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 18-0315

Naval Air Station Willow Grove
Willow Grove, Pennsylvania

August 2019

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

N00158_000771
WILLOW_GROVE_NAS
SSIC 5000-33c

LABORATORY DATA PACKAGE, 18-0315 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 18-0315

Package DP-18-0116

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 18-0315

Package DP-18-0116

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 2018.05.24 13:00:18 -04'00'

QC Chemist Approval: Digitally signed by devinec@battelle.org DN: cn=devinec@battelle.org Date: 2018.05.29 14:59:23 -04'00'

Project Manager Approval: Digitally signed by Jonathan Thorn Date: 2018.05.30 07:49:33 -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 18-0315

Package DP-18-0116

1	***Work Plan*** Laboratory Work Plan, Addendums To Work Plan, Memos From Project Manager, Special Instructions, Chain-of-Custody Reports.	1
2	***Tables*** Analytical Data Tables, Qualifier Definitions.	18
3	***Miscellaneous Documentation*** Case Narrative, Miscellaneous Documentation Form, Quality Control Summary, Example Calculations, Internal Standard Recovery Report, Retention Time Window Report.	29
4	***Sample Preparation Records*** Sample Preparation Records, Dilution Worksheets, Standard Preparation Records, Certificates Of Analysis, GPC Check Report.	133
5	***Analytical Calibrations*** Analytical Sequence, Analytical Method, Tune Report, Initial Calibration, Pesticide Degradation Report, RF Summary, Calibration Verifications, Independent Calibration Verification Check.	146
6	***Analytical Data*** Raw Data Quantification Reports.	244
7	***Chromatograms*** Sample And Standard Chromatograms.	299
8	***Unused Data***	580

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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	J6149	NAWC-050718-FRB-316	05/07/2018 10:05 am	DW	R0118 (NA)			
3	J6150	NAWC-050718-RW-180	05/07/2018 10:40 am	DW	R0118 (NA)			
4	J6151	NAWC-050718-FRB-180	05/07/2018 10:35 am	DW	R0118 (NA)			
5	J6152	NAWC-050718-RW-275	05/07/2018 11:10 am	DW	R0118 (NA)			
6	J6153	NAWC-050718-FRB-275	05/07/2018 11:05 am	DW	R0118 (NA)			
7	J6154	NAWC-050718-RW-145	05/07/2018 12:40 pm	DW	R0118 (NA)			

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WORK/QUALITY ASSURANCE PROJECT PLAN

Shipment: **SHP-180508-02**

Status: Pending

Description: WE04

Range: J6148-J6170

Comment: NA

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

Shipment: **SHP-180511-02**

Status: Pending

Description: WE04

Range: J6204-J6212

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J6204	NAWC-051018-RW-303	05/10/2018 9:10 am	DW	R0118 (NA)			
2	J6205	NAWC-051018-FRB-303	05/10/2018 9:05 am	DW	R0118 (NA)			
3	J6206	WGNA-051018-RW-3220	05/10/2018 9:40 am	DW	R0118 (NA)			
4	J6207	WGNA-051018-FRB-3220	05/10/2018 9:35 am	DW	R0118 (NA)			
5	J6208	NAWC-051018-RW-177	05/10/2018 10:40 am	DW	R0118 (NA)			
6	J6209	NAWC-051018-FRB-177	05/10/2018 10:35 am	DW	R0118 (NA)			
7	J6210	WGNA-051018-RW-3295	05/10/2018 3:10 pm	DW	R0118 (NA)			
8	J6211	WGNA-051018-FRB-3295	05/10/2018 3:05 pm	DW	R0118 (NA)			
9	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-180511-02

Battelle Project No:

Sample Receipt Form

Approved: ☐ **Authorized** ☐

Project Number: 112G08005-WE04 **Client:** Tetratech

Received by: Schumitz, Matt **Date/Time Received:** Friday, May 11, 2018 10:30 AM

No. of Shipping Containers: 1

SHIPMENT

Method of Delivery: Commercial Carrier **Tracking Number:** 7722 0507 3788

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	7722 0507 3788	Custody Seals	Intact	Intact	Therm_1	1.7	9

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:** J6204 - J6212

Samples logged in by: Schumitz, Matt **Date/Time:** 05/11/2018 10:30 AM

Approved By: **Approved On:**

Authorized By: **Authorized On:**

BATTELLE
It can be done

ShpNo SHP-180511-02

Battelle Project No: 7920-WE04

Sample Receipt Form Details

Approved: ☐ **Authorized** ☐

Project Number: 112G08005-WE04 **Client:** Tetratech

Received by: Schumitz, Matt **Date/Time Received:** Friday, May 11, 2018 10:30 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:
J6204	NAWC-051018-RW-303	05/10/18 9:10	05/11/18 11:30	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6205	NAWC-051018-FRB-303	05/10/18 9:05	05/11/18 11:30	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6206	WGNA-051018-RW-3220	05/10/18 9:40	05/11/18 11:34	6	DW	1.7	NA	NA	NA	R0118 (NA)			
J6207	WGNA-051018-FRB-3220	05/10/18 9:35	05/11/18 11:35	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6208	NAWC-051018-RW-177	05/10/18 10:40	05/11/18 11:36	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6209	NAWC-051018-FRB-177	05/10/18 10:35	05/11/18 11:37	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6210	WGNA-051018-RW-3295	05/10/18 15:10	05/11/18 11:38	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6211	WGNA-051018-FRB-3295	05/10/18 15:05	05/11/18 11:39	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6212	WGNA-051018-DUP-36	05/10/18 7:00	05/11/18 11:39	2	DW	1.7	NA	NA	NA	R0118 (NA)			

Total Samples: 9

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	Preservative: Trizma	COC #
Project Name: WE04 Project No.: 112G08005-WE04	Turnaround Time (TAT) Requested: 21 days 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	
NAWC-051018-RW-303 J6204	5/10/2018	9:10	G	DW	2	X	
NAWC-051018-FRB-303 J6205	5/10/2018	9:05	G	DW	2	X	Field Reagent Blank
WGNA-051018-RW-3220 J6206	5/10/2018	09:40	G	DW	6	X	MS/MSD
WGNA-051018-FRB-3220 J6207	5/10/2018	09:35	G	DW	2	X	Field Reagent Blank
NAWC-051018-RW-177 J6208	5/10/2018	10:40	G	DW	2	X	
NAWC-051018-FRB-177 J6209	5/10/2018	10:35	G	DW	2	X	Field Reagent Blank
WGNA-051018-RW-3295 J6210	5/10/2018	15:10	G	DW	2	X	
WGNA-051018-FRB-3295 J6211	5/10/2018	15:05	G	DW	2	X	Field Reagent Blank
WGNA-051018-DUP-36 J6212	5/10/2018	7:00	G	DW	2	X	Duplicate

Receipt Temperature:(°C)	Samples Intact:	Samples on Ice:	Receipt Comments:
1.7°	Yes / No	Yes / No	Therm-1

Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
Mary Kay Bond	Tetra Tech	05/10/2018 16:00	Matt Schumitz	Battelle	5/11/18 1030
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 # 7722 0507 3788

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: 10MAY18
ACTWGT: 40.00 LB
CAD: 111283035/INET3980
DIMS: 24x16x18 IN

BILL SENDER

TO JONATHAN THORN
BATTELLE
[illegible]41 LONGWATER [illegible]
SUITE 202
NORWELL MA 02061
(781) 681-5565
INV:
PO:
REF: 112G08005-WE04 LT.WS
DEPT:

2B/DCA5
552J2/76

RT 2
ST 3.

FedEx Express

J181118014UV

FRI - 11 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7722 0507 3788

EM XPUA

02061
MA-US BOS

Data Tables

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

Client ID	NAWC-051018-RW-303				
Battelle ID	J6204-FS				
Sample Type	SA				
Collection Date	05/10/2018				
Extraction Date	05/14/2018				
Analysis Date	05/17/2018				
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	7.42		0.20	0.45	2.23
PFHpA	5.47		0.30	0.89	2.23
PFOA	15.84		0.34	0.89	2.23
PFNA	1.76	J	0.33	0.89	2.23
PFDA	0.43	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	7.17		0.19	0.45	2.23
PFHxS	6.79		0.30	0.89	2.23
PFOS	16.09		0.27	0.89	2.23
Surrogate Recoveries (%)					
13C2-PFHxA	117				
13C2-PFDA	92				
d5-EtFOSAA	108				

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

Client ID	WGNA-051018-RW-3220				
Battelle ID	J6206-FS				
Sample Type	SA				
Collection Date	05/10/2018				
Extraction Date	05/14/2018				
Analysis Date	05/17/2018				
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	12.73		0.21	0.47	2.36
PFHpA	7.67		0.32	0.94	2.36
PFOA	10.49		0.36	0.94	2.36
PFNA	2.03	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	73.70	D	0.01	0.02	0.12
PFHxS	17.43		0.32	0.94	2.36
PFOS	29.76		0.28	0.94	2.36
Surrogate Recoveries (%)					
13C2-PFHxA	119				
13C2-PFDA	83				
d5-EtFOSAA	114				

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

Client ID	NAWC-051018-RW-177				
Battelle ID	J6208-FS				
Sample Type	SA				
Collection Date	05/10/2018				
Extraction Date	05/14/2018				
Analysis Date	05/17/2018				
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	6.97		0.20	0.45	2.23
PFHpA	4.86		0.30	0.89	2.23
PFOA	12.79		0.34	0.89	2.23
PFNA	1.36	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	5.67		0.19	0.45	2.23
PFHxS	22.01		0.30	0.89	2.23
PFOS	28.67		0.27	0.89	2.23
Surrogate Recoveries (%)					
13C2-PFHxA	83				
13C2-PFDA	81				
d5-EtFOSAA	86				

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

Client ID	WGNA-051018-RW-3295			
Battelle ID	J6210-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.290			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	30.32	0.19	0.43	2.16
PFHpA	9.51	0.29	0.86	2.16
PFOA	28.65	0.33	0.86	2.16
PFNA	1.57 J	0.32	0.86	2.16
PFDA	0.86 U	0.34	0.86	2.16
PFUnA	0.86 U	0.33	0.86	2.16
PFDoA	0.86 U	0.36	0.86	2.16
PFTrDA	0.86 U	0.36	0.86	2.16
PFTeDA	1.29 U	0.63	1.29	2.16
NMeFOSAA	0.86 U	0.36	0.86	2.16
NEtFOSAA	0.86 U	0.38	0.86	2.16
PFBS	8.79	0.18	0.43	2.16
PFHxS	2.01 J	0.29	0.86	2.16
PFOS	3.94	0.26	0.86	2.16
Surrogate Recoveries (%)				
13C2-PFHxA	118			
13C2-PFDA	79			
d5-EtFOSAA	78			

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

Client ID	WGNA-051018-DUP-36			
Battelle ID	J6212-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.270			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	6.80	0.20	0.46	2.31
PFHpA	4.65	0.31	0.93	2.31
PFOA	14.10	0.35	0.93	2.31
PFNA	1.51 J	0.34	0.93	2.31
PFDA	0.93 U	0.36	0.93	2.31
PFUnA	0.93 U	0.35	0.93	2.31
PFDoA	0.93 U	0.39	0.93	2.31
PFTrDA	0.93 U	0.39	0.93	2.31
PFTeDA	1.39 U	0.68	1.39	2.31
NMeFOSAA	0.93 U	0.39	0.93	2.31
NEtFOSAA	0.93 U	0.41	0.93	2.31
PFBS	6.52	0.19	0.46	2.31
PFHxS	5.89	0.31	0.93	2.31
PFOS	14.01	0.28	0.93	2.31
Surrogate Recoveries (%)				
13C2-PFHxA	102			
13C2-PFDA	80			
d5-EtFOSAA	77			

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	CQ770PB-FS				
Sample Type	PB				
Collection Date	05/14/2018				
Extraction Date	05/14/2018				
Analysis Date	05/17/2018				
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	99
13C2-PFDA	94
d5-EtFOSAA	108

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	CQ771LCS-FS					
Sample Type	LCS					
Collection Date	05/14/2018					
Extraction Date	05/14/2018					
Analysis Date	05/17/2018					
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	20.32	20.00	102		70	130
PFHpA	19.59	20.00	98		70	130
PFOA	19.17	20.00	96		70	130
PFNA	19.56	20.00	98		70	130
PFDA	18.56	20.00	93		70	130
PFUnA	18.28	20.00	91		70	130
PFDoA	17.60	20.00	88		70	130
PFTrDA	20.09	20.00	100		70	130
PFTeDA	25.97	20.00	130		70	130
NMeFOSAA	17.10	20.00	86		70	130
NEtFOSAA	18.00	20.00	90		70	130
PFBS	16.15	17.70	91		70	130
PFHxS	16.16	18.90	86		70	130
PFOS	14.76	19.10	77		70	130

Surrogate Recoveries (%)

13C2-PFHxA	118
13C2-PFDA	111
d5-EtFOSAA	99

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

Client ID	WGNA-051018-RW-3220		WGNA-051018-RW-3220				
Battelle ID	J6206-FS		J6206MS-FS				
Sample Type	SA		MS				
Collection Date	05/10/2018		05/10/2018				
Extraction Date	05/14/2018		05/14/2018				
Analysis Date	05/17/2018		05/17/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS		Sciex 5500 LC/MS/MS				
% Moisture	NA		NA				
Matrix	DW		DW				
Sample Size	0.265		0.265				
Size Unit-Basis	L		L			Control Limits	
Units	ng/L		ng/L	Target	Recovery Qual	Lower	Upper
PFHxA	12.73		42.07	28.30	104	70	130
PFHpA	7.67		34.91	28.30	96	70	130
PFOA	10.49		33.18	28.30	80	70	130
PFNA	2.03	J	23.46	28.30	76	70	130
PFDA	0.94	U	22.74	28.30	80	70	130
PFUnA	0.94	U	21.03	28.30	74	70	130
PFDoA	0.94	U	21.55	28.30	76	70	130
PFTrDA	0.94	U	23.51	28.30	83	70	130
PFTeDA	1.42	U	30.99	28.30	109	70	130
NMeFOSAA	0.94	U	24.89	28.30	88	70	130
NEtFOSAA	0.94	U	23.53	28.30	83	70	130
PFBS	73.70	D	95.71 D	25.05	88	70	130
PFHxS	17.43		42.27	26.75	93	70	130
PFOS	29.76		49.78 D	27.03	74	70	130
Surrogate Recoveries (%)							
13C2-PFHxA	119		124				
13C2-PFDA	83		98				
d5-EtFOSAA	114		88				

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

Client ID	WGNA-051018-RW-3220
Battelle ID	J6206MSD-FS
Sample Type	MSD
Collection Date	05/10/2018
Extraction Date	05/14/2018
Analysis Date	05/17/2018
Analytical Instrument	Sciex 5500 LC/MS/MS
% Moisture	NA
Matrix	DW
Sample Size	0.265
Size Unit-Basis	L
Units	ng/L

					Control Limits				RPD
		Target	Recovery	Qual	Lower	Upper	RPD	Qual	Limit
PFHxA	45.67	28.30	116		70	130	10.9		≤ 30
PFHpA	37.48	28.30	105		70	130	9.0		≤ 30
PFOA	36.43	28.30	92		70	130	14.0		≤ 30
PFNA	26.13	28.30	85		70	130	11.2		≤ 30
PFDA	24.28	28.30	86		70	130	7.2		≤ 30
PFUnA	21.81	28.30	77		70	130	4.0		≤ 30
PFDoA	22.87	28.30	81		70	130	6.4		≤ 30
PFTrDA	23.48	28.30	83		70	130	0.0		≤ 30
PFTeDA	28.65	28.30	101		70	130	7.6		≤ 30
NMeFOSAA	24.79	28.30	88		70	130	0.0		≤ 30
NEtFOSAA	23.21	28.30	82		70	130	1.2		≤ 30
PFBS	93.68 D	25.05	80		70	130	9.5		≤ 30
PFHxS	43.93	26.75	99		70	130	6.3		≤ 30
PFOS	49.68 D	27.03	74		70	130	0.0		≤ 30

Surrogate Recoveries (%)

13C2-PFHxA	125
13C2-PFDA	102
d5-EtFOSAA	87

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. For SDG 18-0313, the original MQO report and case narrative were moved to the unused data section of the full data package.

QA/QC Summary
Batch 18-0315

Project:	CTO-WE04 Naval Air Station Joint Reserve Base Willow Grove
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	DW
Data Set:	DP-18-0116
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody

Collection Date	Receipt Date	Temp (°C)
5/10/2018	5/11/2018	1.7

Corrective Actions	None
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	FRB samples associated with these samples are extracted in SDG 18-0323

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. The confirmation ion ratio was above 50% RPD for the following samples and analytes: NAWC-051018-RW-303 (J6204) – PFOA, PFDA, PFDoA, PFTrDA, PFTeDA WGNA-051018-RW-3220 (J6206) – PFTeDA NAWC-051018-RW-177 (J6208) – PFOA, PFDA, PFTeDA WGNA-051018-RW-3295 (J6210) – PFTeDA WGNA-051018-DUP-36 (J6212) – PFOA With the exception of PFOA, all other analytes listed above were detected below the LOD or below the Detection Limit.

Holding Times	Extraction Date(s)	Analysis Date(s)
	5/14/2018	5/17/2018

QA/QC Summary
Batch 18-0315

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.
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 ≤ 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 ≤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.

QA/QC Summary
Batch 18-0315

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.

Project Client: Tetra Tech
Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
Project Number: 100117920-WE04
Preparation Batch: 18-0315
Data Set: DP-18-0116
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	NA	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-18-0116
Project Number:	100117920-WE04	**Prep Batch Number:**	18-0315
Entered By:	Denise Schumitz	**Entered On:**	05/24/2018
Test Code (Matrix Type):	Master_371(L)		

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
DMS 6/24/2018

JV64 is not being used in the calibration curve for PFBS, and NMeFOSAA. There is no impact on the data once this point is removed from the calibration.
DMS 6/23/2018

JV65 is not being used in the calibration curve for NMeFOSAA. There is no impact on the data once this point is removed from the calibration.
DMS 6/23/2018

Ion ratios greater than 50% for PFOA are noted in samples J6204, J6208 and J6212.
DMS 6/23/2018

Ion ratio greater than 50% for PFDA is noted in samples J6204 and J6208.
DMS 6/23/2018

Ion ratio greater than 50% for PFDoA and PFTrDA is noted in samples J6204.
DMS 6/23/2018

Ion ratios greater than 50% for PFTeDA are noted in samples J6204, J6206, J6208 and J6210.
DMS 6/23/2018

Ion ratio greater than 50% for NEtFOSAA is noted in JV65.
DMS 6/23/2018

Task Leader Approval:

SupervisorApproval:

PM Approval:

Digitally signed by Jonathan Thorn
Date: 2018.05.30 07:50:57 -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:	WGNA-051018-RW-3220
Client Sample ID:	J6206-FS(3)
Sample Size:	0.265
Units:	L
Dilution Factor:	20
PIV (L):	0.001
Target Analyte:	PFBS
MRM Transition:	298.9 / 80.0
Data file:	18-0315.wiff
Result table:	18-0315_18-0316_BASE
Area:	300,455.56
IS Name:	13C4-PFOS
IS Area:	109,491.15
IS Amount (ng/L):	287
y-intercept	-0.00559
slope	0.80808

$$\text{Concentration} = \frac{[(300455.56/109491.15) - -0.00559]}{0.80808} * 287 * 0.001 * 20 / 0.265$$

ng/L = 73.7

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

Preparation Batch: 18-0315
Data Set: DP-18-0116

	CQ770PB-FS (Procedural Blank)	CQ771LCS-FS (Laboratory Control Sample)	J6206MS-FS (WGNA-051018-RW-3220)	J6206MSD-FS (WGNA-051018-RW-3220)	J6204-FS (NAWC-051018-RW-303)	J6206-FS (WGNA-051018-RW-3220)	J6208-FS (NAWC-051018-RW-177)	J6210-FS (WGNA-051018-RW-3295)	J6212-FS (WGNA-051018-DUP-36)
PFHxA	-	L	L	L	L	L	L	L	L
PFHpA	-	L	L	L	L	L	L	L	L
PFOA	-	L	L	L	L	L	L	L	L
PFNA	-	L	L	L	L	L	L	L	L
PFDA	-	L	L	L	L	L	L	L	L
PFUnA	-	L	L	L	L	L	L	L	L
PFDoA	-	L	L	L	L	L	L	L	L
PFTrDA	-	L	L	L	L	L	L	L	L
PFTeDA	-	L	L	L	L	L	L	L	L
NMeFOSAA	-	L	L	L	L	L	L	L	L
NEtFOSAA	-	L	L	L	L	L	L	L	L
PFBS	-	L	L	L	L	L	L	L	L
PFHxS	-	L	L	L	L	L	L	L	L
PFOS	-	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br

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

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

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JV64	L1	5/17/18 9:20	13C4-PFOS	104,864.21	-	
JV65	L2	5/17/18 9:29	13C4-PFOS	111,854.31	-	
JV66	L3	5/17/18 9:38	13C4-PFOS	113,860.62	-	
JV67	L4	5/17/18 9:47	13C4-PFOS	102,094.68	-	
JV68	L5	5/17/18 9:56	13C4-PFOS	113,941.01	-	
JV69	L6	5/17/18 10:05	13C4-PFOS	105,465.76	-	
JV70	L7	5/17/18 10:14	13C4-PFOS	100,428.45	-	
JV71	L8	5/17/18 10:23	13C4-PFOS	100,136.69	-	
JV72	L9	5/17/18 10:31	13C4-PFOS	107,766.90	2.7	PASS

Average	Lower	Upper
106,712.51	53,356.26	160,068.77

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	5/17/18 9:20	13C4-PFOS	104,864.21	53,356.26	160,068.77		79,758.71	159,517.41	
JV65	L2	5/17/18 9:29	13C4-PFOS	111,854.31	53,356.26	160,068.77		79,758.71	159,517.41	
JV66	L3	5/17/18 9:38	13C4-PFOS	113,860.62	53,356.26	160,068.77		79,758.71	159,517.41	
JV67	L4	5/17/18 9:47	13C4-PFOS	102,094.68	53,356.26	160,068.77		79,758.71	159,517.41	
JV68	L5	5/17/18 9:56	13C4-PFOS	113,941.01	53,356.26	160,068.77		79,758.71	159,517.41	
JV69	L6	5/17/18 10:05	13C4-PFOS	105,465.76	53,356.26	160,068.77		79,758.71	159,517.41	
JV70	L7	5/17/18 10:14	13C4-PFOS	100,428.45	53,356.26	160,068.77		79,758.71	159,517.41	
JV71	L8	5/17/18 10:23	13C4-PFOS	100,136.69	53,356.26	160,068.77		79,758.71	159,517.41	
JV72	L9	5/17/18 10:31	13C4-PFOS	107,766.90	53,356.26	160,068.77		79,758.71	159,517.41	
JV63 ICC	ICC	5/17/18 10:40	13C4-PFOS	113,811.02	53,356.26	160,068.77		79,758.71	159,517.41	
CQ770PB-FS(0)	Procedural Blank	5/17/18 10:58	13C4-PFOS	80,251.05	53,356.26	160,068.77		79,758.71	159,517.41	
CQ771LCS-FS(0)	Laboratory Control Sample	5/17/18 11:07	13C4-PFOS	93,637.06	53,356.26	160,068.77		79,758.71	159,517.41	
J6204-FS(0)	NAWC-051018-RW-303	5/17/18 11:16	13C4-PFOS	86,131.12	53,356.26	160,068.77		79,758.71	159,517.41	
J6206-FS(0)	WGNA-051018-RW-3220	5/17/18 11:25	13C4-PFOS	97,181.69	53,356.26	160,068.77		79,758.71	159,517.41	
J6206MS-FS(0)	WGNA-051018-RW-3220	5/17/18 11:34	13C4-PFOS	88,590.59	53,356.26	160,068.77		79,758.71	159,517.41	
J6206MSD-FS(0)	WGNA-051018-RW-3220	5/17/18 11:43	13C4-PFOS	83,551.26	53,356.26	160,068.77		79,758.71	159,517.41	
J6208-FS(0)	NAWC-051018-RW-177	5/17/18 11:52	13C4-PFOS	99,136.85	53,356.26	160,068.77		79,758.71	159,517.41	
J6210-FS(0)	WGNA-051018-RW-3295	5/17/18 12:01	13C4-PFOS	84,597.10	53,356.26	160,068.77		79,758.71	159,517.41	
J6212-FS(0)	WGNA-051018-DUP-36	5/17/18 12:10	13C4-PFOS	84,412.70	53,356.26	160,068.77		79,758.71	159,517.41	
JV68 CCV	CCV	5/17/18 12:19	13C4-PFOS	119,685.33	53,356.26	160,068.77		79,758.71	159,517.41	
J6206-FS-D(3)	WGNA-051018-RW-3220	5/17/18 13:50	13C4-PFOS	109,491.15	53,356.26	160,068.77		83,779.73	167,559.46	
J6206MS-FS-D(3)	WGNA-051018-RW-3220	5/17/18 13:59	13C4-PFOS	87,795.79	53,356.26	160,068.77		83,779.73	167,559.46	
J6206MSD-FS-D(3)	WGNA-051018-RW-3220	5/17/18 14:08	13C4-PFOS	87,646.58	53,356.26	160,068.77		83,779.73	167,559.46	
JV69 CCV	CCV	5/17/18 14:17	13C4-PFOS	120,237.99	53,356.26	160,068.77		83,779.73	167,559.46	

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

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JV64	L1	5/17/18 9:20	13C2-PFOA	28,461.52	-	
JV65	L2	5/17/18 9:29	13C2-PFOA	32,515.66	-	
JV66	L3	5/17/18 9:38	13C2-PFOA	32,166.59	-	
JV67	L4	5/17/18 9:47	13C2-PFOA	28,765.39	-	
JV68	L5	5/17/18 9:56	13C2-PFOA	34,136.83	-	
JV69	L6	5/17/18 10:05	13C2-PFOA	33,007.04	-	
JV70	L7	5/17/18 10:14	13C2-PFOA	33,693.39	-	
JV71	L8	5/17/18 10:23	13C2-PFOA	31,164.30	-	
JV72	L9	5/17/18 10:31	13C2-PFOA	33,296.93	15.7	PASS

Average	Lower	Upper
31,911.96	15,955.98	47,867.94

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	5/17/18 9:20	13C2-PFOA	28,461.52	15,955.98	47,867.94		23,895.78	47,791.56	
JV65	L2	5/17/18 9:29	13C2-PFOA	32,515.66	15,955.98	47,867.94		23,895.78	47,791.56	
JV66	L3	5/17/18 9:38	13C2-PFOA	32,166.59	15,955.98	47,867.94		23,895.78	47,791.56	
JV67	L4	5/17/18 9:47	13C2-PFOA	28,765.39	15,955.98	47,867.94		23,895.78	47,791.56	
JV68	L5	5/17/18 9:56	13C2-PFOA	34,136.83	15,955.98	47,867.94		23,895.78	47,791.56	
JV69	L6	5/17/18 10:05	13C2-PFOA	33,007.04	15,955.98	47,867.94		23,895.78	47,791.56	
JV70	L7	5/17/18 10:14	13C2-PFOA	33,693.39	15,955.98	47,867.94		23,895.78	47,791.56	
JV71	L8	5/17/18 10:23	13C2-PFOA	31,164.30	15,955.98	47,867.94		23,895.78	47,791.56	
JV72	L9	5/17/18 10:31	13C2-PFOA	33,296.93	15,955.98	47,867.94		23,895.78	47,791.56	
JV63 ICC	ICC	5/17/18 10:40	13C2-PFOA	33,366.06	15,955.98	47,867.94		23,895.78	47,791.56	
CQ770PB-FS(0)	Procedural Blank	5/17/18 10:58	13C2-PFOA	25,041.26	15,955.98	47,867.94		23,895.78	47,791.56	
CQ771LCS-FS(0)	Laboratory Control Sample	5/17/18 11:07	13C2-PFOA	26,377.79	15,955.98	47,867.94		23,895.78	47,791.56	
J6204-FS(0)	NAWC-051018-RW-303	5/17/18 11:16	13C2-PFOA	26,443.06	15,955.98	47,867.94		23,895.78	47,791.56	
J6206-FS(0)	WGNA-051018-RW-3220	5/17/18 11:25	13C2-PFOA	32,418.61	15,955.98	47,867.94		23,895.78	47,791.56	
J6206MS-FS(0)	WGNA-051018-RW-3220	5/17/18 11:34	13C2-PFOA	29,716.55	15,955.98	47,867.94		23,895.78	47,791.56	
J6206MSD-FS(0)	WGNA-051018-RW-3220	5/17/18 11:43	13C2-PFOA	26,229.90	15,955.98	47,867.94		23,895.78	47,791.56	
J6208-FS(0)	NAWC-051018-RW-177	5/17/18 11:52	13C2-PFOA	30,871.32	15,955.98	47,867.94		23,895.78	47,791.56	
J6210-FS(0)	WGNA-051018-RW-3295	5/17/18 12:01	13C2-PFOA	27,818.94	15,955.98	47,867.94		23,895.78	47,791.56	
J6212-FS(0)	WGNA-051018-DUP-36	5/17/18 12:10	13C2-PFOA	26,429.20	15,955.98	47,867.94		23,895.78	47,791.56	
JV68 CCV	CCV	5/17/18 12:19	13C2-PFOA	34,256.83	15,955.98	47,867.94		23,895.78	47,791.56	
J6206-FS-D(3)	WGNA-051018-RW-3220	5/17/18 13:50	13C2-PFOA	30,571.36	15,955.98	47,867.94		23,979.78	47,959.56	
J6206MS-FS-D(3)	WGNA-051018-RW-3220	5/17/18 13:59	13C2-PFOA	23,996.88	15,955.98	47,867.94		23,979.78	47,959.56	
J6206MSD-FS-D(3)	WGNA-051018-RW-3220	5/17/18 14:08	13C2-PFOA	25,308.76	15,955.98	47,867.94		23,979.78	47,959.56	
JV69 CCV	CCV	5/17/18 14:17	13C2-PFOA	35,079.04	15,955.98	47,867.94		23,979.78	47,959.56	

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

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JV64	L1	5/17/18 9:20	d3-MeFOSAA	15,583.30	-	
JV65	L2	5/17/18 9:29	d3-MeFOSAA	17,164.76	-	
JV66	L3	5/17/18 9:38	d3-MeFOSAA	18,646.92	-	
JV67	L4	5/17/18 9:47	d3-MeFOSAA	17,771.51	-	
JV68	L5	5/17/18 9:56	d3-MeFOSAA	18,313.21	-	
JV69	L6	5/17/18 10:05	d3-MeFOSAA	17,246.29	-	
JV70	L7	5/17/18 10:14	d3-MeFOSAA	17,912.38	-	
JV71	L8	5/17/18 10:23	d3-MeFOSAA	14,871.77	-	
JV72	L9	5/17/18 10:31	d3-MeFOSAA	18,034.35	14.6	PASS

Average	Lower	Upper
17,282.72	8,641.36	25,924.08

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	5/17/18 9:20	d3-MeFOSAA	15,583.30	8,641.36	25,924.08		12,819.25	25,638.49	
JV65	L2	5/17/18 9:29	d3-MeFOSAA	17,164.76	8,641.36	25,924.08		12,819.25	25,638.49	
JV66	L3	5/17/18 9:38	d3-MeFOSAA	18,646.92	8,641.36	25,924.08		12,819.25	25,638.49	
JV67	L4	5/17/18 9:47	d3-MeFOSAA	17,771.51	8,641.36	25,924.08		12,819.25	25,638.49	
JV68	L5	5/17/18 9:56	d3-MeFOSAA	18,313.21	8,641.36	25,924.08		12,819.25	25,638.49	
JV69	L6	5/17/18 10:05	d3-MeFOSAA	17,246.29	8,641.36	25,924.08		12,819.25	25,638.49	
JV70	L7	5/17/18 10:14	d3-MeFOSAA	17,912.38	8,641.36	25,924.08		12,819.25	25,638.49	
JV71	L8	5/17/18 10:23	d3-MeFOSAA	14,871.77	8,641.36	25,924.08		12,819.25	25,638.49	
JV72	L9	5/17/18 10:31	d3-MeFOSAA	18,034.35	8,641.36	25,924.08		12,819.25	25,638.49	
JV63 ICC	ICC	5/17/18 10:40	d3-MeFOSAA	18,230.15	8,641.36	25,924.08		12,819.25	25,638.49	
CQ770PB-FS(0)	Procedural Blank	5/17/18 10:58	d3-MeFOSAA	13,850.01	8,641.36	25,924.08		12,819.25	25,638.49	
CQ771LCS-FS(0)	Laboratory Control Sample	5/17/18 11:07	d3-MeFOSAA	16,239.54	8,641.36	25,924.08		12,819.25	25,638.49	
J6204-FS(0)	NAWC-051018-RW-303	5/17/18 11:16	d3-MeFOSAA	13,414.75	8,641.36	25,924.08		12,819.25	25,638.49	
J6206-FS(0)	WGNA-051018-RW-3220	5/17/18 11:25	d3-MeFOSAA	14,663.00	8,641.36	25,924.08		12,819.25	25,638.49	
J6206MS-FS(0)	WGNA-051018-RW-3220	5/17/18 11:34	d3-MeFOSAA	15,216.29	8,641.36	25,924.08		12,819.25	25,638.49	
J6206MSD-FS(0)	WGNA-051018-RW-3220	5/17/18 11:43	d3-MeFOSAA	13,691.85	8,641.36	25,924.08		12,819.25	25,638.49	
J6208-FS(0)	NAWC-051018-RW-177	5/17/18 11:52	d3-MeFOSAA	16,530.28	8,641.36	25,924.08		12,819.25	25,638.49	
J6210-FS(0)	WGNA-051018-RW-3295	5/17/18 12:01	d3-MeFOSAA	13,922.51	8,641.36	25,924.08		12,819.25	25,638.49	
J6212-FS(0)	WGNA-051018-DUP-36	5/17/18 12:10	d3-MeFOSAA	14,449.90	8,641.36	25,924.08		12,819.25	25,638.49	
JV68 CCV	CCV	5/17/18 12:19	d3-MeFOSAA	20,120.23	8,641.36	25,924.08		12,819.25	25,638.49	
J6206-FS-D(3)	WGNA-051018-RW-3220	5/17/18 13:50	d3-MeFOSAA	20,093.09	8,641.36	25,924.08		14,084.16	28,168.32	
J6206MS-FS-D(3)	WGNA-051018-RW-3220	5/17/18 13:59	d3-MeFOSAA	15,643.60	8,641.36	25,924.08		14,084.16	28,168.32	
J6206MSD-FS-D(3)	WGNA-051018-RW-3220	5/17/18 14:08	d3-MeFOSAA	14,417.85	8,641.36	25,924.08		14,084.16	28,168.32	
JV69 CCV	CCV	5/17/18 14:17	d3-MeFOSAA	19,688.13	8,641.36	25,924.08		14,084.16	28,168.32	

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Summary Asymmetry Report

Created with Analyst Reporter
Printed: 24/05/2018 12:58:37 PM

Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 10:14:08 AM	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.44	1.49	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.71	1.34	0.8 – 1.5

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Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 24/05/2018 12:59:35 PM

Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 10:14:08 AM	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.44	40	>10
PFBS_2	298.9 / 99.0	1.43	74	>10
PFHxA_1	313.0 / 269.0	1.71	34	>10
PFHxA_2	313.0 / 119.0	1.71	52	>10
PFHpA_1	363.0 / 319.0	2.06	25	>10
PFHpA_2	363.0 / 169.0	2.06	28	>10
PFHxS_1	399.0 / 80.0	2.07	59	>10
PFHxS_2	399.0 / 99.0	2.07	41	>10
PFOA_1	413.0 / 369.0	2.43	33	>10
PFOA_2	413.0 / 169.0	2.43	34	>10
PFNA_1	463.0 / 419.0	2.80	30	>10
PFNA_2	463.0 / 219.0	2.80	30	>10
PFOS_1	499.0 / 80.0	2.80	59	>10
PFOS_2	499.0 / 99.0	2.80	51	>10
PFDA_1	513.0 / 469.0	3.15	56	>10
PFDA_2	513.0 / 219.0	3.15	38	>10
PFUnA_1	563.0 / 519.0	3.47	58	>10
PFUnA_2	563.0 / 269.0	3.47	28	>10
PFDoA_1	613.0 / 569.0	3.76	52	>10
PFDoA_2	613.0 / 319.0	3.76	36	>10
PFTrDA_1	663.0 / 619.0	4.01	59	>10
PFTrDA_2	663.0 / 169.0	4.01	44	>10
PFTeDA_1	713.0 / 669.0	4.23	62	>10
PFTeDA_2	713.0 / 169.0	4.23	57	>10
NMeFOSAA_1	570.0 / 419.0	3.30	48	>10
NMeFOSAA_2	570.0 / 512.0	3.30	52	>10
NEtFOSAA_1	584.0 / 419.0	3.46	37	>10
NEtFOSAA_2	584.0 / 483.0	3.46	40	>10

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Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 24/05/2018 12:59:56 PM

Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 10:14:08 AM	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
13C2-PFHxA	315.0 / 270.0	1.69	47	>10
13C2-PFDA	515.0 / 470.0	3.14	38	>10
d5-EtFOSAA	589.0 / 419.0	3.46	34	>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	10.85	1.18	3.54	10
PFHpA	375-85-9	11.32	1.25	3.75	10
PFOA	335-67-1	11.36	1.21	3.63	10
PFNA	375-95-1	11.19	1.18	3.54	10
PFDA	335-76-2	11.20	1.25	3.75	10
PFUnA	2058-94-8	11.01	1.52	4.56	10
PFDoA	307-55-1	10.77	1.77	5.31	10
PFTrDA	72629-94-8	10.72	1.69	5.07	10
PFTeDA	376-06-7	11.83	1.43	4.29	10
NMeFOSAA	2355-31-9	10.84	0.95	2.85	10
NEtFOSAA	2991-50-6	10.16	1.00	3.00	10
PFBS	375-73-5	9.01	1.35	4.05	10
PFHxS	355-46-4	10.58	1.28	3.84	10
PFOS	1763-23-1	9.81	1.25	3.75	10

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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It can be done

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

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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^{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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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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV62

Description: PFAS - 537.1 Surrogate Calibration Stock Solution

Stock Id: JV37

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV63

Description: PFAS - 537.1 ICC

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

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

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

Balance ID:

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV63

Description: PFAS - 537.1 ICC

Stock Id: JV41

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	200	0.05	---	---	1	10	0.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-1-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

BATTELLE

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

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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

BATTELLE

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

BATTELLE

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV66

Description: PFAS - 537.1 ICAL L3

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

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

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

Balance ID:

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

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

BATTELLE
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

BATTELLE

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

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

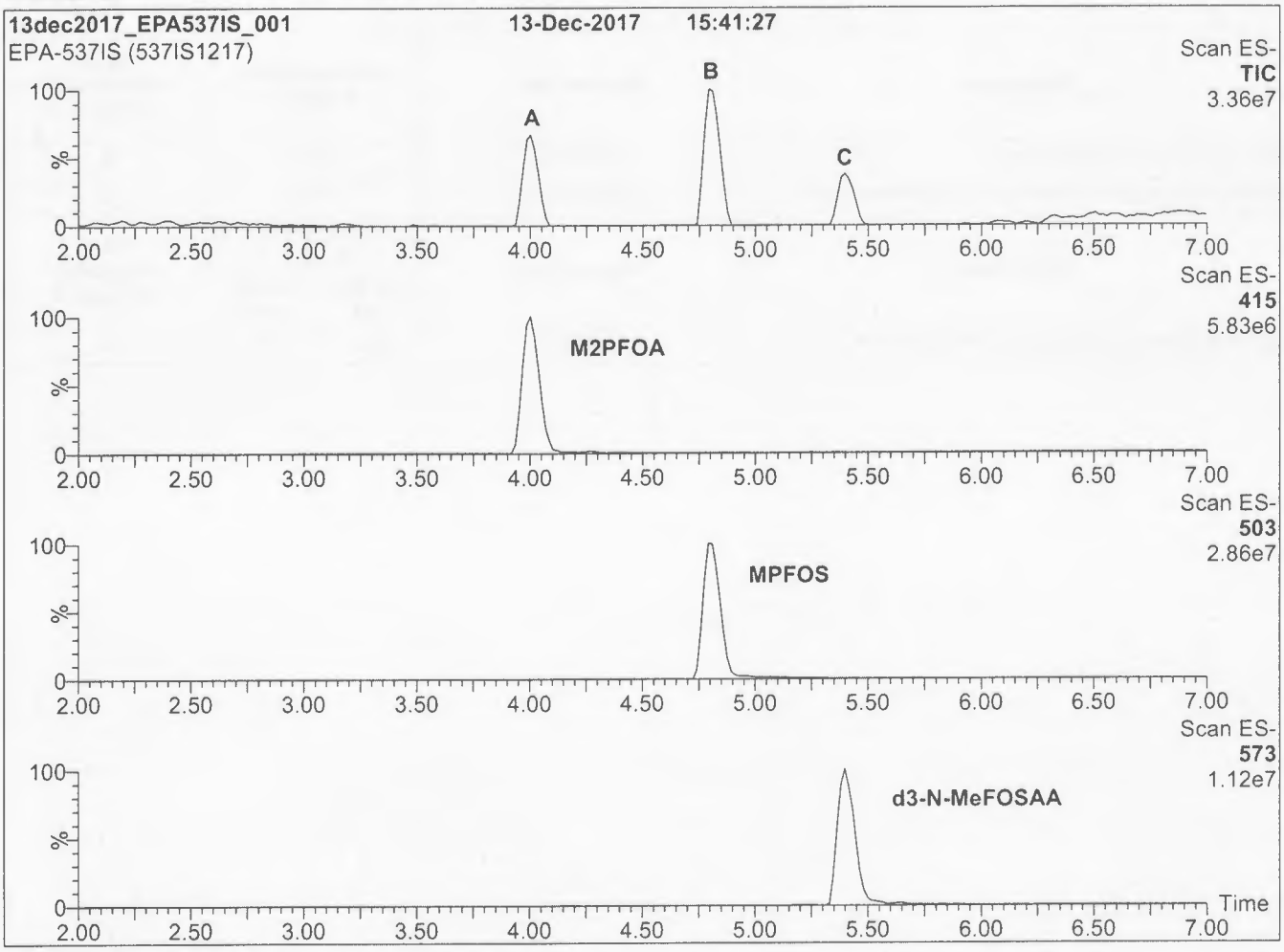
Table A: **EPA-537IS; Components and Concentrations (ng/ml; ± 5% in Methanol / Water (<1%))**

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

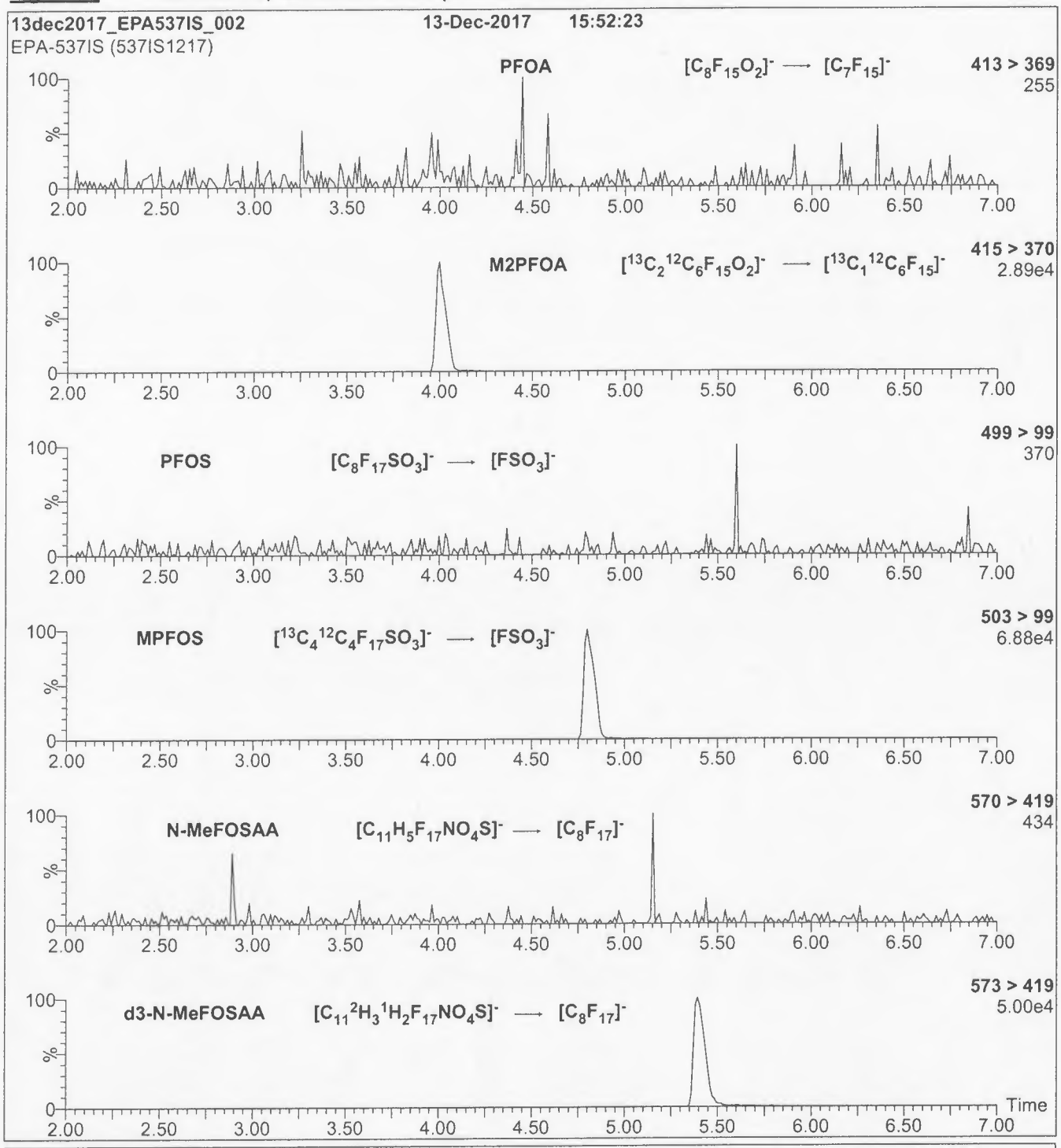
Flow: 300 µl/min

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:

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. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

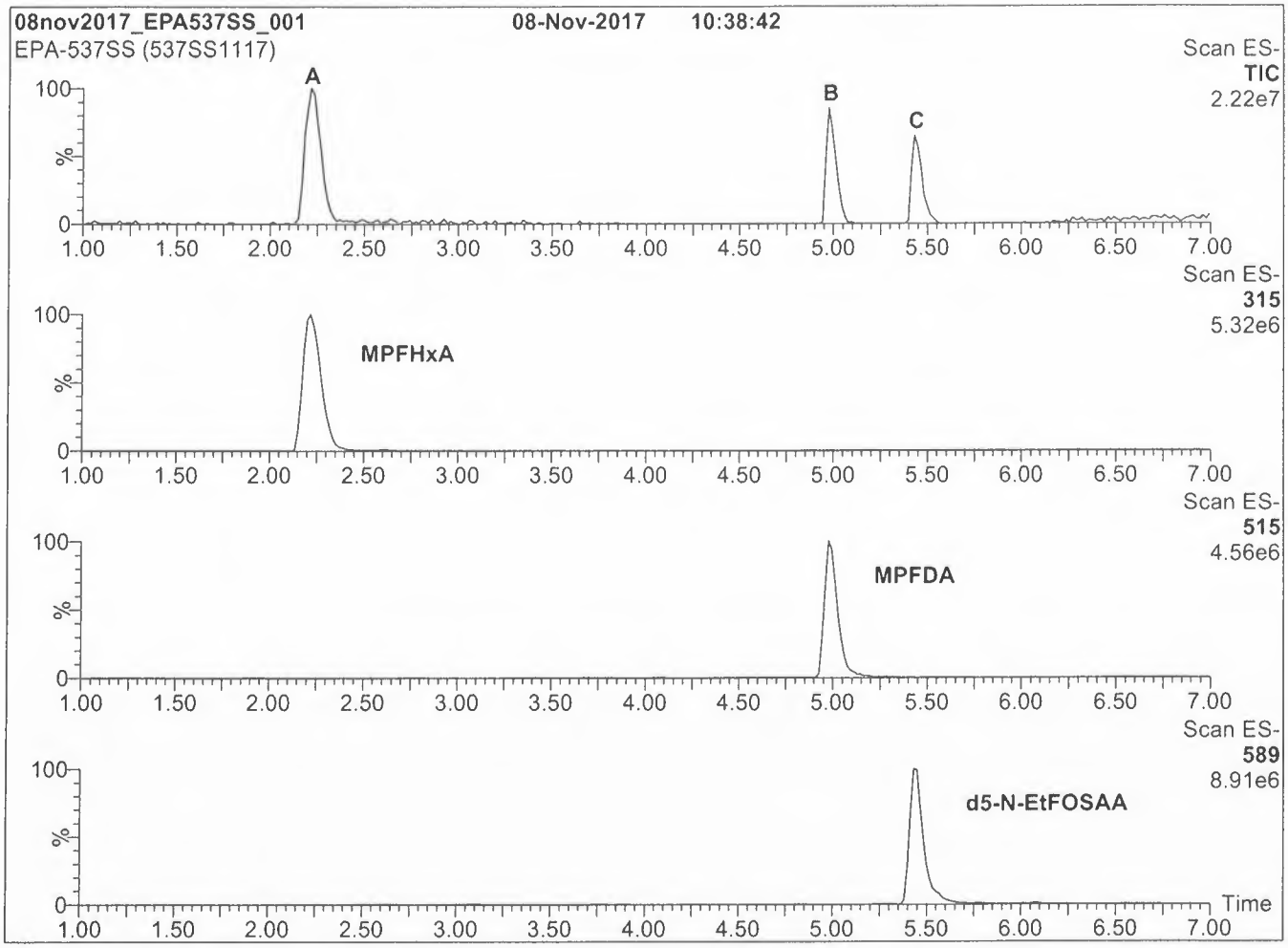
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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

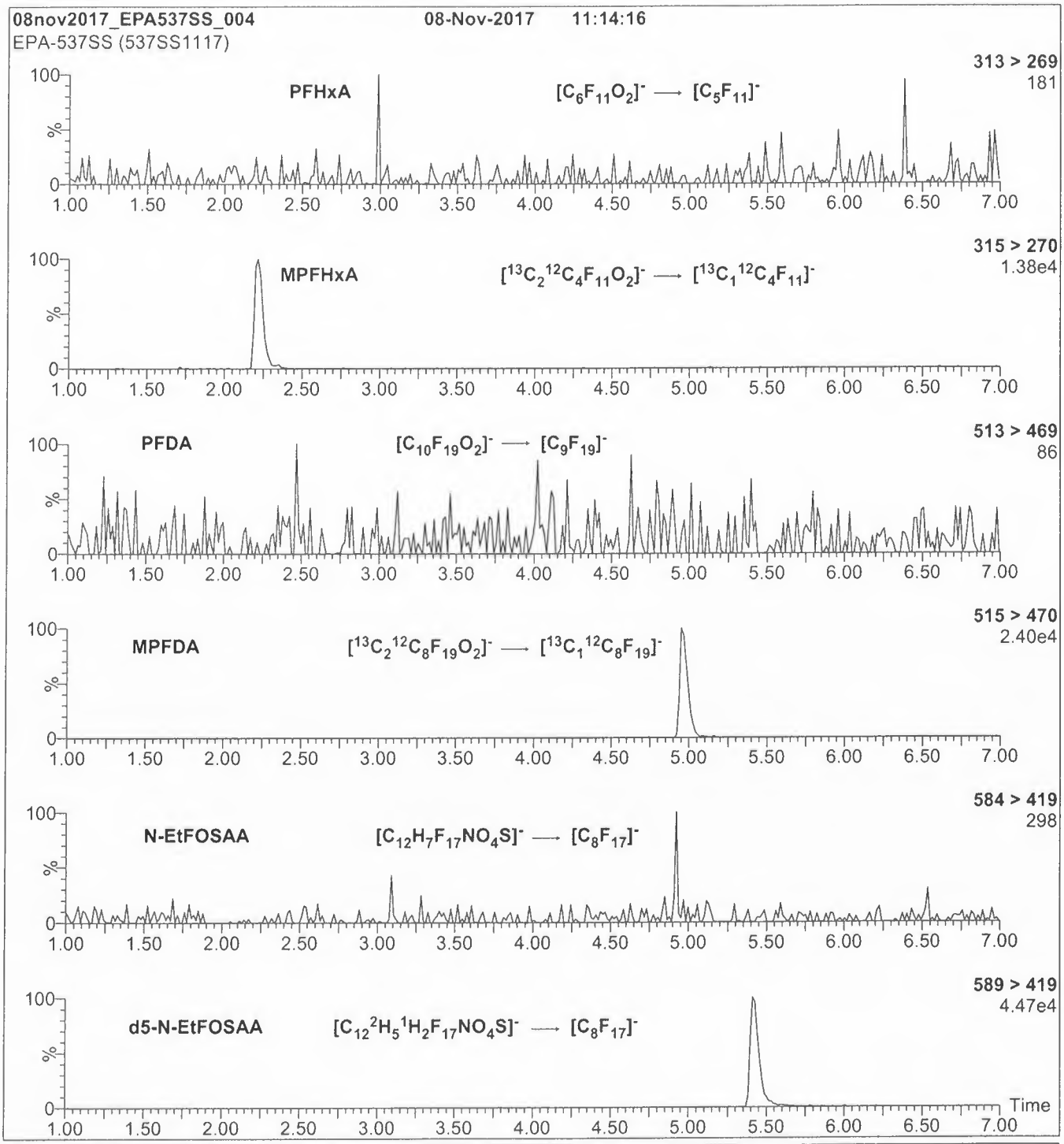
Flow: 300 µl/min

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,...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 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	$CF_3C(CF_3)CF_2CF_2SO_3^-K^+$	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)***

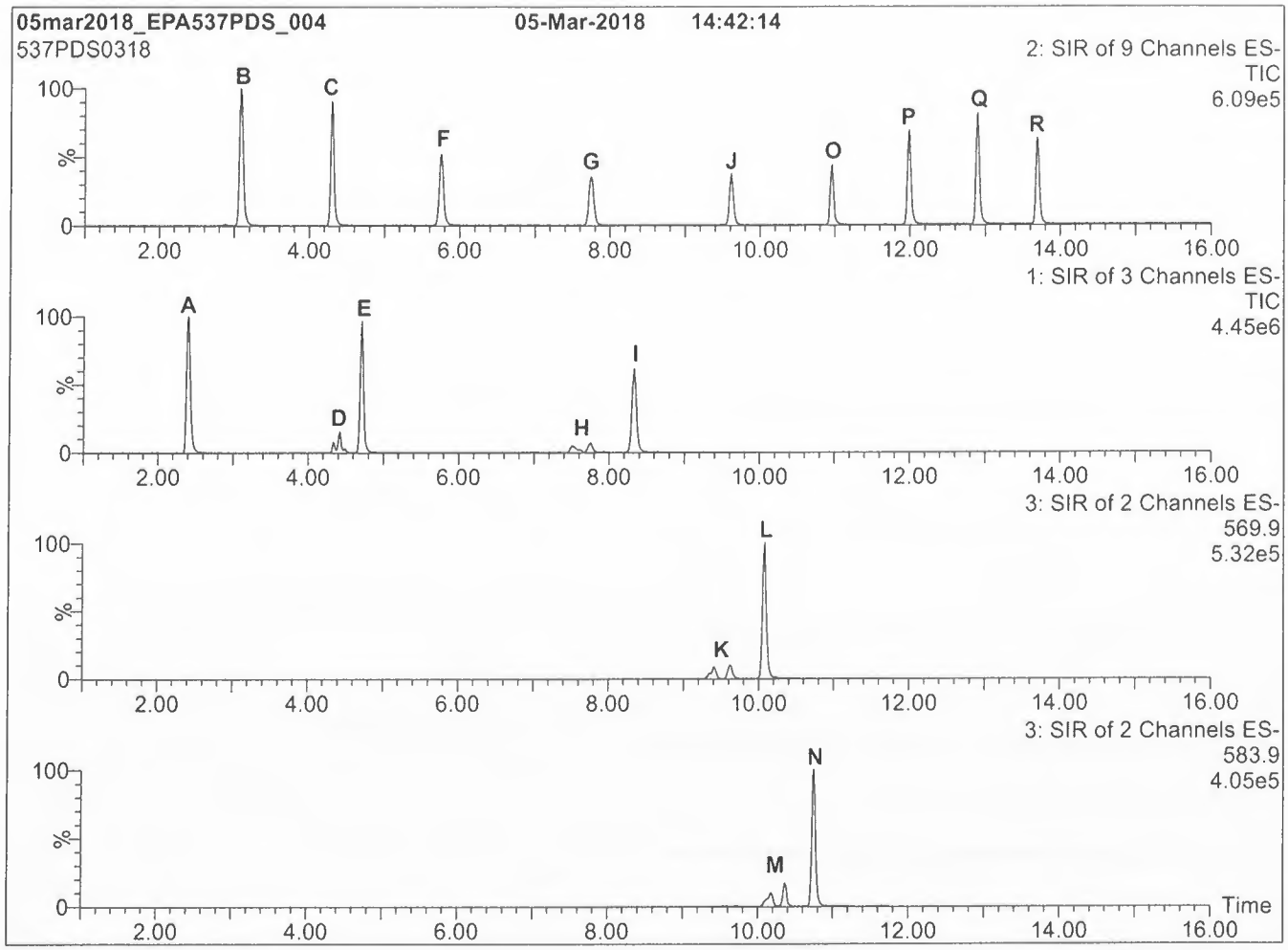
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR	
1	Potassium perfluoro-1-octanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	78.8	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2	21.1
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	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)

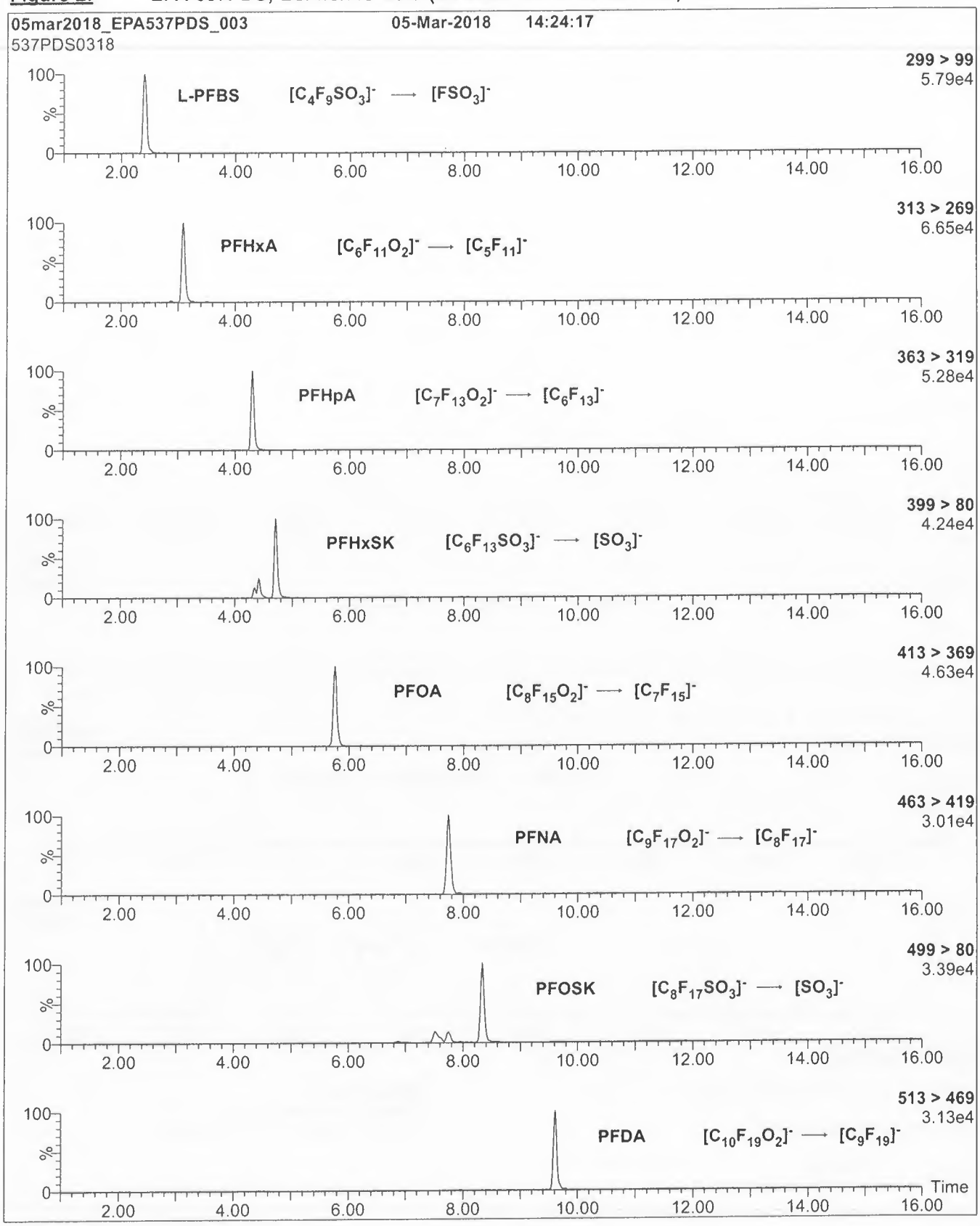
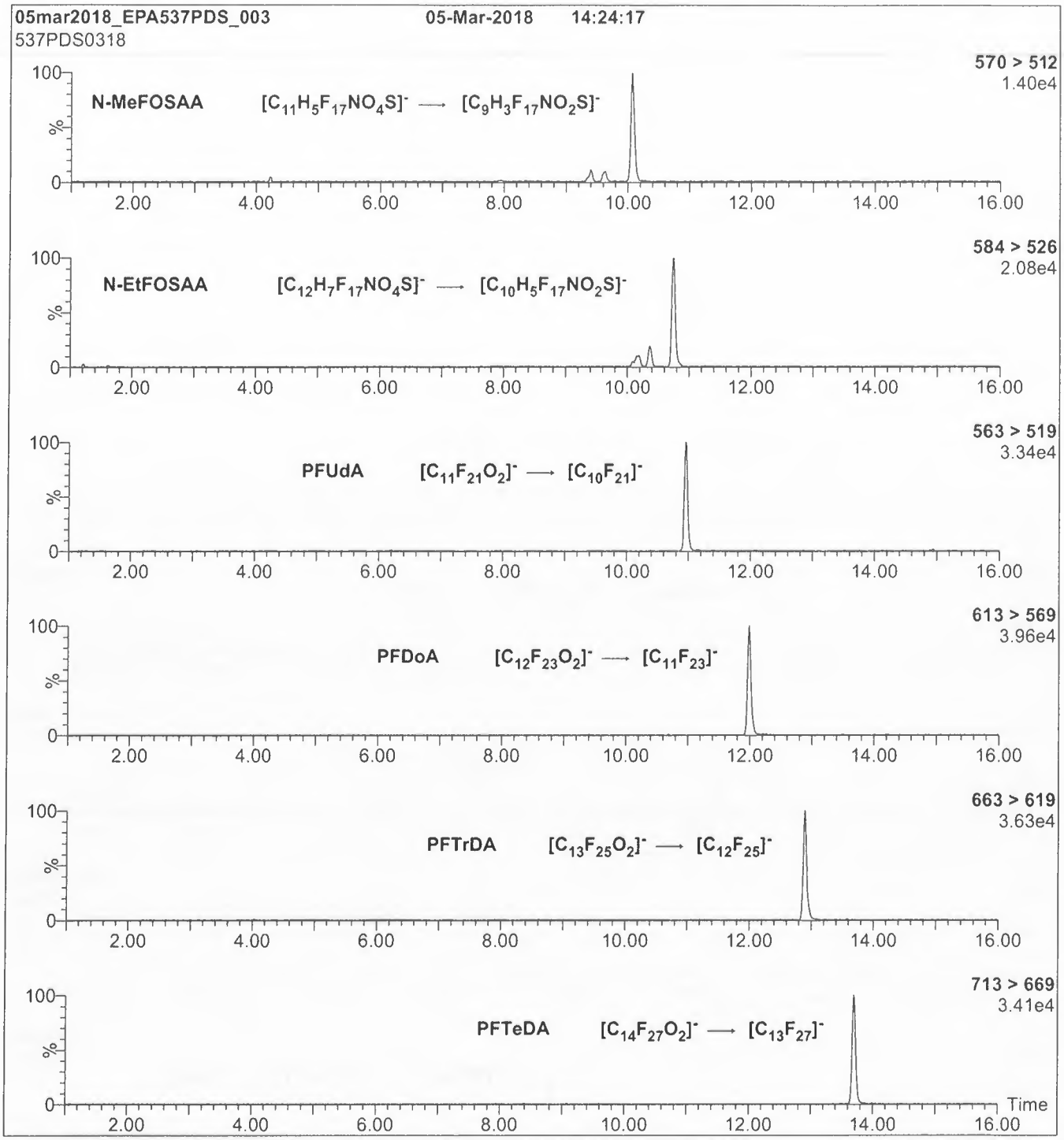


Figure 2: EPA-537PDS; LC/MS/MS Data (Selected MRM Transitions)



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

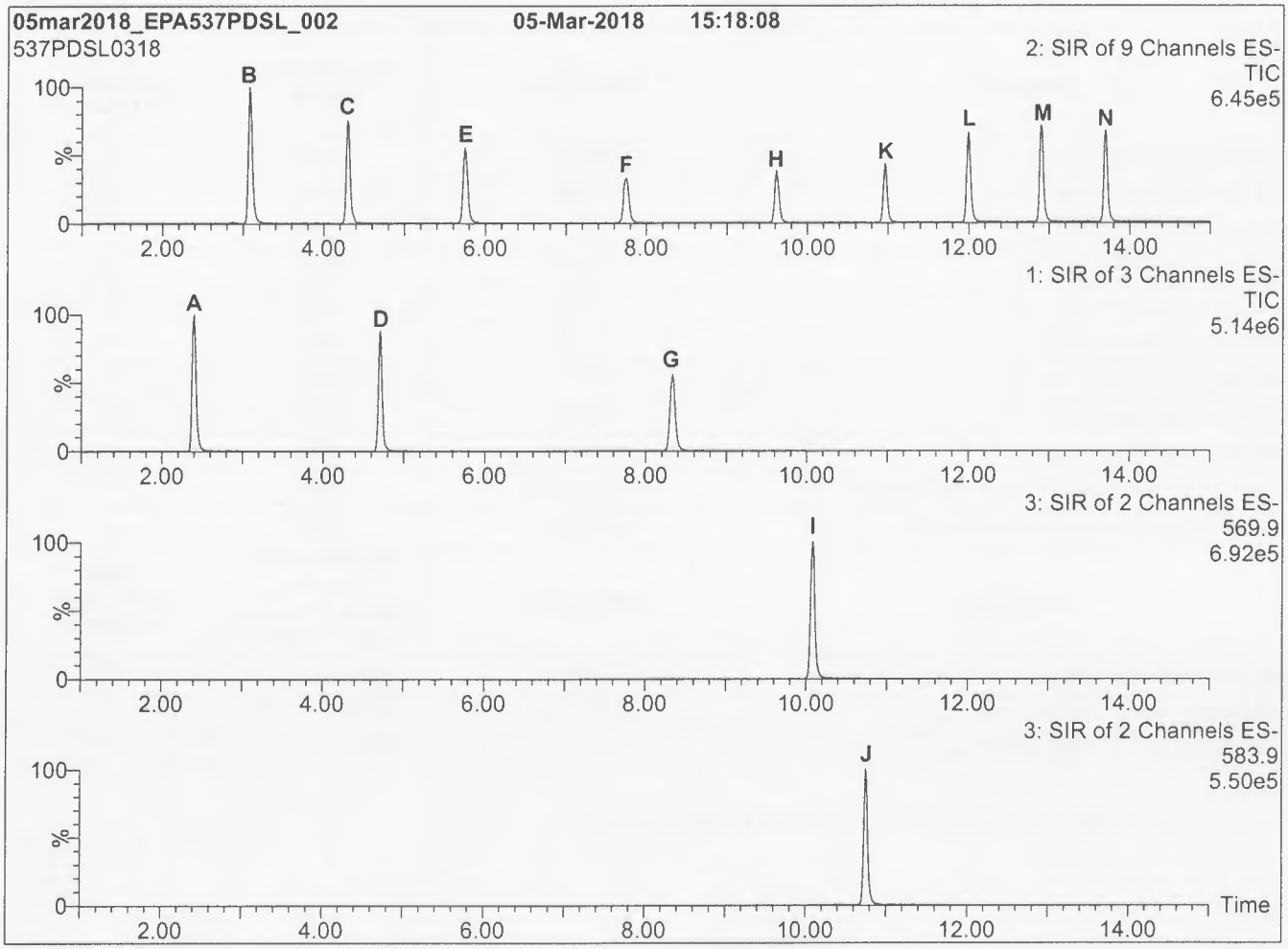
Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Potassium perfluoro-1-butanesulfonate ✓	L-PFBS	2000	1770	A
Sodium perfluoro-1-hexanesulfonate ✓	L-PFHxS	2000	1890	D
Sodium perfluoro-1-octanesulfonate ✓	L-PFOS	2000	1910	G

* 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)

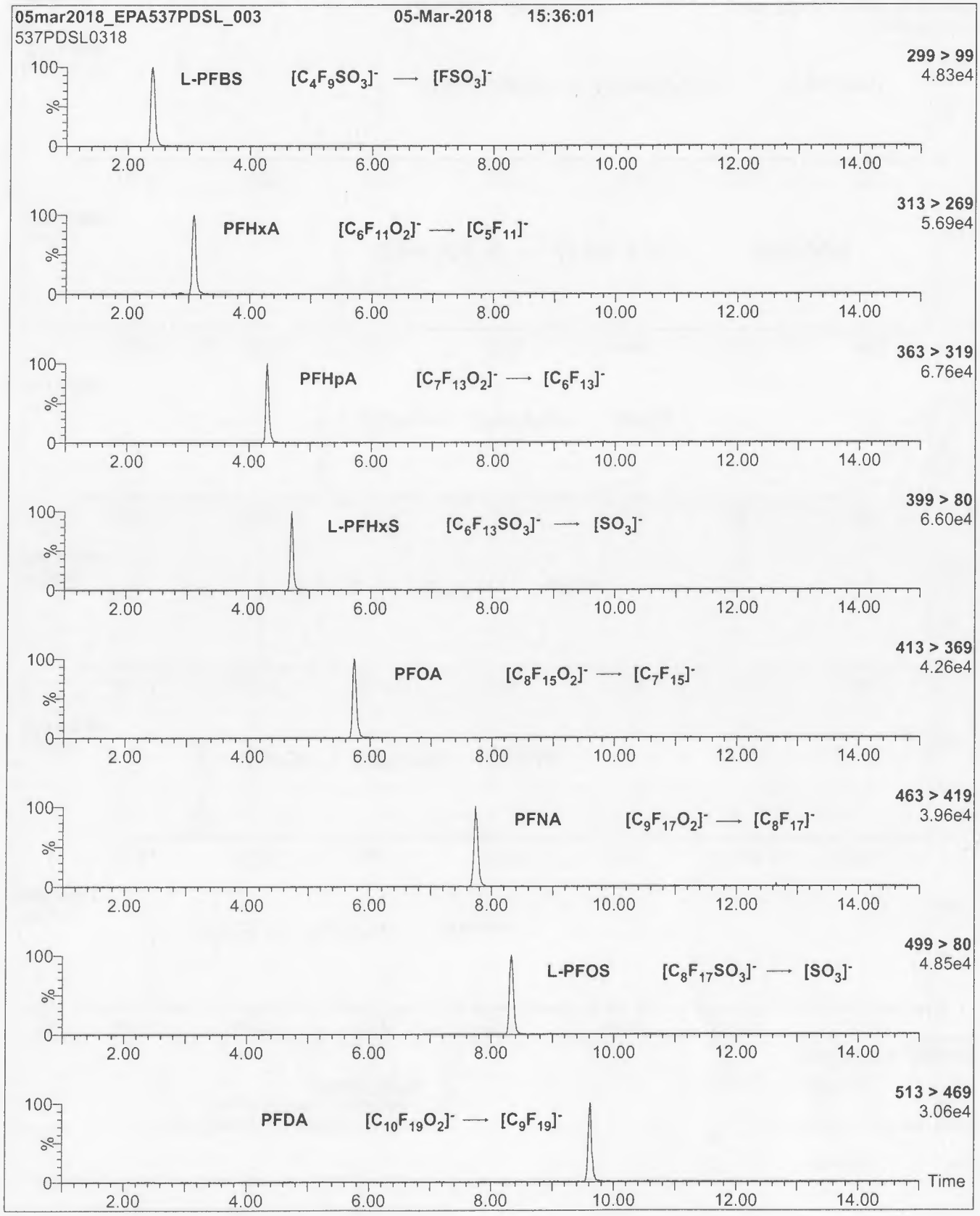
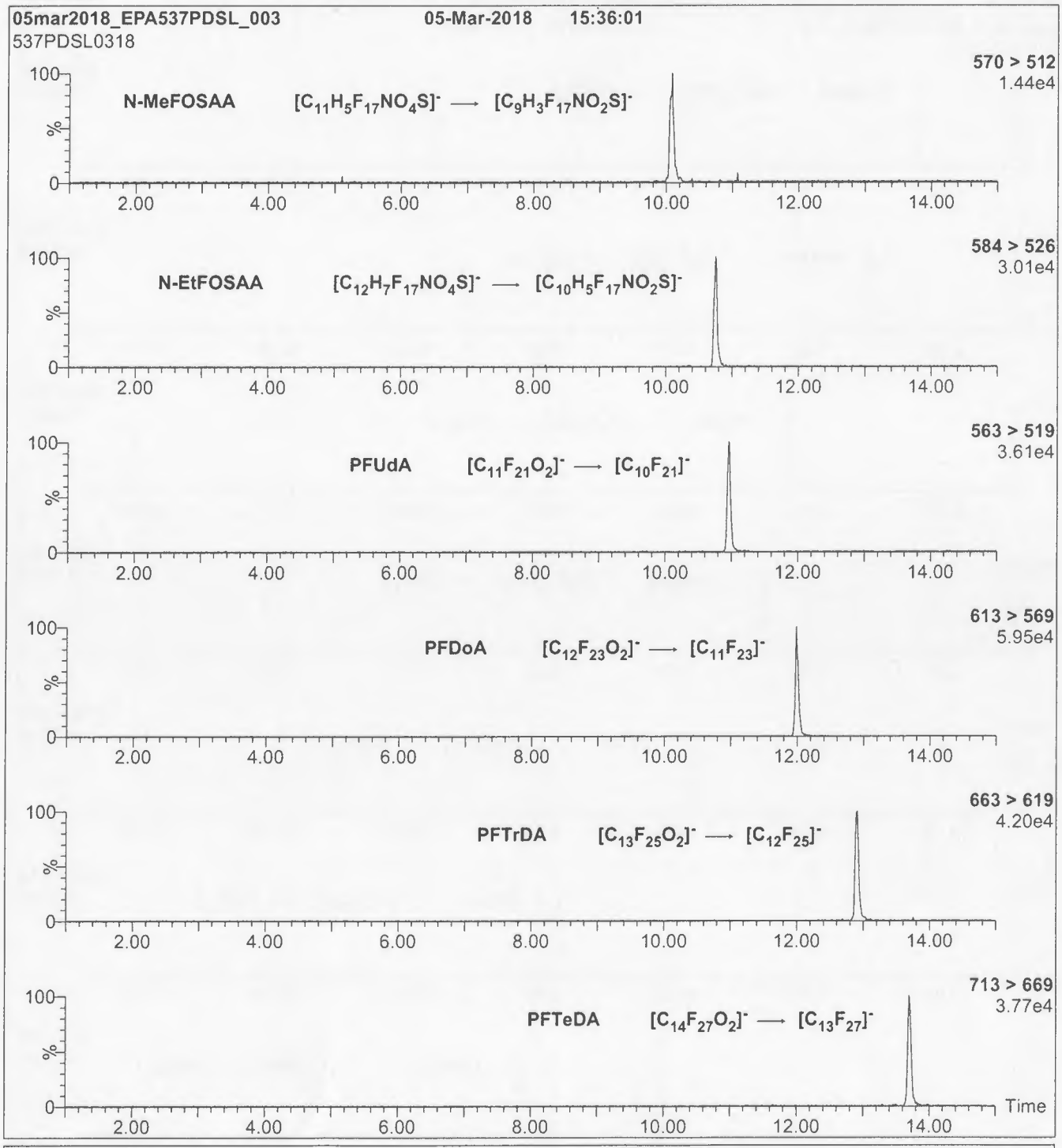


Figure 2: EPA-537PDS-L; LC/MS/MS Data (Selected MRM Transitions)



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)

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

18-0315

WE04 PFAS Analysis

DW

SOP Numbers (see workplan for modifications)

VOASOP No. 5-371

This Batch Contains The Following Samples:	
CQ770PB-FS	J6208-FS
CQ771LCS-FS	J6210-FS
J6204-FS	J6212-FS
J6206-FS	
J6206MS-FS	
J6206MSD-FS	

Laboratory Preparation Records

COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Denise Schumitz	05/21/2018	DMS

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BATTELLE - NORWELL OPERATIONS
SAMPLE IDENTIFICATION PAGE

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

Project No.(s)
100117920-WE04

18-0315

WE04 PFAS Analysis

DW

Sample ID	Description
CQ770PB-FS	Procedural Blank
CQ771LCS-FS	Laboratory Control Sample
J6204-FS	NAWC-051018-RW-303
J6206-FS	WGNA-051018-RW-3220
J6206MS-FS	Matrix Spike of WGNA-051018-RW-3220
J6206MSD-FS	Matrix Spike Duplicate of WGNA-051018-RW-3220
J6208-FS	NAWC-051018-RW-177
J6210-FS	WGNA-051018-RW-3295
J6212-FS	WGNA-051018-DUP-36

Samples Assigned By: Stephanie Schultz Date : May 14, 2018

Comments:

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SAMPLE CUSTODY LOG

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

Project No.(s)
100117920-WE04

18-0315
WE04 PFAS Analysis
DW

Requested On/By:	05/14/2018 SAS	**Purpose:**	Sample Preparation
Relinquished On/By:	05/14/2018 MDS	**Last Activity:**	Transfer

Accepted On/By:	05/14/2018 SAS	**Returned On/To:**	
Stored In Facility:	Sample Preparation	**Returned To Facility:**	
Stored Until	05/14/2018		
Stored Comment:	NA	**Returned Comment:**	NA

No.	BDO-ID:	Ctrs	*	Condition:	Custody Comment:
1	J6204	1	C	Consumed	NA
2	J6206	1	C	Consumed	NA
3	J6208	1	C	Consumed	NA
4	J6210	1	C	Consumed	NA
5	J6212	1	C	Consumed	NA

Total Samples 5 * "C" = Consumed Container

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BATTELLE - NORWELL OPERATIONS
LIQUID SAMPLE ID FORM

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

Project No.(s)
100117920-WE04

18-0315

WE04 PFAS Analysis

DW

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CQ770PB-FS	Procedural Blank	250.0	NA	--	05/14/18 SAS
CQ771LCS-FS	Laboratory Control Sample	250.0	NA	--	05/14/18 SAS
J6204-FS	NAWC-051018-RW-303	280.0	1	C	05/14/18 SAS
J6206-FS	WGNA-051018-RW-3220	265.0	1	C	05/14/18 SAS
J6206MS-FS	Matrix Spike	265.0	3	C	05/14/18 SAS
J6206MSD-FS	Matrix Spike Duplicate	265.0	5	C	05/14/18 SAS
J6208-FS	NAWC-051018-RW-177	280.0	1	C	05/14/18 SAS
J6210-FS	WGNA-051018-RW-3295	290.0	1	C	05/14/18 SAS
J6212-FS	WGNA-051018-DUP-36	270.0	1	C	05/14/18 SAS

Comments:

Sample ID:	Comments:
CQ770PB-FS	1.23g Trizma(170526-01) weighed on BAL-009
CQ771LCS-FS	1.24g Trizma(170526-01) weighed on BAL-009

Samples Assigned By Stephanie Schultz Date : May 14, 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

18-0315
WE04 PFAS Analysis
DW

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CQ770PB-FS	JV60	SIS	1	50	05/14/18 SAS	JCT	NA
CQ771LCS-FS	JV41	LCS/MS	1	100	05/14/18 SAS	JCT	NA
CQ771LCS-FS	JV60	SIS	1	50	05/14/18 SAS	JCT	NA
J6204-FS	JV60	SIS	1	50	05/14/18 SAS	JCT	NA
J6206-FS	JV60	SIS	1	50	05/14/18 SAS	JCT	NA
J6206MS-FS	JV41	LCS/MS	1	150	05/14/18 SAS	JCT	NA
J6206MS-FS	JV60	SIS	1	50	05/14/18 SAS	JCT	NA
J6206MSD-FS	JV41	LCS/MS	1	150	05/14/18 SAS	JCT	NA
J6206MSD-FS	JV60	SIS	1	50	05/14/18 SAS	JCT	NA
J6208-FS	JV60	SIS	1	50	05/14/18 SAS	JCT	NA
J6210-FS	JV60	SIS	1	50	05/14/18 SAS	JCT	NA
J6212-FS	JV60	SIS	1	50	05/14/18 SAS	JCT	NA

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV41	Pipette	B1100287B
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

18-0315

WE04 PFAS Analysis

DW

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CQ770PB-FS	05/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
CQ771LCS-FS	05/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6204-FS	05/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6206-FS	05/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6206MS-FS	05/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6206MSD-FS	05/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6208-FS	05/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6210-FS	05/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6212-FS	05/14/18 SAS	NA	NA	NA	NA	NA	NA	NA

Solvents/Reagent Preparations:

Name	ID	Expires	Lot No	Procedure	Comments
Pre-packed SPE Column	RP-180514-3	05/14/18	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

18-0315
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
CQ770PB-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
CQ771LCS-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
J6204-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
J6206-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
J6206-FS-D(3)	952	48	JV59	50.5	1	1000	20.000	05/17/18 SAS	JCT
J6206MS-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
J6206MS-FS-D(3)	952	48	JV59	50.5	1	1000	20.000	05/17/18 SAS	JCT
J6206MSD-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
J6206MSD-FS-D(3)	952	48	JV59	50.5	1	1000	20.000	05/17/18 SAS	JCT
J6208-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
J6210-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
J6212-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV59	Pipette	I0793912B

Extract Id:	Comments:
CQ770PB-FS	Samples reconstituted in 96/4 methanol/milli-q water (RP-180515-11)

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

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

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PREPARATION EXTRACT SPLIT FORM

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

Project No.(s)
100117920-WE04

18-0315

WE04 PFAS Analysis

DW

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CQ770PB-FS	0	--	5/14/2018 2:00:00 PM	NA		NA	NA	1.000	1.000	05/14/18 SAS
CQ771LCS-FS	0	--	5/14/2018 2:00:00 PM	NA		NA	NA	1.000	1.000	05/14/18 SAS
J6204-FS	0	--	5/14/2018 2:00:00 PM	NA		NA	NA	1.000	1.000	05/14/18 SAS
J6206-FS	0	C	5/14/2018 2:00:00 PM	NA		NA	NA	1.000	1.000	05/14/18 SAS
J6206-FS	2	--	5/17/2018 1:13:00 PM	J6206-FS	0	1000	950	1.053	1.053	05/17/18 SAS
J6206-FS-D	3	--	5/17/2018 1:13:00 PM	J6206-FS	0	1000	50	20.000	20.000	05/17/18 SAS
J6206MS-FS	0	C	5/14/2018 2:00:00 PM	NA		NA	NA	1.000	1.000	05/14/18 SAS
J6206MS-FS	2	--	5/17/2018 1:13:00 PM	J6206MS-FS	0	1000	950	1.053	1.053	05/17/18 SAS
J6206MS-FS-D	3	--	5/17/2018 1:13:00 PM	J6206MS-FS	0	1000	50	20.000	20.000	05/17/18 SAS
J6206MSD-FS	0	C	5/14/2018 2:00:00 PM	NA		NA	NA	1.000	1.000	05/14/18 SAS
J6206MSD-FS	2	--	5/17/2018 1:13:00 PM	J6206MSD-FS	0	1000	950	1.053	1.053	05/17/18 SAS
J6206MSD-FS-D	3	--	5/17/2018 1:13:00 PM	J6206MSD-FS	0	1000	50	20.000	20.000	05/17/18 SAS
J6208-FS	0	--	5/14/2018 2:00:00 PM	NA		NA	NA	1.000	1.000	05/14/18 SAS
J6210-FS	0	--	5/14/2018 2:00:00 PM	NA		NA	NA	1.000	1.000	05/14/18 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

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BATTELLE - NORWELL OPERATIONS
PREPARATION EXTRACT SPLIT FORM

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

Project No.(s)
100117920-WE04

18-0315

WE04 PFAS Analysis

DW

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
J6212-FS	0	--	5/14/2018 2:00:00 PM	NA		NA	NA	1.000	1.000	05/14/18 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

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EXTRACT - INSTRUMENT FACILITY CUSTODY PAGE

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

Project No.(s)
100117920-WE04

18-0315
WE04 PFAS Analysis
DW

Purpose:	LC-MS/MS TRANSFER	**Last Activity:**	Prep->Inst
Relinquished On/By:	May 16 2018 1:20PM SAS	**Received On/By:**	May 16 2018 6:49PM 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	CQ770PB-FS(0)	1000	1	Intact	NA
2	CQ771LCS-FS(0)	1000	1	Intact	NA
3	J6204-FS(0)	1000	1	Intact	NA
4	J6206-FS(0)	1000	1	Intact	NA
5	J6206MS-FS(0)	1000	1	Intact	NA
6	J6206MSD-FS(0)	1000	1	Intact	NA
7	J6208-FS(0)	1000	1	Intact	NA
8	J6210-FS(0)	1000	1	Intact	NA
9	J6212-FS(0)	1000	1	Intact	NA

Total Extracts: 9

Purpose:	LC-MS/MS TRANSFER	**Last Activity:**	Prep->Inst
Relinquished On/By:	May 17 2018 1:27PM SAS	**Received On/By:**	May 17 2018 3:46PM 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	J6206-FS-D(3)	1000	20	Intact	NA
2	J6206MS-FS-D(3)	1000	20	Intact	NA
3	J6206MSD-FS-D(3)	1000	20	Intact	NA

Total Extracts: 3

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MISCELLANEOUS DOCUMENTATION FORM

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

18-0315

WE04 PFAS Analysis

DW

Entered By:	**On:**

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

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SAMPLE SPECIFIC COMMENTS

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

Project No.(s)
100117920-WE04

18-0315

WE04 PFAS Analysis

DW

Sample ID:	Comment:	Date/Initials:
CQ770PB-FS	Sample extraction for all samples began at 2:04pm	05/14/18 SAS
CQ770PB-FS	Sample extraction ended at 2:32pm	05/14/18 SAS
CQ771LCS-FS	Sample extraction ended at 2:30pm	05/14/18 SAS
J6204-FS	Sample extraction ended at 2:35pm	05/14/18 SAS
J6206-FS	Sample extraction ended at 2:27pm	05/14/18 SAS
J6206MS-FS	Sample extraction ended at 2:30pm	05/14/18 SAS
J6206MSD-FS	Sample extraction ended at 2:33pm	05/14/18 SAS
J6208-FS	Sample extraction ended at 2:38pm	05/14/18 SAS
J6210-FS	Sample extraction ended at 2:34pm	05/14/18 SAS
J6212-FS	Sample extraction ended at 2:30pm	05/14/18 SAS

Analytical Calibrations

BATTELLE

Sequence Report

Created with Analyst Reporter
Printed: 24/05/2018 1:13:12 PM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		5/17/2018 9:11:38 AM	5-0371.dam	18-0287.wiff
2	JV64	L1	5/17/2018 9:20:34 AM	5-0371.dam	18-0287.wiff
3	JV65	L2	5/17/2018 9:29:29 AM	5-0371.dam	18-0287.wiff
4	JV66	L3	5/17/2018 9:38:24 AM	5-0371.dam	18-0287.wiff
5	JV67	L4	5/17/2018 9:47:21 AM	5-0371.dam	18-0287.wiff
6	JV68	L5	5/17/2018 9:56:17 AM	5-0371.dam	18-0287.wiff
7	JV69	L6	5/17/2018 10:05:12 AM	5-0371.dam	18-0287.wiff
8	JV70	L7	5/17/2018 10:14:08 AM	5-0371.dam	18-0287.wiff
9	JV71	L8	5/17/2018 10:23:03 AM	5-0371.dam	18-0287.wiff
10	JV72	L9	5/17/2018 10:31:58 AM	5-0371.dam	18-0287.wiff
11	JV63 ICC	ICC	5/17/2018 10:40:54 AM	5-0371.dam	18-0287.wiff
1	MeOH		5/17/2018 10:49:49 AM	5-0371.dam	18-0287.wiff
12	CQ770PB-FS(0)	Procedural Blank	5/17/2018 10:58:44 AM	5-0371.dam	18-0287.wiff
13	CQ771LCS-FS(0)	Laboratory Control Sample	5/17/2018 11:07:40 AM	5-0371.dam	18-0287.wiff
14	J6204-FS(0)	NAWC-051018-RW-303	5/17/2018 11:16:38 AM	5-0371.dam	18-0287.wiff
15	J6206-FS(0)	WGNA-051018-RW-3220	5/17/2018 11:25:33 AM	5-0371.dam	18-0287.wiff
16	J6206MS-FS(0)	WGNA-051018-RW-3220	5/17/2018 11:34:29 AM	5-0371.dam	18-0287.wiff
17	J6206MSD-FS(0)	WGNA-051018-RW-3220	5/17/2018 11:43:24 AM	5-0371.dam	18-0287.wiff
18	J6208-FS(0)	NAWC-051018-RW-177	5/17/2018 11:52:20 AM	5-0371.dam	18-0287.wiff
19	J6210-FS(0)	WGNA-051018-RW-3295	5/17/2018 12:01:14 PM	5-0371.dam	18-0287.wiff
20	J6212-FS(0)	WGNA-051018-DUP-36	5/17/2018 12:10:10 PM	5-0371.dam	18-0287.wiff
6	JV68 CCV	CCV	5/17/2018 12:19:05 PM	5-0371.dam	18-0287.wiff
1	MeOH		5/17/2018 1:41:59 PM	5-0371.dam	18-0315.wiff
12	J6206-FS-D(3)	WGNA-051018-RW-3220	5/17/2018 1:50:54 PM	5-0371.dam	18-0315.wiff
13	J6206MS-FS-D(3)	WGNA-051018-RW-3220	5/17/2018 1:59:51 PM	5-0371.dam	18-0315.wiff
14	J6206MSD-FS-D(3)	WGNA-051018-RW-3220	5/17/2018 2:08:46 PM	5-0371.dam	18-0315.wiff
7	JV69 CCV	CCV	5/17/2018 2:17:42	5-0371.dam	18-0315.wiff

BATTELLE

Sequence Report

Created with Analyst Reporter
Printed: 24/05/2018 1:13:12 PM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
			PM		

BATTELLE

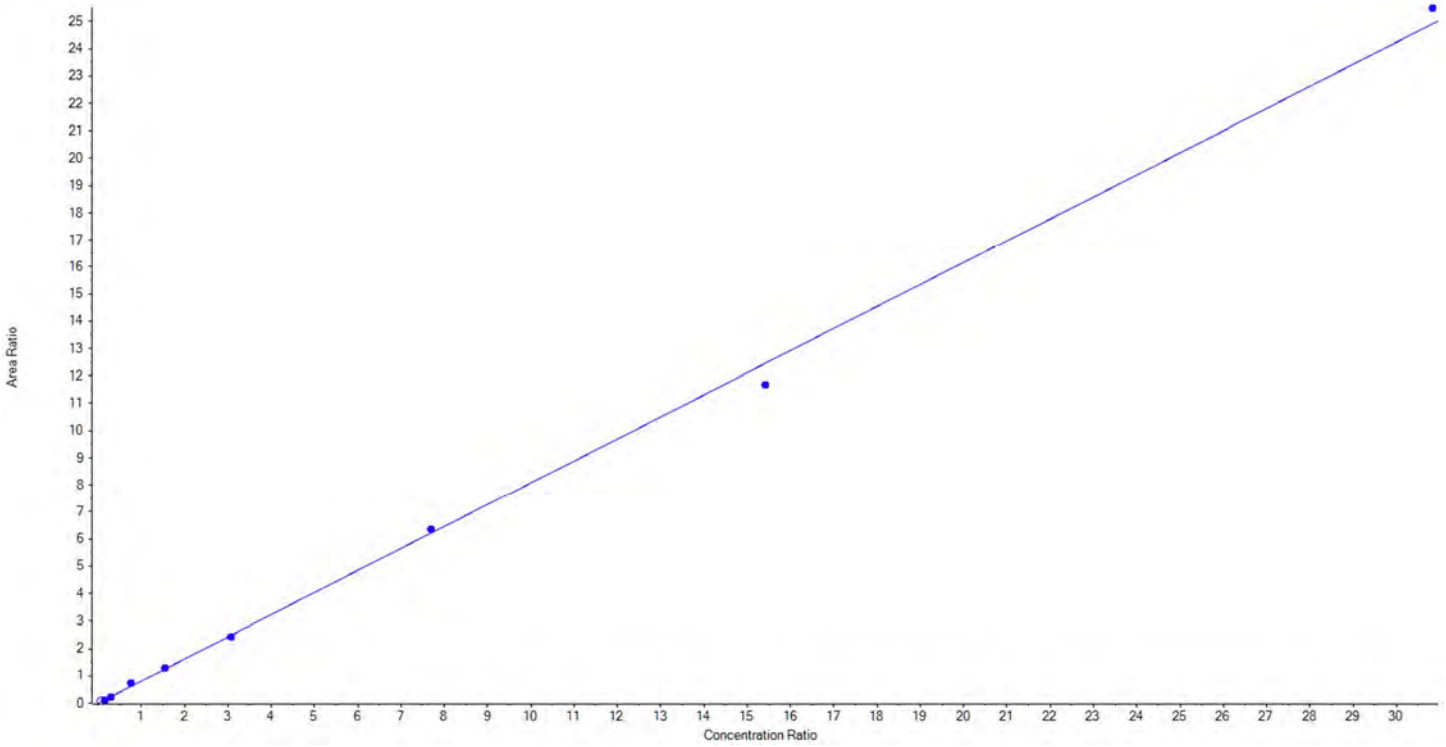
Calibration Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFBS_1	**Data File**	18-0287.wiff
MRM Transition	298.9 / 80.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.80808 x + -0.00559 (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	False	22.15	24.296065	109.7
3	JV65	L2	True	44.30	41.030234	92.6
4	JV66	L3	True	88.60	80.200400	90.5
5	JV67	L4	True	221.50	258.229410	116.6
6	JV68	L5	True	443.00	462.357034	104.4
7	JV69	L6	True	885.00	866.263516	97.9
8	JV70	L7	True	2212.50	2253.141384	101.8
9	JV71	L8	True	4425.00	4154.126306	93.9
10	JV72	L9	True	8850.00	9054.551715	102.3



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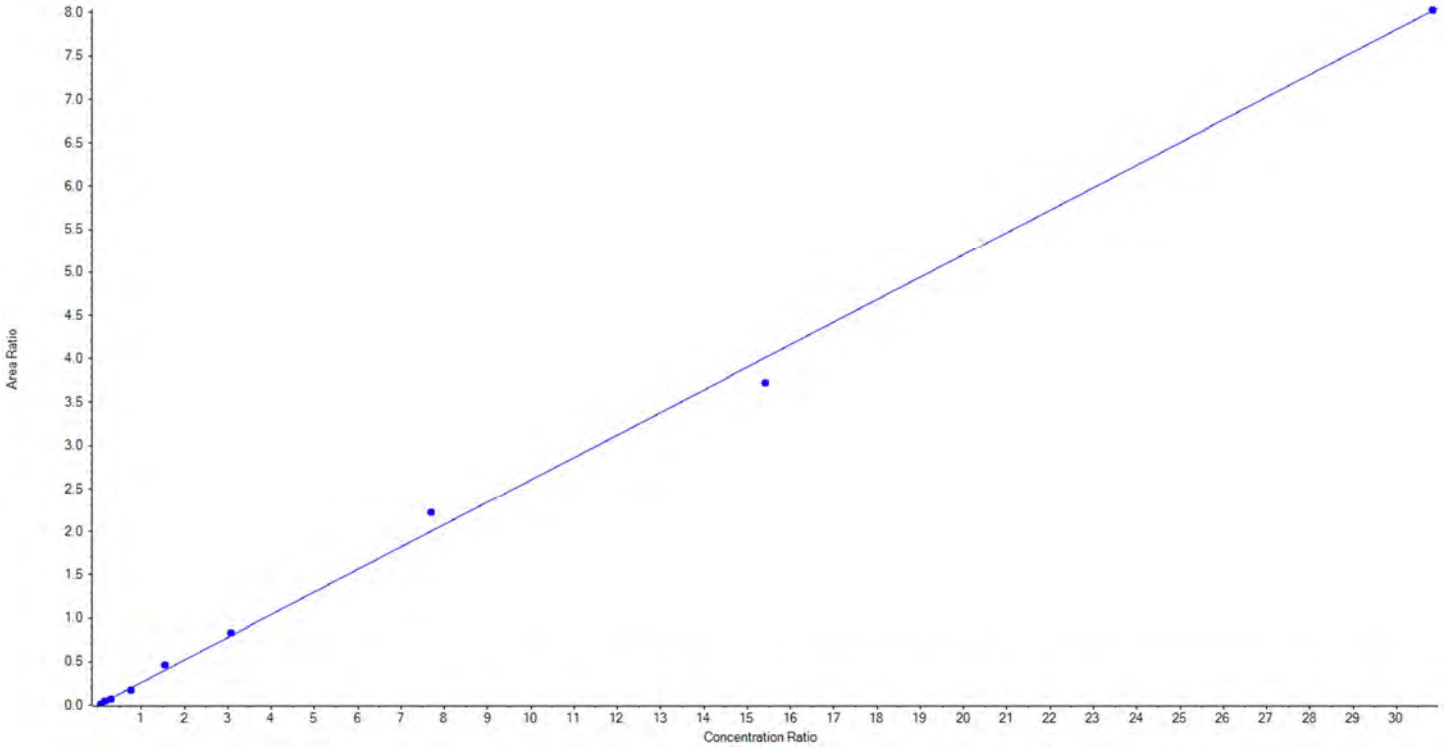
Calibration Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFBS_2	**Data File**	18-0287.wiff
MRM Transition	298.9 / 99.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.26013 x + -1.98827e-4 (r = 0.99785) (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	18.794534	84.9
3	JV65	L2	True	44.30	51.483616	116.2
4	JV66	L3	True	88.60	79.487757	89.7
5	JV67	L4	True	221.50	189.058360	85.4
6	JV68	L5	True	443.00	514.098315	116.1
7	JV69	L6	True	885.00	919.770738	103.9
8	JV70	L7	True	2212.50	2456.549117	111.0
9	JV71	L8	True	4425.00	4104.893766	92.8
10	JV72	L9	True	8850.00	8857.913797	100.1



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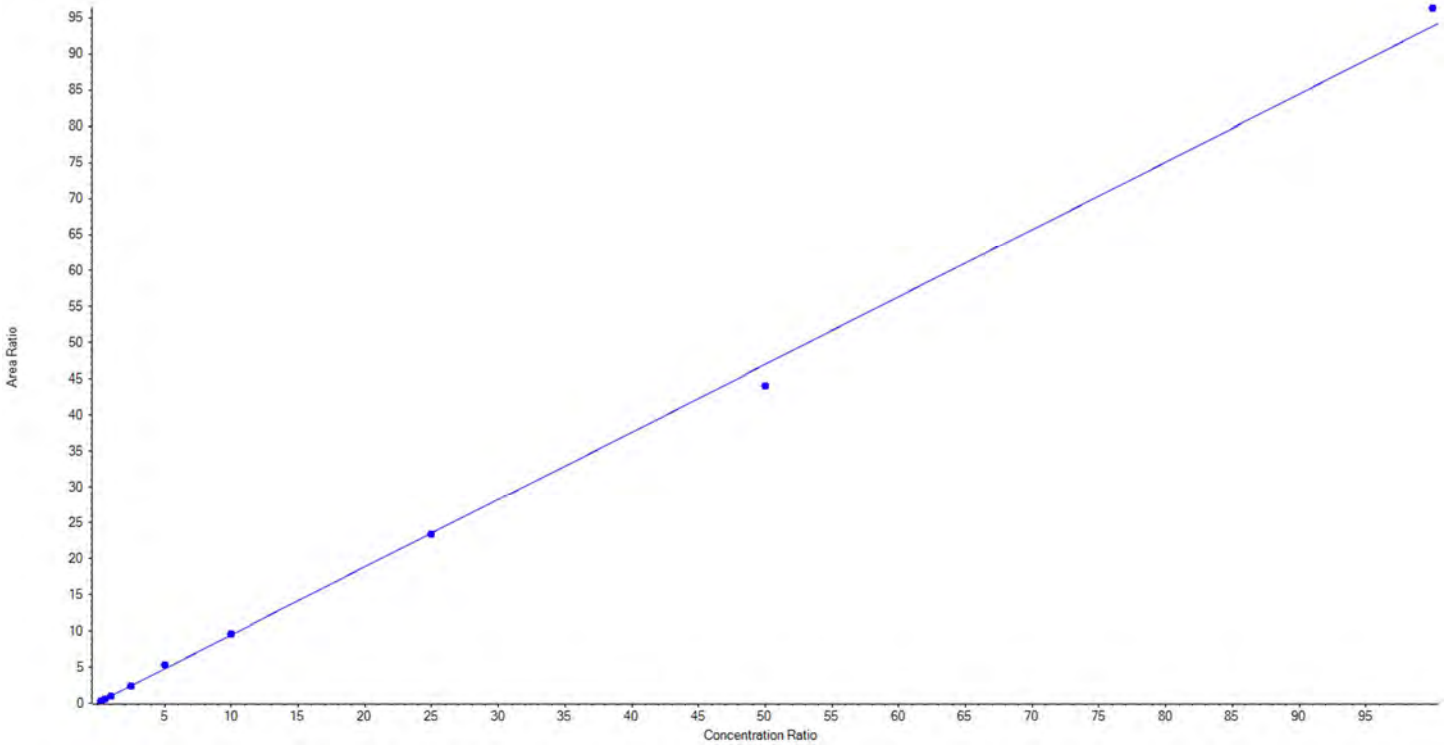
Calibration Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFHxA_1	**Data File**	18-0287.wiff
MRM Transition	313.0 / 269.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.93767 x + 0.06266 (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	True	25.00	26.591060	106.4
3	JV65	L2	True	50.00	45.875372	91.8
4	JV66	L3	True	100.00	95.911748	95.9
5	JV67	L4	True	250.00	247.549703	99.0
6	JV68	L5	True	500.00	549.936426	110.0
7	JV69	L6	True	1000.00	1010.008110	101.0
8	JV70	L7	True	2500.00	2484.294541	99.4
9	JV71	L8	True	5000.00	4694.517851	93.9
10	JV72	L9	True	10000.00	10270.315188	102.7



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Calibration Summary Report

Created with Analyst Reporter
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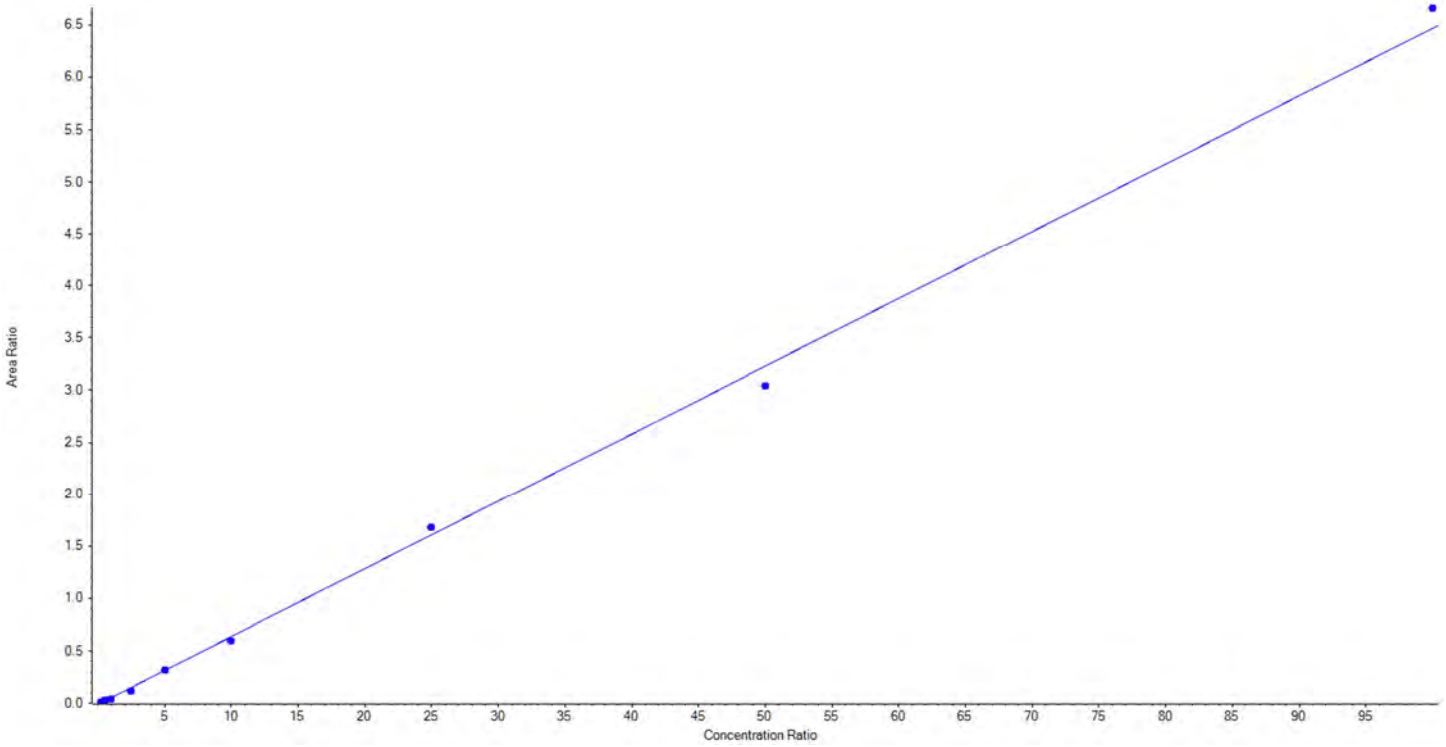
Analyte Name	PFHxA_2	**Data File**	18-0287.wiff
MRM Transition	313.0 / 119.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.06480 x + -0.01183 (r = 0.99839) (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	32.318456	129.3
3	JV65	L2	True	50.00	60.873033	121.8
4	JV66	L3	True	100.00	76.707309	76.7
5	JV67	L4	True	250.00	190.489812	76.2
6	JV68	L5	True	500.00	504.507157	100.9
7	JV69	L6	True	1000.00	932.764663	93.3
8	JV70	L7	True	2500.00	2616.304002	104.7
9	JV71	L8	True	5000.00	4713.646100	94.3
10	JV72	L9	True	10000.00	10297.389467	103.0



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Calibration Summary Report

Created with Analyst Reporter
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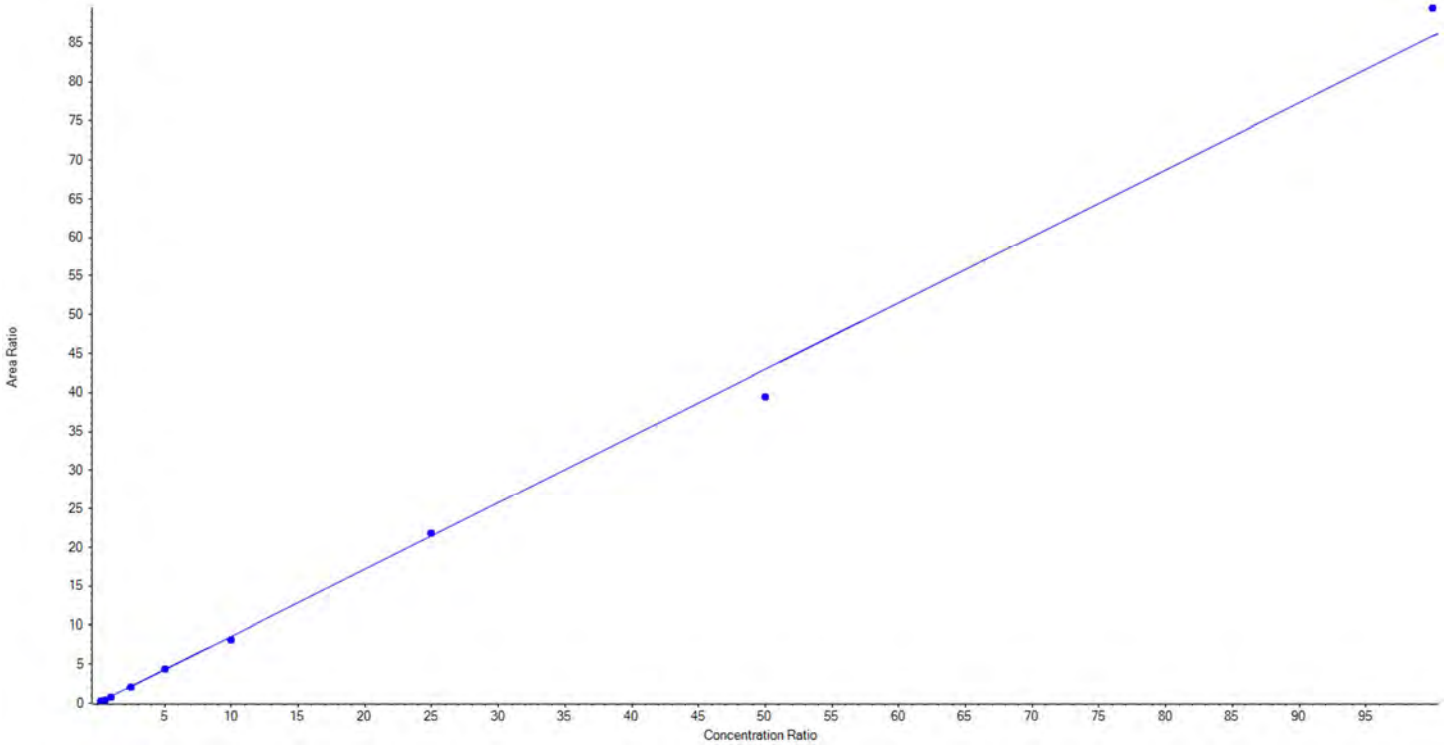
Analyte Name	PFHpA_1	**Data File**	18-0287.wiff
MRM Transition	363.0 / 319.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.85873 x + 0.01038 (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	True	25.00	32.044726	128.2
3	JV65	L2	True	50.00	43.541989	87.1
4	JV66	L3	True	100.00	96.292050	96.3
5	JV67	L4	True	250.00	233.979435	93.6
6	JV68	L5	True	500.00	510.250376	102.1
7	JV69	L6	True	1000.00	950.568273	95.1
8	JV70	L7	True	2500.00	2538.746708	101.6
9	JV71	L8	True	5000.00	4600.075996	92.0
10	JV72	L9	True	10000.00	10419.500448	104.2



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Calibration Summary Report

Created with Analyst Reporter
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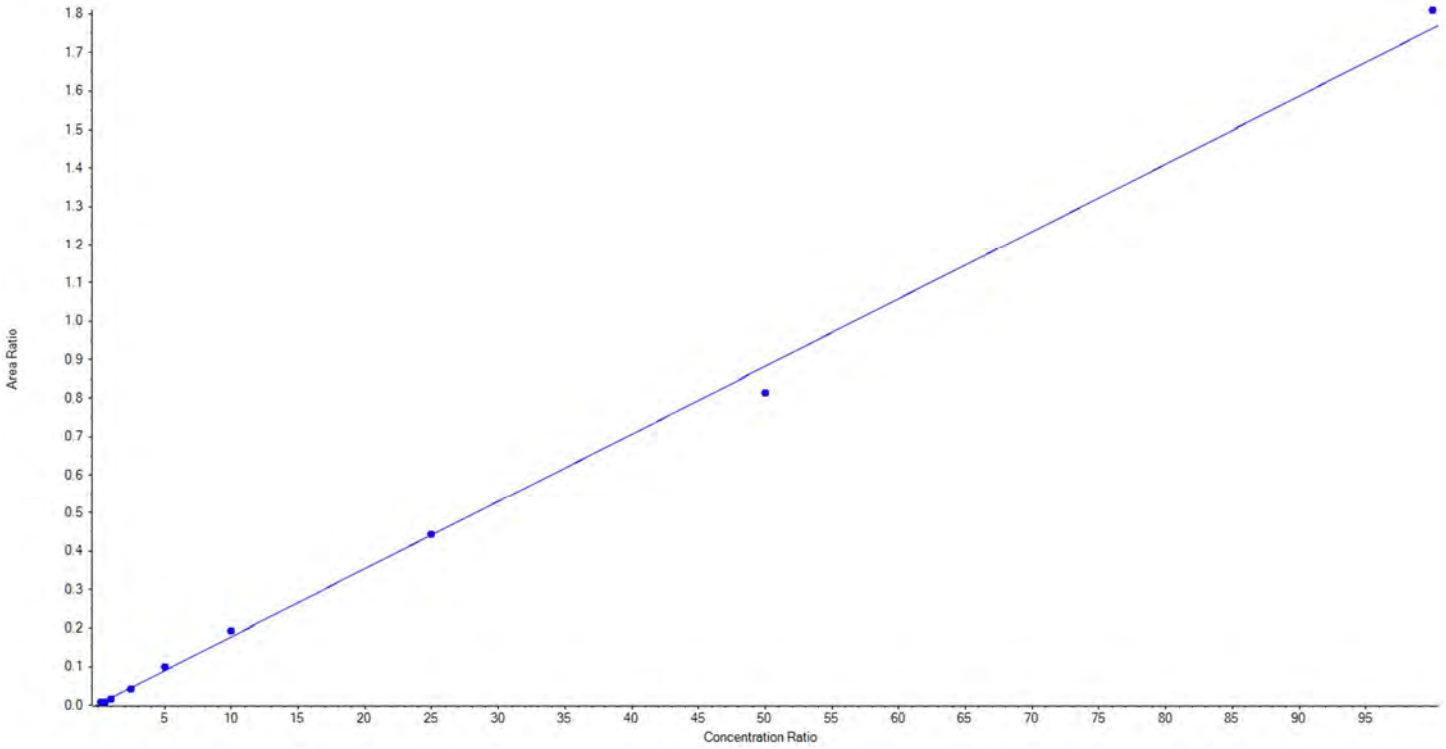
Analyte Name	PFHpA_2	**Data File**	18-0287.wiff
MRM Transition	363.0 / 169.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.01761 x + 0.00160 (r = 0.99845) (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	30.074559	120.3
3	JV65	L2	True	50.00	42.698038	85.4
4	JV66	L3	True	100.00	85.820587	85.8
5	JV67	L4	True	250.00	234.098770	93.6
6	JV68	L5	True	500.00	551.933615	110.4
7	JV69	L6	True	1000.00	1092.769961	109.3
8	JV70	L7	True	2500.00	2507.029705	100.3
9	JV71	L8	True	5000.00	4609.494077	92.2
10	JV72	L9	True	10000.00	10271.080690	102.7



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Calibration Summary Report

Created with Analyst Reporter
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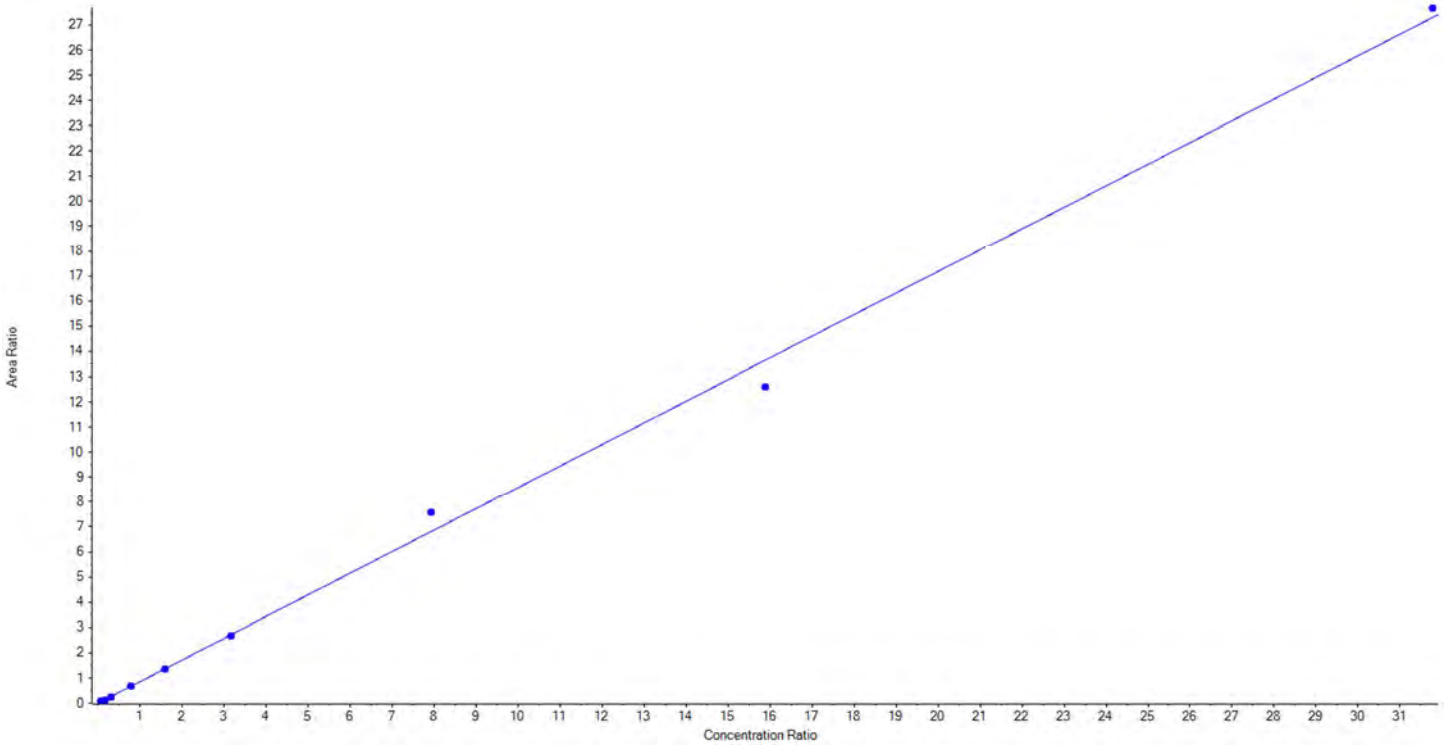
Analyte Name	PFHxS_1	**Data File**	18-0287.wiff
MRM Transition	399.0 / 80.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.85926 x + -0.00778 (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	22.80	24.966439	109.5
3	JV65	L2	True	45.60	42.707506	93.7
4	JV66	L3	True	91.20	87.155683	95.6
5	JV67	L4	True	228.00	223.294264	97.9
6	JV68	L5	True	456.00	457.561003	100.3
7	JV69	L6	True	912.00	897.816699	98.4
8	JV70	L7	True	2280.00	2527.863226	110.9
9	JV71	L8	True	4560.00	4209.509290	92.3
10	JV72	L9	True	9120.00	9244.725891	101.4



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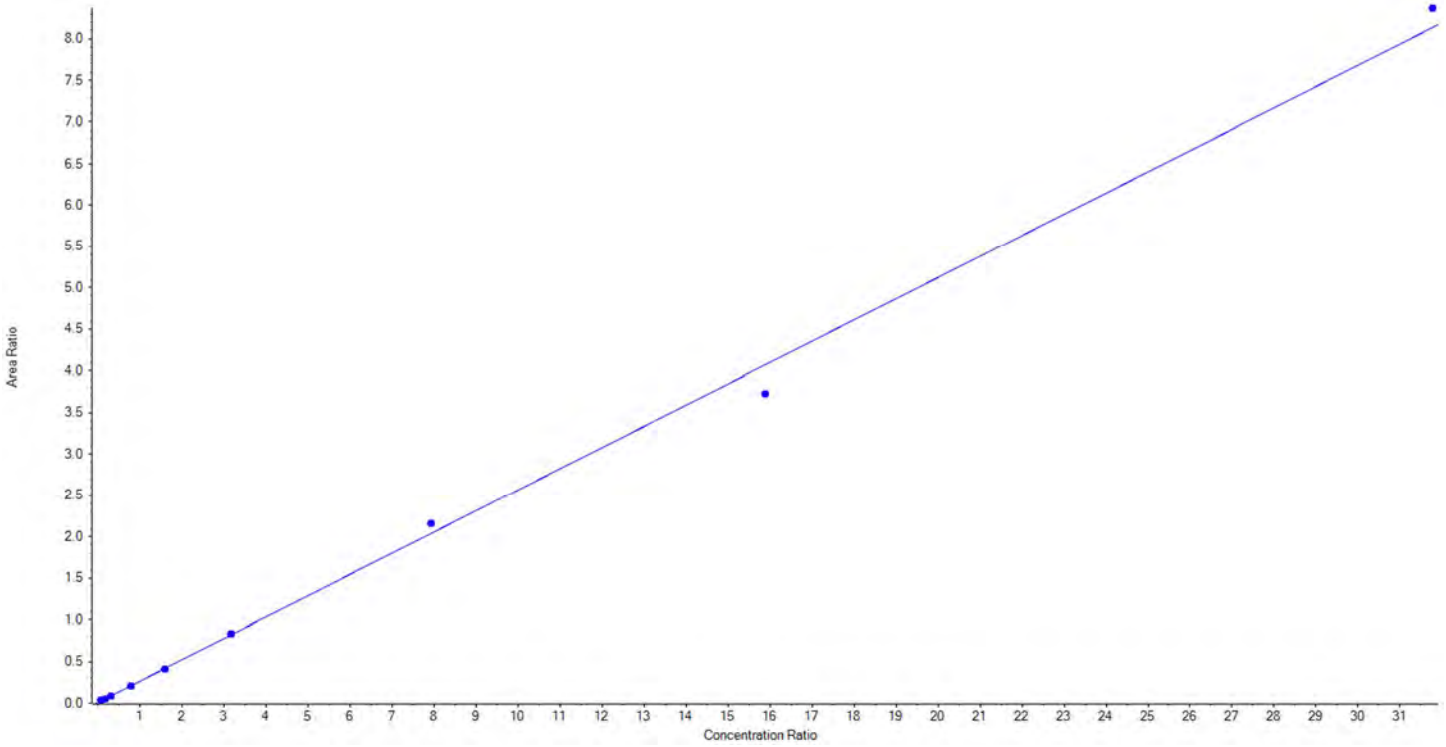
Analyte Name	PFHxS_2	**Data File**	18-0287.wiff
MRM Transition	399.0 / 99.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.25570 x + 0.00892 (r = 0.99848) (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	25.882026	113.5
3	JV65	L2	True	45.60	44.982746	98.7
4	JV66	L3	True	91.20	82.793188	90.8
5	JV67	L4	True	228.00	220.930575	96.9
6	JV68	L5	True	456.00	451.227504	99.0
7	JV69	L6	True	912.00	919.402914	100.8
8	JV70	L7	True	2280.00	2418.630361	106.1
9	JV71	L8	True	4560.00	4169.247271	91.4
10	JV72	L9	True	9120.00	9382.503415	102.9



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Calibration Summary Report

Created with Analyst Reporter
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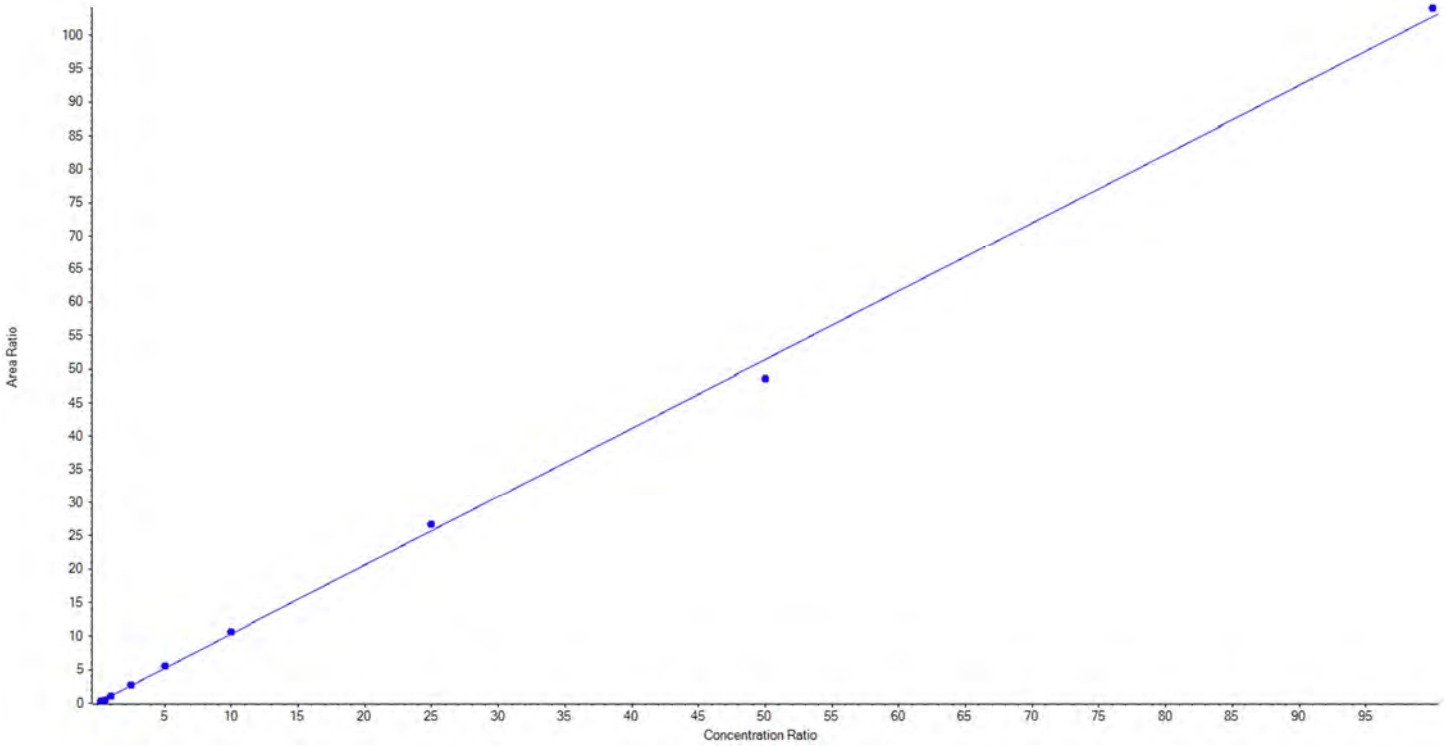
Analyte Name	PFOA_1	**Data File**	18-0287.wiff
MRM Transition	413.0 / 369.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.02707 x + 0.06616 (r = 0.99933) (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	27.996408	112.0
3	JV65	L2	True	50.00	41.010587	82.0
4	JV66	L3	True	100.00	95.444513	95.4
5	JV67	L4	True	250.00	255.572810	102.2
6	JV68	L5	True	500.00	528.537418	105.7
7	JV69	L6	True	1000.00	1031.373285	103.1
8	JV70	L7	True	2500.00	2591.584505	103.7
9	JV71	L8	True	5000.00	4727.656099	94.6
10	JV72	L9	True	10000.00	10125.824376	101.3



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Calibration Summary Report

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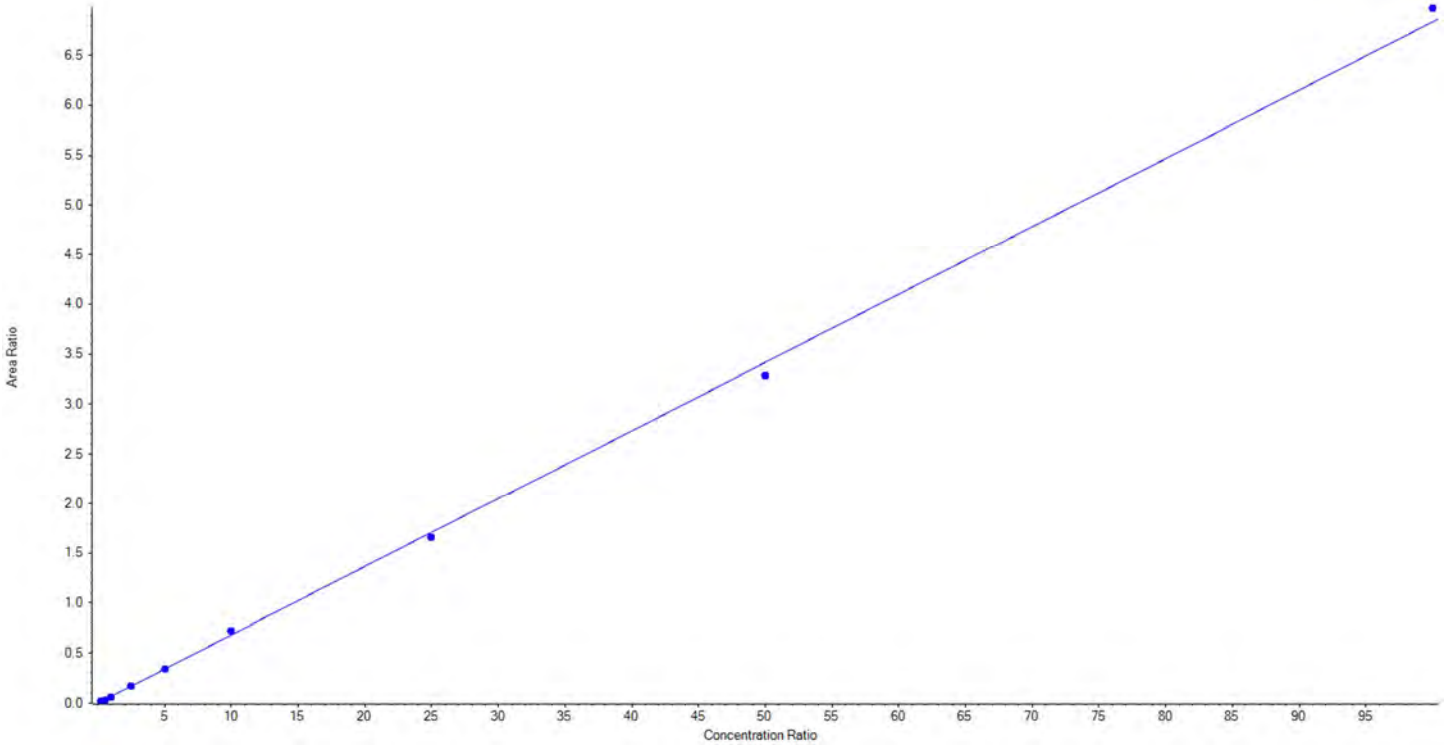
Analyte Name	PFOA_2	**Data File**	18-0287.wiff
MRM Transition	413.0 / 169.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.06835 x + -0.00112 (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	31.352495	125.4
3	JV65	L2	True	50.00	38.418294	76.8
4	JV66	L3	True	100.00	92.493604	92.5
5	JV67	L4	True	250.00	257.138320	102.9
6	JV68	L5	True	500.00	503.842693	100.8
7	JV69	L6	True	1000.00	1065.243683	106.5
8	JV70	L7	True	2500.00	2420.142013	96.8
9	JV71	L8	True	5000.00	4814.222387	96.3
10	JV72	L9	True	10000.00	10202.146511	102.0



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Calibration Summary Report

Created with Analyst Reporter
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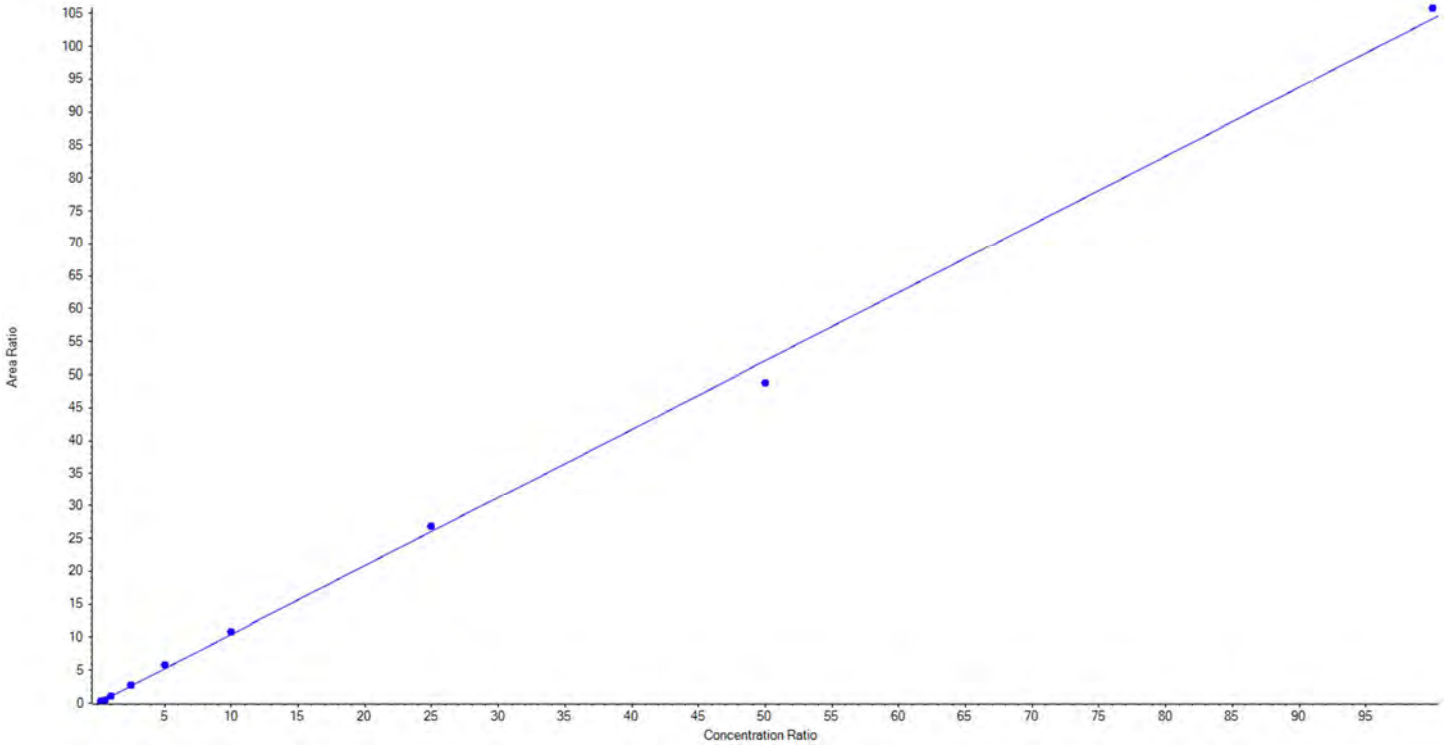
Analyte Name	PFNA_1	**Data File**	18-0287.wiff
MRM Transition	463.0 / 419.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.04126 x + 0.01885 (r = 0.99915) (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	23.670961	94.7
3	JV65	L2	True	50.00	44.066272	88.1
4	JV66	L3	True	100.00	103.130191	103.1
5	JV67	L4	True	250.00	256.125209	102.5
6	JV68	L5	True	500.00	551.430086	110.3
7	JV69	L6	True	1000.00	1032.057128	103.2
8	JV70	L7	True	2500.00	2569.710134	102.8
9	JV71	L8	True	5000.00	4687.510401	93.8
10	JV72	L9	True	10000.00	10157.299619	101.6



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Calibration Summary Report

Created with Analyst Reporter
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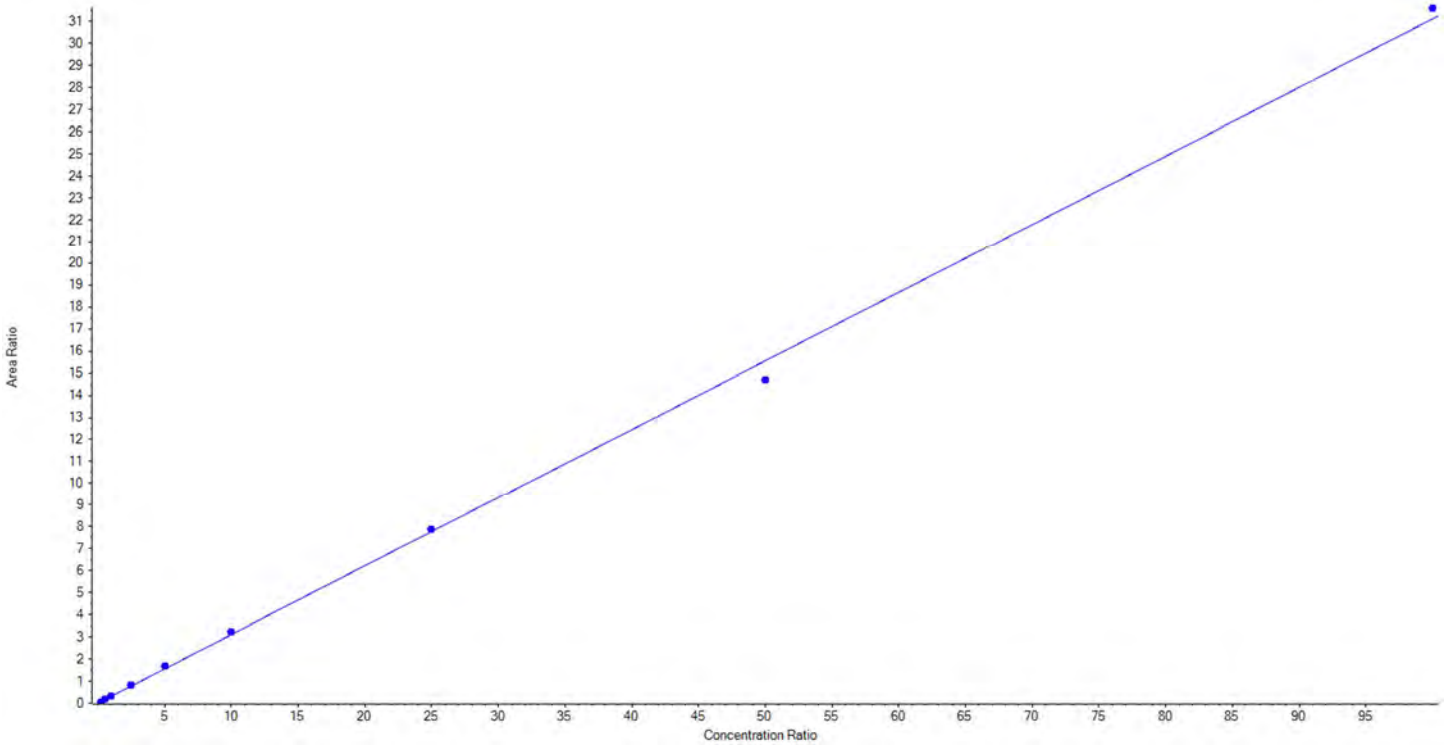
Analyte Name	PFNA_2	**Data File**	18-0287.wiff
MRM Transition	463.0 / 219.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.31116 x + -0.00133 (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	25.00	18.895900	75.6
3	JV65	L2	True	50.00	53.546881	107.1
4	JV66	L3	True	100.00	102.247573	102.3
5	JV67	L4	True	250.00	267.735432	107.1
6	JV68	L5	True	500.00	535.214557	107.0
7	JV69	L6	True	1000.00	1037.248751	103.7
8	JV70	L7	True	2500.00	2529.341671	101.2
9	JV71	L8	True	5000.00	4723.174643	94.5
10	JV72	L9	True	10000.00	10157.594592	101.6



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Calibration Summary Report

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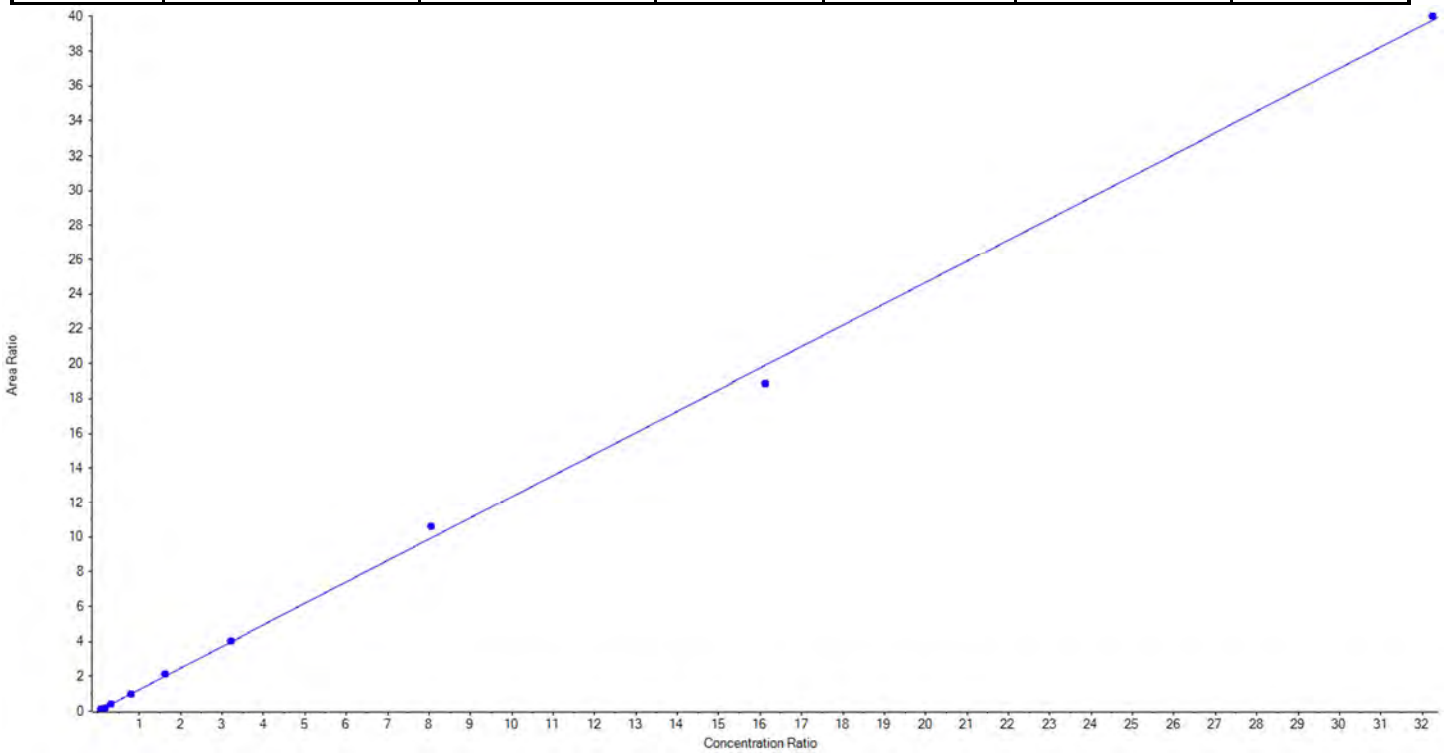
Analyte Name	PFOS_1	**Data File**	18-0287.wiff
MRM Transition	499.0 / 80.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.23343 x + 0.00579 (r = 0.99925) (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	23.295066	100.6
3	JV65	L2	True	46.30	44.062080	95.2
4	JV66	L3	True	92.60	90.283639	97.5
5	JV67	L4	True	231.50	223.772723	96.7
6	JV68	L5	True	463.00	490.928856	106.0
7	JV69	L6	True	925.60	944.256987	102.0
8	JV70	L7	True	2314.00	2467.743097	106.6
9	JV71	L8	True	4628.00	4386.197136	94.8
10	JV72	L9	True	9256.00	9309.610416	100.6



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Calibration Summary Report

Created with Analyst Reporter
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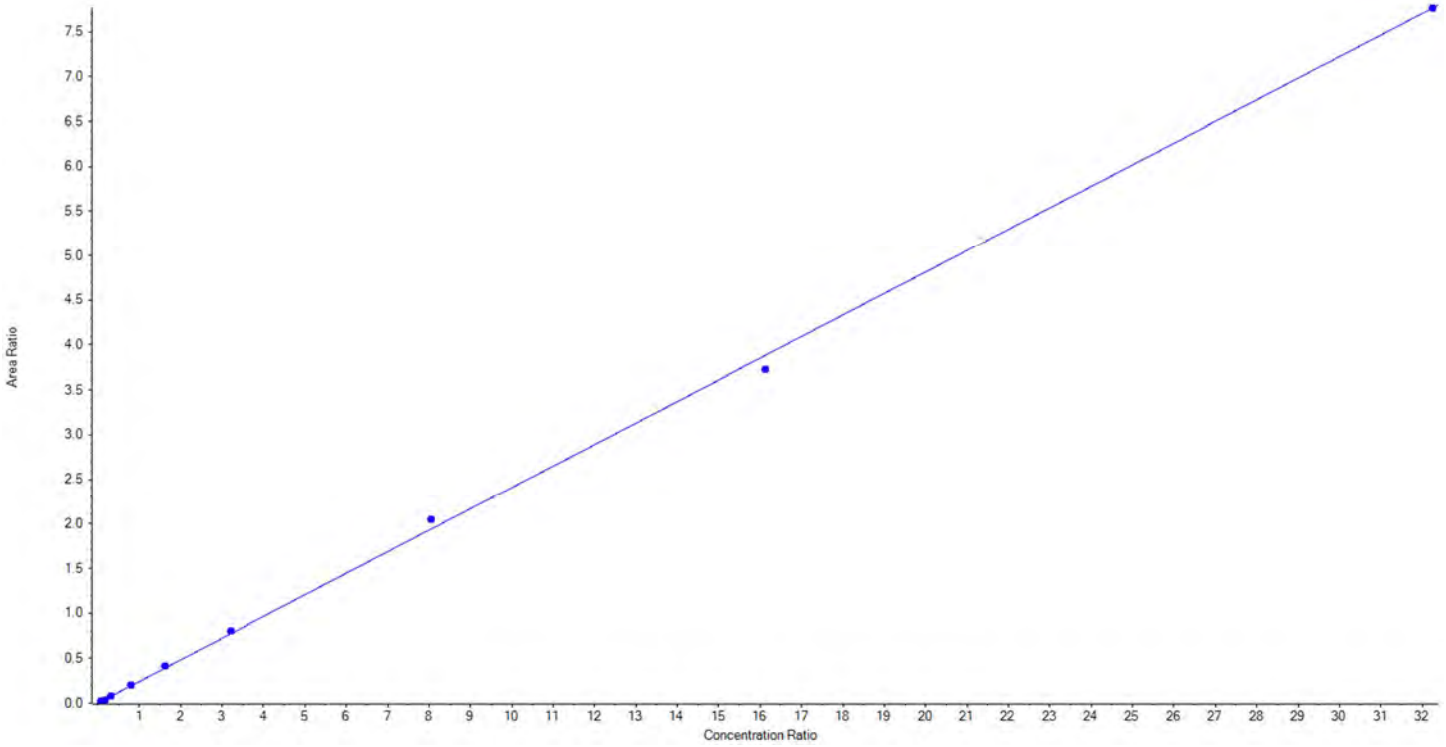
Analyte Name	PFOS_2	**Data File**	18-0287.wiff
MRM Transition	499.0 / 99.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.24075 x + 6.09698e-4 (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	True	23.15	19.370690	83.7
3	JV65	L2	True	46.30	44.613326	96.4
4	JV66	L3	True	92.60	98.546534	106.4
5	JV67	L4	True	231.50	235.244521	101.6
6	JV68	L5	True	463.00	498.613316	107.7
7	JV69	L6	True	925.60	953.492563	103.0
8	JV70	L7	True	2314.00	2438.162597	105.4
9	JV71	L8	True	4628.00	4436.506455	95.9
10	JV72	L9	True	9256.00	9255.599999	100.0



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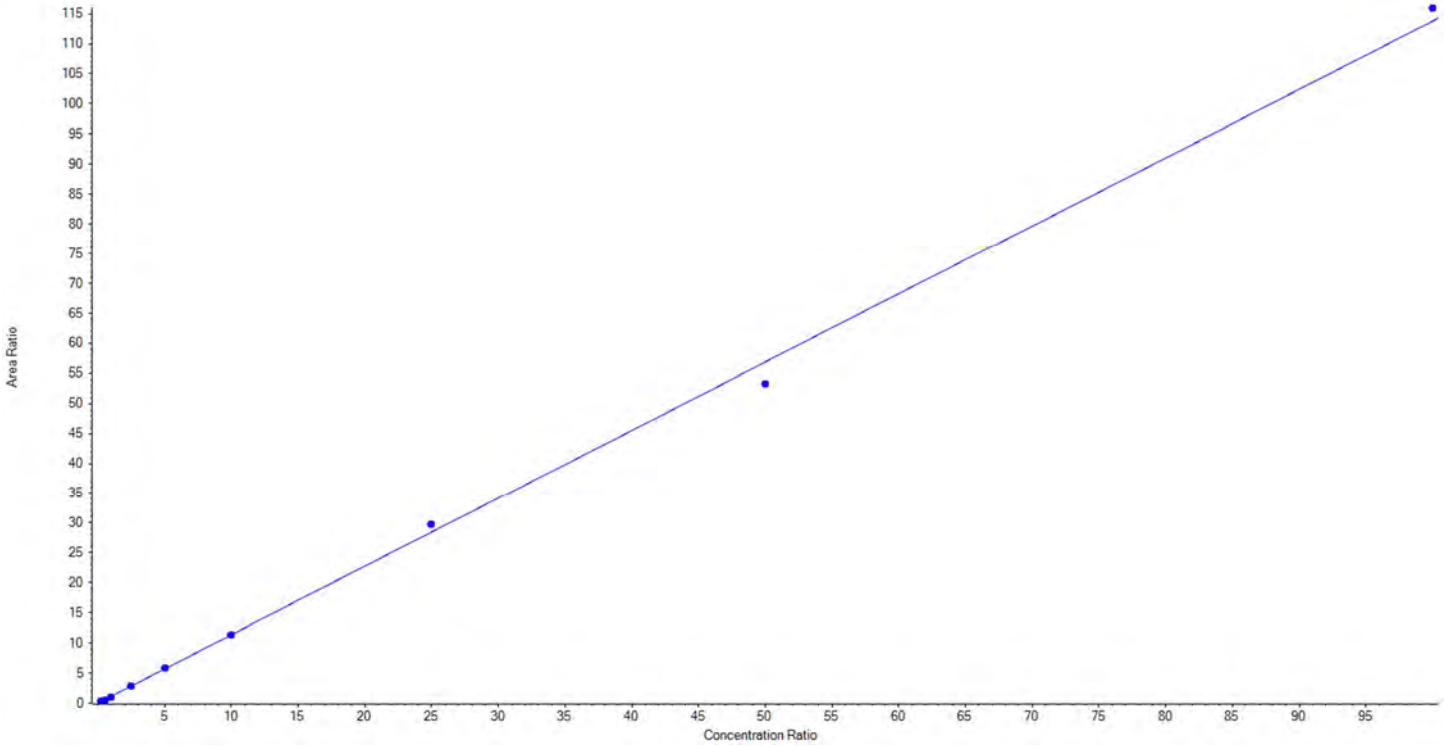
Calibration Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFDA_1	**Data File**	18-0287.wiff
MRM Transition	513.0 / 469.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.13770 x + 5.14556e-4 (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	27.531194	110.1
3	JV65	L2	True	50.00	46.548667	93.1
4	JV66	L3	True	100.00	95.198100	95.2
5	JV67	L4	True	250.00	244.600495	97.8
6	JV68	L5	True	500.00	515.803714	103.2
7	JV69	L6	True	1000.00	1002.687574	100.3
8	JV70	L7	True	2500.00	2618.190862	104.7
9	JV71	L8	True	5000.00	4683.806444	93.7
10	JV72	L9	True	10000.00	10190.632950	101.9



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Calibration Summary Report

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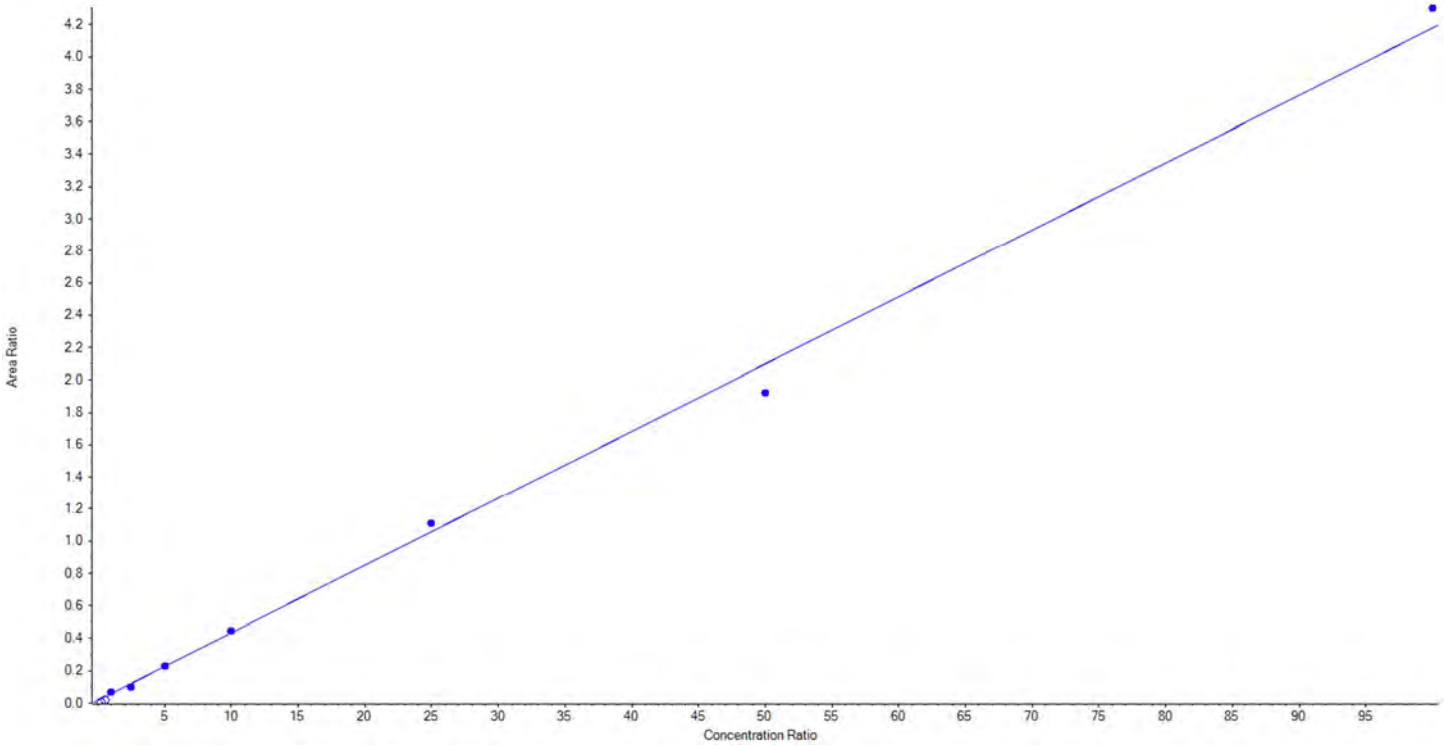
Analyte Name	PFDA_2	**Data File**	18-0287.wiff
MRM Transition	513.0 / 219.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.04161 x + 0.01790 (r = 0.99800) (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	116.272989	116.3
5	JV67	L4	True	250.00	196.515232	78.6
6	JV68	L5	True	500.00	513.191868	102.6
7	JV69	L6	True	1000.00	1030.989469	103.1
8	JV70	L7	True	2500.00	2623.911477	105.0
9	JV71	L8	True	5000.00	4573.594864	91.5
10	JV72	L9	True	10000.00	10295.524100	103.0



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Calibration Summary Report

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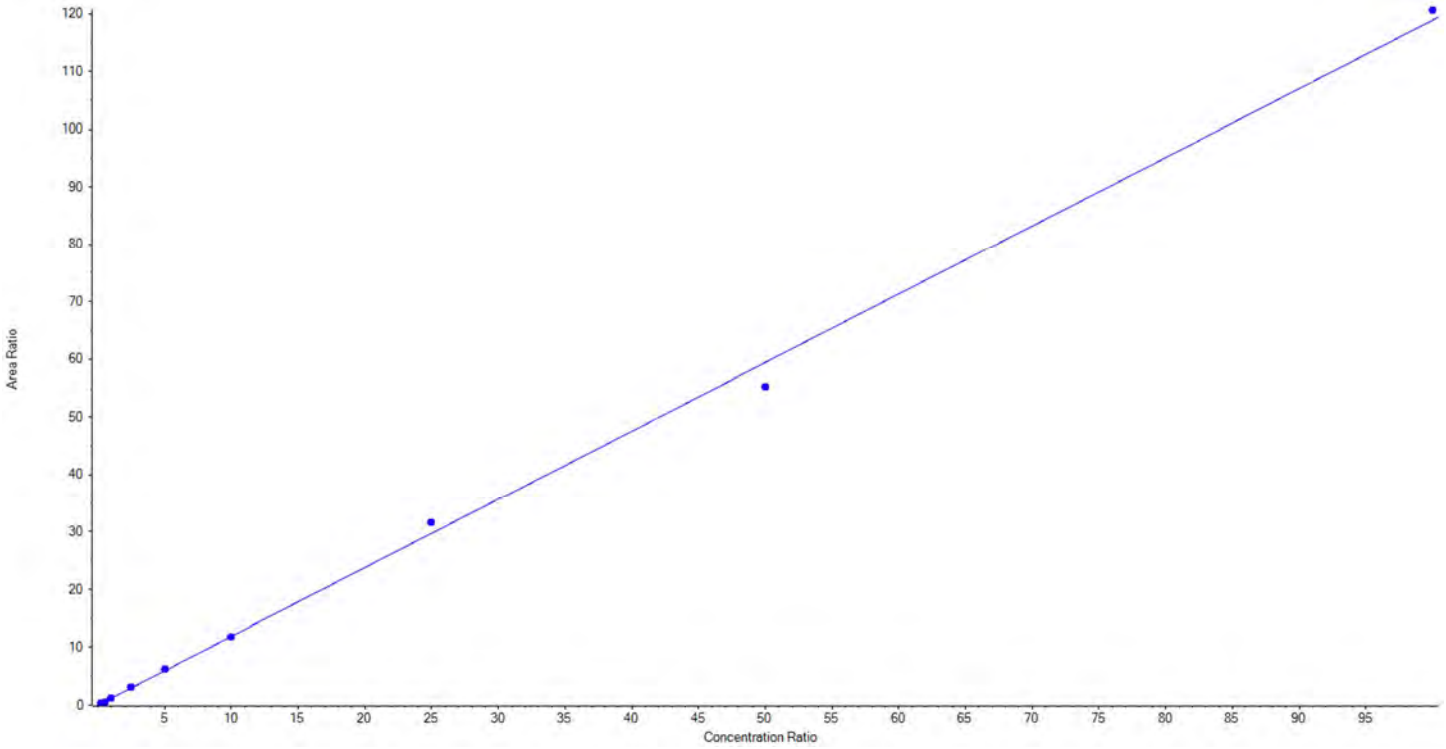
Analyte Name	PFUnA_1	**Data File**	18-0287.wiff
MRM Transition	563.0 / 519.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.18881 x + 0.00495 (r = 0.99889) (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	22.681404	90.7
3	JV65	L2	True	50.00	45.203954	90.4
4	JV66	L3	True	100.00	106.490291	106.5
5	JV67	L4	True	250.00	263.370011	105.4
6	JV68	L5	True	500.00	531.576178	106.3
7	JV69	L6	True	1000.00	997.780517	99.8
8	JV70	L7	True	2500.00	2661.931491	106.5
9	JV71	L8	True	5000.00	4649.797175	93.0
10	JV72	L9	True	10000.00	10146.168980	101.5



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Calibration Summary Report

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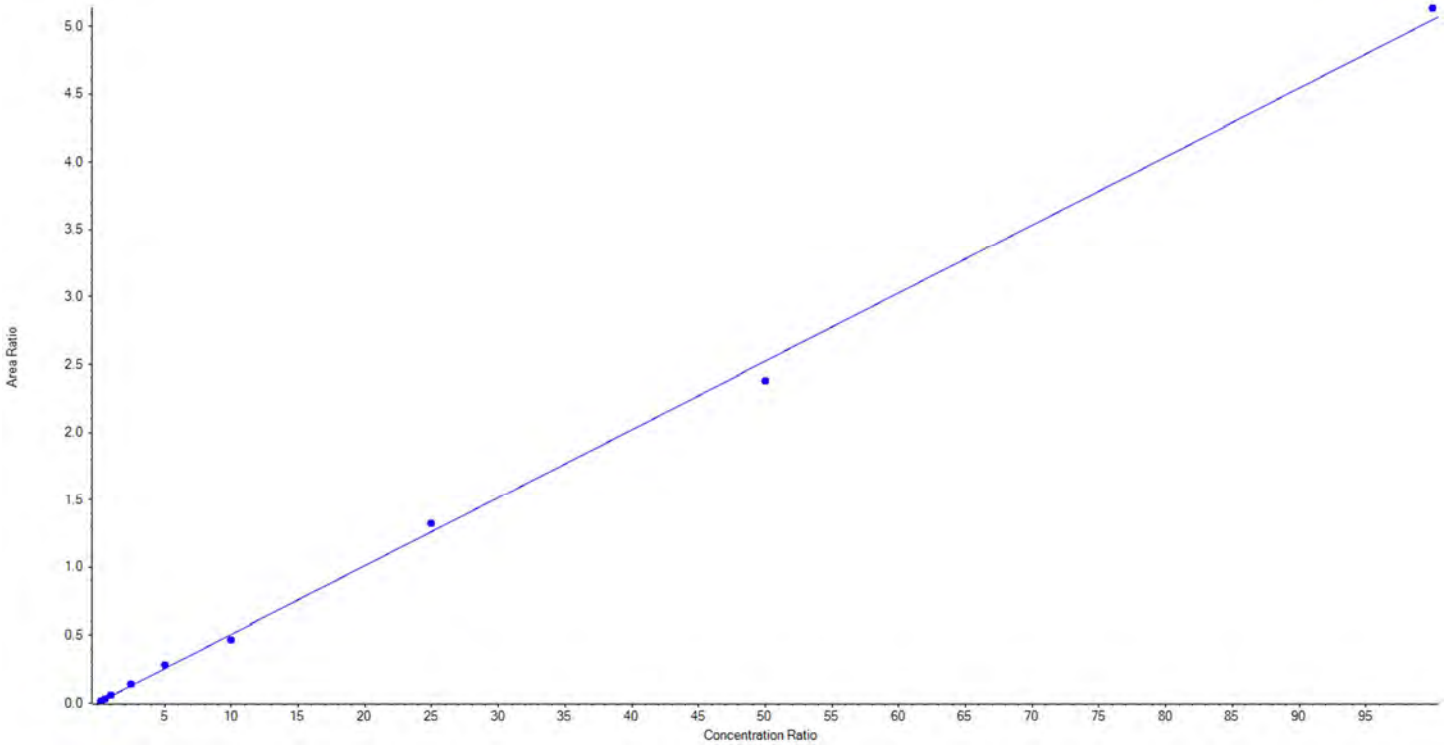
Analyte Name	PFUnA_2	**Data File**	18-0287.wiff
MRM Transition	563.0 / 269.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05044 x + 0.00210 (r = 0.99893) (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	20.027736	80.1
3	JV65	L2	True	50.00	47.769478	95.5
4	JV66	L3	True	100.00	114.489893	114.5
5	JV67	L4	True	250.00	268.486516	107.4
6	JV68	L5	True	500.00	547.827895	109.6
7	JV69	L6	True	1000.00	922.419534	92.2
8	JV70	L7	True	2500.00	2614.950827	104.6
9	JV71	L8	True	5000.00	4716.975485	94.3
10	JV72	L9	True	10000.00	10172.052636	101.7



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Calibration Summary Report

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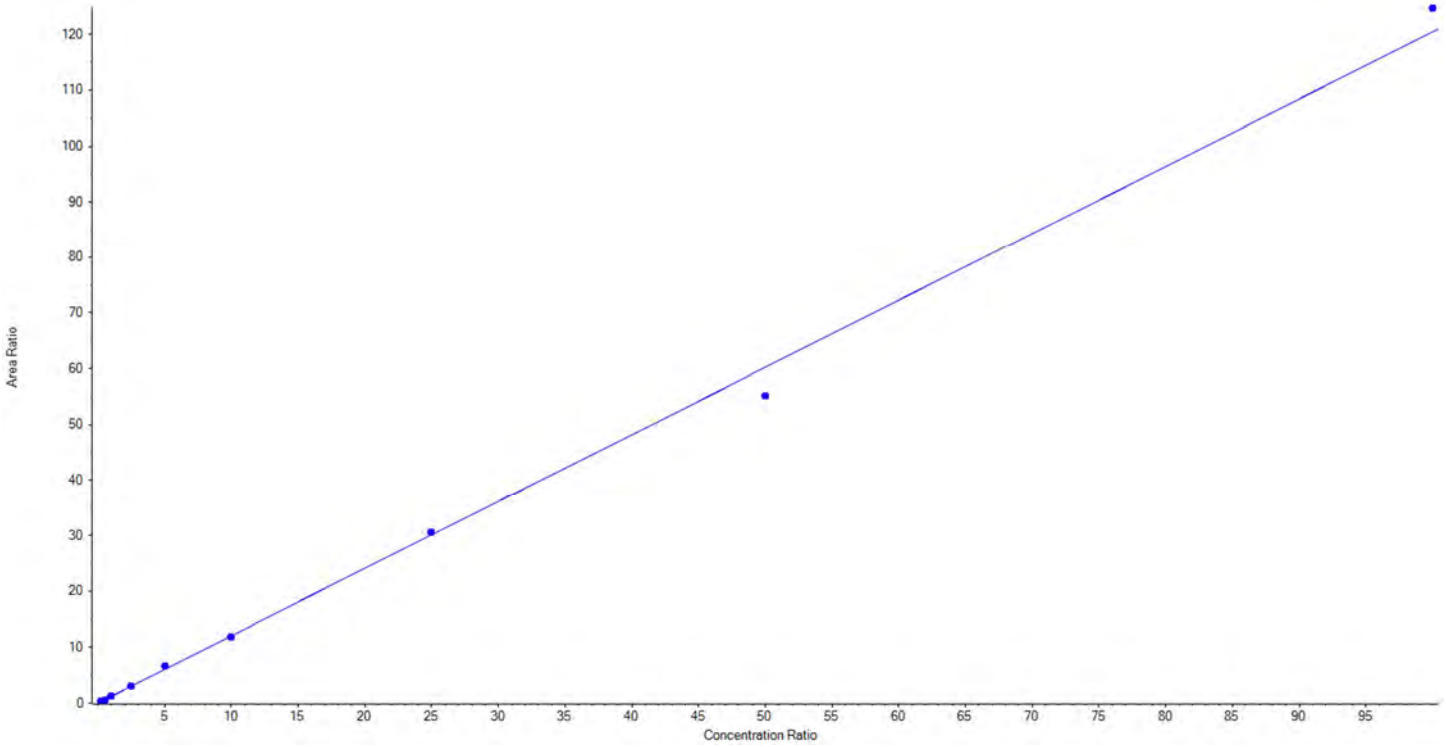
Analyte Name	PFDoA_1	**Data File**	18-0287.wiff
MRM Transition	613.0 / 569.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.20458 x + -0.00140 (r = 0.99856) (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	24.175196	96.7
3	JV65	L2	True	50.00	47.434381	94.9
4	JV66	L3	True	100.00	102.014197	102.0
5	JV67	L4	True	250.00	255.705891	102.3
6	JV68	L5	True	500.00	545.923162	109.2
7	JV69	L6	True	1000.00	985.395463	98.5
8	JV70	L7	True	2500.00	2532.675832	101.3
9	JV71	L8	True	5000.00	4578.592795	91.6
10	JV72	L9	True	10000.00	10353.083082	103.5



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Calibration Summary Report

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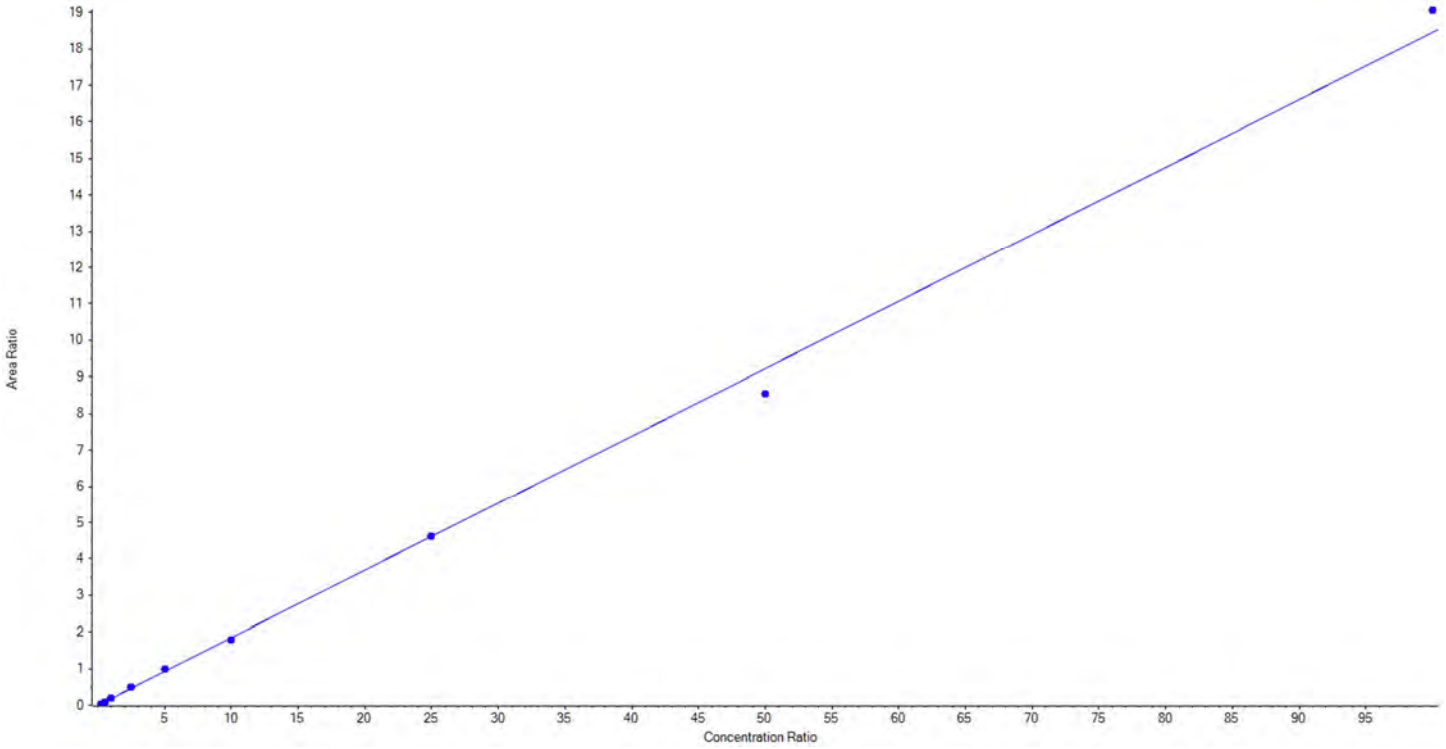
Analyte Name	PFDoA_2	**Data File**	18-0287.wiff
MRM Transition	613.0 / 319.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.18455 x + -0.00233 (r = 0.99878) (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	22.409943	89.6
3	JV65	L2	True	50.00	46.824034	93.7
4	JV66	L3	True	100.00	106.263247	106.3
5	JV67	L4	True	250.00	272.176852	108.9
6	JV68	L5	True	500.00	542.843531	108.6
7	JV69	L6	True	1000.00	969.642460	97.0
8	JV70	L7	True	2500.00	2501.420824	100.1
9	JV71	L8	True	5000.00	4635.419578	92.7
10	JV72	L9	True	10000.00	10327.999532	103.3



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Calibration Summary Report

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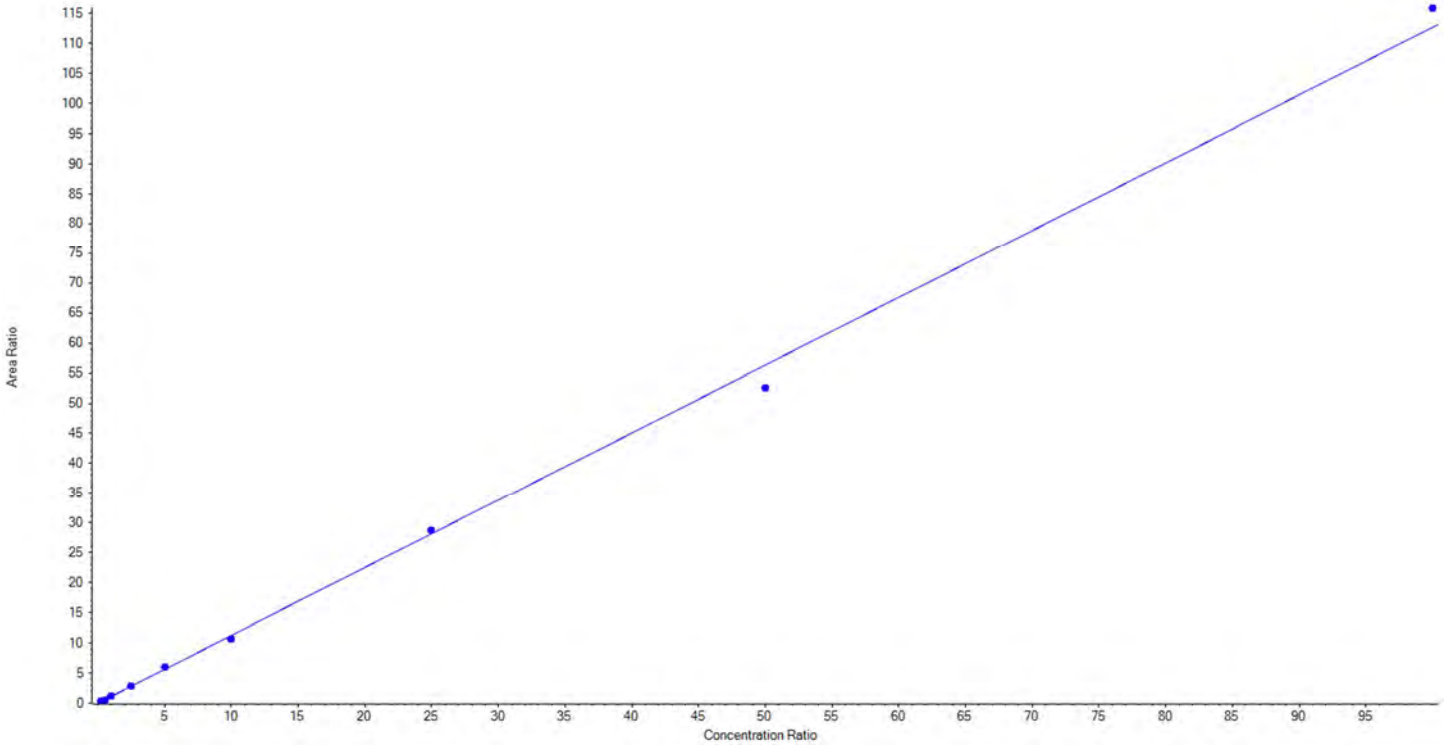
Analyte Name	PFTrDA_1	**Data File**	18-0287.wiff
MRM Transition	663.0 / 619.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.12700 x + -0.01655 (r = 0.99899) (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	24.536794	98.2
3	JV65	L2	True	50.00	47.688176	95.4
4	JV66	L3	True	100.00	103.125757	103.1
5	JV67	L4	True	250.00	254.329860	101.7
6	JV68	L5	True	500.00	539.608727	107.9
7	JV69	L6	True	1000.00	954.107439	95.4
8	JV70	L7	True	2500.00	2554.270722	102.2
9	JV71	L8	True	5000.00	4664.212592	93.3
10	JV72	L9	True	10000.00	10283.119932	102.8



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Calibration Summary Report

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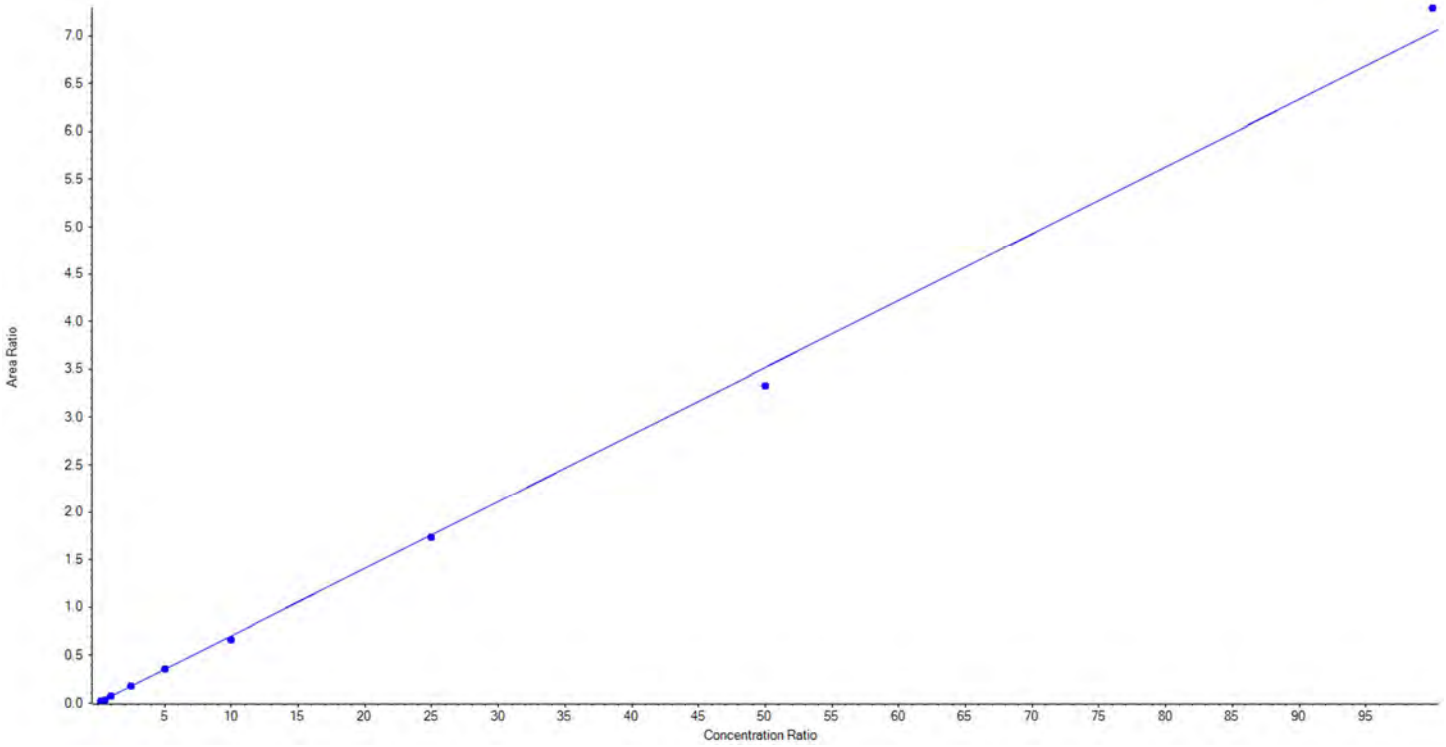
Analyte Name	PFTrDA_2	**Data File**	18-0287.wiff
MRM Transition	663.0 / 169.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.07036 x + 0.00113 (r = 0.99906) (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	29.466161	117.9
3	JV65	L2	True	50.00	42.811524	85.6
4	JV66	L3	True	100.00	106.114668	106.1
5	JV67	L4	True	250.00	246.433511	98.6
6	JV68	L5	True	500.00	508.264828	101.7
7	JV69	L6	True	1000.00	932.186325	93.2
8	JV70	L7	True	2500.00	2467.940296	98.7
9	JV71	L8	True	5000.00	4731.719715	94.6
10	JV72	L9	True	10000.00	10360.062971	103.6



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Calibration Summary Report

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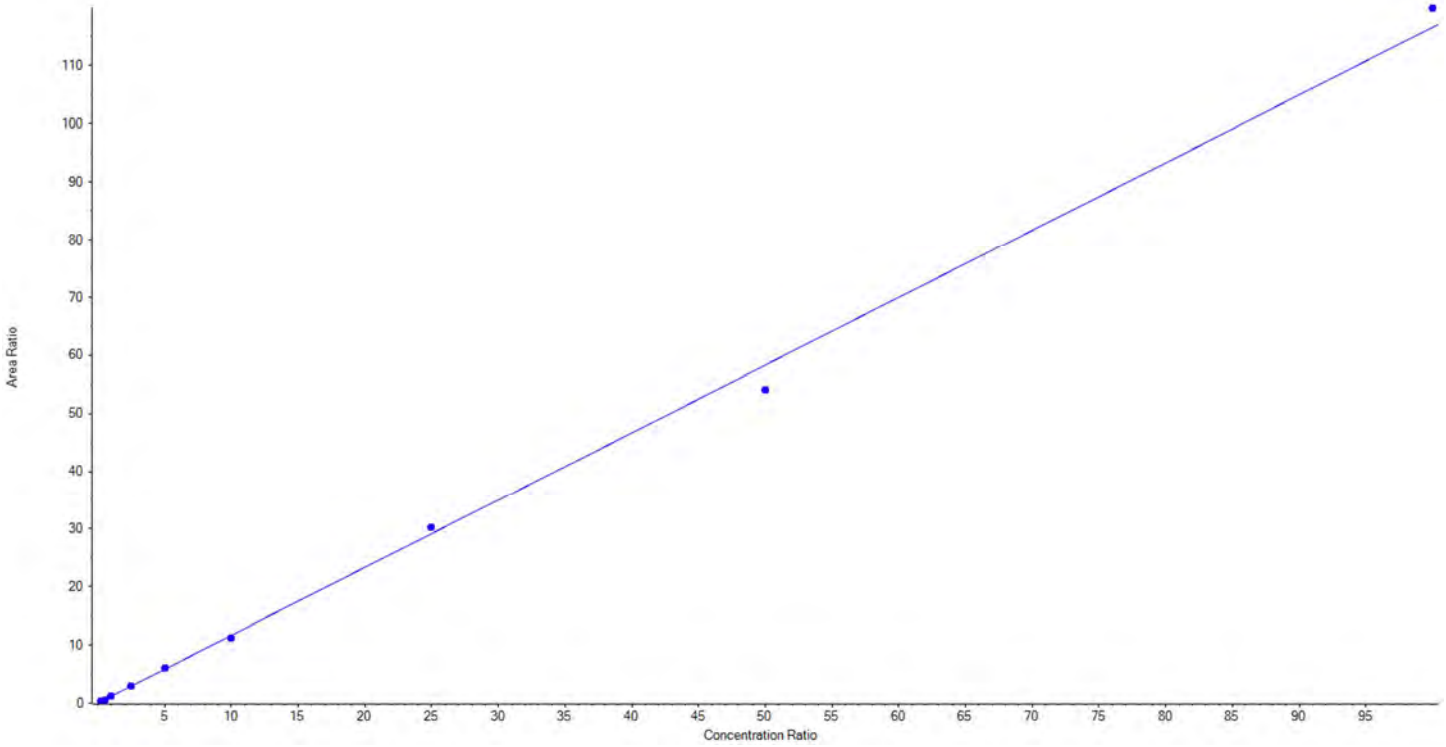
Analyte Name	PFTeDA_1	**Data File**	18-0287.wiff
MRM Transition	713.0 / 669.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.16628 x + -0.00133 (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	25.980831	103.9
3	JV65	L2	True	50.00	45.788564	91.6
4	JV66	L3	True	100.00	104.592026	104.6
5	JV67	L4	True	250.00	252.455525	101.0
6	JV68	L5	True	500.00	514.834777	103.0
7	JV69	L6	True	1000.00	965.005827	96.5
8	JV70	L7	True	2500.00	2597.759700	103.9
9	JV71	L8	True	5000.00	4636.155842	92.7
10	JV72	L9	True	10000.00	10282.426907	102.8



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Calibration Summary Report

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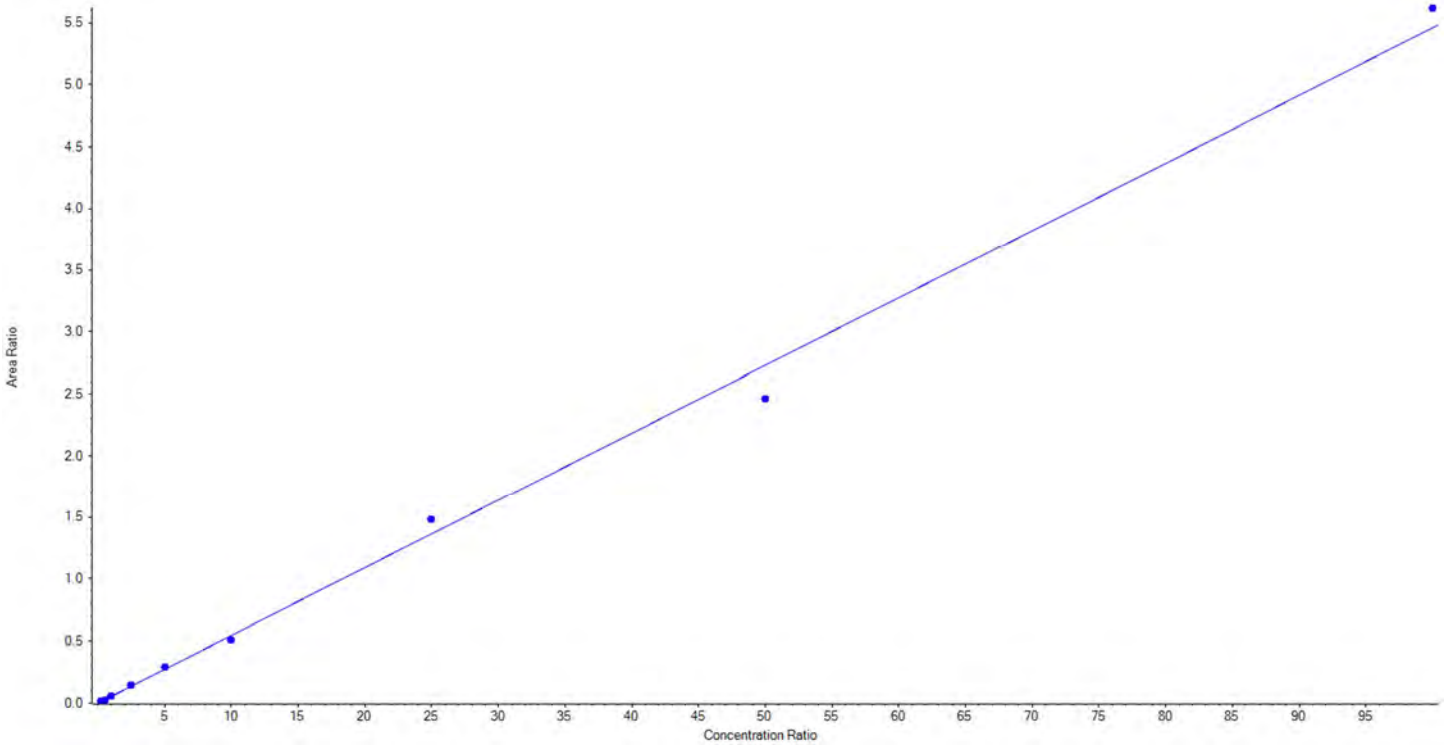
Analyte Name	PFTeDA_2	**Data File**	18-0287.wiff
MRM Transition	713.0 / 169.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05459 x + -7.25243e-4 (r = 0.99765) (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	26.514801	106.1
3	JV65	L2	True	50.00	39.994298	80.0
4	JV66	L3	True	100.00	107.013497	107.0
5	JV67	L4	True	250.00	261.081941	104.4
6	JV68	L5	True	500.00	536.927181	107.4
7	JV69	L6	True	1000.00	931.554241	93.2
8	JV70	L7	True	2500.00	2721.781230	108.9
9	JV71	L8	True	5000.00	4509.248929	90.2
10	JV72	L9	True	10000.00	10290.883883	102.9



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Calibration Summary Report

Created with Analyst Reporter
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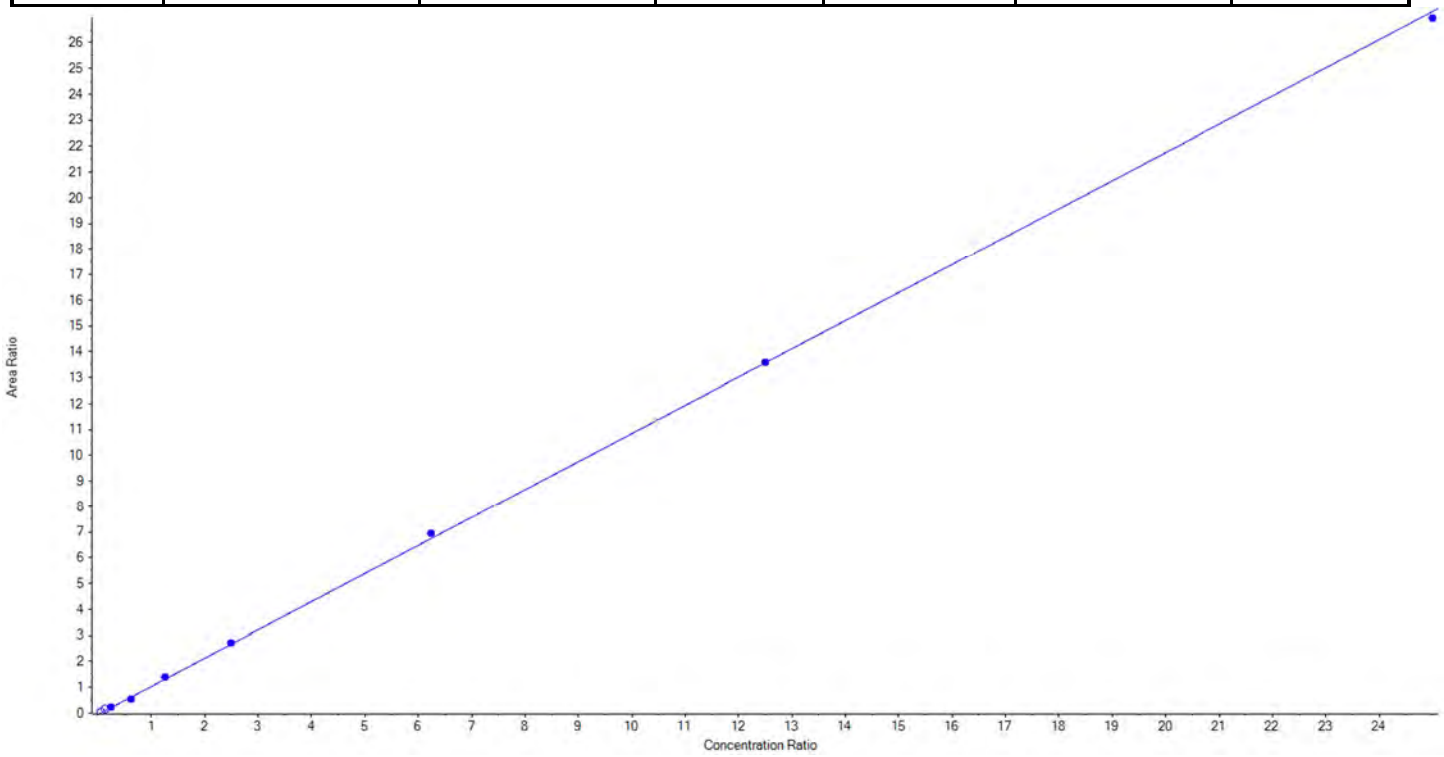
Analyte Name	NMeFOSAA_1	**Data File**	18-0287.wiff
MRM Transition	570.0 / 419.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.09047 x + -0.05825 (r = 0.99976) (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	38.696388	154.8
3	JV65	L2	False	50.00	80.850956	161.7
4	JV66	L3	True	100.00	100.929763	100.9
5	JV67	L4	True	250.00	222.957241	89.2
6	JV68	L5	True	500.00	531.180794	106.2
7	JV69	L6	True	1000.00	1017.915509	101.8
8	JV70	L7	True	2500.00	2568.941252	102.8
9	JV71	L8	True	5000.00	5002.122592	100.0
10	JV72	L9	True	10000.00	9905.952848	99.1



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Calibration Summary Report

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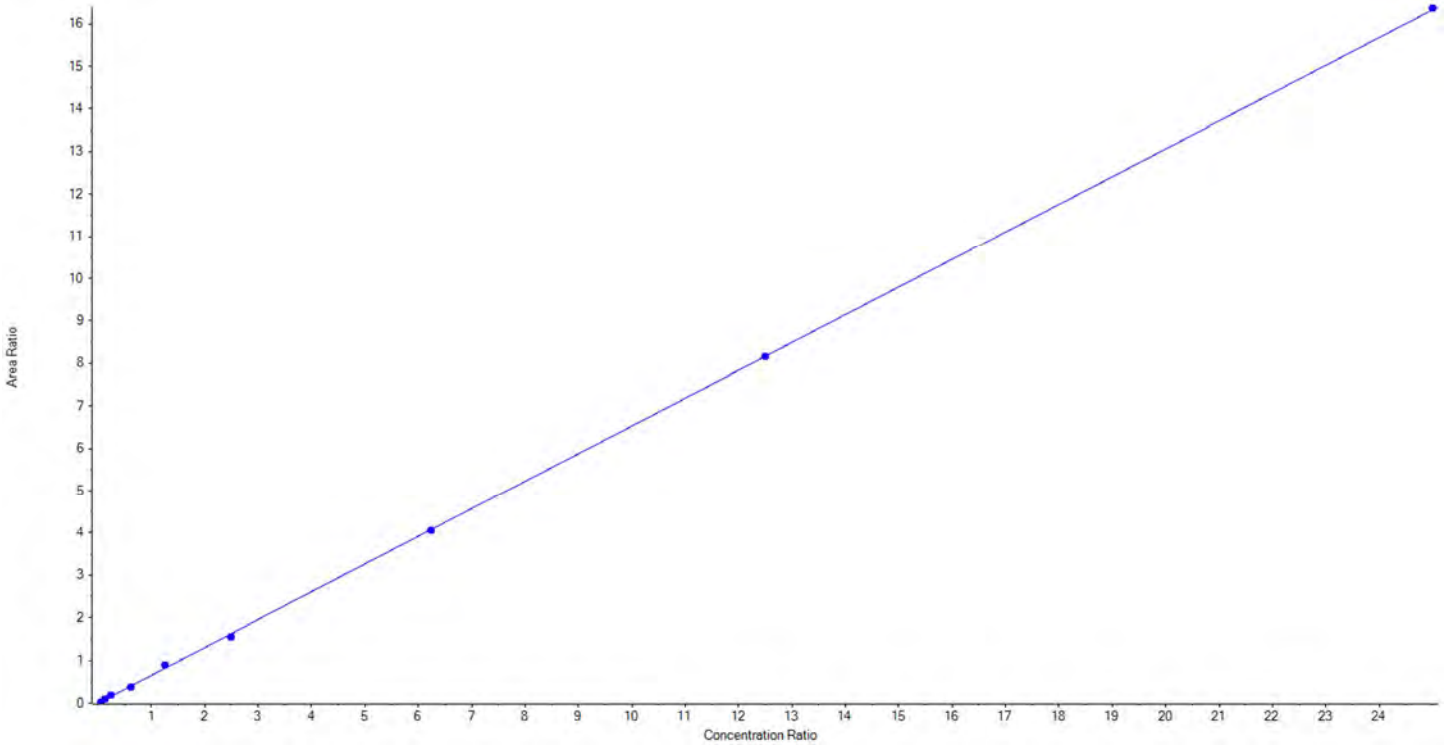
Analyte Name	NMeFOSAA_2	**Data File**	18-0287.wiff
MRM Transition	570.0 / 512.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.65321 x + -0.00105 (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	21.966346	87.9
3	JV65	L2	True	50.00	52.825880	105.7
4	JV66	L3	True	100.00	112.386475	112.4
5	JV67	L4	True	250.00	225.072079	90.0
6	JV68	L5	True	500.00	546.510770	109.3
7	JV69	L6	True	1000.00	949.083090	94.9
8	JV70	L7	True	2500.00	2487.968442	99.5
9	JV71	L8	True	5000.00	5004.647997	100.1
10	JV72	L9	True	10000.00	10024.538920	100.3



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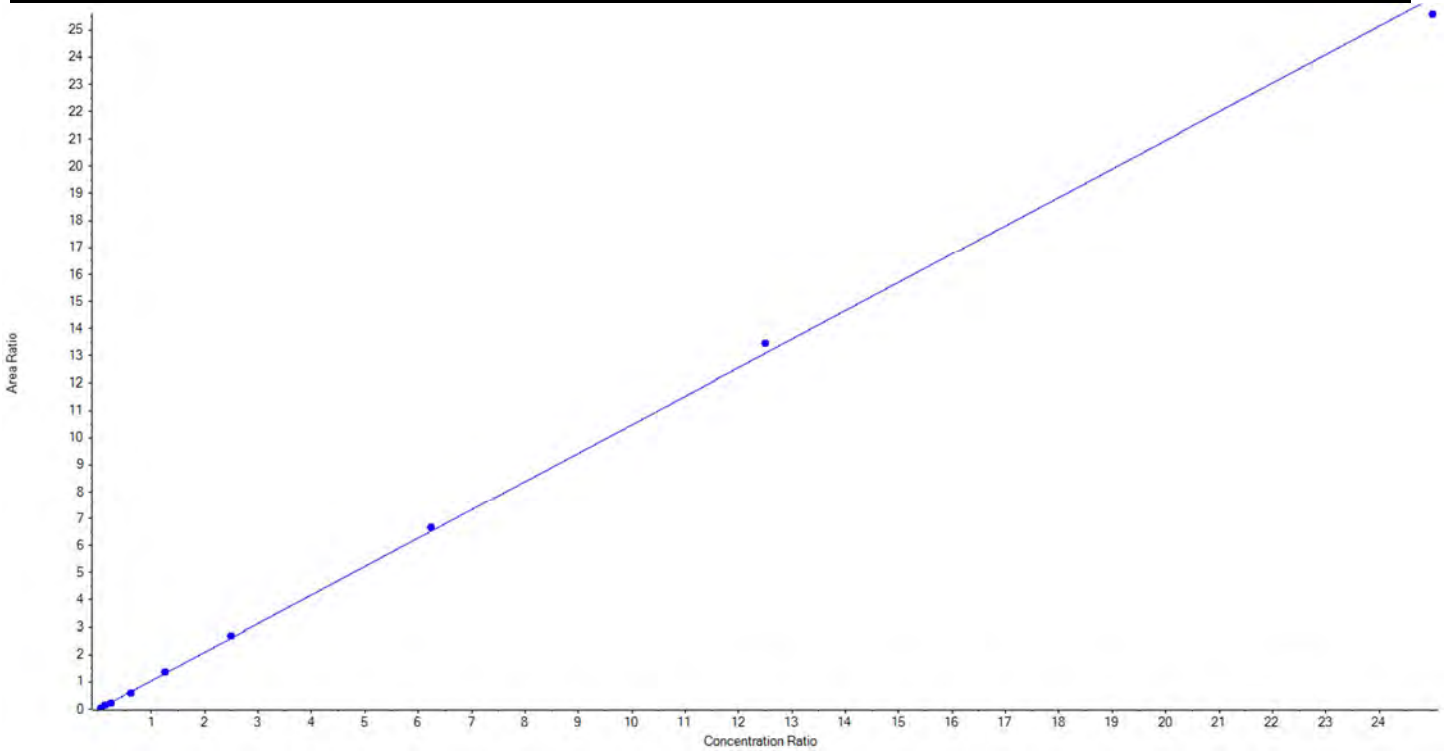
Analyte Name	NEtFOSAA_1	**Data File**	18-0287.wiff
MRM Transition	584.0 / 419.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.04769 x + -0.00915 (r = 0.99960) (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	22.441258	89.8
3	JV65	L2	True	50.00	55.926561	111.9
4	JV66	L3	True	100.00	94.545892	94.6
5	JV67	L4	True	250.00	235.101171	94.0
6	JV68	L5	True	500.00	519.051320	103.8
7	JV69	L6	True	1000.00	1033.739549	103.4
8	JV70	L7	True	2500.00	2550.953547	102.0
9	JV71	L8	True	5000.00	5144.071643	102.9
10	JV72	L9	True	10000.00	9769.169059	97.7



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Calibration Summary Report

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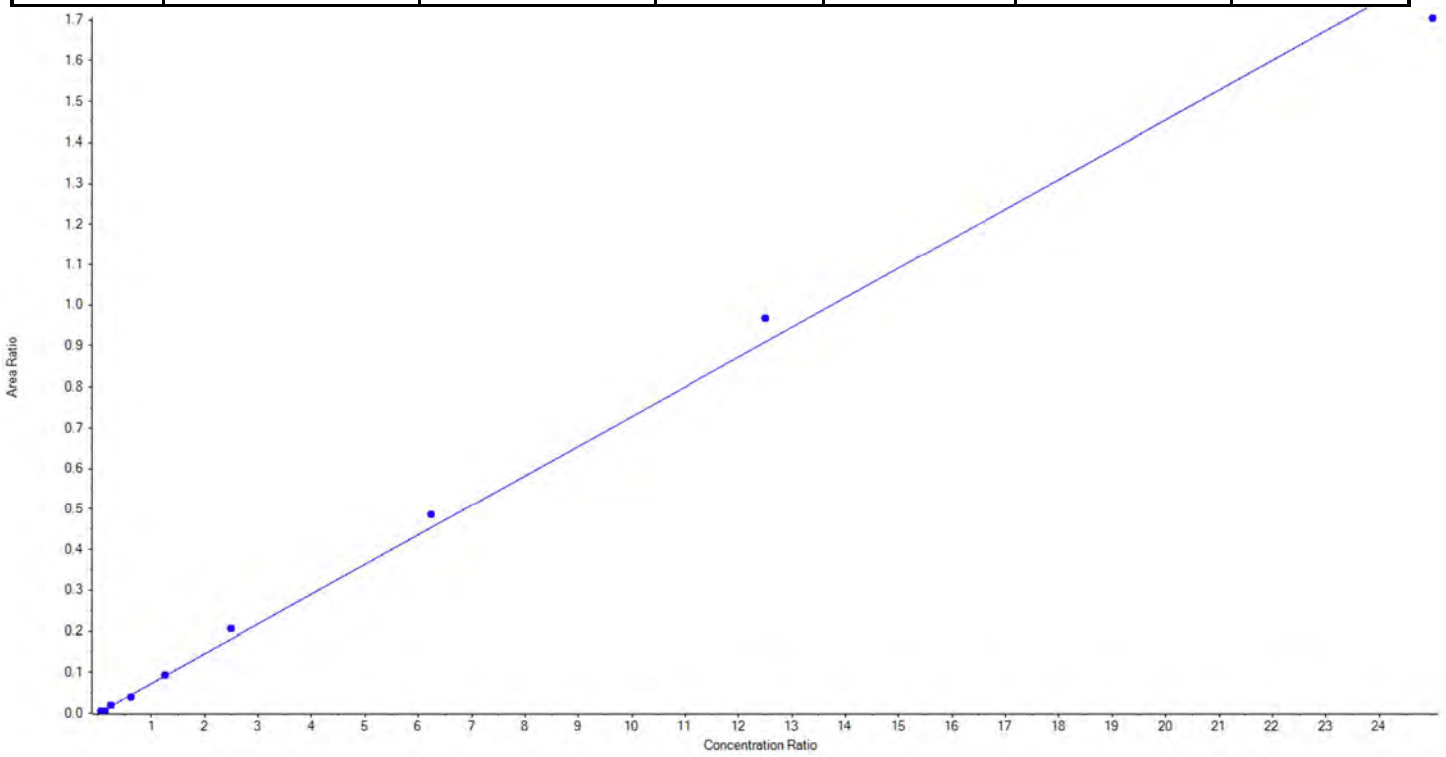
Analyte Name	NEtFOSAA_2	**Data File**	18-0287.wiff
MRM Transition	584.0 / 483.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.07278 x + -5.70532e-4 (r = 0.99701) (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	28.726949	114.9
3	JV65	L2	True	50.00	27.009990	54.0
4	JV66	L3	True	100.00	116.302601	116.3
5	JV67	L4	True	250.00	223.315099	89.3
6	JV68	L5	True	500.00	521.356978	104.3
7	JV69	L6	True	1000.00	1140.923069	114.1
8	JV70	L7	True	2500.00	2671.189471	106.9
9	JV71	L8	True	5000.00	5327.054234	106.5
10	JV72	L9	True	10000.00	9369.121609	93.7



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Calibration Summary Report

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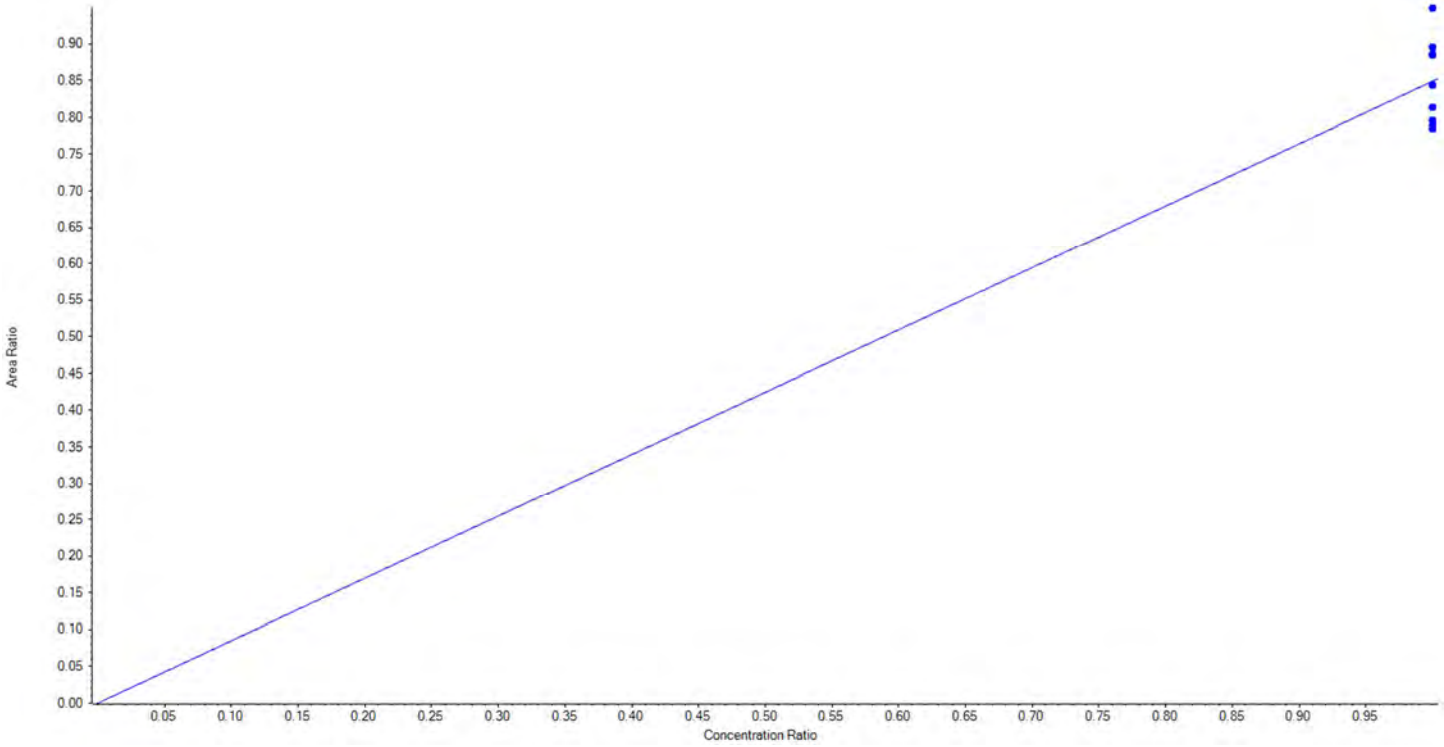
Analyte Name	13C2-PFHxA	**Data File**	18-0287.wiff
MRM Transition	315.0 / 270.0	**Result Table**	18-0315_18-0316_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.84916 x (std. dev. = 0.05787) (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	111.746793	111.8
3	JV65	L2	True	100.00	95.838929	95.8
4	JV66	L3	True	100.00	105.483034	105.5
5	JV67	L4	True	100.00	104.231586	104.2
6	JV68	L5	True	100.00	93.650441	93.7
7	JV69	L6	True	100.00	92.877641	92.9
8	JV70	L7	True	100.00	104.393058	104.4
9	JV71	L8	True	100.00	99.366614	99.4
10	JV72	L9	True	100.00	92.411904	92.4



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Calibration Summary Report

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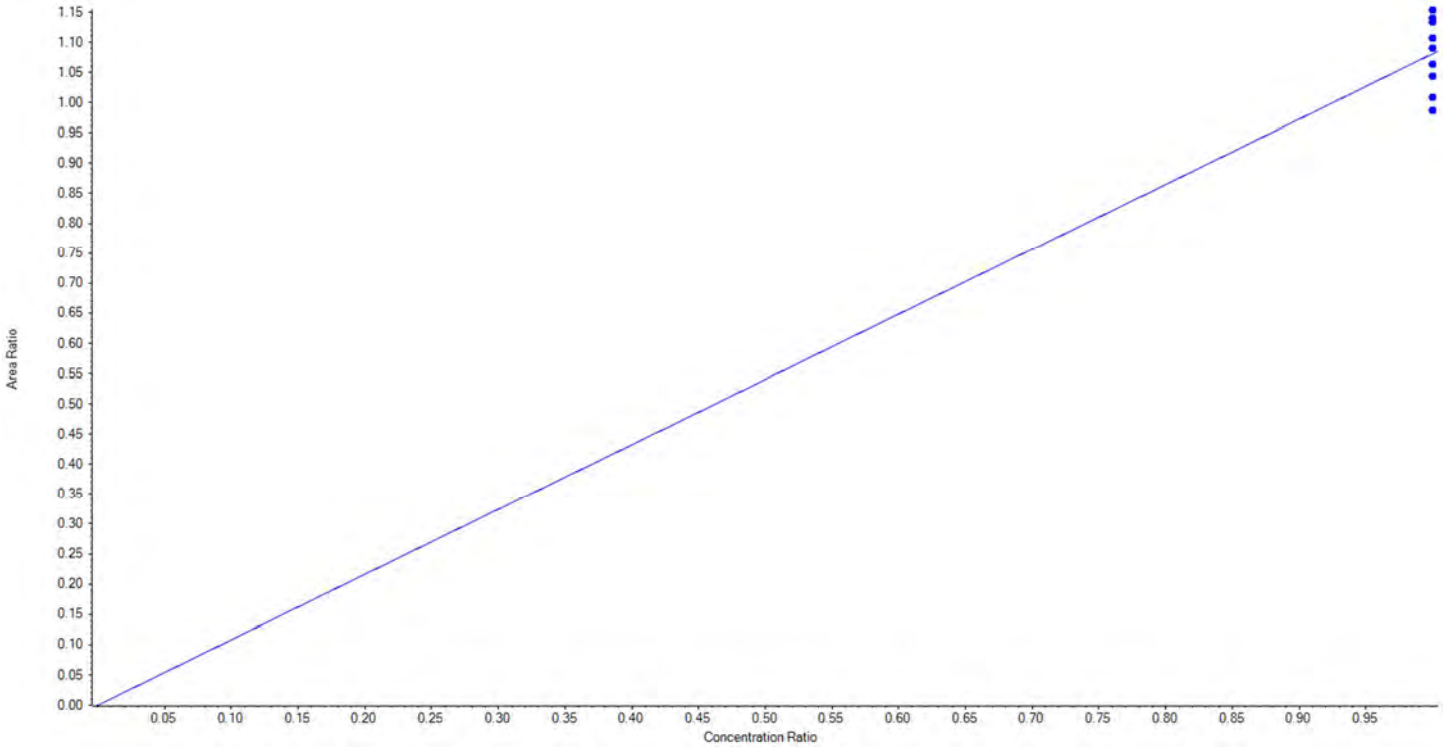
Analyte Name	13C2-PFDA	**Data File**	18-0287.wiff
MRM Transition	515.0 / 470.0	**Result Table**	18-0315_18-0316_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.08074 x (std. dev. = 0.05903) (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	106.699195	106.7
3	JV65	L2	True	100.00	91.325285	91.3
4	JV66	L3	True	100.00	105.524896	105.5
5	JV67	L4	True	100.00	102.430908	102.4
6	JV68	L5	True	100.00	96.622279	96.6
7	JV69	L6	True	100.00	98.462314	98.5
8	JV70	L7	True	100.00	104.795543	104.8
9	JV71	L8	True	100.00	100.823460	100.8
10	JV72	L9	True	100.00	93.316120	93.3



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Calibration Summary Report

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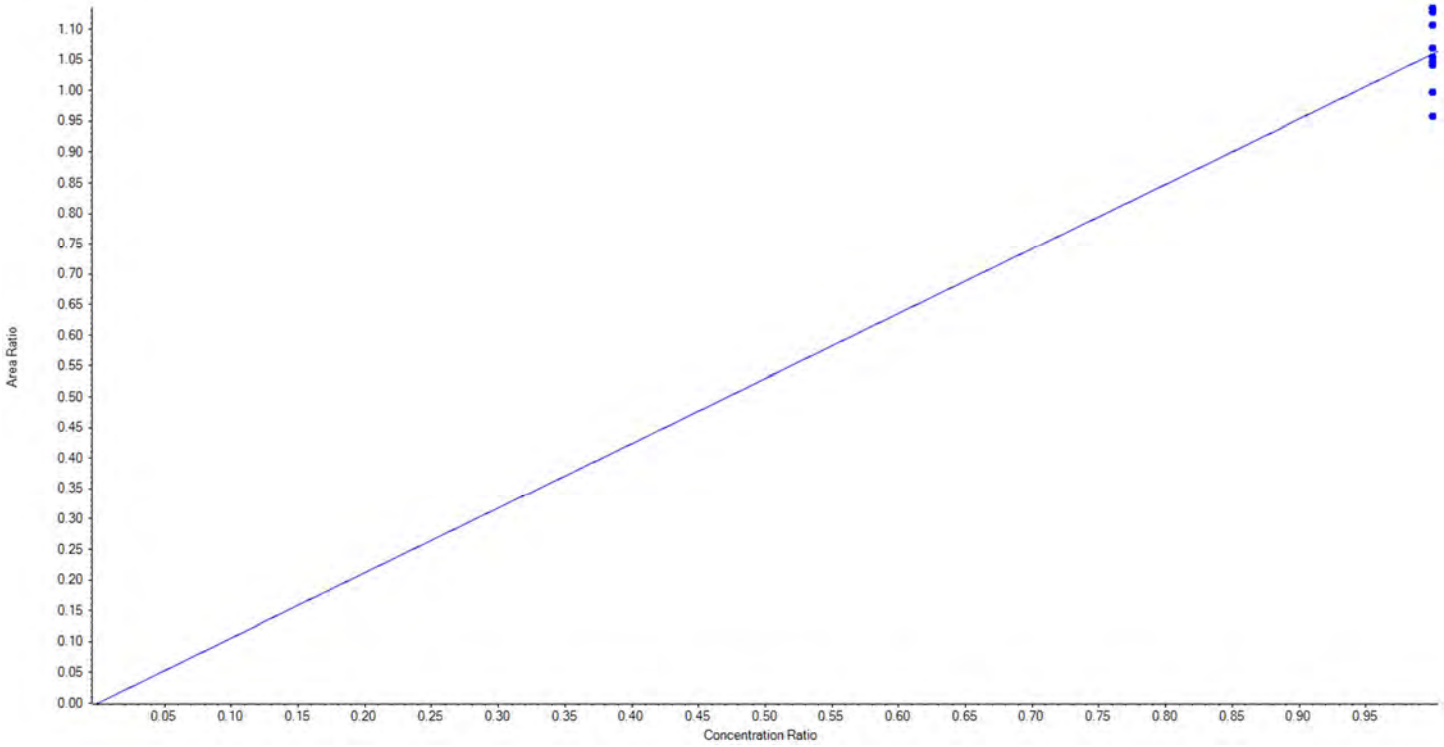
Analyte Name	d5-EtFOSAA	**Data File**	18-0287.wiff
MRM Transition	589.0 / 419.0	**Result Table**	18-0315_18-0316_SIS
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.05953 x (std. dev. = 0.05862) (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	361.437578	90.4
3	JV65	L2	True	400.00	397.757980	99.4
4	JV66	L3	True	400.00	394.987994	98.8
5	JV67	L4	True	400.00	425.915366	106.5
6	JV68	L5	True	400.00	376.552713	94.1
7	JV69	L6	True	400.00	428.230011	107.1
8	JV70	L7	True	400.00	403.744212	100.9
9	JV71	L8	True	400.00	418.022073	104.5
10	JV72	L9	True	400.00	393.352073	98.3



	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

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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	2018-05-17T09:20:34	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	6587.16	24.296065	180.4	true
PFBS_2	298.9 / 99.0	1.45	1765.50	18.794534	92.1	true
PFHxA_1	313.0 / 269.0	1.74	8879.94	26.591060	56.7	true
PFHxA_2	313.0 / 119.0	1.73	259.36	32.318456	10.5	true
PFHpA_1	363.0 / 319.0	2.08	8127.47	32.044726	25.7	true
PFHpA_2	363.0 / 169.0	2.08	196.14	30.074559	22.3	true
PFHxS_1	399.0 / 80.0	2.09	7022.59	24.966439	94.5	false
PFHxS_2	399.0 / 99.0	2.09	3353.31	25.882026	82.0	false
PFOA_1	413.0 / 369.0	2.45	10066.91	27.996408	38.3	true
PFOA_2	413.0 / 169.0	2.44	578.00	31.352495	21.0	true
PFNA_1	463.0 / 419.0	2.81	7551.62	23.670961	22.4	true
PFNA_2	463.0 / 219.0	2.82	1635.68	18.895900	19.2	true
PFOS_1	499.0 / 80.0	2.81	11105.44	23.295066	64.3	false
PFOS_2	499.0 / 99.0	2.81	1767.91	19.370690	55.4	false
PFDA_1	513.0 / 469.0	3.16	8929.45	27.531194	68.4	true
PFDA_2	513.0 / 219.0	3.19	185.28	< 0	13.0	true
PFUnA_1	563.0 / 519.0	3.48	7815.36	22.681404	39.2	true
PFUnA_2	563.0 / 269.0	3.46	347.39	20.027736	20.3	true
PFDoA_1	613.0 / 569.0	3.77	8248.40	24.175196	67.4	false
PFDoA_2	613.0 / 319.0	3.78	1110.78	22.409943	48.1	true
PFTrDA_1	663.0 / 619.0	4.03	7399.31	24.536794	68.9	false
PFTrDA_2	663.0 / 169.0	4.02	622.34	29.466161	26.4	false
PFTeDA_1	713.0 / 669.0	4.25	8586.36	25.980831	110.1	false
PFTeDA_2	713.0 / 169.0	4.25	391.35	26.514801	26.9	false
NMeFOSAA_1	570.0 / 419.0	3.34	736.20	38.696388	119.5	false
NMeFOSAA_2	570.0 / 512.0	3.34	542.62	21.966346	26.7	false
NEtFOSAA_1	584.0 / 419.0	3.48	773.42	22.441258	56.4	false
NEtFOSAA_2	584.0 / 483.0	3.48	72.56	28.726949	32.4	false

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Summary Quant 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	2018-05-17T09:29:29	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	12296.50	41.030234	378.3	true
PFBS_2	298.9 / 99.0	1.45	5197.27	51.483616	139.3	true
PFHxA_1	313.0 / 269.0	1.72	16024.39	45.875372	110.7	true
PFHxA_2	313.0 / 119.0	1.70	897.97	60.873033	25.3	true
PFHpA_1	363.0 / 319.0	2.07	12495.44	43.541989	36.7	true
PFHpA_2	363.0 / 169.0	2.06	296.35	42.698038	22.6	true
PFHxS_1	399.0 / 80.0	2.08	13431.91	42.707506	137.1	false
PFHxS_2	399.0 / 99.0	2.08	5480.32	44.982746	89.0	false
PFOA_1	413.0 / 369.0	2.44	15847.05	41.010587	65.0	true
PFOA_2	413.0 / 169.0	2.43	817.36	38.418294	34.6	true
PFNA_1	463.0 / 419.0	2.81	15532.62	44.066272	37.4	true
PFNA_2	463.0 / 219.0	2.80	5374.56	53.546881	44.8	true
PFOS_1	499.0 / 80.0	2.80	21828.63	44.062080	124.1	false
PFOS_2	499.0 / 99.0	2.82	4254.29	44.613326	76.5	false
PFDA_1	513.0 / 469.0	3.16	17236.55	46.548667	85.9	false
PFDA_2	513.0 / 219.0	3.19	525.97	< 0	27.4	true
PFUnA_1	563.0 / 519.0	3.48	17634.69	45.203954	82.3	false
PFUnA_2	563.0 / 269.0	3.48	851.85	47.769478	43.2	false
PFDoA_1	613.0 / 569.0	3.77	18533.41	47.434381	97.3	false
PFDoA_2	613.0 / 319.0	3.77	2734.01	46.824034	72.2	false
PFTrDA_1	663.0 / 619.0	4.02	16937.17	47.688176	107.1	false
PFTrDA_2	663.0 / 169.0	4.01	1016.30	42.811524	63.0	false
PFTeDA_1	713.0 / 669.0	4.24	17320.97	45.788564	169.6	false
PFTeDA_2	713.0 / 169.0	4.24	686.38	39.994298	76.8	false
NMeFOSAA_1	570.0 / 419.0	3.32	2783.50	80.850956	156.8	false
NMeFOSAA_2	570.0 / 512.0	3.32	1462.69	52.825880	120.4	false
NEtFOSAA_1	584.0 / 419.0	3.48	2357.36	55.926561	128.7	true
NEtFOSAA_2	584.0 / 483.0	3.51	74.56	27.009990	24.0	false

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Summary Quant 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	2018-05-17T09:38:24	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.48	25074.55	80.200400	589.6	false
PFBS_2	298.9 / 99.0	1.47	8180.53	79.487757	168.5	true
PFHxA_1	313.0 / 269.0	1.72	30944.07	95.911748	157.8	false
PFHxA_2	313.0 / 119.0	1.71	1218.38	76.707309	20.1	true
PFHpA_1	363.0 / 319.0	2.07	26932.05	96.292050	56.8	true
PFHpA_2	363.0 / 169.0	2.08	537.40	85.820587	37.4	true
PFHxS_1	399.0 / 80.0	2.08	28824.80	87.155683	186.7	false
PFHxS_2	399.0 / 99.0	2.09	9414.23	82.793188	128.6	false
PFOA_1	413.0 / 369.0	2.44	33660.41	95.444513	95.8	false
PFOA_2	413.0 / 169.0	2.45	1997.47	92.493604	71.6	true
PFNA_1	463.0 / 419.0	2.81	35148.70	103.130191	71.9	true
PFNA_2	463.0 / 219.0	2.81	10191.35	102.247573	68.8	true
PFOS_1	499.0 / 80.0	2.81	44837.90	90.283639	162.4	false
PFOS_2	499.0 / 99.0	2.81	9481.95	98.546534	145.0	false
PFDA_1	513.0 / 469.0	3.16	34855.24	95.198100	105.9	true
PFDA_2	513.0 / 219.0	3.17	2132.06	116.272989	130.4	true
PFUnA_1	563.0 / 519.0	3.48	40881.26	106.490291	119.7	false
PFUnA_2	563.0 / 269.0	3.48	1925.19	114.489893	84.7	false
PFDoA_1	613.0 / 569.0	3.77	39482.60	102.014197	130.7	false
PFDoA_2	613.0 / 319.0	3.77	6233.13	106.263247	109.5	false
PFTrDA_1	663.0 / 619.0	4.02	36852.47	103.125757	142.0	false
PFTrDA_2	663.0 / 169.0	4.02	2438.08	106.114668	95.7	false
PFTeDA_1	713.0 / 669.0	4.24	39195.25	104.592026	244.0	false
PFTeDA_2	713.0 / 169.0	4.24	1855.92	107.013497	117.3	false
NMeFOSAA_1	570.0 / 419.0	3.31	4044.55	100.929763	209.5	true
NMeFOSAA_2	570.0 / 512.0	3.32	3402.66	112.386475	139.4	false
NEtFOSAA_1	584.0 / 419.0	3.48	4447.11	94.545892	171.2	false
NEtFOSAA_2	584.0 / 483.0	3.53	383.93	116.302601	37.7	false

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Summary Quant 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	2018-05-17T09:47:21	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	73659.62	258.229410	1157.5	false
PFBS_2	298.9 / 99.0	1.46	17474.41	189.058360	250.0	true
PFHxA_1	313.0 / 269.0	1.73	68572.40	247.549703	249.6	false
PFHxA_2	313.0 / 119.0	1.72	3210.49	190.489812	49.5	false
PFHpA_1	363.0 / 319.0	2.07	58095.29	233.979435	63.3	true
PFHpA_2	363.0 / 169.0	2.07	1231.58	234.098770	55.2	true
PFHxS_1	399.0 / 80.0	2.09	67458.85	223.294264	203.5	false
PFHxS_2	399.0 / 99.0	2.09	21006.40	220.930575	153.1	false
PFOA_1	413.0 / 369.0	2.44	77409.58	255.572810	180.7	false
PFOA_2	413.0 / 169.0	2.45	5023.34	257.138320	162.2	false
PFNA_1	463.0 / 419.0	2.81	77257.84	256.125209	115.1	false
PFNA_2	463.0 / 219.0	2.81	23926.15	267.735432	147.2	false
PFOS_1	499.0 / 80.0	2.81	98775.14	223.772723	214.3	false
PFOS_2	499.0 / 99.0	2.81	20209.41	235.244521	233.1	false
PFDA_1	513.0 / 469.0	3.16	80063.84	244.600495	169.6	false
PFDA_2	513.0 / 219.0	3.16	2867.05	196.515232	134.9	false
PFUnA_1	563.0 / 519.0	3.48	90206.15	263.370011	158.8	false
PFUnA_2	563.0 / 269.0	3.48	3955.91	268.486516	155.6	false
PFDoA_1	613.0 / 569.0	3.77	88562.30	255.705891	170.5	false
PFDoA_2	613.0 / 319.0	3.76	14381.70	272.176852	142.2	false
PFTrDA_1	663.0 / 619.0	4.02	81974.15	254.329860	192.4	false
PFTrDA_2	663.0 / 169.0	4.02	5020.23	246.433511	160.5	false
PFTeDA_1	713.0 / 669.0	4.24	84656.77	252.455525	321.1	false
PFTeDA_2	713.0 / 169.0	4.23	4079.18	261.081941	240.2	false
NMeFOSAA_1	570.0 / 419.0	3.31	9766.67	222.957241	218.2	false
NMeFOSAA_2	570.0 / 512.0	3.31	6513.19	225.072079	177.6	false
NEtFOSAA_1	584.0 / 419.0	3.48	10780.86	235.101171	210.5	false
NEtFOSAA_2	584.0 / 483.0	3.45	711.92	223.315099	100.5	false

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Summary Quant 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	2018-05-17T09:56:17	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	147693.65	462.357034	1713.7	true
PFBS_2	298.9 / 99.0	1.44	53069.94	514.098315	370.2	false
PFHxA_1	313.0 / 269.0	1.71	178167.88	549.936426	345.1	false
PFHxA_2	313.0 / 119.0	1.71	10756.39	504.507157	82.5	false
PFHpA_1	363.0 / 319.0	2.06	149930.12	510.250376	114.3	false
PFHpA_2	363.0 / 169.0	2.06	3371.92	551.933615	99.3	false
PFHxS_1	399.0 / 80.0	2.08	155202.00	457.561003	265.0	false
PFHxS_2	399.0 / 99.0	2.08	46822.34	451.227504	222.3	false
PFOA_1	413.0 / 369.0	2.44	187568.20	528.537418	270.3	false
PFOA_2	413.0 / 169.0	2.43	11717.55	503.842693	219.3	false
PFNA_1	463.0 / 419.0	2.80	196651.95	551.430086	184.6	false
PFNA_2	463.0 / 219.0	2.80	56805.99	535.214557	215.0	false
PFOS_1	499.0 / 80.0	2.80	241056.91	490.928856	293.7	false
PFOS_2	499.0 / 99.0	2.80	47727.40	498.613316	261.9	false
PFDA_1	513.0 / 469.0	3.16	200343.08	515.803714	268.6	false
PFDA_2	513.0 / 219.0	3.16	7900.53	513.191868	293.5	false
PFUnA_1	563.0 / 519.0	3.47	215894.68	531.576178	206.8	false
PFUnA_2	563.0 / 269.0	3.47	9504.30	547.827895	204.6	false
PFDoA_1	613.0 / 569.0	3.76	224438.68	545.923162	205.6	false
PFDoA_2	613.0 / 319.0	3.76	34118.86	542.843531	187.4	false
PFTrDA_1	663.0 / 619.0	4.02	207034.75	539.608727	269.2	false
PFTrDA_2	663.0 / 169.0	4.02	12246.48	508.264828	224.8	false
PFTeDA_1	713.0 / 669.0	4.23	204926.16	514.834777	409.5	false
PFTeDA_2	713.0 / 169.0	4.23	9981.69	536.927181	352.9	false
NMeFOSAA_1	570.0 / 419.0	3.31	25452.41	531.180794	347.5	false
NMeFOSAA_2	570.0 / 512.0	3.30	16324.63	546.510770	360.2	false
NEtFOSAA_1	584.0 / 419.0	3.47	24729.60	519.051320	303.9	false
NEtFOSAA_2	584.0 / 483.0	3.48	1726.68	521.356978	112.5	false

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Summary Quant 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	2018-05-17T10:05:12	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	256648.42	866.263516	1823.6	true
PFBS_2	298.9 / 99.0	1.44	87901.29	919.770738	399.8	false
PFHxA_1	313.0 / 269.0	1.71	314661.45	1010.008110	486.1	false
PFHxA_2	313.0 / 119.0	1.71	19560.37	932.764663	119.0	false
PFHpA_1	363.0 / 319.0	2.06	269771.72	950.568273	169.5	false
PFHpA_2	363.0 / 169.0	2.06	6403.47	1092.769961	168.4	false
PFHxS_1	399.0 / 80.0	2.08	282671.49	897.816699	323.0	false
PFHxS_2	399.0 / 99.0	2.08	87331.04	919.402914	281.1	false
PFOA_1	413.0 / 369.0	2.43	351824.24	1031.373285	347.5	false
PFOA_2	413.0 / 169.0	2.43	23995.03	1065.243683	307.7	false
PFNA_1	463.0 / 419.0	2.80	355330.64	1032.057128	264.0	false
PFNA_2	463.0 / 219.0	2.80	106487.88	1037.248751	291.7	false
PFOS_1	499.0 / 80.0	2.80	428599.63	944.256987	313.6	false
PFOS_2	499.0 / 99.0	2.80	84421.10	953.492563	348.4	false
PFDA_1	513.0 / 469.0	3.15	376548.09	1002.687574	342.1	false
PFDA_2	513.0 / 219.0	3.15	14750.48	1030.989469	515.7	false
PFUnA_1	563.0 / 519.0	3.47	391684.03	997.780517	294.7	false
PFUnA_2	563.0 / 269.0	3.47	15425.99	922.419534	279.7	false
PFDoA_1	613.0 / 569.0	3.76	391743.16	985.395463	239.1	false
PFDoA_2	613.0 / 319.0	3.76	58987.54	969.642460	247.1	false
PFTrDA_1	663.0 / 619.0	4.01	354372.22	954.107439	303.0	false
PFTrDA_2	663.0 / 169.0	4.01	21686.17	932.186325	265.4	false
PFTeDA_1	713.0 / 669.0	4.23	371439.10	965.005827	466.1	false
PFTeDA_2	713.0 / 169.0	4.23	16762.41	931.554241	371.8	false
NMeFOSAA_1	570.0 / 419.0	3.31	46854.05	1017.915509	350.2	false
NMeFOSAA_2	570.0 / 512.0	3.31	26711.43	949.083090	307.0	false
NEtFOSAA_1	584.0 / 419.0	3.47	46538.40	1033.739549	410.9	false
NEtFOSAA_2	584.0 / 483.0	3.45	3570.16	1140.923069	235.3	false

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Summary Quant 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	2018-05-17T10:14:08	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	636555.35	2253.141384	3039.8	true
PFBS_2	298.9 / 99.0	1.43	223589.38	2456.549117	560.3	false
PFHxA_1	313.0 / 269.0	1.71	786977.75	2484.294541	716.3	true
PFHxA_2	313.0 / 119.0	1.71	56725.00	2616.304002	224.7	false
PFHpA_1	363.0 / 319.0	2.06	734894.99	2538.746708	276.6	false
PFHpA_2	363.0 / 169.0	2.06	14926.71	2507.029705	343.6	false
PFHxS_1	399.0 / 80.0	2.07	759285.72	2527.863226	428.2	false
PFHxS_2	399.0 / 99.0	2.07	217304.34	2418.630361	308.0	false
PFOA_1	413.0 / 369.0	2.43	899057.48	2591.584505	424.0	false
PFOA_2	413.0 / 169.0	2.43	55696.26	2420.142013	396.0	false
PFNA_1	463.0 / 419.0	2.80	902185.58	2569.710134	351.4	false
PFNA_2	463.0 / 219.0	2.80	265135.72	2529.341671	364.7	false
PFOS_1	499.0 / 80.0	2.80	1065674.79	2467.743097	377.0	false
PFOS_2	499.0 / 99.0	2.80	205466.10	2438.162597	419.7	false
PFDA_1	513.0 / 469.0	3.15	1003649.62	2618.190862	444.9	false
PFDA_2	513.0 / 219.0	3.15	37389.28	2623.911477	362.9	false
PFUnA_1	563.0 / 519.0	3.47	1066405.64	2661.931491	361.8	false
PFUnA_2	563.0 / 269.0	3.47	44510.12	2614.950827	340.4	false
PFDoA_1	613.0 / 569.0	3.76	1027874.00	2532.675832	313.3	false
PFDoA_2	613.0 / 319.0	3.76	155460.49	2501.420824	315.2	false
PFTrDA_1	663.0 / 619.0	4.01	969363.64	2554.270722	384.8	false
PFTrDA_2	663.0 / 169.0	4.01	58544.53	2467.940296	401.1	false
PFTeDA_1	713.0 / 669.0	4.23	1020767.69	2597.759700	535.7	false
PFTeDA_2	713.0 / 169.0	4.23	50041.16	2721.781230	484.8	false
NMeFOSAA_1	570.0 / 419.0	3.30	124403.61	2568.941252	414.9	false
NMeFOSAA_2	570.0 / 512.0	3.30	72757.45	2487.968442	362.7	false
NEtFOSAA_1	584.0 / 419.0	3.46	119518.50	2550.953547	375.9	false
NEtFOSAA_2	584.0 / 483.0	3.46	8695.19	2671.189471	309.2	false

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Summary Quant 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	2018-05-17T10:23:03	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1170682.66	4154.126306	3696.2	false
PFBS_2	298.9 / 99.0	1.44	372545.79	4104.893766	666.0	false
PFHxA_1	313.0 / 269.0	1.71	1373770.04	4694.517851	916.2	false
PFHxA_2	313.0 / 119.0	1.71	94822.55	4713.646100	245.3	false
PFHpA_1	363.0 / 319.0	2.07	1231376.46	4600.075996	348.1	false
PFHpA_2	363.0 / 169.0	2.06	25342.89	4609.494077	333.3	false
PFHxS_1	399.0 / 80.0	2.08	1261240.93	4209.509290	379.4	false
PFHxS_2	399.0 / 99.0	2.08	372855.67	4169.247271	369.0	false
PFOA_1	413.0 / 369.0	2.44	1515282.98	4727.656099	579.9	false
PFOA_2	413.0 / 169.0	2.44	102510.99	4814.222387	608.6	false
PFNA_1	463.0 / 419.0	2.81	1521697.83	4687.510401	422.0	false
PFNA_2	463.0 / 219.0	2.80	457974.56	4723.174643	410.7	false
PFOS_1	499.0 / 80.0	2.80	1888190.03	4386.197136	401.7	false
PFOS_2	499.0 / 99.0	2.80	372732.08	4436.506455	392.1	false
PFDA_1	513.0 / 469.0	3.16	1660691.79	4683.806444	385.4	false
PFDA_2	513.0 / 219.0	3.15	59864.77	4573.594864	488.1	false
PFUnA_1	563.0 / 519.0	3.47	1722832.63	4649.797175	366.1	false
PFUnA_2	563.0 / 269.0	3.47	74210.12	4716.975485	398.9	false
PFDoA_1	613.0 / 569.0	3.76	1718754.28	4578.592795	349.9	false
PFDoA_2	613.0 / 319.0	3.76	266523.71	4635.419578	329.0	false
PFTrDA_1	663.0 / 619.0	4.01	1637660.03	4664.212592	417.2	false
PFTrDA_2	663.0 / 169.0	4.01	103788.13	4731.719715	364.4	false
PFTeDA_1	713.0 / 669.0	4.23	1685027.17	4636.155842	558.6	false
PFTeDA_2	713.0 / 169.0	4.23	76696.41	4509.248929	548.5	false
NMeFOSAA_1	570.0 / 419.0	3.31	201934.61	5002.122592	378.4	false
NMeFOSAA_2	570.0 / 512.0	3.31	121526.80	5004.647997	344.1	false
NEtFOSAA_1	584.0 / 419.0	3.47	200239.16	5144.071643	444.3	false
NEtFOSAA_2	584.0 / 483.0	3.46	14405.40	5327.054234	372.8	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	2018-05-17T10:31:58	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	2746825.30	9054.551715	5512.5	false
PFBS_2	298.9 / 99.0	1.44	865194.63	8857.913797	938.2	false
PFHxA_1	313.0 / 269.0	1.71	3208621.26	10270.315188	1195.9	true
PFHxA_2	313.0 / 119.0	1.71	221790.71	10297.389467	331.4	false
PFHpA_1	363.0 / 319.0	2.06	2979586.00	10419.500448	426.0	false
PFHpA_2	363.0 / 169.0	2.06	60269.26	10271.080690	455.1	false
PFHxS_1	399.0 / 80.0	2.08	2981939.82	9244.725891	421.7	false
PFHxS_2	399.0 / 99.0	2.08	901811.25	9382.503415	416.9	false
PFOA_1	413.0 / 369.0	2.44	3465054.28	10125.824376	533.4	false
PFOA_2	413.0 / 169.0	2.44	232145.85	10202.146511	598.4	false
PFNA_1	463.0 / 419.0	2.80	3522257.33	10157.299619	469.8	false
PFNA_2	463.0 / 219.0	2.80	1052364.40	10157.594592	511.1	false
PFOS_1	499.0 / 80.0	2.80	4312317.40	9309.610416	409.1	false
PFOS_2	499.0 / 99.0	2.80	836787.85	9255.599999	465.3	false
PFDA_1	513.0 / 469.0	3.16	3860432.18	10190.632950	420.9	false
PFDA_2	513.0 / 219.0	3.16	143236.53	10295.524100	402.1	false
PFUnA_1	563.0 / 519.0	3.48	4016400.54	10146.168980	395.1	false
PFUnA_2	563.0 / 269.0	3.47	170902.81	10172.052636	345.7	false
PFDoA_1	613.0 / 569.0	3.76	4152451.41	10353.083082	332.6	false
PFDoA_2	613.0 / 319.0	3.76	634563.59	10327.999532	338.8	false
PFTrDA_1	663.0 / 619.0	4.01	3858264.53	10283.119932	427.7	false
PFTrDA_2	663.0 / 169.0	4.01	242749.13	10360.062971	407.7	false
PFTeDA_1	713.0 / 669.0	4.23	3992981.47	10282.426907	563.7	false
PFTeDA_2	713.0 / 169.0	4.23	187043.38	10290.883883	597.9	false
NMeFOSAA_1	570.0 / 419.0	3.31	485972.69	9905.952848	463.0	false
NMeFOSAA_2	570.0 / 512.0	3.31	295208.43	10024.538920	391.3	false
NEtFOSAA_1	584.0 / 419.0	3.47	461293.33	9769.169059	386.3	false
NEtFOSAA_2	584.0 / 483.0	3.46	30731.61	9369.121609	380.7	false

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Summary Quant Report

Created with Analyst Reporter
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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	2018-05-17T09:20:34	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	26541.86	111.746793	646.3	false
13C2-PFDA	515.0 / 470.0	3.15	32254.40	106.699195	507.7	false
d5-EtFOSAA	589.0 / 419.0	3.47	14919.19	361.437578	192.8	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 24/05/2018 1:17:16 PM

Sample Name	JV65	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T09:29:29	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.70	27122.17	95.838929	844.9	false
13C2-PFDA	515.0 / 470.0	3.15	32893.12	91.325285	365.0	false
d5-EtFOSAA	589.0 / 419.0	3.47	19317.89	397.757980	272.0	false

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Summary Quant 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	2018-05-17T09:38:24	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	30125.90	105.483034	848.0	false
13C2-PFDA	515.0 / 470.0	3.15	38356.94	105.524896	719.6	false
d5-EtFOSAA	589.0 / 419.0	3.47	21673.95	394.987994	273.4	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 24/05/2018 1:17:21 PM

Sample Name	JV67	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T09:47:21	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	25460.04	104.231586	820.4	false
13C2-PFDA	515.0 / 470.0	3.15	31843.62	102.430908	529.1	false
d5-EtFOSAA	589.0 / 419.0	3.46	20049.34	425.915366	398.8	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 24/05/2018 1:17:23 PM

Sample Name	JV68	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T09:56:17	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.70	29823.84	93.650441	780.2	false
13C2-PFDA	515.0 / 470.0	3.14	39161.79	96.622279	461.5	false
d5-EtFOSAA	589.0 / 419.0	3.46	22228.92	376.552713	219.1	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 24/05/2018 1:17:25 PM

Sample Name	JV69	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:05:12	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.70	27094.04	92.877641	766.7	false
13C2-PFDA	515.0 / 470.0	3.14	36556.47	98.462314	456.4	false
d5-EtFOSAA	589.0 / 419.0	3.46	21918.56	428.230011	241.1	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 24/05/2018 1:17:27 PM

Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:14:08	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.69	31020.95	104.393058	957.5	false
13C2-PFDA	515.0 / 470.0	3.14	39633.08	104.795543	461.8	false
d5-EtFOSAA	589.0 / 419.0	3.46	20969.46	403.744212	257.7	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 24/05/2018 1:17:29 PM

Sample Name	JV71	**Injection Vial**	9
Sample ID	L8	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:23:03	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.70	26295.86	99.366614	799.0	false
13C2-PFDA	515.0 / 470.0	3.14	33957.84	100.823460	444.7	false
d5-EtFOSAA	589.0 / 419.0	3.46	17552.03	418.022073	222.8	false

BATTELLE

Summary Quant Report

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Printed: 24/05/2018 1:17:31 PM

Sample Name	JV72	**Injection Vial**	10
Sample ID	L9	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:31:58	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.70	29740.00	92.411904	929.5	false
13C2-PFDA	515.0 / 470.0	3.14	38220.93	93.316120	436.1	false
d5-EtFOSAA	589.0 / 419.0	3.46	19817.78	393.352073	193.8	false

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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	2018-05-17T09:20:34	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	0.268	0.327	ü
PFHxA_1	313.0 / 269.0	1.74	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.029	0.056	ü
PFHpA_1	363.0 / 319.0	2.08	PFHpA			
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.024	0.022	ü
PFHxS_1	399.0 / 80.0	2.09	PFHxS			
PFHxS_2	399.0 / 99.0	2.09	PFHxS	0.478	0.335	ü
PFOA_1	413.0 / 369.0	2.45	PFOA			
PFOA_2	413.0 / 169.0	2.44	PFOA	0.057	0.062	ü
PFNA_1	463.0 / 419.0	2.81	PFNA			
PFNA_2	463.0 / 219.0	2.82	PFNA	0.217	0.294	ü
PFOS_1	499.0 / 80.0	2.81	PFOS			
PFOS_2	499.0 / 99.0	2.81	PFOS	0.159	0.194	ü
PFDA_1	513.0 / 469.0	3.16	PFDA			
PFDA_2	513.0 / 219.0	3.19	PFDA	0.021	0.041	ü
PFUnA_1	563.0 / 519.0	3.48	PFUnA			
PFUnA_2	563.0 / 269.0	3.46	PFUnA	0.044	0.044	ü
PFDoA_1	613.0 / 569.0	3.77	PFDoA			
PFDoA_2	613.0 / 319.0	3.78	PFDoA	0.135	0.152	ü
PFTrDA_1	663.0 / 619.0	4.03	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.02	PFTrDA	0.084	0.064	ü
PFTeDA_1	713.0 / 669.0	4.25	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.25	PFTeDA	0.046	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.737	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.48	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.48	NEtFOSSA	0.094	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	2018-05-17T09:29:29	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	0.423	0.327	ü
PFHxA_1	313.0 / 269.0	1.72	PFHxA			
PFHxA_2	313.0 / 119.0	1.70	PFHxA	0.056	0.056	ü
PFHpA_1	363.0 / 319.0	2.07	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.024	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.408	0.335	ü
PFOA_1	413.0 / 369.0	2.44	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.052	0.062	ü
PFNA_1	463.0 / 419.0	2.81	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.346	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.82	PFOS	0.195	0.194	ü
PFDA_1	513.0 / 469.0	3.16	PFDA			
PFDA_2	513.0 / 219.0	3.19	PFDA	0.031	0.041	ü
PFUnA_1	563.0 / 519.0	3.48	PFUnA			
PFUnA_2	563.0 / 269.0	3.48	PFUnA	0.048	0.044	ü
PFDoA_1	613.0 / 569.0	3.77	PFDoA			
PFDoA_2	613.0 / 319.0	3.77	PFDoA	0.148	0.152	ü
PFTrDA_1	663.0 / 619.0	4.02	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.01	PFTrDA	0.060	0.064	ü
PFTeDA_1	713.0 / 669.0	4.24	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.24	PFTeDA	0.040	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.32	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.32	NMeFOSAA	0.526	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.48	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.51	NEtFOSSA	0.032	0.071	

