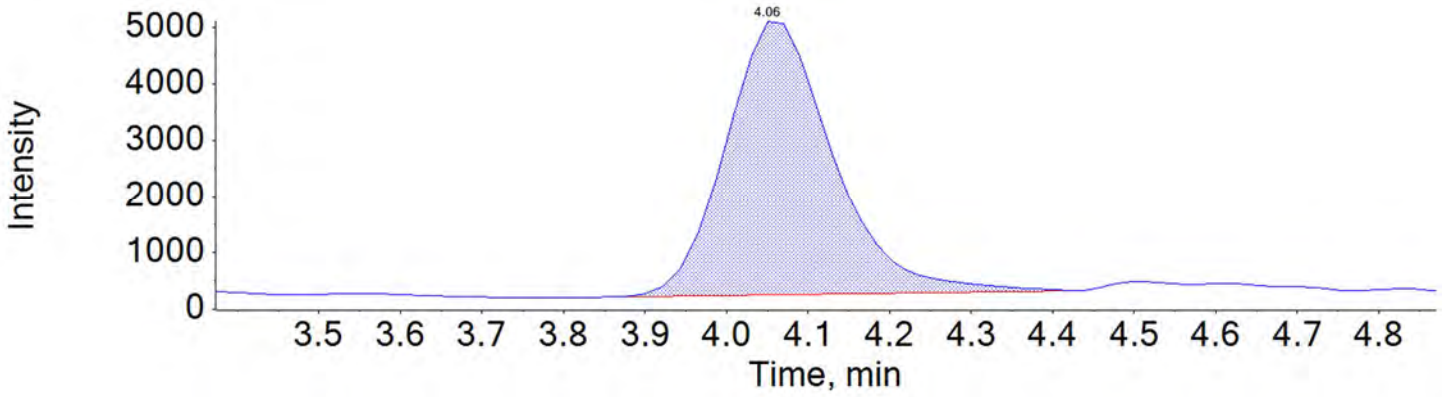
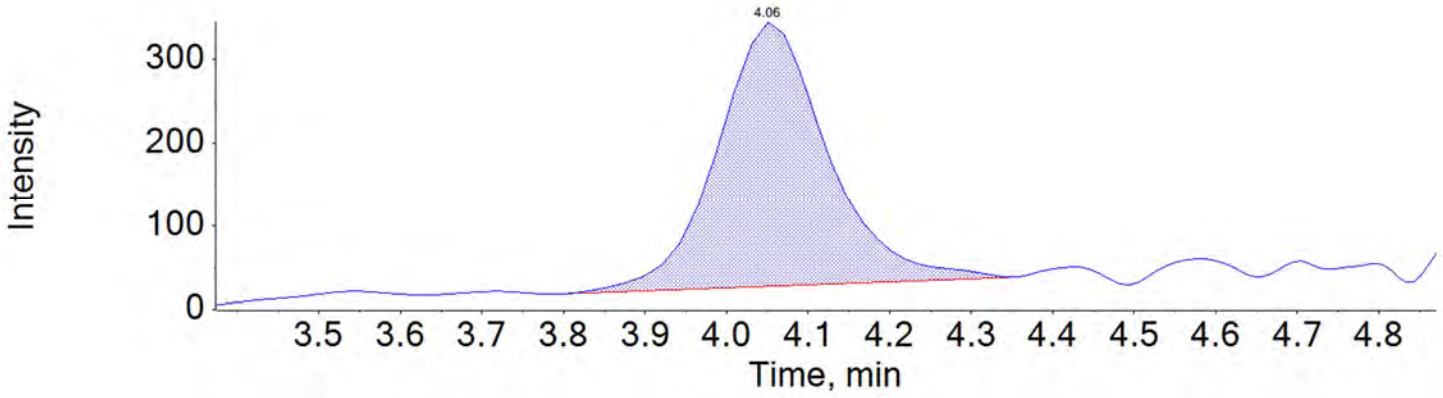
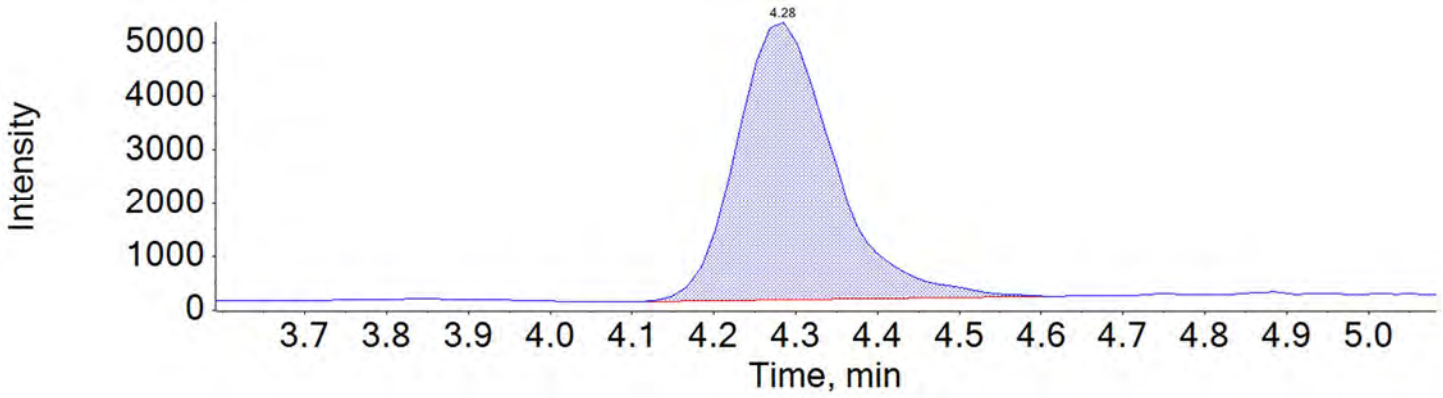


PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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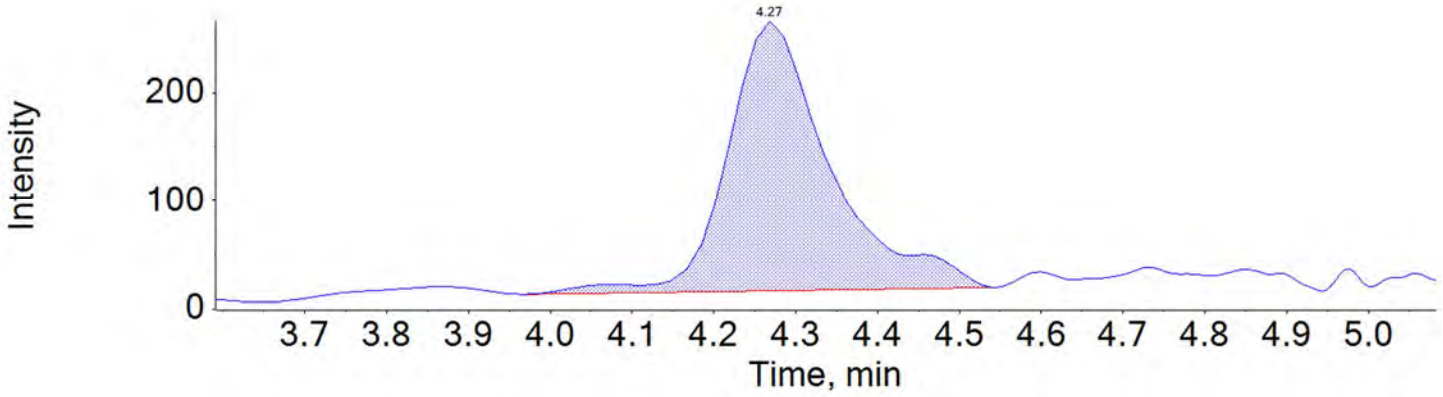
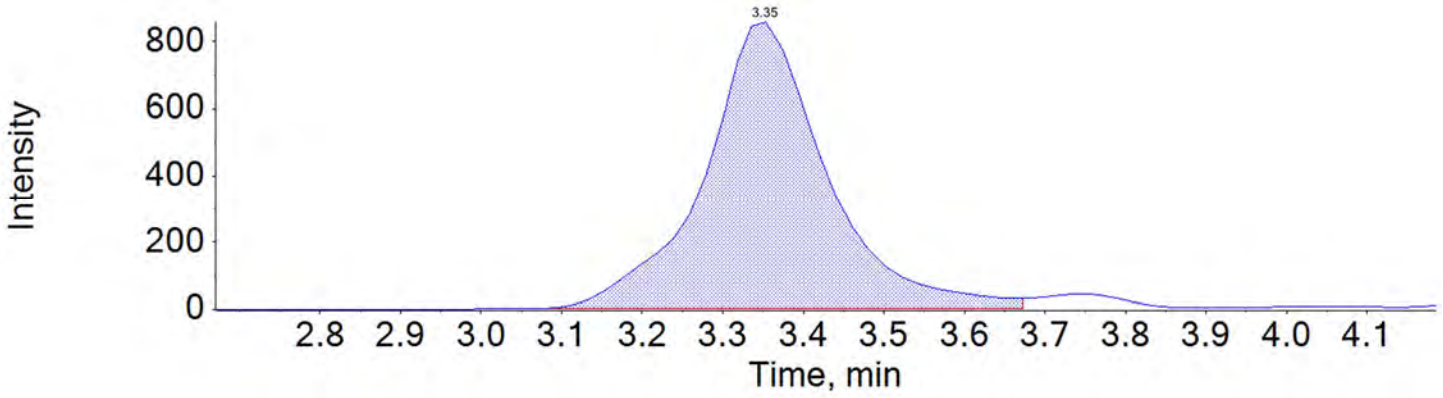
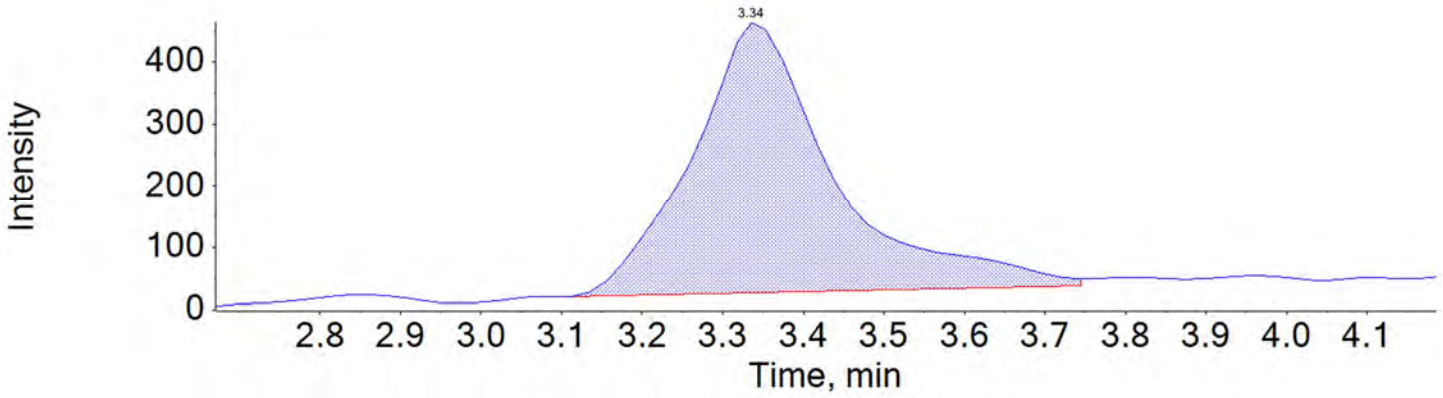
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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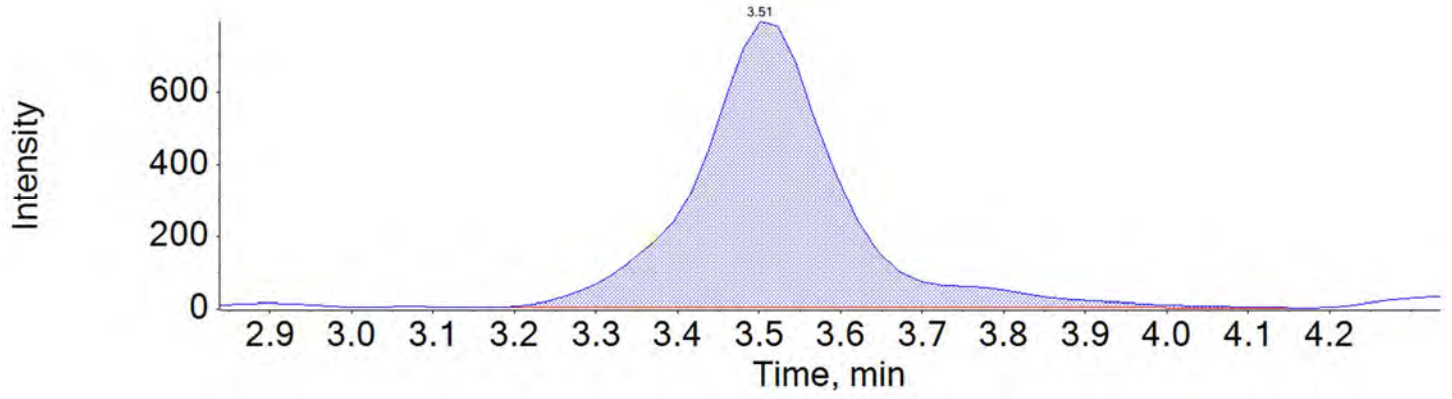
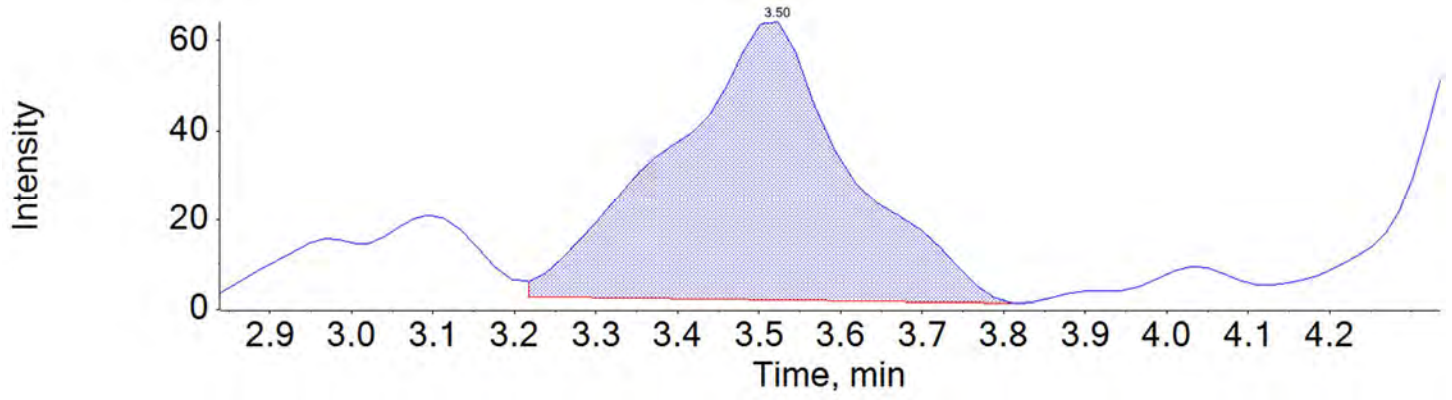
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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Chromatogram Report

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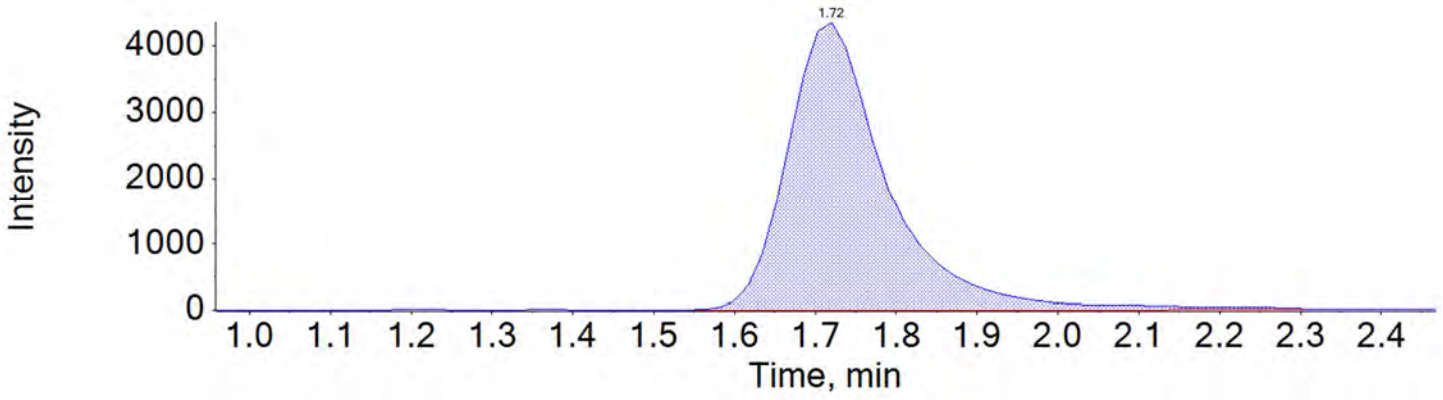
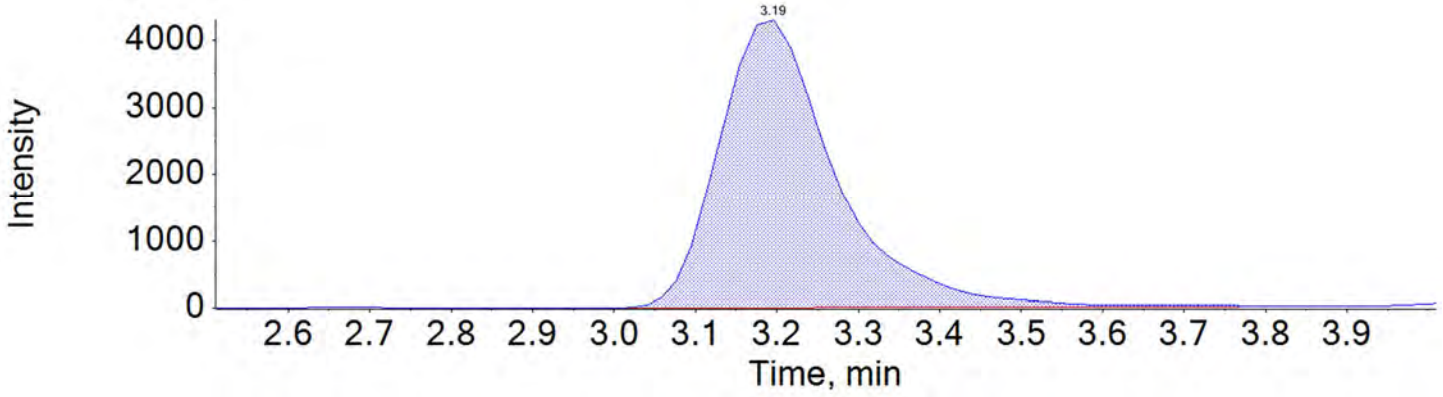
Sample Name	JV66	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T12:52:57	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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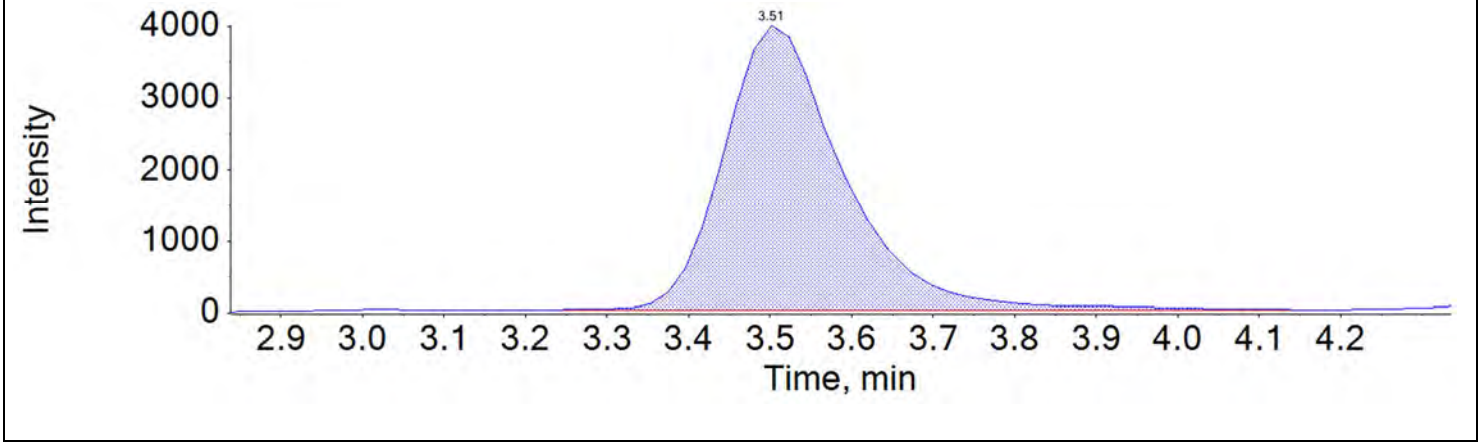
d5-EtFOSAA 589.0 / 419.0



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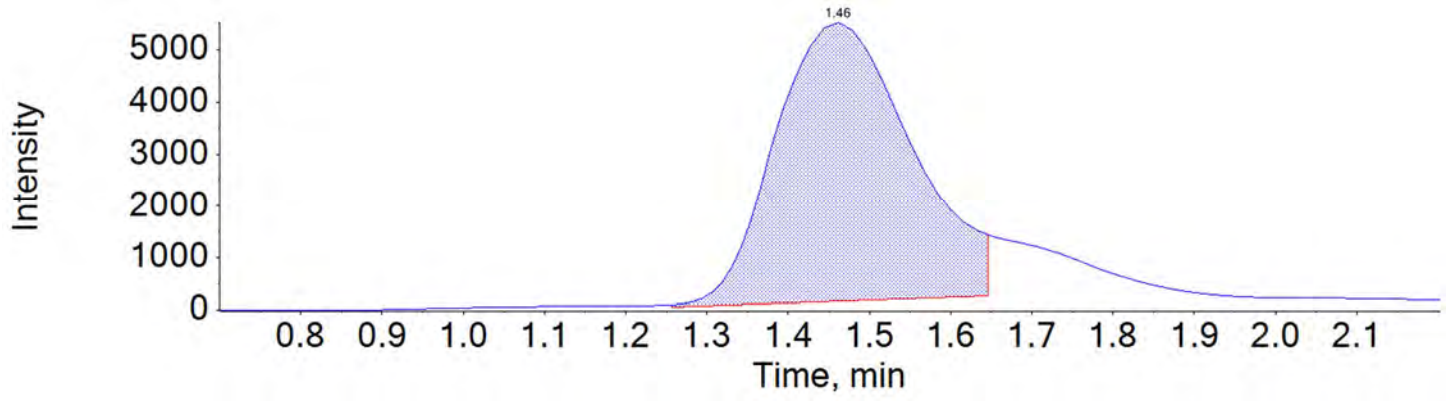
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:04:58 PM

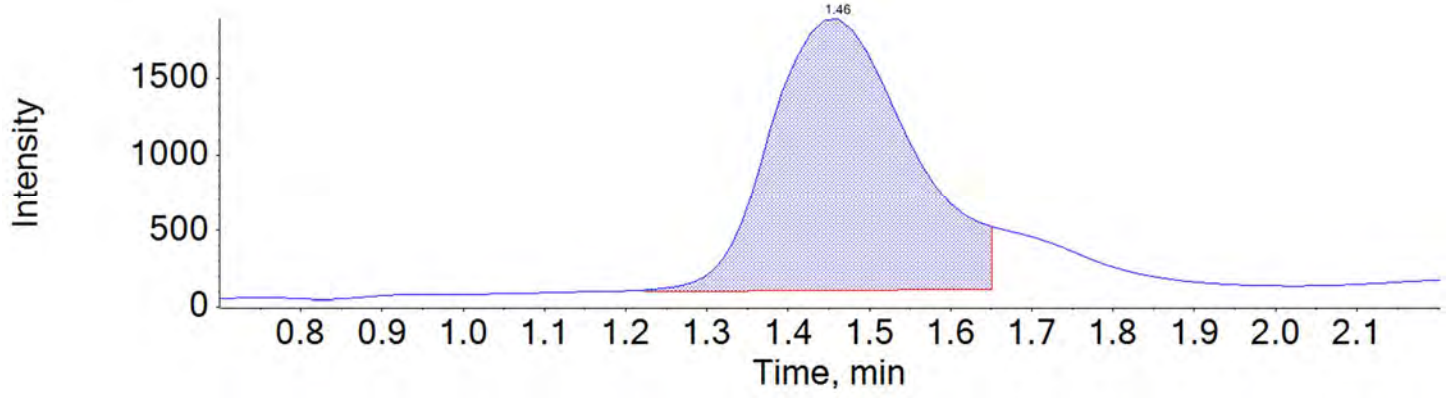
Sample Name	JV67	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T13:01:55	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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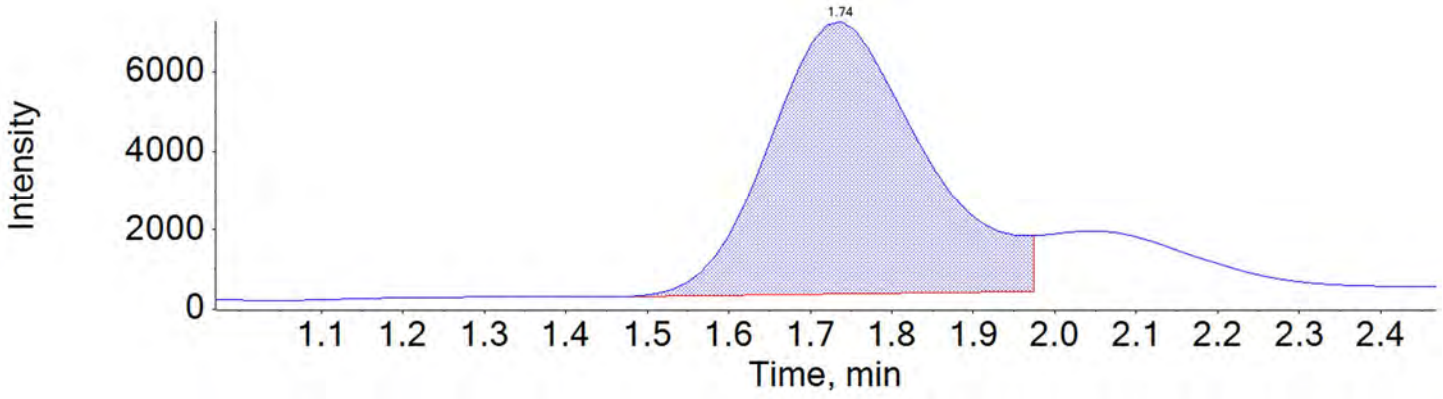
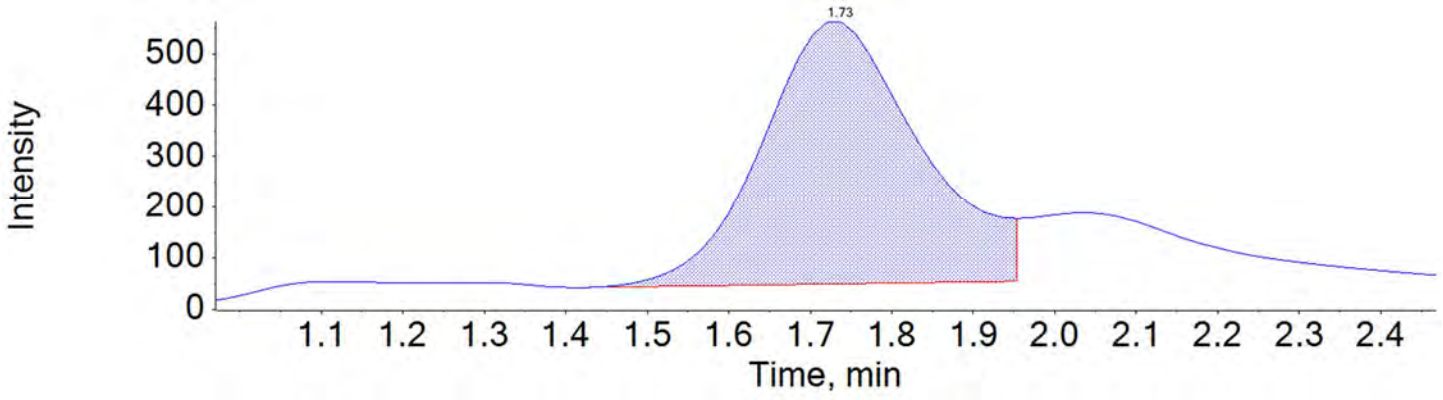
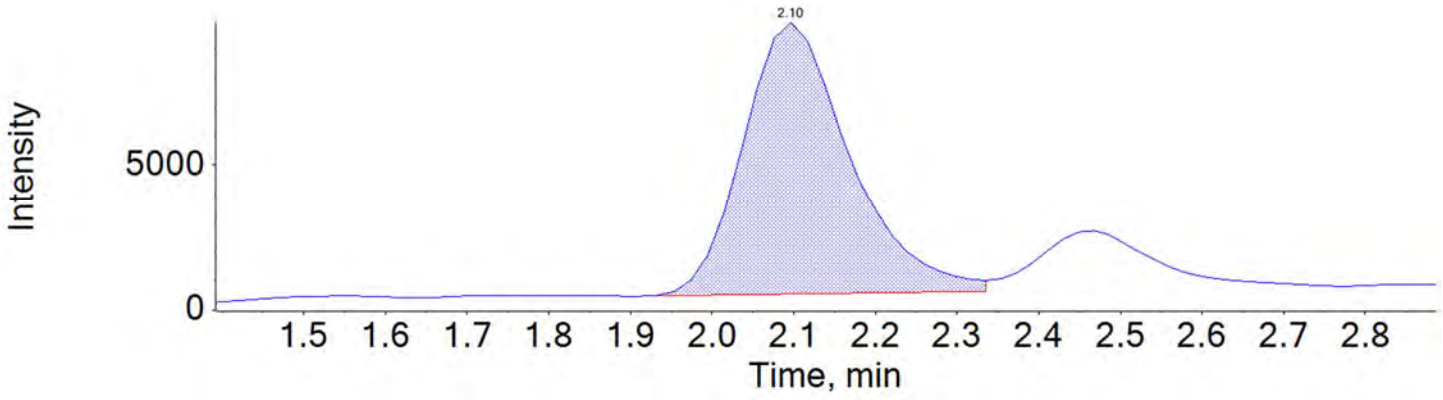
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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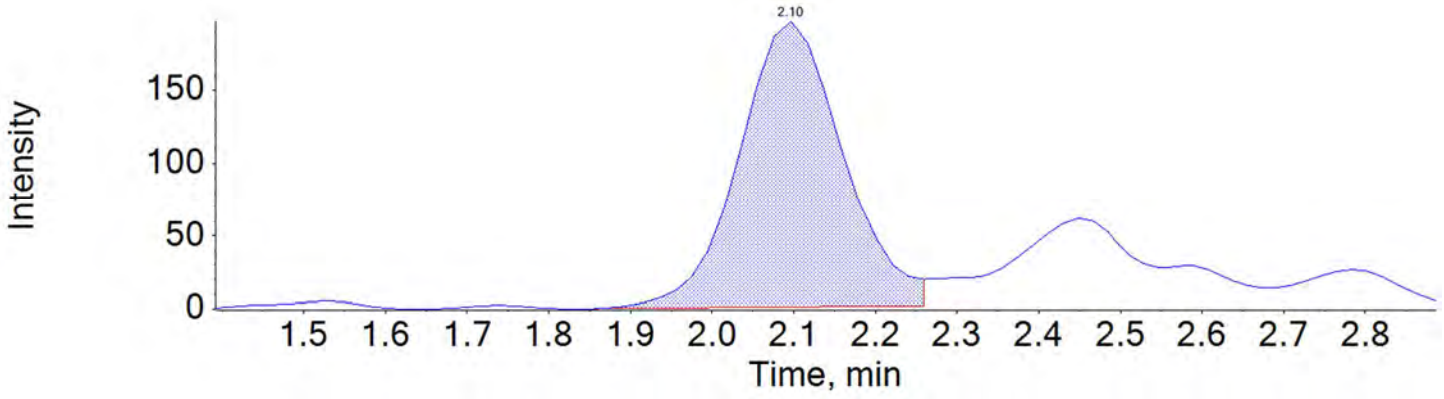
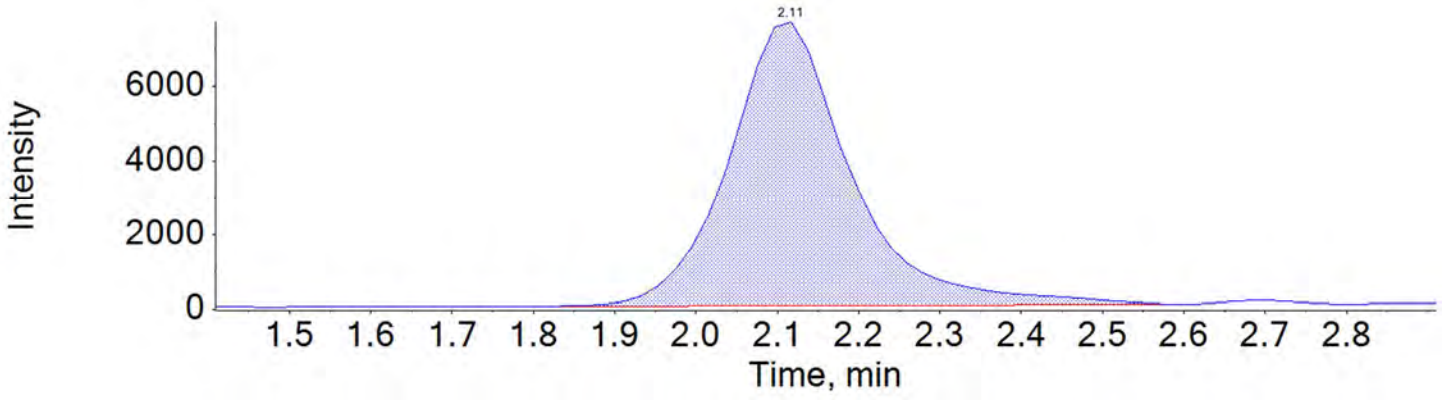
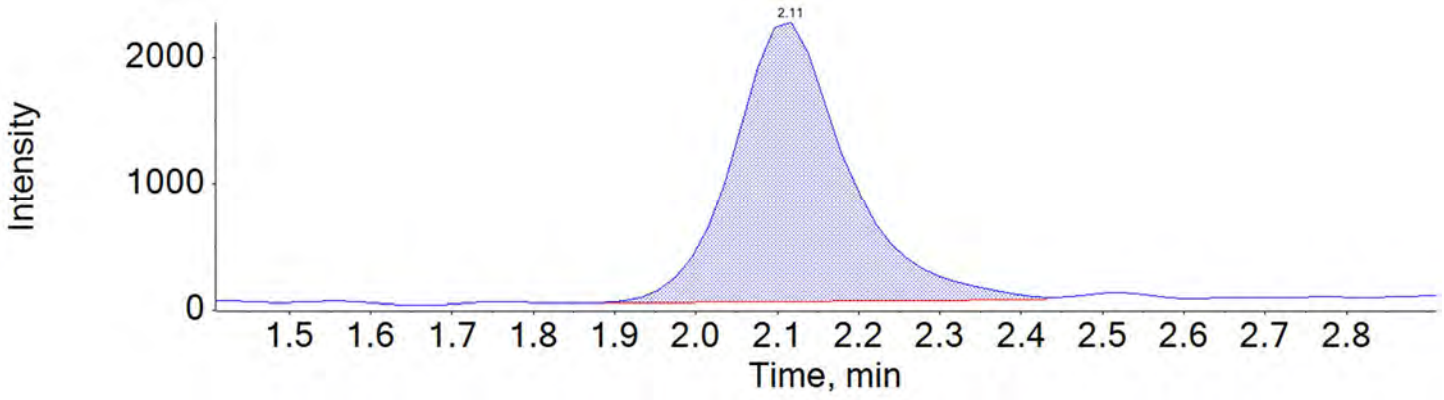
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



PFHxS_2 399.0 / 99.0



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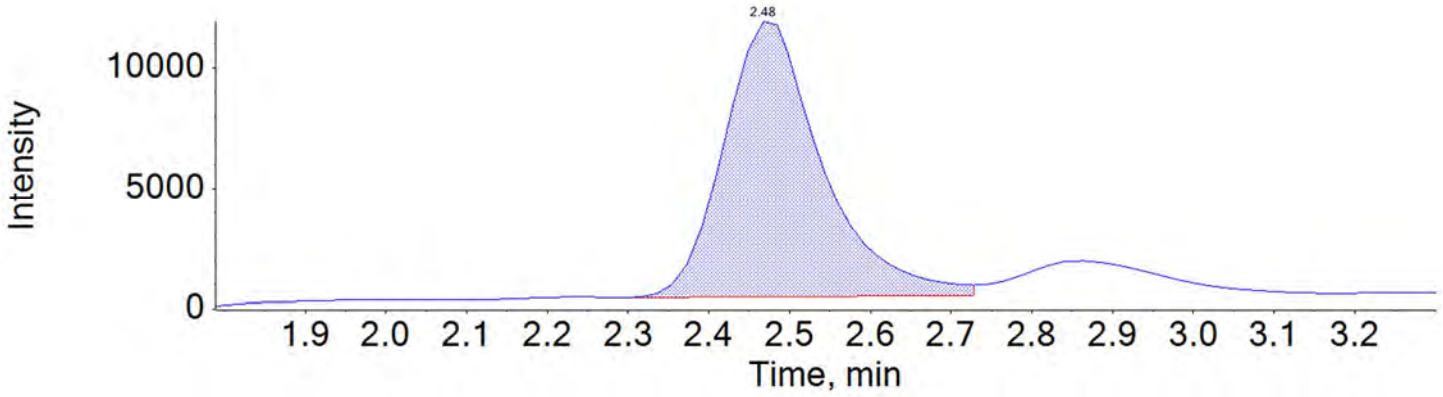
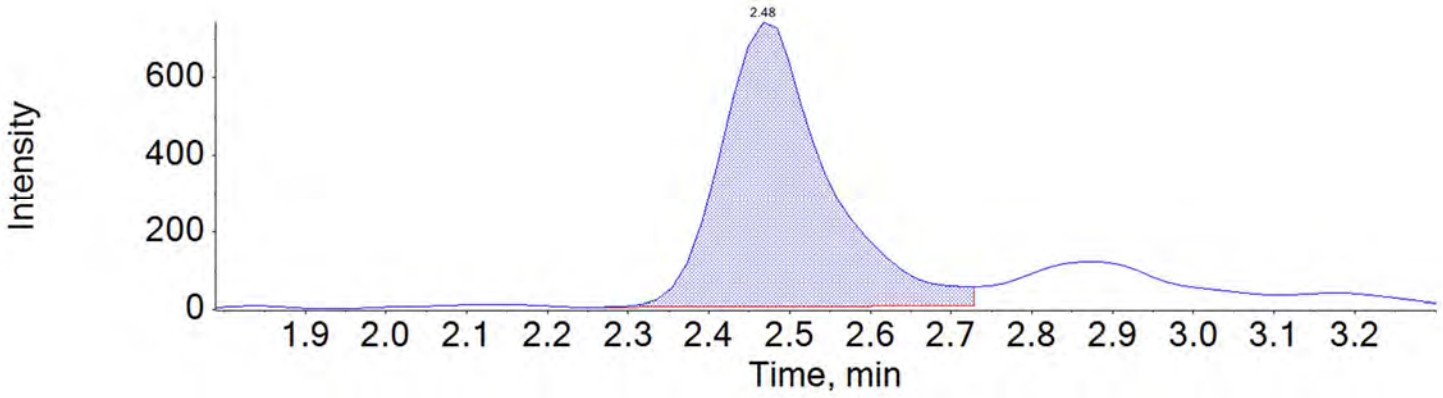
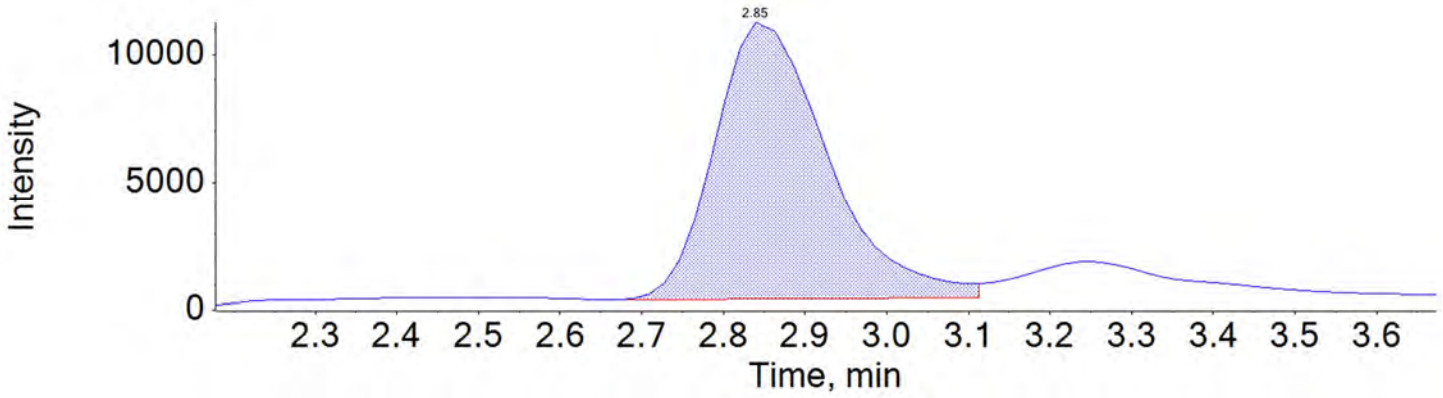
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



PFNA_1 463.0 / 419.0



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Chromatogram Report

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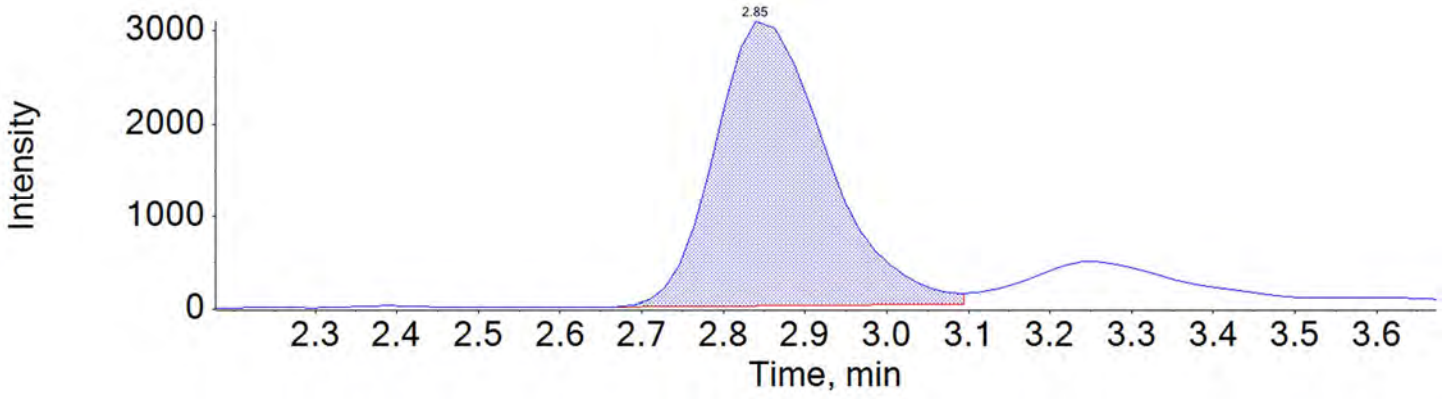
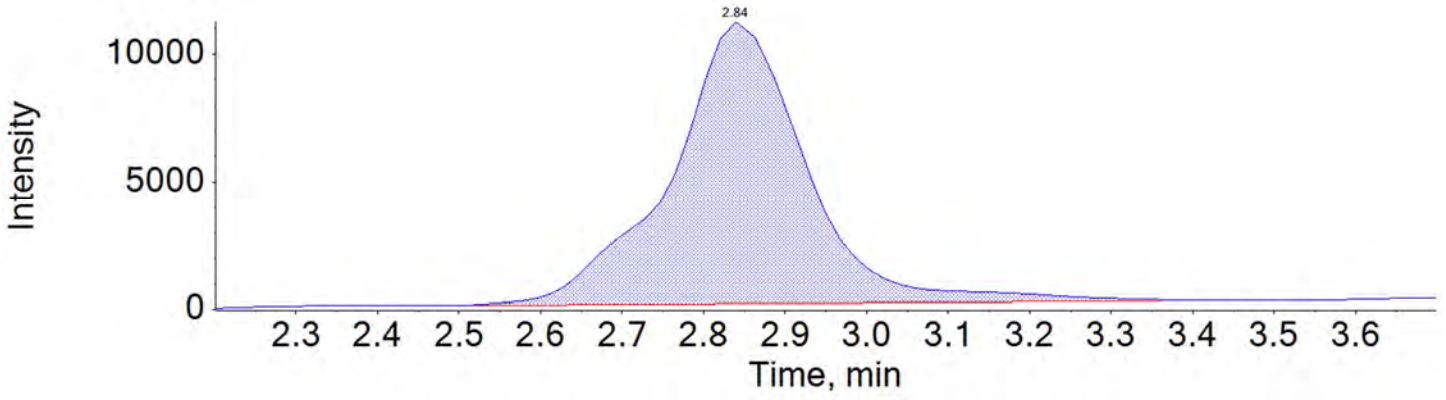
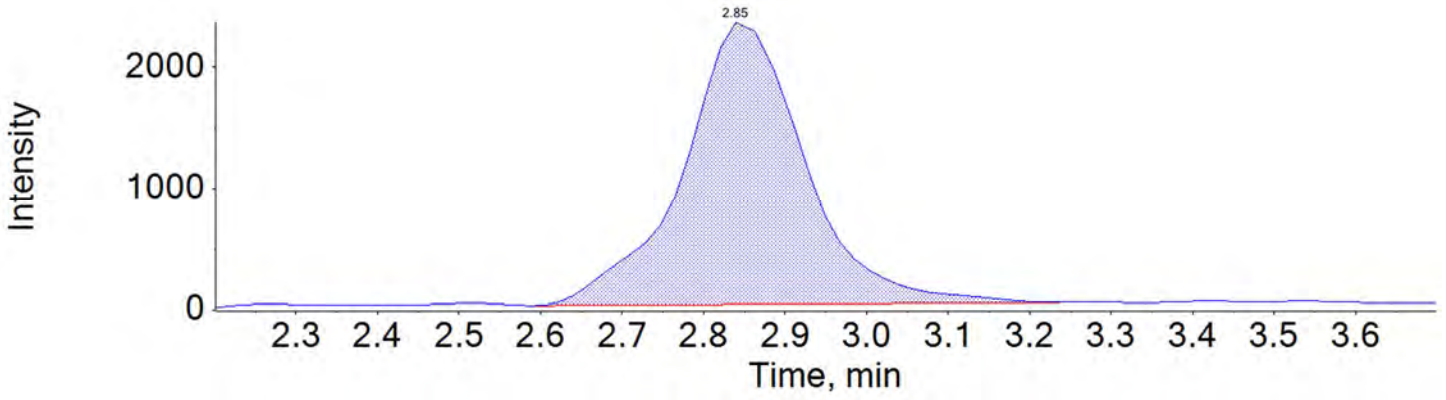
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



PFOS_2 499.0 / 99.0



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Chromatogram Report

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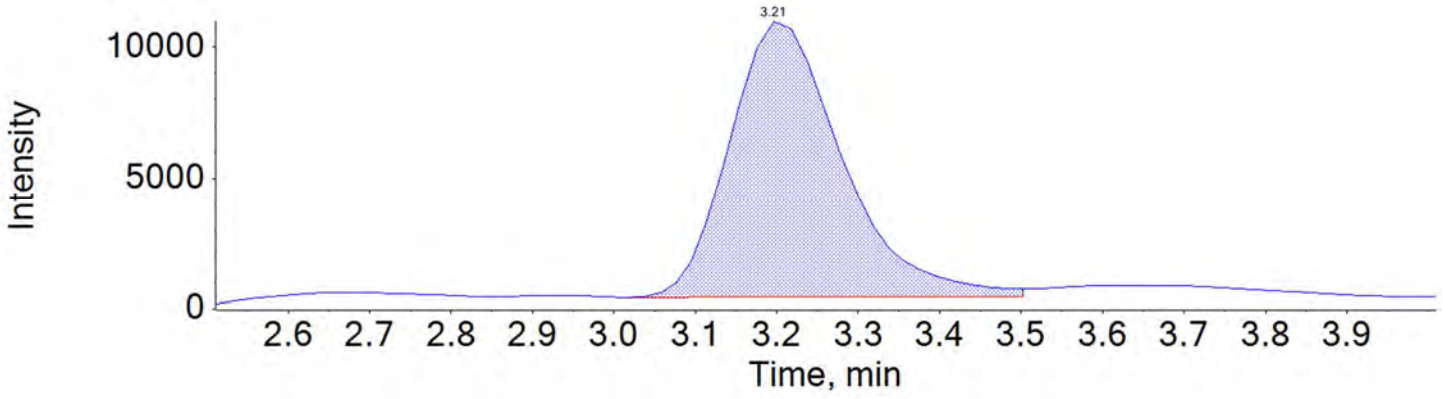
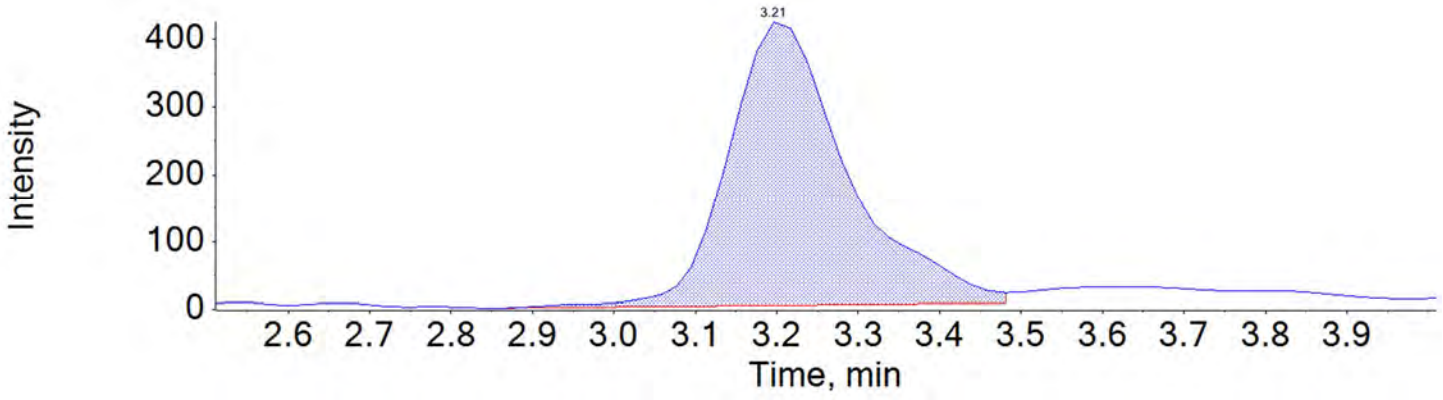
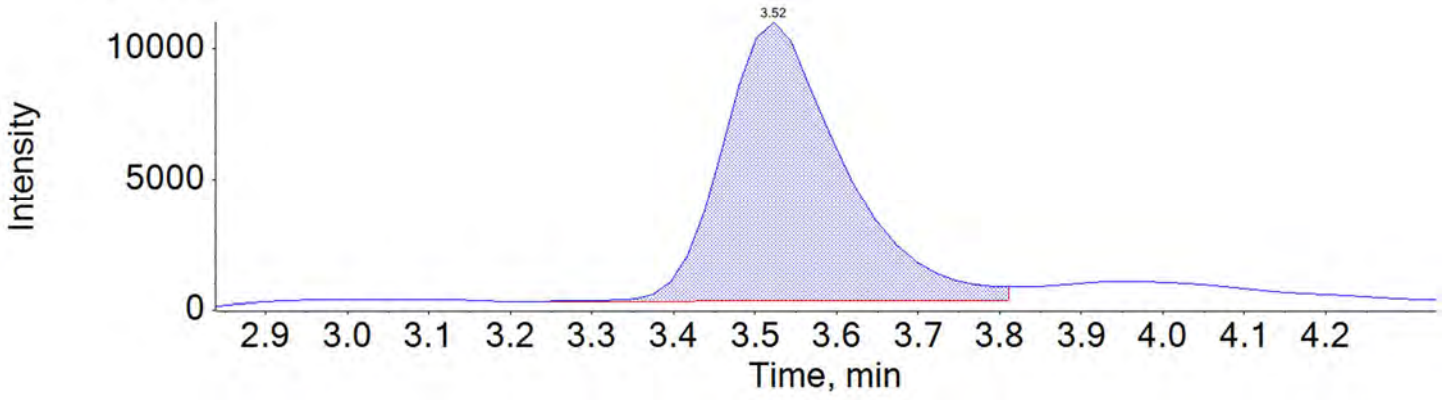
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



PFUnA_1 563.0 / 519.0



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Chromatogram Report

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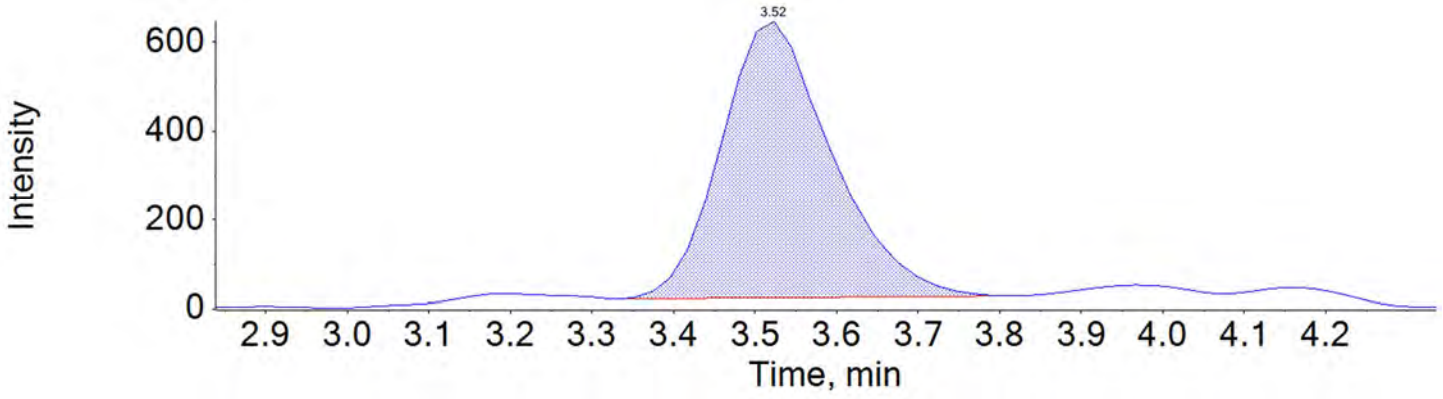
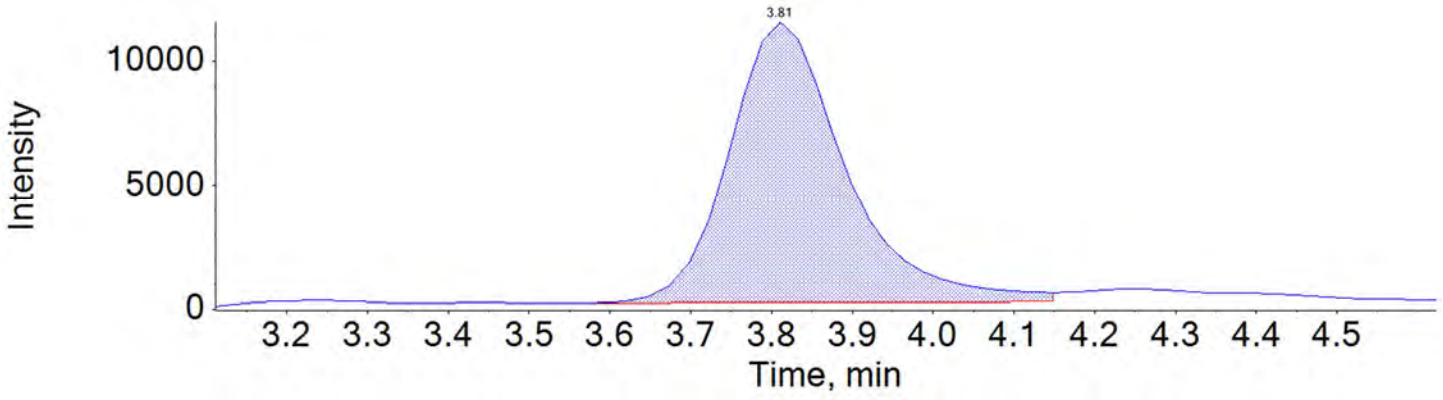
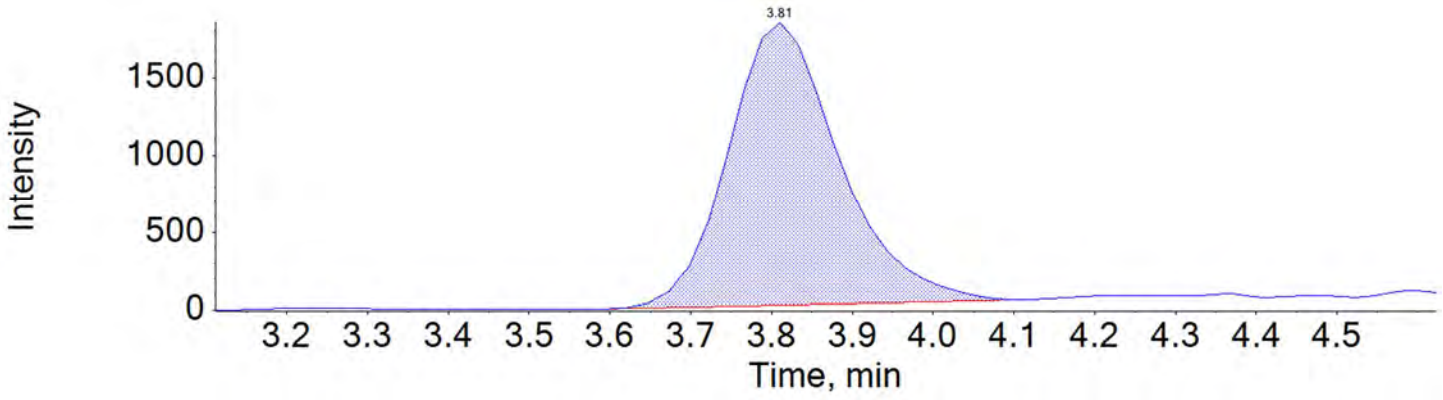
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



PFDoA_2 613.0 / 319.0



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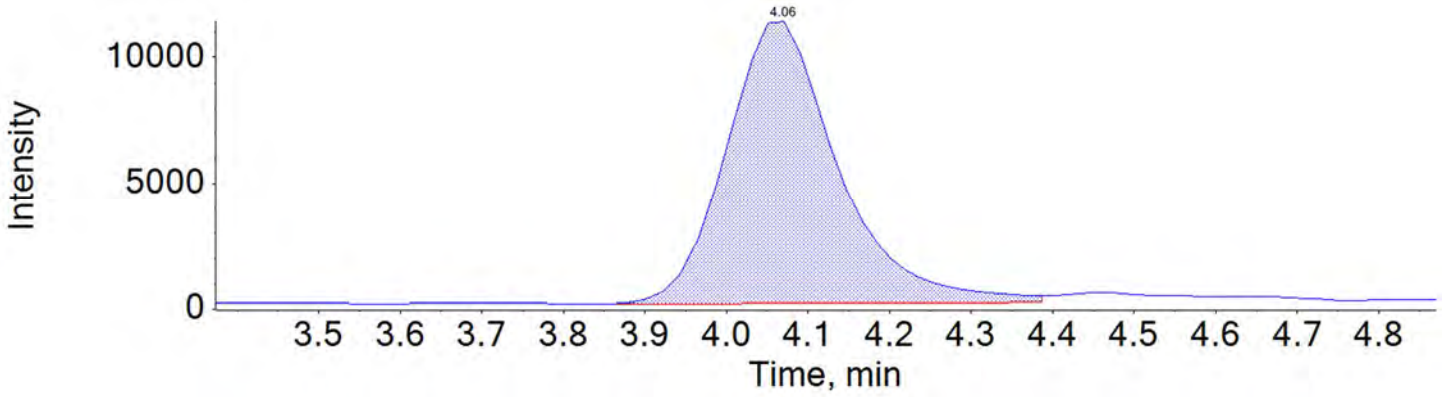
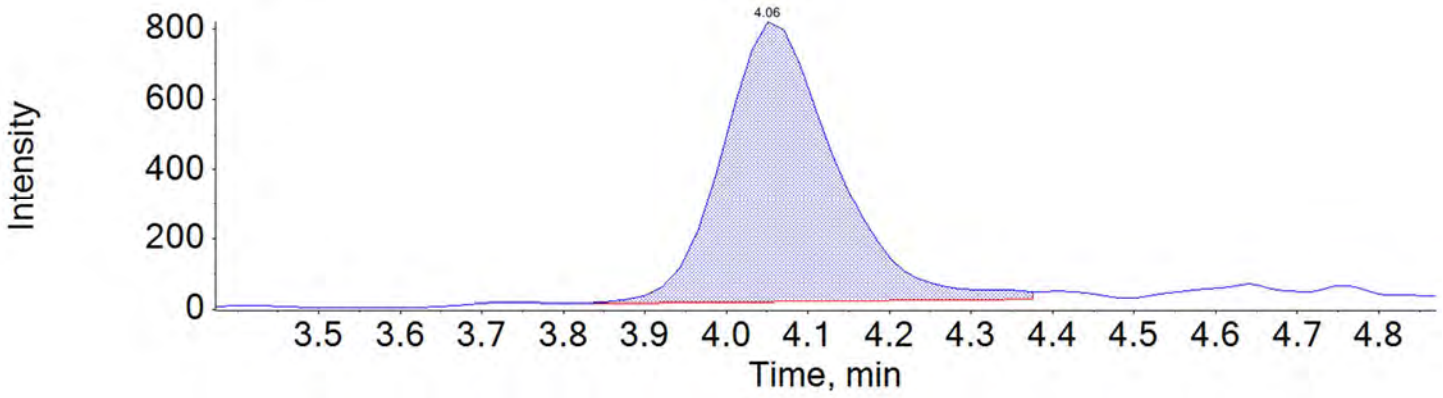
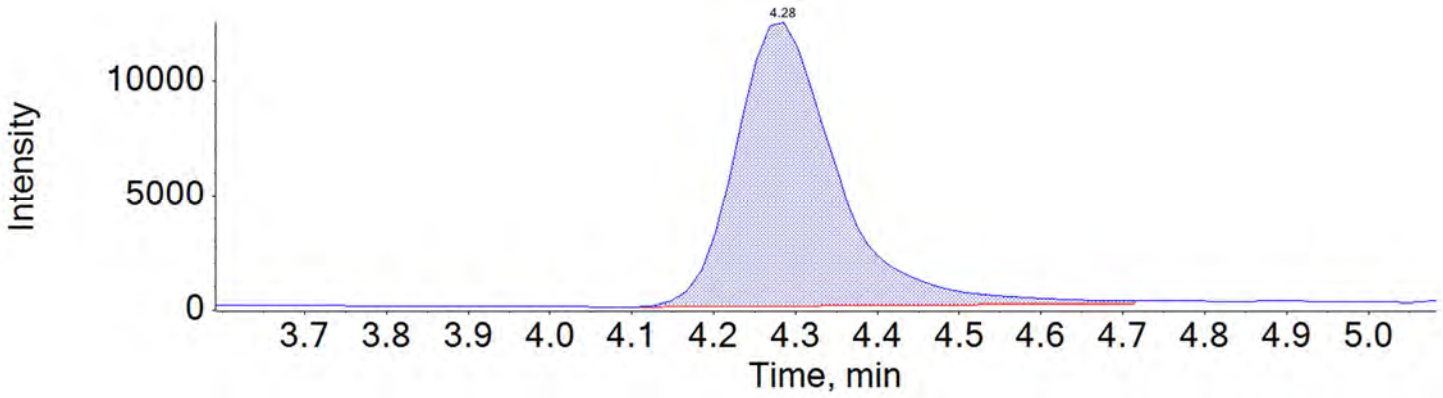
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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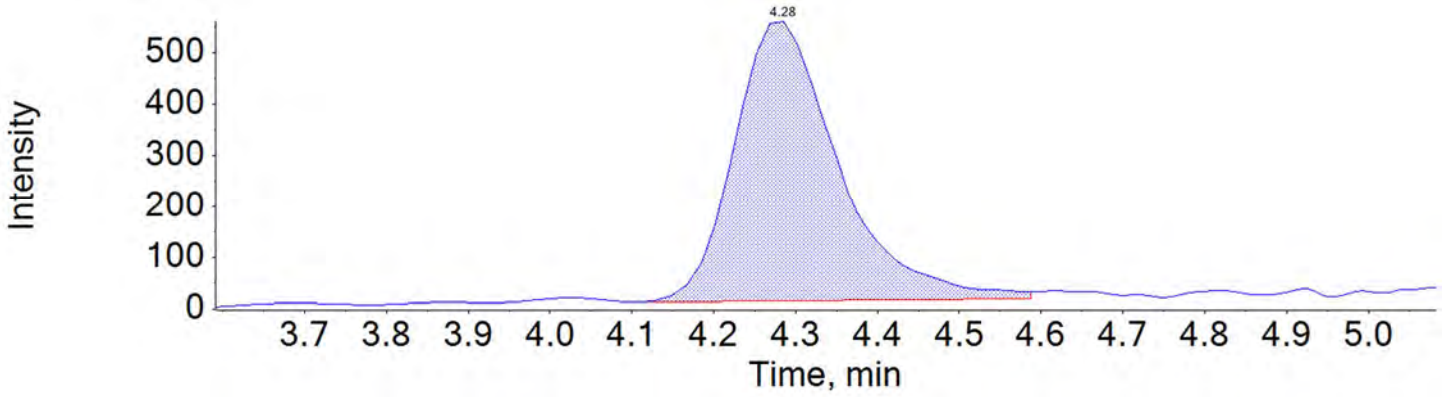
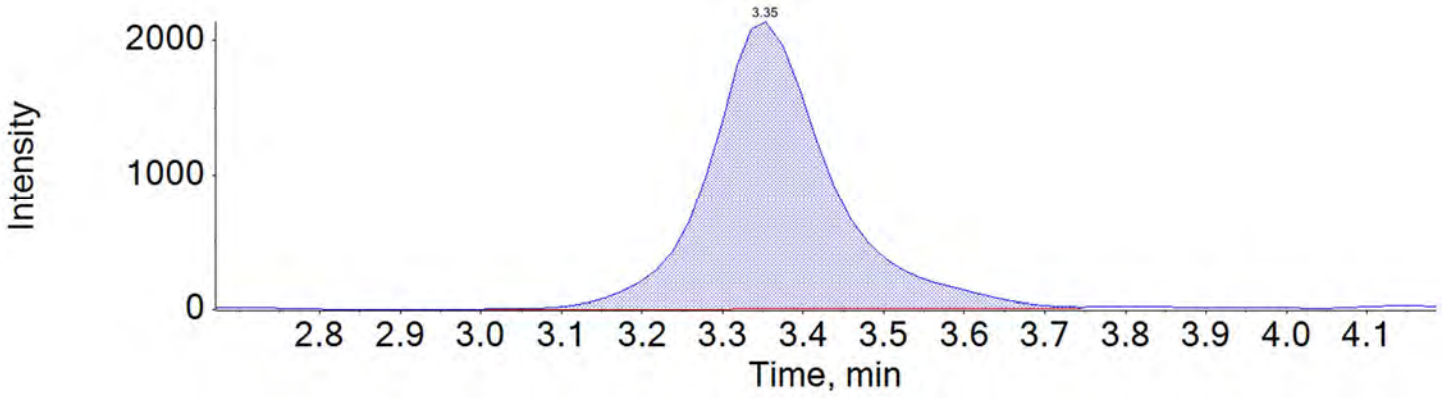
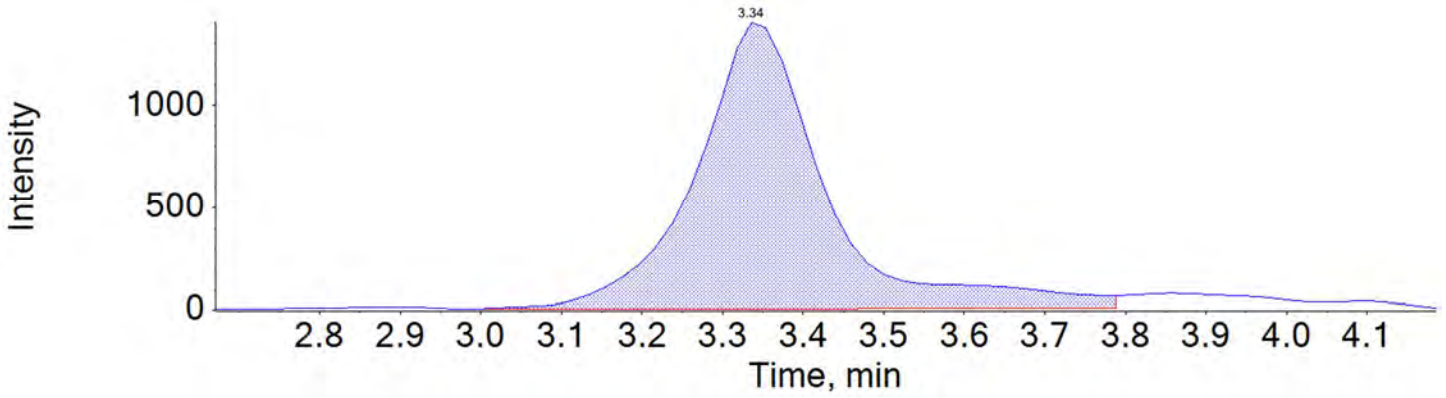
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

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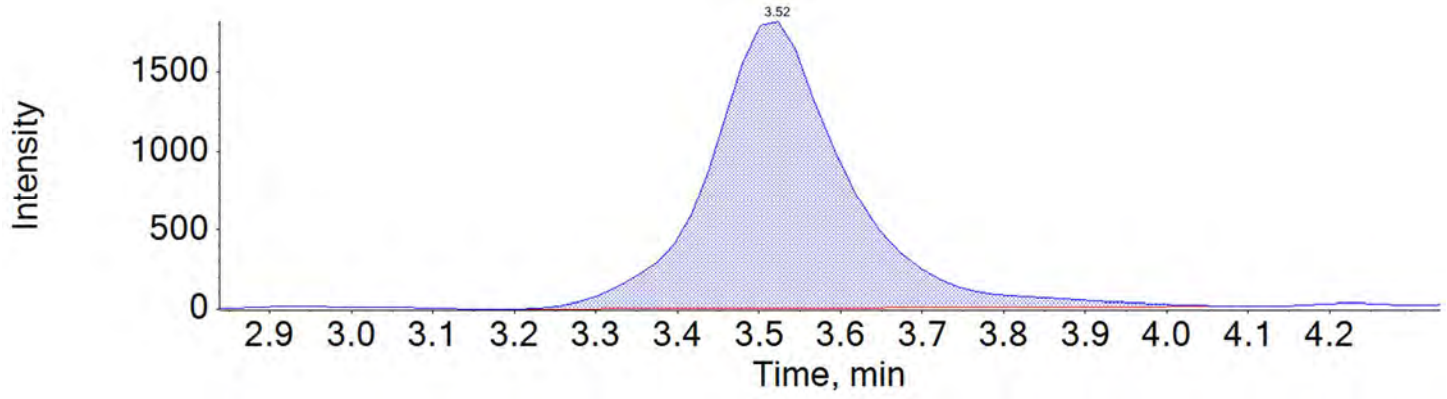
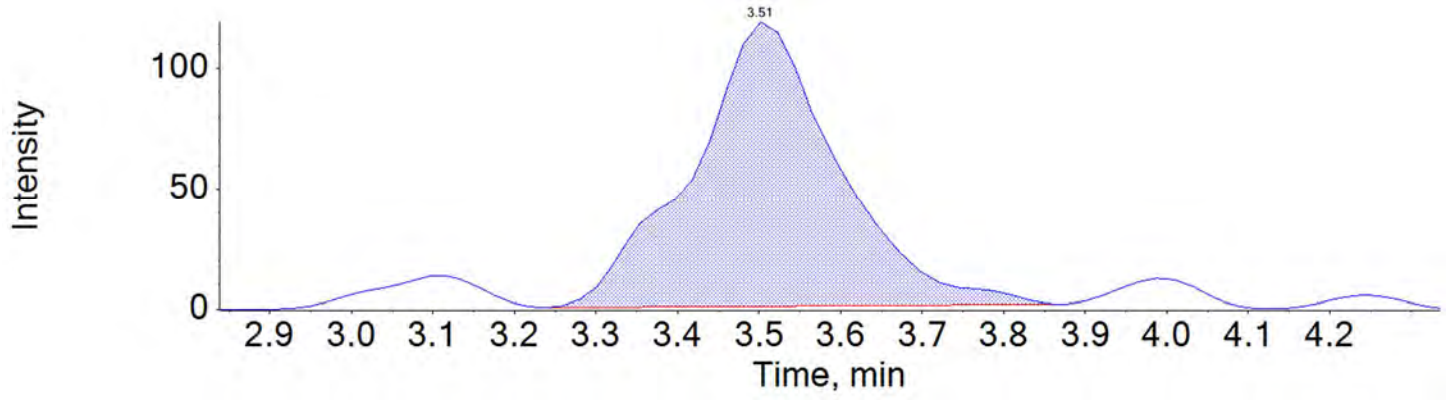
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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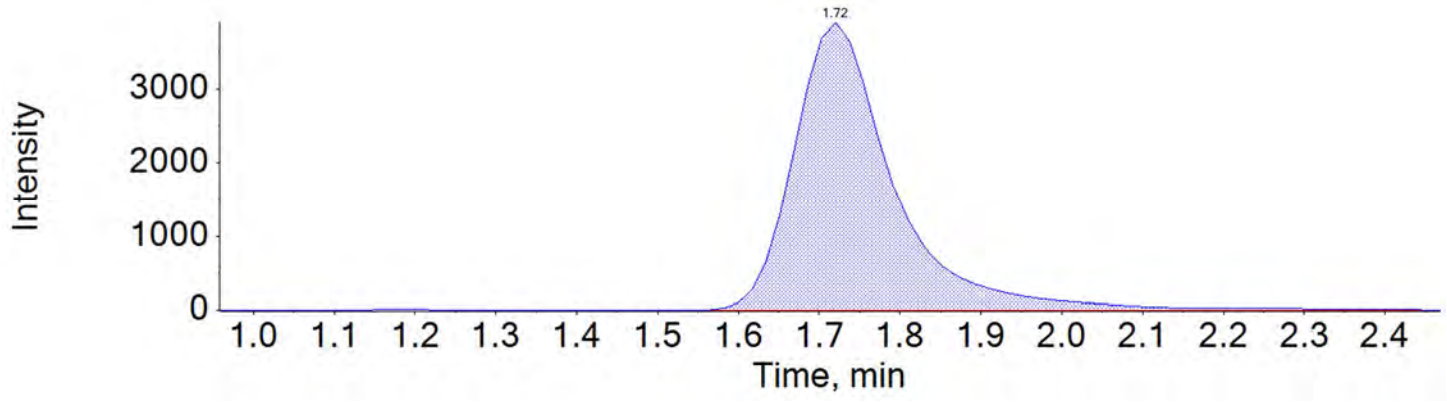
Chromatogram Report

Created with Analyst Reporter
Printed: 16/05/2018 7:11:30 PM

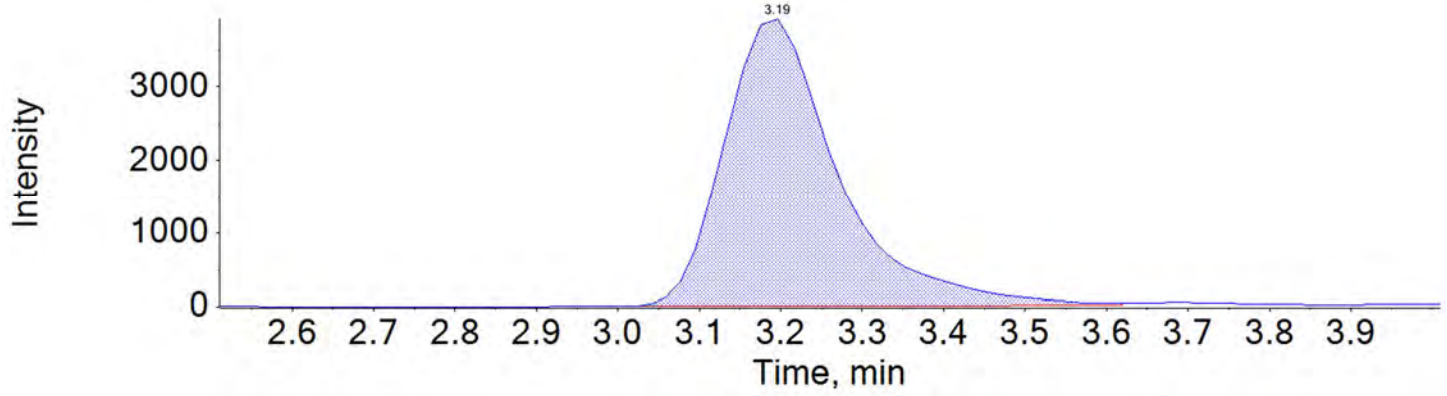
Sample Name	JV67	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T13:01:55	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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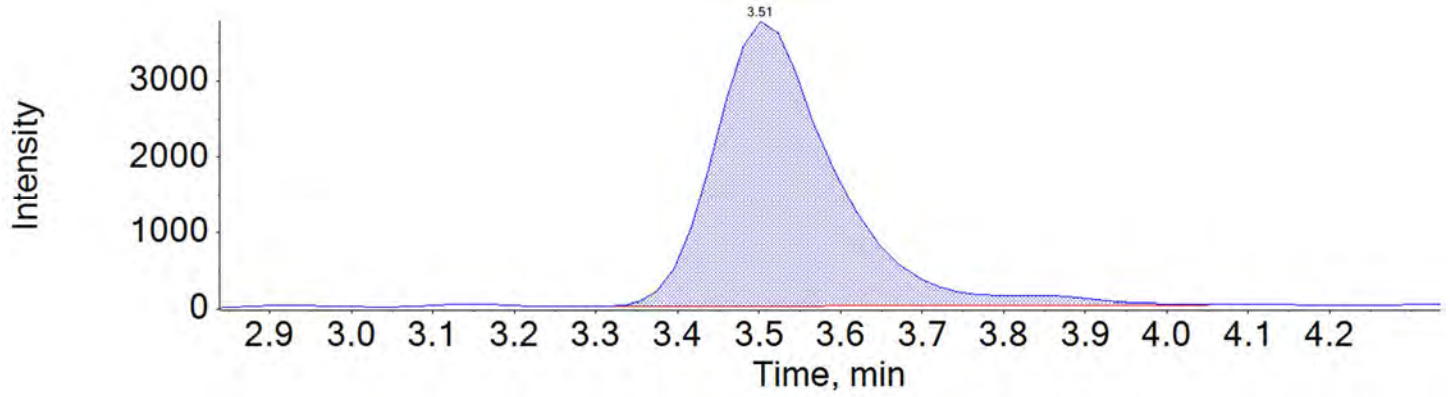
d5-EtFOSAA 589.0 / 419.0



BATTELLE

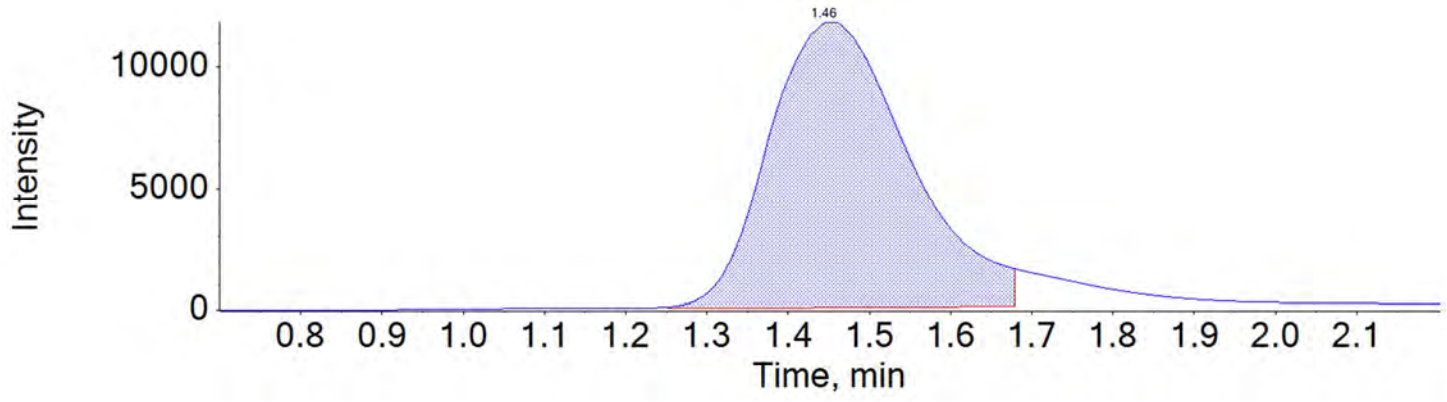
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:05:03 PM

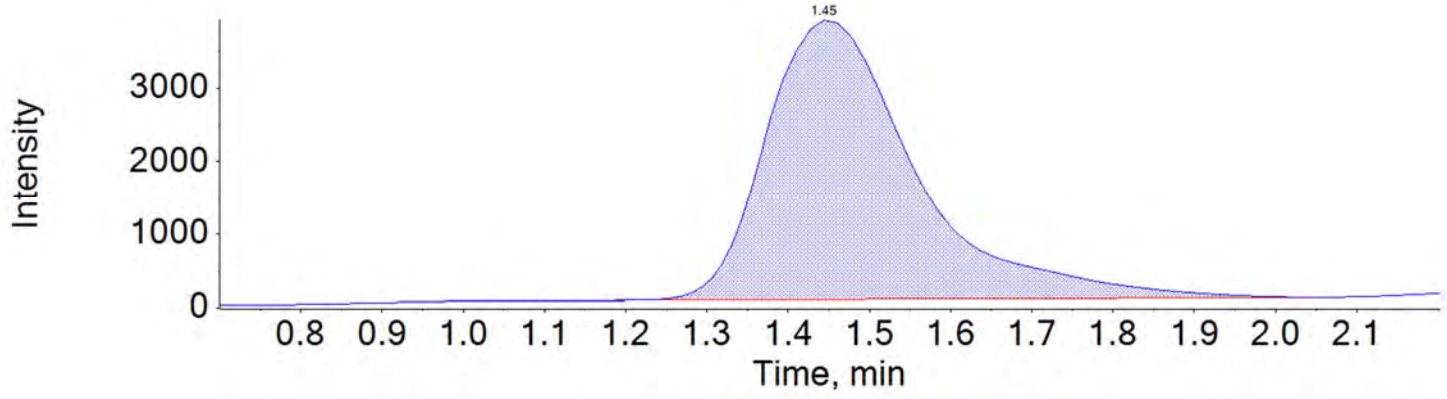
Sample Name	JV68	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T13:10:53	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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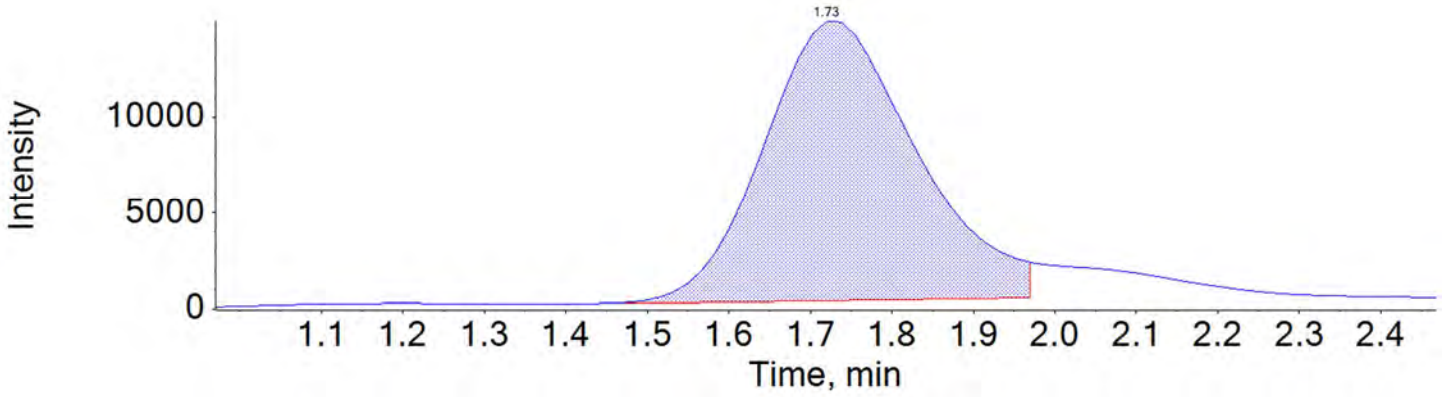
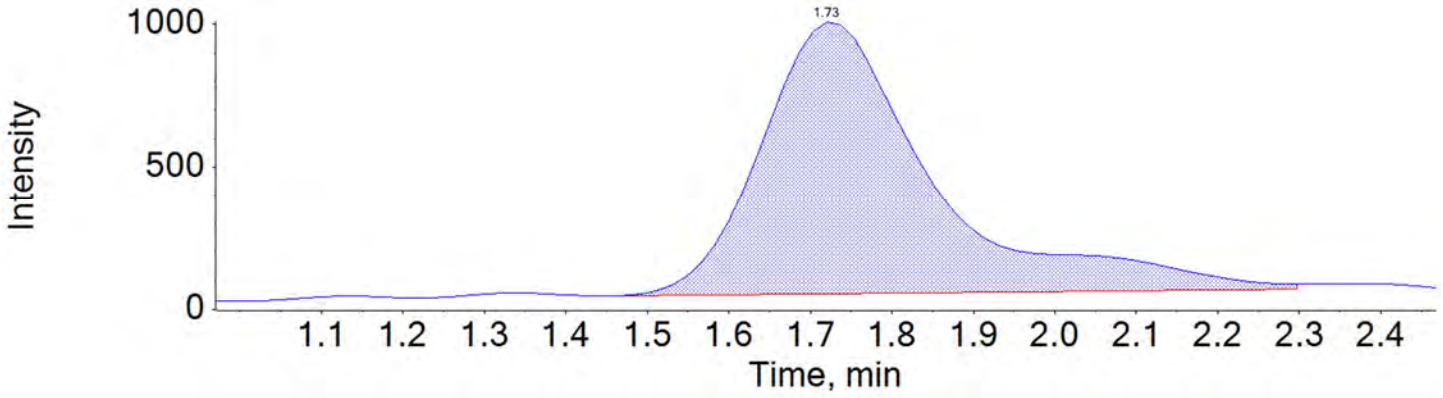
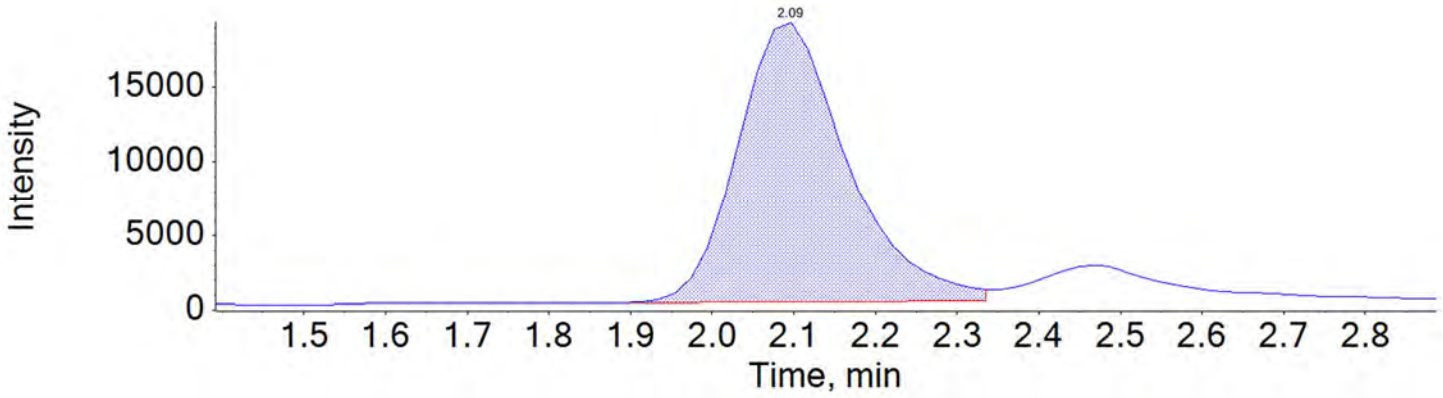
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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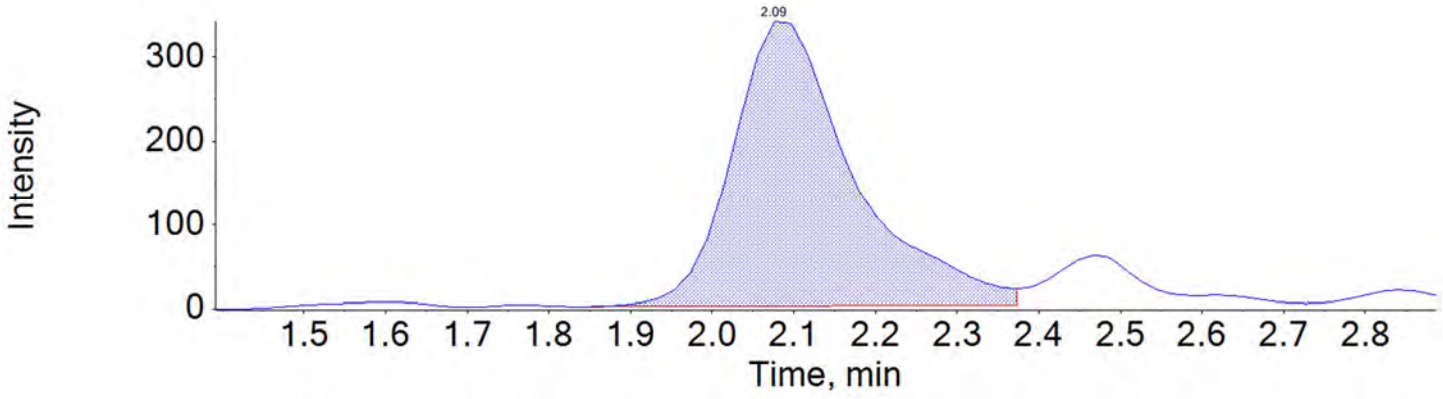

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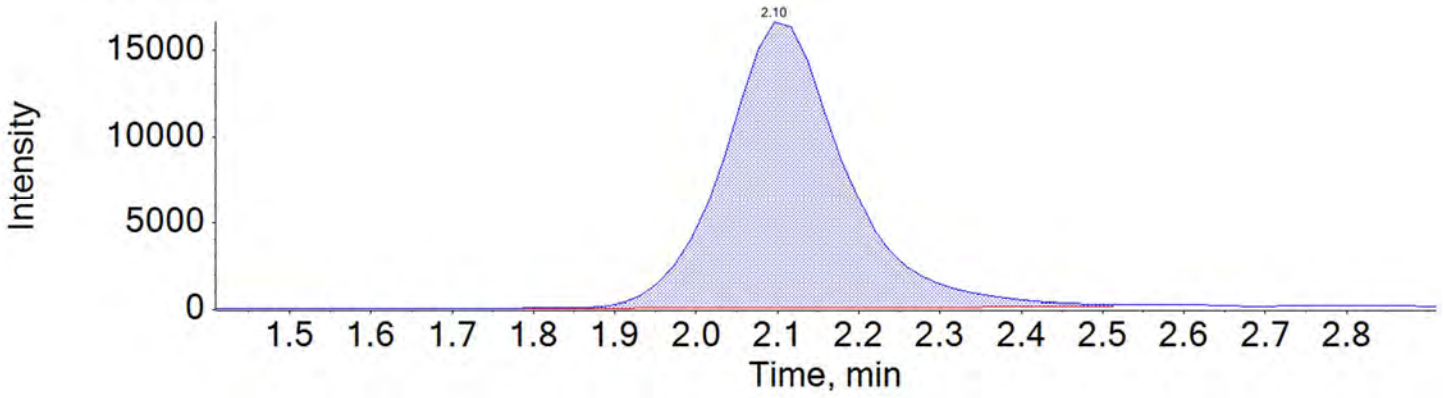

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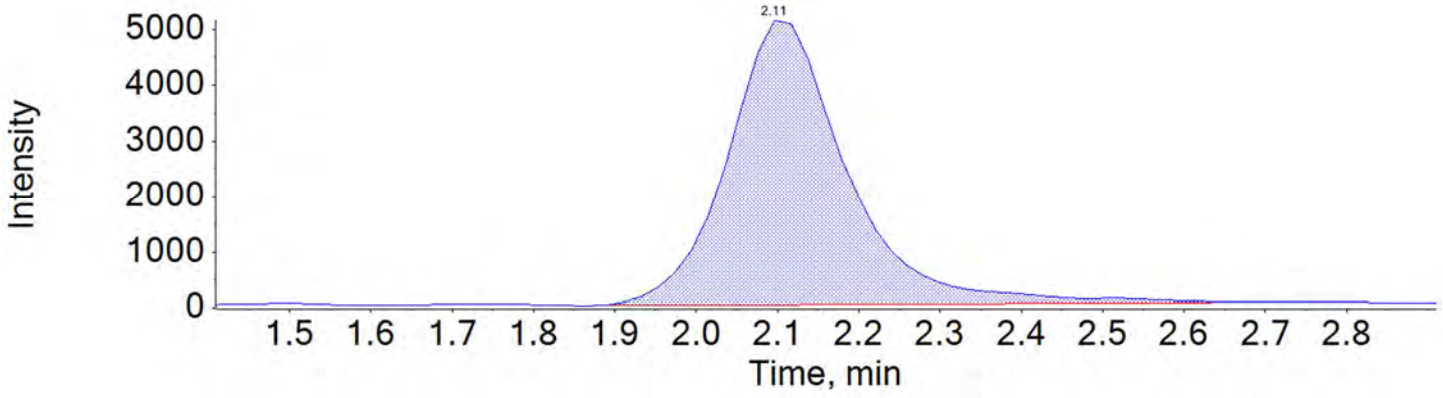

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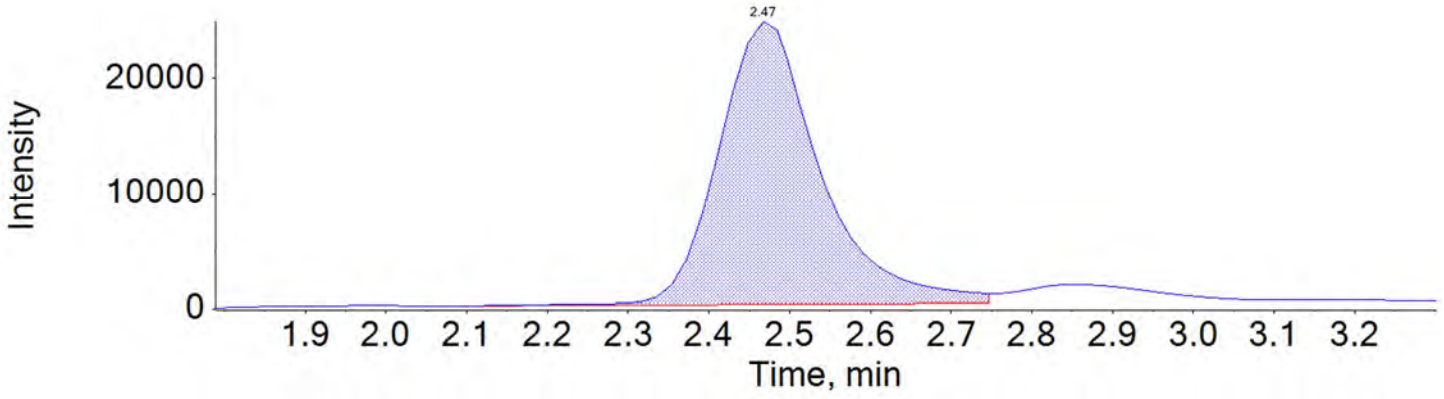
PFOA_1 413.0 / 369.0



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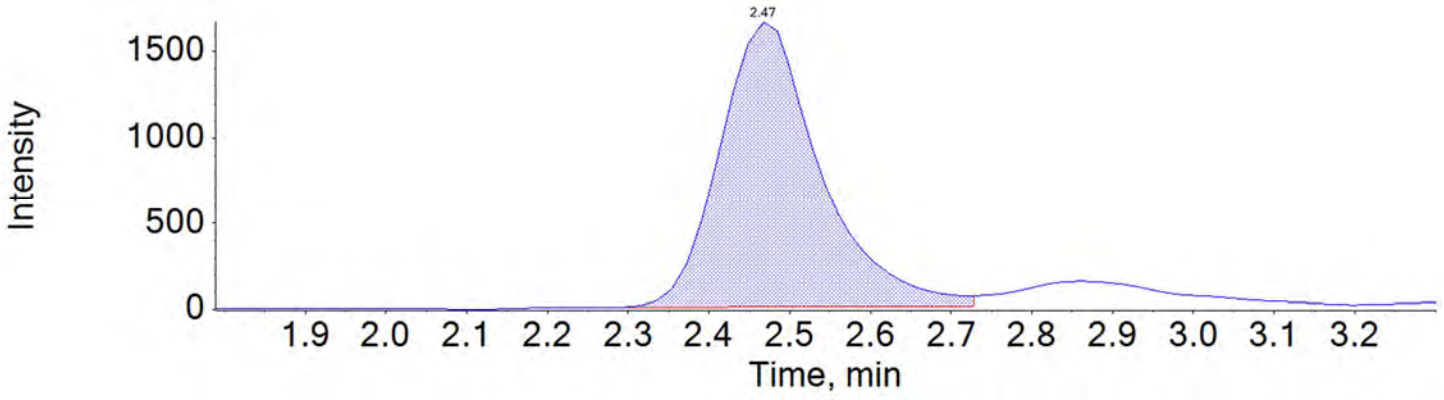
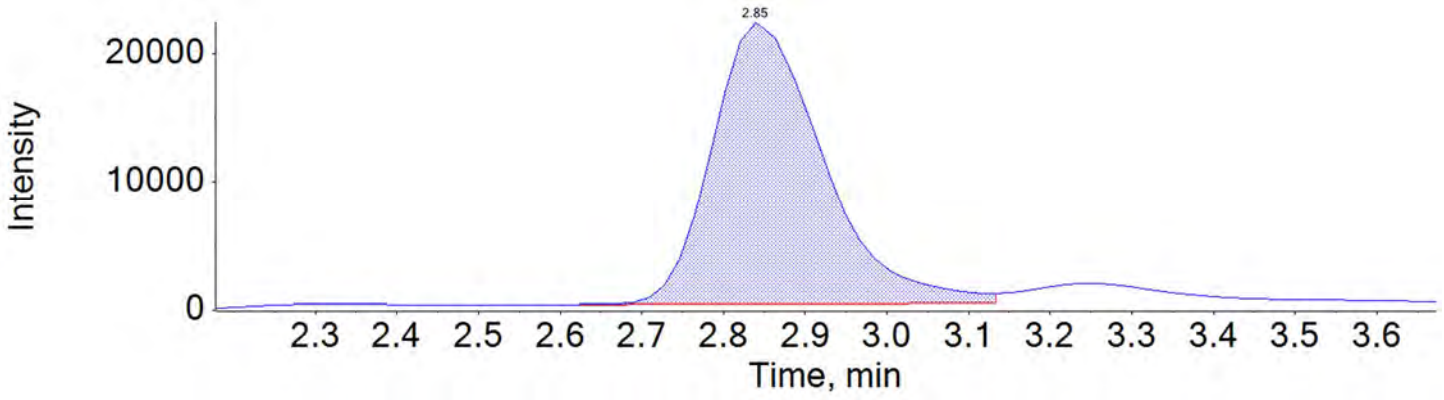


PFNA_1 463.0 / 419.0



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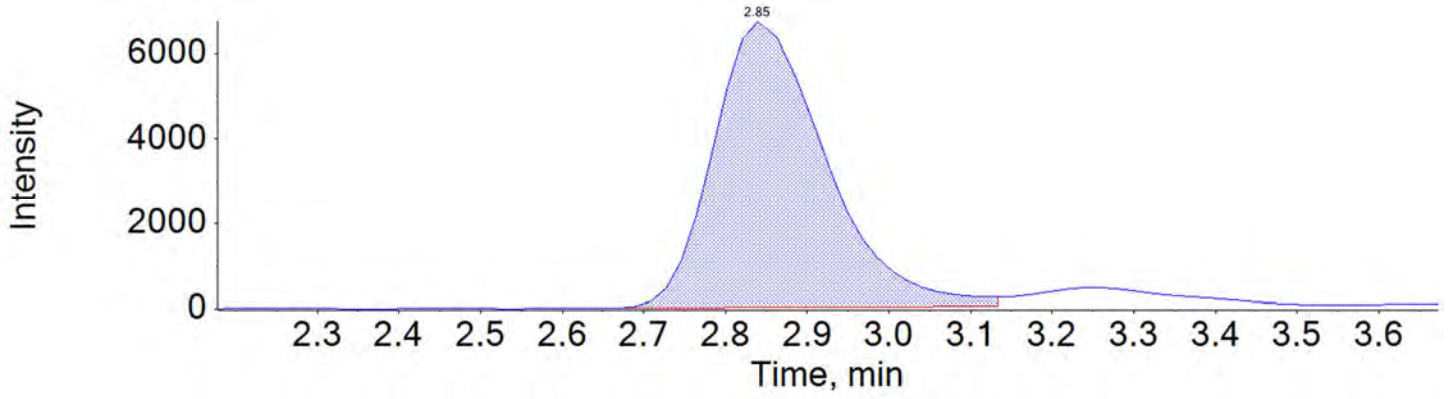
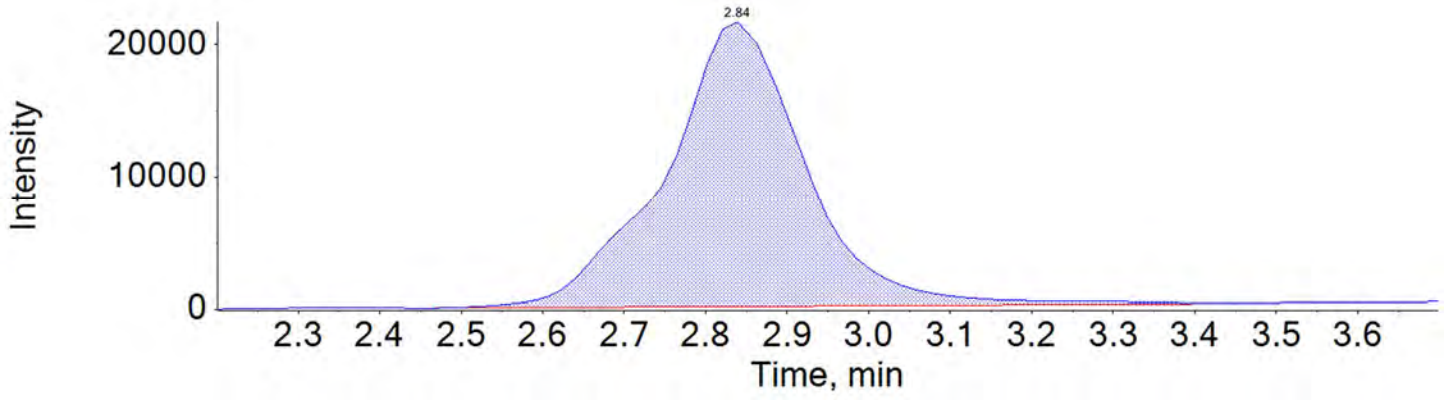
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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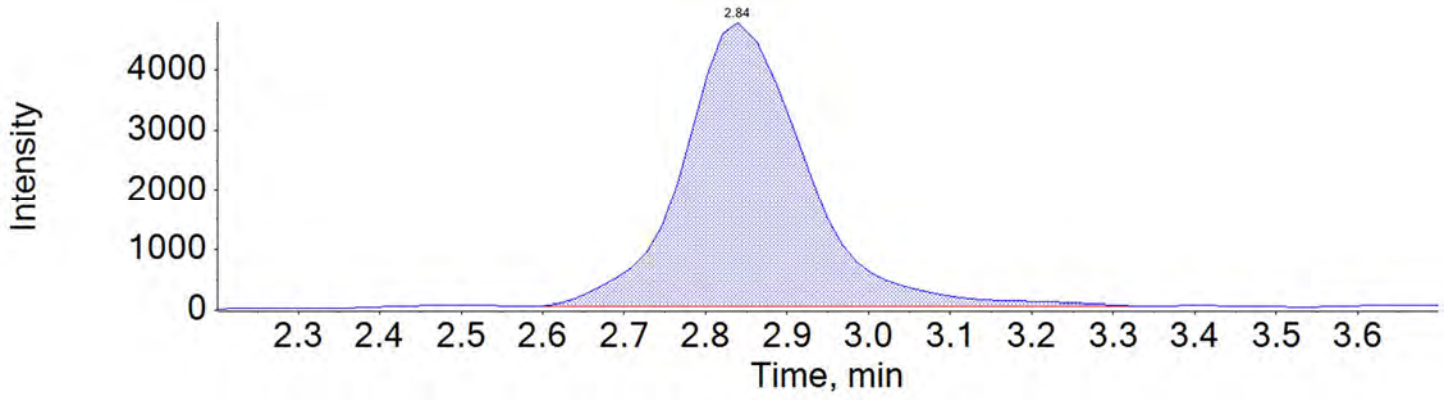

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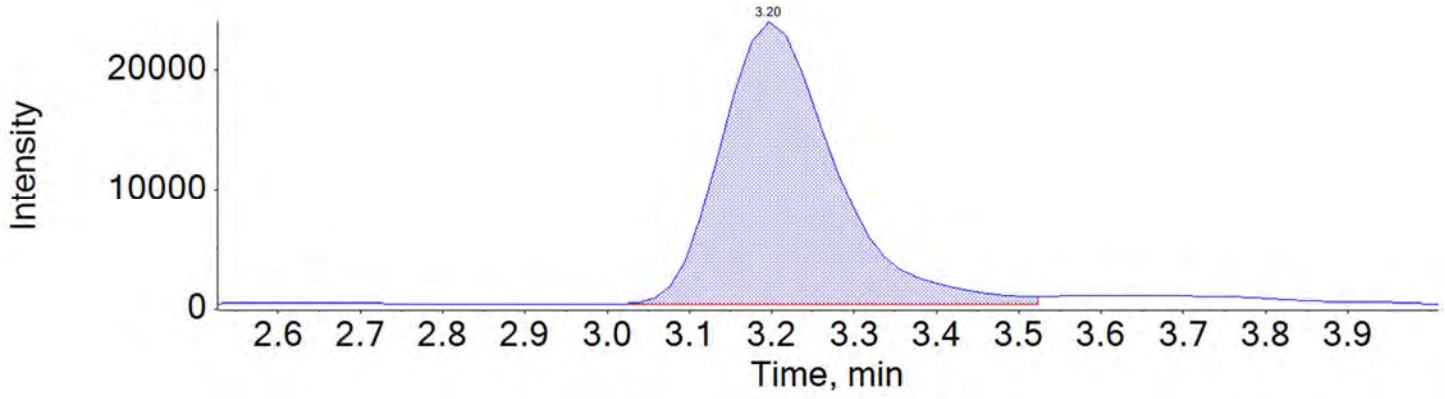

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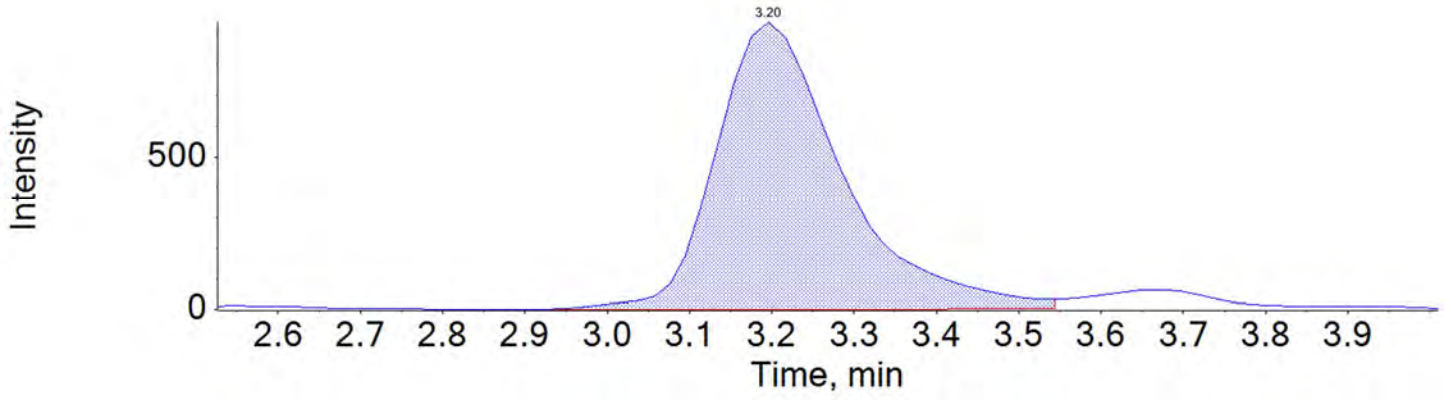

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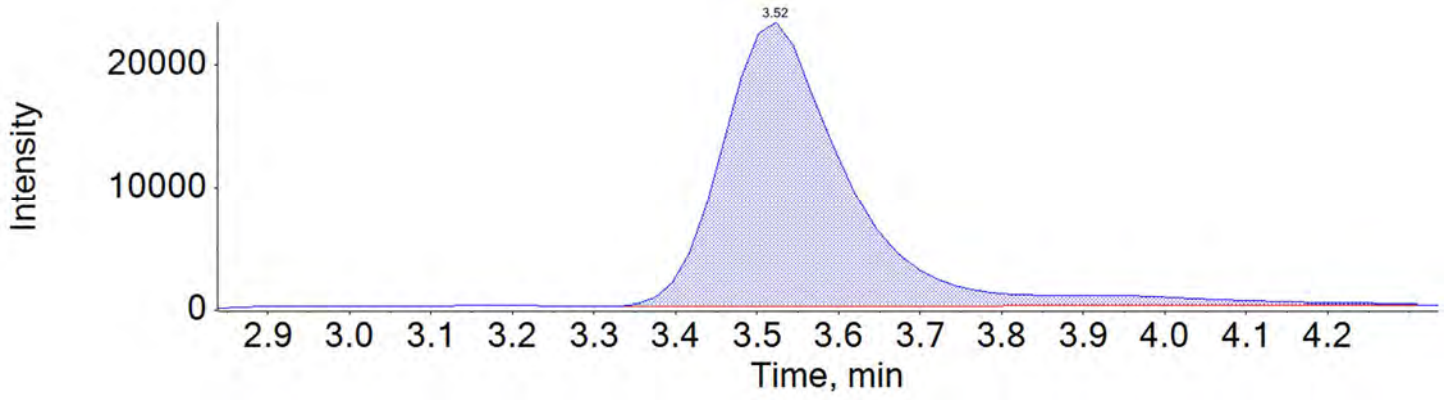

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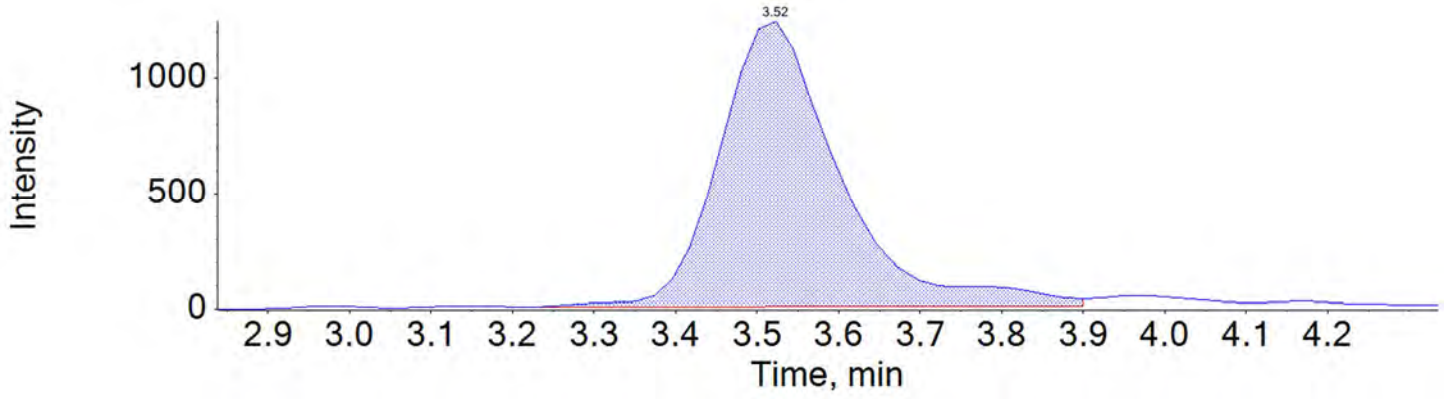
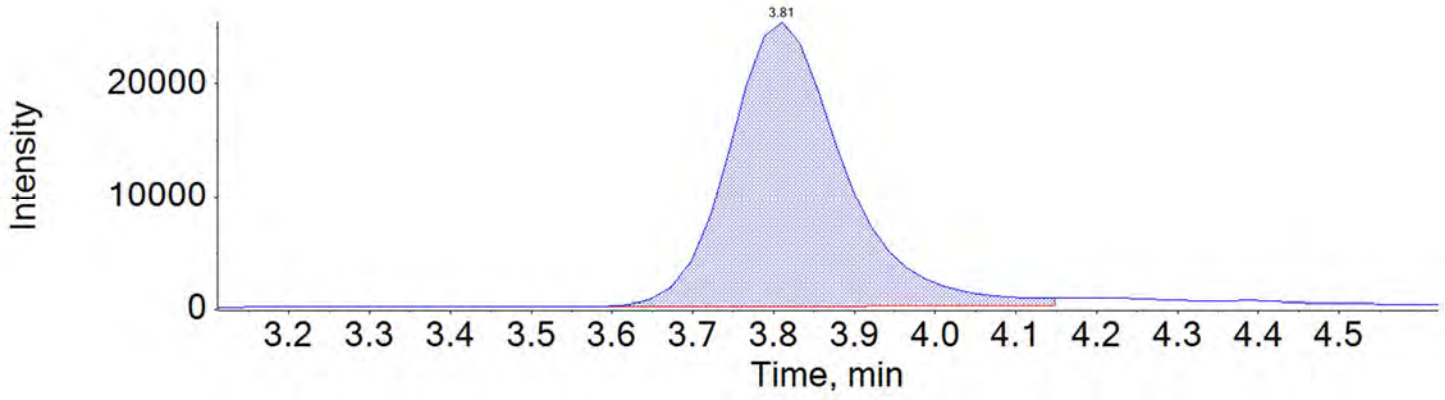
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



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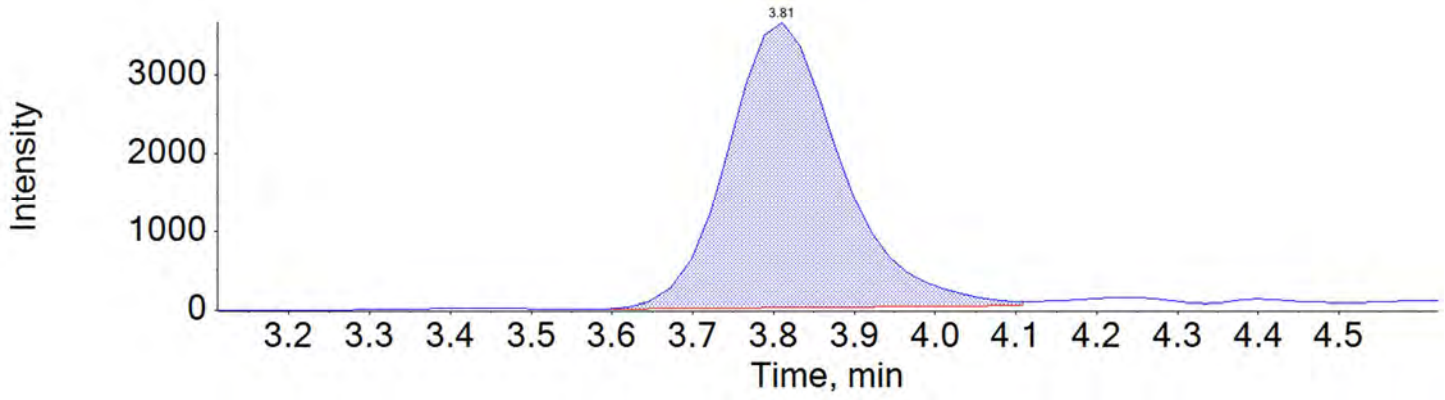

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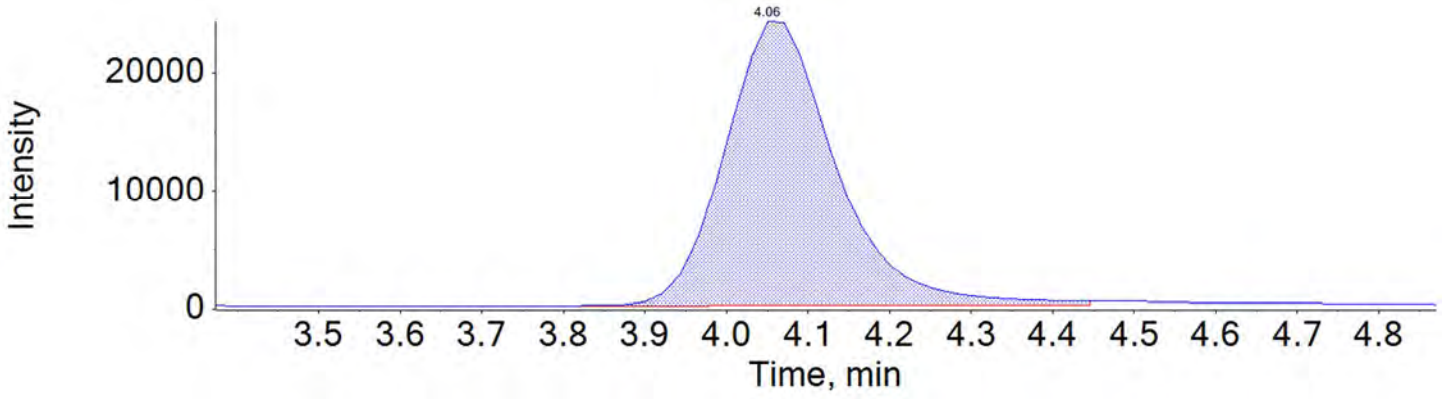

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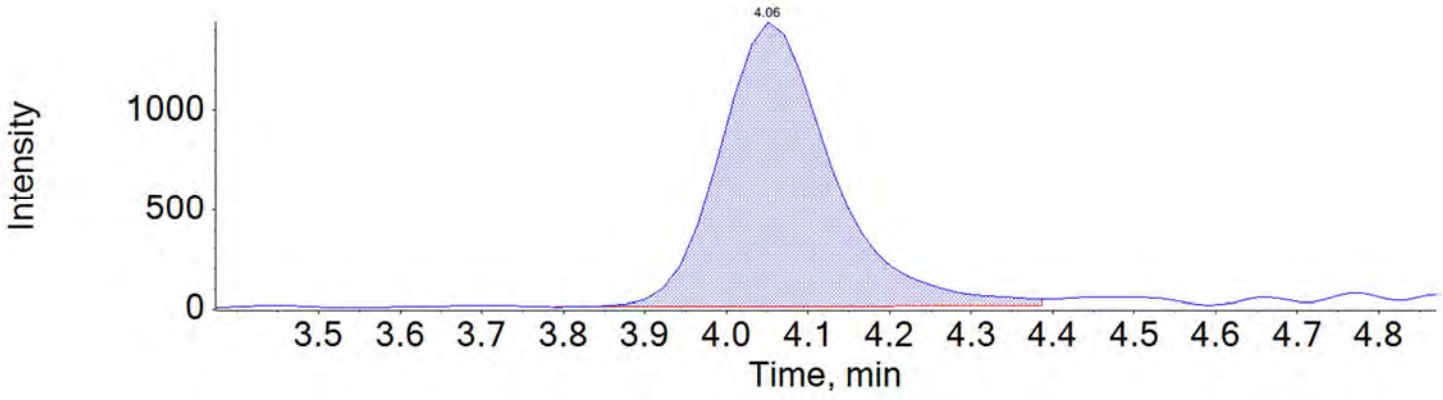

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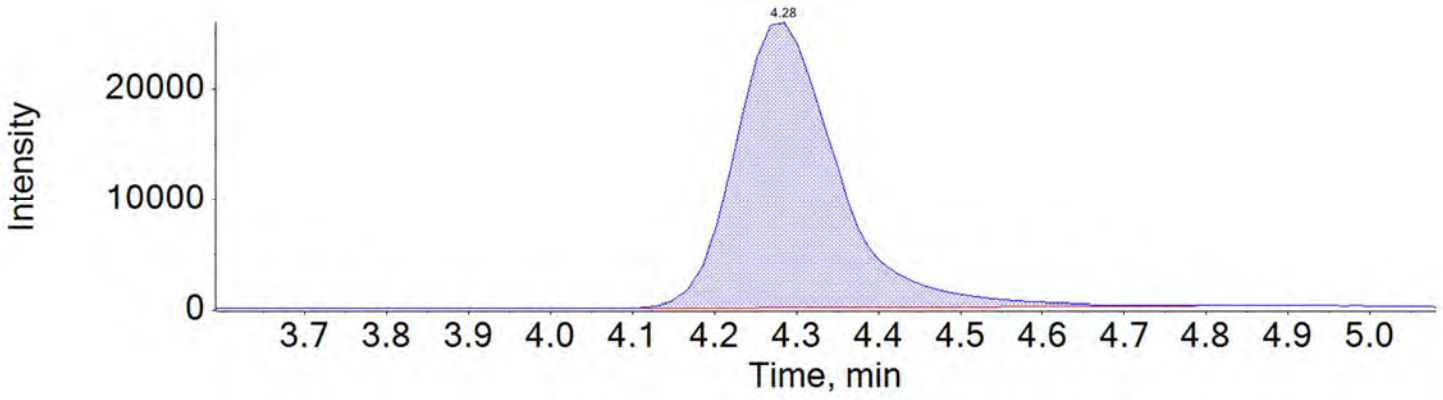

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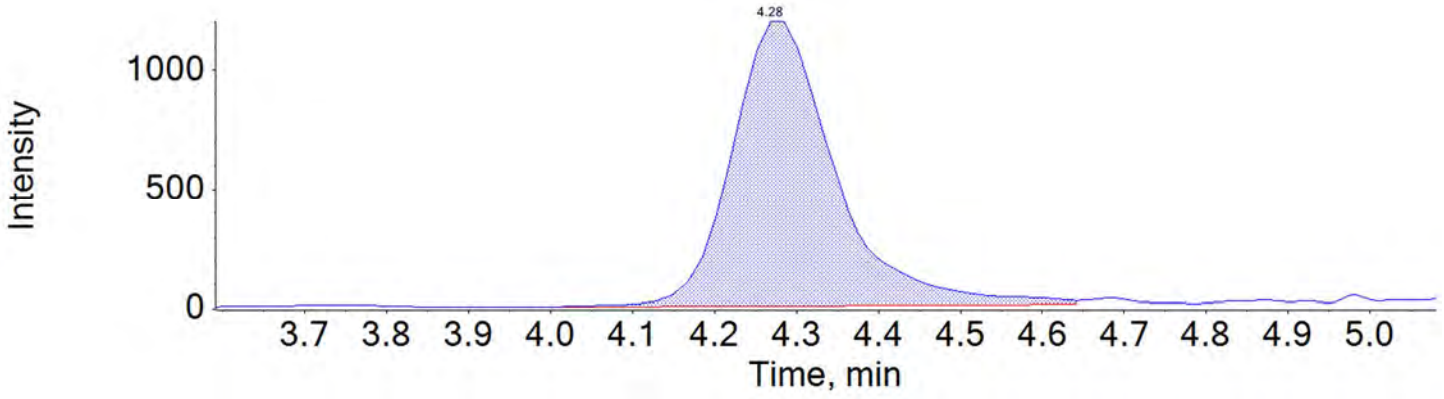
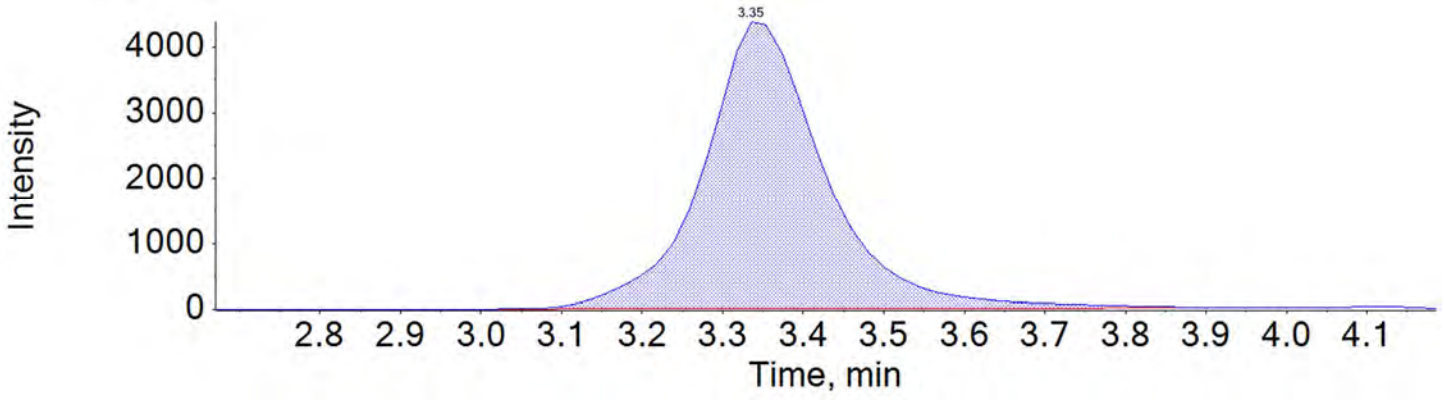


NMeFOSAA_1 570.0 / 419.0



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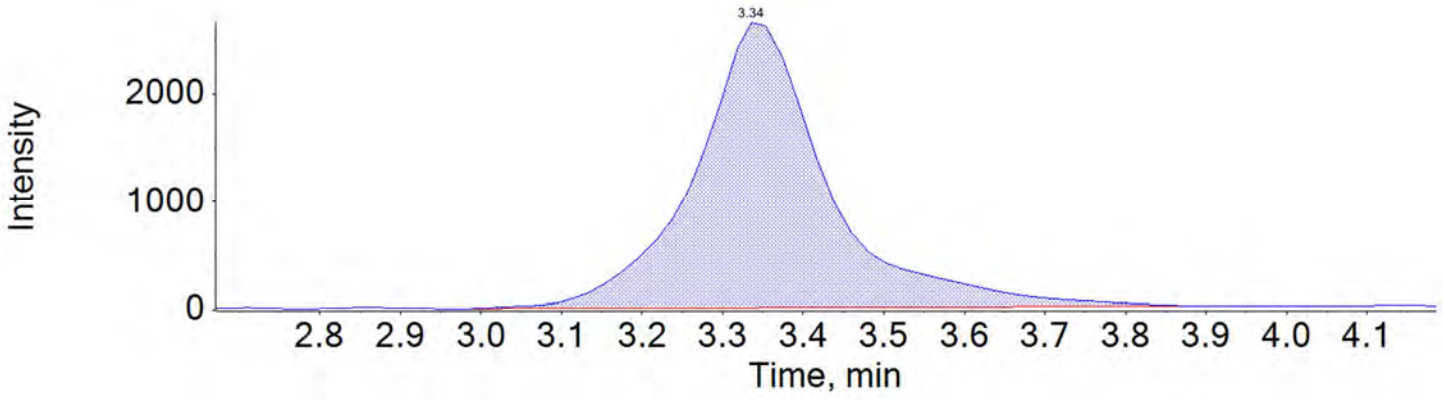

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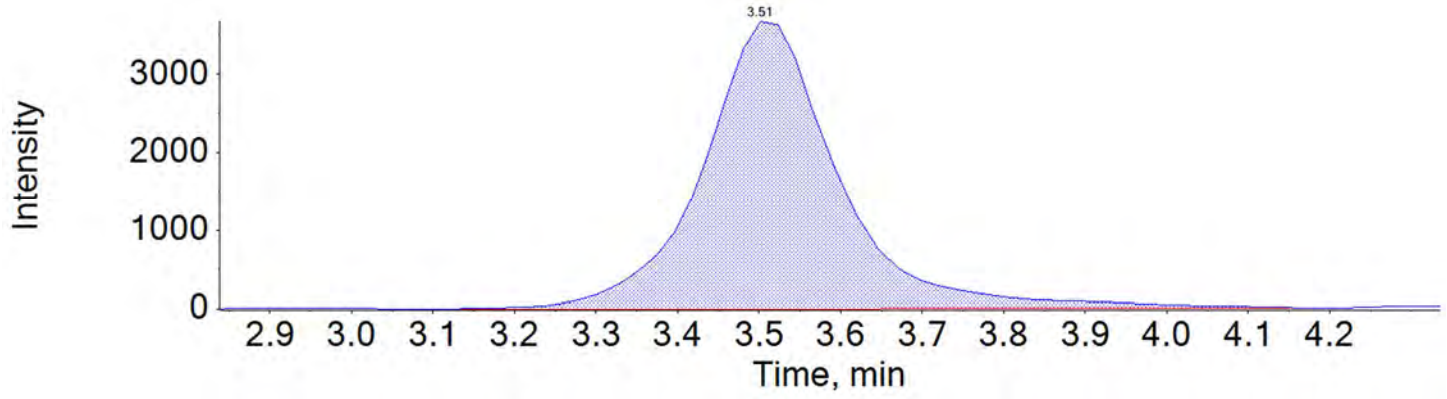

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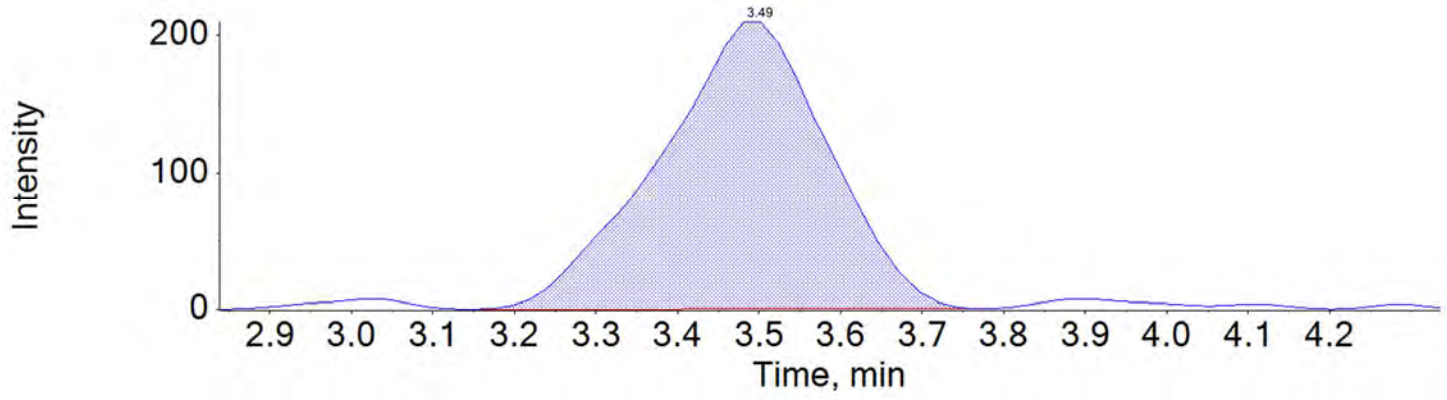

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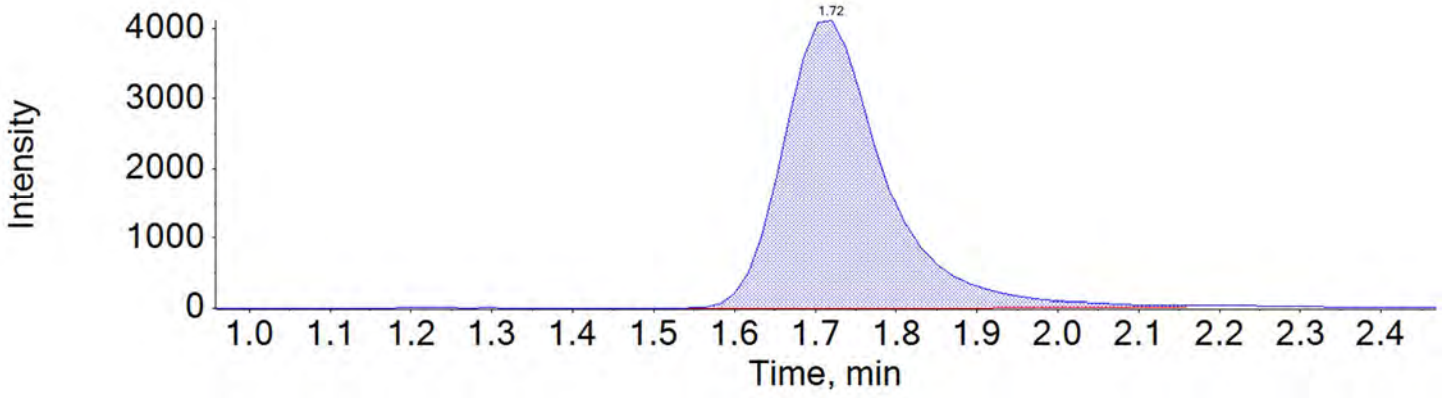
Chromatogram Report

Created with Analyst Reporter
Printed: 16/05/2018 7:11:32 PM

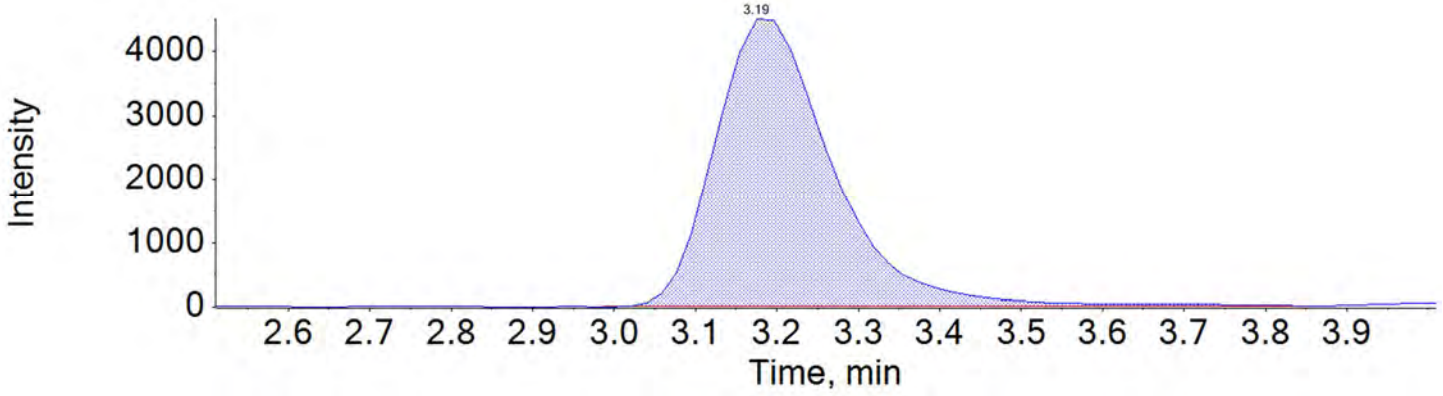
Sample Name	JV68	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T13:10:53	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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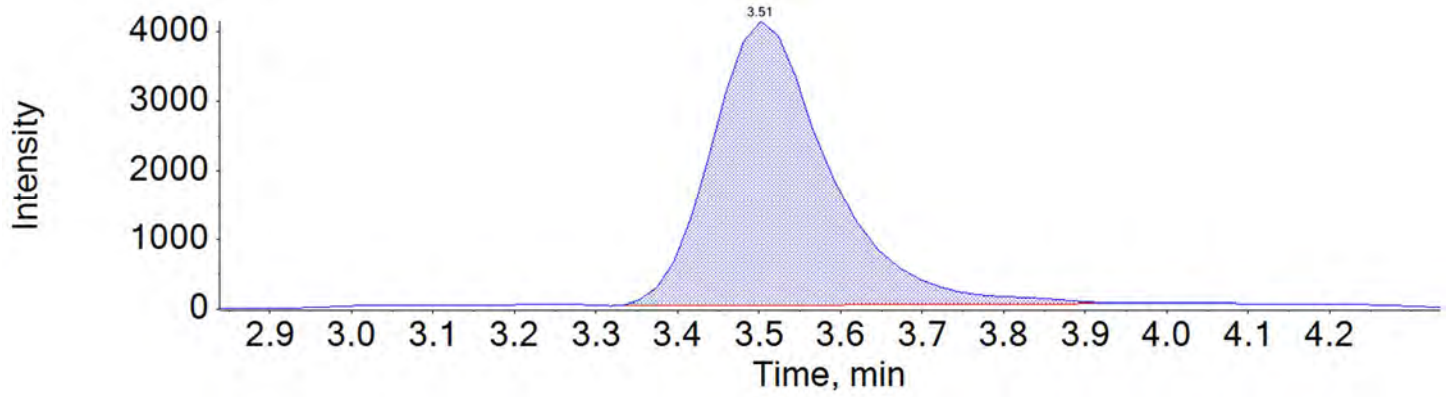
d5-EtFOSAA 589.0 / 419.0



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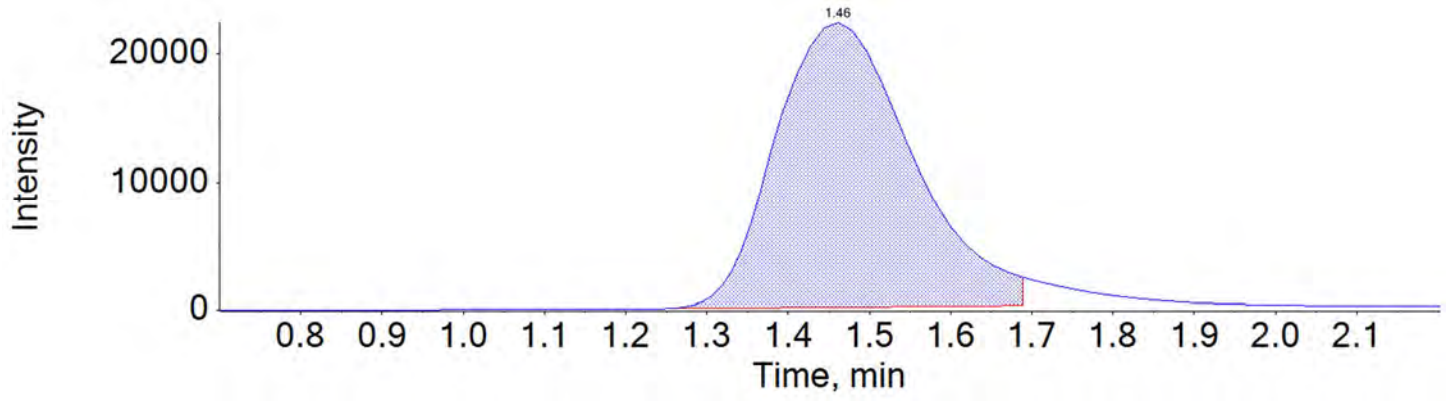
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:05:09 PM

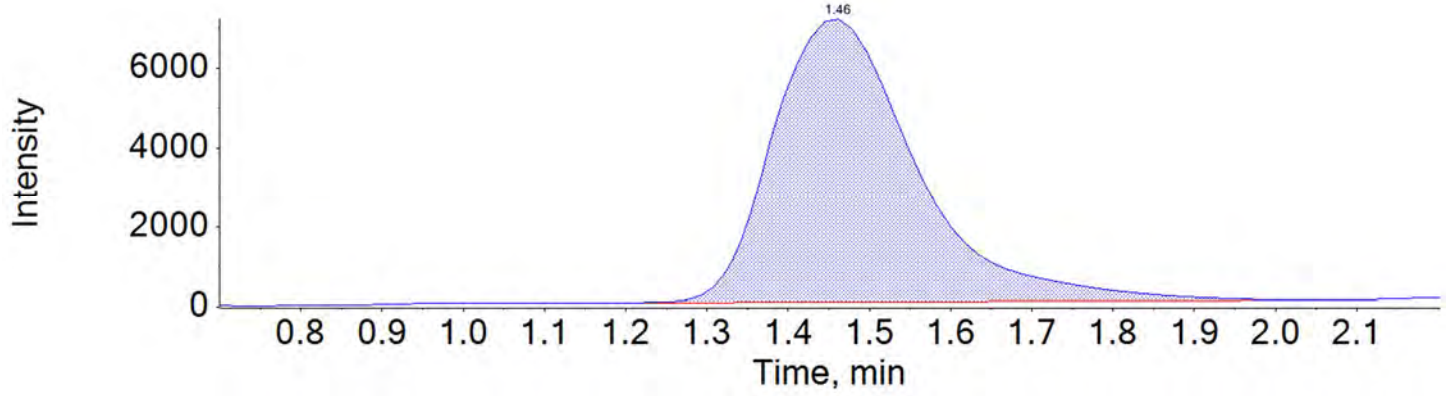
Sample Name	JV69	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T13:19:50	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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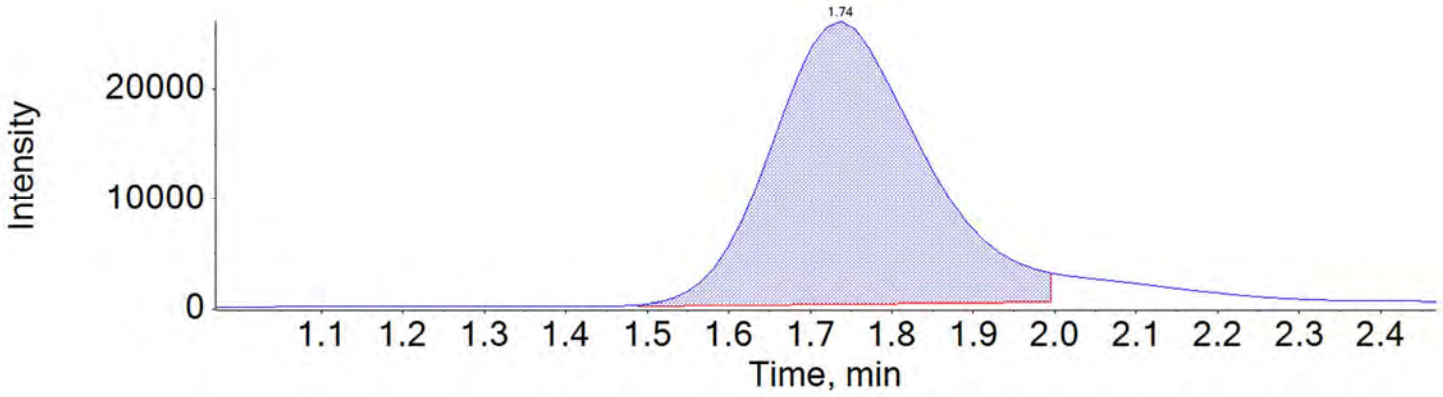
PFHxA_1 313.0 / 269.0



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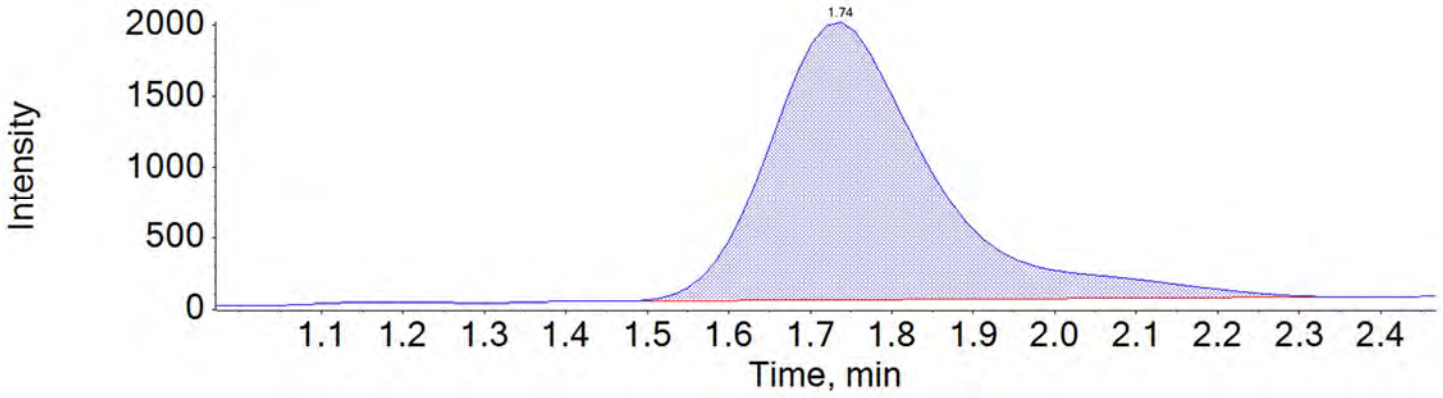

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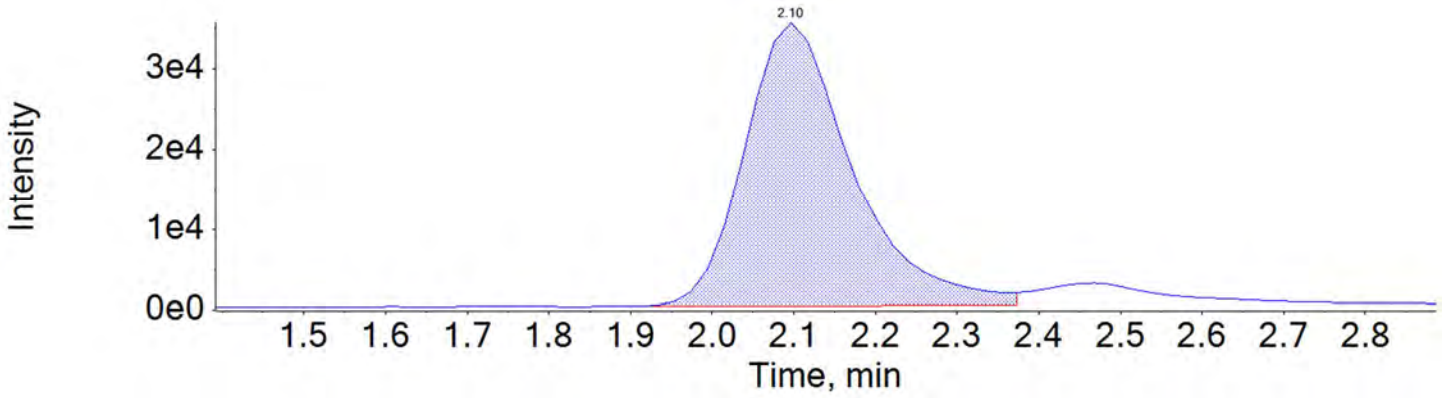

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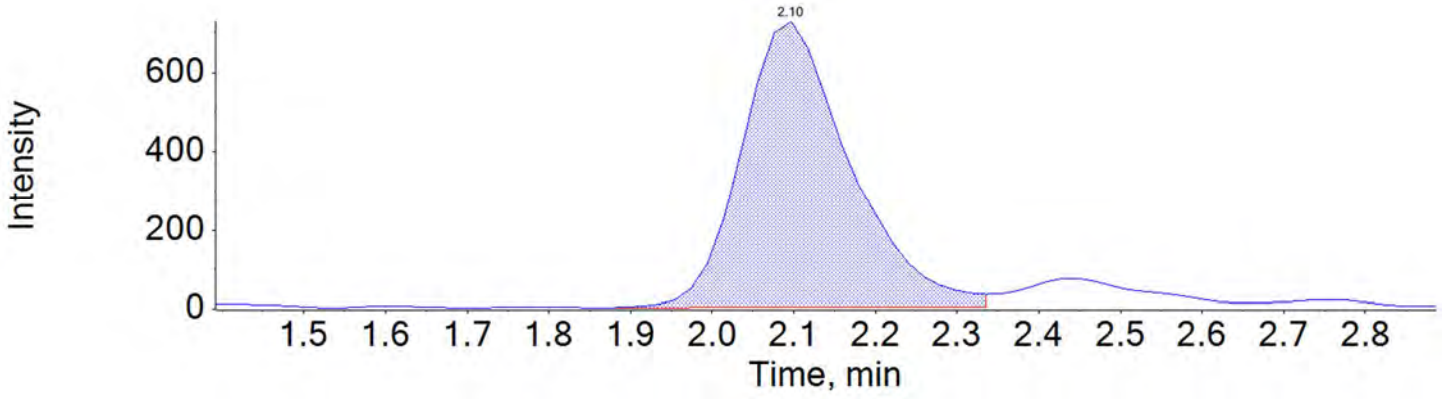
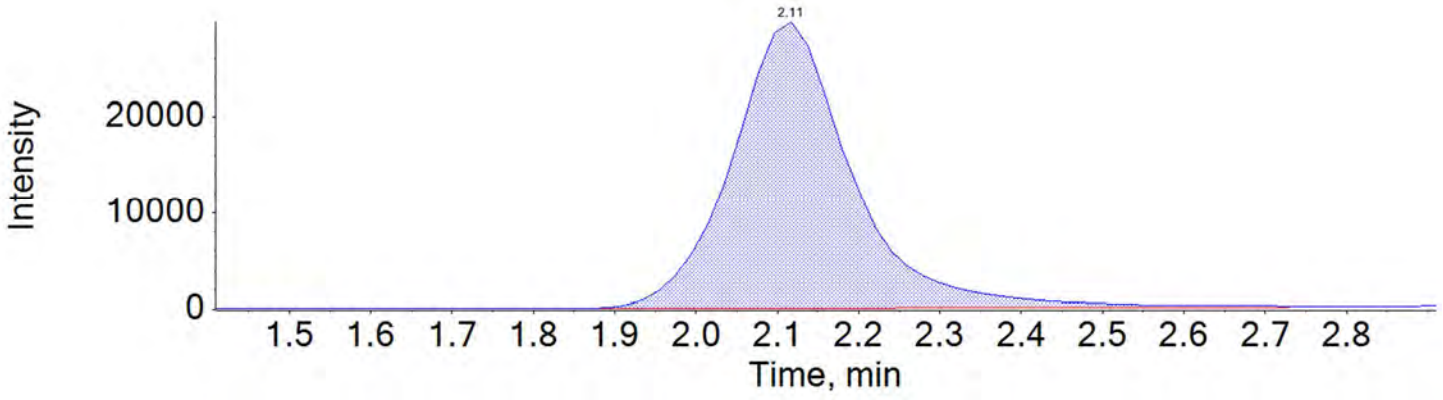


PFHxS_1 399.0 / 80.0



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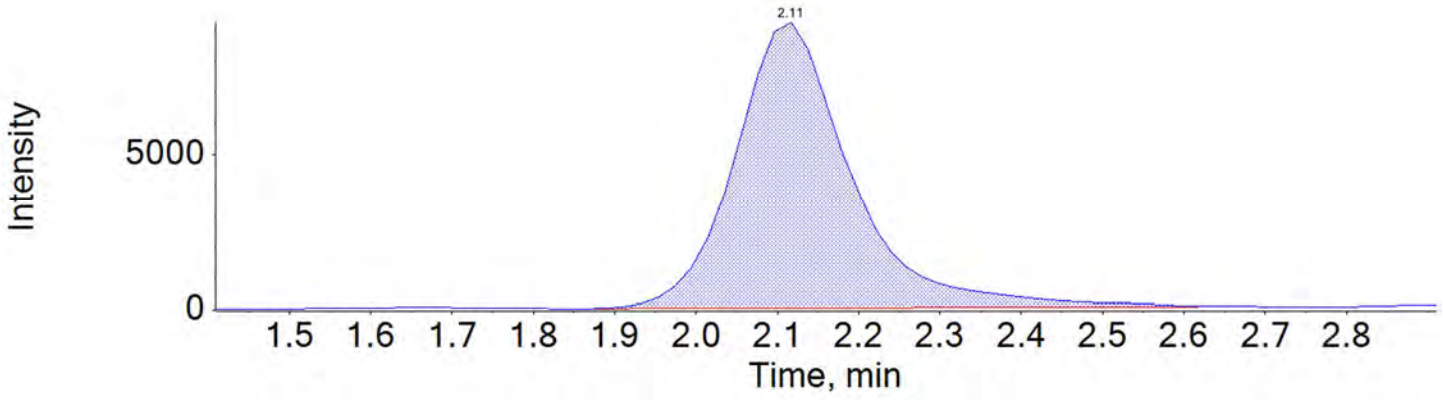

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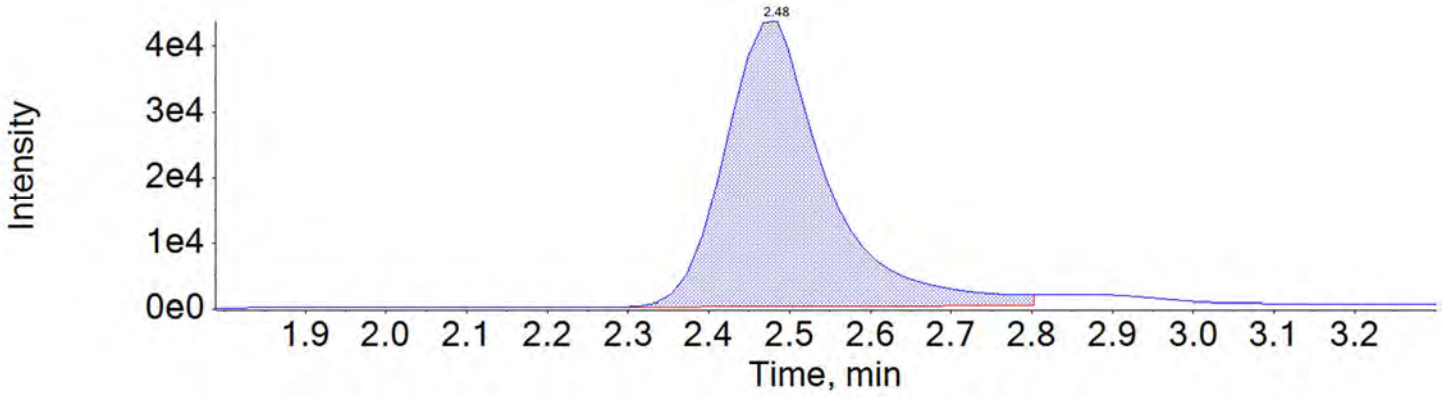

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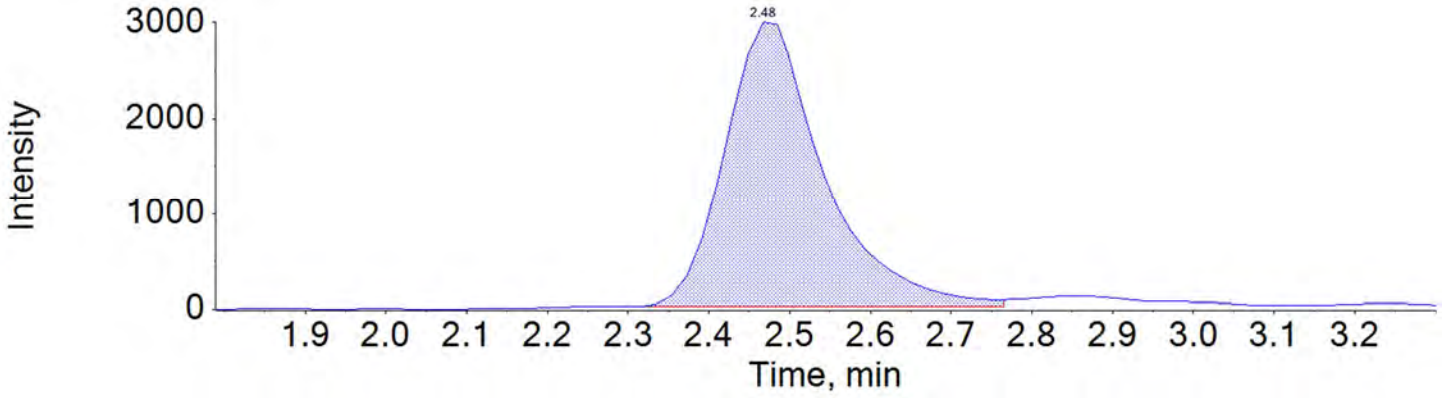
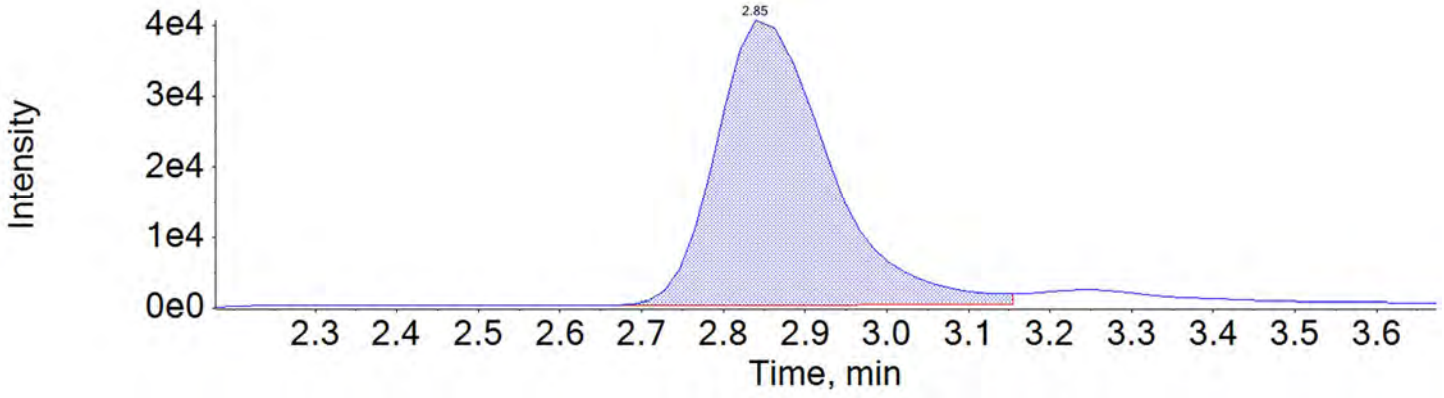


PFNA_1 463.0 / 419.0



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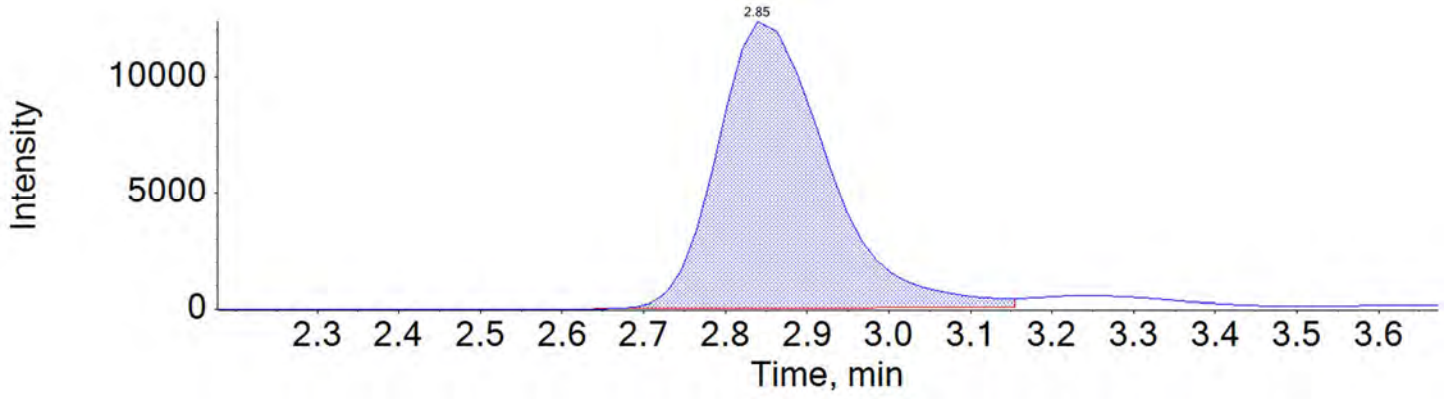
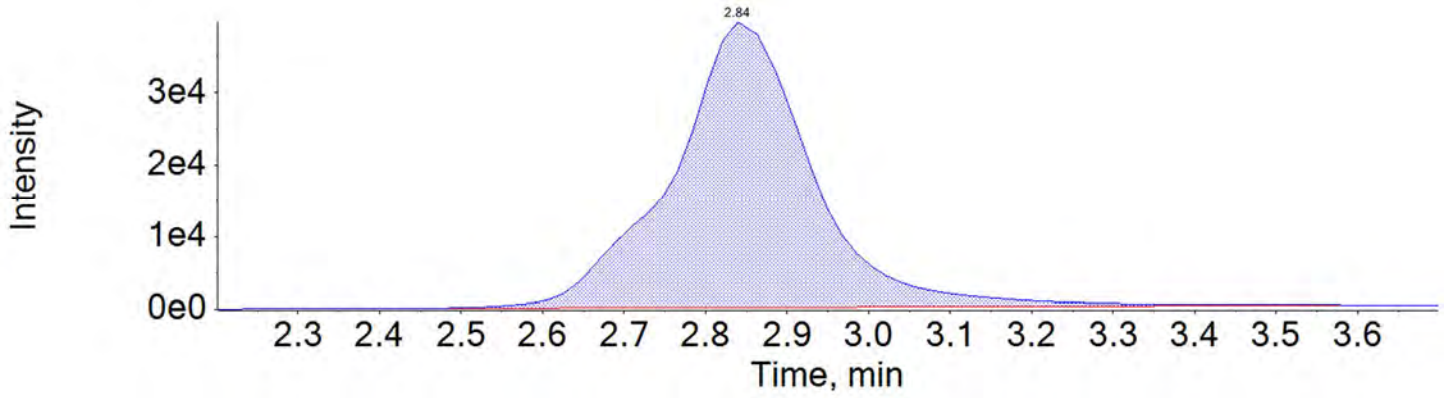
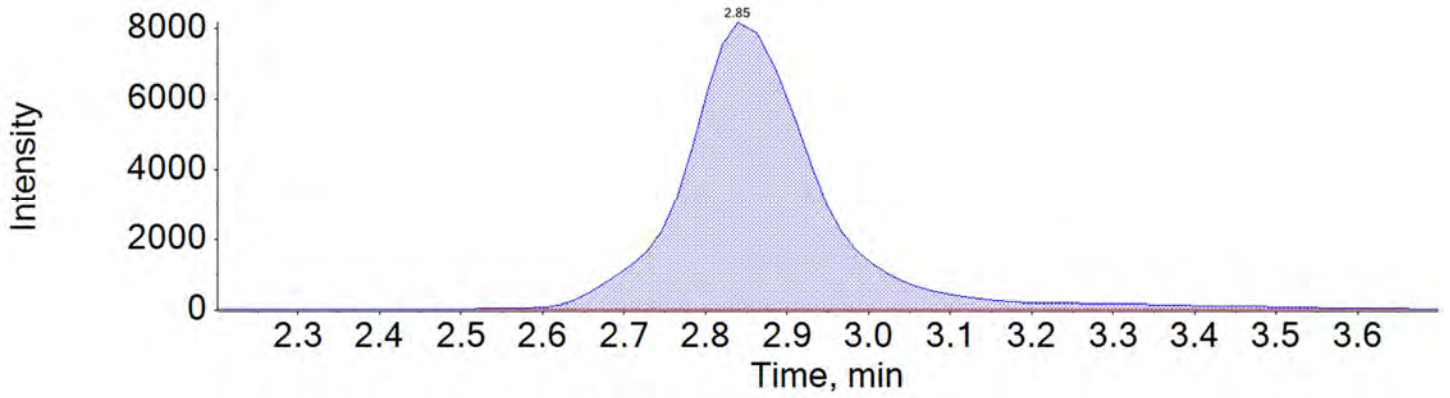


PFOS_1 499.0 / 80.0



PFOS_2 499.0 / 99.0



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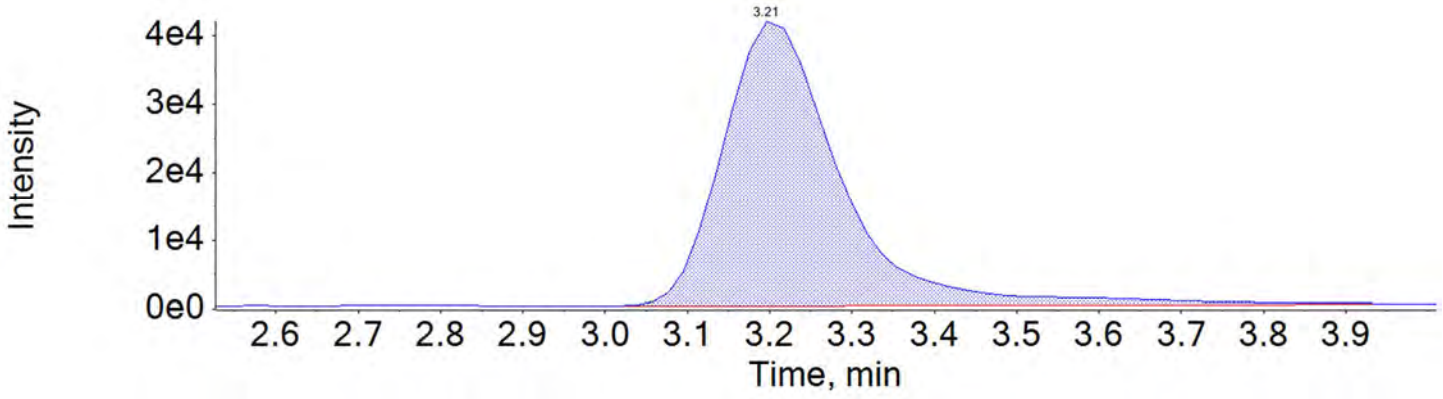

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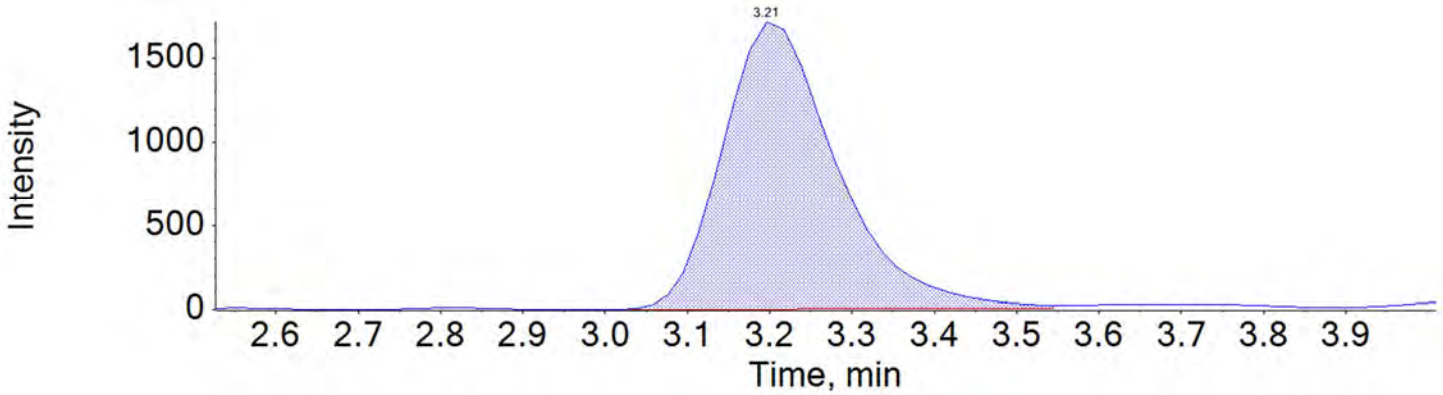
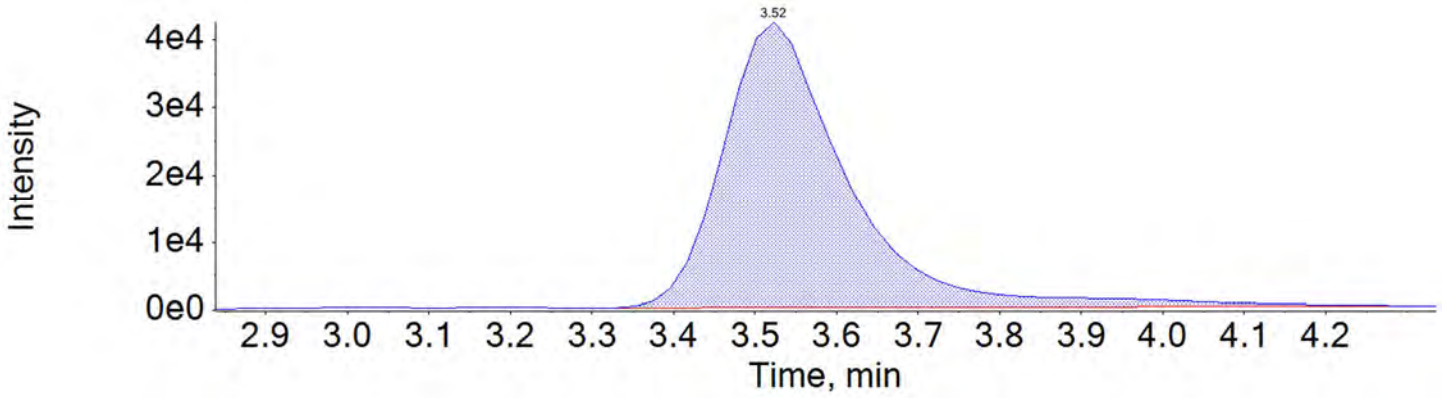


PFUnA_1 563.0 / 519.0



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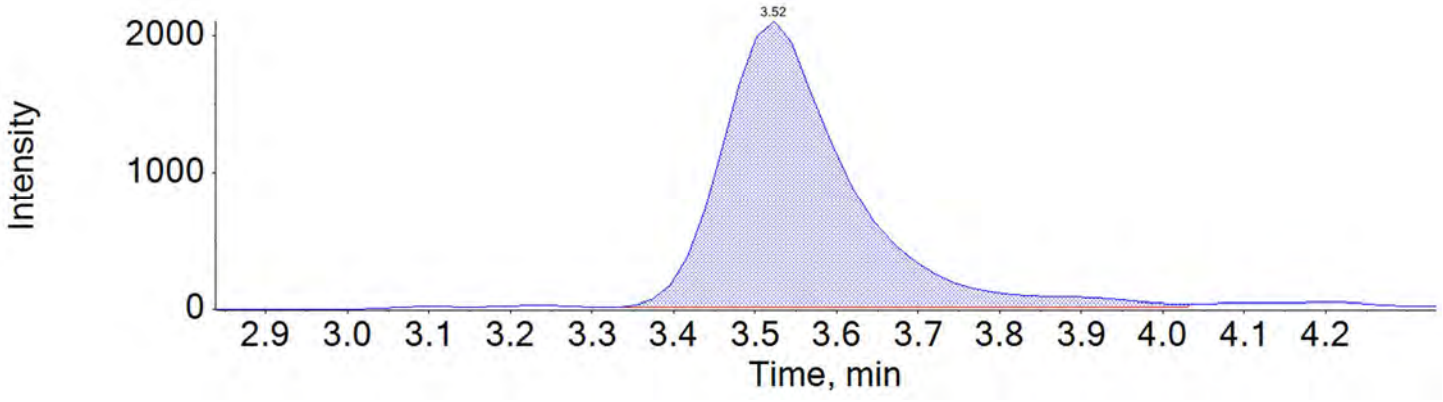

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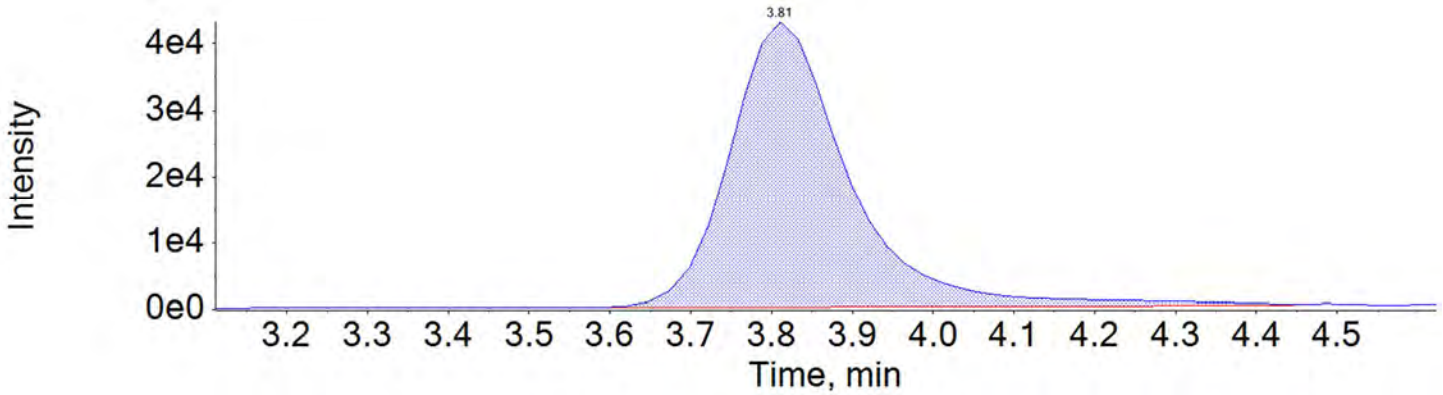

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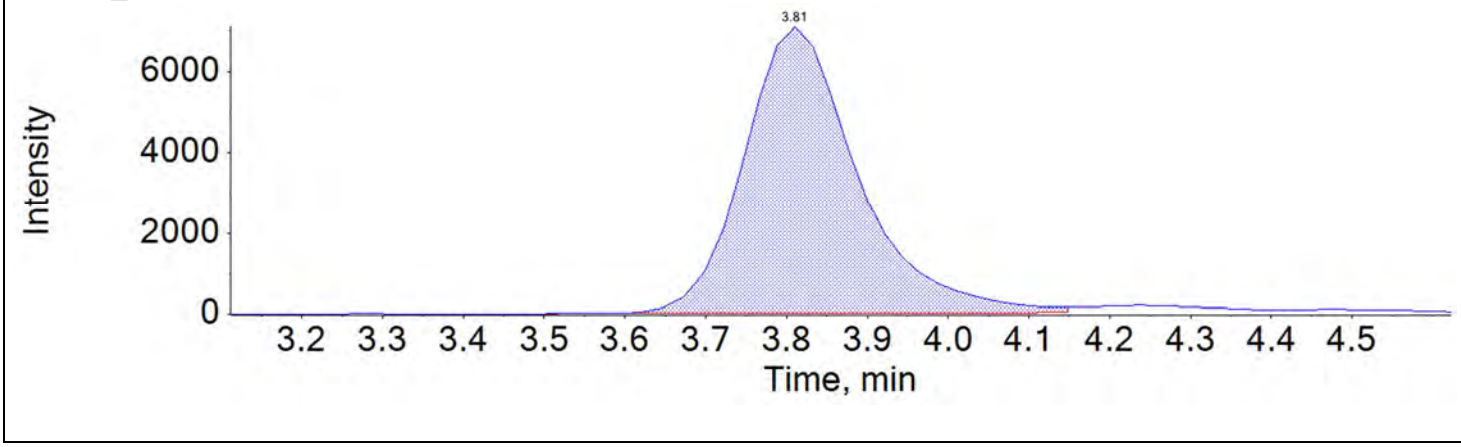

