



**Off-Base Drinking Water Sample Results,  
Level 4 Laboratory Report, Electronic Data Deliverable,  
Data Validation Report, and the Sample Location Figure,  
SDG 18-0534**

*Naval Air Station Jacksonville  
Jacksonville, Florida*

July 2019

N00207\_004456  
NAS JACKSONVILLE, FL  
SSIC 5000-33c

**LABORATORY DATA PACKAGE 18-0534 NAS JACKSONVILLE FL**  
08/31/2018  
BATTELLE

Approved for public release: distribution unlimited.

**CTO-SE0375: Naval Air Station Jacksonville**  
**Project No 100119154-SE0375**  
**PFAS in drinking water**

*W*

*Batch 18-0534*

*Package DP-18-0246*

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

***BATTELLE***

**It can be done**

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661 Anderson Drive Foster Plaza 7  
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NELAP Accreditation Number: E87856 (Florida Department of Health)

DoD-ELAP Accreditation Number: 91667

Submitted by:

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

Analyst Approval:



schumitzd@battelle.org  
2018.08.31 13:40:54 -04'00'

QC Chemist Approval:



Digitally signed by devinec@battelle.org  
DN: cn=devinec@battelle.org  
Date: 2018.09.04 13:06:05 -04'00'

Project Manager Approval:



Digitally signed by Jonathan Thorn  
Date: 2018.09.04 13:34:59 -04'00'

**BATTELLE**  
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# CTO-SE0375: Naval Air Station Jacksonville

## Project No 100119154-SE0375

### PFAS in drinking water

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## Sample Summary

Client: Tetra Tech Inc.


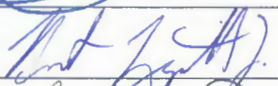



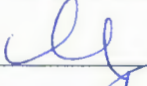
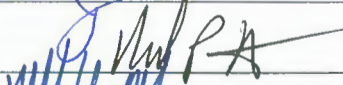

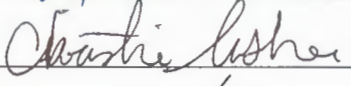
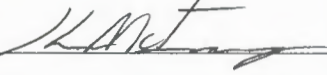
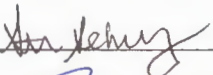

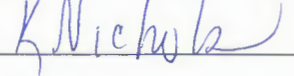

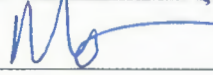
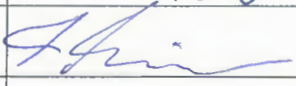
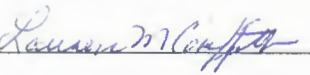
SDG: 18-0534

Project/Site: Naval Air Station (NAS) Jacksonville

CTO: SE0375

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Receipt Date
CR676PB-FS	Procedural Blank	WATER	8/28/2018	8/28/2018
CR677LCS-FS	Laboratory Control Sample	WATER	8/28/2018	8/28/2018
J7430-FS1	JAX-RES-08142018-1130-9	W	8/14/2018	8/15/2018
J7445-FS1	JAX-RES-08152018-0930-18	W	8/15/2018	8/16/2018
J7447-FS1	JAX-RES-08152018-1015-34	W	8/15/2018	8/16/2018
J7449-FS1	JAX-RES-08152018-1045-33	W	8/15/2018	8/16/2018
J7451-FS1	JAX-RES-08152018-1130-15	W	8/15/2018	8/16/2018

## Signature Page

Battelle 2018 (1 of 2) Signature Page			
Name (Printed)	Signature	Initials	Date
Jonathan Thorn		JRT	4/4/2018
Robert Lizotte, Jr.		BL	4-4-2018
FRANC PALA		FP	4-4-2018
Carla Devine		CRD	4/4/18
Denise Schmitz		DUS	4/4/18
Charles Keenan McLaughlin		CKM	4/4/2018
Rich Rostucci		RR	4/4/2018
Michael Mendez		MM	4/4/2018
Christie Usher		CU	4/4/18
Kevin Matracas		KM	4/4/18
Stephanie Schmitz		SAS	4/4/18
Jordan Tower		JT	4/4/18
KRISTEN NICHOLS		KN	4/4/18
Quimico H Brown		CB	4/4/18
Matt Schmitz		MS	4-4-18
Sam Guimaraes		SG	4-4-18
Lauren Griffith		LMG	4.4.18





# Work Plan



It can be done

## WORK/QUALITY ASSURANCE PROJECT PLAN

### 1.0 GENERAL PROJECT INFORMATION

**Project Title:** CTO-SE0375: Drinking Water Analysis  
**Project Number:** 100119154-SE0375  
**Client:** Tetra Tech  
 661 Anderson Drive Foster Plaza 7  
 Pittsburgh, PA 15220  
 USA  
  
**Client Contact Information:** Mark Peterson  
 Project Manager  
 (904) 636-6125(V)  
 (904) 636-6165(F)  
 mark.peterson@tetrattech.com  
  
**Effective Date of QAPP:** 8/14/2018  
**Version Number:** 100119154-SE0375(L)-03  
**Project Manager:** Thorn, Jonathan  
**Laboratory Task Manager:** Thorn, Jonathan  
**Deliverable Due Date:** 8/21/2018

### 2.0 SCOPE OF WORK

**Overview:** Analysis of drinking water samples for PFAS.  
**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:** None  
**Archiving:** Store for six months after delivery of final data.  
**Disposal:** Dispose of samples in the appropriate waste stream.



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## WORK/QUALITY ASSURANCE PROJECT PLAN

### 2.1.2 Sample Preparation

Samples to arrive over a period of weeks.

Samples Expected:	Samples Per Batch:	Batches Expected:
50	20	3

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	
LCS	Laboratory Control Sample	1 per batch	No	NA	
MS	Spiked field sample for determining method accuracy in the presence of matrix.	1 per batch	--	NA	MS/MSD identified on COC forms
MSD	Spiked field sample for determining method accuracy and precision in the presence of matrix.	1 per batch	--	NA	MS/MSD identified on COC forms

### 2.1.3 Extraction/Preparation

#### 2.1.3.1 Extraction

SOP No.-Rev:	<b>5-371-03</b>
SOP Title:	<i>ANALYSIS OF POLY AND PERFLUOROALKYL SUBSTANCES IN DRINKING WATER SAMPLES BY LIQUID CHROMATOGRAPHY AND TANDEM MASS SPECTROMETRY (LC-MS/MS) FOLLOWING EPA METHOD 537.1</i>
Sample Size:	250 ml
SIS and LCS/MS Compounds:	Defined in Table 2.
Deviations:	None.
Comments:	FRB samples to be extracted after review of the initial results. FRB will only be processed if PFAS analytes are present in the field sample.

**Table 2: SIS and LCS/MS Spiking Level**

Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - 537.1 Surrogate Solution	JX76 SIS	~ 0.100 - 0.40 ng	50 uL	NA



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## WORK/QUALITY ASSURANCE PROJECT PLAN

Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - 537.1 Second Source LCS/MS Solution	JZ28 LCS/MS	~ 4.0 - 5.0 ng	100 uL	Vary MS/MSD samples at 100, 125, and 150 µL across the batches.
PFAS - 537.1 Second Source LCS/MS Solution	JZ28 LCS/MS	~ 2.00 - 2.50 ng	50 uL	Vary LCS samples at 50, 75, 100 µL spikes across batches

### 2.1.3.2 Cleanup

None.

RIS spiking levels are presented in Table 3.

Extract PIV (uL): 1000

**Table 3: RIS Spiking Level**

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

### 2.1.4 Instrumental Analysis

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

- SOP\_No-Rev: **5-371-03**

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

Deviations: None.

Comments: FRB samples to be extracted after review of the initial results. FRB will only be processed if PFAS analytes are present in the field sample.



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## WORK/QUALITY ASSURANCE PROJECT PLAN

### 2.2. DELIVERABLES

<b>Deliverables Due:</b>	8/21/2018
<b>LIMS Reports:</b>	No
<b>Histograms:</b>	No
<b>Excel Tables:</b>	Yes
<b>EICs:</b>	No
<b>Chromatograms:</b>	Yes
<b>EDDs:</b>	Yes
<b>Comments:</b>	<ul style="list-style-type: none"> <li>• Excel data tables due in 7 days, full data package in 14 days</li> <li>• Data package compliant with QSM 5.1 Table B-15</li> <li>• Preliminary data tables will use ND and not the LOD value, tables in full data package will follow QSM reporting criteria</li> <li>• Tetra Tech EDD format</li> </ul>

### 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
Lauren M. Griffith	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



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## WORK/QUALITY ASSURANCE PROJECT PLAN

The project schedule is presented in Table 5.

**Table 5. Schedule of Laboratory Activities**

<b>Activity:</b>	<b>Start Date:</b>	<b>End Date:</b>	<b>TAT (days):</b>	<b>Comment:</b>
Sample Receipt	08/14/2018	08/14/2018	0	NA
Sample Preparation	08/14/2018	08/16/2018	2	NA
Instrument Analysis	08/16/2018	08/20/2018	4	NA
Quality Control Review	08/20/2018	08/21/2018	1	NA
Final Data Reporting	08/21/2018	08/28/2018	7	NA
Quality Assurance Review	08/21/2018	08/21/2018	0	NA

### 6.0 BUDGET

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

**Table 6. Labor Budget (Laboratory Analytical Task)**

<b>Labor Activity:</b>	<b>Hours/ Batch:</b>	<b>Batches:</b>	<b>Total Hours:</b>	<b>Comment:</b>
Sample Receipt	2	1	2	Hours for each task are based on full batches of 20 samples.
Sample Preparation	8	1	8	NA
Instrument Analysis	8	1	8	NA
Quality Control Review	3	1	3	NA
Final Data Reporting	1	1	1	NA
Quality Assurance Review	1	1	1	NA

### 7.0 STAFF DEVELOPMENT

None anticipated.



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## WORK/QUALITY ASSURANCE PROJECT PLAN

### Attachment 1: Target Samples

**Shipment:** SHP-180814-01  
**Status:** Pending  
**Description:** NAS JAX PFAS EVAL  
**Range:** J7403-J7414  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J7403	JAX-RES-08132018-0945-27	08/13/2018 9:45 am	W	R0119	(NA)		
2	J7404	JAX-RES-08132018-0945-27-FRB	08/13/2018 9:45 am	W	R0119	(NA)		
3	J7405	JAX-RES-08132018-1100-30	08/13/2018 11:00 am	W	R0119	(NA)		
4	J7406	JAX-RES-08132018-1100-30-FRB	08/13/2018 11:00 am	W	R0119	(NA)		
5	J7407	JAX-RES-08132018-1145-32	08/13/2018 11:45 am	W	R0119	(NA)		
6	J7408	JAX-RES-08132018-1145-32-FRB	08/13/2018 11:45 am	W	R0119	(NA)		
7	J7409	JAX-RES-08132018-1445-16	08/13/2018 2:45 pm	W	R0119	(NA)		
8	J7411	JAX-RES-08132018-1600-13	08/13/2018 4:00 pm	W	R0119	(NA)		
9	J7412	JAX-RES-08132018-1600-13-FRB	08/13/2018 4:00 pm	W	R0119	(NA)		
10	J7413	JAX-RES-08132018-1700-31	08/13/2018 5:00 pm	W	R0119	(NA)		
11	J7414	JAX-RES-08132018-1700-31-FRB	08/13/2018 5:00 pm	W	R0119	(NA)		

**Shipment:** SHP-180815-02  
**Status:** Pending  
**Description:** NAS JAX-PFAS  
**Range:** J7428-J7430  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J7428	JAX-RES-08142018-1045-8	08/14/2018 10:45 am	W	R0119	(NA)		
2	J7430	JAX-RES-08142018-1130-9	08/14/2018 11:30 am	W	R0119	(NA)		

**Shipment:** SHP-180816-02  
**Status:** Pending  
**Description:** NAS JAX PFAS  
**Range:** J7445-J7452  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
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## WORK/QUALITY ASSURANCE PROJECT PLAN

**Shipment:** SHP-180816-02  
**Status:** Pending  
**Description:** NAS JAX PFAS  
**Range:** J7445-J7452  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J7445	JAX-RES-08152018-0930-18	08/15/2018 9:30 am	W	R0119	(NA)		
2	J7447	JAX-RES-08152018-1015-34	08/15/2018 10:15 am	W	R0119	(NA)		
3	J7448	JAX-RES-08152018-1015-34-FRB	08/15/2018 10:15 am	W	R0119	(NA)		
4	J7449	JAX-RES-08152018-1045-33	08/15/2018 10:45 am	W	R0119	(NA)		
5	J7450	JAX-RES-08152018-1045-33-FRB	08/15/2018 10:45 am	W	R0119	(NA)		
6	J7451	JAX-RES-08152018-1130-15	08/15/2018 11:30 am	W	R0119	(NA)		
7	J7452	JAX-RES-08152018-1130-15-FRB	08/15/2018 11:30 am	W	R0119	(NA)		

**Shipment:** SHP-180821-01  
**Status:** Pending  
**Description:** NAS JAX PFAS  
**Range:** J7558-J7563  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J7558	JAX-RES-08202018-0945-25	08/20/2018 9:45 am	W	R0119	(NA)		
2	J7560	JAX-RES-08202018-1100-26	08/20/2018 11:00 am	W	R0119	(NA)		
3	J7561	JAX-RES-08202018-1100-26-FRB	08/20/2018 11:00 am	W	R0119	(NA)		
4	J7562	JAX-RES-08202018-1310-28	08/20/2018 1:10 pm	W	R0119	(NA)		
5	J7563	JAX-RES-08202018-1310-28-FRB	08/20/2018 1:10 pm	W	R0119	(NA)		

**Shipment:** SHP-180822-02  
**Status:** Pending  
**Description:** PFAS EVAL  
**Range:** J7566-J7570  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J7566	JAX-RES-08212018-0945-11	08/21/2018 9:45 am	W	R0119	(NA)		
2	J7568	JAX-RES-08212018-1130-10	08/21/2018 11:30 am	W	R0119	(NA)		





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## WORK/QUALITY ASSURANCE PROJECT PLAN

**Shipment:** SHP-180822-02  
**Status:** Pending  
**Description:** PFAS EVAL  
**Range:** J7566-J7570  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
3	J7570	JAX-RES-08212018-1330-36	08/21/2018 1:30 pm	W	R0119 (NA)			