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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	2018-05-17T09:38:24	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.48	PFBS			
PFBS_2	298.9 / 99.0	1.47	PFBS	0.326	0.327	ü
PFHxA_1	313.0 / 269.0	1.72	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.039	0.056	ü
PFHpA_1	363.0 / 319.0	2.07	PFHpA			
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.09	PFHxS	0.327	0.335	ü
PFOA_1	413.0 / 369.0	2.44	PFOA			
PFOA_2	413.0 / 169.0	2.45	PFOA	0.059	0.062	ü
PFNA_1	463.0 / 419.0	2.81	PFNA			
PFNA_2	463.0 / 219.0	2.81	PFNA	0.290	0.294	ü
PFOS_1	499.0 / 80.0	2.81	PFOS			
PFOS_2	499.0 / 99.0	2.81	PFOS	0.212	0.194	ü
PFDA_1	513.0 / 469.0	3.16	PFDA			
PFDA_2	513.0 / 219.0	3.17	PFDA	0.061	0.041	ü
PFUnA_1	563.0 / 519.0	3.48	PFUnA			
PFUnA_2	563.0 / 269.0	3.48	PFUnA	0.047	0.044	ü
PFDoA_1	613.0 / 569.0	3.77	PFDoA			
PFDoA_2	613.0 / 319.0	3.77	PFDoA	0.158	0.152	ü
PFTrDA_1	663.0 / 619.0	4.02	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.02	PFTrDA	0.066	0.064	ü
PFTeDA_1	713.0 / 669.0	4.24	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.24	PFTeDA	0.047	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.32	NMeFOSAA	0.841	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.48	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.53	NEtFOSSA	0.086	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	2018-05-17T09:47:21	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.46	PFBS	0.237	0.327	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.72	PFHxA	0.047	0.056	ü
PFHpA_1	363.0 / 319.0	2.07	PFHpA			
PFHpA_2	363.0 / 169.0	2.07	PFHpA	0.021	0.022	ü
PFHxS_1	399.0 / 80.0	2.09	PFHxS			
PFHxS_2	399.0 / 99.0	2.09	PFHxS	0.311	0.335	ü
PFOA_1	413.0 / 369.0	2.44	PFOA			
PFOA_2	413.0 / 169.0	2.45	PFOA	0.065	0.062	ü
PFNA_1	463.0 / 419.0	2.81	PFNA			
PFNA_2	463.0 / 219.0	2.81	PFNA	0.310	0.294	ü
PFOS_1	499.0 / 80.0	2.81	PFOS			
PFOS_2	499.0 / 99.0	2.81	PFOS	0.205	0.194	ü
PFDA_1	513.0 / 469.0	3.16	PFDA			
PFDA_2	513.0 / 219.0	3.16	PFDA	0.036	0.041	ü
PFUnA_1	563.0 / 519.0	3.48	PFUnA			
PFUnA_2	563.0 / 269.0	3.48	PFUnA	0.044	0.044	ü
PFDoA_1	613.0 / 569.0	3.77	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.162	0.152	ü
PFTrDA_1	663.0 / 619.0	4.02	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.02	PFTrDA	0.061	0.064	ü
PFTeDA_1	713.0 / 669.0	4.24	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.048	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.31	NMeFOSAA	0.667	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.48	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.45	NEtFOSSA	0.066	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	2018-05-17T09:56:17	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.359	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.060	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.023	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.302	0.335	ü
PFOA_1	413.0 / 369.0	2.44	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.063	0.062	ü
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.289	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.80	PFOS	0.198	0.194	ü
PFDA_1	513.0 / 469.0	3.16	PFDA			
PFDA_2	513.0 / 219.0	3.16	PFDA	0.039	0.041	ü
PFUnA_1	563.0 / 519.0	3.47	PFUnA			
PFUnA_2	563.0 / 269.0	3.47	PFUnA	0.044	0.044	ü
PFDoA_1	613.0 / 569.0	3.76	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.152	0.152	ü
PFTrDA_1	663.0 / 619.0	4.02	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.02	PFTrDA	0.059	0.064	ü
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.049	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.30	NMeFOSAA	0.641	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.47	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.48	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	2018-05-17T10:05:12	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.343	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.062	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.024	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.309	0.335	ü
PFOA_1	413.0 / 369.0	2.43	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.068	0.062	ü
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.300	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.80	PFOS	0.197	0.194	ü
PFDA_1	513.0 / 469.0	3.15	PFDA			
PFDA_2	513.0 / 219.0	3.15	PFDA	0.039	0.041	ü
PFUnA_1	563.0 / 519.0	3.47	PFUnA			
PFUnA_2	563.0 / 269.0	3.47	PFUnA	0.039	0.044	ü
PFDoA_1	613.0 / 569.0	3.76	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.151	0.152	ü
PFTrDA_1	663.0 / 619.0	4.01	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.01	PFTrDA	0.061	0.064	ü
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.045	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.31	NMeFOSAA	0.570	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.47	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.45	NEtFOSSA	0.077	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	2018-05-17T10:14:08	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.43	PFBS	0.351	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.072	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.07	PFHxS			
PFHxS_2	399.0 / 99.0	2.07	PFHxS	0.286	0.335	ü
PFOA_1	413.0 / 369.0	2.43	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.062	0.062	ü
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.294	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.80	PFOS	0.193	0.194	ü
PFDA_1	513.0 / 469.0	3.15	PFDA			
PFDA_2	513.0 / 219.0	3.15	PFDA	0.037	0.041	ü
PFUnA_1	563.0 / 519.0	3.47	PFUnA			
PFUnA_2	563.0 / 269.0	3.47	PFUnA	0.042	0.044	ü
PFDoA_1	613.0 / 569.0	3.76	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.151	0.152	ü
PFTrDA_1	663.0 / 619.0	4.01	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.01	PFTrDA	0.060	0.064	ü
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.049	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.30	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.30	NMeFOSAA	0.585	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.46	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.46	NEtFOSSA	0.073	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	2018-05-17T10:23:03	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.45	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.318	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.069	0.056	ü
PFHpA_1	363.0 / 319.0	2.07	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.021	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.296	0.335	ü
PFOA_1	413.0 / 369.0	2.44	PFOA			
PFOA_2	413.0 / 169.0	2.44	PFOA	0.068	0.062	ü
PFNA_1	463.0 / 419.0	2.81	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.301	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.80	PFOS	0.197	0.194	ü
PFDA_1	513.0 / 469.0	3.16	PFDA			
PFDA_2	513.0 / 219.0	3.15	PFDA	0.036	0.041	ü
PFUnA_1	563.0 / 519.0	3.47	PFUnA			
PFUnA_2	563.0 / 269.0	3.47	PFUnA	0.043	0.044	ü
PFDoA_1	613.0 / 569.0	3.76	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.155	0.152	ü
PFTrDA_1	663.0 / 619.0	4.01	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.01	PFTrDA	0.063	0.064	ü
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.046	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.31	NMeFOSAA	0.602	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.47	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.46	NEtFOSSA	0.072	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	2018-05-17T10:31:58	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.315	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.069	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.302	0.335	ü
PFOA_1	413.0 / 369.0	2.44	PFOA			
PFOA_2	413.0 / 169.0	2.44	PFOA	0.067	0.062	ü
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.299	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.80	PFOS	0.194	0.194	ü
PFDA_1	513.0 / 469.0	3.16	PFDA			
PFDA_2	513.0 / 219.0	3.16	PFDA	0.037	0.041	ü
PFUnA_1	563.0 / 519.0	3.48	PFUnA			
PFUnA_2	563.0 / 269.0	3.47	PFUnA	0.043	0.044	ü
PFDoA_1	613.0 / 569.0	3.76	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.153	0.152	ü
PFTrDA_1	663.0 / 619.0	4.01	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.01	PFTrDA	0.063	0.064	ü
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.047	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.31	NMeFOSAA	0.608	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.47	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.46	NEtFOSSA	0.067	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	2018-05-17T09:20:34	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	104864.21	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	104864.21	287.00
PFHxA_1	313.0 / 269.0	1.74	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFHxA_2	313.0 / 119.0	1.73	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFHpA_1	363.0 / 319.0	2.08	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFHpA_2	363.0 / 169.0	2.08	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFHxS_1	399.0 / 80.0	2.09	13C4-PFOS	503.0 / 80.0	104864.21	287.00
PFHxS_2	399.0 / 99.0	2.09	13C4-PFOS	503.0 / 80.0	104864.21	287.00
PFOA_1	413.0 / 369.0	2.45	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFOA_2	413.0 / 169.0	2.44	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFNA_1	463.0 / 419.0	2.81	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFNA_2	463.0 / 219.0	2.82	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFOS_1	499.0 / 80.0	2.81	13C4-PFOS	503.0 / 80.0	104864.21	287.00
PFOS_2	499.0 / 99.0	2.81	13C4-PFOS	503.0 / 80.0	104864.21	287.00
PFDA_1	513.0 / 469.0	3.16	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFDA_2	513.0 / 219.0	3.19	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFUnA_1	563.0 / 519.0	3.48	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFUnA_2	563.0 / 269.0	3.46	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFDoA_1	613.0 / 569.0	3.77	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFDoA_2	613.0 / 319.0	3.78	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFTrDA_1	663.0 / 619.0	4.03	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFTrDA_2	663.0 / 169.0	4.02	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFTeDA_1	713.0 / 669.0	4.25	13C2-PFOA	415.0 / 370.0	28461.52	100.00
PFTeDA_2	713.0 / 169.0	4.25	13C2-PFOA	415.0 / 370.0	28461.52	100.00
NMeFOSAA_1	570.0 / 419.0	3.34	d3-MeFOSAA	573.0 / 419.0	15583.30	400.00
NMeFOSAA_2	570.0 / 512.0	3.34	d3-MeFOSAA	573.0 / 419.0	15583.30	400.00
NEtFOSAA_1	584.0 / 419.0	3.48	d3-MeFOSAA	573.0 / 419.0	15583.30	400.00
NEtFOSAA_2	584.0 / 483.0	3.48	d3-MeFOSAA	573.0 / 419.0	15583.30	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	2018-05-17T09:29:29	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	111854.31	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	111854.31	287.00
PFHxA_1	313.0 / 269.0	1.72	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFHxA_2	313.0 / 119.0	1.70	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFHpA_1	363.0 / 319.0	2.07	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFHpA_2	363.0 / 169.0	2.06	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFHxS_1	399.0 / 80.0	2.08	13C4-PFOS	503.0 / 80.0	111854.31	287.00
PFHxS_2	399.0 / 99.0	2.08	13C4-PFOS	503.0 / 80.0	111854.31	287.00
PFOA_1	413.0 / 369.0	2.44	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFOA_2	413.0 / 169.0	2.43	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFNA_1	463.0 / 419.0	2.81	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFNA_2	463.0 / 219.0	2.80	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFOS_1	499.0 / 80.0	2.80	13C4-PFOS	503.0 / 80.0	111854.31	287.00
PFOS_2	499.0 / 99.0	2.82	13C4-PFOS	503.0 / 80.0	111854.31	287.00
PFDA_1	513.0 / 469.0	3.16	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFDA_2	513.0 / 219.0	3.19	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFUnA_1	563.0 / 519.0	3.48	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFUnA_2	563.0 / 269.0	3.48	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFDoA_1	613.0 / 569.0	3.77	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFDoA_2	613.0 / 319.0	3.77	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFTrDA_1	663.0 / 619.0	4.02	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFTrDA_2	663.0 / 169.0	4.01	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFTeDA_1	713.0 / 669.0	4.24	13C2-PFOA	415.0 / 370.0	32515.66	100.00
PFTeDA_2	713.0 / 169.0	4.24	13C2-PFOA	415.0 / 370.0	32515.66	100.00
NMeFOSAA_1	570.0 / 419.0	3.32	d3-MeFOSAA	573.0 / 419.0	17164.76	400.00
NMeFOSAA_2	570.0 / 512.0	3.32	d3-MeFOSAA	573.0 / 419.0	17164.76	400.00
NEtFOSAA_1	584.0 / 419.0	3.48	d3-MeFOSAA	573.0 / 419.0	17164.76	400.00
NEtFOSAA_2	584.0 / 483.0	3.51	d3-MeFOSAA	573.0 / 419.0	17164.76	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	2018-05-17T09:38:24	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.48	13C4-PFOS	503.0 / 80.0	113860.62	287.00
PFBS_2	298.9 / 99.0	1.47	13C4-PFOS	503.0 / 80.0	113860.62	287.00
PFHxA_1	313.0 / 269.0	1.72	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFHxA_2	313.0 / 119.0	1.71	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFHpA_1	363.0 / 319.0	2.07	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFHpA_2	363.0 / 169.0	2.08	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFHxS_1	399.0 / 80.0	2.08	13C4-PFOS	503.0 / 80.0	113860.62	287.00
PFHxS_2	399.0 / 99.0	2.09	13C4-PFOS	503.0 / 80.0	113860.62	287.00
PFOA_1	413.0 / 369.0	2.44	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFOA_2	413.0 / 169.0	2.45	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFNA_1	463.0 / 419.0	2.81	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFNA_2	463.0 / 219.0	2.81	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFOS_1	499.0 / 80.0	2.81	13C4-PFOS	503.0 / 80.0	113860.62	287.00
PFOS_2	499.0 / 99.0	2.81	13C4-PFOS	503.0 / 80.0	113860.62	287.00
PFDA_1	513.0 / 469.0	3.16	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFDA_2	513.0 / 219.0	3.17	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFUnA_1	563.0 / 519.0	3.48	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFUnA_2	563.0 / 269.0	3.48	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFDoA_1	613.0 / 569.0	3.77	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFDoA_2	613.0 / 319.0	3.77	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFTrDA_1	663.0 / 619.0	4.02	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFTrDA_2	663.0 / 169.0	4.02	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFTeDA_1	713.0 / 669.0	4.24	13C2-PFOA	415.0 / 370.0	32166.59	100.00
PFTeDA_2	713.0 / 169.0	4.24	13C2-PFOA	415.0 / 370.0	32166.59	100.00
NMeFOSAA_1	570.0 / 419.0	3.31	d3-MeFOSAA	573.0 / 419.0	18646.92	400.00
NMeFOSAA_2	570.0 / 512.0	3.32	d3-MeFOSAA	573.0 / 419.0	18646.92	400.00
NEtFOSAA_1	584.0 / 419.0	3.48	d3-MeFOSAA	573.0 / 419.0	18646.92	400.00
NEtFOSAA_2	584.0 / 483.0	3.53	d3-MeFOSAA	573.0 / 419.0	18646.92	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	2018-05-17T09:47:21	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	102094.68	287.00
PFBS_2	298.9 / 99.0	1.46	13C4-PFOS	503.0 / 80.0	102094.68	287.00
PFHxA_1	313.0 / 269.0	1.73	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFHxA_2	313.0 / 119.0	1.72	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFHpA_1	363.0 / 319.0	2.07	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFHpA_2	363.0 / 169.0	2.07	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFHxS_1	399.0 / 80.0	2.09	13C4-PFOS	503.0 / 80.0	102094.68	287.00
PFHxS_2	399.0 / 99.0	2.09	13C4-PFOS	503.0 / 80.0	102094.68	287.00
PFOA_1	413.0 / 369.0	2.44	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFOA_2	413.0 / 169.0	2.45	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFNA_1	463.0 / 419.0	2.81	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFNA_2	463.0 / 219.0	2.81	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFOS_1	499.0 / 80.0	2.81	13C4-PFOS	503.0 / 80.0	102094.68	287.00
PFOS_2	499.0 / 99.0	2.81	13C4-PFOS	503.0 / 80.0	102094.68	287.00
PFDA_1	513.0 / 469.0	3.16	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFDA_2	513.0 / 219.0	3.16	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFUnA_1	563.0 / 519.0	3.48	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFUnA_2	563.0 / 269.0	3.48	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFDoA_1	613.0 / 569.0	3.77	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFDoA_2	613.0 / 319.0	3.76	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFTrDA_1	663.0 / 619.0	4.02	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFTrDA_2	663.0 / 169.0	4.02	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFTeDA_1	713.0 / 669.0	4.24	13C2-PFOA	415.0 / 370.0	28765.39	100.00
PFTeDA_2	713.0 / 169.0	4.23	13C2-PFOA	415.0 / 370.0	28765.39	100.00
NMeFOSAA_1	570.0 / 419.0	3.31	d3-MeFOSAA	573.0 / 419.0	17771.51	400.00
NMeFOSAA_2	570.0 / 512.0	3.31	d3-MeFOSAA	573.0 / 419.0	17771.51	400.00
NEtFOSAA_1	584.0 / 419.0	3.48	d3-MeFOSAA	573.0 / 419.0	17771.51	400.00
NEtFOSAA_2	584.0 / 483.0	3.45	d3-MeFOSAA	573.0 / 419.0	17771.51	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	2018-05-17T09:56:17	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	113941.01	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	113941.01	287.00
PFHxA_1	313.0 / 269.0	1.71	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFHxA_2	313.0 / 119.0	1.71	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFHpA_1	363.0 / 319.0	2.06	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFHpA_2	363.0 / 169.0	2.06	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFHxS_1	399.0 / 80.0	2.08	13C4-PFOS	503.0 / 80.0	113941.01	287.00
PFHxS_2	399.0 / 99.0	2.08	13C4-PFOS	503.0 / 80.0	113941.01	287.00
PFOA_1	413.0 / 369.0	2.44	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFOA_2	413.0 / 169.0	2.43	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFNA_1	463.0 / 419.0	2.80	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFNA_2	463.0 / 219.0	2.80	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFOS_1	499.0 / 80.0	2.80	13C4-PFOS	503.0 / 80.0	113941.01	287.00
PFOS_2	499.0 / 99.0	2.80	13C4-PFOS	503.0 / 80.0	113941.01	287.00
PFDA_1	513.0 / 469.0	3.16	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFDA_2	513.0 / 219.0	3.16	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFUnA_1	563.0 / 519.0	3.47	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFUnA_2	563.0 / 269.0	3.47	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFDoA_1	613.0 / 569.0	3.76	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFDoA_2	613.0 / 319.0	3.76	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFTrDA_1	663.0 / 619.0	4.02	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFTrDA_2	663.0 / 169.0	4.02	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFTeDA_1	713.0 / 669.0	4.23	13C2-PFOA	415.0 / 370.0	34136.83	100.00
PFTeDA_2	713.0 / 169.0	4.23	13C2-PFOA	415.0 / 370.0	34136.83	100.00
NMeFOSAA_1	570.0 / 419.0	3.31	d3-MeFOSAA	573.0 / 419.0	18313.21	400.00
NMeFOSAA_2	570.0 / 512.0	3.30	d3-MeFOSAA	573.0 / 419.0	18313.21	400.00
NEtFOSAA_1	584.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	18313.21	400.00
NEtFOSAA_2	584.0 / 483.0	3.48	d3-MeFOSAA	573.0 / 419.0	18313.21	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	2018-05-17T10:05:12	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	105465.76	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	105465.76	287.00
PFHxA_1	313.0 / 269.0	1.71	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFHxA_2	313.0 / 119.0	1.71	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFHpA_1	363.0 / 319.0	2.06	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFHpA_2	363.0 / 169.0	2.06	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFHxS_1	399.0 / 80.0	2.08	13C4-PFOS	503.0 / 80.0	105465.76	287.00
PFHxS_2	399.0 / 99.0	2.08	13C4-PFOS	503.0 / 80.0	105465.76	287.00
PFOA_1	413.0 / 369.0	2.43	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFOA_2	413.0 / 169.0	2.43	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFNA_1	463.0 / 419.0	2.80	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFNA_2	463.0 / 219.0	2.80	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFOS_1	499.0 / 80.0	2.80	13C4-PFOS	503.0 / 80.0	105465.76	287.00
PFOS_2	499.0 / 99.0	2.80	13C4-PFOS	503.0 / 80.0	105465.76	287.00
PFDA_1	513.0 / 469.0	3.15	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFDA_2	513.0 / 219.0	3.15	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFUnA_1	563.0 / 519.0	3.47	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFUnA_2	563.0 / 269.0	3.47	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFDoA_1	613.0 / 569.0	3.76	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFDoA_2	613.0 / 319.0	3.76	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFTrDA_1	663.0 / 619.0	4.01	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFTrDA_2	663.0 / 169.0	4.01	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFTeDA_1	713.0 / 669.0	4.23	13C2-PFOA	415.0 / 370.0	33007.04	100.00
PFTeDA_2	713.0 / 169.0	4.23	13C2-PFOA	415.0 / 370.0	33007.04	100.00
NMeFOSAA_1	570.0 / 419.0	3.31	d3-MeFOSAA	573.0 / 419.0	17246.29	400.00
NMeFOSAA_2	570.0 / 512.0	3.31	d3-MeFOSAA	573.0 / 419.0	17246.29	400.00
NEtFOSAA_1	584.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	17246.29	400.00
NEtFOSAA_2	584.0 / 483.0	3.45	d3-MeFOSAA	573.0 / 419.0	17246.29	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	2018-05-17T10:14:08	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	100428.45	287.00
PFBS_2	298.9 / 99.0	1.43	13C4-PFOS	503.0 / 80.0	100428.45	287.00
PFHxA_1	313.0 / 269.0	1.71	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFHxA_2	313.0 / 119.0	1.71	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFHpA_1	363.0 / 319.0	2.06	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFHpA_2	363.0 / 169.0	2.06	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFHxS_1	399.0 / 80.0	2.07	13C4-PFOS	503.0 / 80.0	100428.45	287.00
PFHxS_2	399.0 / 99.0	2.07	13C4-PFOS	503.0 / 80.0	100428.45	287.00
PFOA_1	413.0 / 369.0	2.43	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFOA_2	413.0 / 169.0	2.43	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFNA_1	463.0 / 419.0	2.80	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFNA_2	463.0 / 219.0	2.80	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFOS_1	499.0 / 80.0	2.80	13C4-PFOS	503.0 / 80.0	100428.45	287.00
PFOS_2	499.0 / 99.0	2.80	13C4-PFOS	503.0 / 80.0	100428.45	287.00
PFDA_1	513.0 / 469.0	3.15	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFDA_2	513.0 / 219.0	3.15	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFUnA_1	563.0 / 519.0	3.47	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFUnA_2	563.0 / 269.0	3.47	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFDoA_1	613.0 / 569.0	3.76	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFDoA_2	613.0 / 319.0	3.76	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFTrDA_1	663.0 / 619.0	4.01	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFTrDA_2	663.0 / 169.0	4.01	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFTeDA_1	713.0 / 669.0	4.23	13C2-PFOA	415.0 / 370.0	33693.39	100.00
PFTeDA_2	713.0 / 169.0	4.23	13C2-PFOA	415.0 / 370.0	33693.39	100.00
NMeFOSAA_1	570.0 / 419.0	3.30	d3-MeFOSAA	573.0 / 419.0	17912.38	400.00
NMeFOSAA_2	570.0 / 512.0	3.30	d3-MeFOSAA	573.0 / 419.0	17912.38	400.00
NEtFOSAA_1	584.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	17912.38	400.00
NEtFOSAA_2	584.0 / 483.0	3.46	d3-MeFOSAA	573.0 / 419.0	17912.38	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	2018-05-17T10:23:03	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	100136.69	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	100136.69	287.00
PFHxA_1	313.0 / 269.0	1.71	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFHxA_2	313.0 / 119.0	1.71	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFHpA_1	363.0 / 319.0	2.07	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFHpA_2	363.0 / 169.0	2.06	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFHxS_1	399.0 / 80.0	2.08	13C4-PFOS	503.0 / 80.0	100136.69	287.00
PFHxS_2	399.0 / 99.0	2.08	13C4-PFOS	503.0 / 80.0	100136.69	287.00
PFOA_1	413.0 / 369.0	2.44	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFOA_2	413.0 / 169.0	2.44	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFNA_1	463.0 / 419.0	2.81	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFNA_2	463.0 / 219.0	2.80	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFOS_1	499.0 / 80.0	2.80	13C4-PFOS	503.0 / 80.0	100136.69	287.00
PFOS_2	499.0 / 99.0	2.80	13C4-PFOS	503.0 / 80.0	100136.69	287.00
PFDA_1	513.0 / 469.0	3.16	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFDA_2	513.0 / 219.0	3.15	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFUnA_1	563.0 / 519.0	3.47	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFUnA_2	563.0 / 269.0	3.47	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFDoA_1	613.0 / 569.0	3.76	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFDoA_2	613.0 / 319.0	3.76	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFTrDA_1	663.0 / 619.0	4.01	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFTrDA_2	663.0 / 169.0	4.01	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFTeDA_1	713.0 / 669.0	4.23	13C2-PFOA	415.0 / 370.0	31164.30	100.00
PFTeDA_2	713.0 / 169.0	4.23	13C2-PFOA	415.0 / 370.0	31164.30	100.00
NMeFOSAA_1	570.0 / 419.0	3.31	d3-MeFOSAA	573.0 / 419.0	14871.77	400.00
NMeFOSAA_2	570.0 / 512.0	3.31	d3-MeFOSAA	573.0 / 419.0	14871.77	400.00
NEtFOSAA_1	584.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	14871.77	400.00
NEtFOSAA_2	584.0 / 483.0	3.46	d3-MeFOSAA	573.0 / 419.0	14871.77	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	2018-05-17T10:31:58	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	107766.90	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	107766.90	287.00
PFHxA_1	313.0 / 269.0	1.71	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFHxA_2	313.0 / 119.0	1.71	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFHpA_1	363.0 / 319.0	2.06	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFHpA_2	363.0 / 169.0	2.06	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFHxS_1	399.0 / 80.0	2.08	13C4-PFOS	503.0 / 80.0	107766.90	287.00
PFHxS_2	399.0 / 99.0	2.08	13C4-PFOS	503.0 / 80.0	107766.90	287.00
PFOA_1	413.0 / 369.0	2.44	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFOA_2	413.0 / 169.0	2.44	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFNA_1	463.0 / 419.0	2.80	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFNA_2	463.0 / 219.0	2.80	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFOS_1	499.0 / 80.0	2.80	13C4-PFOS	503.0 / 80.0	107766.90	287.00
PFOS_2	499.0 / 99.0	2.80	13C4-PFOS	503.0 / 80.0	107766.90	287.00
PFDA_1	513.0 / 469.0	3.16	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFDA_2	513.0 / 219.0	3.16	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFUnA_1	563.0 / 519.0	3.48	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFUnA_2	563.0 / 269.0	3.47	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFDoA_1	613.0 / 569.0	3.76	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFDoA_2	613.0 / 319.0	3.76	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFTrDA_1	663.0 / 619.0	4.01	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFTrDA_2	663.0 / 169.0	4.01	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFTeDA_1	713.0 / 669.0	4.23	13C2-PFOA	415.0 / 370.0	33296.93	100.00
PFTeDA_2	713.0 / 169.0	4.23	13C2-PFOA	415.0 / 370.0	33296.93	100.00
NMeFOSAA_1	570.0 / 419.0	3.31	d3-MeFOSAA	573.0 / 419.0	18034.35	400.00
NMeFOSAA_2	570.0 / 512.0	3.31	d3-MeFOSAA	573.0 / 419.0	18034.35	400.00
NEtFOSAA_1	584.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	18034.35	400.00
NEtFOSAA_2	584.0 / 483.0	3.46	d3-MeFOSAA	573.0 / 419.0	18034.35	400.00

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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	2018-05-17T09:20:34	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.71	13C2-PFOA	415.0 / 370.0	27970.91	100.00
13C2-PFDA	515.0 / 470.0	3.15	13C2-PFOA	415.0 / 370.0	27970.91	100.00
d5-EtFOSAA	589.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	15583.30	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	2018-05-17T09:29:29	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.70	13C2-PFOA	415.0 / 370.0	33326.75	100.00
13C2-PFDA	515.0 / 470.0	3.15	13C2-PFOA	415.0 / 370.0	33326.75	100.00
d5-EtFOSAA	589.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	18335.31	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	2018-05-17T09:38:24	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.71	13C2-PFOA	415.0 / 370.0	33633.17	100.00
13C2-PFDA	515.0 / 470.0	3.15	13C2-PFOA	415.0 / 370.0	33633.17	100.00
d5-EtFOSAA	589.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	20715.80	400.00

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Summary Internal Standard Report

Created with Analyst Reporter
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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	2018-05-17T09:47:21	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.71	13C2-PFOA	415.0 / 370.0	28765.39	100.00
13C2-PFDA	515.0 / 470.0	3.15	13C2-PFOA	415.0 / 370.0	28765.39	100.00
d5-EtFOSAA	589.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	17771.51	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	2018-05-17T09:56:17	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.70	13C2-PFOA	415.0 / 370.0	37502.84	100.00
13C2-PFDA	515.0 / 470.0	3.14	13C2-PFOA	415.0 / 370.0	37502.84	100.00
d5-EtFOSAA	589.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	22286.41	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	2018-05-17T10:05:12	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.70	13C2-PFOA	415.0 / 370.0	34353.66	100.00
13C2-PFDA	515.0 / 470.0	3.14	13C2-PFOA	415.0 / 370.0	34353.66	100.00
d5-EtFOSAA	589.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	19323.36	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	2018-05-17T10:14:08	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.69	13C2-PFOA	415.0 / 370.0	34994.02	100.00
13C2-PFDA	515.0 / 470.0	3.14	13C2-PFOA	415.0 / 370.0	34994.02	100.00
d5-EtFOSAA	589.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	19607.78	400.00

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Summary Internal Standard Report

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Printed: 29/05/2018 12:30:39 PM

Sample Name	JV71	**Injection Vial**	9
Sample ID	L8	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:23:03	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.70	13C2-PFOA	415.0 / 370.0	31164.30	100.00
13C2-PFDA	515.0 / 470.0	3.14	13C2-PFOA	415.0 / 370.0	31164.30	100.00
d5-EtFOSAA	589.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	15851.69	400.00

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Summary Internal Standard Report

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Printed: 29/05/2018 12:30:41 PM

Sample Name	JV72	**Injection Vial**	10
Sample ID	L9	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:31:58	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.70	13C2-PFOA	415.0 / 370.0	37898.63	100.00
13C2-PFDA	515.0 / 470.0	3.14	13C2-PFOA	415.0 / 370.0	37898.63	100.00
d5-EtFOSAA	589.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	19020.46	400.00

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QC Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:22:03 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	2018-05-17T10:40:54	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.44	857.075138	885.00	96.84
PFBS_2	298.9 / 99.0	1.44	871.726657	885.00	98.50
PFHxA_1	313.0 / 269.0	1.71	1010.385300	1000.00	101.04
PFHxA_2	313.0 / 119.0	1.71	1001.659656	1000.00	100.17
PFHpA_1	363.0 / 319.0	2.06	928.673722	1000.00	92.87
PFHpA_2	363.0 / 169.0	2.06	1008.143725	1000.00	100.81
PFHxS_1	399.0 / 80.0	2.08	850.750707	912.00	93.28
PFHxS_2	399.0 / 99.0	2.08	838.600413	912.00	91.95
PFOA_1	413.0 / 369.0	2.43	957.593592	1000.00	95.76
PFOA_2	413.0 / 169.0	2.43	961.616146	1000.00	96.16
PFNA_1	463.0 / 419.0	2.80	993.731632	1000.00	99.37
PFNA_2	463.0 / 219.0	2.80	971.818834	1000.00	97.18
PFOS_1	499.0 / 80.0	2.80	833.843493	925.60	90.09
PFOS_2	499.0 / 99.0	2.80	901.643927	925.60	97.41
PFDA_1	513.0 / 469.0	3.15	996.186164	1000.00	99.62
PFDA_2	513.0 / 219.0	3.15	921.042098	1000.00	92.10
PFUnA_1	563.0 / 519.0	3.47	957.330573	1000.00	95.73
PFUnA_2	563.0 / 269.0	3.47	981.242183	1000.00	98.12
PFDoA_1	613.0 / 569.0	3.76	999.379402	1000.00	99.94
PFDoA_2	613.0 / 319.0	3.76	993.287788	1000.00	99.33
PFTrDA_1	663.0 / 619.0	4.01	965.966059	1000.00	96.60
PFTrDA_2	663.0 / 169.0	4.01	938.151286	1000.00	93.82
PFTeDA_1	713.0 / 669.0	4.23	935.211624	1000.00	93.52
PFTeDA_2	713.0 / 169.0	4.23	953.871059	1000.00	95.39
NMeFOSAA_1	570.0 / 419.0	3.31	1015.200644	1000.00	101.52
NMeFOSAA_2	570.0 / 512.0	3.31	954.066278	1000.00	95.41
NEtFOSAA_1	584.0 / 419.0	3.47	1074.991238	1000.00	107.50
NEtFOSAA_2	584.0 / 483.0	3.46	743.852541	1000.00	74.39

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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	2018-05-17T12:19:05	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.44	501.232008	443.00	113.14
PFBS_2	298.9 / 99.0	1.44	524.041640	443.00	118.29
PFHxA_1	313.0 / 269.0	1.71	598.658896	500.00	119.73
PFHxA_2	313.0 / 119.0	1.71	504.965075	500.00	100.99
PFHpA_1	363.0 / 319.0	2.06	532.298853	500.00	106.46
PFHpA_2	363.0 / 169.0	2.06	462.213382	500.00	92.44
PFHxS_1	399.0 / 80.0	2.07	447.109688	456.00	98.05
PFHxS_2	399.0 / 99.0	2.07	445.688074	456.00	97.74
PFOA_1	413.0 / 369.0	2.43	551.343991	500.00	110.27
PFOA_2	413.0 / 169.0	2.43	544.902969	500.00	108.98
PFNA_1	463.0 / 419.0	2.80	548.973124	500.00	109.79
PFNA_2	463.0 / 219.0	2.80	532.348689	500.00	106.47
PFOS_1	499.0 / 80.0	2.79	476.380960	463.00	102.89
PFOS_2	499.0 / 99.0	2.79	517.048235	463.00	111.67
PFDA_1	513.0 / 469.0	3.14	534.994118	500.00	107.00
PFDA_2	513.0 / 219.0	3.15	575.782087	500.00	115.16
PFUnA_1	563.0 / 519.0	3.46	523.022309	500.00	104.60
PFUnA_2	563.0 / 269.0	3.47	509.578824	500.00	101.92
PFDoA_1	613.0 / 569.0	3.75	531.536337	500.00	106.31
PFDoA_2	613.0 / 319.0	3.75	538.760599	500.00	107.75
PFTrDA_1	663.0 / 619.0	4.00	536.444139	500.00	107.29
PFTrDA_2	663.0 / 169.0	4.00	526.769810	500.00	105.35
PFTeDA_1	713.0 / 669.0	4.22	512.396805	500.00	102.48
PFTeDA_2	713.0 / 169.0	4.22	473.846877	500.00	94.77
NMeFOSAA_1	570.0 / 419.0	3.30	475.010466	500.00	95.00
NMeFOSAA_2	570.0 / 512.0	3.30	439.720595	500.00	87.94
NEtFOSAA_1	584.0 / 419.0	3.46	473.882113	500.00	94.78
NEtFOSAA_2	584.0 / 483.0	3.46	505.558505	500.00	101.11

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QC Summary 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	2018-05-17T14:17:42	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	794.115081	885.00	89.73
PFBS_2	298.9 / 99.0	1.45	812.907933	885.00	91.85
PFHxA_1	313.0 / 269.0	1.72	974.552568	1000.00	97.46
PFHxA_2	313.0 / 119.0	1.72	931.675792	1000.00	93.17
PFHpA_1	363.0 / 319.0	2.07	921.635239	1000.00	92.16
PFHpA_2	363.0 / 169.0	2.08	933.441887	1000.00	93.34
PFHxS_1	399.0 / 80.0	2.09	789.965702	912.00	86.62
PFHxS_2	399.0 / 99.0	2.09	762.515904	912.00	83.61
PFOA_1	413.0 / 369.0	2.45	945.583006	1000.00	94.56
PFOA_2	413.0 / 169.0	2.45	983.436945	1000.00	98.34
PFNA_1	463.0 / 419.0	2.82	1009.611511	1000.00	100.96
PFNA_2	463.0 / 219.0	2.82	974.601714	1000.00	97.46
PFOS_1	499.0 / 80.0	2.81	853.330235	925.60	92.19
PFOS_2	499.0 / 99.0	2.81	875.663550	925.60	94.60
PFDA_1	513.0 / 469.0	3.17	977.267607	1000.00	97.73
PFDA_2	513.0 / 219.0	3.16	983.634948	1000.00	98.36
PFUnA_1	563.0 / 519.0	3.49	953.727069	1000.00	95.37
PFUnA_2	563.0 / 269.0	3.48	910.415566	1000.00	91.04
PFDoA_1	613.0 / 569.0	3.77	1001.155903	1000.00	100.12
PFDoA_2	613.0 / 319.0	3.77	942.567768	1000.00	94.26
PFTrDA_1	663.0 / 619.0	4.02	942.175925	1000.00	94.22
PFTrDA_2	663.0 / 169.0	4.02	957.592129	1000.00	95.76
PFTeDA_1	713.0 / 669.0	4.24	894.857761	1000.00	89.49
PFTeDA_2	713.0 / 169.0	4.24	947.585430	1000.00	94.76
NMeFOSAA_1	570.0 / 419.0	3.32	955.076509	1000.00	95.51
NMeFOSAA_2	570.0 / 512.0	3.32	855.145314	1000.00	85.51
NEtFOSAA_1	584.0 / 419.0	3.48	817.078337	1000.00	81.71
NEtFOSAA_2	584.0 / 483.0	3.47	915.967249	1000.00	91.60

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QC Summary Report

Created with Analyst Reporter
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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	2018-05-17T10:40:54	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.70	95.781622	100.00	95.78
13C2-PFDA	515.0 / 470.0	3.14	96.598799	100.00	96.60
d5-EtFOSAA	589.0 / 419.0	3.46	454.100896	400.00	113.53

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QC Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:23:13 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	2018-05-17T12:19:05	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.70	102.801153	100.00	102.80
13C2-PFDA	515.0 / 470.0	3.13	93.855234	100.00	93.86
d5-EtFOSAA	589.0 / 419.0	3.45	372.268626	400.00	93.07

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Summary Quant Report

Created with Analyst Reporter
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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	2018-05-17T10:40:54	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	274012.00	857.075138	1809.9	false
PFBS_2	298.9 / 99.0	1.44	89900.70	871.726657	416.6	false
PFHxA_1	313.0 / 269.0	1.71	318202.01	1010.385300	446.6	false
PFHxA_2	313.0 / 119.0	1.71	21262.75	1001.659656	117.9	false
PFHpA_1	363.0 / 319.0	2.06	266432.72	928.673722	163.4	false
PFHpA_2	363.0 / 169.0	2.06	5975.96	1008.143725	189.9	false
PFHxS_1	399.0 / 80.0	2.08	289001.24	850.750707	462.0	false
PFHxS_2	399.0 / 99.0	2.08	86048.06	838.600413	324.1	false
PFOA_1	413.0 / 369.0	2.43	330367.28	957.593592	327.8	false
PFOA_2	413.0 / 169.0	2.43	21892.74	961.616146	325.8	false
PFNA_1	463.0 / 419.0	2.80	345880.16	993.731632	255.4	false
PFNA_2	463.0 / 219.0	2.80	100853.00	971.818834	336.2	false
PFOS_1	499.0 / 80.0	2.80	408508.27	833.843493	331.3	false
PFOS_2	499.0 / 99.0	2.80	86151.06	901.643927	318.8	false
PFDA_1	513.0 / 469.0	3.15	378175.79	996.186164	354.8	false
PFDA_2	513.0 / 219.0	3.15	13384.48	921.042098	371.1	false
PFUnA_1	563.0 / 519.0	3.47	379899.50	957.330573	298.5	false
PFUnA_2	563.0 / 269.0	3.47	16583.71	981.242183	293.4	false
PFDoA_1	613.0 / 569.0	3.76	401624.56	999.379402	286.7	false
PFDoA_2	613.0 / 319.0	3.76	61085.13	993.287788	285.0	false
PFTrDA_1	663.0 / 619.0	4.01	362685.98	965.966059	319.9	false
PFTrDA_2	663.0 / 169.0	4.01	22062.08	938.151286	286.9	false
PFTeDA_1	713.0 / 669.0	4.23	363885.07	935.211624	496.1	false
PFTeDA_2	713.0 / 169.0	4.23	17351.25	953.871059	403.8	false
NMeFOSAA_1	570.0 / 419.0	3.31	49392.01	1015.200644	507.2	false
NMeFOSAA_2	570.0 / 512.0	3.31	28383.59	954.066278	402.3	false
NEtFOSAA_1	584.0 / 419.0	3.47	51163.01	1074.991238	374.3	false
NEtFOSAA_2	584.0 / 483.0	3.46	2456.82	743.852541	140.3	false

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Summary Quant 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	2018-05-17T12:19:05	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	168240.03	501.232008	1616.1	false
PFBS_2	298.9 / 99.0	1.44	56824.11	524.041640	361.5	false
PFHxA_1	313.0 / 269.0	1.71	194444.55	598.658896	342.1	false
PFHxA_2	313.0 / 119.0	1.71	10804.37	504.965075	77.0	true
PFHpA_1	363.0 / 319.0	2.06	156943.22	532.298853	125.6	false
PFHpA_2	363.0 / 169.0	2.06	2842.61	462.213382	84.1	false
PFHxS_1	399.0 / 80.0	2.07	159281.49	447.109688	326.5	false
PFHxS_2	399.0 / 99.0	2.07	48592.20	445.688074	209.5	false
PFOA_1	413.0 / 369.0	2.43	196251.84	551.343991	304.5	false
PFOA_2	413.0 / 169.0	2.43	12720.14	544.902969	255.5	false
PFNA_1	463.0 / 419.0	2.80	196466.83	548.973124	274.1	false
PFNA_2	463.0 / 219.0	2.80	56700.19	532.348689	274.1	false
PFOS_1	499.0 / 80.0	2.79	245726.84	476.380960	294.1	false
PFOS_2	499.0 / 99.0	2.79	51984.44	517.048235	386.5	false
PFDA_1	513.0 / 469.0	3.14	208526.63	534.994118	288.6	false
PFDA_2	513.0 / 219.0	3.15	8820.46	575.782087	296.3	false
PFUnA_1	563.0 / 519.0	3.46	213170.06	523.022309	285.3	false
PFUnA_2	563.0 / 269.0	3.47	8876.82	509.578824	275.2	false
PFDoA_1	613.0 / 569.0	3.75	219290.91	531.536337	244.8	false
PFDoA_2	613.0 / 319.0	3.75	33980.68	538.760599	210.2	false
PFTrDA_1	663.0 / 619.0	4.00	206540.77	536.444139	280.7	false
PFTrDA_2	663.0 / 169.0	4.00	12735.56	526.769810	233.6	false
PFTeDA_1	713.0 / 669.0	4.22	204672.49	512.396805	396.9	false
PFTeDA_2	713.0 / 169.0	4.22	8837.05	473.846877	340.9	false
NMeFOSAA_1	570.0 / 419.0	3.30	24882.87	475.010466	319.4	false
NMeFOSAA_2	570.0 / 512.0	3.30	14426.64	439.720595	283.7	false
NEtFOSAA_1	584.0 / 419.0	3.46	24789.34	473.882113	269.6	false
NEtFOSAA_2	584.0 / 483.0	3.46	1839.22	505.558505	129.7	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 24/05/2018 1:25:10 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	2018-05-17T14:17:42	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	268170.83	794.115081	1888.1	false
PFBS_2	298.9 / 99.0	1.45	88567.34	812.907933	465.6	false
PFHxA_1	313.0 / 269.0	1.72	322751.93	974.552568	514.7	false
PFHxA_2	313.0 / 119.0	1.72	20763.51	931.675792	112.0	false
PFHpA_1	363.0 / 319.0	2.07	277990.89	921.635239	155.6	false
PFHpA_2	363.0 / 169.0	2.08	5821.36	933.441887	123.3	false
PFHxS_1	399.0 / 80.0	2.09	283439.67	789.965702	313.2	false
PFHxS_2	399.0 / 99.0	2.09	82756.70	762.515904	271.5	false
PFOA_1	413.0 / 369.0	2.45	343000.77	945.583006	354.5	false
PFOA_2	413.0 / 169.0	2.45	23539.87	983.436945	305.8	false
PFNA_1	463.0 / 419.0	2.82	369437.67	1009.611511	303.1	false
PFNA_2	463.0 / 219.0	2.82	106334.45	974.601714	371.1	false
PFOS_1	499.0 / 80.0	2.81	441646.55	853.330235	328.9	false
PFOS_2	499.0 / 99.0	2.81	88395.59	875.663550	385.7	false
PFDA_1	513.0 / 469.0	3.17	390040.66	977.267607	347.3	false
PFDA_2	513.0 / 219.0	3.16	14985.24	983.634948	358.8	false
PFUnA_1	563.0 / 519.0	3.49	397900.41	953.727069	307.4	false
PFUnA_2	563.0 / 269.0	3.48	16181.96	910.415566	292.5	false
PFDoA_1	613.0 / 569.0	3.77	422994.23	1001.155903	292.9	false
PFDoA_2	613.0 / 319.0	3.77	60937.70	942.567768	258.0	false
PFTrDA_1	663.0 / 619.0	4.02	371900.68	942.175925	362.8	false
PFTrDA_2	663.0 / 169.0	4.02	23674.56	957.592129	312.0	false
PFTeDA_1	713.0 / 669.0	4.24	366057.02	894.857761	495.2	false
PFTeDA_2	713.0 / 169.0	4.24	18121.67	947.585430	407.2	false
NMeFOSAA_1	570.0 / 419.0	3.32	50115.16	955.076509	385.1	false
NMeFOSAA_2	570.0 / 512.0	3.32	27473.20	855.145314	239.7	false
NEtFOSAA_1	584.0 / 419.0	3.48	41954.85	817.078337	291.1	false
NEtFOSAA_2	584.0 / 483.0	3.47	3269.84	915.967249	179.5	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 24/05/2018 1:23:57 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	2018-05-17T10:40:54	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.70	28522.07	95.781622	719.5	false
13C2-PFDA	515.0 / 470.0	3.14	36610.21	96.598799	483.8	false
d5-EtFOSAA	589.0 / 419.0	3.46	21927.79	454.100896	259.1	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 24/05/2018 1:24:19 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	2018-05-17T12:19:05	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFHxA	315.0 / 270.0	1.70	34436.52	102.801153	793.7	false
13C2-PFDA	515.0 / 470.0	3.13	40013.94	93.855234	578.7	false
d5-EtFOSAA	589.0 / 419.0	3.45	22457.70	372.268626	313.1	false

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Summary Ion Ratio Report

Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:40:54	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.328	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.067	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.022	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.298	0.335	ü
PFOA_1	413.0 / 369.0	2.43	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.066	0.062	ü
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.292	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.80	PFOS	0.211	0.194	ü
PFDA_1	513.0 / 469.0	3.15	PFDA			
PFDA_2	513.0 / 219.0	3.15	PFDA	0.035	0.041	ü
PFUnA_1	563.0 / 519.0	3.47	PFUnA			
PFUnA_2	563.0 / 269.0	3.47	PFUnA	0.044	0.044	ü
PFDoA_1	613.0 / 569.0	3.76	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.152	0.152	ü
PFTrDA_1	663.0 / 619.0	4.01	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.01	PFTrDA	0.061	0.064	ü
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.048	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.31	NMeFOSAA	0.575	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.47	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.46	NEtFOSSA	0.048	0.071	ü

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Summary Ion Ratio Report

Sample Name	JV68 CCV	**Injection Vial**	6
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:19:05	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.338	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.056	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.018	0.022	ü
PFHxS_1	399.0 / 80.0	2.07	PFHxS			
PFHxS_2	399.0 / 99.0	2.07	PFHxS	0.305	0.335	ü
PFOA_1	413.0 / 369.0	2.43	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.065	0.062	ü
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.289	0.294	ü
PFOS_1	499.0 / 80.0	2.79	PFOS			
PFOS_2	499.0 / 99.0	2.79	PFOS	0.212	0.194	ü
PFDA_1	513.0 / 469.0	3.14	PFDA			
PFDA_2	513.0 / 219.0	3.15	PFDA	0.042	0.041	ü
PFUnA_1	563.0 / 519.0	3.46	PFUnA			
PFUnA_2	563.0 / 269.0	3.47	PFUnA	0.042	0.044	ü
PFDoA_1	613.0 / 569.0	3.75	PFDoA			
PFDoA_2	613.0 / 319.0	3.75	PFDoA	0.155	0.152	ü
PFTrDA_1	663.0 / 619.0	4.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.00	PFTrDA	0.062	0.064	ü
PFTeDA_1	713.0 / 669.0	4.22	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.22	PFTeDA	0.043	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.30	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.30	NMeFOSAA	0.580	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.46	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.46	NEtFOSSA	0.074	0.071	ü

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Summary Ion Ratio Report

Sample Name	JV69 CCV	**Injection Vial**	7
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T14:17:42	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	0.330	0.327	ü
PFHxA_1	313.0 / 269.0	1.72	PFHxA			
PFHxA_2	313.0 / 119.0	1.72	PFHxA	0.064	0.056	ü
PFHpA_1	363.0 / 319.0	2.07	PFHpA			
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.021	0.022	ü
PFHxS_1	399.0 / 80.0	2.09	PFHxS			
PFHxS_2	399.0 / 99.0	2.09	PFHxS	0.292	0.335	ü
PFOA_1	413.0 / 369.0	2.45	PFOA			
PFOA_2	413.0 / 169.0	2.45	PFOA	0.069	0.062	ü
PFNA_1	463.0 / 419.0	2.82	PFNA			
PFNA_2	463.0 / 219.0	2.82	PFNA	0.288	0.294	ü
PFOS_1	499.0 / 80.0	2.81	PFOS			
PFOS_2	499.0 / 99.0	2.81	PFOS	0.200	0.194	ü
PFDA_1	513.0 / 469.0	3.17	PFDA			
PFDA_2	513.0 / 219.0	3.16	PFDA	0.038	0.041	ü
PFUnA_1	563.0 / 519.0	3.49	PFUnA			
PFUnA_2	563.0 / 269.0	3.48	PFUnA	0.041	0.044	ü
PFDoA_1	613.0 / 569.0	3.77	PFDoA			
PFDoA_2	613.0 / 319.0	3.77	PFDoA	0.144	0.152	ü
PFTrDA_1	663.0 / 619.0	4.02	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.02	PFTrDA	0.064	0.064	ü
PFTeDA_1	713.0 / 669.0	4.24	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.24	PFTeDA	0.050	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.32	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.32	NMeFOSAA	0.548	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.48	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.47	NEtFOSSA	0.078	0.071	ü

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Summary Internal Standard Report

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Printed: 24/05/2018 1:25:50 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	2018-05-17T10:40:54	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	113811.02	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	113811.02	287.00
PFHxA_1	313.0 / 269.0	1.71	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFHxA_2	313.0 / 119.0	1.71	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFHpA_1	363.0 / 319.0	2.06	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFHpA_2	363.0 / 169.0	2.06	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFHxS_1	399.0 / 80.0	2.08	13C4-PFOS	503.0 / 80.0	113811.02	287.00
PFHxS_2	399.0 / 99.0	2.08	13C4-PFOS	503.0 / 80.0	113811.02	287.00
PFOA_1	413.0 / 369.0	2.43	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFOA_2	413.0 / 169.0	2.43	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFNA_1	463.0 / 419.0	2.80	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFNA_2	463.0 / 219.0	2.80	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFOS_1	499.0 / 80.0	2.80	13C4-PFOS	503.0 / 80.0	113811.02	287.00
PFOS_2	499.0 / 99.0	2.80	13C4-PFOS	503.0 / 80.0	113811.02	287.00
PFDA_1	513.0 / 469.0	3.15	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFDA_2	513.0 / 219.0	3.15	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFUnA_1	563.0 / 519.0	3.47	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFUnA_2	563.0 / 269.0	3.47	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFDoA_1	613.0 / 569.0	3.76	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFDoA_2	613.0 / 319.0	3.76	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFTrDA_1	663.0 / 619.0	4.01	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFTrDA_2	663.0 / 169.0	4.01	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFTeDA_1	713.0 / 669.0	4.23	13C2-PFOA	415.0 / 370.0	33366.06	100.00
PFTeDA_2	713.0 / 169.0	4.23	13C2-PFOA	415.0 / 370.0	33366.06	100.00
NMeFOSAA_1	570.0 / 419.0	3.31	d3-MeFOSAA	573.0 / 419.0	18230.15	400.00
NMeFOSAA_2	570.0 / 512.0	3.31	d3-MeFOSAA	573.0 / 419.0	18230.15	400.00
NEtFOSAA_1	584.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	18230.15	400.00
NEtFOSAA_2	584.0 / 483.0	3.46	d3-MeFOSAA	573.0 / 419.0	18230.15	400.00

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Summary Internal Standard Report

Created with Analyst Reporter
Printed: 29/05/2018 12:31:22 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	2018-05-17T10:40:54	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.70	13C2-PFOA	415.0 / 370.0	35067.86	100.00
13C2-PFDA	515.0 / 470.0	3.14	13C2-PFOA	415.0 / 370.0	35067.86	100.00
d5-EtFOSAA	589.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	18230.15	400.00

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Summary Internal Standard Report

Created with Analyst Reporter
Printed: 24/05/2018 1:25:53 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	2018-05-17T12:19:05	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	119685.33	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	119685.33	287.00
PFHxA_1	313.0 / 269.0	1.71	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFHxA_2	313.0 / 119.0	1.71	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFHpA_1	363.0 / 319.0	2.06	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFHpA_2	363.0 / 169.0	2.06	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFHxS_1	399.0 / 80.0	2.07	13C4-PFOS	503.0 / 80.0	119685.33	287.00
PFHxS_2	399.0 / 99.0	2.07	13C4-PFOS	503.0 / 80.0	119685.33	287.00
PFOA_1	413.0 / 369.0	2.43	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFOA_2	413.0 / 169.0	2.43	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFNA_1	463.0 / 419.0	2.80	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFNA_2	463.0 / 219.0	2.80	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFOS_1	499.0 / 80.0	2.79	13C4-PFOS	503.0 / 80.0	119685.33	287.00
PFOS_2	499.0 / 99.0	2.79	13C4-PFOS	503.0 / 80.0	119685.33	287.00
PFDA_1	513.0 / 469.0	3.14	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFDA_2	513.0 / 219.0	3.15	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFUnA_1	563.0 / 519.0	3.46	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFUnA_2	563.0 / 269.0	3.47	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFDoA_1	613.0 / 569.0	3.75	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFDoA_2	613.0 / 319.0	3.75	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFTrDA_1	663.0 / 619.0	4.00	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFTrDA_2	663.0 / 169.0	4.00	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFTeDA_1	713.0 / 669.0	4.22	13C2-PFOA	415.0 / 370.0	34256.83	100.00
PFTeDA_2	713.0 / 169.0	4.22	13C2-PFOA	415.0 / 370.0	34256.83	100.00
NMeFOSAA_1	570.0 / 419.0	3.30	d3-MeFOSAA	573.0 / 419.0	20120.23	400.00
NMeFOSAA_2	570.0 / 512.0	3.30	d3-MeFOSAA	573.0 / 419.0	20120.23	400.00
NEtFOSAA_1	584.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	20120.23	400.00
NEtFOSAA_2	584.0 / 483.0	3.46	d3-MeFOSAA	573.0 / 419.0	20120.23	400.00

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Summary Internal Standard Report

Created with Analyst Reporter
Printed: 29/05/2018 12:31:43 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	2018-05-17T12:19:05	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.70	13C2-PFOA	415.0 / 370.0	39448.61	100.00
13C2-PFDA	515.0 / 470.0	3.13	13C2-PFOA	415.0 / 370.0	39448.61	100.00
d5-EtFOSAA	589.0 / 419.0	3.45	d3-MeFOSAA	573.0 / 419.0	22774.90	400.00

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Summary Internal Standard Report

Created with Analyst Reporter
Printed: 24/05/2018 1:25:56 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	2018-05-17T14:17:42	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	120237.99	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	120237.99	287.00
PFHxA_1	313.0 / 269.0	1.72	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFHxA_2	313.0 / 119.0	1.72	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFHpA_1	363.0 / 319.0	2.07	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFHpA_2	363.0 / 169.0	2.08	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFHxS_1	399.0 / 80.0	2.09	13C4-PFOS	503.0 / 80.0	120237.99	287.00
PFHxS_2	399.0 / 99.0	2.09	13C4-PFOS	503.0 / 80.0	120237.99	287.00
PFOA_1	413.0 / 369.0	2.45	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFOA_2	413.0 / 169.0	2.45	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFNA_1	463.0 / 419.0	2.82	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFNA_2	463.0 / 219.0	2.82	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFOS_1	499.0 / 80.0	2.81	13C4-PFOS	503.0 / 80.0	120237.99	287.00
PFOS_2	499.0 / 99.0	2.81	13C4-PFOS	503.0 / 80.0	120237.99	287.00
PFDA_1	513.0 / 469.0	3.17	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFDA_2	513.0 / 219.0	3.16	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFUnA_1	563.0 / 519.0	3.49	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFUnA_2	563.0 / 269.0	3.48	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFDoA_1	613.0 / 569.0	3.77	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFDoA_2	613.0 / 319.0	3.77	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFTrDA_1	663.0 / 619.0	4.02	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFTrDA_2	663.0 / 169.0	4.02	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFTeDA_1	713.0 / 669.0	4.24	13C2-PFOA	415.0 / 370.0	35079.04	100.00
PFTeDA_2	713.0 / 169.0	4.24	13C2-PFOA	415.0 / 370.0	35079.04	100.00
NMeFOSAA_1	570.0 / 419.0	3.32	d3-MeFOSAA	573.0 / 419.0	19688.13	400.00
NMeFOSAA_2	570.0 / 512.0	3.32	d3-MeFOSAA	573.0 / 419.0	19688.13	400.00
NEtFOSAA_1	584.0 / 419.0	3.48	d3-MeFOSAA	573.0 / 419.0	19688.13	400.00
NEtFOSAA_2	584.0 / 483.0	3.47	d3-MeFOSAA	573.0 / 419.0	19688.13	400.00

Raw Analytical Data

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Summary Quant Report

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Sample Name	CQ770PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:58:44	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	true
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	true
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	true
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	true
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
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

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Sample Name	CQ770PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:58:44	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.69	98.958543	100.00	98.96
13C2-PFDA	515.0 / 470.0	3.14	93.825820	100.00	93.83
d5-EtFOSAA	589.0 / 419.0	3.45	430.374086	400.00	107.59

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Summary Quant Report

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Sample Name	CQ771LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:07:40	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	1064140.44	4038.228170	3823.0	false
PFBS_2	298.9 / 99.0	1.44	343706.06	4050.001682	632.7	false
PFHxA_1	313.0 / 269.0	1.71	1258016.42	5079.593656	832.5	false
PFHxA_2	313.0 / 119.0	1.71	90573.31	5317.076643	325.6	false
PFHpA_1	363.0 / 319.0	2.06	1109620.43	4897.499942	331.5	false
PFHpA_2	363.0 / 169.0	2.06	21896.32	4705.486859	251.0	false
PFHxS_1	399.0 / 80.0	2.08	1131559.99	4038.943309	482.6	false
PFHxS_2	399.0 / 99.0	2.08	329624.40	3941.136532	443.8	false
PFOA_1	413.0 / 369.0	2.43	1299992.63	4792.033737	435.2	false
PFOA_2	413.0 / 169.0	2.43	83722.61	4645.396625	390.9	false
PFNA_1	463.0 / 419.0	2.80	1343284.78	4888.861436	390.3	false
PFNA_2	463.0 / 219.0	2.80	391331.61	4768.218106	369.7	false
PFOS_1	499.0 / 80.0	2.80	1485034.80	3688.920611	407.5	false
PFOS_2	499.0 / 99.0	2.80	329404.26	4192.903432	413.2	false
PFDA_1	513.0 / 469.0	3.15	1392357.60	4639.589483	445.3	false
PFDA_2	513.0 / 219.0	3.15	51164.38	4618.622803	446.0	false
PFUnA_1	563.0 / 519.0	3.47	1432962.70	4569.240589	342.3	false
PFUnA_2	563.0 / 269.0	3.47	60977.38	4579.062695	277.8	false
PFDoA_1	613.0 / 569.0	3.76	1398305.08	4400.879883	312.7	false
PFDoA_2	613.0 / 319.0	3.76	225517.32	4633.957413	307.4	false
PFTrDA_1	663.0 / 619.0	4.01	1492481.10	5021.952351	399.3	false
PFTrDA_2	663.0 / 169.0	4.01	93473.13	5034.842668	442.3	false
PFTeDA_1	713.0 / 669.0	4.23	1997077.43	6491.751469	714.2	false
PFTeDA_2	713.0 / 169.0	4.23	93890.15	6521.216608	622.0	false
NMeFOSAA_1	570.0 / 419.0	3.31	188281.35	4274.224297	427.5	false
NMeFOSAA_2	570.0 / 512.0	3.30	104273.50	3932.599043	468.7	false
NEtFOSAA_1	584.0 / 419.0	3.47	191270.56	4500.257389	367.4	false
NEtFOSAA_2	584.0 / 483.0	3.46	11236.86	3806.253965	316.1	false

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QC Summary Report

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Sample Name	CQ771LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:07:40	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.69	117.820943	100.00	117.82
13C2-PFDA	515.0 / 470.0	3.14	111.373565	100.00	111.37
d5-EtFOSAA	589.0 / 419.0	3.46	397.345024	400.00	99.34

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Summary Quant Report

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Sample Name	J6204-FS(0)	**Injection Vial**	14
Sample ID	NAWC-051018-RW-303	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:16:38	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	486186.55	2006.776097	649.1	false
PFBS_2	298.9 / 99.0	1.44	149206.70	1911.482514	526.2	true
PFHxA_1	313.0 / 269.0	1.71	516821.86	2077.718062	284.0	false
PFHxA_2	313.0 / 119.0	1.70	34850.00	2052.057106	176.9	false
PFHpA_1	363.0 / 319.0	2.06	348263.90	1532.497768	139.4	false
PFHpA_2	363.0 / 169.0	2.04	8710.75	1861.838965	141.1	false
PFHxS_1	399.0 / 80.0	2.08	489847.83	1902.186978	258.2	false
PFHxS_2	399.0 / 99.0	2.08	138812.72	1798.915665	288.2	false
PFOA_1	413.0 / 369.0	2.43	1206370.31	4435.468275	367.5	false
PFOA_2	413.0 / 169.0	2.40	121023.18	6697.740214	403.9	false
PFNA_1	463.0 / 419.0	2.80	136043.14	492.277090	184.6	false
PFNA_2	463.0 / 219.0	2.80	40669.68	494.702901	198.0	false
PFOS_1	499.0 / 80.0	2.75	1668299.30	4505.604457	307.3	false
PFOS_2	499.0 / 99.0	2.79	251665.99	3482.430878	396.1	false
PFDA_1	513.0 / 469.0	3.15	35920.08	119.352750	135.5	false
PFDA_2	513.0 / 219.0	3.15	711.64	21.655394	33.1	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	3.76	2282.07	7.280719	31.1	true
PFDoA_2	613.0 / 319.0	3.78	540.07	12.329389	18.0	true
PFTrDA_1	663.0 / 619.0	4.00	2388.26	9.482813	33.5	false
PFTrDA_2	663.0 / 169.0	4.02	286.75	13.801261	17.1	true
PFTeDA_1	713.0 / 669.0	4.23	2318.63	7.631958	59.4	false
PFTeDA_2	713.0 / 169.0	4.23	189.88	14.481661	23.3	false
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

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Printed: 24/05/2018 1:11:08 PM

Sample Name	J6204-FS(0)	**Injection Vial**	14
Sample ID	NAWC-051018-RW-303	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:16:38	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.69	116.602339	100.00	116.60
13C2-PFDA	515.0 / 470.0	3.14	91.664578	100.00	91.66
d5-EtFOSAA	589.0 / 419.0	3.46	433.195892	400.00	108.30

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Summary Quant Report

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Sample Name	J6206-FS(0)	**Injection Vial**	15
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:25:33	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	7879058.45	28796.907387	1182.8	false
PFBS_2	298.9 / 99.0	1.44	2526923.17	28688.191324	1455.4	false
PFHxA_1	313.0 / 269.0	1.71	1027409.27	3373.195951	289.9	false
PFHxA_2	313.0 / 119.0	1.71	73169.76	3501.264991	240.8	false
PFHpA_1	363.0 / 319.0	2.06	566140.40	2032.436766	177.2	false
PFHpA_2	363.0 / 169.0	2.05	13223.63	2307.603836	182.9	false
PFHxS_1	399.0 / 80.0	2.08	1343374.09	4619.716442	293.5	false
PFHxS_2	399.0 / 99.0	2.08	373544.95	4304.286349	323.3	false
PFOA_1	413.0 / 369.0	2.43	927392.44	2778.845175	380.2	false
PFOA_2	413.0 / 169.0	2.42	82946.12	3745.044475	444.3	false
PFNA_1	463.0 / 419.0	2.80	181990.78	537.320075	184.9	false
PFNA_2	463.0 / 219.0	2.80	57960.66	575.005409	226.3	false
PFOS_1	499.0 / 80.0	2.79	3294822.19	7887.554553	309.2	false
PFOS_2	499.0 / 99.0	2.80	598816.14	7344.712045	399.6	false
PFDA_1	513.0 / 469.0	3.15	25421.27	68.879376	98.8	false
PFDA_2	513.0 / 219.0	3.16	1081.31	37.138374	64.2	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	4.22	838.42	2.331177	33.2	false
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

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Sample Name	J6206-FS(0)	**Injection Vial**	15
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:25:33	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.70	118.923402	100.00	118.92
13C2-PFDA	515.0 / 470.0	3.14	83.335037	100.00	83.34
d5-EtFOSAA	589.0 / 419.0	3.46	457.098519	400.00	114.27

BATTELLE

Summary Quant Report

Created with Analyst Reporter
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Sample Name	J6206-FS-D(3)	**Injection Vial**	12
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T13:50:54	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	300455.56	976.588076	1154.5	true
PFBS_2	298.9 / 99.0	1.45	99561.13	1003.455241	463.9	false
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

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Summary Quant Report

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Sample Name	J6206MS-FS(0)	**Injection Vial**	16
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:34:29	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	9190998.00	36848.899658	1398.2	false
PFBS_2	298.9 / 99.0	1.44	2951465.08	36757.411730	1675.4	false
PFHxA_1	313.0 / 269.0	1.71	3108335.71	11148.625044	468.2	true
PFHxA_2	313.0 / 119.0	1.71	219390.46	11411.219646	376.9	true
PFHpA_1	363.0 / 319.0	2.07	2361238.87	9251.887933	352.7	true
PFHpA_2	363.0 / 169.0	2.06	49058.16	9366.996191	375.4	false
PFHxS_1	399.0 / 80.0	2.09	2970453.02	11201.967884	404.1	true
PFHxS_2	399.0 / 99.0	2.09	844625.39	10691.082246	423.2	true
PFOA_1	413.0 / 369.0	2.44	2685649.55	8792.930988	490.5	true
PFOA_2	413.0 / 169.0	2.44	213287.68	10502.682199	454.3	false
PFNA_1	463.0 / 419.0	2.81	1924518.21	6217.789342	386.9	true
PFNA_2	463.0 / 219.0	2.81	621130.21	6717.730069	433.2	false
PFOS_1	499.0 / 80.0	2.80	5133387.55	13481.620211	395.8	false
PFOS_2	499.0 / 99.0	2.81	968532.07	13031.994938	451.5	false
PFDA_1	513.0 / 469.0	3.16	2036958.60	6024.928936	354.4	true
PFDA_2	513.0 / 219.0	3.16	78149.00	6277.237566	501.6	false
PFUnA_1	563.0 / 519.0	3.48	1969232.34	5573.823687	286.3	true
PFUnA_2	563.0 / 269.0	3.48	84212.91	5614.349013	289.7	true
PFDoA_1	613.0 / 569.0	3.76	2044486.78	5711.619109	271.5	true
PFDoA_2	613.0 / 319.0	3.76	334325.07	6097.511989	284.4	false
PFTrDA_1	663.0 / 619.0	4.02	2085705.30	6229.196816	368.3	true
PFTrDA_2	663.0 / 169.0	4.02	135594.88	6483.559156	330.9	true
PFTeDA_1	713.0 / 669.0	4.23	2846238.66	8212.524647	681.6	true
PFTeDA_2	713.0 / 169.0	4.23	138652.97	8547.847719	732.2	false
NMeFOSAA_1	570.0 / 419.0	3.31	272725.66	6595.892851	348.5	false
NMeFOSAA_2	570.0 / 512.0	3.31	147210.99	5924.981700	341.0	false
NEtFOSAA_1	584.0 / 419.0	3.47	248331.36	6234.360595	313.9	true
NEtFOSAA_2	584.0 / 483.0	3.47	14010.08	5063.718300	281.7	false

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QC Summary Report

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Sample Name	J6206MS-FS(0)	**Injection Vial**	16
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:34:29	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.70	124.191303	100.00	124.19
13C2-PFDA	515.0 / 470.0	3.15	98.028229	100.00	98.03
d5-EtFOSAA	589.0 / 419.0	3.46	350.294004	400.00	87.57

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Summary Quant Report

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Sample Name	J6206MS-FS-D(3)	**Injection Vial**	13
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T13:59:51	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	312983.21	1268.101918	1212.7	false
PFBS_2	298.9 / 99.0	1.45	104210.02	1309.787436	490.3	false
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	2.82	249358.73	659.528883	314.3	true
PFOS_2	499.0 / 99.0	2.82	45256.86	613.769722	275.9	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	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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Summary Quant Report

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Sample Name	J6206MSD-FS(0)	**Injection Vial**	17
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:43:24	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	8320558.21	35371.205821	1397.2	false
PFBS_2	298.9 / 99.0	1.44	2654290.40	35050.192480	1542.1	false
PFHxA_1	313.0 / 269.0	1.71	2978043.62	12101.707956	483.9	false
PFHxA_2	313.0 / 119.0	1.71	208917.72	12309.503904	363.9	false
PFHpA_1	363.0 / 319.0	2.06	2237137.73	9930.903755	356.8	false
PFHpA_2	363.0 / 169.0	2.06	42328.42	9156.156223	352.0	false
PFHxS_1	399.0 / 80.0	2.08	2911402.53	11641.385156	440.1	false
PFHxS_2	399.0 / 99.0	2.08	834054.69	11194.505444	401.2	false
PFOA_1	413.0 / 369.0	2.43	2602639.46	9654.469969	433.6	false
PFOA_2	413.0 / 169.0	2.43	191785.29	10699.173571	416.2	false
PFNA_1	463.0 / 419.0	2.80	1891997.88	6925.470308	358.6	false
PFNA_2	463.0 / 219.0	2.80	568992.21	6971.832441	386.2	false
PFOS_1	499.0 / 80.0	2.80	4723694.01	13153.862076	402.3	false
PFOS_2	499.0 / 99.0	2.80	911771.31	13008.204283	419.0	false
PFDA_1	513.0 / 469.0	3.15	1920125.58	6434.299886	432.0	false
PFDA_2	513.0 / 219.0	3.15	75869.08	6908.470300	483.1	false
PFUnA_1	563.0 / 519.0	3.47	1802003.46	5778.495343	329.2	false
PFUnA_2	563.0 / 269.0	3.47	79514.54	6006.065278	311.7	false
PFDoA_1	613.0 / 569.0	3.76	1915179.44	6061.576929	303.9	false
PFDoA_2	613.0 / 319.0	3.76	285399.03	5897.134030	286.1	false
PFTrDA_1	663.0 / 619.0	4.01	1839038.04	6222.596769	379.0	false
PFTrDA_2	663.0 / 169.0	4.01	114744.73	6215.842707	347.7	false
PFTeDA_1	713.0 / 669.0	4.23	2322379.30	7591.729897	722.5	false
PFTeDA_2	713.0 / 169.0	4.23	108270.03	7562.169234	606.0	false
NMeFOSAA_1	570.0 / 419.0	3.31	244374.27	6568.337191	355.0	false
NMeFOSAA_2	570.0 / 512.0	3.31	128693.25	5756.392185	385.4	false
NEtFOSAA_1	584.0 / 419.0	3.47	220479.90	6151.472587	375.7	false
NEtFOSAA_2	584.0 / 483.0	3.47	12828.84	5152.975048	353.7	false

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QC Summary Report

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Sample Name	J6206MSD-FS(0)	**Injection Vial**	17
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:43:24	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.70	125.423345	100.00	125.42
13C2-PFDA	515.0 / 470.0	3.14	101.654229	100.00	101.65
d5-EtFOSAA	589.0 / 419.0	3.46	349.277169	400.00	87.32

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Summary Quant Report

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Sample Name	J6206MSD-FS-D(3)	**Injection Vial**	14
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T14:08:46	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	305826.05	1241.255043	1215.8	false
PFBS_2	298.9 / 99.0	1.45	99106.13	1247.768900	461.2	false
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	2.82	248439.90	658.214630	295.7	true
PFOS_2	499.0 / 99.0	2.82	46630.78	633.502674	298.5	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	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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Summary Quant Report

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Sample Name	J6208-FS(0)	**Injection Vial**	18
Sample ID	NAWC-051018-RW-177	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:52:20	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	442240.14	1586.328670	608.8	true
PFBS_2	298.9 / 99.0	1.43	148604.31	1654.040550	485.2	false
PFHxA_1	313.0 / 269.0	1.71	567214.09	1952.810854	291.2	false
PFHxA_2	313.0 / 119.0	1.71	38879.67	1961.757003	211.7	false
PFHpA_1	363.0 / 319.0	2.06	361268.51	1361.554418	137.7	false
PFHpA_2	363.0 / 169.0	2.04	9432.45	1726.244662	137.4	false
PFHxS_1	399.0 / 80.0	2.07	1828249.97	6162.289361	399.5	false
PFHxS_2	399.0 / 99.0	2.07	518377.57	5858.970215	387.8	false
PFOA_1	413.0 / 369.0	2.43	1137178.54	3580.086540	385.5	false
PFOA_2	413.0 / 169.0	2.40	111854.81	5302.722051	383.5	false
PFNA_1	463.0 / 419.0	2.79	122648.98	379.736291	180.0	false
PFNA_2	463.0 / 219.0	2.80	36753.25	383.032088	201.9	false
PFOS_1	499.0 / 80.0	2.77	3420376.48	8026.661129	317.2	false
PFOS_2	499.0 / 99.0	2.79	598078.94	7190.982036	430.5	false
PFDA_1	513.0 / 469.0	3.14	12035.76	34.222845	66.5	false
PFDA_2	513.0 / 219.0	3.16	1061.00	39.574565	48.2	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	4.23	3283.09	9.232228	85.3	false
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

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Sample Name	J6208-FS(0)	**Injection Vial**	18
Sample ID	NAWC-051018-RW-177	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:52:20	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.70	82.938640	100.00	82.94
13C2-PFDA	515.0 / 470.0	3.14	81.177512	100.00	81.18
d5-EtFOSAA	589.0 / 419.0	3.45	342.370757	400.00	85.59

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Summary Quant Report

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Sample Name	J6210-FS(0)	**Injection Vial**	19
Sample ID	WGNA-051018-RW-3295	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:01:14	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	606860.74	2549.752492	691.1	false
PFBS_2	298.9 / 99.0	1.44	191430.63	2496.815097	521.8	false
PFHxA_1	313.0 / 269.0	1.71	2295179.80	8792.212234	495.4	false
PFHxA_2	313.0 / 119.0	1.71	163661.37	9096.940862	358.9	false
PFHpA_1	363.0 / 319.0	2.06	659099.21	2757.816656	206.3	false
PFHpA_2	363.0 / 169.0	2.05	14819.36	3016.429797	221.2	false
PFHxS_1	399.0 / 80.0	2.08	146726.29	581.908248	181.7	false
PFHxS_2	399.0 / 99.0	2.08	40251.47	524.034953	123.1	false
PFOA_1	413.0 / 369.0	2.44	2375947.29	8309.222706	459.3	false
PFOA_2	413.0 / 169.0	2.43	181964.44	9571.618158	417.6	false
PFNA_1	463.0 / 419.0	2.80	132604.20	455.968274	176.9	false
PFNA_2	463.0 / 219.0	2.80	40377.68	466.883345	196.3	false
PFOS_1	499.0 / 80.0	2.71	416001.74	1142.870742	318.6	false
PFOS_2	499.0 / 99.0	2.76	53163.82	748.424301	220.8	false
PFDA_1	513.0 / 469.0	3.15	5050.05	15.910848	25.2	true
PFDA_2	513.0 / 219.0	3.13	180.10	< 0	11.4	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	4.24	866.42	2.784141	32.7	false
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

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Sample Name	J6210-FS(0)	**Injection Vial**	19
Sample ID	WGNA-051018-RW-3295	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:01:14	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.70	118.044287	100.00	118.04
13C2-PFDA	515.0 / 470.0	3.14	79.445785	100.00	79.45
d5-EtFOSAA	589.0 / 419.0	3.46	312.220980	400.00	78.06

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Summary Quant Report

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Sample Name	J6212-FS(0)	**Injection Vial**	20
Sample ID	WGNA-051018-DUP-36	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:10:10	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	418176.86	1761.441561	624.6	false
PFBS_2	298.9 / 99.0	1.44	131742.68	1722.131588	447.9	false
PFHxA_1	313.0 / 269.0	1.71	456615.11	1835.863429	273.6	false
PFHxA_2	313.0 / 119.0	1.71	28062.75	1656.820876	163.2	true
PFHpA_1	363.0 / 319.0	2.06	285163.56	1255.271191	133.1	false
PFHpA_2	363.0 / 169.0	2.04	7419.84	1585.411464	117.8	false
PFHxS_1	399.0 / 80.0	2.08	401065.93	1589.560153	254.3	false
PFHxS_2	399.0 / 99.0	2.08	113227.33	1495.539611	258.5	false
PFOA_1	413.0 / 369.0	2.43	1035127.80	3806.944876	345.7	false
PFOA_2	413.0 / 169.0	2.40	105539.22	5844.089946	407.4	false
PFNA_1	463.0 / 419.0	2.80	112379.47	406.548453	166.5	false
PFNA_2	463.0 / 219.0	2.80	34453.83	419.378594	194.7	false
PFOS_1	499.0 / 80.0	2.75	1372659.08	3782.416045	279.7	true
PFOS_2	499.0 / 99.0	2.79	218982.31	3091.775060	300.9	false
PFDA_1	513.0 / 469.0	3.15	26929.92	89.516523	119.3	false
PFDA_2	513.0 / 219.0	3.14	874.56	36.503872	48.5	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	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

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Sample Name	J6212-FS(0)	**Injection Vial**	20
Sample ID	WGNA-051018-DUP-36	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:10:10	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.70	102.336437	100.00	102.34
13C2-PFDA	515.0 / 470.0	3.14	79.704892	100.00	79.70
d5-EtFOSAA	589.0 / 419.0	3.46	308.216663	400.00	77.05

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Summary Ion Ratio Report

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Sample Name	CQ770PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:58:44	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	N/A	PFBS			
PFBS_2	298.9 / 99.0	N/A	PFBS	N/A	0.327	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.056	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	0.335	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.062	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.294	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.194	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	0.044	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.152	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.046	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.642	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	CQ771LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:07:40	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.323	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.072	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.291	0.335	ü
PFOA_1	413.0 / 369.0	2.43	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.064	0.062	ü
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.291	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.80	PFOS	0.222	0.194	ü
PFDA_1	513.0 / 469.0	3.15	PFDA			
PFDA_2	513.0 / 219.0	3.15	PFDA	0.037	0.041	ü
PFUnA_1	563.0 / 519.0	3.47	PFUnA			
PFUnA_2	563.0 / 269.0	3.47	PFUnA	0.043	0.044	ü
PFDoA_1	613.0 / 569.0	3.76	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.161	0.152	ü
PFTrDA_1	663.0 / 619.0	4.01	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.01	PFTrDA	0.063	0.064	ü
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.047	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.30	NMeFOSAA	0.554	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.47	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.46	NEtFOSSA	0.059	0.071	ü

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Summary Ion Ratio Report

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Sample Name	J6204-FS(0)	**Injection Vial**	14
Sample ID	NAWC-051018-RW-303	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:16:38	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.307	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.70	PFHxA	0.067	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.04	PFHpA	0.025	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.283	0.335	ü
PFOA_1	413.0 / 369.0	2.43	PFOA			
PFOA_2	413.0 / 169.0	2.40	PFOA	0.100	0.062	
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.299	0.294	ü
PFOS_1	499.0 / 80.0	2.75	PFOS			
PFOS_2	499.0 / 99.0	2.79	PFOS	0.151	0.194	ü
PFDA_1	513.0 / 469.0	3.15	PFDA			
PFDA_2	513.0 / 219.0	3.15	PFDA	0.020	0.041	
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.044	ü
PFDoA_1	613.0 / 569.0	3.76	PFDoA			
PFDoA_2	613.0 / 319.0	3.78	PFDoA	0.237	0.152	
PFTrDA_1	663.0 / 619.0	4.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.02	PFTrDA	0.120	0.064	
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.082	0.046	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.642	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	J6206-FS(0)	**Injection Vial**	15
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:25:33	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.321	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.071	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.05	PFHpA	0.023	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.278	0.335	ü
PFOA_1	413.0 / 369.0	2.43	PFOA			
PFOA_2	413.0 / 169.0	2.42	PFOA	0.089	0.062	ü
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.319	0.294	ü
PFOS_1	499.0 / 80.0	2.79	PFOS			
PFOS_2	499.0 / 99.0	2.80	PFOS	0.182	0.194	ü
PFDA_1	513.0 / 469.0	3.15	PFDA			
PFDA_2	513.0 / 219.0	3.16	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	0.044	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.152	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	4.22	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.046	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.642	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	J6206-FS-D(3)	**Injection Vial**	12
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T13:50:54	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	0.331	0.327	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.056	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	0.335	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.062	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.294	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.194	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	0.044	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.152	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.046	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.642	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	J6206MS-FS(0)	**Injection Vial**	16
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:34:29	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.45	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.321	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.071	0.056	ü
PFHpA_1	363.0 / 319.0	2.07	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.021	0.022	ü
PFHxS_1	399.0 / 80.0	2.09	PFHxS			
PFHxS_2	399.0 / 99.0	2.09	PFHxS	0.284	0.335	ü
PFOA_1	413.0 / 369.0	2.44	PFOA			
PFOA_2	413.0 / 169.0	2.44	PFOA	0.079	0.062	ü
PFNA_1	463.0 / 419.0	2.81	PFNA			
PFNA_2	463.0 / 219.0	2.81	PFNA	0.323	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.81	PFOS	0.189	0.194	ü
PFDA_1	513.0 / 469.0	3.16	PFDA			
PFDA_2	513.0 / 219.0	3.16	PFDA	0.038	0.041	ü
PFUnA_1	563.0 / 519.0	3.48	PFUnA			
PFUnA_2	563.0 / 269.0	3.48	PFUnA	0.043	0.044	ü
PFDoA_1	613.0 / 569.0	3.76	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.164	0.152	ü
PFTrDA_1	663.0 / 619.0	4.02	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.02	PFTrDA	0.065	0.064	ü
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.049	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.31	NMeFOSAA	0.540	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.47	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.47	NEtFOSSA	0.056	0.071	ü

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Summary Ion Ratio Report

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Sample Name	J6206MS-FS-D(3)	**Injection Vial**	13
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T13:59:51	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	0.333	0.327	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.056	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	0.335	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.062	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.294	ü
PFOS_1	499.0 / 80.0	2.82	PFOS			
PFOS_2	499.0 / 99.0	2.82	PFOS	0.182	0.194	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	0.044	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.152	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.046	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.642	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	J6206MSD-FS(0)	**Injection Vial**	17
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:43:24	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.319	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.070	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.019	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.287	0.335	ü
PFOA_1	413.0 / 369.0	2.43	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.074	0.062	ü
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.301	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.80	PFOS	0.193	0.194	ü
PFDA_1	513.0 / 469.0	3.15	PFDA			
PFDA_2	513.0 / 219.0	3.15	PFDA	0.040	0.041	ü
PFUnA_1	563.0 / 519.0	3.47	PFUnA			
PFUnA_2	563.0 / 269.0	3.47	PFUnA	0.044	0.044	ü
PFDoA_1	613.0 / 569.0	3.76	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.149	0.152	ü
PFTrDA_1	663.0 / 619.0	4.01	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.01	PFTrDA	0.062	0.064	ü
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.047	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.31	NMeFOSAA	0.527	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.47	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.47	NEtFOSSA	0.058	0.071	ü

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Summary Ion Ratio Report

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Sample Name	J6206MSD-FS-D(3)	**Injection Vial**	14
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T14:08:46	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	0.324	0.327	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.056	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	0.335	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.062	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.294	ü
PFOS_1	499.0 / 80.0	2.82	PFOS			
PFOS_2	499.0 / 99.0	2.82	PFOS	0.188	0.194	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	0.044	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.152	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.046	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.642	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	J6208-FS(0)	**Injection Vial**	18
Sample ID	NAWC-051018-RW-177	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:52:20	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.43	PFBS	0.336	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.069	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.04	PFHpA	0.026	0.022	ü
PFHxS_1	399.0 / 80.0	2.07	PFHxS			
PFHxS_2	399.0 / 99.0	2.07	PFHxS	0.284	0.335	ü
PFOA_1	413.0 / 369.0	2.43	PFOA			
PFOA_2	413.0 / 169.0	2.40	PFOA	0.098	0.062	
PFNA_1	463.0 / 419.0	2.79	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.300	0.294	ü
PFOS_1	499.0 / 80.0	2.77	PFOS			
PFOS_2	499.0 / 99.0	2.79	PFOS	0.175	0.194	ü
PFDA_1	513.0 / 469.0	3.14	PFDA			
PFDA_2	513.0 / 219.0	3.16	PFDA	0.088	0.041	
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.044	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.152	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.046	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.642	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	J6210-FS(0)	**Injection Vial**	19
Sample ID	WGNA-051018-RW-3295	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:01:14	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.45	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.315	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.071	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.05	PFHpA	0.023	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.274	0.335	ü
PFOA_1	413.0 / 369.0	2.44	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.077	0.062	ü
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.305	0.294	ü
PFOS_1	499.0 / 80.0	2.71	PFOS			
PFOS_2	499.0 / 99.0	2.76	PFOS	0.128	0.194	ü
PFDA_1	513.0 / 469.0	3.15	PFDA			
PFDA_2	513.0 / 219.0	3.13	PFDA	0.036	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.044	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.152	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	4.24	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.046	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.642	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	J6212-FS(0)	**Injection Vial**	20
Sample ID	WGNA-051018-DUP-36	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:10:10	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.315	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.062	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.04	PFHpA	0.026	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.282	0.335	ü
PFOA_1	413.0 / 369.0	2.43	PFOA			
PFOA_2	413.0 / 169.0	2.40	PFOA	0.102	0.062	
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.307	0.294	ü
PFOS_1	499.0 / 80.0	2.75	PFOS			
PFOS_2	499.0 / 99.0	2.79	PFOS	0.160	0.194	ü
PFDA_1	513.0 / 469.0	3.15	PFDA			
PFDA_2	513.0 / 219.0	3.14	PFDA	0.033	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.044	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.152	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.046	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.642	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	CQ770PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:58:44	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	80251.05	287.00
PFBS_2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	80251.05	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	80251.05	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	80251.05	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	80251.05	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	80251.05	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	25041.26	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	13850.01	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	13850.01	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	13850.01	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	13850.01	400.00

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Summary Internal Standard Report

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Sample Name	CQ770PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:58:44	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.69	13C2-PFOA	415.0 / 370.0	24680.63	100.00
13C2-PFDA	515.0 / 470.0	3.14	13C2-PFOA	415.0 / 370.0	24680.63	100.00
d5-EtFOSAA	589.0 / 419.0	3.45	d3-MeFOSAA	573.0 / 419.0	13366.10	400.00

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Summary Internal Standard Report

Created with Analyst Reporter
Printed: 24/05/2018 1:14:03 PM

Sample Name	CQ771LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:07:40	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	93637.06	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	93637.06	287.00
PFHxA_1	313.0 / 269.0	1.71	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFHxA_2	313.0 / 119.0	1.71	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFHpA_1	363.0 / 319.0	2.06	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFHpA_2	363.0 / 169.0	2.06	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFHxS_1	399.0 / 80.0	2.08	13C4-PFOS	503.0 / 80.0	93637.06	287.00
PFHxS_2	399.0 / 99.0	2.08	13C4-PFOS	503.0 / 80.0	93637.06	287.00
PFOA_1	413.0 / 369.0	2.43	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFOA_2	413.0 / 169.0	2.43	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFNA_1	463.0 / 419.0	2.80	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFNA_2	463.0 / 219.0	2.80	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFOS_1	499.0 / 80.0	2.80	13C4-PFOS	503.0 / 80.0	93637.06	287.00
PFOS_2	499.0 / 99.0	2.80	13C4-PFOS	503.0 / 80.0	93637.06	287.00
PFDA_1	513.0 / 469.0	3.15	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFDA_2	513.0 / 219.0	3.15	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFUnA_1	563.0 / 519.0	3.47	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFUnA_2	563.0 / 269.0	3.47	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFDoA_1	613.0 / 569.0	3.76	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFDoA_2	613.0 / 319.0	3.76	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFTrDA_1	663.0 / 619.0	4.01	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFTrDA_2	663.0 / 169.0	4.01	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFTeDA_1	713.0 / 669.0	4.23	13C2-PFOA	415.0 / 370.0	26377.79	100.00
PFTeDA_2	713.0 / 169.0	4.23	13C2-PFOA	415.0 / 370.0	26377.79	100.00
NMeFOSAA_1	570.0 / 419.0	3.31	d3-MeFOSAA	573.0 / 419.0	16239.54	400.00
NMeFOSAA_2	570.0 / 512.0	3.30	d3-MeFOSAA	573.0 / 419.0	16239.54	400.00
NEtFOSAA_1	584.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	16239.54	400.00
NEtFOSAA_2	584.0 / 483.0	3.46	d3-MeFOSAA	573.0 / 419.0	16239.54	400.00

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Summary Internal Standard Report

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Sample Name	CQ771LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:07:40	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.69	13C2-PFOA	415.0 / 370.0	26377.79	100.00
13C2-PFDA	515.0 / 470.0	3.14	13C2-PFOA	415.0 / 370.0	26377.79	100.00
d5-EtFOSAA	589.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	16239.54	400.00

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Summary Internal Standard Report

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Sample Name	J6204-FS(0)	**Injection Vial**	14
Sample ID	NAWC-051018-RW-303	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:16:38	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	86131.12	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	86131.12	287.00
PFHxA_1	313.0 / 269.0	1.71	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFHxA_2	313.0 / 119.0	1.70	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFHpA_1	363.0 / 319.0	2.06	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFHpA_2	363.0 / 169.0	2.04	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFHxS_1	399.0 / 80.0	2.08	13C4-PFOS	503.0 / 80.0	86131.12	287.00
PFHxS_2	399.0 / 99.0	2.08	13C4-PFOS	503.0 / 80.0	86131.12	287.00
PFOA_1	413.0 / 369.0	2.43	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFOA_2	413.0 / 169.0	2.40	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFNA_1	463.0 / 419.0	2.80	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFNA_2	463.0 / 219.0	2.80	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFOS_1	499.0 / 80.0	2.75	13C4-PFOS	503.0 / 80.0	86131.12	287.00
PFOS_2	499.0 / 99.0	2.79	13C4-PFOS	503.0 / 80.0	86131.12	287.00
PFDA_1	513.0 / 469.0	3.15	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFDA_2	513.0 / 219.0	3.15	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFDoA_1	613.0 / 569.0	3.76	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFDoA_2	613.0 / 319.0	3.78	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFTrDA_1	663.0 / 619.0	4.00	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFTrDA_2	663.0 / 169.0	4.02	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFTeDA_1	713.0 / 669.0	4.23	13C2-PFOA	415.0 / 370.0	26443.06	100.00
PFTeDA_2	713.0 / 169.0	4.23	13C2-PFOA	415.0 / 370.0	26443.06	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	13414.75	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	13414.75	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	13414.75	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	13414.75	400.00

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Summary Internal Standard Report

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Sample Name	J6204-FS(0)	**Injection Vial**	14
Sample ID	NAWC-051018-RW-303	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:16:38	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.69	13C2-PFOA	415.0 / 370.0	26443.06	100.00
13C2-PFDA	515.0 / 470.0	3.14	13C2-PFOA	415.0 / 370.0	26443.06	100.00
d5-EtFOSAA	589.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	12743.77	400.00

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Summary Internal Standard Report

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Sample Name	J6206-FS(0)	**Injection Vial**	15
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:25:33	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	97181.69	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	97181.69	287.00
PFHxA_1	313.0 / 269.0	1.71	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFHxA_2	313.0 / 119.0	1.71	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFHpA_1	363.0 / 319.0	2.06	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFHpA_2	363.0 / 169.0	2.05	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFHxS_1	399.0 / 80.0	2.08	13C4-PFOS	503.0 / 80.0	97181.69	287.00
PFHxS_2	399.0 / 99.0	2.08	13C4-PFOS	503.0 / 80.0	97181.69	287.00
PFOA_1	413.0 / 369.0	2.43	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFOA_2	413.0 / 169.0	2.42	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFNA_1	463.0 / 419.0	2.80	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFNA_2	463.0 / 219.0	2.80	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFOS_1	499.0 / 80.0	2.79	13C4-PFOS	503.0 / 80.0	97181.69	287.00
PFOS_2	499.0 / 99.0	2.80	13C4-PFOS	503.0 / 80.0	97181.69	287.00
PFDA_1	513.0 / 469.0	3.15	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFDA_2	513.0 / 219.0	3.16	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFTeDA_1	713.0 / 669.0	4.22	13C2-PFOA	415.0 / 370.0	32418.61	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	32418.61	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14663.00	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	14663.00	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14663.00	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	14663.00	400.00

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Summary Internal Standard Report

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Sample Name	J6206-FS(0)	**Injection Vial**	15
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:25:33	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.70	13C2-PFOA	415.0 / 370.0	32418.61	100.00
13C2-PFDA	515.0 / 470.0	3.14	13C2-PFOA	415.0 / 370.0	32418.61	100.00
d5-EtFOSAA	589.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	14663.00	400.00

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Summary Internal Standard Report

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Sample Name	J6206-FS-D(3)	**Injection Vial**	12
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T13:50:54	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	109491.15	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	109491.15	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	109491.15	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	109491.15	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	109491.15	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	109491.15	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30571.36	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	20093.09	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	20093.09	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	20093.09	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	20093.09	400.00

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Summary Internal Standard Report

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Sample Name	J6206MS-FS(0)	**Injection Vial**	16
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:34:29	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	88590.59	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	88590.59	287.00
PFHxA_1	313.0 / 269.0	1.71	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFHxA_2	313.0 / 119.0	1.71	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFHpA_1	363.0 / 319.0	2.07	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFHpA_2	363.0 / 169.0	2.06	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFHxS_1	399.0 / 80.0	2.09	13C4-PFOS	503.0 / 80.0	88590.59	287.00
PFHxS_2	399.0 / 99.0	2.09	13C4-PFOS	503.0 / 80.0	88590.59	287.00
PFOA_1	413.0 / 369.0	2.44	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFOA_2	413.0 / 169.0	2.44	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFNA_1	463.0 / 419.0	2.81	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFNA_2	463.0 / 219.0	2.81	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFOS_1	499.0 / 80.0	2.80	13C4-PFOS	503.0 / 80.0	88590.59	287.00
PFOS_2	499.0 / 99.0	2.81	13C4-PFOS	503.0 / 80.0	88590.59	287.00
PFDA_1	513.0 / 469.0	3.16	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFDA_2	513.0 / 219.0	3.16	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFUnA_1	563.0 / 519.0	3.48	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFUnA_2	563.0 / 269.0	3.48	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFDoA_1	613.0 / 569.0	3.76	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFDoA_2	613.0 / 319.0	3.76	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFTrDA_1	663.0 / 619.0	4.02	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFTrDA_2	663.0 / 169.0	4.02	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFTeDA_1	713.0 / 669.0	4.23	13C2-PFOA	415.0 / 370.0	29716.55	100.00
PFTeDA_2	713.0 / 169.0	4.23	13C2-PFOA	415.0 / 370.0	29716.55	100.00
NMeFOSAA_1	570.0 / 419.0	3.31	d3-MeFOSAA	573.0 / 419.0	15216.29	400.00
NMeFOSAA_2	570.0 / 512.0	3.31	d3-MeFOSAA	573.0 / 419.0	15216.29	400.00
NEtFOSAA_1	584.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	15216.29	400.00
NEtFOSAA_2	584.0 / 483.0	3.47	d3-MeFOSAA	573.0 / 419.0	15216.29	400.00

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Summary Internal Standard Report

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Sample Name	J6206MS-FS(0)	**Injection Vial**	16
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:34:29	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.70	13C2-PFOA	415.0 / 370.0	29716.55	100.00
13C2-PFDA	515.0 / 470.0	3.15	13C2-PFOA	415.0 / 370.0	29716.55	100.00
d5-EtFOSAA	589.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	15216.29	400.00

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Summary Internal Standard Report

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Sample Name	J6206MS-FS-D(3)	**Injection Vial**	13
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T13:59:51	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	87795.79	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	87795.79	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	87795.79	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	87795.79	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFOS_1	499.0 / 80.0	2.82	13C4-PFOS	503.0 / 80.0	87795.79	287.00
PFOS_2	499.0 / 99.0	2.82	13C4-PFOS	503.0 / 80.0	87795.79	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	23996.88	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	15643.60	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	15643.60	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	15643.60	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	15643.60	400.00

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Summary Internal Standard Report

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Sample Name	J6206MSD-FS(0)	**Injection Vial**	17
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:43:24	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	83551.26	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	83551.26	287.00
PFHxA_1	313.0 / 269.0	1.71	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFHxA_2	313.0 / 119.0	1.71	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFHpA_1	363.0 / 319.0	2.06	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFHpA_2	363.0 / 169.0	2.06	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFHxS_1	399.0 / 80.0	2.08	13C4-PFOS	503.0 / 80.0	83551.26	287.00
PFHxS_2	399.0 / 99.0	2.08	13C4-PFOS	503.0 / 80.0	83551.26	287.00
PFOA_1	413.0 / 369.0	2.43	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFOA_2	413.0 / 169.0	2.43	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFNA_1	463.0 / 419.0	2.80	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFNA_2	463.0 / 219.0	2.80	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFOS_1	499.0 / 80.0	2.80	13C4-PFOS	503.0 / 80.0	83551.26	287.00
PFOS_2	499.0 / 99.0	2.80	13C4-PFOS	503.0 / 80.0	83551.26	287.00
PFDA_1	513.0 / 469.0	3.15	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFDA_2	513.0 / 219.0	3.15	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFUnA_1	563.0 / 519.0	3.47	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFUnA_2	563.0 / 269.0	3.47	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFDoA_1	613.0 / 569.0	3.76	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFDoA_2	613.0 / 319.0	3.76	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFTrDA_1	663.0 / 619.0	4.01	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFTrDA_2	663.0 / 169.0	4.01	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFTeDA_1	713.0 / 669.0	4.23	13C2-PFOA	415.0 / 370.0	26229.90	100.00
PFTeDA_2	713.0 / 169.0	4.23	13C2-PFOA	415.0 / 370.0	26229.90	100.00
NMeFOSAA_1	570.0 / 419.0	3.31	d3-MeFOSAA	573.0 / 419.0	13691.85	400.00
NMeFOSAA_2	570.0 / 512.0	3.31	d3-MeFOSAA	573.0 / 419.0	13691.85	400.00
NEtFOSAA_1	584.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	13691.85	400.00
NEtFOSAA_2	584.0 / 483.0	3.47	d3-MeFOSAA	573.0 / 419.0	13691.85	400.00

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Summary Internal Standard Report

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Sample Name	J6206MSD-FS(0)	**Injection Vial**	17
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:43:24	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.70	13C2-PFOA	415.0 / 370.0	26229.90	100.00
13C2-PFDA	515.0 / 470.0	3.14	13C2-PFOA	415.0 / 370.0	26229.90	100.00
d5-EtFOSAA	589.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	13691.85	400.00

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Summary Internal Standard Report

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Sample Name	J6206MSD-FS-D(3)	**Injection Vial**	14
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T14:08:46	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	87646.58	287.00
PFBS_2	298.9 / 99.0	1.45	13C4-PFOS	503.0 / 80.0	87646.58	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	87646.58	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	87646.58	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFOS_1	499.0 / 80.0	2.82	13C4-PFOS	503.0 / 80.0	87646.58	287.00
PFOS_2	499.0 / 99.0	2.82	13C4-PFOS	503.0 / 80.0	87646.58	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	25308.76	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14417.85	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	14417.85	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14417.85	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	14417.85	400.00

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Summary Internal Standard Report

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Sample Name	J6208-FS(0)	**Injection Vial**	18
Sample ID	NAWC-051018-RW-177	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:52:20	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	99136.85	287.00
PFBS_2	298.9 / 99.0	1.43	13C4-PFOS	503.0 / 80.0	99136.85	287.00
PFHxA_1	313.0 / 269.0	1.71	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFHxA_2	313.0 / 119.0	1.71	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFHpA_1	363.0 / 319.0	2.06	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFHpA_2	363.0 / 169.0	2.04	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFHxS_1	399.0 / 80.0	2.07	13C4-PFOS	503.0 / 80.0	99136.85	287.00
PFHxS_2	399.0 / 99.0	2.07	13C4-PFOS	503.0 / 80.0	99136.85	287.00
PFOA_1	413.0 / 369.0	2.43	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFOA_2	413.0 / 169.0	2.40	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFNA_1	463.0 / 419.0	2.79	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFNA_2	463.0 / 219.0	2.80	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFOS_1	499.0 / 80.0	2.77	13C4-PFOS	503.0 / 80.0	99136.85	287.00
PFOS_2	499.0 / 99.0	2.79	13C4-PFOS	503.0 / 80.0	99136.85	287.00
PFDA_1	513.0 / 469.0	3.14	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFDA_2	513.0 / 219.0	3.16	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFTeDA_1	713.0 / 669.0	4.23	13C2-PFOA	415.0 / 370.0	30871.32	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30871.32	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	16530.28	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	16530.28	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	16530.28	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	16530.28	400.00

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Summary Internal Standard Report

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Sample Name	J6208-FS(0)	**Injection Vial**	18
Sample ID	NAWC-051018-RW-177	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:52:20	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.70	13C2-PFOA	415.0 / 370.0	30871.32	100.00
13C2-PFDA	515.0 / 470.0	3.14	13C2-PFOA	415.0 / 370.0	30871.32	100.00
d5-EtFOSAA	589.0 / 419.0	3.45	d3-MeFOSAA	573.0 / 419.0	16530.28	400.00

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Summary Internal Standard Report

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Sample Name	J6210-FS(0)	**Injection Vial**	19
Sample ID	WGNA-051018-RW-3295	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:01:14	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	84597.10	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	84597.10	287.00
PFHxA_1	313.0 / 269.0	1.71	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFHxA_2	313.0 / 119.0	1.71	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFHpA_1	363.0 / 319.0	2.06	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFHpA_2	363.0 / 169.0	2.05	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFHxS_1	399.0 / 80.0	2.08	13C4-PFOS	503.0 / 80.0	84597.10	287.00
PFHxS_2	399.0 / 99.0	2.08	13C4-PFOS	503.0 / 80.0	84597.10	287.00
PFOA_1	413.0 / 369.0	2.44	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFOA_2	413.0 / 169.0	2.43	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFNA_1	463.0 / 419.0	2.80	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFNA_2	463.0 / 219.0	2.80	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFOS_1	499.0 / 80.0	2.71	13C4-PFOS	503.0 / 80.0	84597.10	287.00
PFOS_2	499.0 / 99.0	2.76	13C4-PFOS	503.0 / 80.0	84597.10	287.00
PFDA_1	513.0 / 469.0	3.15	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFDA_2	513.0 / 219.0	3.13	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFTeDA_1	713.0 / 669.0	4.24	13C2-PFOA	415.0 / 370.0	27818.94	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	27818.94	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	13922.51	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	13922.51	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	13922.51	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	13922.51	400.00

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Summary Internal Standard Report

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Sample Name	J6210-FS(0)	**Injection Vial**	19
Sample ID	WGNA-051018-RW-3295	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:01:14	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.70	13C2-PFOA	415.0 / 370.0	27818.94	100.00
13C2-PFDA	515.0 / 470.0	3.14	13C2-PFOA	415.0 / 370.0	27818.94	100.00
d5-EtFOSAA	589.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	13922.51	400.00

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Summary Internal Standard Report

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Sample Name	J6212-FS(0)	**Injection Vial**	20
Sample ID	WGNA-051018-DUP-36	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:10:10	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.44	13C4-PFOS	503.0 / 80.0	84412.70	287.00
PFBS_2	298.9 / 99.0	1.44	13C4-PFOS	503.0 / 80.0	84412.70	287.00
PFHxA_1	313.0 / 269.0	1.71	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFHxA_2	313.0 / 119.0	1.71	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFHpA_1	363.0 / 319.0	2.06	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFHpA_2	363.0 / 169.0	2.04	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFHxS_1	399.0 / 80.0	2.08	13C4-PFOS	503.0 / 80.0	84412.70	287.00
PFHxS_2	399.0 / 99.0	2.08	13C4-PFOS	503.0 / 80.0	84412.70	287.00
PFOA_1	413.0 / 369.0	2.43	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFOA_2	413.0 / 169.0	2.40	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFNA_1	463.0 / 419.0	2.80	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFNA_2	463.0 / 219.0	2.80	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFOS_1	499.0 / 80.0	2.75	13C4-PFOS	503.0 / 80.0	84412.70	287.00
PFOS_2	499.0 / 99.0	2.79	13C4-PFOS	503.0 / 80.0	84412.70	287.00
PFDA_1	513.0 / 469.0	3.15	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFDA_2	513.0 / 219.0	3.14	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	26429.20	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	26429.20	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14449.90	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	14449.90	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14449.90	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	14449.90	400.00

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Summary Internal Standard Report

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Sample Name	J6212-FS(0)	**Injection Vial**	20
Sample ID	WGNA-051018-DUP-36	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:10:10	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFHxA	315.0 / 270.0	1.70	13C2-PFOA	415.0 / 370.0	26429.20	100.00
13C2-PFDA	515.0 / 470.0	3.14	13C2-PFOA	415.0 / 370.0	26429.20	100.00
d5-EtFOSAA	589.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	14449.90	400.00

Chromatograms

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Chromatogram Report

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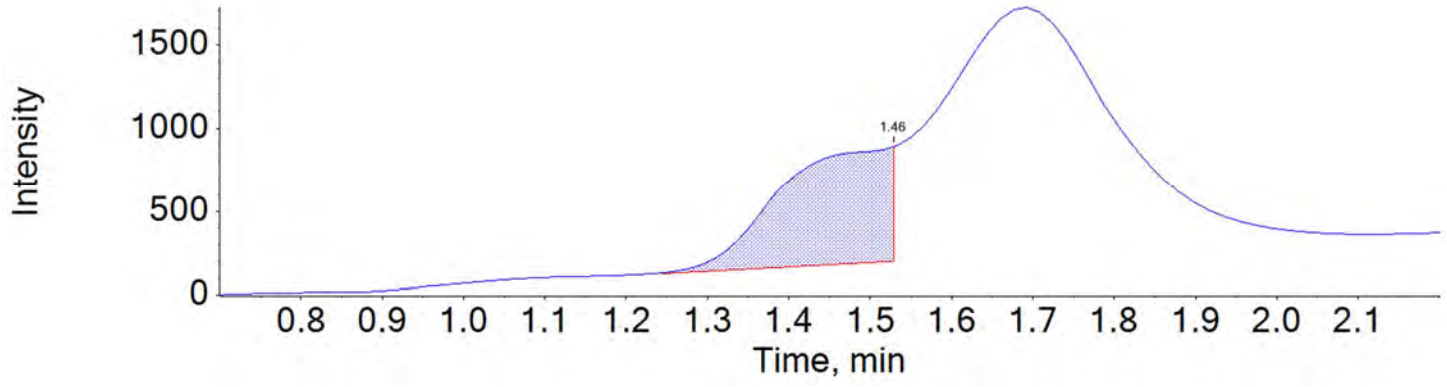
Printed: 24/05/2018 1:05:20 PM

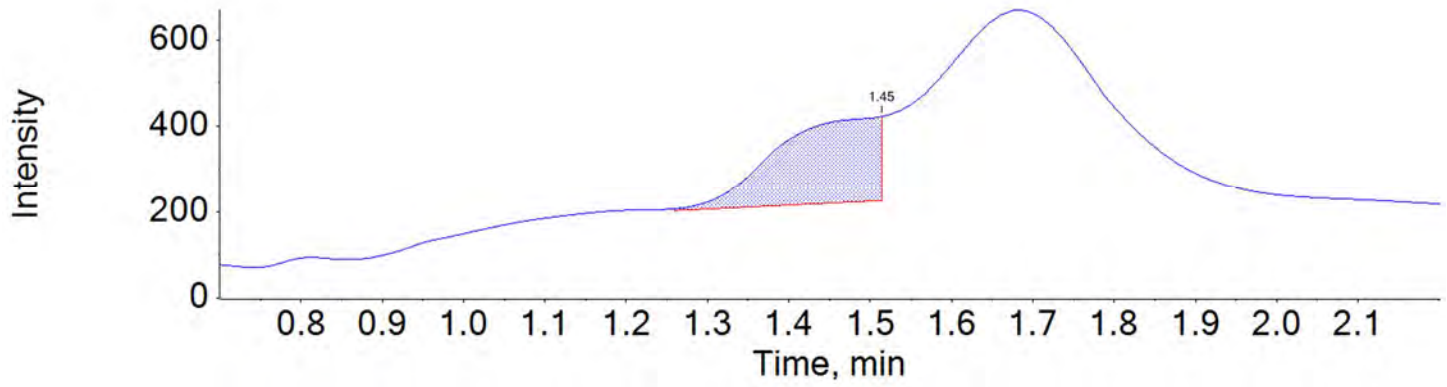
Sample Name	JV64	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T09:20:34	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

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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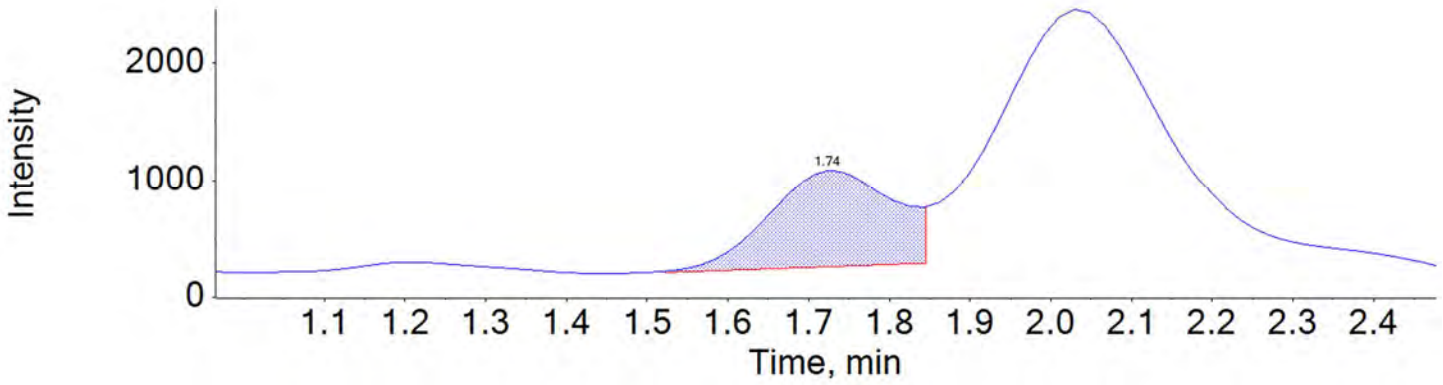
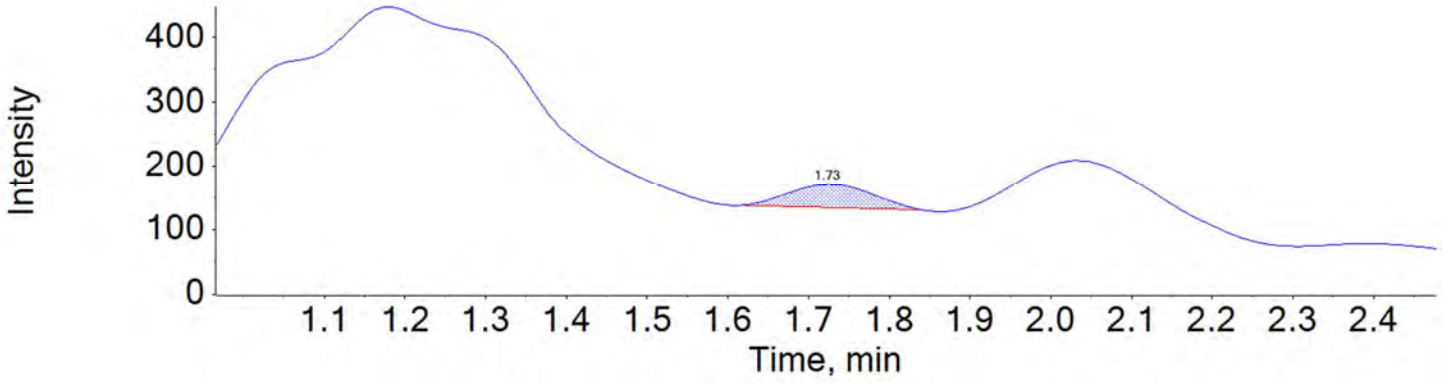
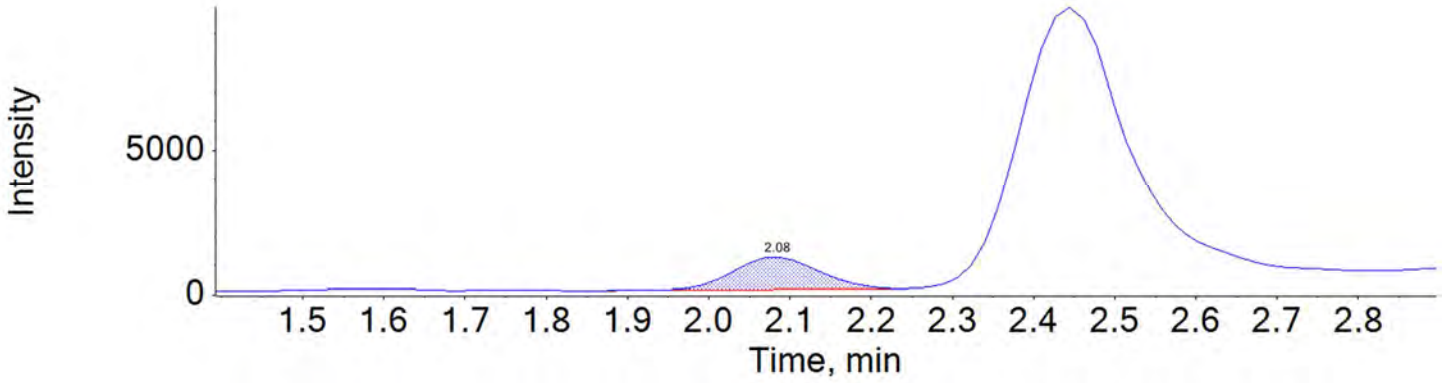
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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Chromatogram Report

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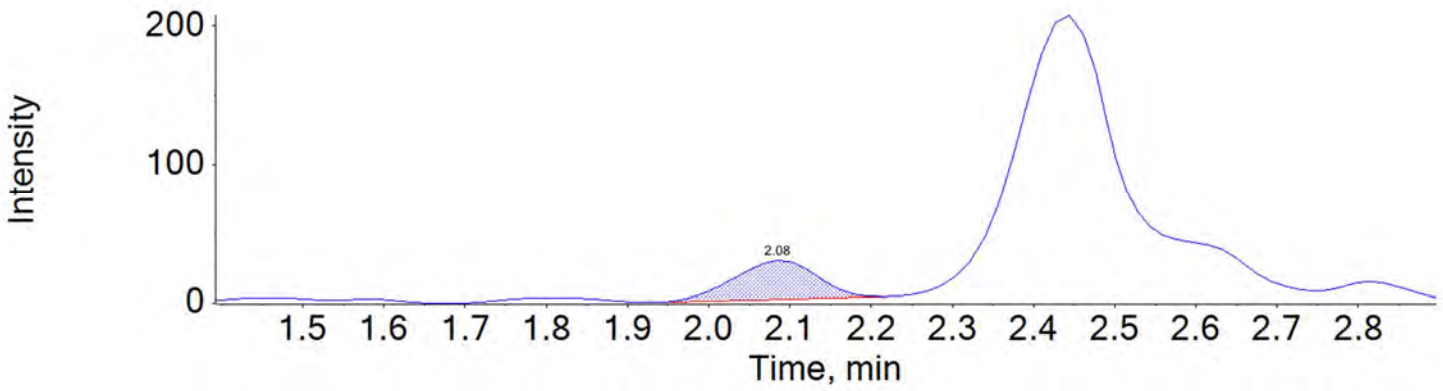
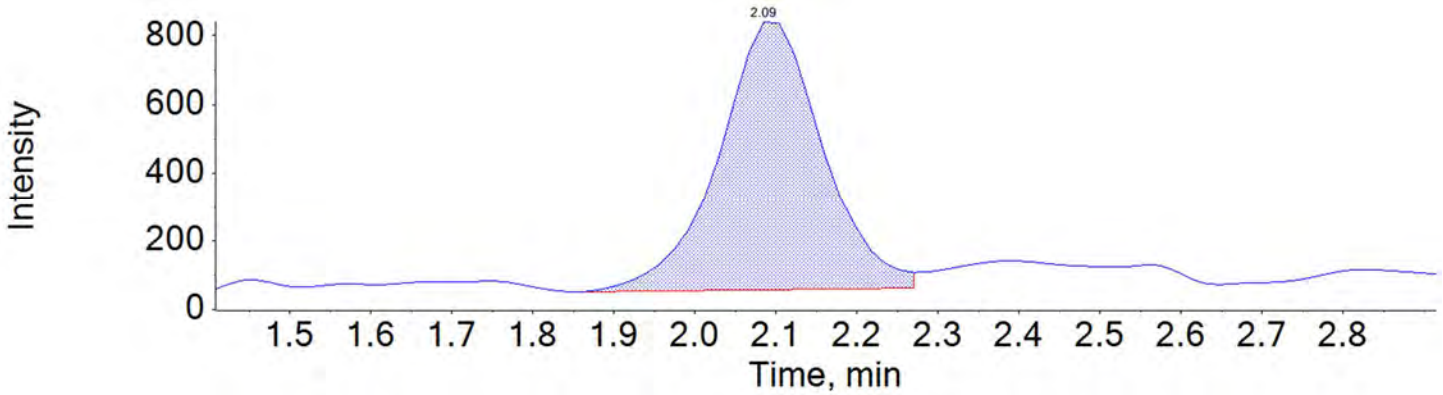
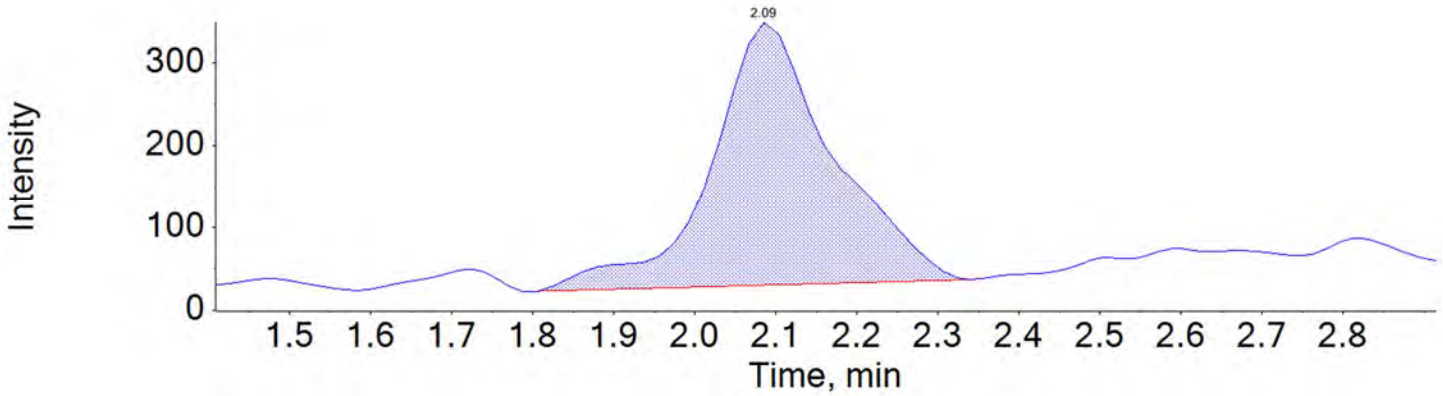
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



PFHxS_2 399.0 / 99.0



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Chromatogram Report

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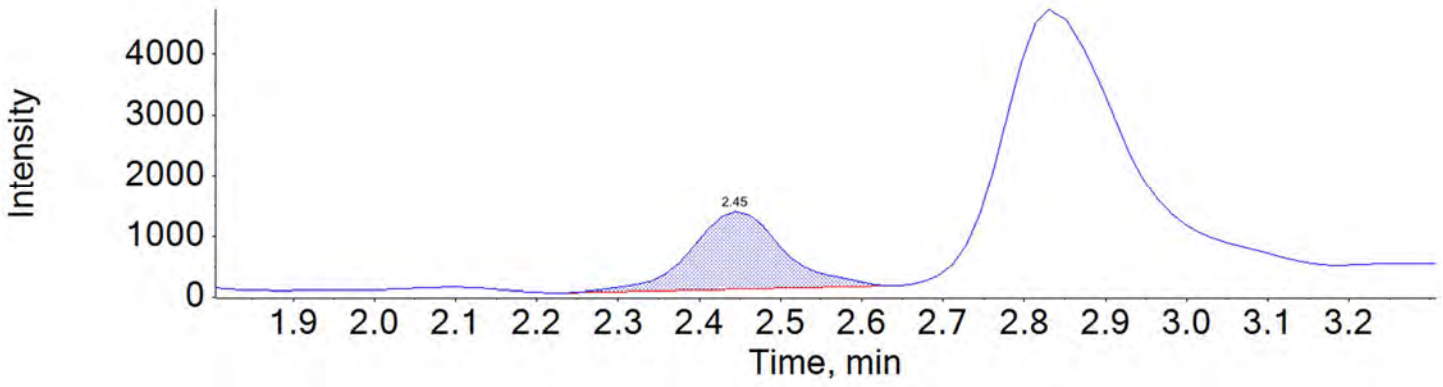
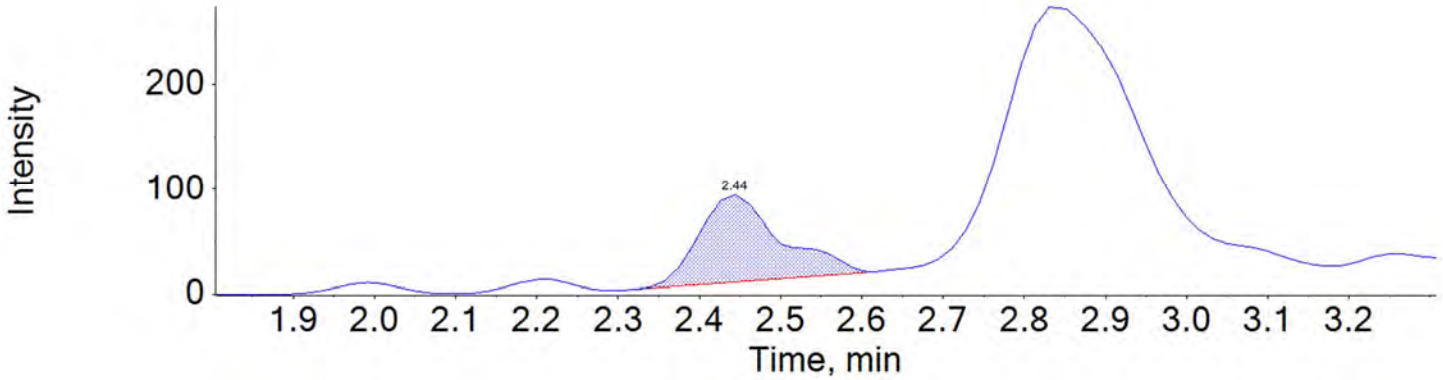
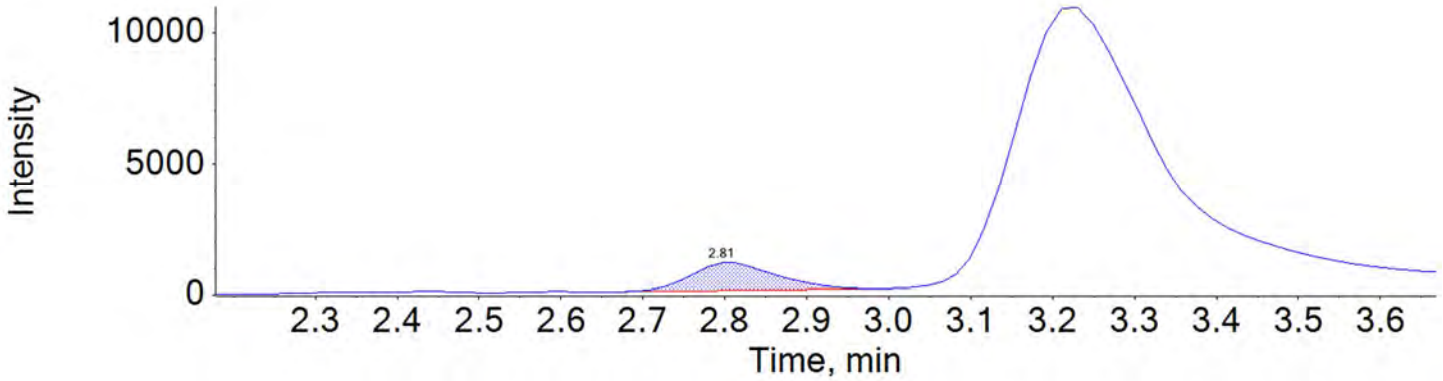
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



PFNA_1 463.0 / 419.0



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Chromatogram Report

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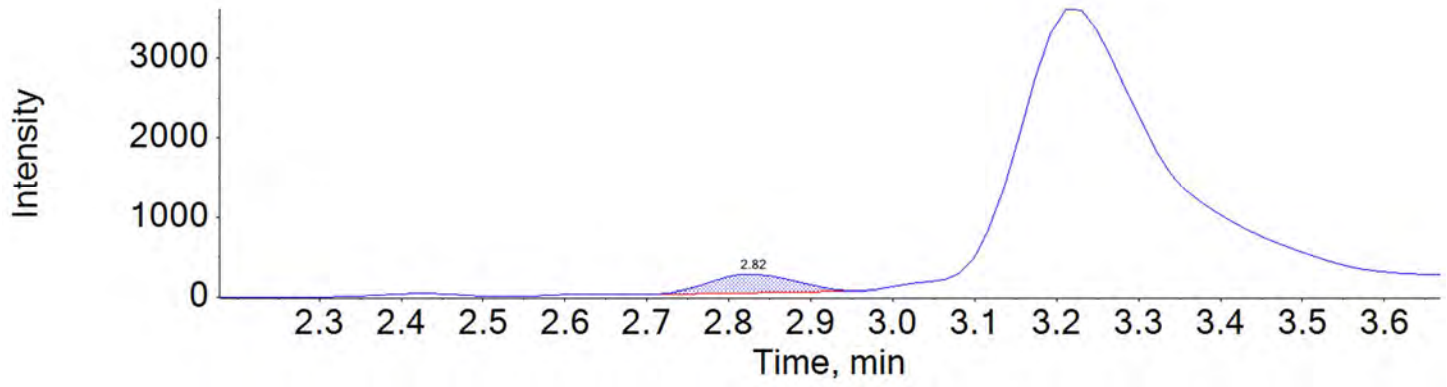
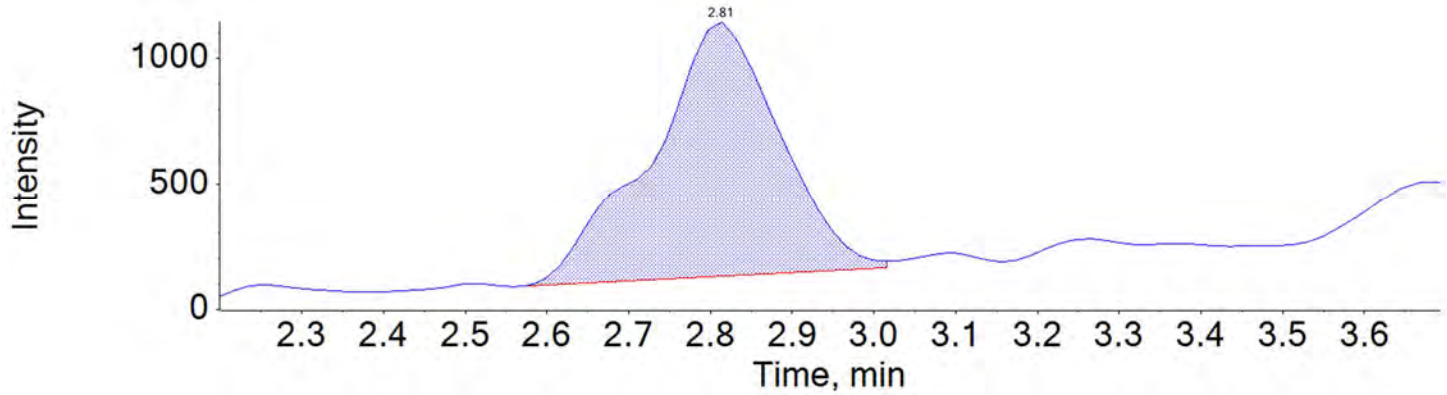
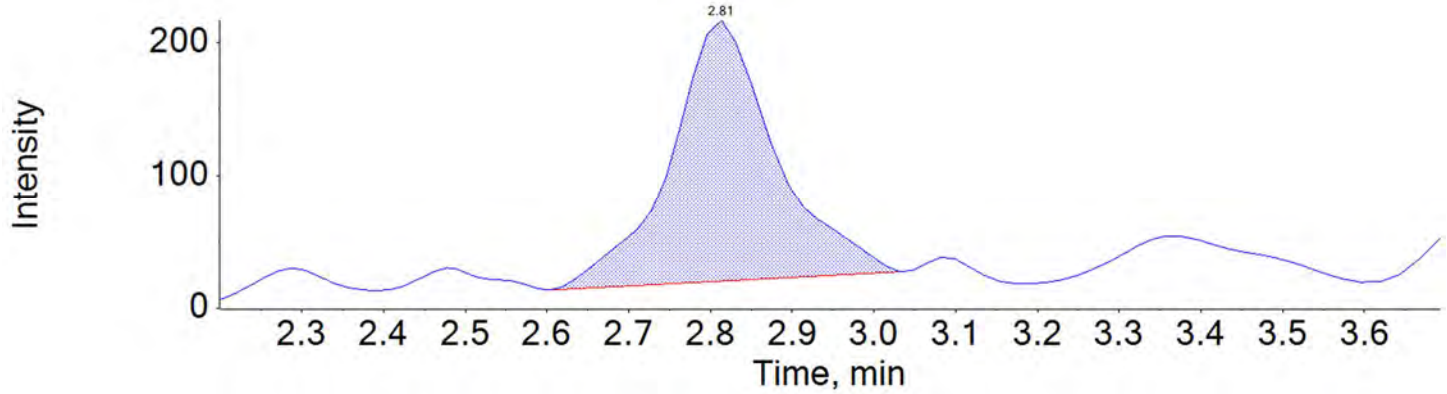
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



PFOS_2 499.0 / 99.0



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Chromatogram Report

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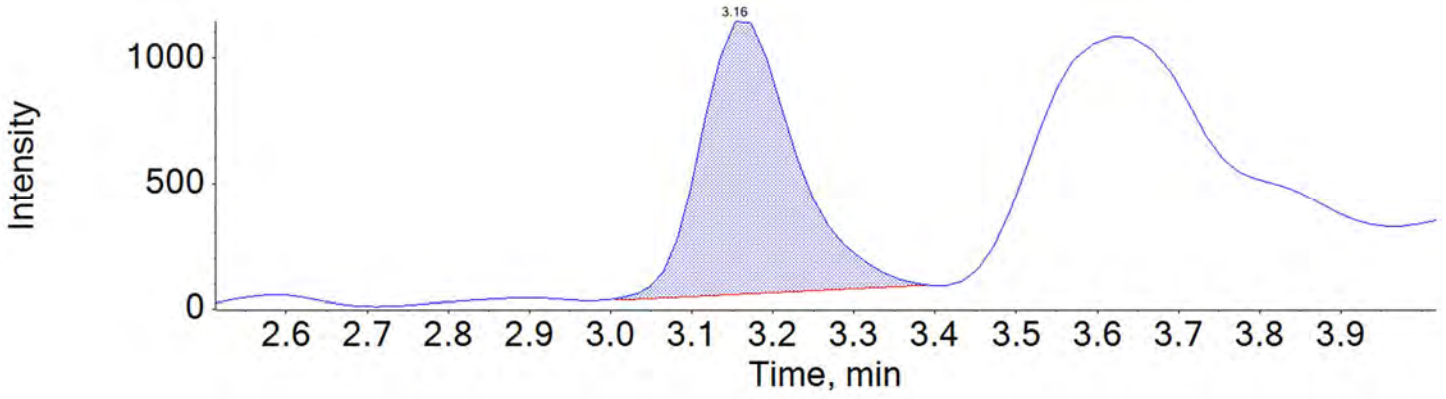
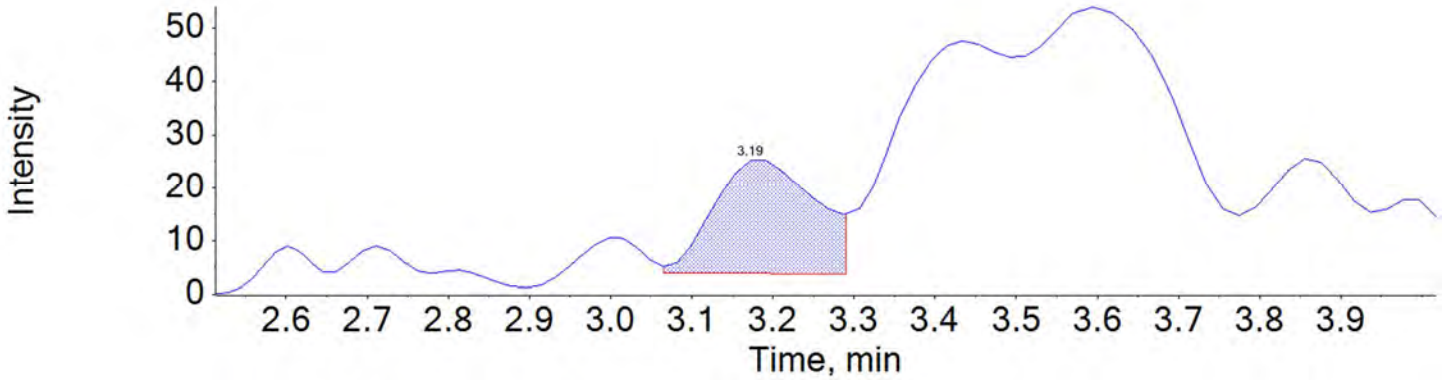
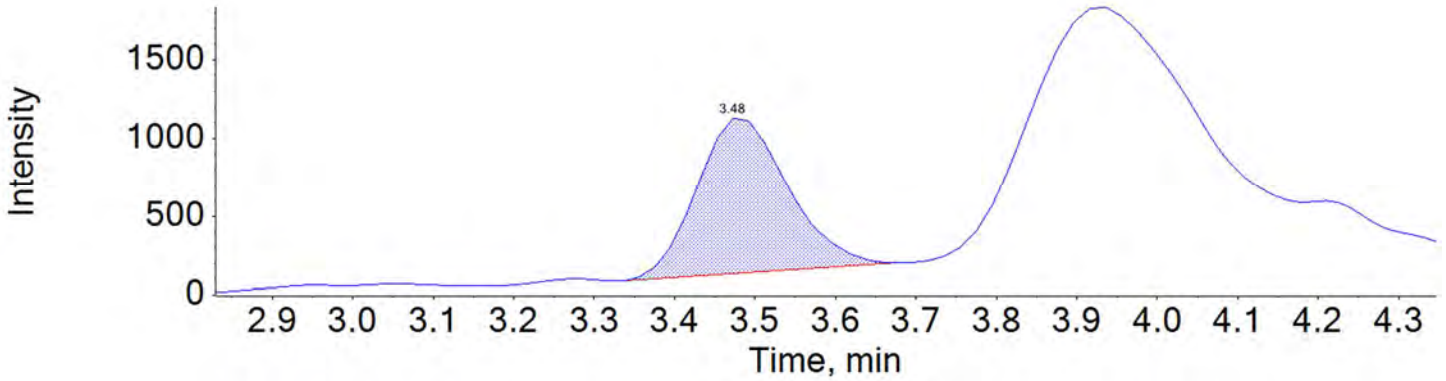
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



PFUnA_1 563.0 / 519.0



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Chromatogram Report

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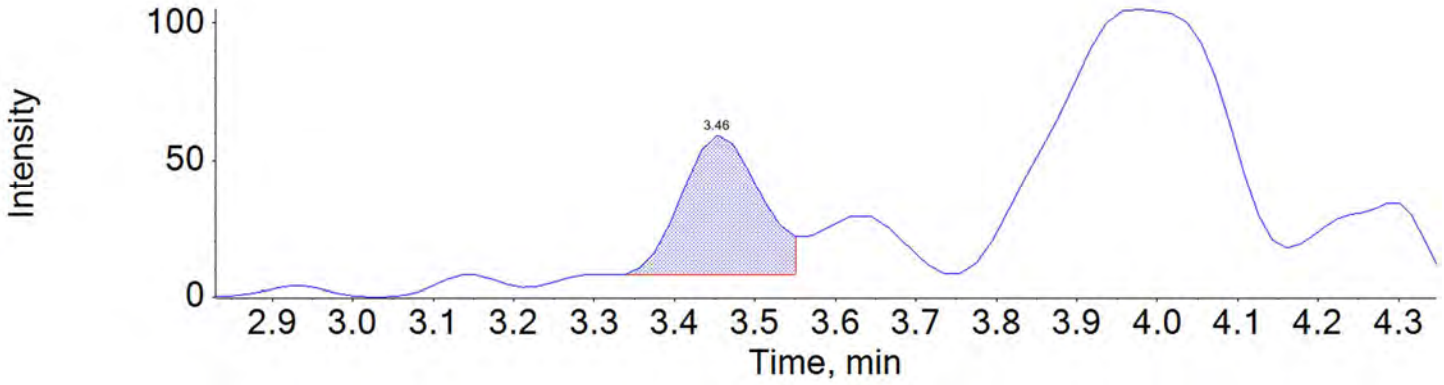
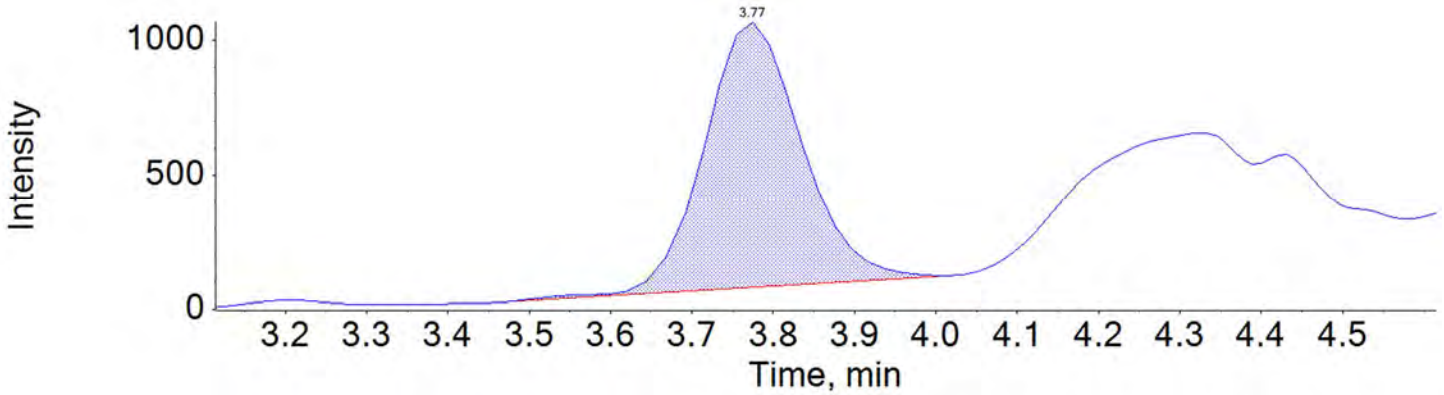
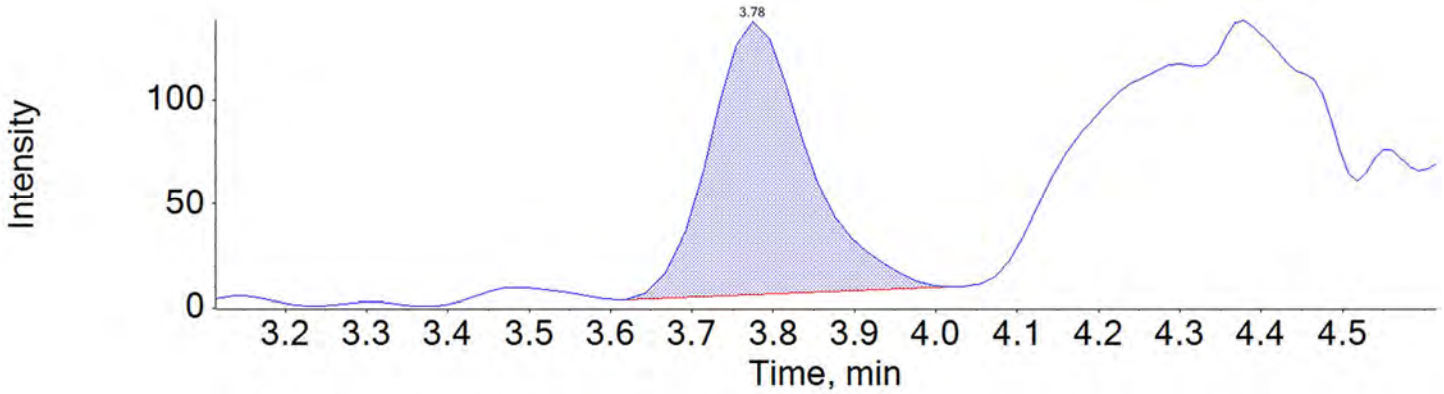
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



PFDoA_2 613.0 / 319.0



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Chromatogram Report

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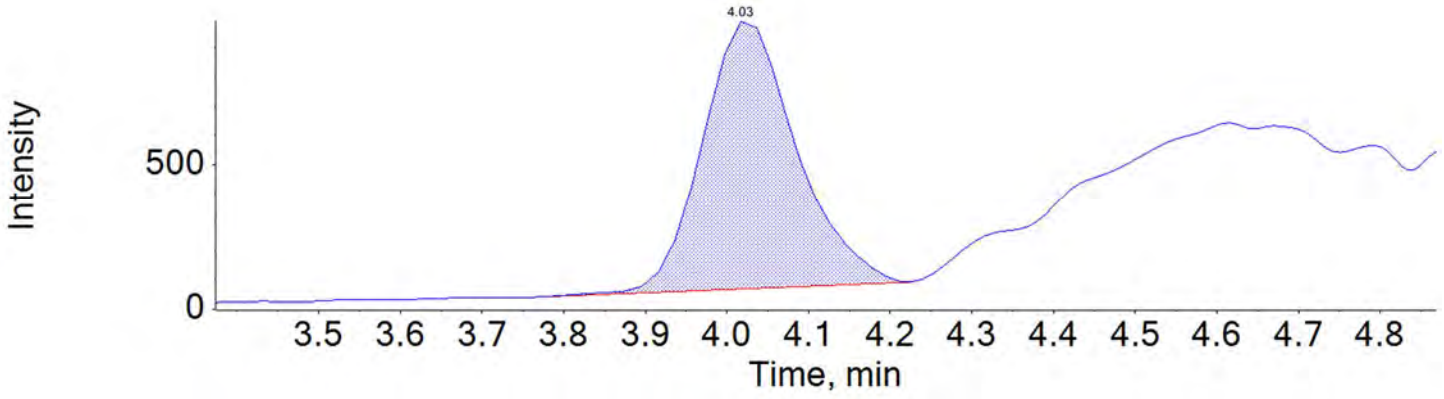
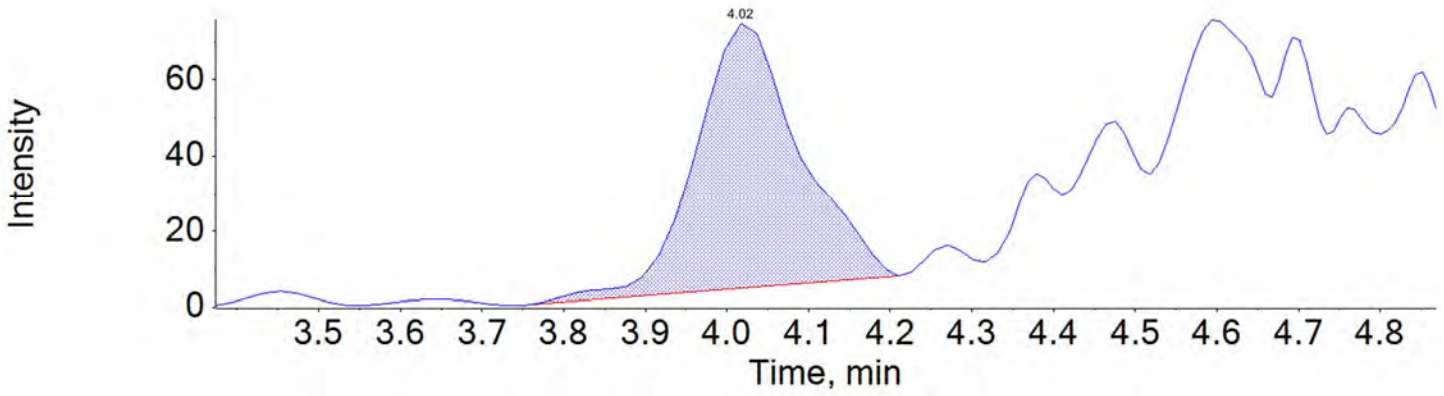
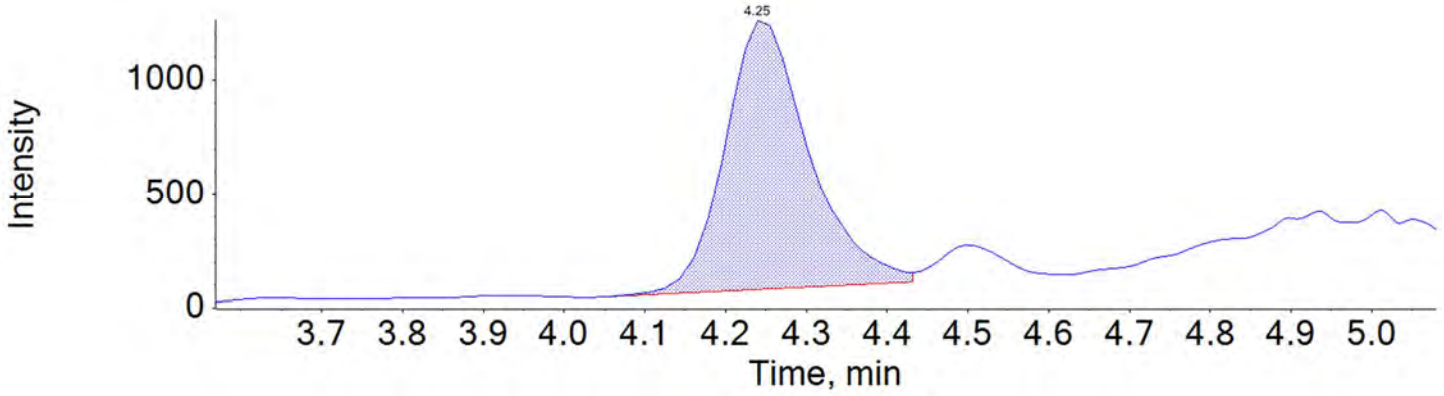
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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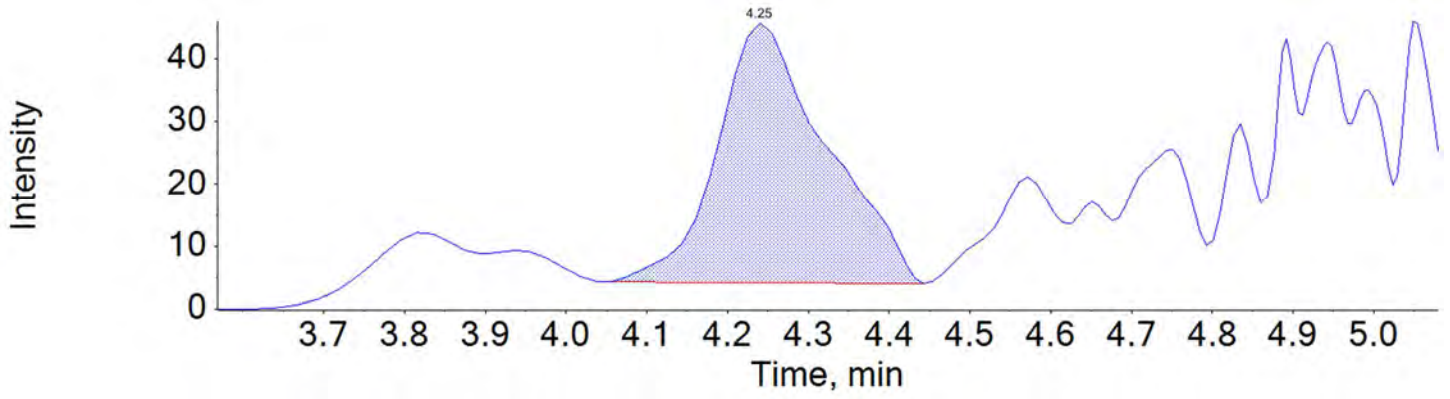
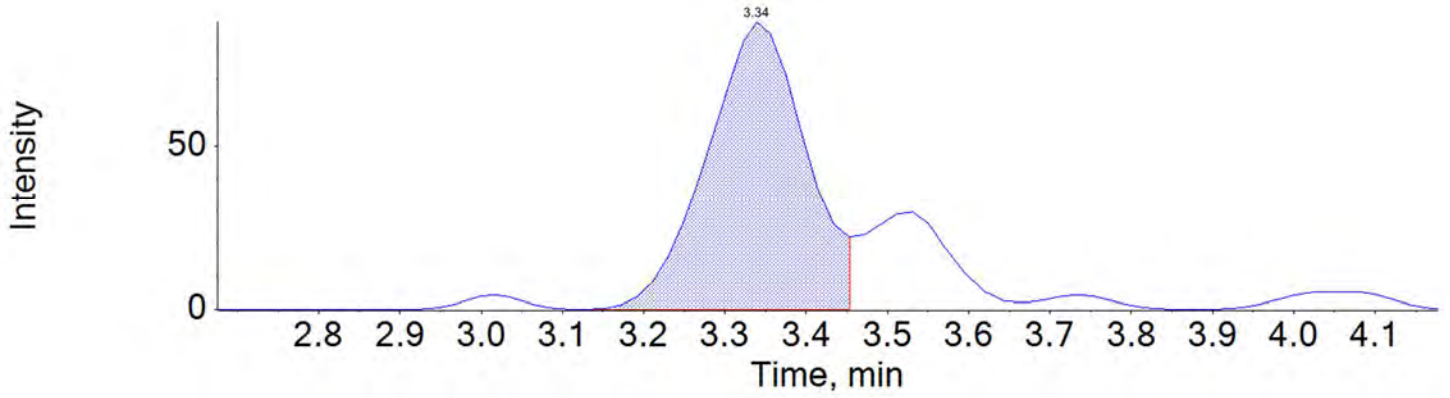
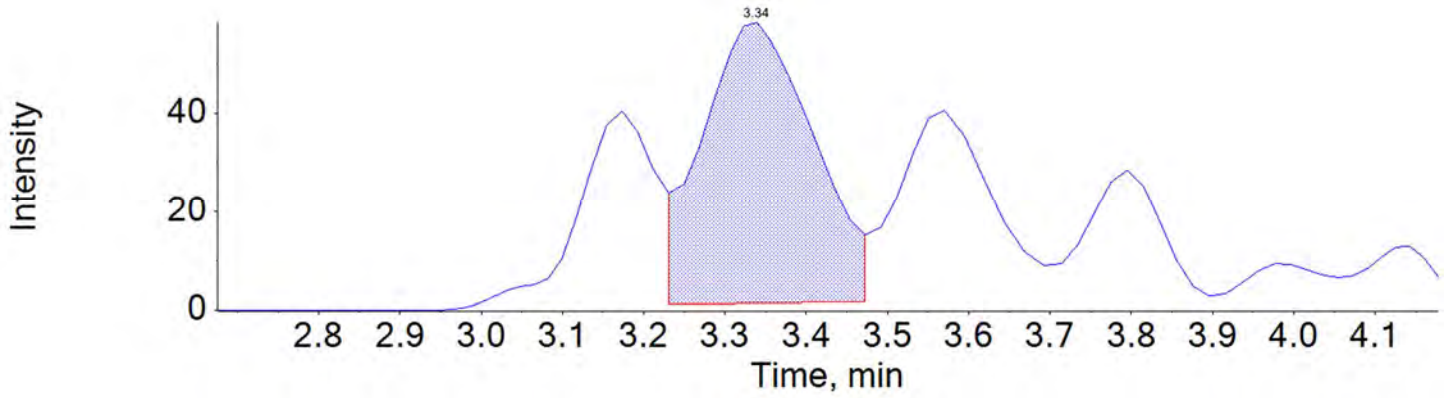
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

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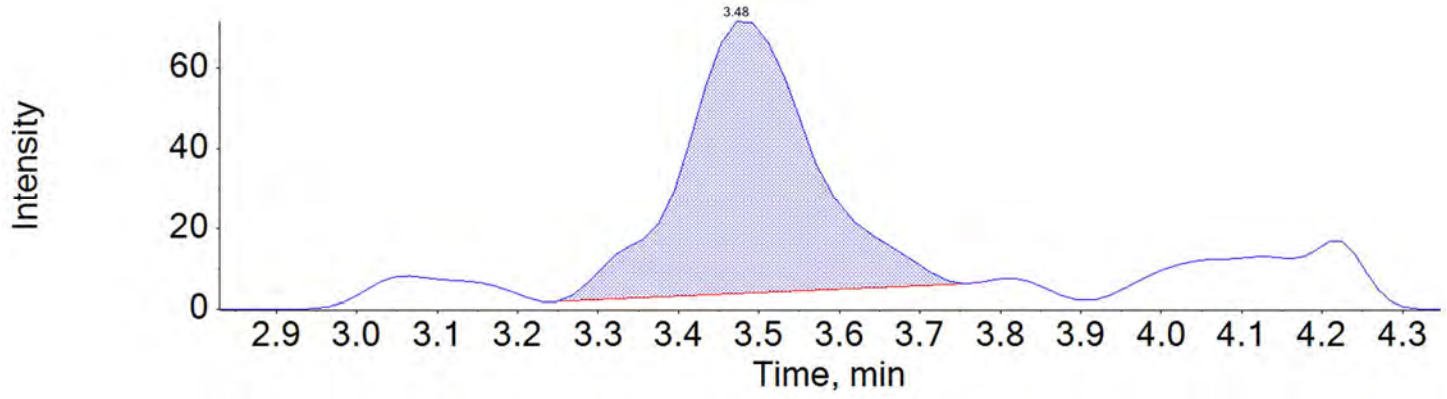
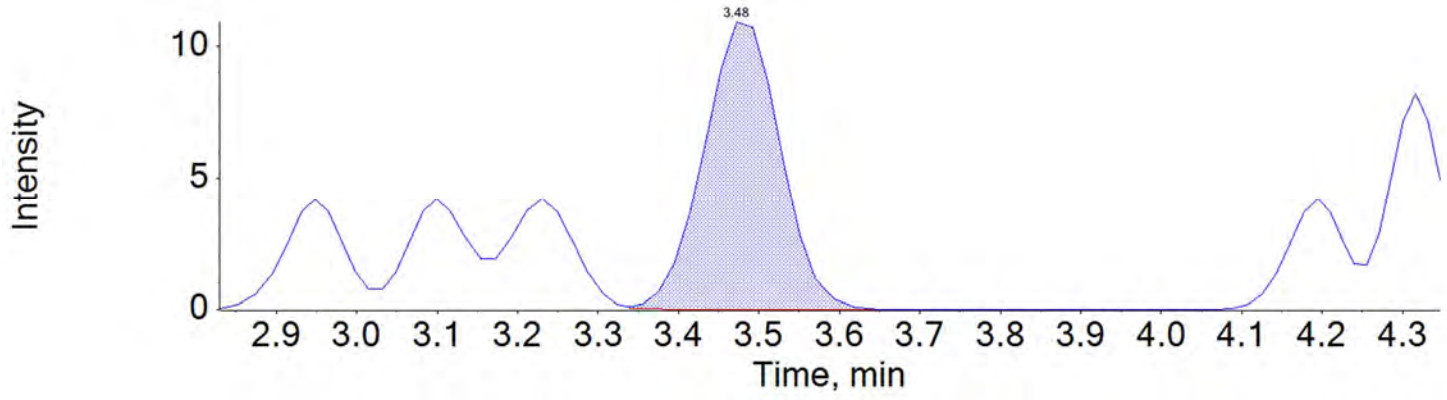
Printed: 24/05/2018 1:05:20 PM

NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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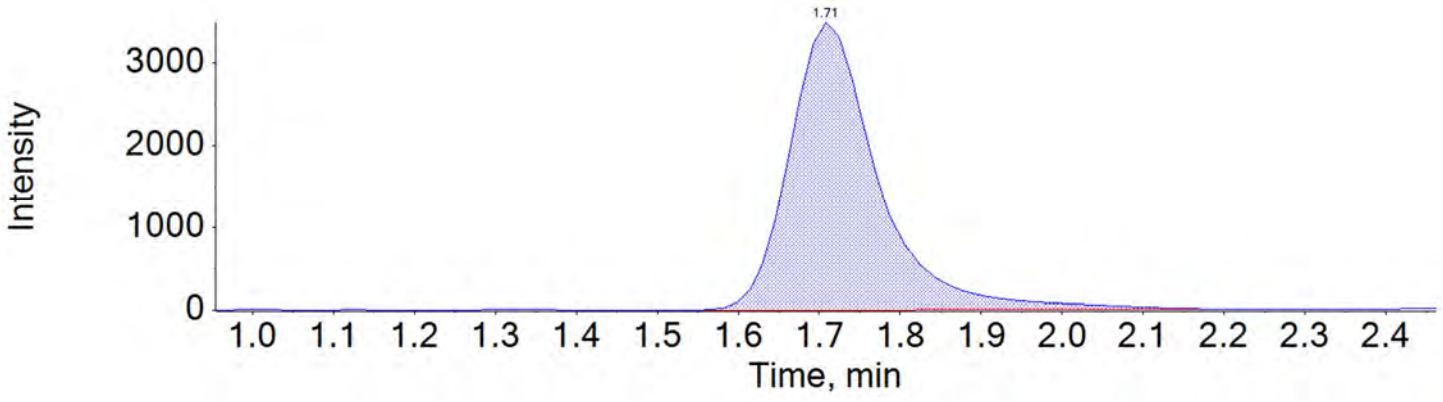
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:00:53 PM

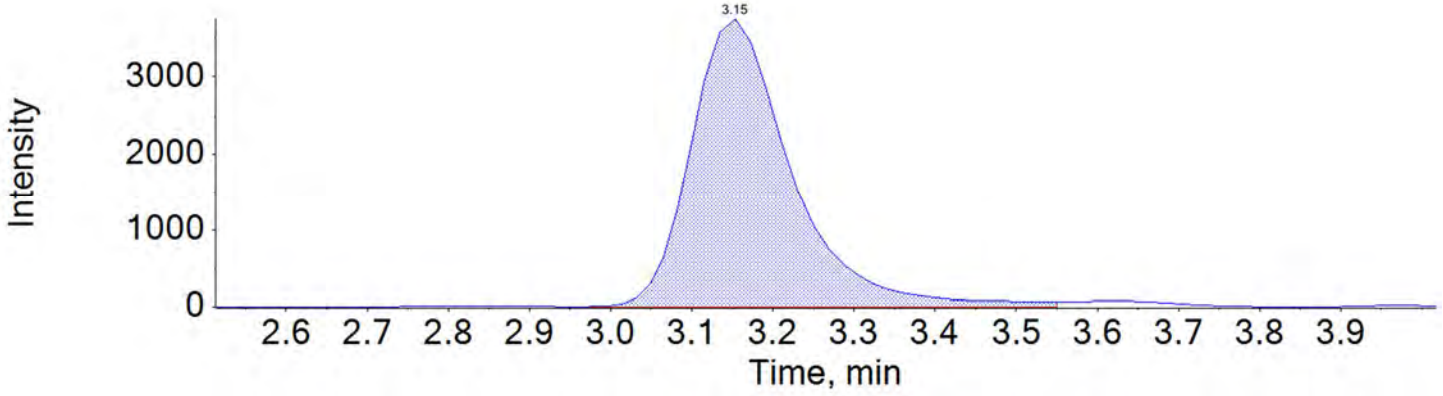
Sample Name	JV64	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T09:20:34	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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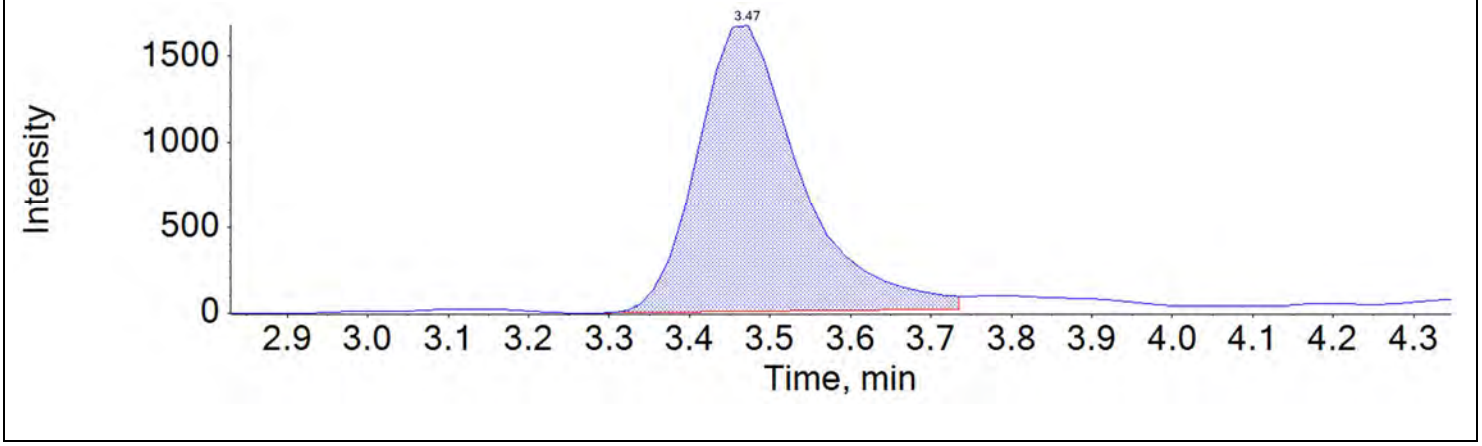
d5-EtFOSAA 589.0 / 419.0



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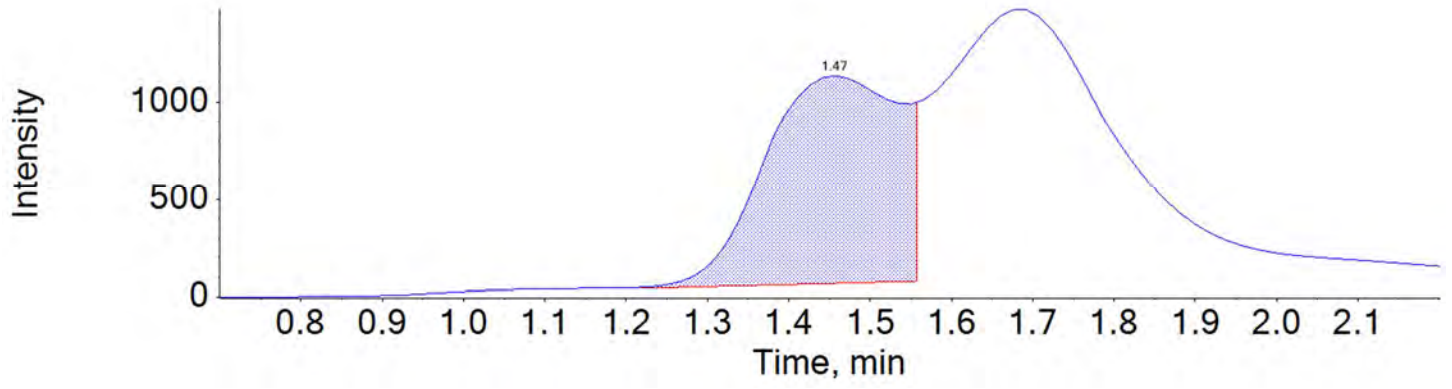
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:05:26 PM

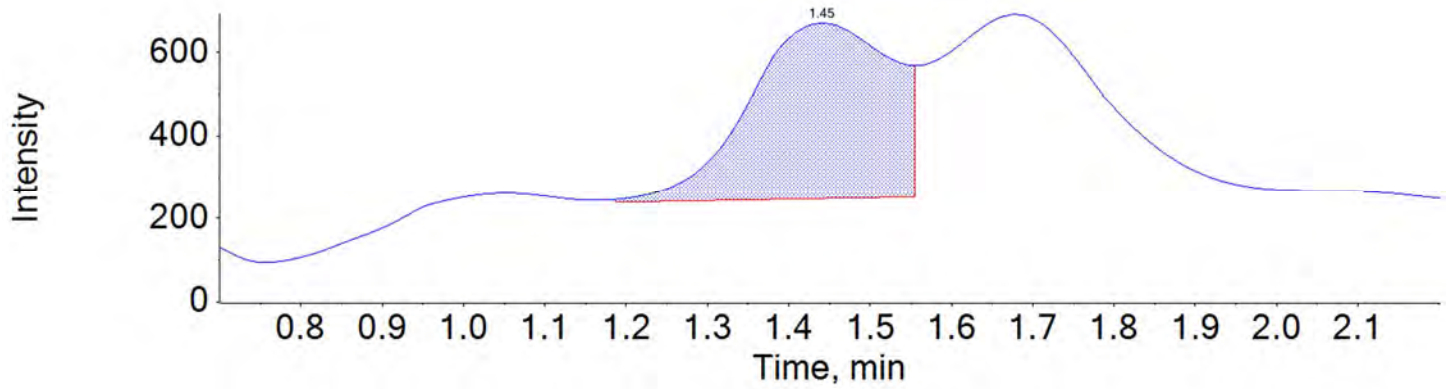
Sample Name	JV65	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T09:29:29	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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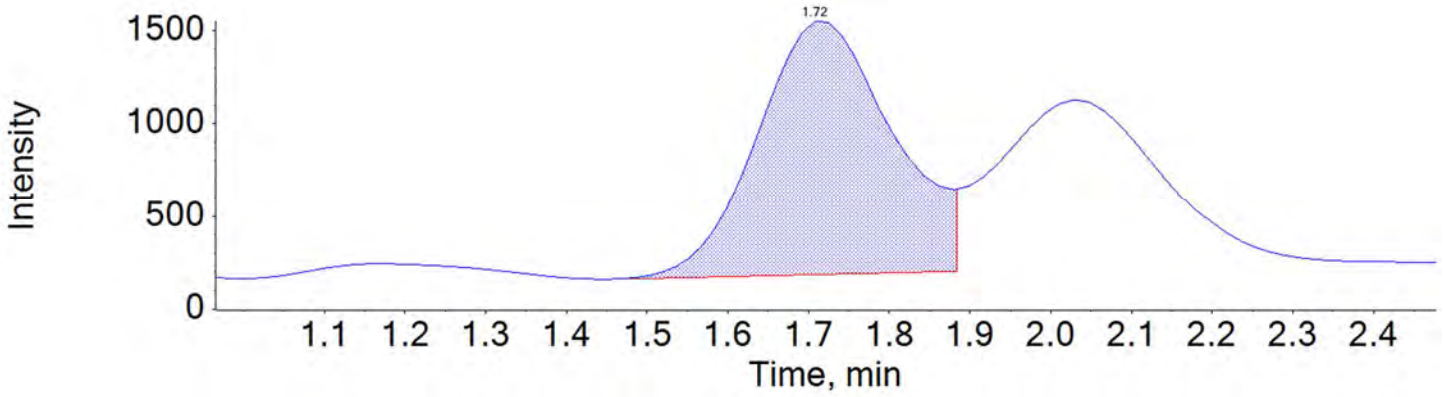
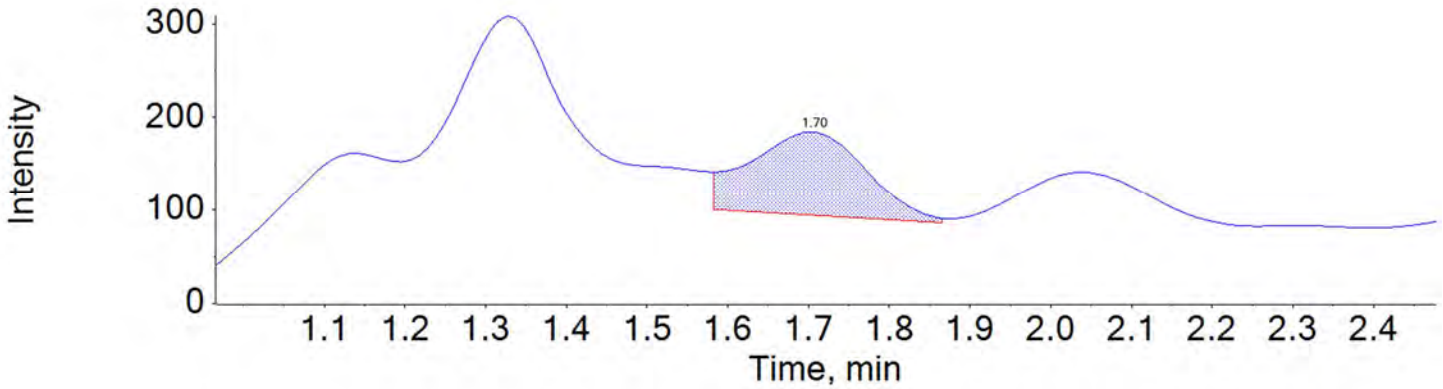
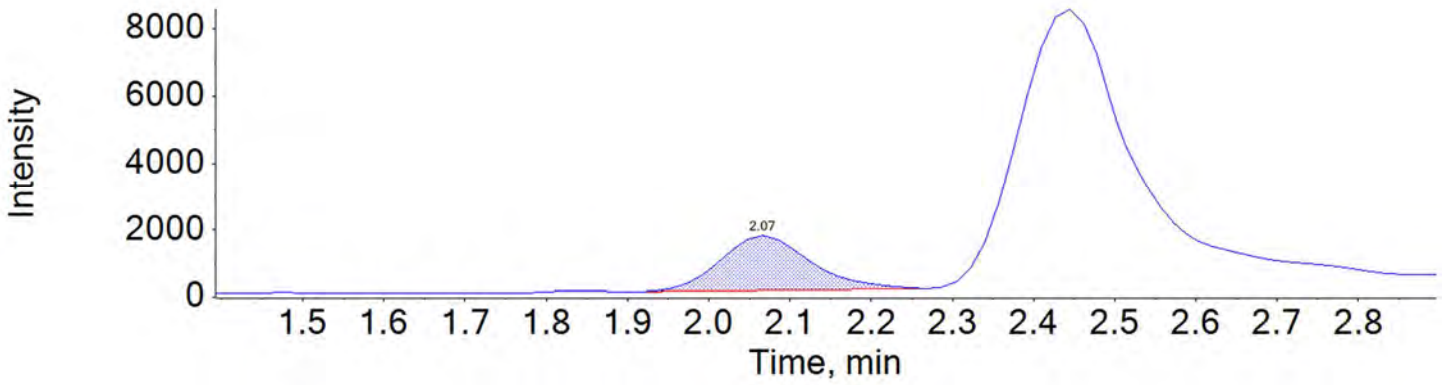
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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Chromatogram Report

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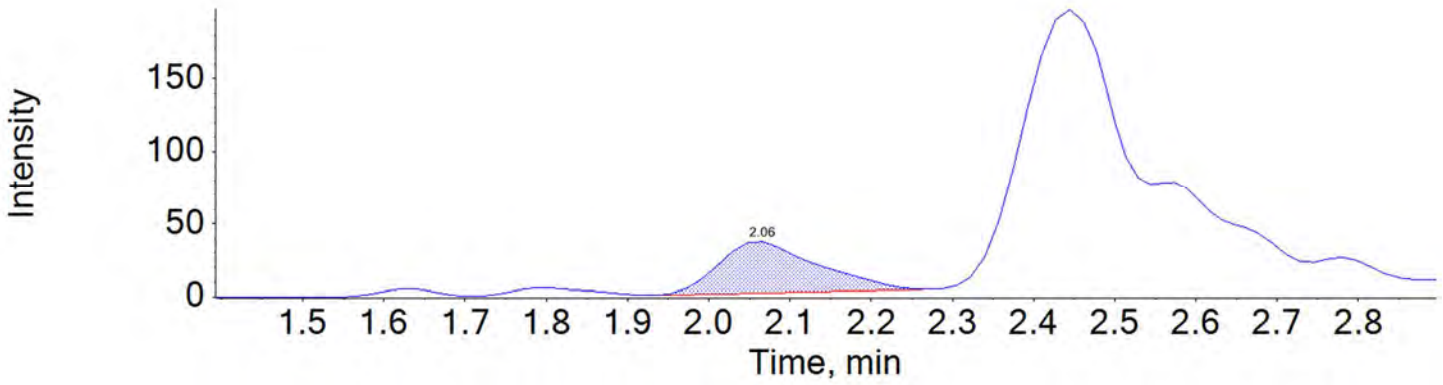
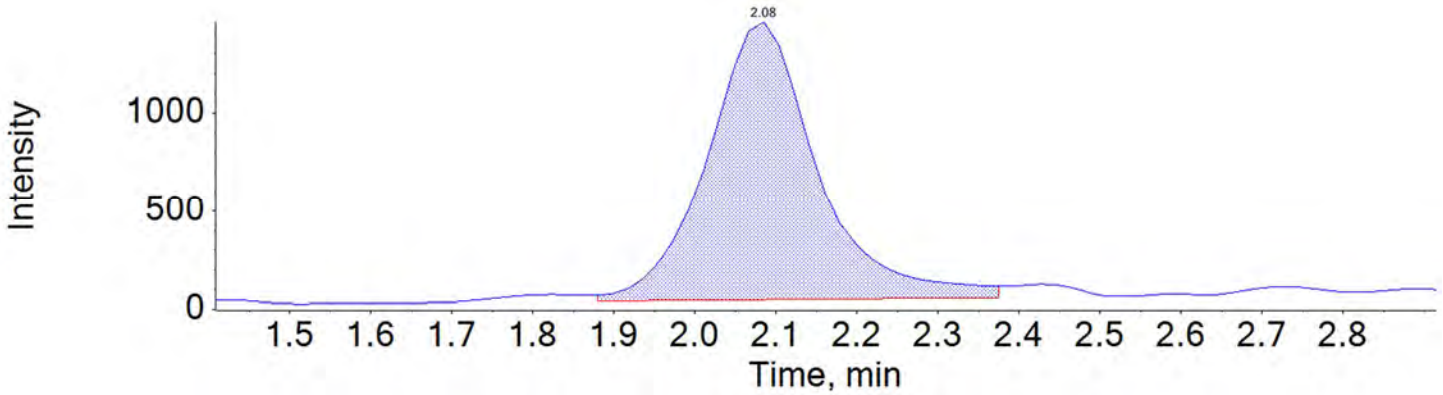
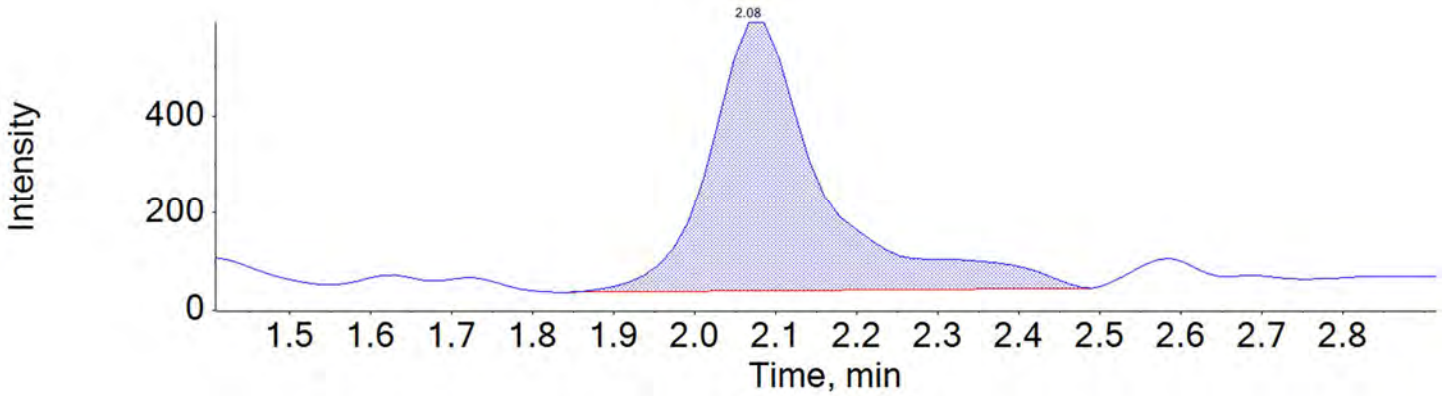
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



PFHxS_2 399.0 / 99.0



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Chromatogram Report

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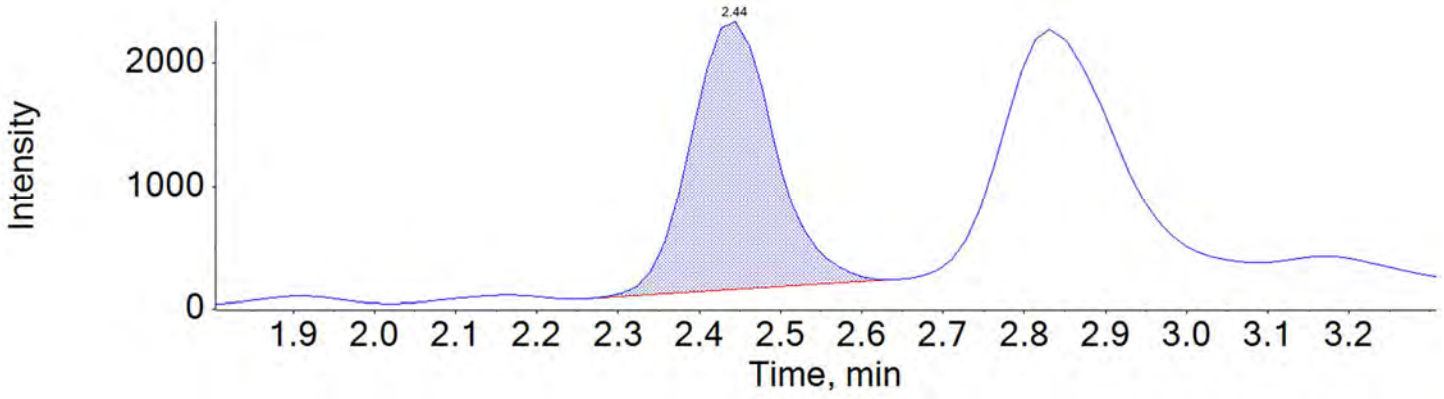
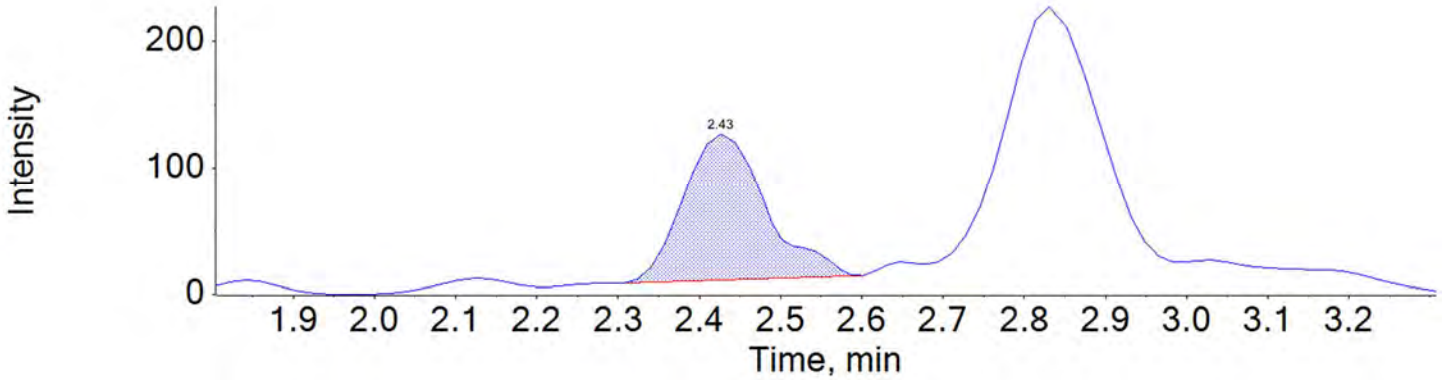
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



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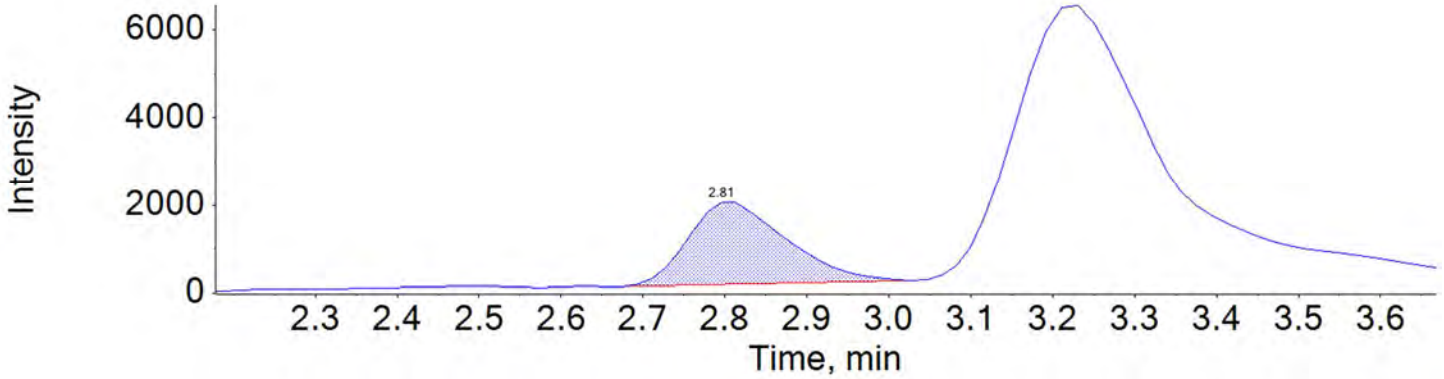

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Chromatogram Report

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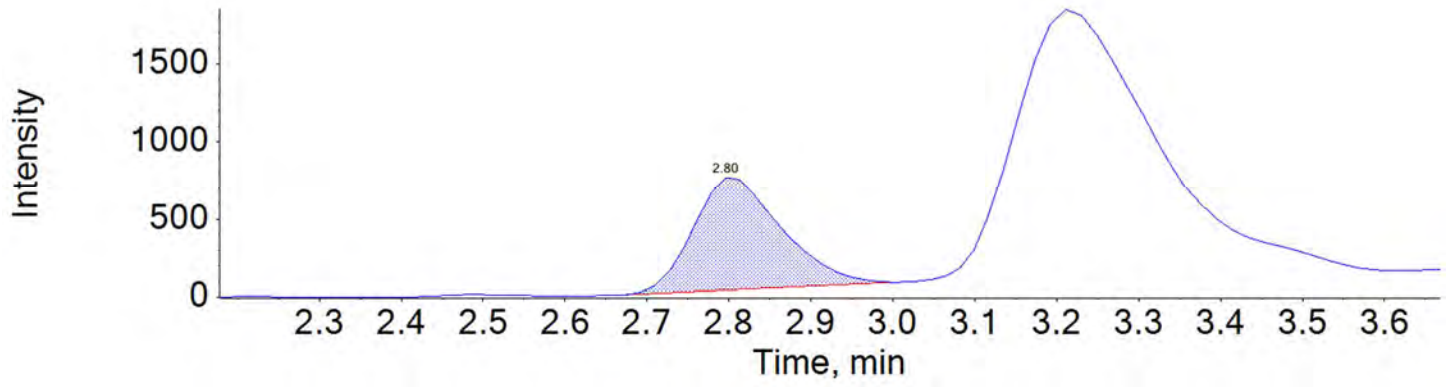
PFNA_2 463.0 / 219.0



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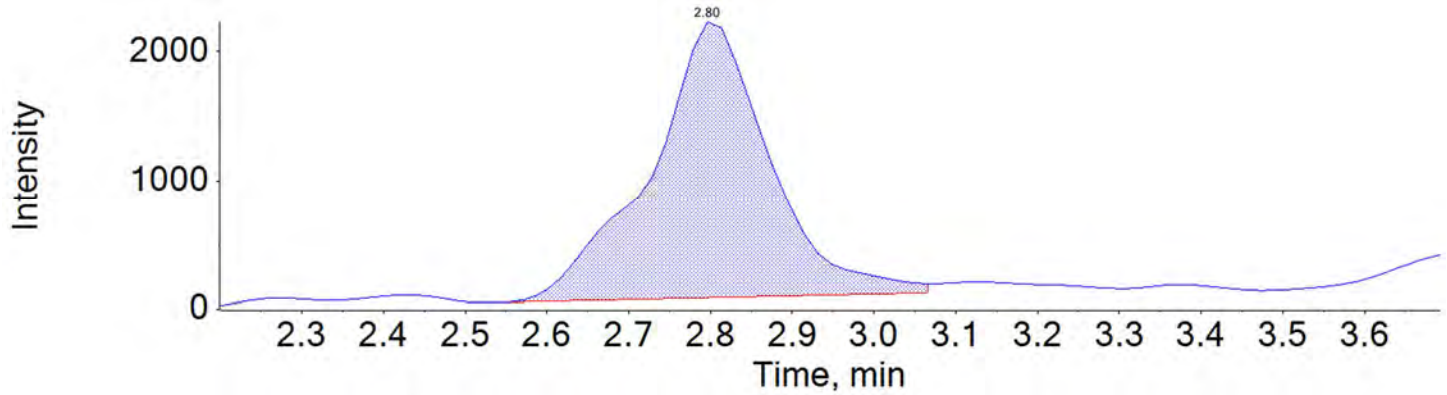

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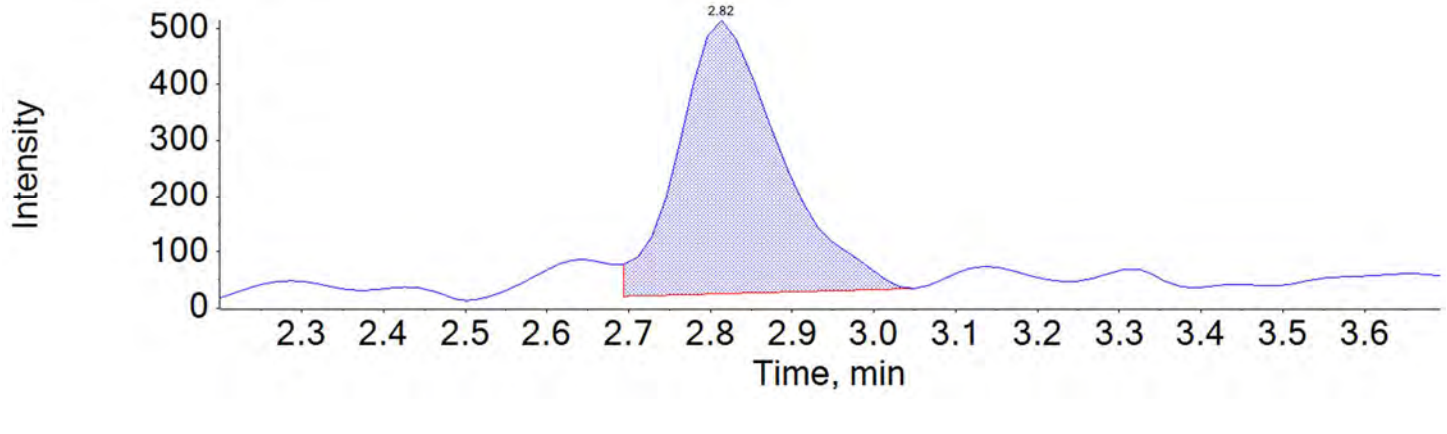

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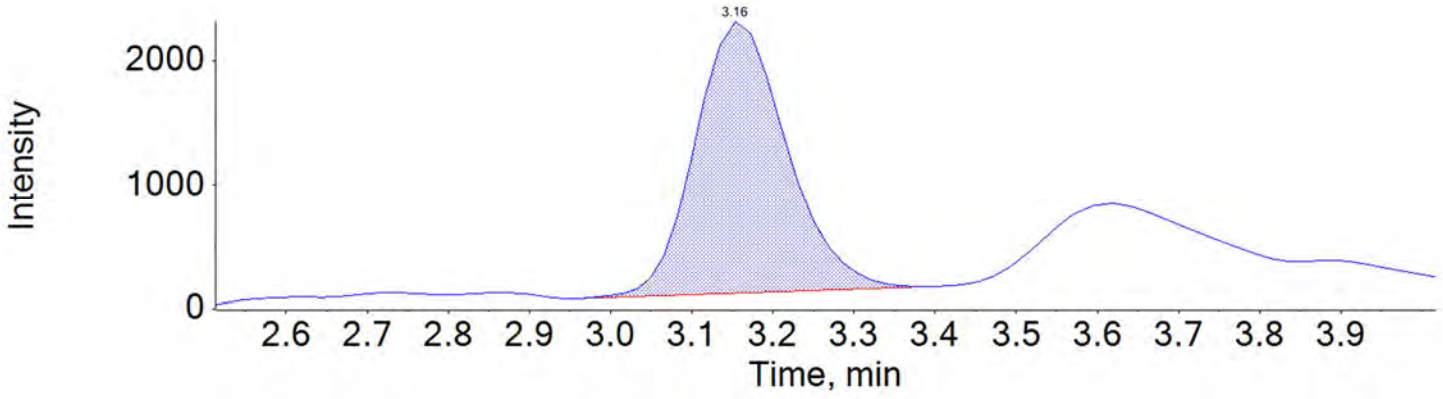

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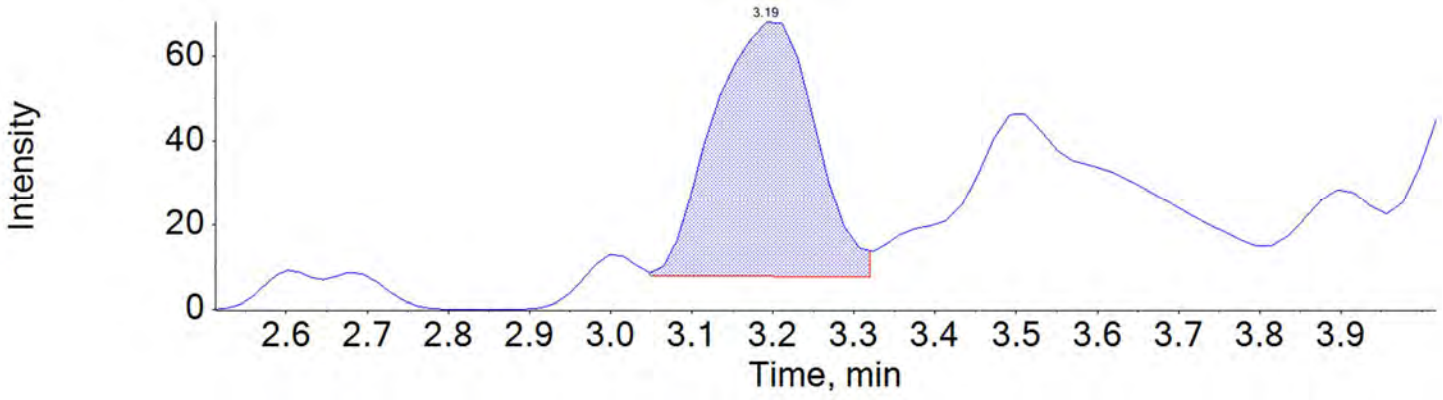
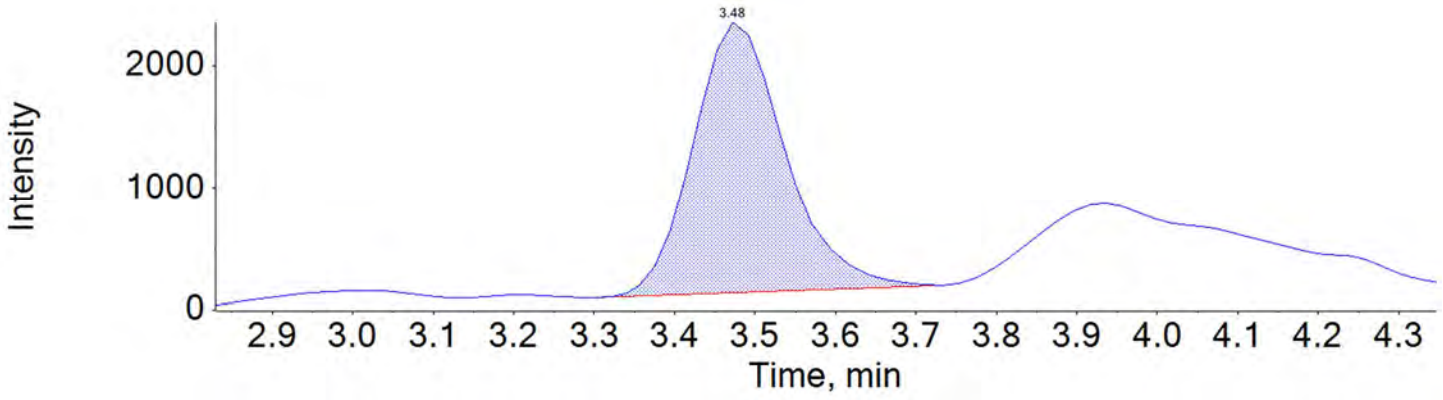


PFUnA_1 563.0 / 519.0



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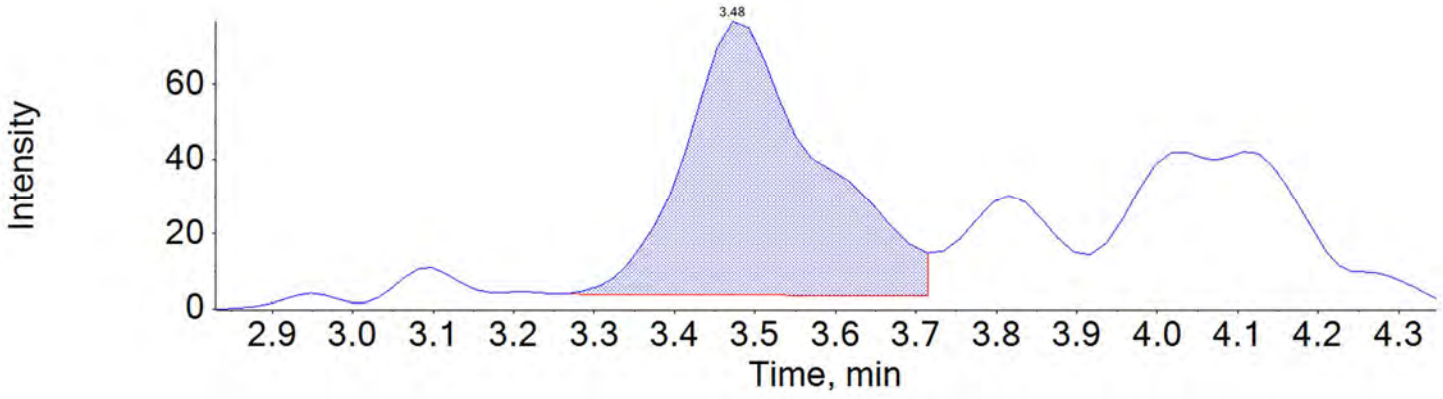
PFUnA_2 563.0 / 269.0



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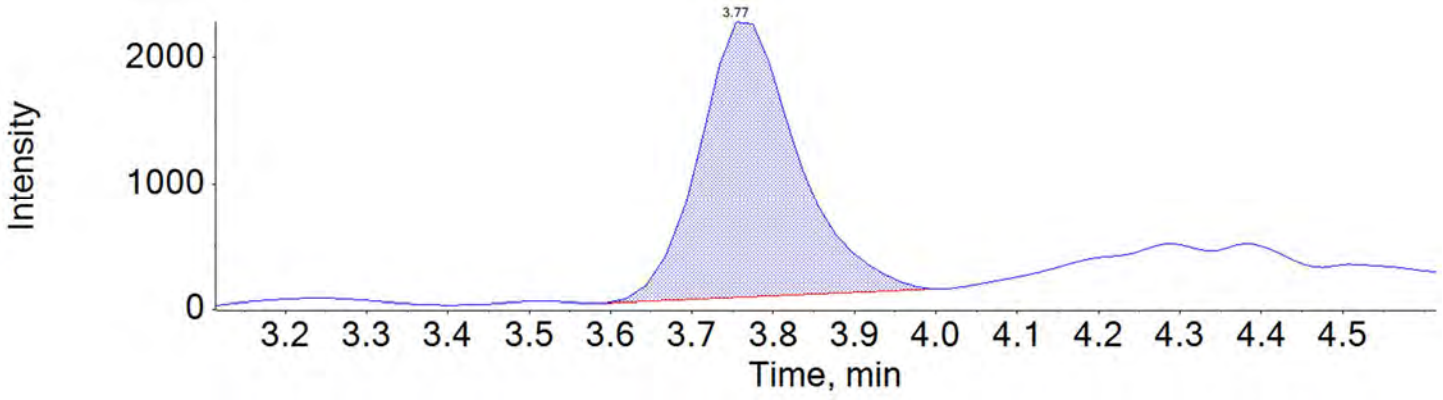

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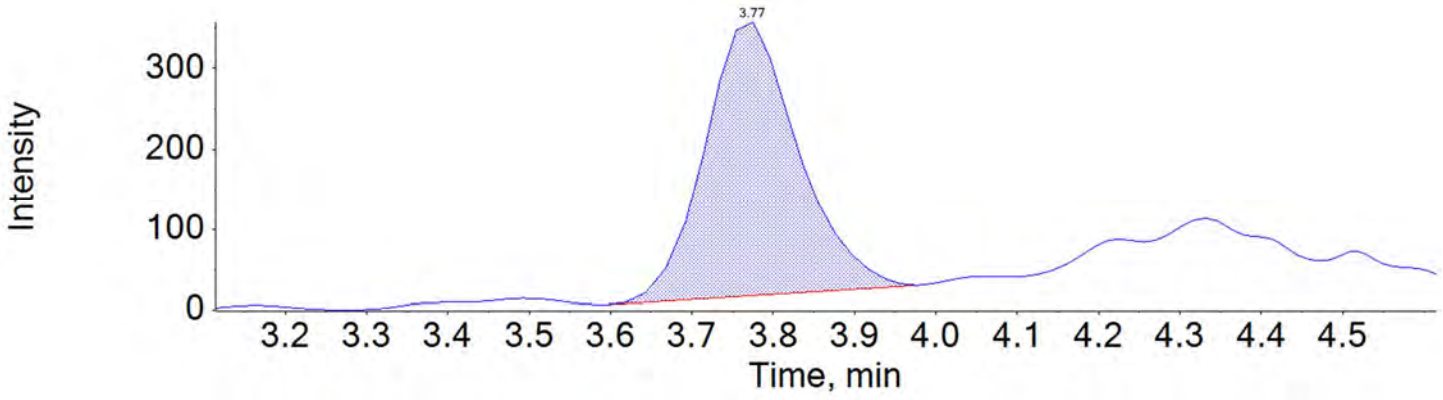

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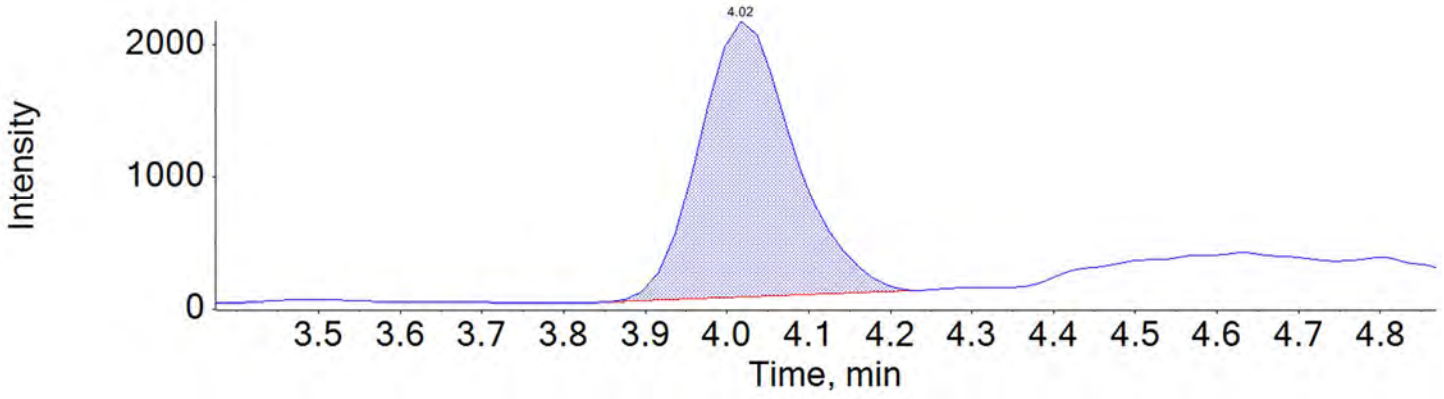
PFTrDA_1 663.0 / 619.0



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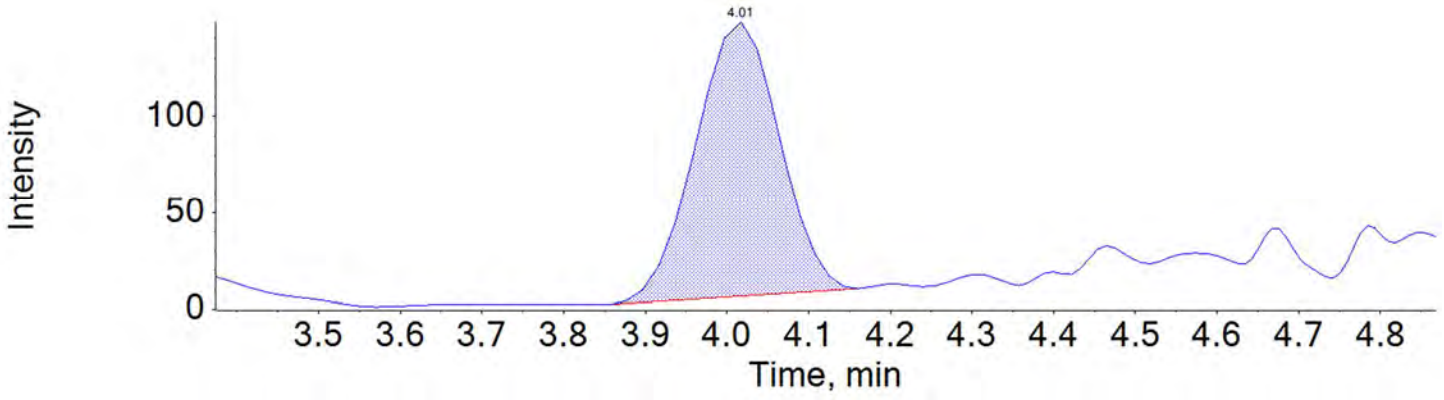

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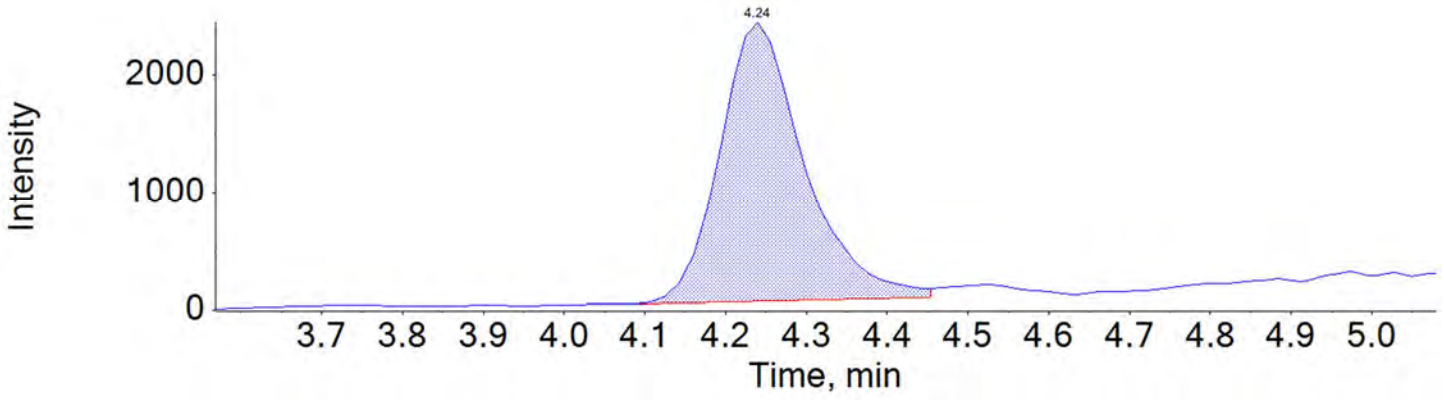

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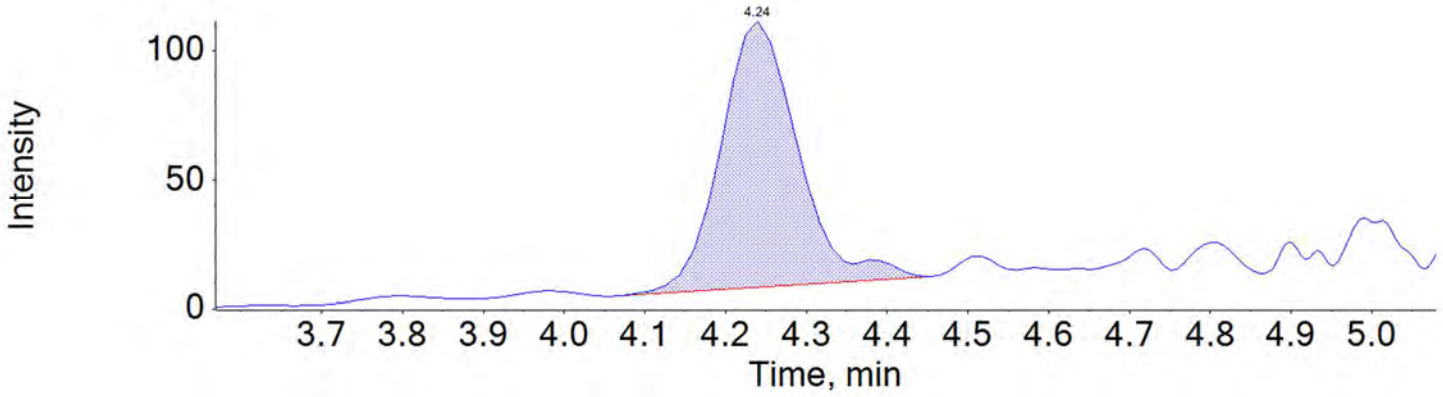

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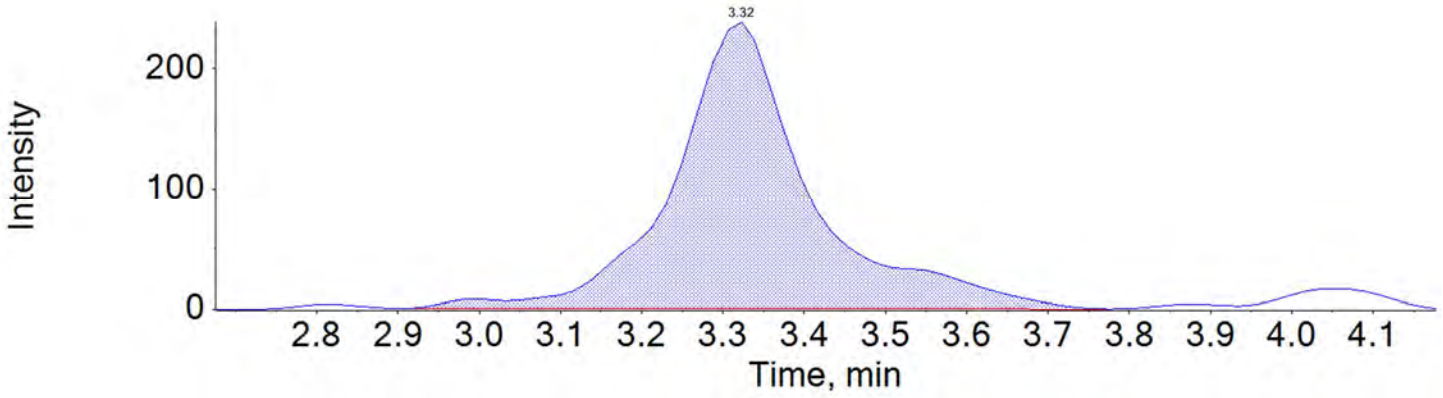

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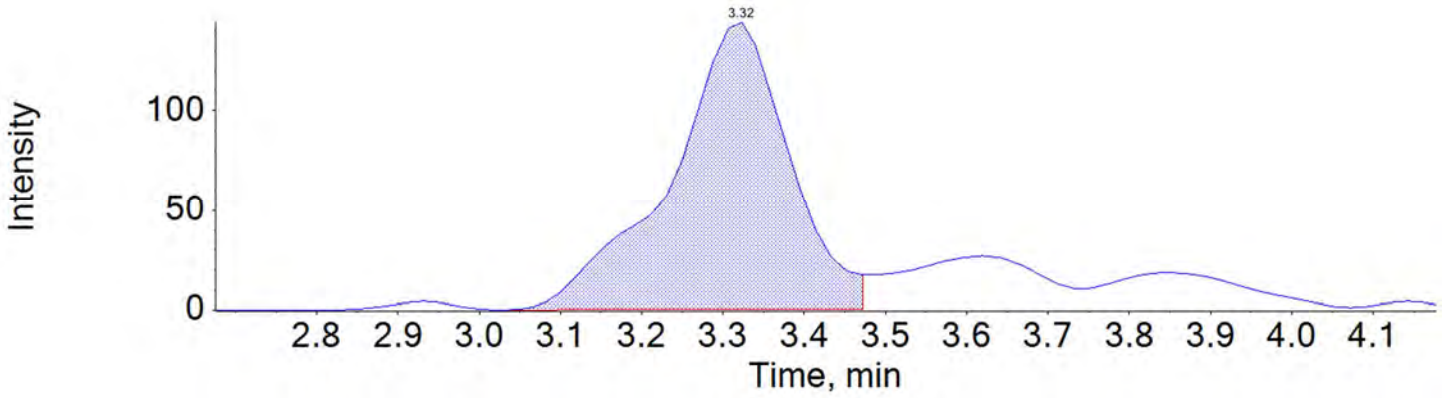

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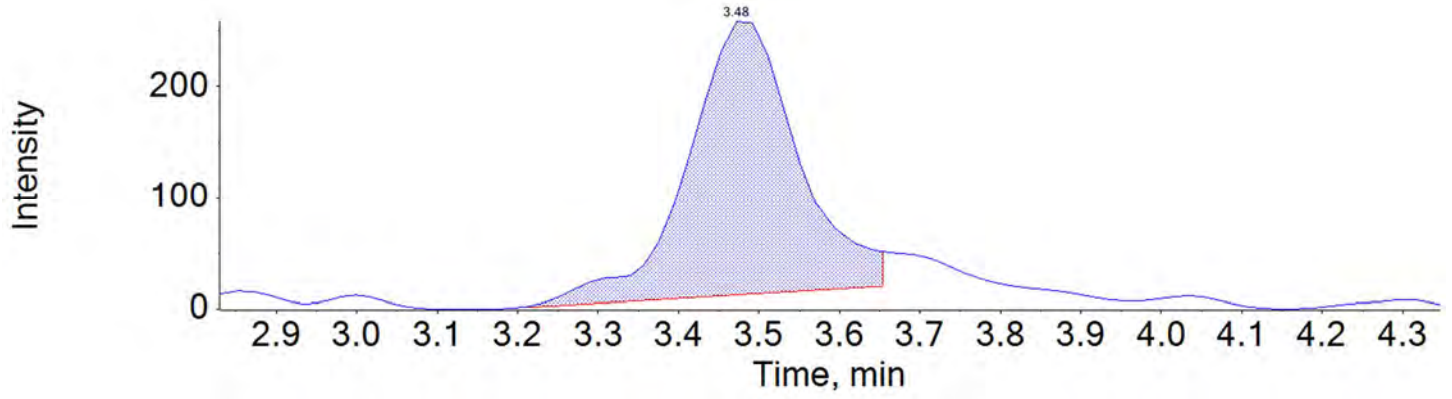

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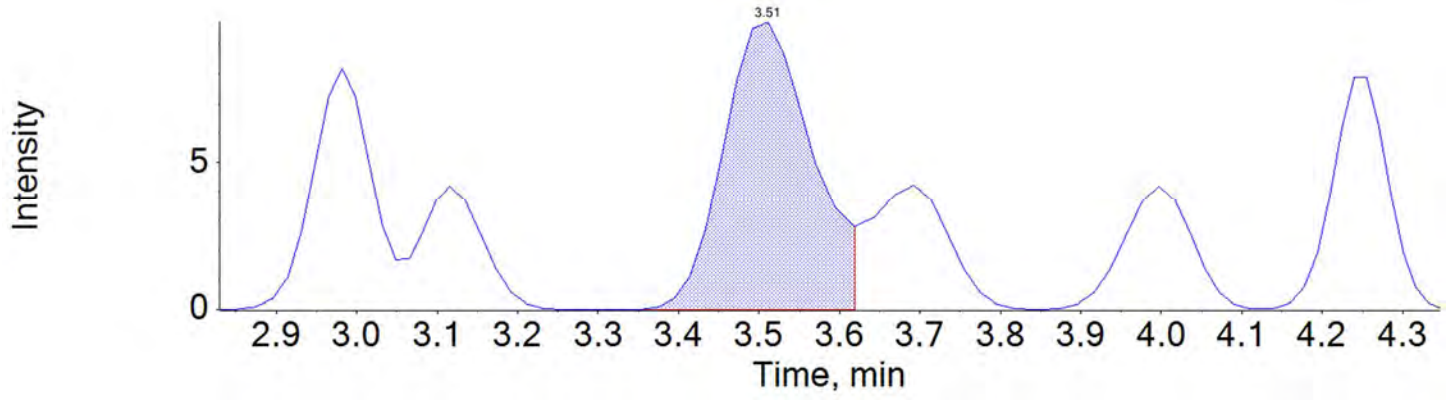

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Chromatogram Report

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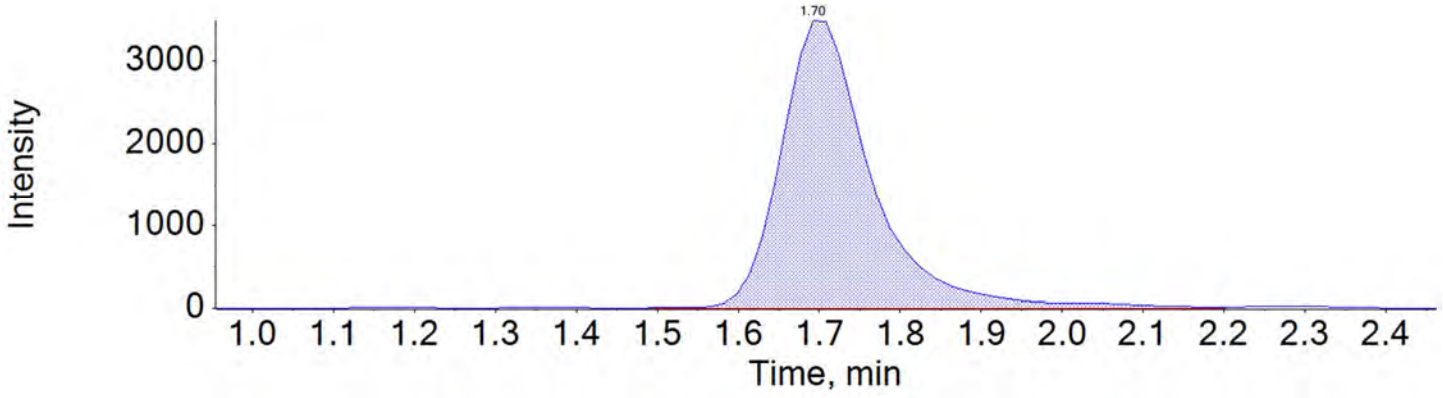
Printed: 24/05/2018 1:00:56 PM

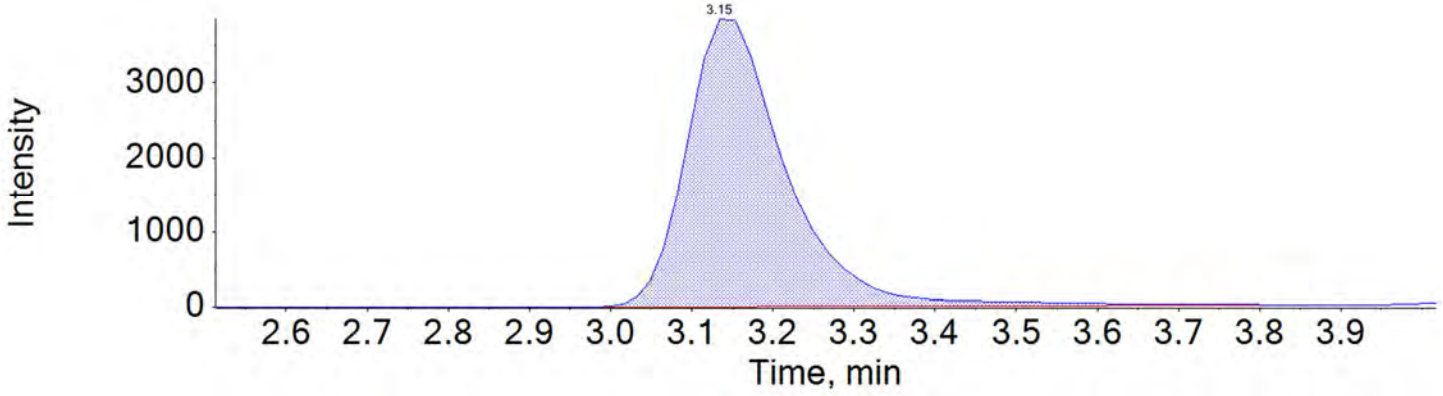
Sample Name	JV65	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T09:29:29	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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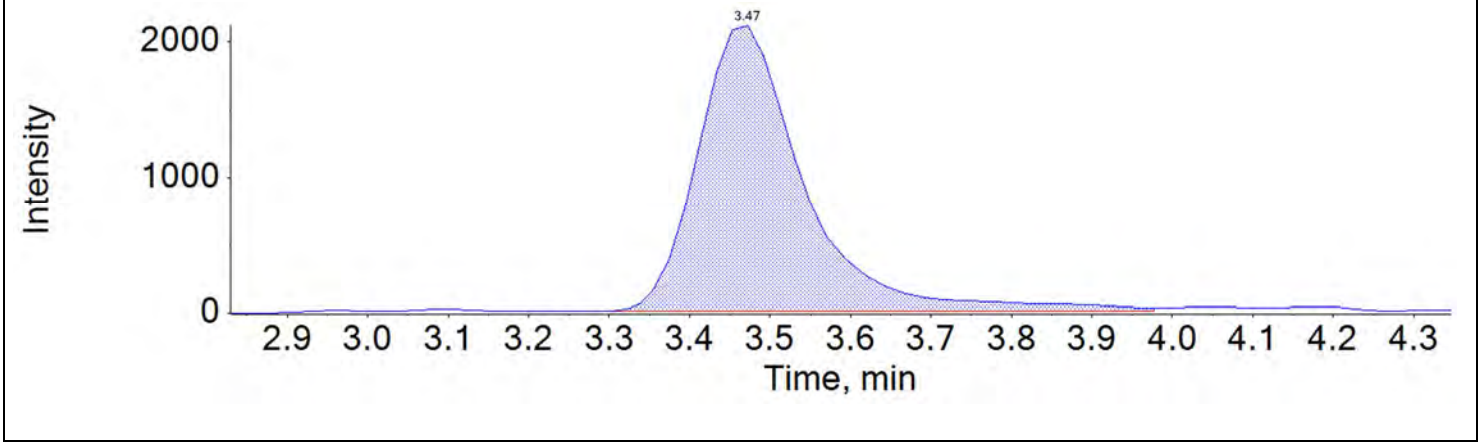
d5-EtFOSAA 589.0 / 419.0



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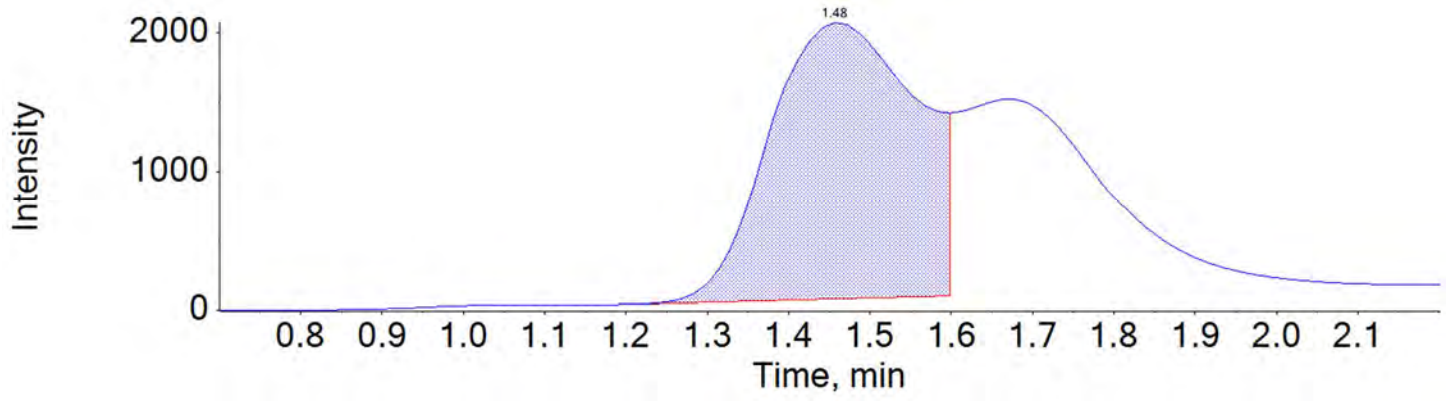
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:05:32 PM

Sample Name	JV66	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T09:38:24	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



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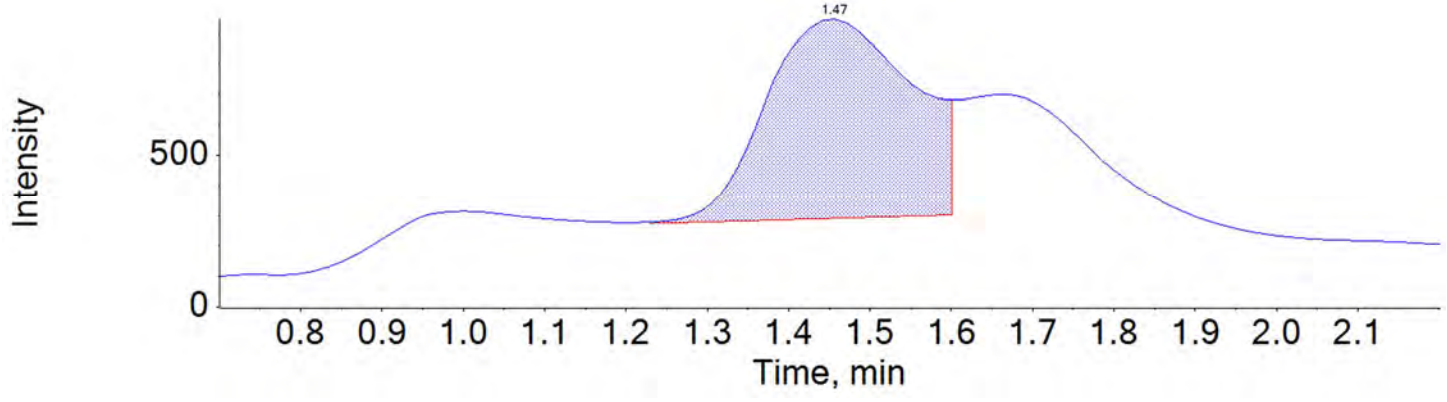

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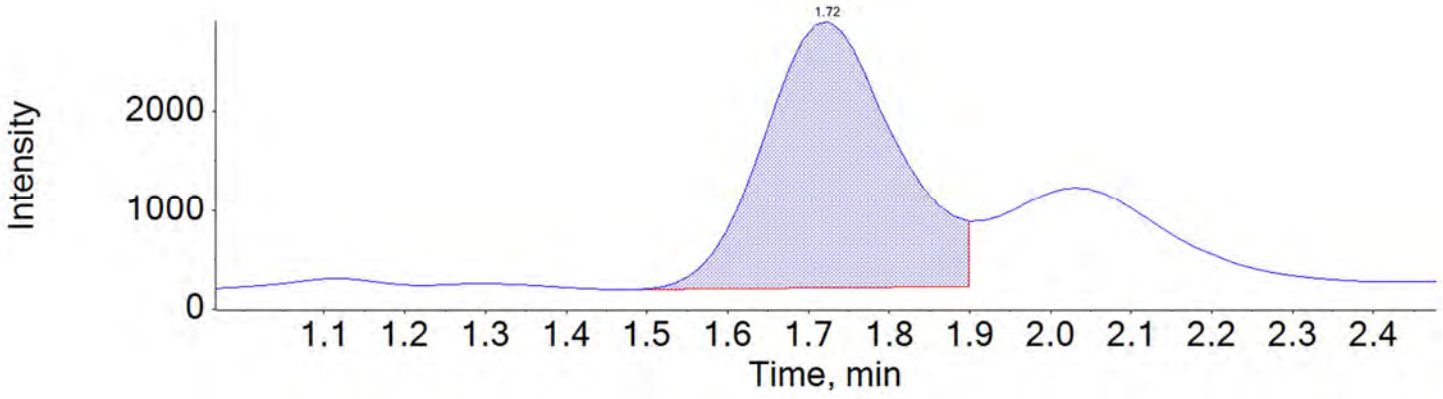
PFHxA_1 313.0 / 269.0



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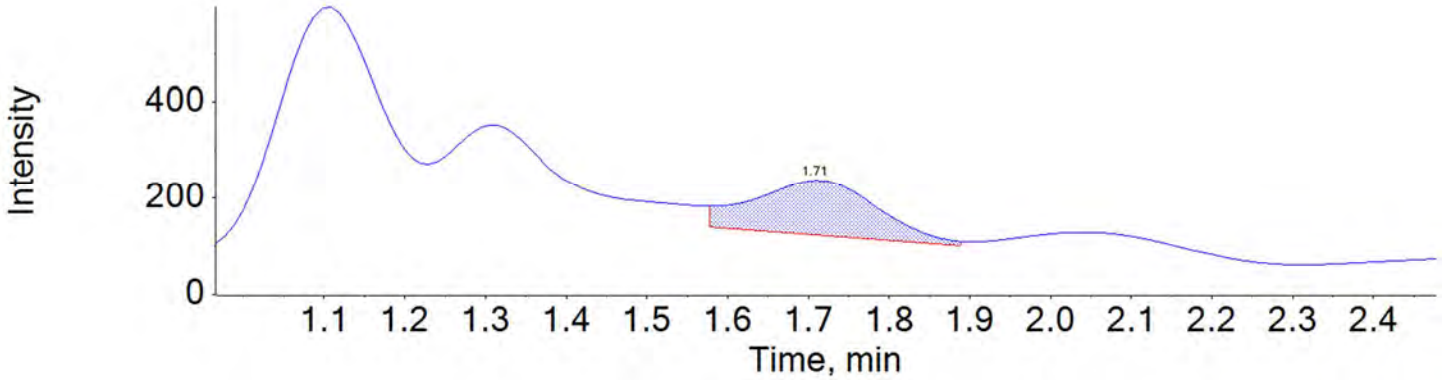

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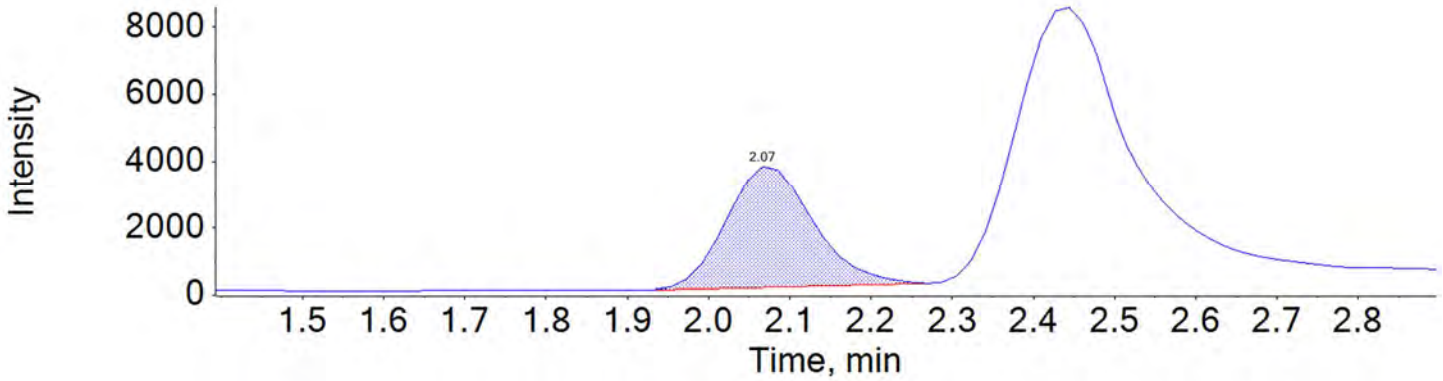

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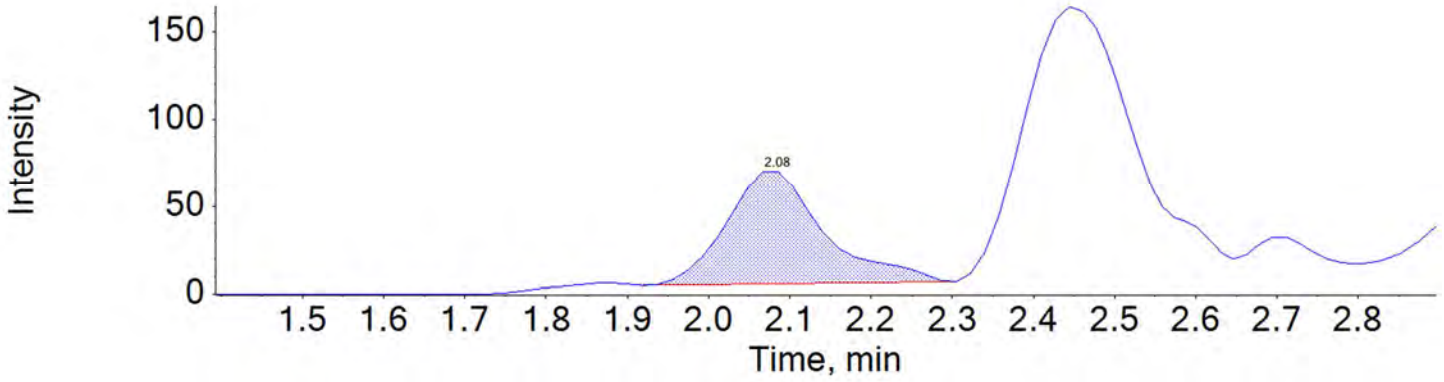

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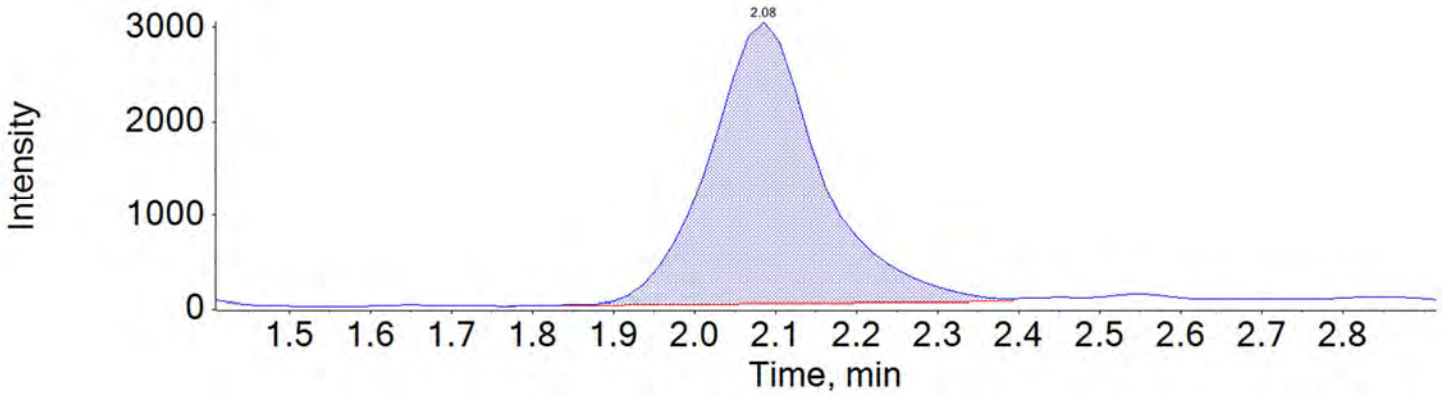

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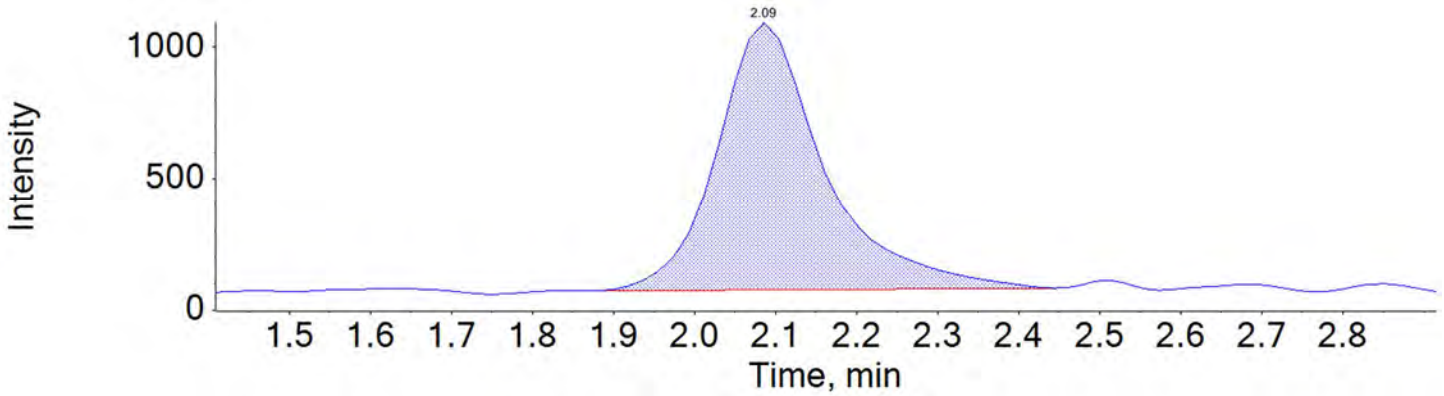

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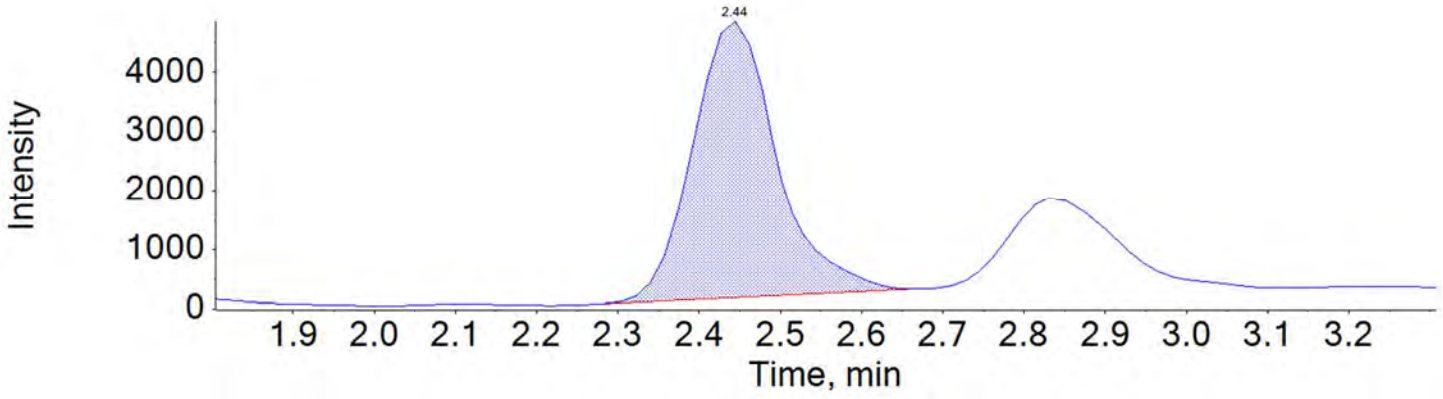

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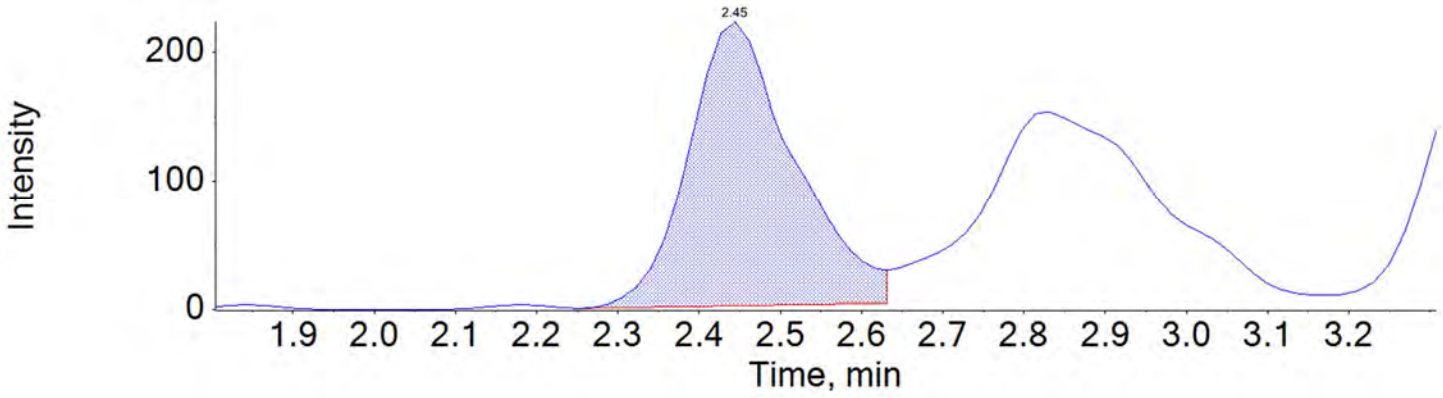

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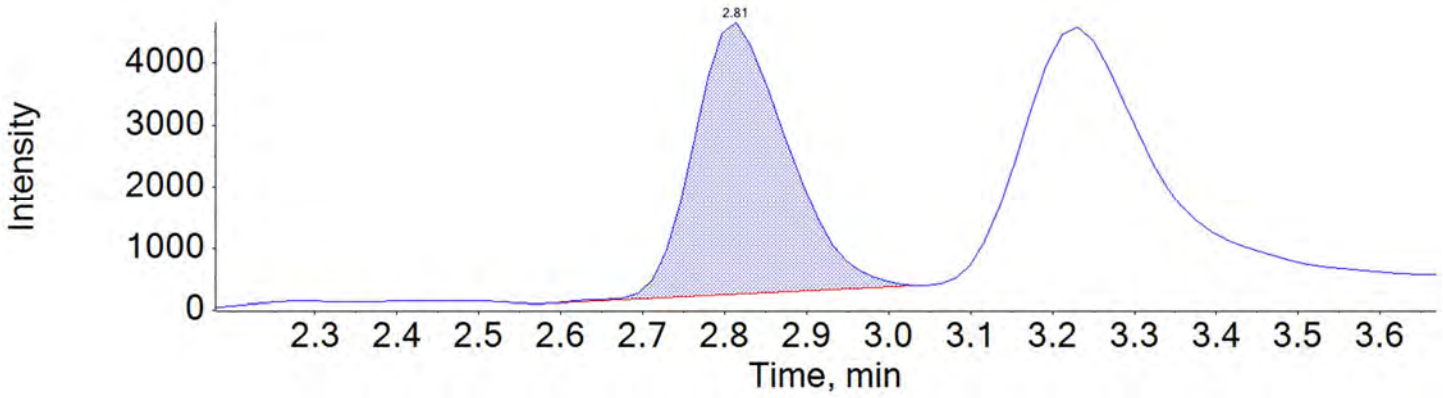

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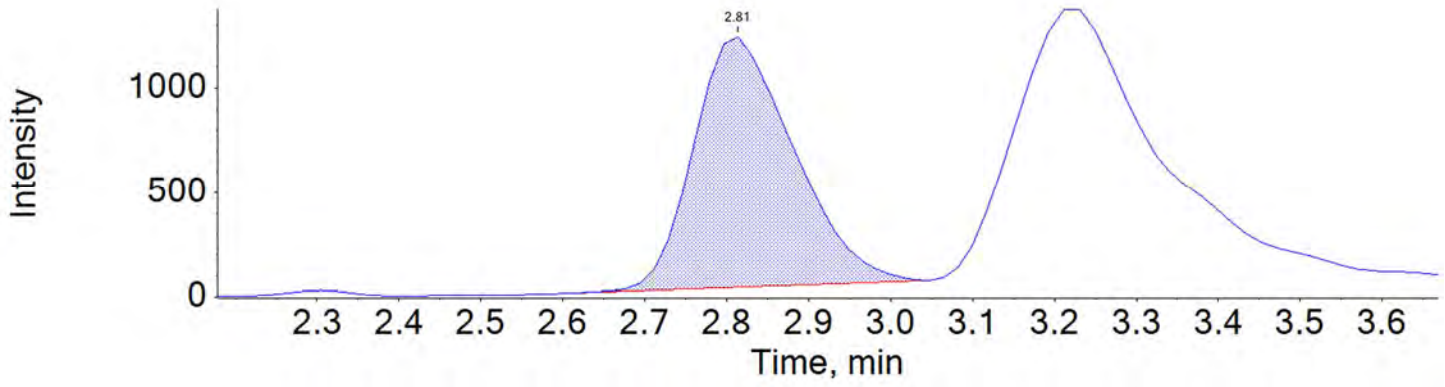

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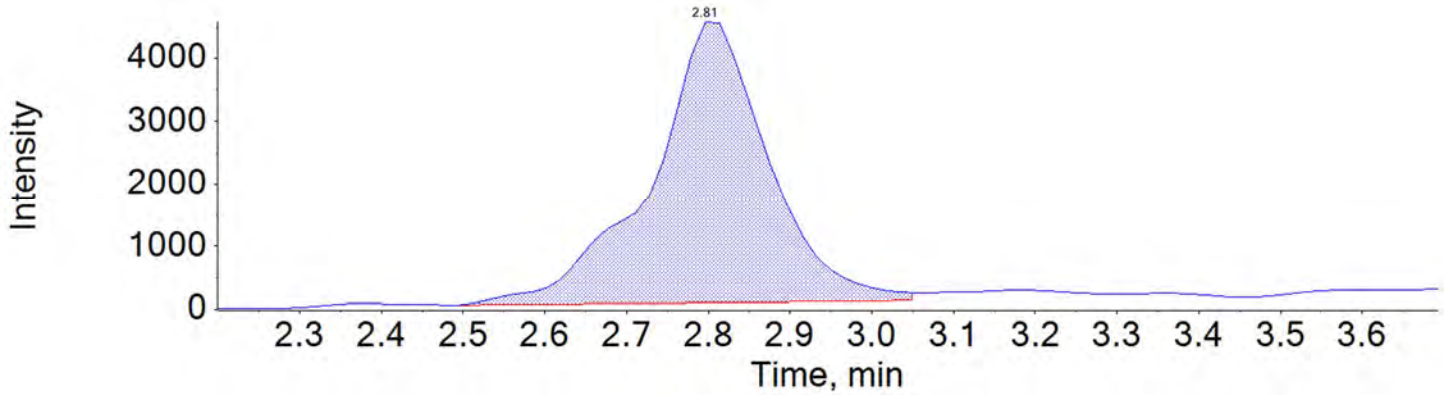

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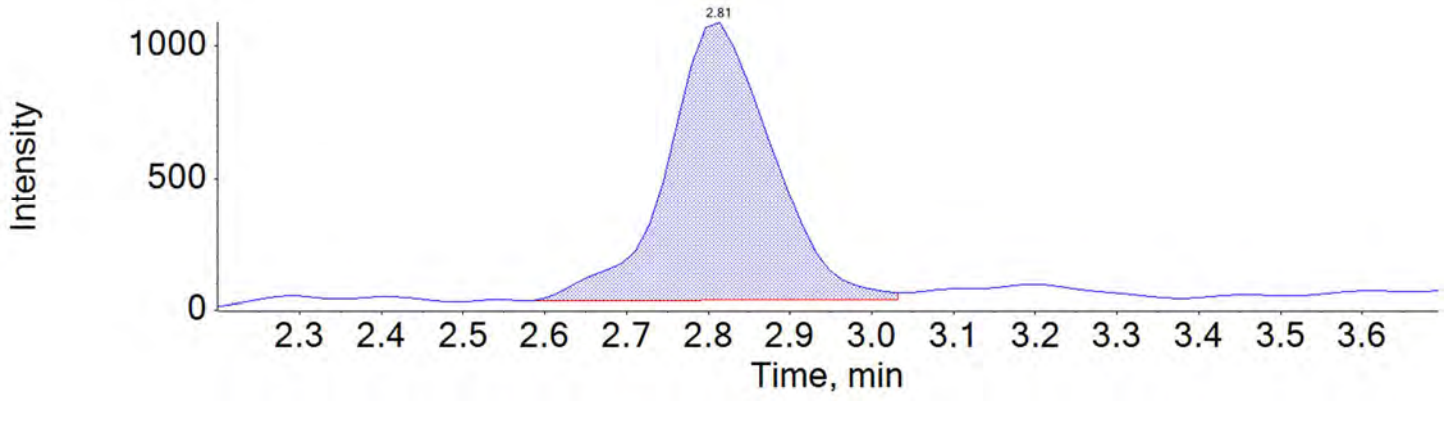

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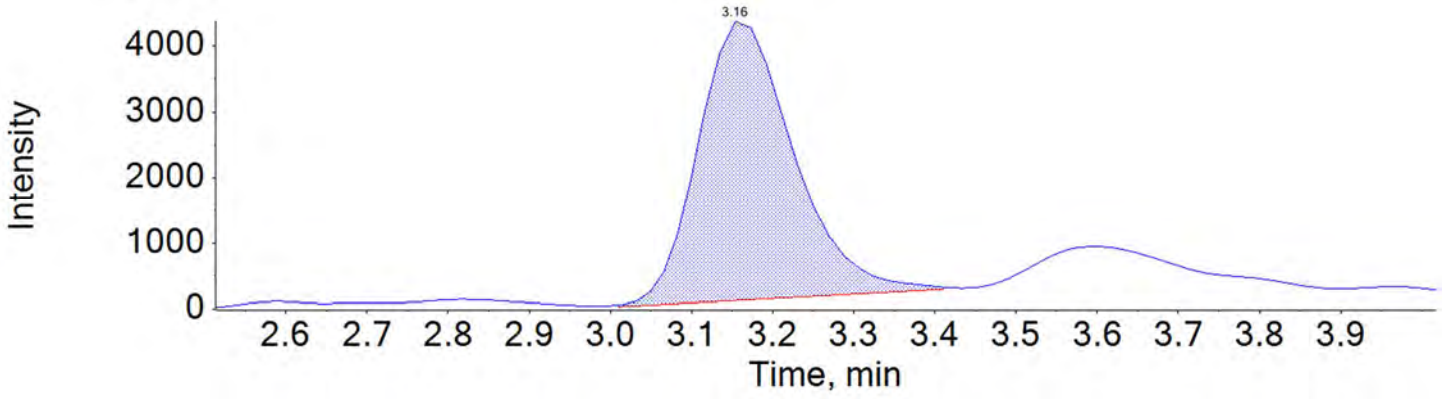

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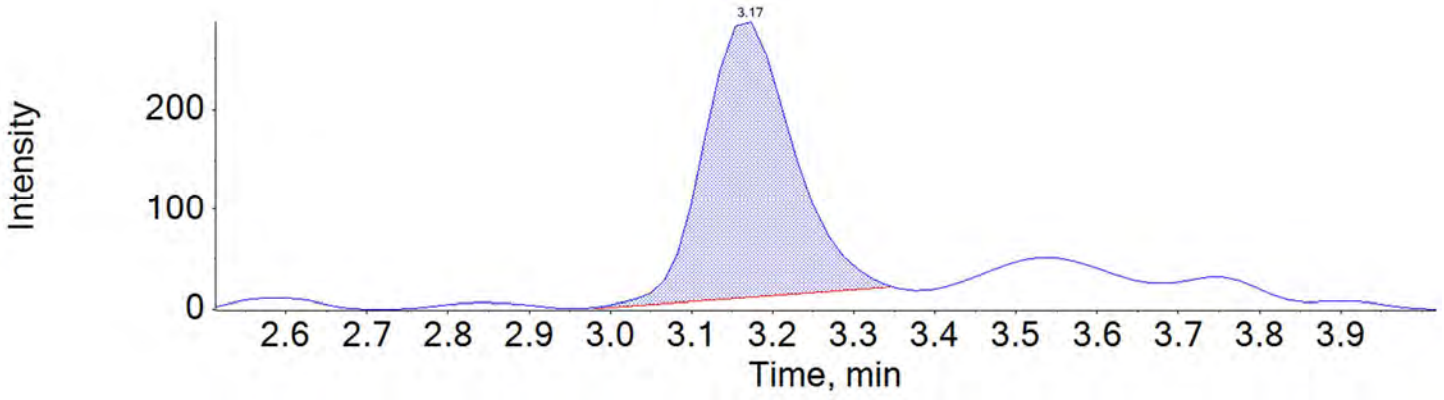

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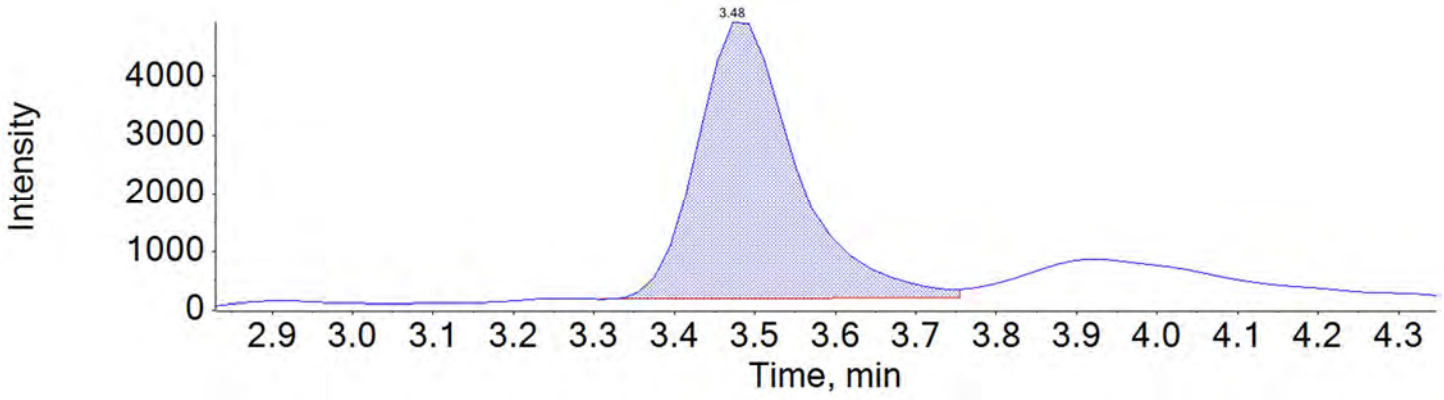

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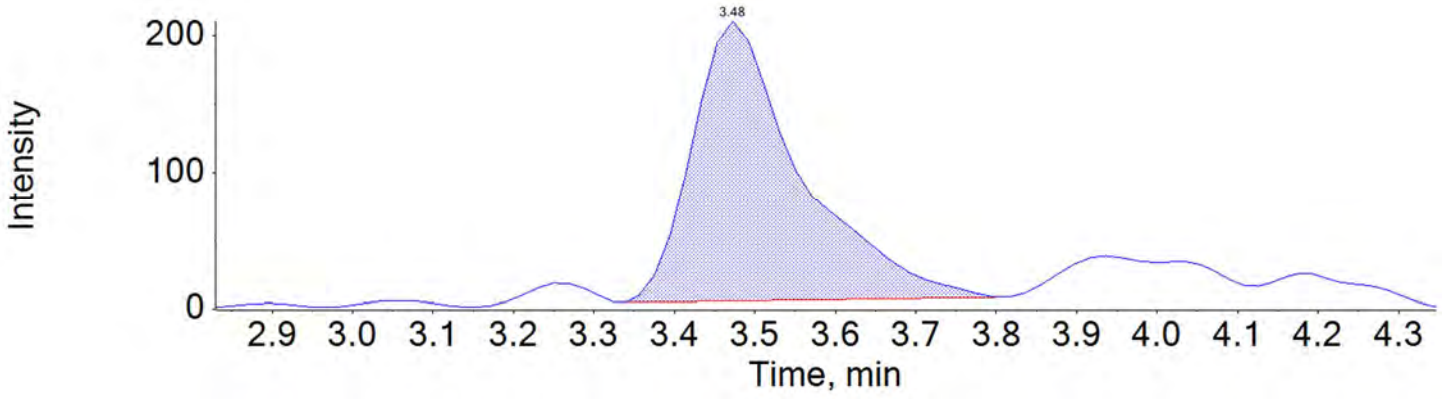

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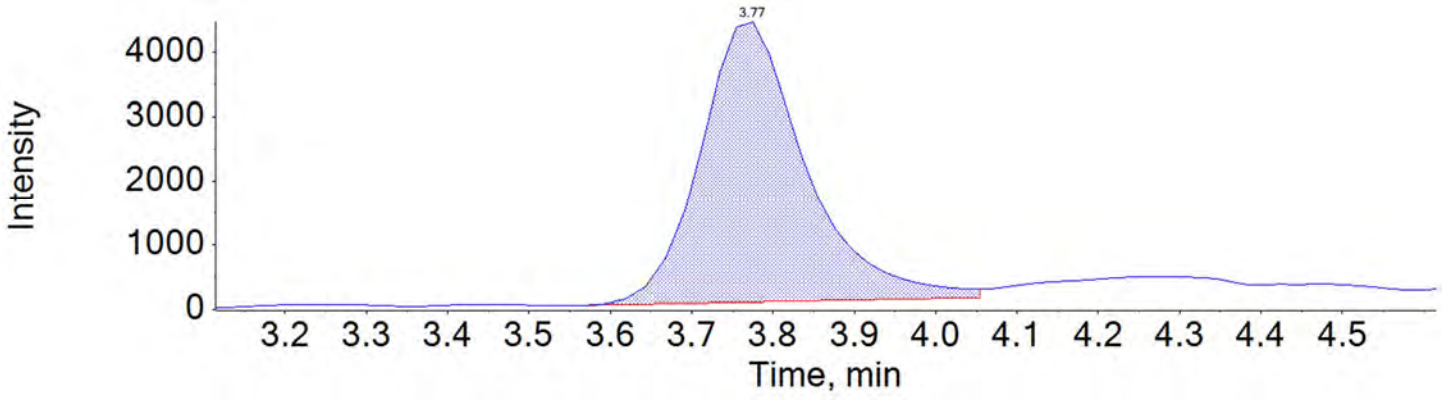

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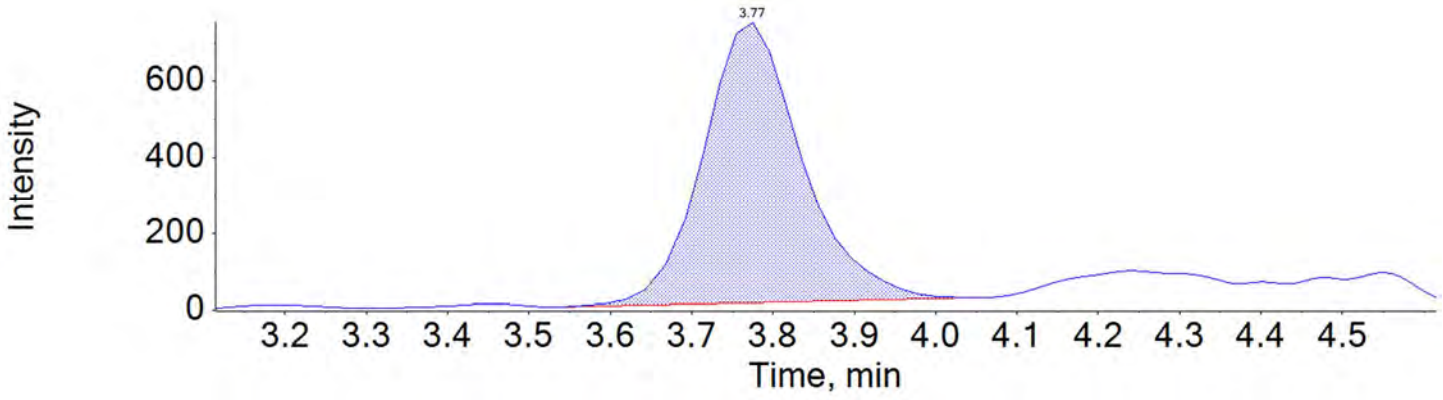

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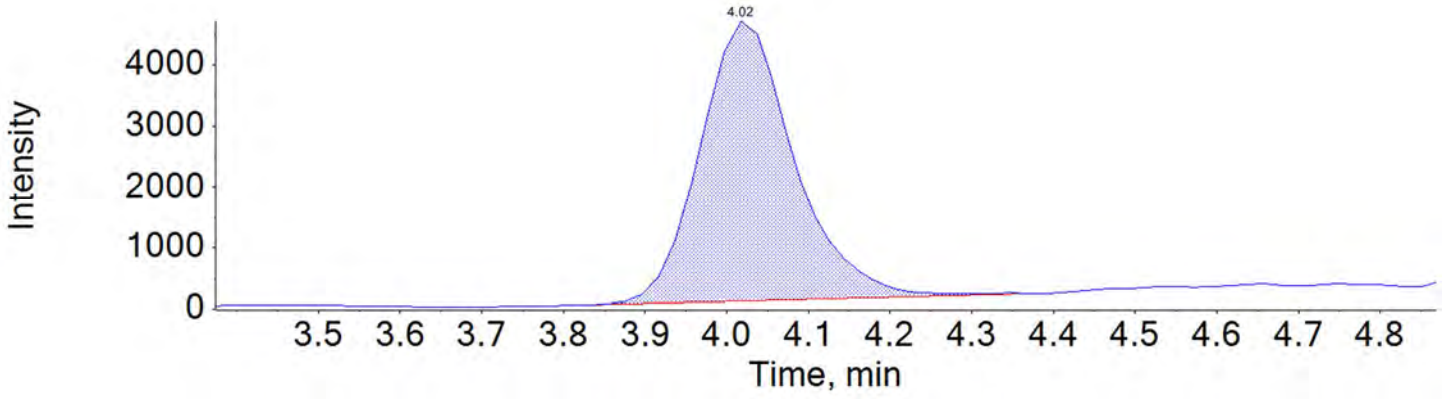

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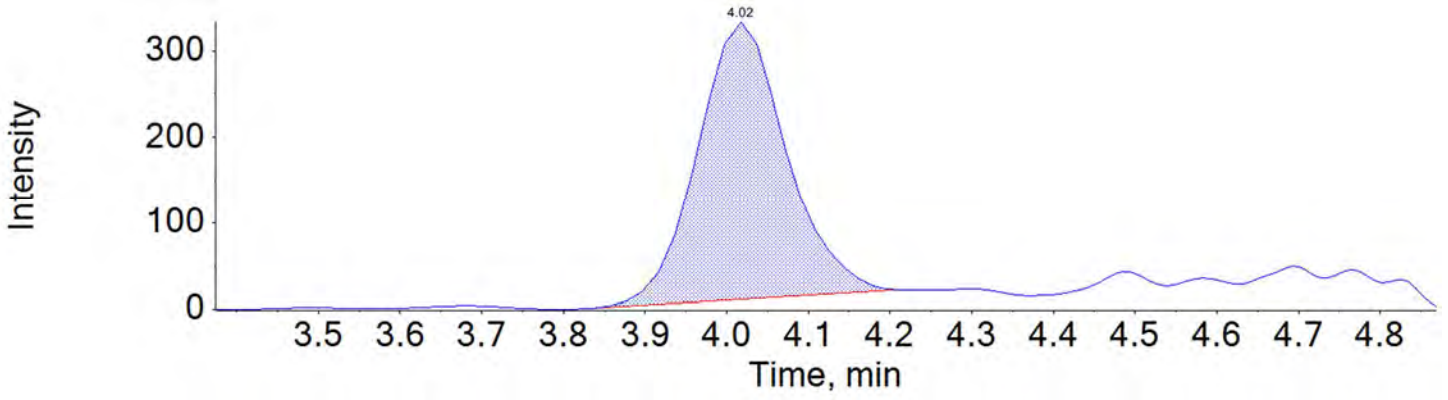

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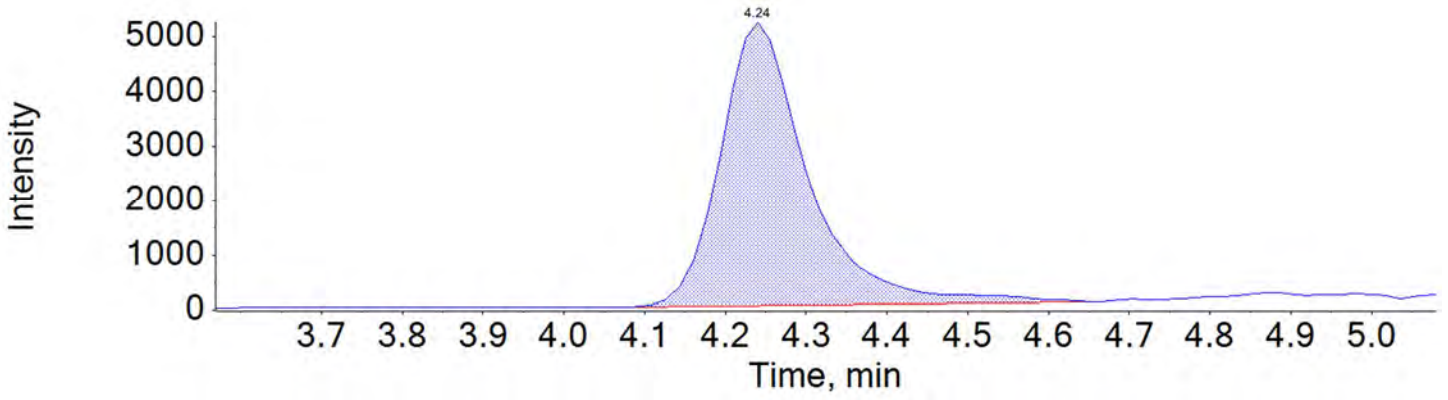

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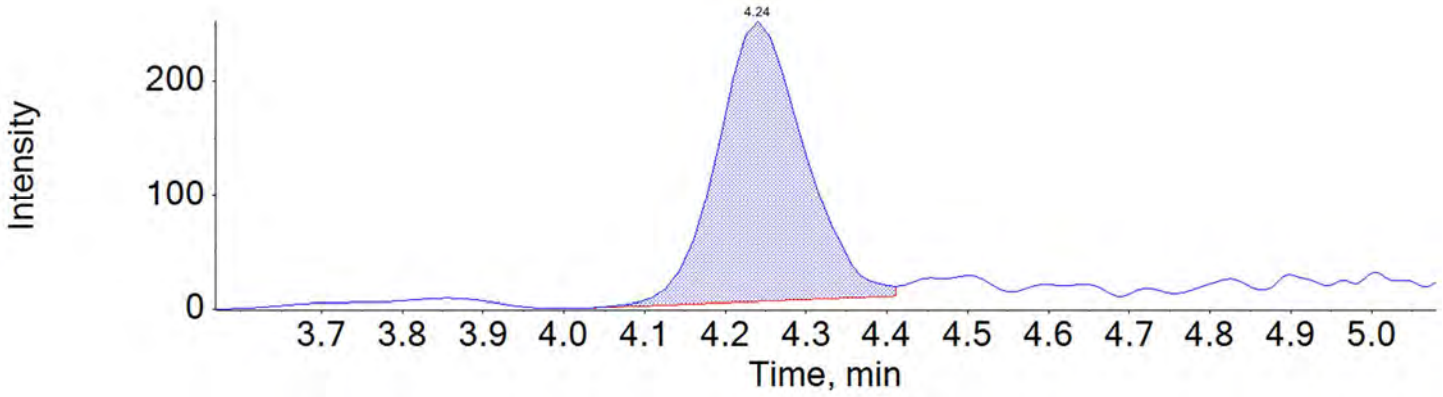

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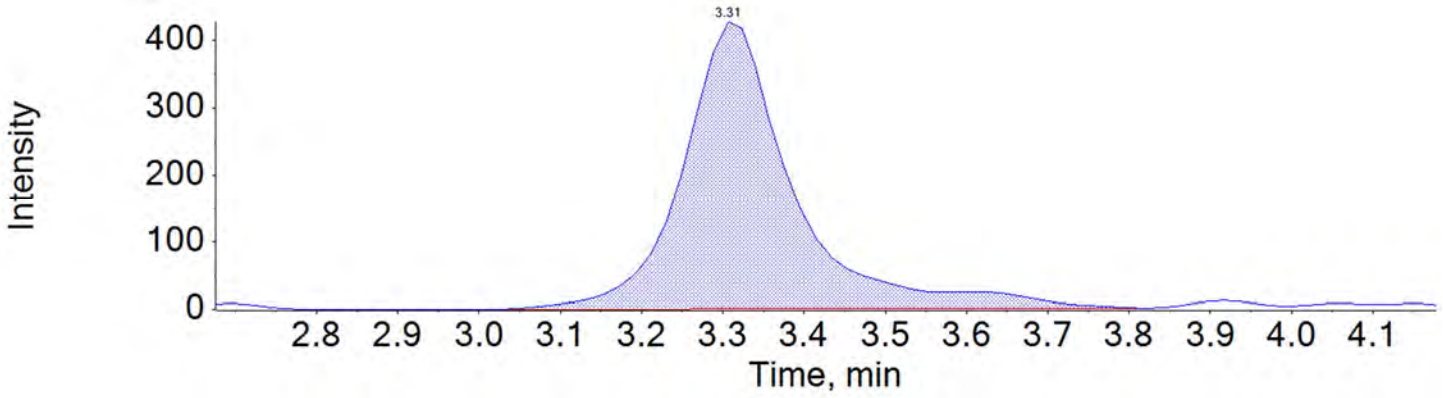