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Chromatogram Report

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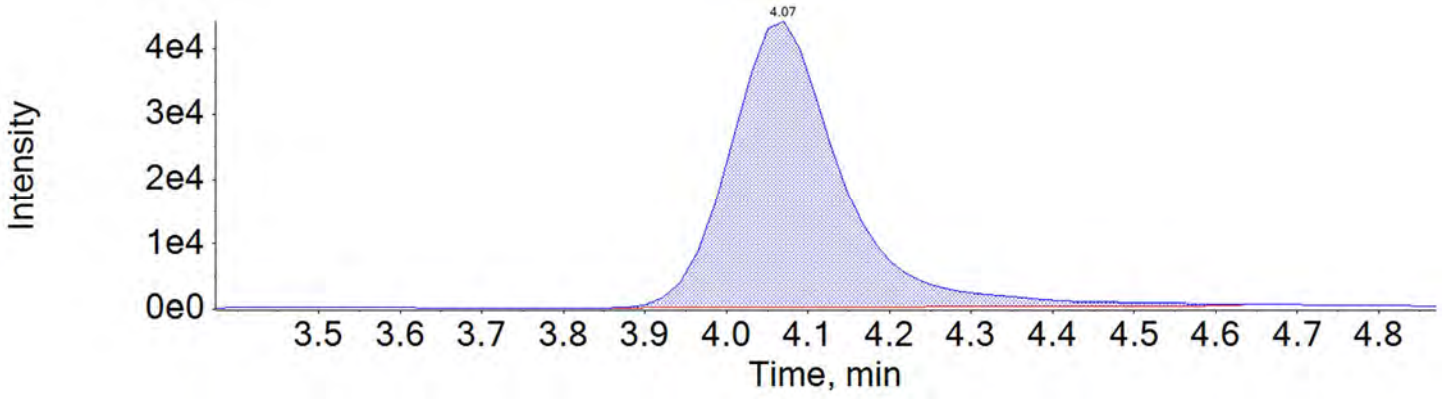
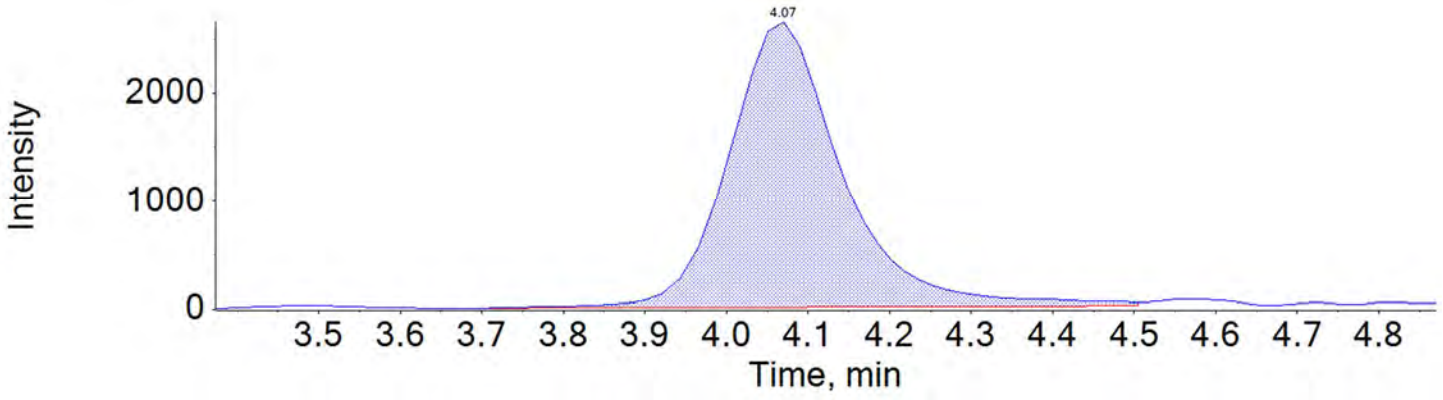
Printed: 17/05/2018 4:05:09 PM

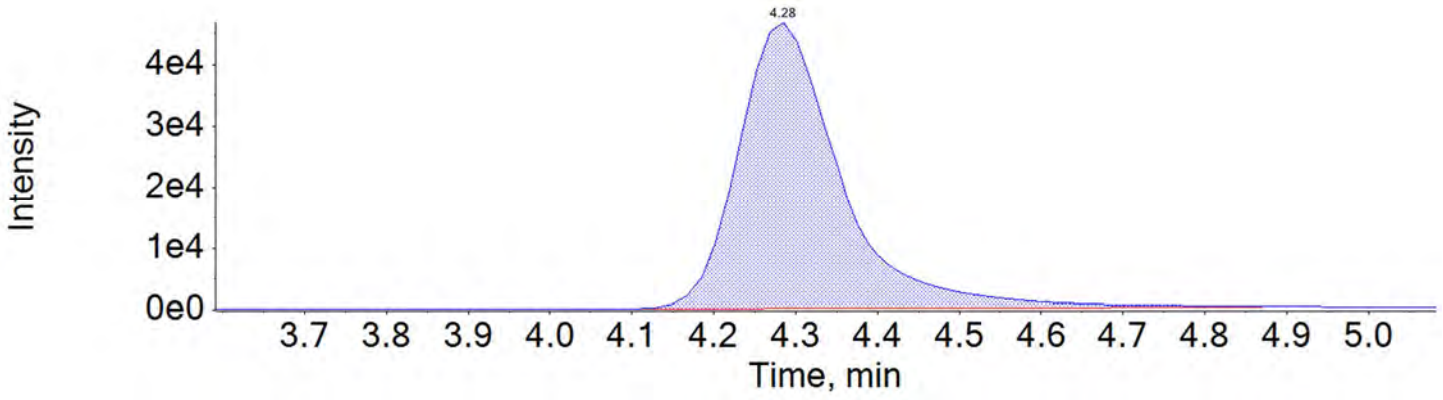
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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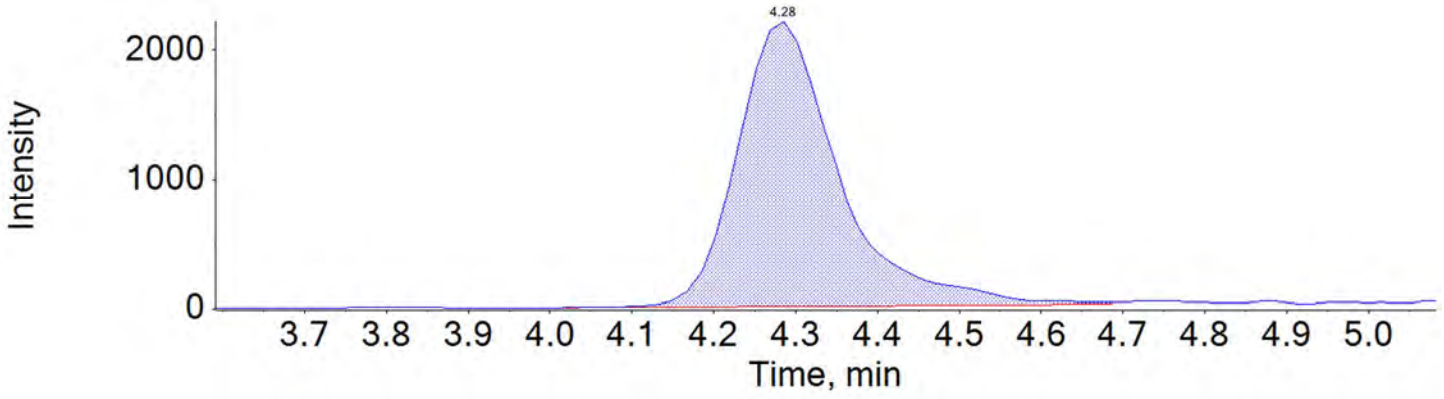
PFTeDA_2 713.0 / 169.0



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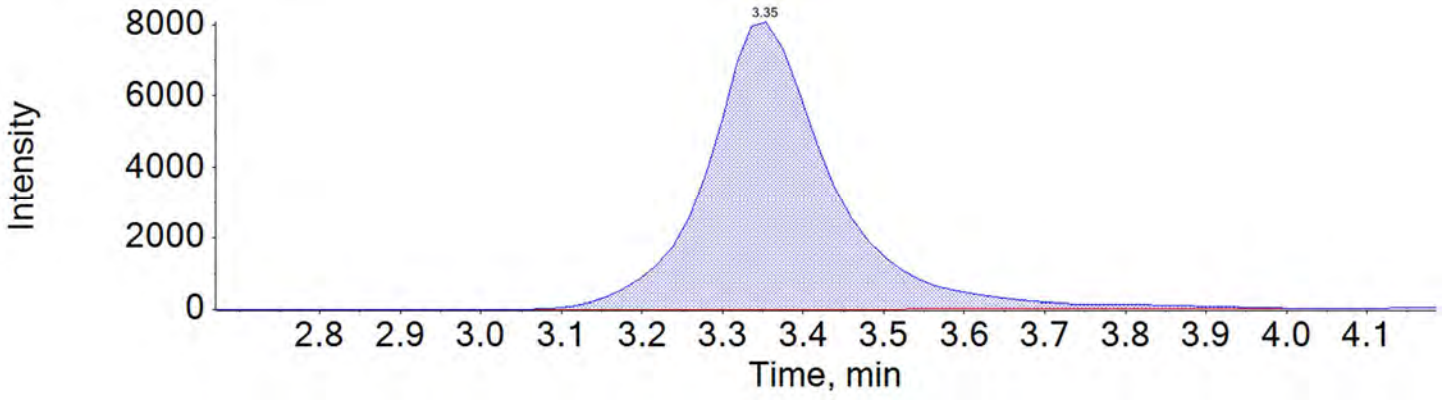
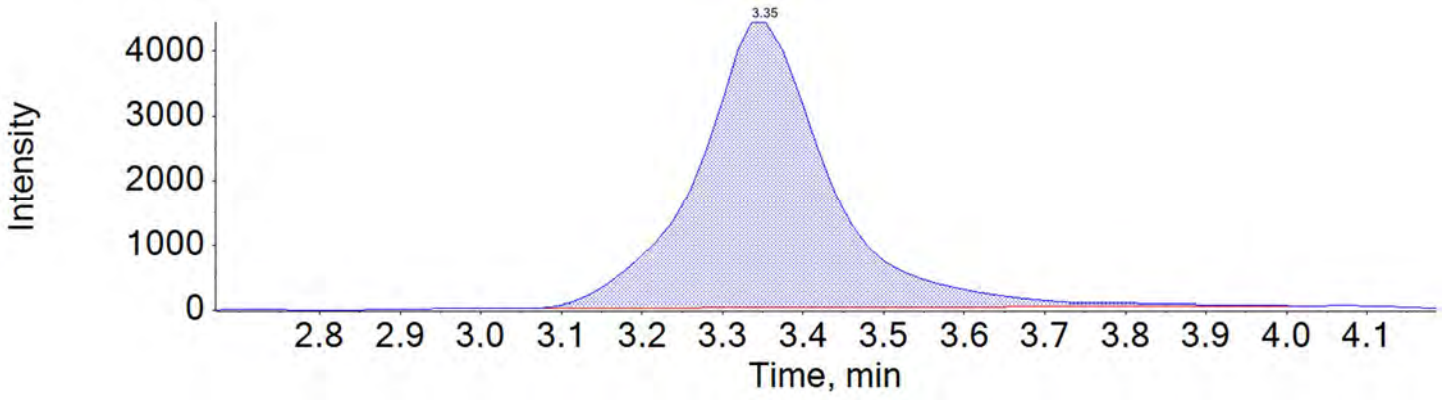


NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

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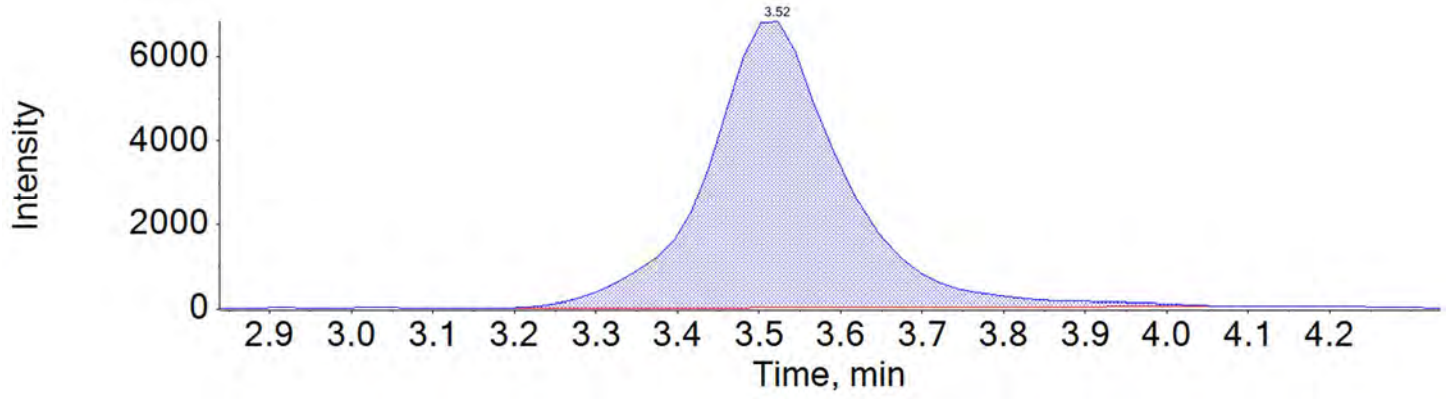
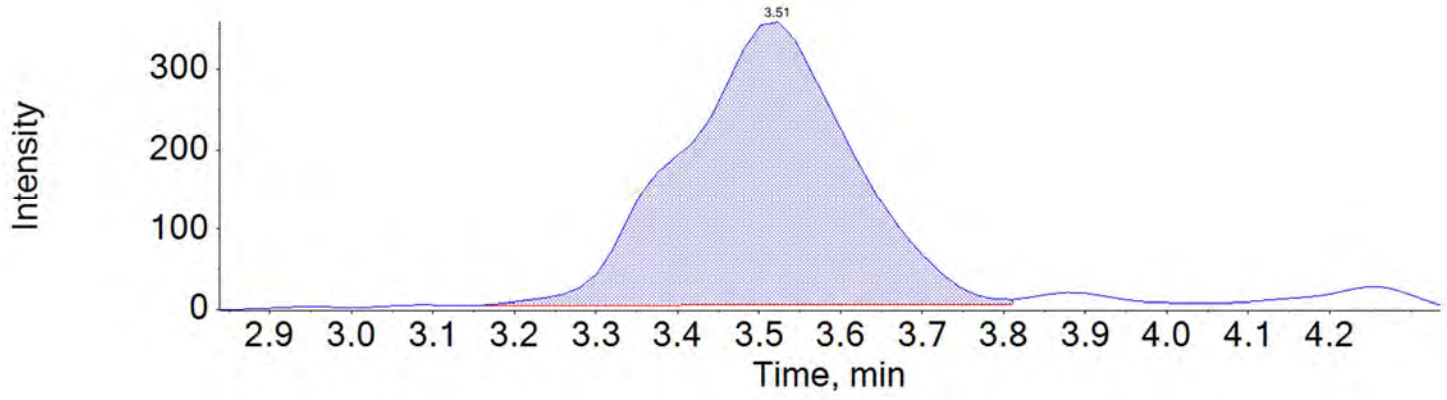
Printed: 17/05/2018 4:05:09 PM

NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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Chromatogram Report

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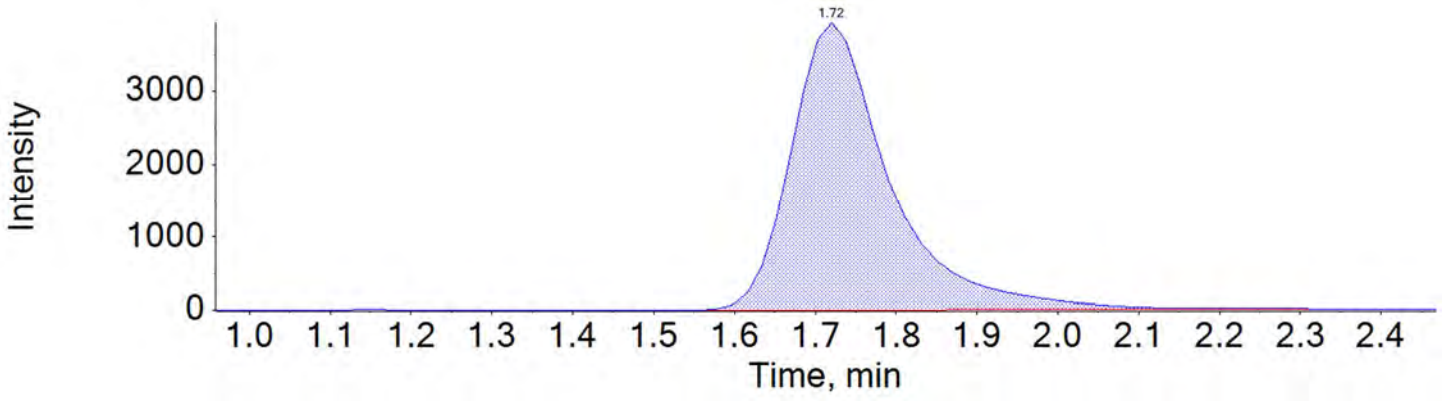
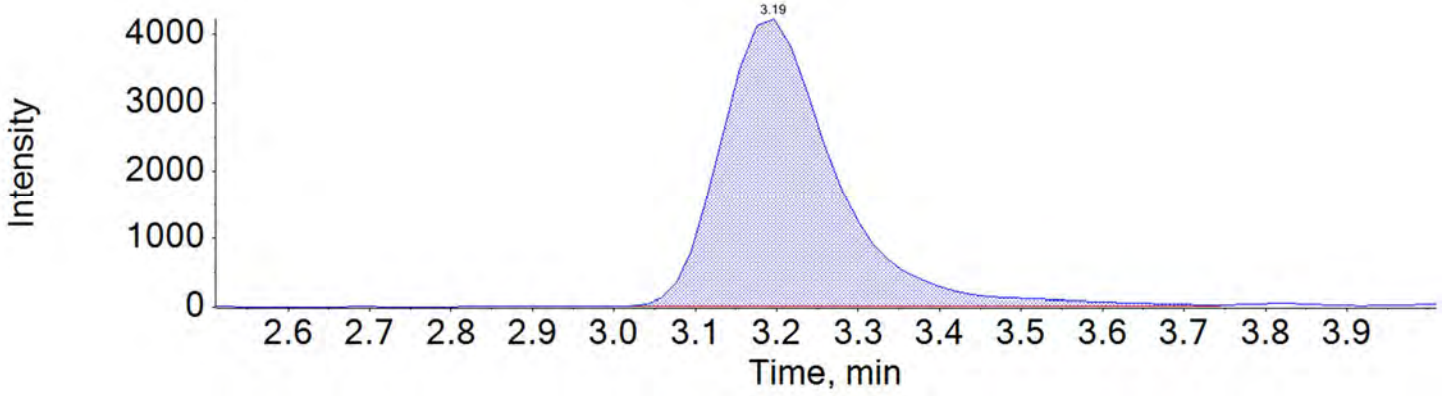
Sample Name	JV69	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T13:19:50	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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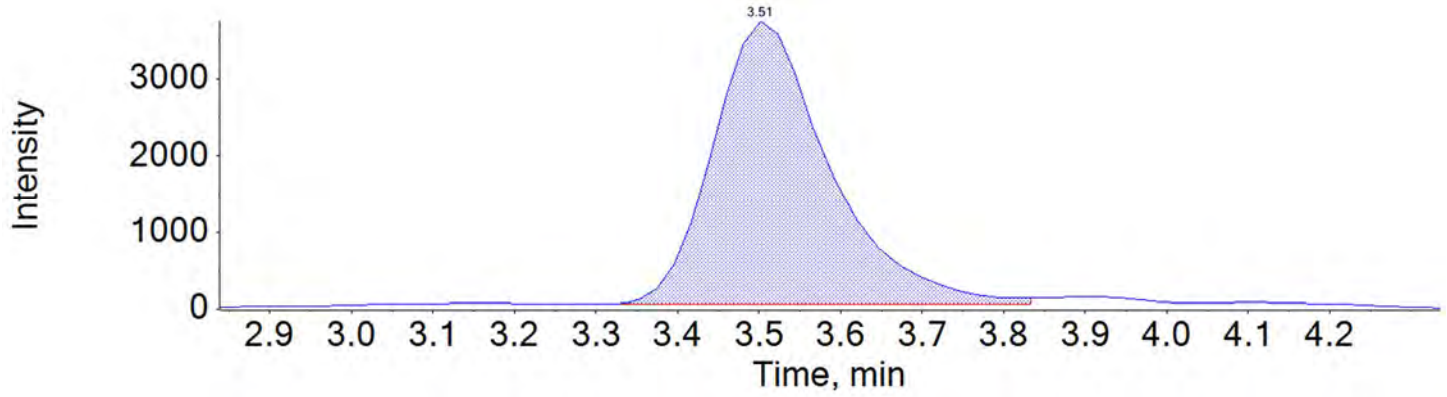
d5-EtFOSAA 589.0 / 419.0



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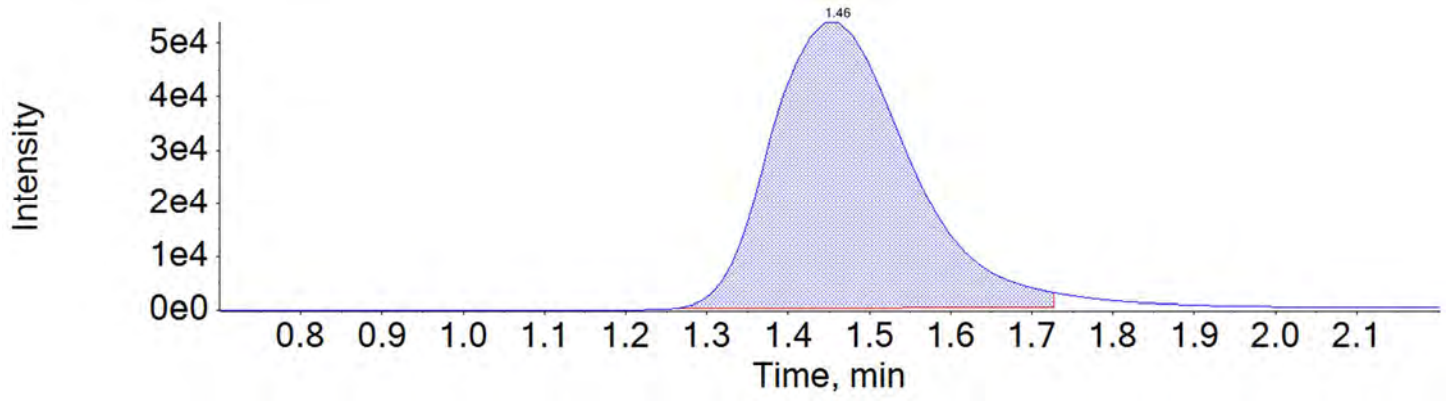
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:05:14 PM

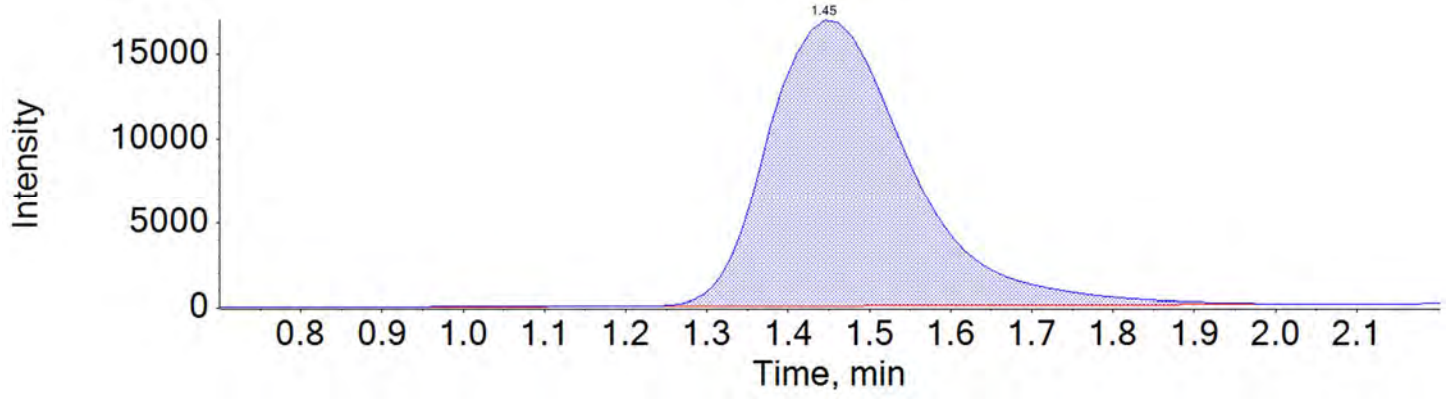
Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T13:28:47	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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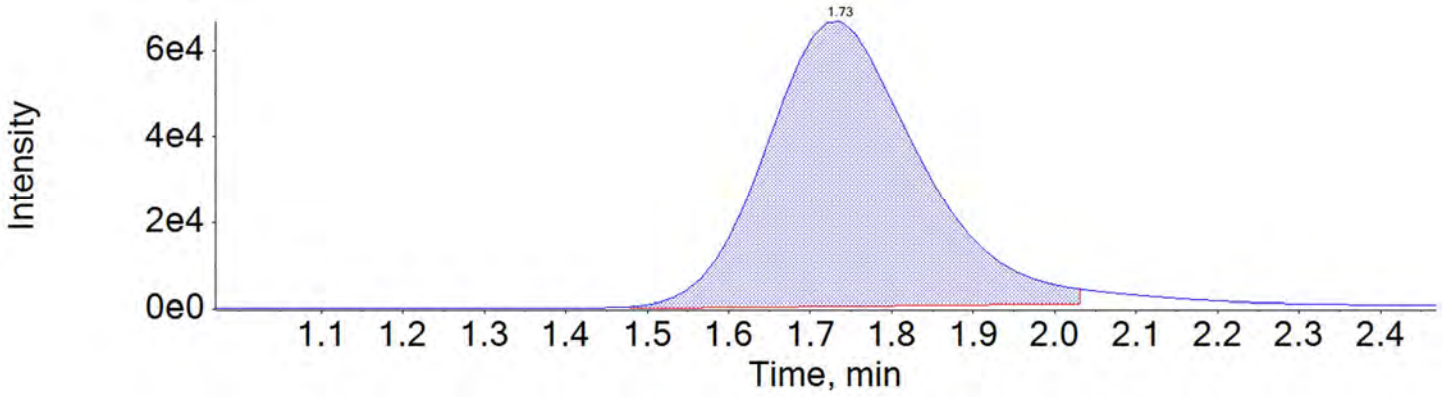
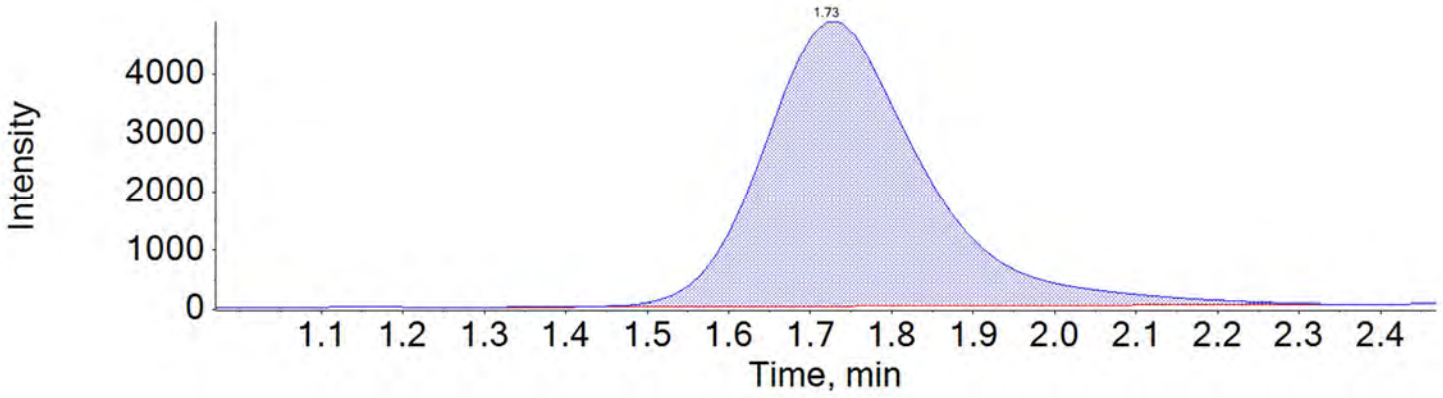
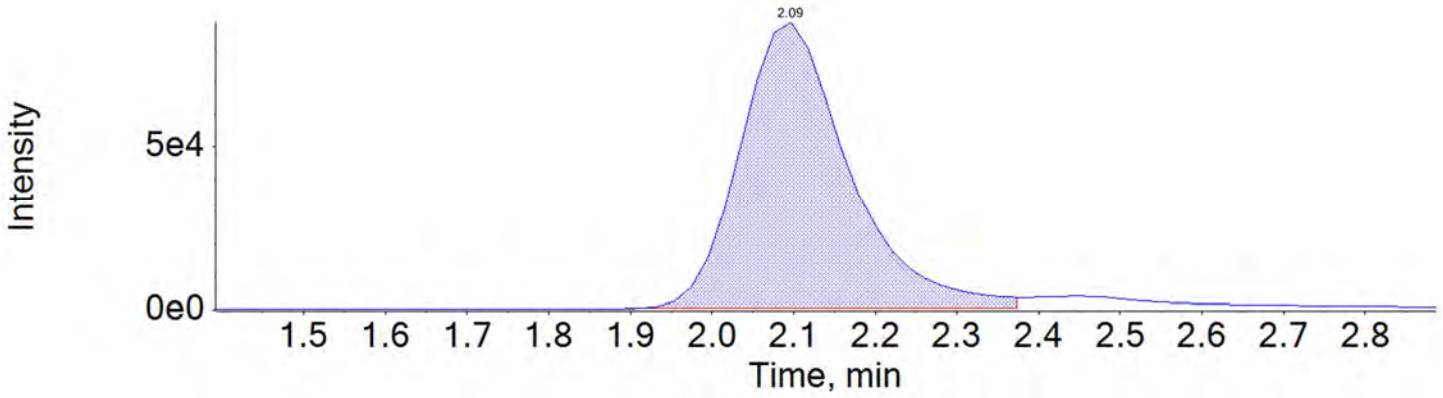
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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Chromatogram Report

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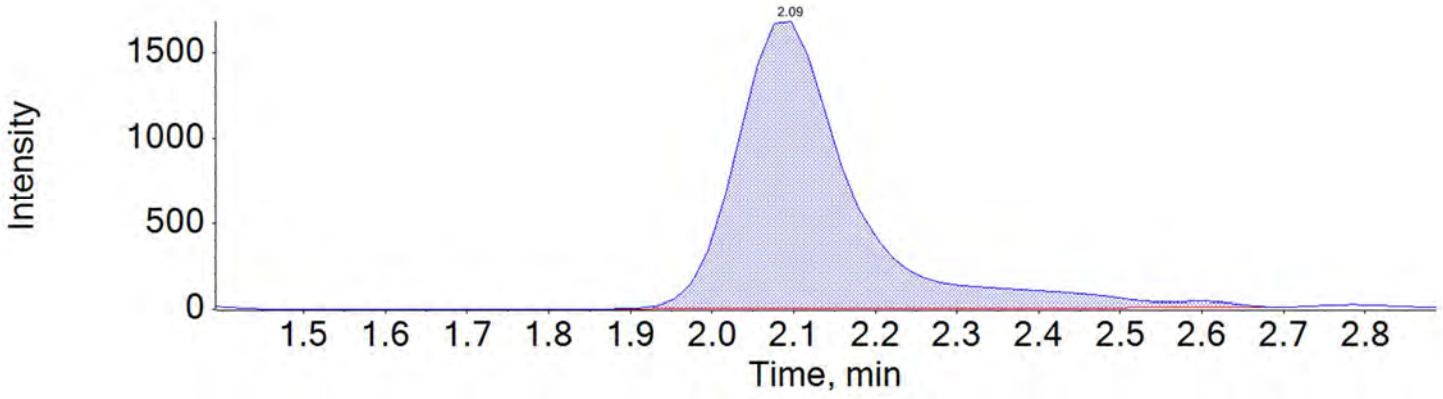
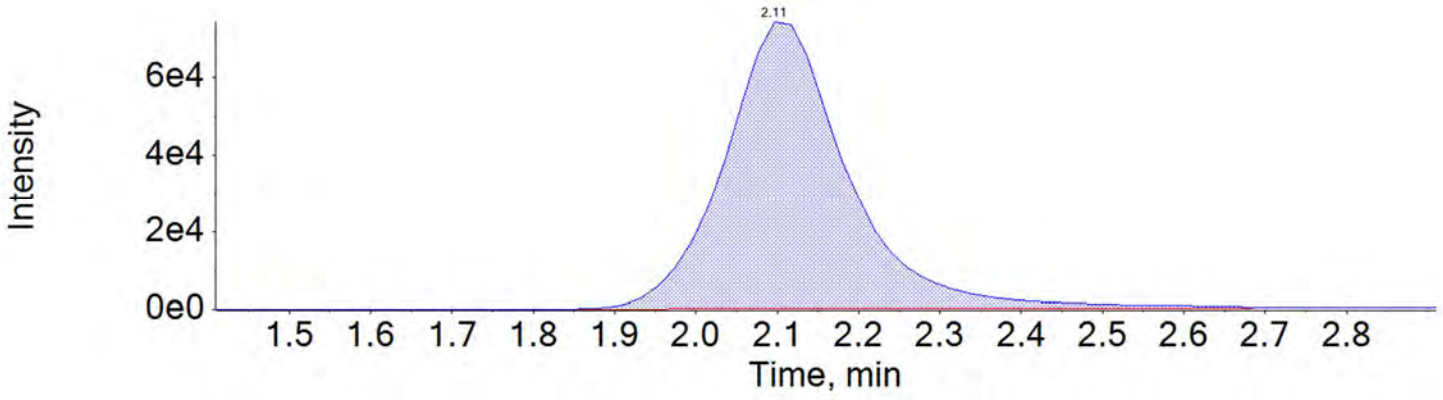
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



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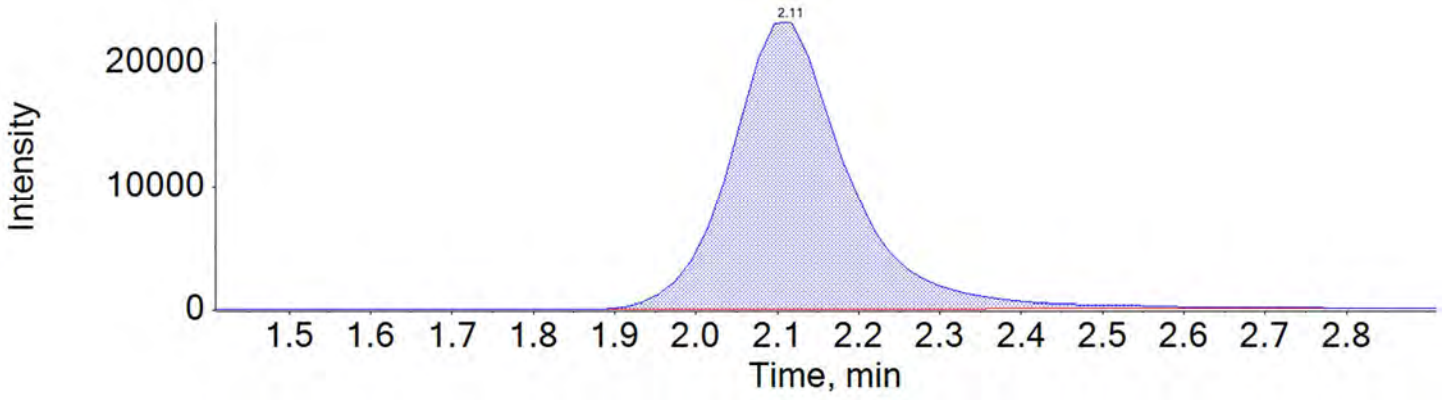

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Chromatogram Report

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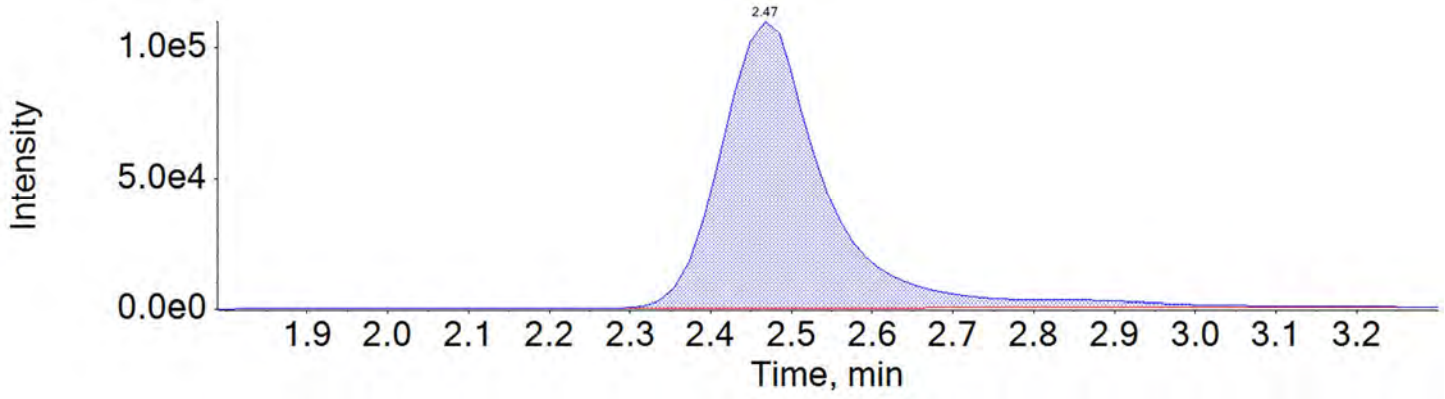
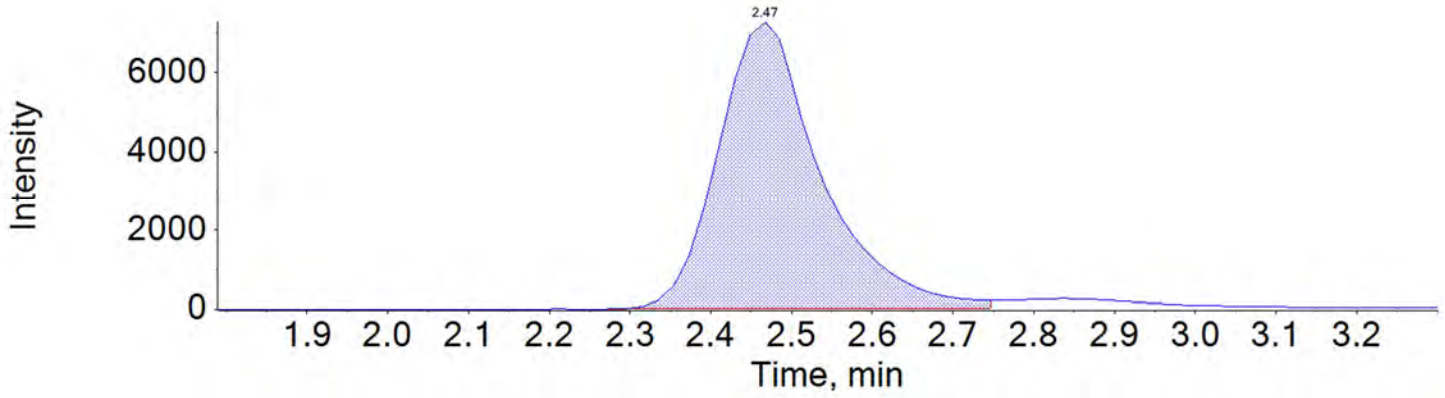
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



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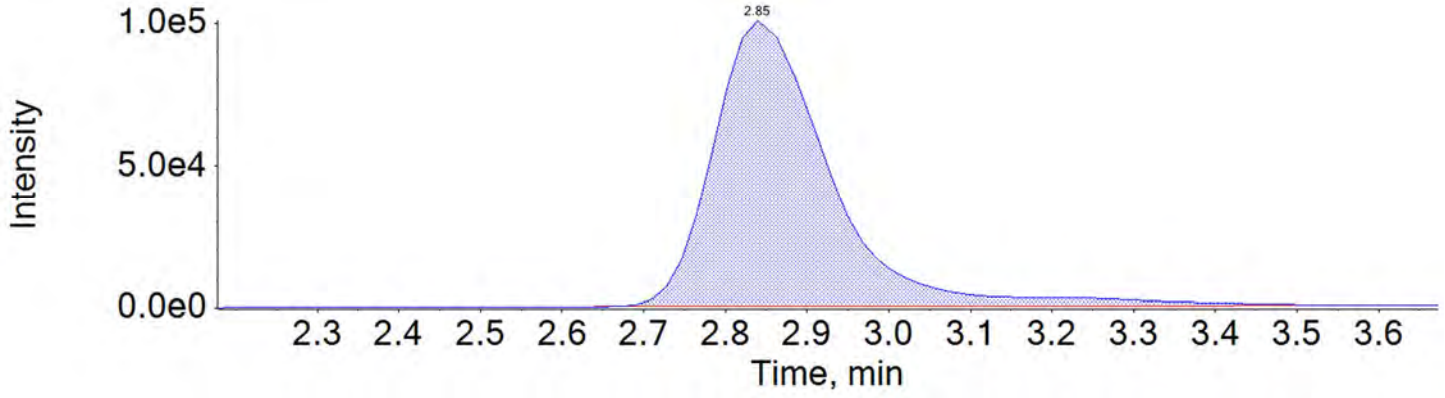

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Chromatogram Report

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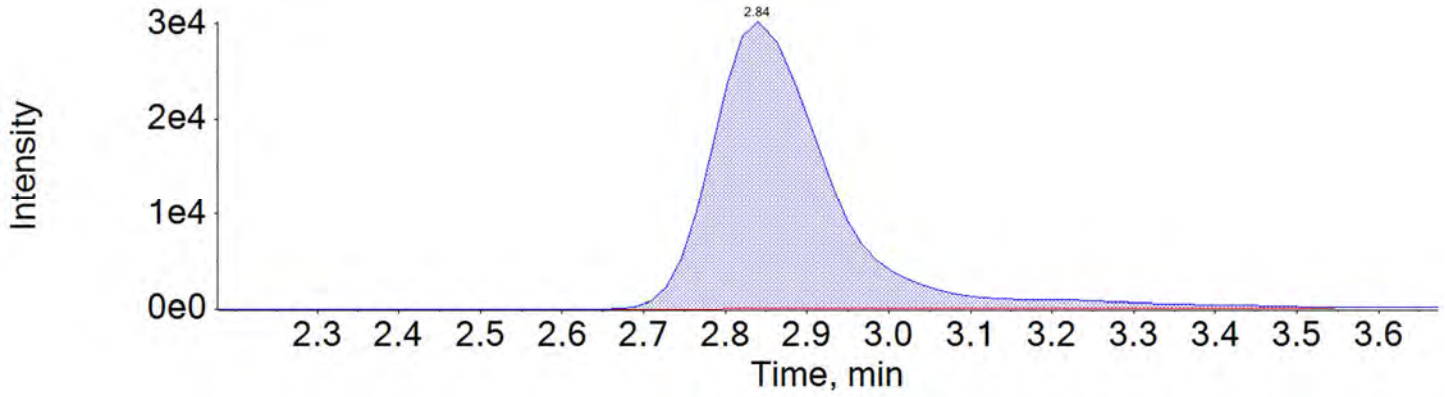
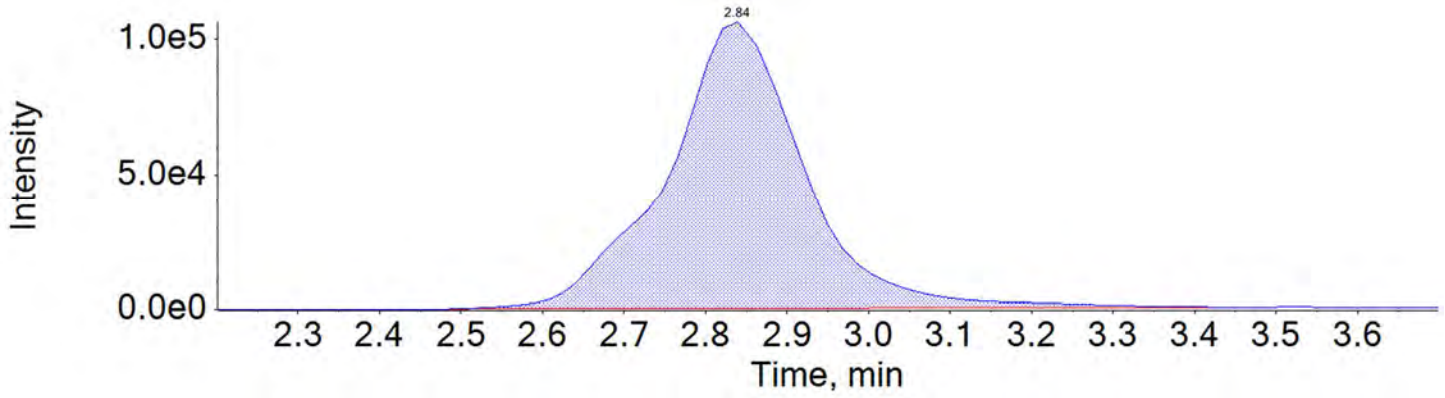
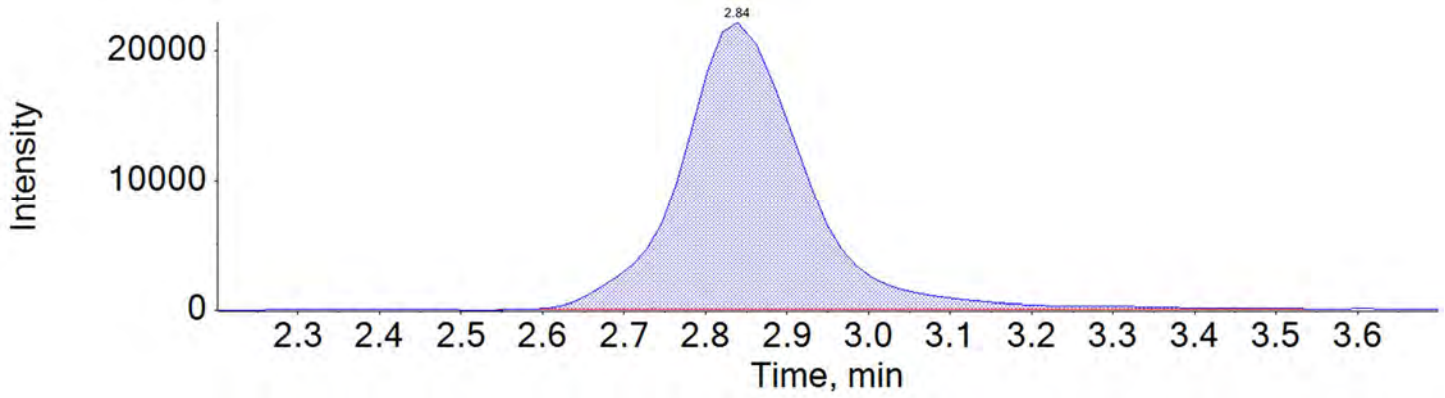
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



PFOS_2 499.0 / 99.0



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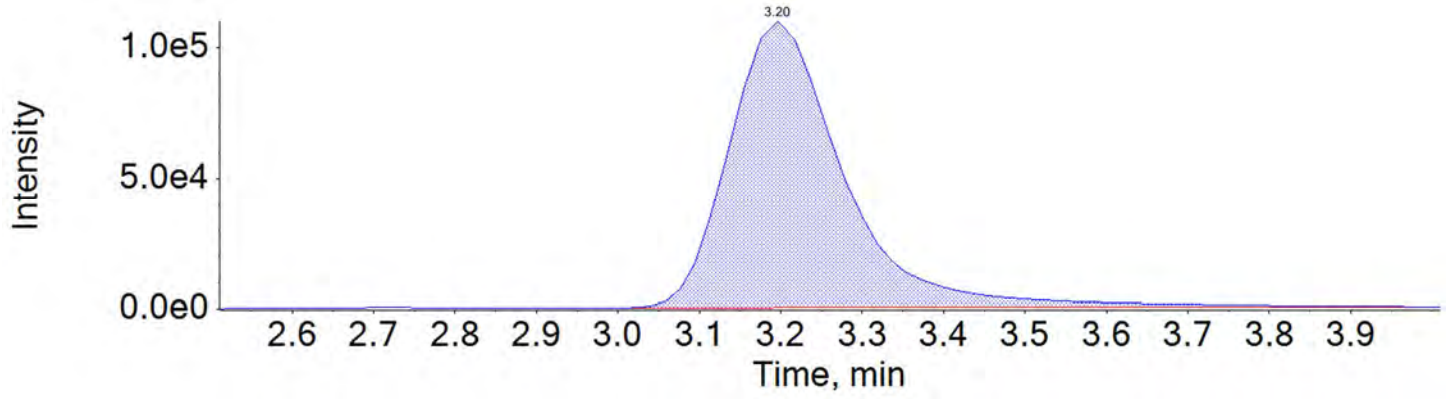
PFDA_1 513.0 / 469.0



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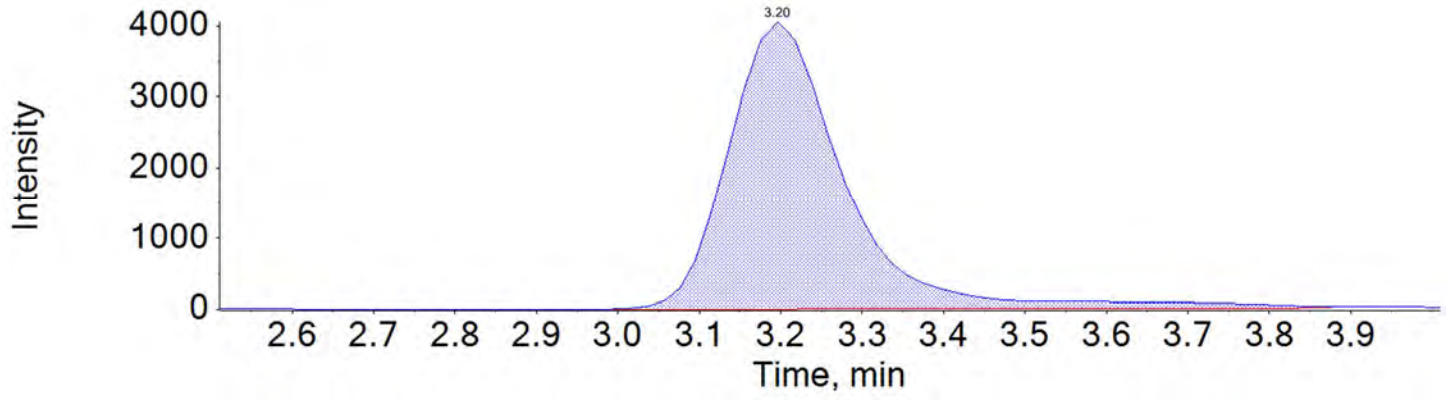
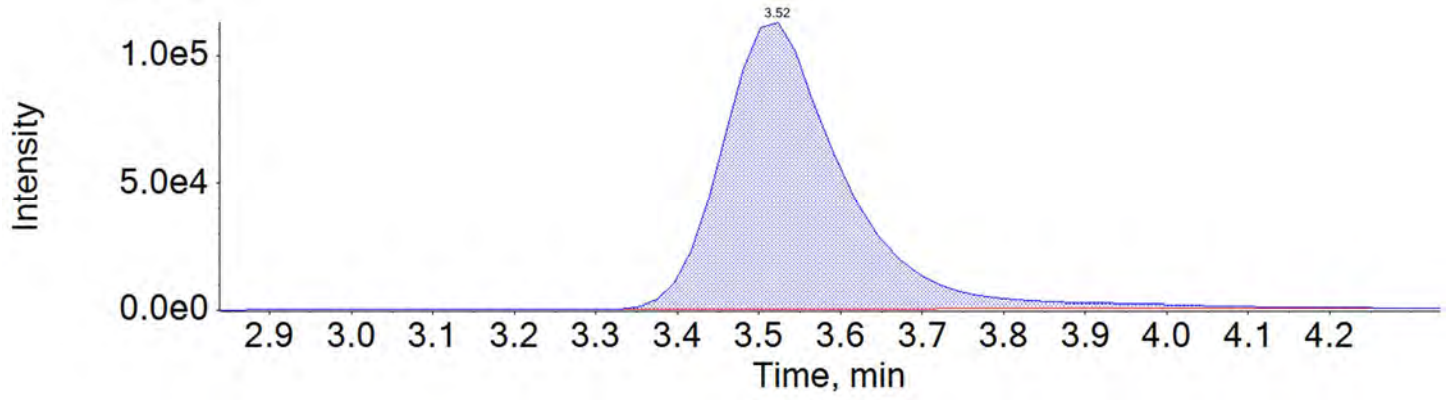


PFUnA_1 563.0 / 519.0



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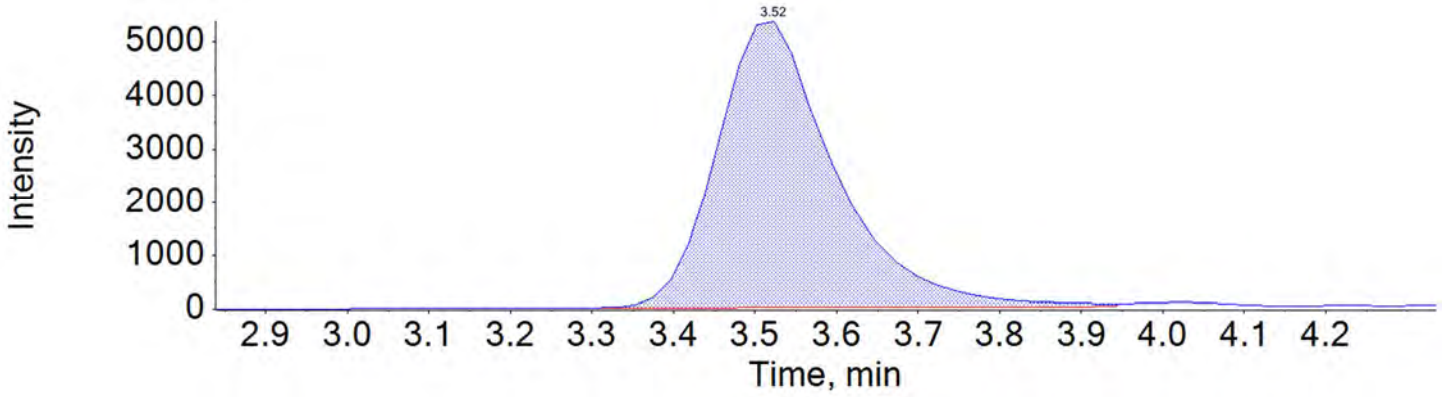

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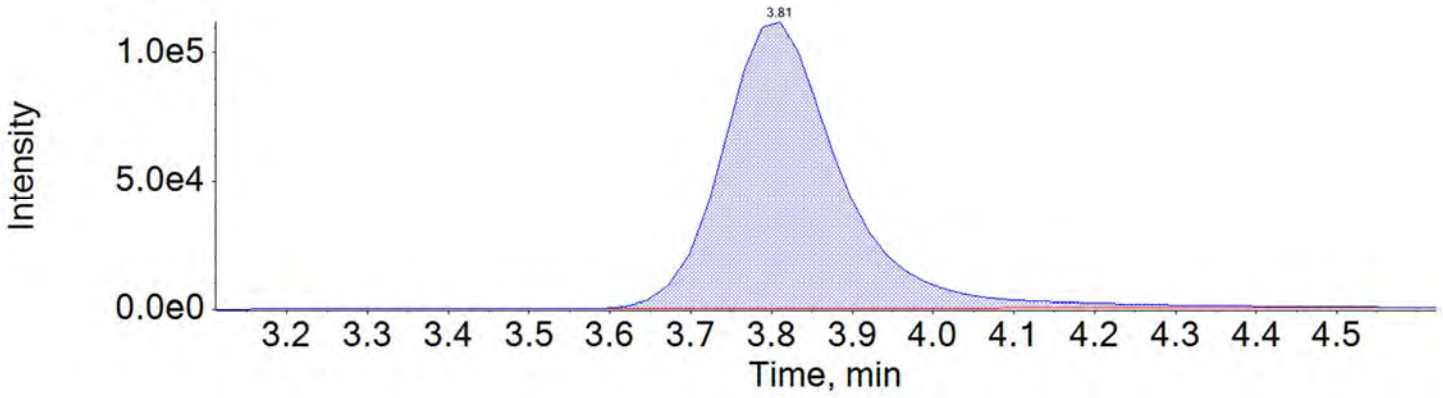

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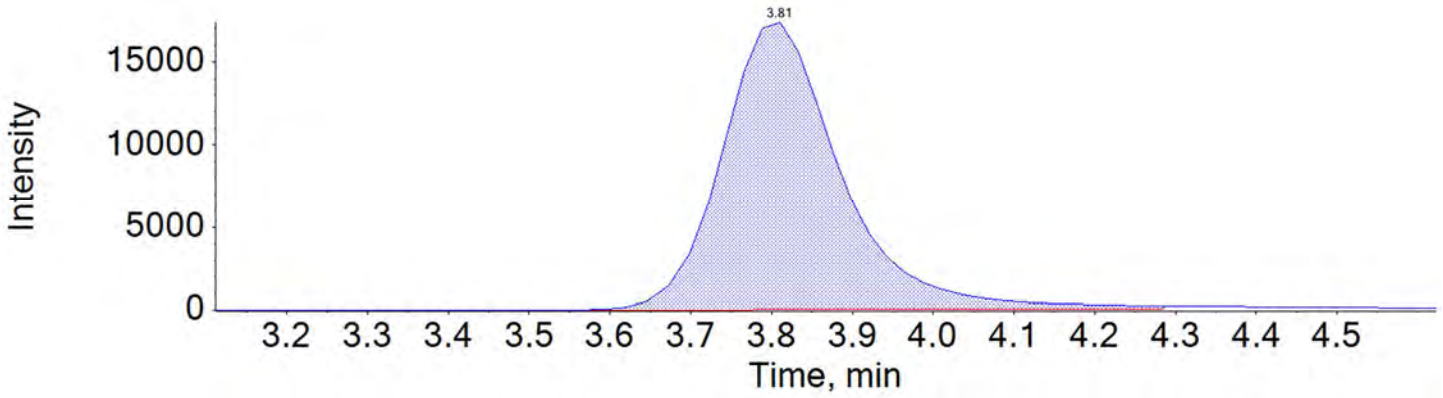

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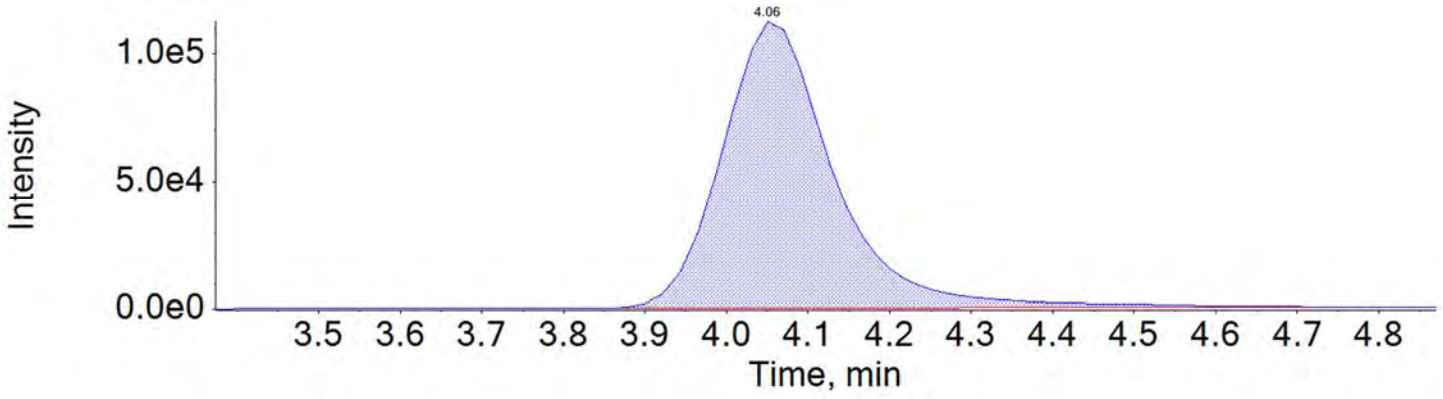
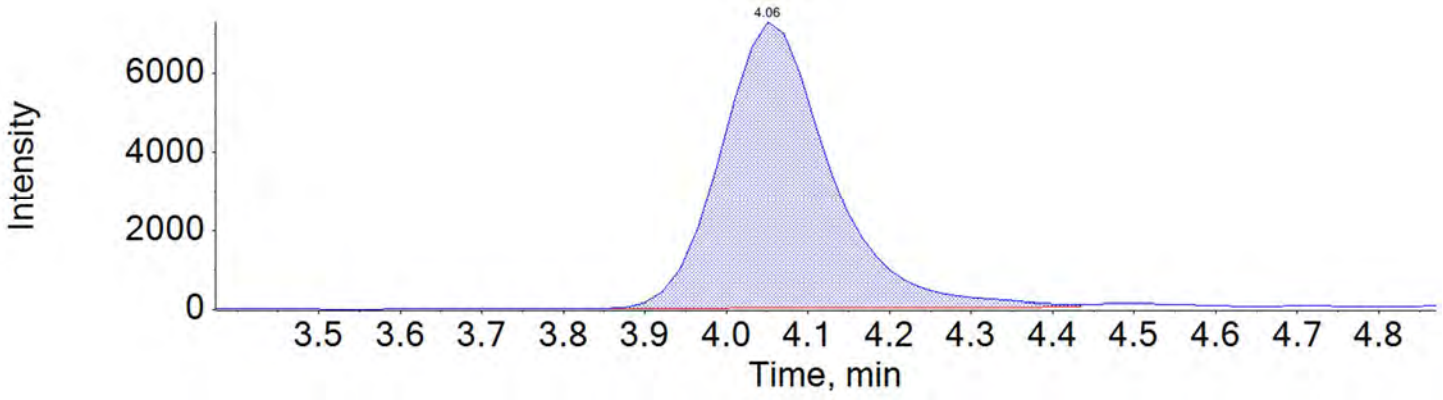
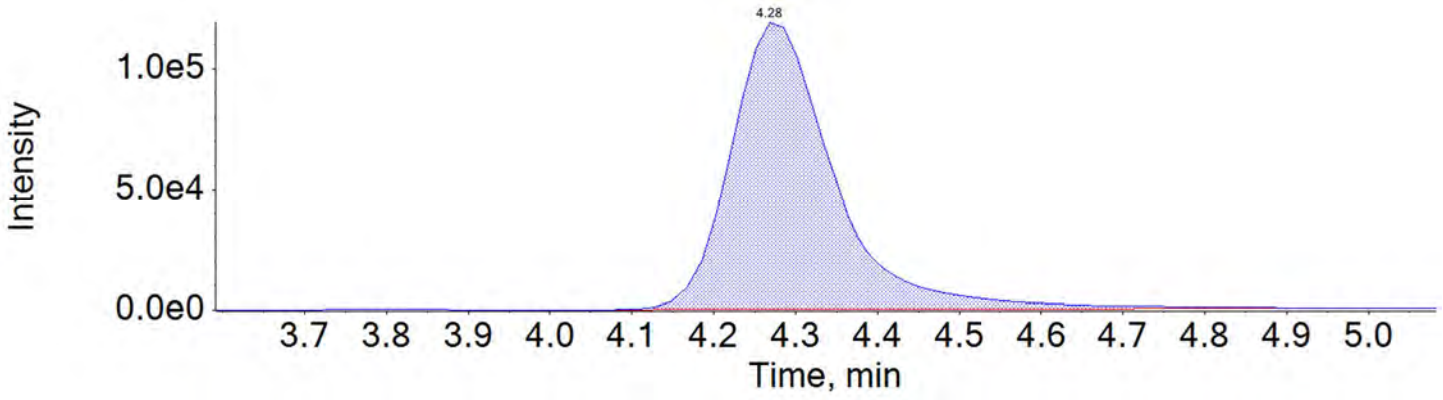


PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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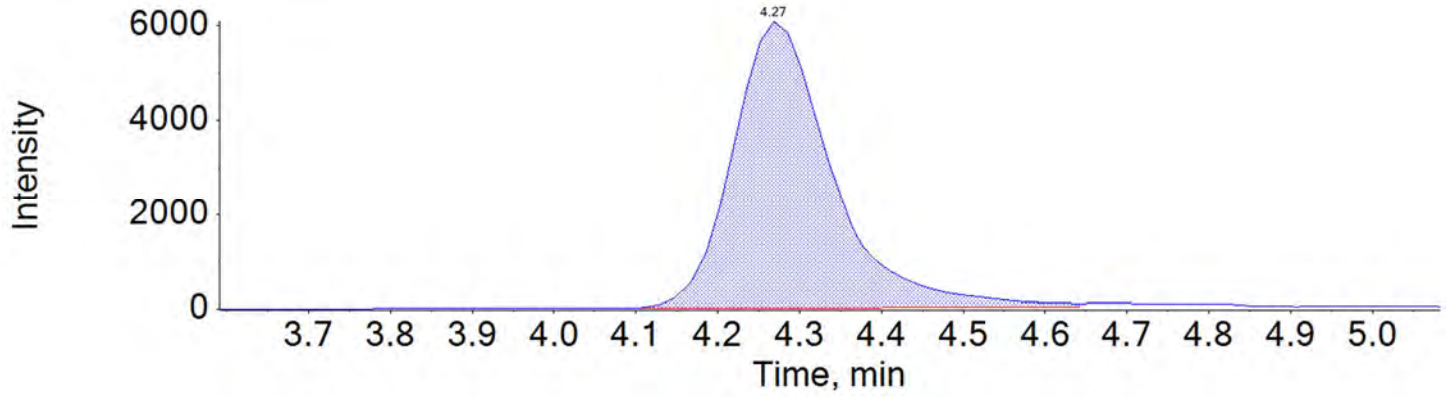
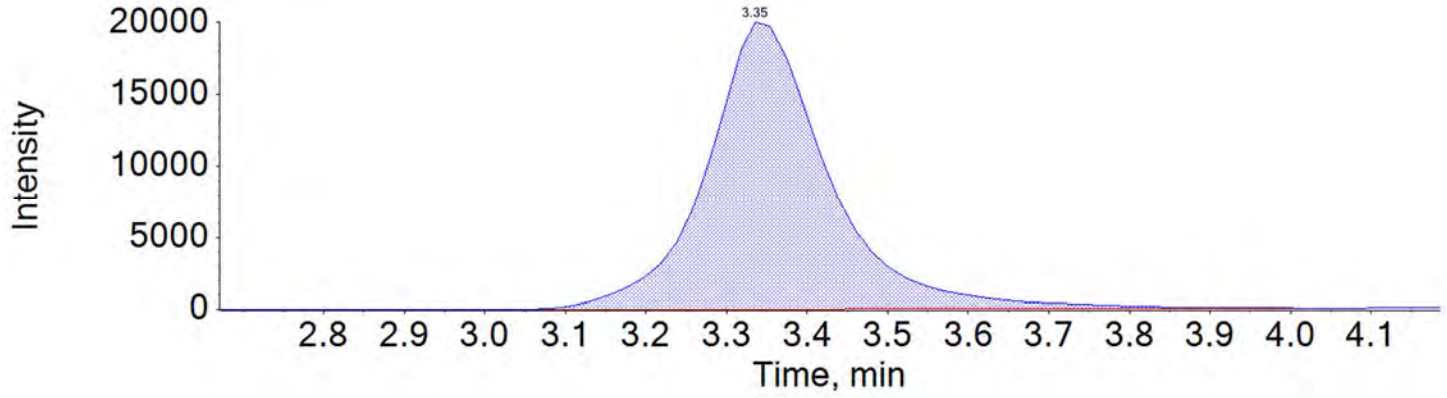
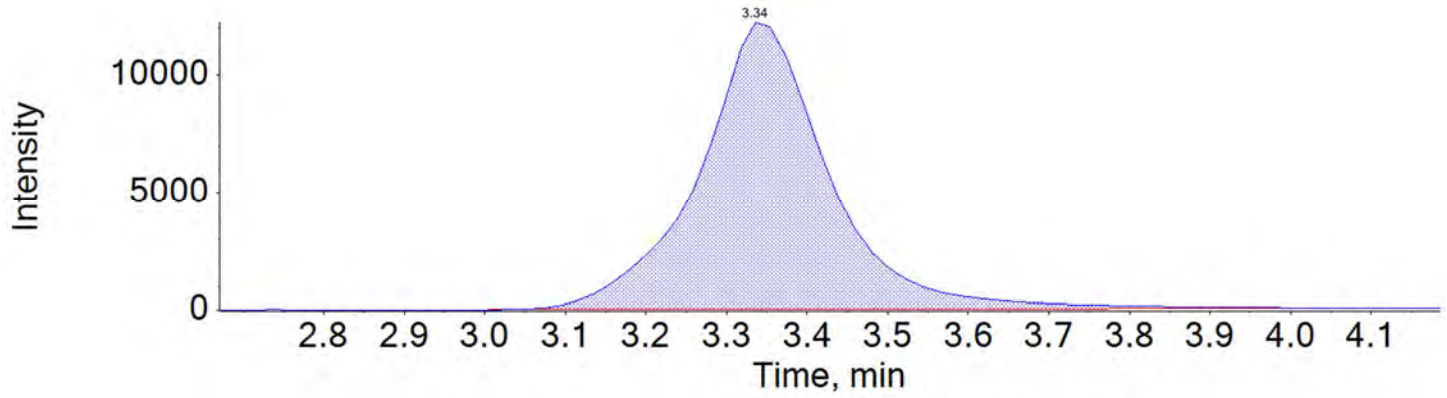


NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

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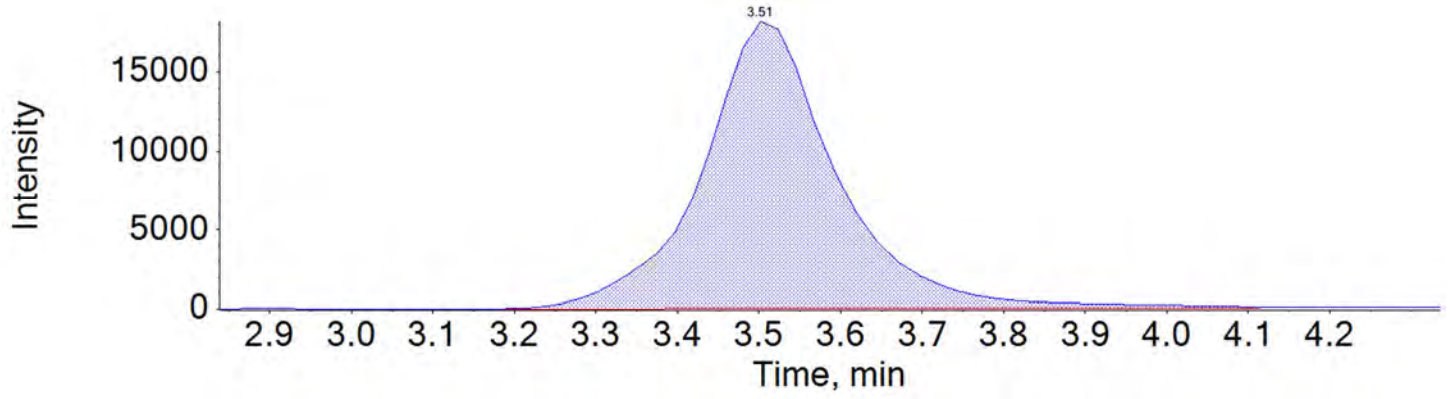
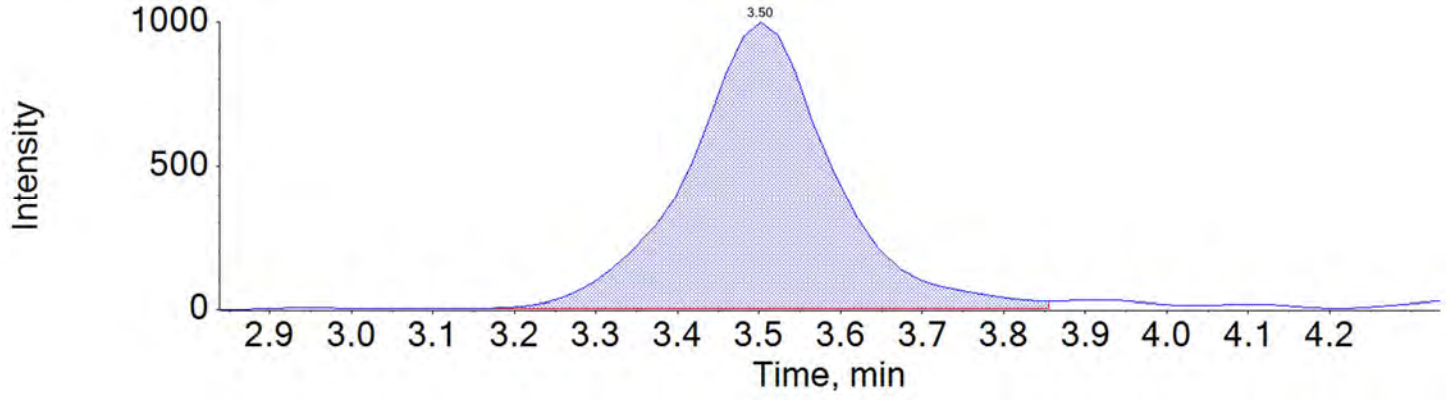
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



BATTELLE

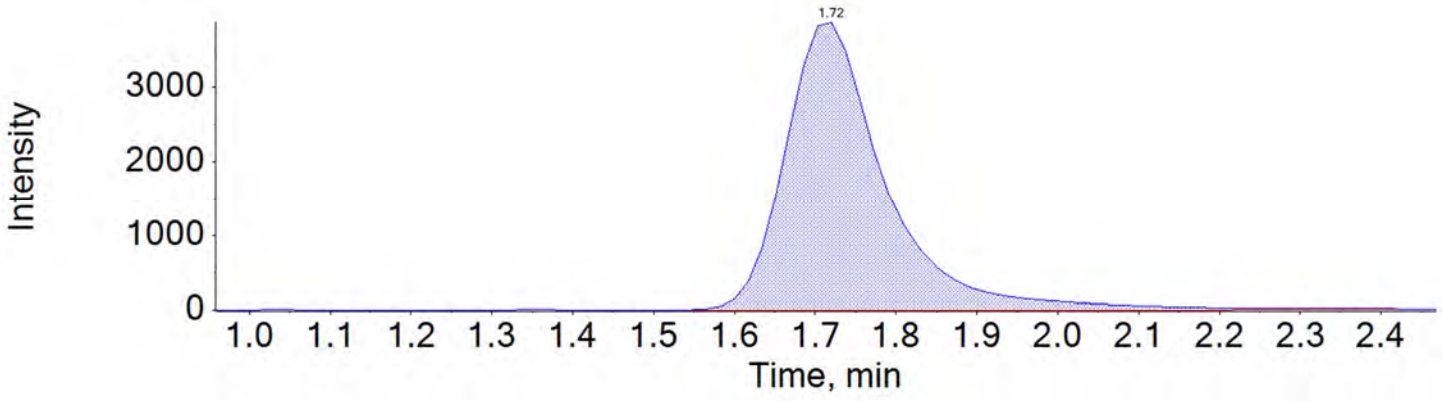
Chromatogram Report

Created with Analyst Reporter
Printed: 16/05/2018 7:11:36 PM

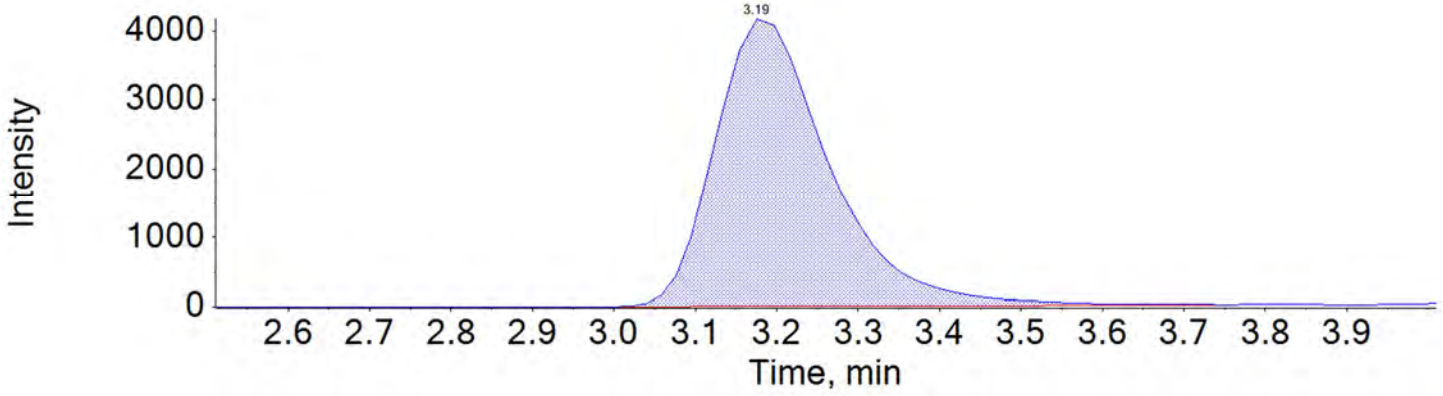
Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T13:28:47	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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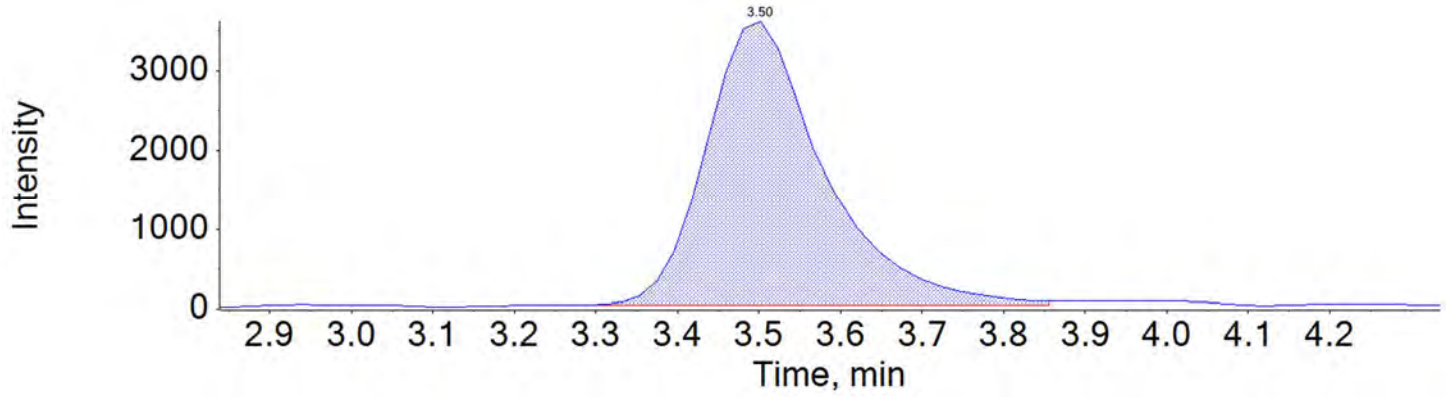
d5-EtFOSAA 589.0 / 419.0



BATTELLE

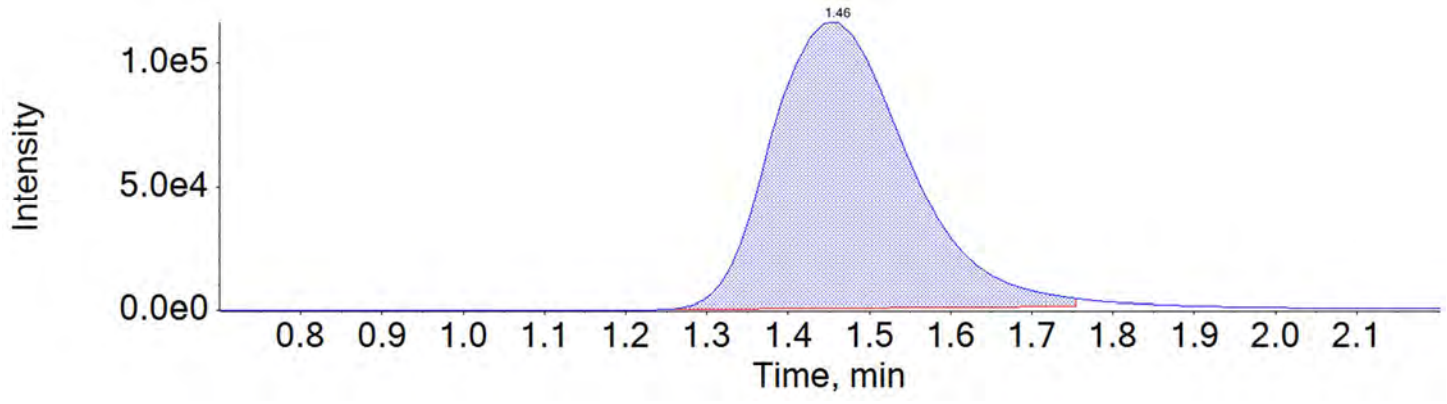
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:05:19 PM

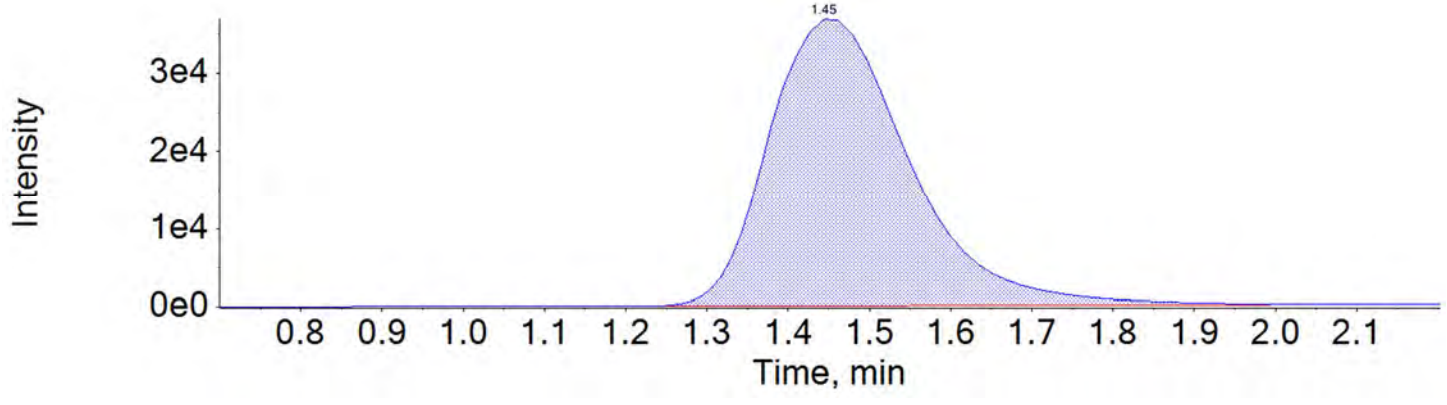
Sample Name	JV71	**Injection Vial**	9
Sample ID	L8	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T13:37:43	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

Created with Analyst Reporter
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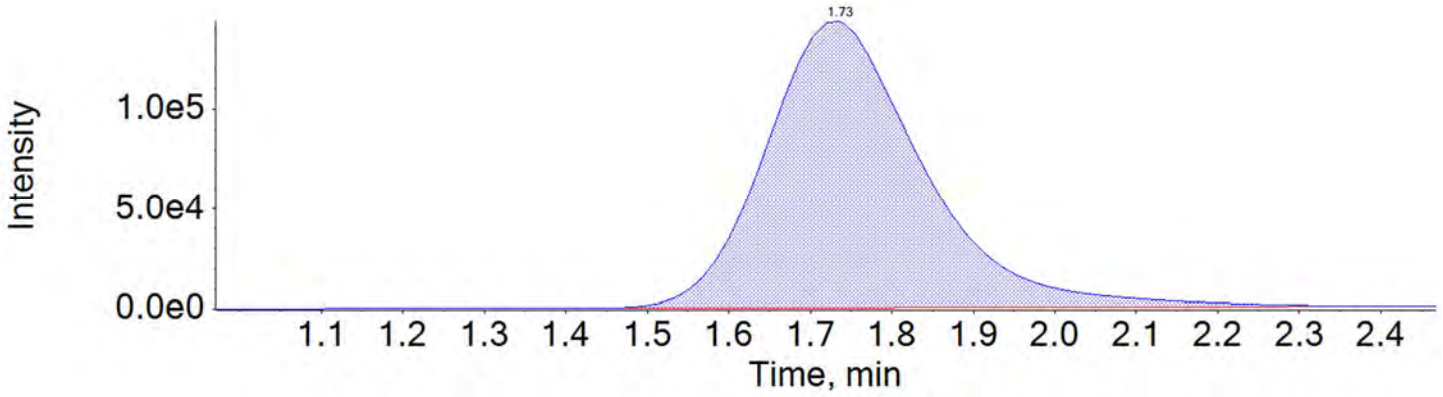
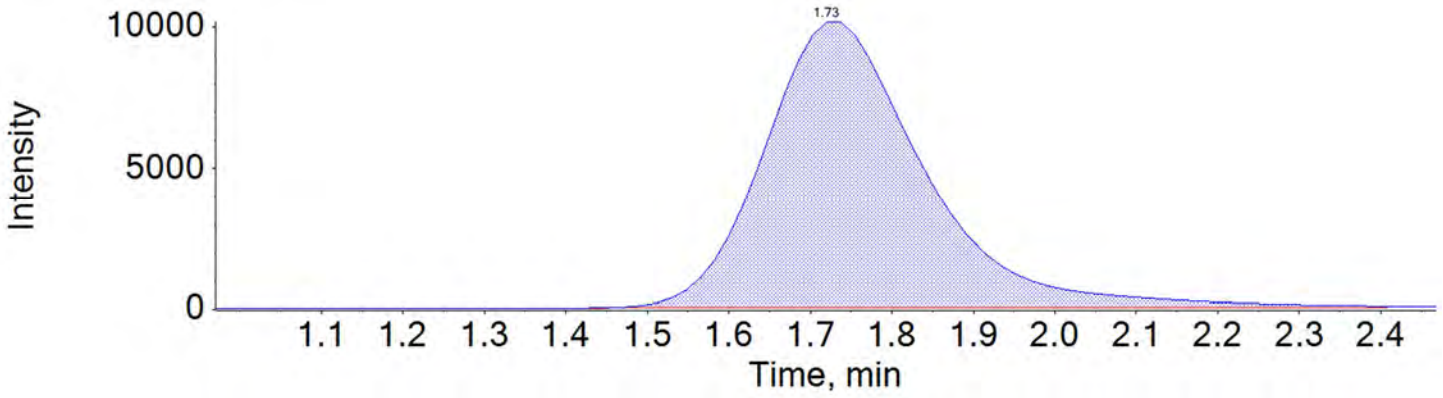
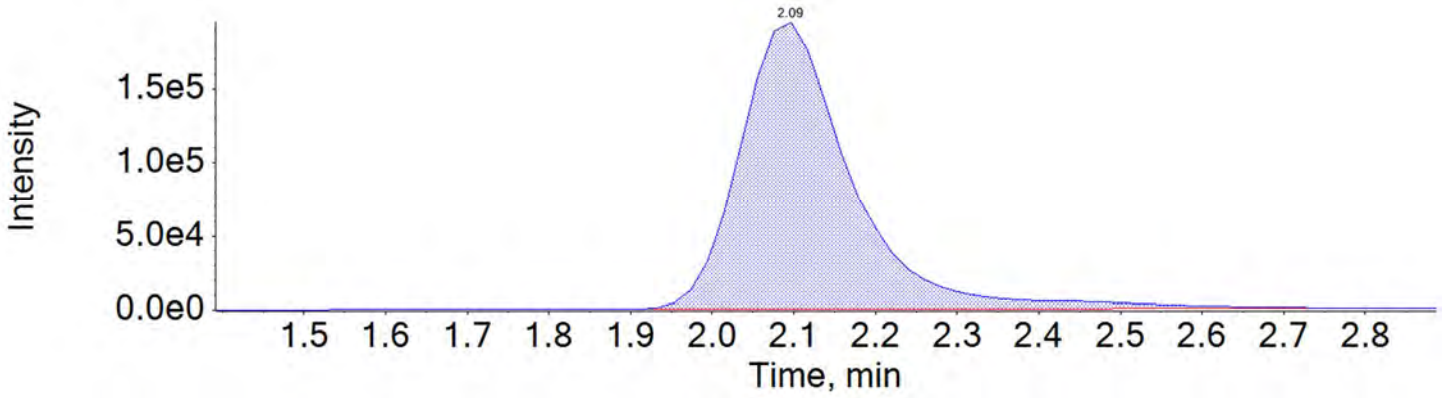
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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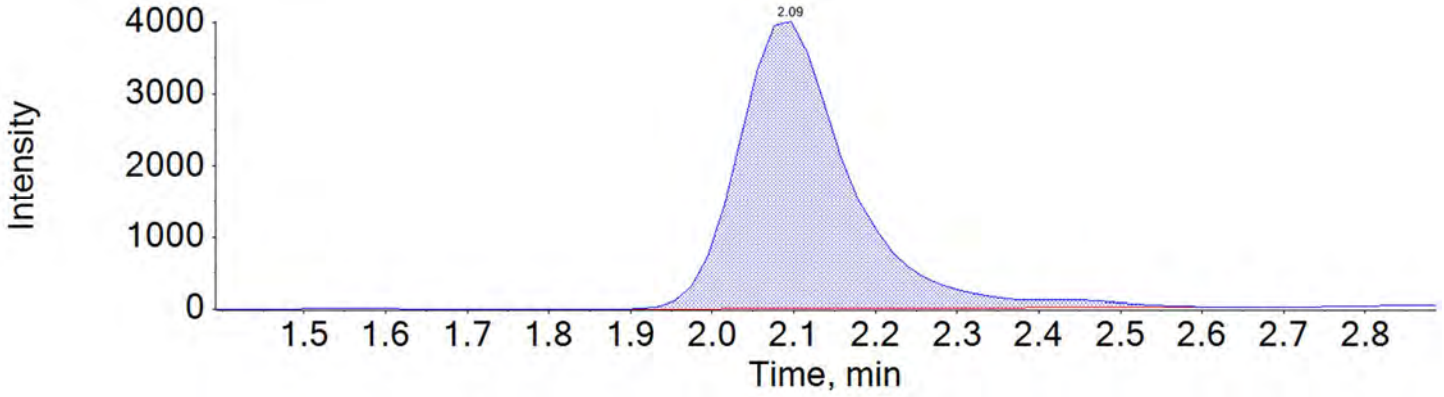
PFHpA_2 363.0 / 169.0



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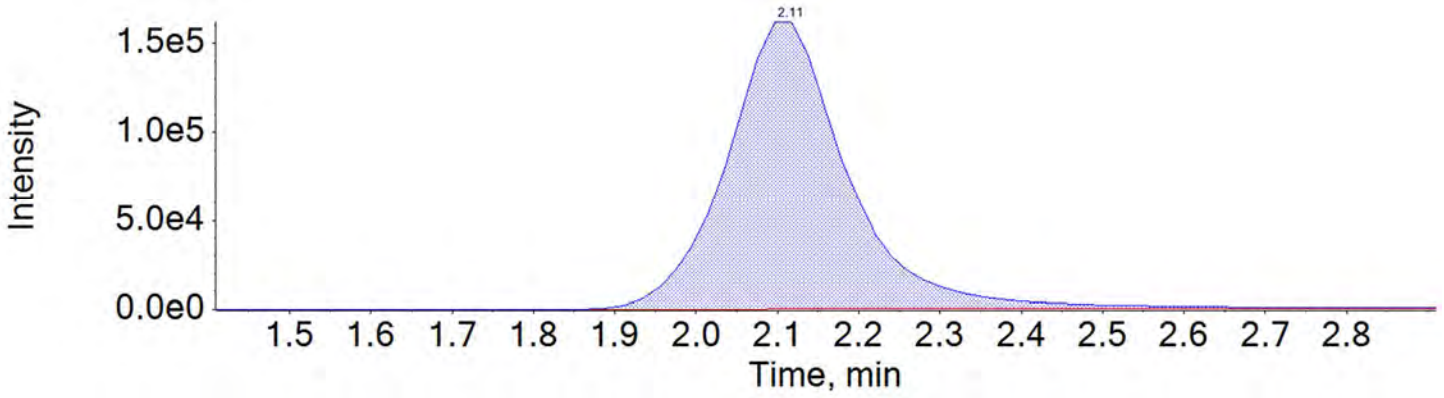

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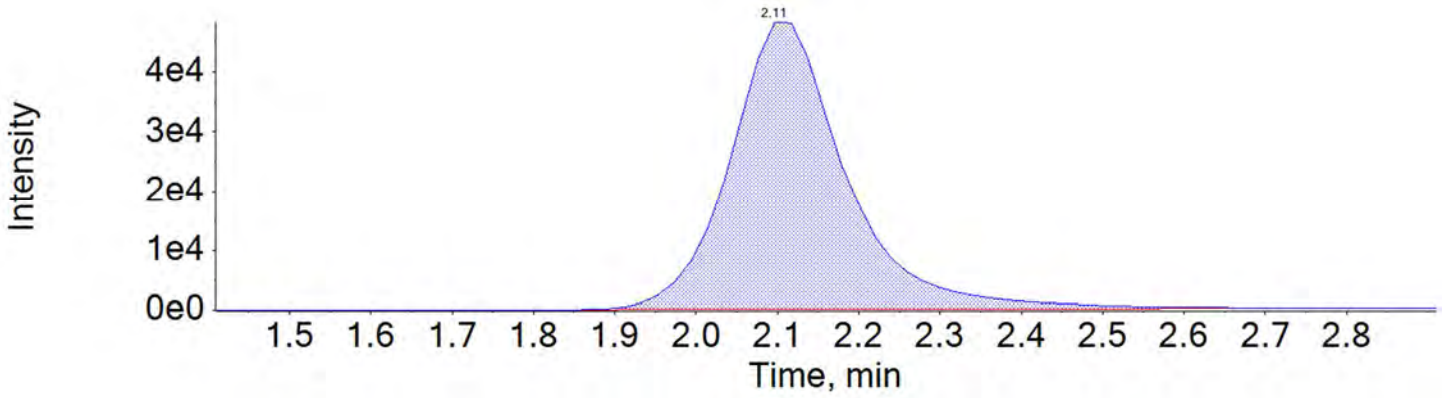

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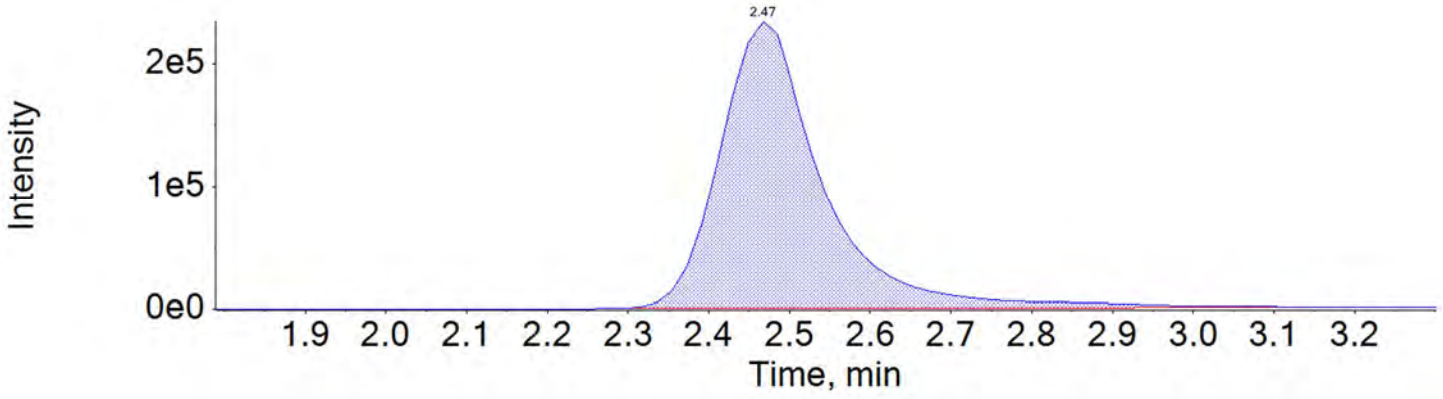

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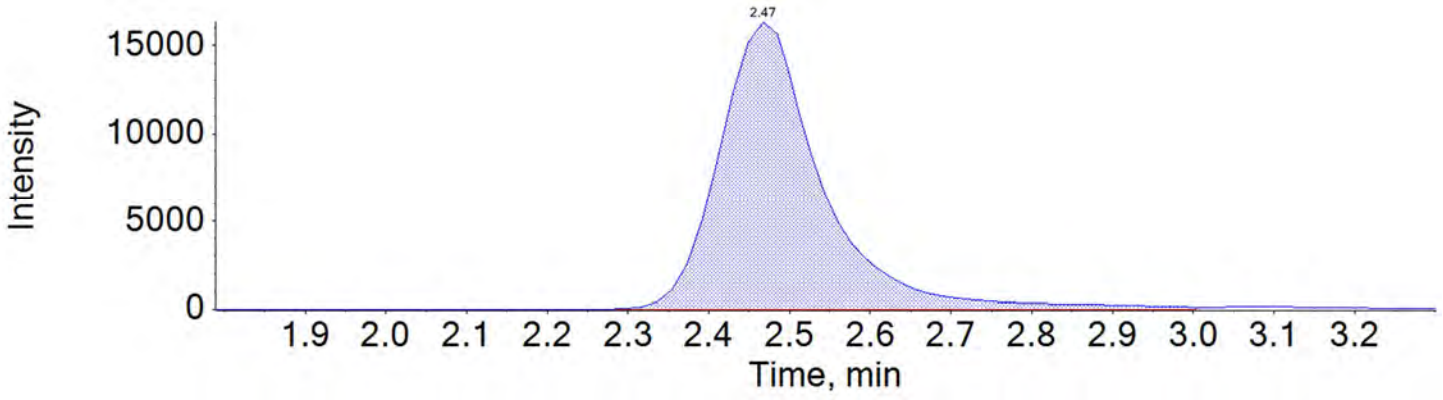

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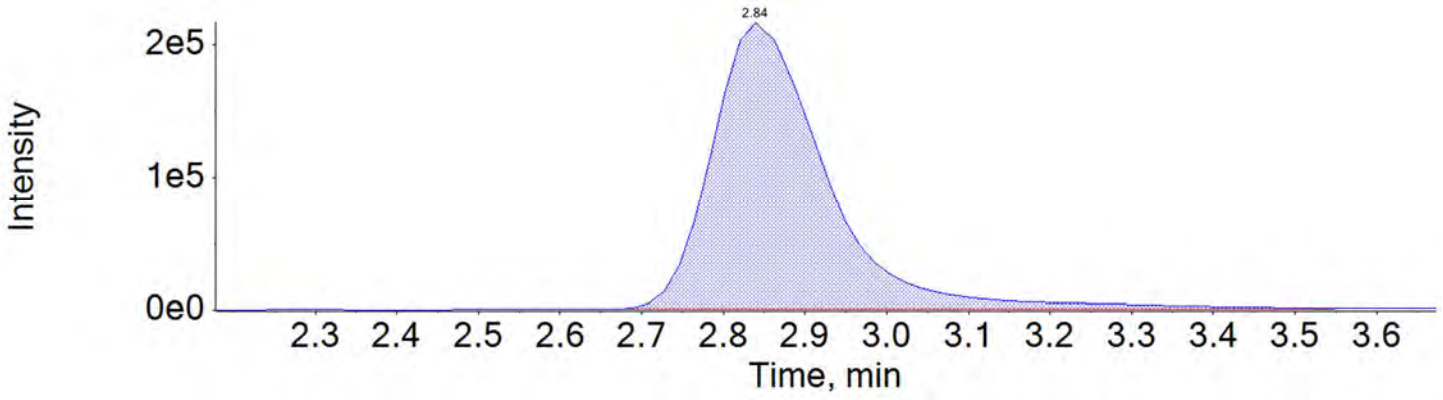

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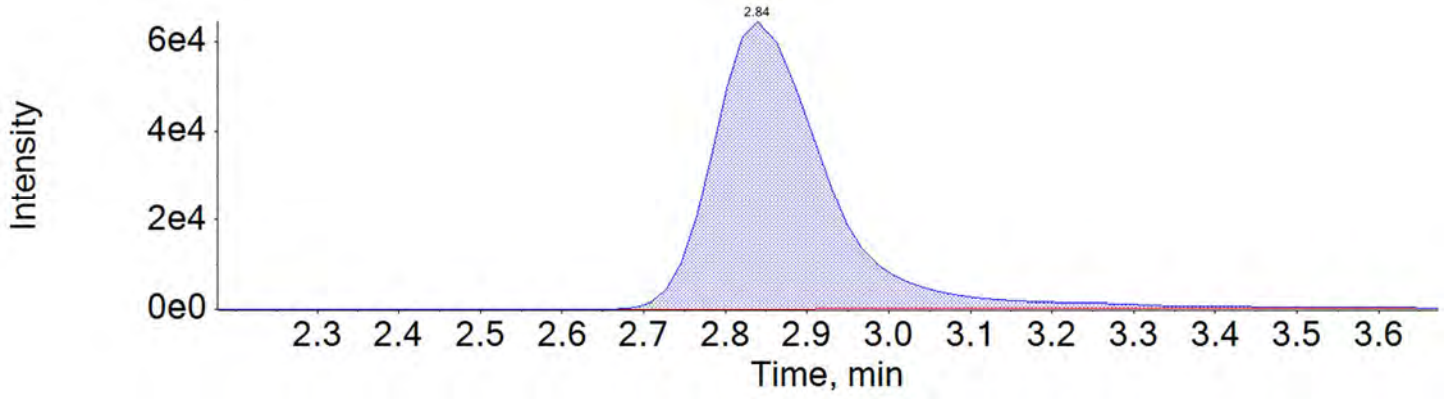
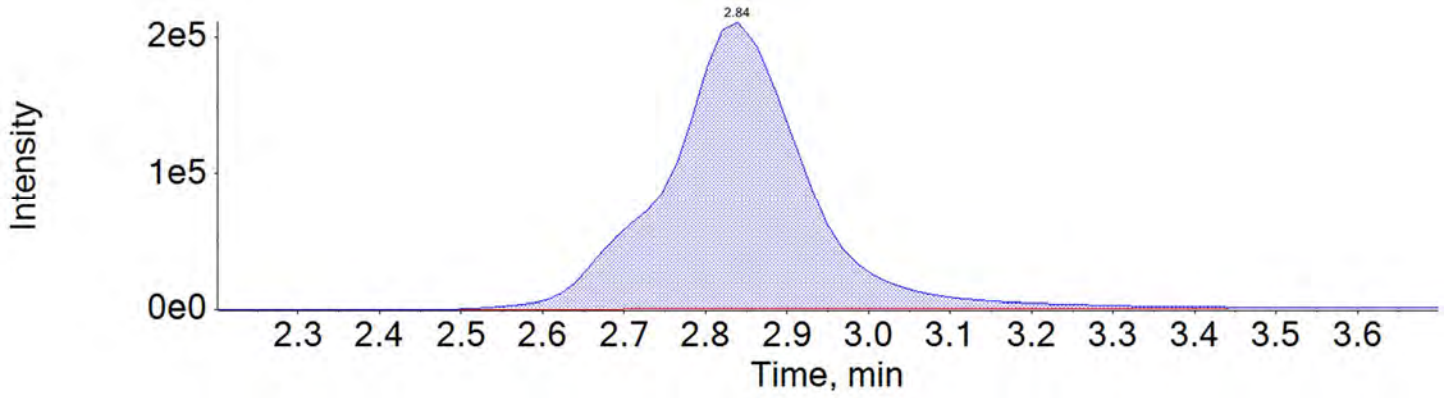
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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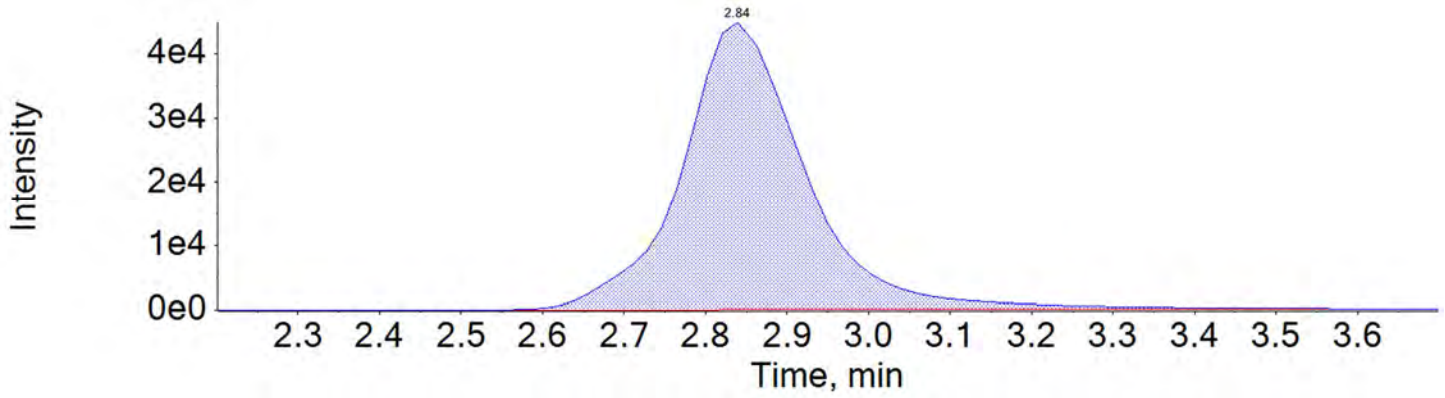

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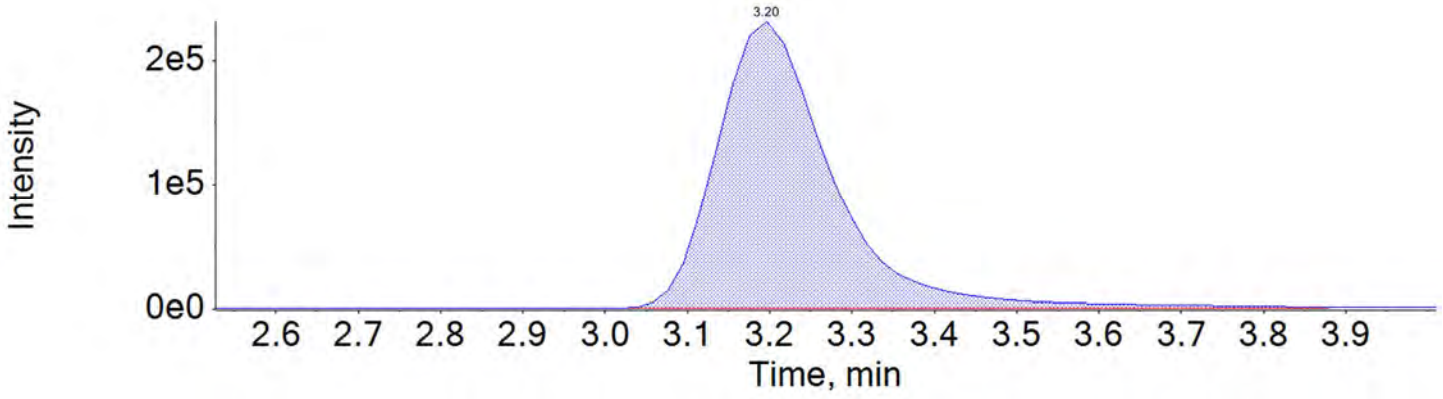

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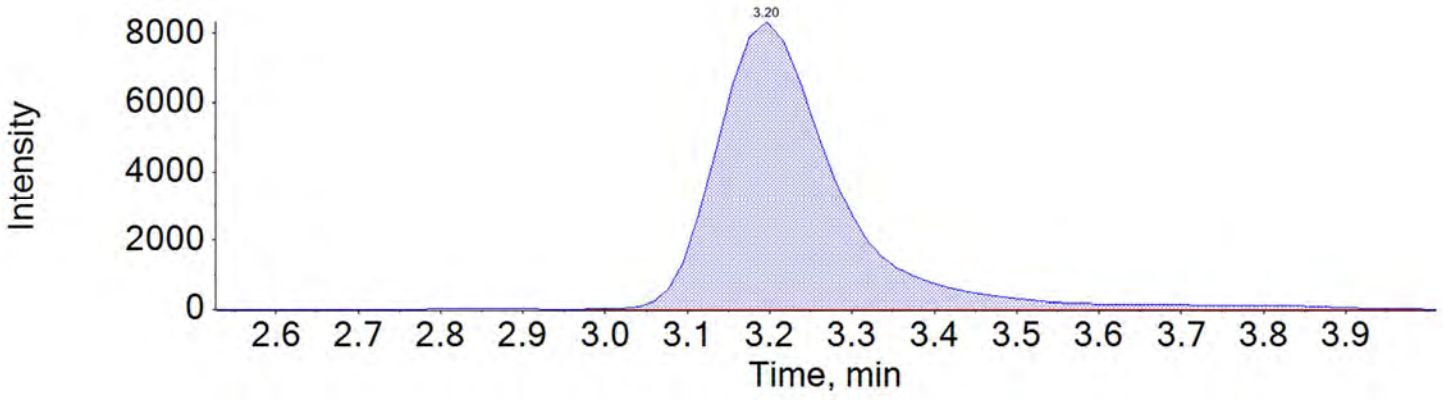

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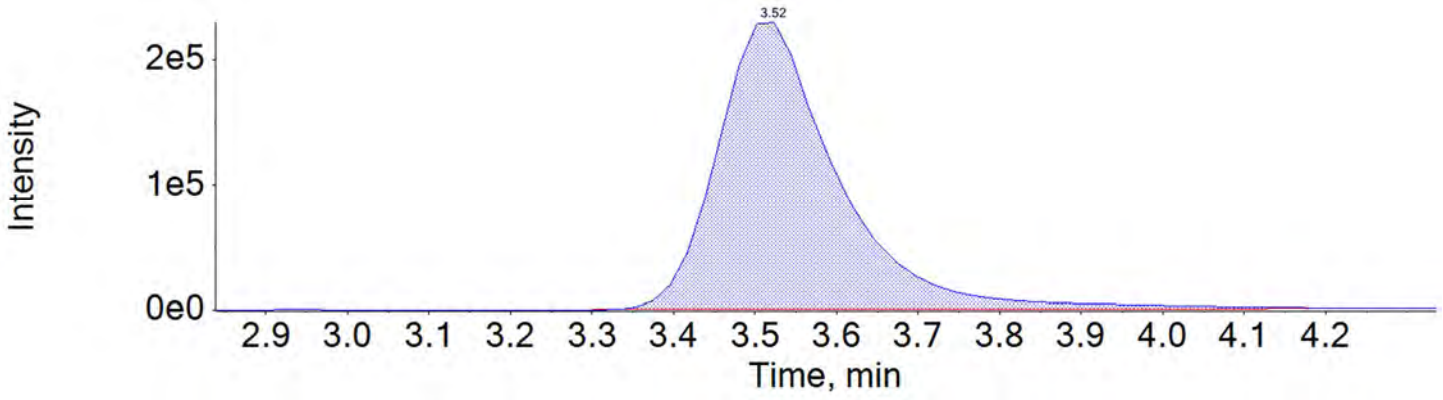

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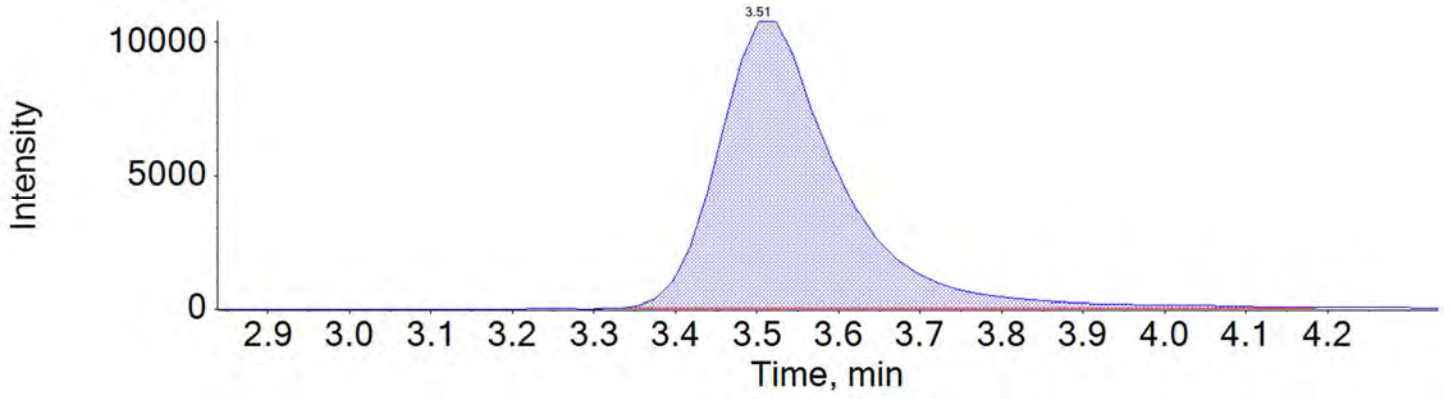
PFUnA_2 563.0 / 269.0



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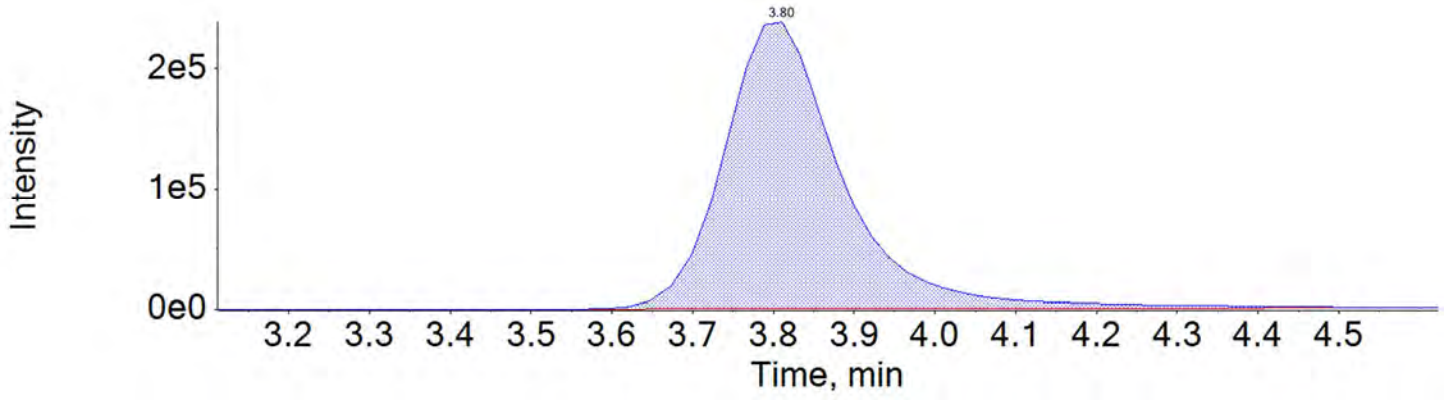

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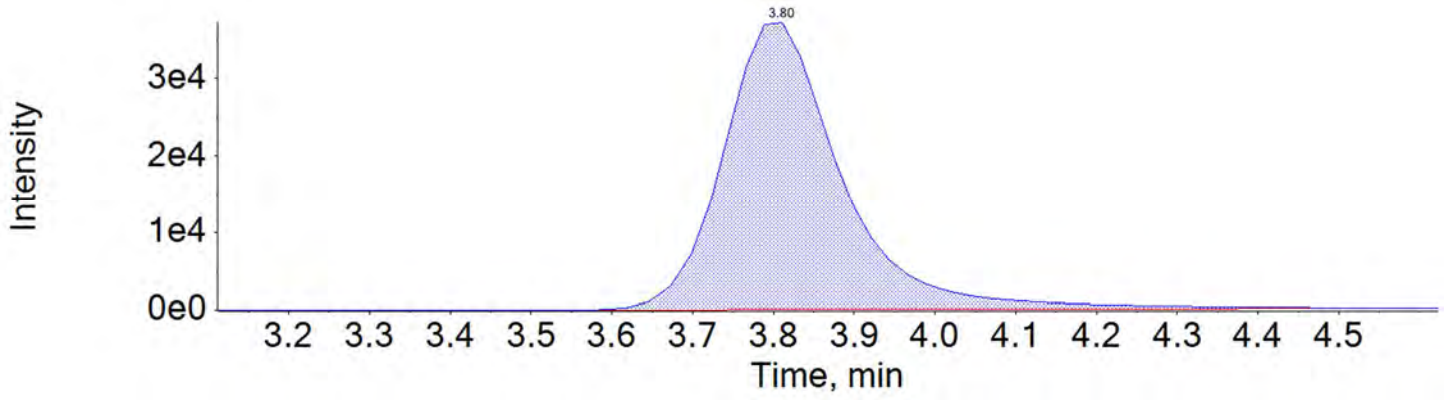

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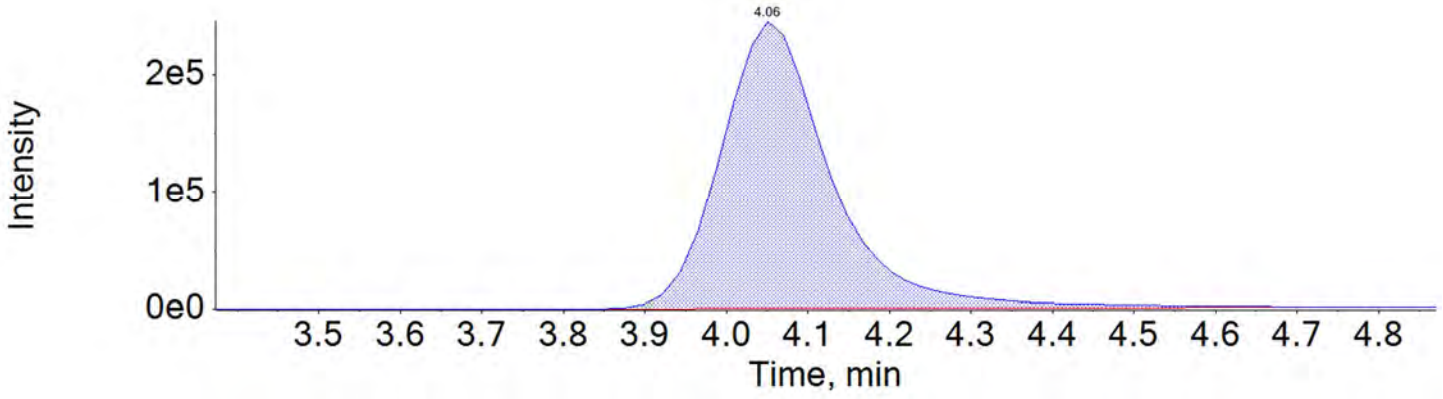
PFTrDA_1 663.0 / 619.0



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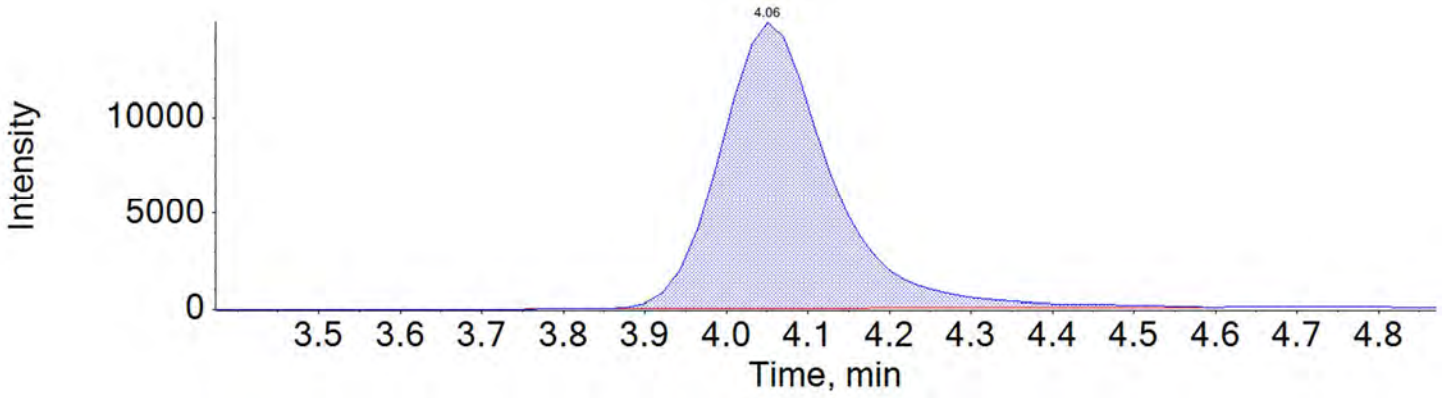

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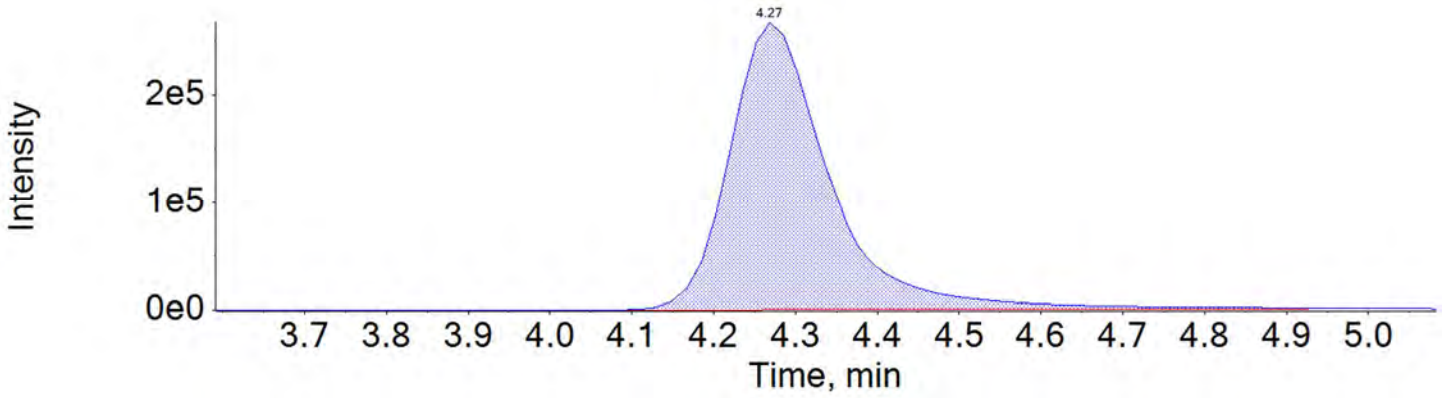

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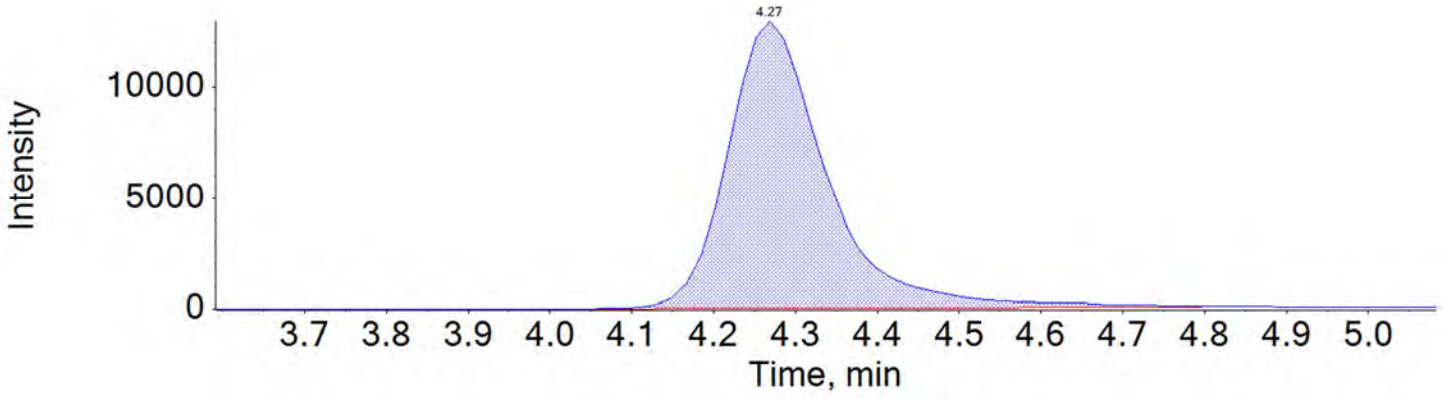

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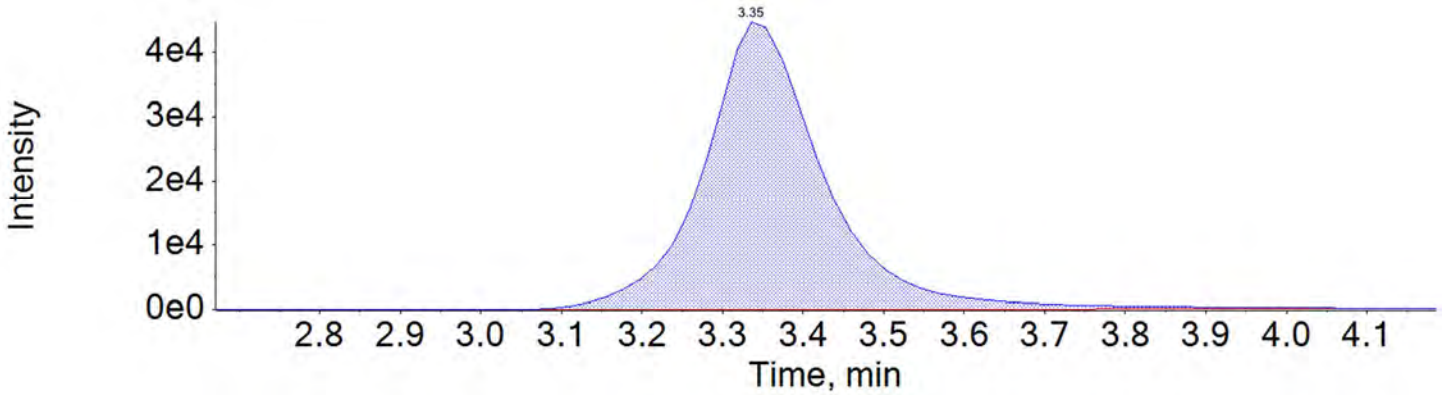

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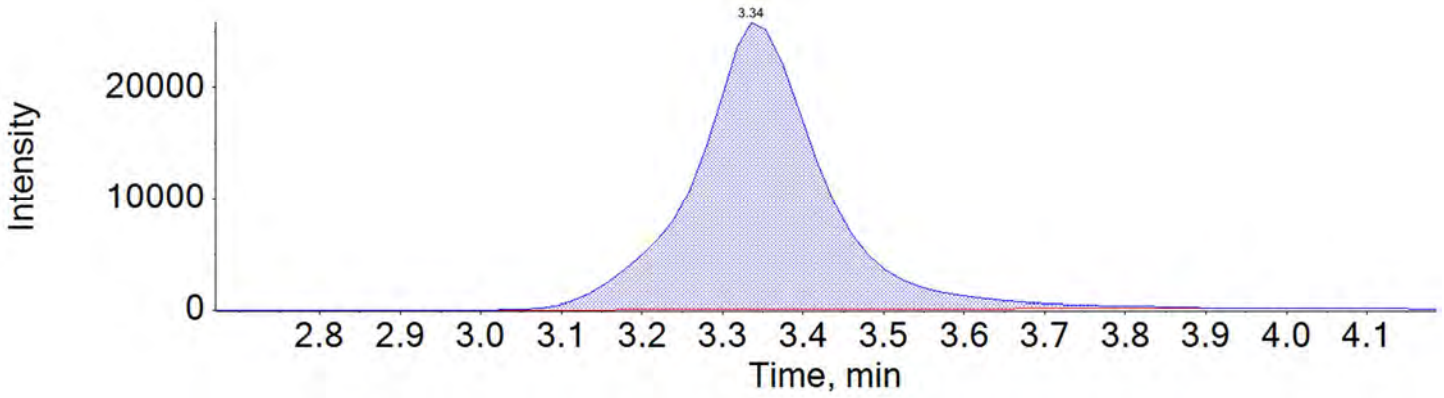

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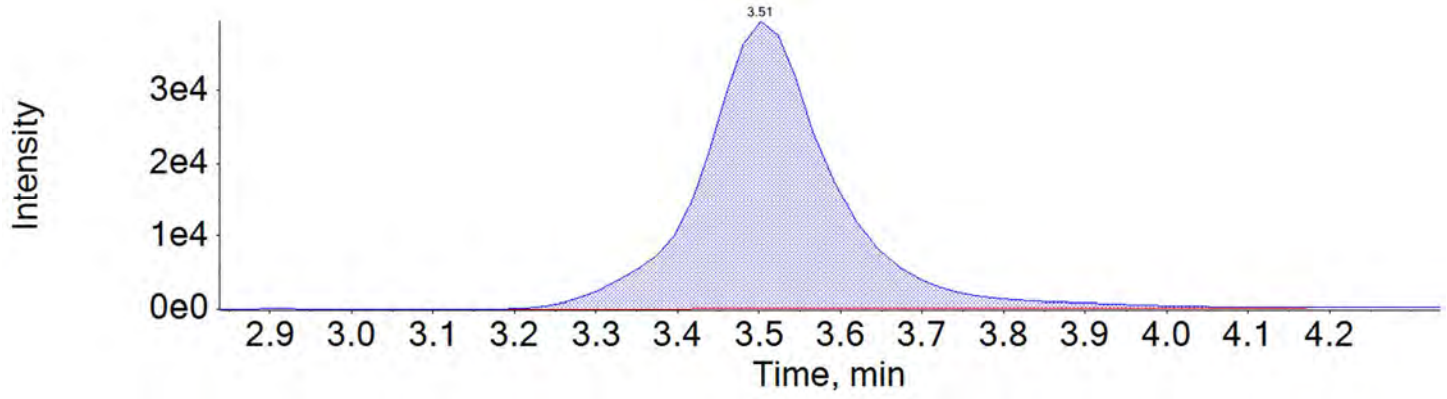

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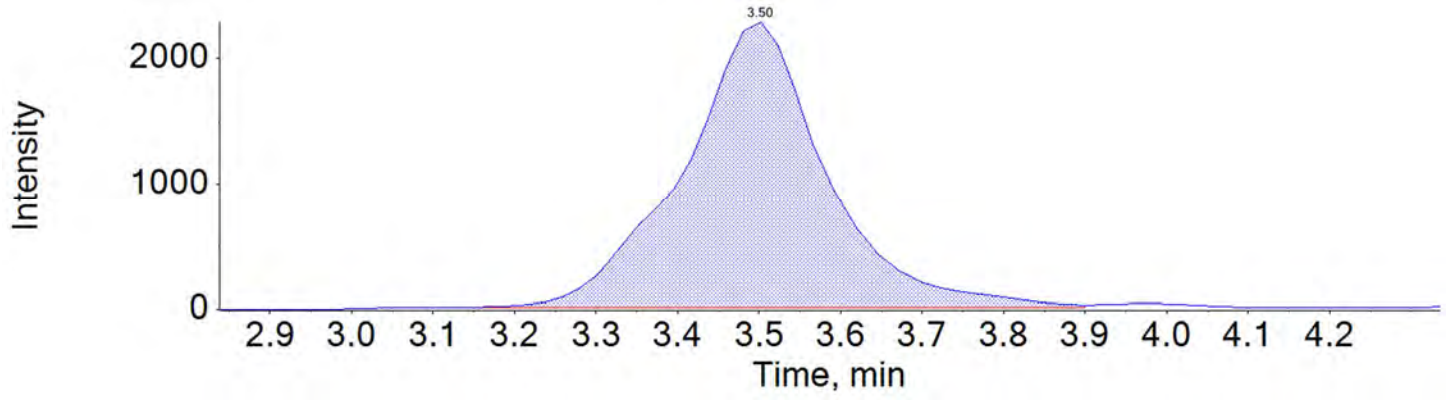

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Chromatogram Report

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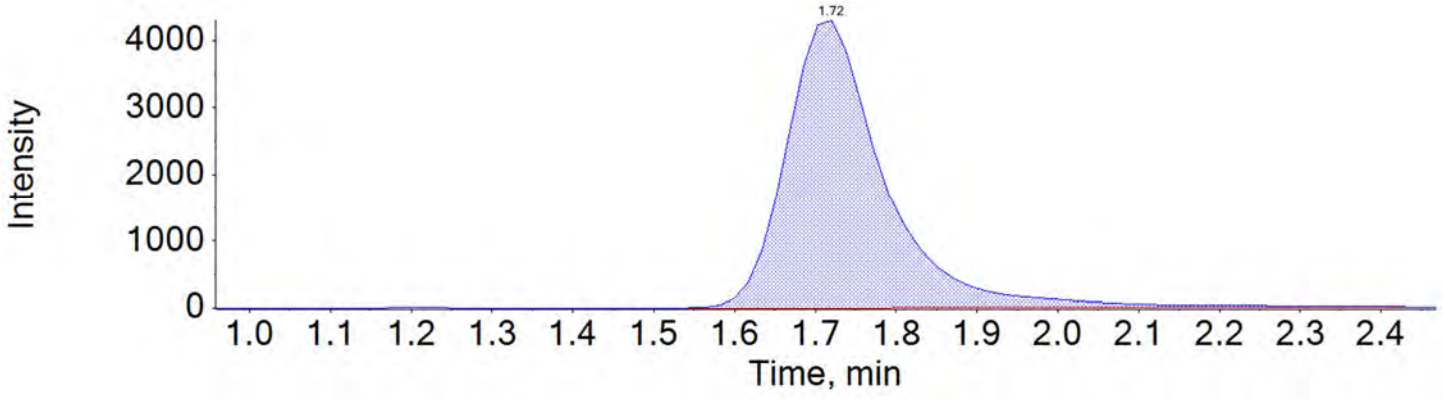
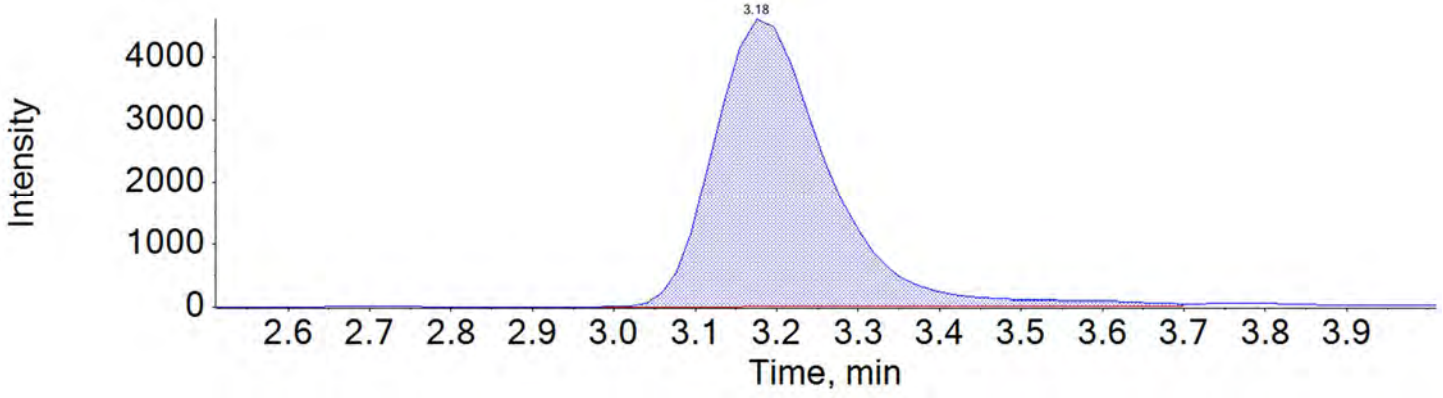
Sample Name	JV71	**Injection Vial**	9
Sample ID	L8	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T13:37:43	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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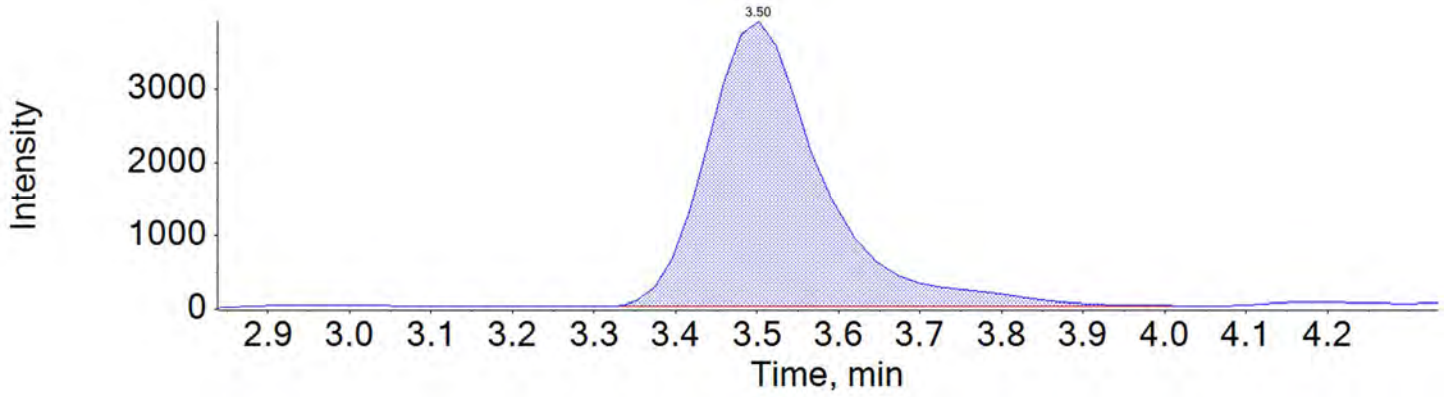
d5-EtFOSAA 589.0 / 419.0



BATTELLE

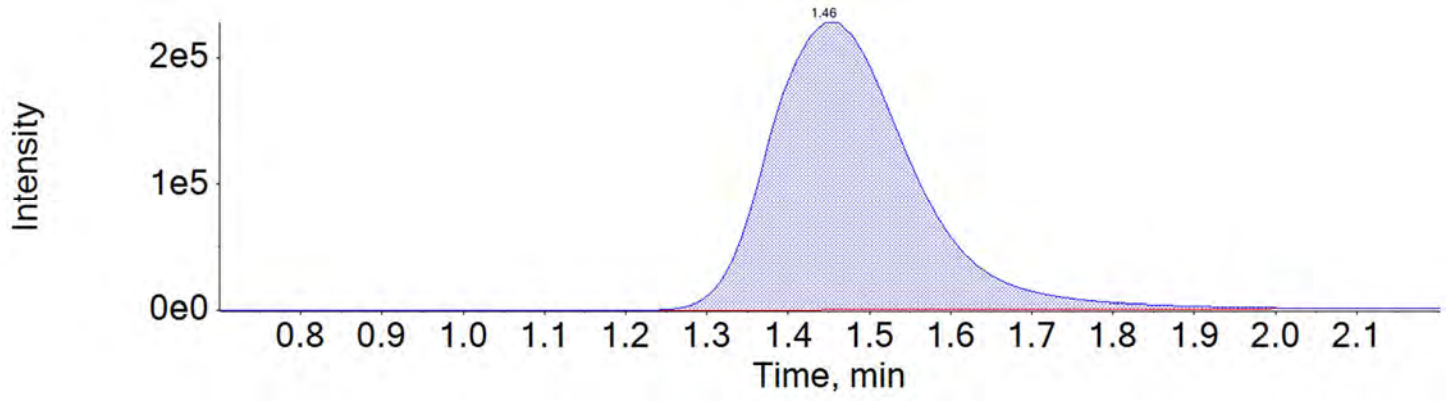
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:05:25 PM

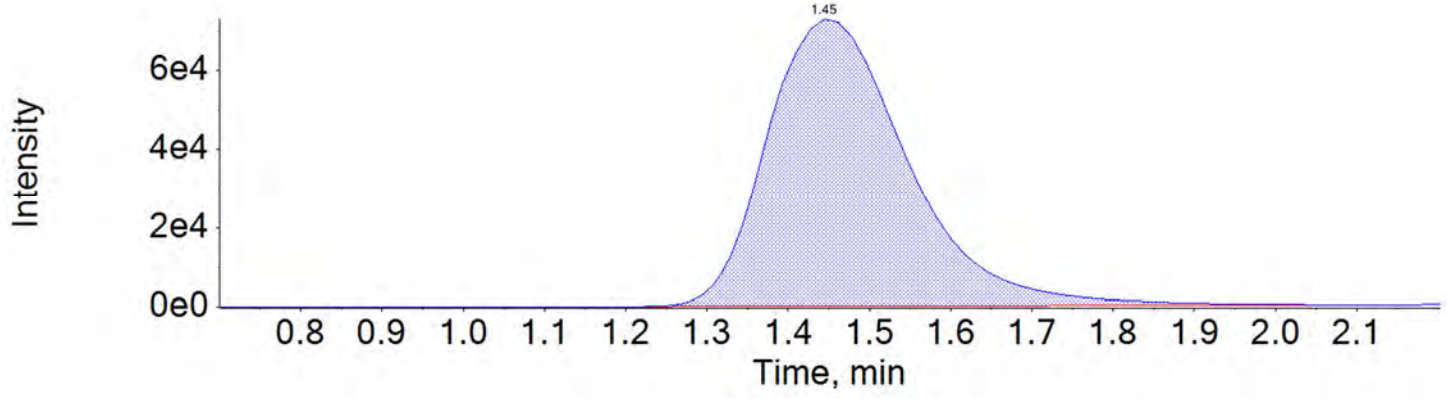
Sample Name	JV72	**Injection Vial**	10
Sample ID	L9	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T13:46:40	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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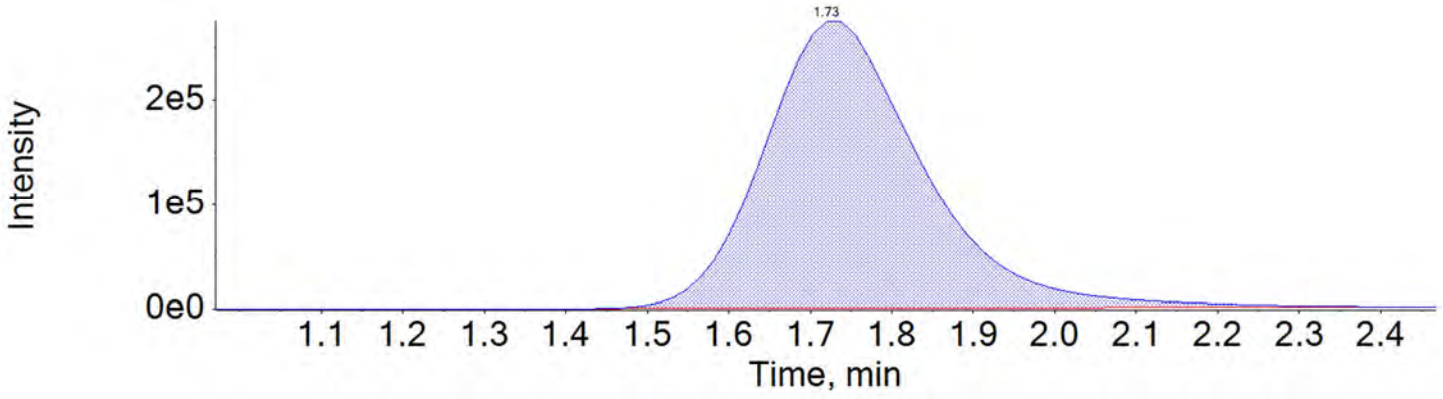
PFHxA_1 313.0 / 269.0



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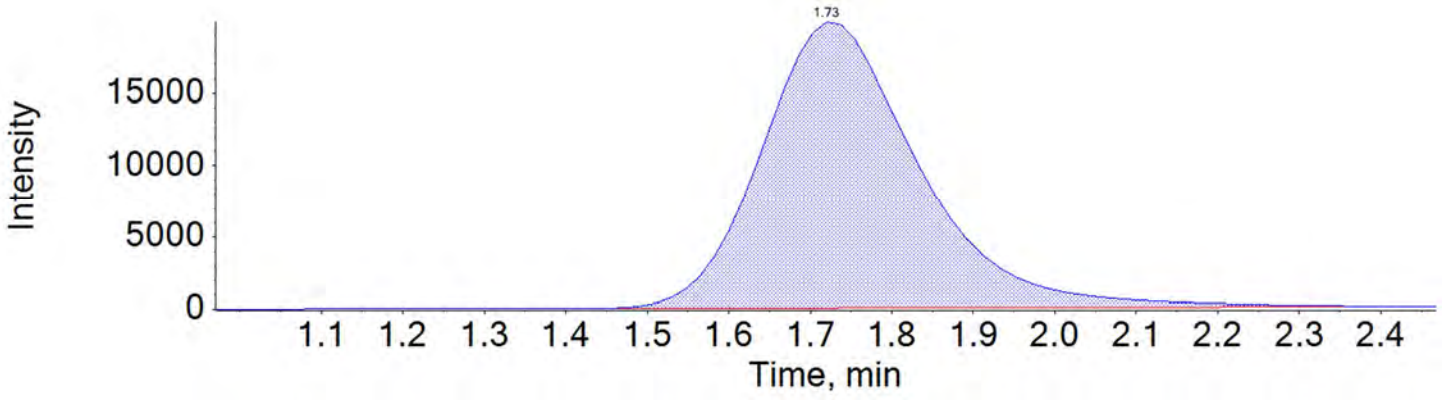

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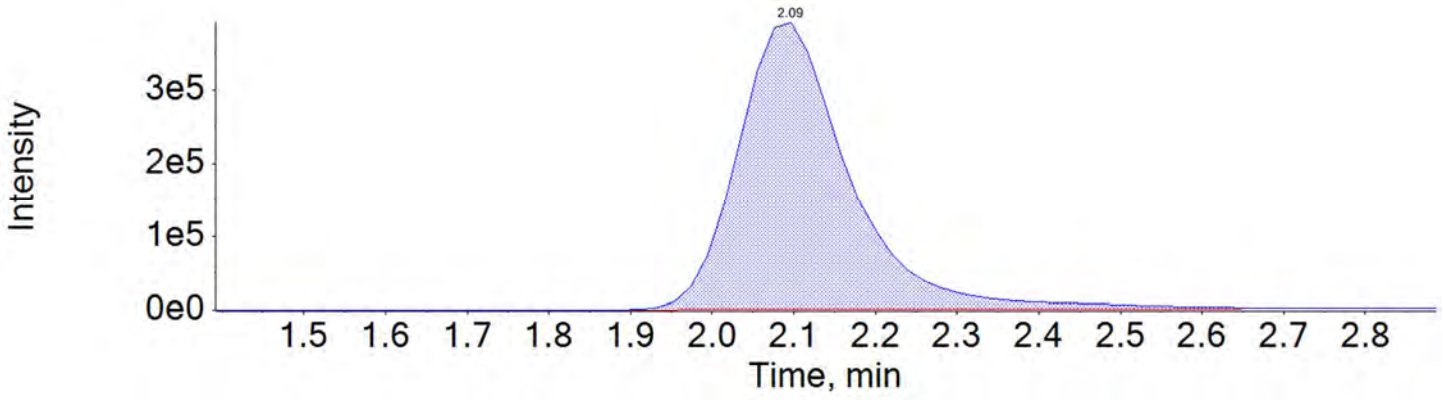

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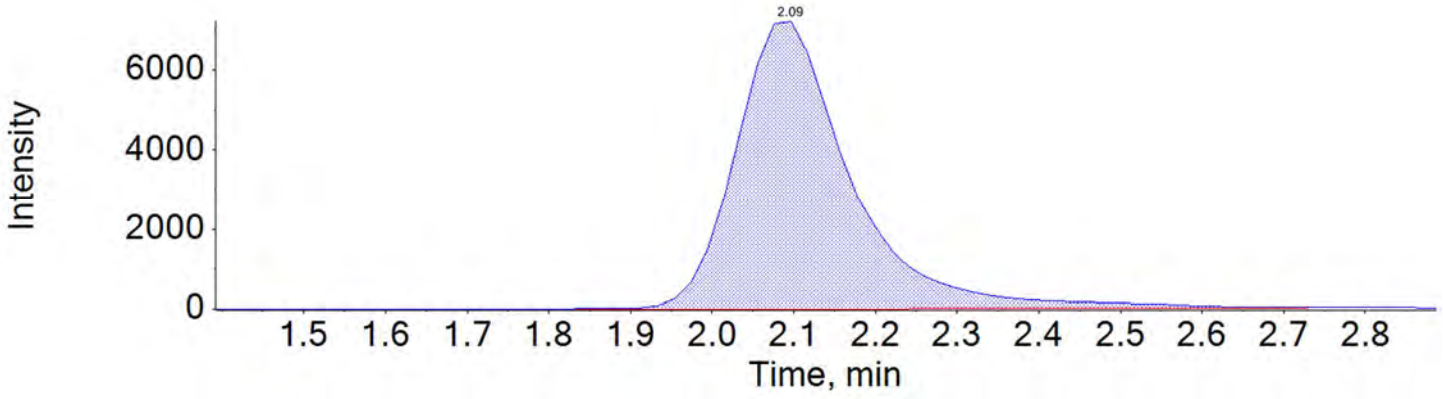

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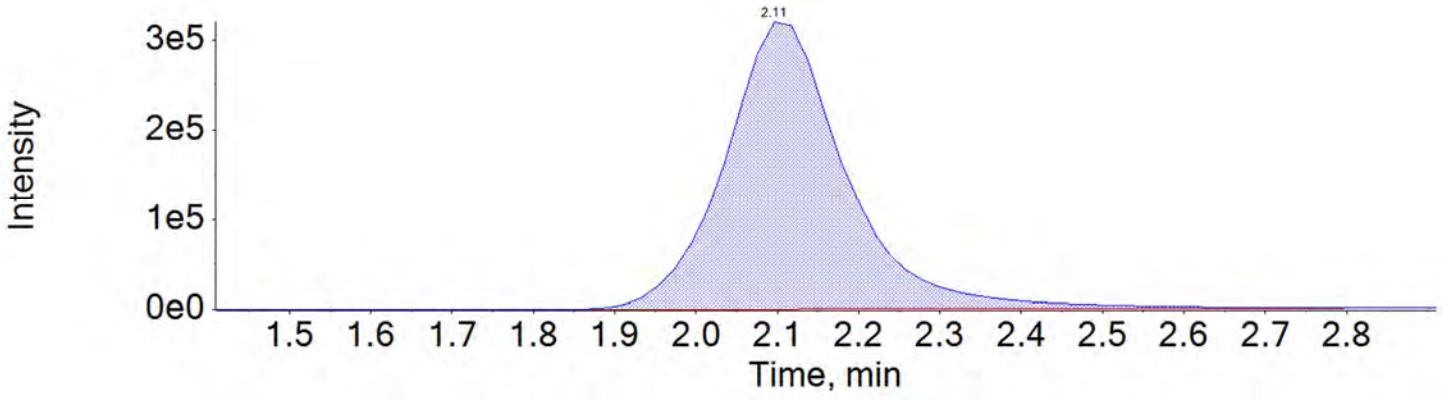

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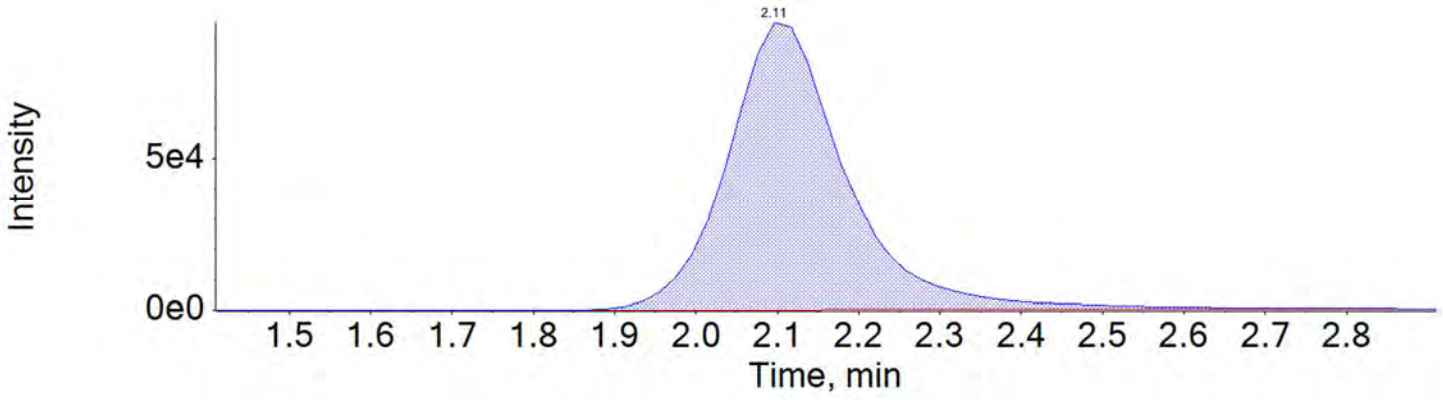

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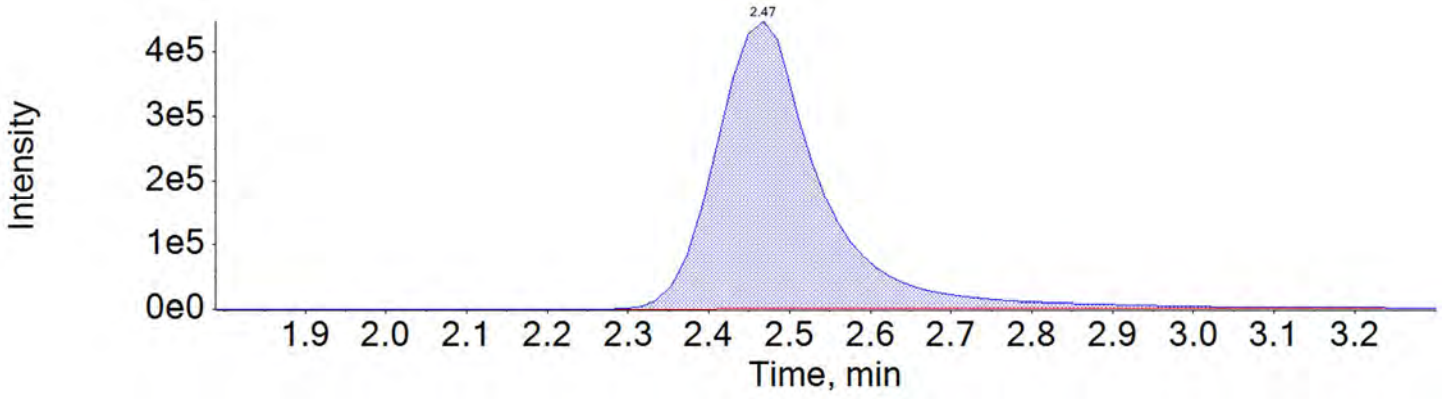
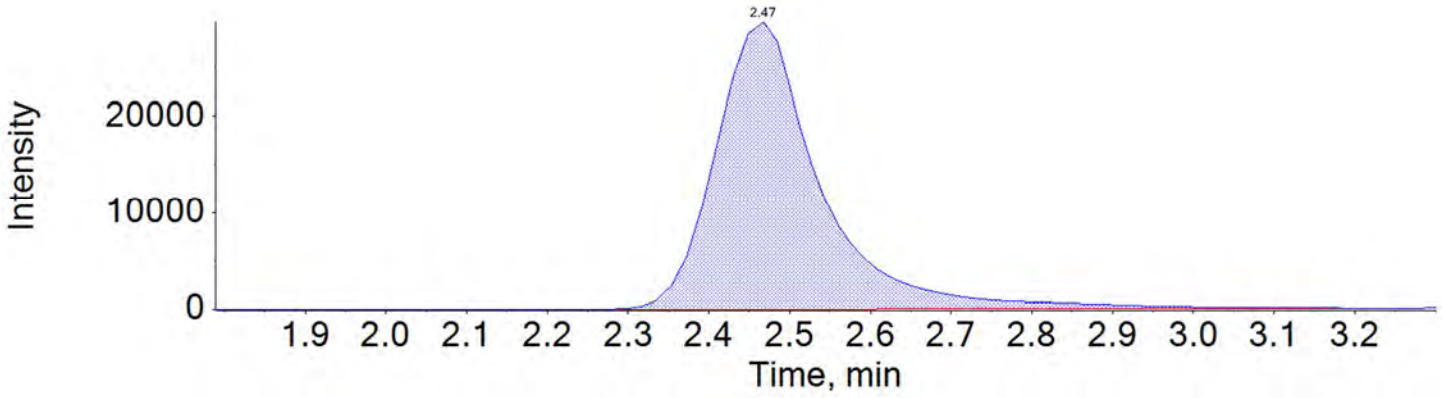
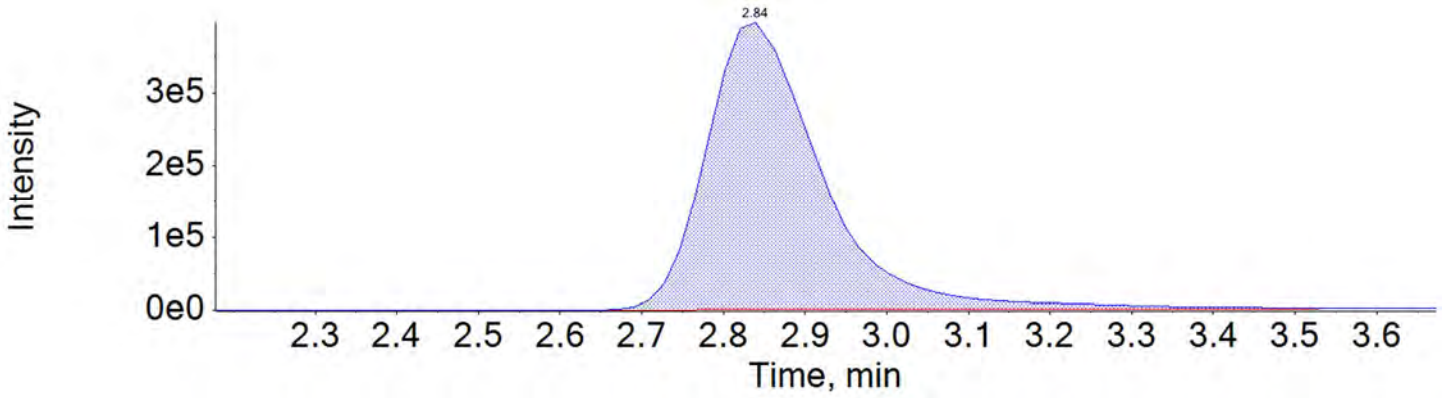


PFOA_2 413.0 / 169.0



PFNA_1 463.0 / 419.0



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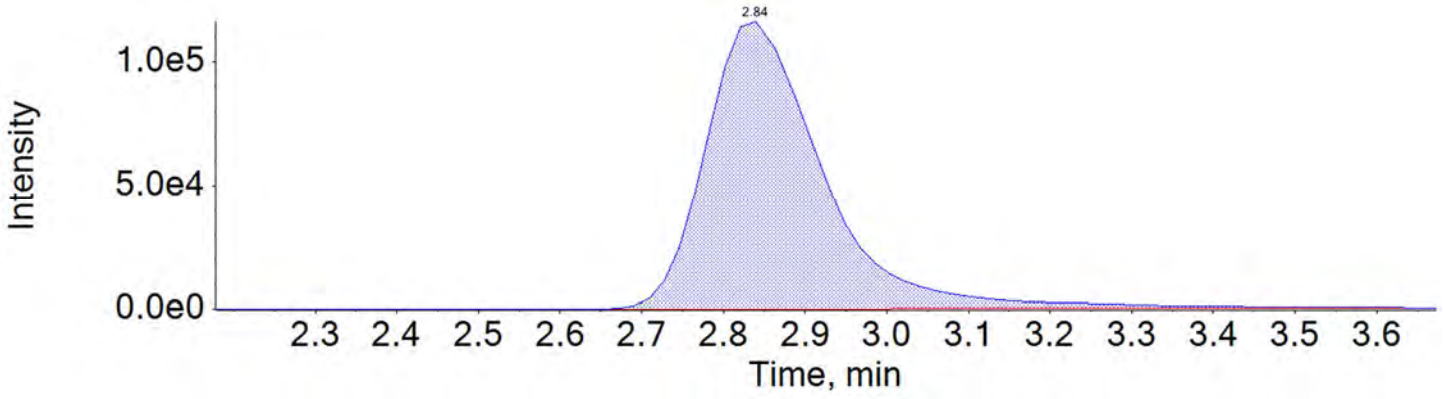
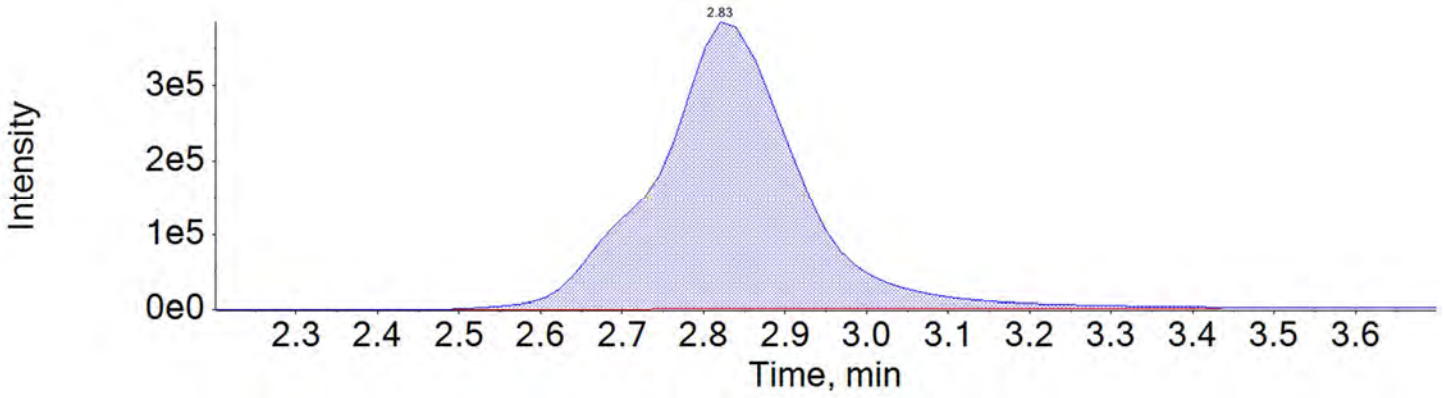


PFOS_1 499.0 / 80.0



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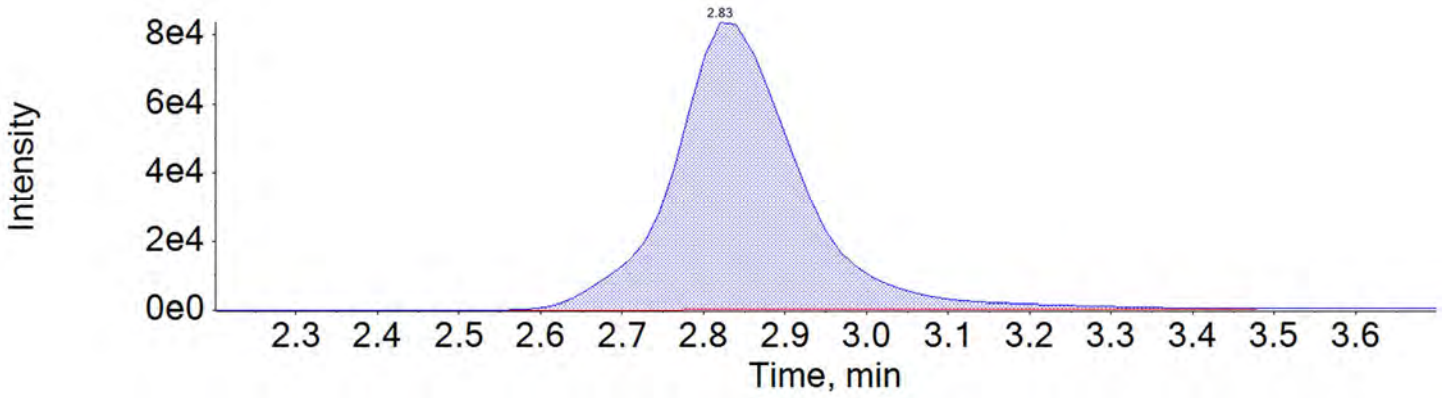

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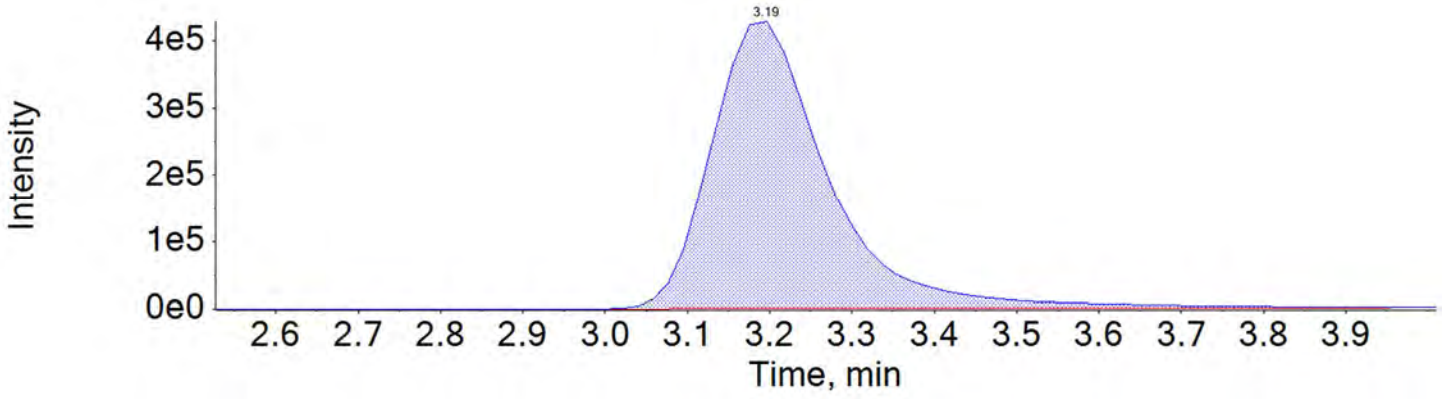

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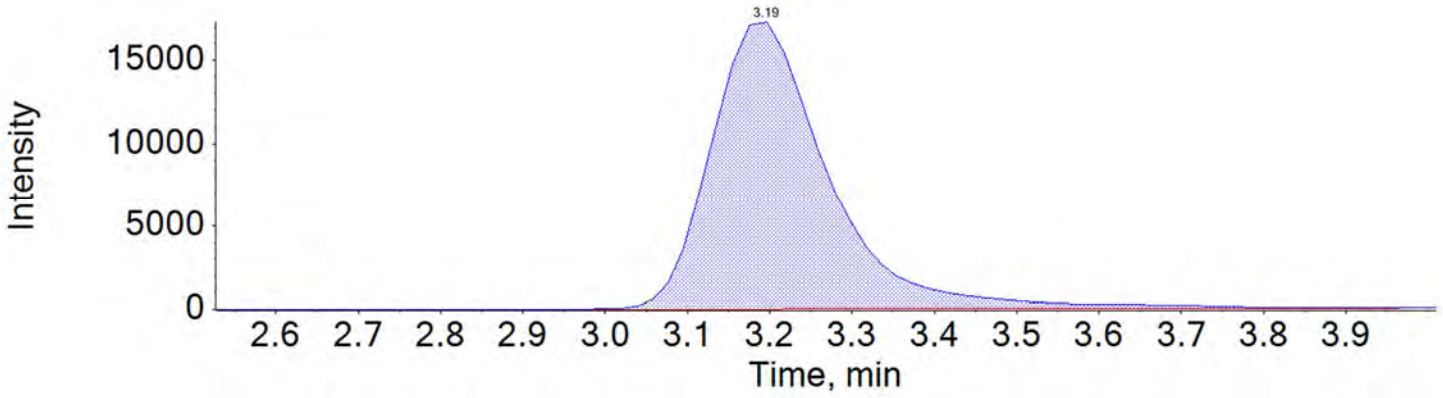
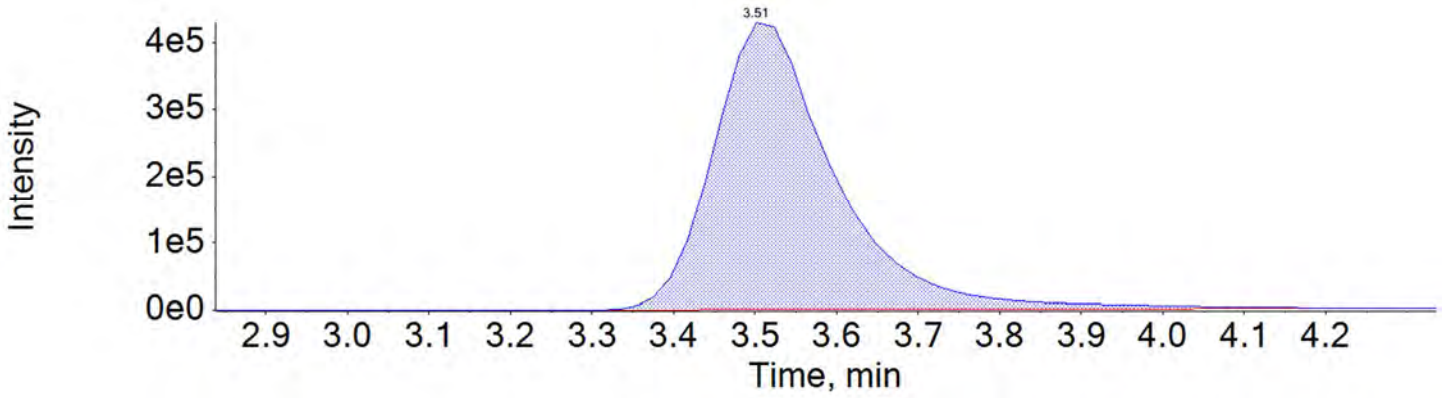


PFUnA_1 563.0 / 519.0



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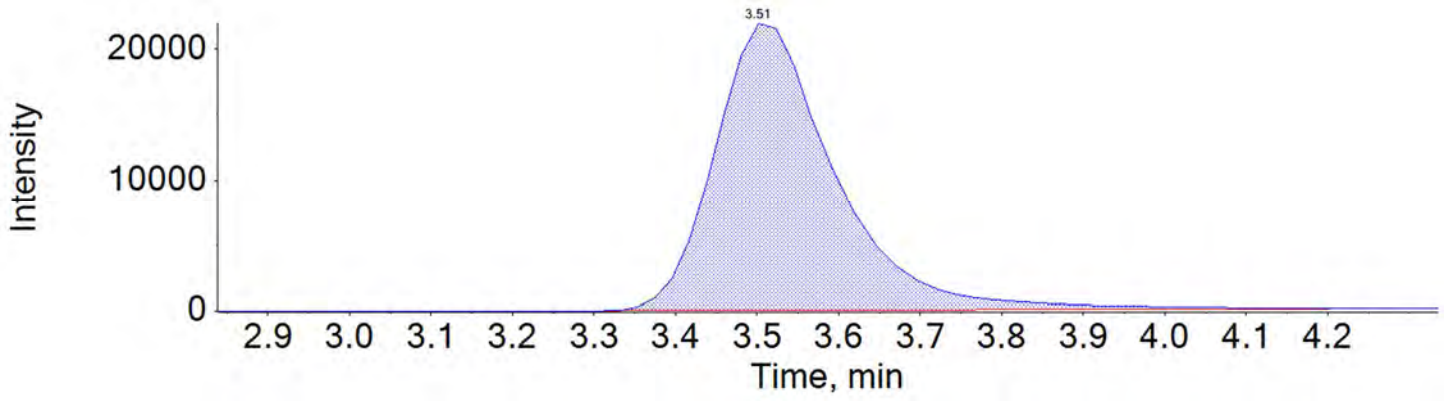

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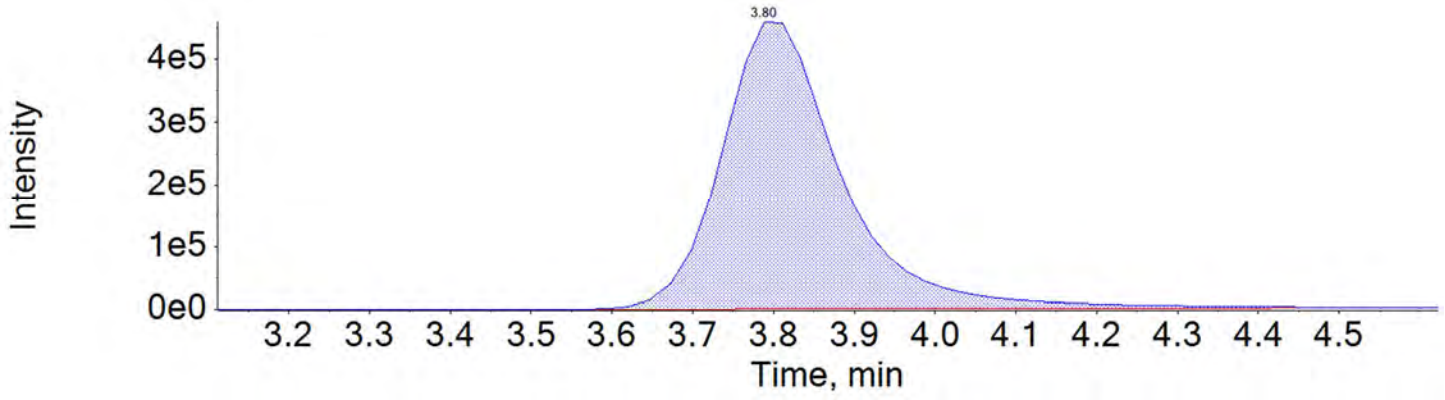

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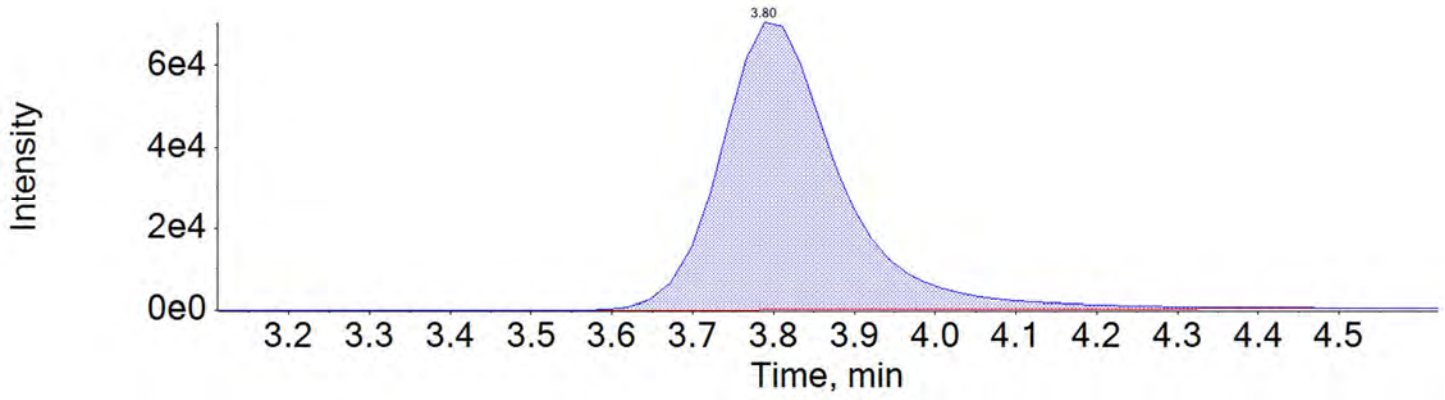