**Shipment:** SHP-180823-02  
**Status:** Pending  
**Description:** NAS JAX PFAS  
**Range:** J7585-J7587  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J7585	JAX-RES-08222018-1000-35	08/22/2018 10:00 am	W	R0119 (NA)			
2	J7586	JAX-RES-08222018-1000-35-FRB	08/22/2018 10:00 am	W	R0119 (NA)			
3	J7587	JAX-RES-08222018-1000-35-FD	08/22/2018 10:00 am	W	R0119 (NA)			



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## WORK/QUALITY ASSURANCE PROJECT PLAN

### Attachment 2: Test Codes

<b>Project Test Code Name:</b>	Master_371
<b>SOP Reference:</b>	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
<b>Description:</b>	PFAS in drinking water
<b>Matrix:</b>	L - Liquid Samples, like water or sea water, prepared and analyzed under the same class of detection limits.
<b>Detection Limit Study:</b>	5-371
<b>Instrument:</b>	LC-MS/MS
<b>MQO Criteria</b>	Universal_LC
<b>Standard Report:</b>	Standard Result Report

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

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



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## WORK/QUALITY ASSURANCE PROJECT PLAN

## Attachment 2: Test Codes

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**Project Test Code Name:** Master\_371

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

---

**Subtract Peaks:**

None

**Sum Peaks:**

None



It can be done

## WORK/QUALITY ASSURANCE PROJECT PLAN

### Attachment 2: Test Codes

**Project Test Code Name:** Master\_371

**ICAL Acceptance Criteria:**

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

**Continuing Calibration Verification Criteria:**

**CCV Name:** Standard

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

**Independent Calibration Verification:**

**ICC Name:** Standard

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

**Mass Discrimination Criteria:**

*None*

**Degradation Check Criteria:**

*None*



It can be done

## WORK/QUALITY ASSURANCE PROJECT PLAN

### Attachment 3: Method Quality Objectives

MQO Application	<i>Universal_LC</i>		
MQO:	Acceptance Criteria	Qual:	Corrective Action:
Procedural Blank	Samples must be greater than five times the blank concentration (>5xPB).	B	Review with Project Manager; re-analyze or justify results in project records.
PB Measurement Quality Objective	Organic results in the Procedural Blank are less than 1/2 times the LOQ (<1/2xLOQ)	N	Review with Project Manager; re-analyze or justify results in project records.
Laboratory Control Sample	Recovery values 70-130%.	N	Review with project manager; re-analyze or justify reporting the results in project records.
Matrix Spike / Matrix Spike Duplicate Recovery	Organics 70-130%. Analyte concentration in MS/MSD must be greater than five times reported background concentration.	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	



It can be done

## WORK/QUALITY ASSURANCE PROJECT PLAN

### Attachment 3: Method Quality Objectives

<b>MQO Application</b>	<i>Universal_LC</i>		
<b>MQO:</b>	<b>Acceptance Criteria</b>	<b>Qual:</b>	<b>Corrective Action:</b>
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	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.

ShpNo SHP-180815-02

It can be done

Battelle Project No: \_\_\_\_\_

## Sample Receipt Form

Approved:  Authorized Project Number: 11208005-SE0375Client: Tetra TechReceived by: Schumitz, MattDate/Time Received: Wednesday, August 15, 2018 10:40 AMNo. of Shipping Containers: 1**SHIPMENT**Method of Delivery: Commercial CarrierTracking Number: 7823 01867565COC 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	7823 0186 7565	Custody Seals	Intact	Intact	Therm_2	1.1	4

**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): 1.1 Temperature Blank used  Yes  No*(Note: If temperature upon receipt differs from required conditions, see sample log comment field)*Samples Acidified:  Yes  No  UnknownInitial pH 5-9?:  Yes  No  NA*If no, individual sample adjustments on the Auxiliary Sample Receipt Form*Total Residual Chlorine Present?:  Yes  No  NA*If yes, individual sample adjustments on the Auxiliary Sample Receipt Form*Head Space <1% in samples for water VOC analysis:  Yes  No  NA*Individual sample deviations noted on sample log*

Samples Containers:

Samples returned in PC-grade jars:  Yes  No  Unknown /Lot No.: UnKnownStorage Location: Custody: Refrigerator - R0119 (NA)BDO IDs Assigned: J7428 - J7431Samples logged in by: Schumitz, MattDate/Time: 08/15/2018 10:40 AM

Approved By: \_\_\_\_\_

Approved On: \_\_\_\_\_

Authorized By: \_\_\_\_\_

Authorized On: \_\_\_\_\_



It can be done

ShpNo SHP-180815-02

Battelle Project No: \_\_\_\_\_

## Sample Receipt Form Details

Approved:  Authorized Project Number: 11208005-SE0375 Client: Tetra TechReceived by: Schumitz, Matt Date/Time Received: Wednesday, August 15, 2018 10:40 AMNo. of Shipping Containers: 1

BDO Id:	Client Sample ID:	Collection Date:	Login Date:	Ctrs:	Matrix:	Temp:	pH:	TRC:	VOC:	Stored In:	Loc:	No:	Comments:
J7428	JAX-RES-08142018-1045-8	08/14/18 10:45	08/15/18 10:57	2	W	1.1	NA	NA	NA	R0119 (NA)			
J7429	JAX-RES-08142018-1045-8-FRB	08/14/18 10:45	08/15/18 10:57	1	W	1.1	NA	NA	NA	R0119 (NA)			
J7430	JAX-RES-08142018-1130-9	08/14/18 11:30	08/15/18 10:57	2	W	1.1	NA	NA	NA	R0119 (NA)			
J7431	JAX-RES-08142018-1130-9-FRB	08/14/18 11:30	08/15/18 10:58	1	W	1.1	NA	NA	NA	R0119 (NA)			

Total Samples: 4





### Chain-of-Custody

<b>Client Contact Information</b> <i>Tetra Tech</i>		Project Manager: <i>Mark Peterson</i>				Sampling Site: <i>Residential</i>		Site Information: <i>-</i>	
		Sampler Information (print name): <i>David Siefen</i>				Preservative <i>FRZ</i>		COC # <i>002</i>	
		Phone: <i>904.334.7260</i>							
		Email:				Analysis <i>PFAS 537</i>		Page# <i>1</i>	
		Turnaround Time (TAT) Requested:							
Project Name: <i>NAS JAX - PFAS</i>		<input checked="" type="radio"/> Normal <input type="radio"/> Priority <input type="radio"/> RUSH							
Project No.: <i>112608005-8E0375</i>		Time Zone:							
Sample Identification		<i>2018</i>							
	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.				
<i>J7428</i>	<i>JAX-RES-08142018-1045-R</i>	<i>8-14</i>	<i>1045</i>	<i>G</i>	<i>W</i>	<i>2</i>	<i>2</i>		<i>1 Bottle # 31 # 32</i>
<i>J7429</i>	<i>JAX-RES-09142018-1045-E-PFB</i>	<i>8-14</i>	<i>1045</i>	<i>G</i>	<i>W</i>	<i>1</i>	<i>1</i>		<i>Bottle # 17</i>
<i>J7430</i>	<i>JAX-RES-08142018-1130-9</i>	<i>8-14</i>	<i>1130</i>	<i>G</i>	<i>W</i>	<i>2</i>	<i>2</i>		<i>Bottles # 87 # 88</i>
<i>J7431</i>	<i>JAX-RES-08142018-1130-9 PFB</i>	<i>8-14</i>	<i>1130</i>	<i>G</i>	<i>W</i>	<i>1</i>	<i>1</i>		<i>Bottle # 24</i>
Receipt Temperature: (°C)		Samples Intact: <i>Yes - No</i>				Samples on Ice: <i>Yes - No</i>			Receipt Comments:
Relinquished by (Print/Sign) <i>David Siefen</i>	Company: <i>Tetra Tech</i>	Date/Time: <i>8-14-18 1630</i>	Received by (Print/Sign) <i>Fed Ex</i>		Company: <i>Battelle</i>	Date/Time: <i>8-15-18 10:40</i>			
Relinquished by (Print/Sign)	Company:	Date/Time:	Received by (Print/Sign) <i>Matt Schwantz</i>		Company:	Date/Time:			
Relinquished by (Print/Sign)	Company:	Date/Time:	Received by (Print/Sign)		Company:	Date/Time:			
Comments: <i>All samples Potable Water, Cool 4°C</i>									

ORIGIN ID:NRBA (904) 636-6135  
TETRA TECH  
8640 PHILIPS HWY STE 16  
JACKSONVILLE, FL 32256  
UNITED STATES US

SHIP DATE: 14AUG18  
ACTWGT: 52.00 LB  
CAD: 6997708/SSFO1904  
DIMS: 29x17x15 IN

BILL THIRD PARTY

TO BATTELLE  
SAMPLE RECEIVING  
141 LONGWATER DR  
STE 202  
NORWELL MA 02061

*Therm 2*  
*MOS*  
*1.1.*  
*10:40*  
*8-15-18*

(781) 681-5588  
INU:  
PO:

REF:

DEPT:



FedEx  
Express



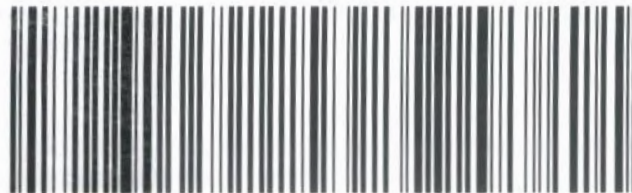
BY 1022/0810281F

WED - 15 AUG 10:30A  
PRIORITY OVERNIGHT

TRK# 7823 0186 7565  
0201

**XE XPUA**

02061  
MA-US BOS



ShpNo SHP-180816-02

It can be done

Battelle Project No: \_\_\_\_\_

## Sample Receipt Form

Approved:  Authorized: Project Number: 112G08005 SE0375Client: Tetra TechReceived by: Schumitz, MattDate/Time Received: Thursday, August 16, 2018 11:00 AMNo. of Shipping Containers: 1**SHIPMENT**Method of Delivery: Commercial CarrierTracking Number: Fed ExCOC 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	7823 1551 4077	Custody Seal	Intact	Intact	Therm_2	1.4	8

**Samples**

Sample Labels:  Sample labels agree with COC forms  
 Discrepancies (see Sample Custody Corrective Action Form)

Container Seals:  Tape  Custody Seals  Other Seals (See sample Log)  
 Seals intact for each shipping container  
 Seals broken (See sample log for impacted samples)

Condition of Samples:  Sample containers intact  
 Sample containers broken/leaking (See Custody Corrective Action Form)

Temperature upon receipt (°C): 1.4 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 - R0119 (NA) BDO IDs Assigned: J7445 - J7452

Samples logged in by: Schumitz, Matt Date/Time: 08/16/2018 11:00 AM

Approved By: \_\_\_\_\_ Approved On: \_\_\_\_\_

Authorized By: \_\_\_\_\_ Authorized On: \_\_\_\_\_



It can be done

ShpNo SHP-180816-02

Battelle Project No: \_\_\_\_\_

Sample Receipt Form Details

Approved:  Authorized

Project Number: 112G08005 SE0375 Client: Tetra Tech

Received by: Schumitz, Matt Date/Time Received: Thursday, August 16, 2018 11:00 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:
J7445	JAX-RES-08152018-0930-18	08/15/18 9:30	08/16/18 11:25	2	W	1.4	NA	NA	NA	R0119 (NA)			
J7446	JAX-RES-08152018-0930-18-FRB	08/15/18 9:30	08/16/18 11:25	1	W	1.4	NA	NA	NA	R0119 (NA)			
J7447	JAX-RES-08152018-1015-34	08/15/18 10:15	08/16/18 11:25	2	W	1.4	NA	NA	NA	R0119 (NA)			
J7448	JAX-RES-08152018-1015-34-FRB	08/15/18 10:15	08/16/18 11:26	1	W	1.4	NA	NA	NA	R0119 (NA)			
J7449	JAX-RES-08152018-1045-33	08/15/18 10:45	08/16/18 11:26	2	W	1.4	NA	NA	NA	R0119 (NA)			
J7450	JAX-RES-08152018-1045-33-FRB	08/15/18 10:45	08/16/18 11:26	1	W	1.4	NA	NA	NA	R0119 (NA)			
J7451	JAX-RES-08152018-1130-15	08/15/18 11:30	08/16/18 11:26	2	W	1.4	NA	NA	NA	R0119 (NA)			
J7452	JAX-RES-08152018-1130-15-FRB	08/15/18 11:30	08/16/18 11:27	1	W	1.4	NA	NA	NA	R0119 (NA)			

Total Samples: 8



### Chain-of-Custody

<u>Client Contact Information</u> <b>Tetra Tech</b>		Project Manager: <b>Mark Peterson</b> Sampler Information (print name): <b>David Siefken</b> Phone: <b>904.334.7260</b> Email: Turnaround Time (TAT) Requested:			Sampling Site: <b>NAS JAX</b>		Site Information: <b>Residential Wells</b>			
Project Name: <b>112608005 SE0375</b>		<input checked="" type="checkbox"/> Normal <input type="checkbox"/> Priority <input type="checkbox"/> RUSH			Preservative <b>Trizma</b>  Analysis <b>PFAS-537</b>		COC # <b>003</b>			
Project No.: <b>NAS JAX PFAS</b>		Time Zone:					Page# <b>1 of 1</b>			
Sample Identification		2018 Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.				
<b>J7445</b>	<b>JAX-RES-08152018-0930-18</b>	<b>8-15</b>	<b>0930</b>	<b>G</b>	<b>W</b>	<b>2</b>	<b>2</b>			
<b>J7446</b>	<b>JAX-RES-08152018-0930-18-FRB</b>	<b>8-15</b>	<b>0930</b>	<b>G</b>	<b>W</b>	<b>1</b>	<b>1</b>			
<b>J7447</b>	<b>JAX-RES-08152018-1015-34</b>	<b>8-15</b>	<b>1015</b>	<b>G</b>	<b>W</b>	<b>2</b>	<b>2</b>			
<b>J7448</b>	<b>JAX-RES-08152018-1015-34-FRB</b>	<b>8-15</b>	<b>1015</b>	<b>G</b>	<b>W</b>	<b>1</b>	<b>1</b>			
<b>J7449</b>	<b>JAX-RES-08152018-1045-33</b>	<b>8-15</b>	<b>1045</b>	<b>G</b>	<b>W</b>	<b>2</b>	<b>2</b>			
<b>J7450</b>	<b>JAX-RES-08152018-1045-33-FRB</b>	<b>8-15</b>	<b>1045</b>	<b>G</b>	<b>W</b>	<b>1</b>	<b>1</b>			
<b>J7451</b>	<b>JAX-RES-08152018-1130-15</b>	<b>8-15</b>	<b>1130</b>	<b>G</b>	<b>W</b>	<b>2</b>	<b>2</b>			
<b>J7452</b>	<b>SAX-RES-08152018-1130-15-FRB</b>	<b>8-15</b>	<b>1130</b>	<b>G</b>	<b>W</b>	<b>1</b>	<b>1</b>			
Receipt Temperature: (°C) <b>1.4°</b>		Samples Intact: <input checked="" type="checkbox"/> Yes - No			Samples on Ice <input checked="" type="checkbox"/> Yes No			Receipt Comments:		
Relinquished by (Print/Sign): <b>David Siefken</b>		Company: <b>Tetra Tech</b>		Date/Time: <b>8-15-18 / 1300</b>		Received by (Print/Sign): <b>Fed Ex</b>		Company: <b>Battelle</b>		Date/Time: <b>8-16-18 1100</b>
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign): <b>Mark Schmitz MS</b>		Company:		Date/Time:
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):		Company:		Date/Time:
Comments: <b>All Potable Water Samples</b>										