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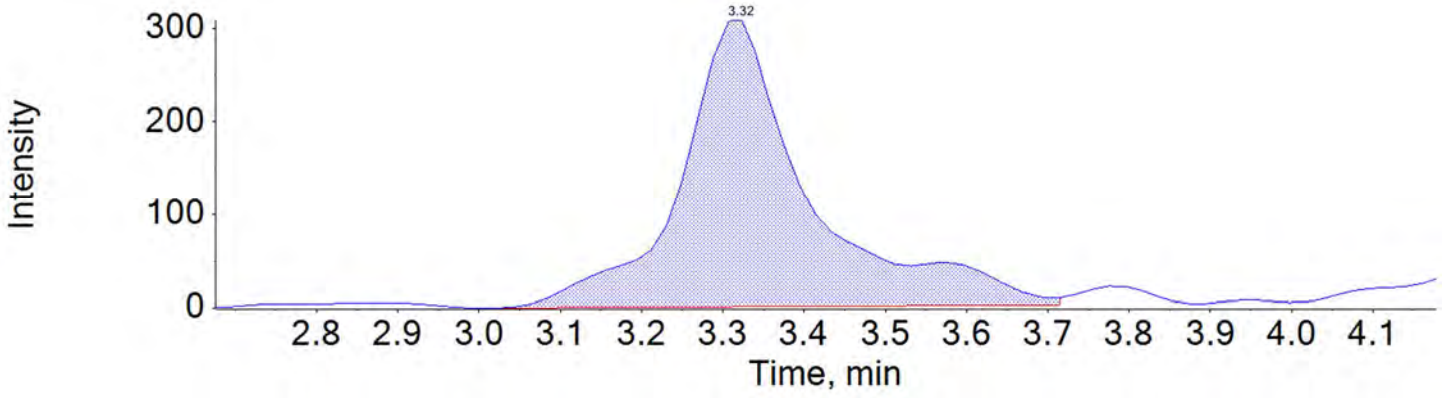

BATTELLE

Chromatogram Report

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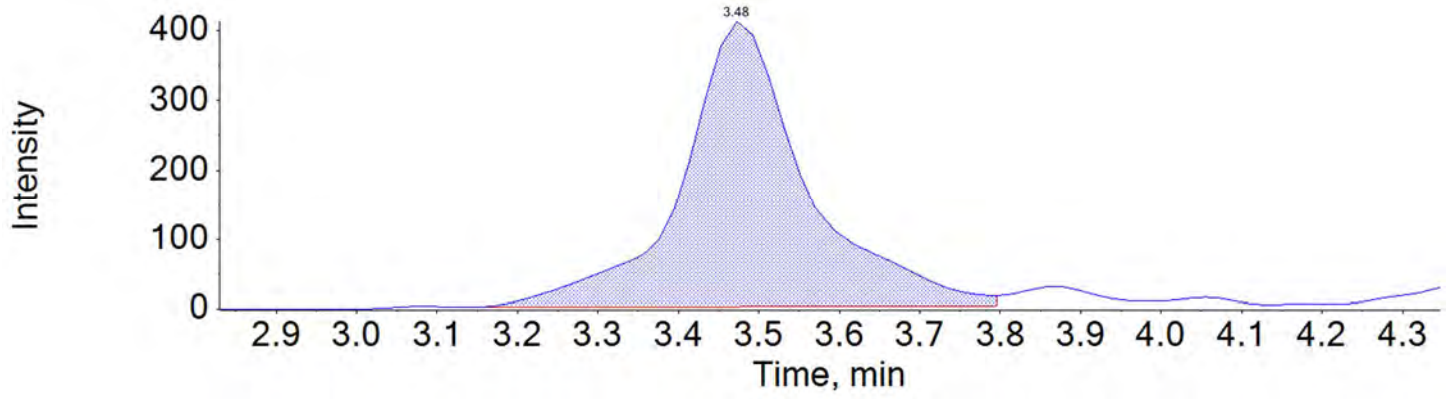
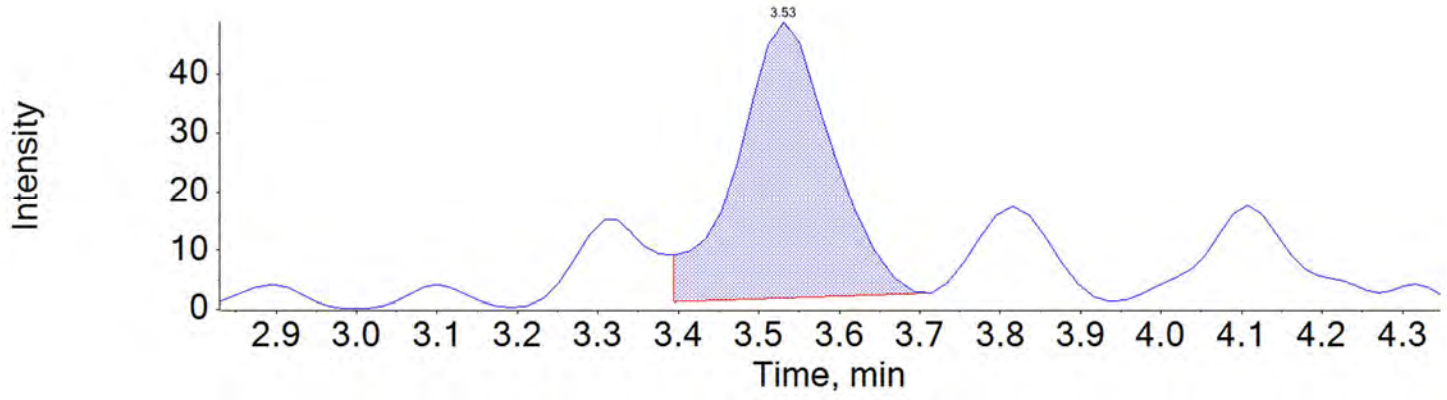
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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Chromatogram Report

Created with Analyst Reporter
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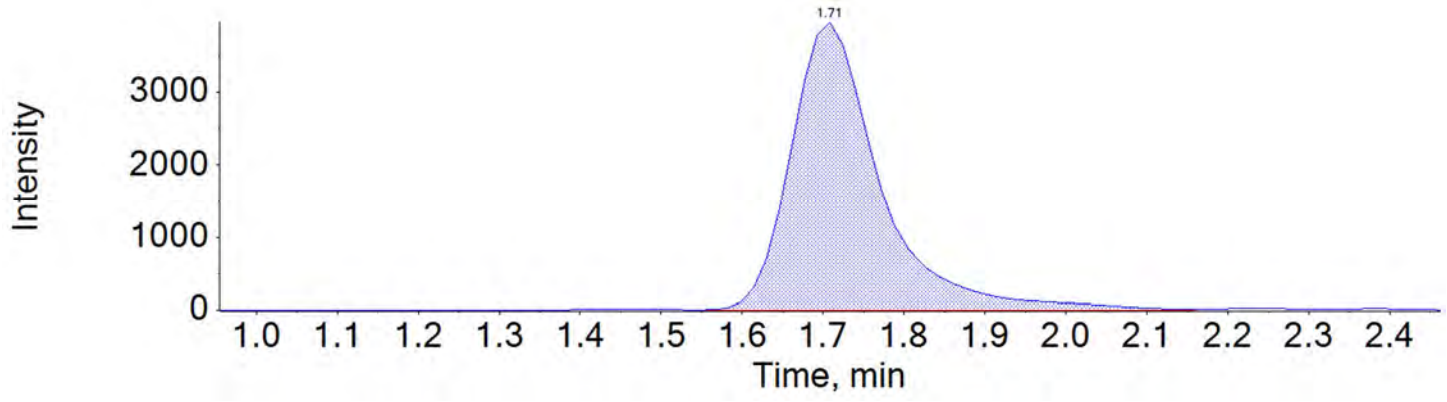
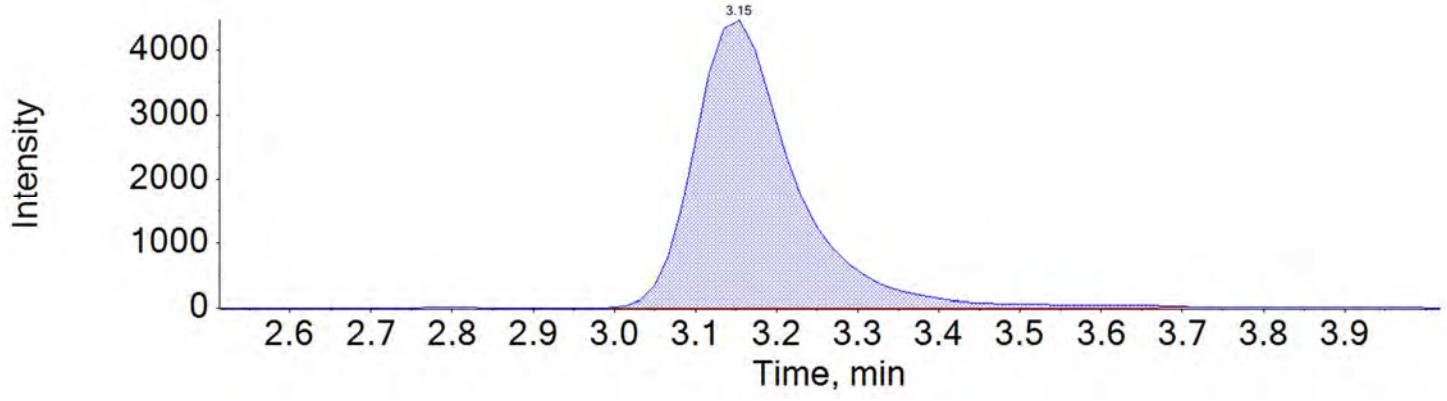
Sample Name	JV66	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T09:38:24	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

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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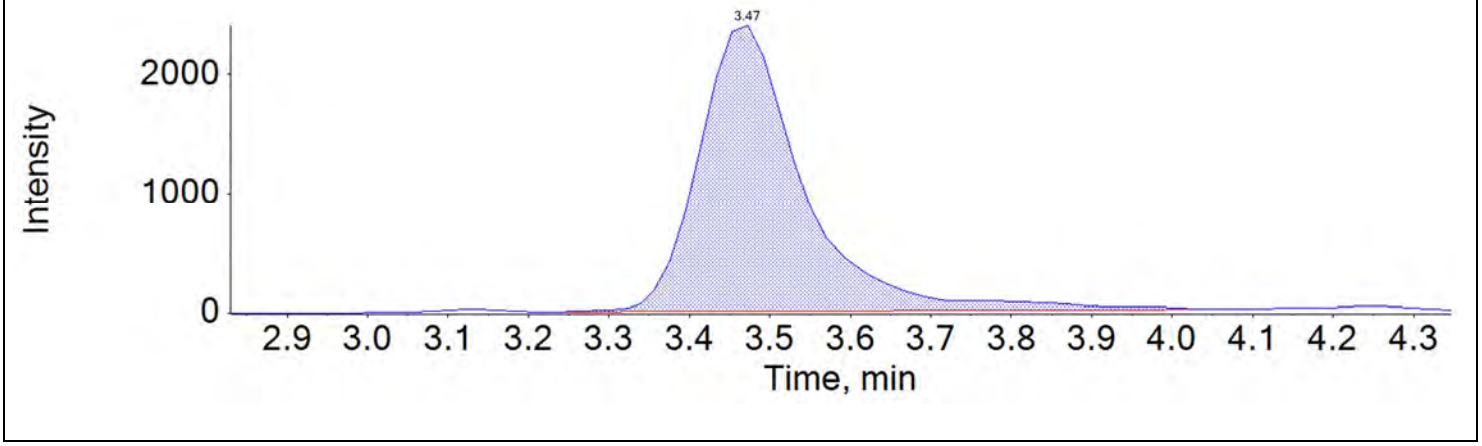
d5-EtFOSAA 589.0 / 419.0



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Chromatogram Report

Created with Analyst Reporter
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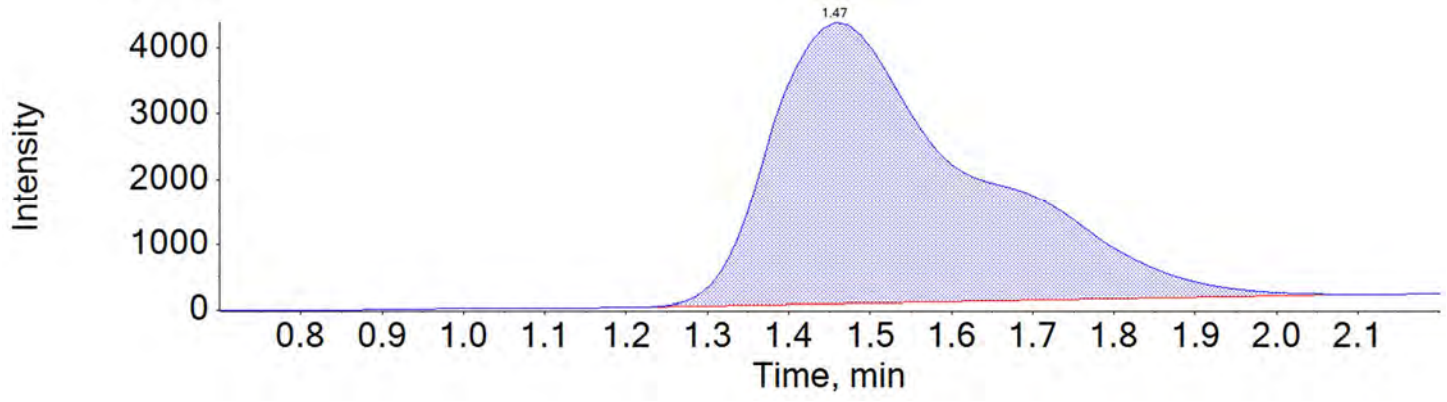
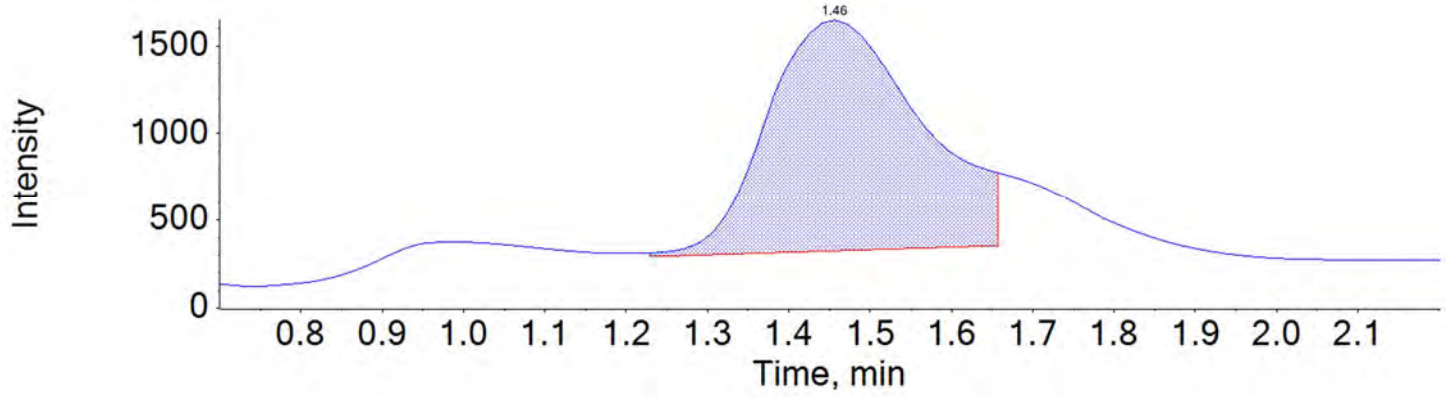
Sample Name	JV67	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T09:47:21	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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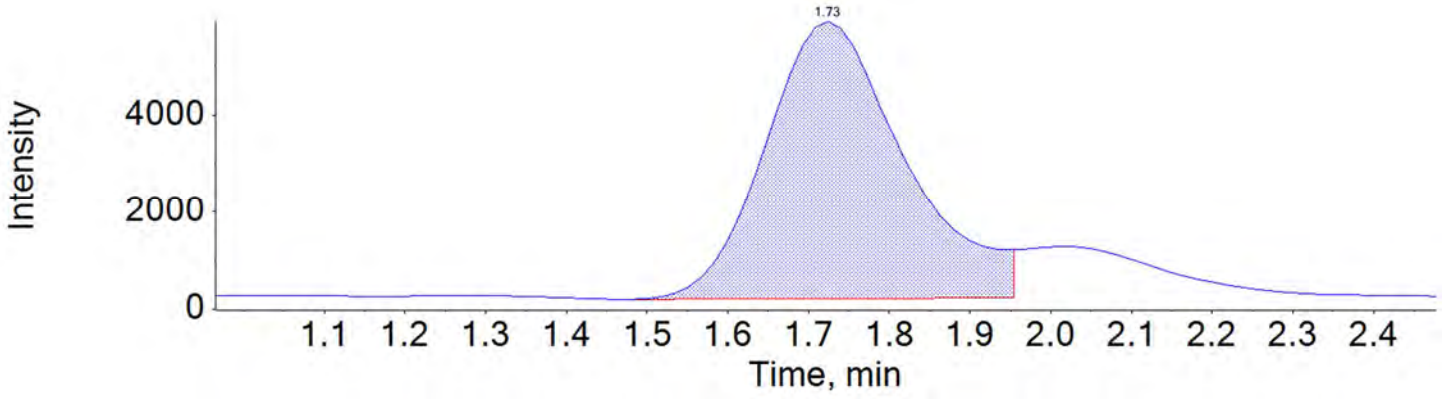
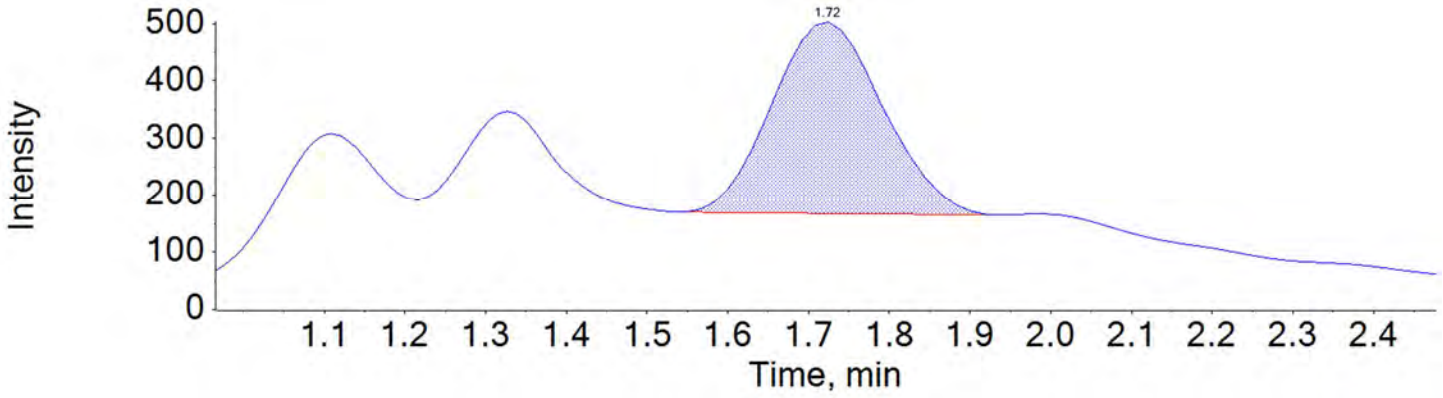
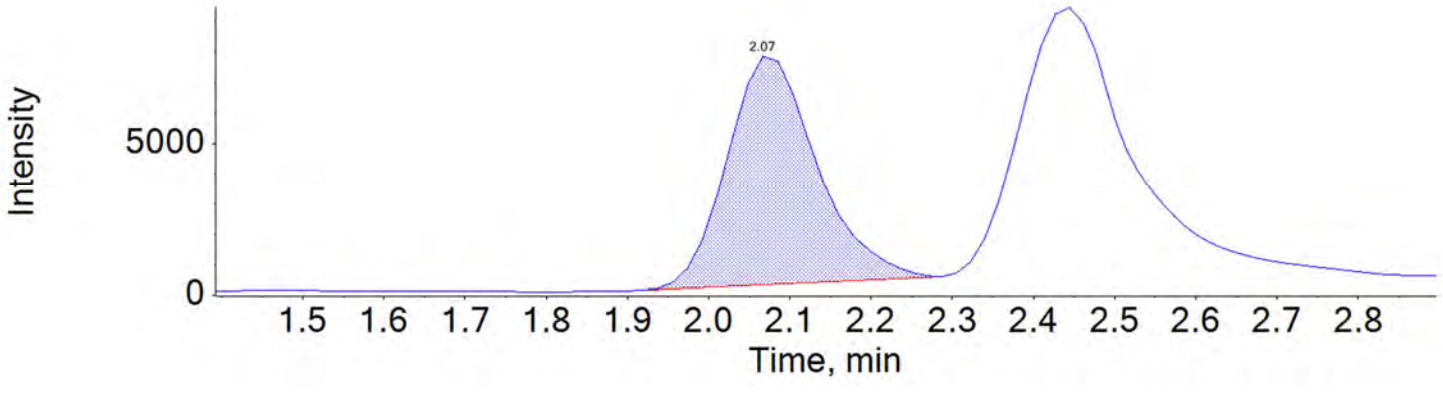
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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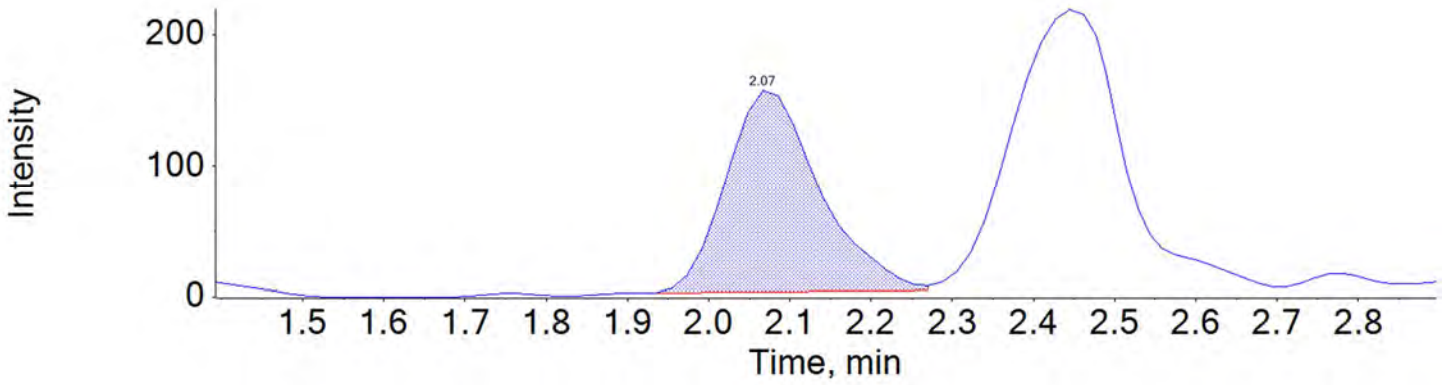
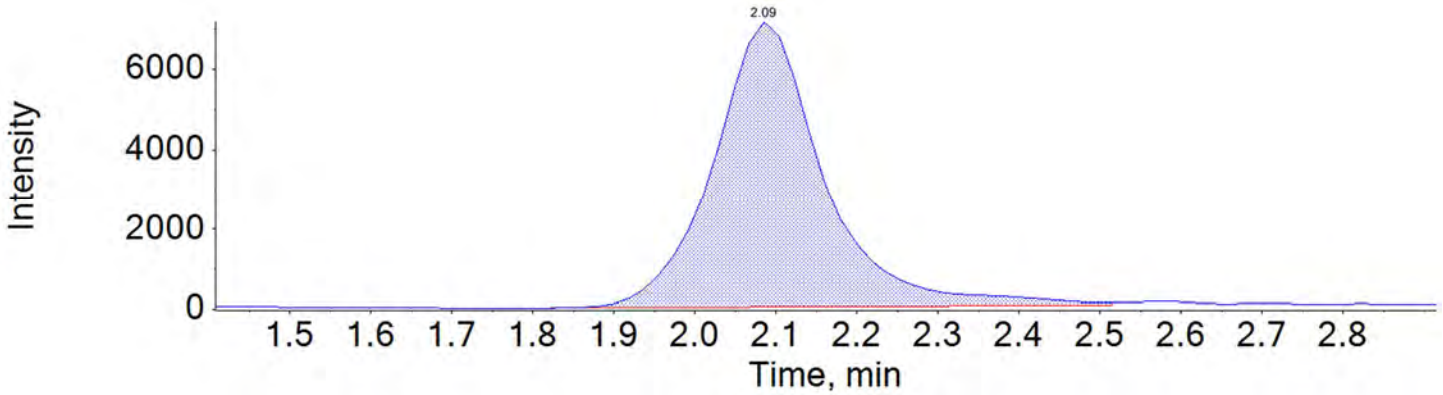
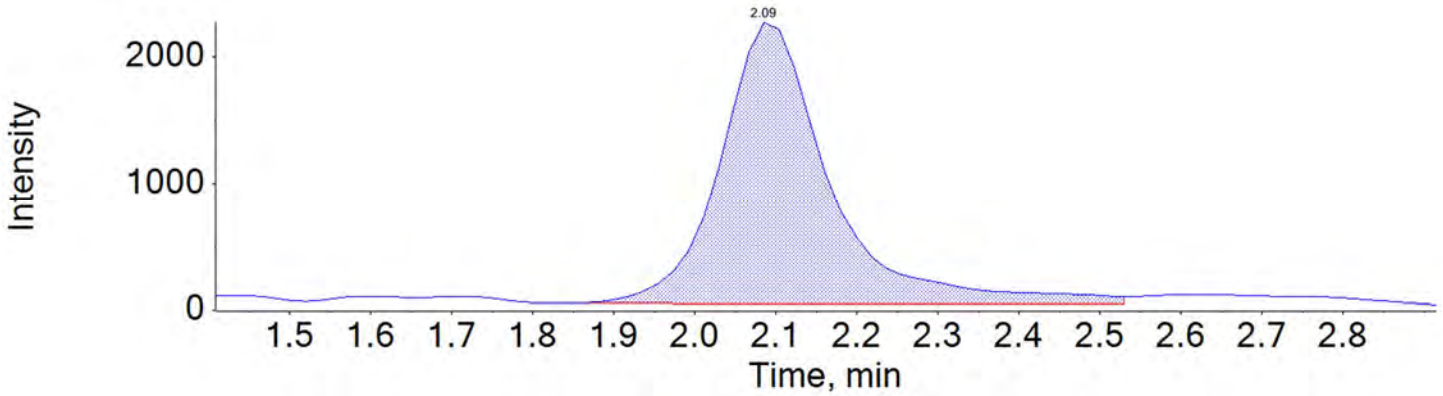
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



PFHxS_2 399.0 / 99.0



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Chromatogram Report

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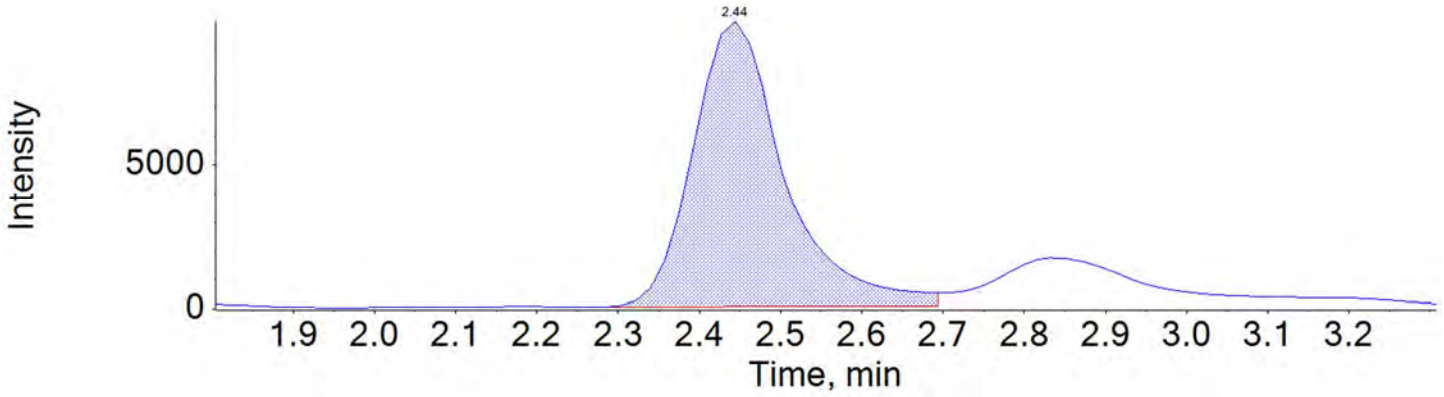
PFOA_1 413.0 / 369.0



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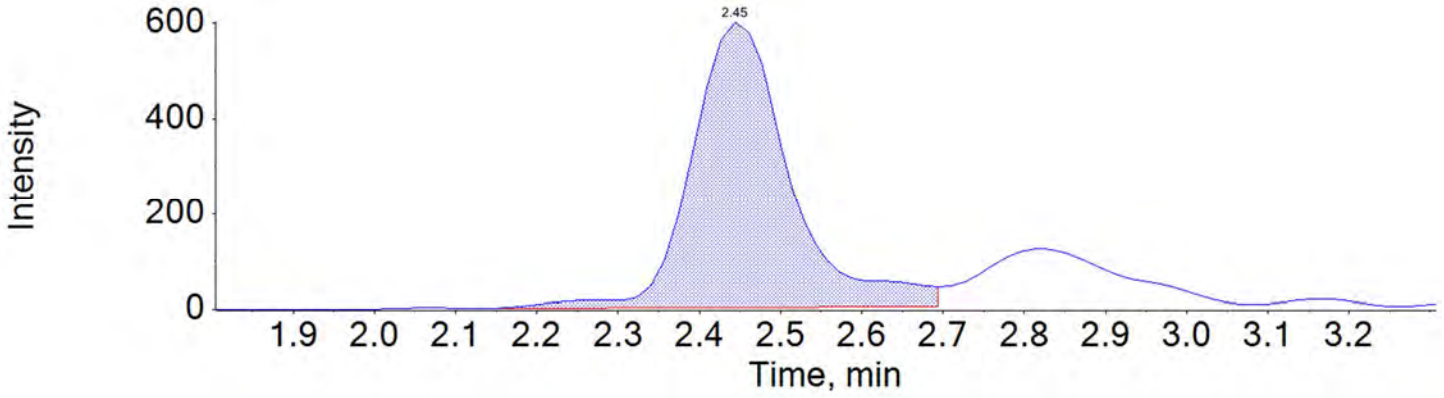
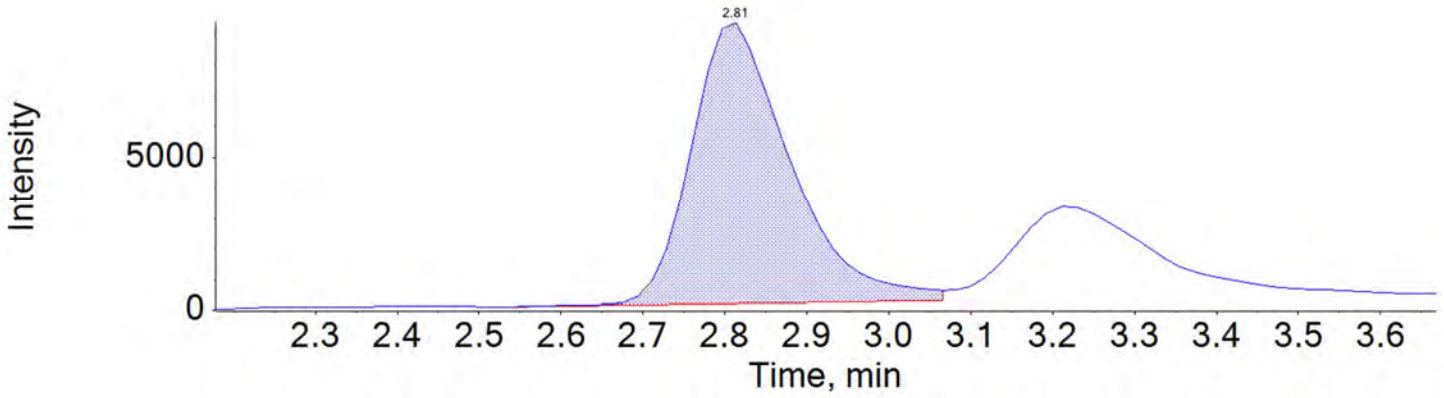


PFNA_1 463.0 / 419.0



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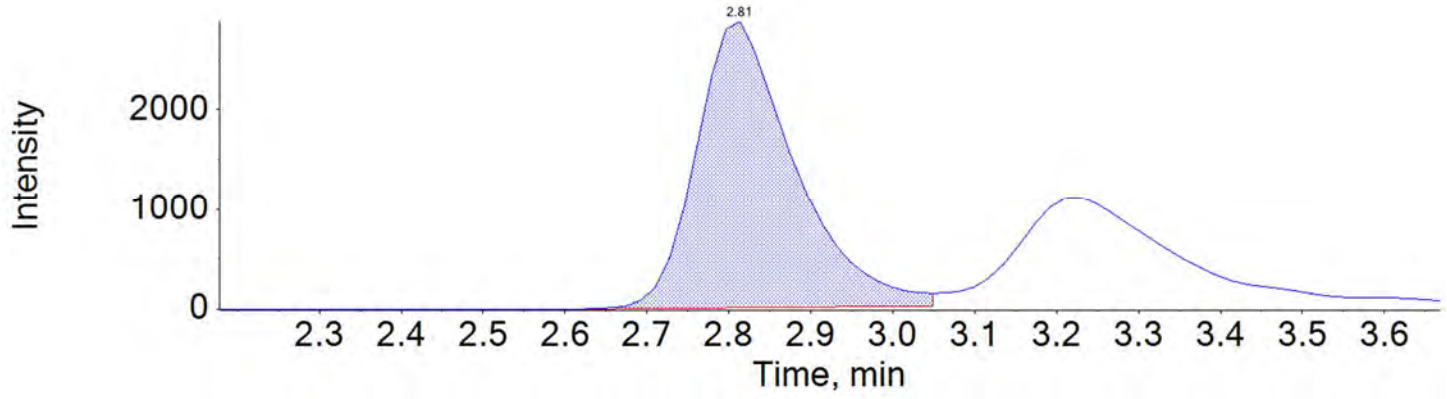
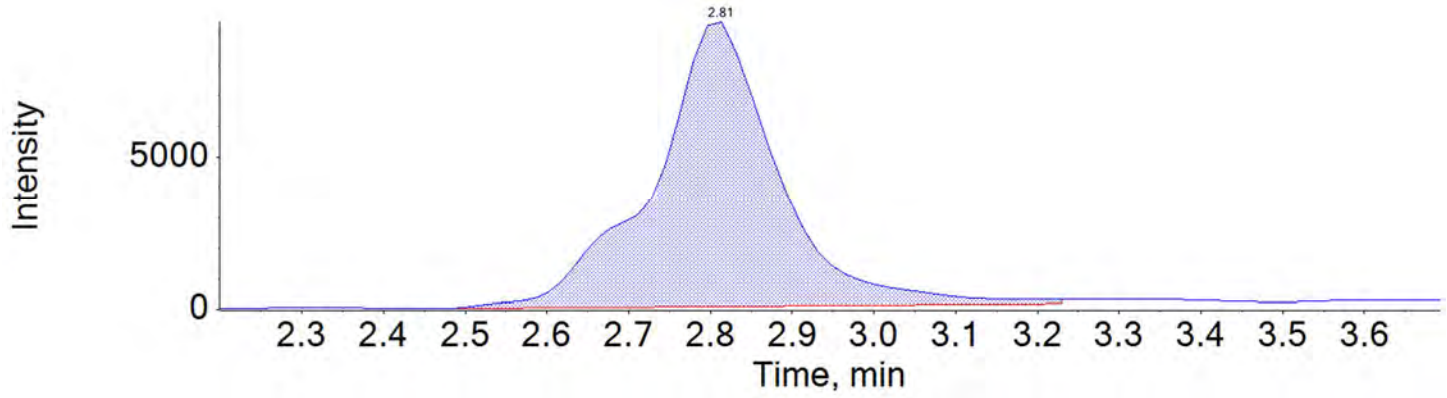
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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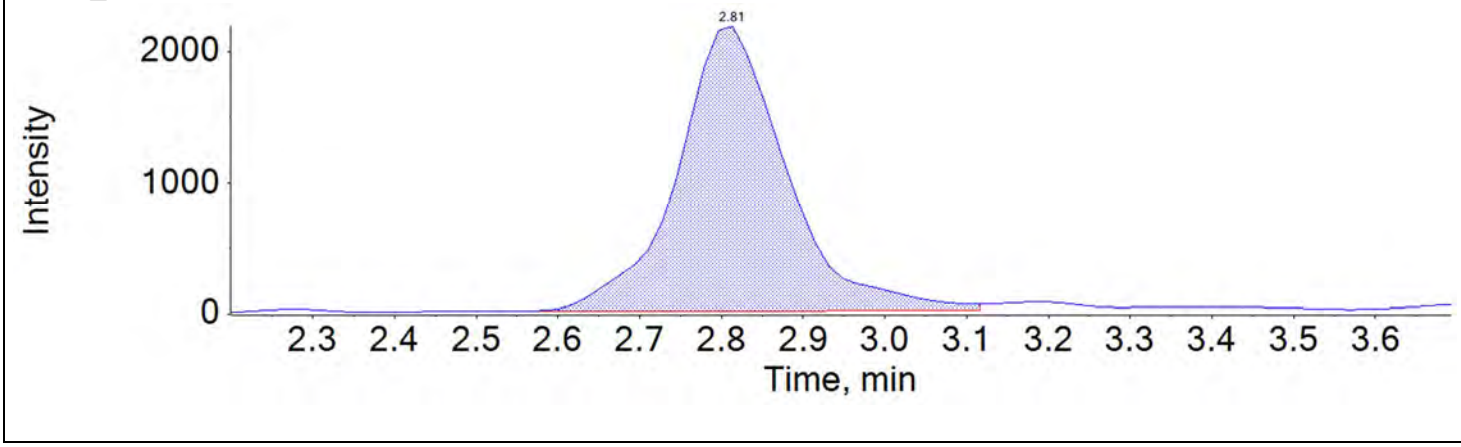

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Chromatogram Report

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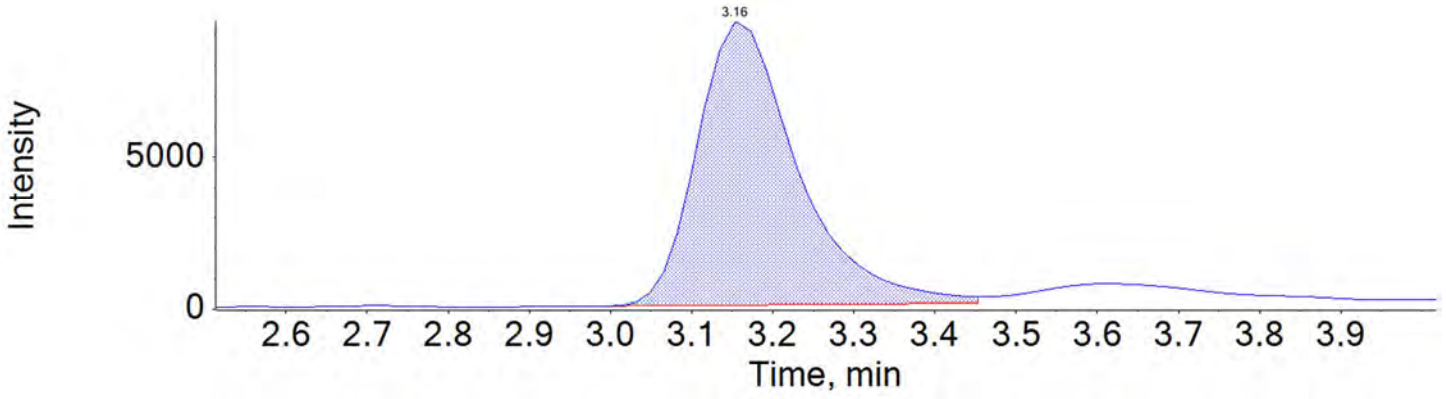
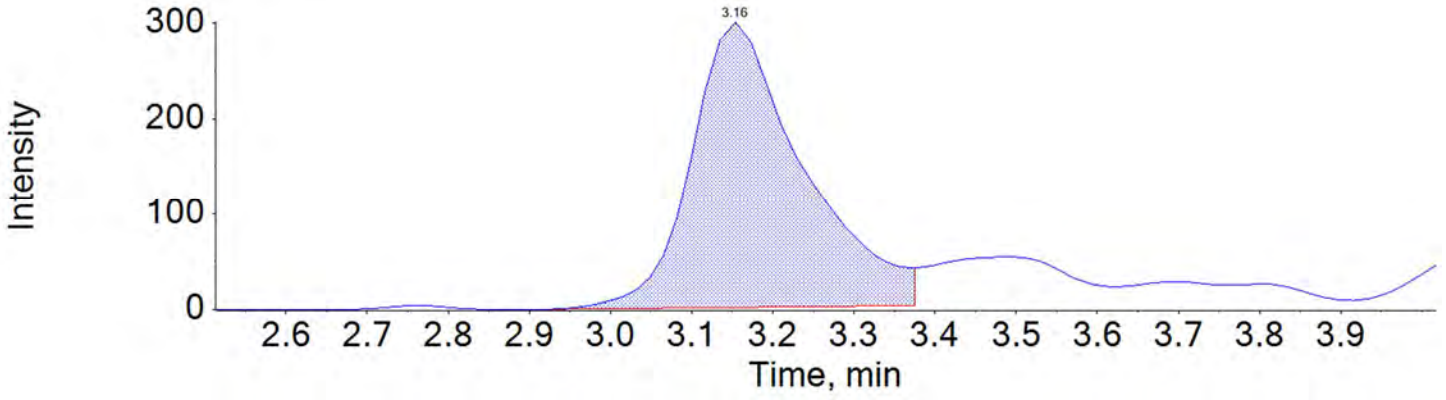
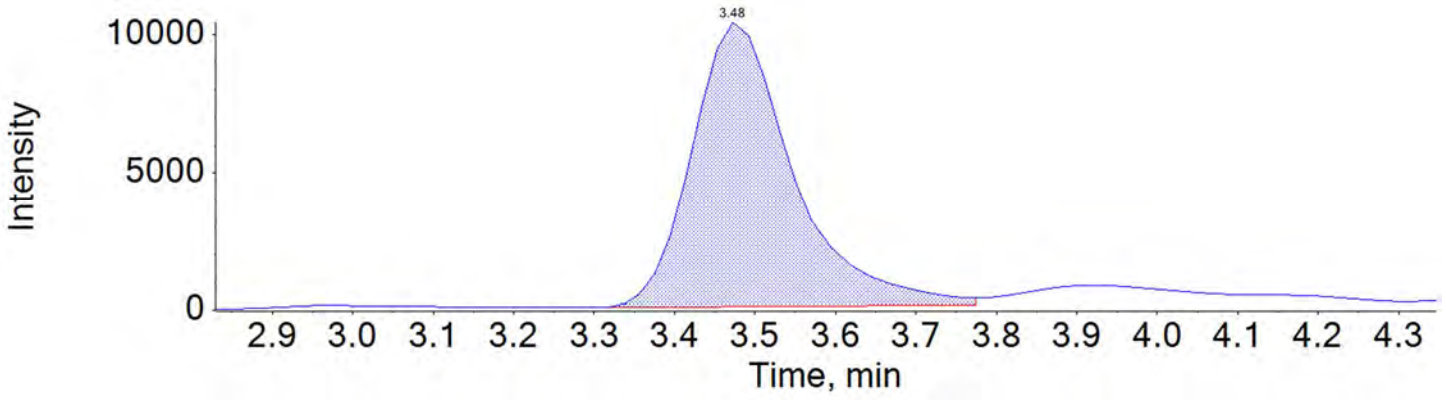
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



PFUnA_1 563.0 / 519.0



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Chromatogram Report

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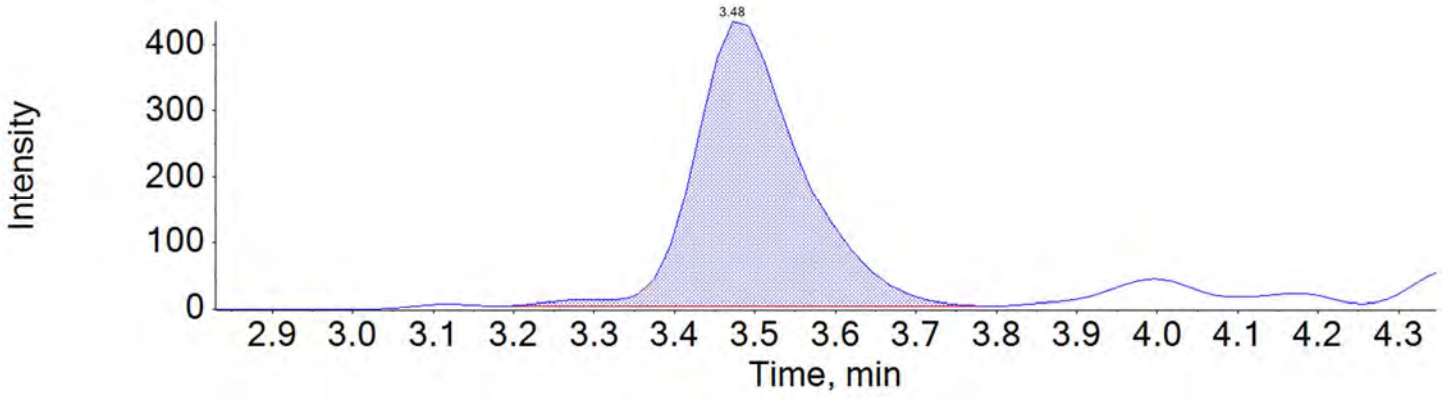
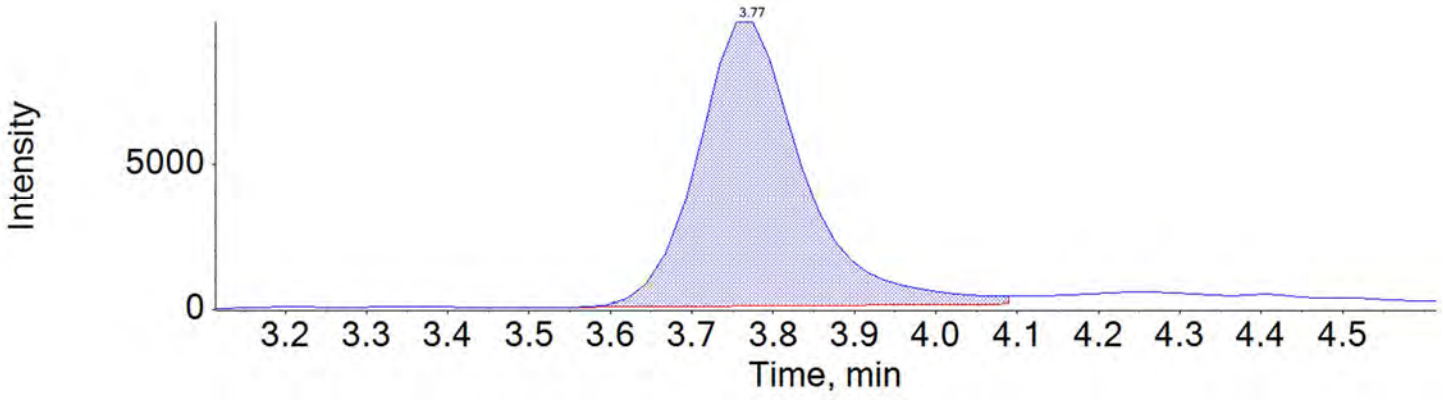
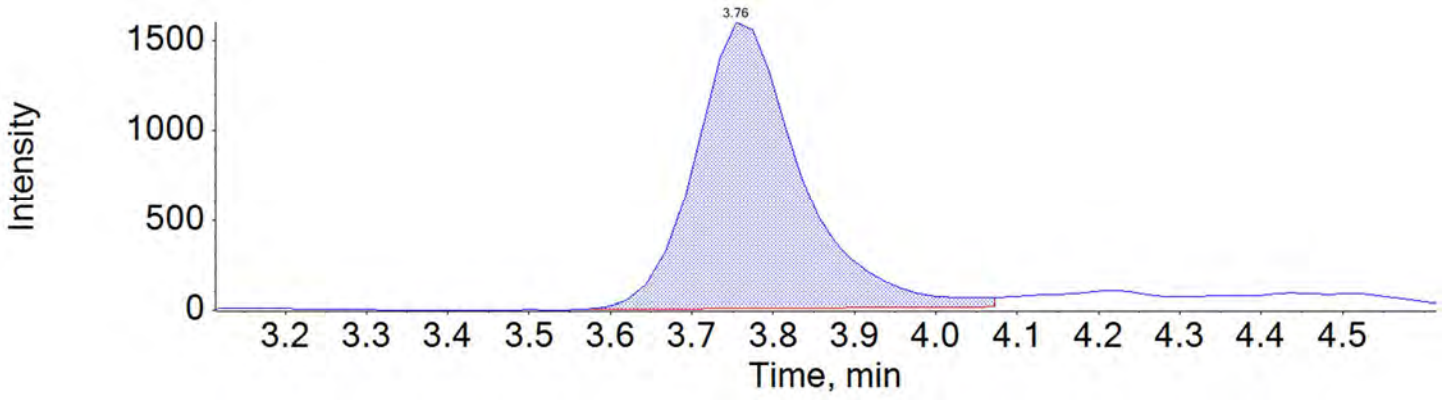
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



PFDoA_2 613.0 / 319.0



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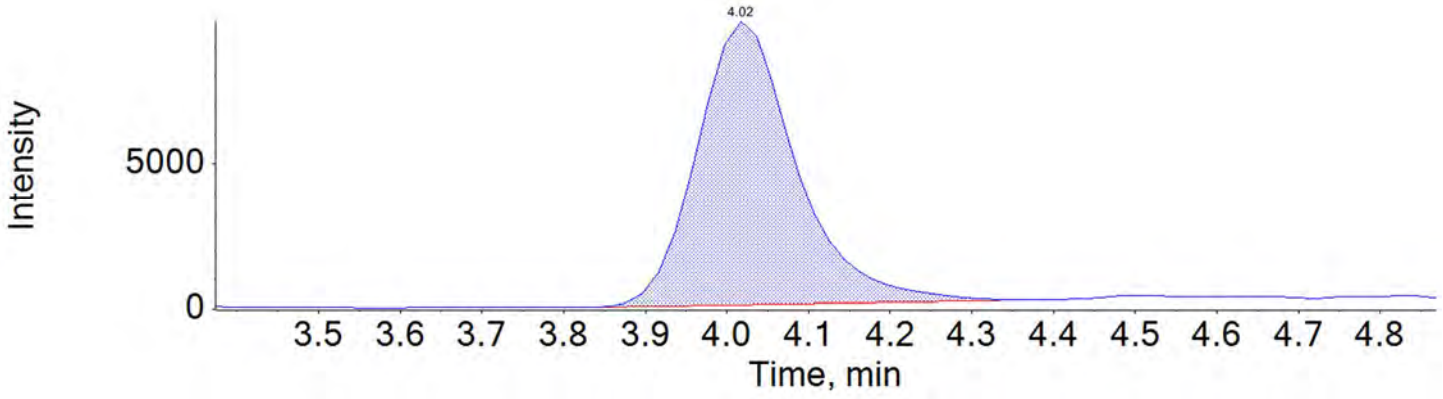
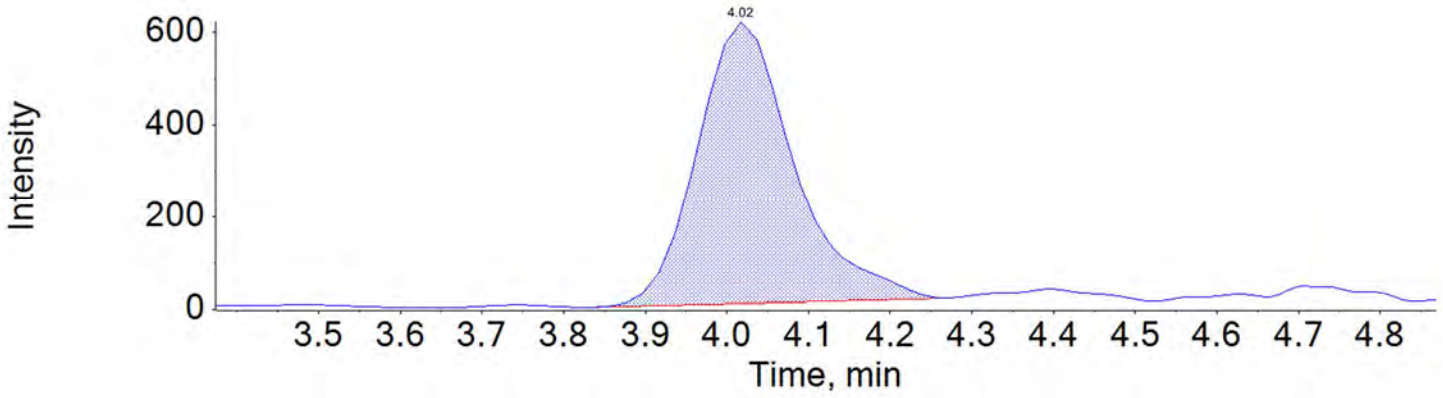
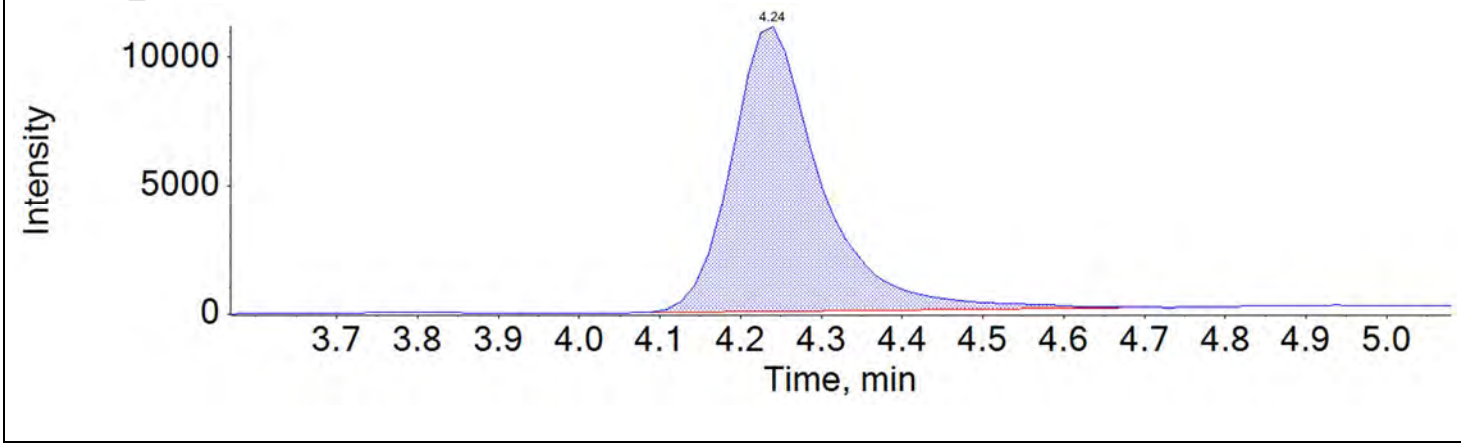
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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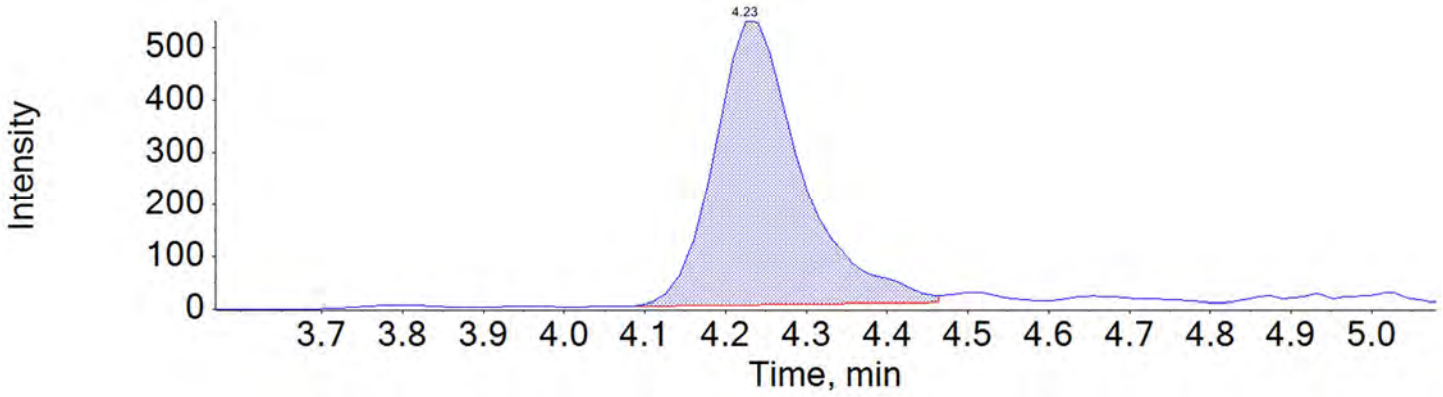
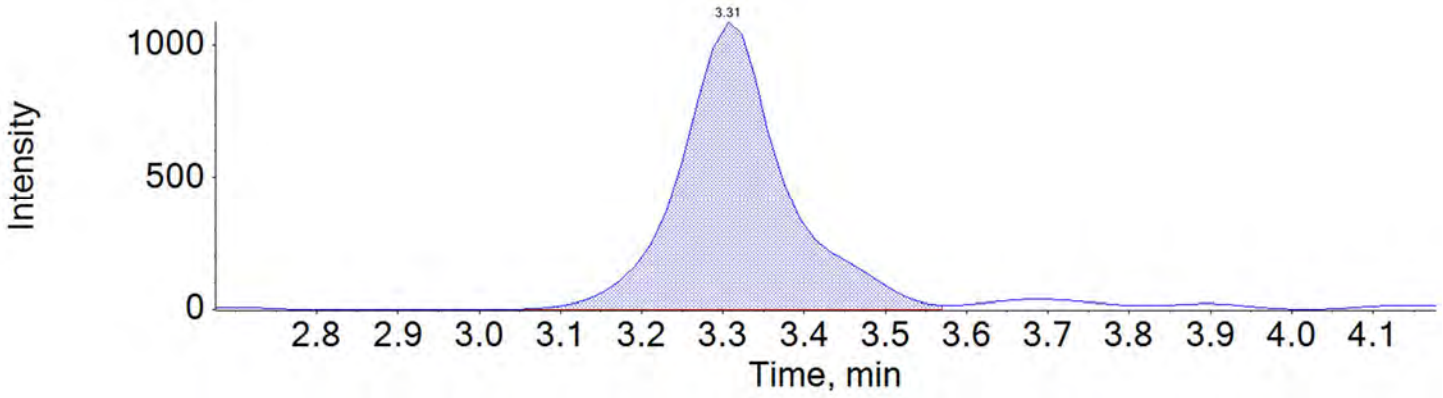
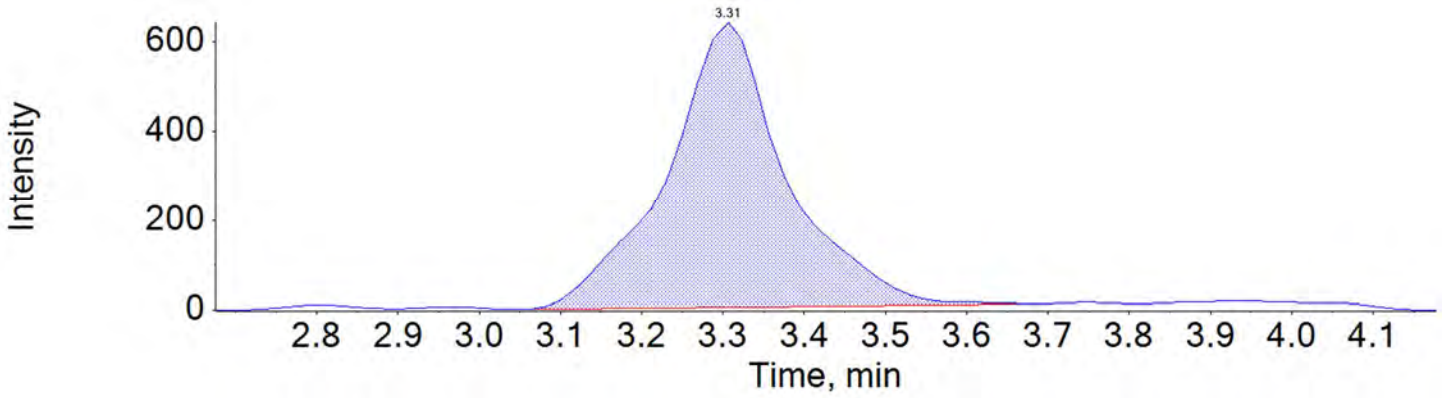


NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

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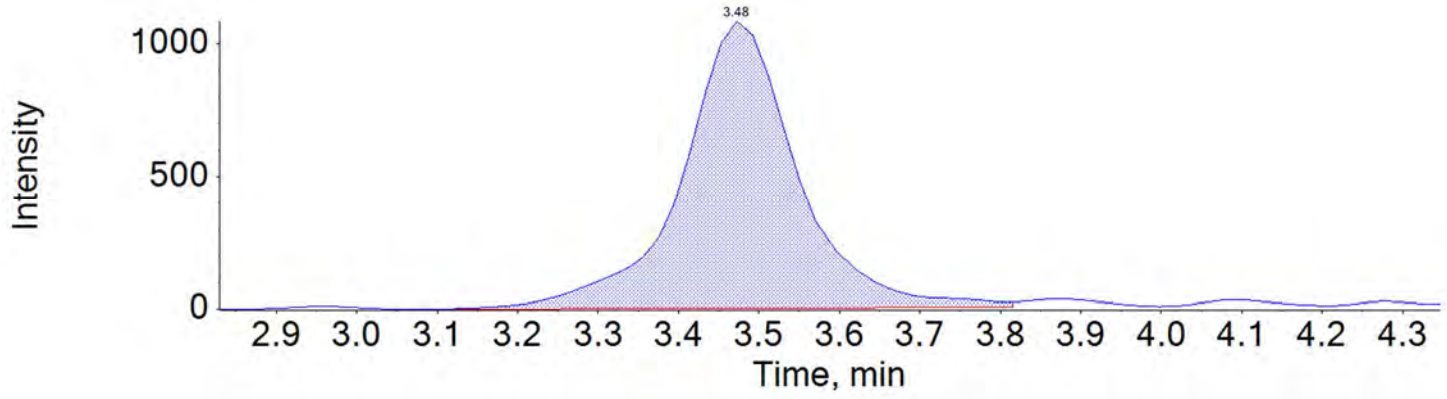
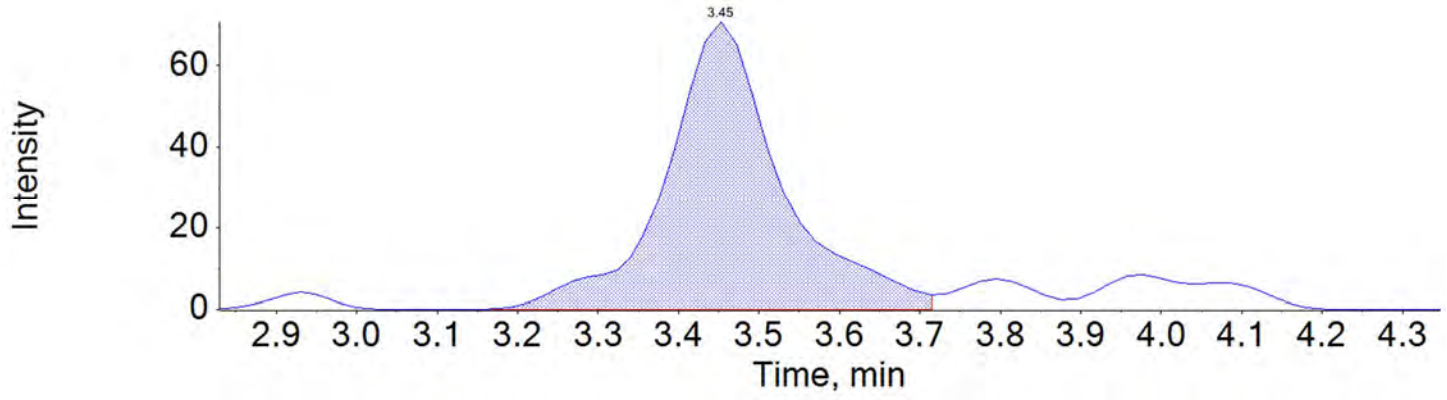
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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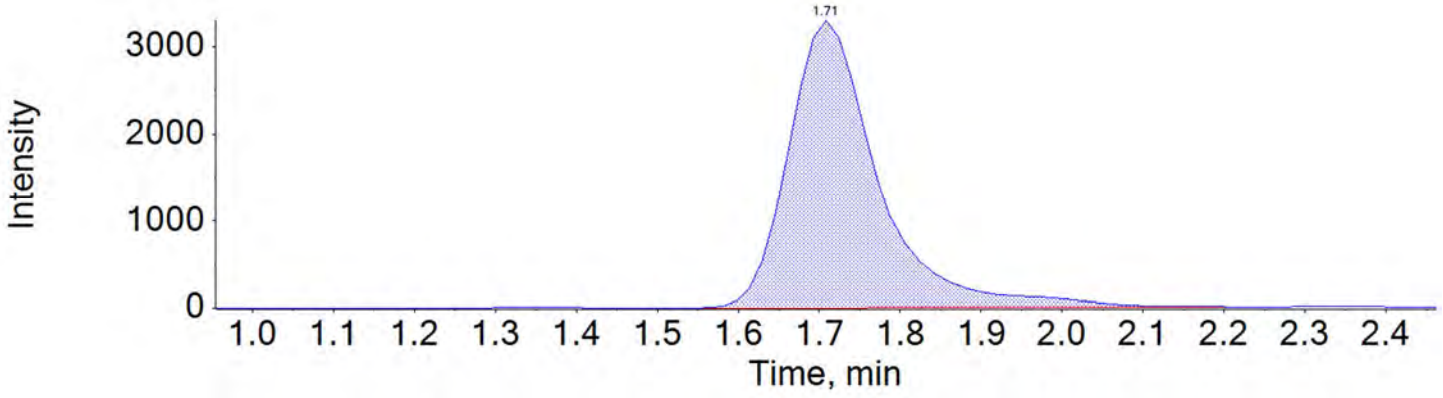
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:01:01 PM

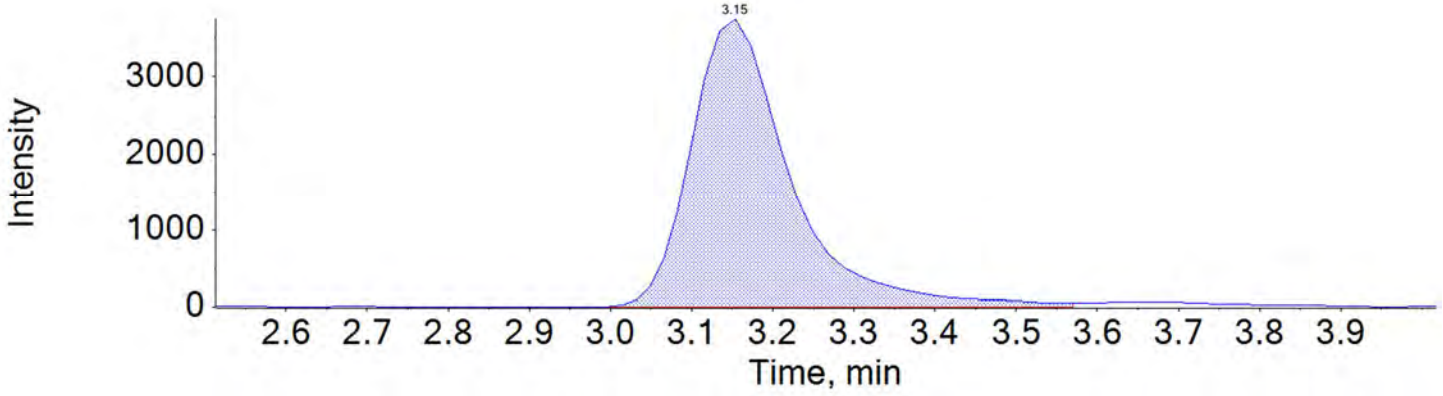
Sample Name	JV67	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T09:47:21	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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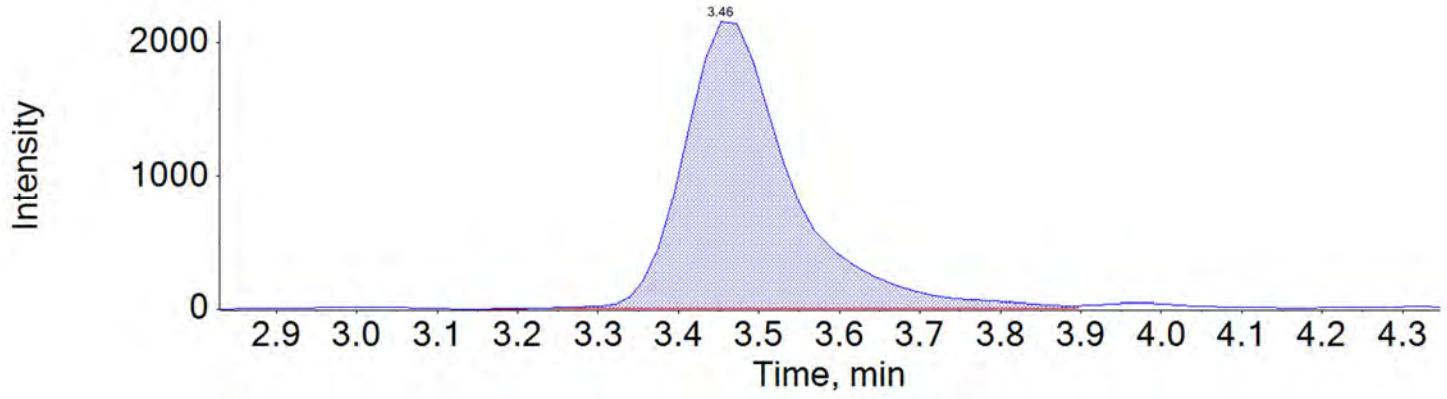
d5-EtFOSAA 589.0 / 419.0



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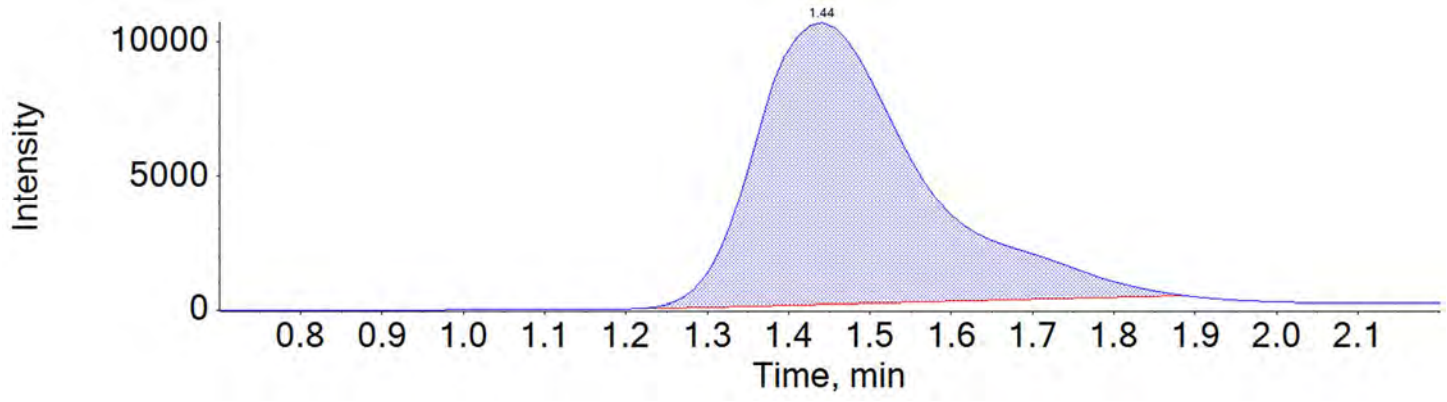
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:05:44 PM

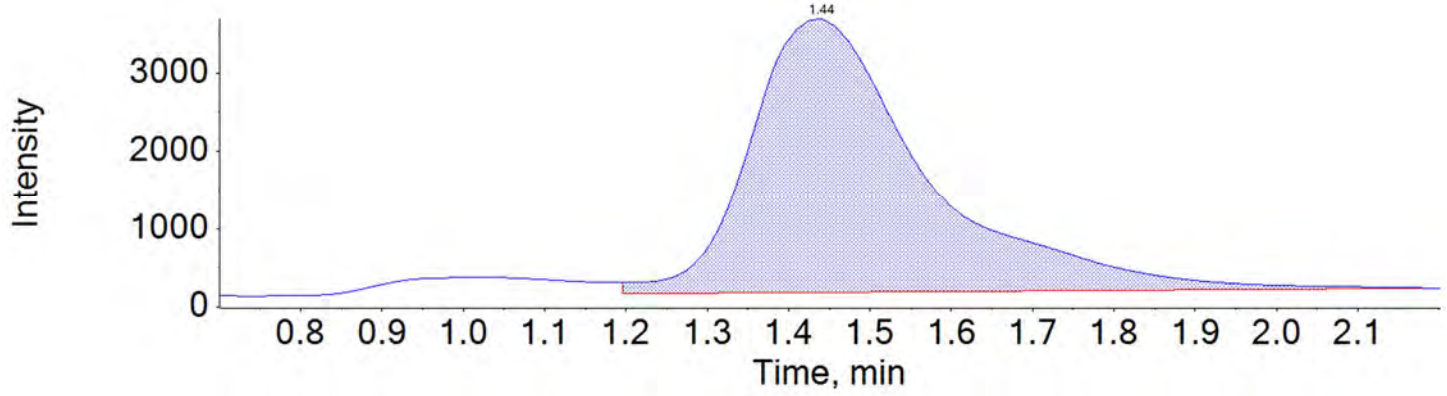
Sample Name	JV68	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T09:56:17	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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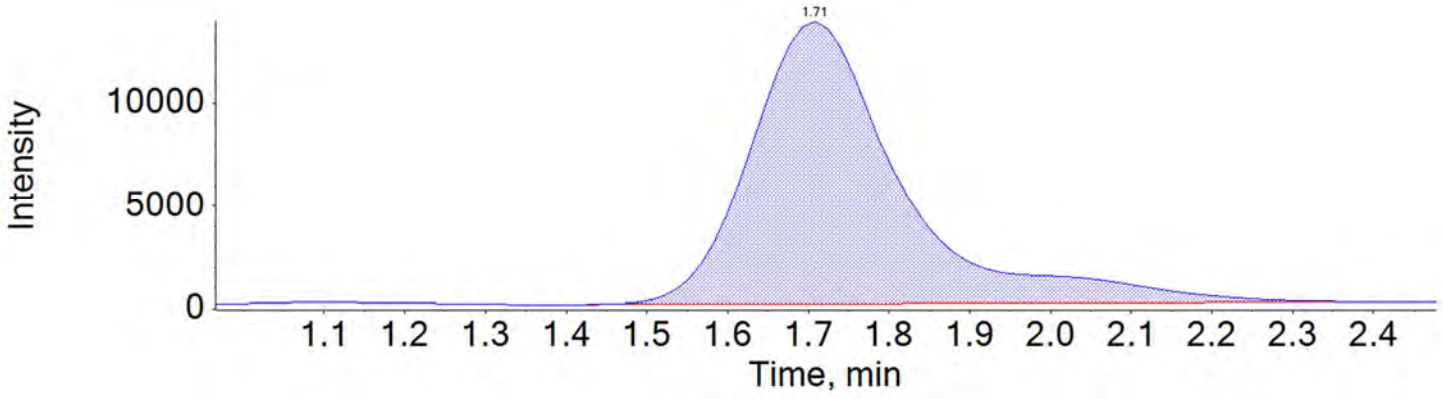
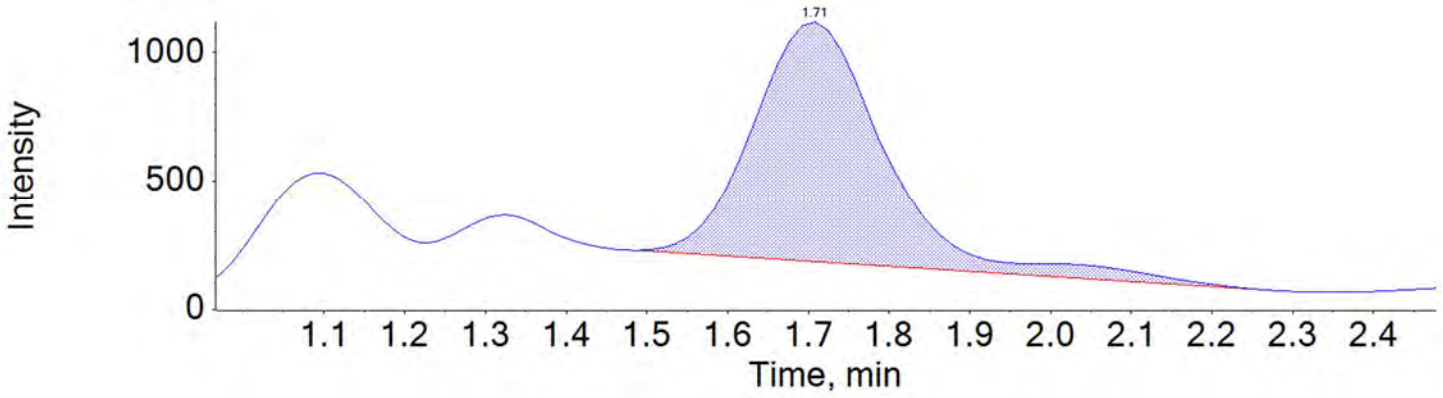
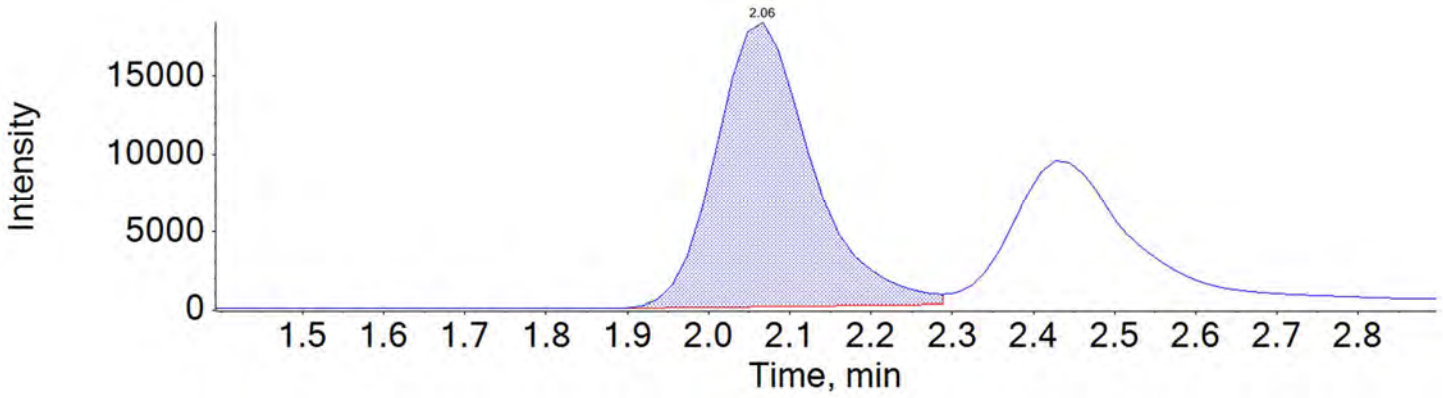
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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Chromatogram Report

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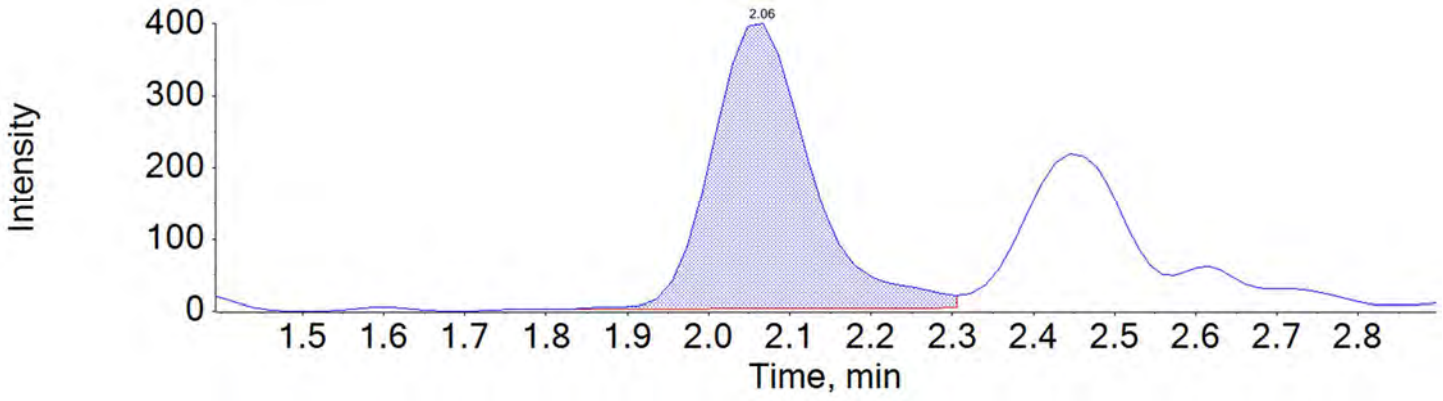
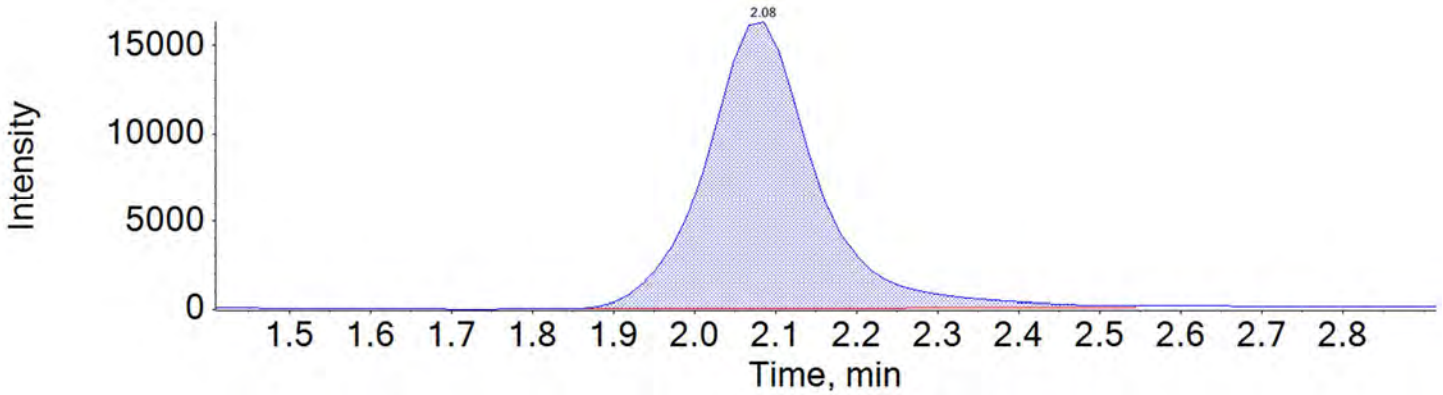
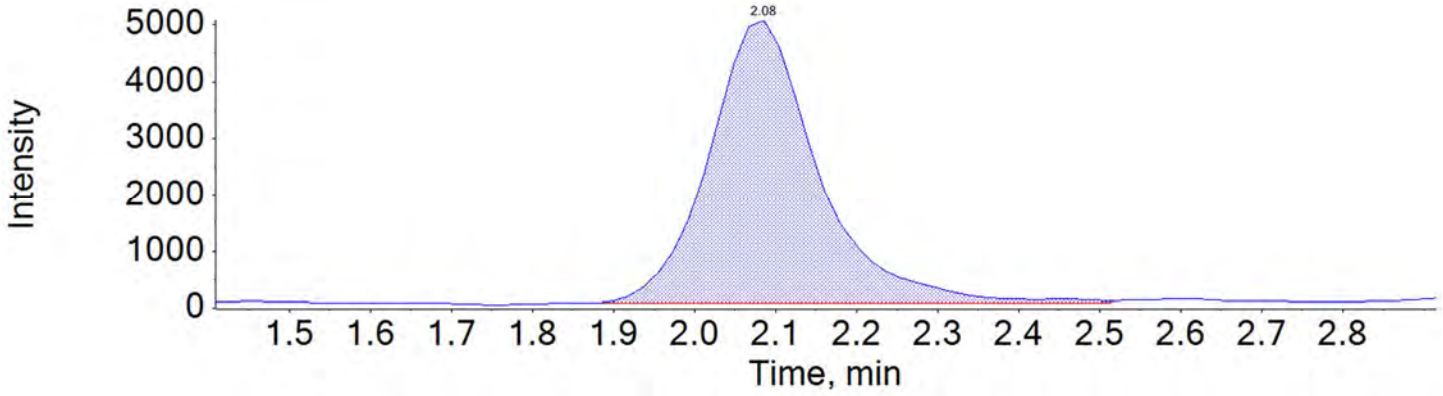
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



PFHxS_2 399.0 / 99.0



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Chromatogram Report

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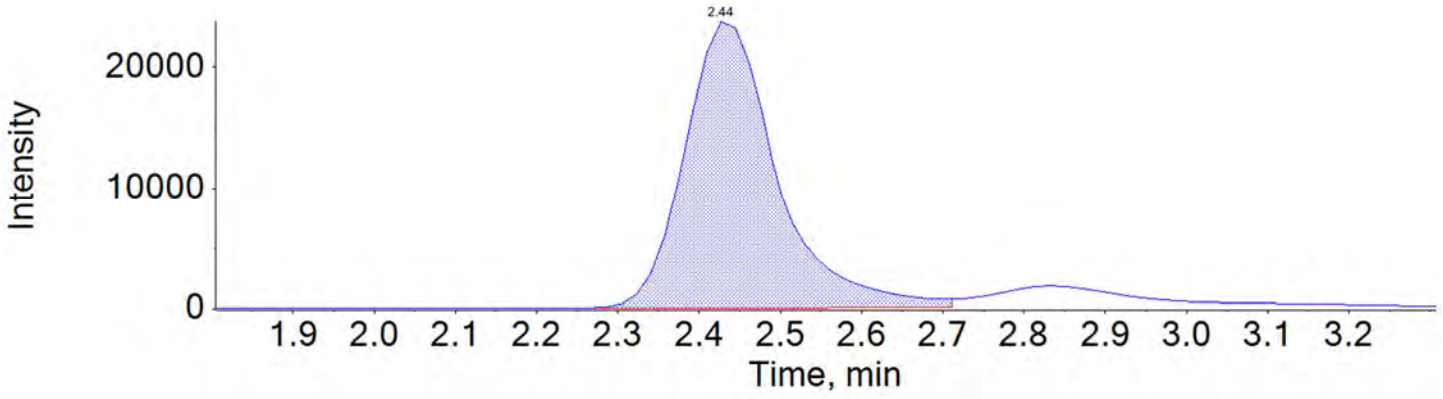
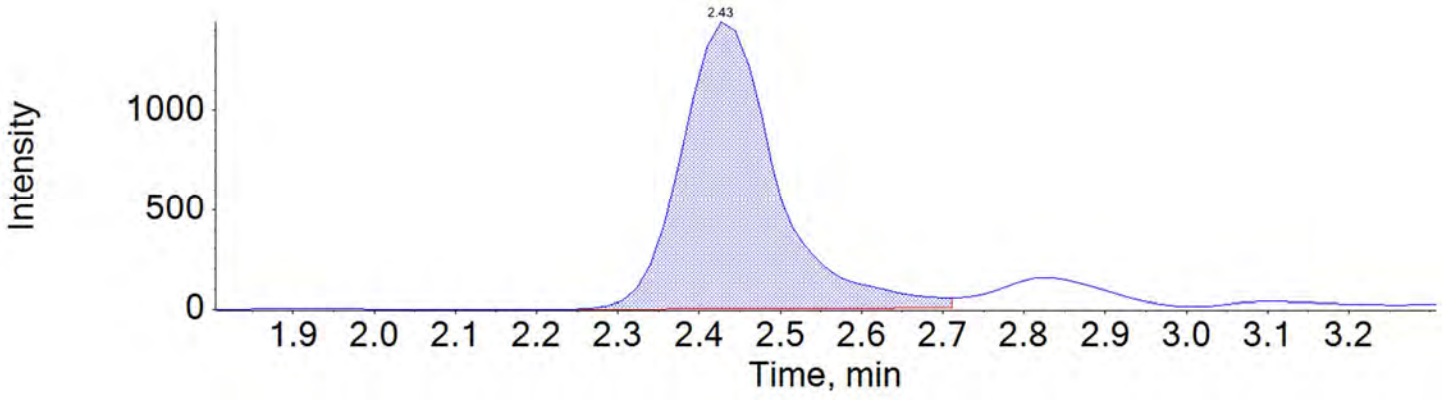
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



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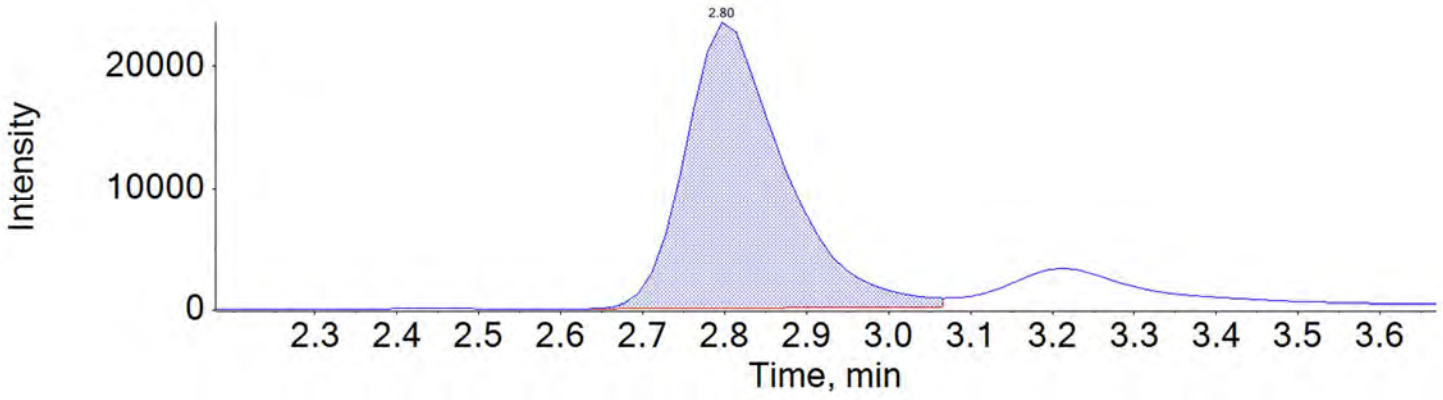

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Chromatogram Report

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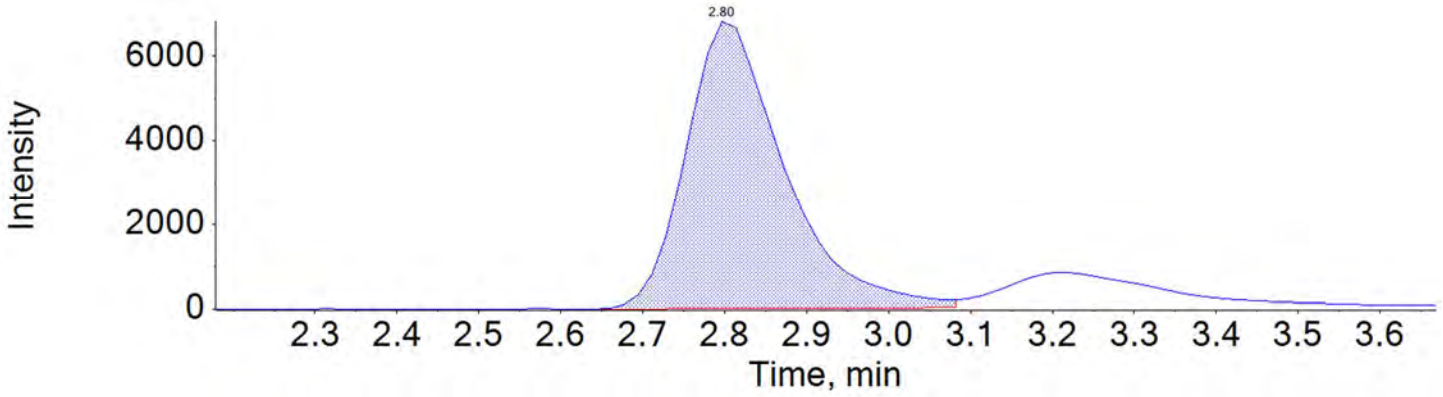
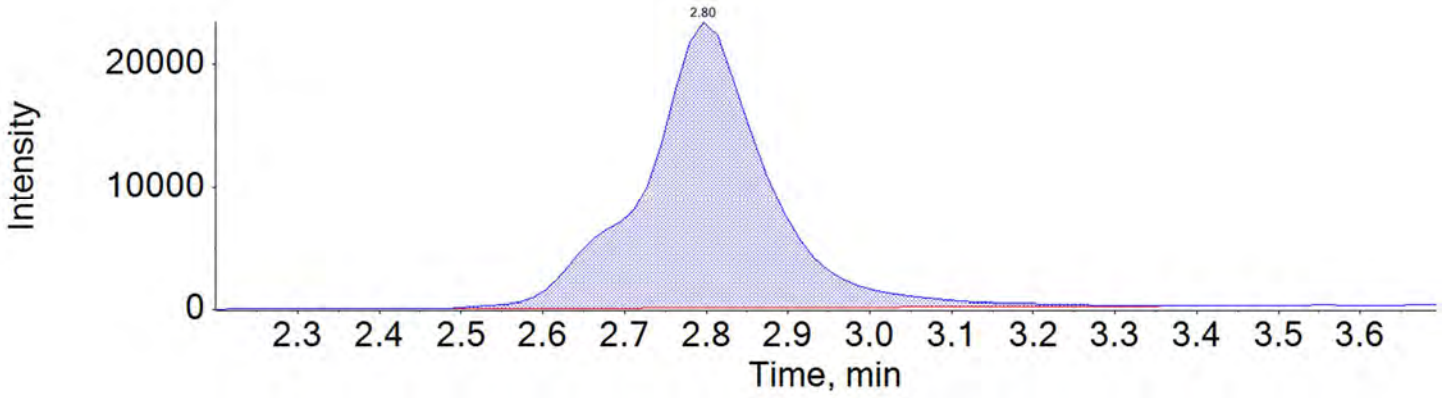


PFOS_1 499.0 / 80.0



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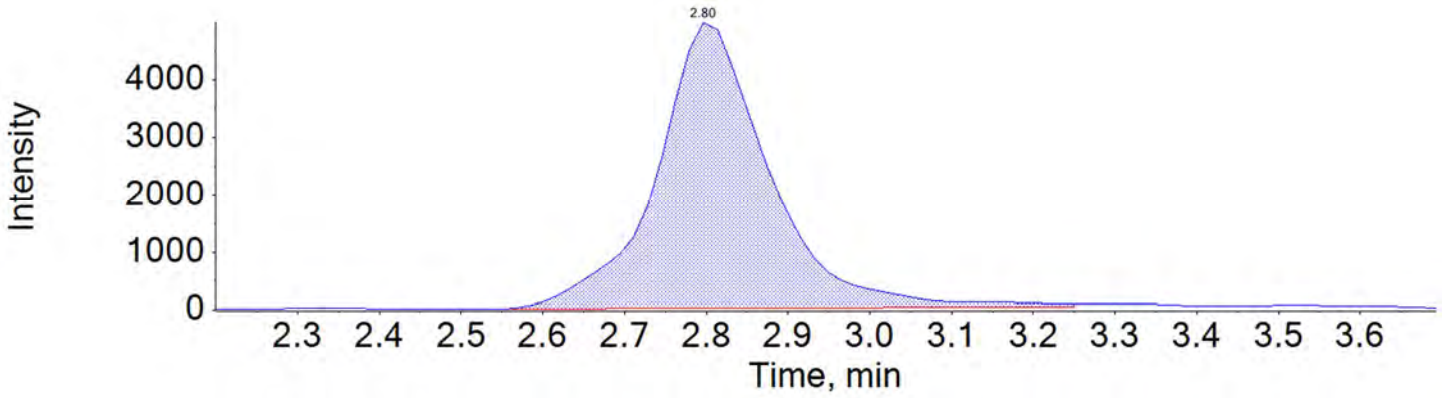

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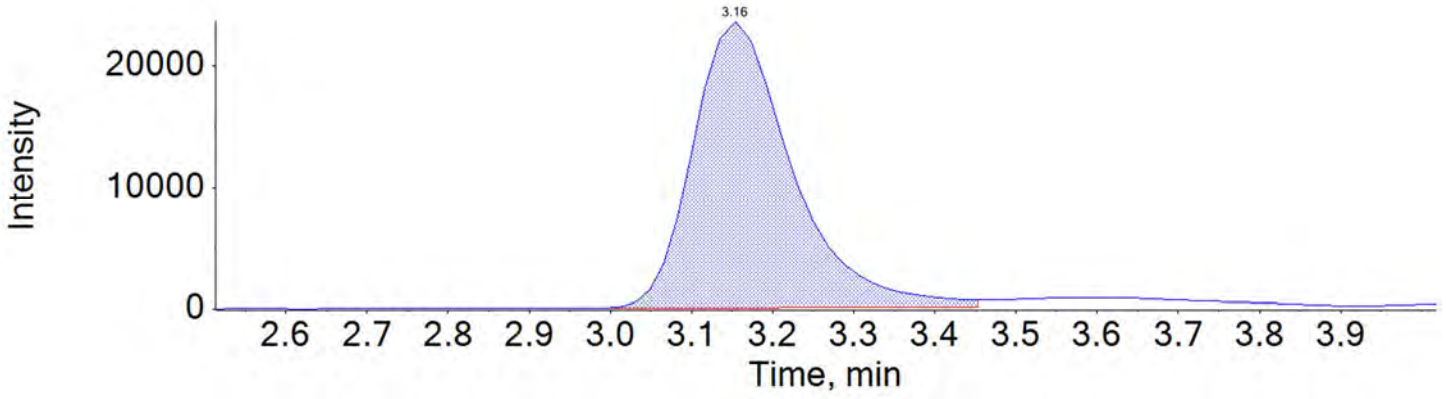
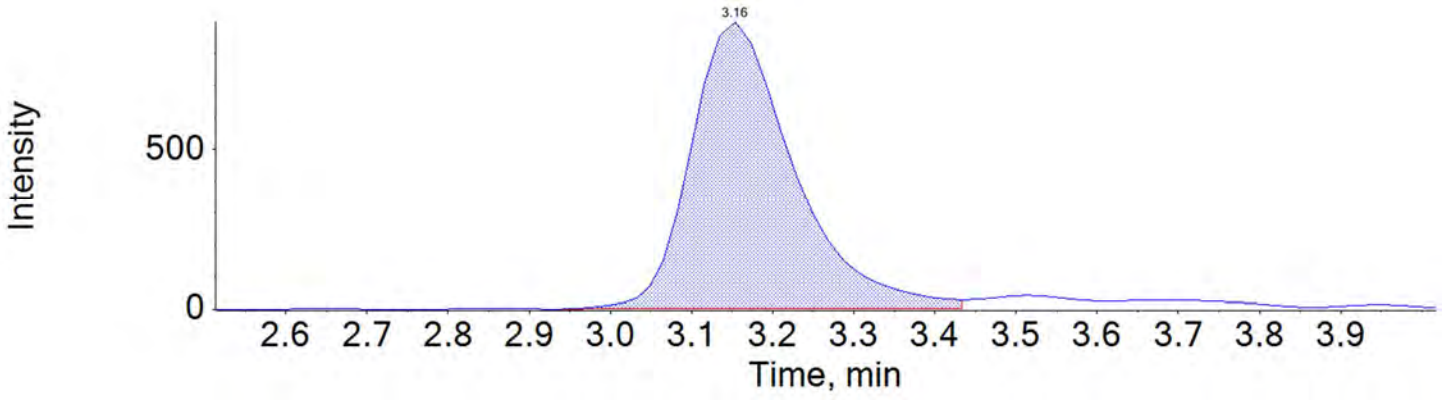


PFDA_2 513.0 / 219.0



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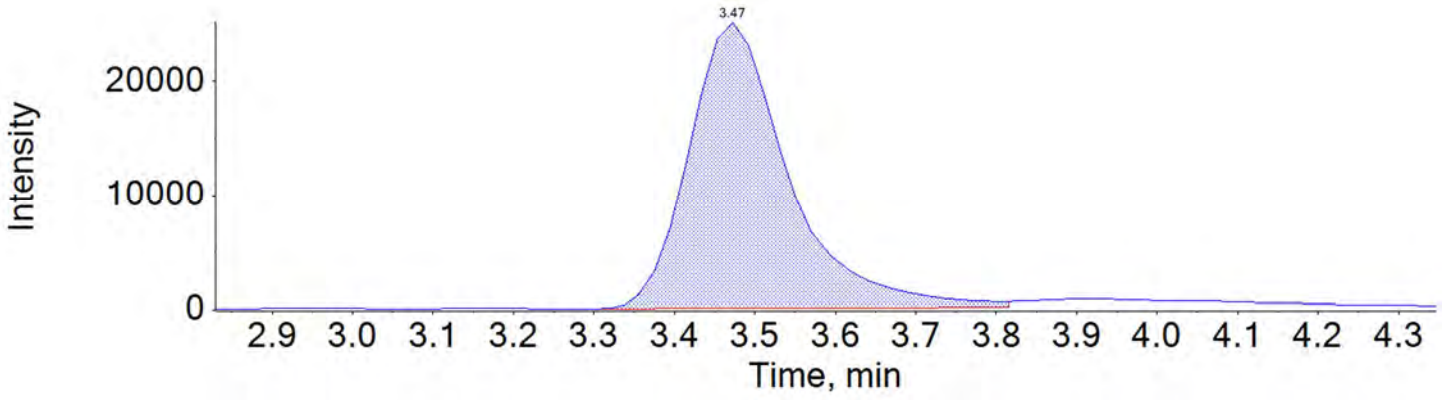

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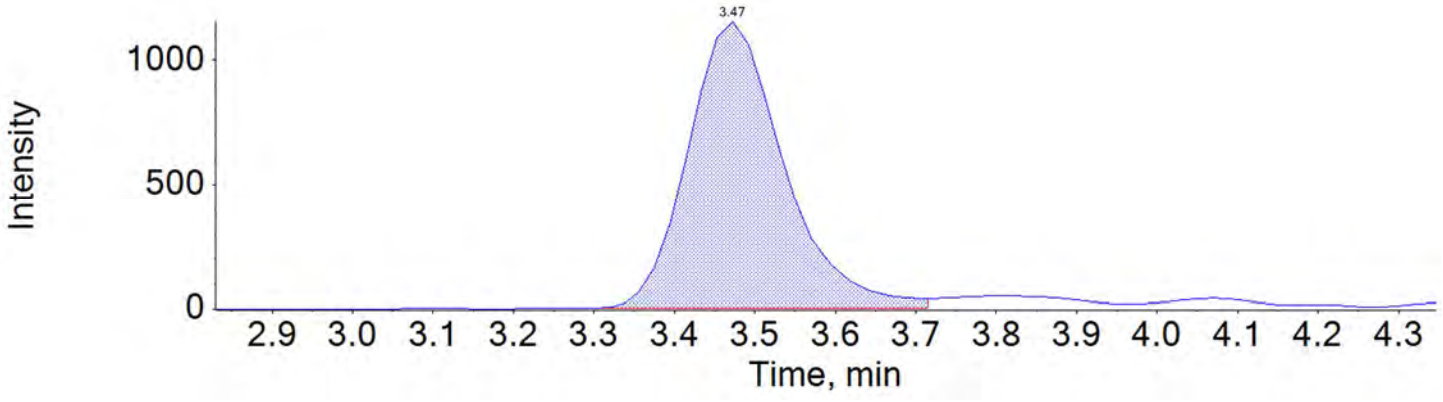

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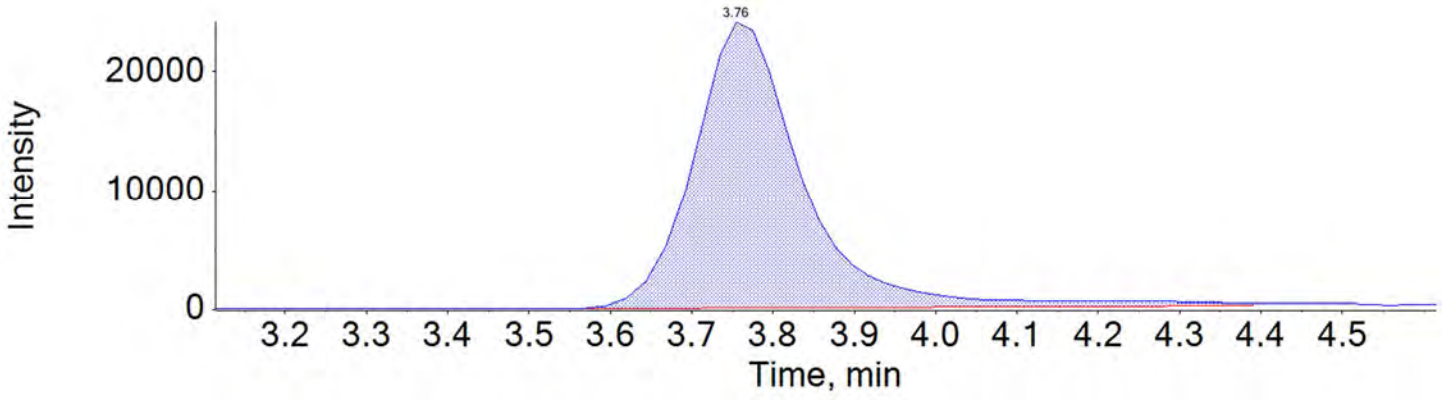

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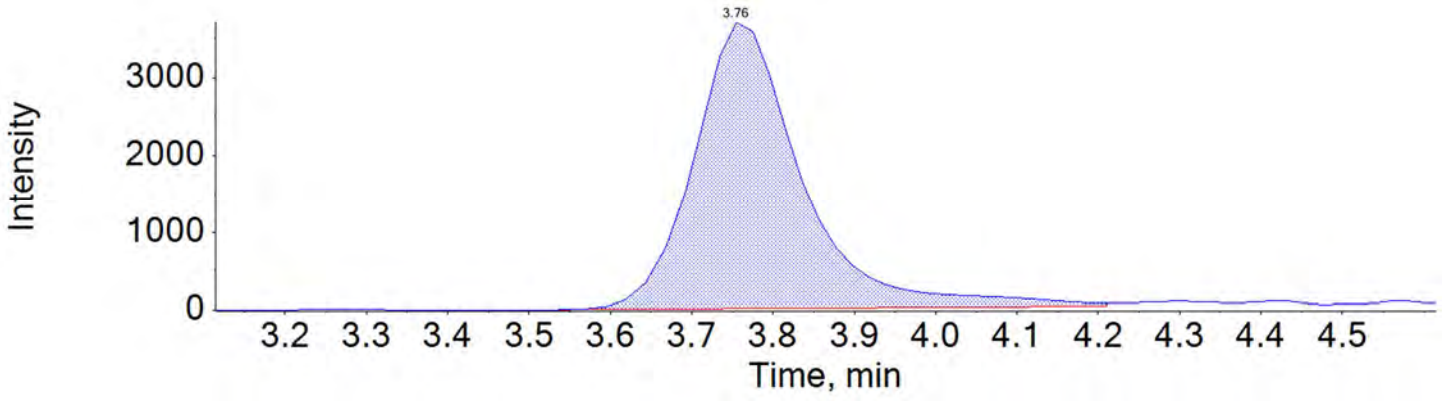

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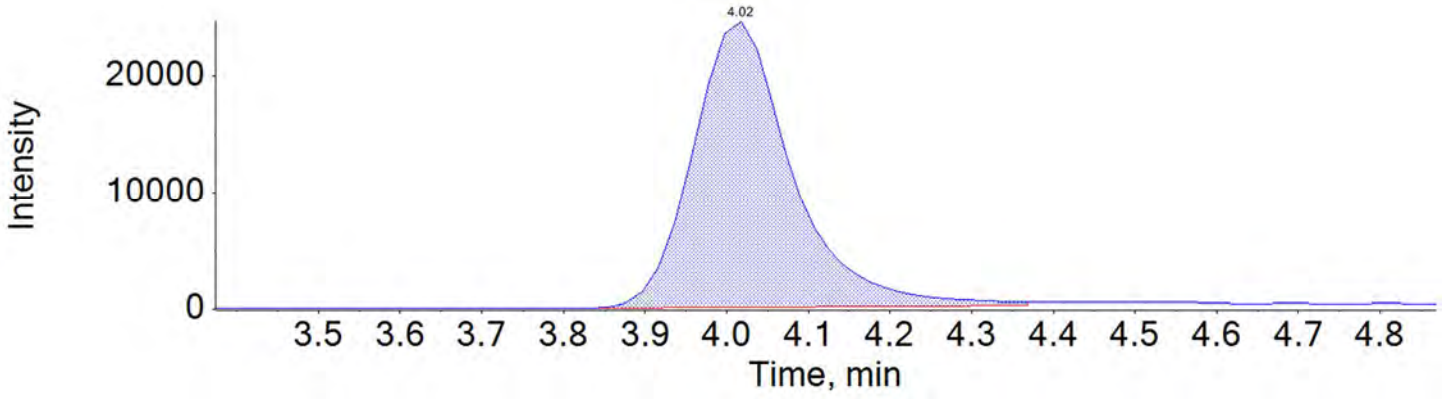
PFTrDA_1 663.0 / 619.0



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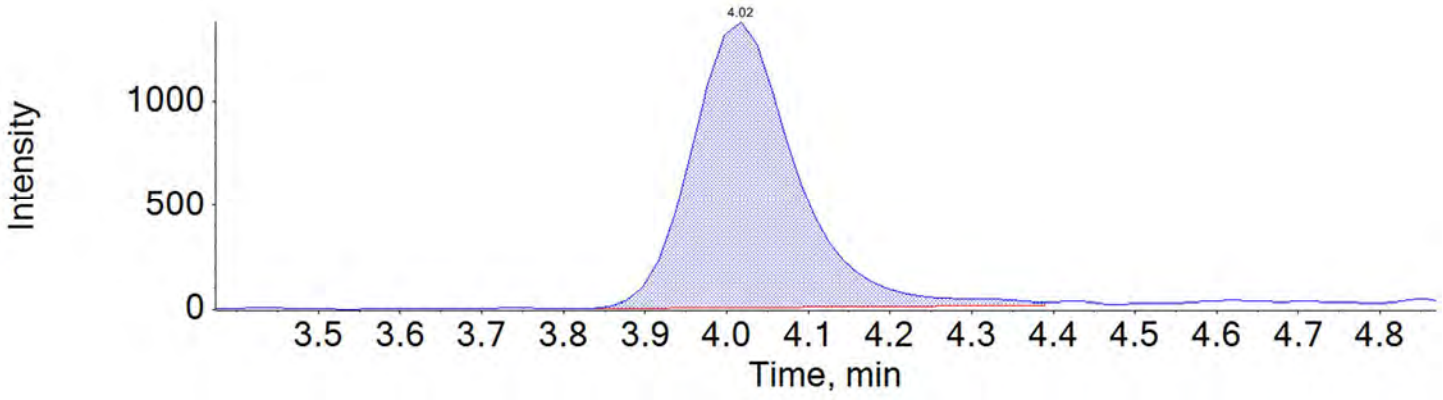

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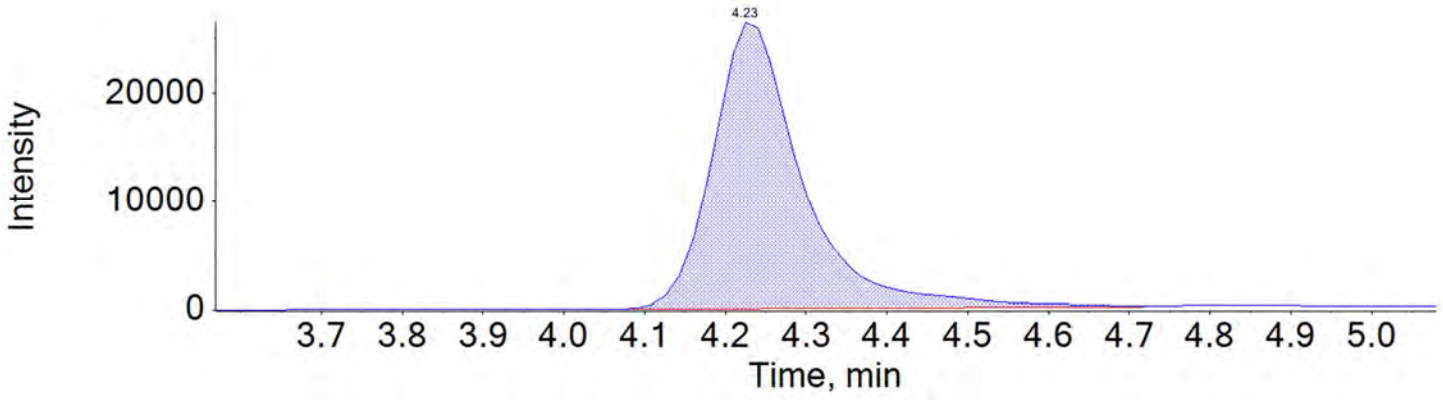

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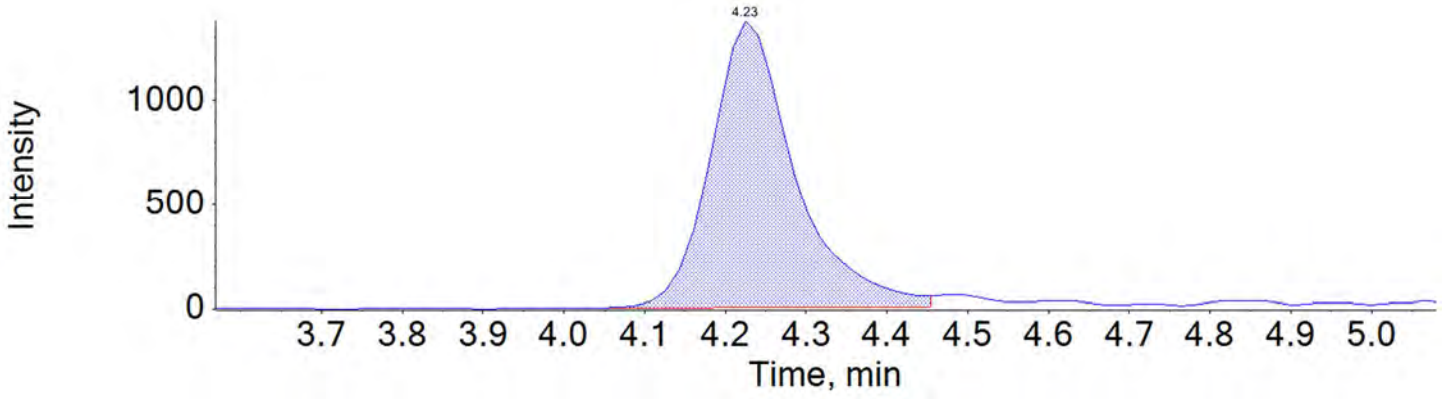

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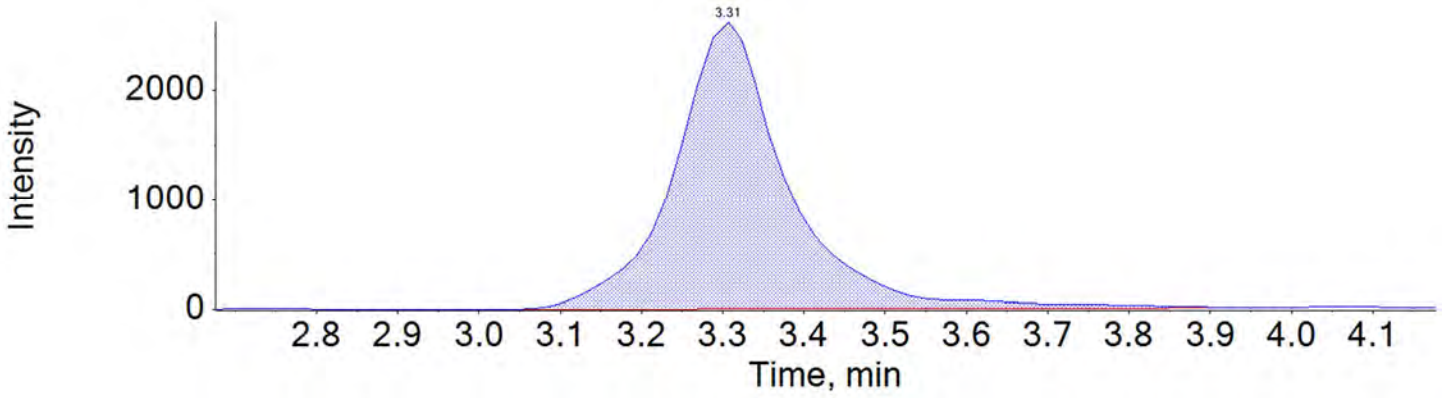

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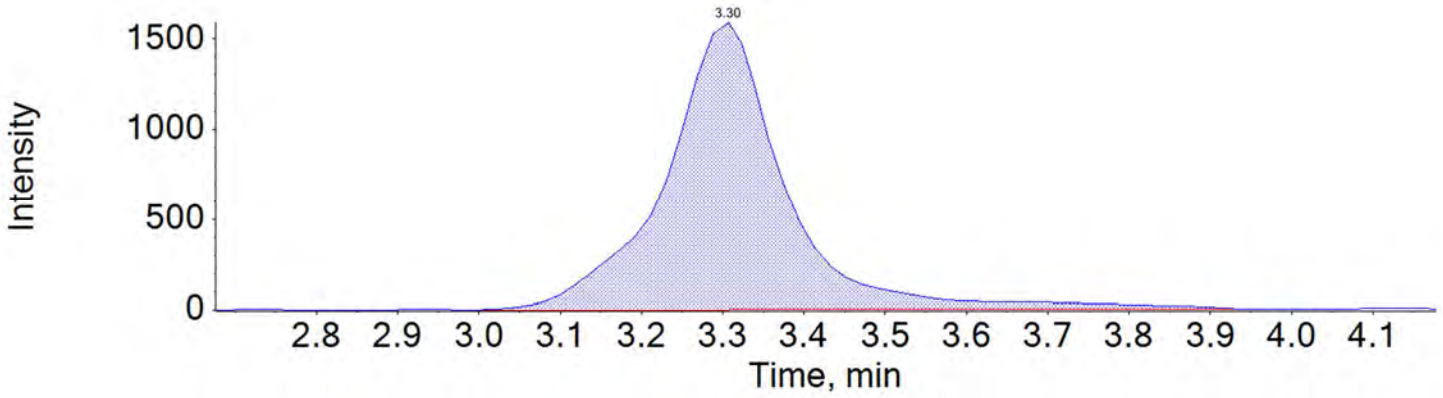

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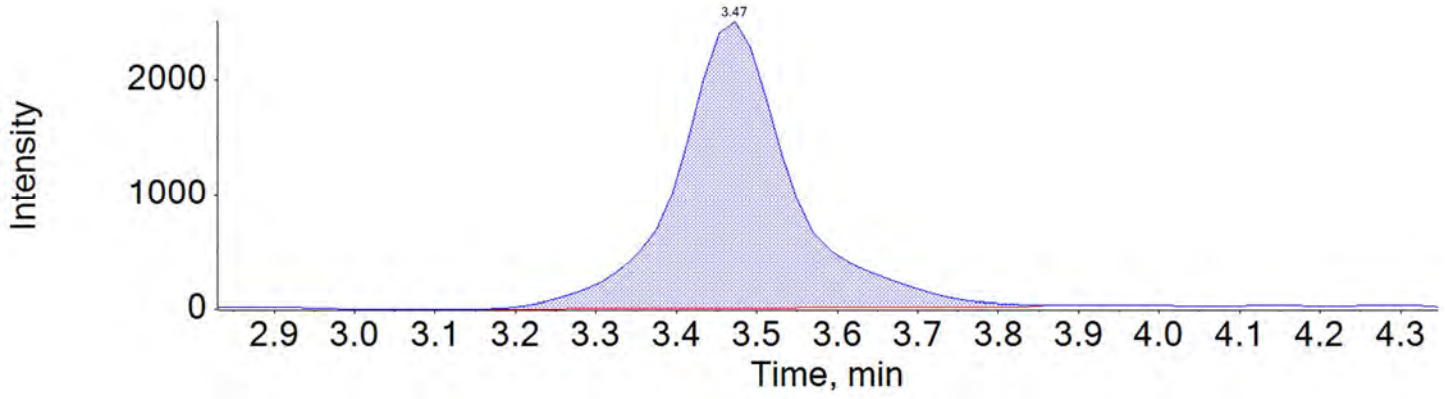

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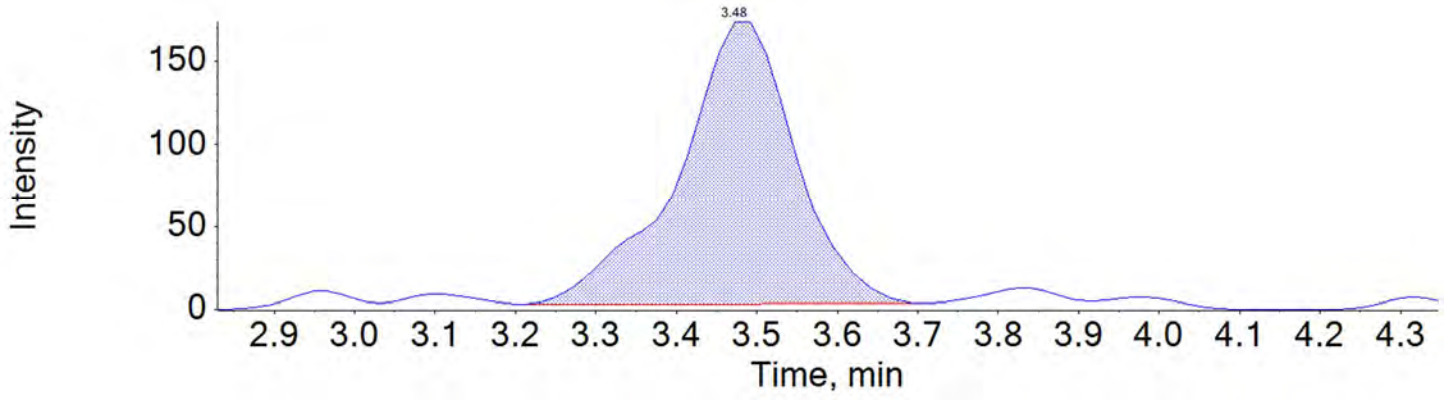

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Chromatogram Report

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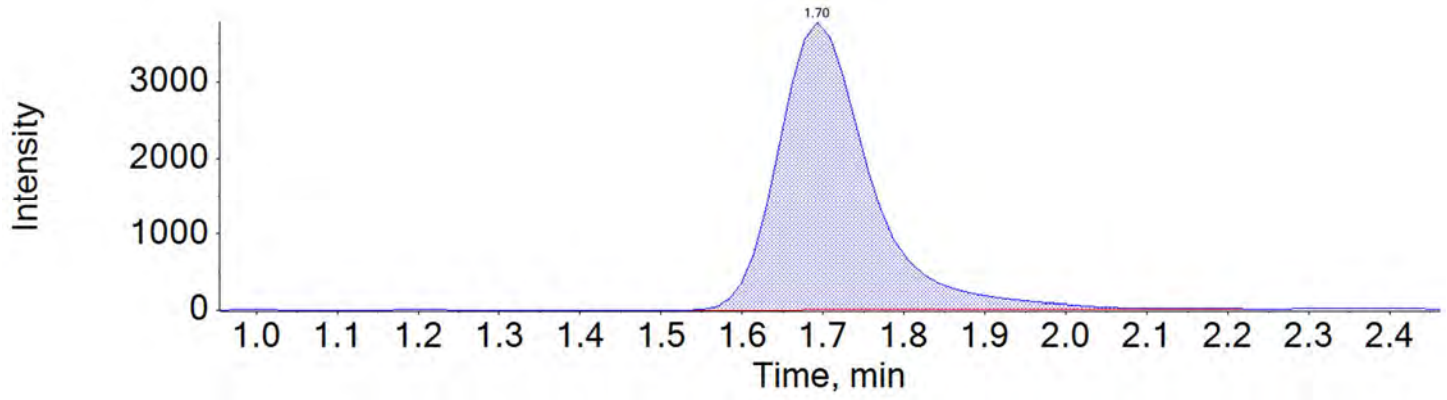
Sample Name	JV68	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T09:56:17	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



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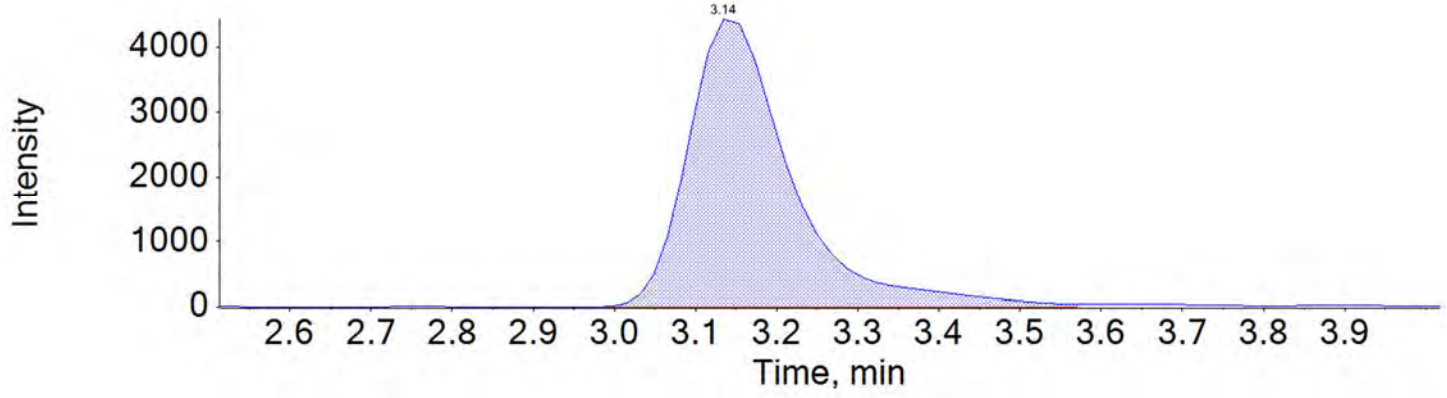

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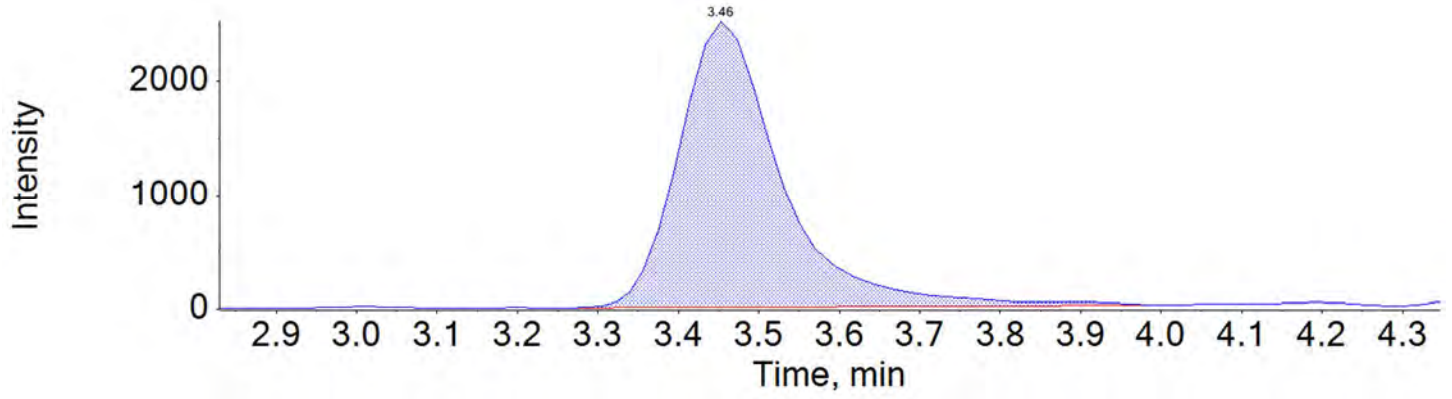
d5-EtFOSAA 589.0 / 419.0



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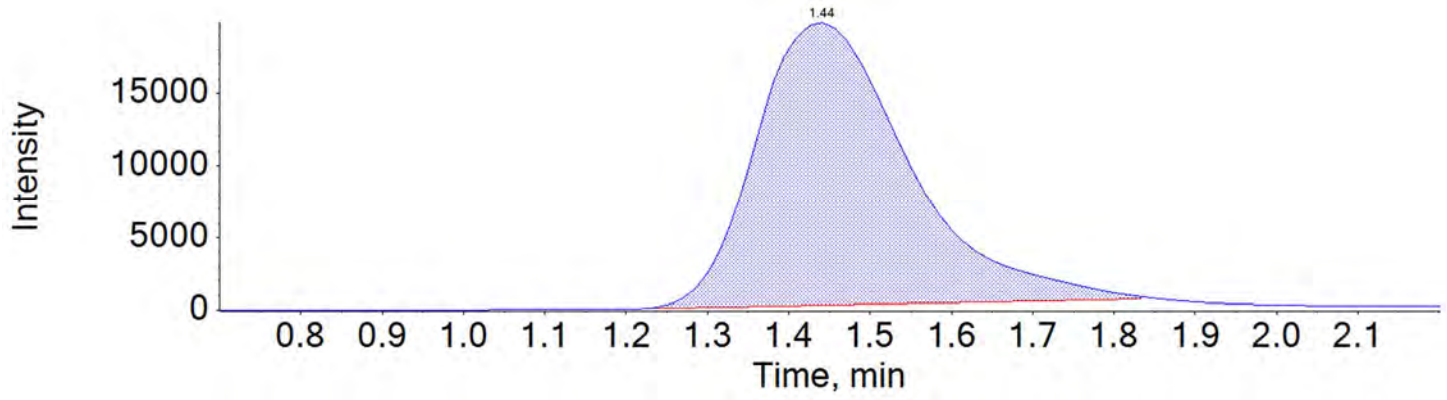
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:05:50 PM

Sample Name	JV69	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:05:12	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



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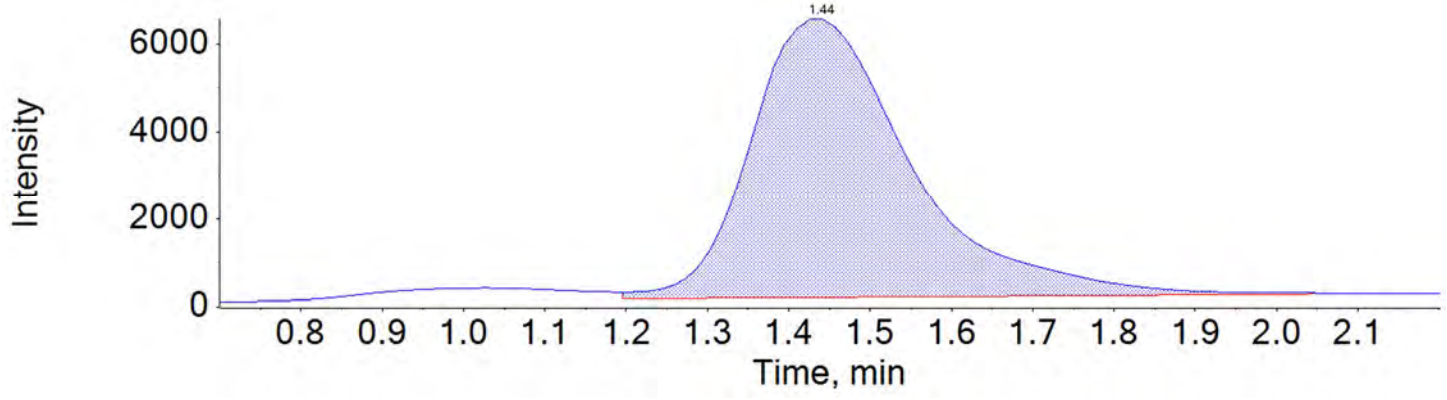

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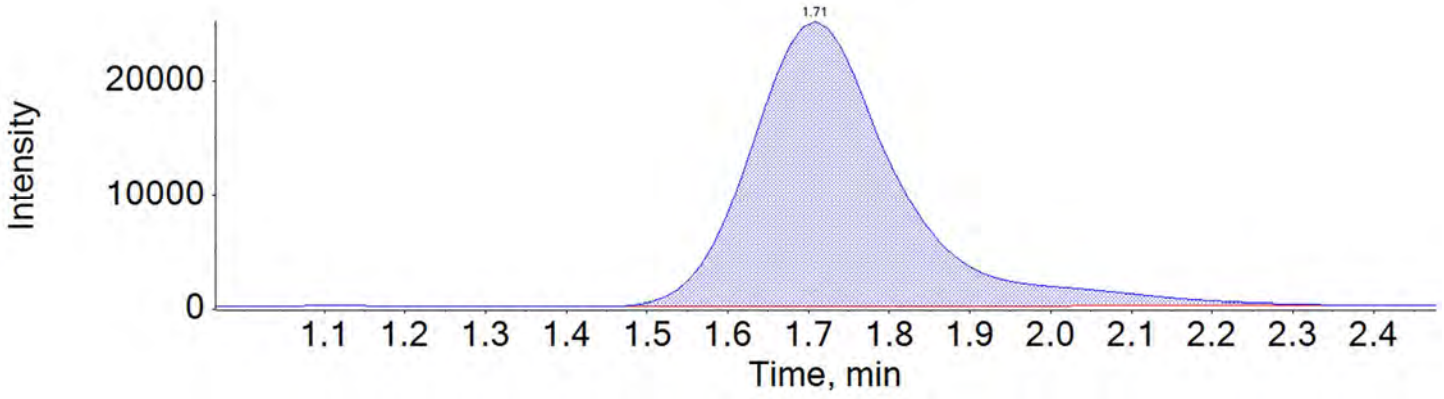
PFHxA_1 313.0 / 269.0



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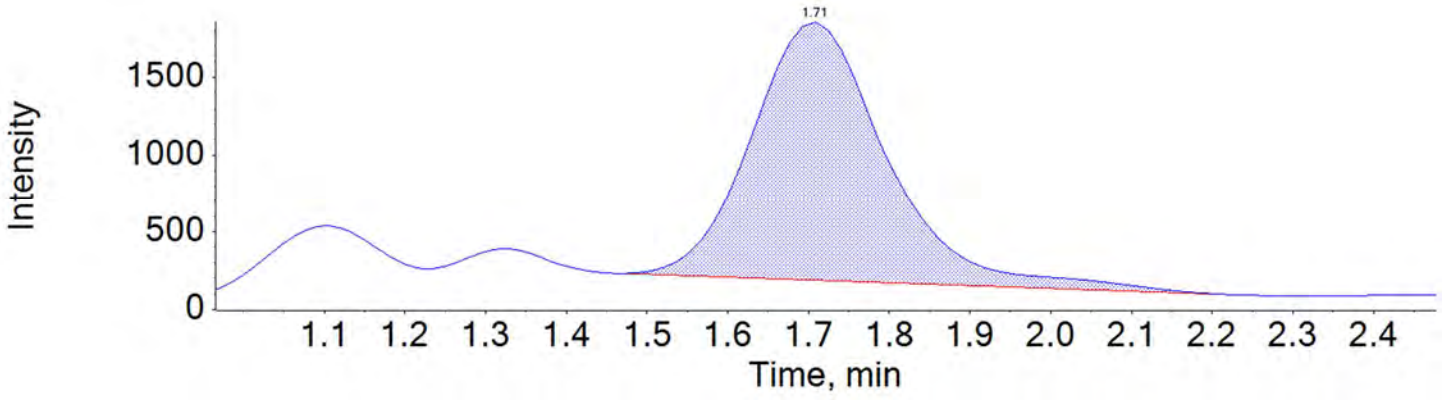

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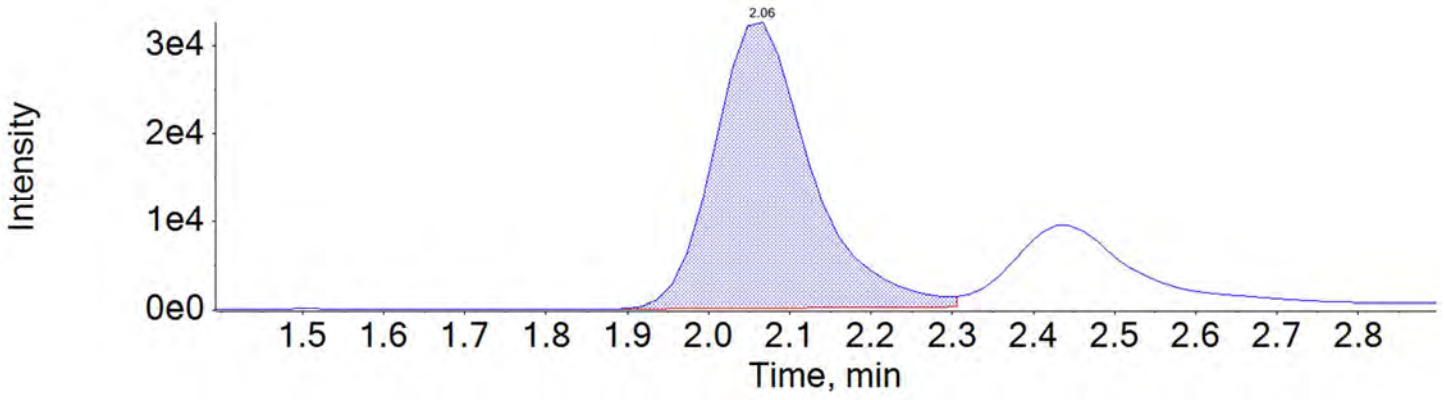

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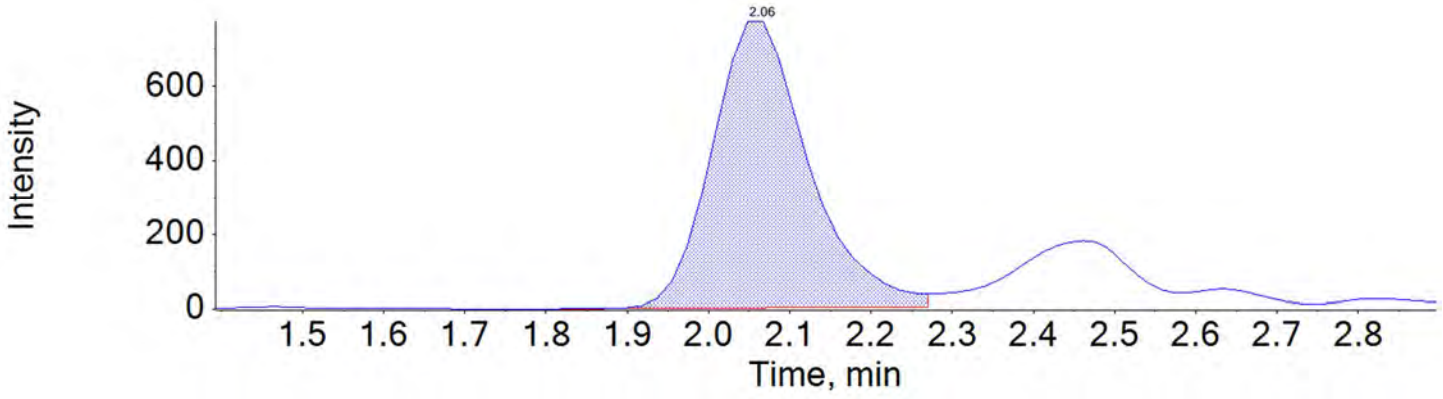

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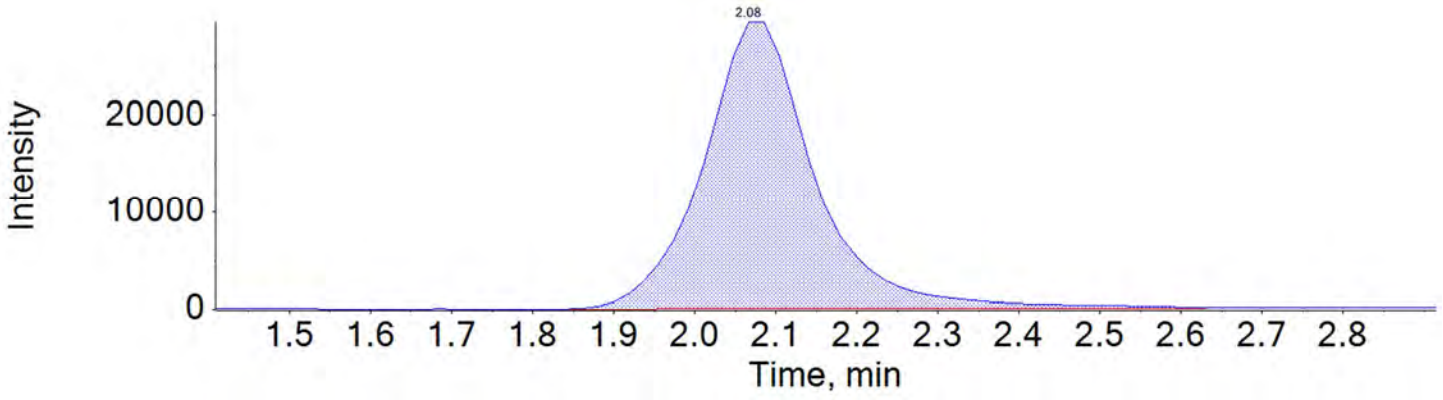

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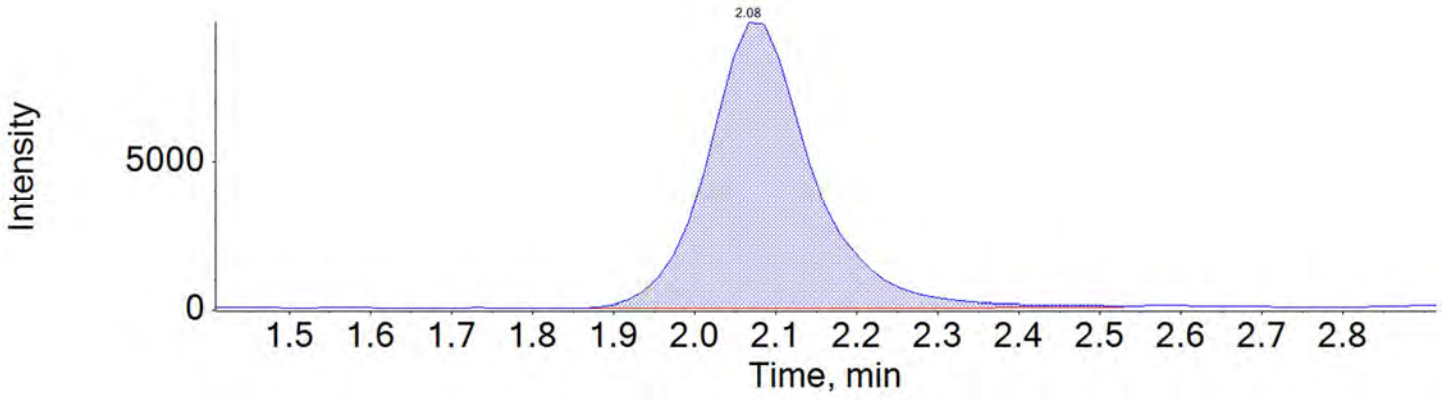

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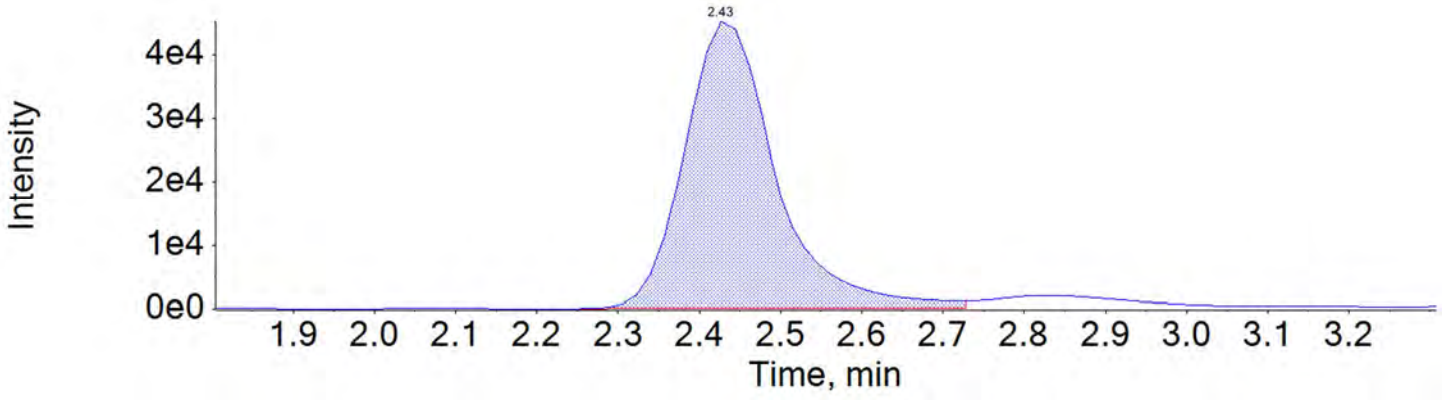

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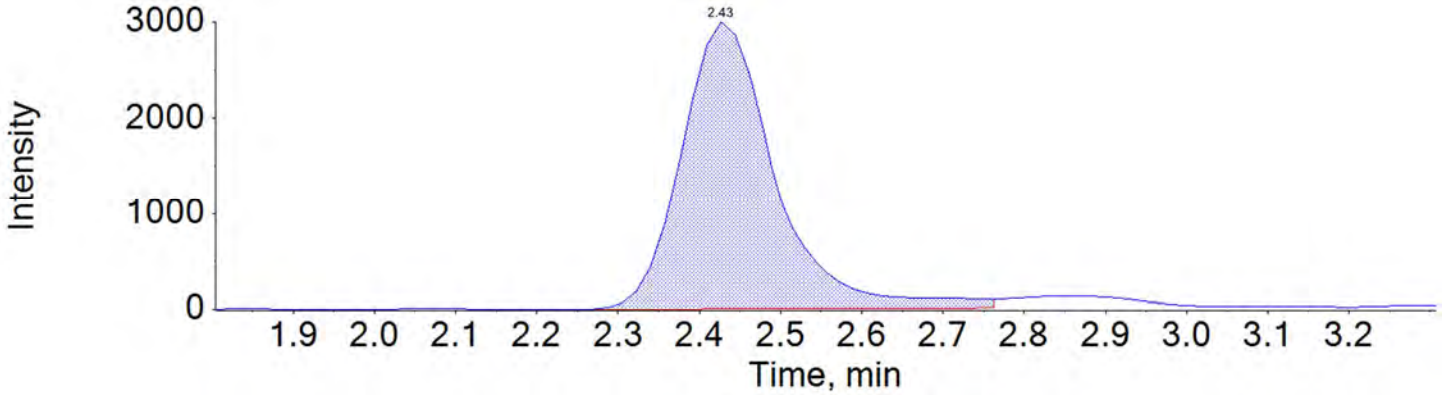

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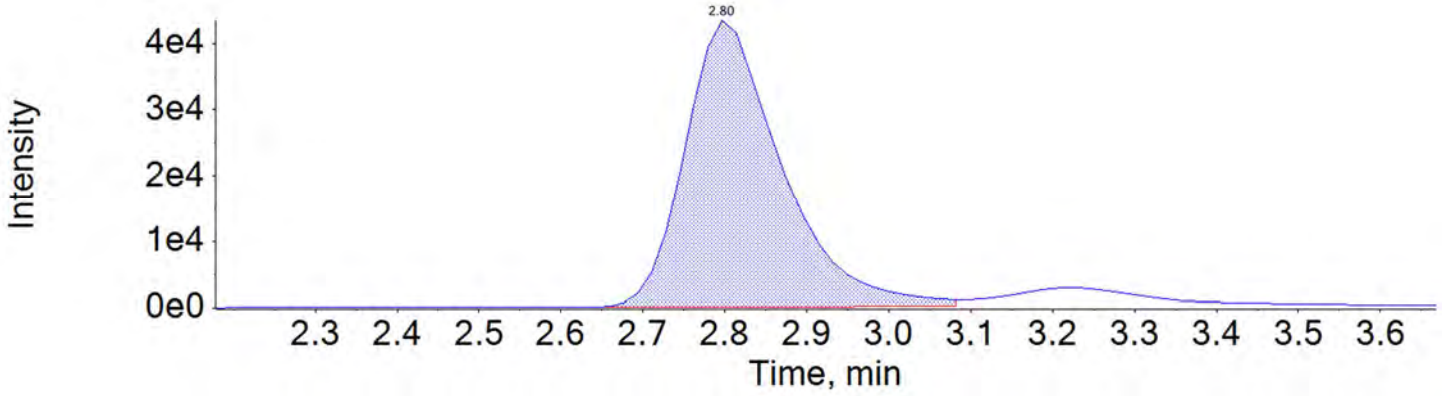

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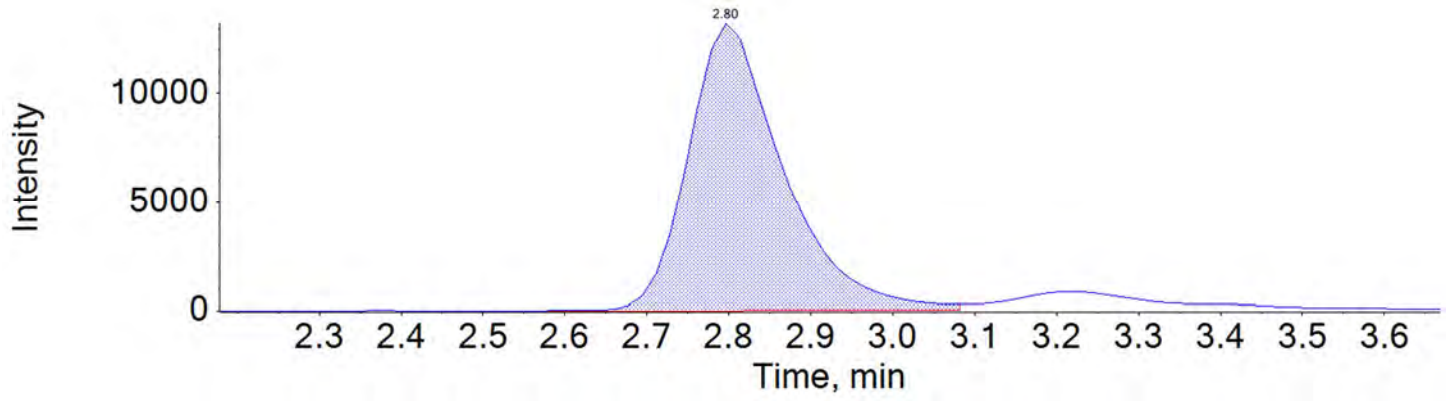

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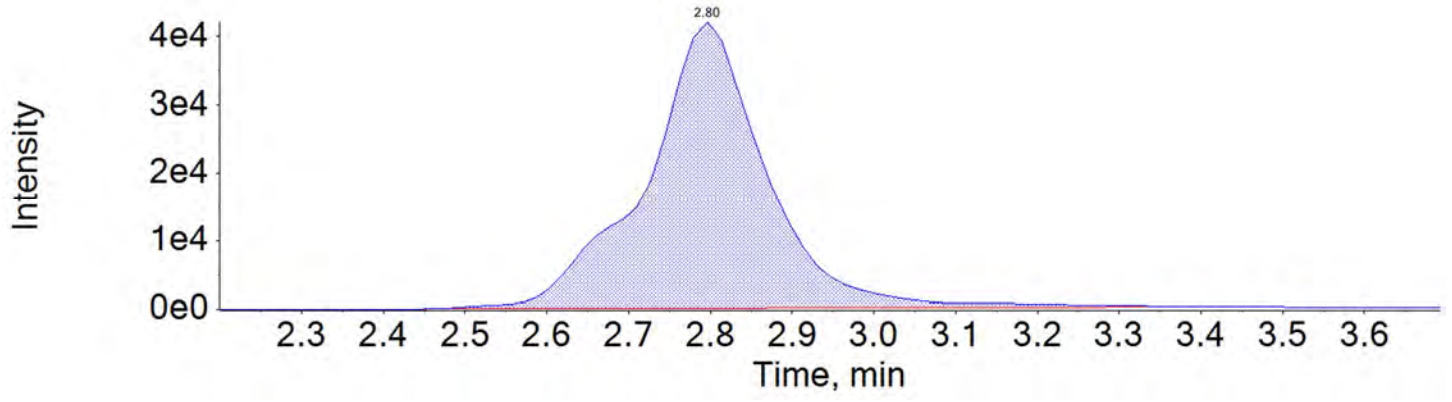

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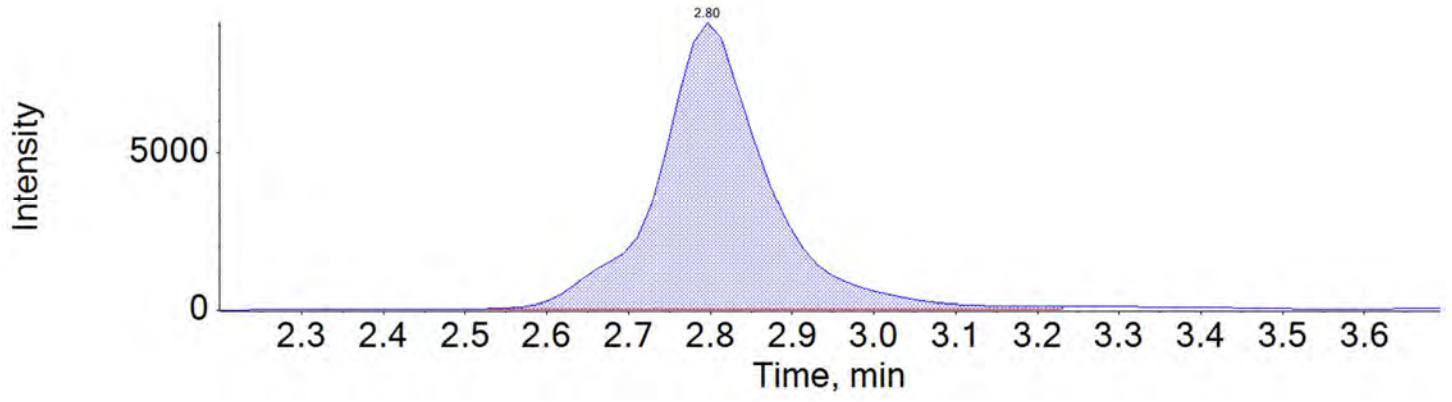

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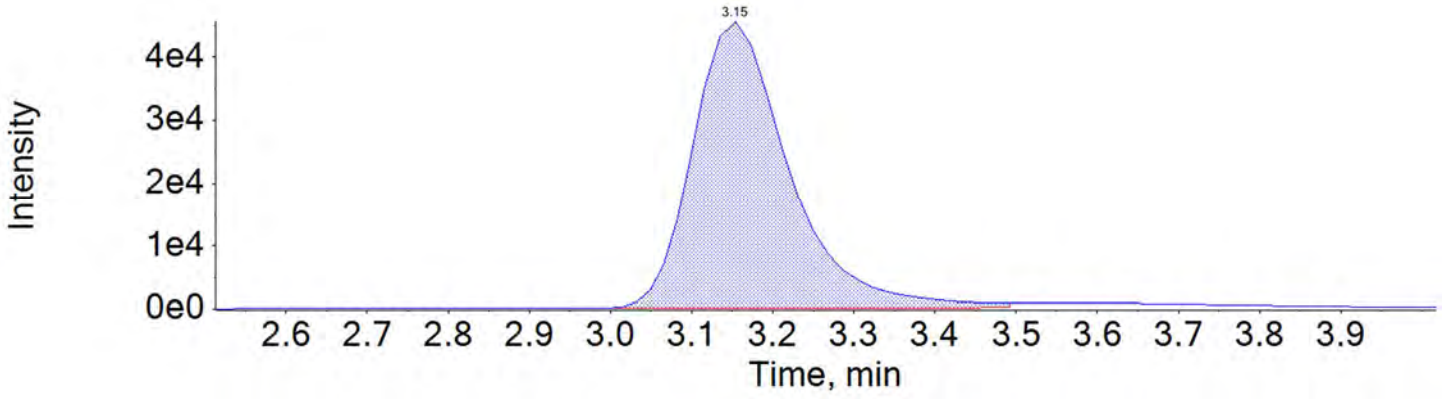

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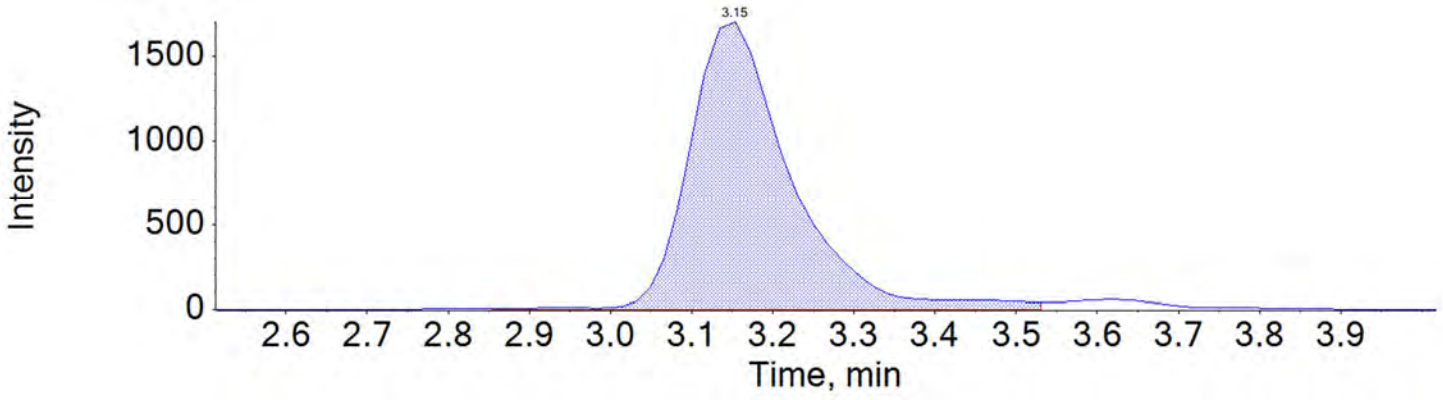

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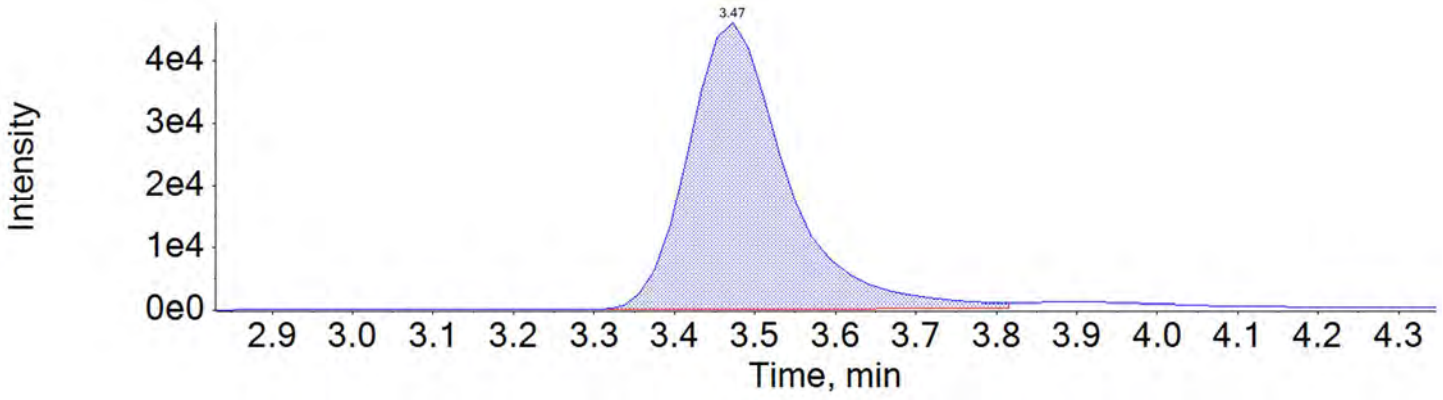

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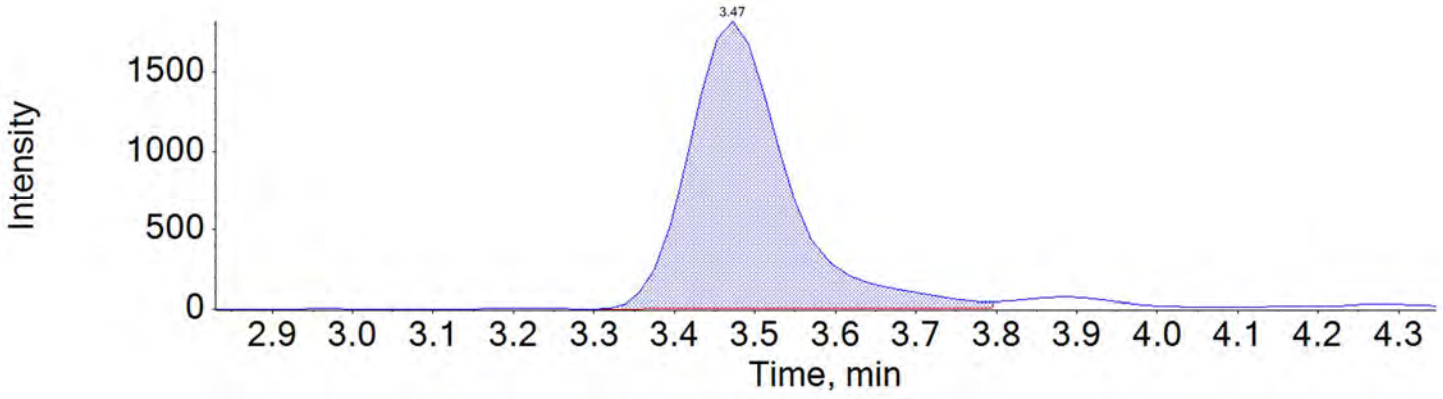

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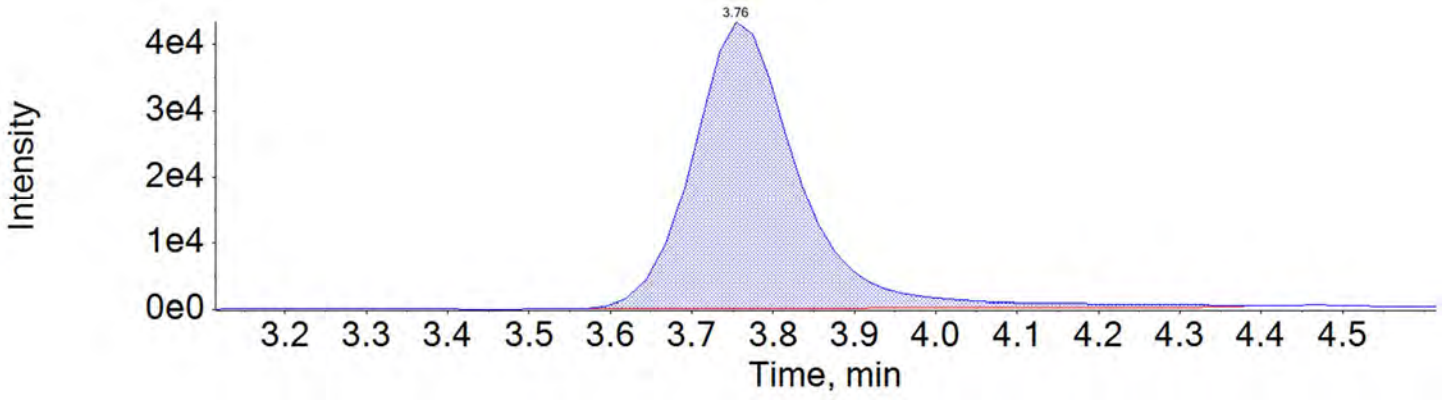

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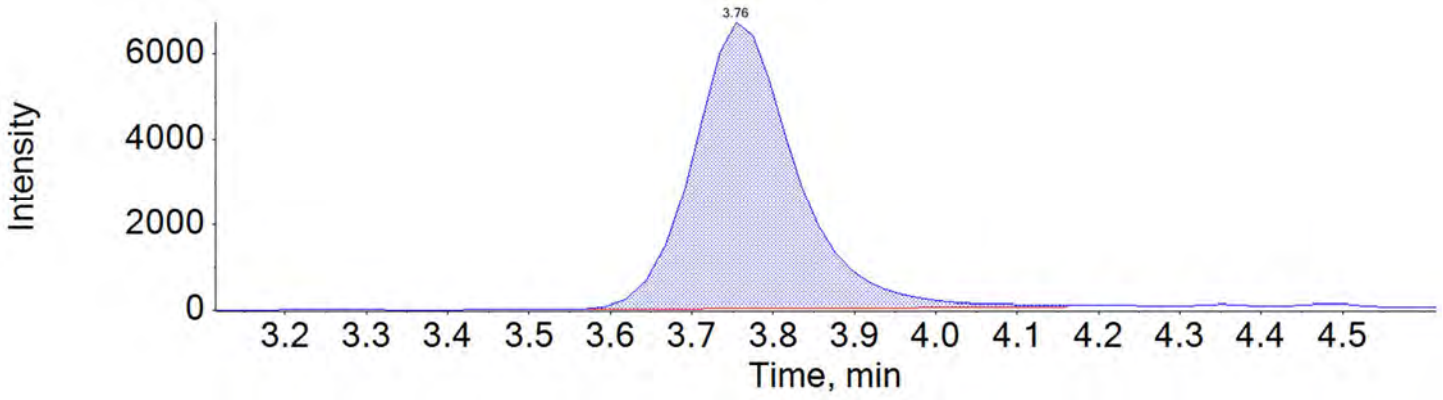

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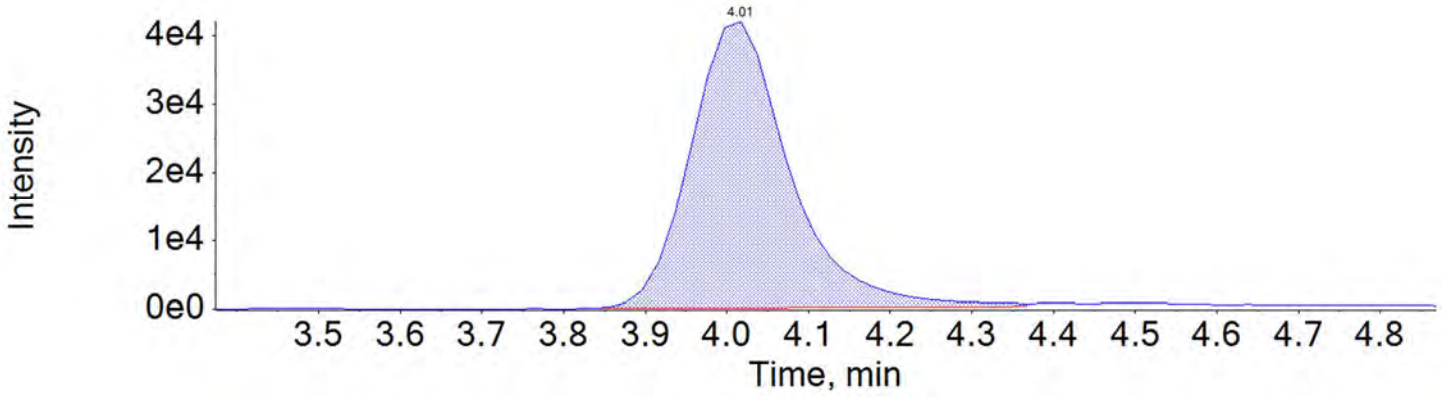

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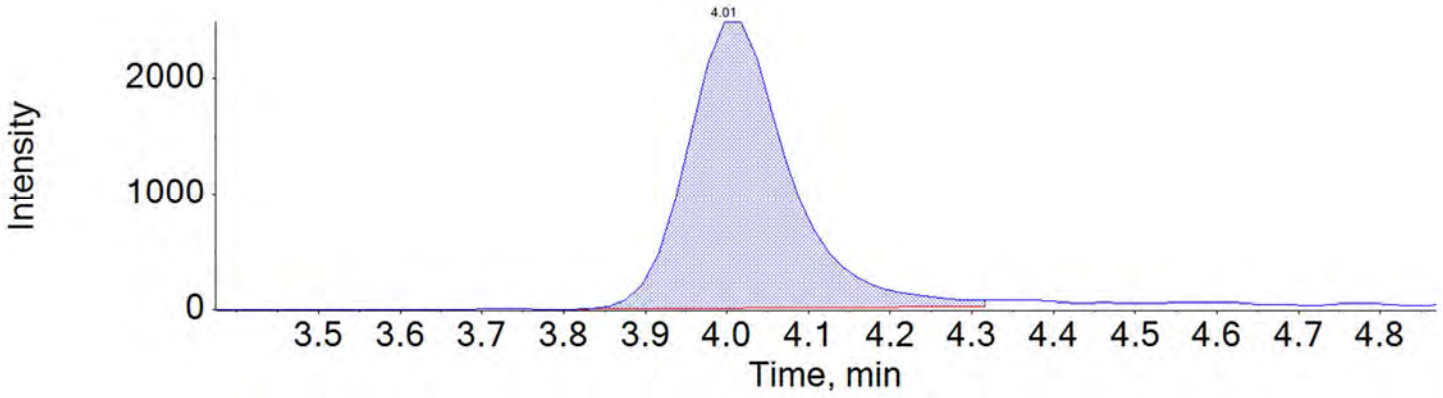
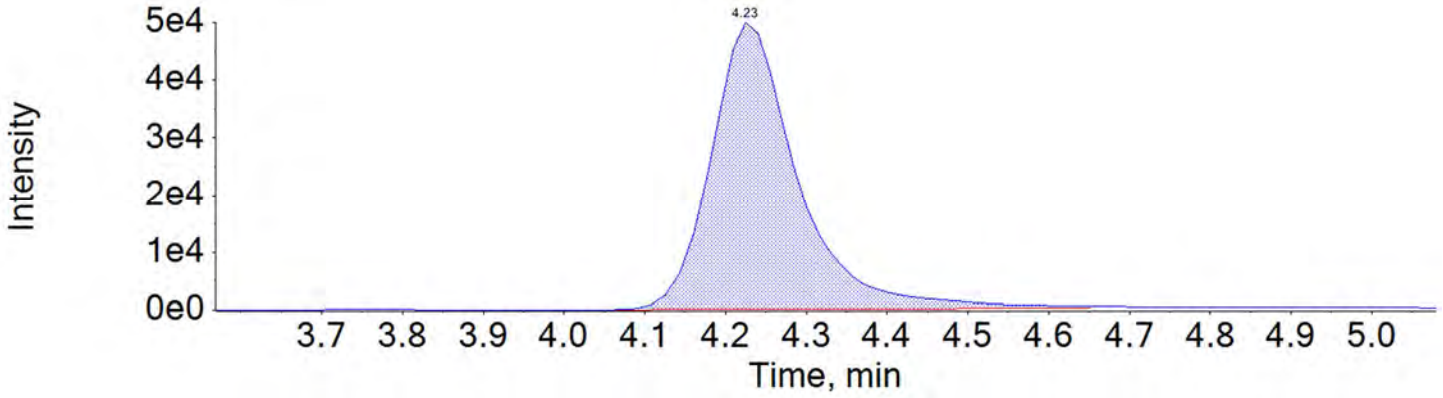


PFTeDA_1 713.0 / 669.0



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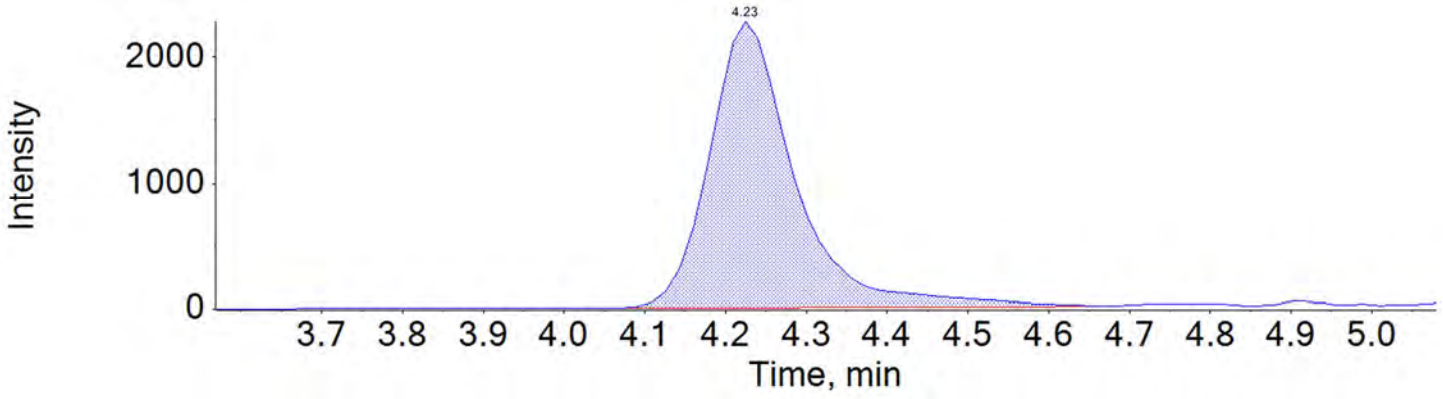
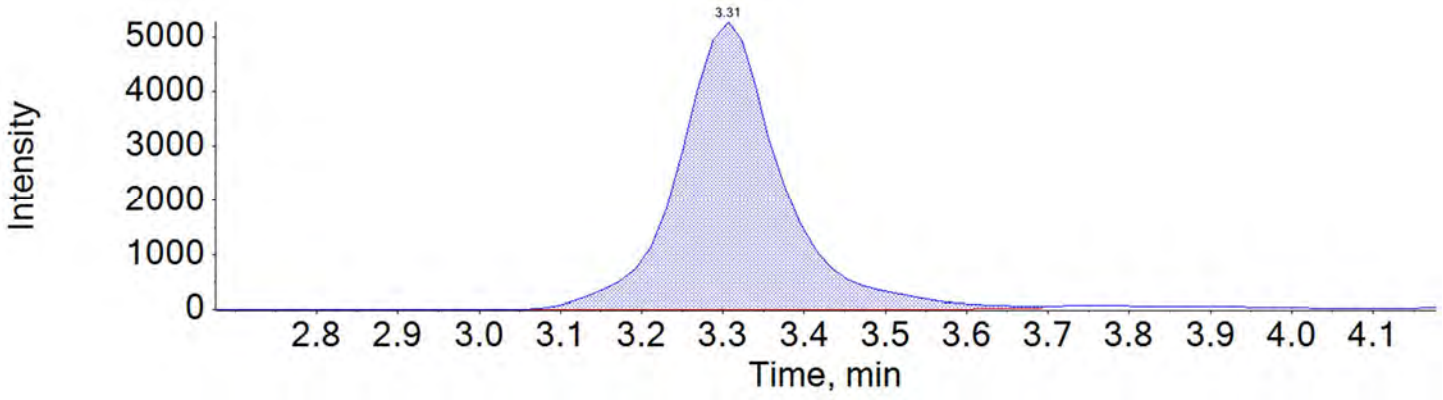


NMeFOSAA_1 570.0 / 419.0



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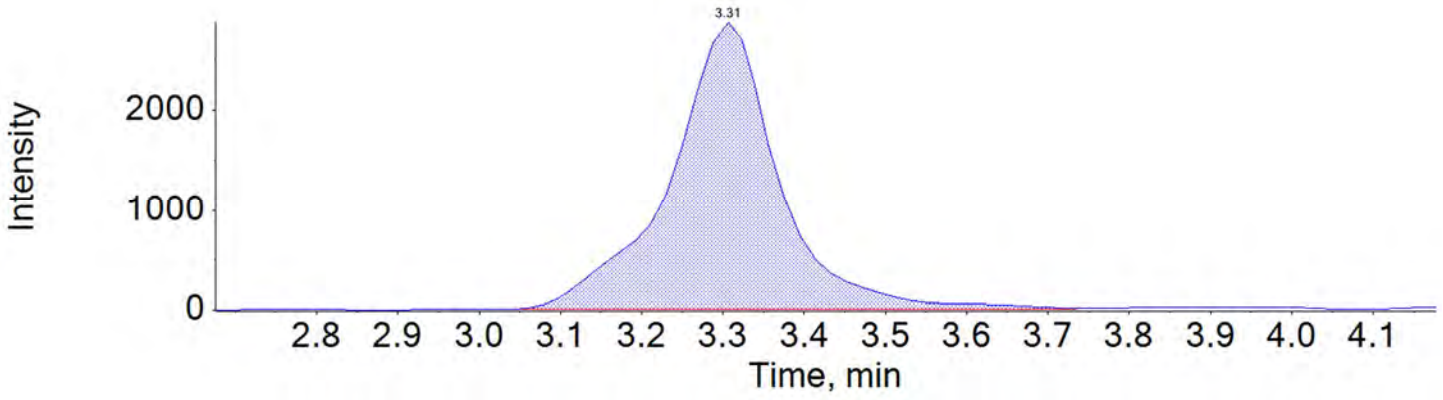

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Chromatogram Report

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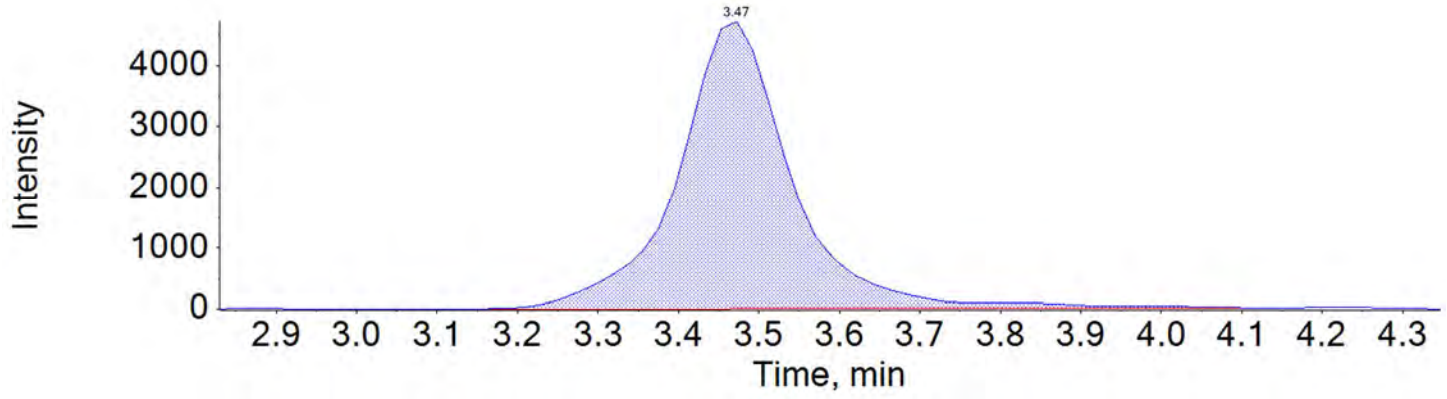
NEtFOSAA_1 584.0 / 419.0



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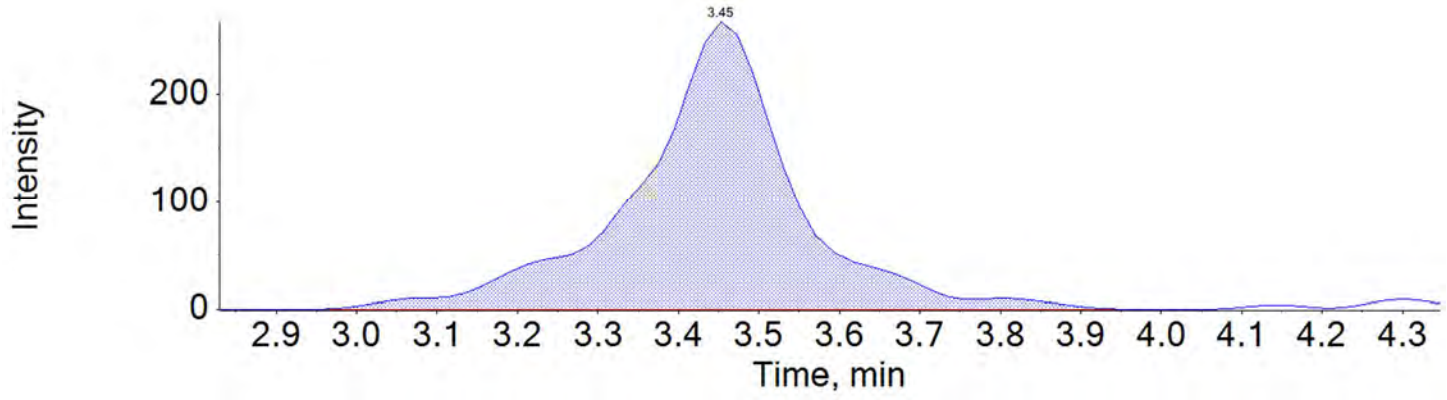

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Chromatogram Report

Created with Analyst Reporter
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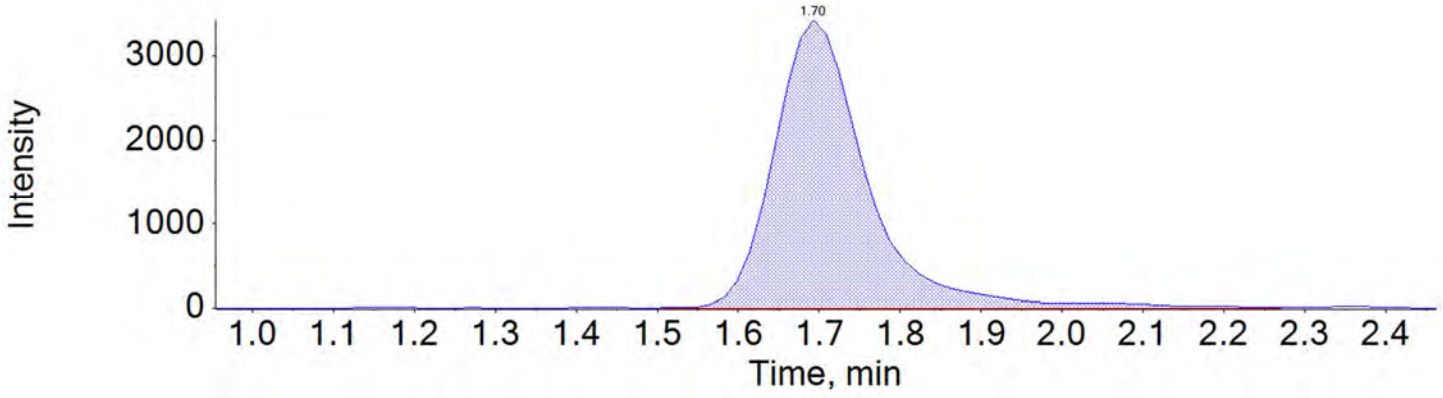
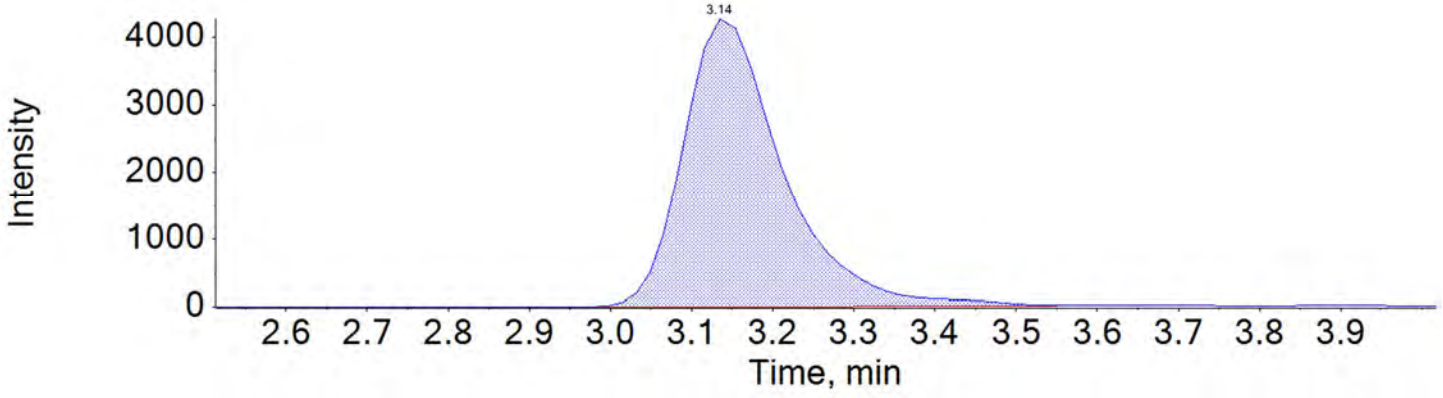
Sample Name	JV69	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:05:12	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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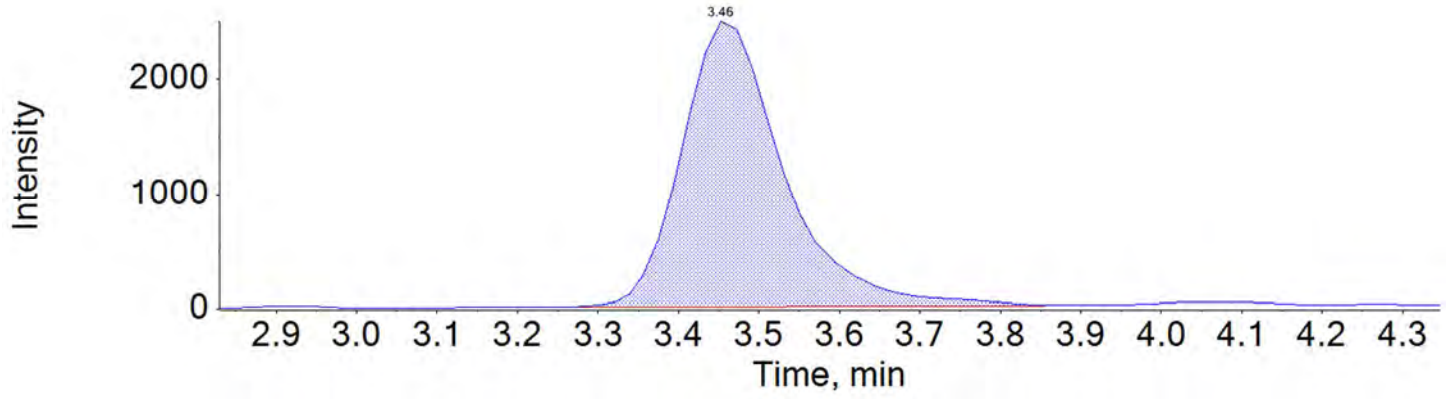
d5-EtFOSAA 589.0 / 419.0



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Chromatogram Report

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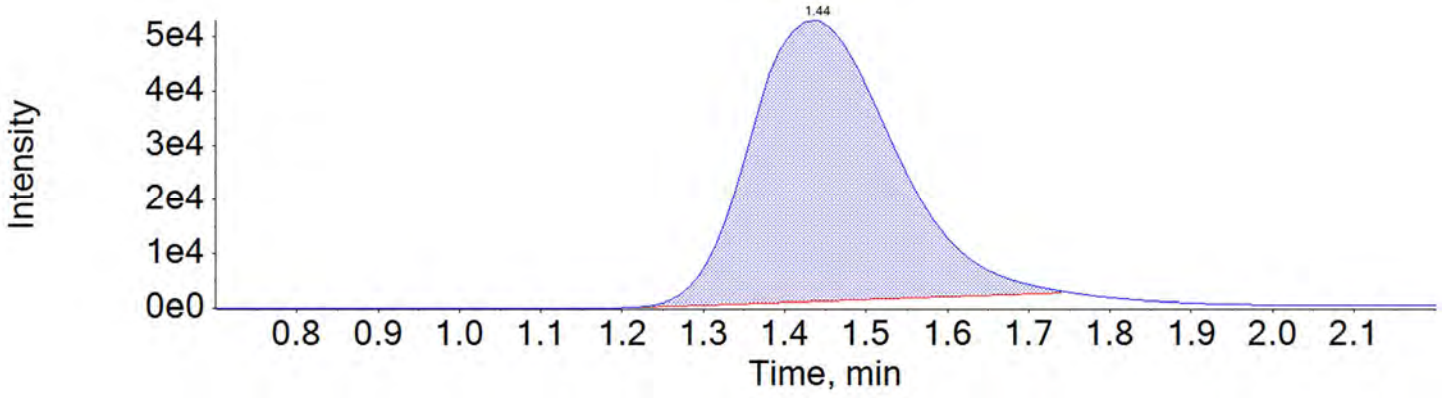
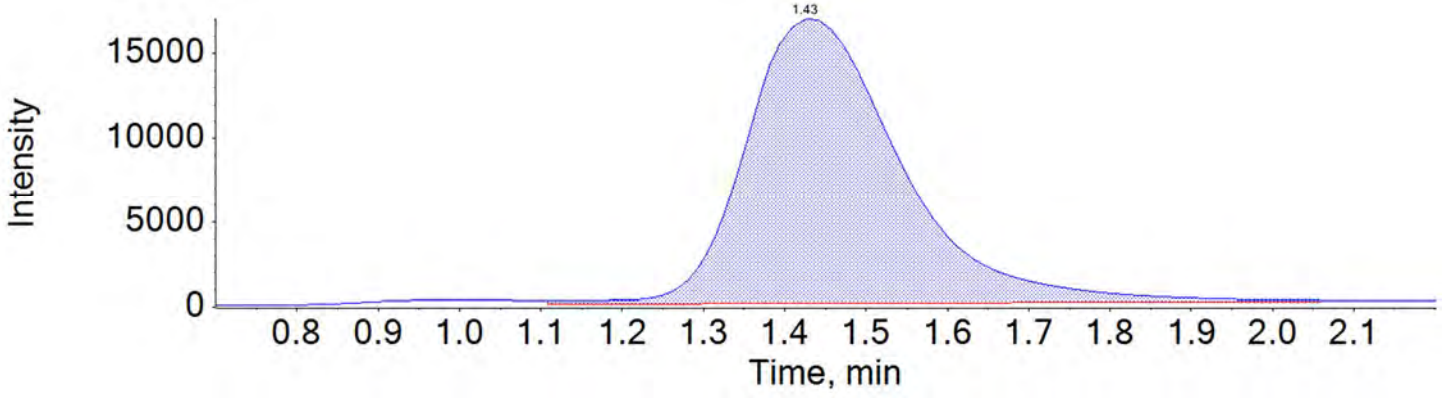
Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:14:08	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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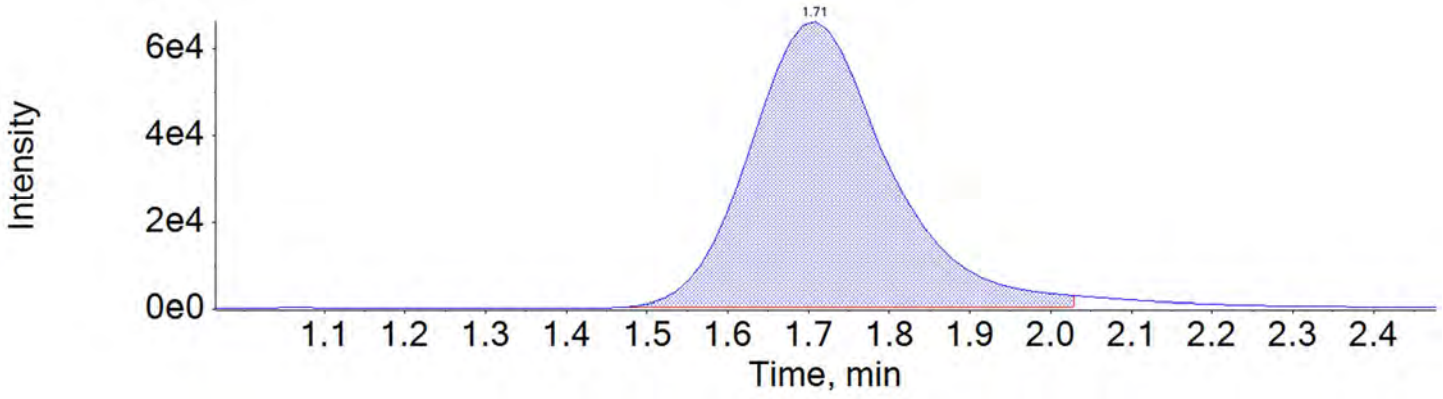
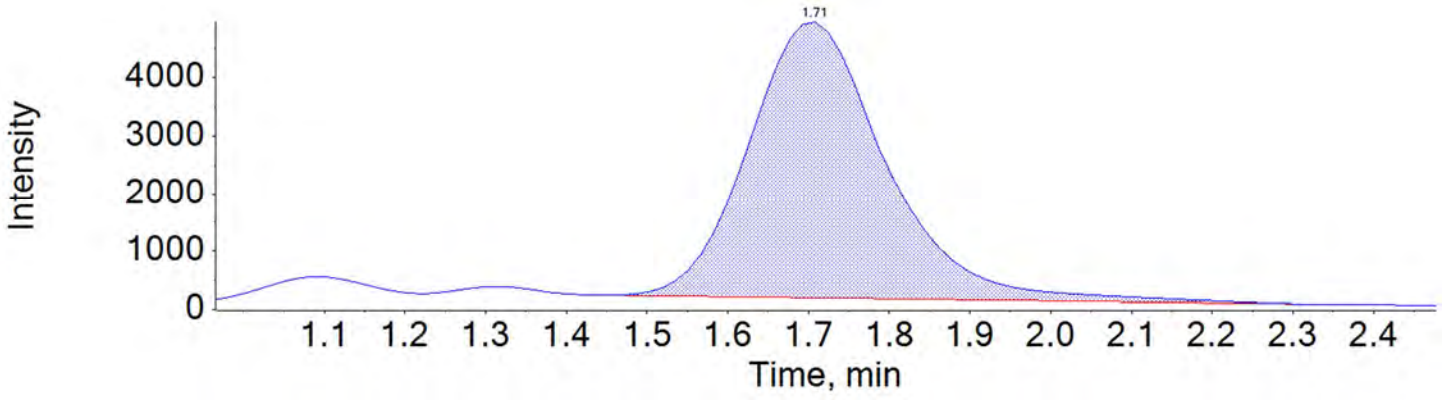
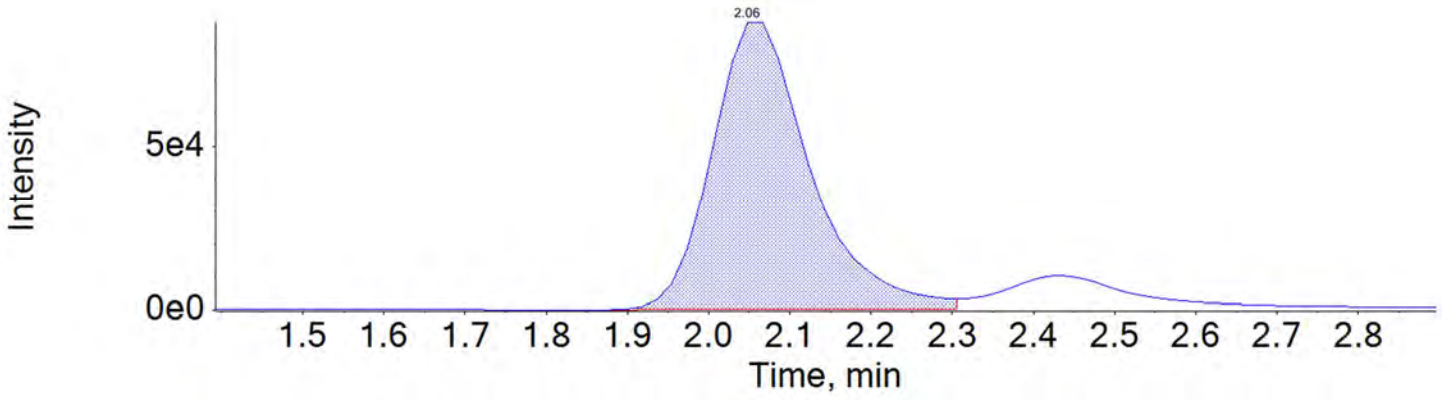
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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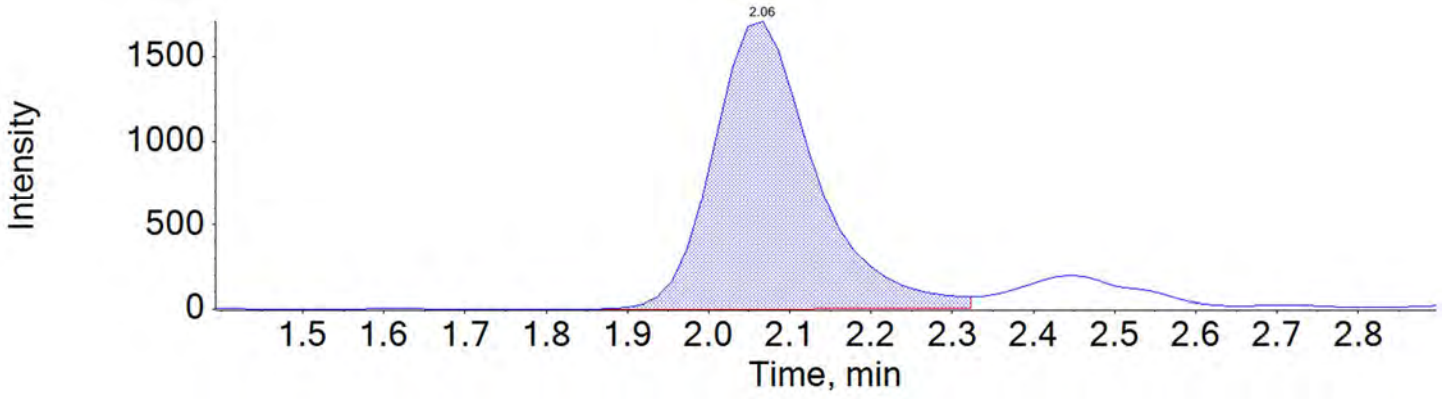
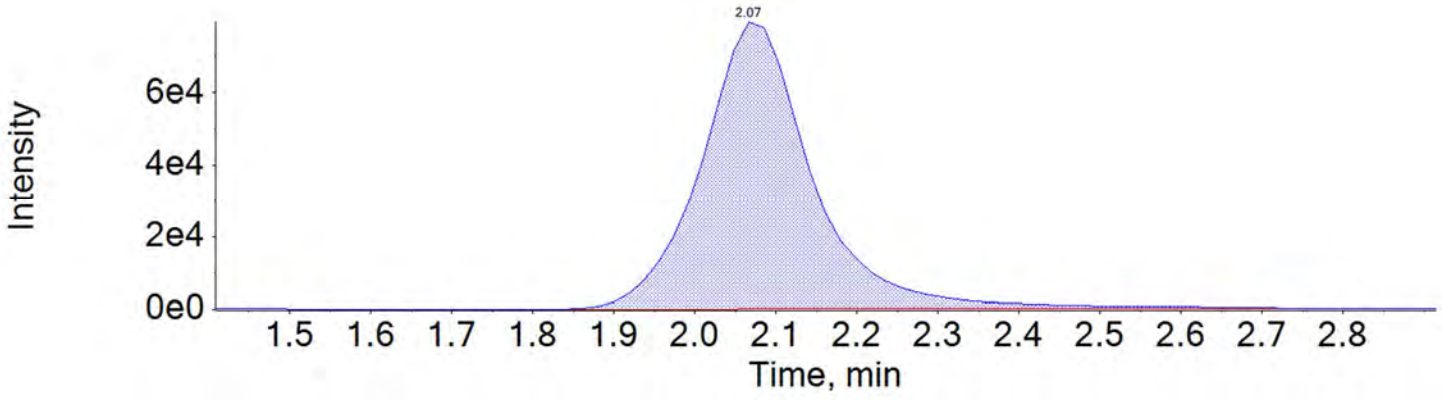
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



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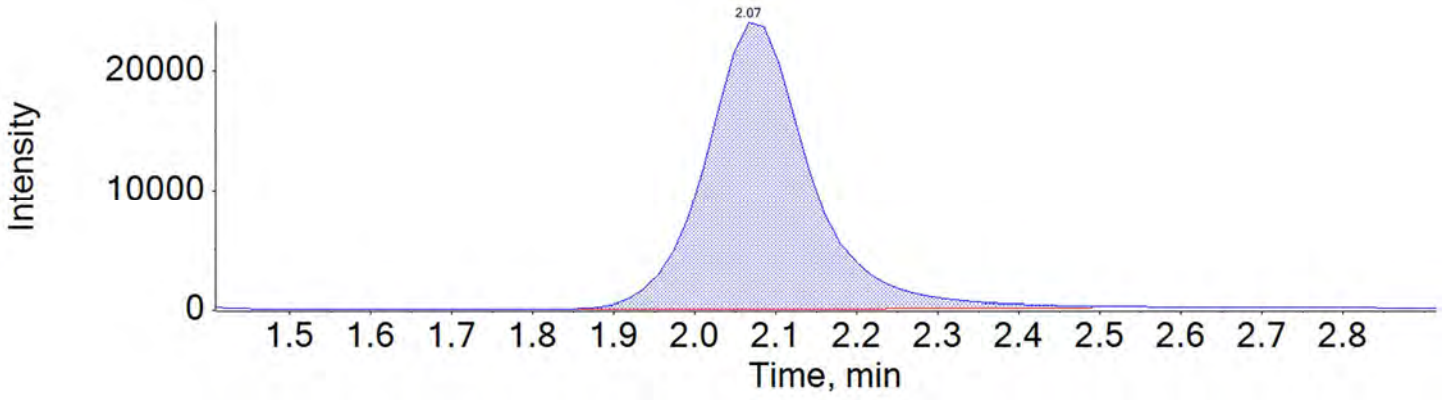

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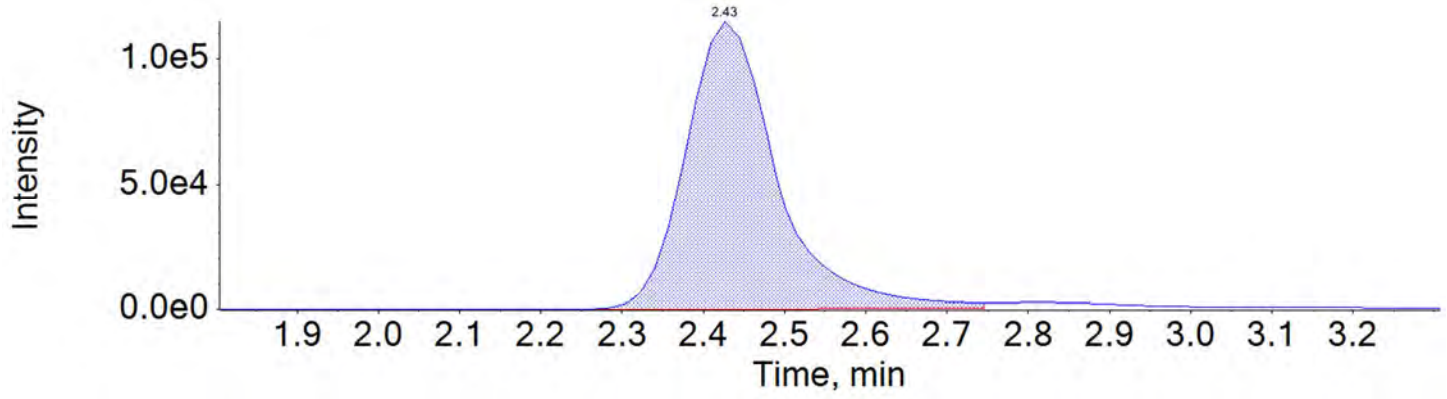
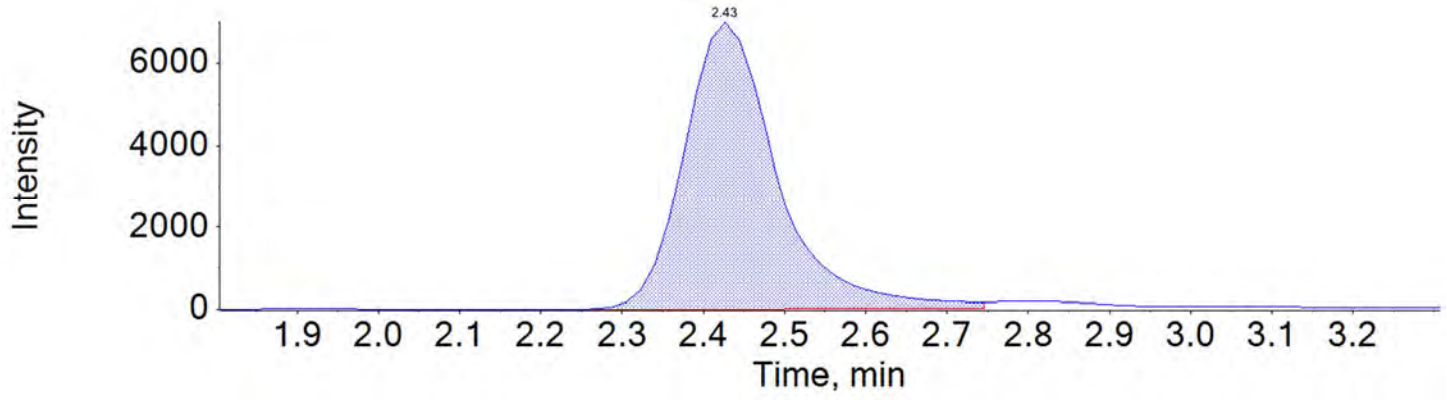
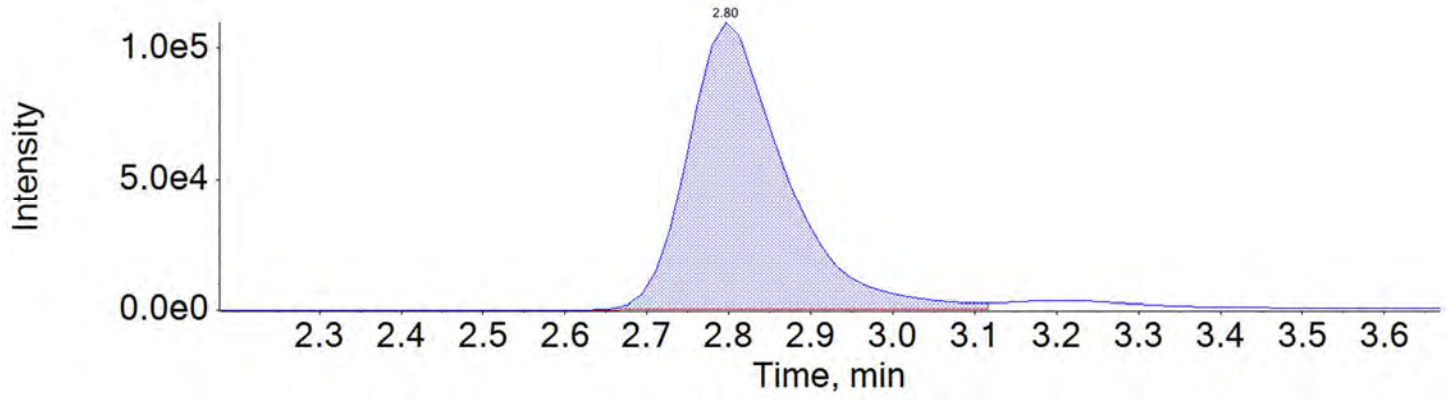


PFOA_2 413.0 / 169.0



PFNA_1 463.0 / 419.0



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Chromatogram Report

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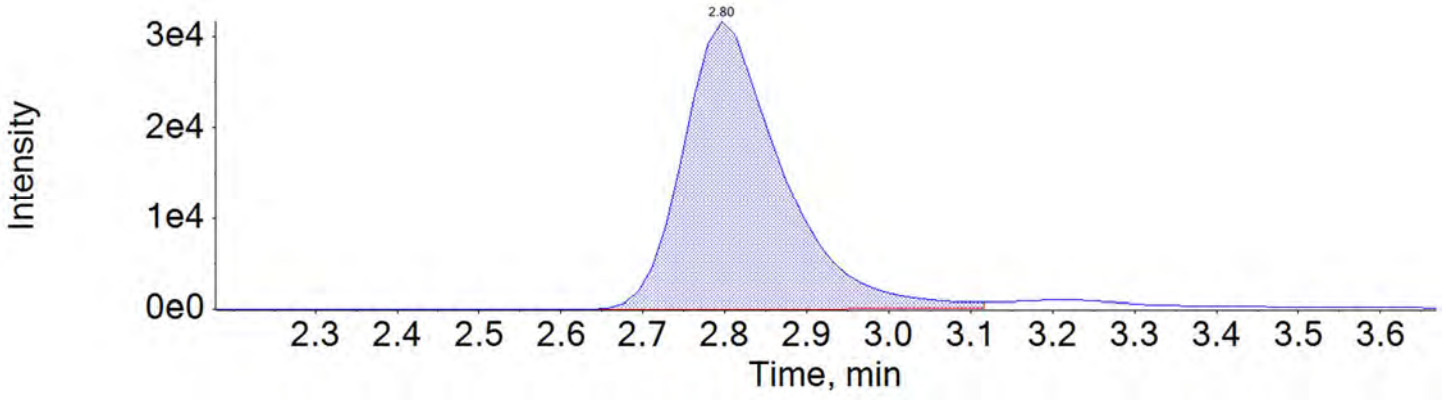
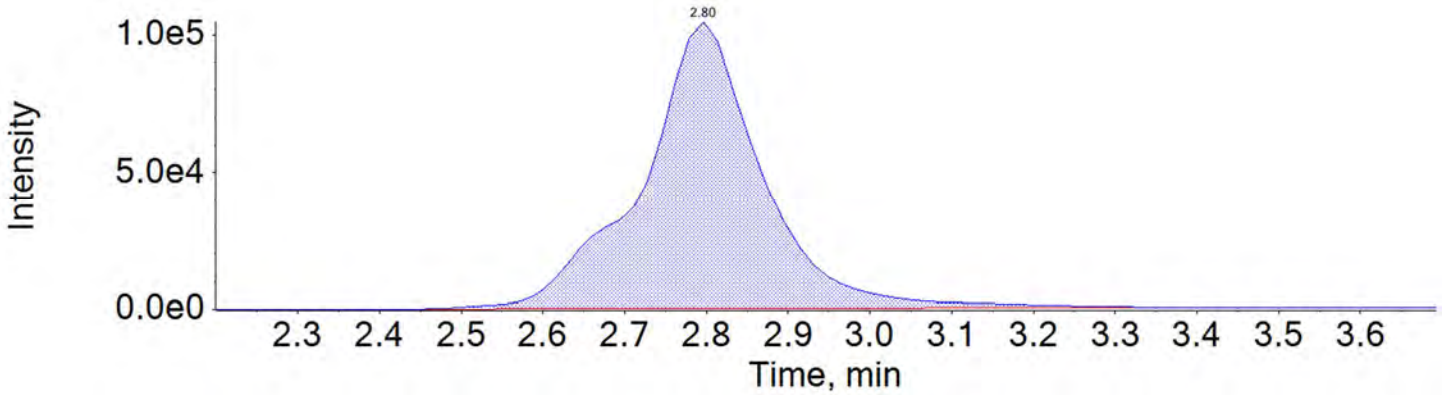
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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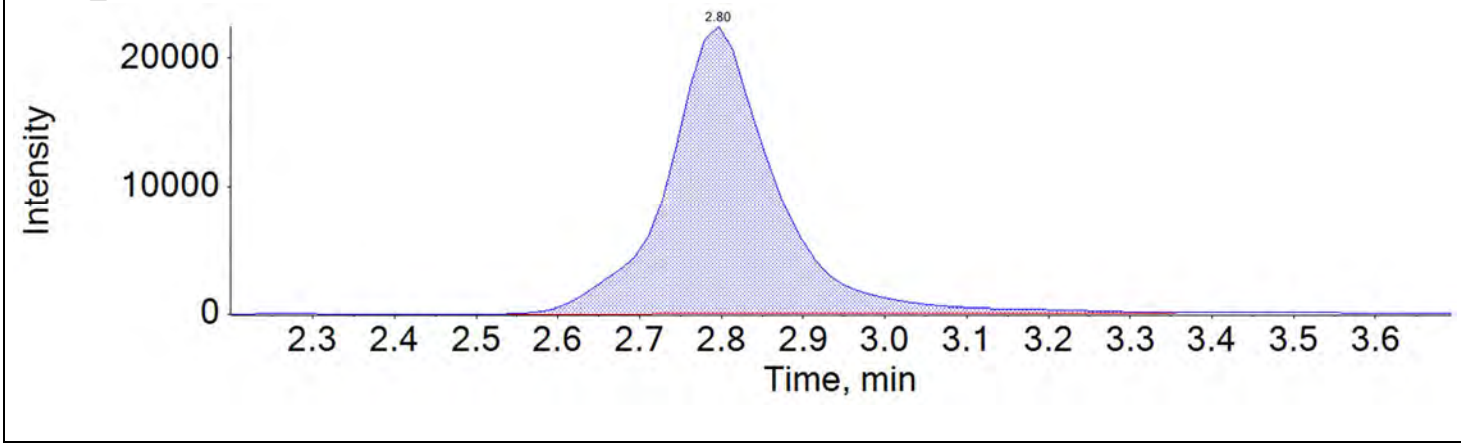

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Chromatogram Report

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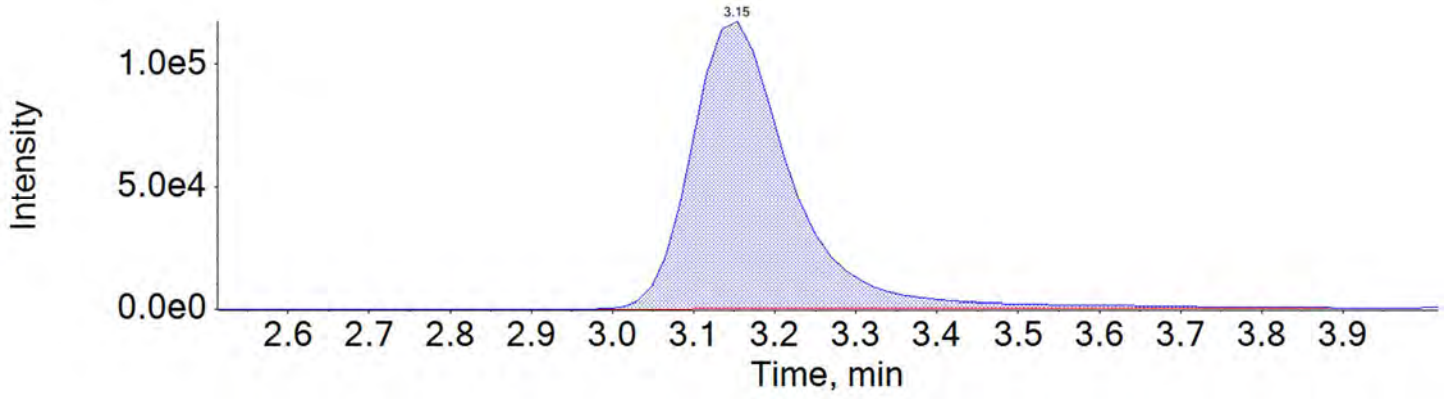
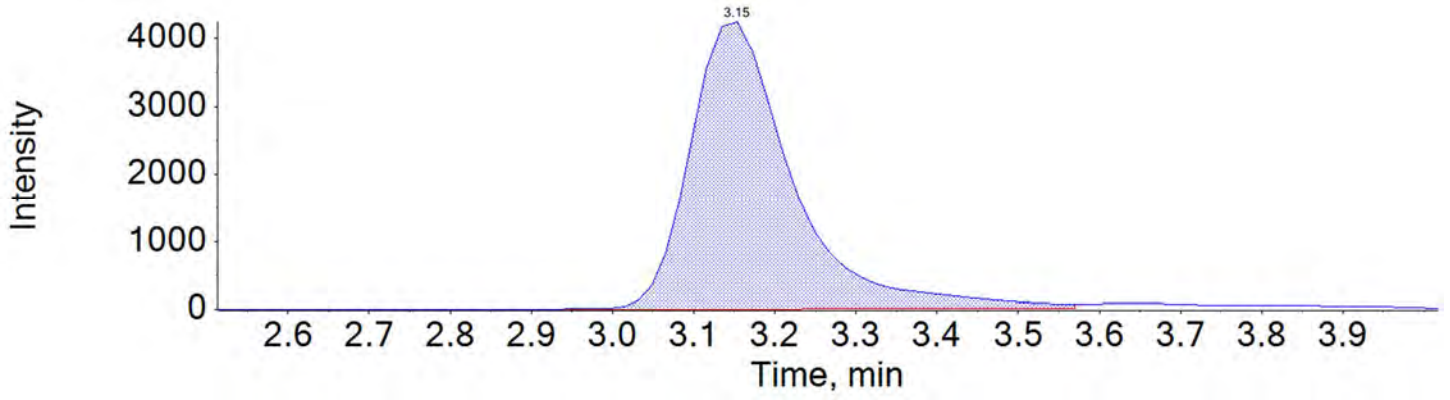
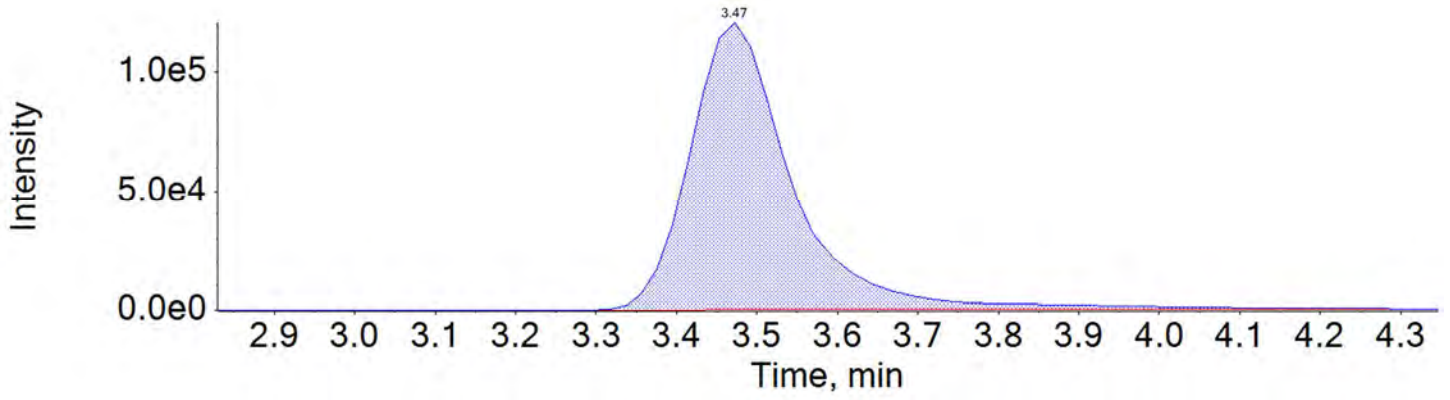
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



PFUnA_1 563.0 / 519.0



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Chromatogram Report

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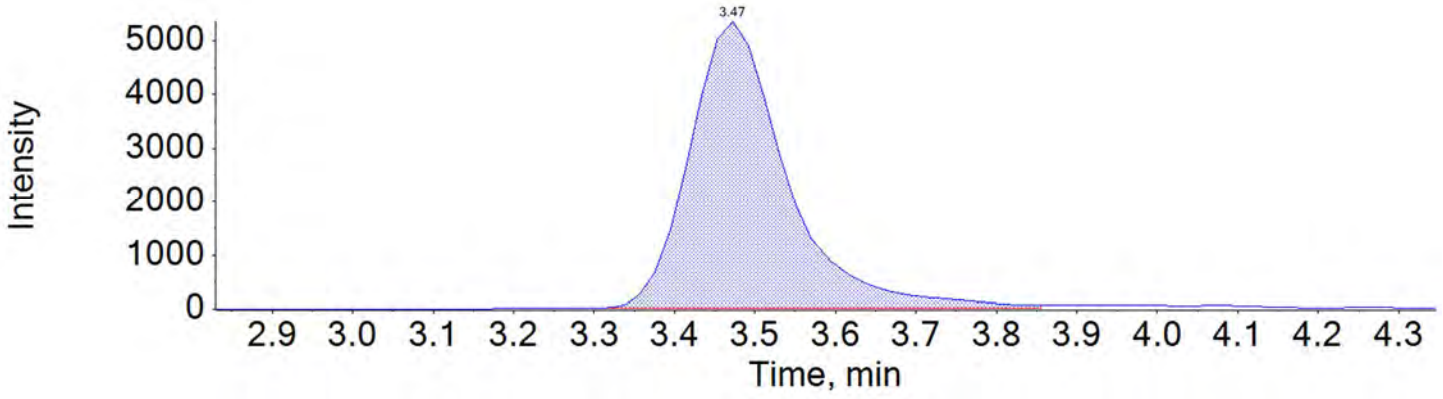
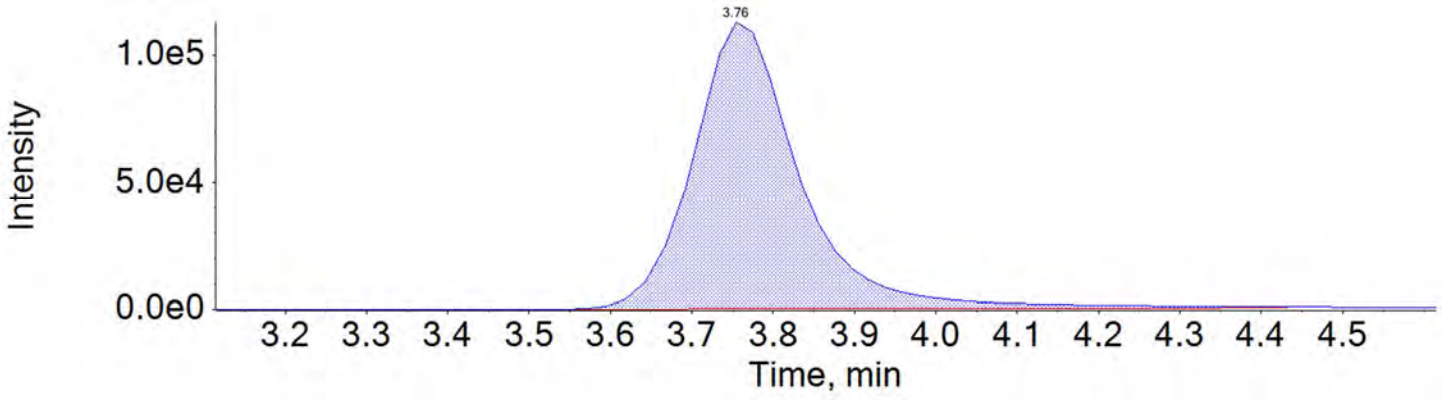
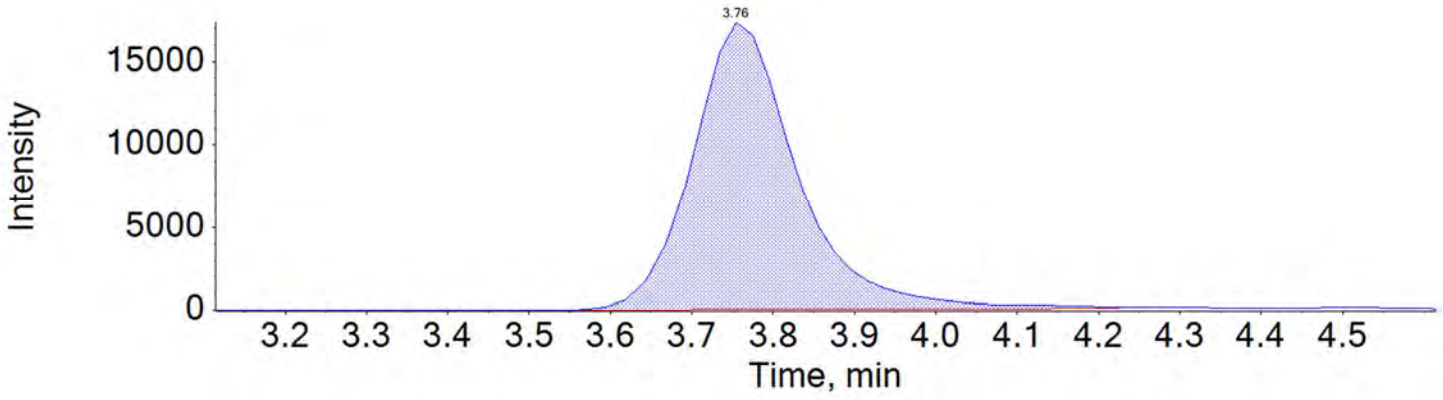
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



PFDoA_2 613.0 / 319.0



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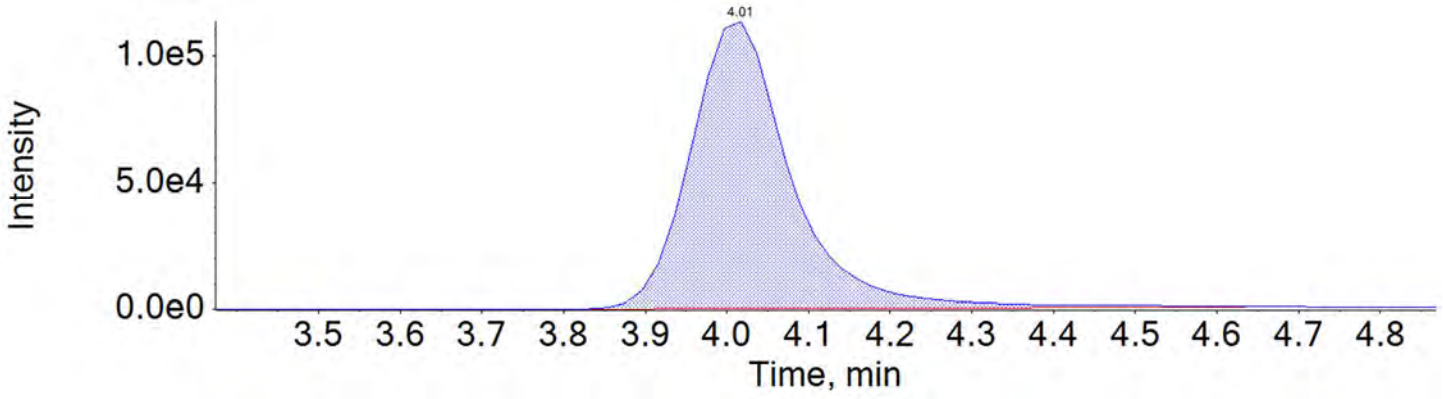
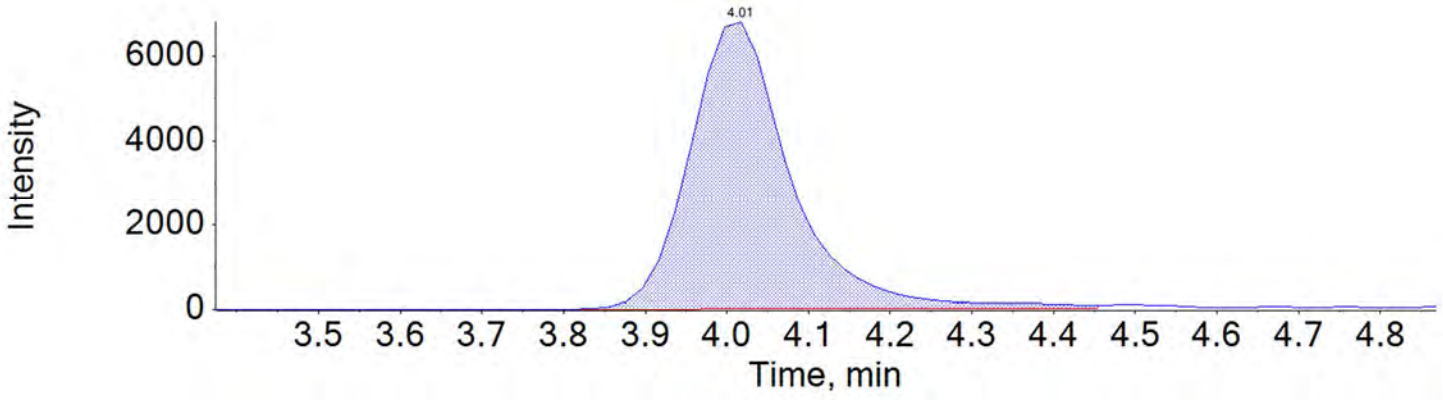
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



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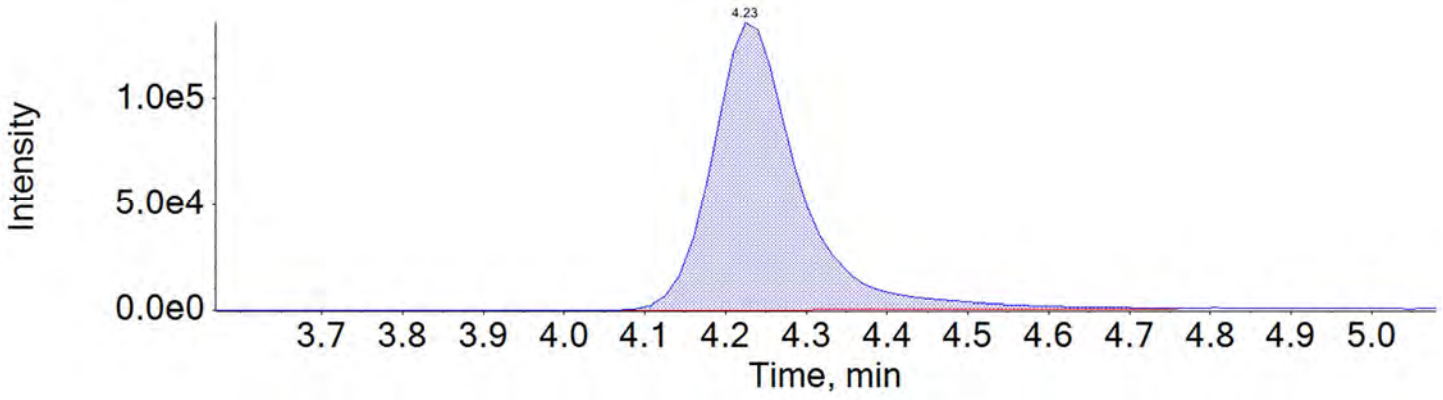

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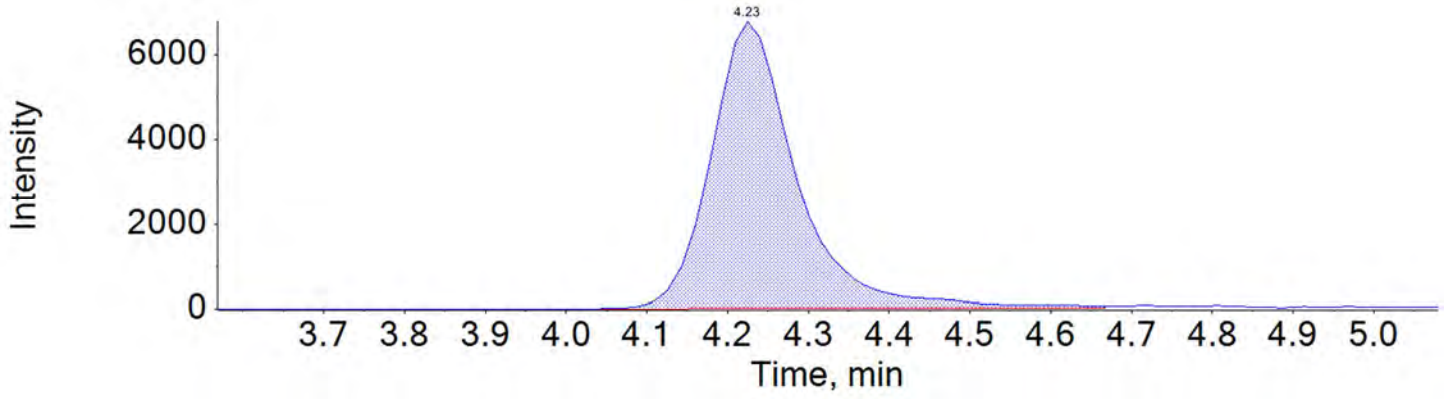
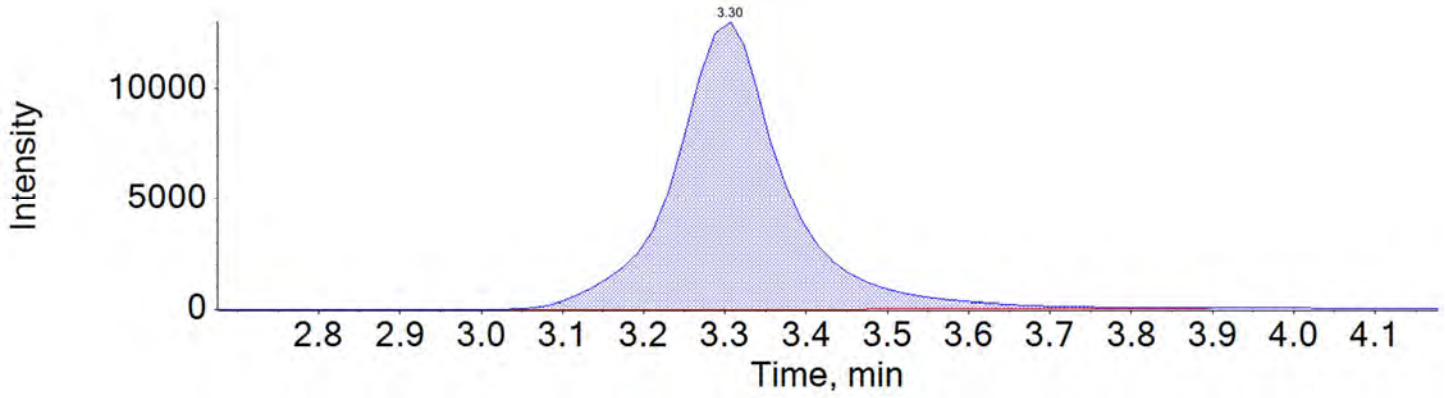
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



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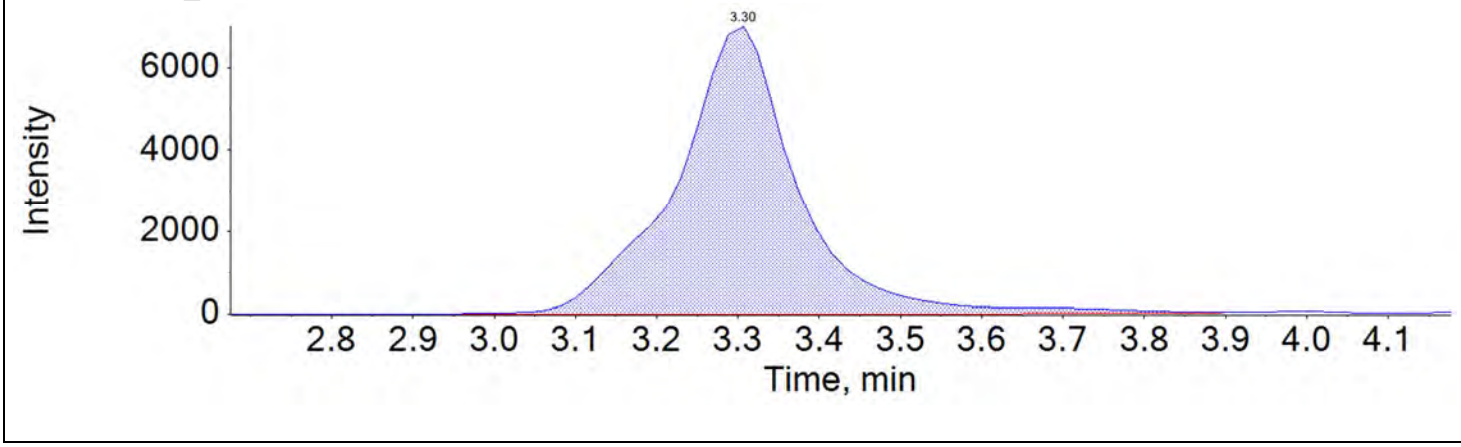

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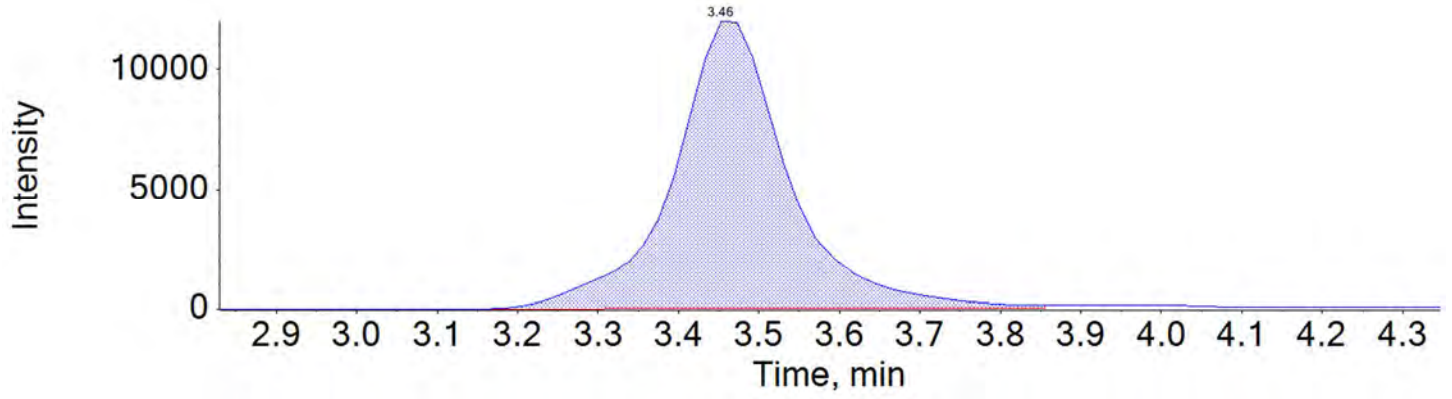
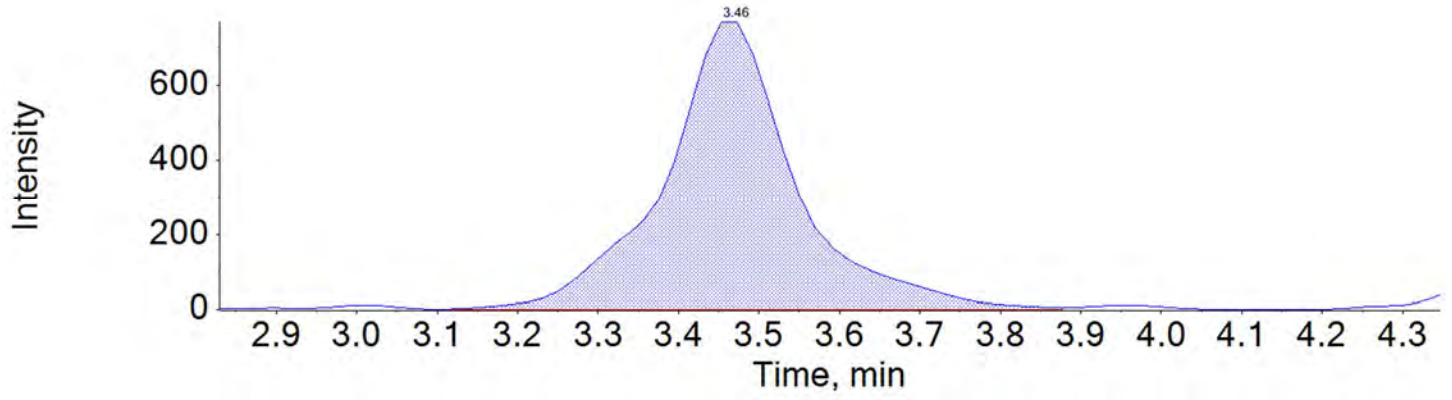
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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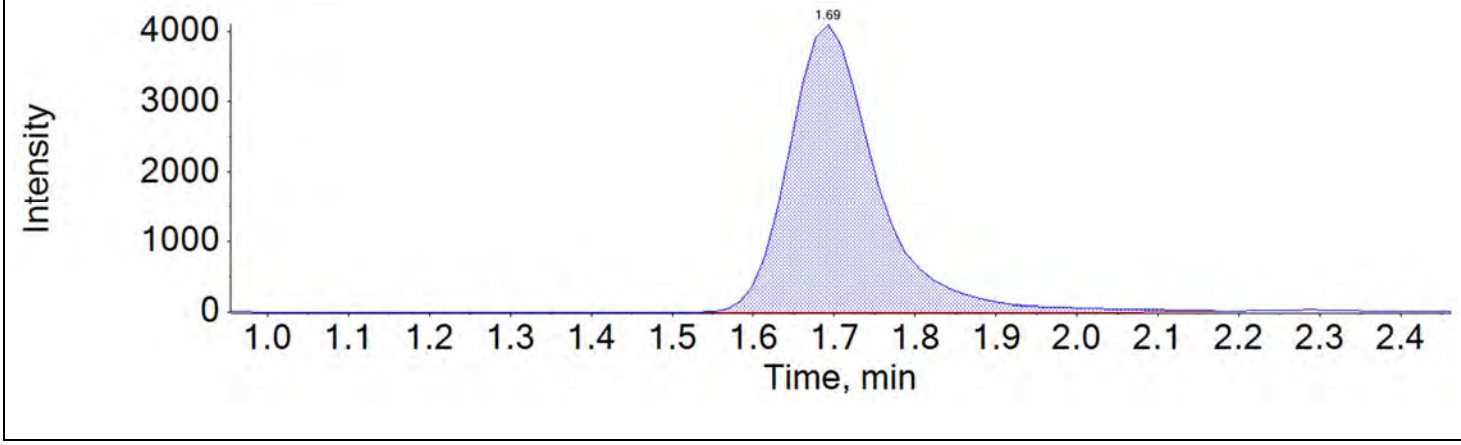
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:01:08 PM

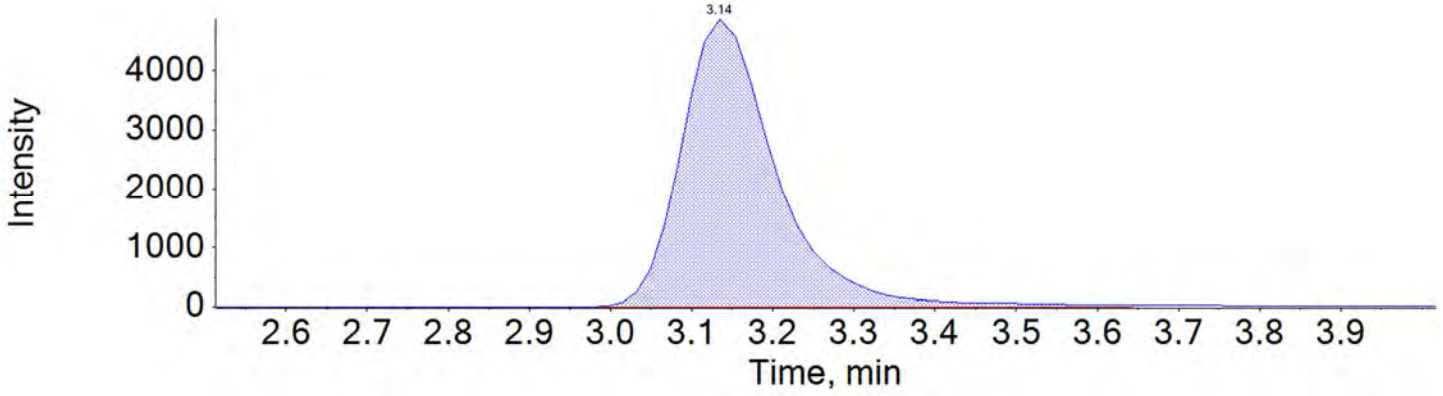
Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:14:08	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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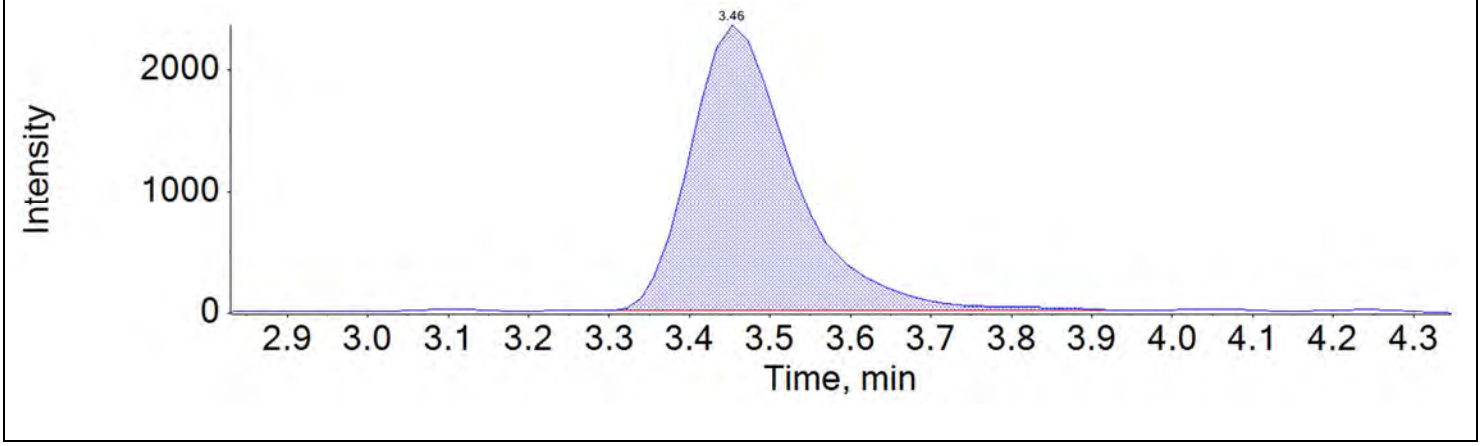
d5-EtFOSAA 589.0 / 419.0



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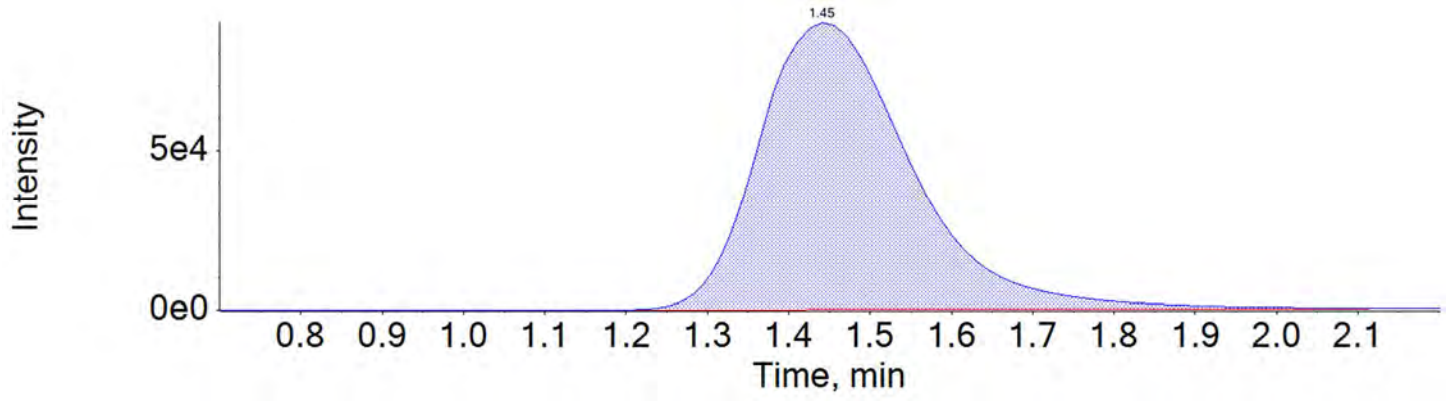
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:06:02 PM

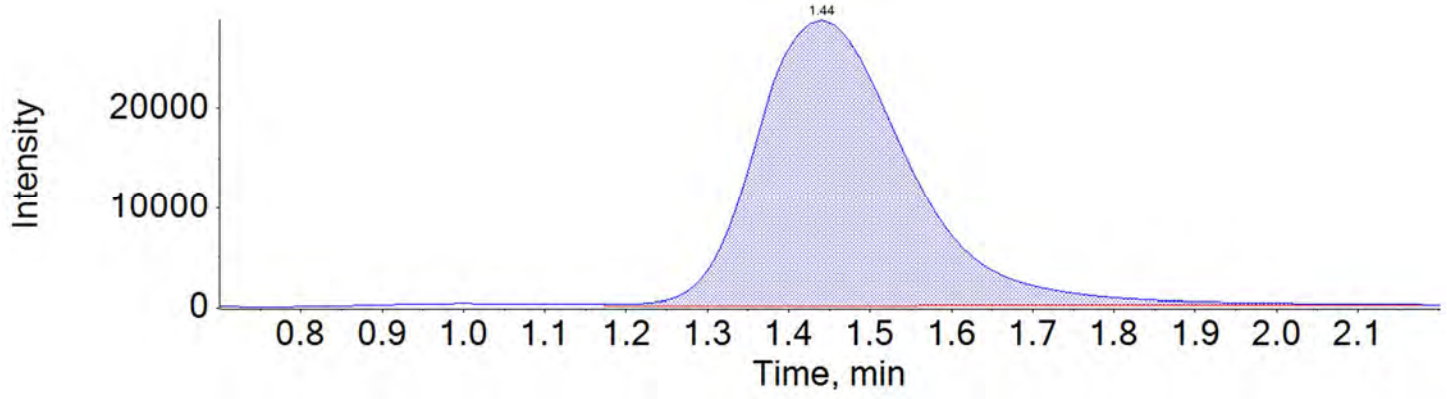
Sample Name	JV71	**Injection Vial**	9
Sample ID	L8	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:23:03	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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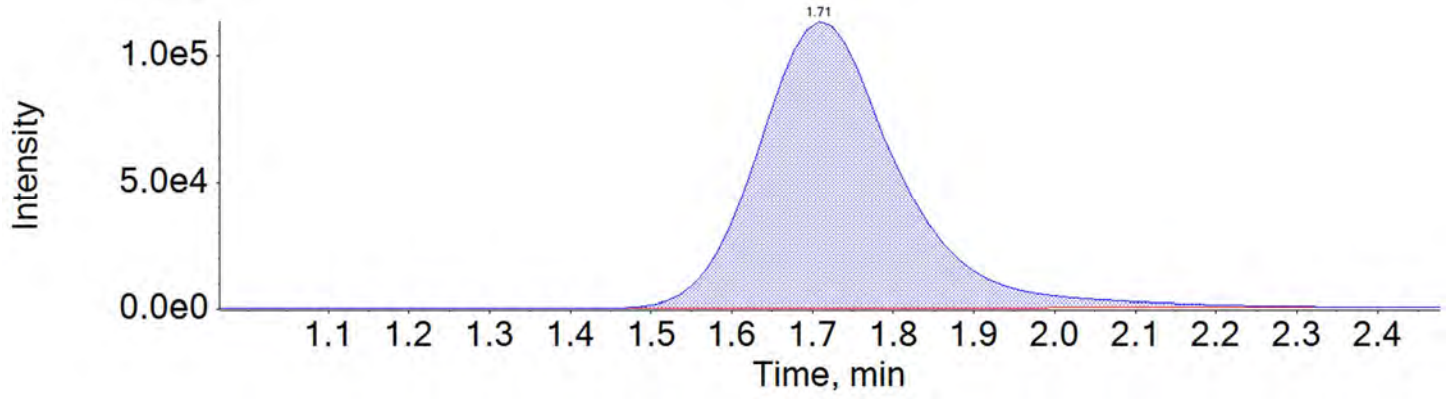
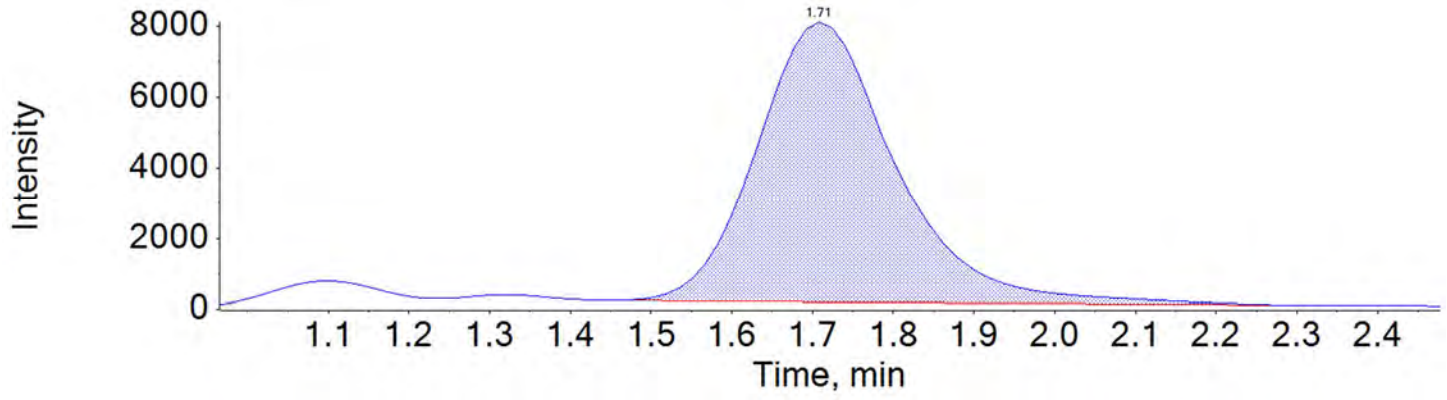
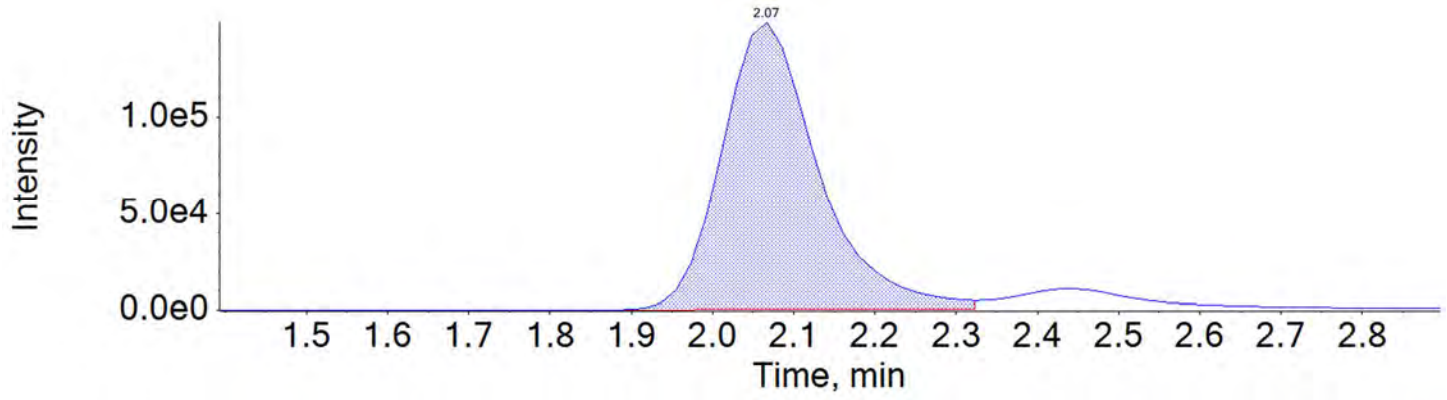
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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Chromatogram Report