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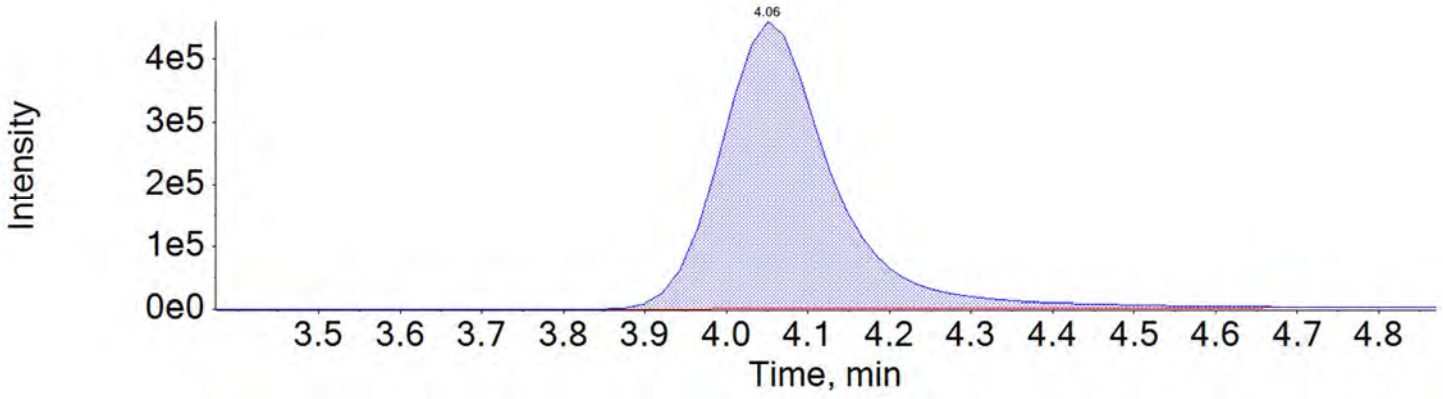
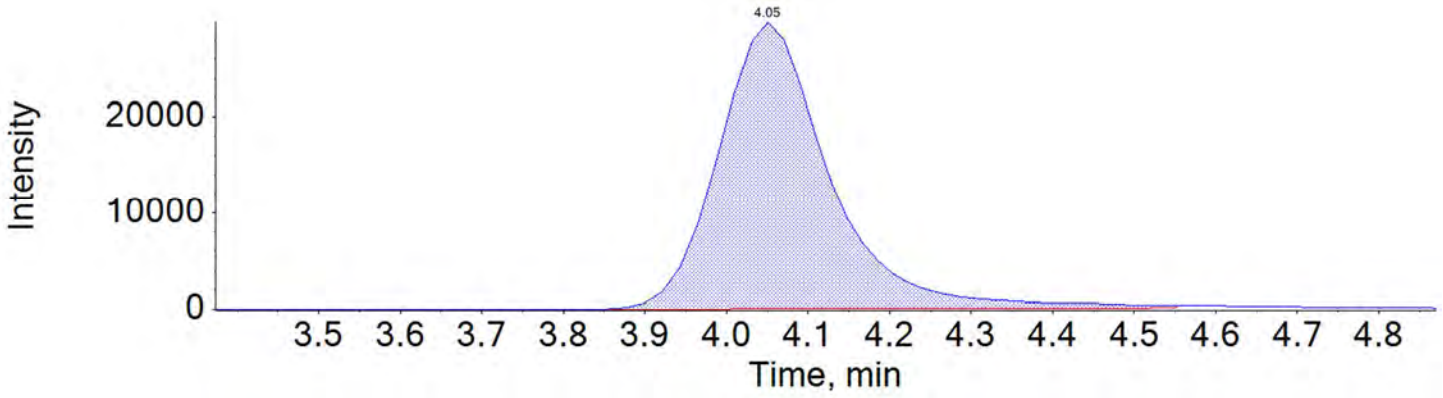
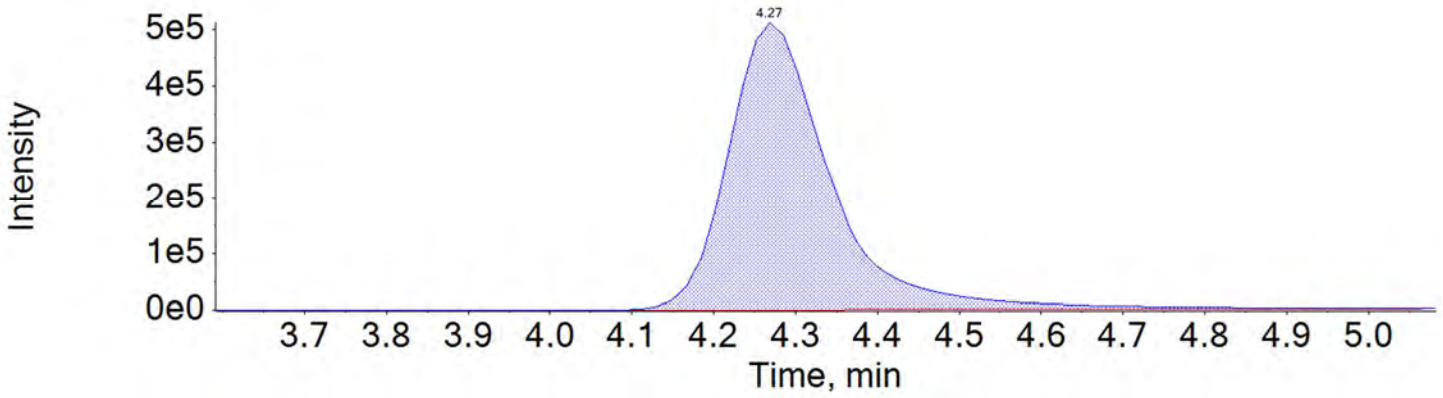
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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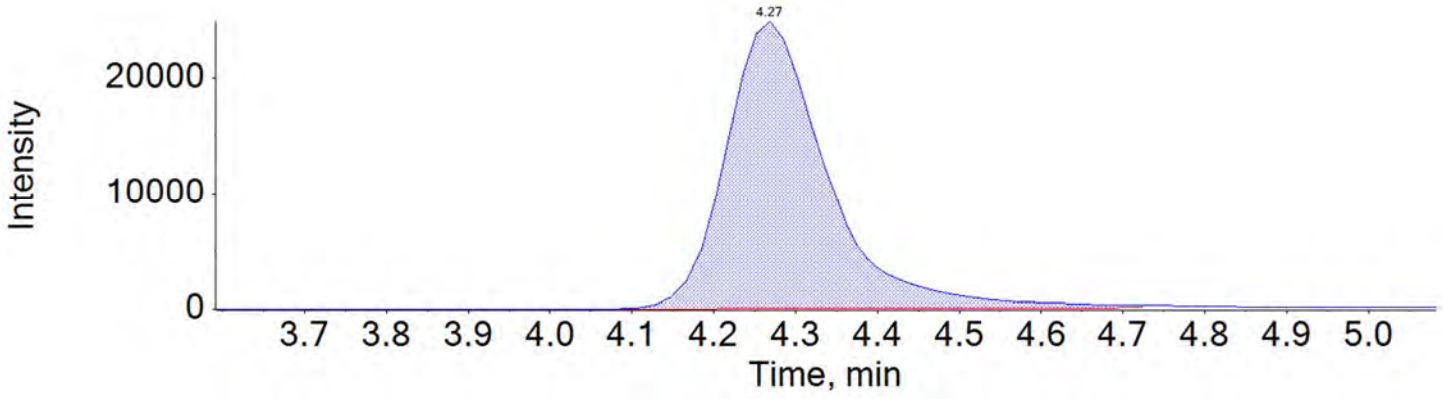
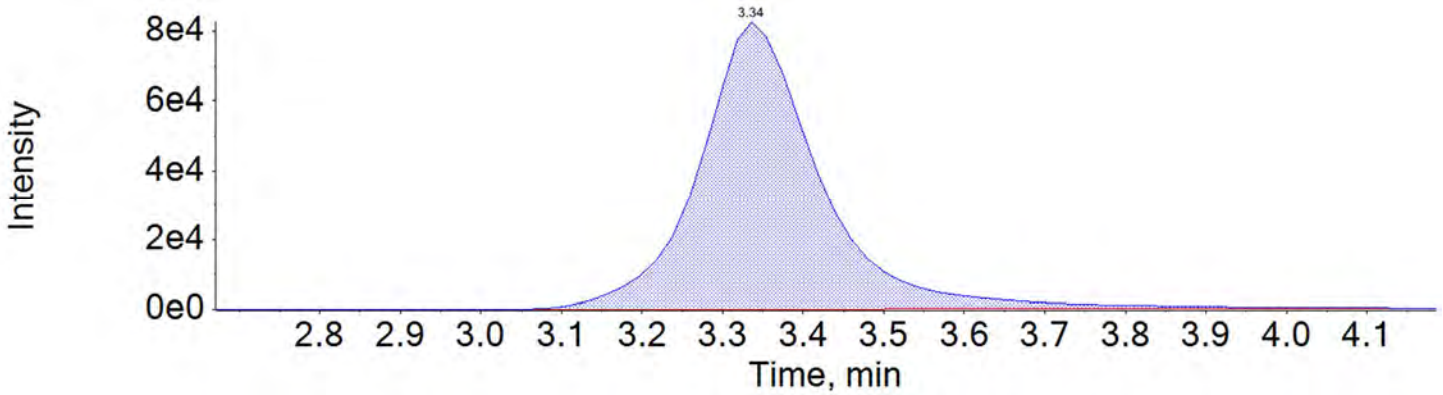
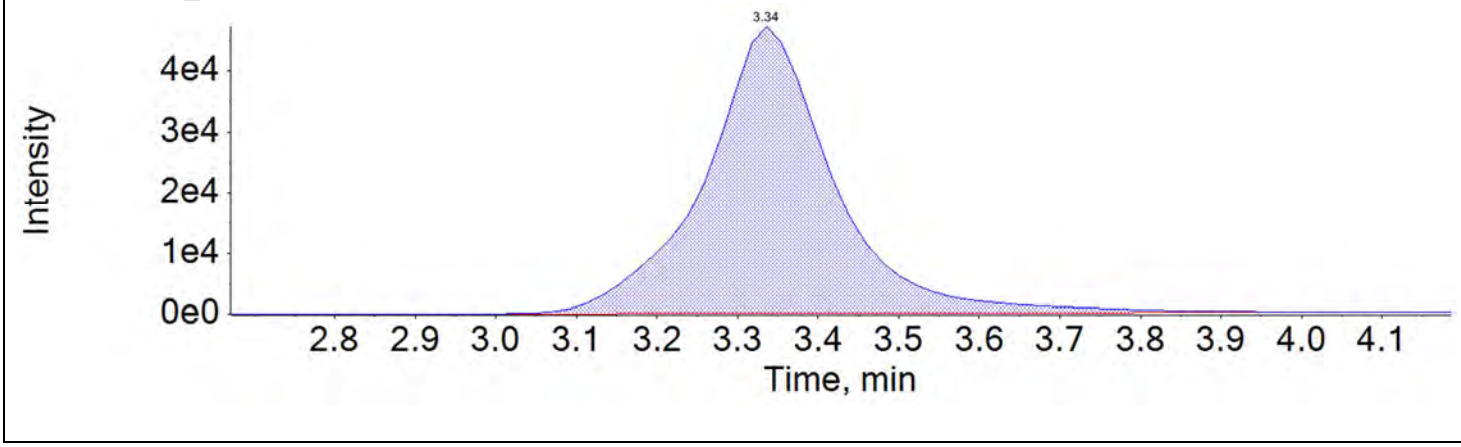
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

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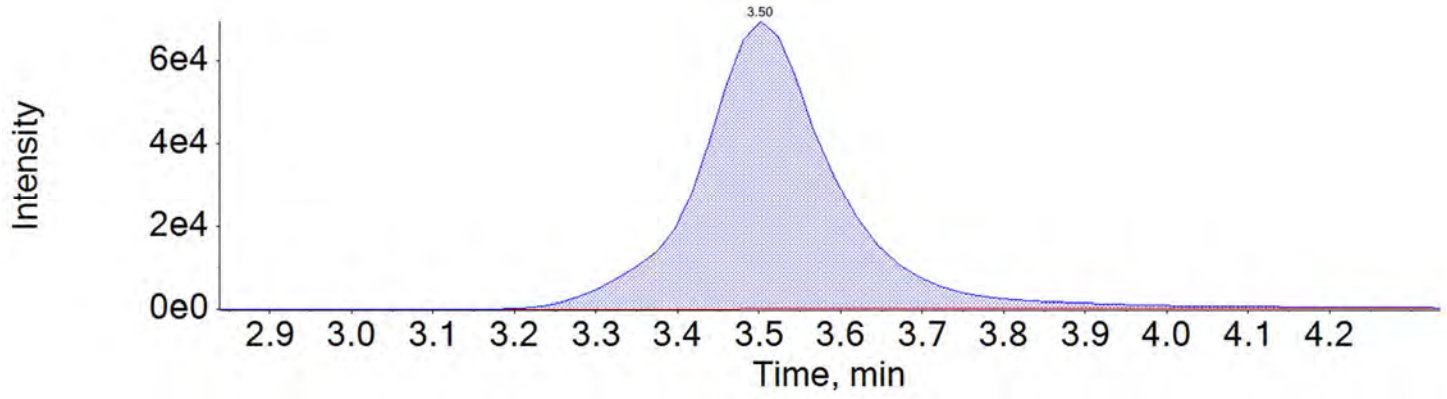
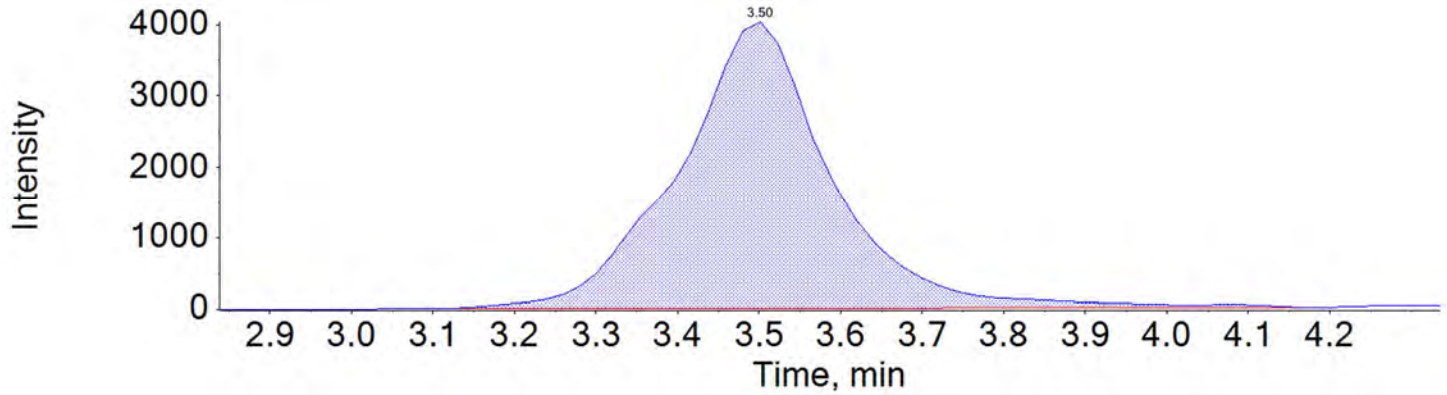
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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Chromatogram Report

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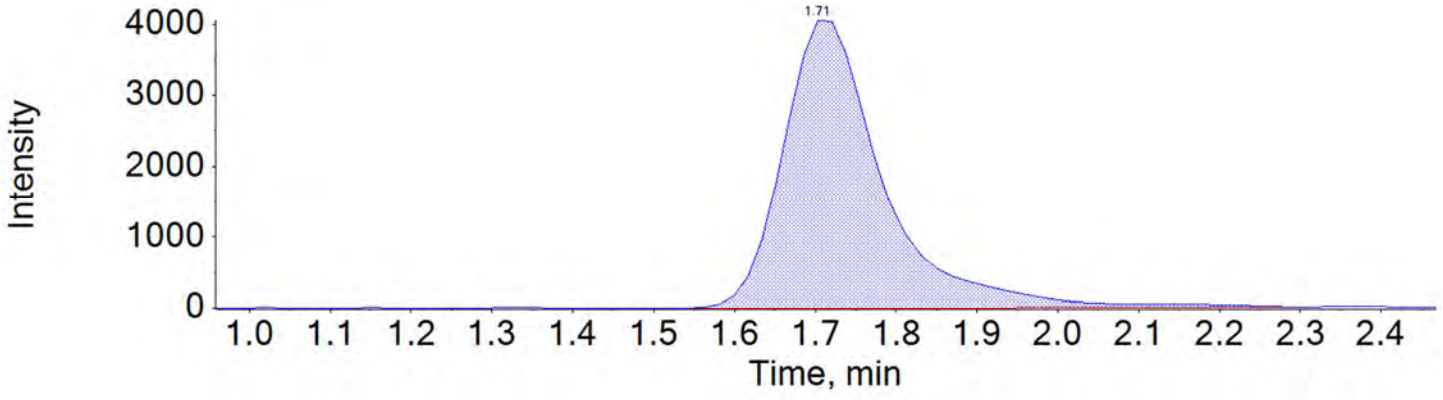
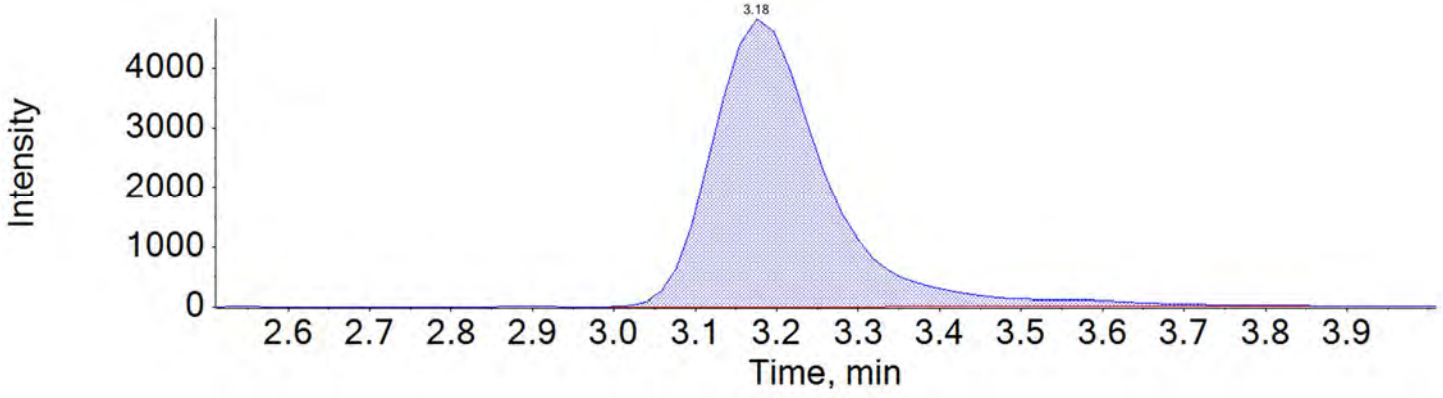
Sample Name	JV72	**Injection Vial**	10
Sample ID	L9	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T13:46:40	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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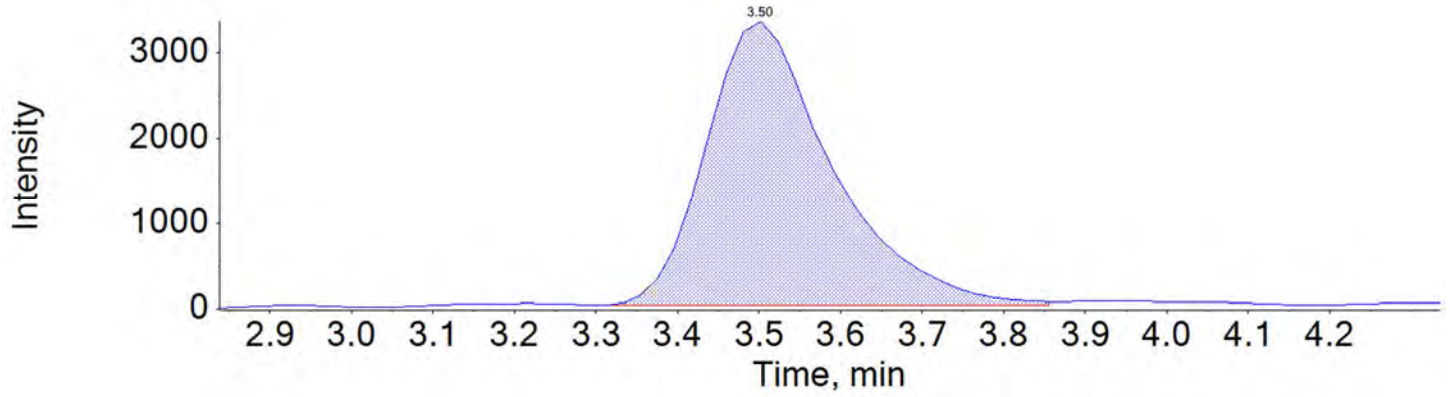
d5-EtFOSAA 589.0 / 419.0



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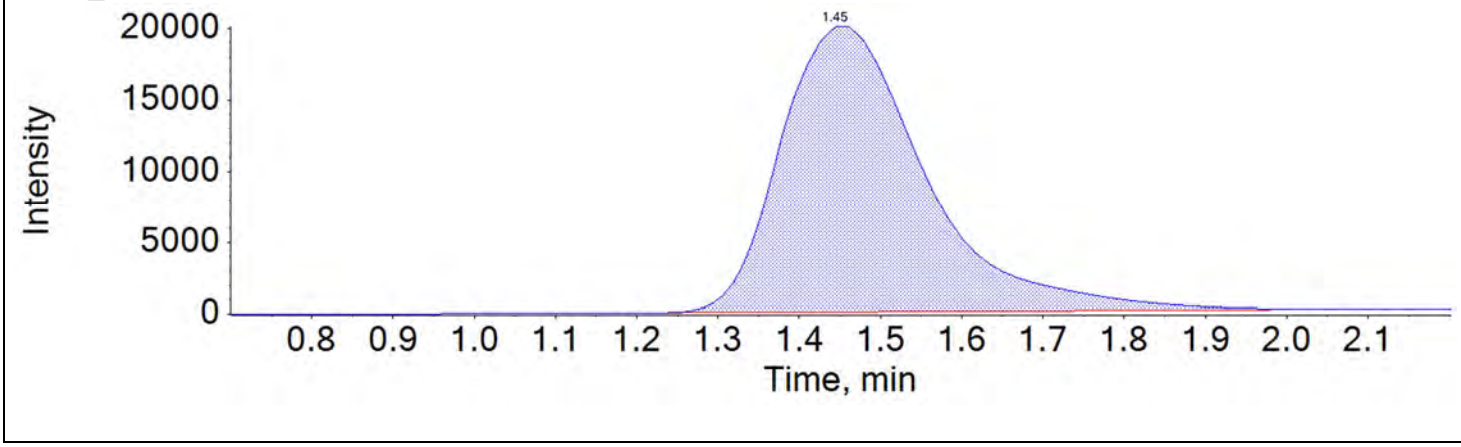
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:06:01 PM

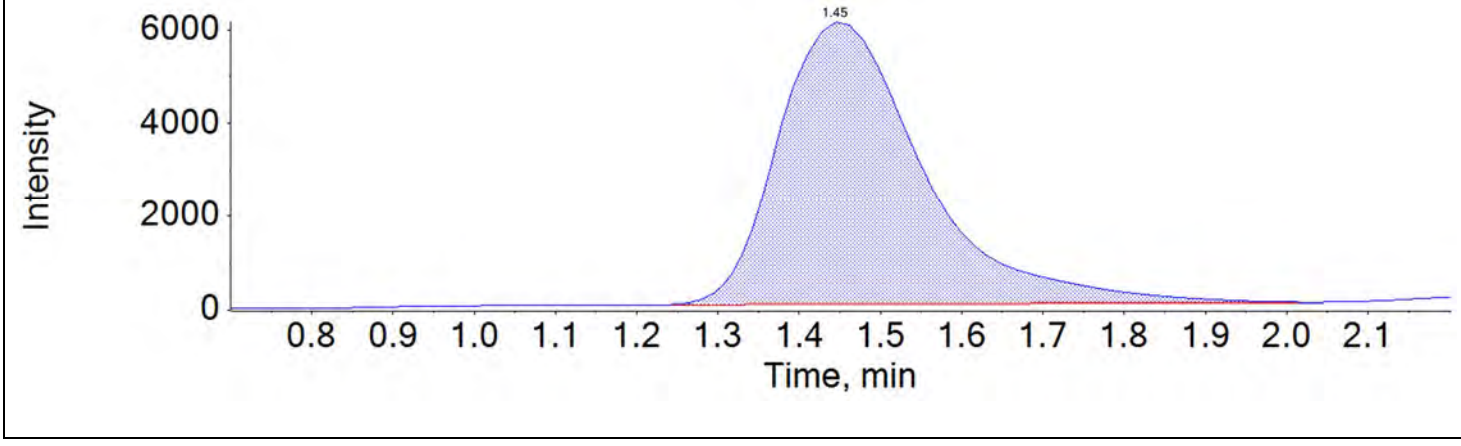
Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T13:55:37	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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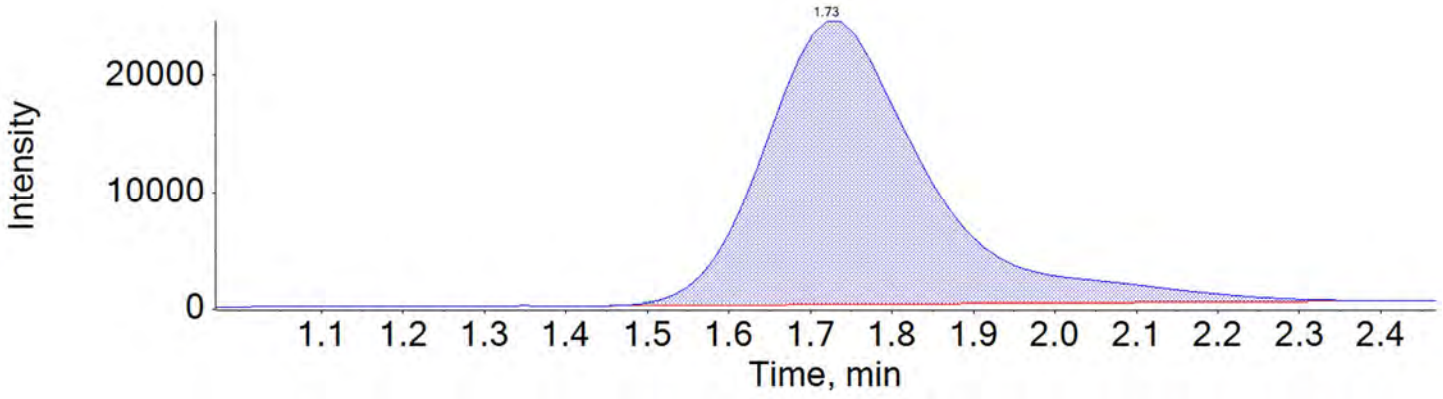
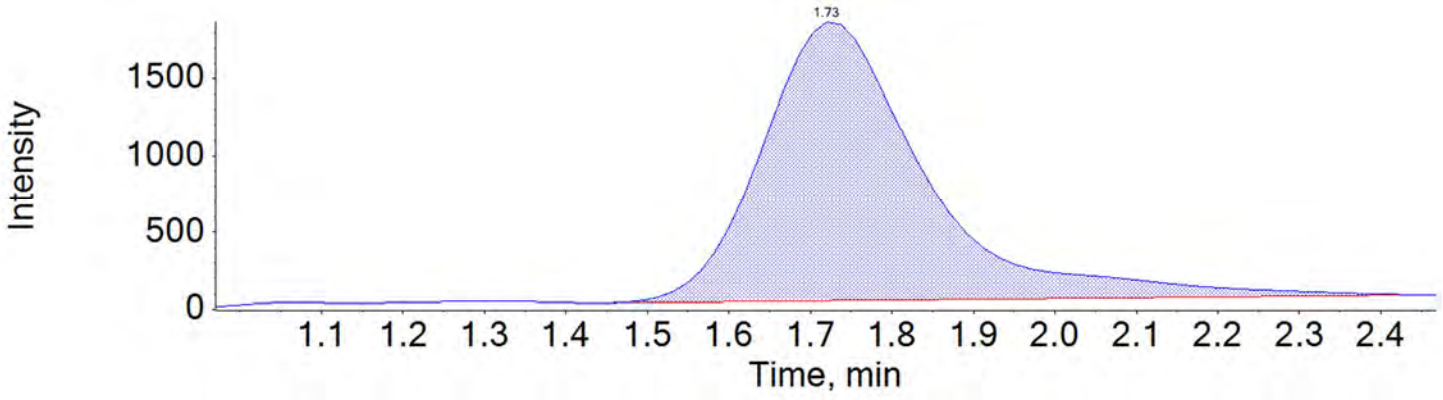
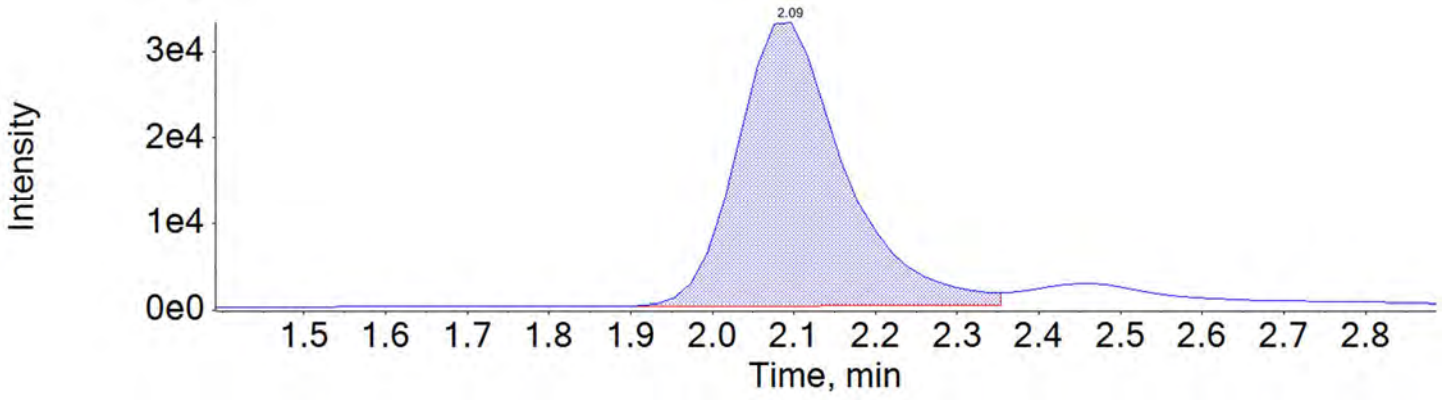
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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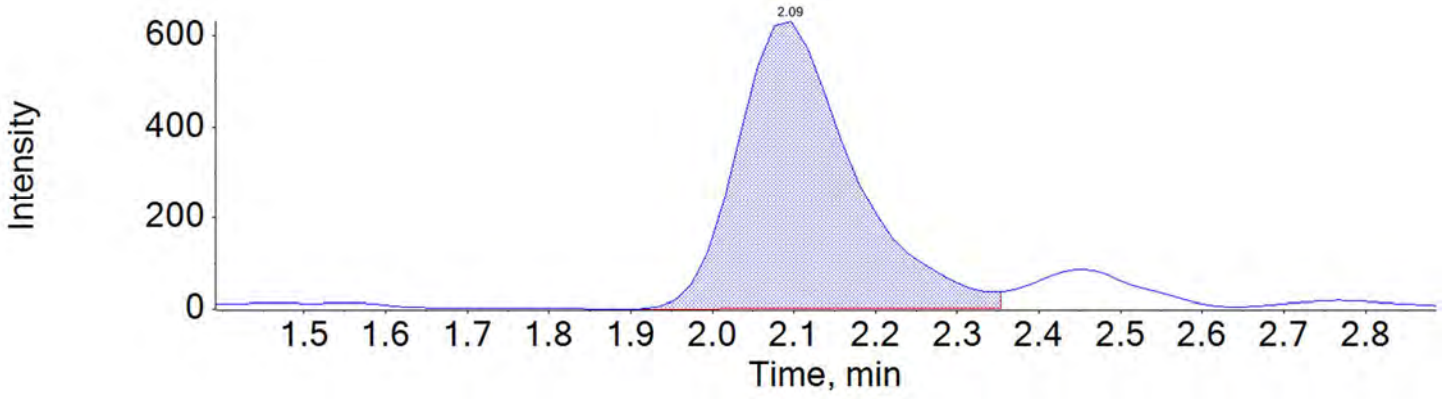
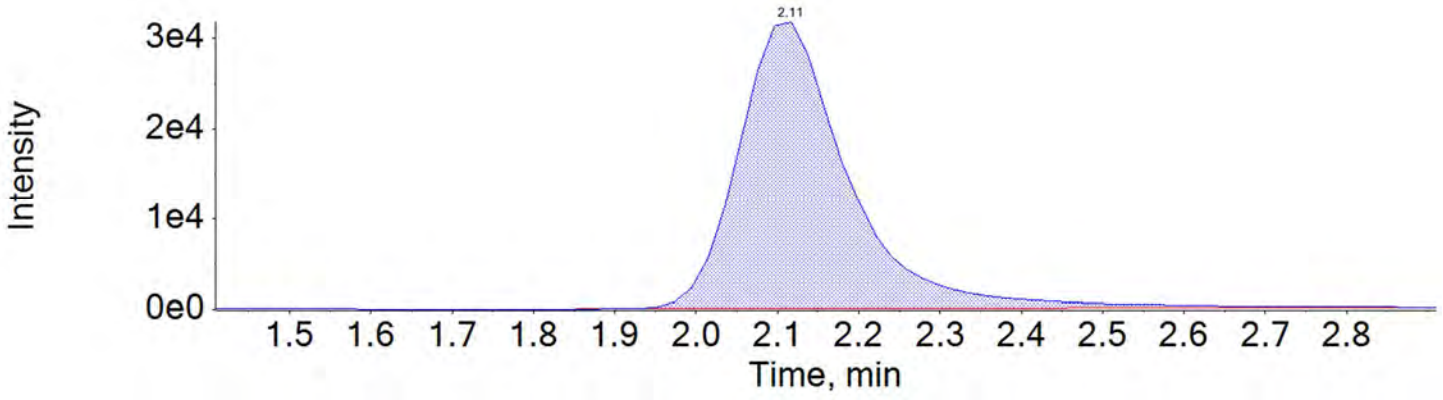
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



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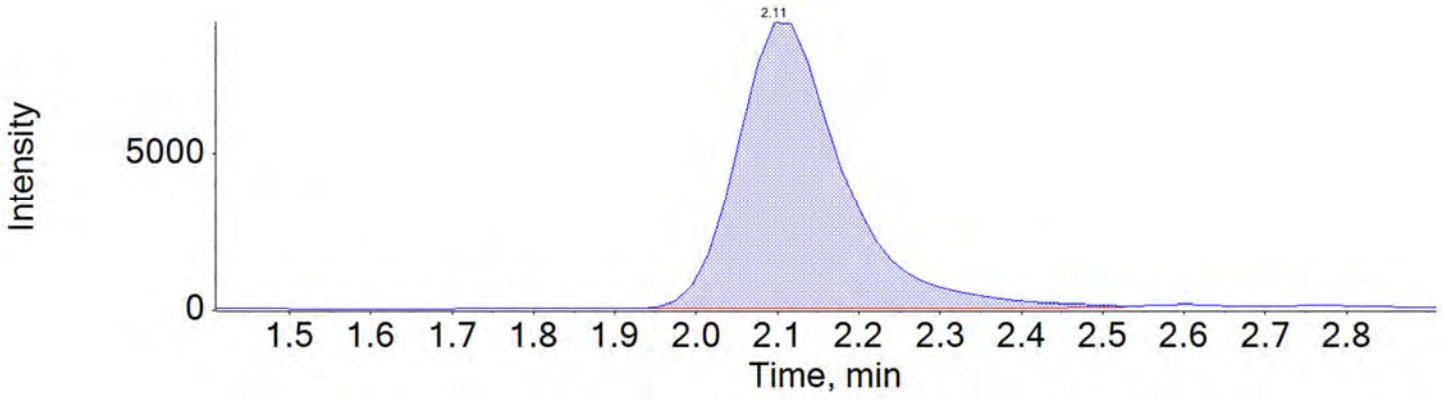

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Chromatogram Report

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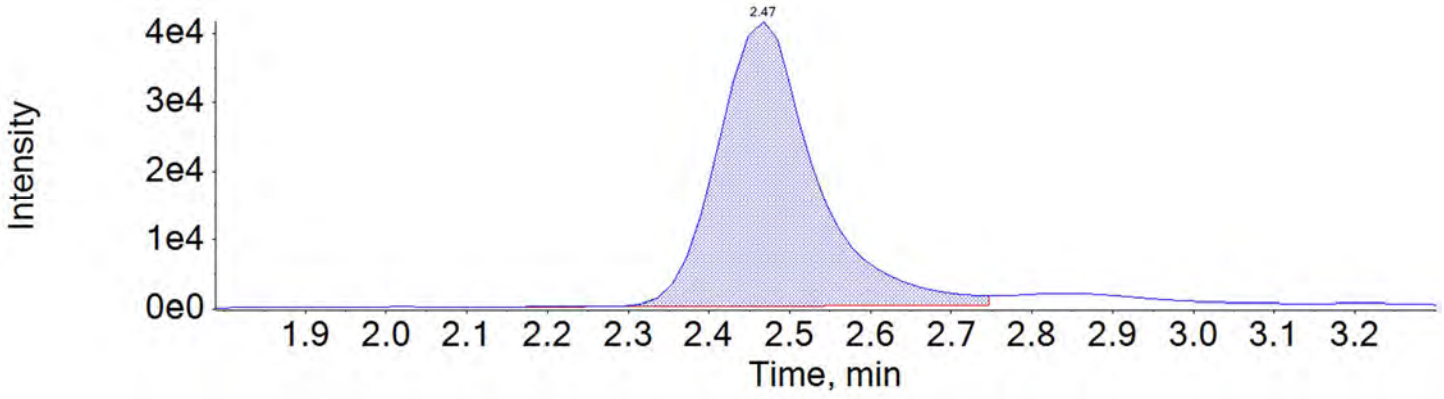
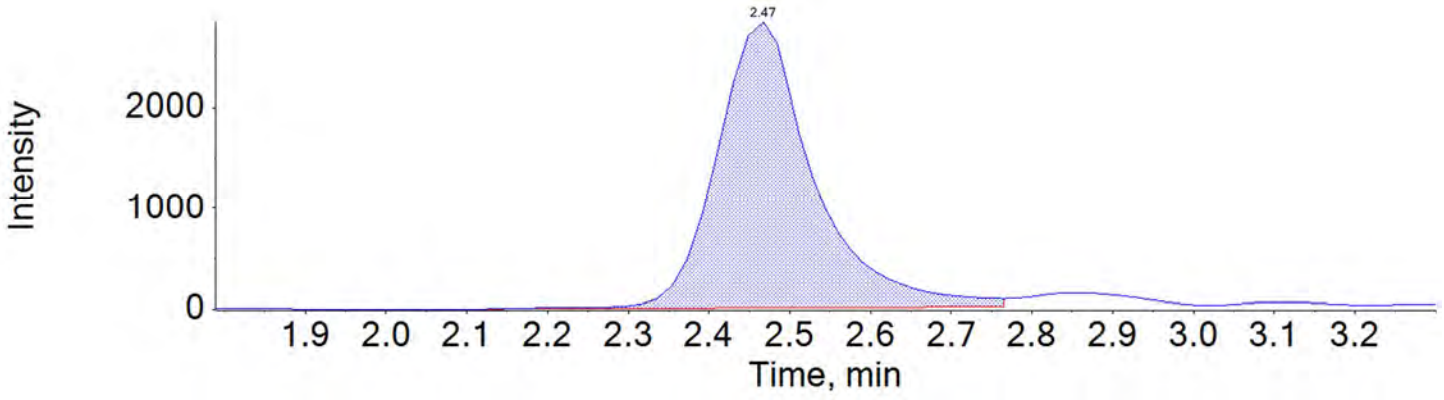
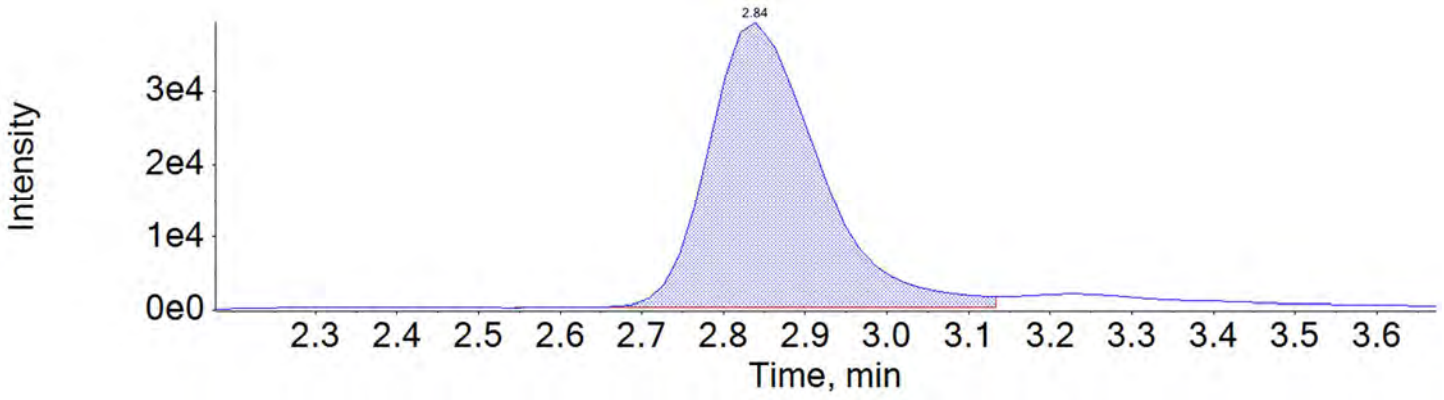
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



PFNA_1 463.0 / 419.0



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Chromatogram Report

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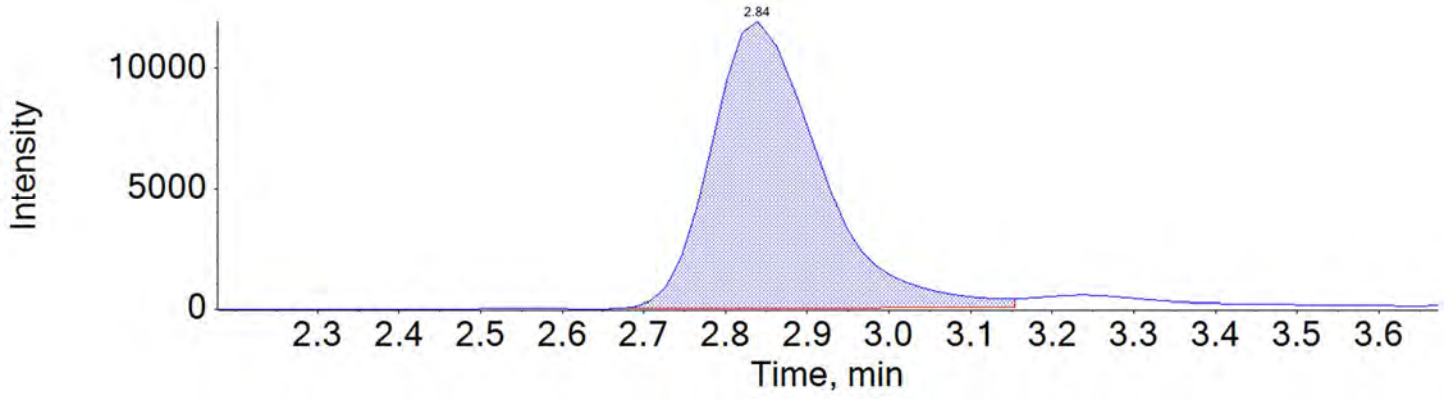
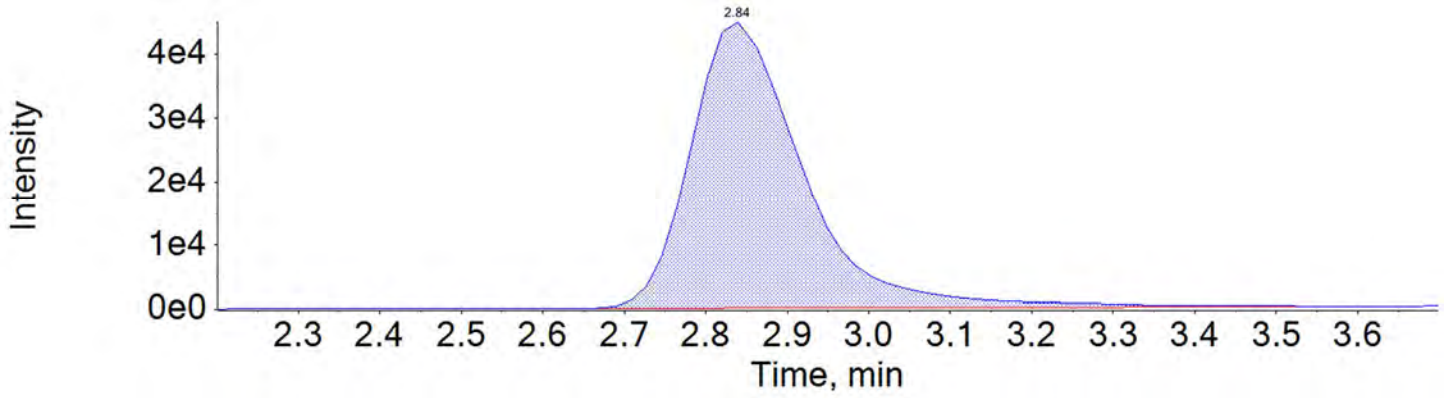
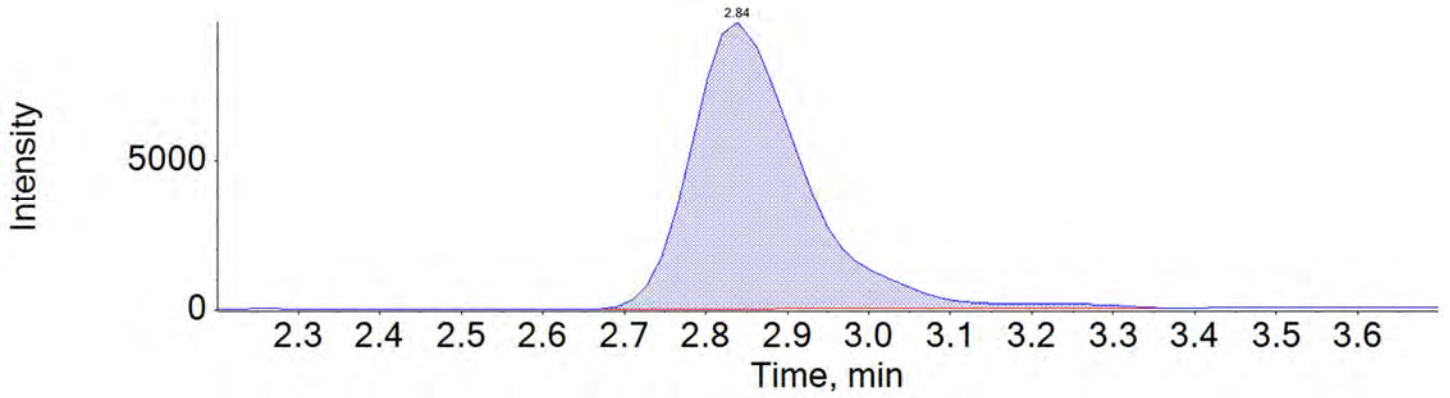
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



PFOS_2 499.0 / 99.0



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Chromatogram Report

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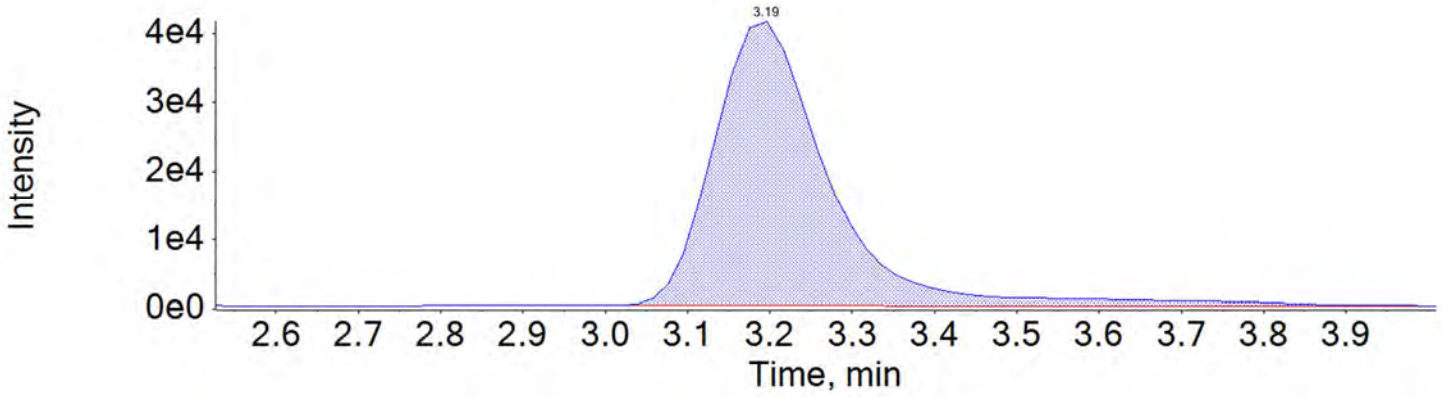
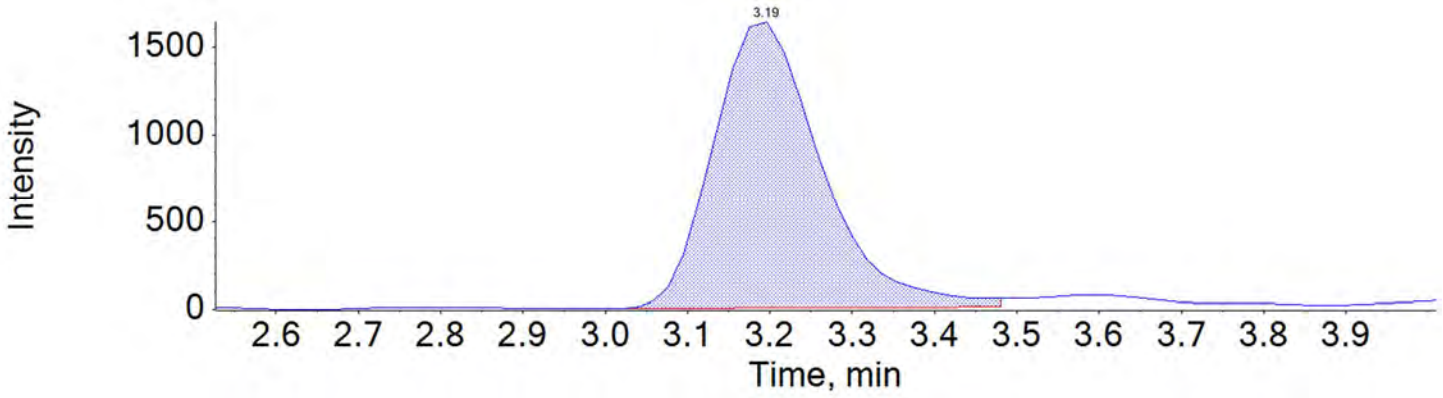
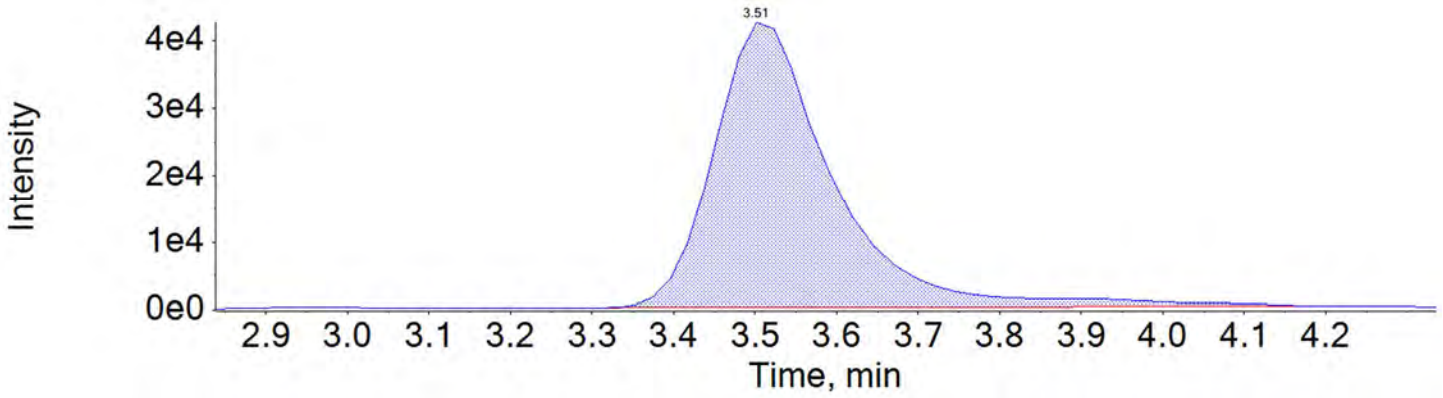
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



PFUnA_1 563.0 / 519.0



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Chromatogram Report

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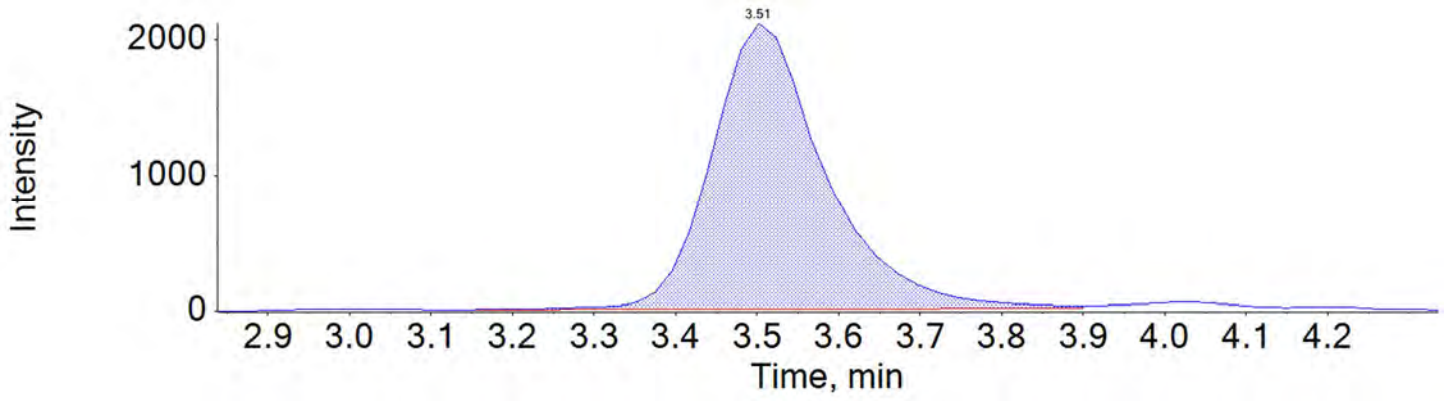
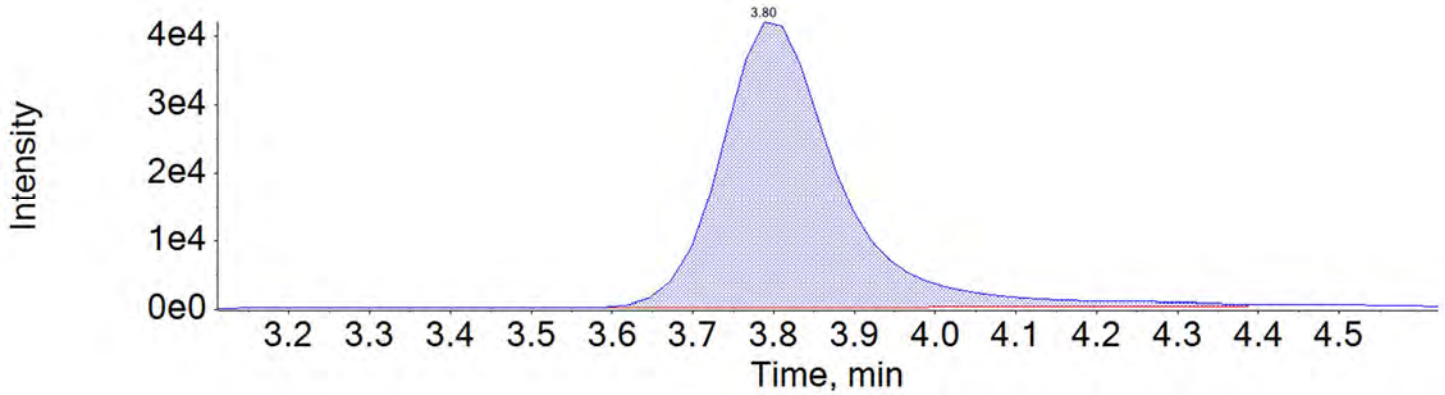
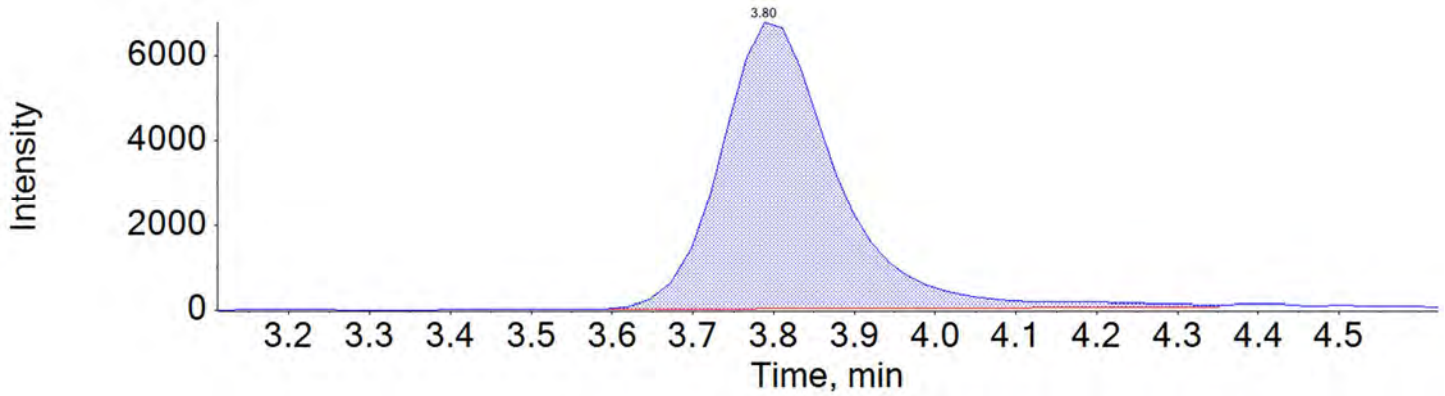
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



PFDoA_2 613.0 / 319.0



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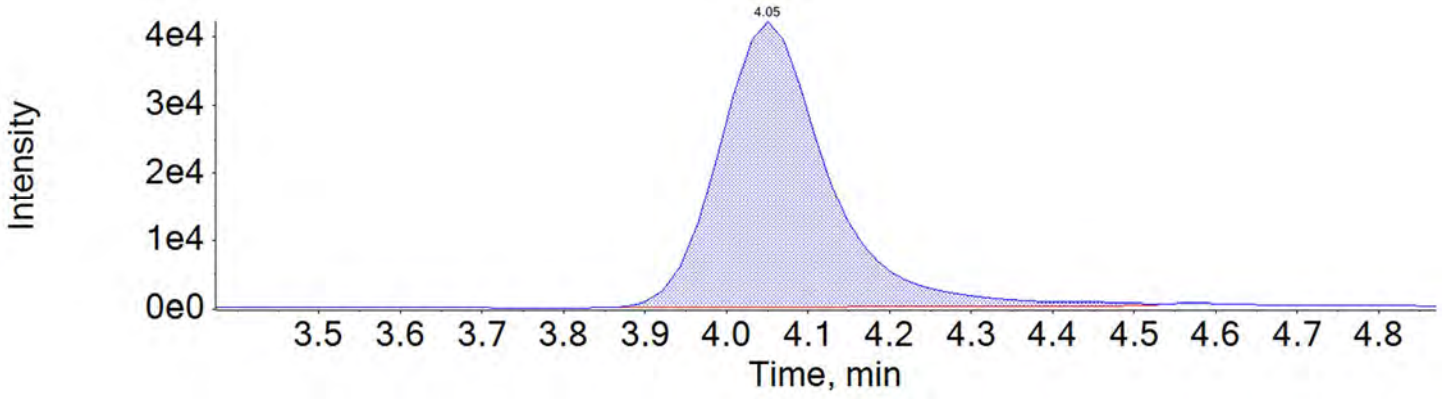
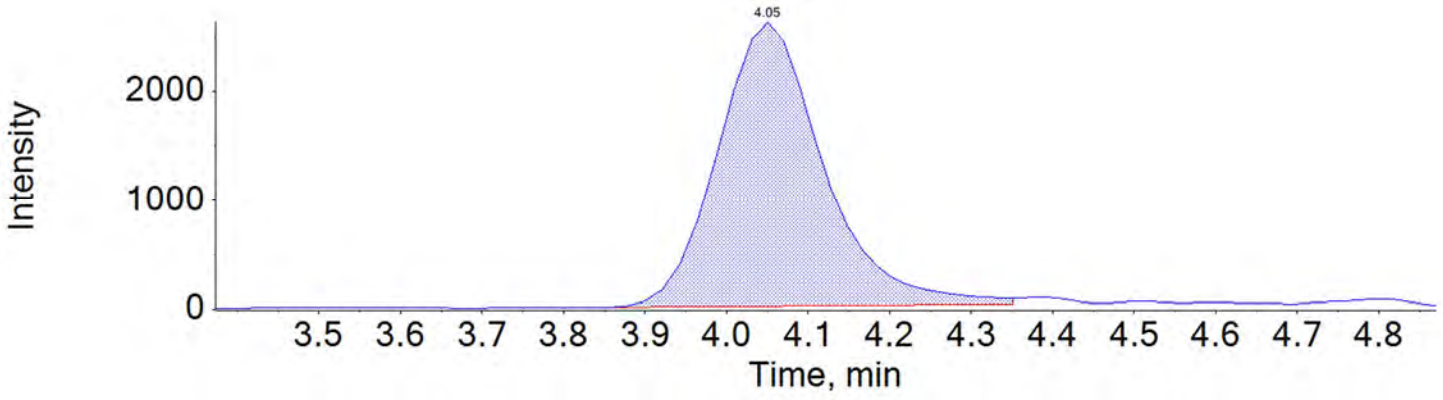
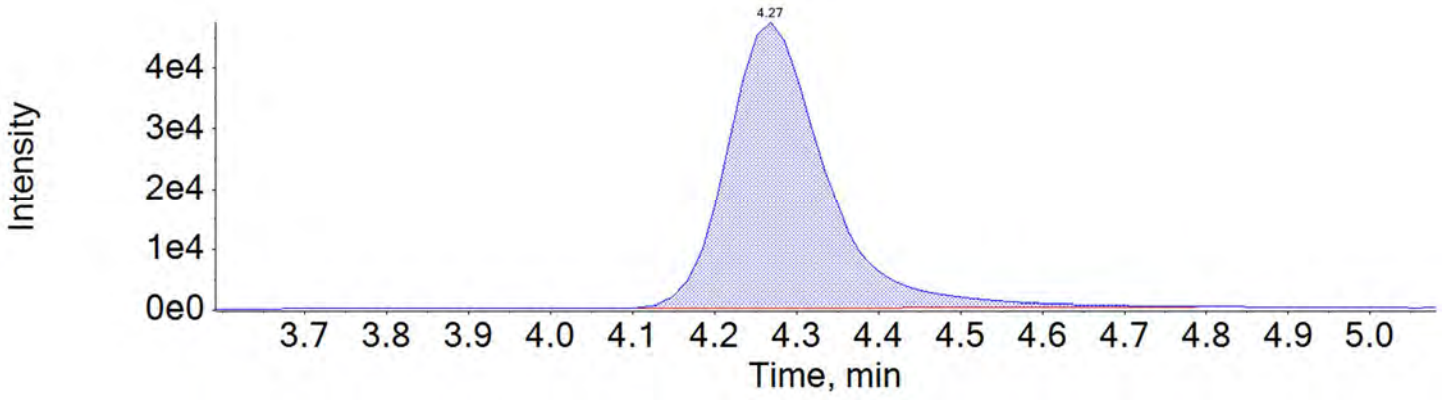
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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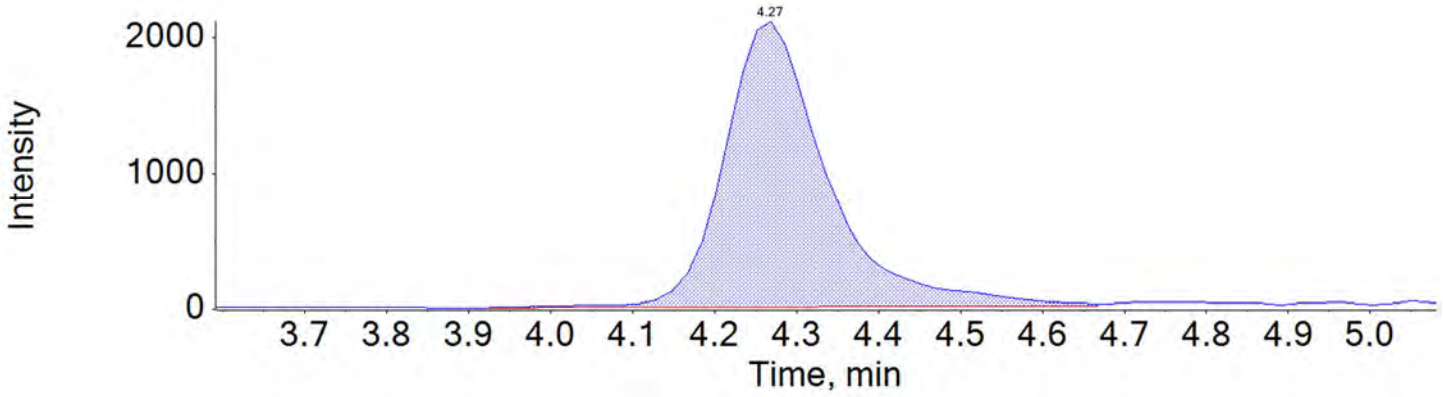
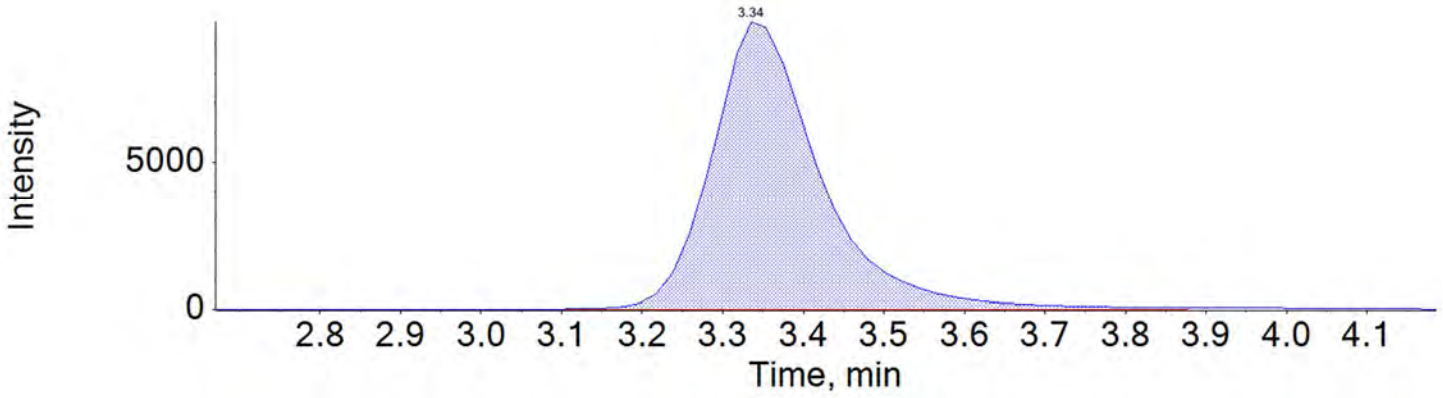
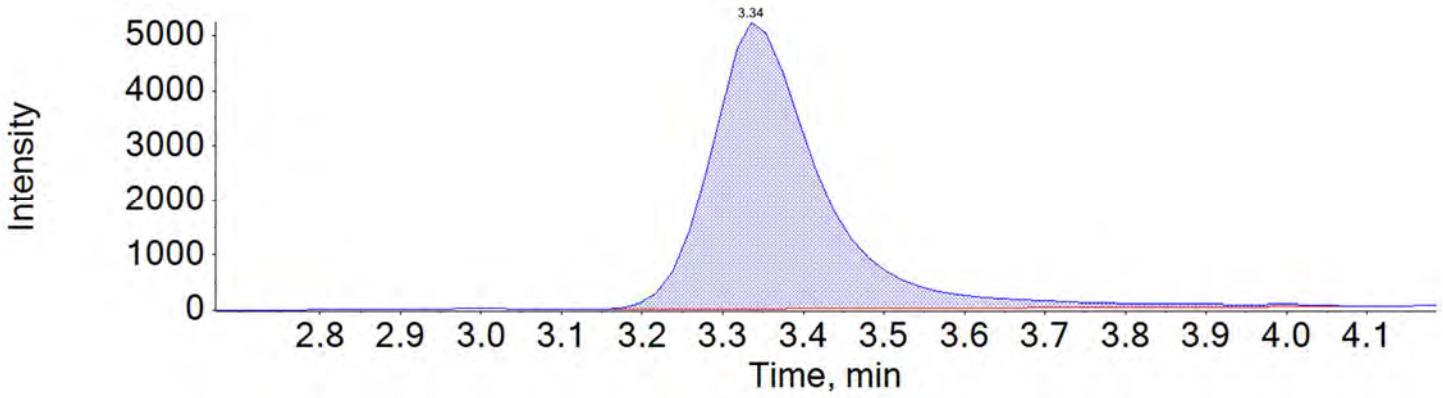
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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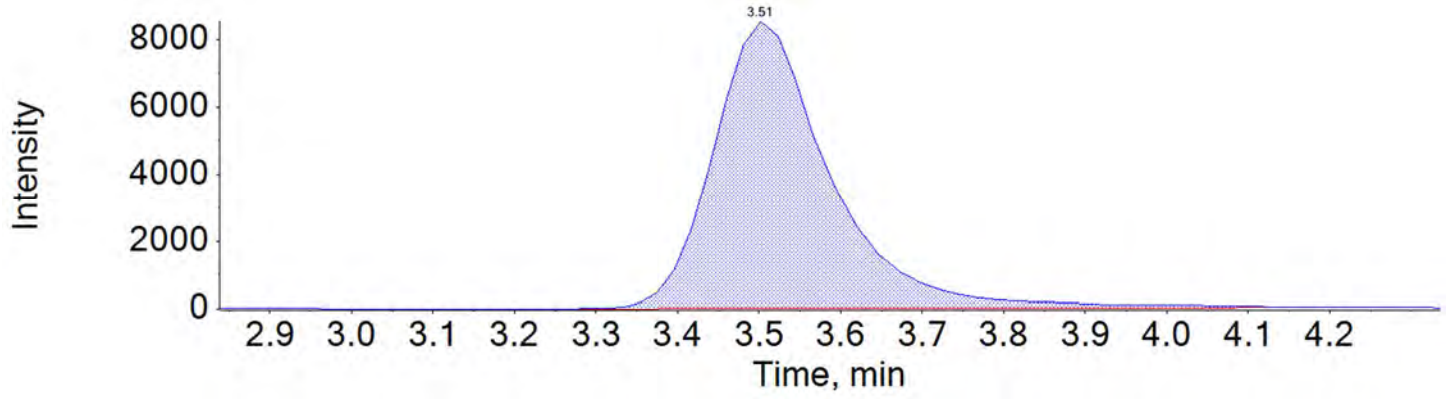
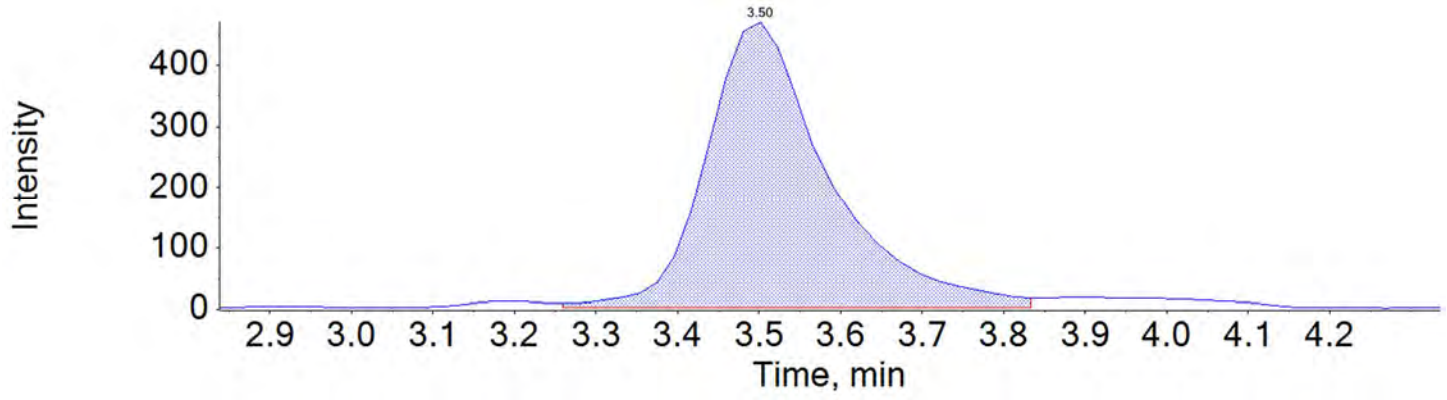
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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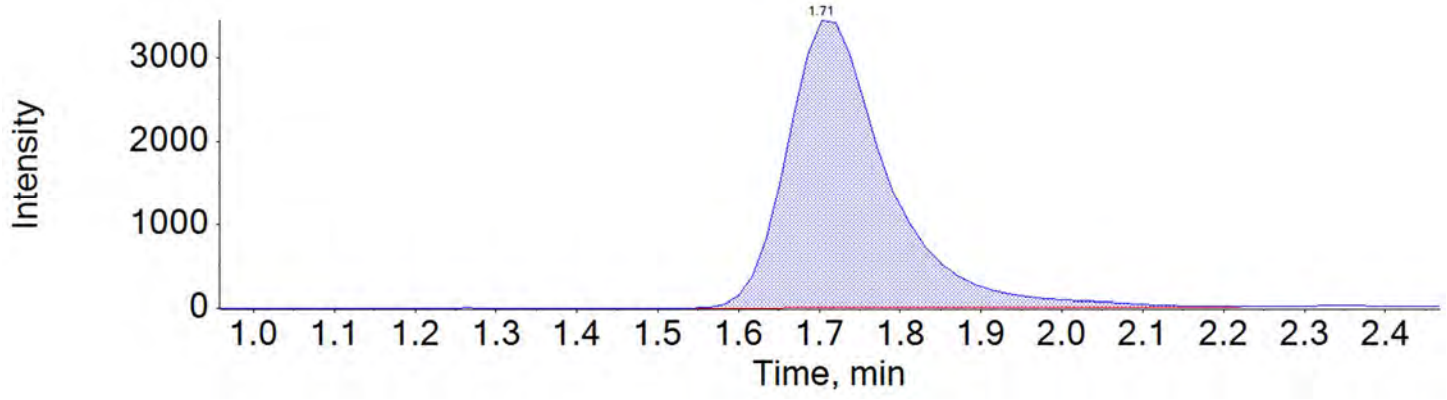
Chromatogram Report

Created with Analyst Reporter
Printed: 16/05/2018 7:12:16 PM

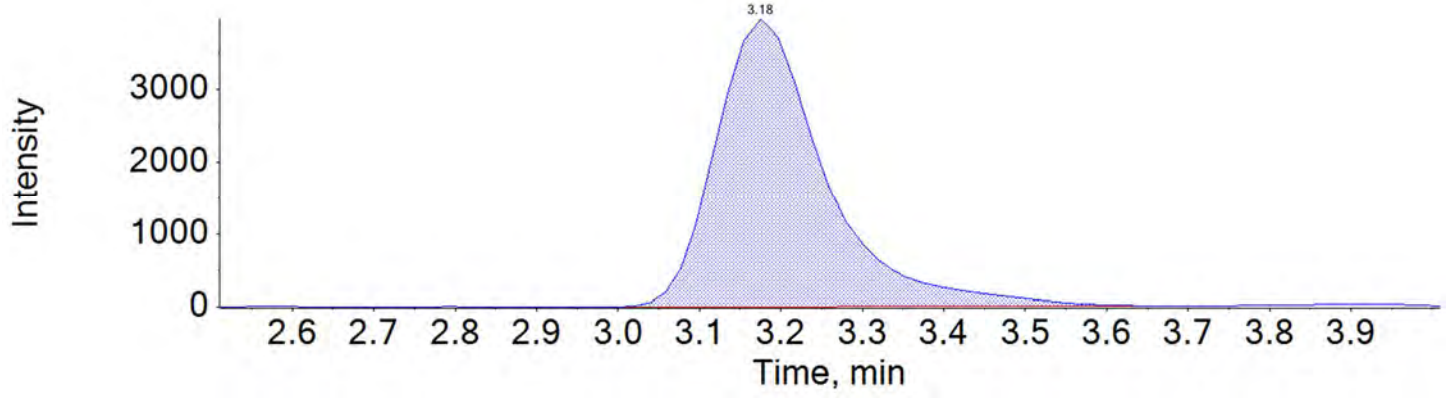
Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T13:55:37	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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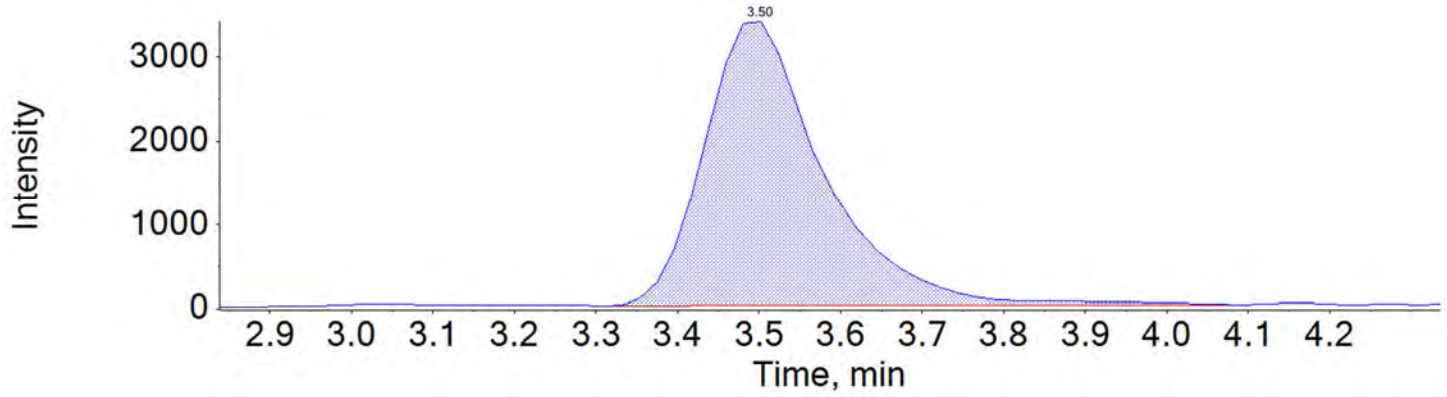
d5-EtFOSAA 589.0 / 419.0



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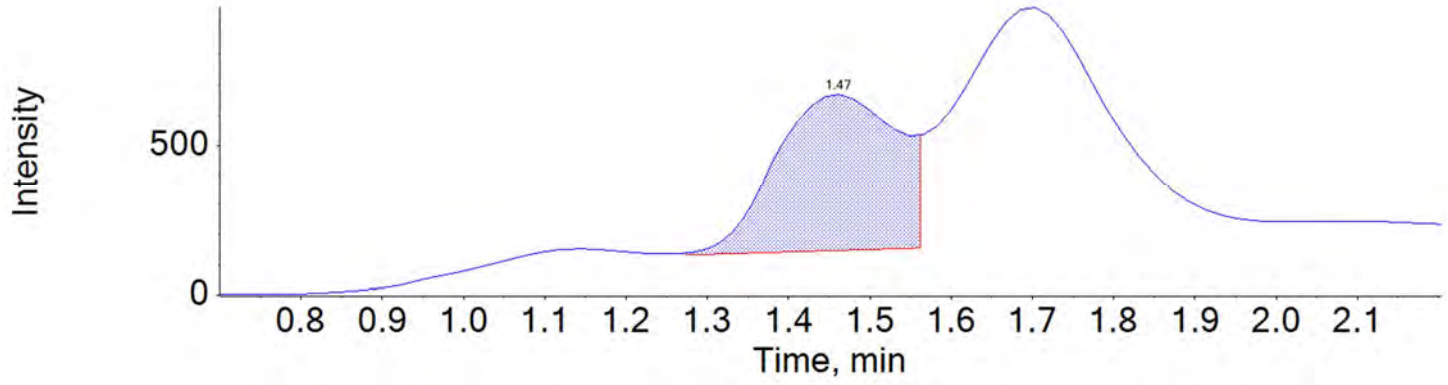
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:06:59 PM

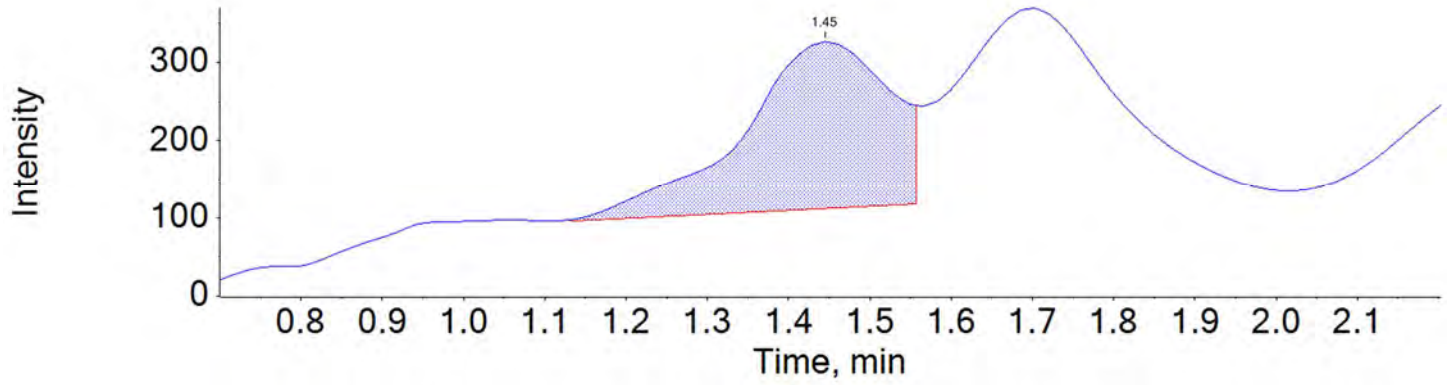
Sample Name	CQ689PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:13:32	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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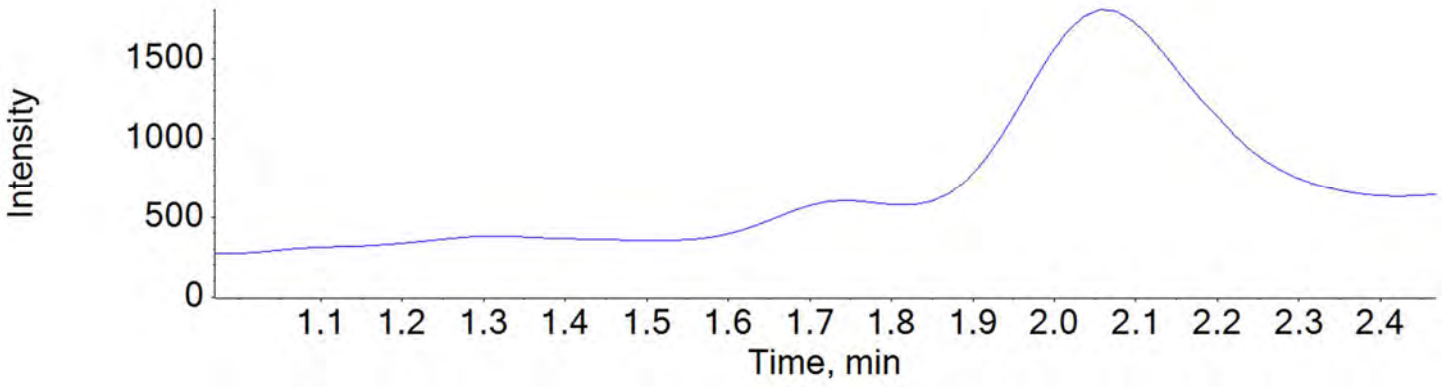
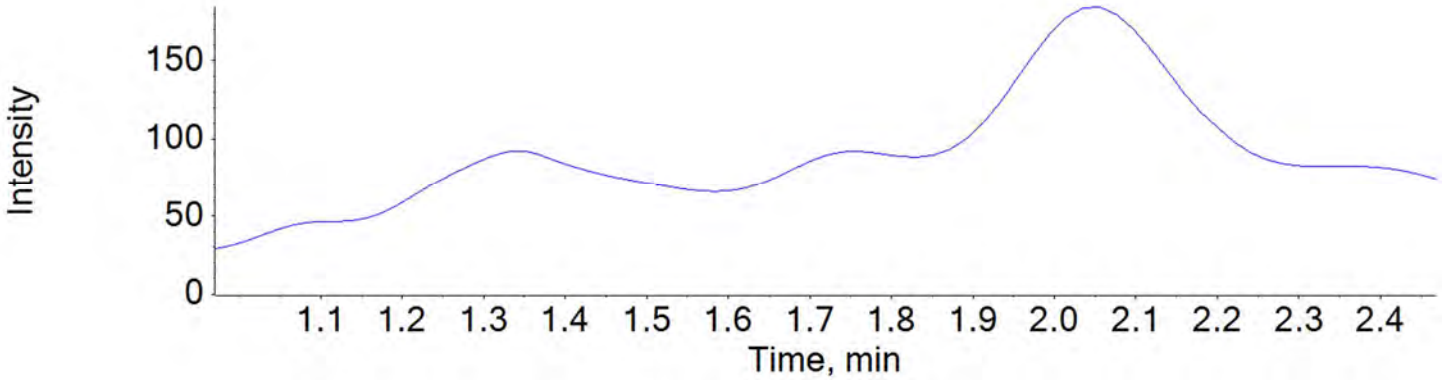
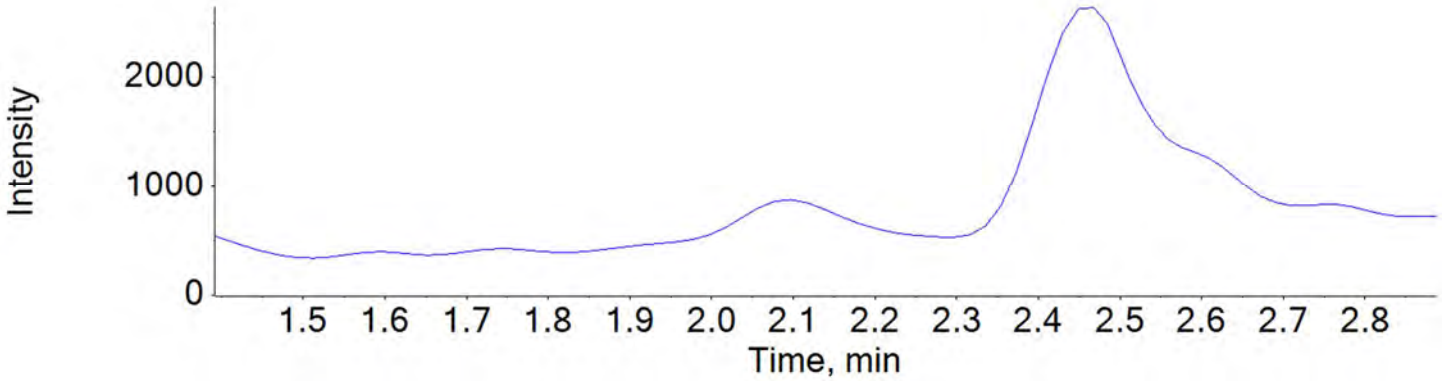
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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Chromatogram Report

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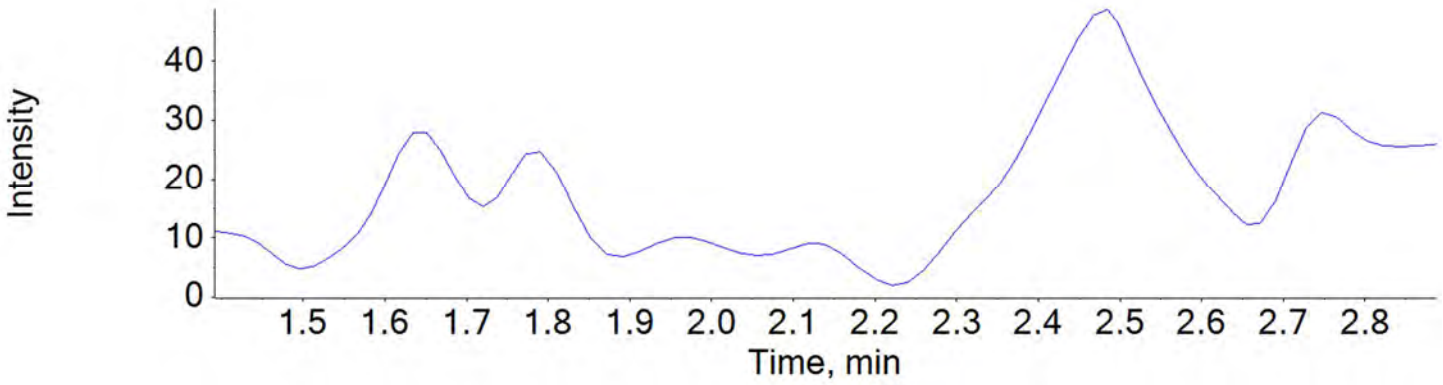
PFHpA_2 363.0 / 169.0



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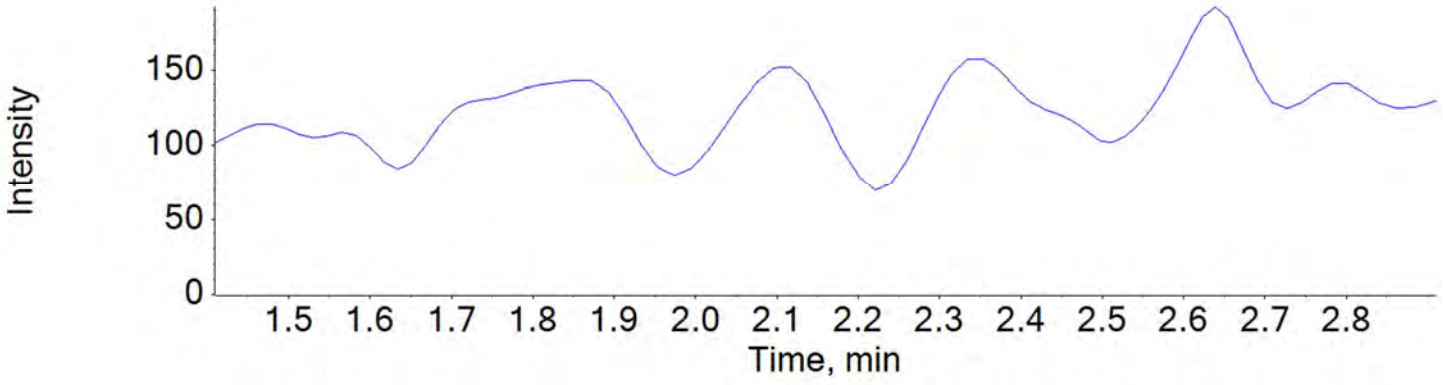

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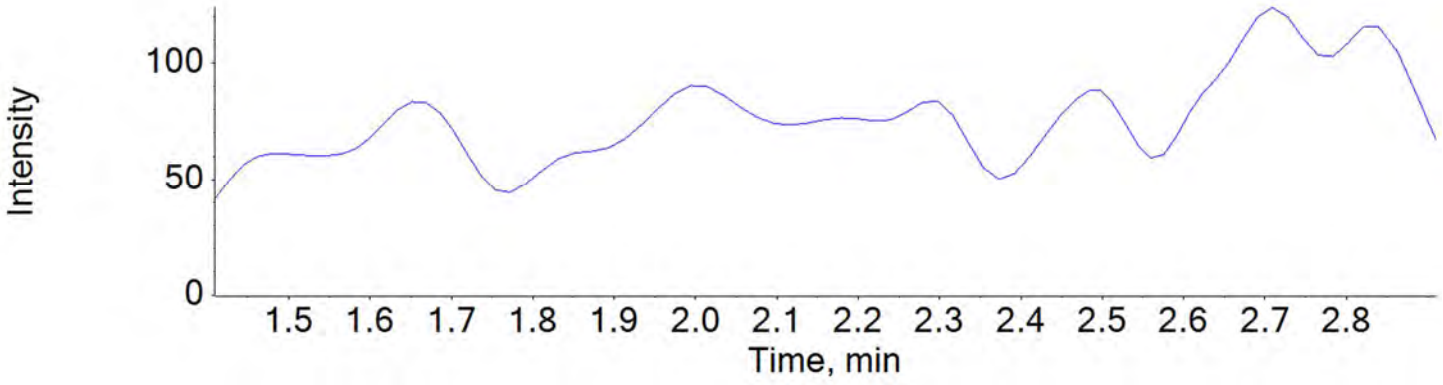

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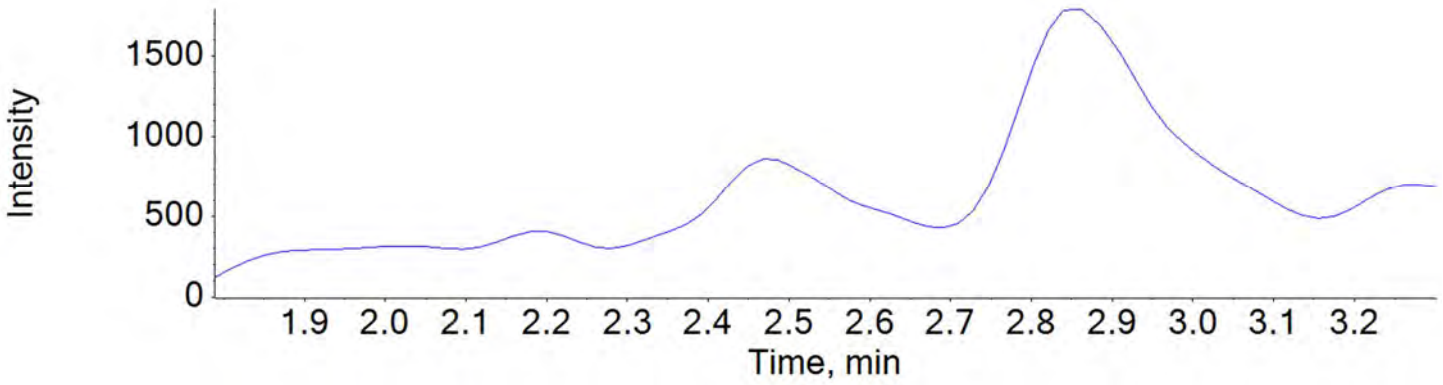

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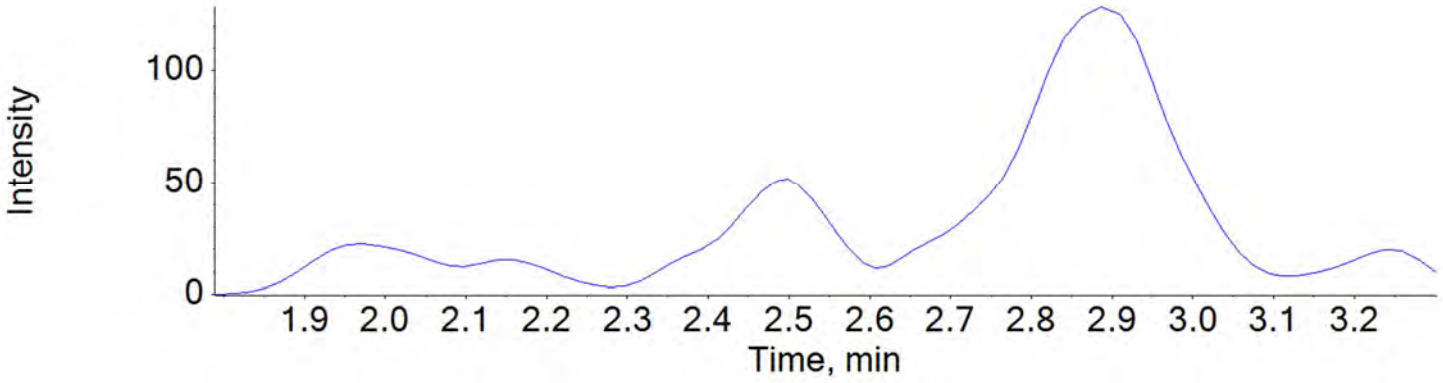
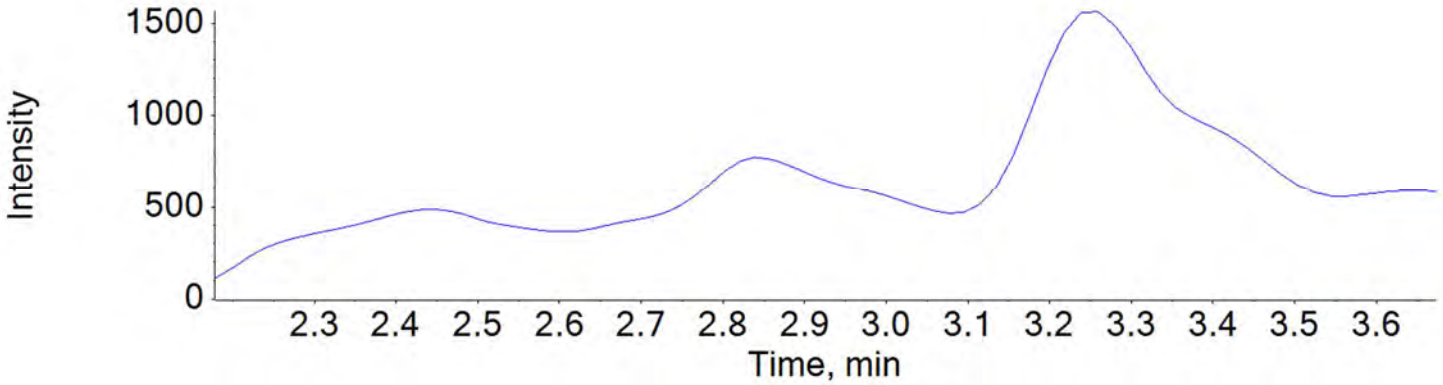


PFNA_1 463.0 / 419.0



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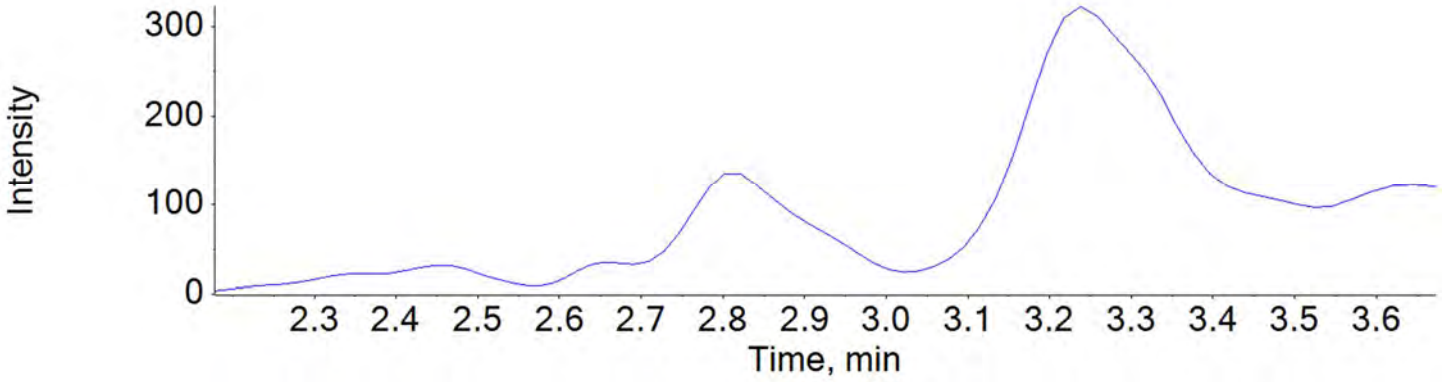
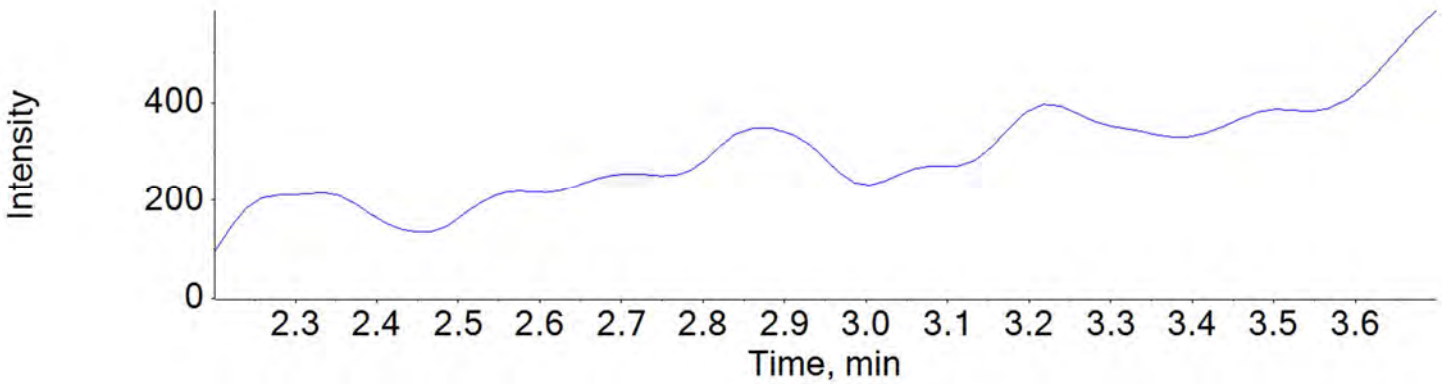
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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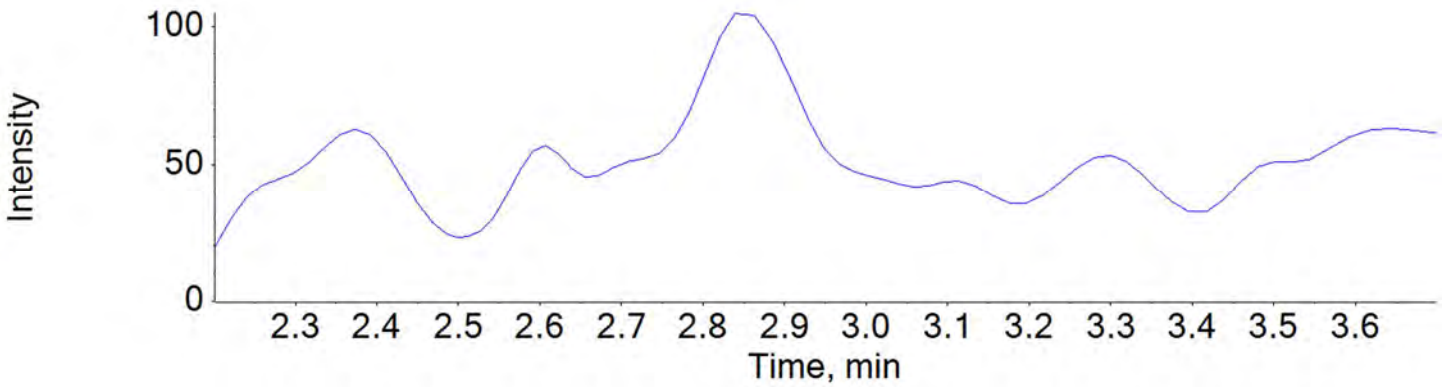

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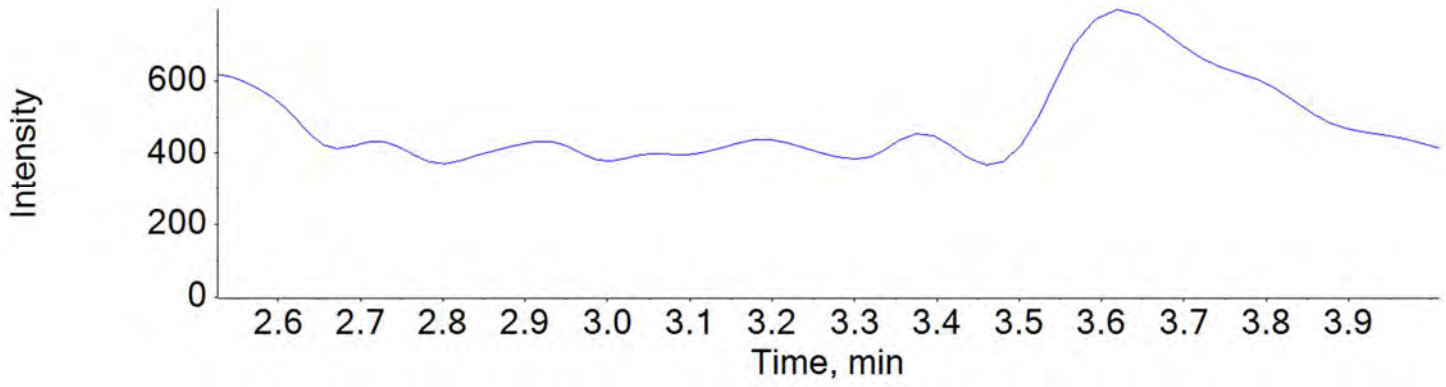

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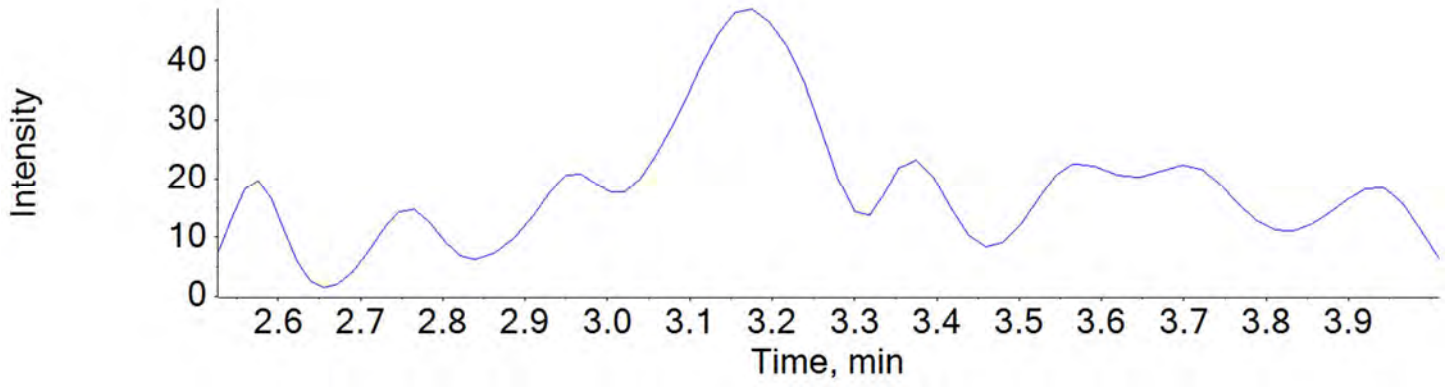
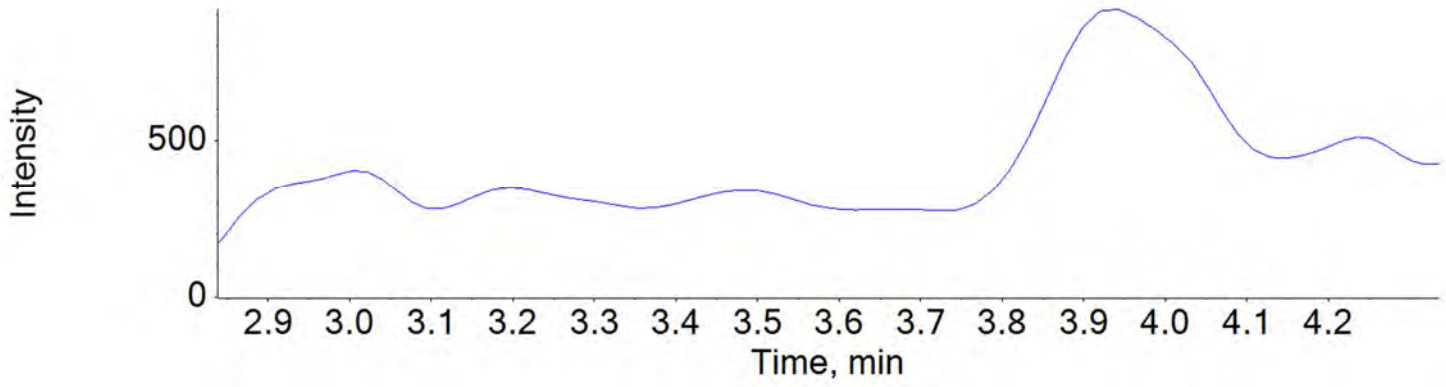


PFUnA_1 563.0 / 519.0



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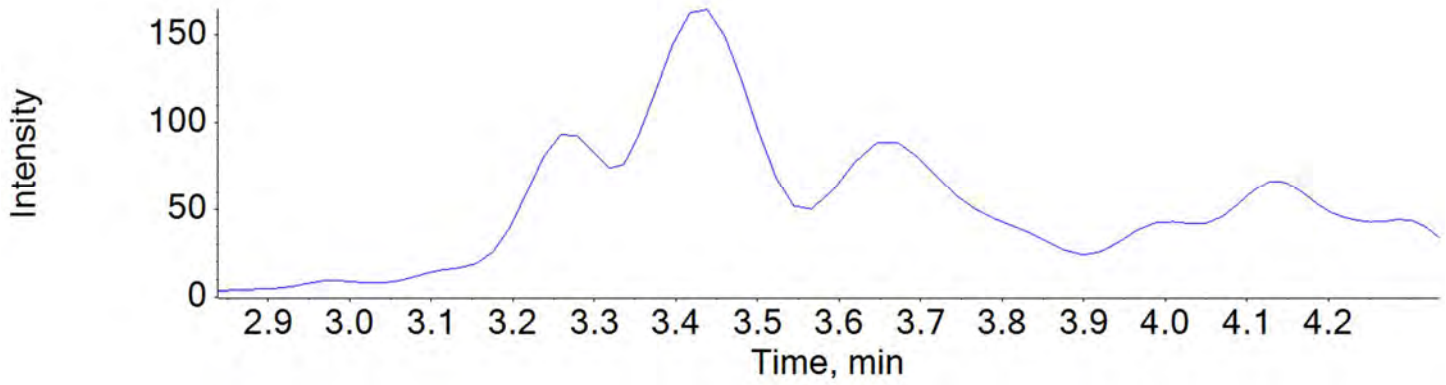
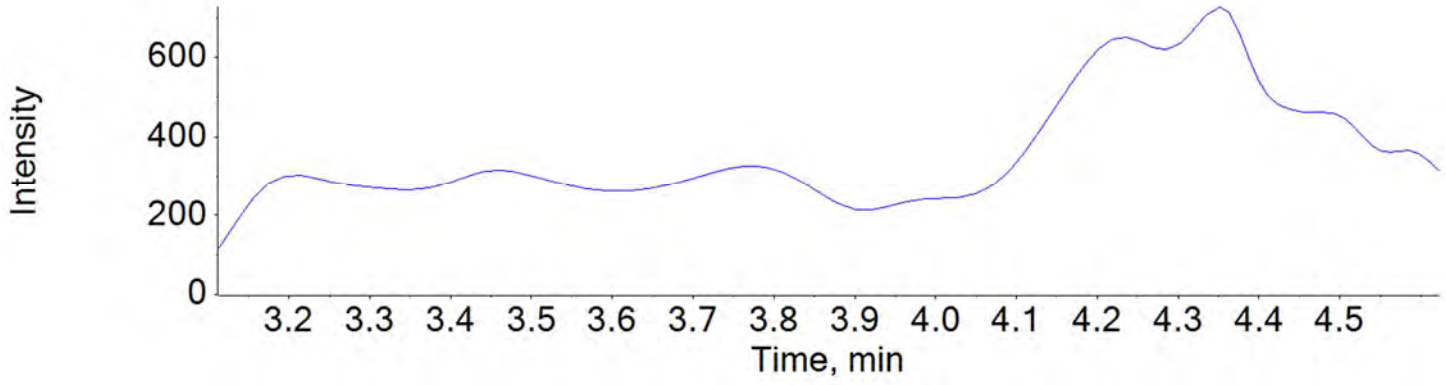


PFDoA_1 613.0 / 569.0



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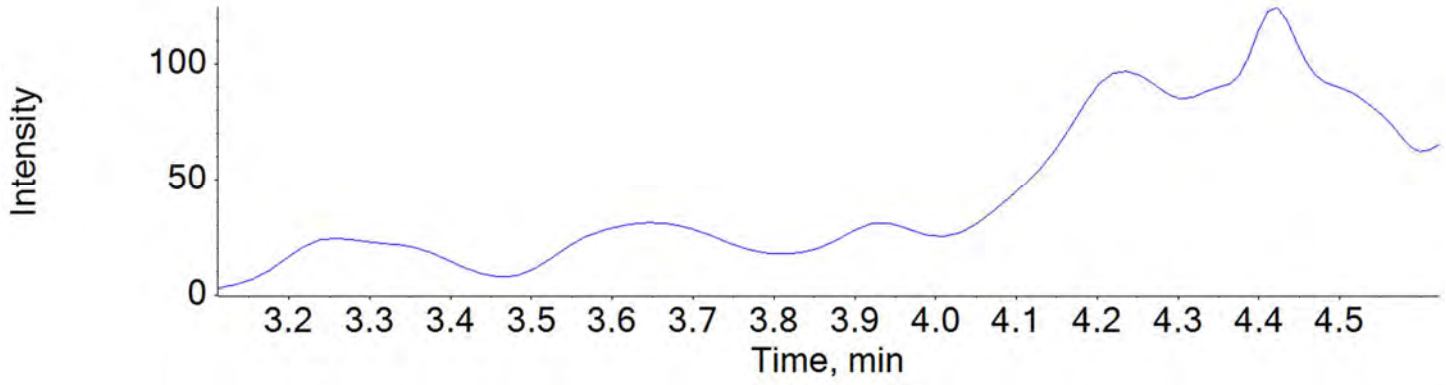

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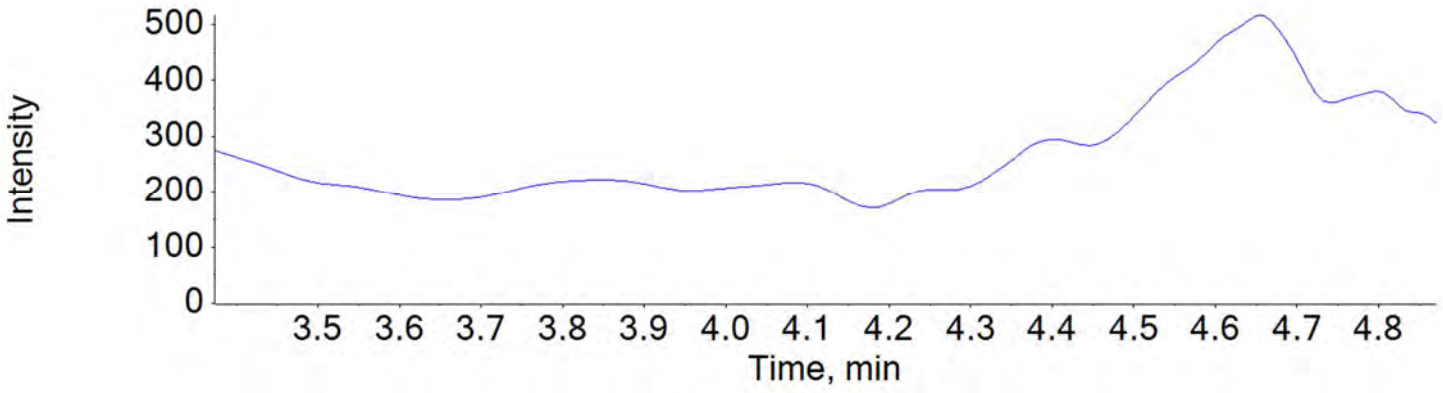

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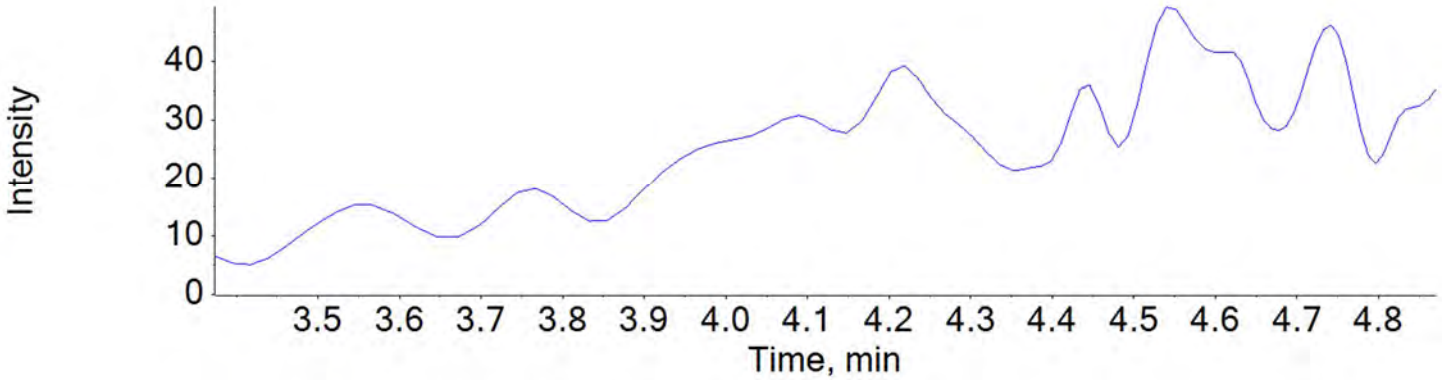

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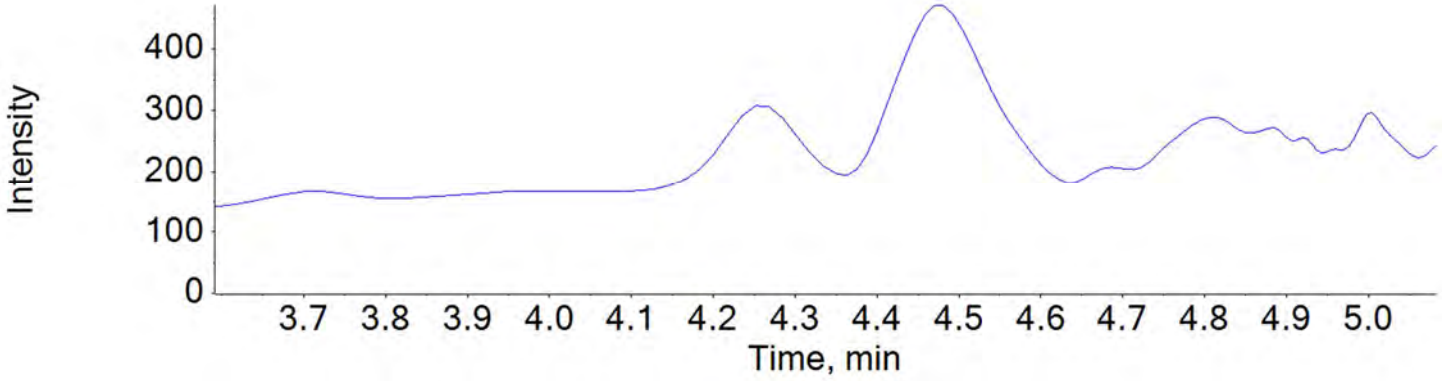

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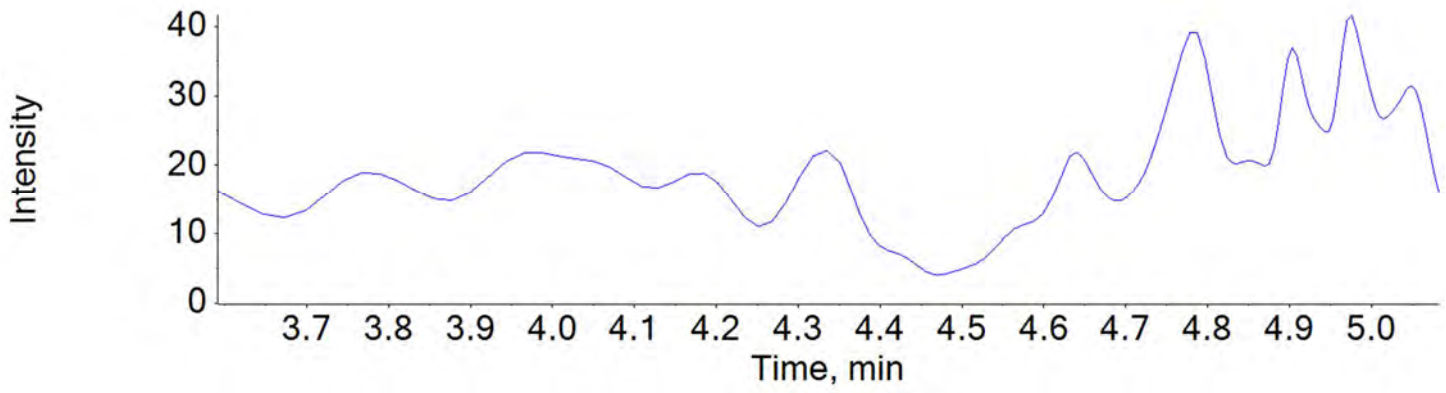

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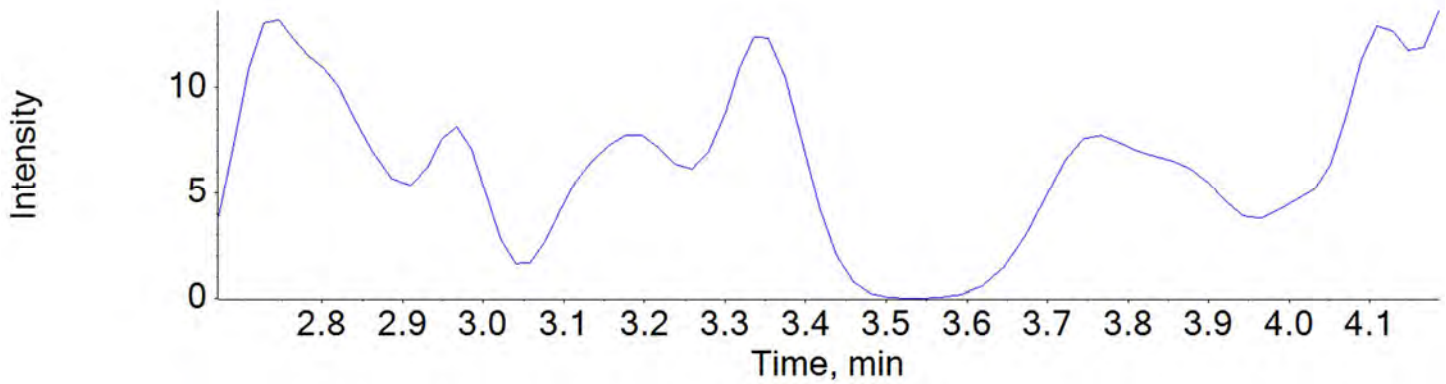

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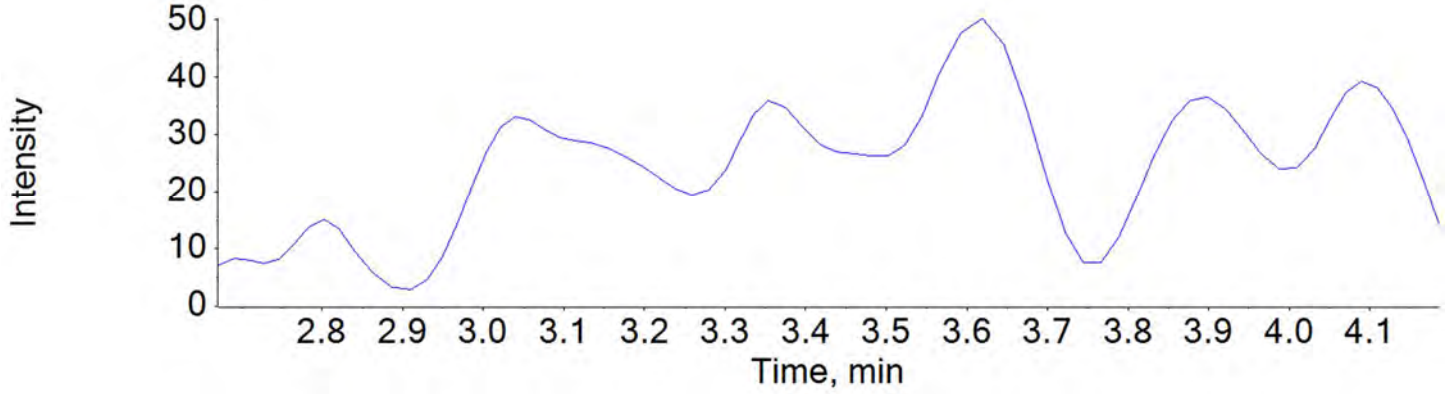

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Chromatogram Report

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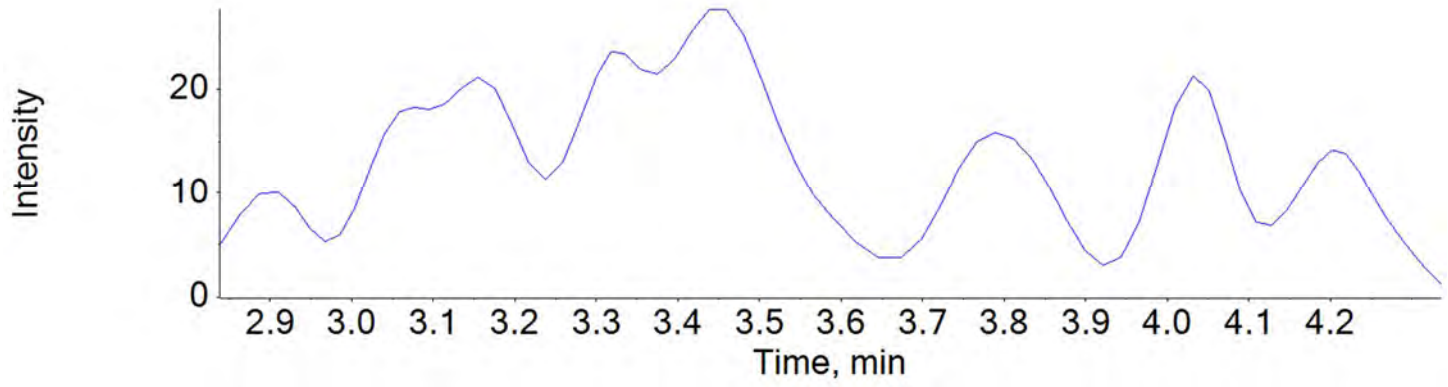

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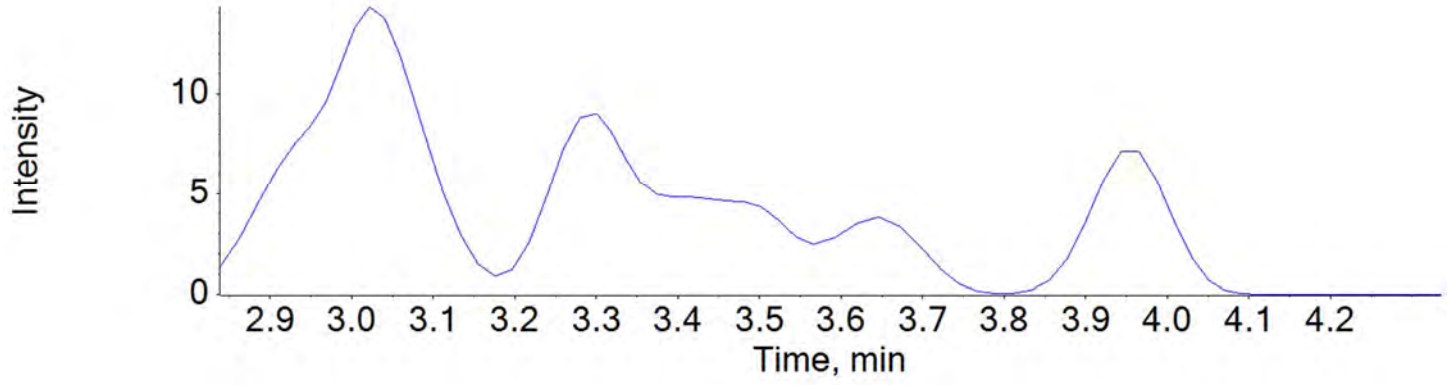

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Chromatogram Report

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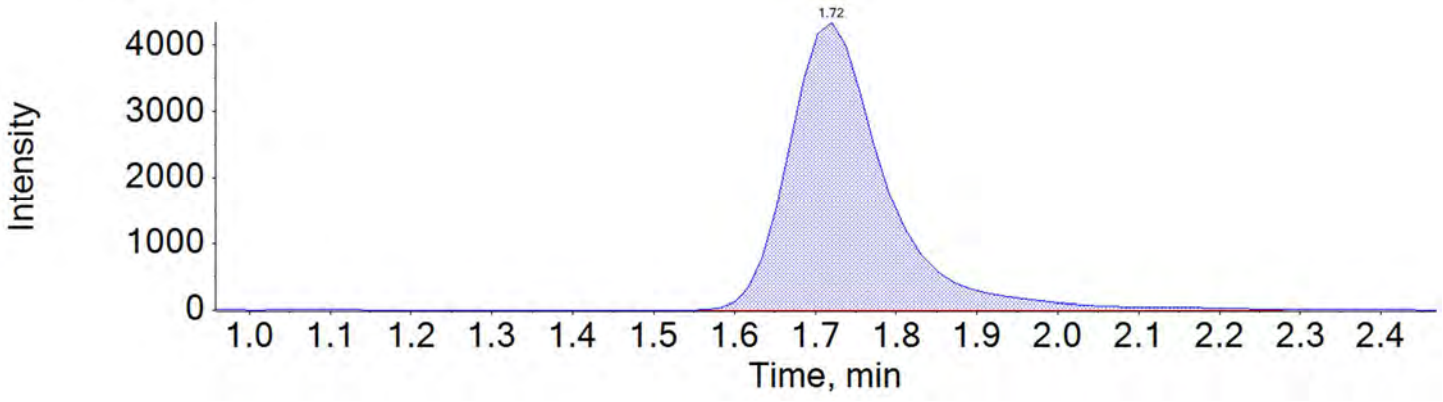
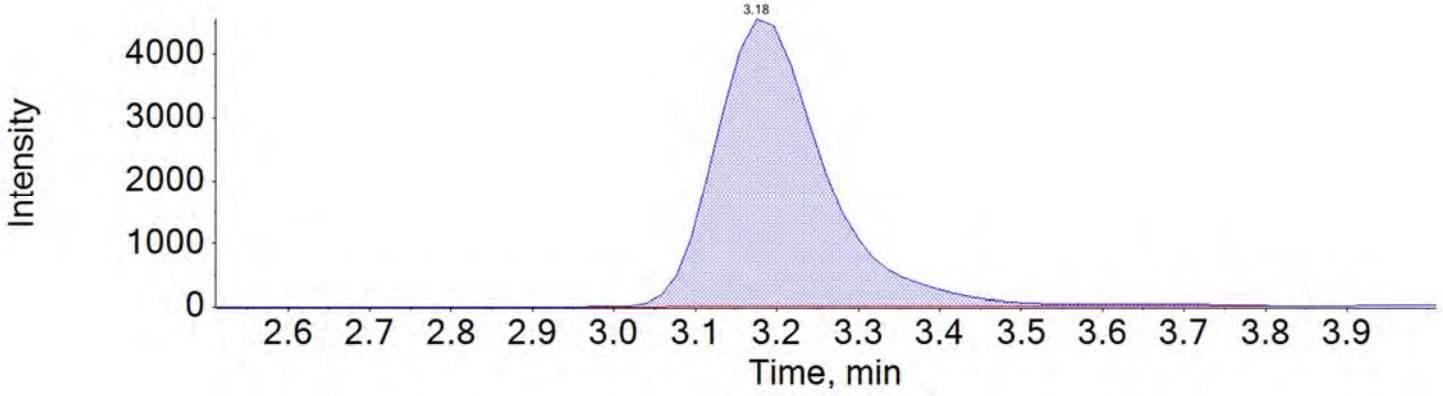
Sample Name	CQ689PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:13:32	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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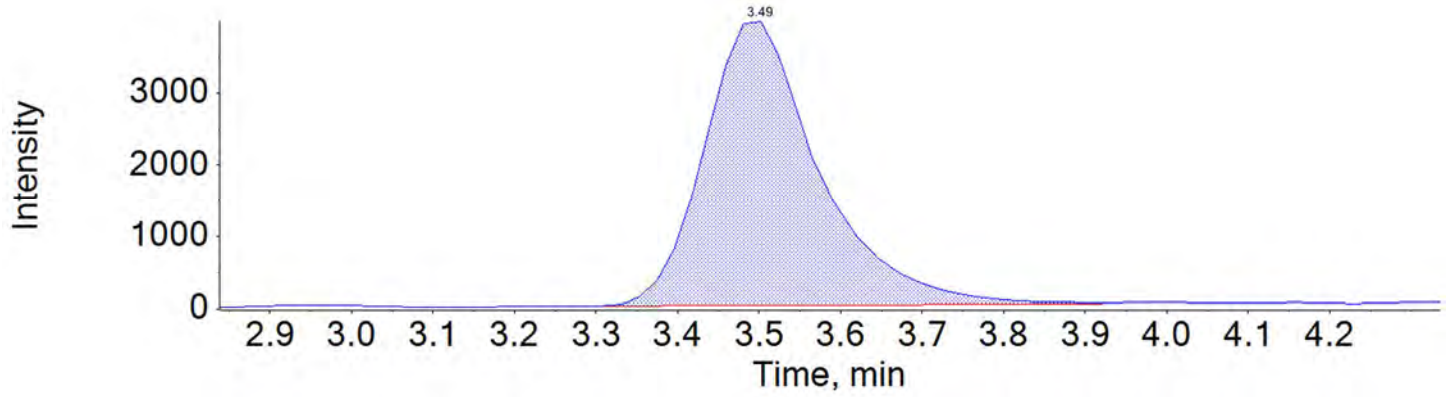
d5-EtFOSAA 589.0 / 419.0



BATTELLE

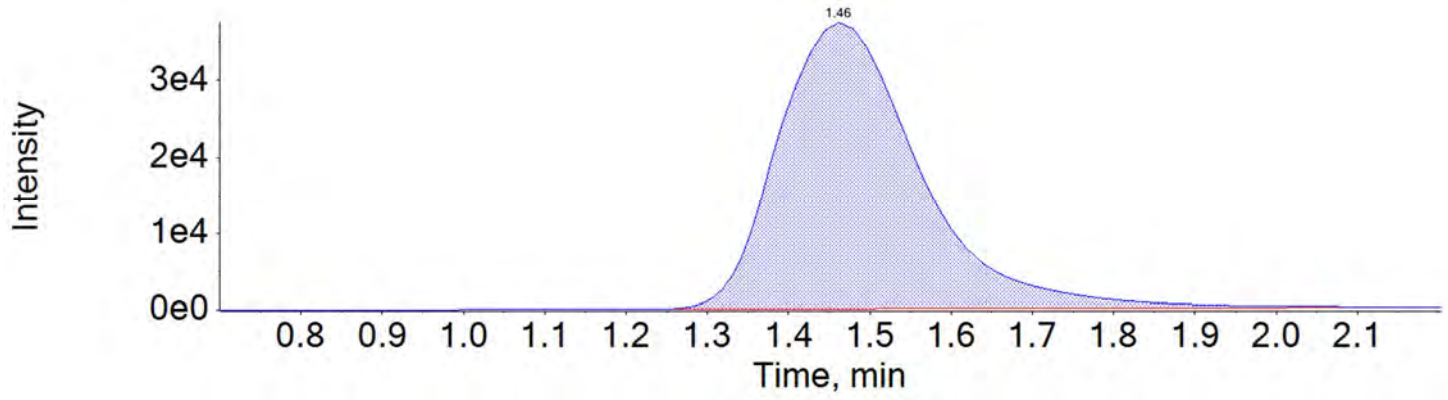
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:07:05 PM

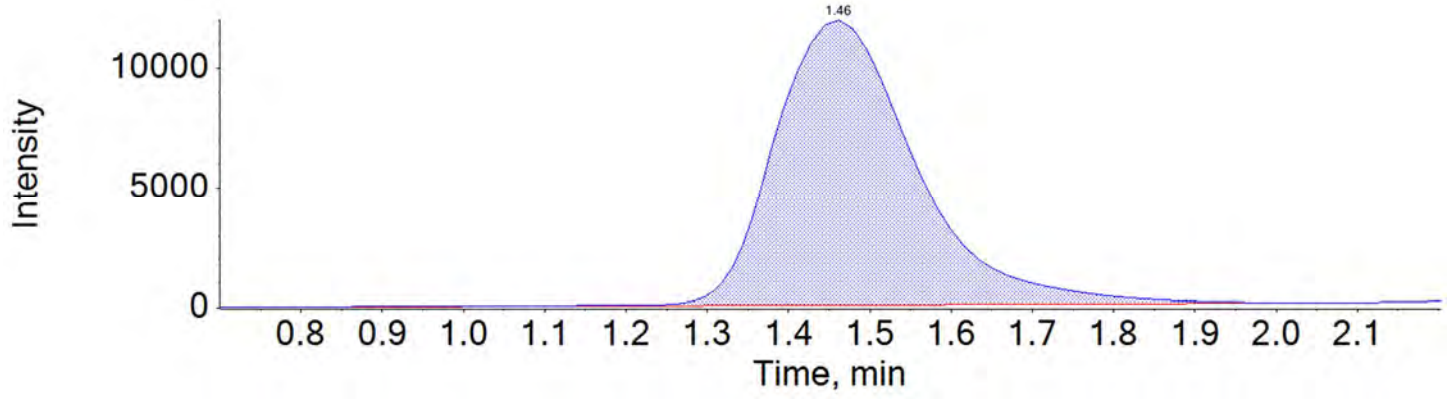
Sample Name	CQ690LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:22:27	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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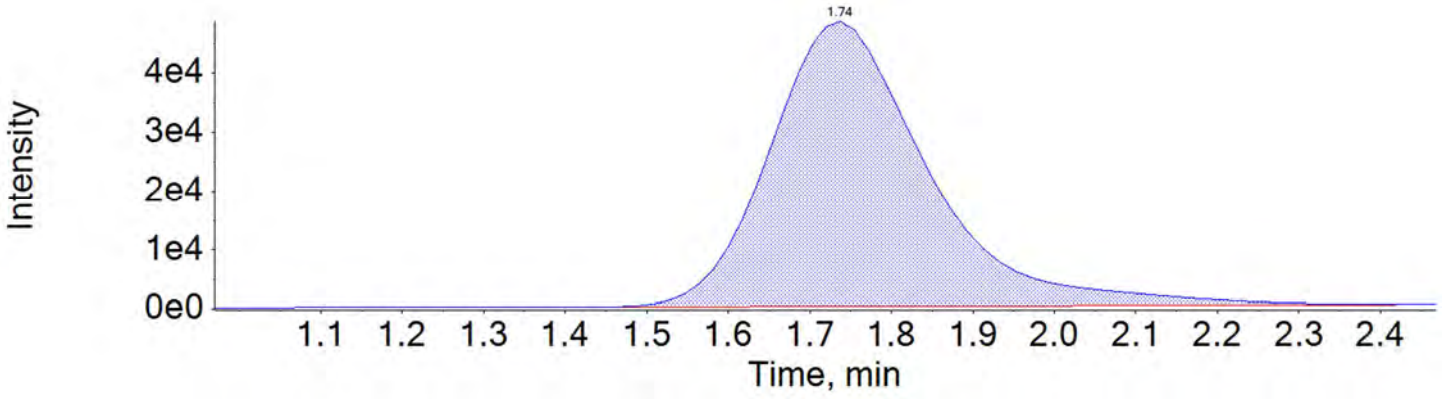
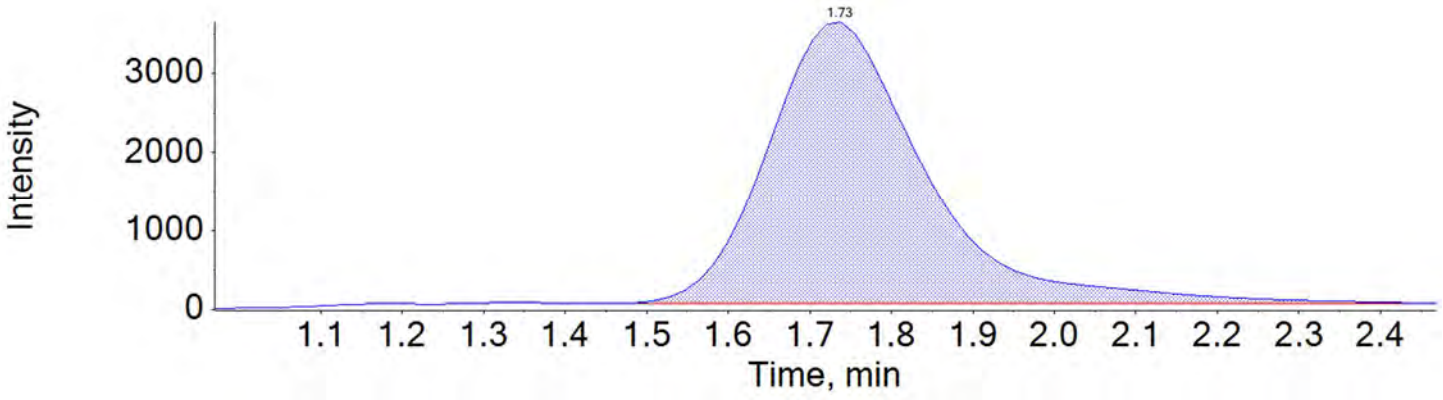
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



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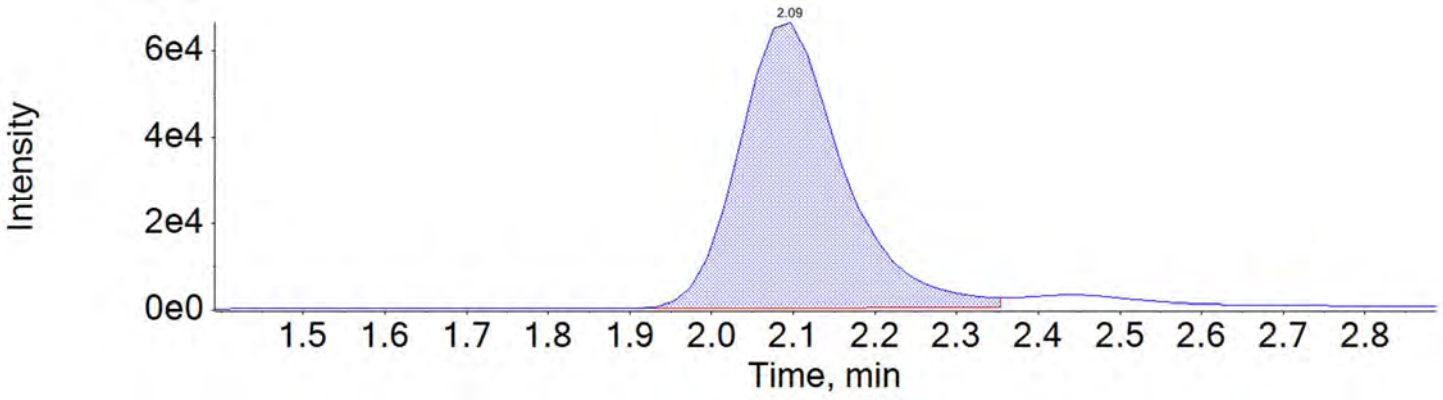

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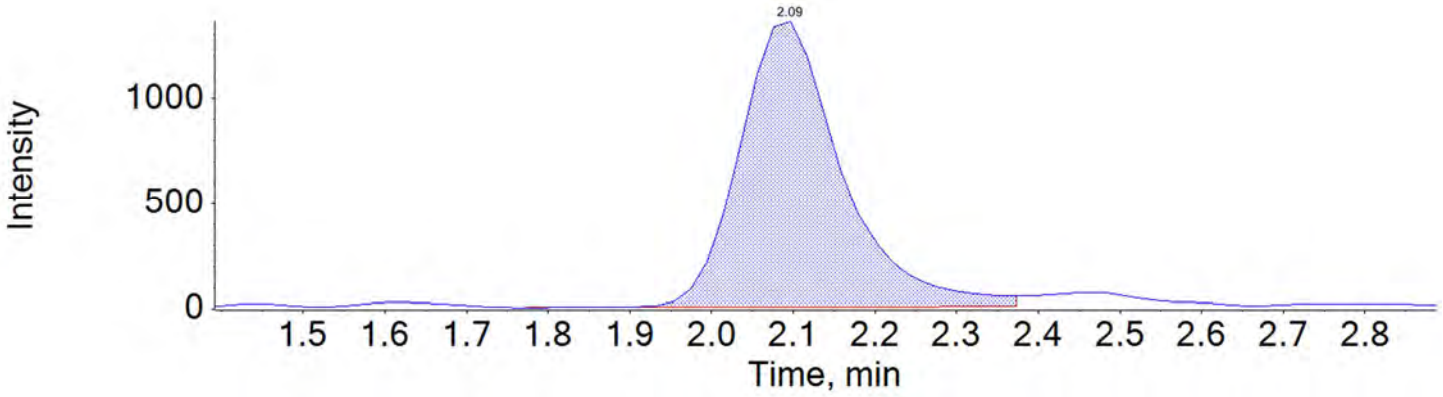

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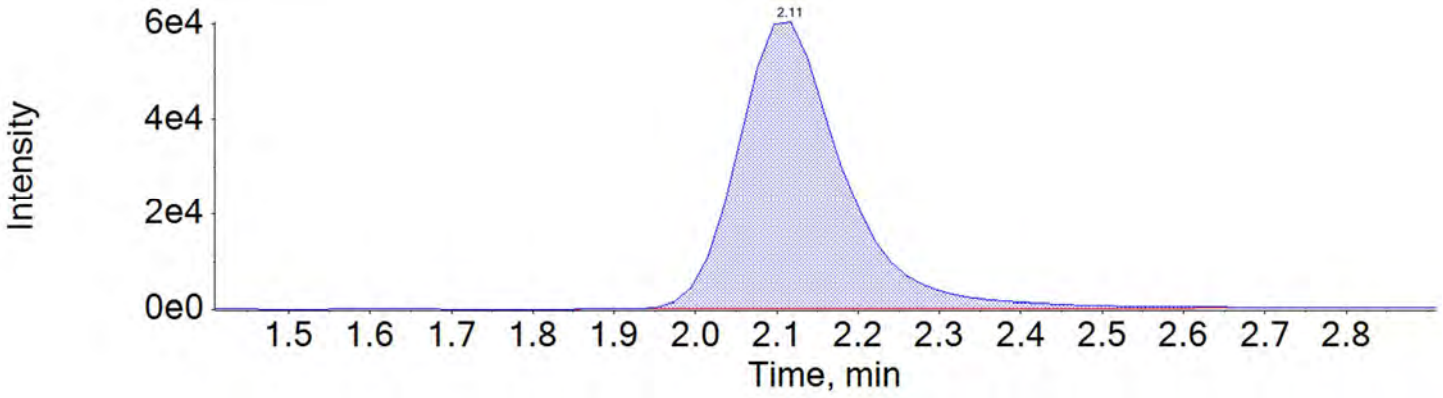

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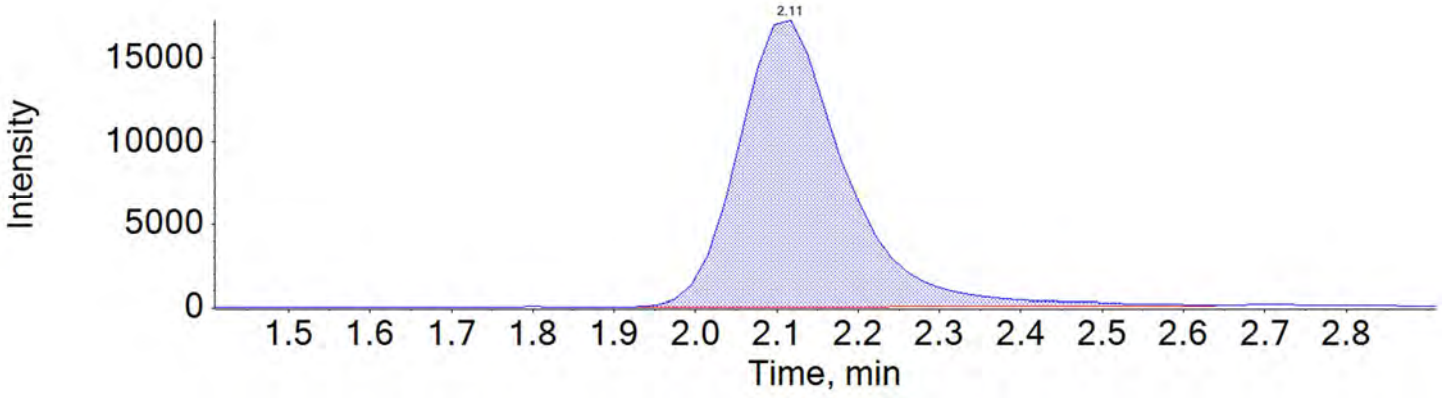

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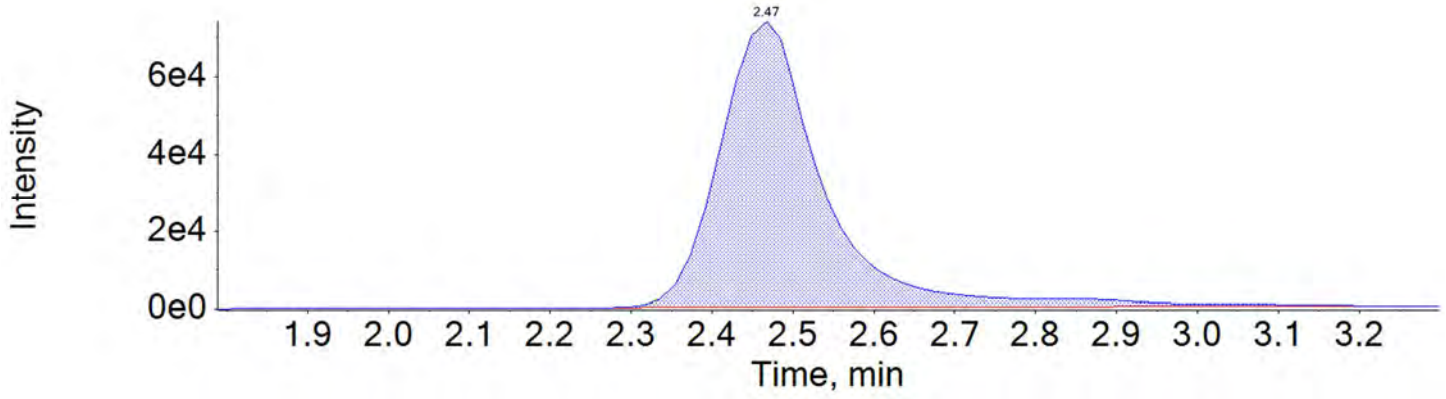
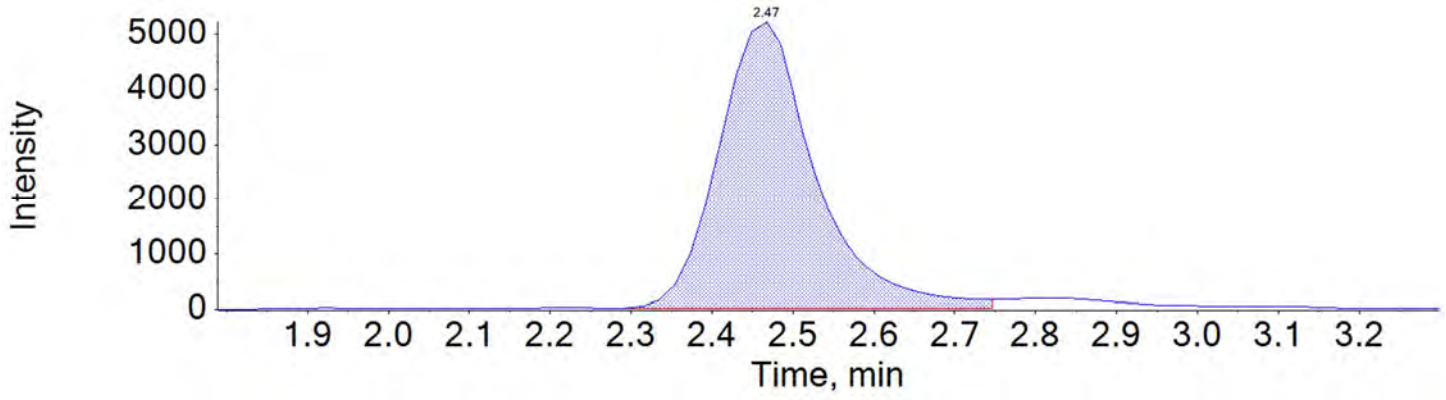
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



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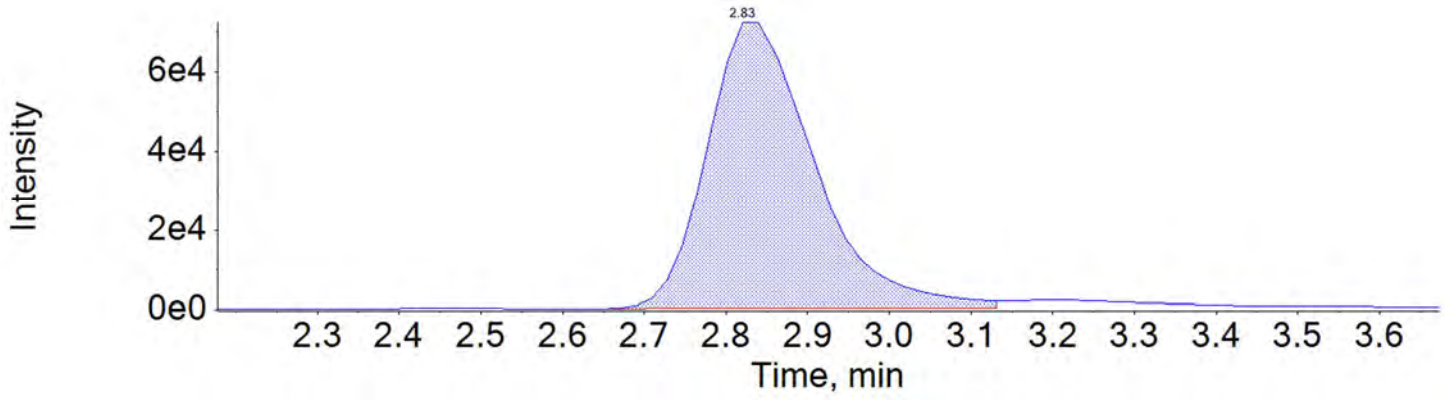

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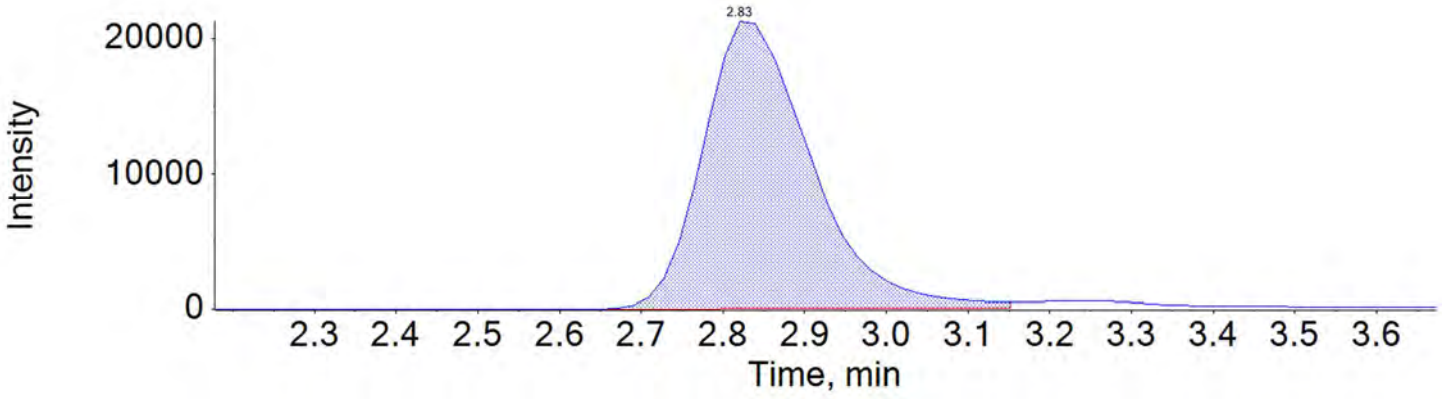
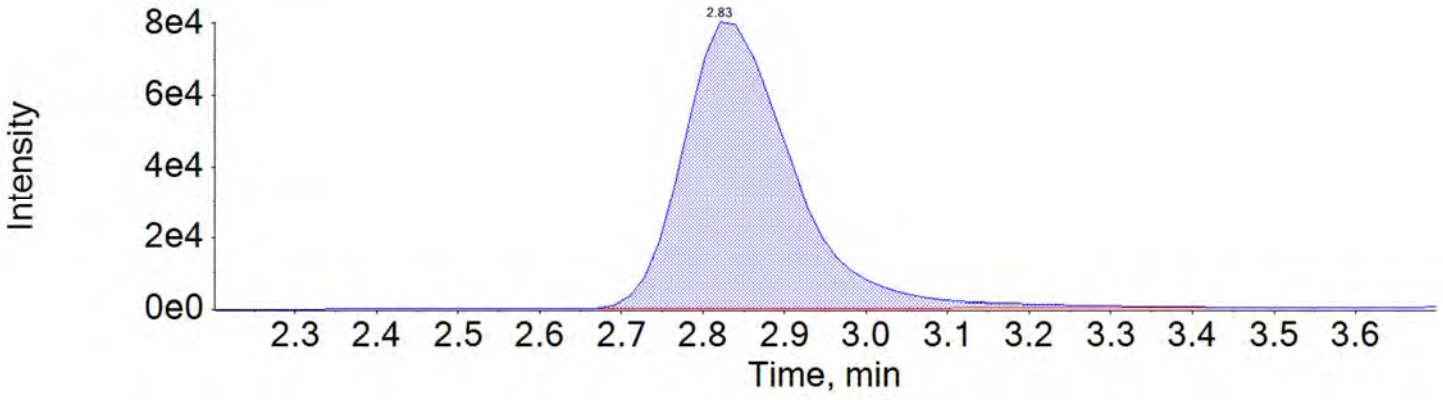


PFOS_1 499.0 / 80.0



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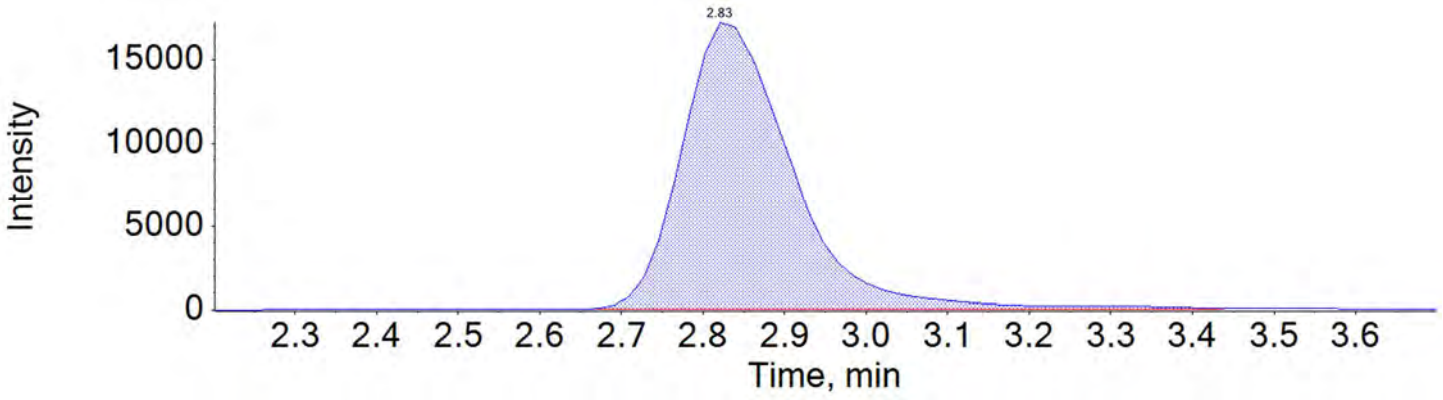

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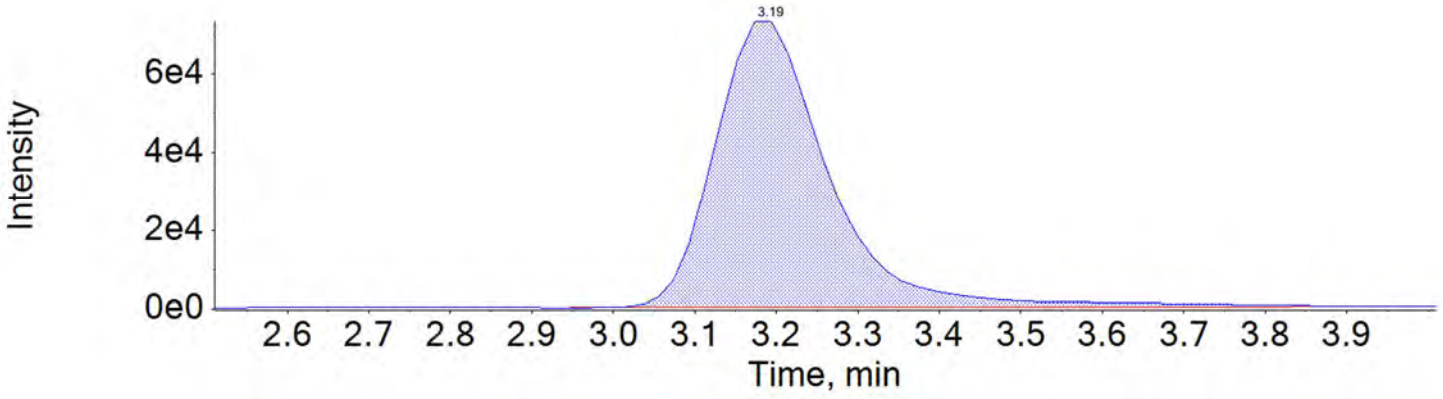

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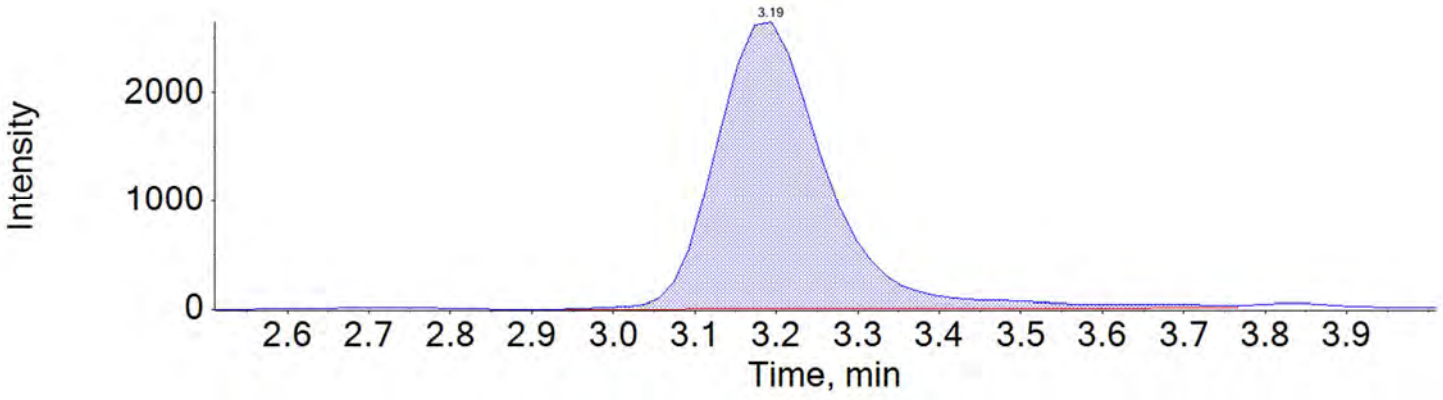

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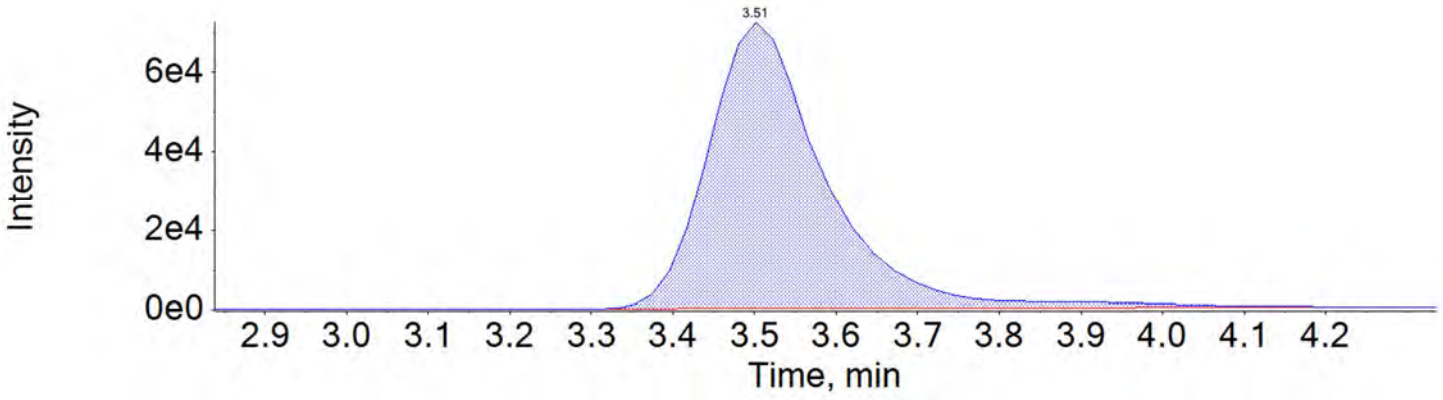

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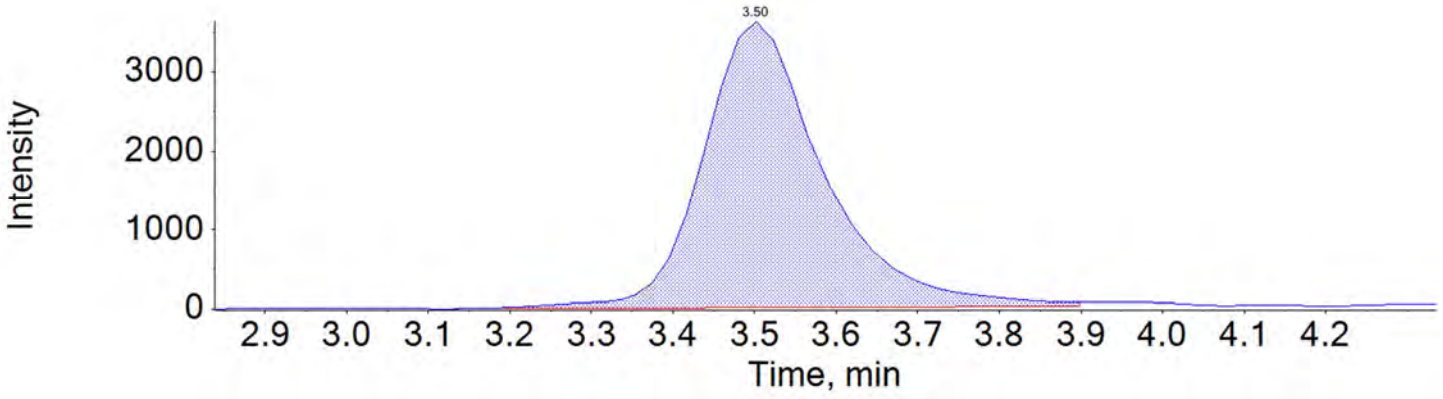

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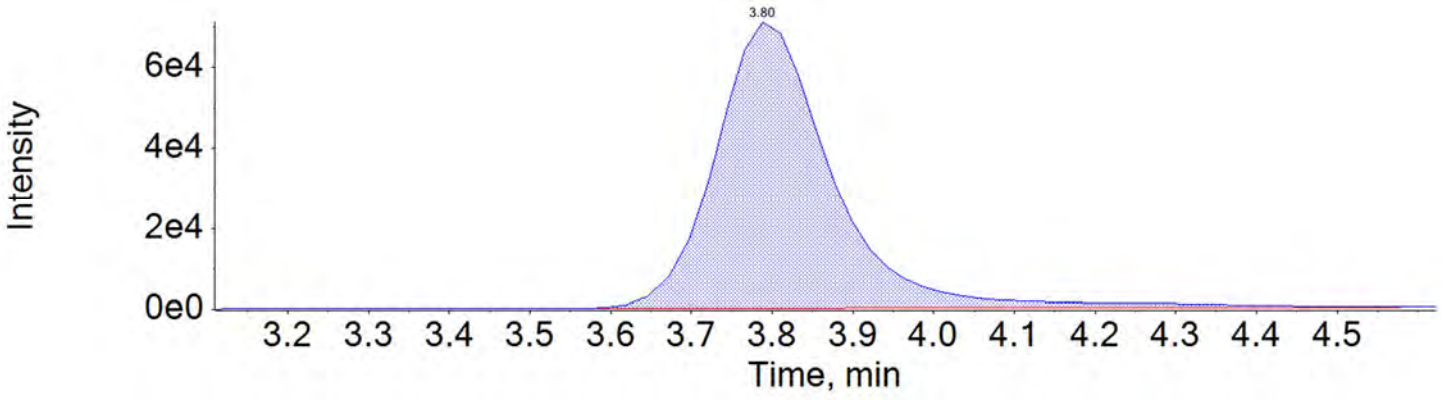
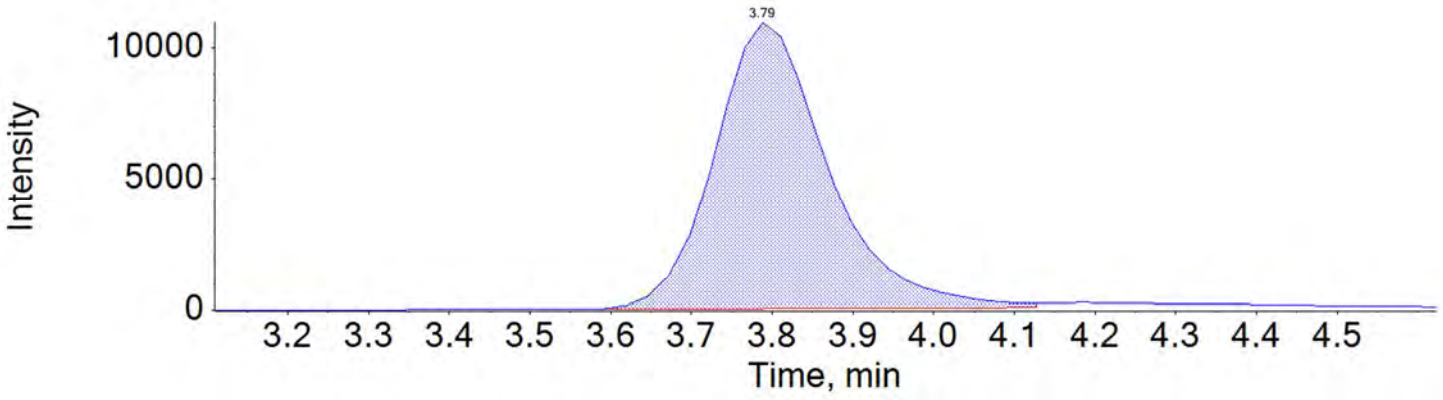