ORIGIN ID:NRBA (904) 636-6125  
TETRA TECH  
8640 PHILIPS HWY STE 16  
JACKSONVILLE, FL 32256  
UNITED STATES US

SHIP DATE: 15AUG18  
ACTWGT: 56.80 LB  
CAD: 6997708/SSF01904  
DIMS: 31x18x16 IN  
BILL THIRD PARTY

Part # 156297-453 RND8 EXP 12/18

TO **SAMPLE RECEIVING  
BATTELLE  
141 LONGWATER DR  
SUITE 202  
NORWELL MA 02061**

*Therm-2 MOS  
8-16-18 11:00  
1.40*

(781) 681-5588 REF: DEPT:  
INU: PO:



**FedEx  
Express**



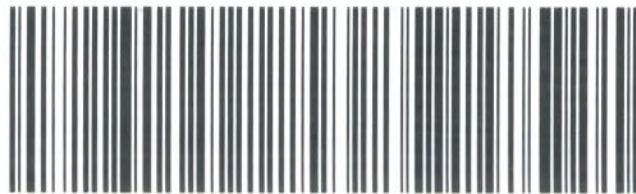
J182018072201uv

TRK# 7823 1551 4077  
0201

**THU - 16 AUG 10:30A  
PRIORITY OVERNIGHT**

**XE XPUA**

**02061  
MA-US BOS**



# Data Tables



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID JAX-RES-08142018-1130-9

Battelle ID J7430-FS1  
 Sample Type SA  
 Collection Date 08/14/2018  
 Extraction Date 08/28/2018  
 Analysis Date 08/29/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix W  
 Sample Size 0.285  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

		ng/L	MDL	LOD	LOQ
PFHxA	307-24-4	0.44 U	0.19	0.44	2.19
PFHpA	375-85-9	0.88 U	0.30	0.88	2.19
PFOA	335-67-1	0.88 U	0.33	0.88	2.19
PFNA	375-95-1	0.88 U	0.32	0.88	2.19
PFDA	335-76-2	0.88 U	0.34	0.88	2.19
PFUnA	2058-94-8	0.88 U	0.33	0.88	2.19
PFDoA	307-55-1	0.88 U	0.37	0.88	2.19
PFTTrDA	72629-94-8	0.88 U	0.37	0.88	2.19
PFTeDA	376-06-7	1.32 U	0.64	1.32	2.19
NMeFOSAA	2355-31-9	0.88 U	0.37	0.88	2.19
NEtFOSAA	2991-50-6	0.88 U	0.39	0.88	2.19
PFBS	375-73-5	0.44 U	0.18	0.44	2.19
PFHxS	355-46-4	0.88 U	0.30	0.88	2.19
PFOS	1763-23-1	0.88 U	0.26	0.88	2.19

**Surrogate Recoveries (%)**

13C2-PFHxA	121
13C2-PFDA	90
d5-EtFOSAA	88





Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID JAX-RES-08152018-0930-18

Battelle ID J7445-FS1  
 Sample Type SA  
 Collection Date 08/15/2018  
 Extraction Date 08/28/2018  
 Analysis Date 08/29/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix W  
 Sample Size 0.250  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

		ng/L	MDL	LOD	LOQ
PFHxA	307-24-4	0.50 U	0.22	0.50	2.50
PFHpA	375-85-9	1.00 U	0.34	1.00	2.50
PFOA	335-67-1	1.00 U	0.38	1.00	2.50
PFNA	375-95-1	1.00 U	0.37	1.00	2.50
PFDA	335-76-2	1.00 U	0.39	1.00	2.50
PFUnA	2058-94-8	1.00 U	0.38	1.00	2.50
PFDoA	307-55-1	1.00 U	0.42	1.00	2.50
PFTTrDA	72629-94-8	1.00 U	0.42	1.00	2.50
PFTeDA	376-06-7	1.50 U	0.73	1.50	2.50
NMeFOSAA	2355-31-9	1.00 U	0.42	1.00	2.50
NEtFOSAA	2991-50-6	1.00 U	0.44	1.00	2.50
PFBS	375-73-5	0.50 U	0.21	0.50	2.50
PFHxS	355-46-4	1.00 U	0.34	1.00	2.50
PFOS	1763-23-1	1.00 U	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	117
13C2-PFDA	93
d5-EtFOSAA	98



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID JAX-RES-08152018-1015-34

Battelle ID J7447-FS1  
 Sample Type SA  
 Collection Date 08/15/2018  
 Extraction Date 08/28/2018  
 Analysis Date 08/29/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix W  
 Sample Size 0.295  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

		ng/L	MDL	LOD	LOQ
PFHxA	307-24-4	5.50	0.19	0.42	2.12
PFHpA	375-85-9	3.49	0.29	0.85	2.12
PFOA	335-67-1	10.23	0.32	0.85	2.12
PFNA	375-95-1	0.85 U	0.31	0.85	2.12
PFDA	335-76-2	0.85 U	0.33	0.85	2.12
PFUnA	2058-94-8	0.85 U	0.32	0.85	2.12
PFDoA	307-55-1	0.85 U	0.36	0.85	2.12
PFTTrDA	72629-94-8	0.85 U	0.36	0.85	2.12
PFTeDA	376-06-7	1.27 U	0.62	1.27	2.12
NMeFOSAA	2355-31-9	0.85 U	0.36	0.85	2.12
NEtFOSAA	2991-50-6	0.85 U	0.37	0.85	2.12
PFBS	375-73-5	9.09	0.18	0.42	2.12
PFHxS	355-46-4	16.36	0.29	0.85	2.12
PFOS	1763-23-1	13.92	0.25	0.85	2.12

**Surrogate Recoveries (%)**

13C2-PFHxA	115
13C2-PFDA	84
d5-EtFOSAA	88



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID JAX-RES-08152018-1045-33

Battelle ID J7449-FS1  
 Sample Type SA  
 Collection Date 08/15/2018  
 Extraction Date 08/28/2018  
 Analysis Date 08/29/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix W  
 Sample Size 0.280  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

		ng/L	MDL	LOD	LOQ
PFHxA	307-24-4	3.12	0.20	0.45	2.23
PFHpA	375-85-9	2.03 J	0.30	0.89	2.23
PFOA	335-67-1	6.06	0.34	0.89	2.23
PFNA	375-95-1	0.89 U	0.33	0.89	2.23
PFDA	335-76-2	0.89 U	0.35	0.89	2.23
PFUnA	2058-94-8	0.89 U	0.34	0.89	2.23
PFDoA	307-55-1	0.89 U	0.38	0.89	2.23
PFTTrDA	72629-94-8	0.89 U	0.38	0.89	2.23
PFTeDA	376-06-7	1.34 U	0.65	1.34	2.23
NMeFOSAA	2355-31-9	0.89 U	0.38	0.89	2.23
NEtFOSAA	2991-50-6	0.89 U	0.39	0.89	2.23
PFBS	375-73-5	2.91	0.19	0.45	2.23
PFHxS	355-46-4	8.25	0.30	0.89	2.23
PFOS	1763-23-1	7.50	0.27	0.89	2.23

**Surrogate Recoveries (%)**

13C2-PFHxA	124
13C2-PFDA	100
d5-EtFOSAA	95



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID JAX-RES-08152018-1130-15

Battelle ID J7451-FS1  
 Sample Type SA  
 Collection Date 08/15/2018  
 Extraction Date 08/28/2018  
 Analysis Date 08/29/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix W  
 Sample Size 0.285  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

		ng/L	MDL	LOD	LOQ
PFHxA	307-24-4	0.71 J	0.19	0.44	2.19
PFHpA	375-85-9	0.88 U	0.30	0.88	2.19
PFOA	335-67-1	1.63 J	0.33	0.88	2.19
PFNA	375-95-1	0.88 U	0.32	0.88	2.19
PFDA	335-76-2	0.88 U	0.34	0.88	2.19
PFUnA	2058-94-8	0.88 U	0.33	0.88	2.19
PFDoA	307-55-1	0.88 U	0.37	0.88	2.19
PFTTrDA	72629-94-8	0.88 U	0.37	0.88	2.19
PFTeDA	376-06-7	1.32 U	0.64	1.32	2.19
NMeFOSAA	2355-31-9	0.88 U	0.37	0.88	2.19
NEtFOSAA	2991-50-6	0.88 U	0.39	0.88	2.19
PFBS	375-73-5	0.78 J	0.18	0.44	2.19
PFHxS	355-46-4	1.18 J	0.30	0.88	2.19
PFOS	1763-23-1	5.08	0.26	0.88	2.19

**Surrogate Recoveries (%)**

13C2-PFHxA	115
13C2-PFDA	91
d5-EtFOSAA	86



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID		KA08 IB			
Battelle ID		KA08 IB_08/29/2018			
Sample Type		IB			
Collection Date		NA			
Extraction Date		NA			
Analysis Date		08/29/2018			
Analytical Instrument		Sciex 5500 LC/MS/MS			
% Moisture		NA			
Matrix		NA			
Sample Size		0.250			
Size Unit-Basis		NA			
Units		ng/L	MDL	LOD	LOQ
PFHxA	307-24-4	0.50 U	0.22	0.50	2.50
PFHpA	375-85-9	1.00 U	0.34	1.00	2.50
PFOA	335-67-1	1.00 U	0.38	1.00	2.50
PFNA	375-95-1	1.00 U	0.37	1.00	2.50
PFDA	335-76-2	1.00 U	0.39	1.00	2.50
PFUnA	2058-94-8	1.00 U	0.38	1.00	2.50
PFDaA	307-55-1	1.00 U	0.42	1.00	2.50
PFTTrDA	72629-94-8	1.00 U	0.42	1.00	2.50
PFTeDA	376-06-7	1.50 U	0.73	1.50	2.50
NMeFOSAA	2355-31-9	1.00 U	0.42	1.00	2.50
NEtFOSAA	2991-50-6	1.00 U	0.44	1.00	2.50
PFBS	375-73-5	0.50 U	0.21	0.50	2.50
PFHxS	355-46-4	1.00 U	0.34	1.00	2.50
PFOS	1763-23-1	1.00 U	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	96
13C2-PFDA	94
d5-EtFOSAA	98



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID		Procedural Blank			
Battelle ID		CR676PB-FS			
Sample Type		PB			
Collection Date		08/28/2018			
Extraction Date		08/28/2018			
Analysis Date		08/29/2018			
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	307-24-4	0.50 U	0.22	0.50	2.50
PFHpA	375-85-9	1.00 U	0.34	1.00	2.50
PFOA	335-67-1	1.00 U	0.38	1.00	2.50
PFNA	375-95-1	1.00 U	0.37	1.00	2.50
PFDA	335-76-2	1.00 U	0.39	1.00	2.50
PFUnA	2058-94-8	1.00 U	0.38	1.00	2.50
PFDoA	307-55-1	1.00 U	0.42	1.00	2.50
PFTTrDA	72629-94-8	1.00 U	0.42	1.00	2.50
PFTeDA	376-06-7	1.50 U	0.73	1.50	2.50
NMeFOSAA	2355-31-9	1.00 U	0.42	1.00	2.50
NEtFOSAA	2991-50-6	1.00 U	0.44	1.00	2.50
PFBS	375-73-5	0.50 U	0.21	0.50	2.50
PFHxS	355-46-4	1.00 U	0.34	1.00	2.50
PFOS	1763-23-1	1.00 U	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	103
13C2-PFDA	97
d5-EtFOSAA	103



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID		Laboratory Control Sample					Control Limits	
Battelle ID		CR677LCS-FS				Lower	Upper	
Sample Type		LCS						
Collection Date		08/28/2018						
Extraction Date		08/28/2018						
Analysis Date		08/29/2018						
Analytical Instrument		Sciex 5500 LC/MS/MS						
% Moisture		NA						
Matrix		WATER						
Sample Size		0.250						
Size Unit-Basis		L						
Units		ng/L	Target	Recovery	Qual	Lower	Upper	
PFHxA	307-24-4	24.05	20.00	120		70	130	
PFHpA	375-85-9	24.41	20.00	122		70	130	
PFOA	335-67-1	23.28	20.00	116		70	130	
PFNA	375-95-1	23.98	20.00	120		70	130	
PFDA	335-76-2	23.81	20.00	119		70	130	
PFUnA	2058-94-8	22.38	20.00	112		70	130	
PFDoA	307-55-1	22.55	20.00	113		70	130	
PFTTrDA	72629-94-8	22.24	20.00	111		70	130	
PFTeDA	376-06-7	22.34	20.00	112		70	130	
NMeFOSAA	2355-31-9	24.50	20.00	123		70	130	
NEtFOSAA	2991-50-6	24.45	20.00	122		70	130	
PFBS	375-73-5	20.32	17.70	115		70	130	
PFHxS	355-46-4	21.75	18.90	115		70	130	
PFOS	1763-23-1	19.37	19.10	101		70	130	

**Surrogate Recoveries (%)**

13C2-PFHxA	108
13C2-PFDA	112
d5-EtFOSAA	109



## Glossary of Data Qualifiers

Flag: Application:

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



# Miscellaneous Documentation

**QA/QC Summary  
Batch 18-0534**

Project:	CTO-SE0375: Naval Air Station (NAS) Jacksonville
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	W
Data Set:	DP-18-0246
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
08/14/2018	08/15/2018	1.1
8/15/2018	8/16/2018	1.4

Corrective Actions	None.
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	This SDG contains samples re-extracted from SDG 18-0507 and 18-0509 to verify surrogate recoveries.