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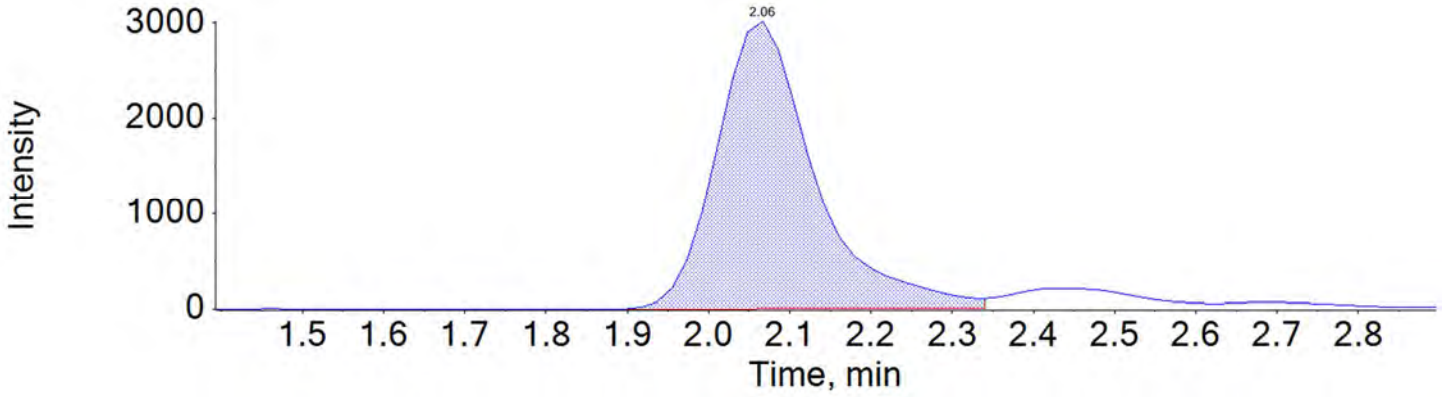
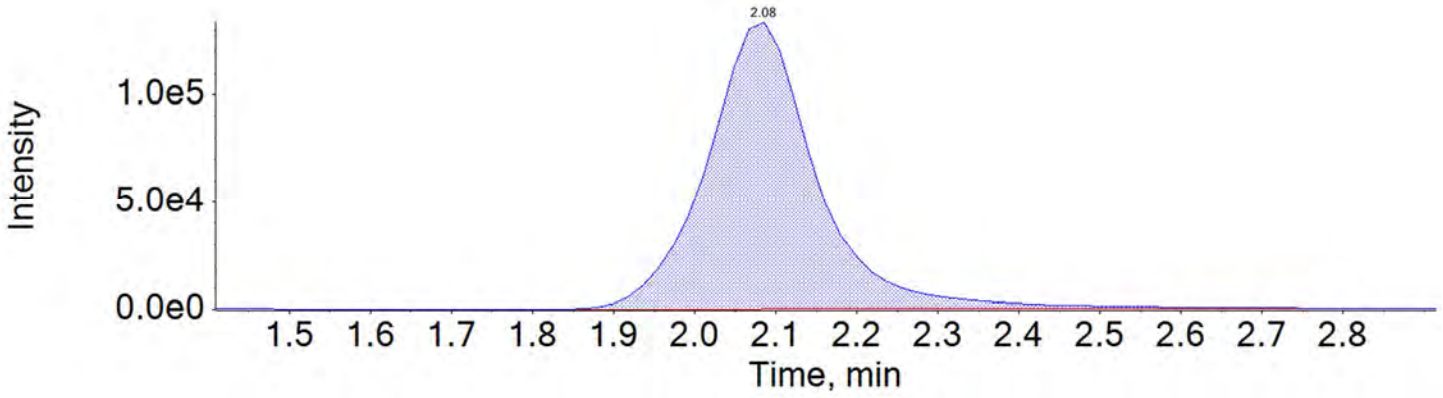
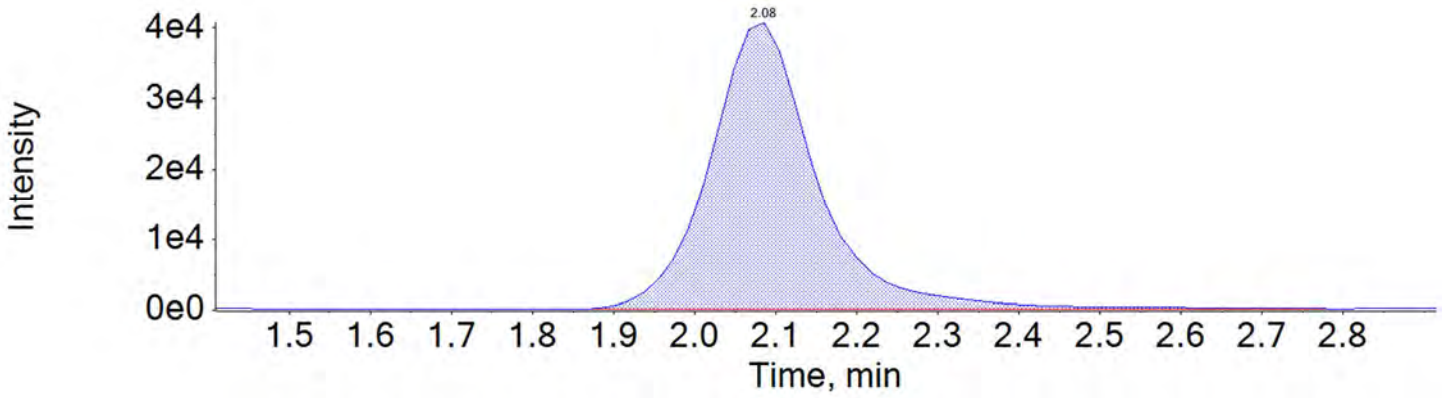
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



PFHxS_2 399.0 / 99.0



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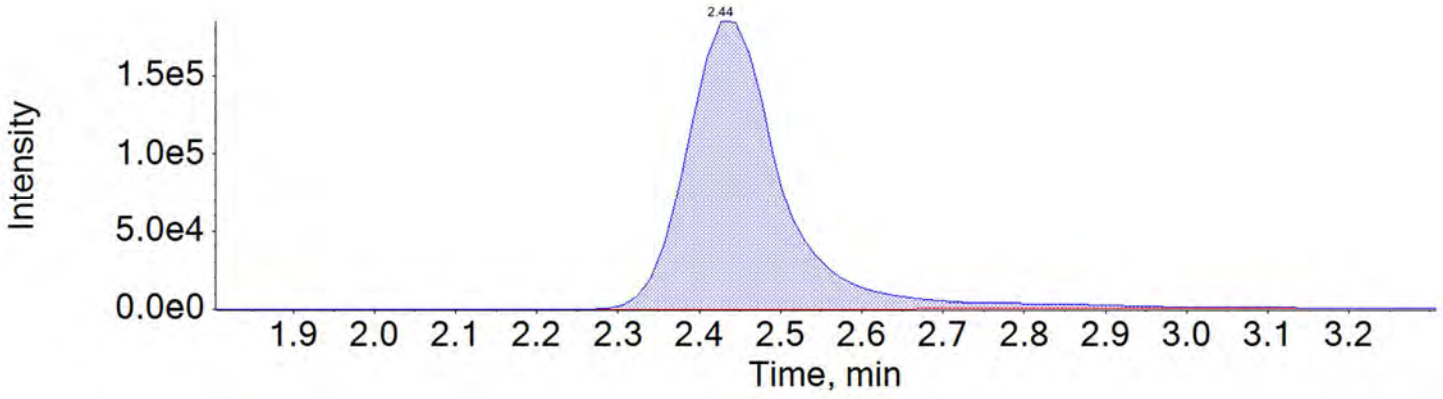
PFOA_1 413.0 / 369.0



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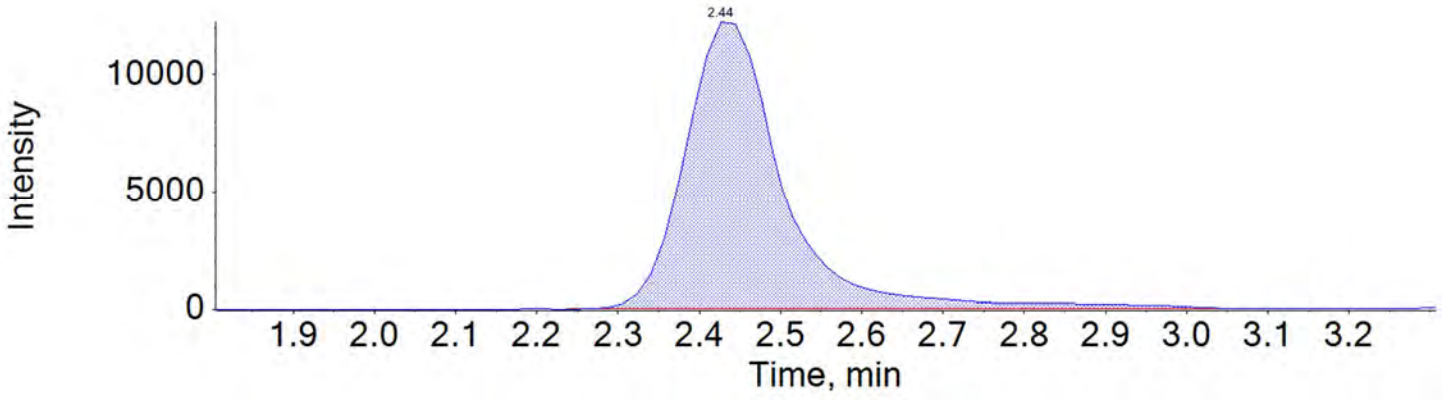

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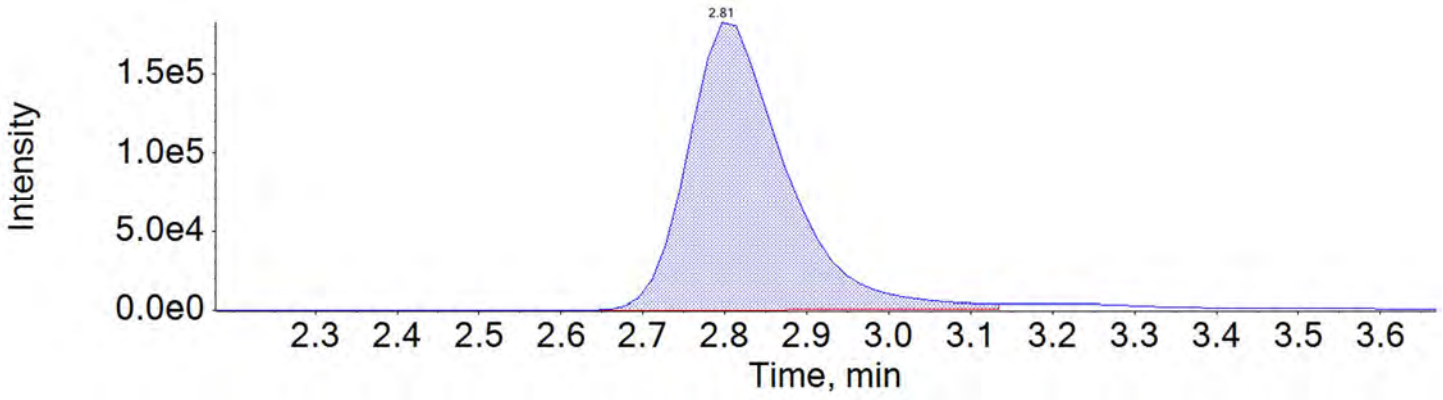

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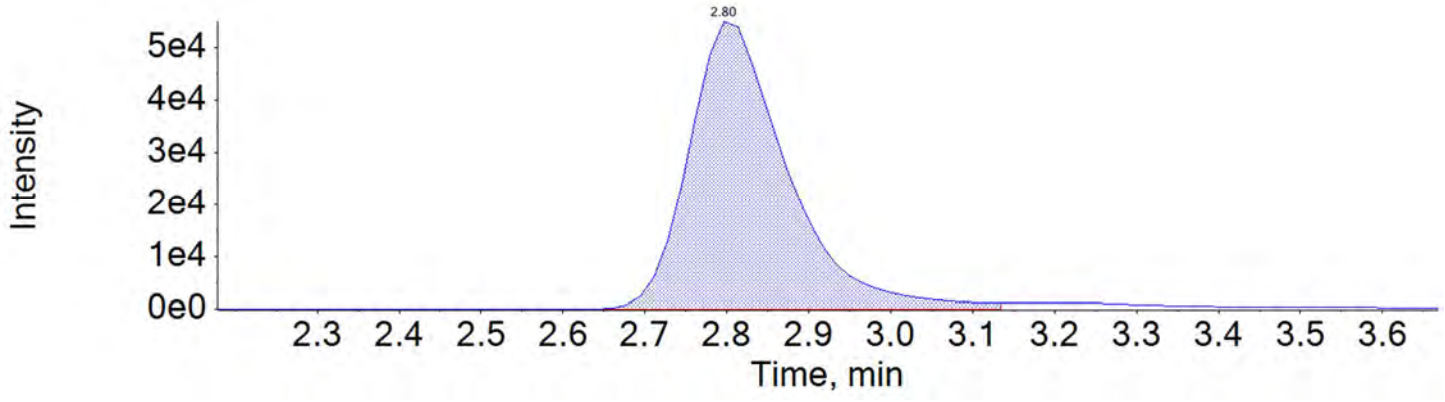

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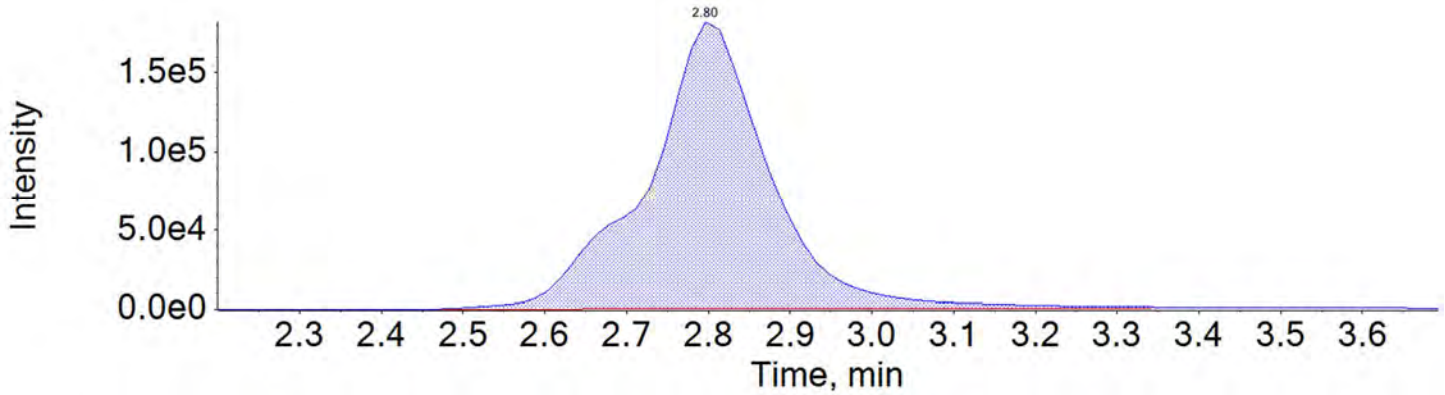

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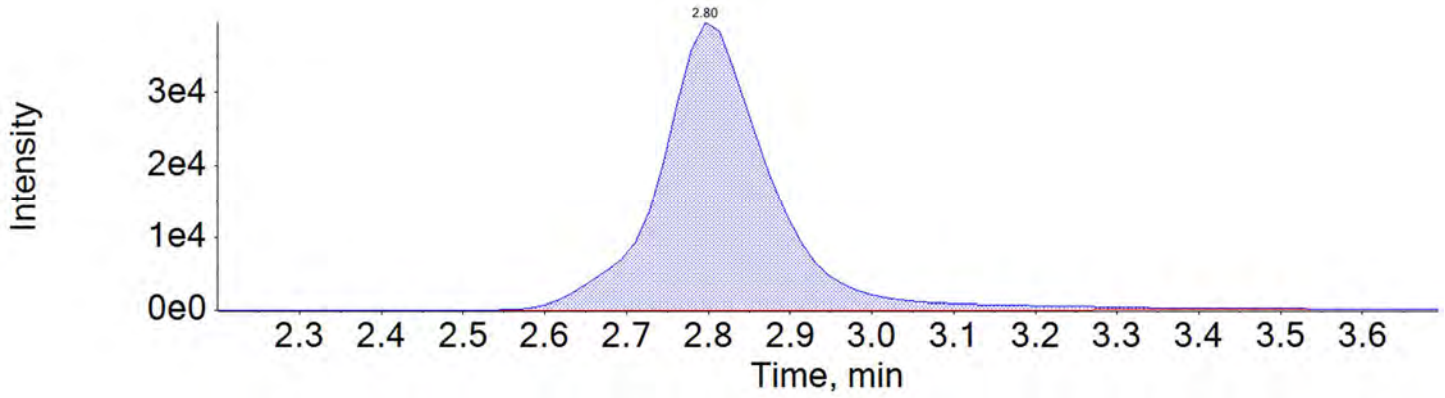

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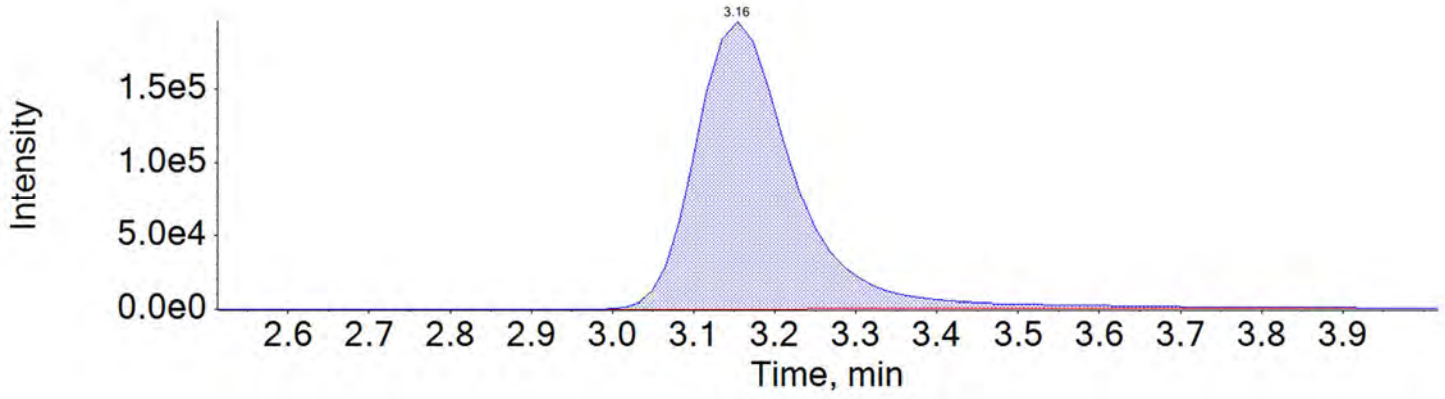

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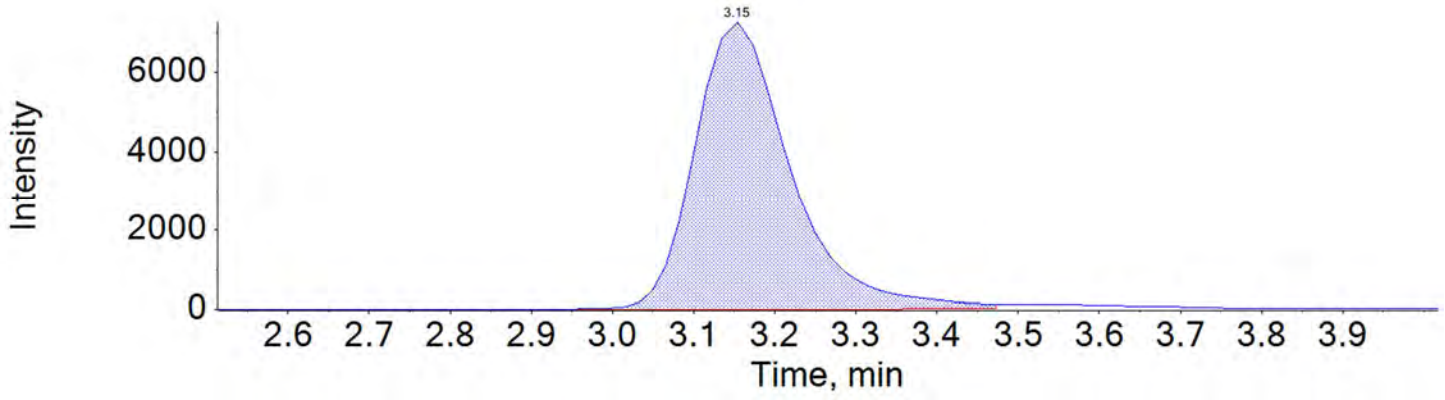
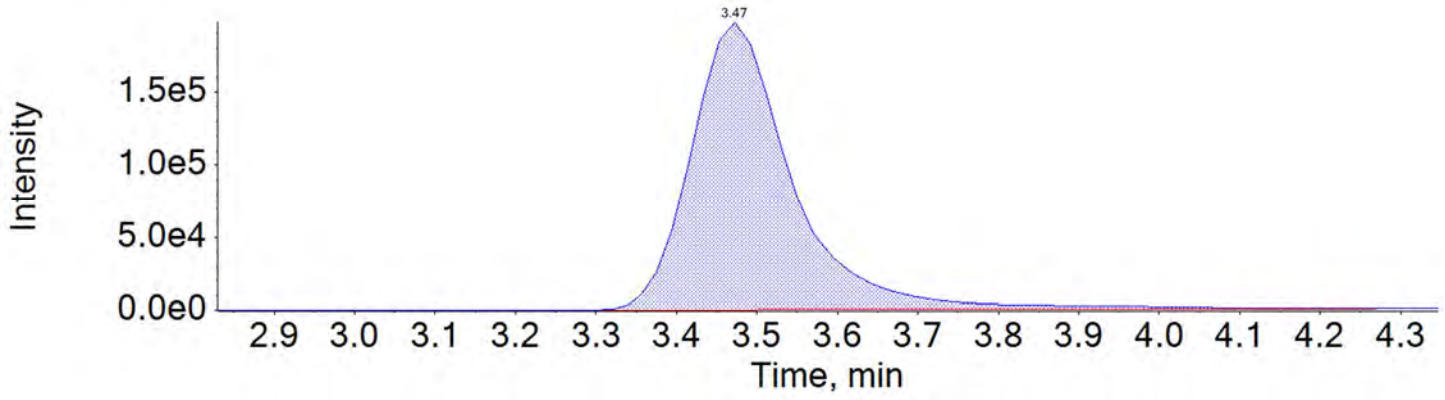


PFUnA_1 563.0 / 519.0



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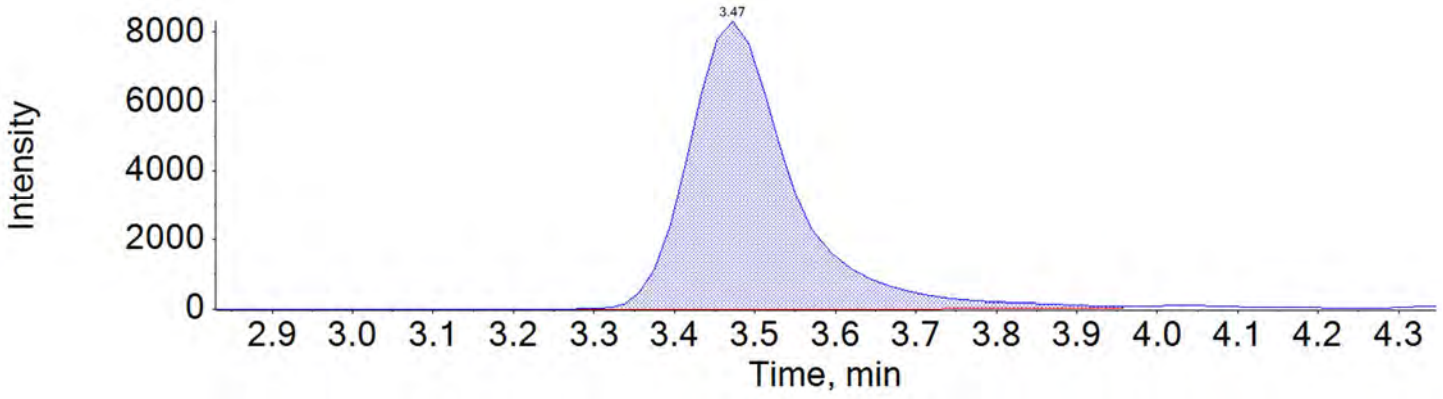
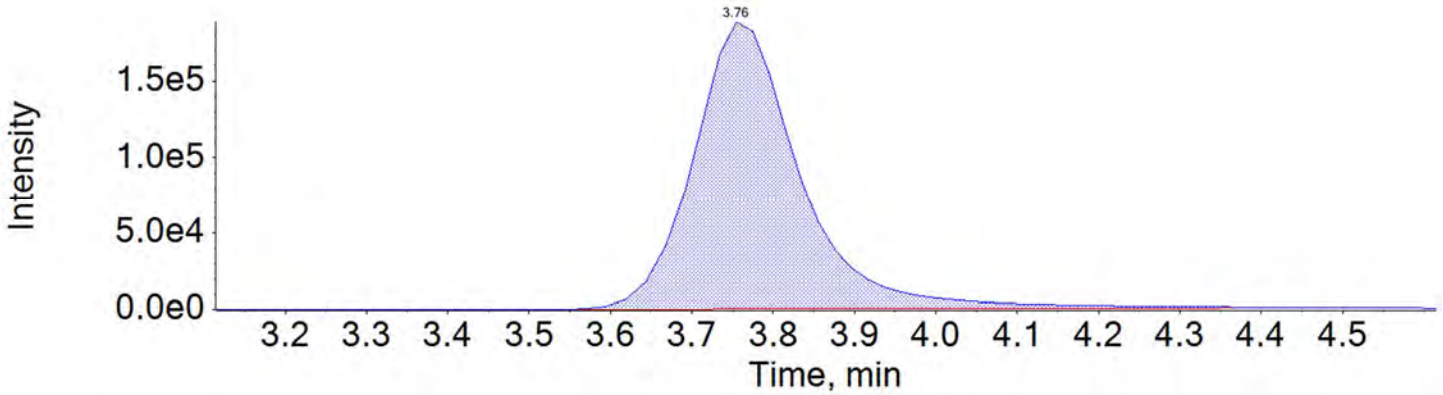


PFDoA_1 613.0 / 569.0



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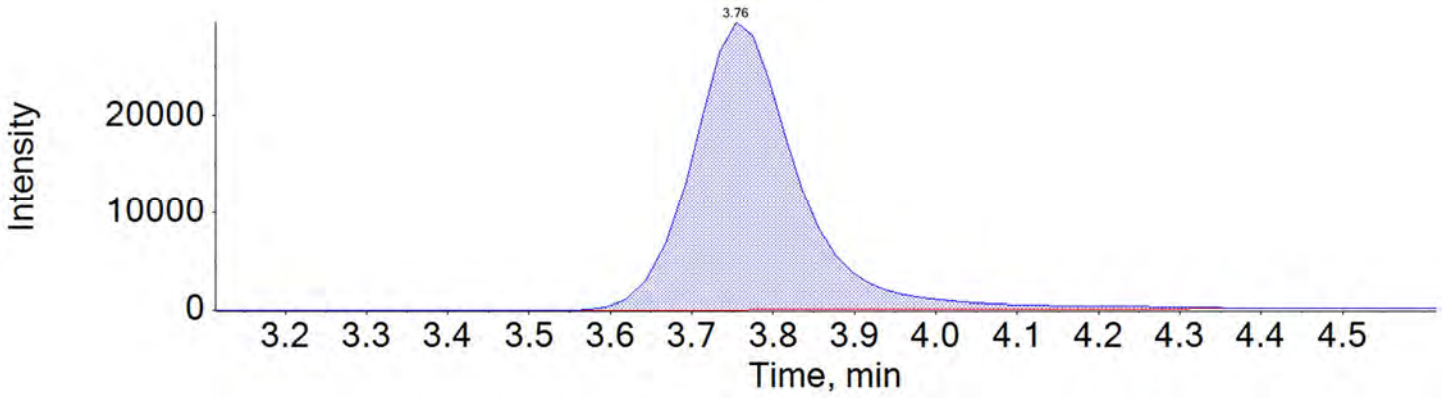

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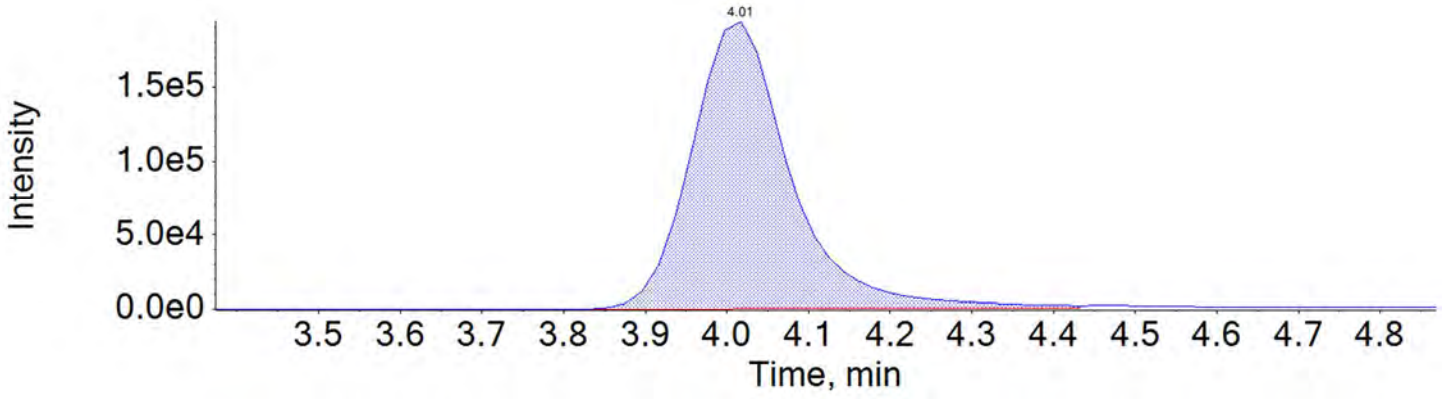
PFTrDA_1 663.0 / 619.0



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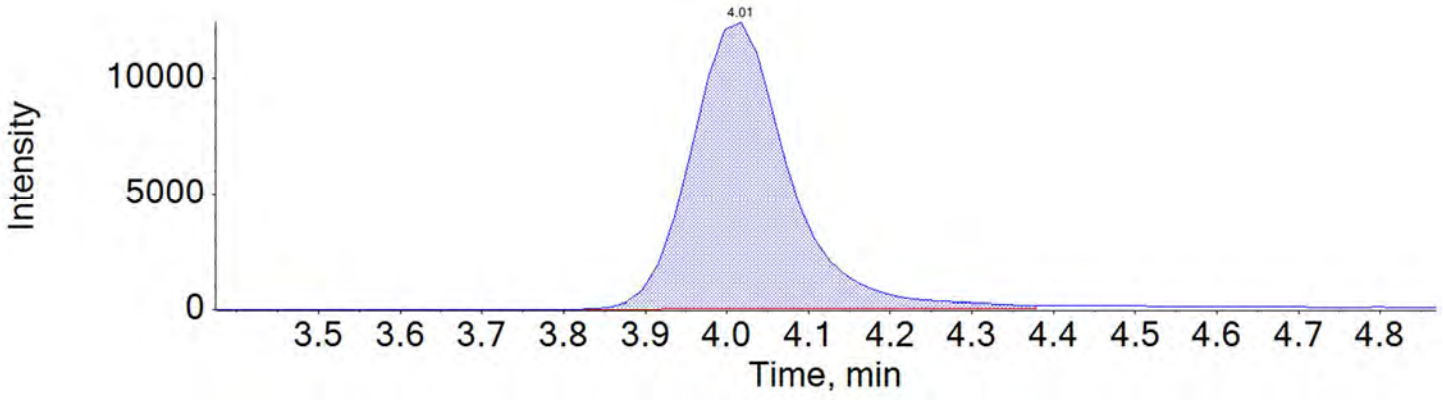
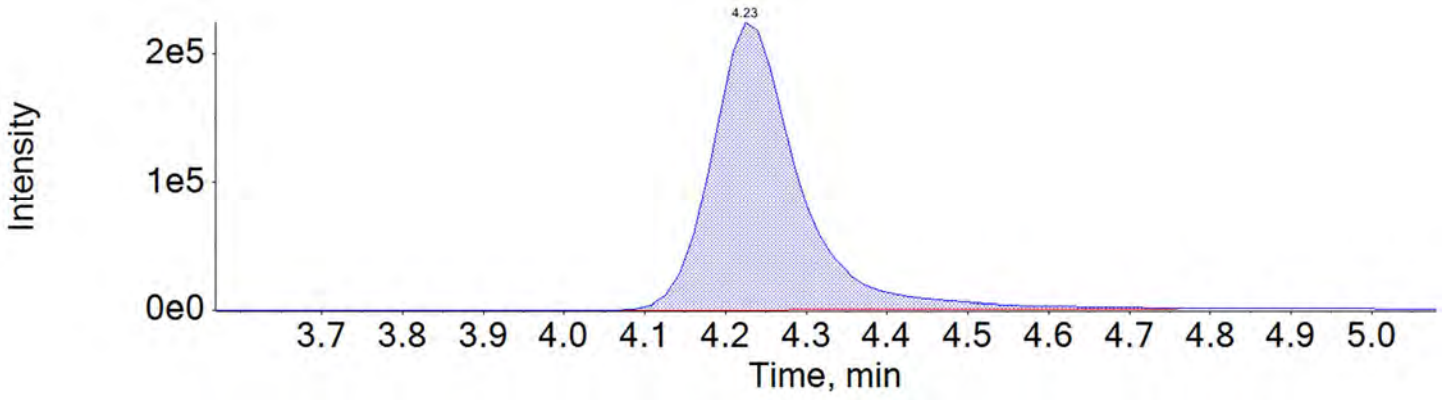


PFTeDA_1 713.0 / 669.0



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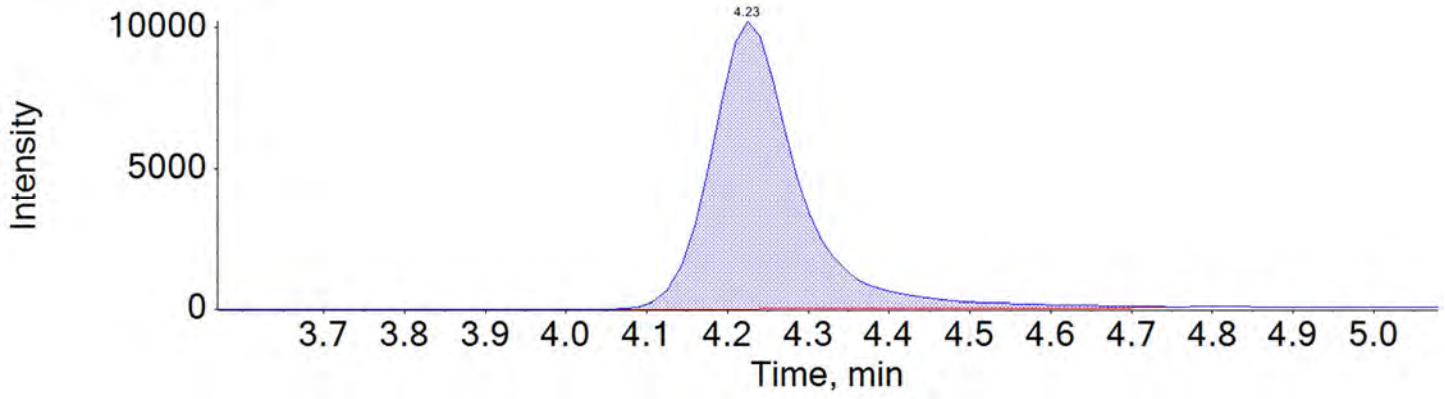

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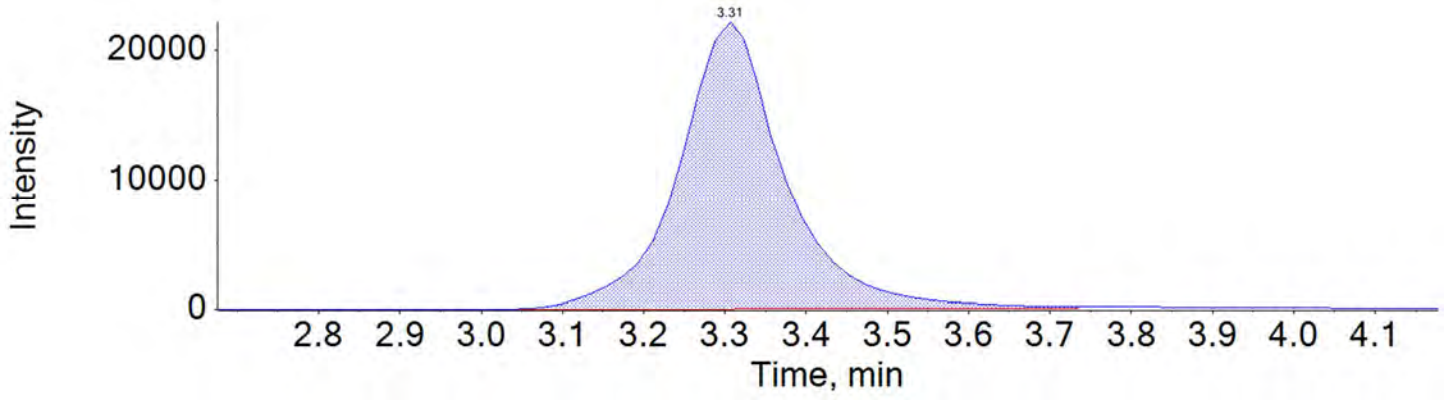

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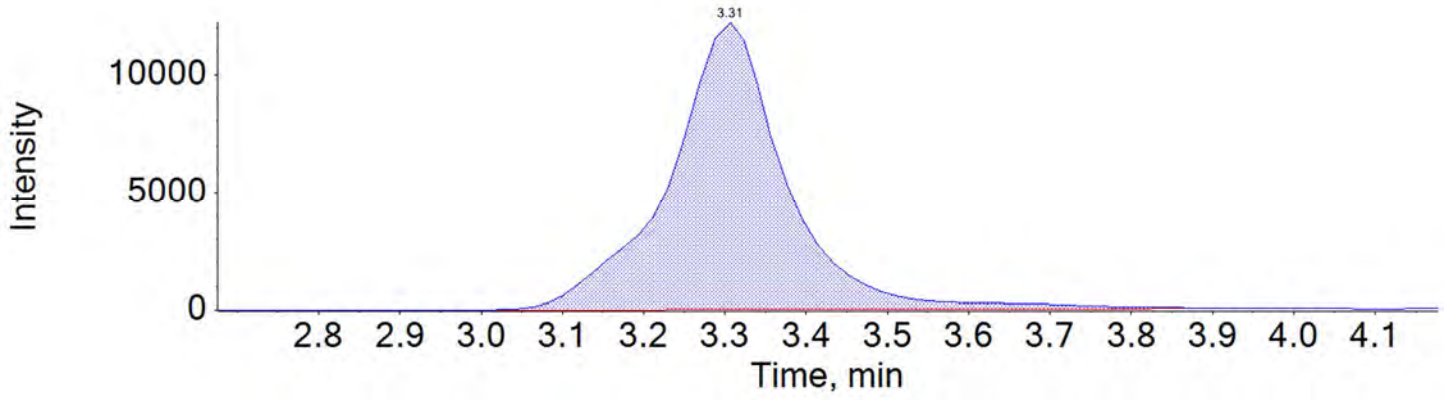

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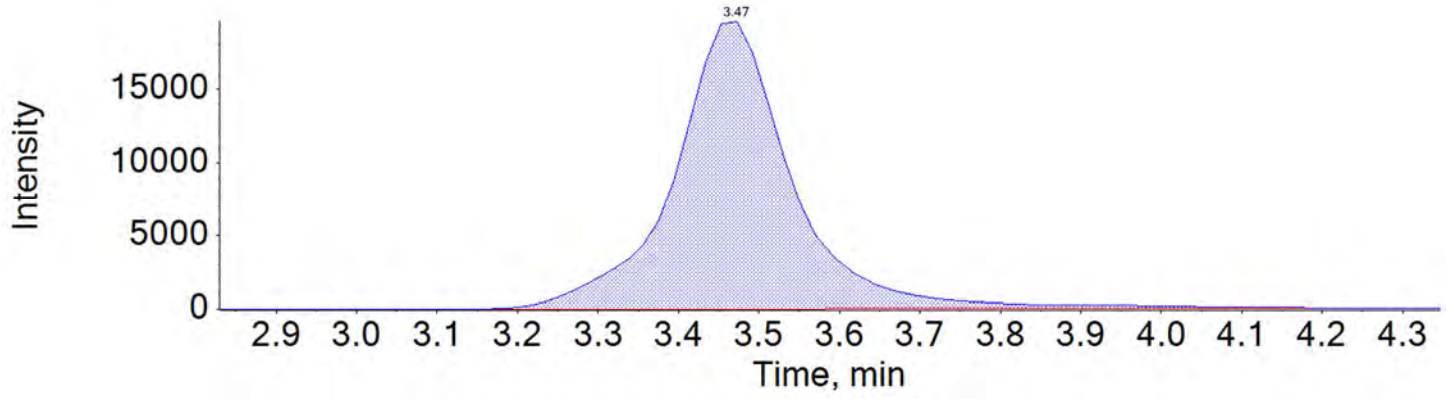

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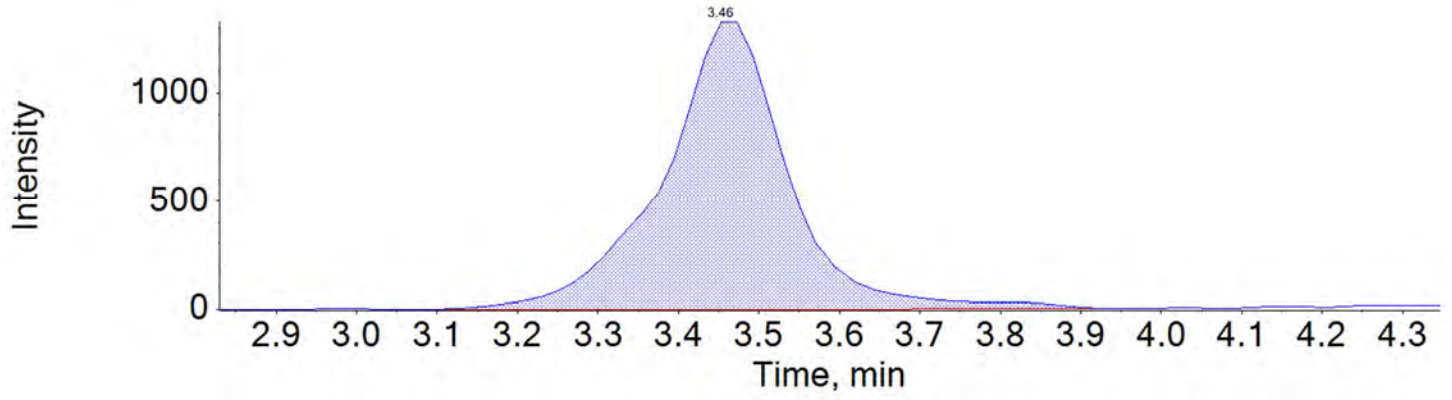

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Chromatogram Report

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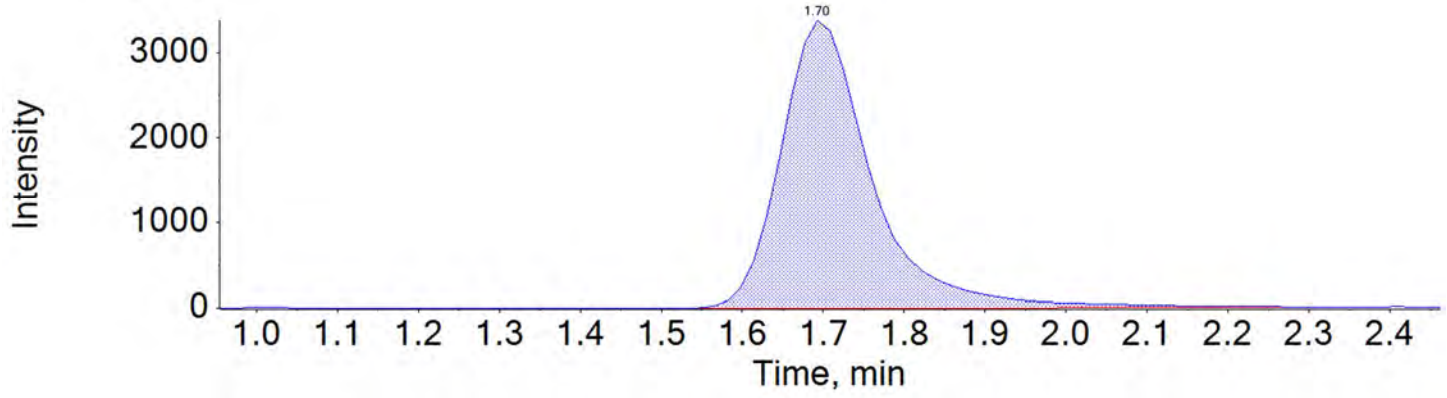
Sample Name	JV71	**Injection Vial**	9
Sample ID	L8	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:23:03	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



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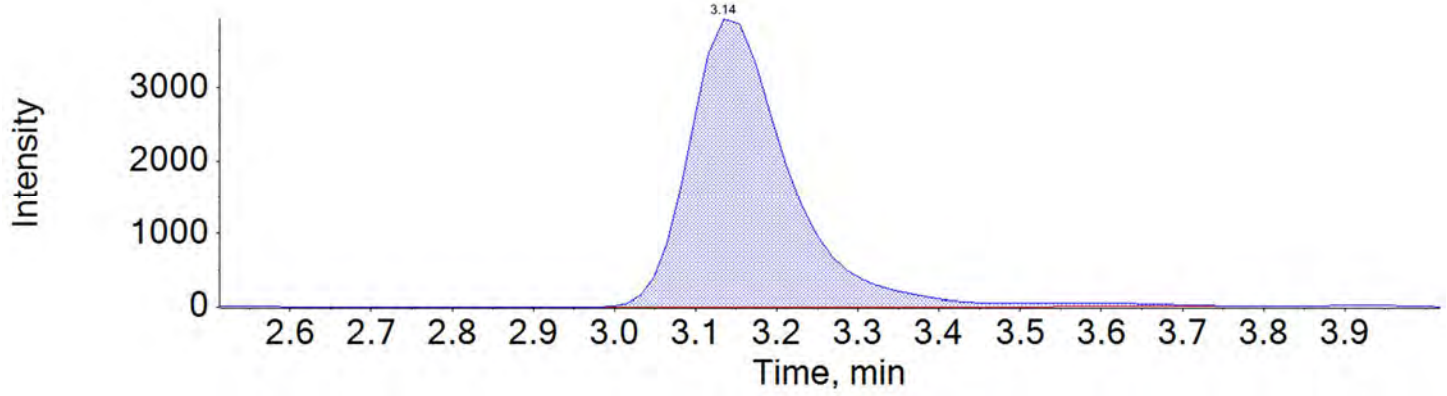

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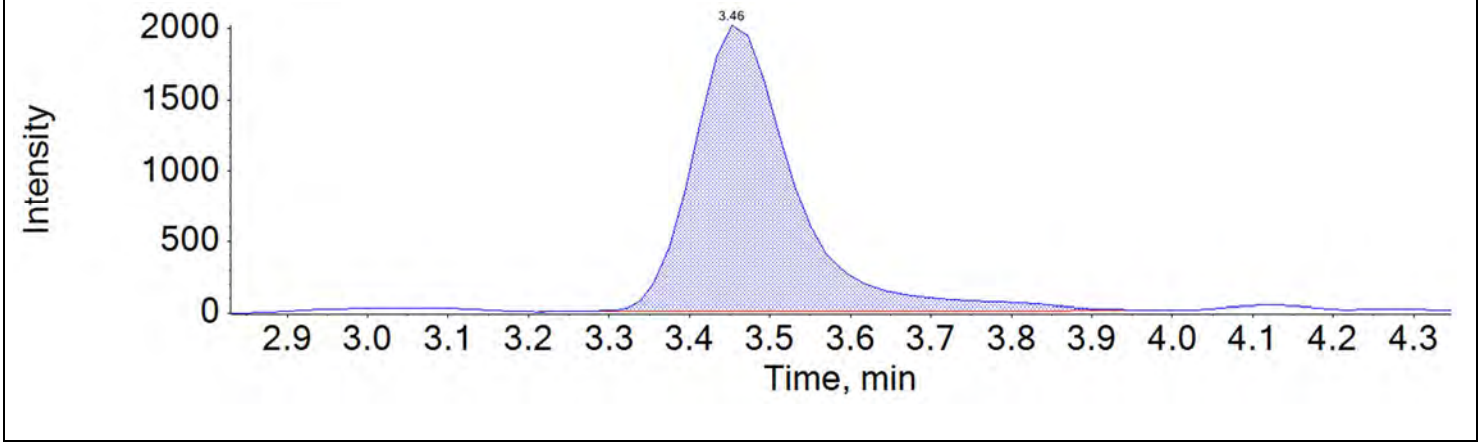
d5-EtFOSAA 589.0 / 419.0



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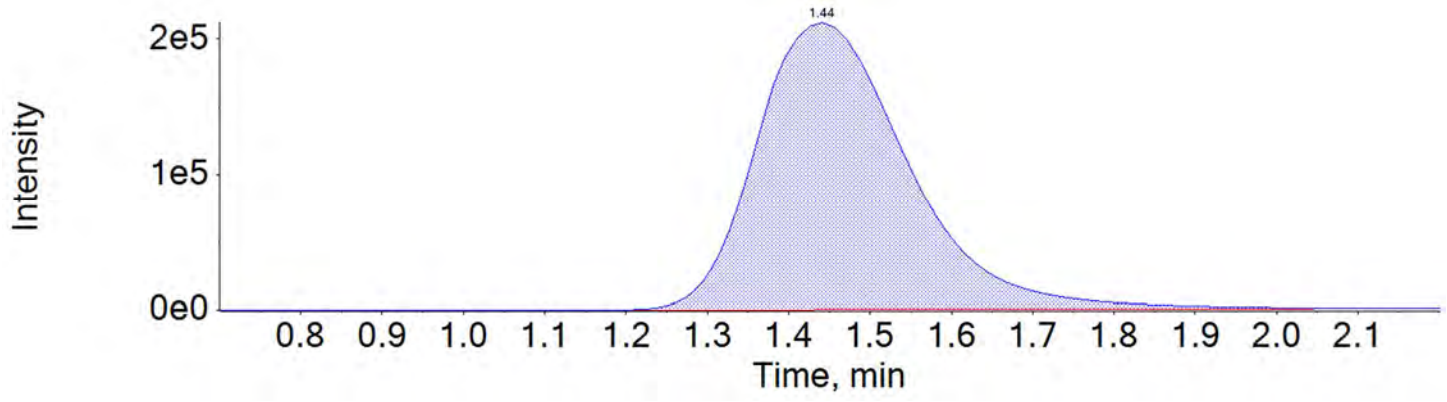
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:06:09 PM

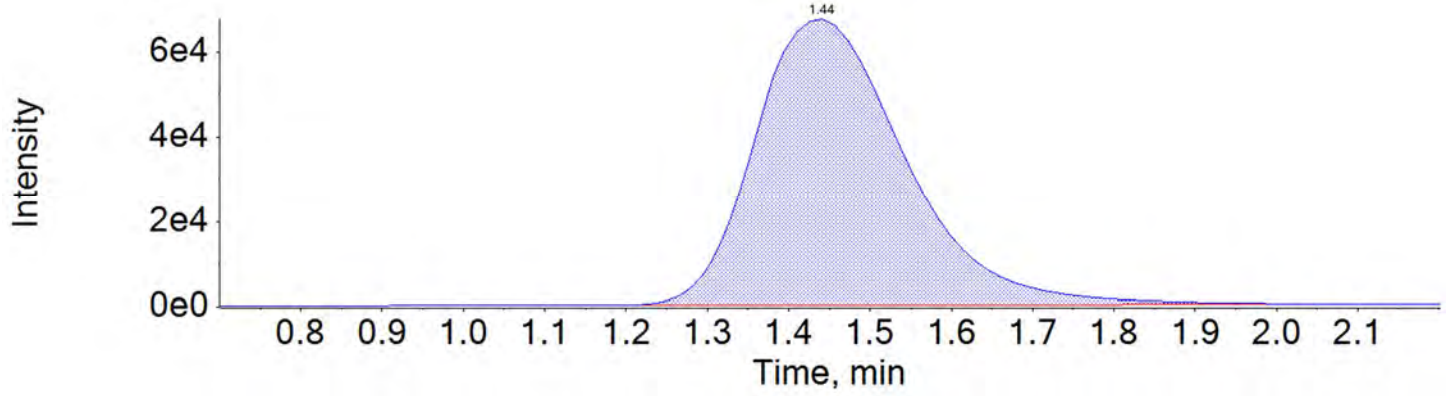
Sample Name	JV72	**Injection Vial**	10
Sample ID	L9	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:31:58	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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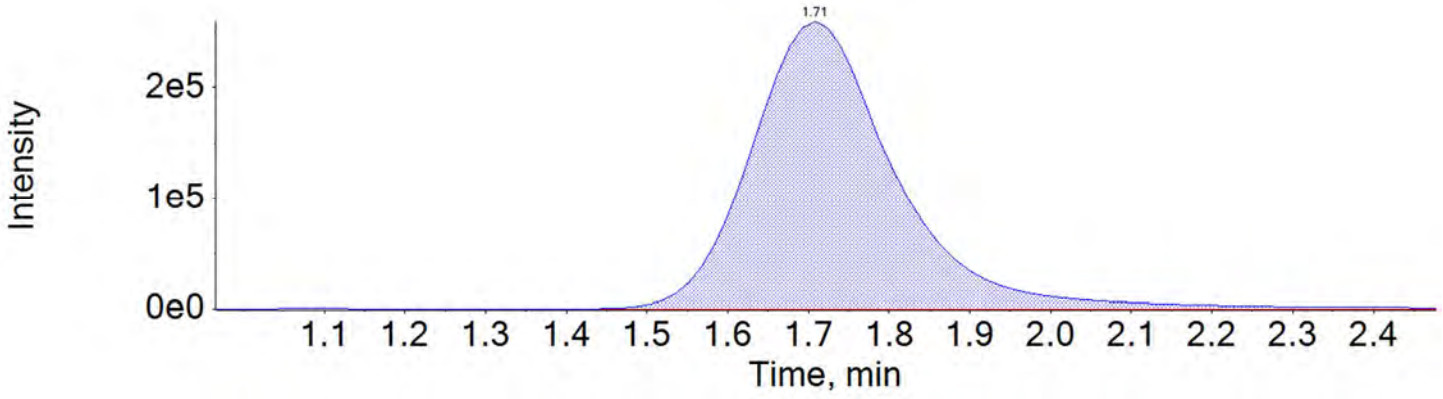
PFHxA_1 313.0 / 269.0



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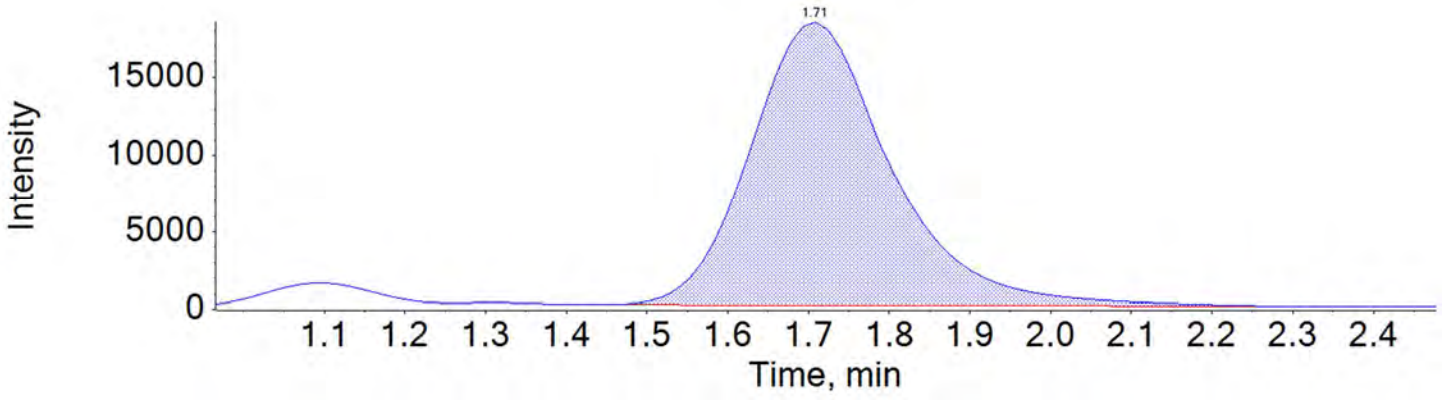

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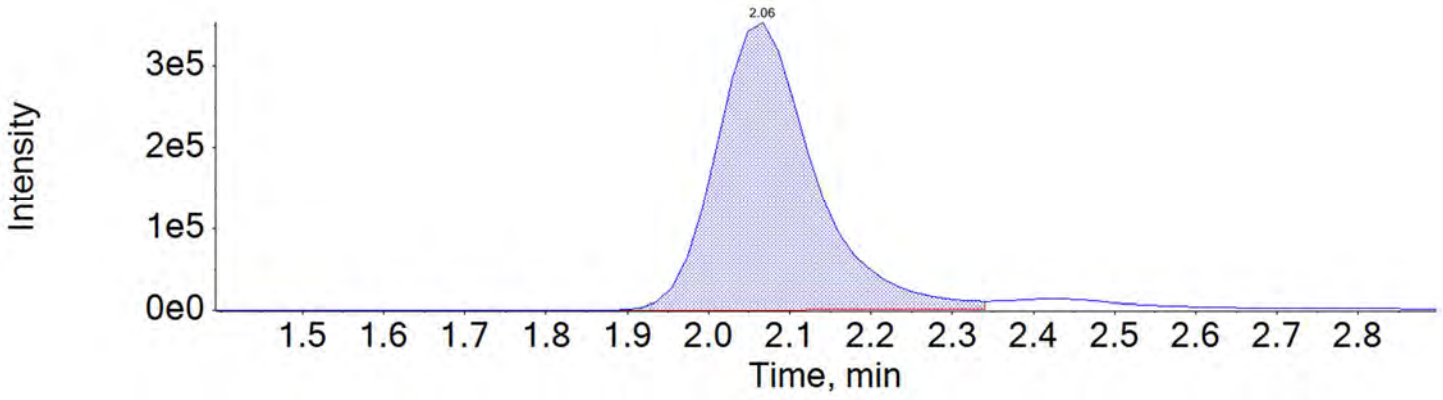

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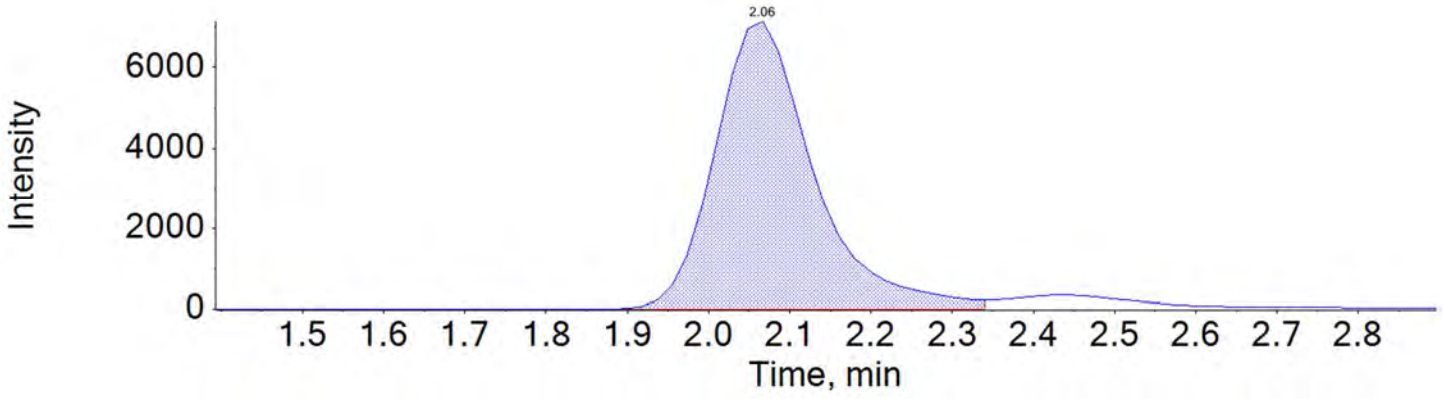

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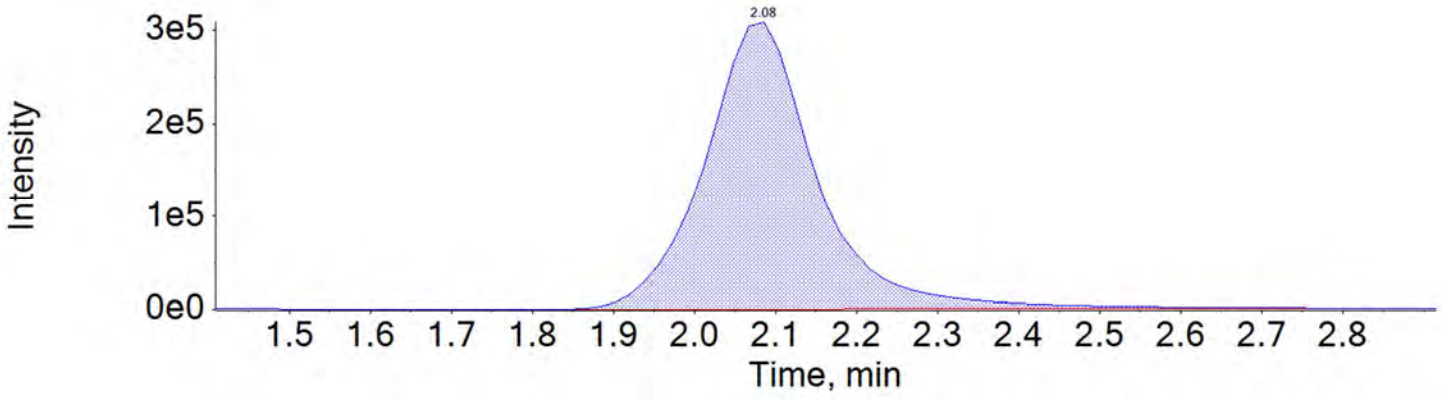

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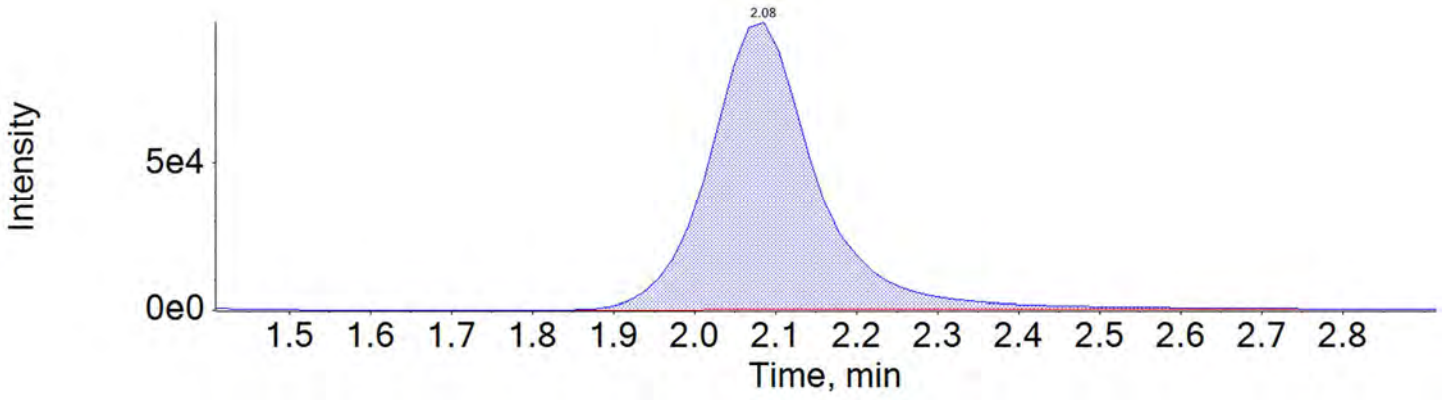

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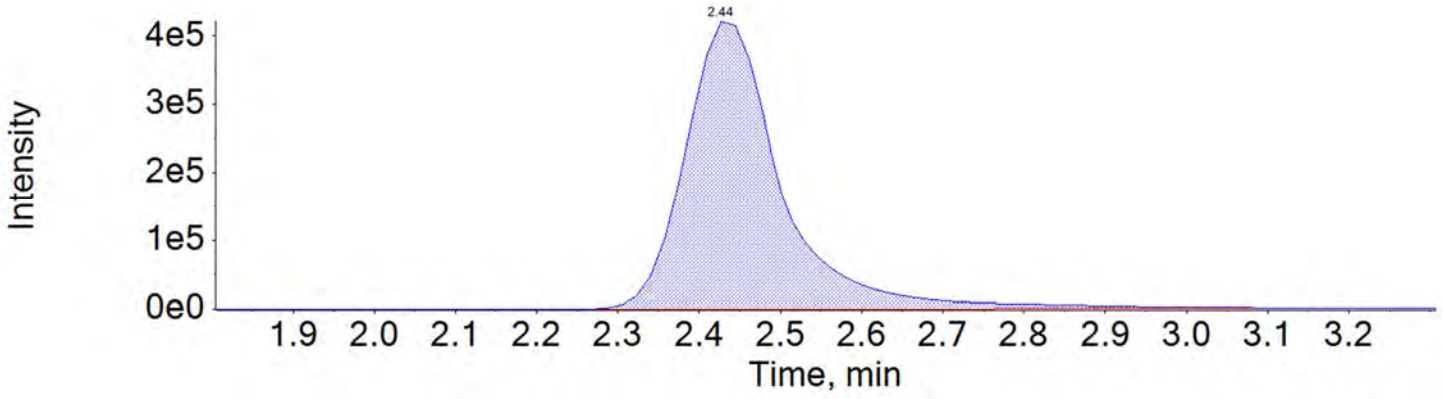

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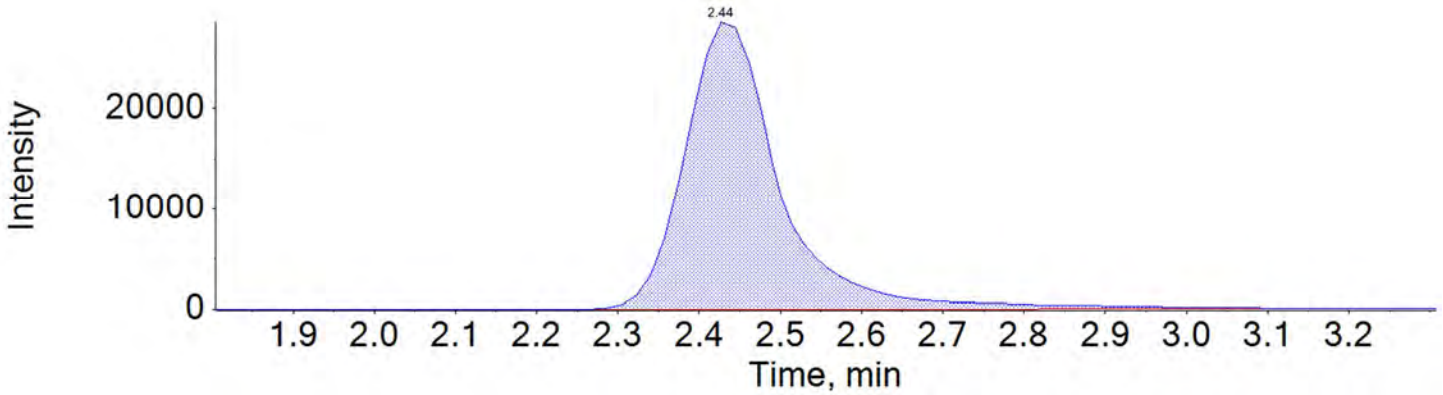

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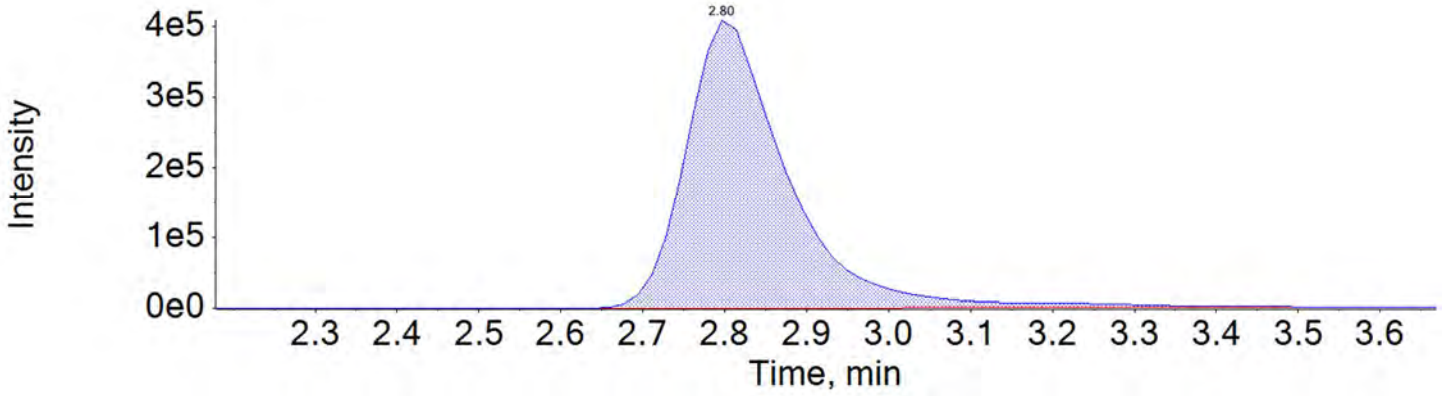

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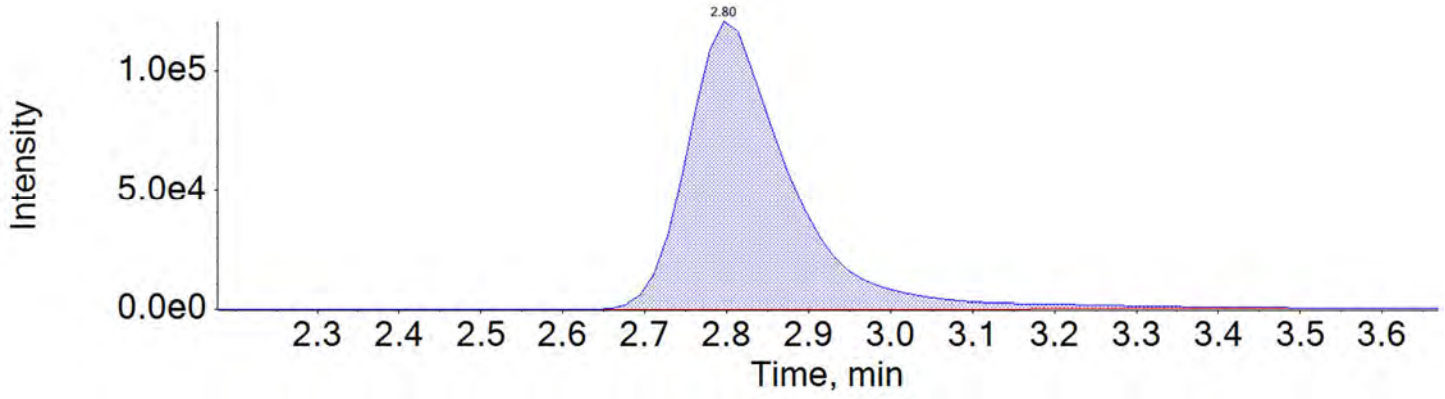

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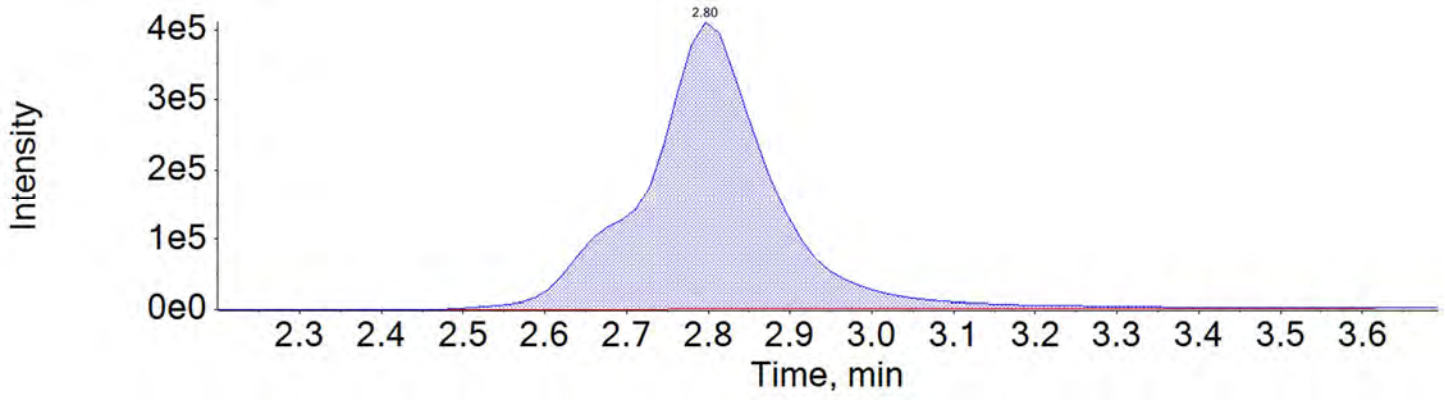

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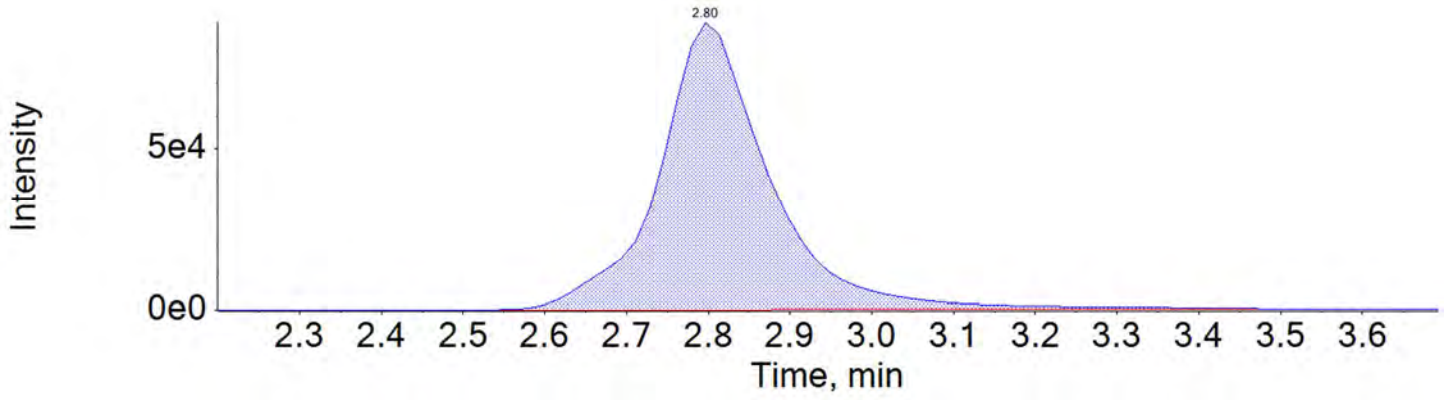

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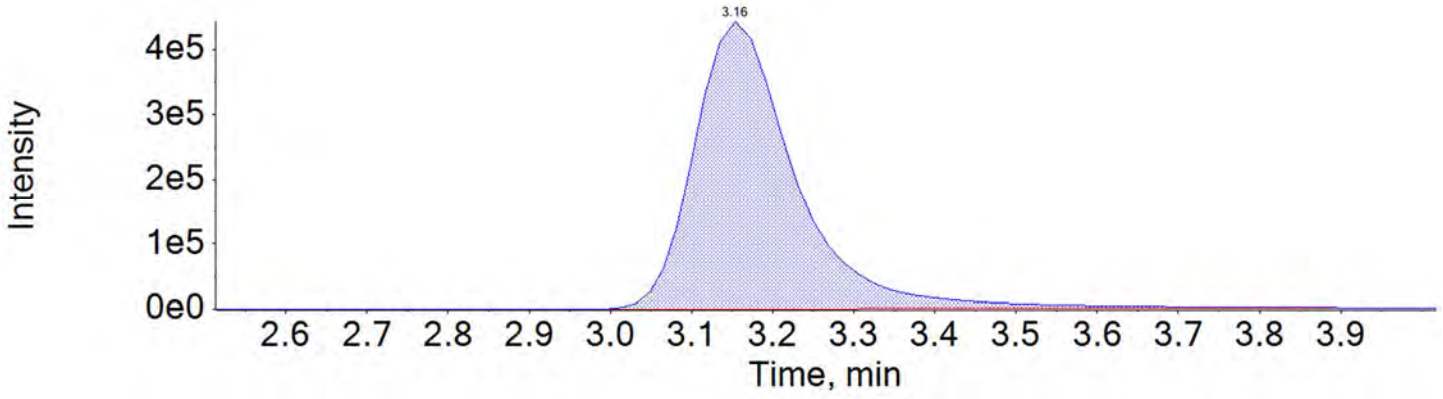

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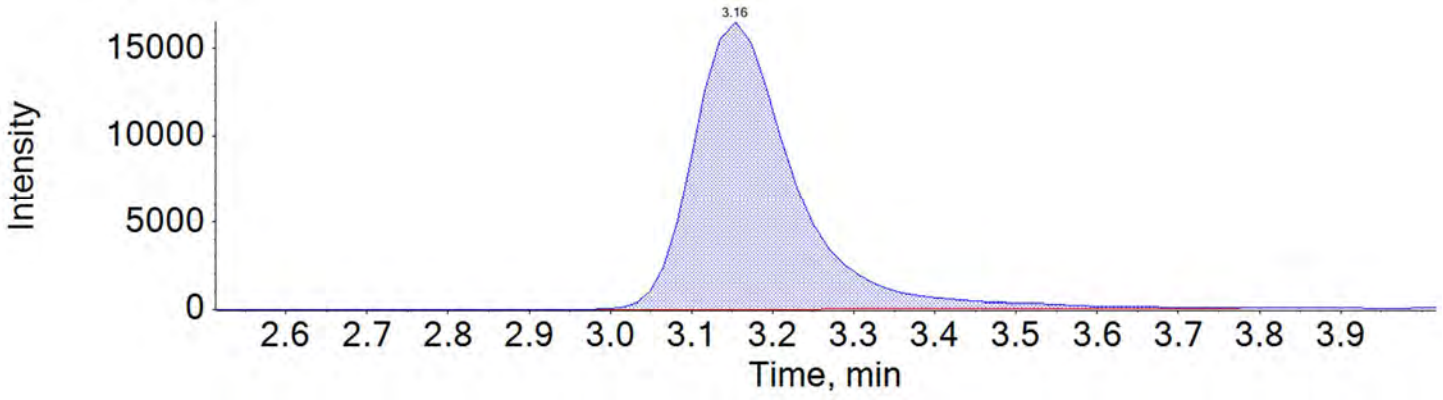
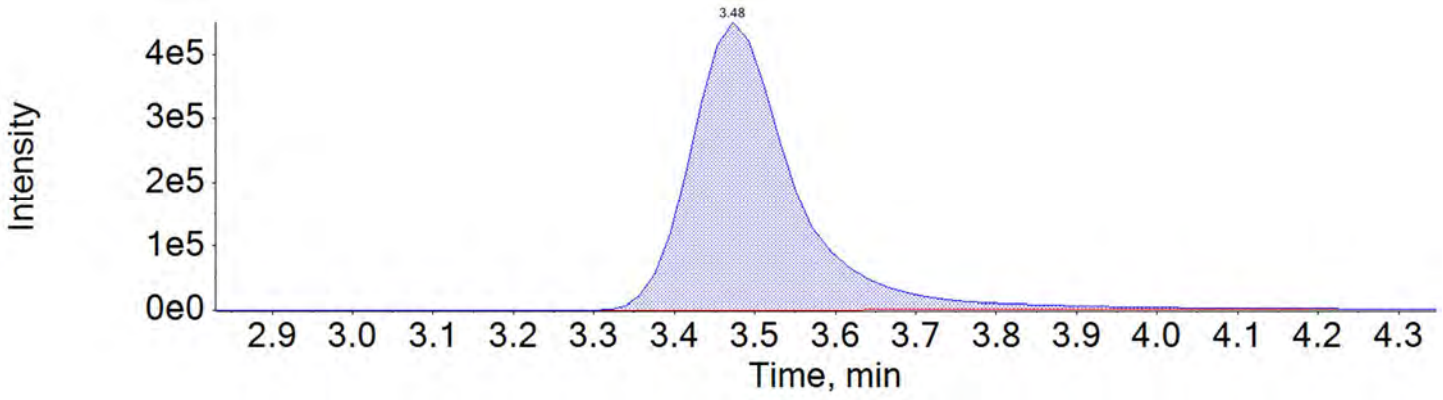


PFUnA_1 563.0 / 519.0



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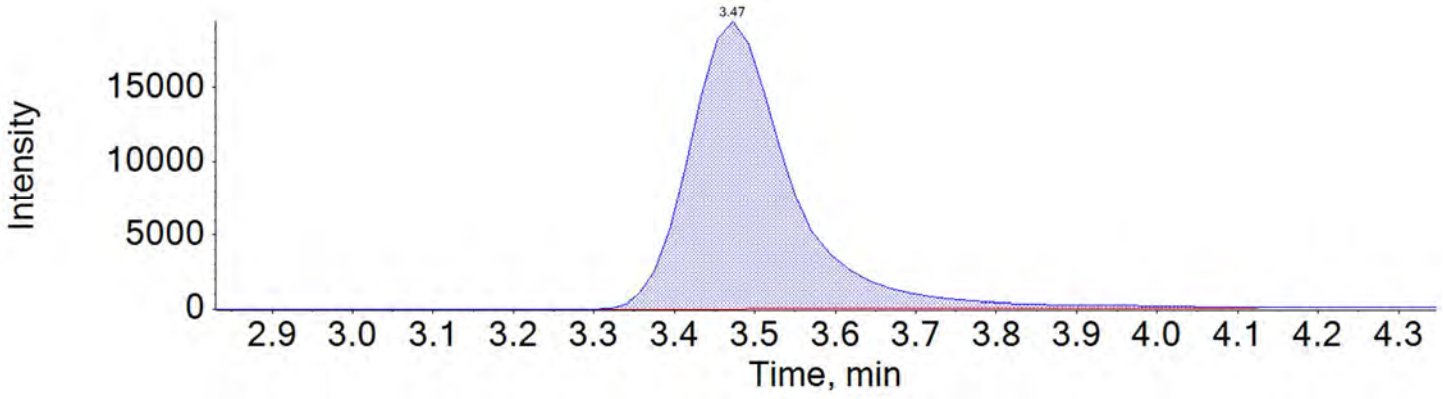

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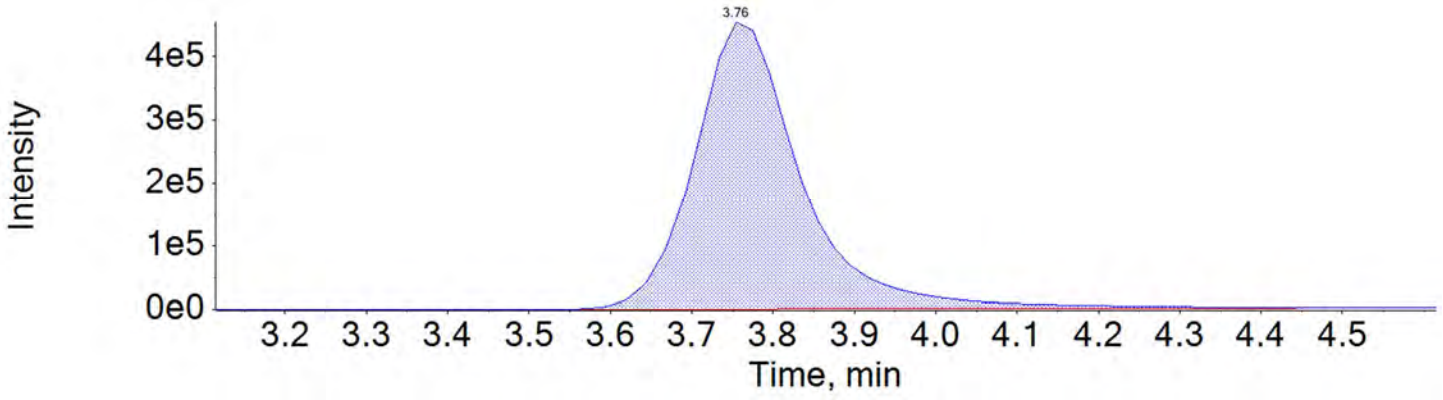

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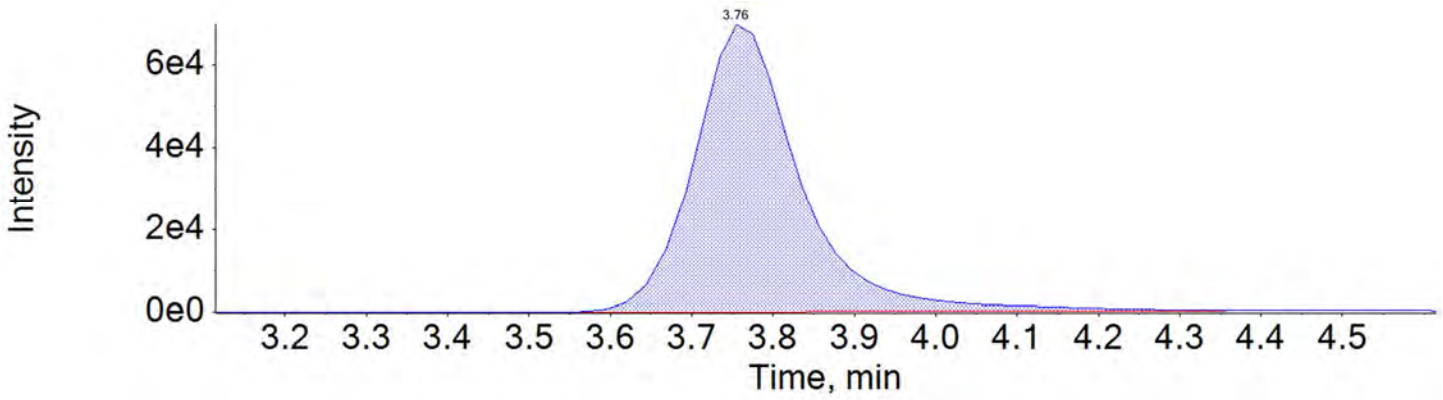

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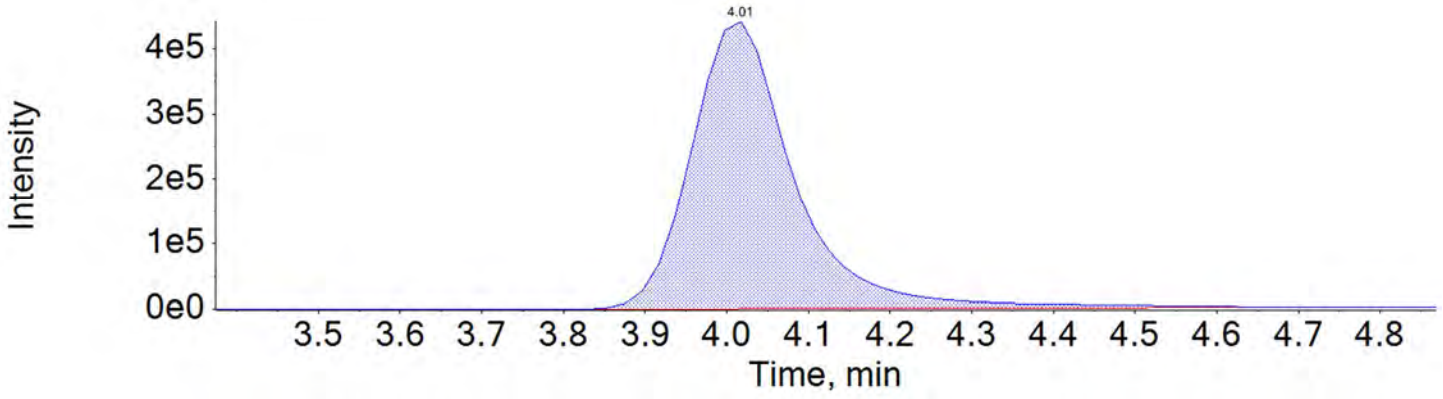

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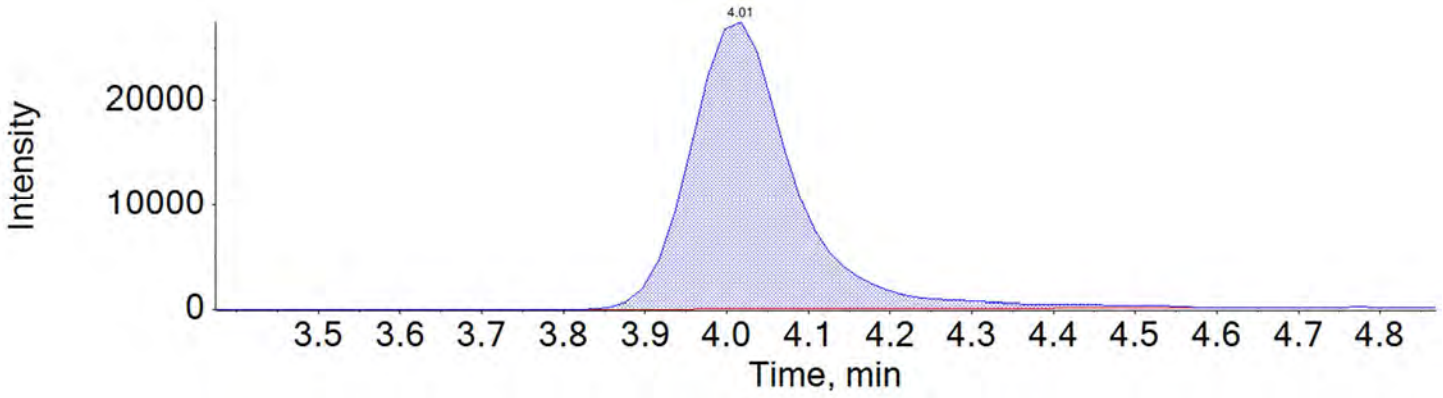

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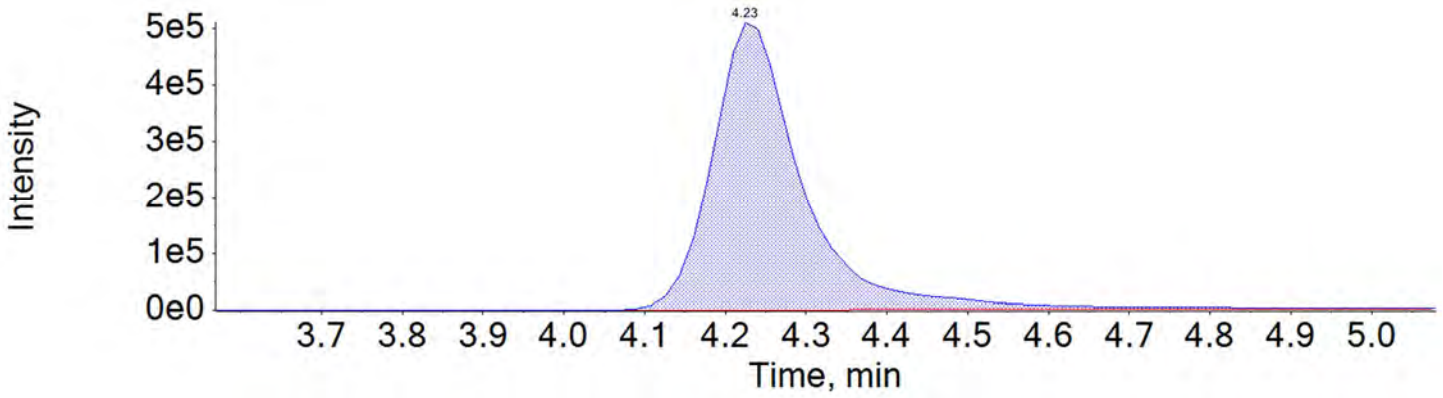

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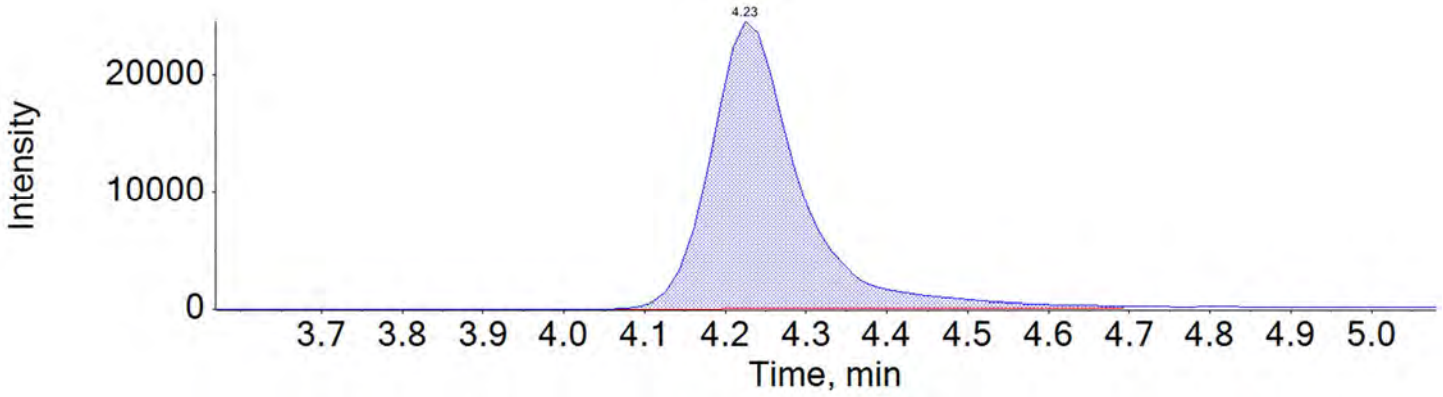
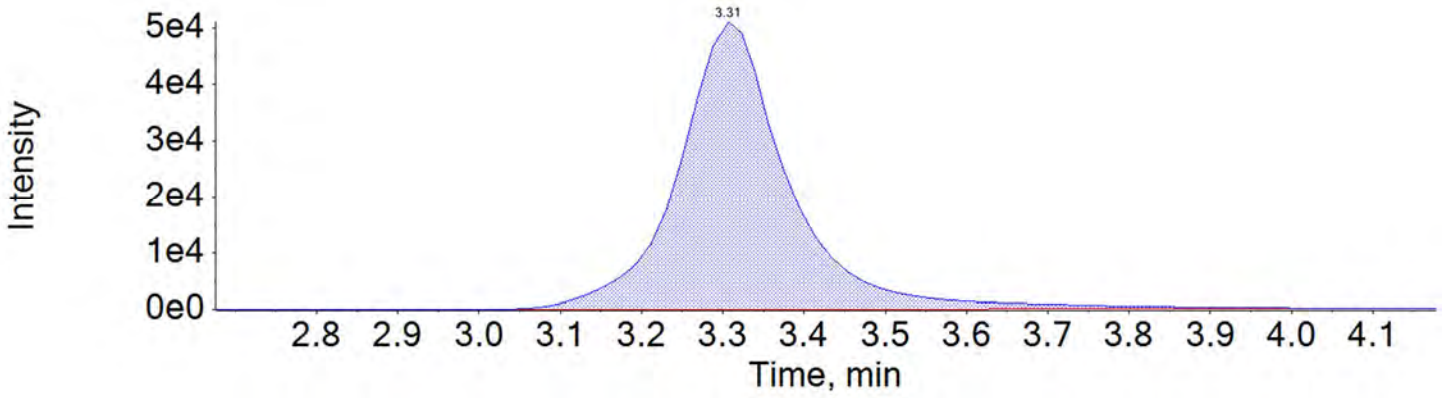
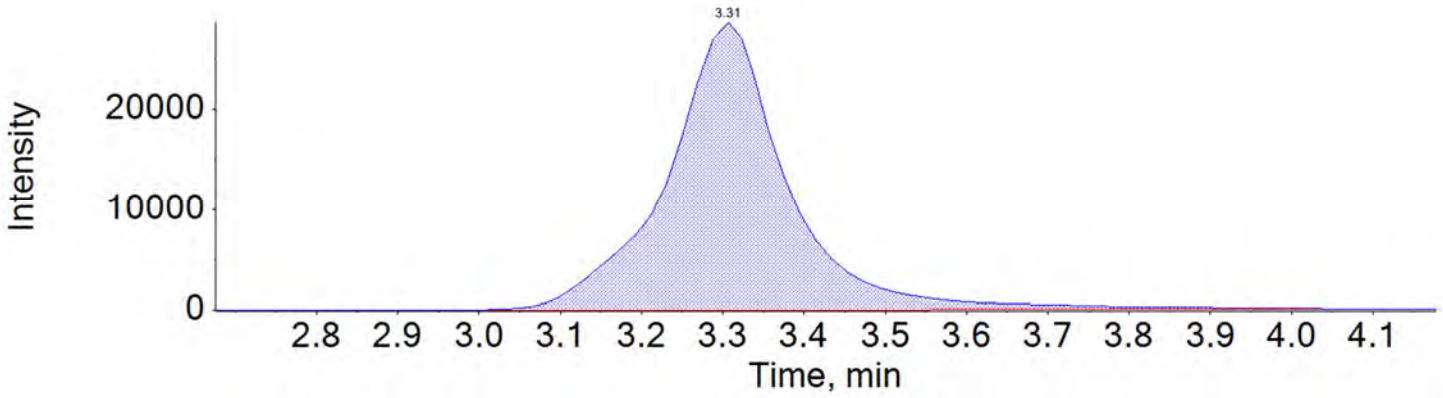
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

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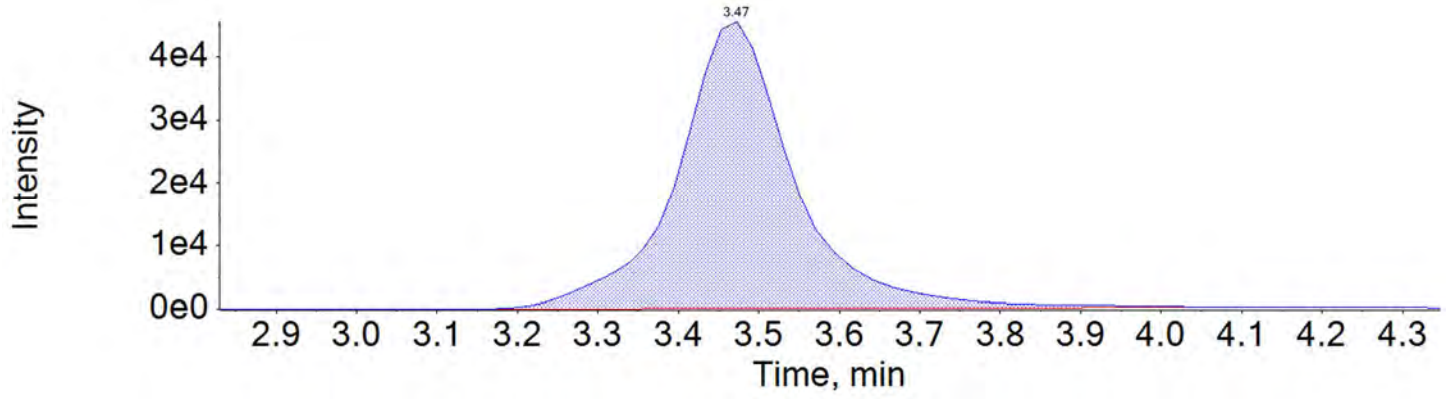
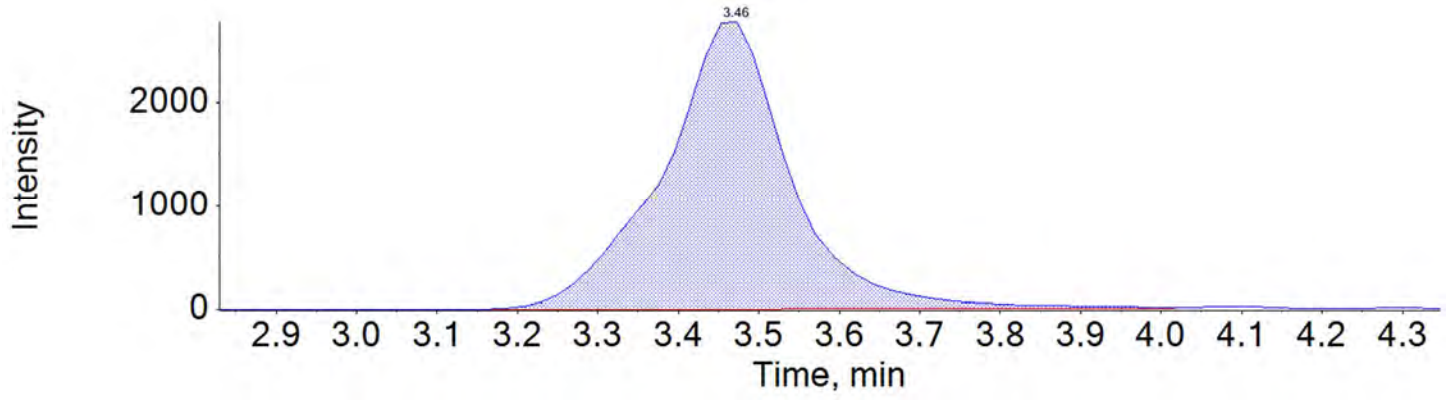
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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Chromatogram Report

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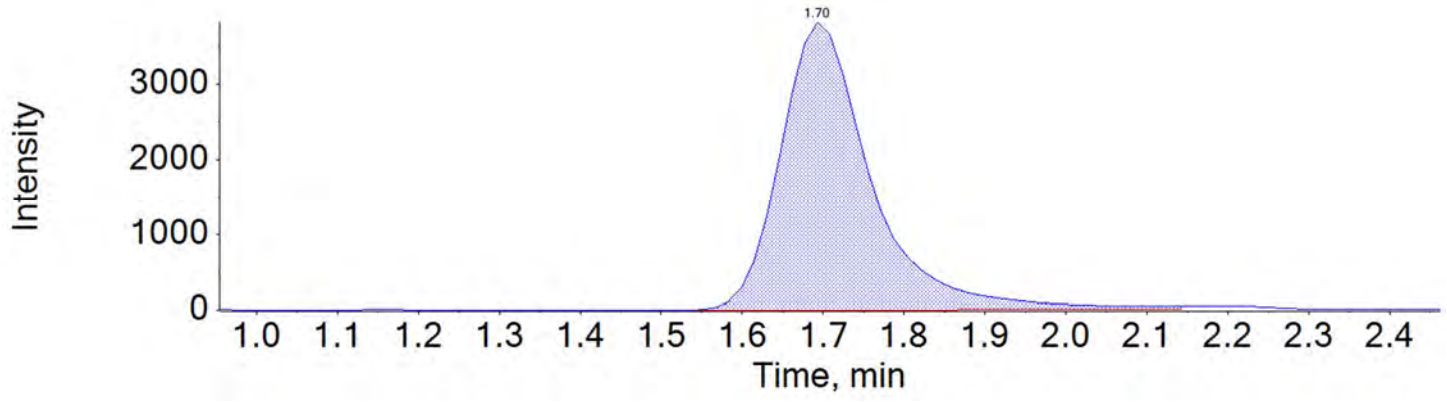
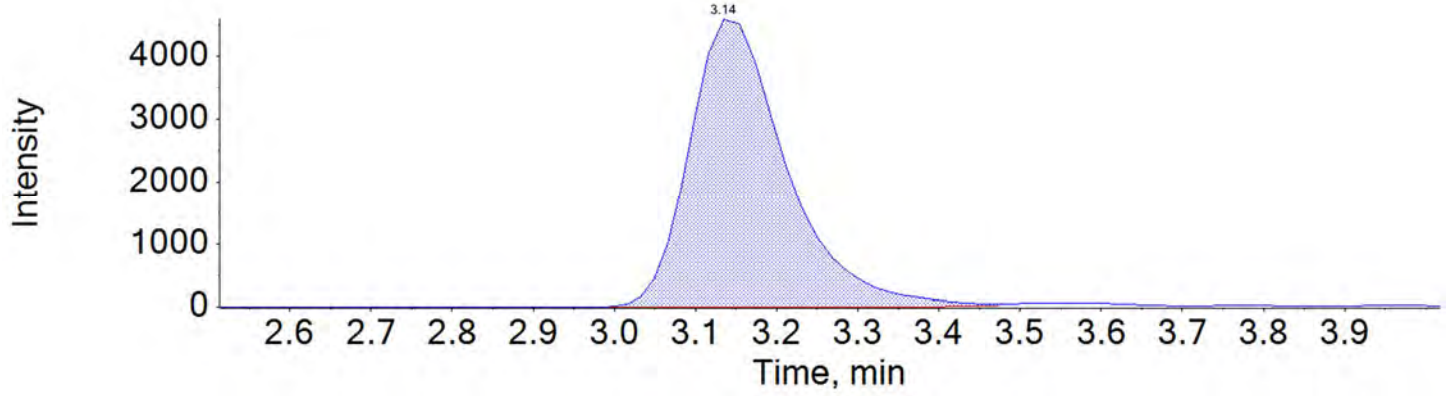
Sample Name	JV72	**Injection Vial**	10
Sample ID	L9	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:31:58	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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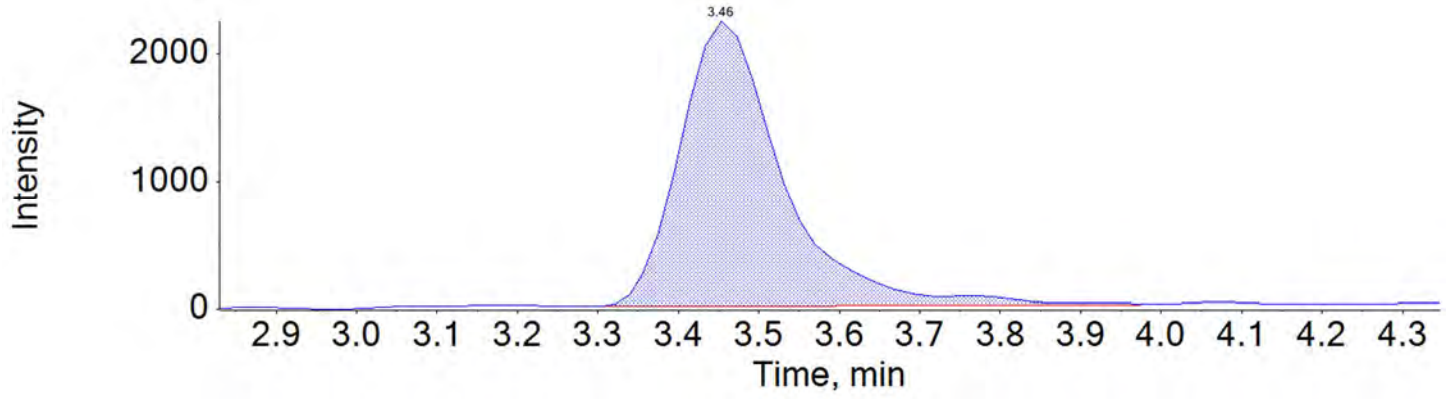
d5-EtFOSAA 589.0 / 419.0



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Chromatogram Report

Created with Analyst Reporter
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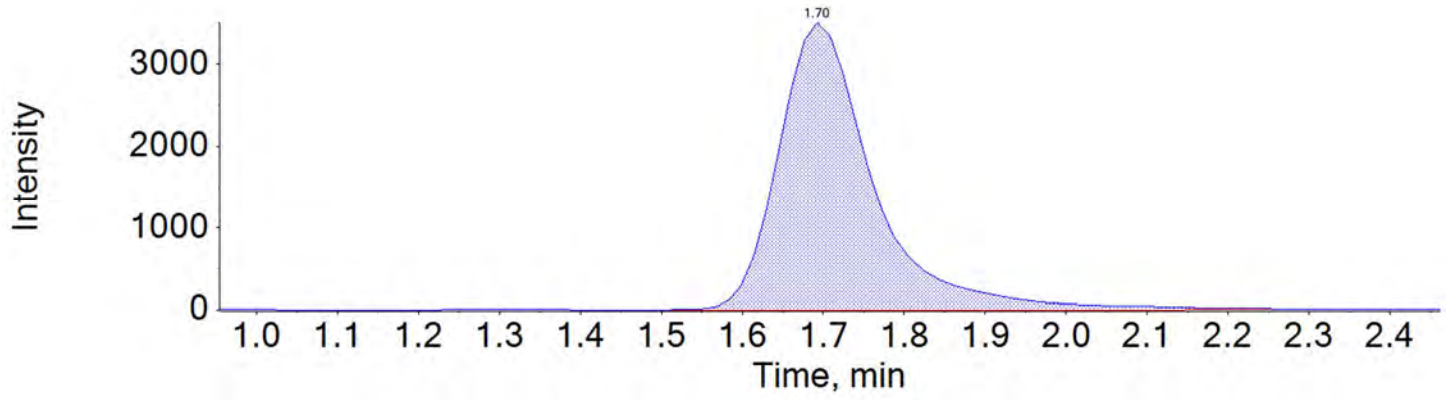
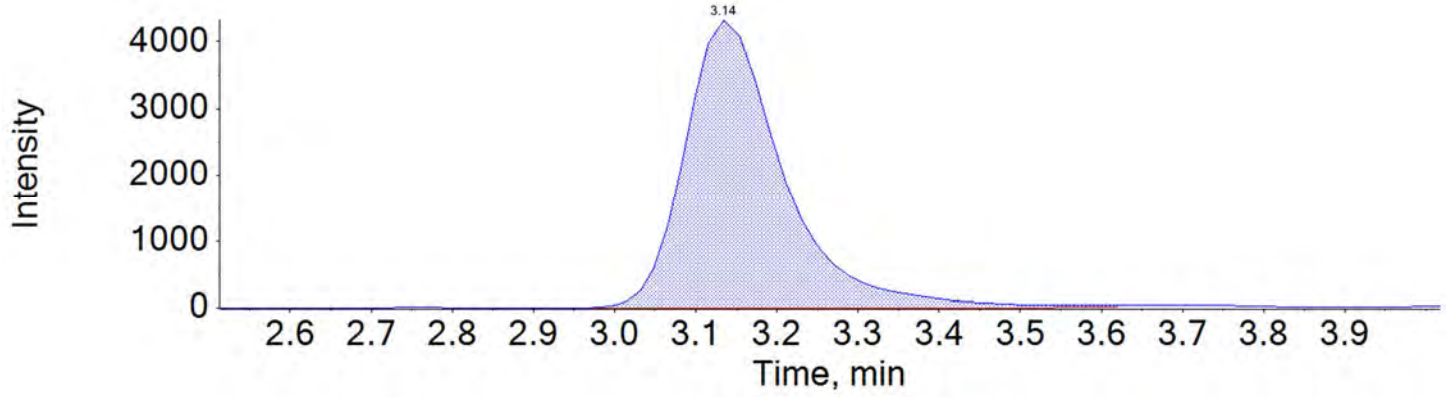
Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:40:54	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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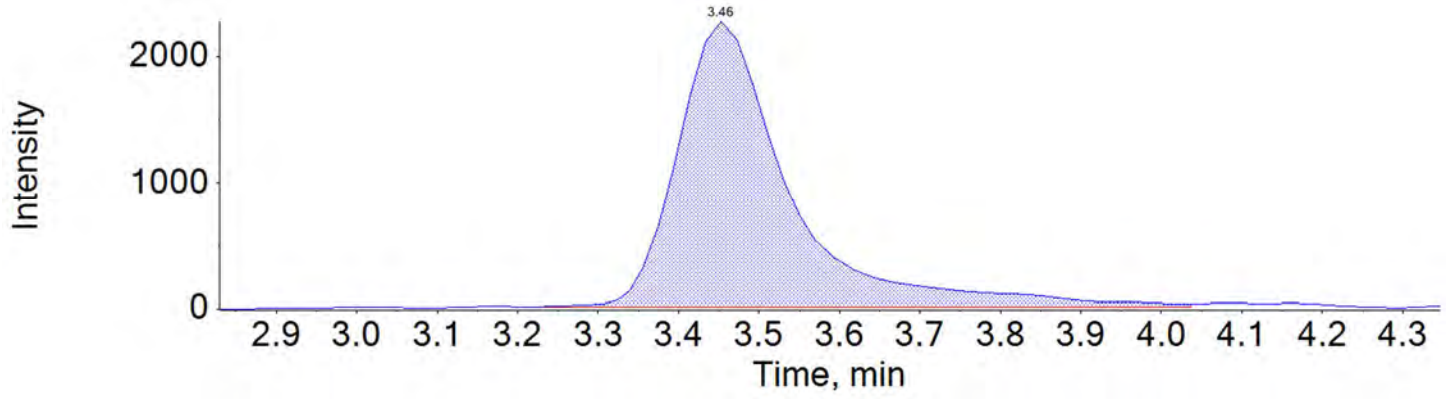
d5-EtFOSAA 589.0 / 419.0



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Chromatogram Report

Created with Analyst Reporter
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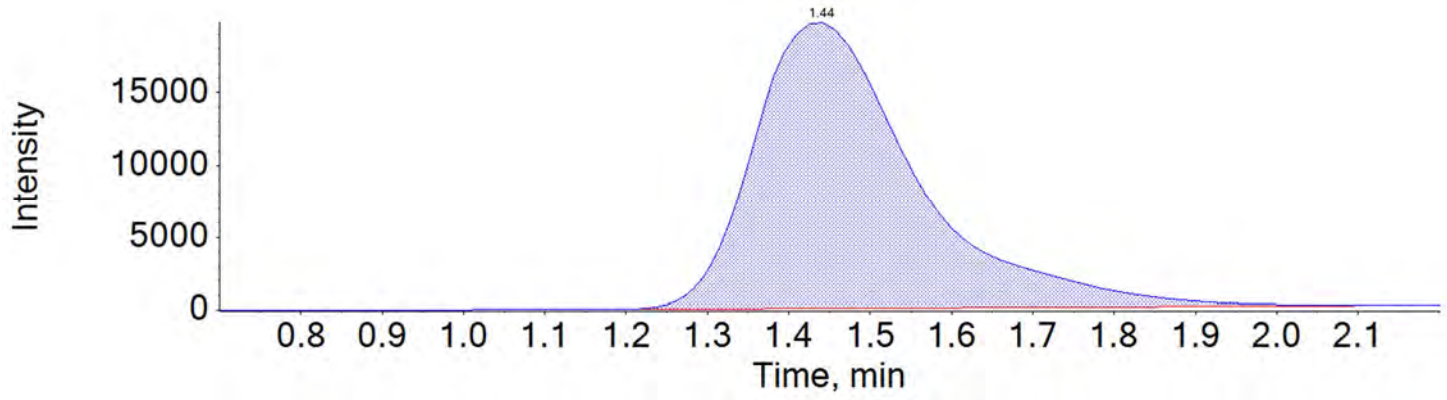
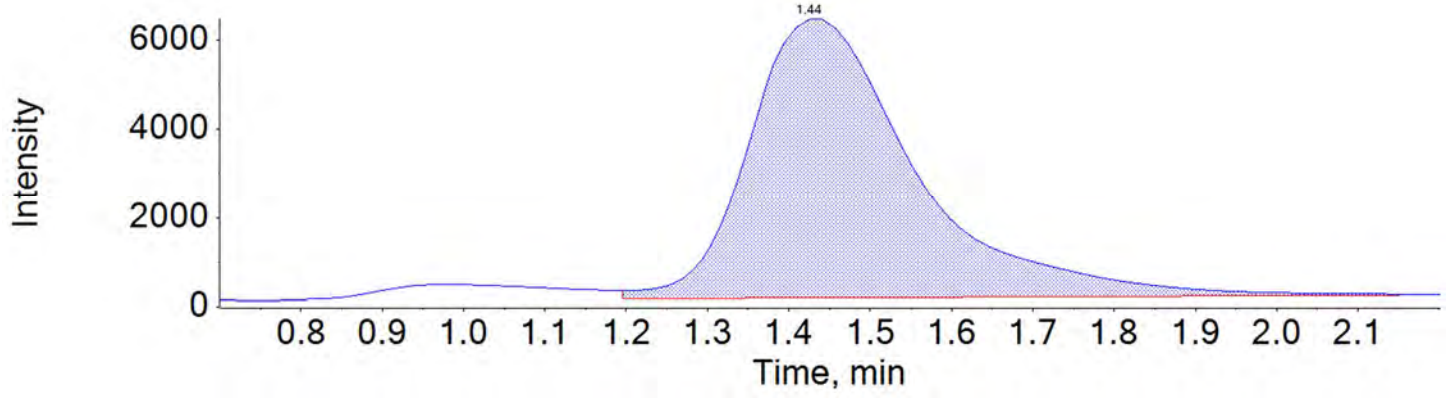
Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:40:54	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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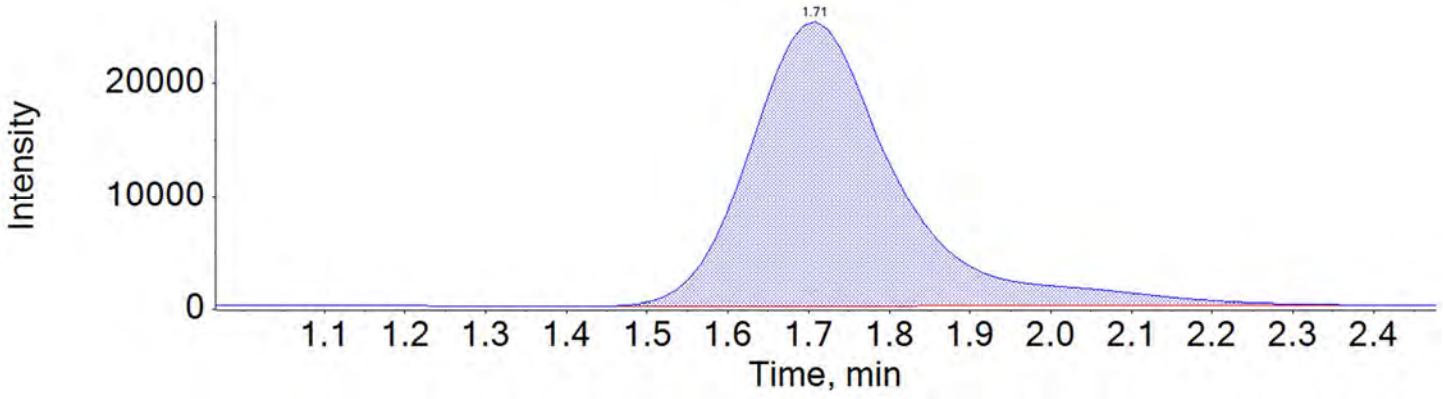
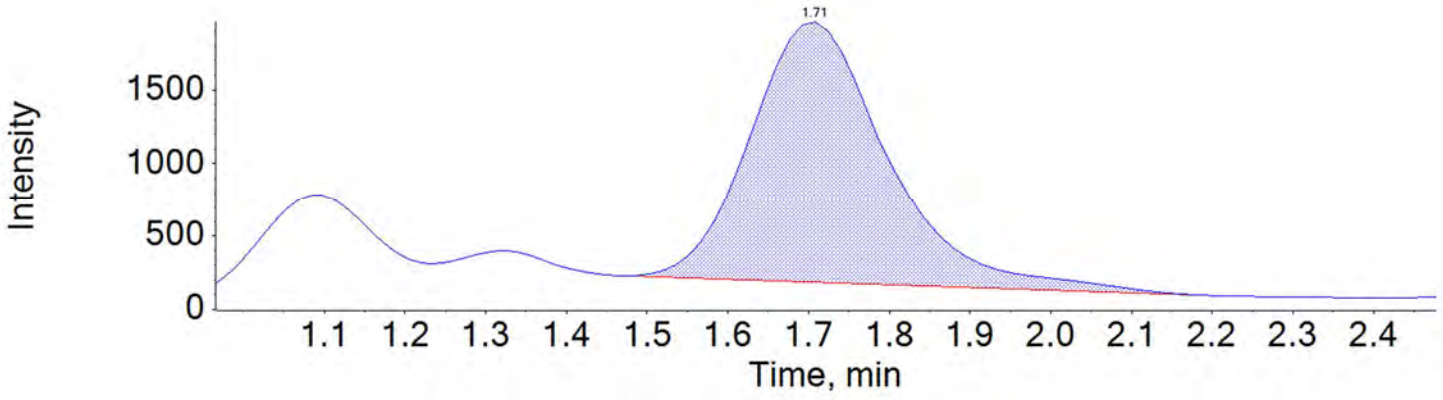
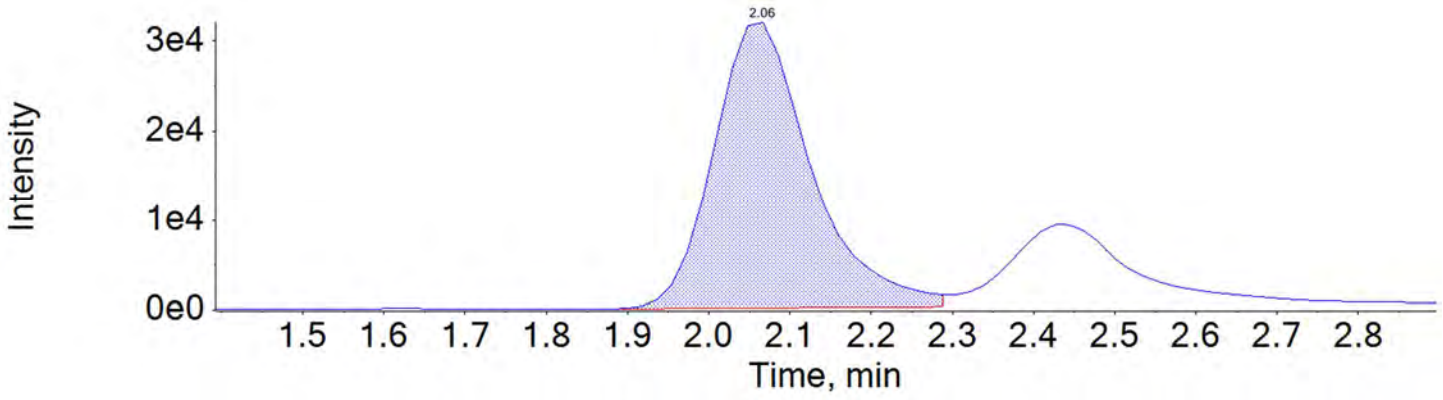
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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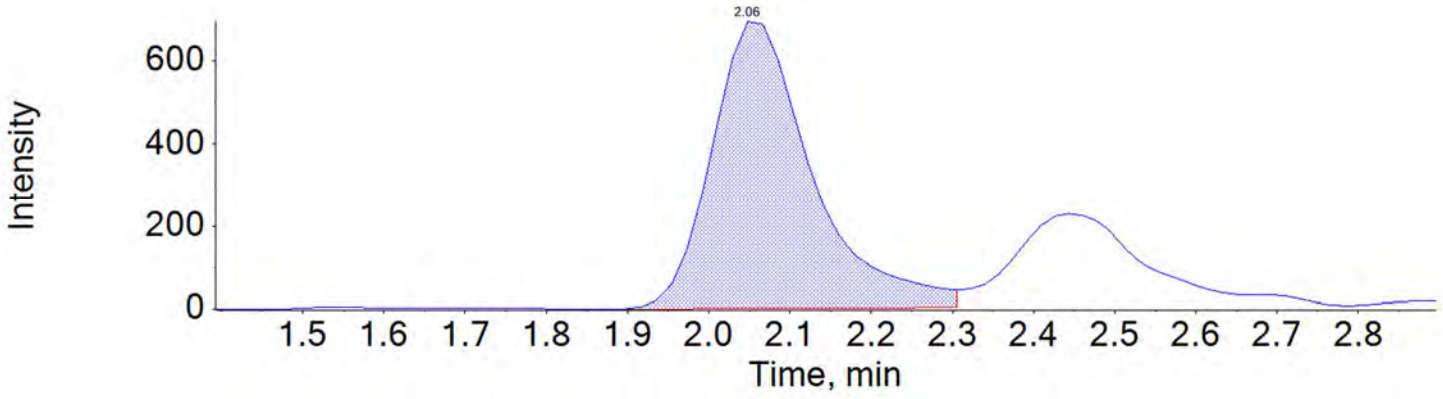
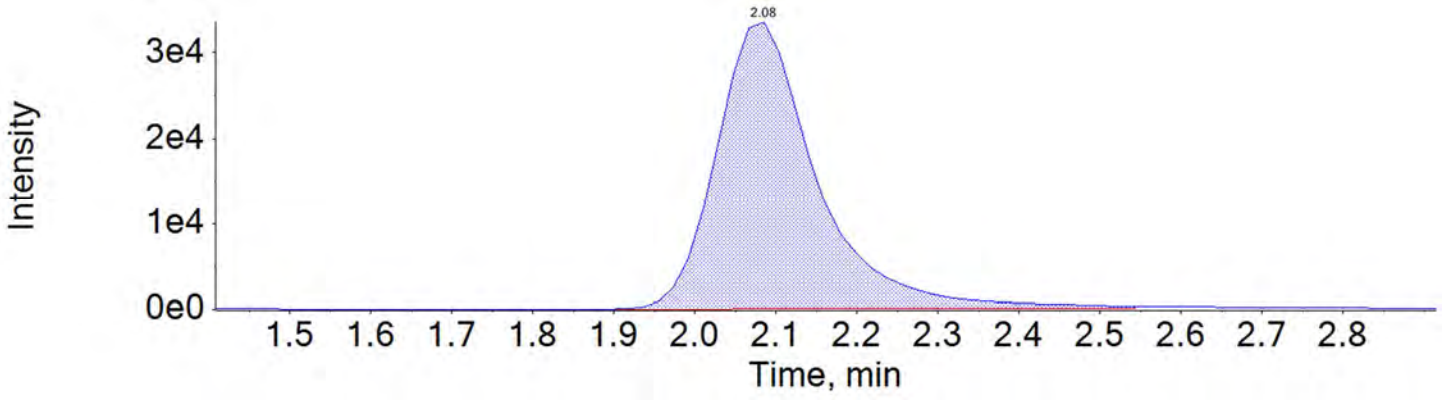
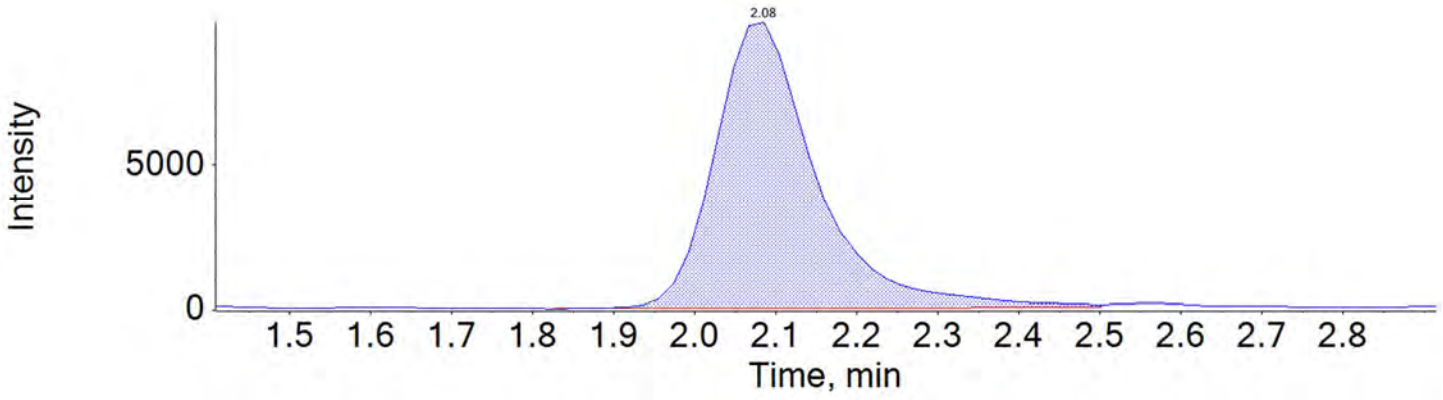
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



PFHxS_2 399.0 / 99.0



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Chromatogram Report

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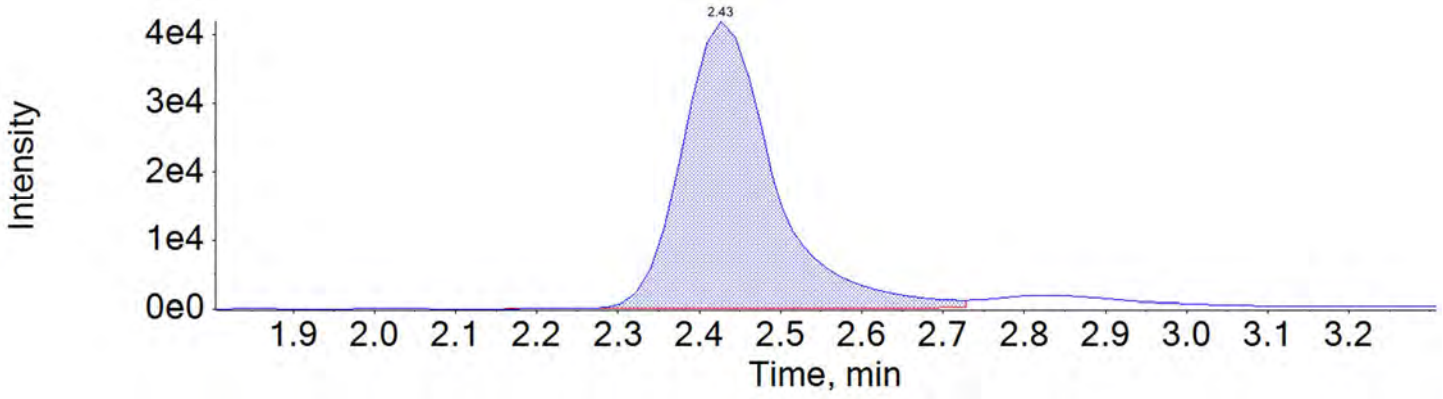
PFOA_1 413.0 / 369.0



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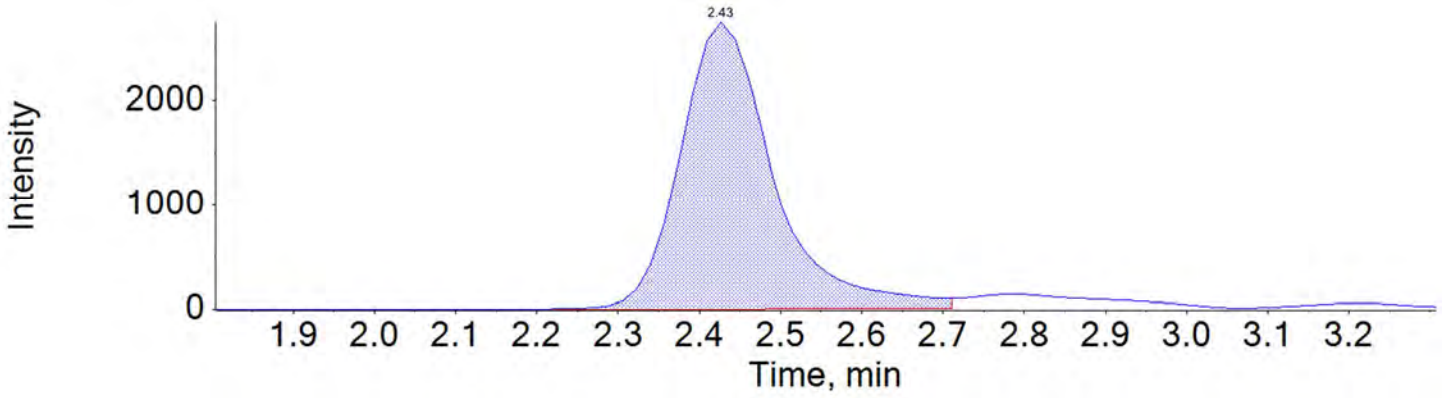
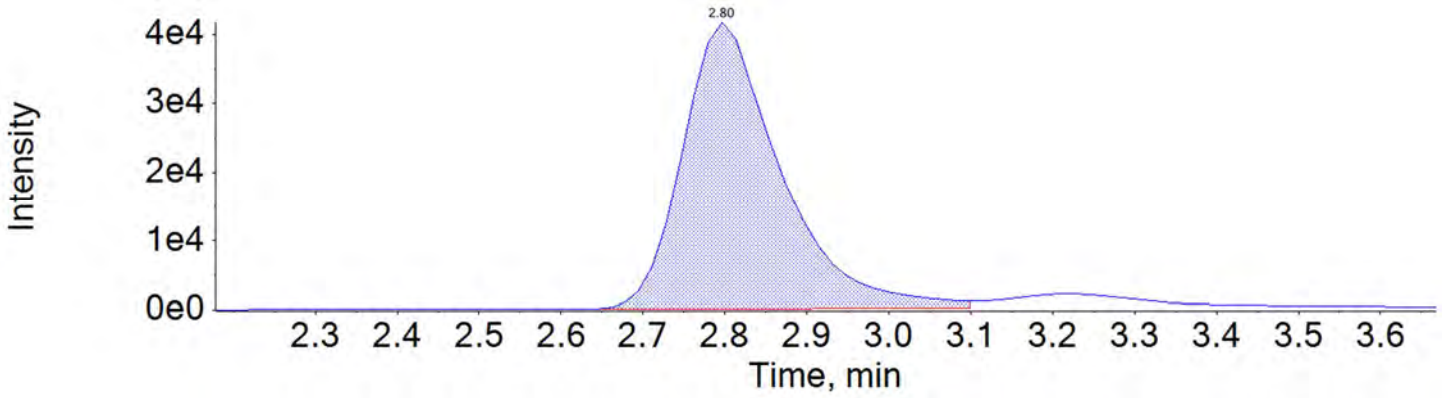


PFNA_1 463.0 / 419.0



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Chromatogram Report

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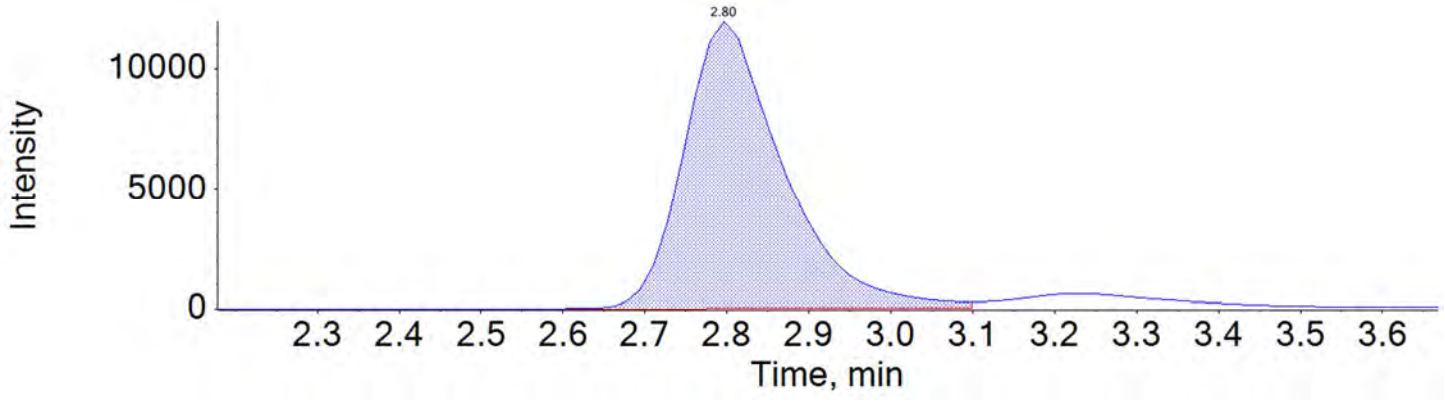
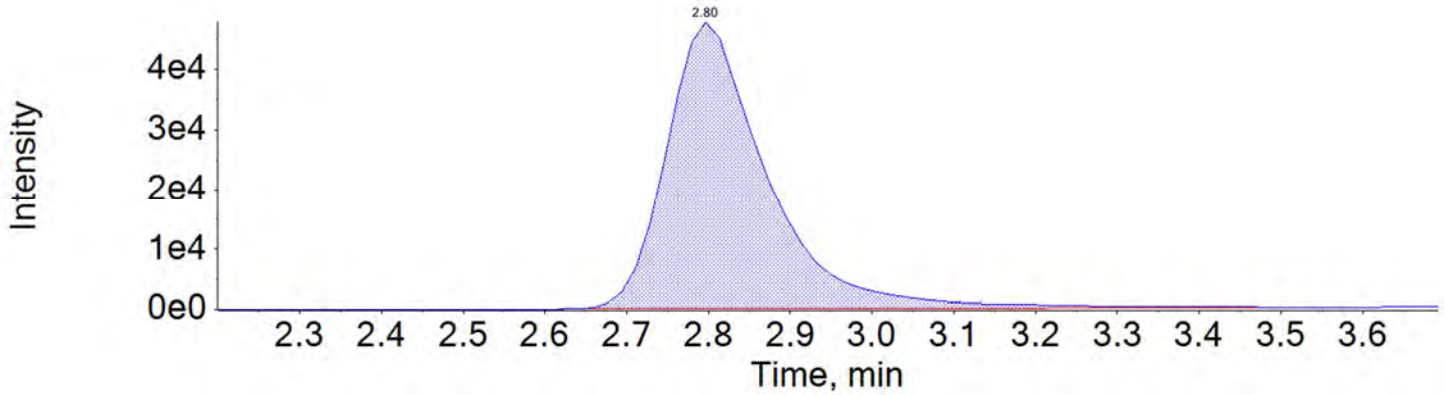
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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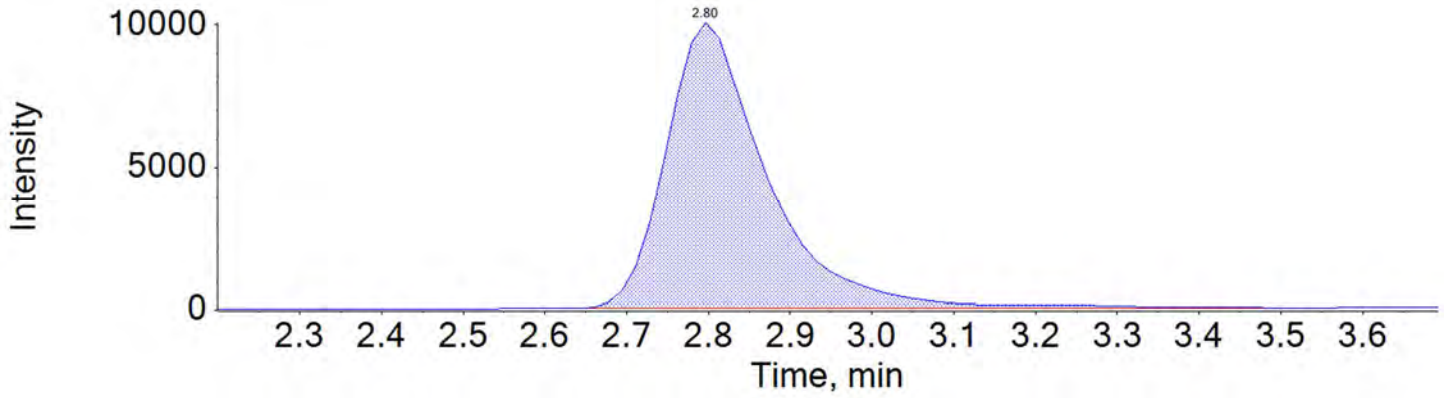

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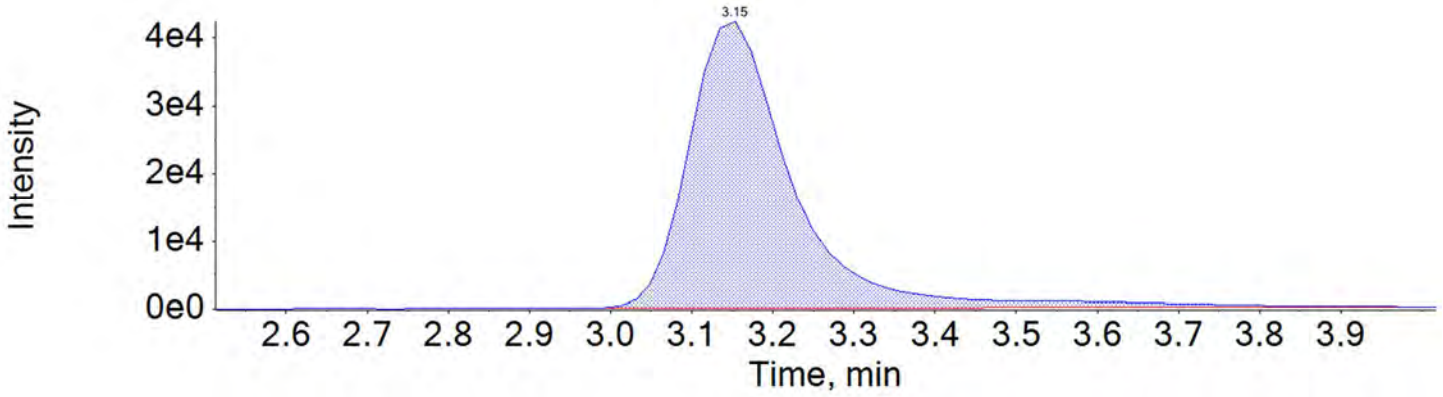
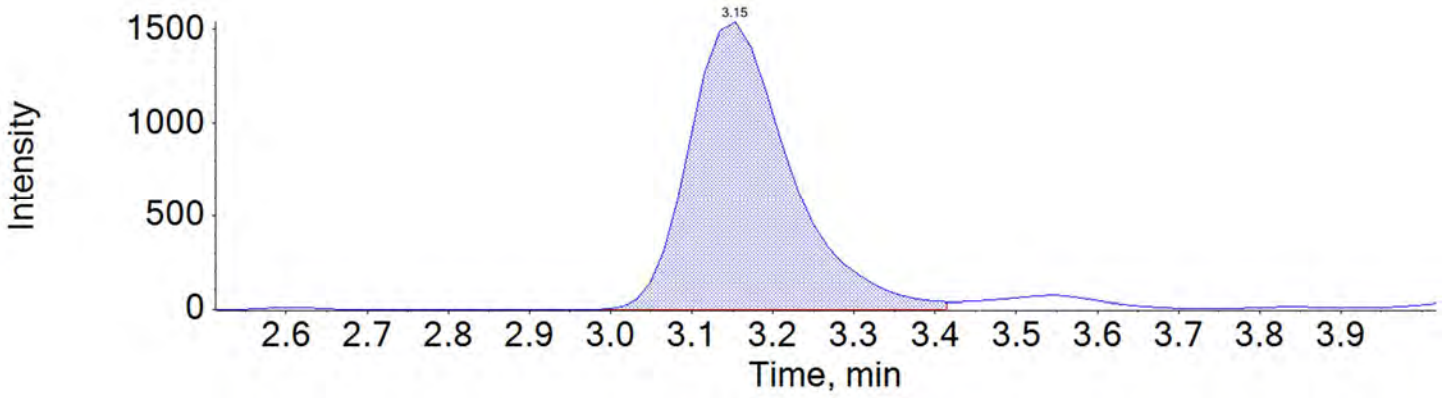
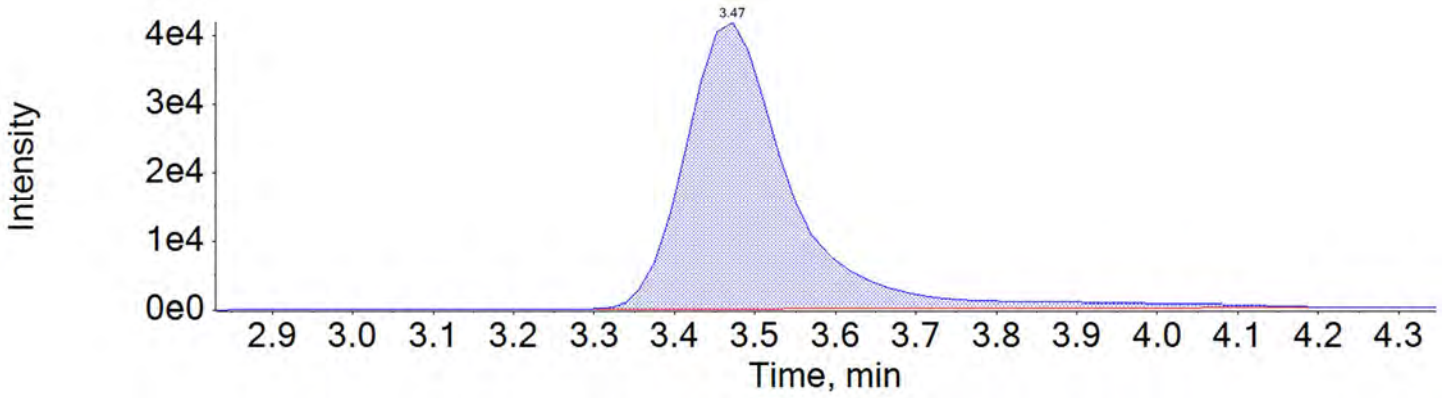
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



PFUnA_1 563.0 / 519.0



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Chromatogram Report

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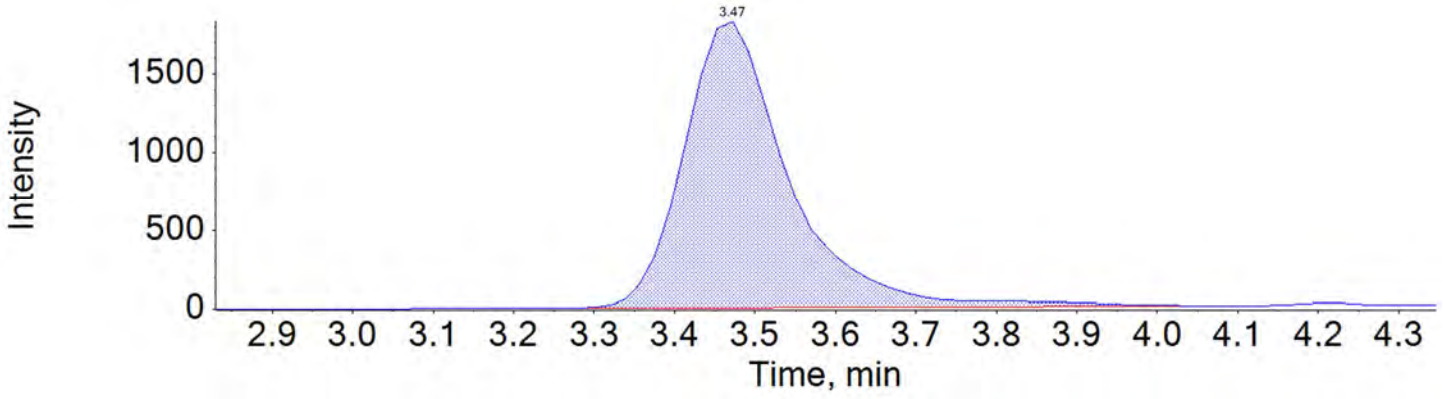
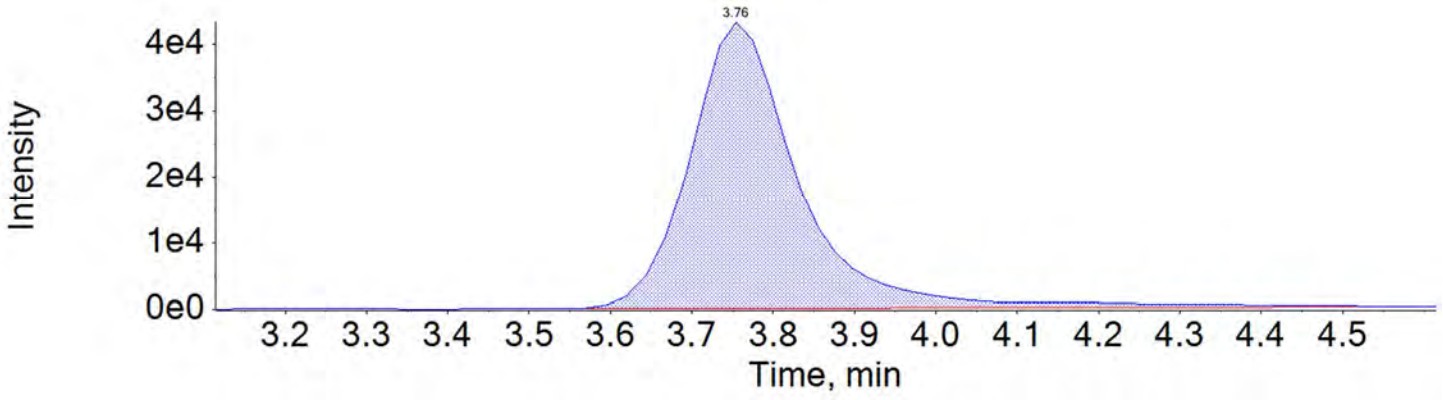
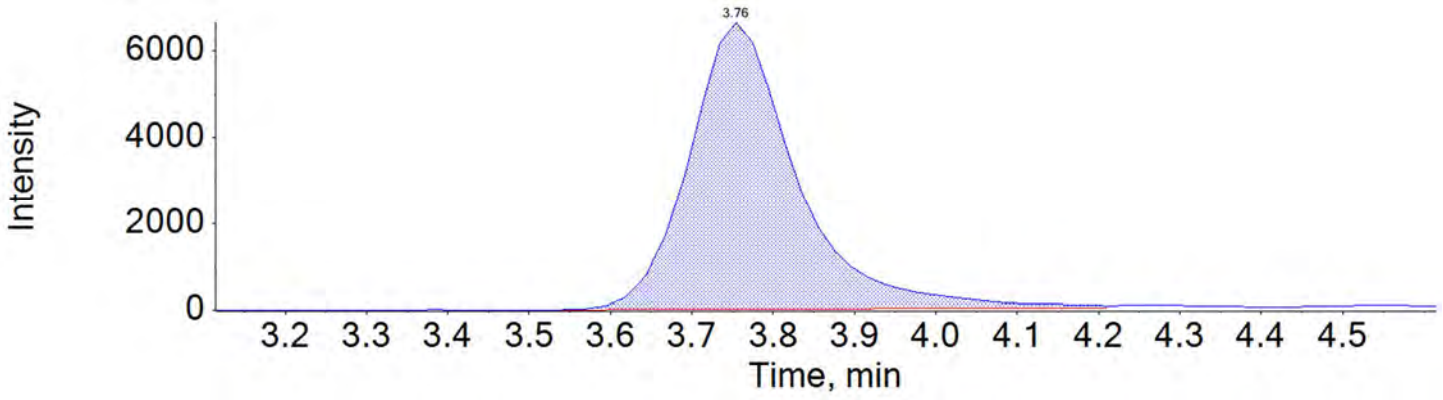
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



PFDoA_2 613.0 / 319.0



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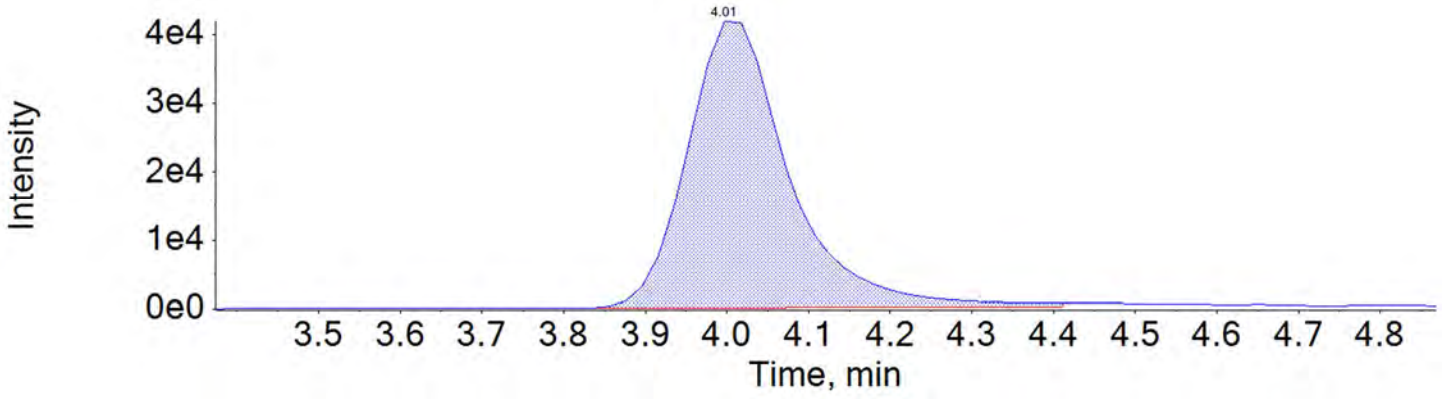
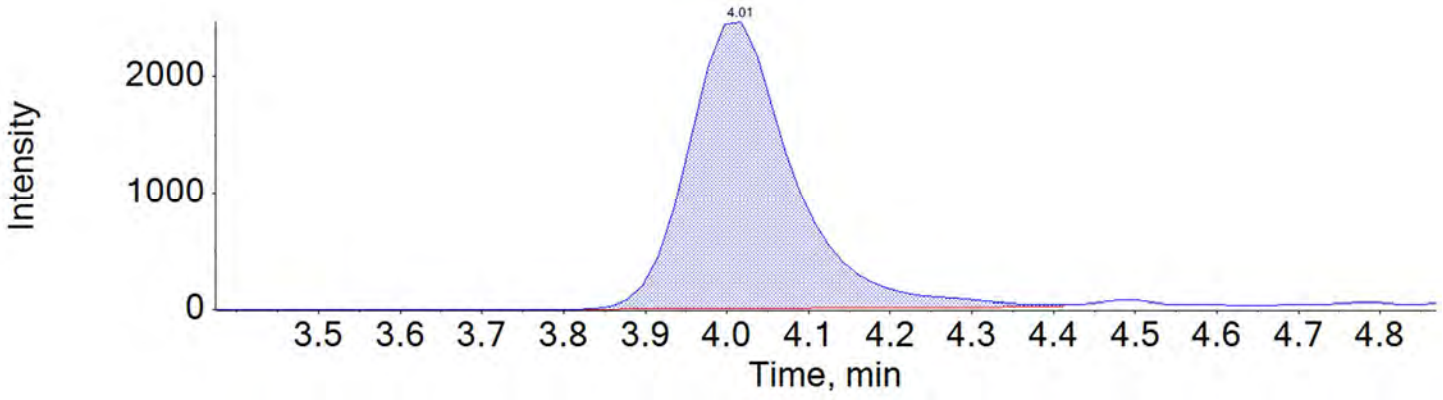
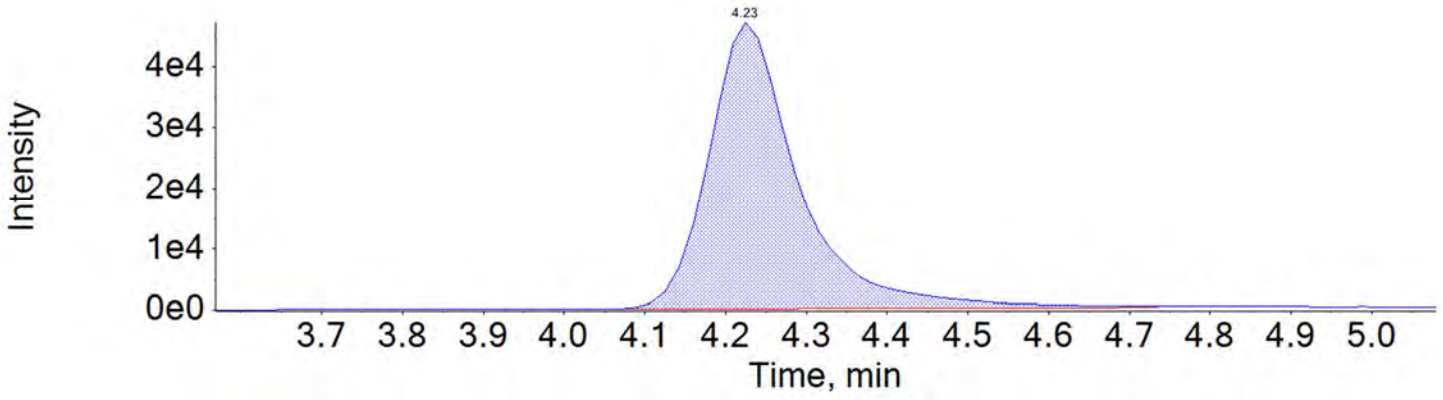
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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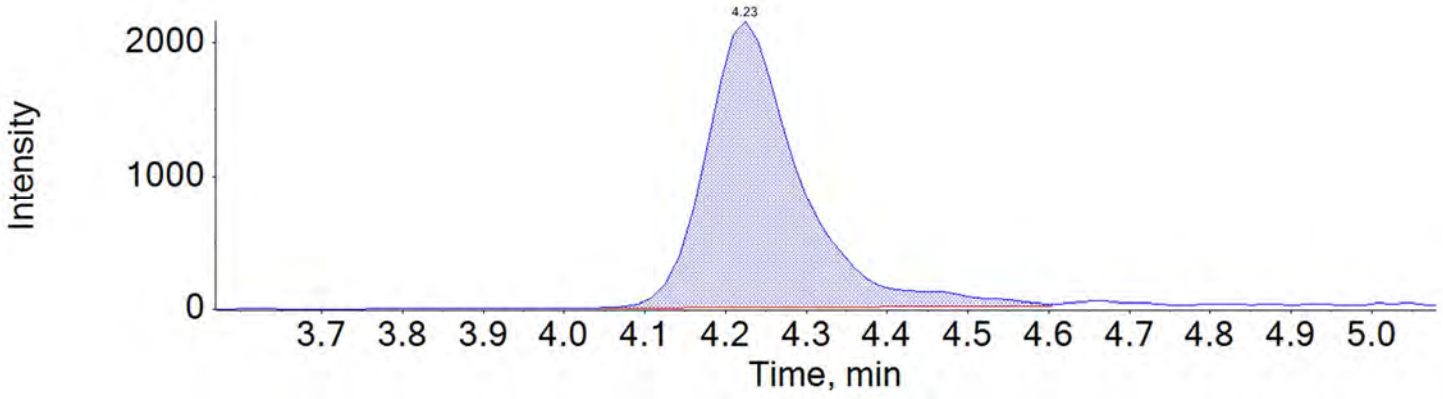
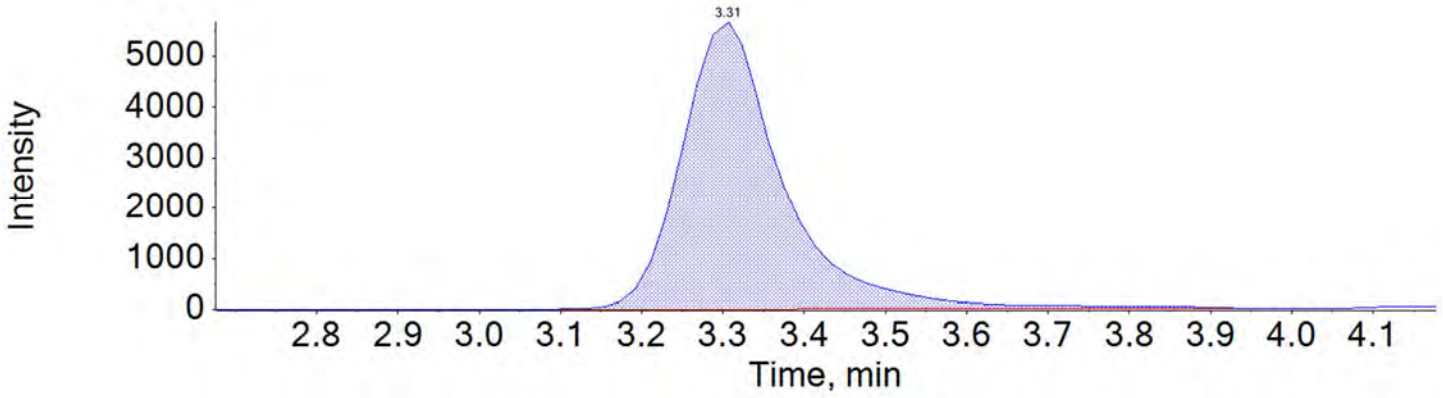
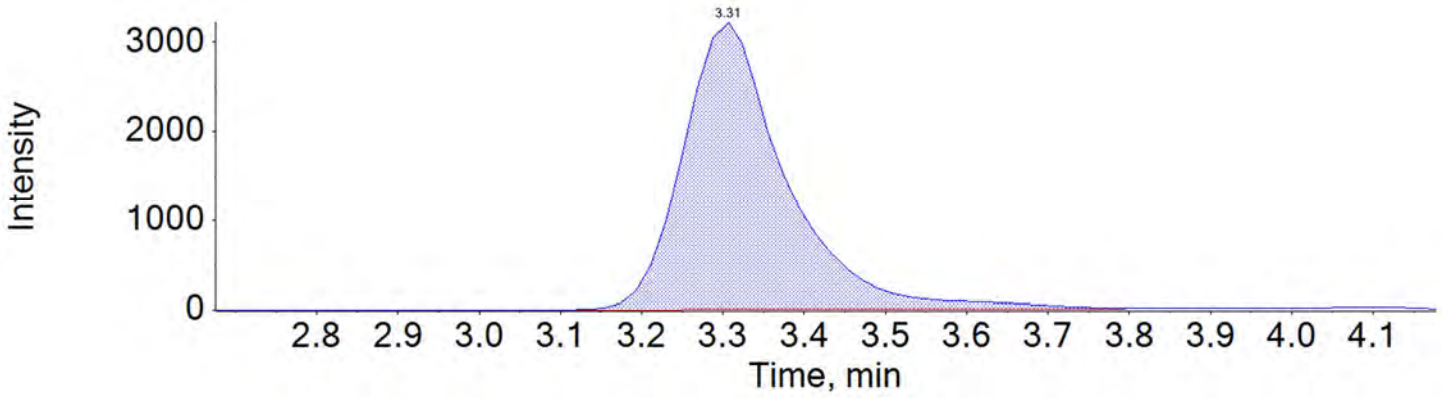
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

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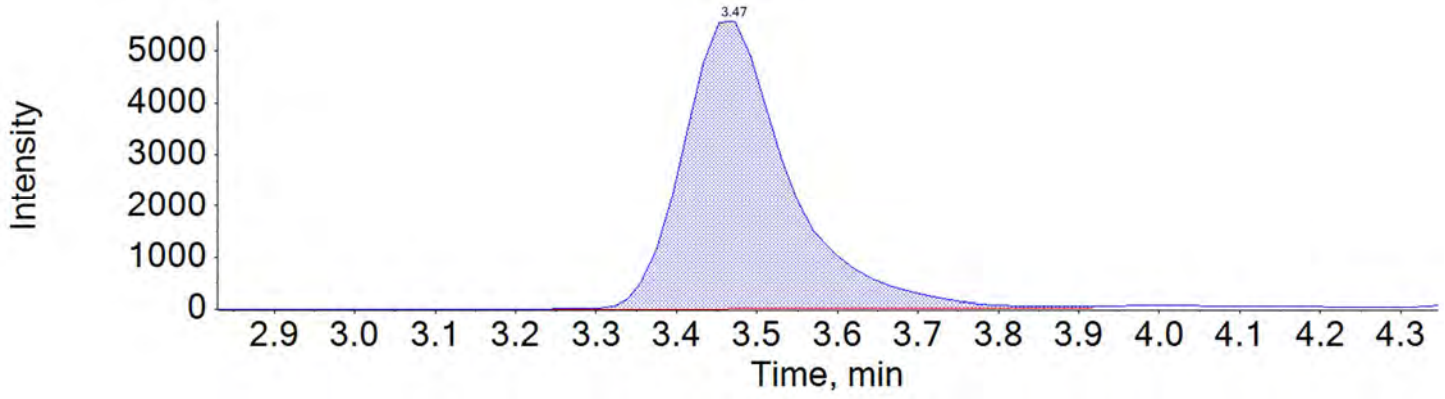
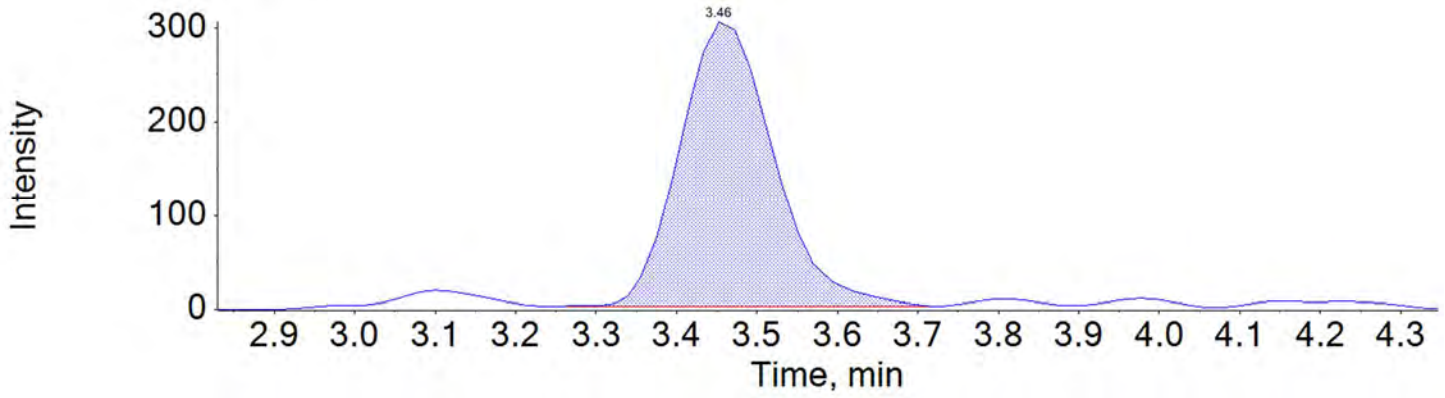
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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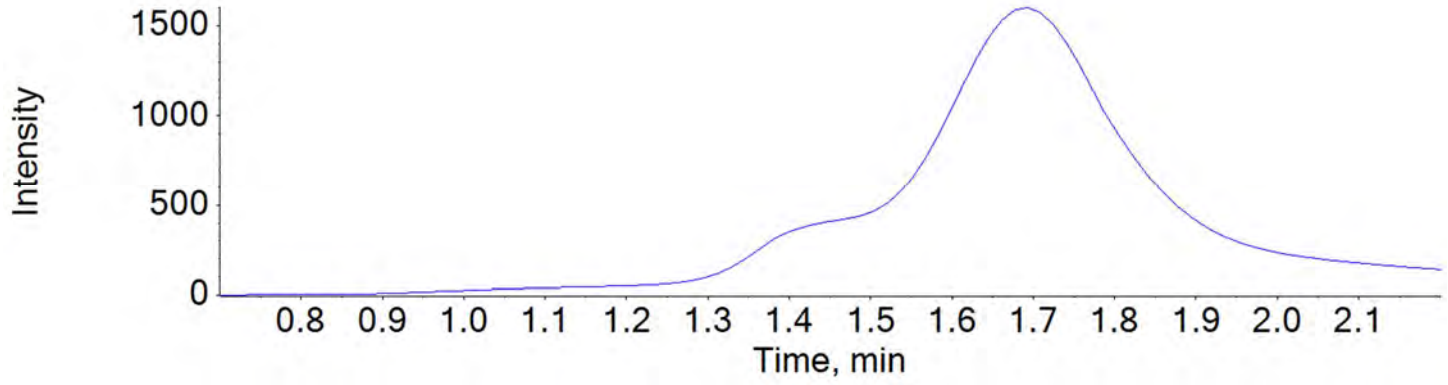
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:07:17 PM

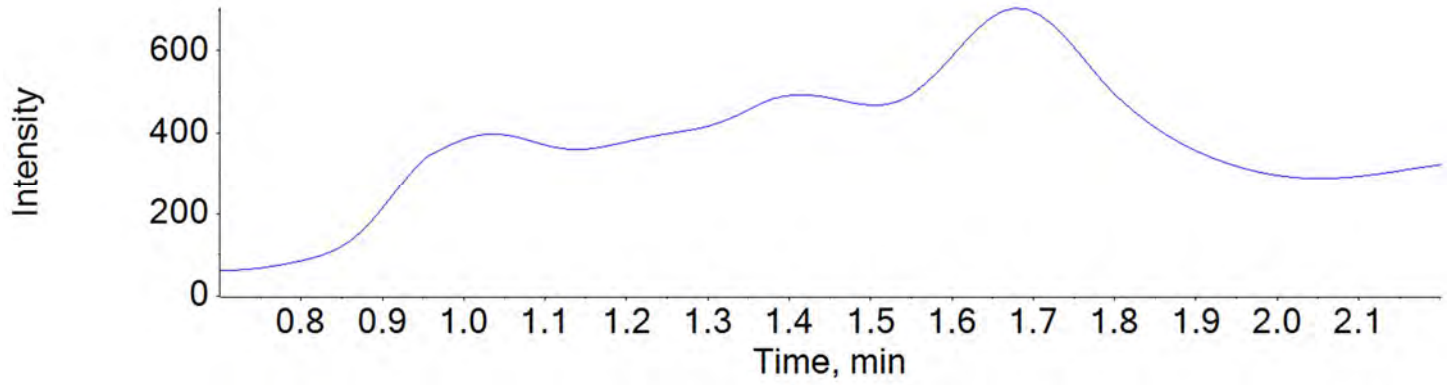
Sample Name	CQ770PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:58:44	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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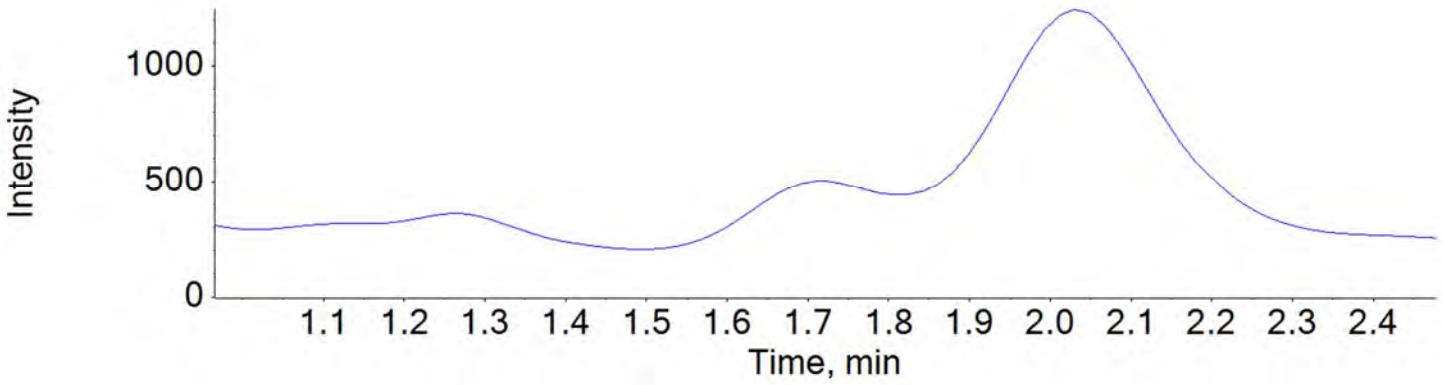
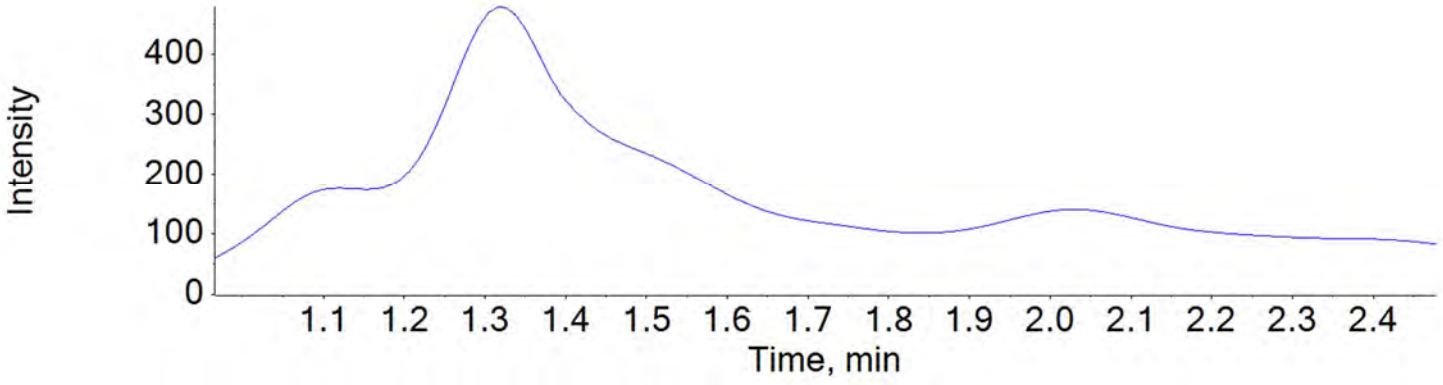
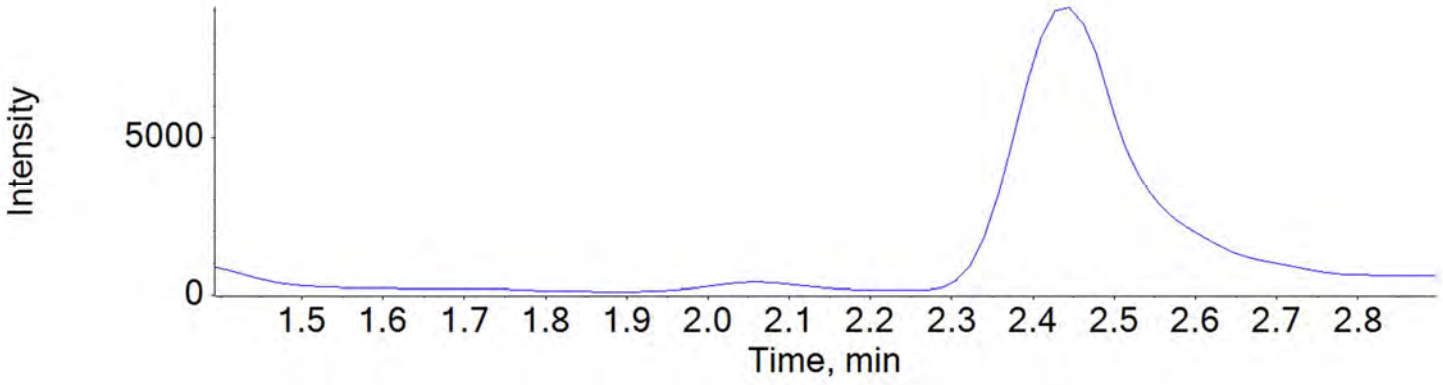
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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Chromatogram Report

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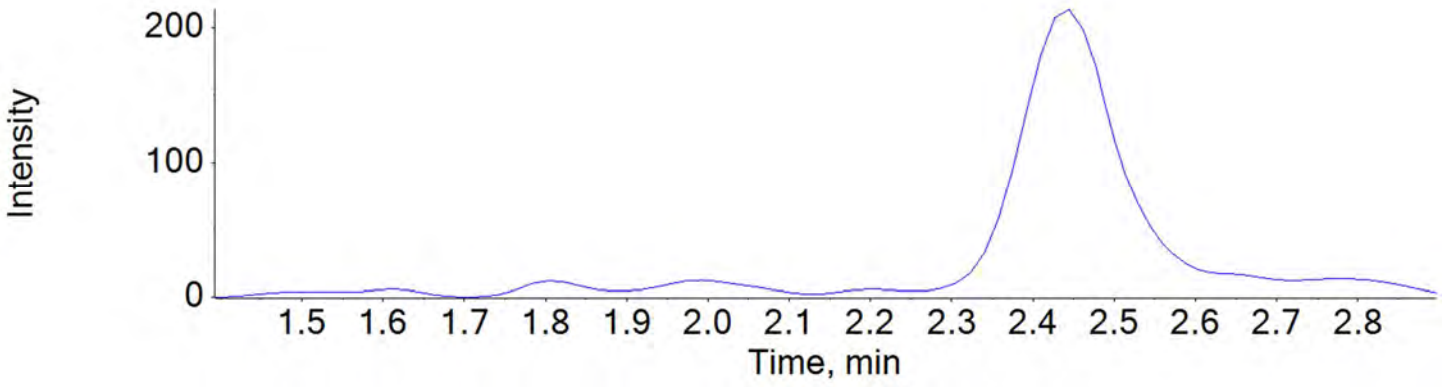
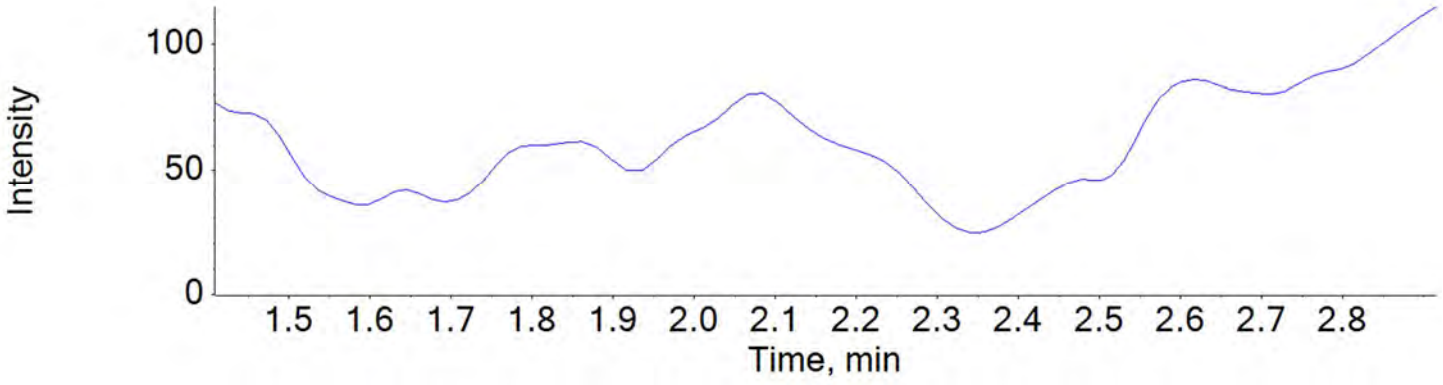
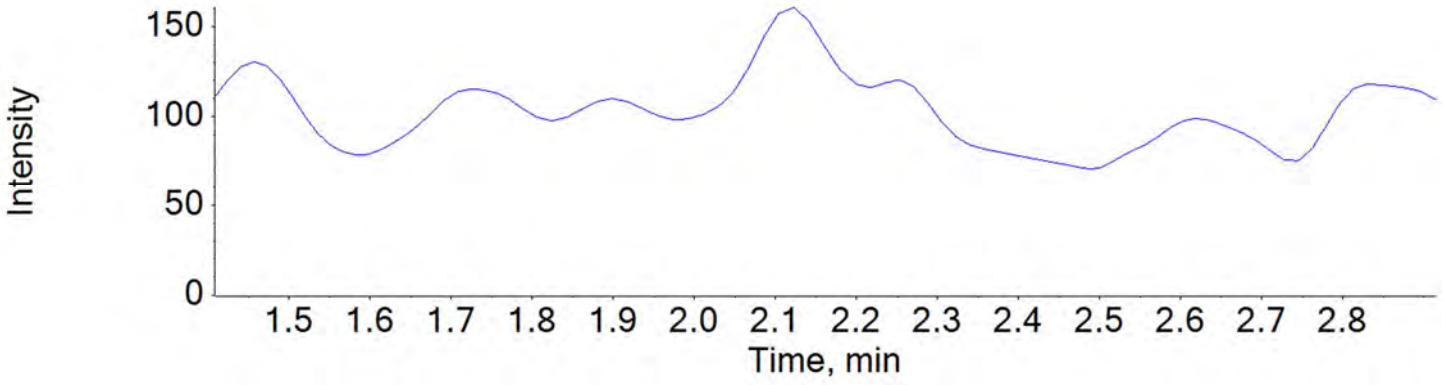
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



PFHxS_2 399.0 / 99.0



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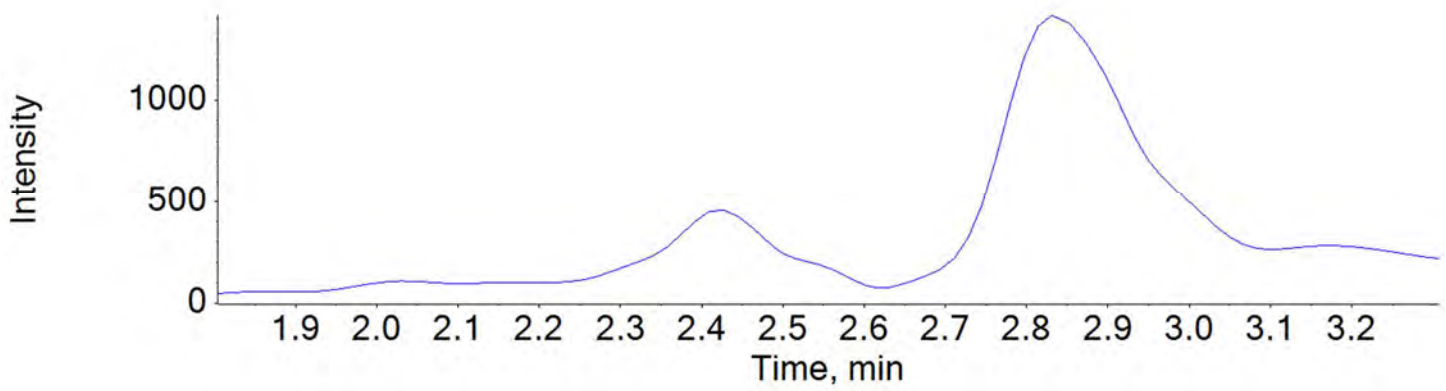
PFOA_1 413.0 / 369.0



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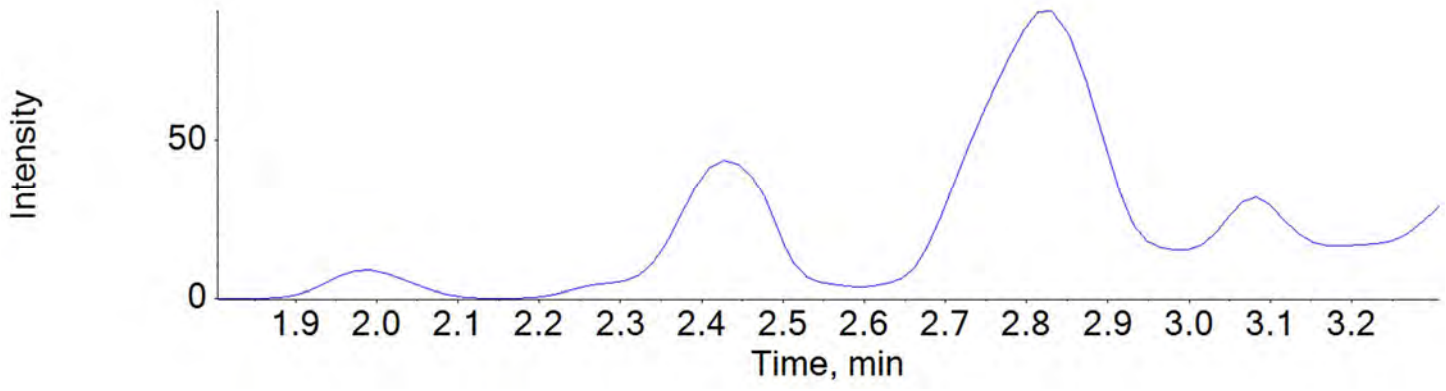

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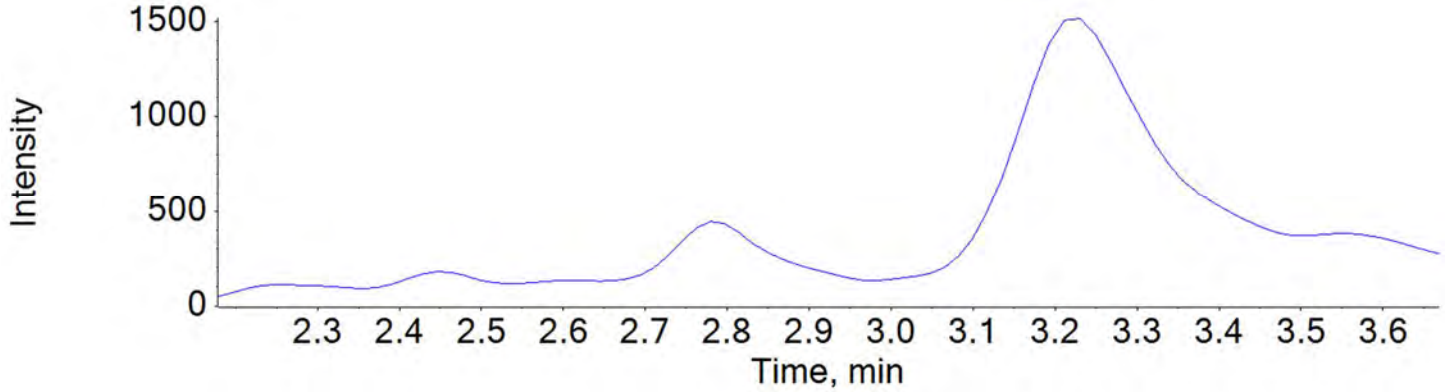

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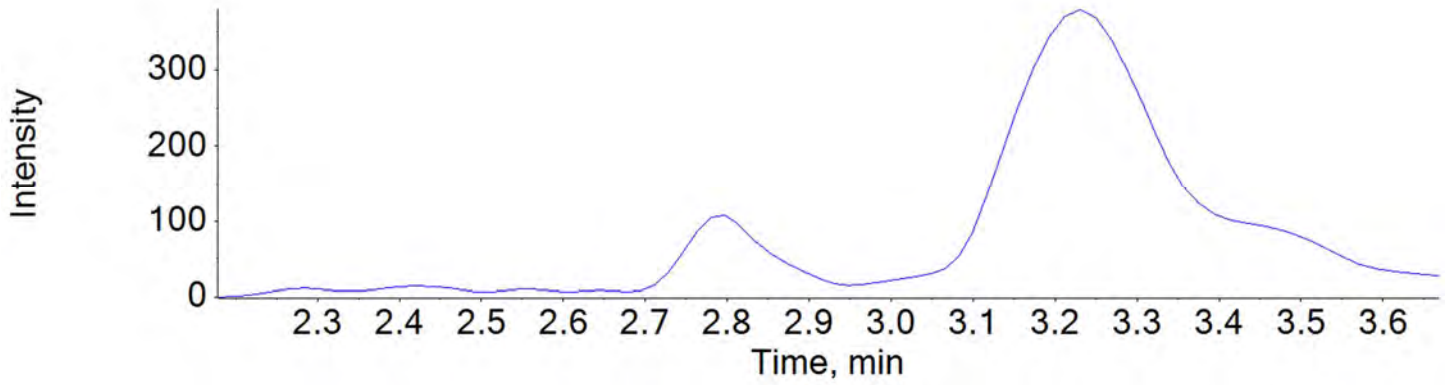
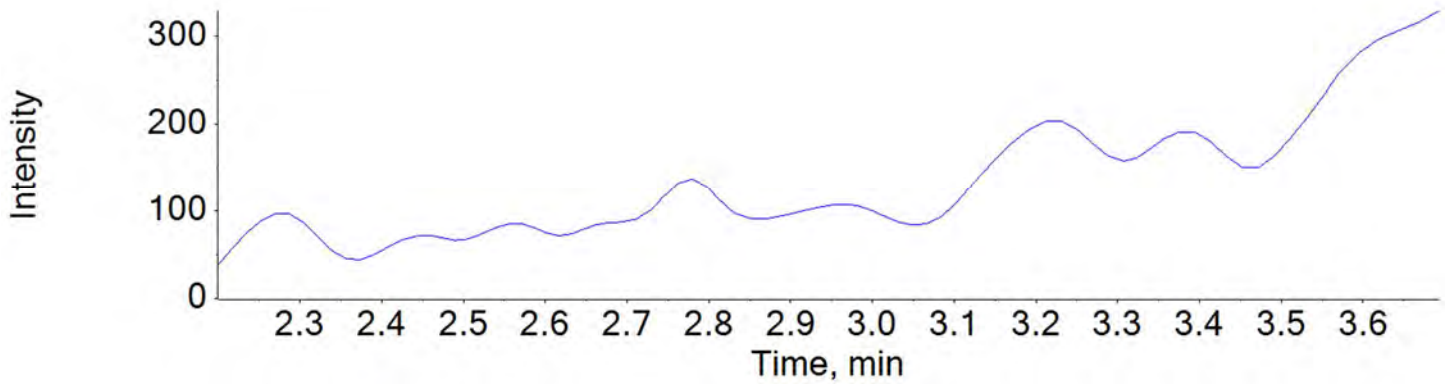


PFOS_1 499.0 / 80.0



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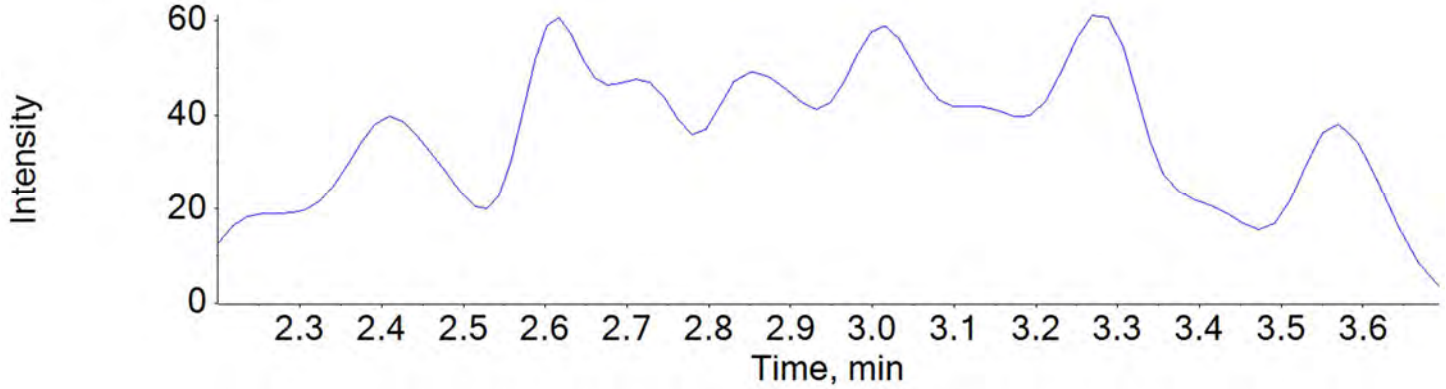

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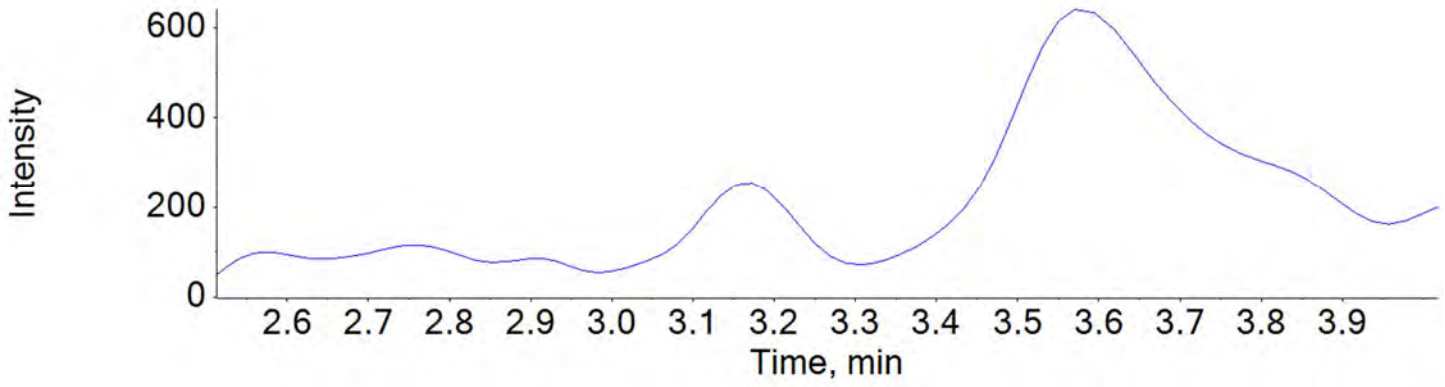

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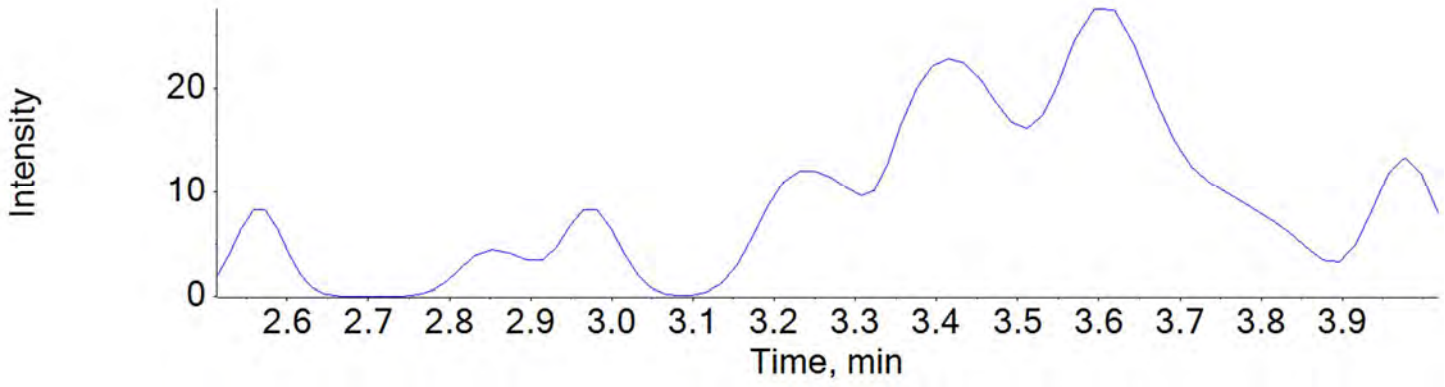

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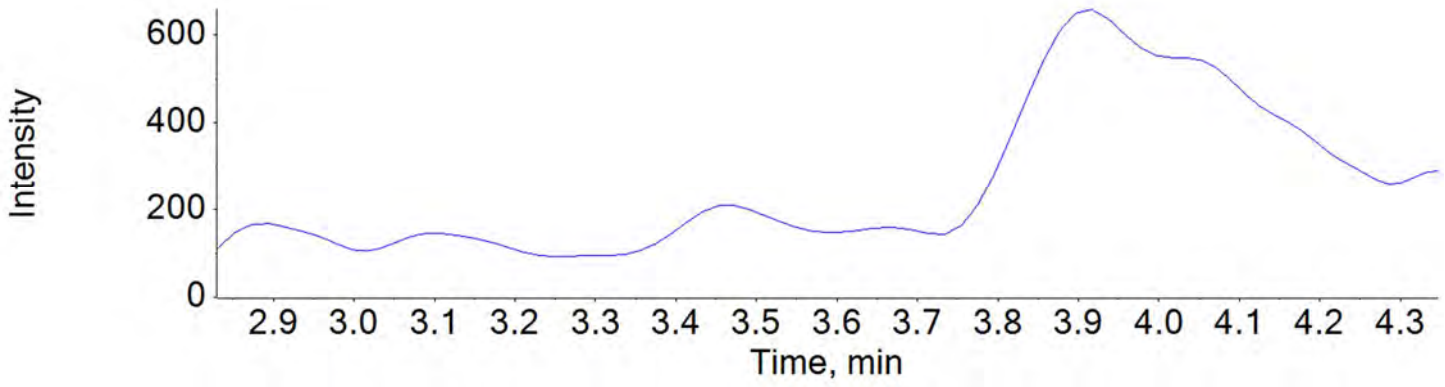

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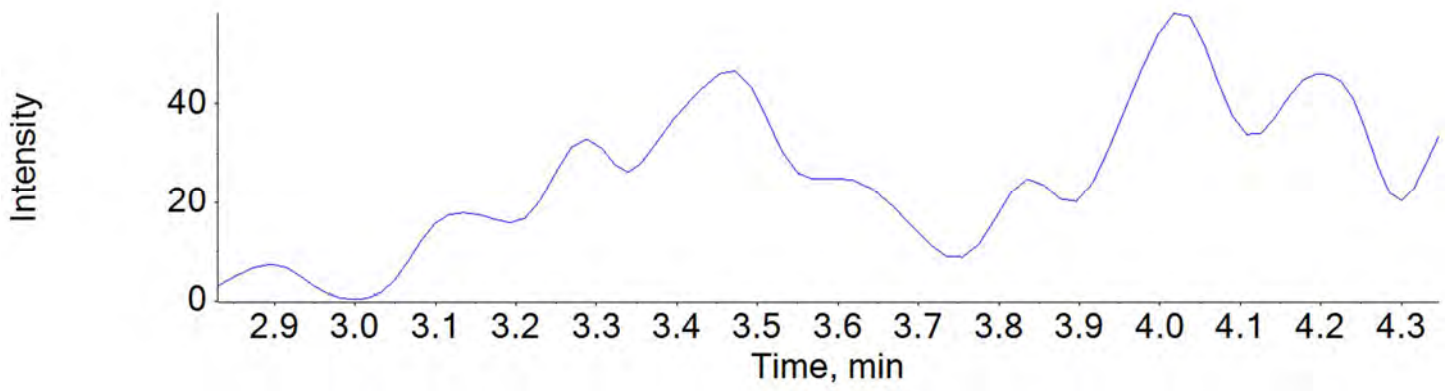

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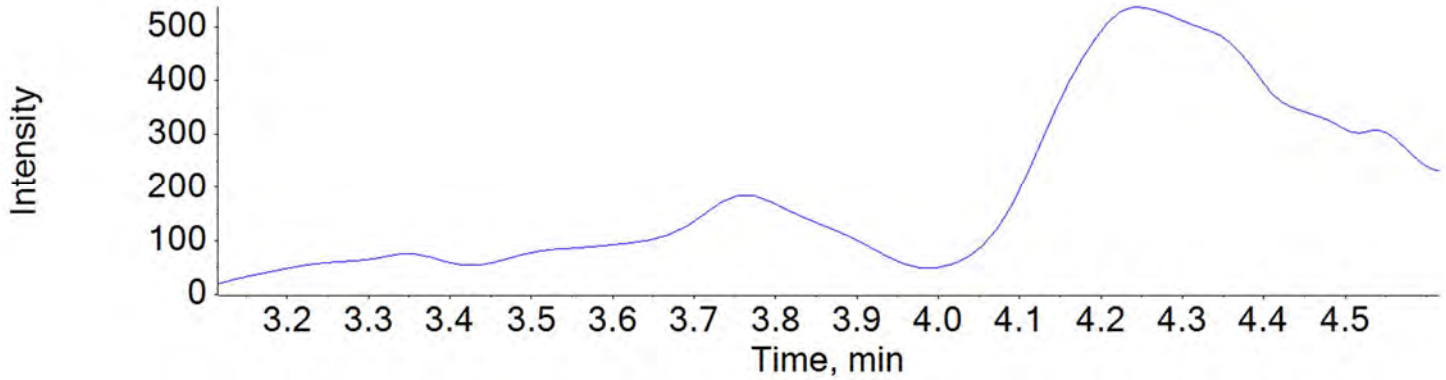

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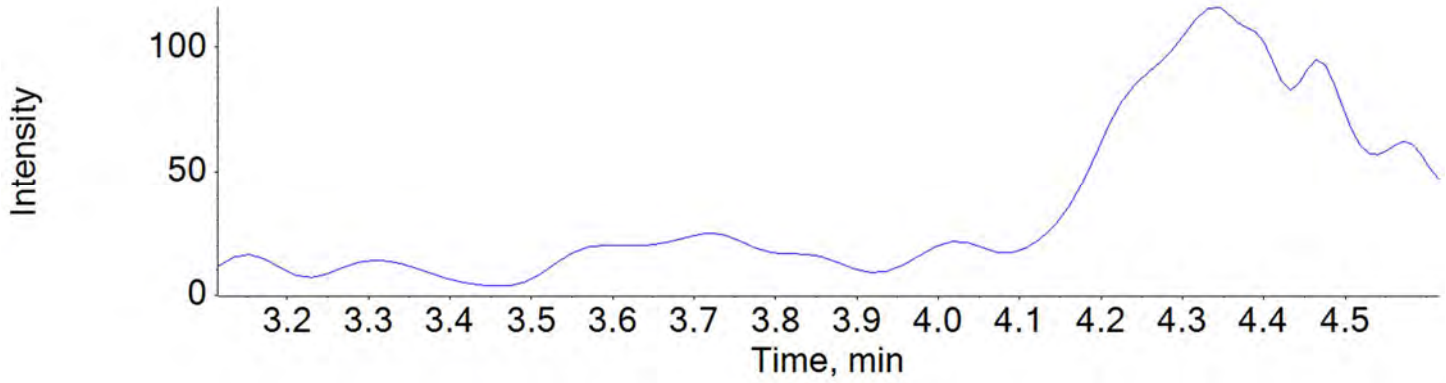

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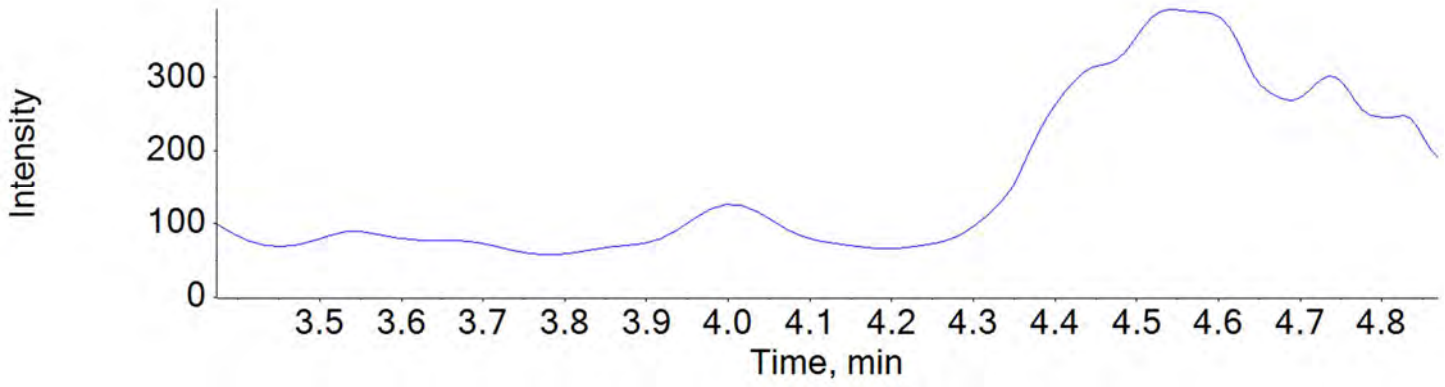
PFTrDA_1 663.0 / 619.0



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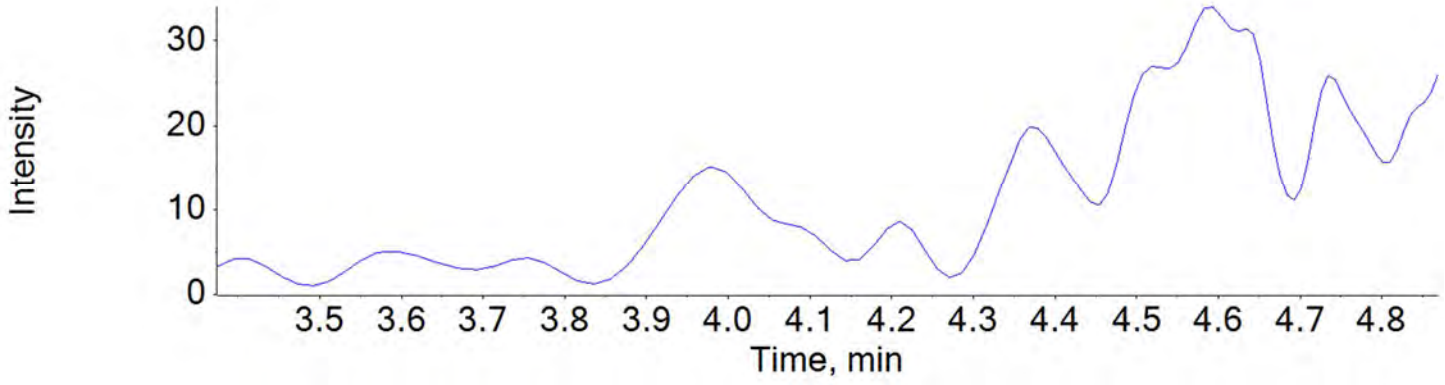

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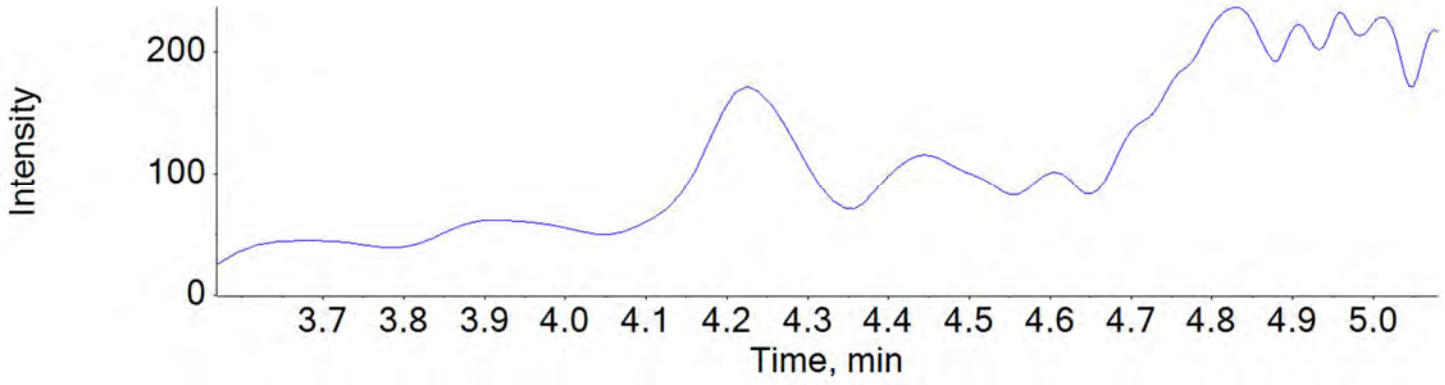

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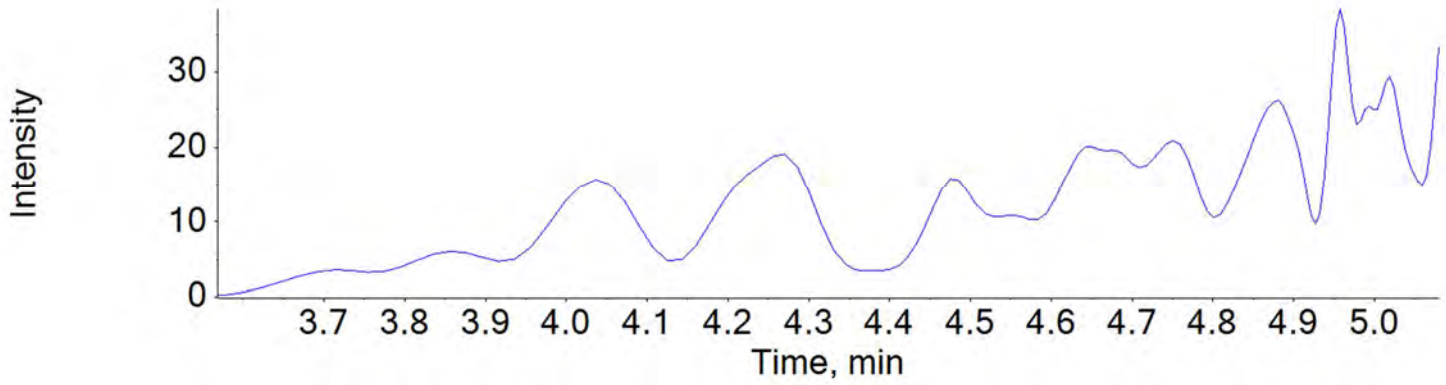

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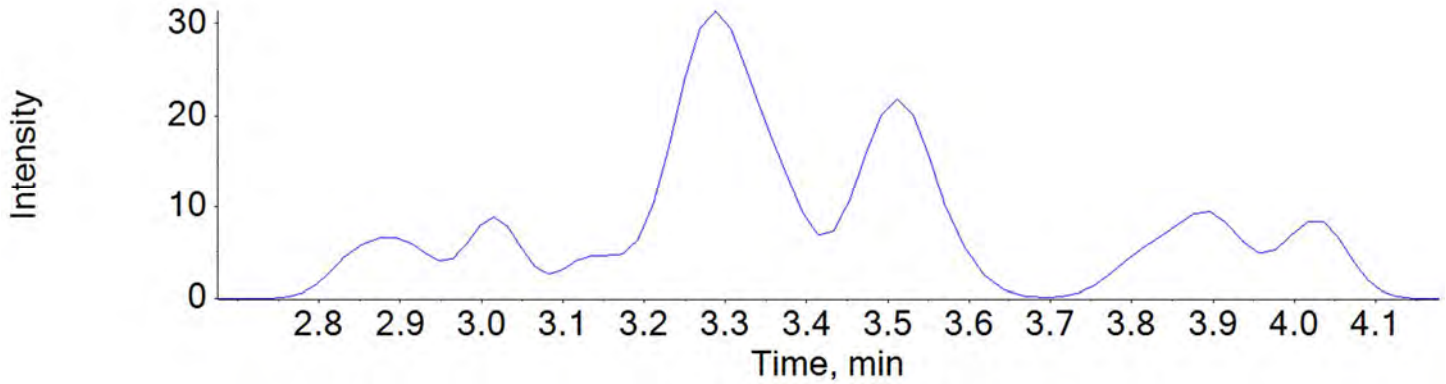

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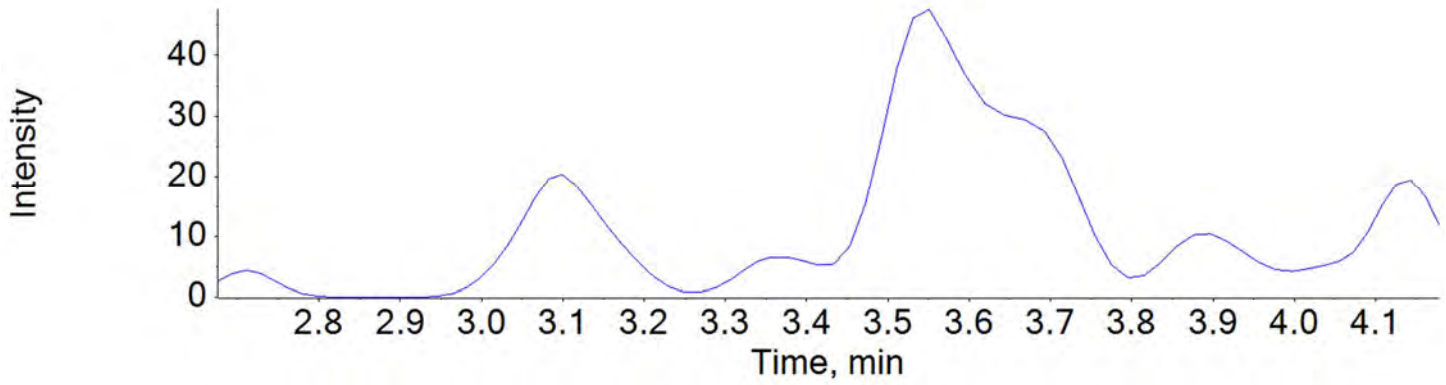

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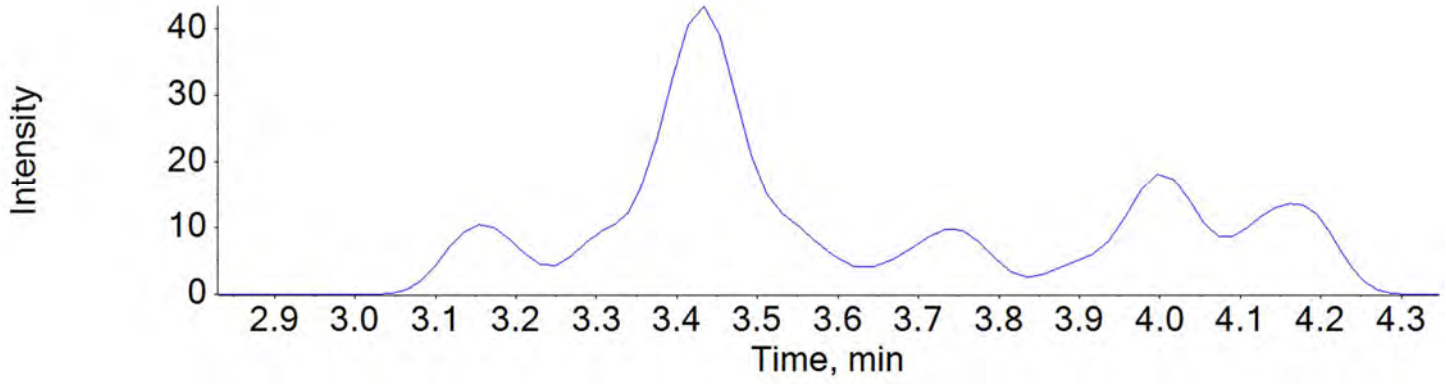

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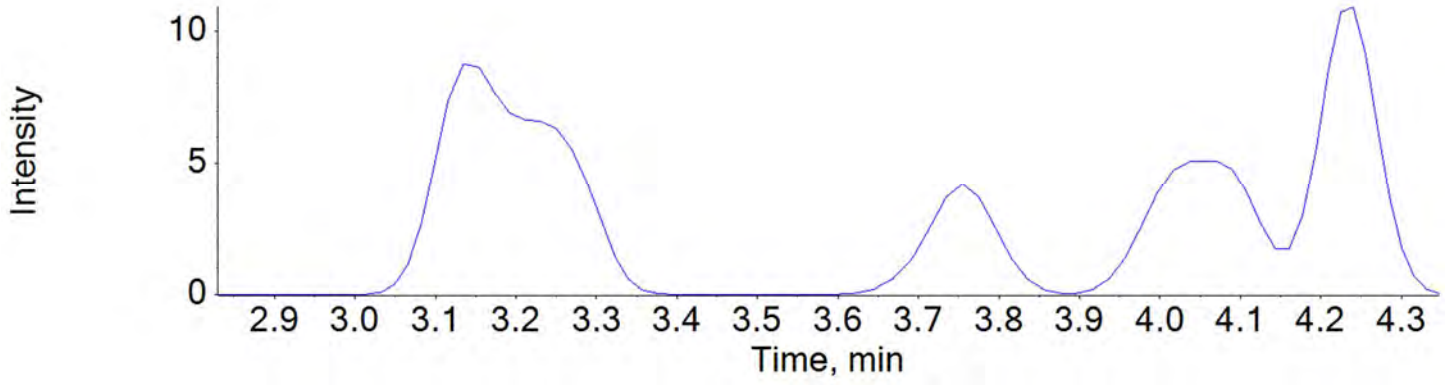

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Chromatogram Report

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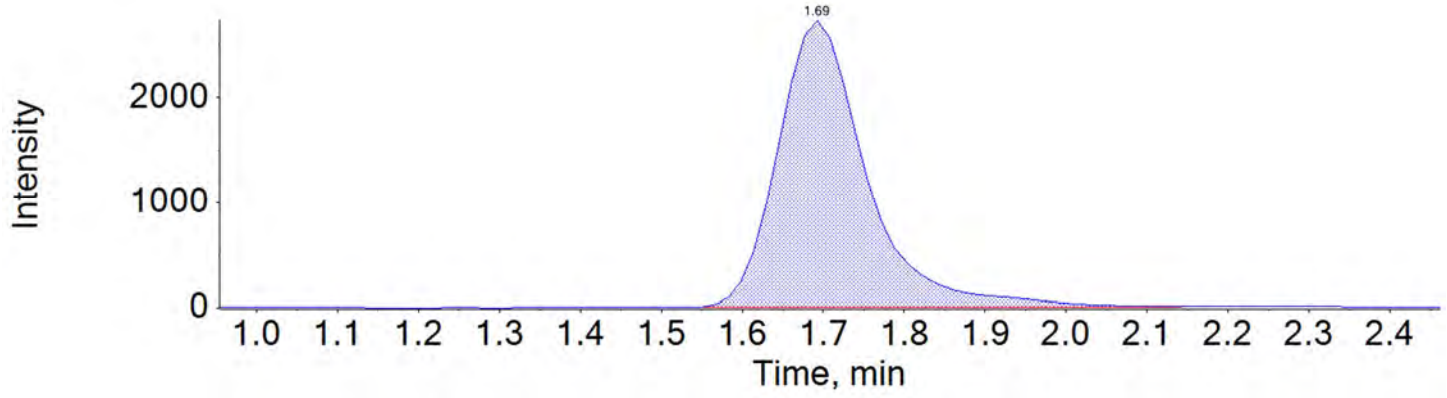
Sample Name	CQ770PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T10:58:44	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



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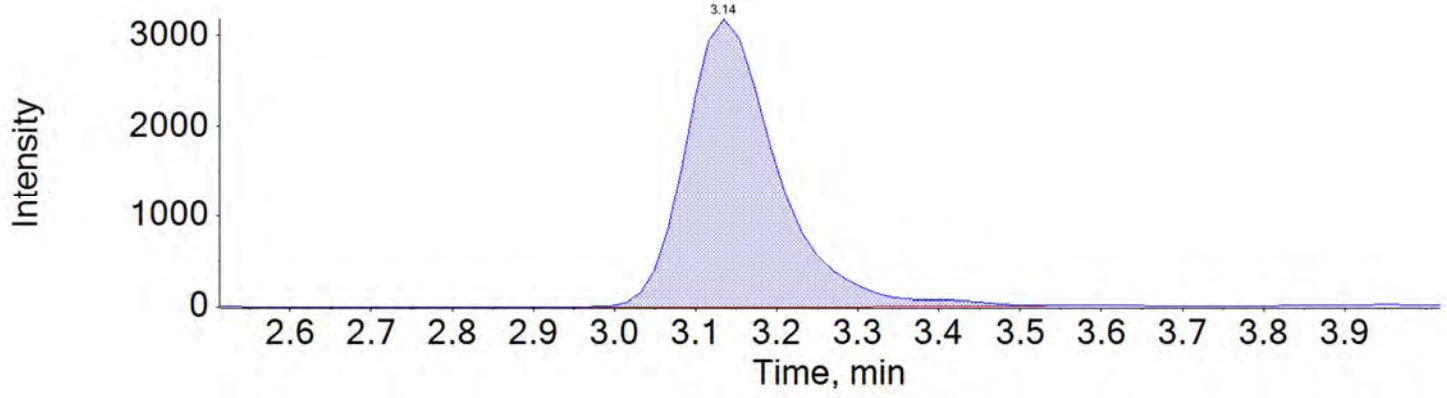

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Chromatogram Report

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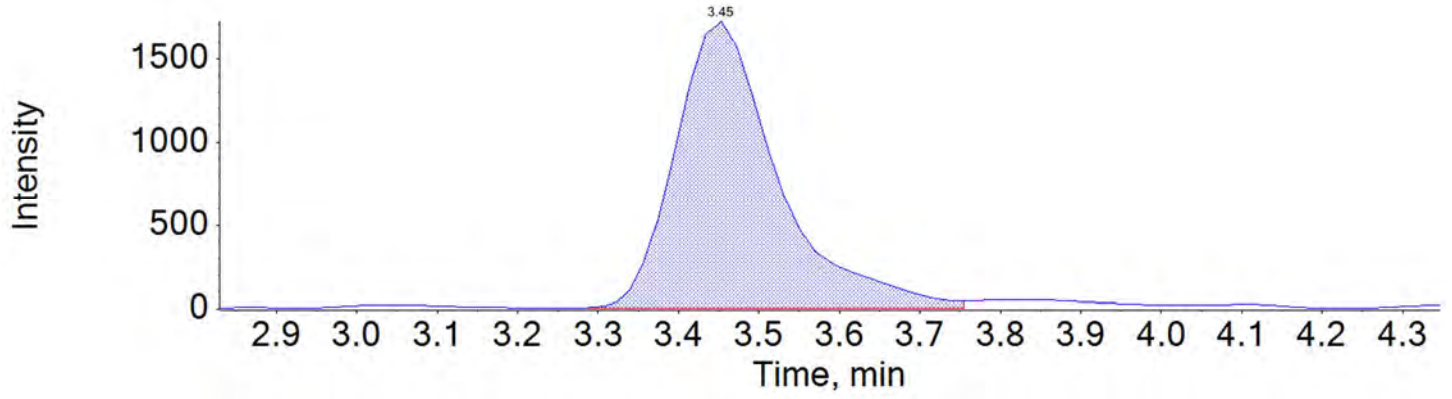
d5-EtFOSAA 589.0 / 419.0



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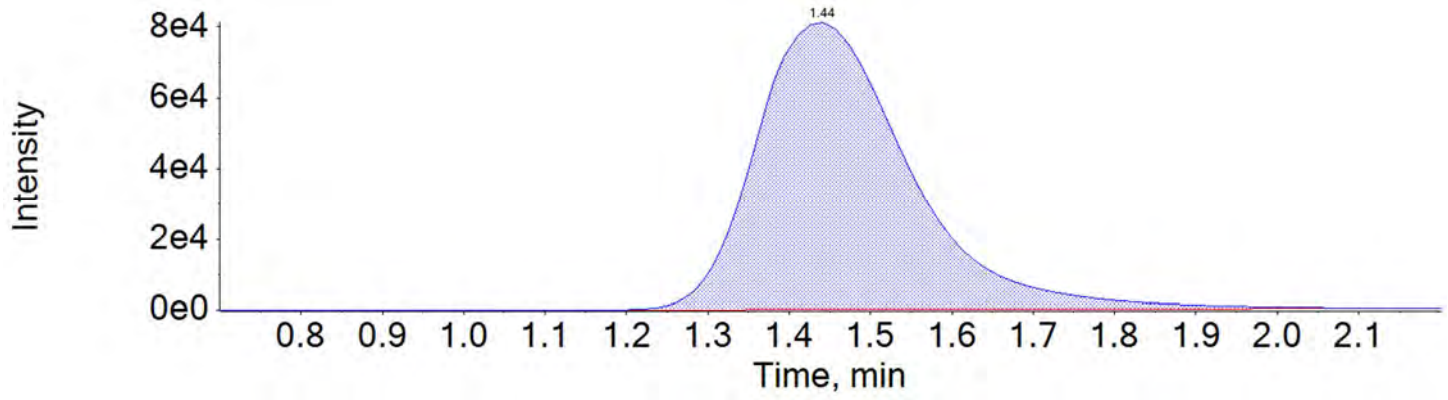
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:07:23 PM

Sample Name	CQ771LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:07:40	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



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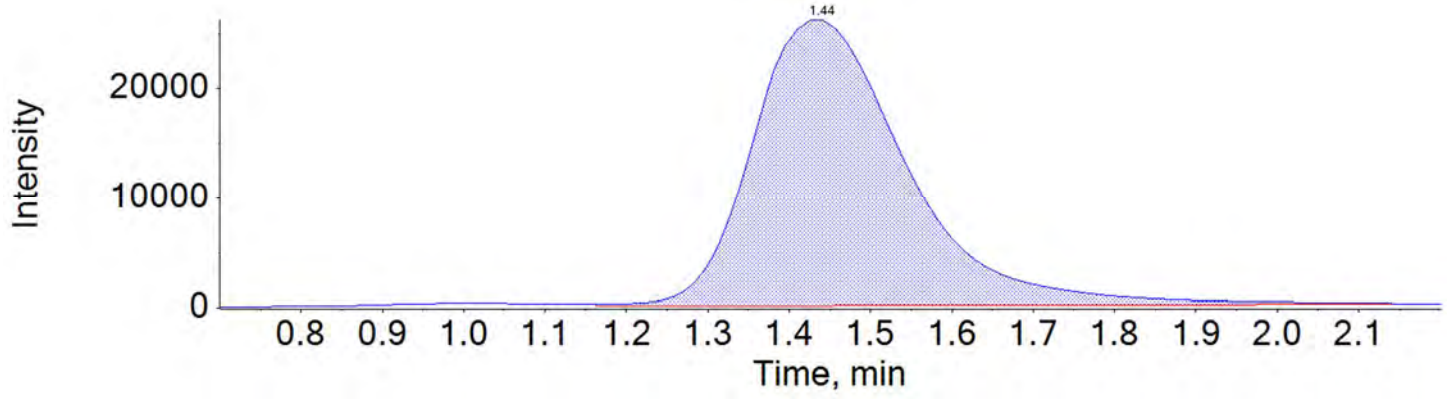

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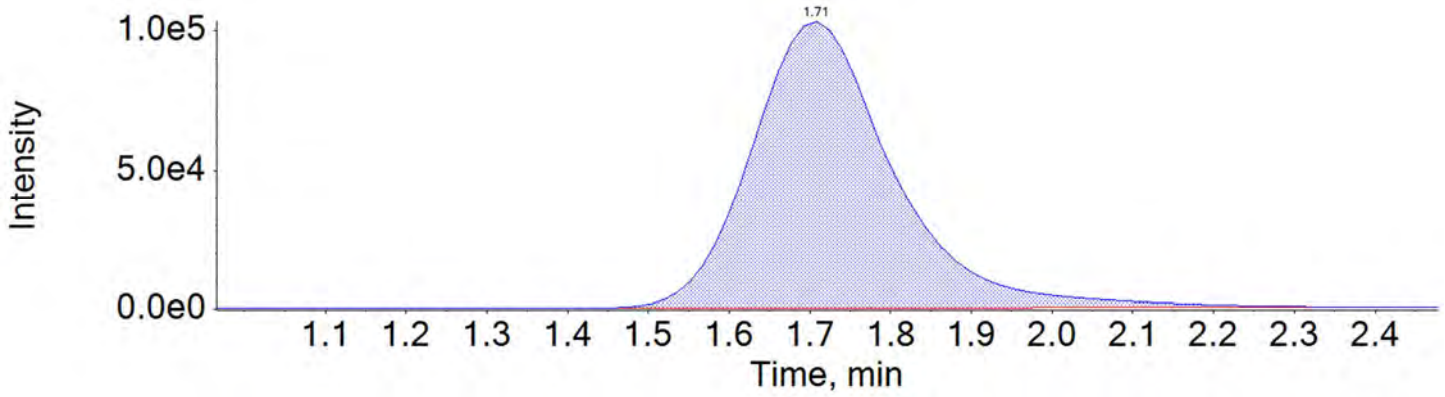
PFHxA_1 313.0 / 269.0



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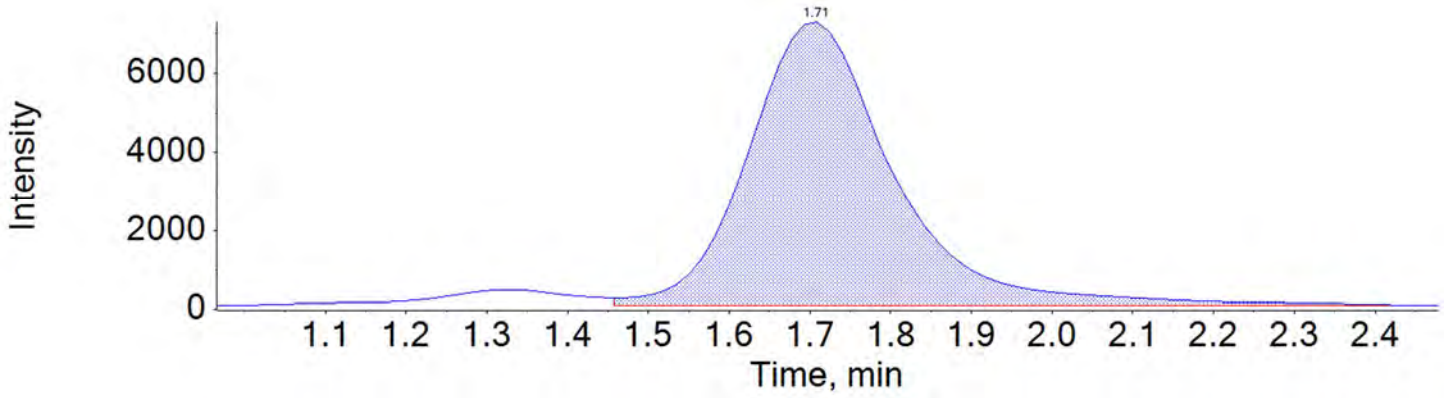

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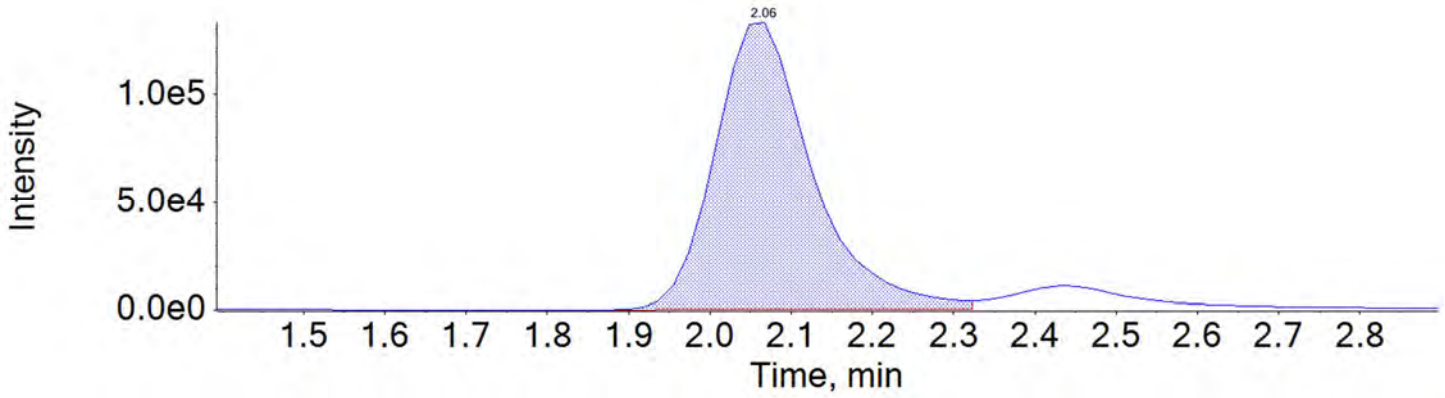

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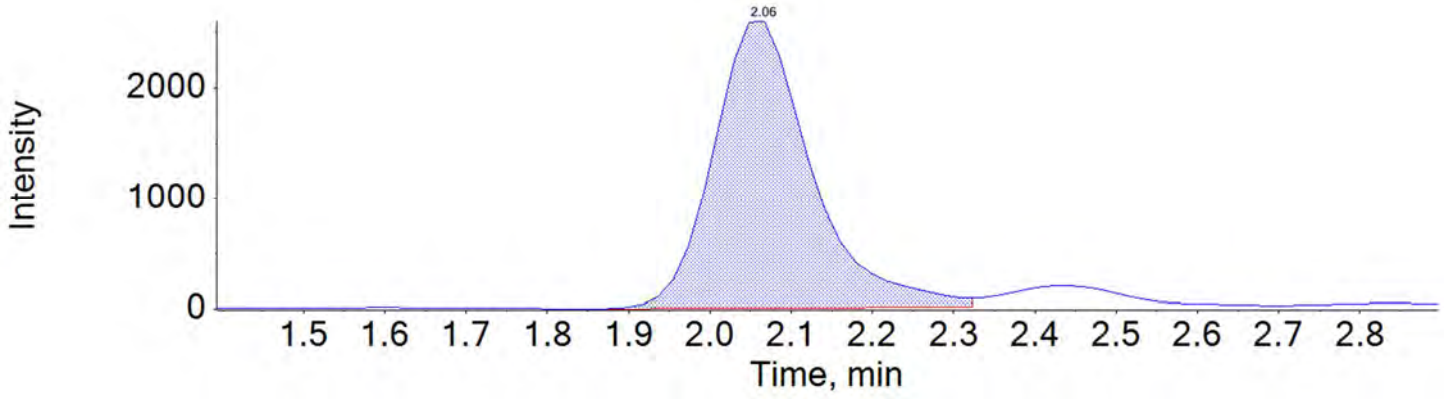

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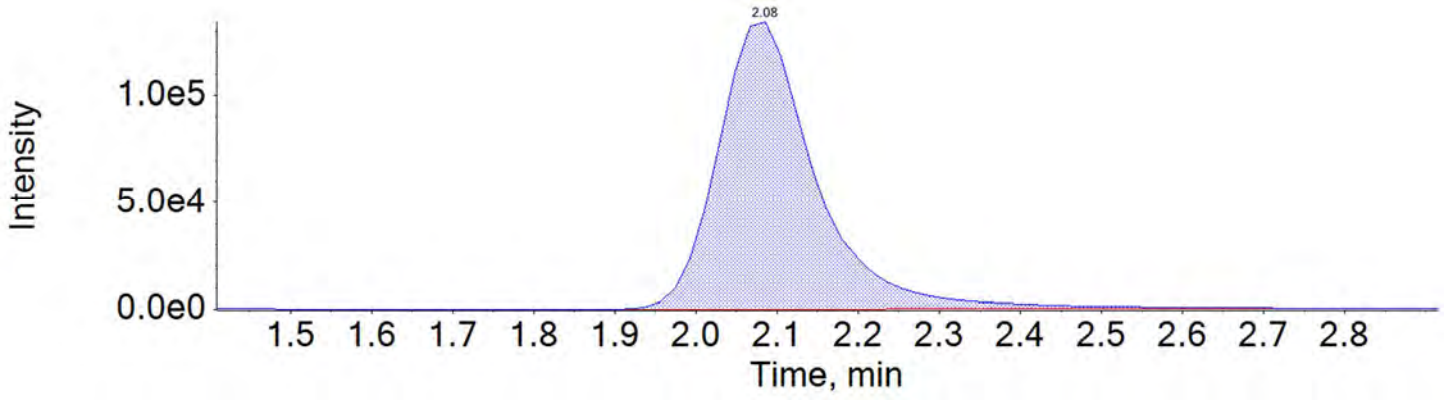

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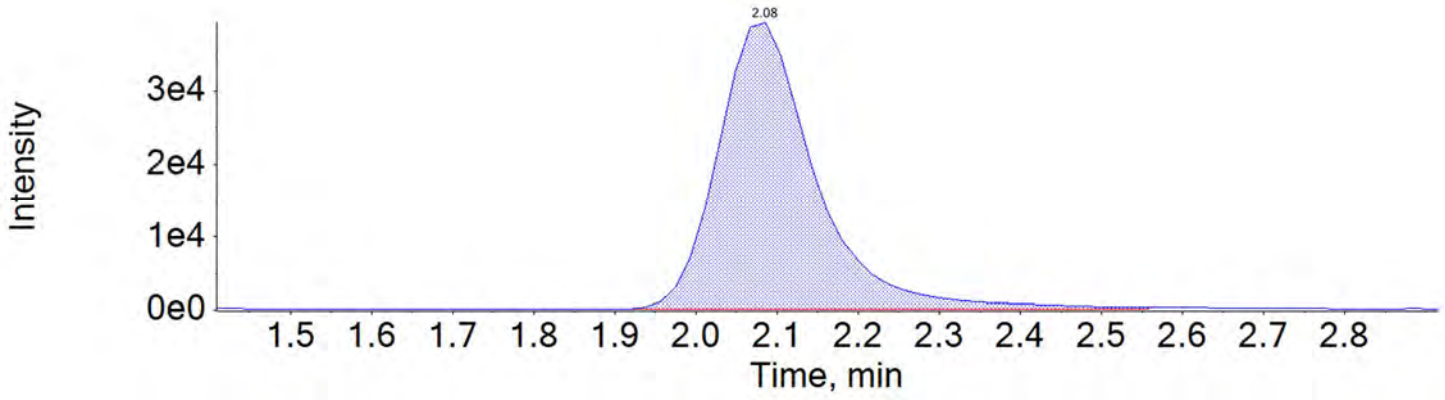

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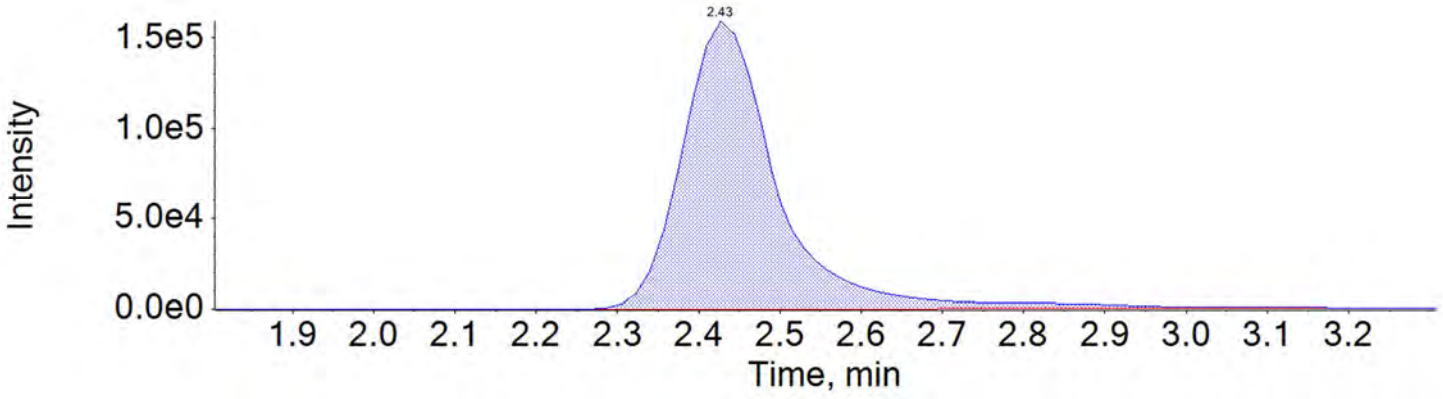

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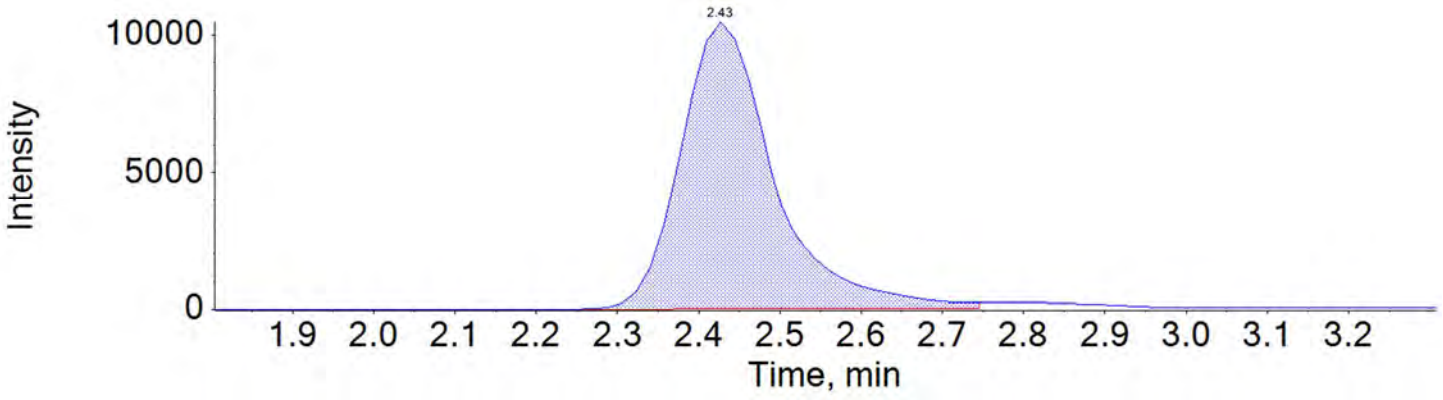

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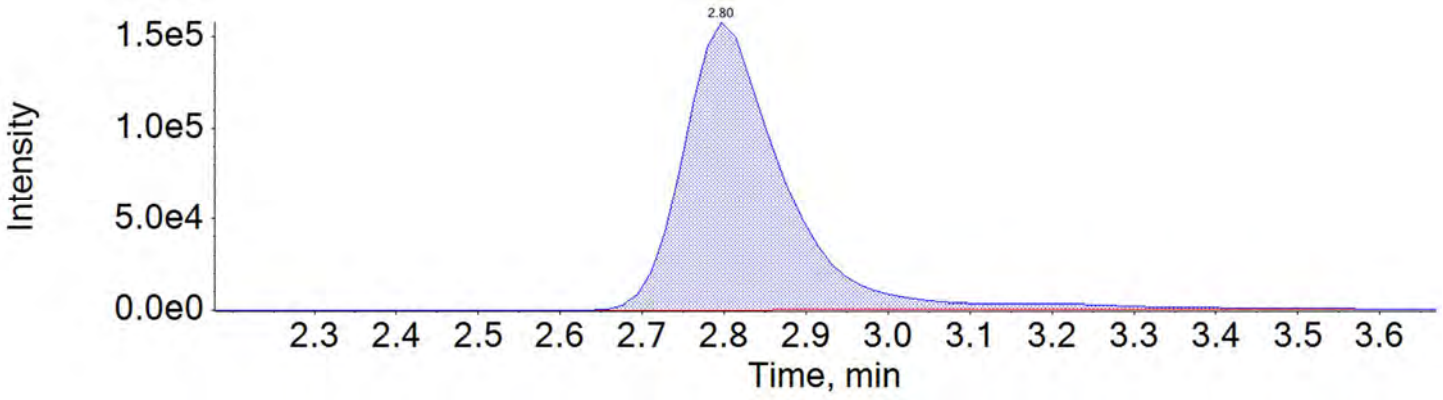

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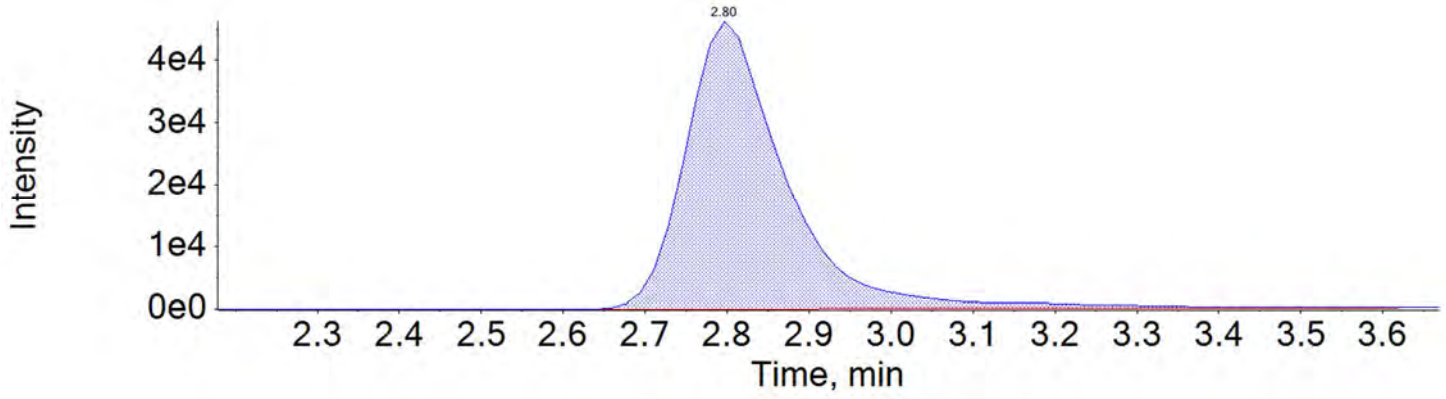

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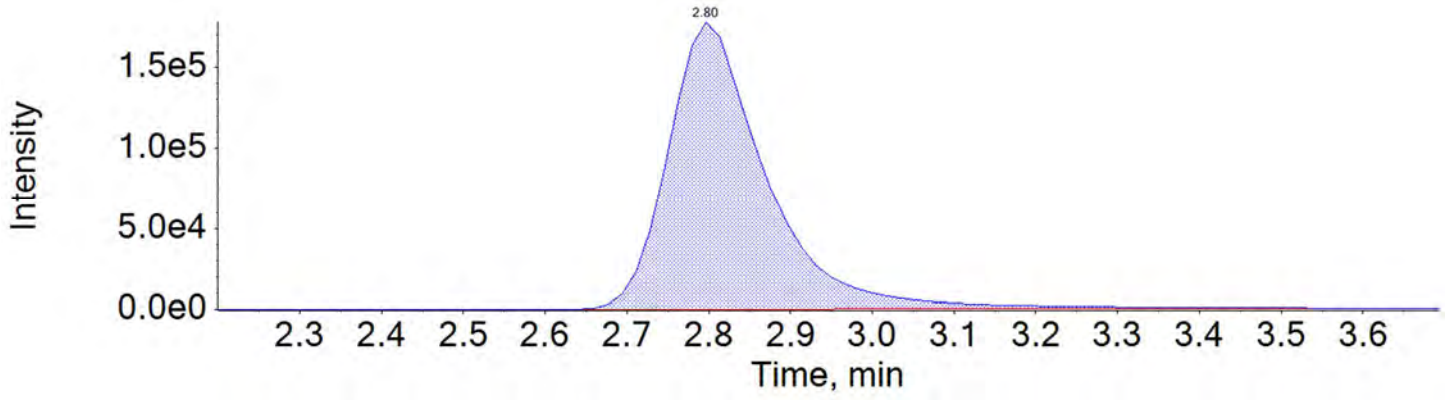

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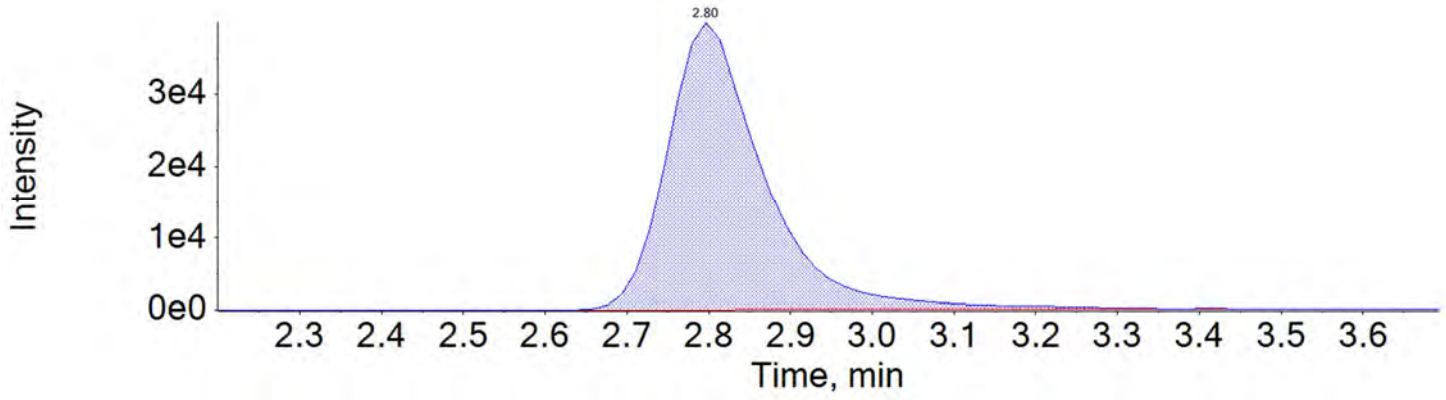

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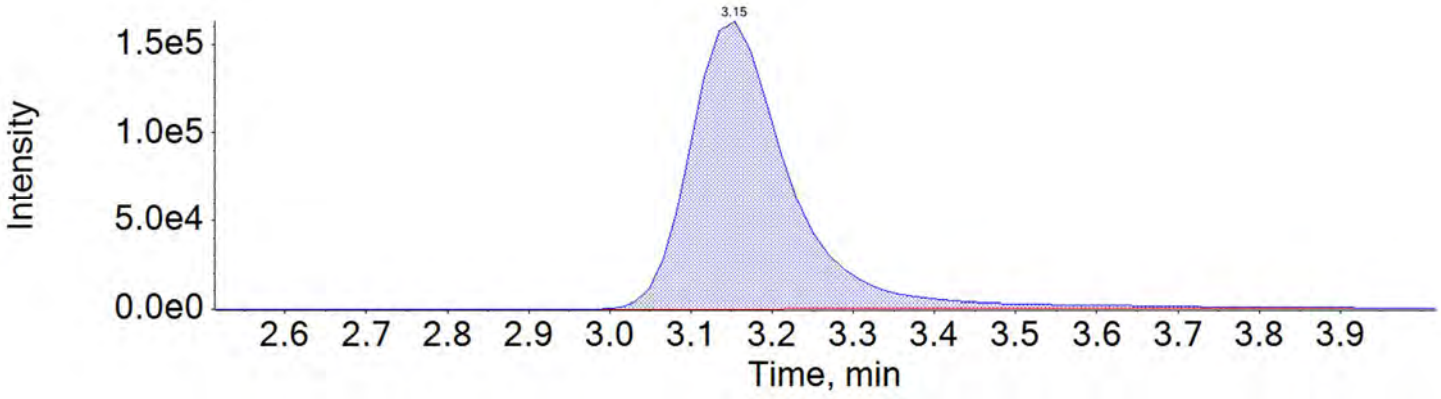

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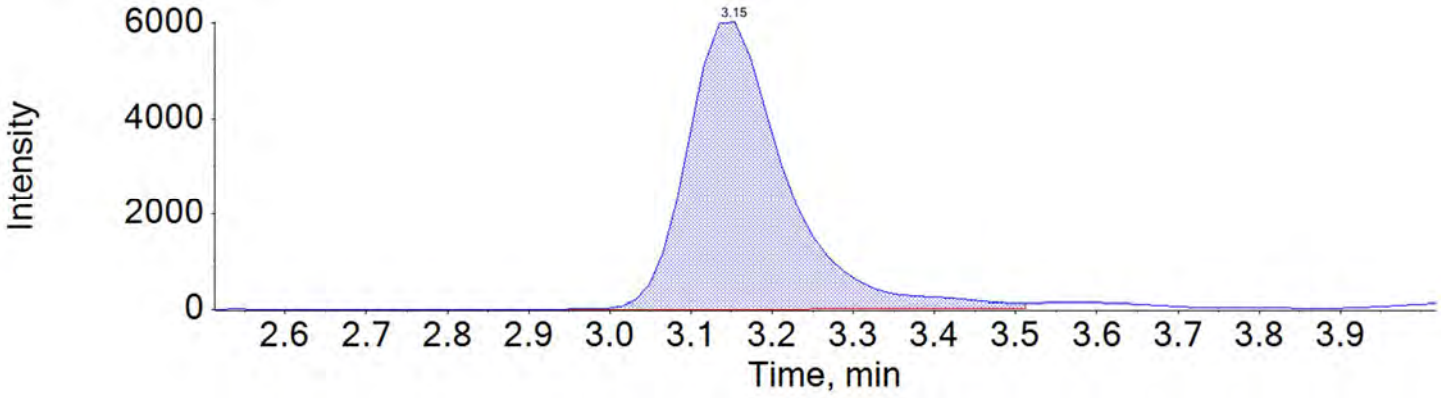

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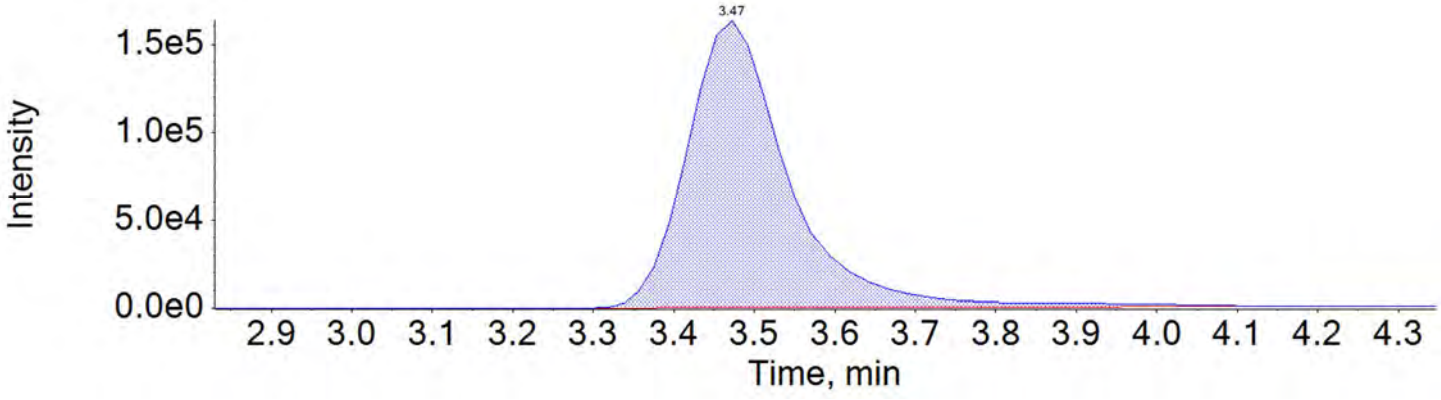

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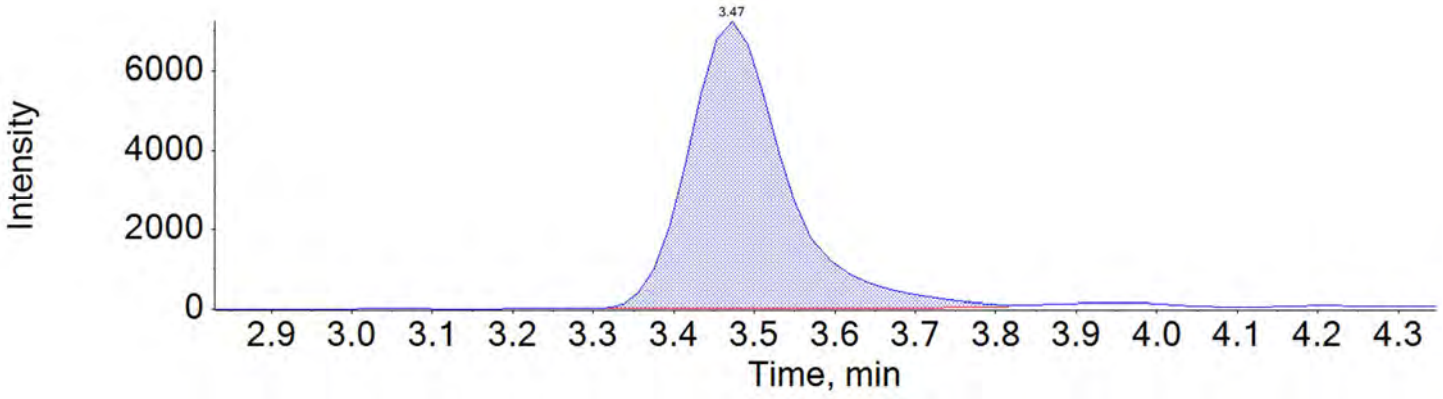

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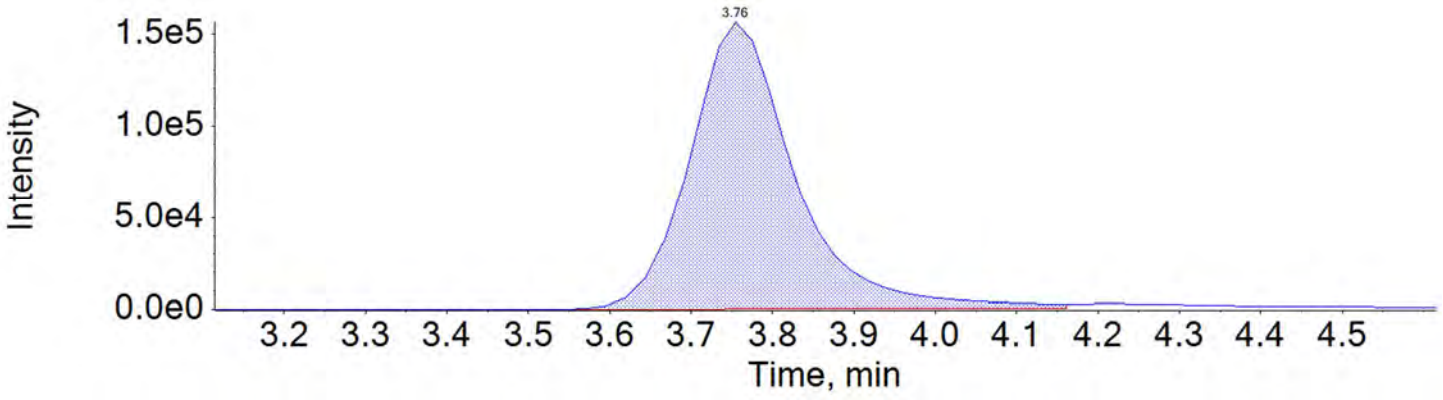

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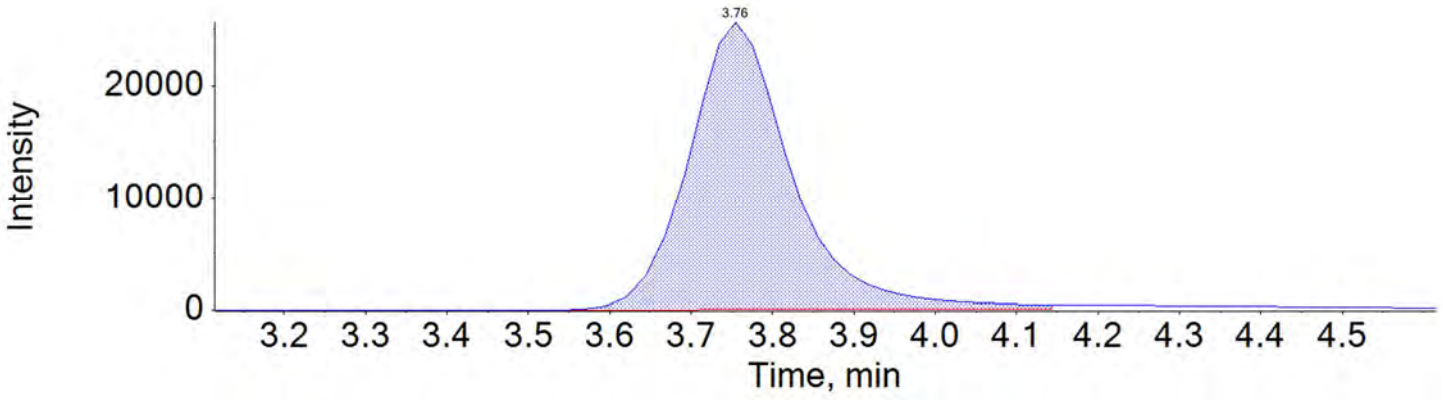