PFDoA_2 613.0 / 319.0



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Chromatogram Report

Created with Analyst Reporter
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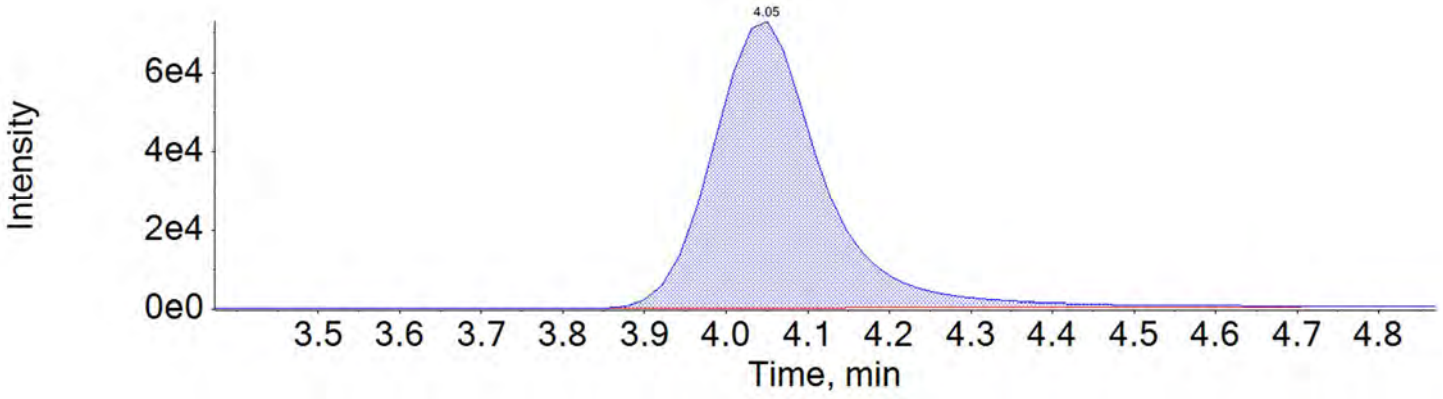
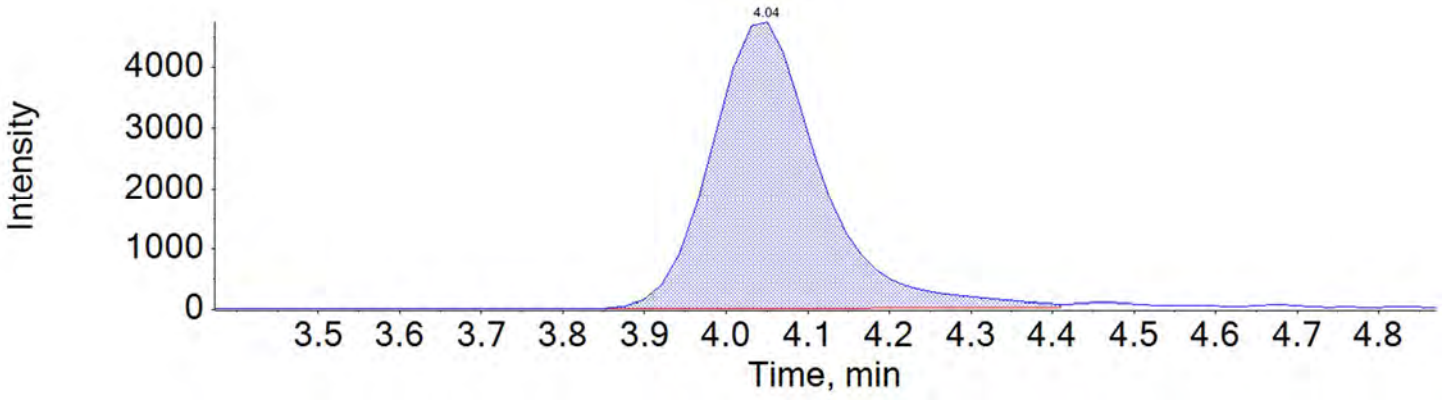
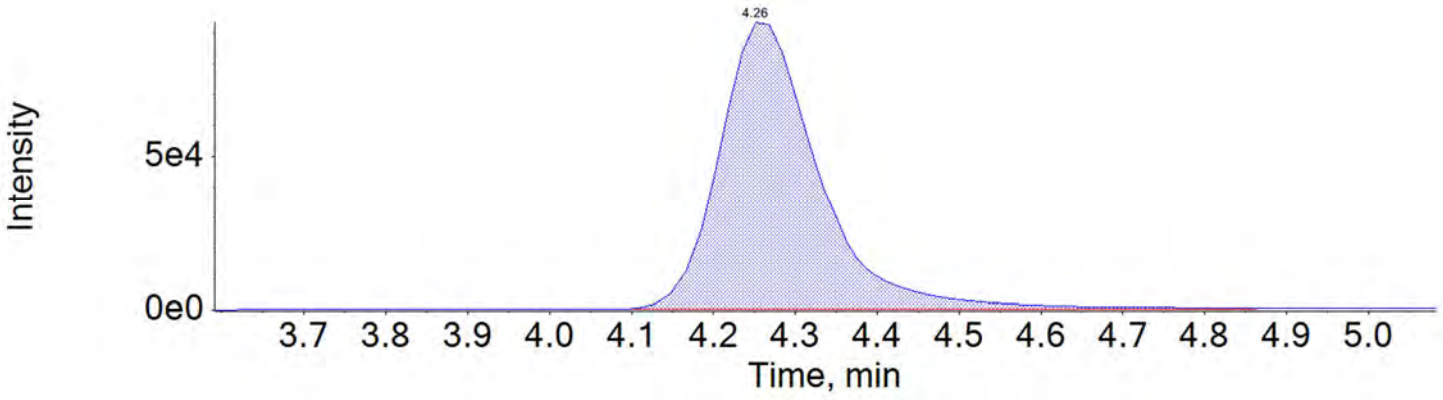
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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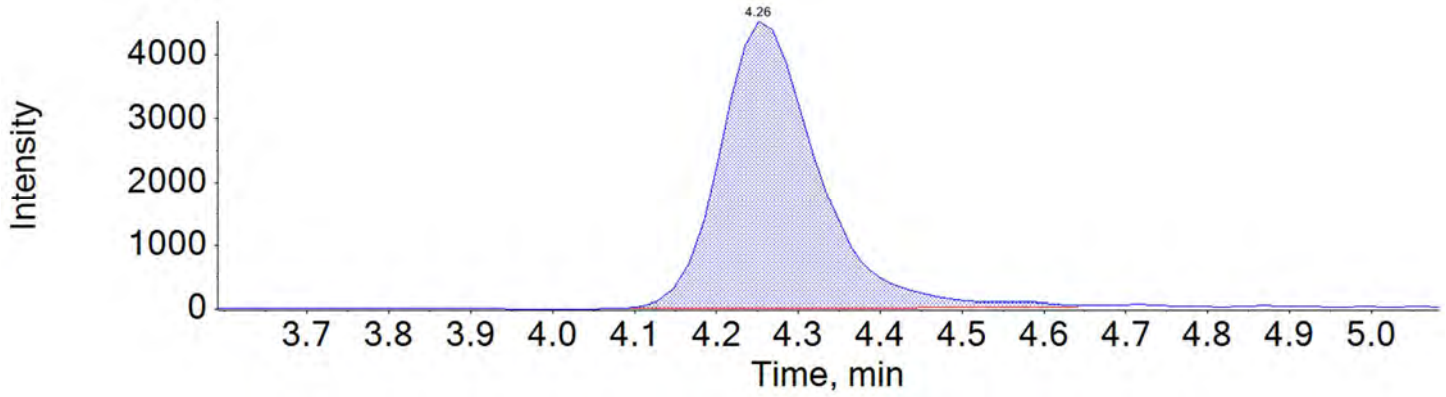
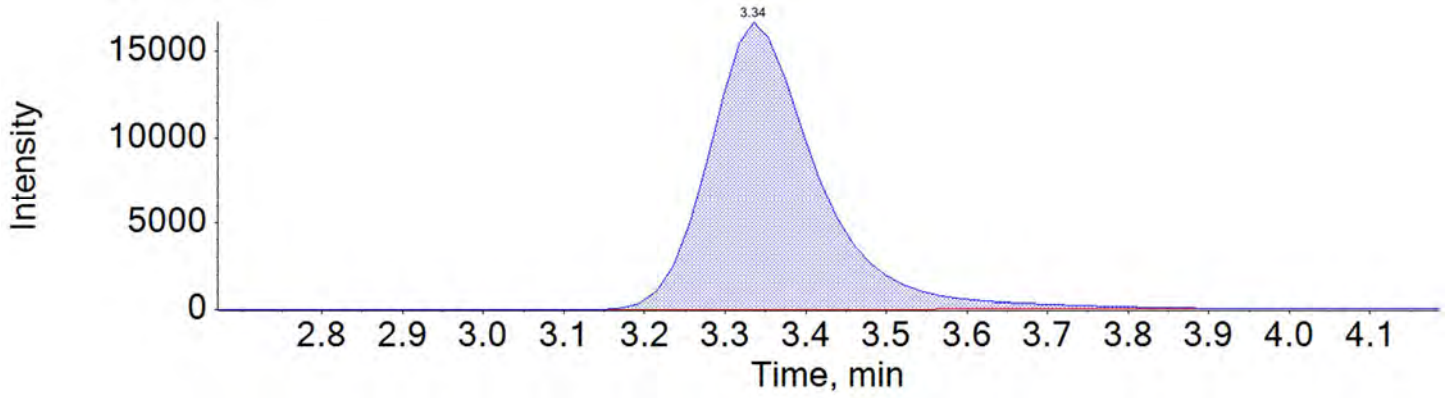
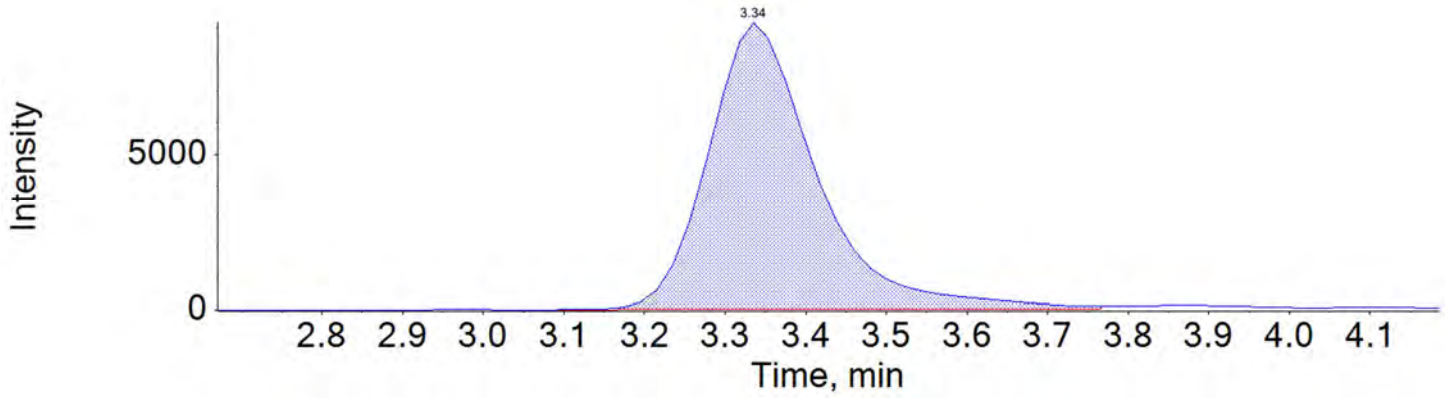


NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

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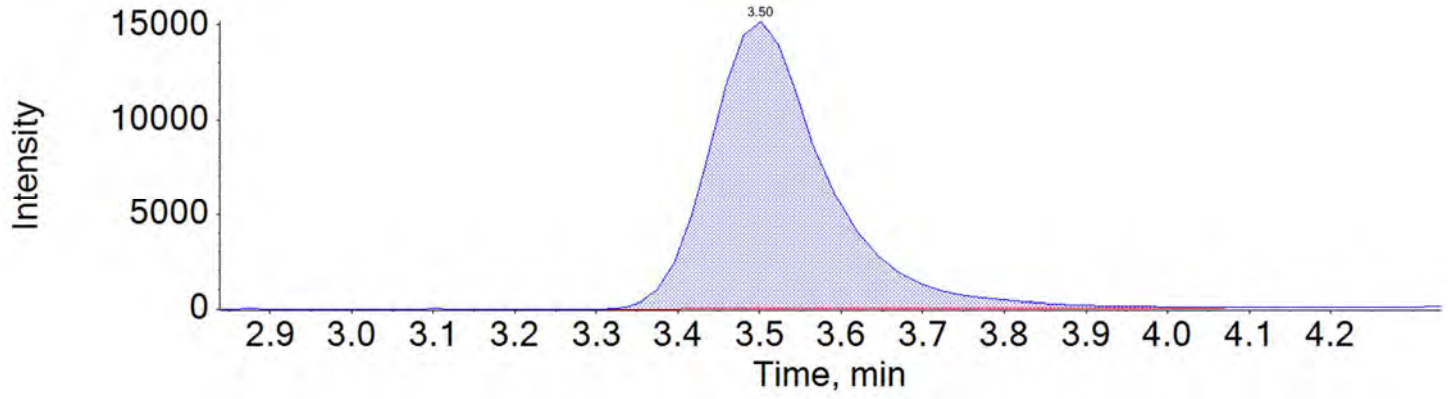
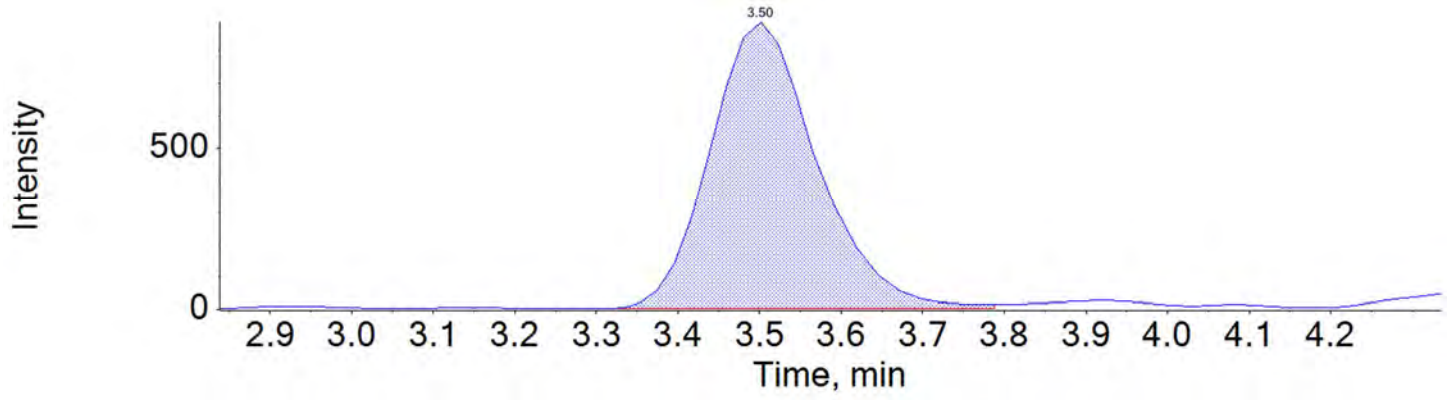
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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Chromatogram Report

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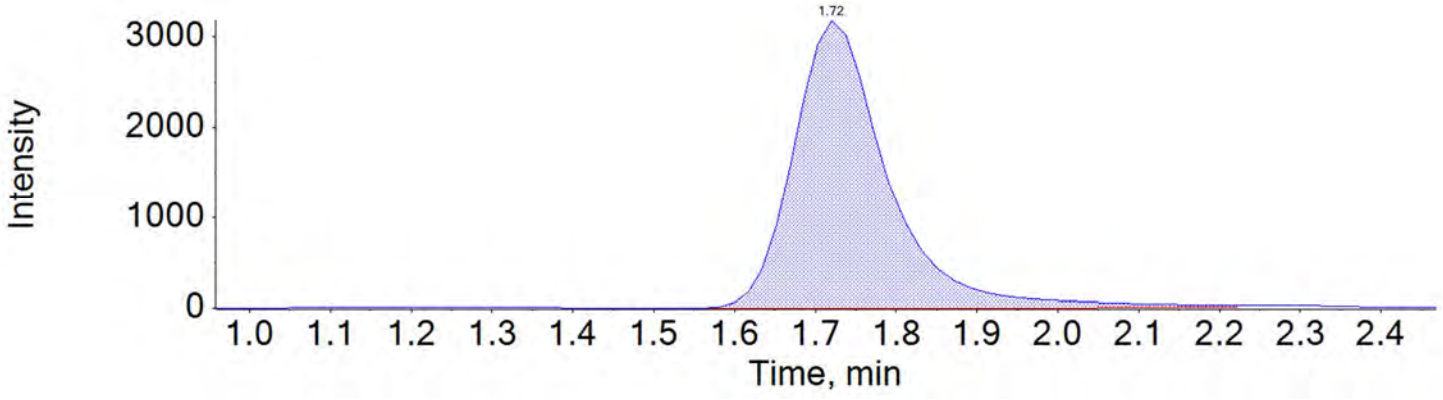
Printed: 16/05/2018 7:12:21 PM

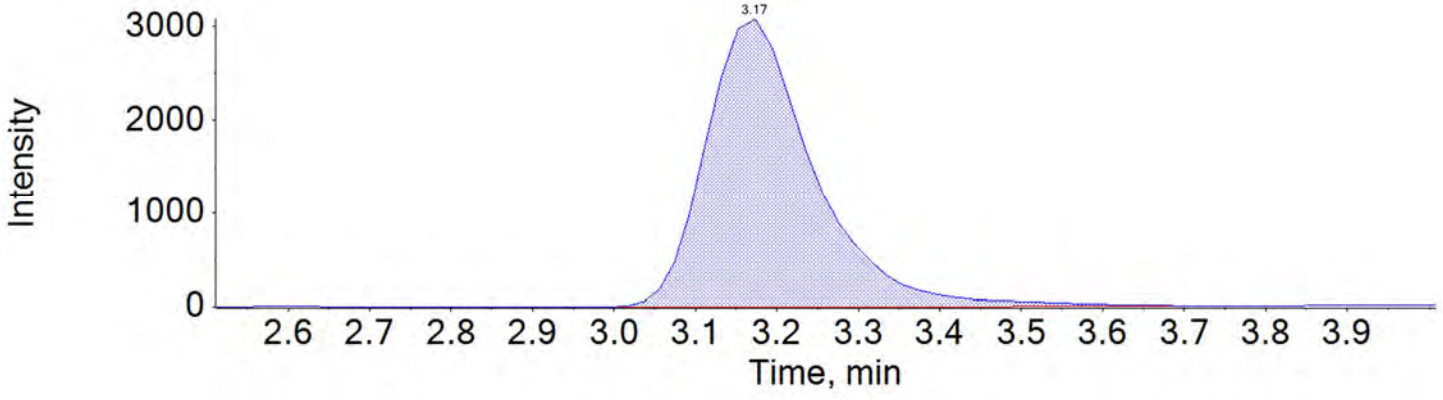
Sample Name	CQ690LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:22:27	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

Created with Analyst Reporter
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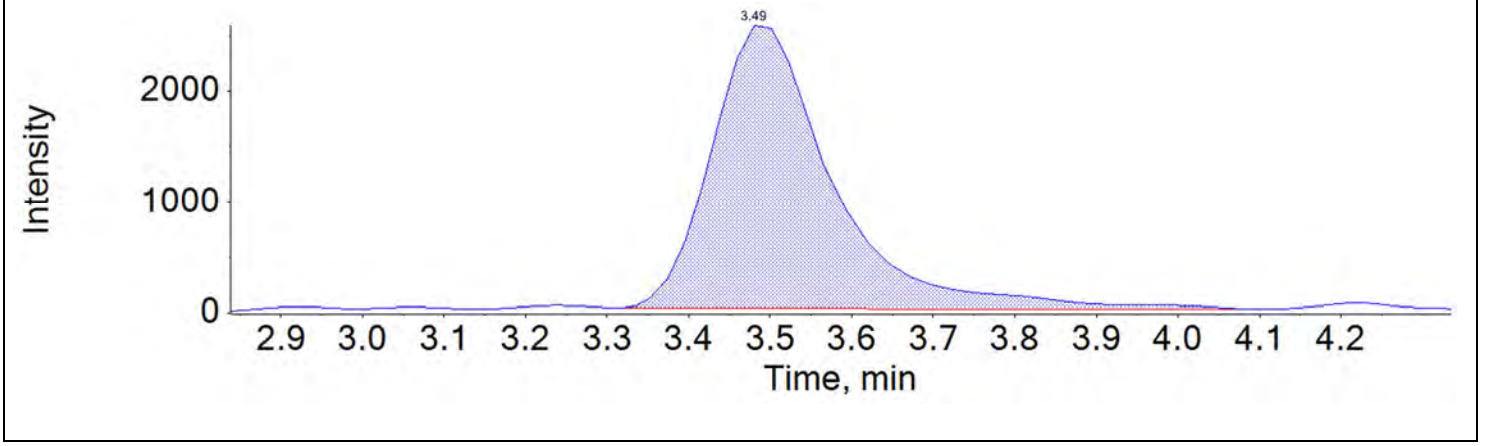
d5-EtFOSAA 589.0 / 419.0



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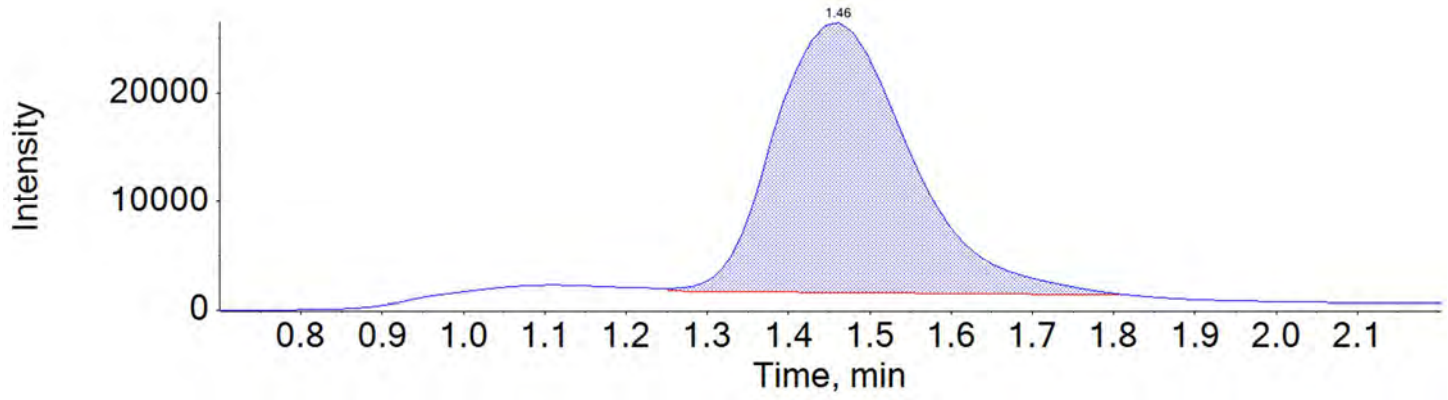
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:07:10 PM

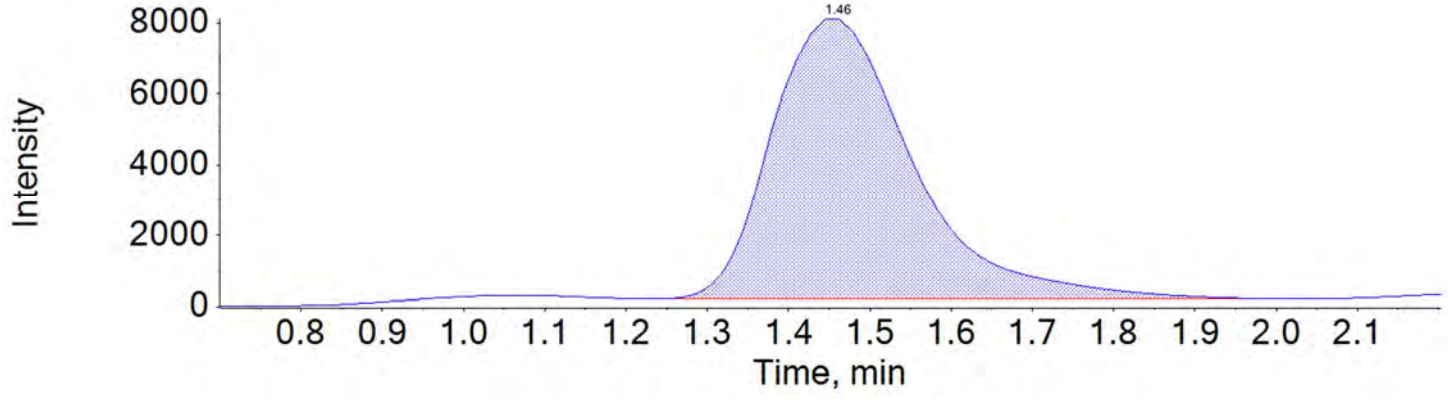
Sample Name	J5964-FS(0)	**Injection Vial**	14
Sample ID	WGNA-043018-RW-3103	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:31:24	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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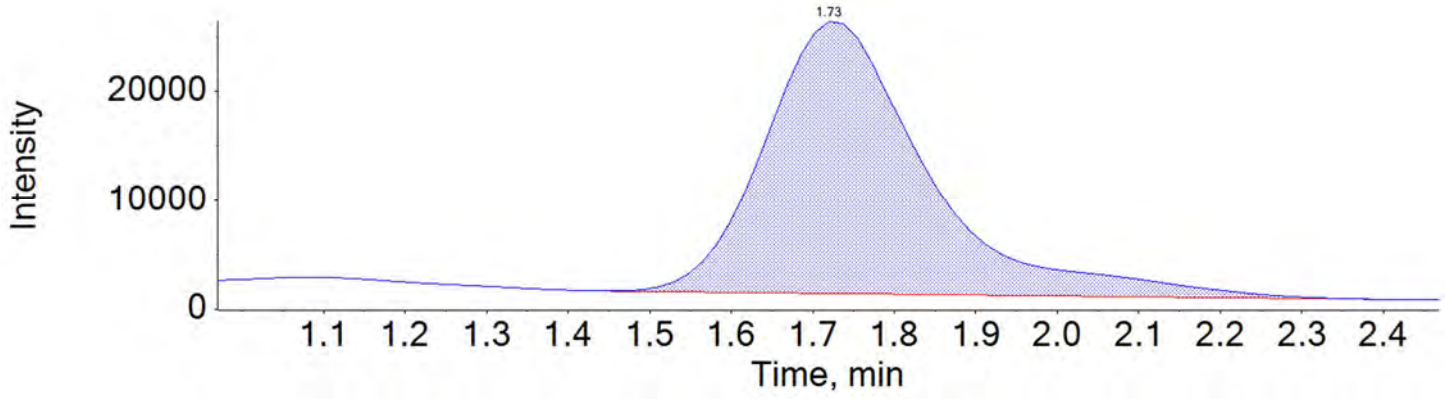
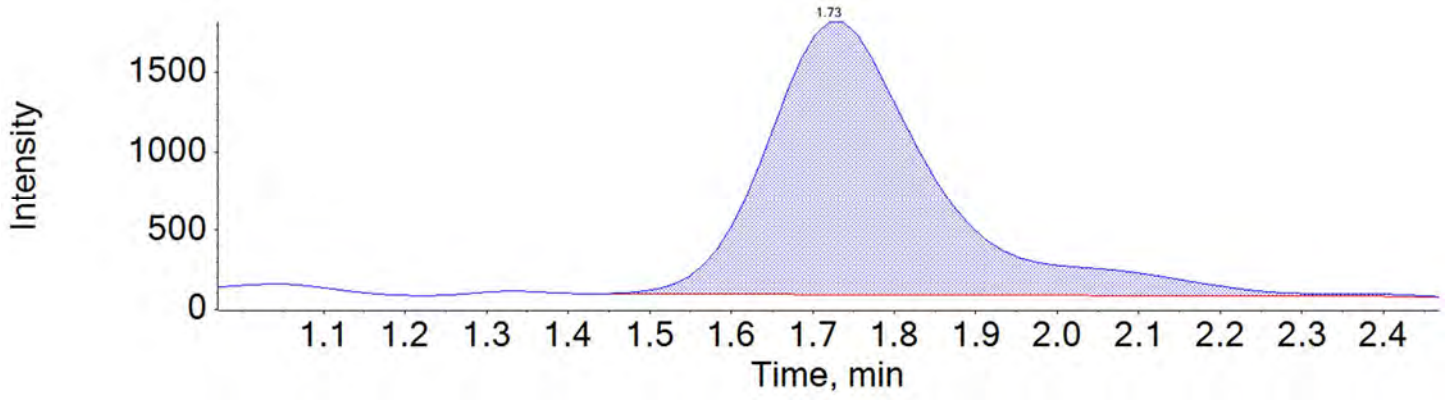
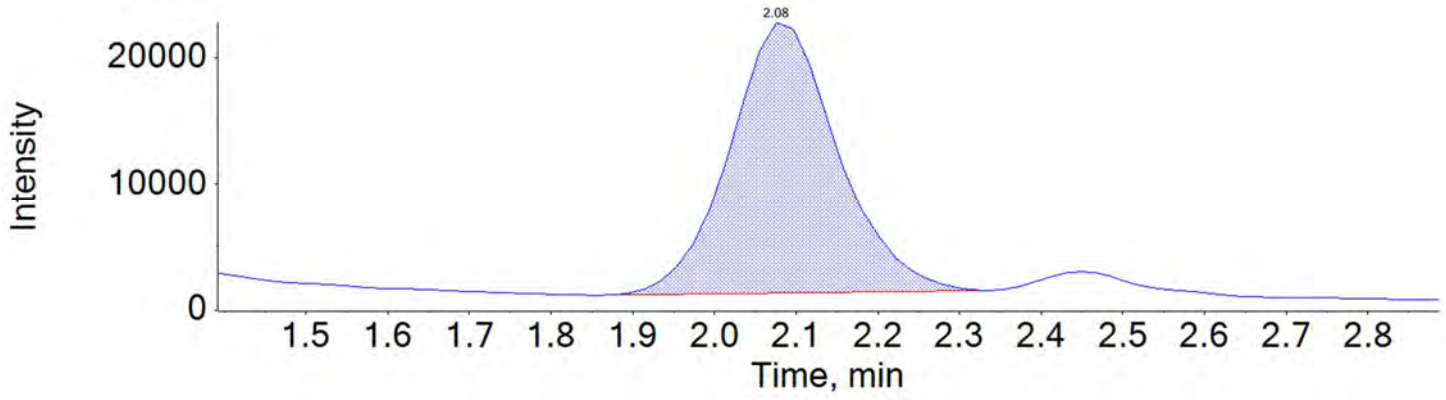
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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Chromatogram Report

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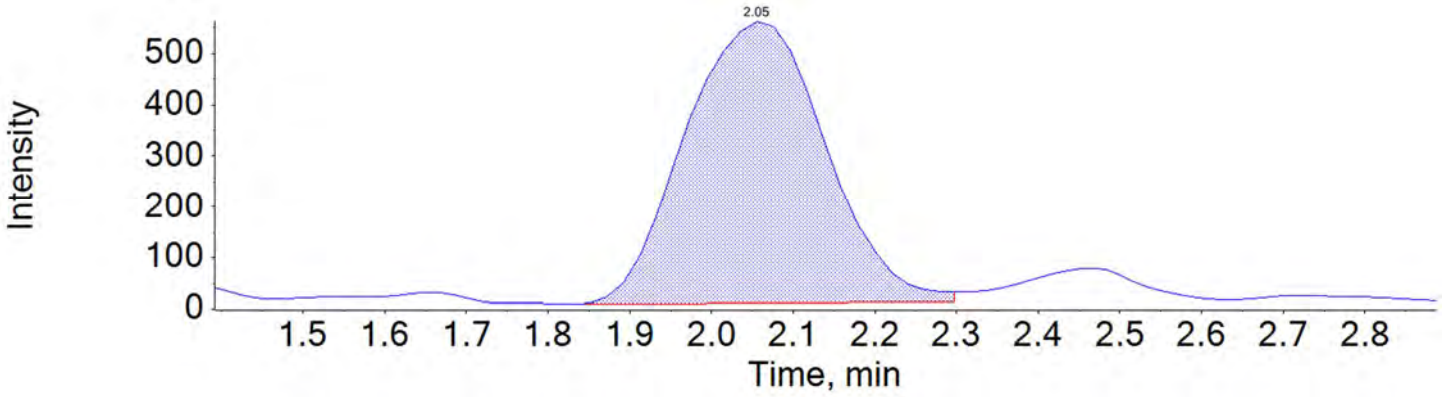
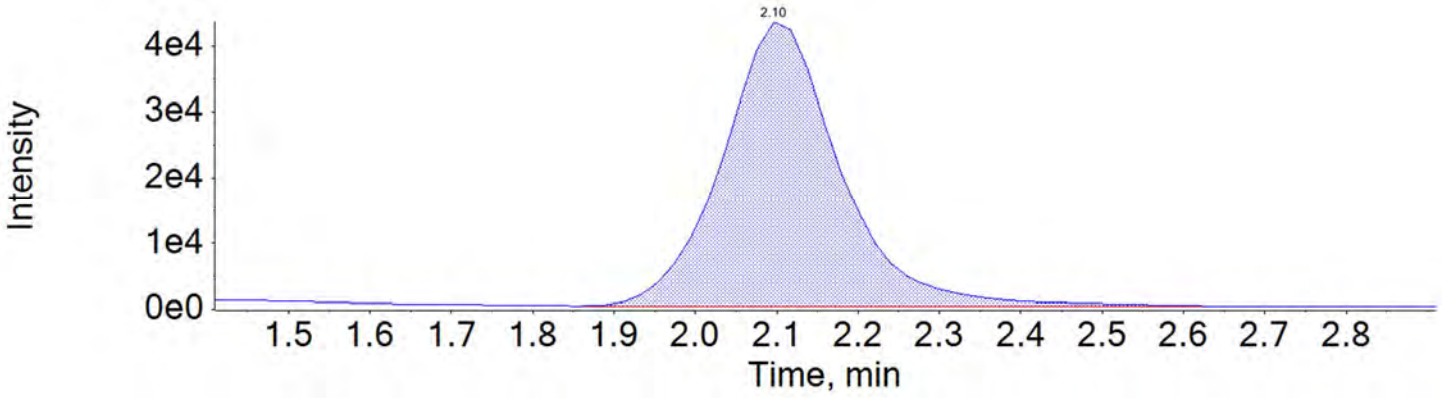
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



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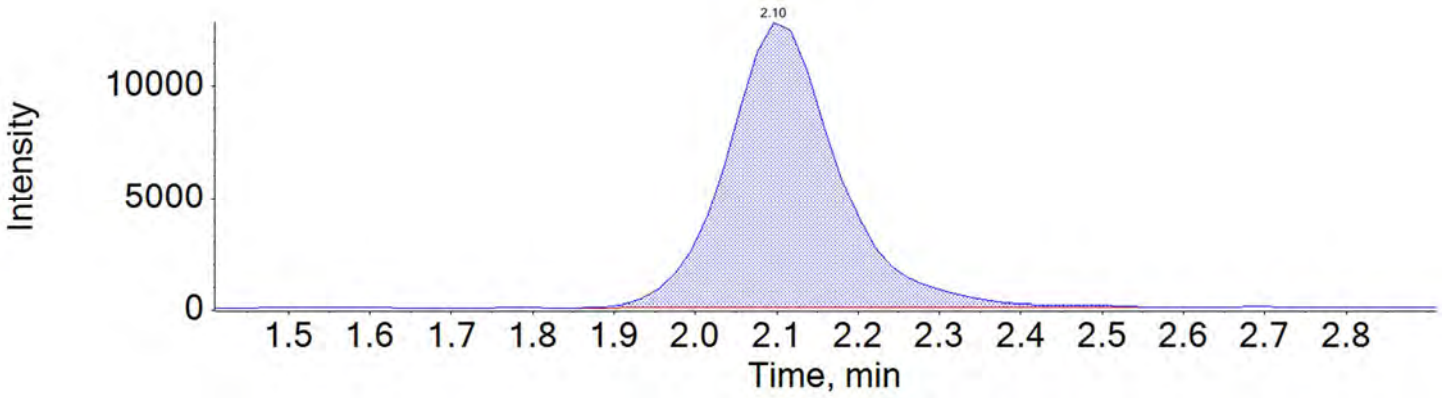

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Chromatogram Report

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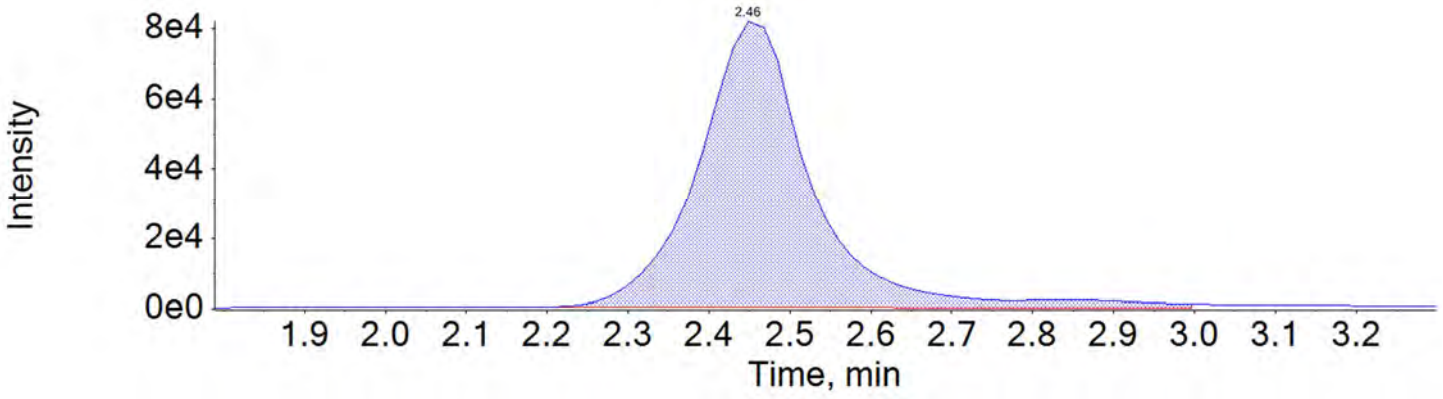
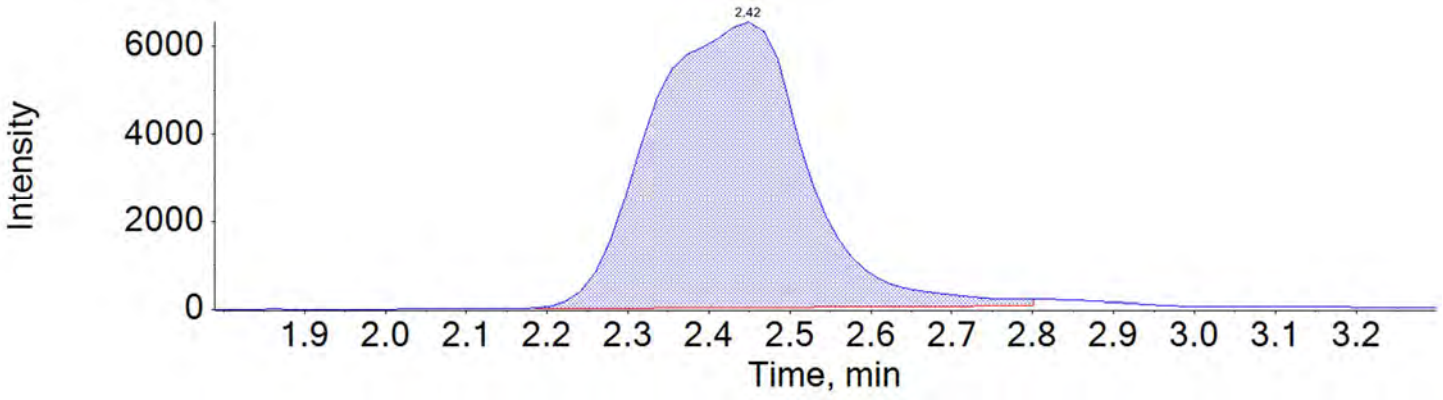
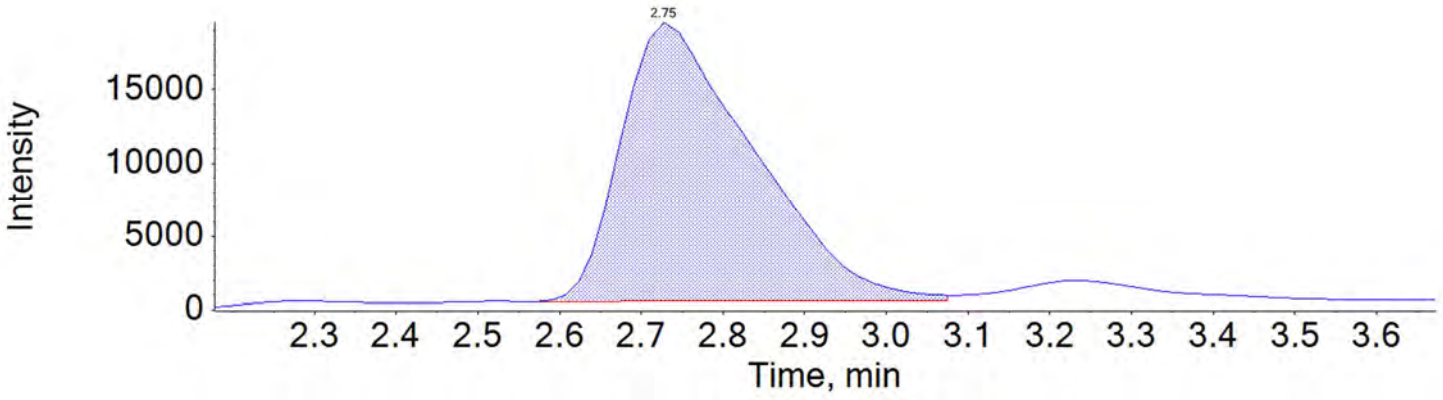
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



PFNA_1 463.0 / 419.0



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Chromatogram Report

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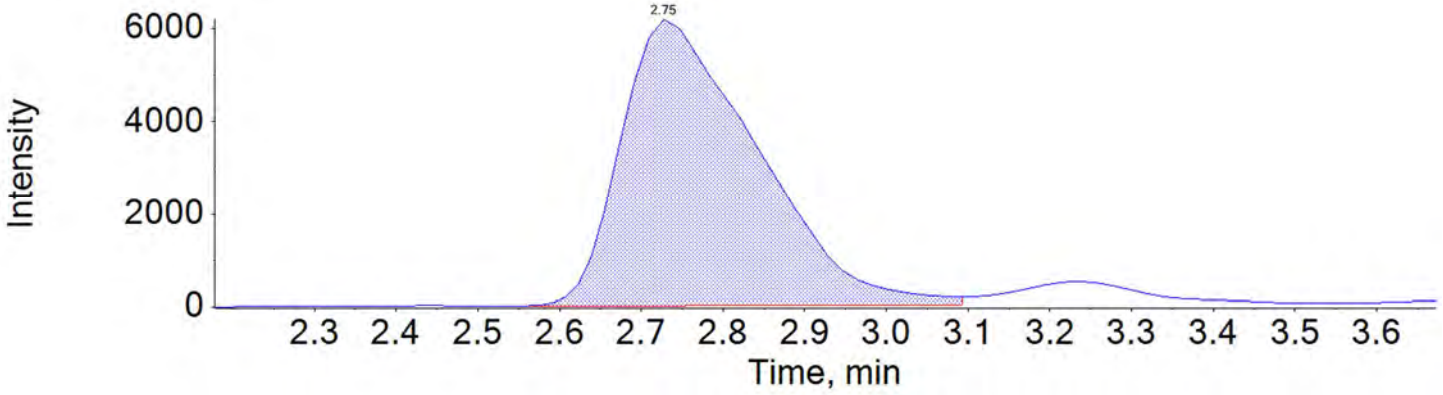
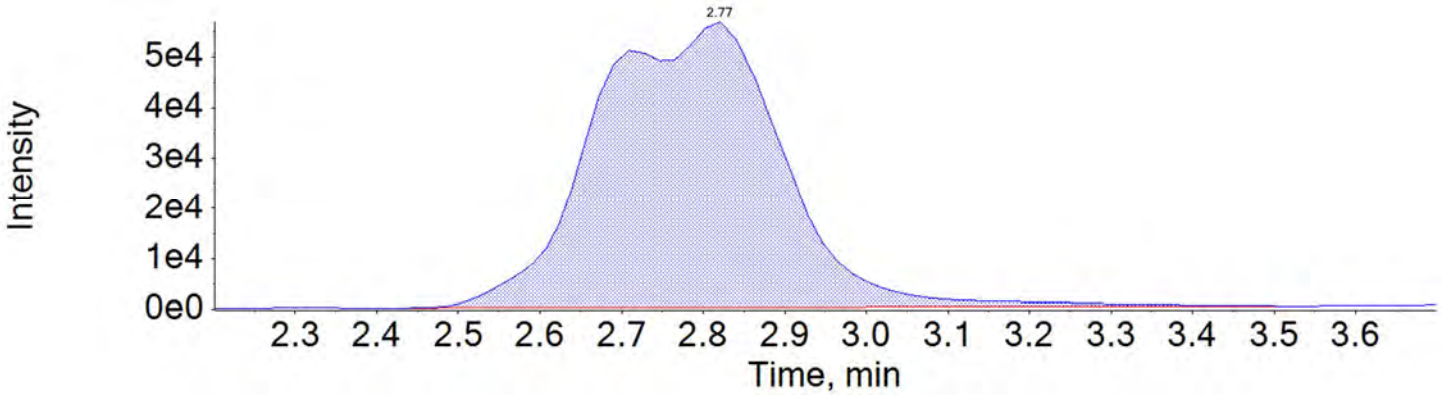
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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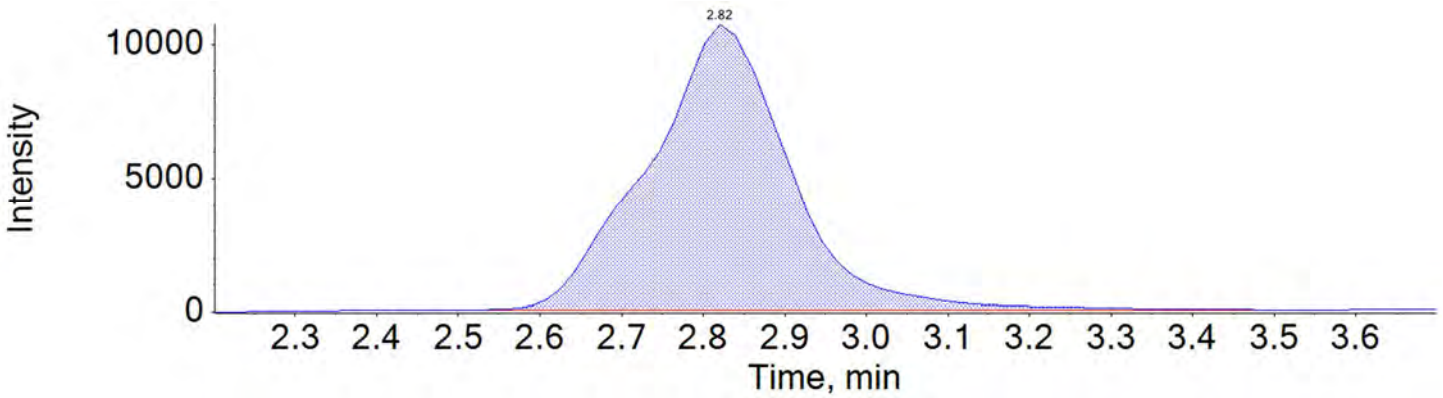

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Chromatogram Report

Created with Analyst Reporter
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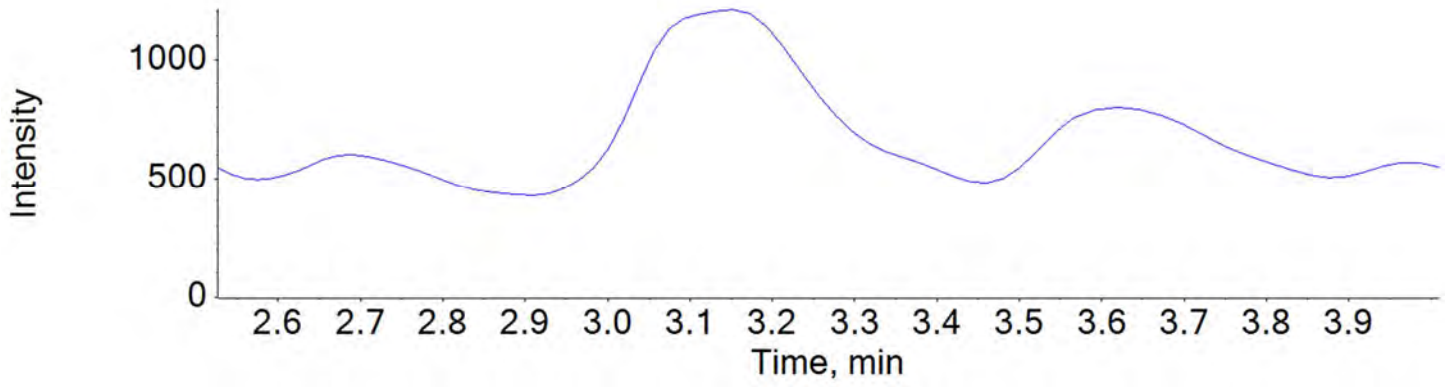
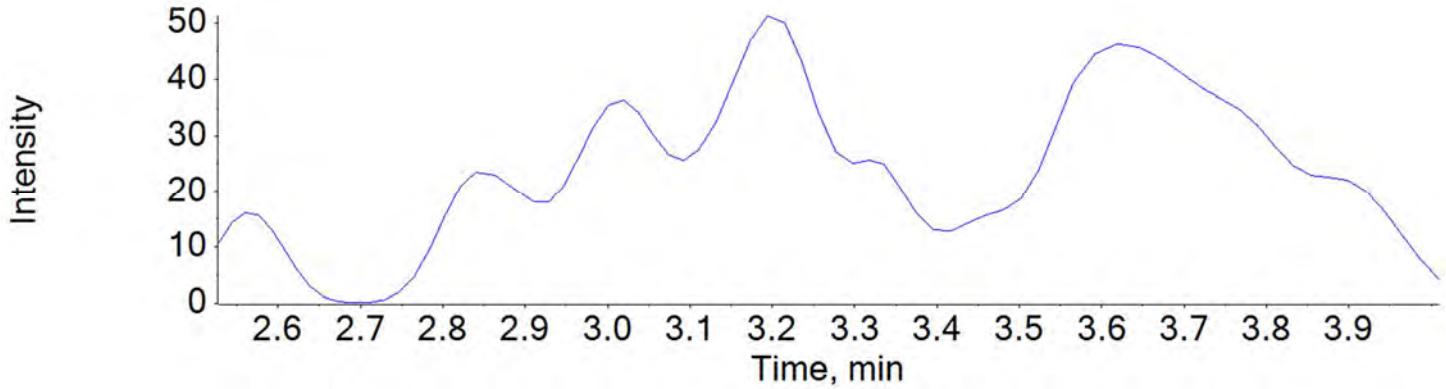
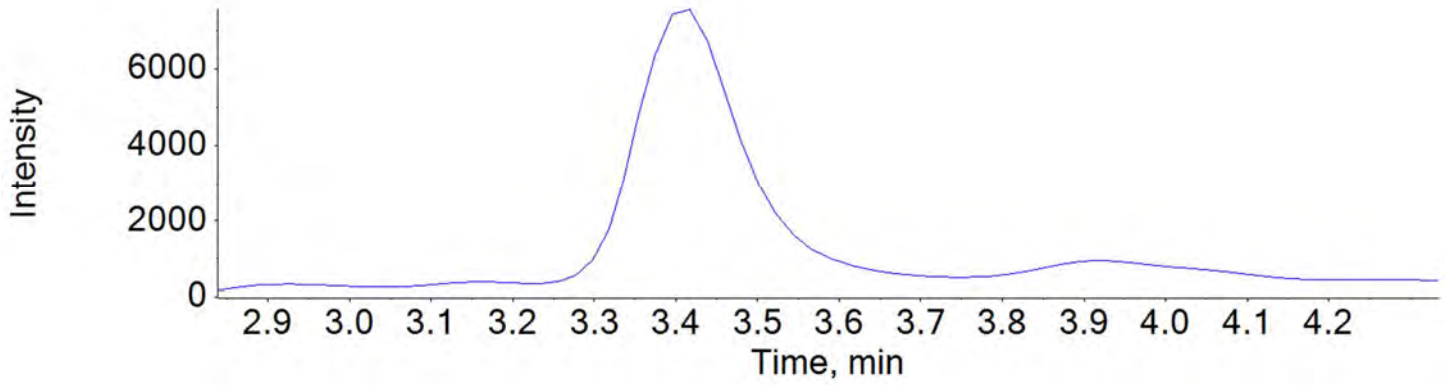
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



PFUnA_1 563.0 / 519.0



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Chromatogram Report

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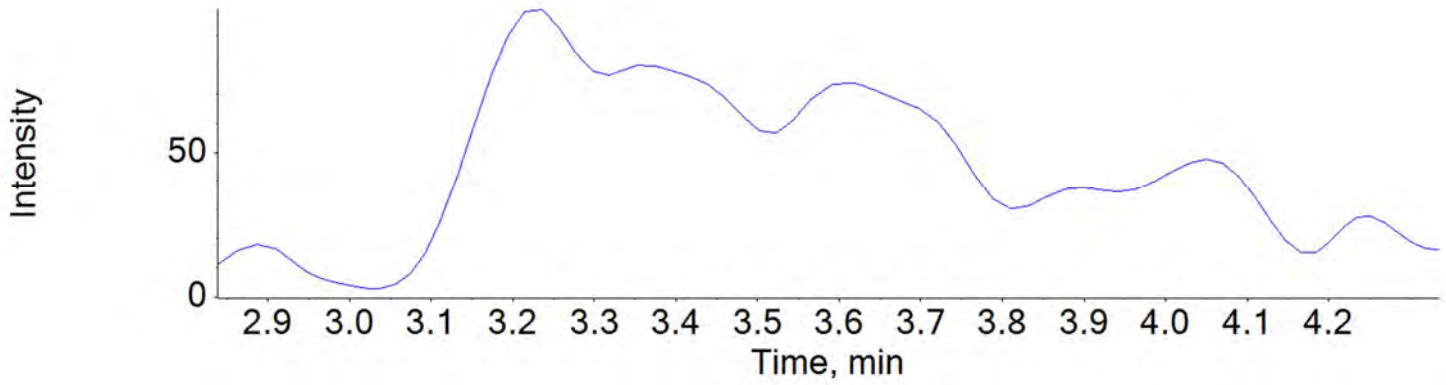
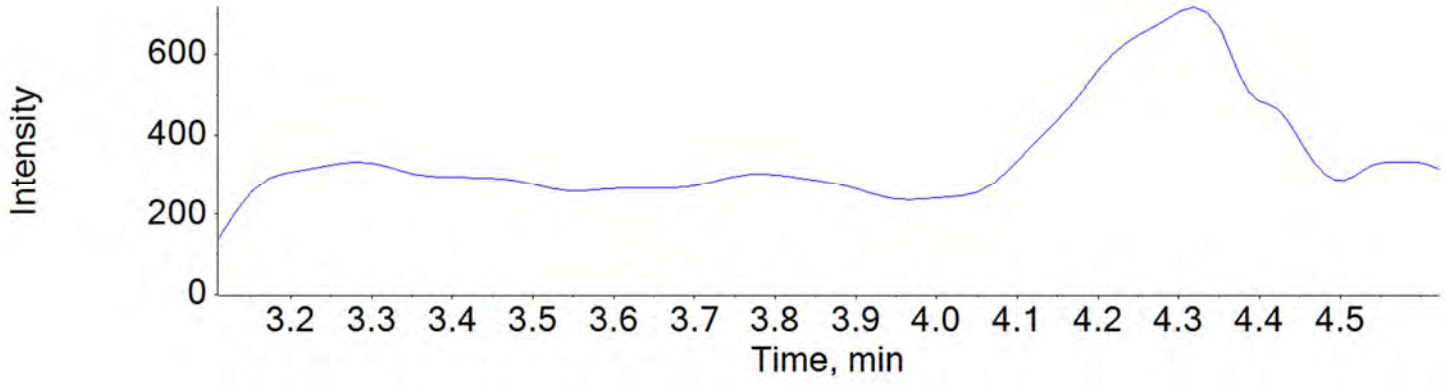
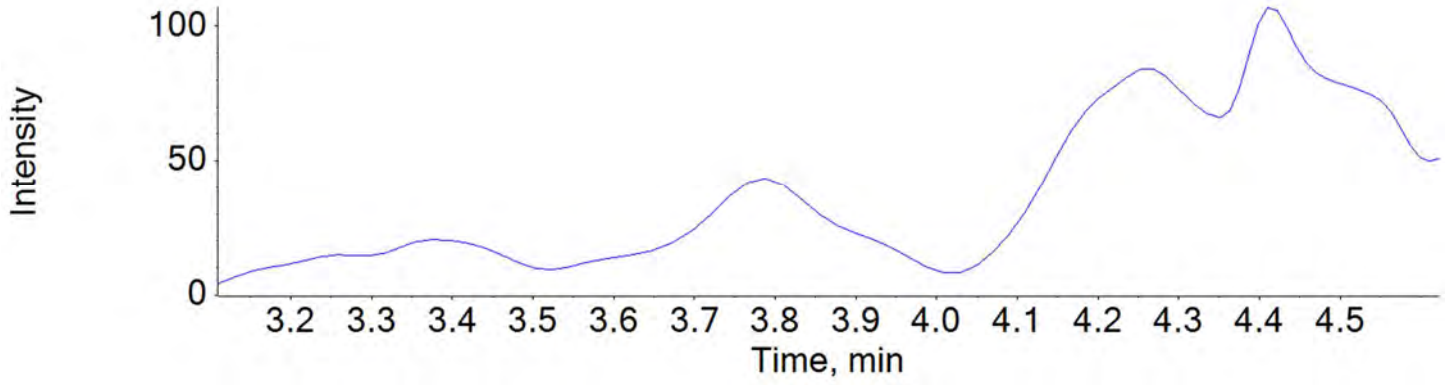
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



PFDoA_2 613.0 / 319.0



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Chromatogram Report

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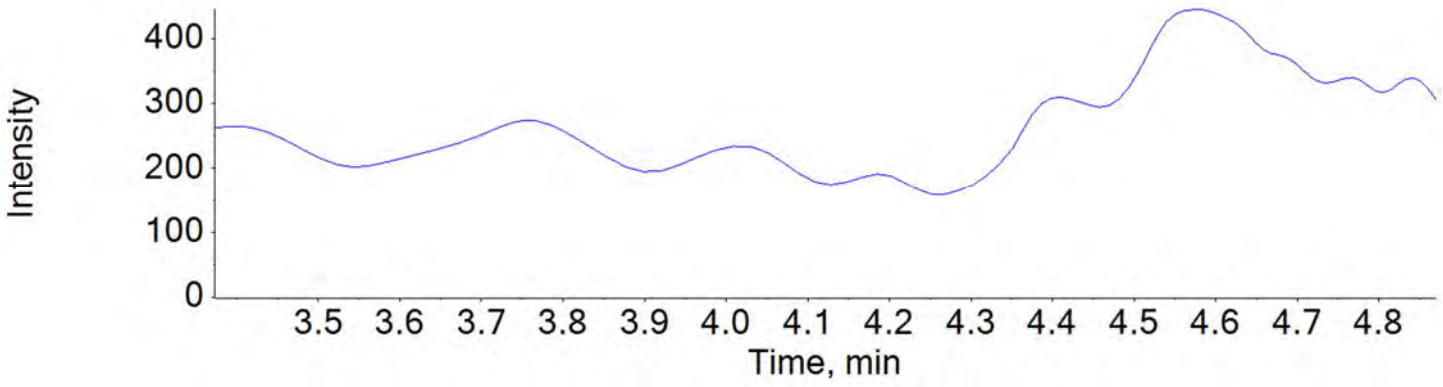
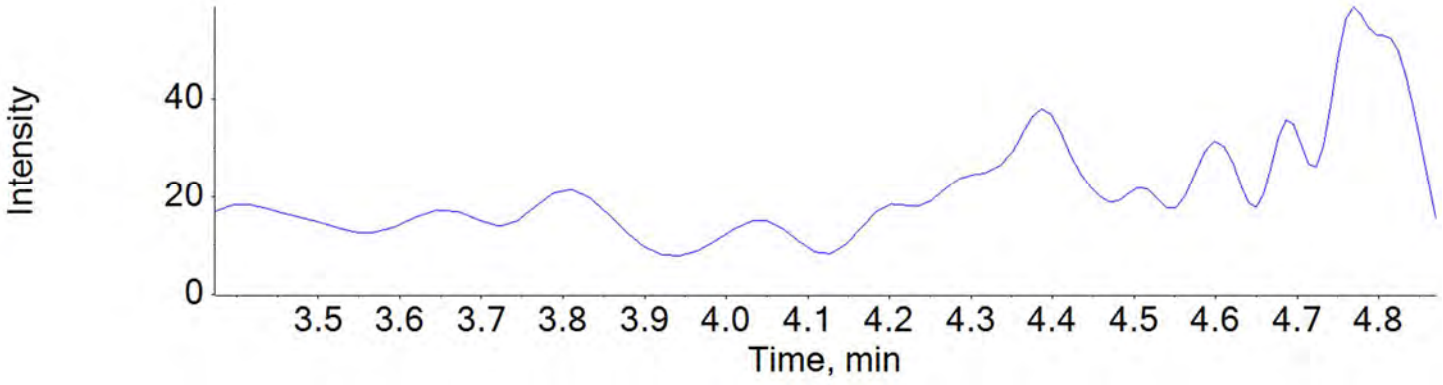
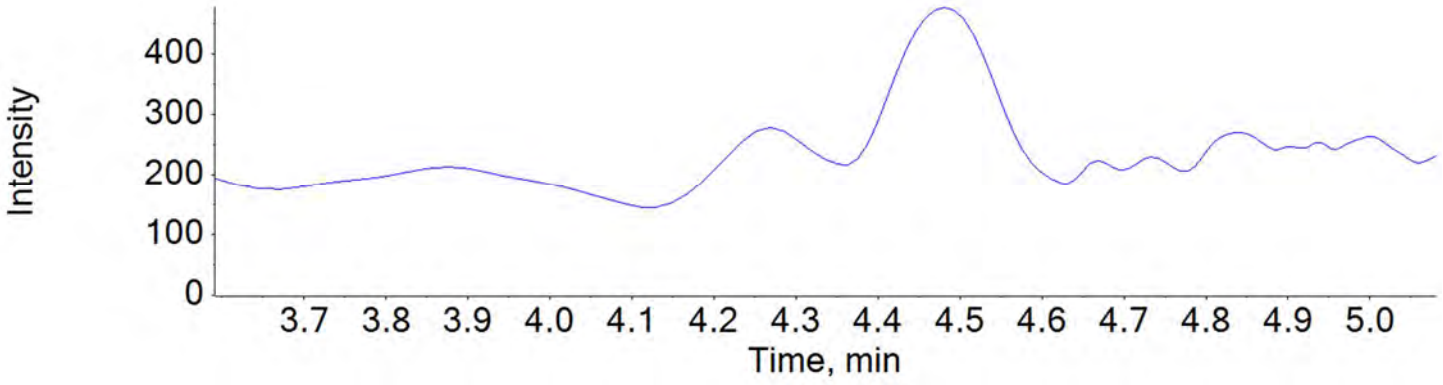
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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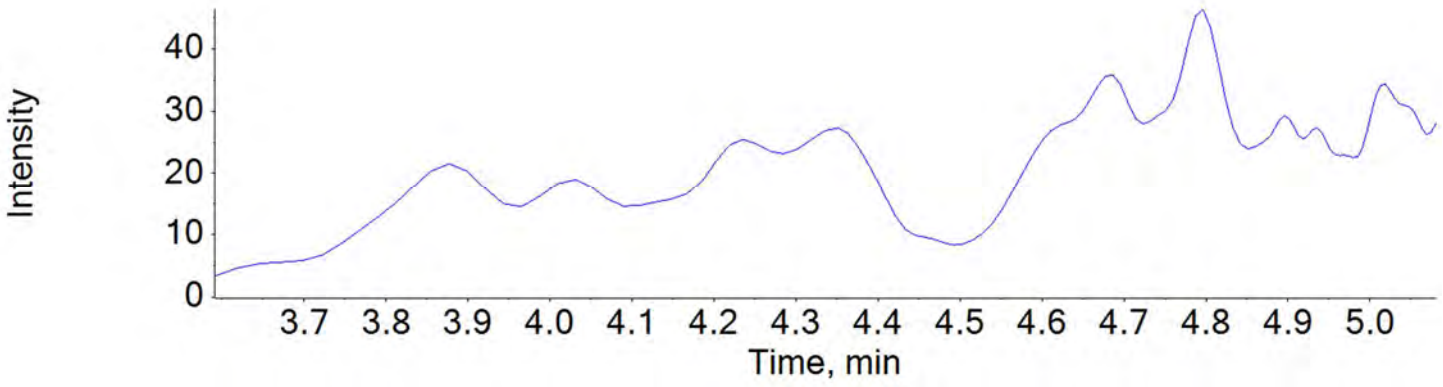
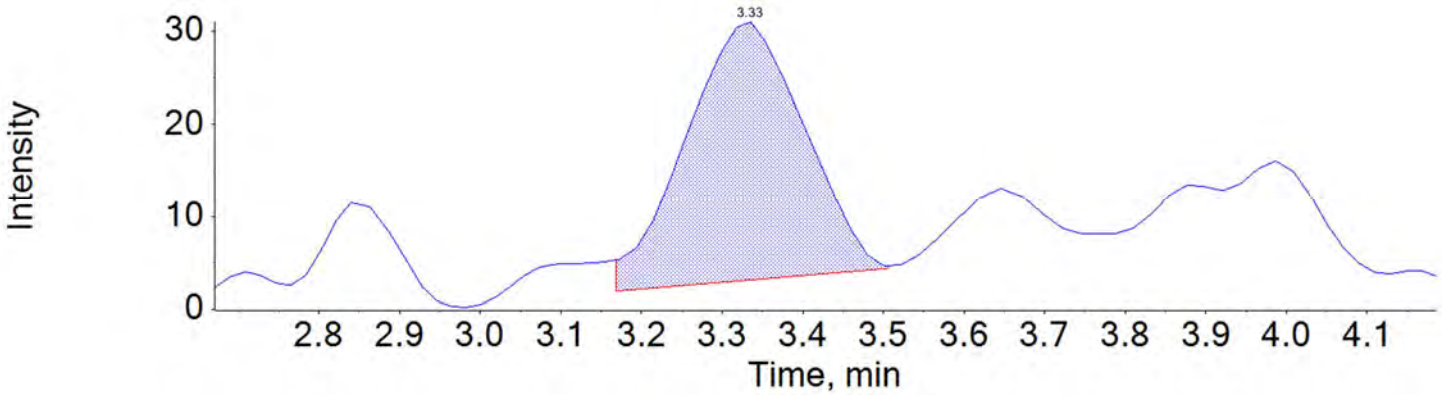
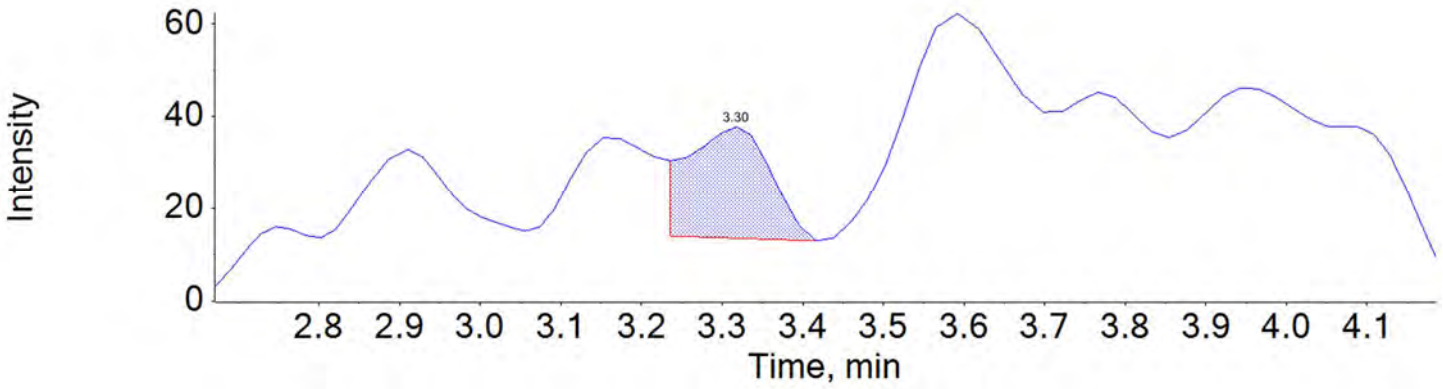
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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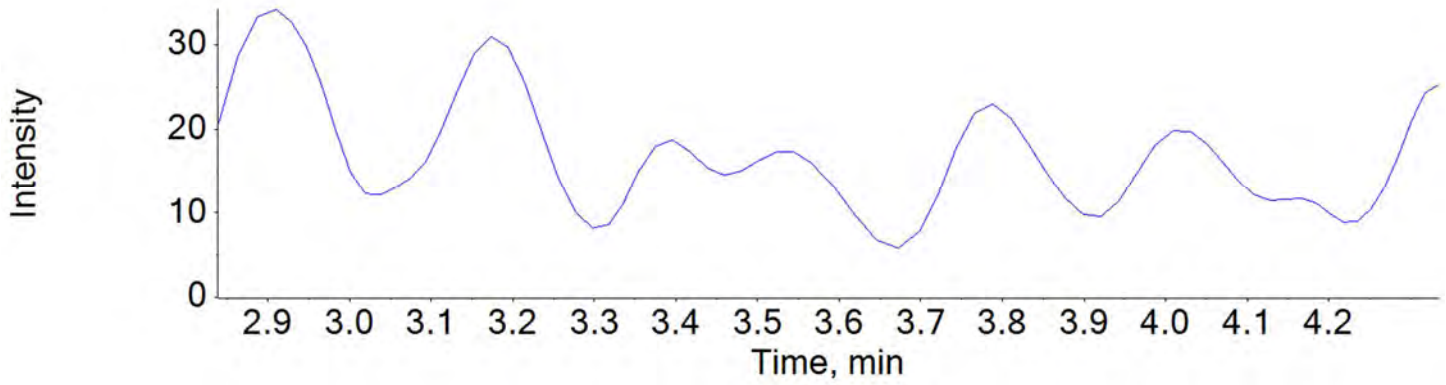
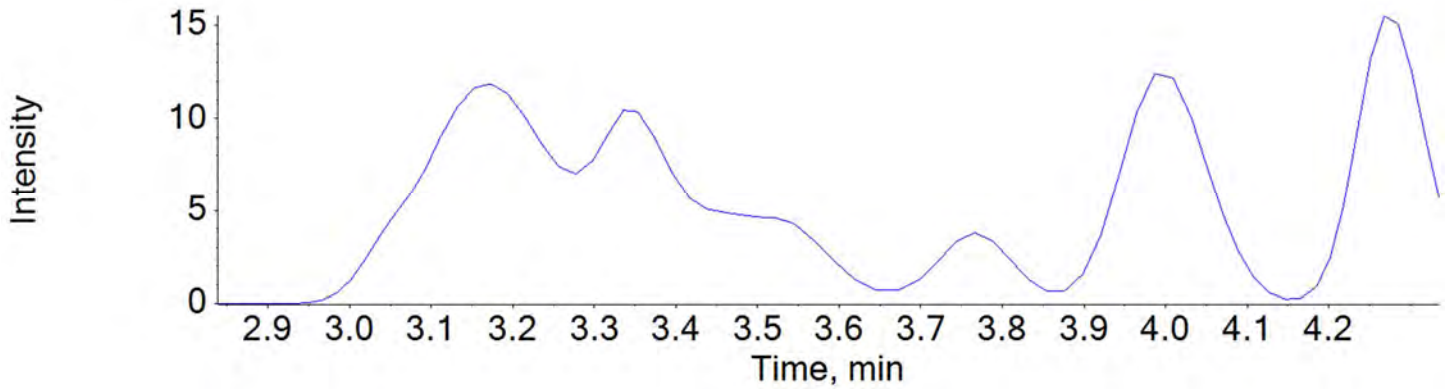
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:07:10 PM

NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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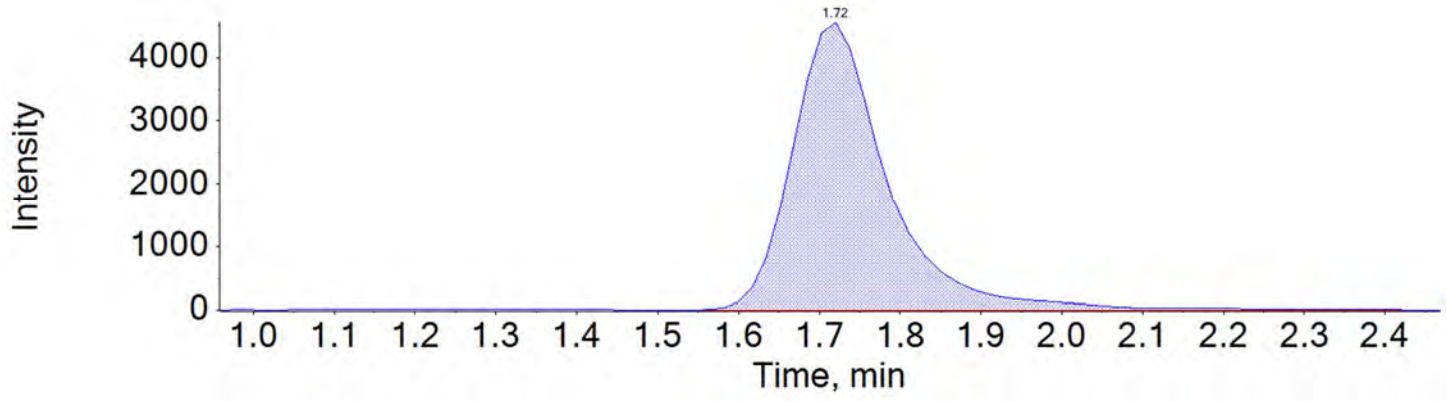
Chromatogram Report

Created with Analyst Reporter
Printed: 16/05/2018 7:12:23 PM

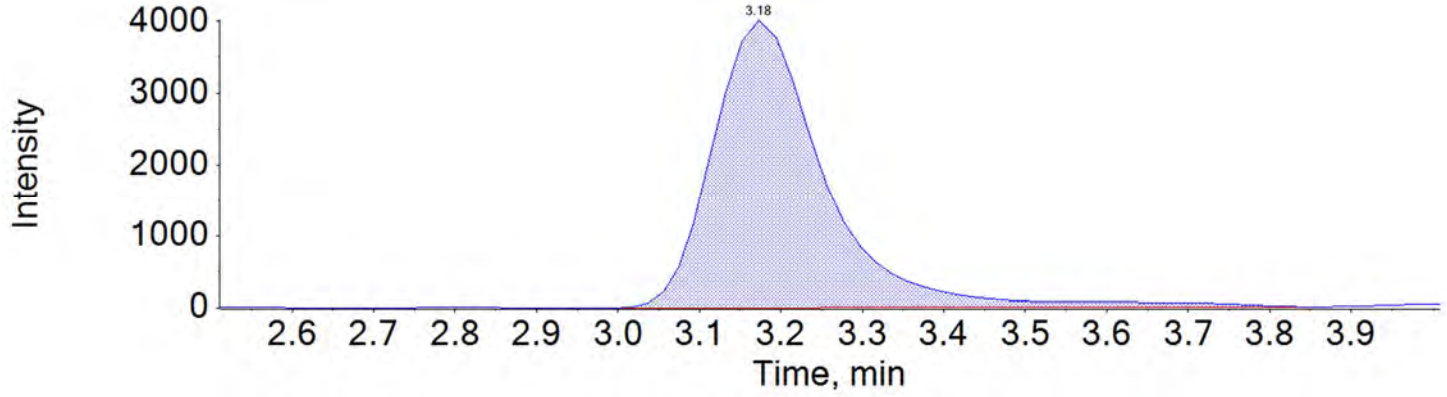
Sample Name	J5964-FS(0)	**Injection Vial**	14
Sample ID	WGNA-043018-RW-3103	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:31:24	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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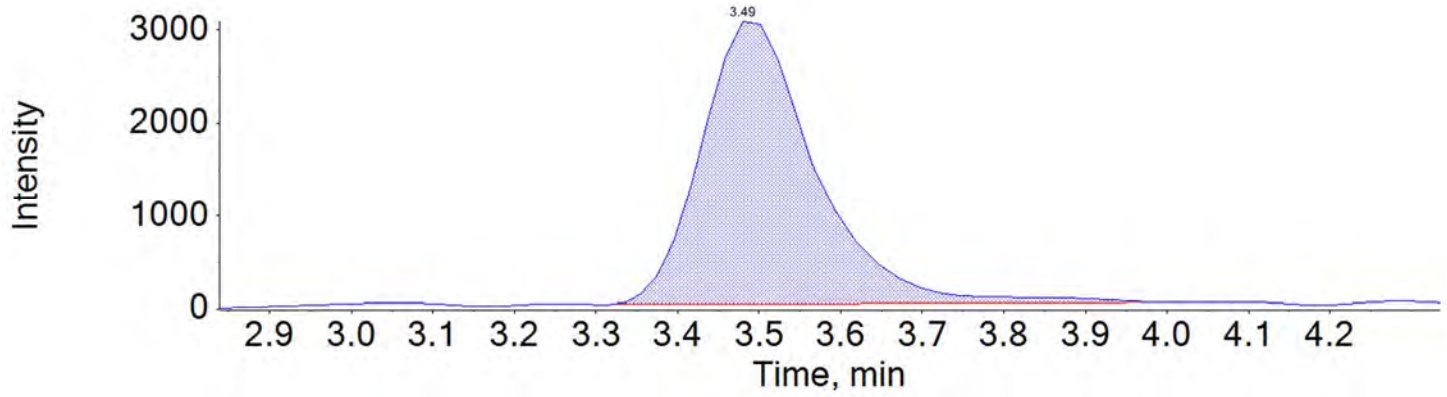
d5-EtFOSAA 589.0 / 419.0



BATTELLE

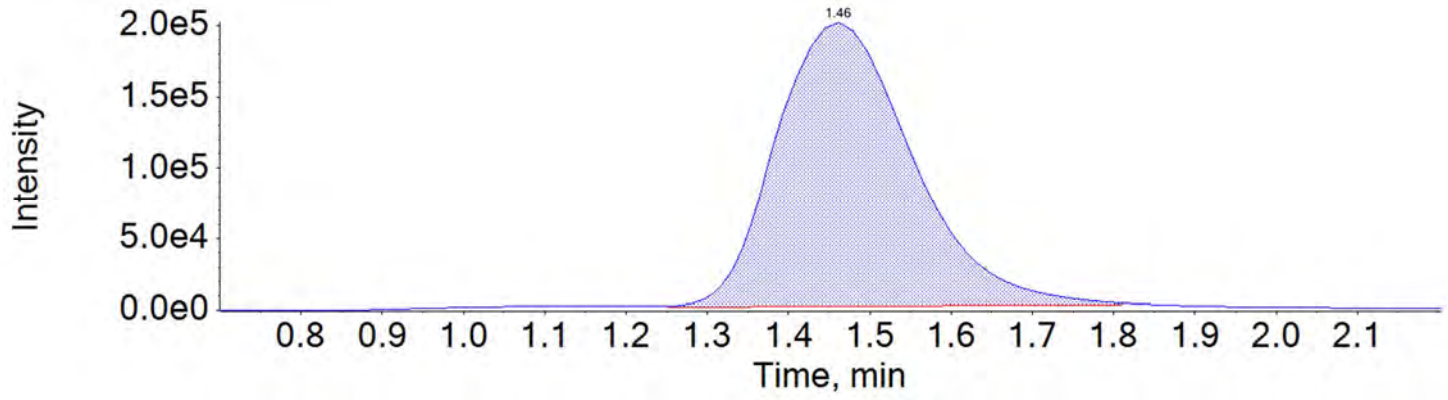
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:07:16 PM

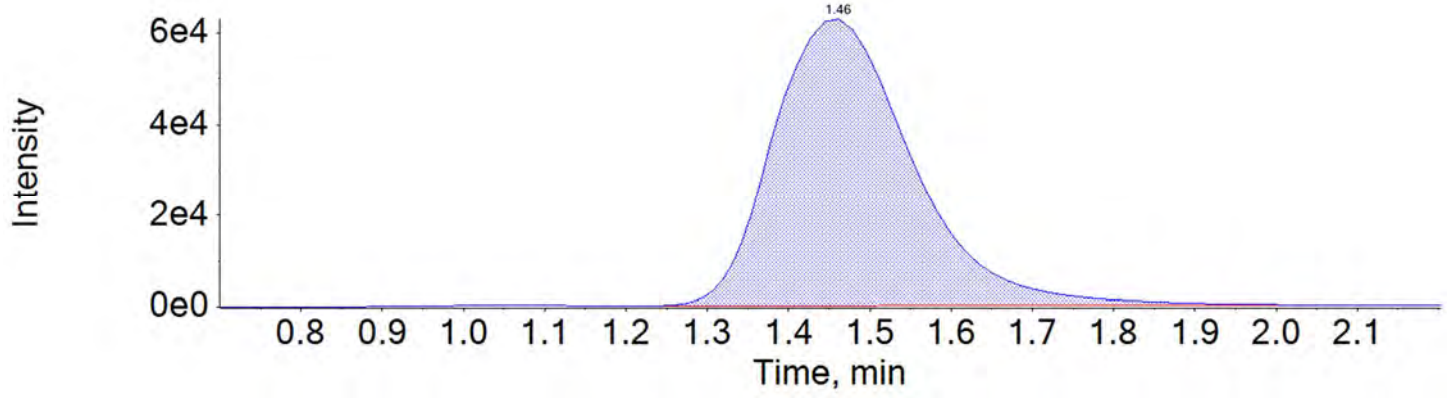
Sample Name	J5964MS-FS(0)	**Injection Vial**	15
Sample ID	WGNA-043018-RW-3103	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:40:20	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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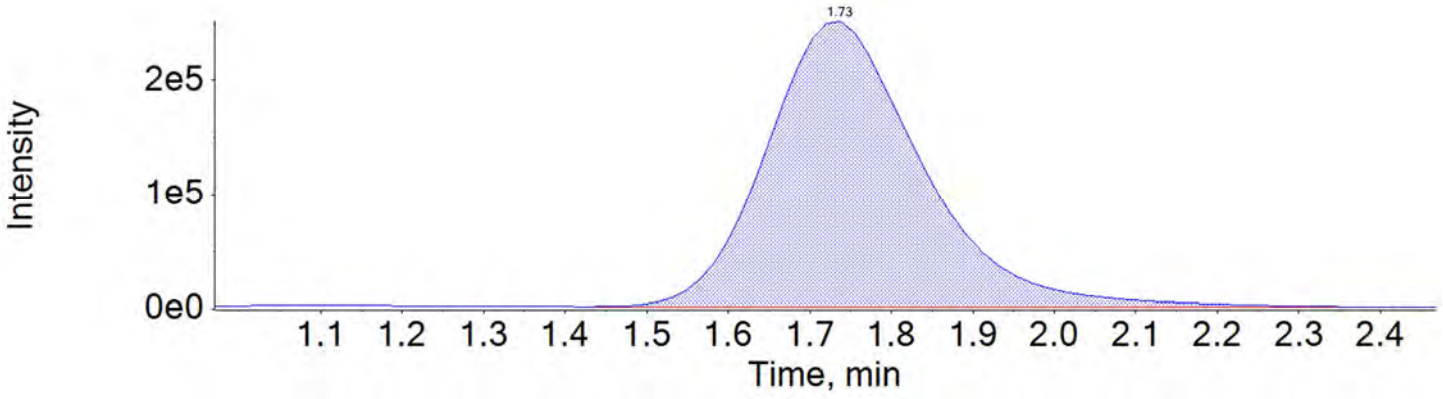
PFHxA_1 313.0 / 269.0



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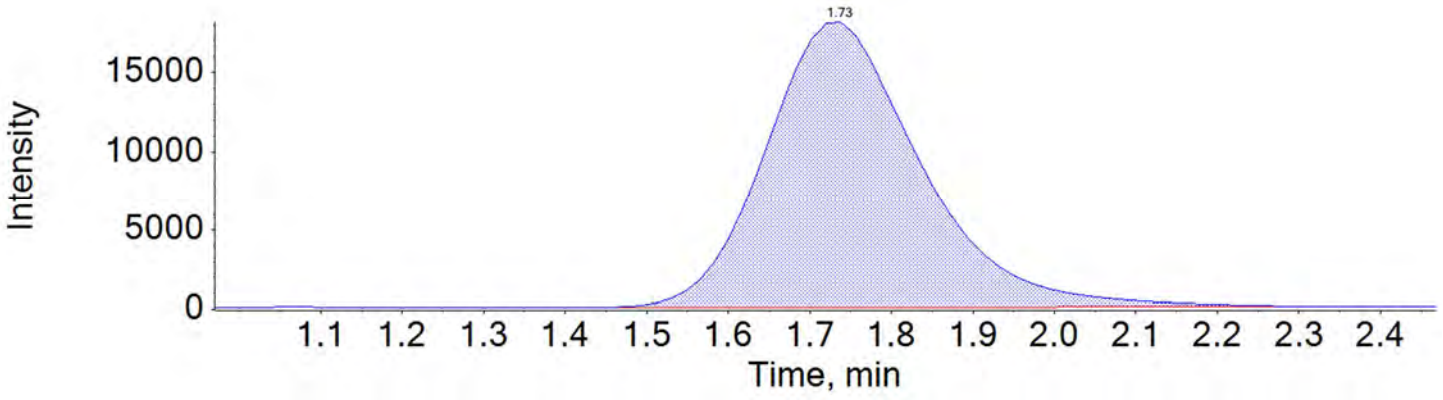
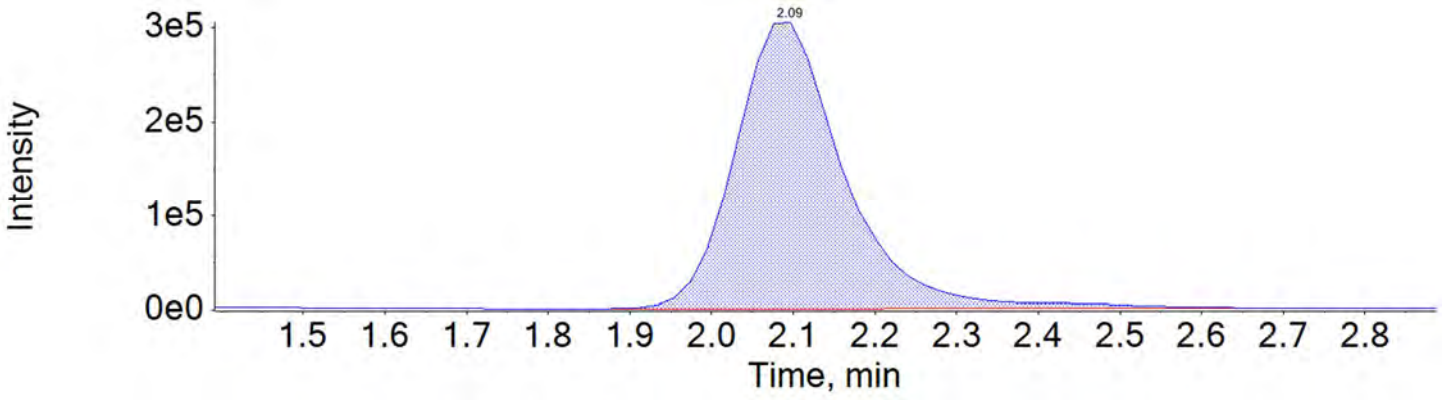


PFHpA_1 363.0 / 319.0



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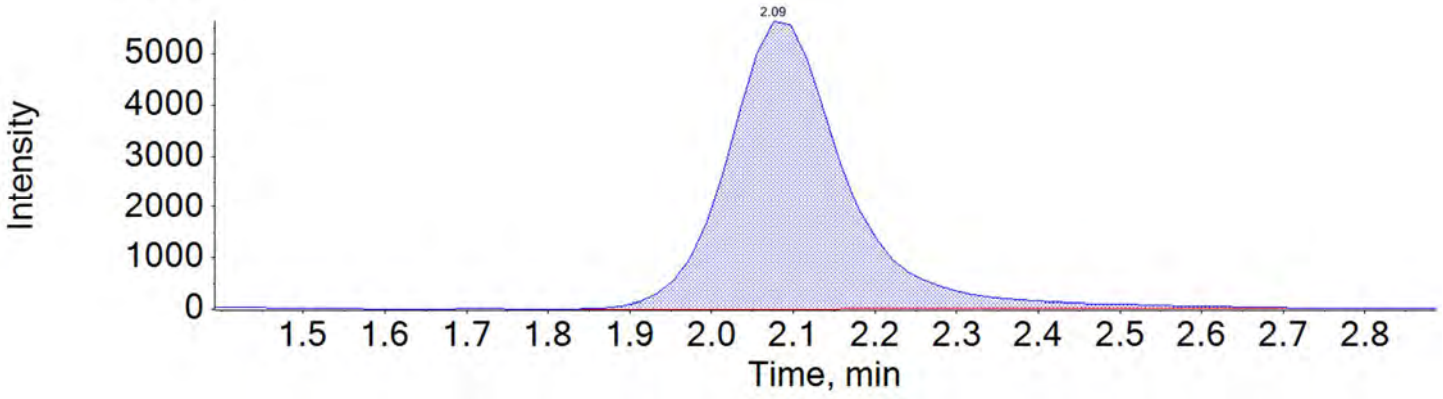

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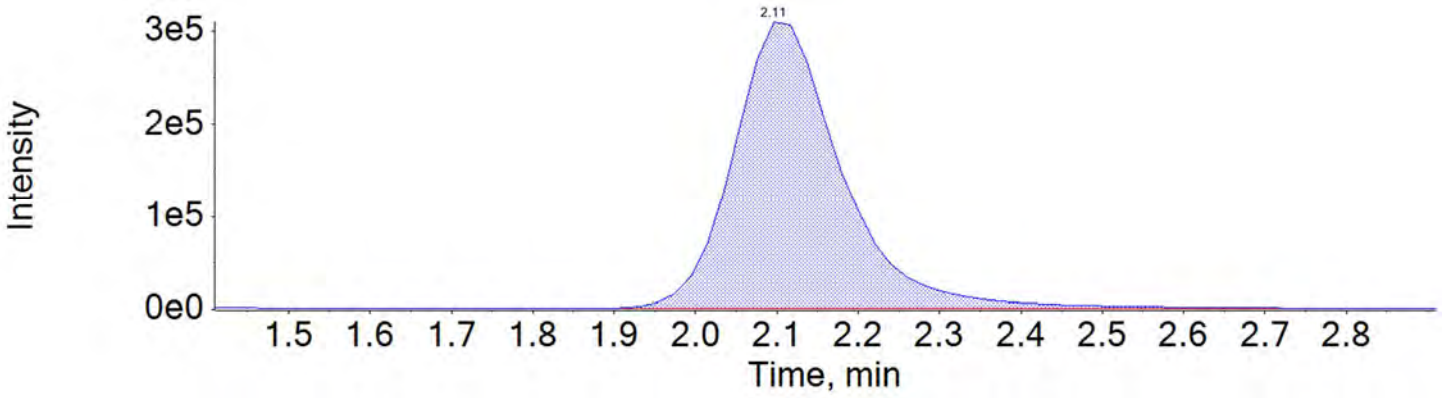

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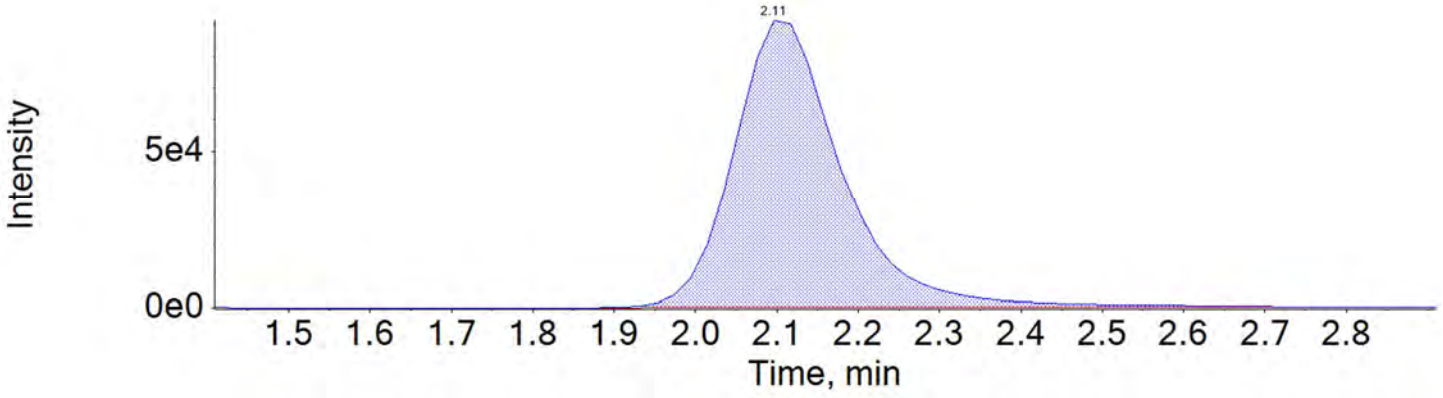

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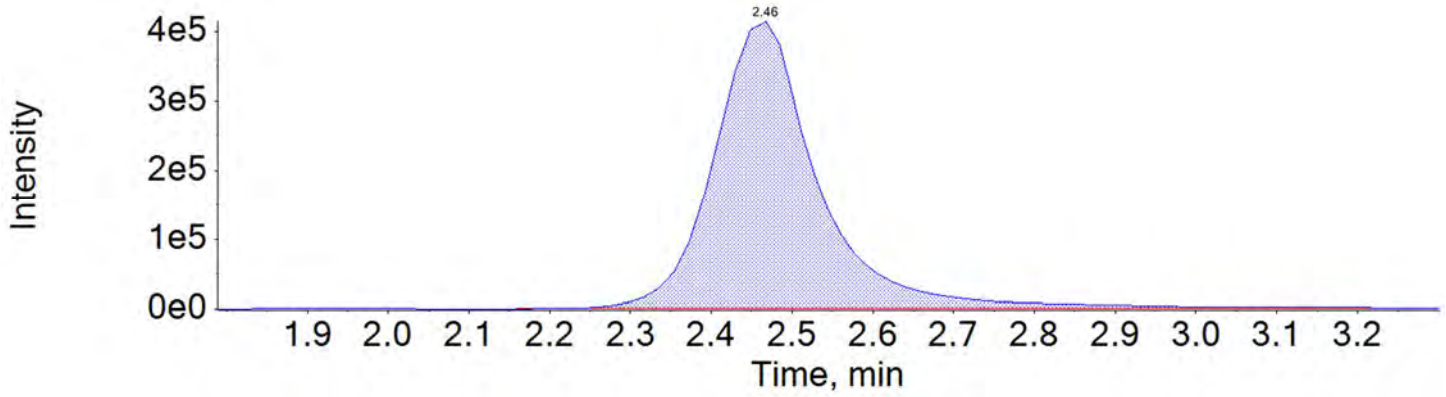

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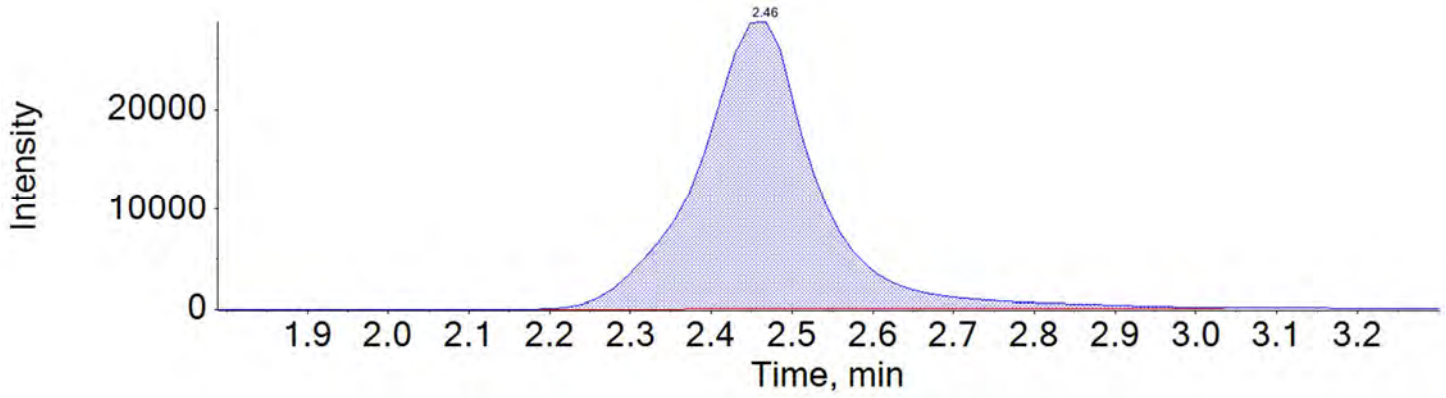
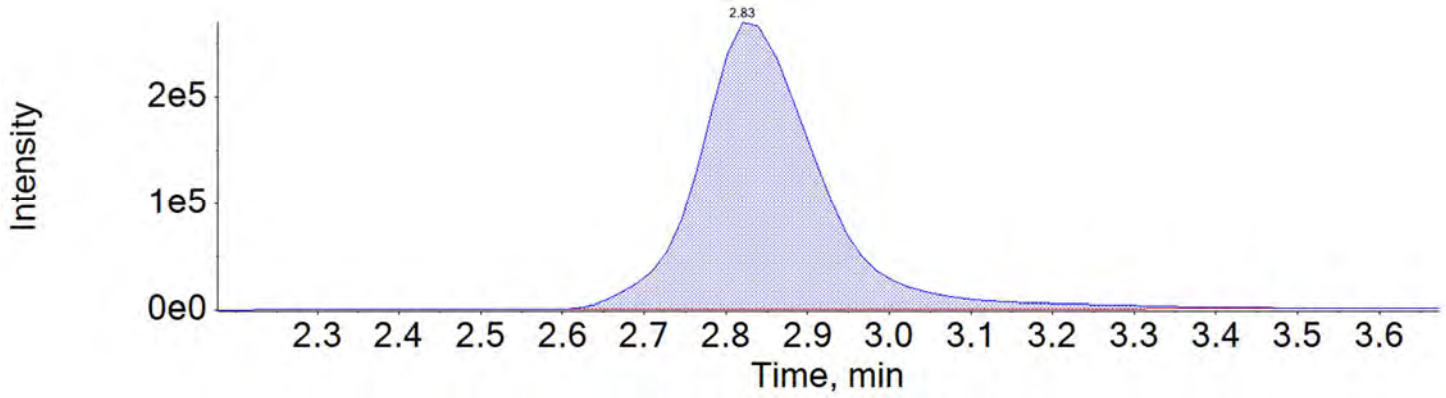


PFNA_1 463.0 / 419.0



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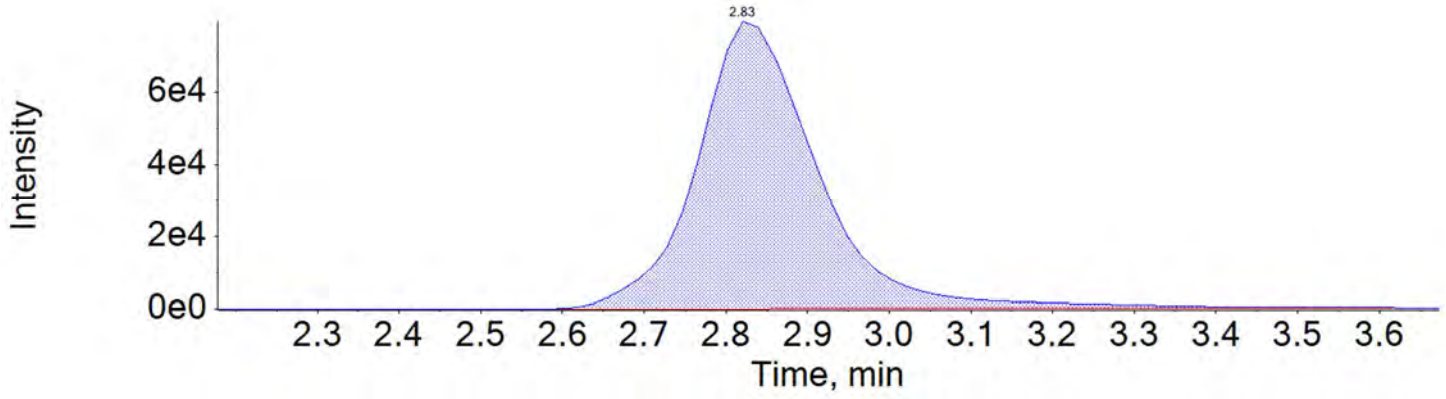
PFNA_2 463.0 / 219.0



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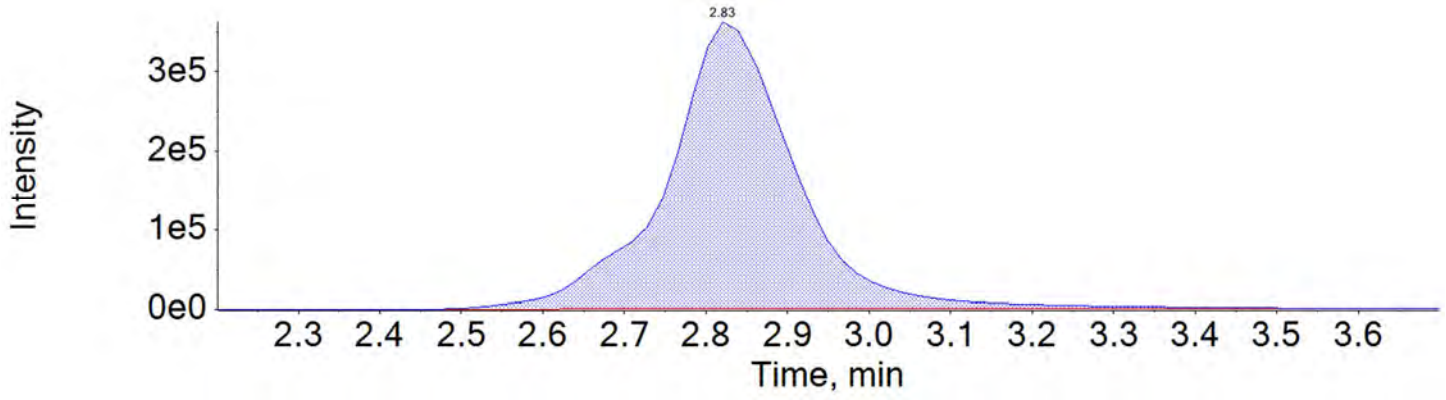

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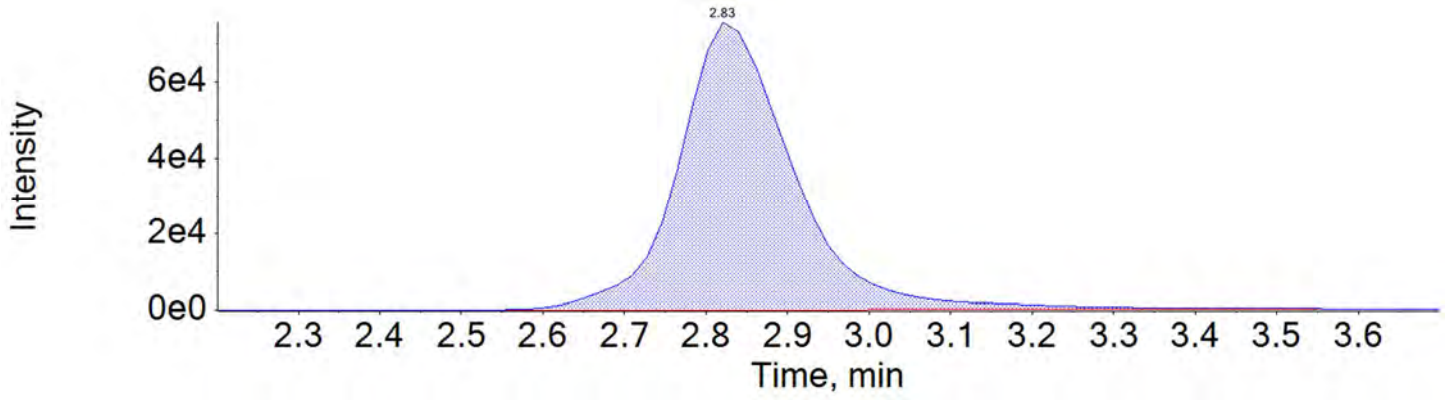

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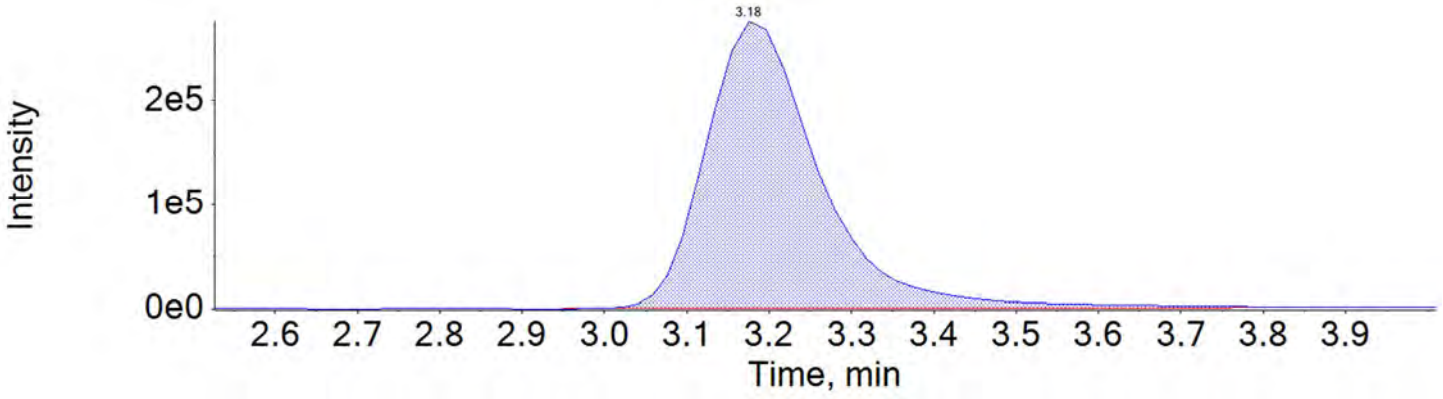
PFDA_1 513.0 / 469.0



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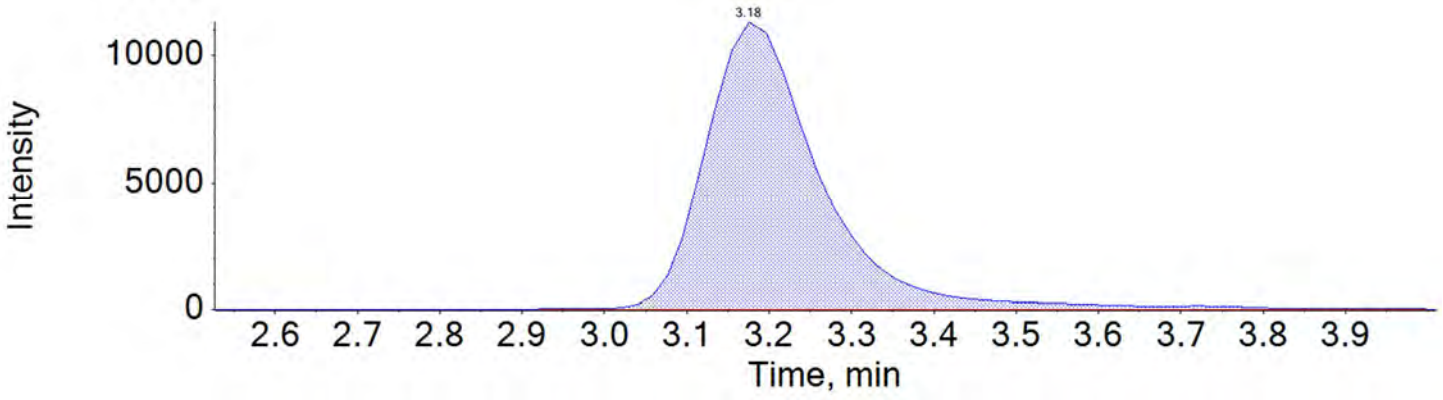
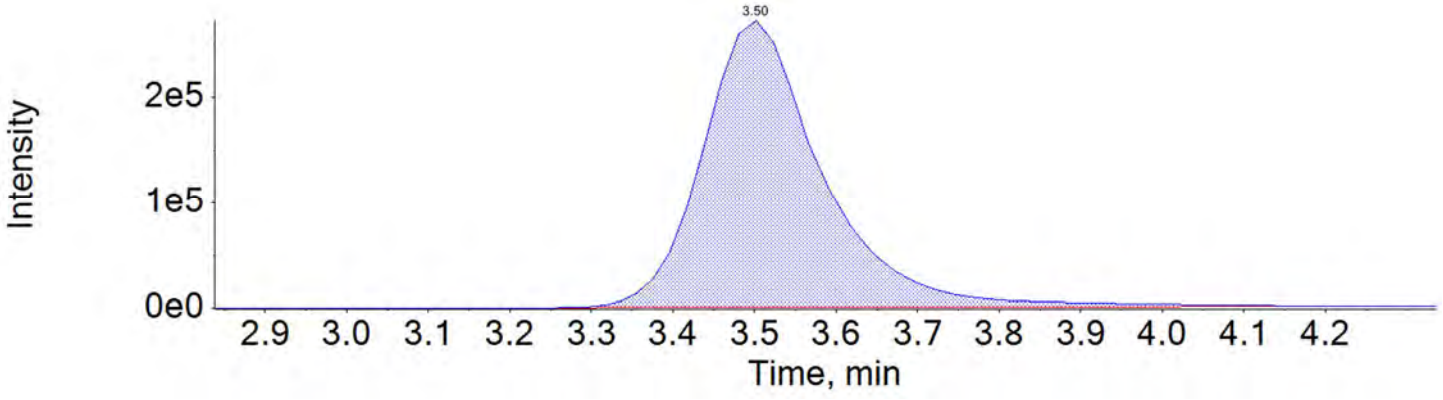


PFUnA_1 563.0 / 519.0



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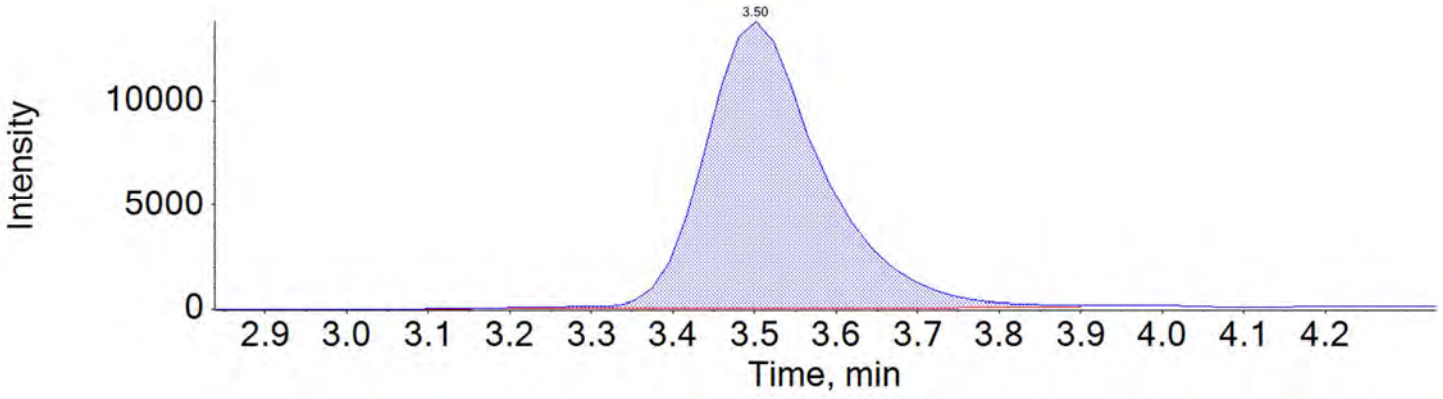
PFUnA_2 563.0 / 269.0



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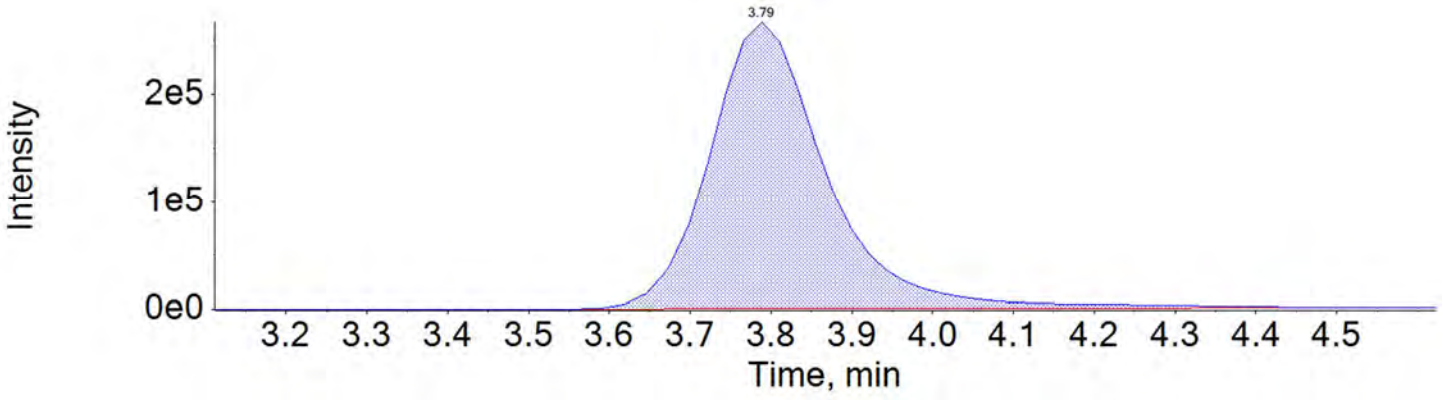

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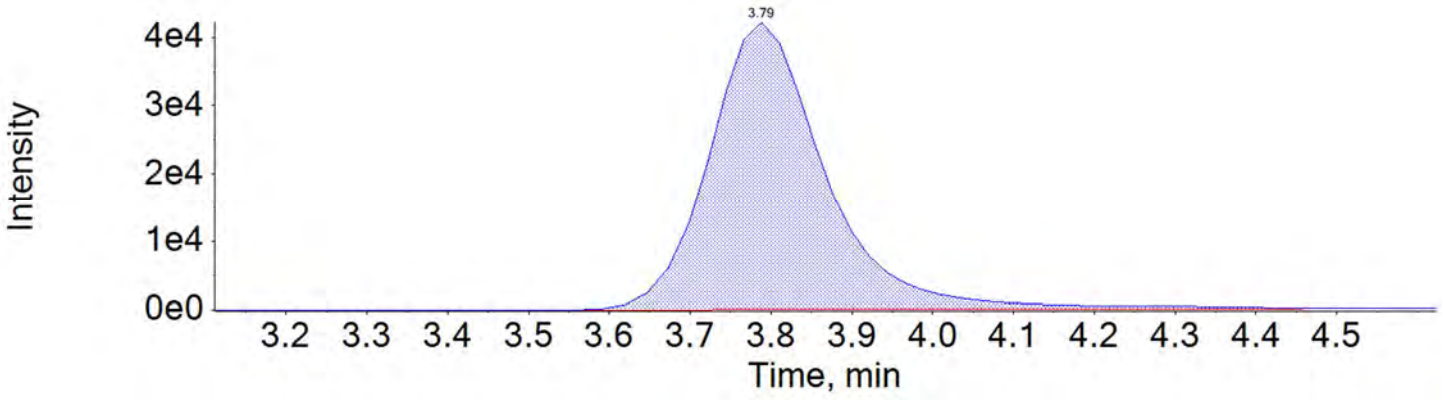

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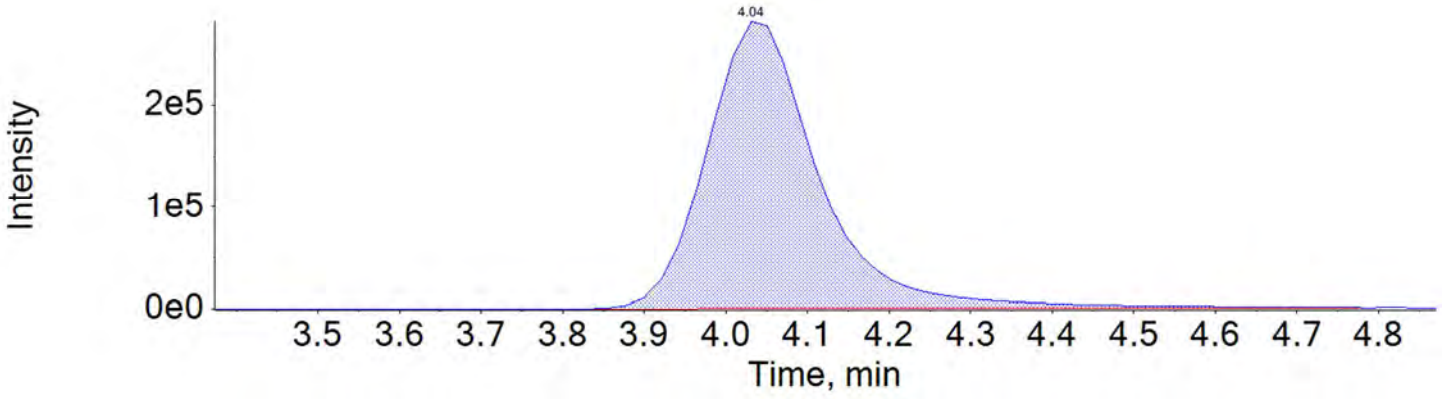

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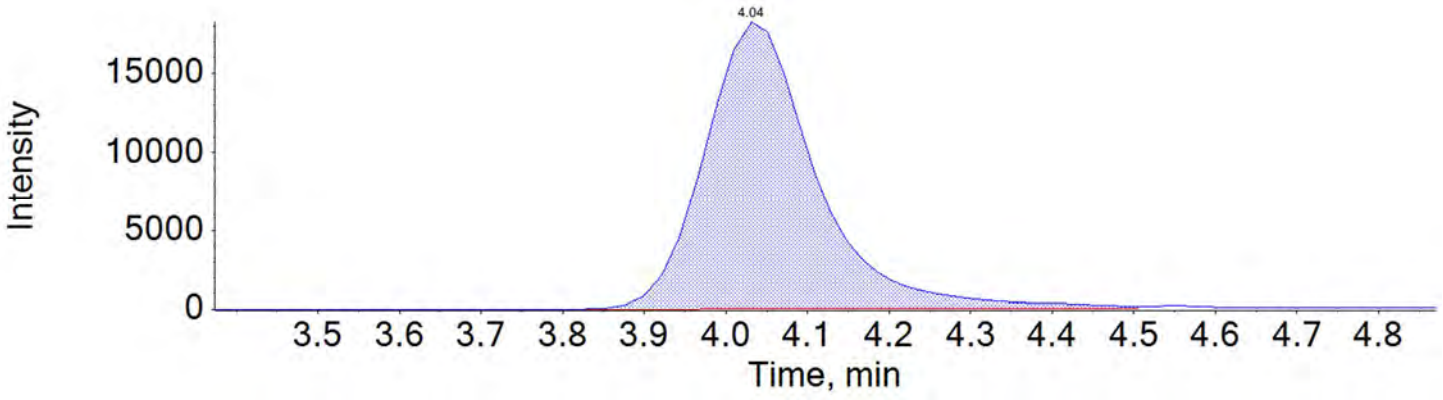

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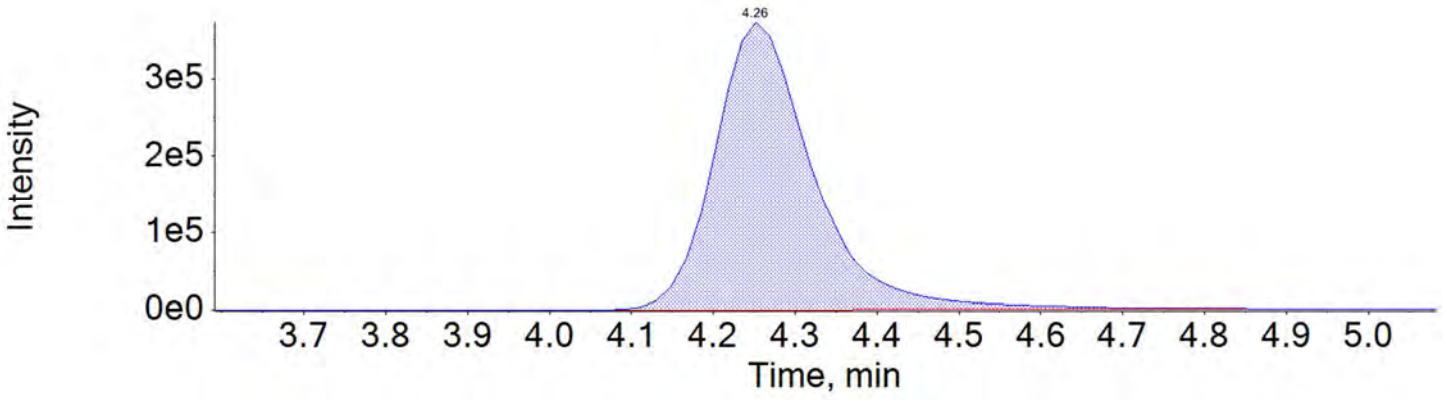

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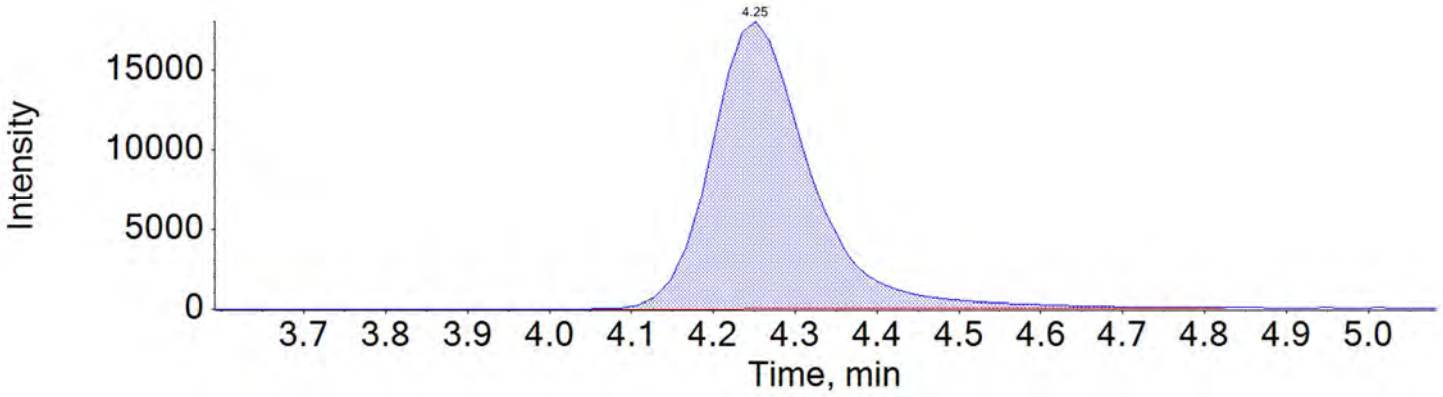

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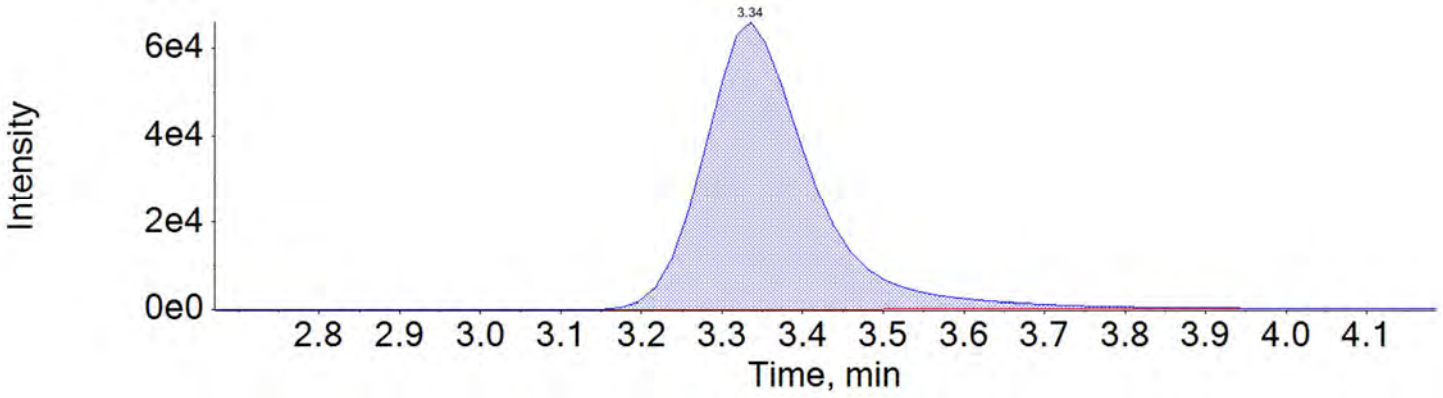

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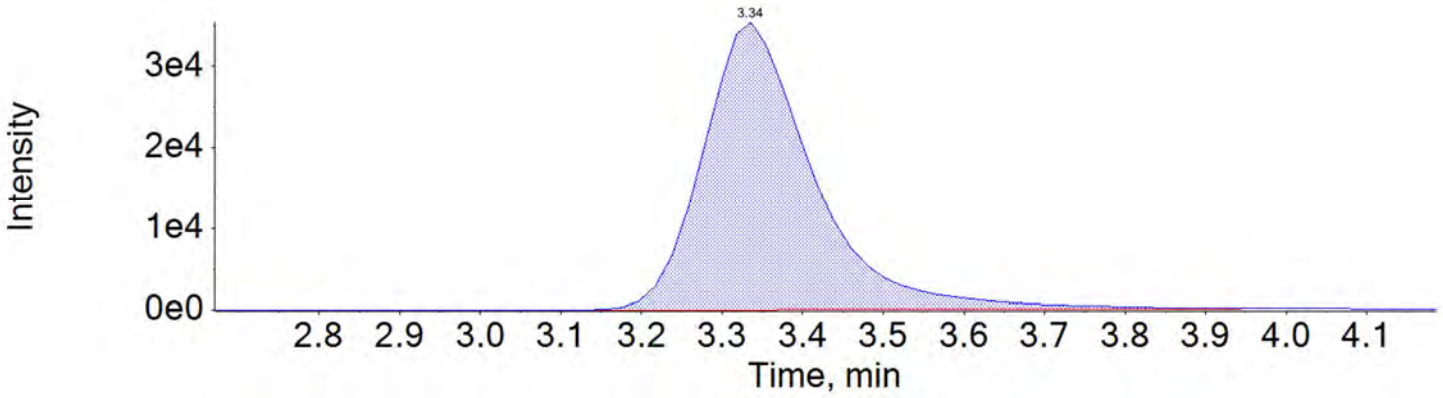

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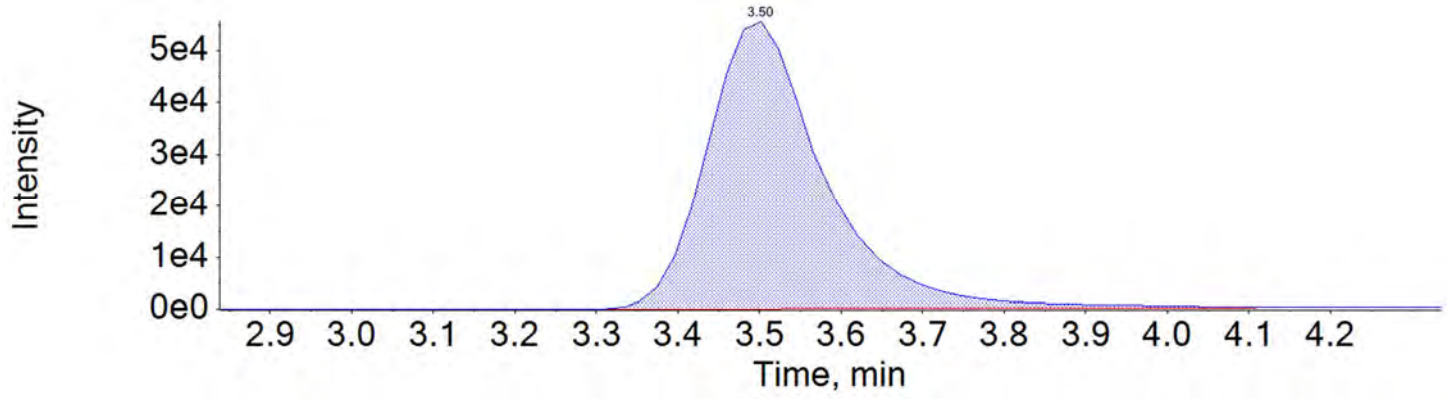
NEtFOSAA_1 584.0 / 419.0



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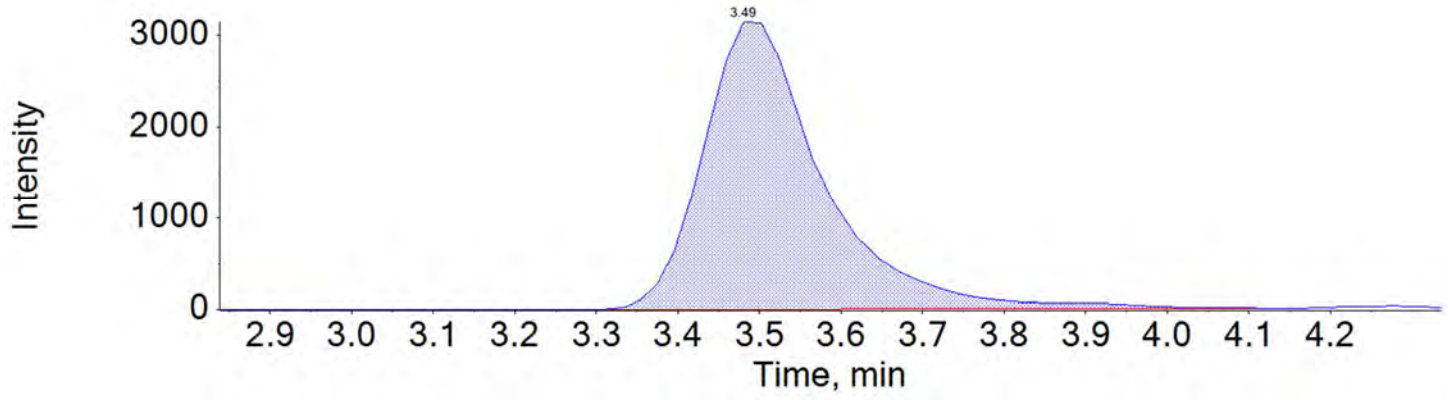

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Chromatogram Report

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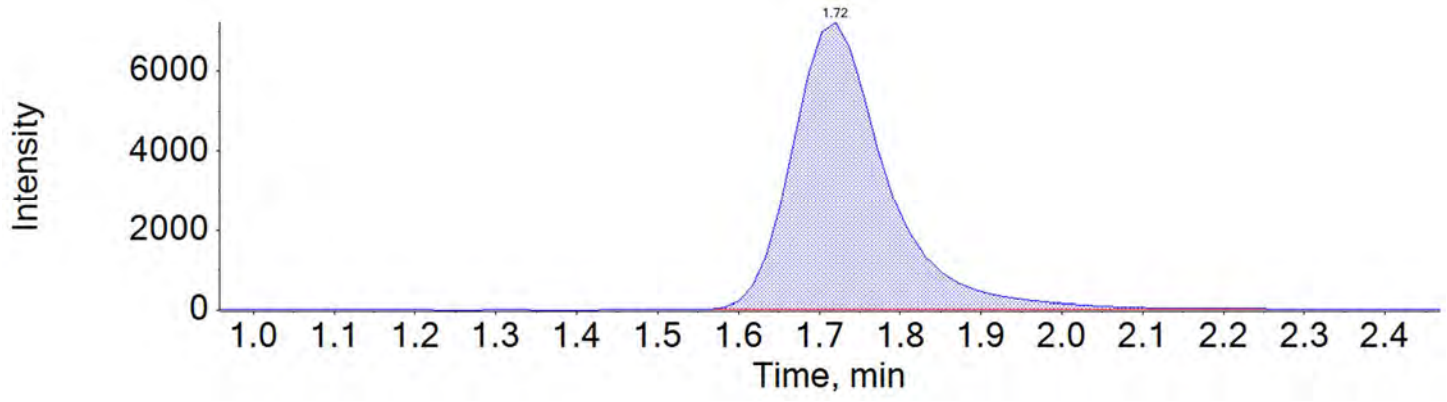
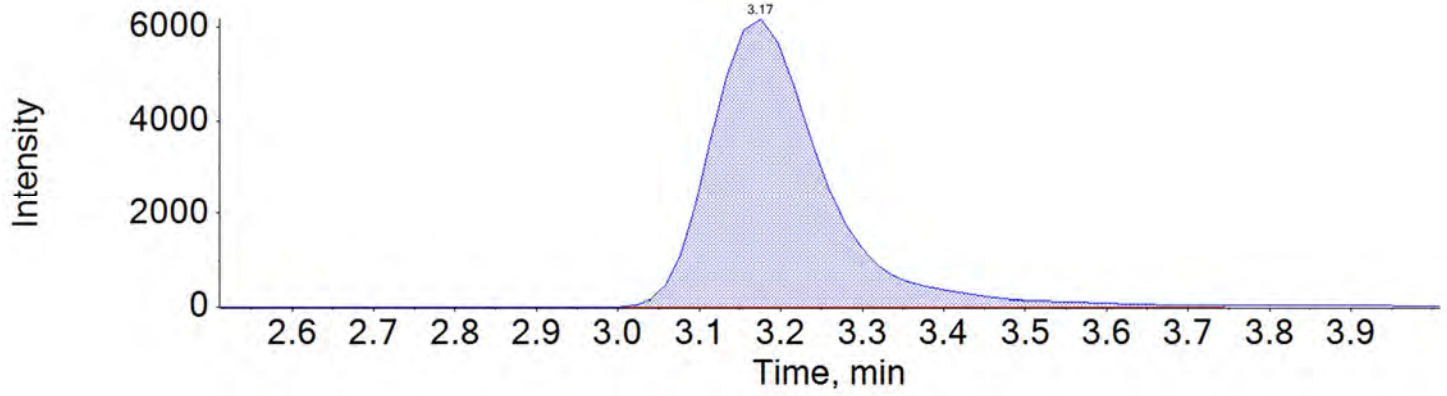
Sample Name	J5964MS-FS(0)	**Injection Vial**	15
Sample ID	Matrix Spike	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:40:20	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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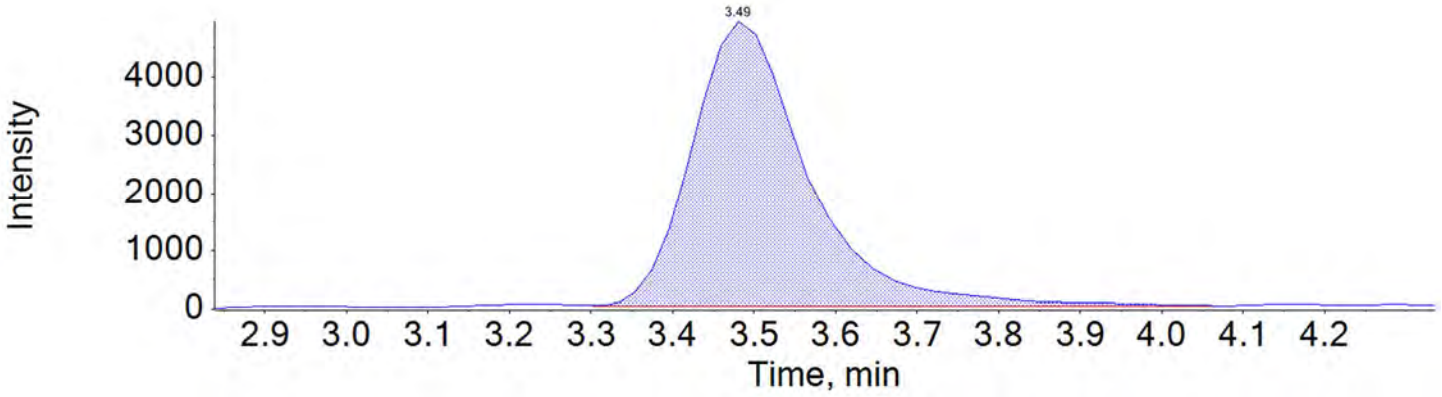
d5-EtFOSAA 589.0 / 419.0



BATTELLE

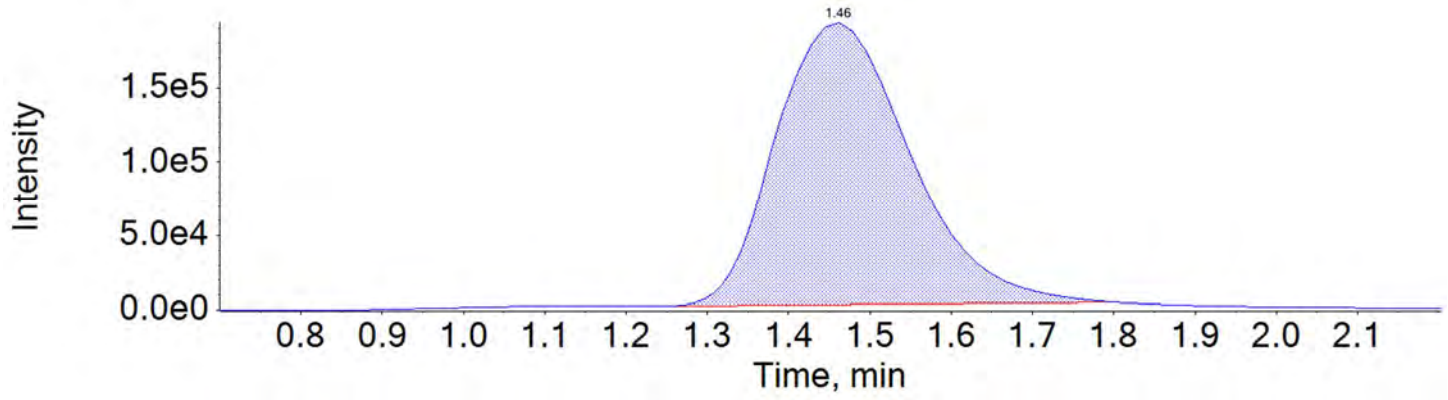
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:07:21 PM

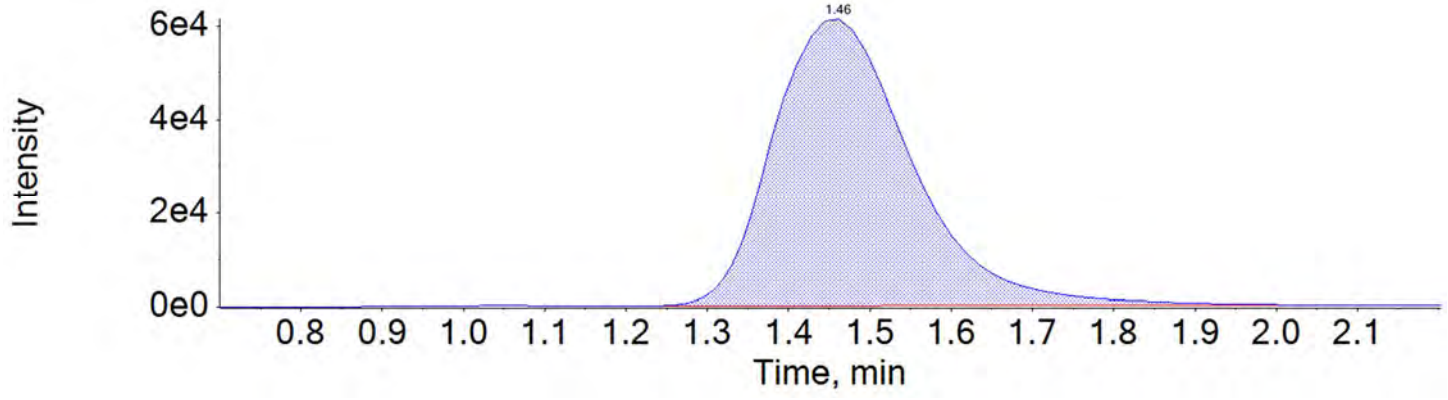
Sample Name	J5964MSD-FS(0)	**Injection Vial**	16
Sample ID	WGNA-043018-RW-3103	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:49:16	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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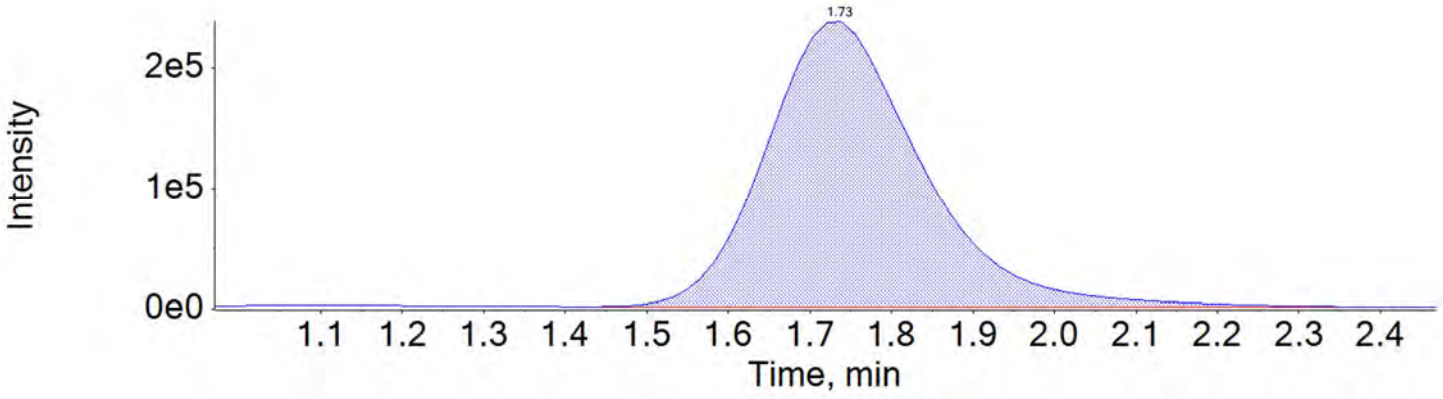
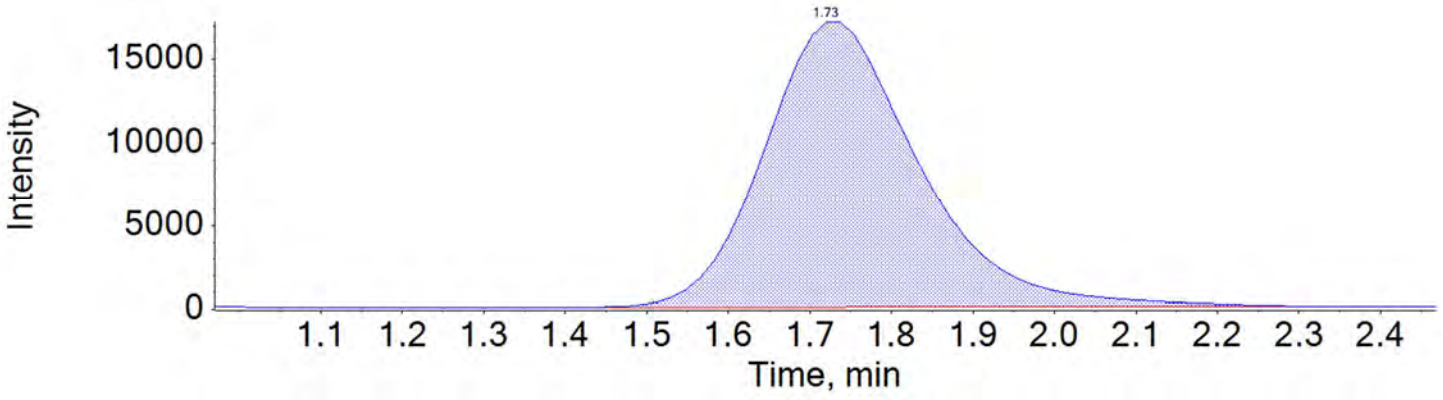


PFHxA_2 313.0 / 119.0



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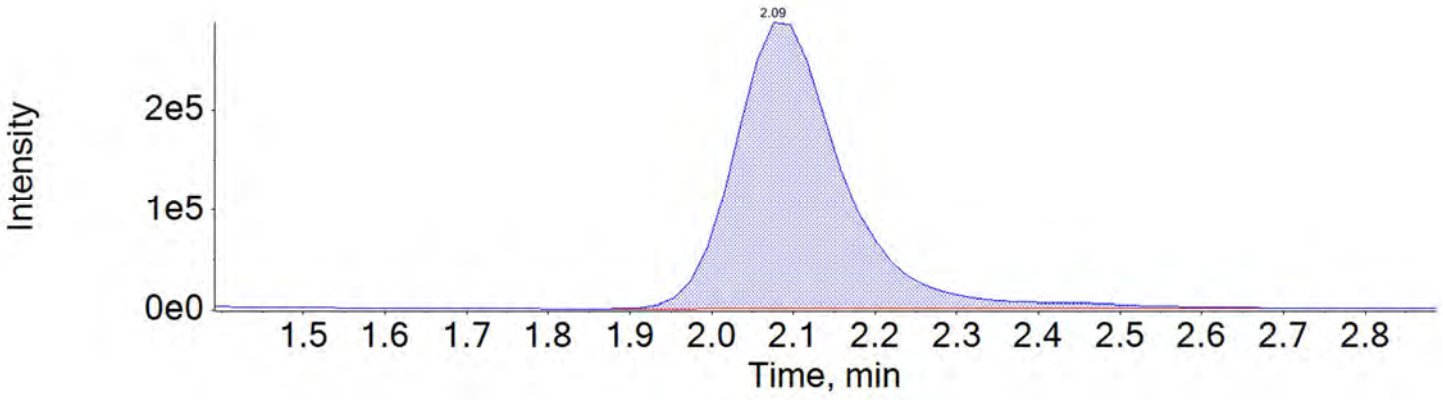

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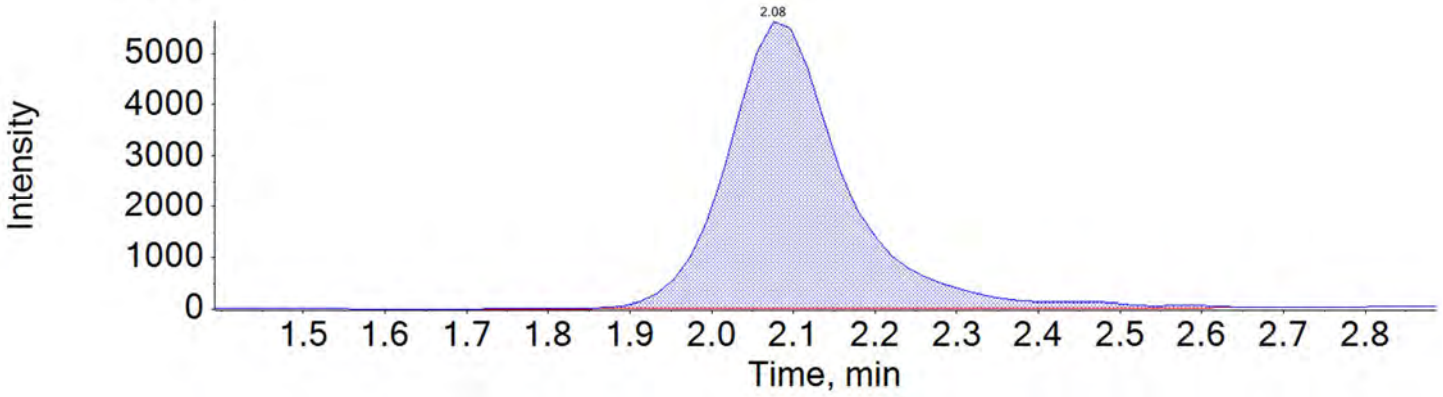
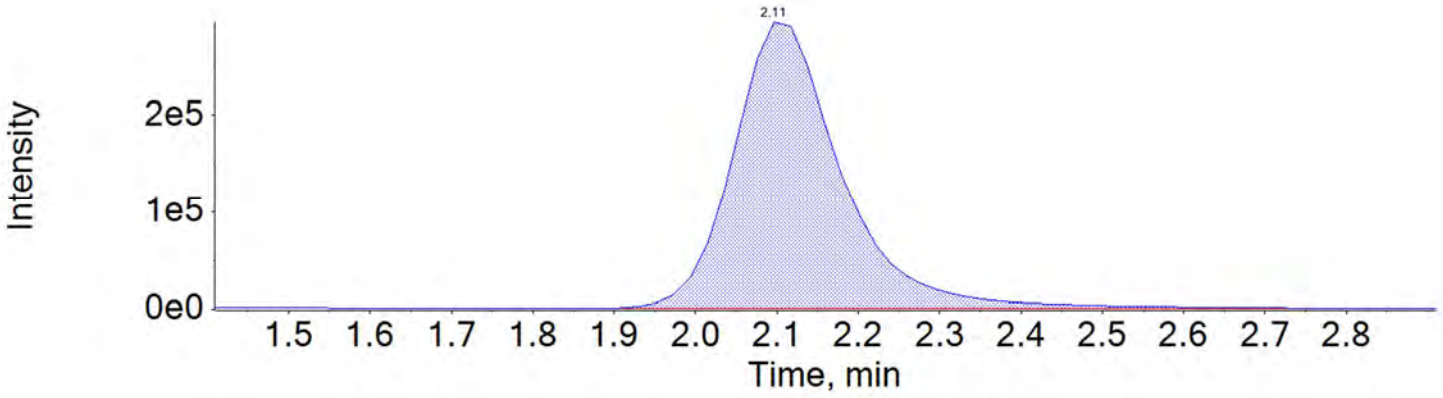


PFHxS_1 399.0 / 80.0



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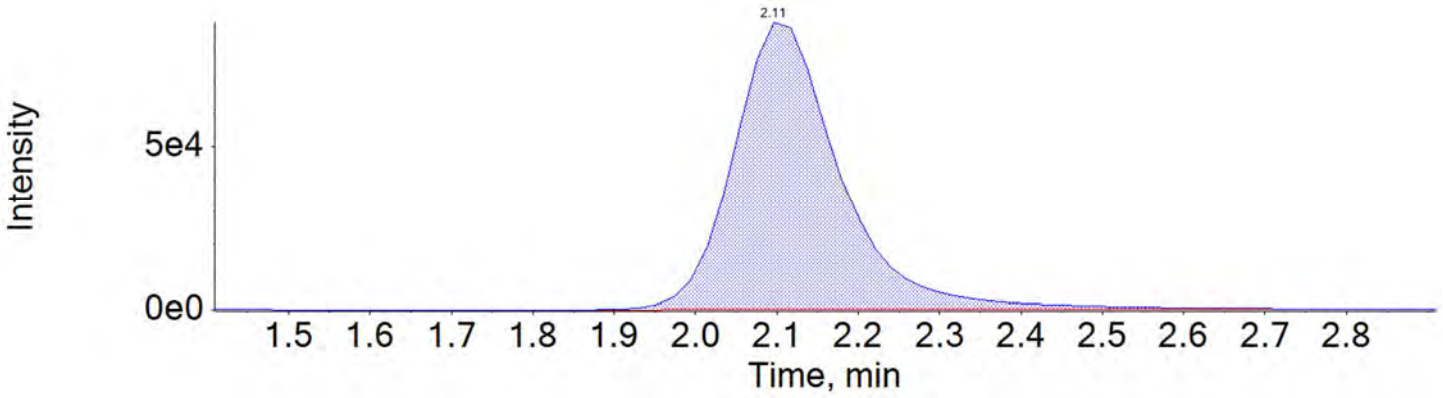

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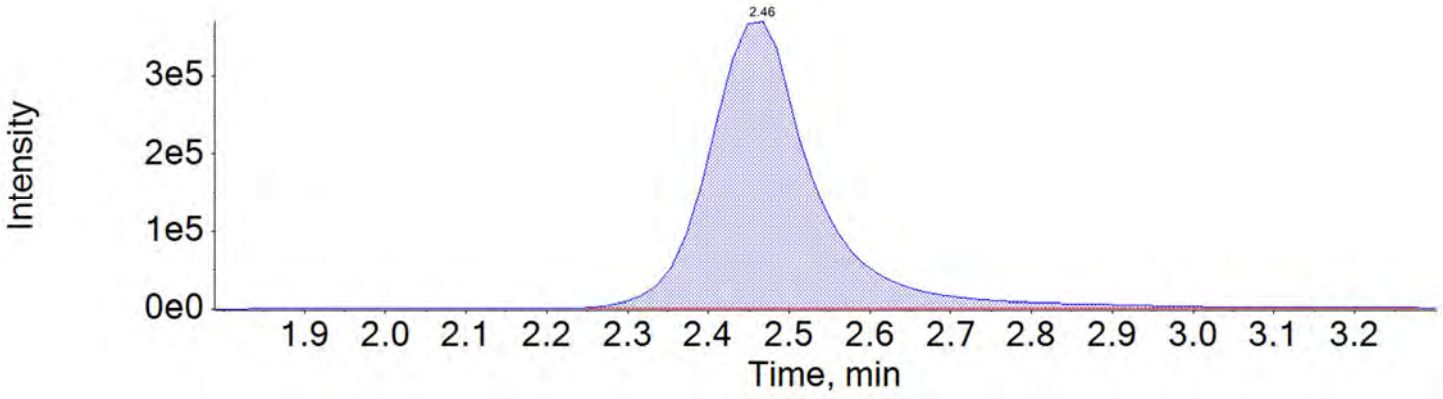
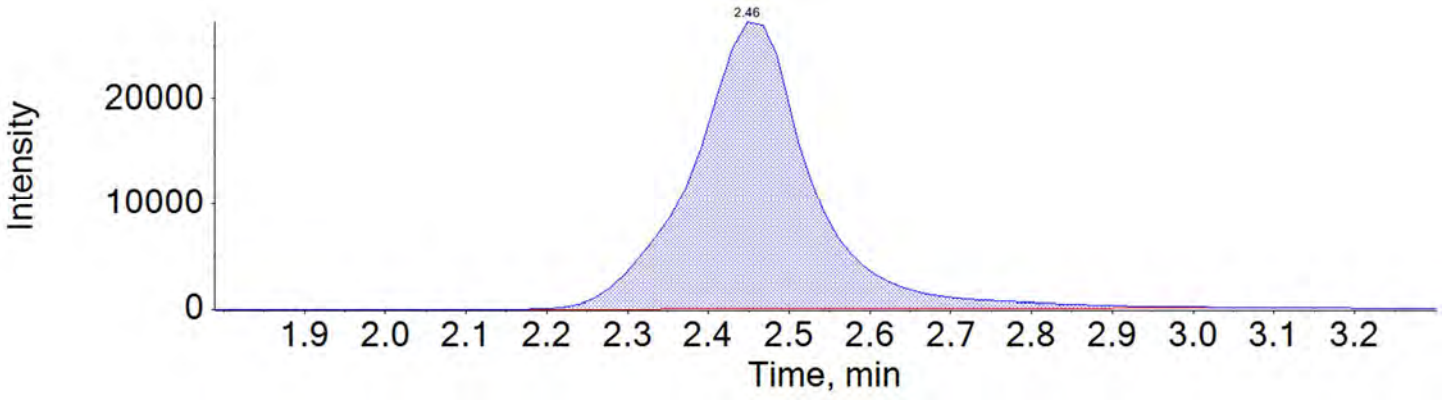
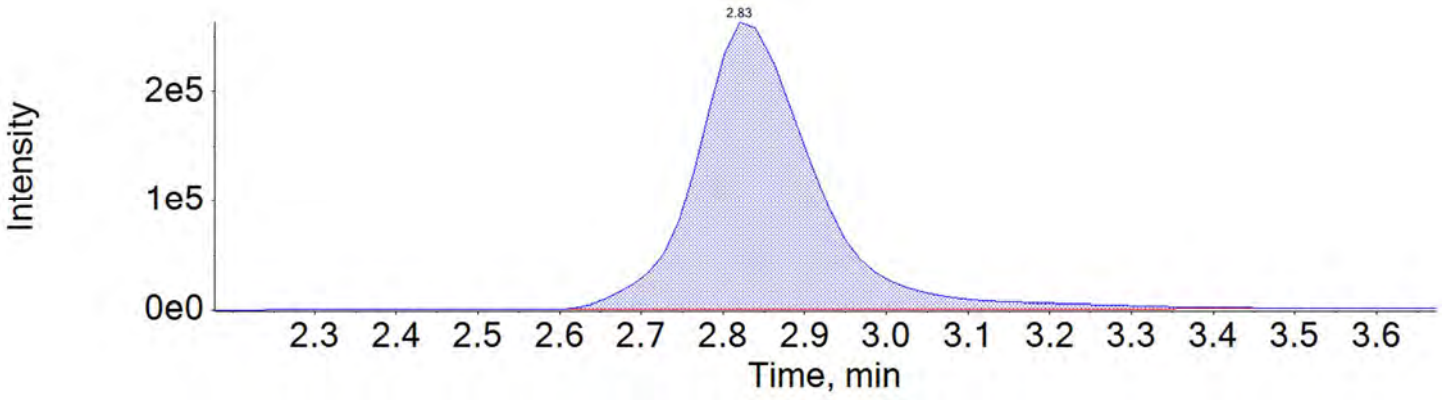
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



PFNA_1 463.0 / 419.0



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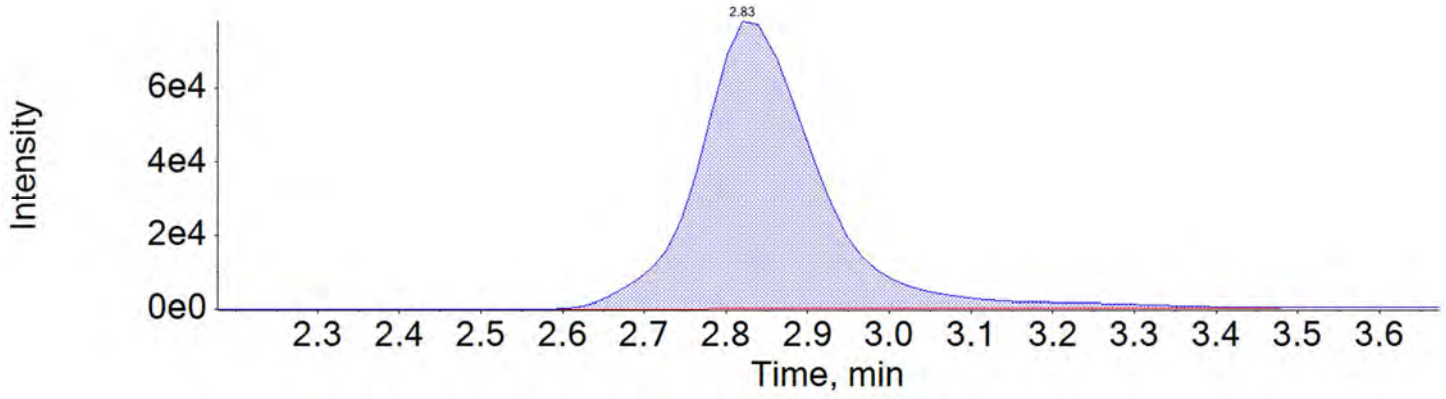
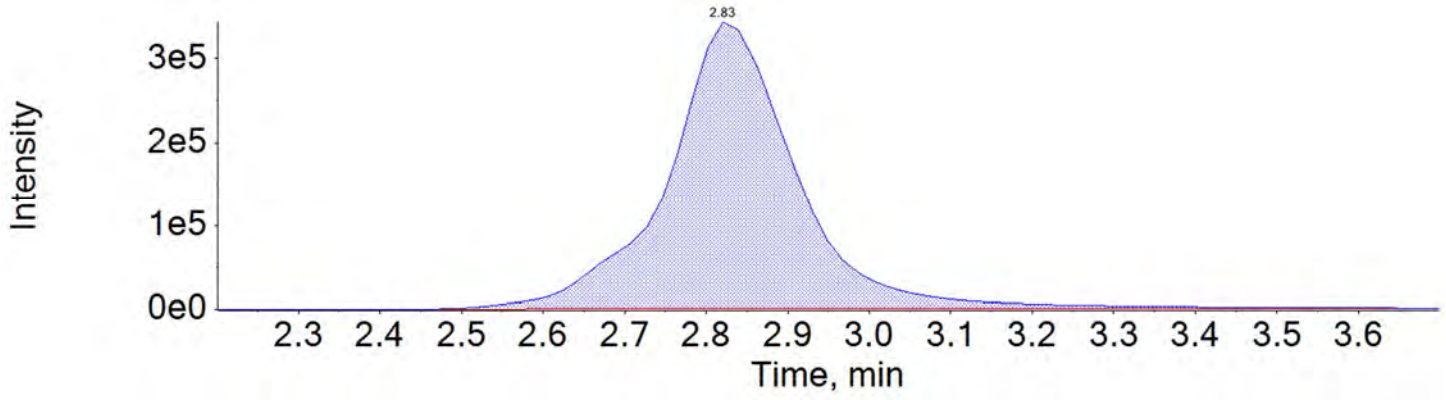
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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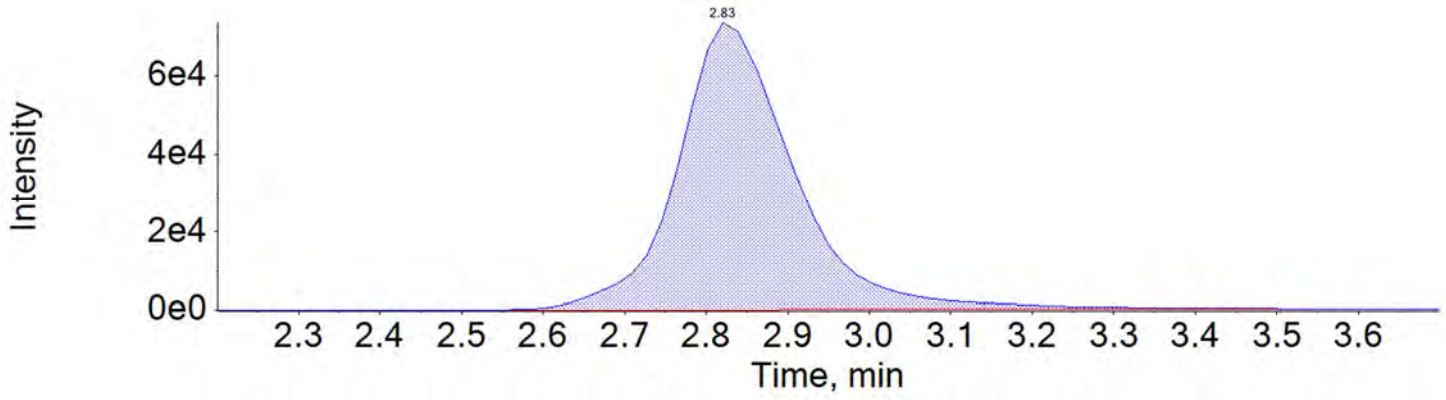

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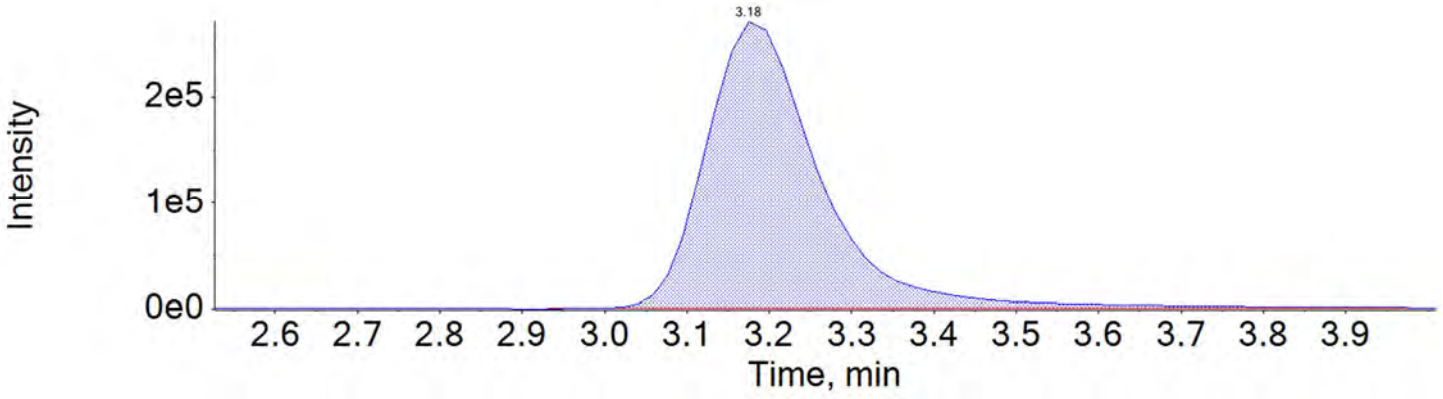

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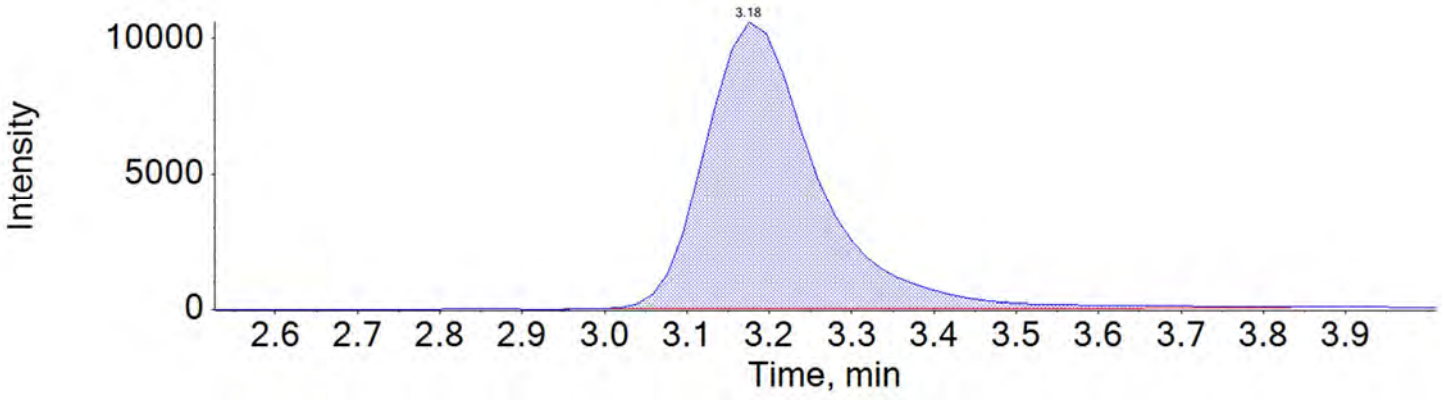
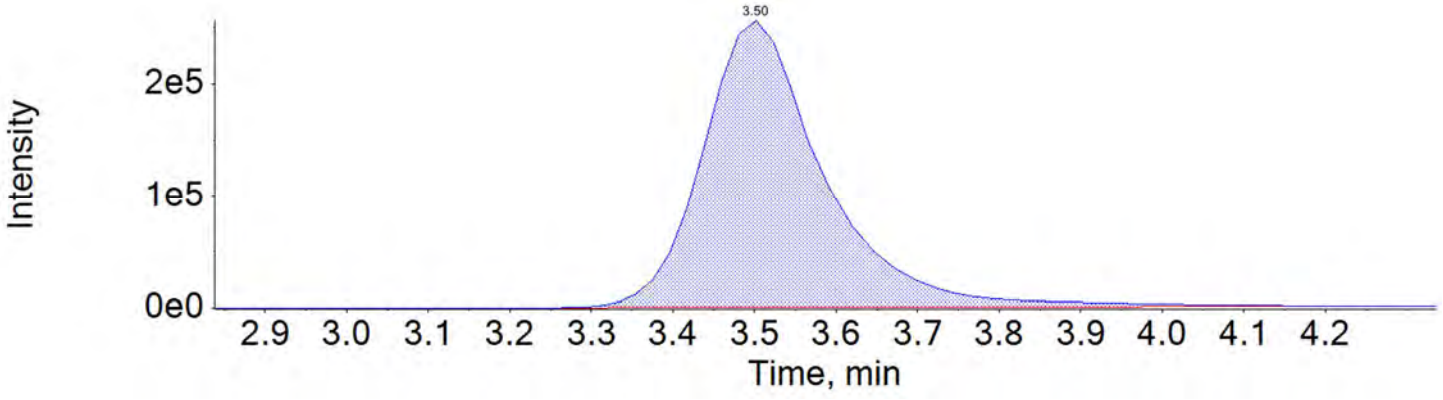


PFUnA_1 563.0 / 519.0



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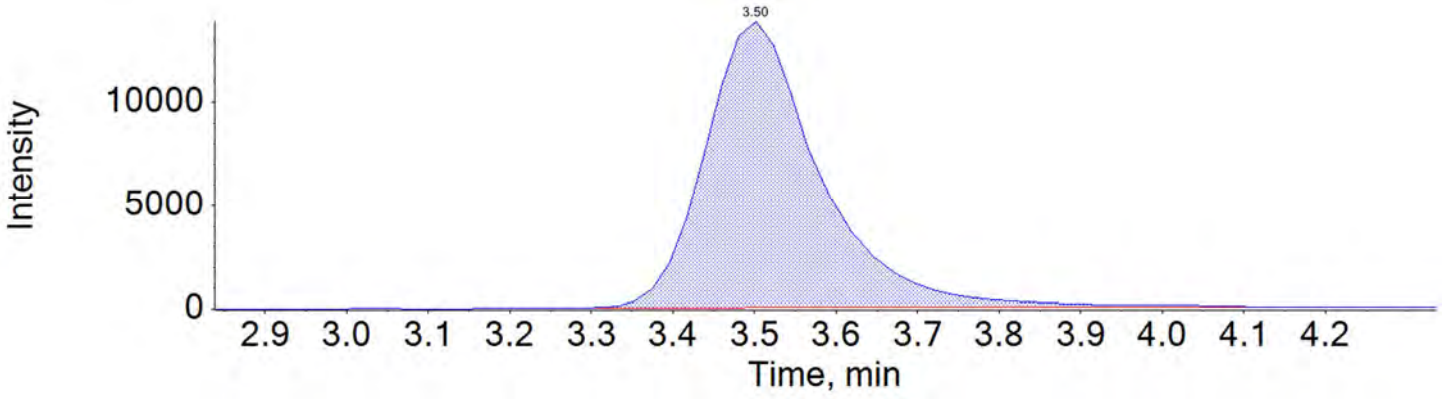
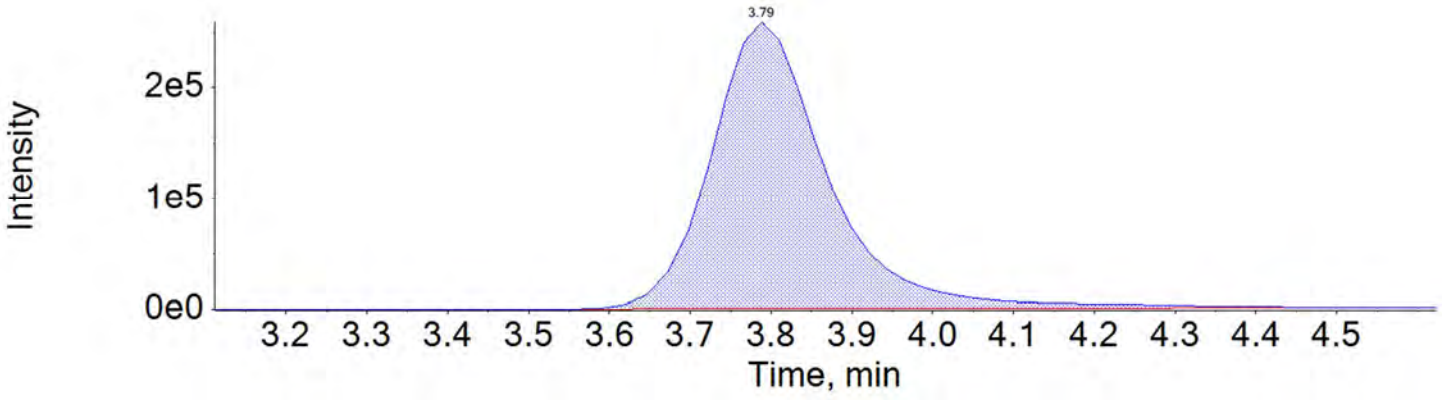
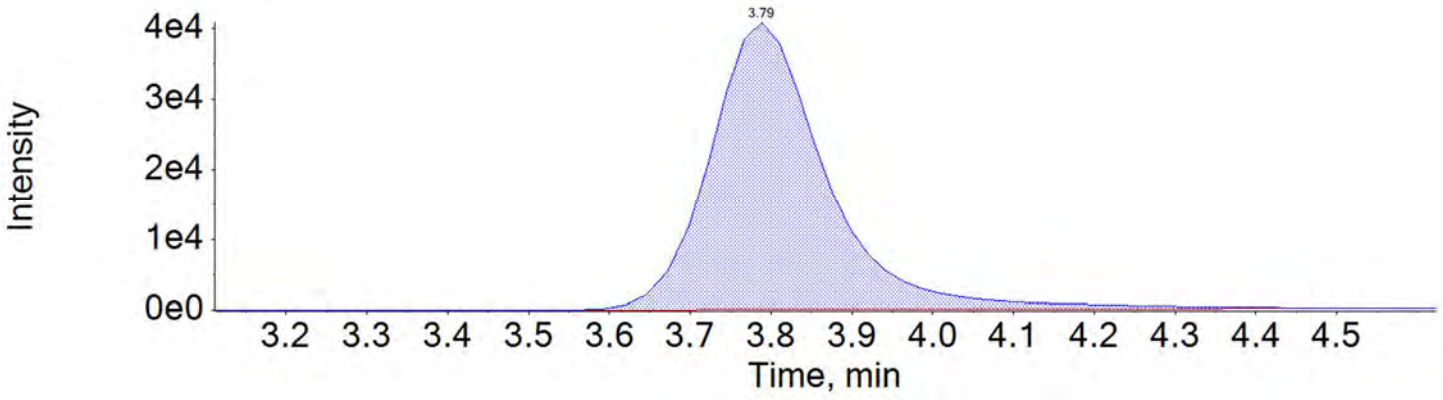
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