METHOD SUMMARIES	
Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were 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.  There are no ion ratio exceedances above 50% RPD for any analyte detected above the MDL or the LOQ in this SDG.

Holding Times	Extraction Date(s)	Analysis Date(s)
	8/28/2018	8/29/2018

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

**QA/QC Summary**  
**Batch 18-0534**

Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
70-130% of true value	No exceedances noted. No comments.
Matrix Spike (MS) / Duplicate (MSD)	A MS/MSD were prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy. The relative percent difference was calculated to measure precision.
70-130% of true value, RPD $\leq$ 30%	Not applicable. MS/MSD samples were not prepared with this batch of 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 $\leq$ 20%, 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted. No comments.
Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadratic curve fitting.
R <sup>2</sup> >0.99 Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No exceedances noted. No comments.
Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted. No comments.

**QA/QC Summary  
Batch 18-0534**

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Continuing Calibration Verification (CCV)	Continuing calibration standards were run at the beginning and end of 10 injections and at the end of the sequence to ensure that initial calibration is still valid.
Target and SIS compounds +/- 30% of true value	No exceedances noted.
Low point 50-150% of true value	No comments.



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project Number: 100119154-SE0375  
 Preparation Batch: 18-0534  
 Data Set: DP-18-0246  
 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	NA
Matrix Spike / Matrix Spike Duplicate Precision	NA	NA
Extracted Internal Standard Analytes (Surrogates)	0	None
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None

**BATTELLE**

It can be done

**BATTELLE - NORWELL OPERATIONS  
MISCELLANEOUS DOCUMENTATION FORM**

**Project Title:** CTO-SE0375: Naval Air Station Jackson      **Data Set Number:** DP-18-0246  
**Project Number:** 100119154-SE0375      **Prep Batch Number:** 18-0534  
**Entered By:** Denise Schumitz      **Entered On:** 08/31/2018  
**Test Code (Matrix Type):** Master\_371(L)

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Samples that were manually integrated are noted on the quant reports with the comment (TRUE).  
DMS 8/31/2018

JZ80 is not being used in this method for PFNA, PFUnA, PFTTrDA and NMeFOSAA. There is no impact on the data once this point is removed from the calibration.  
DMS 8/31/2018

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**Task Leader Approval:**

**Supervisor Approval:**

**PM Approval:**



Digitally signed by Jonathan Thorn

Date: 2018.08.31 14:48:37 -04'00'

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## Example Calculation for PFAS

Calculation of final concentration from area:

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

Where:

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

Sample ID: J7447-FS1(0)  
 Client Sample ID: JAX-RES-08152018-1015-34  
 Sample Size: 0.295  
 Units: L  
 Dilution Factor: 1.000  
 PIV (L): 0.001  
 Target Analyte: PFHxS  
 MRM Transition: 399.0 / 80.0  
 Data file: 18-0534.wiff  
 Result table: 18-0534\_DW  
 Area: 1,594,582.61  
 IS Name: 13C4-PFOS  
 IS Area: 142,592.45  
 IS Amount (ng/L): 287  
 y-intercept: 0.0601  
 slope: 0.66142

$$\text{Concentration} = \frac{[(1594582.61/142592.45) - 0.0601]}{0.66142} * 287 * 0.001 * 1 / 0.295$$

ng/L = 16.36



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375  
 Preparation Batch: 18-0534  
 Data Set: DP-18-0246

	CR676PB-FS (Procedural Blank)	CR677LCS-FS (Laboratory Control Sample)	J7430-FS1 (JAX-RES-08142018-1130-9)	J7445-FS1 (JAX-RES-08152018-0930-18)	J7447-FS1 (JAX-RES-08152018-1015-34)	J7449-FS1 (JAX-RES-08152018-1045-33)	J7451-FS1 (JAX-RES-08152018-1130-15)
PFHxA (307-24-4)	-	L	-	-	L	L	L
PFHpA (375-85-9)	-	L	-	-	L	L	L
PFOA (335-67-1)	-	L	-	-	L	L	L
PFNA (375-95-1)	-	L	-	-	-	-	-
PFDA (335-76-2)	-	L	-	-	-	-	-
PFUnA (2058-94-8)	-	L	-	-	-	-	-
PFDoA (307-55-1)	-	L	-	-	-	-	-
PFTTrDA (72629-94-8)	-	L	-	-	-	-	-
PFTeDA (376-06-7)	-	L	-	-	-	-	-
NMeFOSAA (2355-31-9)	-	L	-	-	-	-	-
NEtFOSAA (2991-50-6)	-	L	-	-	-	-	-
PFBS (375-73-5)	-	L	-	-	L	L	L
PFHxS (355-46-4)	-	L	-	-	L/Br	L/Br	L/Br
PFOS (1763-23-1)	-	L	-	-	L/Br	L/Br	L/Br

"L" :Linear

"Br": branched

"L/Br": Linear/Branched

"-": Not detected



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L3/L9)
JZ80	L3	8/29/18 17:30	13C4-PFOS	165,152.53	-
JZ81	L4	8/29/18 17:39	13C4-PFOS	164,086.22	-
JZ82	L5	8/29/18 17:48	13C4-PFOS	156,484.80	-
JZ83	L6	8/29/18 17:57	13C4-PFOS	140,809.20	-
JZ84	L7	8/29/18 18:06	13C4-PFOS	156,293.84	-
JZ85	L8	8/29/18 18:15	13C4-PFOS	141,374.13	-
JZ86	L9	8/29/18 18:24	13C4-PFOS	141,700.03	15.3

PASS

Average      Lower      Upper  
 152,271.54    76,135.77    228,407.31

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/29/18 17:30	13C4-PFOS	165,152.53	76,135.77	228,407.31		109,539.36	219,078.72	
JZ81	L4	8/29/18 17:39	13C4-PFOS	164,086.22	76,135.77	228,407.31		109,539.36	219,078.72	
JZ82	L5	8/29/18 17:48	13C4-PFOS	156,484.80	76,135.77	228,407.31		109,539.36	219,078.72	
JZ83	L6	8/29/18 17:57	13C4-PFOS	140,809.20	76,135.77	228,407.31		109,539.36	219,078.72	
JZ84	L7	8/29/18 18:06	13C4-PFOS	156,293.84	76,135.77	228,407.31		109,539.36	219,078.72	
JZ85	L8	8/29/18 18:15	13C4-PFOS	141,374.13	76,135.77	228,407.31		109,539.36	219,078.72	
JZ86	L9	8/29/18 18:24	13C4-PFOS	141,700.03	76,135.77	228,407.31		109,539.36	219,078.72	
KA08 IB	Instrument Blank	8/29/18 18:33	13C4-PFOS	149,777.87	76,135.77	228,407.31		109,539.36	219,078.72	
JZ77 ICC	ICC	8/29/18 18:42	13C4-PFOS	147,206.20	76,135.77	228,407.31		109,539.36	219,078.72	
CR676PB-FS(0)	Procedural Blank	8/29/18 18:59	13C4-PFOS	153,081.77	76,135.77	228,407.31		109,539.36	219,078.72	
CR677LCS-FS(0)	Laboratory Control Sample	8/29/18 19:08	13C4-PFOS	140,968.78	76,135.77	228,407.31		109,539.36	219,078.72	
J7430-FS1(0)	JAX-RES-08142018-1130-9	8/29/18 19:17	13C4-PFOS	145,522.53	76,135.77	228,407.31		109,539.36	219,078.72	
J7445-FS1(0)	JAX-RES-08152018-0930-18	8/29/18 19:26	13C4-PFOS	147,873.11	76,135.77	228,407.31		109,539.36	219,078.72	
J7447-FS1(0)	JAX-RES-08152018-1015-34	8/29/18 19:35	13C4-PFOS	142,592.45	76,135.77	228,407.31		109,539.36	219,078.72	
J7449-FS1(0)	JAX-RES-08152018-1045-33	8/29/18 19:44	13C4-PFOS	147,800.48	76,135.77	228,407.31		109,539.36	219,078.72	
J7451-FS1(0)	JAX-RES-08152018-1130-15	8/29/18 19:53	13C4-PFOS	134,621.86	76,135.77	228,407.31		109,539.36	219,078.72	
JZ82 CCV	CCV	8/29/18 20:02	13C4-PFOS	166,467.60	76,135.77	228,407.31		109,539.36	219,078.72	

Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L3/L9)
JZ80	L3	8/29/18 17:30	13C2-PFOA	35,560.82	-
JZ81	L4	8/29/18 17:39	13C2-PFOA	35,503.68	-
JZ82	L5	8/29/18 17:48	13C2-PFOA	33,721.12	-
JZ83	L6	8/29/18 17:57	13C2-PFOA	30,532.56	-
JZ84	L7	8/29/18 18:06	13C2-PFOA	35,644.41	-
JZ85	L8	8/29/18 18:15	13C2-PFOA	32,263.14	-
JZ86	L9	8/29/18 18:24	13C2-PFOA	35,054.19	1.4

PASS

Average 34,039.99 Lower 17,020.00 Upper 51,059.99

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/29/18 17:30	13C2-PFOA	35,560.82	17,020.00	51,059.99		23,604.78	47,209.57	
JZ81	L4	8/29/18 17:39	13C2-PFOA	35,503.68	17,020.00	51,059.99		23,604.78	47,209.57	
JZ82	L5	8/29/18 17:48	13C2-PFOA	33,721.12	17,020.00	51,059.99		23,604.78	47,209.57	
JZ83	L6	8/29/18 17:57	13C2-PFOA	30,532.56	17,020.00	51,059.99		23,604.78	47,209.57	
JZ84	L7	8/29/18 18:06	13C2-PFOA	35,644.41	17,020.00	51,059.99		23,604.78	47,209.57	
JZ85	L8	8/29/18 18:15	13C2-PFOA	32,263.14	17,020.00	51,059.99		23,604.78	47,209.57	
JZ86	L9	8/29/18 18:24	13C2-PFOA	35,054.19	17,020.00	51,059.99		23,604.78	47,209.57	
KA08 IB	Instrument Blank	8/29/18 18:33	13C2-PFOA	33,182.00	17,020.00	51,059.99		23,604.78	47,209.57	
JZ77 ICC	ICC	8/29/18 18:42	13C2-PFOA	32,319.84	17,020.00	51,059.99		23,604.78	47,209.57	
CR676PB-FS(0)	Procedural Blank	8/29/18 18:59	13C2-PFOA	35,898.34	17,020.00	51,059.99		23,604.78	47,209.57	
CR677LCS-FS(0)	Laboratory Control Sample	8/29/18 19:08	13C2-PFOA	32,649.95	17,020.00	51,059.99		23,604.78	47,209.57	
J7430-FS1(0)	JAX-RES-08142018-1130-9	8/29/18 19:17	13C2-PFOA	33,809.31	17,020.00	51,059.99		23,604.78	47,209.57	
J7445-FS1(0)	JAX-RES-08152018-0930-18	8/29/18 19:26	13C2-PFOA	36,871.98	17,020.00	51,059.99		23,604.78	47,209.57	
J7447-FS1(0)	JAX-RES-08152018-1015-34	8/29/18 19:35	13C2-PFOA	37,089.42	17,020.00	51,059.99		23,604.78	47,209.57	
J7449-FS1(0)	JAX-RES-08152018-1045-33	8/29/18 19:44	13C2-PFOA	34,250.84	17,020.00	51,059.99		23,604.78	47,209.57	
J7451-FS1(0)	JAX-RES-08152018-1130-15	8/29/18 19:53	13C2-PFOA	36,102.10	17,020.00	51,059.99		23,604.78	47,209.57	
JZ82 CCV	CCV	8/29/18 20:02	13C2-PFOA	36,442.68	17,020.00	51,059.99		23,604.78	47,209.57	

Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L3/L9)
JZ80	L3	8/29/18 17:30	d3-MeFOSAA	26,588.90	-
JZ81	L4	8/29/18 17:39	d3-MeFOSAA	26,826.23	-
JZ82	L5	8/29/18 17:48	d3-MeFOSAA	25,557.87	-
JZ83	L6	8/29/18 17:57	d3-MeFOSAA	23,430.15	-
JZ84	L7	8/29/18 18:06	d3-MeFOSAA	25,735.83	-
JZ85	L8	8/29/18 18:15	d3-MeFOSAA	23,055.59	-
JZ86	L9	8/29/18 18:24	d3-MeFOSAA	24,614.26	7.7