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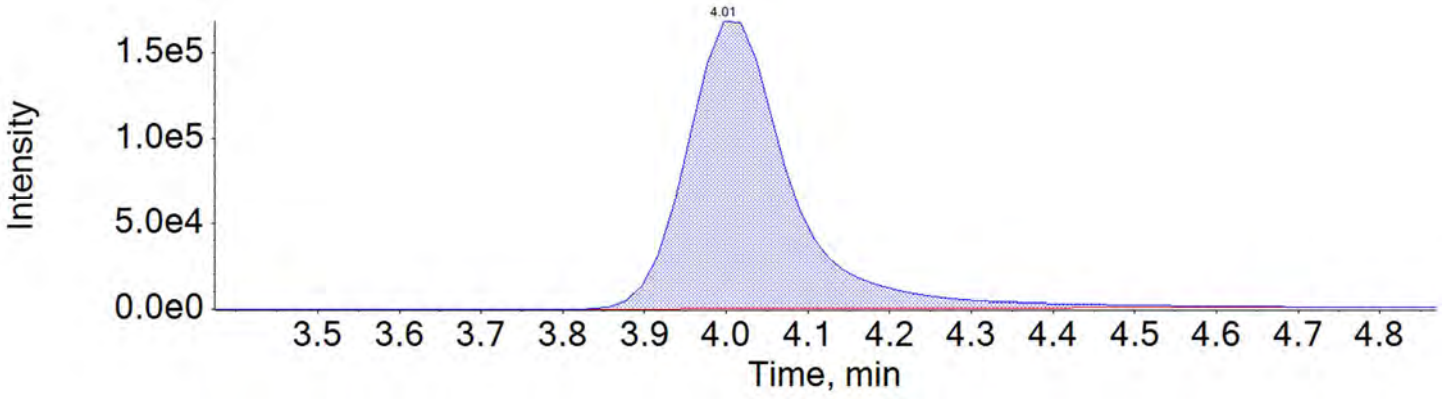

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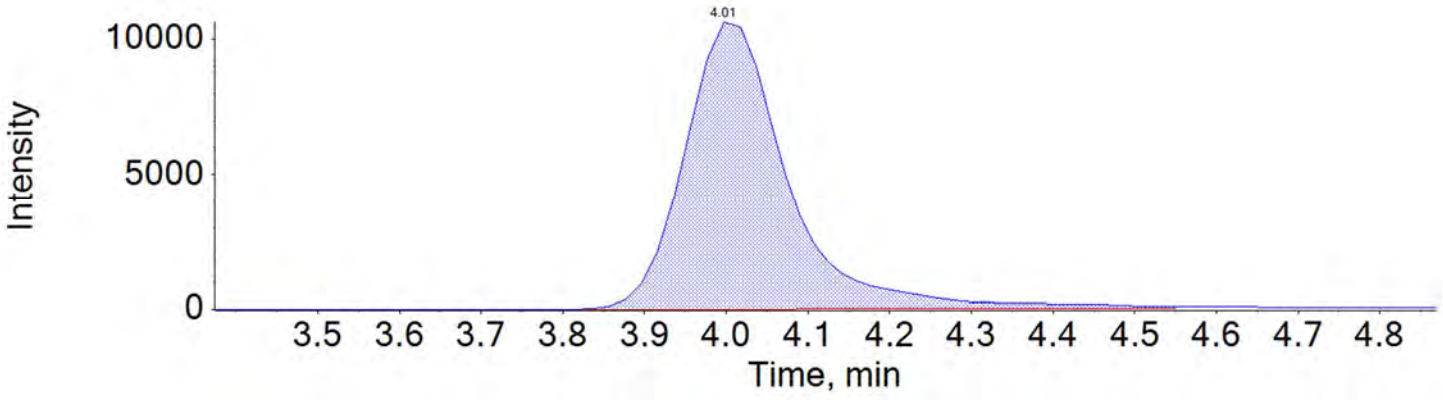

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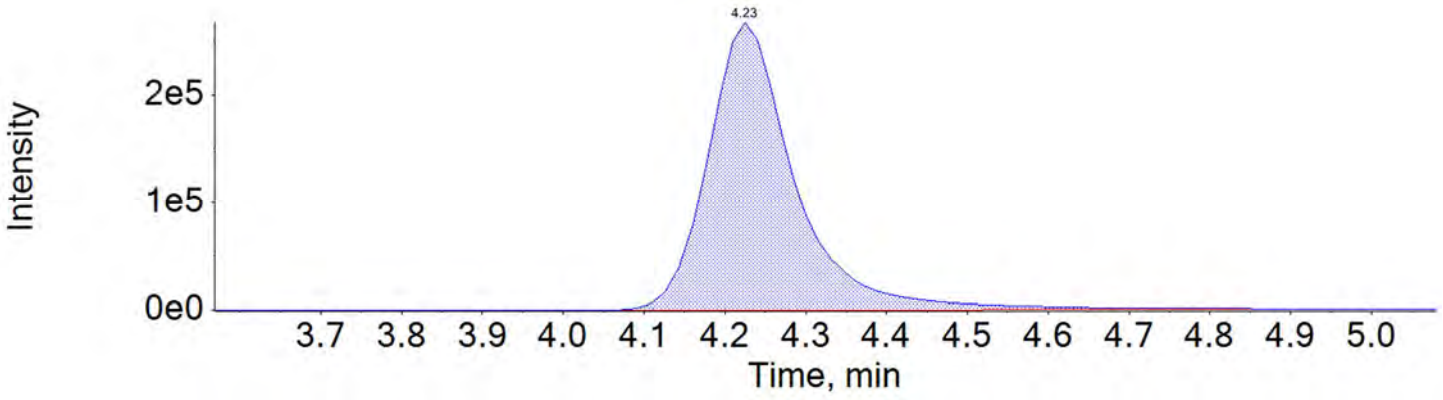

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Chromatogram Report

Created with Analyst Reporter
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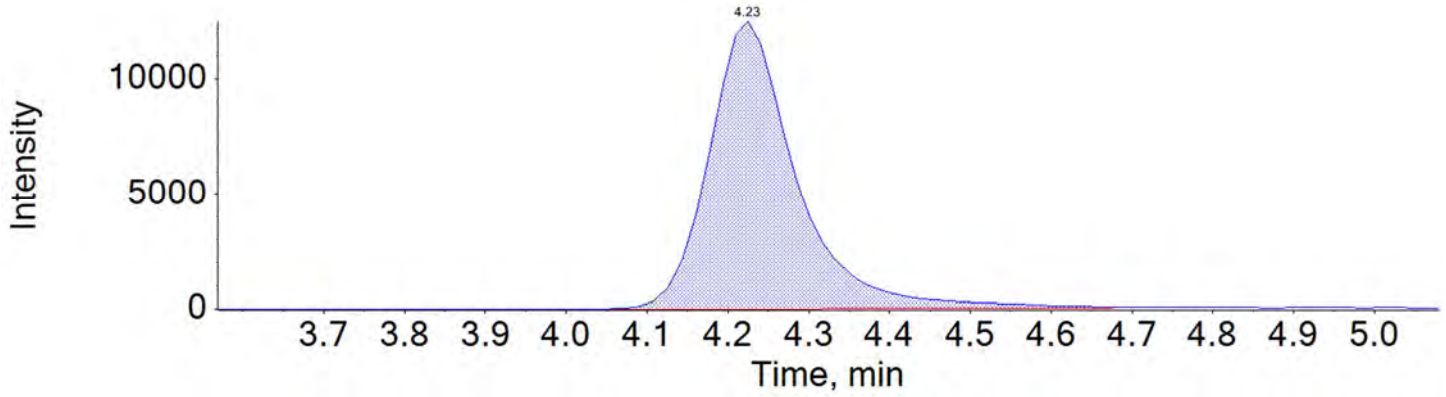
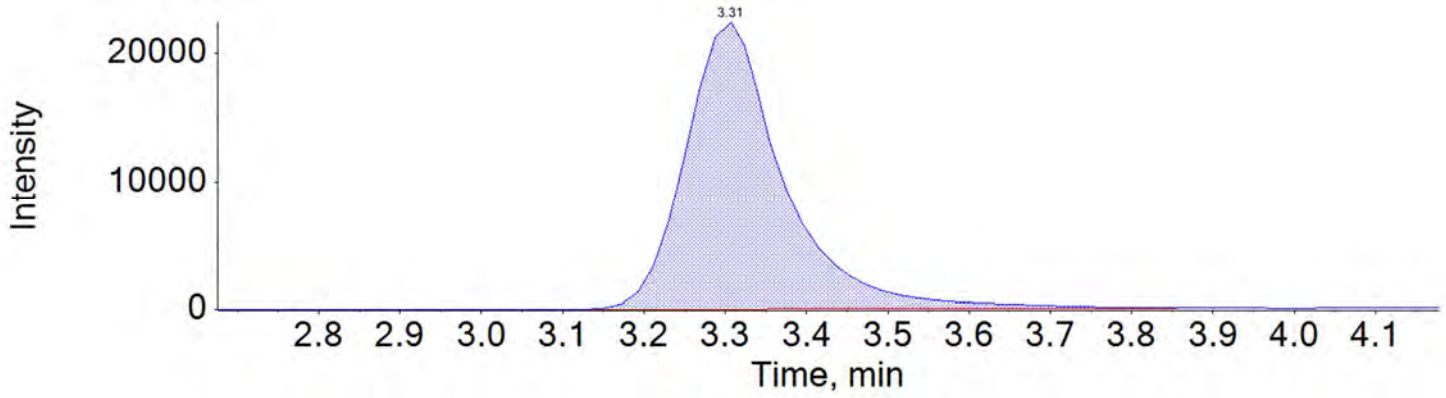
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



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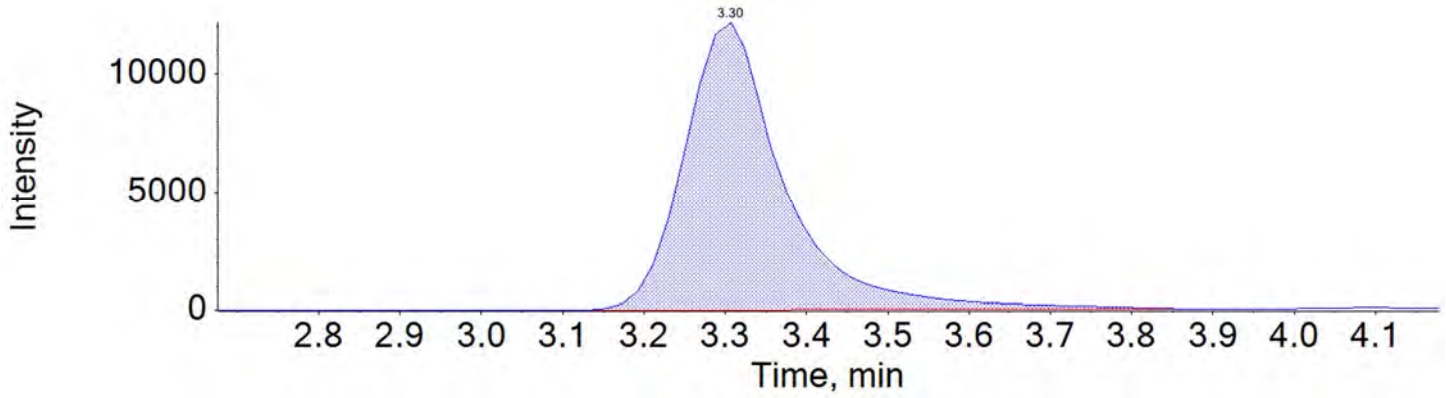

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Chromatogram Report

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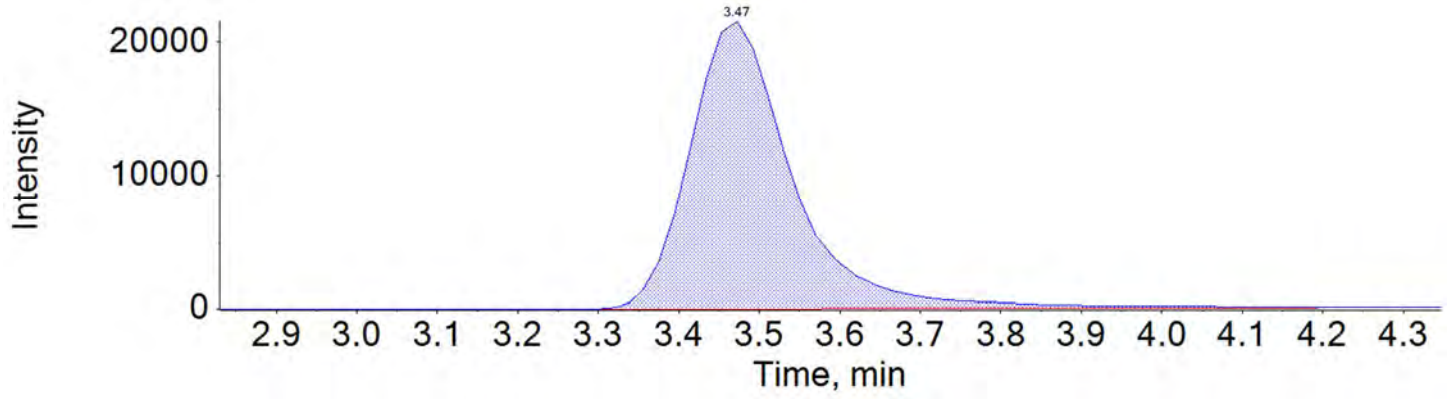
NEtFOSAA_1 584.0 / 419.0



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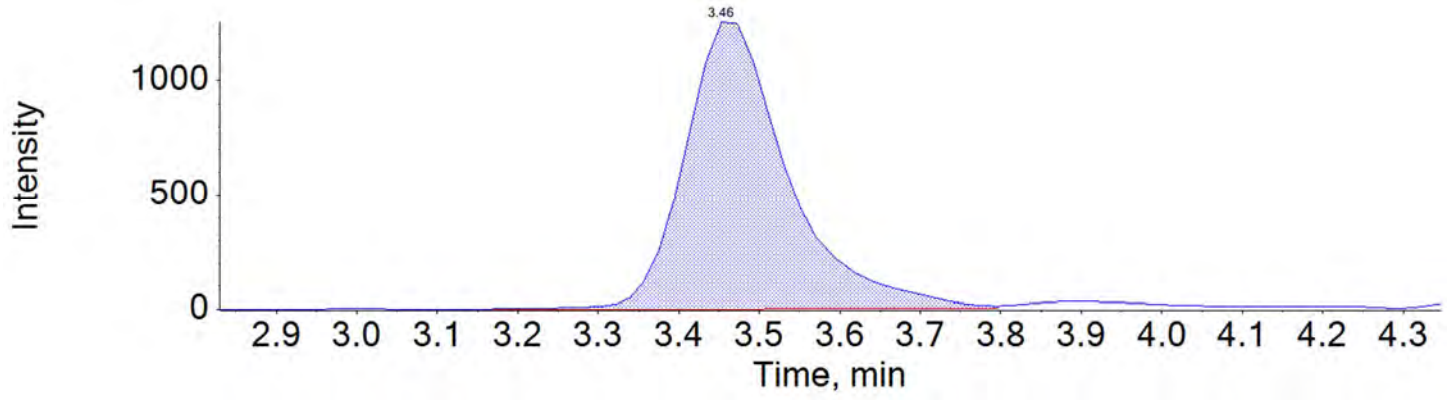

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Chromatogram Report

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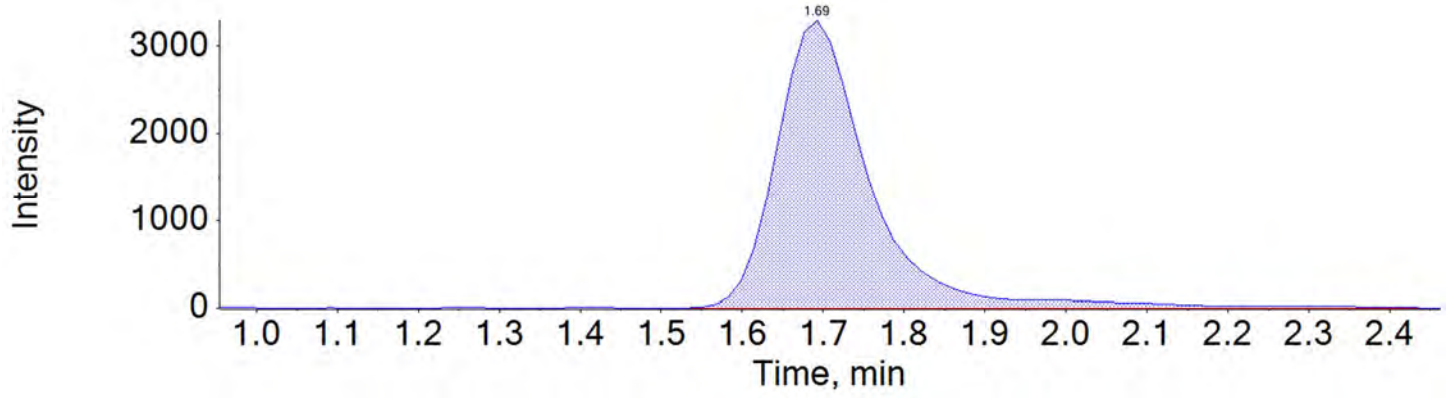
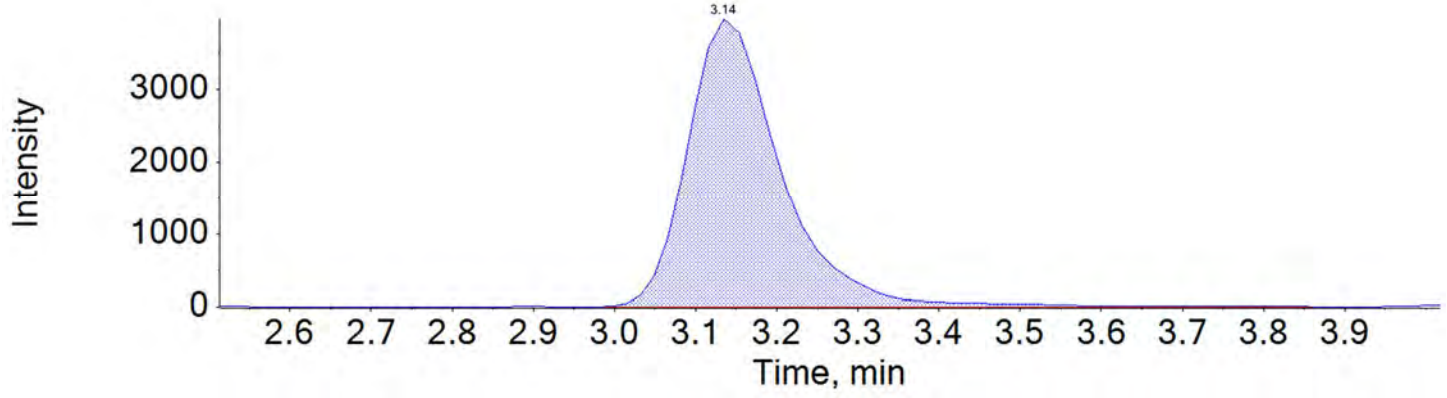
Sample Name	CQ771LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:07:40	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
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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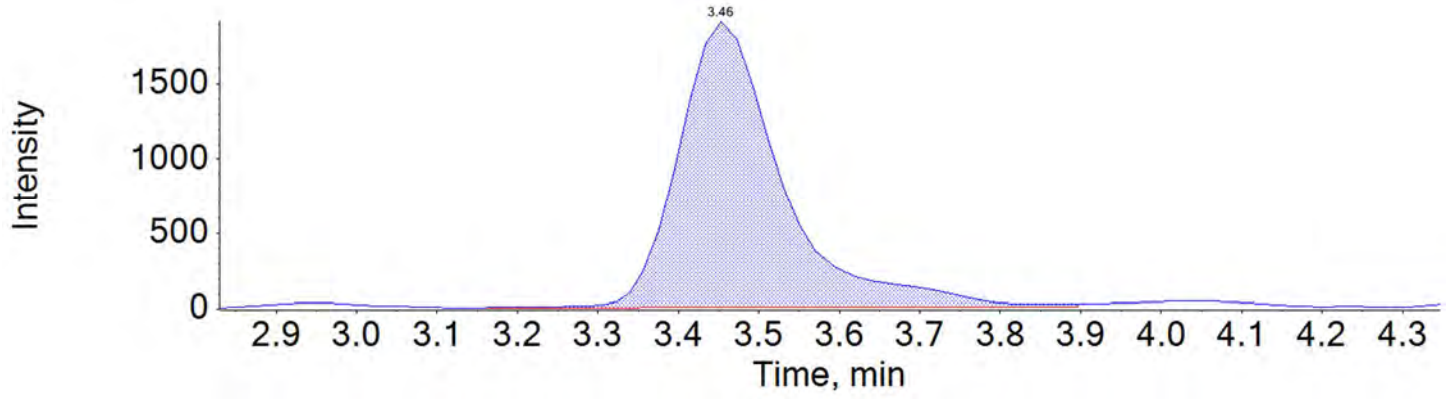
d5-EtFOSAA 589.0 / 419.0



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Chromatogram Report

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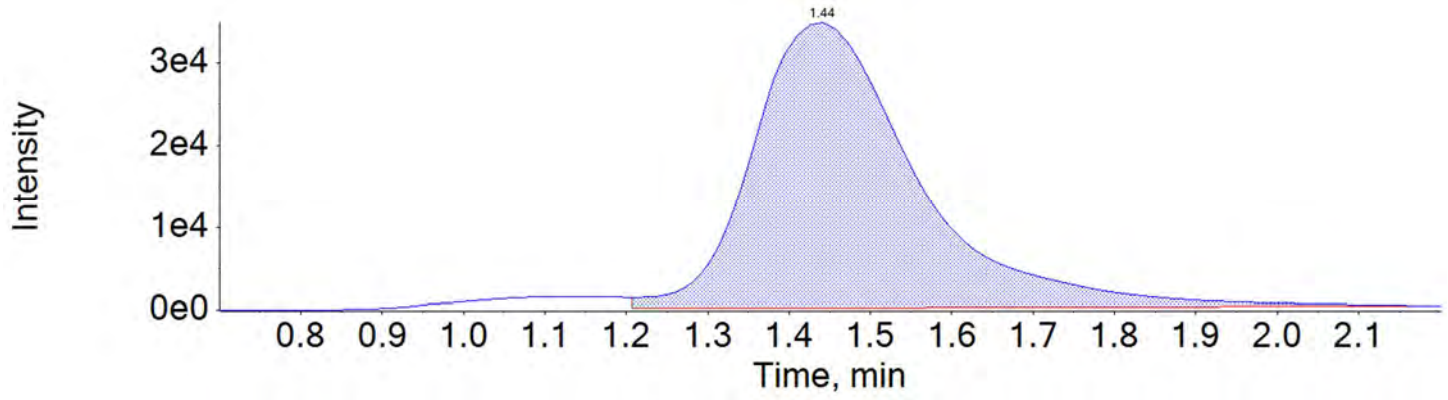
Printed: 24/05/2018 1:07:29 PM

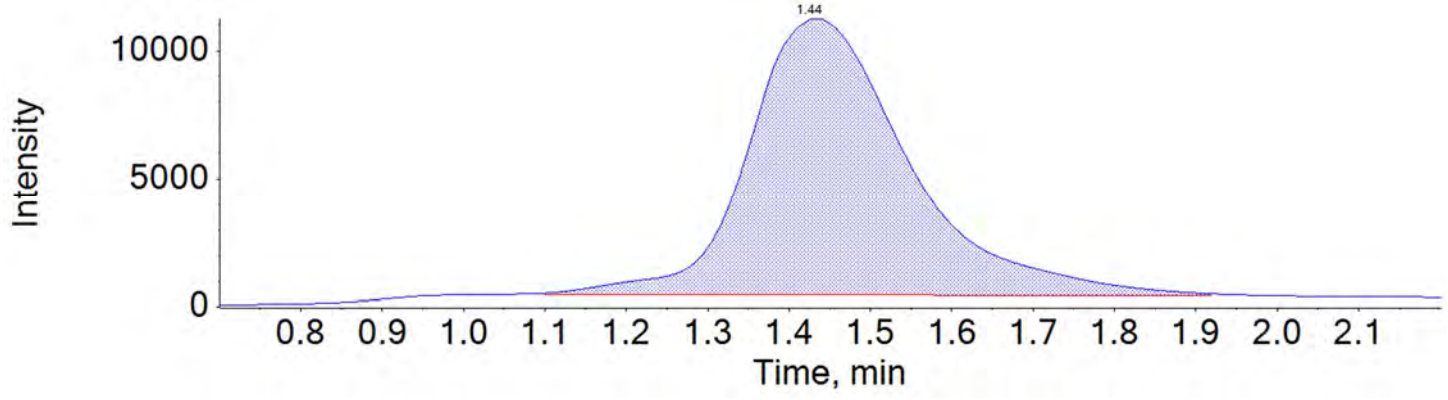
Sample Name	J6204-FS(0)	**Injection Vial**	14
Sample ID	NAWC-051018-RW-303	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:16:38	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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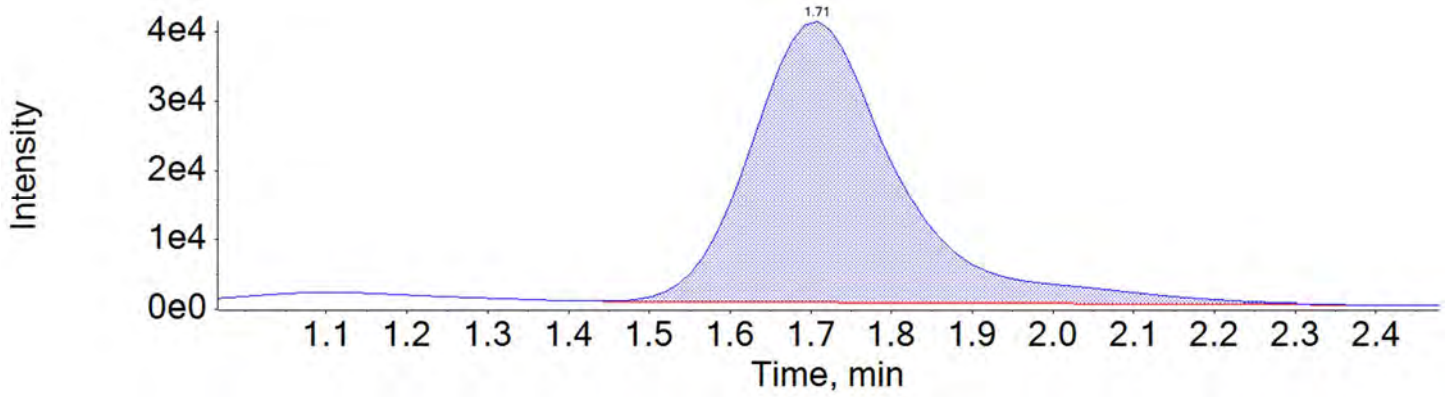
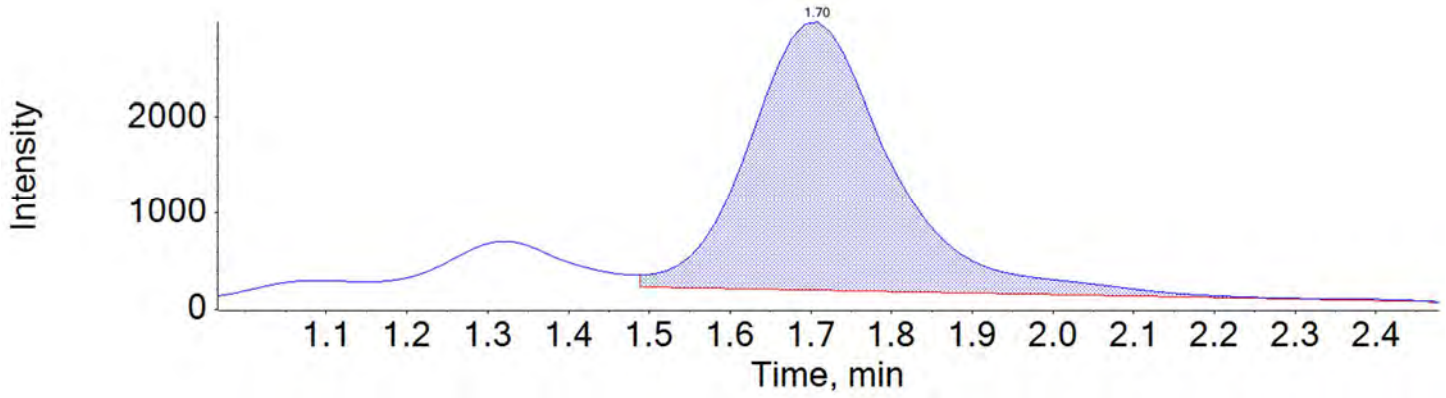
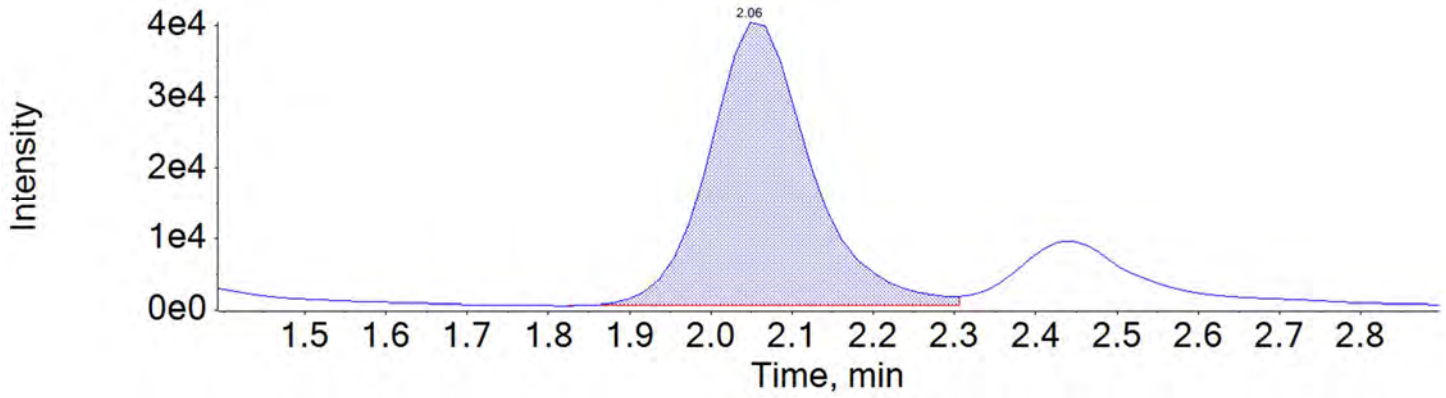
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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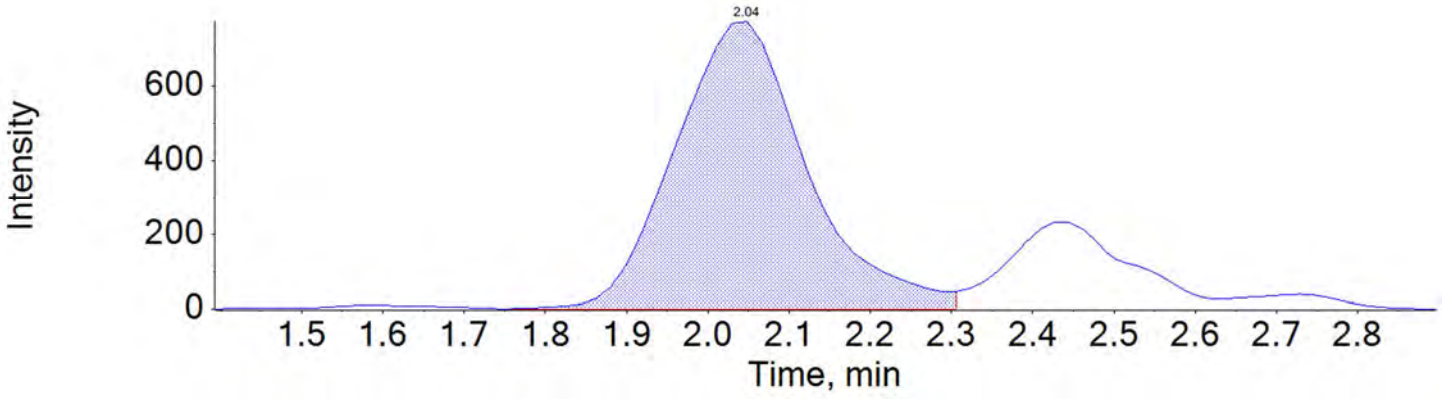
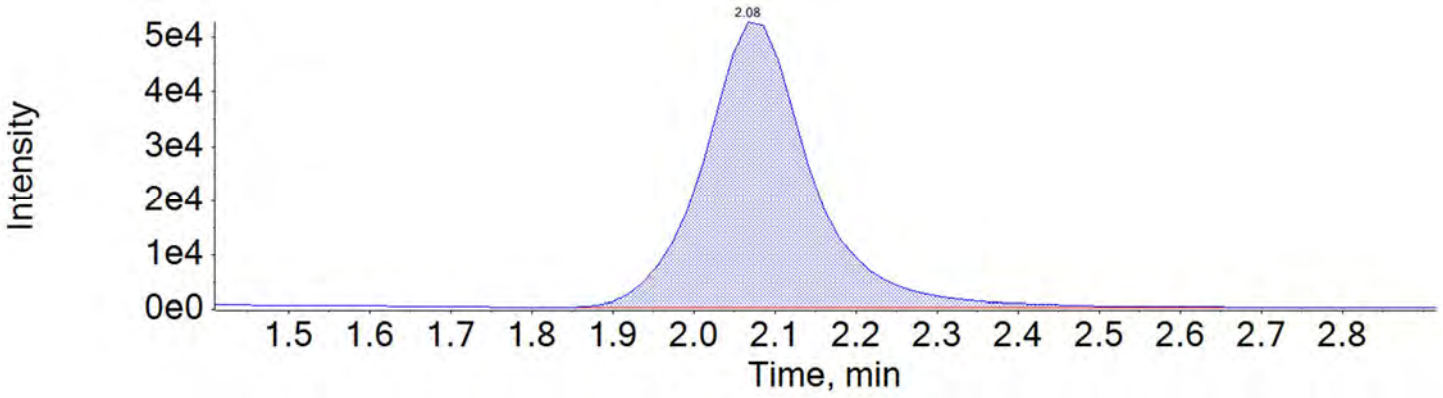
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



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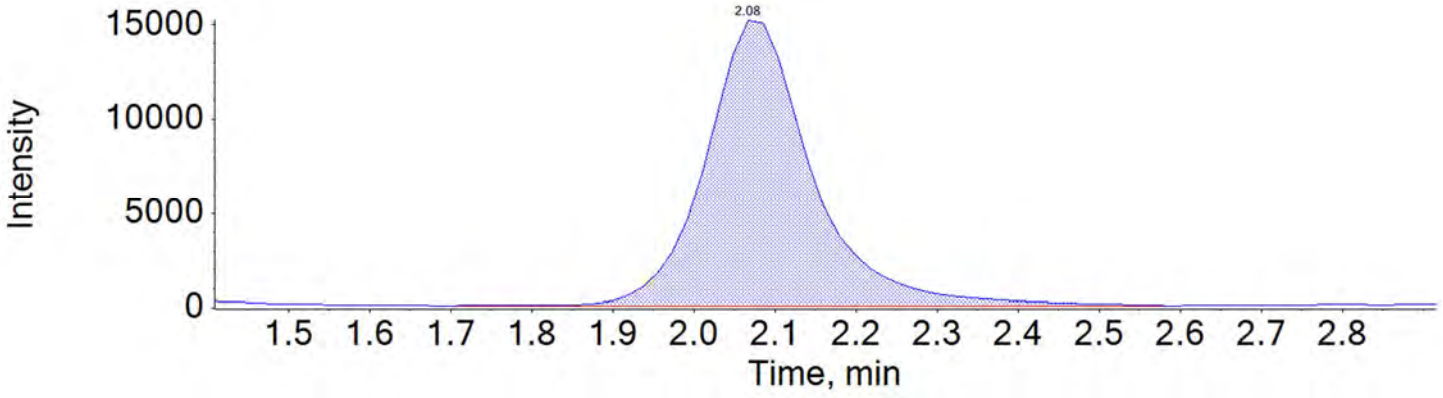

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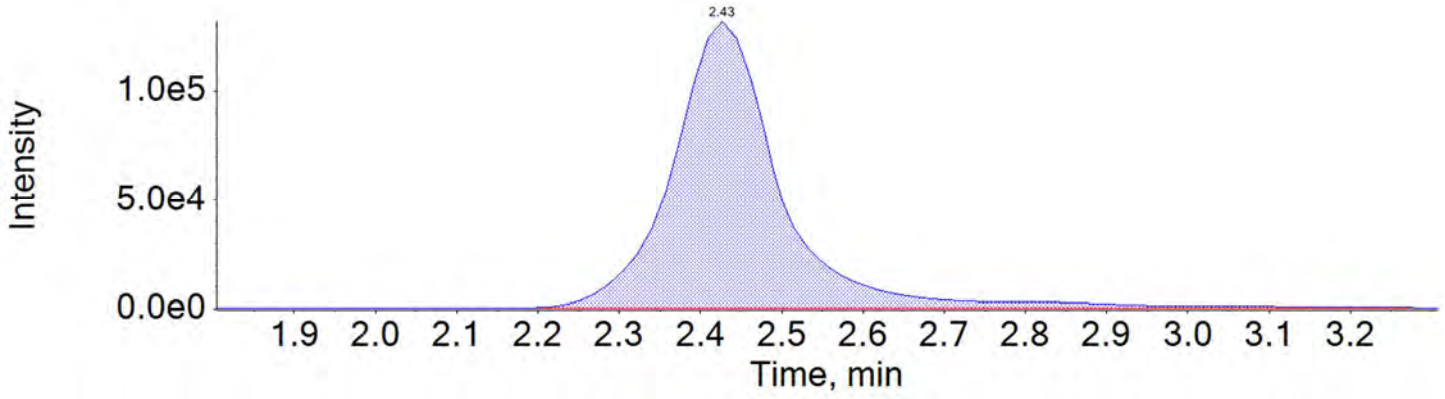

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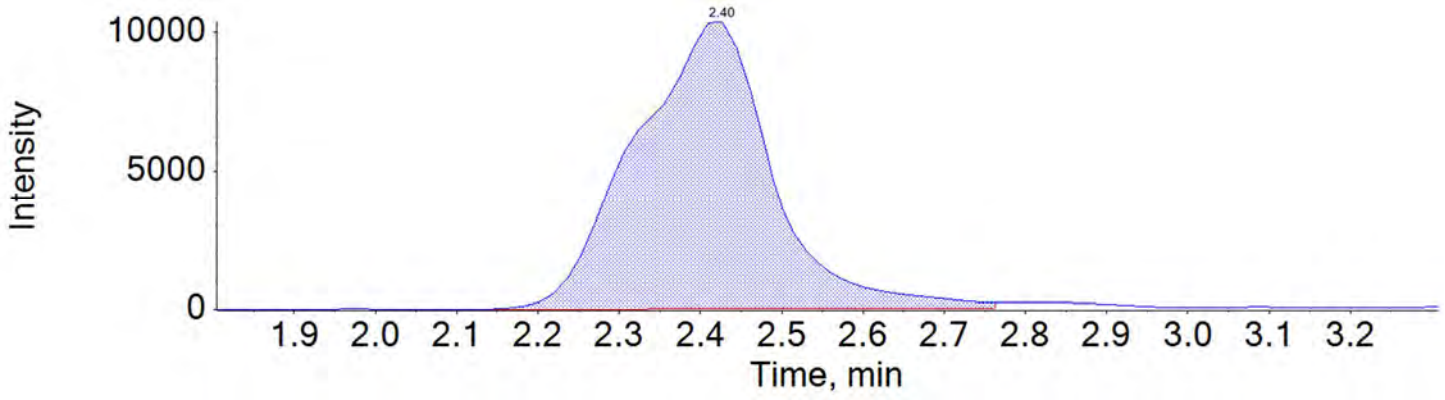

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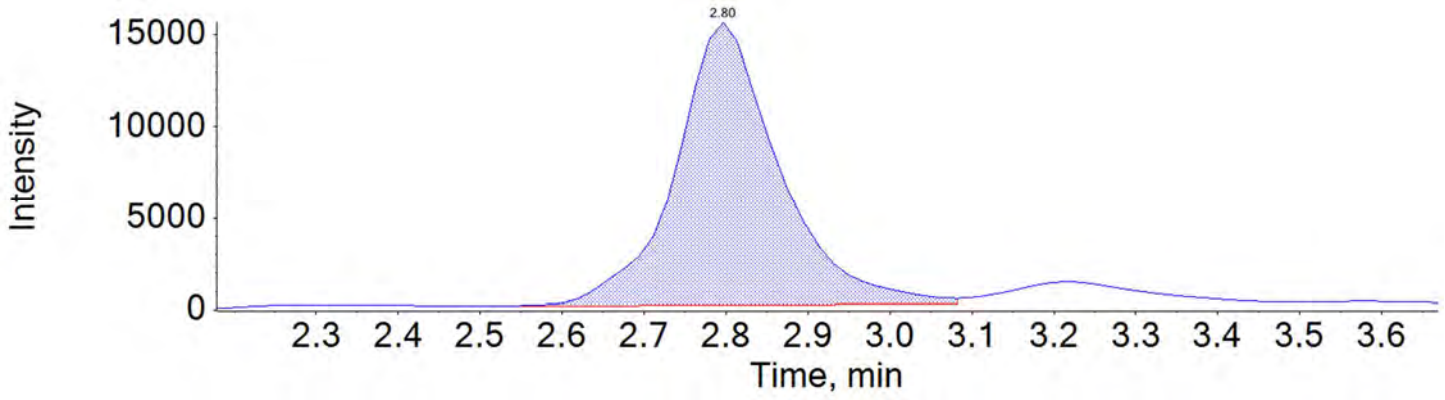

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Chromatogram Report

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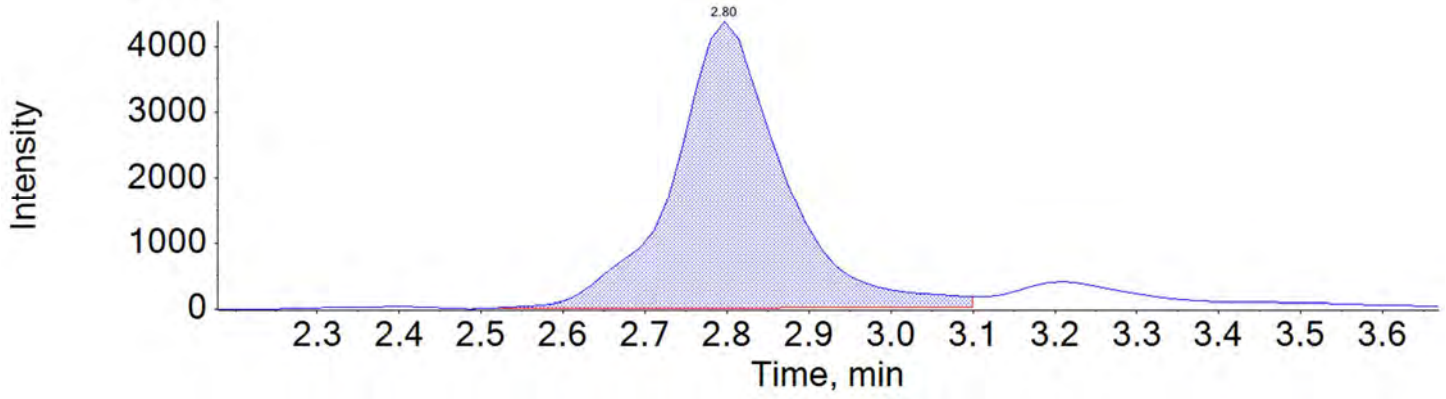
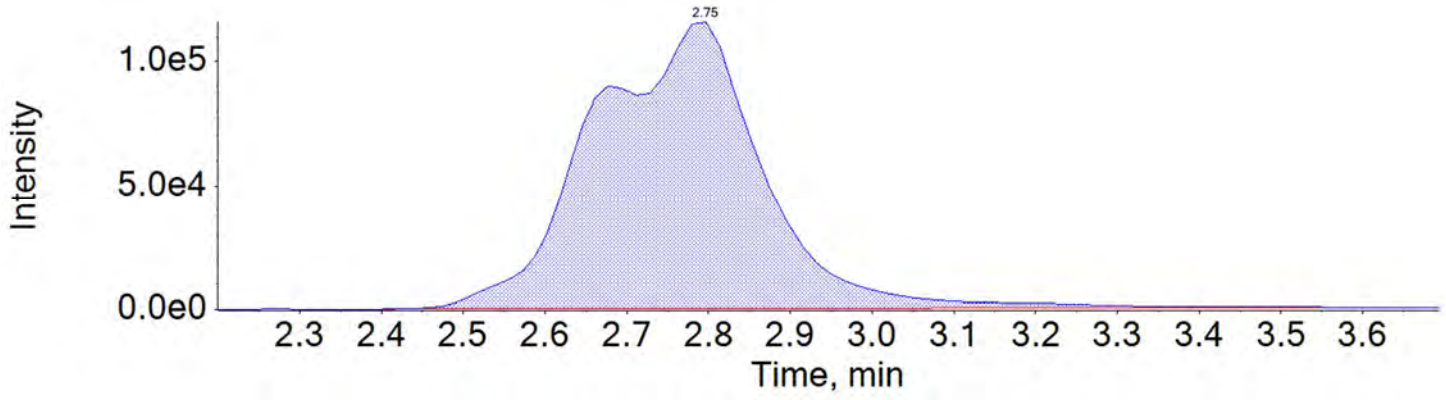
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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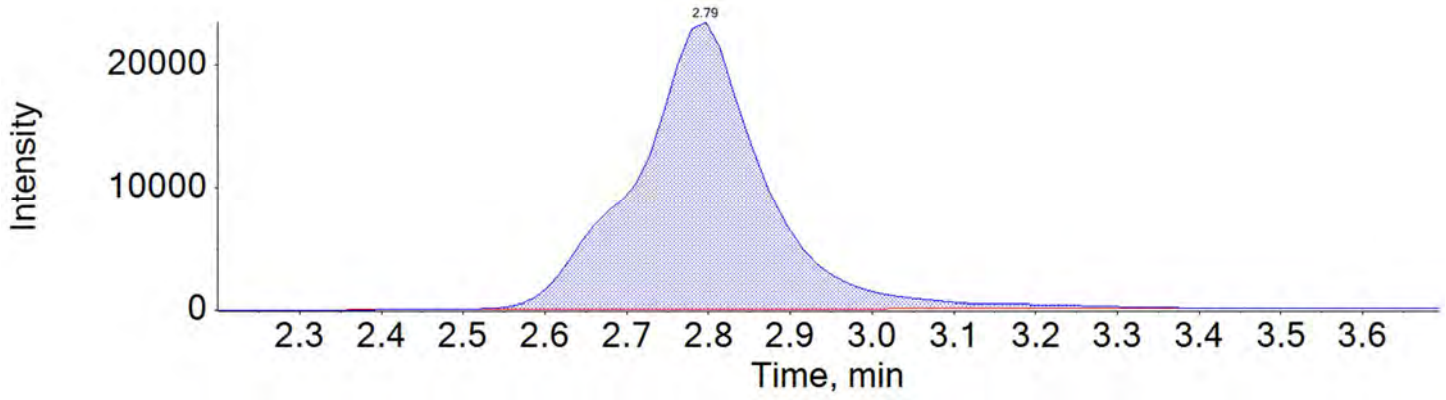

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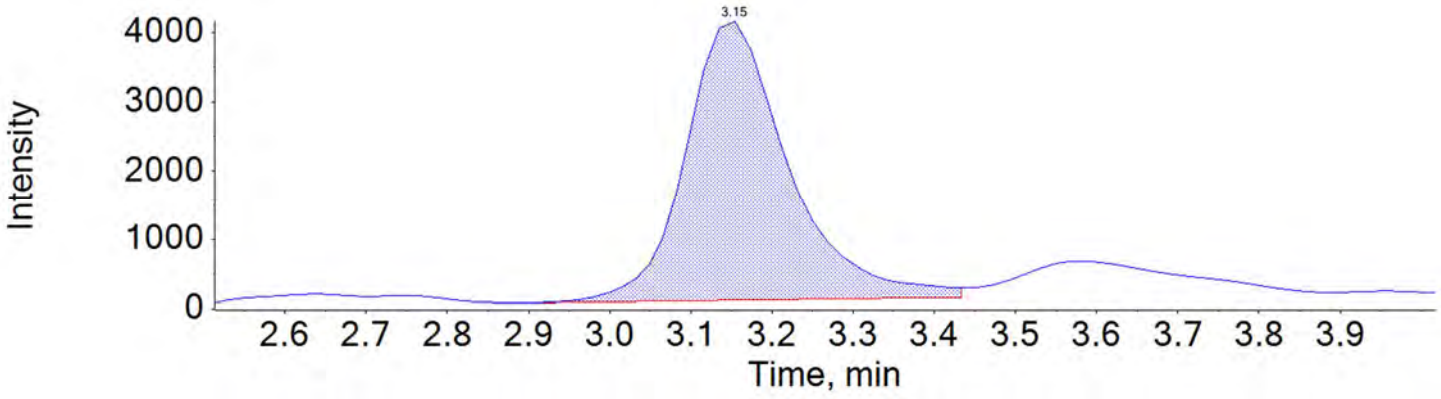
PFDA_1 513.0 / 469.0



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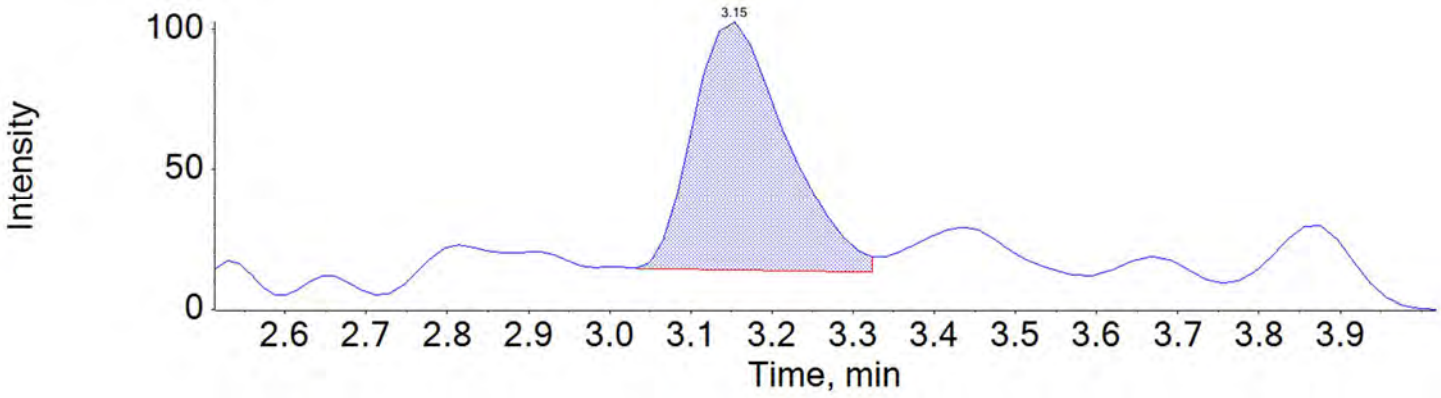
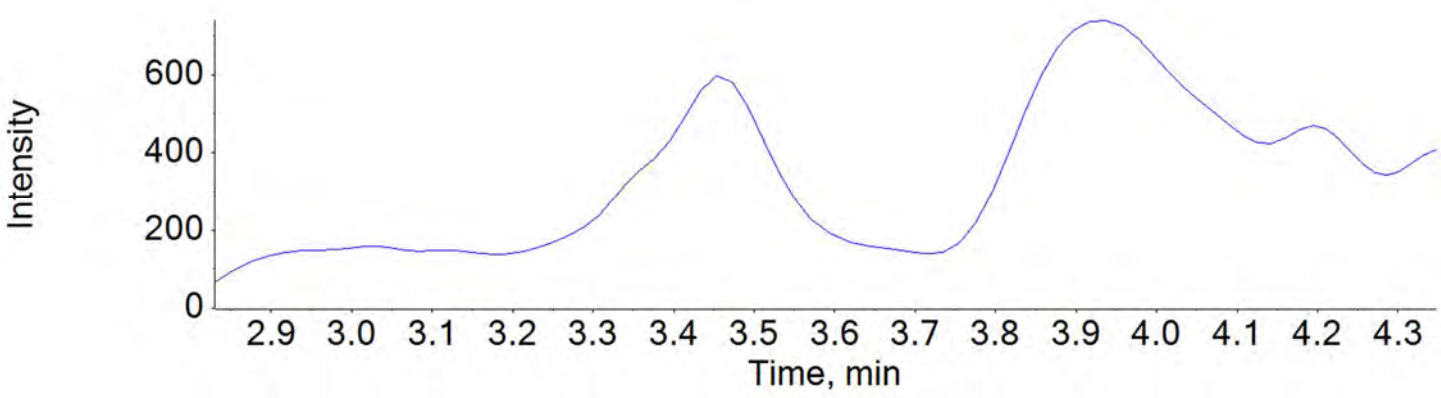


PFUnA_1 563.0 / 519.0



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Chromatogram Report

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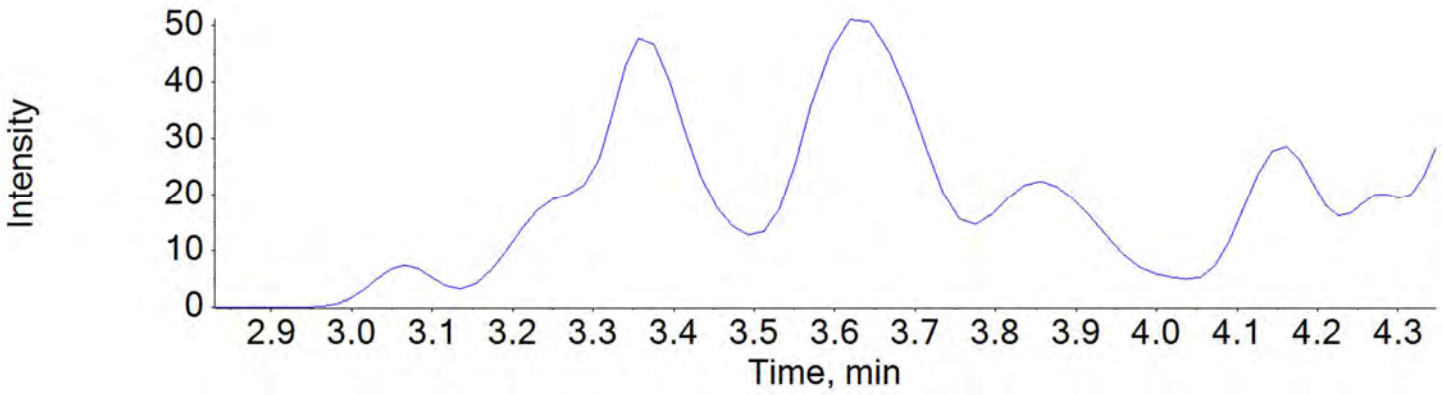
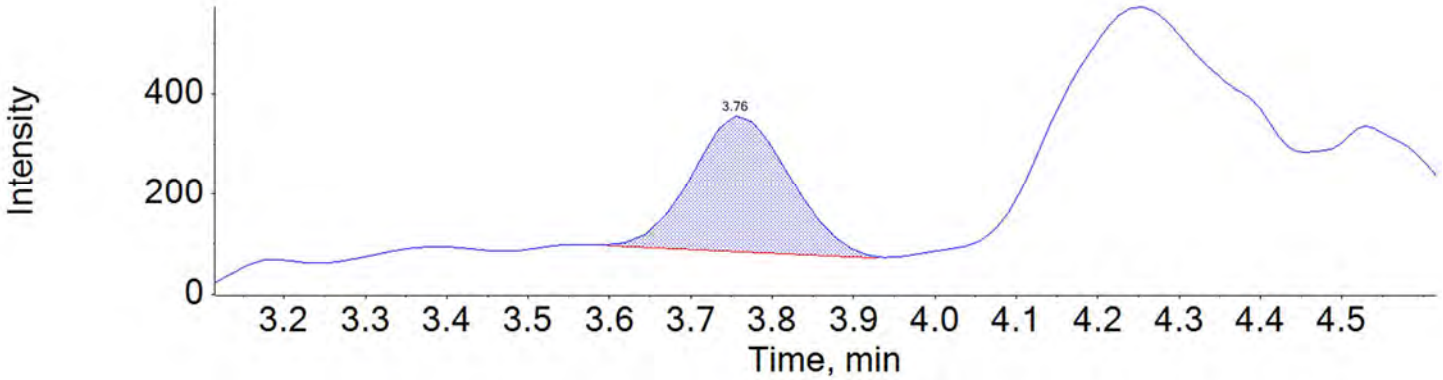
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



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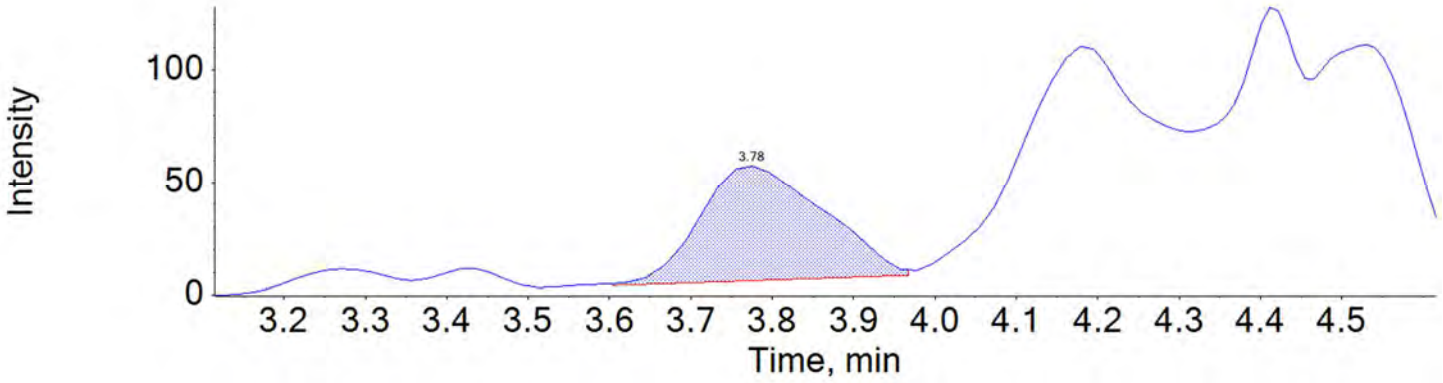

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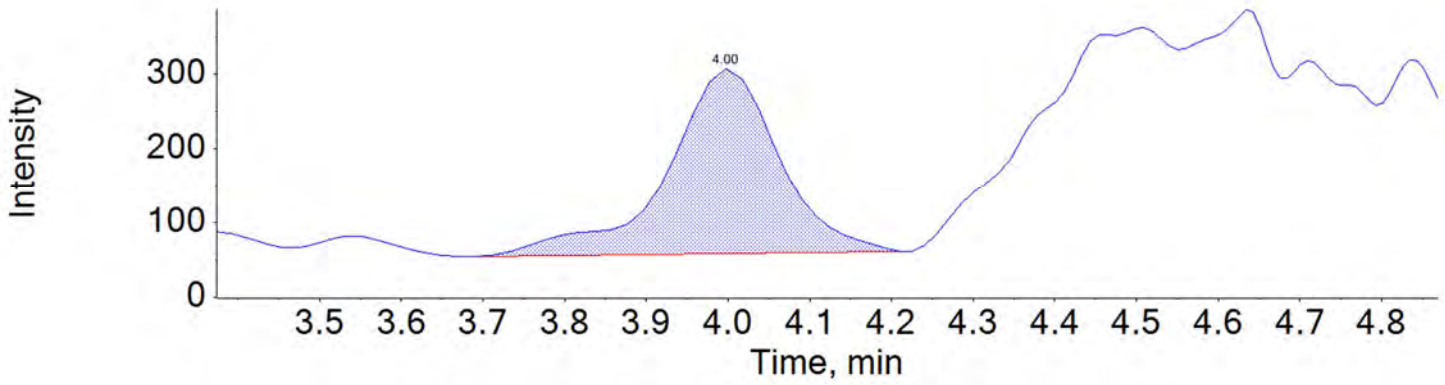
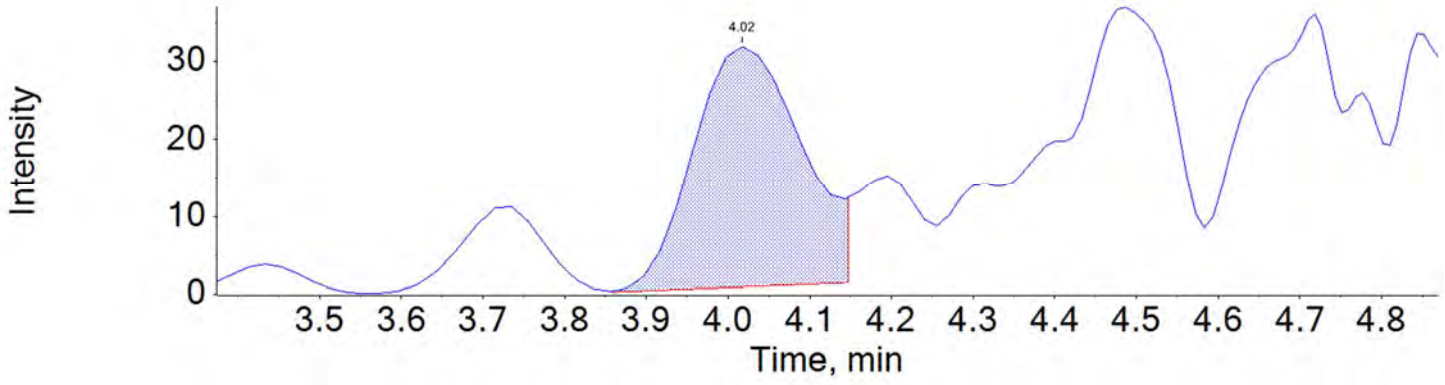
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



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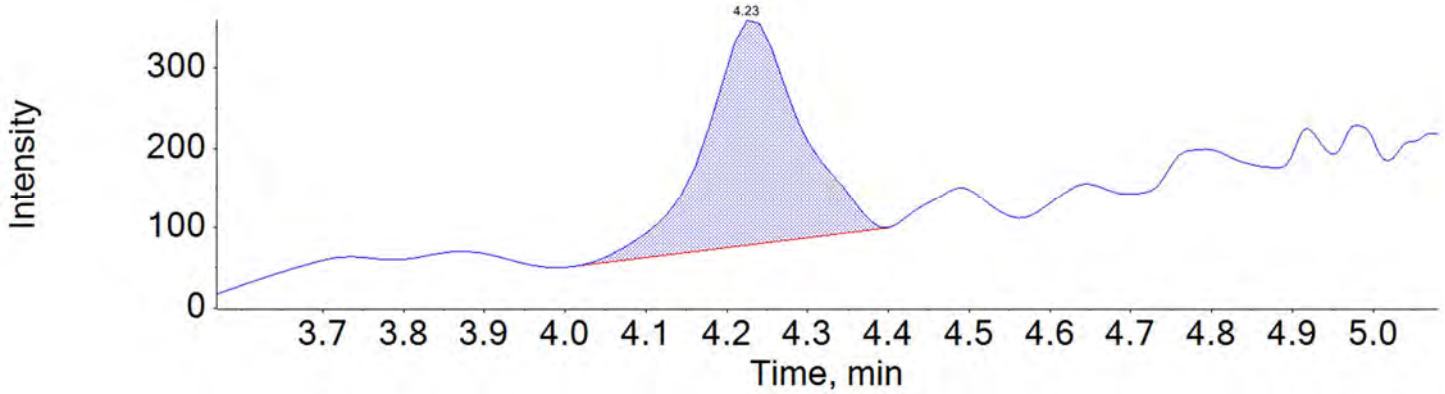

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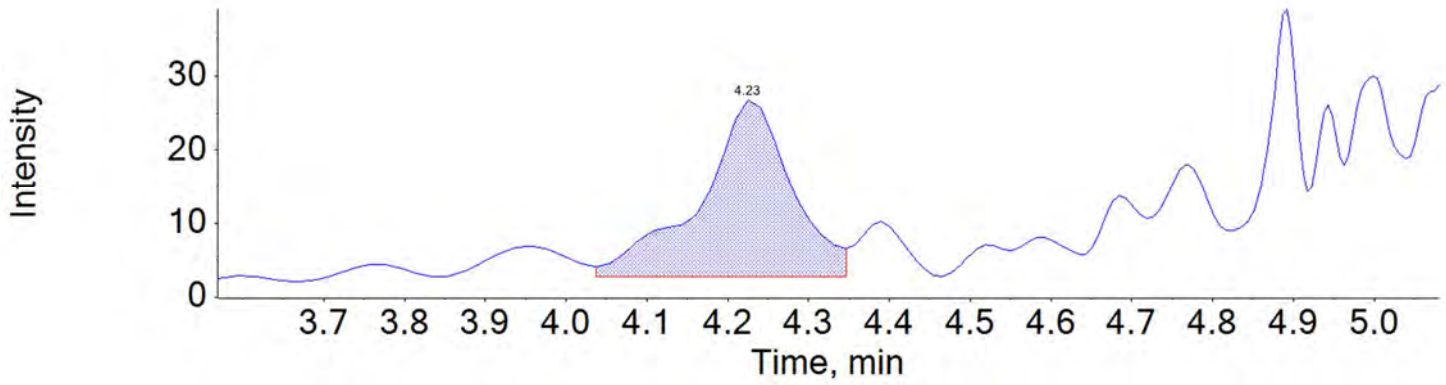
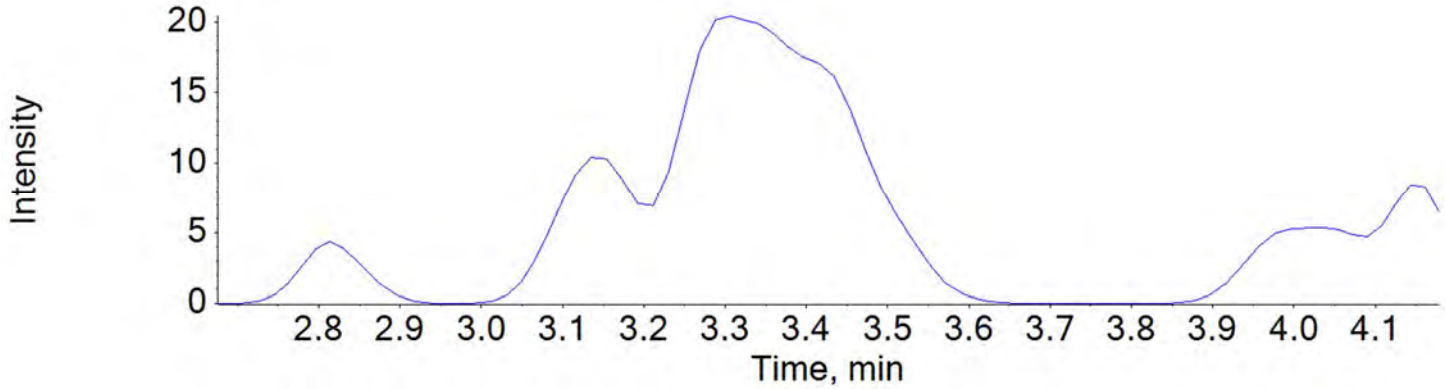
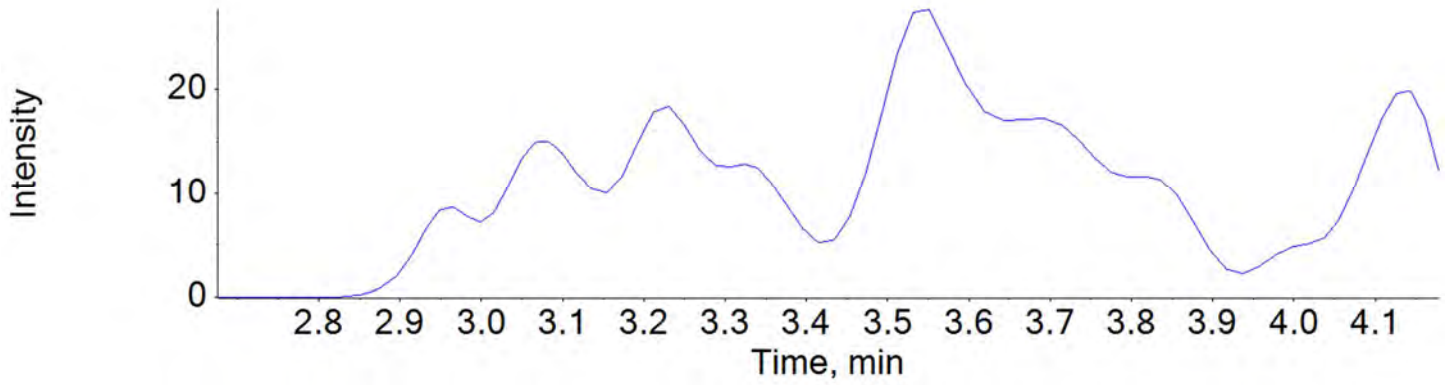


NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

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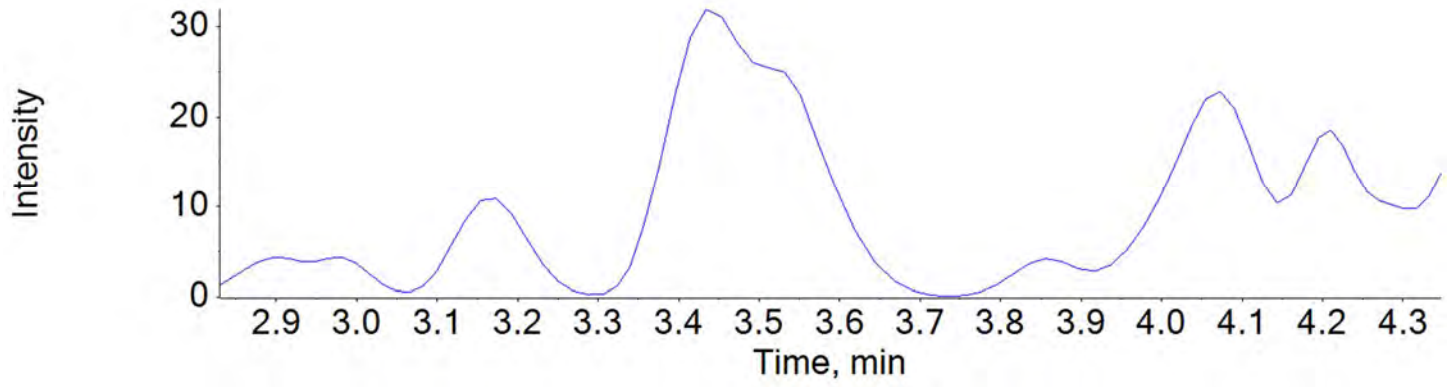
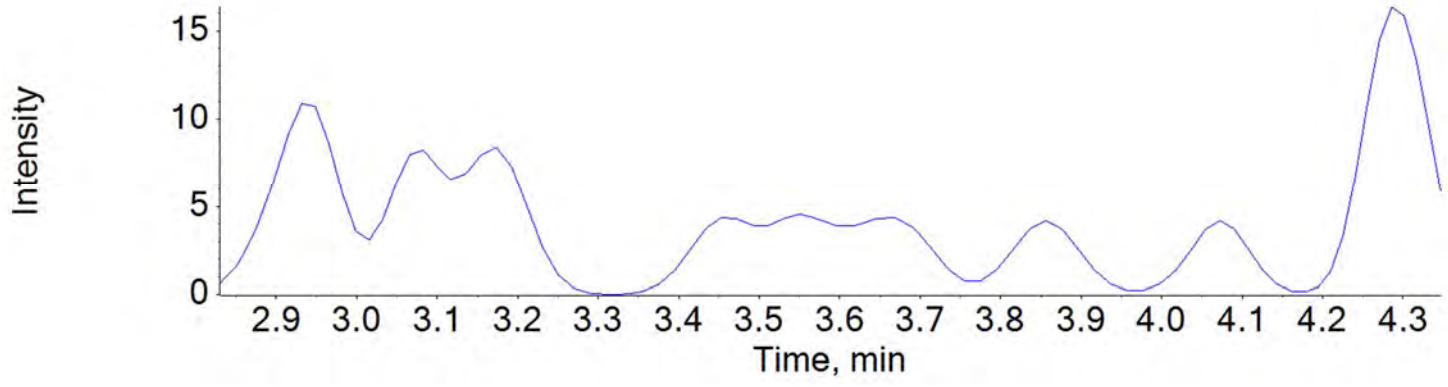
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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Chromatogram Report

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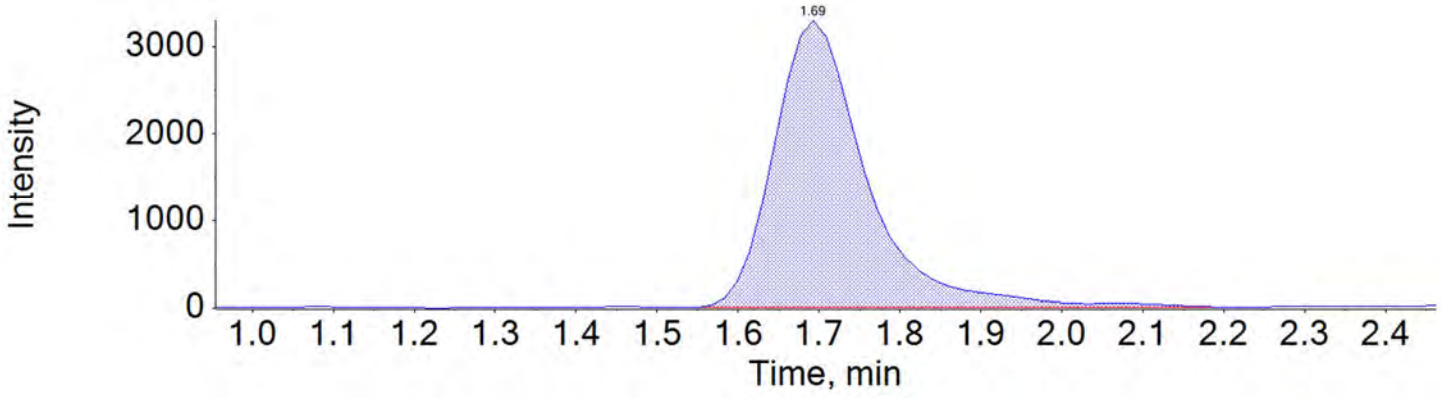
Sample Name	J6204-FS(0)	**Injection Vial**	14
Sample ID	NAWC-051018-RW-303	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:16:38	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



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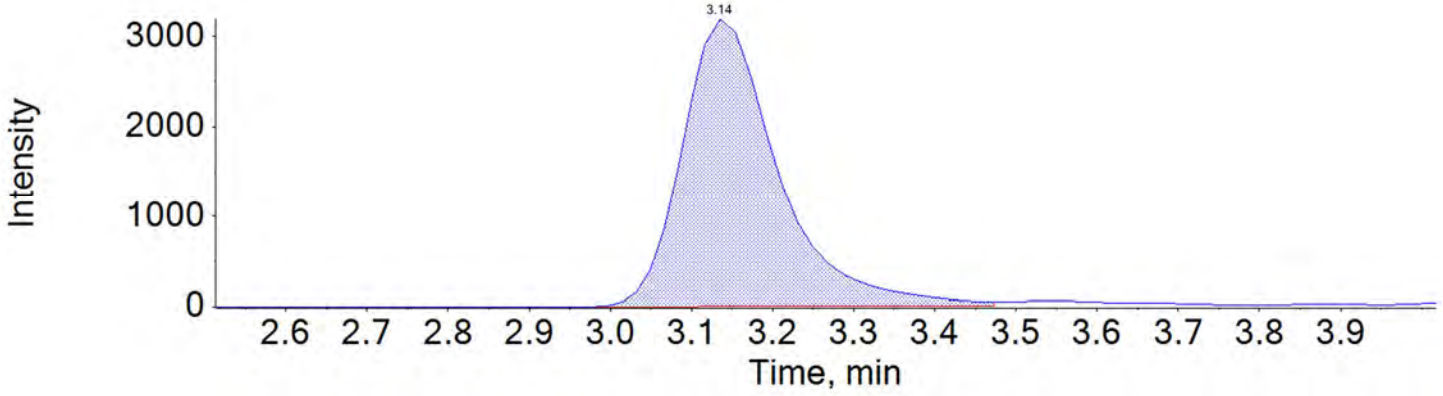

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Chromatogram Report

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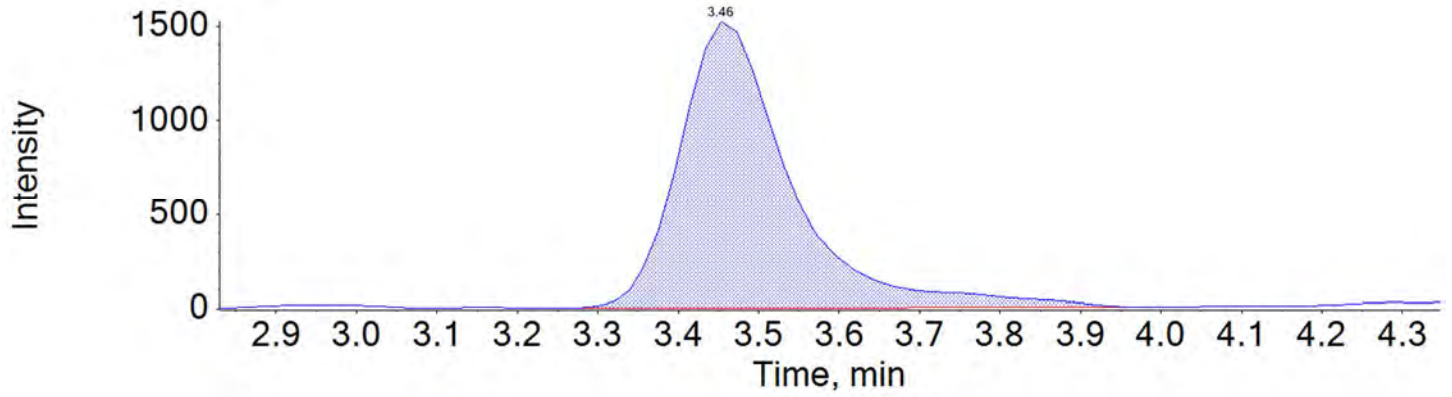
d5-EtFOSAA 589.0 / 419.0



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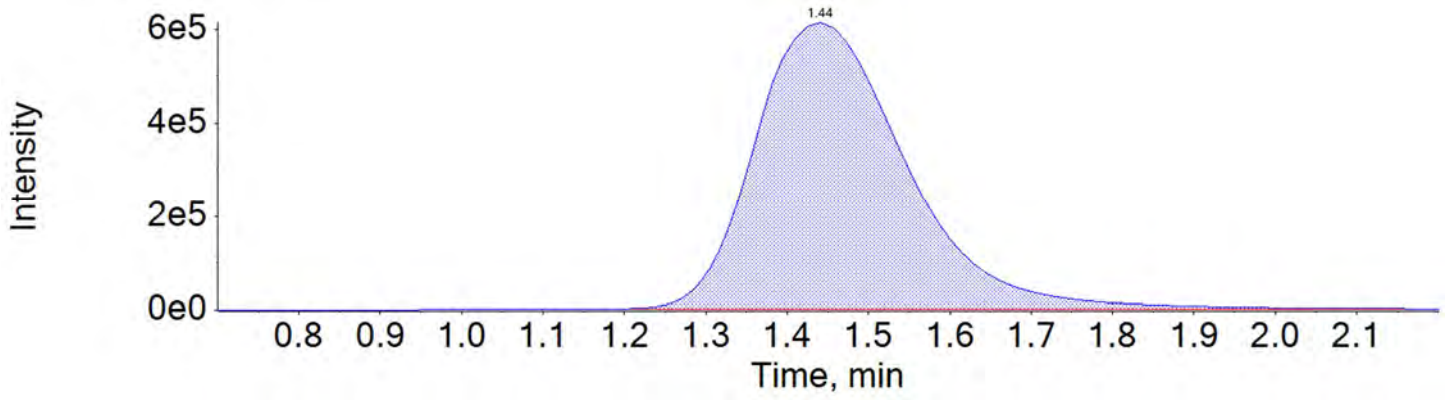
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:07:35 PM

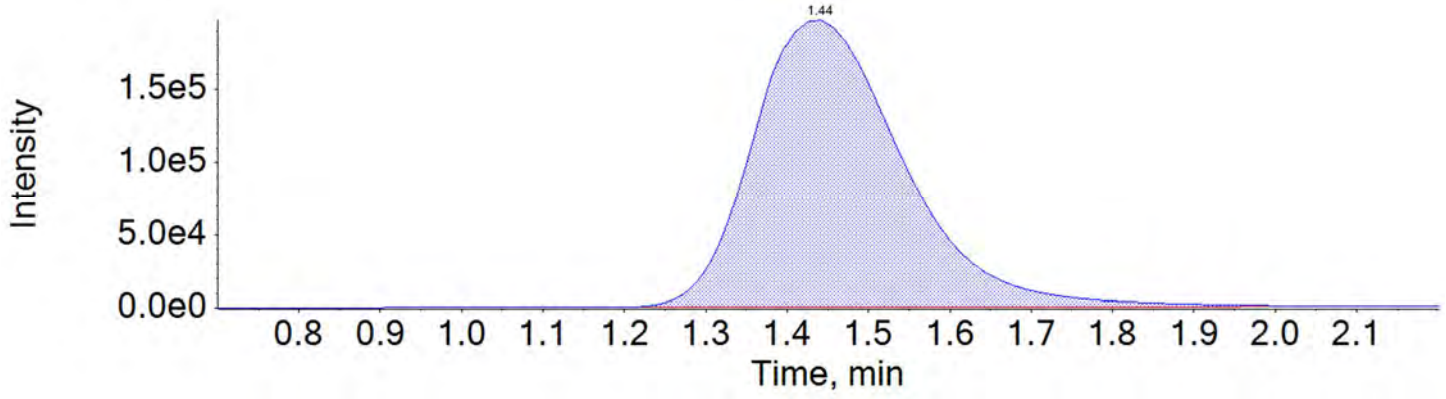
Sample Name	J6206-FS(0)	**Injection Vial**	15
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:25:33	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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Chromatogram Report

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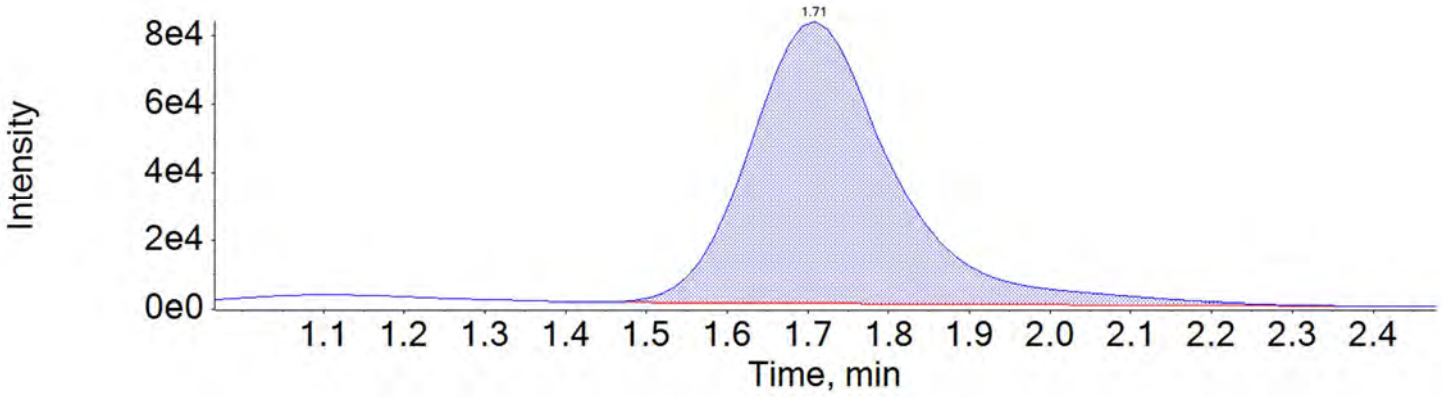
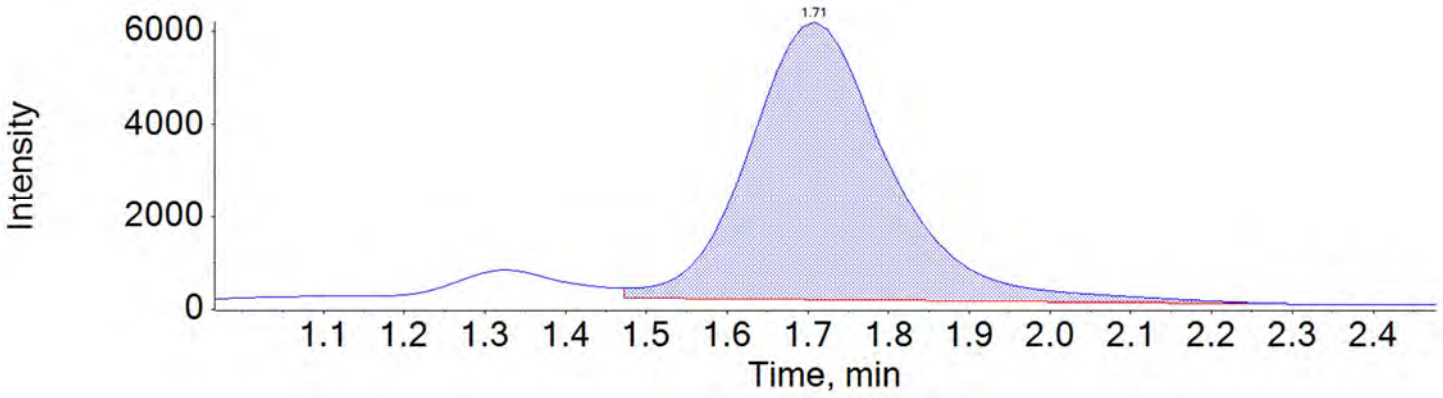
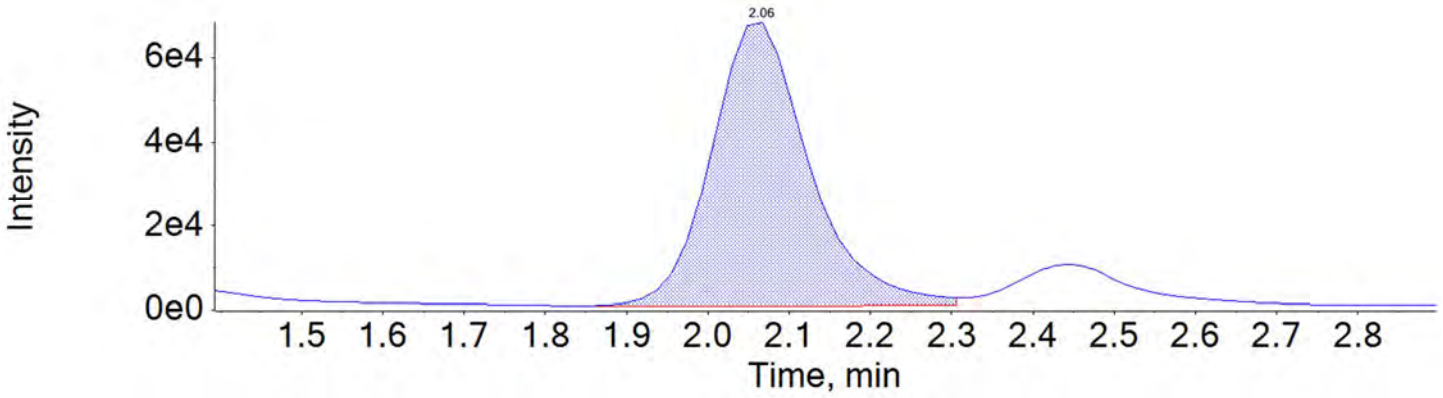
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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Chromatogram Report

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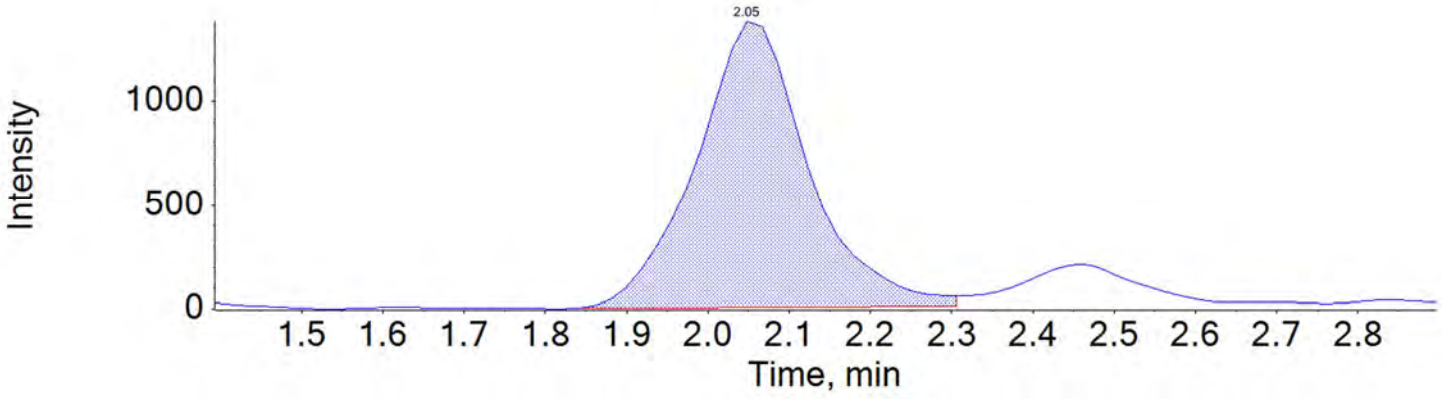
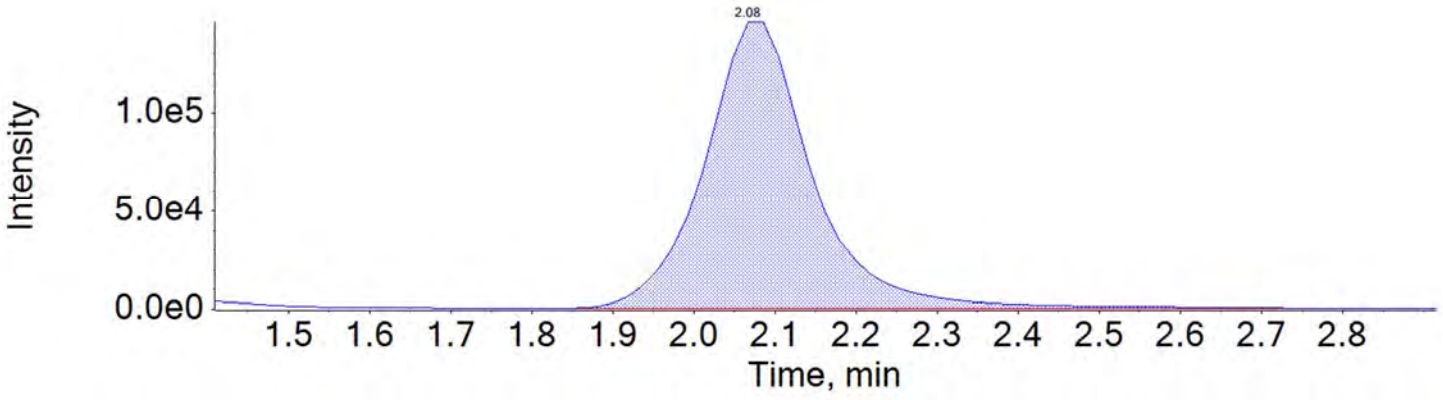
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



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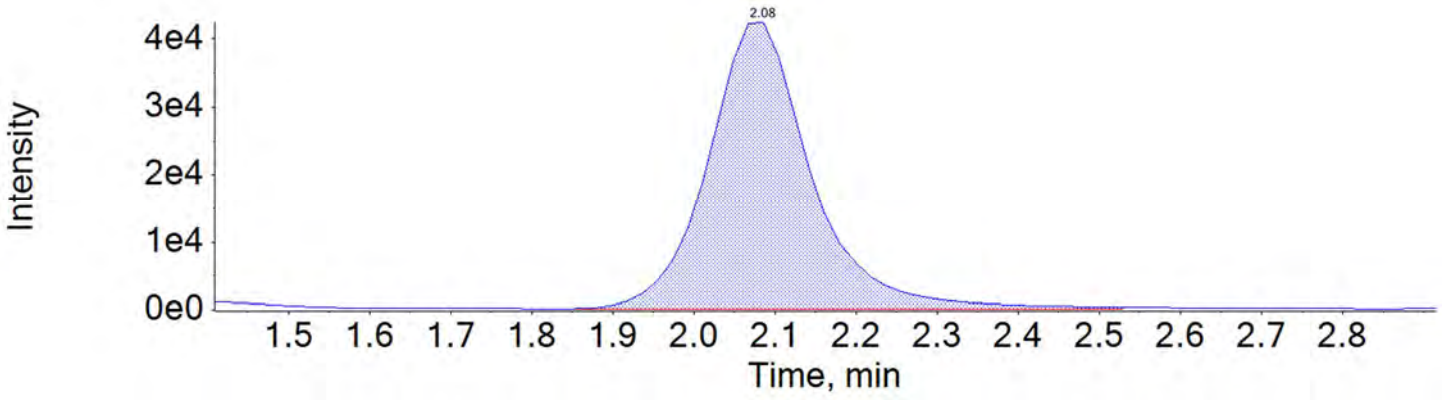

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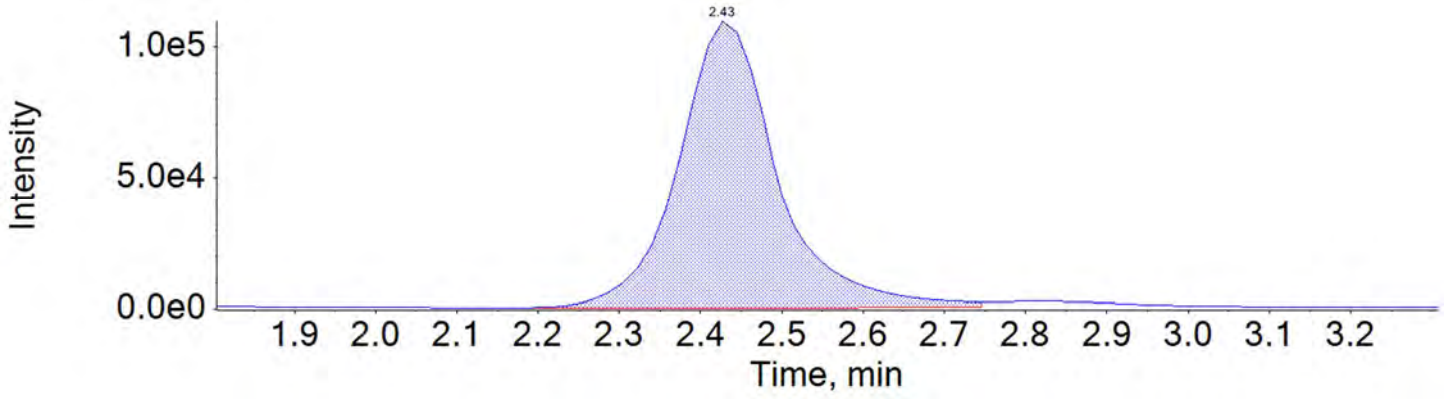
PFOA_1 413.0 / 369.0



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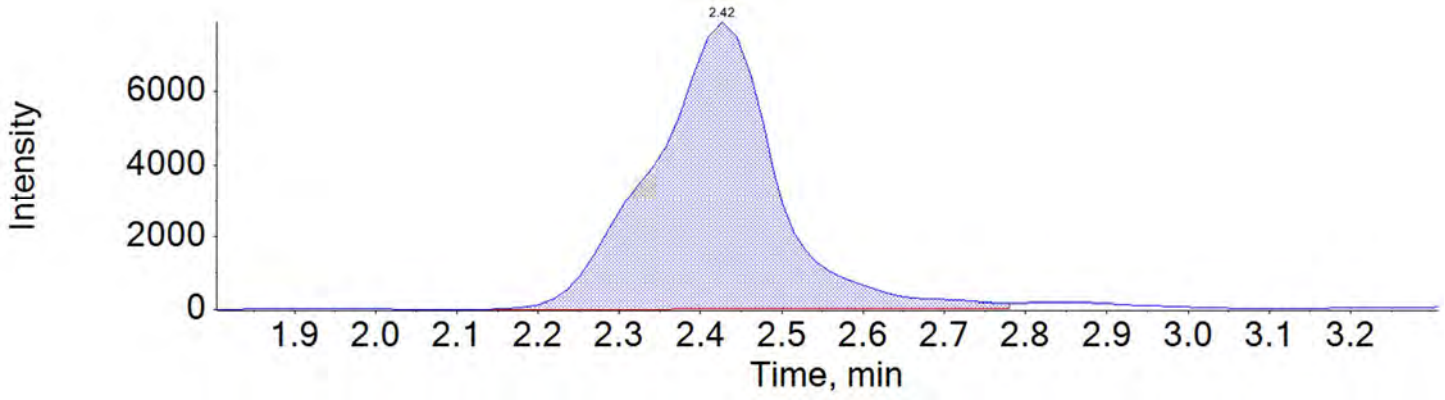

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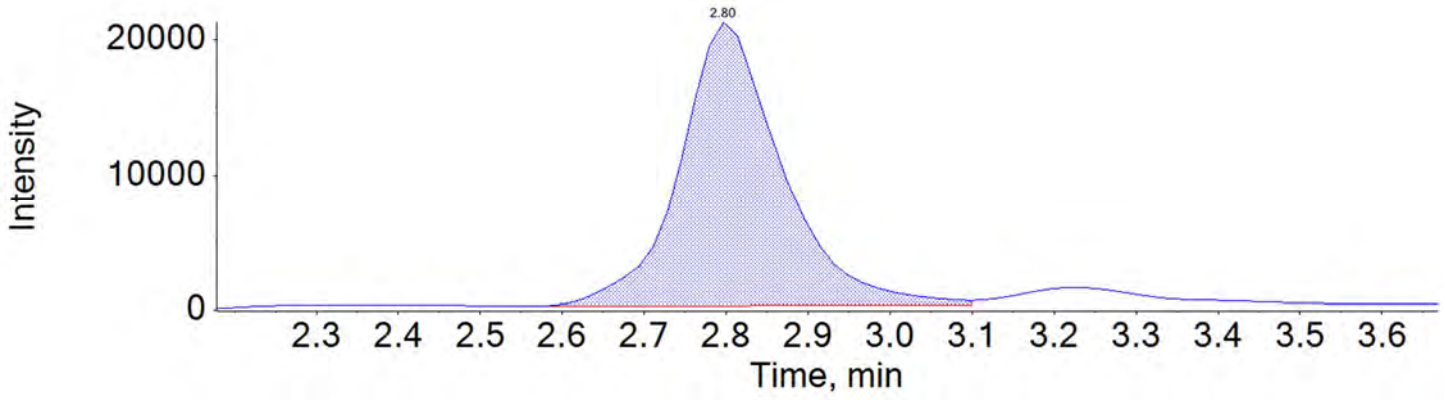

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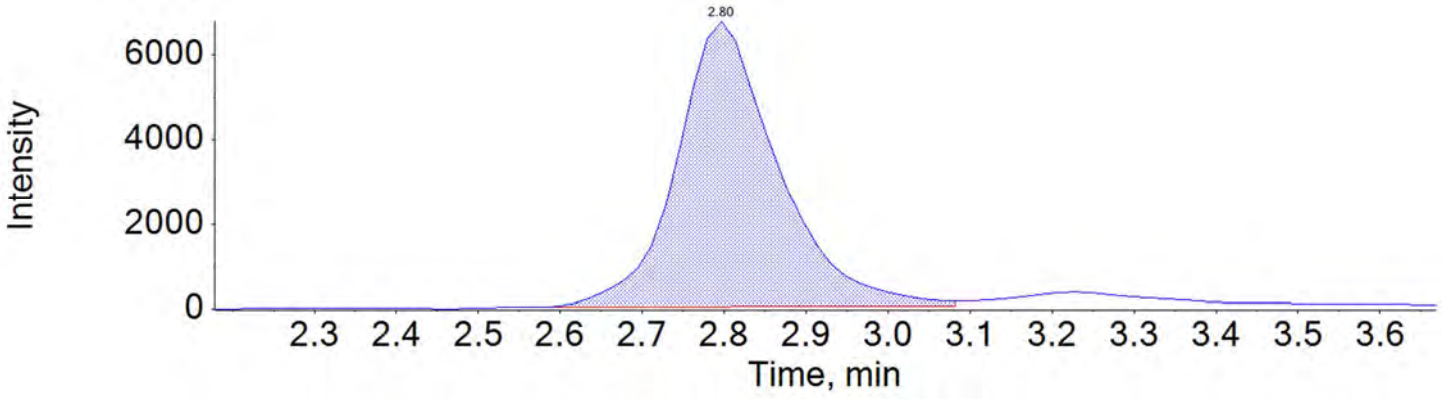
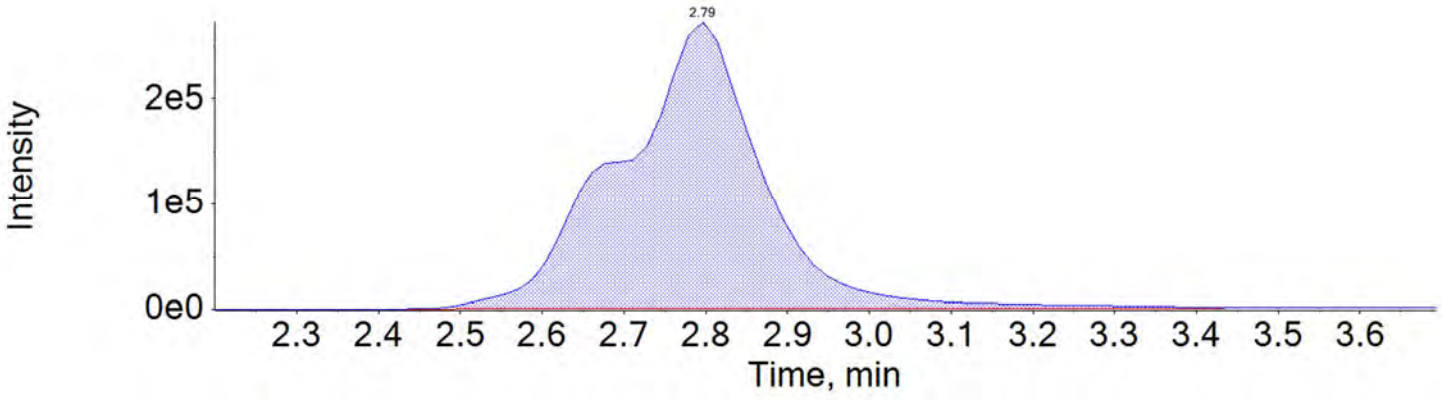


PFOS_1 499.0 / 80.0



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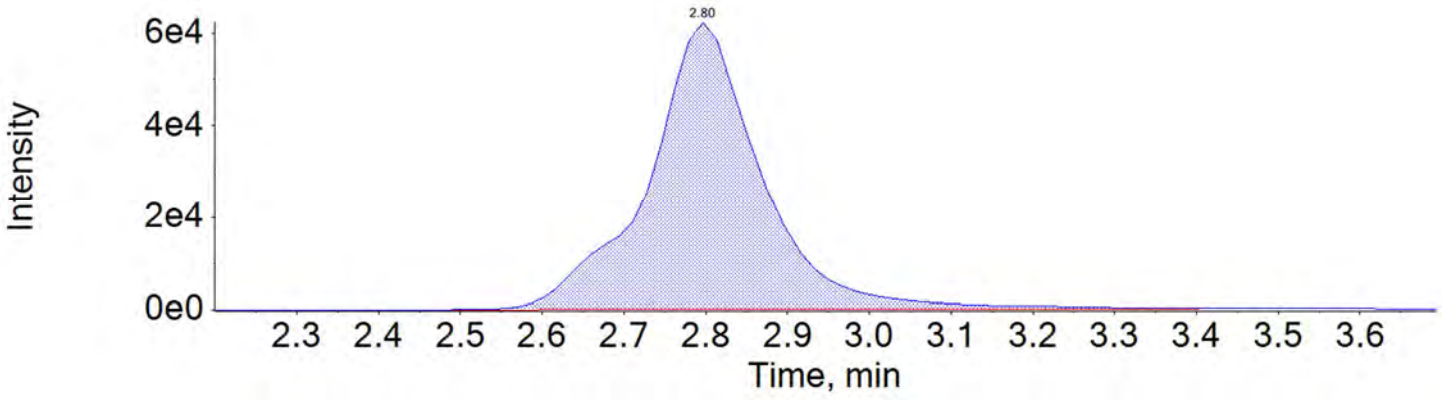

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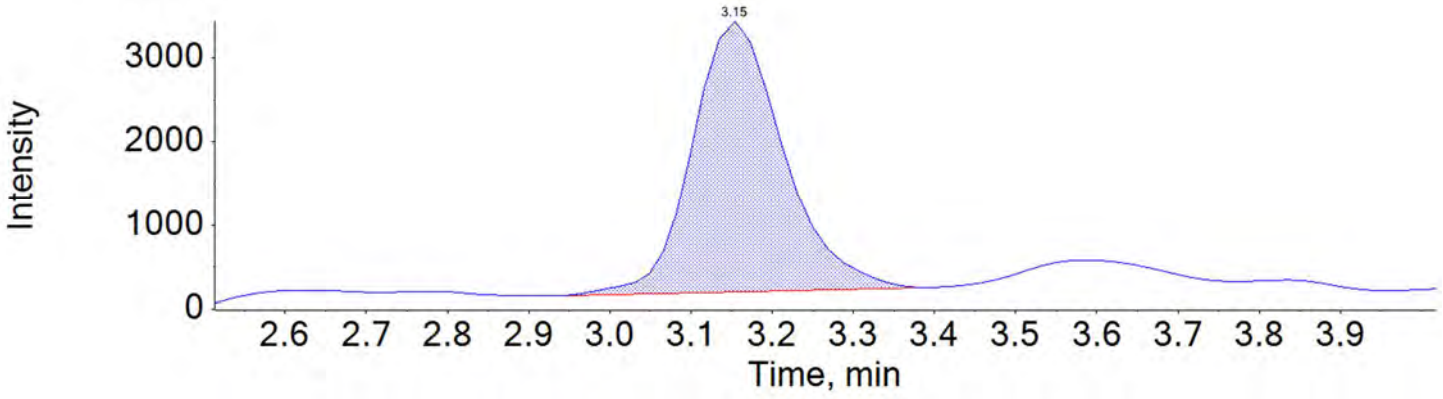

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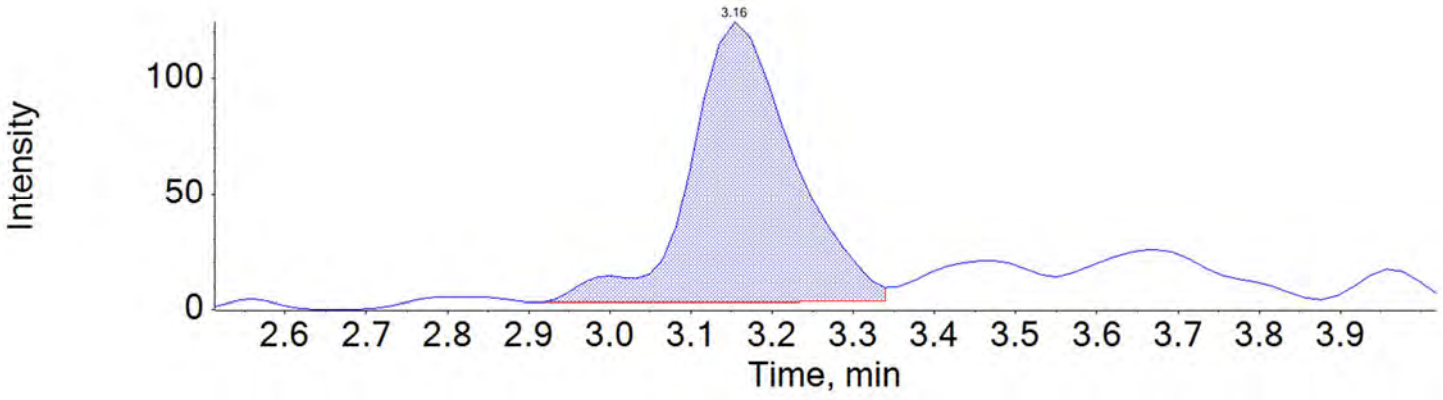

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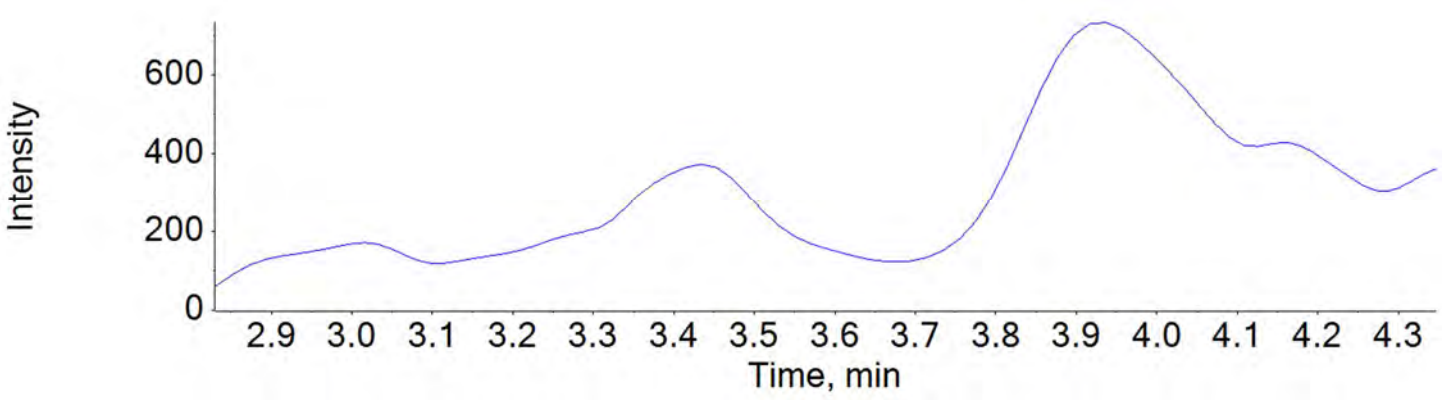

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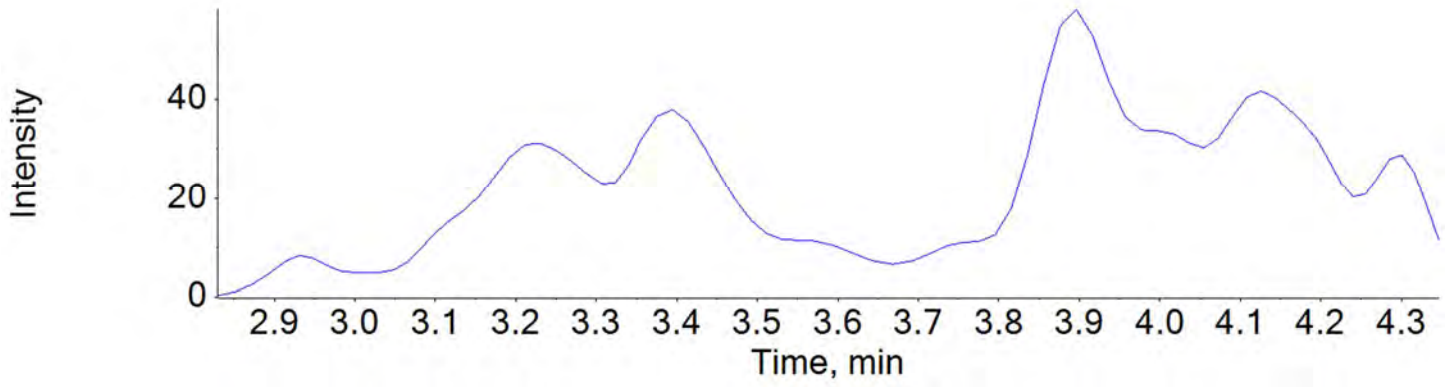
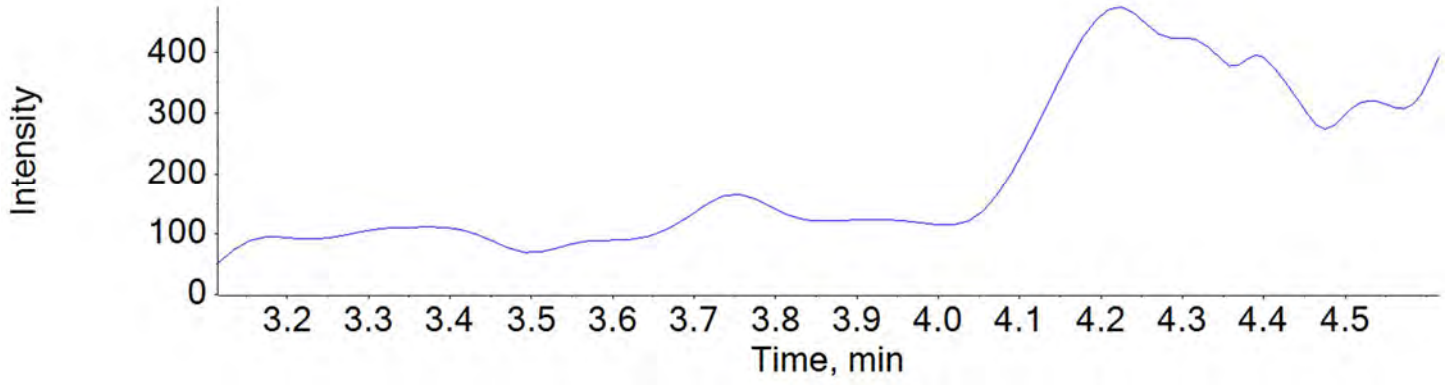


PFDoA_1 613.0 / 569.0



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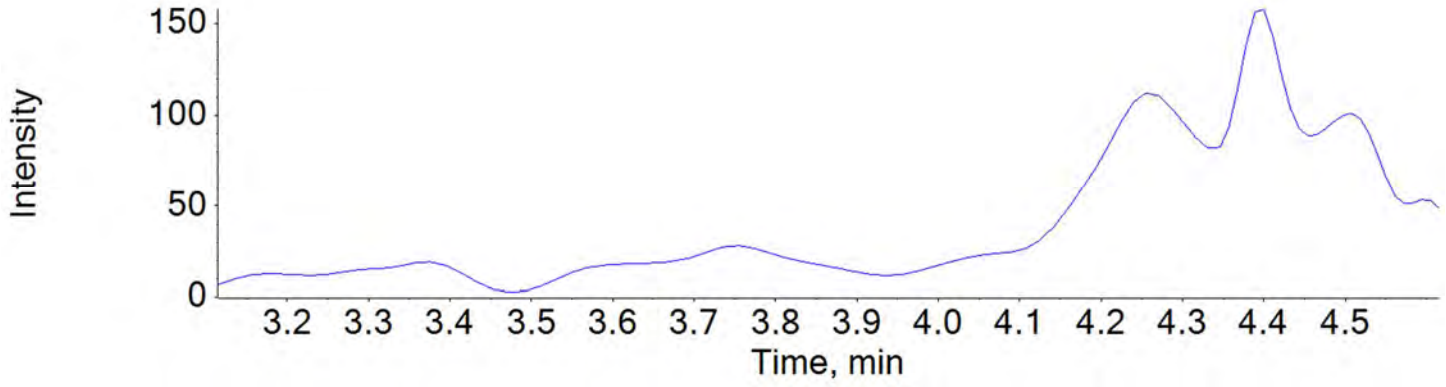

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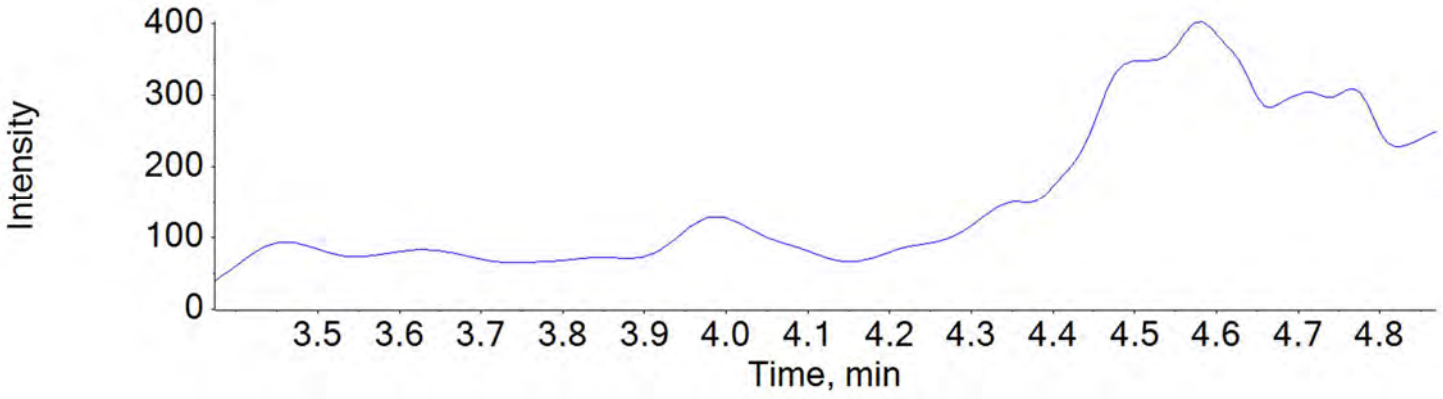

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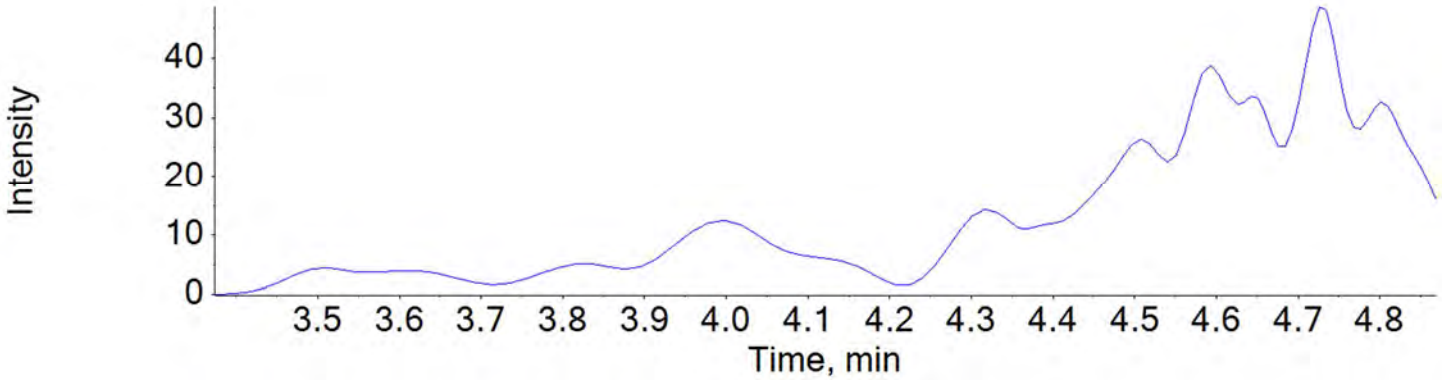
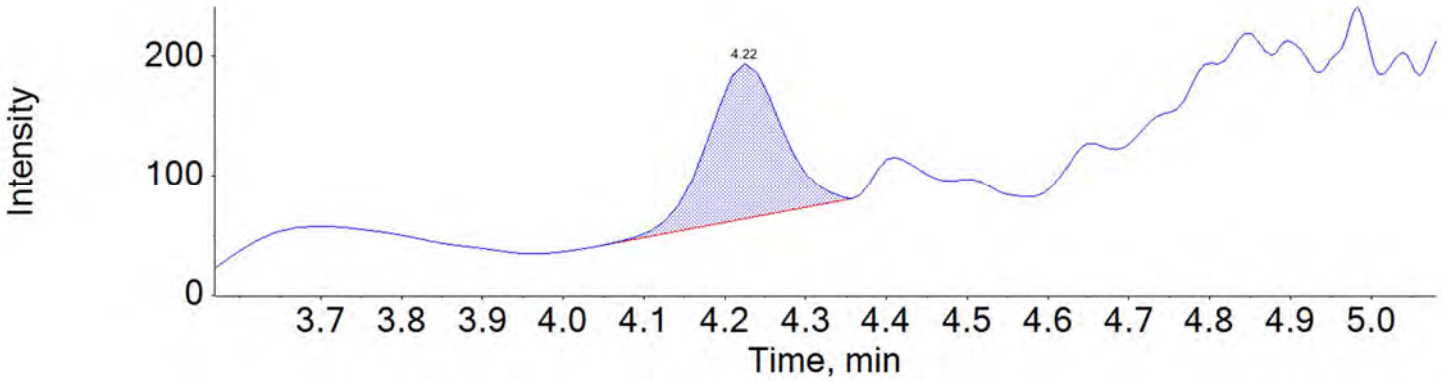


PFTeDA_1 713.0 / 669.0



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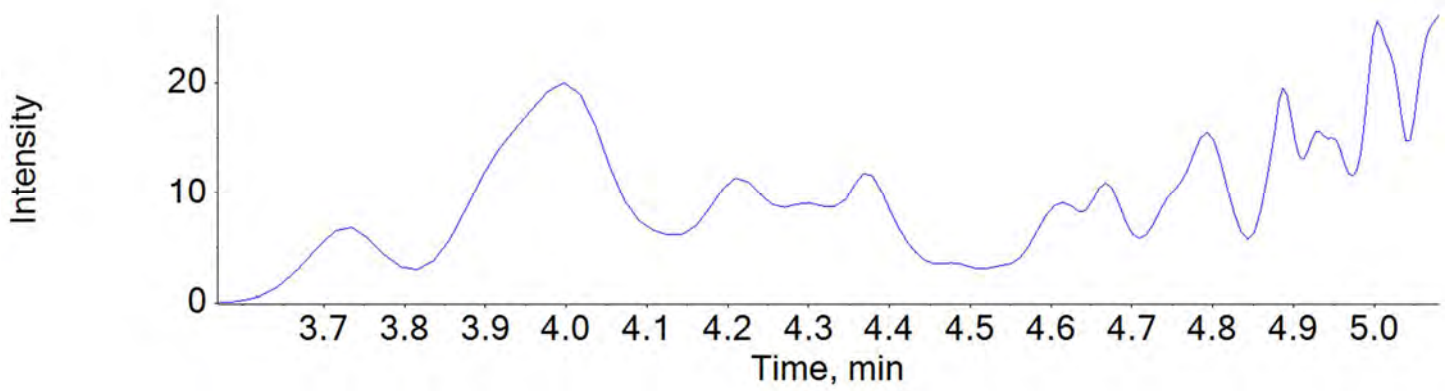

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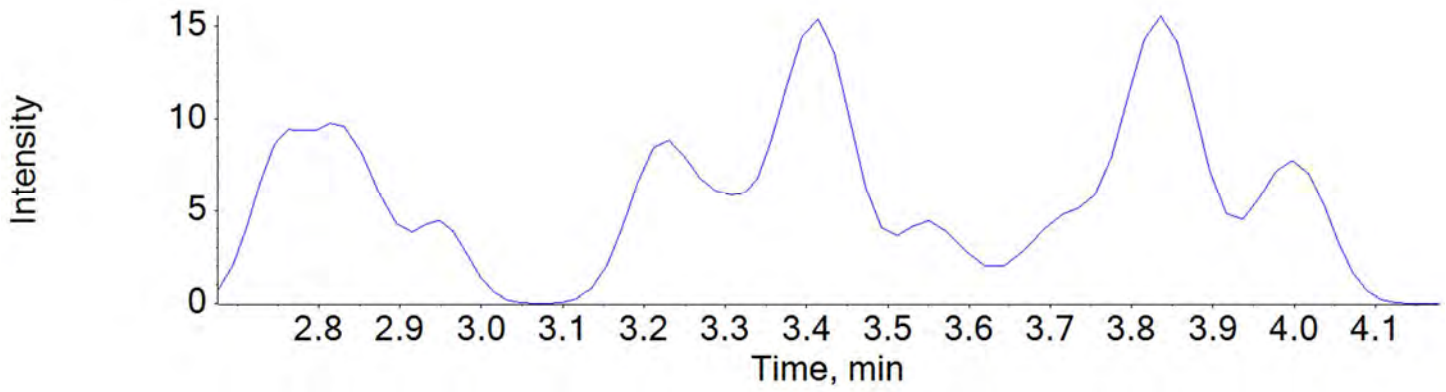

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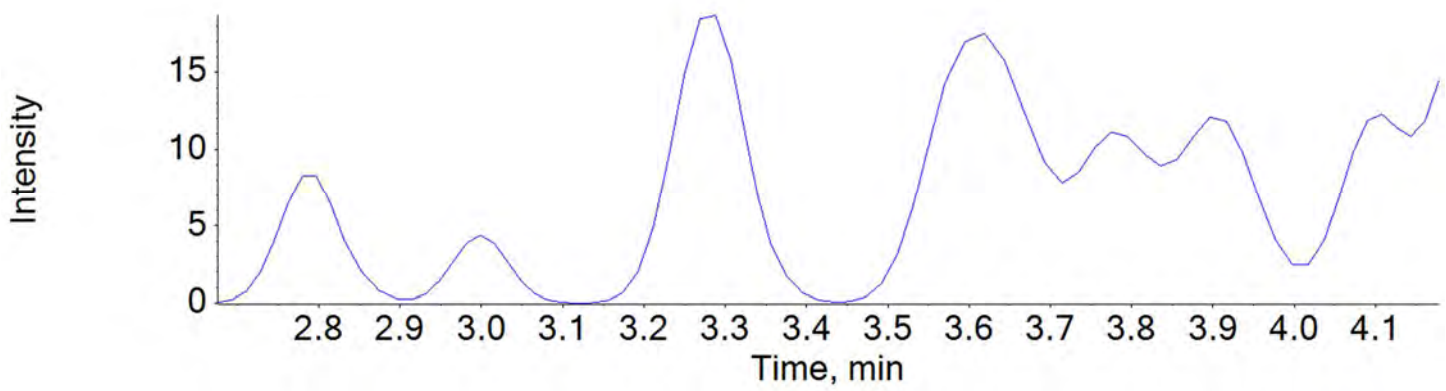

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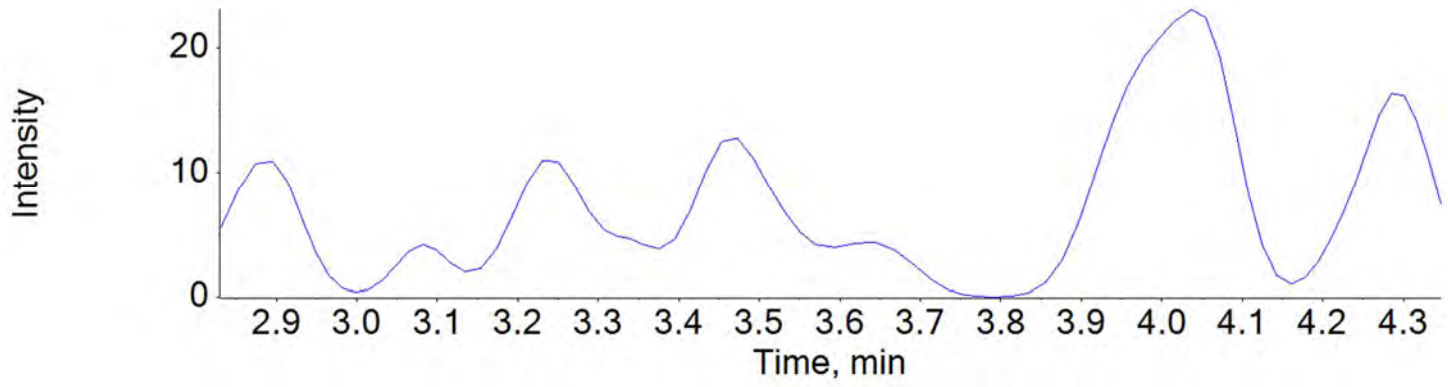

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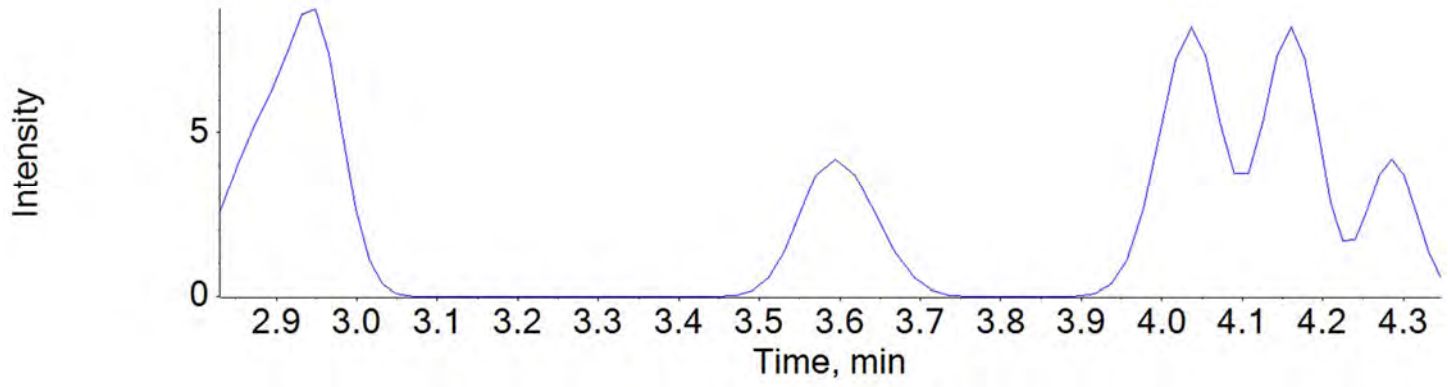

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Chromatogram Report

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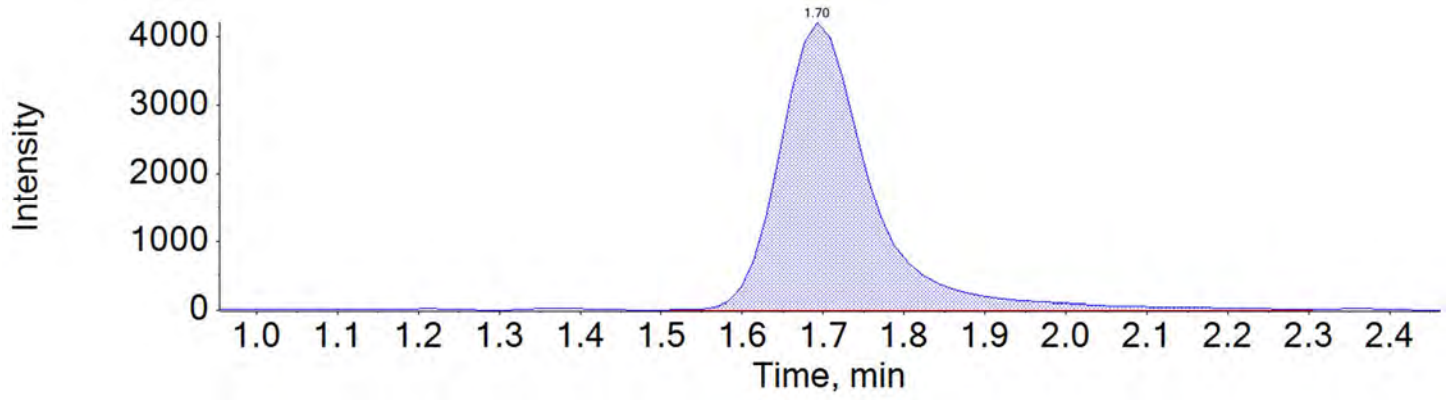
Sample Name	J6206-FS(0)	**Injection Vial**	15
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:25:33	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



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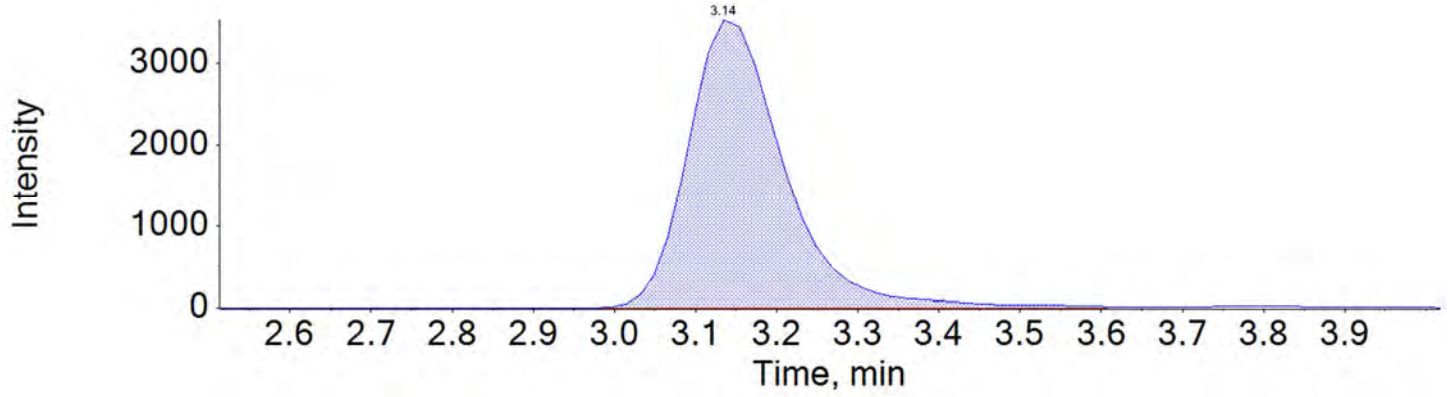

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Chromatogram Report

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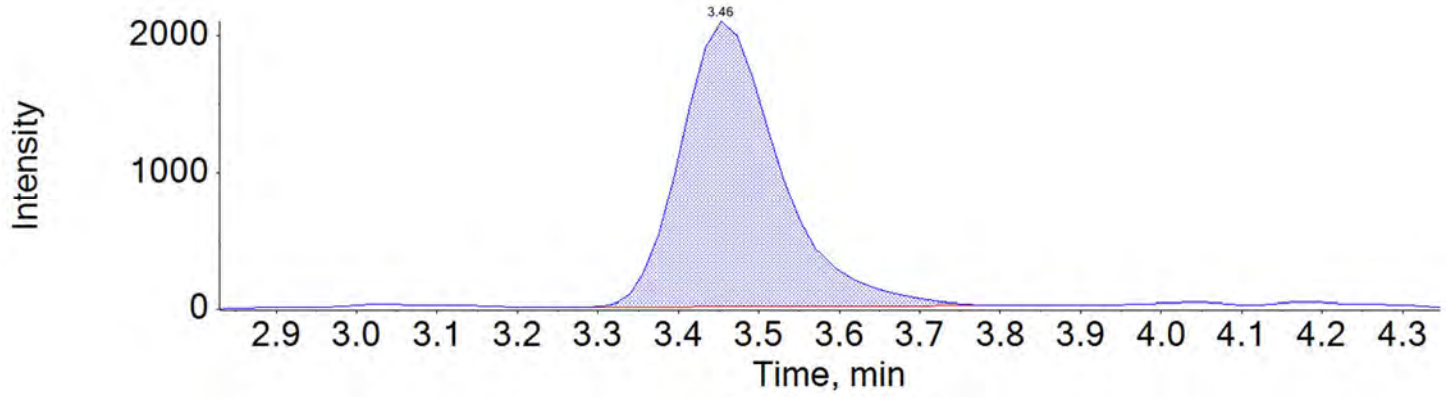
d5-EtFOSAA 589.0 / 419.0



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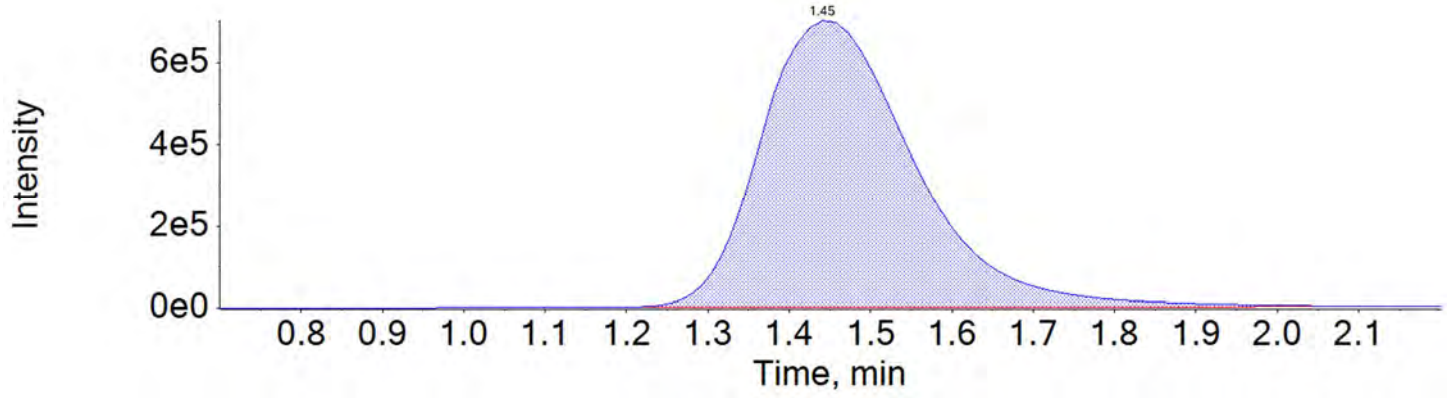
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:07:41 PM

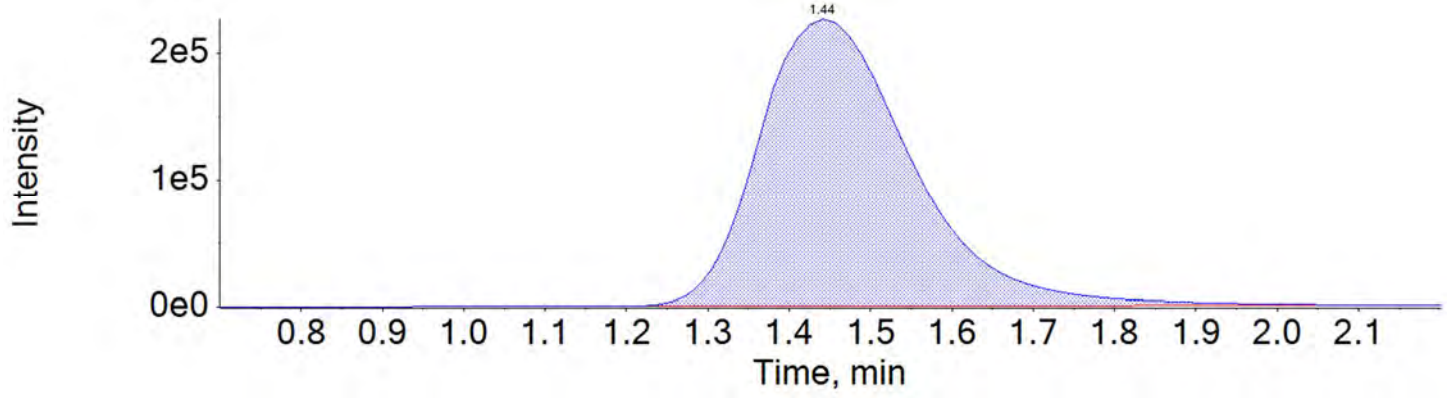
Sample Name	J6206MS-FS(0)	**Injection Vial**	16
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:34:29	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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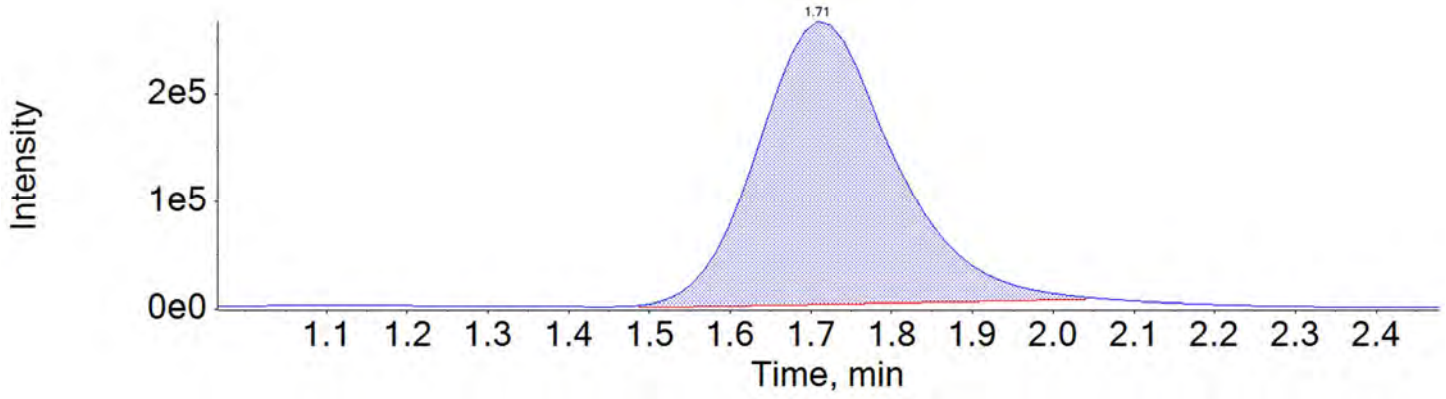
PFHxA_1 313.0 / 269.0



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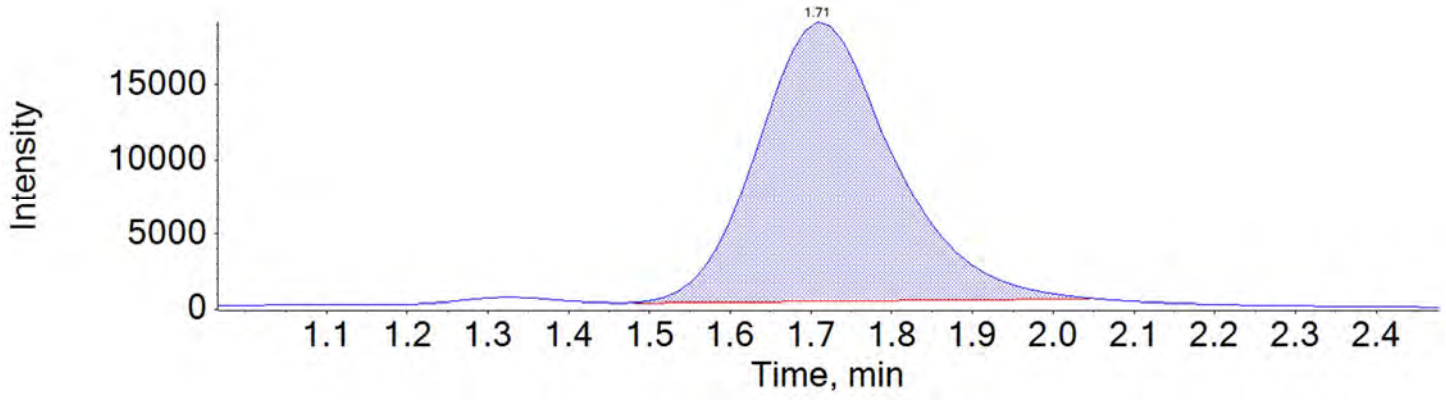

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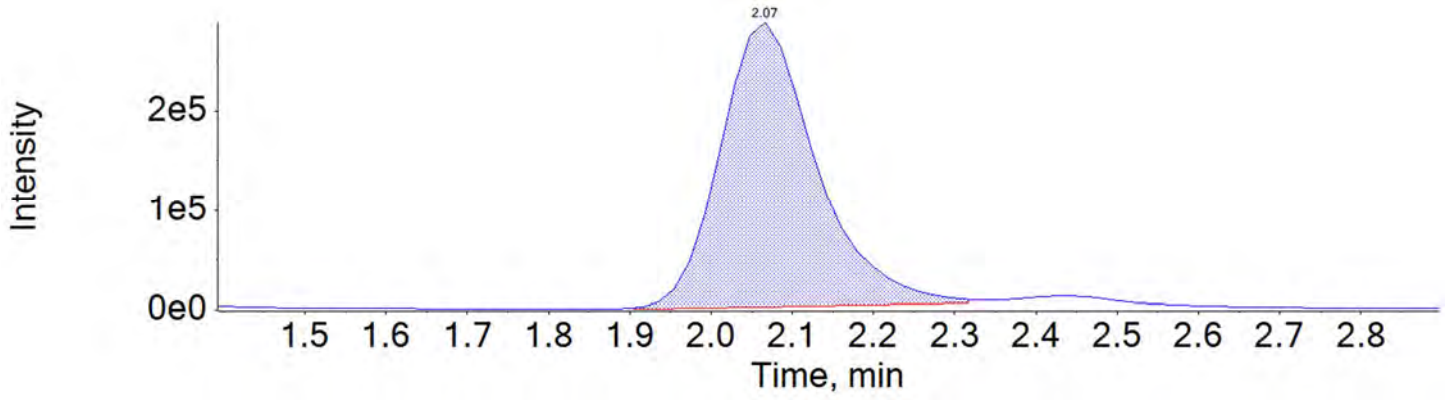

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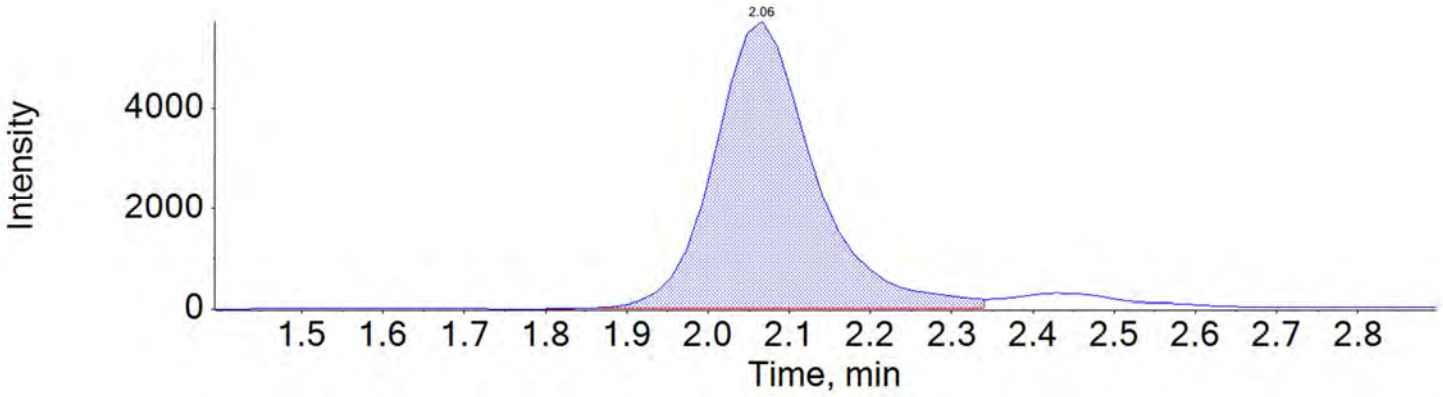

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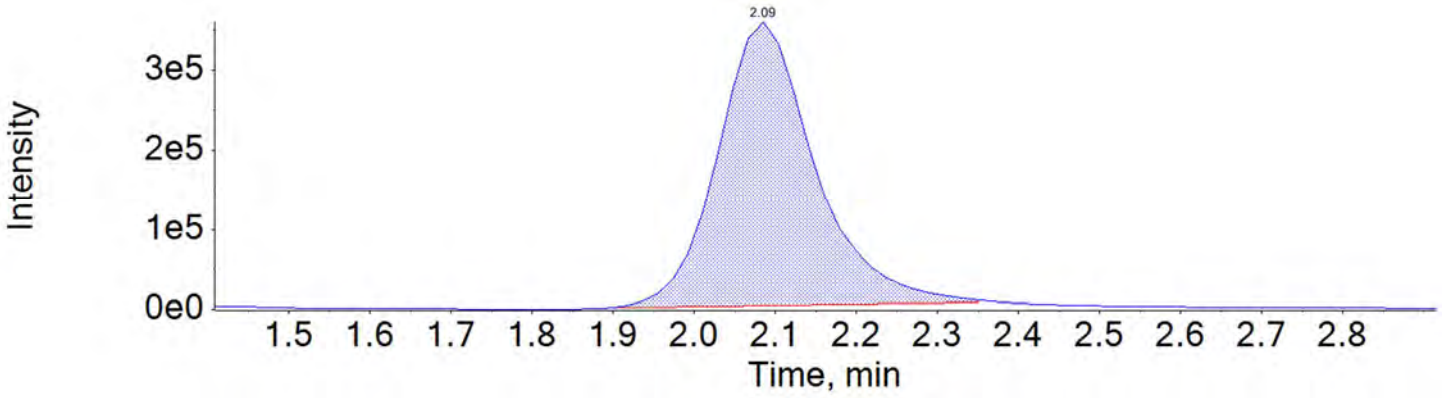

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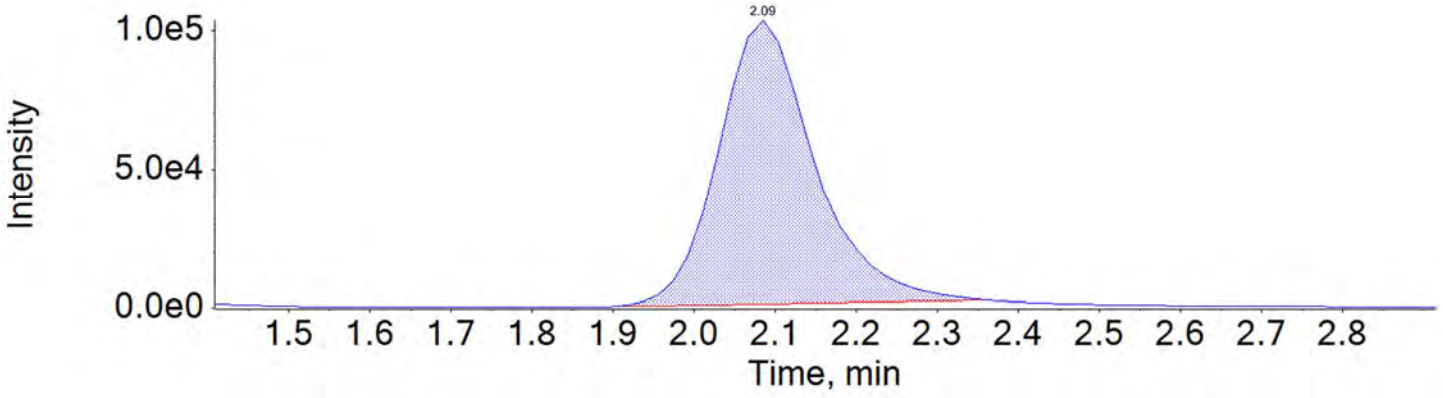

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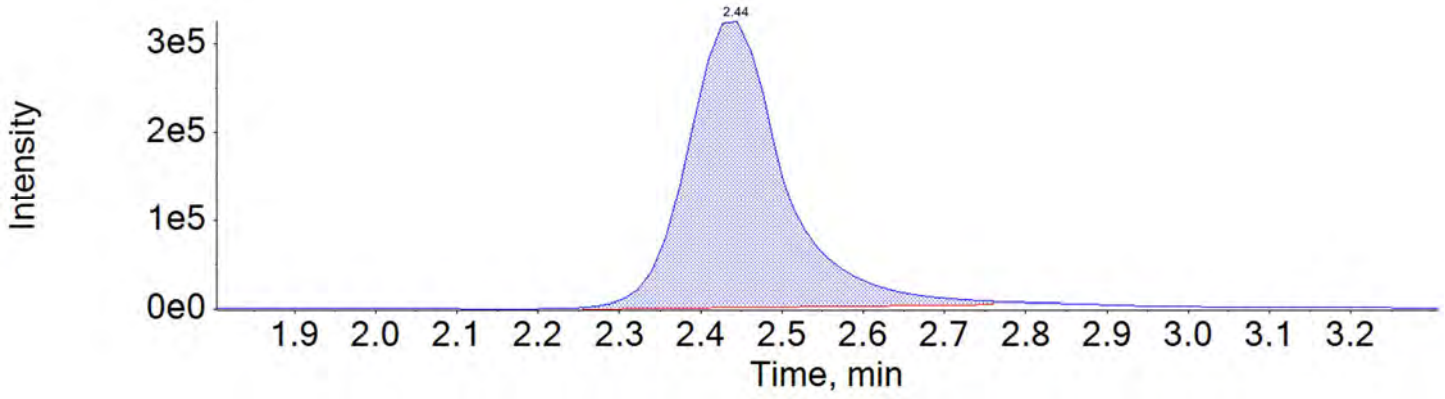
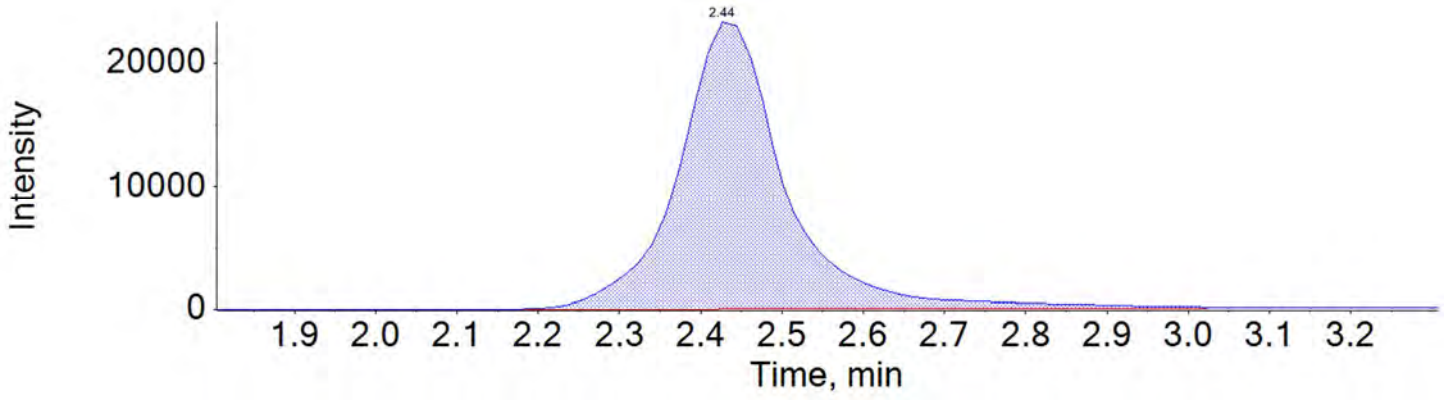


PFOA_2 413.0 / 169.0



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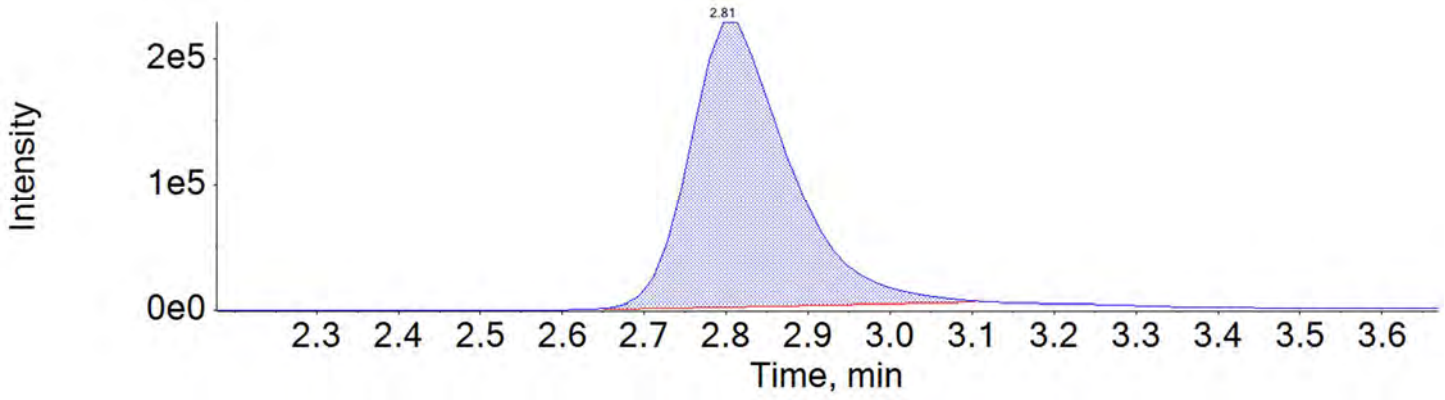

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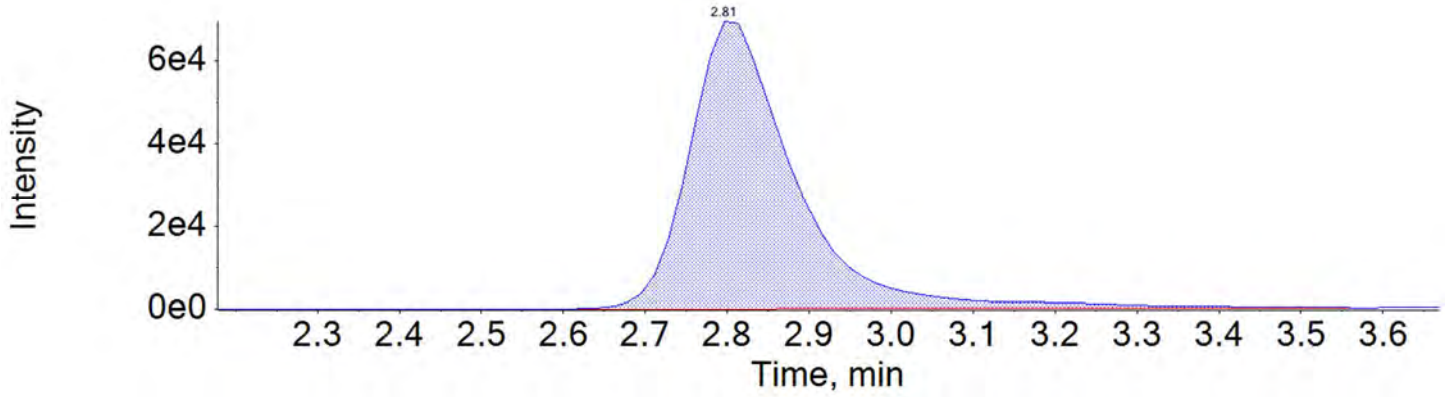
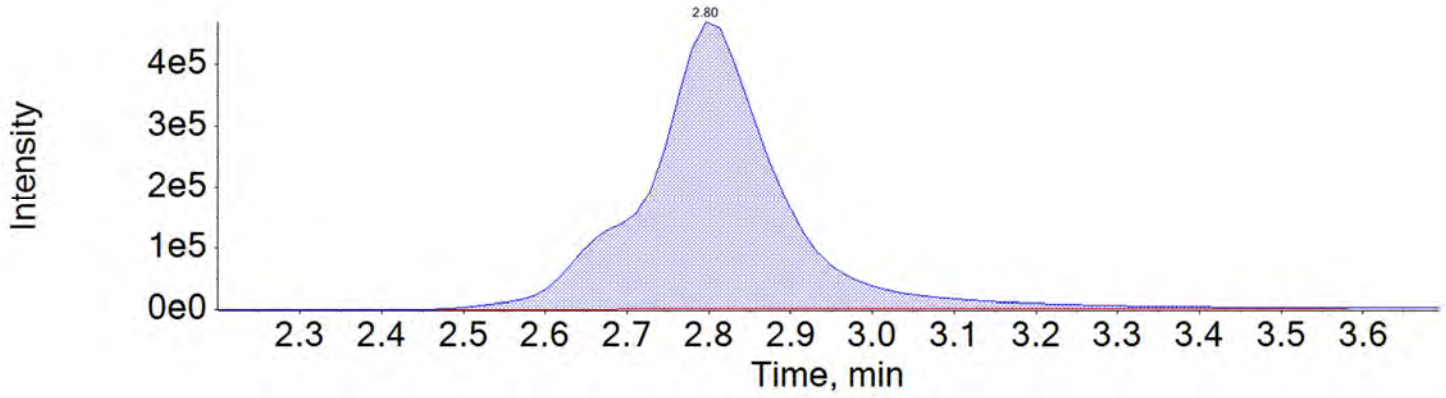


PFOS_1 499.0 / 80.0



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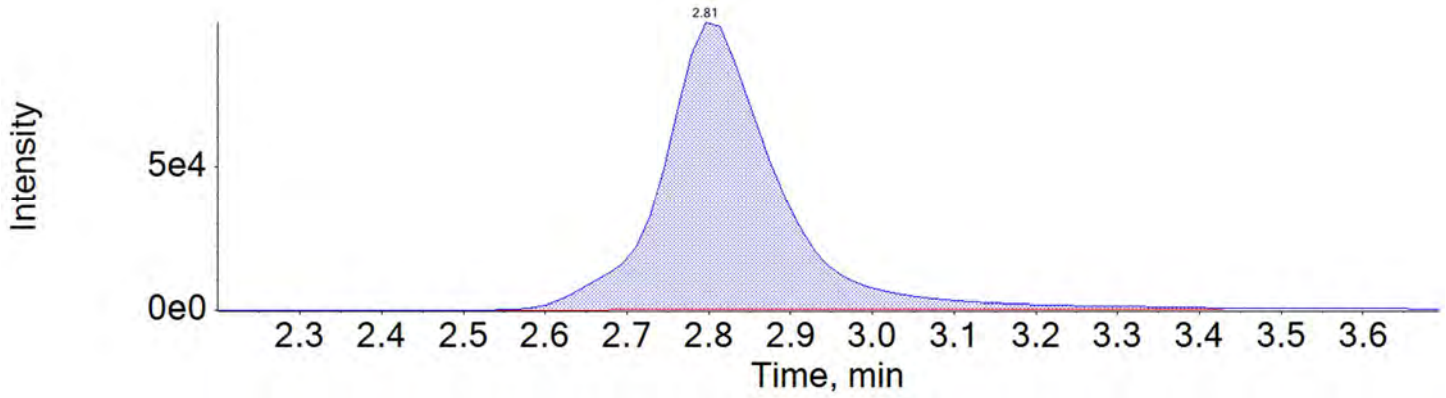

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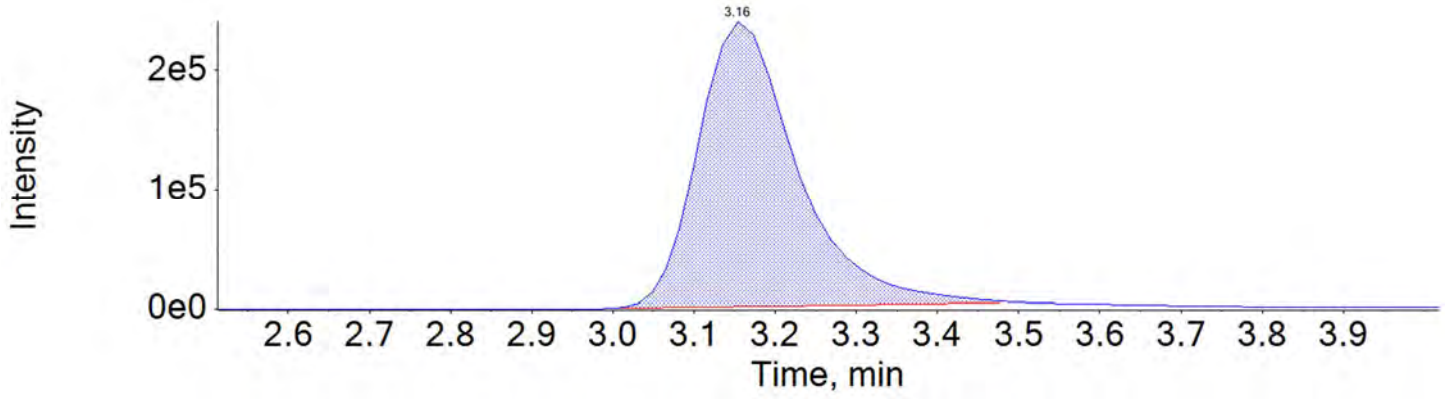

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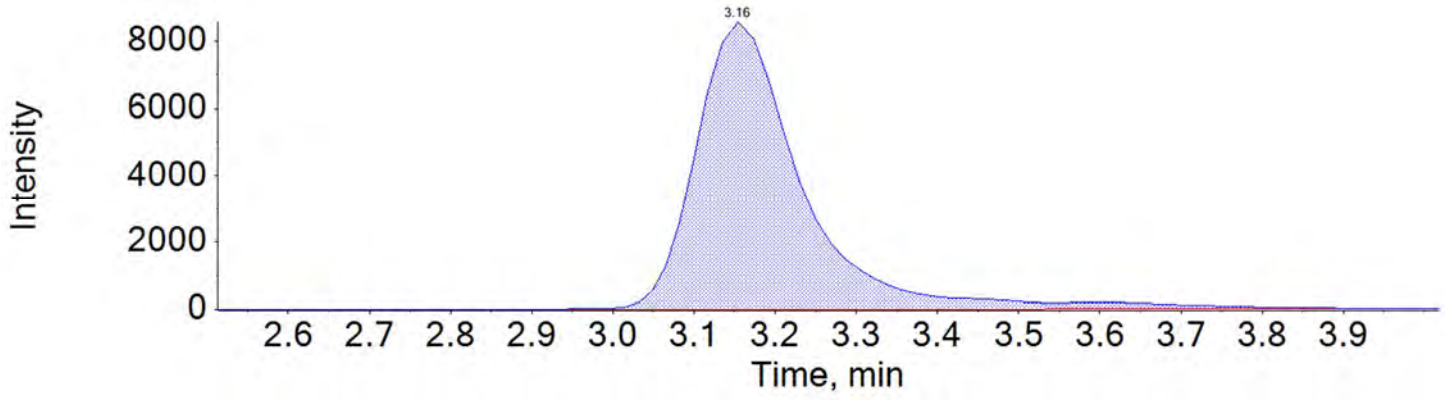

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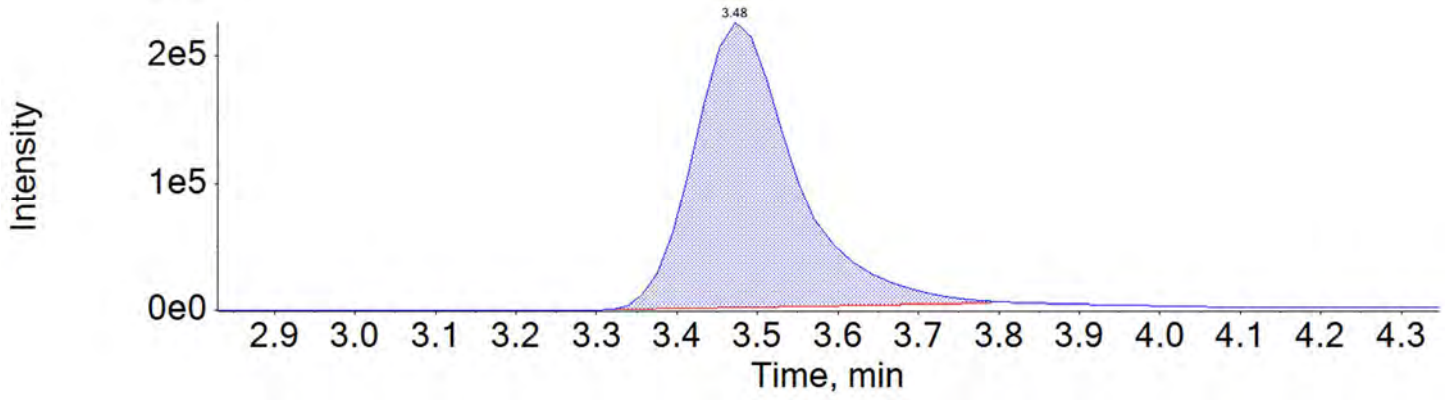

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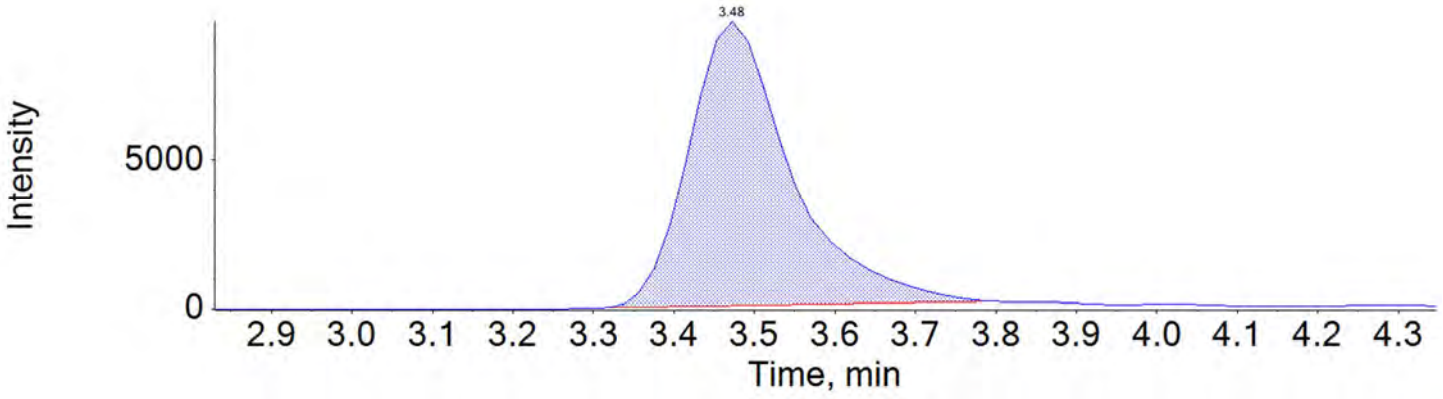

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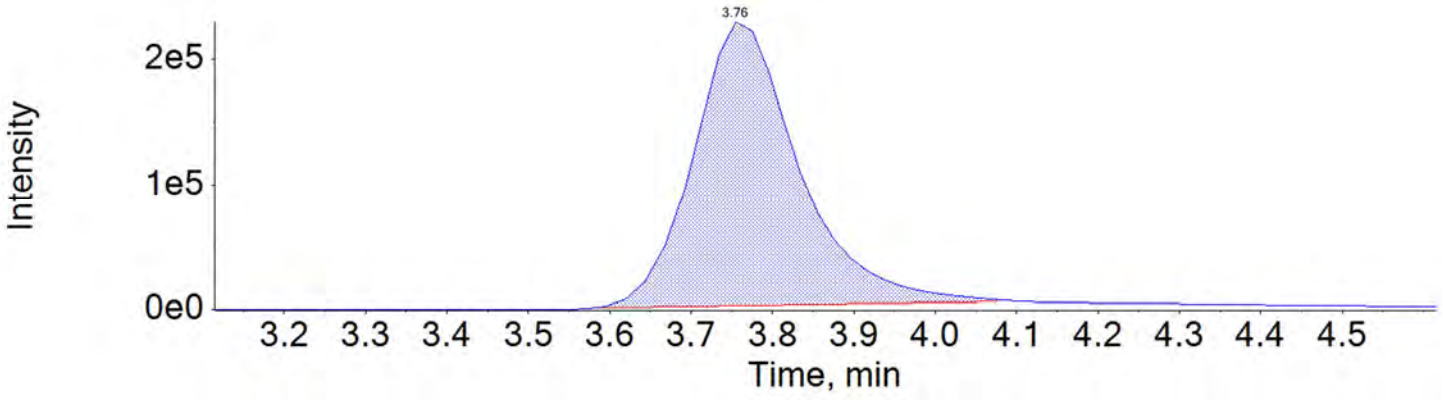

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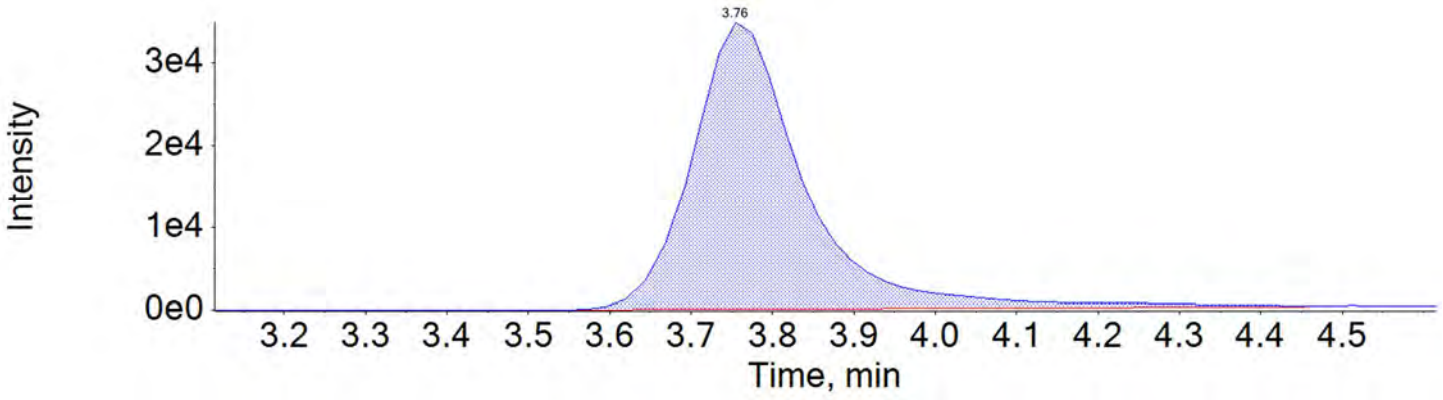

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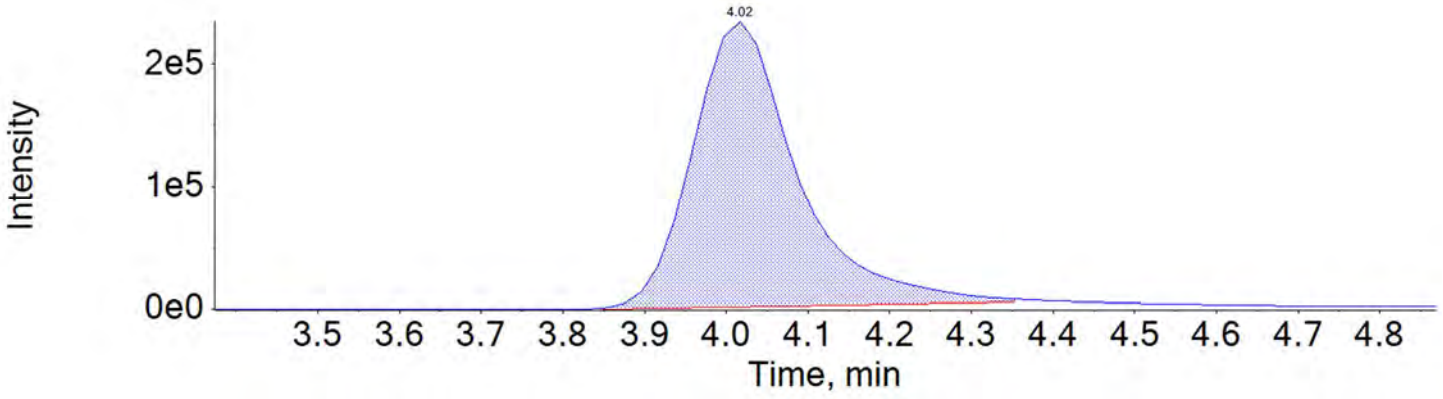

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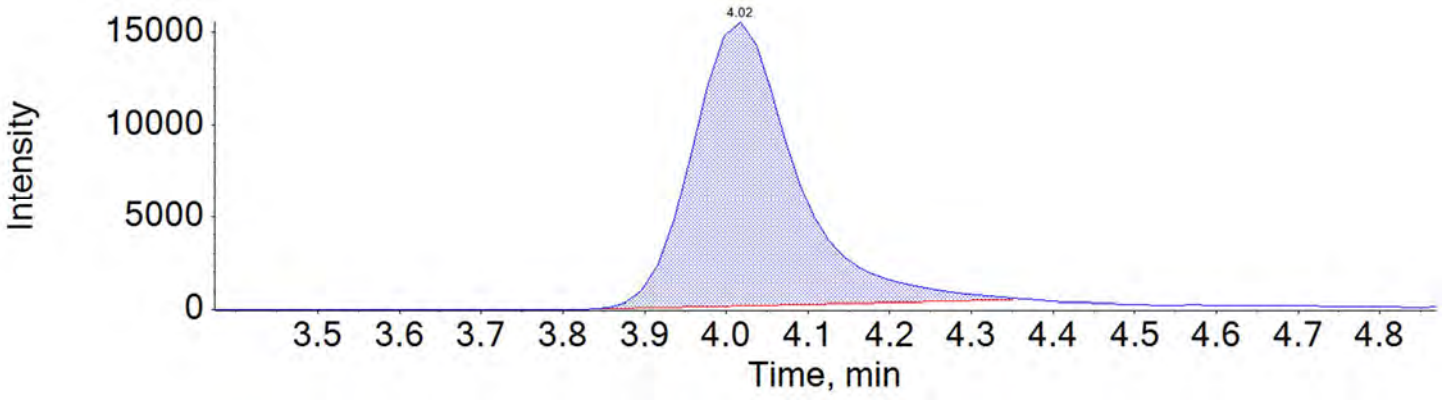
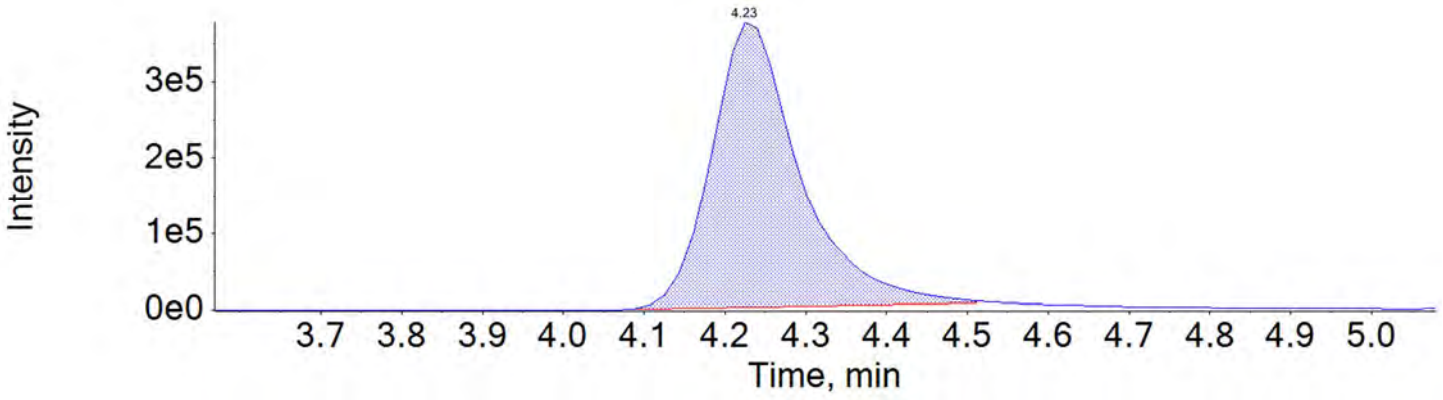


PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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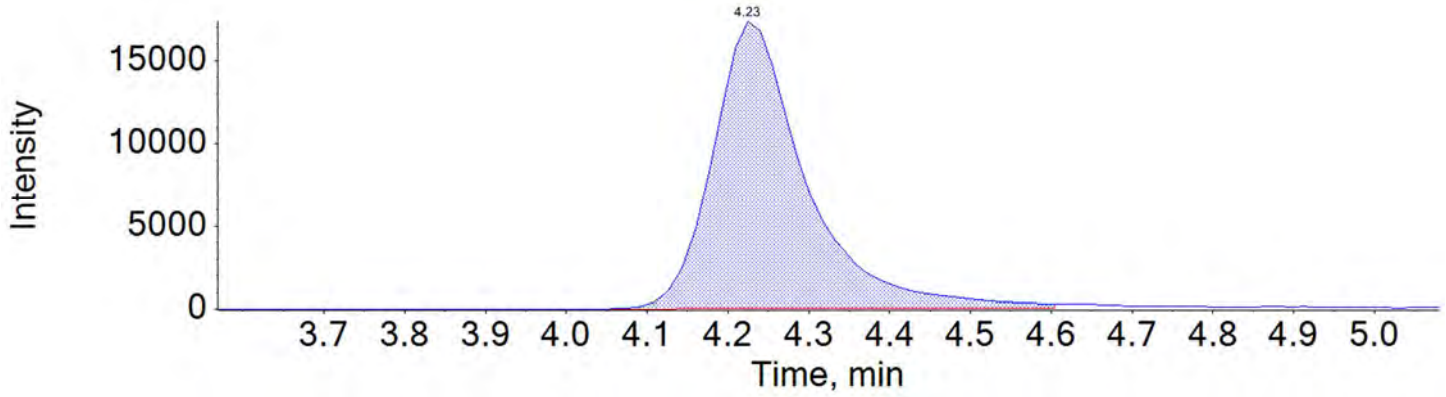
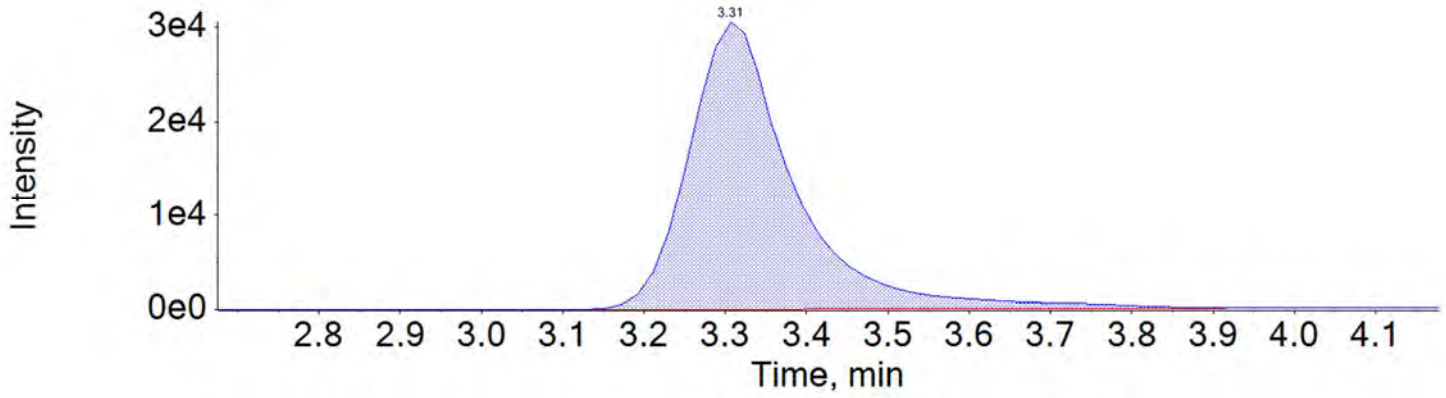
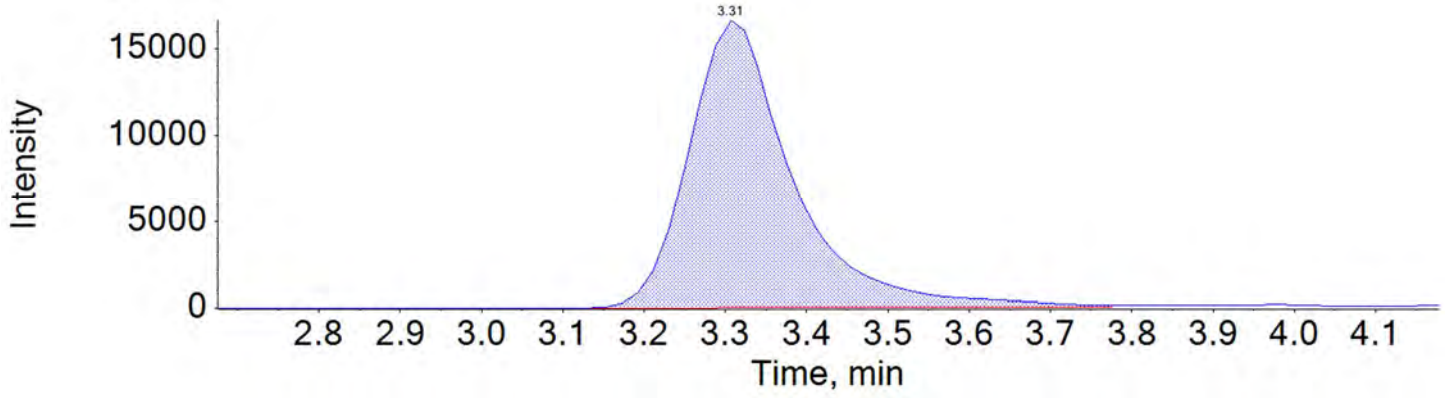
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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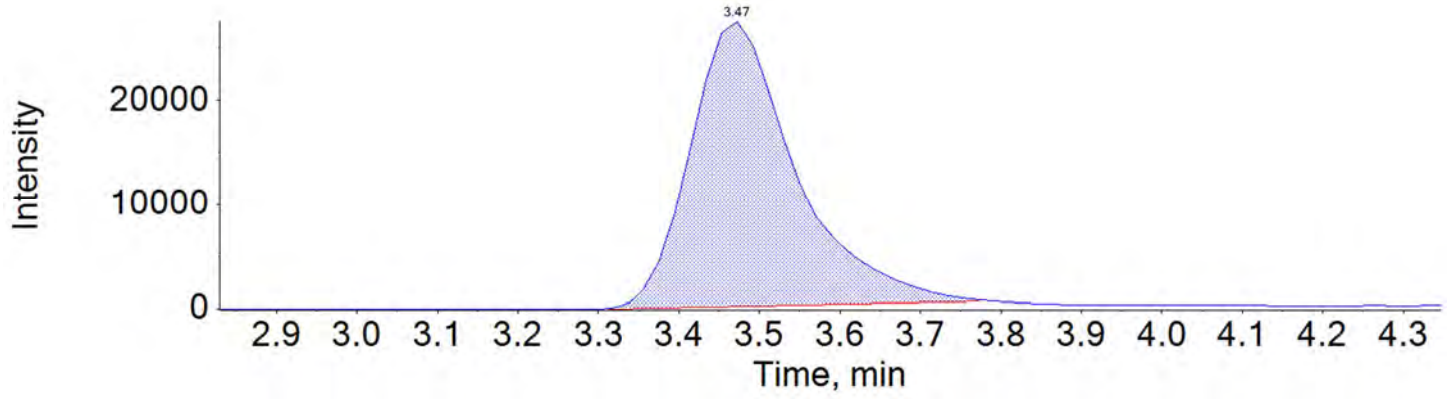
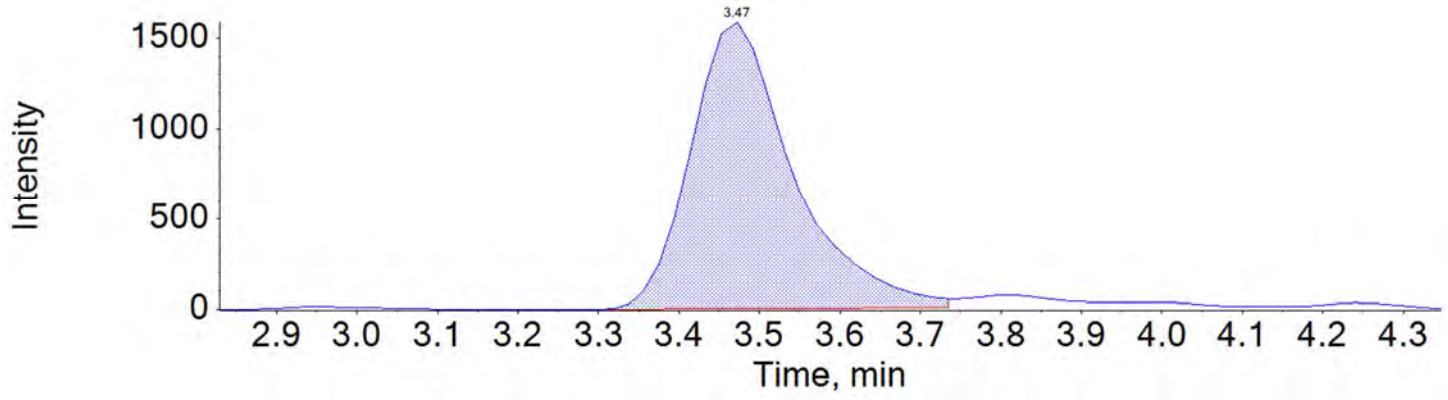
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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Chromatogram Report

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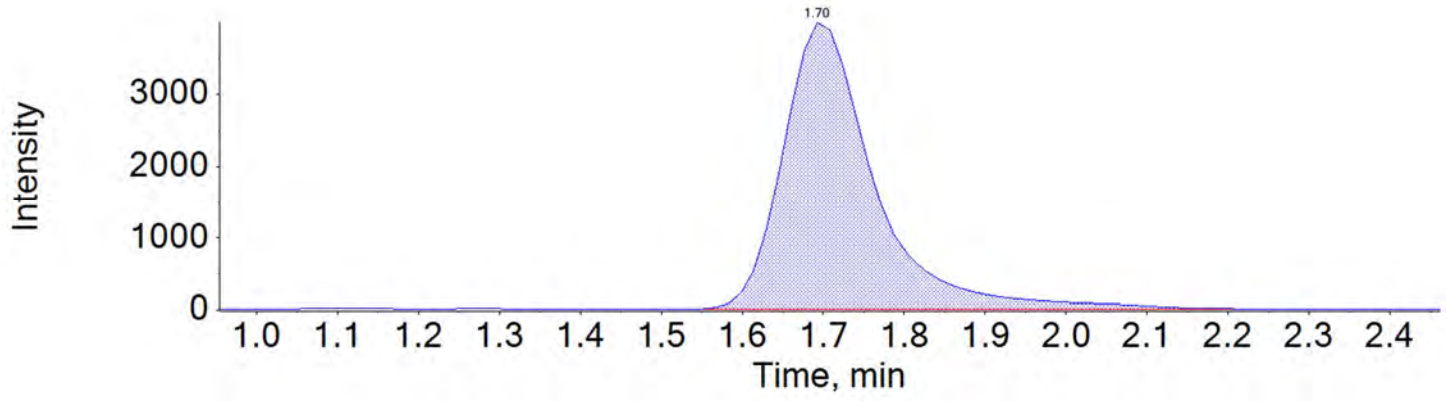
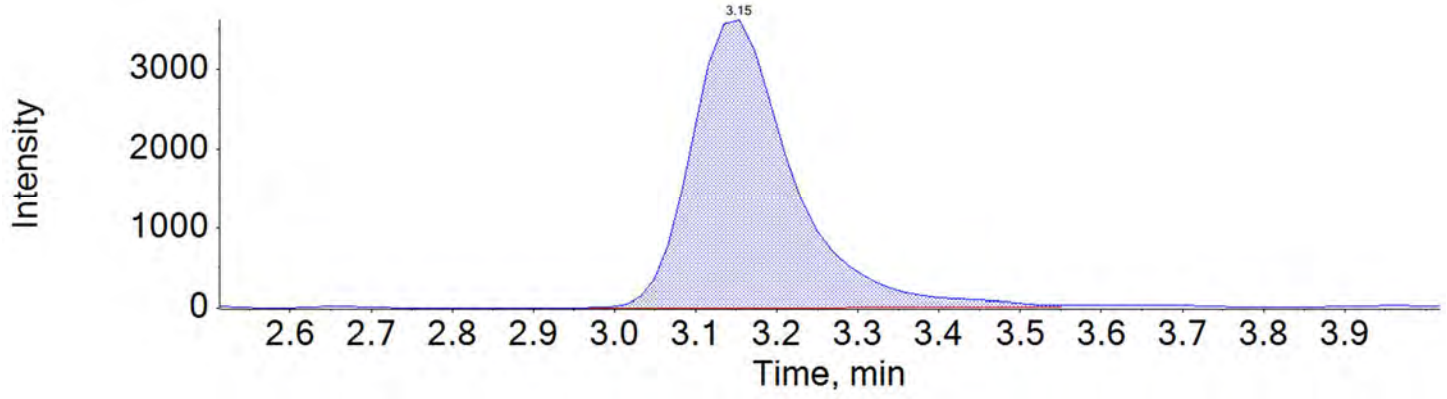
Sample Name	J6206MS-FS(0)	**Injection Vial**	16
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:34:29	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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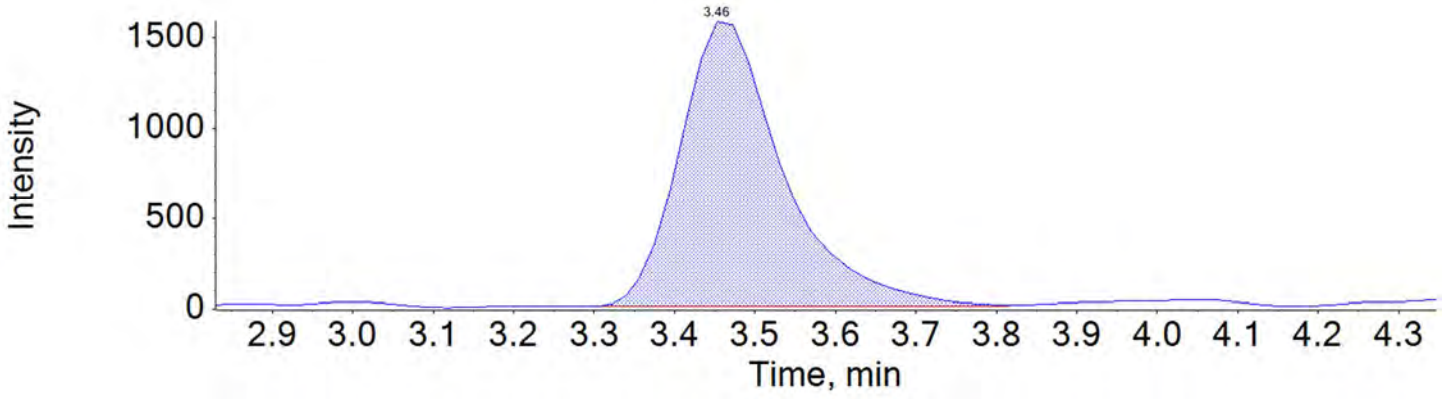
d5-EtFOSAA 589.0 / 419.0



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Chromatogram Report

Created with Analyst Reporter
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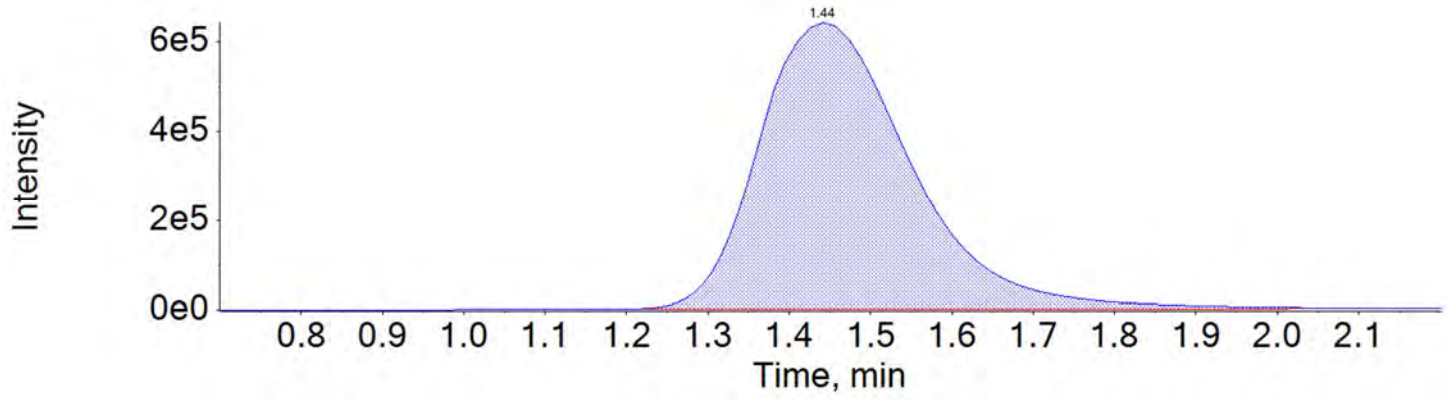
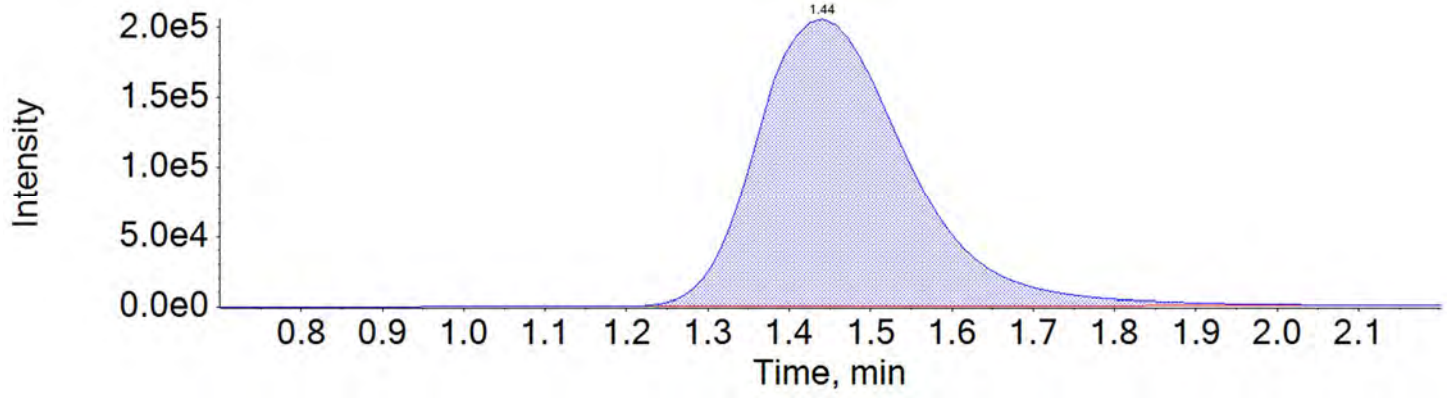
Sample Name	J6206MSD-FS(0)	**Injection Vial**	17
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:43:24	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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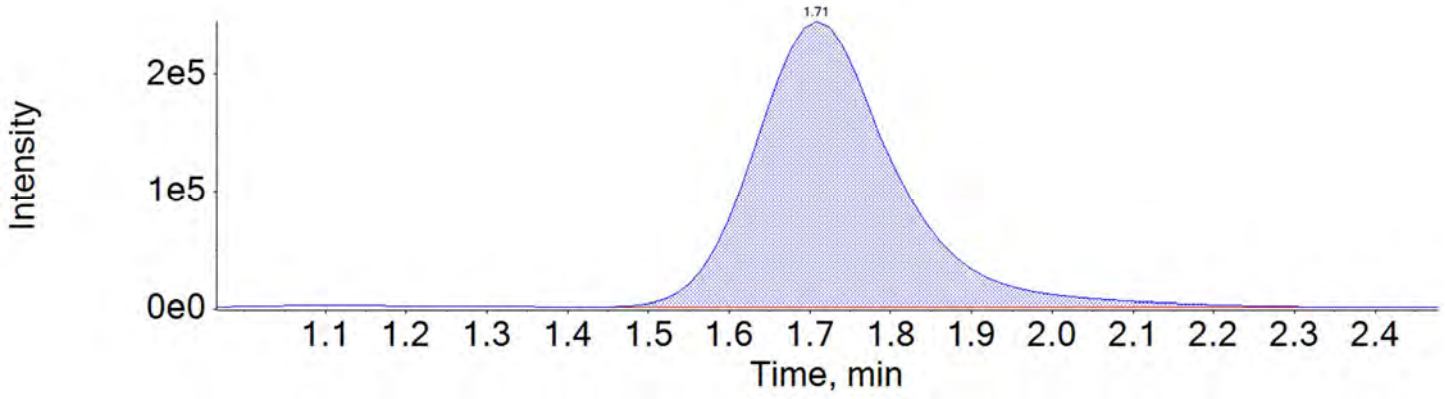
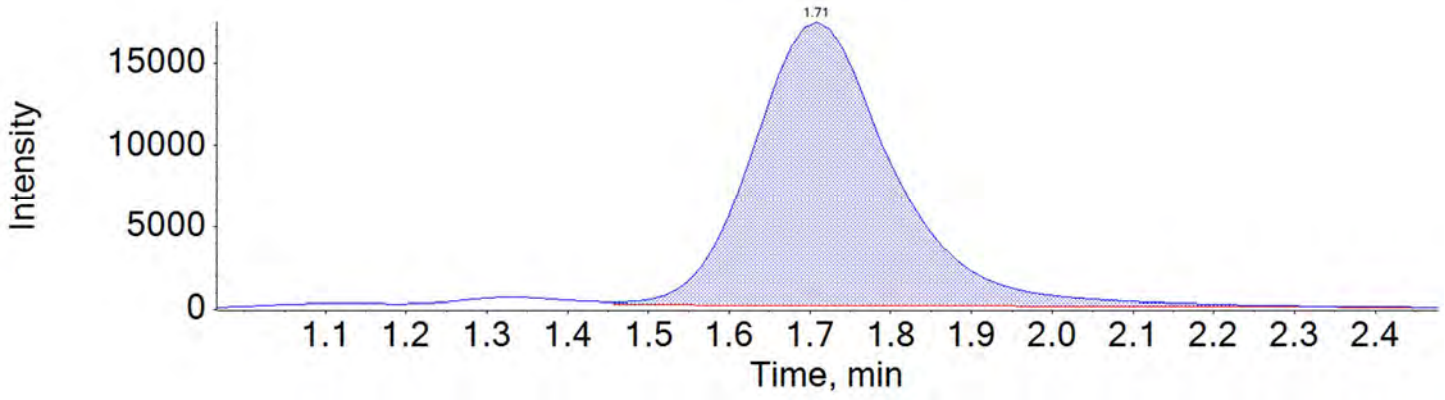
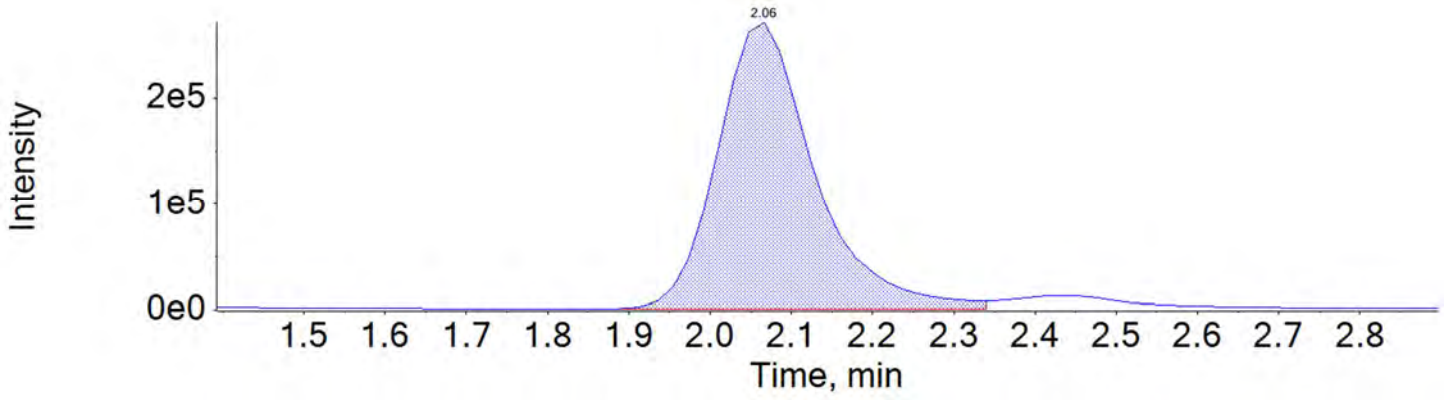
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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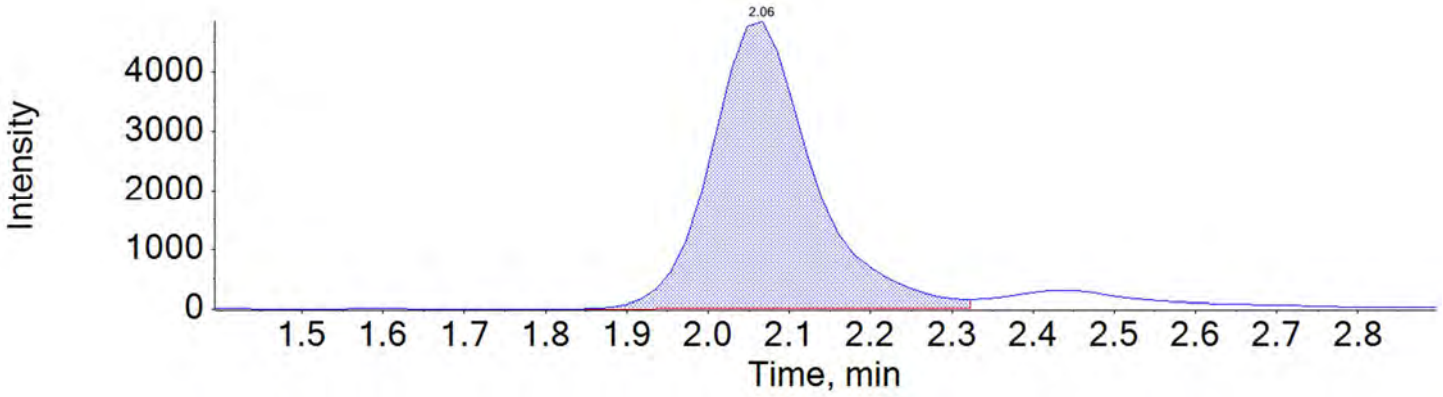
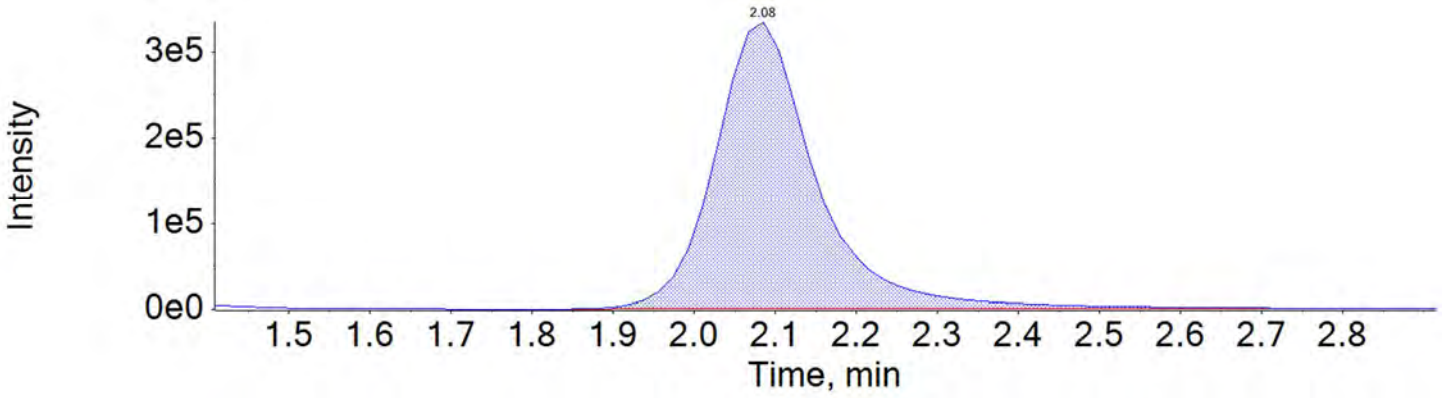
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



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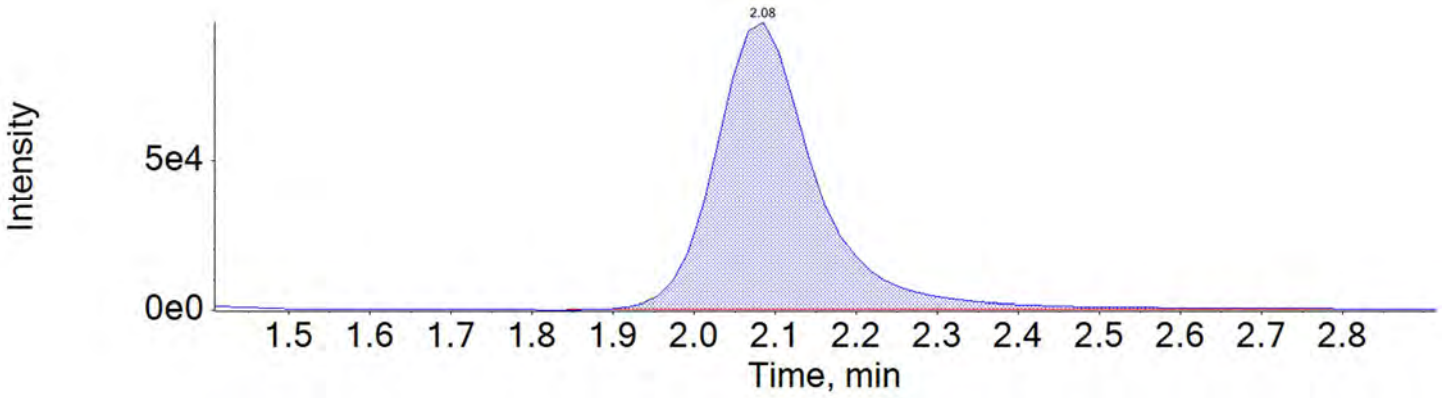

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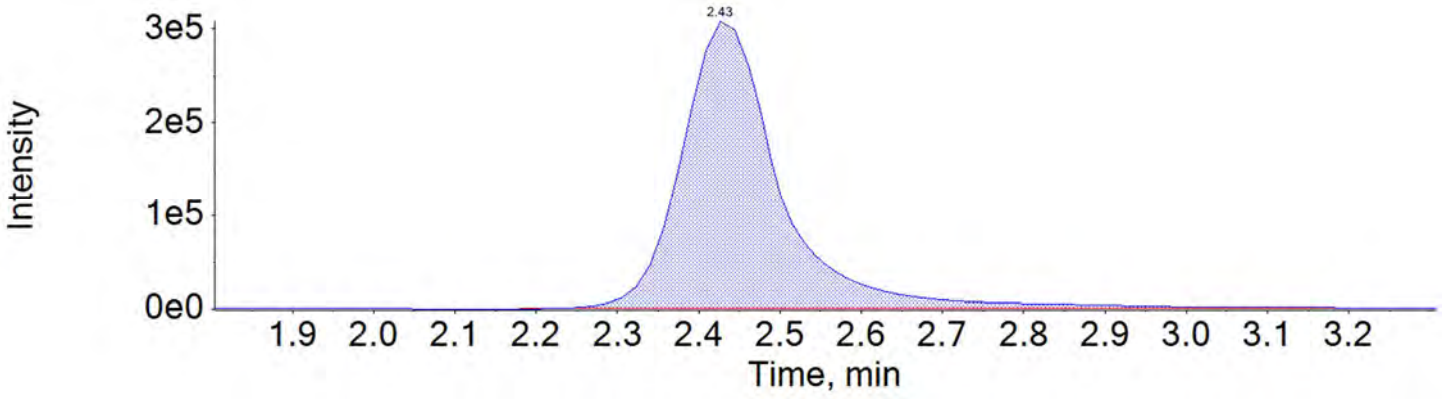
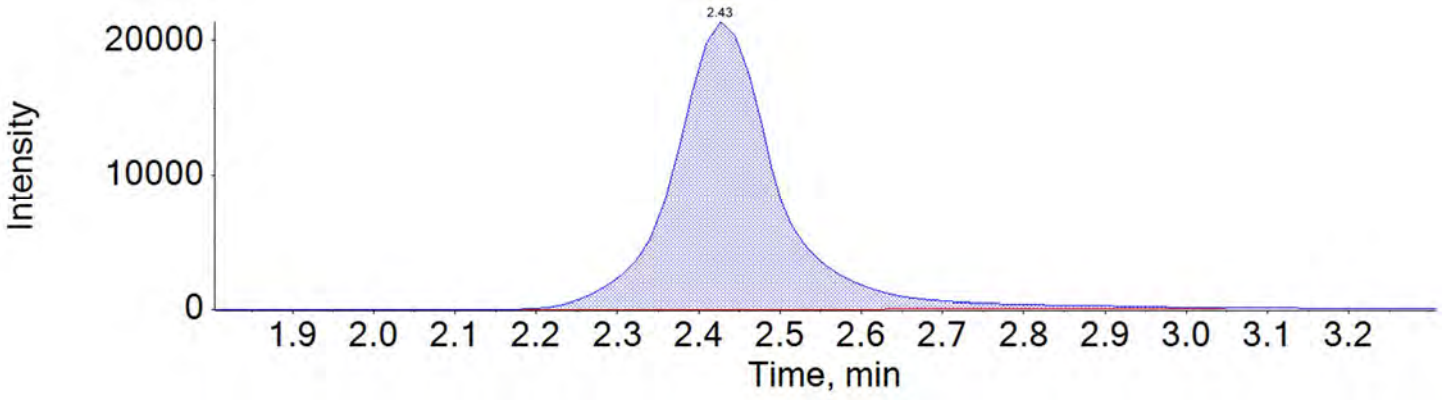
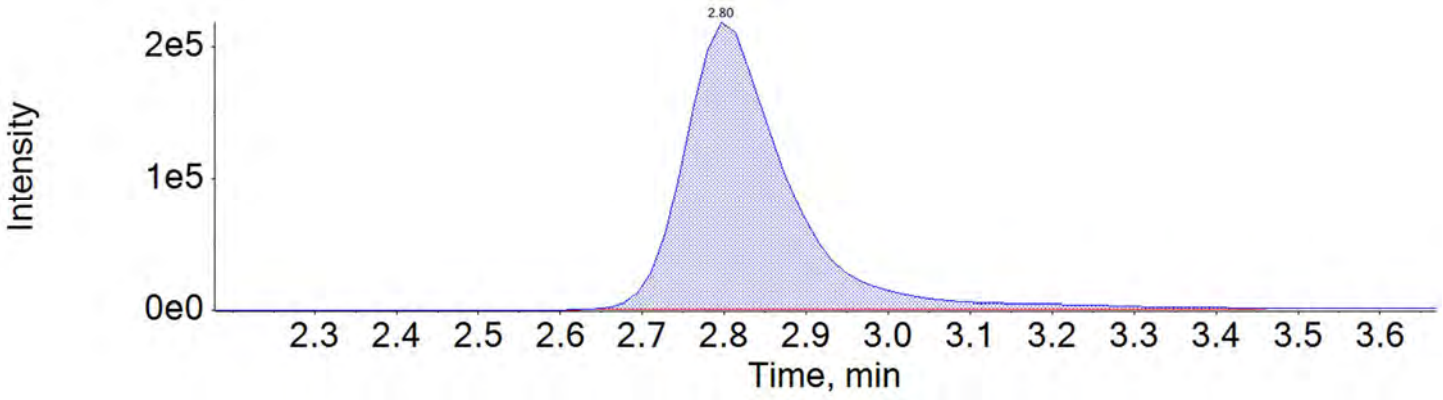
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



PFNA_1 463.0 / 419.0



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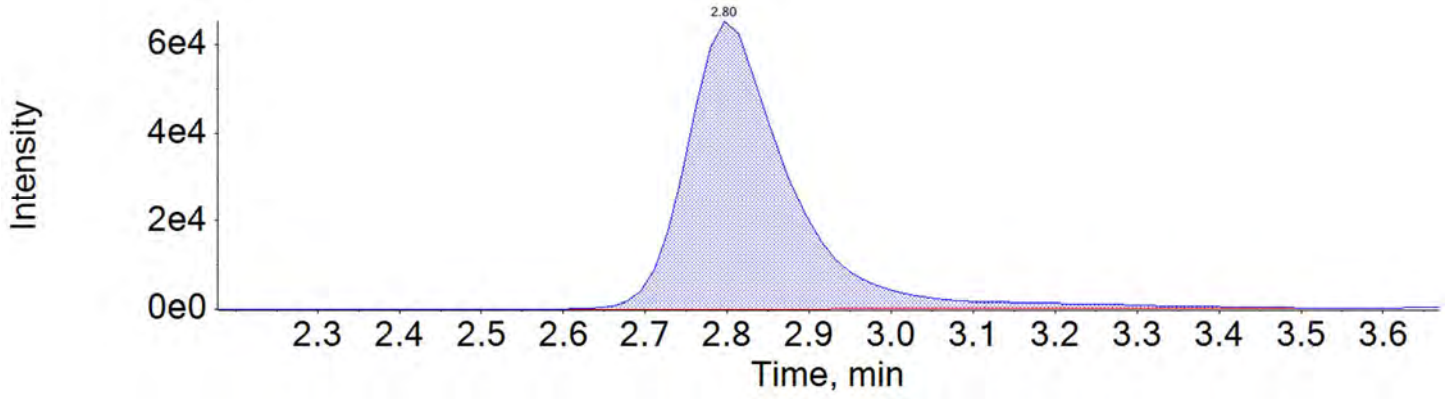
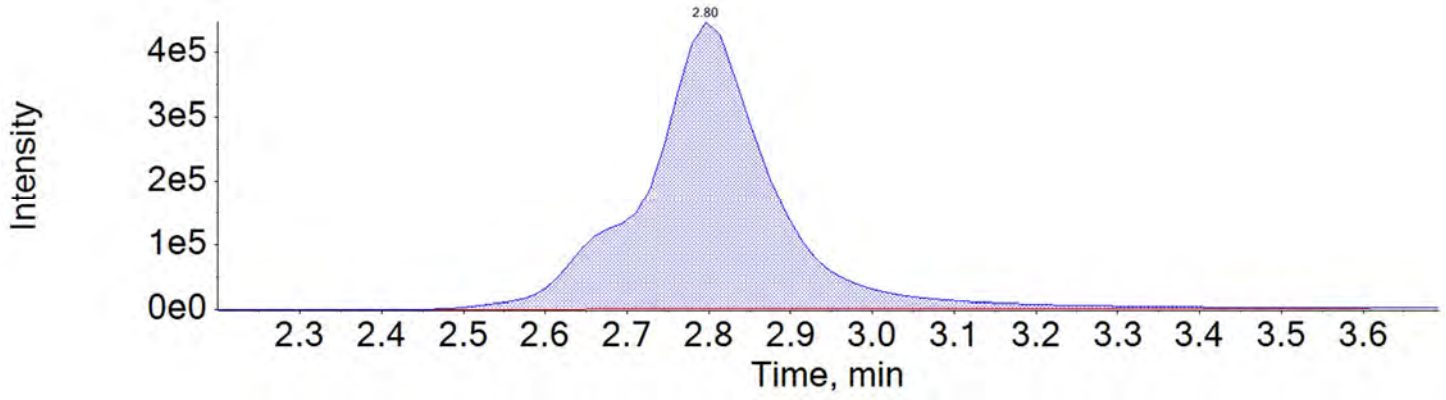
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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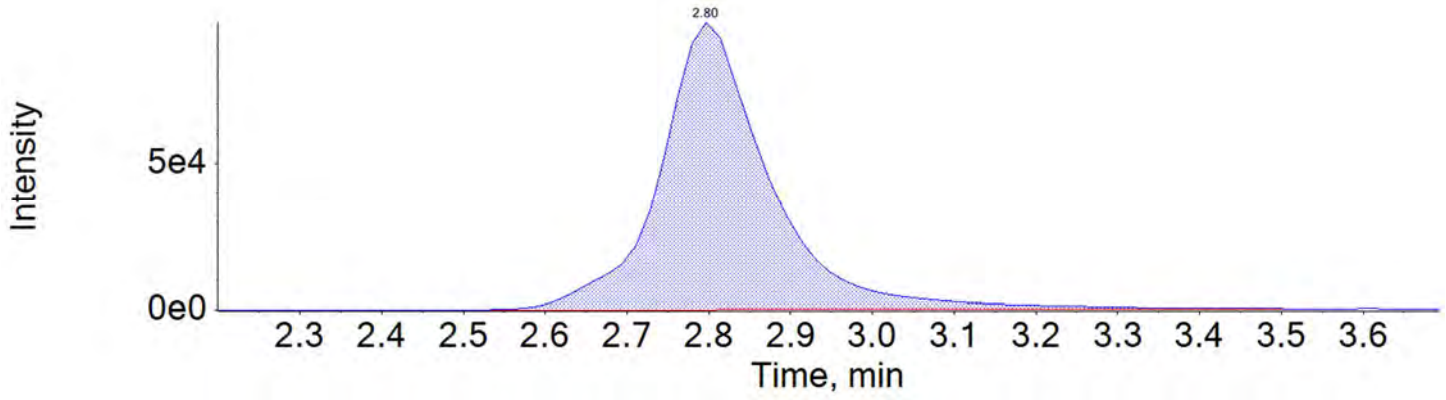

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Chromatogram Report

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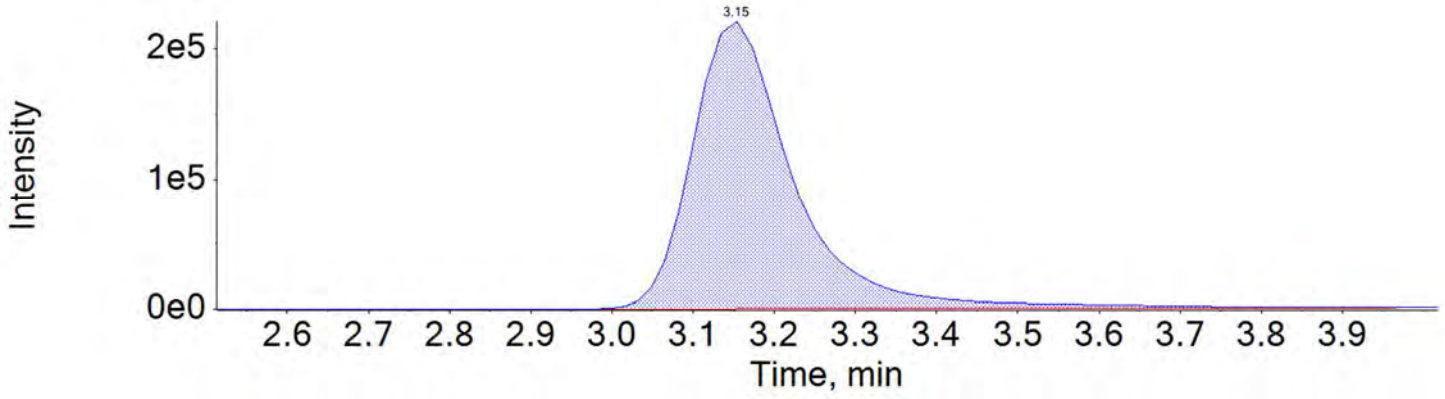
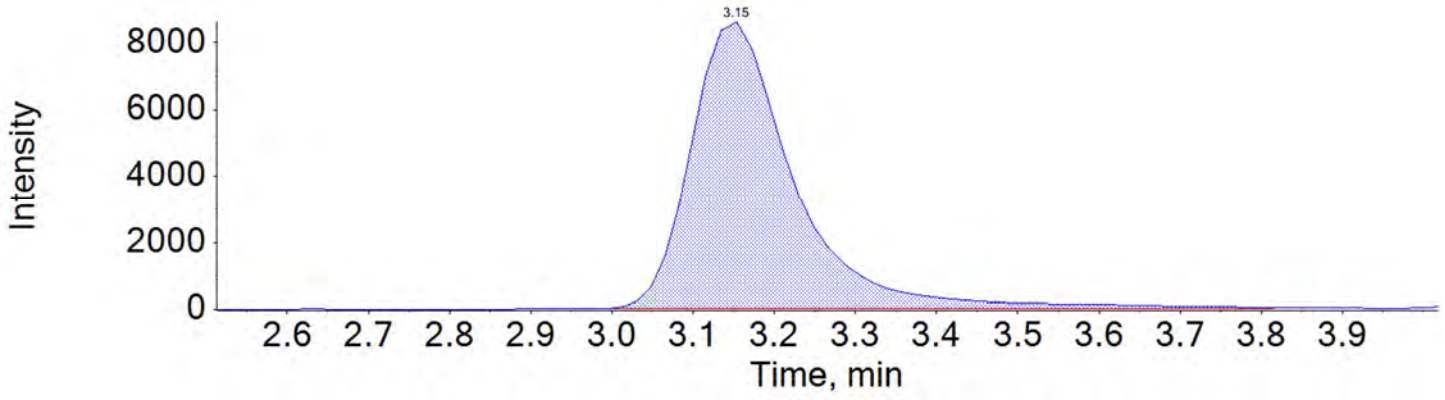
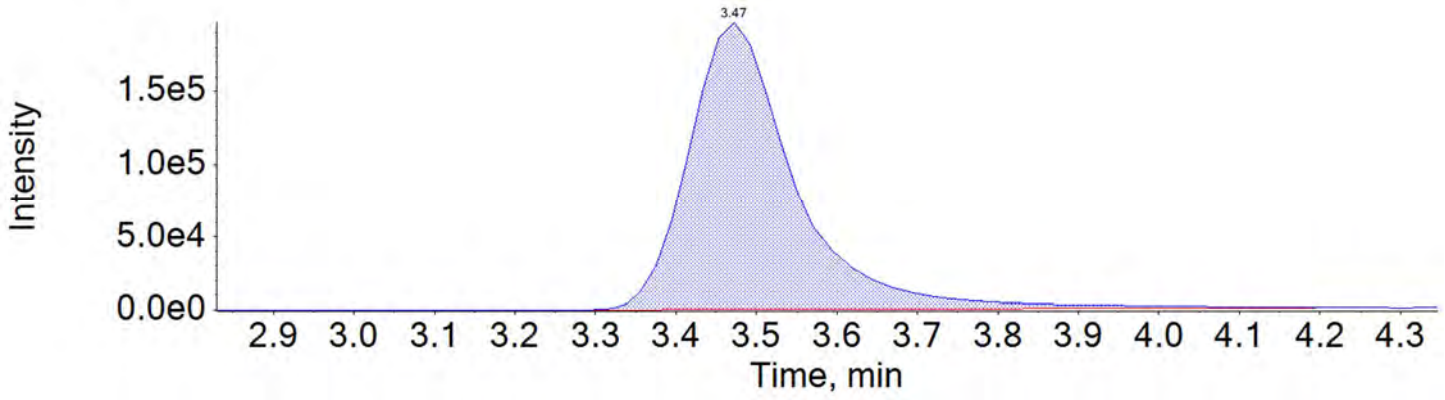
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



PFUnA_1 563.0 / 519.0



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Chromatogram Report

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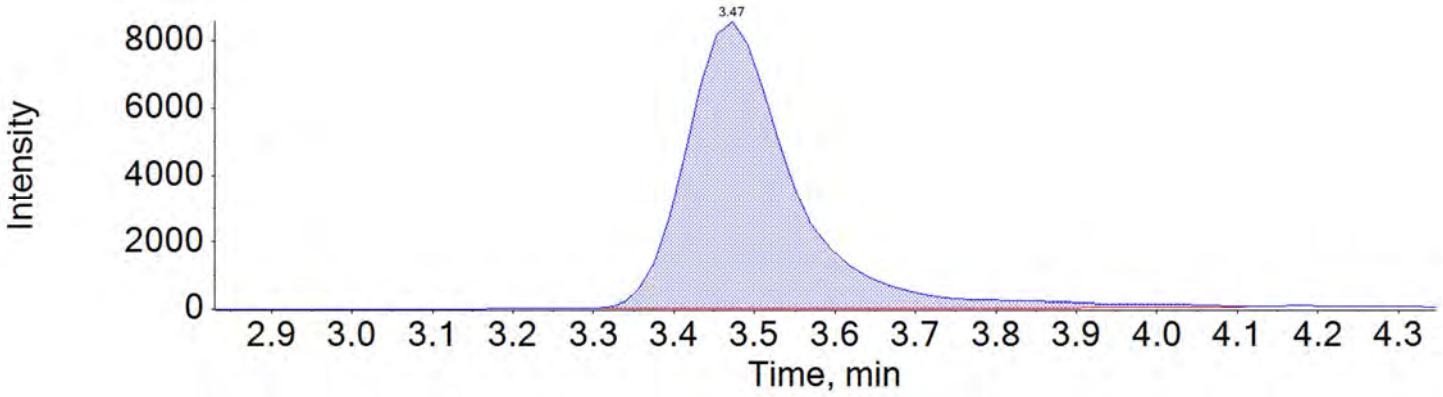
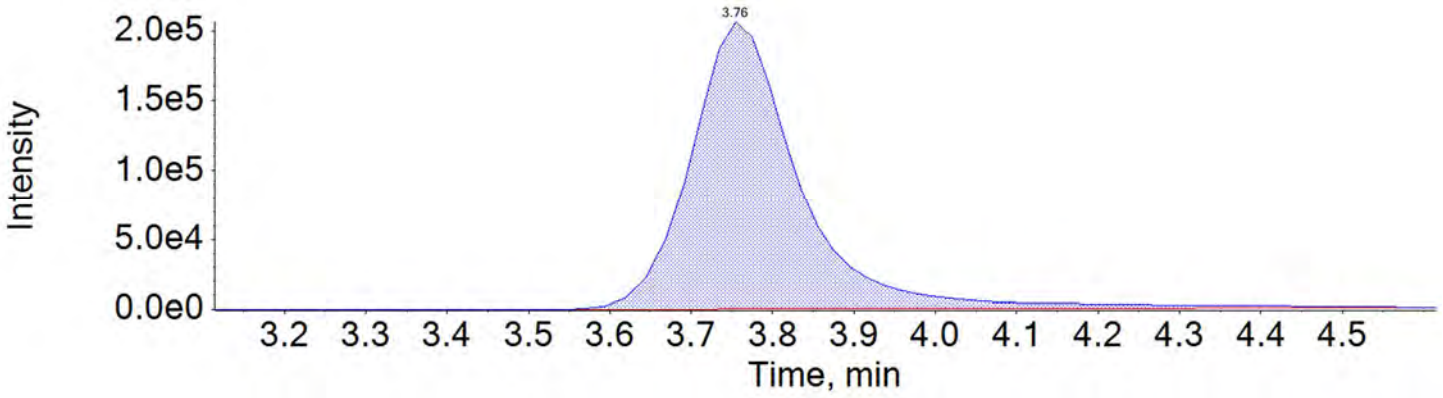
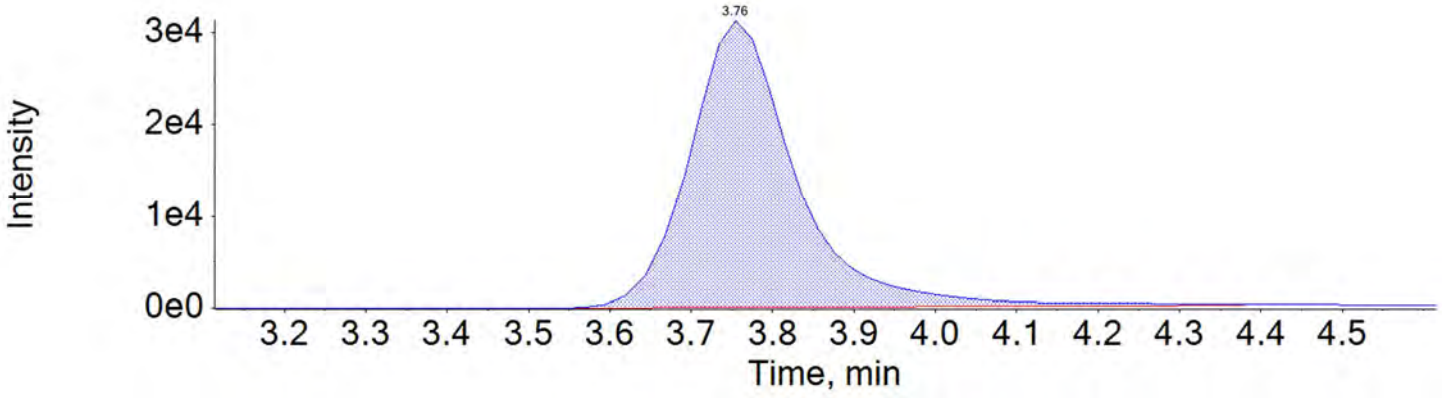
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



PFDoA_2 613.0 / 319.0



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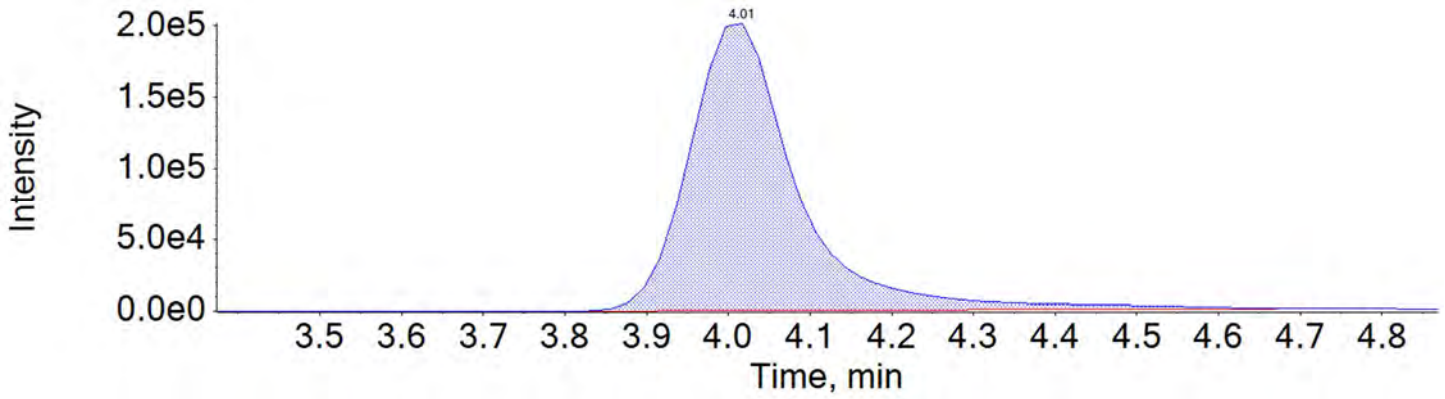
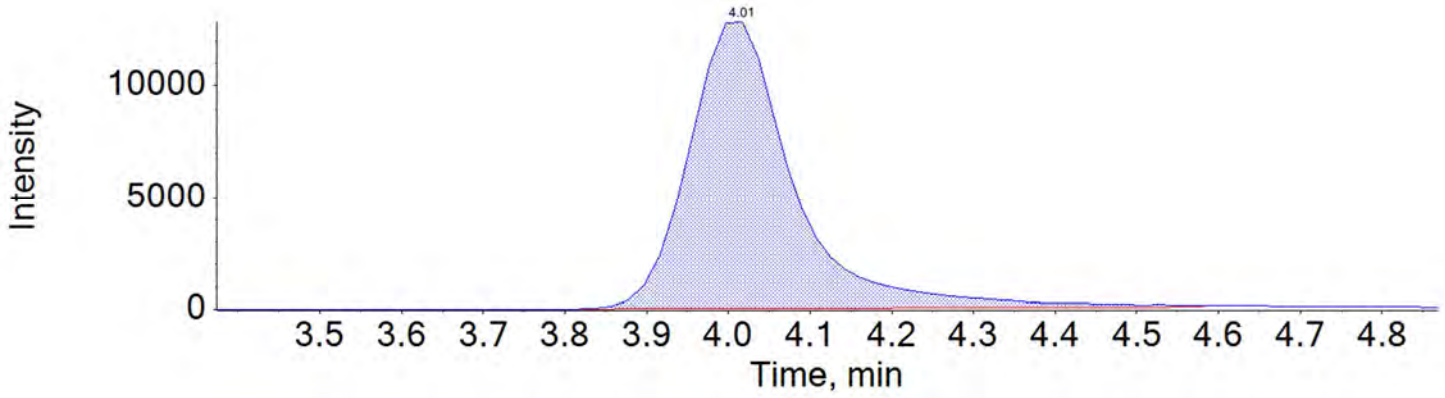
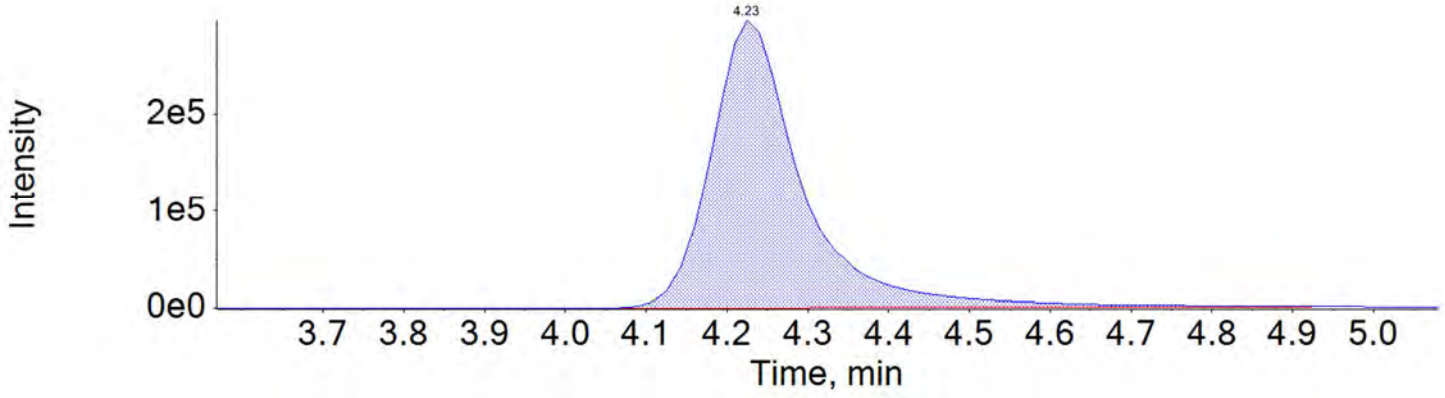
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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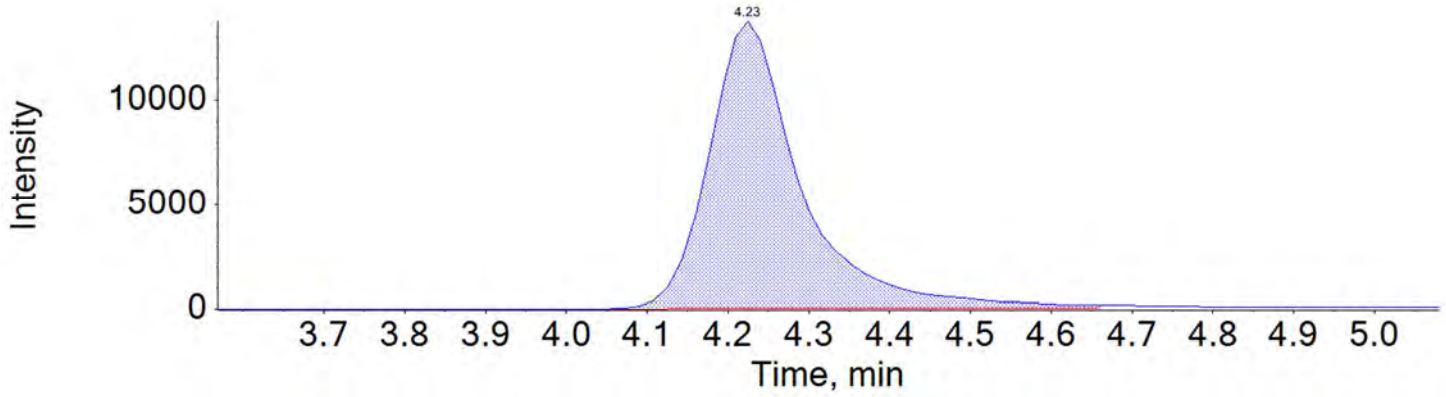
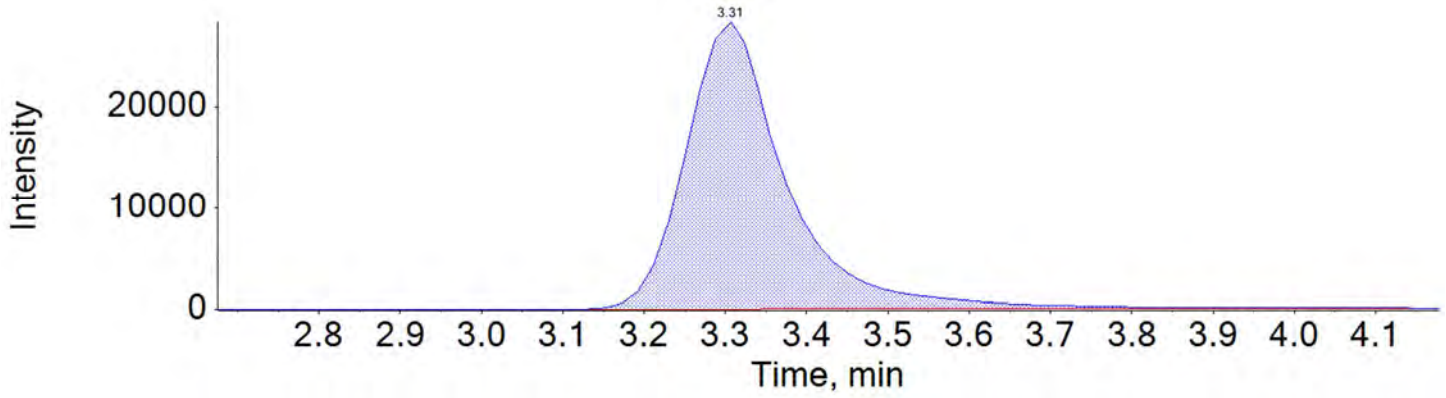
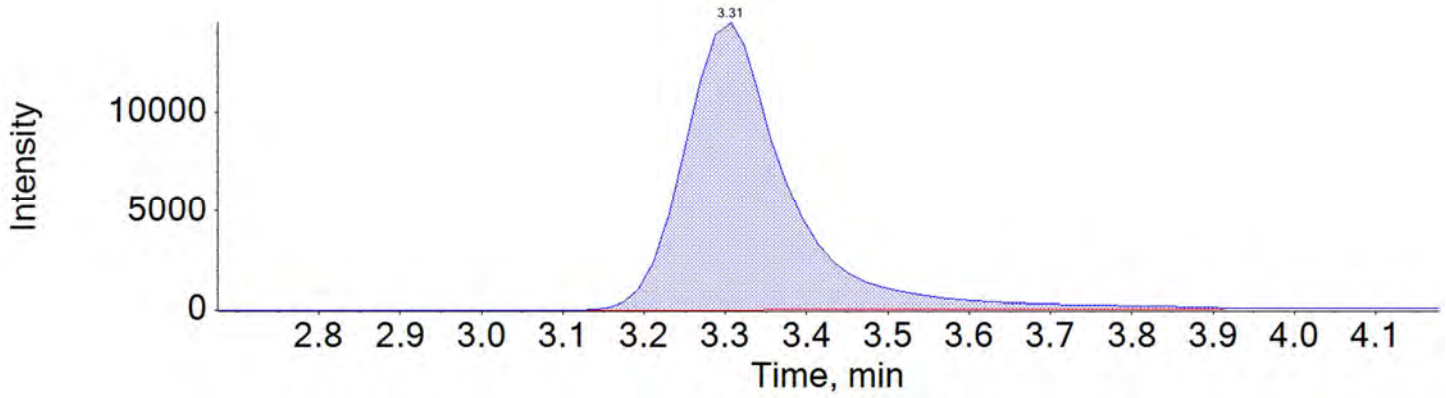
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

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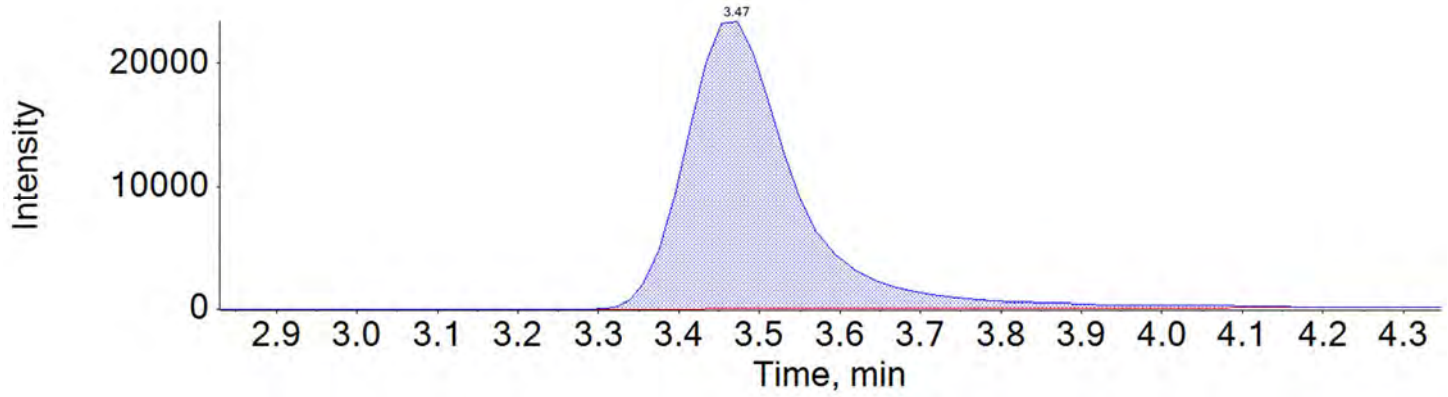
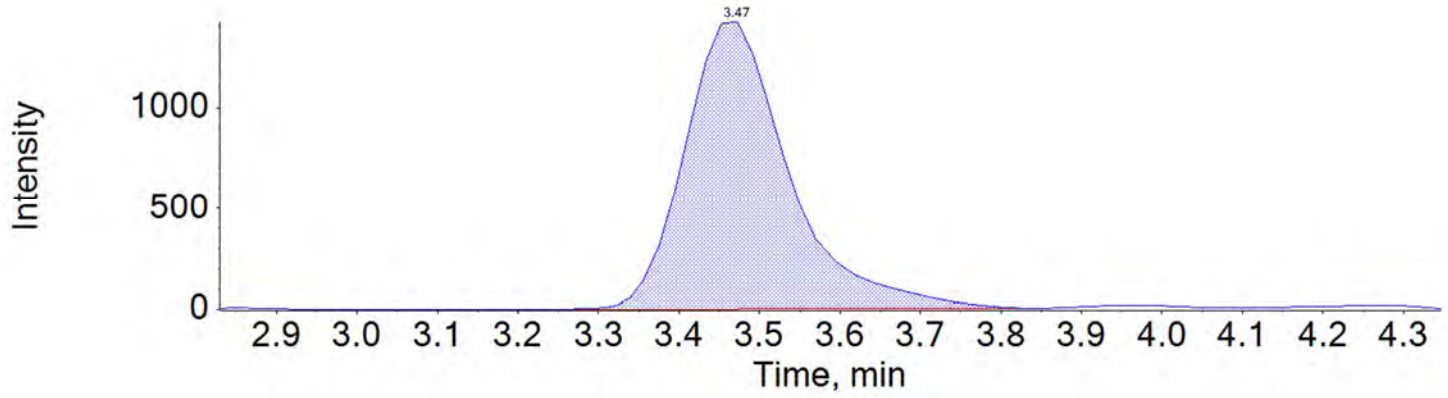
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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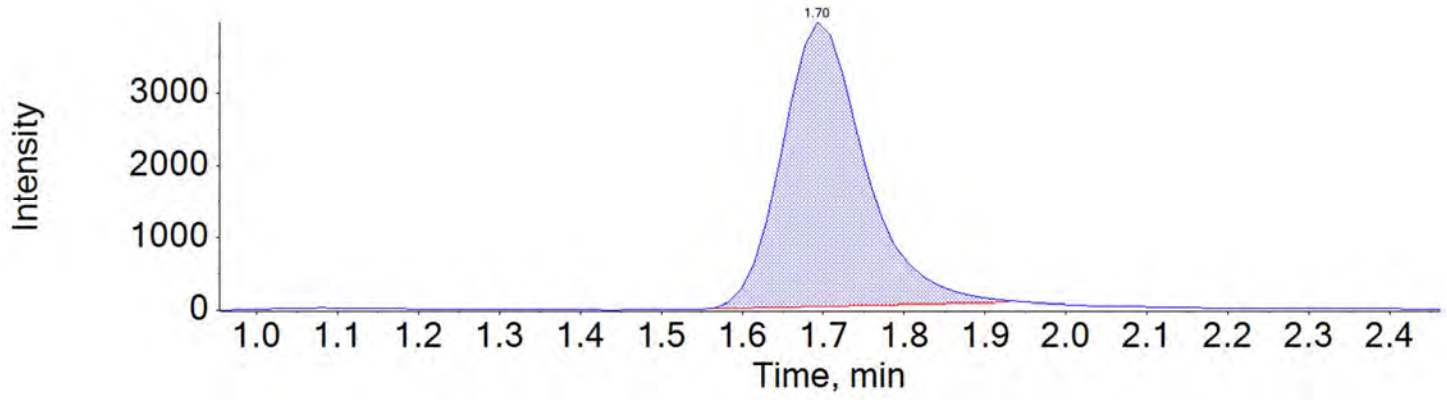
Chromatogram Report

Created with Analyst Reporter
Printed: 29/05/2018 1:11:13 PM

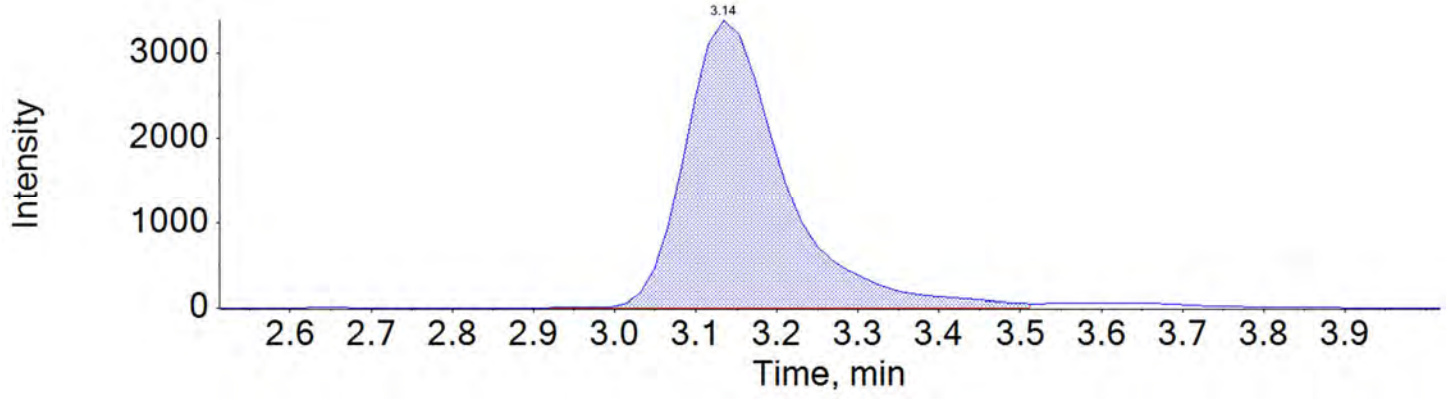
Sample Name	J6206MSD-FS(0)	**Injection Vial**	17
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:43:24	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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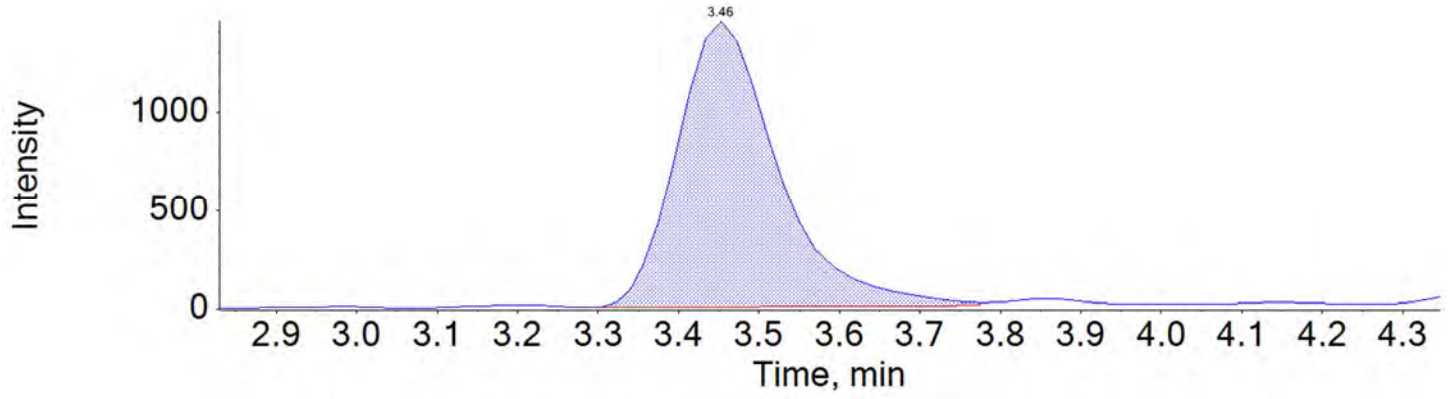
d5-EtFOSAA 589.0 / 419.0



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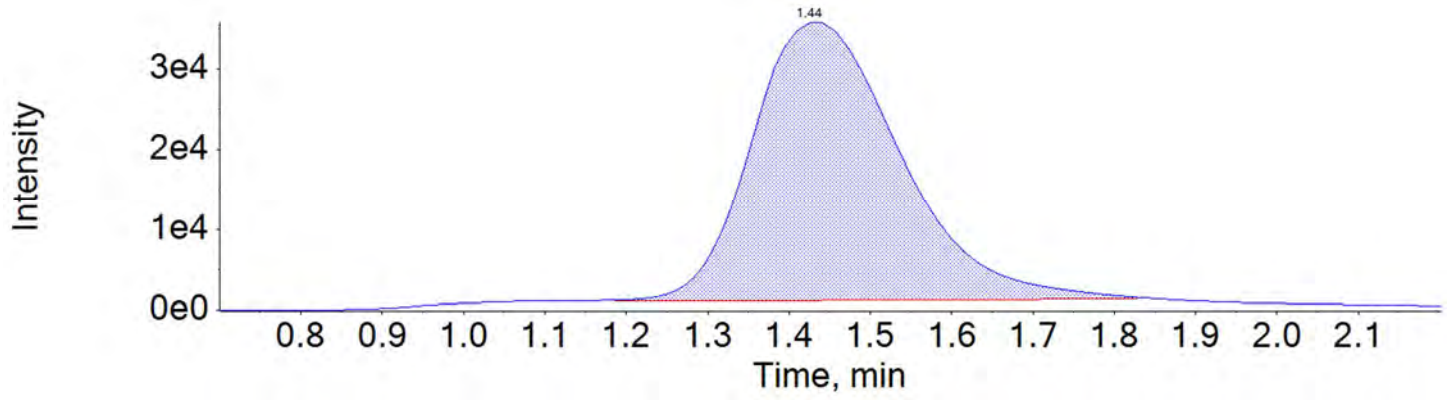
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:07:53 PM