PFDoA_2 613.0 / 319.0



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Chromatogram Report

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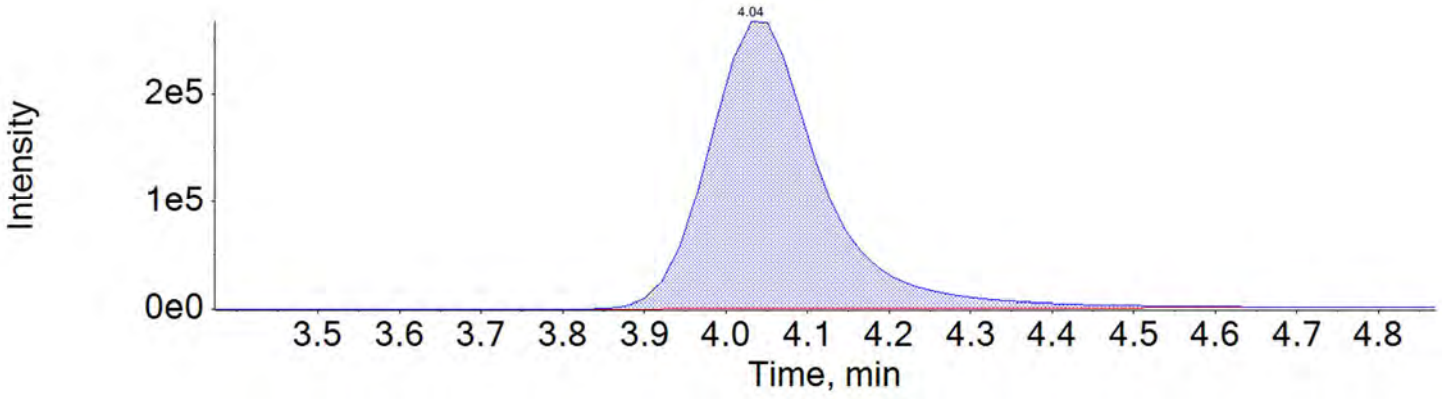
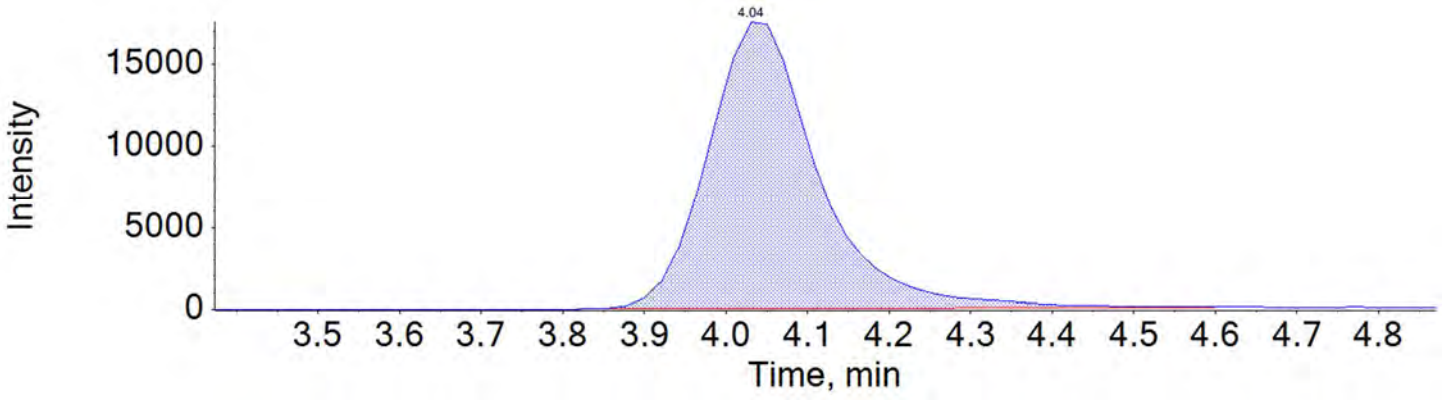
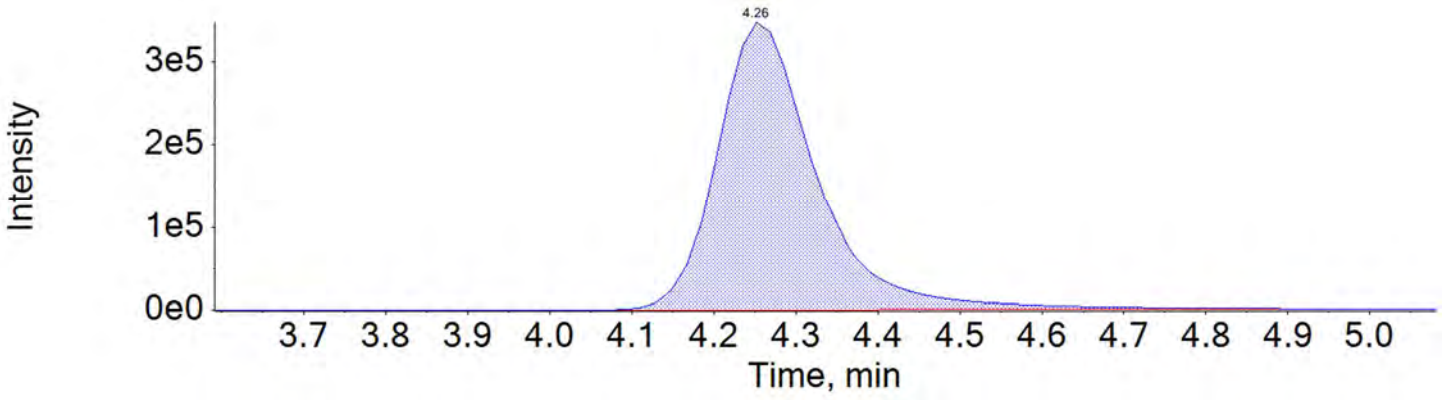
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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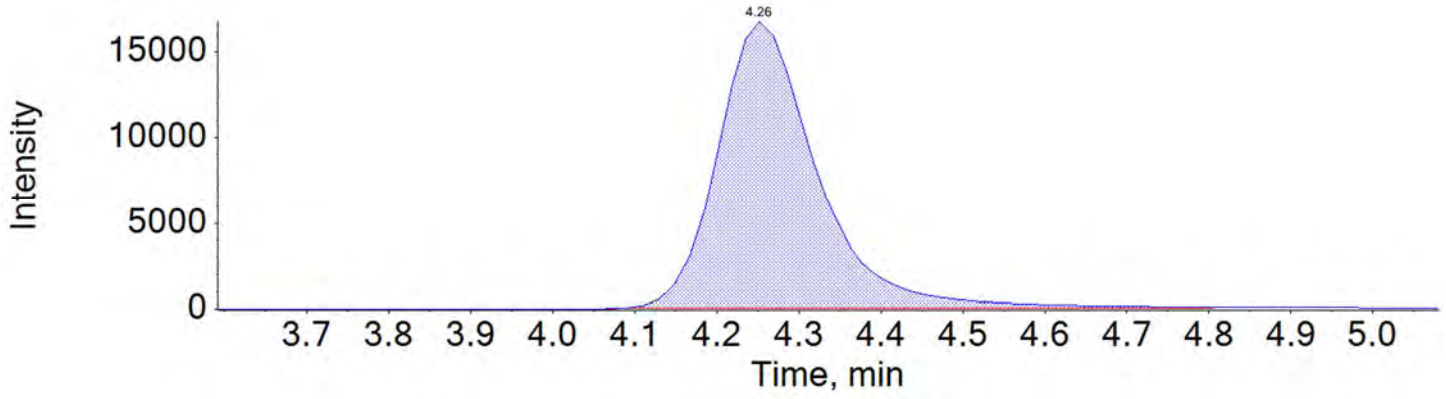
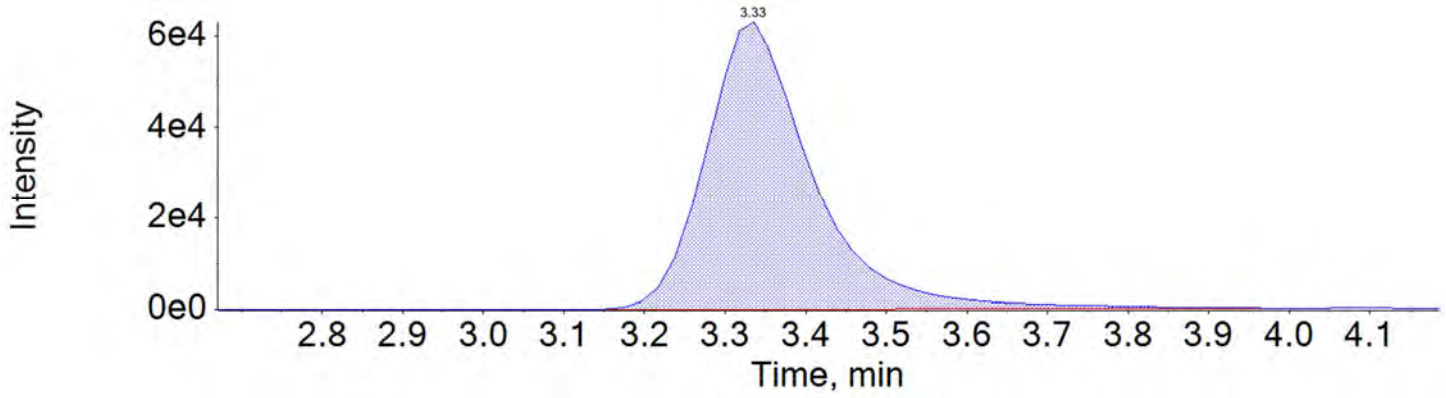
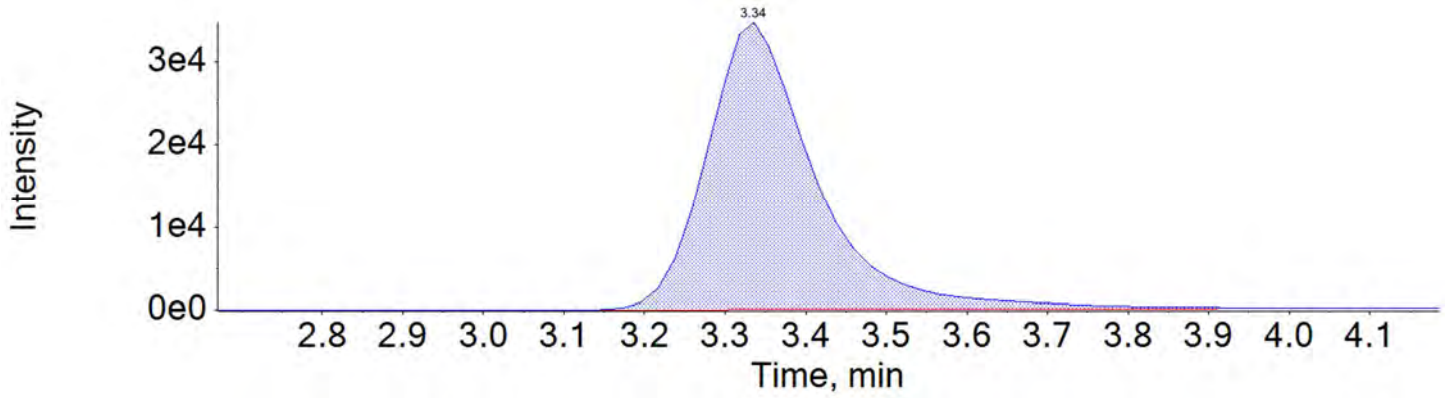
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

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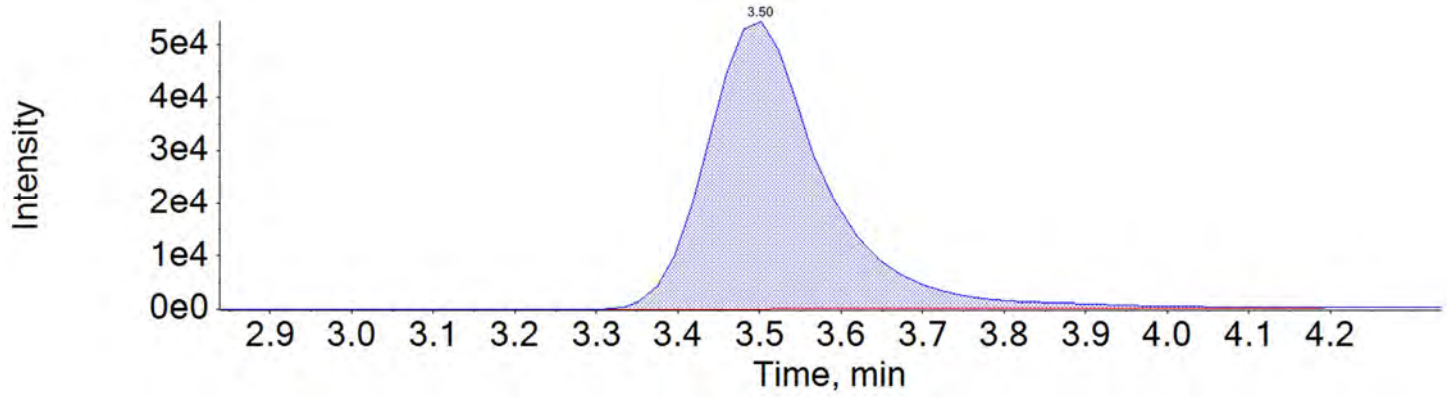
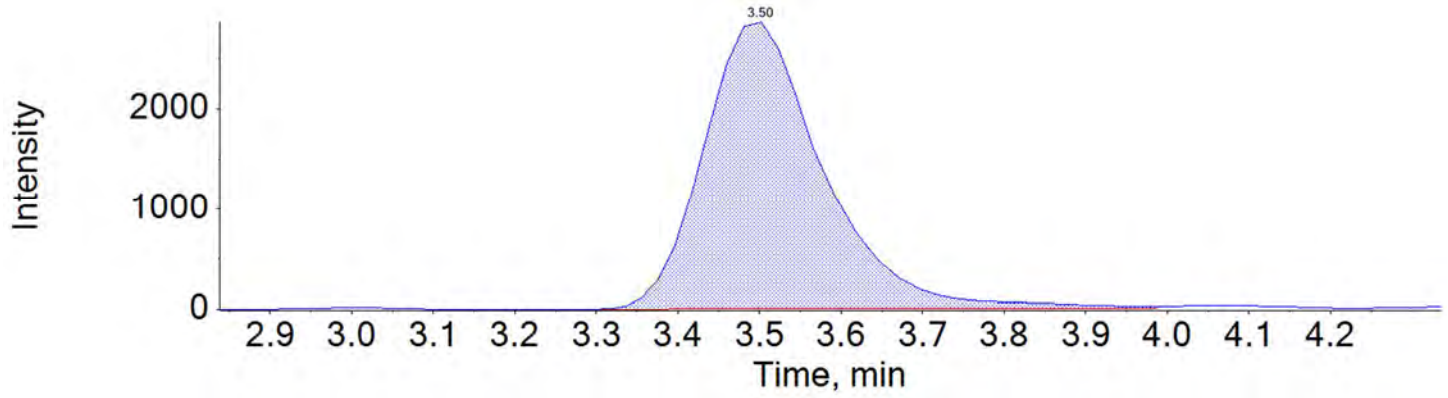
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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Chromatogram Report

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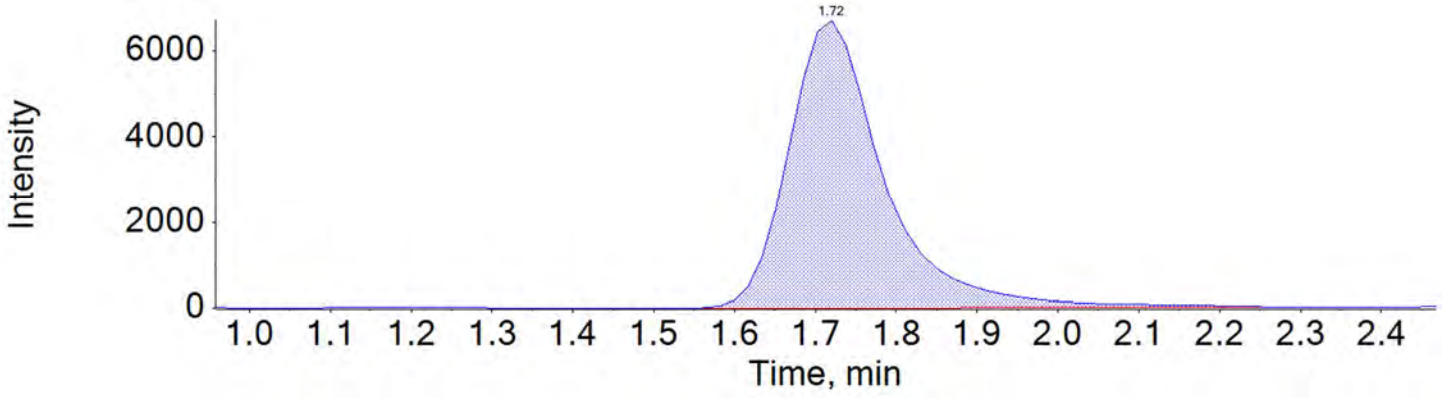
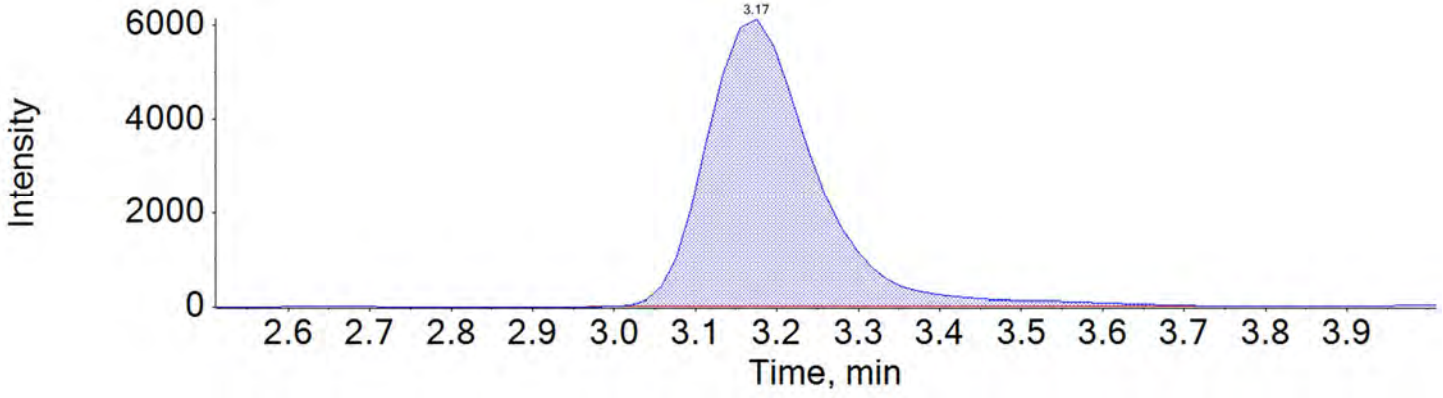
Sample Name	J5964MSD-FS(0)	**Injection Vial**	16
Sample ID	Matrix Spike Suplicate	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:49:16	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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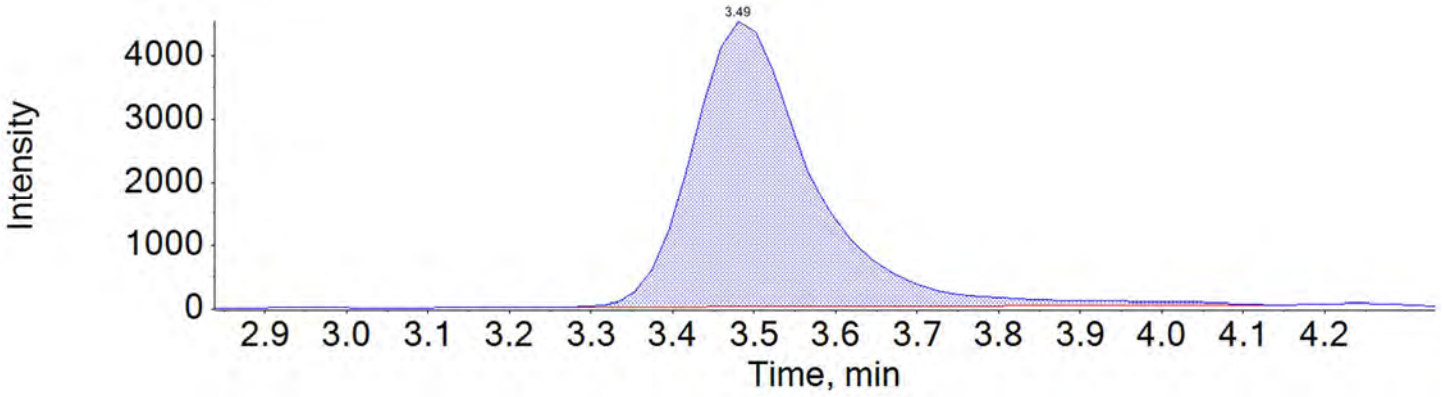
Chromatogram Report

Created with Analyst Reporter
Printed: 16/05/2018 7:12:27 PM

d5-EtFOSAA 589.0 / 419.0



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Chromatogram Report

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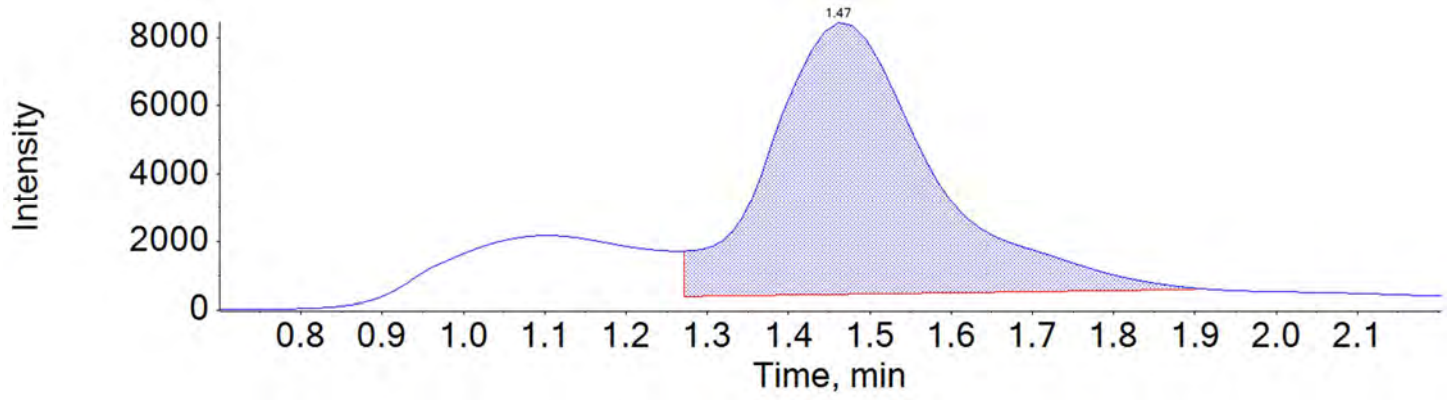
Printed: 17/05/2018 4:07:27 PM

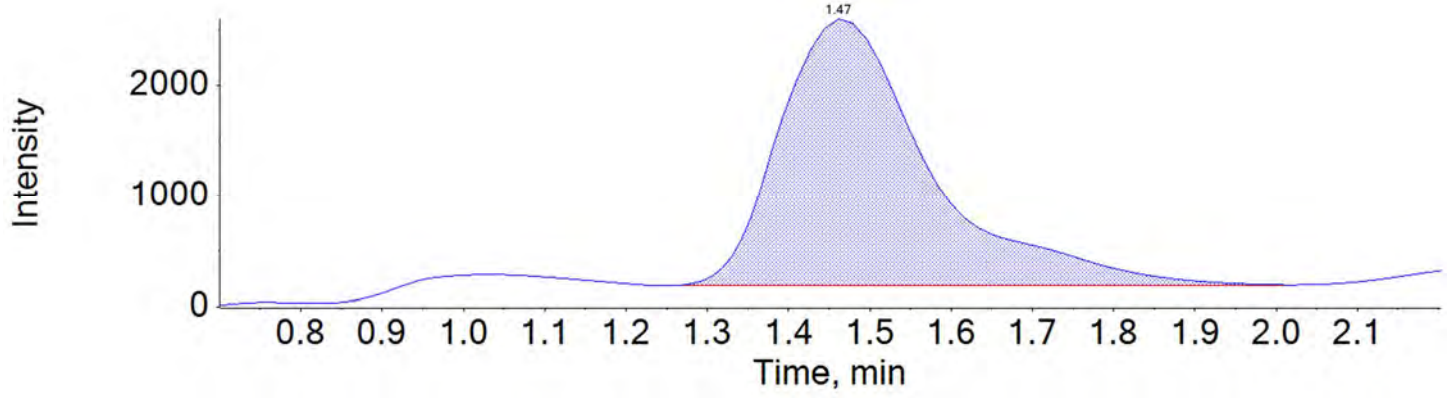
Sample Name	J5966-FS(0)	**Injection Vial**	17
Sample ID	NAWC-0403018-RW-204	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:58:13	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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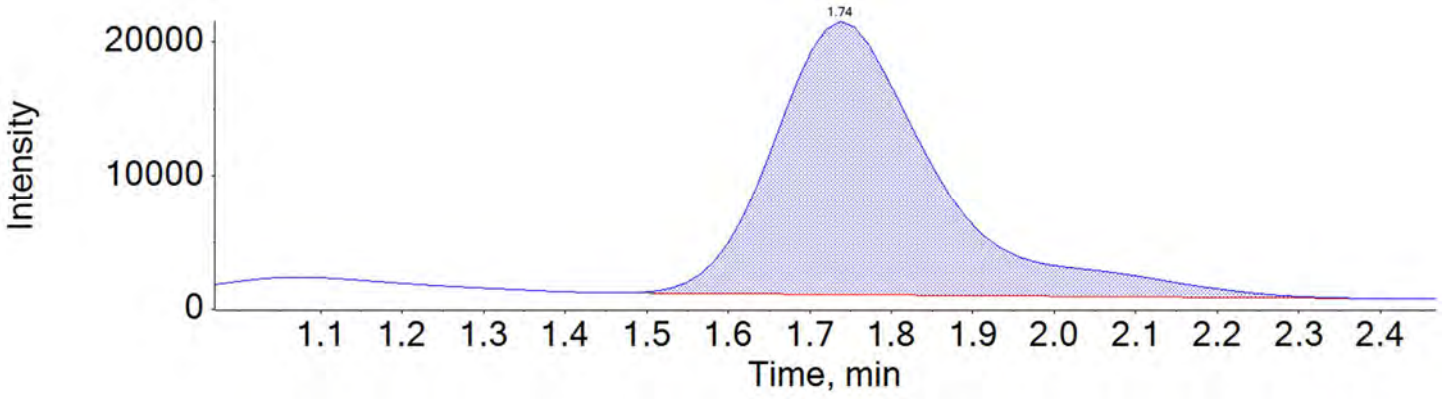
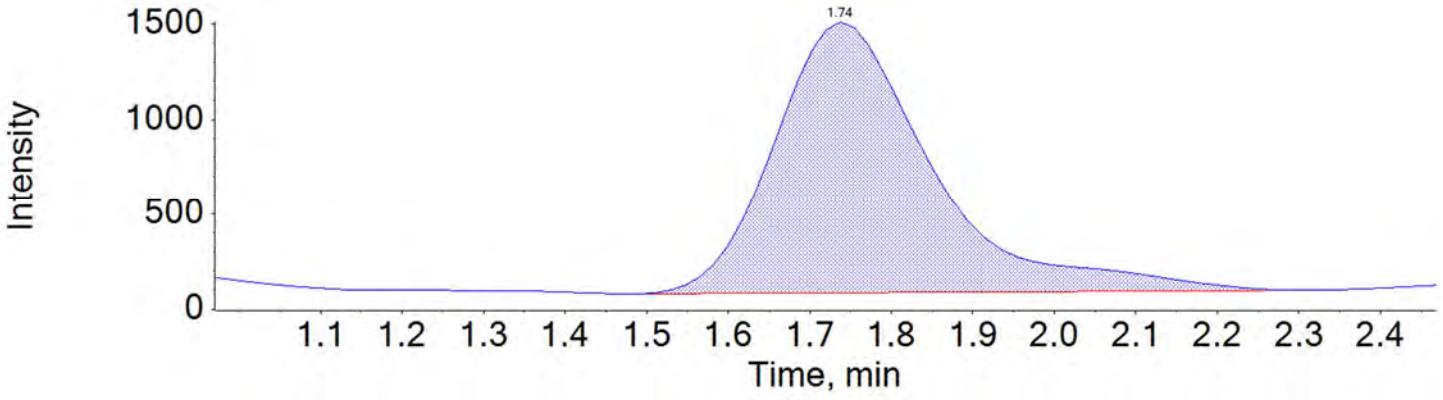
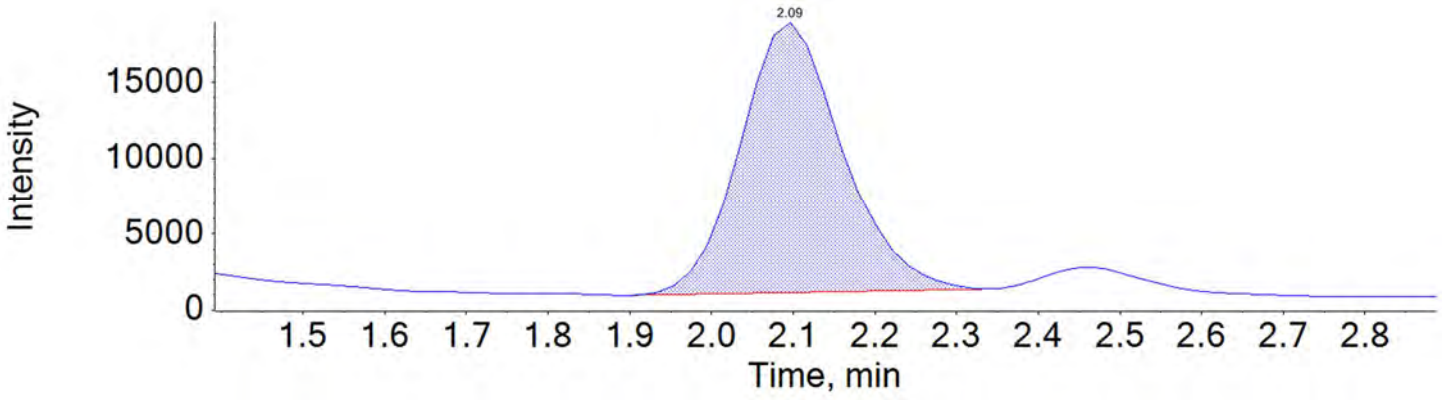
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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Chromatogram Report

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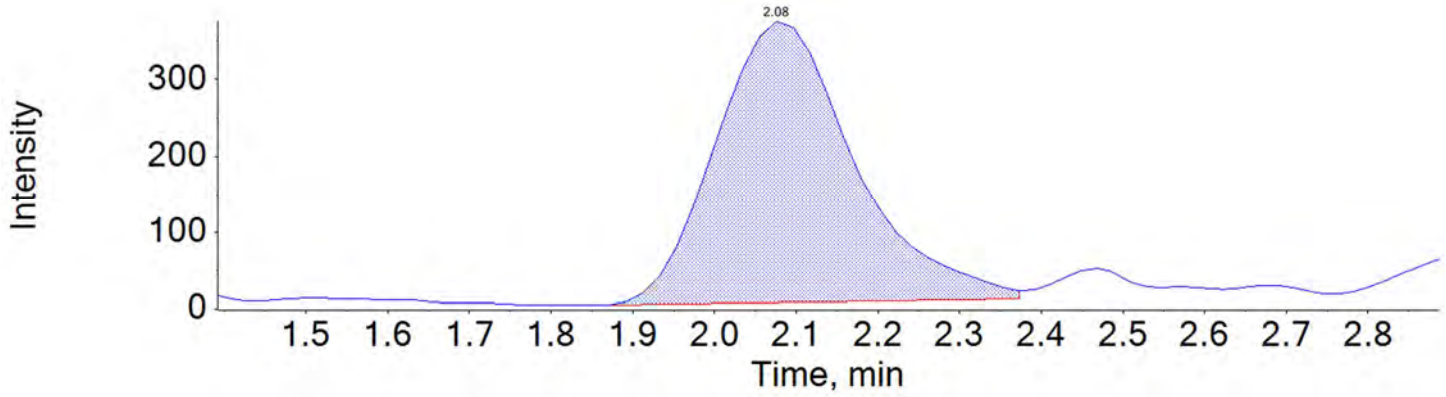
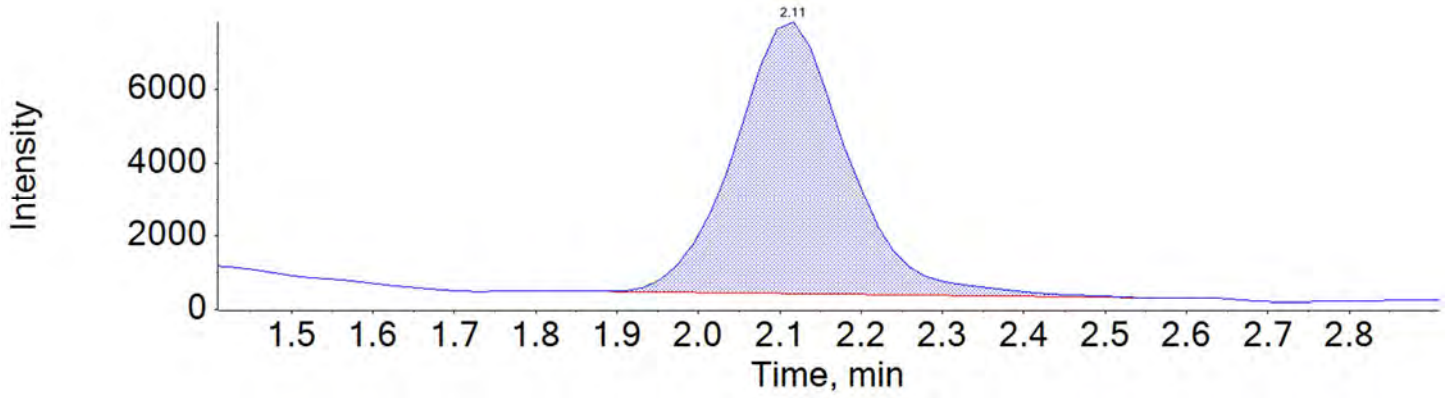
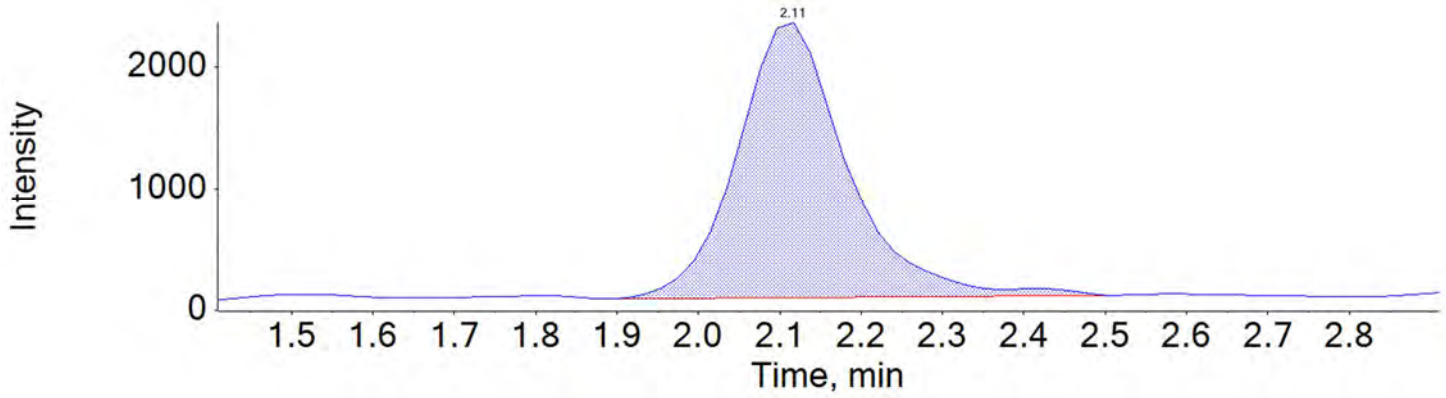
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



PFHxS_2 399.0 / 99.0



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Chromatogram Report

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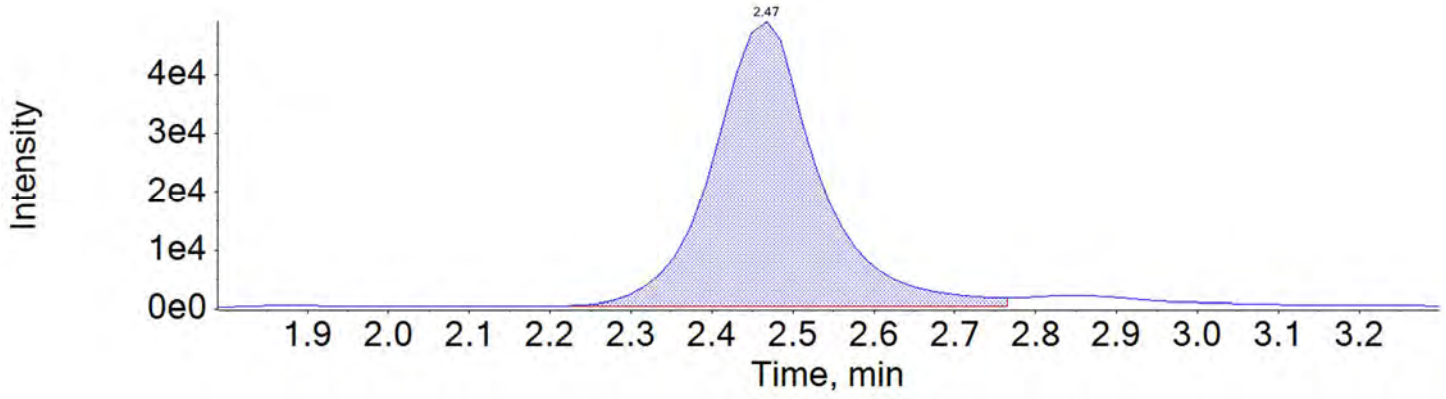
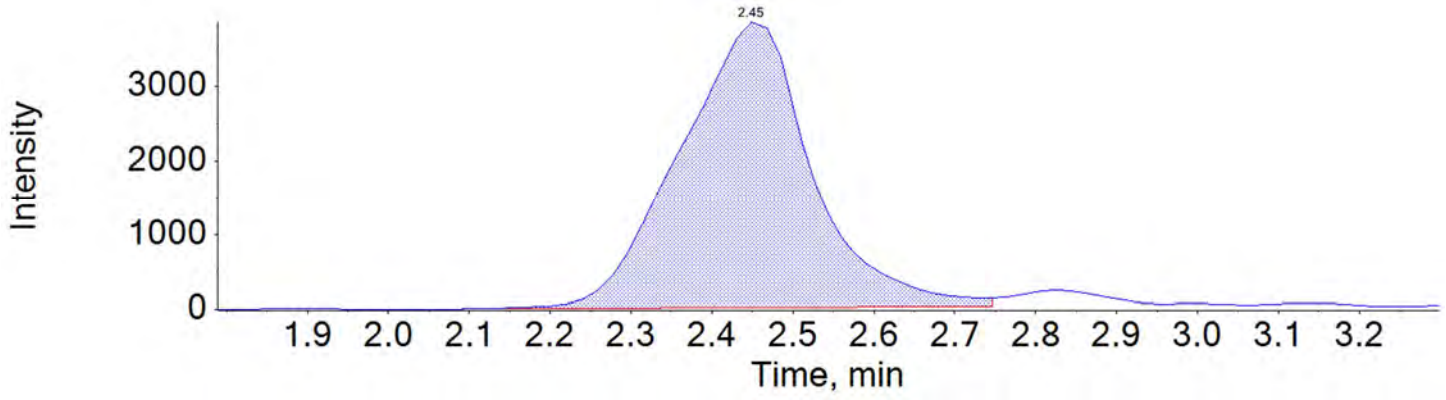
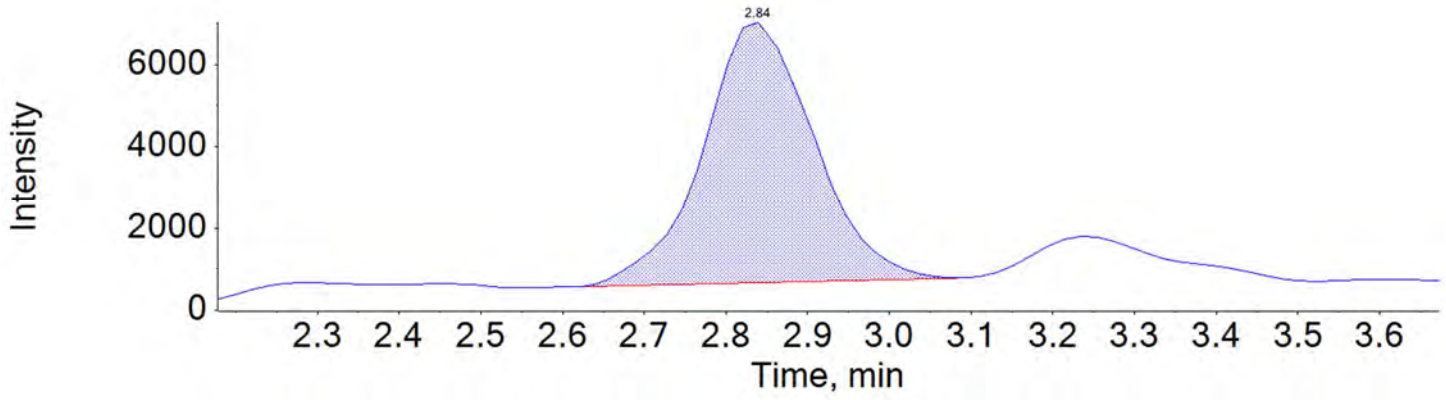
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



PFNA_1 463.0 / 419.0



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Chromatogram Report

Created with Analyst Reporter
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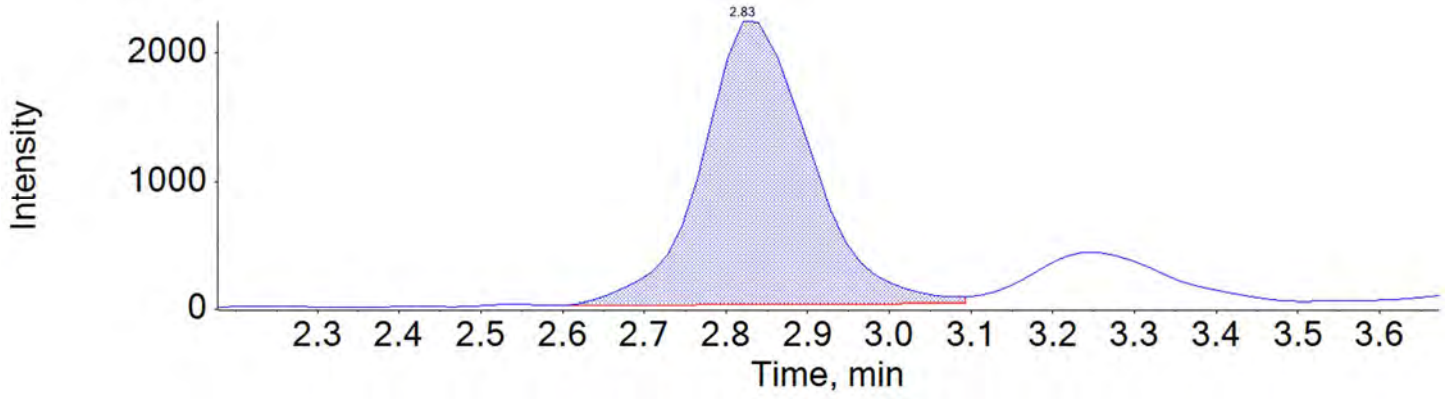
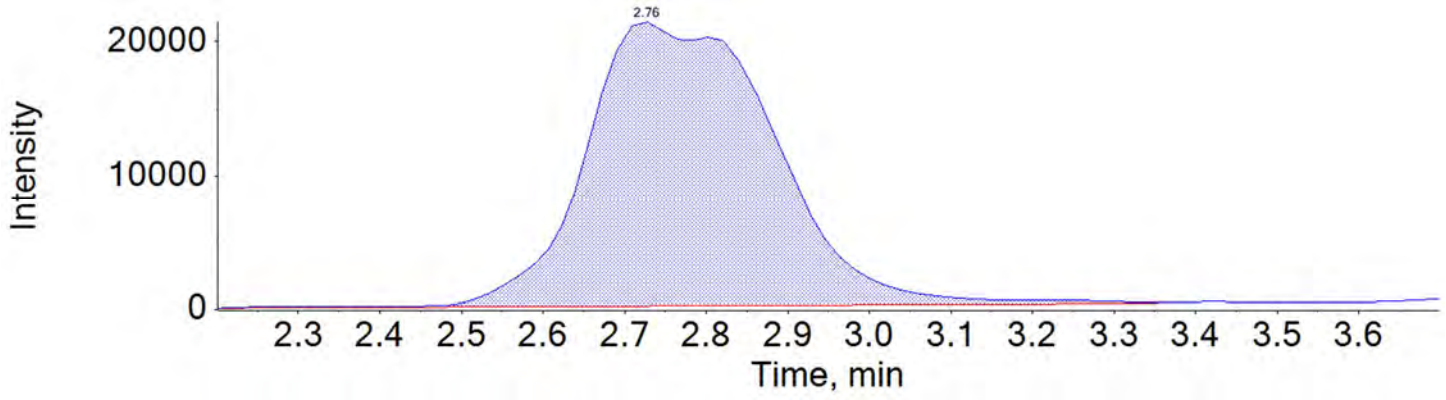
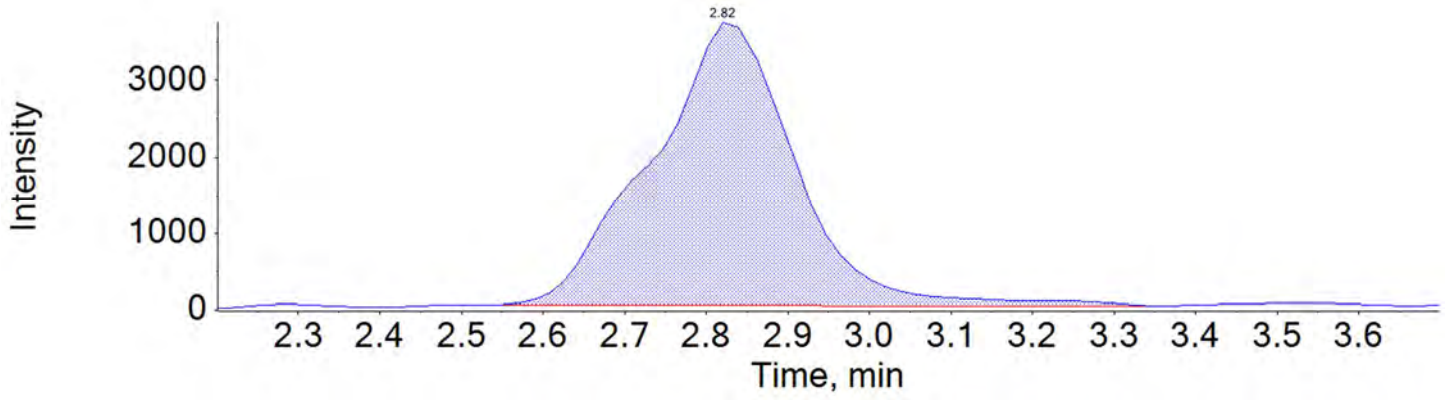
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



PFOS_2 499.0 / 99.0



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Chromatogram Report

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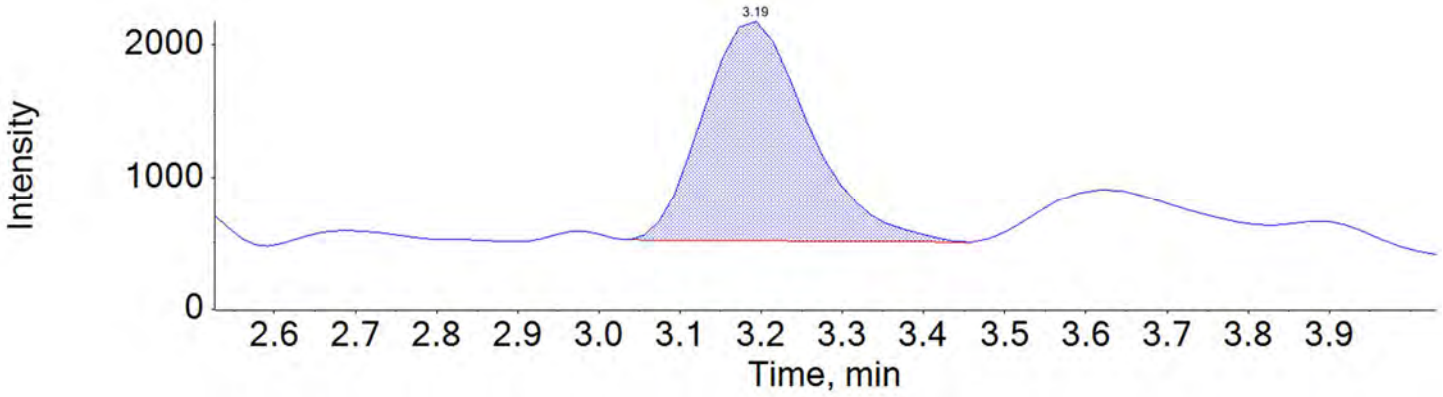
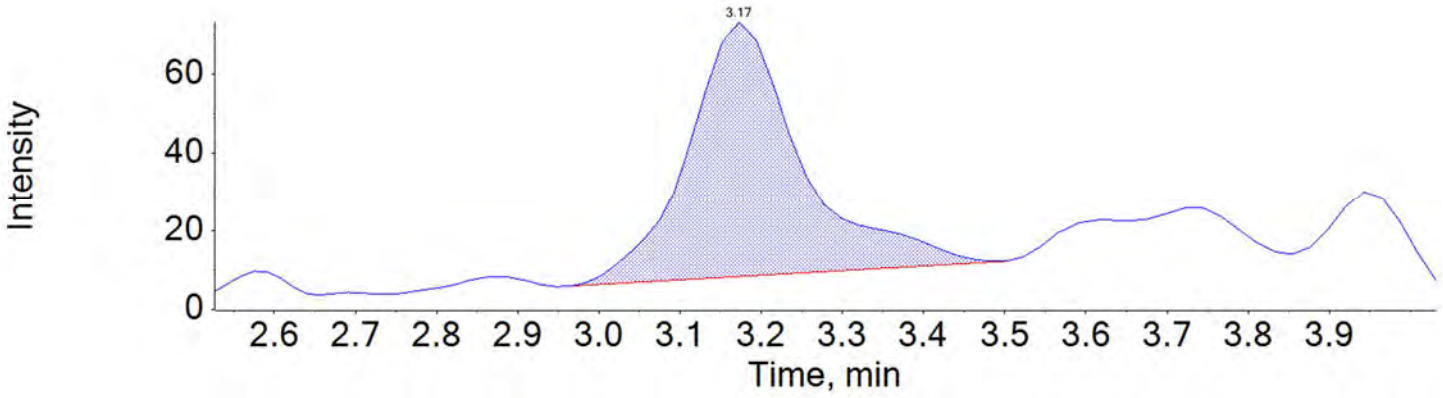
Printed: 17/05/2018 4:07:27 PM

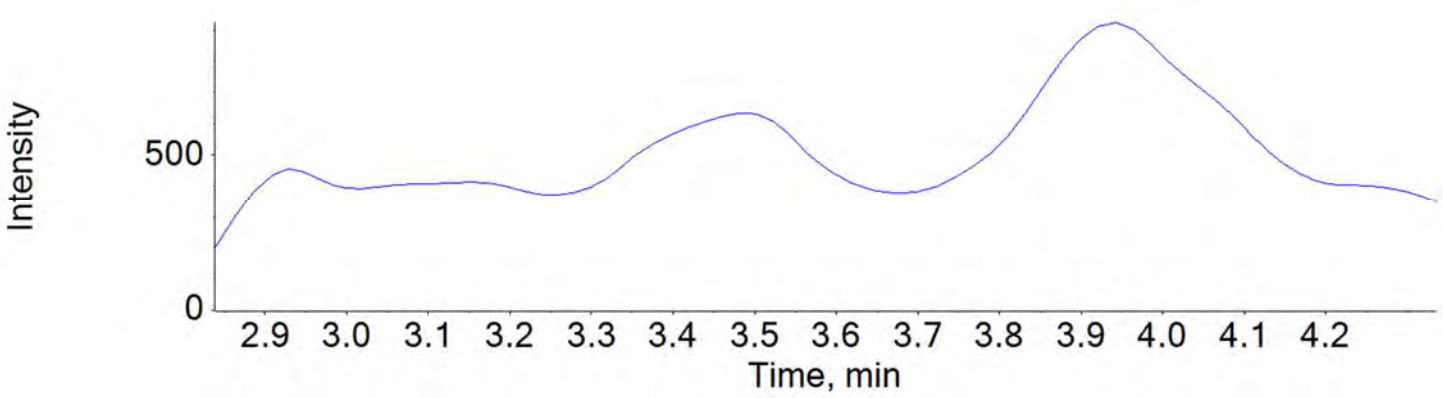
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



PFUnA_1 563.0 / 519.0



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Chromatogram Report

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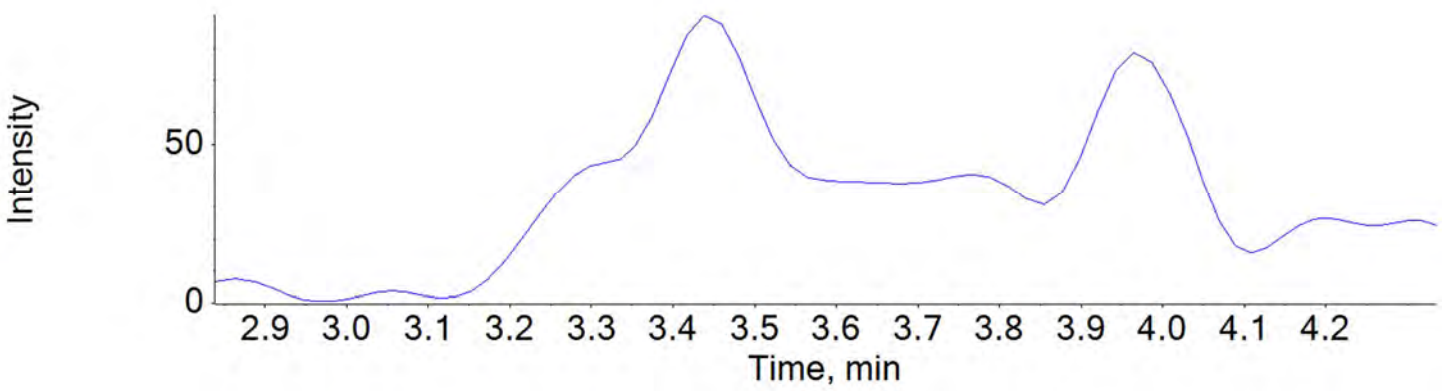
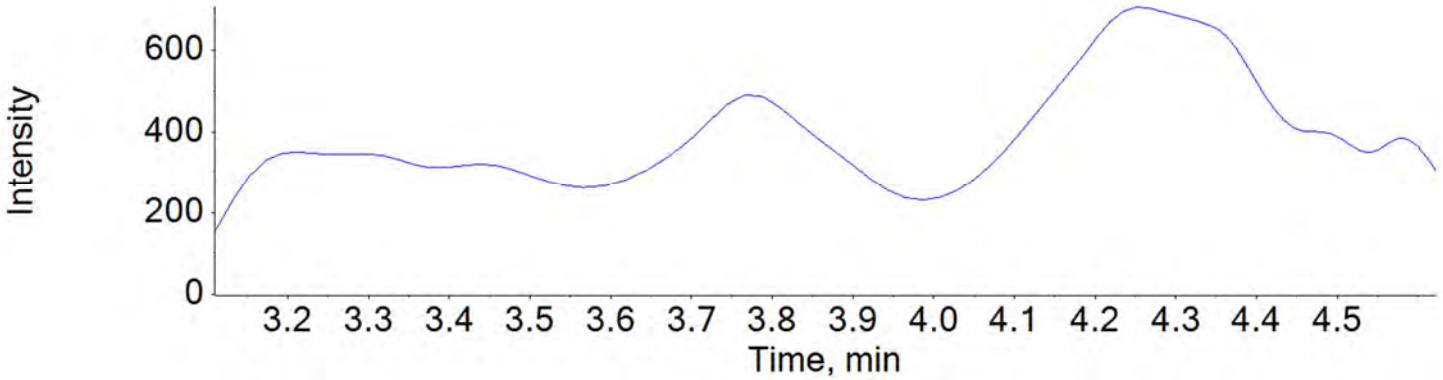
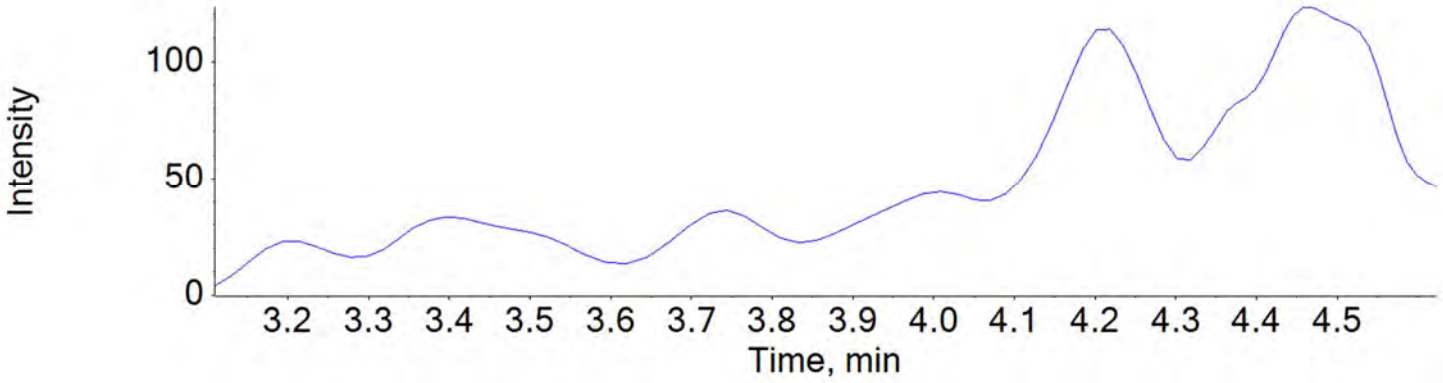
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



PFDoA_2 613.0 / 319.0



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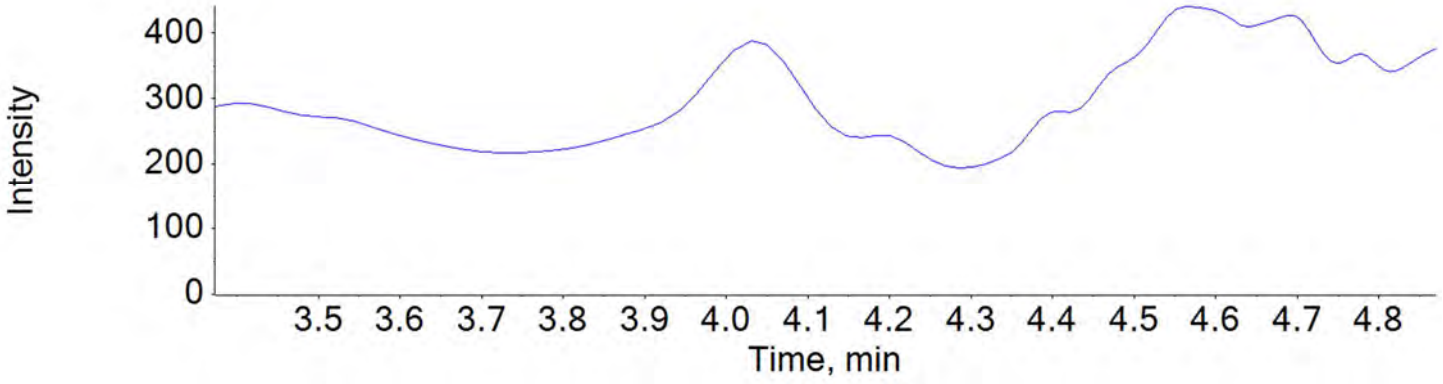
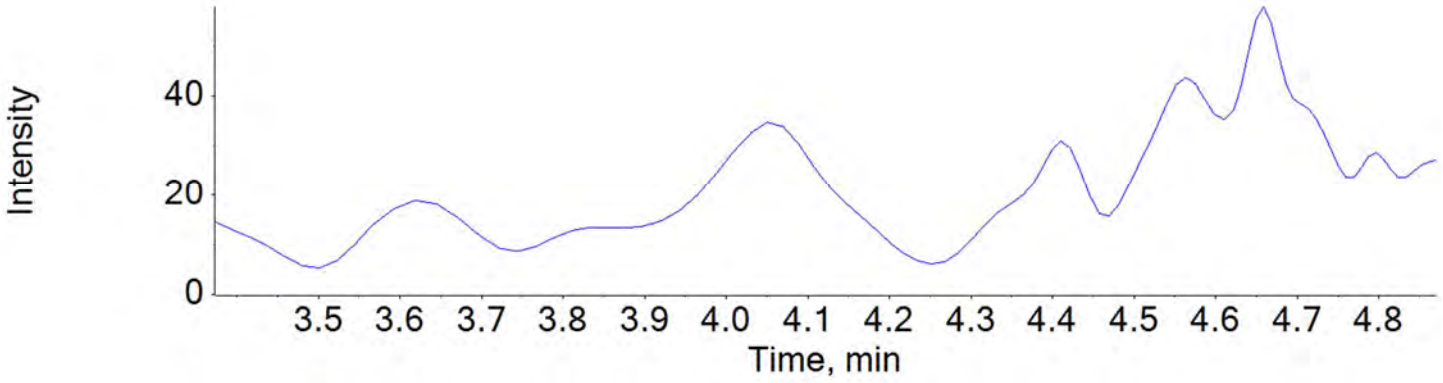
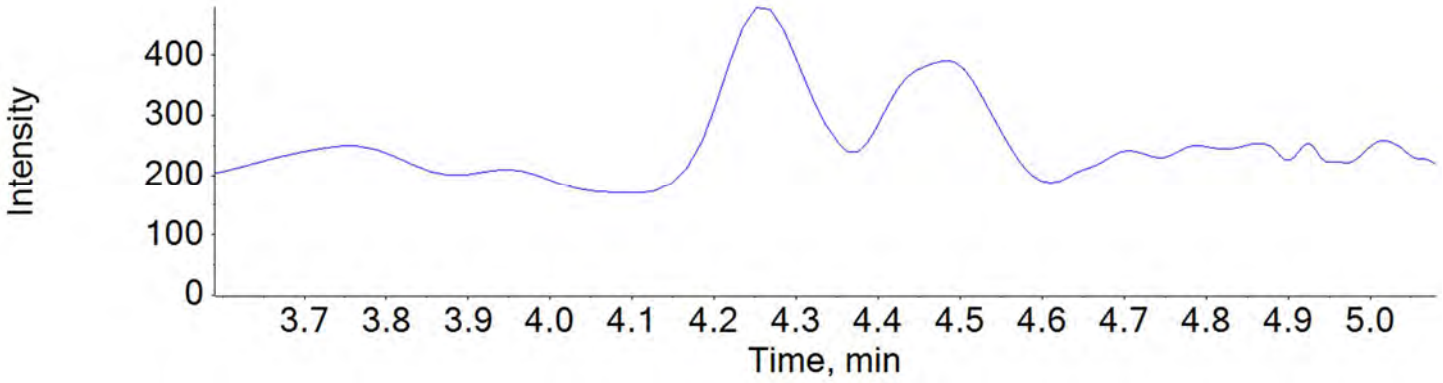
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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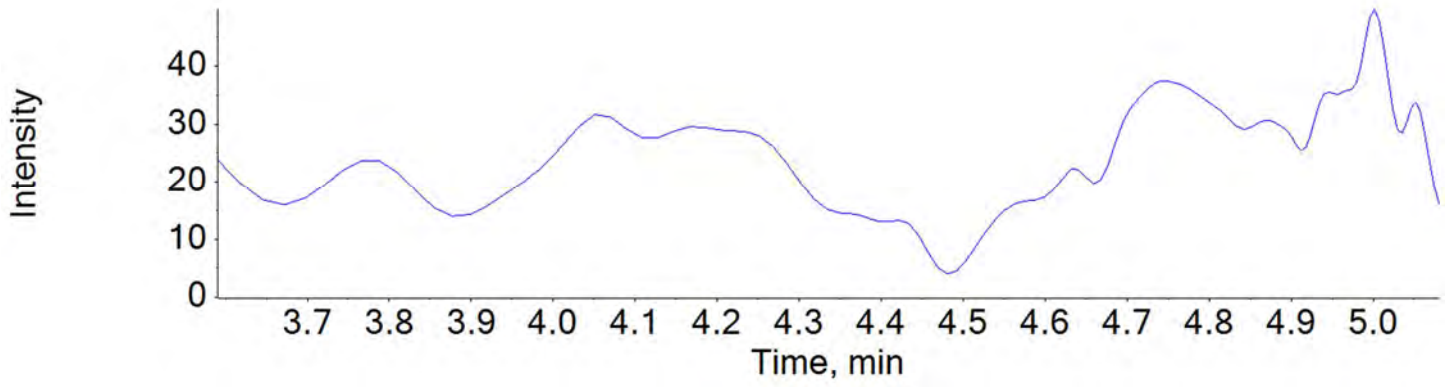
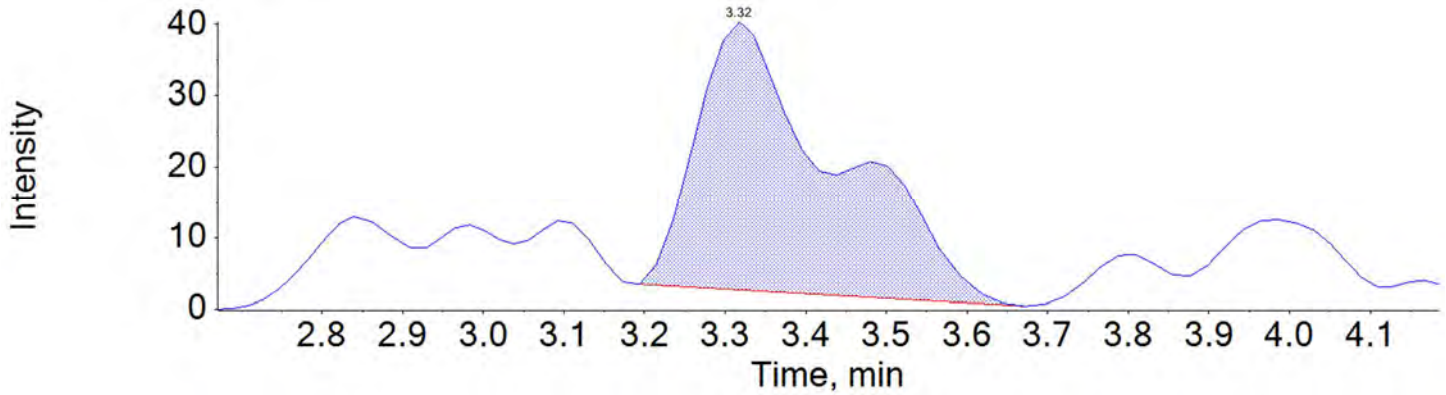
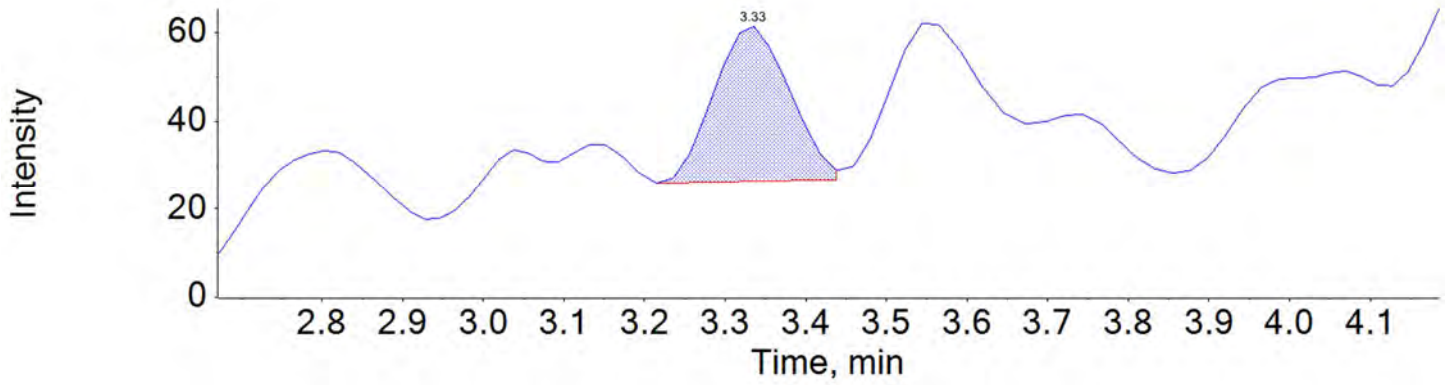
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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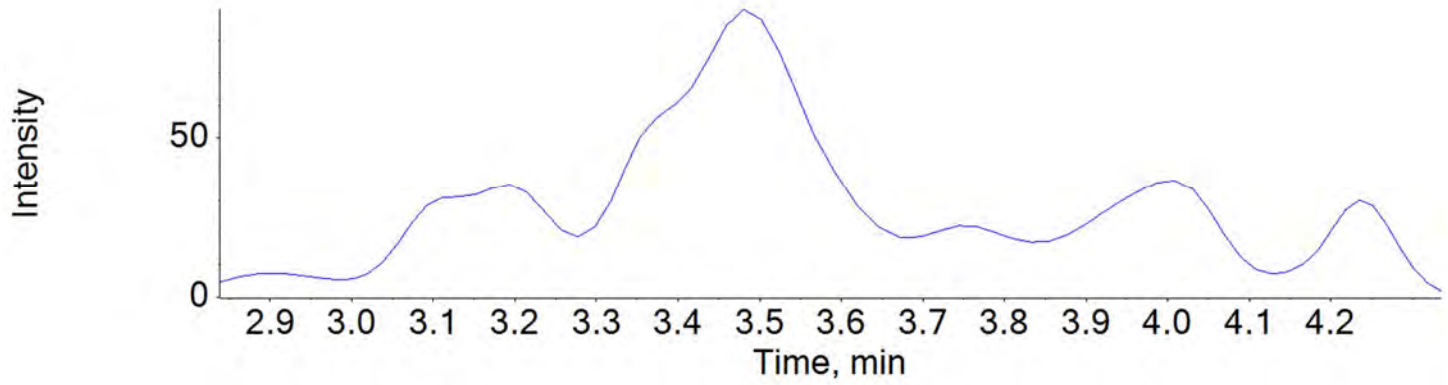
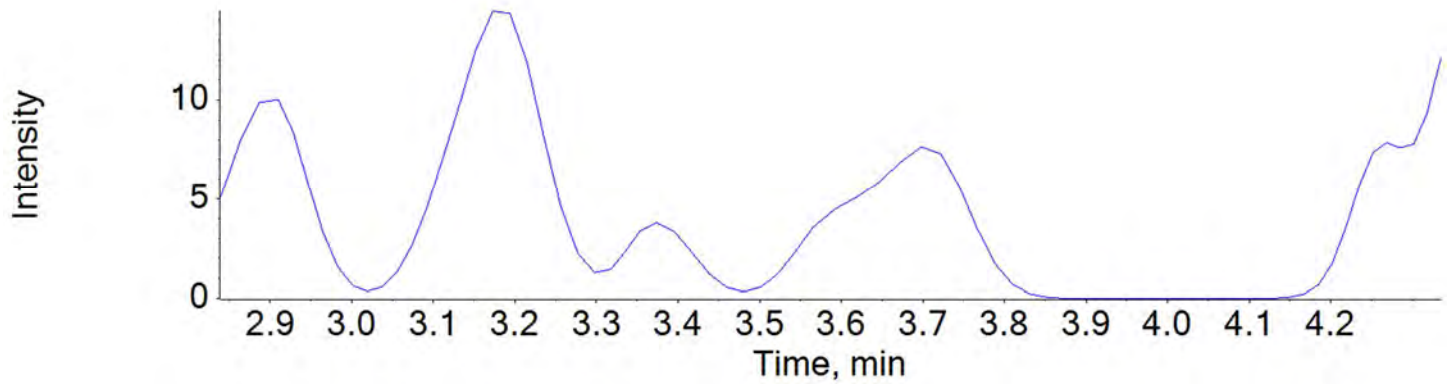
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:07:27 PM

NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



BATTELLE

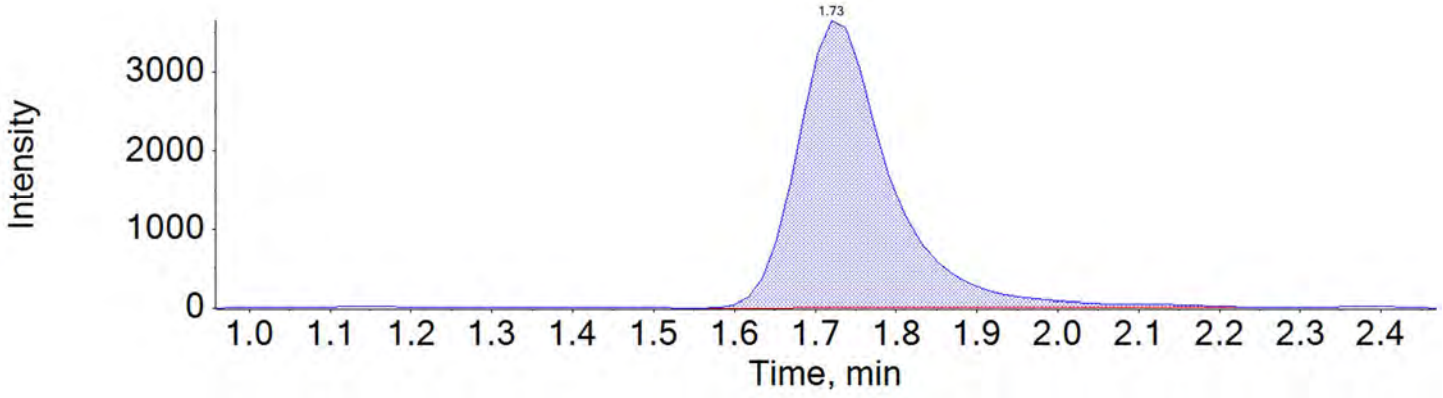
Chromatogram Report

Created with Analyst Reporter
Printed: 16/05/2018 7:12:30 PM

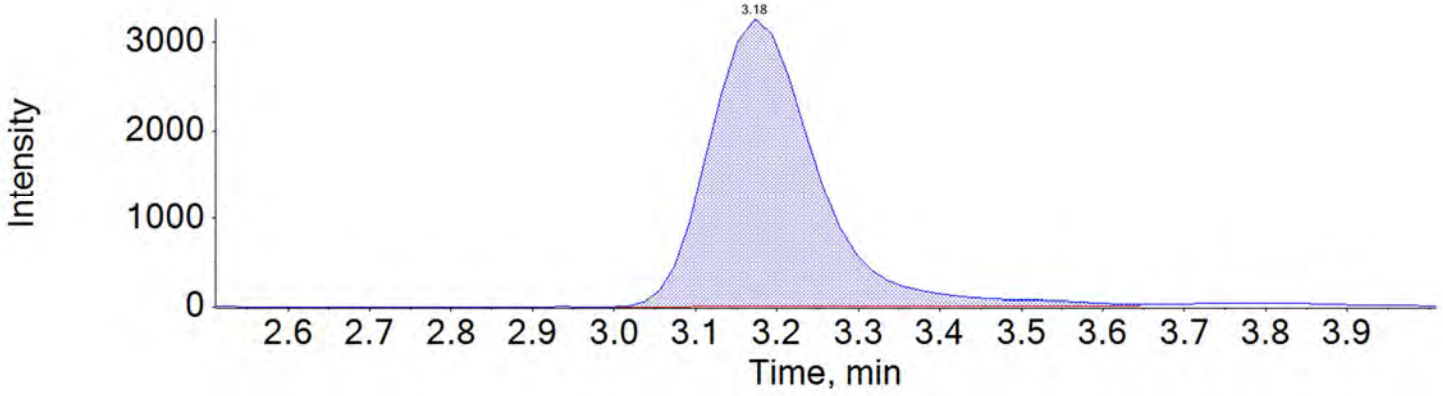
Sample Name	J5966-FS(0)	**Injection Vial**	17
Sample ID	NAWC-043018-RW-207	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T14:58:13	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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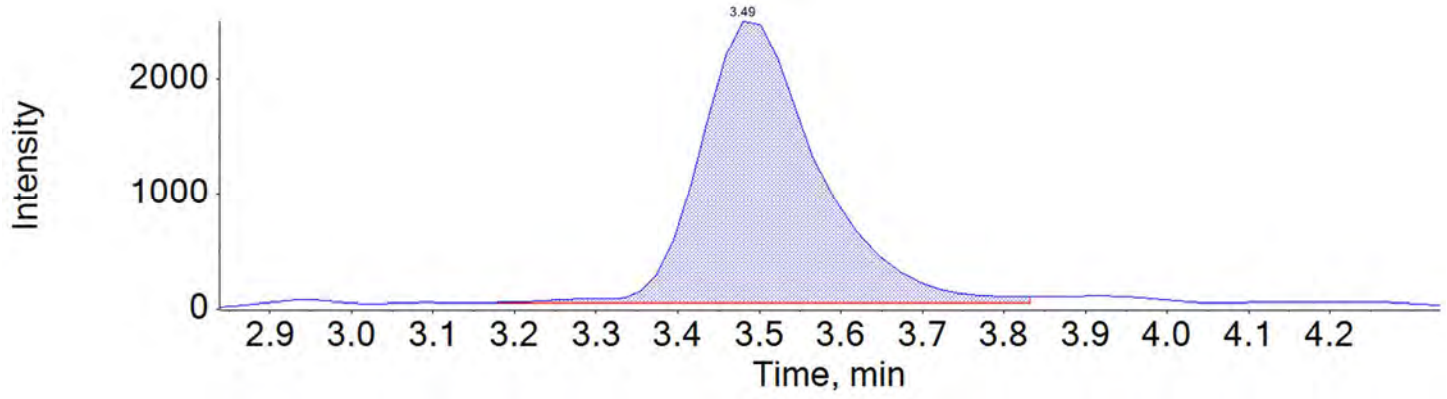
Chromatogram Report

Created with Analyst Reporter
Printed: 16/05/2018 7:12:30 PM

d5-EtFOSAA 589.0 / 419.0



BATTELLE

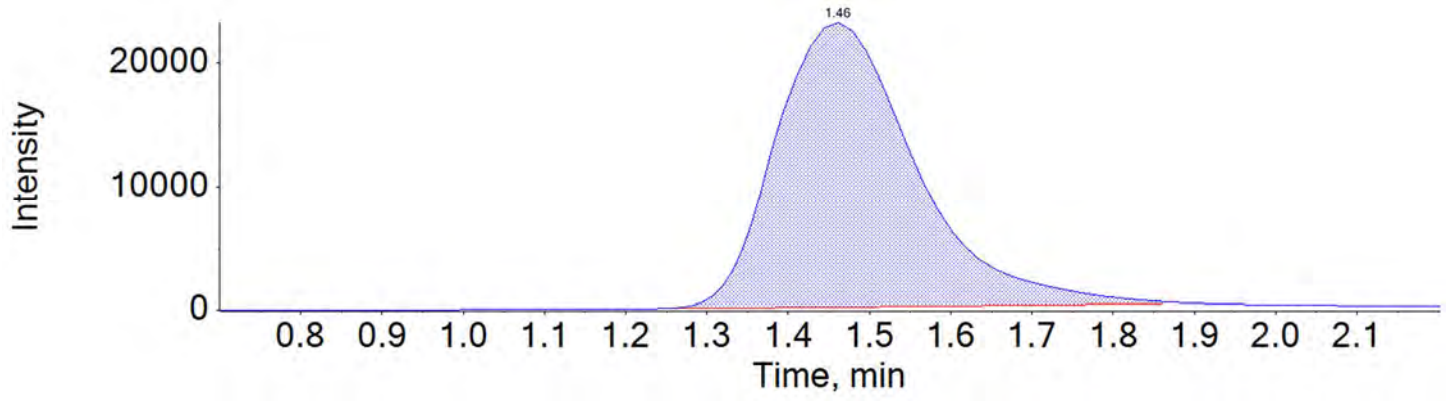
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:06:07 PM

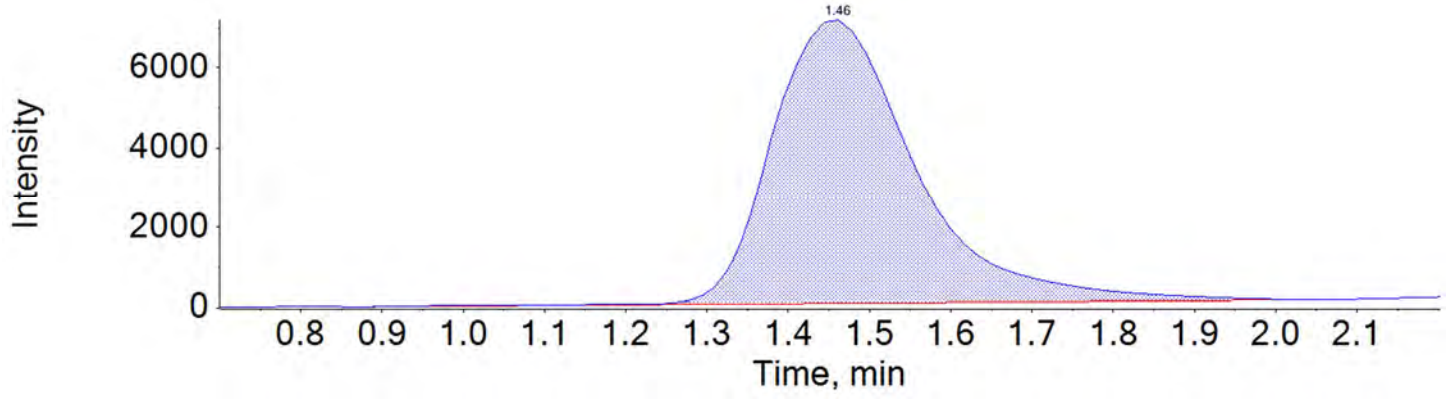
Sample Name	JV69 CCV	**Injection Vial**	7
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:07:07	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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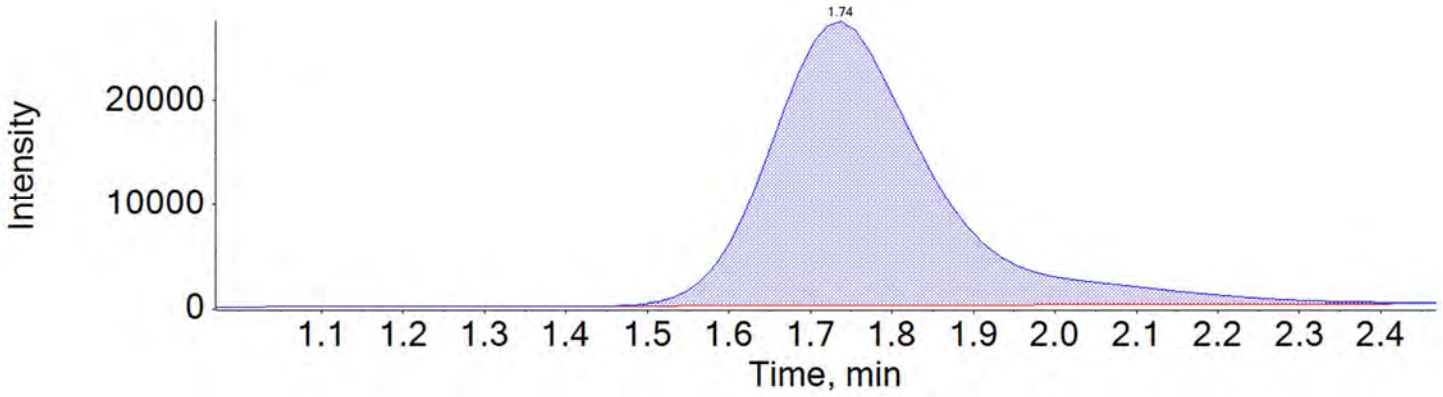
PFHxA_1 313.0 / 269.0



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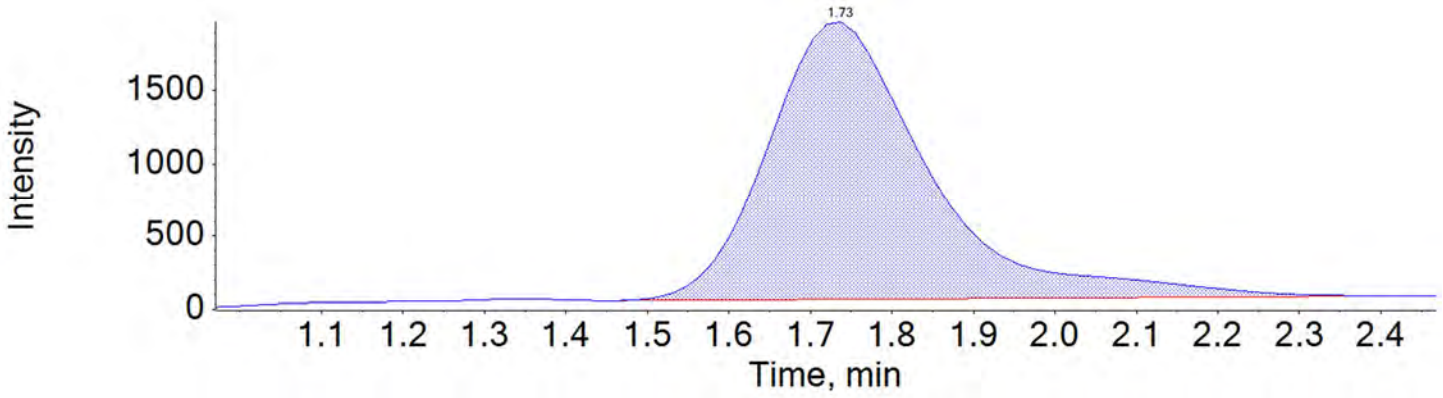

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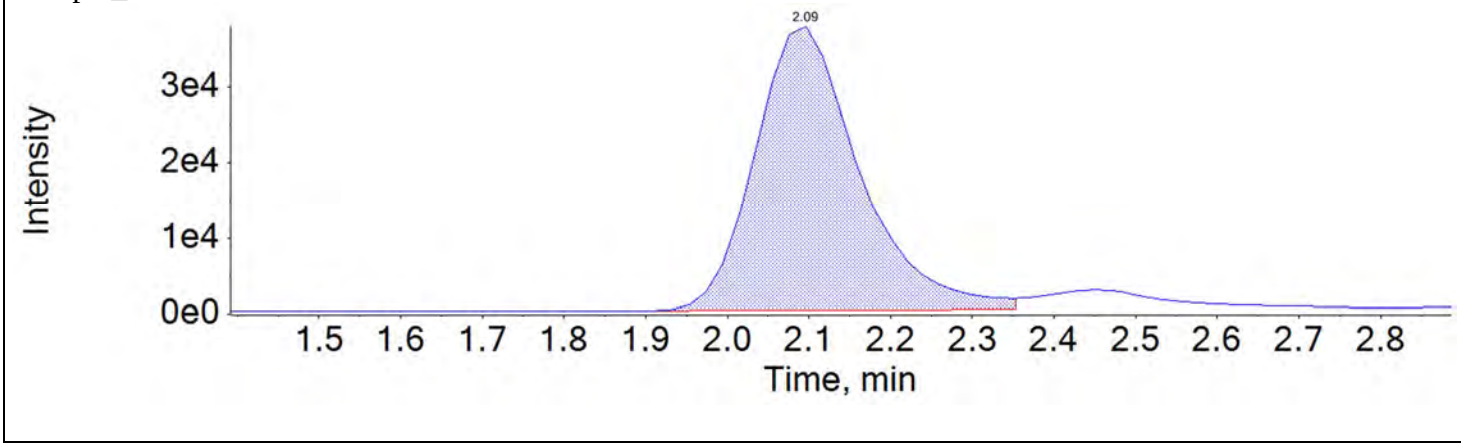

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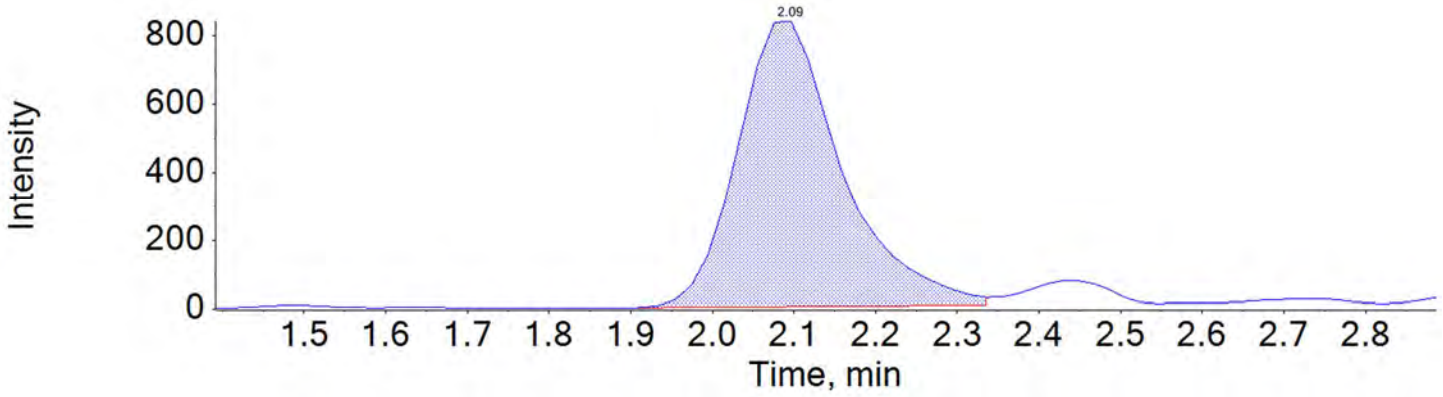

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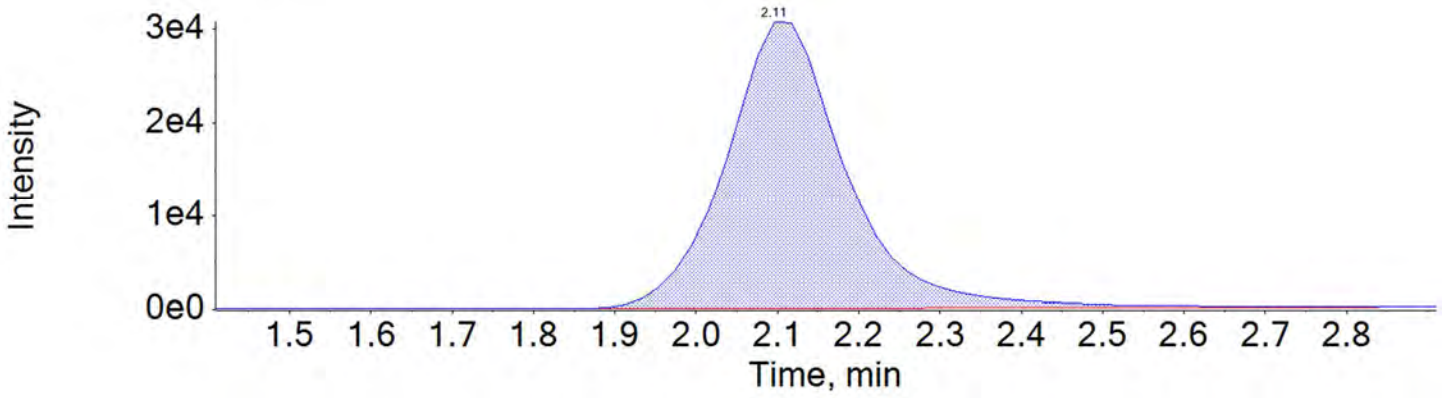

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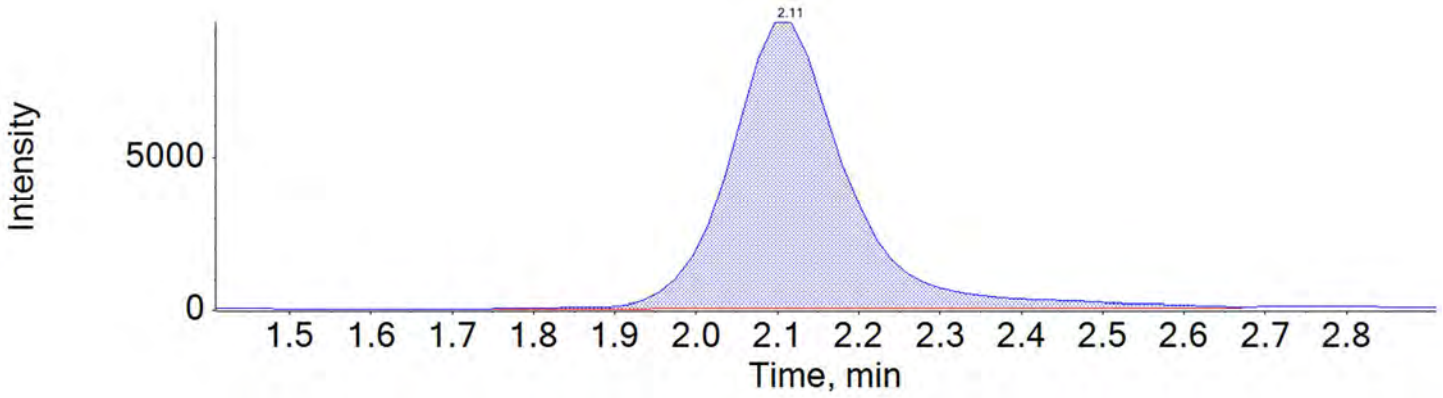

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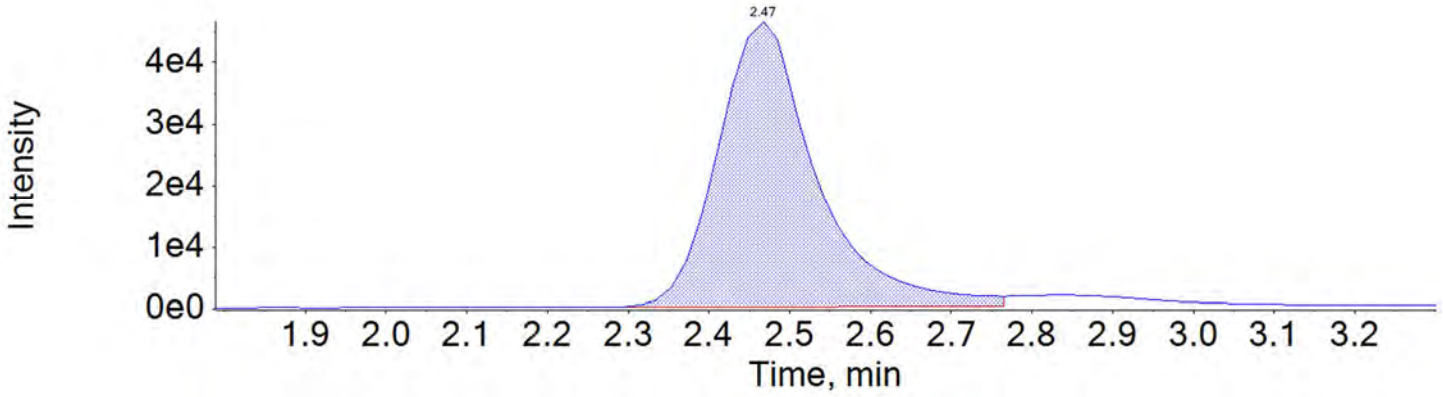

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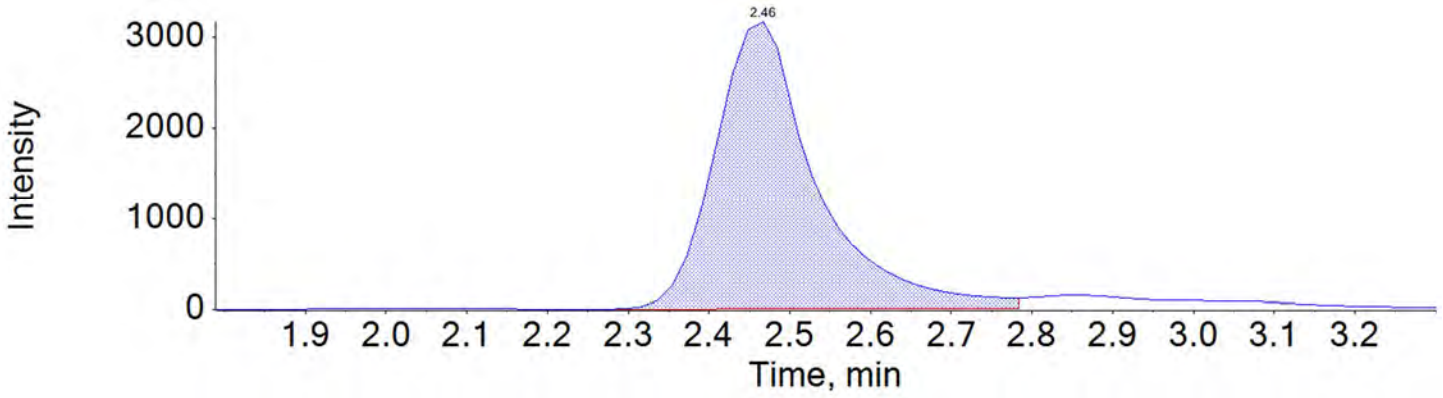
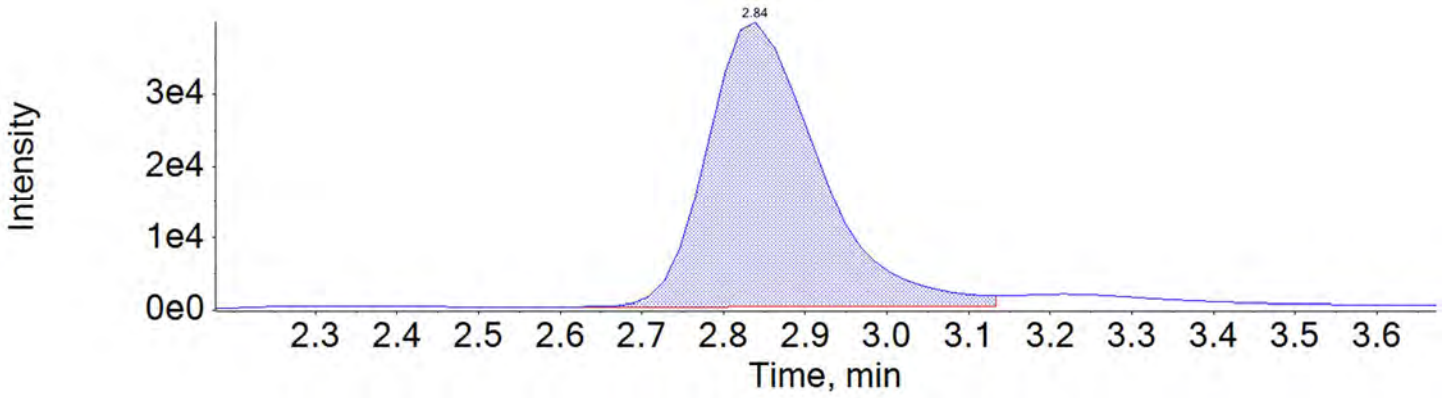


PFNA_1 463.0 / 419.0



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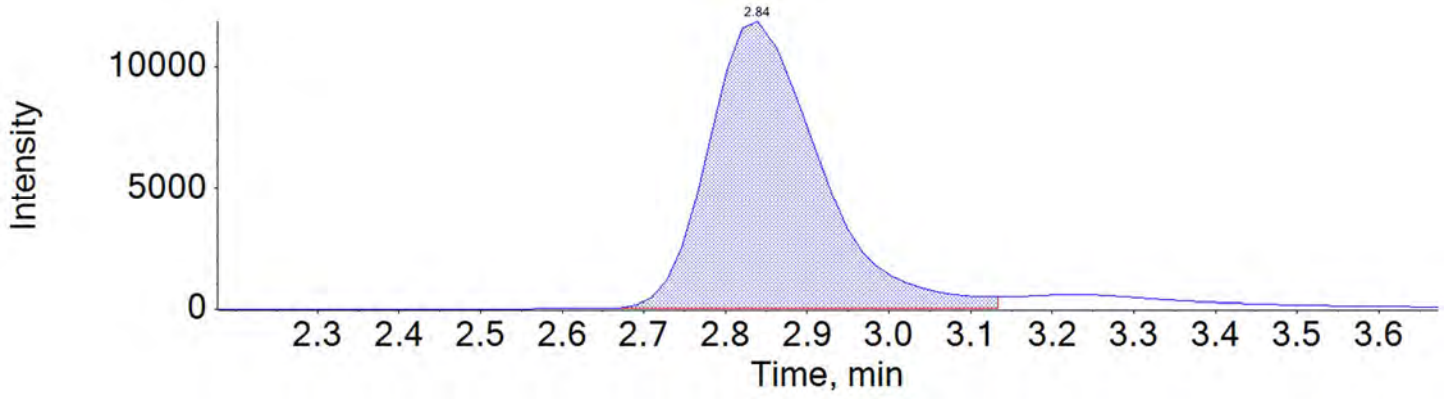

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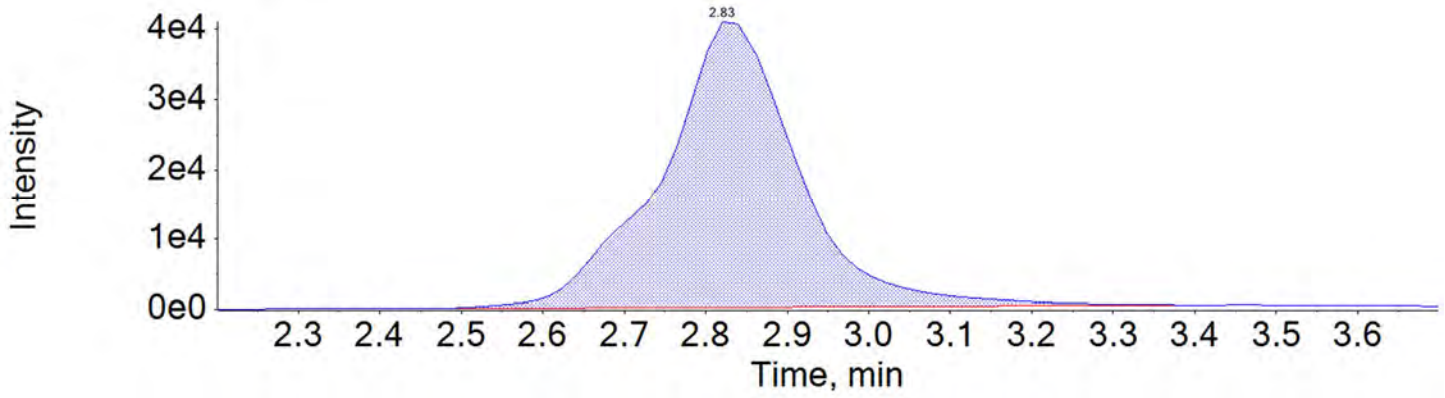

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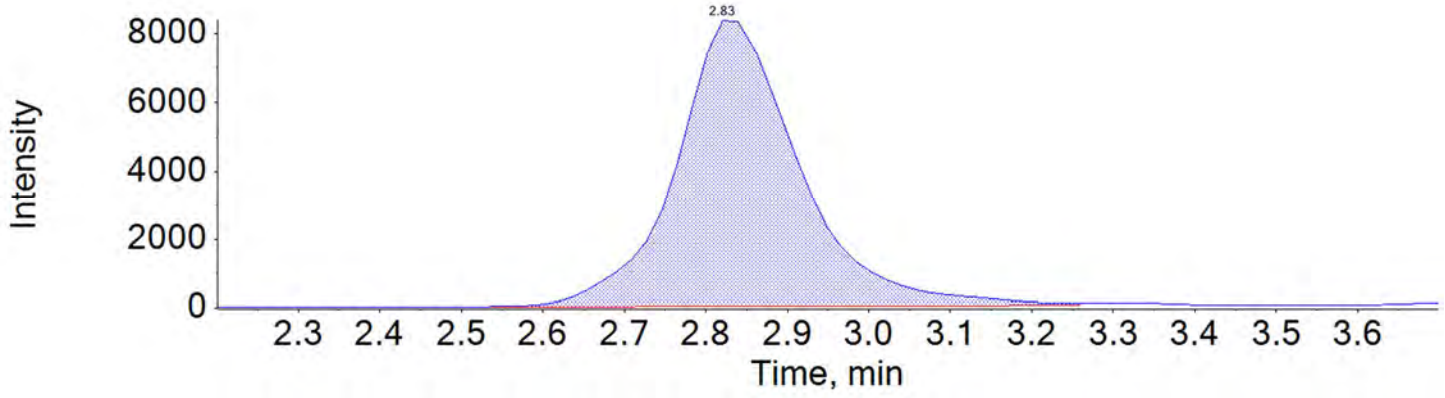

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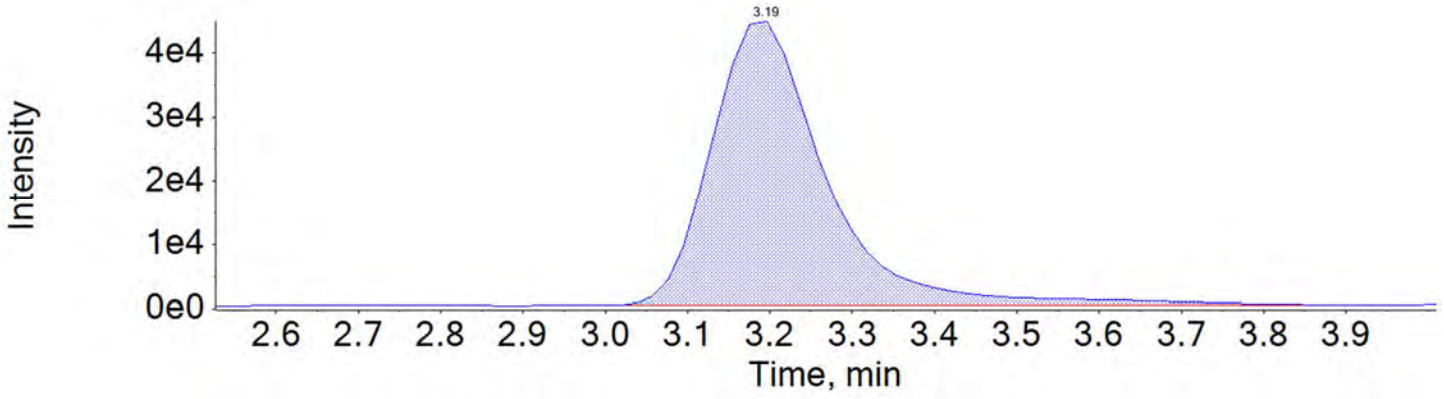
PFDA_1 513.0 / 469.0



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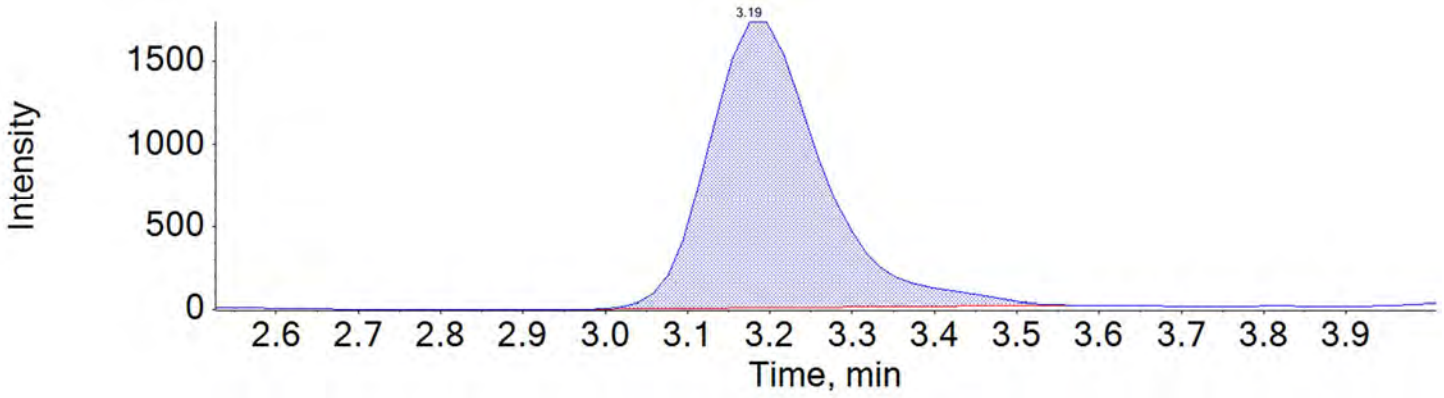
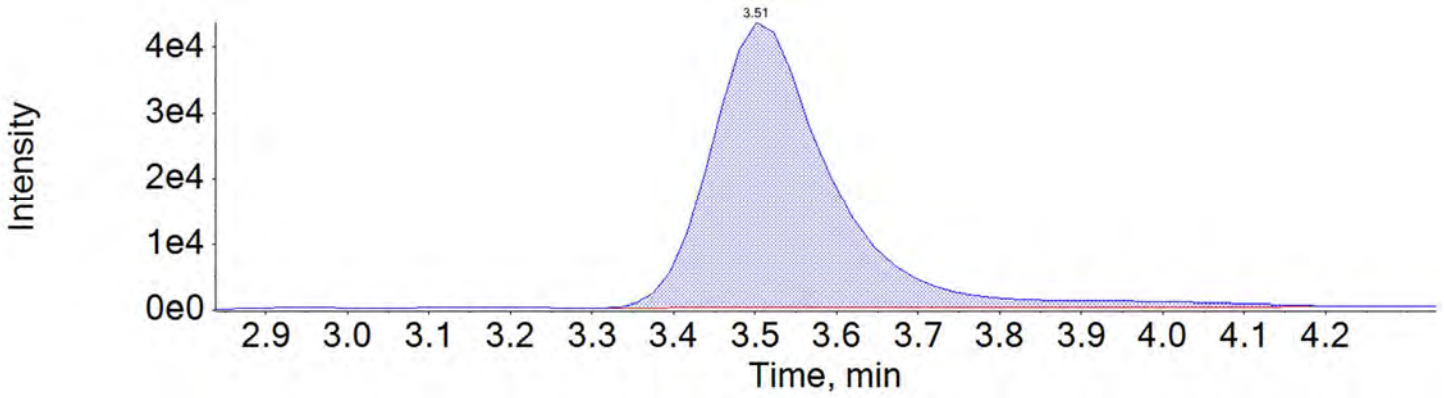


PFUnA_1 563.0 / 519.0



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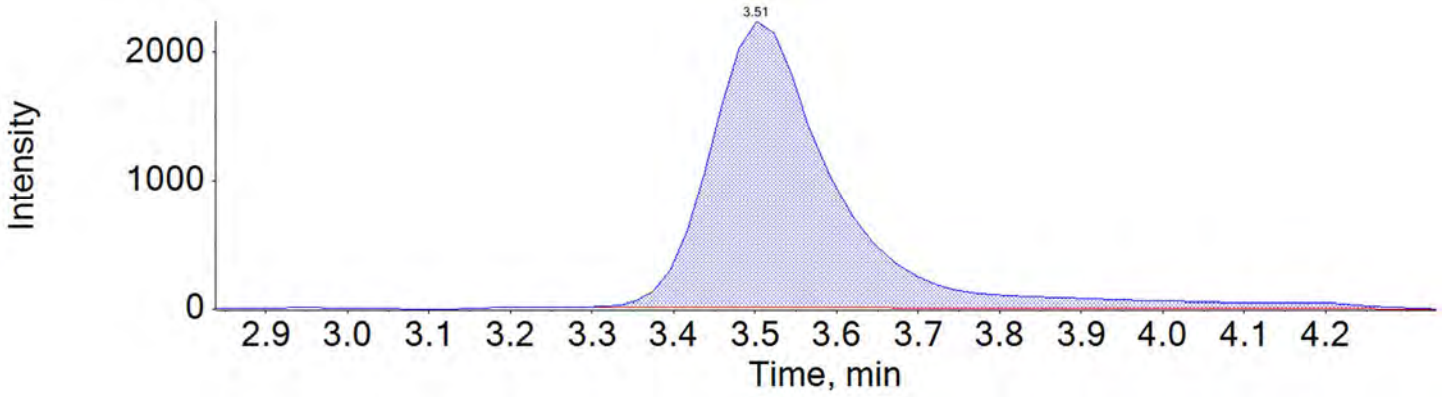
PFUnA_2 563.0 / 269.0



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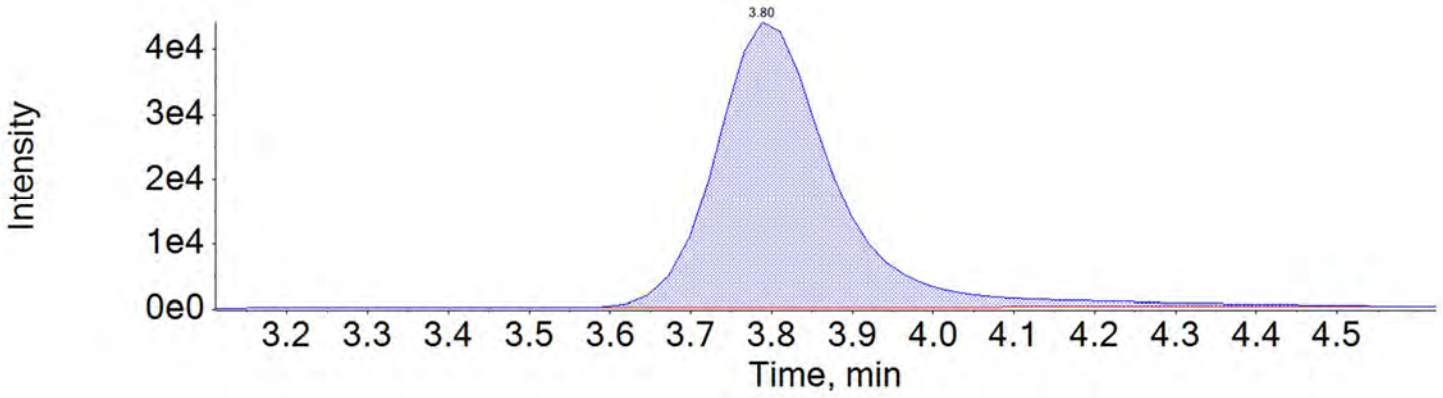

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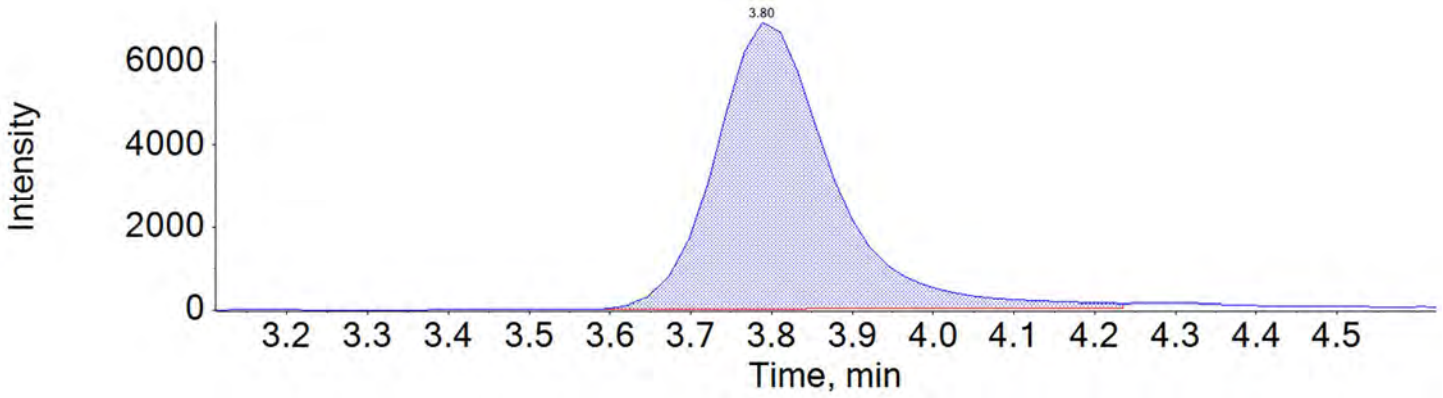

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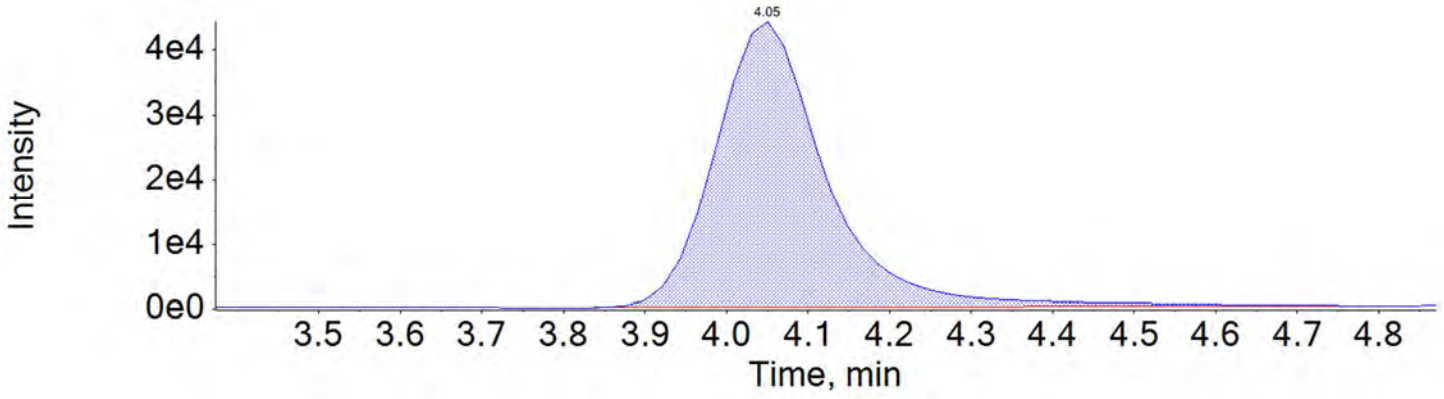
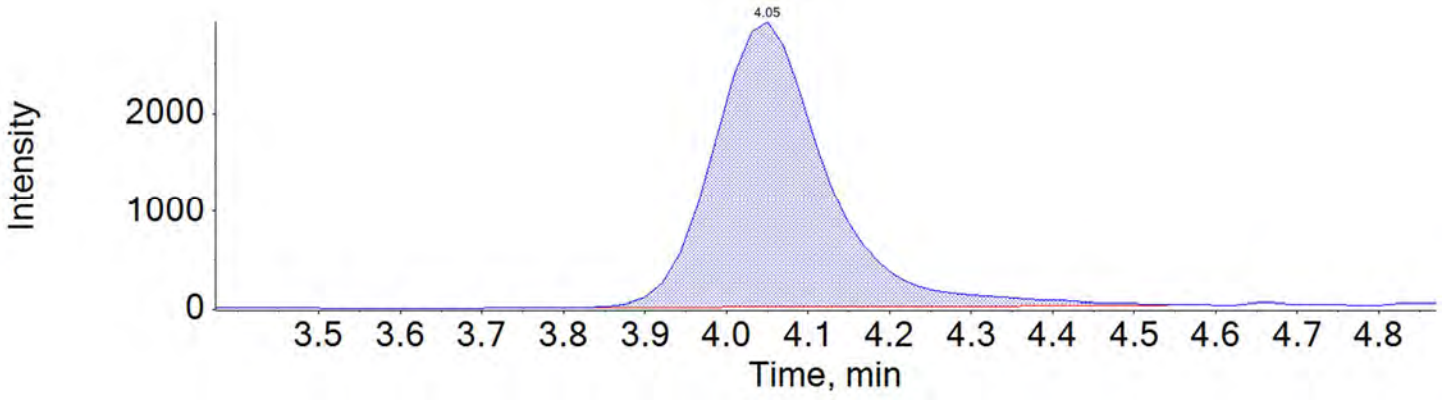


PFTrDA_2 663.0 / 169.0



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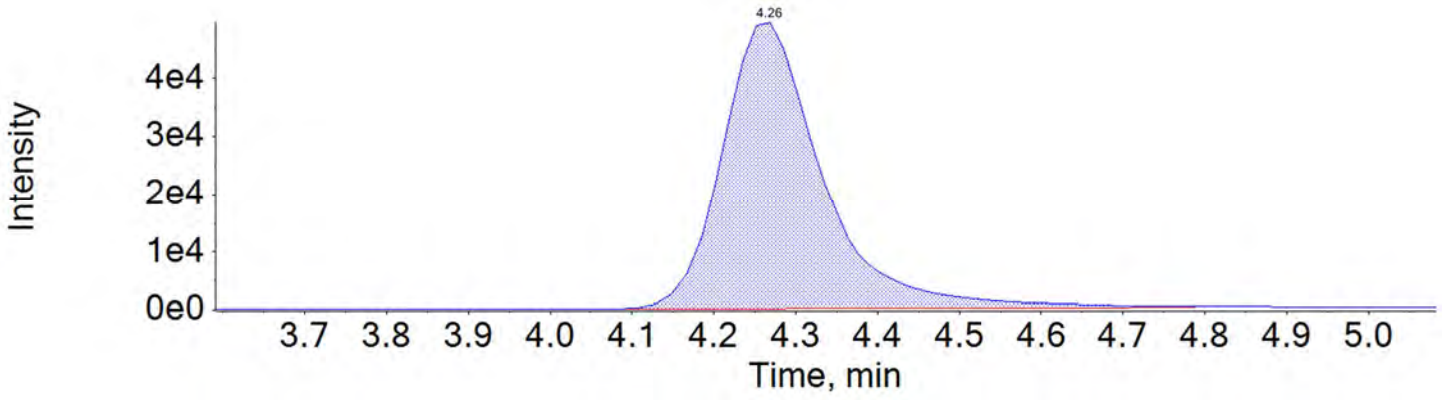

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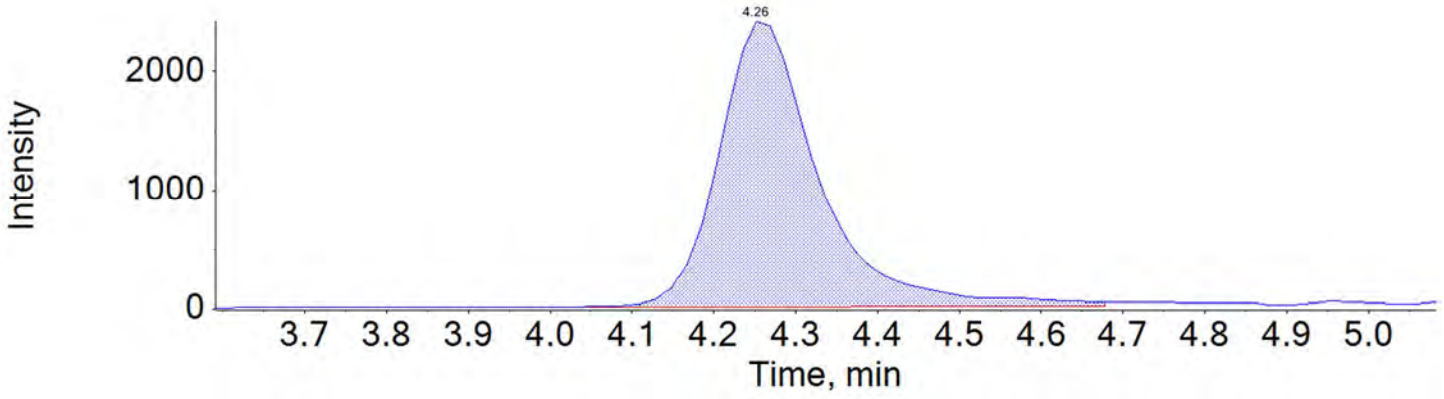
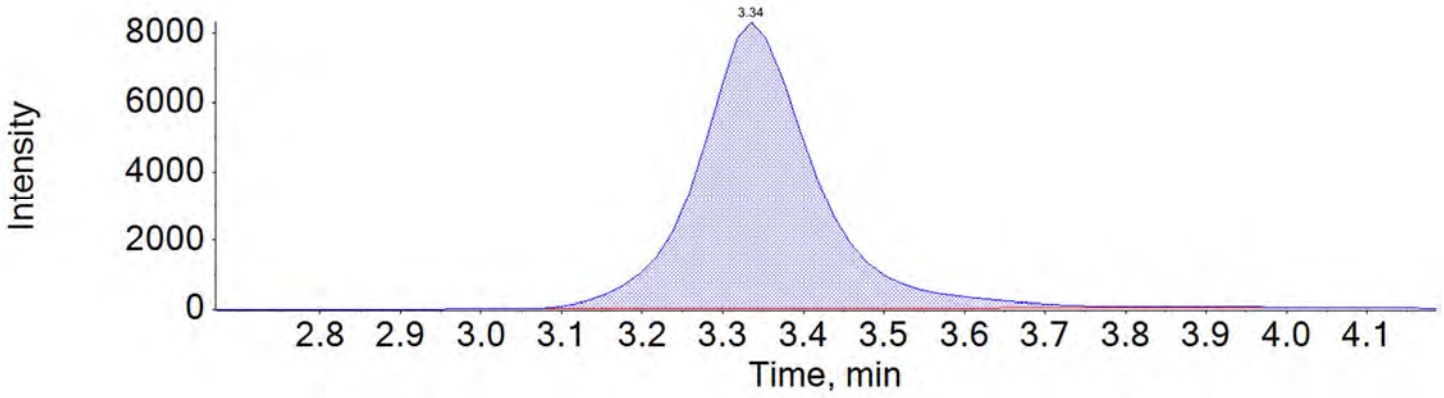


NMeFOSAA_1 570.0 / 419.0



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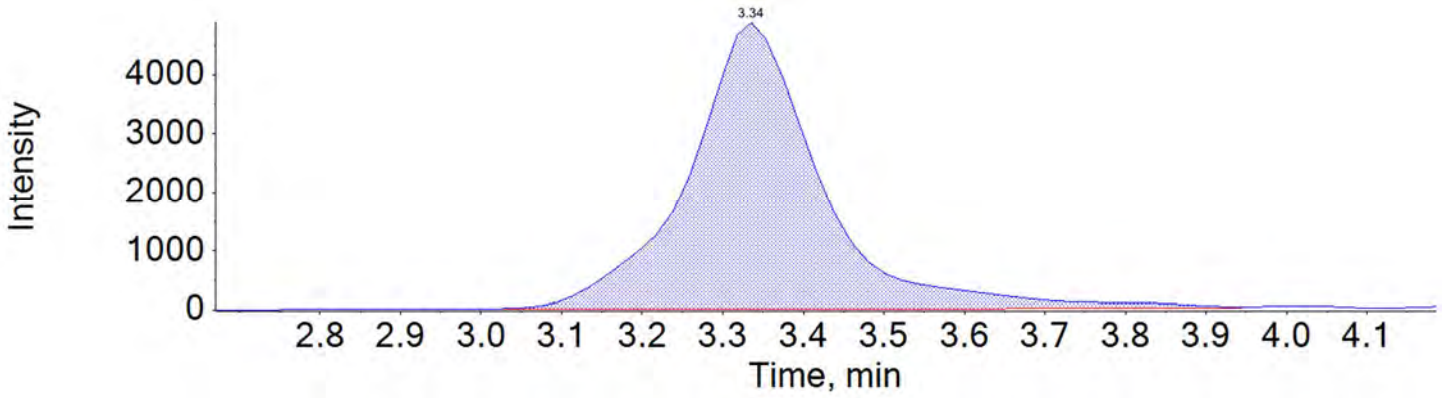

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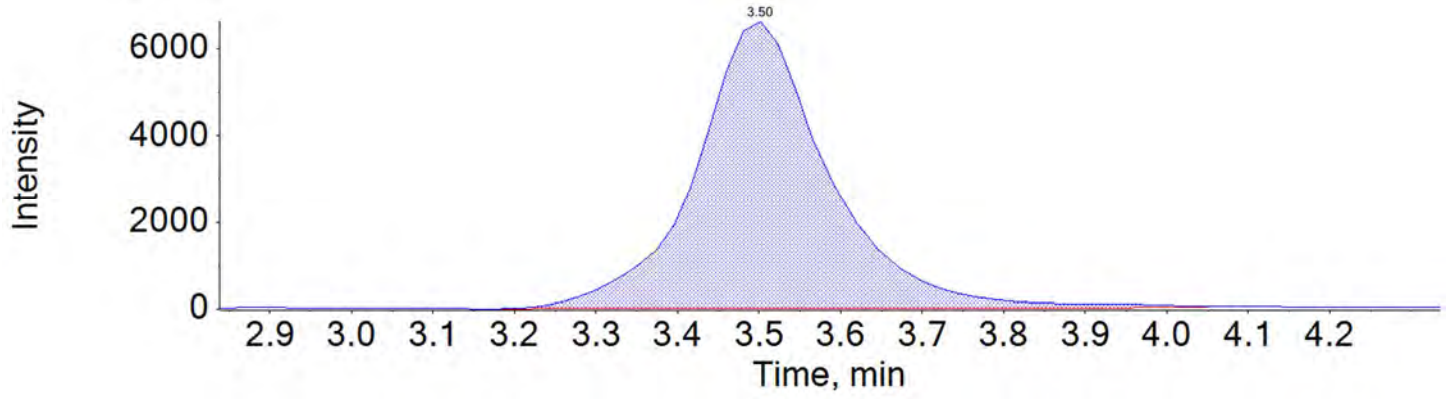
NEtFOSAA_1 584.0 / 419.0



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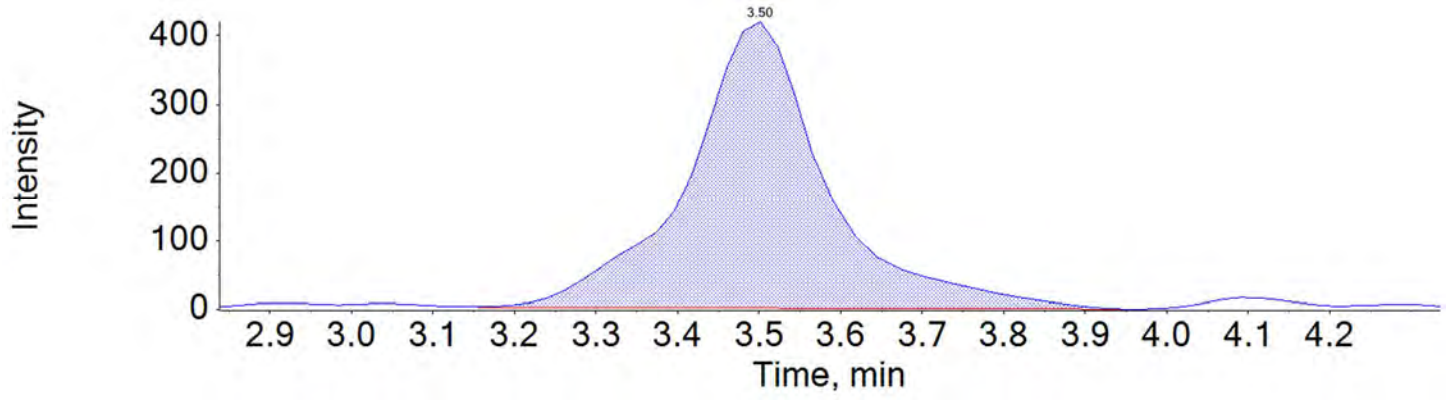

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Chromatogram Report

Created with Analyst Reporter
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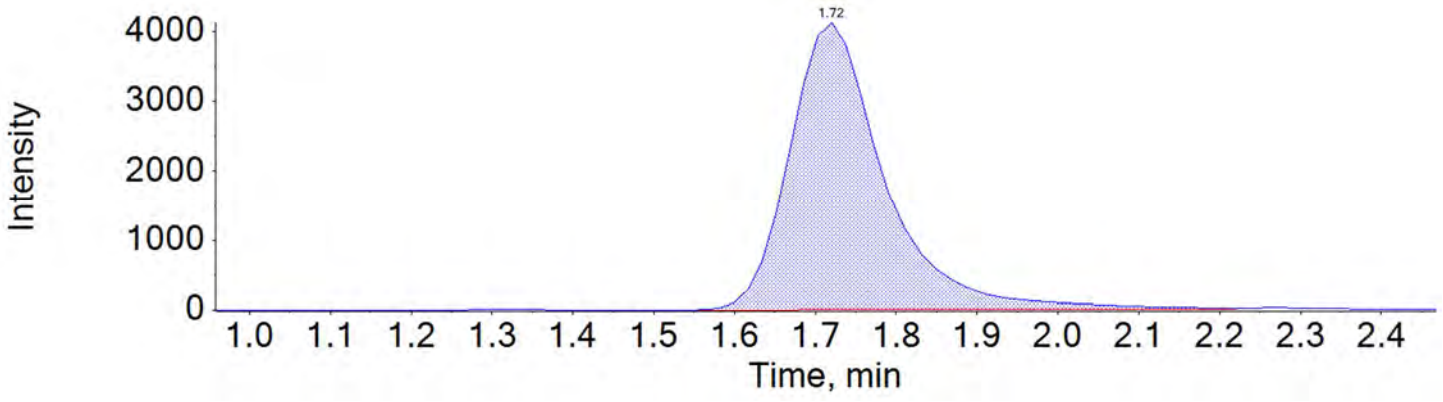
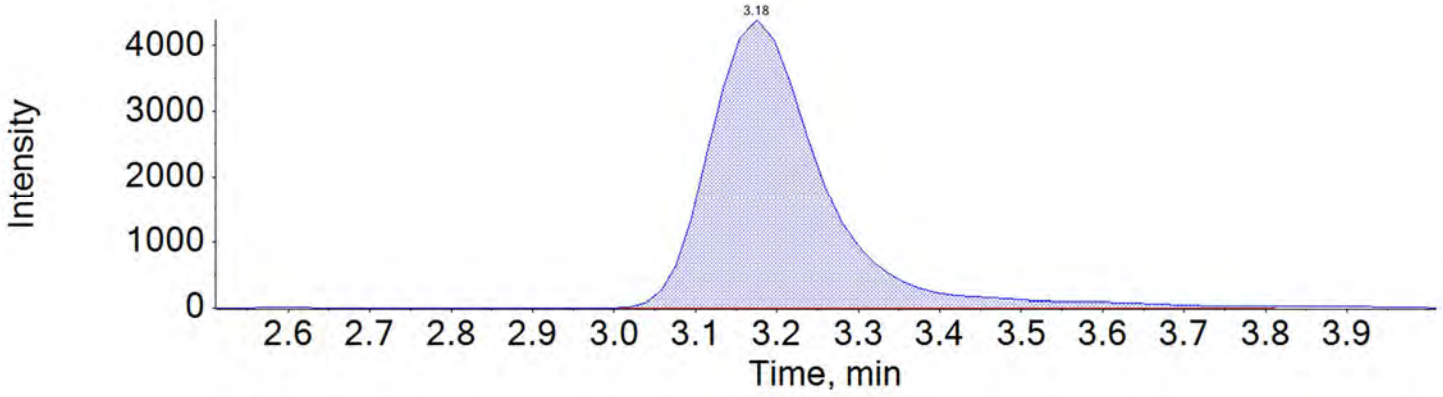
Sample Name	JV69 CCV	**Injection Vial**	7
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:07:07	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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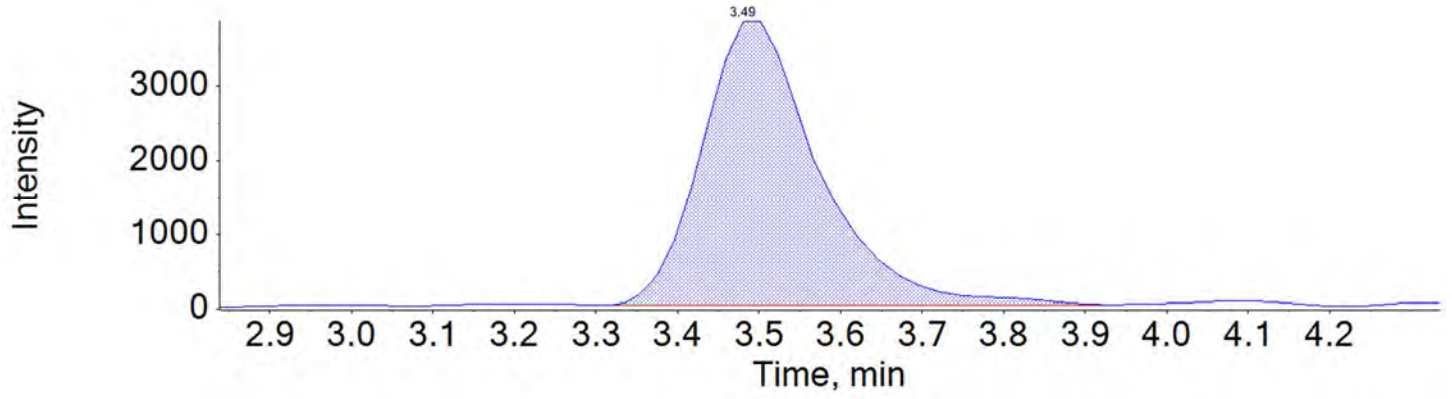
d5-EtFOSAA 589.0 / 419.0



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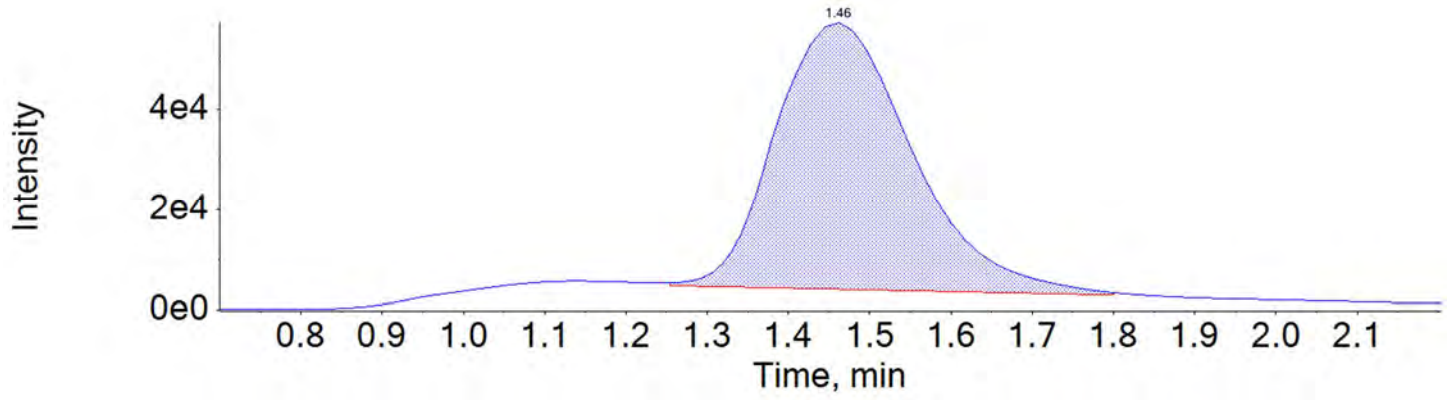
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:07:32 PM

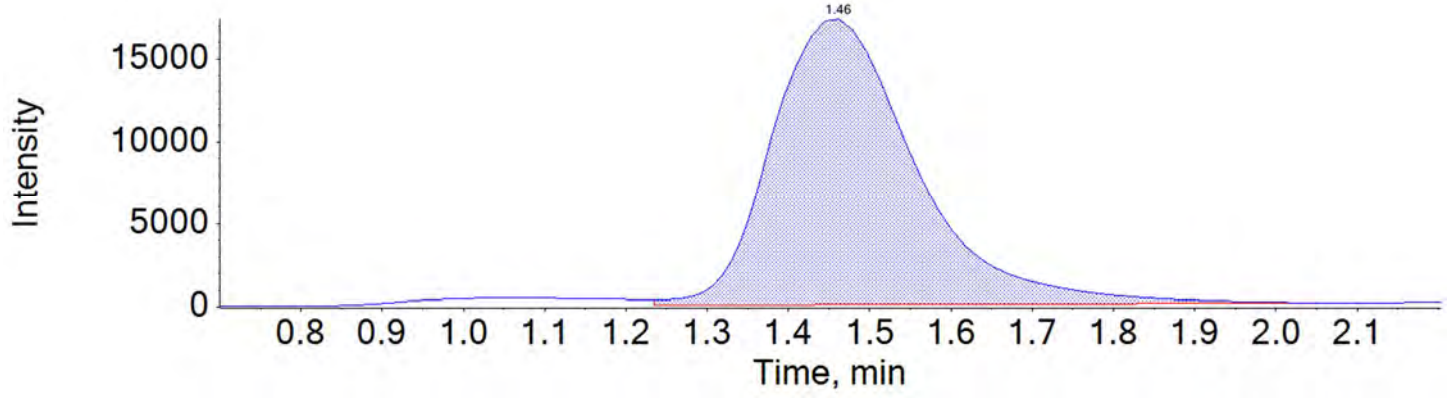
Sample Name	J5968-FS(0)	**Injection Vial**	18
Sample ID	WGNA-043018-RW-3409	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:24:59	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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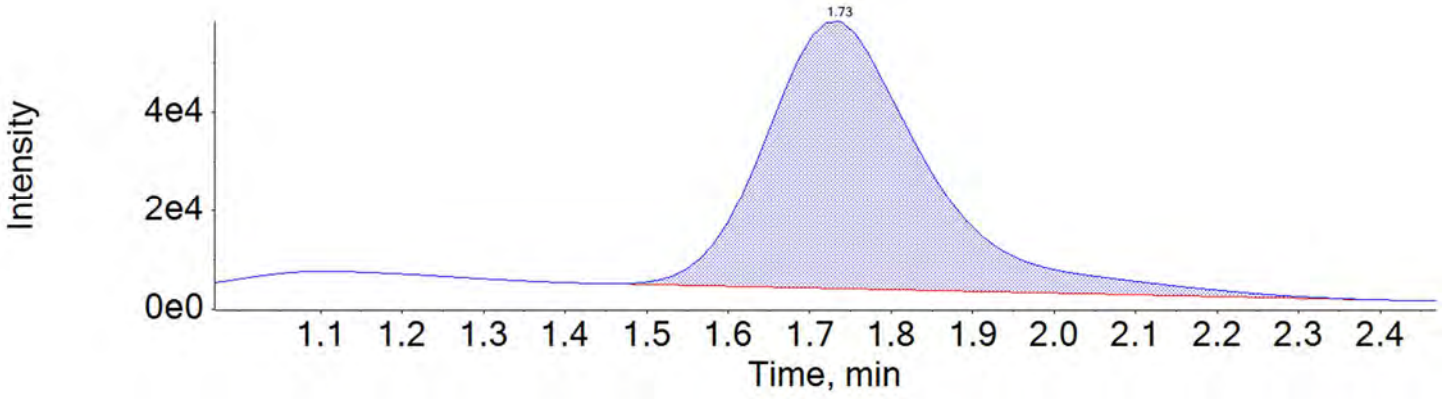

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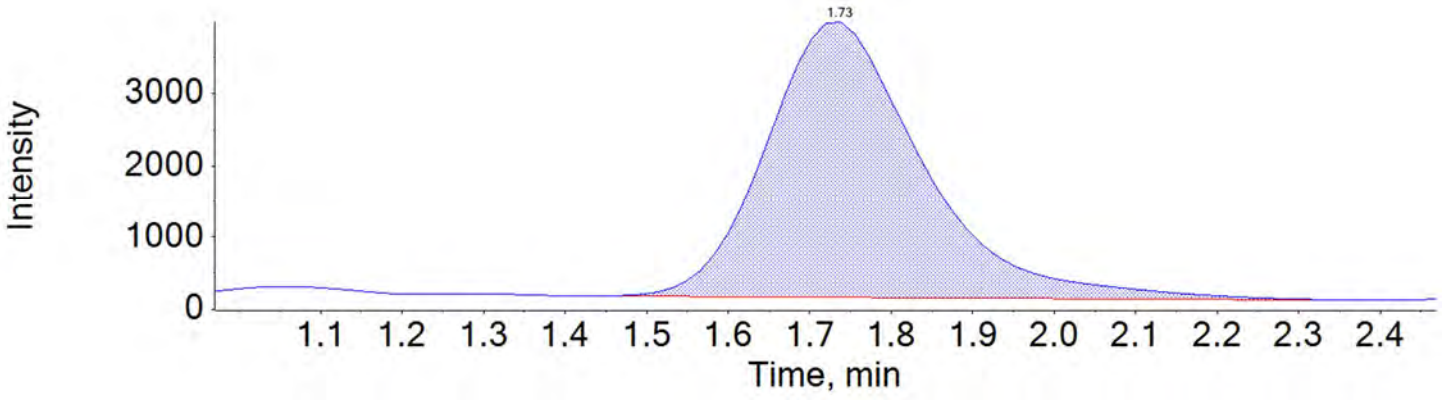

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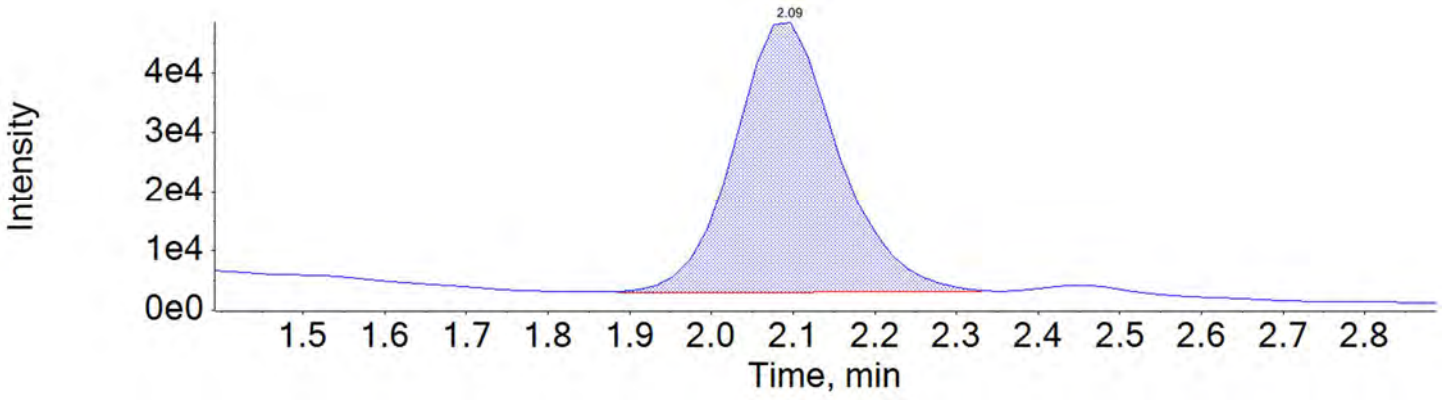

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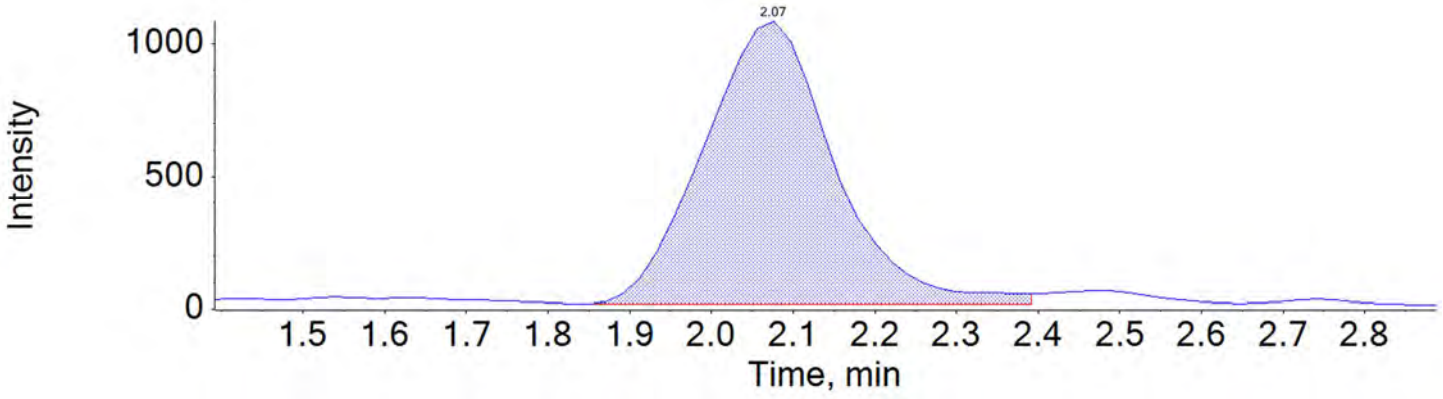
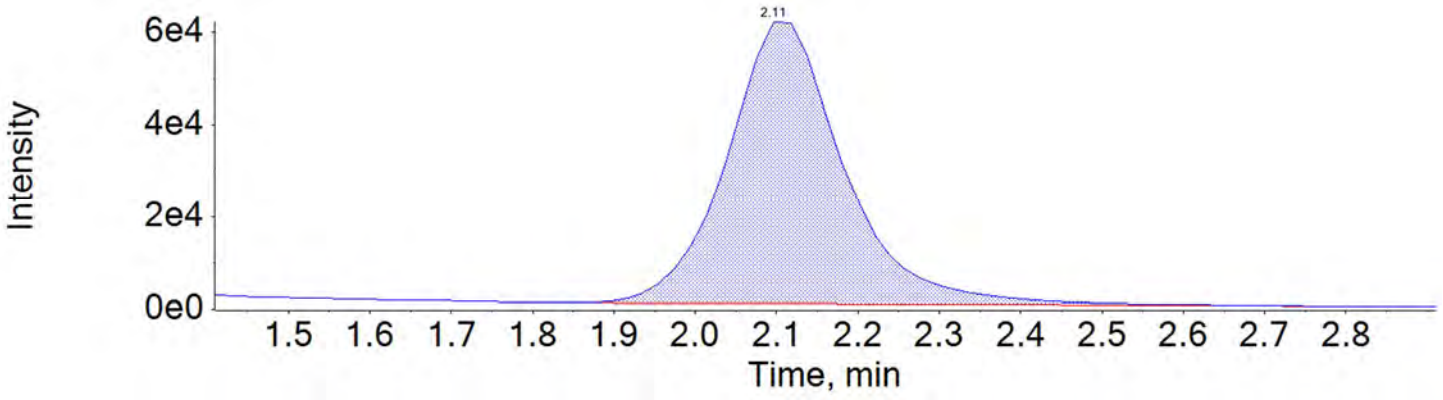


PFHxS_1 399.0 / 80.0



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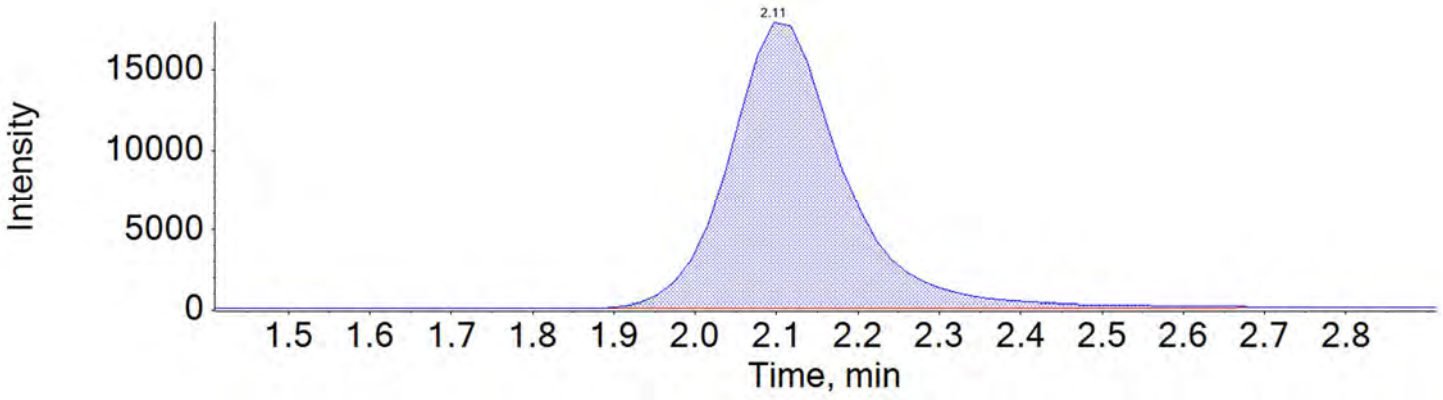

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Chromatogram Report

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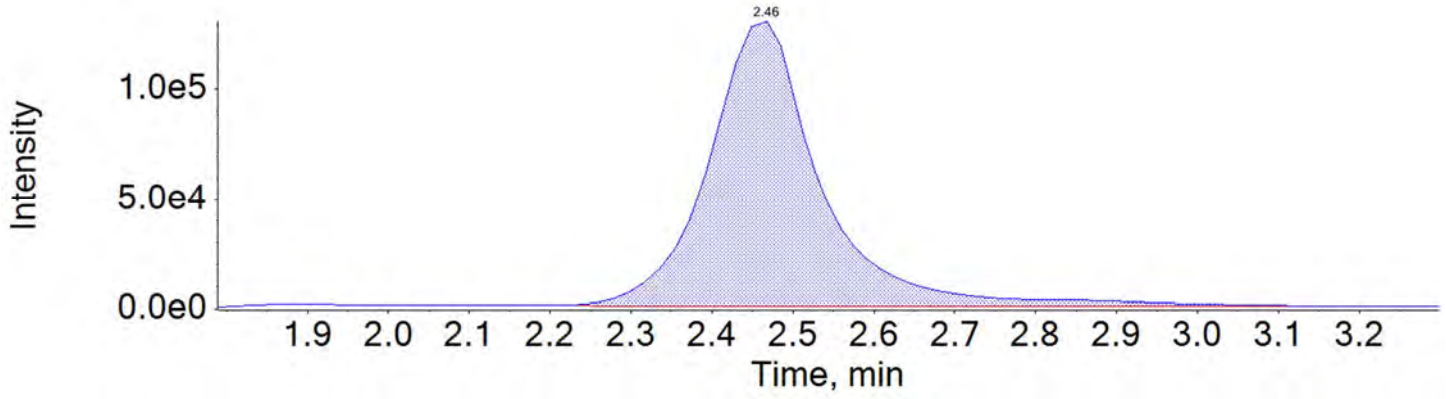
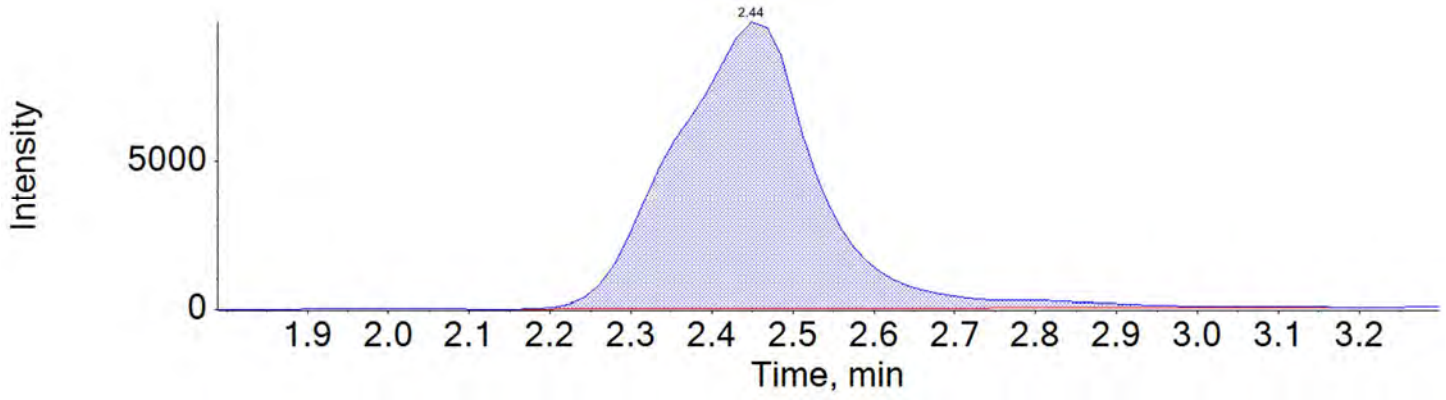
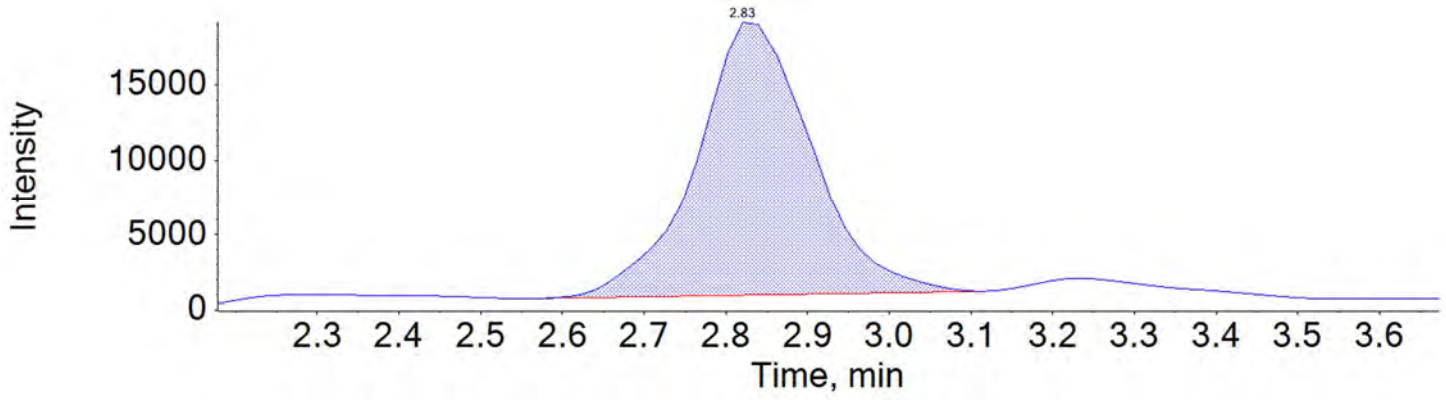
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



PFNA_1 463.0 / 419.0



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Chromatogram Report

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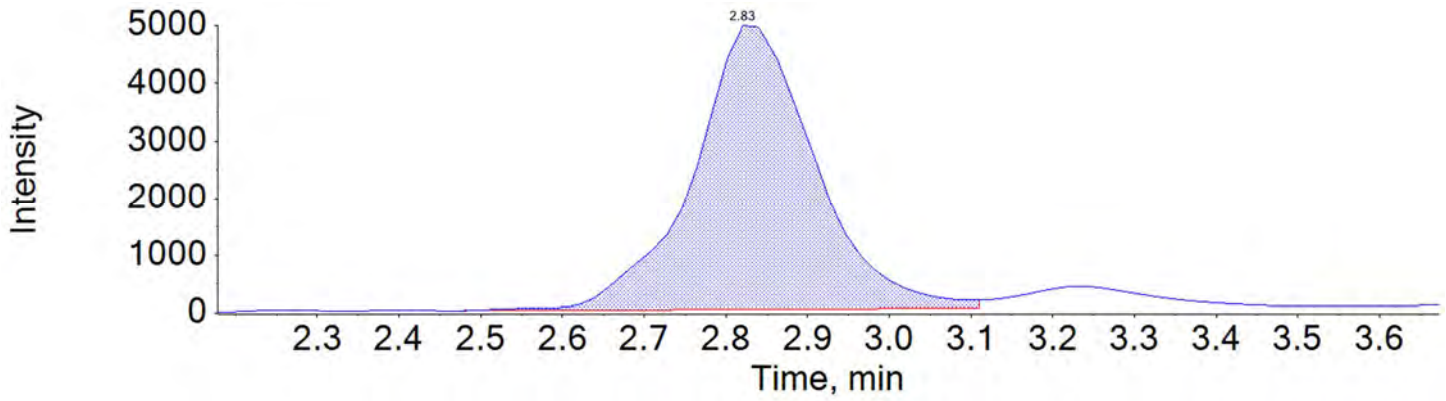
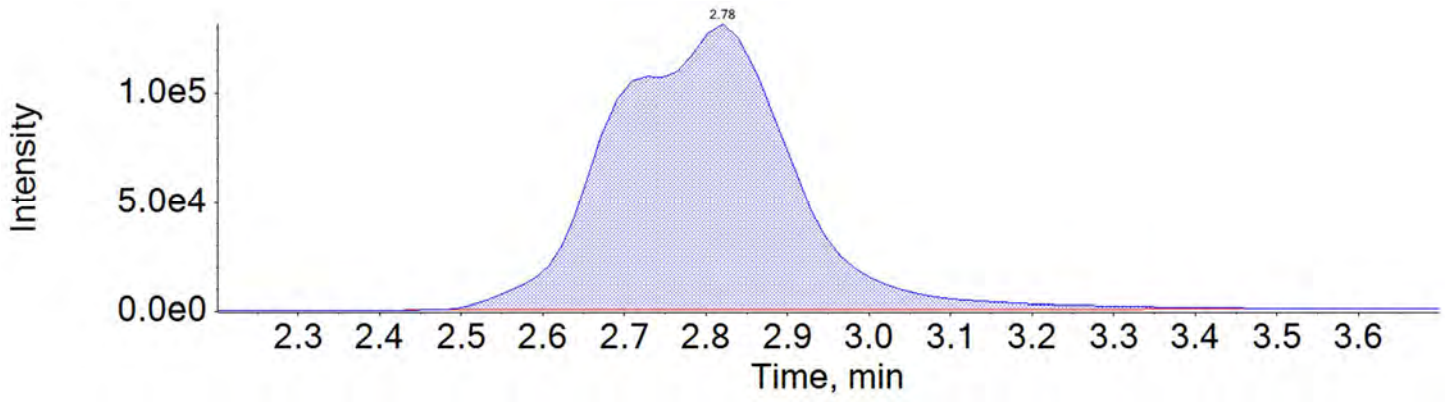
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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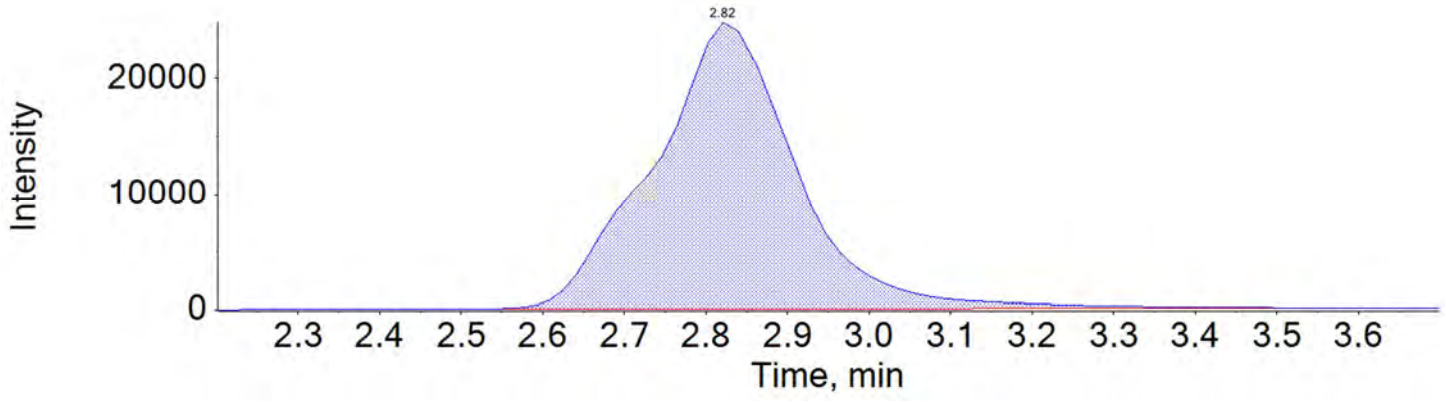

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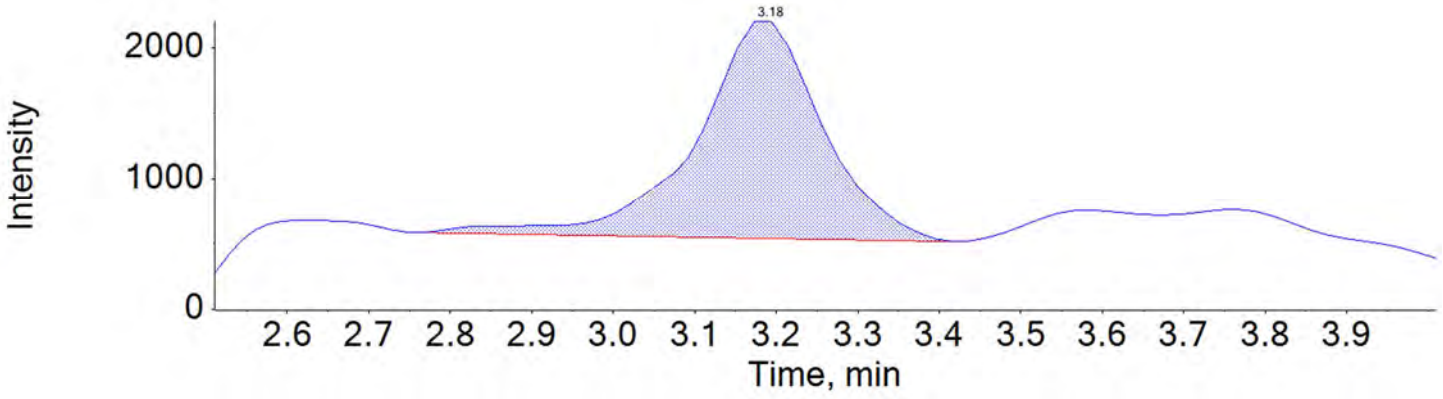
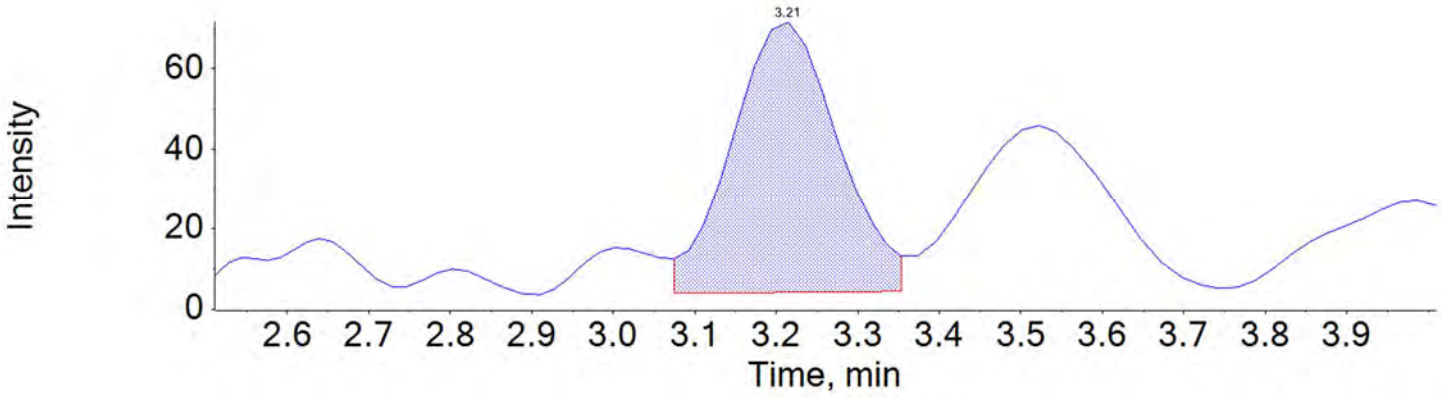
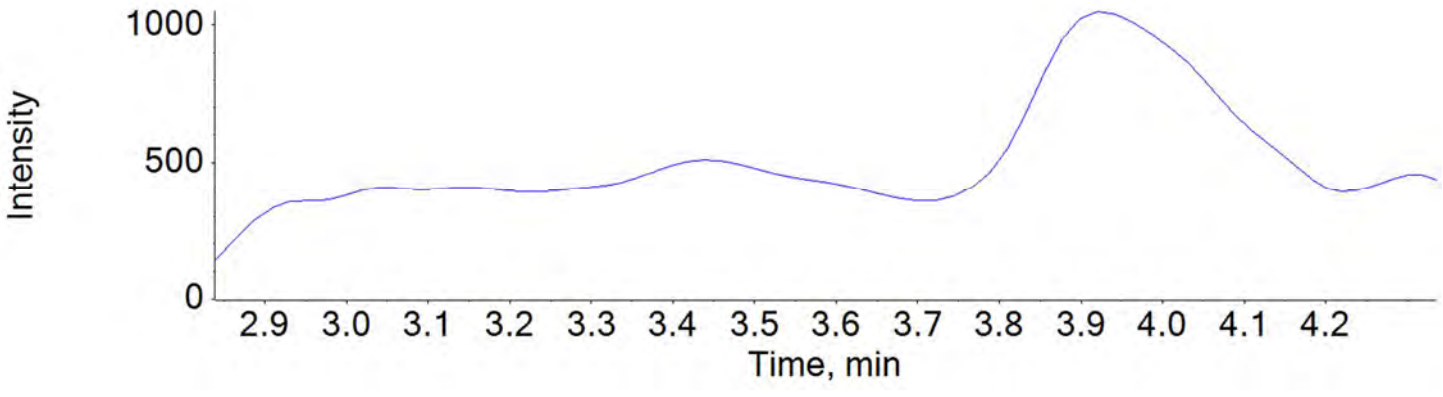


PFDA_2 513.0 / 219.0



PFUnA_1 563.0 / 519.0



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Chromatogram Report

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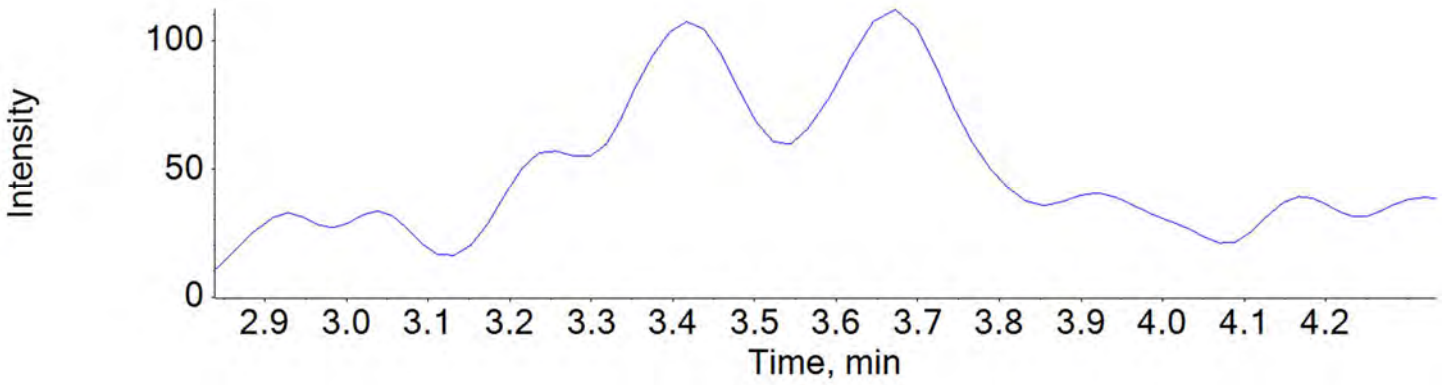
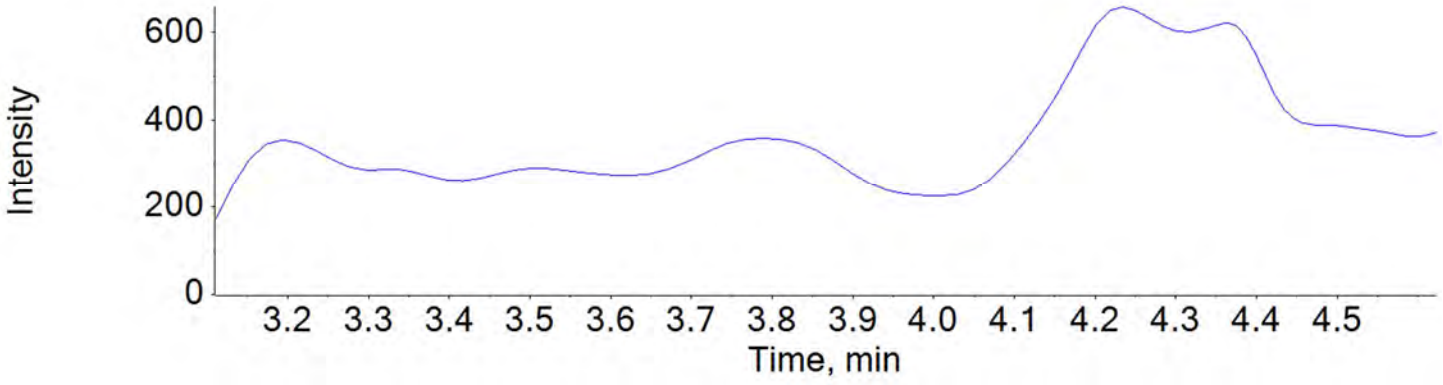
Printed: 17/05/2018 4:07:32 PM

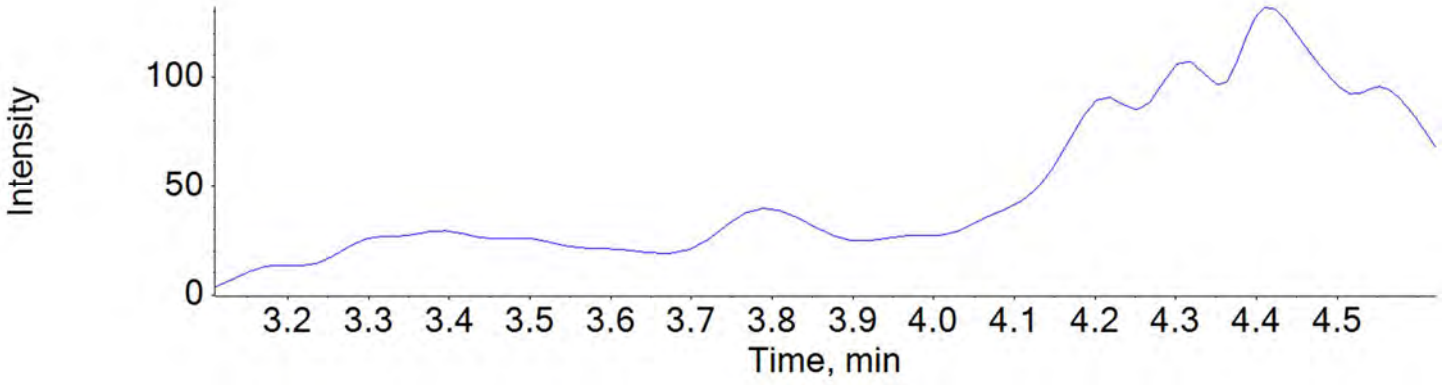
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