PASS

Average      Lower      Upper  
 25,115.55    12,557.78    37,673.33

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/29/18 17:30	d3-MeFOSAA	26,588.90	12,557.78	37,673.33		17,890.51	35,781.02	
JZ81	L4	8/29/18 17:39	d3-MeFOSAA	26,826.23	12,557.78	37,673.33		17,890.51	35,781.02	
JZ82	L5	8/29/18 17:48	d3-MeFOSAA	25,557.87	12,557.78	37,673.33		17,890.51	35,781.02	
JZ83	L6	8/29/18 17:57	d3-MeFOSAA	23,430.15	12,557.78	37,673.33		17,890.51	35,781.02	
JZ84	L7	8/29/18 18:06	d3-MeFOSAA	25,735.83	12,557.78	37,673.33		17,890.51	35,781.02	
JZ85	L8	8/29/18 18:15	d3-MeFOSAA	23,055.59	12,557.78	37,673.33		17,890.51	35,781.02	
JZ86	L9	8/29/18 18:24	d3-MeFOSAA	24,614.26	12,557.78	37,673.33		17,890.51	35,781.02	
KA08 IB	Instrument Blank	8/29/18 18:33	d3-MeFOSAA	24,806.99	12,557.78	37,673.33		17,890.51	35,781.02	
JZ77 ICC	ICC	8/29/18 18:42	d3-MeFOSAA	24,529.83	12,557.78	37,673.33		17,890.51	35,781.02	
CR676PB-FS(0)	Procedural Blank	8/29/18 18:59	d3-MeFOSAA	28,053.31	12,557.78	37,673.33		17,890.51	35,781.02	
CR677LCS-FS(0)	Laboratory Control Sample	8/29/18 19:08	d3-MeFOSAA	24,093.56	12,557.78	37,673.33		17,890.51	35,781.02	
J7430-FS1(0)	JAX-RES-08142018-1130-9	8/29/18 19:17	d3-MeFOSAA	24,626.44	12,557.78	37,673.33		17,890.51	35,781.02	
J7445-FS1(0)	JAX-RES-08152018-0930-18	8/29/18 19:26	d3-MeFOSAA	24,288.32	12,557.78	37,673.33		17,890.51	35,781.02	
J7447-FS1(0)	JAX-RES-08152018-1015-34	8/29/18 19:35	d3-MeFOSAA	23,208.72	12,557.78	37,673.33		17,890.51	35,781.02	
J7449-FS1(0)	JAX-RES-08152018-1045-33	8/29/18 19:44	d3-MeFOSAA	25,696.63	12,557.78	37,673.33		17,890.51	35,781.02	
J7451-FS1(0)	JAX-RES-08152018-1130-15	8/29/18 19:53	d3-MeFOSAA	25,088.01	12,557.78	37,673.33		17,890.51	35,781.02	
JZ82 CCV	CCV	8/29/18 20:02	d3-MeFOSAA	28,746.48	12,557.78	37,673.33		17,890.51	35,781.02	

<b>Sample Name</b>	JZ84	<b>Injection Vial</b>	8
<b>Sample ID</b>	L7	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 6:06:15 PM	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

**Results Summary**

<b>Analyte</b>	<b>MRM Transition</b>	<b>RT</b>	<b>Asymmetry Factor</b>	<b>Passing Range</b>
PFBS_1	298.9 / 80.0	1.51	1.38	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.82	1.10	0.8 – 1.5

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	8/29/2018 6:06:15 PM	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.51	59	>10
PFBS_2	298.9 / 99.0	1.51	43	>10
PFHxA_1	313.0 / 269.0	1.82	25	>10
PFHxA_2	313.0 / 119.0	1.82	21	>10
PFHpA_1	363.0 / 319.0	2.22	25	>10
PFHpA_2	363.0 / 169.0	2.22	29	>10
PFHxS_1	399.0 / 80.0	2.24	34	>10
PFHxS_2	399.0 / 99.0	2.24	27	>10
PFOA_1	413.0 / 369.0	2.62	27	>10
PFOA_2	413.0 / 169.0	2.62	24	>10
PFNA_1	463.0 / 419.0	3.01	26	>10
PFNA_2	463.0 / 219.0	3.01	26	>10
PFOS_1	499.0 / 80.0	3.01	37	>10
PFOS_2	499.0 / 99.0	3.01	35	>10
PFDA_1	513.0 / 469.0	3.36	24	>10
PFDA_2	513.0 / 219.0	3.36	30	>10
PFUnA_1	563.0 / 519.0	3.69	23	>10
PFUnA_2	563.0 / 269.0	3.69	32	>10
PFDaA_1	613.0 / 569.0	3.96	26	>10
PFDaA_2	613.0 / 319.0	3.96	27	>10
PFTrDA_1	663.0 / 619.0	4.21	33	>10
PFTrDA_2	663.0 / 169.0	4.20	36	>10
PFTeDA_1	713.0 / 669.0	4.42	49	>10
PFTeDA_2	713.0 / 169.0	4.41	42	>10
NMeFOSAA_1	570.0 / 419.0	3.51	40	>10
NMeFOSAA_2	570.0 / 512.0	3.51	33	>10
NEtFOSAA_1	584.0 / 419.0	3.67	39	>10
NEtFOSAA_2	584.0 / 483.0	3.67	42	>10
13C2-PFHxA	315.0 / 270.0	1.81	28	>10
13C2-PFDA	515.0 / 470.0	3.35	29	>10
d5-EtFOSAA	589.0 / 419.0	3.66	19	>10



## Precision and Bias at the LOQ for PFAS in Drinking Water

Analyte	CAS No.	Average (ng/L)	ST DEV	2 Sigma	n
PFHxA	307-24-4	10.41	1.25	2.50	19
PFHpA	375-85-9	10.59	1.42	2.84	19
PFOA	335-67-1	10.45	1.47	2.94	19
PFNA	375-95-1	10.49	1.28	2.56	19
PFDA	335-76-2	10.39	1.57	3.14	19
PFUnA	2058-94-8	10.05	1.71	3.42	19
PFDoA	307-55-1	9.99	1.63	3.26	19
PFTTrDA	72629-94-8	10.09	1.79	3.58	19
PFTeDA	376-06-7	11.27	2.41	4.82	19
NMeFOSAA	2355-31-9	10.60	1.12	2.24	19
NEtFOSAA	2991-50-6	10.17	1.29	2.58	19
PFBS	375-73-5	8.64	1.26	2.52	19
PFHxS	355-46-4	9.73	1.49	2.98	19
PFOS	1763-23-1	9.32	1.52	3.04	19

# 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)
<b>PFHxA</b>	307-24-4	0.22	0.5	2.5	2.5
<b>PFHpA</b>	375-85-9	0.34	1.0	2.5	2.5
<b>PFOA</b>	335-67-1	0.38	1.0	2.5	2.5
<b>PFNA</b>	375-95-1	0.37	1.0	2.5	2.5
<b>PFDA</b>	335-76-2	0.39	1.0	2.5	2.5
<b>PFUnA</b>	2058-94-8	0.38	1.0	2.5	2.5
<b>PFDoA</b>	307-55-1	0.42	1.0	2.5	2.5
<b>PFTTrDA</b>	72629-94-8	0.42	1.0	2.5	2.5
<b>PFTeDA</b>	376-06-7	0.73	1.5	2.5	2.5
<b>NMeFOSAA</b>	2355-31-9	0.42	1.0	2.5	2.5
<b>NEtFOSAA</b>	2991-50-6	0.44	1.0	2.5	2.5
<b>PFBS</b>	375-73-5	0.21	0.5	2.5	2.5
<b>PFHxS</b>	3871-99-6	0.34	1.0	2.5	2.5
<b>PFOS</b>	1763-23-1	0.30	1.0	2.5	2.5

*Analytes on NELAP and ELAP QSM 5.1 Scope of accreditation*

## Analytical Transitions for PFAS in drinking water

SOP 5-371 (EPA 537 Version 1.1)

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
<b>PFHxA</b>	307-24-4	Target	313.0 / 269.0	313.0 / 119.0
<b>PFHpA</b>	375-85-9	Target	363.0 / 319.0	363.0 / 169.0
<b>PFOA</b>	335-67-1	Target	413.0 / 369.0	413.0 / 169.0
<b>PFNA</b>	375-95-1	Target	463.0 / 419.0	463.0 / 219.0
<b>PFDA</b>	335-76-2	Target	513.0 / 469.0	513.0 / 219.0
<b>PFUnA</b>	2058-94-8	Target	563.0 / 519.0	563.0 / 269.0
<b>PFDoA</b>	307-55-1	Target	613.0 / 569.0	613.0 / 319.0
<b>PFTTrDA</b>	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
<b>PFTeDA</b>	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
<b>NMeFOSAA</b>	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
<b>NEtFOSAA</b>	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
<b>PFBS</b>	375-73-5	Target	299.0 / 80.0	299.0 / 99.0
<b>PFHxS</b>	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
<b>PFOS</b>	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
<b><sup>13</sup>C<sub>2</sub>-PFHxA</b>	NA	SIS	315.0 / 270.0	NA
<b><sup>13</sup>C<sub>2</sub>-PFDA</b>	NA	SIS	515.0 / 470.0	NA
<b>d<sub>5</sub>-EtFOSAA</b>	NA	SIS	589.0 / 419.0	NA
<b><sup>13</sup>C<sub>2</sub>-PFOA</b>	NA	IS	415.0 / 270.0	NA
<b><sup>13</sup>C<sub>4</sub>-PFOS</b>	NA	IS	503.0 / 80.0	NA
<b>d<sub>3</sub>-MeFOSAA</b>	NA	IS	573.0 / 419.0	NA





### Drinking Water Calibration to Sample Equivalents

ICAL (ng/L)	PIV (mL)	DF <sup>1</sup>	Sample Size (L)	Sample Equivalent (ng/L) <sup>2</sup>
25	1	1	0.250	0.1
50	1	1	0.250	0.2
100	1	1	0.250	0.4
250	1	1	0.250	1.0
500	1	1	0.250	2.0
1,000	1	1	0.250	4.0
2,500	1	1	0.250	10.0
5,000	1	1	0.250	20.0
10,000	1	1	0.250	40.0

<sup>1</sup> - base level dilution as part of the extraction procedure

<sup>2</sup> - calculated equivalent of a sample based on the ICAL concentration



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# QTRAP 5500

**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

## QTRAP 5500 Preventive Maintenance Checklist

<b>Preventive Maintenance Date:</b>	22-Feb-2017
<b>Request ID:</b>	3683
<b>Company Name:</b>	Battelle Memorial Institute
<b>Instrument ID:</b>	X60666
<b>Instrument Model:</b>	QTRAP 5500
<b>Instrument Serial Number:</b>	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 <sup>-5</sup> Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.5	0.4 to 1.1 x10 <sup>-5</sup> Torr
<input checked="" type="checkbox"/> CAD Low	1.9	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.4	Read Only
<input checked="" type="checkbox"/> CAD High	3.4	Read Only
<input checked="" type="checkbox"/> CAD 12	3.4	2.4 to 4.5 x10 <sup>-5</sup> Torr

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

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

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

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

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

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

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# QTRAP 5500

**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

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 <sup>-5</sup> Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.8	0.4 to 1.1 x10 <sup>-5</sup> Torr
<input checked="" type="checkbox"/> CAD Low	2.1	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.6	Read Only
<input checked="" type="checkbox"/> CAD High	3.7	Read Only
<input checked="" type="checkbox"/> CAD 12	3.7	2.4 to 4.5 x10 <sup>-5</sup> Torr

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

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

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

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

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

Transmission Efficiency: 16.93% (≥ 10.0%)

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

**Zef Scientific Inc.**

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Phone: 1.866.854.7988

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

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

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

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

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

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

Appendix ZEFPM003-2L

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

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

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

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

**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.



Battelle Standard ID	Description	Intermediate Solutions		Battelle Reagent ID (purchased solutions)
JZ87	PFAS - 537.1 Internal Standard Solution	JV35	-	180425-01
JZ90	PFAS - 537.1 Surrogate Solution	JV37	-	180425-02
KA08	PFAS - 537.1 Instrument Blank	JV61	JV35	180425-01
KA08	PFAS - 537.1 Instrument Blank	JV62	JV37	180425-02
JZ28	PFAS - 537.1 Second Source LCS/MS Solution	-	-	180705-01
JZ77	PFAS - 537.1 ICC	JZ28	-	180705-01
JZ77	PFAS - 537.1 ICC	JZ74	JV35	180425-01
JZ77	PFAS - 537.1 ICC	JZ75	JV37	180425-02
JZ80	PFAS - 537.1 ICAL L3	JV43	-	180425-03
JZ80	PFAS - 537.1 ICAL L3	JZ74	JV35	180425-01
JZ80	PFAS - 537.1 ICAL L3	JZ75	JV37	180425-02
JZ81	PFAS - 537.1 ICAL L4	JV43	-	180425-03
JZ81	PFAS - 537.1 ICAL L4	JZ74	JV35	180425-01
JZ81	PFAS - 537.1 ICAL L4	JZ75	JV37	180425-02
JZ82	PFAS - 537.1 ICAL L5	JV43	-	180425-03
JZ82	PFAS - 537.1 ICAL L5	JZ74	JV35	180425-01
JZ82	PFAS - 537.1 ICAL L5	JZ75	JV37	180425-02
JZ83	PFAS - 537.1 ICAL L6	JZ76	-	180425-03
JZ83	PFAS - 537.1 ICAL L6	JZ74	JV35	180425-01
JZ83	PFAS - 537.1 ICAL L6	JZ75	JV37	180425-02
JZ84	PFAS - 537.1 ICAL L7	JZ76	-	180425-03
JZ84	PFAS - 537.1 ICAL L7	JZ74	JV35	180425-01
JZ84	PFAS - 537.1 ICAL L7	JZ75	JV37	180425-02
JZ85	PFAS - 537.1 ICAL L8	JZ76	-	180425-03
JZ85	PFAS - 537.1 ICAL L8	JZ74	JV35	180425-01
JZ85	PFAS - 537.1 ICAL L8	JZ75	JV37	180425-02
JZ86	PFAS - 537.1 ICAL L9	JZ76	-	180425-03
JZ86	PFAS - 537.1 ICAL L9	JZ74	JV35	180425-01
JZ86	PFAS - 537.1 ICAL L9	JZ75	JV37	180425-02

It can be done

## Standard Solution Prep Form II

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

Description: PFAS - 537.1 Internal Standard Stock

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

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: \_\_\_\_\_

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

Approved By: \_\_\_\_\_ Date: \_\_\_\_\_



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: JV35

Description: PFAS - 537.1 Internal Standard Stock

Stock Id: 180425-01

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

It can be done

## Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: **JV37**

Description: PFAS - 537.1 Surrogate Standard Stock

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

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: \_\_\_\_\_

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

Approved By: \_\_\_\_\_ Date: \_\_\_\_\_



It can be done

## Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JV37**

Description: PFAS - 537.1 Surrogate Standard Stock

Stock ID: **180425-02**

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

## Final Concentrations:

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

## Syringes/Pipettes:

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

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

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

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

Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

It can be done

## Standard Solution Prep Form II

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

Description: PFAS - 537.1 Low ICAL Stock

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

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 4 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: \_\_\_\_\_

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

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



It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JV43

Description: PFAS - 537.1 Low ICAL Stock

Stock Id: 180425-03

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

## Final Concentrations:

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

## Syringes/Pipettes:

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

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

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

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

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



It can be done

## Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JZ87**

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

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 8/20/2018	<b>Expiration Date:</b> 5/2/2019
<b>Solution Volume</b> 40 mL X 1 Vials	<b>Refrigerator/Freezer No:</b> LC Laboratory: Refrigerator - R0107	