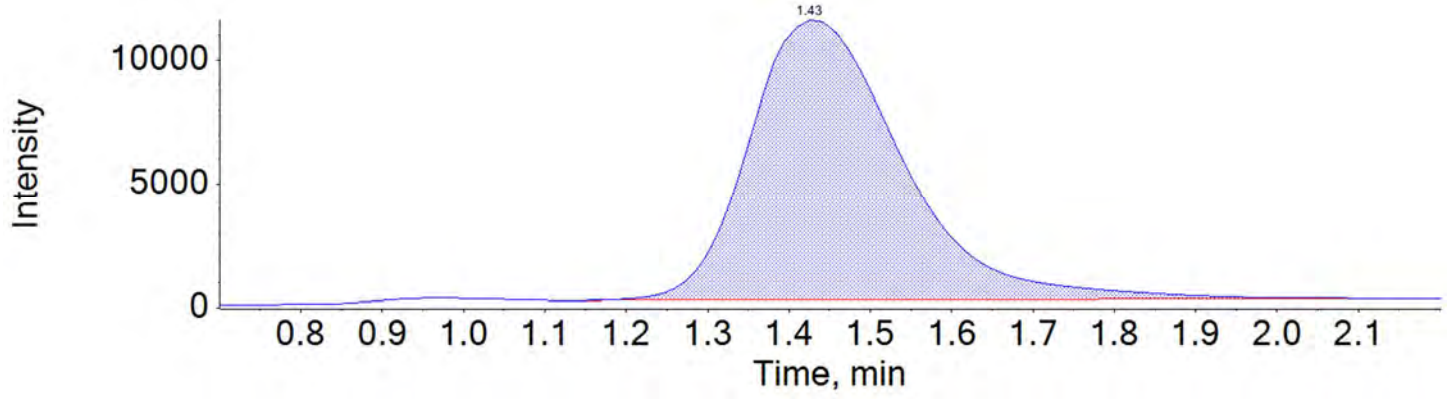
Sample Name	J6208-FS(0)	**Injection Vial**	18
Sample ID	NAWC-051018-RW-177	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:52:20	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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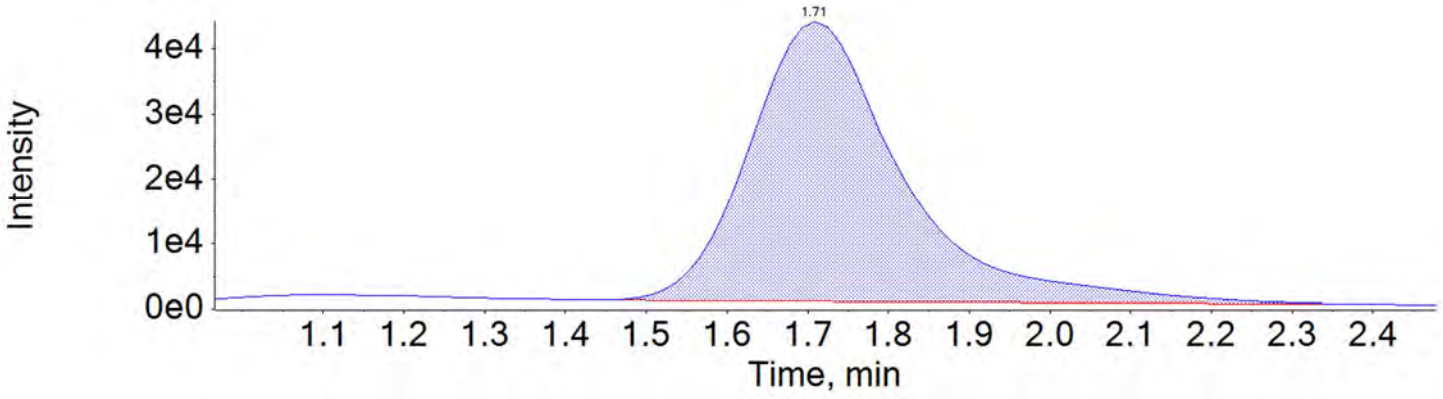
PFHxA_1 313.0 / 269.0



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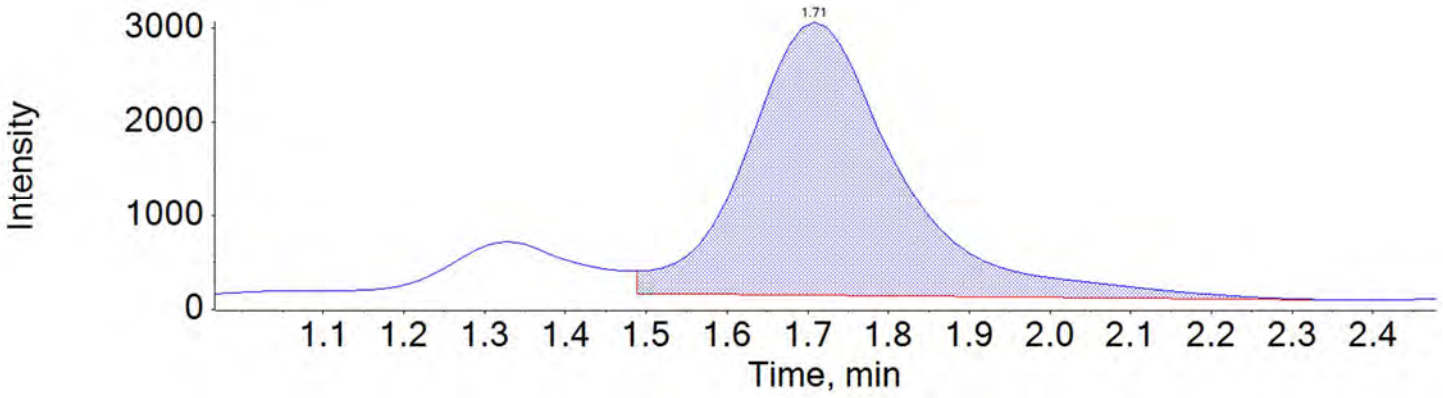
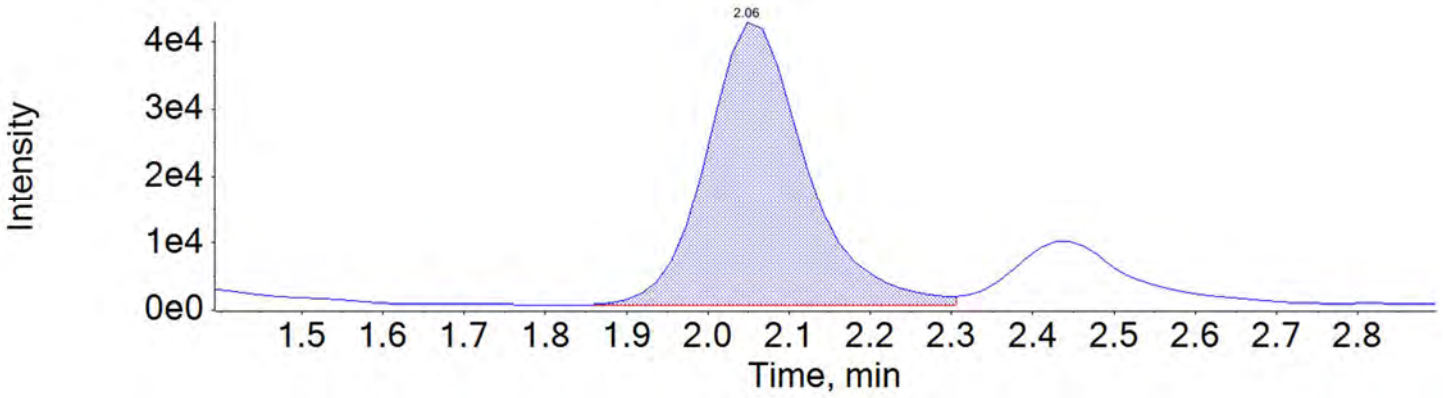


PFHpA_1 363.0 / 319.0



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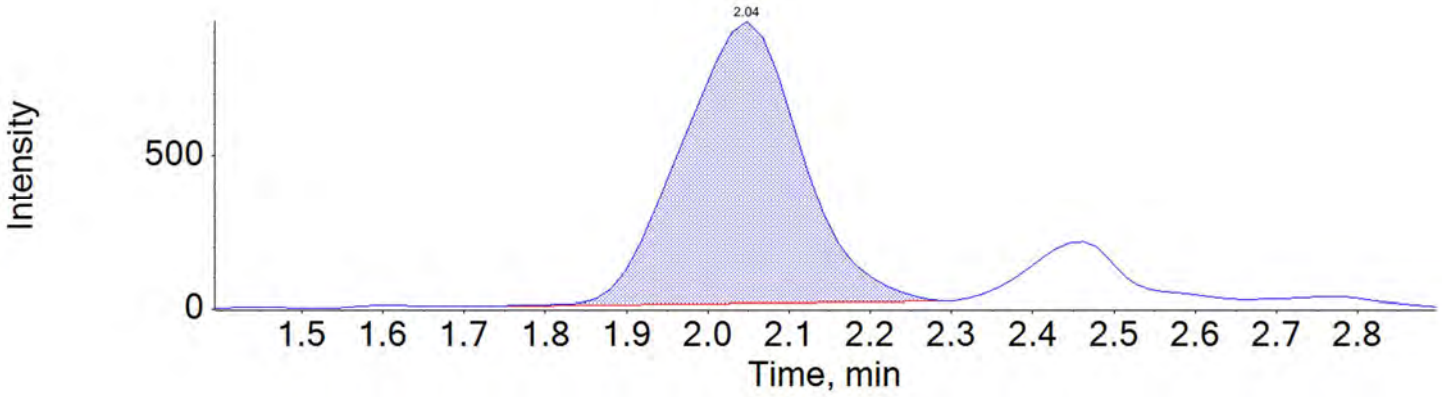
PFHpA_2 363.0 / 169.0



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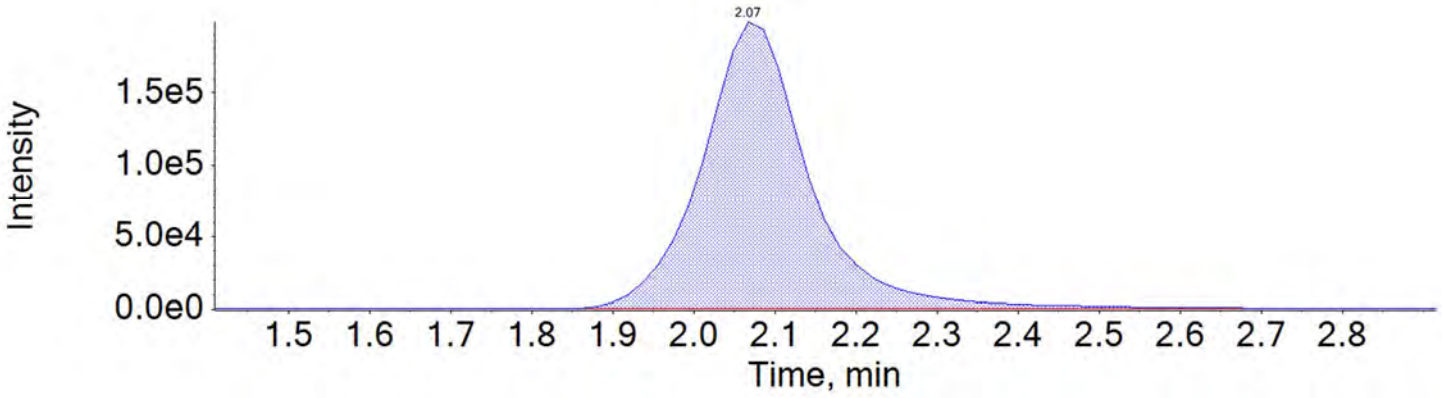

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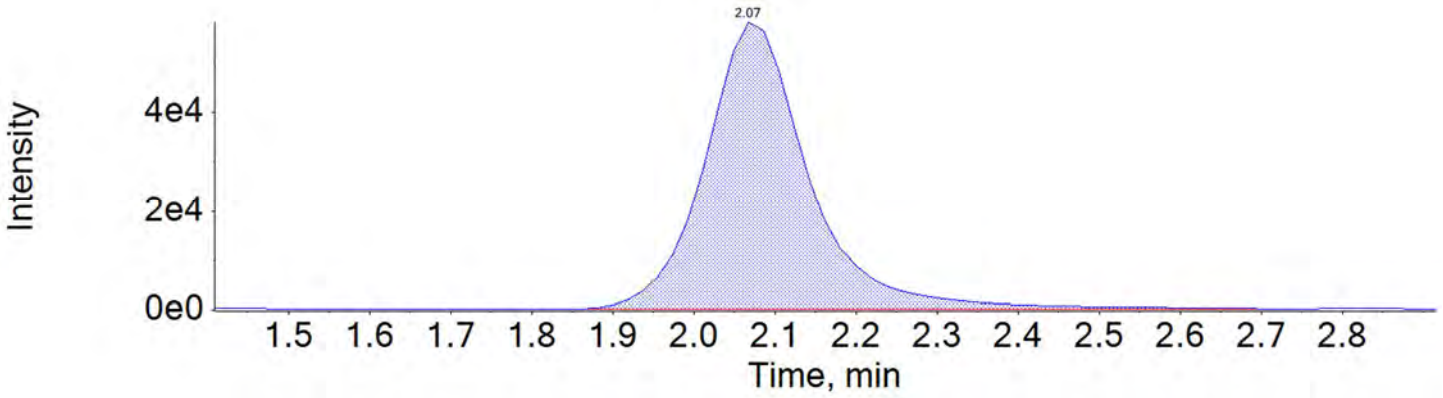

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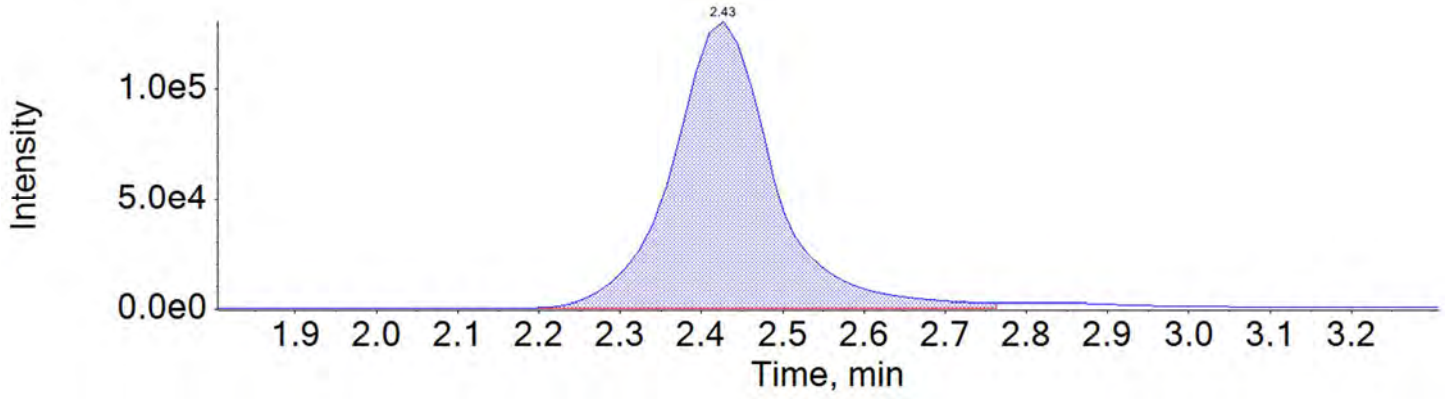
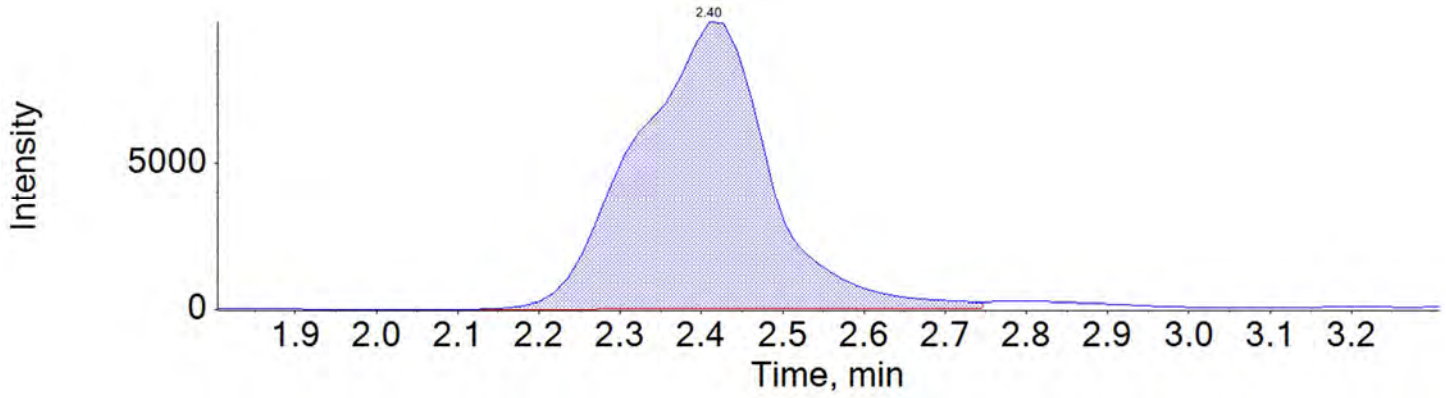
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



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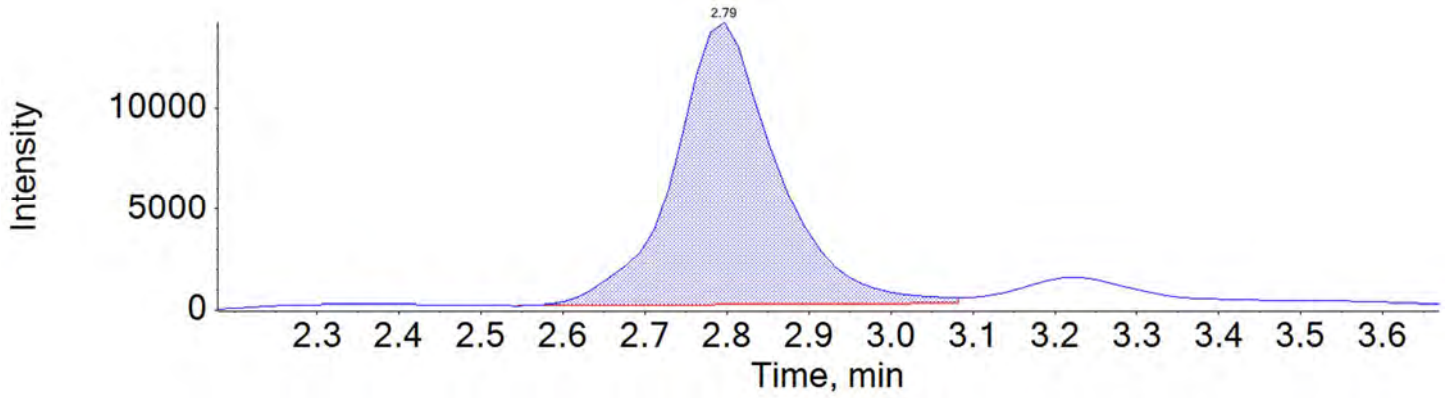

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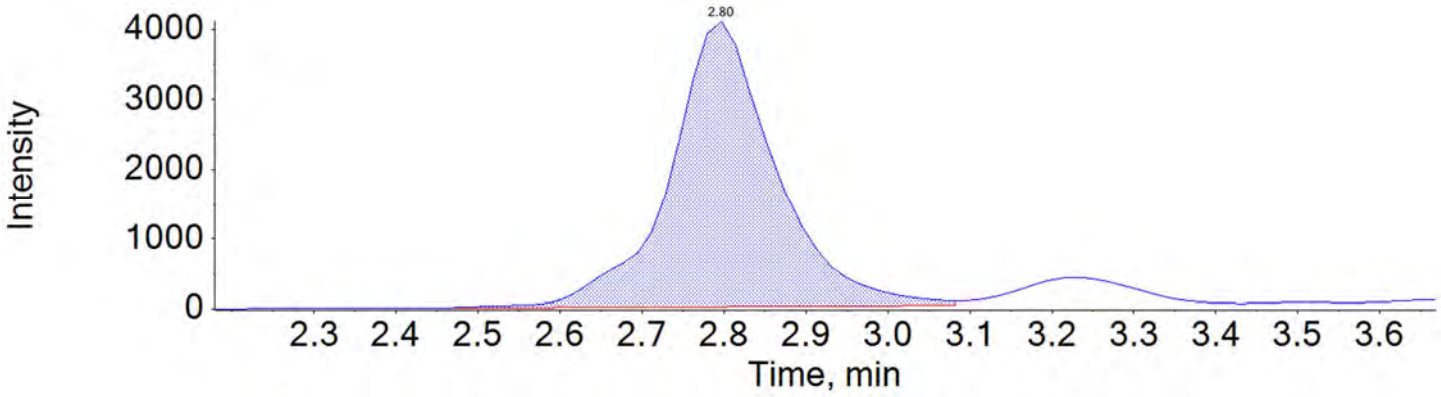
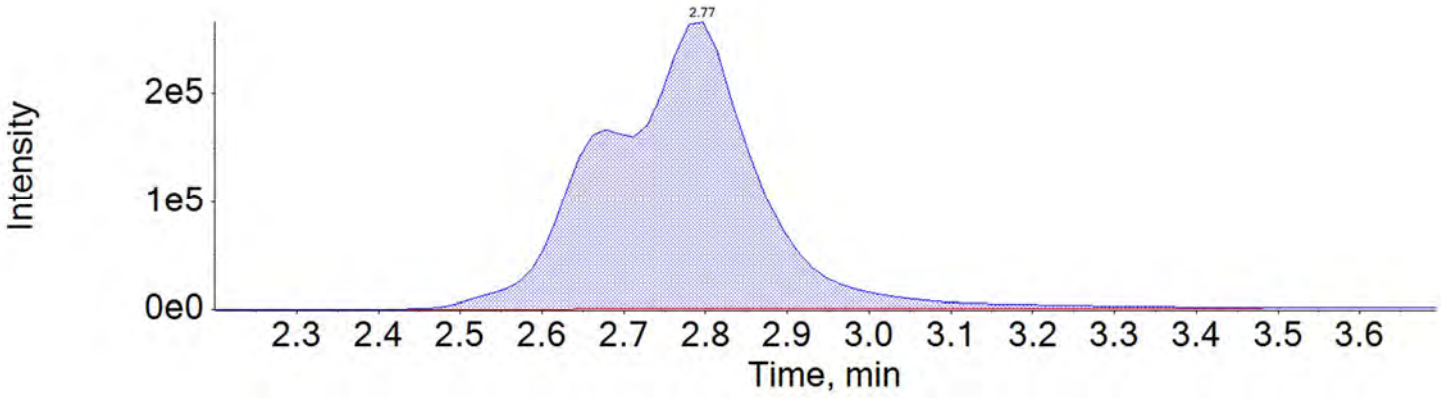
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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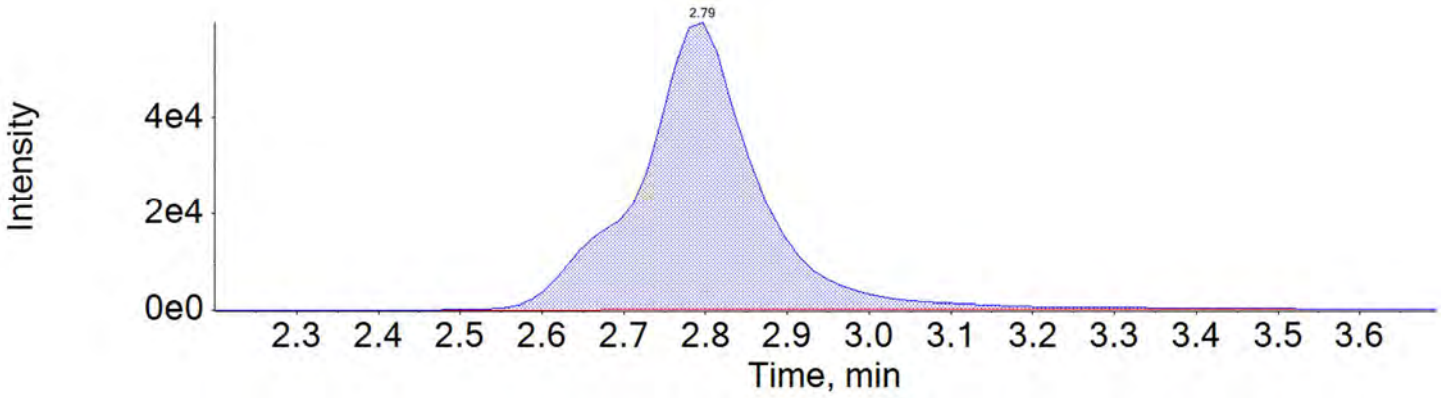

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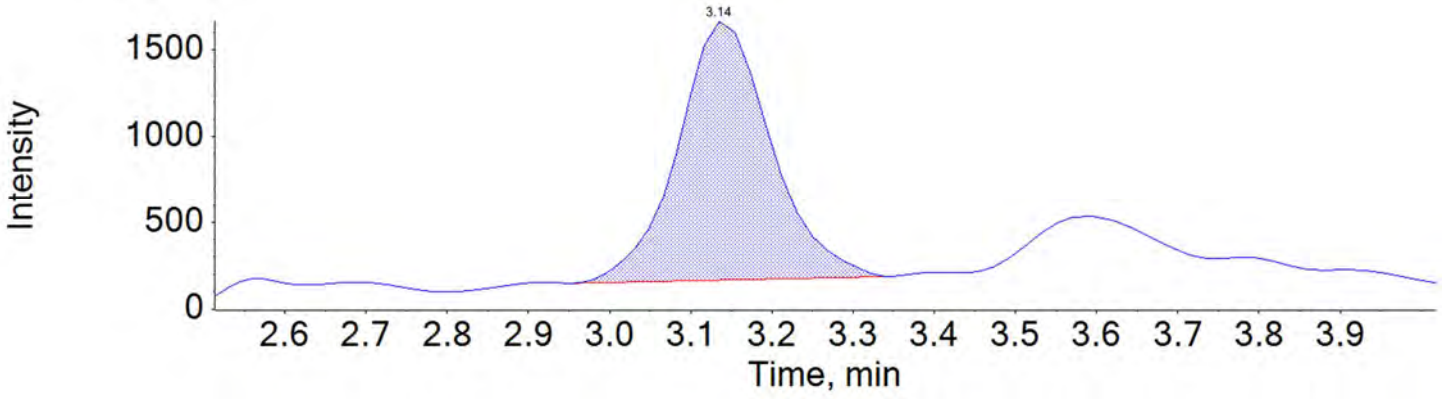
PFDA_1 513.0 / 469.0



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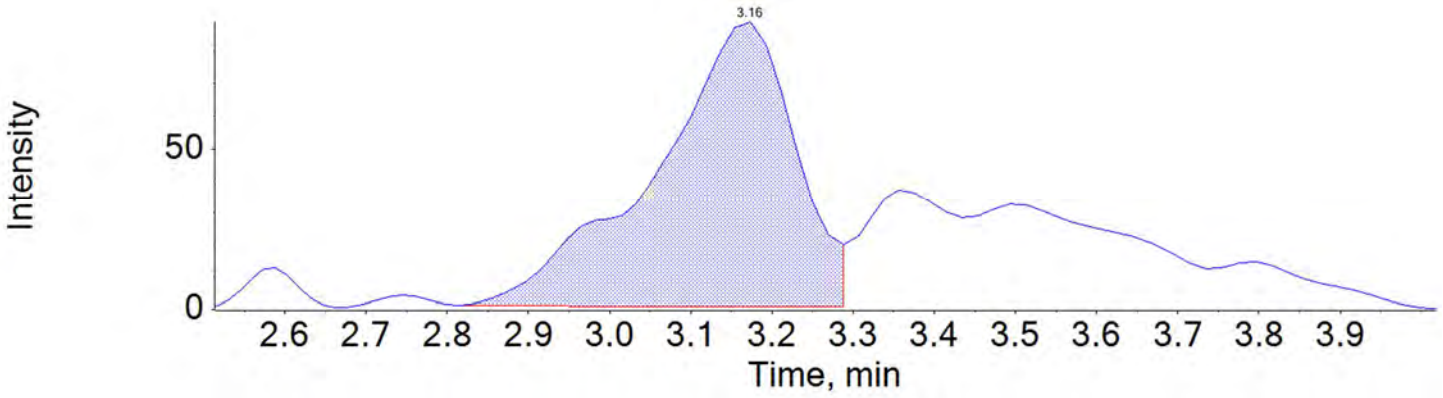
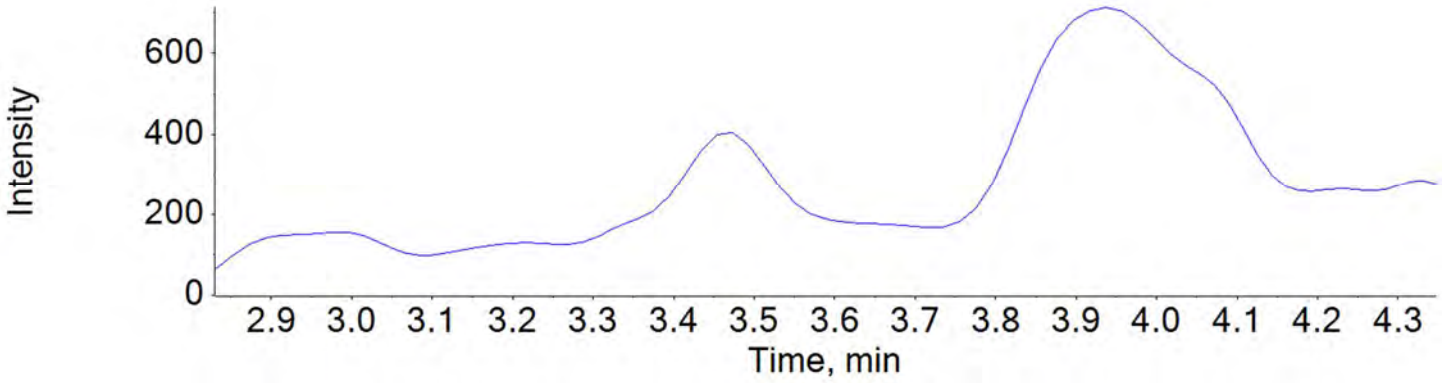


PFUnA_1 563.0 / 519.0



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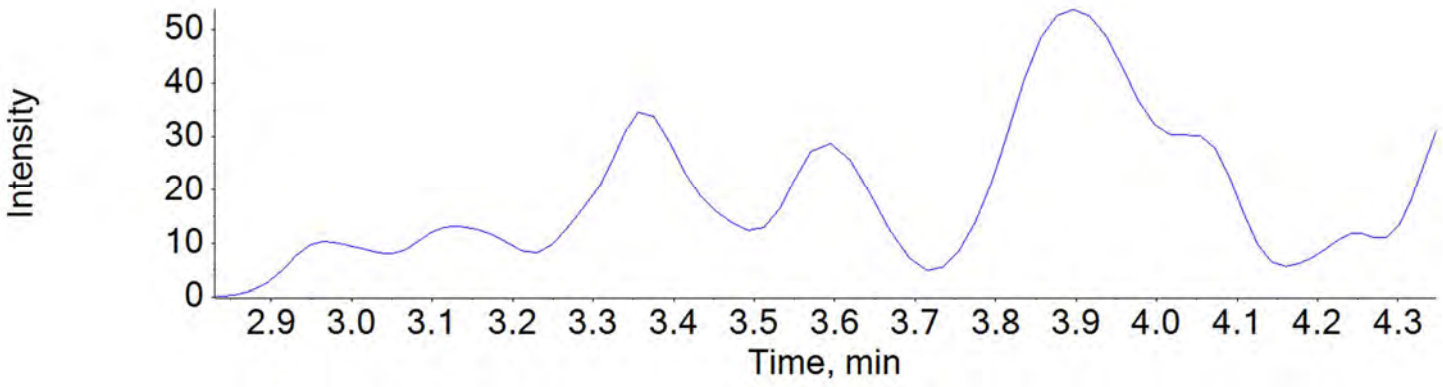
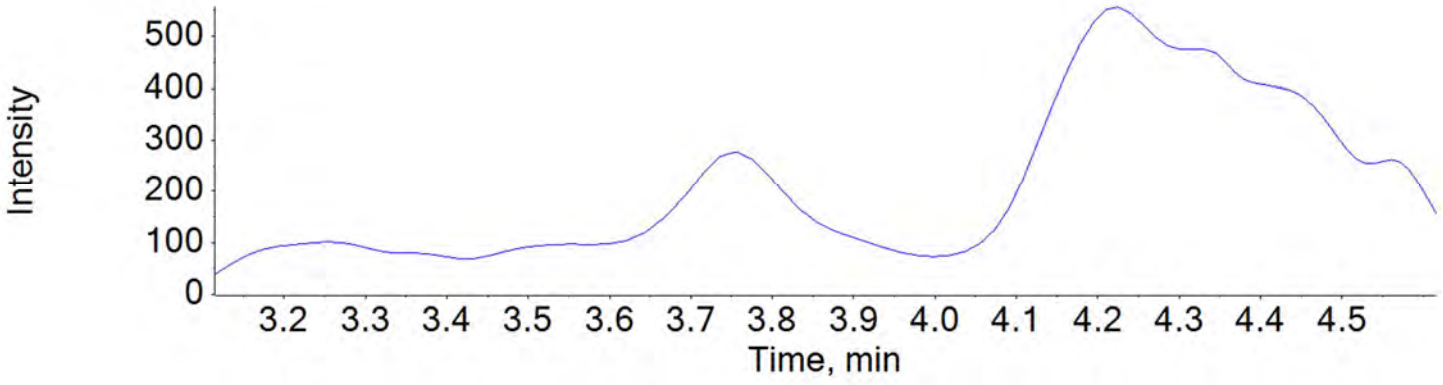
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



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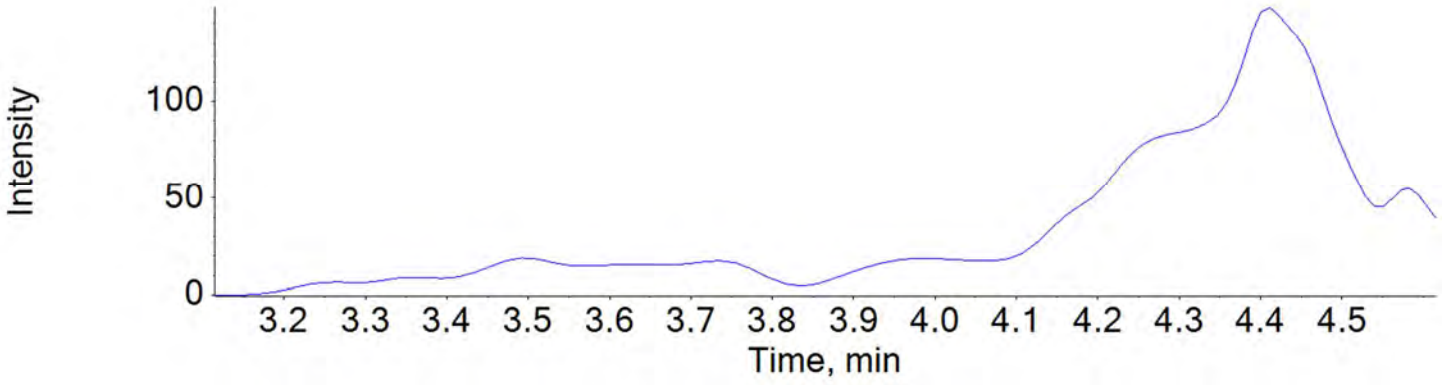

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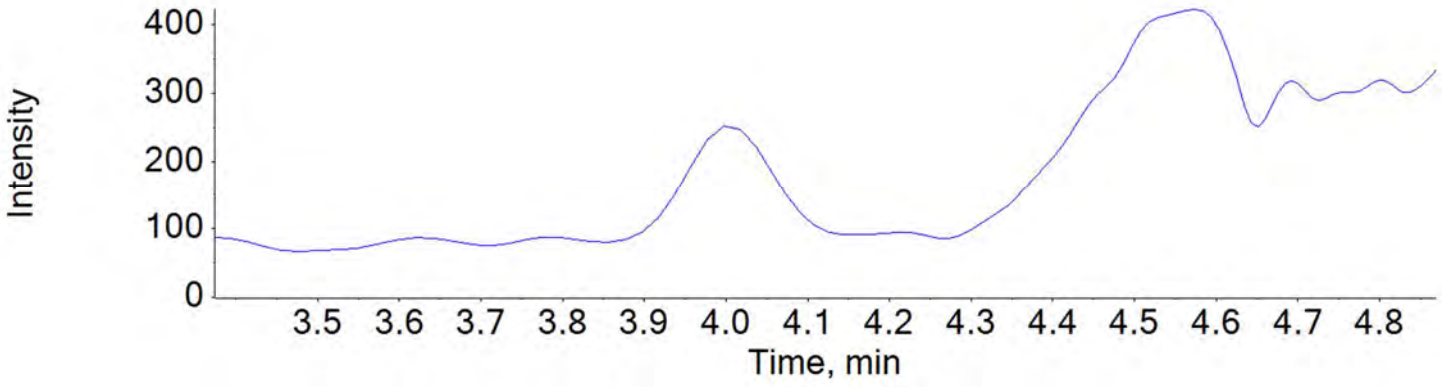
PFTrDA_1 663.0 / 619.0



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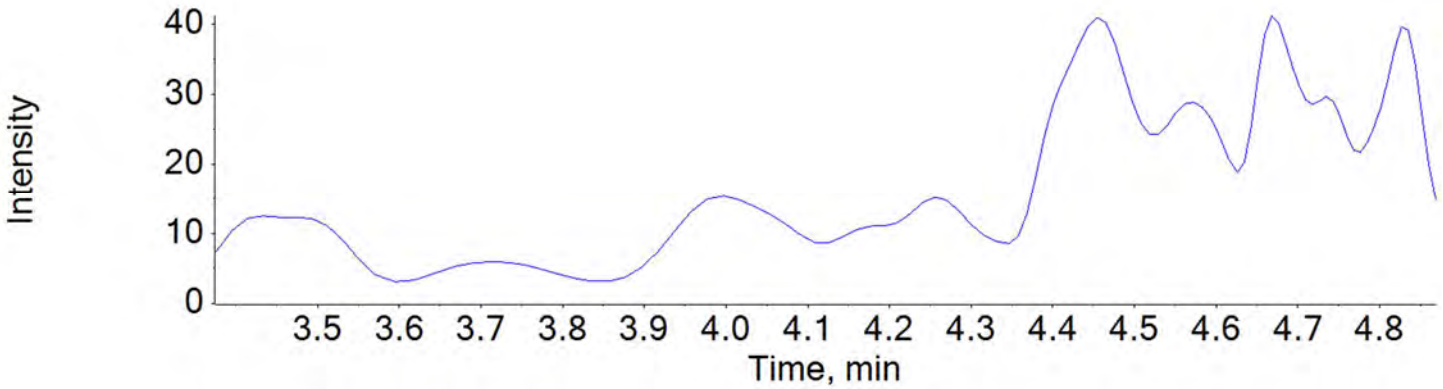

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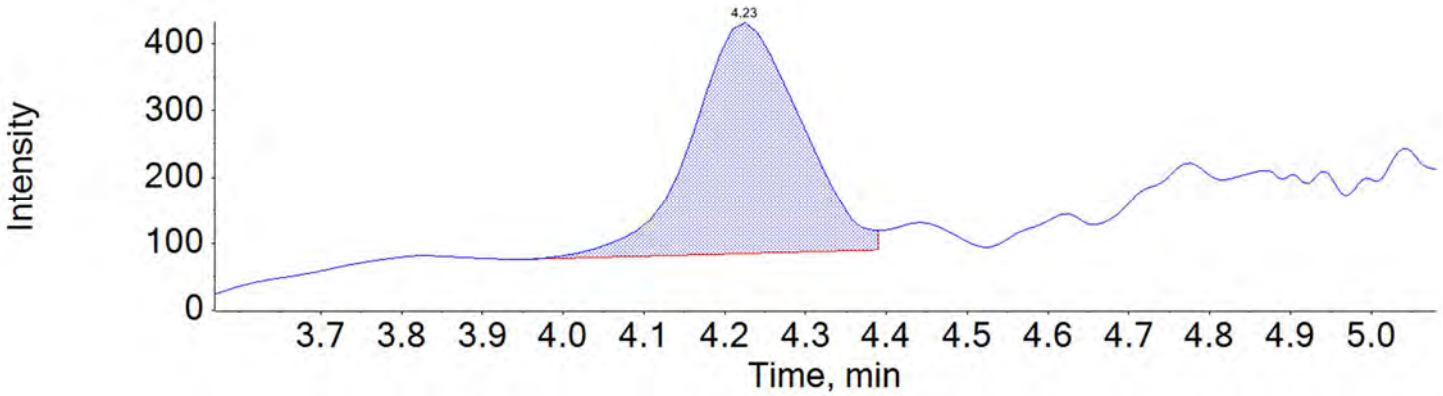

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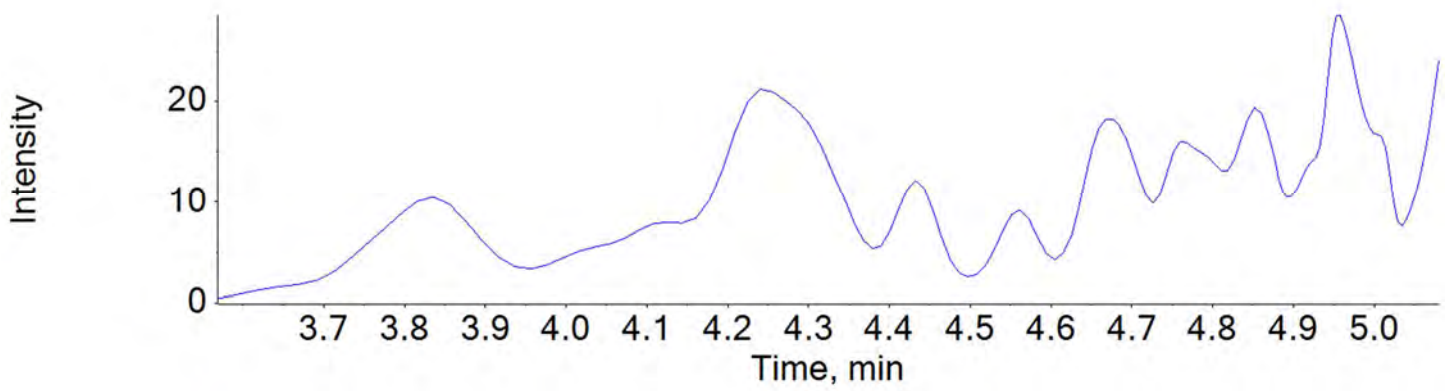
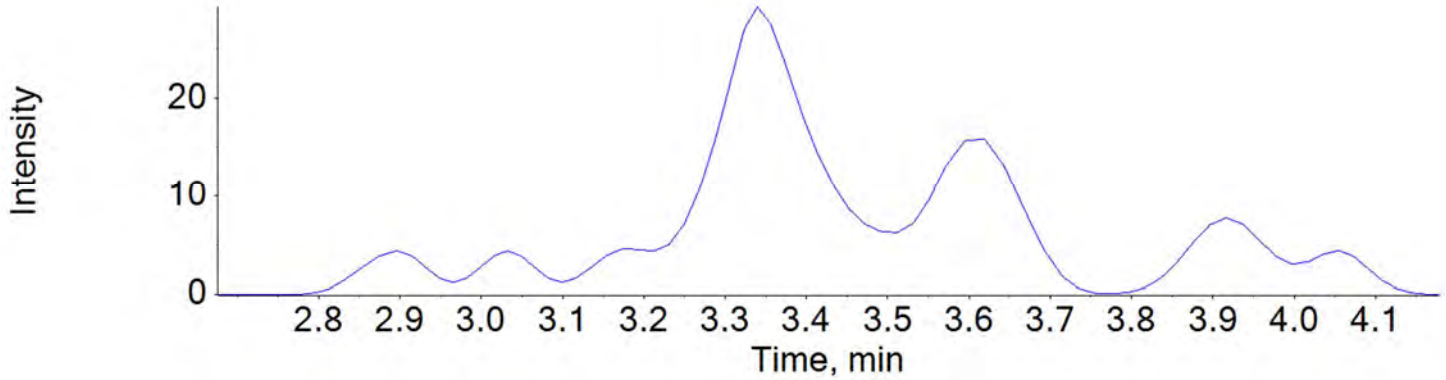


NMeFOSAA_1 570.0 / 419.0



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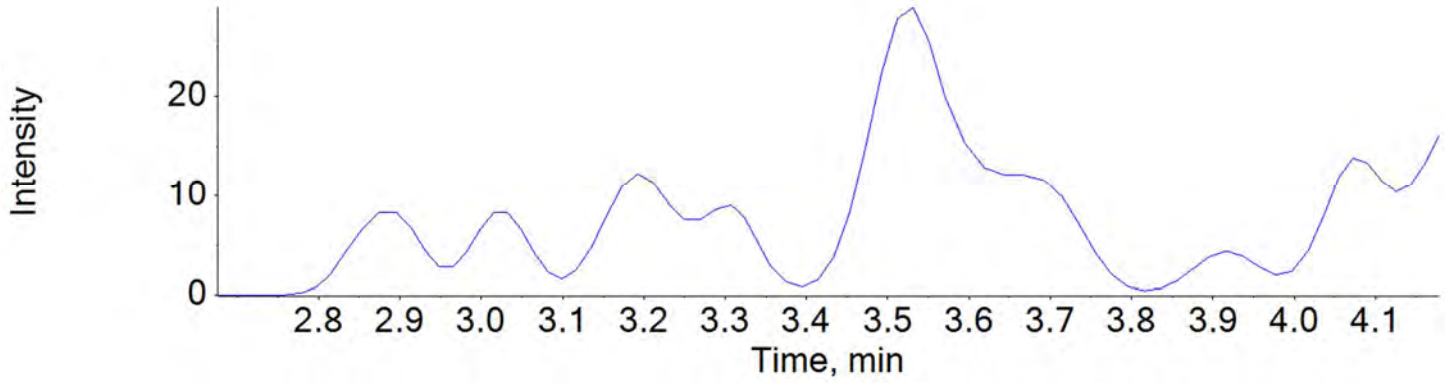

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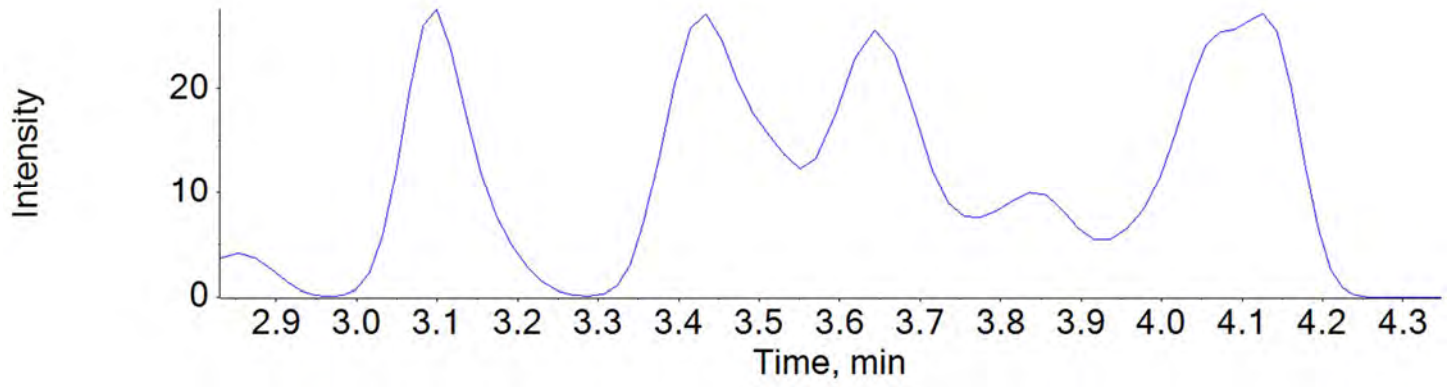
NEtFOSAA_1 584.0 / 419.0



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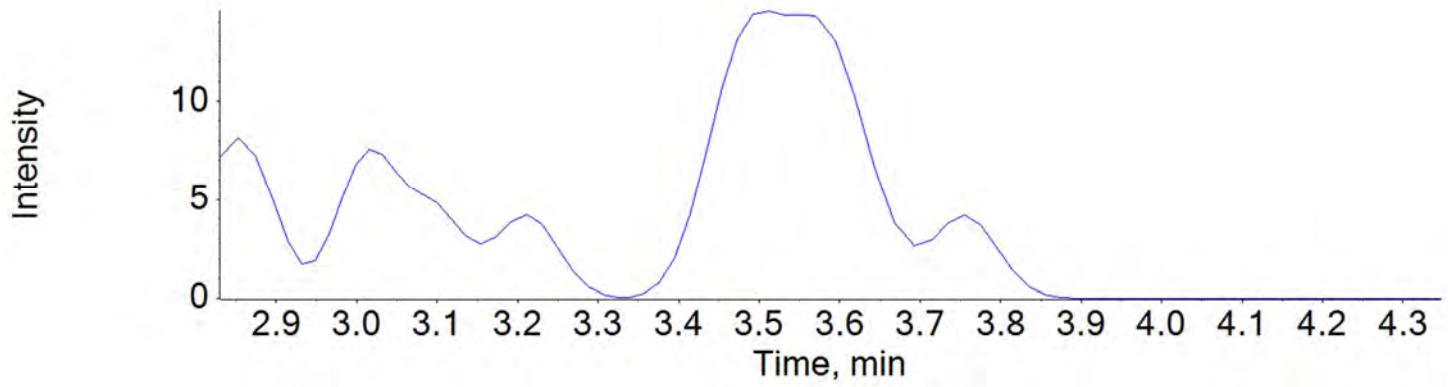

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Chromatogram Report

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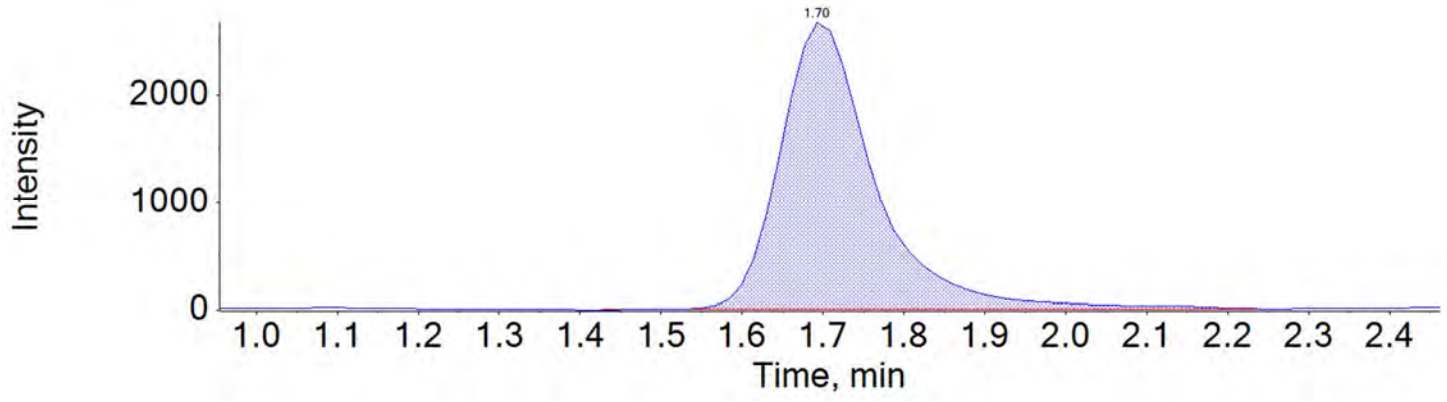
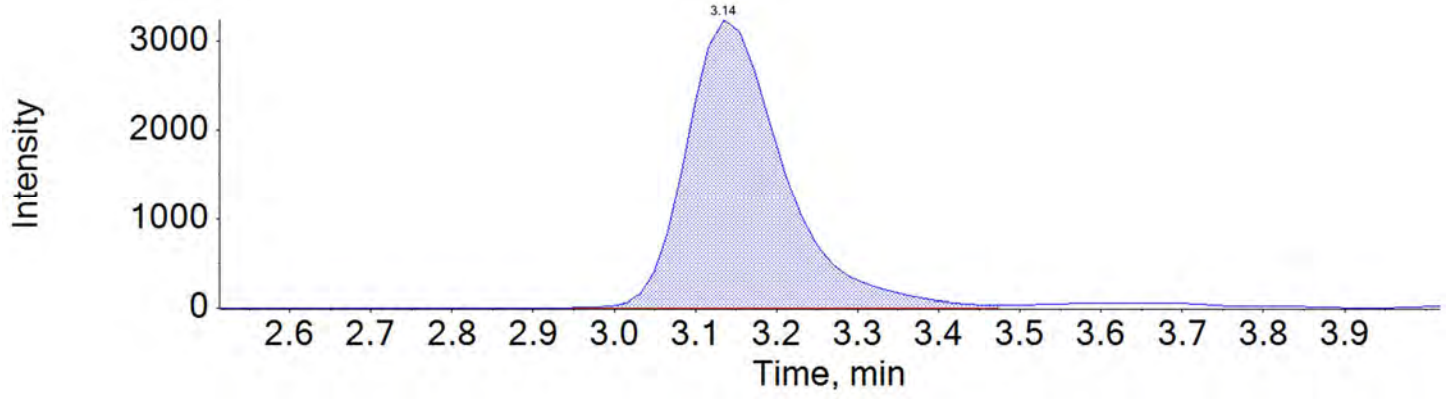
Sample Name	J6208-FS(0)	**Injection Vial**	18
Sample ID	NAWC-051018-RW-177	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:52:20	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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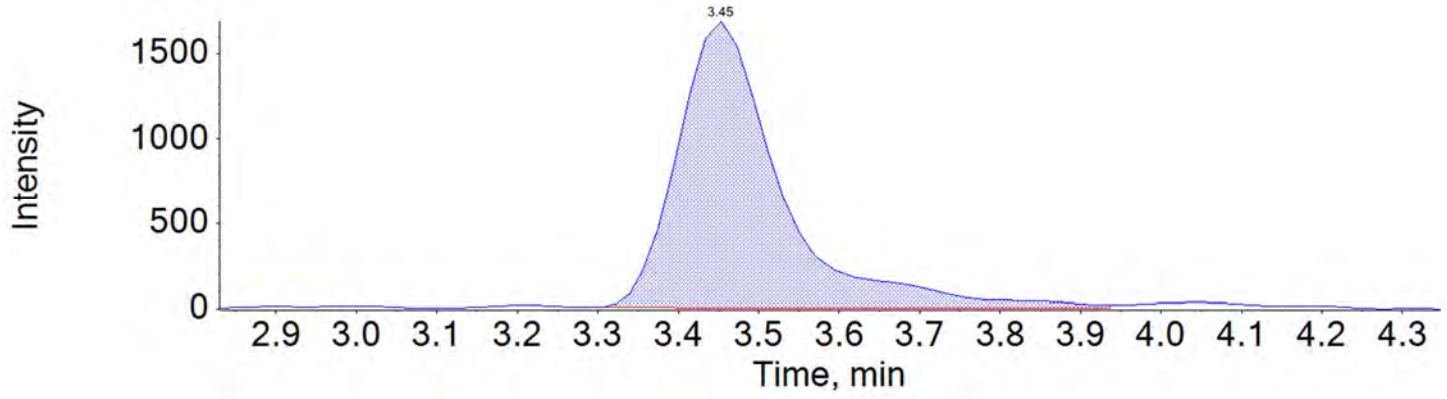
d5-EtFOSAA 589.0 / 419.0



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Chromatogram Report

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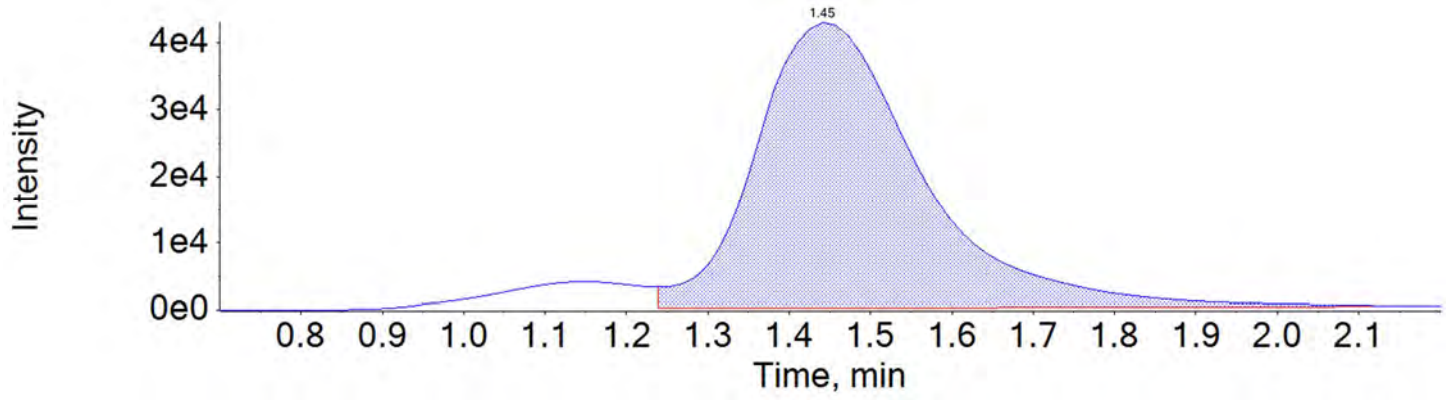
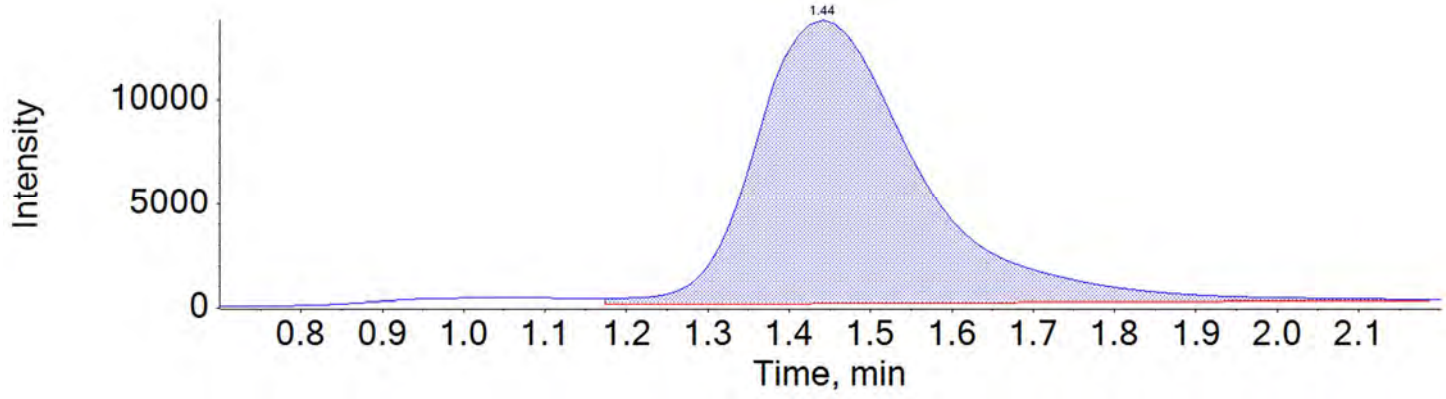
Sample Name	J6210-FS(0)	**Injection Vial**	19
Sample ID	WGNA-051018-RW-3295	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:01:14	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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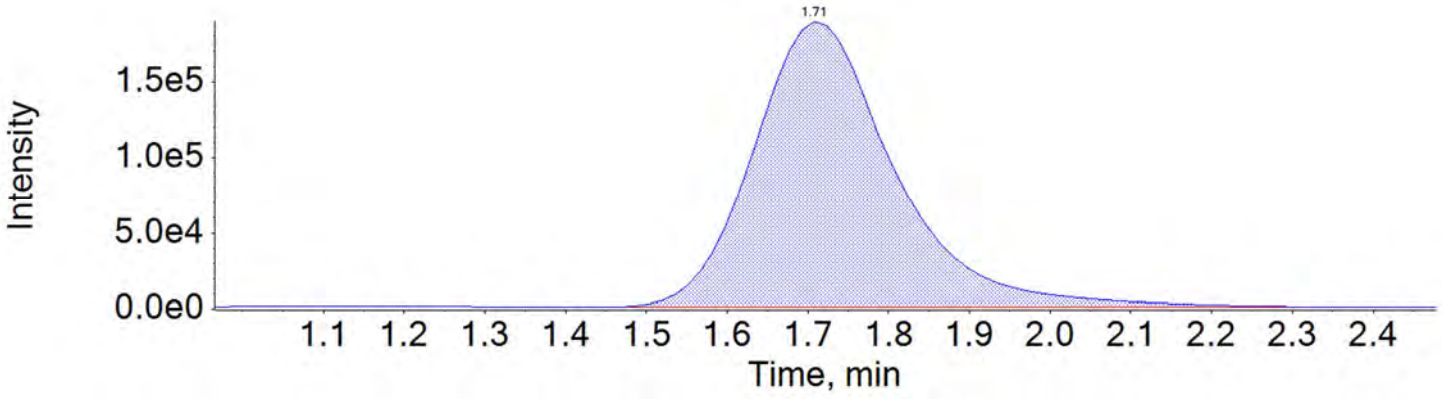
PFHxA_1 313.0 / 269.0



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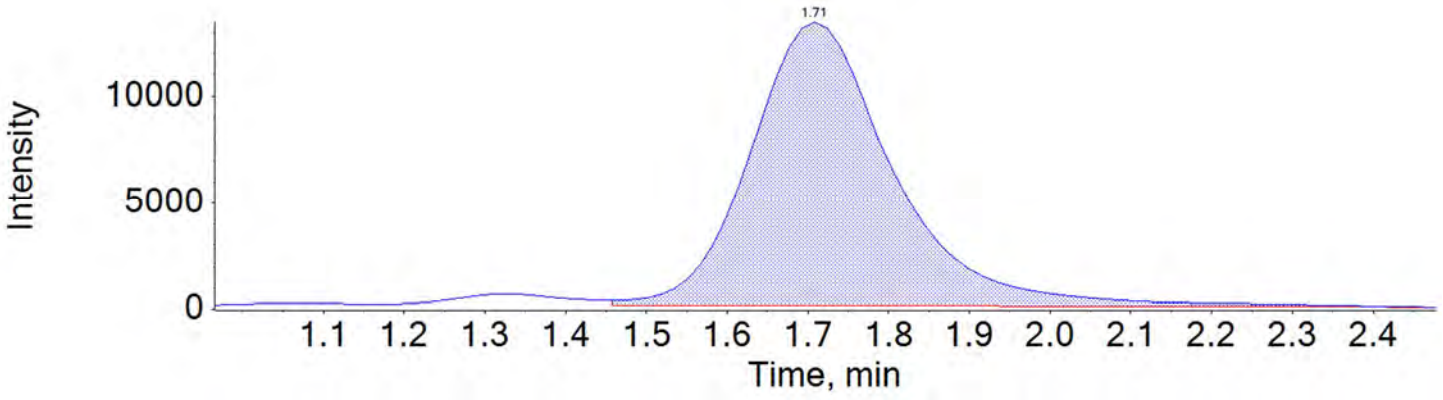

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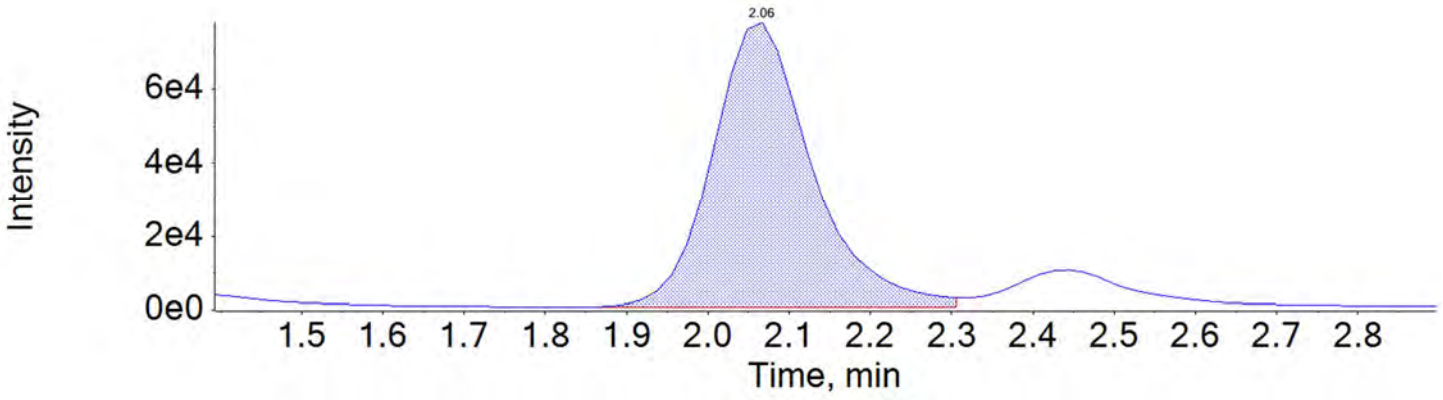

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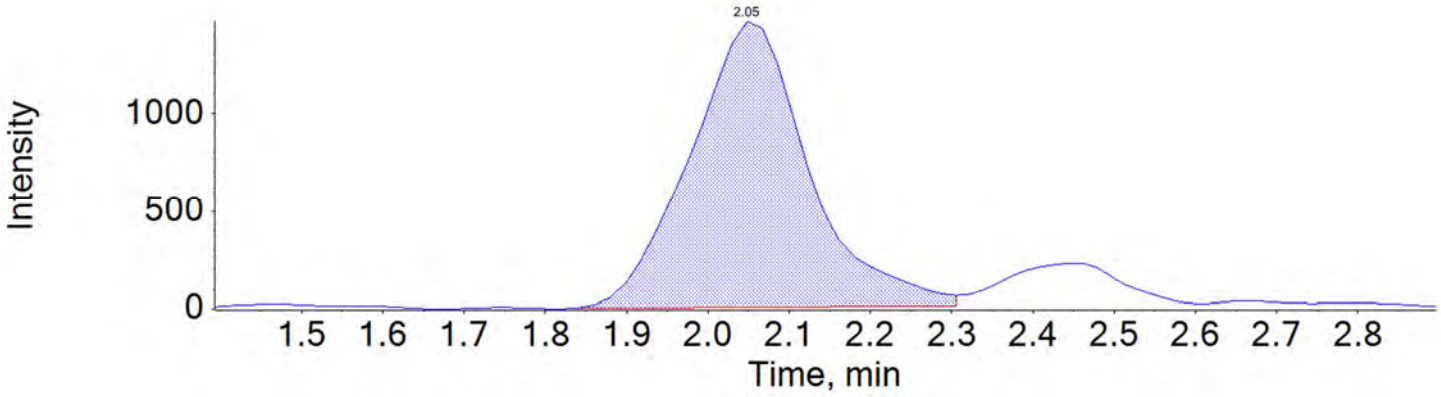

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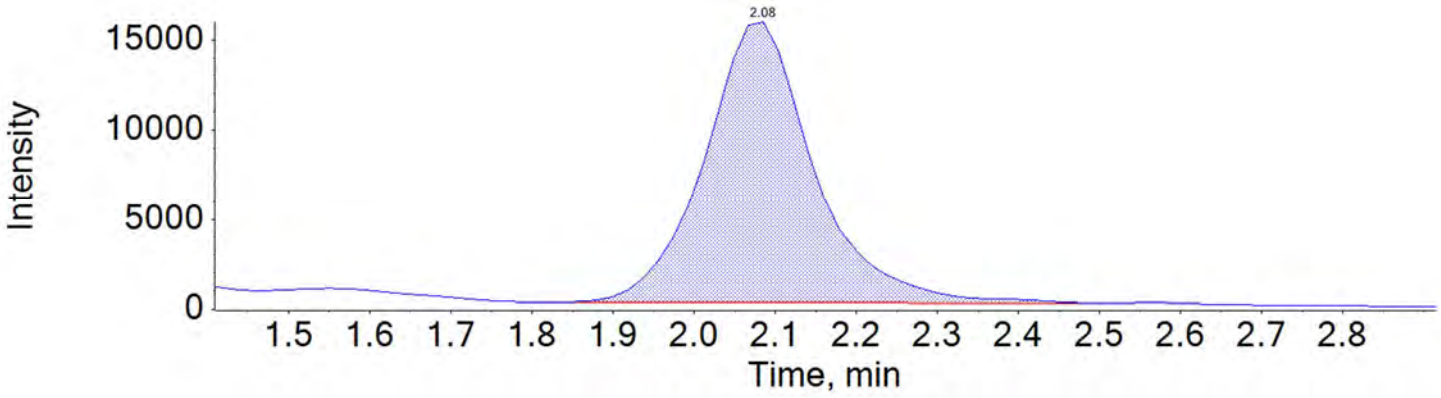

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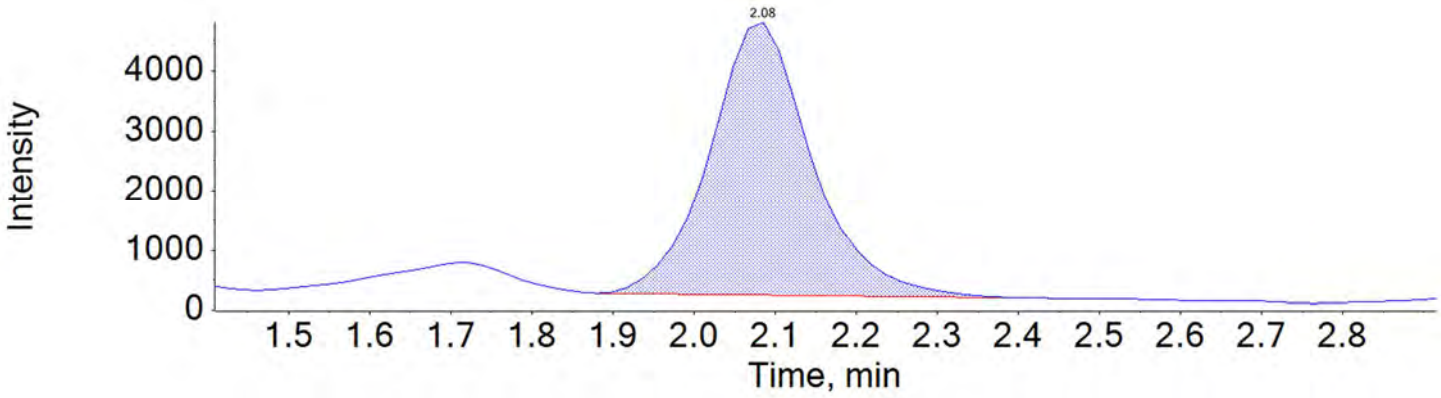

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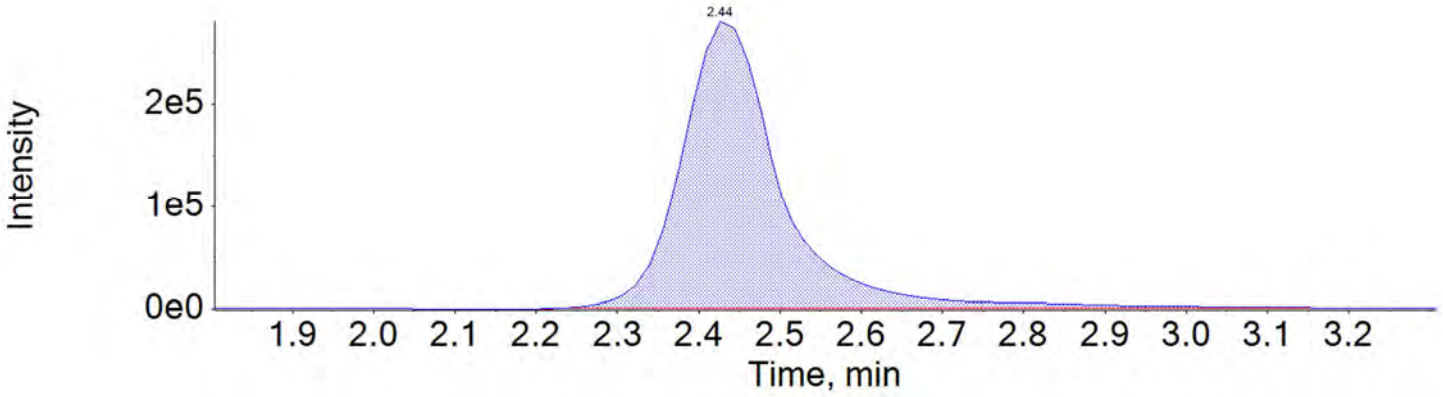
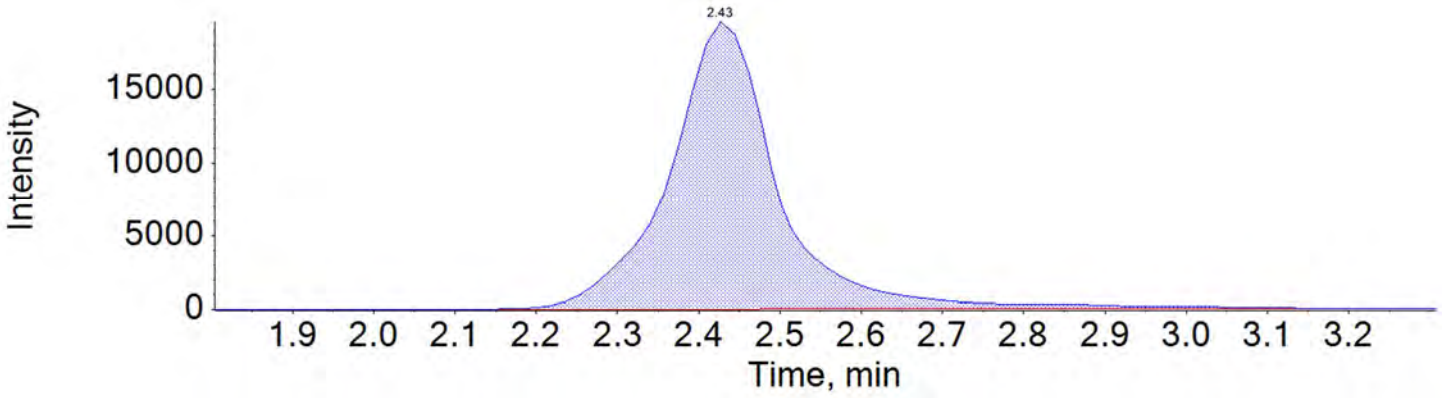
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



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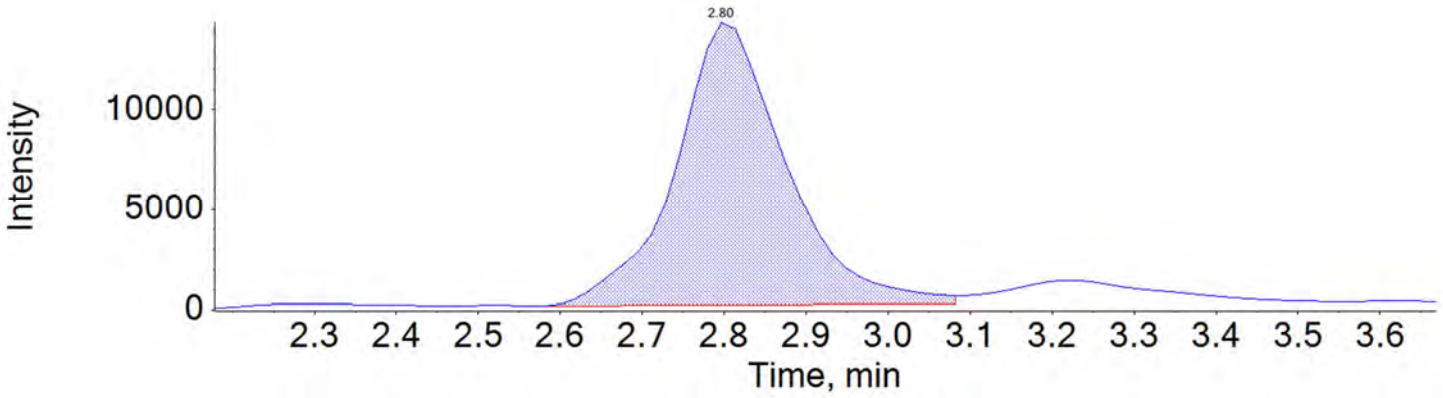

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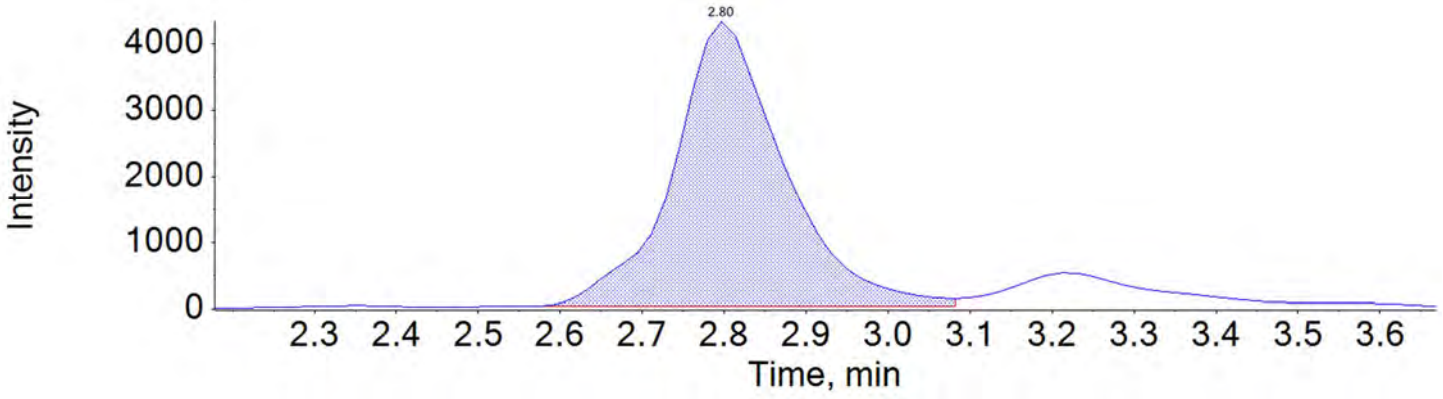
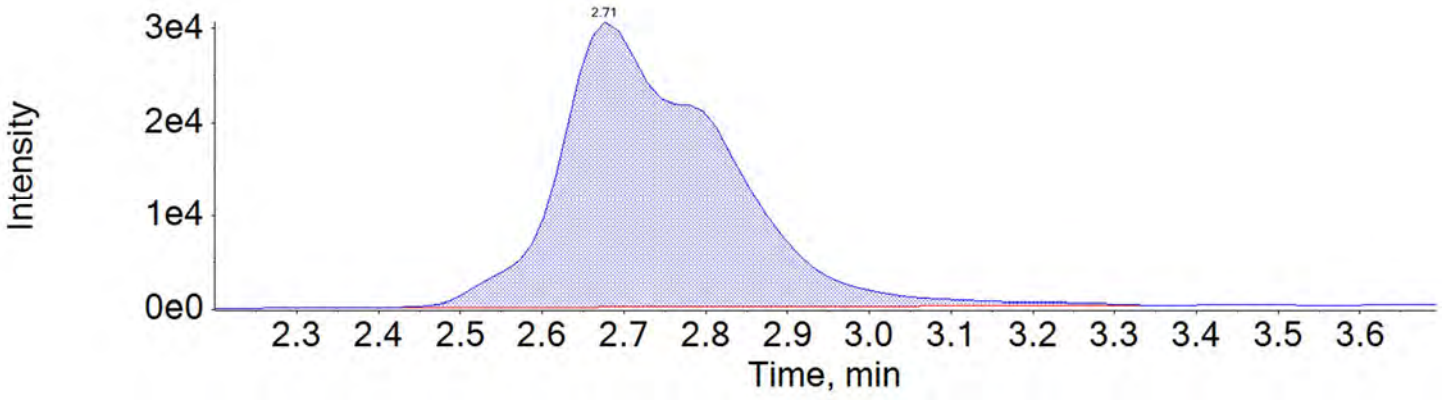


PFOS_1 499.0 / 80.0



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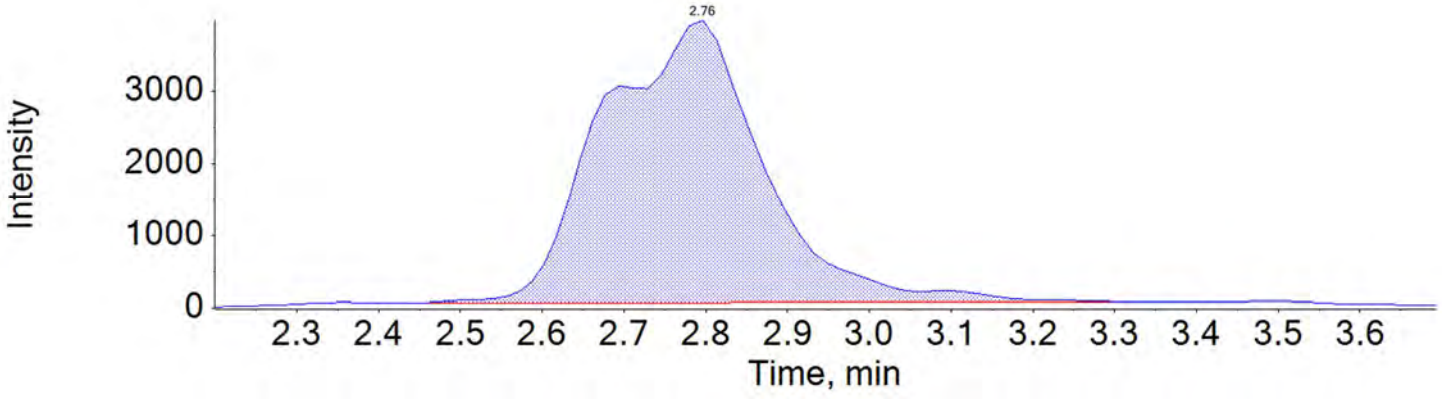

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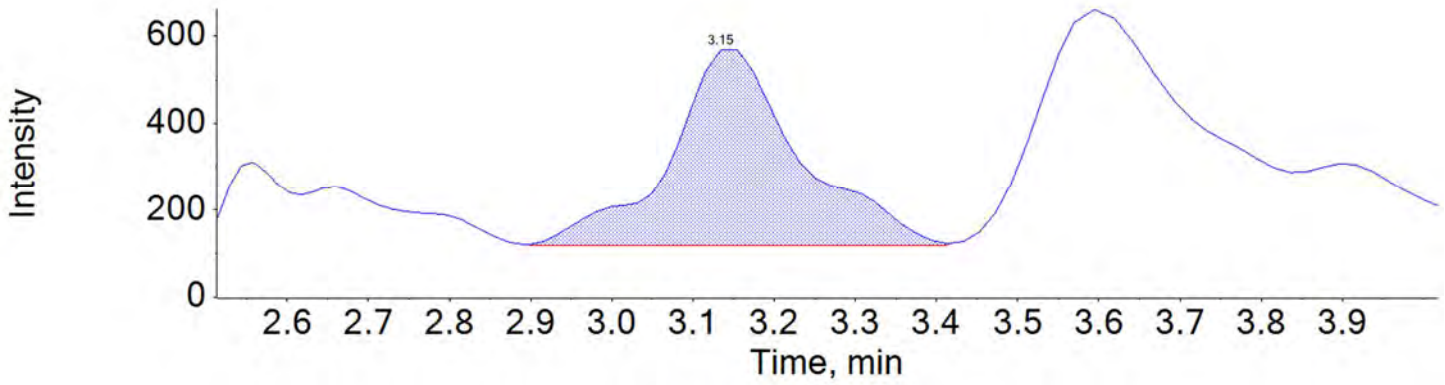
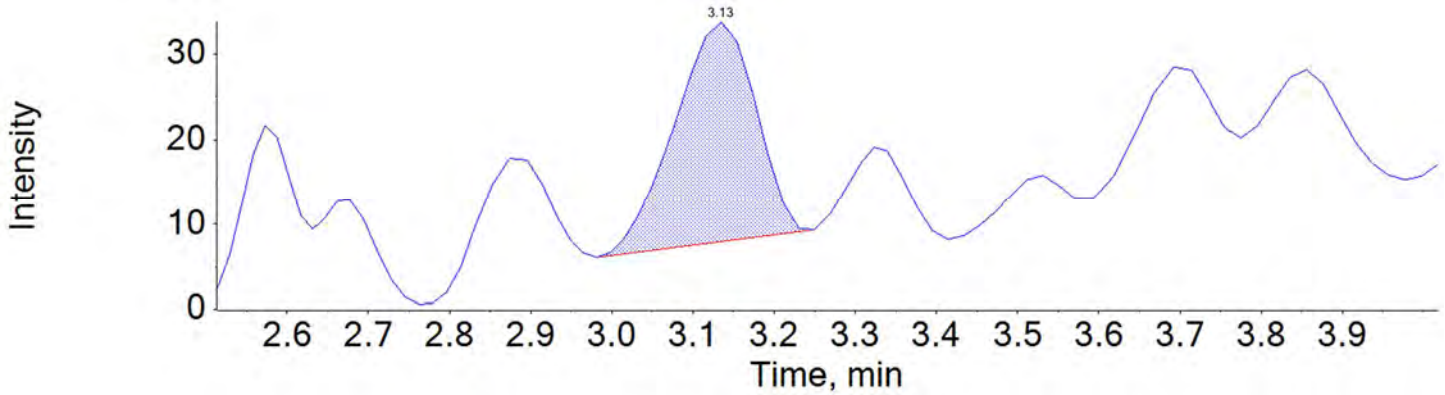


PFDA_2 513.0 / 219.0



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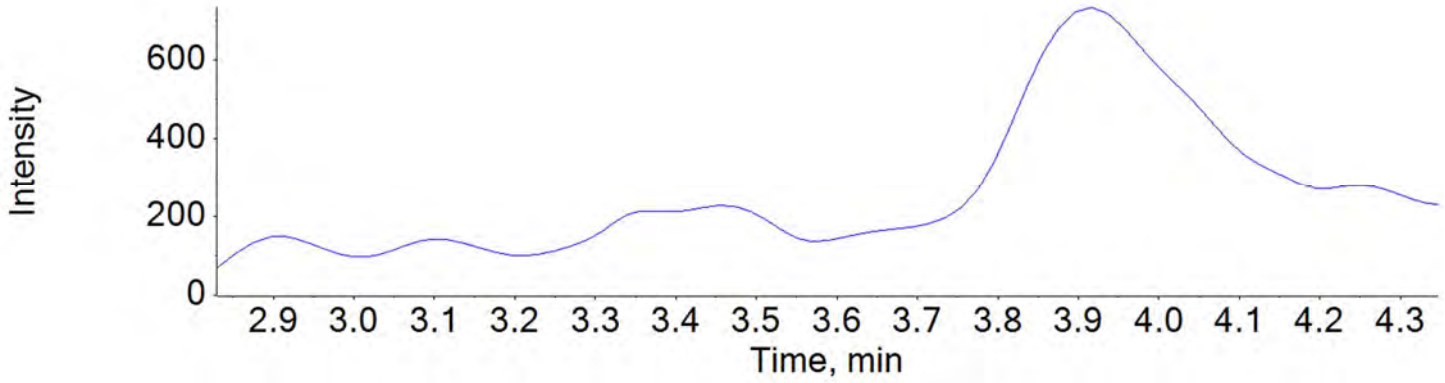

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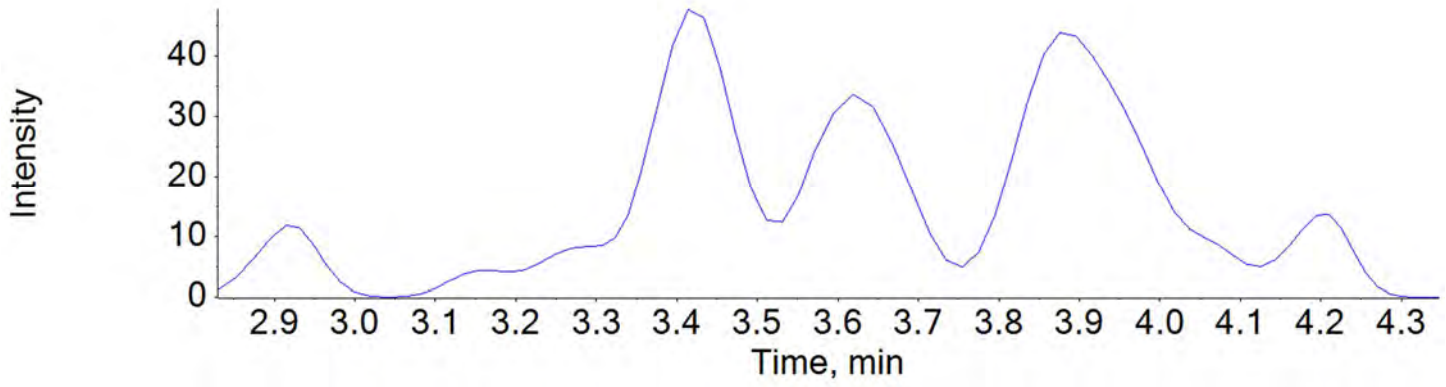

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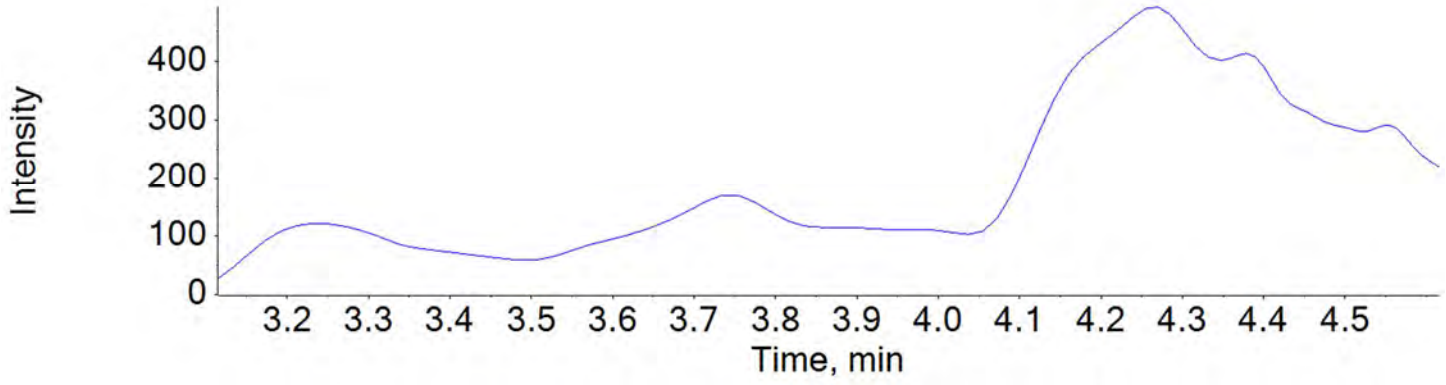

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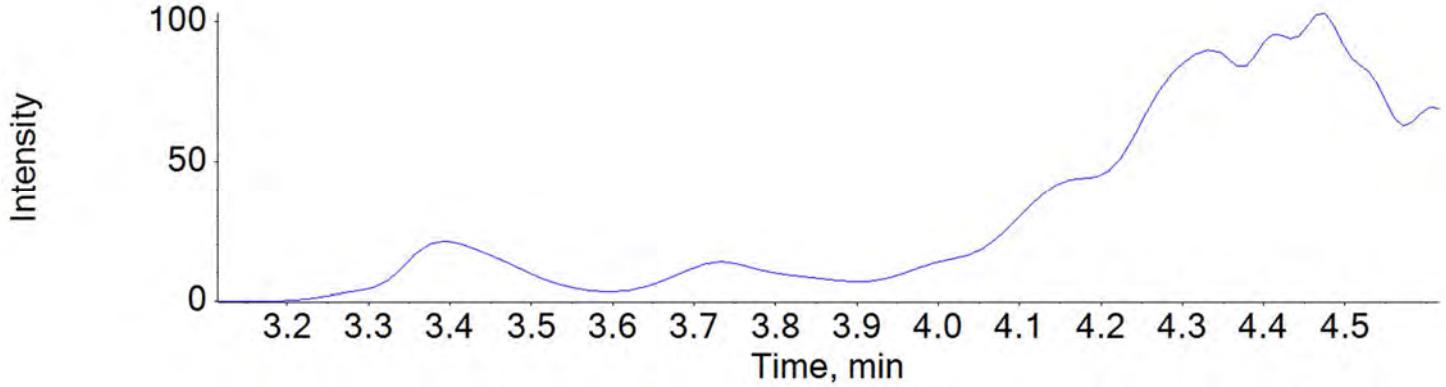

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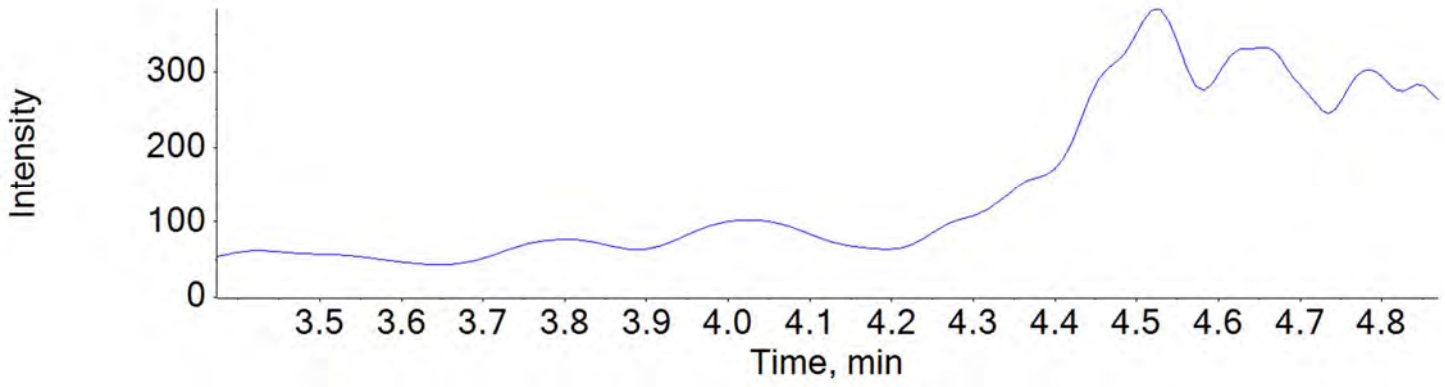
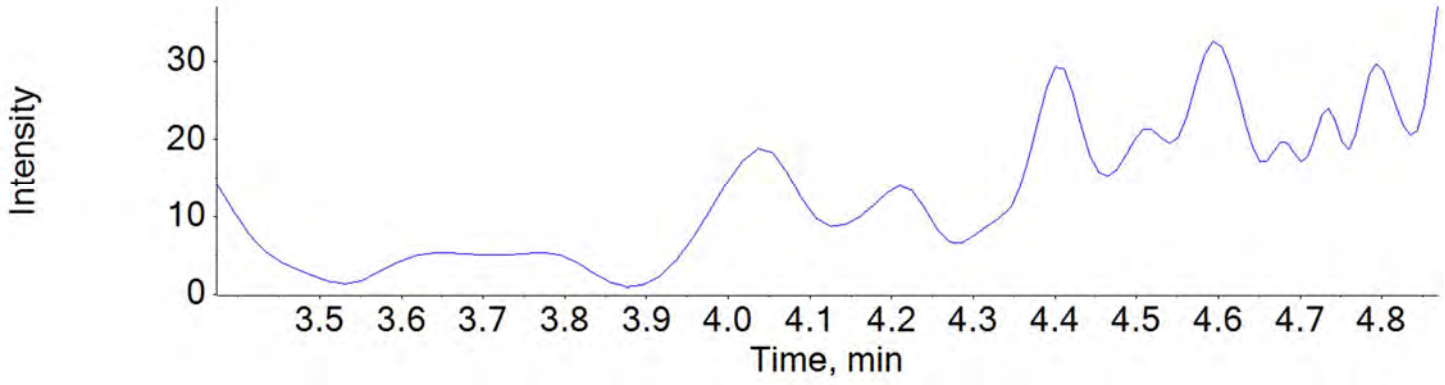
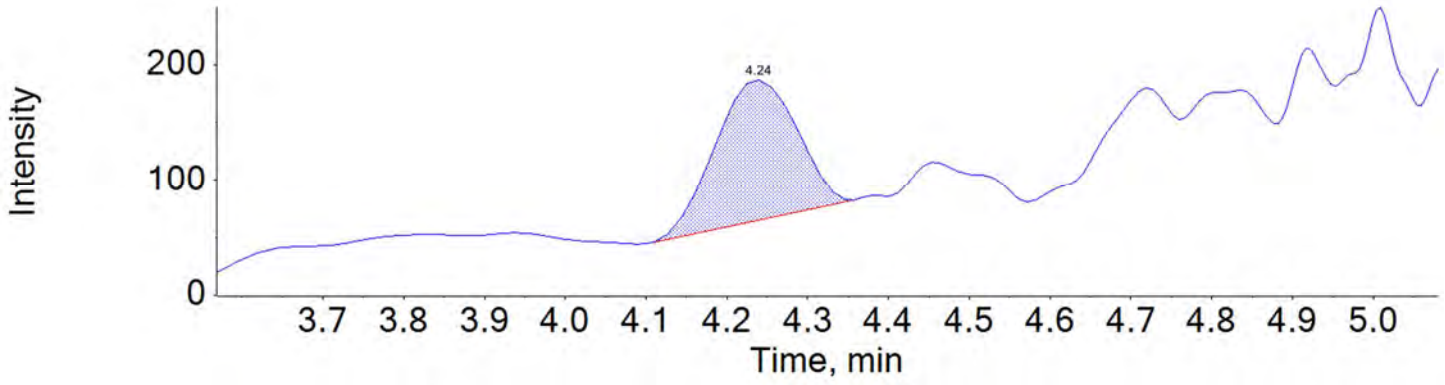
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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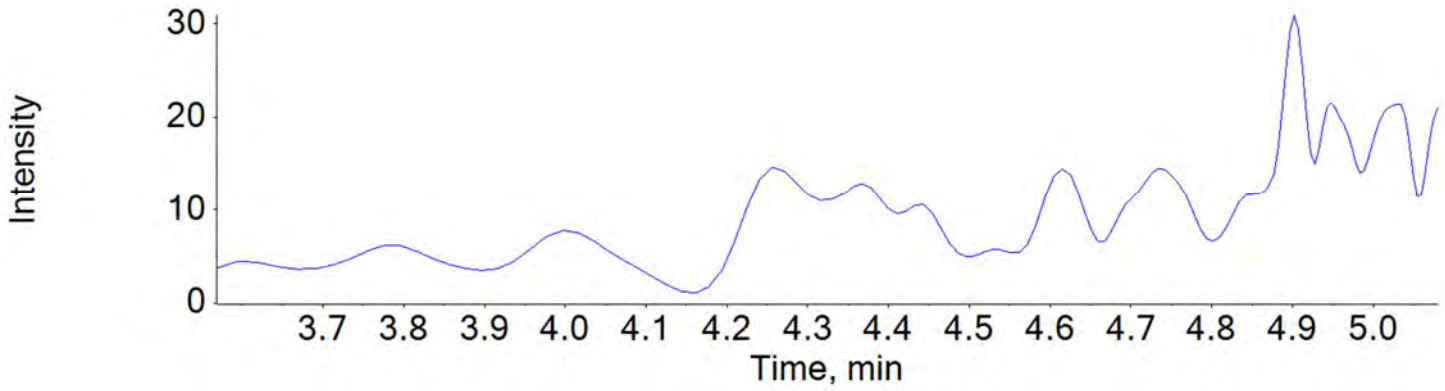
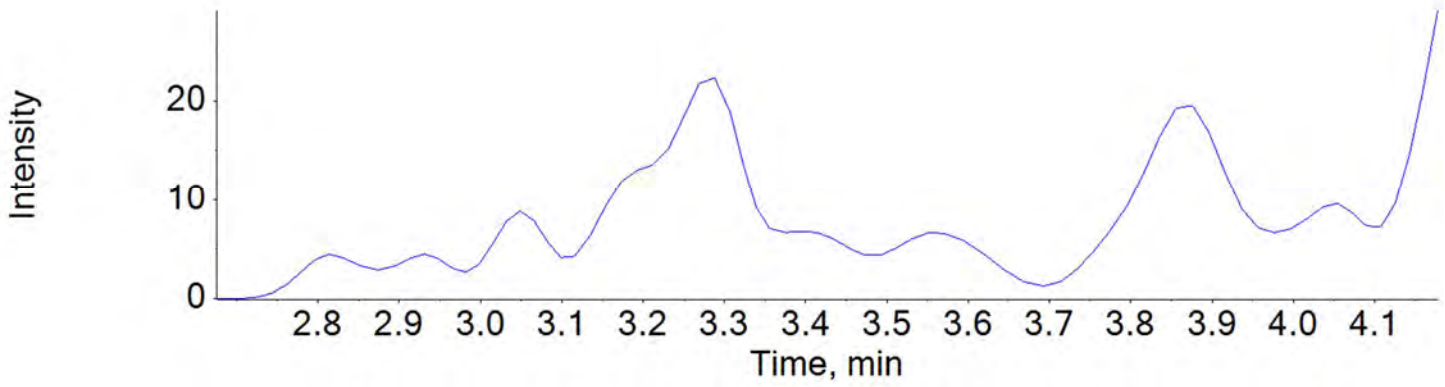
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



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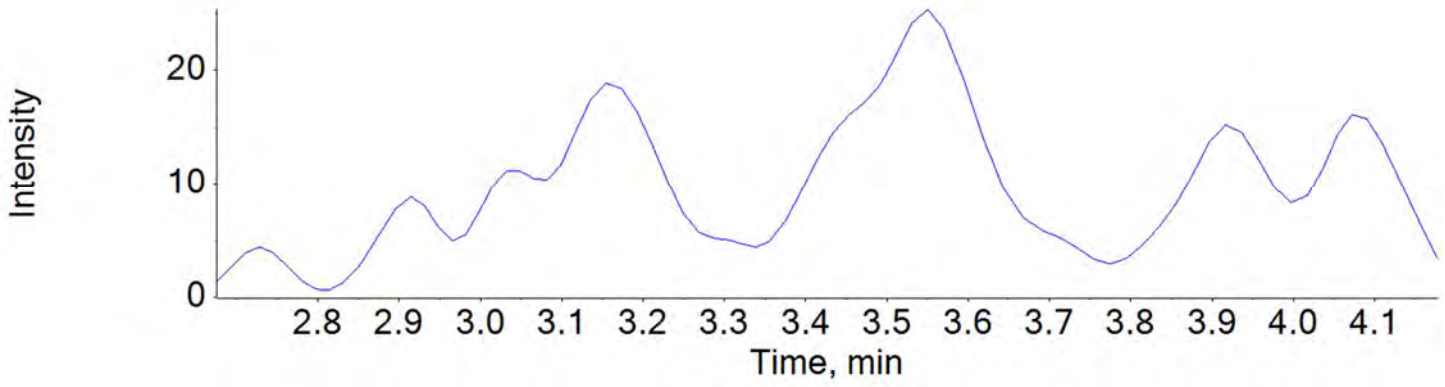

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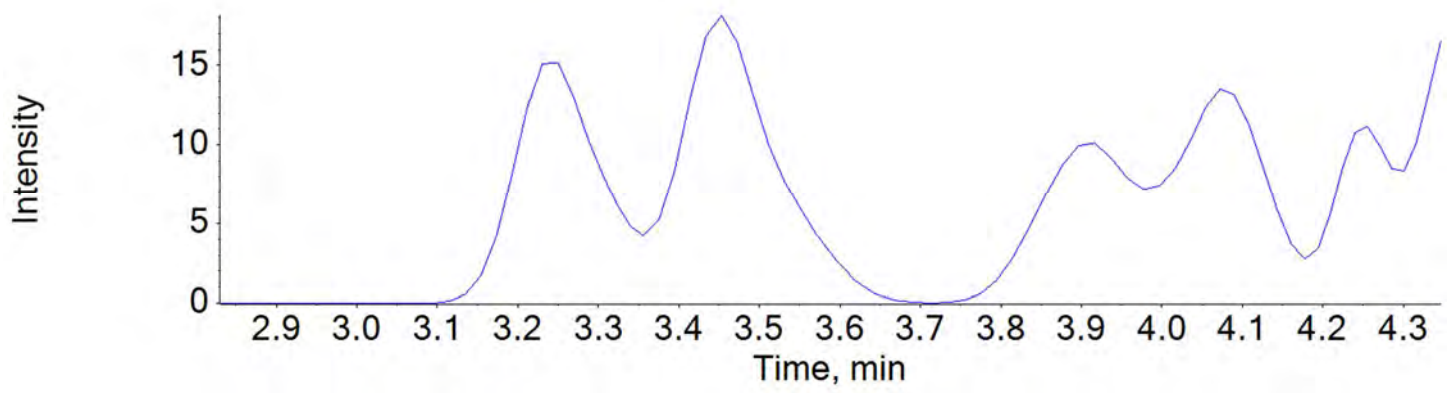
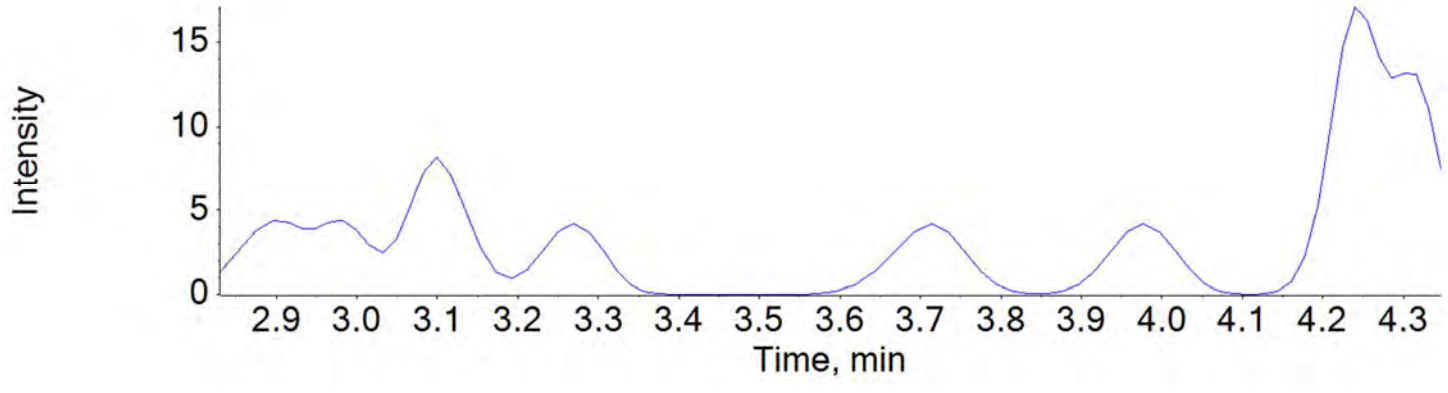
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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Chromatogram Report

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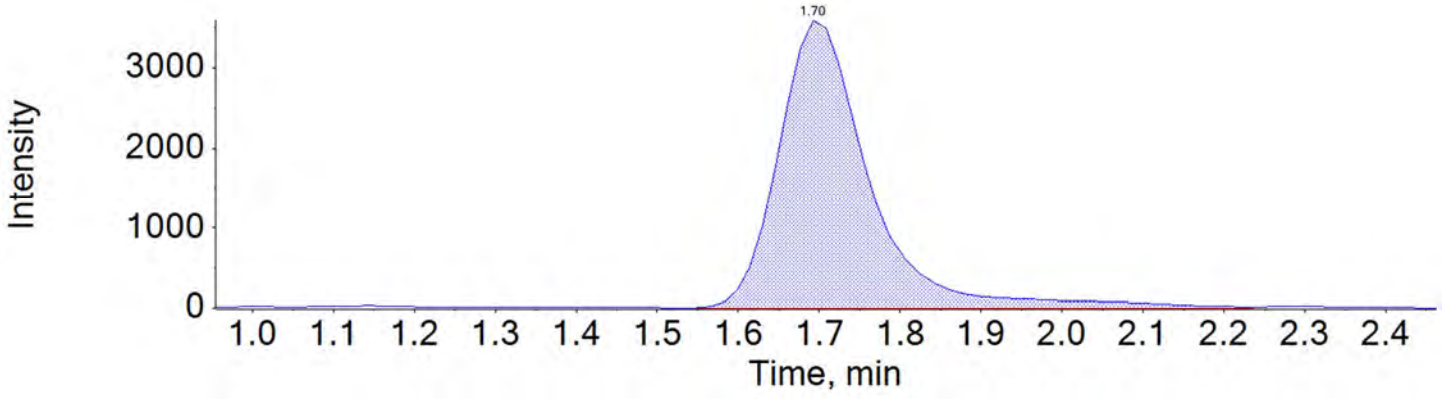
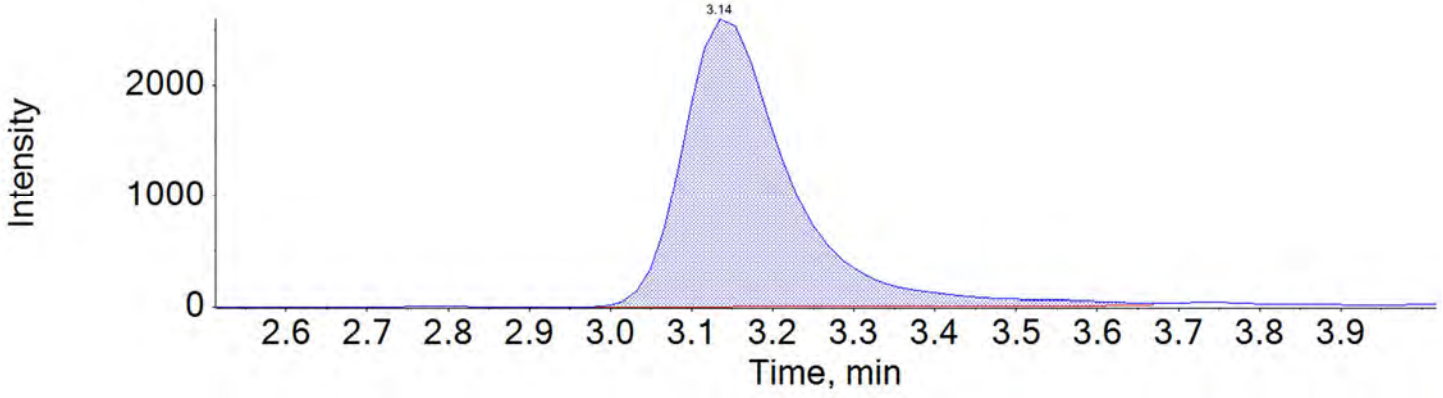
Sample Name	J6210-FS(0)	**Injection Vial**	19
Sample ID	WGNA-051018-RW-3295	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:01:14	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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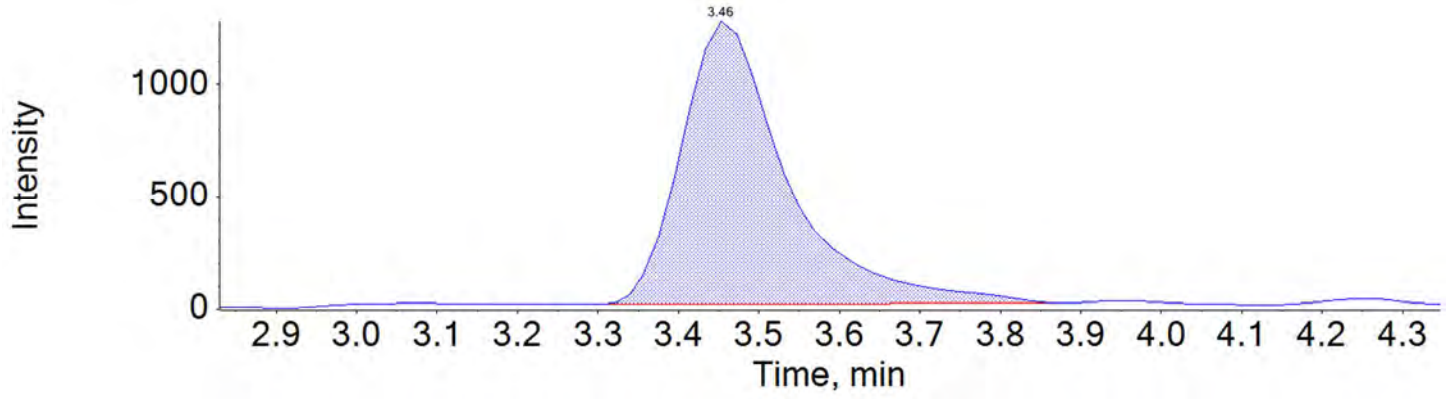
d5-EtFOSAA 589.0 / 419.0



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Chromatogram Report

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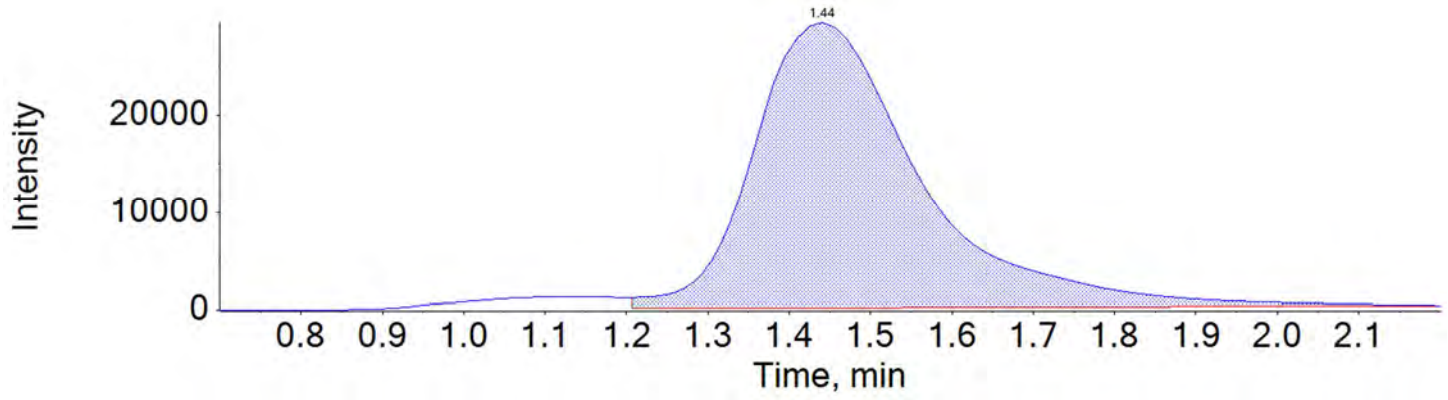
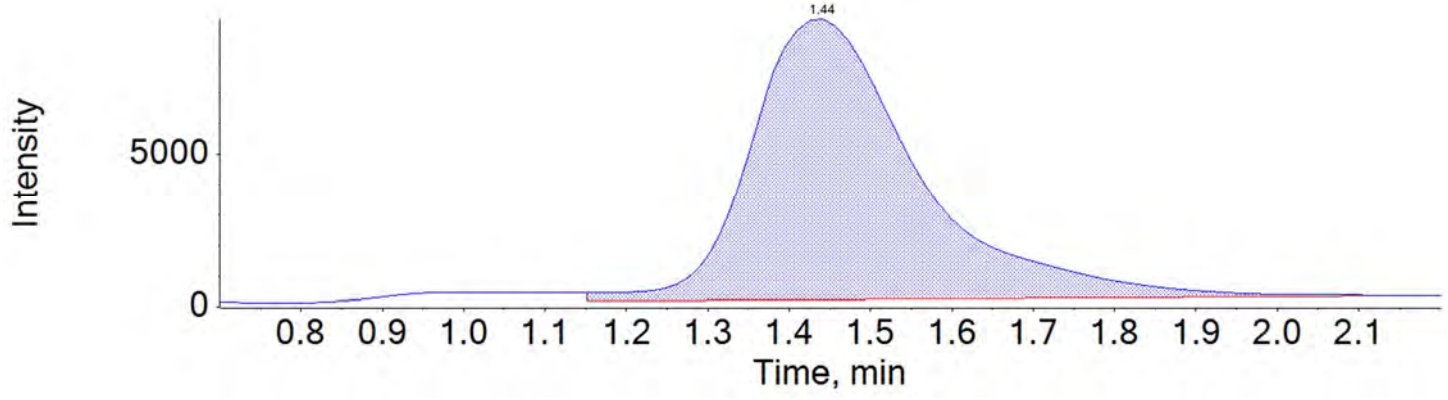
Sample Name	J6212-FS(0)	**Injection Vial**	20
Sample ID	WGNA-051018-DUP-36	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:10:10	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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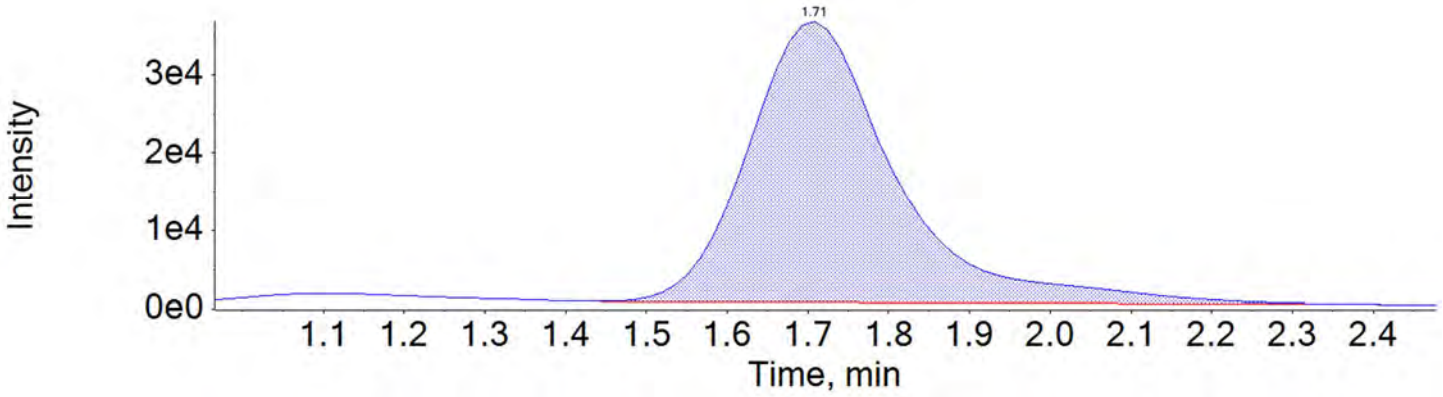
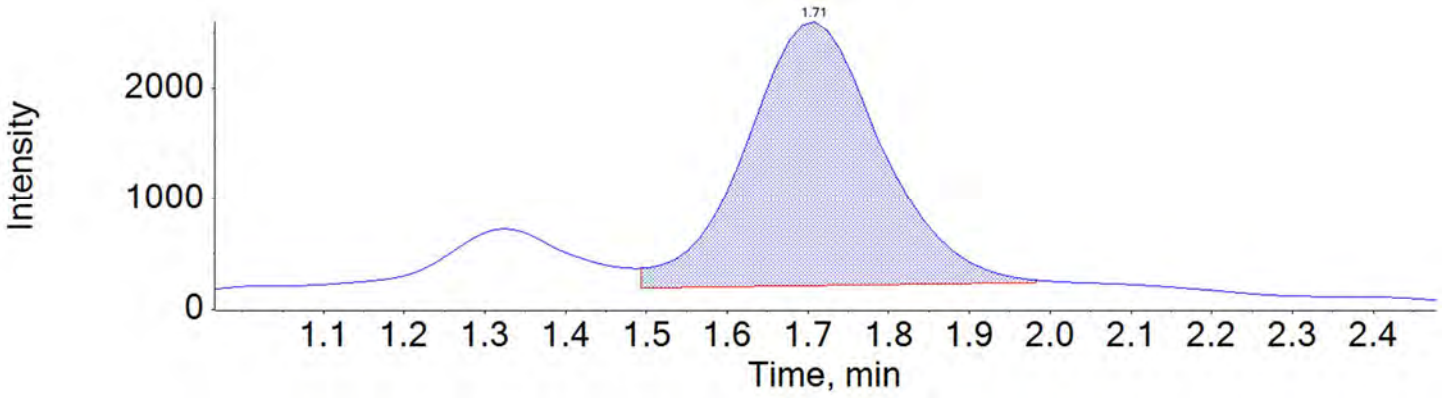
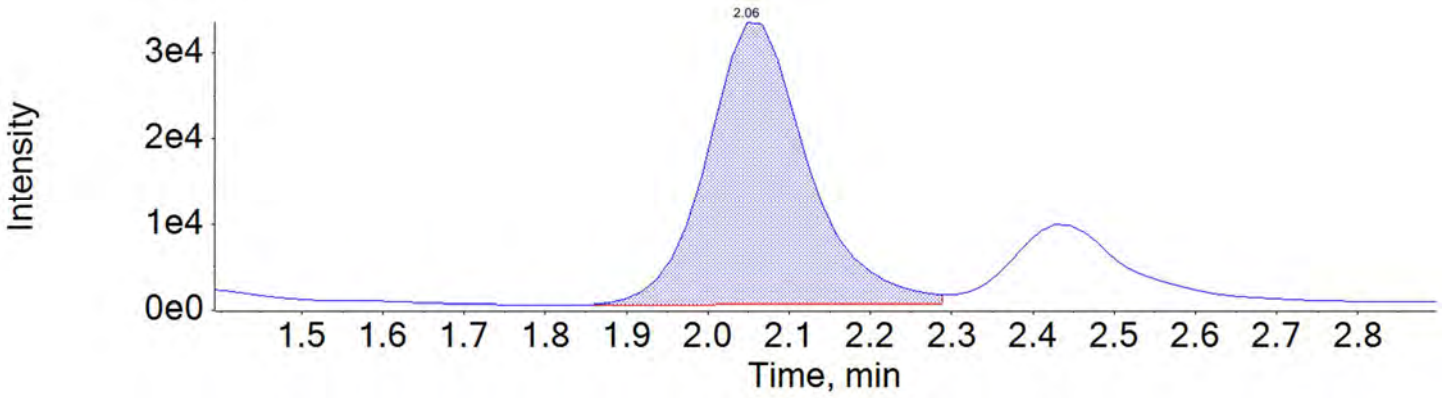
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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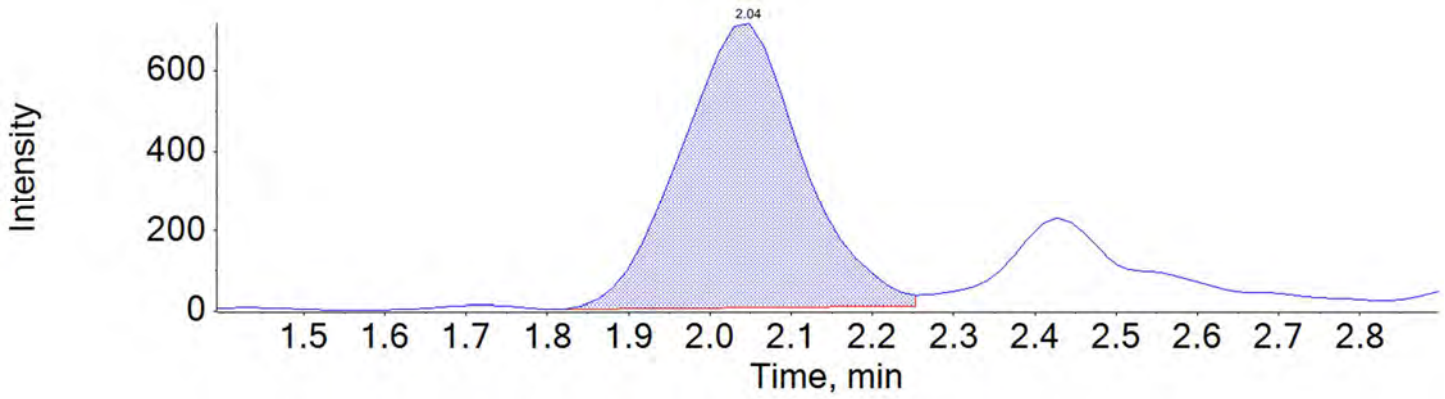
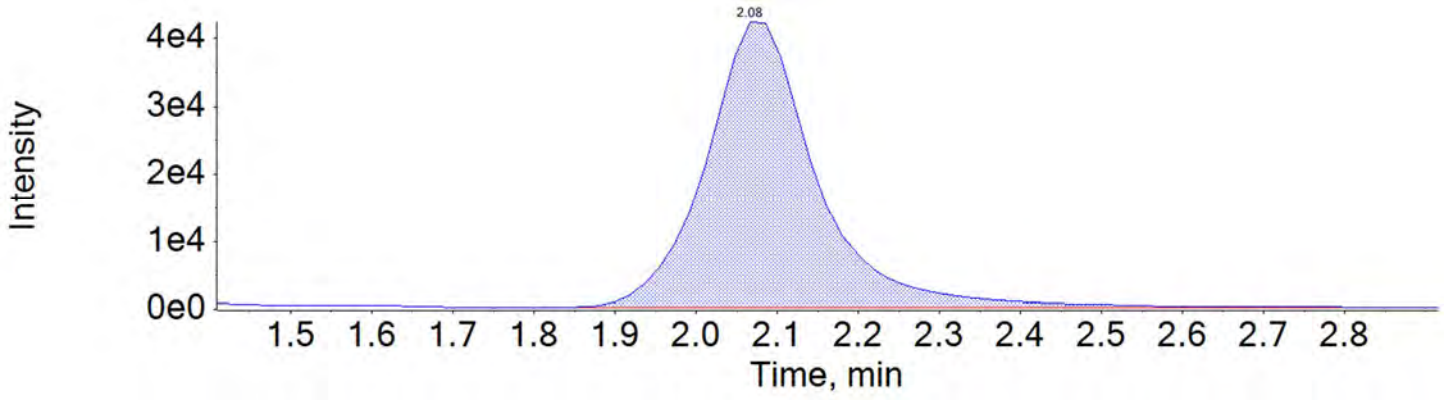


PFHxS_1 399.0 / 80.0



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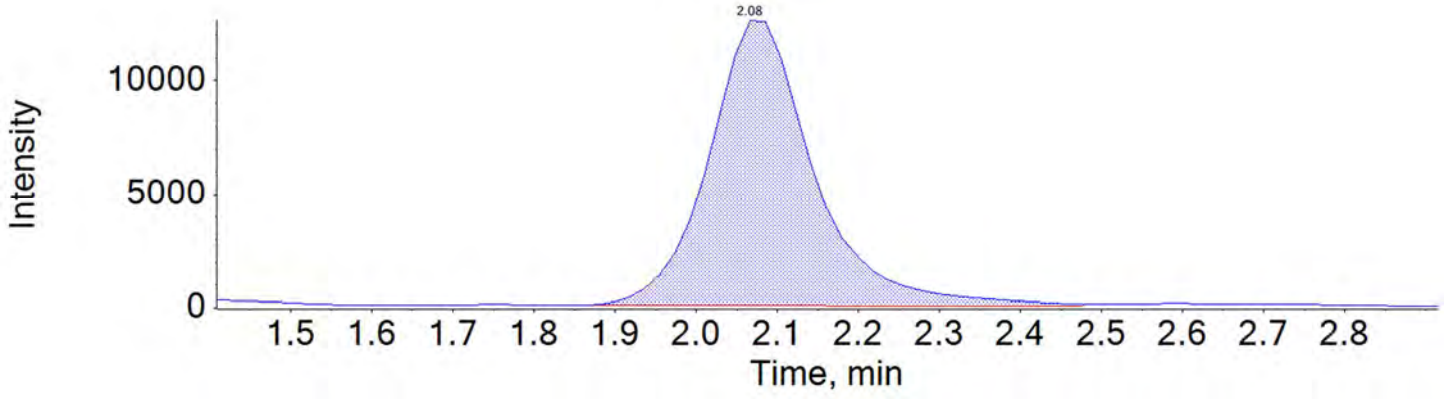

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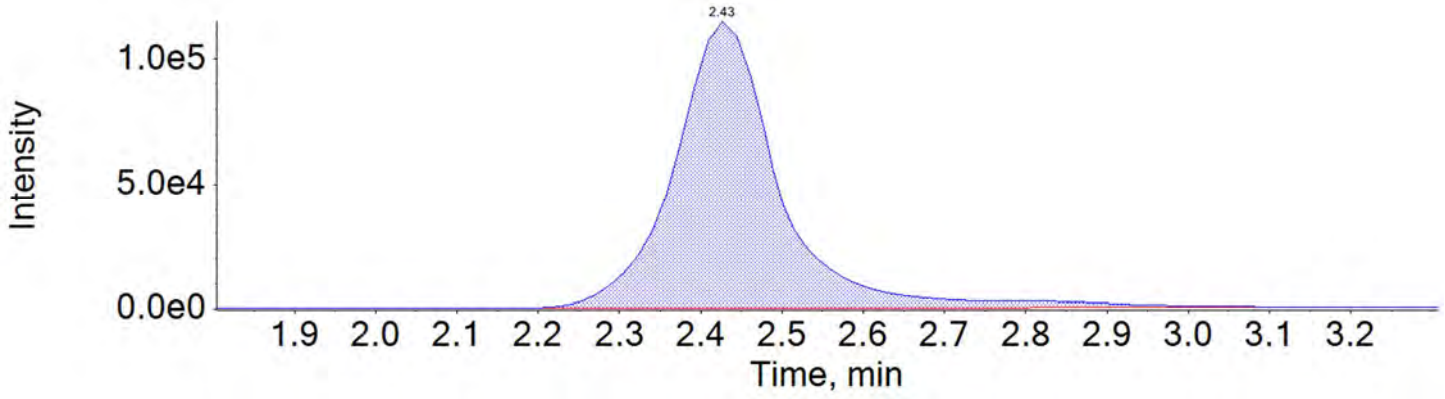
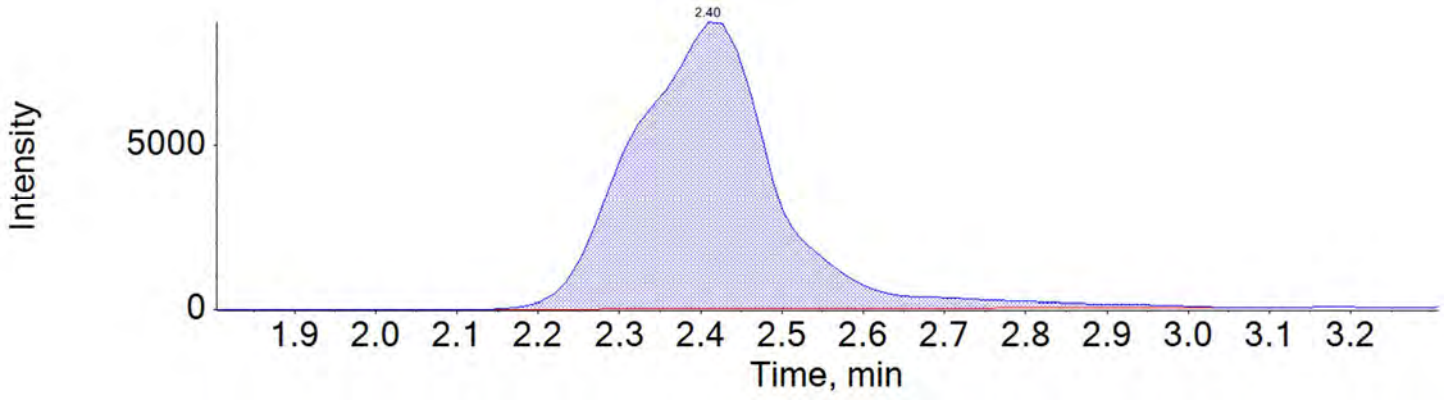
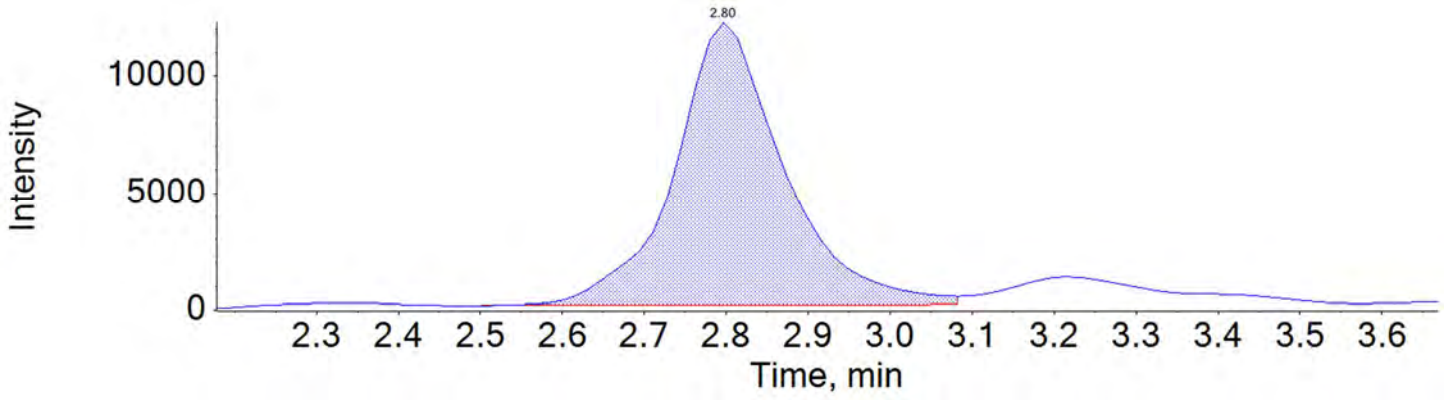
PFOA_1 413.0 / 369.0



PFOA_2 413.0 / 169.0



PFNA_1 463.0 / 419.0



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Chromatogram Report

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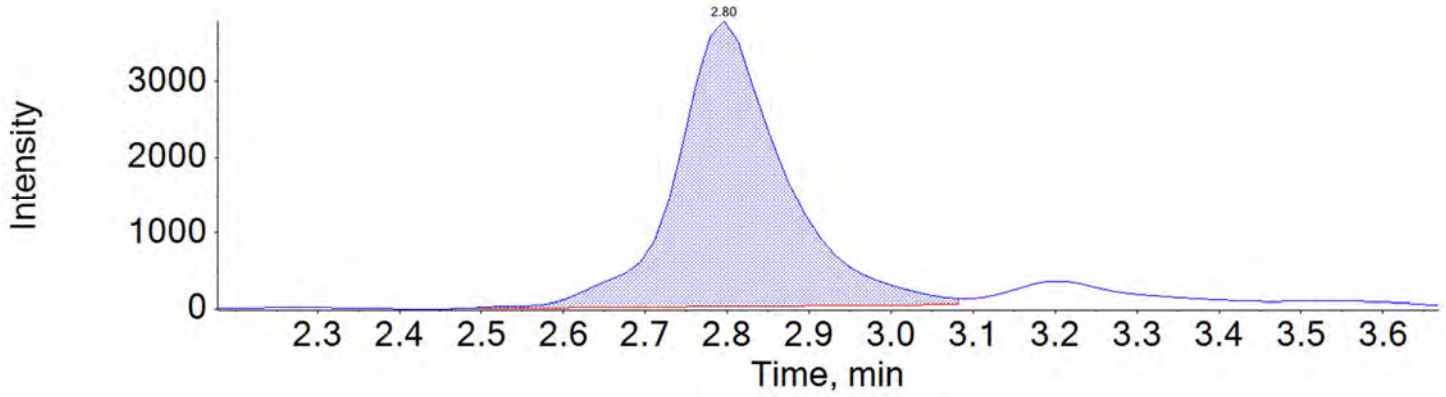
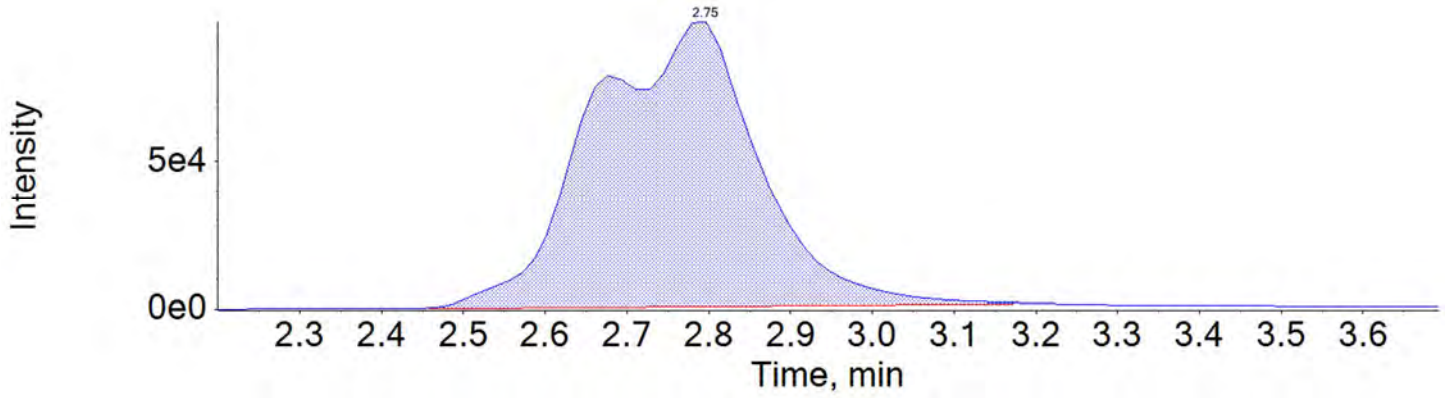
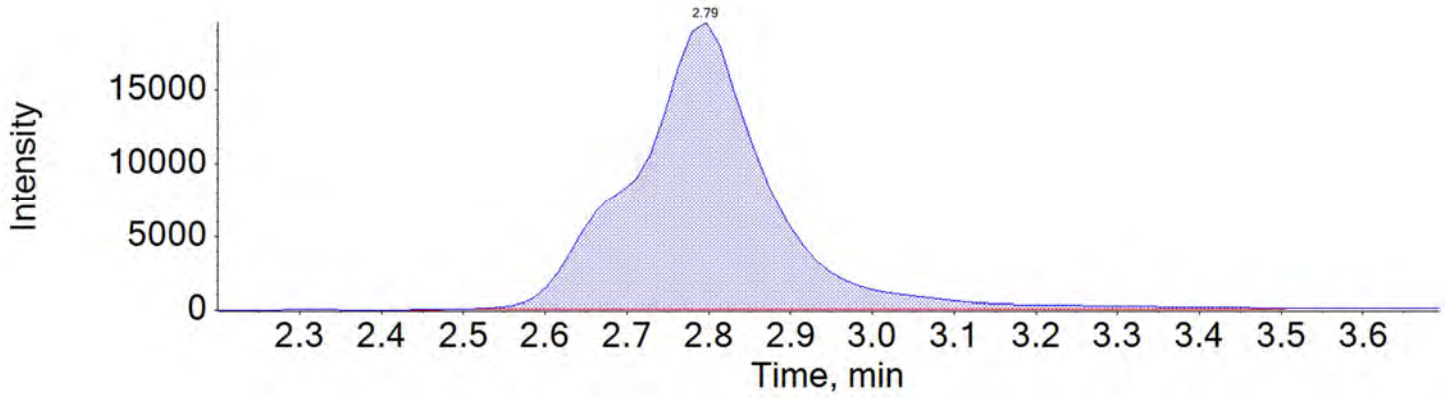
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



PFOS_2 499.0 / 99.0



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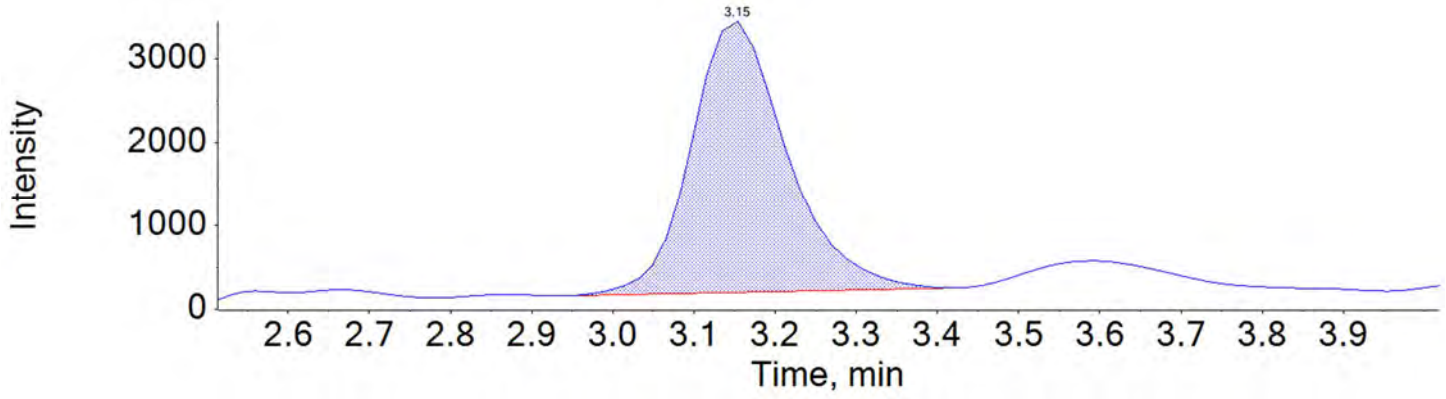
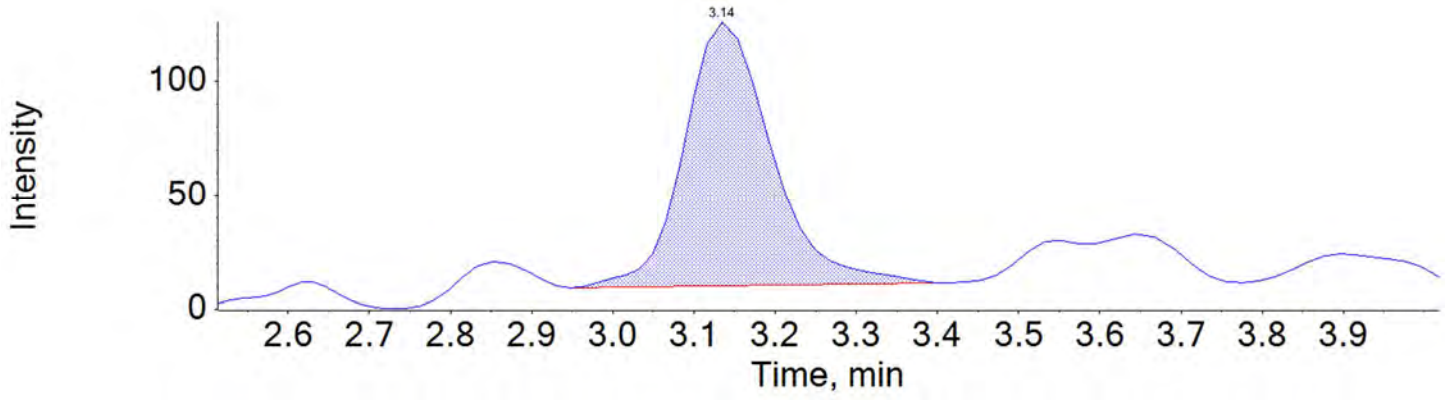
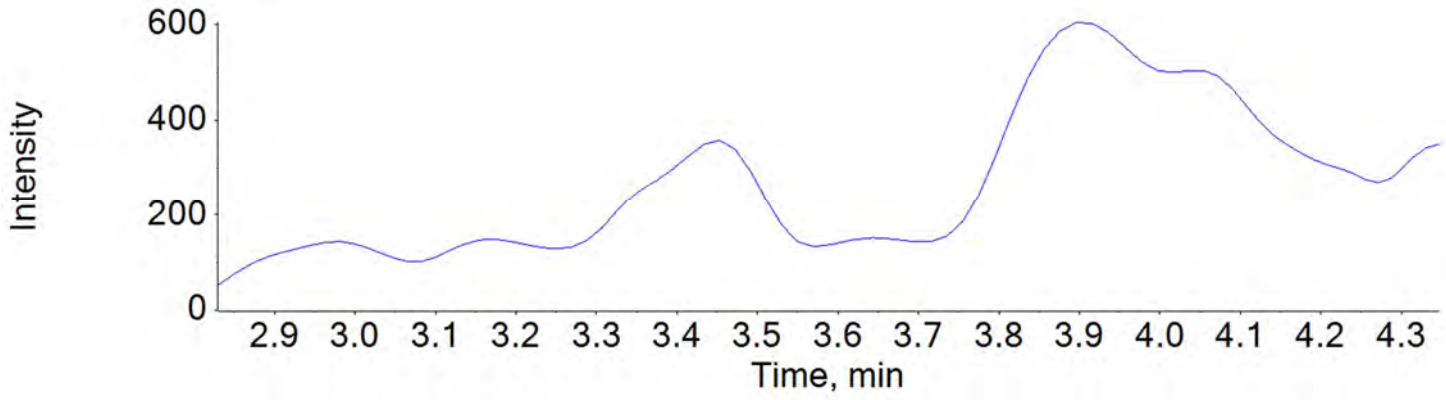
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



PFUnA_1 563.0 / 519.0



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Chromatogram Report

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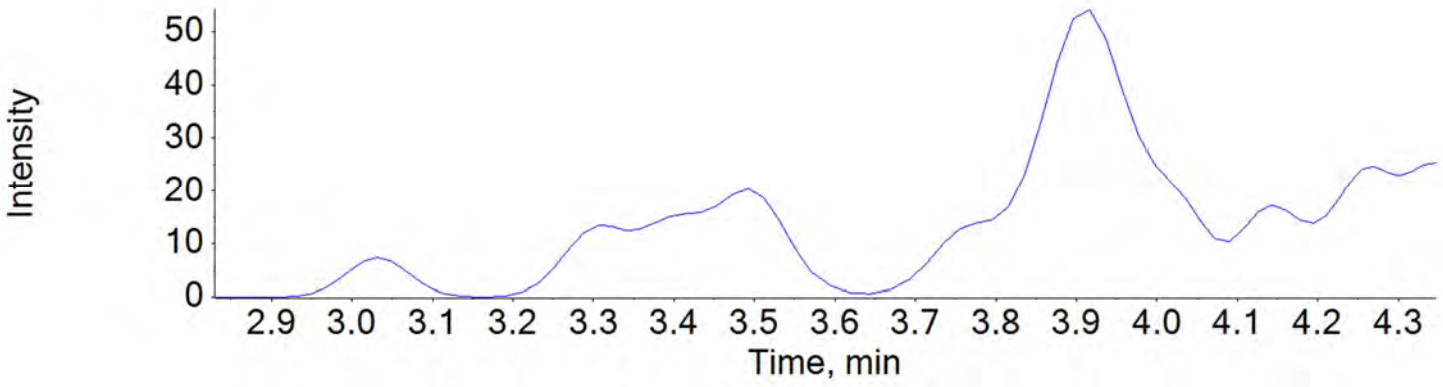
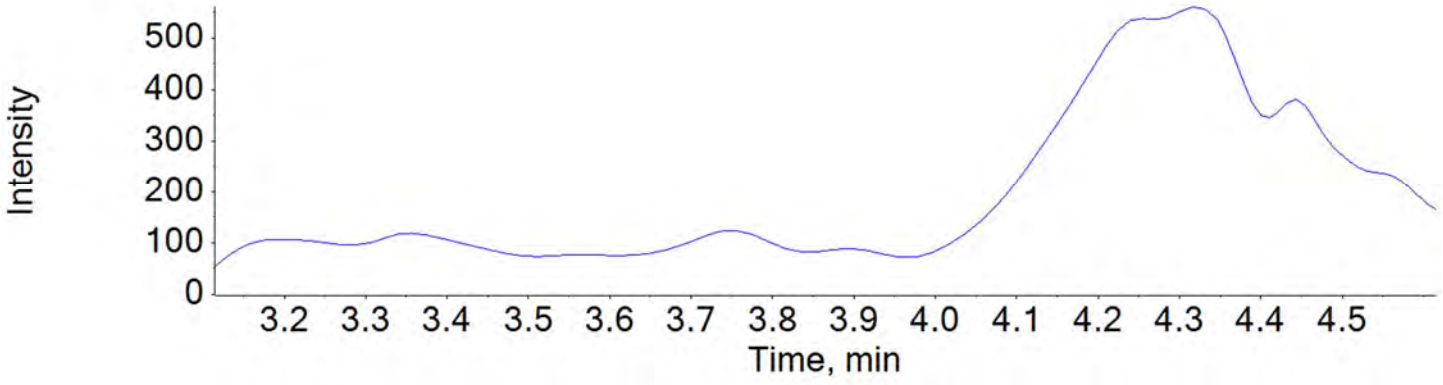
PFUnA_2 563.0 / 269.0



PFDoA_1 613.0 / 569.0



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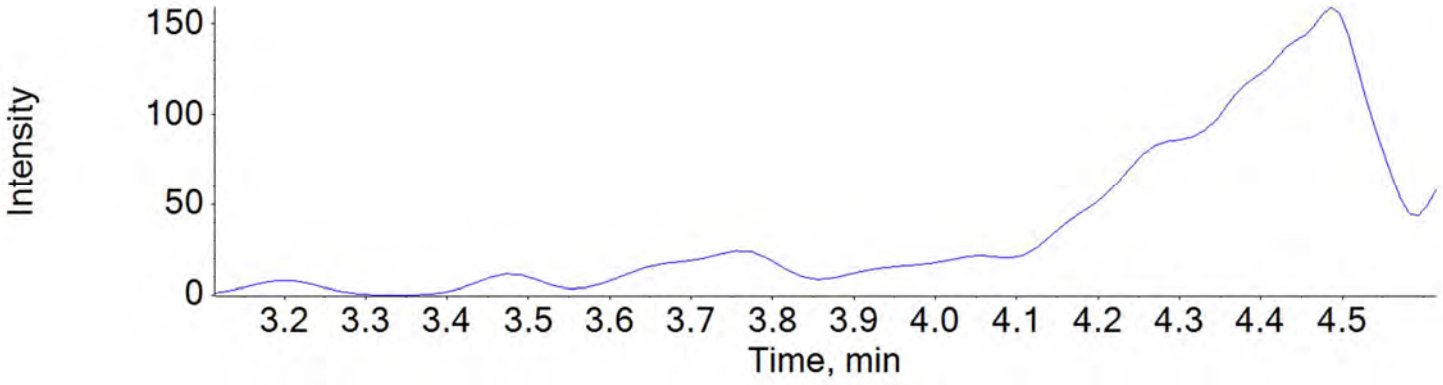

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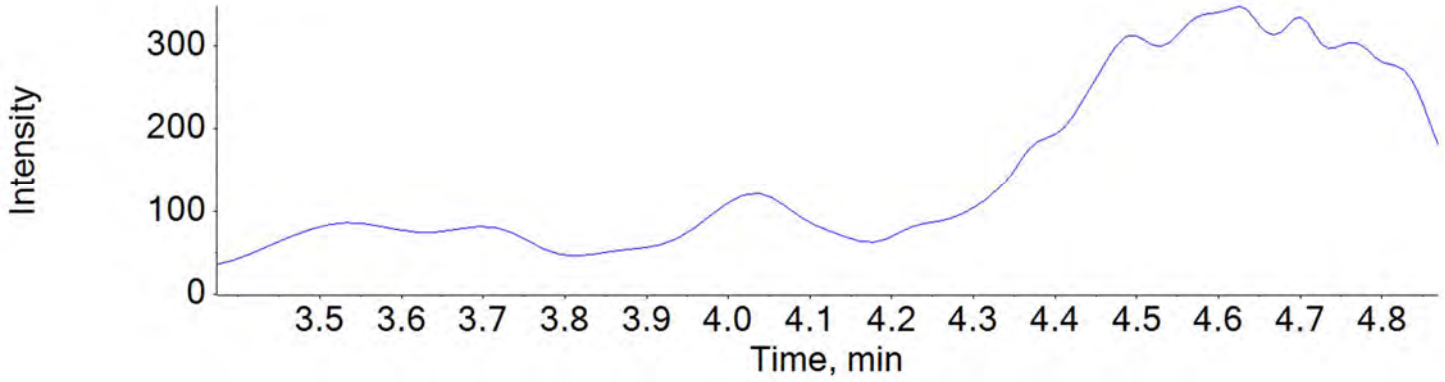
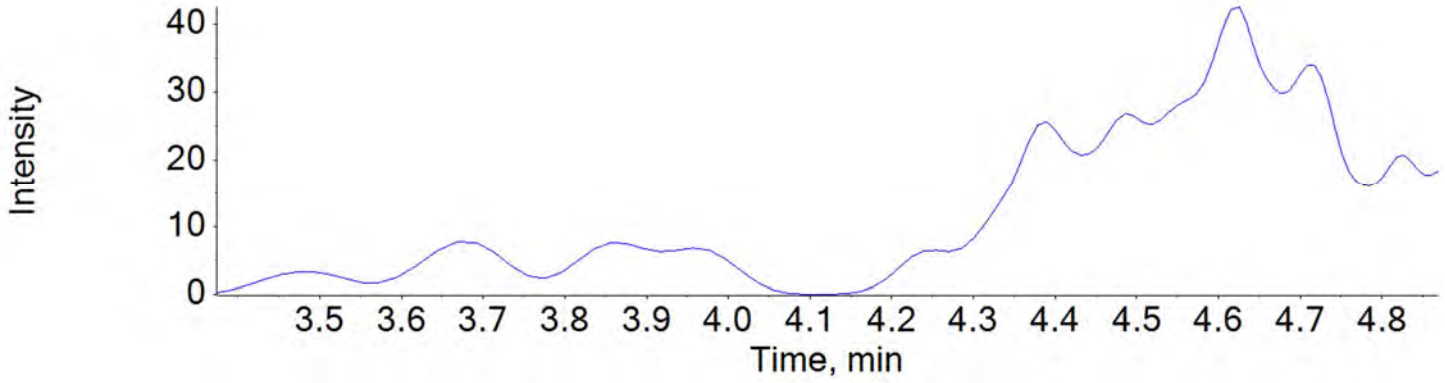
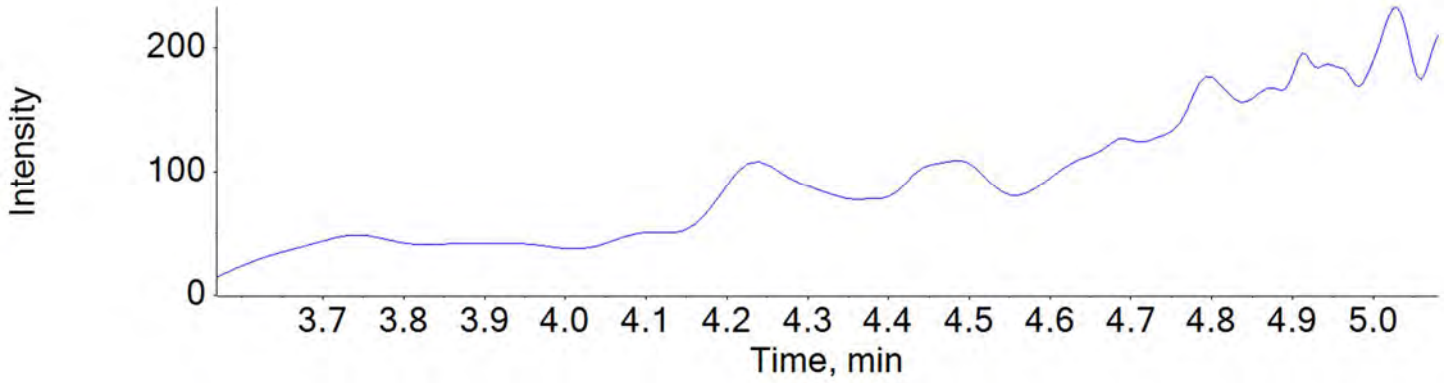
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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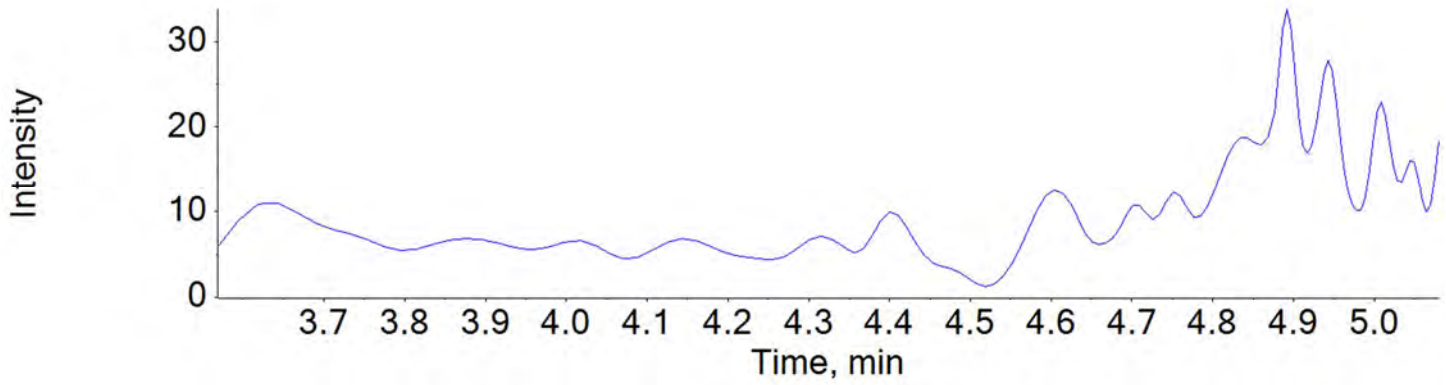
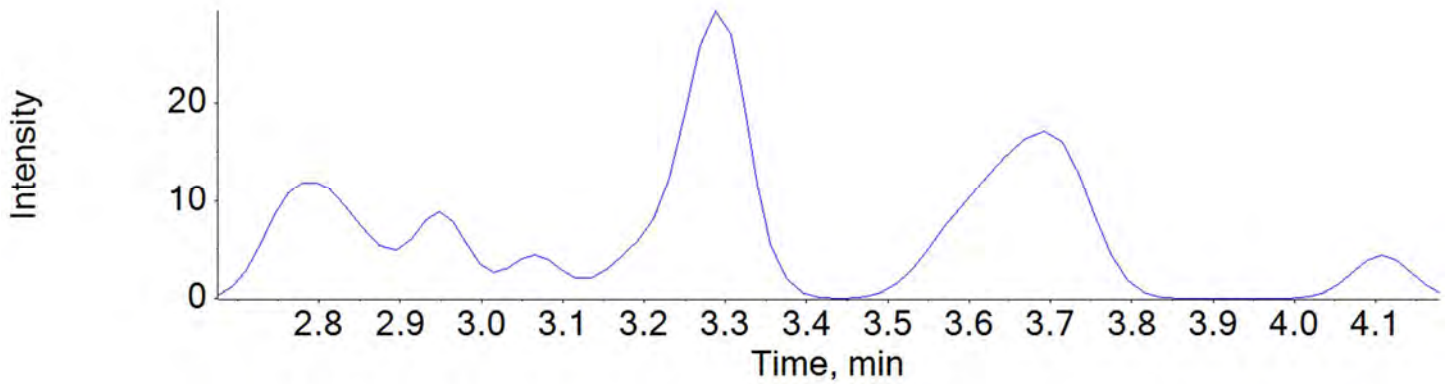
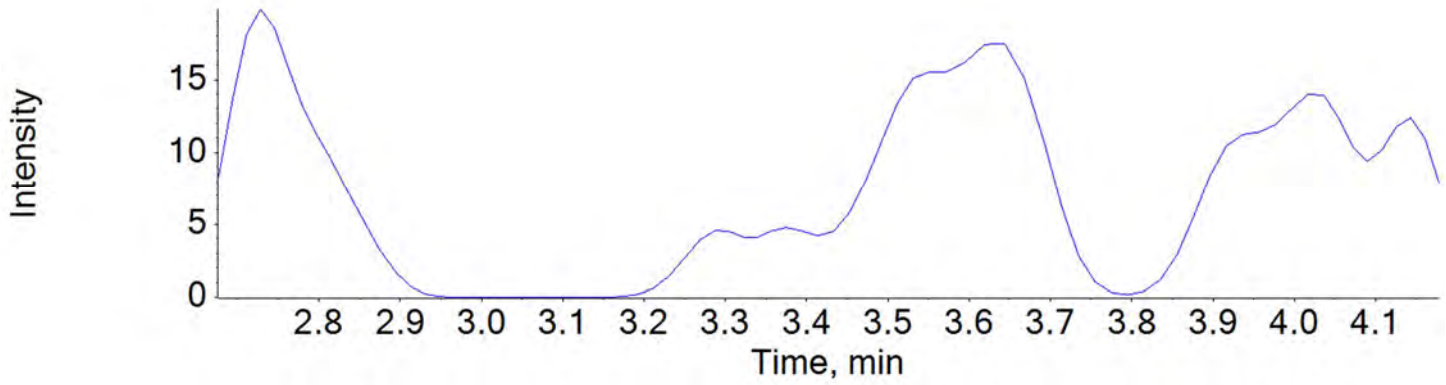
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



NMeFOSAA_2 570.0 / 512.0



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Chromatogram Report

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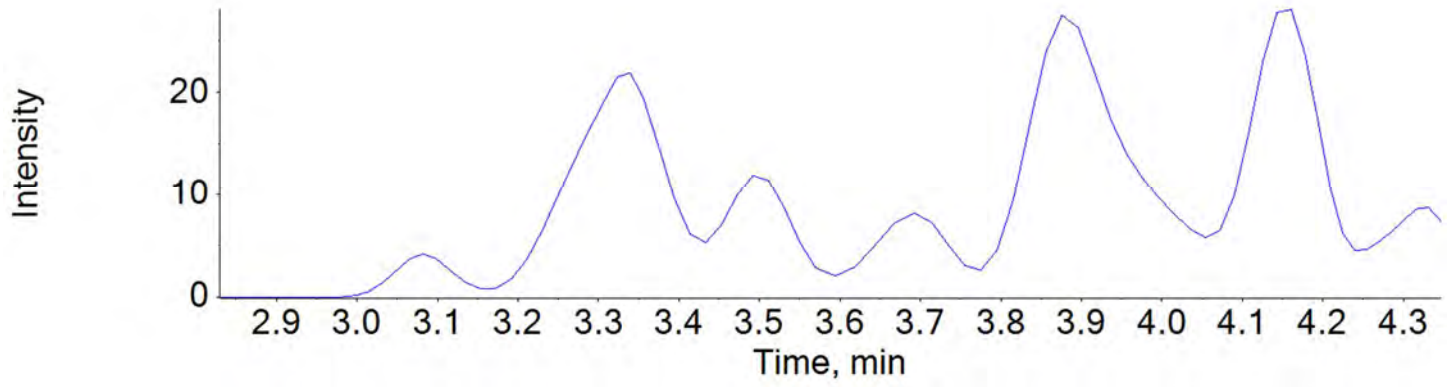
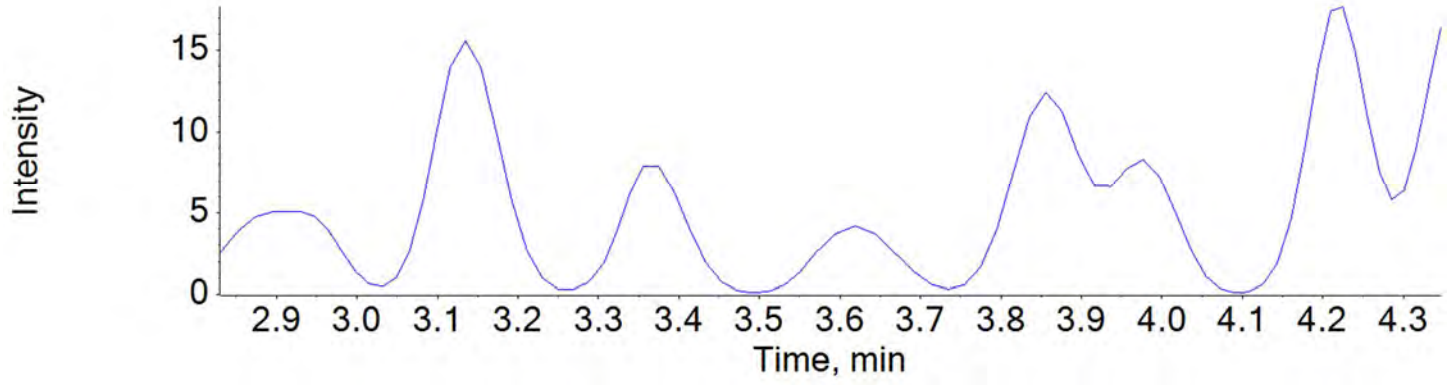
NEtFOSAA_1 584.0 / 419.0



NEtFOSAA_2 584.0 / 483.0



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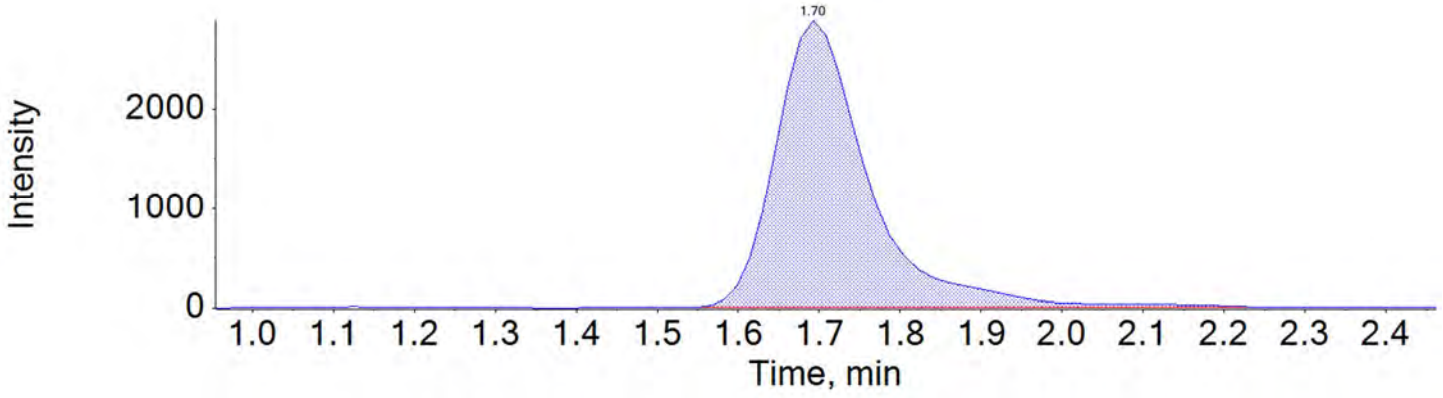
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:03:40 PM

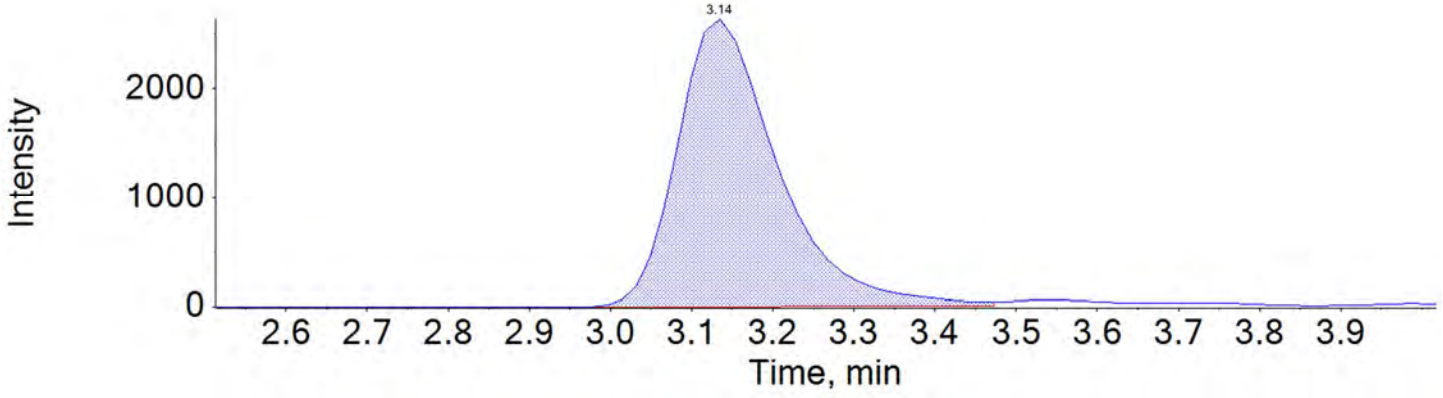
Sample Name	J6212-FS(0)	**Injection Vial**	20
Sample ID	WGNA-051018-DUP-36	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:10:10	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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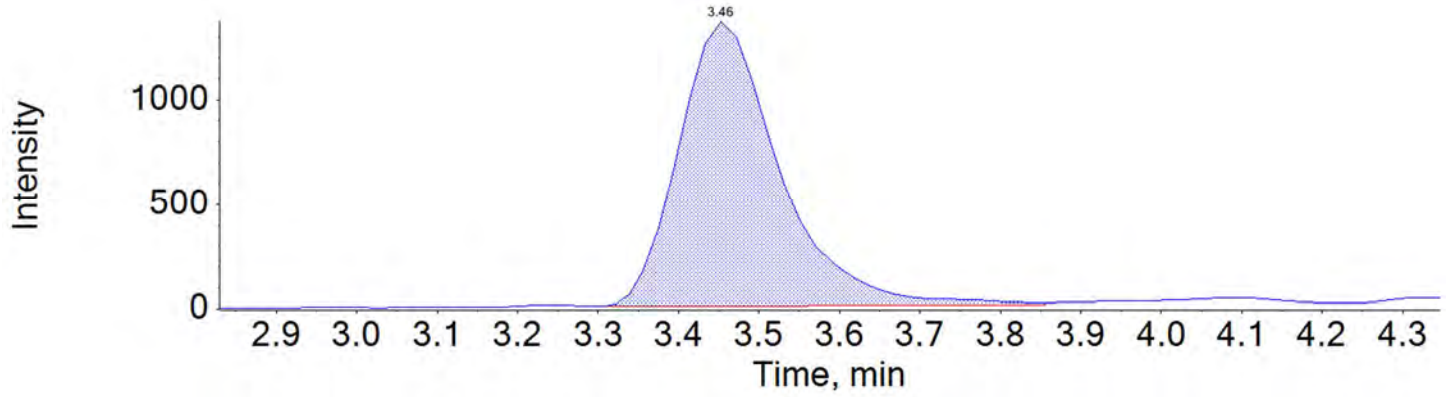
d5-EtFOSAA 589.0 / 419.0



BATTELLE

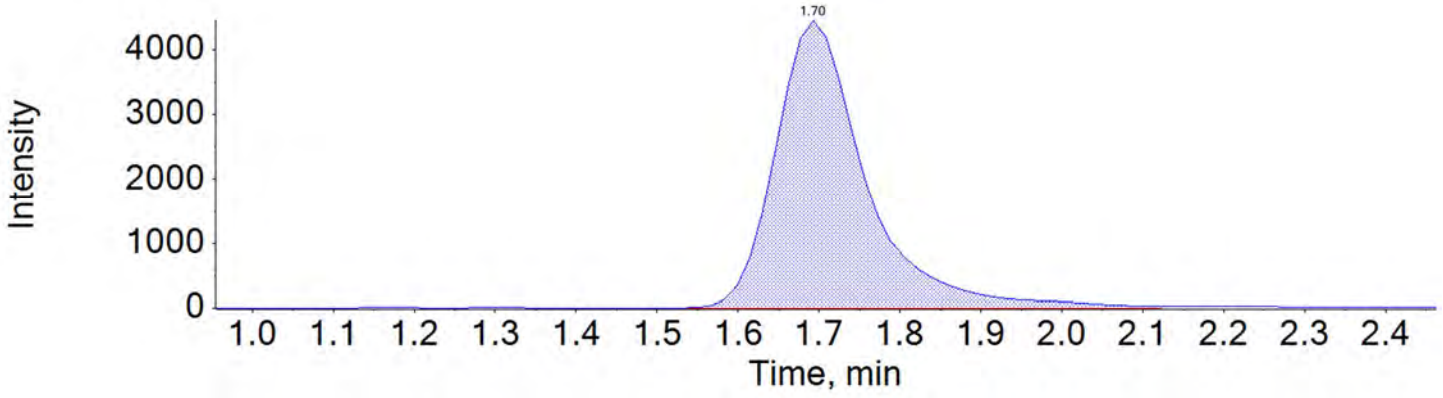
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:03:42 PM

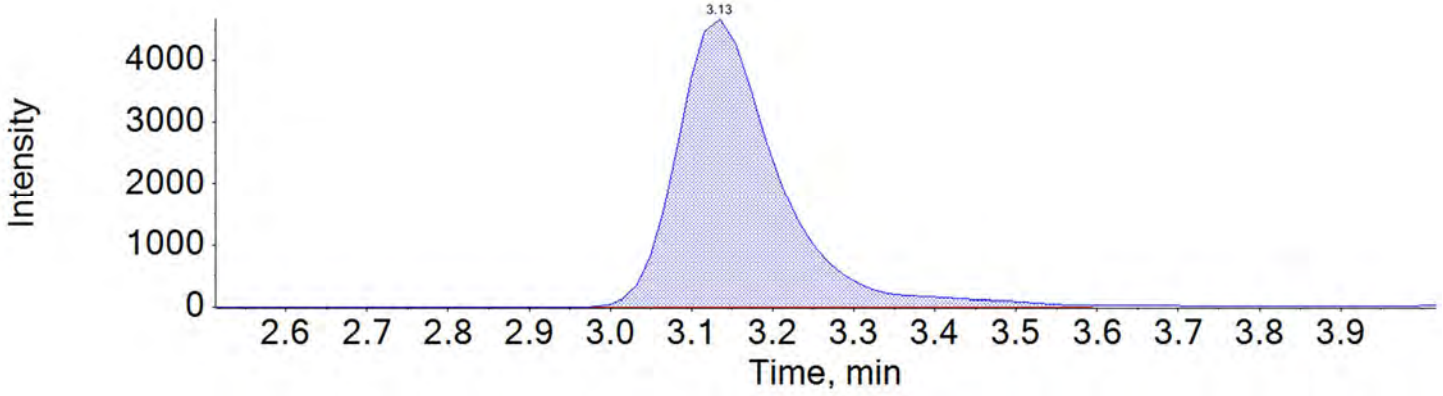
Sample Name	JV68 CCV	**Injection Vial**	6
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:19:05	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Chromatograms

13C2-PFHxA 315.0 / 270.0



13C2-PFDA 515.0 / 470.0



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Chromatogram Report

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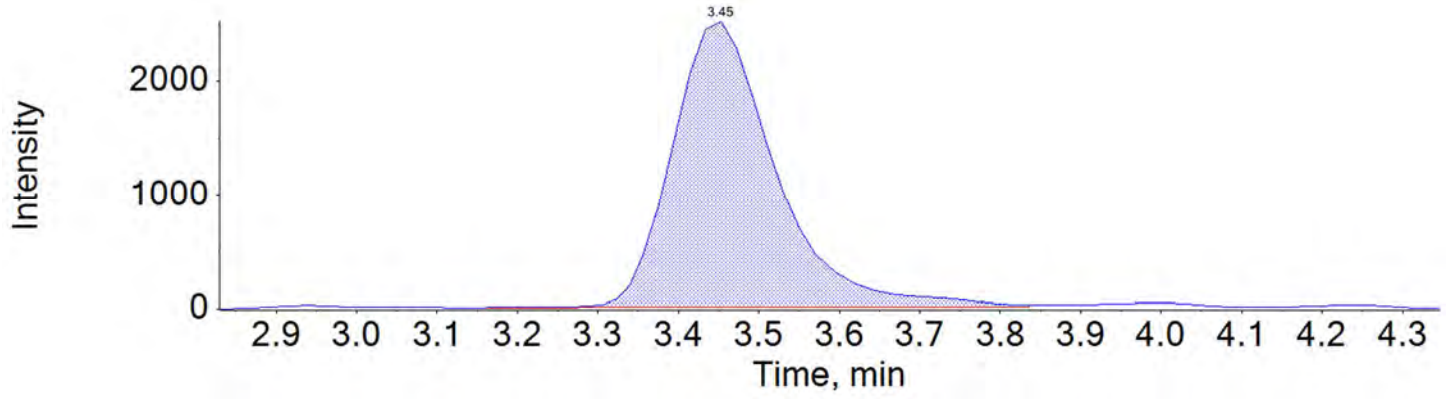
d5-EtFOSAA 589.0 / 419.0



BATTELLE

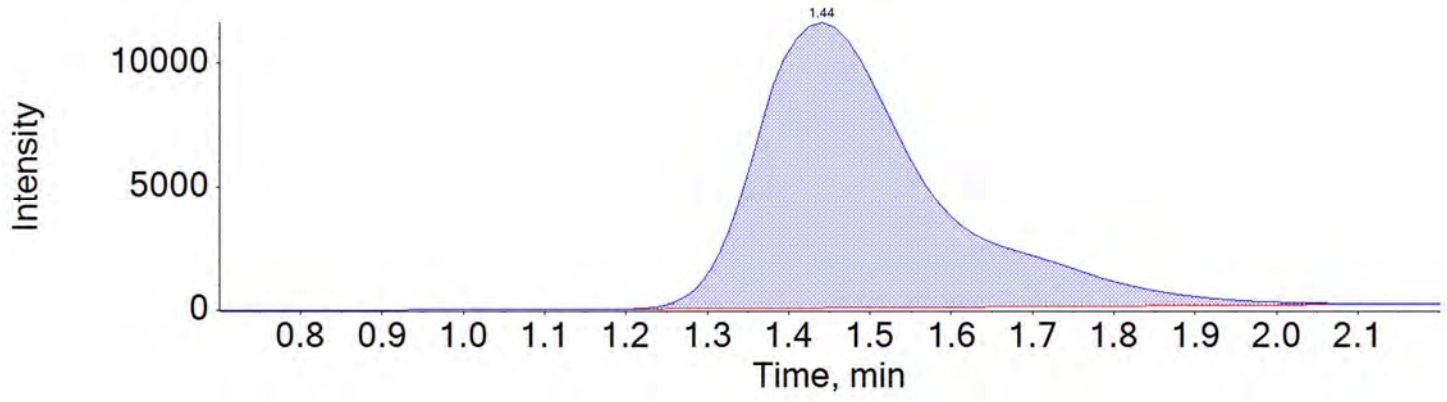
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:04:37 PM

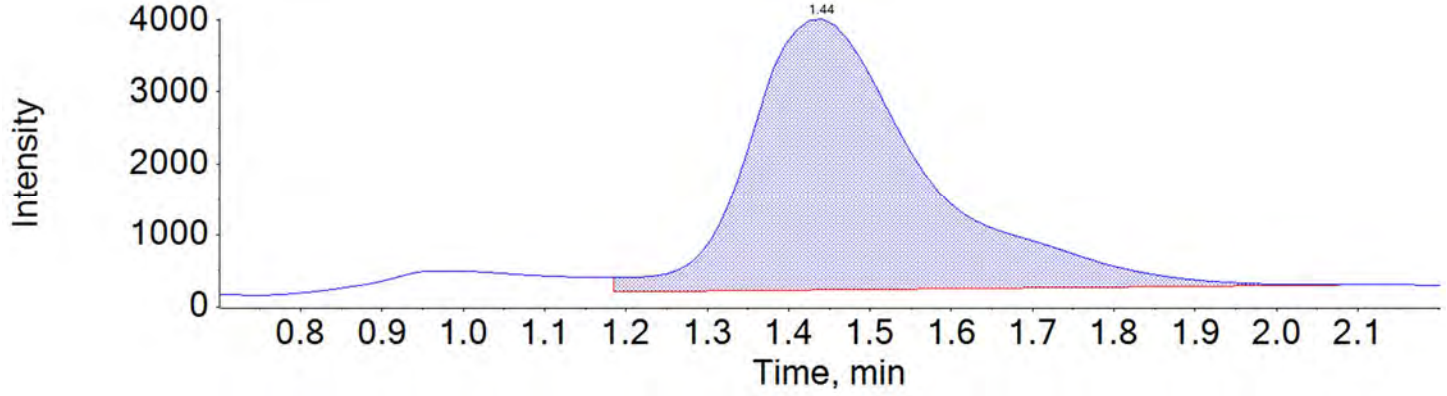
Sample Name	JV68 CCV	**Injection Vial**	6
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T12:19:05	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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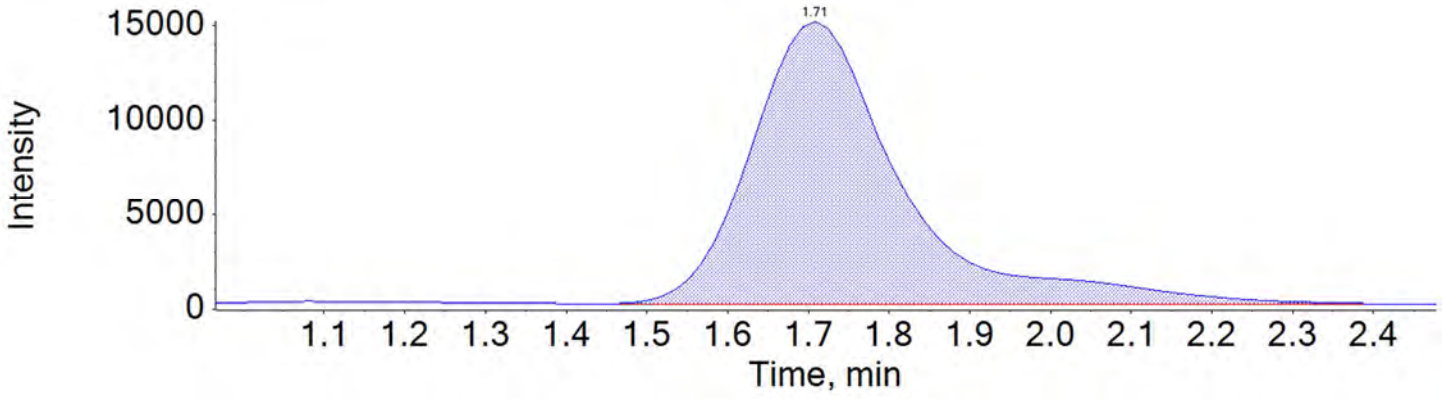
PFHxA_1 313.0 / 269.0



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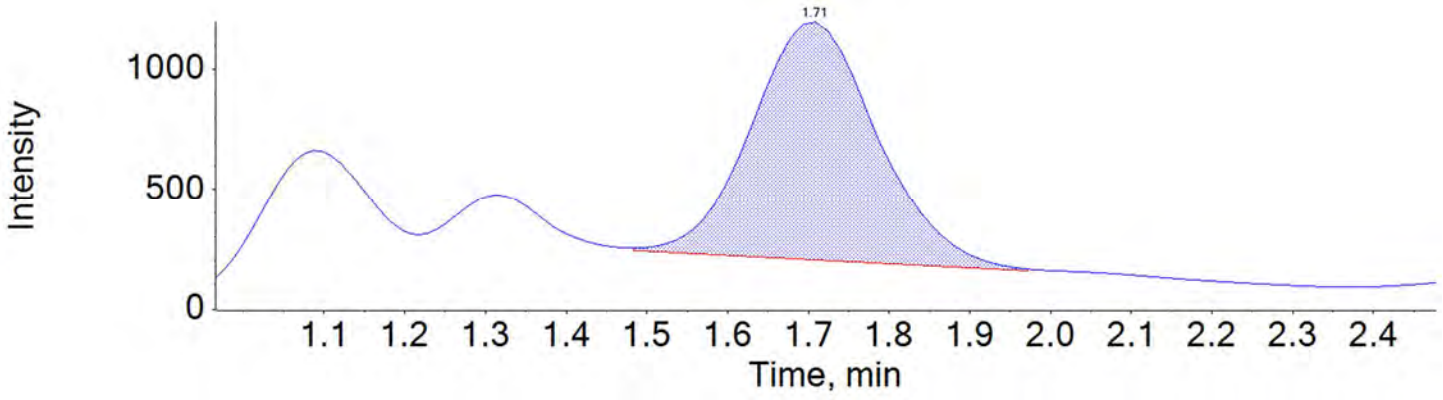

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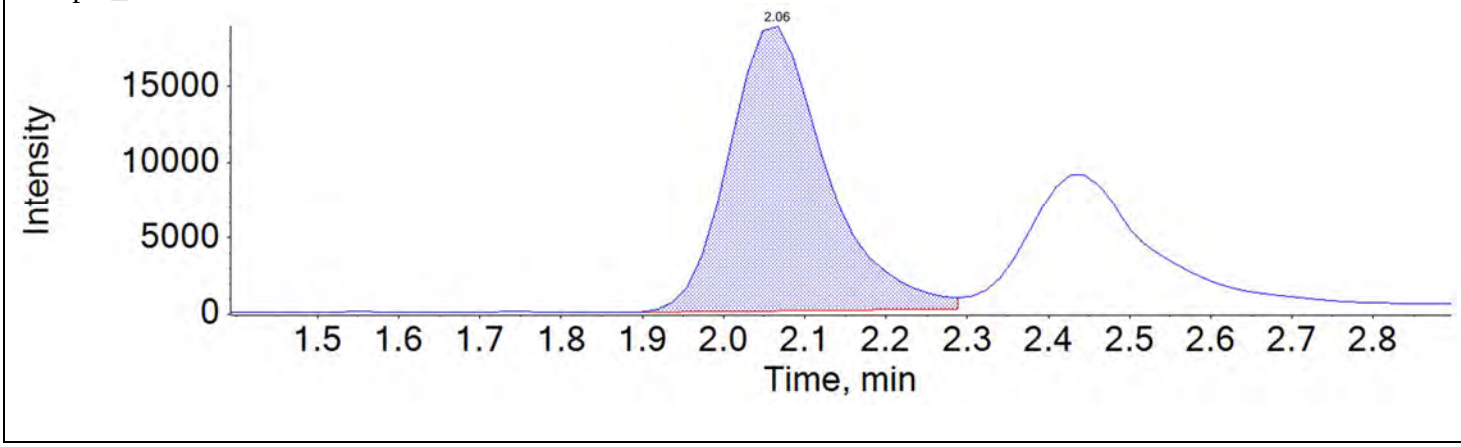

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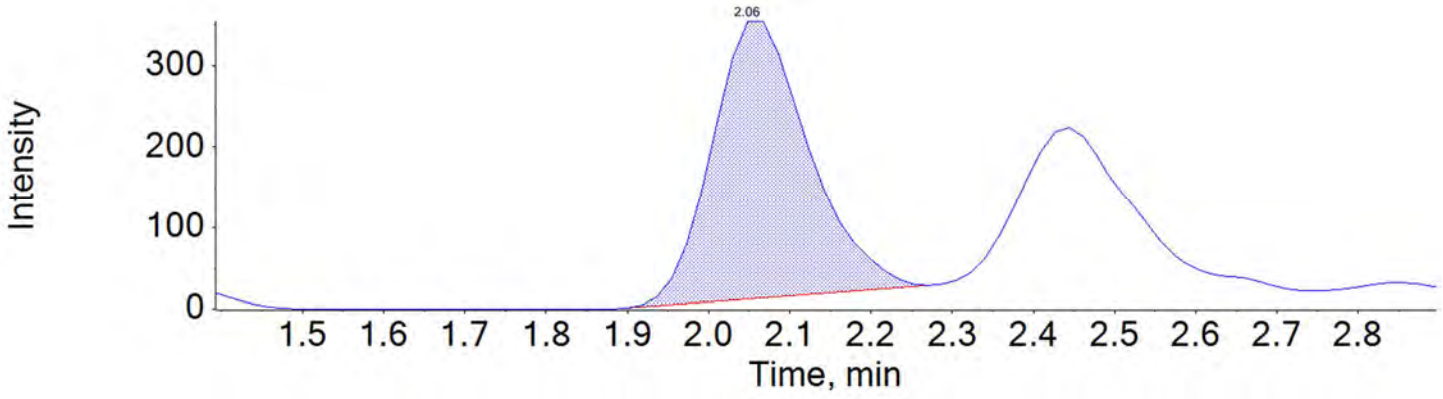

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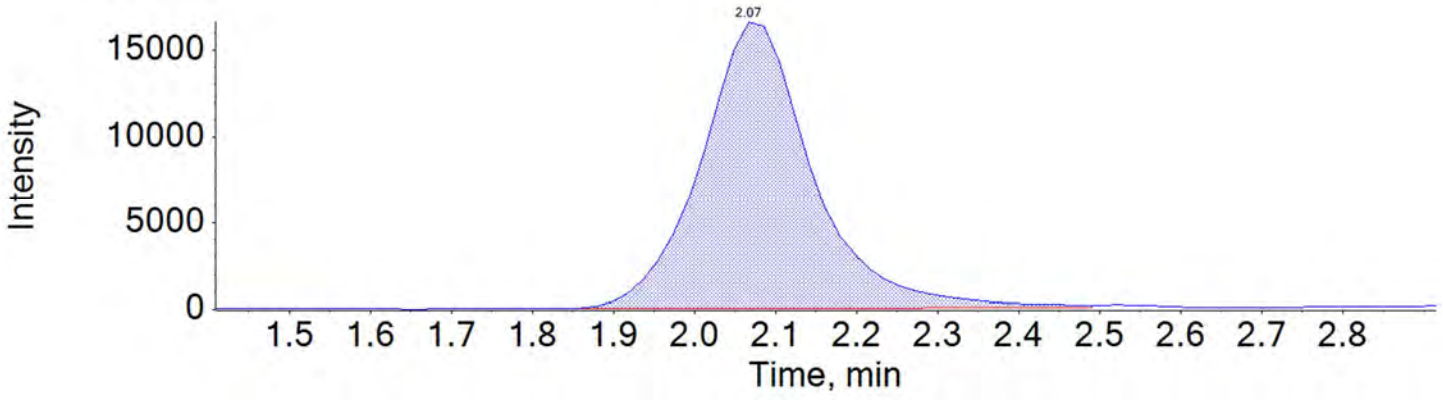

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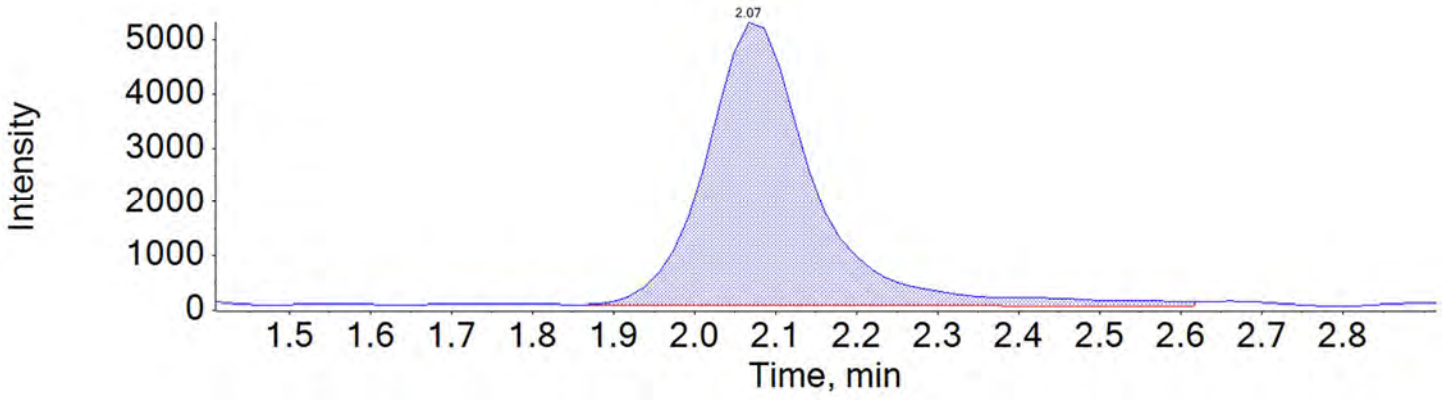

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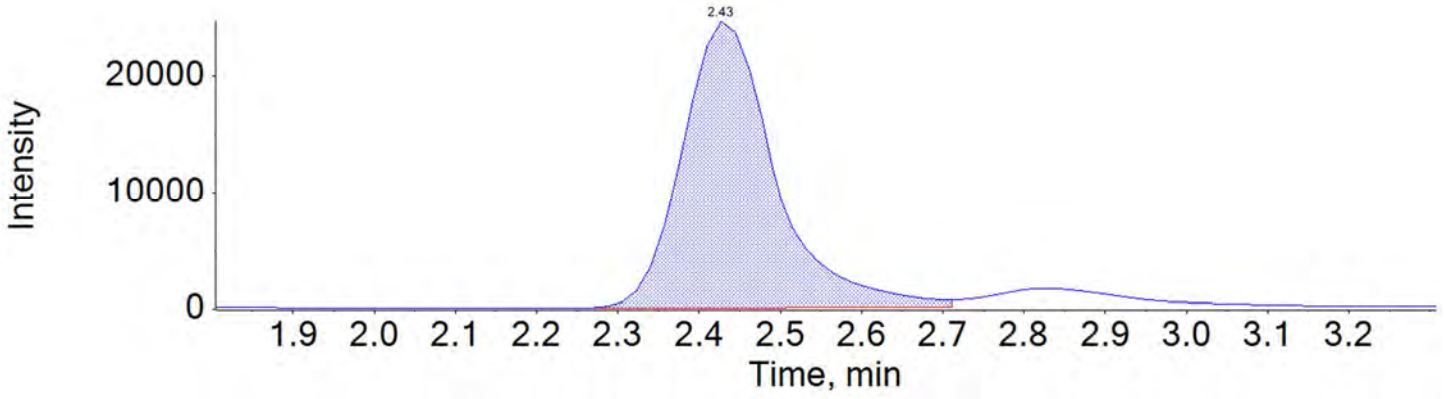

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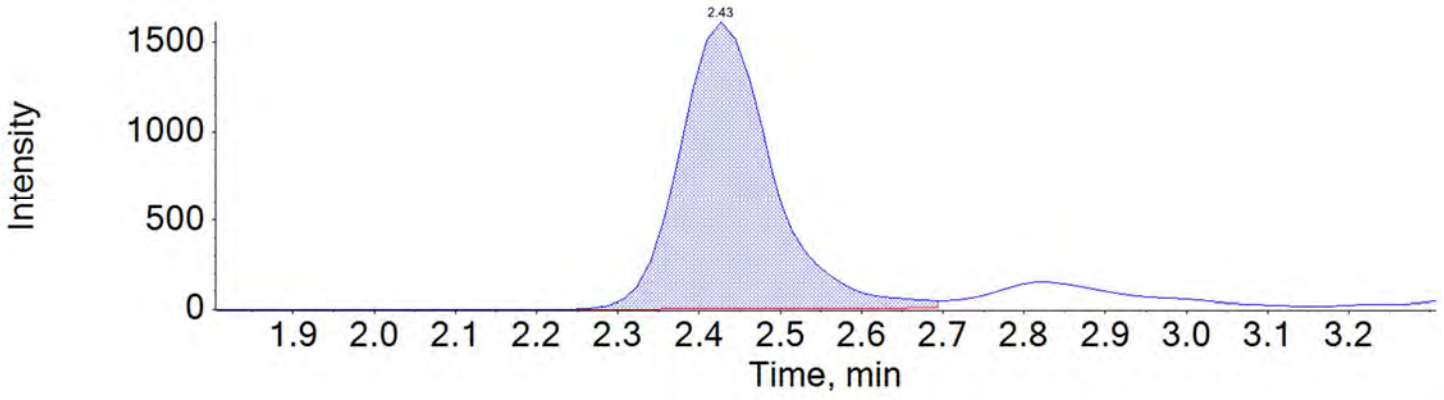
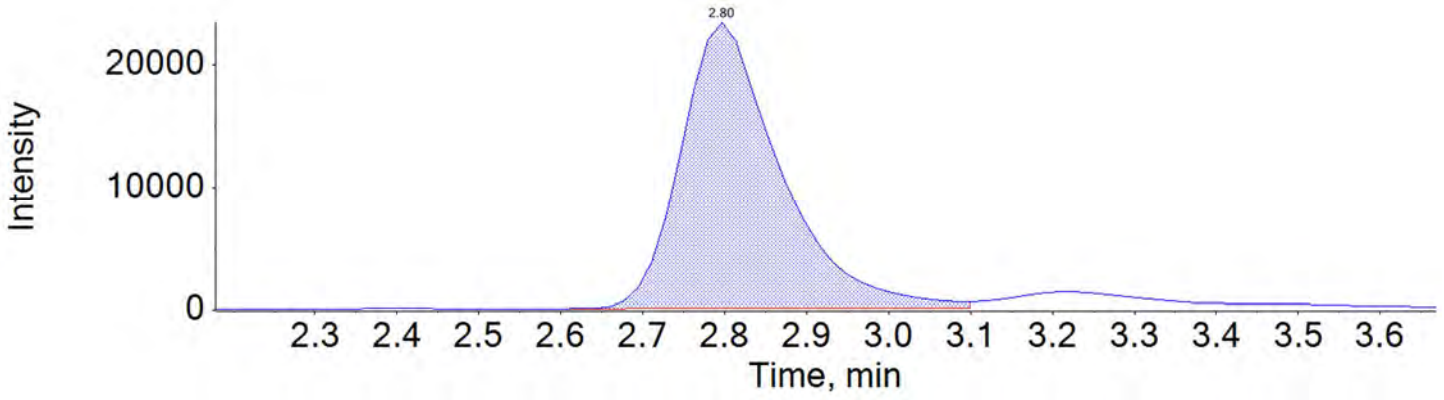


PFNA_1 463.0 / 419.0



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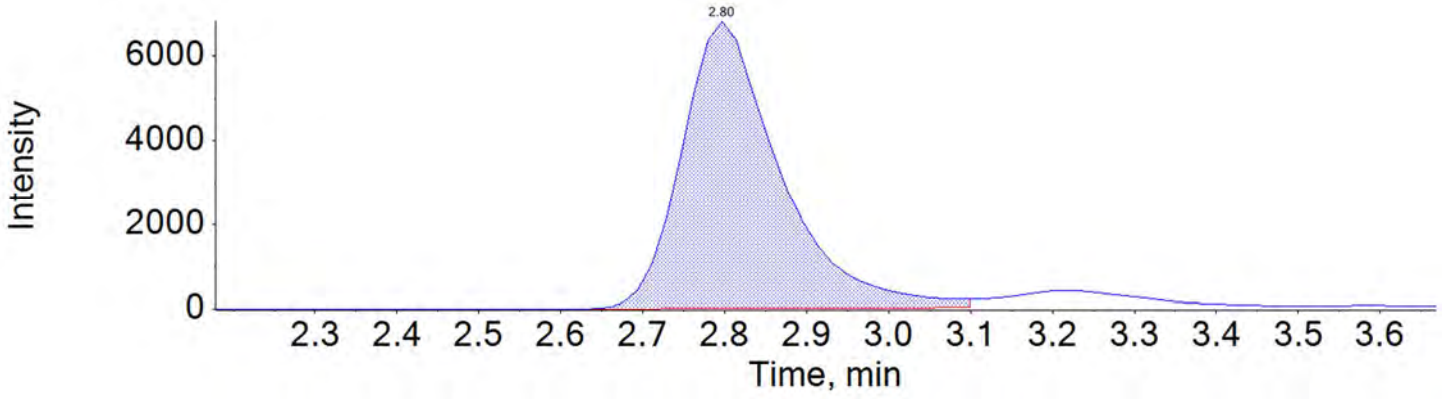
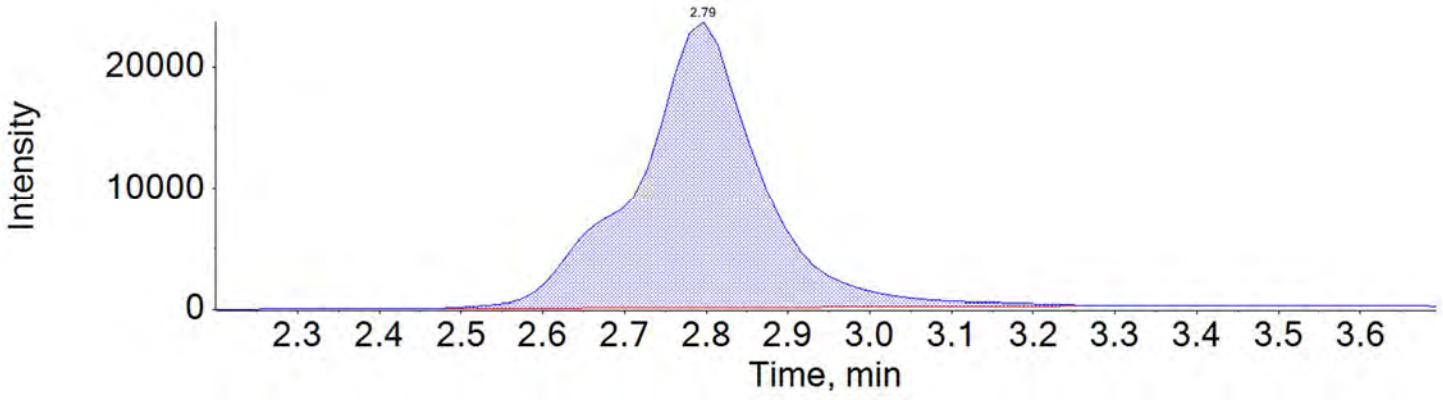
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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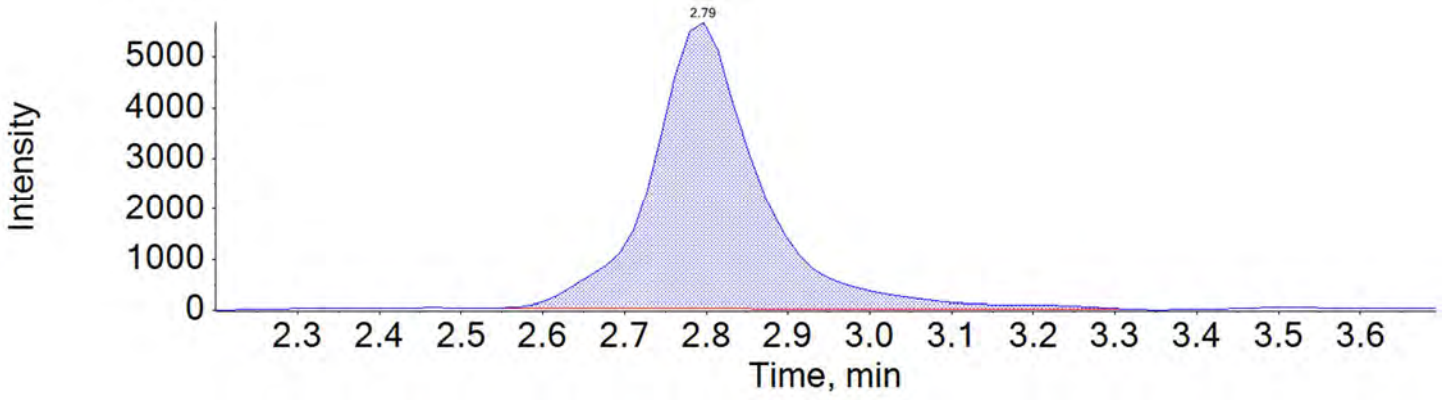

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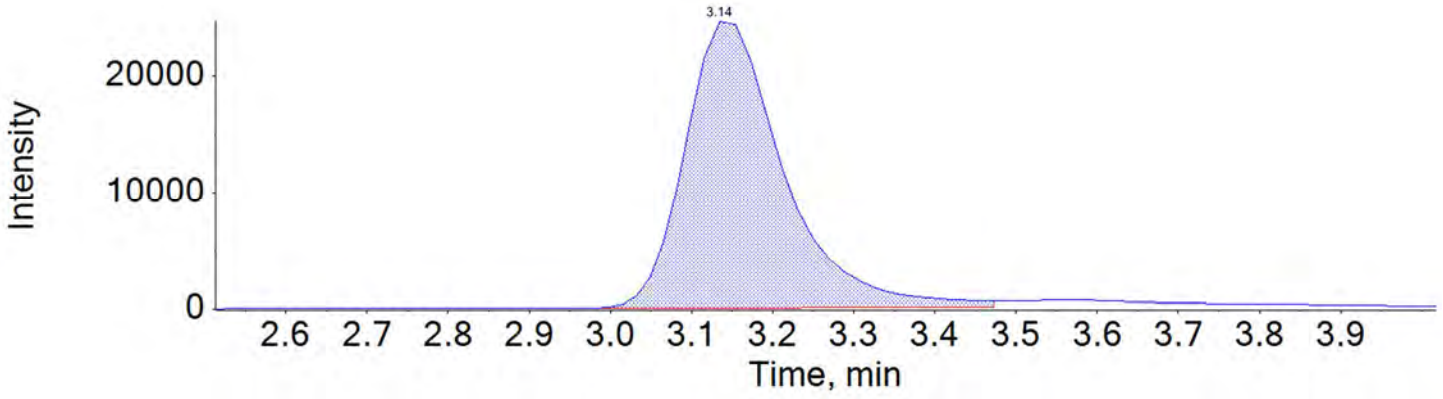
PFDA_1 513.0 / 469.0



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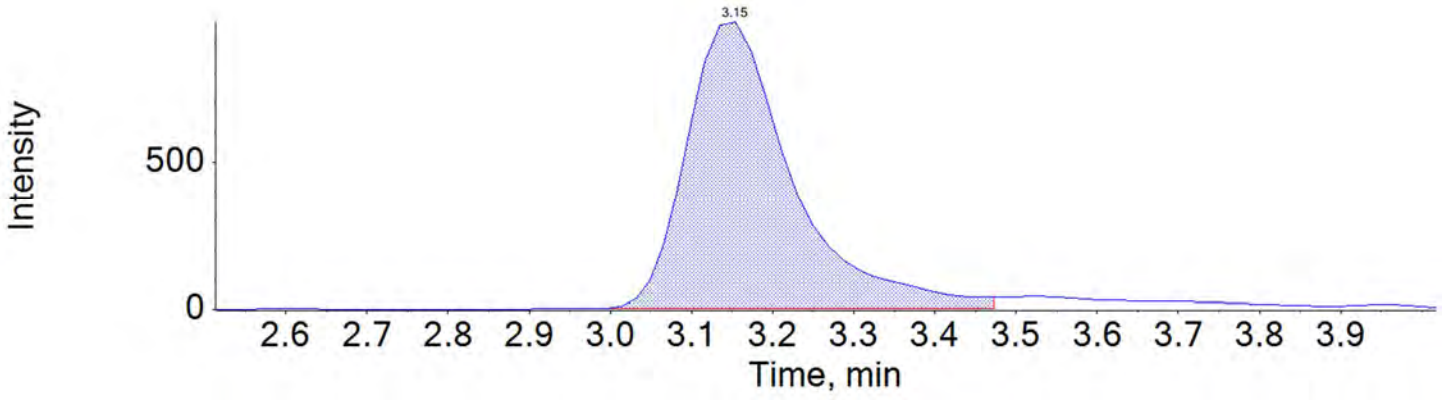

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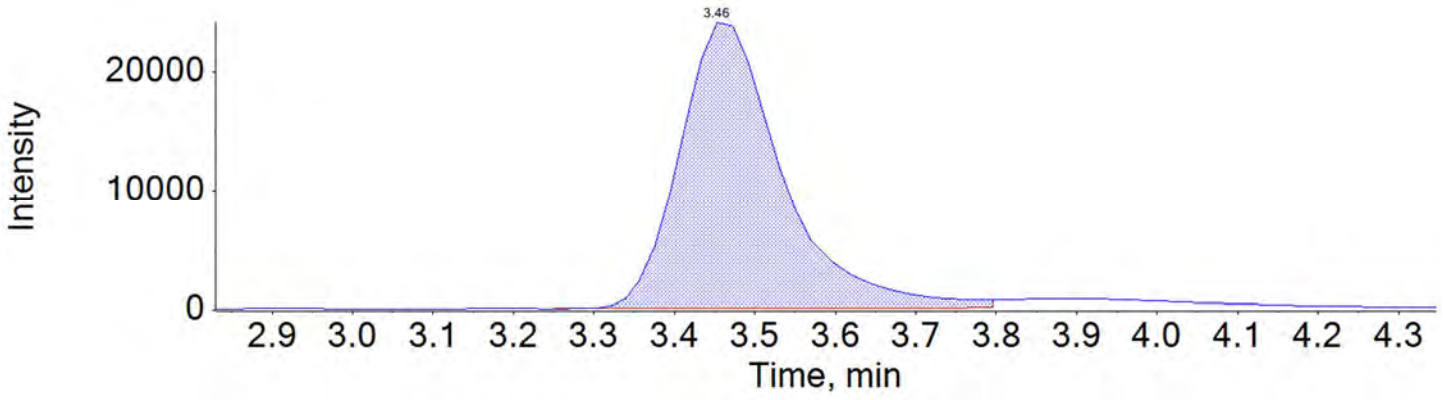

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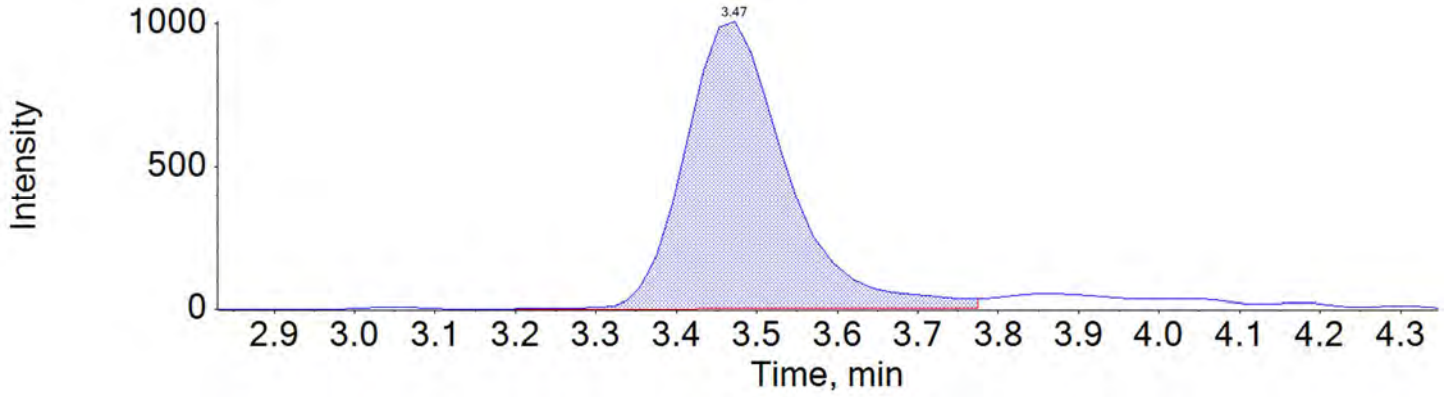

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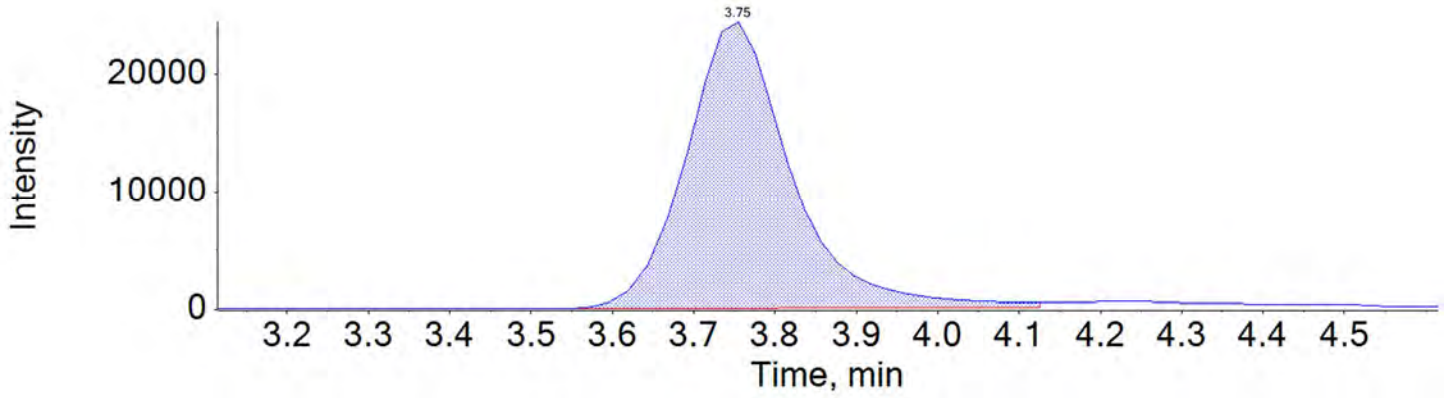

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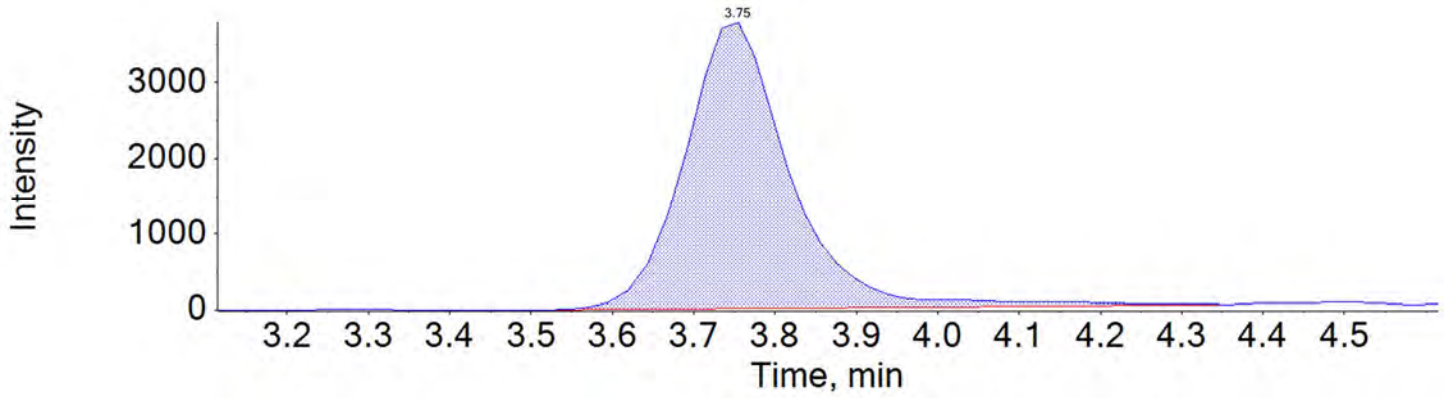

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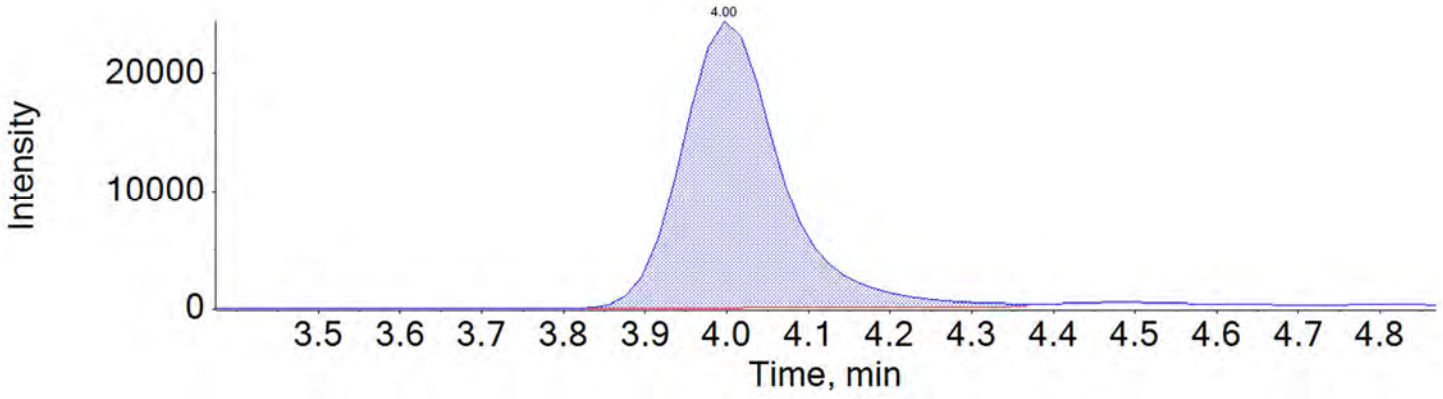
PFTrDA_1 663.0 / 619.0



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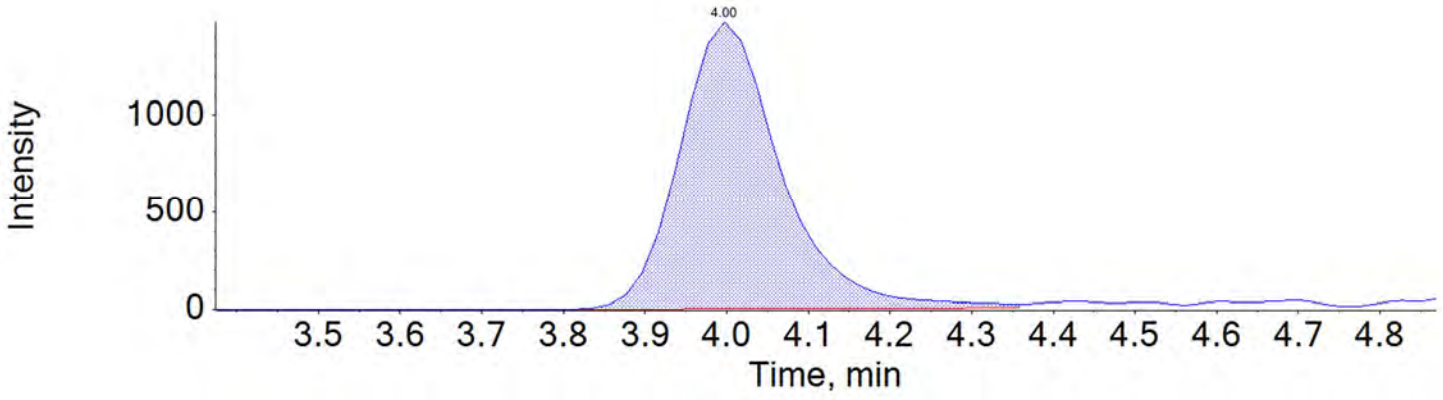

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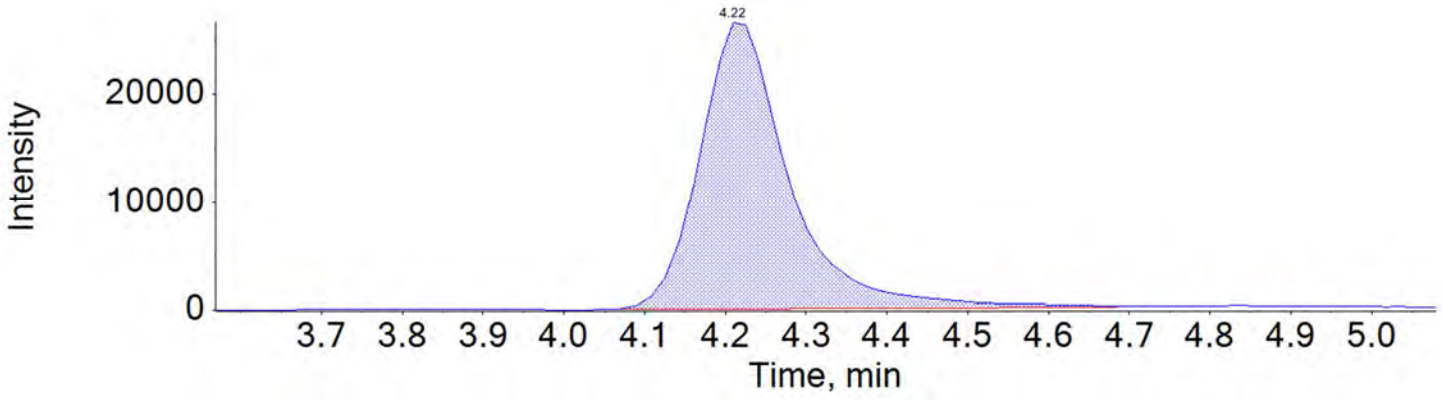

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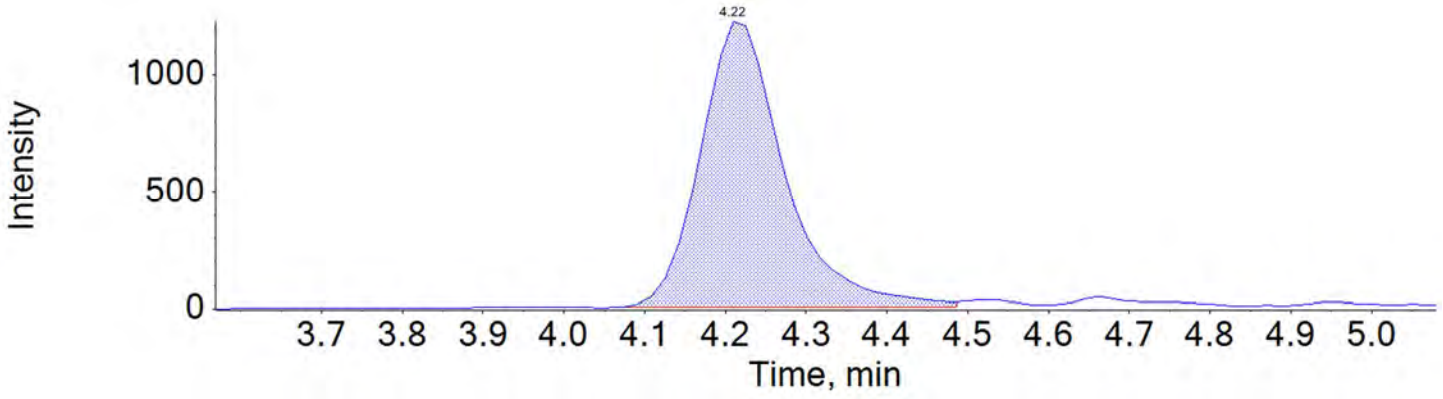
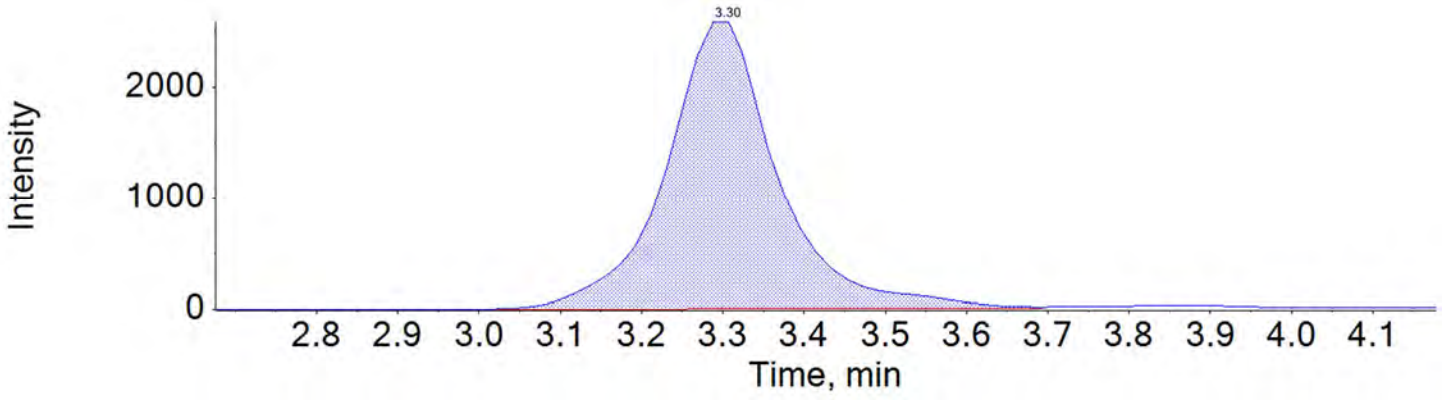


NMeFOSAA_1 570.0 / 419.0



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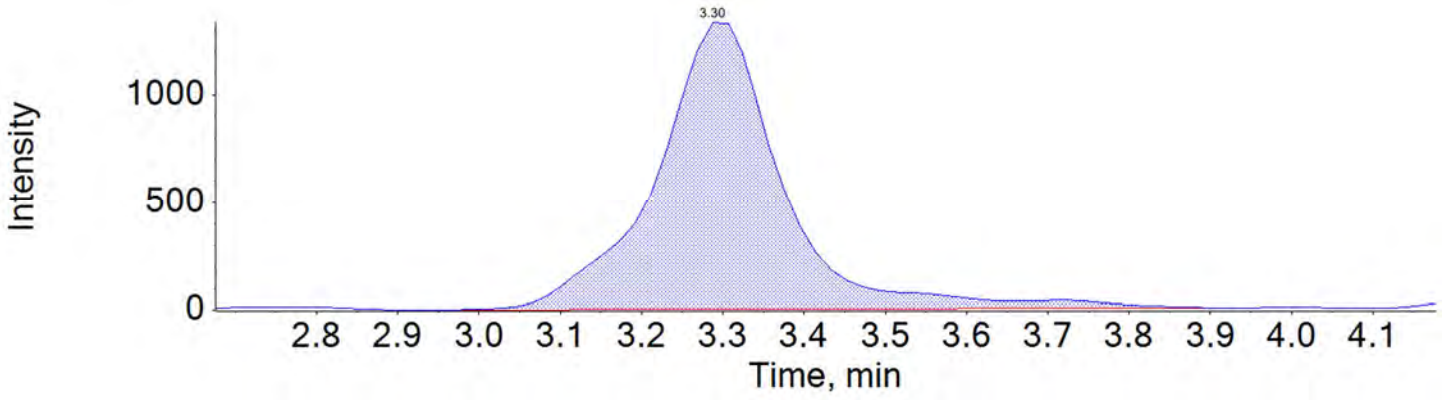

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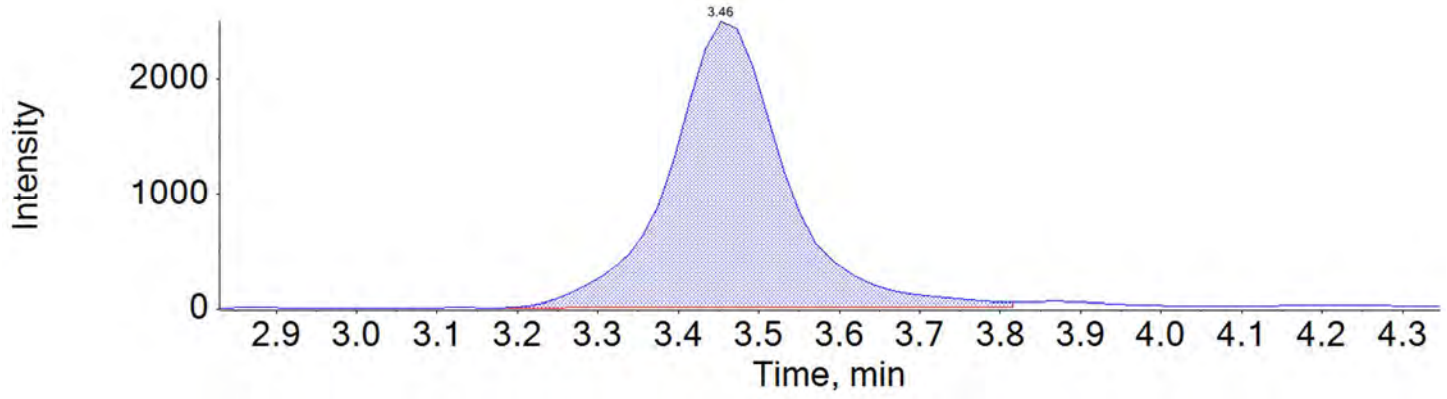

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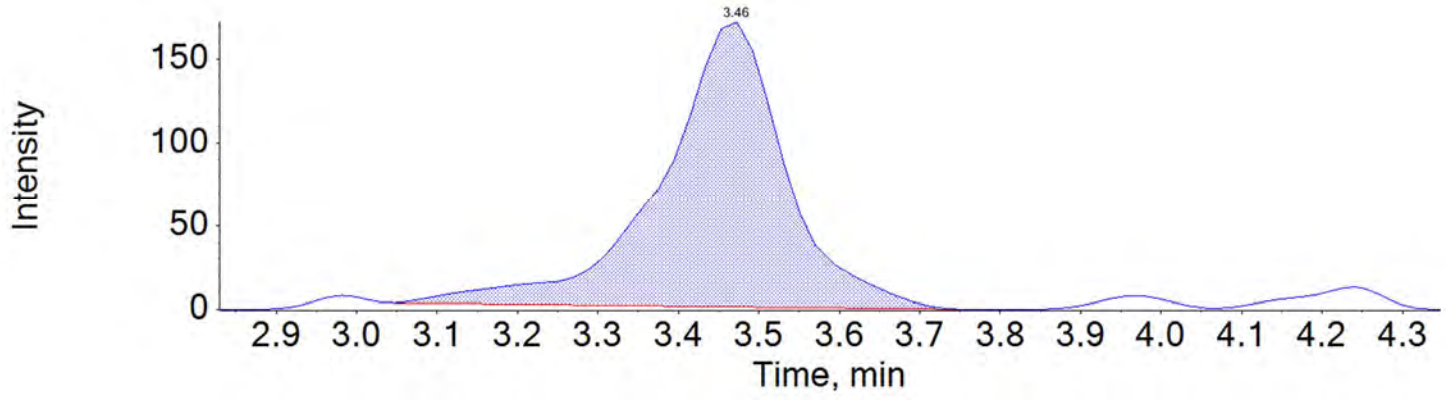

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Chromatogram Report

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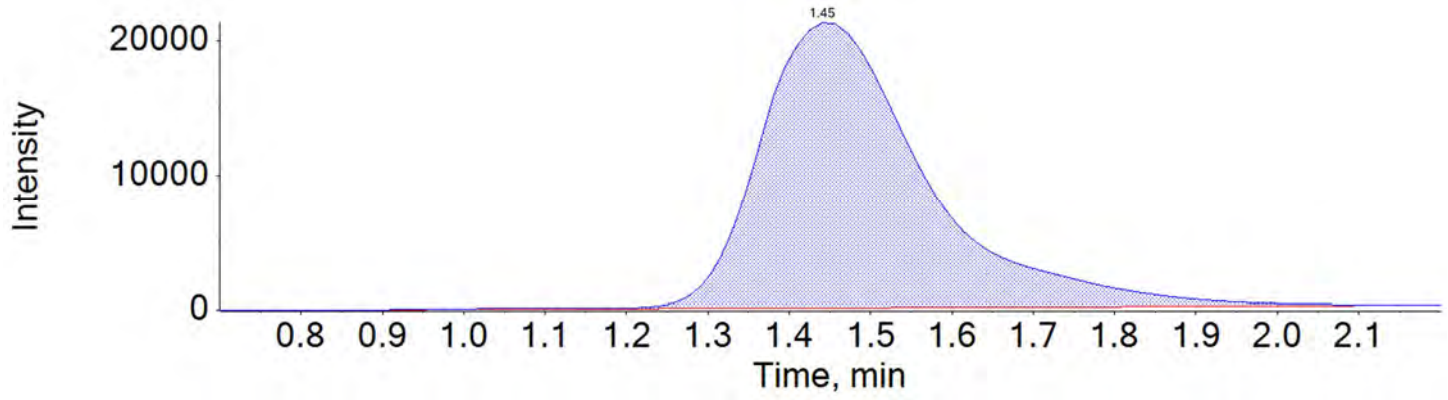
Sample Name	J6206-FS-D(3)	**Injection Vial**	12
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T13:50:54	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



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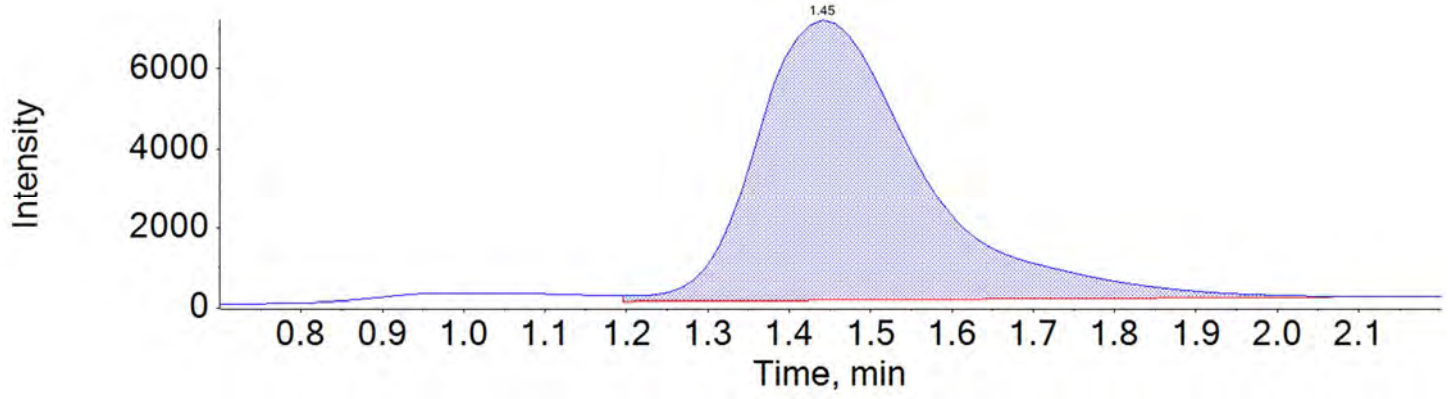

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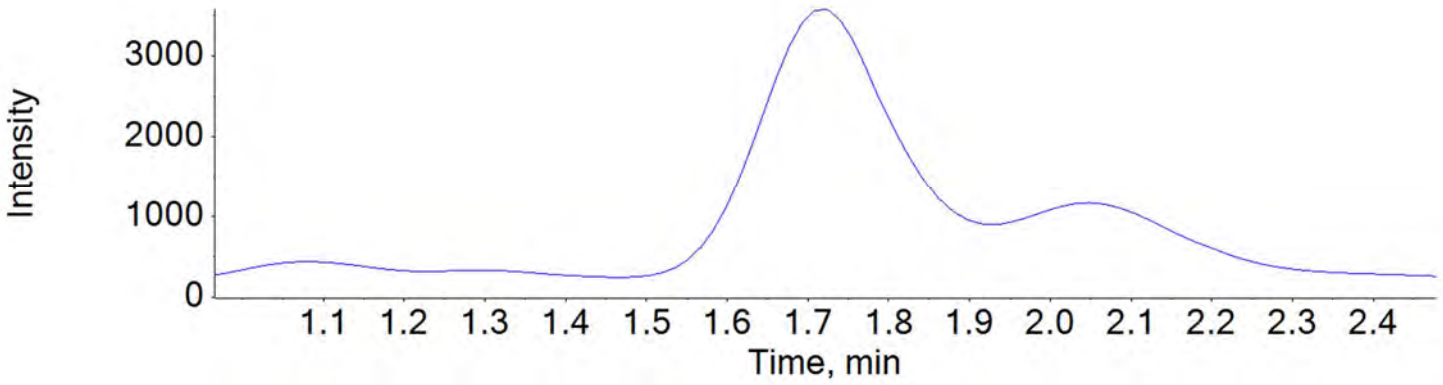

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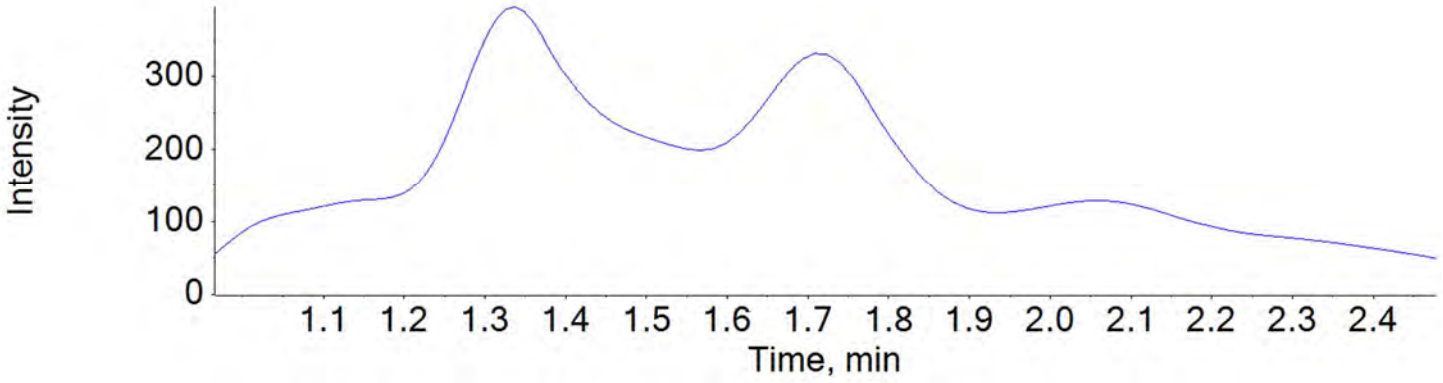
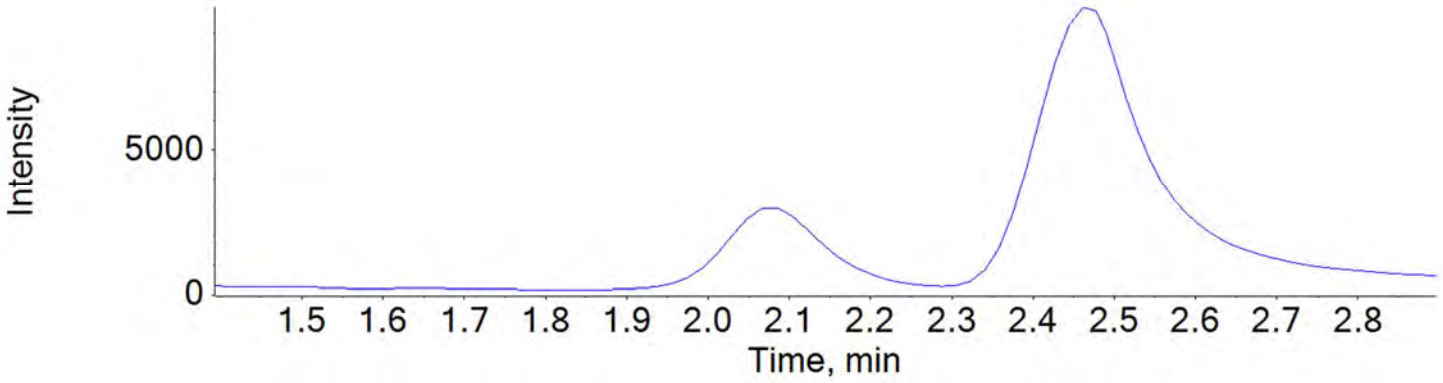


PFHpA_1 363.0 / 319.0



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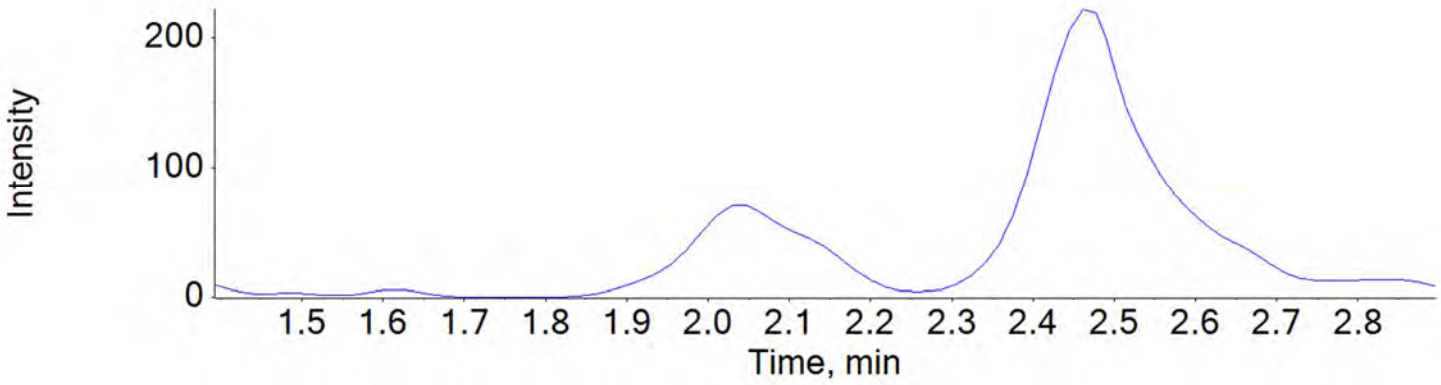
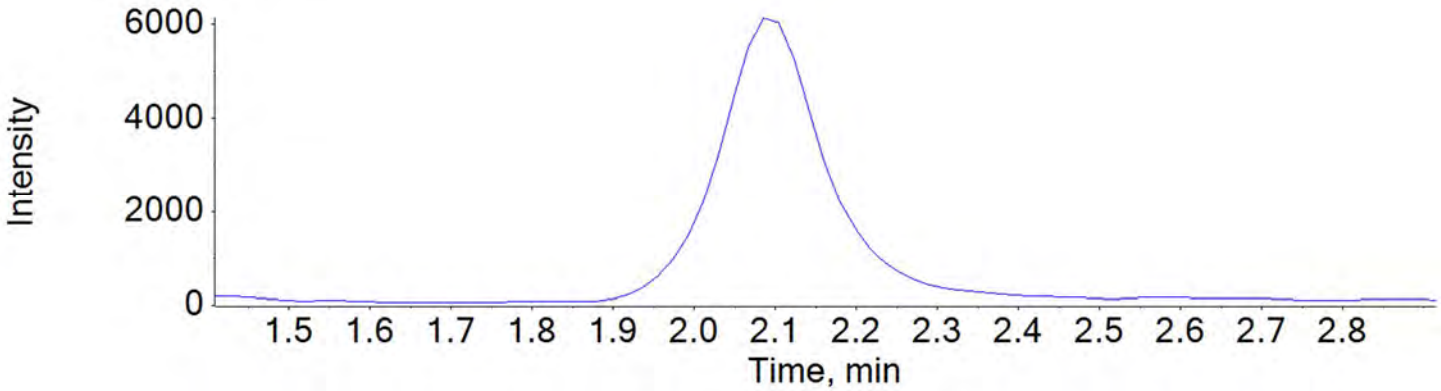


PFHxS_1 399.0 / 80.0



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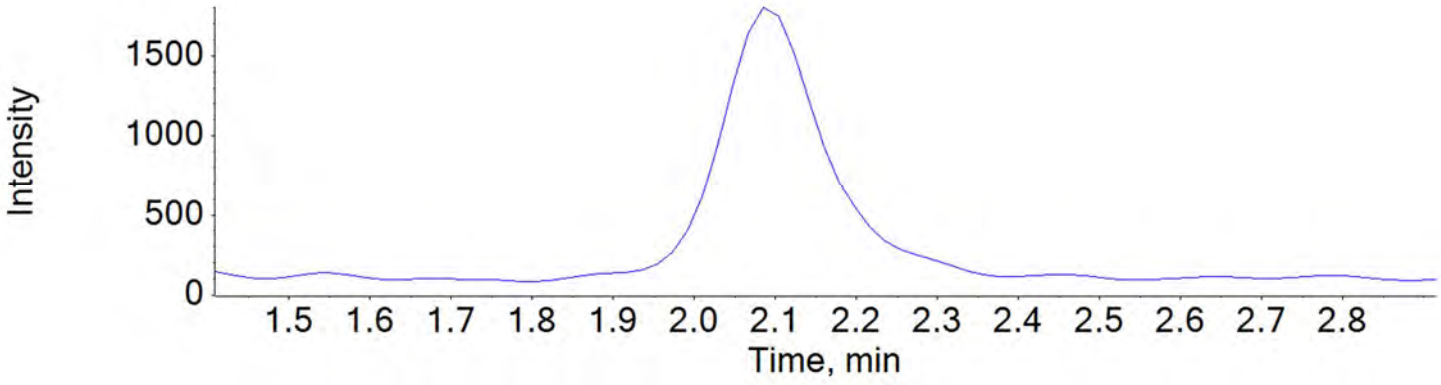

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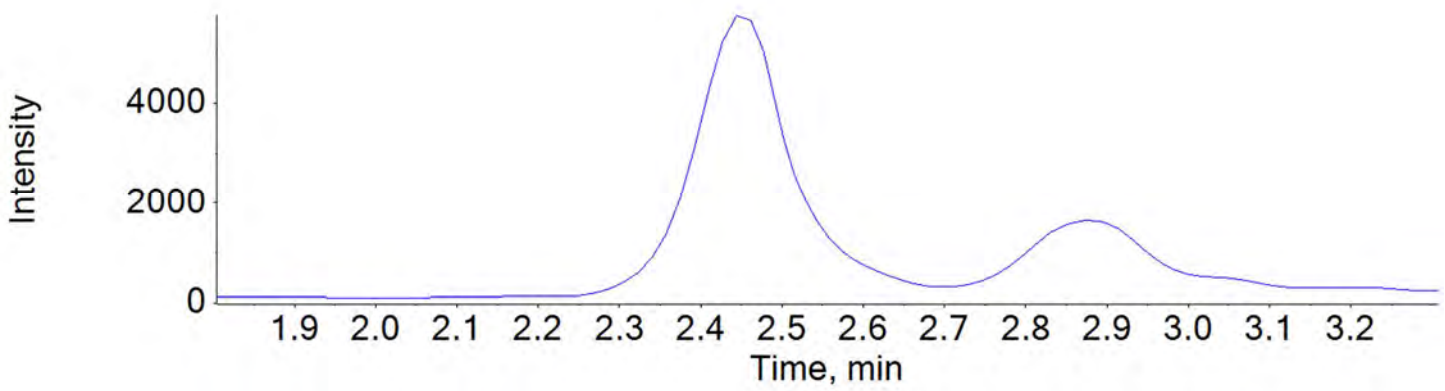

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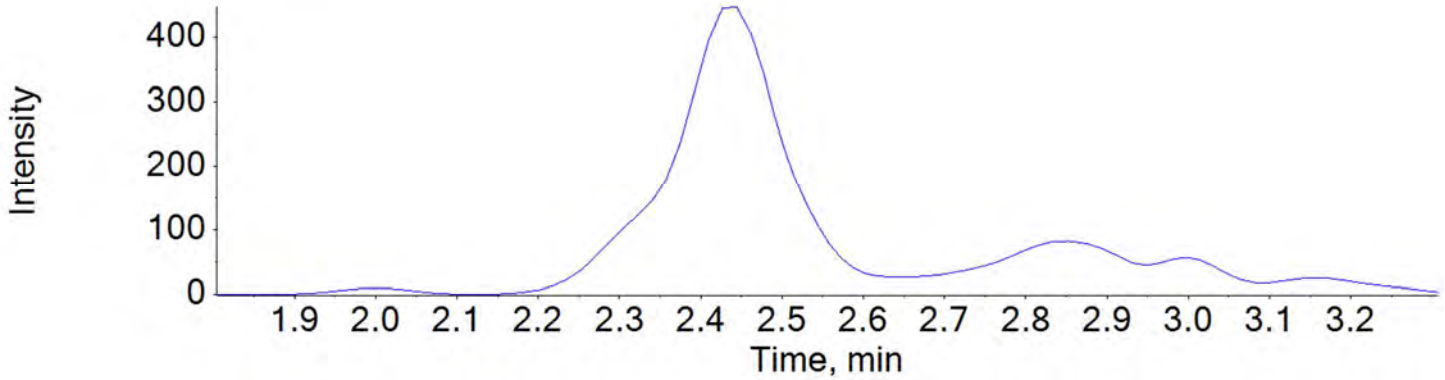

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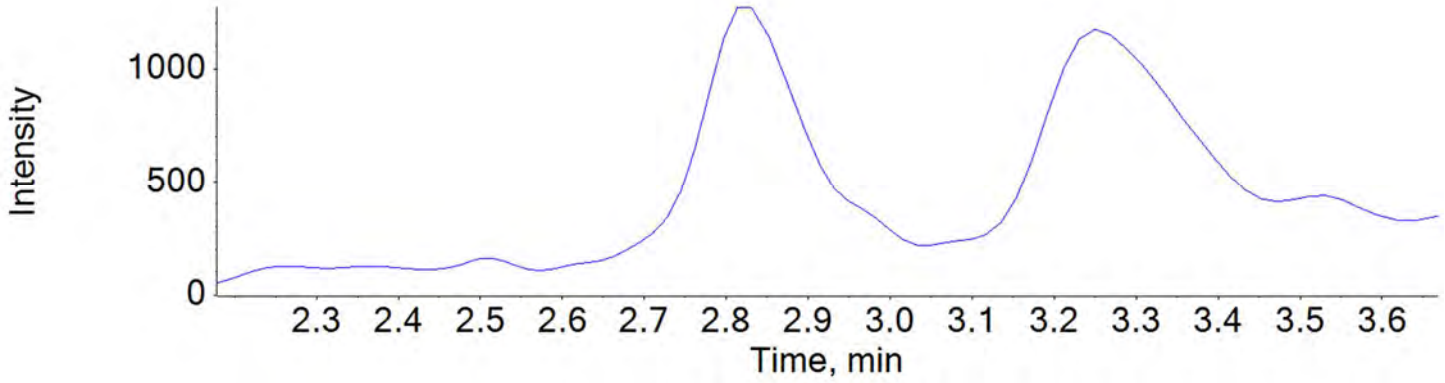

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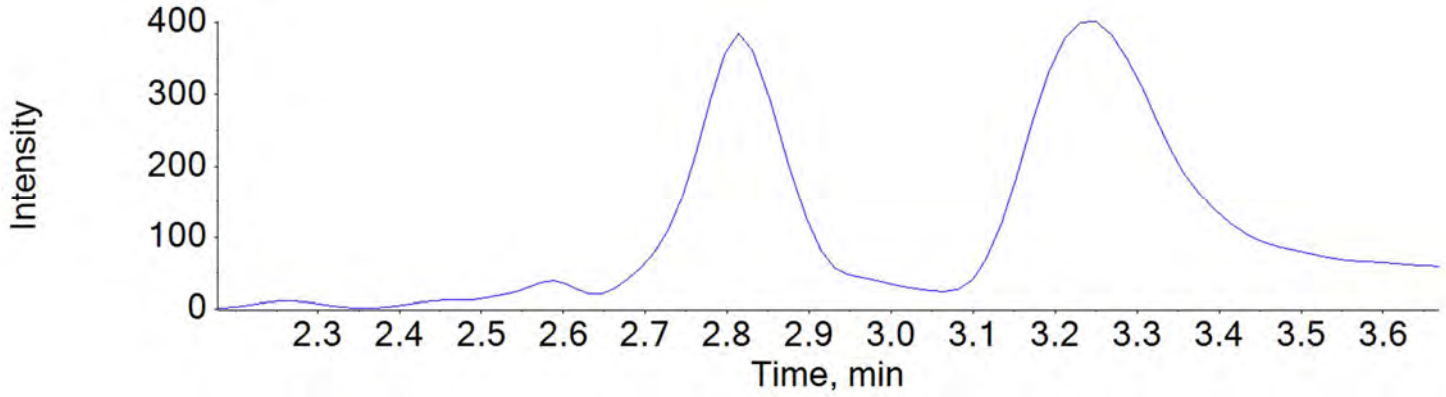

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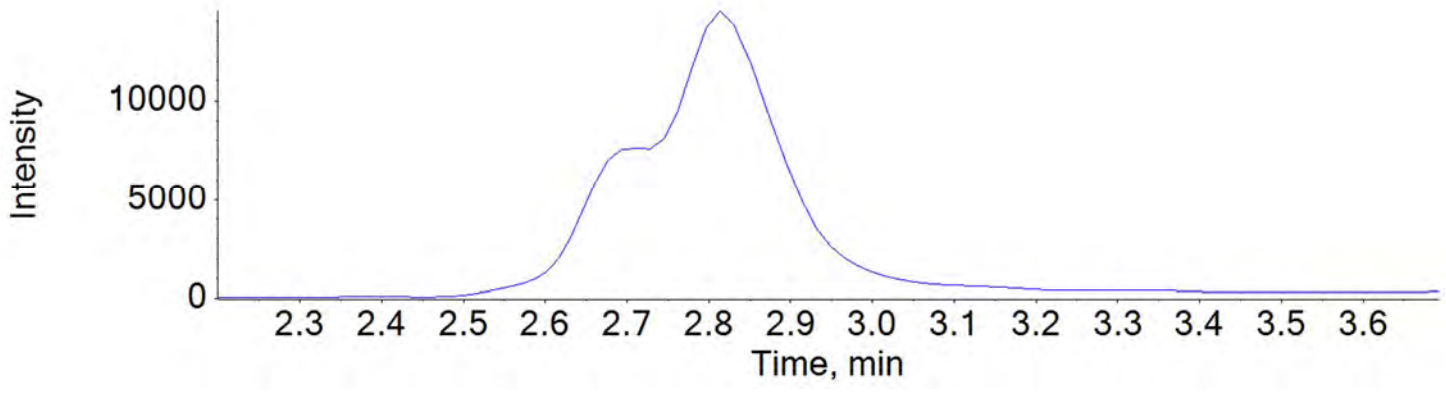

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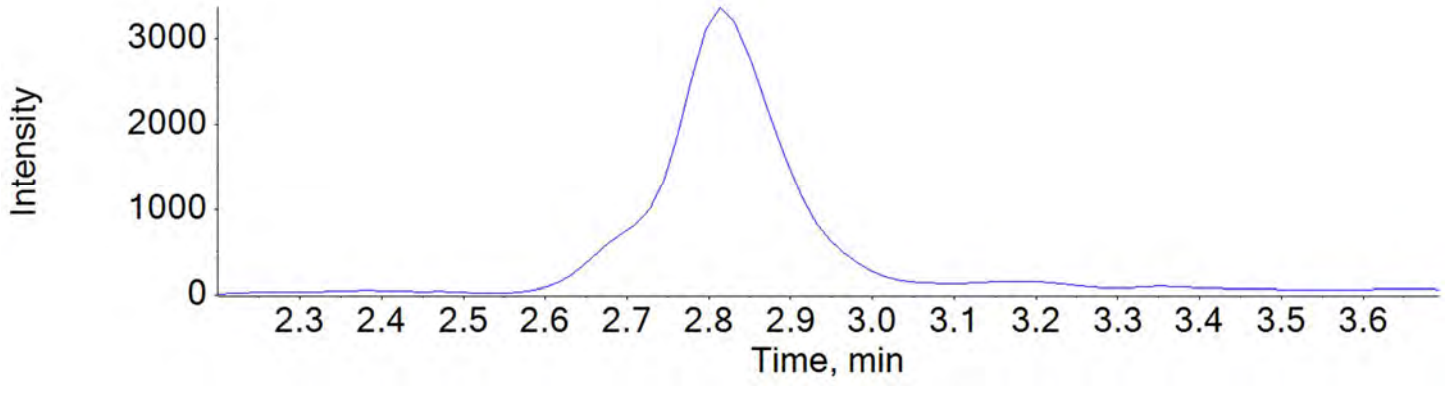

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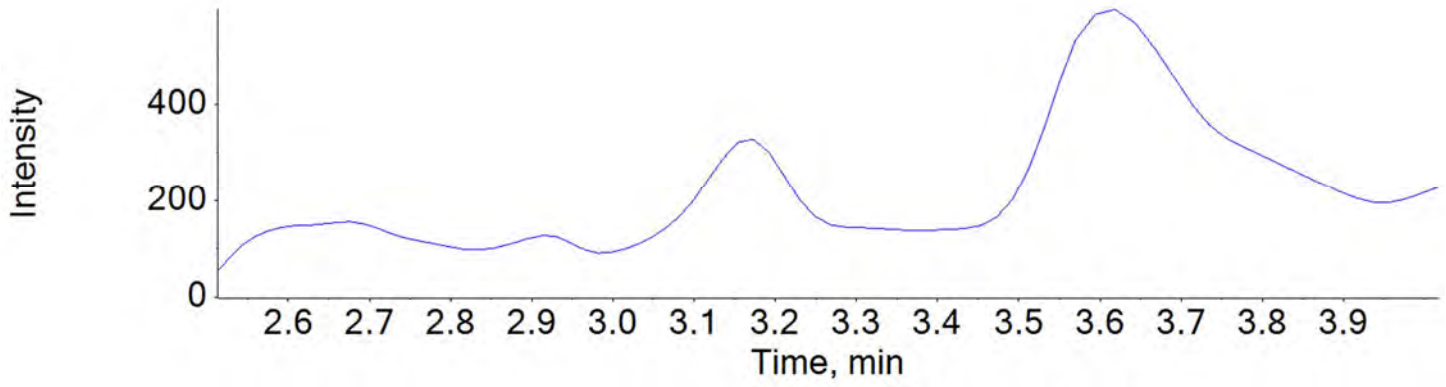
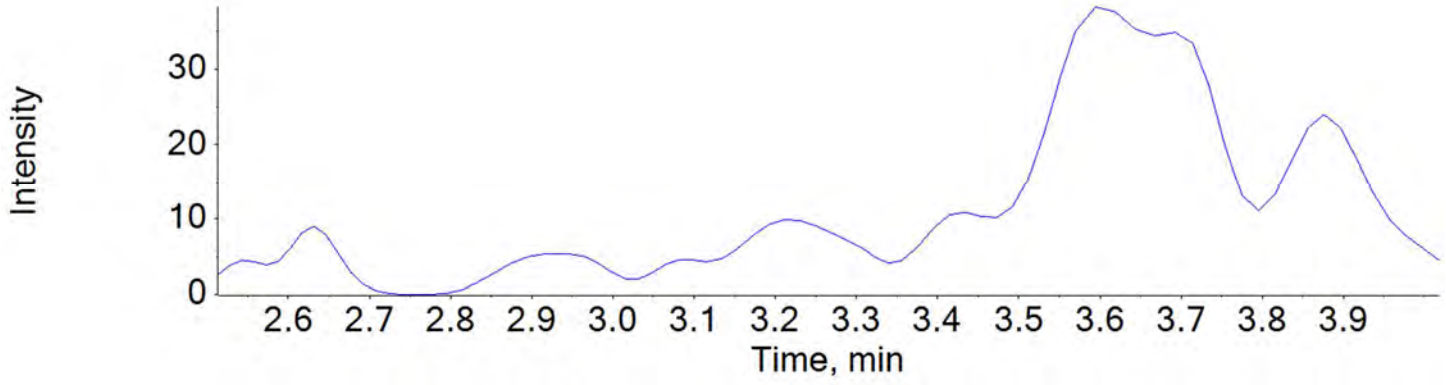