PFDoA_2 613.0 / 319.0



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Chromatogram Report

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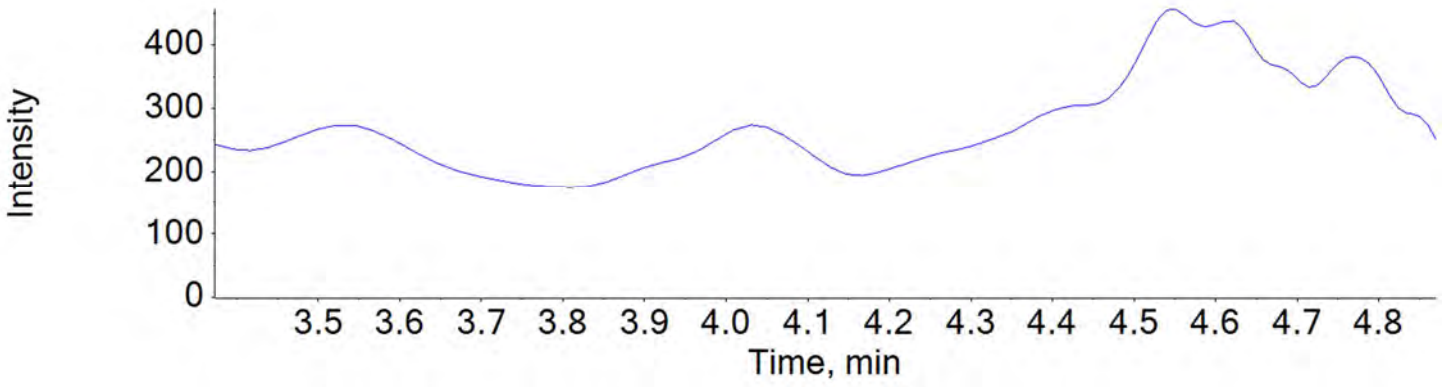
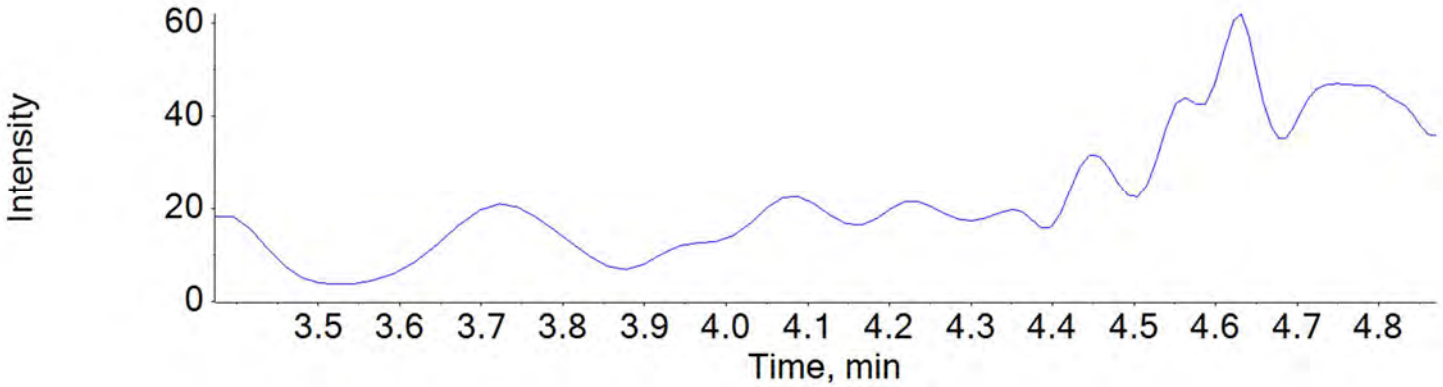
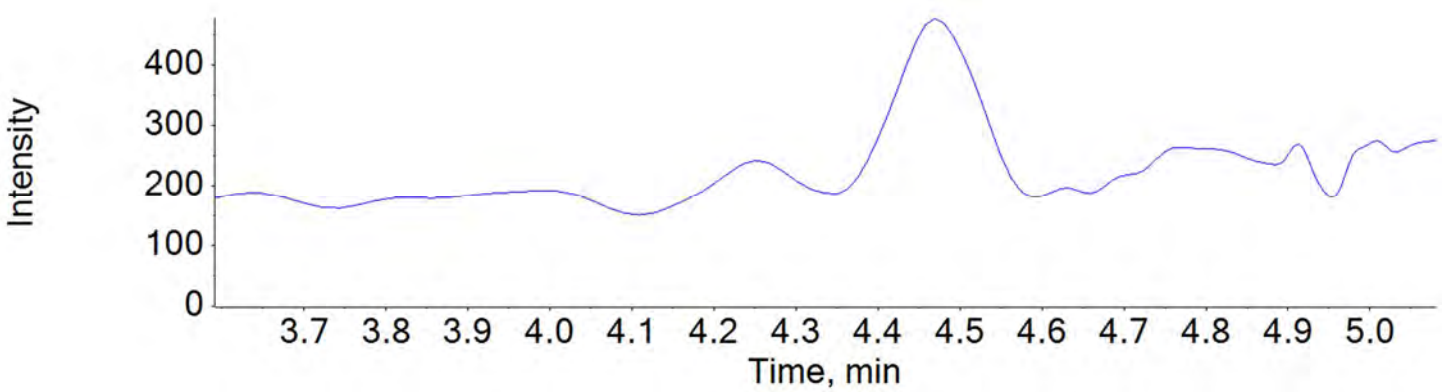
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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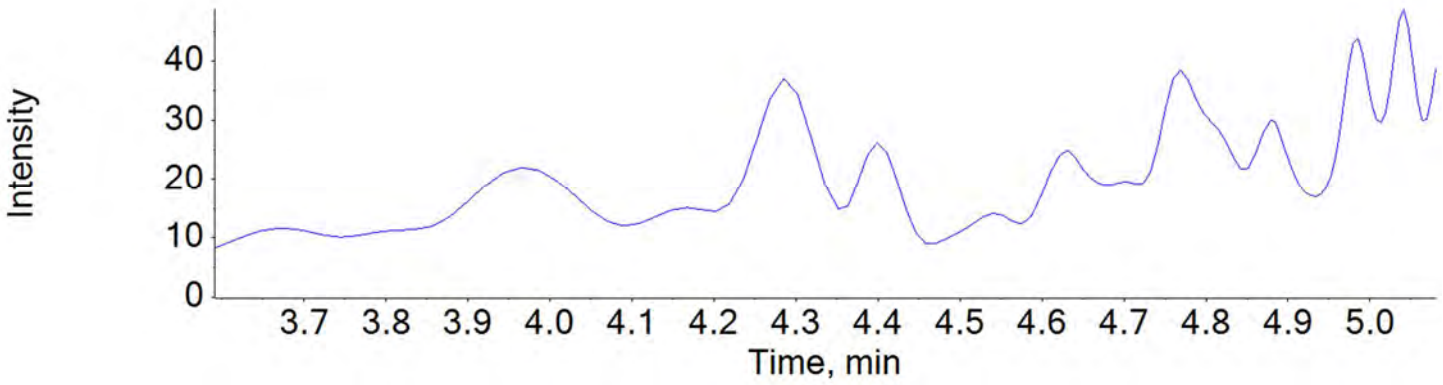
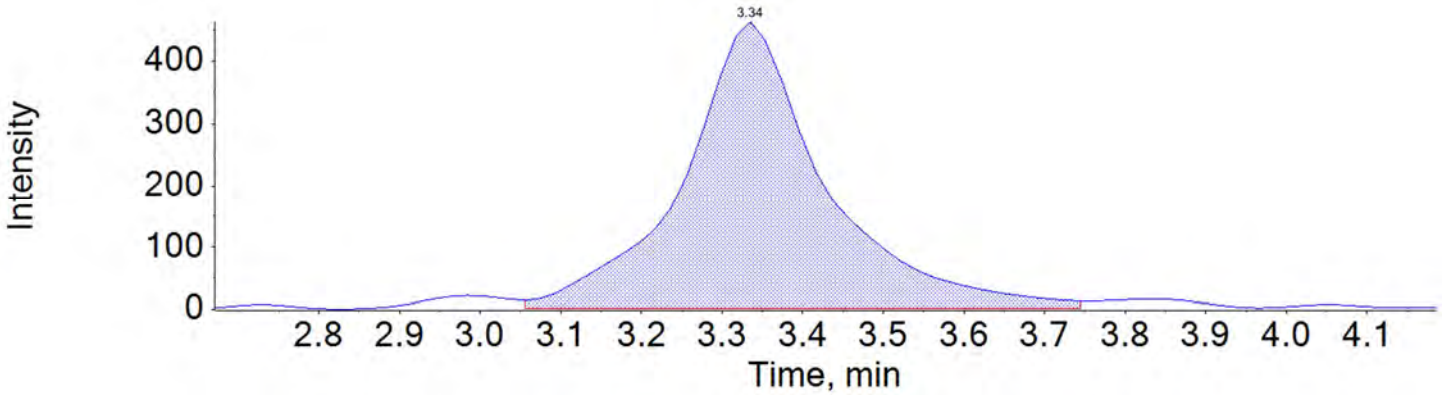
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



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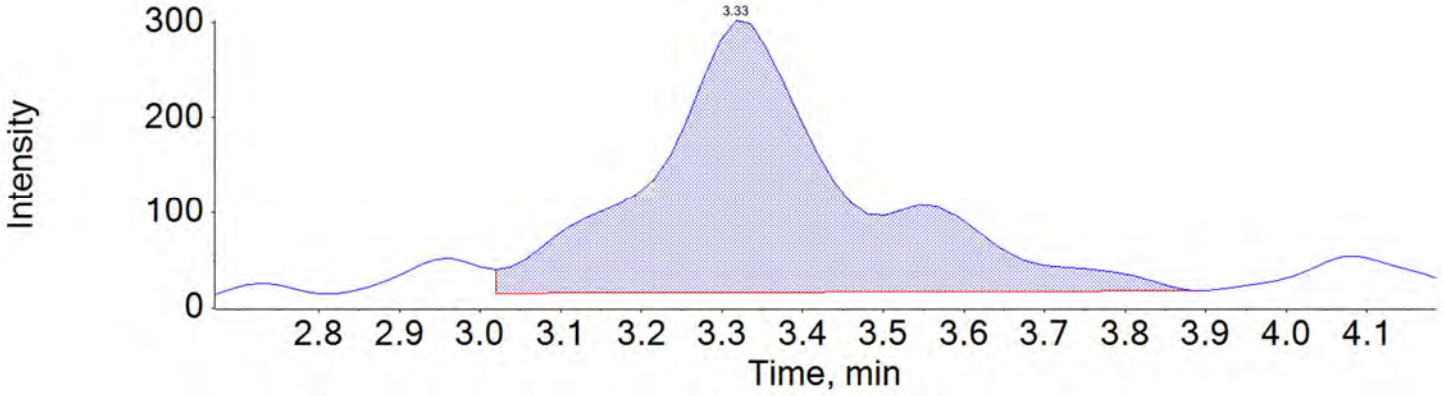

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Chromatogram Report

Created with Analyst Reporter
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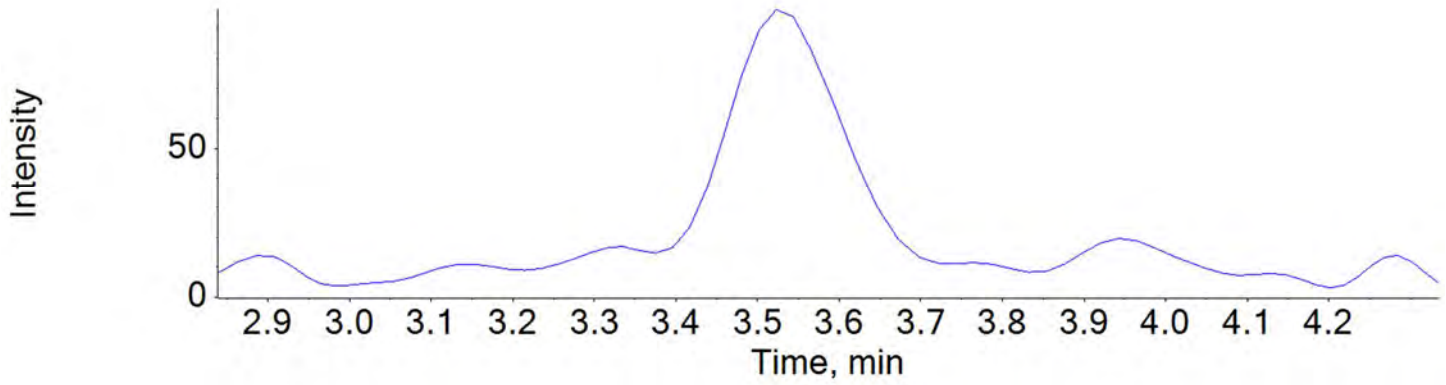
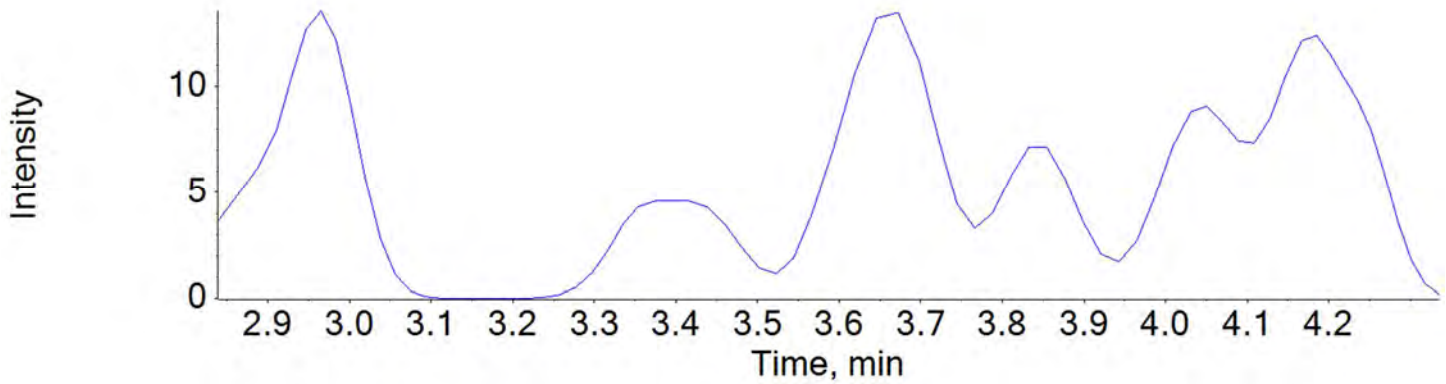
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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Chromatogram Report

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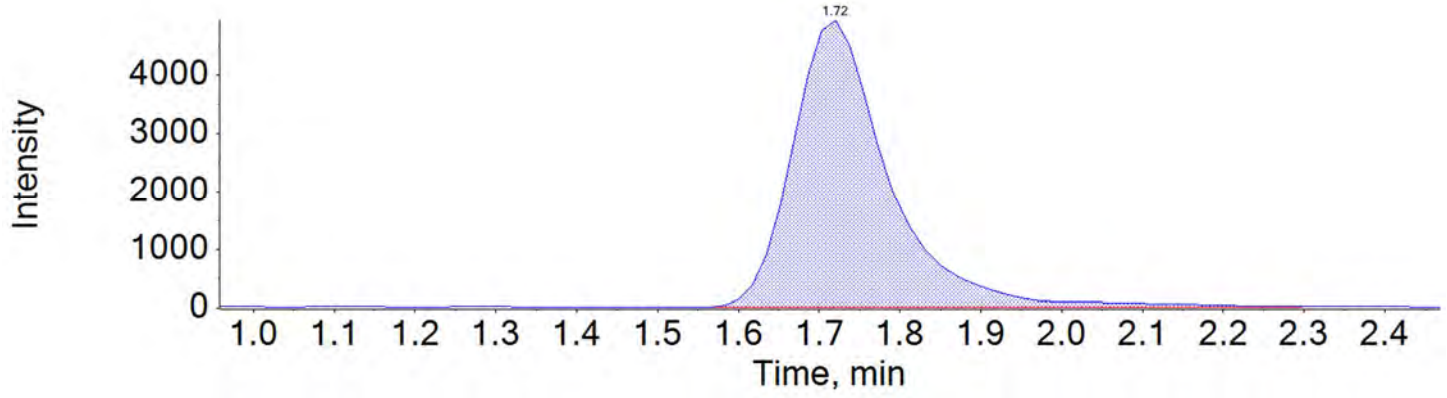
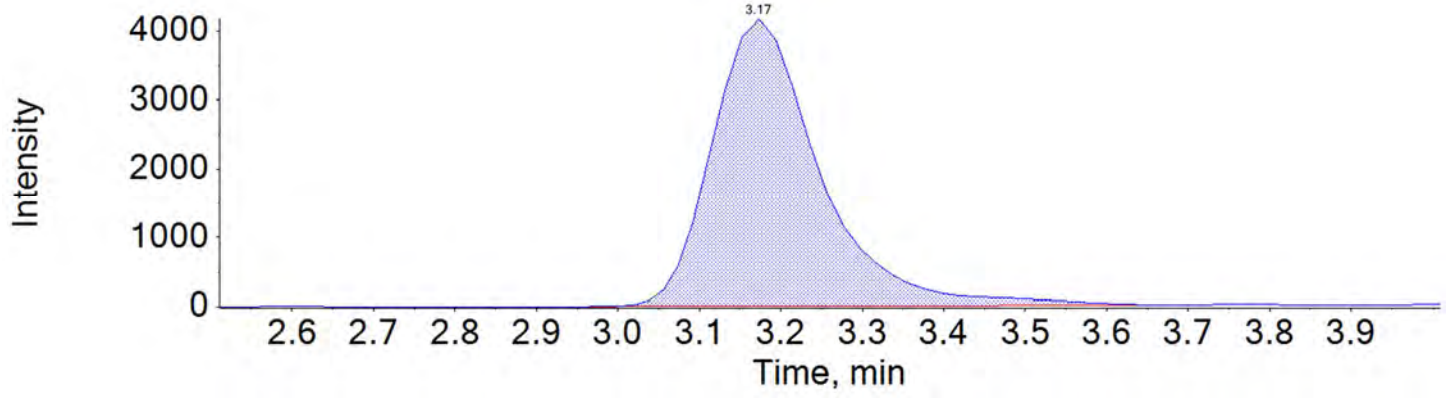
Sample Name	J5968-FS(0)	**Injection Vial**	18
Sample ID	WGNA-0403018-RW-3409	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:24:59	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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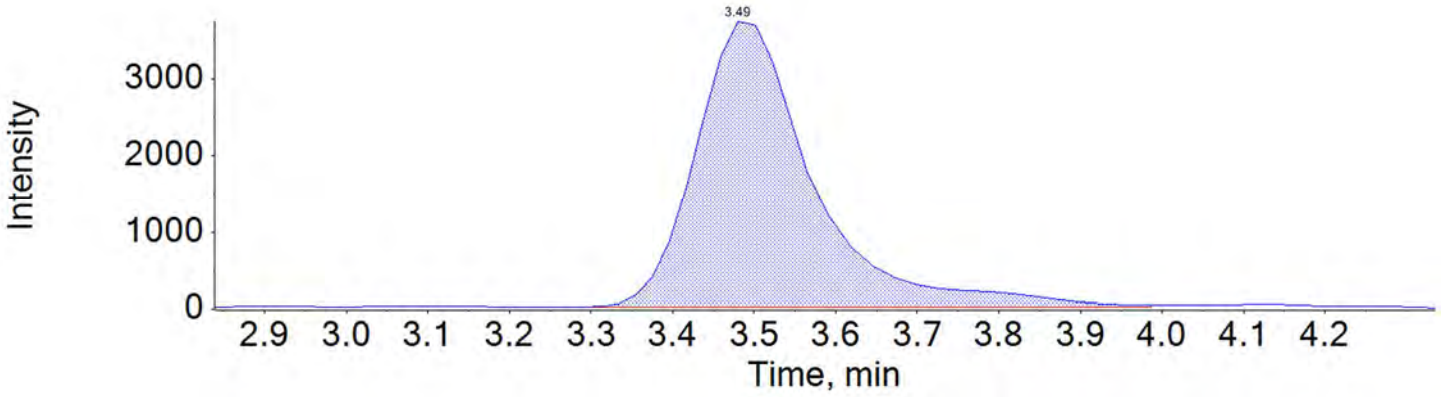
Chromatogram Report

Created with Analyst Reporter
Printed: 16/05/2018 7:12:35 PM

d5-EtFOSAA 589.0 / 419.0



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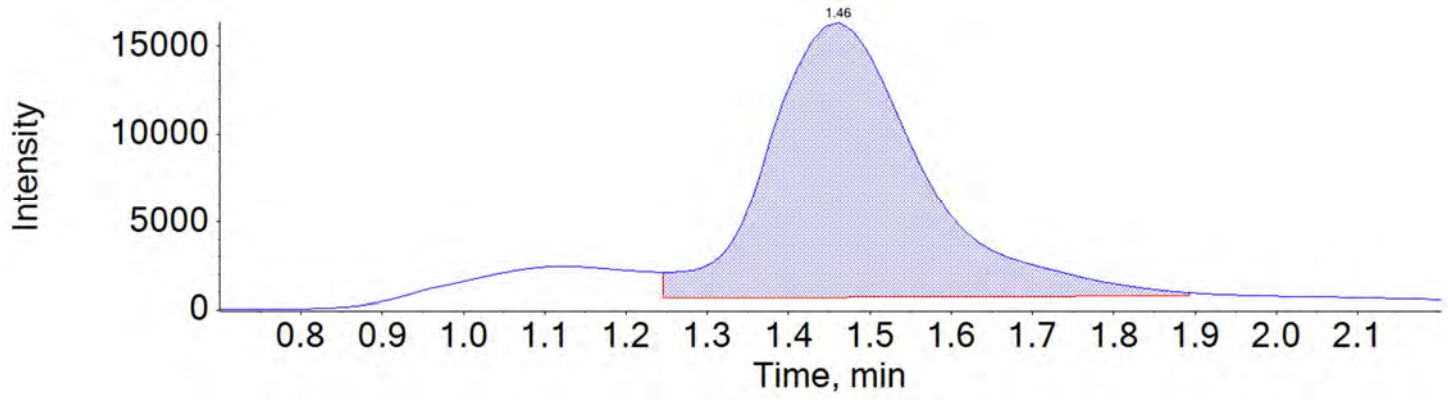
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:07:38 PM

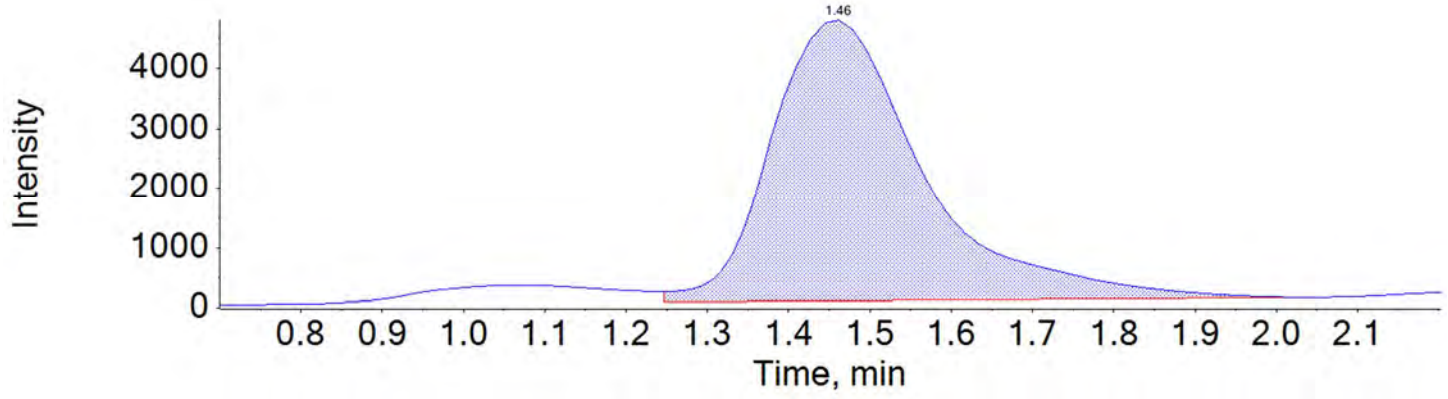
Sample Name	J5970-FS(0)	**Injection Vial**	19
Sample ID	WGNA-050118-RW-3385	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:33:54	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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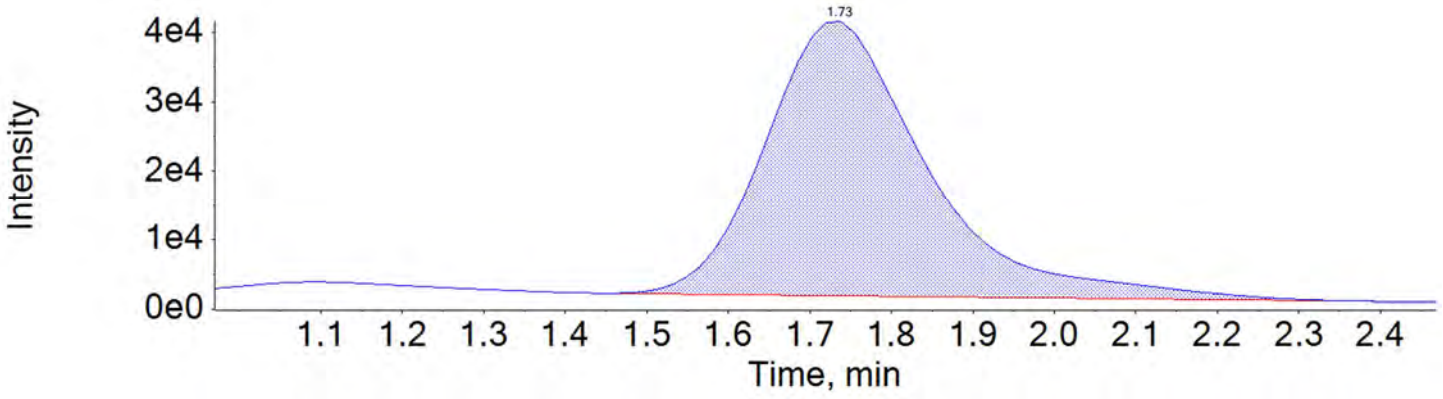
PFHxA_1 313.0 / 269.0



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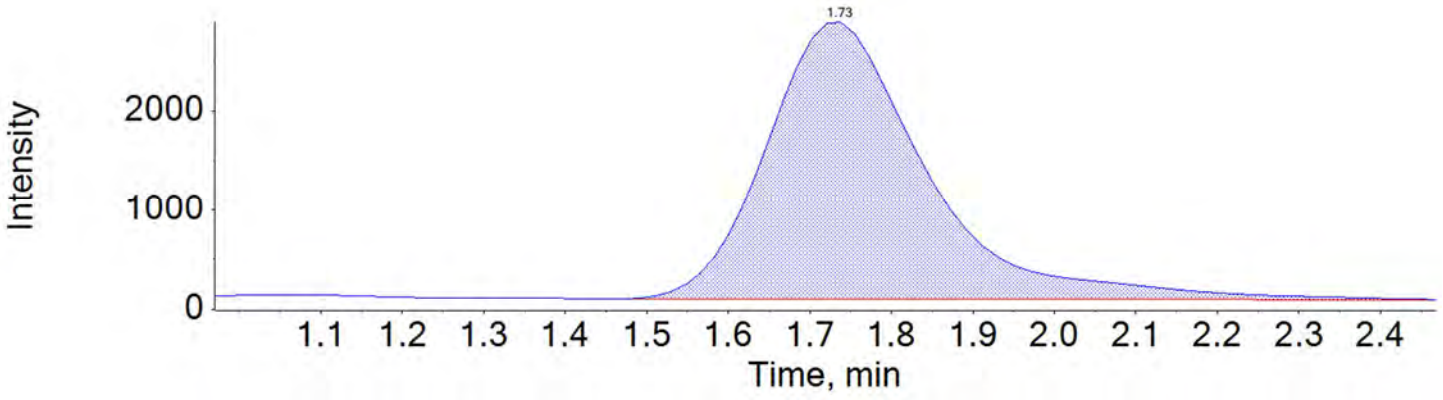
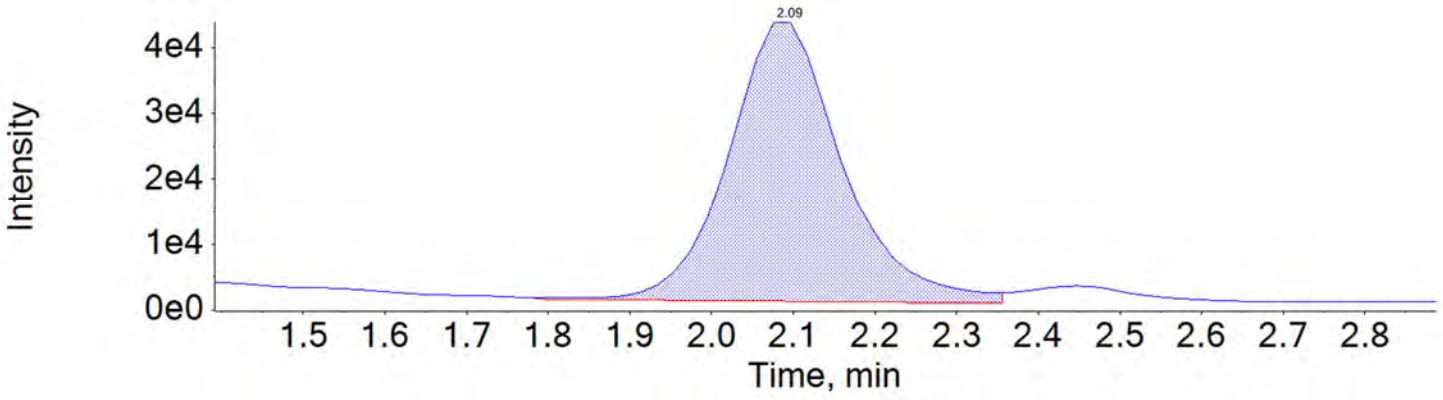


PFHpA_1 363.0 / 319.0



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Chromatogram Report

Created with Analyst Reporter
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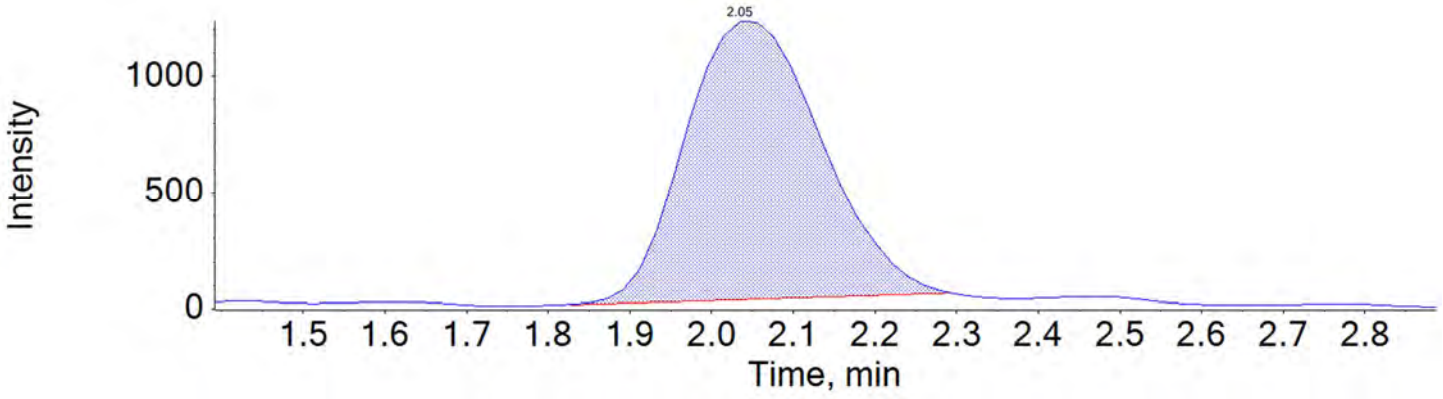
PFHpA_2 363.0 / 169.0



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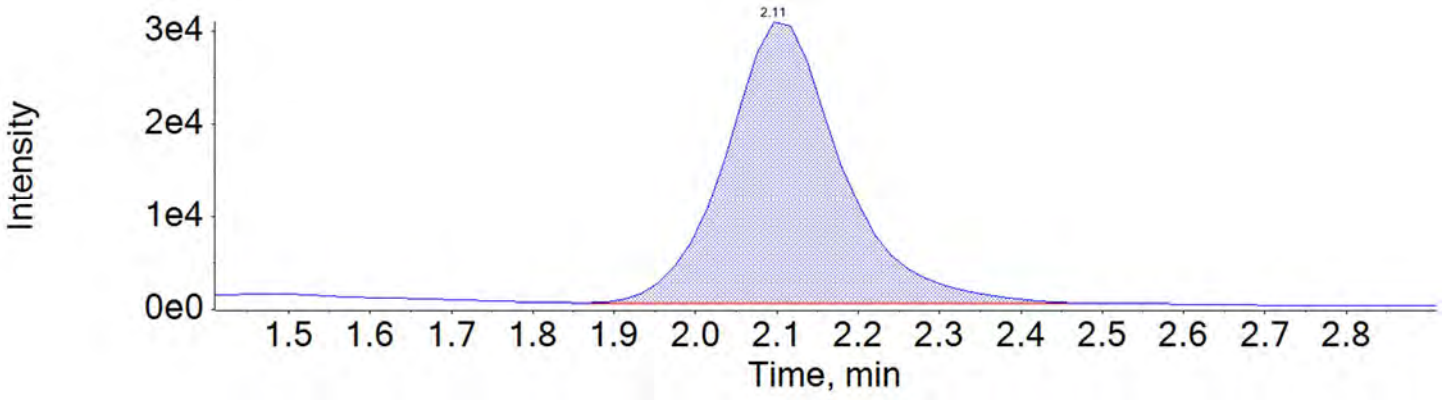

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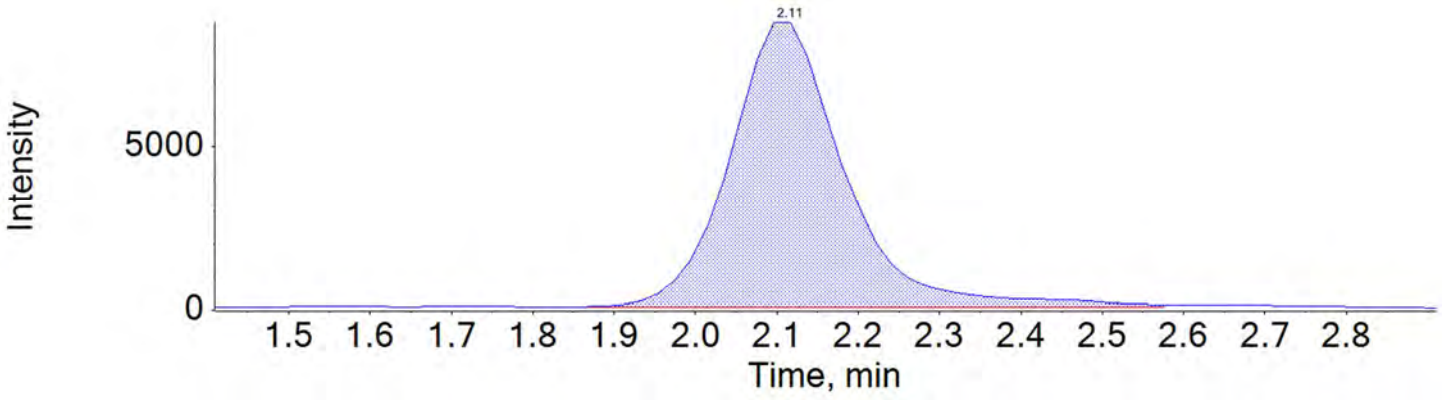

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Chromatogram Report

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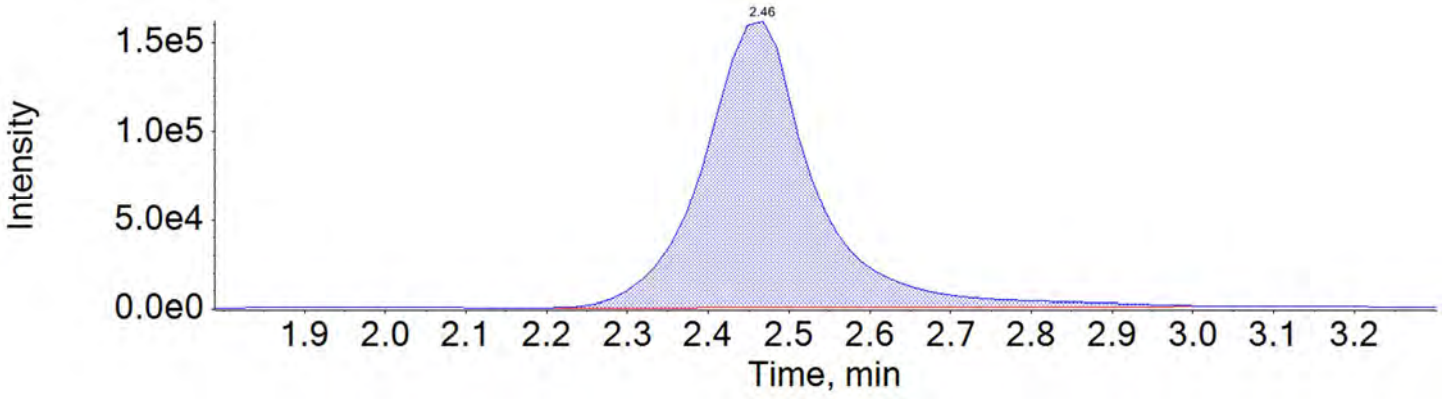
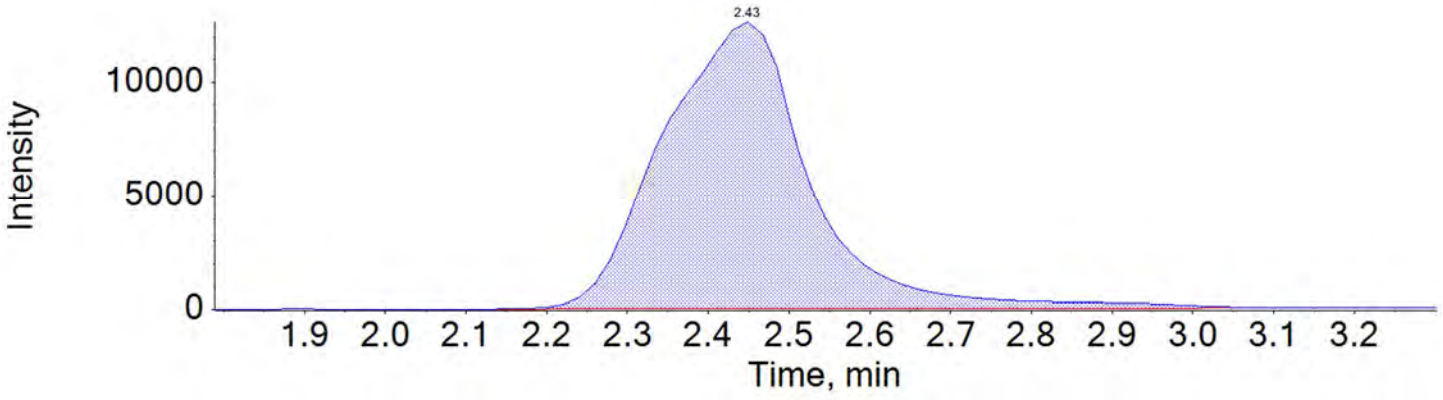
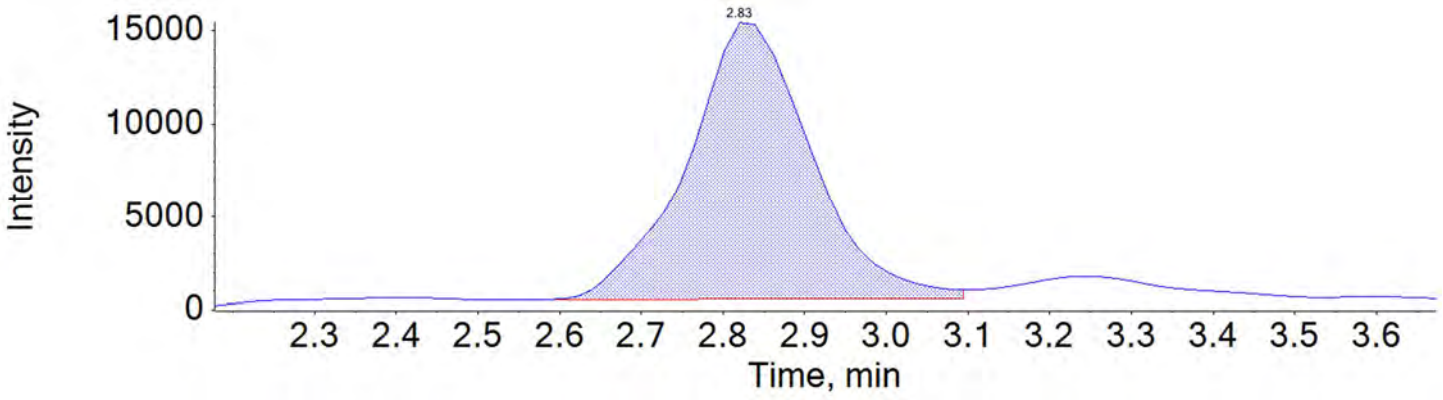
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



PFNA_1 463.0 / 419.0



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Chromatogram Report

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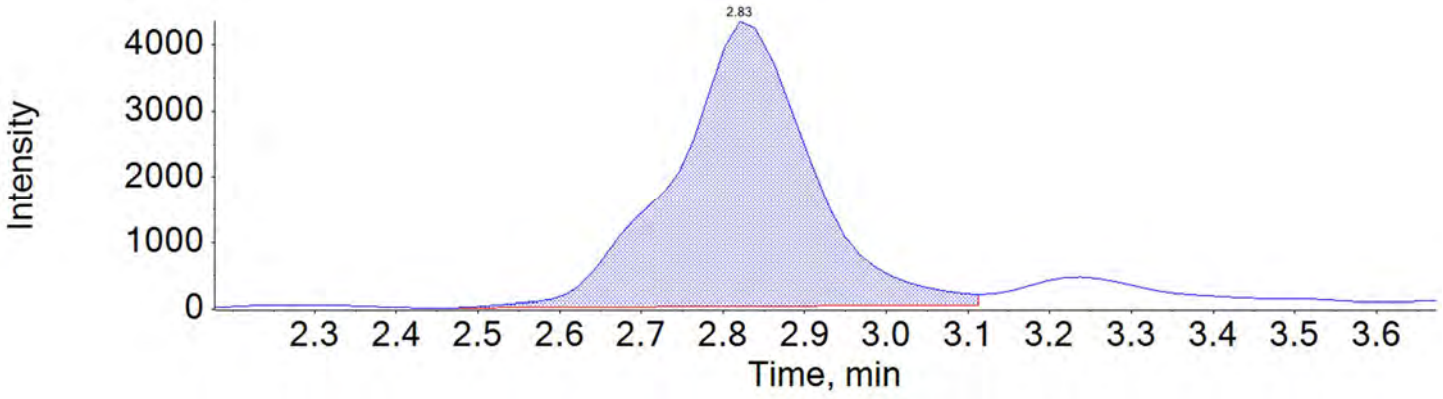
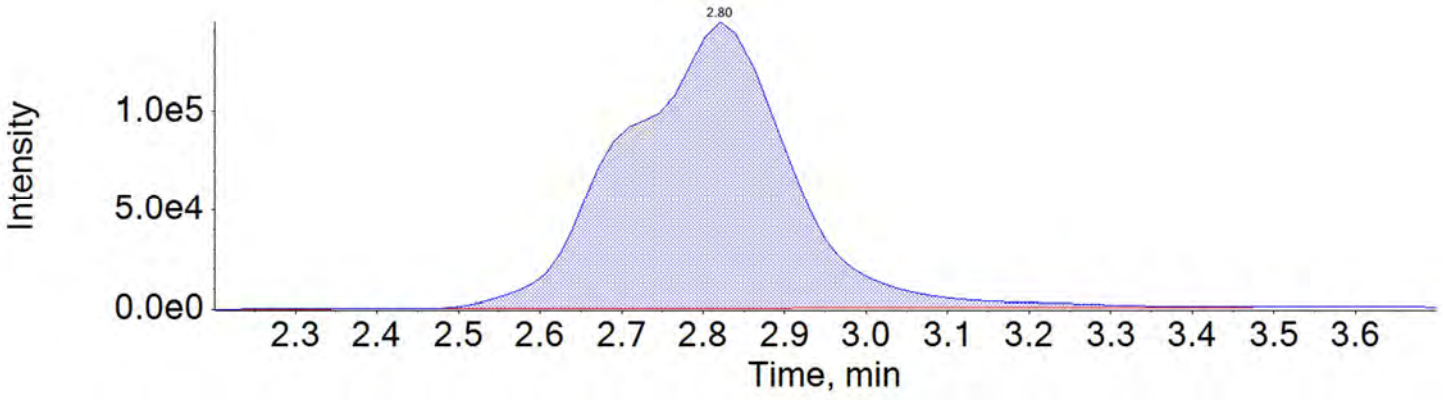
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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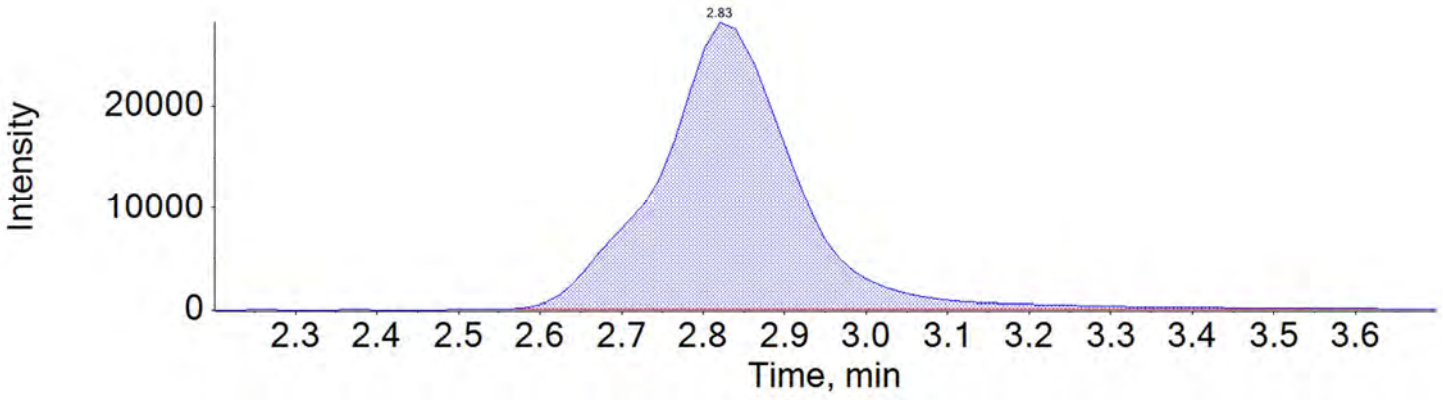

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Chromatogram Report

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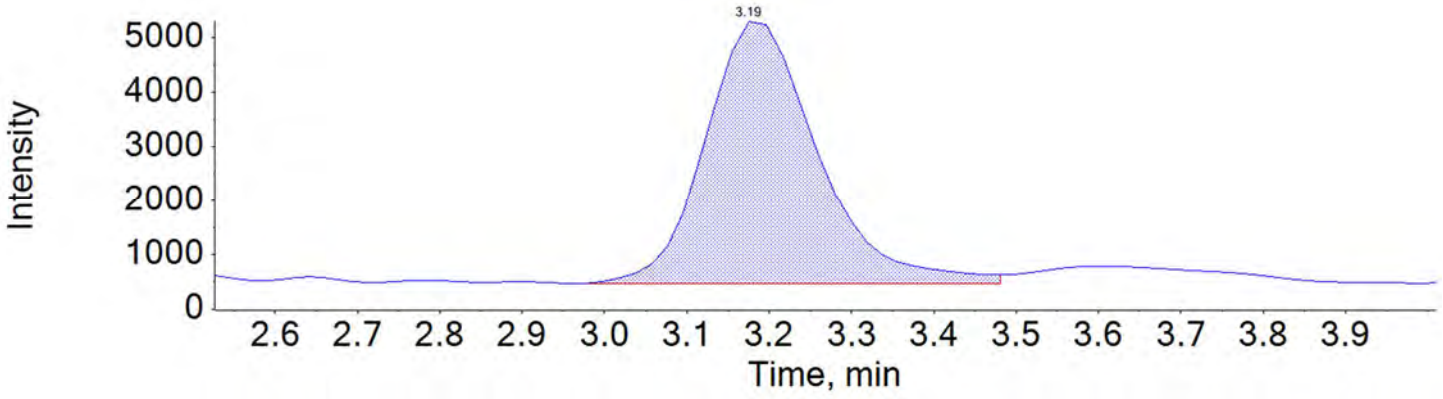
PFDA_1 513.0 / 469.0



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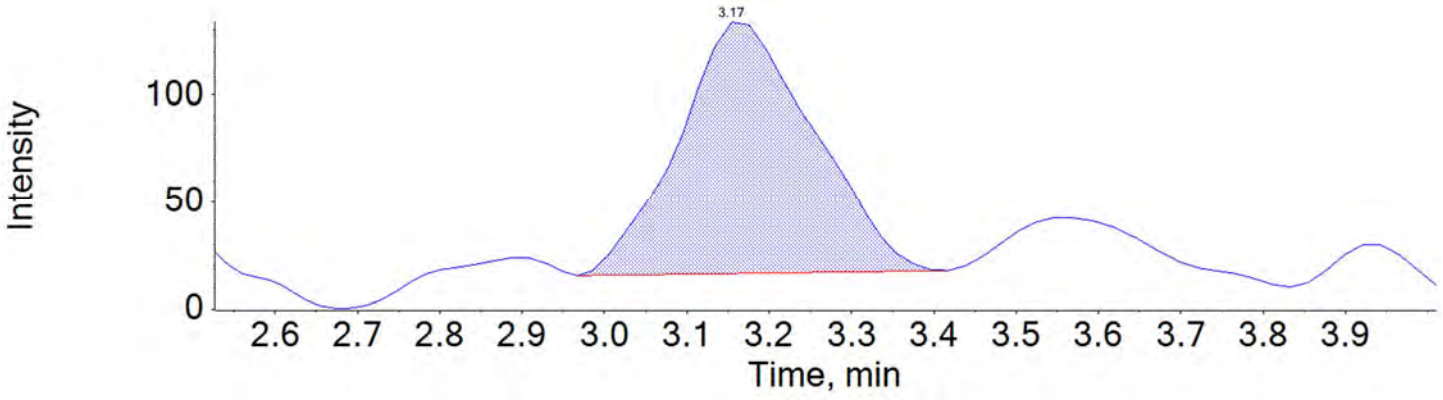
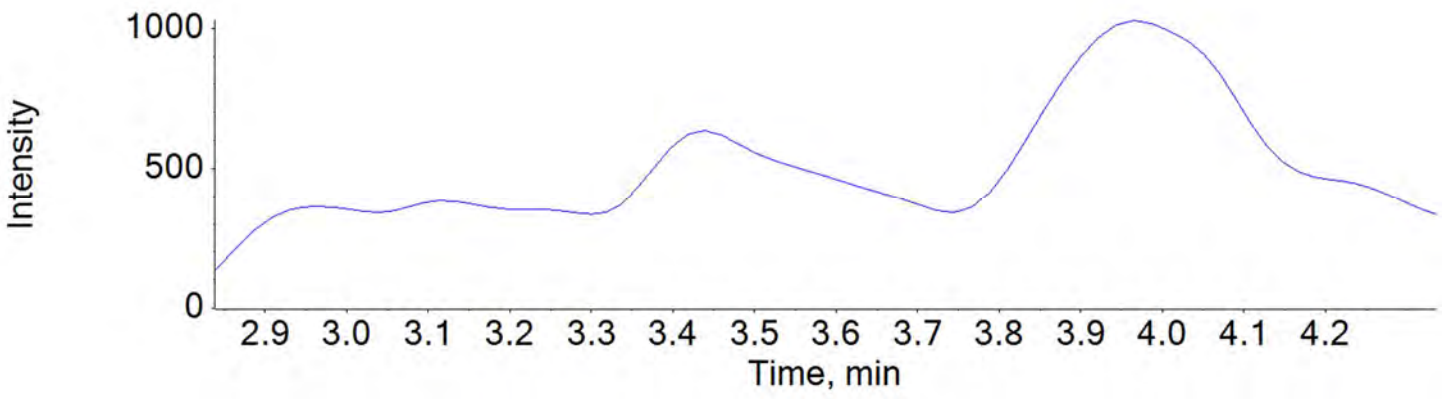


PFUnA_1 563.0 / 519.0



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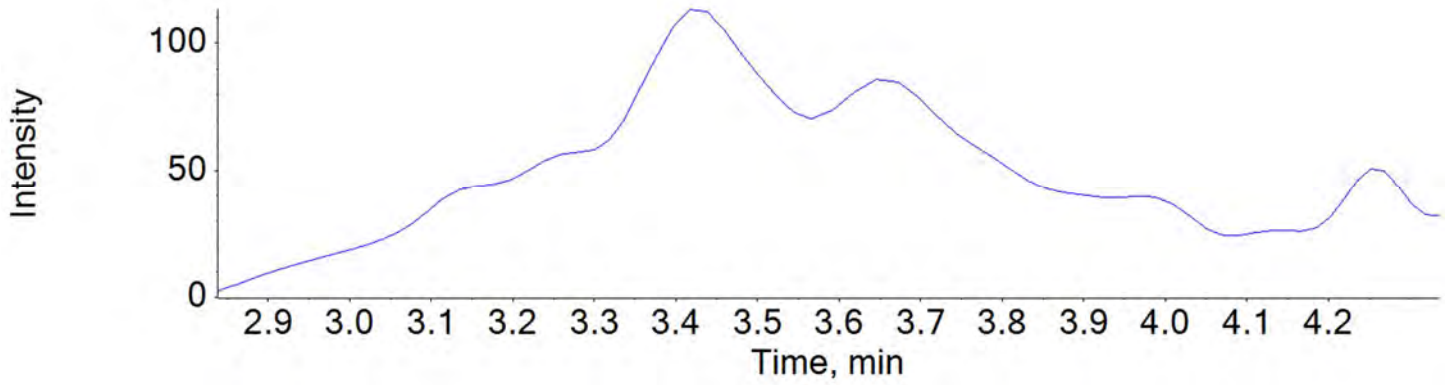
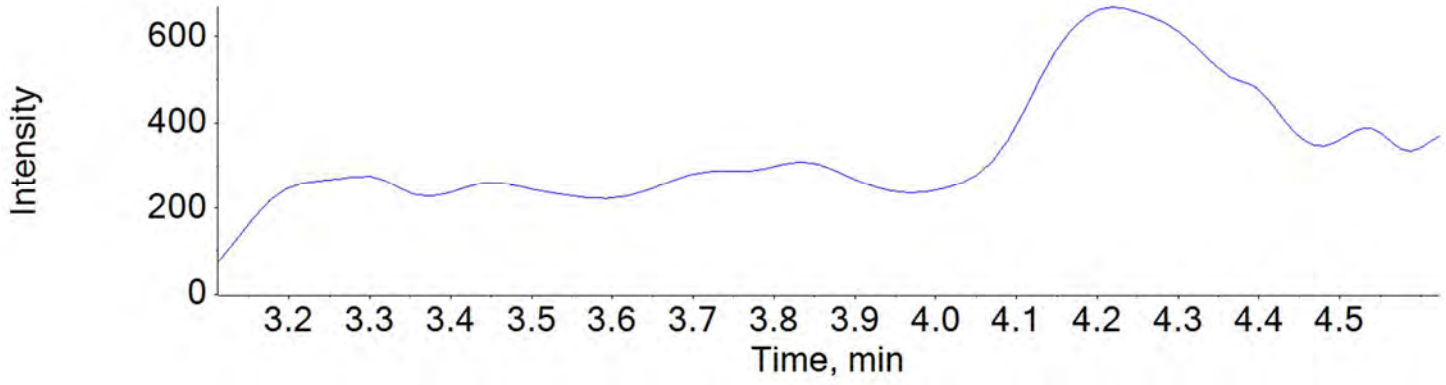
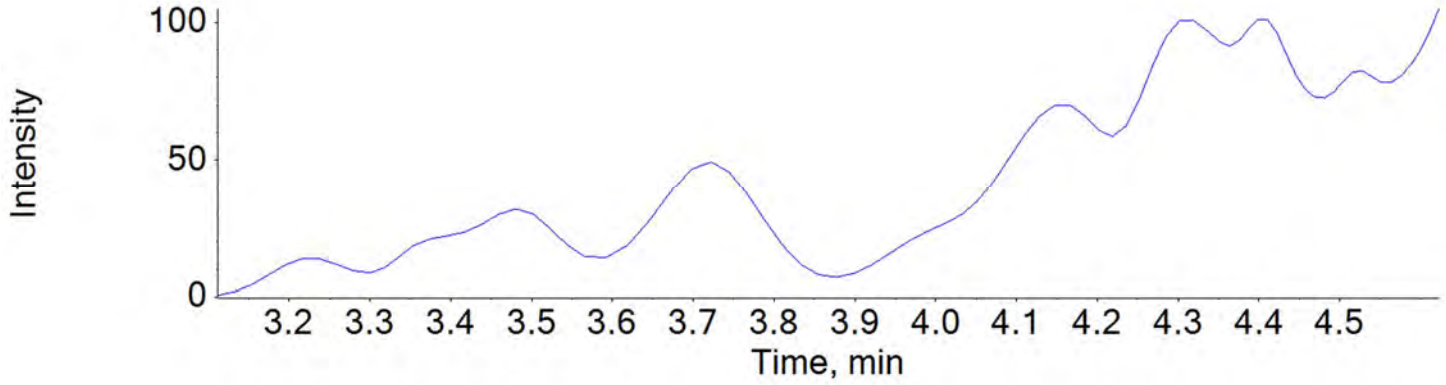


PFDoA_1 613.0 / 569.0



PFDoA_2 613.0 / 319.0



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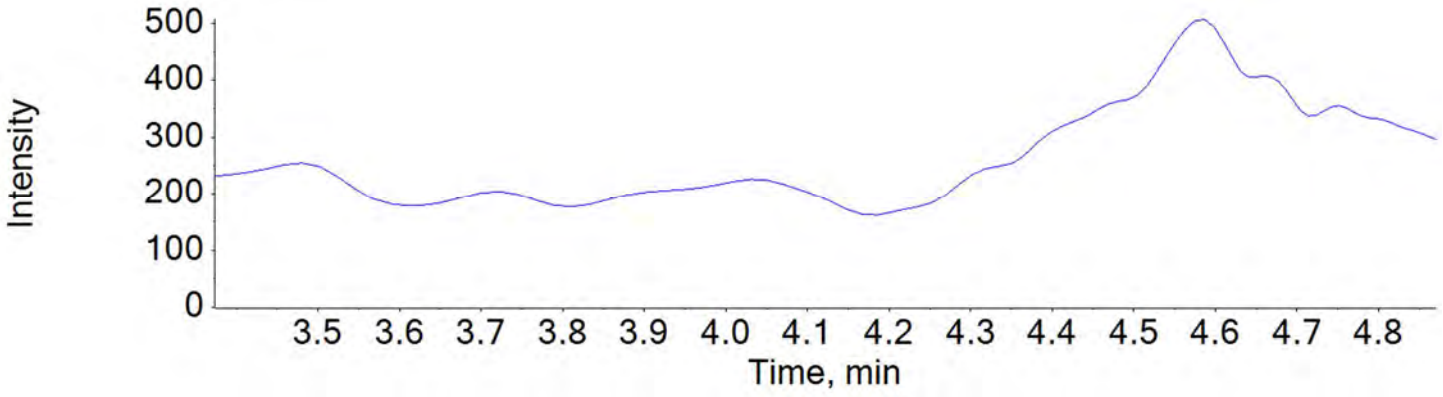
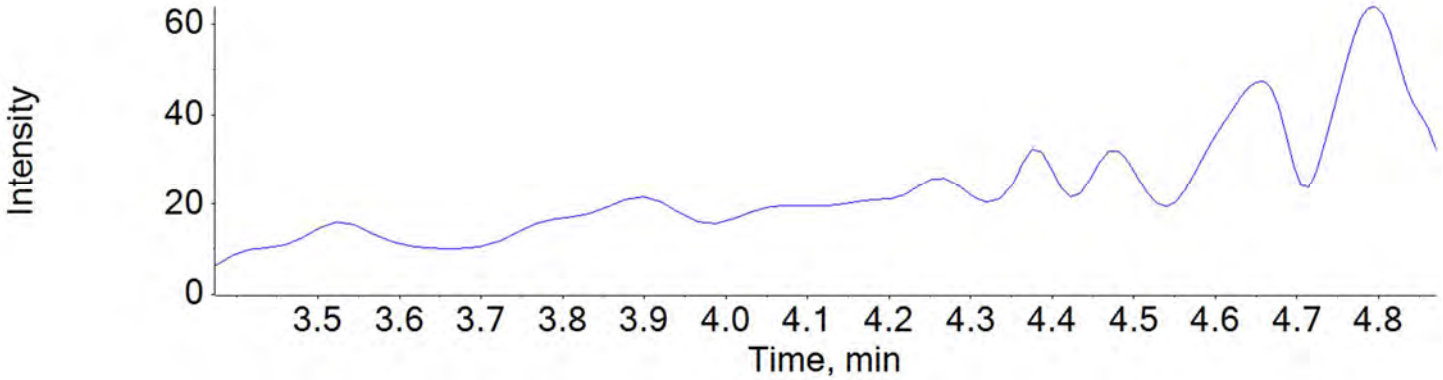
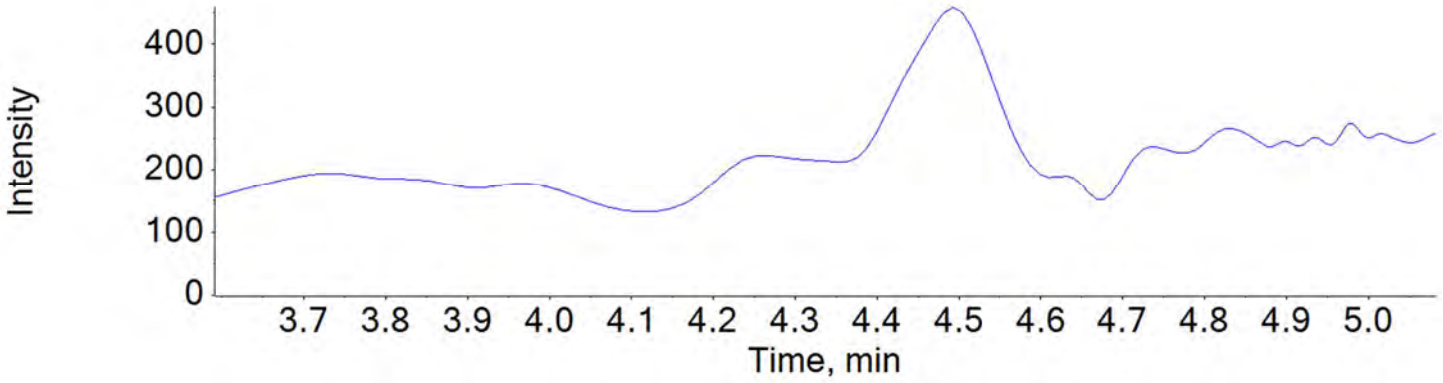


PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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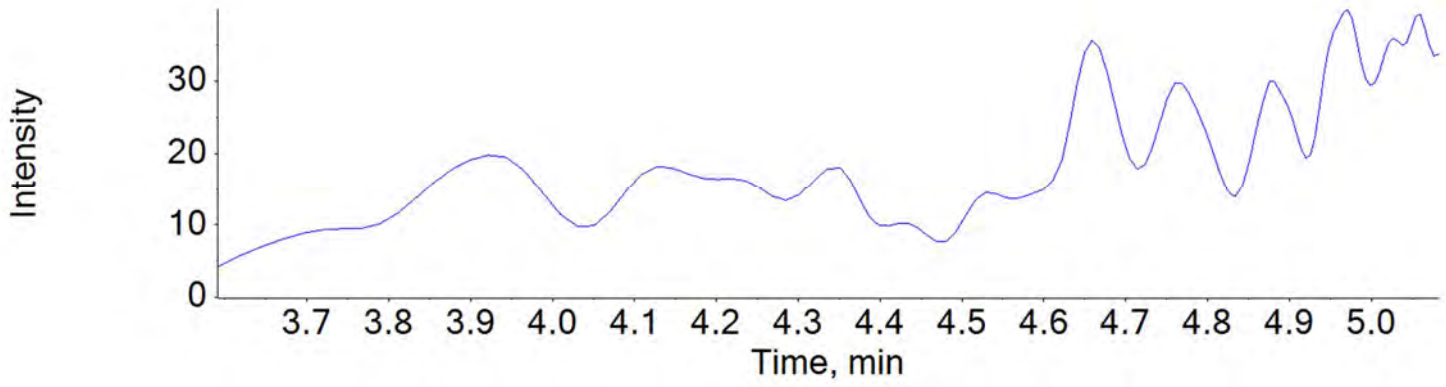
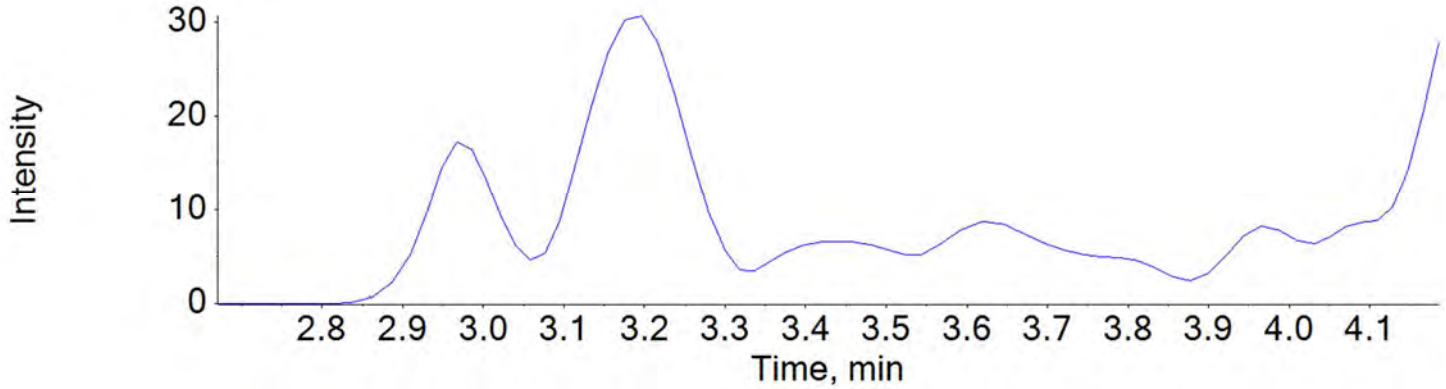
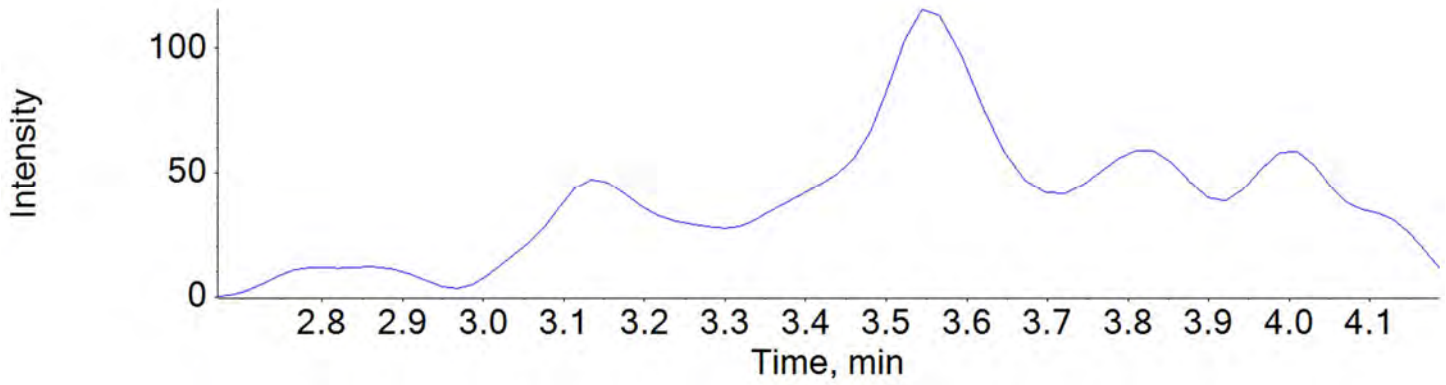


NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

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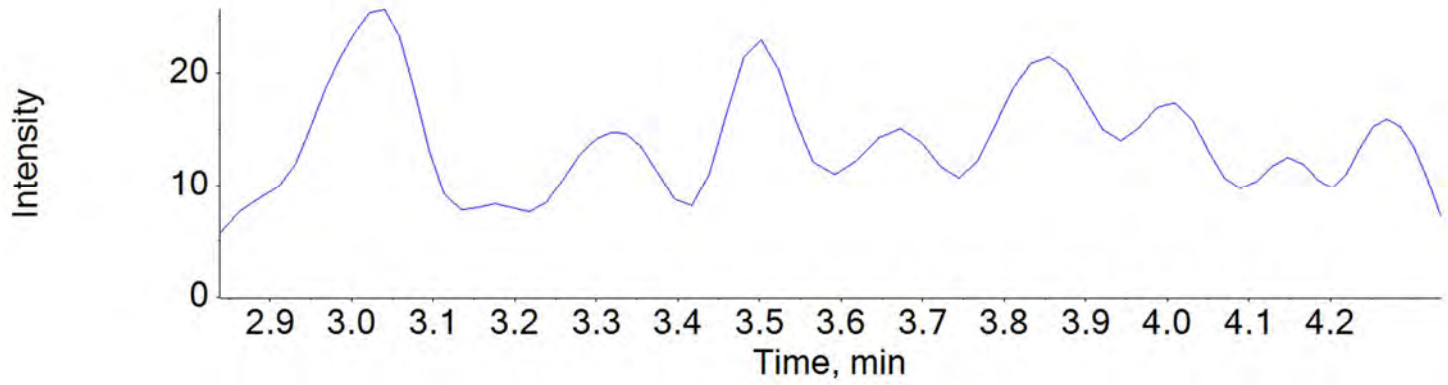
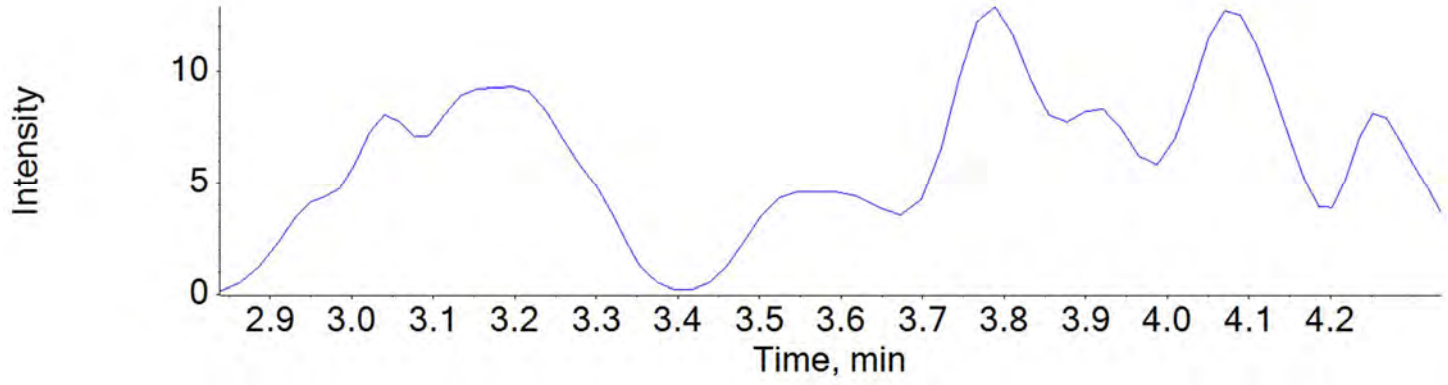
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



BATTELLE

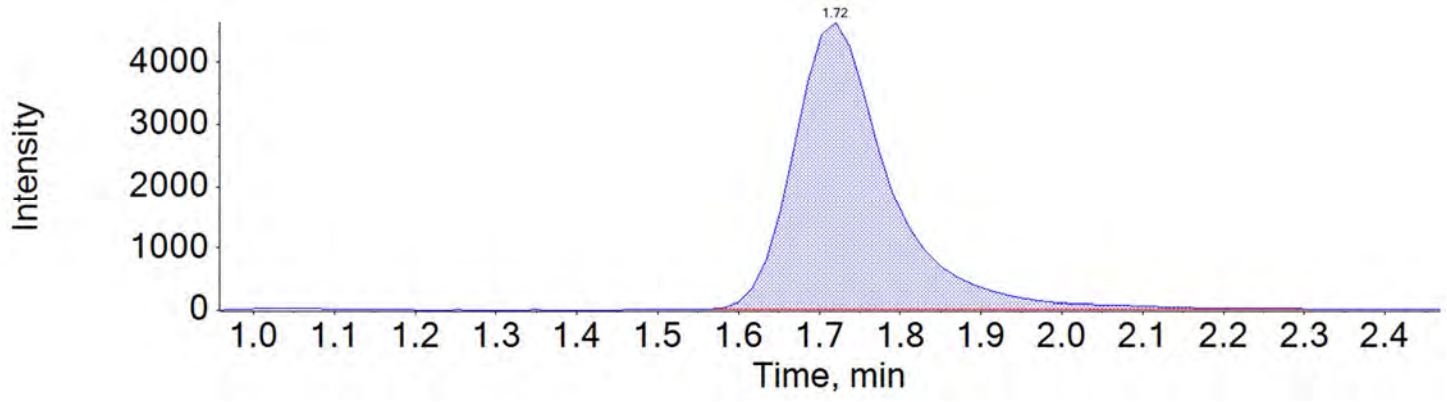
Chromatogram Report

Created with Analyst Reporter
Printed: 16/05/2018 7:12:37 PM

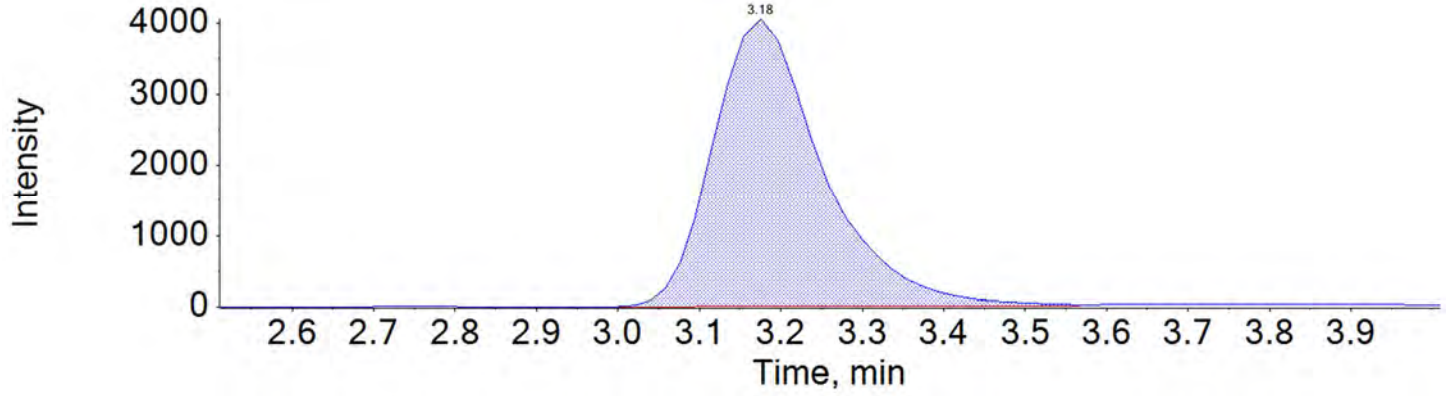
Sample Name	J5970-FS(0)	**Injection Vial**	19
Sample ID	WGNA-050118-RW-3385	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:33:54	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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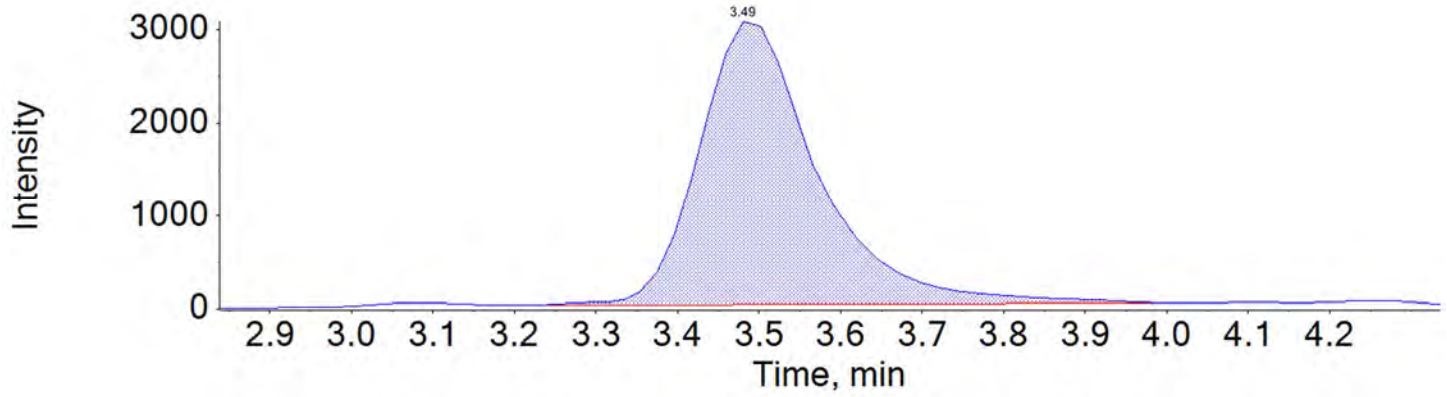
Printed: 16/05/2018 7:12:37 PM

d5-EtFOSAA 589.0 / 419.0



BATTELLE

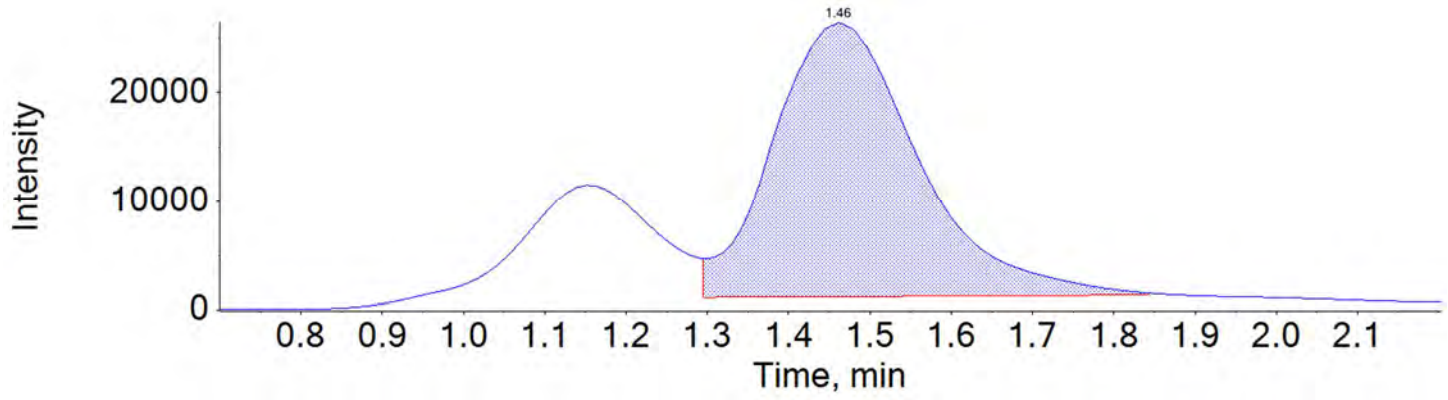
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:07:43 PM

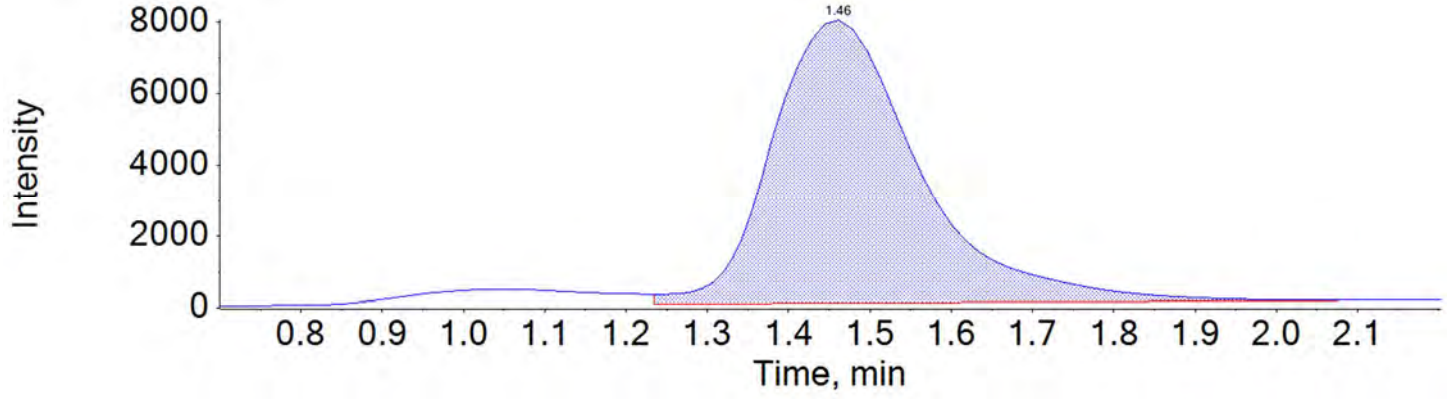
Sample Name	J5972-FS(0)	**Injection Vial**	20
Sample ID	WGNA-050118-RW-3178	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:42:49	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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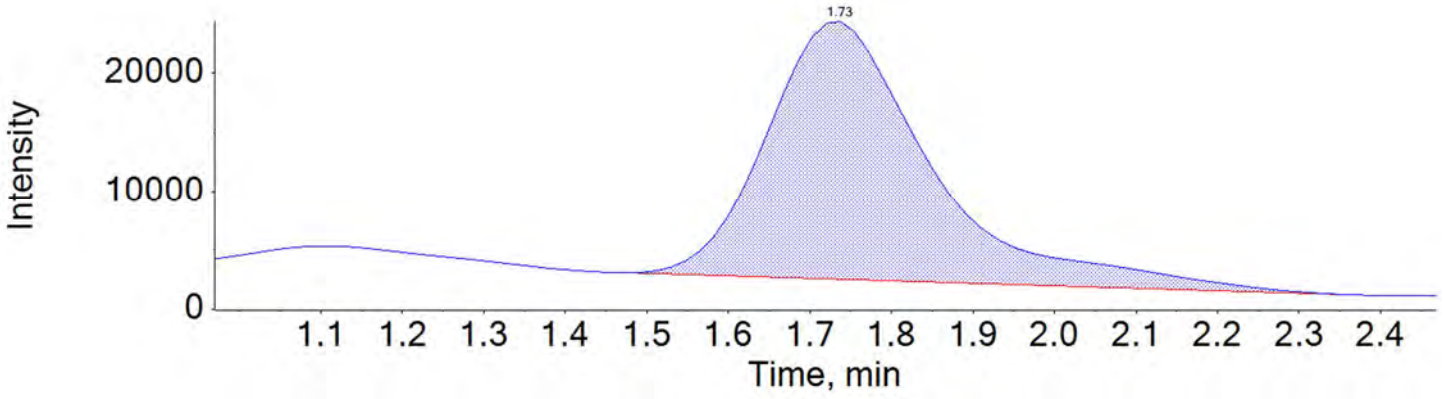
PFHxA_1 313.0 / 269.0



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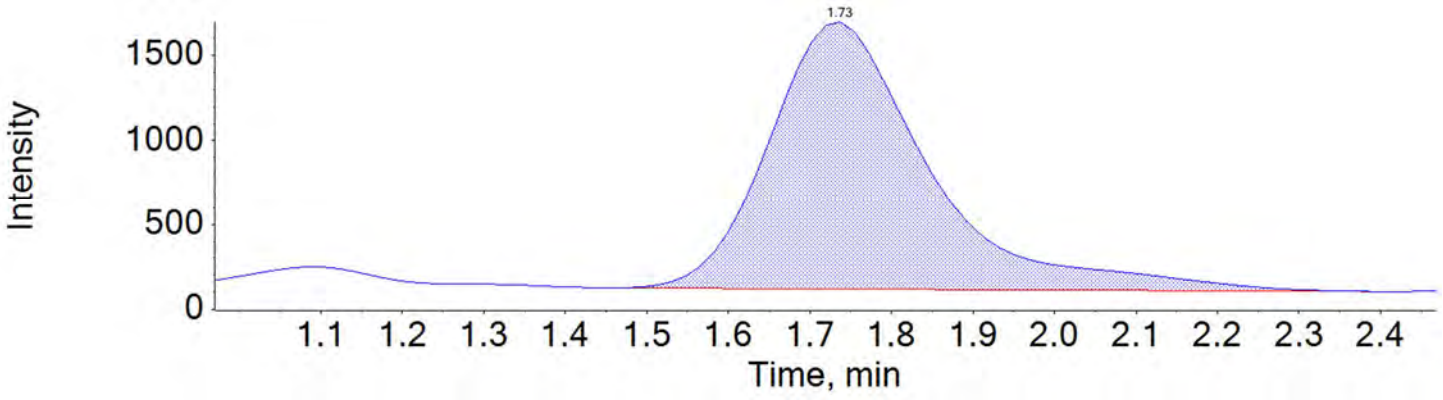
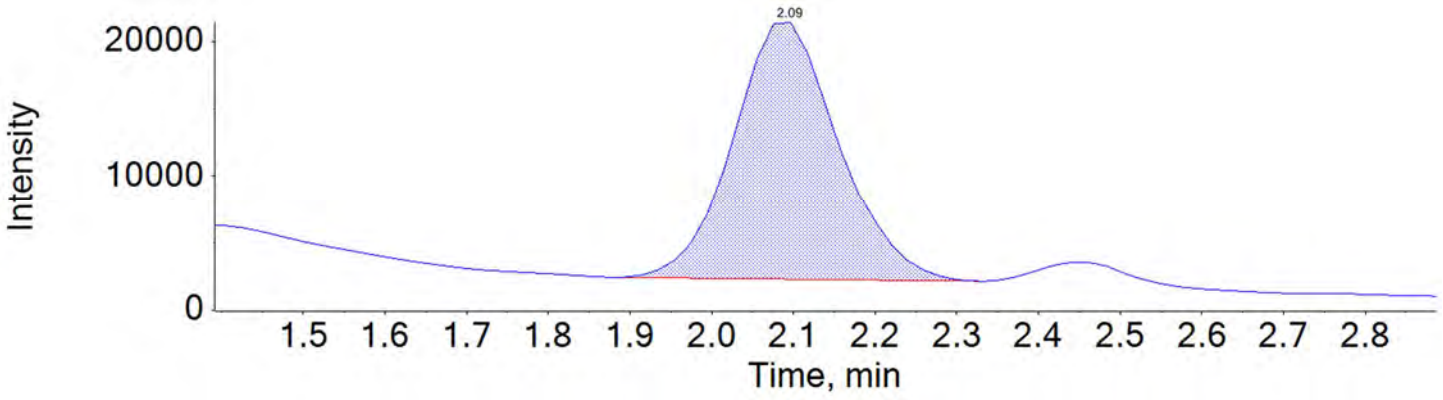


PFHpA_1 363.0 / 319.0



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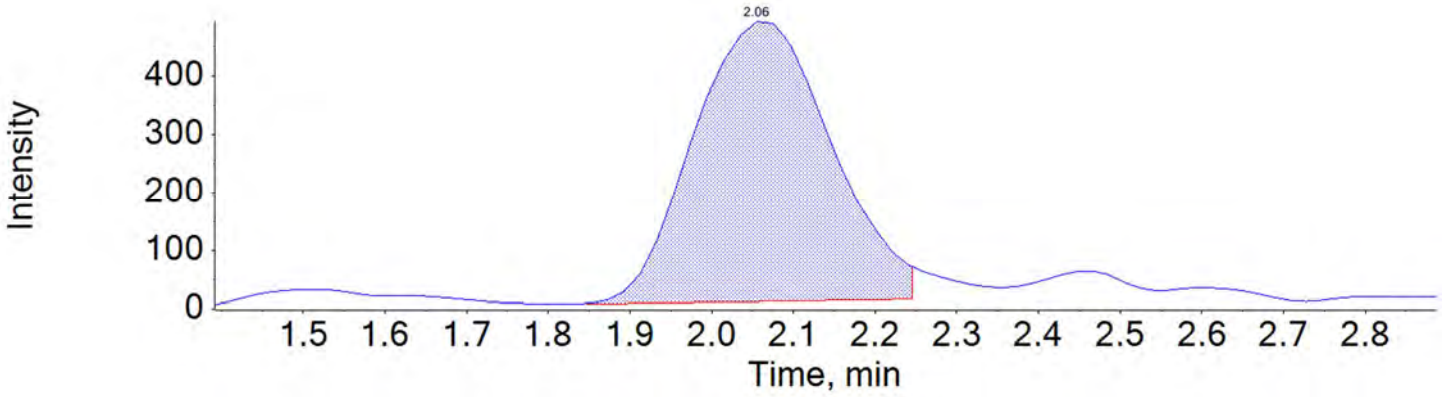
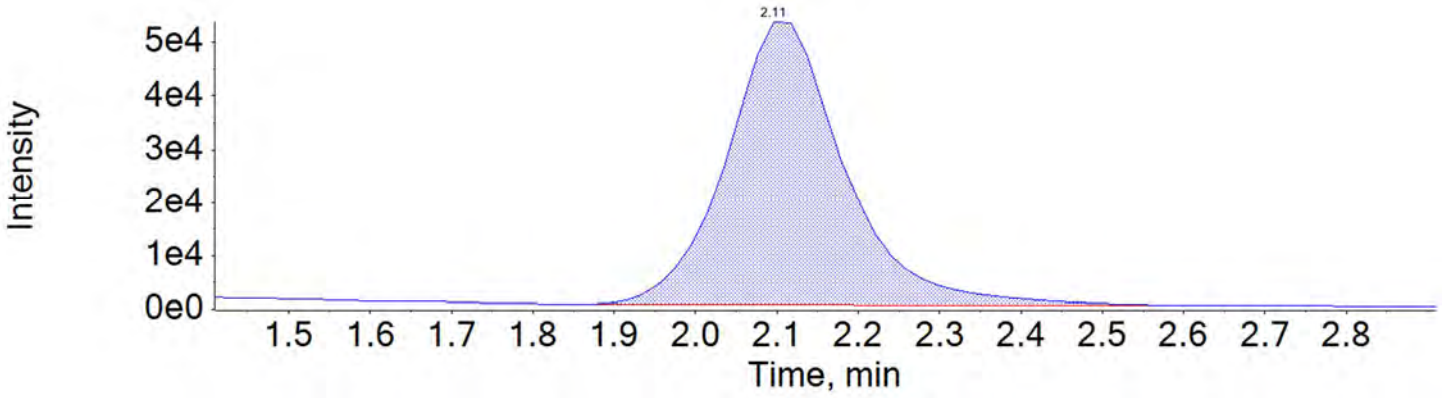


PFHxS_1 399.0 / 80.0



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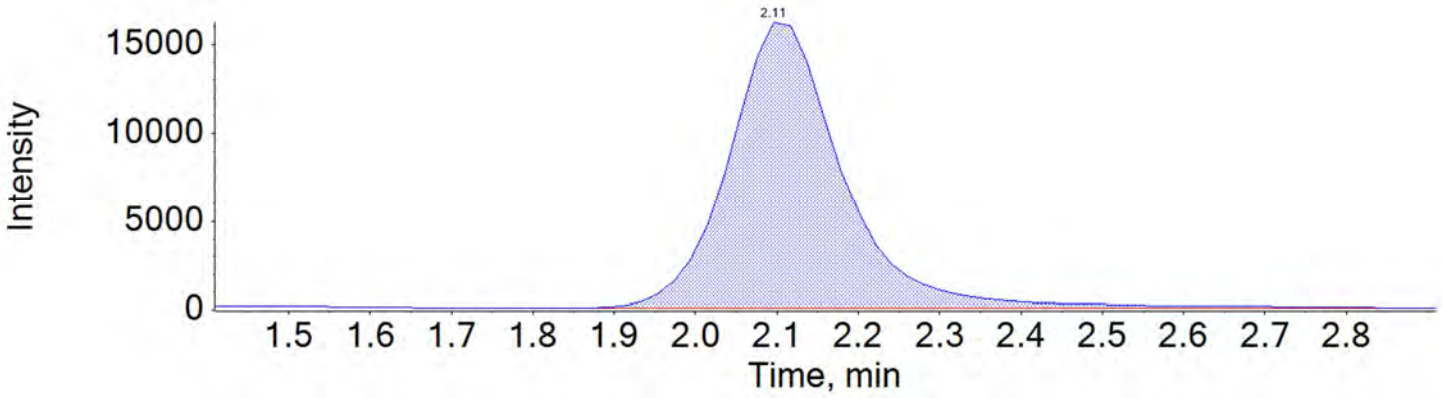

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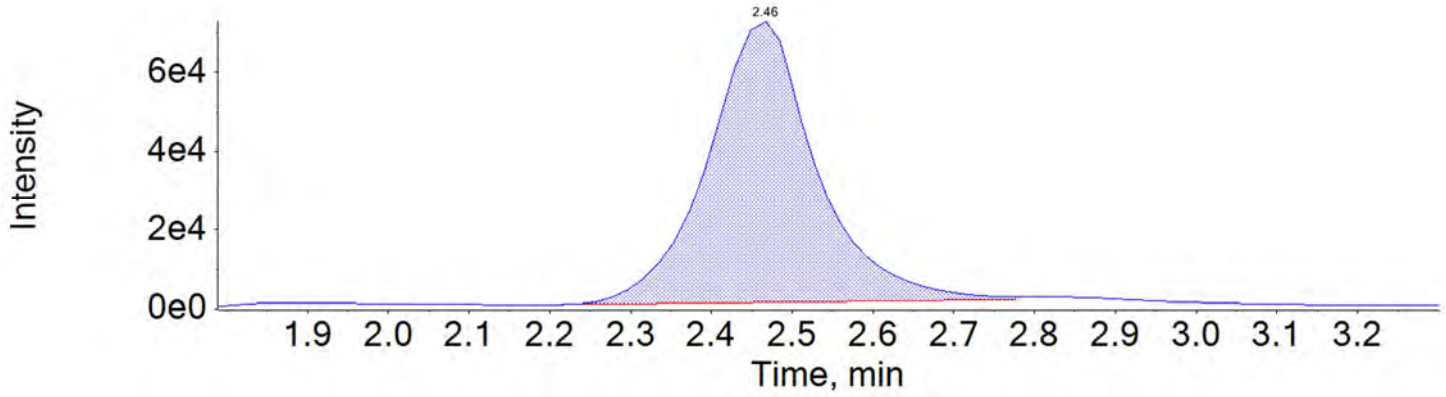
PFOA_1 413.0 / 369.0



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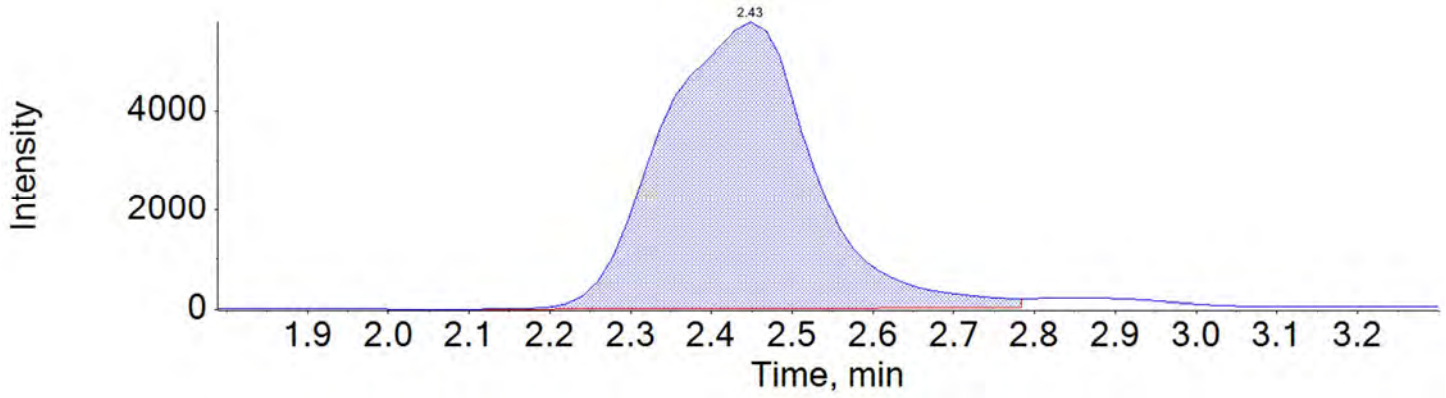
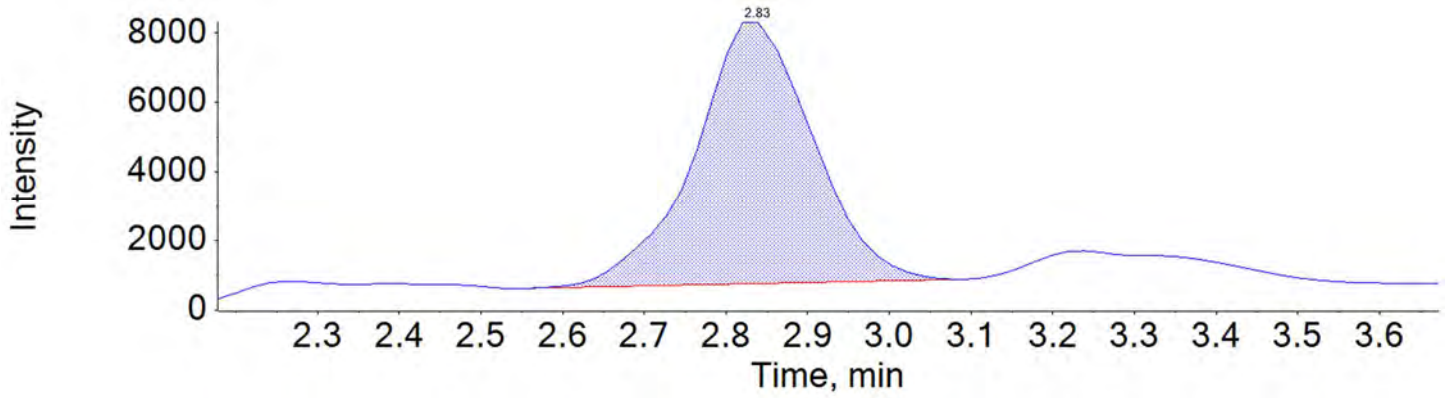


PFNA_1 463.0 / 419.0



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Chromatogram Report

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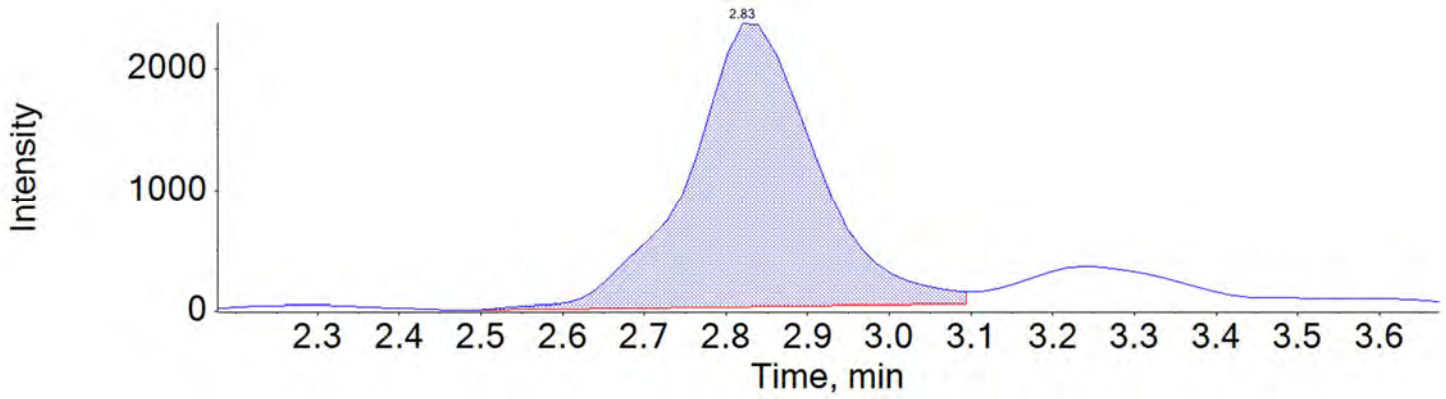
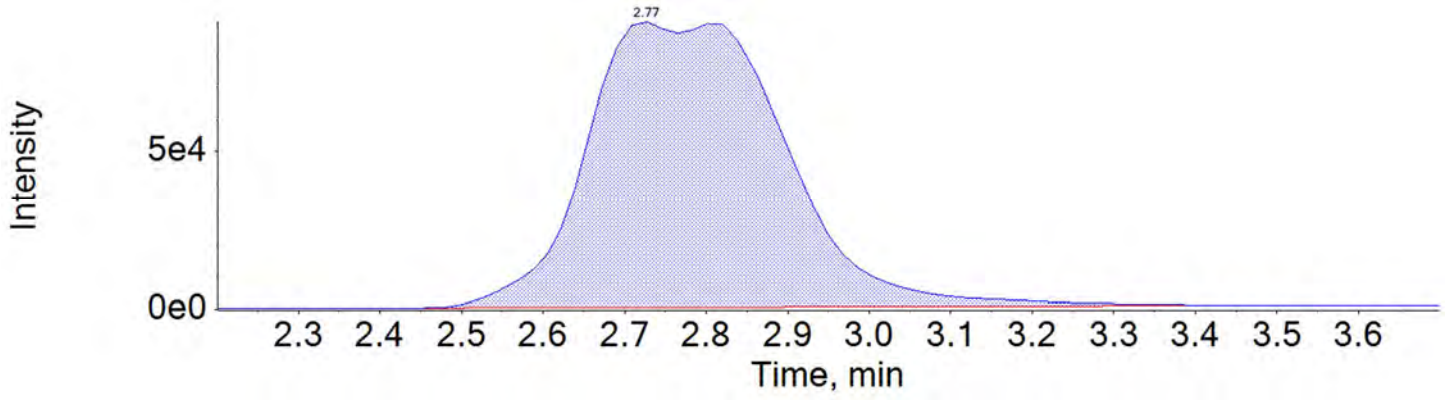
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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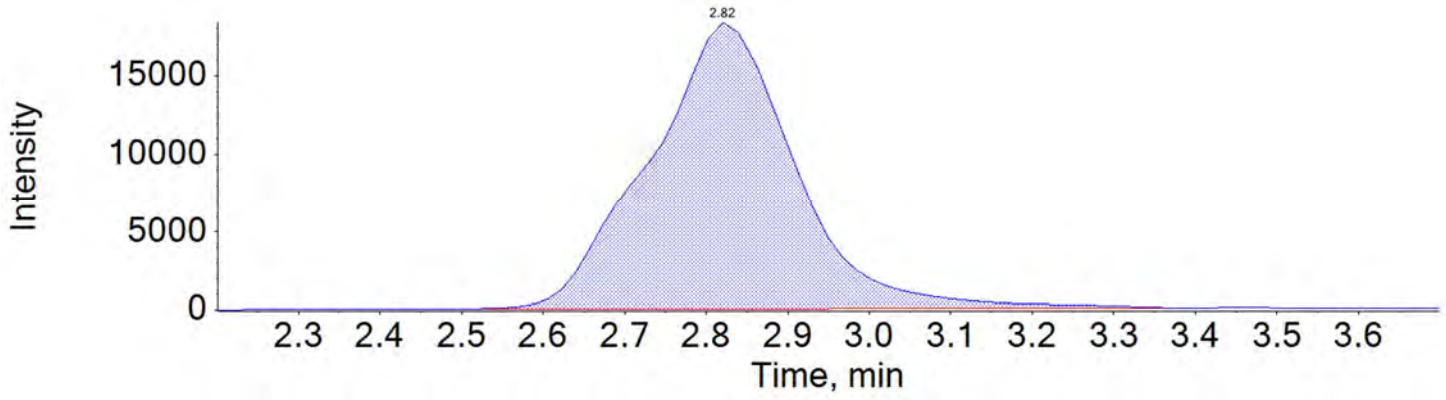

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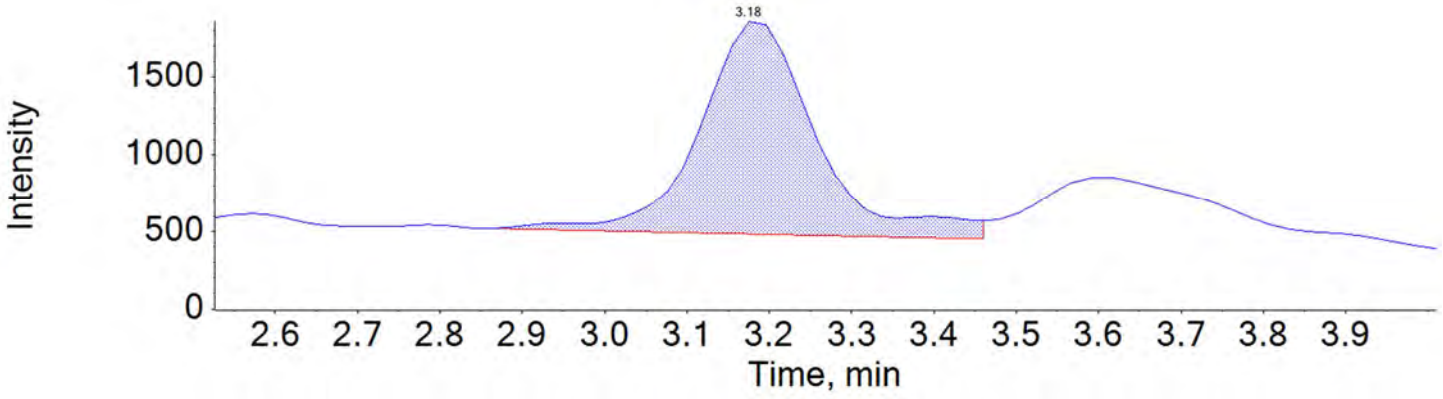
PFDA_1 513.0 / 469.0



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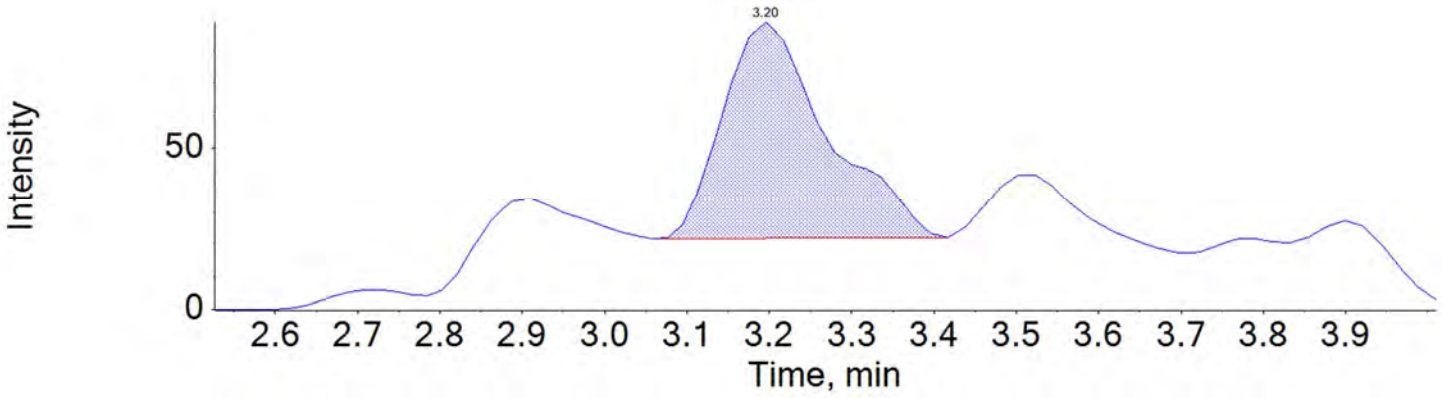
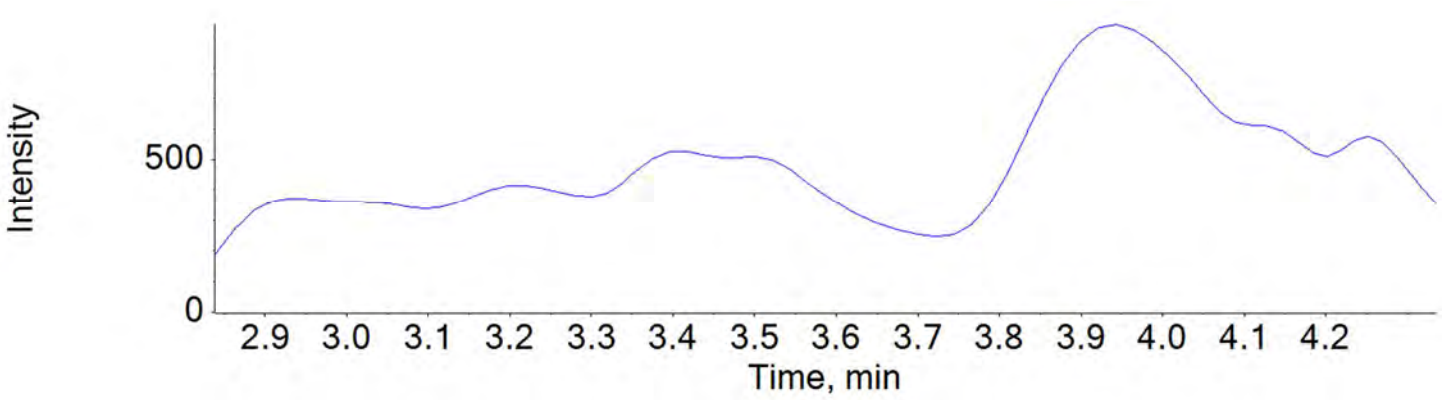


PFUnA_1 563.0 / 519.0



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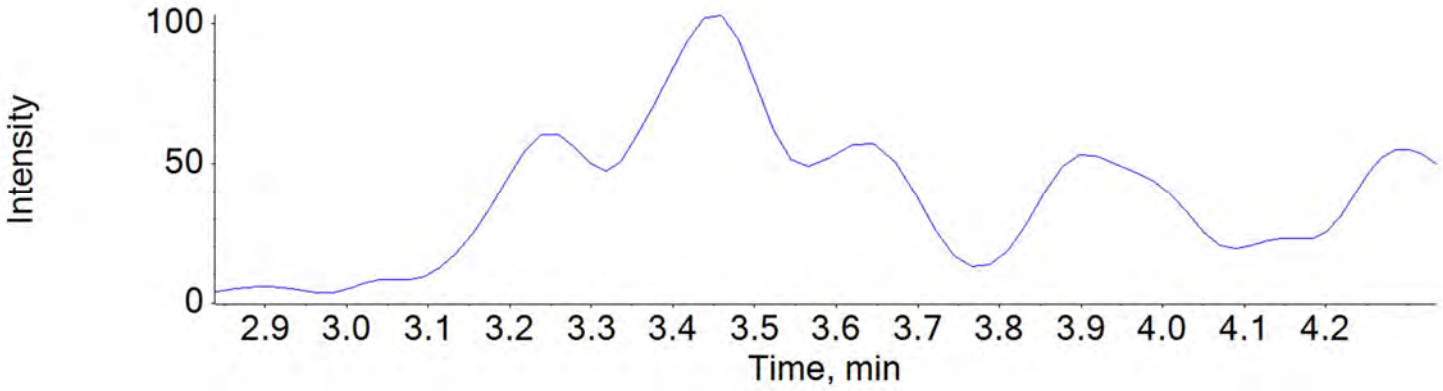
PFUnA_2 563.0 / 269.0



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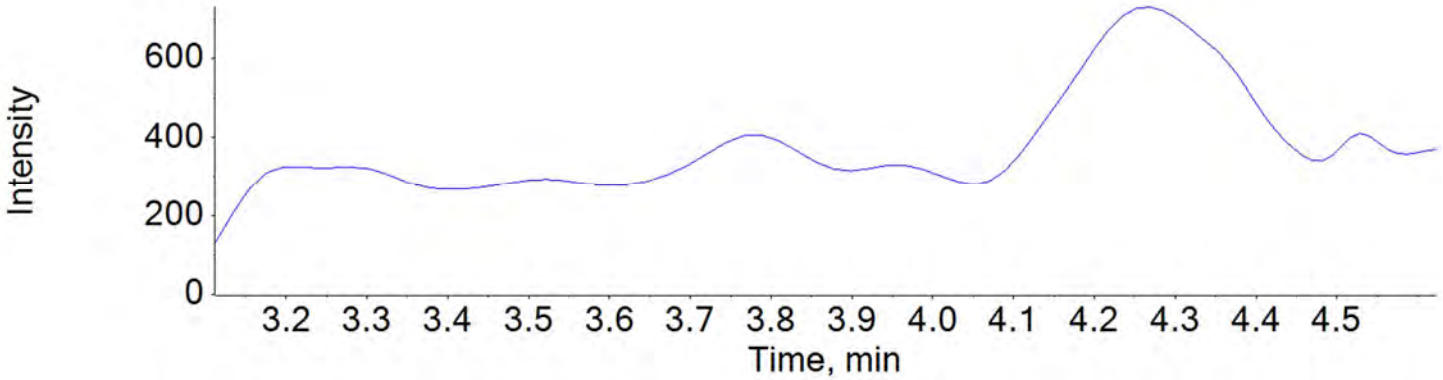

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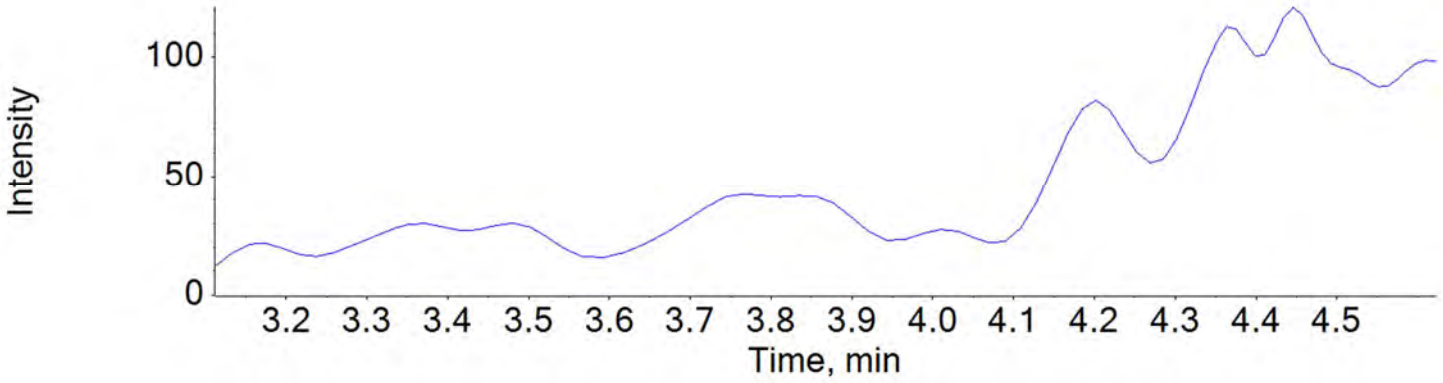

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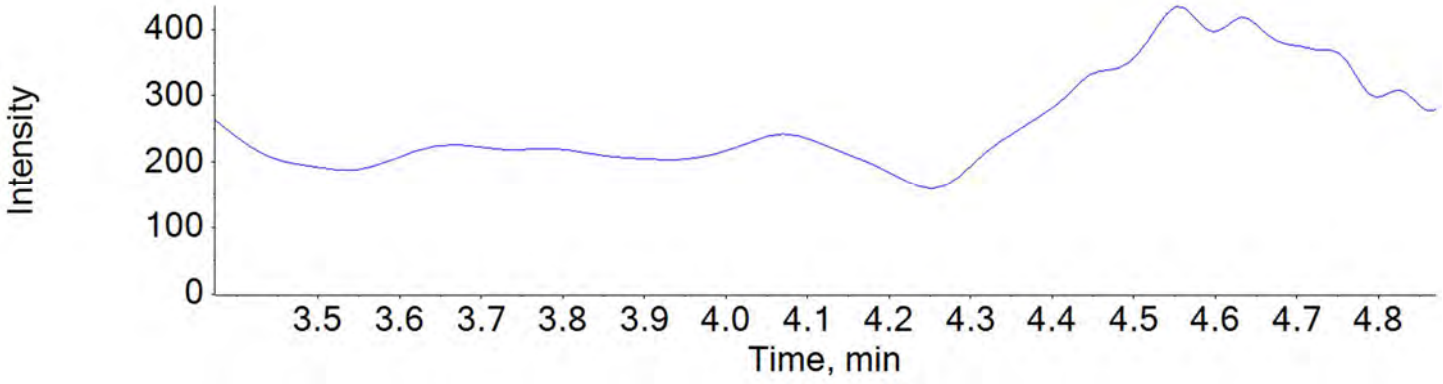
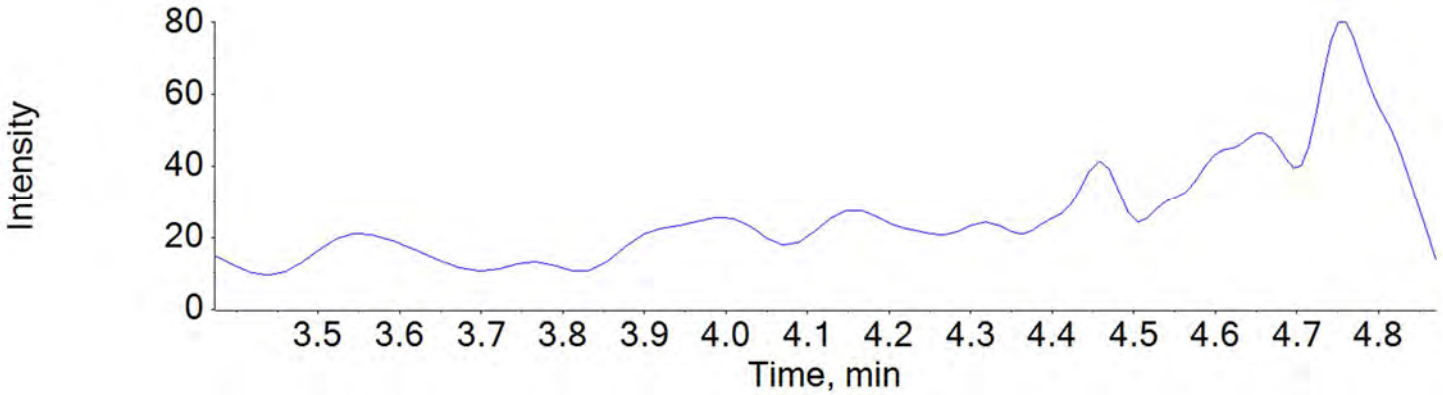
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



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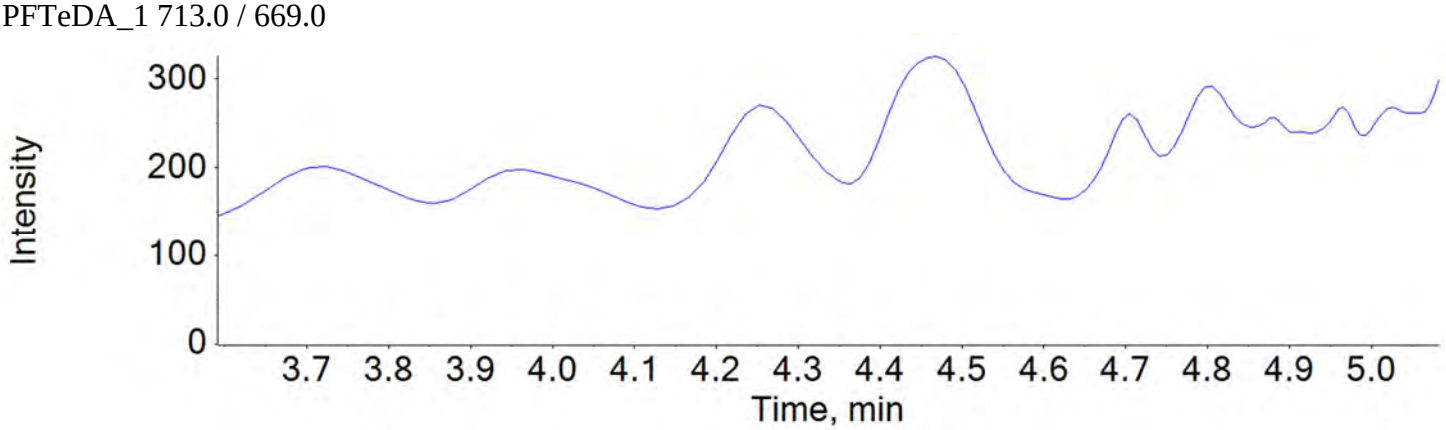

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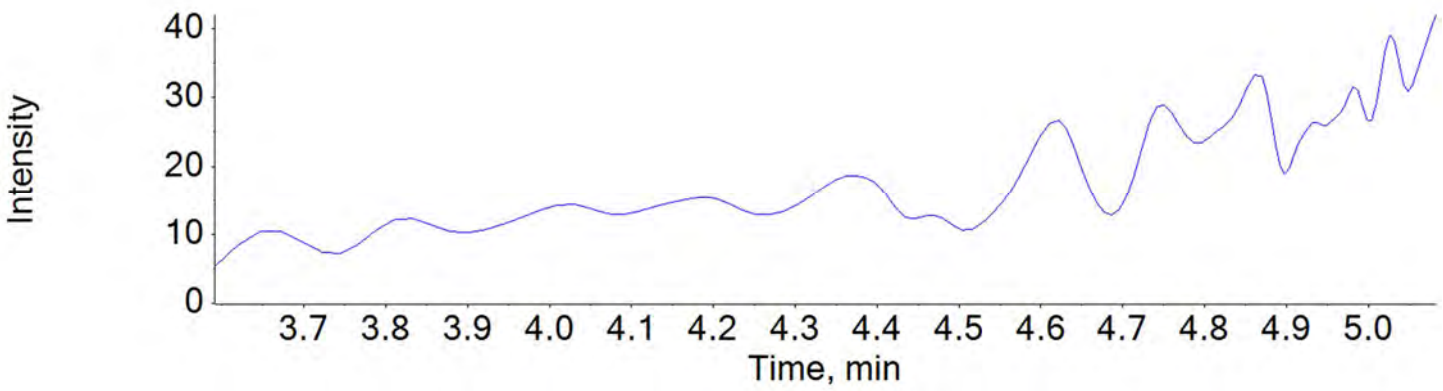
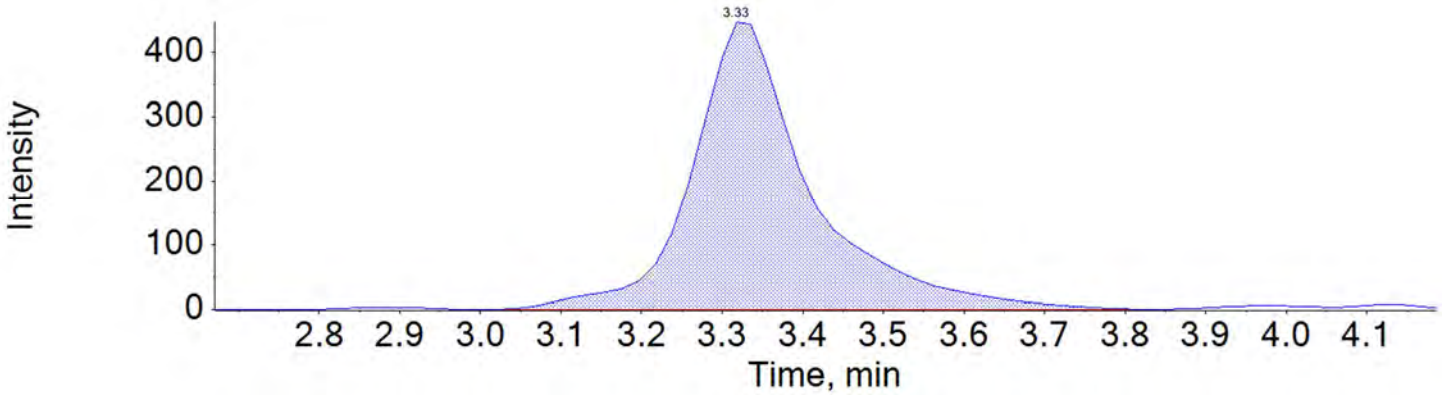


NMeFOSAA_1 570.0 / 419.0



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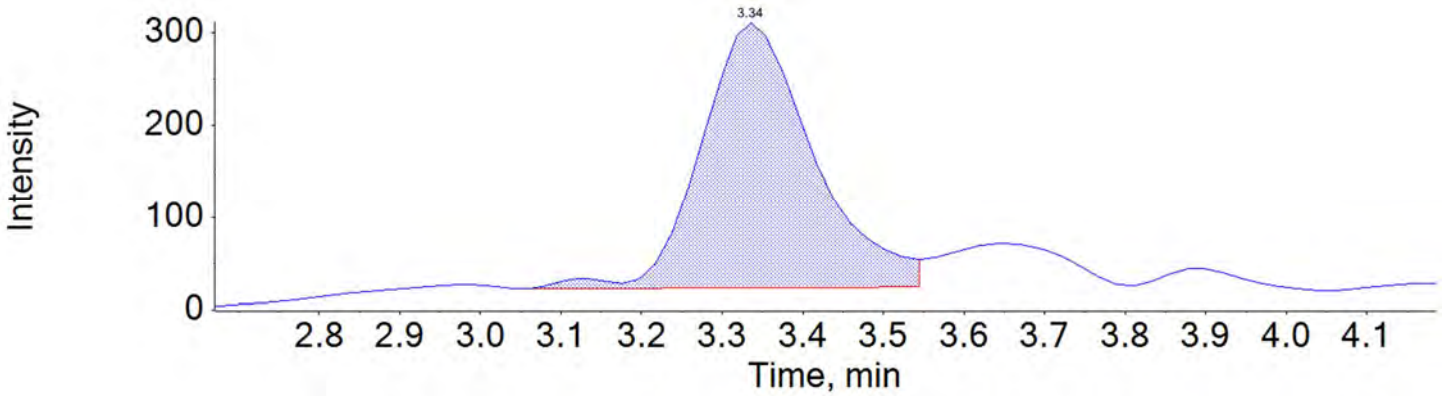

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Chromatogram Report

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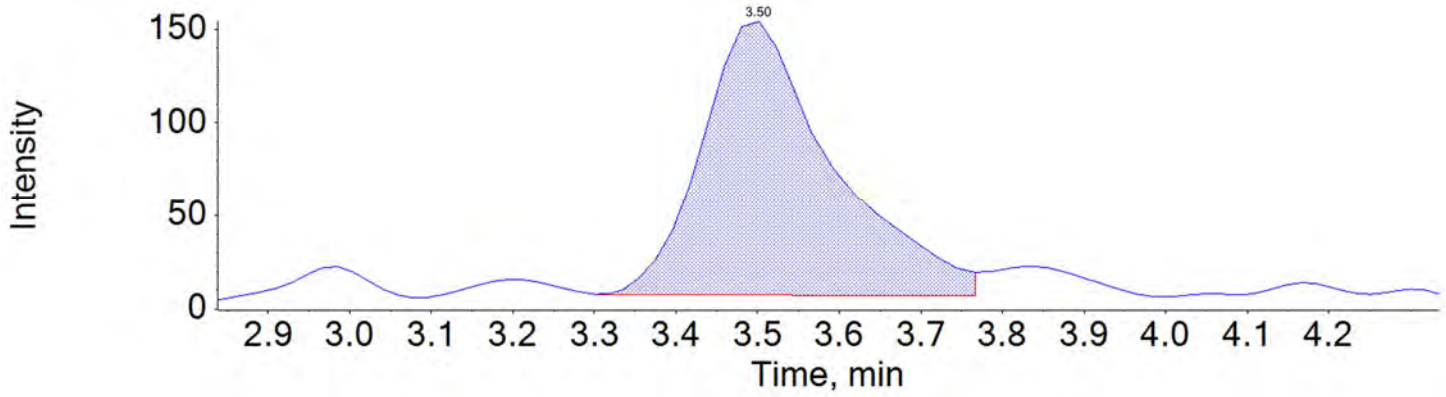
NEtFOSAA_1 584.0 / 419.0



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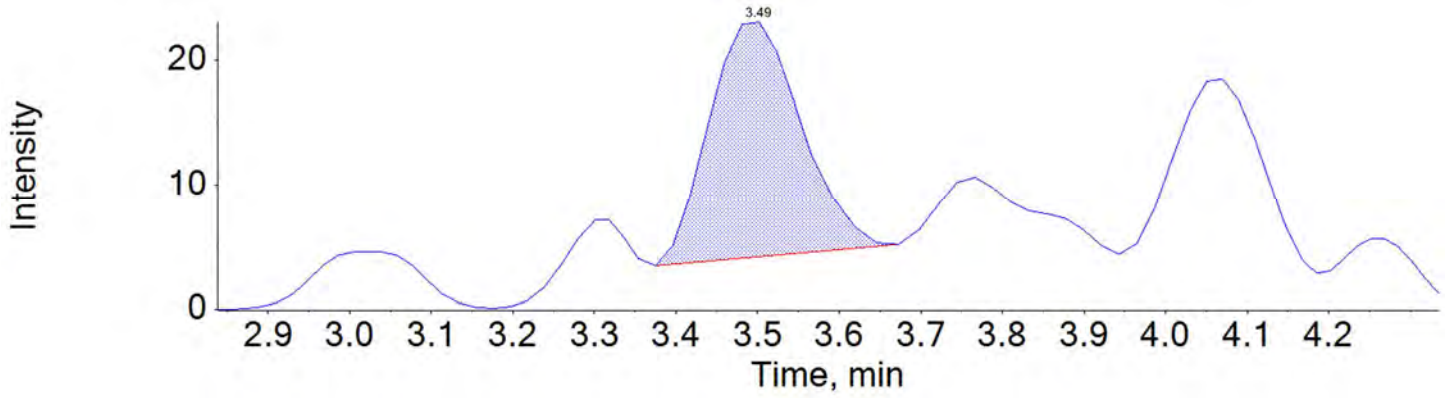

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Chromatogram Report

Created with Analyst Reporter
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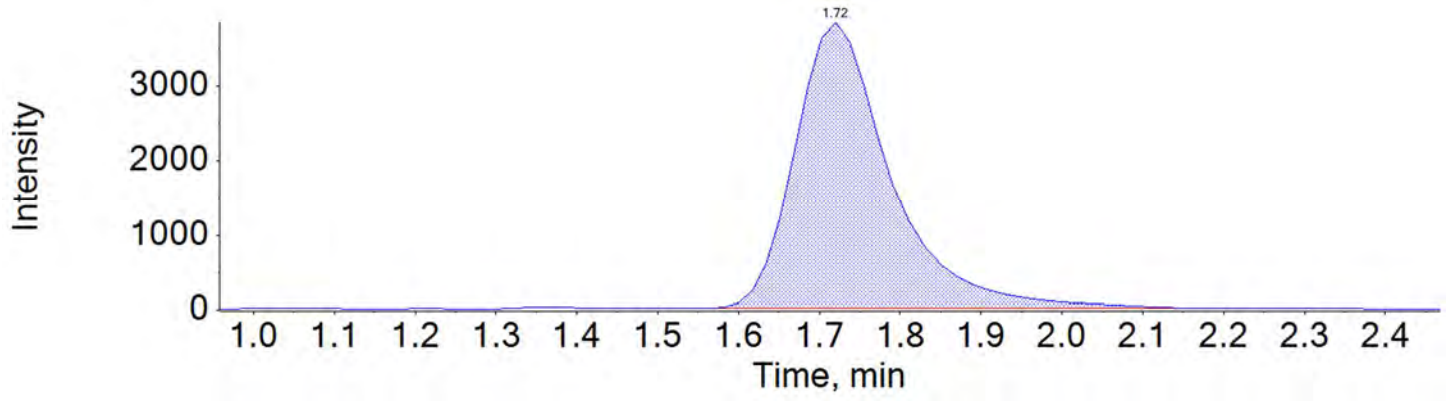
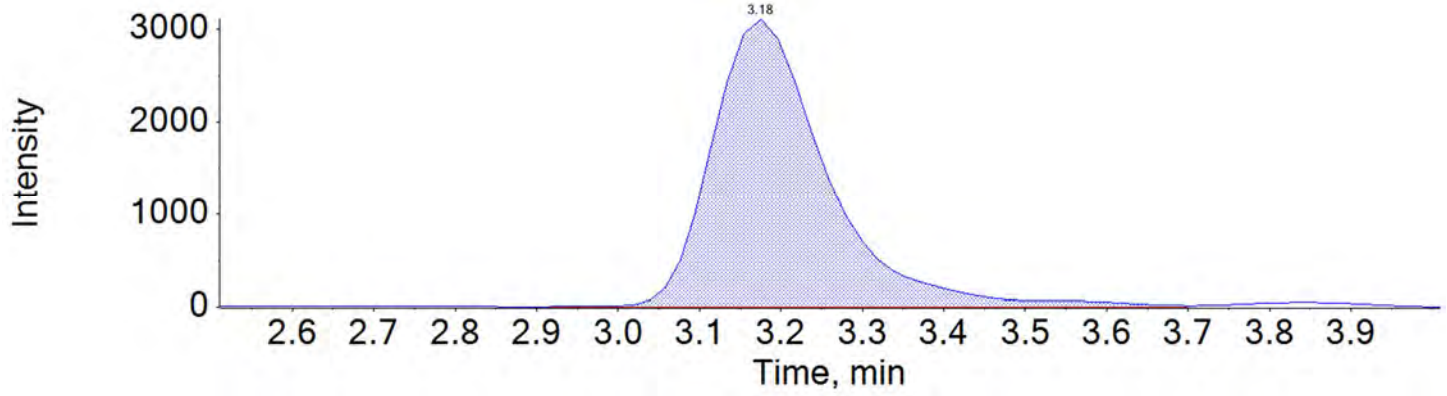
Sample Name	J5972-FS(0)	**Injection Vial**	20
Sample ID	WGNA-050118-RW-3178	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:42:49	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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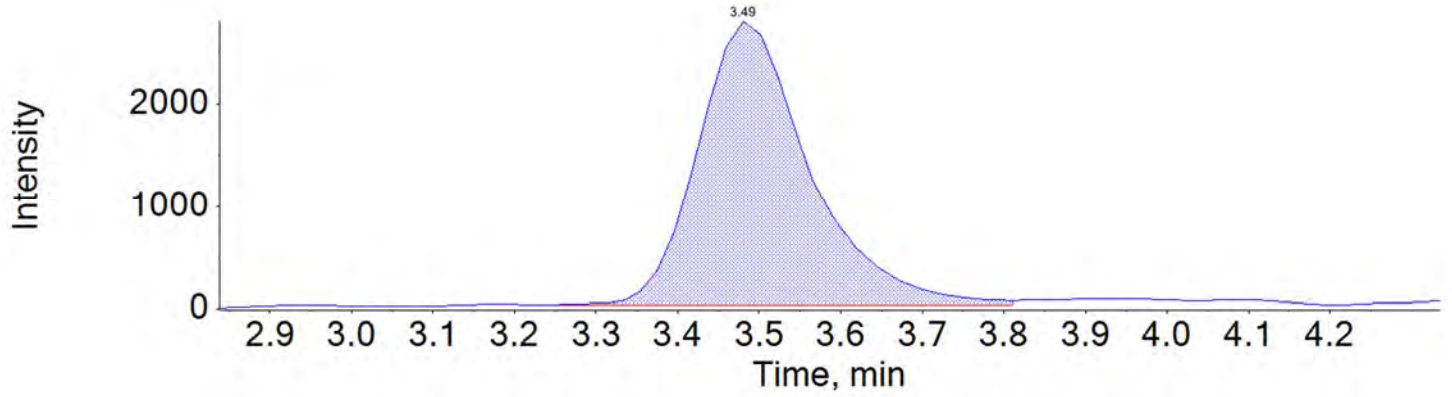
d5-EtFOSAA 589.0 / 419.0



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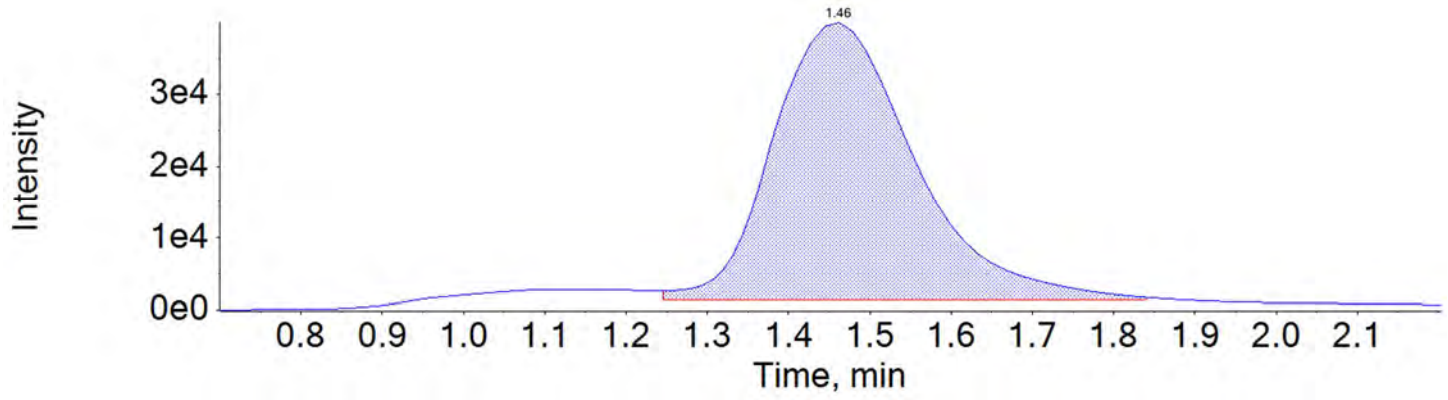
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:07:48 PM

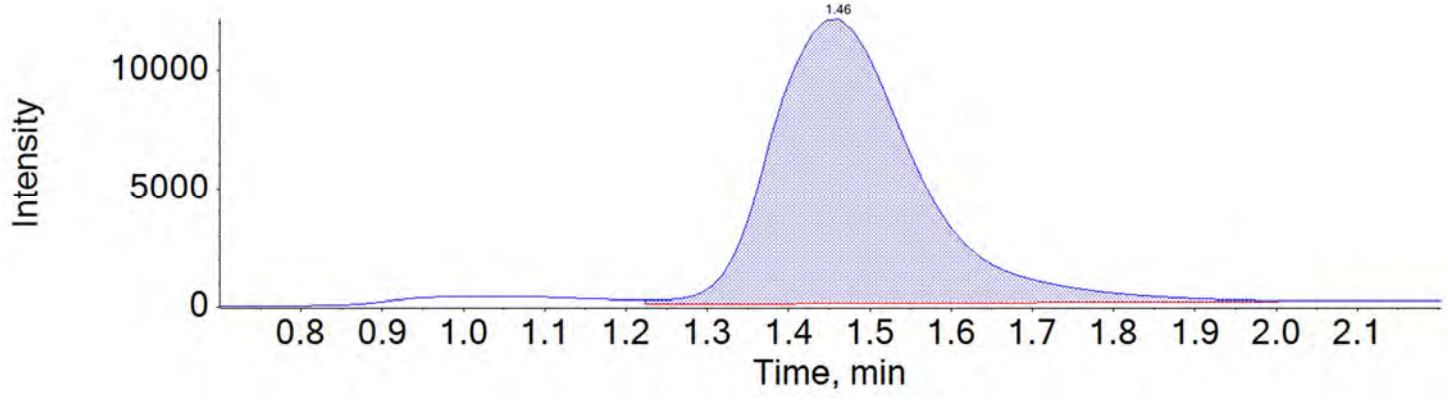
Sample Name	J5974-FS(0)	**Injection Vial**	21
Sample ID	NAWC-050118-RW-304	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:51:45	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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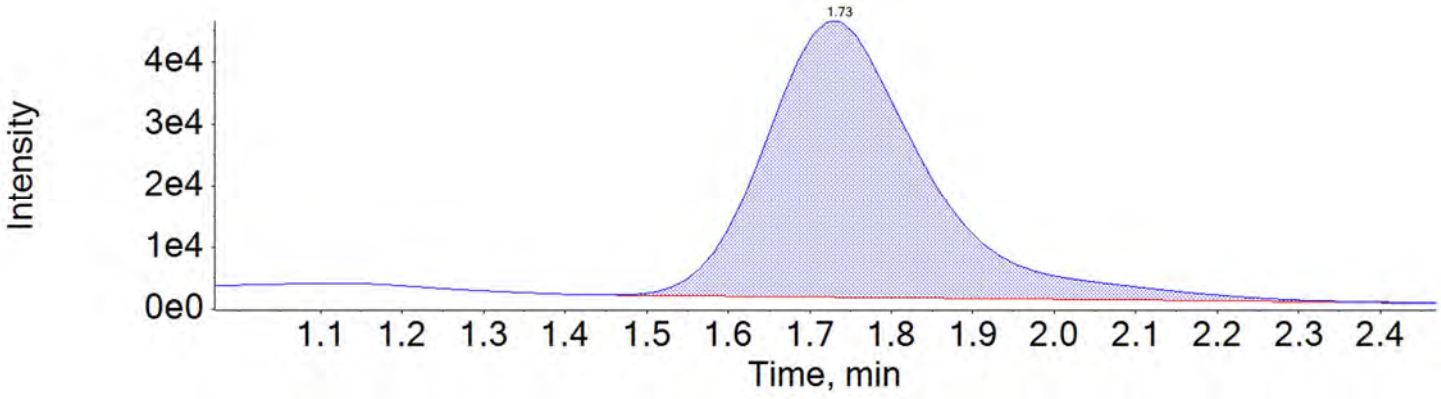
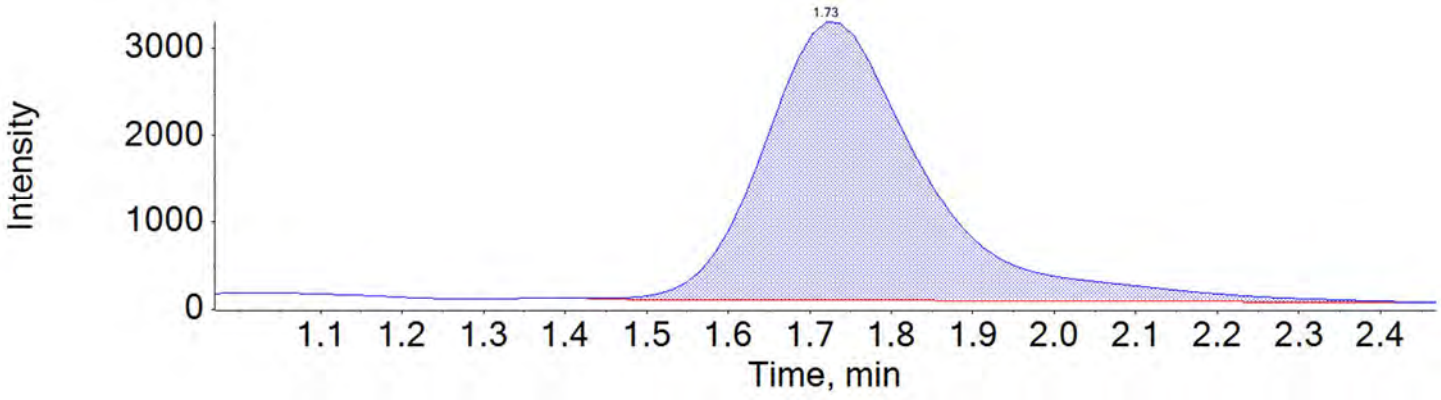
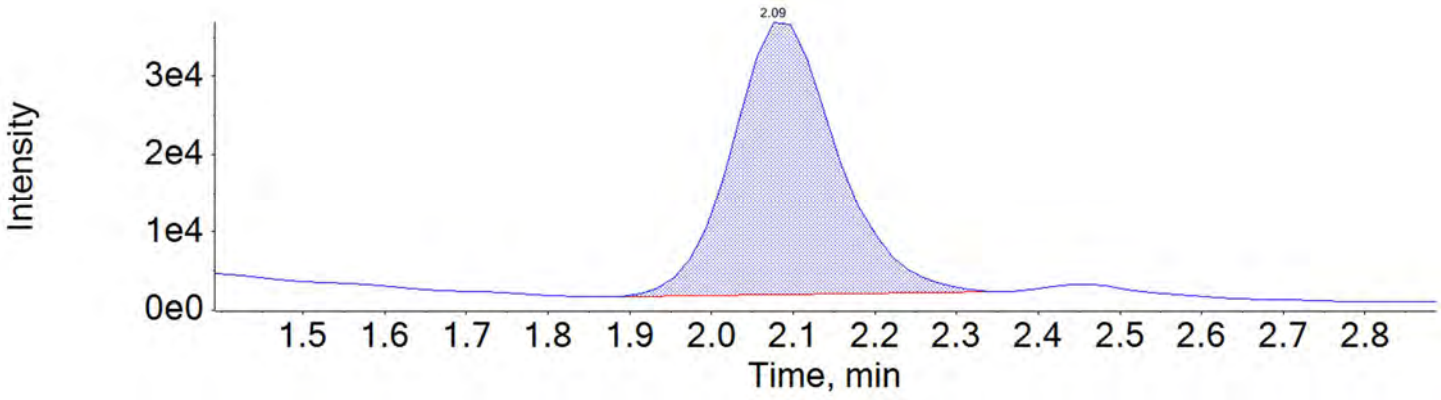


PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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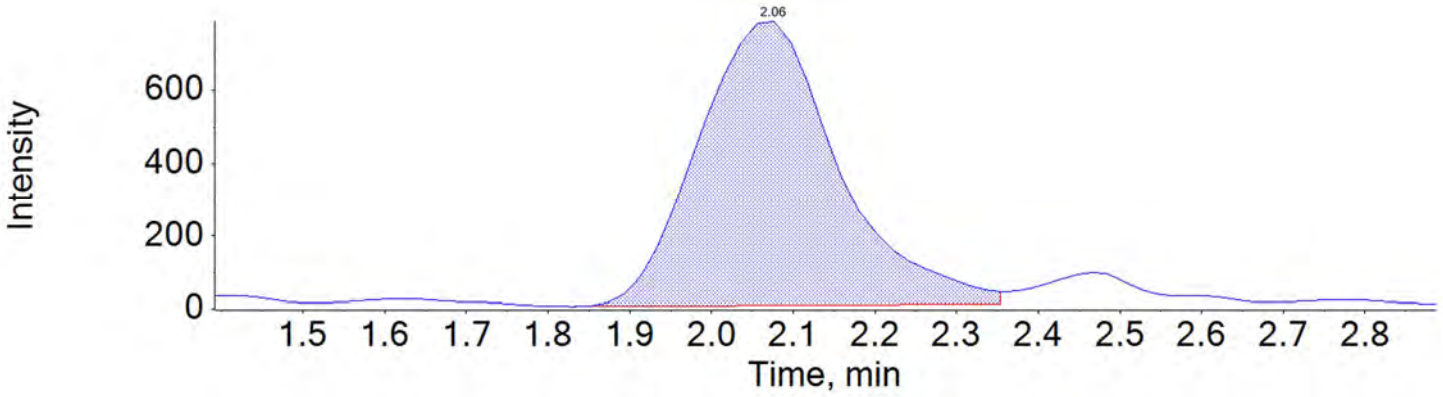
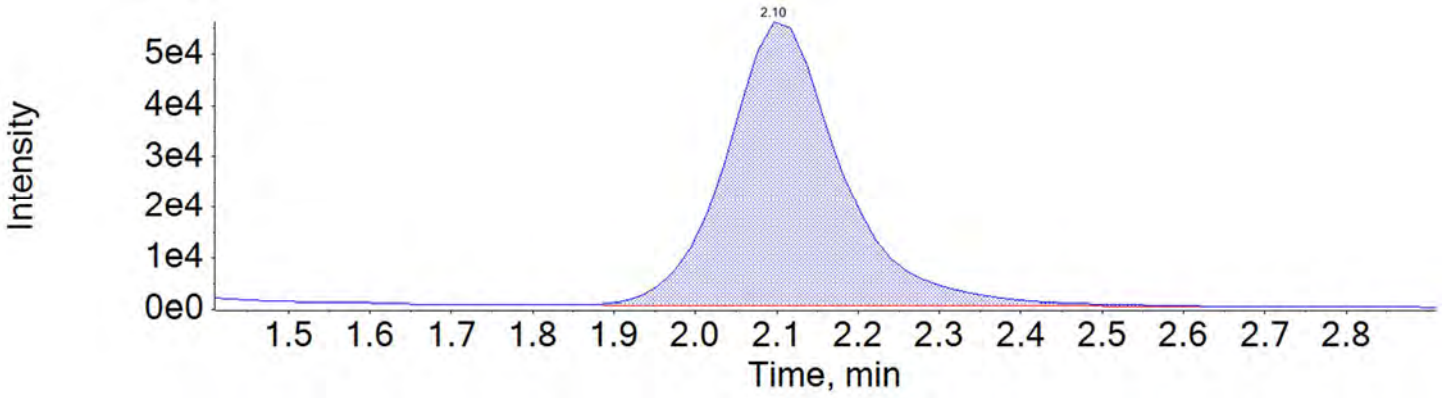
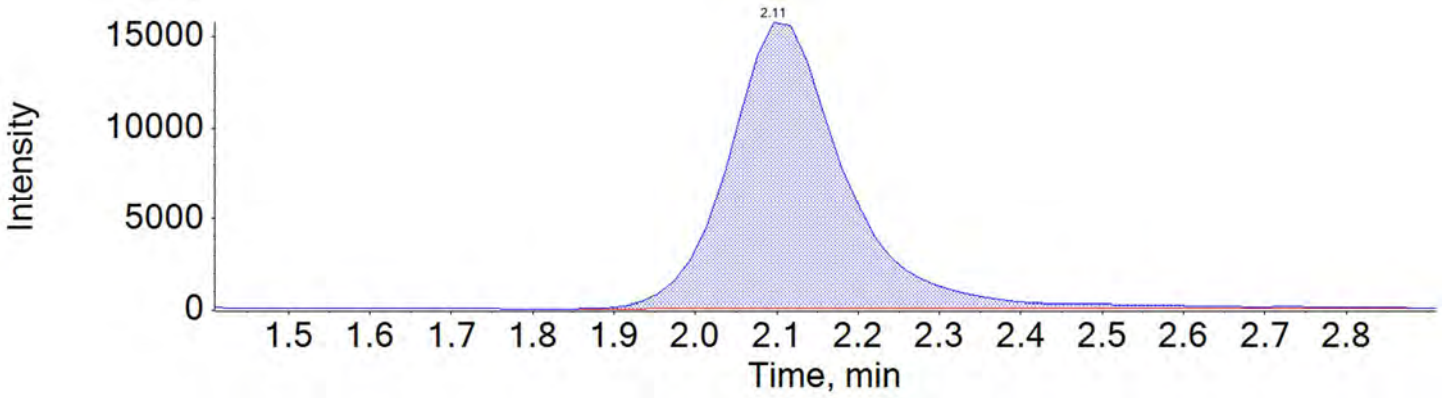


PFHxS_1 399.0 / 80.0



PFHxS_2 399.0 / 99.0



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Chromatogram Report

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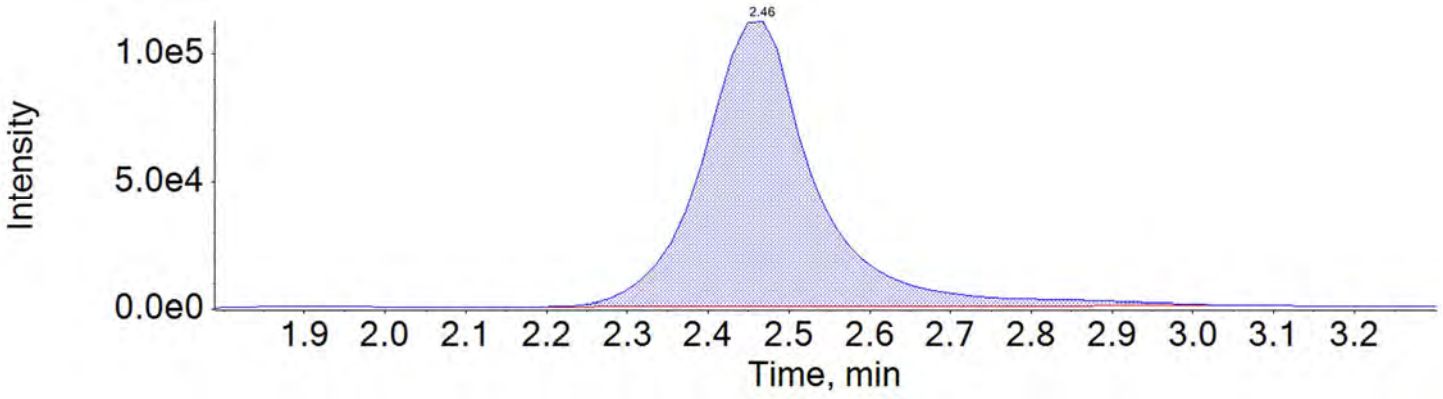
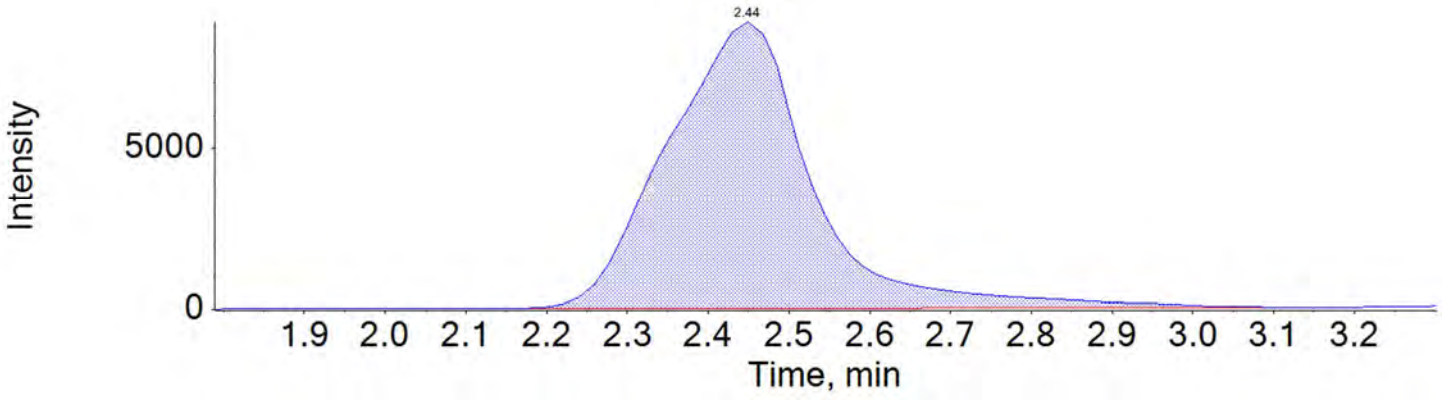
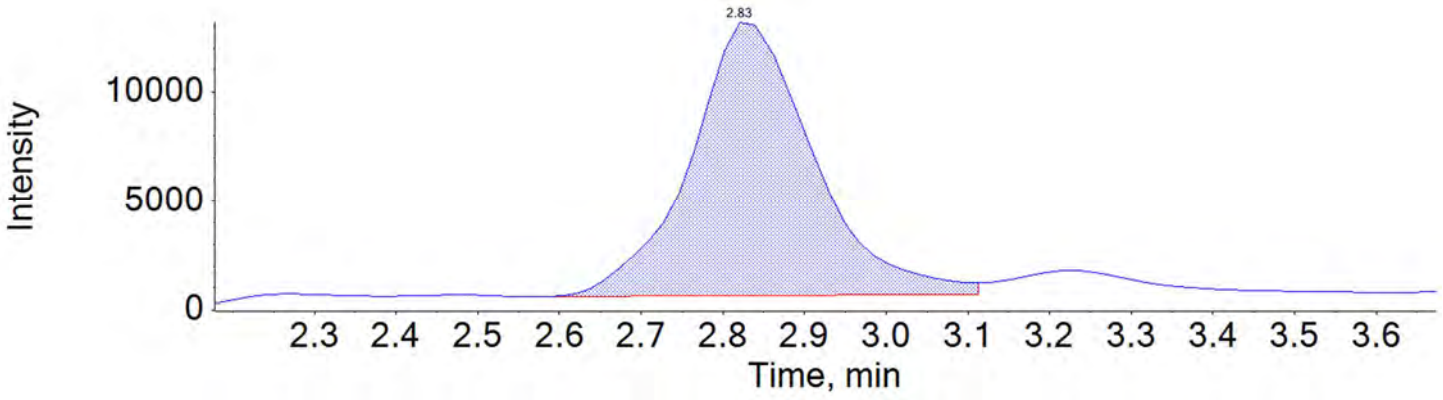
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



PFNA_1 463.0 / 419.0



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Chromatogram Report

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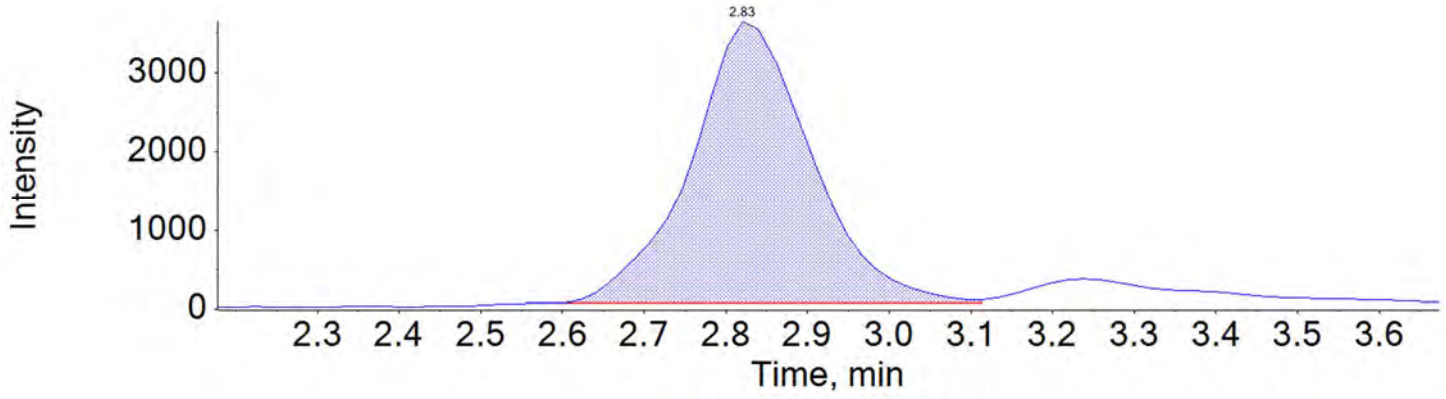
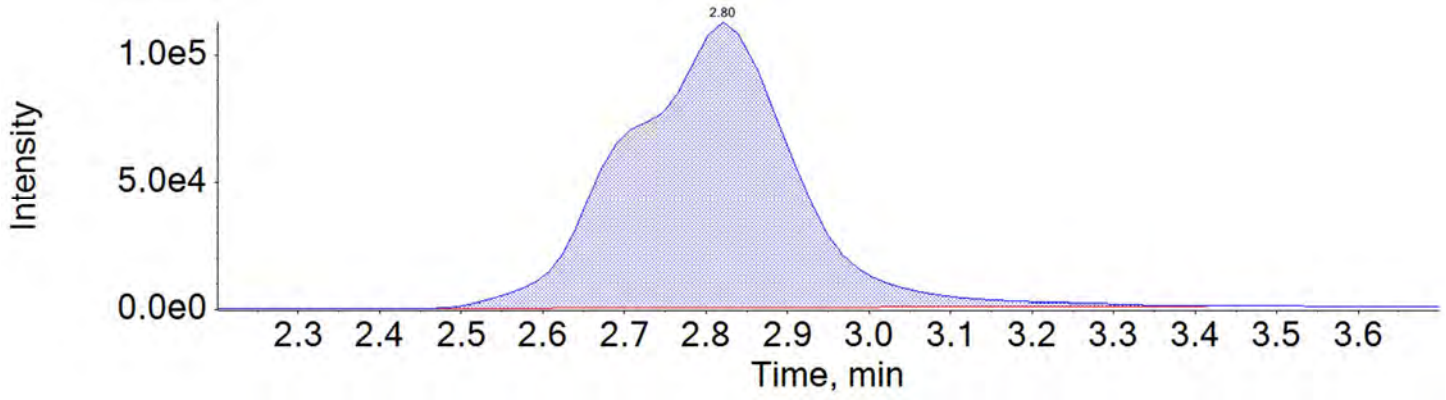
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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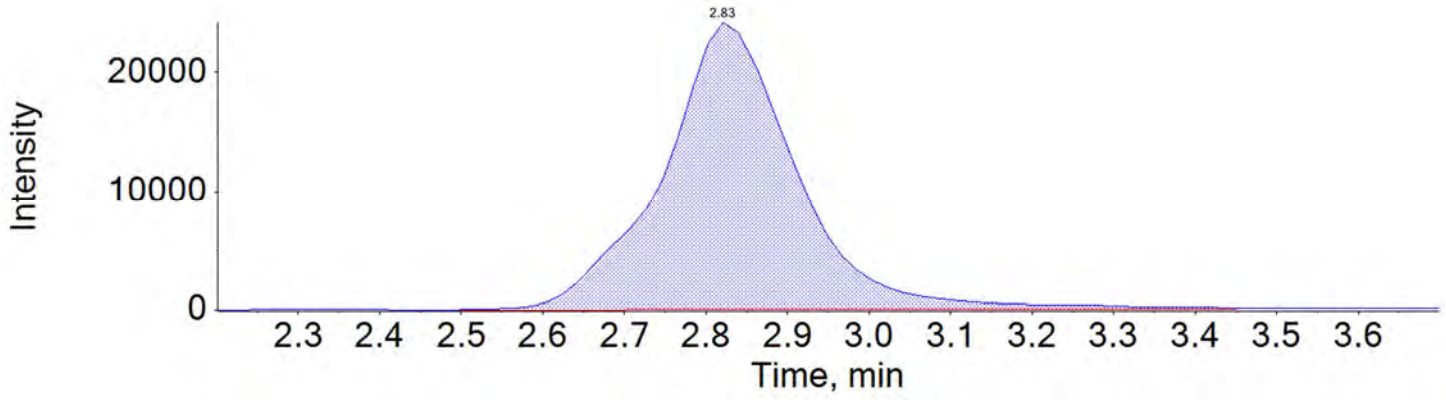

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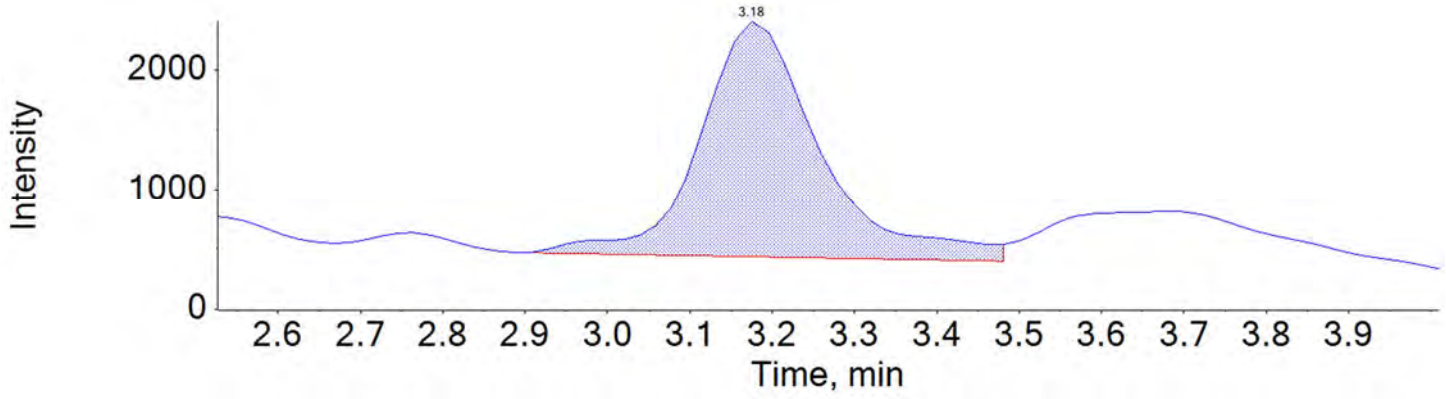

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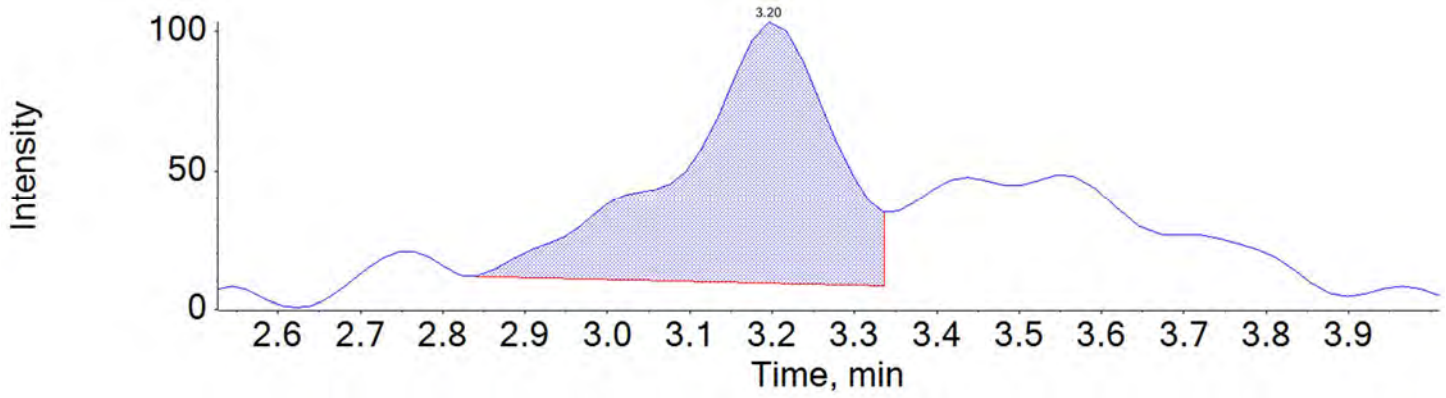
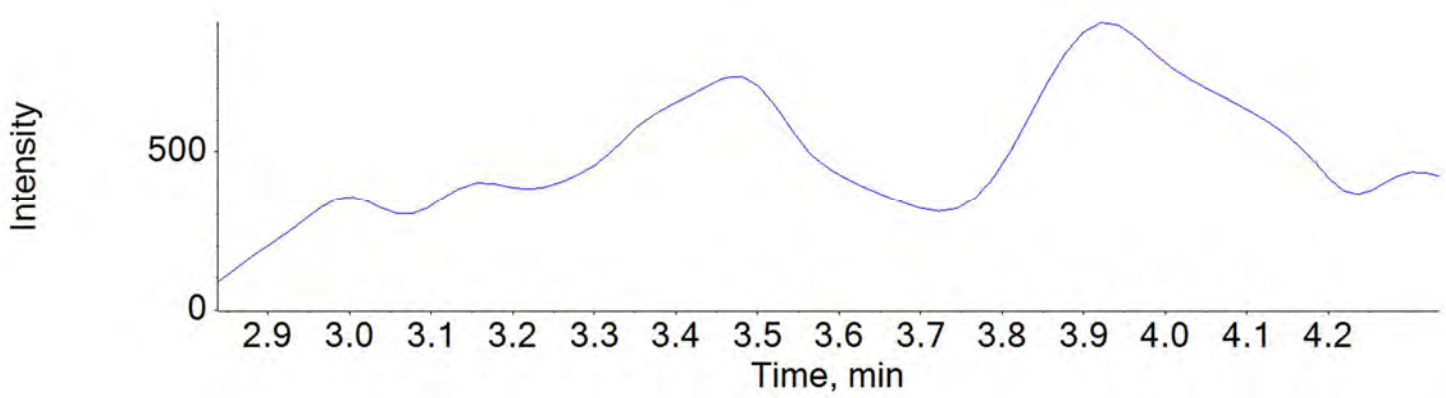


PFUnA_1 563.0 / 519.0



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Chromatogram Report

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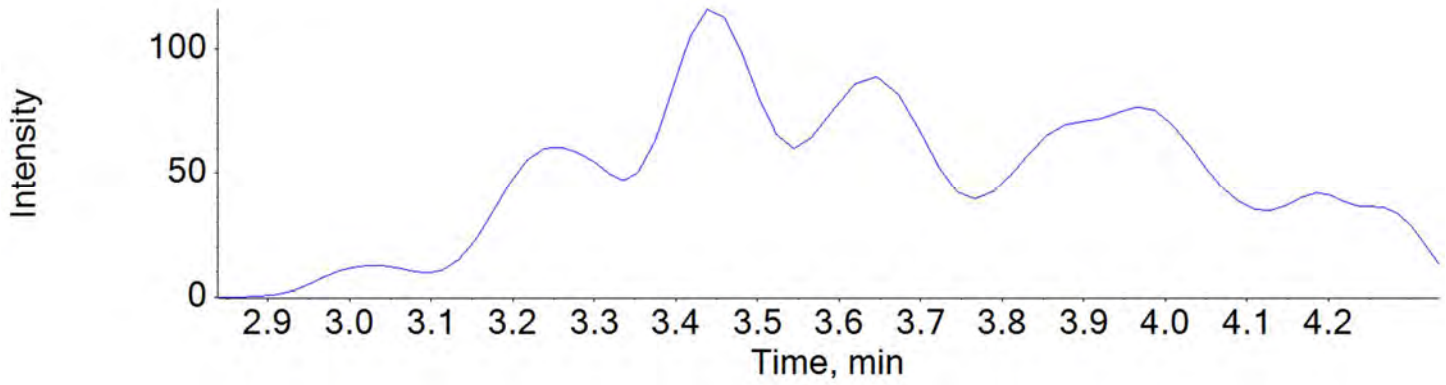
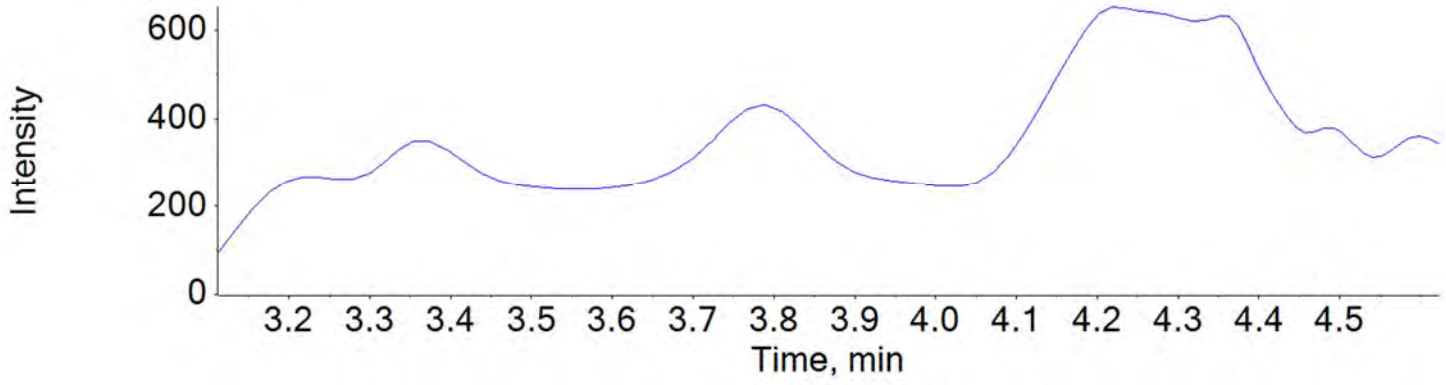
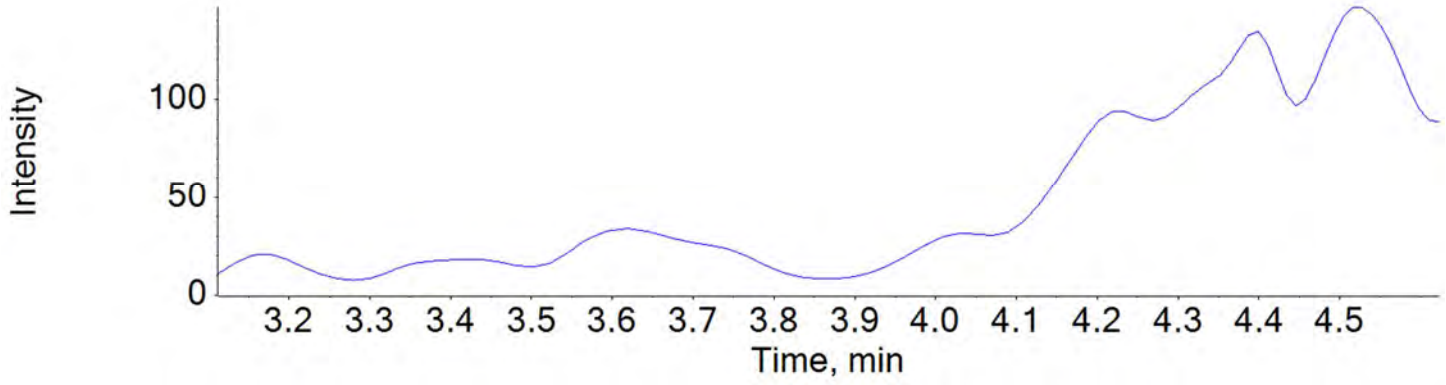
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