Balance ID: \_\_\_\_\_

Comment: 96/4 Methanol/Milli-q (RP-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:21:00 PM





It can be done

**Standard Solution Concentrations** Approved:

**Standard Laboratory ID Number:** JZ87

**Description:** PFAS - 537.1 Internal Standard Solution

<b>Stock Id: JV35</b>							
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

**Final Concentrations:**

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

**Syringes/Pipettes:**

Stock ID:	Type:	Battelle ID:
JV35	Pipette	C0982448K

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 8/20/2018	<b>Expiration Date:</b> 5/2/2019
<b>Solution Volume</b> 40 mL X 1 Vials	<b>Refrigerator/Freezer No:</b> LC Laboratory: Refrigerator - R0107	

**Comment:** 96/4 Methanol/Milli-q (RP-180820-2)

**Approved By:** Schumitz, Denise **Date:** 8/20/2018 2:21:00 PM

It can be done

## Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: **JV61**

Description: PFAS - 537.1 Internal Standard Calibration Stock Solution

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

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

Balance ID: \_\_\_\_\_

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

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



It can be done

## Standard Solution Concentrations

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

Description: PFAS - 537.1 Internal Standard Calibration Stock Solution

Stock Id: **JV35**

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

## Final Concentrations:

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

## Syringes/Pipettes:

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

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

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

It can be done

## Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: **JV62**

Description: PFAS - 537.1 Surrogate Calibration Stock Solution

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

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

Balance ID: \_\_\_\_\_

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

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



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JV62**

Description: PFAS - 537.1 Surrogate Calibration Stock Solution

Stock Id: **JV37**

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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



It can be done

## Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JZ90**

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

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 8/21/2018	<b>Expiration Date:</b> 5/2/2019
<b>Solution Volume</b> 40 mL X 1 Vials	<b>Refrigerator/Freezer No:</b> LC Laboratory: Refrigerator - R0107	

Balance ID: \_\_\_\_\_

Comment: 96/4 Methanol/Milli-q (RP-180820-2)

Approved By: Lizotte Jr, Robert Date: 8/22/2018 9:12:00 AM



It can be done

## Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JZ90**

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	C0982448K

Solution Prepared By: Schultz, Stephanie      Date Prepared: 8/21/2018      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-180820-2)

Approved By: Lizotte Jr, Robert      Date: 8/22/2018 9:12:00 AM



It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: KA08

Description: PFAS - 537.1 Instrument Blank

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)
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	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: 8/22/2018	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 water

Approved By: Schumitz, Denise Date: 8/23/2018 10:39:00 AM





It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: KA08

Description: PFAS - 537.1 Instrument Blank

## Stock Id: JZ74

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: JZ75

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

## Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JZ74	Pipette	B814659662
JZ75	Pipette	B814659662

Solution Prepared By: Schultz, Stephanie Date Prepared: 8/22/2018 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 water

Approved By: Schumitz, Denise Date: 8/23/2018 10:39:00 AM



It can be done

## Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JZ28**

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)
180705-01	EPA-537PDS-L	Neat	~2.00000 0	03/05/23	---	---	500 uL	1	20	~0.0500

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 7/25/2018	<b>Expiration Date:</b> 7/25/2019
<b>Solution Volume</b> 40 mL X 1 Vials	<b>Refrigerator/Freezer No:</b> LC Laboratory: Refrigerator - R0107	

Balance ID: \_\_\_\_\_

Comment: 96/4 Methanol/Milli-q water

Approved By: Schumitz, Denise Date: 7/31/2018 11:39:00 AM



It can be done

## Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JZ28**

Description: PFAS - 537.1 Second Source LCS/MS Solution

Stock Id: **180705-01**

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-butanefluoride	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-butanefluoride	.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:
180705-01	Pipette	B820865811

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 7/25/2018	<b>Expiration Date:</b> 7/25/2019
<b>Solution Volume</b> 40 mL X 1 Vials	<b>Refrigerator/Freezer No:</b> LC Laboratory: Refrigerator - R0107	

Comment: 96/4 Methanol/Milli-q water

Approved By: Schumitz, Denise Date: 7/31/2018 11:39:00 AM



It can be done

## Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JZ74**

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

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 8/20/2018	<b>Expiration Date:</b> 5/2/2019
<b>Solution Volume</b> 40 mL X 1 Vials	<b>Refrigerator/Freezer No:</b> LC Laboratory: Refrigerator - R0107	

Balance ID: \_\_\_\_\_

Comment: 96/4 methanol/milli-q (RP-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:19:00 PM



It can be done

## Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JZ74**

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

## Final Concentrations:

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

## Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV35	Pipette	C0982448K

Solution Prepared By: Schultz, Stephanie      Date Prepared: 8/20/2018      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-180820-2)

Approved By: Schumitz, Denise      Date: 8/20/2018 2:19:00 PM



It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: JZ75

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: 8/20/2018	Expiration Date: 5/2/2019
Solution Volume 4 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: \_\_\_\_\_

Comment: 96/4 methanol/milli-q (RP-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:19:00 PM



It can be done

## Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JZ75**

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:

Stock ID:	Type:	Battelle ID:
JV37	Pipette	C0982448K

Solution Prepared By: Schultz, Stephanie      Date Prepared: 8/20/2018      Expiration Date: 5/2/2019

Solution Volume 4 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Comment: 96/4 methanol/milli-q (RP-180820-2)

Approved By: Schumitz, Denise      Date: 8/20/2018 2:19:00 PM



It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: JZ76

Description: PFAS - 537.1 High ICAL Stock

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

Solution Prepared By: Schultz, Stephanie	Date Prepared: 8/20/2018	Expiration Date: 8/20/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: \_\_\_\_\_

Comment: 96/4 methanol/milli-q (RP-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:19:00 PM





It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JZ76

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-butanefluorobutane	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-octanoic Acid	250	2.00	1	100.000	1	10	0.05000
Perfluorononanoic 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-butanefluorobutane	.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-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:
180425-03	Pipette	B814657482

Solution Prepared By: Schultz, Stephanie	Date Prepared: 8/20/2018	Expiration Date: 8/20/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Comment: 96/4 methanol/milli-q (RP-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:19:00 PM



It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: JZ77

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)
JZ28	PFAS - 537.1 Second Source LCS/MS Solution	Solution	~0	07/25/19	---	---	200 uL	1	10	~0.0000
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 8/20/2018	<b>Expiration Date:</b> 5/2/2019
<b>Solution Volume</b> 40 mL X 1 Vials	<b>Refrigerator/Freezer No:</b> LC Laboratory: Refrigerator - R0107	

Balance ID: \_\_\_\_\_

Comment: 96/4 methanol/milli-q (RP-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:19:00 PM



It can be done

## Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JZ77**

Description: PFAS - 537.1 ICC

**Stock Id: JZ28**

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-butanefluorobutane	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: JZ74**

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: JZ75**

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: 8/20/2018 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-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:19:00 PM



It can be done

## Standard Solution Concentrations

Approved:

**Standard Laboratory ID Number:** JZ77

**Description:** PFAS - 537.1 ICC

N-ethylperfluoro-octanesulfonamidoacetic acid	.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00100
Perfluoro-1-butanefluoride	.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:
JZ28	Pipette	B814657482
JZ74	Pipette	B814659662
JZ75	Pipette	B814659662

**Solution Prepared By:** Schultz, Stephanie      **Date Prepared:** 8/20/2018      **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-180820-2)

**Approved By:** Schumitz, Denise      **Date:** 8/20/2018 2:19:00 PM



It can be done

## Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JZ80**

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
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 8/20/2018	<b>Expiration Date:</b> 5/2/2019
<b>Solution Volume</b> 40 mL X 1 Vials	<b>Refrigerator/Freezer No:</b> LC Laboratory: Refrigerator - R0107	

Balance ID: \_\_\_\_\_

Comment: 96/4 Methanol/Milli-q (RP-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:20:00 PM



It can be done

## Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JZ80**

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-butanefluorobutane	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: JZ74**

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: JZ75**

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: 8/20/2018 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-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:20:00 PM



It can be done

## Standard Solution Concentrations

Approved:

**Standard Laboratory ID Number:** JZ80

**Description:** PFAS - 537.1 ICAL L3

N-ethylperfluoro-octanesulfonamidoacetic acid	.00010
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00010
Perfluoro-1-butanefluoride	.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	B814657482
JZ74	Pipette	B814659662
JZ75	Pipette	B814659662

**Solution Prepared By:** Schultz, Stephanie      **Date Prepared:** 8/20/2018      **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-180820-2)

**Approved By:** Schumitz, Denise      **Date:** 8/20/2018 2:20:00 PM



It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: JZ81

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
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	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: 8/20/2018	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-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:20:00 PM





It can be done

## Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JZ81**

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-butanefluoride	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: JZ74**

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: JZ75**

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: 8/20/2018      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-180820-2)

Approved By: Schumitz, Denise      Date: 8/20/2018 2:20:00 PM



It can be done

**Standard Solution Concentrations** Approved:

**Standard Laboratory ID Number: JZ81**

**Description:** PFAS - 537.1 ICAL L4

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

**Syringes/Pipettes:**

Stock ID:	Type:	Battelle ID:
JV43	Pipette	C0982448K
JZ74	Pipette	B814659662
JZ75	Pipette	B814659662

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 8/20/2018	<b>Expiration Date:</b> 5/2/2019
<b>Solution Volume</b> 40 mL X 1 Vials	<b>Refrigerator/Freezer No:</b> LC Laboratory: Refrigerator - R0107	

**Comment:** 96/4 Methanol/Milli-q (RP-180820-2)

**Approved By:** Schumitz, Denise **Date:** 8/20/2018 2:20:00 PM



It can be done

## Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JZ82**

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
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 8/20/2018	<b>Expiration Date:</b> 5/2/2019
<b>Solution Volume</b> 40 mL X 1 Vials	<b>Refrigerator/Freezer No:</b> LC Laboratory: Refrigerator - R0107	

Balance ID: \_\_\_\_\_

Comment: 96/4 Methanol/Milli-q (RP-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:20:00 PM



It can be done

## Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JZ82**

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-butanefluorobutane	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: JZ74**

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: JZ75**

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: 8/20/2018 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-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:20:00 PM



It can be done

## Standard Solution Concentrations

Approved:

**Standard Laboratory ID Number:** JZ82

**Description:** PFAS - 537.1 ICAL L5

N-ethylperfluoro-octanesulfonamidoacetic acid	.00050
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00050
Perfluoro-1-butanefluoride	.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	C0982448K
JZ74	Pipette	B814659662
JZ75	Pipette	B814659662

**Solution Prepared By:** Schultz, Stephanie      **Date Prepared:** 8/20/2018      **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-180820-2)

**Approved By:** Schumitz, Denise      **Date:** 8/20/2018 2:20:00 PM



It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: JZ83

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)
JZ76	PFAS - 537.1 High ICAL Stock	Solution	~0	08/20/19	---	---	200 uL	1	10	~0.0000
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 8/20/2018	<b>Expiration Date:</b> 5/2/2019
<b>Solution Volume</b> 40 mL X 1 Vials	<b>Refrigerator/Freezer No:</b> LC Laboratory: Refrigerator - R0107	

Balance ID: \_\_\_\_\_

Comment: 96/4 Methanol/Milli-q (RP-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:20:00 PM



It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JZ83

Description: PFAS - 537.1 ICAL L6

## Stock Id: JZ74

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: JZ75

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

## Stock Id: JZ76

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-butanefulfonate	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

## 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: 8/20/2018 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-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:20:00 PM



It can be done

**Standard Solution Concentrations** Approved:

**Standard Laboratory ID Number: JZ83**

**Description:** PFAS - 537.1 ICAL L6

N-ethylperfluoro-octanesulfonamidoacetic acid	.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00100
Perfluoro-1-butanefluoride	.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:
JZ74	Pipette	B814659662
JZ75	Pipette	B814659662
JZ76	Pipette	B814657482

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 8/20/2018	<b>Expiration Date:</b> 5/2/2019
<b>Solution Volume</b> 40 mL X 1 Vials	<b>Refrigerator/Freezer No:</b> LC Laboratory: Refrigerator - R0107	
<b>Comment:</b> 96/4 Methanol/Milli-q (RP-180820-2)		

**Approved By:** Schumitz, Denise **Date:** 8/20/2018 2:20:00 PM





It can be done

## Standard Solution Prep Form II

Approved: Standard Laboratory ID Number: **JZ84**

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)
JZ76	PFAS - 537.1 High ICAL Stock	Solution	~0	08/20/19	---	---	500 uL	1	10	~0.0000
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 8/20/2018	<b>Expiration Date:</b> 5/2/2019
<b>Solution Volume</b> 40 mL X 1 Vials	<b>Refrigerator/Freezer No:</b> LC Laboratory: Refrigerator - R0107	

Balance ID: \_\_\_\_\_

Comment: 96/4 Methanol/Milli-q (RP-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:20:00 PM



It can be done

## Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JZ84**

Description: PFAS - 537.1 ICAL L7

**Stock Id: JZ74**

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: JZ75**

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

**Stock Id: JZ76**

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-butanefulfonate	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

**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: 8/20/2018      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-180820-2)

Approved By: Schumitz, Denise      Date: 8/20/2018 2:20:00 PM



It can be done

**Standard Solution Concentrations** Approved:

**Standard Laboratory ID Number: JZ84**

**Description:** PFAS - 537.1 ICAL L7

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

**Syringes/Pipettes:**

Stock ID:	Type:	Battelle ID:
JZ74	Pipette	B814659662
JZ75	Pipette	B814659662
JZ76	Pipette	C0982448K

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 8/20/2018	<b>Expiration Date:</b> 5/2/2019
<b>Solution Volume</b> 40 mL X 1 Vials	<b>Refrigerator/Freezer No:</b> LC Laboratory: Refrigerator - R0107	
<b>Comment:</b> 96/4 Methanol/Milli-q (RP-180820-2)		

**Approved By:** Schumitz, Denise **Date:** 8/20/2018 2:20:00 PM



It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: JZ85

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)
JZ76	PFAS - 537.1 High ICAL Stock	Solution	~0	08/20/19	---	---	1000 uL	1	10	~0.0000
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	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: 8/20/2018	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-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:20:00 PM



It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JZ85

Description: PFAS - 537.1 ICAL L8

## Stock Id: JZ74

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: JZ75

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

## Stock Id: JZ76

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-butanefluorobutane	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

## 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: 8/20/2018 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-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:20:00 PM