PFDA_2 513.0 / 219.0



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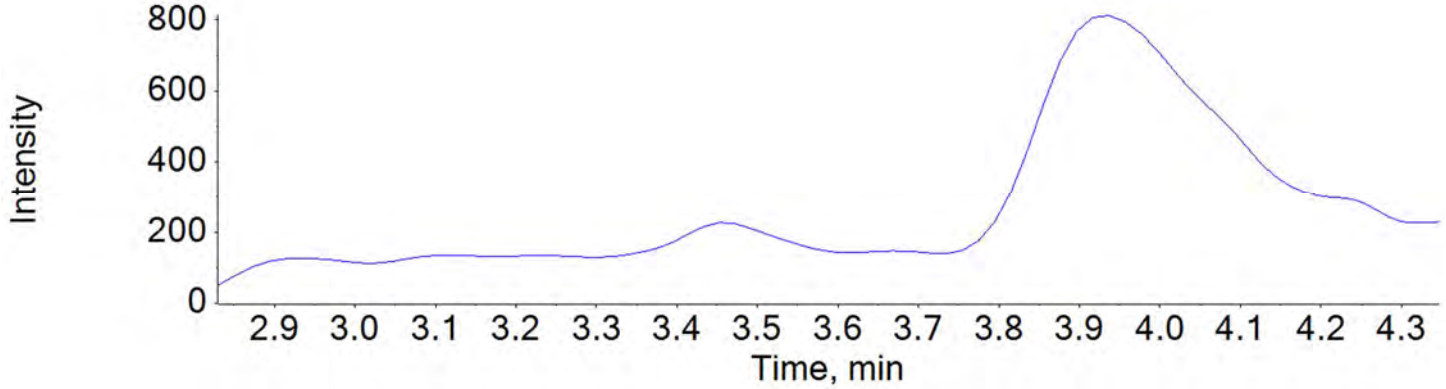

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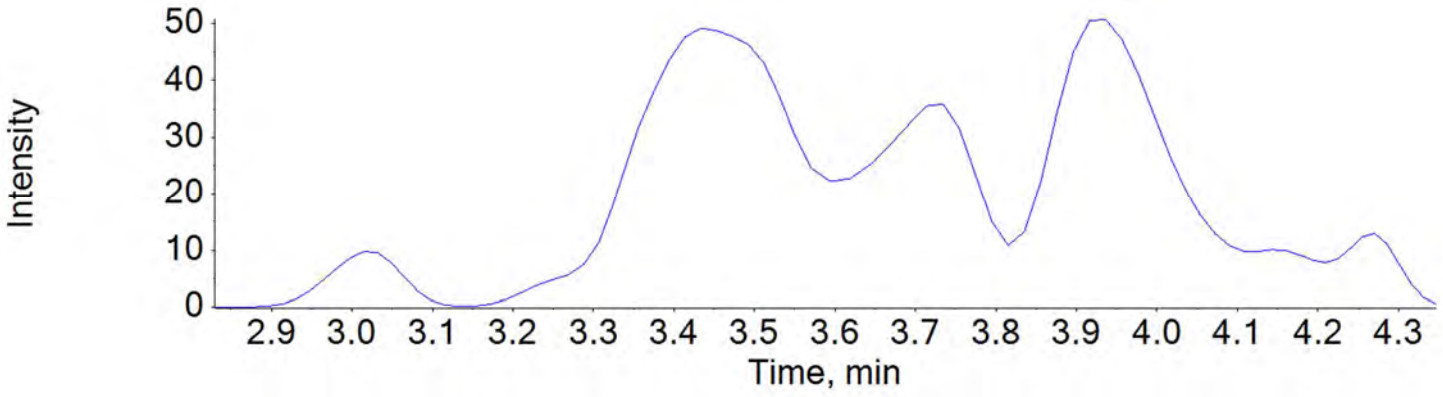

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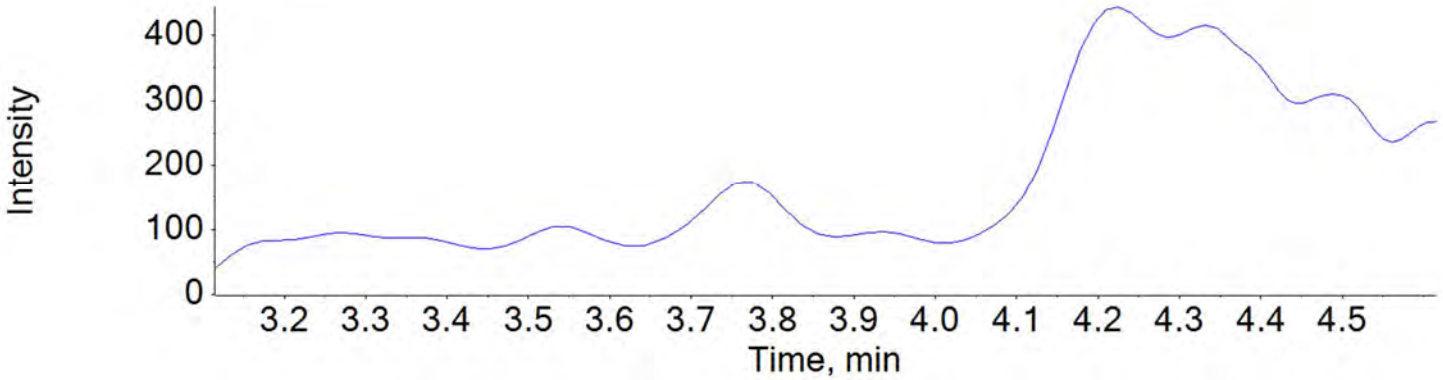

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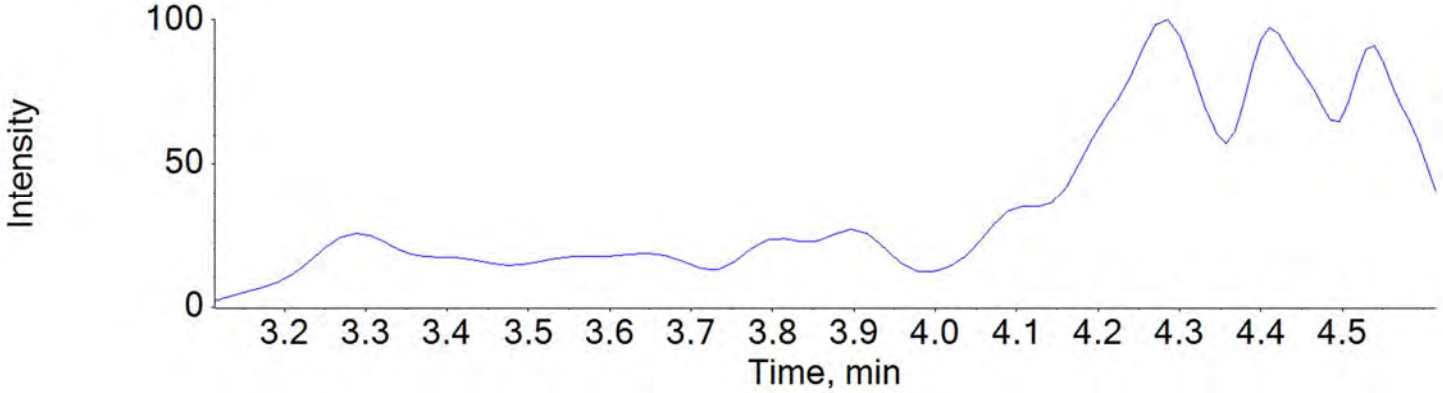

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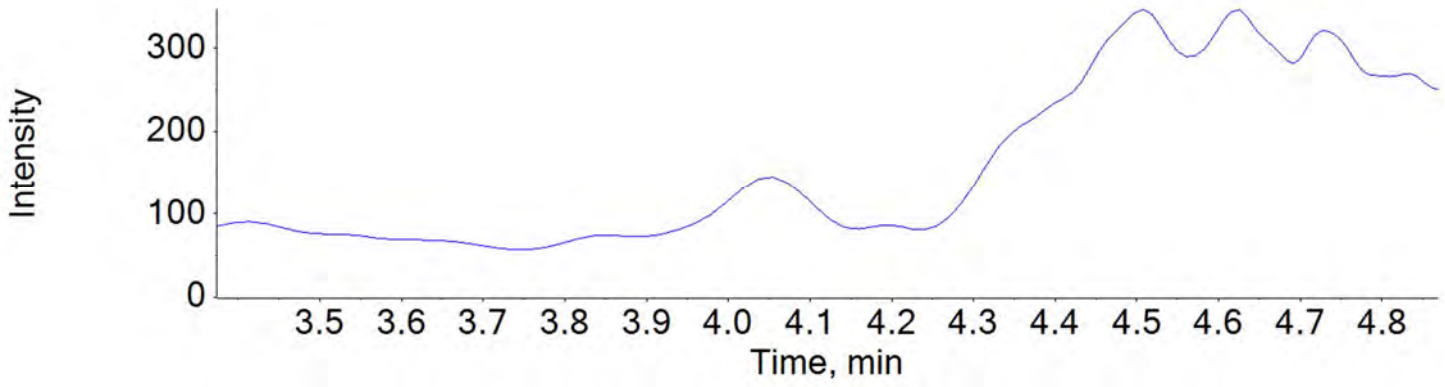
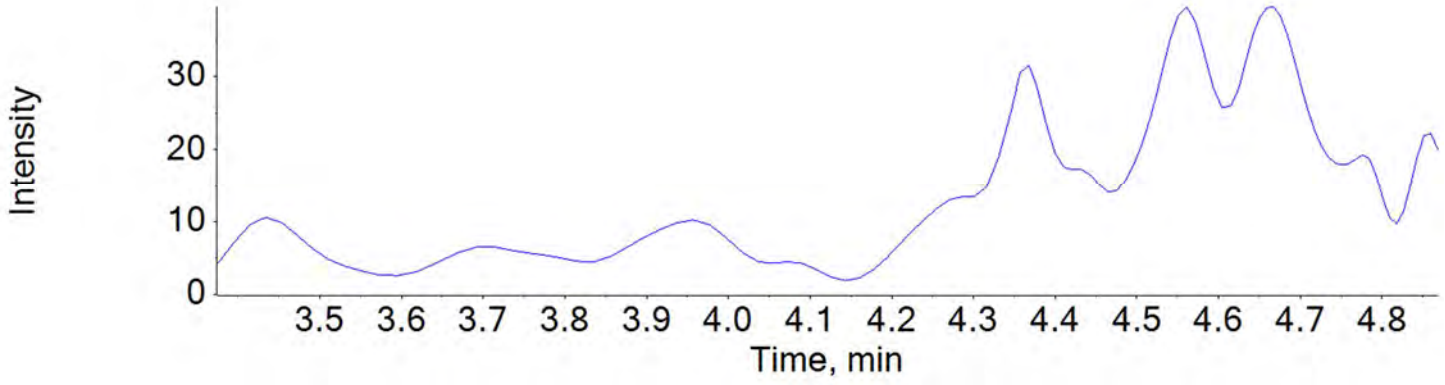
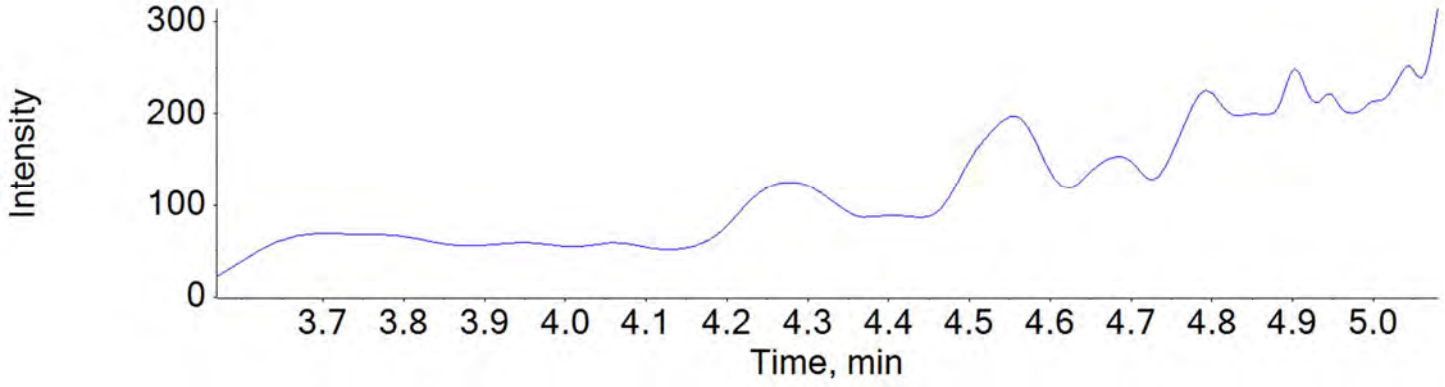
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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Chromatogram Report

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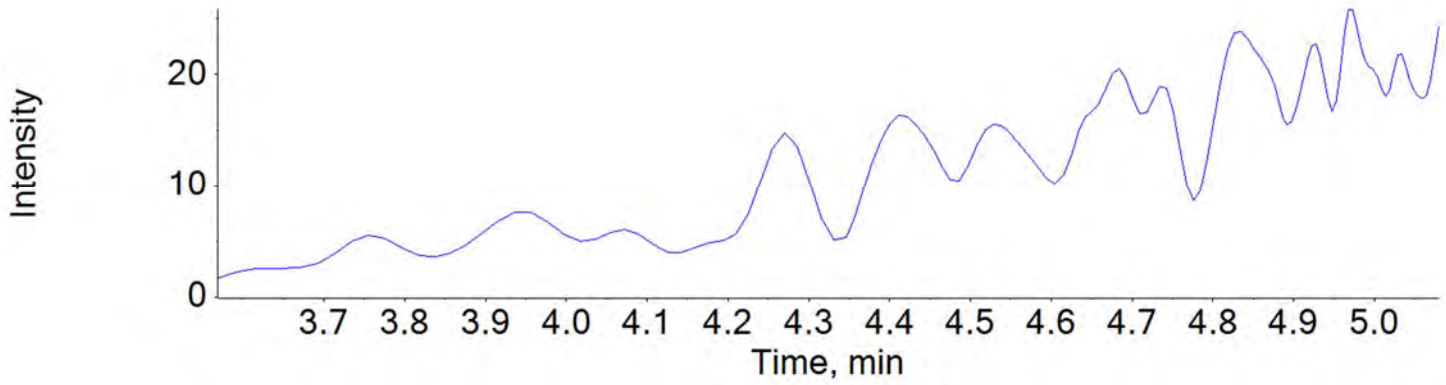
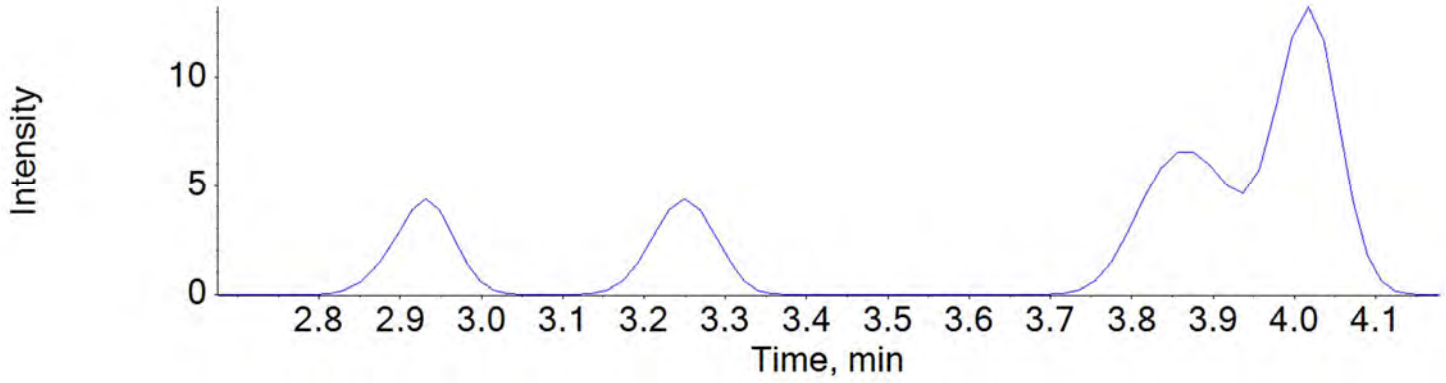
PFTeDA_2 713.0 / 169.0



NMeFOSAA_1 570.0 / 419.0



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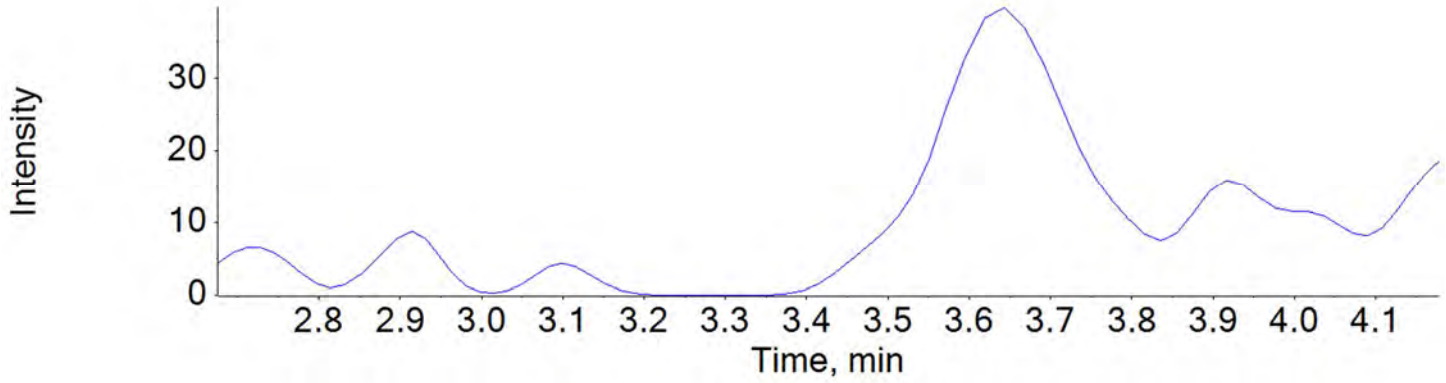

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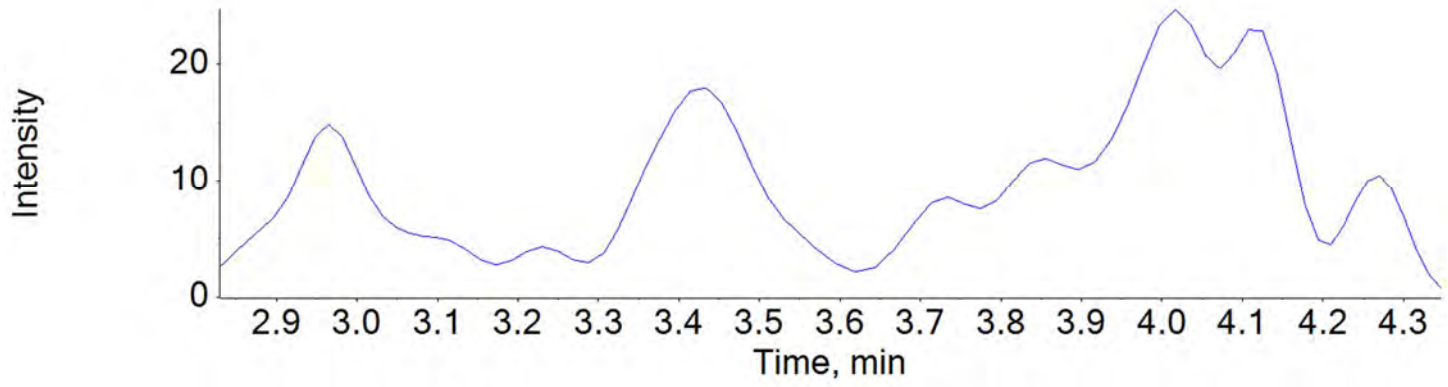
NEtFOSAA_1 584.0 / 419.0



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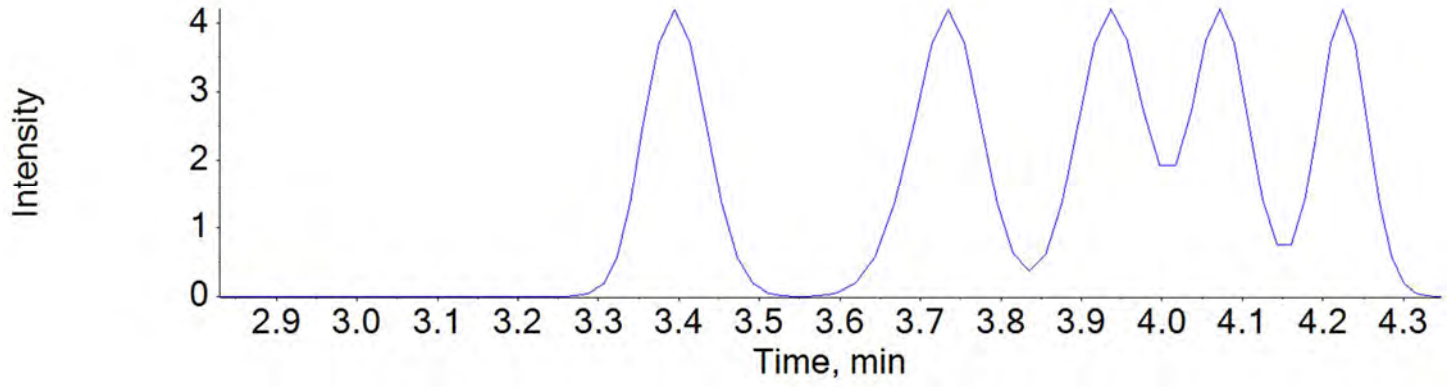

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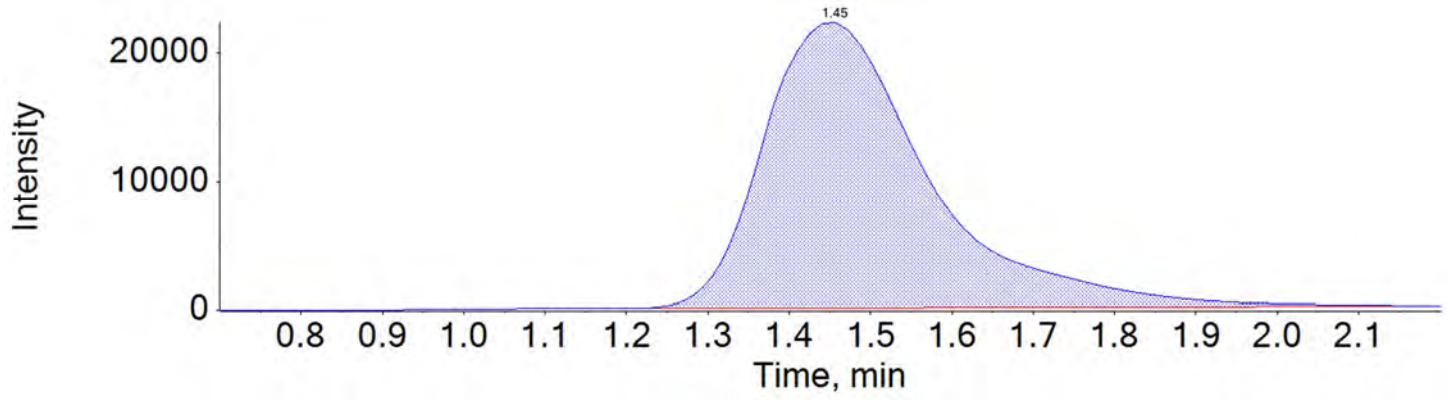
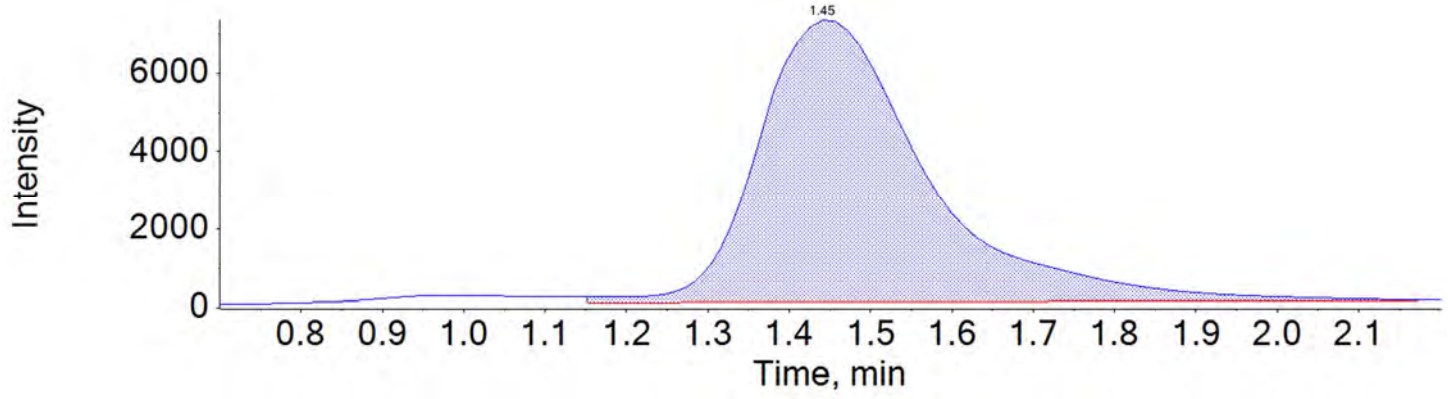
Sample Name	J6206MS-FS-D(3)	**Injection Vial**	13
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T13:59:51	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



PFBS_2 298.9 / 99.0



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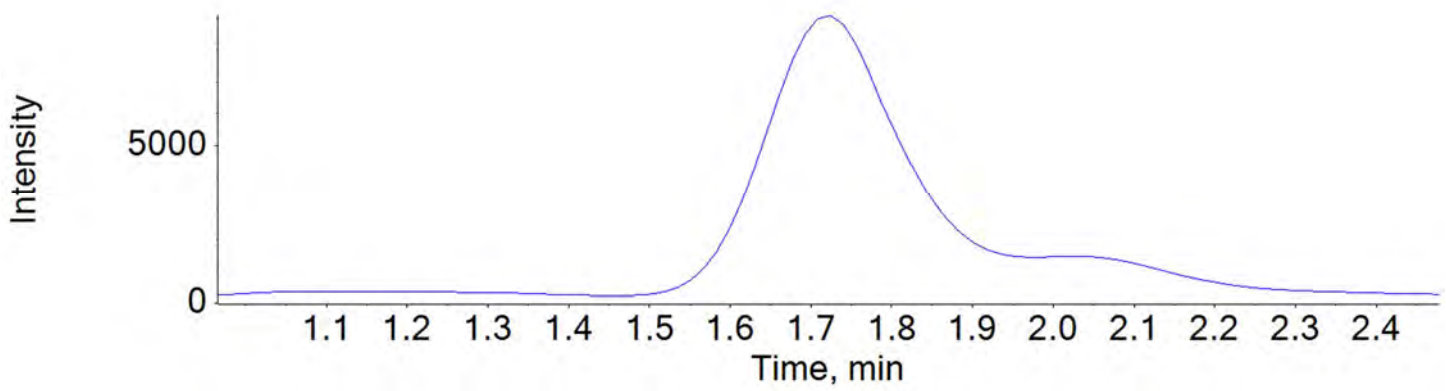
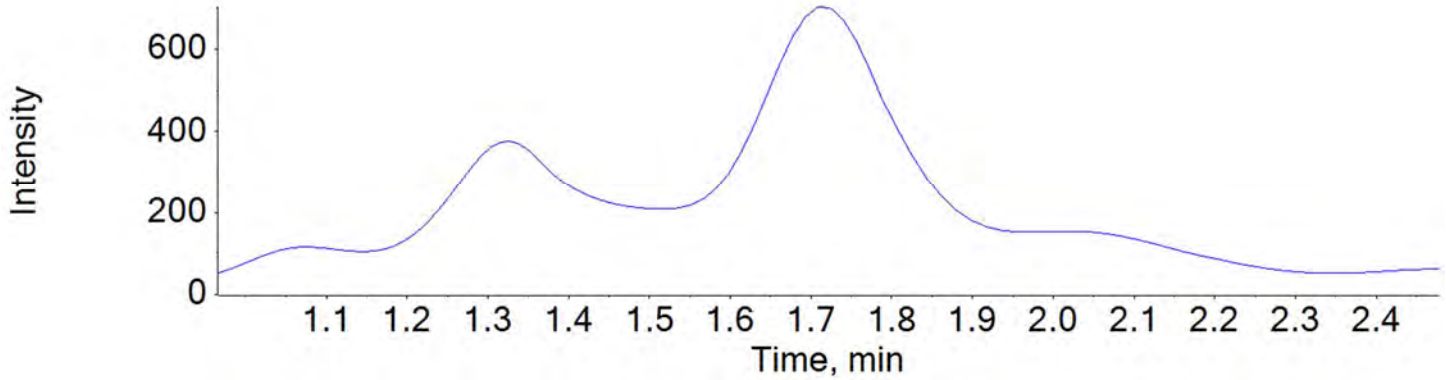
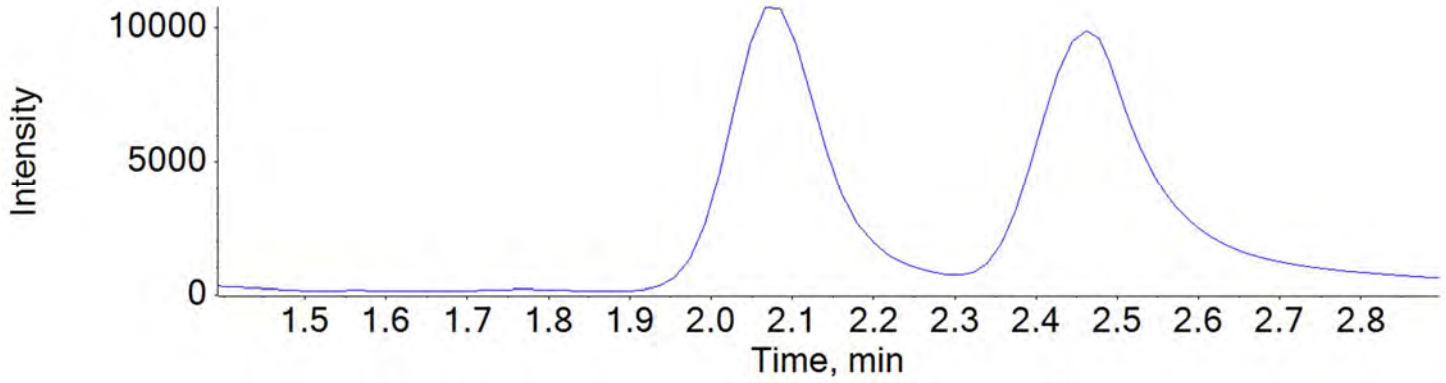
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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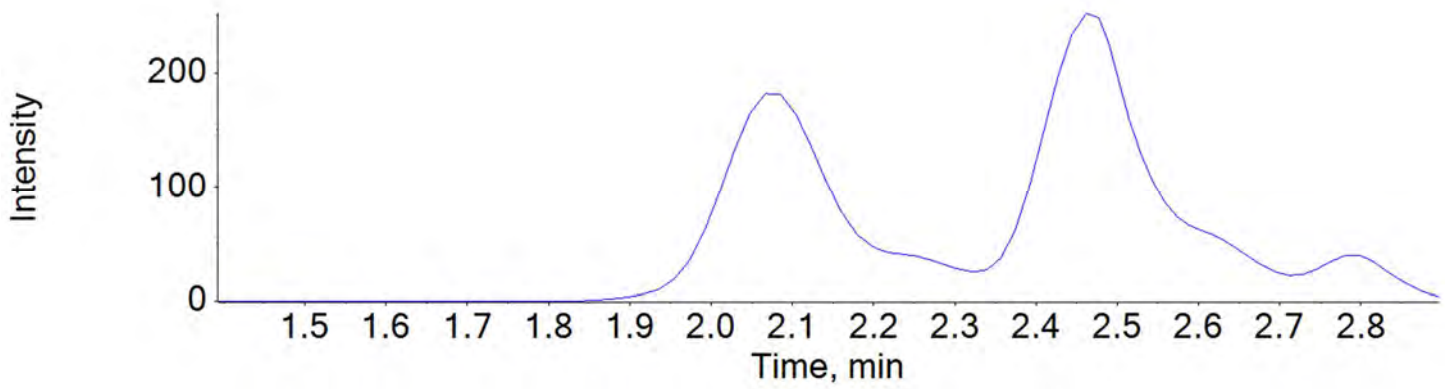
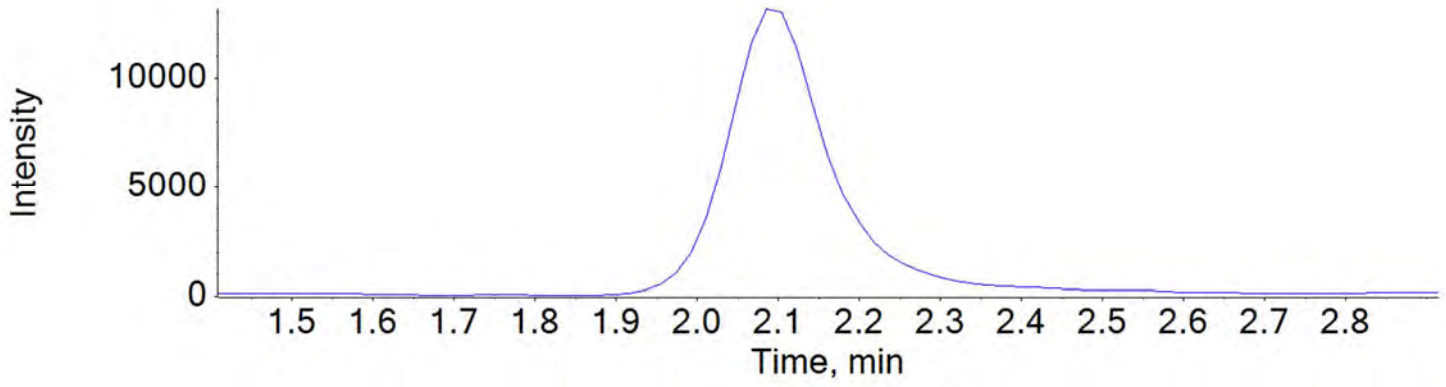
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



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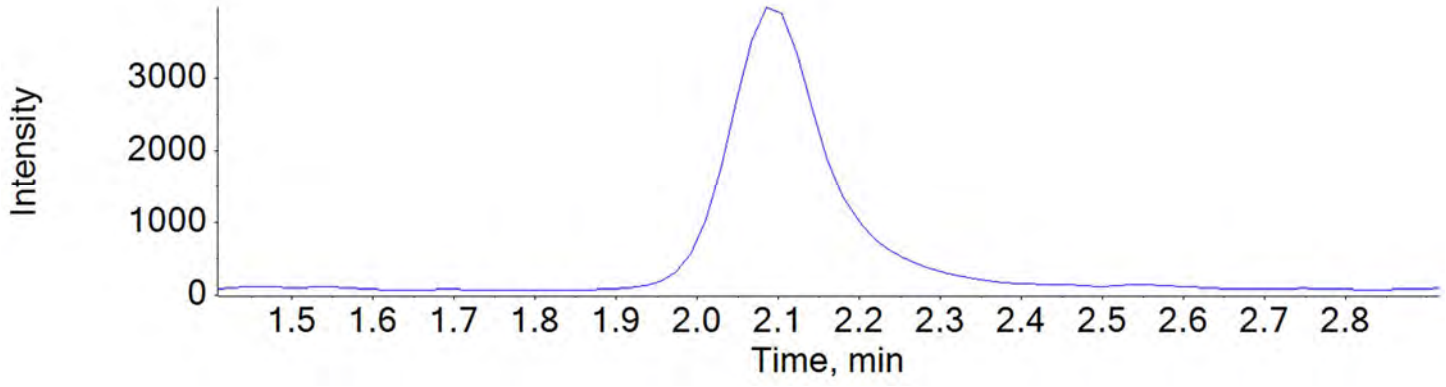

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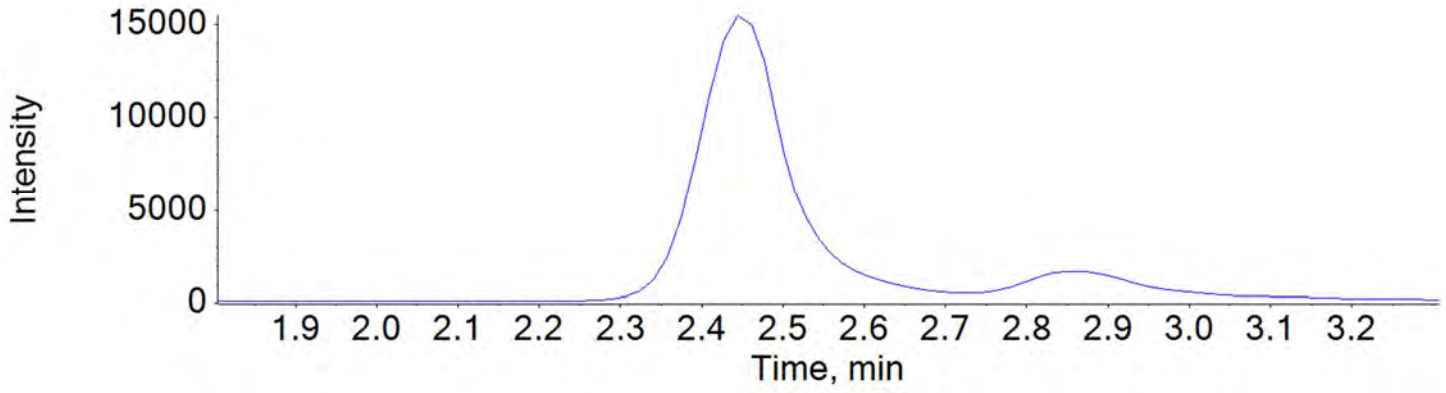
PFOA_1 413.0 / 369.0



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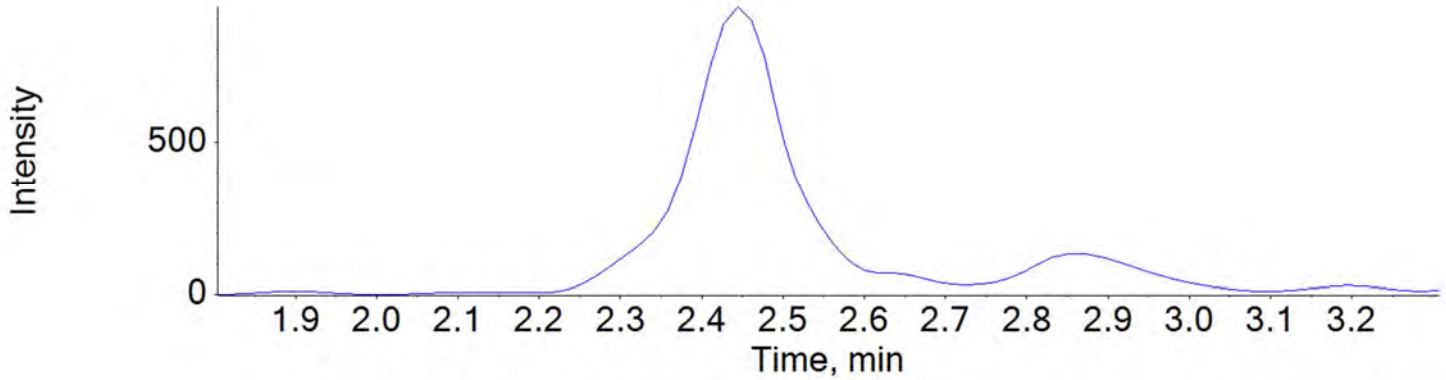
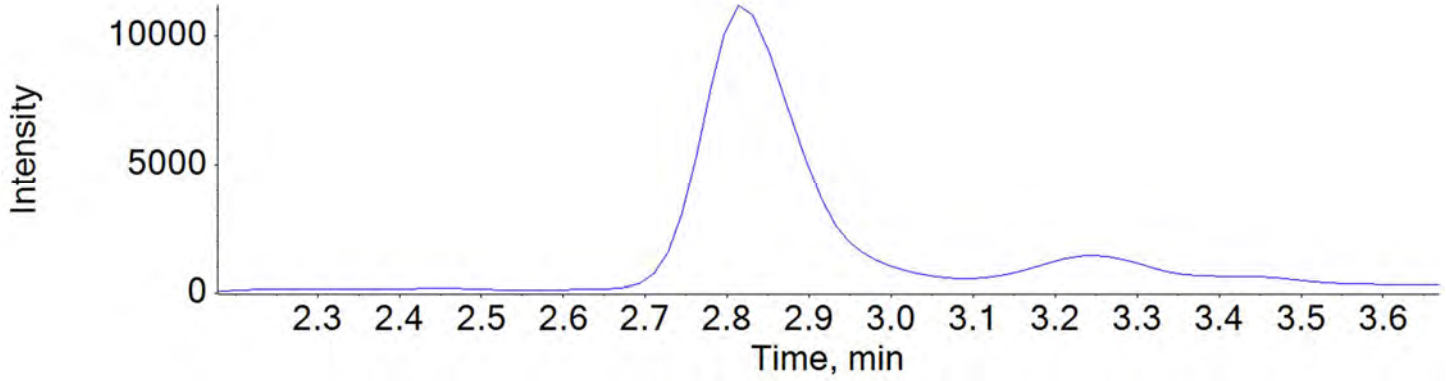


PFNA_1 463.0 / 419.0



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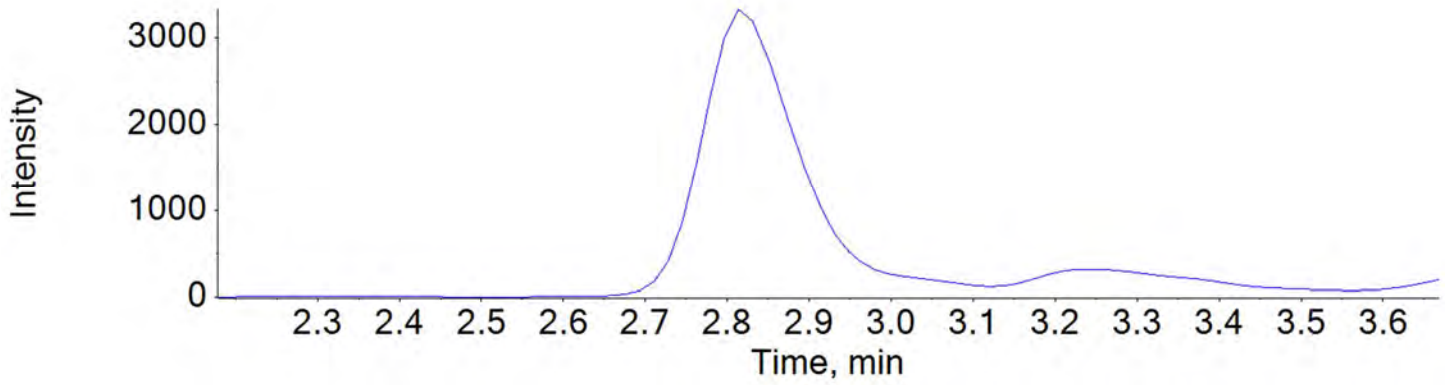
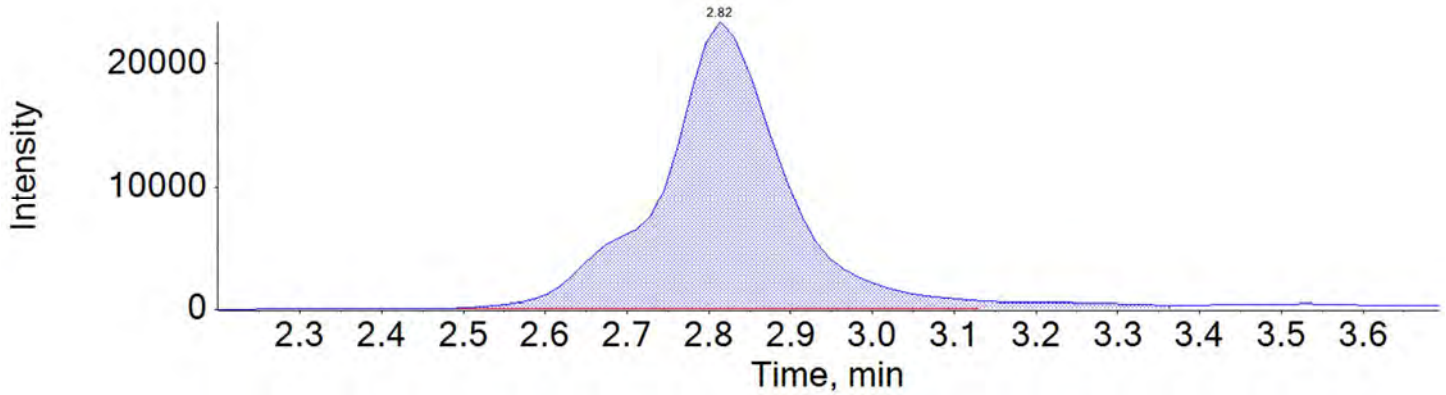
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



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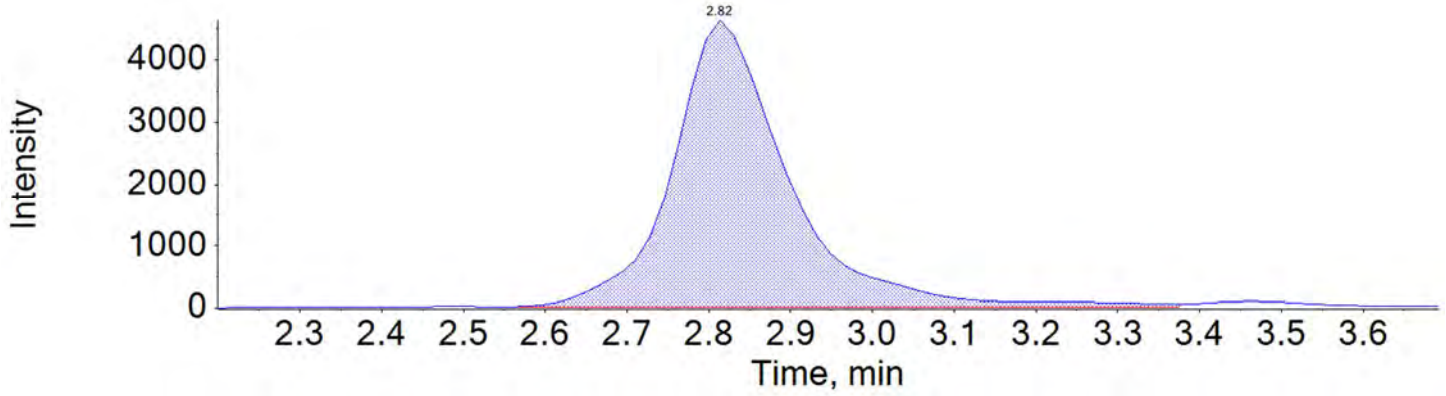

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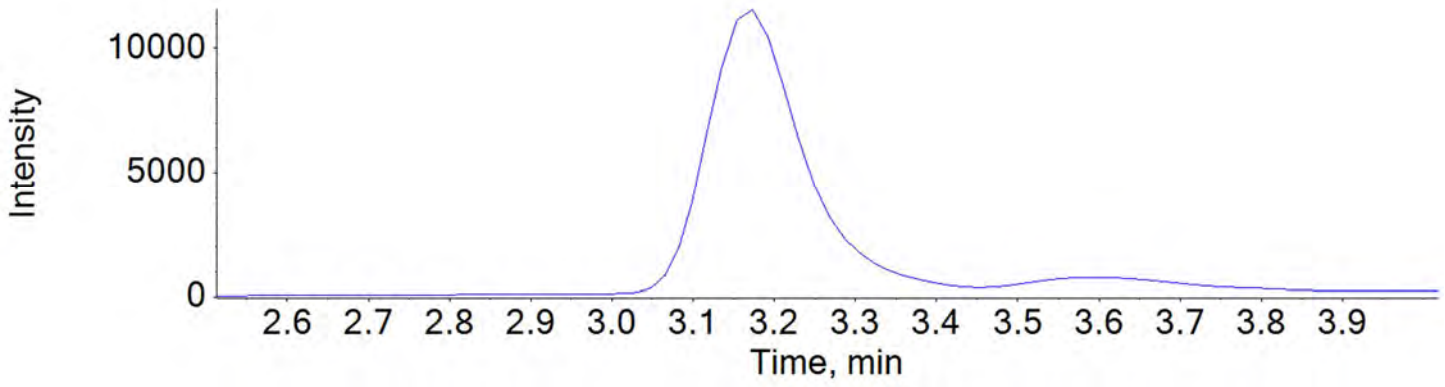
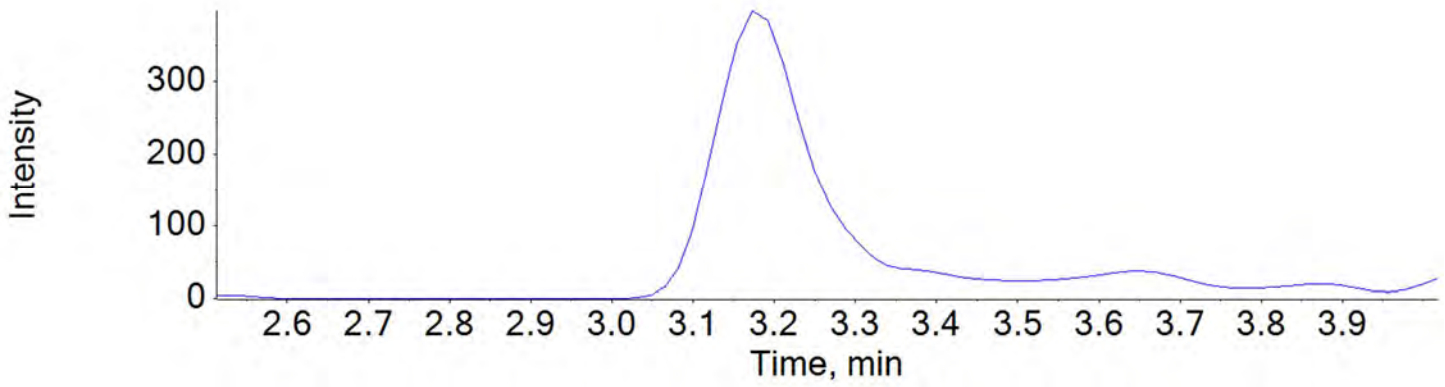
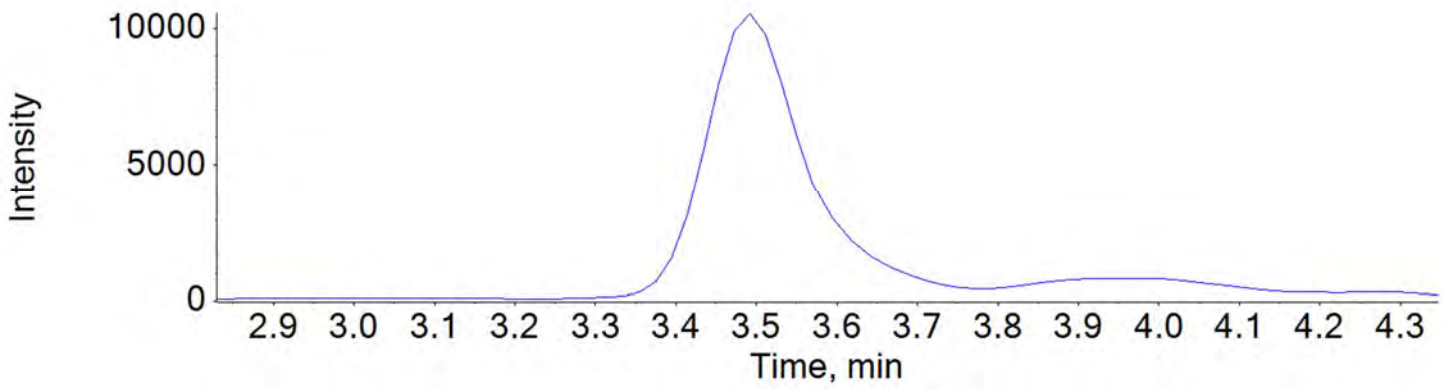
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



PFUnA_1 563.0 / 519.0



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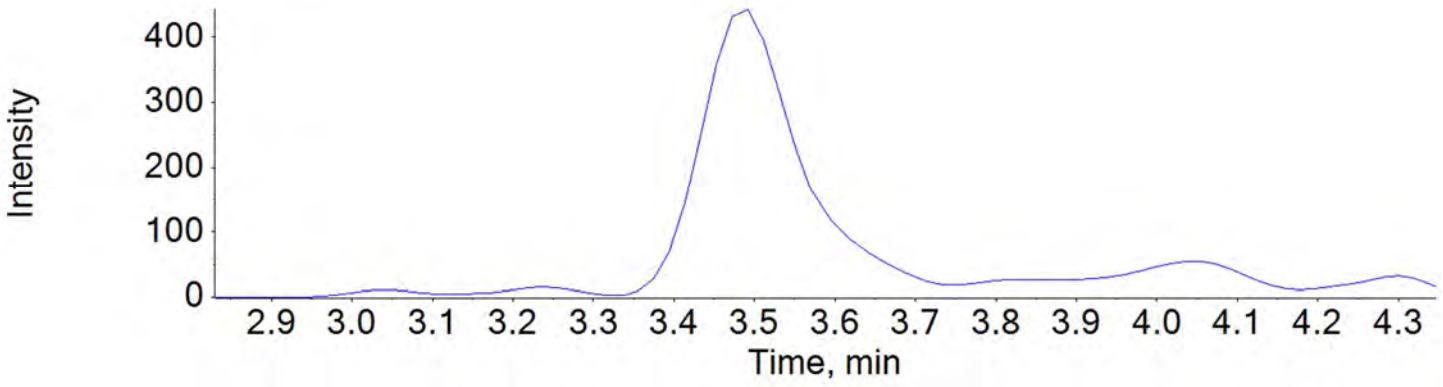

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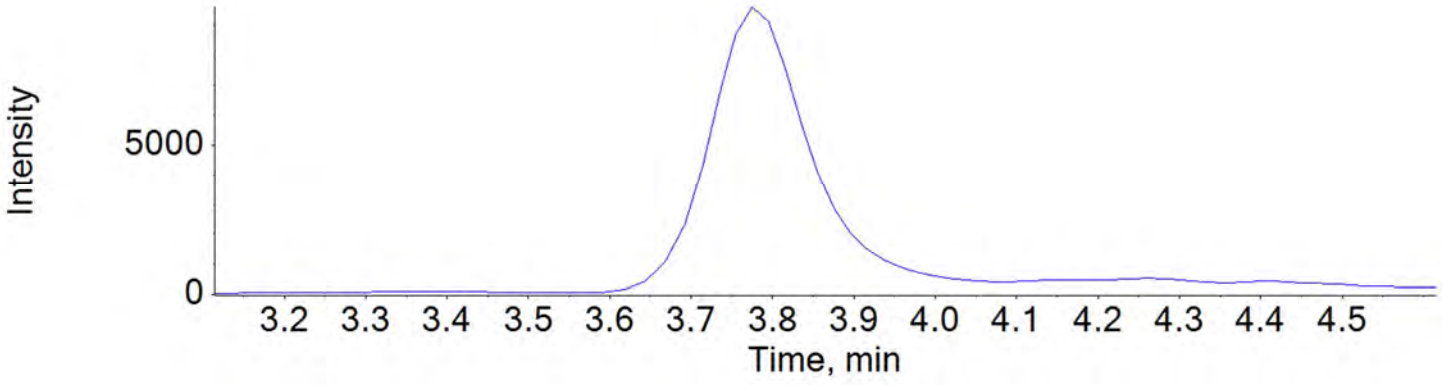

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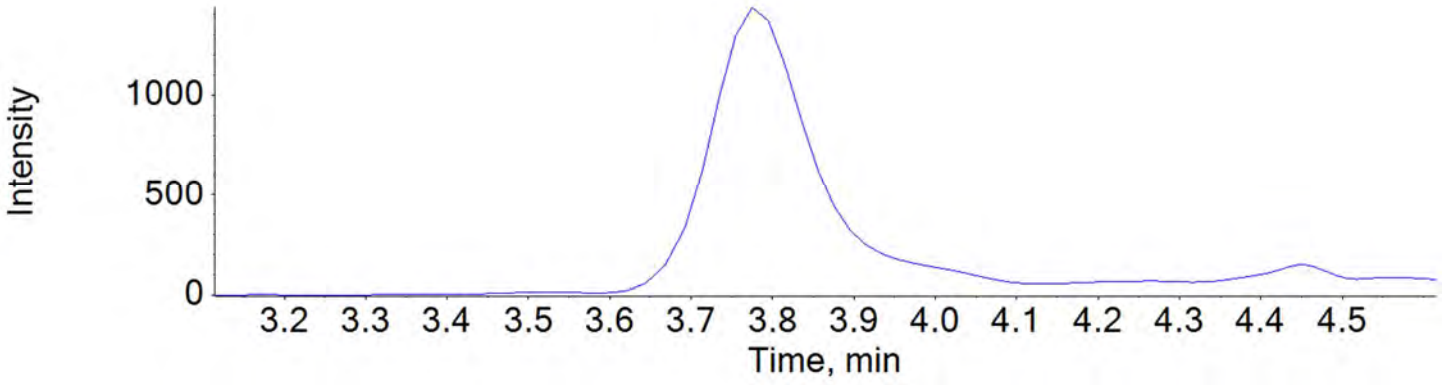

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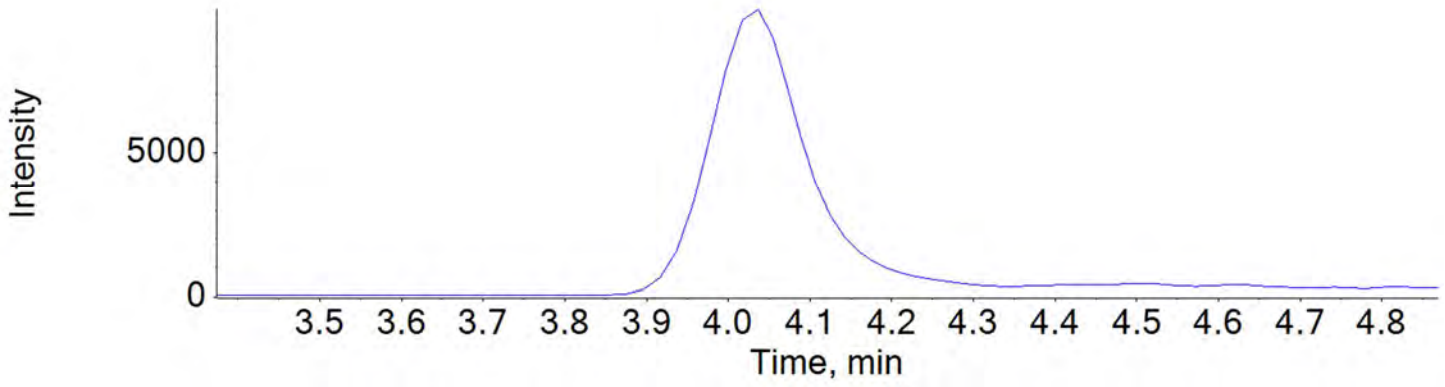
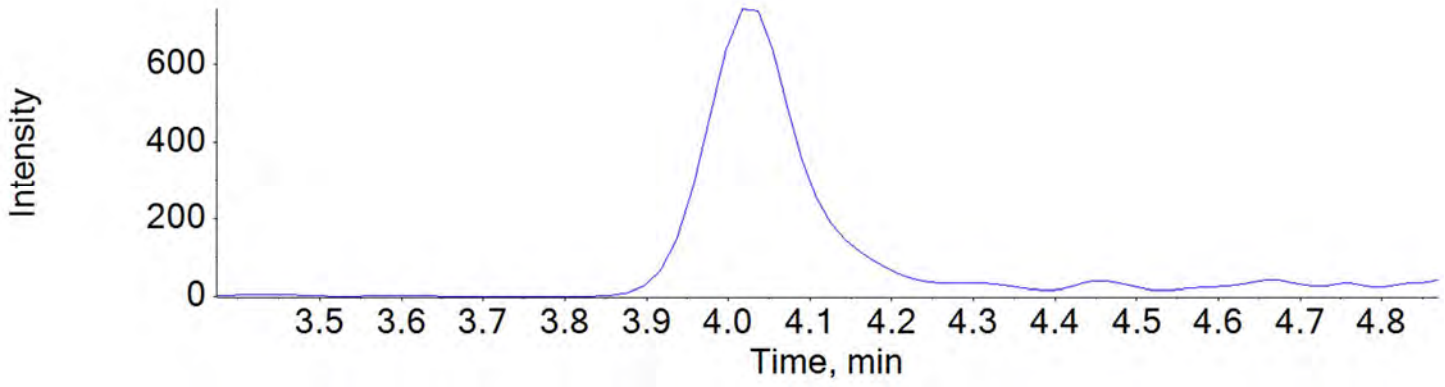
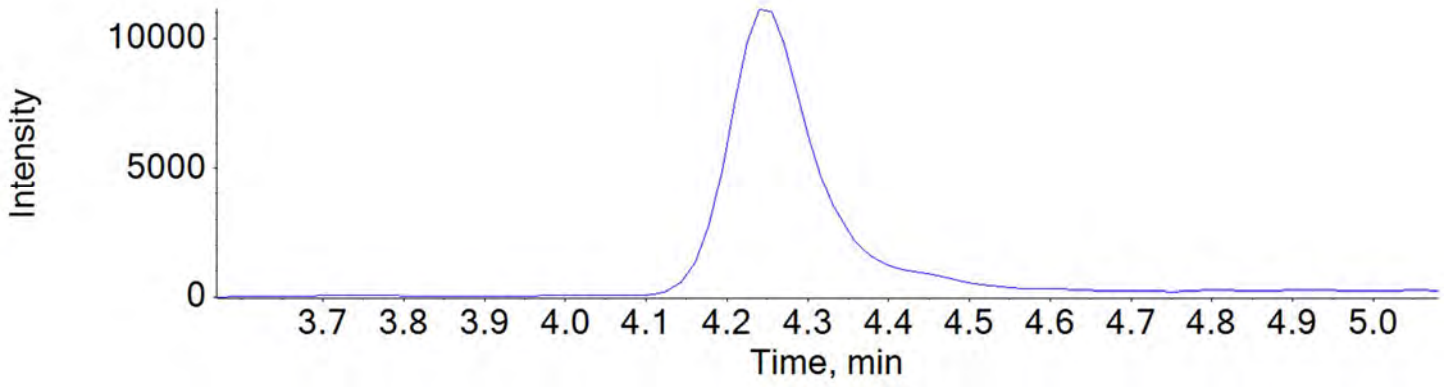
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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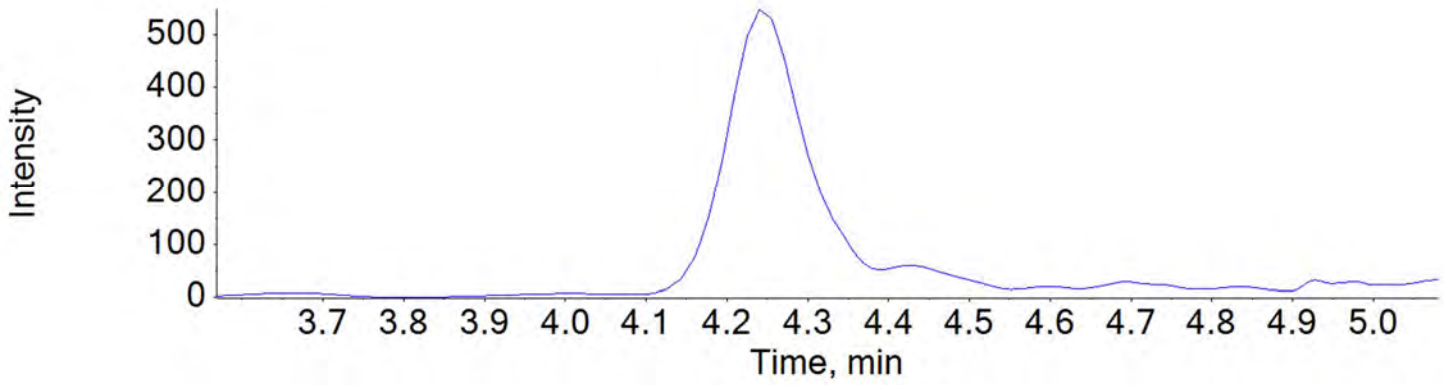
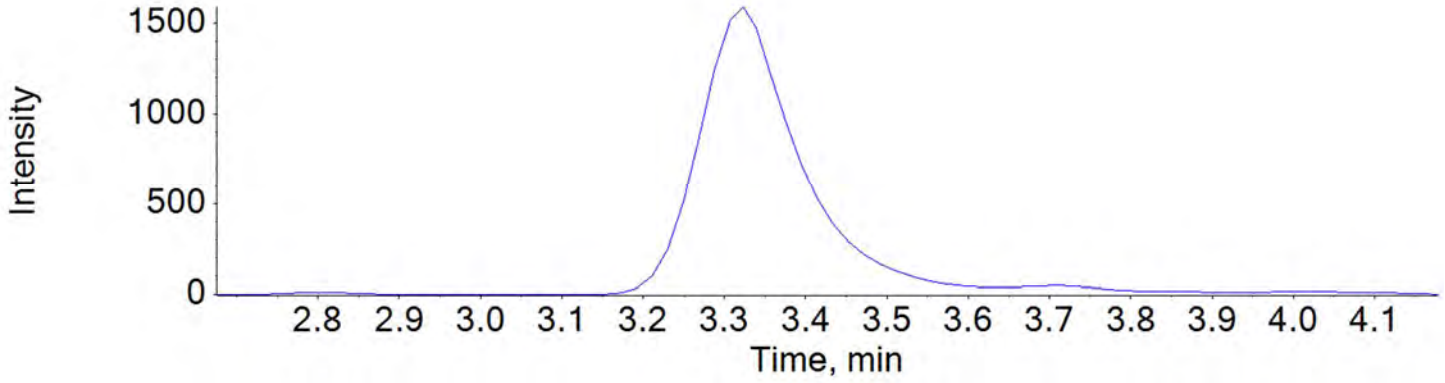


NMeFOSAA_1 570.0 / 419.0



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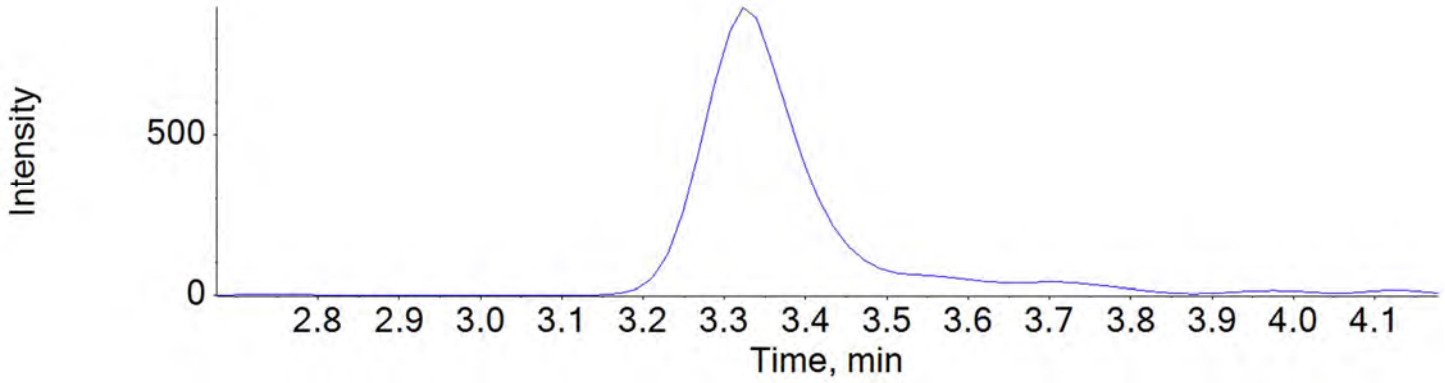

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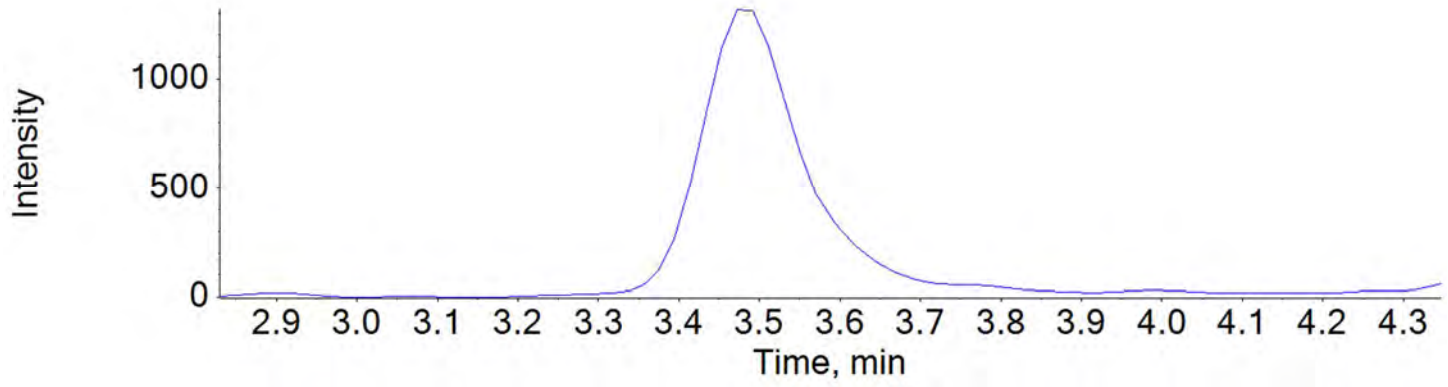
NEtFOSAA_1 584.0 / 419.0



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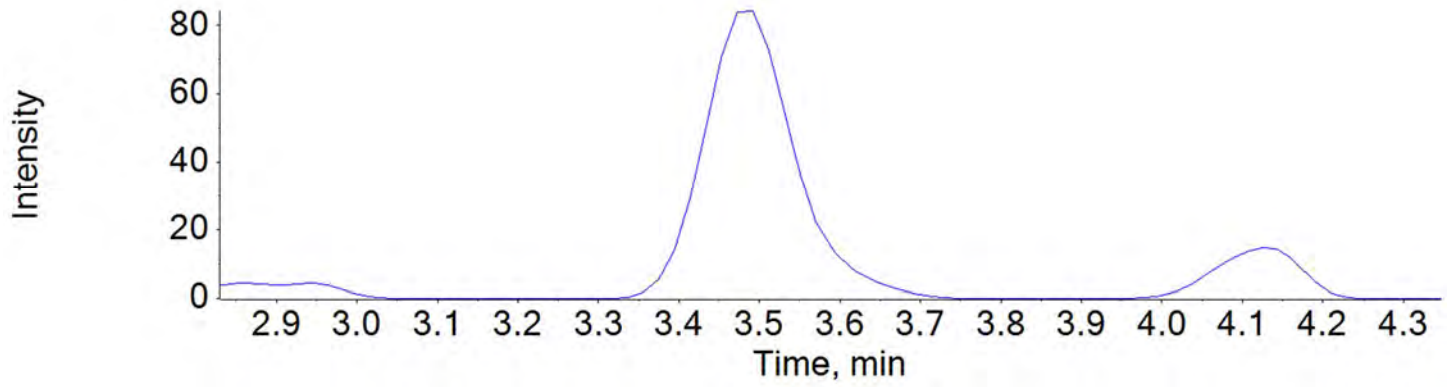

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Chromatogram Report

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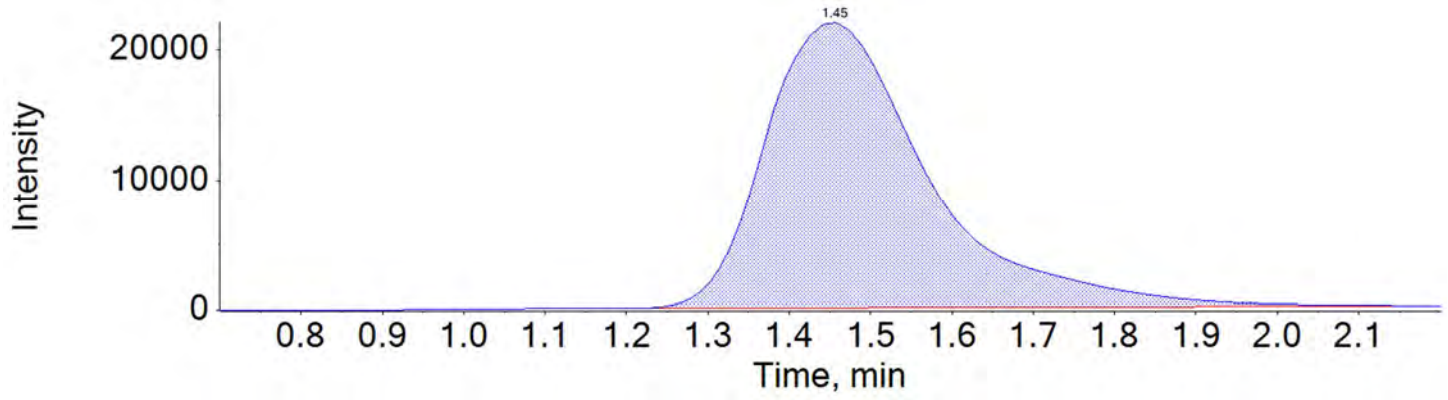
Sample Name	J6206MSD-FS-D(3)	**Injection Vial**	14
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T14:08:46	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



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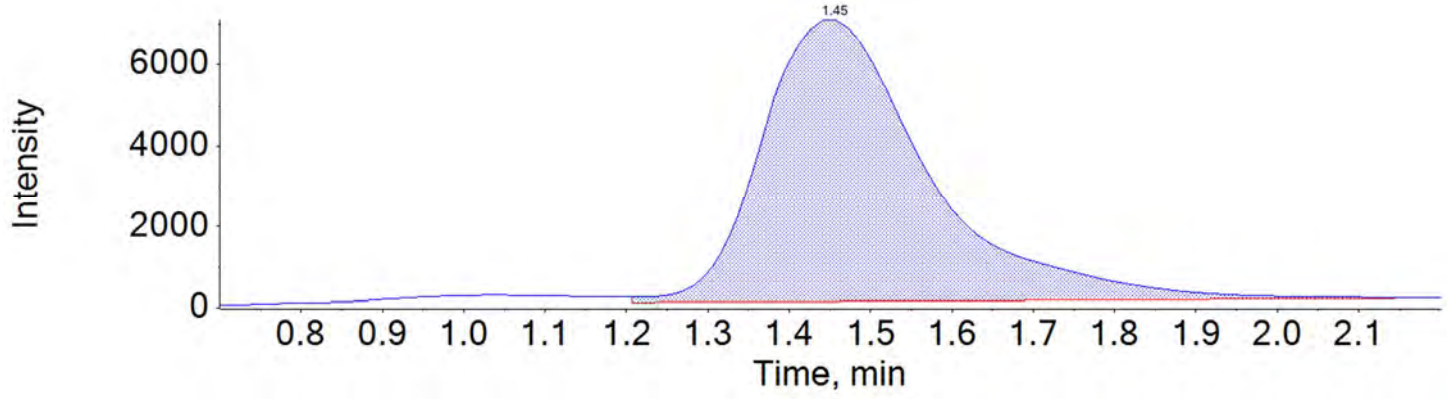

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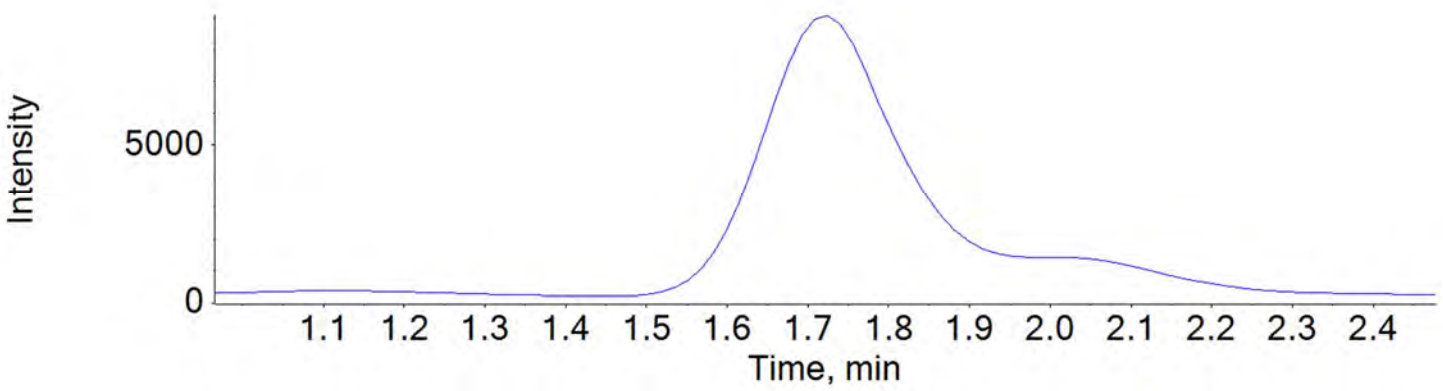
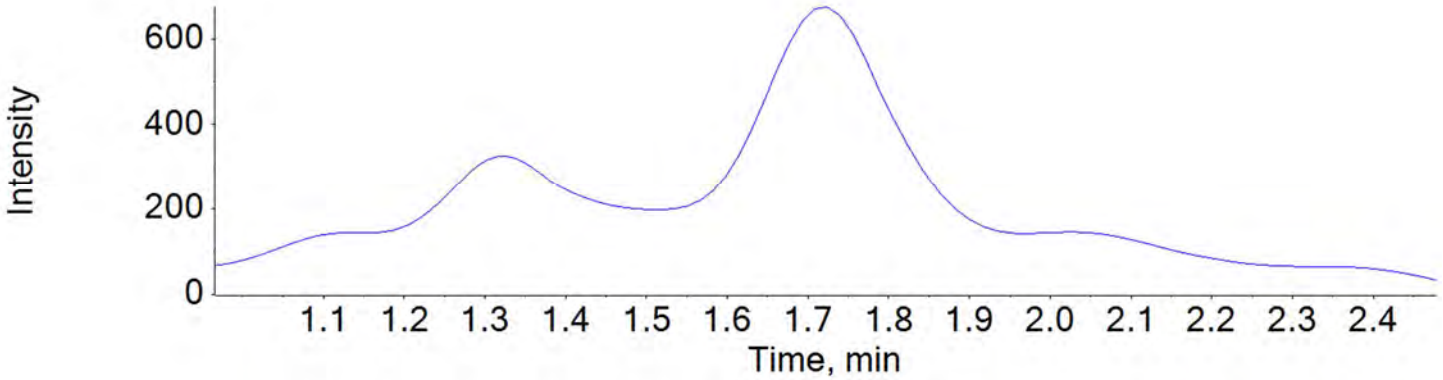
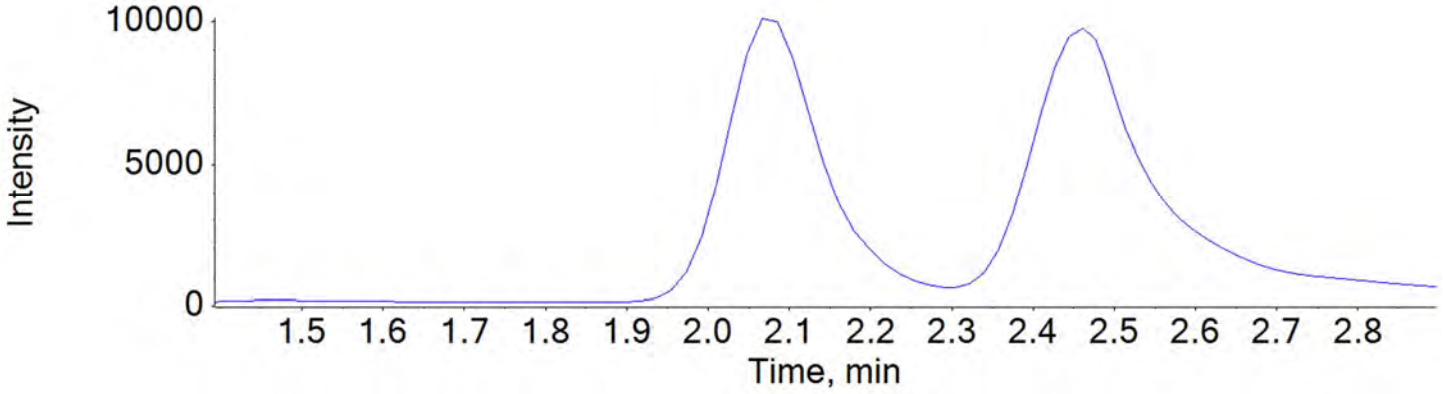
PFHxA_1 313.0 / 269.0



PFHxA_2 313.0 / 119.0



PFHpA_1 363.0 / 319.0



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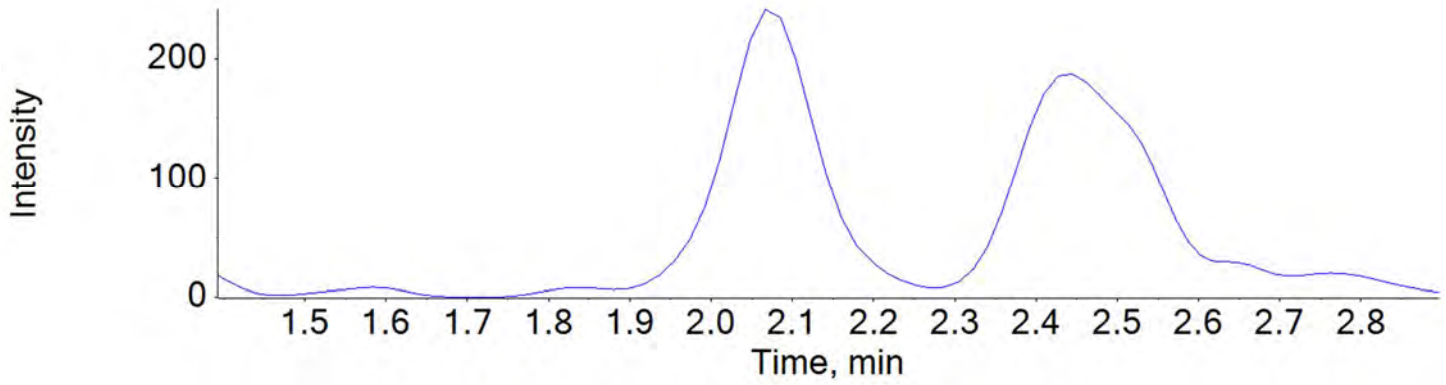
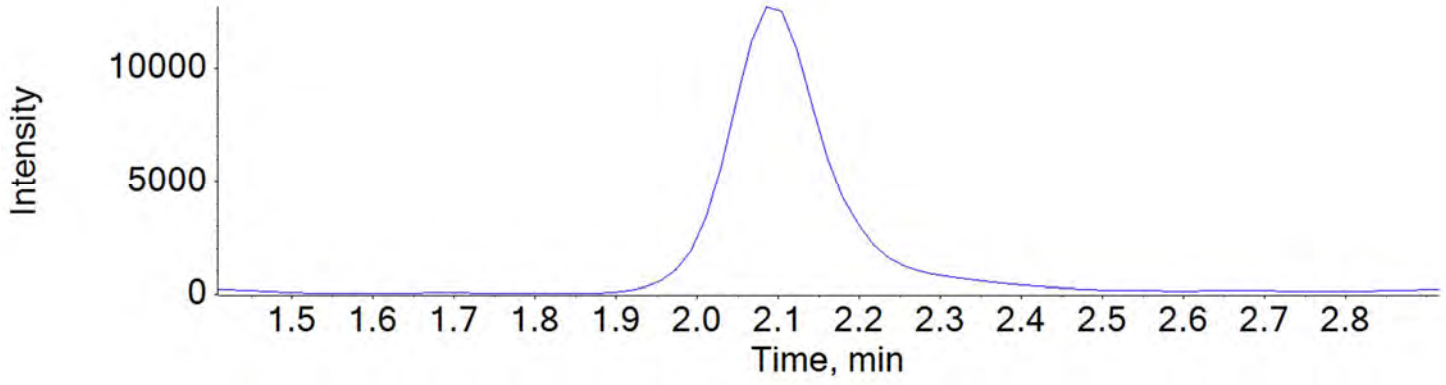
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



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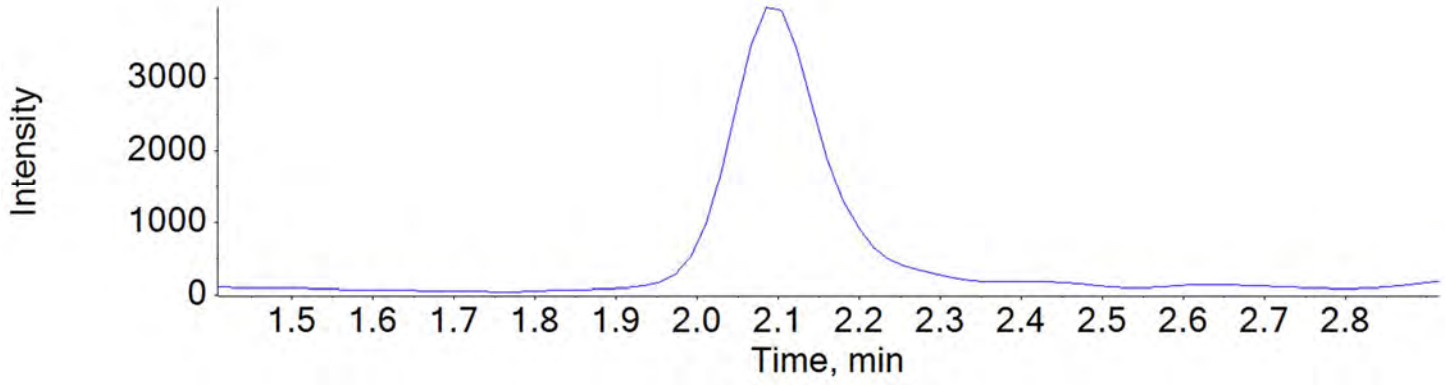

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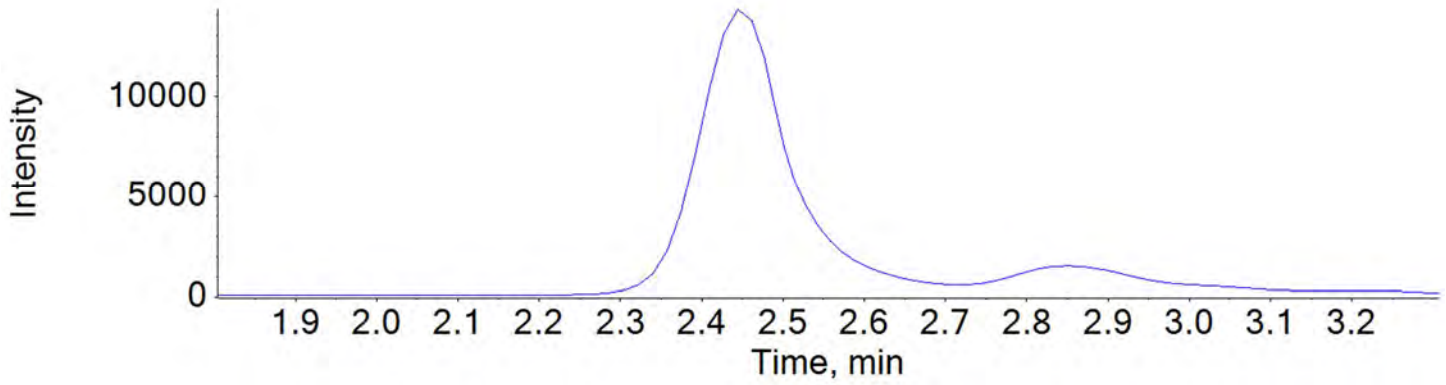
PFOA_1 413.0 / 369.0



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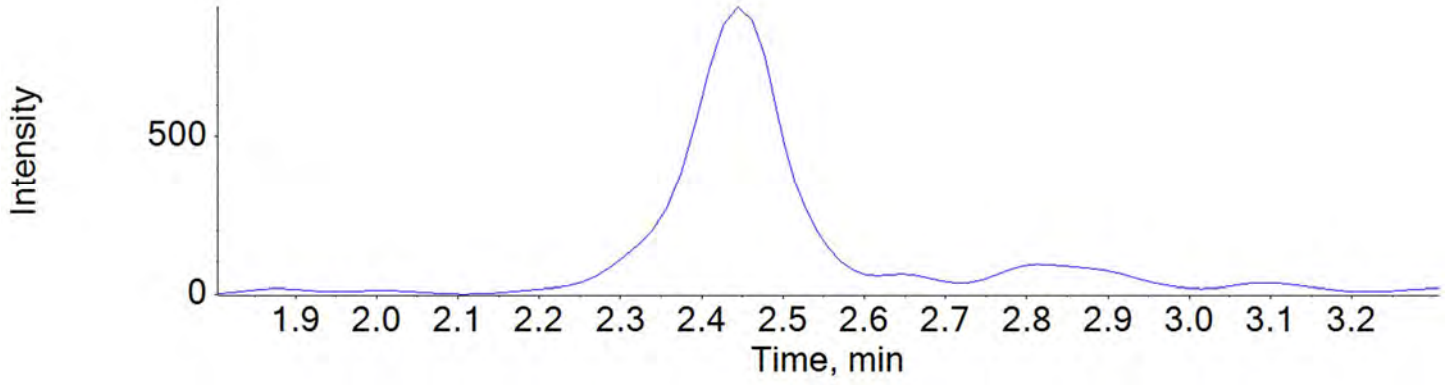
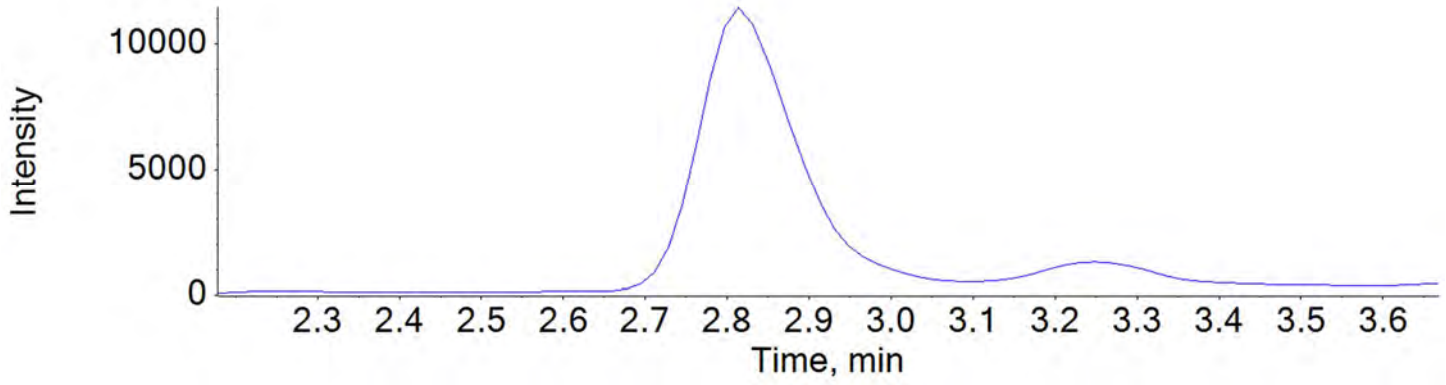


PFNA_1 463.0 / 419.0



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Chromatogram Report

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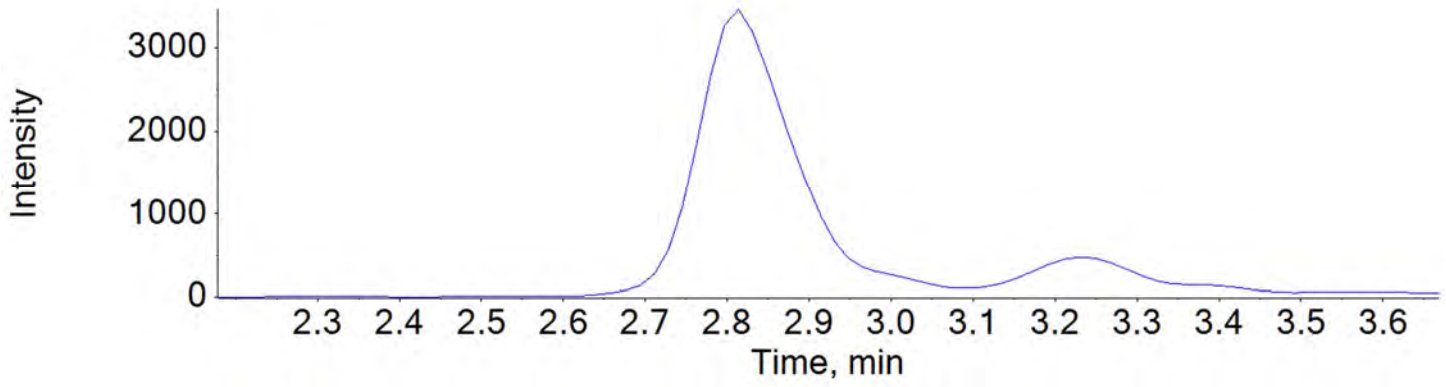
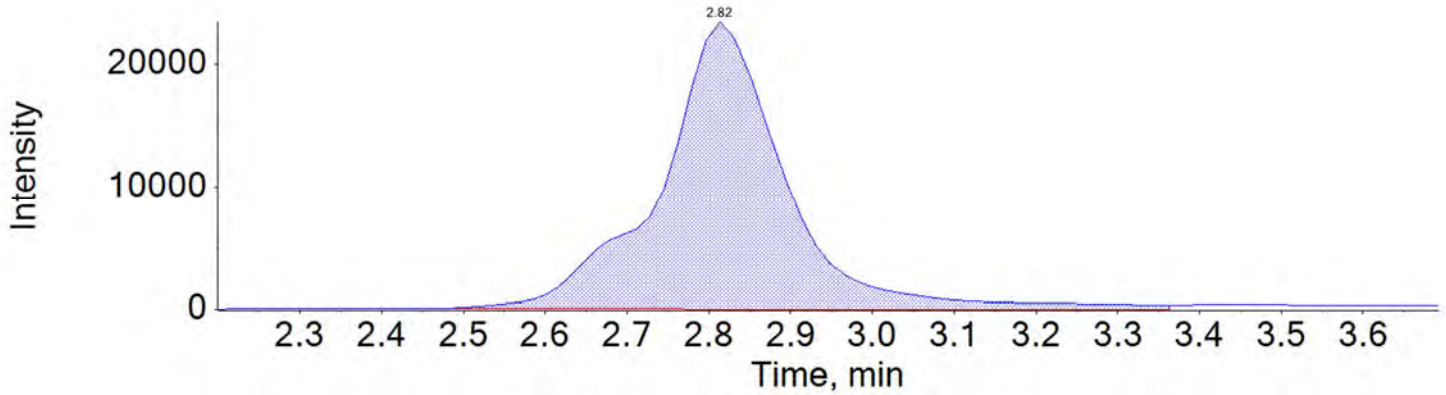
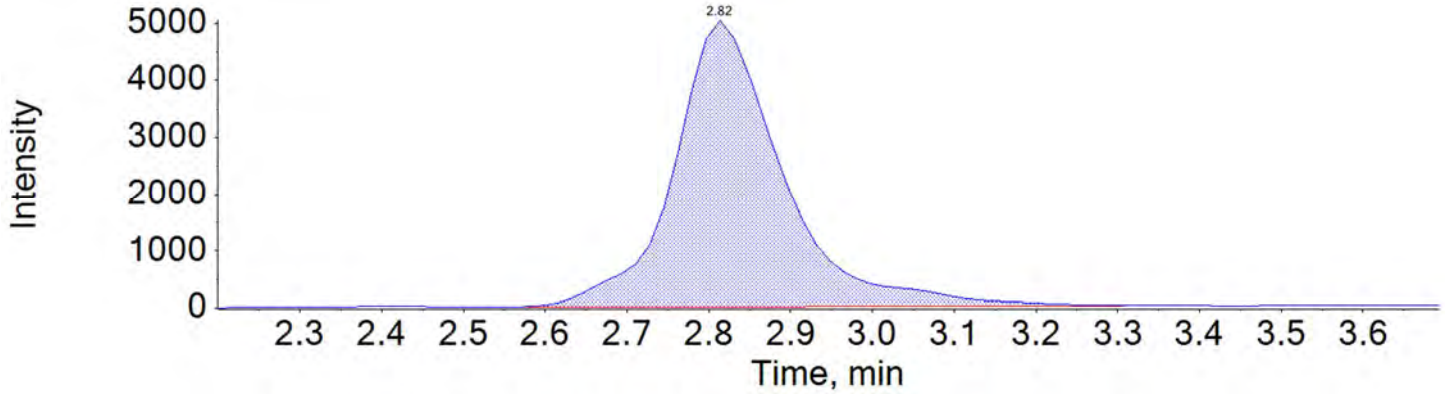
PFNA_2 463.0 / 219.0



PFOS_1 499.0 / 80.0



PFOS_2 499.0 / 99.0



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Chromatogram Report

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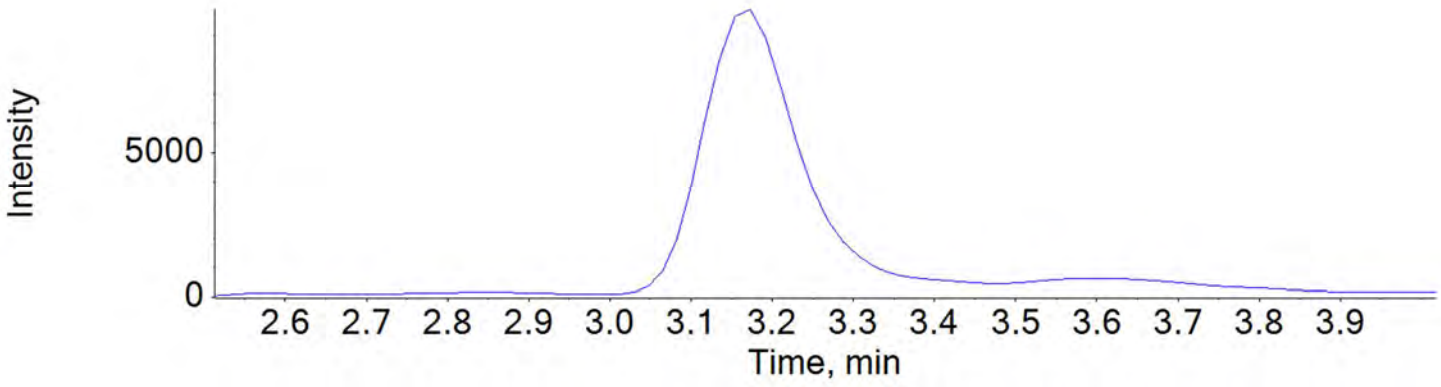
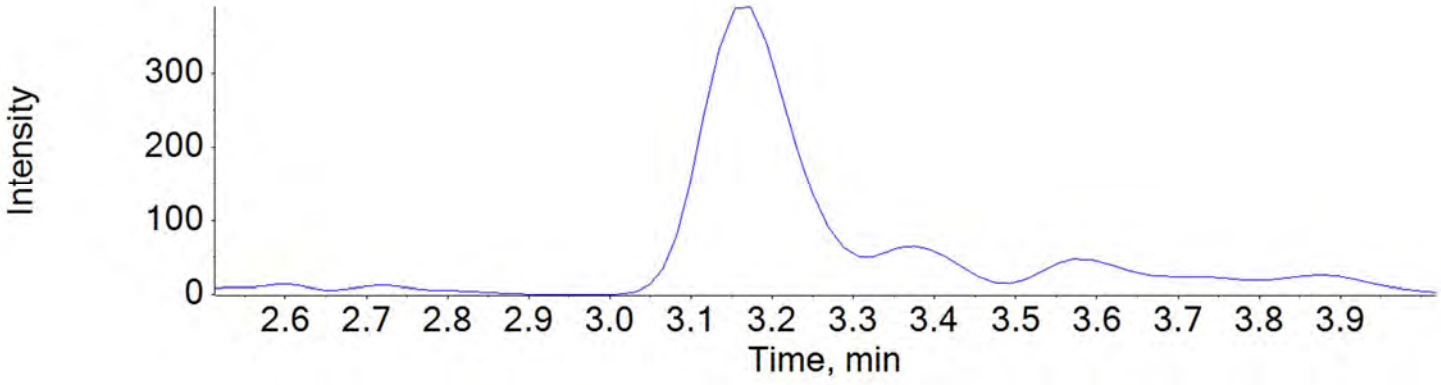
PFDA_1 513.0 / 469.0



PFDA_2 513.0 / 219.0



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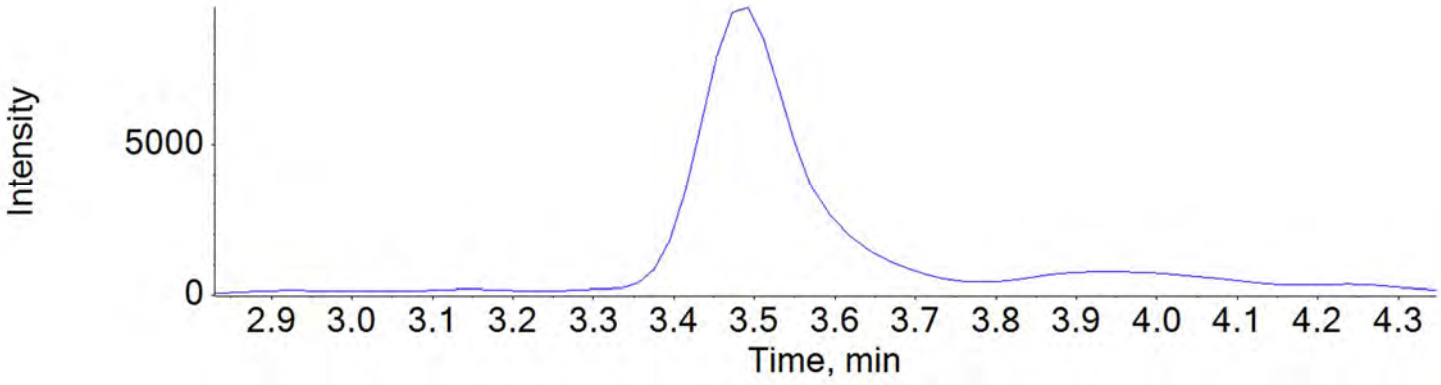

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Chromatogram Report

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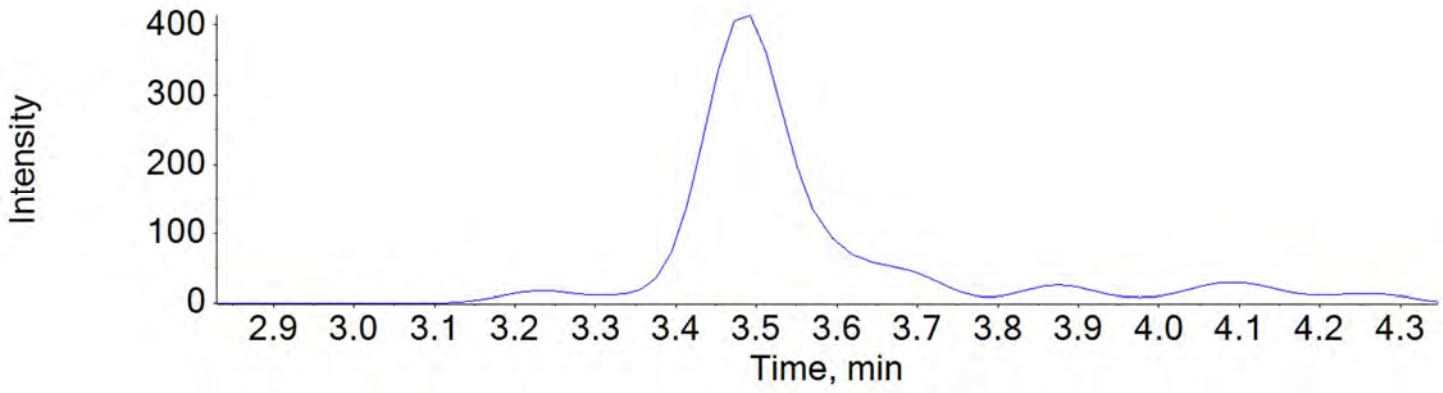
PFUnA_2 563.0 / 269.0



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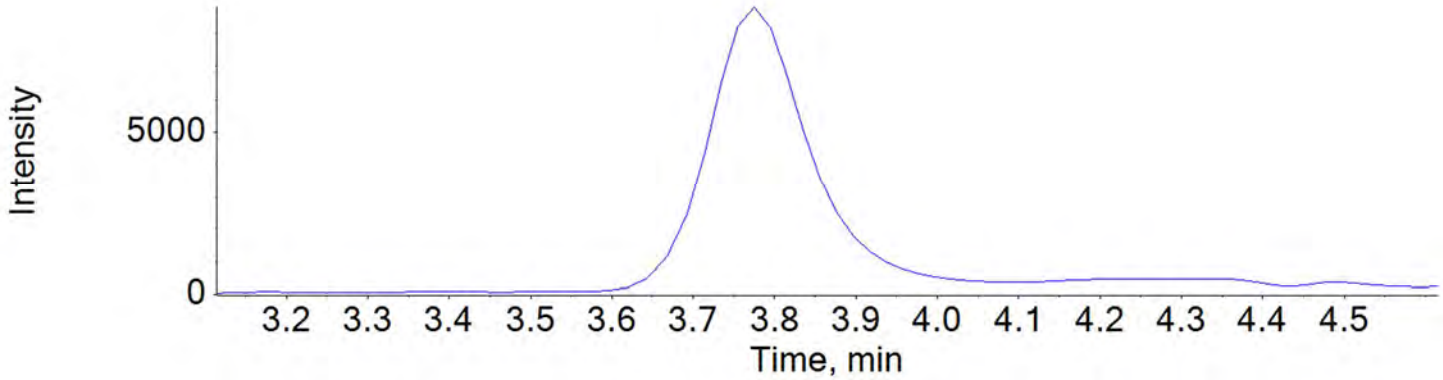

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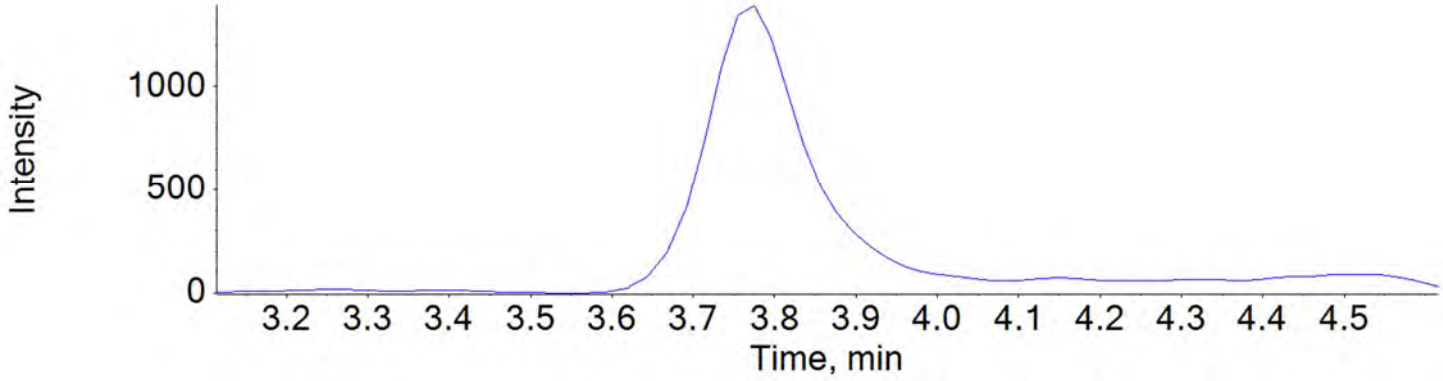

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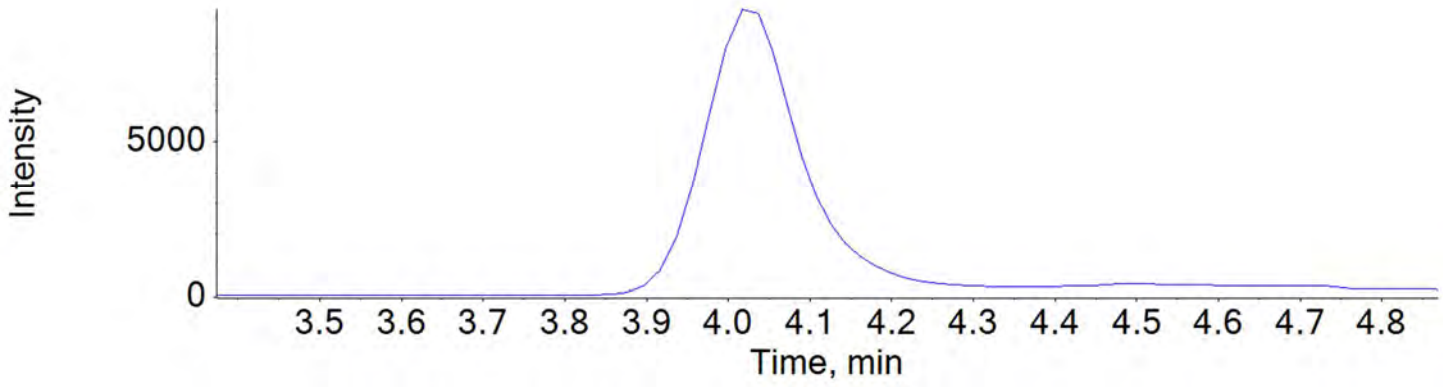
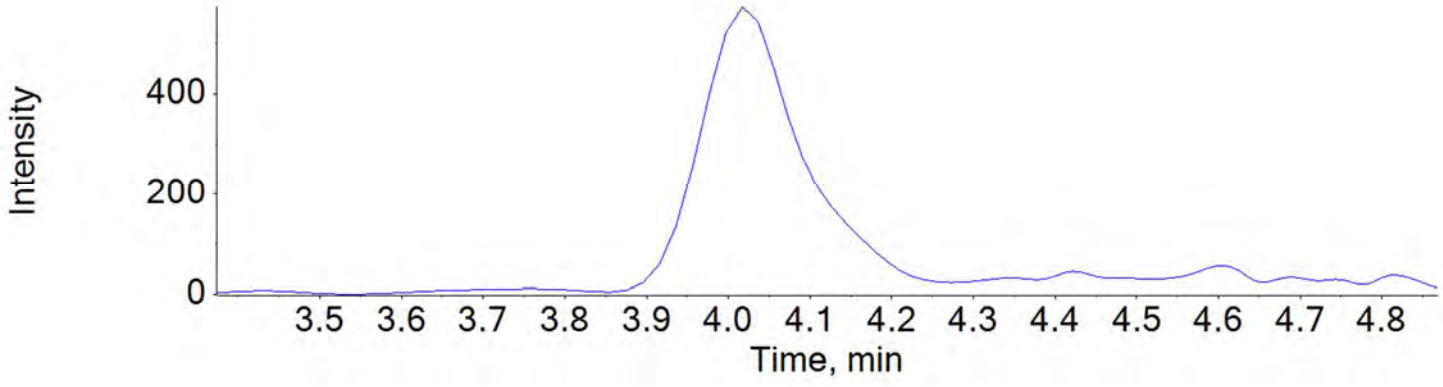
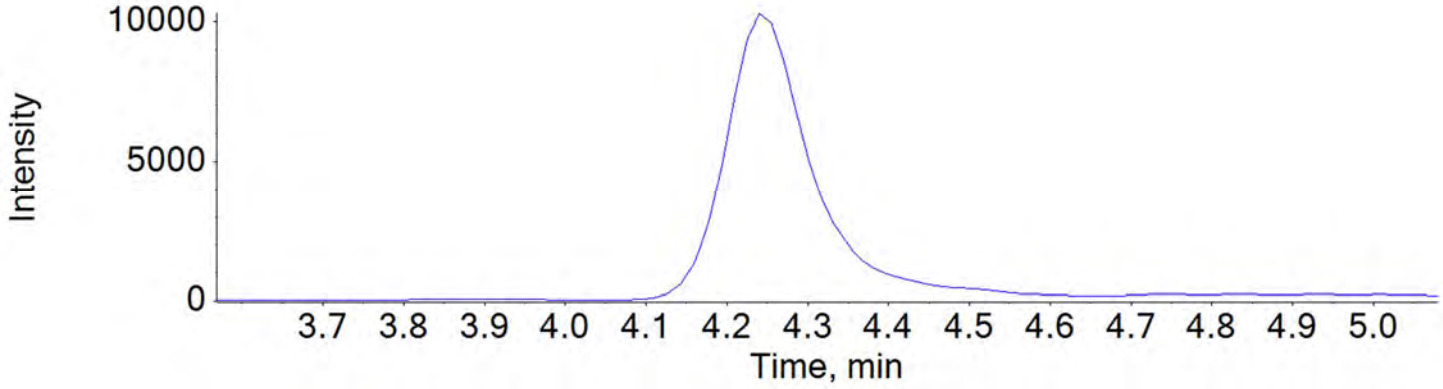
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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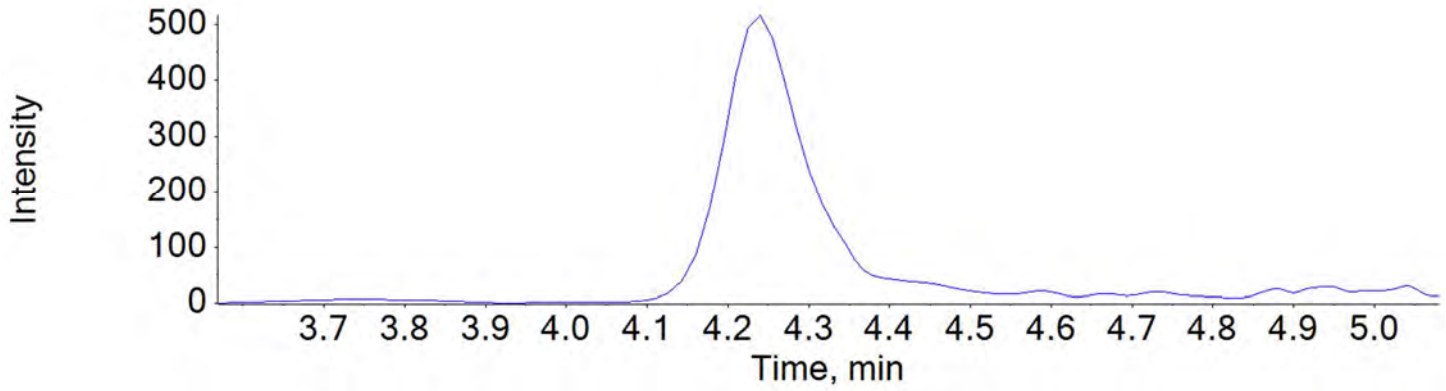
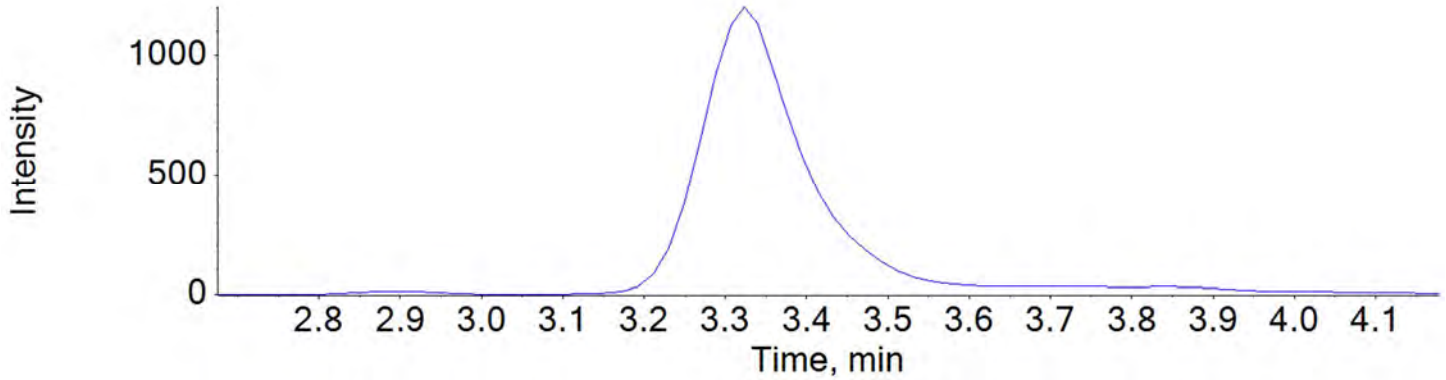


NMeFOSAA_1 570.0 / 419.0



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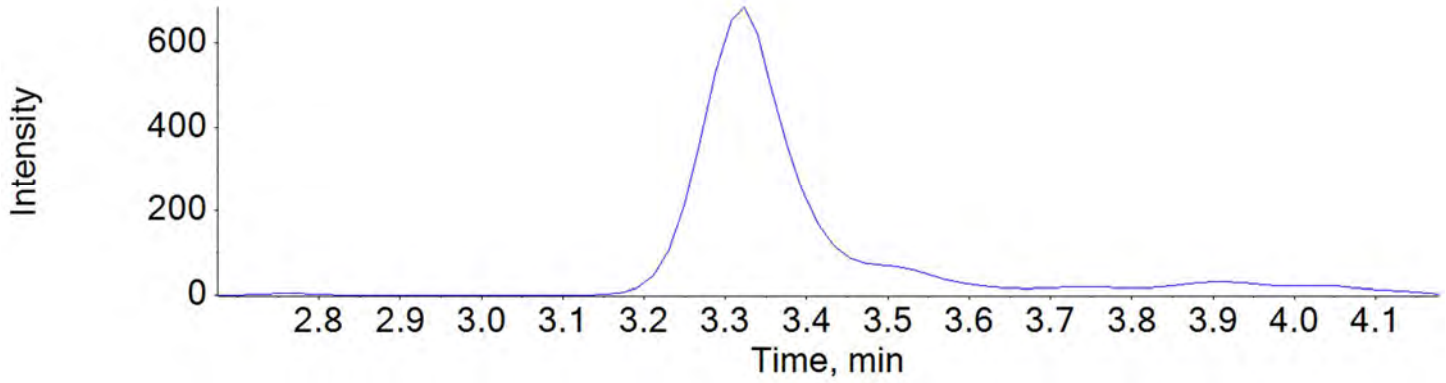

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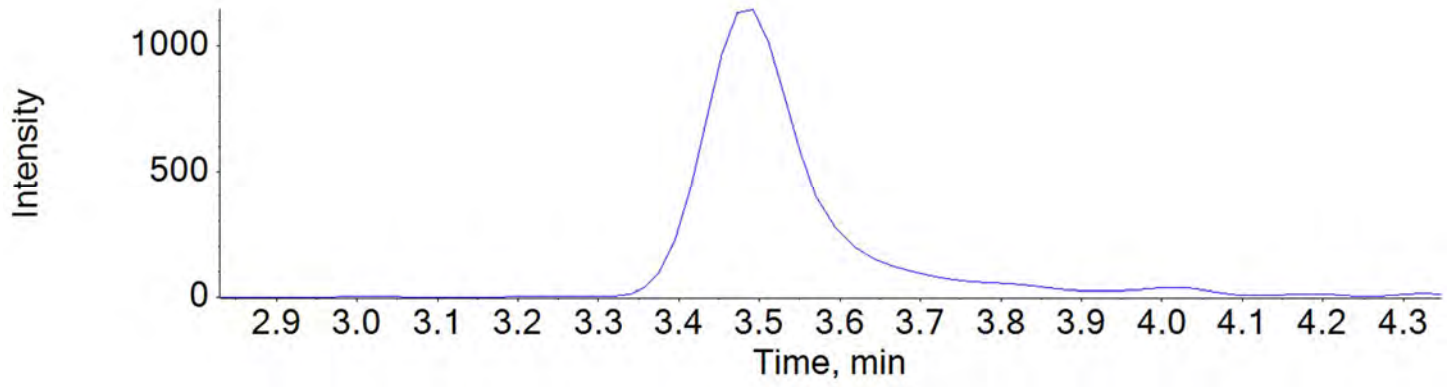
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:08:23 PM

NEtFOSAA_1 584.0 / 419.0



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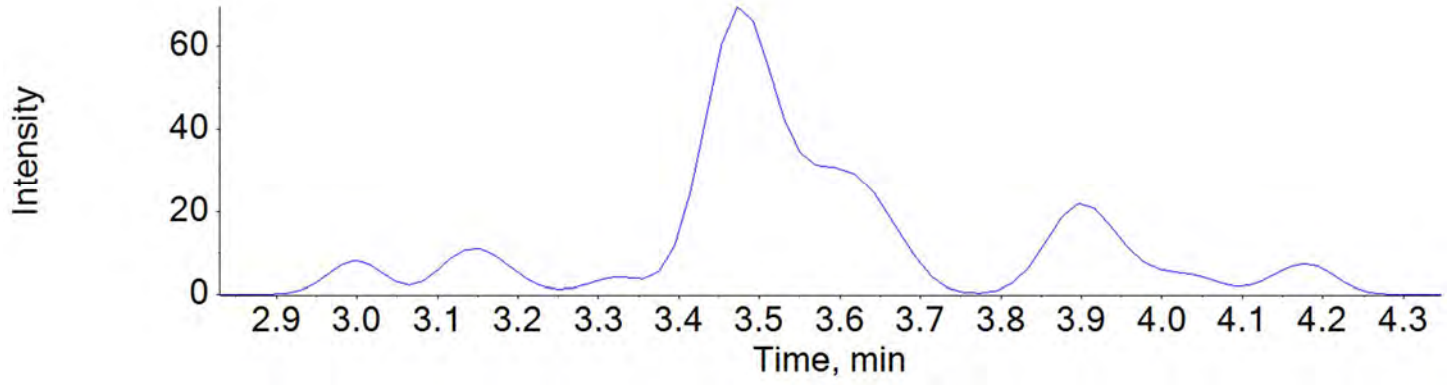

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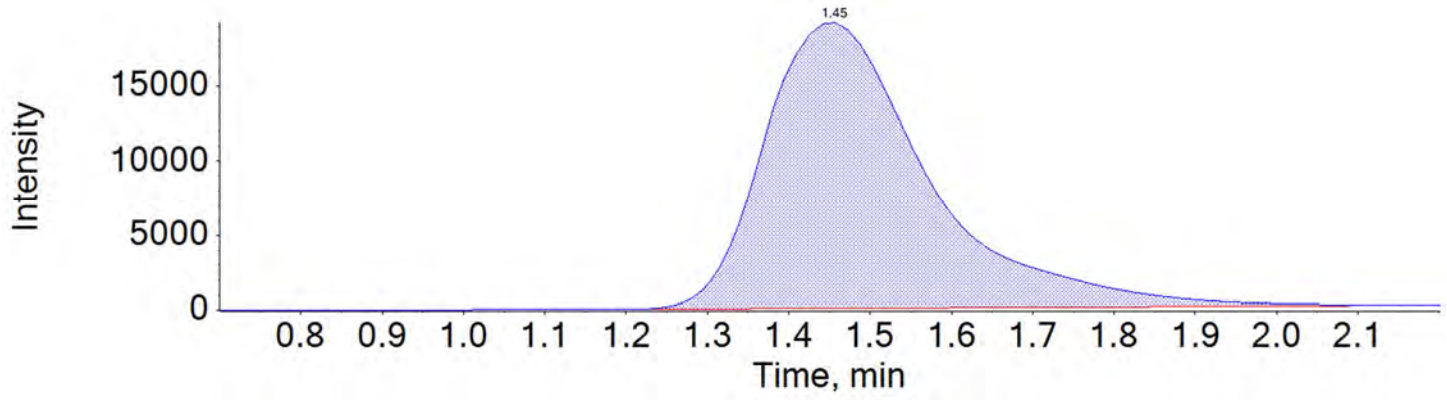
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:04:43 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	2018-05-17T14:17:42	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Chromatograms

PFBS_1 298.9 / 80.0



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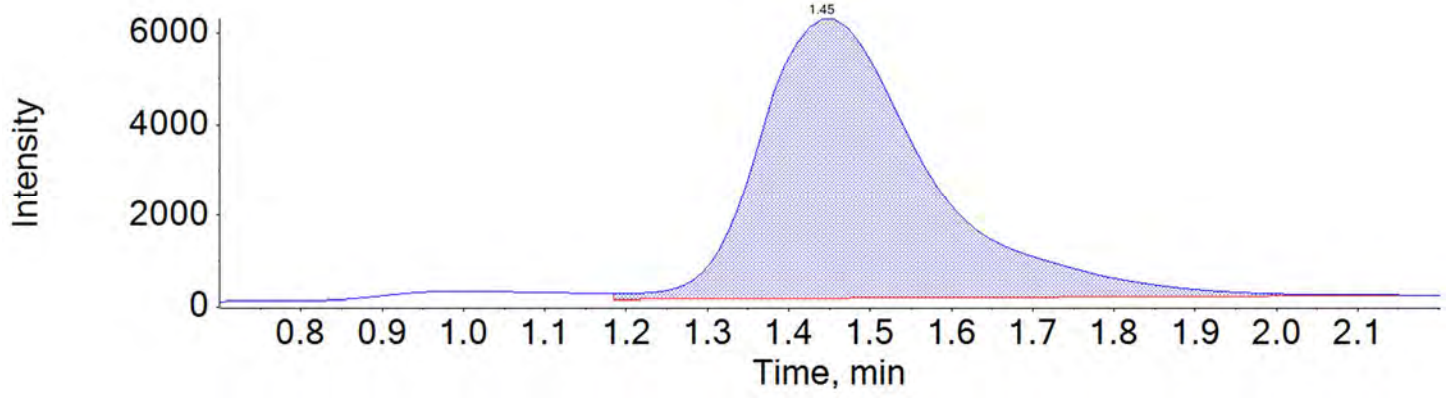

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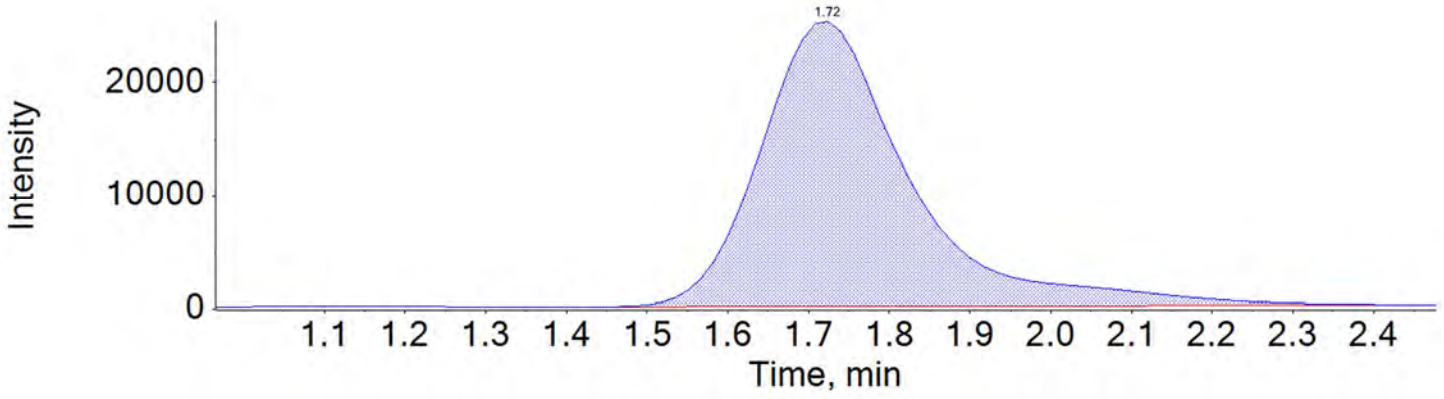
Chromatogram Report

Created with Analyst Reporter
Printed: 24/05/2018 1:04:43 PM

PFHxA_1 313.0 / 269.0



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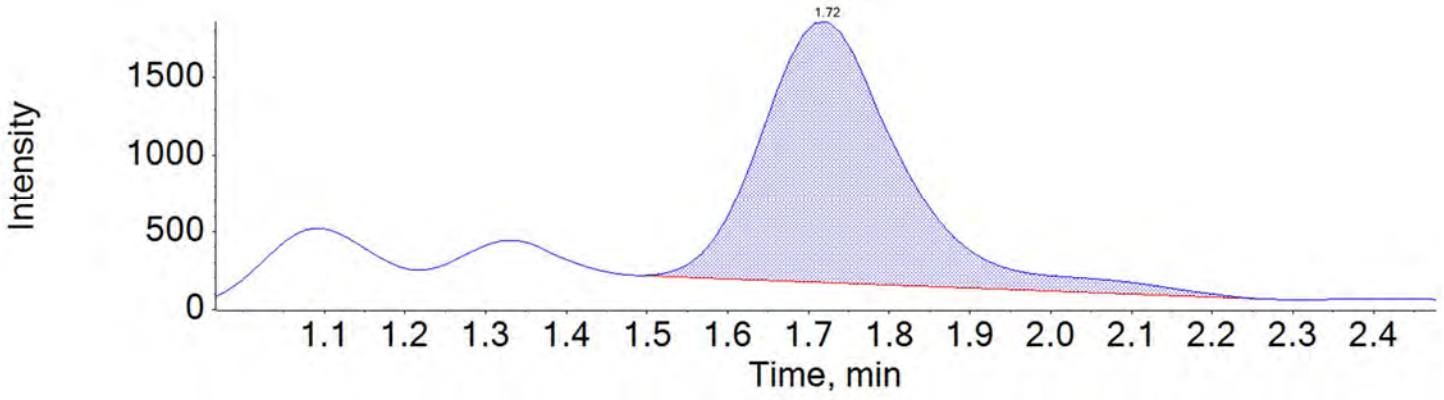

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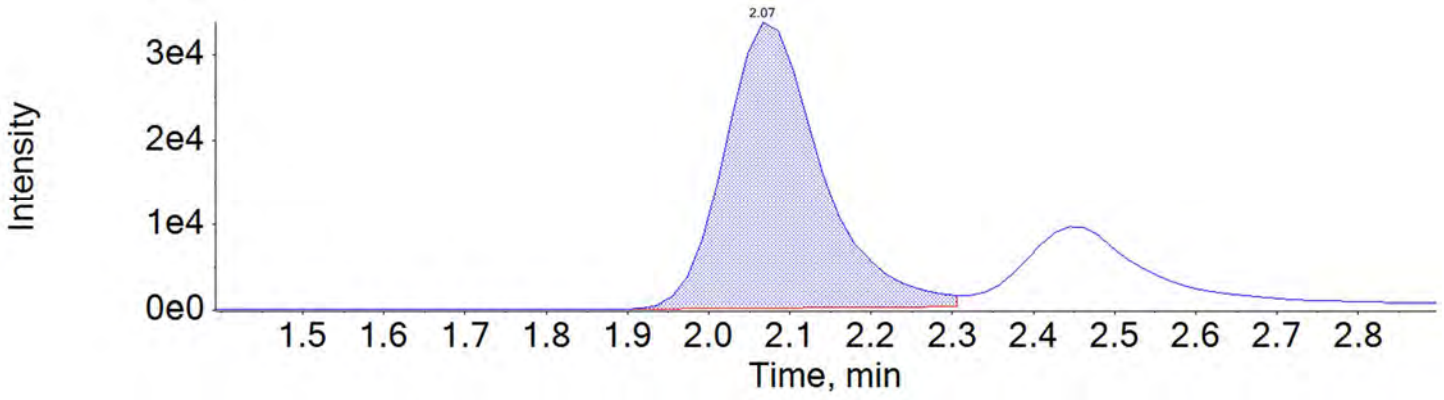

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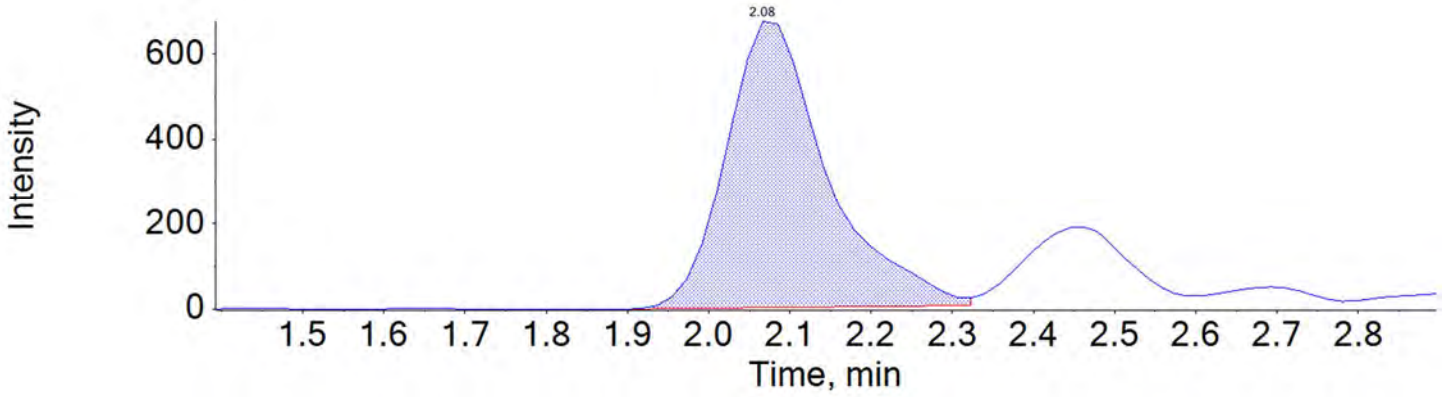
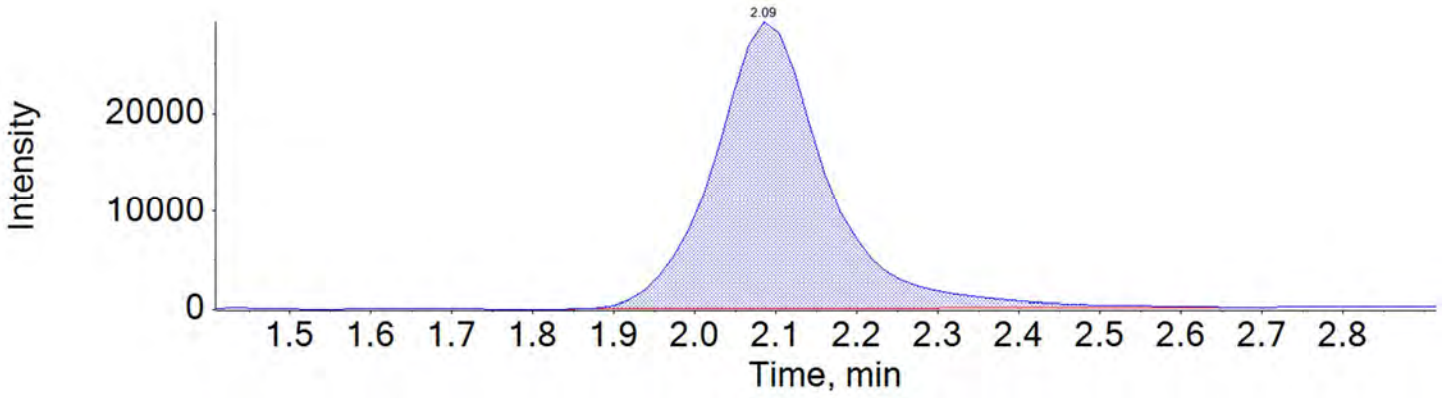
PFHpA_2 363.0 / 169.0



PFHxS_1 399.0 / 80.0



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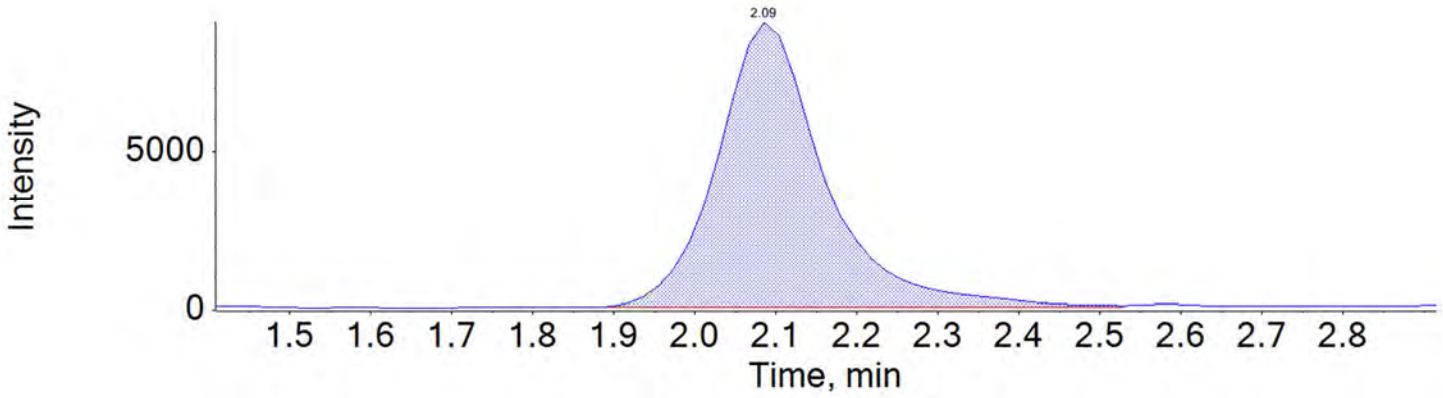

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Chromatogram Report

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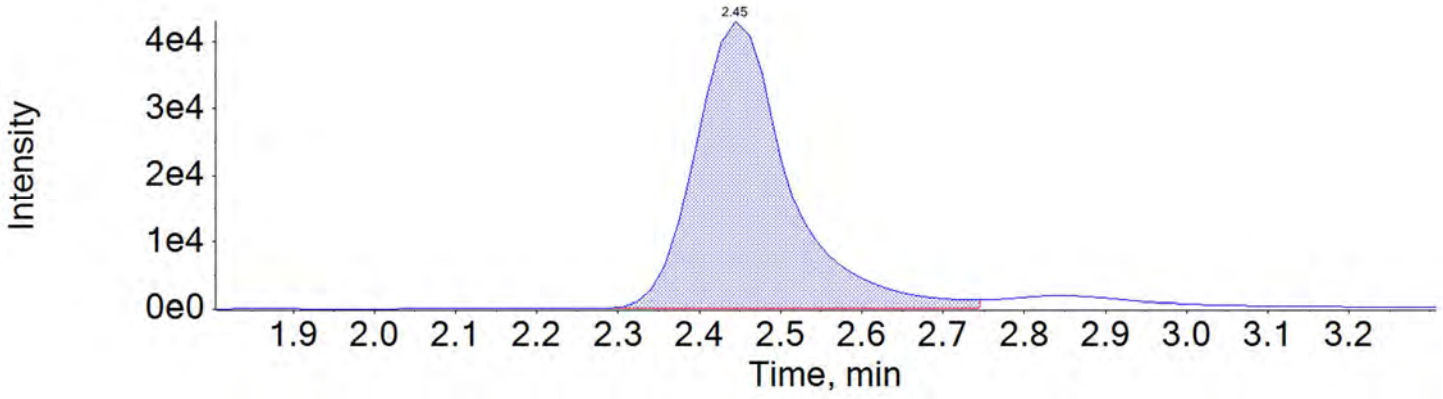
PFOA_1 413.0 / 369.0



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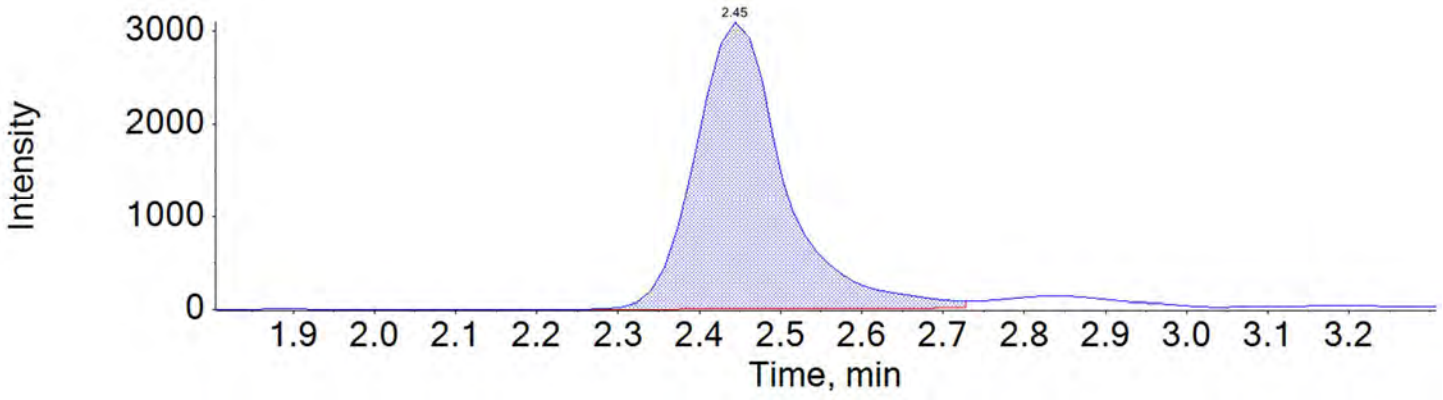

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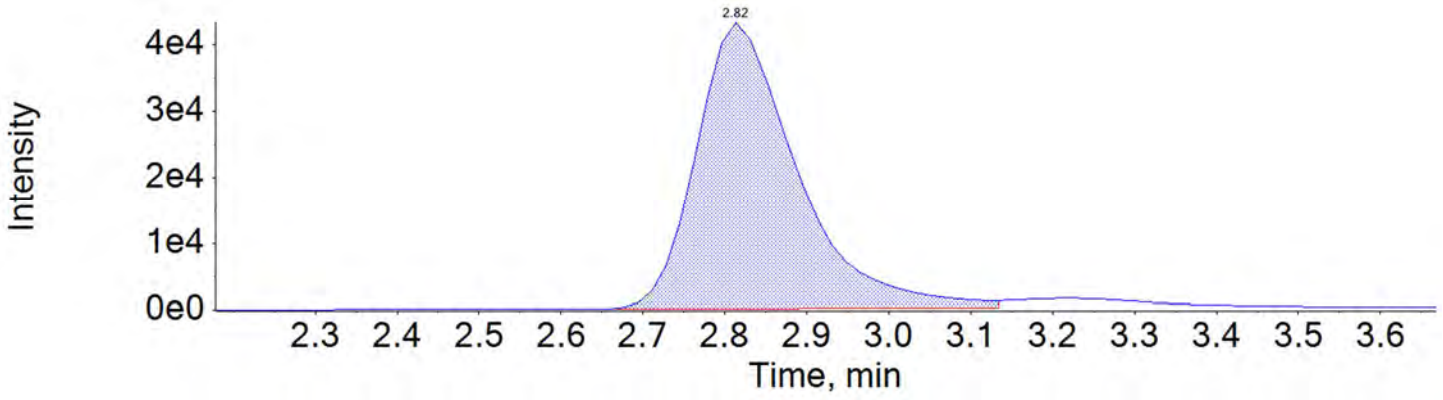

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Chromatogram Report

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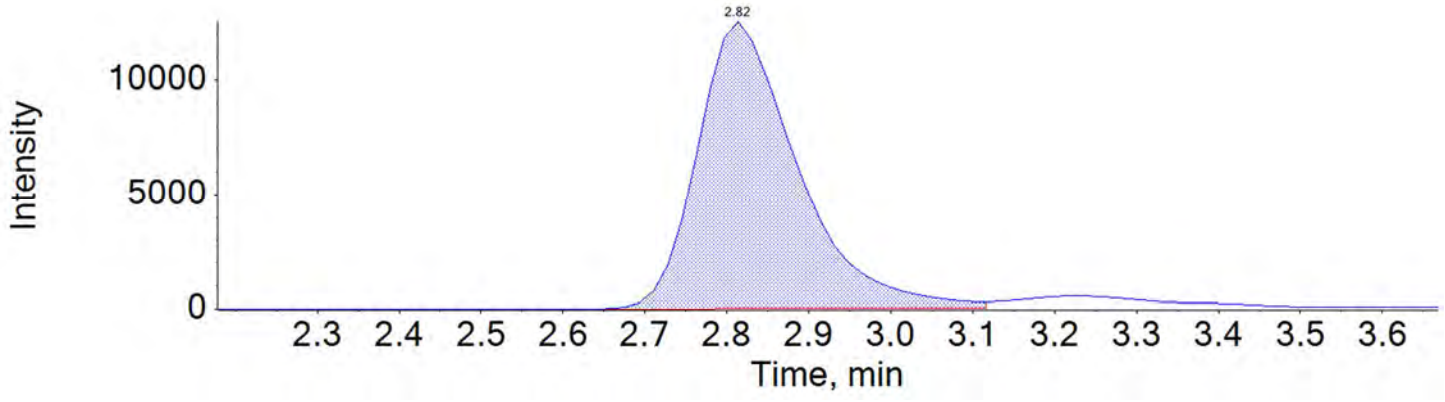
PFNA_2 463.0 / 219.0



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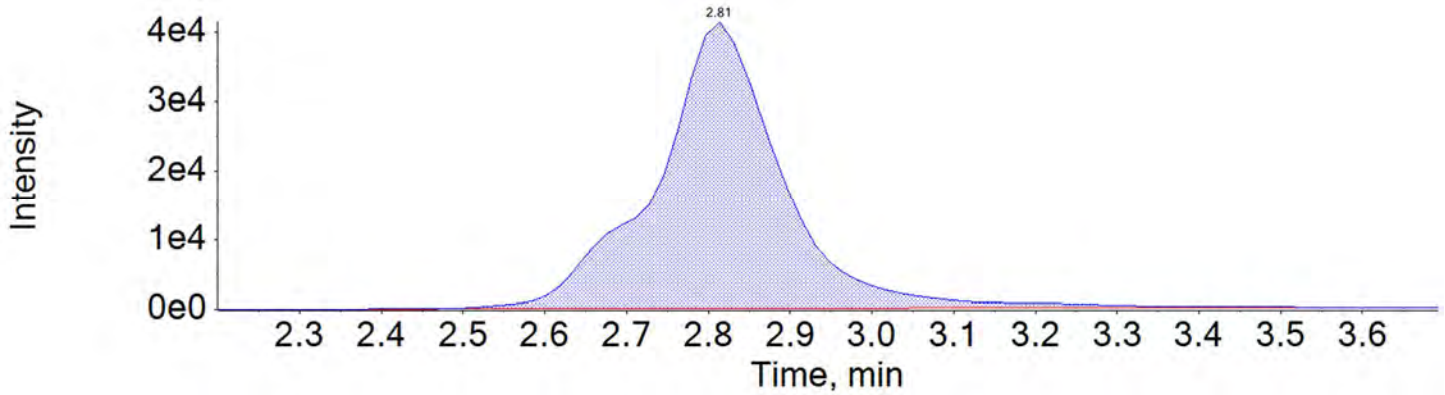

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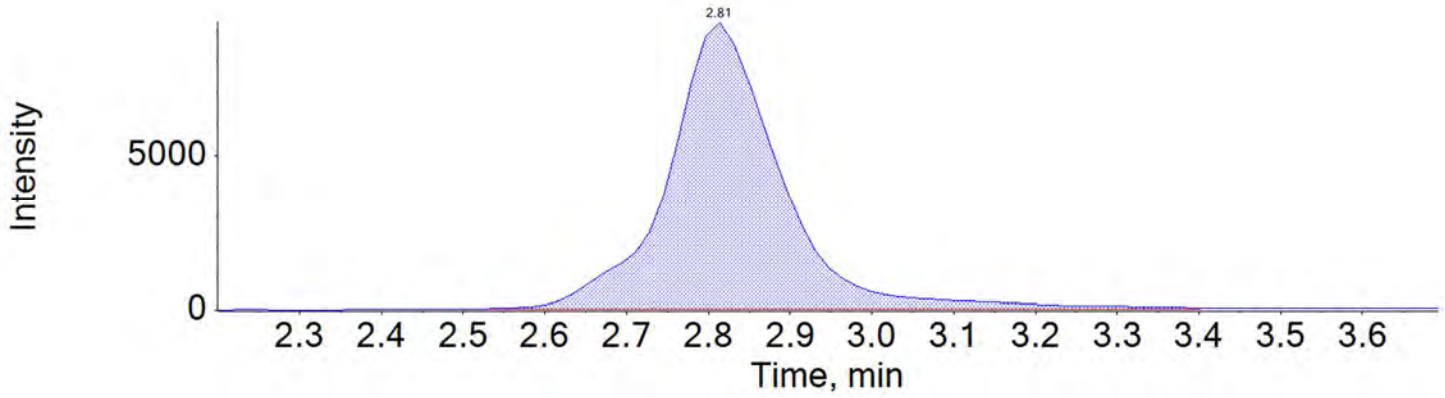

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Chromatogram Report

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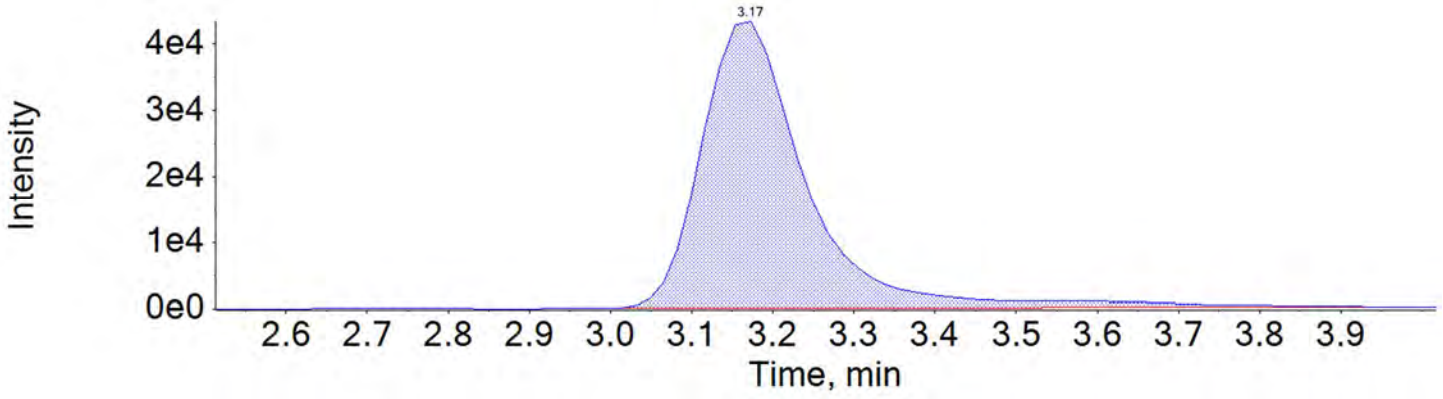
PFDA_1 513.0 / 469.0



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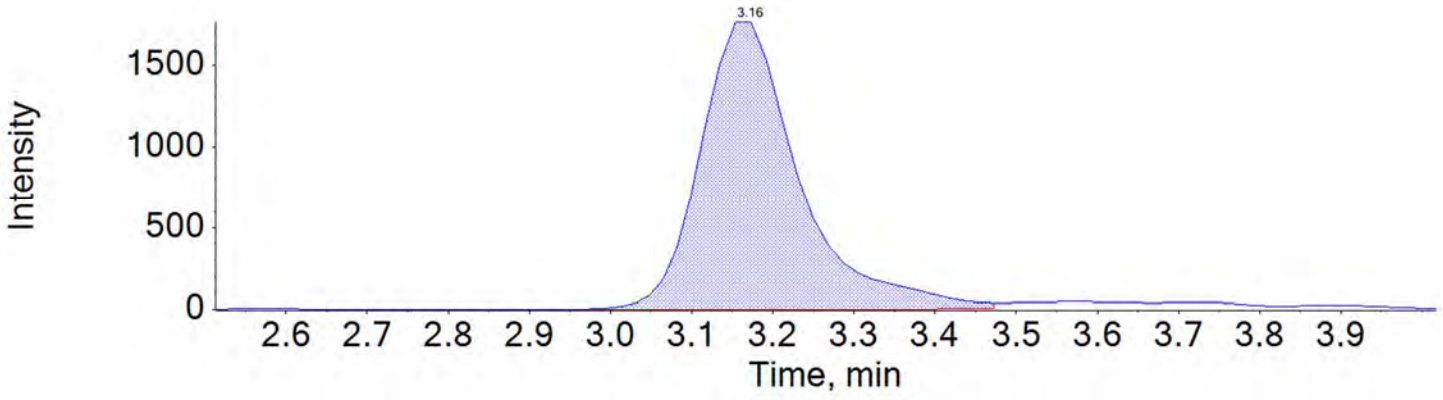
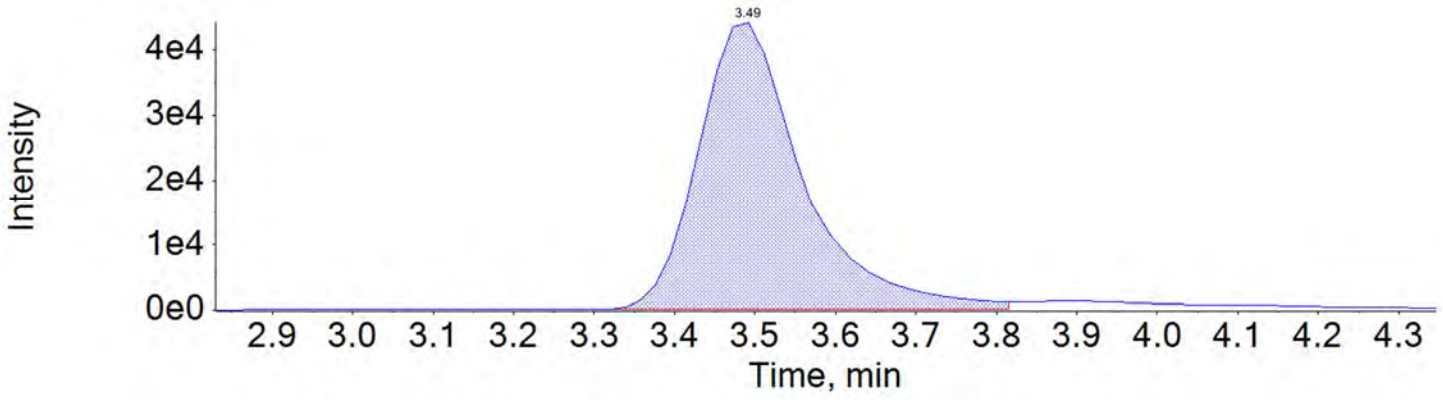


PFUnA_1 563.0 / 519.0



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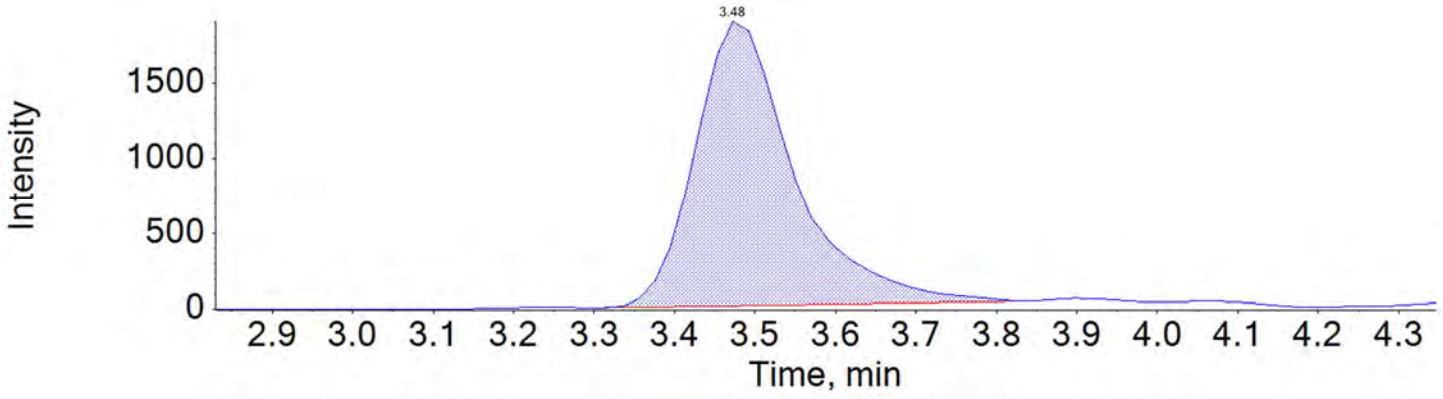

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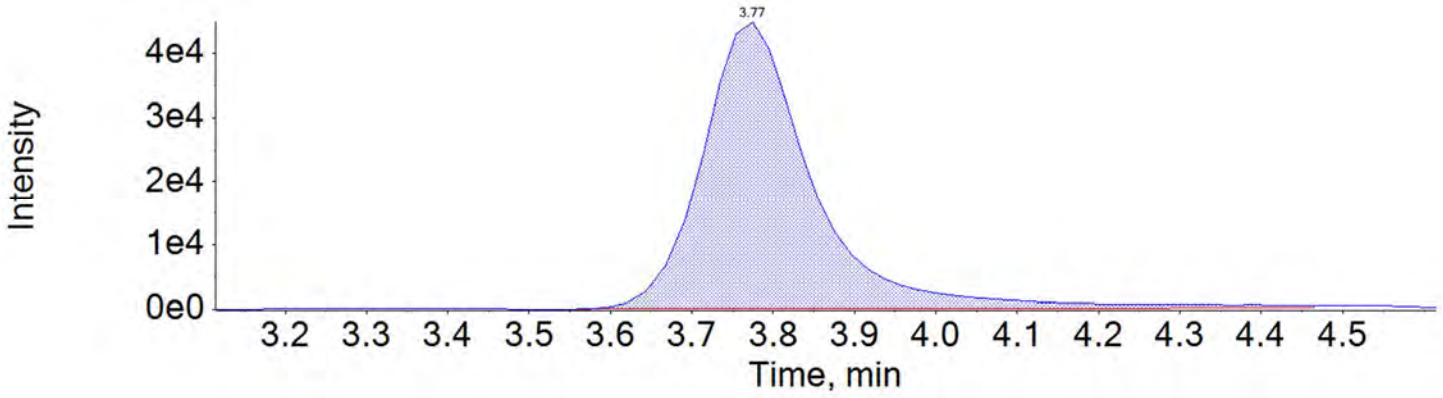
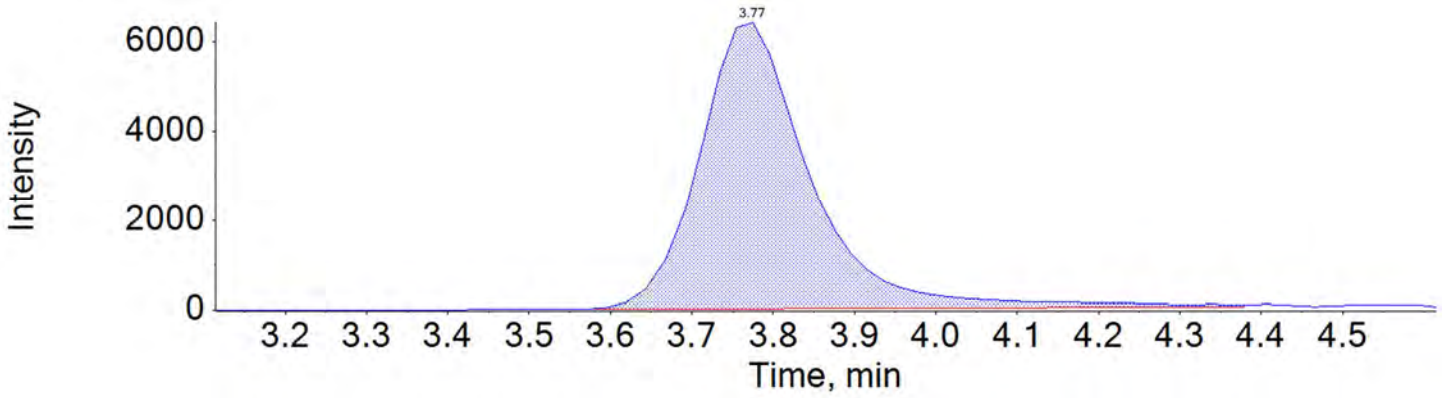


PFDoA_2 613.0 / 319.0



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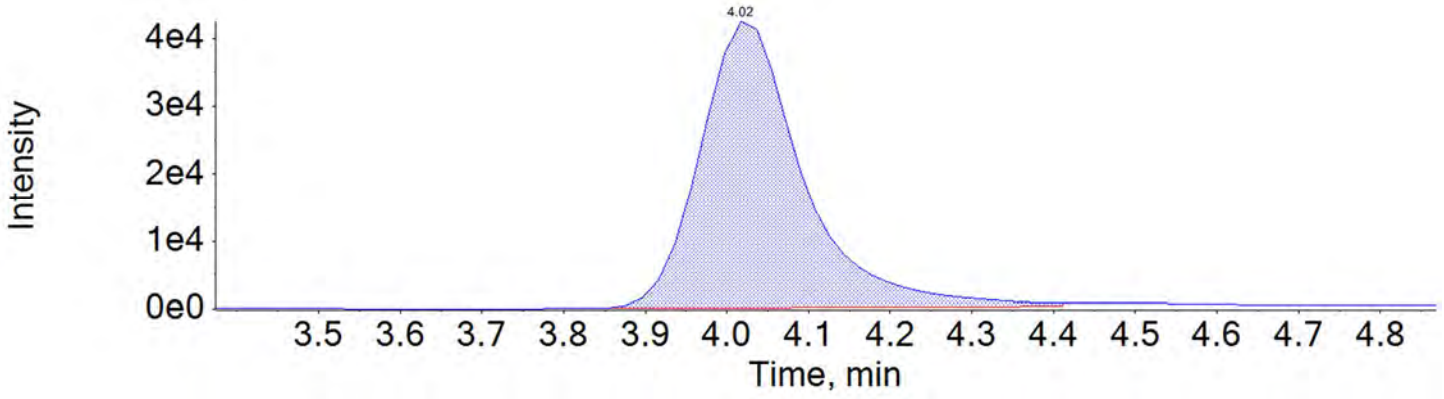
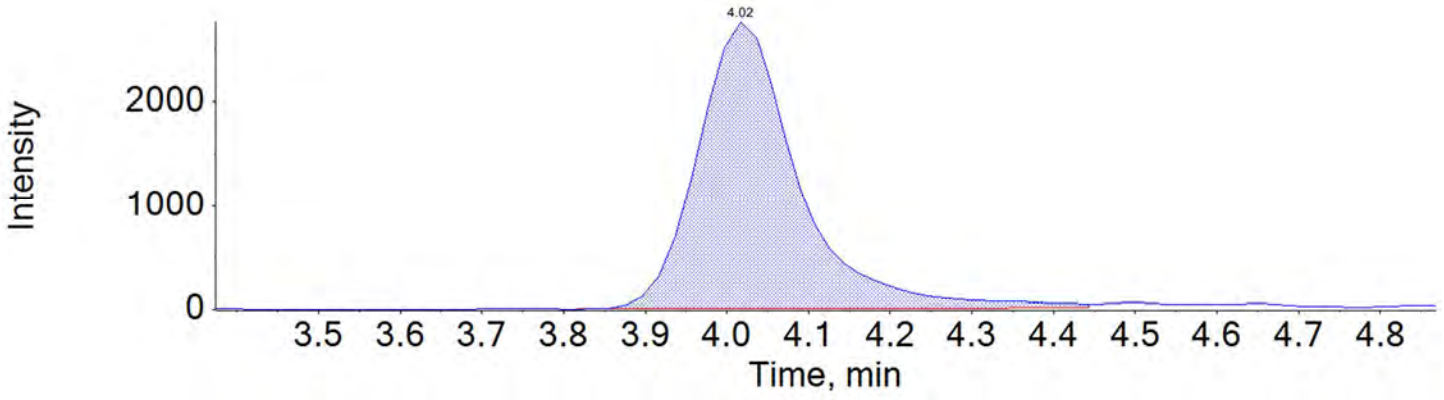
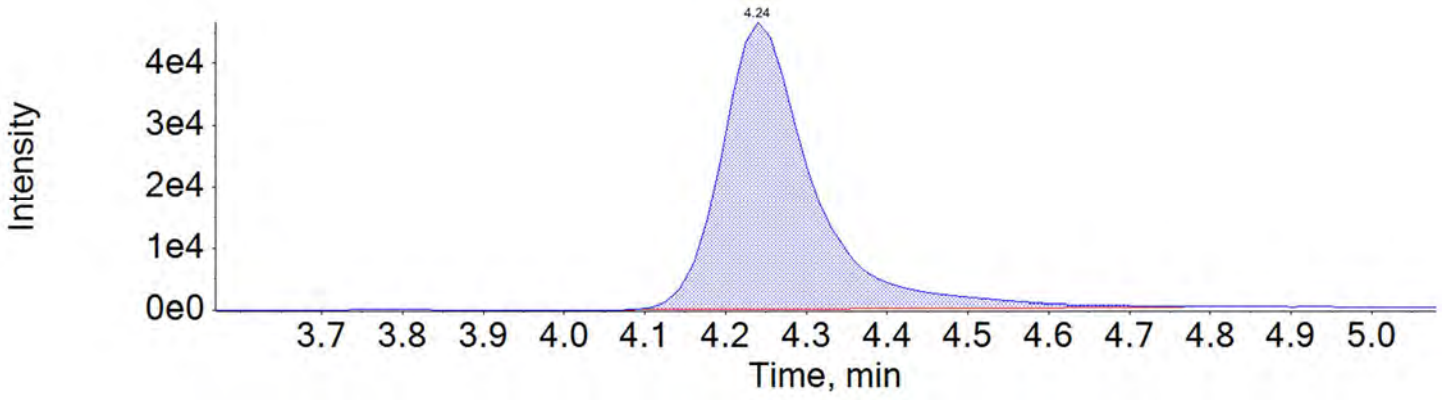
PFTrDA_1 663.0 / 619.0



PFTrDA_2 663.0 / 169.0



PFTeDA_1 713.0 / 669.0



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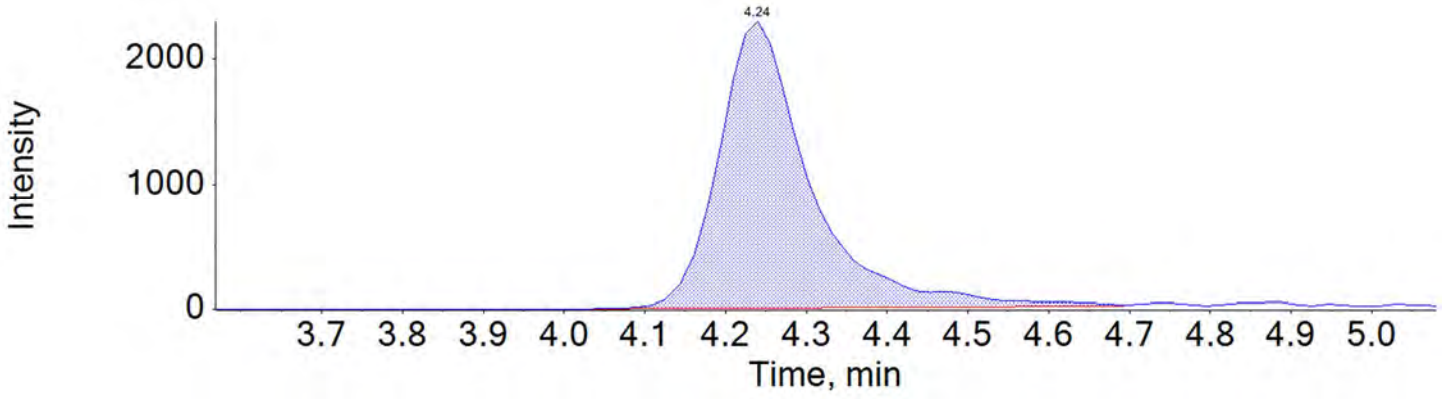

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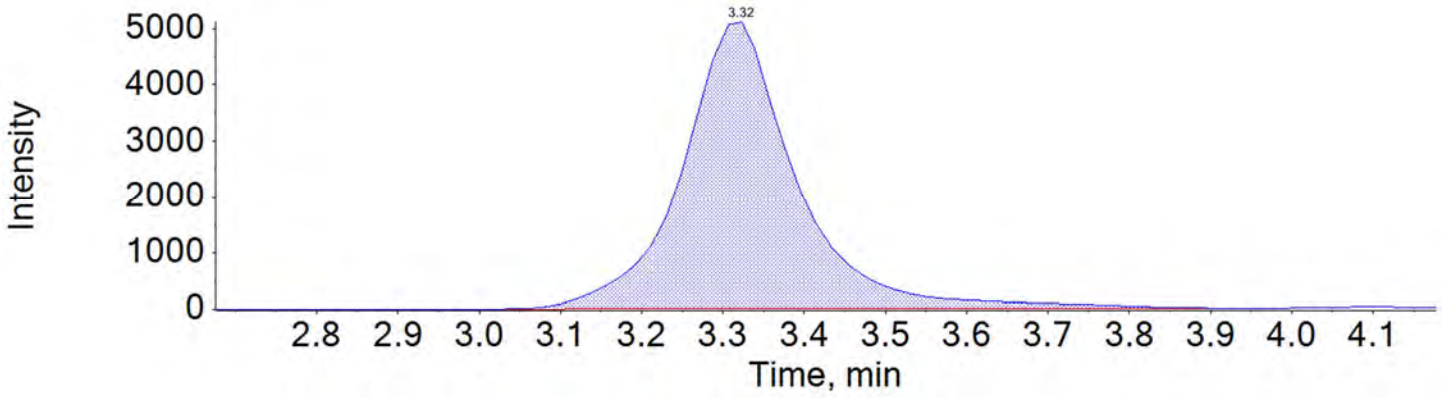

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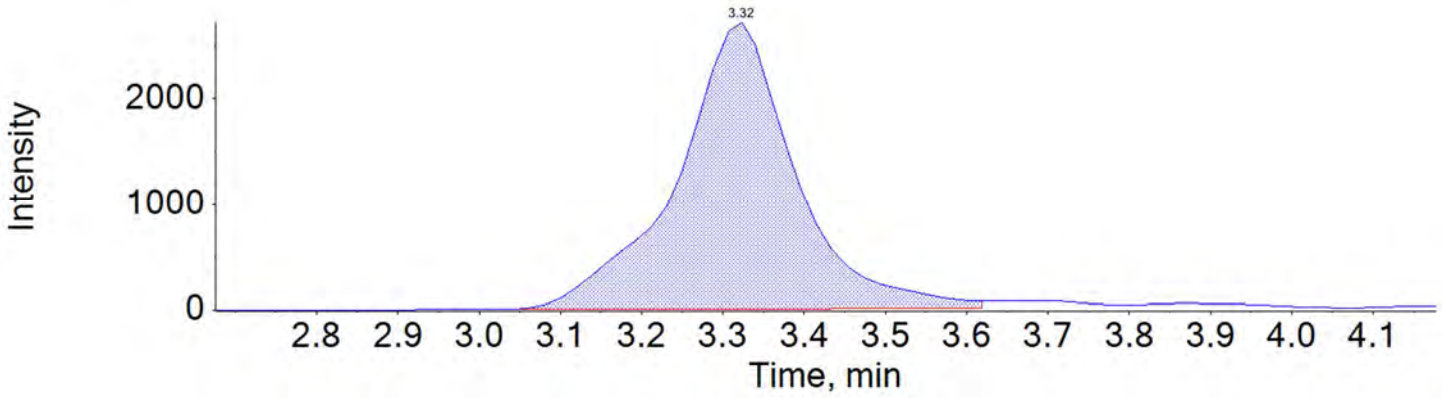

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Chromatogram Report

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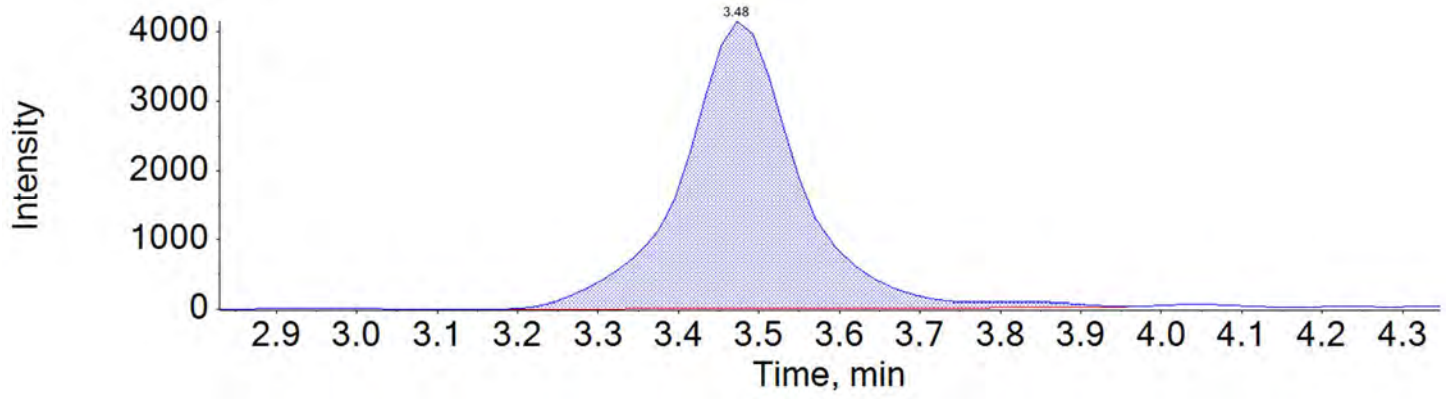
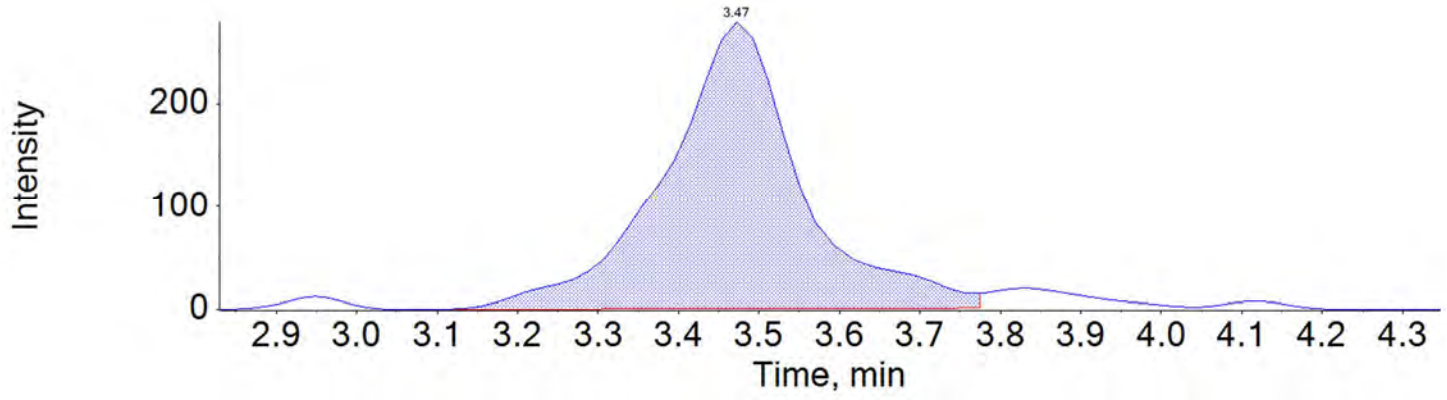


NEtFOSAA_2 584.0 / 483.0



Unused Data

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

Client ID	NAWC-051018-RW-303			
Battelle ID	J6204-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
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	7.42	0.22	0.50	2.50
PFHpA	5.47	0.34	1.00	2.50
PFOA	15.84	0.38	1.00	2.50
PFNA	1.76 J	0.37	1.00	2.50
PFDA	0.43 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	7.17	0.21	0.50	2.50
PFHxS	6.79	0.34	1.00	2.50
PFOS	16.09	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	117			
13C2-PFDA	92			
d5-EtFOSAA	108			

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-051018-RW-3220			
Battelle ID	J6206-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
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	12.73	0.22	0.50	2.50
PFHpA	7.67	0.34	1.00	2.50
PFOA	10.49	0.38	1.00	2.50
PFNA	2.03 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	73.70 D	0.21	0.50	2.50
PFHxS	17.43	0.34	1.00	2.50
PFOS	29.76	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	119			
13C2-PFDA	83			
d5-EtFOSAA	114			

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-051018-RW-177			
Battelle ID	J6208-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
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	6.97	0.22	0.50	2.50
PFHpA	4.86	0.34	1.00	2.50
PFOA	12.79	0.38	1.00	2.50
PFNA	1.36 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	5.67	0.21	0.50	2.50
PFHxS	22.01	0.34	1.00	2.50
PFOS	28.67	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	83			
13C2-PFDA	81			
d5-EtFOSAA	86			

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

Client ID	WGNA-051018-RW-3295			
Battelle ID	J6210-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.290			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	30.32	0.22	0.50	2.50
PFHpA	9.51	0.34	1.00	2.50
PFOA	28.65	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	8.79	0.21	0.50	2.50
PFHxS	2.01 J	0.34	1.00	2.50
PFOS	3.94	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	118			
13C2-PFDA	79			
d5-EtFOSAA	78			

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

Client ID	WGNA-051018-DUP-36			
Battelle ID	J6212-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.270			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	6.80	0.22	0.50	2.50
PFHpA	4.65	0.34	1.00	2.50
PFOA	14.10	0.38	1.00	2.50
PFNA	1.51 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	6.52	0.21	0.50	2.50
PFHxS	5.89	0.34	1.00	2.50
PFOS	14.01	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	102			
13C2-PFDA	80			
d5-EtFOSAA	77			

BATTELLE
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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	CQ770PB-FS			
Sample Type	PB			
Collection Date	05/14/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
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	99
13C2-PFDA	94
d5-EtFOSAA	108

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	CQ771LCS-FS					
Sample Type	LCS					
Collection Date	05/14/2018					
Extraction Date	05/14/2018					
Analysis Date	05/17/2018					
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	20.32	20.00	102		70	130
PFHpA	19.59	20.00	98		70	130
PFOA	19.17	20.00	96		70	130
PFNA	19.56	20.00	98		70	130
PFDA	18.56	20.00	93		70	130
PFUnA	18.28	20.00	91		70	130
PFDoA	17.60	20.00	88		70	130
PFTrDA	20.09	20.00	100		70	130
PFTeDA	25.97	20.00	130		70	130
NMeFOSAA	17.10	20.00	86		70	130
NEtFOSAA	18.00	20.00	90		70	130
PFBS	16.15	17.70	91		70	130
PFHxS	16.16	18.90	86		70	130
PFOS	14.76	19.10	77		70	130

Surrogate Recoveries (%)

13C2-PFHxA	118
13C2-PFDA	111
d5-EtFOSAA	99

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

Client ID	WGNA-051018-RW-3220		WGNA-051018-RW-3220					
Battelle ID	J6206-FS		J6206MS-FS					
Sample Type	SA		MS					
Collection Date	05/10/2018		05/10/2018					
Extraction Date	05/14/2018		05/14/2018					
Analysis Date	05/17/2018		05/17/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS		Sciex 5500 LC/MS/MS					
% Moisture	NA		NA					
Matrix	DW		DW					
Sample Size	0.265		0.265					
Size Unit-Basis	L		L				Control Limits	
Units	ng/L		ng/L	Target	Recovery	Qual	Lower	Upper
PFHxA	12.73		42.07	28.30	104		70	130
PFHpA	7.67		34.91	28.30	96		70	130
PFOA	10.49		33.18	28.30	80		70	130
PFNA	2.03	J	23.46	28.30	76		70	130
PFDA	0.39	U	22.74	28.30	80		70	130
PFUnA	0.38	U	21.03	28.30	74		70	130
PFDoA	0.42	U	21.55	28.30	76		70	130
PFTrDA	0.42	U	23.51	28.30	83		70	130
PFTeDA	0.73	U	30.99	28.30	109		70	130
NMeFOSAA	0.42	U	24.89	28.30	88		70	130
NEtFOSAA	0.44	U	23.53	28.30	83		70	130
PFBS	73.70	D	95.71	D	25.05	88	70	130
PFHxS	17.43		42.27		26.75	93	70	130
PFOS	29.76		49.78	D	27.03	74	70	130
Surrogate Recoveries (%)								
13C2-PFHxA	119		124					
13C2-PFDA	83		98					
d5-EtFOSAA	114		88					

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

Client ID	WGNA-051018-RW-3220
Battelle ID	J6206MSD-FS
Sample Type	MSD
Collection Date	05/10/2018
Extraction Date	05/14/2018
Analysis Date	05/17/2018
Analytical Instrument	Sciex 5500 LC/MS/MS
% Moisture	NA
Matrix	DW
Sample Size	0.265
Size Unit-Basis	L

					Control Limits				RPD
Units	ng/L	Target	Recovery	Qual	Lower	Upper	RPD	Qual	Limit
PFHxA	45.67	28.30	116		70	130	10.9		≤ 30
PFHpA	37.48	28.30	105		70	130	9.0		≤ 30
PFOA	36.43	28.30	92		70	130	14.0		≤ 30
PFNA	26.13	28.30	85		70	130	11.2		≤ 30
PFDA	24.28	28.30	86		70	130	7.2		≤ 30
PFUnA	21.81	28.30	77		70	130	4.0		≤ 30
PFDoA	22.87	28.30	81		70	130	6.4		≤ 30
PFTrDA	23.48	28.30	83		70	130	0.0		≤ 30
PFTeDA	28.65	28.30	101		70	130	7.6		≤ 30
NMeFOSAA	24.79	28.30	88		70	130	0.0		≤ 30
NEtFOSAA	23.21	28.30	82		70	130	1.2		≤ 30
PFBS	93.68	25.05	80	D	70	130	9.5		≤ 30
PFHxS	43.93	26.75	99		70	130	6.3		≤ 30
PFOS	49.68	27.03	74	D	70	130	0.0		≤ 30

Surrogate Recoveries (%)

13C2-PFHxA	125
13C2-PFDA	102
d5-EtFOSAA	87

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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

"CQ770PB-FS" "SOP 5-369" "Initial" "CQ770PB-FS" "BNO" "307-24-4" "PFHxA" ".500000"
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".250000" ".000500" "1.000000" ""
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"ng/L" "U" ".380000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
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"CQ770PB-FS" "SOP 5-369" "Initial" "CQ770PB-FS" "BNO" "72629-94-8" "PFTrDA" "1.000000"
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"1.600000" "" ".250000" ".000500" ".500000" ""
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"93.680000" "ng/L" "D" ".010000" "MDL" "" "T" "80.00" "9.5" ".120000" "LOQ" "YES"
"25.050000" "J6206MSD-FS" ".265000" ".000500" ".020000" ""
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"112G08005-WE04" "WE04 NAS Willow Grove" "NAWC-051018-RW-177" "05/10/2018 10:40" "DW" "J6208-FS" "NM" "SHP-180511-02" "1.700000" "SOP 5-369" "Gen Prep" "Initial" "05/14/2018 14:04" "05/17/2018 11:52" "BNO" "COA" "NA" "T" "1.000" "NA" "NA" "" "100.000000" "18-0315" "18-0315" "DP-18-0116" "DP-18-0116" "18-0315" "05/11/2018 10:30" "07/13/2018 14:28" ""
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"112G08005-WE04" "WE04 NAS Willow Grove" "WGNA-051018-DUP-36" "05/10/2018 07:00" "DW" "J6212-FS" "NM" "SHP-180511-02" "1.700000" "SOP 5-369" "Gen Prep" "Initial" "05/14/2018 14:04" "05/17/2018 12:10" "BNO" "COA" "NA" "T" "1.000" "NA" "NA" "" "100.000000" "18-0315" "18-0315" "DP-18-0116" "DP-18-0116" "18-0315" "05/11/2018 10:30" "07/13/2018 14:28" ""

TETRA TECH **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **JUNE 18, 2018**

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

SUBJECT: **ORGANIC DATA VALIDATION –POLYFLUOROALKYL SUBSTANCES (PFAS)**
NAS JRB WILLOW GROVE
SAMPLE DELIVERY GROUPS (SDGs) 18-0315, 18-0323

SAMPLES:

SDG 18-0315
5/Drinking Water

NAWC-051018-RW-177	NAWC-051018-RW-303
WGNA-051018-DUP-26	WGNA-051018-RW-3220
WGNA-051018-RW-3295	

SDG 18-0323
4/Field Reagent Blank (FRB)

NAWC-051018-FRB-177	NAWC-051018-FRB-303
WGNA-051018-FRB-3220	WGNA-051018-FRB-3295

Overview

The sample sets for NAS JRB Willow Grove, SDGs 18-0315 and 18-0323, consisted of five (5) drinking water samples and four (4) 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). One (1) field duplicate pair, NAWC-051018-RW-303 / WGNA-051018-DUP-36 was included in this SDG.

The samples were collected by Tetra Tech on May 10, 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.
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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.

Sample WGNA-051018-RW-3220 was analyzed at a 20X dilution for PFBS.

Sample WGNA-051018-FRB-3295 had a detected result for PFOA of 0.43 ng/L. The detected result was < 1/3 the reporting limit. No validation actions were required for sample WGNA-051018-RW-3295 as the sample result was greater than the reporting limit.

The method blank for SDG 18-0323 had a detected result reported for PFOA of 0.59 ng/L. The detected result was < 1/3 the reporting limit. No validation actions were required as all samples were FRBs.

Samples with detections and their associated FRBs are summarized below.

Sample	Associated FRB
NAWC-051018-RW-177	NAWC-051018-FRB-177
NAWC-051018-RW-303	NAWC-051018-FRB-303
WGNA-051018-DUP-26	NAWC-051018-FRB-303
WGNA-051018-RW-3220	NAWC-051018-FRB-3220
WGNA-051018-RW-3295	NAWC-051018-FRB-3295

Non-detected results were reported to the Limit of Detection (LOD).

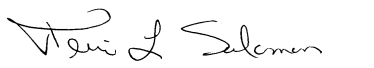
The buffering agent Trizma was added to all drinking water samples.

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-051018-RW-177			NAWC-051018-RW-303			WGNA-051018-DUP-36			WGNA-051018-RW-3220		
SDG: 18-0315	LAB_ID	J6208-FS			J6204-FS			J6212-FS			J6206-FS		
FRACTION: PFAS	SAMP_DATE	5/10/2018			5/10/2018			5/10/2018			5/10/2018		
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							NAWC-051018-RW-303					
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)		12.79			15.84			14.1			10.49		
PERFLUOROBUTANESULFONIC ACID (PFBS)		5.67			7.17			6.52			73.7		
PERFLUORODECANOIC ACID (PFDA)		1	U		0.43	J	P	1	U		1	U	
PERFLUORODODECANOIC ACID (PFDOA)		1	U		1	U		1	U		1	U	
PERFLUOROHEPTANOIC ACID (PFHPA)		4.86			5.47			4.65			7.67		
PERFLUOROHEXANESULFONIC ACID (PFHXS)		22.01			6.79			5.89			17.43		
PERFLUOROHEXANOIC ACID (PFHXA)		6.97			7.42			6.8			12.73		
PERFLUORONONANOIC ACID (PFNA)		1.36	J	P	1.76	J	P	1.51	J	P	2.03	J	P
PERFLUOROOCTANESULFONIC ACID (PFOS)		28.67			16.09			14.01			29.76		
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-051018-RW-3295		
SDG: 18-0315	LAB_ID	J6210-FS		
FRACTION: PFAS	SAMP_DATE	5/10/2018		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		1	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		1	U	
PENTADECAFLUOROOCTANOIC ACID (PFOA)		28.65		
PERFLUOROBUTANESULFONIC ACID (PFBS)		8.79		
PERFLUORODECANOIC ACID (PFDA)		1	U	
PERFLUORODODECANOIC ACID (PFDOA)		1	U	
PERFLUOROHEPTANOIC ACID (PFHPA)		9.51		
PERFLUOROHEXANESULFONIC ACID (PFHXS)		2.01	J	P
PERFLUOROHEXANOIC ACID (PFHXA)		30.32		
PERFLUORONONANOIC ACID (PFNA)		1.57	J	P
PERFLUOROOCTANESULFONIC ACID (PFOS)		3.94		
PERFLUOROTETRADECANOIC ACID (PFTEA)		1.5	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		1	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		1	U	

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-051018-FRB-177			NAWC-051018-FRB-303			WGNA-051018-FRB-3220			WGNA-051018-FRB-3295		
SDG: 18-0323	LAB_ID	J6209-FS			J6205-FS			J6207-FS			J6211-FS		
FRACTION: PFAS	SAMP_DATE	5/10/2018			5/10/2018			5/10/2018			5/10/2018		
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		0.43	J	P
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	

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-051018-RW-303			
Battelle ID	J6204-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
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	7.42	0.22	0.50	2.50
PFHpA	5.47	0.34	1.00	2.50
PFOA	15.84	0.38	1.00	2.50
PFNA	1.76 J	0.37	1.00	2.50
PFDA	0.43 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	7.17	0.21	0.50	2.50
PFHxS	6.79	0.34	1.00	2.50
PFOS	16.09	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	117			
13C2-PFDA	92			
d5-EtFOSAA	108			

06/11/2018

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

Client ID	WGNA-051018-RW-3220			
Battelle ID	J6206-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
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	12.73	0.22	0.50	2.50
PFHpA	7.67	0.34	1.00	2.50
PFOA	10.49	0.38	1.00	2.50
PFNA	2.03 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	73.70 D	0.21	0.50	2.50
PFHxS	17.43	0.34	1.00	2.50
PFOS	29.76	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	119			
13C2-PFDA	83			
d5-EtFOSAA	114			

06/11/2018

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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	NAWC-051018-RW-177			
Battelle ID	J6208-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
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	6.97	0.22	0.50	2.50
PFHpA	4.86	0.34	1.00	2.50
PFOA	12.79	0.38	1.00	2.50
PFNA	1.36 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	5.67	0.21	0.50	2.50
PFHxS	22.01	0.34	1.00	2.50
PFOS	28.67	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	83			
13C2-PFDA	81			
d5-EtFOSAA	86			

06/11/2018

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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	WGNA-051018-RW-3295			
Battelle ID	J6210-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.290			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	30.32	0.22	0.50	2.50
PFHpA	9.51	0.34	1.00	2.50
PFOA	28.65	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	8.79	0.21	0.50	2.50
PFHxS	2.01 J	0.34	1.00	2.50
PFOS	3.94	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	118			
13C2-PFDA	79			
d5-EtFOSAA	78			

06/11/2018

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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	WGNA-051018-DUP-36			
Battelle ID	J6212-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.270			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	6.80	0.22	0.50	2.50
PFHpA	4.65	0.34	1.00	2.50
PFOA	14.10	0.38	1.00	2.50
PFNA	1.51 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	6.52	0.21	0.50	2.50
PFHxS	5.89	0.34	1.00	2.50
PFOS	14.01	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	102			
13C2-PFDA	80			
d5-EtFOSAA	77			

06/11/2018

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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-051018-FRB-303			
Battelle ID	J6205-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/17/2018			
Analysis Date	05/30/2018			
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 (%)				
13C2-PFHxA	120			
13C2-PFDA	117			
d5-EtFOSAA	111			

06/11/2018

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-051018-FRB-3220			
Battelle ID	J6207-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/17/2018			
Analysis Date	05/30/2018			
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 (%)				
13C2-PFHxA	99			
13C2-PFDA	100			
d5-EtFOSAA	110			

06/11/2018

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-051018-FRB-177			
Battelle ID	J6209-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/17/2018			
Analysis Date	05/30/2018			
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 (%)				
13C2-PFHxA	94			
13C2-PFDA	83			
d5-EtFOSAA	101			

06/11/2018

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-051018-FRB-3295			
Battelle ID	J6211-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/17/2018			
Analysis Date	05/30/2018			
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	0.43 J	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	103			
d5-EtFOSAA	110			

06/11/2018

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	NAWC-051018-RW-303			
Battelle ID	J6204-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
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	7.42	0.22	0.50	2.50
PFHpA	5.47	0.34	1.00	2.50
PFOA	15.84	0.38	1.00	2.50
PFNA	1.76 J	0.37	1.00	2.50
PFDA	0.43 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	7.17	0.21	0.50	2.50
PFHxS	6.79	0.34	1.00	2.50
PFOS	16.09	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	117			
13C2-PFDA	92			
d5-EtFOSAA	108			

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-051018-RW-3220			
Battelle ID	J6206-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
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	12.73	0.22	0.50	2.50
PFHpA	7.67	0.34	1.00	2.50
PFOA	10.49	0.38	1.00	2.50
PFNA	2.03 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	73.70 D	0.21	0.50	2.50
PFHxS	17.43	0.34	1.00	2.50
PFOS	29.76	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	119			
13C2-PFDA	83			
d5-EtFOSAA	114			

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

Client ID	NAWC-051018-RW-177			
Battelle ID	J6208-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
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	6.97	0.22	0.50	2.50
PFHpA	4.86	0.34	1.00	2.50
PFOA	12.79	0.38	1.00	2.50
PFNA	1.36 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	5.67	0.21	0.50	2.50
PFHxS	22.01	0.34	1.00	2.50
PFOS	28.67	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	83			
13C2-PFDA	81			
d5-EtFOSAA	86			

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

Client ID	WGNA-051018-RW-3295			
Battelle ID	J6210-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.290			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	30.32	0.22	0.50	2.50
PFHpA	9.51	0.34	1.00	2.50
PFOA	28.65	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	8.79	0.21	0.50	2.50
PFHxS	2.01 J	0.34	1.00	2.50
PFOS	3.94	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	118			
13C2-PFDA	79			
d5-EtFOSAA	78			

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

Client ID	WGNA-051018-DUP-36			
Battelle ID	J6212-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.270			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	6.80	0.22	0.50	2.50
PFHpA	4.65	0.34	1.00	2.50
PFOA	14.10	0.38	1.00	2.50
PFNA	1.51 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	6.52	0.21	0.50	2.50
PFHxS	5.89	0.34	1.00	2.50
PFOS	14.01	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	102			
13C2-PFDA	80			
d5-EtFOSAA	77			

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

Client ID	NAWC-051018-FRB-303			
Battelle ID	J6205-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/17/2018			
Analysis Date	05/30/2018			
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 (%)				
13C2-PFHxA	120			
13C2-PFDA	117			
d5-EtFOSAA	111			

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

Client ID	WGNA-051018-FRB-3220			
Battelle ID	J6207-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/17/2018			
Analysis Date	05/30/2018			
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 (%)				
13C2-PFHxA	99			
13C2-PFDA	100			
d5-EtFOSAA	110			

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

Client ID	NAWC-051018-FRB-177			
Battelle ID	J6209-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/17/2018			
Analysis Date	05/30/2018			
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 (%)				
13C2-PFHxA	94			
13C2-PFDA	83			
d5-EtFOSAA	101			

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

Client ID	WGNA-051018-FRB-3295			
Battelle ID	J6211-FS			
Sample Type	SA			
Collection Date	05/10/2018			
Extraction Date	05/17/2018			
Analysis Date	05/30/2018			
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	0.43 J	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	103			
d5-EtFOSAA	110			

Appendix C

Support Documentation

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	Sampling Site: WE04	Site Information: NAS JRB Willow Grove/NAWC Warminster
Project Name: WE04 Project No.: 112G08005-WE04	Turnaround Time (TAT) Requested: 21 days 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	
NAWC-051018-RW-303 J6204	5/10/2018	9:10	G	DW	2		X	
NAWC-051018-FRB-303 J6205	5/10/2018	9:05	G	DW	2		X	Field Reagent Blank
WGNA-051018-RW-3220 J6206	5/10/2018	09:40	G	DW	6		X	MS/MSD
WGNA-051018-FRB-3220 J6207	5/10/2018	09:35	G	DW	2		X	Field Reagent Blank
NAWC-051018-RW-177 J6208	5/10/2018	10:40	G	DW	2		X	
NAWC-051018-FRB-177 J6209	5/10/2018	10:35	G	DW	2		X	Field Reagent Blank
WGNA-051018-RW-3295 J6210	5/10/2018	15:10	G	DW	2		X	
WGNA-051018-FRB-3295 J6211	5/10/2018	15:05	G	DW	2		X	Field Reagent Blank
WGNA-051018-DUP-36 J6212	5/10/2018	7:00	G	DW	2		X	Duplicate

Receipt Temperature:(°C) 1.7°	Samples Intact: (Yes) No	Samples on Ice: (Yes) No
Receipt Comments: Therm-1		

Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
Mary Kay Bond	Tetra Tech	05/10/2018 16:00	Matt Schumitz	Battelle	5/11/18 1030

Comments: FedEx Tracking # 7722 0507 3788

QA/QC Summary
Batch 18-0315

Project:	CTO-WE04 Naval Air Station Joint Reserve Base Willow Grove
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	DW
Data Set:	DP-18-0116
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody

Collection Date	Receipt Date	Temp (°C)
5/10/2018	5/11/2018	1.7

Corrective Actions	None
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	FRB samples associated with these samples are extracted in SDG 18-0323

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. The confirmation ion ratio was above 50% RPD for the following samples and analytes: NAWC-051018-RW-303 (J6204) – PFOA, PFDA, PFDoA, PFTrDA, PFTeDA WGNA-051018-RW-3220 (J6206) – PFTeDA NAWC-051018-RW-177 (J6208) – PFOA, PFDA, PFTeDA WGNA-051018-RW-3295 (J6210) – PFTeDA WGNA-051018-DUP-36 (J6212) – PFOA With the exception of PFOA, all other analytes listed above were detected below the LOD or below the Detection Limit.

Holding Times	Extraction Date(s)	Analysis Date(s)
	5/14/2018	5/17/2018

QA/QC Summary
Batch 18-0315

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.
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 ≤ 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 ≤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.

QA/QC Summary
Batch 18-0315

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.

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: 18-0315
Data Set: DP-18-0116
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	NA	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-18-0116
Project Number:	100117920-WE04	**Prep Batch Number:**	18-0315
Entered By:	Denise Schumitz	**Entered On:**	05/24/2018
Test Code (Matrix Type):	Master_371(L)		

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
DMS 6/24/2018

JV64 is not being used in the calibration curve for PFBS, and NMeFOSAA. There is no impact on the data once this point is removed from the calibration.
DMS 6/23/2018

JV65 is not being used in the calibration curve for NMeFOSAA. There is no impact on the data once this point is removed from the calibration.
DMS 6/23/2018

Ion ratios greater than 50% for PFOA are noted in samples J6204, J6208 and J6212.
DMS 6/23/2018

Ion ratio greater than 50% for PFDA is noted in samples J6204 and J6208.
DMS 6/23/2018

Ion ratio greater than 50% for PFDoA and PFTrDA is noted in samples J6204.
DMS 6/23/2018

Ion ratios greater than 50% for PFTeDA are noted in samples J6204, J6206, J6208 and J6210.
DMS 6/23/2018

Ion ratio greater than 50% for NEtFOSAA is noted in JV65.
DMS 6/23/2018

Task Leader Approval:

SupervisorApproval:

PM Approval:

Digitally signed by Jonathan Thorn
Date: 2018.05.30 07:50:57 -04'00'

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

Preparation Batch: 18-0315
Data Set: DP-18-0116

	CQ770PB-FS (Procedural Blank)	CQ771LCS-FS (Laboratory Control Sample)	J6206MS-FS (WGNA-051018-RW-3220)	J6206MSD-FS (WGNA-051018-RW-3220)	J6204-FS (NAWC-051018-RW-303)	J6206-FS (WGNA-051018-RW-3220)	J6208-FS (NAWC-051018-RW-177)	J6210-FS (WGNA-051018-RW-3295)	J6212-FS (WGNA-051018-DUP-36)
PFHxA	-	L	L	L	L	L	L	L	L
PFHpA	-	L	L	L	L	L	L	L	L
PFOA	-	L	L	L	L	L	L	L	L
PFNA	-	L	L	L	L	L	L	L	L
PFDA	-	L	L	L	L	L	L	L	L
PFUnA	-	L	L	L	L	L	L	L	L
PFDoA	-	L	L	L	L	L	L	L	L
PFTrDA	-	L	L	L	L	L	L	L	L
PFTeDA	-	L	L	L	L	L	L	L	L
NMeFOSAA	-	L	L	L	L	L	L	L	L
NEtFOSAA	-	L	L	L	L	L	L	L	L
PFBS	-	L	L	L	L	L	L	L	L
PFHxS	-	L	L	L	L	L	L	L	L
PFOS	-	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br

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

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

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JV64	L1	5/17/18 9:20	13C4-PFOS	104,864.21	-	
JV65	L2	5/17/18 9:29	13C4-PFOS	111,854.31	-	
JV66	L3	5/17/18 9:38	13C4-PFOS	113,860.62	-	
JV67	L4	5/17/18 9:47	13C4-PFOS	102,094.68	-	
JV68	L5	5/17/18 9:56	13C4-PFOS	113,941.01	-	
JV69	L6	5/17/18 10:05	13C4-PFOS	105,465.76	-	
JV70	L7	5/17/18 10:14	13C4-PFOS	100,428.45	-	
JV71	L8	5/17/18 10:23	13C4-PFOS	100,136.69	-	
JV72	L9	5/17/18 10:31	13C4-PFOS	107,766.90	2.7	PASS

Average	Lower	Upper
106,712.51	53,356.26	160,068.77

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	5/17/18 9:20	13C4-PFOS	104,864.21	53,356.26	160,068.77		79,758.71	159,517.41	
JV65	L2	5/17/18 9:29	13C4-PFOS	111,854.31	53,356.26	160,068.77		79,758.71	159,517.41	
JV66	L3	5/17/18 9:38	13C4-PFOS	113,860.62	53,356.26	160,068.77		79,758.71	159,517.41	
JV67	L4	5/17/18 9:47	13C4-PFOS	102,094.68	53,356.26	160,068.77		79,758.71	159,517.41	
JV68	L5	5/17/18 9:56	13C4-PFOS	113,941.01	53,356.26	160,068.77		79,758.71	159,517.41	
JV69	L6	5/17/18 10:05	13C4-PFOS	105,465.76	53,356.26	160,068.77		79,758.71	159,517.41	
JV70	L7	5/17/18 10:14	13C4-PFOS	100,428.45	53,356.26	160,068.77		79,758.71	159,517.41	
JV71	L8	5/17/18 10:23	13C4-PFOS	100,136.69	53,356.26	160,068.77		79,758.71	159,517.41	
JV72	L9	5/17/18 10:31	13C4-PFOS	107,766.90	53,356.26	160,068.77		79,758.71	159,517.41	
JV63 ICC	ICC	5/17/18 10:40	13C4-PFOS	113,811.02	53,356.26	160,068.77		79,758.71	159,517.41	
CQ770PB-FS(0)	Procedural Blank	5/17/18 10:58	13C4-PFOS	80,251.05	53,356.26	160,068.77		79,758.71	159,517.41	
CQ771LCS-FS(0)	Laboratory Control Sample	5/17/18 11:07	13C4-PFOS	93,637.06	53,356.26	160,068.77		79,758.71	159,517.41	
J6204-FS(0)	NAWC-051018-RW-303	5/17/18 11:16	13C4-PFOS	86,131.12	53,356.26	160,068.77		79,758.71	159,517.41	
J6206-FS(0)	WGNA-051018-RW-3220	5/17/18 11:25	13C4-PFOS	97,181.69	53,356.26	160,068.77		79,758.71	159,517.41	
J6206MS-FS(0)	WGNA-051018-RW-3220	5/17/18 11:34	13C4-PFOS	88,590.59	53,356.26	160,068.77		79,758.71	159,517.41	
J6206MSD-FS(0)	WGNA-051018-RW-3220	5/17/18 11:43	13C4-PFOS	83,551.26	53,356.26	160,068.77		79,758.71	159,517.41	
J6208-FS(0)	NAWC-051018-RW-177	5/17/18 11:52	13C4-PFOS	99,136.85	53,356.26	160,068.77		79,758.71	159,517.41	
J6210-FS(0)	WGNA-051018-RW-3295	5/17/18 12:01	13C4-PFOS	84,597.10	53,356.26	160,068.77		79,758.71	159,517.41	
J6212-FS(0)	WGNA-051018-DUP-36	5/17/18 12:10	13C4-PFOS	84,412.70	53,356.26	160,068.77		79,758.71	159,517.41	
JV68 CCV	CCV	5/17/18 12:19	13C4-PFOS	119,685.33	53,356.26	160,068.77		79,758.71	159,517.41	
J6206-FS-D(3)	WGNA-051018-RW-3220	5/17/18 13:50	13C4-PFOS	109,491.15	53,356.26	160,068.77		83,779.73	167,559.46	
J6206MS-FS-D(3)	WGNA-051018-RW-3220	5/17/18 13:59	13C4-PFOS	87,795.79	53,356.26	160,068.77		83,779.73	167,559.46	
J6206MSD-FS-D(3)	WGNA-051018-RW-3220	5/17/18 14:08	13C4-PFOS	87,646.58	53,356.26	160,068.77		83,779.73	167,559.46	
JV69 CCV	CCV	5/17/18 14:17	13C4-PFOS	120,237.99	53,356.26	160,068.77		83,779.73	167,559.46	

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

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JV64	L1	5/17/18 9:20	13C2-PFOA	28,461.52	-	
JV65	L2	5/17/18 9:29	13C2-PFOA	32,515.66	-	
JV66	L3	5/17/18 9:38	13C2-PFOA	32,166.59	-	
JV67	L4	5/17/18 9:47	13C2-PFOA	28,765.39	-	
JV68	L5	5/17/18 9:56	13C2-PFOA	34,136.83	-	
JV69	L6	5/17/18 10:05	13C2-PFOA	33,007.04	-	
JV70	L7	5/17/18 10:14	13C2-PFOA	33,693.39	-	
JV71	L8	5/17/18 10:23	13C2-PFOA	31,164.30	-	
JV72	L9	5/17/18 10:31	13C2-PFOA	33,296.93	15.7	PASS

Average	Lower	Upper
31,911.96	15,955.98	47,867.94

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	5/17/18 9:20	13C2-PFOA	28,461.52	15,955.98	47,867.94		23,895.78	47,791.56	
JV65	L2	5/17/18 9:29	13C2-PFOA	32,515.66	15,955.98	47,867.94		23,895.78	47,791.56	
JV66	L3	5/17/18 9:38	13C2-PFOA	32,166.59	15,955.98	47,867.94		23,895.78	47,791.56	
JV67	L4	5/17/18 9:47	13C2-PFOA	28,765.39	15,955.98	47,867.94		23,895.78	47,791.56	
JV68	L5	5/17/18 9:56	13C2-PFOA	34,136.83	15,955.98	47,867.94		23,895.78	47,791.56	
JV69	L6	5/17/18 10:05	13C2-PFOA	33,007.04	15,955.98	47,867.94		23,895.78	47,791.56	
JV70	L7	5/17/18 10:14	13C2-PFOA	33,693.39	15,955.98	47,867.94		23,895.78	47,791.56	
JV71	L8	5/17/18 10:23	13C2-PFOA	31,164.30	15,955.98	47,867.94		23,895.78	47,791.56	
JV72	L9	5/17/18 10:31	13C2-PFOA	33,296.93	15,955.98	47,867.94		23,895.78	47,791.56	
JV63 ICC	ICC	5/17/18 10:40	13C2-PFOA	33,366.06	15,955.98	47,867.94		23,895.78	47,791.56	
CQ770PB-FS(0)	Procedural Blank	5/17/18 10:58	13C2-PFOA	25,041.26	15,955.98	47,867.94		23,895.78	47,791.56	
CQ771LCS-FS(0)	Laboratory Control Sample	5/17/18 11:07	13C2-PFOA	26,377.79	15,955.98	47,867.94		23,895.78	47,791.56	
J6204-FS(0)	NAWC-051018-RW-303	5/17/18 11:16	13C2-PFOA	26,443.06	15,955.98	47,867.94		23,895.78	47,791.56	
J6206-FS(0)	WGNA-051018-RW-3220	5/17/18 11:25	13C2-PFOA	32,418.61	15,955.98	47,867.94		23,895.78	47,791.56	
J6206MS-FS(0)	WGNA-051018-RW-3220	5/17/18 11:34	13C2-PFOA	29,716.55	15,955.98	47,867.94		23,895.78	47,791.56	
J6206MSD-FS(0)	WGNA-051018-RW-3220	5/17/18 11:43	13C2-PFOA	26,229.90	15,955.98	47,867.94		23,895.78	47,791.56	
J6208-FS(0)	NAWC-051018-RW-177	5/17/18 11:52	13C2-PFOA	30,871.32	15,955.98	47,867.94		23,895.78	47,791.56	
J6210-FS(0)	WGNA-051018-RW-3295	5/17/18 12:01	13C2-PFOA	27,818.94	15,955.98	47,867.94		23,895.78	47,791.56	
J6212-FS(0)	WGNA-051018-DUP-36	5/17/18 12:10	13C2-PFOA	26,429.20	15,955.98	47,867.94		23,895.78	47,791.56	
JV68 CCV	CCV	5/17/18 12:19	13C2-PFOA	34,256.83	15,955.98	47,867.94		23,895.78	47,791.56	
J6206-FS-D(3)	WGNA-051018-RW-3220	5/17/18 13:50	13C2-PFOA	30,571.36	15,955.98	47,867.94		23,979.78	47,959.56	
J6206MS-FS-D(3)	WGNA-051018-RW-3220	5/17/18 13:59	13C2-PFOA	23,996.88	15,955.98	47,867.94		23,979.78	47,959.56	
J6206MSD-FS-D(3)	WGNA-051018-RW-3220	5/17/18 14:08	13C2-PFOA	25,308.76	15,955.98	47,867.94		23,979.78	47,959.56	
JV69 CCV	CCV	5/17/18 14:17	13C2-PFOA	35,079.04	15,955.98	47,867.94		23,979.78	47,959.56	

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

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JV64	L1	5/17/18 9:20	d3-MeFOSAA	15,583.30	-	
JV65	L2	5/17/18 9:29	d3-MeFOSAA	17,164.76	-	
JV66	L3	5/17/18 9:38	d3-MeFOSAA	18,646.92	-	
JV67	L4	5/17/18 9:47	d3-MeFOSAA	17,771.51	-	
JV68	L5	5/17/18 9:56	d3-MeFOSAA	18,313.21	-	
JV69	L6	5/17/18 10:05	d3-MeFOSAA	17,246.29	-	
JV70	L7	5/17/18 10:14	d3-MeFOSAA	17,912.38	-	
JV71	L8	5/17/18 10:23	d3-MeFOSAA	14,871.77	-	
JV72	L9	5/17/18 10:31	d3-MeFOSAA	18,034.35	14.6	PASS

Average	Lower	Upper
17,282.72	8,641.36	25,924.08

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	5/17/18 9:20	d3-MeFOSAA	15,583.30	8,641.36	25,924.08		12,819.25	25,638.49	
JV65	L2	5/17/18 9:29	d3-MeFOSAA	17,164.76	8,641.36	25,924.08		12,819.25	25,638.49	
JV66	L3	5/17/18 9:38	d3-MeFOSAA	18,646.92	8,641.36	25,924.08		12,819.25	25,638.49	
JV67	L4	5/17/18 9:47	d3-MeFOSAA	17,771.51	8,641.36	25,924.08		12,819.25	25,638.49	
JV68	L5	5/17/18 9:56	d3-MeFOSAA	18,313.21	8,641.36	25,924.08		12,819.25	25,638.49	
JV69	L6	5/17/18 10:05	d3-MeFOSAA	17,246.29	8,641.36	25,924.08		12,819.25	25,638.49	
JV70	L7	5/17/18 10:14	d3-MeFOSAA	17,912.38	8,641.36	25,924.08		12,819.25	25,638.49	
JV71	L8	5/17/18 10:23	d3-MeFOSAA	14,871.77	8,641.36	25,924.08		12,819.25	25,638.49	
JV72	L9	5/17/18 10:31	d3-MeFOSAA	18,034.35	8,641.36	25,924.08		12,819.25	25,638.49	
JV63 ICC	ICC	5/17/18 10:40	d3-MeFOSAA	18,230.15	8,641.36	25,924.08		12,819.25	25,638.49	
CQ770PB-FS(0)	Procedural Blank	5/17/18 10:58	d3-MeFOSAA	13,850.01	8,641.36	25,924.08		12,819.25	25,638.49	
CQ771LCS-FS(0)	Laboratory Control Sample	5/17/18 11:07	d3-MeFOSAA	16,239.54	8,641.36	25,924.08		12,819.25	25,638.49	
J6204-FS(0)	NAWC-051018-RW-303	5/17/18 11:16	d3-MeFOSAA	13,414.75	8,641.36	25,924.08		12,819.25	25,638.49	
J6206-FS(0)	WGNA-051018-RW-3220	5/17/18 11:25	d3-MeFOSAA	14,663.00	8,641.36	25,924.08		12,819.25	25,638.49	
J6206MS-FS(0)	WGNA-051018-RW-3220	5/17/18 11:34	d3-MeFOSAA	15,216.29	8,641.36	25,924.08		12,819.25	25,638.49	
J6206MSD-FS(0)	WGNA-051018-RW-3220	5/17/18 11:43	d3-MeFOSAA	13,691.85	8,641.36	25,924.08		12,819.25	25,638.49	
J6208-FS(0)	NAWC-051018-RW-177	5/17/18 11:52	d3-MeFOSAA	16,530.28	8,641.36	25,924.08		12,819.25	25,638.49	
J6210-FS(0)	WGNA-051018-RW-3295	5/17/18 12:01	d3-MeFOSAA	13,922.51	8,641.36	25,924.08		12,819.25	25,638.49	
J6212-FS(0)	WGNA-051018-DUP-36	5/17/18 12:10	d3-MeFOSAA	14,449.90	8,641.36	25,924.08		12,819.25	25,638.49	
JV68 CCV	CCV	5/17/18 12:19	d3-MeFOSAA	20,120.23	8,641.36	25,924.08		12,819.25	25,638.49	
J6206-FS-D(3)	WGNA-051018-RW-3220	5/17/18 13:50	d3-MeFOSAA	20,093.09	8,641.36	25,924.08		14,084.16	28,168.32	
J6206MS-FS-D(3)	WGNA-051018-RW-3220	5/17/18 13:59	d3-MeFOSAA	15,643.60	8,641.36	25,924.08		14,084.16	28,168.32	
J6206MSD-FS-D(3)	WGNA-051018-RW-3220	5/17/18 14:08	d3-MeFOSAA	14,417.85	8,641.36	25,924.08		14,084.16	28,168.32	
JV69 CCV	CCV	5/17/18 14:17	d3-MeFOSAA	19,688.13	8,641.36	25,924.08		14,084.16	28,168.32	

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	CQ770PB-FS			
Sample Type	PB			
Collection Date	05/14/2018			
Extraction Date	05/14/2018			
Analysis Date	05/17/2018			
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	99
13C2-PFDA	94
d5-EtFOSAA	108

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	CQ771LCS-FS					
Sample Type	LCS					
Collection Date	05/14/2018					
Extraction Date	05/14/2018					
Analysis Date	05/17/2018					
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	20.32	20.00	102		70	130
PFHpA	19.59	20.00	98		70	130
PFOA	19.17	20.00	96		70	130
PFNA	19.56	20.00	98		70	130
PFDA	18.56	20.00	93		70	130
PFUnA	18.28	20.00	91		70	130
PFDoA	17.60	20.00	88		70	130
PFTrDA	20.09	20.00	100		70	130
PFTeDA	25.97	20.00	130		70	130
NMeFOSAA	17.10	20.00	86		70	130
NEtFOSAA	18.00	20.00	90		70	130
PFBS	16.15	17.70	91		70	130
PFHxS	16.16	18.90	86		70	130
PFOS	14.76	19.10	77		70	130
Surrogate Recoveries (%)						
13C2-PFHxA	118					
13C2-PFDA	111					
d5-EtFOSAA	99					

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

Client ID	WGNA-051018-RW-3220	WGNA-051018-RW-3220					
Battelle ID	J6206-FS	J6206MS-FS					
Sample Type	SA	MS					
Collection Date	05/10/2018	05/10/2018					
Extraction Date	05/14/2018	05/14/2018					
Analysis Date	05/17/2018	05/17/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS	Sciex 5500 LC/MS/MS					
% Moisture	NA	NA					
Matrix	DW	DW					
Sample Size	0.265	0.265					
Size Unit-Basis	L	L				Control Limits	
Units	ng/L	ng/L	Target	Recovery	Qual	Lower	Upper
PFHxA	12.73	42.07	28.30	104		70	130
PFHpA	7.67	34.91	28.30	96		70	130
PFOA	10.49	33.18	28.30	80		70	130
PFNA	2.03 J	23.46	28.30	76		70	130
PFDA	0.39 U	22.74	28.30	80		70	130
PFUnA	0.38 U	21.03	28.30	74		70	130
PFDoA	0.42 U	21.55	28.30	76		70	130
PFTrDA	0.42 U	23.51	28.30	83		70	130
PFTeDA	0.73 U	30.99	28.30	109		70	130
NMeFOSAA	0.42 U	24.89	28.30	88		70	130
NEtFOSAA	0.44 U	23.53	28.30	83		70	130
PFBS	73.70 D	95.71 D	25.05	88		70	130
PFHxS	17.43	42.27	26.75	93		70	130
PFOS	29.76	49.78 D	27.03	74		70	130
Surrogate Recoveries (%)							
13C2-PFHxA	119	124					
13C2-PFDA	83	98					
d5-EtFOSAA	114	88					

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

Client ID	WGNA-051018-RW-3220
Battelle ID	J6206MSD-FS
Sample Type	MSD
Collection Date	05/10/2018
Extraction Date	05/14/2018
Analysis Date	05/17/2018
Analytical Instrument	Sciex 5500 LC/MS/MS
% Moisture	NA
Matrix	DW
Sample Size	0.265
Size Unit-Basis	L

					Control Limits				RPD
Units	ng/L	Target	Recovery	Qual	Lower	Upper	RPD	Qual	Limit
PFHxA	45.67	28.30	116		70	130	10.9		≤ 30
PFHpA	37.48	28.30	105		70	130	9.0		≤ 30
PFOA	36.43	28.30	92		70	130	14.0		≤ 30
PFNA	26.13	28.30	85		70	130	11.2		≤ 30
PFDA	24.28	28.30	86		70	130	7.2		≤ 30
PFUnA	21.81	28.30	77		70	130	4.0		≤ 30
PFDoA	22.87	28.30	81		70	130	6.4		≤ 30
PFTrDA	23.48	28.30	83		70	130	0.0		≤ 30
PFTeDA	28.65	28.30	101		70	130	7.6		≤ 30
NMeFOSAA	24.79	28.30	88		70	130	0.0		≤ 30
NEtFOSAA	23.21	28.30	82		70	130	1.2		≤ 30
PFBS	93.68	25.05	80	D	70	130	9.5		≤ 30
PFHxS	43.93	26.75	99		70	130	6.3		≤ 30
PFOS	49.68	27.03	74	D	70	130	0.0		≤ 30

Surrogate Recoveries (%)

13C2-PFHxA	125
13C2-PFDA	102
d5-EtFOSAA	87

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Summary Asymmetry Report

Created with Analyst Reporter
Printed: 24/05/2018 12:58:37 PM

Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 10:14:08 AM	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.44	1.49	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.71	1.34	0.8 – 1.5

BATTELLE

Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 24/05/2018 12:59:35 PM

Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 10:14:08 AM	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.44	40	>10
PFBS_2	298.9 / 99.0	1.43	74	>10
PFHxA_1	313.0 / 269.0	1.71	34	>10
PFHxA_2	313.0 / 119.0	1.71	52	>10
PFHpA_1	363.0 / 319.0	2.06	25	>10
PFHpA_2	363.0 / 169.0	2.06	28	>10
PFHxS_1	399.0 / 80.0	2.07	59	>10
PFHxS_2	399.0 / 99.0	2.07	41	>10
PFOA_1	413.0 / 369.0	2.43	33	>10
PFOA_2	413.0 / 169.0	2.43	34	>10
PFNA_1	463.0 / 419.0	2.80	30	>10
PFNA_2	463.0 / 219.0	2.80	30	>10
PFOS_1	499.0 / 80.0	2.80	59	>10
PFOS_2	499.0 / 99.0	2.80	51	>10
PFDA_1	513.0 / 469.0	3.15	56	>10
PFDA_2	513.0 / 219.0	3.15	38	>10
PFUnA_1	563.0 / 519.0	3.47	58	>10
PFUnA_2	563.0 / 269.0	3.47	28	>10
PFDoA_1	613.0 / 569.0	3.76	52	>10
PFDoA_2	613.0 / 319.0	3.76	36	>10
PFTrDA_1	663.0 / 619.0	4.01	59	>10
PFTrDA_2	663.0 / 169.0	4.01	44	>10
PFTeDA_1	713.0 / 669.0	4.23	62	>10
PFTeDA_2	713.0 / 169.0	4.23	57	>10
NMeFOSAA_1	570.0 / 419.0	3.30	48	>10
NMeFOSAA_2	570.0 / 512.0	3.30	52	>10
NEtFOSAA_1	584.0 / 419.0	3.46	37	>10
NEtFOSAA_2	584.0 / 483.0	3.46	40	>10

BATTELLE

Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 24/05/2018 12:59:56 PM

Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 10:14:08 AM	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
13C2-PFHxA	315.0 / 270.0	1.69	47	>10
13C2-PFDA	515.0 / 470.0	3.14	38	>10
d5-EtFOSAA	589.0 / 419.0	3.46	34	>10

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

BATTELLE
It can be done

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

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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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BATTELLE - NORWELL OPERATIONS
SAMPLE PREPARATION RECORDS

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

18-0315

WE04 PFAS Analysis

DW

SOP Numbers (see workplan for modifications)

VOASOP No. 5-371

This Batch Contains The Following Samples:	
CQ770PB-FS	J6208-FS
CQ771LCS-FS	J6210-FS
J6204-FS	J6212-FS
J6206-FS	
J6206MS-FS	
J6206MSD-FS	

Laboratory Preparation Records

COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Denise Schumitz	05/21/2018	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

18-0315

WE04 PFAS Analysis

DW

Sample ID	Description
CQ770PB-FS	Procedural Blank
CQ771LCS-FS	Laboratory Control Sample
J6204-FS	NAWC-051018-RW-303
J6206-FS	WGNA-051018-RW-3220
J6206MS-FS	Matrix Spike of WGNA-051018-RW-3220
J6206MSD-FS	Matrix Spike Duplicate of WGNA-051018-RW-3220
J6208-FS	NAWC-051018-RW-177
J6210-FS	WGNA-051018-RW-3295
J6212-FS	WGNA-051018-DUP-36

Samples Assigned By: Stephanie Schultz Date : May 14, 2018

Comments:

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BATTELLE - NORWELL OPERATIONS
LIQUID SAMPLE ID FORM

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

Project No.(s)
100117920-WE04

18-0315

WE04 PFAS Analysis

DW

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CQ770PB-FS	Procedural Blank	250.0	NA	--	05/14/18 SAS
CQ771LCS-FS	Laboratory Control Sample	250.0	NA	--	05/14/18 SAS
J6204-FS	NAWC-051018-RW-303	280.0	1	C	05/14/18 SAS
J6206-FS	WGNA-051018-RW-3220	265.0	1	C	05/14/18 SAS
J6206MS-FS	Matrix Spike	265.0	3	C	05/14/18 SAS
J6206MSD-FS	Matrix Spike Duplicate	265.0	5	C	05/14/18 SAS
J6208-FS	NAWC-051018-RW-177	280.0	1	C	05/14/18 SAS
J6210-FS	WGNA-051018-RW-3295	290.0	1	C	05/14/18 SAS
J6212-FS	WGNA-051018-DUP-36	270.0	1	C	05/14/18 SAS

Comments:

Sample ID:	Comments:
CQ770PB-FS	1.23g Trizma(170526-01) weighed on BAL-009
CQ771LCS-FS	1.24g Trizma(170526-01) weighed on BAL-009

Samples Assigned By Stephanie Schultz Date : May 14, 2018

* - "C" = Sample is Consumed

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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

18-0315
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
CQ770PB-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
CQ771LCS-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
J6204-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
J6206-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
J6206-FS-D(3)	952	48	JV59	50.5	1	1000	20.000	05/17/18 SAS	JCT
J6206MS-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
J6206MS-FS-D(3)	952	48	JV59	50.5	1	1000	20.000	05/17/18 SAS	JCT
J6206MSD-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
J6206MSD-FS-D(3)	952	48	JV59	50.5	1	1000	20.000	05/17/18 SAS	JCT
J6208-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
J6210-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM
J6212-FS(0)	950	50	JV59	50	1	1000	1.000	05/16/18 SAS	MRM

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV59	Pipette	I0793912B

Extract Id:	Comments:
CQ770PB-FS	Samples reconstituted in 96/4 methanol/milli-q water (RP-180515-11)

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

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

BATTELLE

Sequence Report

Created with Analyst Reporter
Printed: 24/05/2018 1:13:12 PM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		5/17/2018 9:11:38 AM	5-0371.dam	18-0287.wiff
2	JV64	L1	5/17/2018 9:20:34 AM	5-0371.dam	18-0287.wiff
3	JV65	L2	5/17/2018 9:29:29 AM	5-0371.dam	18-0287.wiff
4	JV66	L3	5/17/2018 9:38:24 AM	5-0371.dam	18-0287.wiff
5	JV67	L4	5/17/2018 9:47:21 AM	5-0371.dam	18-0287.wiff
6	JV68	L5	5/17/2018 9:56:17 AM	5-0371.dam	18-0287.wiff
7	JV69	L6	5/17/2018 10:05:12 AM	5-0371.dam	18-0287.wiff
8	JV70	L7	5/17/2018 10:14:08 AM	5-0371.dam	18-0287.wiff
9	JV71	L8	5/17/2018 10:23:03 AM	5-0371.dam	18-0287.wiff
10	JV72	L9	5/17/2018 10:31:58 AM	5-0371.dam	18-0287.wiff
11	JV63 ICC	ICC	5/17/2018 10:40:54 AM	5-0371.dam	18-0287.wiff
1	MeOH		5/17/2018 10:49:49 AM	5-0371.dam	18-0287.wiff
12	CQ770PB-FS(0)	Procedural Blank	5/17/2018 10:58:44 AM	5-0371.dam	18-0287.wiff
13	CQ771LCS-FS(0)	Laboratory Control Sample	5/17/2018 11:07:40 AM	5-0371.dam	18-0287.wiff
14	J6204-FS(0)	NAWC-051018-RW-303	5/17/2018 11:16:38 AM	5-0371.dam	18-0287.wiff
15	J6206-FS(0)	WGNA-051018-RW-3220	5/17/2018 11:25:33 AM	5-0371.dam	18-0287.wiff
16	J6206MS-FS(0)	WGNA-051018-RW-3220	5/17/2018 11:34:29 AM	5-0371.dam	18-0287.wiff
17	J6206MSD-FS(0)	WGNA-051018-RW-3220	5/17/2018 11:43:24 AM	5-0371.dam	18-0287.wiff
18	J6208-FS(0)	NAWC-051018-RW-177	5/17/2018 11:52:20 AM	5-0371.dam	18-0287.wiff
19	J6210-FS(0)	WGNA-051018-RW-3295	5/17/2018 12:01:14 PM	5-0371.dam	18-0287.wiff
20	J6212-FS(0)	WGNA-051018-DUP-36	5/17/2018 12:10:10 PM	5-0371.dam	18-0287.wiff
6	JV68 CCV	CCV	5/17/2018 12:19:05 PM	5-0371.dam	18-0287.wiff
1	MeOH		5/17/2018 1:41:59 PM	5-0371.dam	18-0315.wiff
12	J6206-FS-D(3)	WGNA-051018-RW-3220	5/17/2018 1:50:54 PM	5-0371.dam	18-0315.wiff
13	J6206MS-FS-D(3)	WGNA-051018-RW-3220	5/17/2018 1:59:51 PM	5-0371.dam	18-0315.wiff
14	J6206MSD-FS-D(3)	WGNA-051018-RW-3220	5/17/2018 2:08:46 PM	5-0371.dam	18-0315.wiff
7	JV69 CCV	CCV	5/17/2018 2:17:42	5-0371.dam	18-0315.wiff

BATTELLE

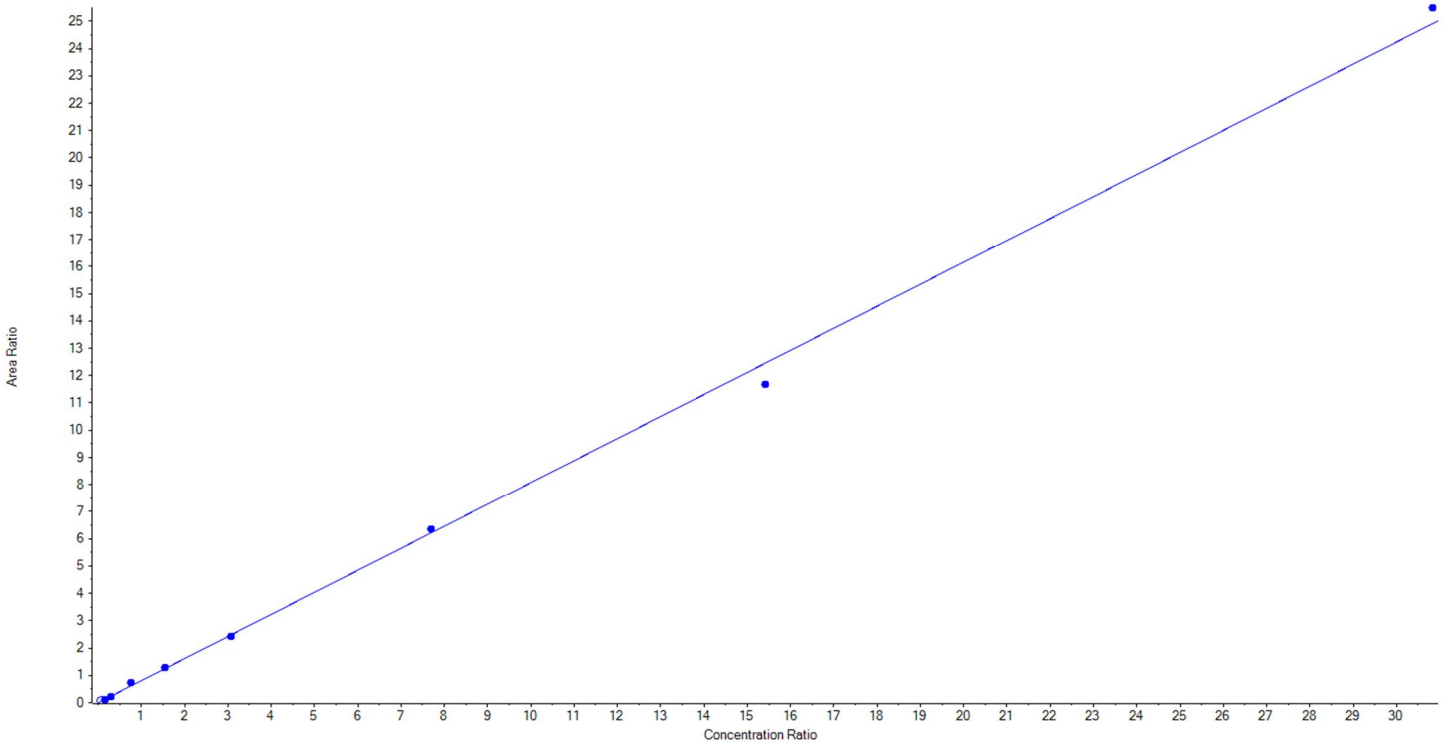
Calibration Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFBS_1	**Data File**	18-0287.wiff
MRM Transition	298.9 / 80.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.80808 x + -0.00559 (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	False	22.15	24.296065	109.7
3	JV65	L2	True	44.30	41.030234	92.6
4	JV66	L3	True	88.60	80.200400	90.5
5	JV67	L4	True	221.50	258.229410	116.6
6	JV68	L5	True	443.00	462.357034	104.4
7	JV69	L6	True	885.00	866.263516	97.9
8	JV70	L7	True	2212.50	2253.141384	101.8
9	JV71	L8	True	4425.00	4154.126306	93.9
10	JV72	L9	True	8850.00	9054.551715	102.3



BATTELLE

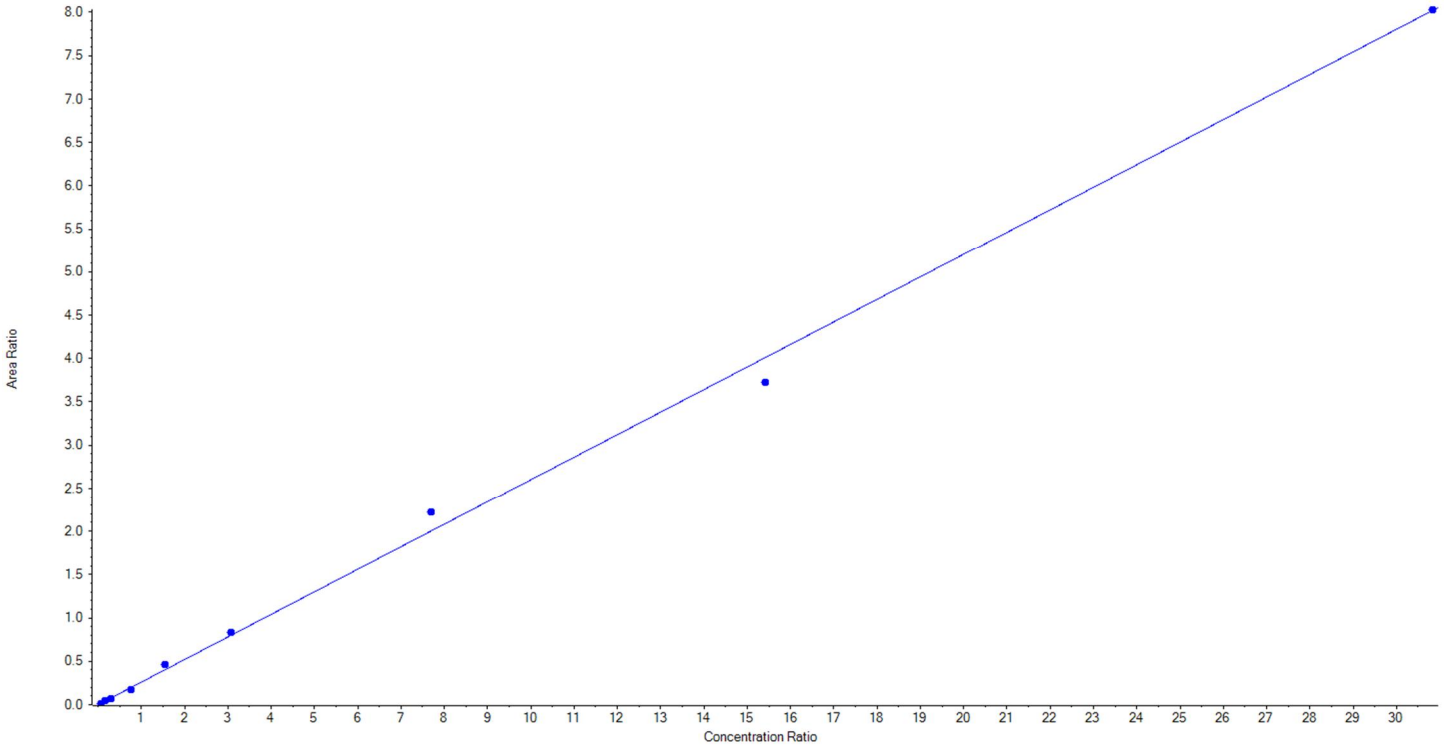
Calibration Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFBS_2	**Data File**	18-0287.wiff
MRM Transition	298.9 / 99.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.26013 x + -1.98827e-4 (r = 0.99785) (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	18.794534	84.9
3	JV65	L2	True	44.30	51.483616	116.2
4	JV66	L3	True	88.60	79.487757	89.7
5	JV67	L4	True	221.50	189.058360	85.4
6	JV68	L5	True	443.00	514.098315	116.1
7	JV69	L6	True	885.00	919.770738	103.9
8	JV70	L7	True	2212.50	2456.549117	111.0
9	JV71	L8	True	4425.00	4104.893766	92.8
10	JV72	L9	True	8850.00	8857.913797	100.1



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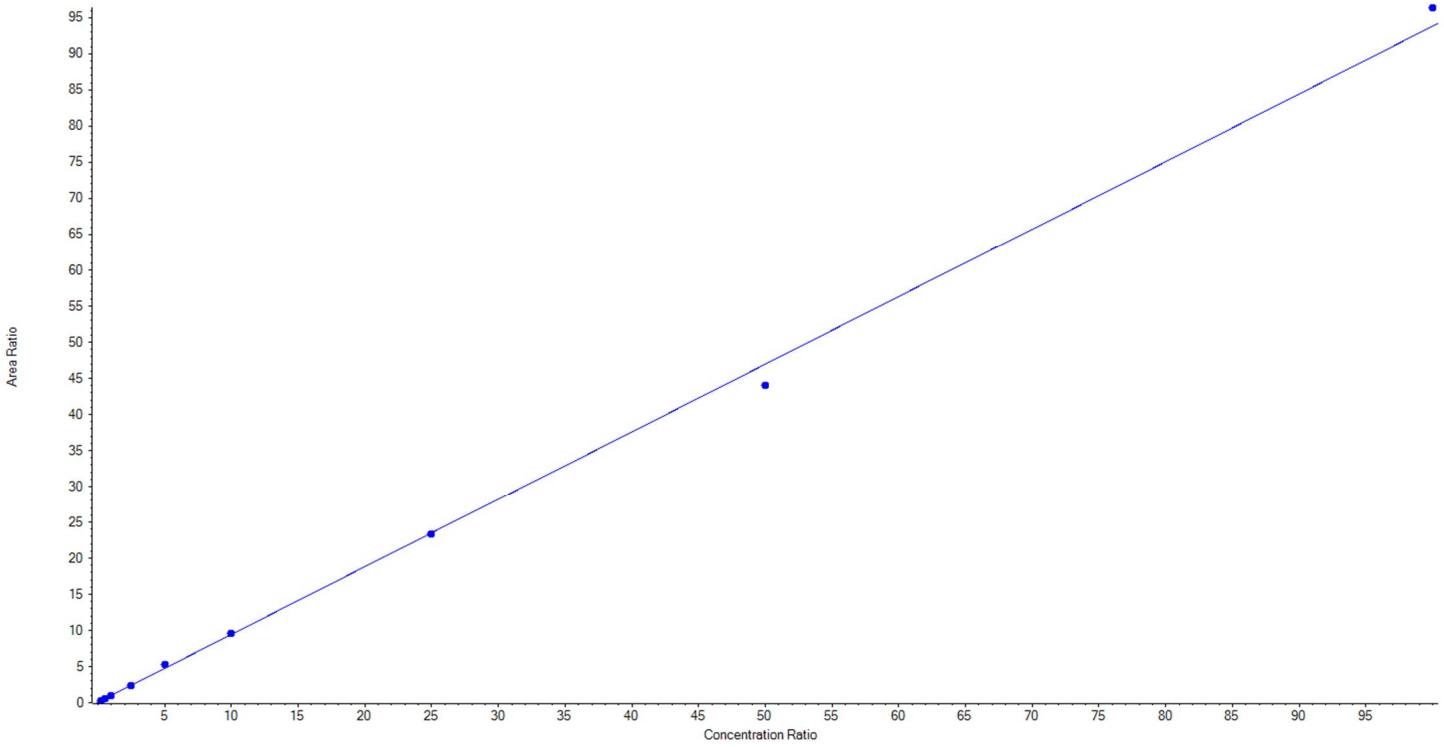
Calibration Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFHxA_1	**Data File**	18-0287.wiff
MRM Transition	313.0 / 269.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.93767 x + 0.06266 (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	True	25.00	26.591060	106.4
3	JV65	L2	True	50.00	45.875372	91.8
4	JV66	L3	True	100.00	95.911748	95.9
5	JV67	L4	True	250.00	247.549703	99.0
6	JV68	L5	True	500.00	549.936426	110.0
7	JV69	L6	True	1000.00	1010.008110	101.0
8	JV70	L7	True	2500.00	2484.294541	99.4
9	JV71	L8	True	5000.00	4694.517851	93.9
10	JV72	L9	True	10000.00	10270.315188	102.7



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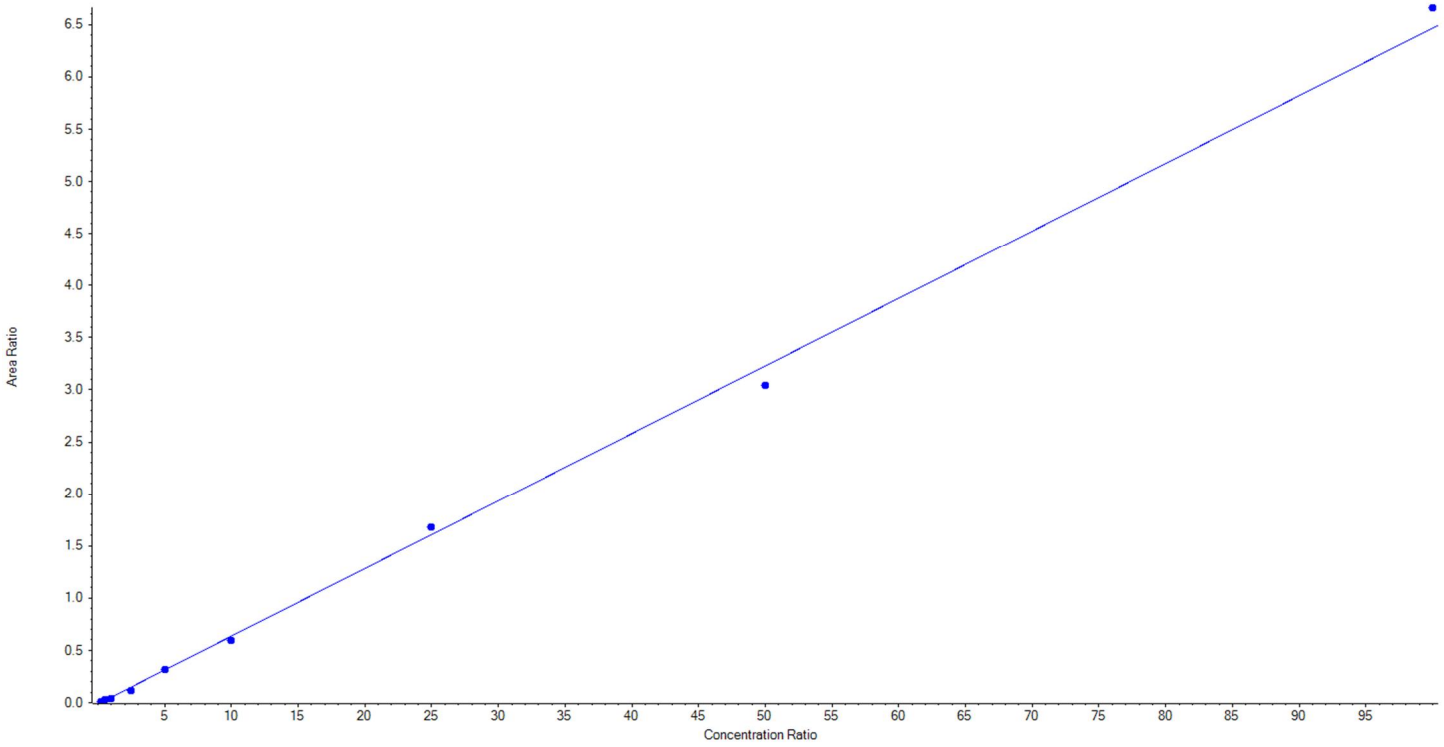
Calibration Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFHxA_2	**Data File**	18-0287.wiff
MRM Transition	313.0 / 119.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.06480 x + -0.01183 (r = 0.99839) (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	32.318456	129.3
3	JV65	L2	True	50.00	60.873033	121.8
4	JV66	L3	True	100.00	76.707309	76.7
5	JV67	L4	True	250.00	190.489812	76.2
6	JV68	L5	True	500.00	504.507157	100.9
7	JV69	L6	True	1000.00	932.764663	93.3
8	JV70	L7	True	2500.00	2616.304002	104.7
9	JV71	L8	True	5000.00	4713.646100	94.3
10	JV72	L9	True	10000.00	10297.389467	103.0



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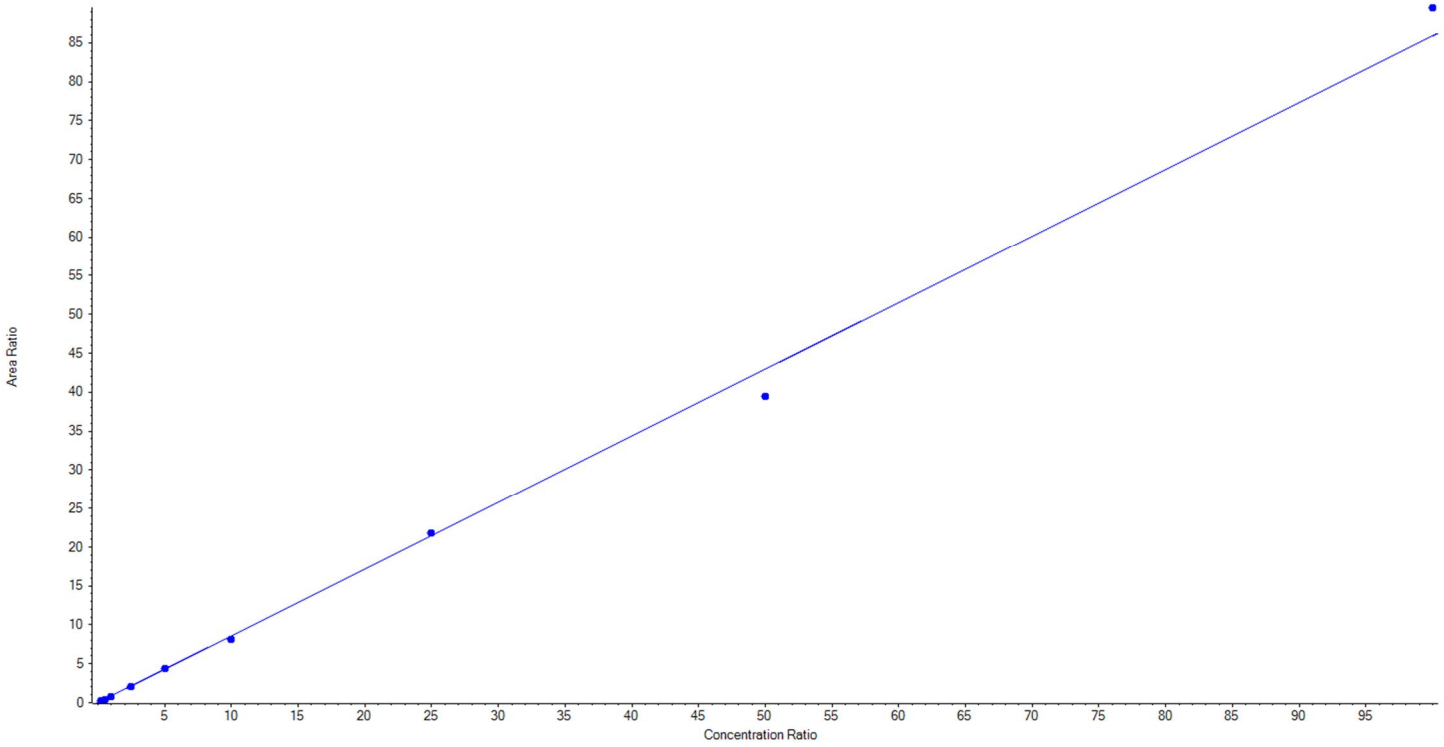
Calibration Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFHpA_1	**Data File**	18-0287.wiff
MRM Transition	363.0 / 319.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.85873 x + 0.01038 (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	True	25.00	32.044726	128.2
3	JV65	L2	True	50.00	43.541989	87.1
4	JV66	L3	True	100.00	96.292050	96.3
5	JV67	L4	True	250.00	233.979435	93.6
6	JV68	L5	True	500.00	510.250376	102.1
7	JV69	L6	True	1000.00	950.568273	95.1
8	JV70	L7	True	2500.00	2538.746708	101.6
9	JV71	L8	True	5000.00	4600.075996	92.0
10	JV72	L9	True	10000.00	10419.500448	104.2



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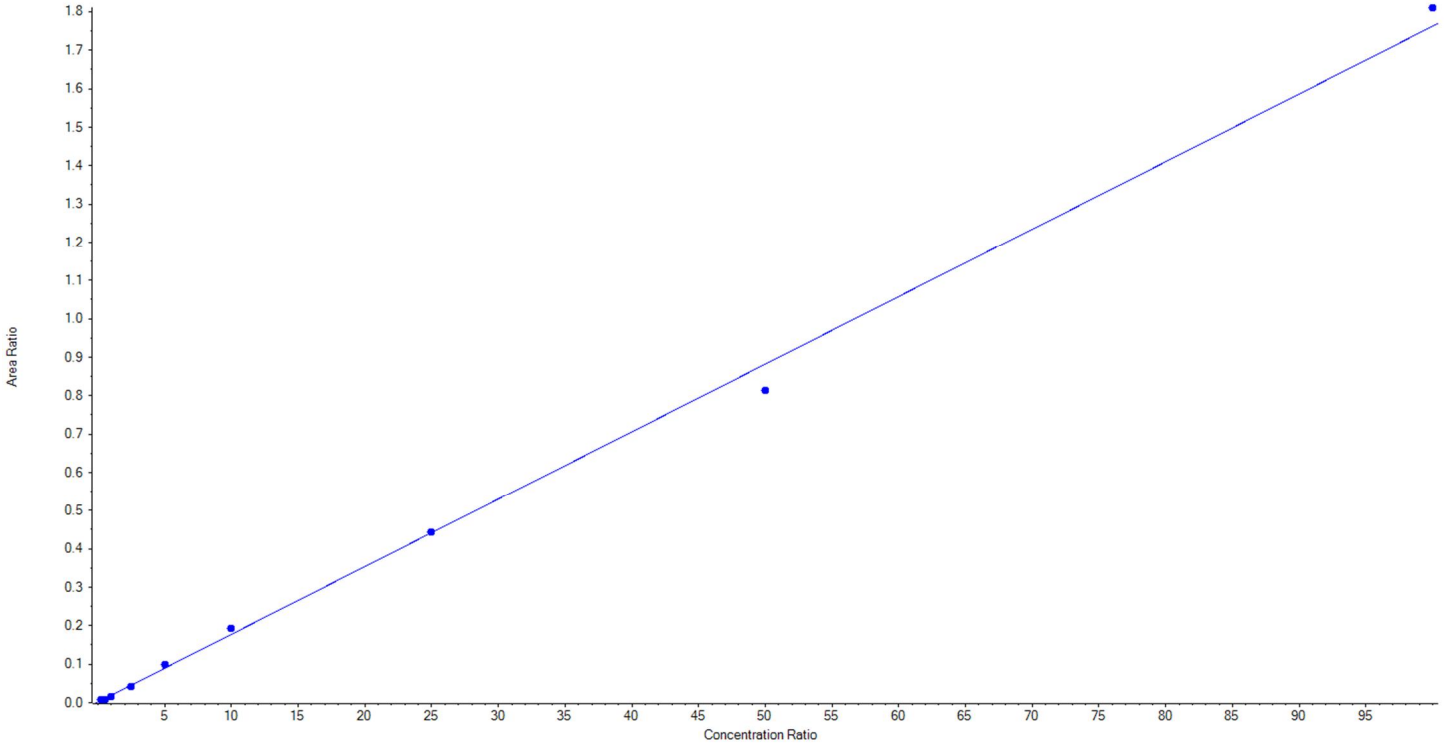
Calibration Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFHpA_2	**Data File**	18-0287.wiff
MRM Transition	363.0 / 169.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.01761 x + 0.00160 (r = 0.99845) (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	30.074559	120.3
3	JV65	L2	True	50.00	42.698038	85.4
4	JV66	L3	True	100.00	85.820587	85.8
5	JV67	L4	True	250.00	234.098770	93.6
6	JV68	L5	True	500.00	551.933615	110.4
7	JV69	L6	True	1000.00	1092.769961	109.3
8	JV70	L7	True	2500.00	2507.029705	100.3
9	JV71	L8	True	5000.00	4609.494077	92.2
10	JV72	L9	True	10000.00	10271.080690	102.7



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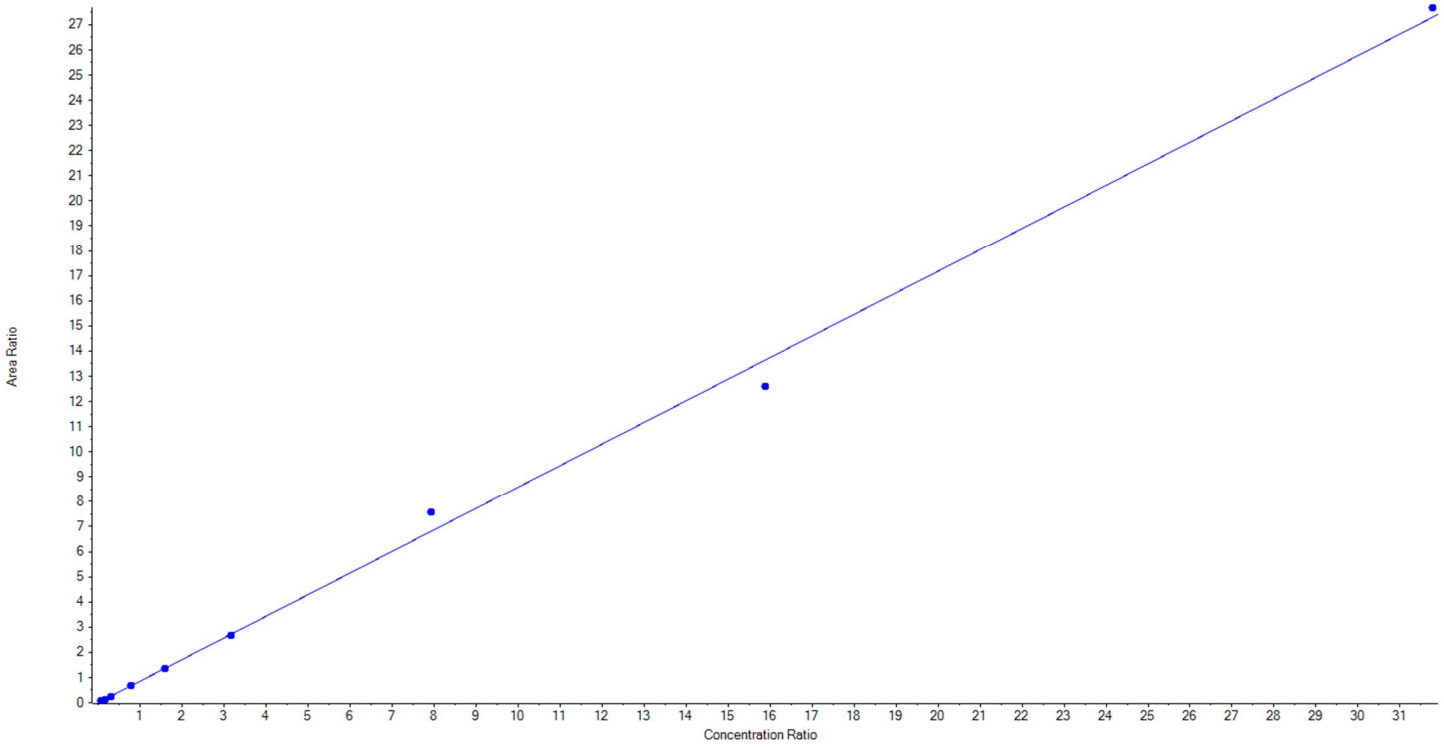
Calibration Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFHxS_1	**Data File**	18-0287.wiff
MRM Transition	399.0 / 80.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.85926 x + -0.00778 (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	22.80	24.966439	109.5
3	JV65	L2	True	45.60	42.707506	93.7
4	JV66	L3	True	91.20	87.155683	95.6
5	JV67	L4	True	228.00	223.294264	97.9
6	JV68	L5	True	456.00	457.561003	100.3
7	JV69	L6	True	912.00	897.816699	98.4
8	JV70	L7	True	2280.00	2527.863226	110.9
9	JV71	L8	True	4560.00	4209.509290	92.3
10	JV72	L9	True	9120.00	9244.725891	101.4