PFDoA_2 613.0 / 319.0



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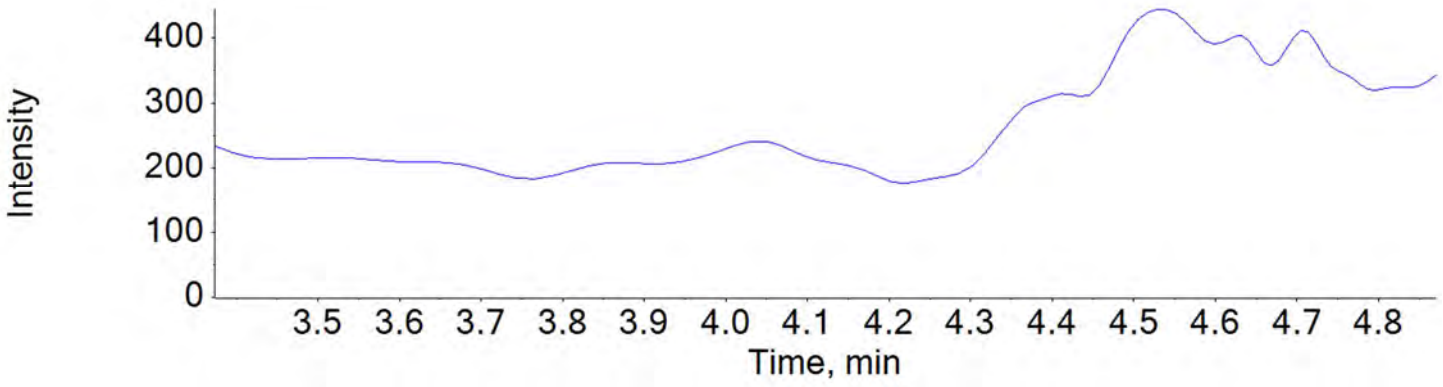
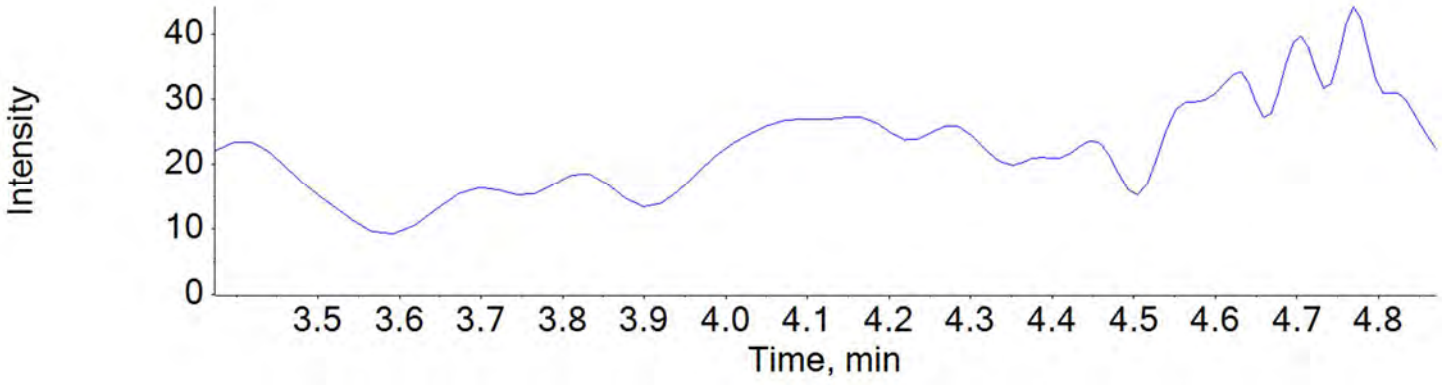
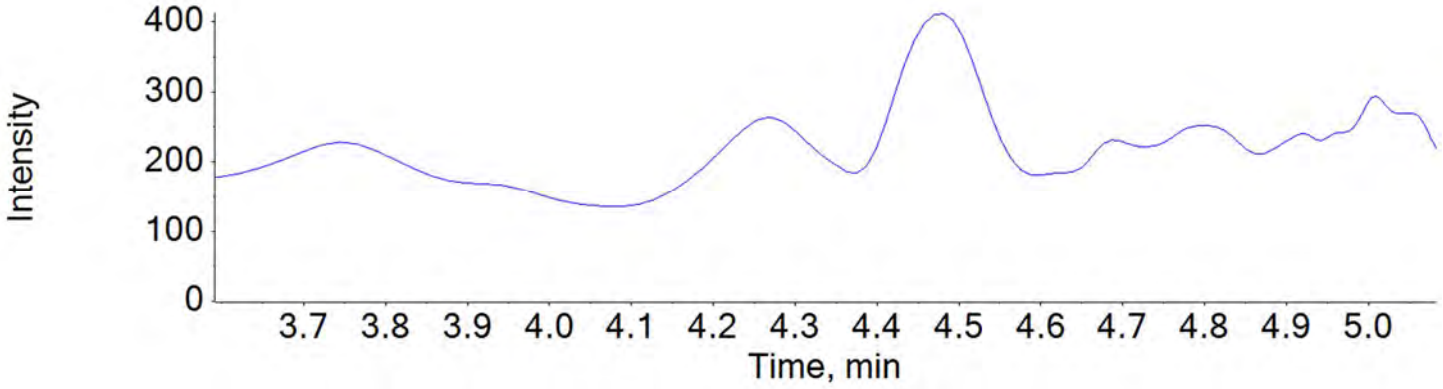
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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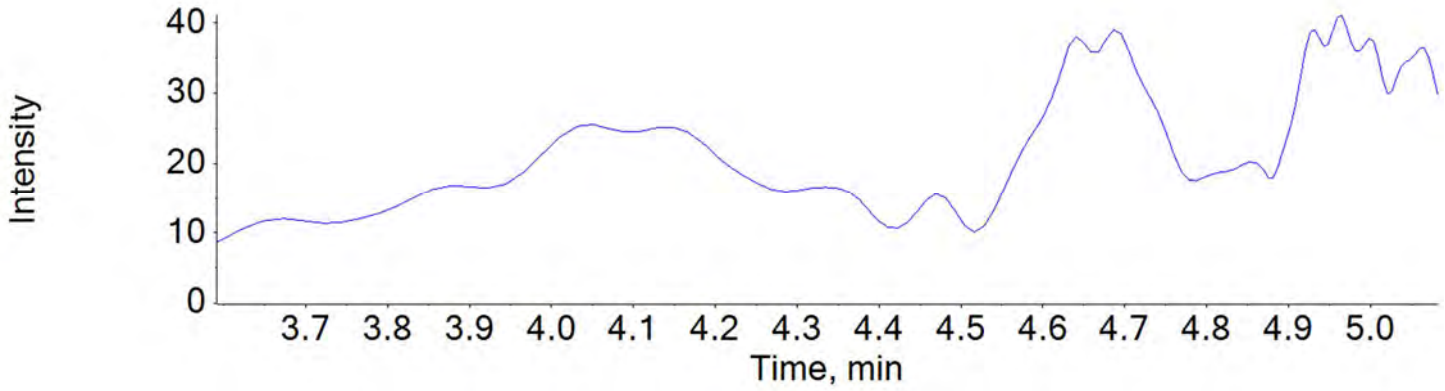
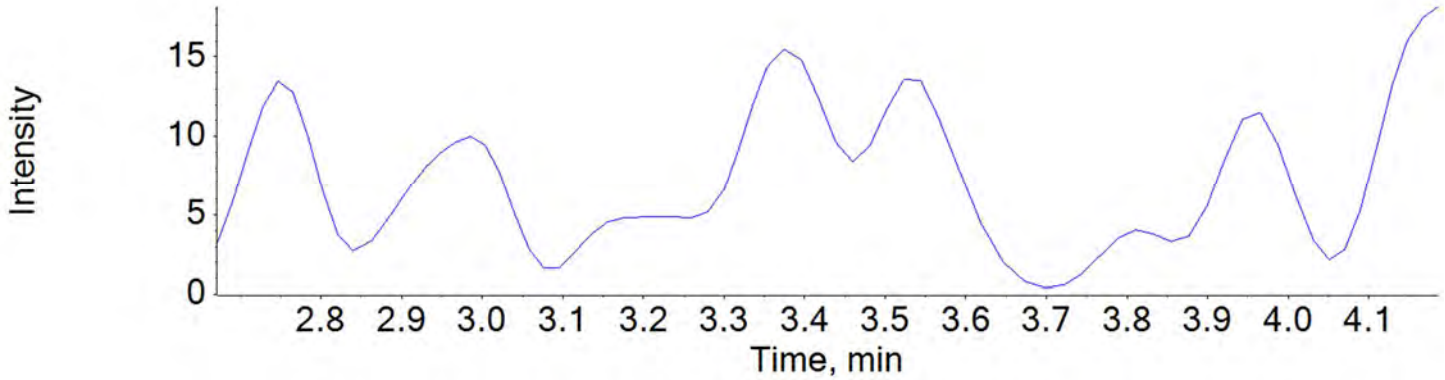
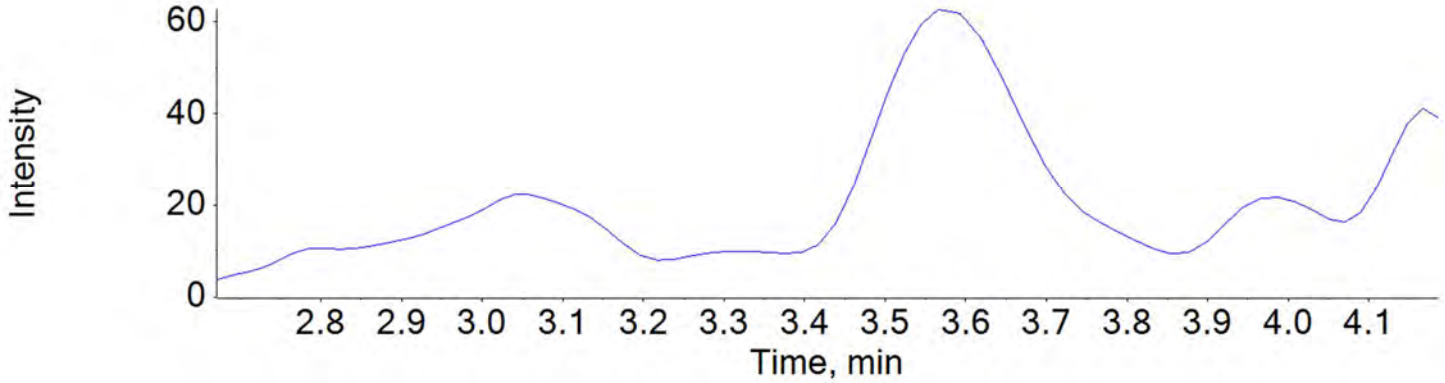
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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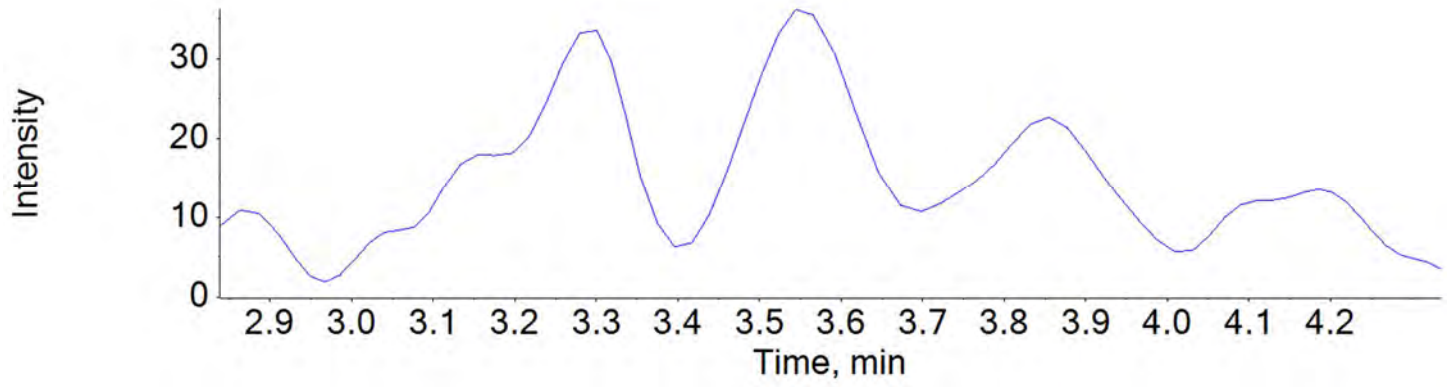
NEtFOSAA_1 584.0 / 419.0



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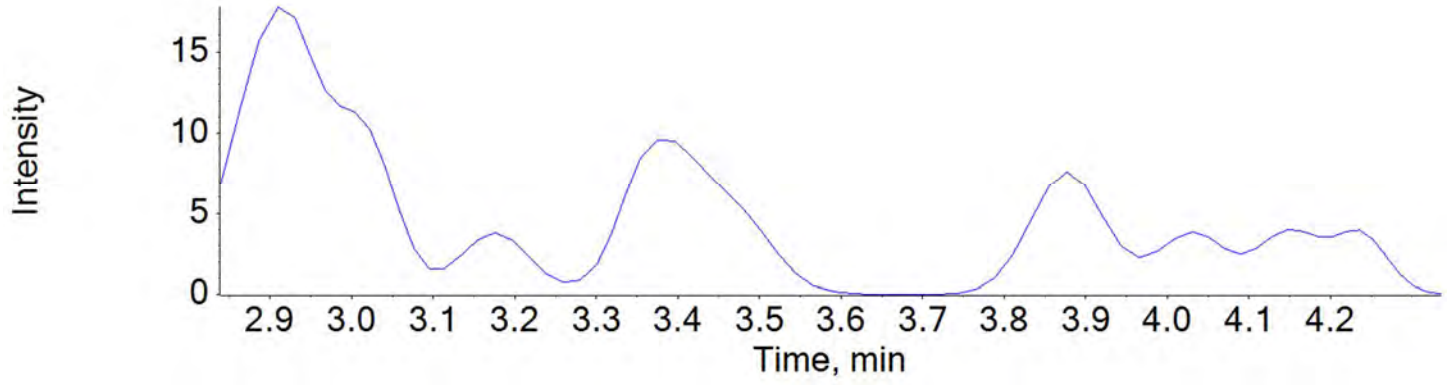

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Chromatogram Report

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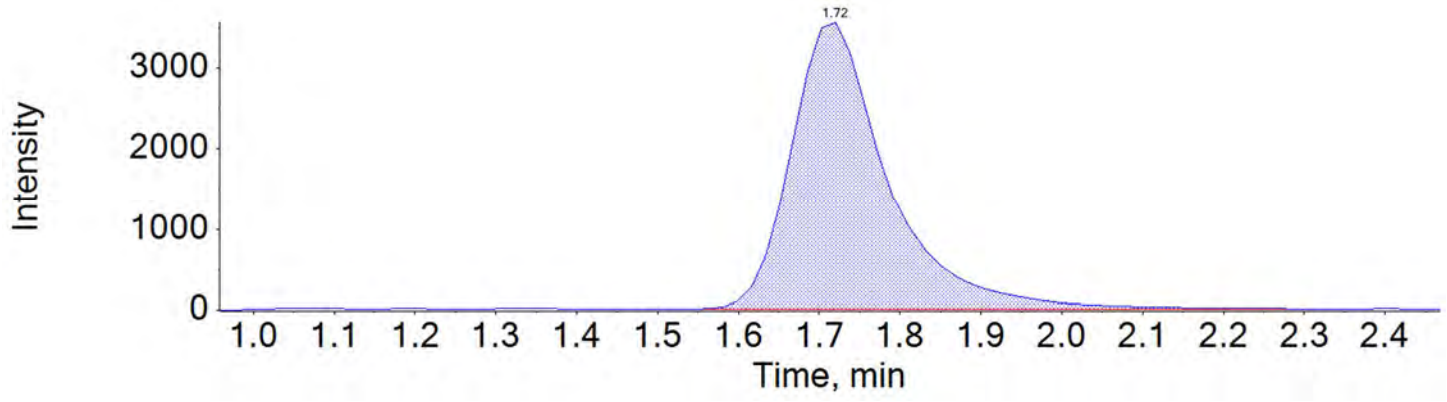
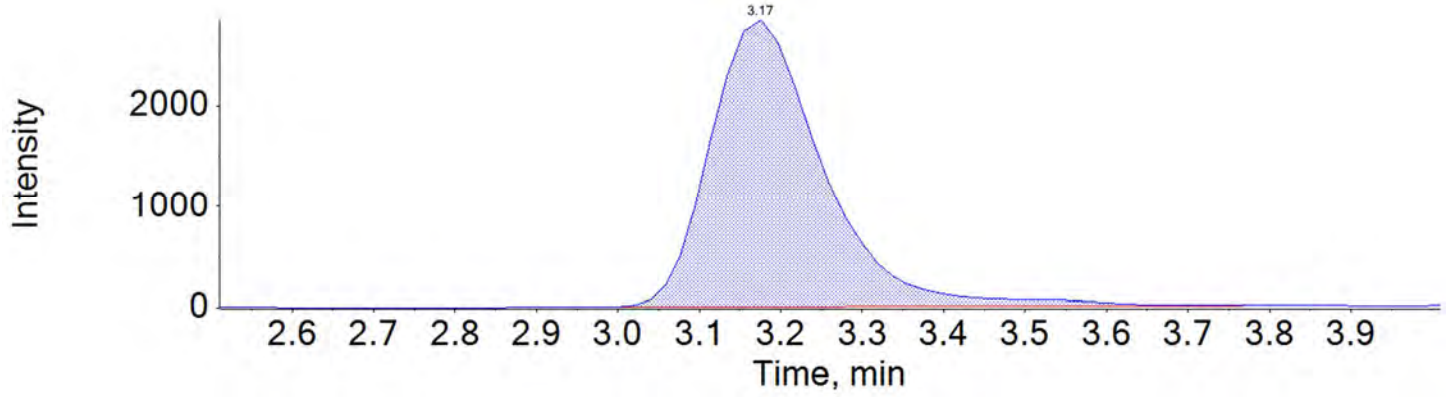
Sample Name	J5974-FS(0)	**Injection Vial**	21
Sample ID	NAWC-050118-RW-304	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T15:51:45	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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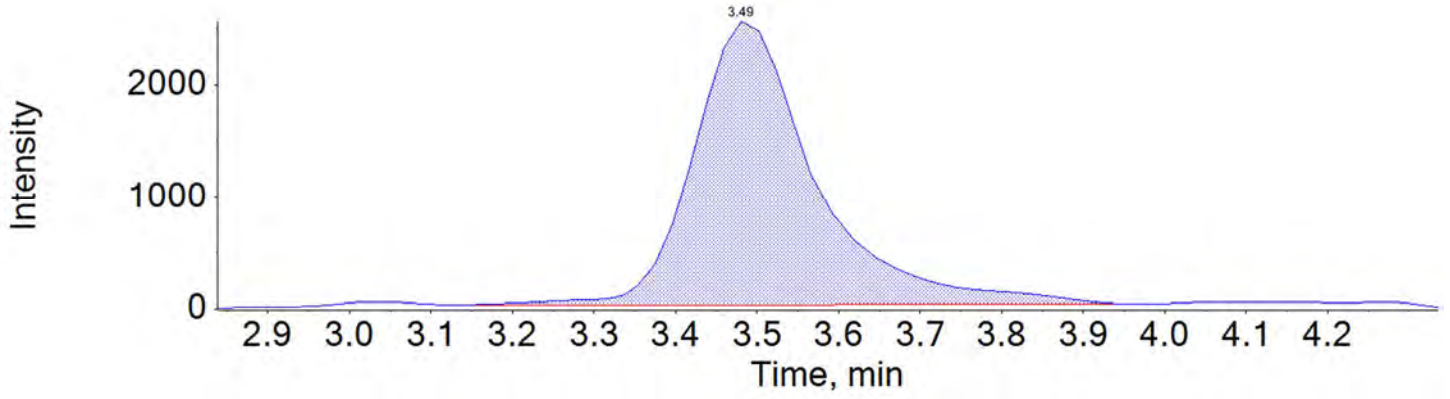
d5-EtFOSAA 589.0 / 419.0



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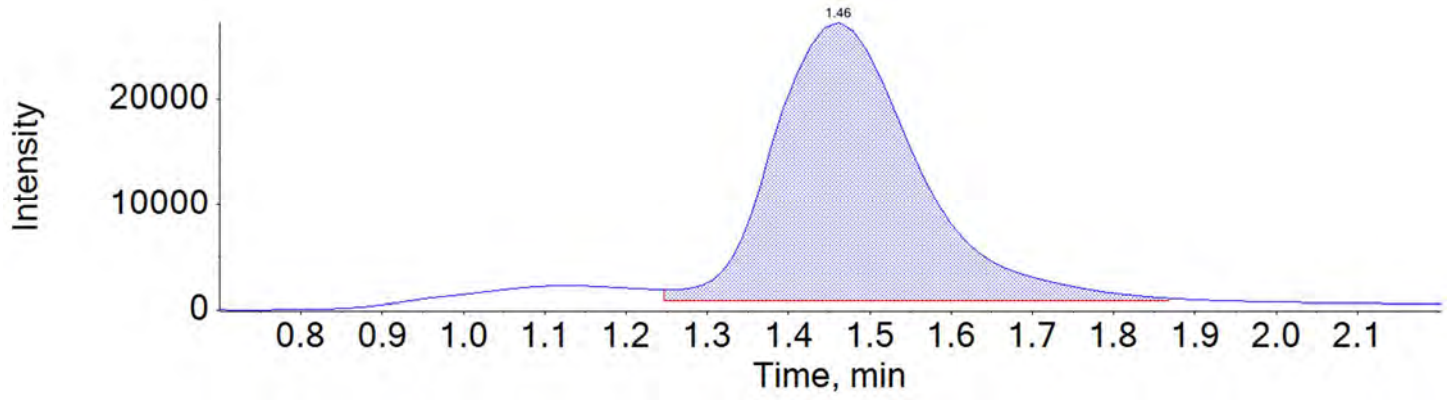
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:07:54 PM

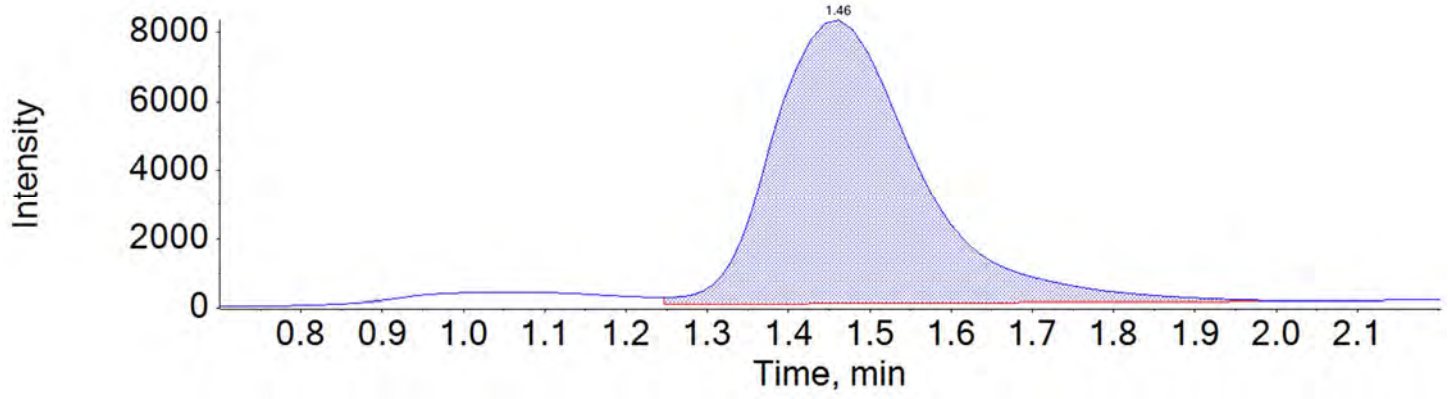
Sample Name	J5976-FS(0)	**Injection Vial**	22
Sample ID	NAWC-050118-RW-098	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T16:00:39	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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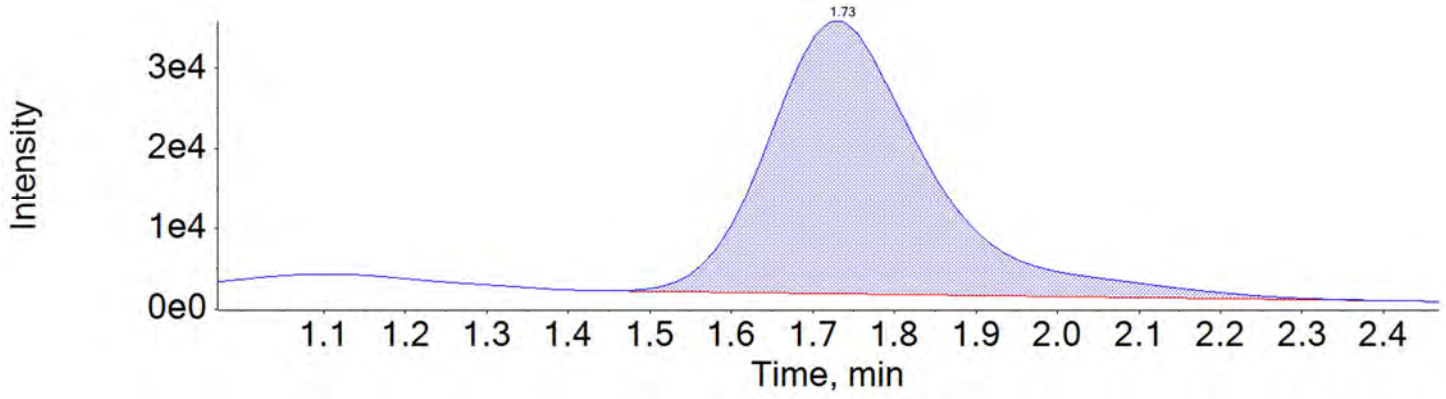
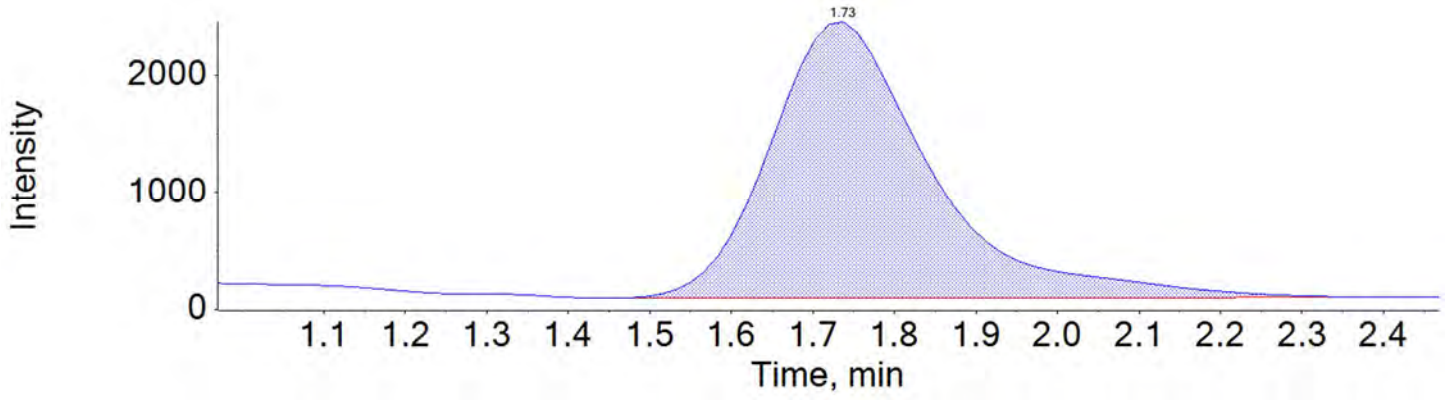
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



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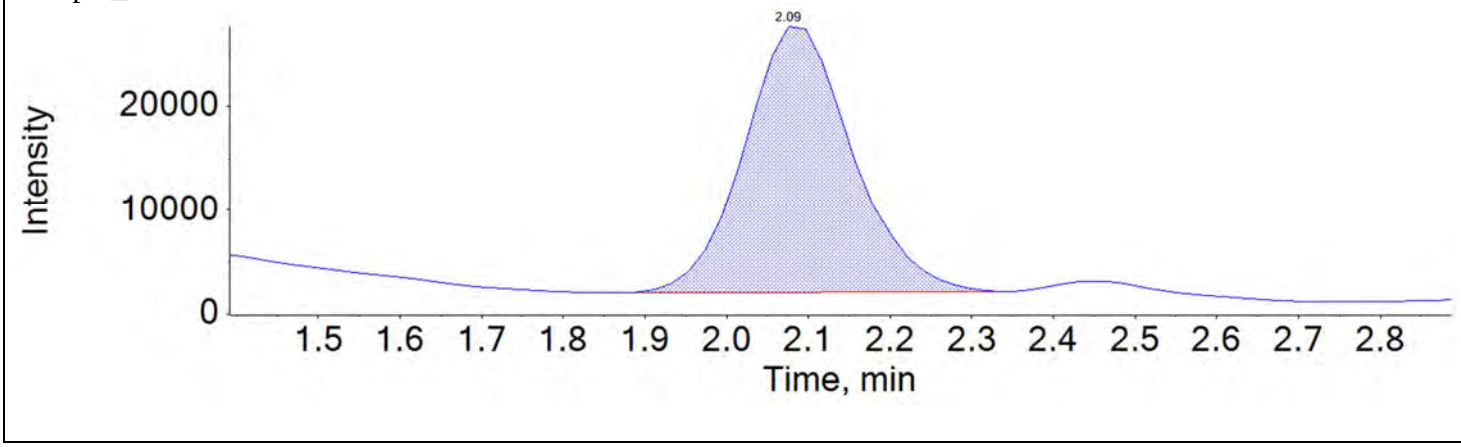

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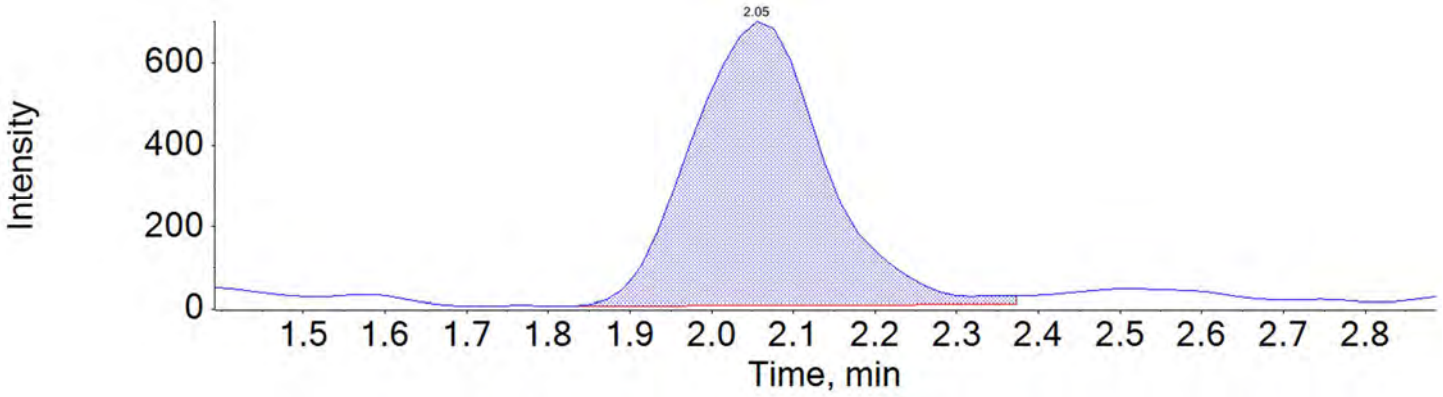
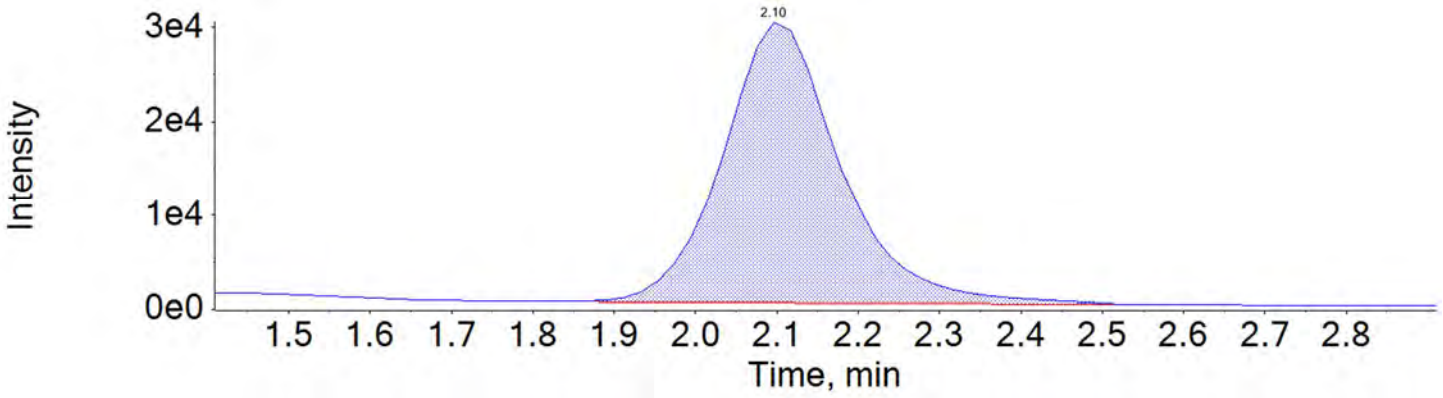


PFHxS_1 399.0 / 80.0



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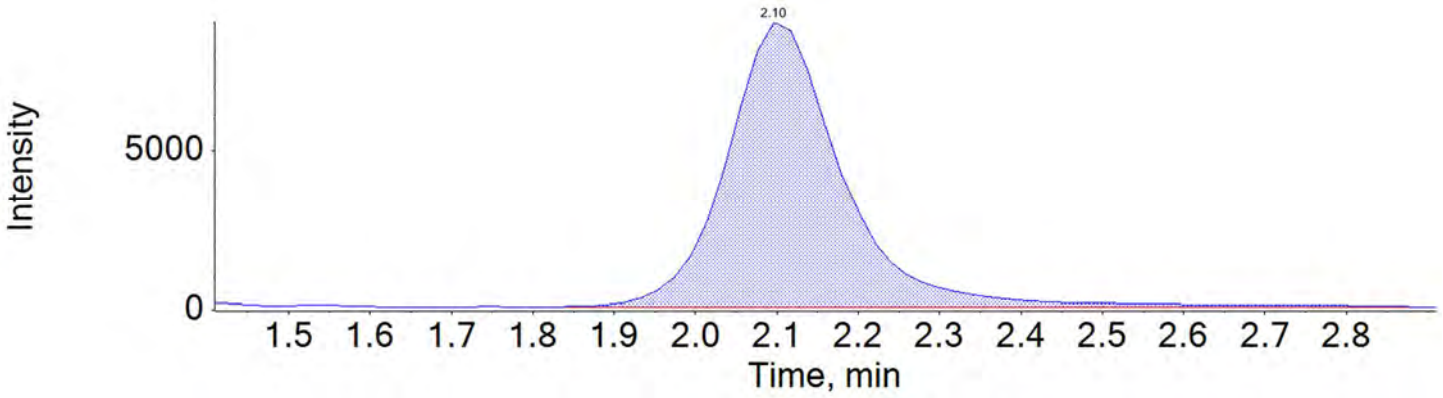

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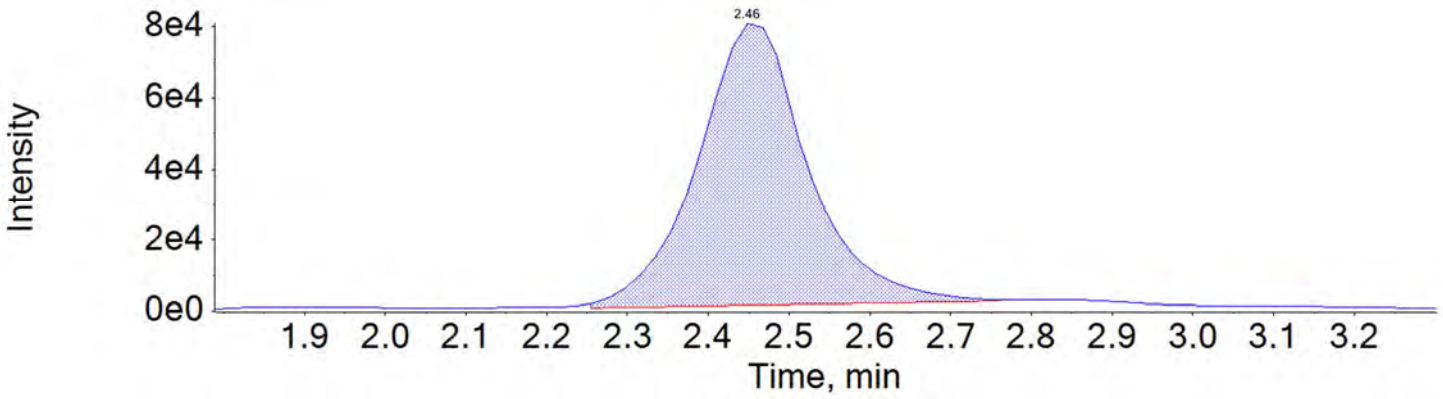
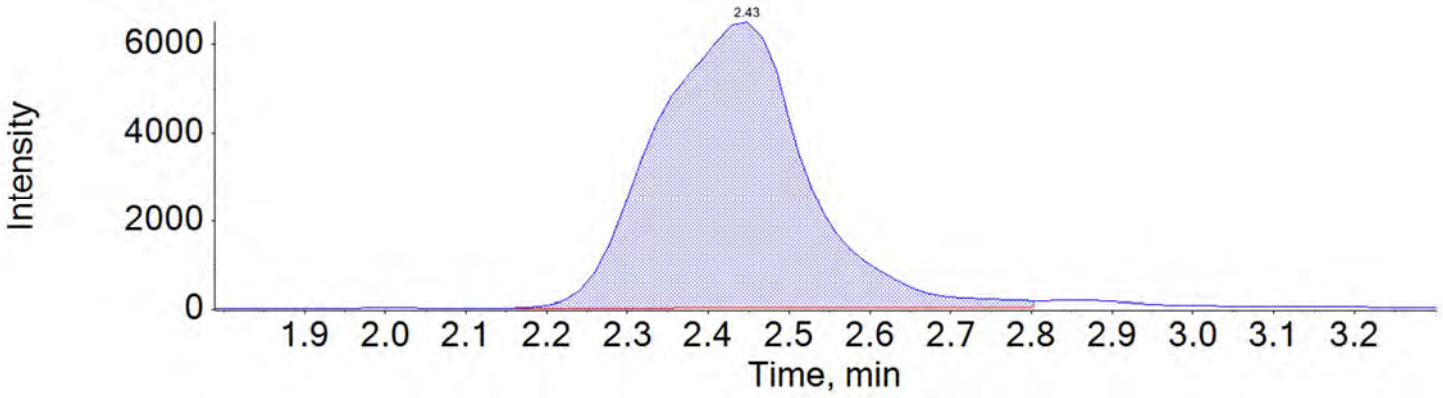
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



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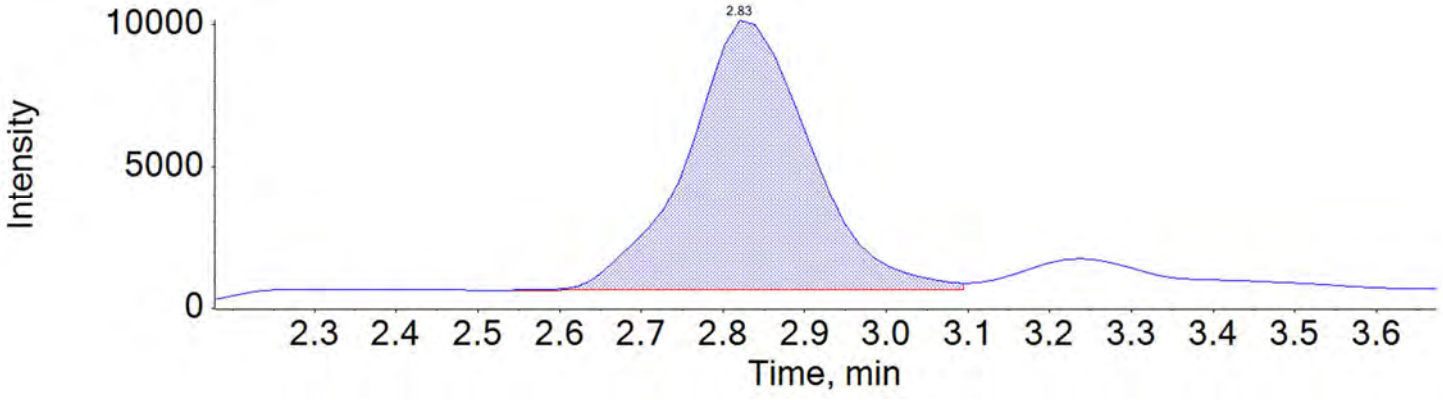

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Chromatogram Report

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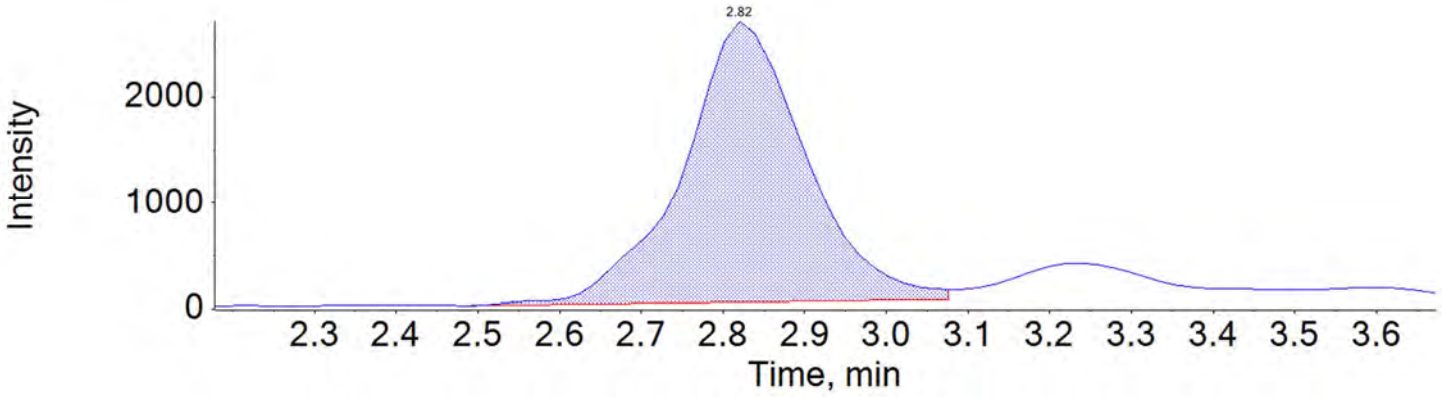
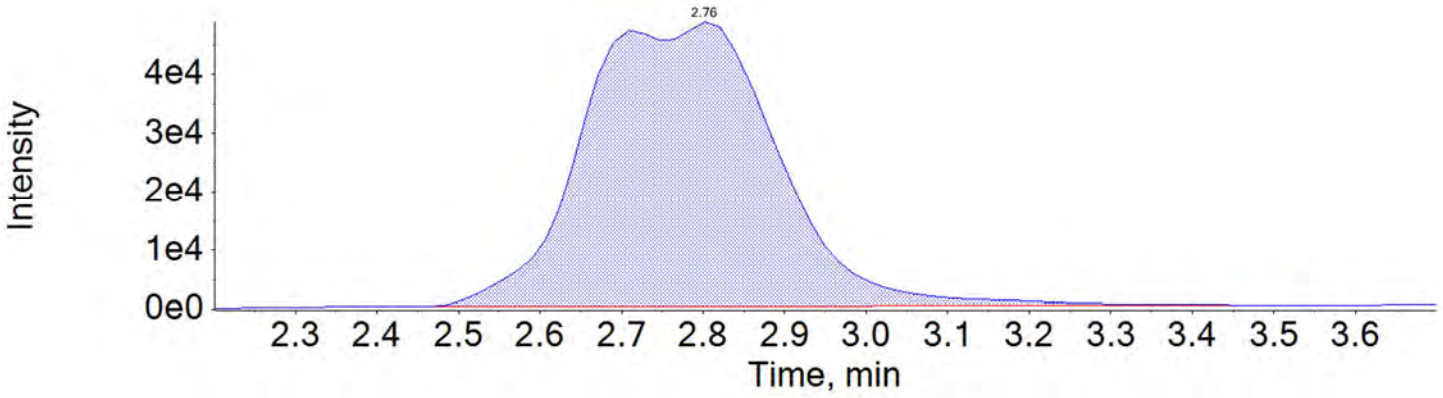
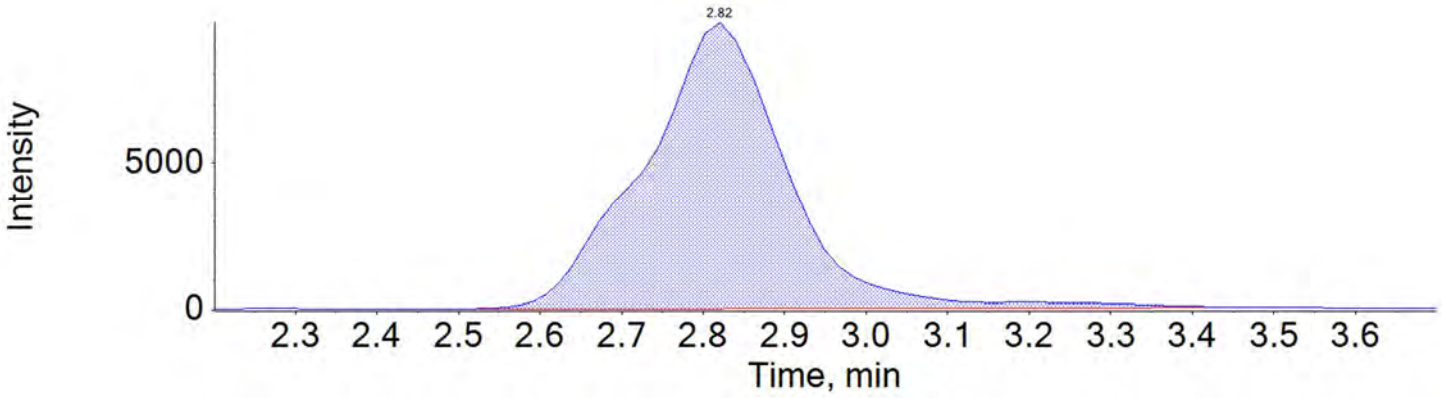
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



PFOS_2 499.0 / 99.0



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Chromatogram Report

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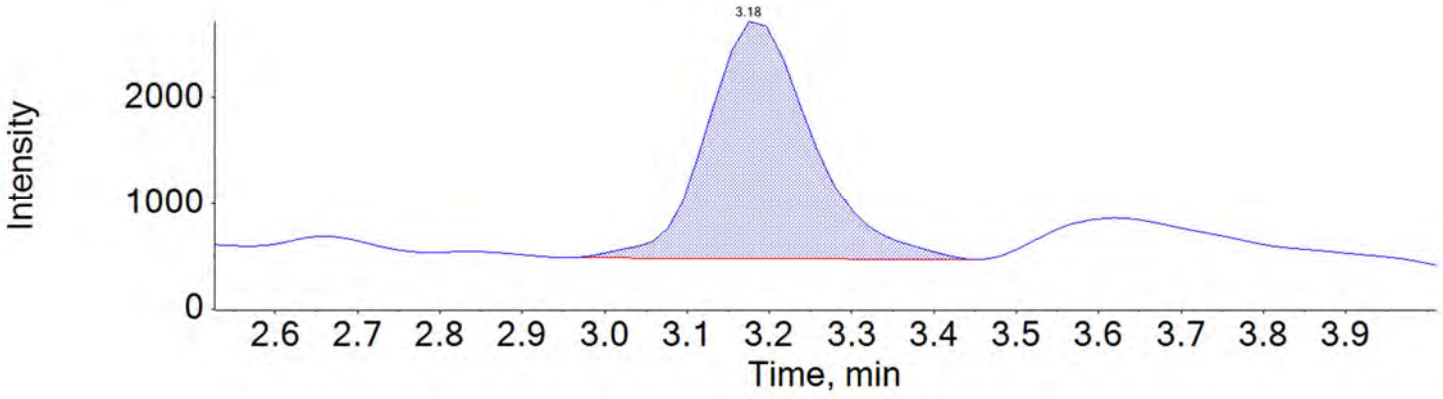
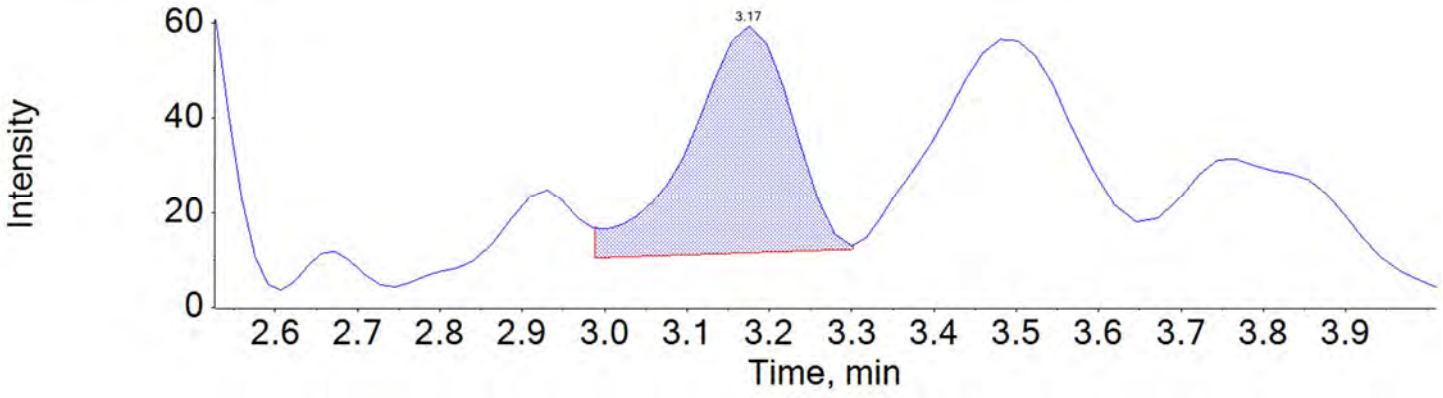
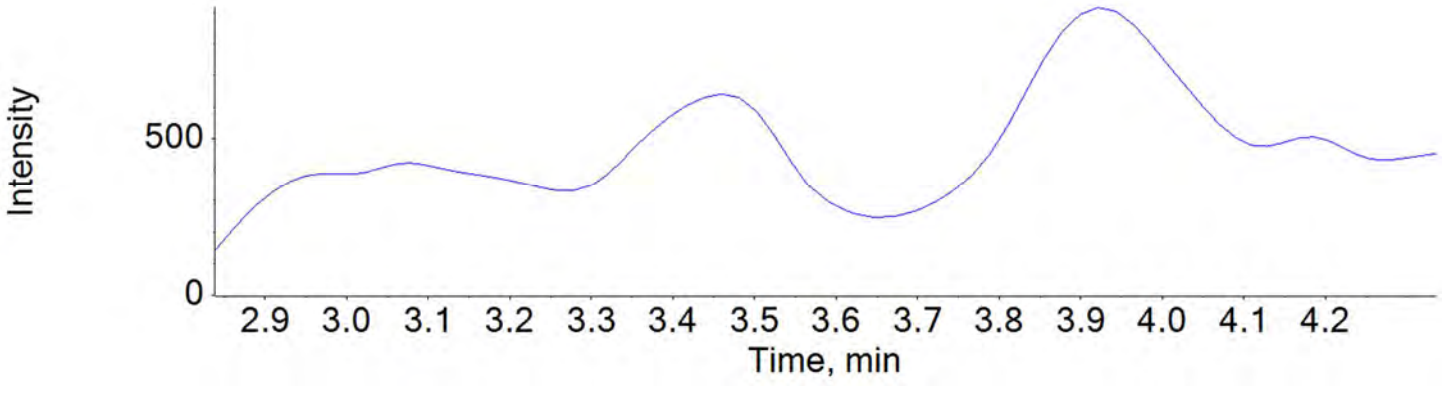
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



PFUnA_1 563.0 / 519.0



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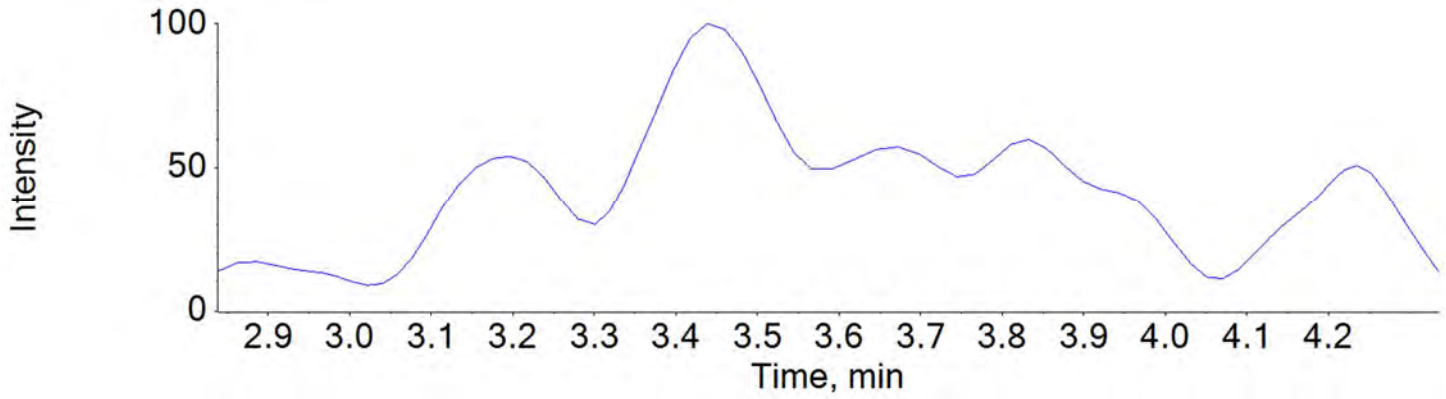

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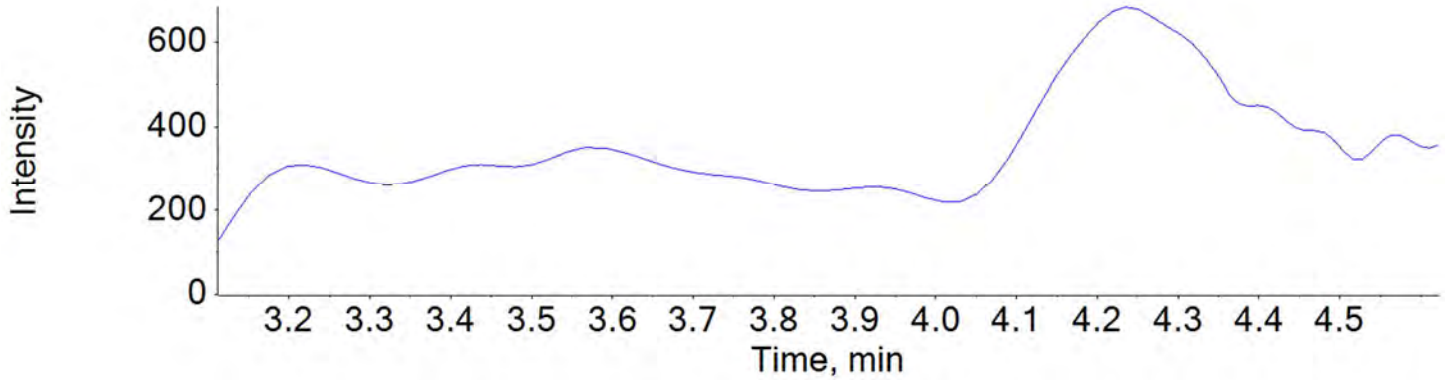

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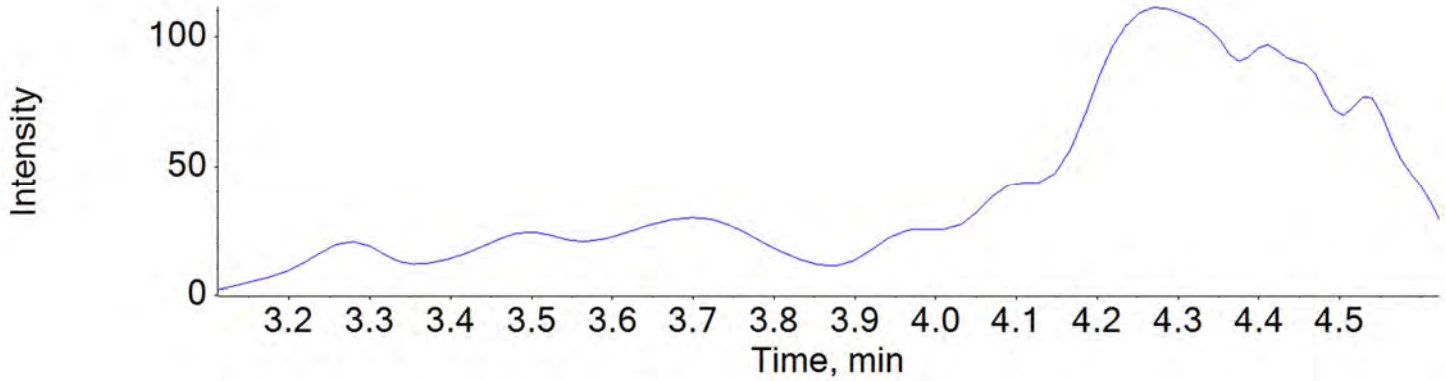

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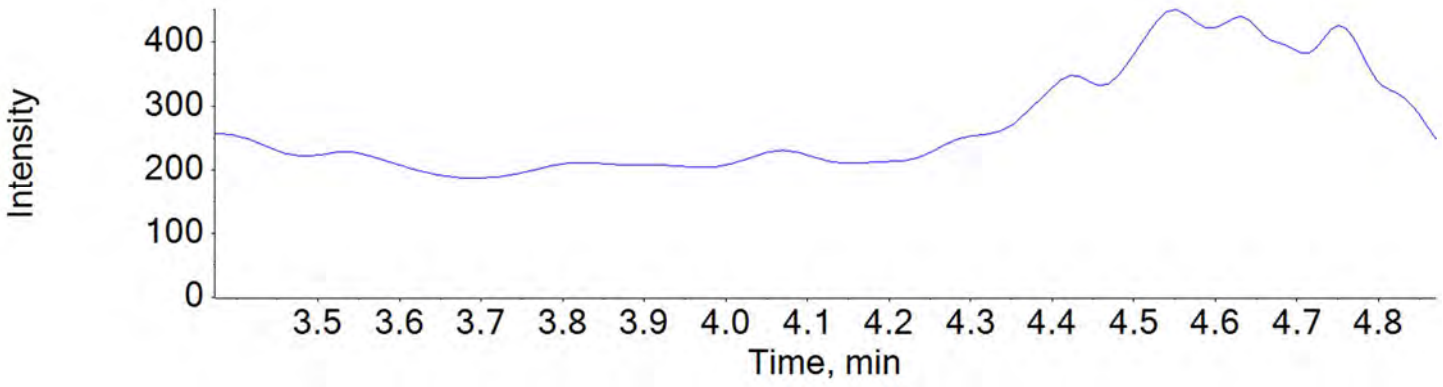
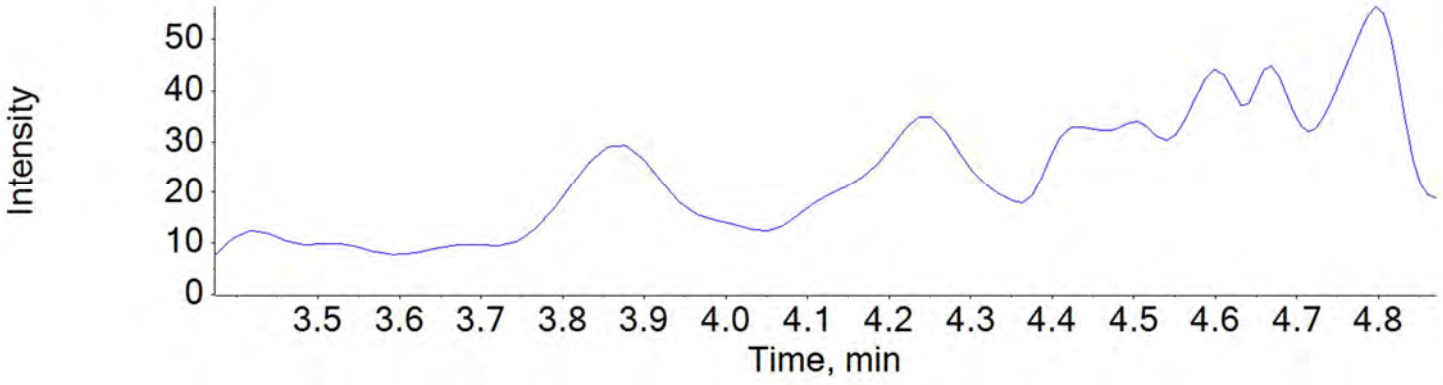
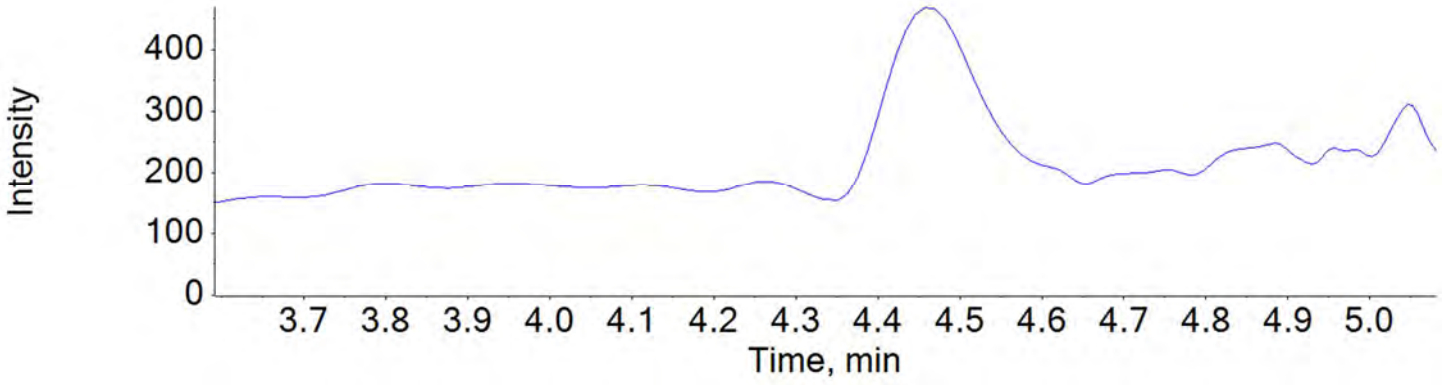
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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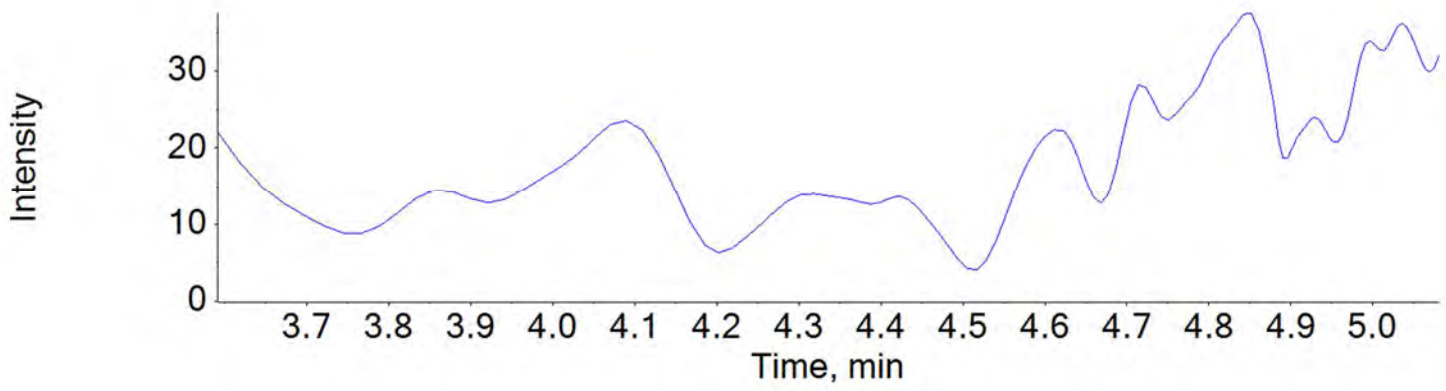
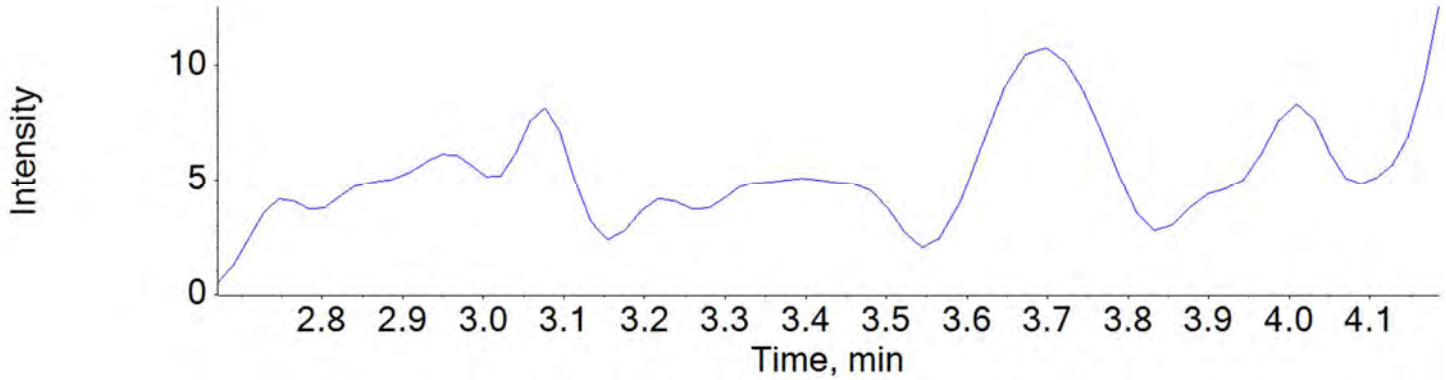
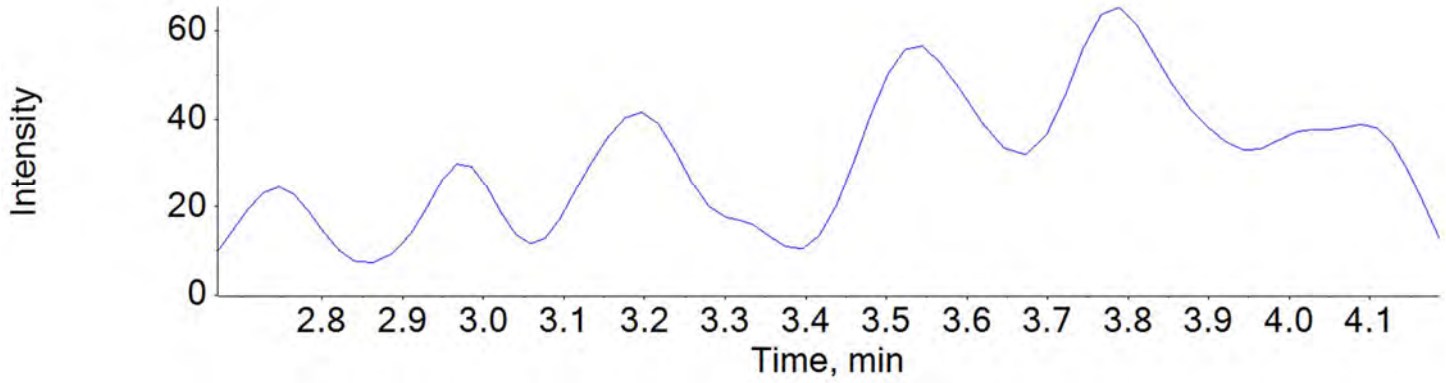


NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

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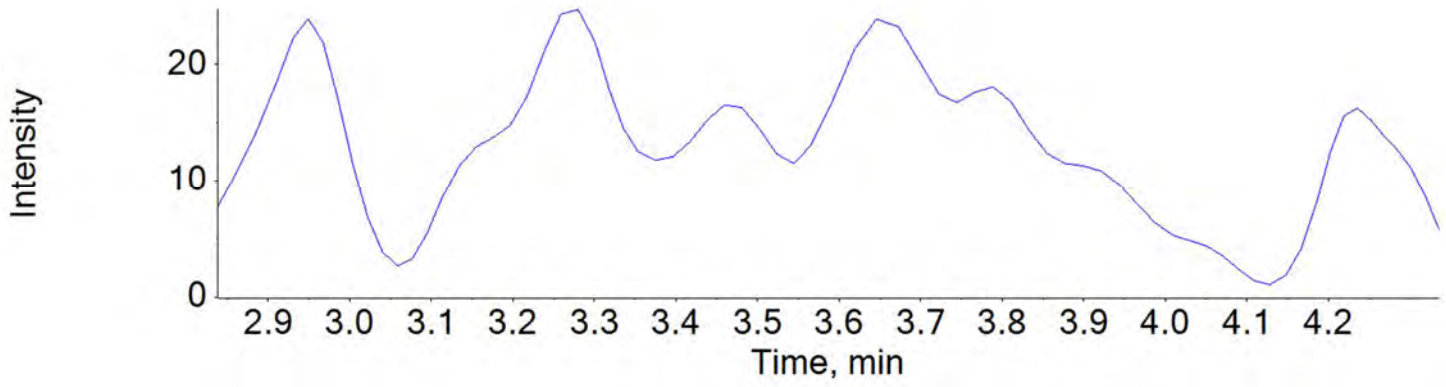
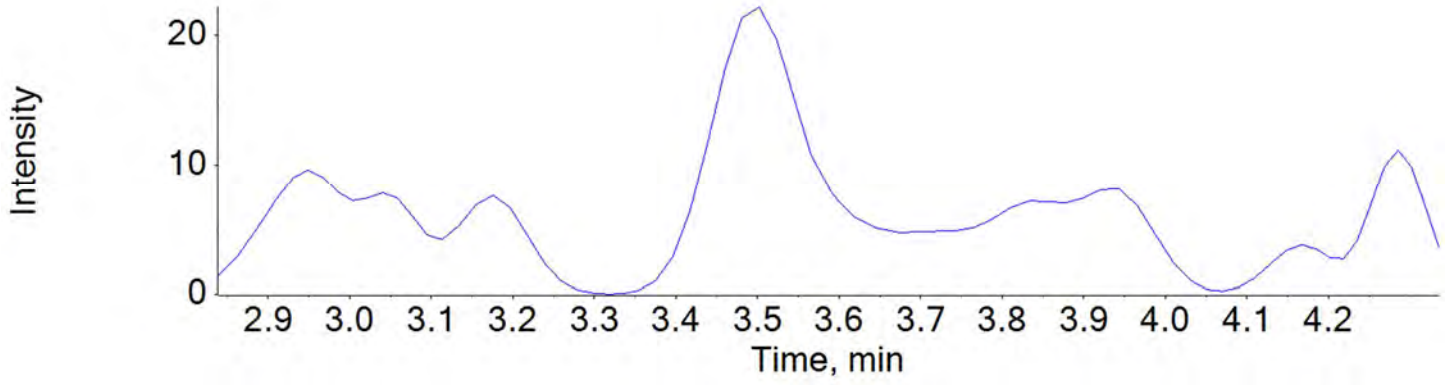
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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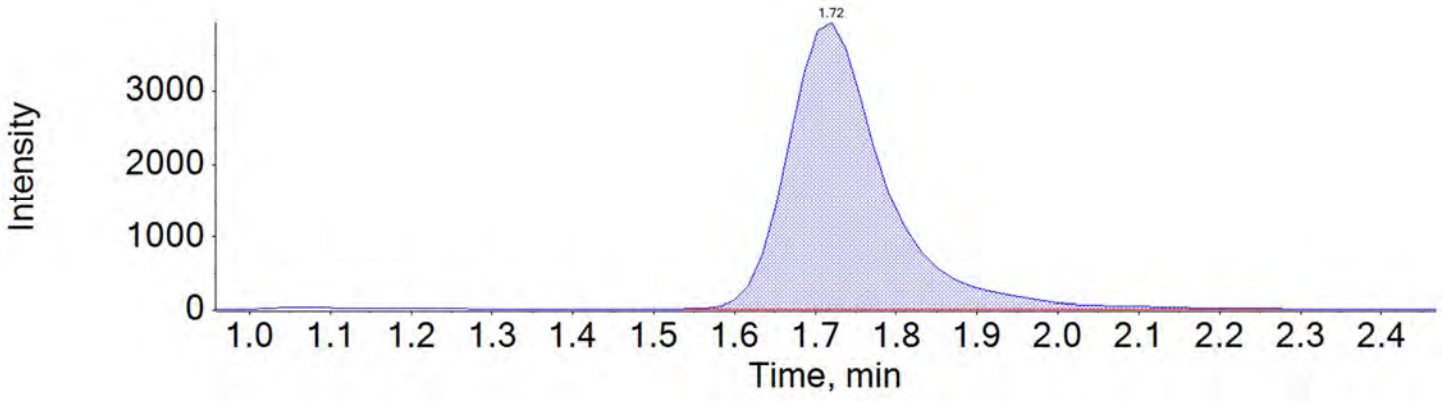
Chromatogram Report

Created with Analyst Reporter
Printed: 16/05/2018 7:12:43 PM

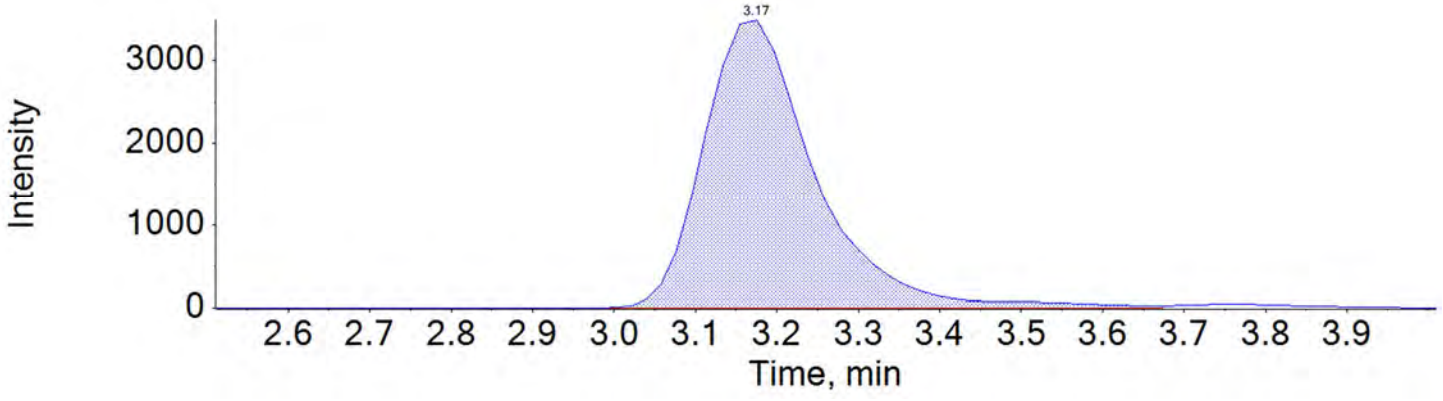
Sample Name	J5976-FS(0)	**Injection Vial**	22
Sample ID	NAWC-050118-RW-098	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T16:00:39	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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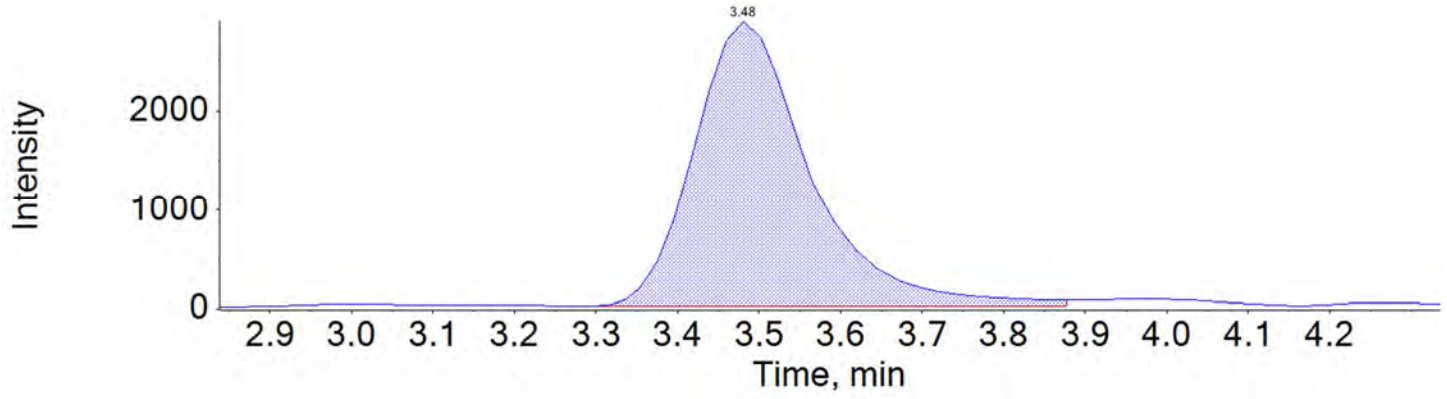
Chromatogram Report

Created with Analyst Reporter
Printed: 16/05/2018 7:12:43 PM

d5-EtFOSAA 589.0 / 419.0



BATTELLE

Chromatogram Report

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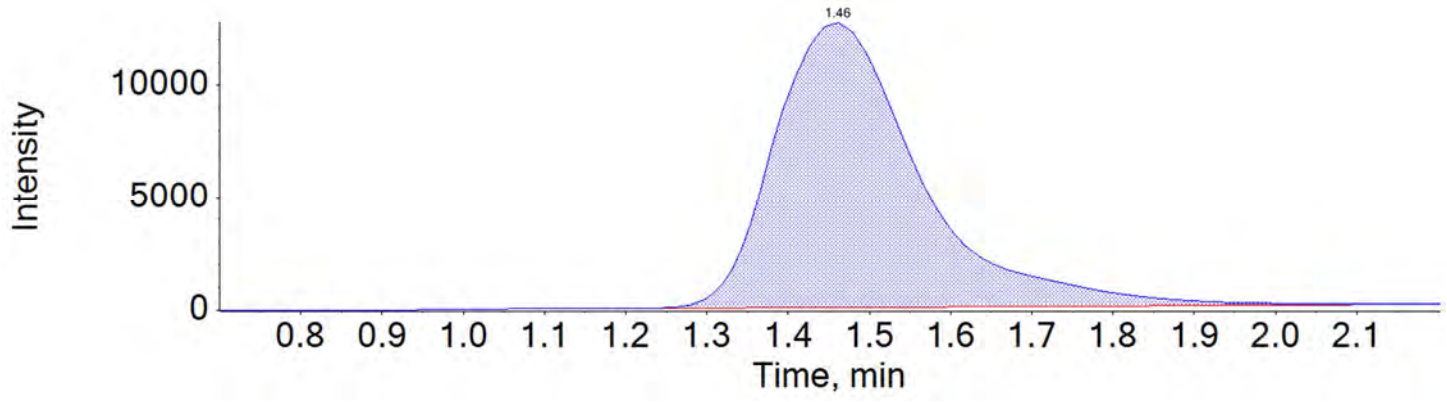
Printed: 17/05/2018 4:06:13 PM

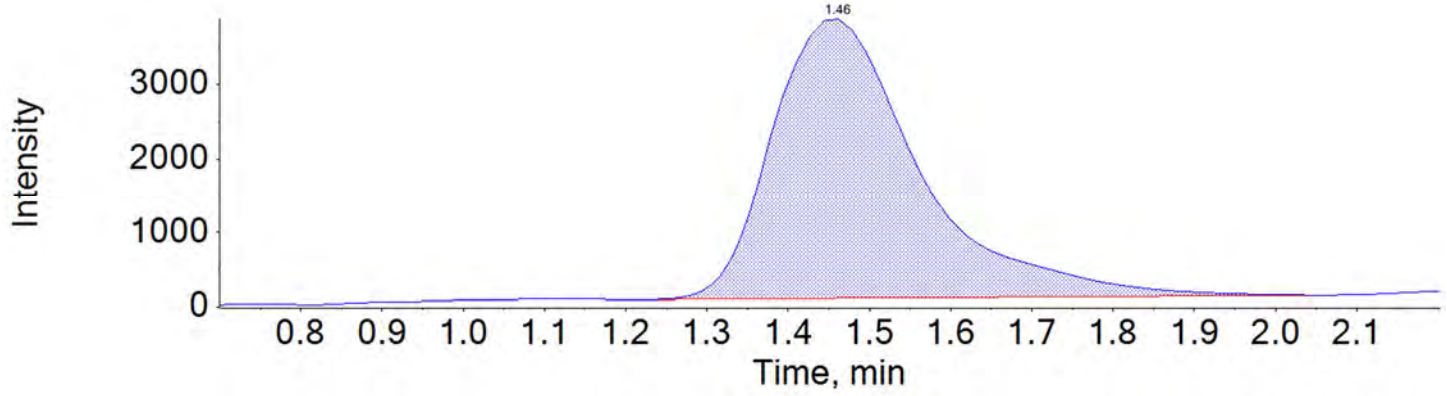
Sample Name	JV68 CCV	**Injection Vial**	6
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T16:09:36	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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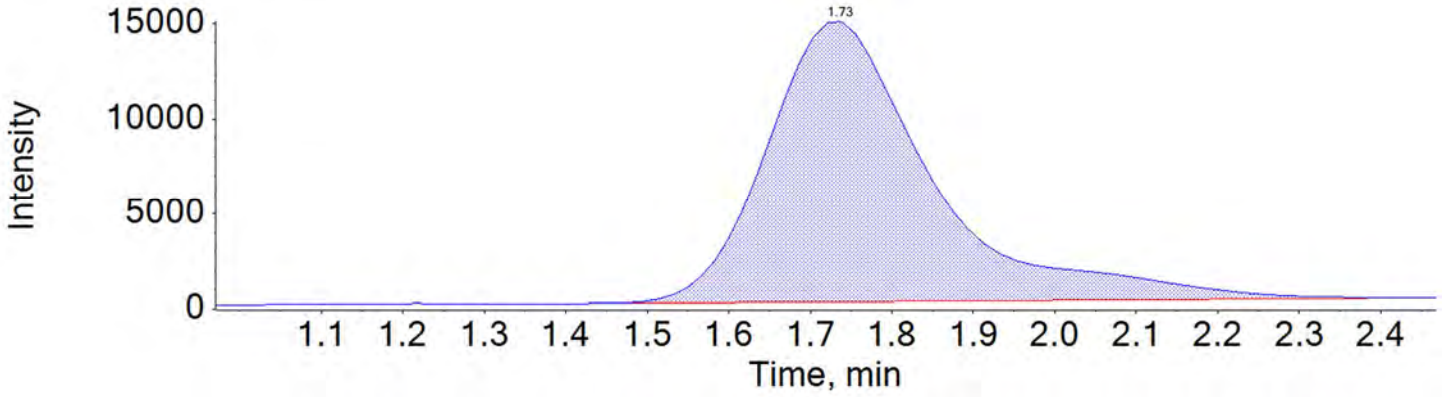
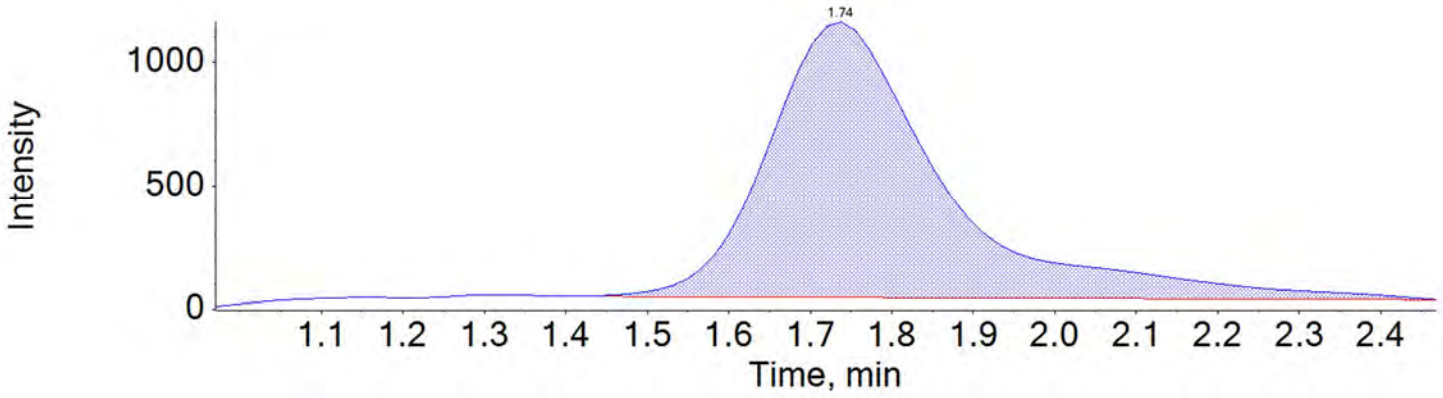
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:06:13 PM

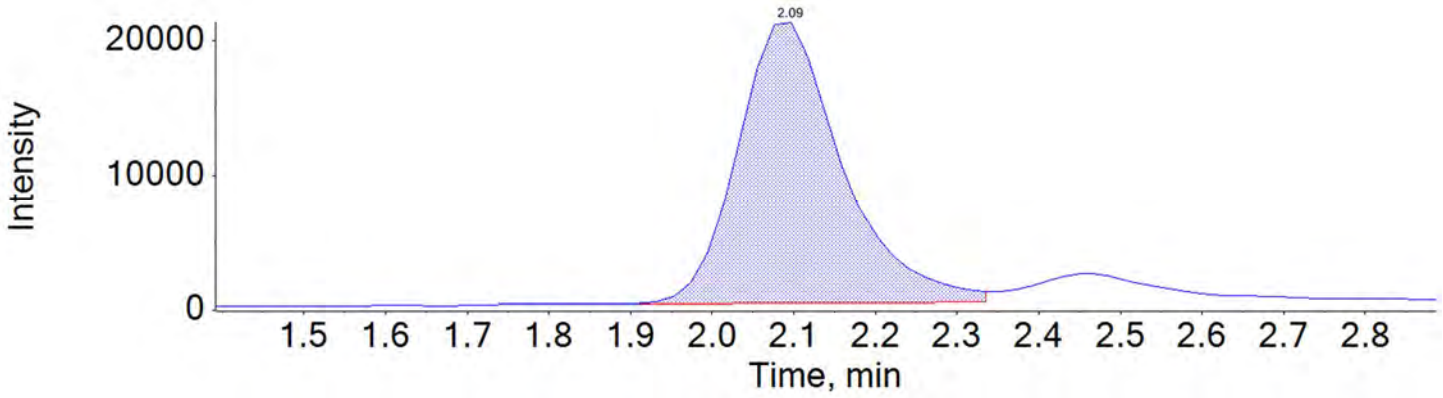
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0

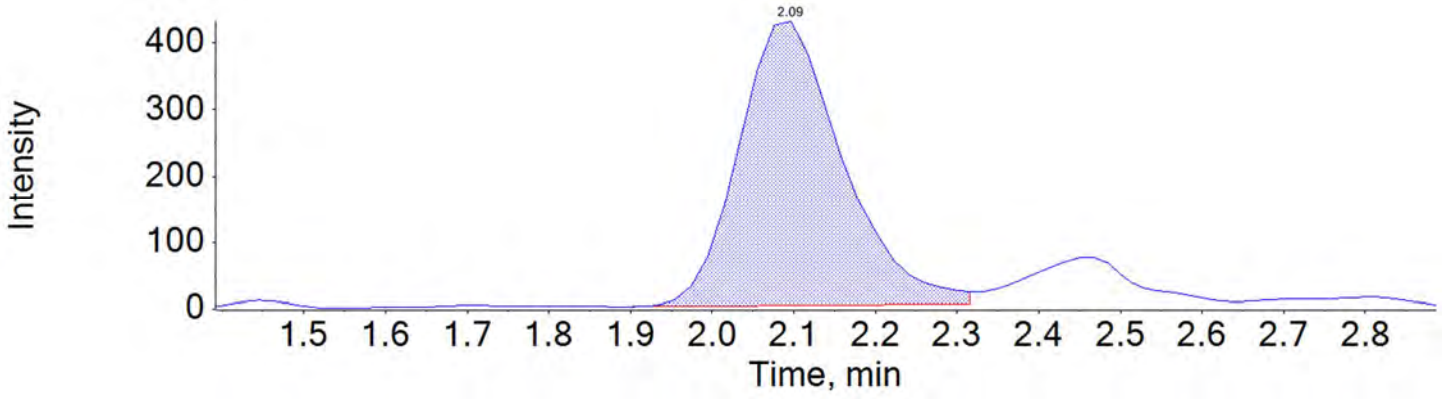


BATTELLE

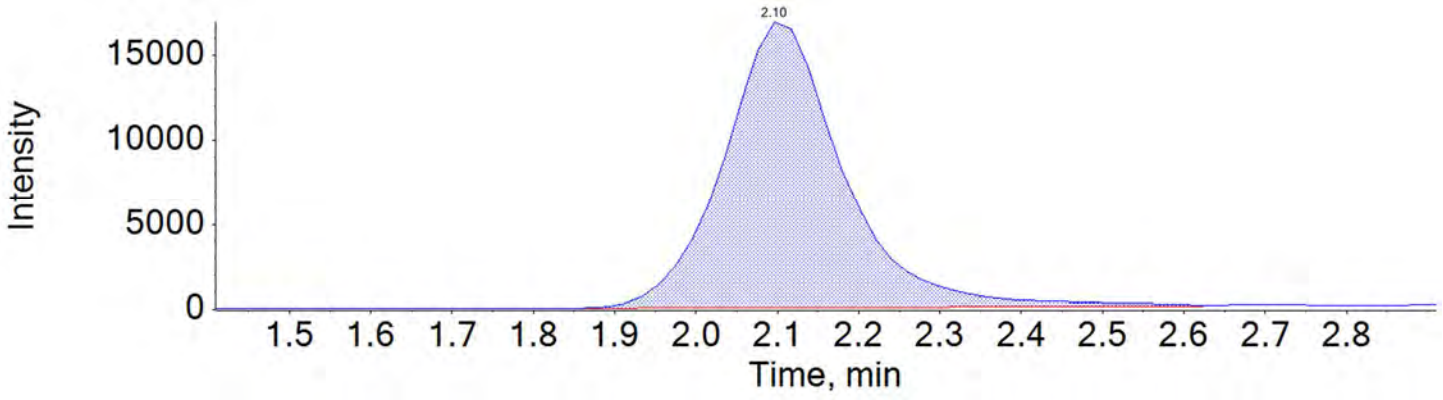
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:06:13 PM

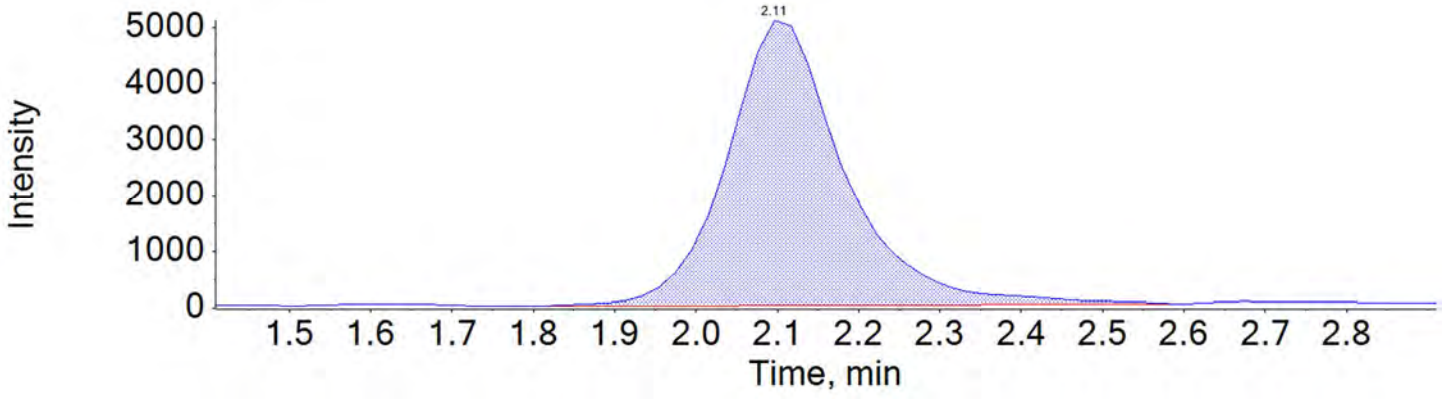
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



PFHxS_2 399.0 / 99.0



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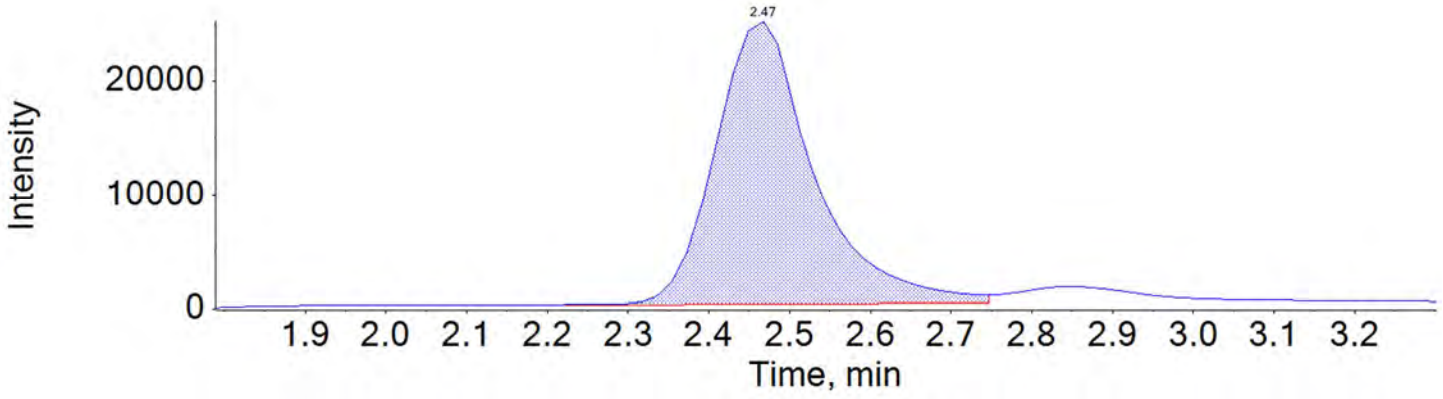
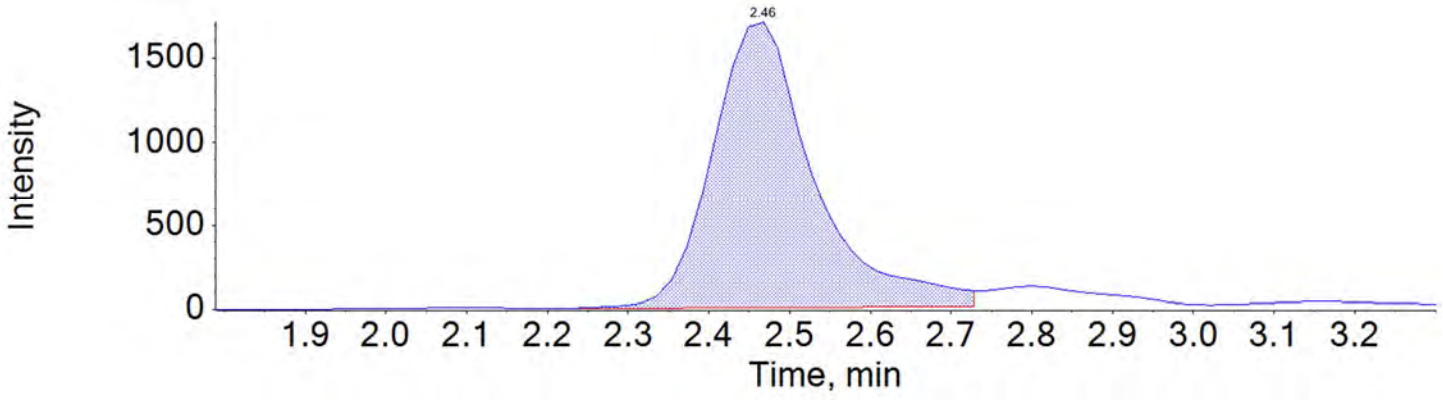
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:06:13 PM

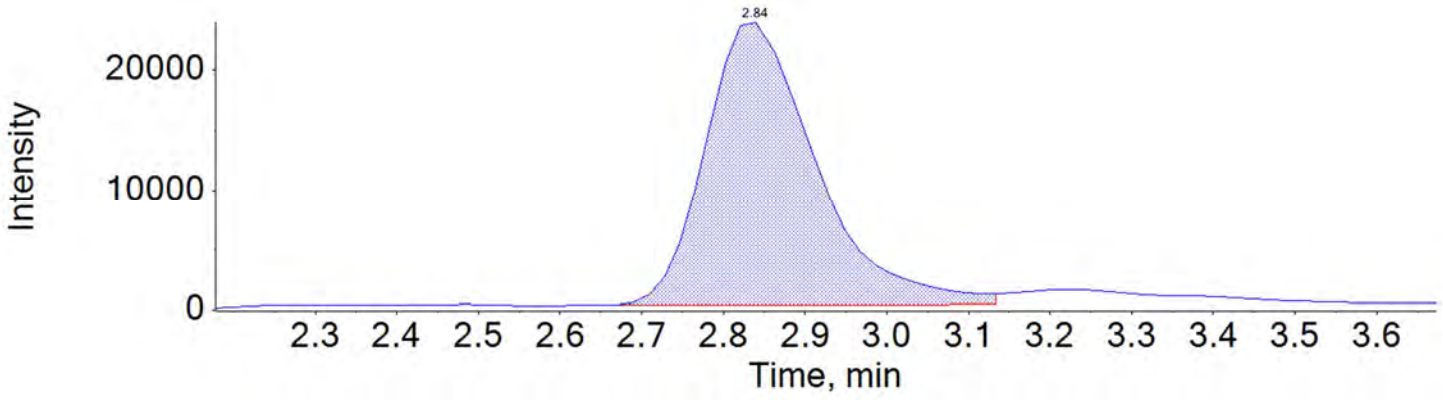
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



PFNA_1 463.0 / 419.0



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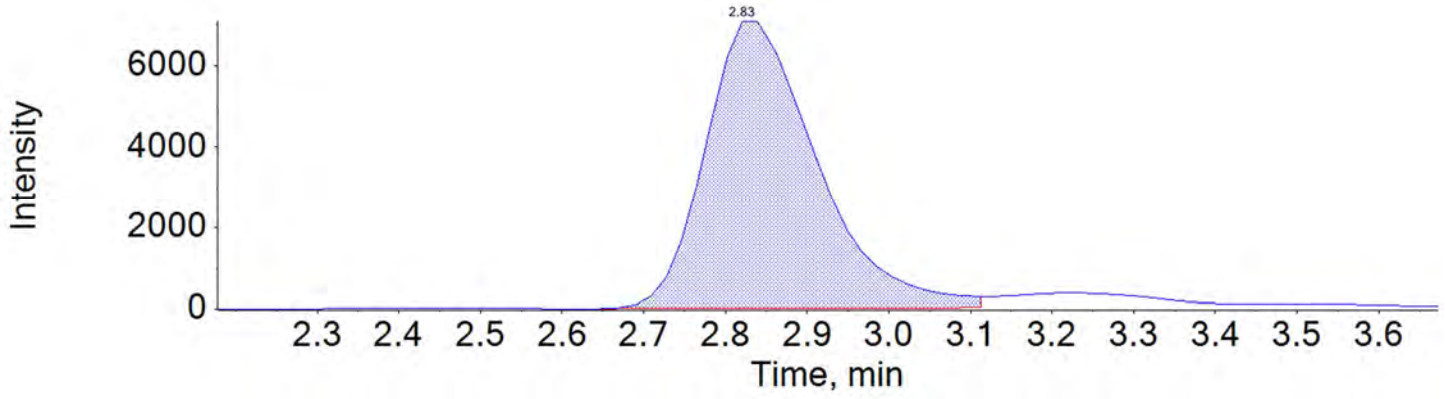
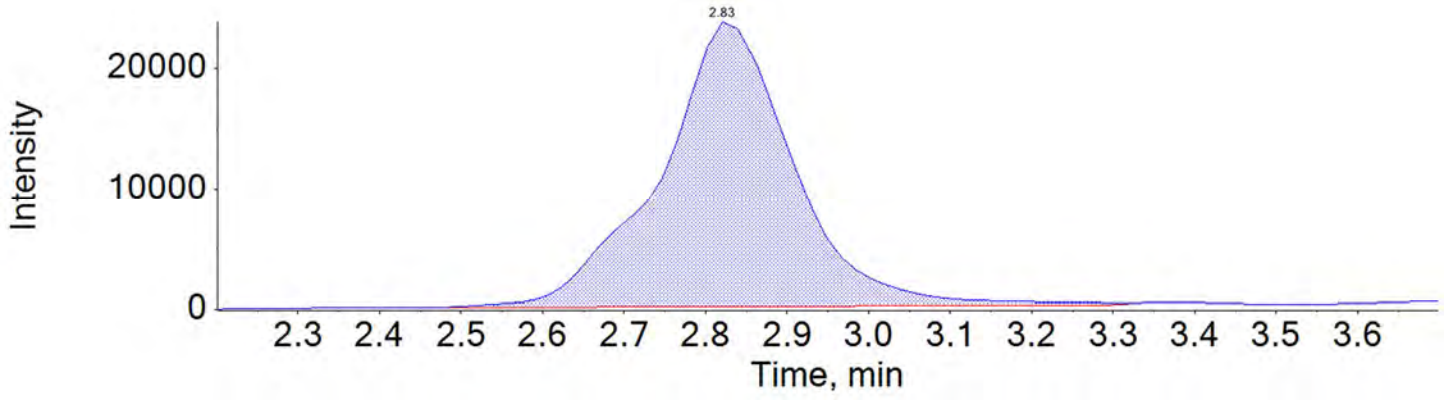
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:06:13 PM

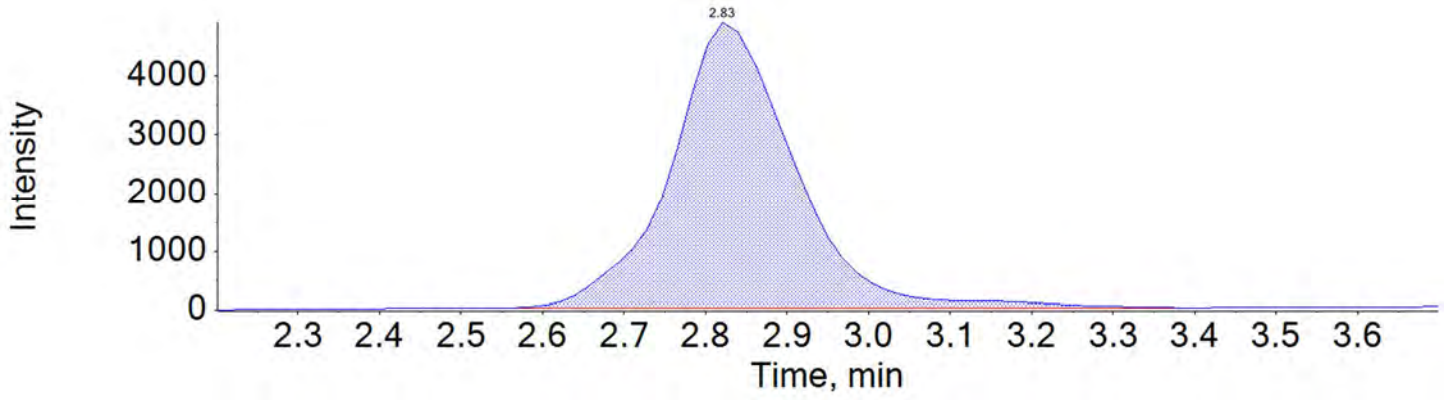
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



PFOS_2 499.0 / 99.0



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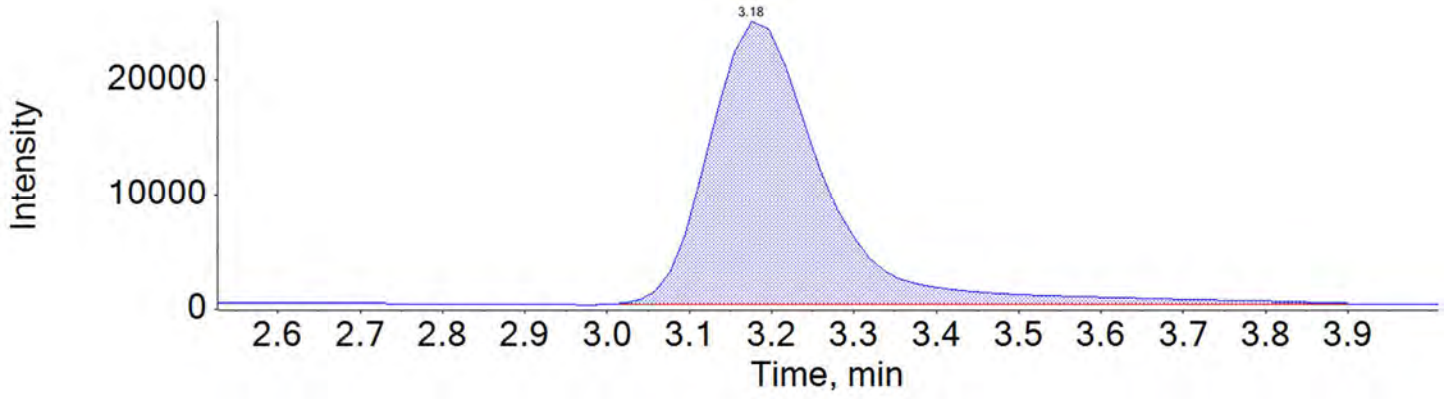
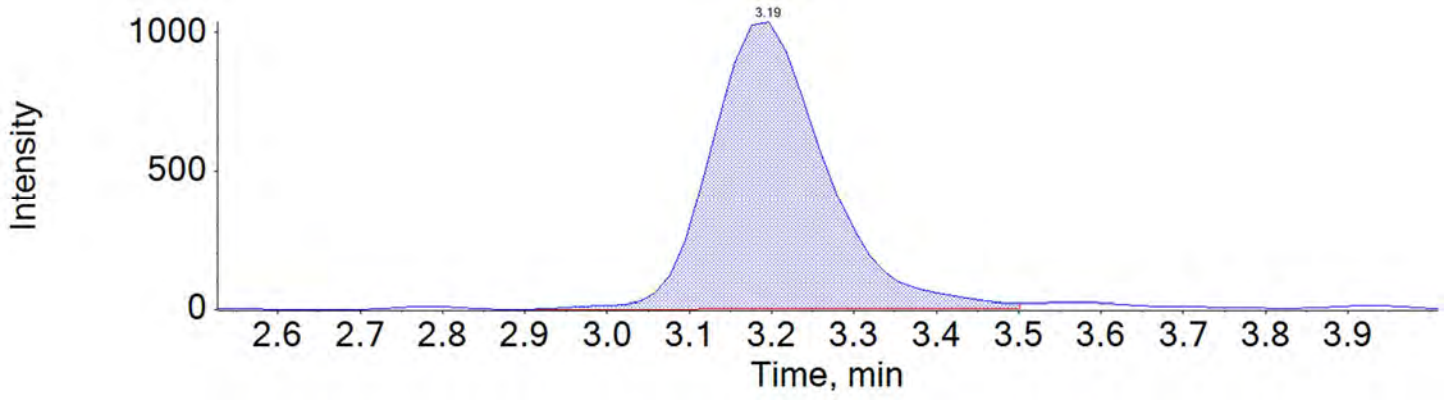
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:06:13 PM

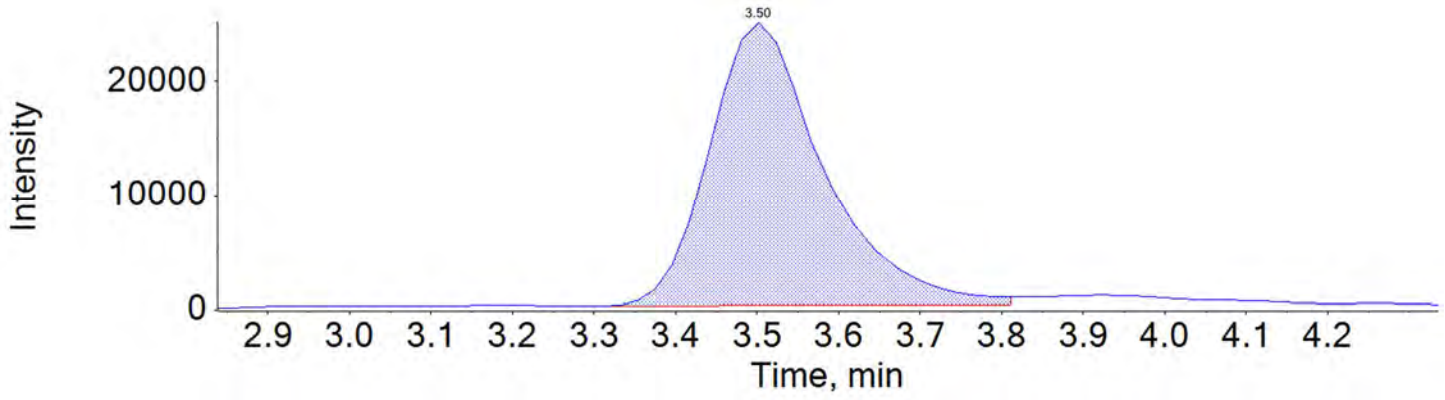
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



PFUnA_1 563.0 / 519.0



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Chromatogram Report

Created with Analyst Reporter
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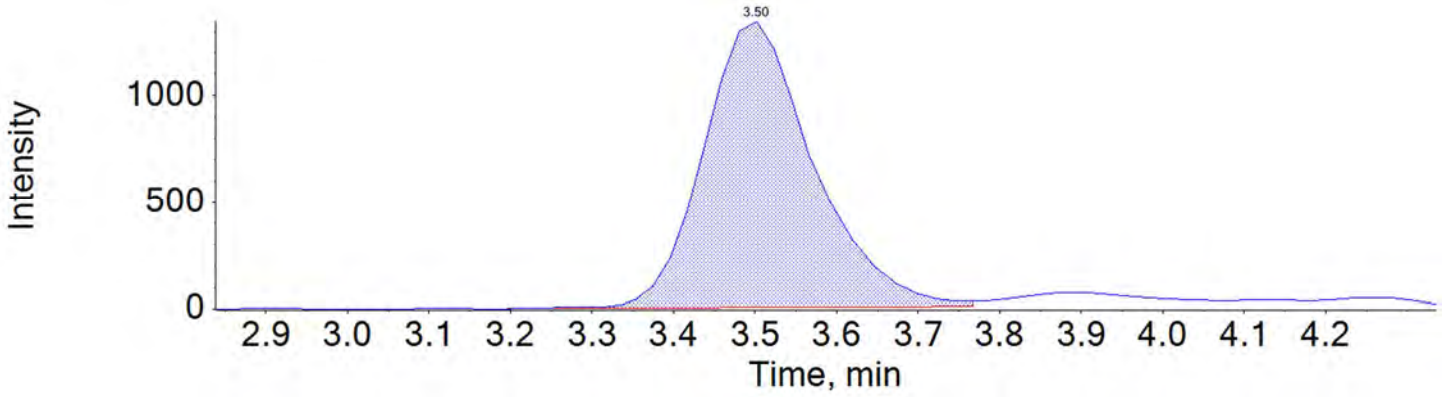
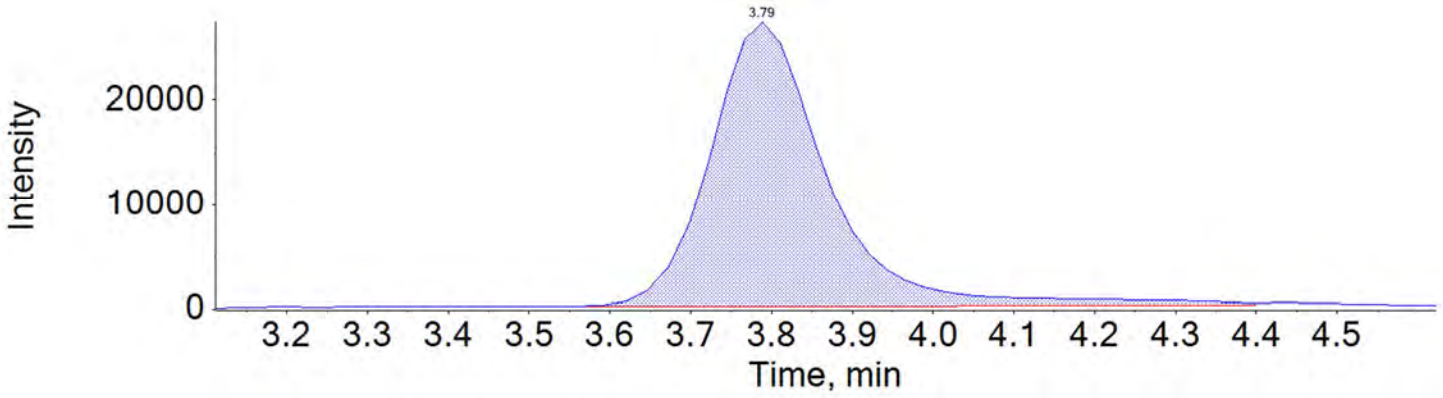
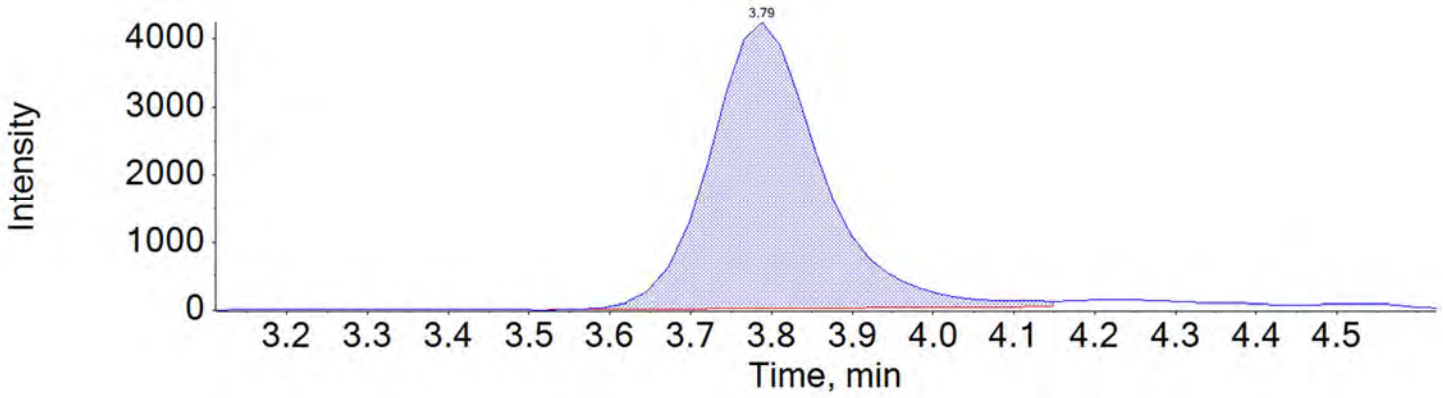
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



PFDoA_2 613.0 / 319.0



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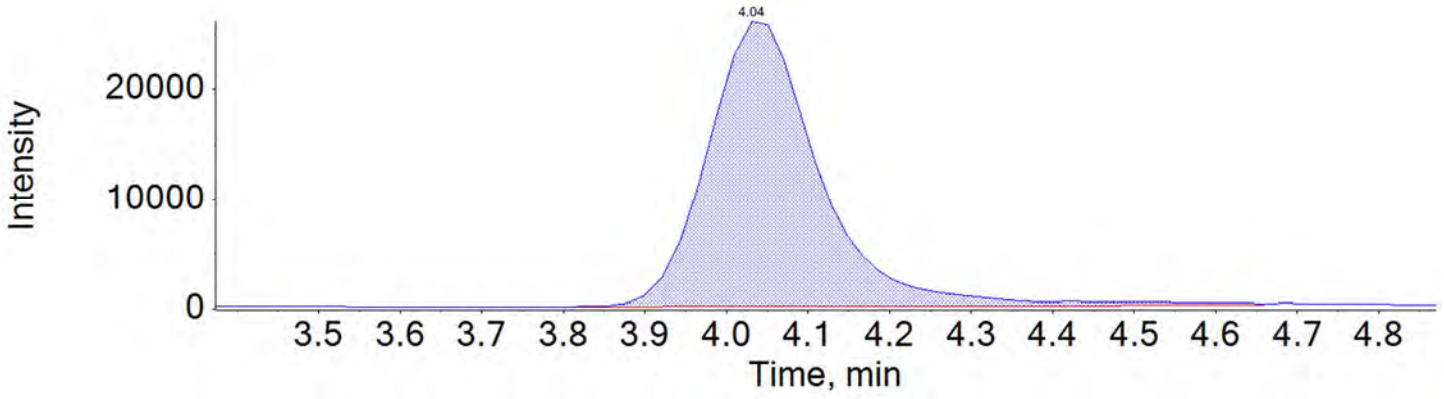
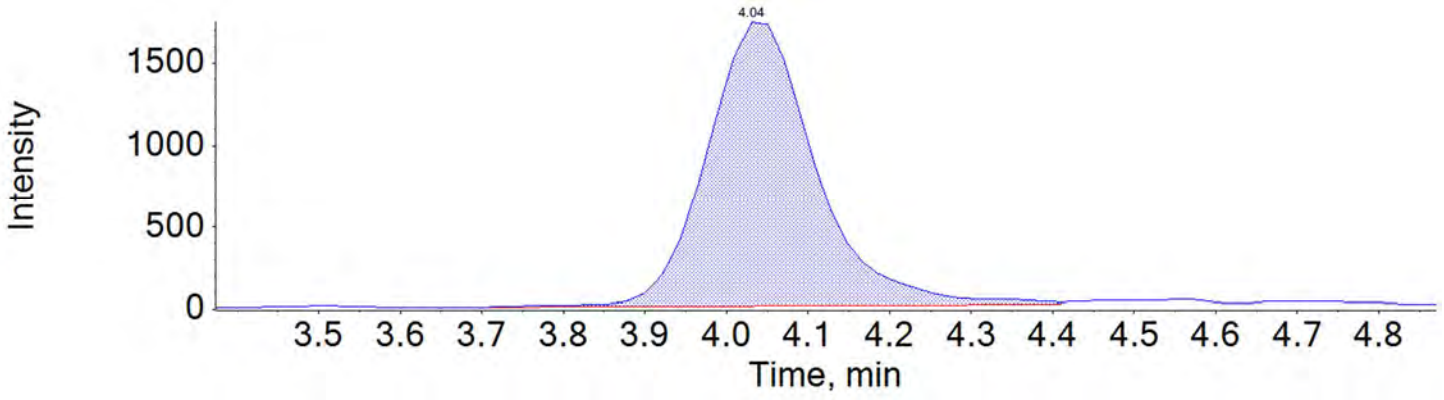
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:06:13 PM

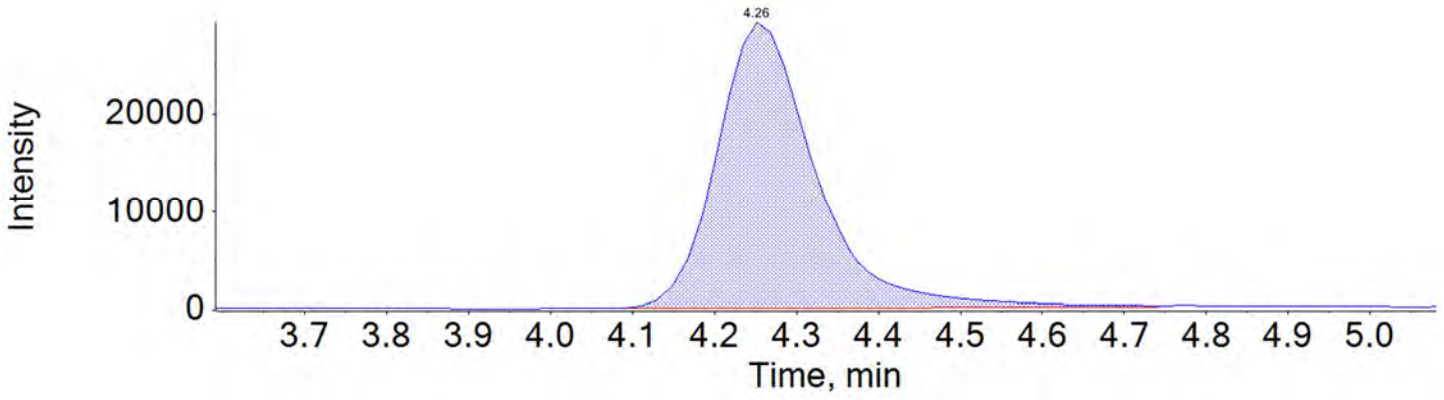
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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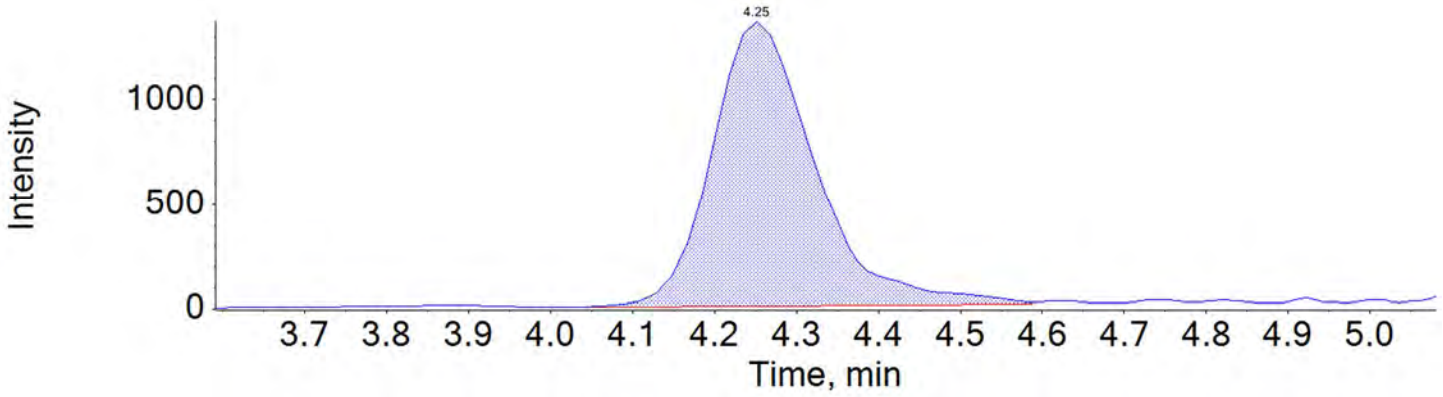
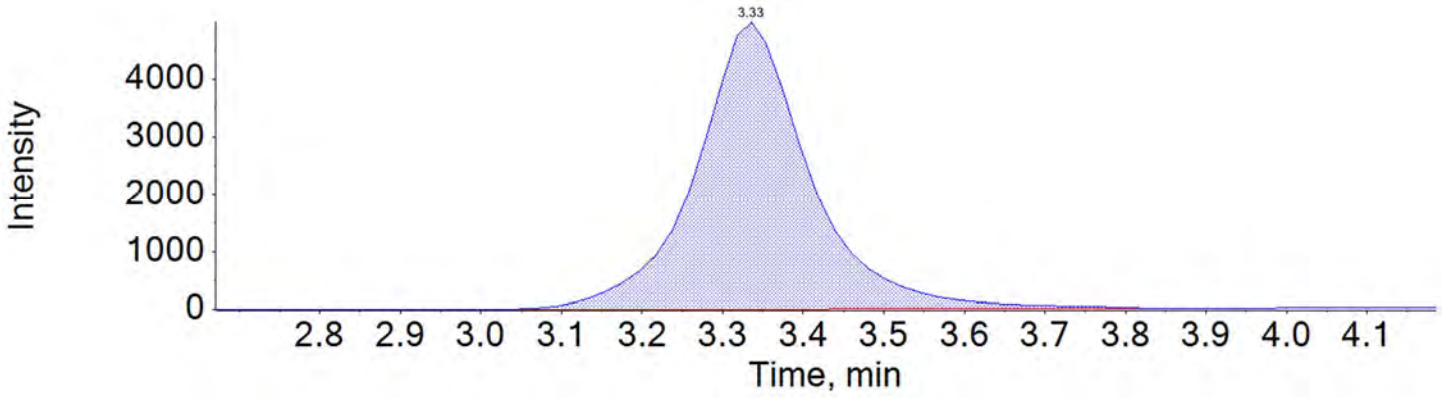
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:06:13 PM

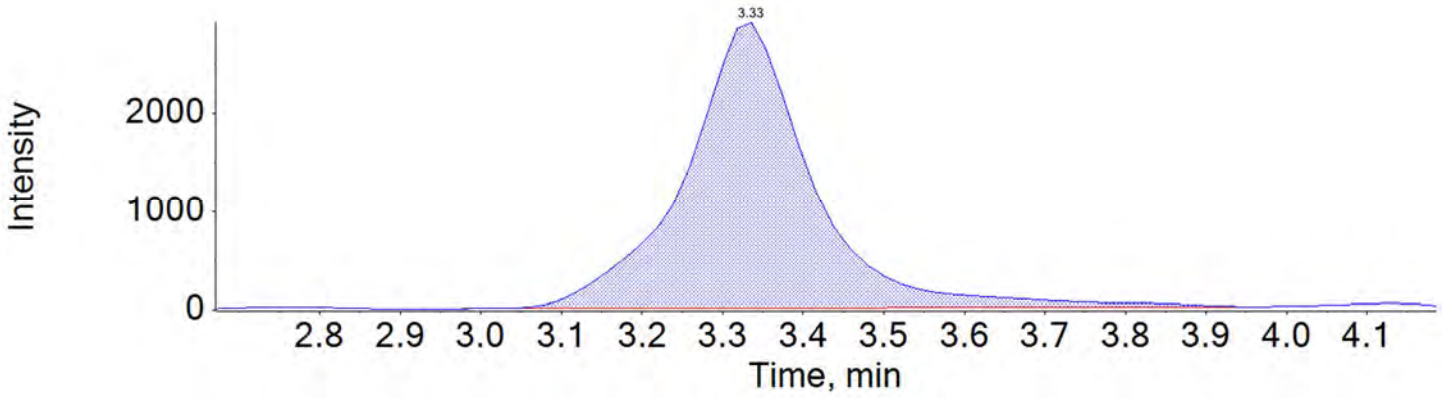
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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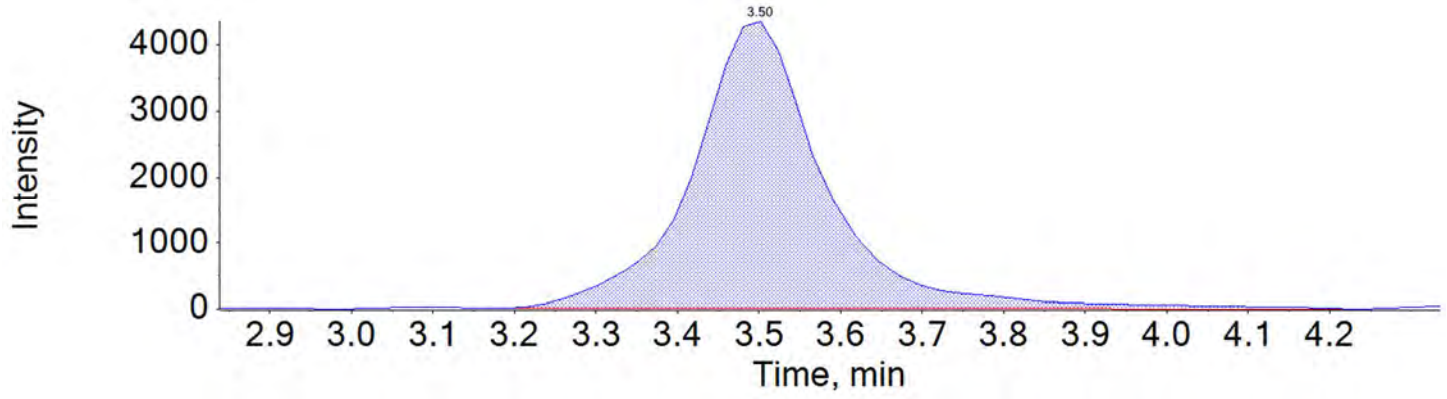
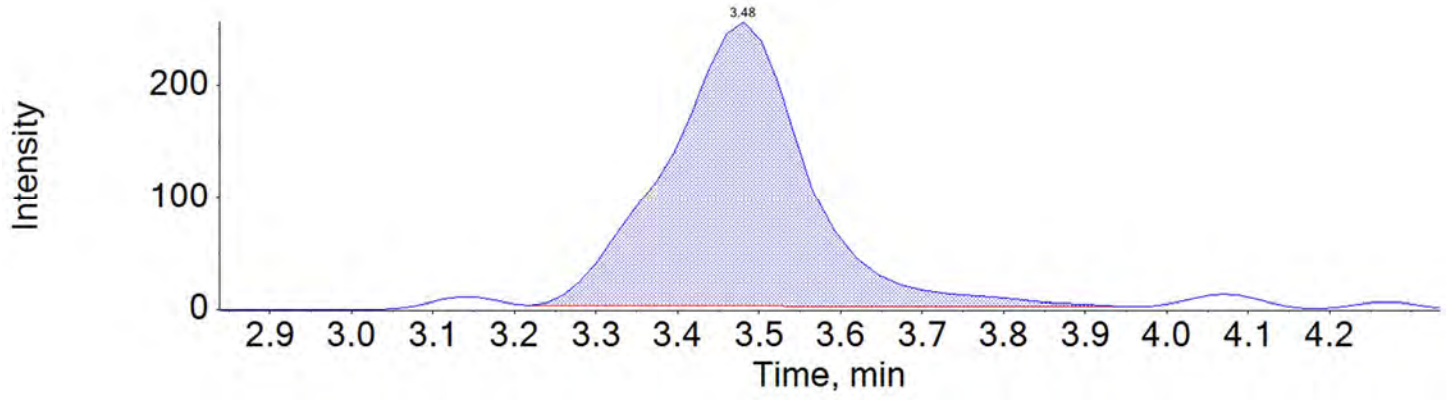
Chromatogram Report

Created with Analyst Reporter
Printed: 17/05/2018 4:06:13 PM

NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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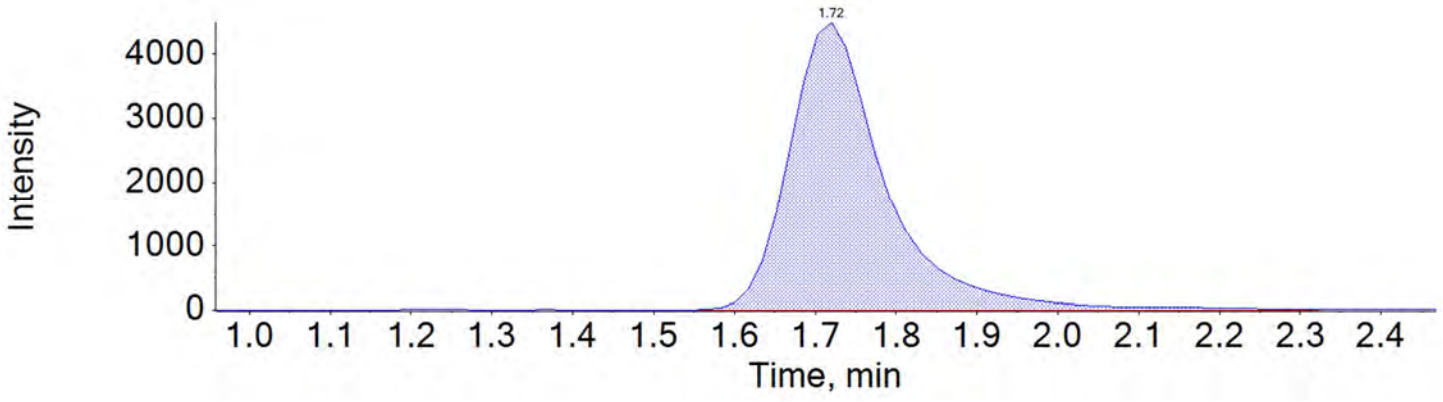
Chromatogram Report

Created with Analyst Reporter
Printed: 16/05/2018 7:12:45 PM

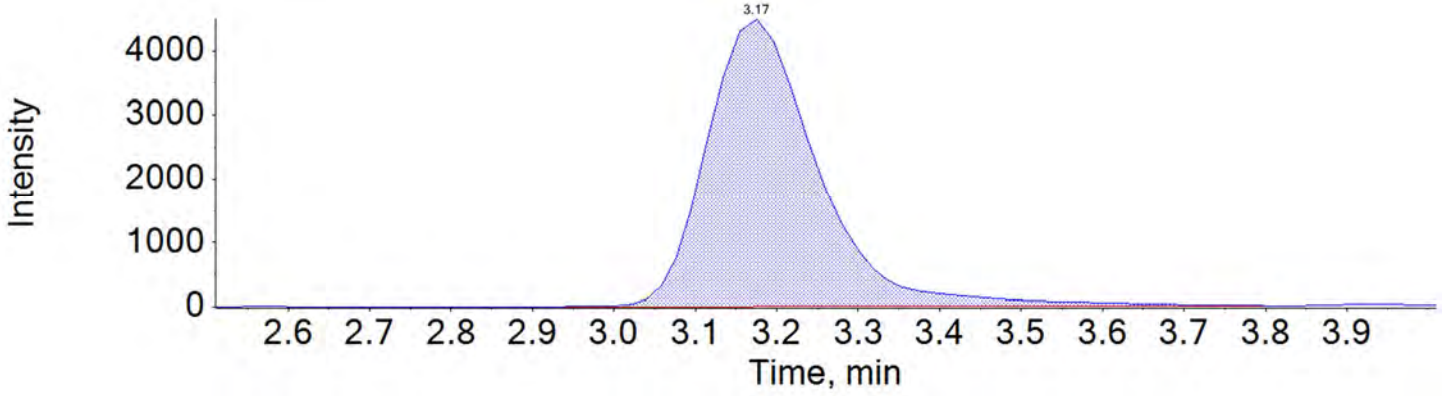
Sample Name	JV68 CCV	**Injection Vial**	6
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-13T16:09:36	**Data File**	18-0299_A.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0299_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0

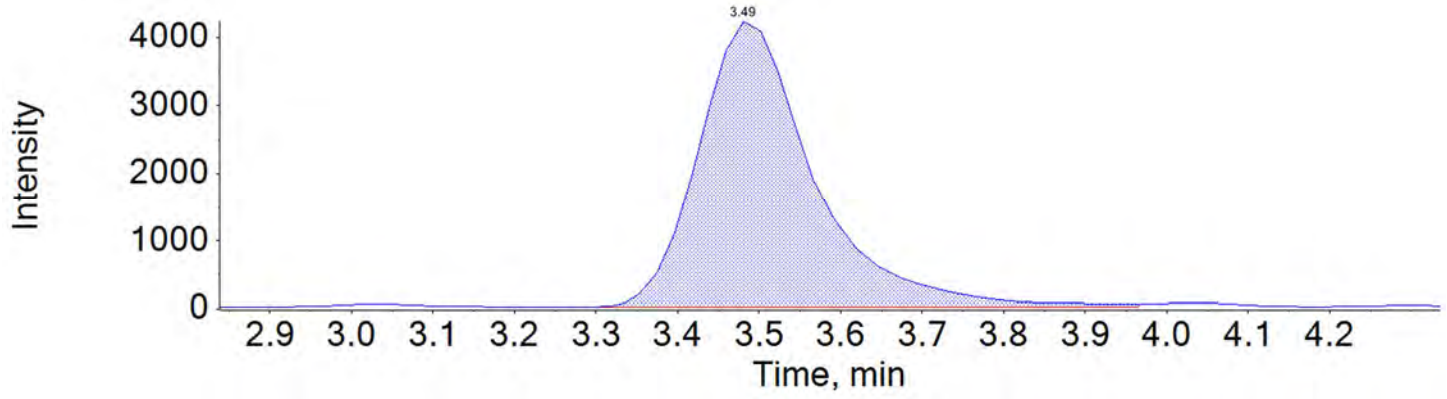


BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 16/05/2018 7:12:45 PM

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-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
PFTrDA	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
PFTrDA	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
PFTrDA	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
PFTrDA	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
PFTrDA	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
PFTrDA	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
PFTrDA	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			

BATTELLE
It can be done

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
PFTrDA	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				Control Limits	
Units	ng/L	Target	Recovery	Qual	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
PFTrDA	8.53	10.00	85		70	130
PFTeDA	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				Control Limits	
Units	ng/L	ng/L	Target	Recovery	Qual	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
PFTrDA	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

					Control Limits				RPD
		Target	Recovery	Qual	Lower	Upper	RPD	Qual	Limit
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
PFUnA	16.80	19.61	86		70	130	1.2		≤ 30
PFDoA	16.47	19.61	84		70	130	0.0		≤ 30
PFTrDA	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

BATTELLE
It can be done

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 highers 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

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"ng/L" "" ".300000" "MDL" "" "T" "" "" "2.230000" "LOQ" "YES" "-99.000000" ""
".280000" ".000500" ".890000" ""
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".350000" "" ".280000" ".000500" ".500000" ""
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"" ".280000" ".000500" ".500000" ""
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18-0103" "DP-18-0103" "18-0299" "05/04/2018 11:16" "07/13/2018 14:25" ""
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"J5976-FS" "NM" "SHP-180502-02" "1.700000" "SOP 5-369" "Gen Prep" "Initial" "05/04/2018 11:16"
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"18-0299" "DP-18-0103" "DP-18-0103" "18-0299" "05/02/2018 11:30" "07/13/2018 14:25" ""

TETRA TECH

INTERNAL CORRESPONDENCE

TO: **A. FREBOWITZ** **DATE:** **JUNE 13, 2018**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION –POLYFLUOROALKYL SUBSTANCES (PFAS)**
NAS JRB WILLOW GROVE
SAMPLE DELIVERY GROUPS (SDGs) 18-0299, 18-0312

SAMPLES:

SDG 18-0299
7Drinking Water

NAWC-043018-RW-207	NAWC-050118-RW-098
NAWC-050118-RW-304	WGNA-043018-RW-3103
WGNA-043018-RW-3409	WGNA-050118-RW-3178
WGNA-050118-RW-3385	

SDG 18-0312
7/Field Reagent Blank (FRB)

NAWC-043018-FRB-207	NAWC-050118-FRB-098
NAWC-050118-FRB-304	WGNA-043018-FRB-3103
WGNA-043018-FRB-3409	WGNA-050118-FRB-3178
WGNA-050118-FRB-3385	

Overview

The sample sets for NAS JRB Willow Grove, SDGs 18-0299 and 18-0312, consisted of seven (7) drinking water samples and seven (7) FRB samples. All samples were analyzed for select perfluorinated alkyl acids including pentadecafluorooctanoic acid (PFOA), perfluorobutane sulfonic acid (PFBS), perfluoroheptanoic acid (PFHpA), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA), perfluorooctane sulfonic acid (PFOS) n-ethylperfluorooctane sulfonamidoacetate (NMeFOSA), n-methylperfluorooctane sulfonamidoacetate (NMeFOSA), perfluorodecanoic acid (PFDA), perfluorododecanoic acid (PFDoA), perfluorohexanoic acid (PFHxA), perfluorotetradecanoic acid (PFTeDA), perfluorotridecanoic acid (PFTrDA) and perfluoroundecanoic acid (PFUnA) . No field duplicate pairs were included in this SDG.

The samples were collected by Tetra Tech on April 30 and May 1, 2018 and analyzed by Battelle Norwell Operations. All sample analyses were conducted in accordance with EPA Method 537 version 1.1 analytical and reporting protocols.

The data contained in this SDG was validated with regard to the following parameters: data completeness, holding times, mass calibration, mass spectral acquisition rate, tune check, instrument sensitivity check, initial/continuing calibrations, ion transition check, laboratory method/FRBs, surrogate spike recoveries (extracted internal standard recoveries), laboratory control sample results, matrix spike / matrix spike duplicate recoveries, injected internal standard areas and recoveries, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

None.

Minor

Detected results reported below the limit of quantitation (LOQ) but above the detection limit (DL) were qualified as estimated (J).

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.

Sample	Associated FRB
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 x 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	NSAMPLE	NAWC-043018-RW-207			NAWC-050118-RW-098			NAWC-050118-RW-304			WGNA-043018-RW-3103		
SDG: 18-0299	LAB_ID	J5966-FS			J5976-FS			J5974-FS			J5964-FS		
FRACTION: PFAS	SAMP_DATE	4/30/2018			5/1/2018			5/1/2018			4/30/2018		
MEDIA: WATER	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-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		1	U		1	U		1	U		1	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		1	U		1	U		1	U		1	U	
PENTADECAFLUOROOCTANOIC 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
PERFLUOROOCTANESULFONIC 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	NSAMPLE	WGNA-043018-RW-3409			WGNA-050118-RW-3178			WGNA-050118-RW-3385		
SDG: 18-0299	LAB_ID	J5968-FS			J5972-FS			J5970-FS		
FRACTION: PFAS	SAMP_DATE	4/30/2018			5/1/2018			5/1/2018		
MEDIA: WATER	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-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		1	U		1	U		1	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		1	U		1	U		1	U	
PENTADECAFLUOROOCTANOIC 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
PERFLUOROOCTANESULFONIC 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	NSAMPLE	NAWC-043018-FRB-207			NAWC-050118-FRB-098			NAWC-050118-FRB-304			WGNA-043018-FRB-3103		
SDG: 18-0312	LAB_ID	J5967-FS			J5977-FS			J5975-FS			J5965-FS		
FRACTION: PFAS	SAMP_DATE	4/30/2018			5/1/2018			5/1/2018			4/30/2018		
MEDIA: WATER	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-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		1	U		1	U		1	U		1	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		1	U		1	U		1	U		1	U	
PENTADECAFLUOROOCTANOIC 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	
PERFLUOROOCTANESULFONIC 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	NSAMPLE	WGNA-043018-FRB-3409			WGNA-050118-FRB-3178			WGNA-050118-FRB-3385		
SDG: 18-0312	LAB_ID	J5969-FS			J5973-FS			J5971-FS		
FRACTION: PFAS	SAMP_DATE	4/30/2018			5/1/2018			5/1/2018		
MEDIA: WATER	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-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		1	U		1	U		1	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		1	U		1	U		1	U	
PENTADECAFLUOROOCTANOIC 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	
PERFLUOROOCTANESULFONIC 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
PFTrDA	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			

05/30/2018

BATTELLE
It can be done

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
PFTrDA	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			

Denise L Schumitz
05/30/2018

BATTELLE
It can be done

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
PFTrDA	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			

05/30/2018

BATTELLE
It can be done

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
PFTrDA	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			

05/30/2018

BATTELLE
It can be done

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
PFTrDA	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			

05/30/2018

BATTELLE
It can be done

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
PFTrDA	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			

05/30/2018

BATTELLE
It can be done

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
PFTrDA	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			

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
PFTrDA	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			

05/30/2018

BATTELLE
It can be done

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
PFTrDA	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			

Teri L Salemme
05/30/2018

BATTELLE
It can be done

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

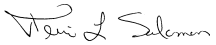
Client ID	WGNA-043018-RW-3409			
Battelle ID	J5968-FS			
Sample Type	SA			
Collection Date	04/30/2018			
Extraction Date	05/04/2018			
Analysis Date	05/13/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.275			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
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
PFTrDA	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			

Terri L Salerno
05/30/2018

BATTELLE
It can be done

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
PFTrDA	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			


05/30/2018

BATTELLE
It can be done

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
PFTrDA	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			

05/30/2018

BATTELLE
It can be done

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
PFTrDA	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			

Teri L Salemme
05/30/2018

BATTELLE
It can be done

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
PFTrDA	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			

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
PFTrDA	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
PFTrDA	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
PFTrDA	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
PFTrDA	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
PFTrDA	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
PFTrDA	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
PFTrDA	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
PFTrDA	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
PFTrDA	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
PFTrDA	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
PFTrDA	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
PFTrDA	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
PFTrDA	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
PFTrDA	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
The Business of Innovation

Chain-of-Custody

Client Contact Information	Project Manager: Jonathan Thorn	Sampling Site: WE04	Site Information: NAS JRB Willow Grove/NAWC Warminster
Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170	Sampler Information (print name): Mary Kay Bond Phone: 610-382-1169 Email: mary.bond@tetratech.com Turnaround Time (TAT) Requested: 21 days	Preservative: Trizma	COC #
Project Name: WE04 Project No.: 112G08005-WE04	Normal ☑ Priority ☐ RUSH ☐ Time Zone: Eastern	Analysis: PFAS EPA 537 14 analytes	Page# 1 of 1

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.		
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

Receipt Temperature:(°C)	*Samples Intact: Yes - No*	*Samples on Ice: Yes - No*	*Receipt Comments:*

Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
Mary Kay Bond	Tetra Tech	4/30/2018 16:00	Matt Schumitz MS	Battelle	5-1-18 11:45
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 0074 3919

Battelle
The Business of Innovation

Chain-of-Custody

Client Contact Information
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
Project No.: 112G08005-WE04

Normal ☑
Priority ☐
RUSH ☐
Time Zone: Eastern

COC #
Page# 1 of 1

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	Preservative: Trizma	Analysis: PFAS EPA 537 14 analytes	
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):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
Mary Kay Bond	Tetra Tech	05/01/2018 16:00		Battelle	5/2/18 1130

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 quadradic curve fitting.
R^2 >0.99 Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No exceedances noted.
	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 Low point 50-150% of true value	No exceedances noted.
	No comments.

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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

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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:

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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
PFTrDA	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				Control Limits	
Units	ng/L	Target	Recovery	Qual	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
PFTrDA	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

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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

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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

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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	Lower	Upper
34,568.40	17,284.20	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	

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Summary Asymmetry Report

Created with Analyst Reporter
Printed: 16/05/2018 6:08:02 PM

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

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Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 16/05/2018 6:09:09 PM

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
PFDoA_1	613.0 / 569.0	3.79	55	>10
PFDoA_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

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Mass Spectral Acquisition Rate Report

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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
PFTrDA	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
$^{13}C_2$-PFOA	NA	IS	415.0 / 270.0	NA
$^{13}C_4$-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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ID 626 04/18

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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
☑ CAD 0	0.5	0.4 to 1.1 x10^{-5} Torr
☑ CAD Low	1.9	Read Only
☑ CAD Medium	2.4	Read Only
☑ CAD High	3.4	Read Only
☑ 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. Record10mca.

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
☑ CAD 0	0.8	0.4 to 1.1 x10^{-5} Torr
☑ CAD Low	2.1	Read Only
☑ CAD Medium	2.6	Read Only
☑ CAD High	3.7	Read Only
☑ 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	Width Specs
	Value	Spec	Value	
Scan Rate 10 Da/s Record 10 mca				
Q1 175.133	5.94 e6	≥1.2^{e}6	0.6933	0.6 to 0.8
Q1 500.380	2.25 e7	≥9.0^{e}6	0.7444	0.6 to 0.8
Q1 906.673	2.74 e7	≥1.4^{e}7	0.7347	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8^{e}7	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	Width Specs
	Value	Spec	Value	
Scan Rate 10 Da/s Record 10 mca				
Q3 175.133	4.54 e6	≥1.2^{e}6	0.6390	0.6 to 0.8
Q3 500.380	2.13 e7	≥9.0^{e}6	0.7008	0.6 to 0.8
Q3 906.673	3.04 e7	≥1.4^{e}7	0.7683	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q3 906.673	1.51 e8	≥6.8^{e}7	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	Width Specs
	Value	Spec	Value	
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	≥1.0^{e}7	0.6895	0.6 to 0.8
Q1 933.636	1000	50	6.32 e7	≥4.0^{e}7	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	≥8.0^{e}6	0.7665	0.6 to 0.8
Q3 933.636	1000	50	7.41 e7	≥4.0^{e}7	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	≥7.2 ^{e}6	0.1302	<0.35
ER 922.010	0.05	3.89 e7	≥2.8 ^{e}6	0.2603	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05	2.55 e7	≥2.4 ^{e}7	0.3740	<0.65
ER 922.010	0.05	2.37 e8	≥6.8 ^{e}7	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	≥4.4 ^{e}7	0.1840	<0.35
ER 601.978	0.05	7.74 e7	≥5.6 ^{e}7	0.1849	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 431.982	0.05	3.43 e8	≥1.2 ^{e}8	0.4382	<0.65
ER 601.978	0.05	2.55 e8	≥1.6 ^{e}8	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
☐ 236 OR ☑ 365	1000	1.19 e8	Fragment Intensity	> 4.4 e6	≥1.6x 10e6

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.

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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

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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

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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	

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Sequence Report

Created with Analyst Reporter
Printed: 16/05/2018 6:10:32 PM

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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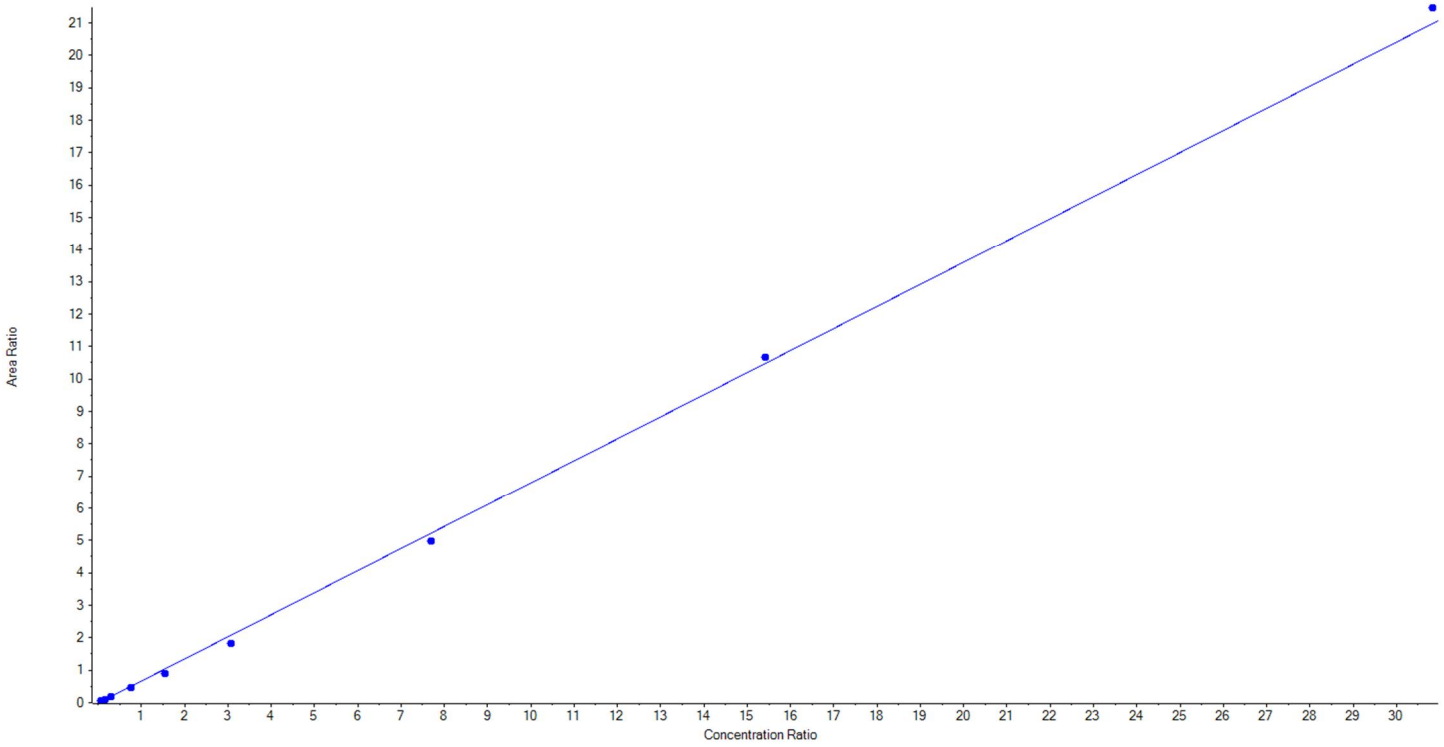
Calibration Summary Report

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 = 0.68075 x + -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



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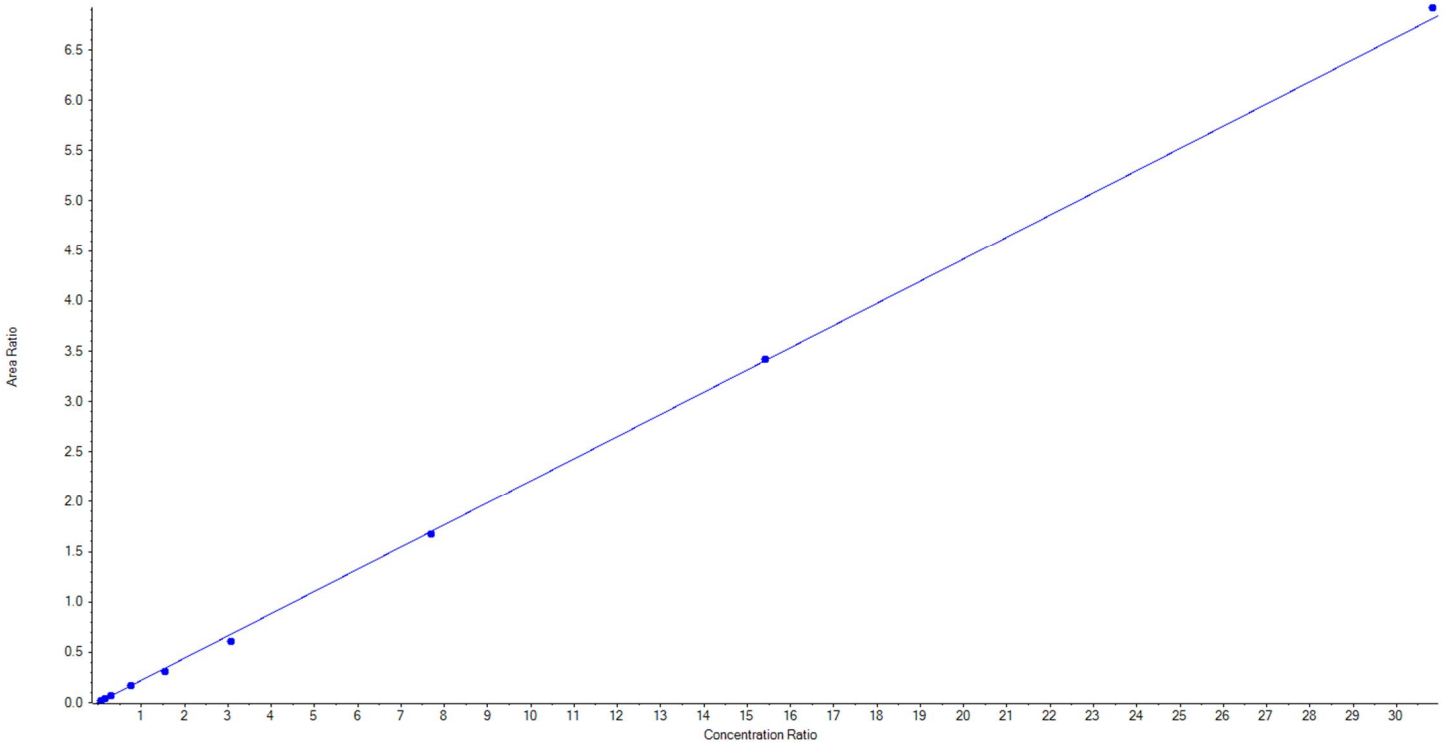
Calibration Summary Report

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



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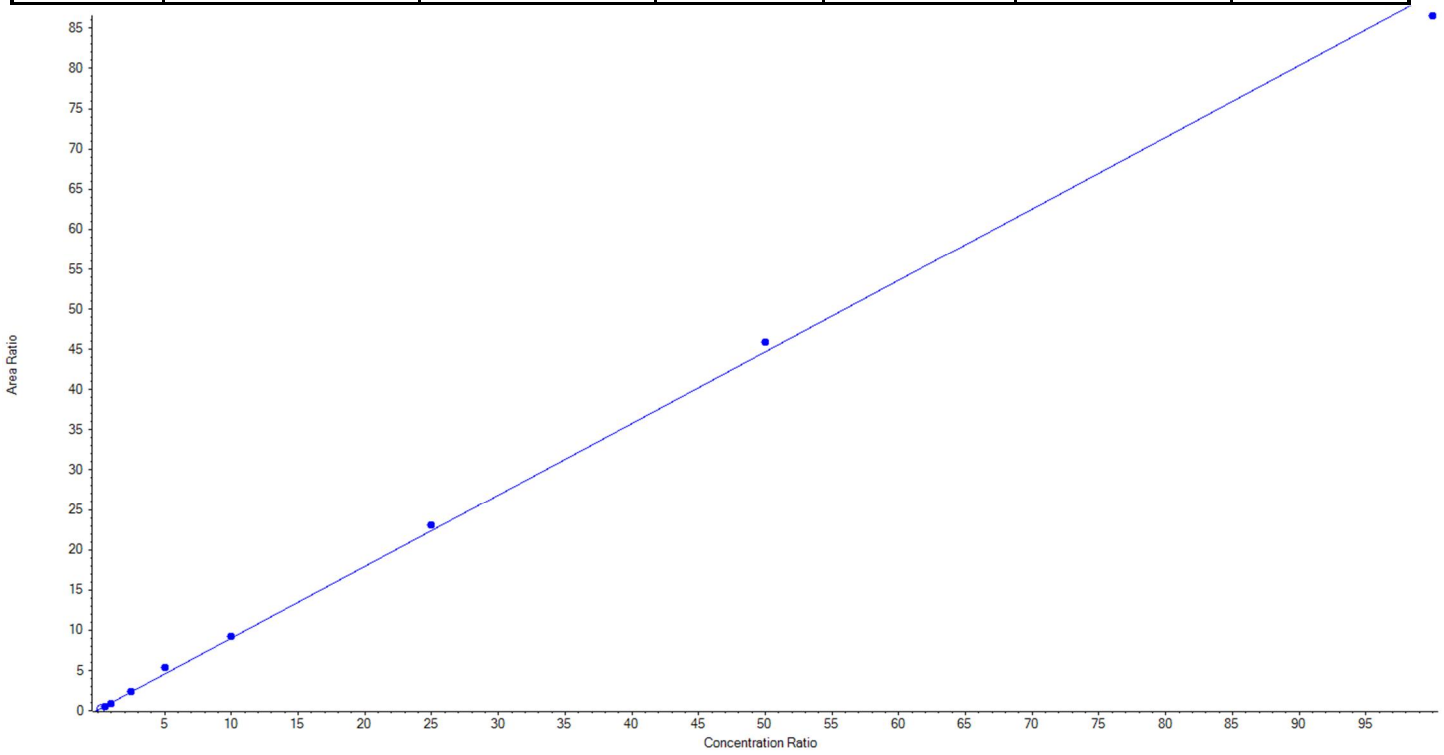
Calibration Summary Report

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 = 0.89190 x + 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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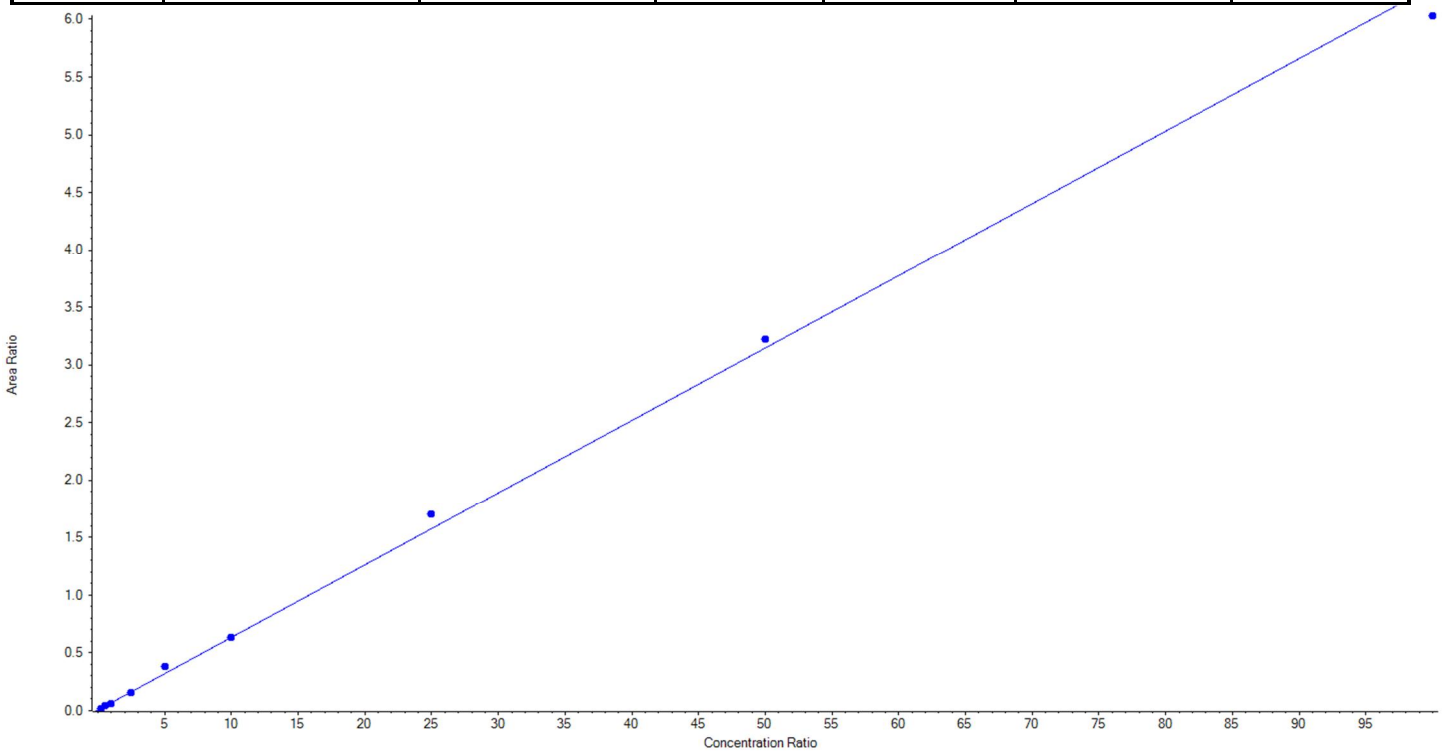
Calibration Summary Report

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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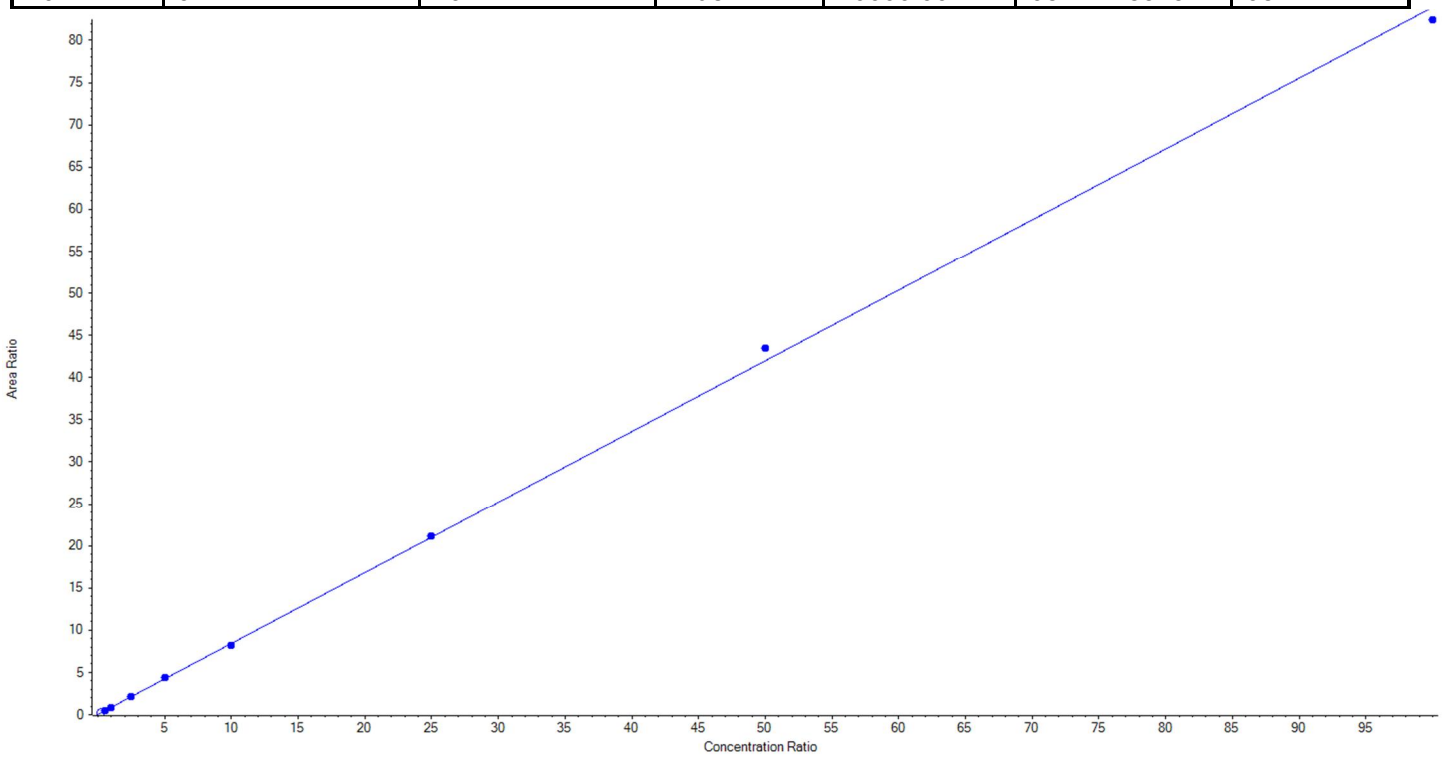
Calibration Summary Report

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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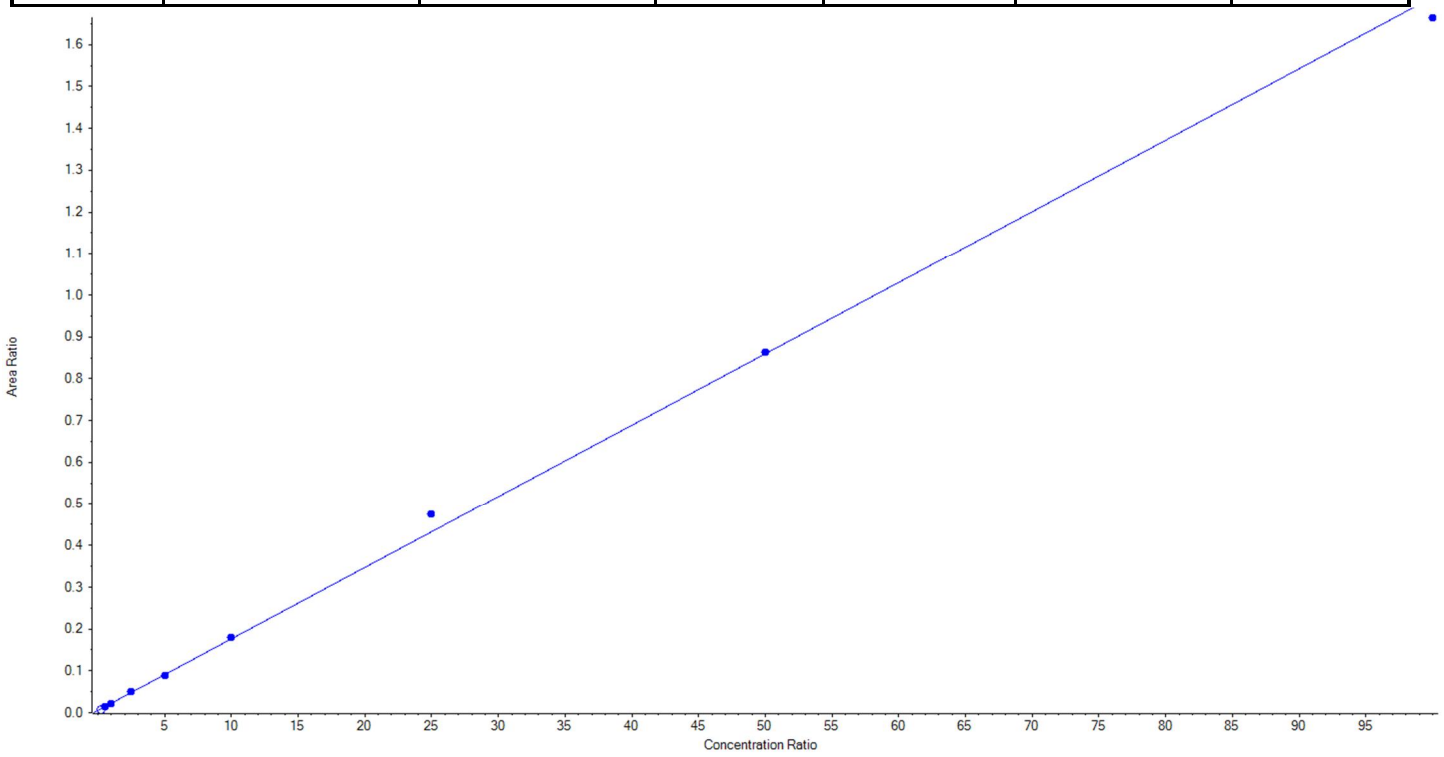
Calibration Summary Report

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 = 0.01708 x + 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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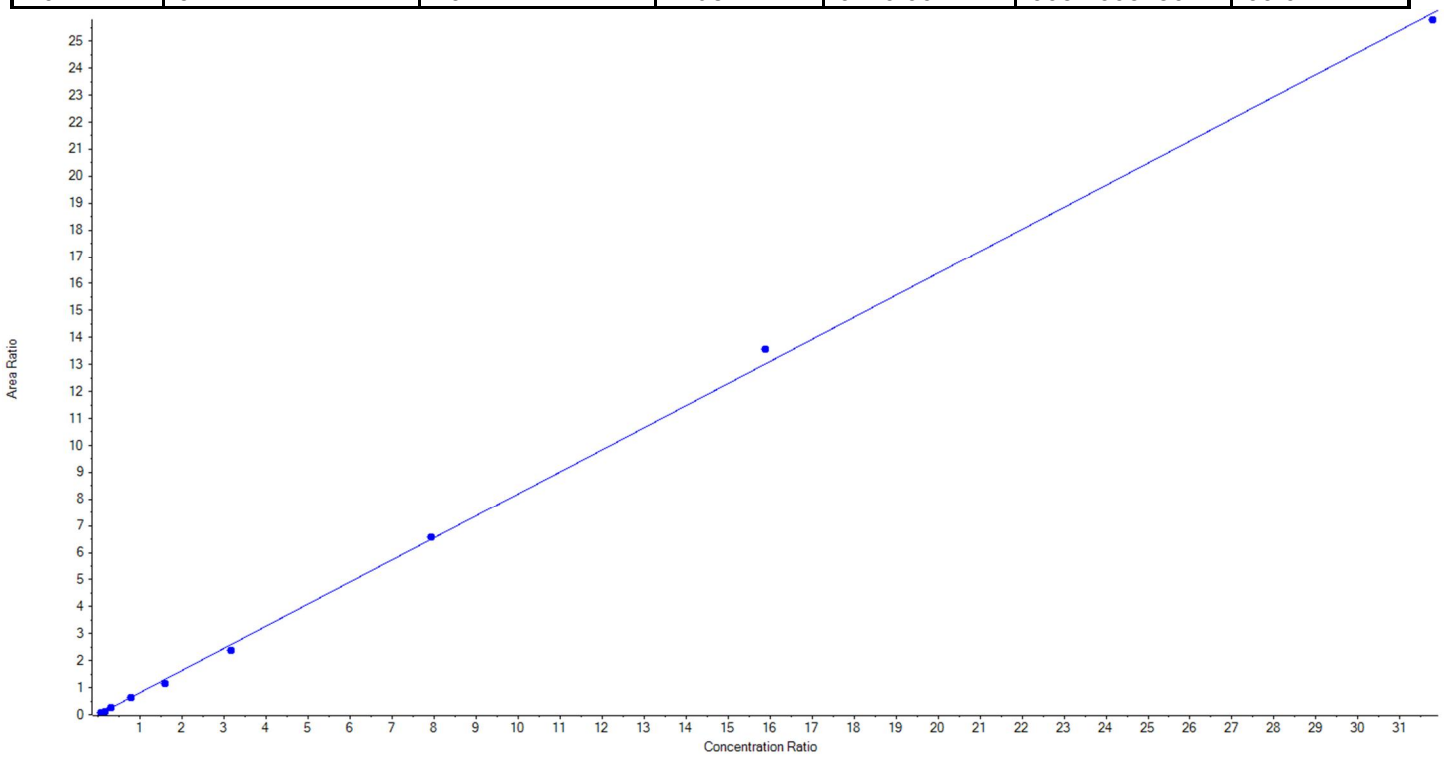
Calibration Summary Report

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

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 = 0.81953 x + -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



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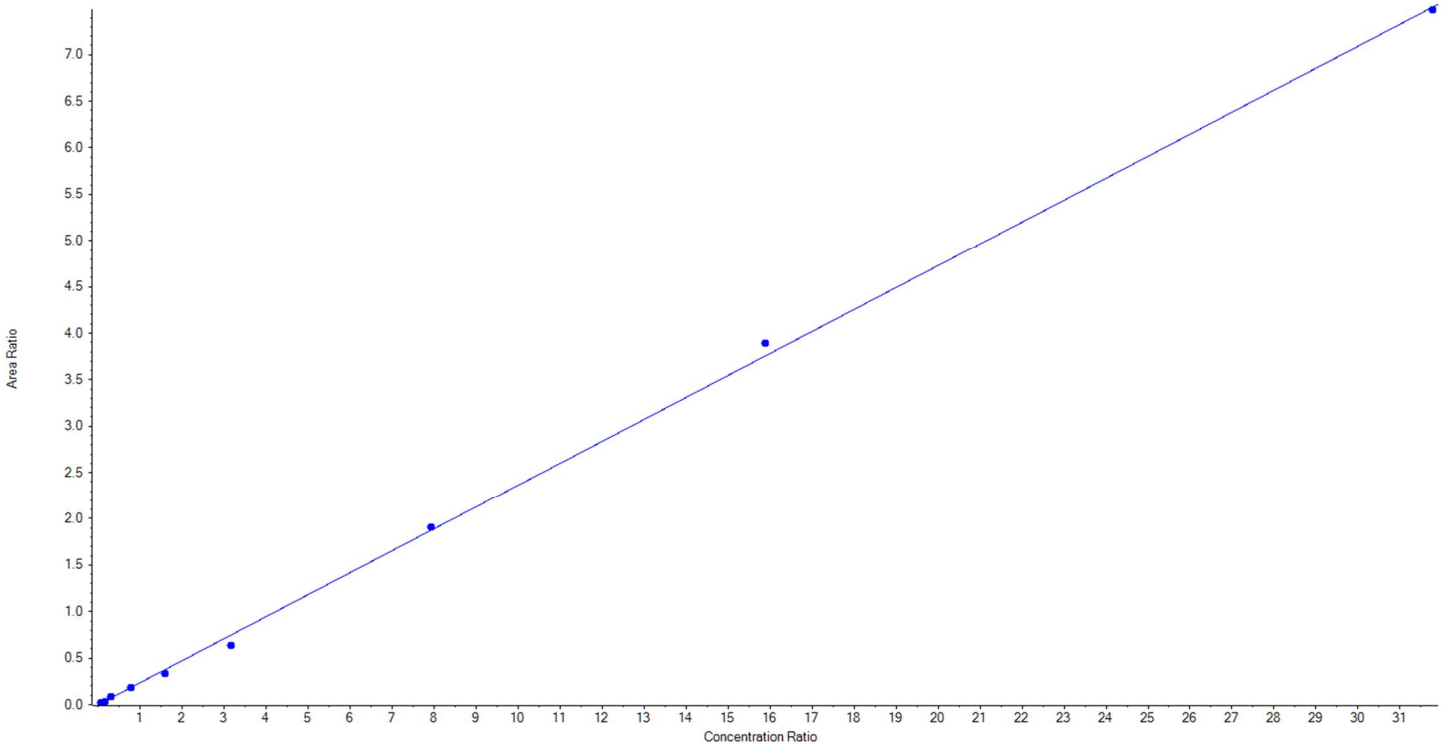
Calibration Summary Report

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

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 = 0.23641 x + -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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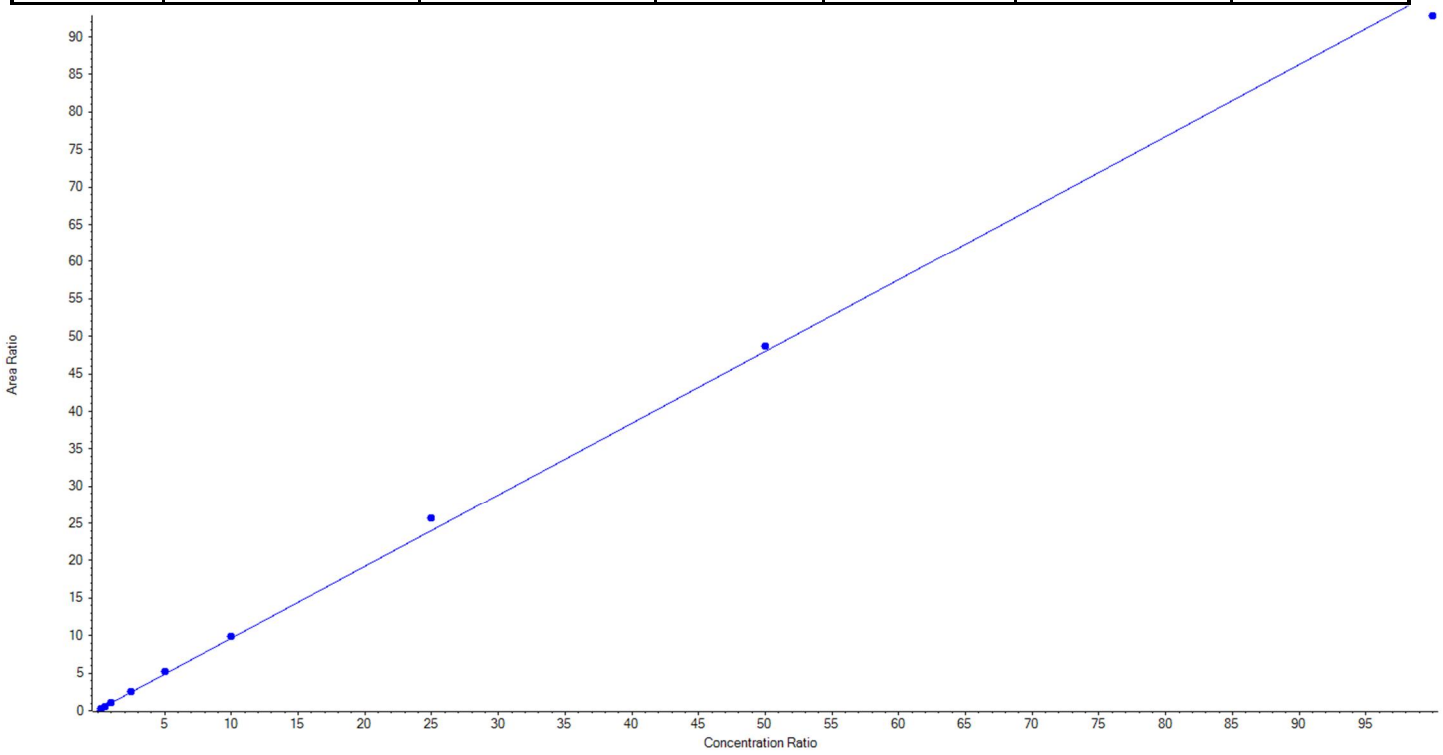
Calibration Summary Report