It can be done

## Standard Solution Concentrations

Approved:

**Standard Laboratory ID Number:** JZ85

**Description:** PFAS - 537.1 ICAL L8

N-ethylperfluoro-octanesulfonamidoacetic acid	.00500
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00500
Perfluoro-1-butanefluoride	.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:
JZ74	Pipette	B814659662
JZ75	Pipette	B814659662
JZ76	Pipette	C0982448K

**Solution Prepared By:** Schultz, Stephanie      **Date Prepared:** 8/20/2018      **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-180820-2)

**Approved By:** Schumitz, Denise      **Date:** 8/20/2018 2:20:00 PM



It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: JZ86

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)
JZ76	PFAS - 537.1 High ICAL Stock	Solution	~0	08/20/19	---	---	1000 uL	1	5	~0.0000
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	25 uL	1	5	~0.0000
JZ75	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	25 uL	1	5	~0.0000

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 8/20/2018	<b>Expiration Date:</b> 5/2/2019
<b>Solution Volume</b> 40 mL X 1 Vials	<b>Refrigerator/Freezer No:</b> LC Laboratory: Refrigerator - R0107	

Balance ID: \_\_\_\_\_

Comment: 96/4 Methanol/Milli-q (RP-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:20:00 PM



It can be done

## Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JZ86**

Description: PFAS - 537.1 ICAL L9

**Stock Id: JZ74**

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: JZ75**

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

**Stock Id: JZ76**

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-butanefulfonate	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

**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: 8/20/2018 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-180820-2)

Approved By: Schumitz, Denise Date: 8/20/2018 2:20:00 PM





It can be done

## Standard Solution Concentrations

Approved:

**Standard Laboratory ID Number:** JZ86

**Description:** PFAS - 537.1 ICAL L9

N-ethylperfluoro-octanesulfonamidoacetic acid	.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.01000
Perfluoro-1-butanefluoride	.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:
JZ74	Pipette	B814659662
JZ75	Pipette	B814659662
JZ76	Pipette	C0982448K

**Solution Prepared By:** Schultz, Stephanie      **Date Prepared:** 8/20/2018      **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-180820-2)

**Approved By:** Schumitz, Denise      **Date:** 8/20/2018 2:20:00 PM

It can be done

BDO Id: 180425-01

## Reagent Receipt Report

Approved:  Authorized

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

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

Total Analytes: 3

Notes:

Approved by: \_\_\_\_\_ Approved on: \_\_\_\_\_  
Authorized by: \_\_\_\_\_ Authorized on: \_\_\_\_\_

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

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

**DESCRIPTION:**

EPA-537IS is a solution/mixture of a mass-labelled (<sup>13</sup>C) perfluoroalkylcarboxylic acid, a mass-labelled (<sup>13</sup>C) perfluoroalkylsulfonate, and a mass-labelled (<sup>2</sup>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

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

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

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

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

**TRACEABILITY:**

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

**EXPIRY DATE / PERIOD OF VALIDITY:**

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

**LIMITED WARRANTY:**

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

**QUALITY MANAGEMENT:**

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

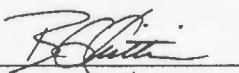


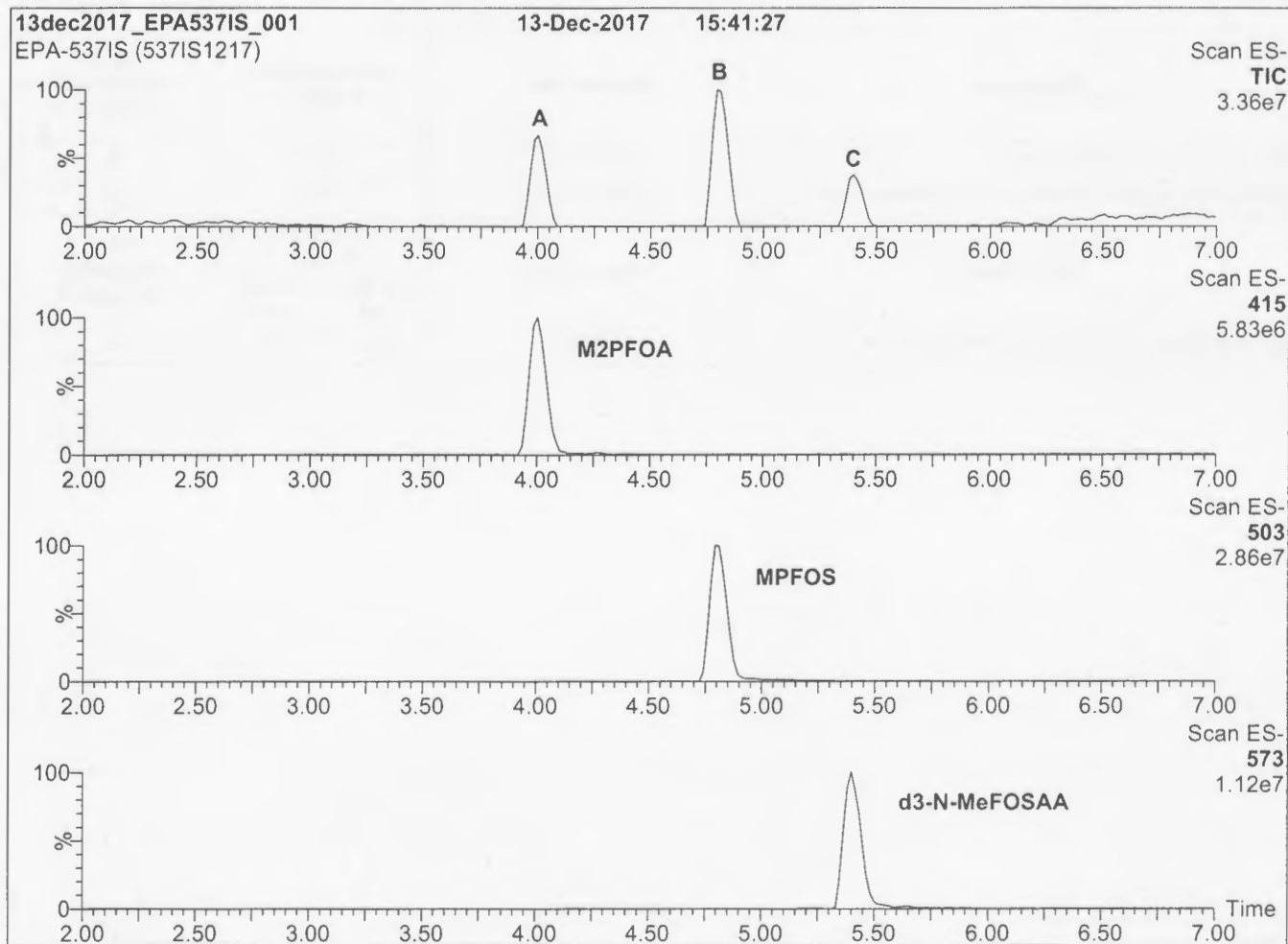
\*\*For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at [www.well-labs.com](http://www.well-labs.com) or contact us directly at [info@well-labs.com](mailto:info@well-labs.com)\*\*

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

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

Certified By: \_\_\_\_\_


  
B.G. Chittim, General Manager
Date: 12/22/2017  
(mm/dd/yyyy)

**Figure 1: EPA-537IS; LC/MS Data (Total Ion Current Chromatogram)****Conditions for Figure 1:****LC:** Waters Acquity Ultra Performance LC**MS:** Micromass Quattro *micro* API MS**Chromatographic Conditions**

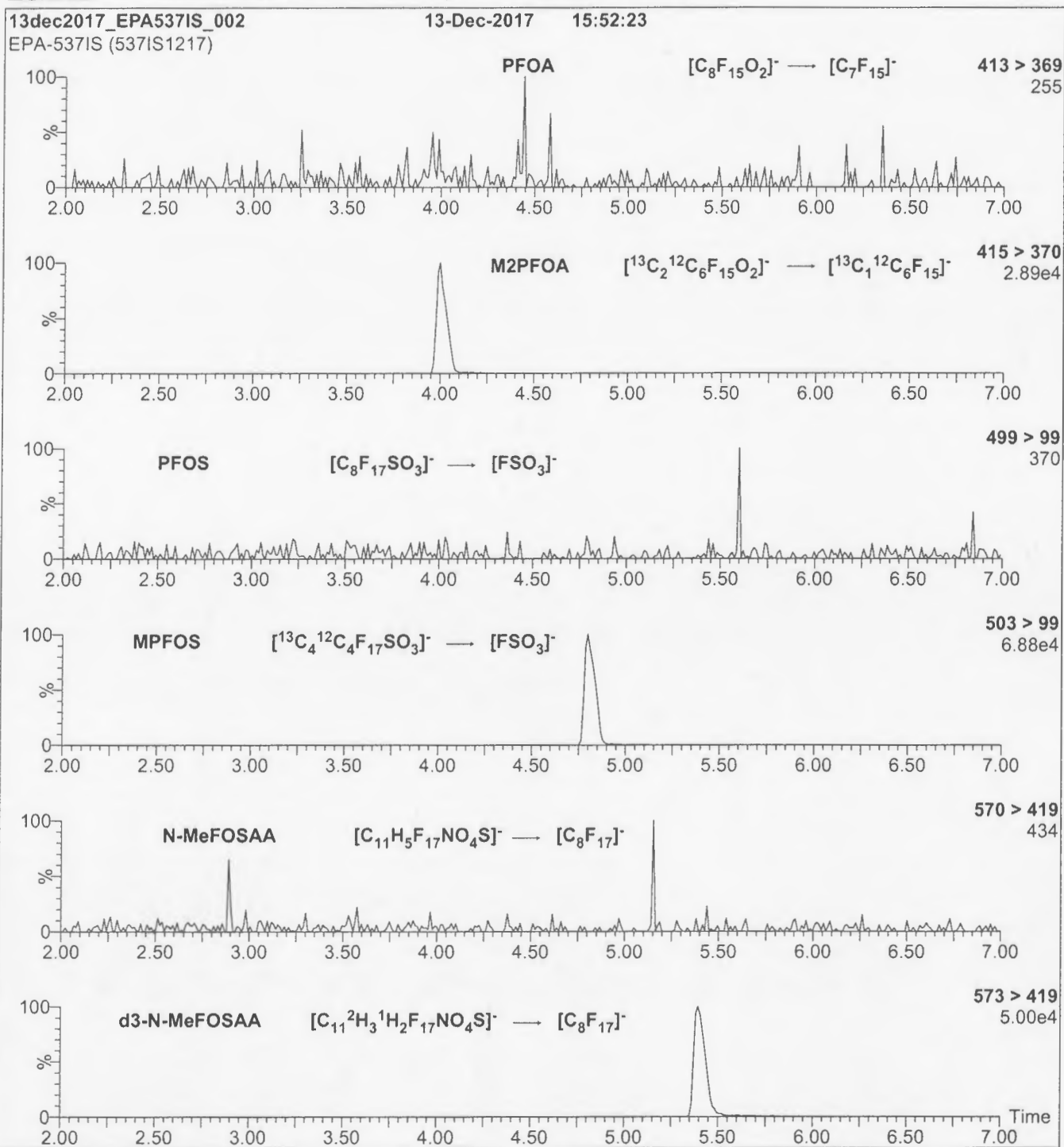
Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 40% (80:20 MeOH:ACN) / 60% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc 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  $\mu$ l/min**MS Parameters**

Experiment: Full Scan (150 - 850 amu)

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

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

Injection: On-column (EPA-537IS)

Mobile phase: Same as Figure 1

Flow: 300  $\mu$ l/min**MS Parameters**

Collision Gas (mbar) = 3.28e-3

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

It can be done

BDO Id: 180425-02

## Reagent Receipt Report

Approved:  Authorized

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

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

Total Analytes: 3

Notes:

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



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

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

**DESCRIPTION:**

EPA-537SS is a solution/mixture of two mass-labelled (<sup>13</sup>C) perfluoroalkylcarboxylic acids and a mass-labelled (<sup>2</sup>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

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

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

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

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

**TRACEABILITY:**

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

**EXPIRY DATE / PERIOD OF VALIDITY:**

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

**LIMITED WARRANTY:**

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

**QUALITY MANAGEMENT:**

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

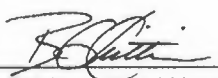


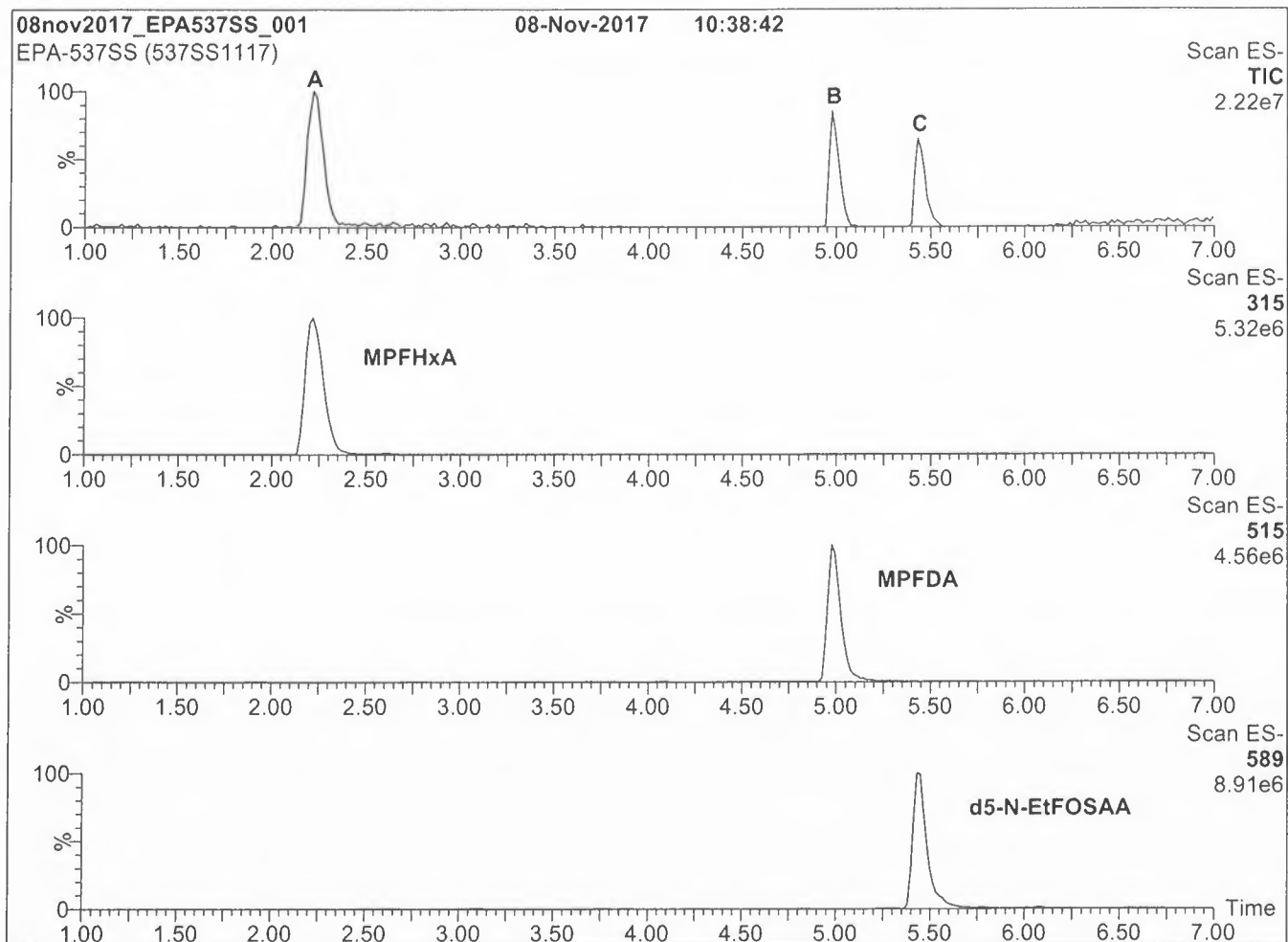
\*\*For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at [www.well-labs.com](http://www.well-labs.com) or contact us directly at [info@well-labs.com](mailto:info@well-labs.com)\*\*