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Calibration Summary Report

Created with Analyst Reporter
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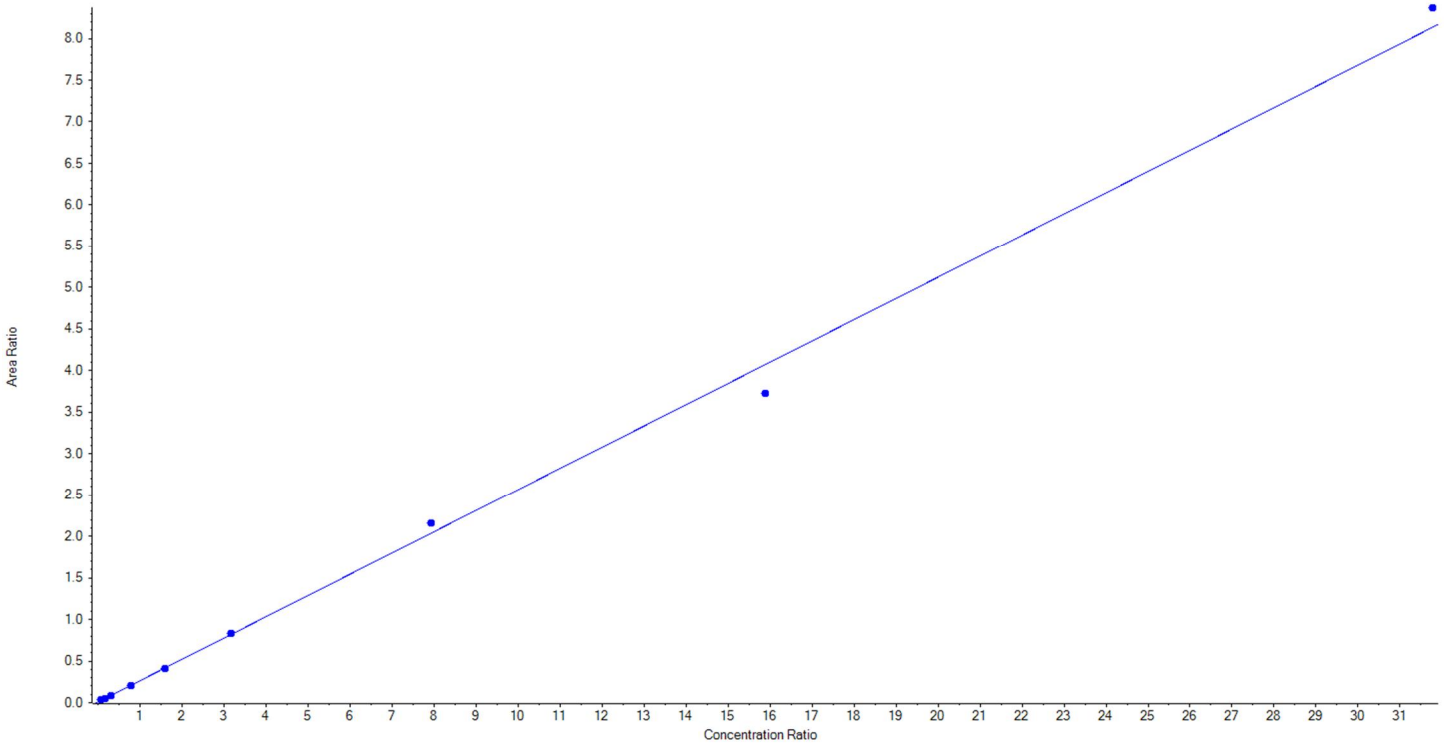
Analyte Name	PFHxS_2	**Data File**	18-0287.wiff
MRM Transition	399.0 / 99.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.25570 x + 0.00892 (r = 0.99848) (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	25.882026	113.5
3	JV65	L2	True	45.60	44.982746	98.7
4	JV66	L3	True	91.20	82.793188	90.8
5	JV67	L4	True	228.00	220.930575	96.9
6	JV68	L5	True	456.00	451.227504	99.0
7	JV69	L6	True	912.00	919.402914	100.8
8	JV70	L7	True	2280.00	2418.630361	106.1
9	JV71	L8	True	4560.00	4169.247271	91.4
10	JV72	L9	True	9120.00	9382.503415	102.9



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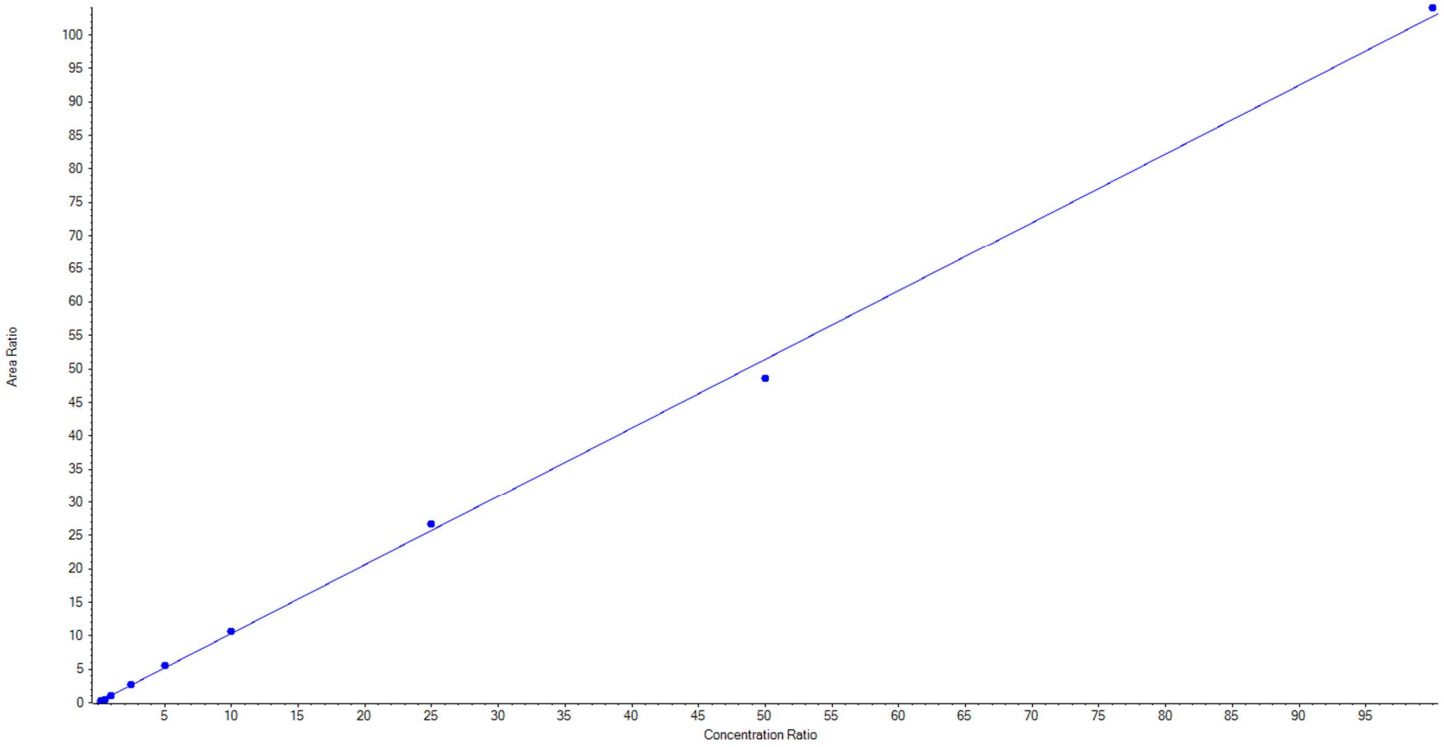
Calibration Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFOA_1	**Data File**	18-0287.wiff
MRM Transition	413.0 / 369.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.02707 x + 0.06616 (r = 0.99933) (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	27.996408	112.0
3	JV65	L2	True	50.00	41.010587	82.0
4	JV66	L3	True	100.00	95.444513	95.4
5	JV67	L4	True	250.00	255.572810	102.2
6	JV68	L5	True	500.00	528.537418	105.7
7	JV69	L6	True	1000.00	1031.373285	103.1
8	JV70	L7	True	2500.00	2591.584505	103.7
9	JV71	L8	True	5000.00	4727.656099	94.6
10	JV72	L9	True	10000.00	10125.824376	101.3



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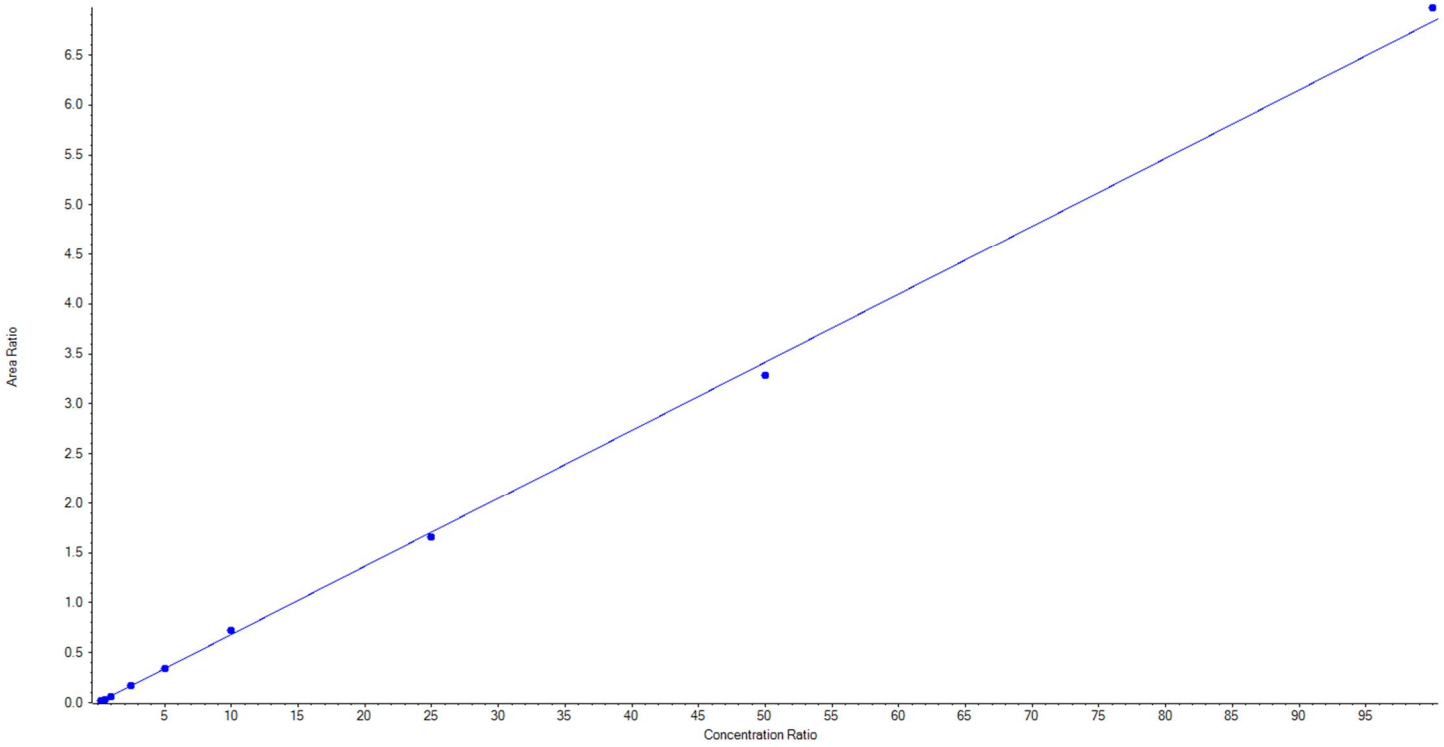
Calibration Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFOA_2	**Data File**	18-0287.wiff
MRM Transition	413.0 / 169.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.06835 x + -0.00112 (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	31.352495	125.4
3	JV65	L2	True	50.00	38.418294	76.8
4	JV66	L3	True	100.00	92.493604	92.5
5	JV67	L4	True	250.00	257.138320	102.9
6	JV68	L5	True	500.00	503.842693	100.8
7	JV69	L6	True	1000.00	1065.243683	106.5
8	JV70	L7	True	2500.00	2420.142013	96.8
9	JV71	L8	True	5000.00	4814.222387	96.3
10	JV72	L9	True	10000.00	10202.146511	102.0



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Calibration Summary Report

Created with Analyst Reporter
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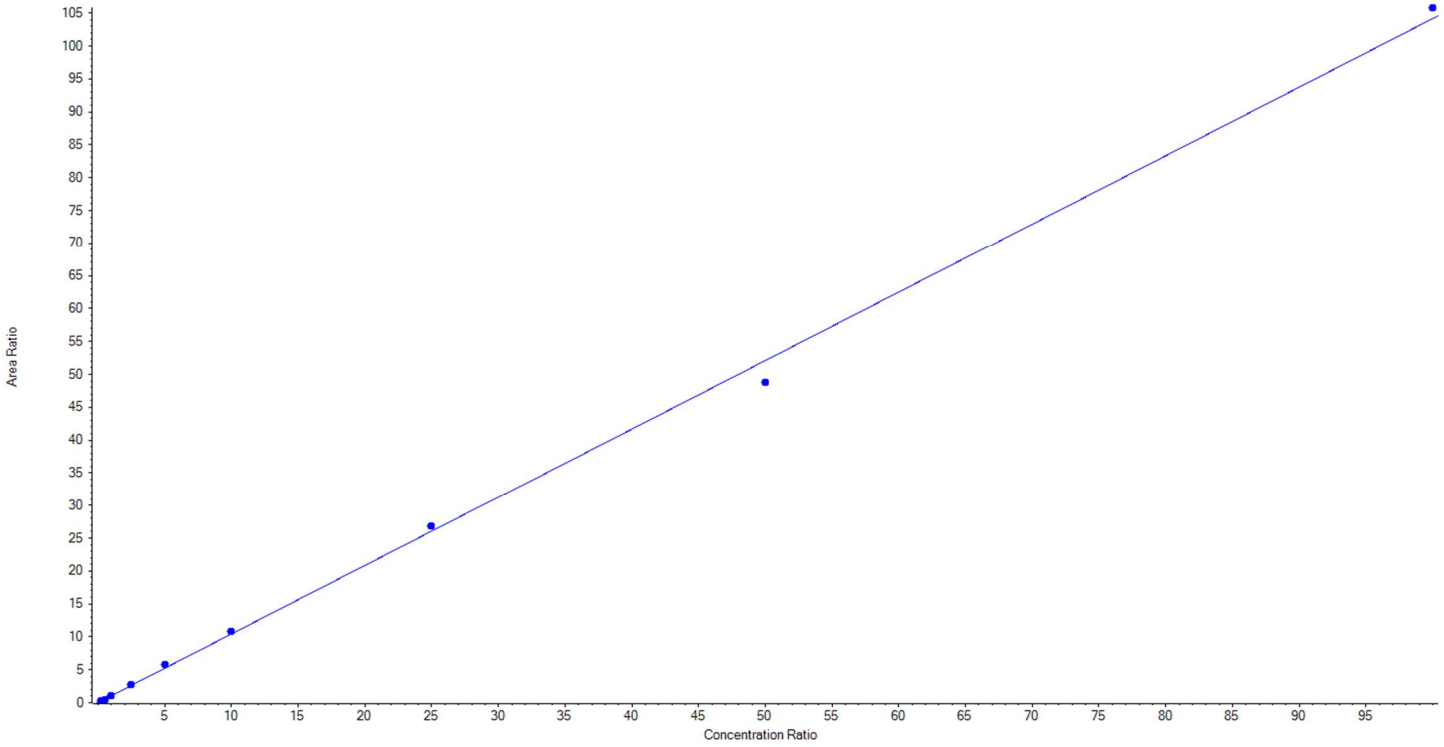
Analyte Name	PFNA_1	**Data File**	18-0287.wiff
MRM Transition	463.0 / 419.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.04126 x + 0.01885 (r = 0.99915) (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	23.670961	94.7
3	JV65	L2	True	50.00	44.066272	88.1
4	JV66	L3	True	100.00	103.130191	103.1
5	JV67	L4	True	250.00	256.125209	102.5
6	JV68	L5	True	500.00	551.430086	110.3
7	JV69	L6	True	1000.00	1032.057128	103.2
8	JV70	L7	True	2500.00	2569.710134	102.8
9	JV71	L8	True	5000.00	4687.510401	93.8
10	JV72	L9	True	10000.00	10157.299619	101.6



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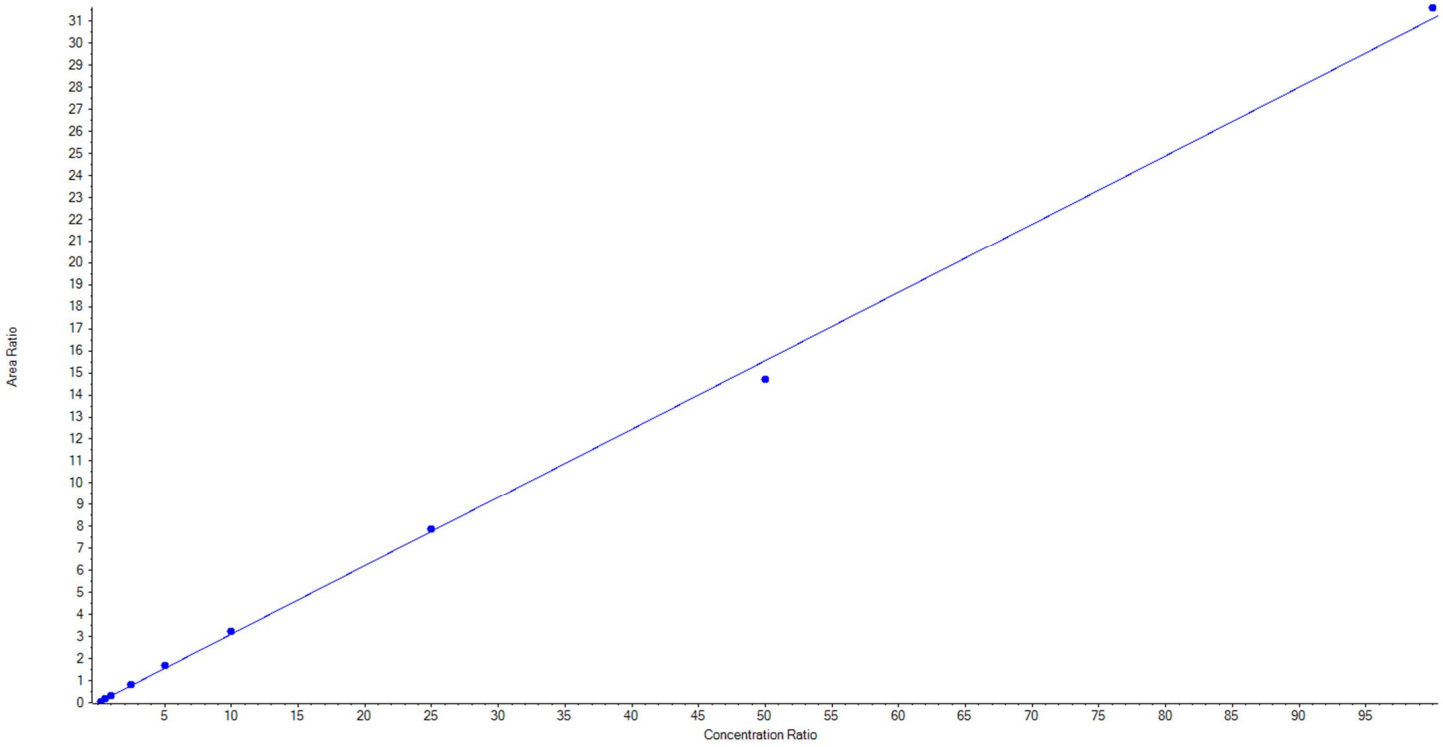
Calibration Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFNA_2	**Data File**	18-0287.wiff
MRM Transition	463.0 / 219.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.31116 x + -0.00133 (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	25.00	18.895900	75.6
3	JV65	L2	True	50.00	53.546881	107.1
4	JV66	L3	True	100.00	102.247573	102.3
5	JV67	L4	True	250.00	267.735432	107.1
6	JV68	L5	True	500.00	535.214557	107.0
7	JV69	L6	True	1000.00	1037.248751	103.7
8	JV70	L7	True	2500.00	2529.341671	101.2
9	JV71	L8	True	5000.00	4723.174643	94.5
10	JV72	L9	True	10000.00	10157.594592	101.6



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Calibration Summary Report

Created with Analyst Reporter
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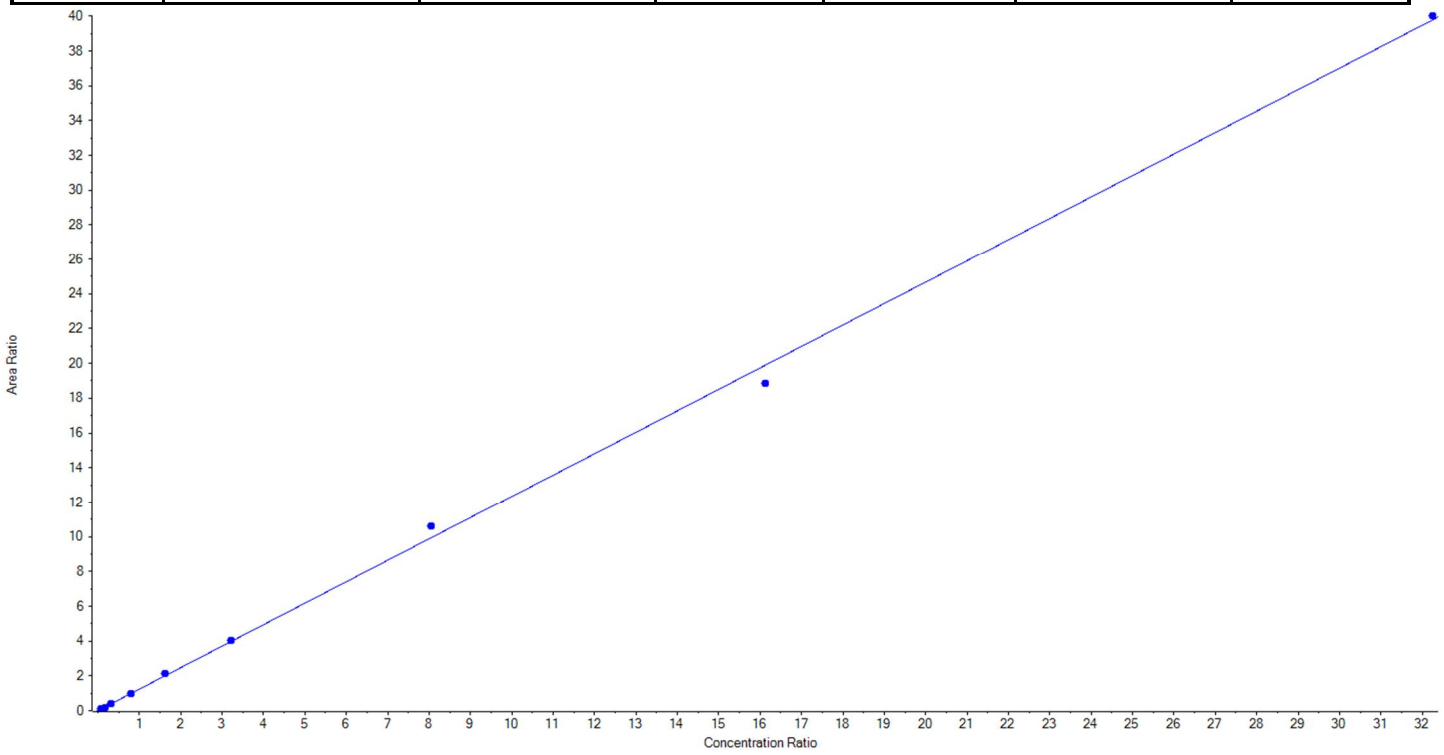
Analyte Name	PFOS_1	**Data File**	18-0287.wiff
MRM Transition	499.0 / 80.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.23343 x + 0.00579 (r = 0.99925) (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	23.295066	100.6
3	JV65	L2	True	46.30	44.062080	95.2
4	JV66	L3	True	92.60	90.283639	97.5
5	JV67	L4	True	231.50	223.772723	96.7
6	JV68	L5	True	463.00	490.928856	106.0
7	JV69	L6	True	925.60	944.256987	102.0
8	JV70	L7	True	2314.00	2467.743097	106.6
9	JV71	L8	True	4628.00	4386.197136	94.8
10	JV72	L9	True	9256.00	9309.610416	100.6



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Calibration Summary Report

Created with Analyst Reporter
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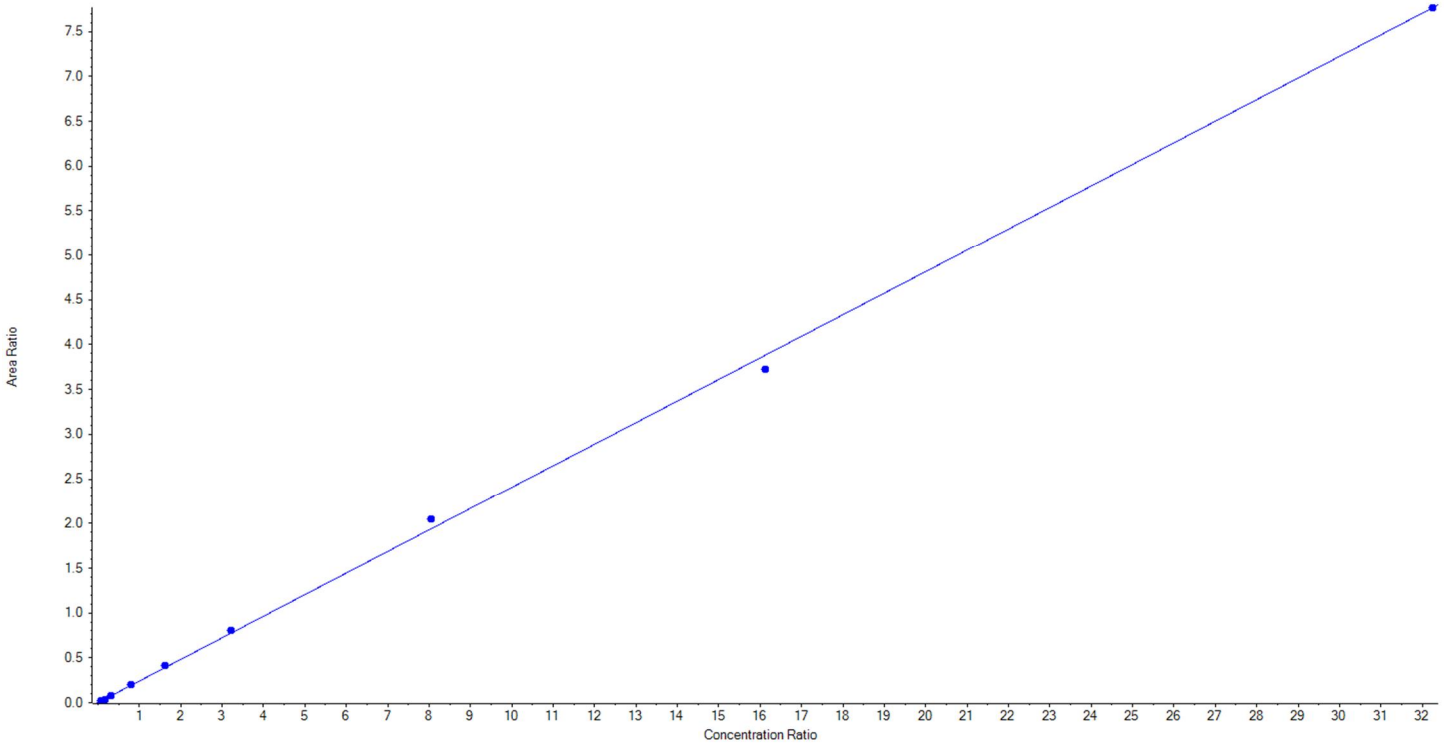
Analyte Name	PFOS_2	**Data File**	18-0287.wiff
MRM Transition	499.0 / 99.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.24075 x + 6.09698e-4 (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	True	23.15	19.370690	83.7
3	JV65	L2	True	46.30	44.613326	96.4
4	JV66	L3	True	92.60	98.546534	106.4
5	JV67	L4	True	231.50	235.244521	101.6
6	JV68	L5	True	463.00	498.613316	107.7
7	JV69	L6	True	925.60	953.492563	103.0
8	JV70	L7	True	2314.00	2438.162597	105.4
9	JV71	L8	True	4628.00	4436.506455	95.9
10	JV72	L9	True	9256.00	9255.599999	100.0



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Calibration Summary Report

Created with Analyst Reporter
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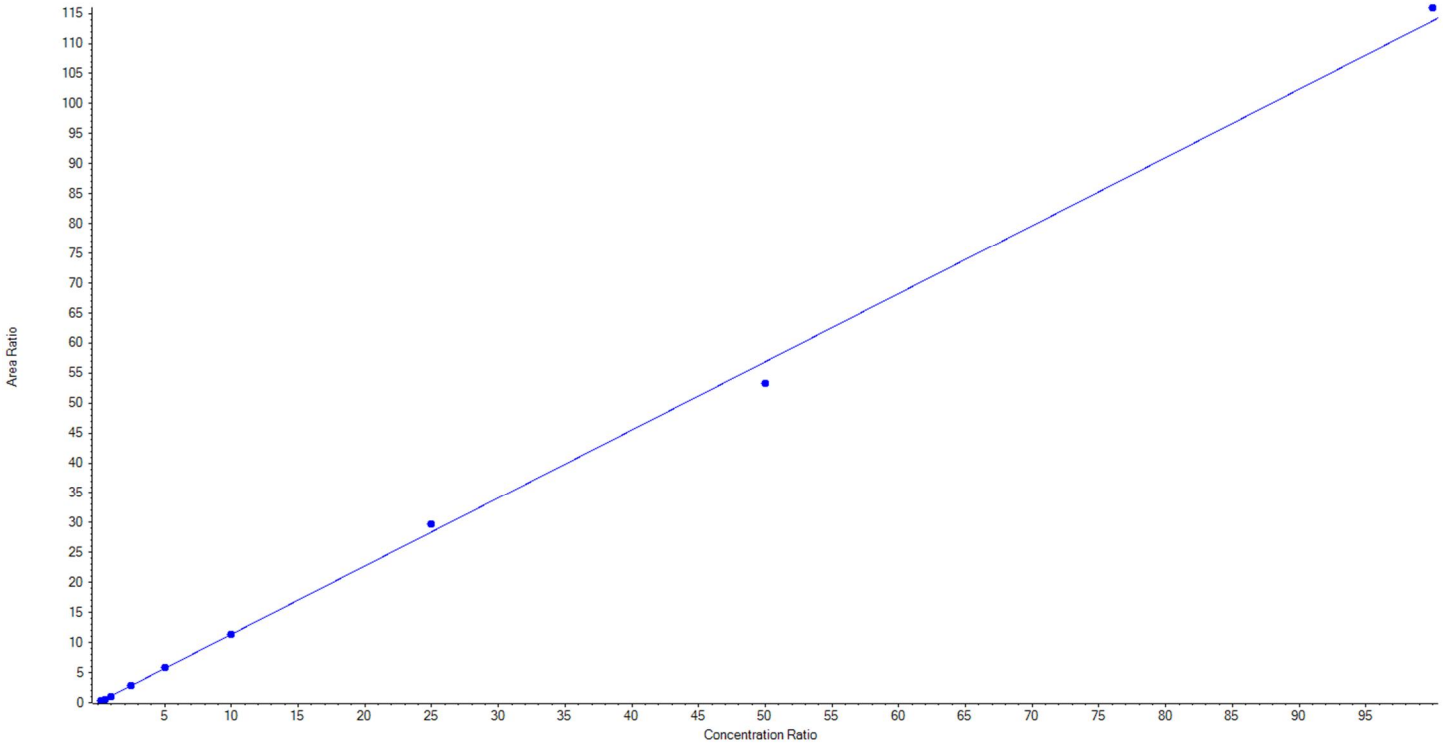
Analyte Name	PFDA_1	**Data File**	18-0287.wiff
MRM Transition	513.0 / 469.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.13770 x + 5.14556e-4 (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	27.531194	110.1
3	JV65	L2	True	50.00	46.548667	93.1
4	JV66	L3	True	100.00	95.198100	95.2
5	JV67	L4	True	250.00	244.600495	97.8
6	JV68	L5	True	500.00	515.803714	103.2
7	JV69	L6	True	1000.00	1002.687574	100.3
8	JV70	L7	True	2500.00	2618.190862	104.7
9	JV71	L8	True	5000.00	4683.806444	93.7
10	JV72	L9	True	10000.00	10190.632950	101.9



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Calibration Summary Report

Created with Analyst Reporter
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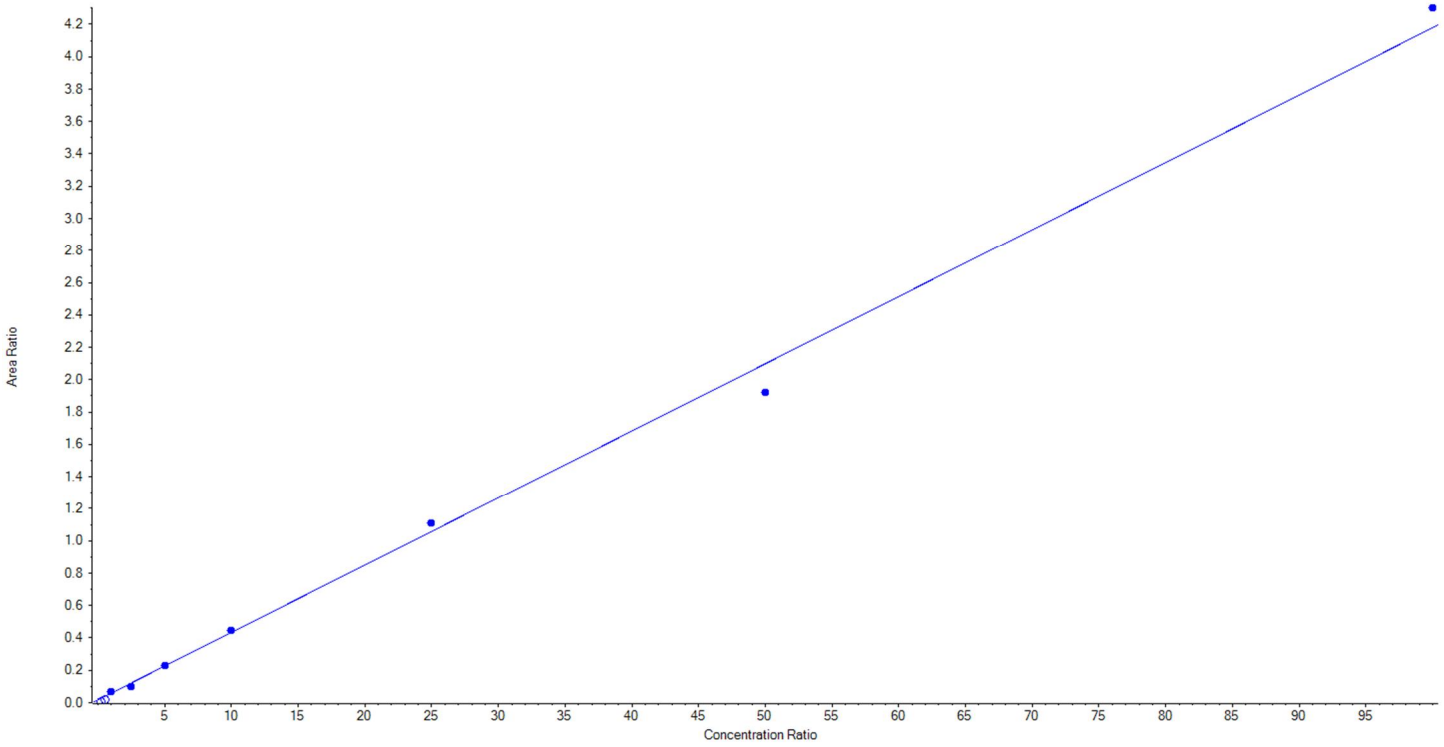
Analyte Name	PFDA_2	**Data File**	18-0287.wiff
MRM Transition	513.0 / 219.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.04161 x + 0.01790 (r = 0.99800) (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	116.272989	116.3
5	JV67	L4	True	250.00	196.515232	78.6
6	JV68	L5	True	500.00	513.191868	102.6
7	JV69	L6	True	1000.00	1030.989469	103.1
8	JV70	L7	True	2500.00	2623.911477	105.0
9	JV71	L8	True	5000.00	4573.594864	91.5
10	JV72	L9	True	10000.00	10295.524100	103.0



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Calibration Summary Report

Created with Analyst Reporter
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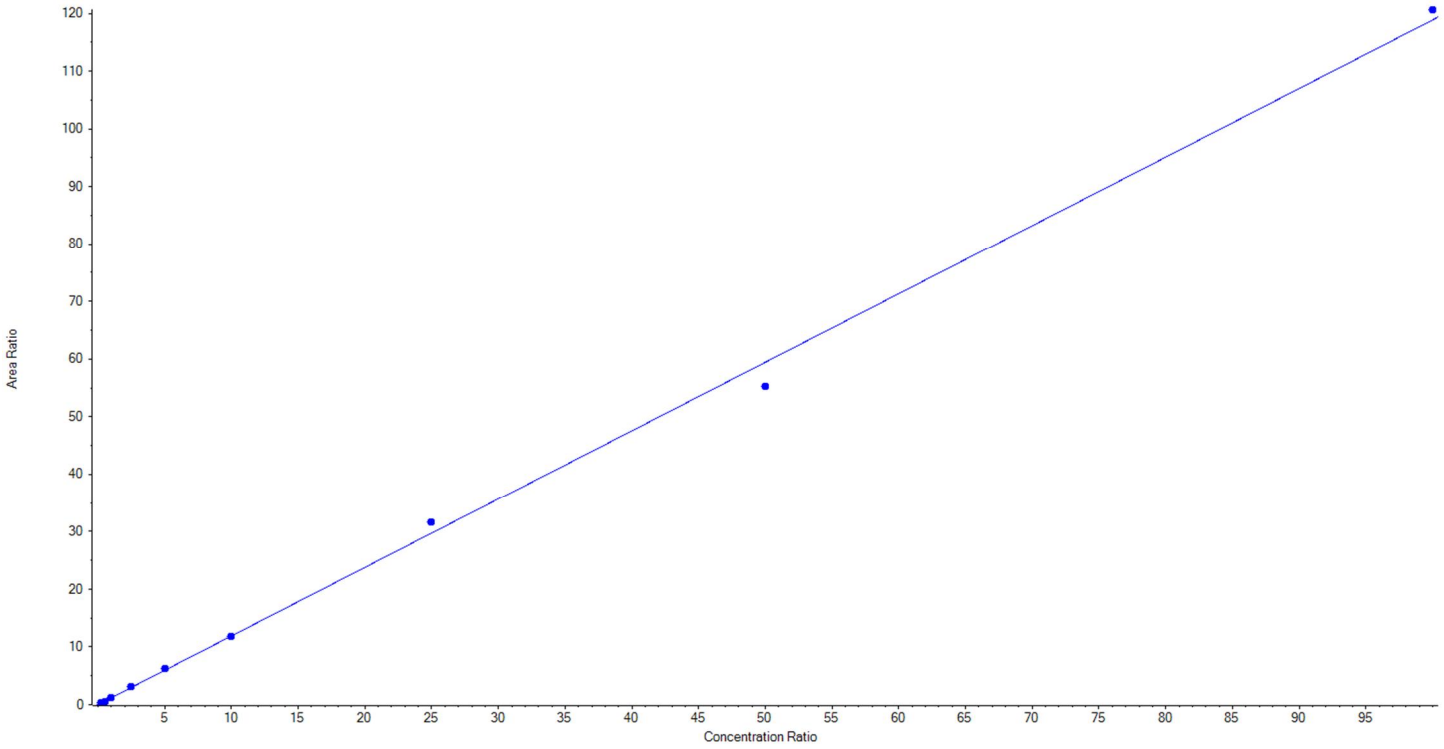
Analyte Name	PFUnA_1	**Data File**	18-0287.wiff
MRM Transition	563.0 / 519.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.18881 x + 0.00495 (r = 0.99889) (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	22.681404	90.7
3	JV65	L2	True	50.00	45.203954	90.4
4	JV66	L3	True	100.00	106.490291	106.5
5	JV67	L4	True	250.00	263.370011	105.4
6	JV68	L5	True	500.00	531.576178	106.3
7	JV69	L6	True	1000.00	997.780517	99.8
8	JV70	L7	True	2500.00	2661.931491	106.5
9	JV71	L8	True	5000.00	4649.797175	93.0
10	JV72	L9	True	10000.00	10146.168980	101.5



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Calibration Summary Report

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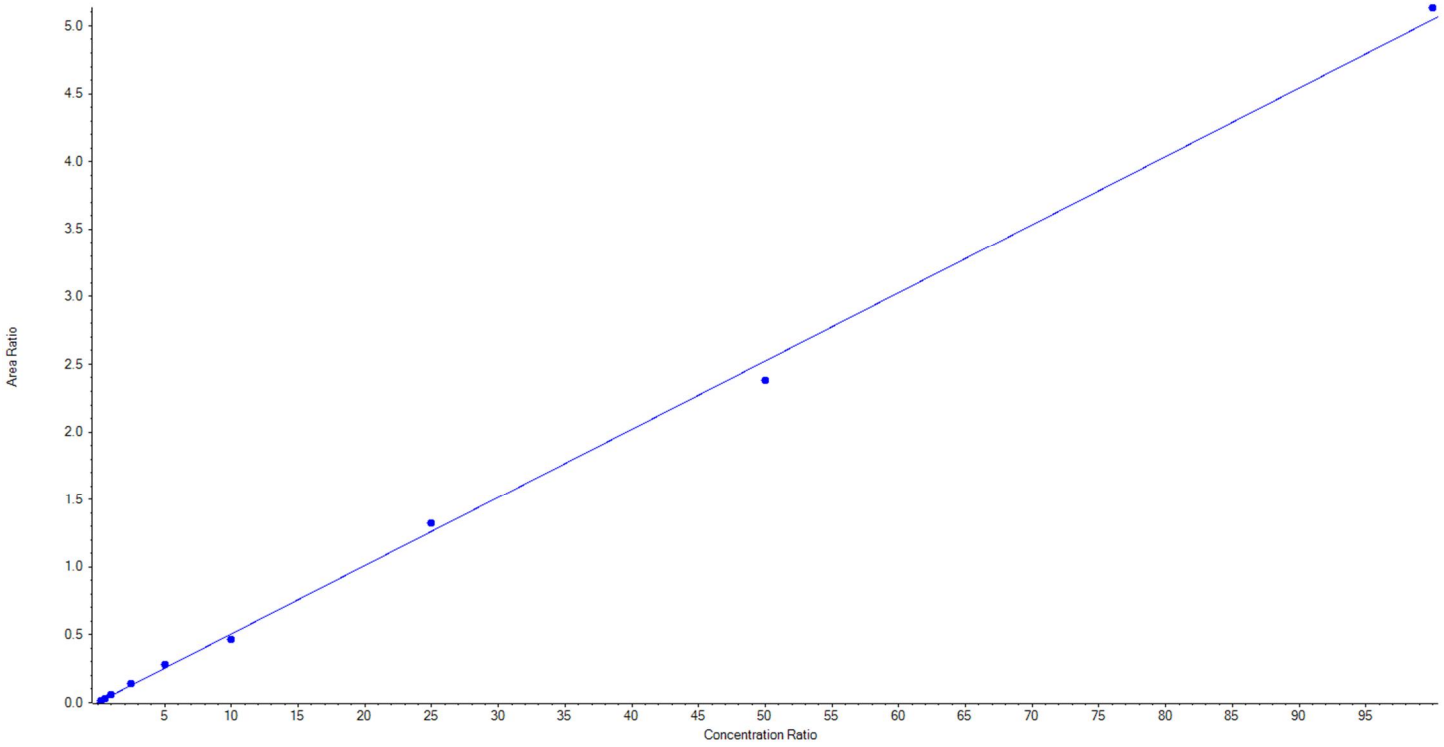
Analyte Name	PFUnA_2	**Data File**	18-0287.wiff
MRM Transition	563.0 / 269.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05044 x + 0.00210 (r = 0.99893) (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	20.027736	80.1
3	JV65	L2	True	50.00	47.769478	95.5
4	JV66	L3	True	100.00	114.489893	114.5
5	JV67	L4	True	250.00	268.486516	107.4
6	JV68	L5	True	500.00	547.827895	109.6
7	JV69	L6	True	1000.00	922.419534	92.2
8	JV70	L7	True	2500.00	2614.950827	104.6
9	JV71	L8	True	5000.00	4716.975485	94.3
10	JV72	L9	True	10000.00	10172.052636	101.7



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Calibration Summary Report

Created with Analyst Reporter
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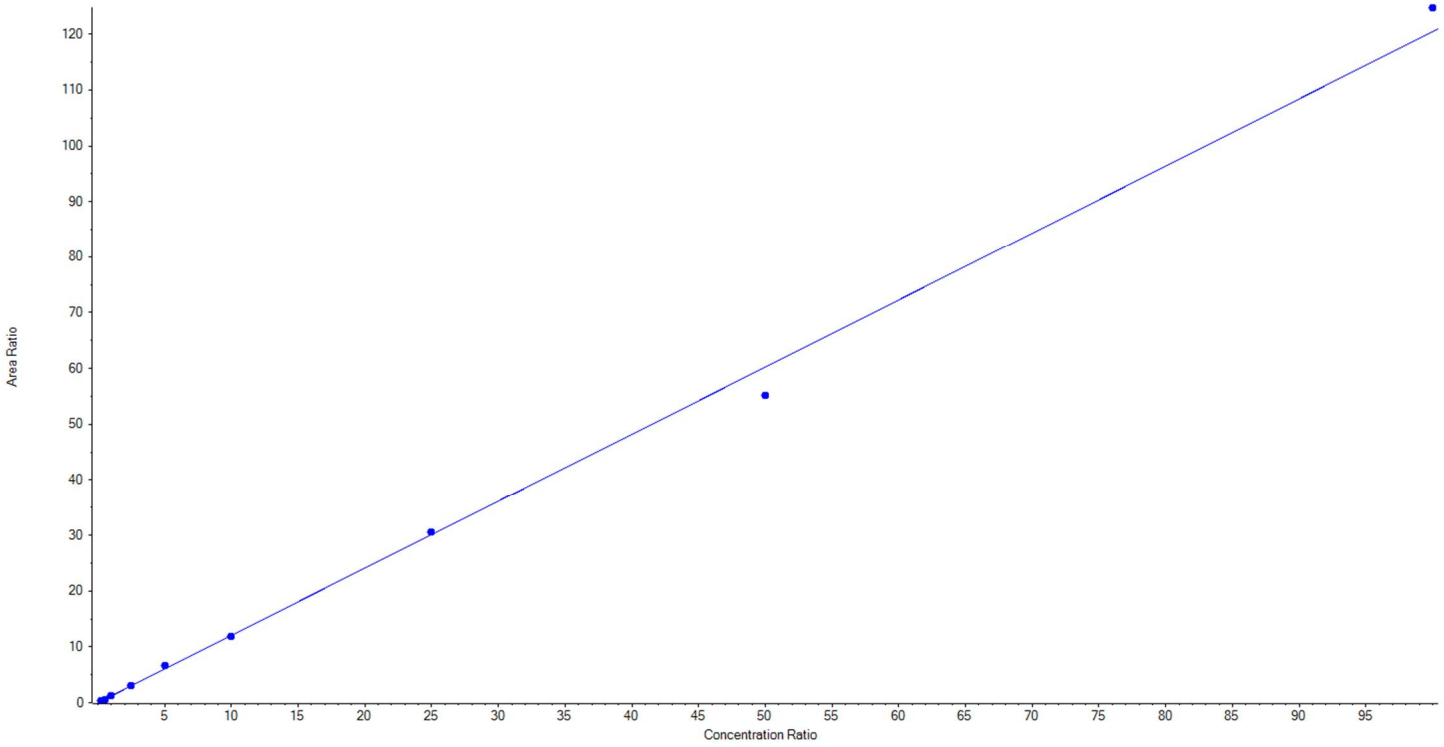
Analyte Name	PFDoA_1	**Data File**	18-0287.wiff
MRM Transition	613.0 / 569.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.20458 x + -0.00140 (r = 0.99856) (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	24.175196	96.7
3	JV65	L2	True	50.00	47.434381	94.9
4	JV66	L3	True	100.00	102.014197	102.0
5	JV67	L4	True	250.00	255.705891	102.3
6	JV68	L5	True	500.00	545.923162	109.2
7	JV69	L6	True	1000.00	985.395463	98.5
8	JV70	L7	True	2500.00	2532.675832	101.3
9	JV71	L8	True	5000.00	4578.592795	91.6
10	JV72	L9	True	10000.00	10353.083082	103.5



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Calibration Summary Report

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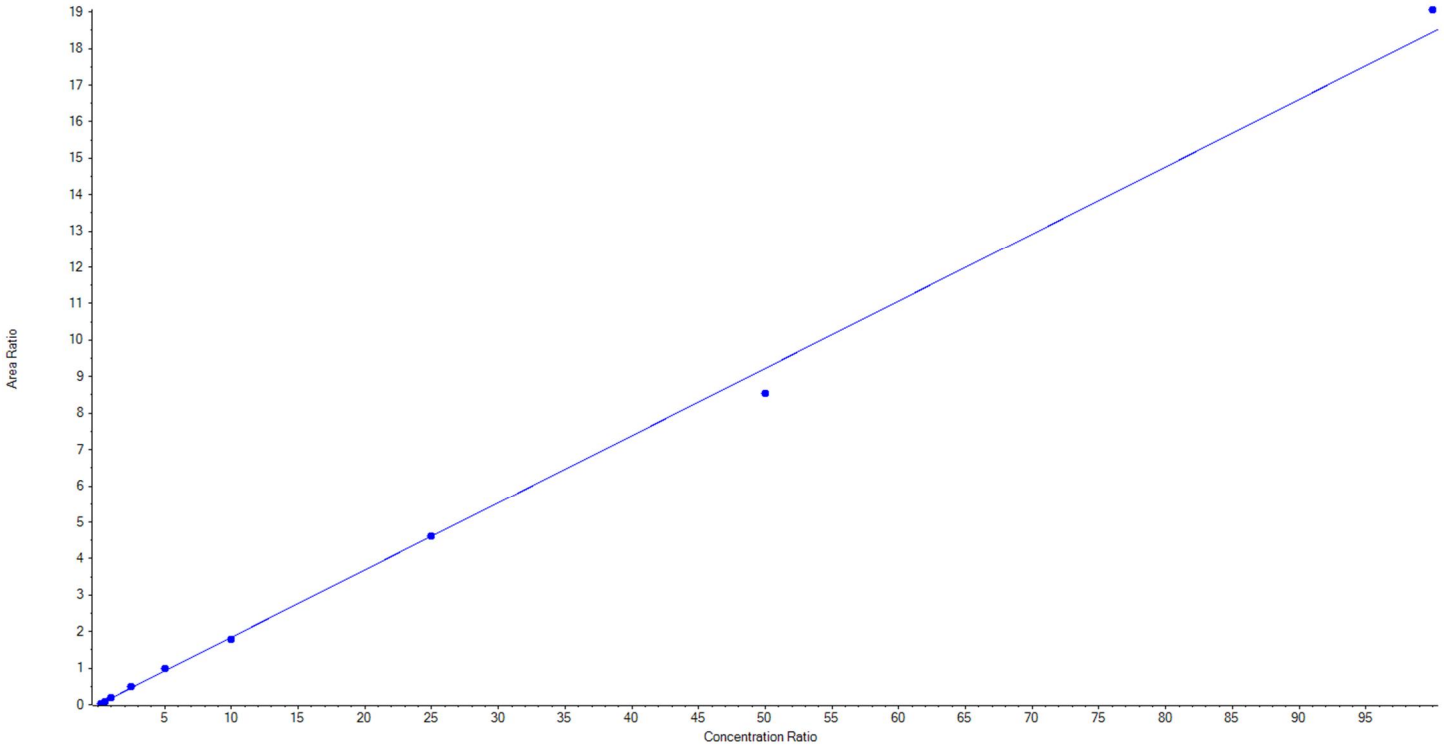
Analyte Name	PFDoA_2	**Data File**	18-0287.wiff
MRM Transition	613.0 / 319.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.18455 x + -0.00233 (r = 0.99878) (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	22.409943	89.6
3	JV65	L2	True	50.00	46.824034	93.7
4	JV66	L3	True	100.00	106.263247	106.3
5	JV67	L4	True	250.00	272.176852	108.9
6	JV68	L5	True	500.00	542.843531	108.6
7	JV69	L6	True	1000.00	969.642460	97.0
8	JV70	L7	True	2500.00	2501.420824	100.1
9	JV71	L8	True	5000.00	4635.419578	92.7
10	JV72	L9	True	10000.00	10327.999532	103.3



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Calibration Summary Report

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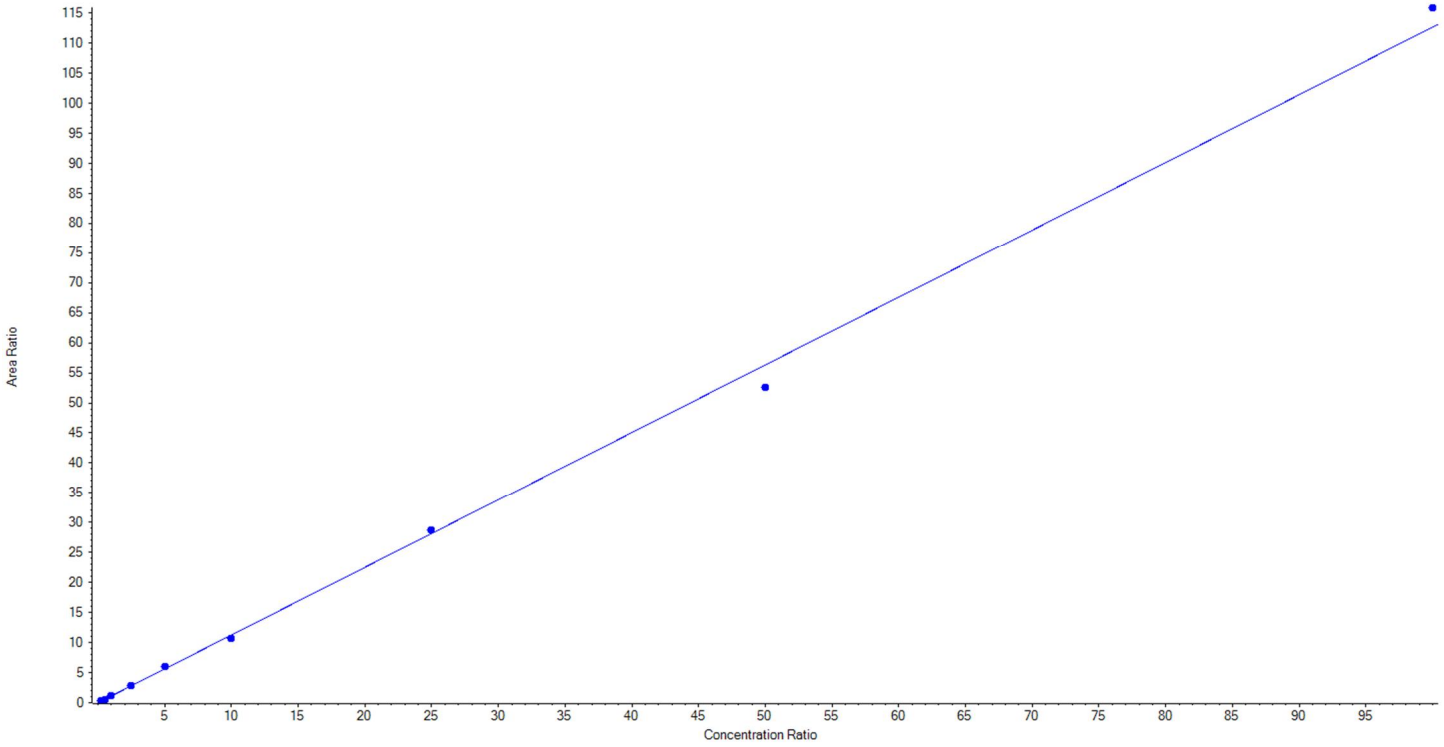
Analyte Name	PFTrDA_1	**Data File**	18-0287.wiff
MRM Transition	663.0 / 619.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.12700 x + -0.01655 (r = 0.99899) (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	24.536794	98.2
3	JV65	L2	True	50.00	47.688176	95.4
4	JV66	L3	True	100.00	103.125757	103.1
5	JV67	L4	True	250.00	254.329860	101.7
6	JV68	L5	True	500.00	539.608727	107.9
7	JV69	L6	True	1000.00	954.107439	95.4
8	JV70	L7	True	2500.00	2554.270722	102.2
9	JV71	L8	True	5000.00	4664.212592	93.3
10	JV72	L9	True	10000.00	10283.119932	102.8



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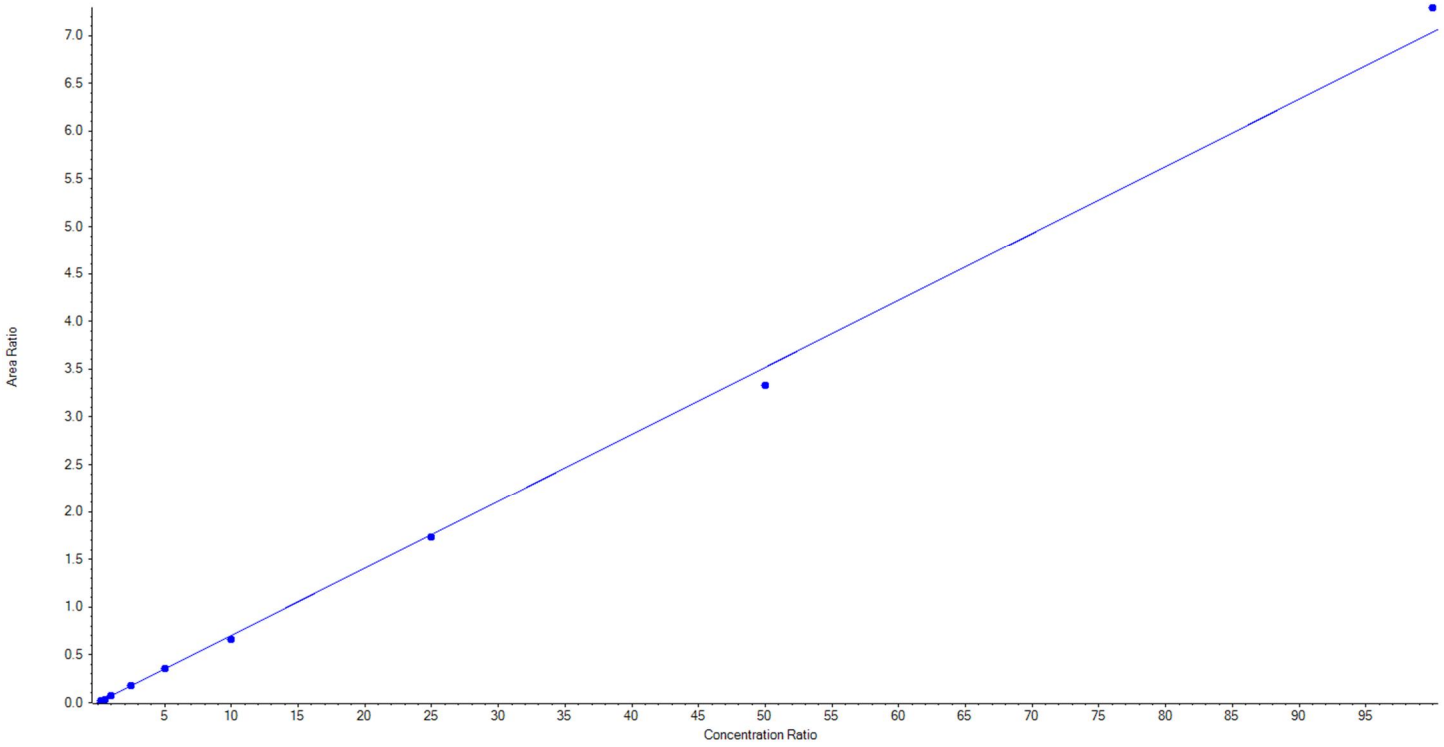
Calibration Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFTrDA_2	**Data File**	18-0287.wiff
MRM Transition	663.0 / 169.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.07036 x + 0.00113 (r = 0.99906) (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	29.466161	117.9
3	JV65	L2	True	50.00	42.811524	85.6
4	JV66	L3	True	100.00	106.114668	106.1
5	JV67	L4	True	250.00	246.433511	98.6
6	JV68	L5	True	500.00	508.264828	101.7
7	JV69	L6	True	1000.00	932.186325	93.2
8	JV70	L7	True	2500.00	2467.940296	98.7
9	JV71	L8	True	5000.00	4731.719715	94.6
10	JV72	L9	True	10000.00	10360.062971	103.6



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Calibration Summary Report

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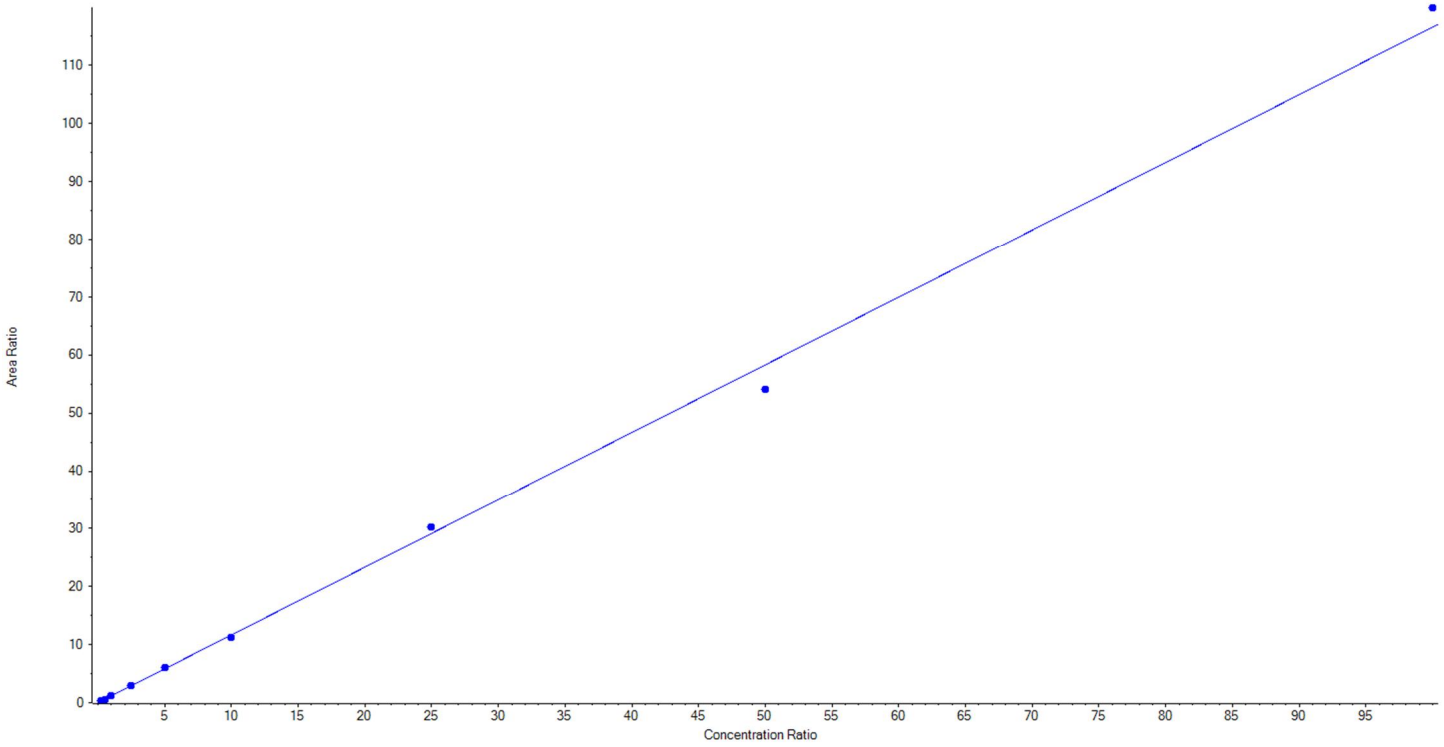
Printed: 24/05/2018 1:16:08 PM

Analyte Name	PFTeDA_1	**Data File**	18-0287.wiff
MRM Transition	713.0 / 669.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.16628 x + -0.00133 (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	25.980831	103.9
3	JV65	L2	True	50.00	45.788564	91.6
4	JV66	L3	True	100.00	104.592026	104.6
5	JV67	L4	True	250.00	252.455525	101.0
6	JV68	L5	True	500.00	514.834777	103.0
7	JV69	L6	True	1000.00	965.005827	96.5
8	JV70	L7	True	2500.00	2597.759700	103.9
9	JV71	L8	True	5000.00	4636.155842	92.7
10	JV72	L9	True	10000.00	10282.426907	102.8



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Calibration Summary Report

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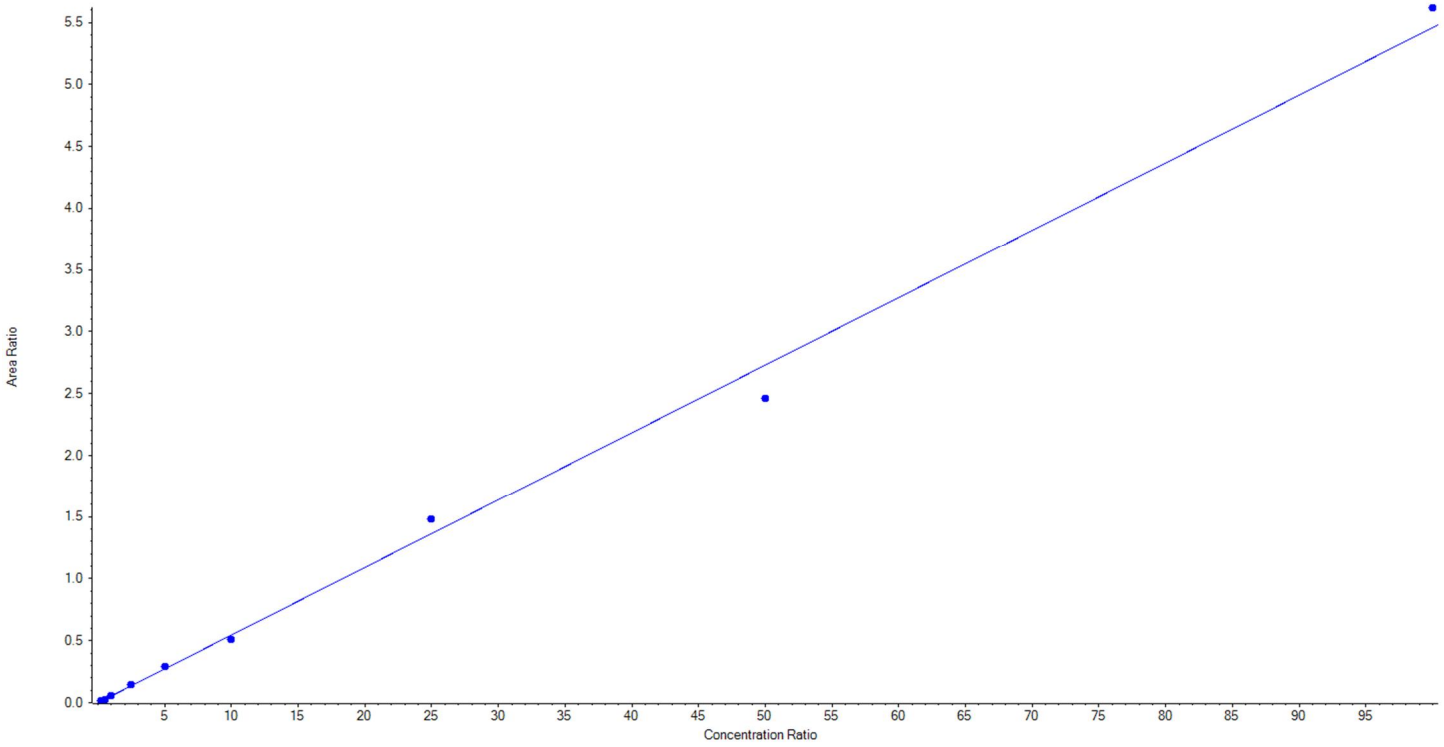
Analyte Name	PFTeDA_2	**Data File**	18-0287.wiff
MRM Transition	713.0 / 169.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05459 x + -7.25243e-4 (r = 0.99765) (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	26.514801	106.1
3	JV65	L2	True	50.00	39.994298	80.0
4	JV66	L3	True	100.00	107.013497	107.0
5	JV67	L4	True	250.00	261.081941	104.4
6	JV68	L5	True	500.00	536.927181	107.4
7	JV69	L6	True	1000.00	931.554241	93.2
8	JV70	L7	True	2500.00	2721.781230	108.9
9	JV71	L8	True	5000.00	4509.248929	90.2
10	JV72	L9	True	10000.00	10290.883883	102.9



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Calibration Summary Report

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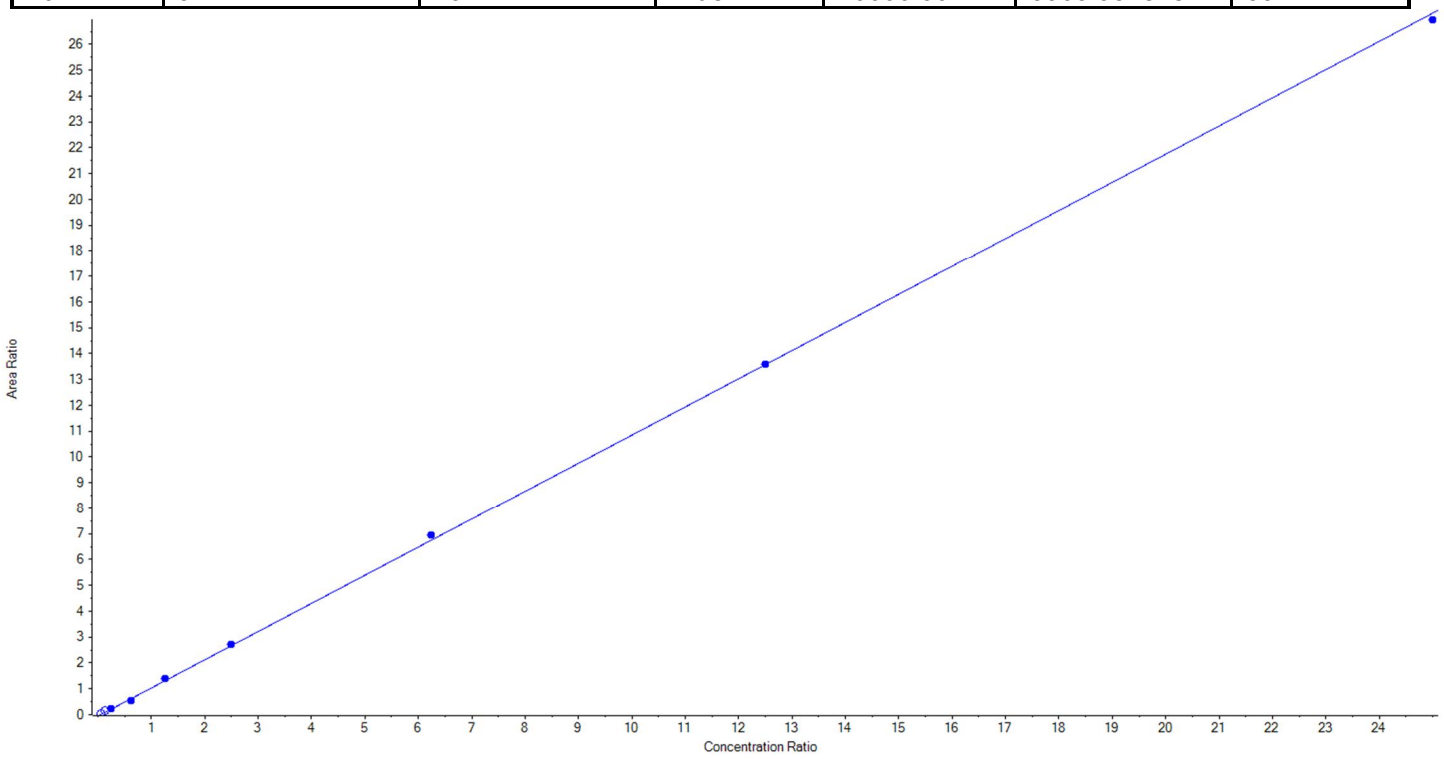
Analyte Name	NMeFOSAA_1	**Data File**	18-0287.wiff
MRM Transition	570.0 / 419.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.09047 x + -0.05825 (r = 0.99976) (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	38.696388	154.8
3	JV65	L2	False	50.00	80.850956	161.7
4	JV66	L3	True	100.00	100.929763	100.9
5	JV67	L4	True	250.00	222.957241	89.2
6	JV68	L5	True	500.00	531.180794	106.2
7	JV69	L6	True	1000.00	1017.915509	101.8
8	JV70	L7	True	2500.00	2568.941252	102.8
9	JV71	L8	True	5000.00	5002.122592	100.0
10	JV72	L9	True	10000.00	9905.952848	99.1



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Calibration Summary Report

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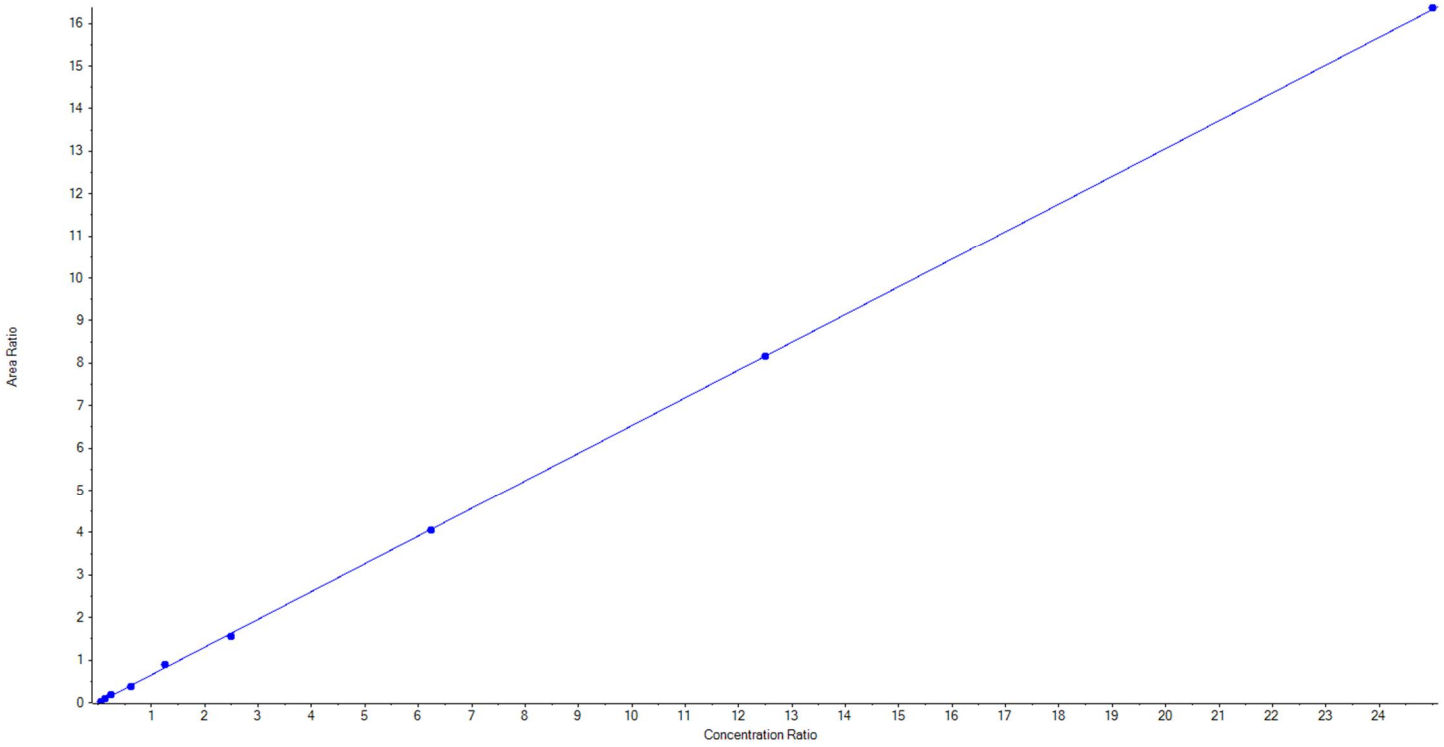
Analyte Name	NMeFOSAA_2	**Data File**	18-0287.wiff
MRM Transition	570.0 / 512.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.65321 x + -0.00105 (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	21.966346	87.9
3	JV65	L2	True	50.00	52.825880	105.7
4	JV66	L3	True	100.00	112.386475	112.4
5	JV67	L4	True	250.00	225.072079	90.0
6	JV68	L5	True	500.00	546.510770	109.3
7	JV69	L6	True	1000.00	949.083090	94.9
8	JV70	L7	True	2500.00	2487.968442	99.5
9	JV71	L8	True	5000.00	5004.647997	100.1
10	JV72	L9	True	10000.00	10024.538920	100.3



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Calibration Summary Report

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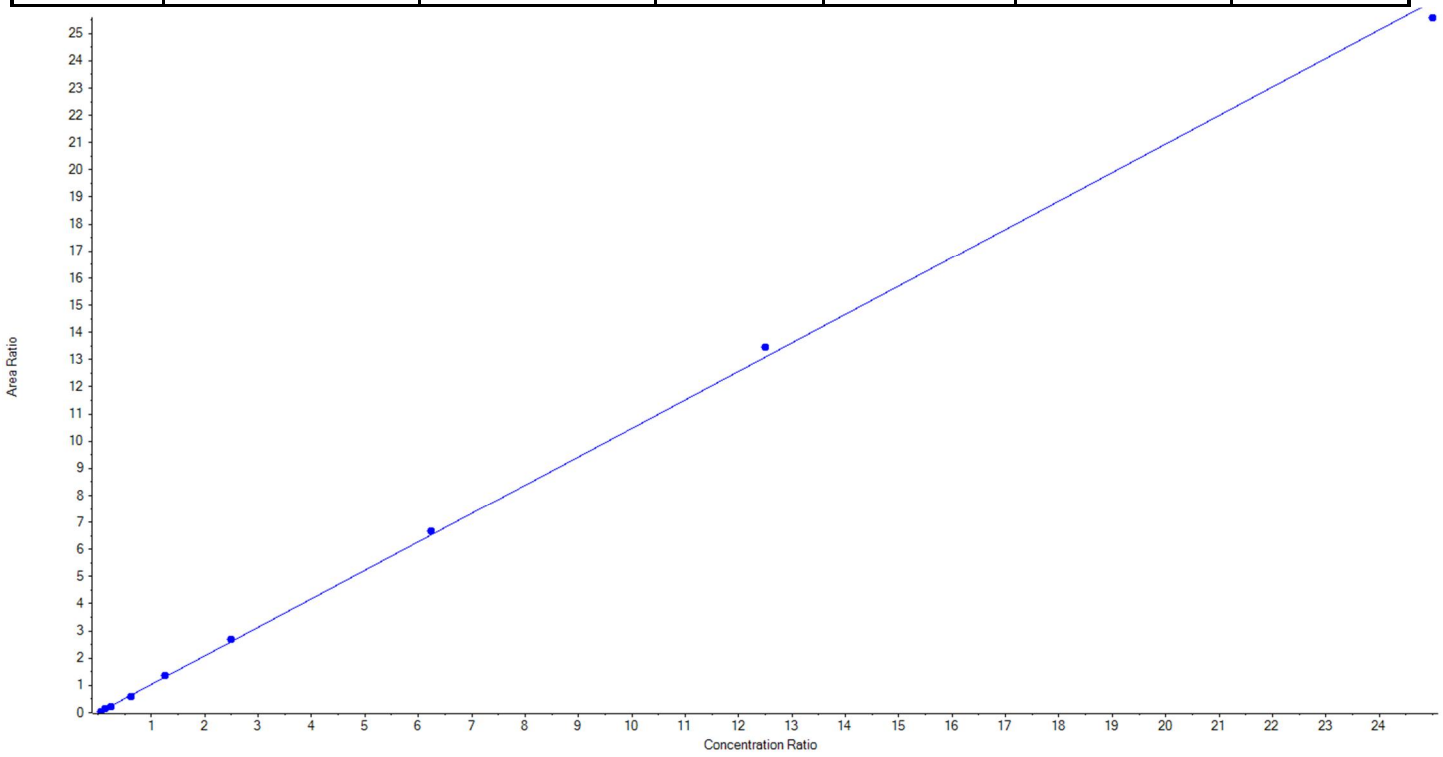
Analyte Name	NEtFOSAA_1	**Data File**	18-0287.wiff
MRM Transition	584.0 / 419.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.04769 x + -0.00915 (r = 0.99960) (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	22.441258	89.8
3	JV65	L2	True	50.00	55.926561	111.9
4	JV66	L3	True	100.00	94.545892	94.6
5	JV67	L4	True	250.00	235.101171	94.0
6	JV68	L5	True	500.00	519.051320	103.8
7	JV69	L6	True	1000.00	1033.739549	103.4
8	JV70	L7	True	2500.00	2550.953547	102.0
9	JV71	L8	True	5000.00	5144.071643	102.9
10	JV72	L9	True	10000.00	9769.169059	97.7



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Calibration Summary Report

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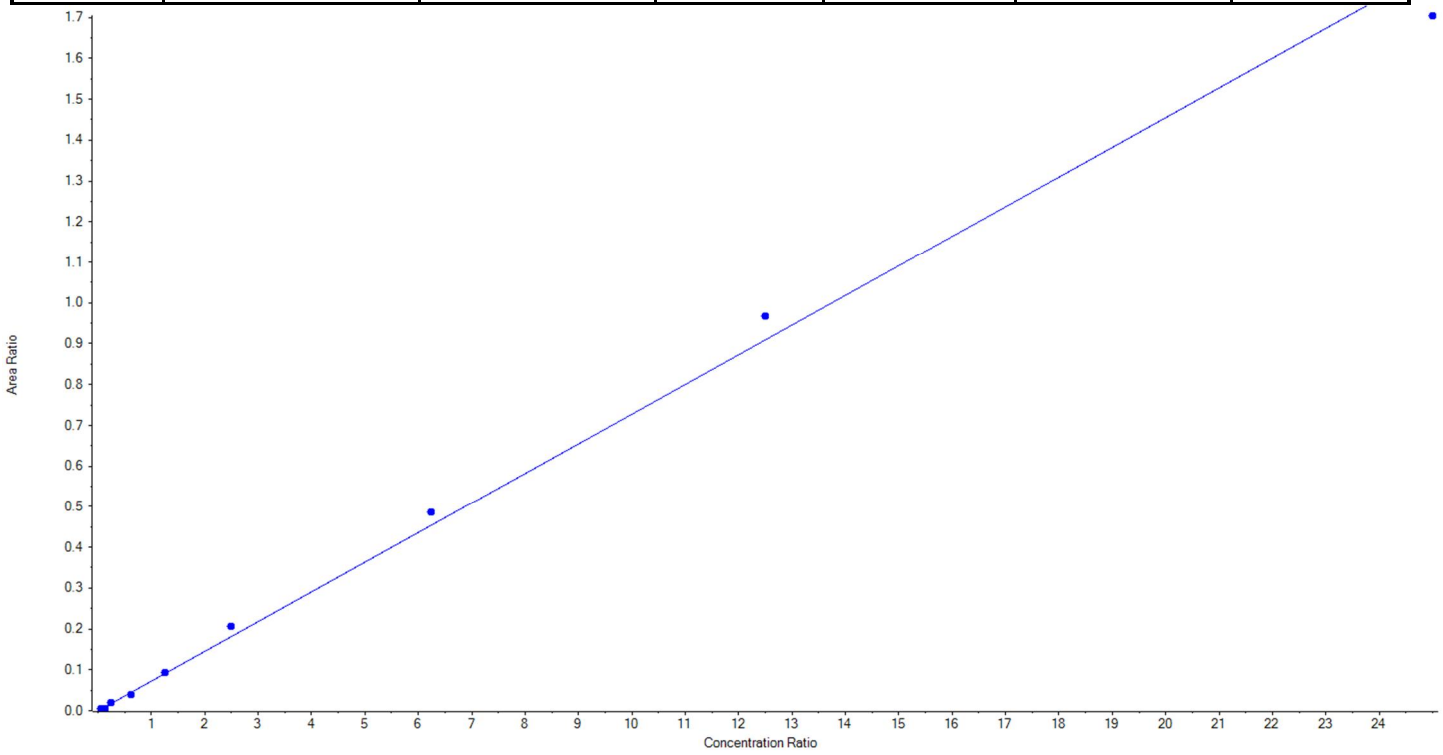
Analyte Name	NEtFOSAA_2	**Data File**	18-0287.wiff
MRM Transition	584.0 / 483.0	**Result Table**	18-0315_18-0316_BASE
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/17/2018 9:11:38 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.07278 x + -5.70532e-4 (r = 0.99701) (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	28.726949	114.9
3	JV65	L2	True	50.00	27.009990	54.0
4	JV66	L3	True	100.00	116.302601	116.3
5	JV67	L4	True	250.00	223.315099	89.3
6	JV68	L5	True	500.00	521.356978	104.3
7	JV69	L6	True	1000.00	1140.923069	114.1
8	JV70	L7	True	2500.00	2671.189471	106.9
9	JV71	L8	True	5000.00	5327.054234	106.5
10	JV72	L9	True	10000.00	9369.121609	93.7



	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	2018-05-17T09:20:34	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	0.268	0.327	ü
PFHxA_1	313.0 / 269.0	1.74	PFHxA			
PFHxA_2	313.0 / 119.0	1.73	PFHxA	0.029	0.056	ü
PFHpA_1	363.0 / 319.0	2.08	PFHpA			
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.024	0.022	ü
PFHxS_1	399.0 / 80.0	2.09	PFHxS			
PFHxS_2	399.0 / 99.0	2.09	PFHxS	0.478	0.335	ü
PFOA_1	413.0 / 369.0	2.45	PFOA			
PFOA_2	413.0 / 169.0	2.44	PFOA	0.057	0.062	ü
PFNA_1	463.0 / 419.0	2.81	PFNA			
PFNA_2	463.0 / 219.0	2.82	PFNA	0.217	0.294	ü
PFOS_1	499.0 / 80.0	2.81	PFOS			
PFOS_2	499.0 / 99.0	2.81	PFOS	0.159	0.194	ü
PFDA_1	513.0 / 469.0	3.16	PFDA			
PFDA_2	513.0 / 219.0	3.19	PFDA	0.021	0.041	ü
PFUnA_1	563.0 / 519.0	3.48	PFUnA			
PFUnA_2	563.0 / 269.0	3.46	PFUnA	0.044	0.044	ü
PFDoA_1	613.0 / 569.0	3.77	PFDoA			
PFDoA_2	613.0 / 319.0	3.78	PFDoA	0.135	0.152	ü
PFTrDA_1	663.0 / 619.0	4.03	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.02	PFTrDA	0.084	0.064	ü
PFTeDA_1	713.0 / 669.0	4.25	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.25	PFTeDA	0.046	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.34	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.34	NMeFOSAA	0.737	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.48	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.48	NEtFOSSA	0.094	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	2018-05-17T09:29:29	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	0.423	0.327	ü
PFHxA_1	313.0 / 269.0	1.72	PFHxA			
PFHxA_2	313.0 / 119.0	1.70	PFHxA	0.056	0.056	ü
PFHpA_1	363.0 / 319.0	2.07	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.024	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.408	0.335	ü
PFOA_1	413.0 / 369.0	2.44	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.052	0.062	ü
PFNA_1	463.0 / 419.0	2.81	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.346	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.82	PFOS	0.195	0.194	ü
PFDA_1	513.0 / 469.0	3.16	PFDA			
PFDA_2	513.0 / 219.0	3.19	PFDA	0.031	0.041	ü
PFUnA_1	563.0 / 519.0	3.48	PFUnA			
PFUnA_2	563.0 / 269.0	3.48	PFUnA	0.048	0.044	ü
PFDoA_1	613.0 / 569.0	3.77	PFDoA			
PFDoA_2	613.0 / 319.0	3.77	PFDoA	0.148	0.152	ü
PFTrDA_1	663.0 / 619.0	4.02	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.01	PFTrDA	0.060	0.064	ü
PFTeDA_1	713.0 / 669.0	4.24	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.24	PFTeDA	0.040	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.32	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.32	NMeFOSAA	0.526	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.48	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.51	NEtFOSSA	0.032	0.071	

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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	2018-05-17T09:38:24	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.48	PFBS			
PFBS_2	298.9 / 99.0	1.47	PFBS	0.326	0.327	ü
PFHxA_1	313.0 / 269.0	1.72	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.039	0.056	ü
PFHpA_1	363.0 / 319.0	2.07	PFHpA			
PFHpA_2	363.0 / 169.0	2.08	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.09	PFHxS	0.327	0.335	ü
PFOA_1	413.0 / 369.0	2.44	PFOA			
PFOA_2	413.0 / 169.0	2.45	PFOA	0.059	0.062	ü
PFNA_1	463.0 / 419.0	2.81	PFNA			
PFNA_2	463.0 / 219.0	2.81	PFNA	0.290	0.294	ü
PFOS_1	499.0 / 80.0	2.81	PFOS			
PFOS_2	499.0 / 99.0	2.81	PFOS	0.212	0.194	ü
PFDA_1	513.0 / 469.0	3.16	PFDA			
PFDA_2	513.0 / 219.0	3.17	PFDA	0.061	0.041	ü
PFUnA_1	563.0 / 519.0	3.48	PFUnA			
PFUnA_2	563.0 / 269.0	3.48	PFUnA	0.047	0.044	ü
PFDoA_1	613.0 / 569.0	3.77	PFDoA			
PFDoA_2	613.0 / 319.0	3.77	PFDoA	0.158	0.152	ü
PFTrDA_1	663.0 / 619.0	4.02	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.02	PFTrDA	0.066	0.064	ü
PFTeDA_1	713.0 / 669.0	4.24	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.24	PFTeDA	0.047	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.32	NMeFOSAA	0.841	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.48	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.53	NEtFOSSA	0.086	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	2018-05-17T09:47:21	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.46	PFBS	0.237	0.327	ü
PFHxA_1	313.0 / 269.0	1.73	PFHxA			
PFHxA_2	313.0 / 119.0	1.72	PFHxA	0.047	0.056	ü
PFHpA_1	363.0 / 319.0	2.07	PFHpA			
PFHpA_2	363.0 / 169.0	2.07	PFHpA	0.021	0.022	ü
PFHxS_1	399.0 / 80.0	2.09	PFHxS			
PFHxS_2	399.0 / 99.0	2.09	PFHxS	0.311	0.335	ü
PFOA_1	413.0 / 369.0	2.44	PFOA			
PFOA_2	413.0 / 169.0	2.45	PFOA	0.065	0.062	ü
PFNA_1	463.0 / 419.0	2.81	PFNA			
PFNA_2	463.0 / 219.0	2.81	PFNA	0.310	0.294	ü
PFOS_1	499.0 / 80.0	2.81	PFOS			
PFOS_2	499.0 / 99.0	2.81	PFOS	0.205	0.194	ü
PFDA_1	513.0 / 469.0	3.16	PFDA			
PFDA_2	513.0 / 219.0	3.16	PFDA	0.036	0.041	ü
PFUnA_1	563.0 / 519.0	3.48	PFUnA			
PFUnA_2	563.0 / 269.0	3.48	PFUnA	0.044	0.044	ü
PFDoA_1	613.0 / 569.0	3.77	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.162	0.152	ü
PFTrDA_1	663.0 / 619.0	4.02	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.02	PFTrDA	0.061	0.064	ü
PFTeDA_1	713.0 / 669.0	4.24	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.048	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.31	NMeFOSAA	0.667	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.48	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.45	NEtFOSSA	0.066	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	2018-05-17T09:56:17	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.359	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.060	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.023	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.302	0.335	ü
PFOA_1	413.0 / 369.0	2.44	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.063	0.062	ü
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.289	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.80	PFOS	0.198	0.194	ü
PFDA_1	513.0 / 469.0	3.16	PFDA			
PFDA_2	513.0 / 219.0	3.16	PFDA	0.039	0.041	ü
PFUnA_1	563.0 / 519.0	3.47	PFUnA			
PFUnA_2	563.0 / 269.0	3.47	PFUnA	0.044	0.044	ü
PFDoA_1	613.0 / 569.0	3.76	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.152	0.152	ü
PFTrDA_1	663.0 / 619.0	4.02	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.02	PFTrDA	0.059	0.064	ü
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.049	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.30	NMeFOSAA	0.641	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.47	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.48	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	2018-05-17T10:05:12	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.343	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.062	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.024	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.309	0.335	ü
PFOA_1	413.0 / 369.0	2.43	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.068	0.062	ü
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.300	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.80	PFOS	0.197	0.194	ü
PFDA_1	513.0 / 469.0	3.15	PFDA			
PFDA_2	513.0 / 219.0	3.15	PFDA	0.039	0.041	ü
PFUnA_1	563.0 / 519.0	3.47	PFUnA			
PFUnA_2	563.0 / 269.0	3.47	PFUnA	0.039	0.044	ü
PFDoA_1	613.0 / 569.0	3.76	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.151	0.152	ü
PFTrDA_1	663.0 / 619.0	4.01	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.01	PFTrDA	0.061	0.064	ü
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.045	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.31	NMeFOSAA	0.570	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.47	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.45	NEtFOSSA	0.077	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	2018-05-17T10:14:08	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.43	PFBS	0.351	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.072	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.07	PFHxS			
PFHxS_2	399.0 / 99.0	2.07	PFHxS	0.286	0.335	ü
PFOA_1	413.0 / 369.0	2.43	PFOA			
PFOA_2	413.0 / 169.0	2.43	PFOA	0.062	0.062	ü
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.294	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.80	PFOS	0.193	0.194	ü
PFDA_1	513.0 / 469.0	3.15	PFDA			
PFDA_2	513.0 / 219.0	3.15	PFDA	0.037	0.041	ü
PFUnA_1	563.0 / 519.0	3.47	PFUnA			
PFUnA_2	563.0 / 269.0	3.47	PFUnA	0.042	0.044	ü
PFDoA_1	613.0 / 569.0	3.76	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.151	0.152	ü
PFTrDA_1	663.0 / 619.0	4.01	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.01	PFTrDA	0.060	0.064	ü
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.049	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.30	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.30	NMeFOSAA	0.585	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.46	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.46	NEtFOSSA	0.073	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	2018-05-17T10:23:03	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.45	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.318	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.069	0.056	ü
PFHpA_1	363.0 / 319.0	2.07	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.021	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.296	0.335	ü
PFOA_1	413.0 / 369.0	2.44	PFOA			
PFOA_2	413.0 / 169.0	2.44	PFOA	0.068	0.062	ü
PFNA_1	463.0 / 419.0	2.81	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.301	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.80	PFOS	0.197	0.194	ü
PFDA_1	513.0 / 469.0	3.16	PFDA			
PFDA_2	513.0 / 219.0	3.15	PFDA	0.036	0.041	ü
PFUnA_1	563.0 / 519.0	3.47	PFUnA			
PFUnA_2	563.0 / 269.0	3.47	PFUnA	0.043	0.044	ü
PFDoA_1	613.0 / 569.0	3.76	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.155	0.152	ü
PFTrDA_1	663.0 / 619.0	4.01	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.01	PFTrDA	0.063	0.064	ü
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.046	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.31	NMeFOSAA	0.602	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.47	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.46	NEtFOSSA	0.072	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	2018-05-17T10:31:58	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	1.44	PFBS			
PFBS_2	298.9 / 99.0	1.44	PFBS	0.315	0.327	ü
PFHxA_1	313.0 / 269.0	1.71	PFHxA			
PFHxA_2	313.0 / 119.0	1.71	PFHxA	0.069	0.056	ü
PFHpA_1	363.0 / 319.0	2.06	PFHpA			
PFHpA_2	363.0 / 169.0	2.06	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.08	PFHxS			
PFHxS_2	399.0 / 99.0	2.08	PFHxS	0.302	0.335	ü
PFOA_1	413.0 / 369.0	2.44	PFOA			
PFOA_2	413.0 / 169.0	2.44	PFOA	0.067	0.062	ü
PFNA_1	463.0 / 419.0	2.80	PFNA			
PFNA_2	463.0 / 219.0	2.80	PFNA	0.299	0.294	ü
PFOS_1	499.0 / 80.0	2.80	PFOS			
PFOS_2	499.0 / 99.0	2.80	PFOS	0.194	0.194	ü
PFDA_1	513.0 / 469.0	3.16	PFDA			
PFDA_2	513.0 / 219.0	3.16	PFDA	0.037	0.041	ü
PFUnA_1	563.0 / 519.0	3.48	PFUnA			
PFUnA_2	563.0 / 269.0	3.47	PFUnA	0.043	0.044	ü
PFDoA_1	613.0 / 569.0	3.76	PFDoA			
PFDoA_2	613.0 / 319.0	3.76	PFDoA	0.153	0.152	ü
PFTrDA_1	663.0 / 619.0	4.01	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.01	PFTrDA	0.063	0.064	ü
PFTeDA_1	713.0 / 669.0	4.23	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.23	PFTeDA	0.047	0.046	ü
NMeFOSAA_1	570.0 / 419.0	3.31	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.31	NMeFOSAA	0.608	0.642	ü
NEtFOSAA_1	584.0 / 419.0	3.47	NEtFOSSA			
NEtFOSAA_2	584.0 / 483.0	3.46	NEtFOSSA	0.067	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	2018-05-17T10:40:54	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.44	857.075138	885.00	96.84
PFBS_2	298.9 / 99.0	1.44	871.726657	885.00	98.50
PFHxA_1	313.0 / 269.0	1.71	1010.385300	1000.00	101.04
PFHxA_2	313.0 / 119.0	1.71	1001.659656	1000.00	100.17
PFHpA_1	363.0 / 319.0	2.06	928.673722	1000.00	92.87
PFHpA_2	363.0 / 169.0	2.06	1008.143725	1000.00	100.81
PFHxS_1	399.0 / 80.0	2.08	850.750707	912.00	93.28
PFHxS_2	399.0 / 99.0	2.08	838.600413	912.00	91.95
PFOA_1	413.0 / 369.0	2.43	957.593592	1000.00	95.76
PFOA_2	413.0 / 169.0	2.43	961.616146	1000.00	96.16
PFNA_1	463.0 / 419.0	2.80	993.731632	1000.00	99.37
PFNA_2	463.0 / 219.0	2.80	971.818834	1000.00	97.18
PFOS_1	499.0 / 80.0	2.80	833.843493	925.60	90.09
PFOS_2	499.0 / 99.0	2.80	901.643927	925.60	97.41
PFDA_1	513.0 / 469.0	3.15	996.186164	1000.00	99.62
PFDA_2	513.0 / 219.0	3.15	921.042098	1000.00	92.10
PFUnA_1	563.0 / 519.0	3.47	957.330573	1000.00	95.73
PFUnA_2	563.0 / 269.0	3.47	981.242183	1000.00	98.12
PFDoA_1	613.0 / 569.0	3.76	999.379402	1000.00	99.94
PFDoA_2	613.0 / 319.0	3.76	993.287788	1000.00	99.33
PFTrDA_1	663.0 / 619.0	4.01	965.966059	1000.00	96.60
PFTrDA_2	663.0 / 169.0	4.01	938.151286	1000.00	93.82
PFTeDA_1	713.0 / 669.0	4.23	935.211624	1000.00	93.52
PFTeDA_2	713.0 / 169.0	4.23	953.871059	1000.00	95.39
NMeFOSAA_1	570.0 / 419.0	3.31	1015.200644	1000.00	101.52
NMeFOSAA_2	570.0 / 512.0	3.31	954.066278	1000.00	95.41
NEtFOSAA_1	584.0 / 419.0	3.47	1074.991238	1000.00	107.50
NEtFOSAA_2	584.0 / 483.0	3.46	743.852541	1000.00	74.39

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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	2018-05-17T12:19:05	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.44	501.232008	443.00	113.14
PFBS_2	298.9 / 99.0	1.44	524.041640	443.00	118.29
PFHxA_1	313.0 / 269.0	1.71	598.658896	500.00	119.73
PFHxA_2	313.0 / 119.0	1.71	504.965075	500.00	100.99
PFHpA_1	363.0 / 319.0	2.06	532.298853	500.00	106.46
PFHpA_2	363.0 / 169.0	2.06	462.213382	500.00	92.44
PFHxS_1	399.0 / 80.0	2.07	447.109688	456.00	98.05
PFHxS_2	399.0 / 99.0	2.07	445.688074	456.00	97.74
PFOA_1	413.0 / 369.0	2.43	551.343991	500.00	110.27
PFOA_2	413.0 / 169.0	2.43	544.902969	500.00	108.98
PFNA_1	463.0 / 419.0	2.80	548.973124	500.00	109.79
PFNA_2	463.0 / 219.0	2.80	532.348689	500.00	106.47
PFOS_1	499.0 / 80.0	2.79	476.380960	463.00	102.89
PFOS_2	499.0 / 99.0	2.79	517.048235	463.00	111.67
PFDA_1	513.0 / 469.0	3.14	534.994118	500.00	107.00
PFDA_2	513.0 / 219.0	3.15	575.782087	500.00	115.16
PFUnA_1	563.0 / 519.0	3.46	523.022309	500.00	104.60
PFUnA_2	563.0 / 269.0	3.47	509.578824	500.00	101.92
PFDoA_1	613.0 / 569.0	3.75	531.536337	500.00	106.31
PFDoA_2	613.0 / 319.0	3.75	538.760599	500.00	107.75
PFTrDA_1	663.0 / 619.0	4.00	536.444139	500.00	107.29
PFTrDA_2	663.0 / 169.0	4.00	526.769810	500.00	105.35
PFTeDA_1	713.0 / 669.0	4.22	512.396805	500.00	102.48
PFTeDA_2	713.0 / 169.0	4.22	473.846877	500.00	94.77
NMeFOSAA_1	570.0 / 419.0	3.30	475.010466	500.00	95.00
NMeFOSAA_2	570.0 / 512.0	3.30	439.720595	500.00	87.94
NEtFOSAA_1	584.0 / 419.0	3.46	473.882113	500.00	94.78
NEtFOSAA_2	584.0 / 483.0	3.46	505.558505	500.00	101.11

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QC Summary 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	2018-05-17T14:17:42	**Data File**	18-0315.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_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	794.115081	885.00	89.73
PFBS_2	298.9 / 99.0	1.45	812.907933	885.00	91.85
PFHxA_1	313.0 / 269.0	1.72	974.552568	1000.00	97.46
PFHxA_2	313.0 / 119.0	1.72	931.675792	1000.00	93.17
PFHpA_1	363.0 / 319.0	2.07	921.635239	1000.00	92.16
PFHpA_2	363.0 / 169.0	2.08	933.441887	1000.00	93.34
PFHxS_1	399.0 / 80.0	2.09	789.965702	912.00	86.62
PFHxS_2	399.0 / 99.0	2.09	762.515904	912.00	83.61
PFOA_1	413.0 / 369.0	2.45	945.583006	1000.00	94.56
PFOA_2	413.0 / 169.0	2.45	983.436945	1000.00	98.34
PFNA_1	463.0 / 419.0	2.82	1009.611511	1000.00	100.96
PFNA_2	463.0 / 219.0	2.82	974.601714	1000.00	97.46
PFOS_1	499.0 / 80.0	2.81	853.330235	925.60	92.19
PFOS_2	499.0 / 99.0	2.81	875.663550	925.60	94.60
PFDA_1	513.0 / 469.0	3.17	977.267607	1000.00	97.73
PFDA_2	513.0 / 219.0	3.16	983.634948	1000.00	98.36
PFUnA_1	563.0 / 519.0	3.49	953.727069	1000.00	95.37
PFUnA_2	563.0 / 269.0	3.48	910.415566	1000.00	91.04
PFDoA_1	613.0 / 569.0	3.77	1001.155903	1000.00	100.12
PFDoA_2	613.0 / 319.0	3.77	942.567768	1000.00	94.26
PFTrDA_1	663.0 / 619.0	4.02	942.175925	1000.00	94.22
PFTrDA_2	663.0 / 169.0	4.02	957.592129	1000.00	95.76
PFTeDA_1	713.0 / 669.0	4.24	894.857761	1000.00	89.49
PFTeDA_2	713.0 / 169.0	4.24	947.585430	1000.00	94.76
NMeFOSAA_1	570.0 / 419.0	3.32	955.076509	1000.00	95.51
NMeFOSAA_2	570.0 / 512.0	3.32	855.145314	1000.00	85.51
NEtFOSAA_1	584.0 / 419.0	3.48	817.078337	1000.00	81.71
NEtFOSAA_2	584.0 / 483.0	3.47	915.967249	1000.00	91.60

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QC Summary Report

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Printed: 24/05/2018 1:22:51 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	2018-05-17T10:40:54	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.70	95.781622	100.00	95.78
13C2-PFDA	515.0 / 470.0	3.14	96.598799	100.00	96.60
d5-EtFOSAA	589.0 / 419.0	3.46	454.100896	400.00	113.53

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QC Summary Report

Created with Analyst Reporter
Printed: 24/05/2018 1:23:13 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	2018-05-17T12:19:05	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFHxA	315.0 / 270.0	1.70	102.801153	100.00	102.80
13C2-PFDA	515.0 / 470.0	3.13	93.855234	100.00	93.86
d5-EtFOSAA	589.0 / 419.0	3.45	372.268626	400.00	93.07

QA/QC Summary
Batch 18-0323

Project:	CTO-WE04 Naval Air Station Joint Reserve Base Willow Grove
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	DW
Data Set:	DP-18-0119
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
5/10/2018	5/11/2018	1.7

Corrective Actions	None
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	Field samples associated with these FRB samples are extracted in SDG 18-0315

	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. The confirmation ion ratio was above 50% RPD for the selected samples, however, the detected concentrations were below the LOQ or below the detection limits.

Holding Times	Extraction Date(s)	Analysis Date(s)
	5/17/2018	5/30/2018

QA/QC Summary
Batch 18-0323

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.
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 ≤ 30%	No exceedances noted.
	MS/MSD samples were not processed with this batch of field reagent blank samples.

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 ≤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.

QA/QC Summary
Batch 18-0323

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: 18-0323
Data Set: DP-18-0119
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	NA	None
Matrix Spike / Matrix Spike Duplicate Precision	NA	None
Extracted Internal Standard Analytes (Surrogates)	0	None
Instrument Calibration	0	None
Instrument Blank	NA	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None

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BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title:	Naval Air Station Joint Reserve Base Wi	**Data Set Number:**	DP-18-0119
Project Number:	100117920-WE04	**Prep Batch Number:**	18-0323
Entered By:	Denise Schumitz	**Entered On:**	05/31/2018
Test Code (Matrix Type):	Master_371(L)		

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
DMS 5/31/2018

JV64 is not being used in the calibration curve. There is no impact on the data once this point is removed from the calibration.
DMS 5/31/2018

CQ801PB has ion ratios of <50% for PFBS, PFDA, PFUnA, PFTrDA and PFTeDA.
DMS 5/31/2018

J6205 has ion ratios of <50% for PFHxA, PFHpA, PFOS, PFDA, PFUnA, PFTrDA and PFTeDA.
DMS 5/31/2018

J6207 has ion ratios of <50% for PFBS, PFHxA, PFHpA, PFOS, PFDA, PFUnA, PFTrDA and PFTeDA.
DMS 5/31/2018

J6209 has ion ratios of <50% for PFHxA, PFHpA, PFDoA, PFTrDA and PFTeDA.
DMS 5/31/2018

J6211 has ion ratios of <50% for PFHxA, PFHpA, PFDA, PFUnA, PFTrDA and PFTeDA.
DMS 5/31/2018

Task Leader Approval:

SupervisorApproval:

PM Approval:



Digitally signed by Jonathan Thorn
Date: 2018.05.31 11:53:53 -04'00'

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Project Client: Tetra Tech
Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
Project No.: 100117920-WE04
Preparation Batch: 18-0323
Data Set: DP-18-0119

	CQ801PB-FS (Procedural Blank)	CQ802LCS-FS (Laboratory Control Sample)	J6205-FS (NAWC-051018-FRB-303)	J6207-FS (WGNA-051018-FRB-3220)	J6209-FS (NAWC-051018-FRB-177)	J6211-FS (WGNA-051018-FRB-3295)
PFHxA	-	L	-	-	-	-
PFHpA	-	L	-	-	-	-
PFOA	-	L	-	-	-	-
PFNA	-	L	-	-	-	-
PFDA	-	L	-	-	-	-
PFUnA	-	L	-	-	-	-
PFDoA	-	L	-	-	-	-
PFTrDA	-	L	-	-	-	-
PFTeDA	-	L	-	-	-	-
NMeFOSAA	-	L	-	-	-	-
NEtFOSAA	-	L	-	-	-	-
PFBS	-	L	-	-	-	-
PFHxS	-	L	-	-	-	-
PFOS	-	L/Br	-	-	-	-

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

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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

18-0323

WE04 PFAS Analysis

DW

Sample ID	Description
CQ801PB-FS	Procedural Blank
CQ802LCS-FS	Laboratory Control Sample
J6205-FS	NAWC-051018-FRB-303
J6207-FS	WGNA-051018-FRB-3220
J6209-FS	NAWC-051018-FRB-177
J6211-FS	WGNA-051018-FRB-3295

Samples Assigned By: Stephanie Schultz Date : May 17, 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

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JV65	L2	5/30/18 16:24	13C4-PFOS	149,389.12	-	
JV66	L3	5/30/18 16:33	13C4-PFOS	151,835.13	-	
JV67	L4	5/30/18 16:42	13C4-PFOS	138,725.50	-	
JV68	L5	5/30/18 16:51	13C4-PFOS	152,707.09	-	
JV69	L6	5/30/18 17:00	13C4-PFOS	147,236.70	-	
JV70	L7	5/30/18 17:09	13C4-PFOS	146,000.47	-	
JV71	L8	5/30/18 17:18	13C4-PFOS	133,647.23	-	
JV72	L9	5/30/18 17:27	13C4-PFOS	145,527.19	2.6	PASS

Average	Lower	Upper
145,633.55	72,816.78	218,450.33

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV65	L2	5/30/18 16:24	13C4-PFOS	149,389.12	72,816.78	218,450.33		106,894.96	213,789.93	
JV66	L3	5/30/18 16:33	13C4-PFOS	151,835.13	72,816.78	218,450.33		106,894.96	213,789.93	
JV67	L4	5/30/18 16:42	13C4-PFOS	138,725.50	72,816.78	218,450.33		106,894.96	213,789.93	
JV68	L5	5/30/18 16:51	13C4-PFOS	152,707.09	72,816.78	218,450.33		106,894.96	213,789.93	
JV69	L6	5/30/18 17:00	13C4-PFOS	147,236.70	72,816.78	218,450.33		106,894.96	213,789.93	
JV70	L7	5/30/18 17:09	13C4-PFOS	146,000.47	72,816.78	218,450.33		106,894.96	213,789.93	
JV71	L8	5/30/18 17:18	13C4-PFOS	133,647.23	72,816.78	218,450.33		106,894.96	213,789.93	
JV72	L9	5/30/18 17:27	13C4-PFOS	145,527.19	72,816.78	218,450.33		106,894.96	213,789.93	
JV63 ICC	ICC	5/30/18 17:36	13C4-PFOS	135,112.79	72,816.78	218,450.33		106,894.96	213,789.93	
CQ801PB-FS(0)	Procedural Blank	5/30/18 17:54	13C4-PFOS	145,793.25	72,816.78	218,450.33		106,894.96	213,789.93	
CQ802LCS-FS(0)	Labrotory Control Sample	5/30/18 18:02	13C4-PFOS	155,220.38	72,816.78	218,450.33		106,894.96	213,789.93	
J6205-FS(0)	NAWC-051018-FRB-303	5/30/18 18:11	13C4-PFOS	139,665.76	72,816.78	218,450.33		106,894.96	213,789.93	
J6207-FS(0)	WGNA-051018-FRB-3220	5/30/18 18:20	13C4-PFOS	136,221.49	72,816.78	218,450.33		106,894.96	213,789.93	
J6209-FS(0)	NAWC-051018-FRB-177	5/30/18 18:29	13C4-PFOS	118,687.49	72,816.78	218,450.33		106,894.96	213,789.93	
J6211-FS(0)	WGNA-051018-FRB-3295	5/30/18 18:38	13C4-PFOS	154,729.21	72,816.78	218,450.33		106,894.96	213,789.93	
JV68 CCV	CCV	5/30/18 18:47	13C4-PFOS	162,850.04	72,816.78	218,450.33		106,894.96	213,789.93	

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

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JV65	L2	5/30/18 16:24	13C2-PFOA	37,915.15	-	
JV66	L3	5/30/18 16:33	13C2-PFOA	40,236.42	-	
JV67	L4	5/30/18 16:42	13C2-PFOA	39,426.81	-	
JV68	L5	5/30/18 16:51	13C2-PFOA	40,812.68	-	
JV69	L6	5/30/18 17:00	13C2-PFOA	39,669.61	-	
JV70	L7	5/30/18 17:09	13C2-PFOA	40,956.91	-	
JV71	L8	5/30/18 17:18	13C2-PFOA	39,948.00	-	
JV72	L9	5/30/18 17:27	13C2-PFOA	45,202.35	17.5	PASS

Average	Lower	Upper
40,520.99	20,260.50	60,781.49

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV65	L2	5/30/18 16:24	13C2-PFOA	37,915.15	20,260.50	60,781.49		28,568.88	57,137.75	
JV66	L3	5/30/18 16:33	13C2-PFOA	40,236.42	20,260.50	60,781.49		28,568.88	57,137.75	
JV67	L4	5/30/18 16:42	13C2-PFOA	39,426.81	20,260.50	60,781.49		28,568.88	57,137.75	
JV68	L5	5/30/18 16:51	13C2-PFOA	40,812.68	20,260.50	60,781.49		28,568.88	57,137.75	
JV69	L6	5/30/18 17:00	13C2-PFOA	39,669.61	20,260.50	60,781.49		28,568.88	57,137.75	
JV70	L7	5/30/18 17:09	13C2-PFOA	40,956.91	20,260.50	60,781.49		28,568.88	57,137.75	
JV71	L8	5/30/18 17:18	13C2-PFOA	39,948.00	20,260.50	60,781.49		28,568.88	57,137.75	
JV72	L9	5/30/18 17:27	13C2-PFOA	45,202.35	20,260.50	60,781.49		28,568.88	57,137.75	
JV63 ICC	ICC	5/30/18 17:36	13C2-PFOA	36,144.00	20,260.50	60,781.49		28,568.88	57,137.75	
CQ801PB-FS(0)	Procedural Blank	5/30/18 17:54	13C2-PFOA	37,123.17	20,260.50	60,781.49		28,568.88	57,137.75	
CQ802LCS-FS(0)	Labrotory Control Sample	5/30/18 18:02	13C2-PFOA	45,970.78	20,260.50	60,781.49		28,568.88	57,137.75	
J6205-FS(0)	NAWC-051018-FRB-303	5/30/18 18:11	13C2-PFOA	35,271.26	20,260.50	60,781.49		28,568.88	57,137.75	
J6207-FS(0)	WGNA-051018-FRB-3220	5/30/18 18:20	13C2-PFOA	39,530.40	20,260.50	60,781.49		28,568.88	57,137.75	
J6209-FS(0)	NAWC-051018-FRB-177	5/30/18 18:29	13C2-PFOA	39,619.41	20,260.50	60,781.49		28,568.88	57,137.75	
J6211-FS(0)	WGNA-051018-FRB-3295	5/30/18 18:38	13C2-PFOA	44,185.40	20,260.50	60,781.49		28,568.88	57,137.75	
JV68 CCV	CCV	5/30/18 18:47	13C2-PFOA	45,251.91	20,260.50	60,781.49		28,568.88	57,137.75	

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

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JV65	L2	5/30/18 16:24	d3-MeFOSAA	32,781.40	-	
JV66	L3	5/30/18 16:33	d3-MeFOSAA	35,223.72	-	
JV67	L4	5/30/18 16:42	d3-MeFOSAA	31,085.66	-	
JV68	L5	5/30/18 16:51	d3-MeFOSAA	34,406.64	-	
JV69	L6	5/30/18 17:00	d3-MeFOSAA	35,272.98	-	
JV70	L7	5/30/18 17:09	d3-MeFOSAA	36,823.31	-	
JV71	L8	5/30/18 17:18	d3-MeFOSAA	30,821.50	-	
JV72	L9	5/30/18 17:27	d3-MeFOSAA	38,542.54	16.2	PASS

Average	Lower	Upper
34,369.72	17,184.86	51,554.58

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV65	L2	5/30/18 16:24	d3-MeFOSAA	32,781.40	17,184.86	51,554.58		24,084.65	48,169.30	
JV66	L3	5/30/18 16:33	d3-MeFOSAA	35,223.72	17,184.86	51,554.58		24,084.65	48,169.30	
JV67	L4	5/30/18 16:42	d3-MeFOSAA	31,085.66	17,184.86	51,554.58		24,084.65	48,169.30	
JV68	L5	5/30/18 16:51	d3-MeFOSAA	34,406.64	17,184.86	51,554.58		24,084.65	48,169.30	
JV69	L6	5/30/18 17:00	d3-MeFOSAA	35,272.98	17,184.86	51,554.58		24,084.65	48,169.30	
JV70	L7	5/30/18 17:09	d3-MeFOSAA	36,823.31	17,184.86	51,554.58		24,084.65	48,169.30	
JV71	L8	5/30/18 17:18	d3-MeFOSAA	30,821.50	17,184.86	51,554.58		24,084.65	48,169.30	
JV72	L9	5/30/18 17:27	d3-MeFOSAA	38,542.54	17,184.86	51,554.58		24,084.65	48,169.30	
JV63 ICC	ICC	5/30/18 17:36	d3-MeFOSAA	32,508.76	17,184.86	51,554.58		24,084.65	48,169.30	
CQ801PB-FS(0)	Procedural Blank	5/30/18 17:54	d3-MeFOSAA	35,325.64	17,184.86	51,554.58		24,084.65	48,169.30	
CQ802LCS-FS(0)	Labrotory Control Sample	5/30/18 18:02	d3-MeFOSAA	41,858.37	17,184.86	51,554.58		24,084.65	48,169.30	
J6205-FS(0)	NAWC-051018-FRB-303	5/30/18 18:11	d3-MeFOSAA	32,980.83	17,184.86	51,554.58		24,084.65	48,169.30	
J6207-FS(0)	WGNA-051018-FRB-3220	5/30/18 18:20	d3-MeFOSAA	35,002.08	17,184.86	51,554.58		24,084.65	48,169.30	
J6209-FS(0)	NAWC-051018-FRB-177	5/30/18 18:29	d3-MeFOSAA	30,467.42	17,184.86	51,554.58		24,084.65	48,169.30	
J6211-FS(0)	WGNA-051018-FRB-3295	5/30/18 18:38	d3-MeFOSAA	37,554.02	17,184.86	51,554.58		24,084.65	48,169.30	
JV68 CCV	CCV	5/30/18 18:47	d3-MeFOSAA	36,973.21	17,184.86	51,554.58		24,084.65	48,169.30	

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	CQ801PB-FS			
Sample Type	PB			
Collection Date	05/17/2018			
Extraction Date	05/17/2018			
Analysis Date	05/30/2018			
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	0.59 J	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	107
13C2-PFDA	105
d5-EtFOSAA	101

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	CQ802LCS-FS					
Sample Type	LCS					
Collection Date	05/17/2018					
Extraction Date	05/17/2018					
Analysis Date	05/30/2018					
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	21.62	20.00	108		70	130
PFHpA	21.91	20.00	110		70	130
PFOA	20.59	20.00	103		70	130
PFNA	20.82	20.00	104		70	130
PFDA	21.56	20.00	108		70	130
PFUnA	21.17	20.00	106		70	130
PFDoA	21.03	20.00	105		70	130
PFTrDA	20.38	20.00	102		70	130
PFTeDA	24.98	20.00	125		70	130
NMeFOSAA	22.06	20.00	110		70	130
NEtFOSAA	22.25	20.00	111		70	130
PFBS	17.26	17.70	98		70	130
PFHxS	20.10	18.90	106		70	130
PFOS	17.64	19.10	92		70	130
Surrogate Recoveries (%)						
13C2-PFHxA	114					
13C2-PFDA	112					
d5-EtFOSAA	100					

BATTELLE

Summary Asymmetry Report

Created with Analyst Reporter
Printed: 31/05/2018 10:25:18 AM

Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 5:09:23 PM	**Data File**	18-0323_a.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0323
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.50	1.11	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.79	1.37	0.8 – 1.5

BATTELLE

Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 31/05/2018 10:31:41 AM

Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 5:09:23 PM	**Data File**	18-0323_a.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0323
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.50	32	>10
PFBS_2	298.9 / 99.0	1.50	24	>10
PFHxA_1	313.0 / 269.0	1.79	25	>10
PFHxA_2	313.0 / 119.0	1.79	25	>10
PFHpA_1	363.0 / 319.0	2.16	29	>10
PFHpA_2	363.0 / 169.0	2.16	27	>10
PFHxS_1	399.0 / 80.0	2.18	58	>10
PFHxS_2	399.0 / 99.0	2.18	58	>10
PFOA_1	413.0 / 369.0	2.55	31	>10
PFOA_2	413.0 / 169.0	2.54	30	>10
PFNA_1	463.0 / 419.0	2.93	29	>10
PFNA_2	463.0 / 219.0	2.93	34	>10
PFOS_1	499.0 / 80.0	2.92	69	>10
PFOS_2	499.0 / 99.0	2.93	42	>10
PFDA_1	513.0 / 469.0	3.28	30	>10
PFDA_2	513.0 / 219.0	3.28	31	>10
PFUnA_1	563.0 / 519.0	3.61	27	>10
PFUnA_2	563.0 / 269.0	3.61	30	>10
PFDoA_1	613.0 / 569.0	3.89	31	>10
PFDoA_2	613.0 / 319.0	3.89	32	>10
PFTrDA_1	663.0 / 619.0	4.15	38	>10
PFTrDA_2	663.0 / 169.0	4.14	33	>10
PFTeDA_1	713.0 / 669.0	4.37	53	>10
PFTeDA_2	713.0 / 169.0	4.37	53	>10
NMeFOSAA_1	570.0 / 419.0	3.44	45	>10
NMeFOSAA_2	570.0 / 512.0	3.43	49	>10
NEtFOSAA_1	584.0 / 419.0	3.60	31	>10
NEtFOSAA_2	584.0 / 483.0	3.59	47	>10
13C2-PFHxA	315.0 / 270.0	1.78	30	>10
13C2-PFDA	515.0 / 470.0	3.27	30	>10
d5-EtFOSAA	589.0 / 419.0	3.59	25	>10

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

BATTELLE

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

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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^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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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

BATTELLE - NORWELL OPERATIONS
SAMPLE PREPARATION RECORDS

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

18-0323

WE04 PFAS Analysis

DW

SOP Numbers (see workplan for modifications)

VOASOP No. 5-371

This Batch Contains The Following Samples:
CQ801PB-FS
CQ802LCS-FS
J6205-FS
J6207-FS
J6209-FS
J6211-FS

Laboratory Preparation Records
COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Denise Schumitz	05/29/2018	DMS

BATTELLE
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

18-0323

WE04 PFAS Analysis

DW

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CQ801PB-FS	Procedural Blank	250.0	NA	--	05/17/18 SAS
CQ802LCS-FS	Laboratory Control Sample	250.0	NA	--	05/17/18 SAS
J6205-FS	NAWC-051018-FRB-303	250.0	1	C	05/17/18 SAS
J6207-FS	WGNA-051018-FRB-3220	250.0	1	C	05/17/18 SAS
J6209-FS	NAWC-051018-FRB-177	250.0	1	C	05/17/18 SAS
J6211-FS	WGNA-051018-FRB-3295	250.0	1	C	05/17/18 SAS

Comments:

Sample ID:	Comments:
CQ801PB-FS	1.26g Trizma(170526-01) weighed on BAL-009
CQ802LCS-FS	1.25g Trizma(170526-01) weighed on BAL-009

Samples Assigned By Stephanie Schultz Date : May 17, 2018

* - "C" = Sample is Consumed

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Sequence Report

Created with Analyst Reporter
Printed: 31/05/2018 9:45:16 AM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		5/30/2018 4:06:49 PM	5-0371.dam	18-0323_a.wiff
2	JV64	L1	5/30/2018 4:15:50 PM	5-0371.dam	18-0323_a.wiff
3	JV65	L2	5/30/2018 4:24:46 PM	5-0371.dam	18-0323_a.wiff
4	JV66	L3	5/30/2018 4:33:42 PM	5-0371.dam	18-0323_a.wiff
5	JV67	L4	5/30/2018 4:42:37 PM	5-0371.dam	18-0323_a.wiff
6	JV68	L5	5/30/2018 4:51:32 PM	5-0371.dam	18-0323_a.wiff
7	JV69	L6	5/30/2018 5:00:28 PM	5-0371.dam	18-0323_a.wiff
8	JV70	L7	5/30/2018 5:09:23 PM	5-0371.dam	18-0323_a.wiff
9	JV71	L8	5/30/2018 5:18:18 PM	5-0371.dam	18-0323_a.wiff
10	JV72	L9	5/30/2018 5:27:15 PM	5-0371.dam	18-0323_a.wiff
11	JV63 ICC	ICC	5/30/2018 5:36:11 PM	5-0371.dam	18-0323_a.wiff
1	MeOH		5/30/2018 5:45:06 PM	5-0371.dam	18-0323_a.wiff
12	CQ801PB-FS(0)	Procedural Blank	5/30/2018 5:54:02 PM	5-0371.dam	18-0323_a.wiff
13	CQ802LCS-FS(0)	Labrotory Control Sample	5/30/2018 6:02:58 PM	5-0371.dam	18-0323_a.wiff
14	J6205-FS(0)	NAWC-051018-FRB-303	5/30/2018 6:11:55 PM	5-0371.dam	18-0323_a.wiff
15	J6207-FS(0)	WGNA-051018-FRB-3220	5/30/2018 6:20:53 PM	5-0371.dam	18-0323_a.wiff
16	J6209-FS(0)	NAWC-051018-FRB-177	5/30/2018 6:29:50 PM	5-0371.dam	18-0323_a.wiff
17	J6211-FS(0)	WGNA-051018-FRB-3295	5/30/2018 6:38:48 PM	5-0371.dam	18-0323_a.wiff
6	JV68 CCV	CCV	5/30/2018 6:47:46 PM	5-0371.dam	18-0323_a.wiff

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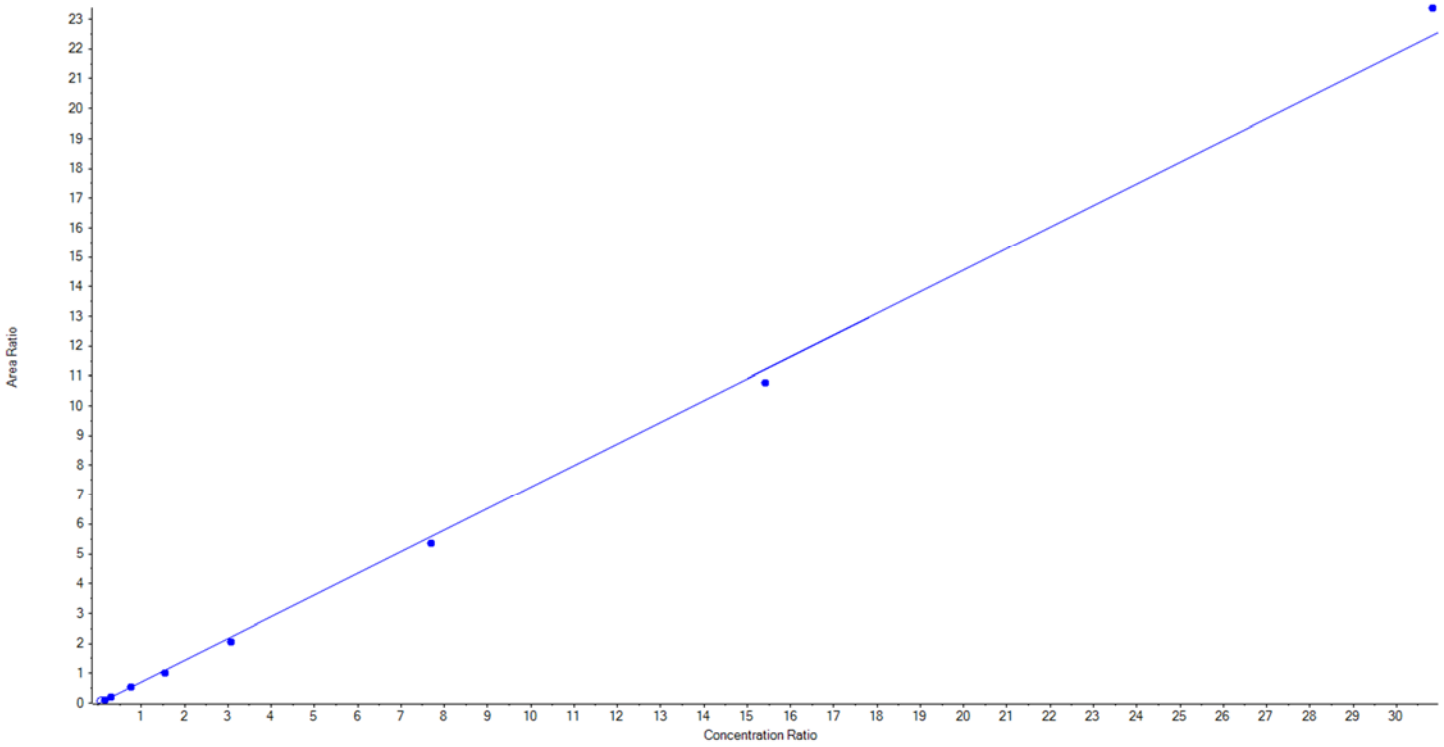
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFBS_1	**Data File**	18-0323_a.wiff
MRM Transition	298.9 / 80.0	**Result Table**	18-0323
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.72928 x + -0.02806 (r = 0.99888) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	22.15	33.513643	151.3
3	JV65	L2	True	44.30	50.880702	114.9
4	JV66	L3	True	88.60	93.992706	106.1
5	JV67	L4	True	221.50	220.634944	99.6
6	JV68	L5	True	443.00	404.100711	91.2
7	JV69	L6	True	885.00	817.332624	92.4
8	JV70	L7	True	2212.50	2114.500207	95.6
9	JV71	L8	True	4425.00	4258.568893	96.2
10	JV72	L9	True	8850.00	9209.889214	104.1



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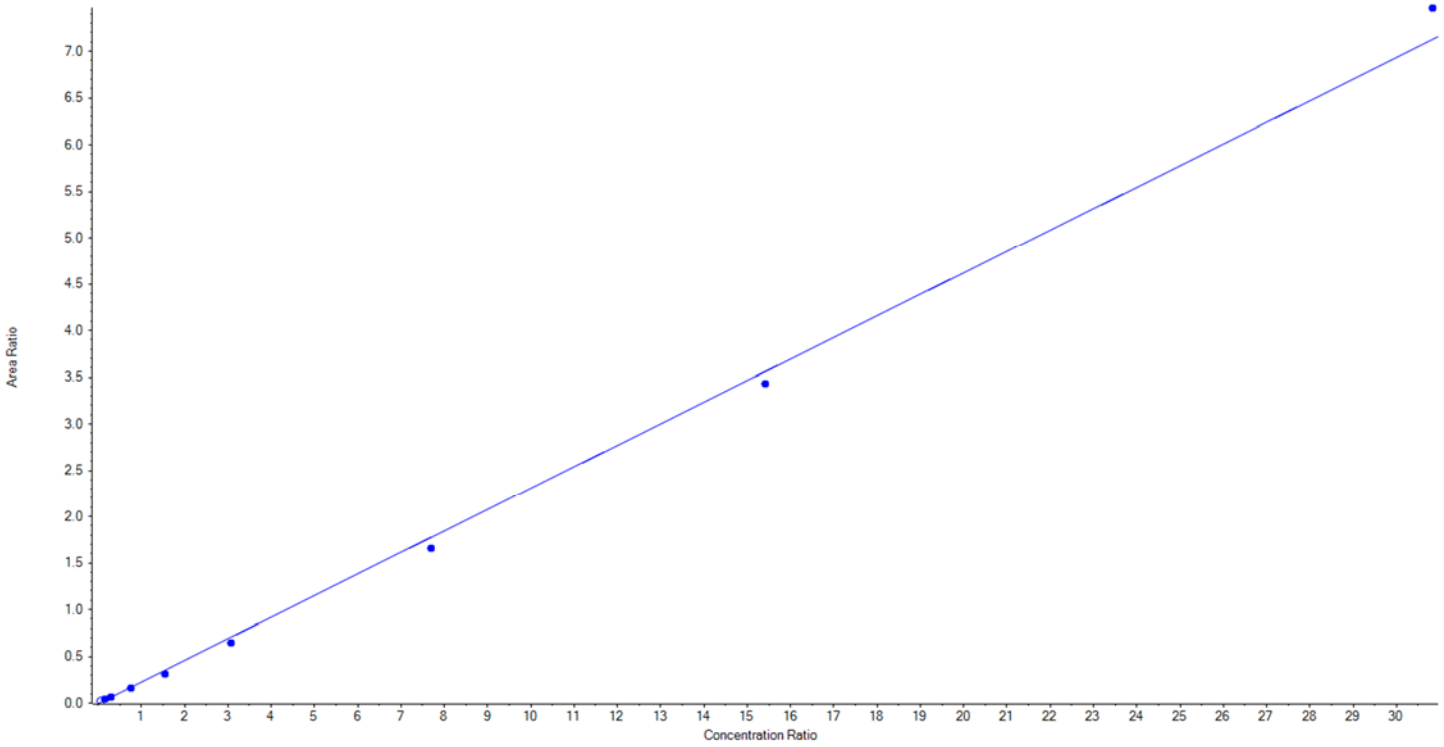
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFBS_2	**Data File**	18-0323_a.wiff
MRM Transition	298.9 / 99.0	**Result Table**	18-0323
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.23128 x + -0.00581 (r = 0.99844) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	22.15	33.568332	151.6
3	JV65	L2	True	44.30	54.369502	122.7
4	JV66	L3	True	88.60	92.546254	104.5
5	JV67	L4	True	221.50	213.785336	96.5
6	JV68	L5	True	443.00	399.457789	90.2
7	JV69	L6	True	885.00	812.764362	91.8
8	JV70	L7	True	2212.50	2059.845745	93.1
9	JV71	L8	True	4425.00	4268.134603	96.5
10	JV72	L9	True	8850.00	9268.996410	104.7



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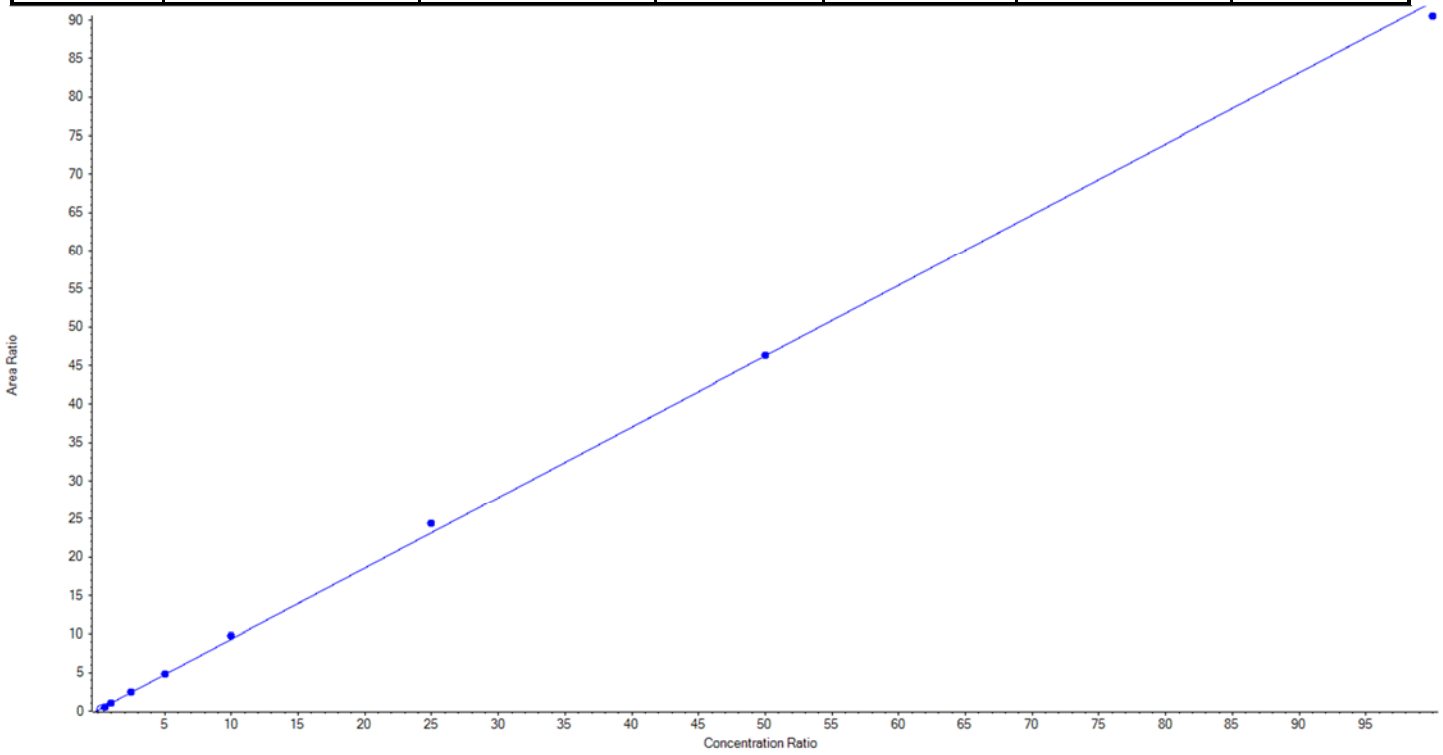
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFHxA_1	**Data File**	18-0323_a.wiff
MRM Transition	313.0 / 269.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.92255 x + 0.12378 (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	False	25.00	20.054186	80.2
3	JV65	L2	True	50.00	43.099434	86.2
4	JV66	L3	True	100.00	99.308585	99.3
5	JV67	L4	True	250.00	258.916951	103.6
6	JV68	L5	True	500.00	514.745964	103.0
7	JV69	L6	True	1000.00	1044.523399	104.5
8	JV70	L7	True	2500.00	2637.185330	105.5
9	JV71	L8	True	5000.00	5001.461771	100.0
10	JV72	L9	True	10000.00	9800.758566	98.0



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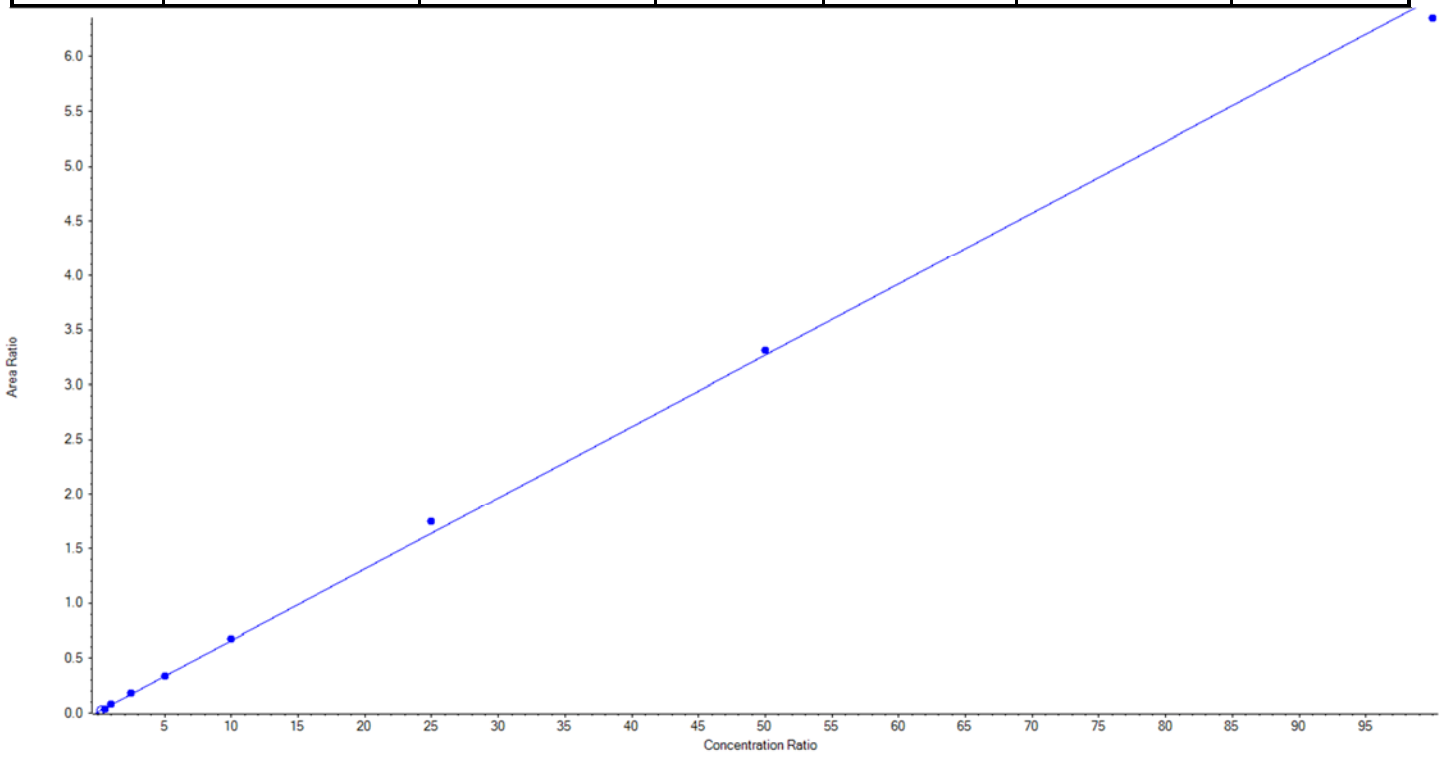
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFHxA_2	**Data File**	18-0323_a.wiff
MRM Transition	313.0 / 119.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.06522 x + 0.00964 (r = 0.99933) (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	23.816275	95.3
3	JV65	L2	True	50.00	39.411544	78.8
4	JV66	L3	True	100.00	105.239666	105.2
5	JV67	L4	True	250.00	266.703750	106.7
6	JV68	L5	True	500.00	510.452352	102.1
7	JV69	L6	True	1000.00	1019.114275	101.9
8	JV70	L7	True	2500.00	2666.276174	106.7
9	JV71	L8	True	5000.00	5067.477996	101.4
10	JV72	L9	True	10000.00	9725.324244	97.3



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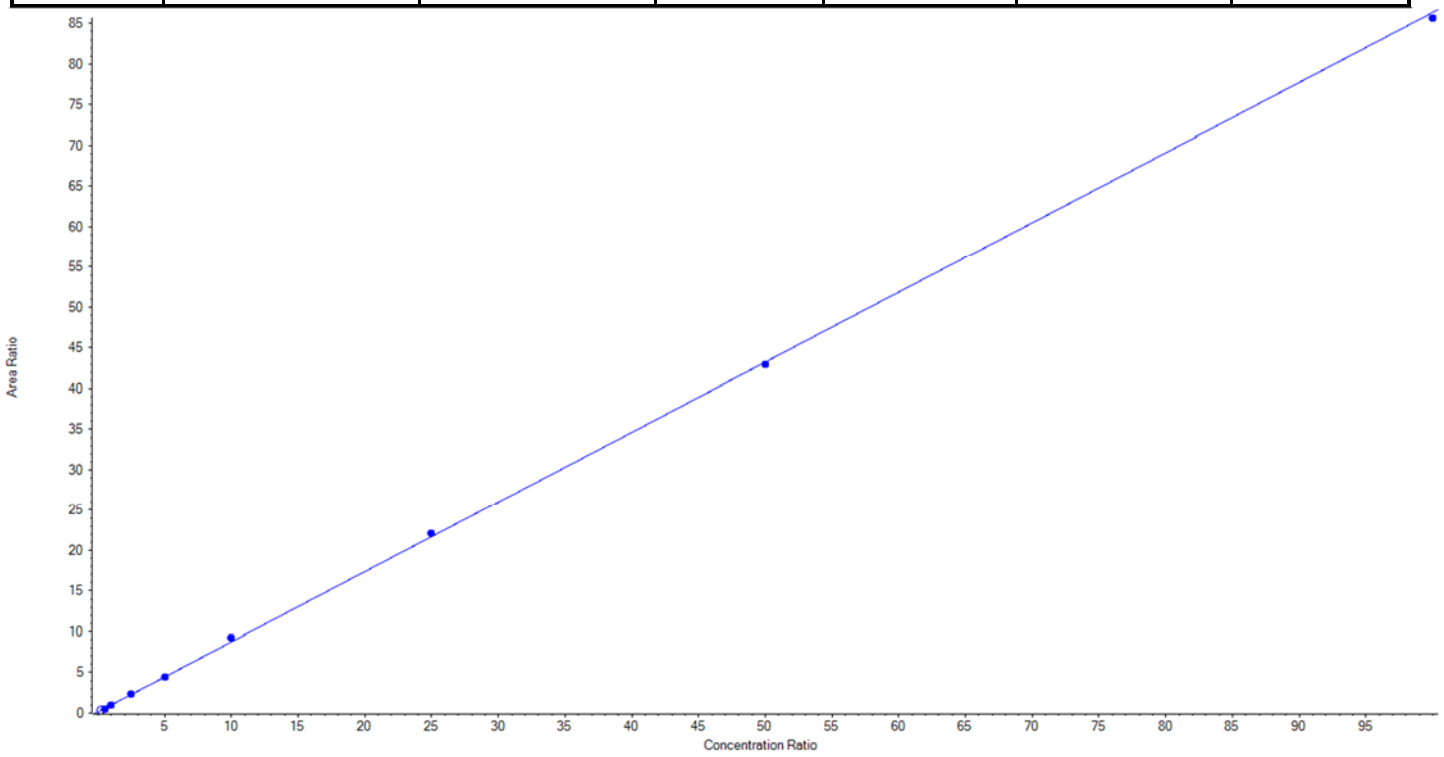
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFHpA_1	**Data File**	18-0323_a.wiff
MRM Transition	363.0 / 319.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.86224 x + 0.13415 (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	False	25.00	23.343360	93.4
3	JV65	L2	True	50.00	44.573501	89.2
4	JV66	L3	True	100.00	101.365440	101.4
5	JV67	L4	True	250.00	259.492344	103.8
6	JV68	L5	True	500.00	494.511681	98.9
7	JV69	L6	True	1000.00	1061.254660	106.1
8	JV70	L7	True	2500.00	2554.032583	102.2
9	JV71	L8	True	5000.00	4965.381742	99.3
10	JV72	L9	True	10000.00	9919.388049	99.2



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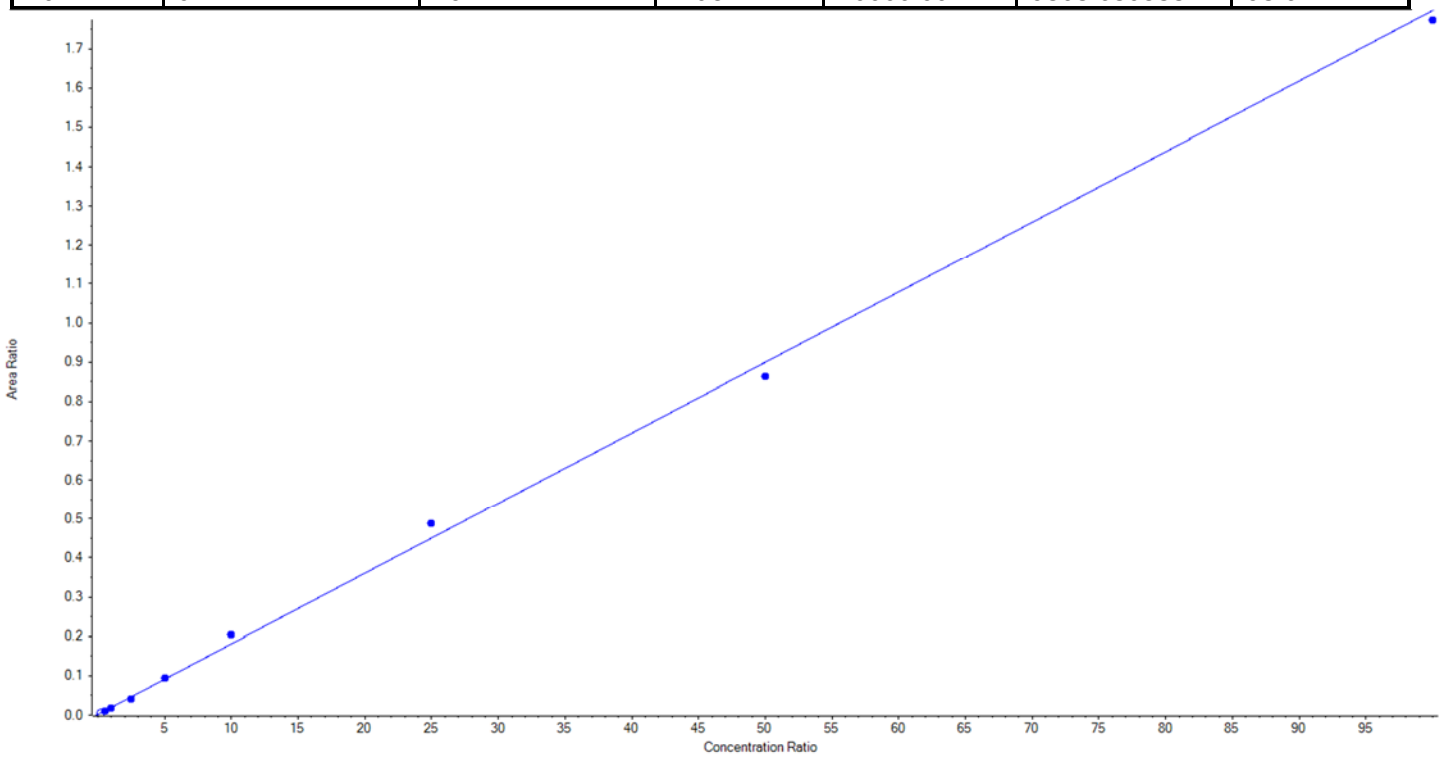
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFHpA_2	**Data File**	18-0323_a.wiff
MRM Transition	363.0 / 169.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.01796 x + 0.00150 (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	False	25.00	22.070672	88.3
3	JV65	L2	True	50.00	48.033683	96.1
4	JV66	L3	True	100.00	93.072154	93.1
5	JV67	L4	True	250.00	225.092819	90.0
6	JV68	L5	True	500.00	523.821569	104.8
7	JV69	L6	True	1000.00	1127.605300	112.8
8	JV70	L7	True	2500.00	2714.366259	108.6
9	JV71	L8	True	5000.00	4804.377628	96.1
10	JV72	L9	True	10000.00	9863.630588	98.6



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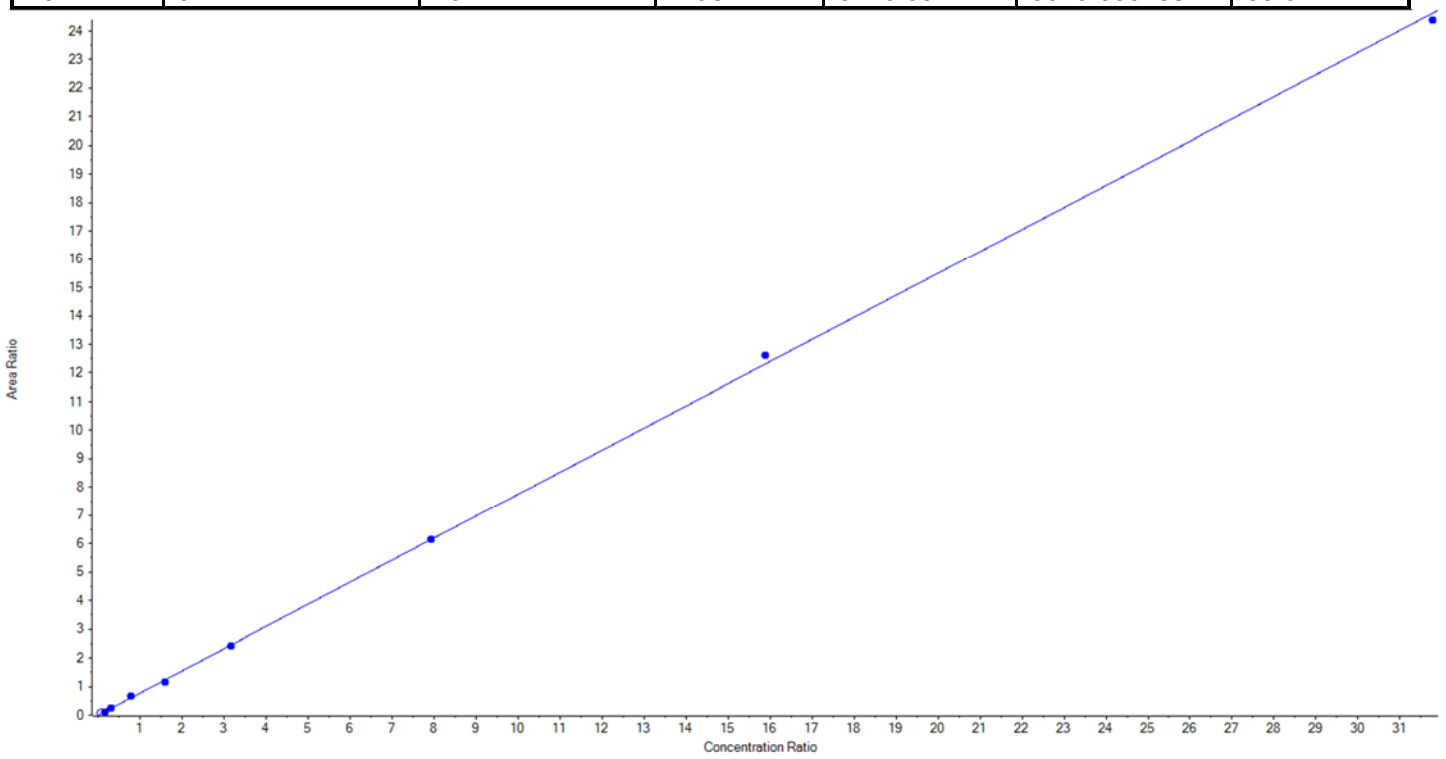
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFHxS_1	**Data File**	18-0323_a.wiff
MRM Transition	399.0 / 80.0	**Result Table**	18-0323
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.77513 x + -0.00436 (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	False	22.80	25.470529	111.7
3	JV65	L2	True	45.60	43.411976	95.2
4	JV66	L3	True	91.20	93.922141	103.0
5	JV67	L4	True	228.00	243.174732	106.7
6	JV68	L5	True	456.00	436.284750	95.7
7	JV69	L6	True	912.00	894.454474	98.1
8	JV70	L7	True	2280.00	2277.361993	99.9
9	JV71	L8	True	4560.00	4674.523702	102.5
10	JV72	L9	True	9120.00	9029.666233	99.0



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Calibration Summary Report

Created with Analyst Reporter
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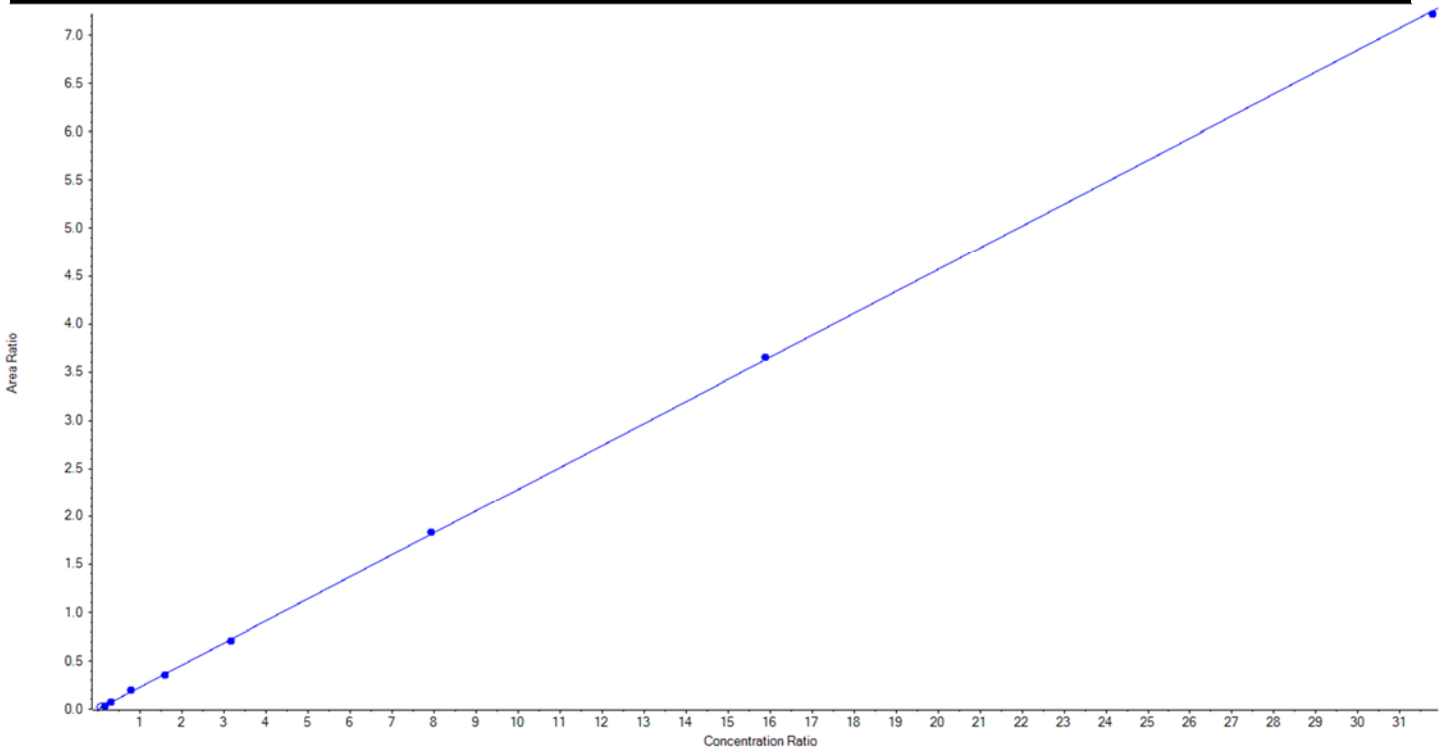
Analyte Name	PFHxS_2	**Data File**	18-0323_a.wiff
MRM Transition	399.0 / 99.0	**Result Table**	18-0323
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.22833 x + -4.19494e-4 (r = 0.99990) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	22.80	24.313253	106.6
3	JV65	L2	True	45.60	40.617687	89.1
4	JV66	L3	True	91.20	96.614137	105.9
5	JV67	L4	True	228.00	245.690866	107.8
6	JV68	L5	True	456.00	447.176743	98.1
7	JV69	L6	True	912.00	893.728642	98.0
8	JV70	L7	True	2280.00	2303.013572	101.0
9	JV71	L8	True	4560.00	4588.580396	100.6
10	JV72	L9	True	9120.00	9077.377959	99.5



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Calibration Summary Report

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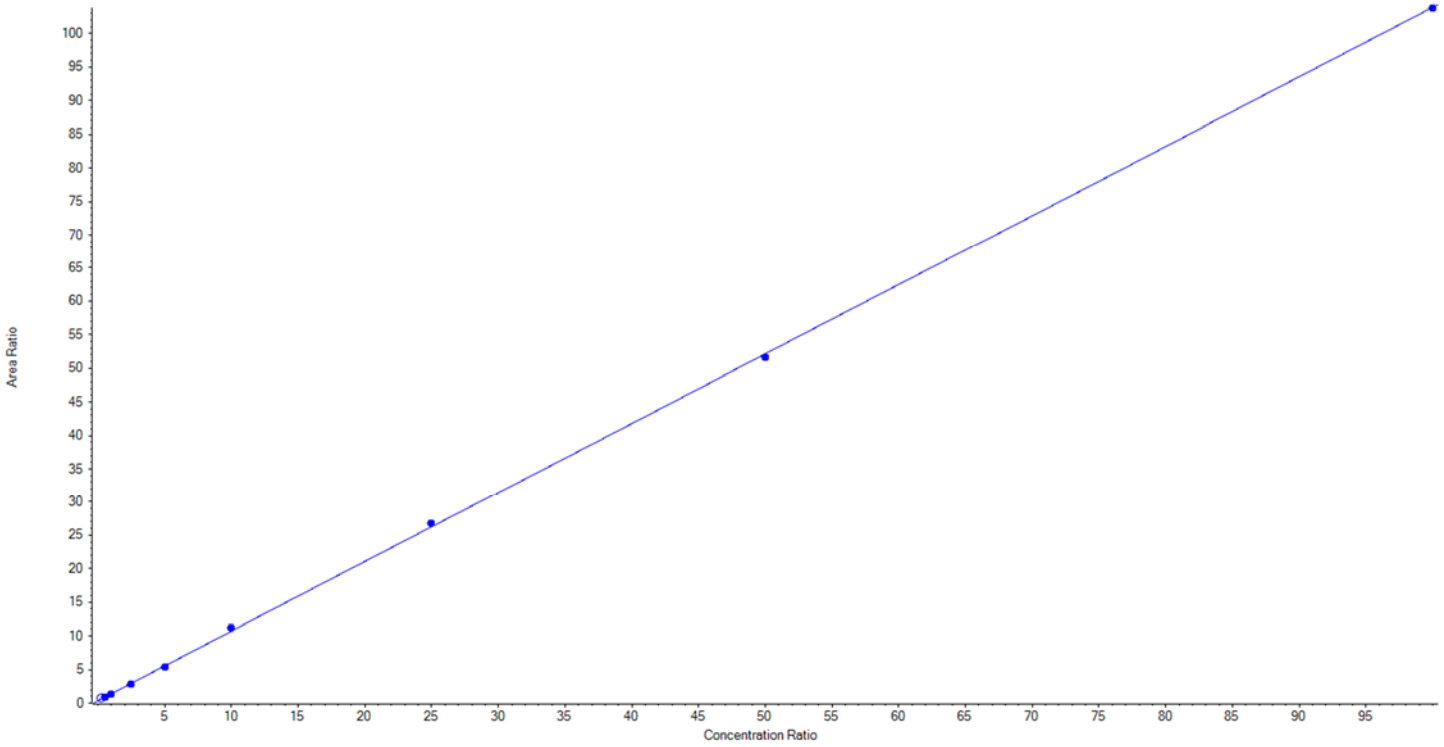
Analyte Name	PFOA_1	**Data File**	18-0323_a.wiff
MRM Transition	413.0 / 369.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.03535 x + 0.37028 (r = 0.99985) (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	34.592463	138.4
3	JV65	L2	True	50.00	54.220015	108.4
4	JV66	L3	True	100.00	92.914676	92.9
5	JV67	L4	True	250.00	243.279775	97.3
6	JV68	L5	True	500.00	480.017378	96.0
7	JV69	L6	True	1000.00	1047.038969	104.7
8	JV70	L7	True	2500.00	2543.561870	101.7
9	JV71	L8	True	5000.00	4949.386384	99.0
10	JV72	L9	True	10000.00	9989.580933	99.9



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Calibration Summary Report

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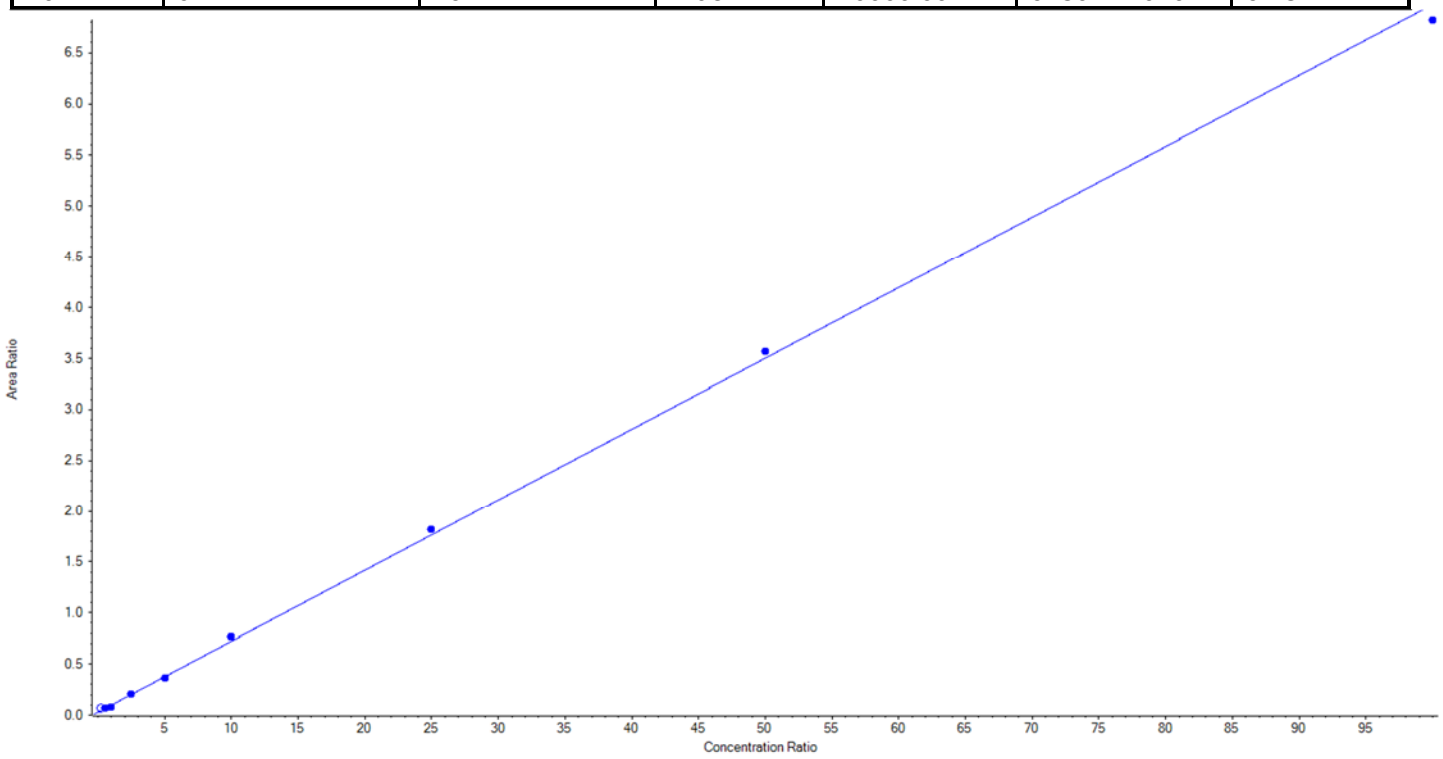
Analyte Name	PFOA_2	**Data File**	18-0323_a.wiff
MRM Transition	413.0 / 169.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.06946 x + 0.02809 (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	False	25.00	52.486052	209.9
3	JV65	L2	True	50.00	57.874289	115.8
4	JV66	L3	True	100.00	74.768979	74.8
5	JV67	L4	True	250.00	257.751362	103.1
6	JV68	L5	True	500.00	486.964178	97.4
7	JV69	L6	True	1000.00	1058.898237	105.9
8	JV70	L7	True	2500.00	2581.276025	103.3
9	JV71	L8	True	5000.00	5102.352914	102.1
10	JV72	L9	True	10000.00	9780.114016	97.8



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Calibration Summary Report

Created with Analyst Reporter
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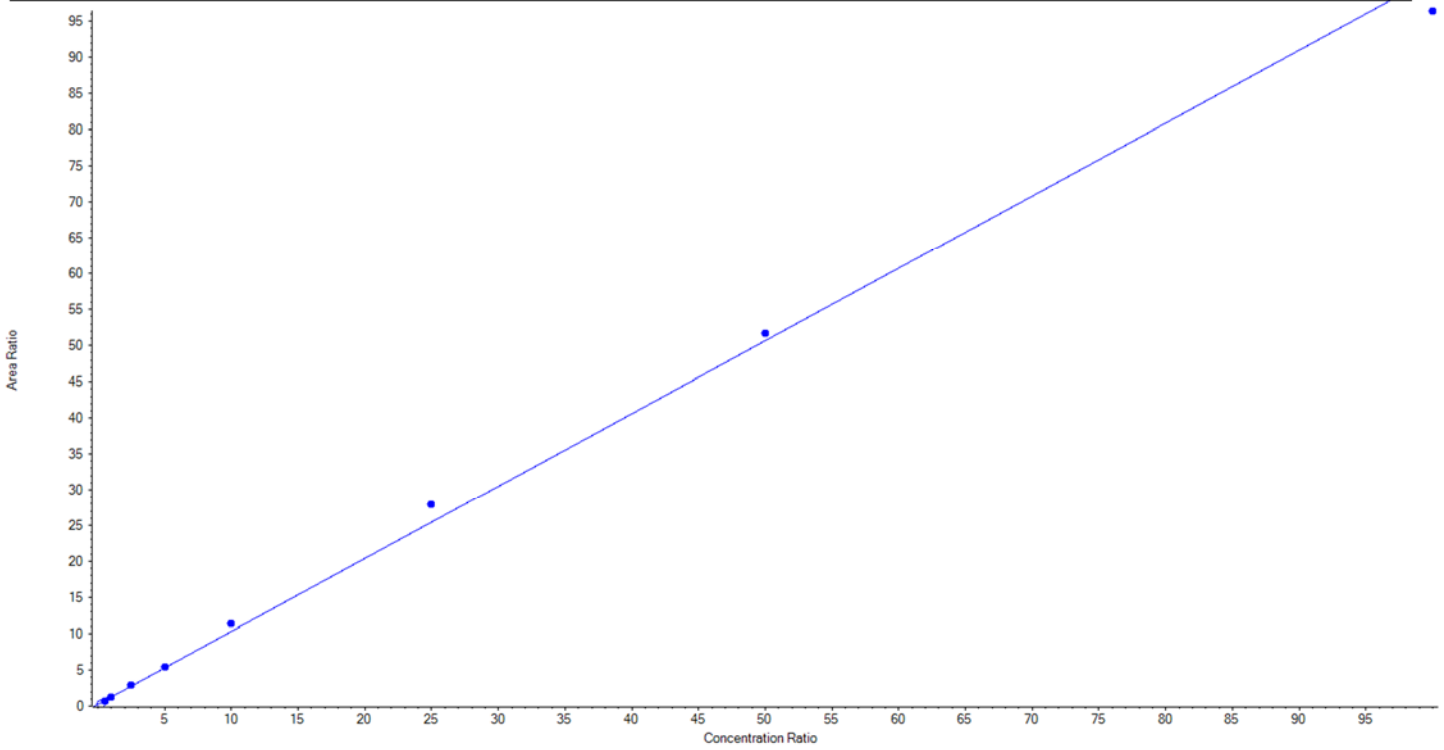
Analyte Name	PFNA_1	**Data File**	18-0323_a.wiff
MRM Transition	463.0 / 419.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.00842 x + 0.24797 (r = 0.99826) (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	9.183032	36.7
3	JV65	L2	True	50.00	38.950765	77.9
4	JV66	L3	True	100.00	95.950593	96.0
5	JV67	L4	True	250.00	263.929578	105.6
6	JV68	L5	True	500.00	515.994525	103.2
7	JV69	L6	True	1000.00	1101.827154	110.2
8	JV70	L7	True	2500.00	2745.145957	109.8
9	JV71	L8	True	5000.00	5100.657206	102.0
10	JV72	L9	True	10000.00	9537.544222	95.4



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Calibration Summary Report

Created with Analyst Reporter
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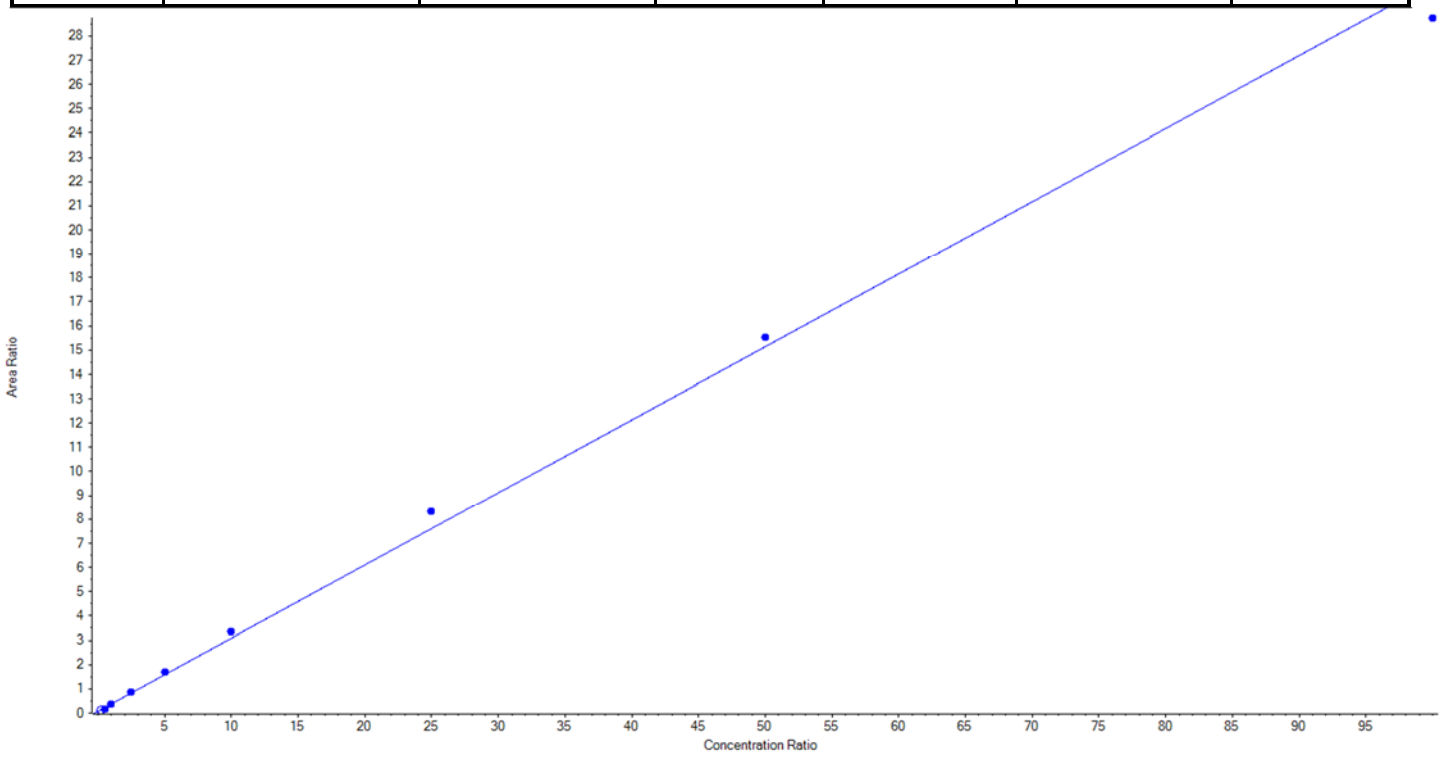
Analyte Name	PFNA_2	**Data File**	18-0323_a.wiff
MRM Transition	463.0 / 219.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.30121 x + 0.07821 (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	False	25.00	11.878345	47.5
3	JV65	L2	True	50.00	35.823310	71.7
4	JV66	L3	True	100.00	101.339082	101.3
5	JV67	L4	True	250.00	258.001467	103.2
6	JV68	L5	True	500.00	541.708364	108.3
7	JV69	L6	True	1000.00	1080.992842	108.1
8	JV70	L7	True	2500.00	2743.478361	109.7
9	JV71	L8	True	5000.00	5124.705356	102.5
10	JV72	L9	True	10000.00	9513.951217	95.1



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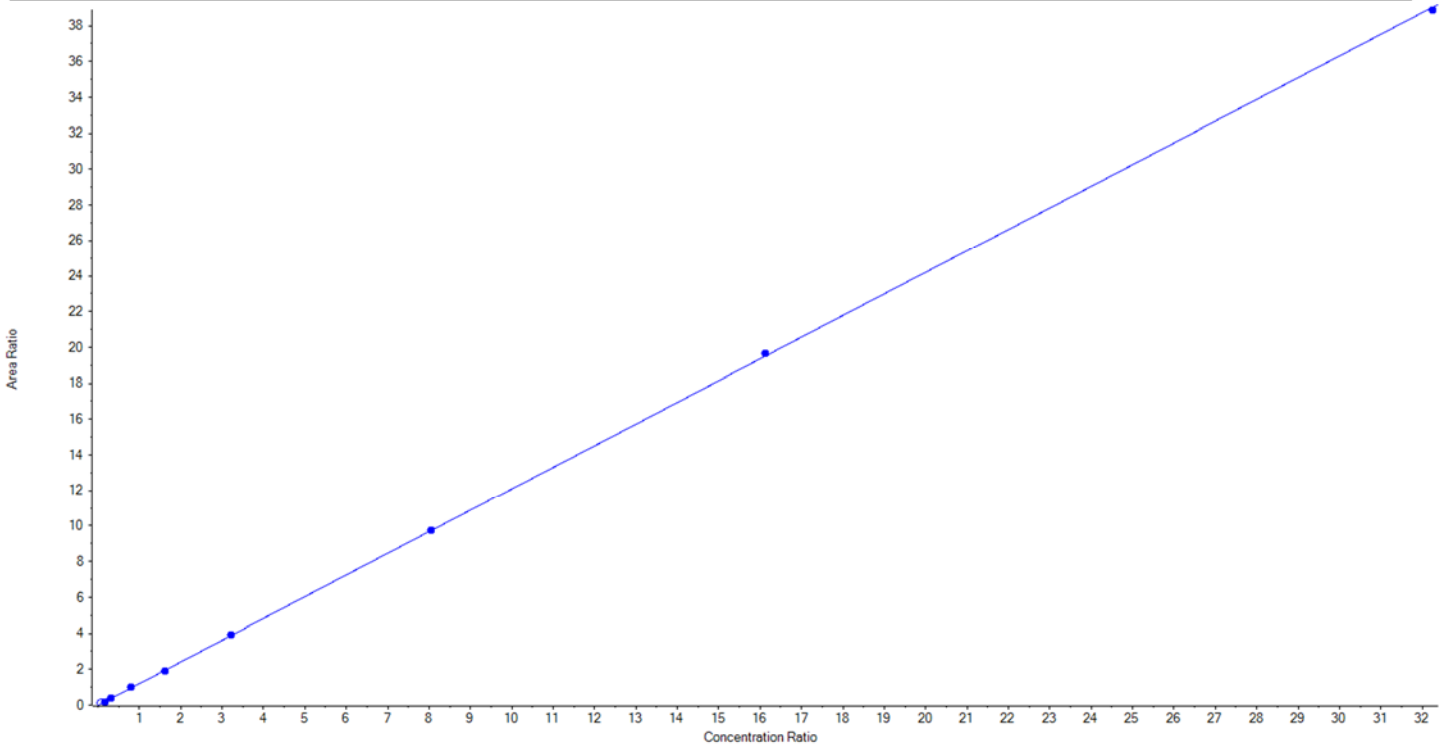
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFOS_1	**Data File**	18-0323_a.wiff
MRM Transition	499.0 / 80.0	**Result Table**	18-0323
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.21088 x + -0.01664 (r = 0.99996) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	23.15	26.210098	113.2
3	JV65	L2	True	46.30	44.047796	95.1
4	JV66	L3	True	92.60	95.605774	103.3
5	JV67	L4	True	231.50	239.568596	103.5
6	JV68	L5	True	463.00	449.835512	97.2
7	JV69	L6	True	925.60	929.740678	100.5
8	JV70	L7	True	2314.00	2318.999560	100.2
9	JV71	L8	True	4628.00	4661.763223	100.7
10	JV72	L9	True	9256.00	9217.438861	99.6



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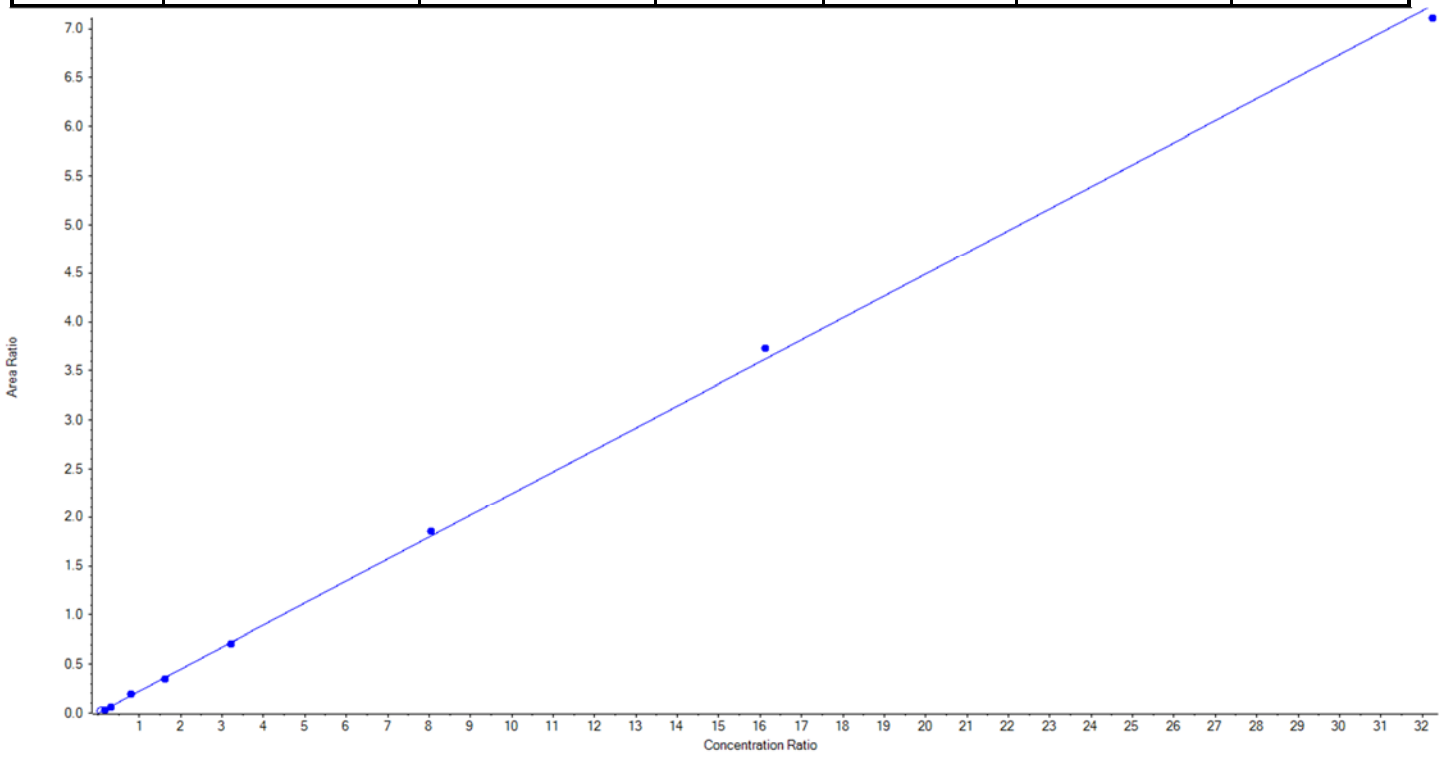
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFOS_2	**Data File**	18-0323_a.wiff
MRM Transition	499.0 / 99.0	**Result Table**	18-0323
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.22454 x + -0.00107 (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	False	23.15	30.173589	130.3
3	JV65	L2	True	46.30	46.729993	100.9
4	JV66	L3	True	92.60	86.069804	93.0
5	JV67	L4	True	231.50	249.814228	107.9
6	JV68	L5	True	463.00	450.431895	97.3
7	JV69	L6	True	925.60	900.863801	97.3
8	JV70	L7	True	2314.00	2371.402742	102.5
9	JV71	L8	True	4628.00	4763.840535	102.9
10	JV72	L9	True	9256.00	9087.847003	98.2



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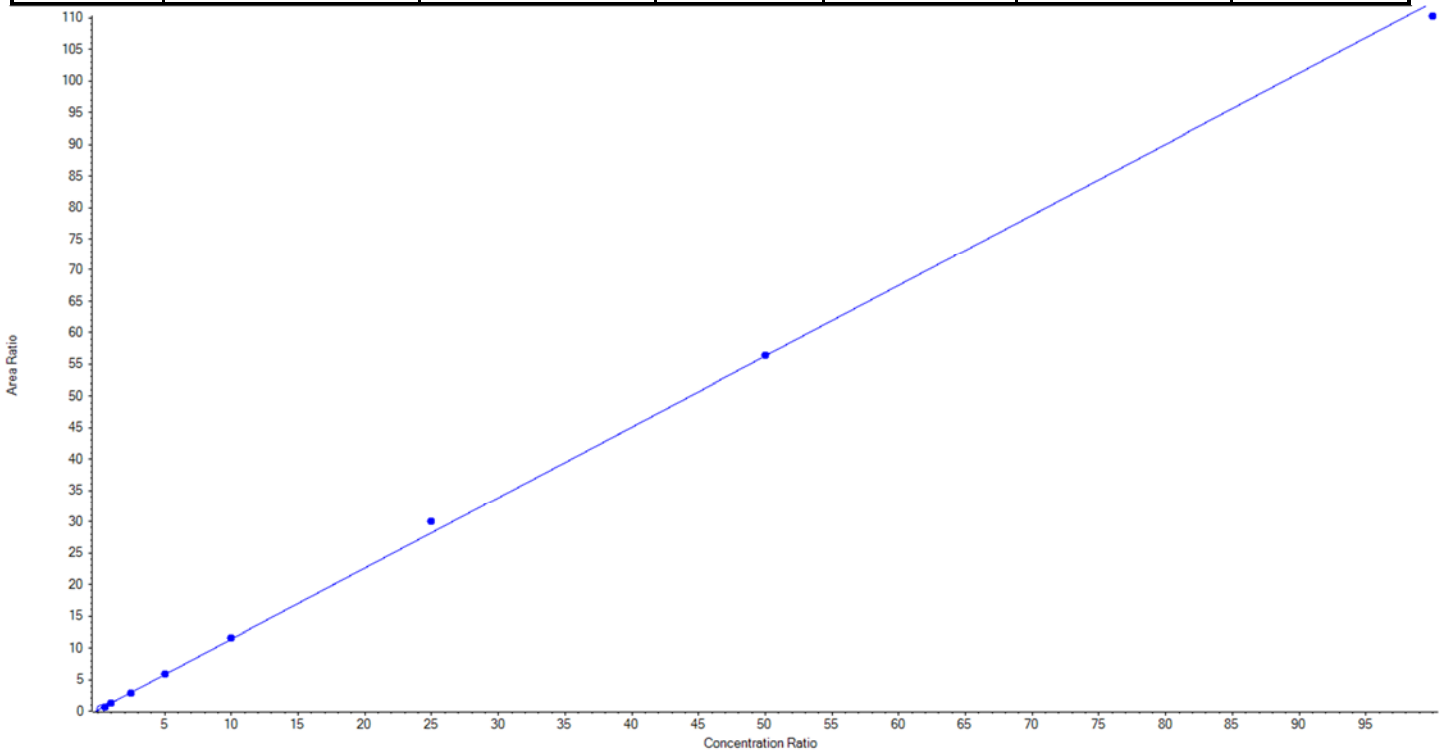
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFDA_1	**Data File**	18-0323_a.wiff
MRM Transition	513.0 / 469.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.12313 x + 0.15668 (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	False	25.00	16.323415	65.3
3	JV65	L2	True	50.00	47.492742	95.0
4	JV66	L3	True	100.00	96.138008	96.1
5	JV67	L4	True	250.00	246.850258	98.7
6	JV68	L5	True	500.00	516.336929	103.3
7	JV69	L6	True	1000.00	1022.385032	102.2
8	JV70	L7	True	2500.00	2663.207176	106.5
9	JV71	L8	True	5000.00	5002.633114	100.1
10	JV72	L9	True	10000.00	9804.956742	98.1



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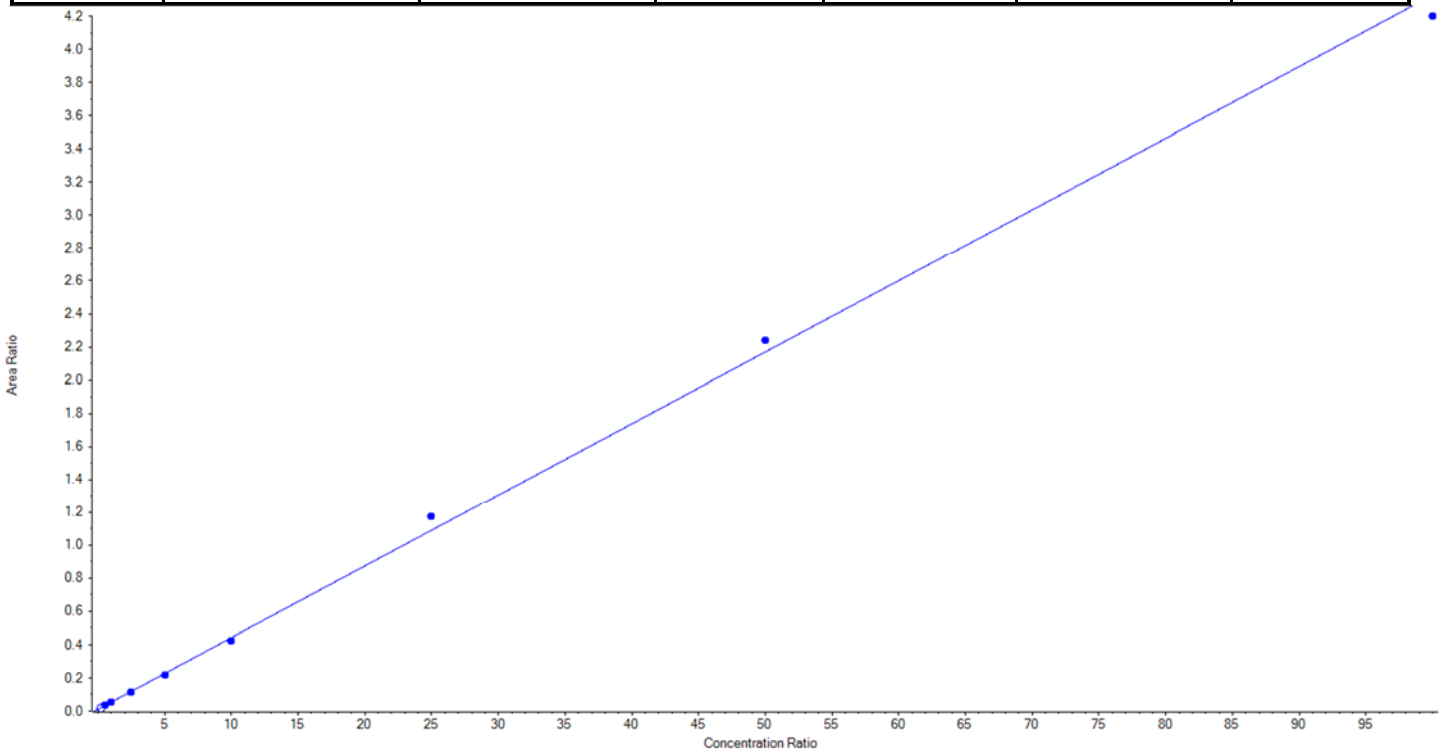
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFDA_2	**Data File**	18-0323_a.wiff
MRM Transition	513.0 / 219.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.04317 x + 0.01106 (r = 0.99908) (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	15.555080	62.2
3	JV65	L2	True	50.00	53.877553	107.8
4	JV66	L3	True	100.00	93.743888	93.7
5	JV67	L4	True	250.00	244.155485	97.7
6	JV68	L5	True	500.00	485.464150	97.1
7	JV69	L6	True	1000.00	955.265066	95.5
8	JV70	L7	True	2500.00	2696.660405	107.9
9	JV71	L8	True	5000.00	5164.472526	103.3
10	JV72	L9	True	10000.00	9706.360928	97.1



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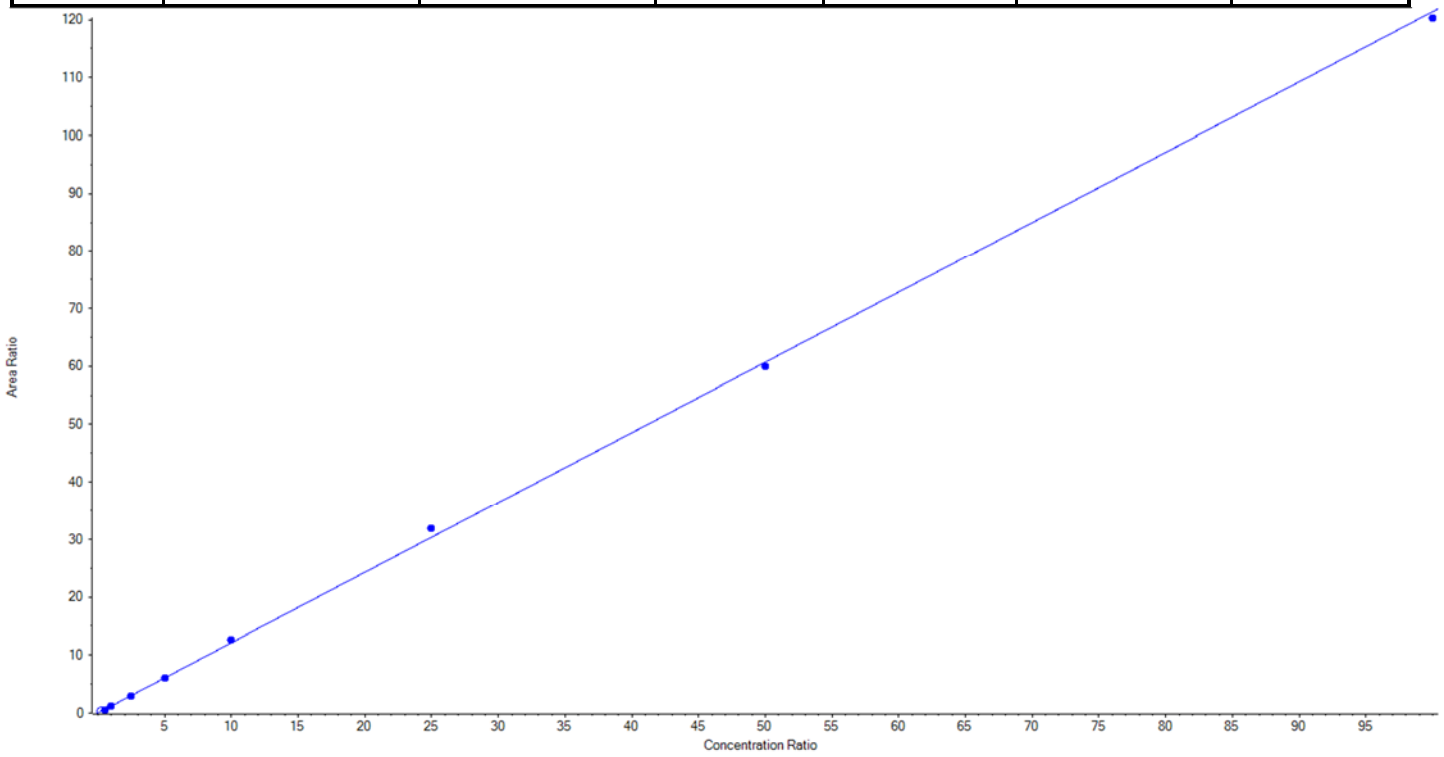
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFUnA_1	**Data File**	18-0323_a.wiff
MRM Transition	563.0 / 519.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.21377 x + 0.00584 (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	25.896229	103.6
3	JV65	L2	True	50.00	47.037580	94.1
4	JV66	L3	True	100.00	105.053665	105.1
5	JV67	L4	True	250.00	236.551834	94.6
6	JV68	L5	True	500.00	493.877686	98.8
7	JV69	L6	True	1000.00	1044.678513	104.5
8	JV70	L7	True	2500.00	2631.542595	105.3
9	JV71	L8	True	5000.00	4933.276707	98.7
10	JV72	L9	True	10000.00	9907.981419	99.1



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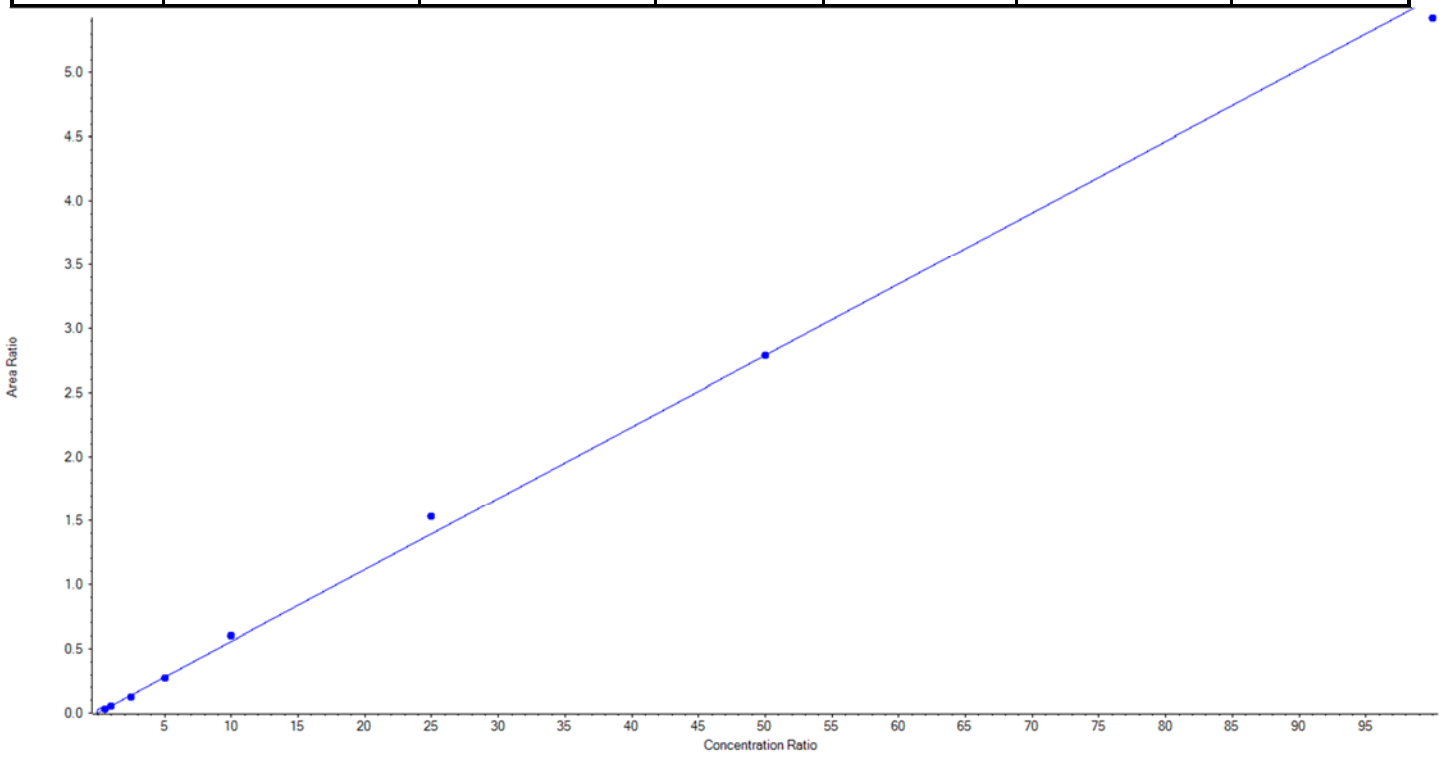
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFUnA_2	**Data File**	18-0323_a.wiff
MRM Transition	563.0 / 269.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05581 x + 0.00108 (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	False	25.00	18.009466	72.0
3	JV65	L2	True	50.00	51.078147	102.2
4	JV66	L3	True	100.00	95.497073	95.5
5	JV67	L4	True	250.00	227.946023	91.2
6	JV68	L5	True	500.00	483.542517	96.7
7	JV69	L6	True	1000.00	1074.122077	107.4
8	JV70	L7	True	2500.00	2744.227423	109.8
9	JV71	L8	True	5000.00	5004.254778	100.1
10	JV72	L9	True	10000.00	9719.331962	97.2



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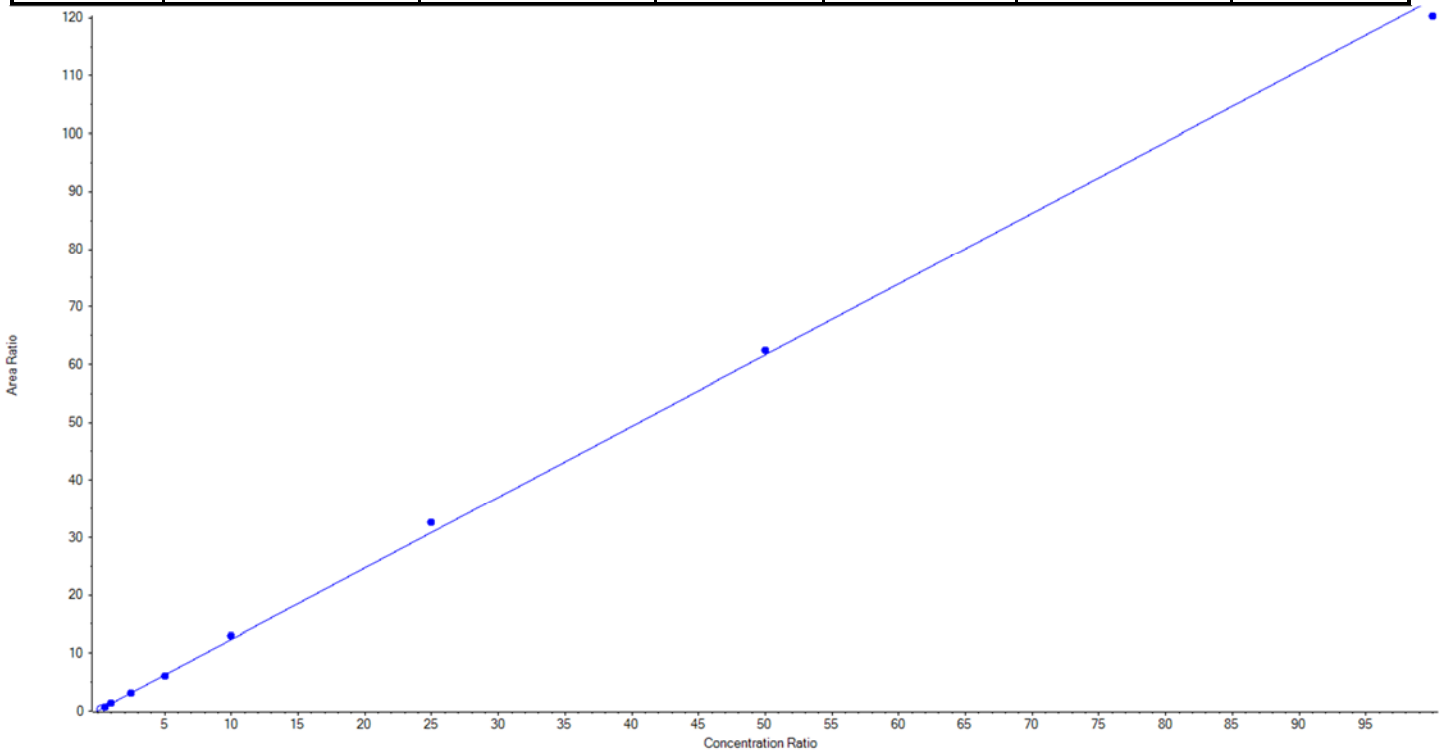
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFDoA_1	**Data File**	18-0323_a.wiff
MRM Transition	613.0 / 569.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.23128 x + 0.07118 (r = 0.99948) (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	24.824930	99.3
3	JV65	L2	True	50.00	43.635858	87.3
4	JV66	L3	True	100.00	106.354076	106.4
5	JV67	L4	True	250.00	252.199676	100.9
6	JV68	L5	True	500.00	480.991336	96.2
7	JV69	L6	True	1000.00	1047.086443	104.7
8	JV70	L7	True	2500.00	2642.406991	105.7
9	JV71	L8	True	5000.00	5061.789034	101.2
10	JV72	L9	True	10000.00	9765.536586	97.7



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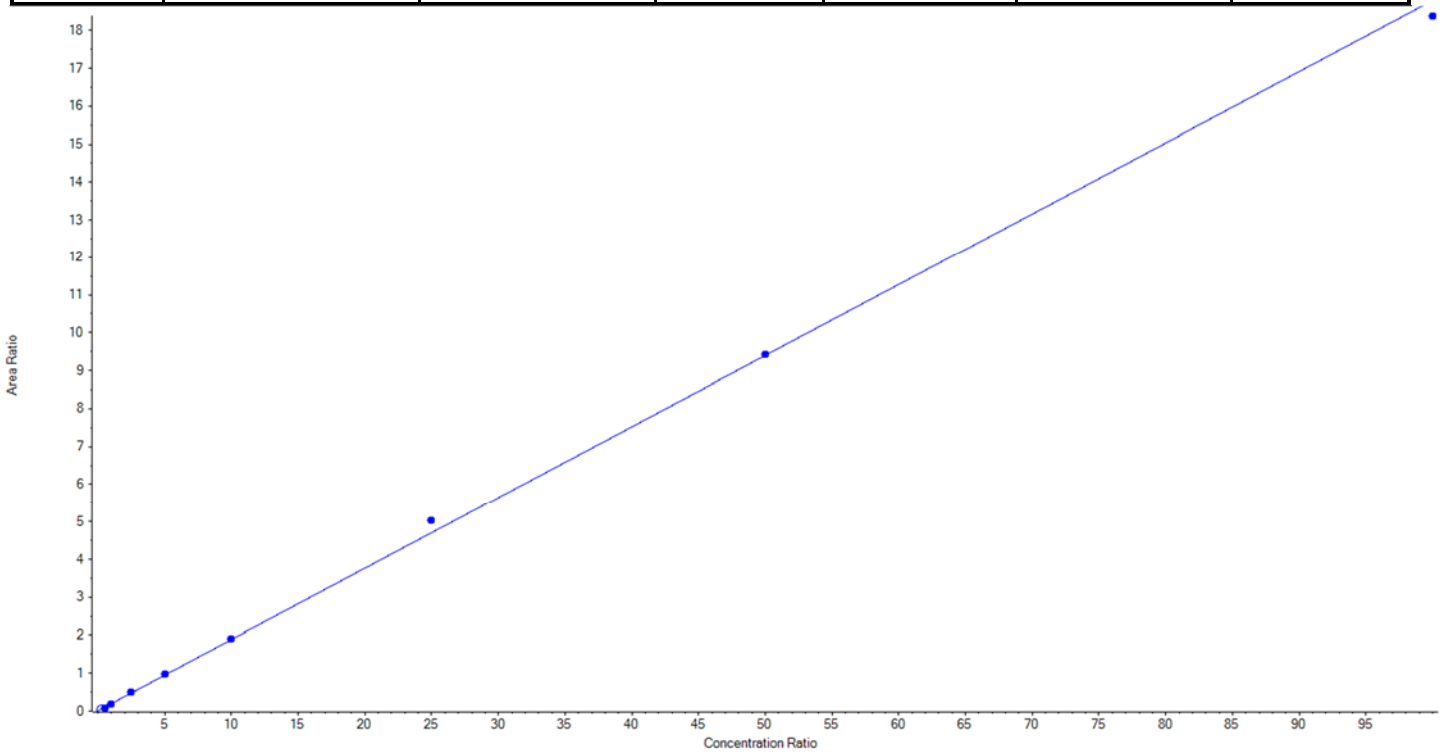
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFDoA_2	**Data File**	18-0323_a.wiff
MRM Transition	613.0 / 319.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.18779 x + 0.00924 (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	False	25.00	19.207800	76.8
3	JV65	L2	True	50.00	42.533917	85.1
4	JV66	L3	True	100.00	98.876865	98.9
5	JV67	L4	True	250.00	263.643850	105.5
6	JV68	L5	True	500.00	522.193528	104.4
7	JV69	L6	True	1000.00	1014.213618	101.4
8	JV70	L7	True	2500.00	2668.604659	106.7
9	JV71	L8	True	5000.00	5009.417222	100.2
10	JV72	L9	True	10000.00	9780.516341	97.8



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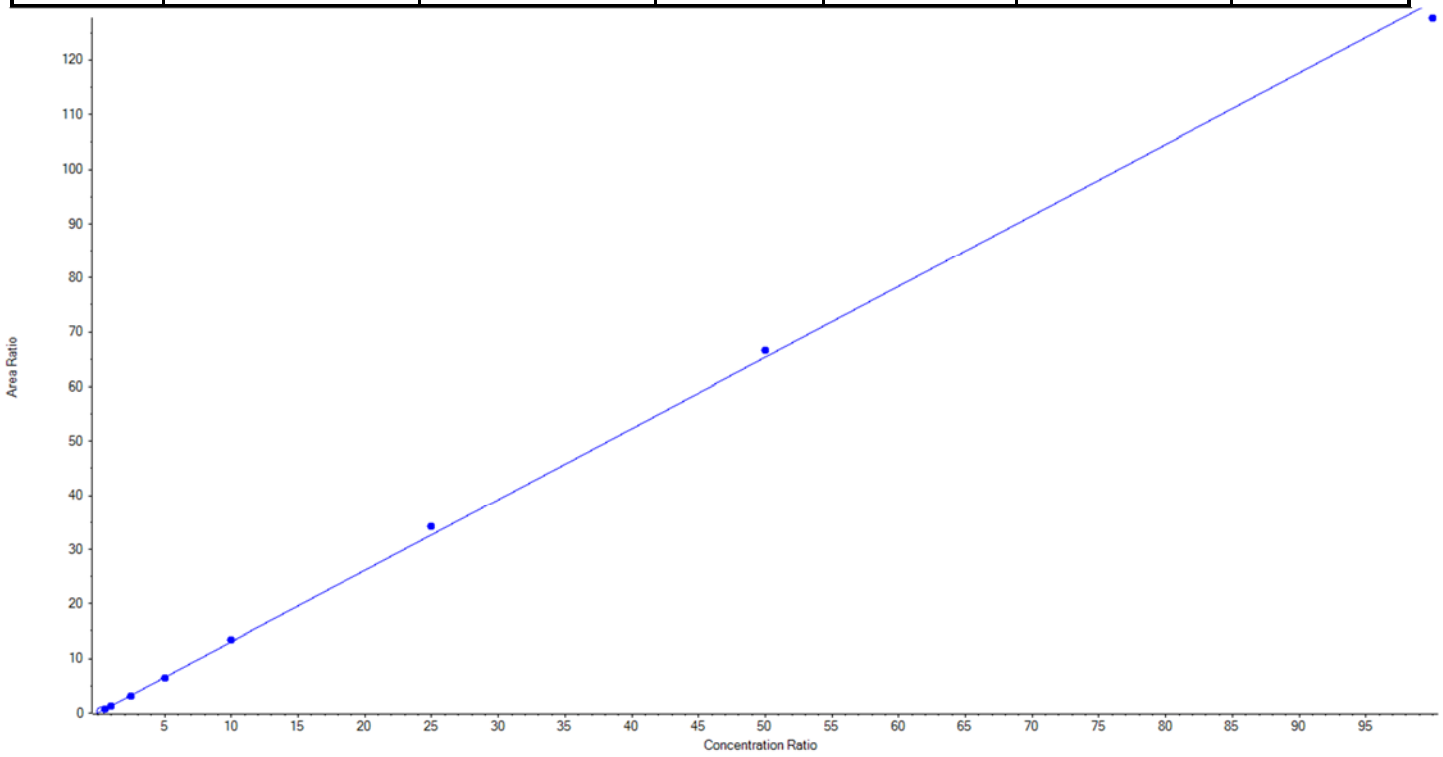
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFTrDA_1	**Data File**	18-0323_a.wiff
MRM Transition	663.0 / 619.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.30687 x + 0.01089 (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	28.713174	114.9
3	JV65	L2	True	50.00	48.509845	97.0
4	JV66	L3	True	100.00	100.321195	100.3
5	JV67	L4	True	250.00	241.058329	96.4
6	JV68	L5	True	500.00	492.849088	98.6
7	JV69	L6	True	1000.00	1032.209553	103.2
8	JV70	L7	True	2500.00	2622.636171	104.9
9	JV71	L8	True	5000.00	5091.540507	101.8
10	JV72	L9	True	10000.00	9770.875311	97.7



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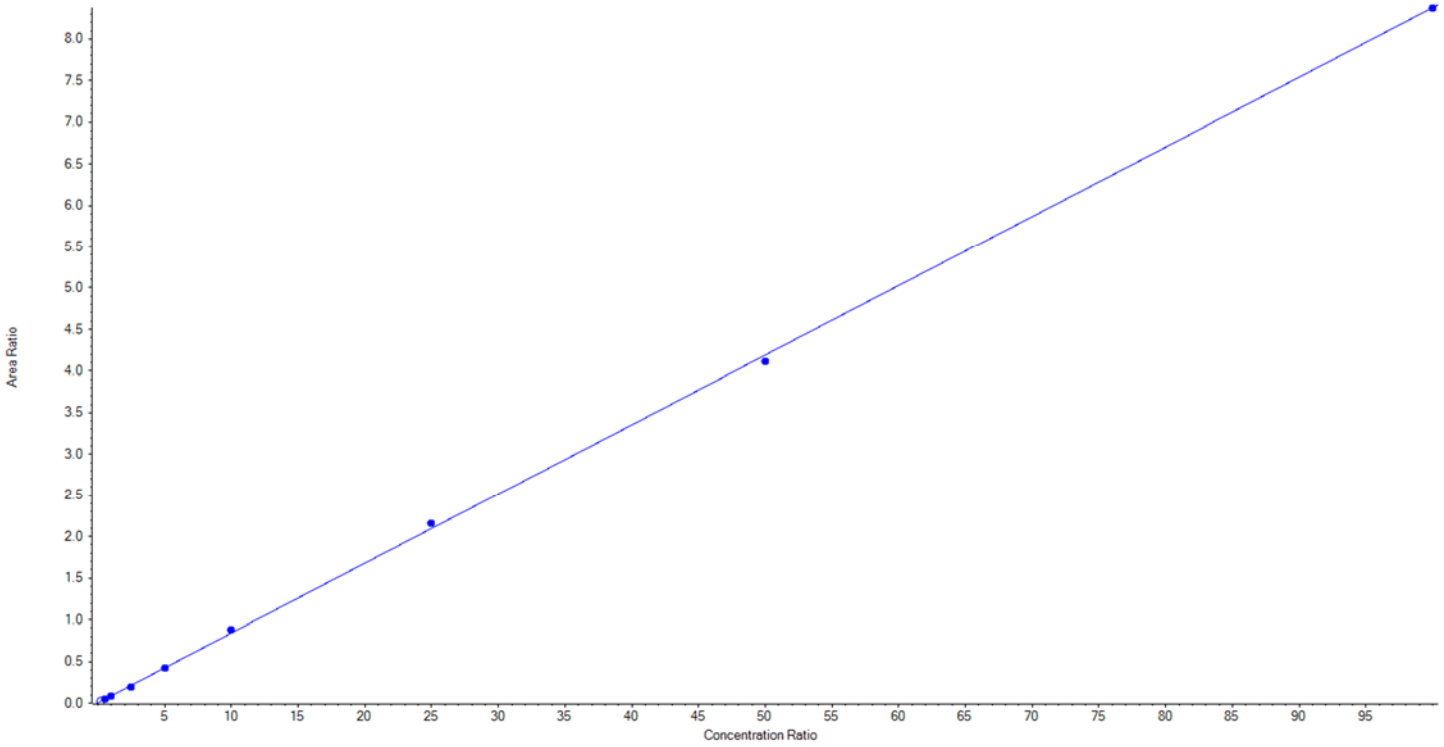
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFTrDA_2	**Data File**	18-0323_a.wiff
MRM Transition	663.0 / 169.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.08373 x + 0.00483 (r = 0.99971) (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	19.323442	77.3
3	JV65	L2	True	50.00	55.215404	110.4
4	JV66	L3	True	100.00	93.644045	93.6
5	JV67	L4	True	250.00	223.291323	89.3
6	JV68	L5	True	500.00	504.068053	100.8
7	JV69	L6	True	1000.00	1046.266095	104.6
8	JV70	L7	True	2500.00	2577.440336	103.1
9	JV71	L8	True	5000.00	4907.003619	98.1
10	JV72	L9	True	10000.00	9993.071125	99.9



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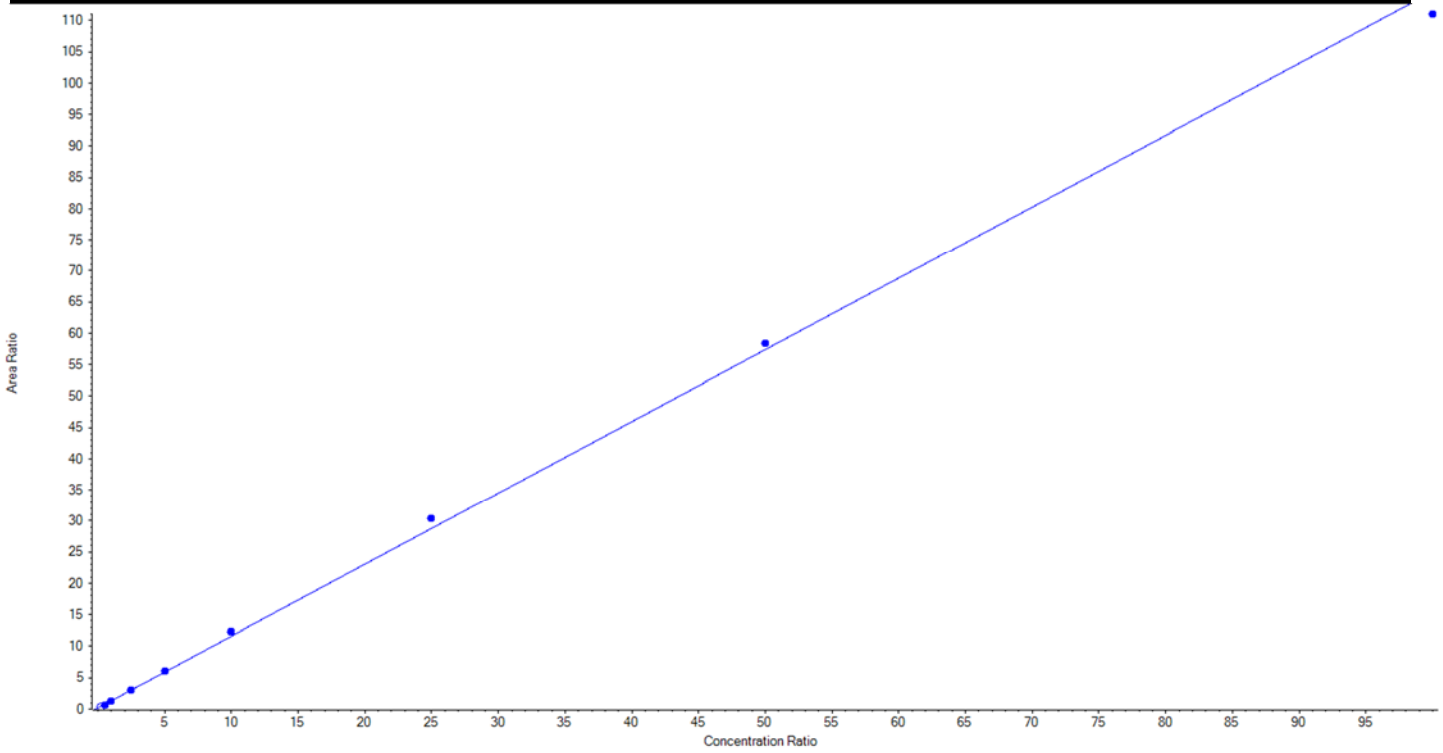
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFTeDA_1	**Data File**	18-0323_a.wiff
MRM Transition	713.0 / 669.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.14435 x + 0.17964 (r = 0.99927) (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	16.790869	67.2
3	JV65	L2	True	50.00	42.248997	84.5
4	JV66	L3	True	100.00	99.154730	99.2
5	JV67	L4	True	250.00	254.509826	101.8
6	JV68	L5	True	500.00	519.012972	103.8
7	JV69	L6	True	1000.00	1062.530353	106.3
8	JV70	L7	True	2500.00	2645.316655	105.8
9	JV71	L8	True	5000.00	5090.278470	101.8
10	JV72	L9	True	10000.00	9686.947996	96.9



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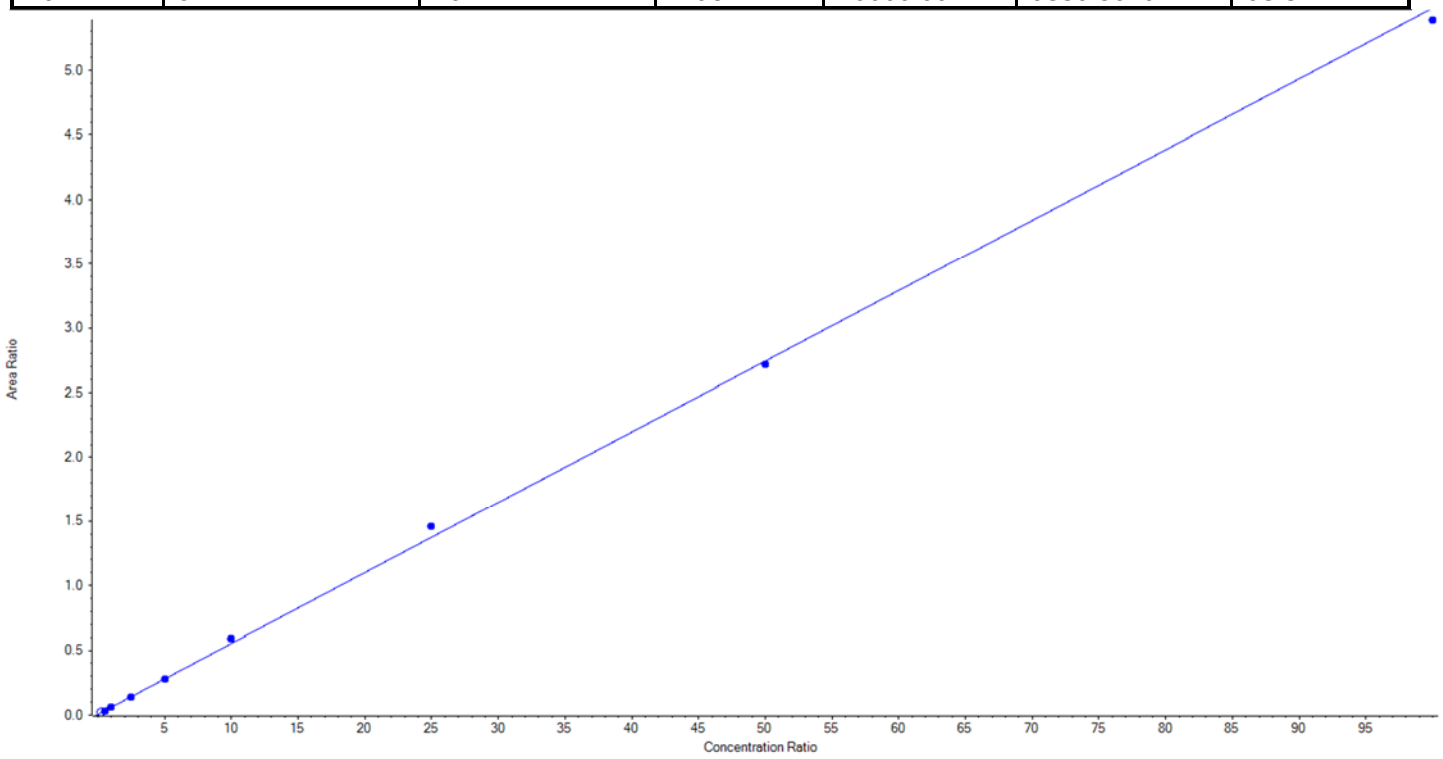
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	PFTeDA_2	**Data File**	18-0323_a.wiff
MRM Transition	713.0 / 169.0	**Result Table**	18-0323
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05476 x + 0.00624 (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	False	25.00	28.445527	113.8
3	JV65	L2	True	50.00	45.668523	91.3
4	JV66	L3	True	100.00	96.967123	97.0
5	JV67	L4	True	250.00	250.777179	100.3
6	JV68	L5	True	500.00	504.003442	100.8
7	JV69	L6	True	1000.00	1073.444202	107.3
8	JV70	L7	True	2500.00	2648.136520	105.9
9	JV71	L8	True	5000.00	4950.435998	99.0
10	JV72	L9	True	10000.00	9830.567014	98.3



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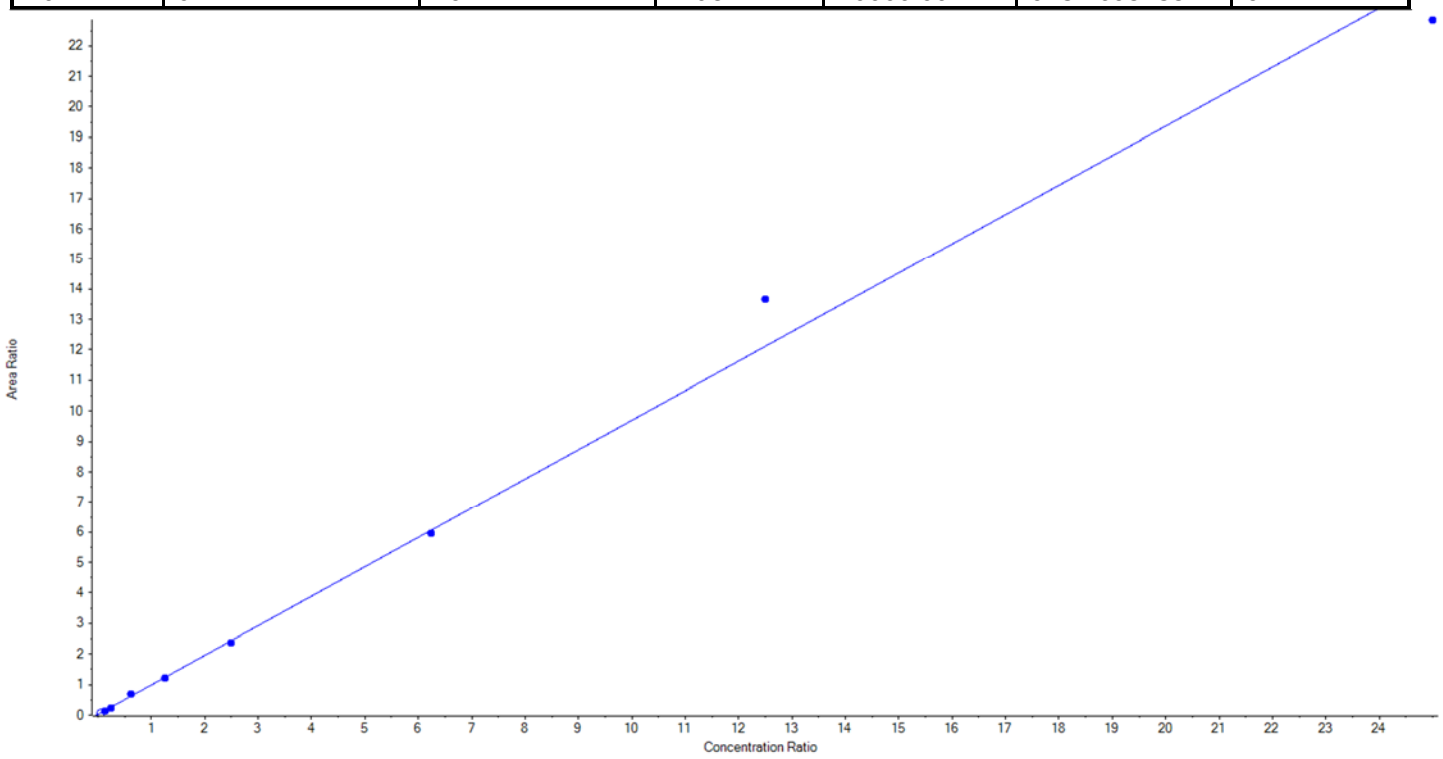
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	NMeFOSAA_1	**Data File**	18-0323_a.wiff
MRM Transition	570.0 / 419.0	**Result Table**	18-0323
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.96734 x + 0.02352 (r = 0.99662) (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	14.615041	58.5
3	JV65	L2	True	50.00	51.428290	102.9
4	JV66	L3	True	100.00	86.388066	86.4
5	JV67	L4	True	250.00	276.278135	110.5
6	JV68	L5	True	500.00	492.547029	98.5
7	JV69	L6	True	1000.00	965.465453	96.6
8	JV70	L7	True	2500.00	2450.362079	98.0
9	JV71	L8	True	5000.00	5639.835714	112.8
10	JV72	L9	True	10000.00	9437.695235	94.4



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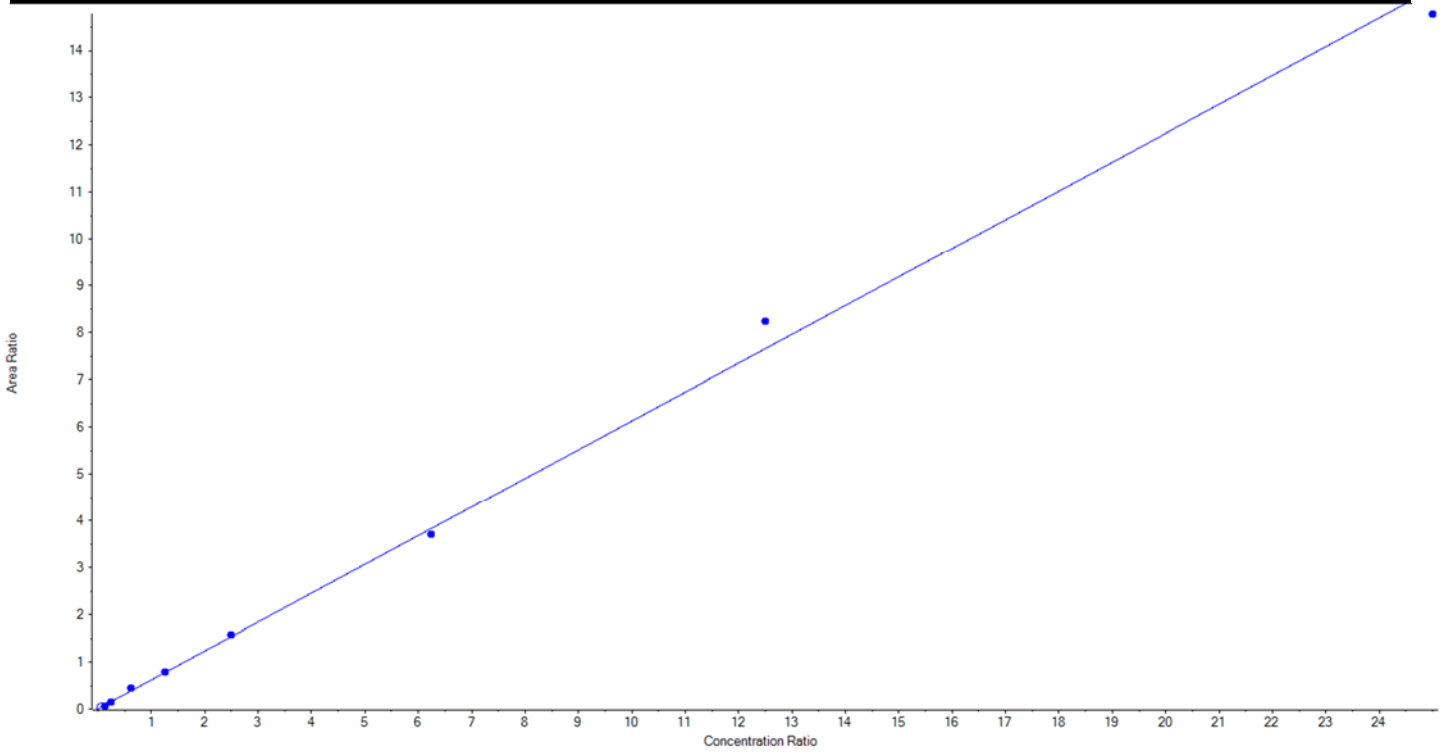
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	NMeFOSAA_2	**Data File**	18-0323_a.wiff
MRM Transition	570.0 / 512.0	**Result Table**	18-0323
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.61210 x + 0.00778 (r = 0.99857) (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	17.875559	71.5
3	JV65	L2	True	50.00	42.687919	85.4
4	JV66	L3	True	100.00	96.759944	96.8
5	JV67	L4	True	250.00	284.721606	113.9
6	JV68	L5	True	500.00	504.253212	100.9
7	JV69	L6	True	1000.00	1024.004171	102.4
8	JV70	L7	True	2500.00	2414.543131	96.6
9	JV71	L8	True	5000.00	5381.249136	107.6
10	JV72	L9	True	10000.00	9651.780881	96.5



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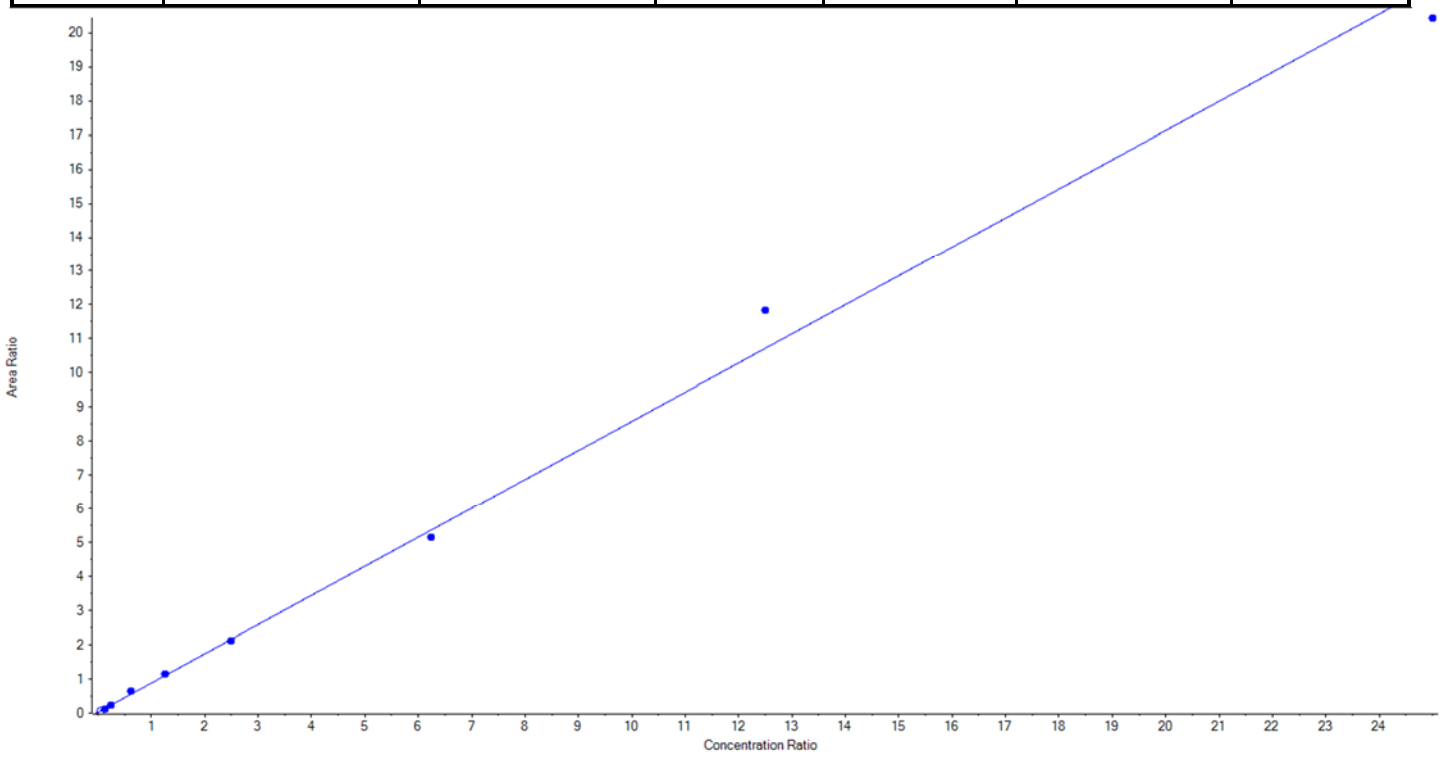
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	NEtFOSAA_1	**Data File**	18-0323_a.wiff
MRM Transition	584.0 / 419.0	**Result Table**	18-0323
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.85540 x + 0.02640 (r = 0.99747) (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	12.826261	51.3
3	JV65	L2	True	50.00	40.301910	80.6
4	JV66	L3	True	100.00	98.310430	98.3
5	JV67	L4	True	250.00	289.378563	115.8
6	JV68	L5	True	500.00	526.011871	105.2
7	JV69	L6	True	1000.00	984.319912	98.4
8	JV70	L7	True	2500.00	2394.844864	95.8
9	JV71	L8	True	5000.00	5523.783956	110.5
10	JV72	L9	True	10000.00	9543.048492	95.4



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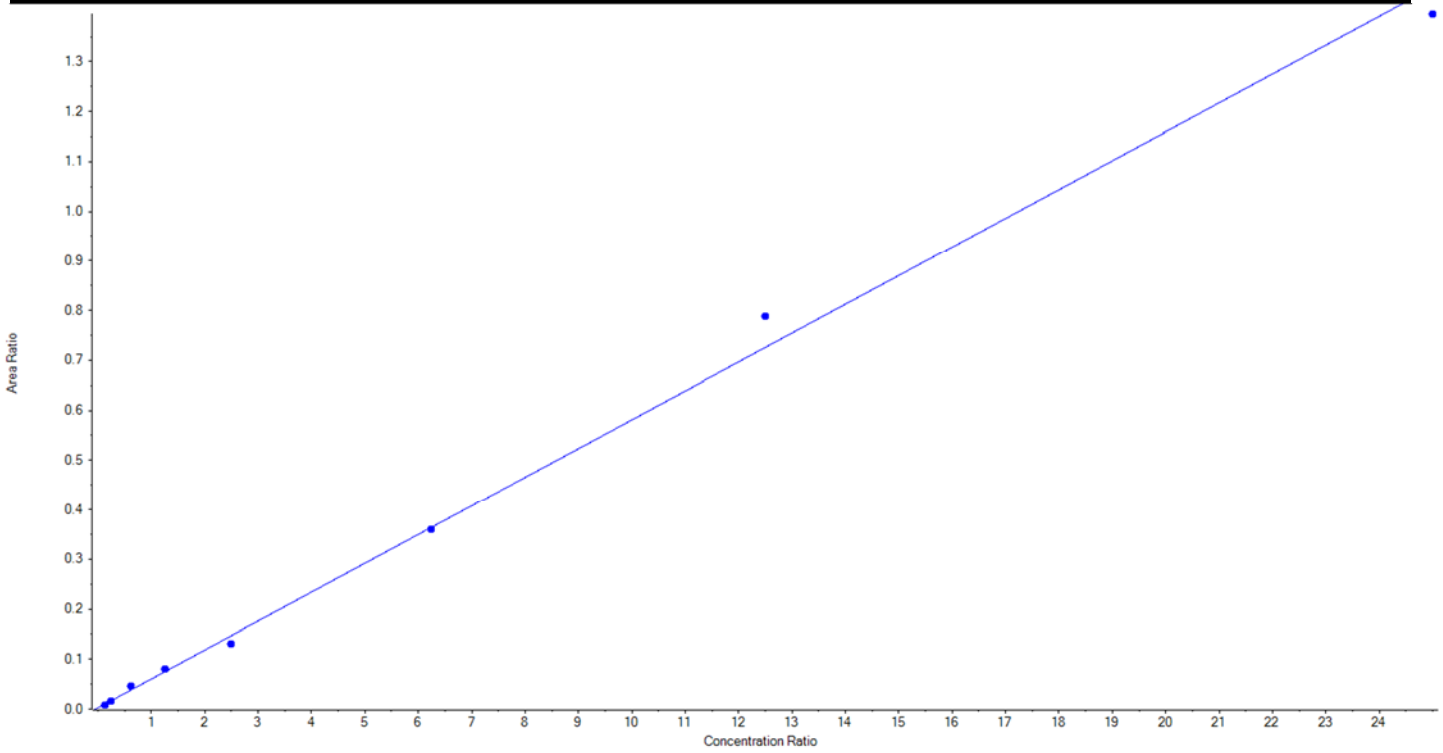
Calibration Summary Report

Created with Analyst Reporter
Printed: 31/05/2018 9:50:05 AM

Analyte Name	NEtFOSAA_2	**Data File**	18-0323_a.wiff
MRM Transition	584.0 / 483.0	**Result Table**	18-0323
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	5/30/2018 4:06:49 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05785 x + 0.00250 (r = 0.99782) (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	42.839713	85.7
4	JV66	L3	True	100.00	93.964449	94.0
5	JV67	L4	True	250.00	296.505881	118.6
6	JV68	L5	True	500.00	544.636687	108.9
7	JV69	L6	True	1000.00	892.428204	89.2
8	JV70	L7	True	2500.00	2464.715066	98.6
9	JV71	L8	True	5000.00	5434.591182	108.7
10	JV72	L9	True	10000.00	9630.318817	96.3



	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

Sample Name	JV64	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-30T16:15:50	**Data File**	18-0323_a.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0323
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.372	0.324	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.082	0.071	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.016	0.020	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.294	0.296	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.089	0.068	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.335	0.301	ü
PFOS_1	499.0 / 80.0	2.95	PFOS			
PFOS_2	499.0 / 99.0	2.95	PFOS	0.240	0.188	ü
PFDA_1	513.0 / 469.0	3.31	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.052	0.040	ü
PFUnA_1	563.0 / 519.0	3.63	PFUnA			
PFUnA_2	563.0 / 269.0	3.64	PFUnA	0.035	0.046	ü
PFDoA_1	613.0 / 569.0	3.92	PFDoA			
PFDoA_2	613.0 / 319.0	3.92	PFDoA	0.120	0.152	ü
PFTrDA_1	663.0 / 619.0	4.17	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.16	PFTrDA	0.054	0.066	ü
PFTeDA_1	713.0 / 669.0	4.39	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.39	PFTeDA	0.059	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.46	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.46	NMeFOSAA	0.597	0.624	ü
NEtFOSAA_1	584.0 / 419.0	3.63	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.069	
13C2-PFHxA	315.0 / 270.0	1.79				
13C2-PFDA	515.0 / 470.0	3.30		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.62		N/A	N/A	ü

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Summary Ion Ratio Report

Sample Name	JV65	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-30T16:24:46	**Data File**	18-0323_a.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0323
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.375	0.324	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.068	0.071	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.16	PFHpA	0.020	0.020	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.283	0.296	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.073	0.068	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.291	0.301	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.210	0.188	ü
PFDA_1	513.0 / 469.0	3.30	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.050	0.040	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.051	0.046	ü
PFDoA_1	613.0 / 569.0	3.91	PFDoA			
PFDoA_2	613.0 / 319.0	3.91	PFDoA	0.147	0.152	ü
PFTrDA_1	663.0 / 619.0	4.17	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.16	PFTrDA	0.079	0.066	ü
PFTeDA_1	713.0 / 669.0	4.39	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.39	PFTeDA	0.047	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.494	0.624	ü
NEtFOSAA_1	584.0 / 419.0	3.62	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.077	0.069	ü
13C2-PFHxA	315.0 / 270.0	1.79				
13C2-PFDA	515.0 / 470.0	3.29		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.61		N/A	N/A	ü

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Summary Ion Ratio Report

Sample Name	JV66	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-30T16:33:42	**Data File**	18-0323_a.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0323
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.326	0.324	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.075	0.071	ü
PFHpA_1	363.0 / 319.0	2.17	PFHpA			
PFHpA_2	363.0 / 169.0	2.16	PFHpA	0.018	0.020	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.307	0.296	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.060	0.068	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.316	0.301	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.171	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.042	0.040	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.043	0.046	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.141	0.152	ü
PFTrDA_1	663.0 / 619.0	4.16	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.16	PFTrDA	0.063	0.066	ü
PFTeDA_1	713.0 / 669.0	4.38	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.38	PFTeDA	0.045	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.671	0.624	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.58	NEtFOSAA	0.068	0.069	ü
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.28		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.60		N/A	N/A	ü

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Summary Ion Ratio Report

Sample Name	JV67	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-30T16:42:37	**Data File**	18-0323_a.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0323
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.313	0.324	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.073	0.071	ü
PFHpA_1	363.0 / 319.0	2.17	PFHpA			
PFHpA_2	363.0 / 169.0	2.17	PFHpA	0.018	0.020	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.299	0.296	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.072	0.068	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.294	0.301	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.196	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.040	0.040	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.045	0.046	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.159	0.152	ü
PFTrDA_1	663.0 / 619.0	4.16	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.16	PFTrDA	0.061	0.066	ü
PFTeDA_1	713.0 / 669.0	4.38	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.38	PFTeDA	0.046	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.641	0.624	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.61	NEtFOSAA	0.070	0.069	ü
13C2-PFHxA	315.0 / 270.0	1.79				
13C2-PFDA	515.0 / 470.0	3.28		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.60		N/A	N/A	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	2018-05-30T16:51:32	**Data File**	18-0323_a.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0323
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.317	0.324	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.070	0.071	ü
PFHpA_1	363.0 / 319.0	2.17	PFHpA			
PFHpA_2	363.0 / 169.0	2.16	PFHpA	0.022	0.020	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.303	0.296	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.069	0.068	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.314	0.301	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.187	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.037	0.040	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.045	0.046	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.165	0.152	ü
PFTrDA_1	663.0 / 619.0	4.16	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.066	0.066	ü
PFTeDA_1	713.0 / 669.0	4.38	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.046	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.642	0.624	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.071	0.069	ü
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.28		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.60		N/A	N/A	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	2018-05-30T17:00:28	**Data File**	18-0323_a.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0323
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.317	0.324	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.069	0.071	ü
PFHpA_1	363.0 / 319.0	2.16	PFHpA			
PFHpA_2	363.0 / 169.0	2.16	PFHpA	0.022	0.020	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.295	0.296	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.068	0.068	ü
PFNA_1	463.0 / 419.0	2.93	PFNA			
PFNA_2	463.0 / 219.0	2.93	PFNA	0.294	0.301	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.180	0.188	ü
PFDA_1	513.0 / 469.0	3.28	PFDA			
PFDA_2	513.0 / 219.0	3.28	PFDA	0.036	0.040	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.047	0.046	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.148	0.152	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.065	0.066	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.048	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.43	NMeFOSAA	0.668	0.624	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.062	0.069	ü
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.27		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.59		N/A	N/A	ü

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Summary Ion Ratio Report

Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-30T17:09:23	**Data File**	18-0323_a.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0323
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.310	0.324	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.072	0.071	ü
PFHpA_1	363.0 / 319.0	2.16	PFHpA			
PFHpA_2	363.0 / 169.0	2.16	PFHpA	0.022	0.020	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.298	0.296	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.068	0.068	ü
PFNA_1	463.0 / 419.0	2.93	PFNA			
PFNA_2	463.0 / 219.0	2.93	PFNA	0.299	0.301	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.190	0.188	ü
PFDA_1	513.0 / 469.0	3.28	PFDA			
PFDA_2	513.0 / 219.0	3.28	PFDA	0.039	0.040	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.048	0.046	ü
PFDoA_1	613.0 / 569.0	3.89	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.154	0.152	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.063	0.066	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.048	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.43	NMeFOSAA	0.622	0.624	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.070	0.069	ü
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.27		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.59		N/A	N/A	ü

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Summary Ion Ratio Report

Sample Name	JV71	**Injection Vial**	9
Sample ID	L8	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-30T17:18:18	**Data File**	18-0323_a.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0323
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.318	0.324	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.072	0.071	ü
PFHpA_1	363.0 / 319.0	2.16	PFHpA			
PFHpA_2	363.0 / 169.0	2.16	PFHpA	0.020	0.020	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.289	0.296	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.069	0.068	ü
PFNA_1	463.0 / 419.0	2.93	PFNA			
PFNA_2	463.0 / 219.0	2.93	PFNA	0.300	0.301	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.190	0.188	ü
PFDA_1	513.0 / 469.0	3.28	PFDA			
PFDA_2	513.0 / 219.0	3.28	PFDA	0.040	0.040	ü
PFUnA_1	563.0 / 519.0	3.60	PFUnA			
PFUnA_2	563.0 / 269.0	3.60	PFUnA	0.047	0.046	ü
PFDoA_1	613.0 / 569.0	3.89	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.151	0.152	ü
PFTrDA_1	663.0 / 619.0	4.14	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.062	0.066	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.047	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.43	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.43	NMeFOSAA	0.603	0.624	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.067	0.069	ü
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.27		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.59		N/A	N/A	ü

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Summary Ion Ratio Report

Sample Name	JV72	**Injection Vial**	10
Sample ID	L9	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-30T17:27:15	**Data File**	18-0323_a.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0323
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.319	0.324	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.070	0.071	ü
PFHpA_1	363.0 / 319.0	2.16	PFHpA			
PFHpA_2	363.0 / 169.0	2.16	PFHpA	0.021	0.020	ü
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.17	PFHxS	0.296	0.296	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.066	0.068	ü
PFNA_1	463.0 / 419.0	2.93	PFNA			
PFNA_2	463.0 / 219.0	2.92	PFNA	0.298	0.301	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.183	0.188	ü
PFDA_1	513.0 / 469.0	3.27	PFDA			
PFDA_2	513.0 / 219.0	3.27	PFDA	0.038	0.040	ü
PFUnA_1	563.0 / 519.0	3.60	PFUnA			
PFUnA_2	563.0 / 269.0	3.60	PFUnA	0.045	0.046	ü
PFDoA_1	613.0 / 569.0	3.89	PFDoA			
PFDoA_2	613.0 / 319.0	3.88	PFDoA	0.153	0.152	ü
PFTrDA_1	663.0 / 619.0	4.14	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.066	0.066	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.049	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.43	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.42	NMeFOSAA	0.647	0.624	ü
NEtFOSAA_1	584.0 / 419.0	3.59	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.068	0.069	ü
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.26		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.58		N/A	N/A	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	2018-05-30T17:36:11	**Data File**	18-0323_a.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0323
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.50	740.890089	885.00	83.72
PFBS_2	298.9 / 99.0	1.50	739.368829	885.00	83.54
PFHxA_1	313.0 / 269.0	1.79	976.420052	1000.00	97.64
PFHxA_2	313.0 / 119.0	1.79	992.209216	1000.00	99.22
PFHpA_1	363.0 / 319.0	2.16	951.233368	1000.00	95.12
PFHpA_2	363.0 / 169.0	2.16	1018.911449	1000.00	101.89
PFHxS_1	399.0 / 80.0	2.18	830.994784	912.00	91.12
PFHxS_2	399.0 / 99.0	2.18	805.590379	912.00	88.33
PFOA_1	413.0 / 369.0	2.54	969.673500	1000.00	96.97
PFOA_2	413.0 / 169.0	2.54	994.728762	1000.00	99.47
PFNA_1	463.0 / 419.0	2.93	1035.077651	1000.00	103.51
PFNA_2	463.0 / 219.0	2.93	1004.625900	1000.00	100.46
PFOS_1	499.0 / 80.0	2.92	815.561862	925.60	88.11
PFOS_2	499.0 / 99.0	2.92	941.551456	925.60	101.72
PFDA_1	513.0 / 469.0	3.28	1008.536547	1000.00	100.85
PFDA_2	513.0 / 219.0	3.28	1003.566736	1000.00	100.36
PFUnA_1	563.0 / 519.0	3.60	987.508023	1000.00	98.75
PFUnA_2	563.0 / 269.0	3.60	1040.161257	1000.00	104.02
PFDoA_1	613.0 / 569.0	3.88	994.219306	1000.00	99.42
PFDoA_2	613.0 / 319.0	3.88	1011.740564	1000.00	101.17
PFTrDA_1	663.0 / 619.0	4.14	965.433459	1000.00	96.54
PFTrDA_2	663.0 / 169.0	4.13	1063.182548	1000.00	106.32
PFTeDA_1	713.0 / 669.0	4.36	942.473657	1000.00	94.25
PFTeDA_2	713.0 / 169.0	4.36	947.978556	1000.00	94.80
NMeFOSAA_1	570.0 / 419.0	3.43	1057.726783	1000.00	105.77
NMeFOSAA_2	570.0 / 512.0	3.43	955.683008	1000.00	95.57
NEtFOSAA_1	584.0 / 419.0	3.59	1063.092831	1000.00	106.31
NEtFOSAA_2	584.0 / 483.0	3.59	1172.717590	1000.00	117.27
13C2-PFHxA	315.0 / 270.0	1.78	96.387828	100.00	96.39
13C2-PFDA	515.0 / 470.0	3.27	93.684630	100.00	93.68
d5-EtFOSAA	589.0 / 419.0	3.58	379.067649	400.00	94.77

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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	2018-05-30T18:47:46	**Data File**	18-0323_a.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0323
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	419.042372	443.00	94.59
PFBS_2	298.9 / 99.0	1.49	393.594689	443.00	88.85
PFHxA_1	313.0 / 269.0	1.78	508.757718	500.00	101.75
PFHxA_2	313.0 / 119.0	1.78	488.543828	500.00	97.71
PFHpA_1	363.0 / 319.0	2.15	496.419779	500.00	99.28
PFHpA_2	363.0 / 169.0	2.15	504.786108	500.00	100.96
PFHxS_1	399.0 / 80.0	2.16	432.368220	456.00	94.82
PFHxS_2	399.0 / 99.0	2.16	450.268533	456.00	98.74
PFOA_1	413.0 / 369.0	2.53	529.141470	500.00	105.83
PFOA_2	413.0 / 169.0	2.53	550.975269	500.00	110.20
PFNA_1	463.0 / 419.0	2.91	506.671862	500.00	101.33
PFNA_2	463.0 / 219.0	2.91	510.766097	500.00	102.15
PFOS_1	499.0 / 80.0	2.91	463.927698	463.00	100.20
PFOS_2	499.0 / 99.0	2.91	483.371228	463.00	104.40
PFDA_1	513.0 / 469.0	3.26	501.997361	500.00	100.40
PFDA_2	513.0 / 219.0	3.26	512.558639	500.00	102.51
PFUnA_1	563.0 / 519.0	3.59	552.910096	500.00	110.58
PFUnA_2	563.0 / 269.0	3.59	539.781980	500.00	107.96
PFDoA_1	613.0 / 569.0	3.87	523.512028	500.00	104.70
PFDoA_2	613.0 / 319.0	3.87	521.653958	500.00	104.33
PFTrDA_1	663.0 / 619.0	4.13	517.058044	500.00	103.41
PFTrDA_2	663.0 / 169.0	4.12	528.847437	500.00	105.77
PFTeDA_1	713.0 / 669.0	4.35	463.721136	500.00	92.74
PFTeDA_2	713.0 / 169.0	4.34	478.711931	500.00	95.74
NMeFOSAA_1	570.0 / 419.0	3.42	540.668010	500.00	108.13
NMeFOSAA_2	570.0 / 512.0	3.41	527.941679	500.00	105.59
NEtFOSAA_1	584.0 / 419.0	3.58	536.759897	500.00	107.35
NEtFOSAA_2	584.0 / 483.0	3.57	511.708153	500.00	102.34
13C2-PFHxA	315.0 / 270.0	1.77	96.270923	100.00	96.27
13C2-PFDA	515.0 / 470.0	3.25	97.254632	100.00	97.25
d5-EtFOSAA	589.0 / 419.0	3.57	445.865003	400.00	111.47

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Summary Quant Report

Created with Analyst Reporter
Printed: 24/05/2018 1:09:20 PM

Sample Calculation

Sample Name	J6206-FS(0)	**Injection Vial**	15
Sample ID	WGNA-051018-RW-3220	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-05-17T11:25:33	**Data File**	18-0287.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0315_18-0316_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.44	7879058.45	28796.907387	1182.8	false
PFBS_2	298.9 / 99.0	1.44	2526923.17	28688.191324	1455.4	false
PFHxA_1	313.0 / 269.0	1.71	1027409.27	3373.195951	289.9	false
PFHxA_2	313.0 / 119.0	1.71	73169.76	3501.264991	240.8	false
PFHpA_1	363.0 / 319.0	2.06	566140.40	2032.436766	177.2	false
PFHpA_2	363.0 / 169.0	2.05	13223.63	2307.603836	182.9	false
PFHxS_1	399.0 / 80.0	2.08	1343374.09	4619.716442	293.5	false
PFHxS_2	399.0 / 99.0	2.08	373544.95	4304.286349	323.3	false
PFOA_1	413.0 / 369.0	2.43	927392.44	2778.845175	380.2	false
PFOA_2	413.0 / 169.0	2.42	82946.12	3745.044475	444.3	false
PFNA_1	463.0 / 419.0	2.80	181990.78	537.320075	184.9	false
PFNA_2	463.0 / 219.0	2.80	57960.66	575.005409	226.3	false
PFOS_1	499.0 / 80.0	2.79	3294822.19	7887.554553	309.2	false
PFOS_2	499.0 / 99.0	2.80	598816.14	7344.712045	399.6	false
PFDA_1	513.0 / 469.0	3.15	25421.27	68.879376	98.8	false
PFDA_2	513.0 / 219.0	3.16	1081.31	37.138374	64.2	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	4.22	838.42	2.331177	33.2	false
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true

Sample calc PFOA 10.49 ng/L
y=1.02707x+0.06616

((927392.44 / 32418.61)-0.06616) / 1.02707) * 100 * 0.001 / 0.265 = 10.486 ng/L

MS PFOA 80% 33.18-10.49/28.30*100=80.18%
MSD PFOA 92% 36.43-10.49/28.30*100=91.66%
MS/MSD RPD 14.0% (80-92)/80+92/2)*100=13.9%

LCS PFOA 96% 19.17/20.00*100=95.85%

Preliminary Data - For Official Use Only

C:\All_Projects\112G08005\WE04\FS.DR.03\WGNA_201901.mxd MKB 2/14/2019

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	