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



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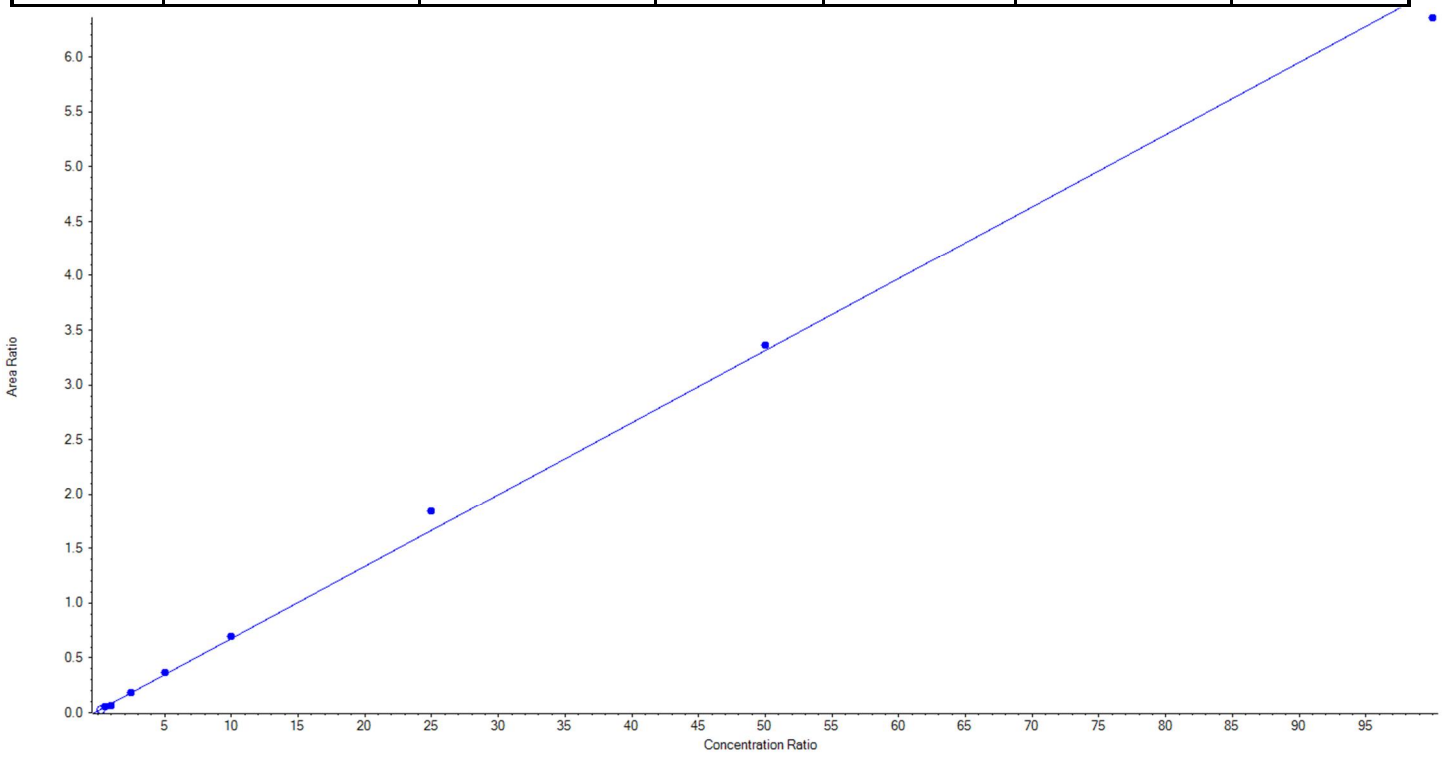
Calibration Summary Report

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

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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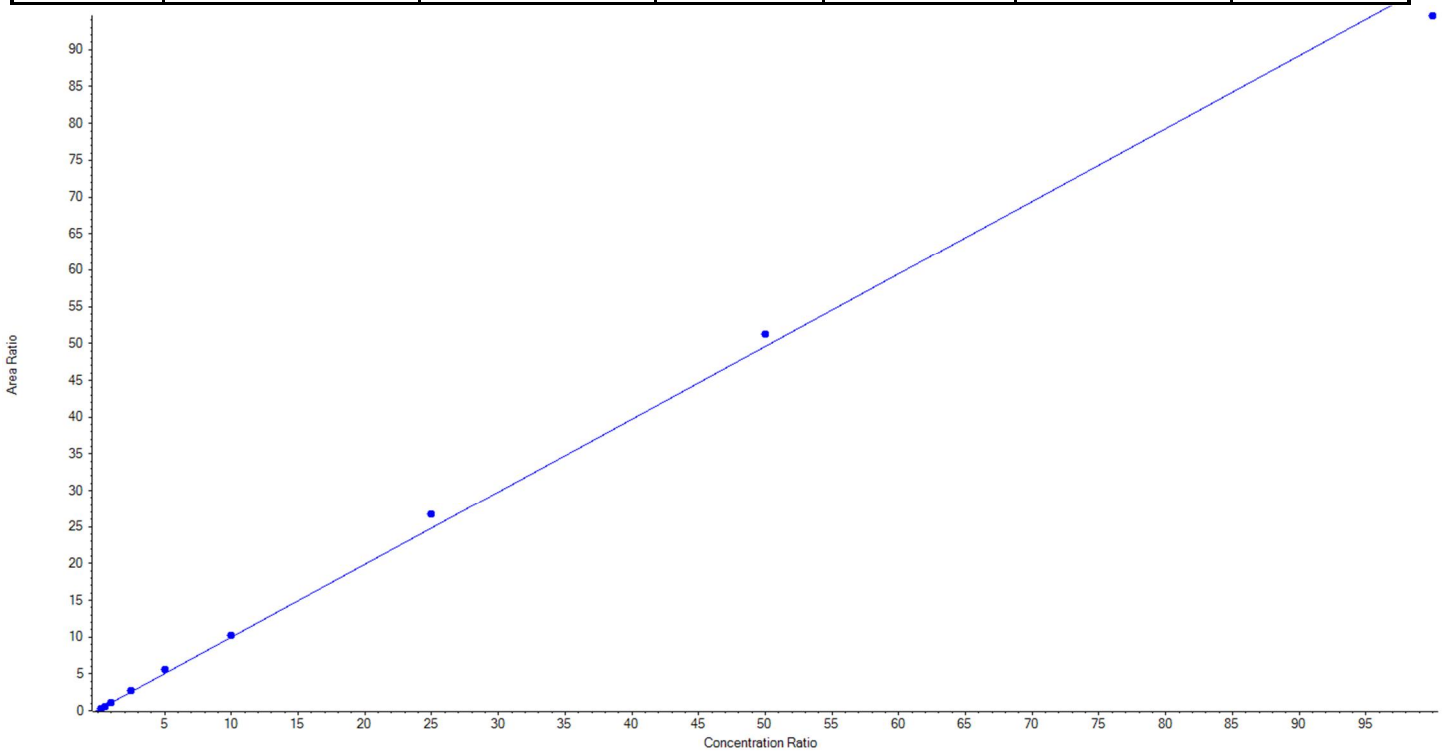
Calibration Summary Report

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

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 = 0.99005 x + 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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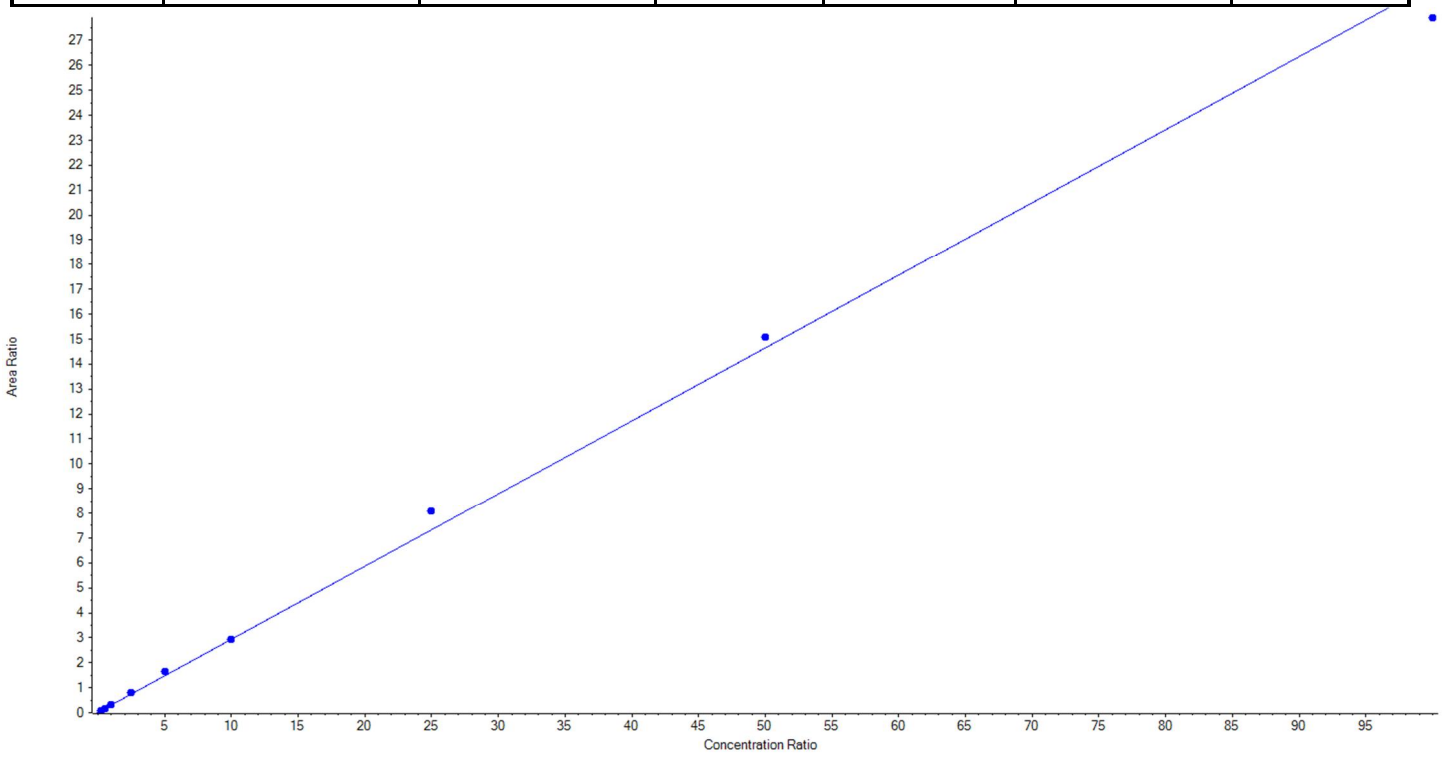
Calibration Summary Report

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

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 = 0.29260 x + 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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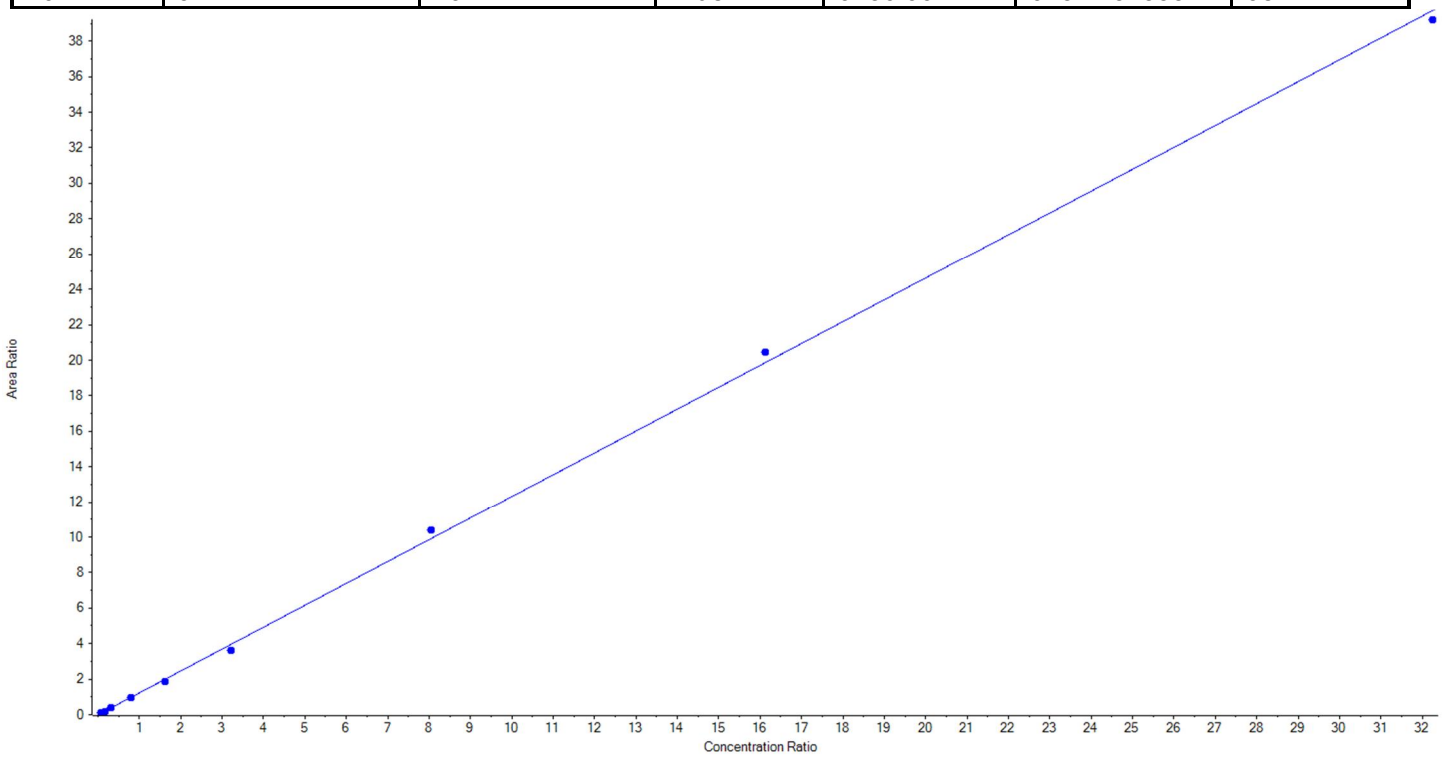
Calibration Summary Report

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

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 = 1.23183 x + -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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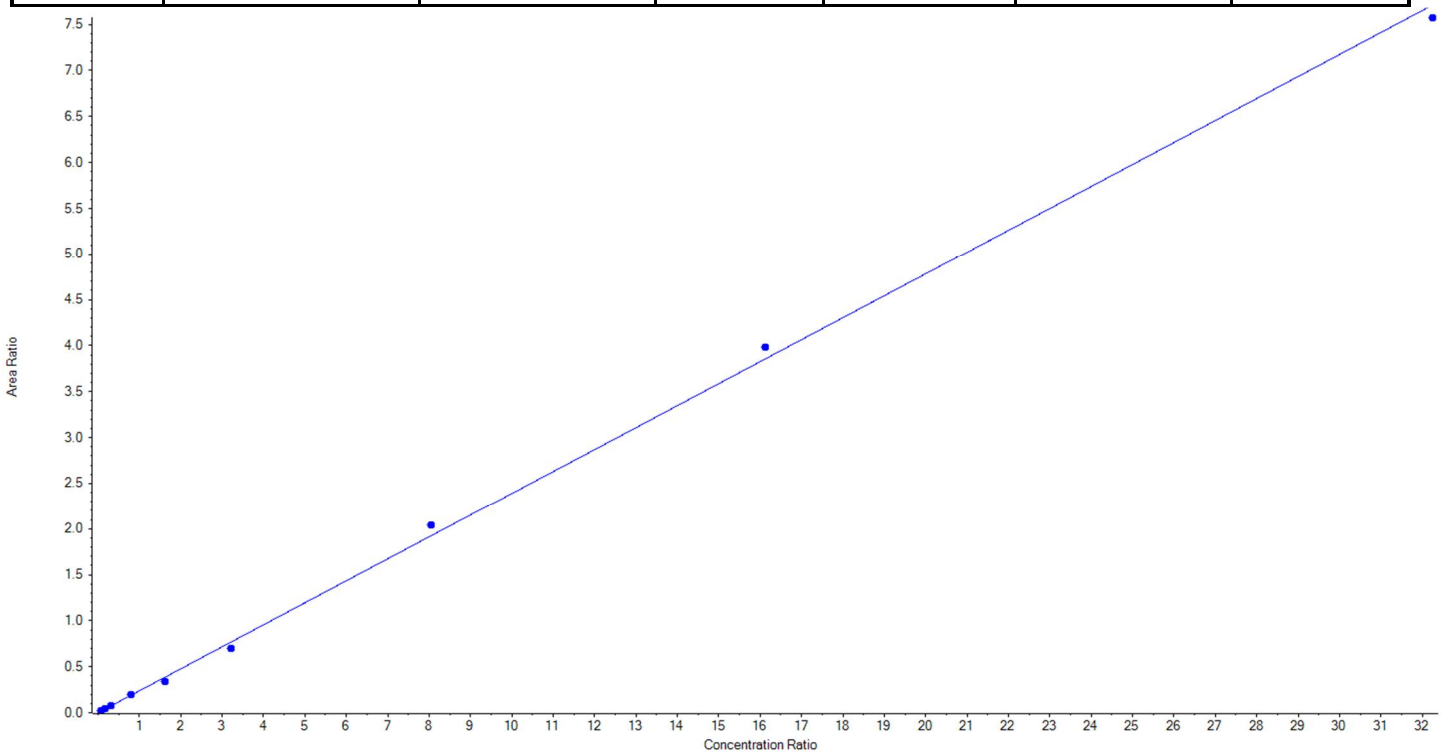
Calibration Summary Report

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

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 = 0.23915 x + -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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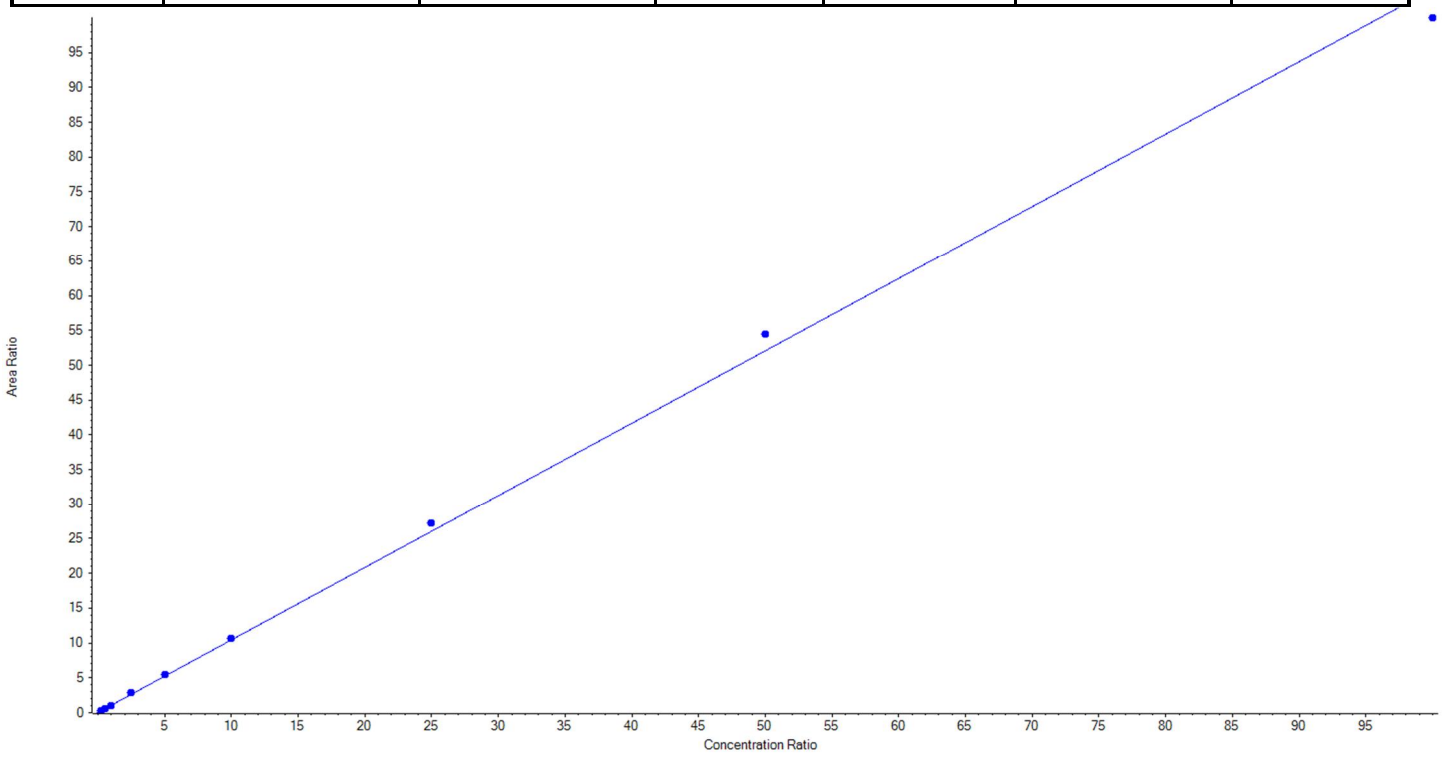
Calibration Summary Report

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

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 = 1.04056 x + 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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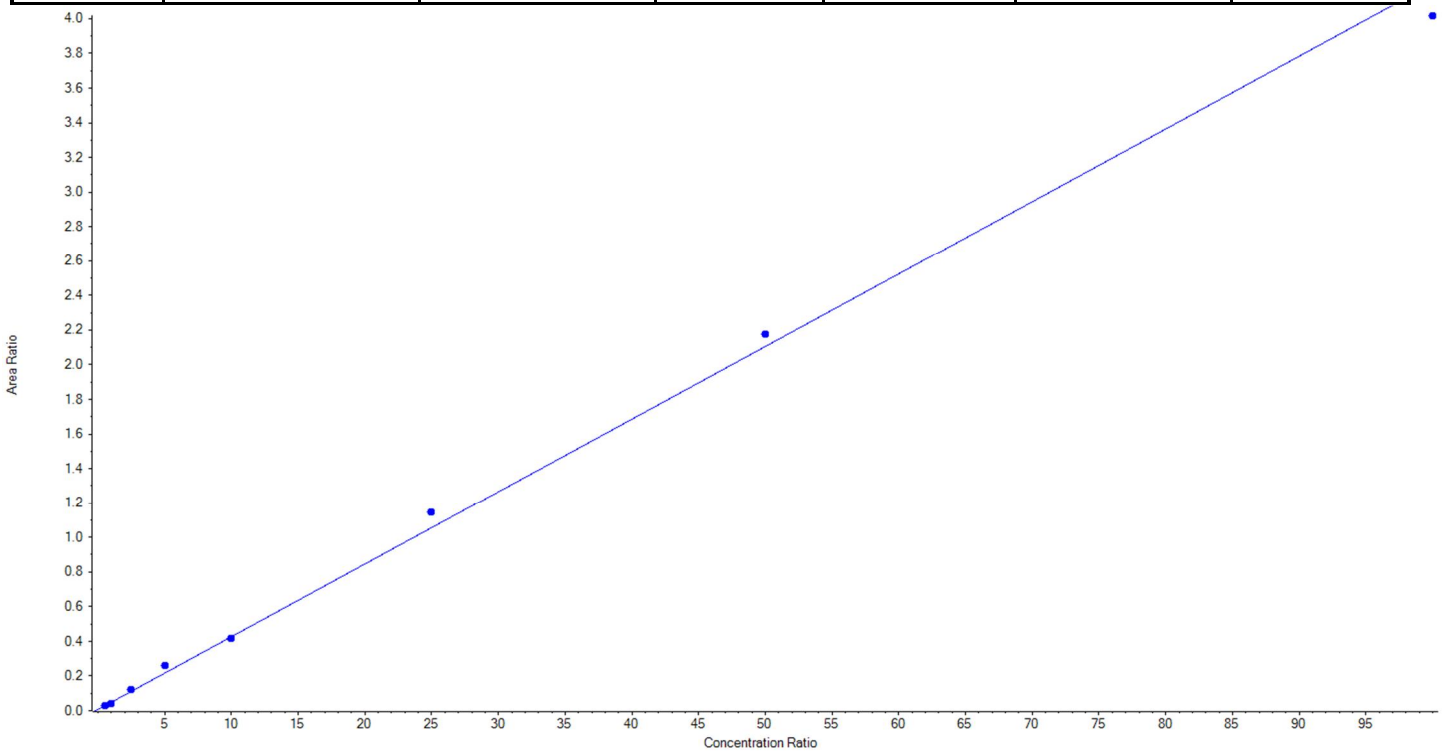
Calibration Summary Report

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

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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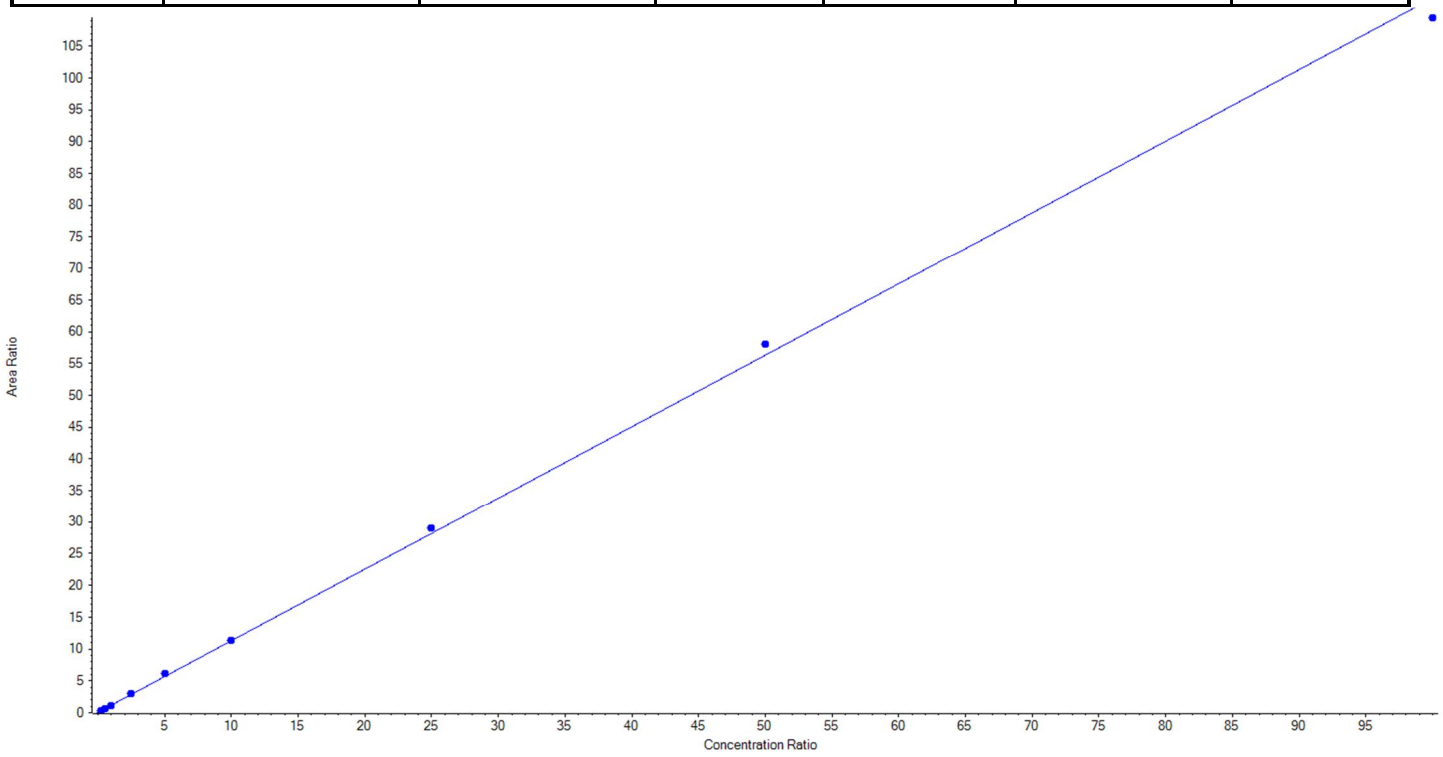
Calibration Summary Report

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

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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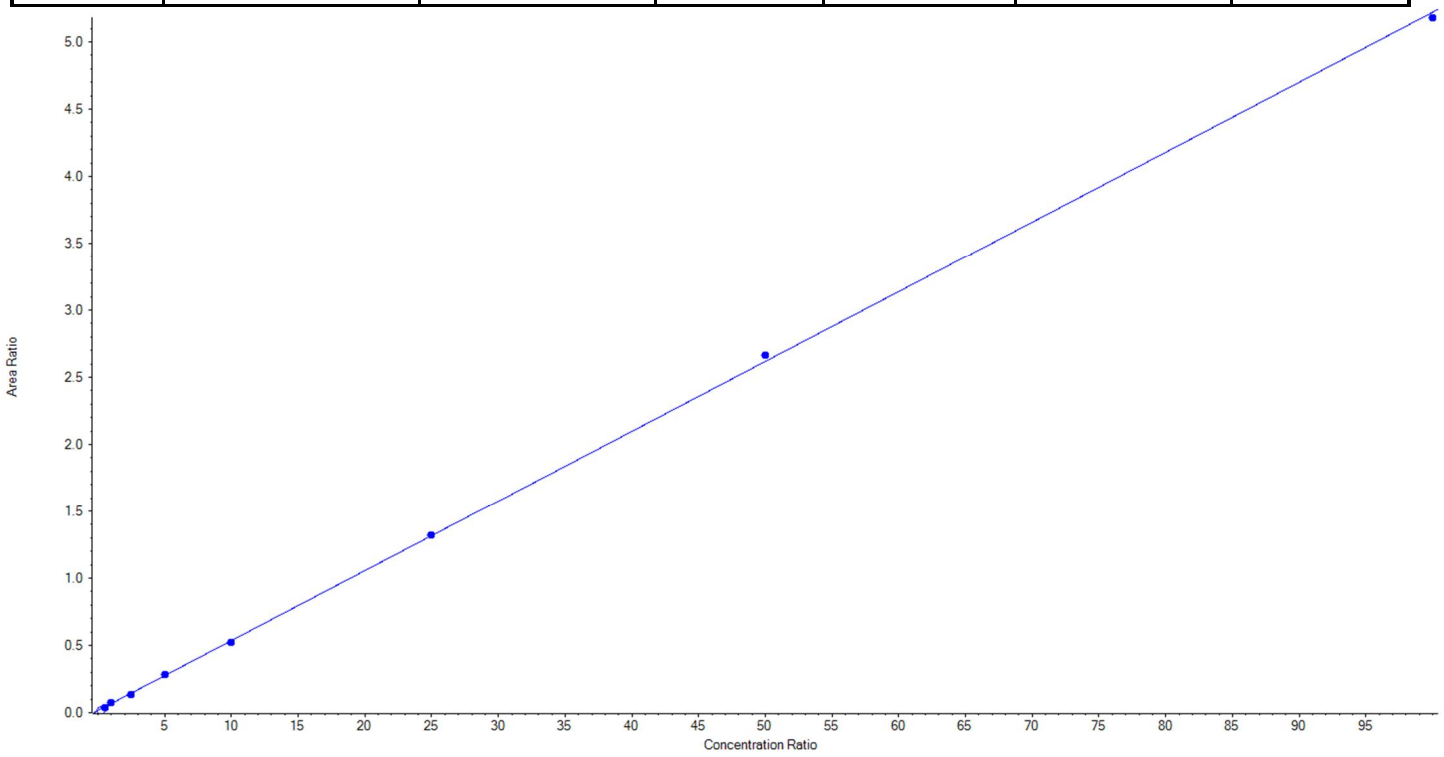
Calibration Summary Report

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

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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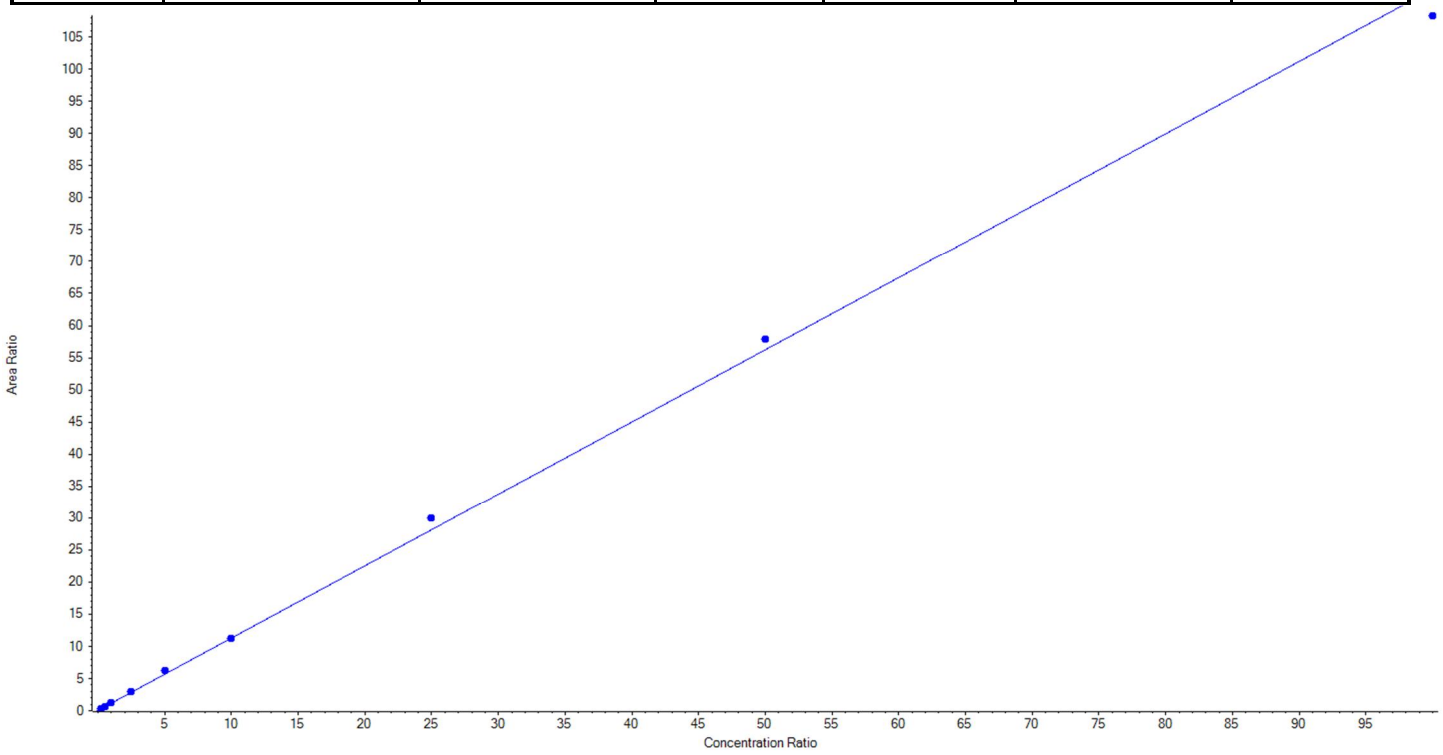
Calibration Summary Report

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

Analyte Name	PFDoA_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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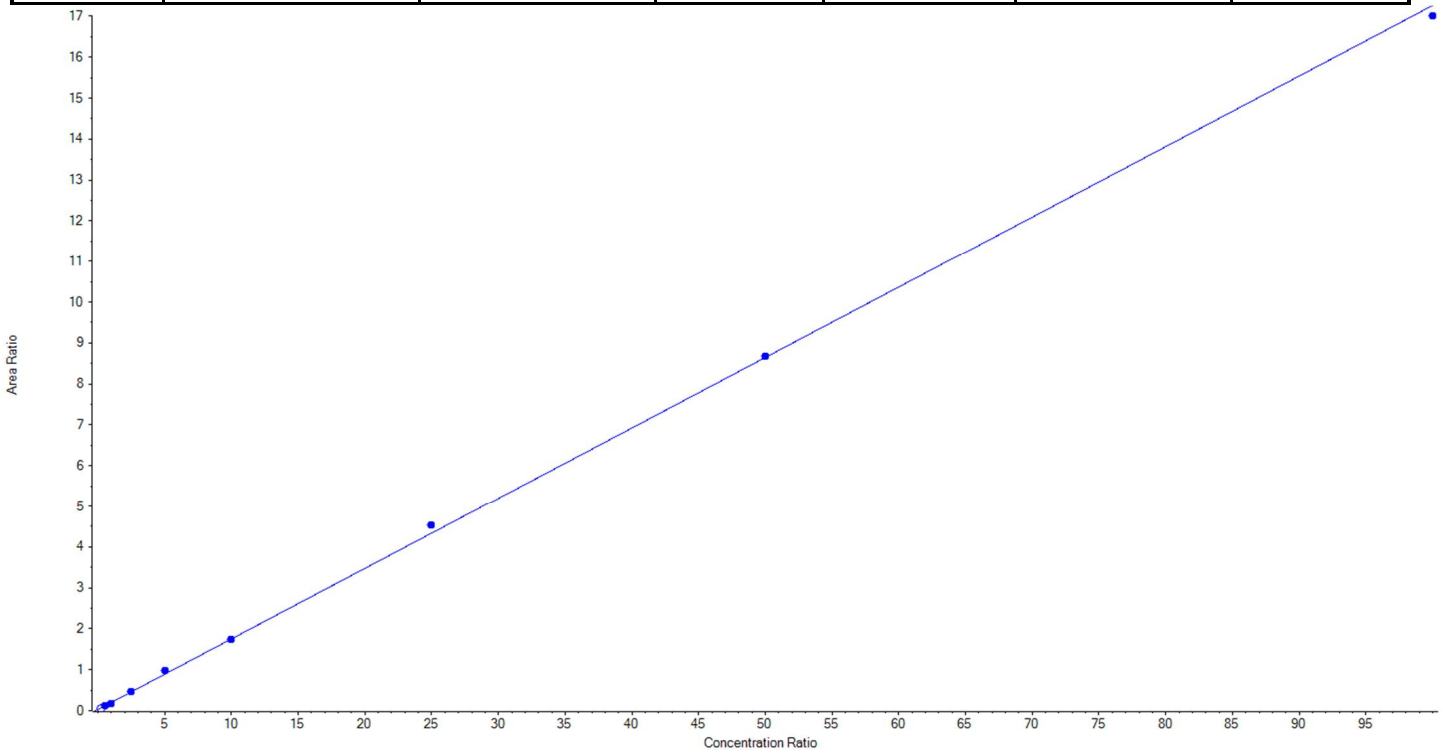
Calibration Summary Report

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

Analyte Name	PFDoA_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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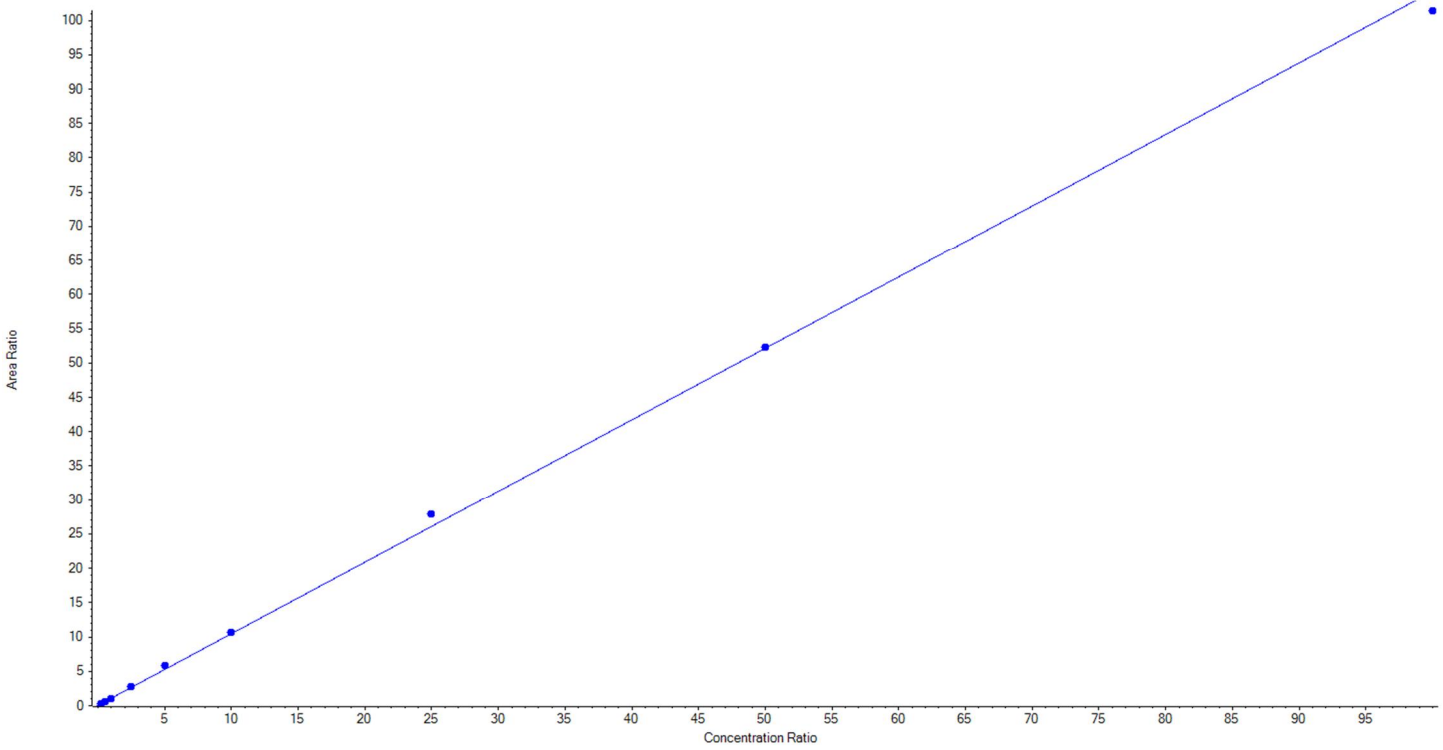
Calibration Summary Report

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



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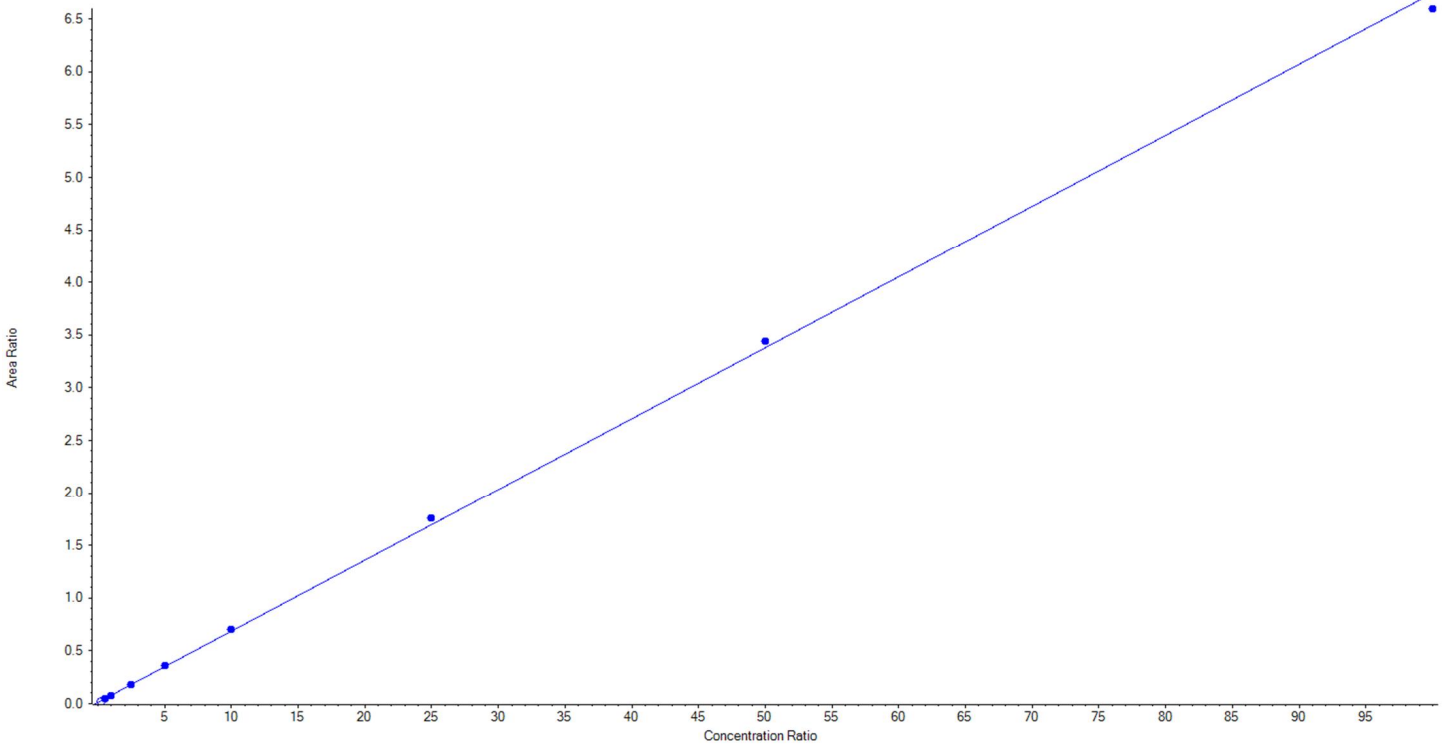
Calibration Summary Report

Created with Analyst Reporter
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



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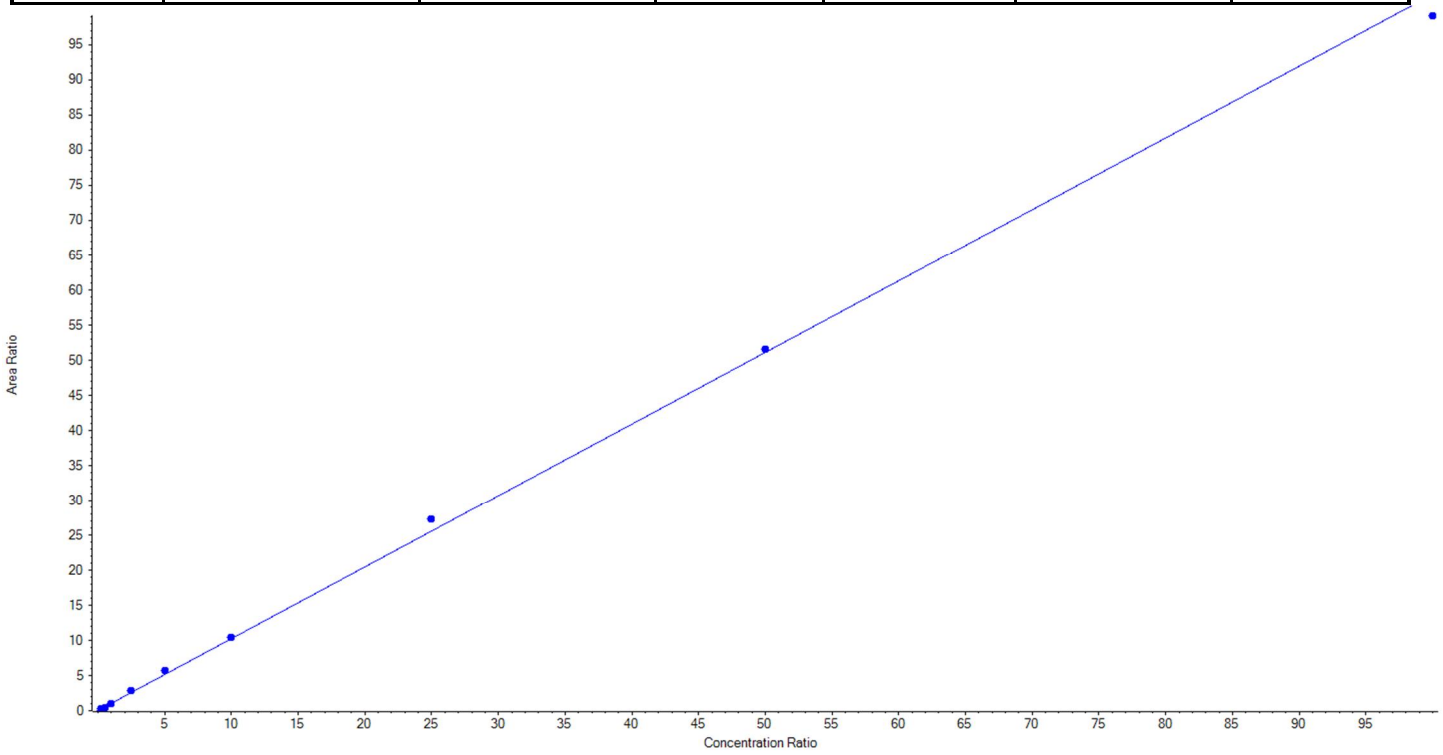
Calibration Summary Report

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



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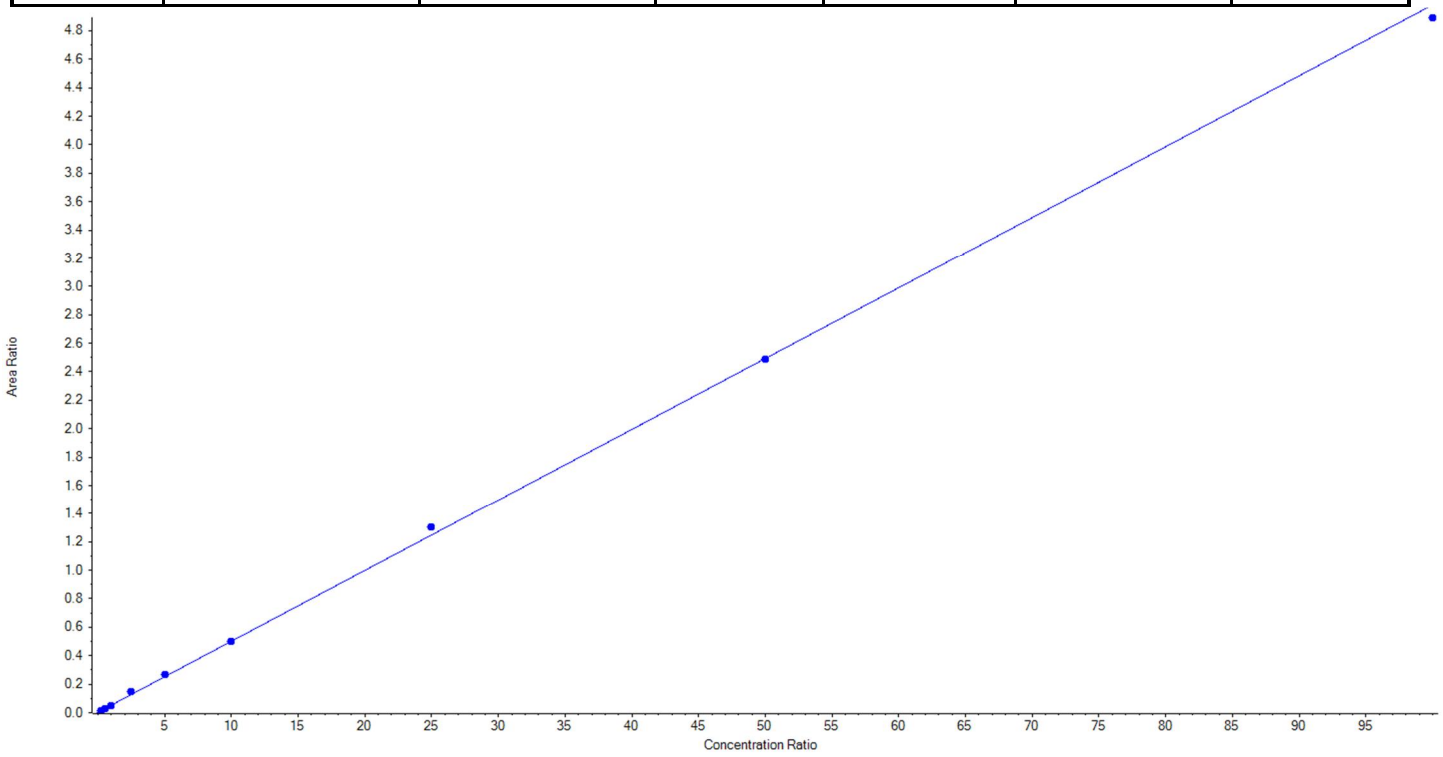
Calibration Summary Report

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



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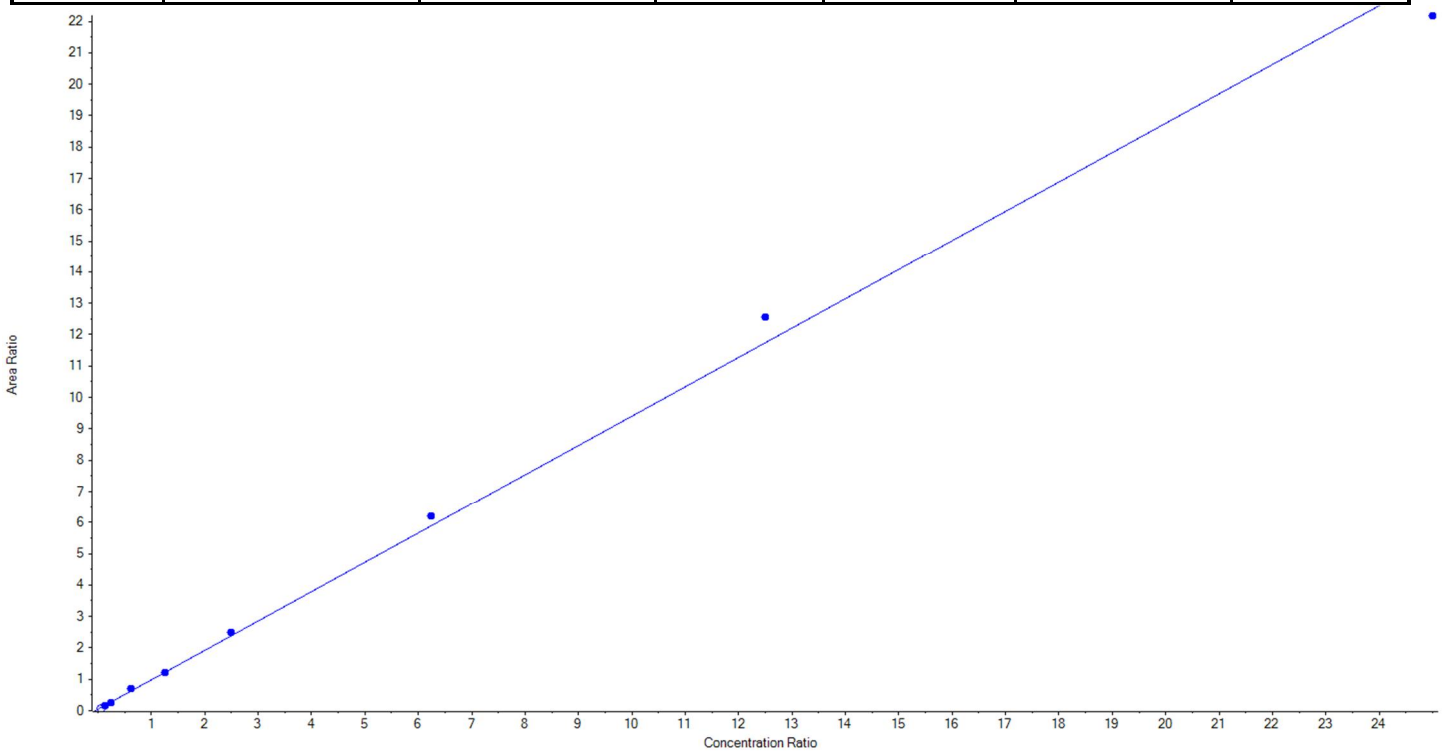
Calibration Summary Report

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 = 0.93548 x + 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



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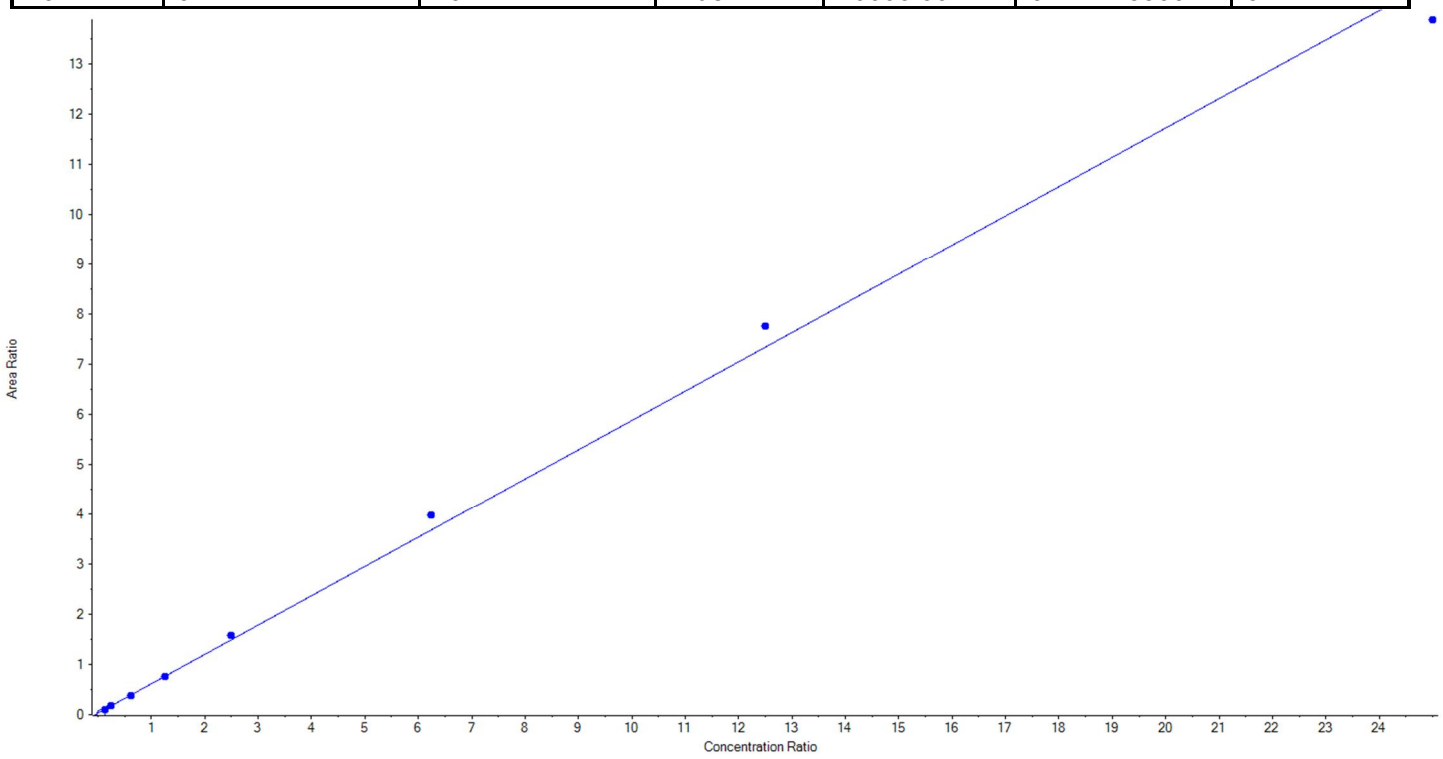
Calibration Summary Report

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 = 0.58489 x + 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



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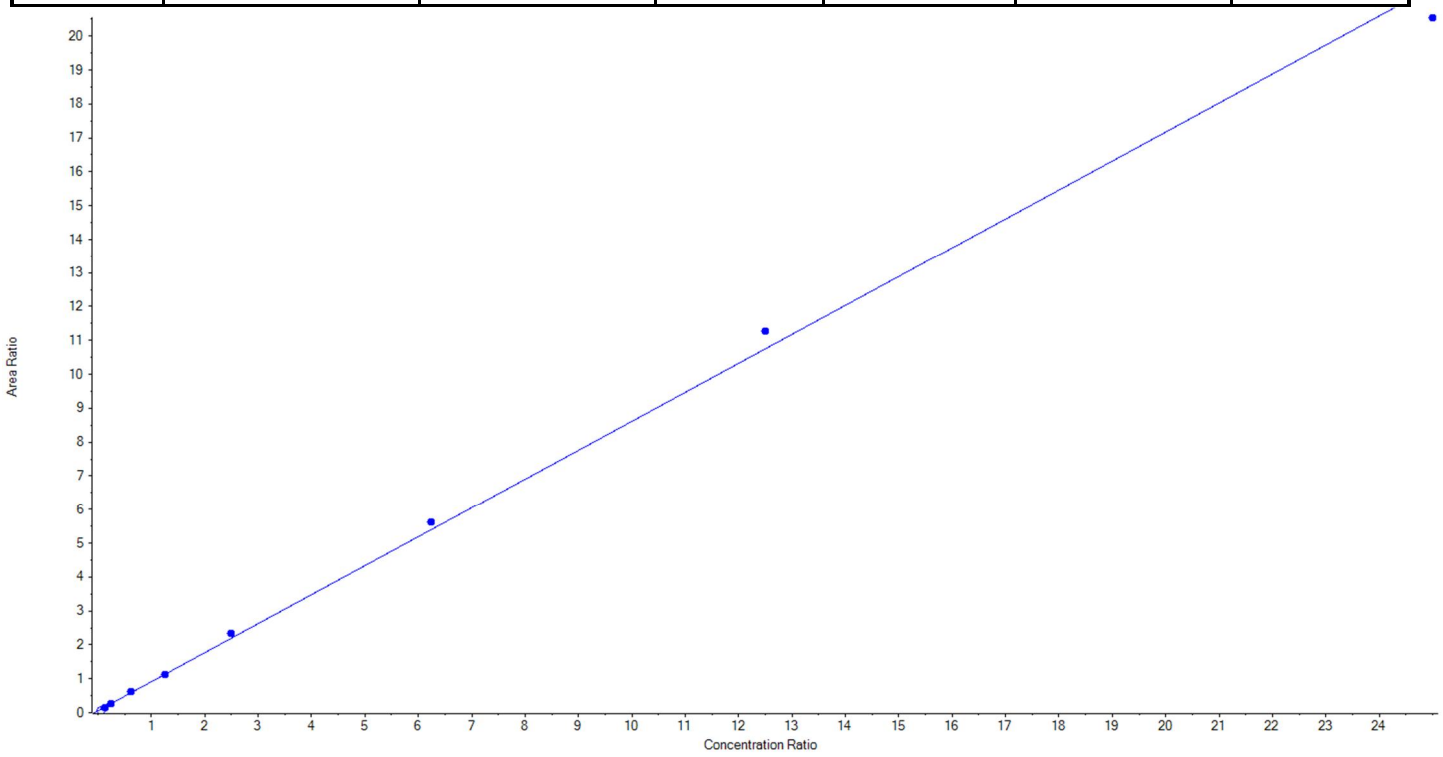
Calibration Summary Report

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 = 0.85558 x + 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



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Calibration Summary Report

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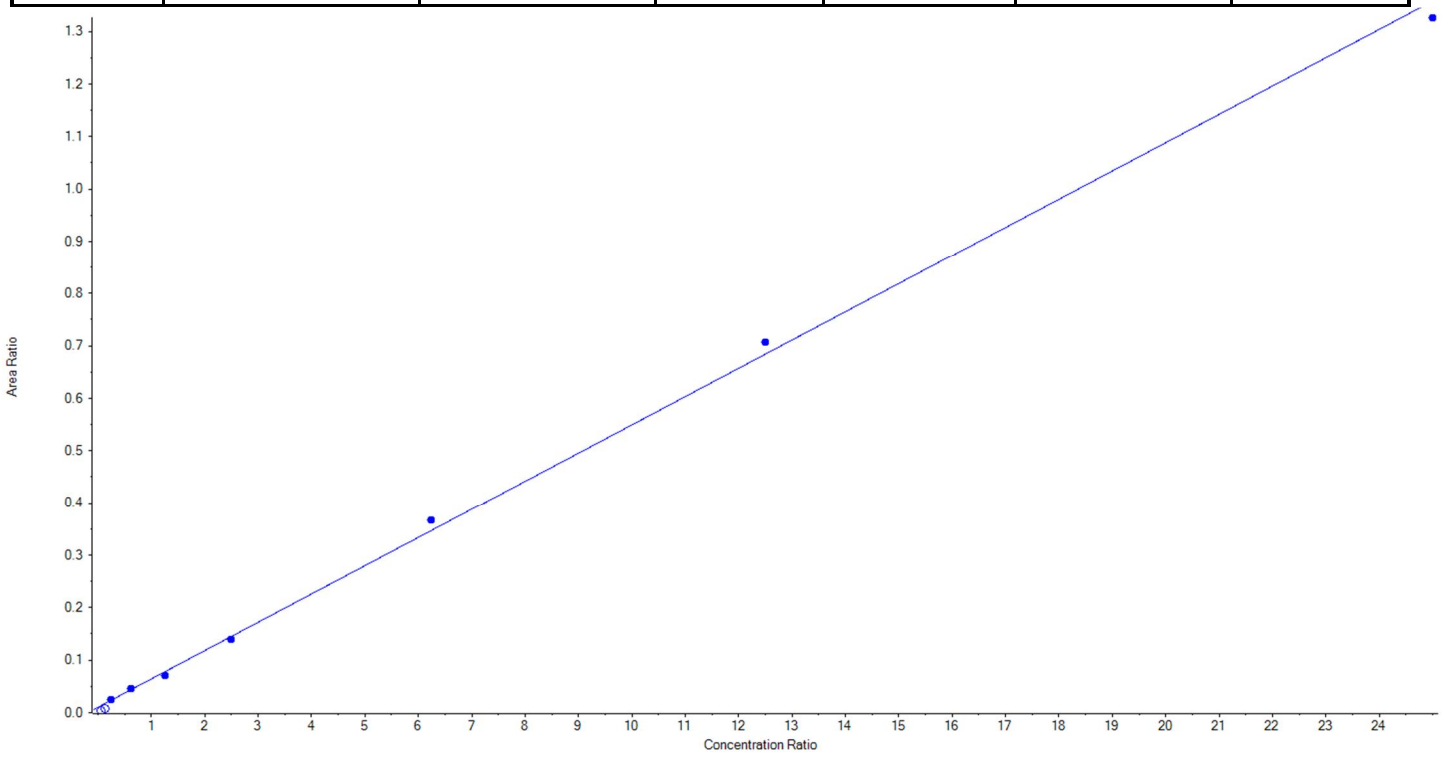
Analyte Name	NEtFOSAA_2	**Data File**	18-0313.wiff
MRM Transition	584.0 / 483.0	**Result Table**	18-0312_BASE
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/14/2018 4:18:10 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05390 x + 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



	Drinking Water Calibration Curve Concentrations (ng/L)								
	JV64	JV65	JV66	JV67	JV68	JV69	JV70	JV71	JV72
PFHxA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFHpA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFOA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFNA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFDA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFUnA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFDoA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFTrDA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFTeDA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
NMeFOSAA (branched)	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
NEtFOSAA (branched)	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFBS	22.15	44.30	88.60	221.50	443.00	885.00	2,212.50	4,425.00	8,850.00
PFHxS (branched)	22.80	45.60	91.20	228.00	456.00	912.00	2,280.00	4,560.00	9,120.00
PFOS (branched)	23.15	46.30	92.60	231.50	463.00	925.60	2,314.00	4,628.00	9,256.00
	Surrogates								
13C2-PFHxA	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
13C2-PFDA	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
d5-EtFOSAA	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00
	Internal Standards								
13C2-PFOA	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
13C4-PFOS	287.00	287.00	287.00	287.00	287.00	287.00	287.00	287.00	287.00
d3-MeFOSAA	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00

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Summary Ion Ratio Report

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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
PFTrDA_1	663.0 / 619.0	4.06	PFTrDA	1.0000	1.0000	ü
PFTrDA_2	663.0 / 169.0	4.06	PFTrDA	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

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Summary Ion Ratio Report

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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
PFTrDA_1	663.0 / 619.0	4.05	PFTrDA	1.0000	1.0000	ü
PFTrDA_2	663.0 / 169.0	4.04	PFTrDA	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

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Summary Ion Ratio Report

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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
PFTrDA_1	663.0 / 619.0	4.05	PFTrDA	1.0000	1.0000	ü
PFTrDA_2	663.0 / 169.0	4.05	PFTrDA	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

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Summary Ion Ratio Report

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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
PFTrDA_1	663.0 / 619.0	4.05	PFTrDA	1.0000	1.0000	ü
PFTrDA_2	663.0 / 169.0	4.05	PFTrDA	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

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Summary Ion Ratio Report

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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
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	0.0631	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

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Summary Ion Ratio Report

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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
PFTrDA_1	663.0 / 619.0	4.05	PFTrDA	1.0000	1.0000	ü
PFTrDA_2	663.0 / 169.0	4.04	PFTrDA	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

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Summary Ion Ratio Report

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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
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	0.0630	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

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Summary Ion Ratio Report

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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
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	0.0657	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

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Summary Ion Ratio Report

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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
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	0.0651	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

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QC Summary Report

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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
PFTrDA_1	663.0 / 619.0	4.04	937.629546	1000.00	93.76
PFTrDA_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

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QC Summary Report

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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

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QC Summary Report

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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
PFTrDA_1	663.0 / 619.0	4.03	498.401940	500.00	99.68
PFTrDA_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

BATTELLE

QC Summary Report

Created with Analyst Reporter
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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.
$\leq$ 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 quadradic curve fitting.
R^2 >0.99 Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No exceedances noted.
	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 Low point 50-150% of true value	No exceedances noted.
	No comments.

BATTELLE
It can be done

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

BATTELLE
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:

BATTELLE
It can be done

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
PFTrDA	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				Control Limits	
Units	ng/L	Target	Recovery	Qual	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
PFTrDA	8.53	10.00	85		70	130
PFTeDA	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				Control Limits	
Units	ng/L	ng/L	Target	Recovery	Qual	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
PFTrDA	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

					Control Limits				RPD
		Target	Recovery	Qual	Lower	Upper	RPD	Qual	Limit
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
PFUnA	16.80	19.61	86		70	130	1.2		≤ 30
PFDoA	16.47	19.61	84		70	130	0.0		≤ 30
PFTrDA	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

BATTELLE
It can be done

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	Lower	Upper
116,048.25	58,024.13	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

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It can be done

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	Lower	Upper
37,623.47	18,811.74	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

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It can be done

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	Lower	Upper
33,844.95	16,922.48	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	

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Summary Asymmetry Report

Created with Analyst Reporter
Printed: 14/05/2018 4:58:46 PM

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

BATTELLE

Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 14/05/2018 5:00:17 PM

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
PFDoA_1	613.0 / 569.0	3.81	63	>10
PFDoA_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

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Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 15/05/2018 10:45:16 AM

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
PFTrDA	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
$^{13}C_2$-PFOA	NA	IS	415.0 / 270.0	NA
$^{13}C_4$-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:** _____

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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
☑ CAD 0	0.5	0.4 to 1.1 x10^{-5} Torr
☑ CAD Low	1.9	Read Only
☑ CAD Medium	2.4	Read Only
☑ CAD High	3.4	Read Only
☑ 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. Record10mca.

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
☑ CAD 0	0.8	0.4 to 1.1 x10^{-5} Torr
☑ CAD Low	2.1	Read Only
☑ CAD Medium	2.6	Read Only
☑ CAD High	3.7	Read Only
☑ 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	Width Specs
	Value	Spec	Value	
Scan Rate 10 Da/s Record 10 mca				
Q1 175.133	5.94 e6	≥1.2^{e}6	0.6933	0.6 to 0.8
Q1 500.380	2.25 e7	≥9.0^{e}6	0.7444	0.6 to 0.8
Q1 906.673	2.74 e7	≥1.4^{e}7	0.7347	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8^{e}7	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	Width Specs
	Value	Spec	Value	
Scan Rate 10 Da/s Record 10 mca				
Q3 175.133	4.54 e6	≥1.2^{e}6	0.6390	0.6 to 0.8
Q3 500.380	2.13 e7	≥9.0^{e}6	0.7008	0.6 to 0.8
Q3 906.673	3.04 e7	≥1.4^{e}7	0.7683	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q3 906.673	1.51 e8	≥6.8^{e}7	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	Width Specs
	Value	Spec	Value	
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	≥1.0^{e}7	0.6895	0.6 to 0.8
Q1 933.636	1000	50	6.32 e7	≥4.0^{e}7	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	≥8.0^{e}6	0.7665	0.6 to 0.8
Q3 933.636	1000	50	7.41 e7	≥4.0^{e}7	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	≥7.2 ^{e}6	0.1302	<0.35
ER 922.010	0.05	3.89 e7	≥2.8 ^{e}6	0.2603	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05	2.55 e7	≥2.4 ^{e}7	0.3740	<0.65
ER 922.010	0.05	2.37 e8	≥6.8 ^{e}7	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	≥4.4 ^{e}7	0.1840	<0.35
ER 601.978	0.05	7.74 e7	≥5.6 ^{e}7	0.1849	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 431.982	0.05	3.43 e8	≥1.2 ^{e}8	0.4382	<0.65
ER 601.978	0.05	2.55 e8	≥1.6 ^{e}8	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
☐ 236 OR ☑ 365	1000	1.19 e8	Fragment Intensity	> 4.4 e6	≥1.6x 10e6

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.

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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

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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

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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	

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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.

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Sequence Report

Created with Analyst Reporter
Printed: 15/05/2018 10:26:09 AM

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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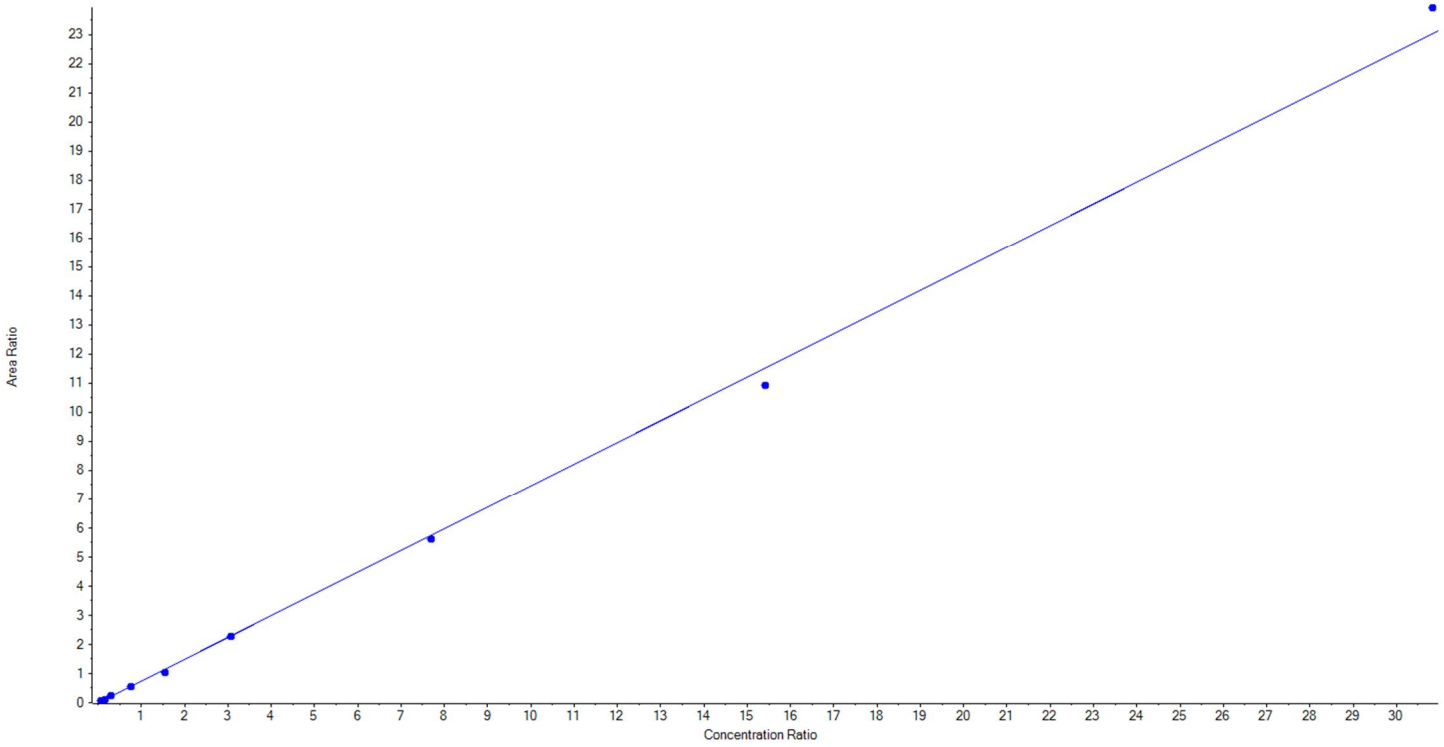
Calibration Summary Report

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 = 0.74710 x + -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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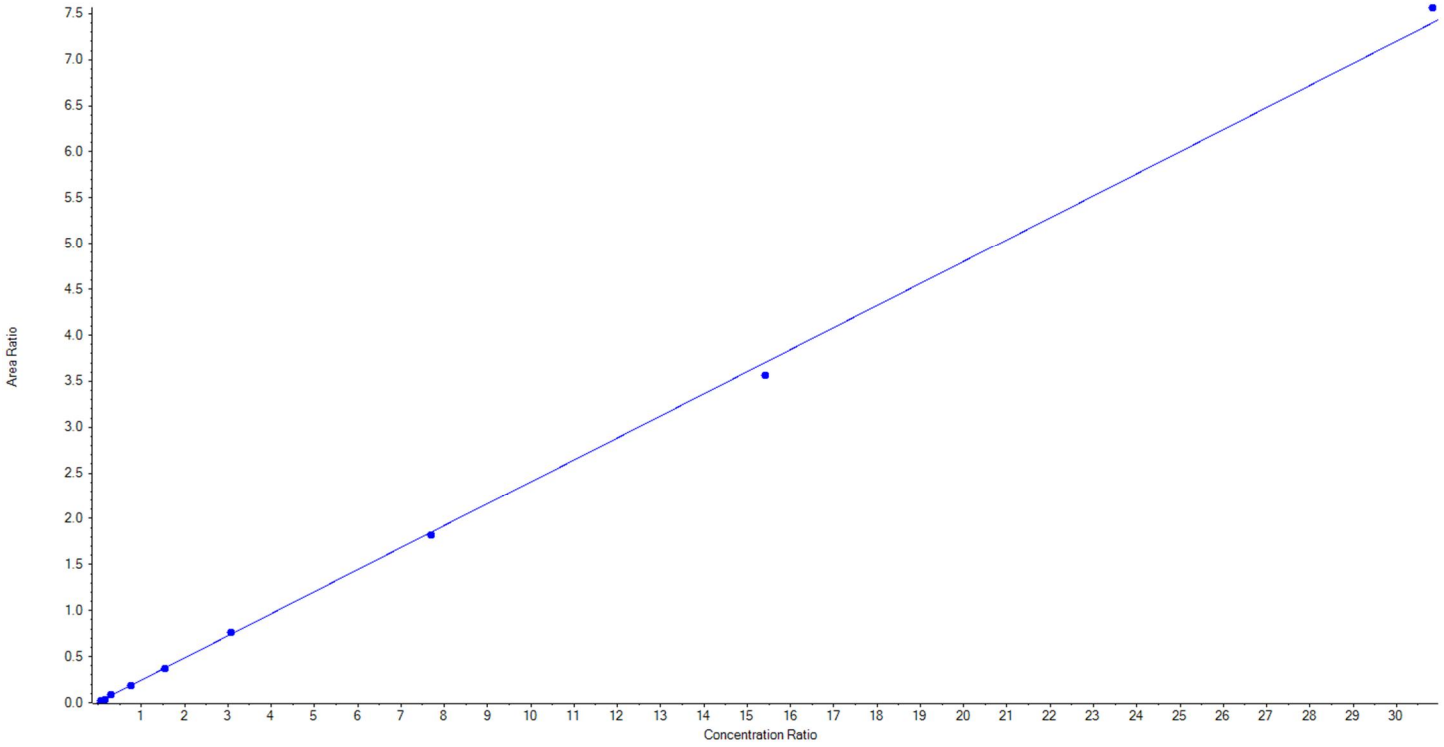
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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 = 0.23985 x + 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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Calibration Summary Report

Created with Analyst Reporter
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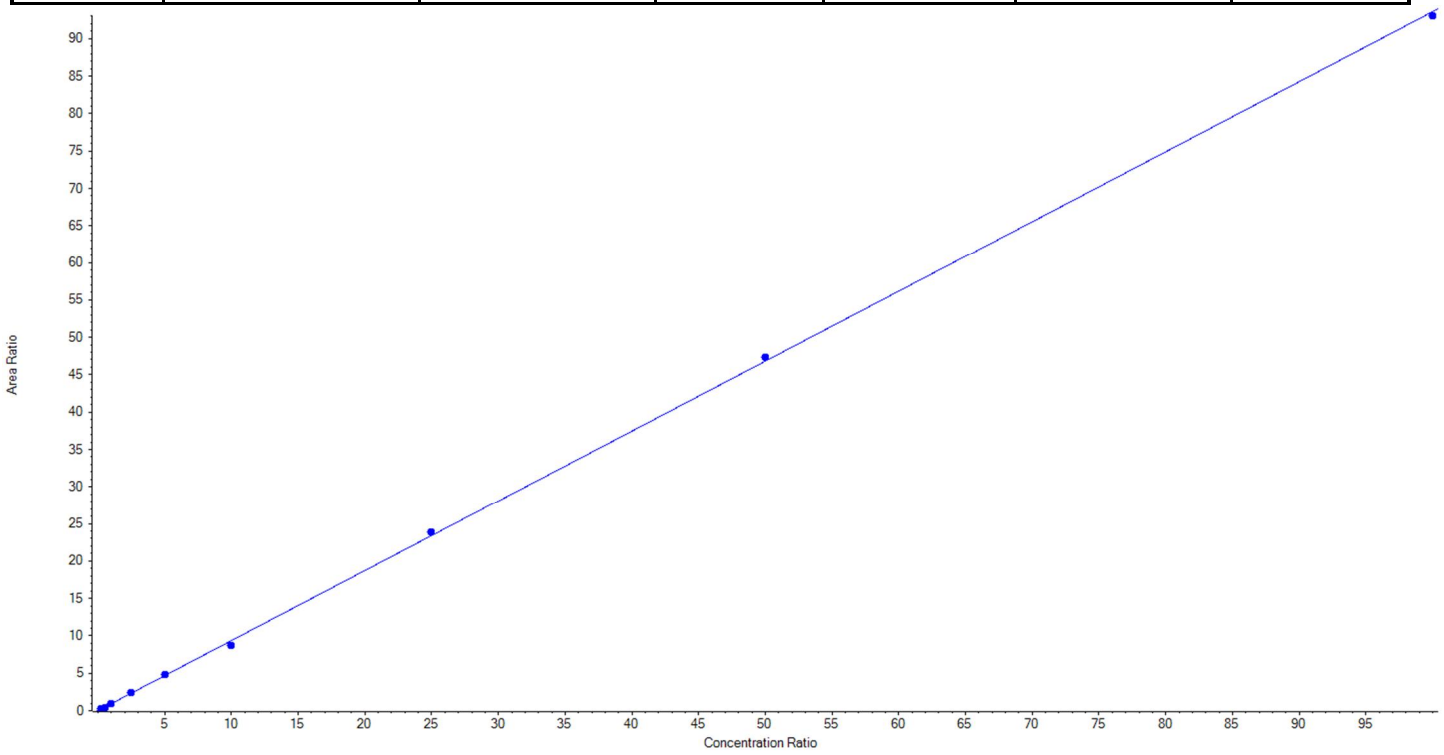
Analyte Name	PFHxA_1	**Data File**	18-0299_A.wiff
MRM Transition	313.0 / 269.0	**Result Table**	18-0299_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.93620 x + 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



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Calibration Summary Report

Created with Analyst Reporter
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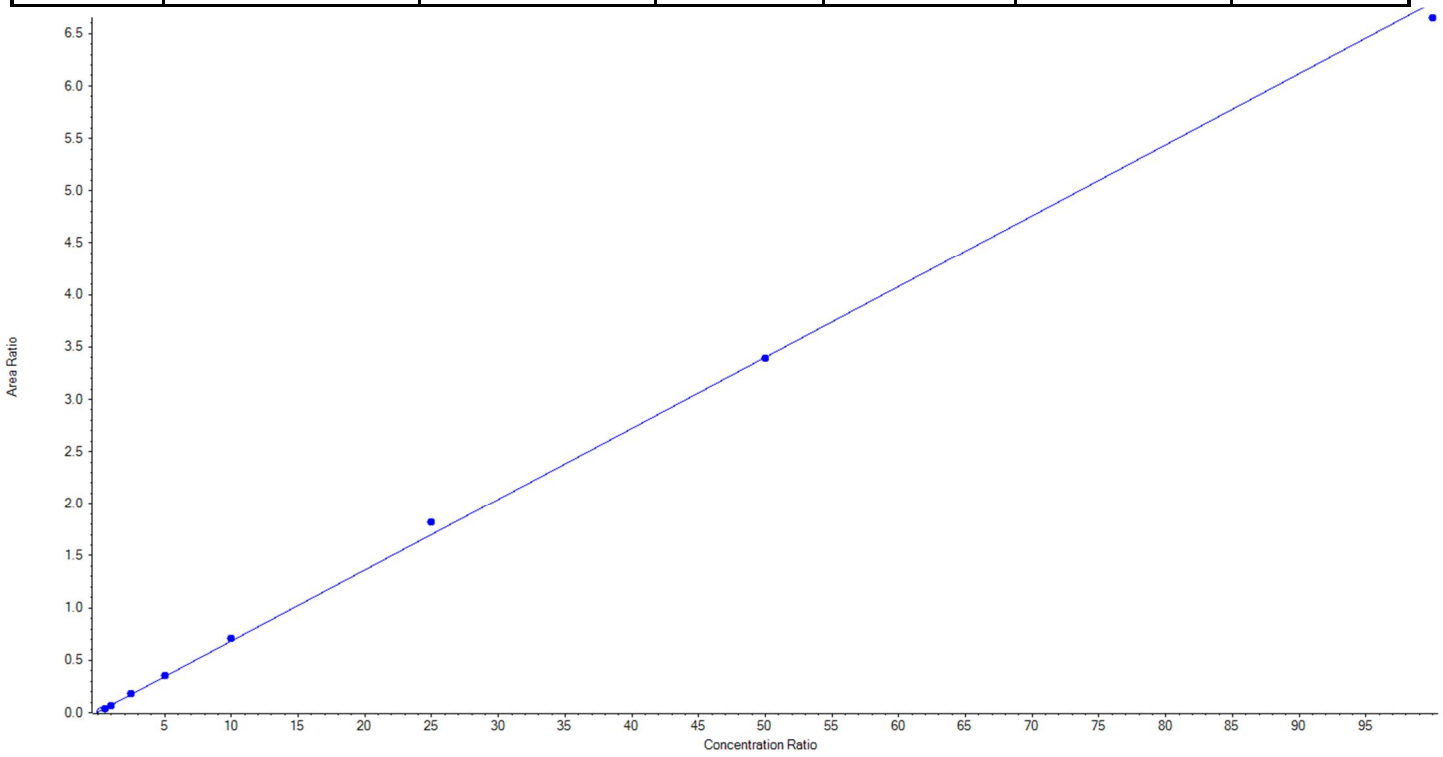
Analyte Name	PFHxA_2	**Data File**	18-0299_A.wiff
MRM Transition	313.0 / 119.0	**Result Table**	18-0299_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	**Acquisition Method**	5-0371.dam

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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Calibration Summary Report

Created with Analyst Reporter
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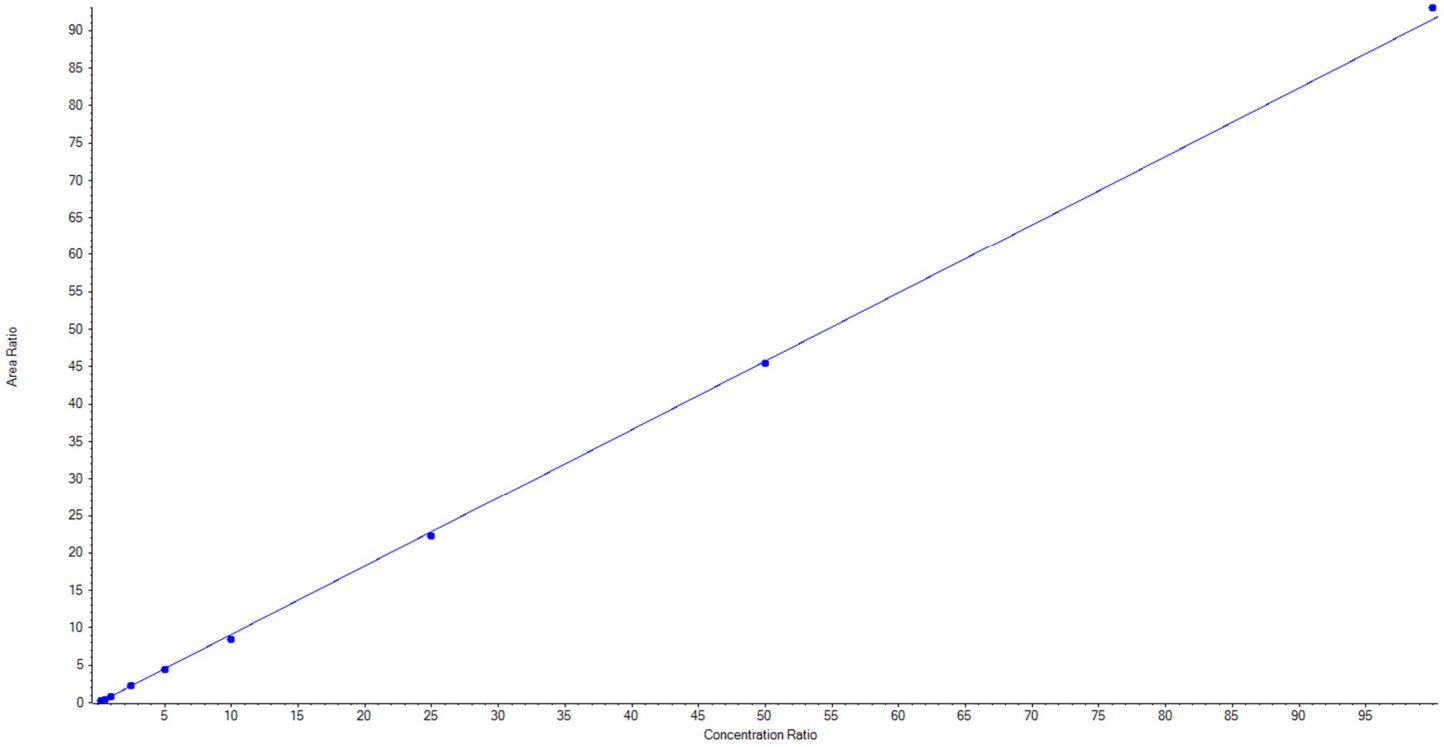
Analyte Name	PFHpA_1	**Data File**	18-0299_A.wiff
MRM Transition	363.0 / 319.0	**Result Table**	18-0299_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	**Acquisition Method**	5-0371.dam

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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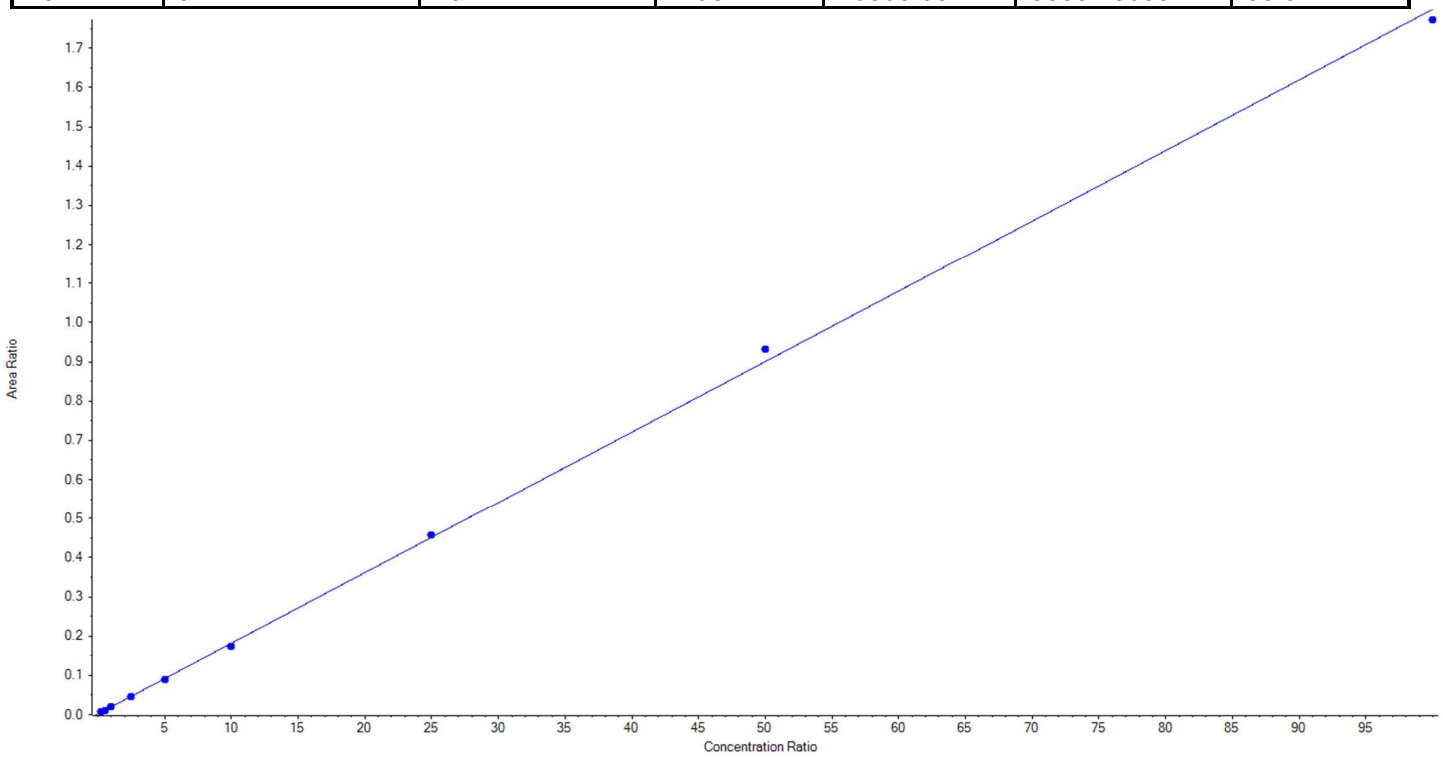
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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



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Calibration Summary Report

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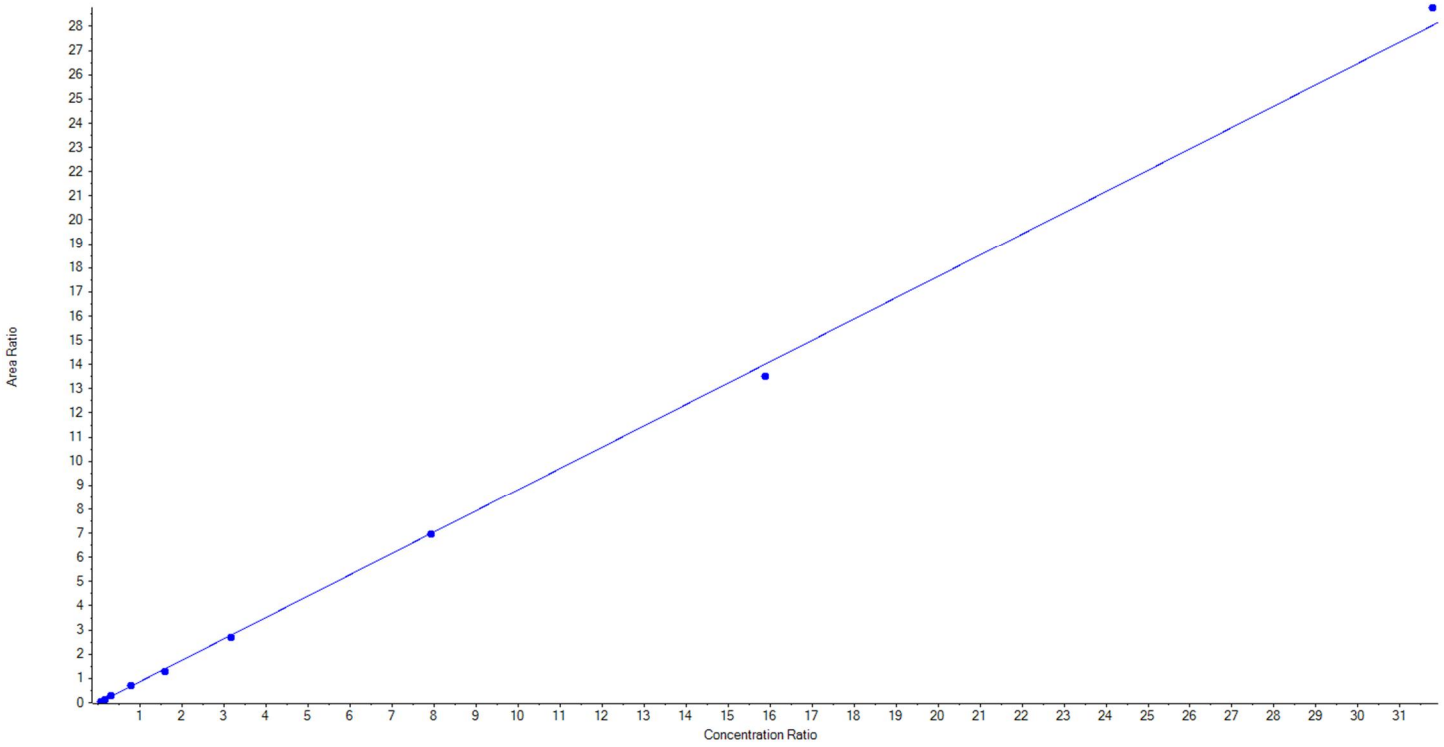
Analyte Name	PFHxS_1	**Data File**	18-0299_A.wiff
MRM Transition	399.0 / 80.0	**Result Table**	18-0299_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	**Acquisition Method**	5-0371.dam

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



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Calibration Summary Report

Created with Analyst Reporter
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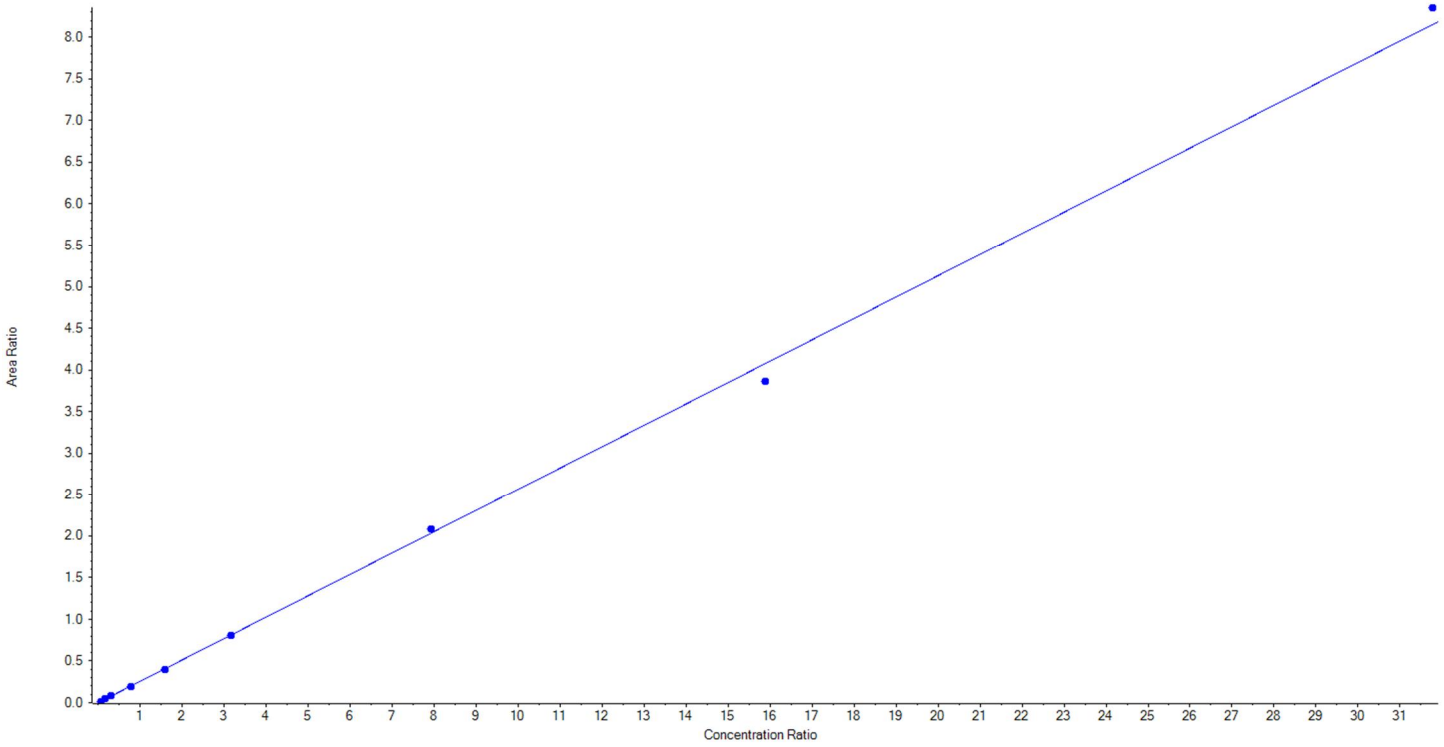
Analyte Name	PFHxS_2	**Data File**	18-0299_A.wiff
MRM Transition	399.0 / 99.0	**Result Table**	18-0299_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	**Acquisition Method**	5-0371.dam

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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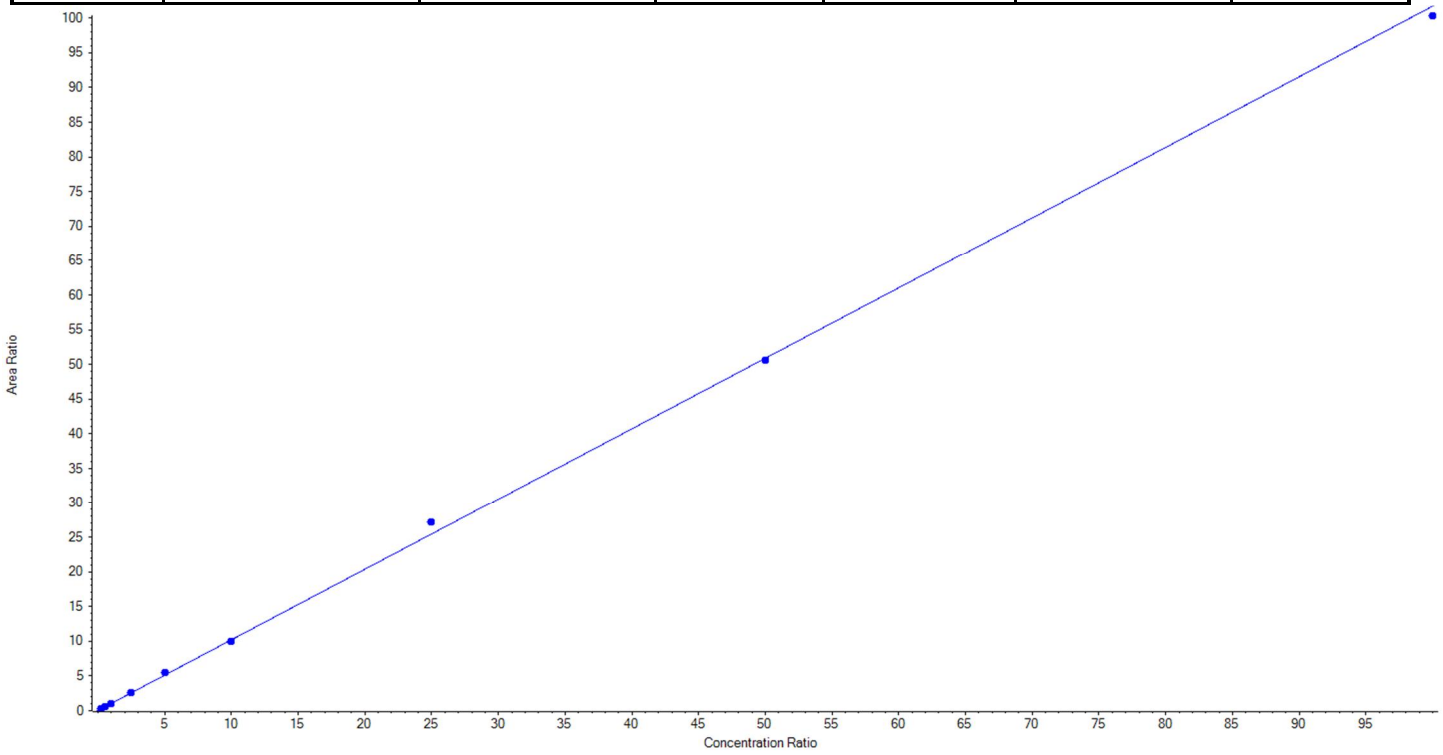
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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 = 1.01678 x + 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



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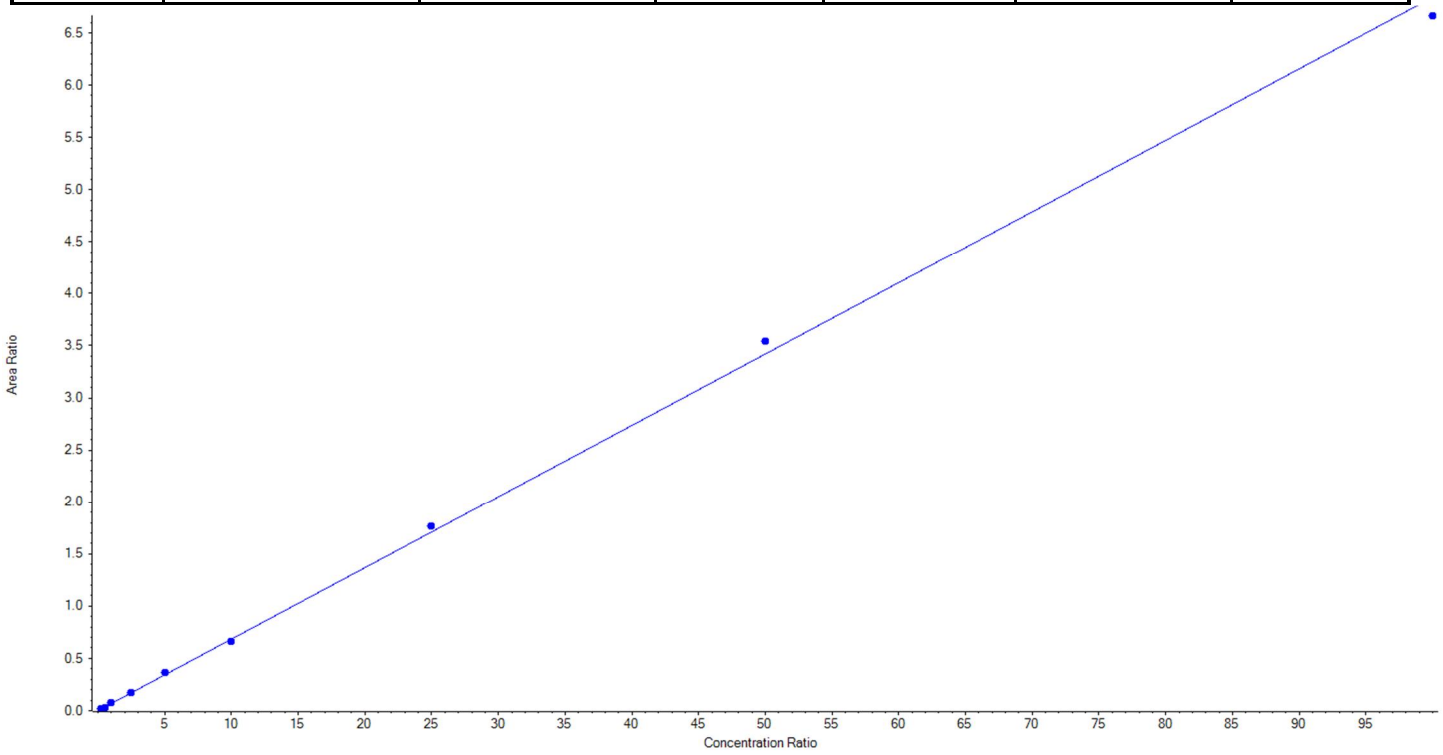
Calibration Summary Report

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 = 0.06839 x + 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



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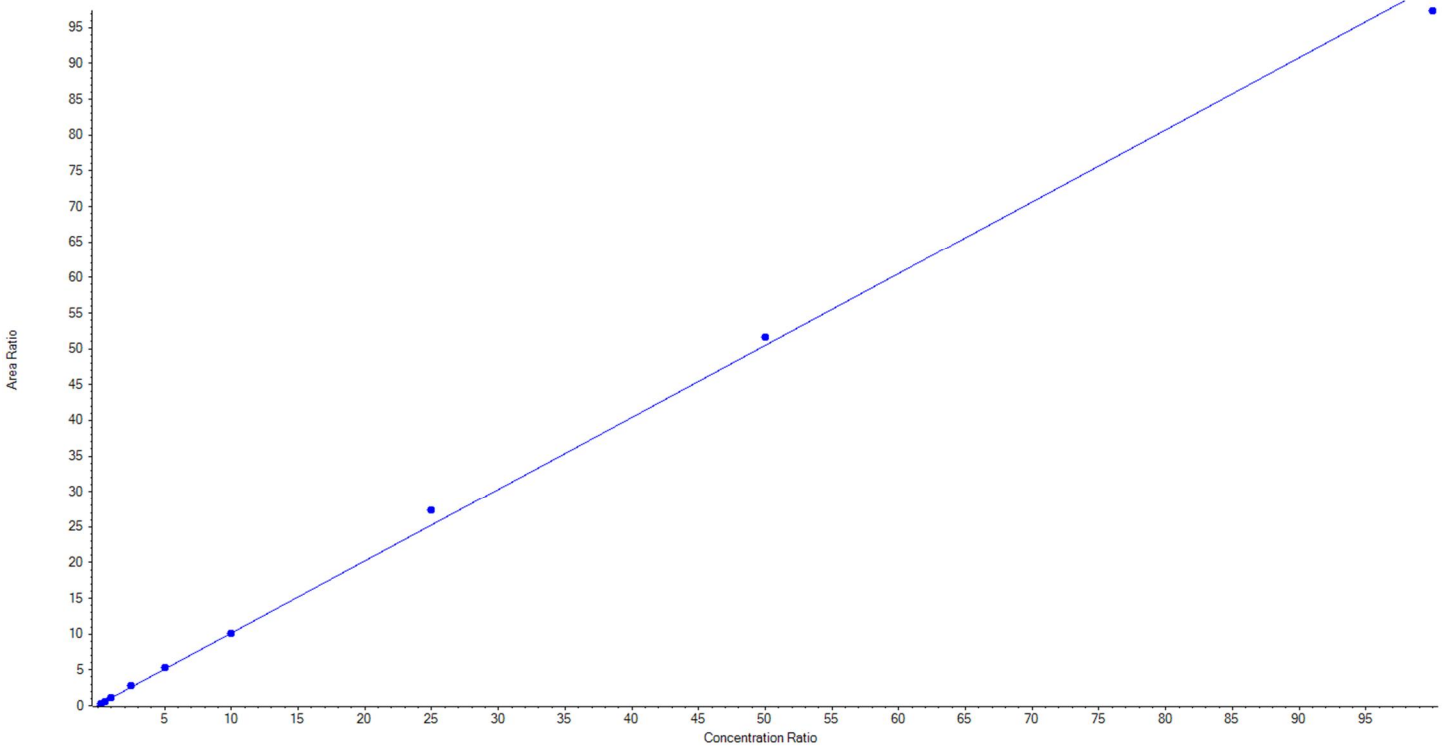
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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 = 1.00813 x + 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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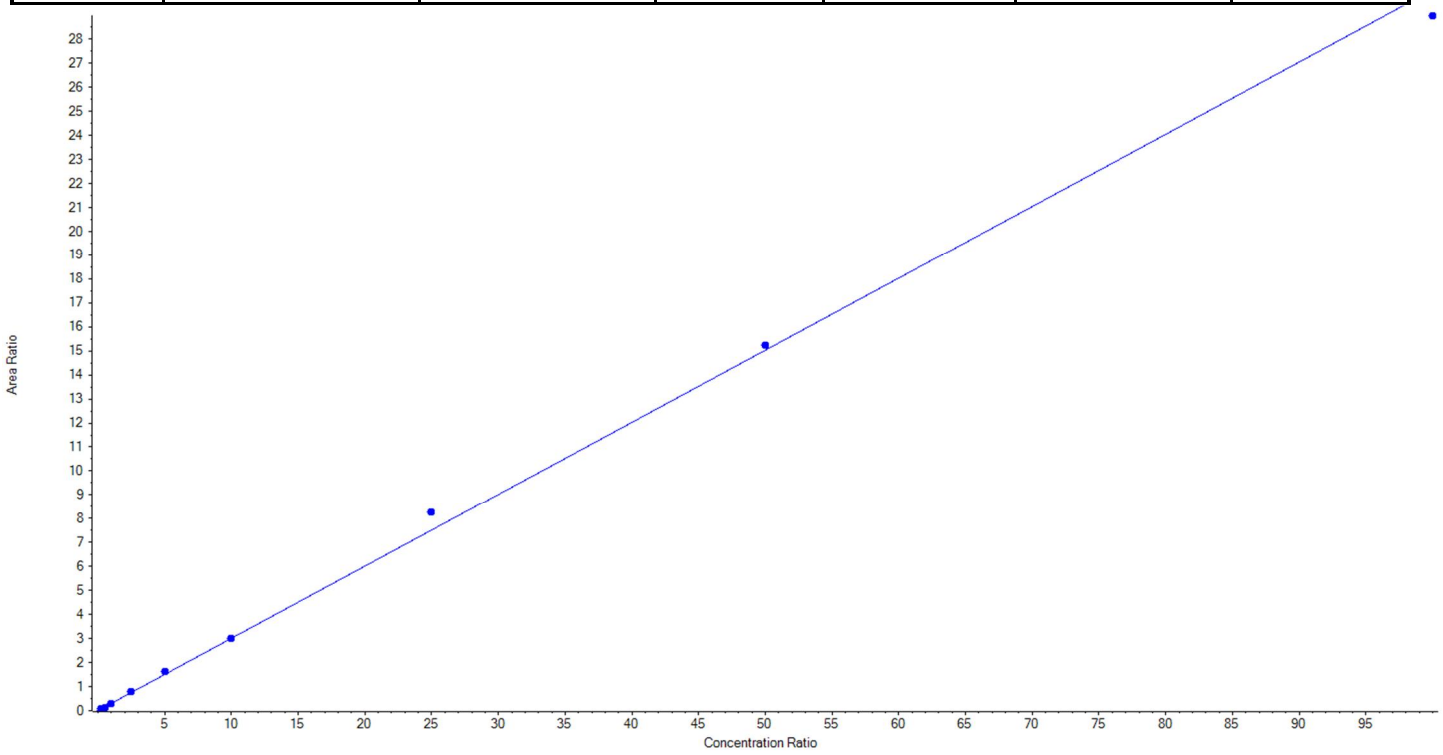
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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 = 0.30048 x + 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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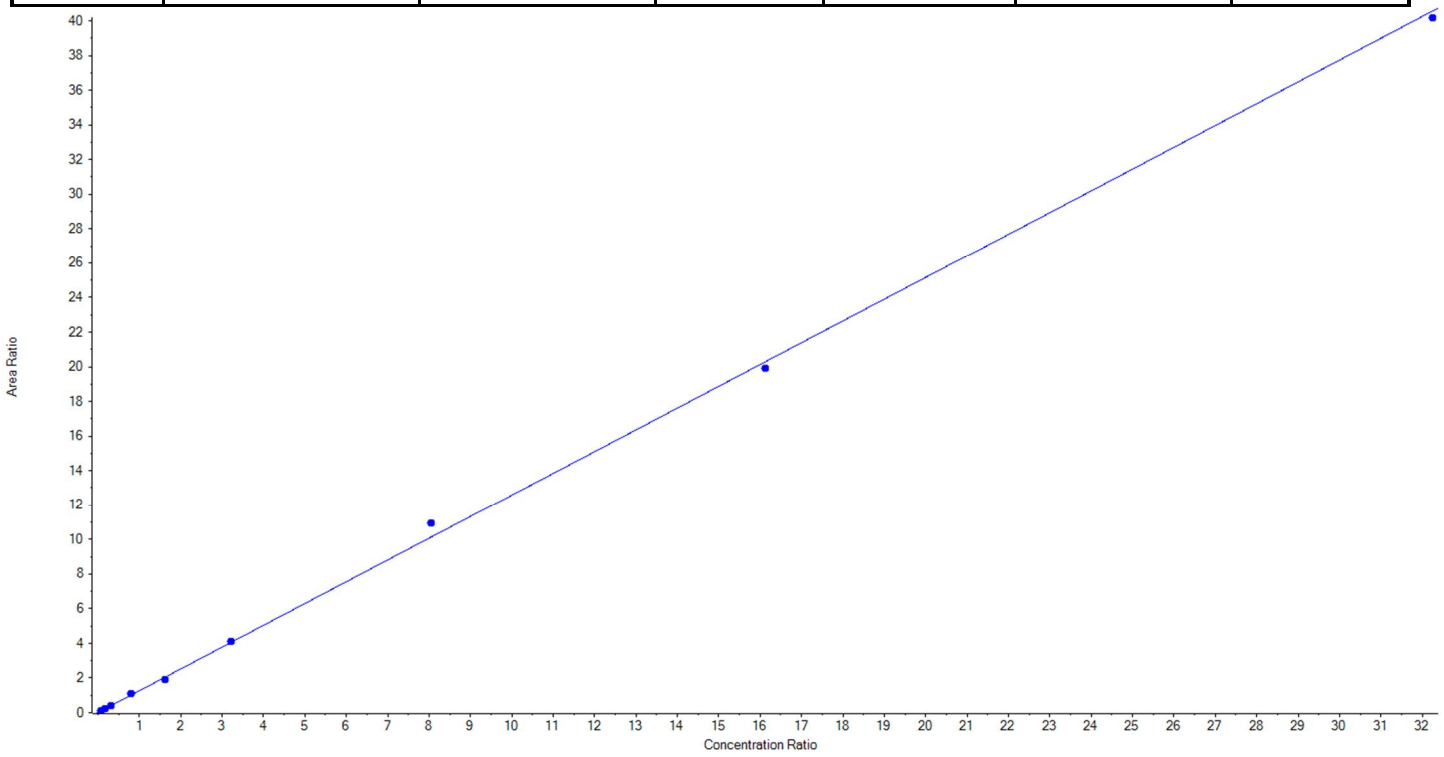
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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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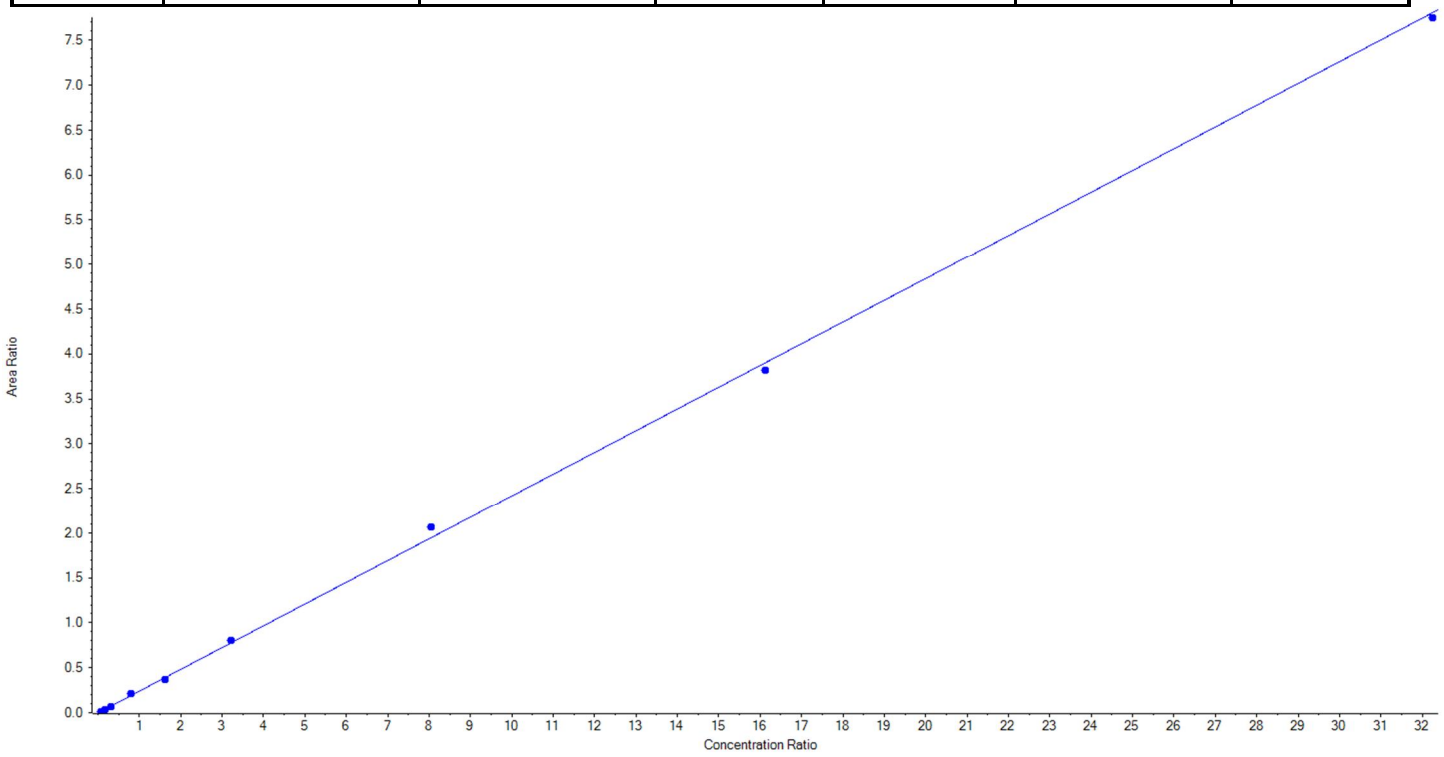
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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 = 0.24213 x + -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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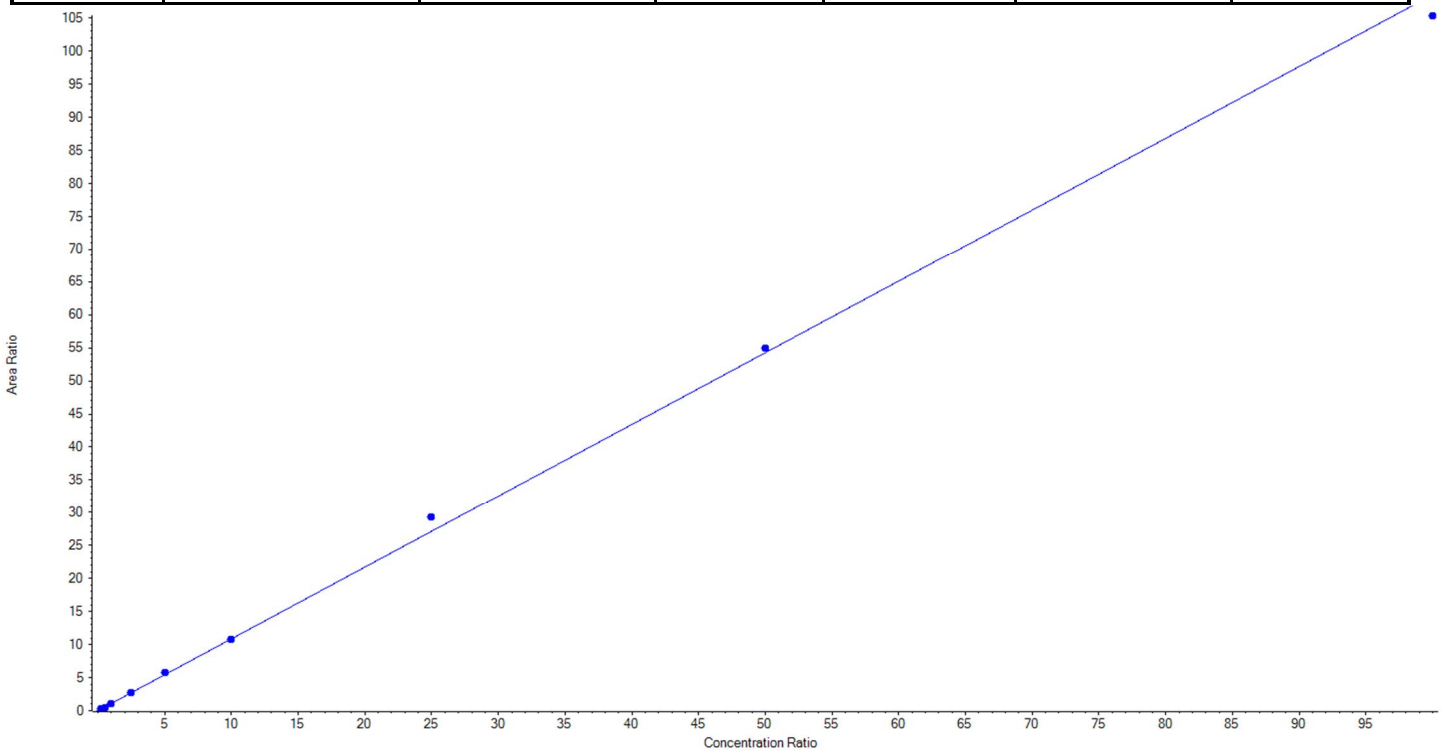
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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 = 1.08508 x + 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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Calibration Summary Report

Created with Analyst Reporter
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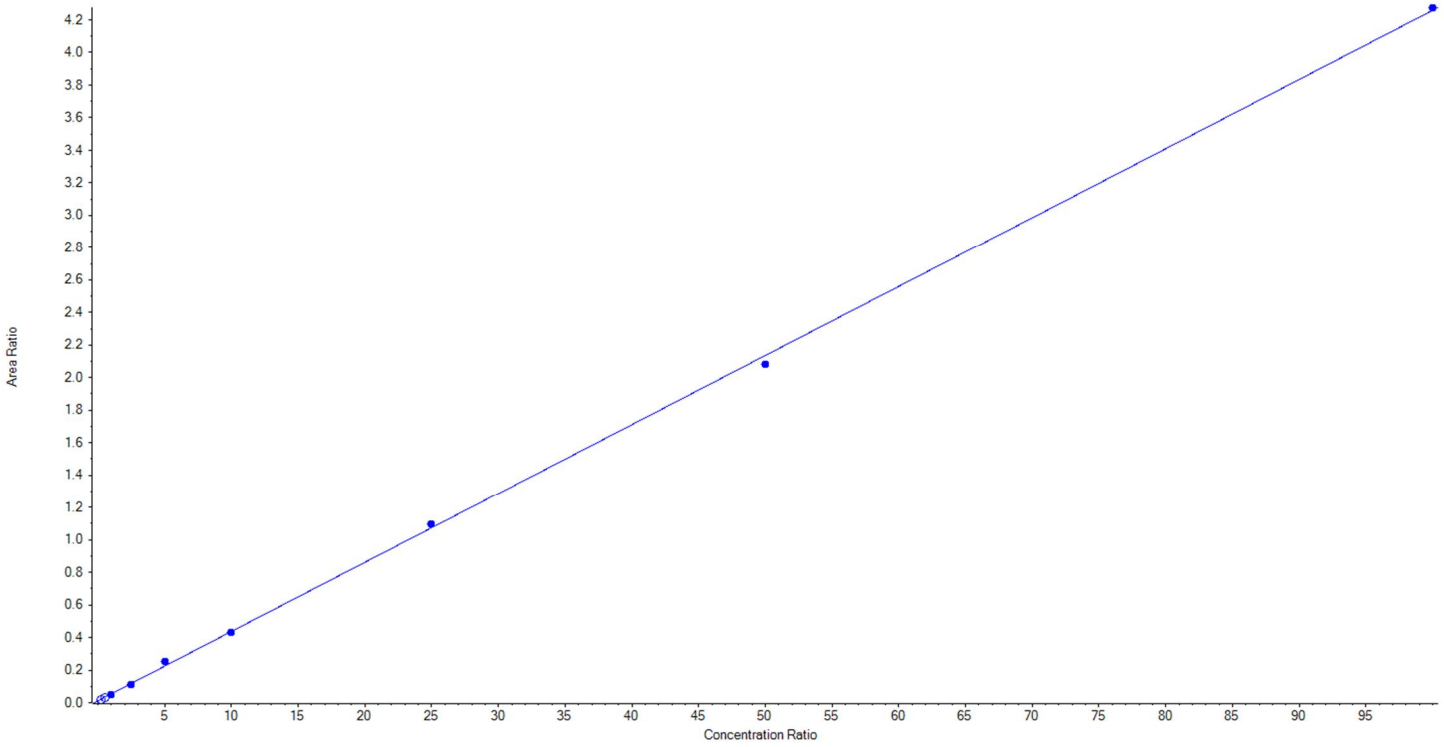
Analyte Name	PFDA_2	**Data File**	18-0299_A.wiff
MRM Transition	513.0 / 219.0	**Result Table**	18-0299_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/13/2018 12:26:05 PM	**Acquisition Method**	5-0371.dam

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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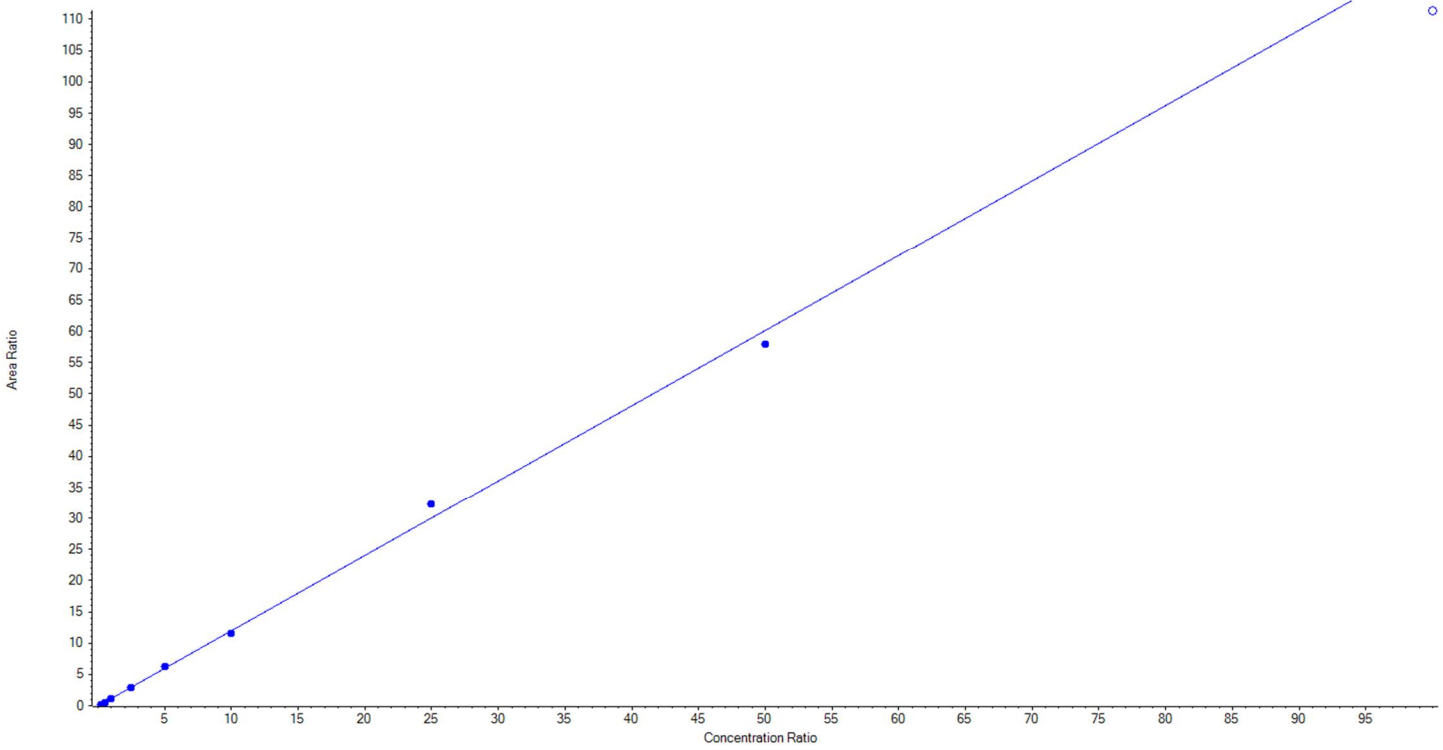
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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 = 1.20341 x + -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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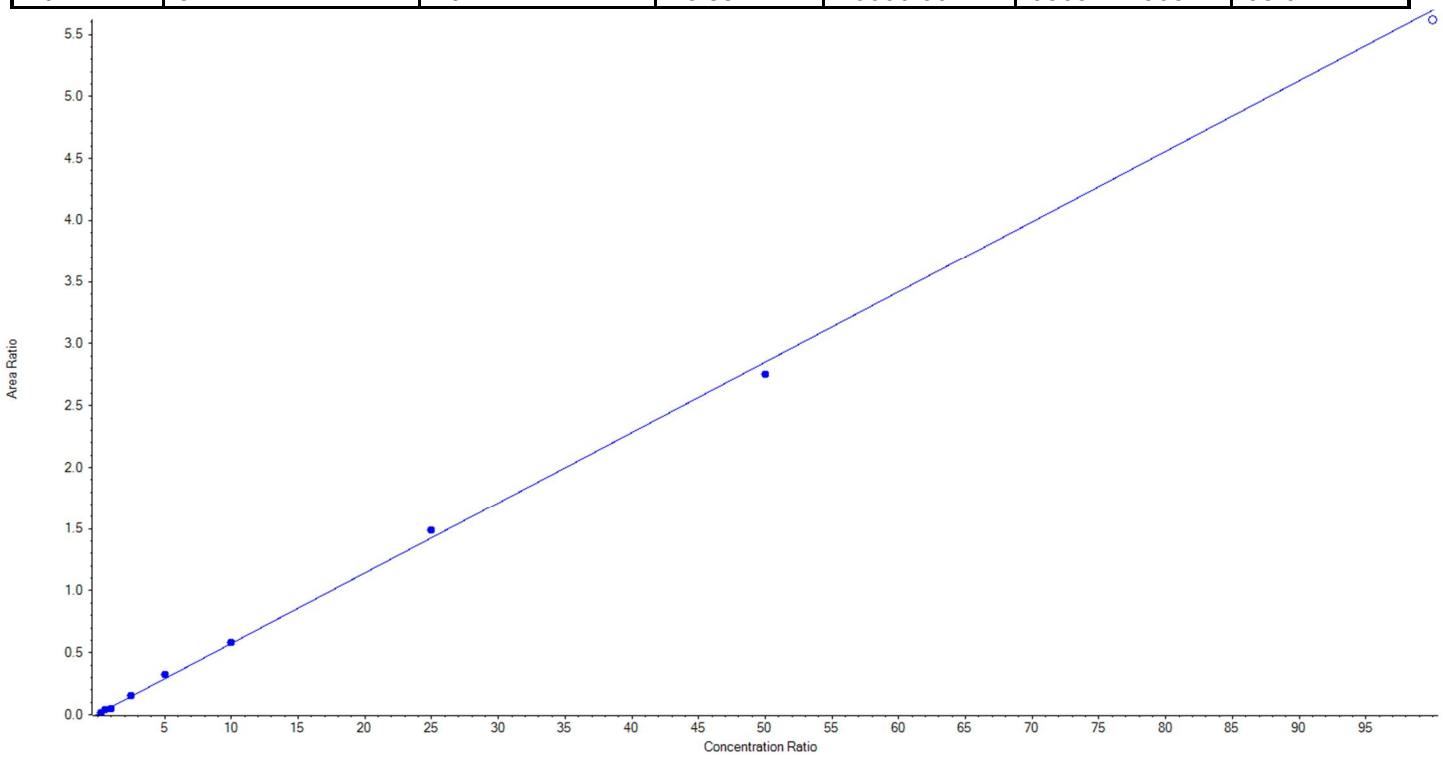
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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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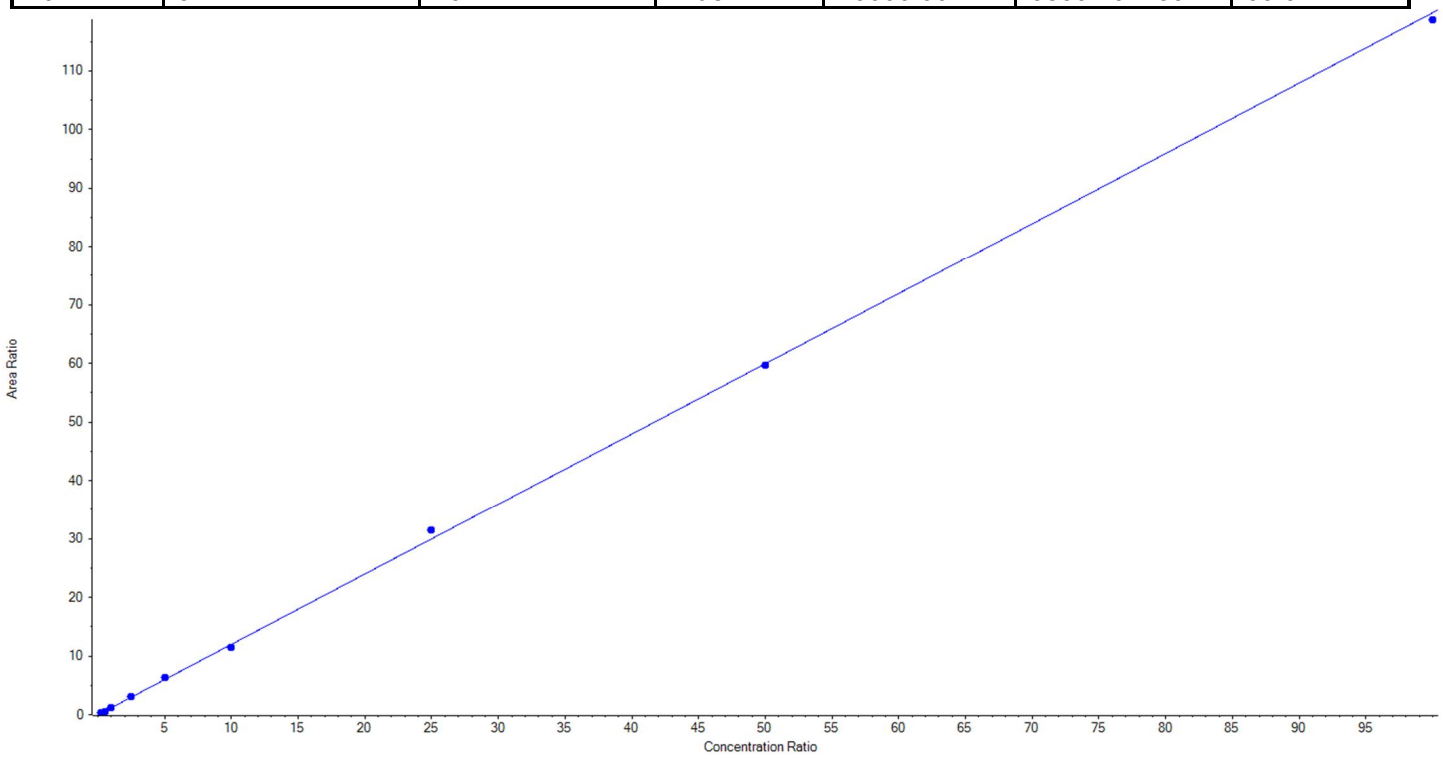
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

Analyte Name	PFDoA_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 = 1.19917 x + -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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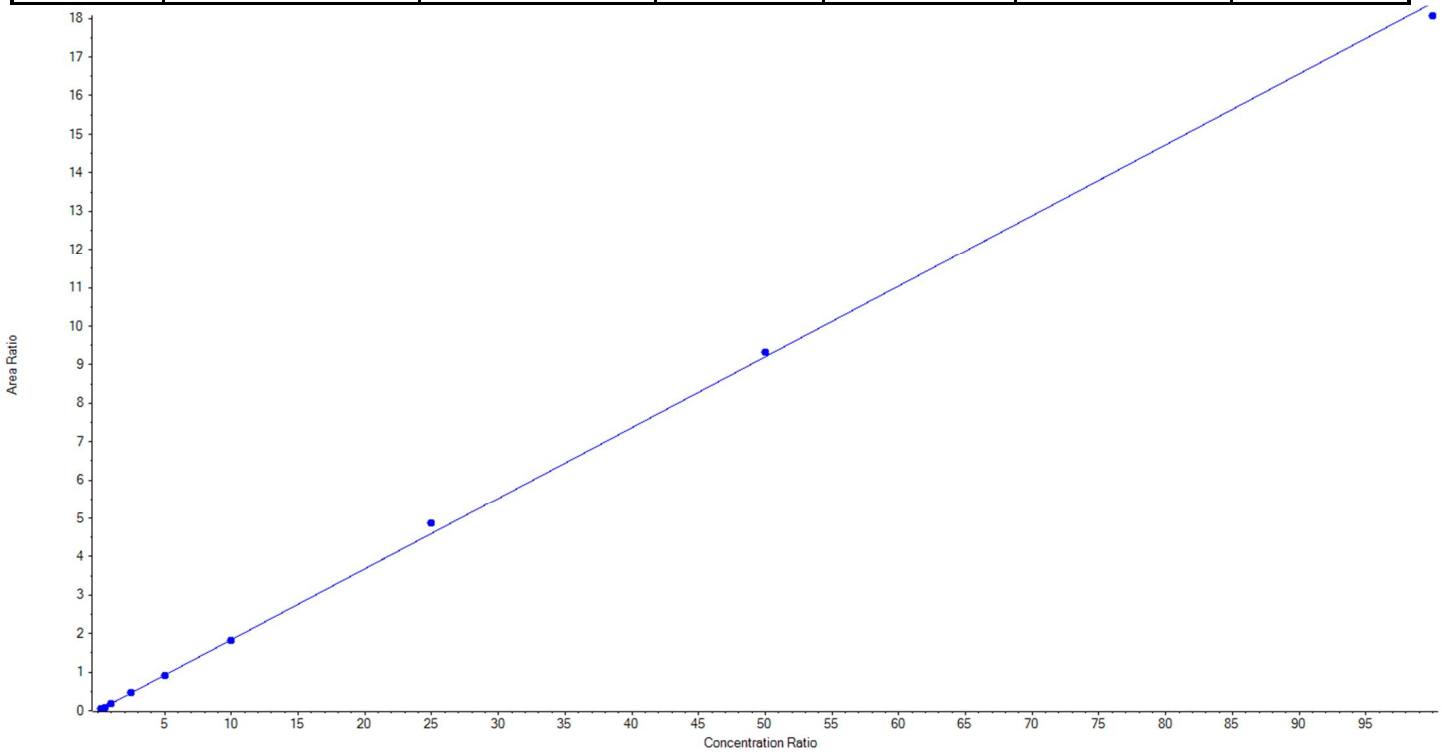
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

Analyte Name	PFDoA_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 = 0.18405 x + 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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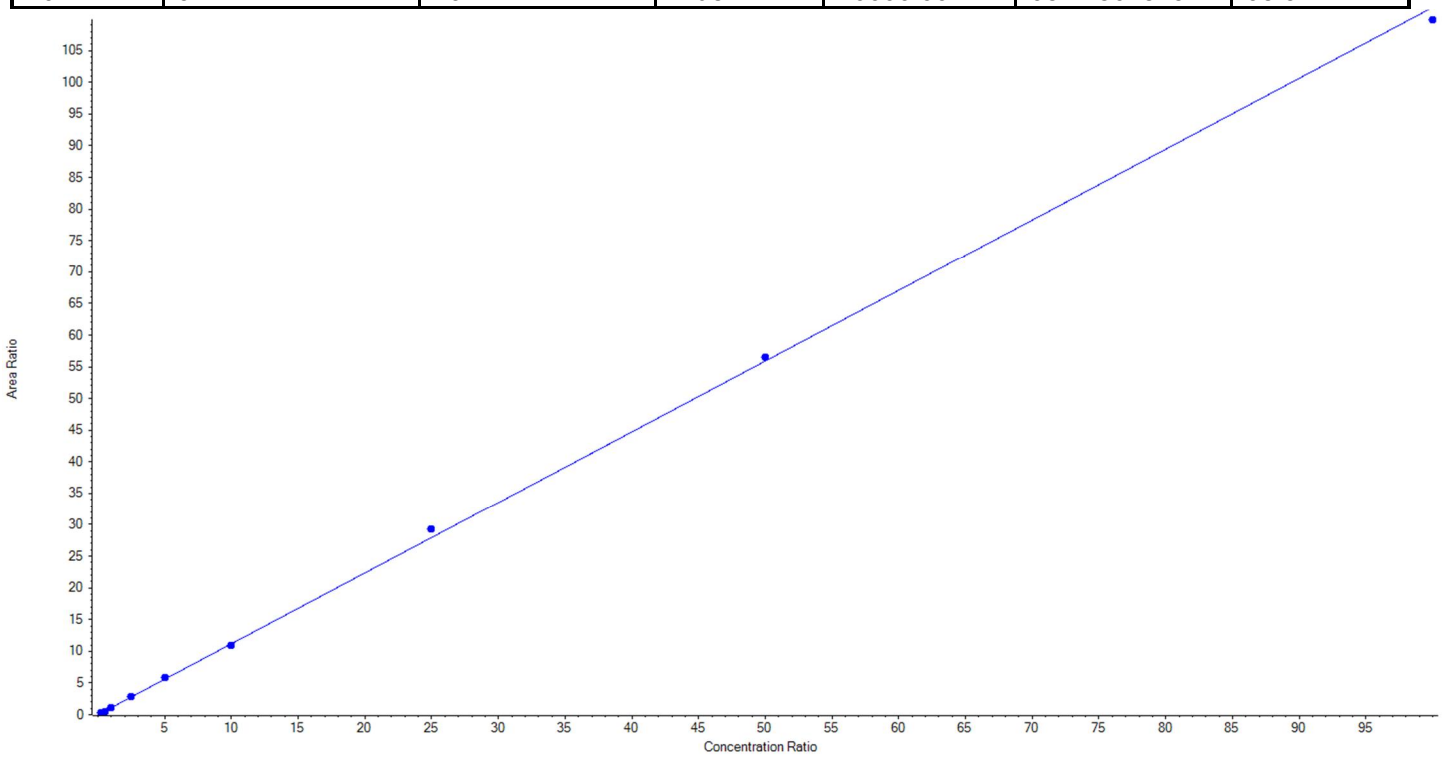
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

Analyte Name	PFTrDA_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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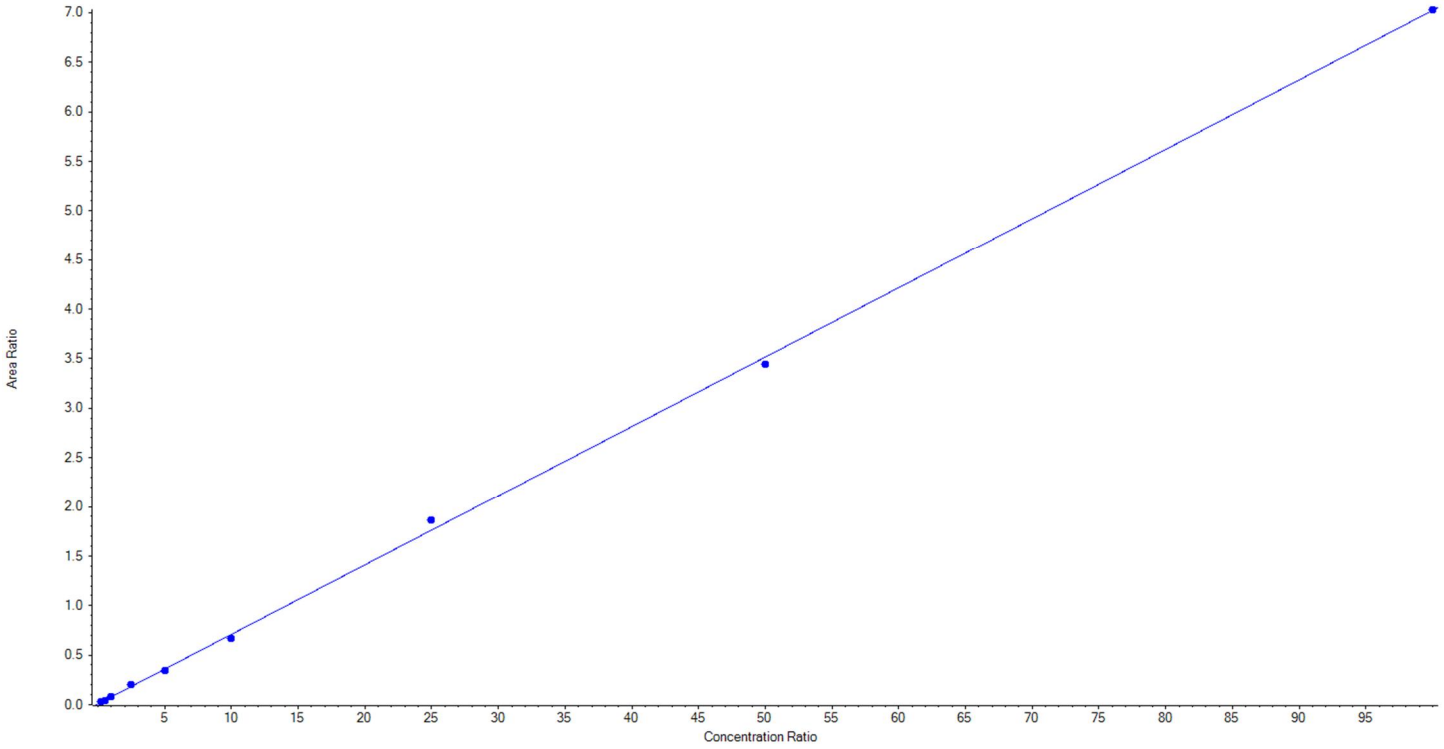
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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 = 0.07015 x + 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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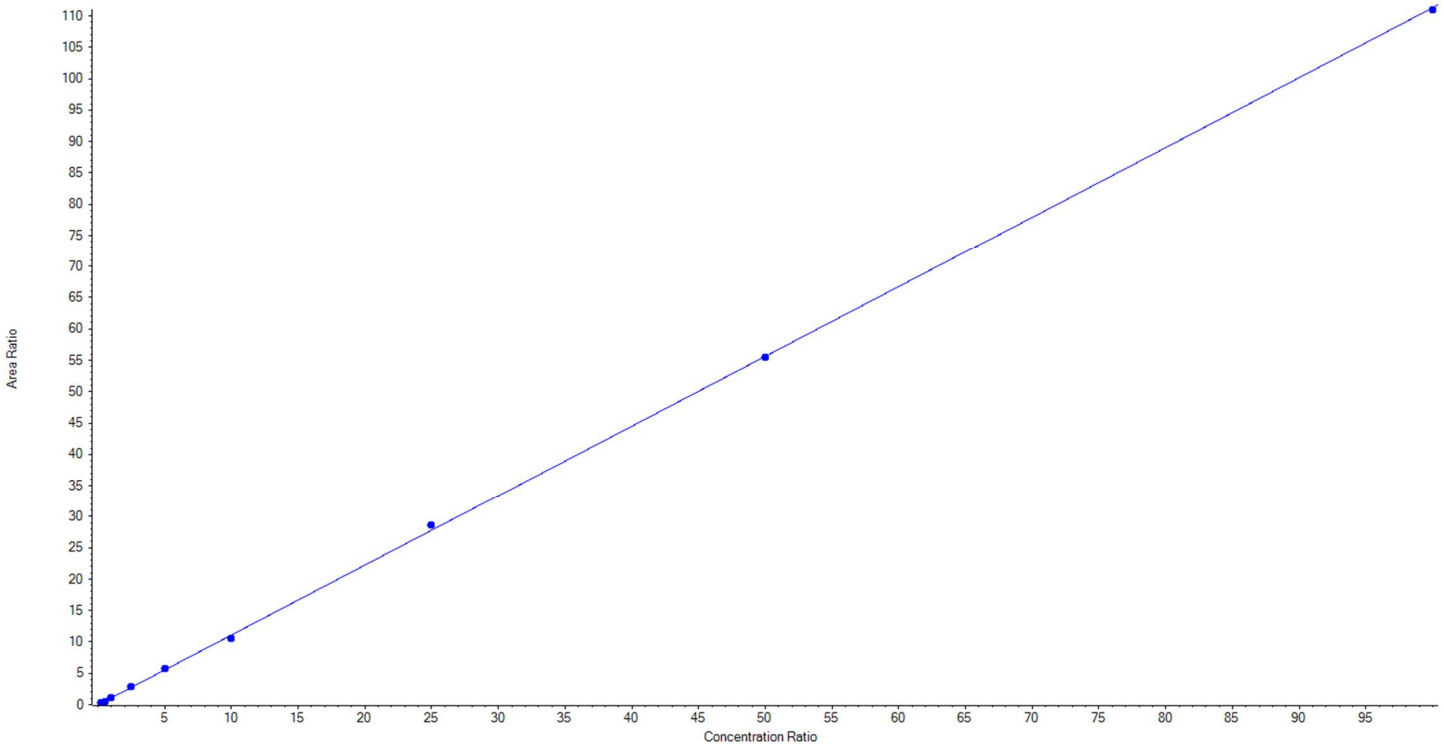
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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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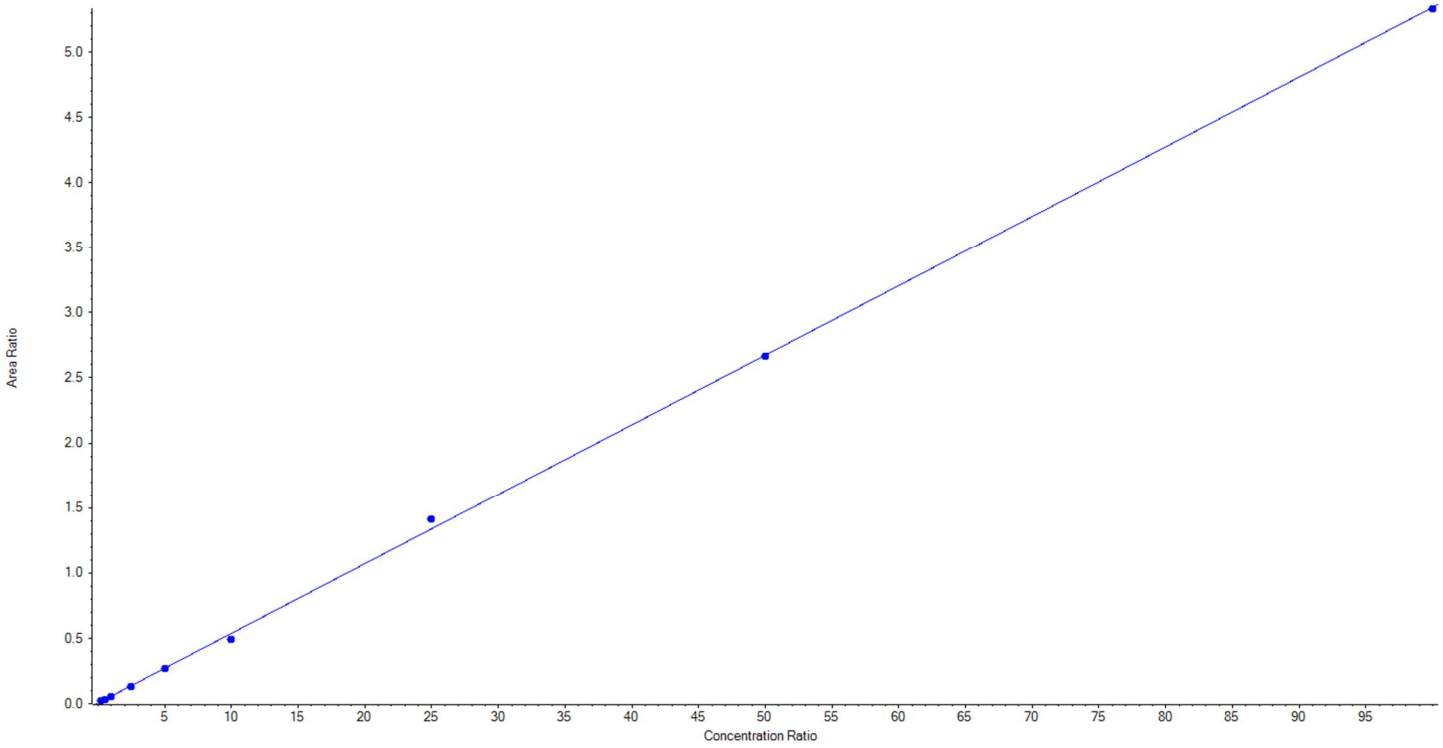
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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



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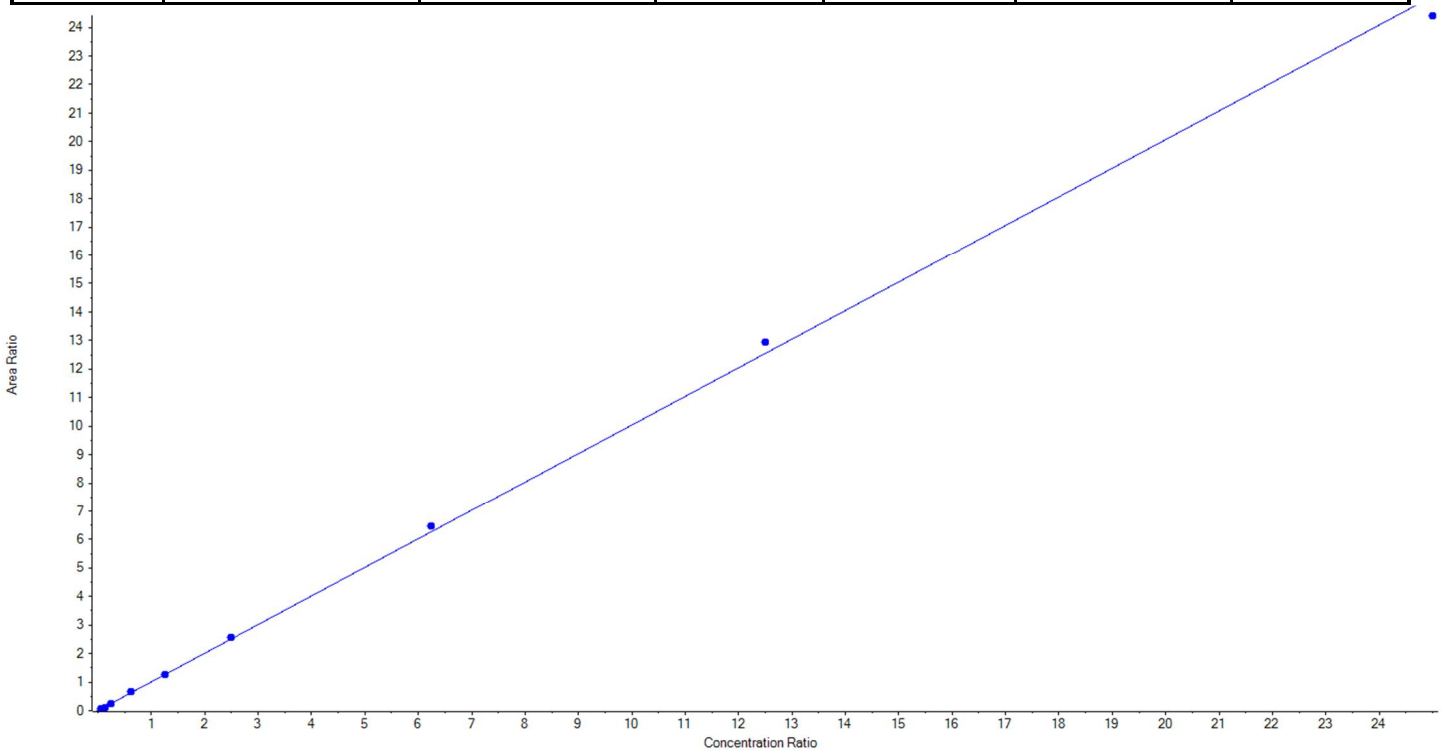
Calibration Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:00:06 PM

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



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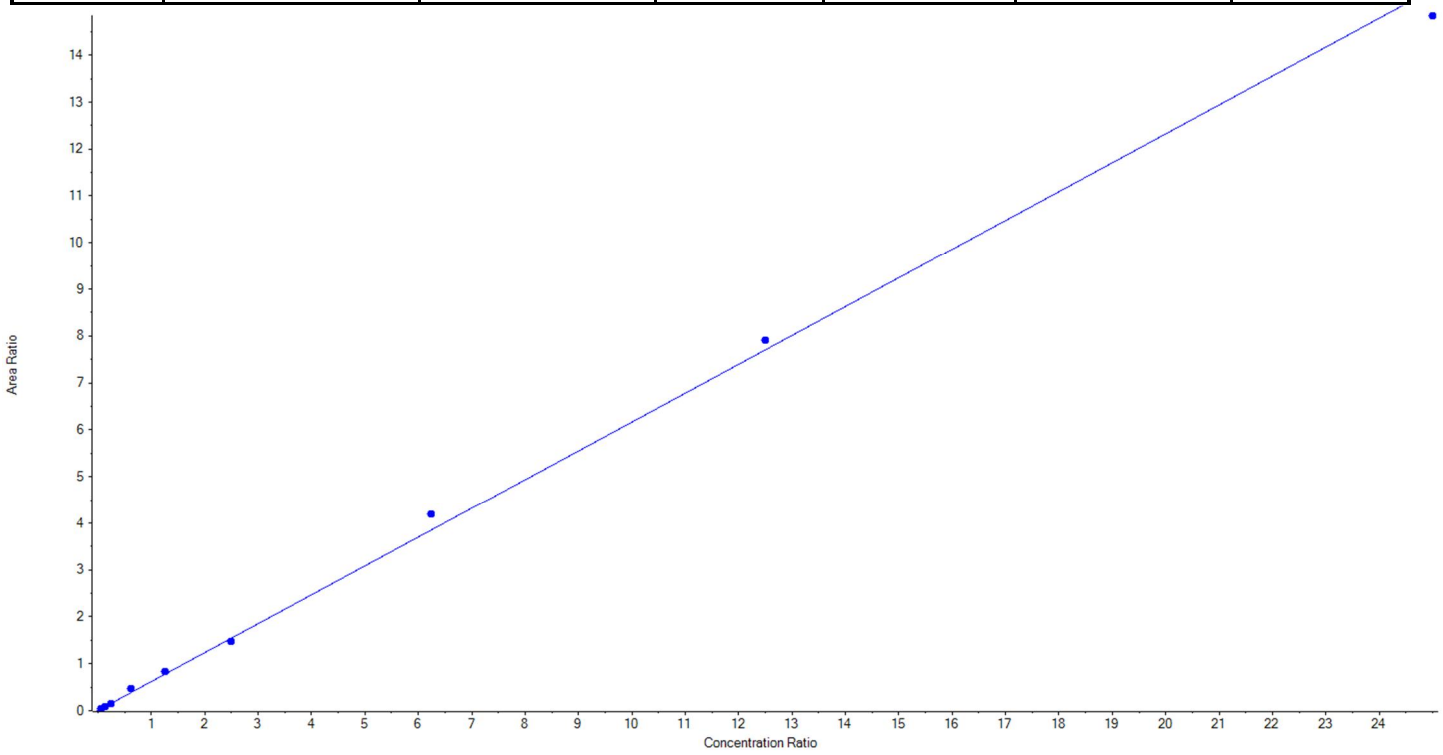
Calibration Summary Report

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



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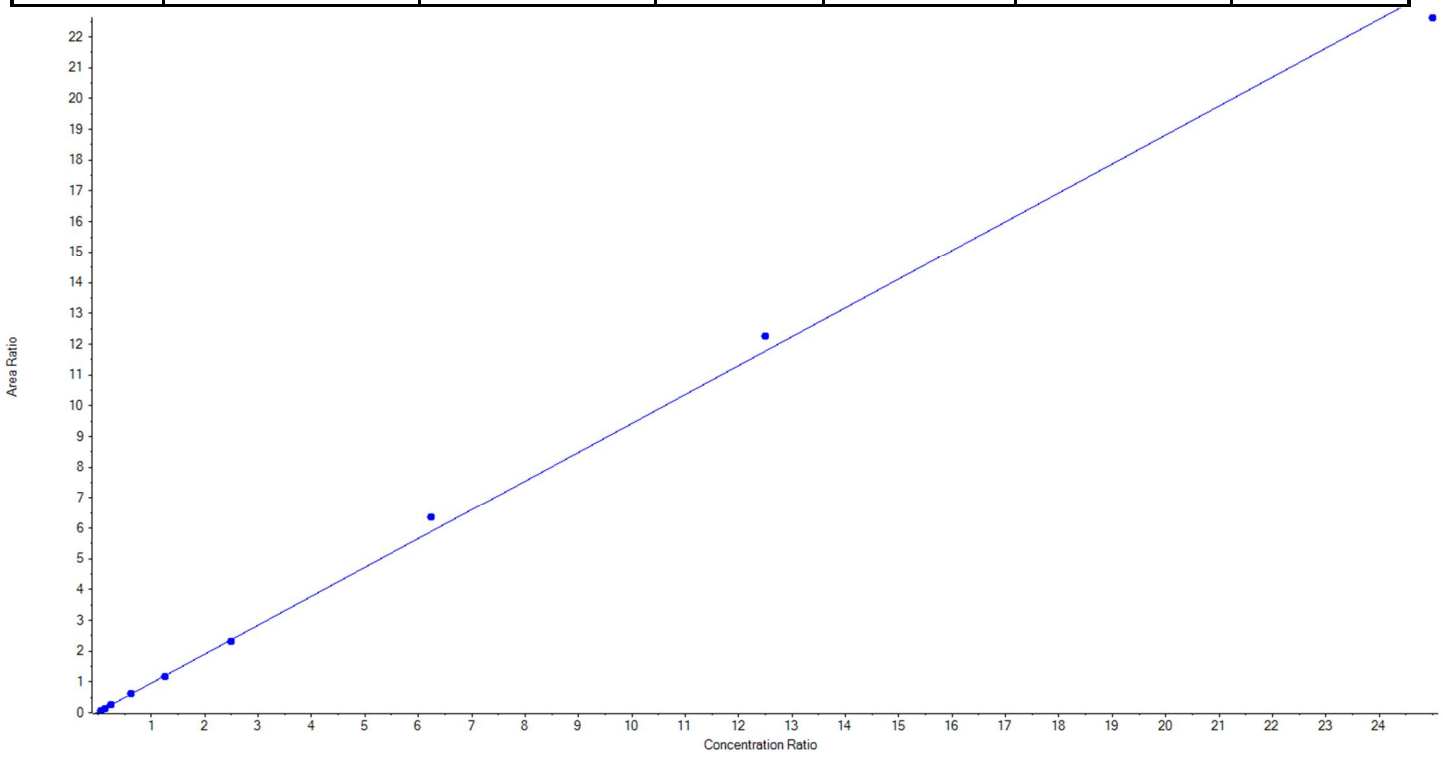
Calibration Summary Report

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



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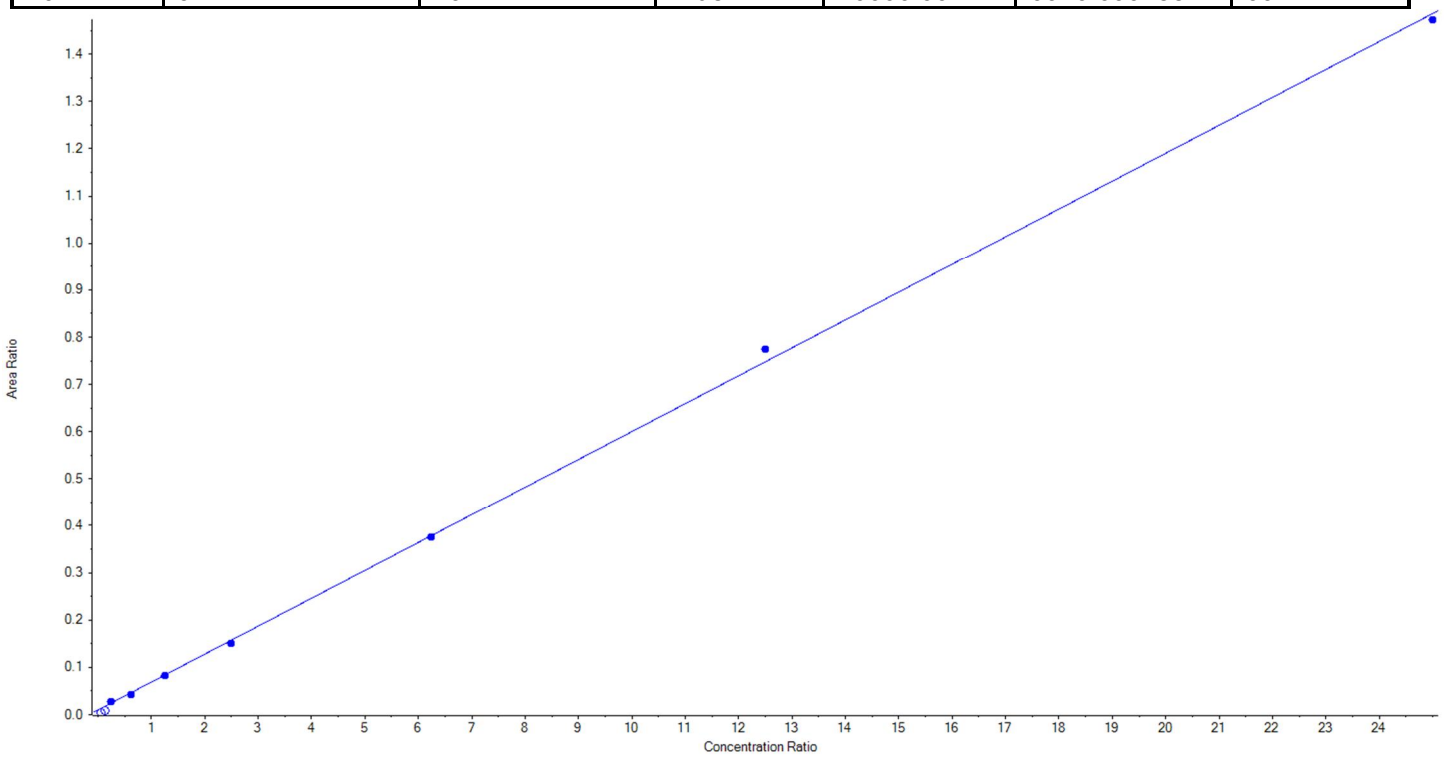
Calibration Summary Report

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



	Drinking Water Calibration Curve Concentrations (ng/L)								
	JV64	JV65	JV66	JV67	JV68	JV69	JV70	JV71	JV72
PFHxA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFHpA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFOA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFNA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFDA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFUnA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFDoA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFTrDA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFTeDA	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
NMeFOSAA (branched)	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
NEtFOSAA (branched)	25.00	50.00	100.00	250.00	500.00	1,000.00	2,500.00	5,000.00	10,000.00
PFBS	22.15	44.30	88.60	221.50	443.00	885.00	2,212.50	4,425.00	8,850.00
PFHxS (branched)	22.80	45.60	91.20	228.00	456.00	912.00	2,280.00	4,560.00	9,120.00
PFOS (branched)	23.15	46.30	92.60	231.50	463.00	925.60	2,314.00	4,628.00	9,256.00
	Surrogates								
13C2-PFHxA	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
13C2-PFDA	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
d5-EtFOSAA	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00
	Internal Standards								
13C2-PFOA	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
13C4-PFOS	287.00	287.00	287.00	287.00	287.00	287.00	287.00	287.00	287.00
d3-MeFOSAA	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00

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Summary Ion Ratio Report

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Printed: 17/05/2018 4:24:57 PM

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
PFDoA_1	613.0 / 569.0	3.81	PFDoA			
PFDoA_2	613.0 / 319.0	3.80	PFDoA	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

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 17/05/2018 4:24:59 PM

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
PFDoA_1	613.0 / 569.0	3.81	PFDoA			
PFDoA_2	613.0 / 319.0	3.81	PFDoA	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

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Summary Ion Ratio Report

Created with Analyst Reporter
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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
PFDoA_1	613.0 / 569.0	3.81	PFDoA			
PFDoA_2	613.0 / 319.0	3.80	PFDoA	0.154	0.155	ü
PFTrDA_1	663.0 / 619.0	4.06	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.06	PFTrDA	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

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Summary Ion Ratio Report

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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
PFDoA_1	613.0 / 569.0	3.81	PFDoA			
PFDoA_2	613.0 / 319.0	3.81	PFDoA	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

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Summary Ion Ratio Report

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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
PFDoA_1	613.0 / 569.0	3.81	PFDoA			
PFDoA_2	613.0 / 319.0	3.81	PFDoA	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

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Summary Ion Ratio Report

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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
PFDoA_1	613.0 / 569.0	3.81	PFDoA			
PFDoA_2	613.0 / 319.0	3.81	PFDoA	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

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Summary Ion Ratio Report

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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
PFDoA_1	613.0 / 569.0	3.81	PFDoA			
PFDoA_2	613.0 / 319.0	3.81	PFDoA	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

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Summary Ion Ratio Report

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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
PFDoA_1	613.0 / 569.0	3.80	PFDoA			
PFDoA_2	613.0 / 319.0	3.80	PFDoA	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

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Summary Ion Ratio Report

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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
PFDoA_1	613.0 / 569.0	3.80	PFDoA			
PFDoA_2	613.0 / 319.0	3.80	PFDoA	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

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QC Summary Report

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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
PFTrDA_1	663.0 / 619.0	4.05	915.967642	1000.00	91.60
PFTrDA_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

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QC Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:06:12 PM

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

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QC Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:04:40 PM

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
PFTrDA_1	663.0 / 619.0	4.05	1017.219205	1000.00	101.72
PFTrDA_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

BATTELLE

QC Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:06:27 PM

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

BATTELLE

QC Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:04:43 PM

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_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
PFTrDA_1	663.0 / 619.0	4.04	519.782345	500.00	103.96
PFTrDA_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

BATTELLE

QC Summary Report

Created with Analyst Reporter
Printed: 21/05/2018 2:06:40 PM

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

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/05/2018 10:39:56 AM

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
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTrDA_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 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%

Preliminary Data - For Official Use Only

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N

NSDALE

UPPER GWYNEDD

MONTGOMERY

WARRINGTON

WARWICK

NORTHAMPTON

IVYLAND

WARMINSTER

HORSHAM

HAGS

NASJRB Willow Grove

LOWER GWYNEDD

HATBORO

UPPER SOUTHAMPTON

UPPER DUBLIN

UPPER MORELAND

LOWER MORELAND

LEGEND

- PFOA & PFOS BELOW DETECTION LIMITS
- SUM OF PFOA & PFOS CONCENTRATIONS AT OR BELOW 40 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS BETWEEN 40 PPT AND 70 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS ABOVE 70 PPT
- PUBLIC WATER CONNECTION (SOME NOT BY NAVY)
- SAMPLING AREA
- HORSHAM AIR GUARD (HAGS)
- FORMER NASJRB WILLOW GROVE
- TOWNSHIP BOUNDARY

5,000 2,500 0 5,000

Feet

NAVFAC

PFC SAMPLE RESULTS MAP
FORMER NASJRB WILLOW GROVE
AND HORSHAM AIR GUARD
MONTGOMERY COUNTY, PENNSYLVANIA

SCALE	
AS NOTED	
FILE	
WGNA	
REV	DATE
0	02/14/19
FIGURE NUMBER	
FIGURE 1	