**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- <sup>13</sup> C <sub>2</sub> ]hexanoic acid	MPFHxA	1000	A
Perfluoro-n-[1,2- <sup>13</sup> C <sub>2</sub> ]decanoic acid	MPFDA	1000	B
N-ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	4000	C

Certified By:

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

**Figure 1: EPA-537SS; LC/MS Data (Total Ion Current Chromatogram)****Conditions for Figure 1:****LC:** Waters Acquity Ultra Performance LC**MS:** Micromass Quattro *micro* API MS**Chromatographic Conditions**Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 45% (80:20 MeOH:ACN) / 55% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc 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  $\mu$ l/min**MS Parameters**

Experiment: Full Scan (225 - 850 amu)

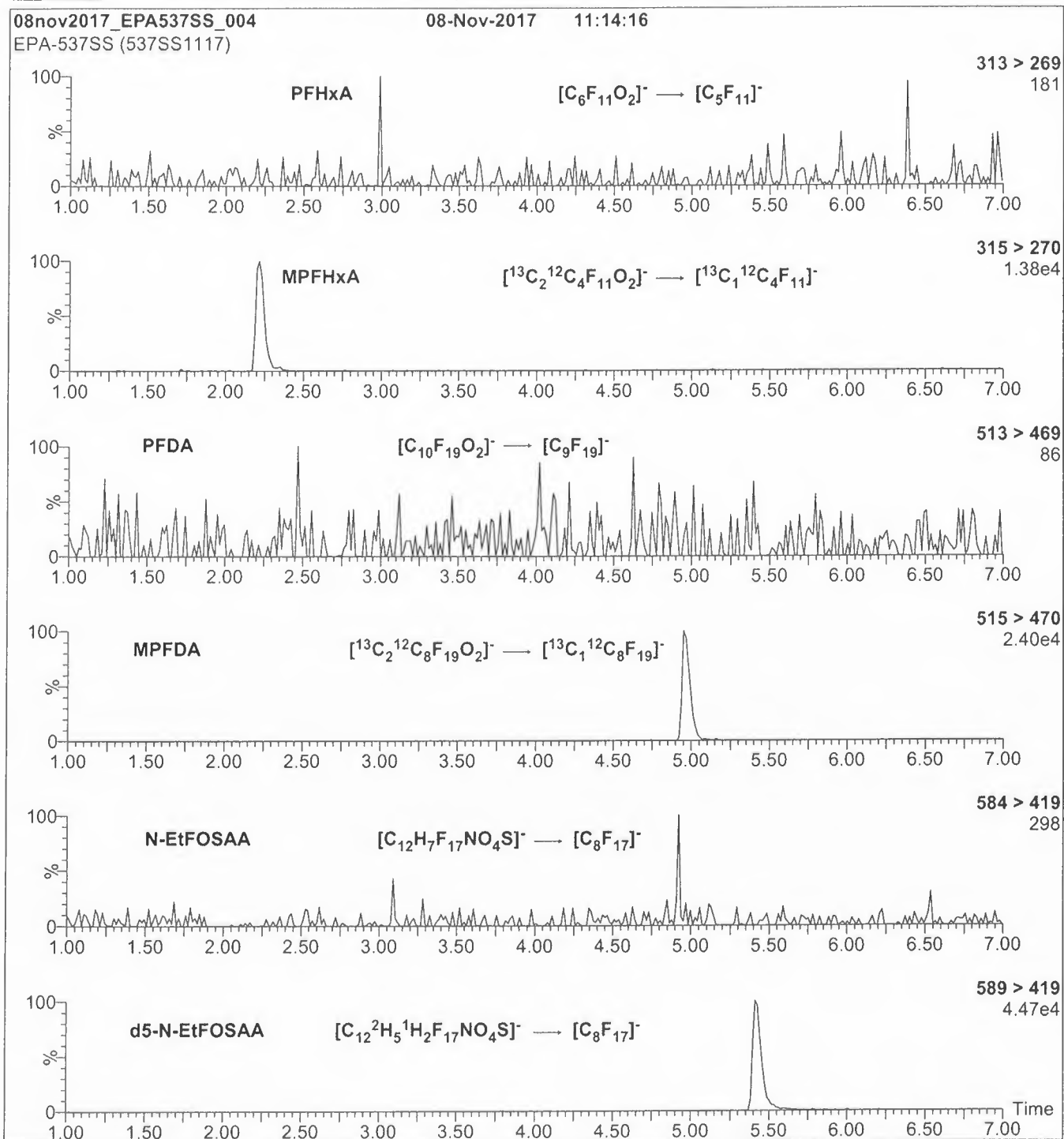
Source: Electrospray (negative)

Capillary Voltage (kV) = 3.00

Cone Voltage (V) = 25.00

Cone Gas Flow (l/hr) = 100

Desolvation Gas Flow (l/hr) = 750

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

Injection: On-column (EPA-537SS)

Mobile phase: Same as Figure 1

Flow: 300  $\mu$ l/min**MS Parameters**

Collision Gas (mbar) = 3.50e-3

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



It can be done

BDO Id: 180425-03

## Reagent Receipt Report

Approved:  Authorized

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

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

**Total Analytes:** 14

**Notes:**

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

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

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

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

*for calibration  
Jnr 5/2/2018*

**DESCRIPTION:**

EPA-537PDS is a solution/mixture of nine native linear perfluoroalkylcarboxylic acids (C<sub>6</sub>-C<sub>14</sub>), three native perfluoroalkylsulfonates (C<sub>4</sub> linear; C<sub>6</sub> and C<sub>8</sub> linear and branched), and two native perfluorooctanesulfonamidoacetic acids (linear and branched). The components and their concentrations are given in Table A.

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

**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

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

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

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



**INTENDED USE:**

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

**HANDLING:**

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

**SYNTHESIS / CHARACTERIZATION:**

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

**HOMOGENEITY:**

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

**UNCERTAINTY:**

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

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

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

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

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

**TRACEABILITY:**

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

**EXPIRY DATE / PERIOD OF VALIDITY:**

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

**LIMITED WARRANTY:**

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

**QUALITY MANAGEMENT:**

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



\*\*For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at [www.well-labs.com](http://www.well-labs.com) or contact us directly at [info@well-labs.com](mailto:info@well-labs.com)\*\*

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

Compound	Abbreviation	Concentration * (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
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 <sup>a</sup> ✓	N-MeFOSAA: linear isomer ✓	1520		L
	N-MeFOSAA: $\Sigma$ branched isomers	480		K
N-ethylperfluorooctanesulfonamidoacetic acid <sup>b</sup> ✓	N-EtFOSAA: linear isomer ✓	1550		N
	N-EtFOSAA: $\Sigma$ 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 <sup>c</sup>	PFHxSK: linear isomer	1620	1480	E
	PFHxSK: $\Sigma$ branched isomers	378	344	D
Potassium perfluorooctanesulfonate <sup>d</sup>	PFOSK: linear isomer	1580	1460	I
	PFOSK: $\Sigma$ branched isomers	422	391	H

<sup>a</sup> See Table B for percent composition of linear and branched N-MeFOSAA isomers.

<sup>b</sup> See Table C for percent composition of linear and branched N-EtFOSAA isomers.

<sup>c</sup> See Table D for percent composition of linear and branched PFHxSK isomers.

<sup>d</sup> 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 <sup>19</sup>F-NMR)\***

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

\* Percent of total N-methylperfluorooctanesulfonamidoacetic acid isomers only.

**Table C: N-EtFOSAA; Isomeric Components and Percent Composition (by <sup>19</sup>F-NMR)\***

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

\* Percent of total N-ethylperfluorooctanesulfonamidoacetic acid isomers only.

**Table D: PFHxSK; Isomeric Components and Percent Composition (by <sup>19</sup>F-NMR)\***

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

\* Percent of total perfluorohexanesulfonate isomers only.

\*\* Systematic Name: Potassium perfluorohexane-2-sulfonate.

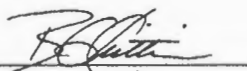
**Table E: PFOSK; Isomeric Components and Percent Composition (by <sup>19</sup>F-NMR)\***

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

\* Percent of total perfluorooctanesulfonate isomers only.

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

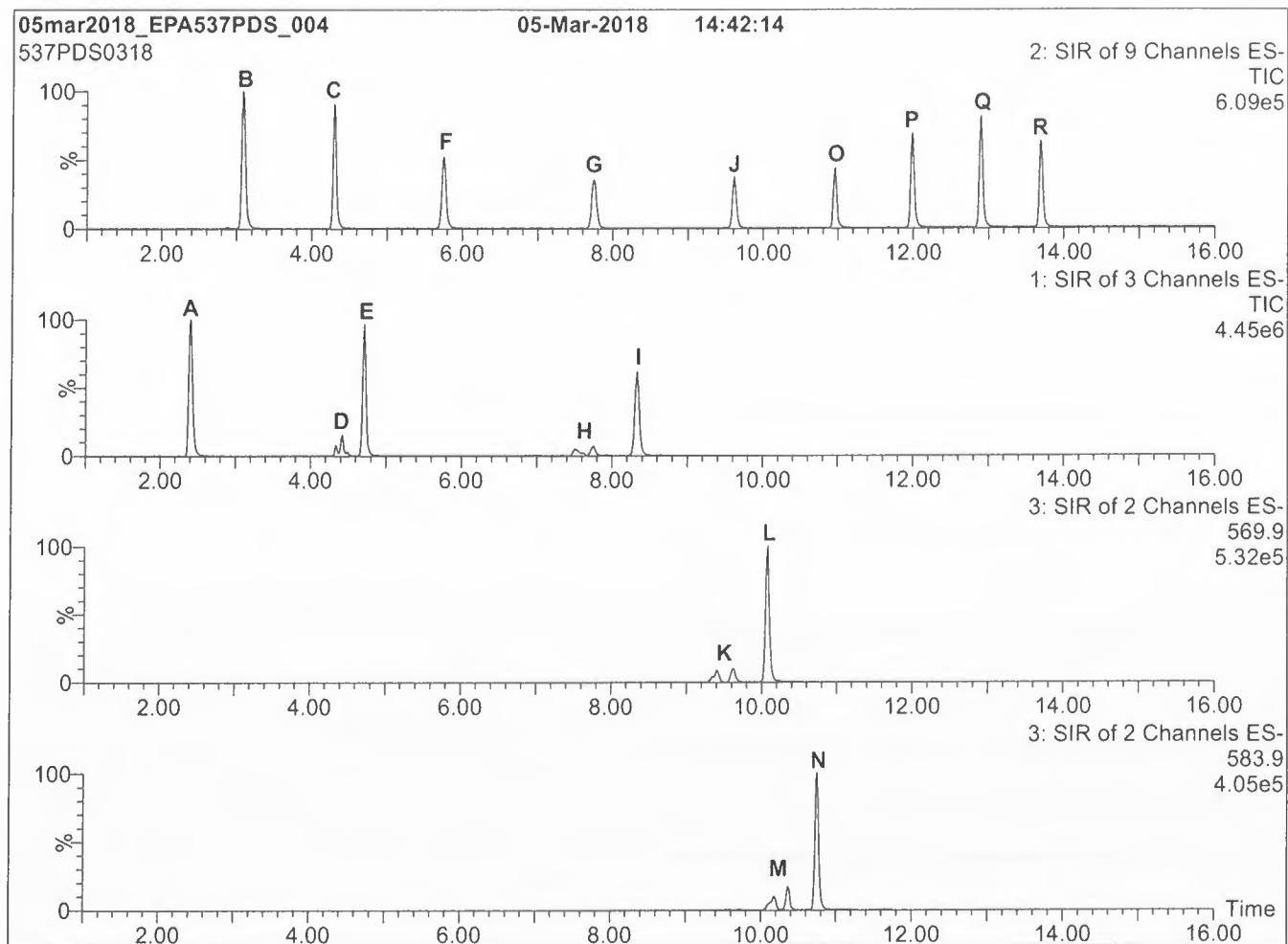
Certified By:



B.G. Chittim, General Manager

Date: 04/02/2018

(mm/dd/yyyy)

**Figure 1: EPA-537PDS; LC/MS Data (SIR)****Conditions for Figure 1:****LC:** Waters Acquity Ultra Performance LC**MS:** Micromass Quattro *micro* API MS**Chromatographic Conditions**Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 40% (80:20 MeOH:ACN) / 60% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc 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  $\mu$ l/min**MS Parameters**

Experiment: SIR

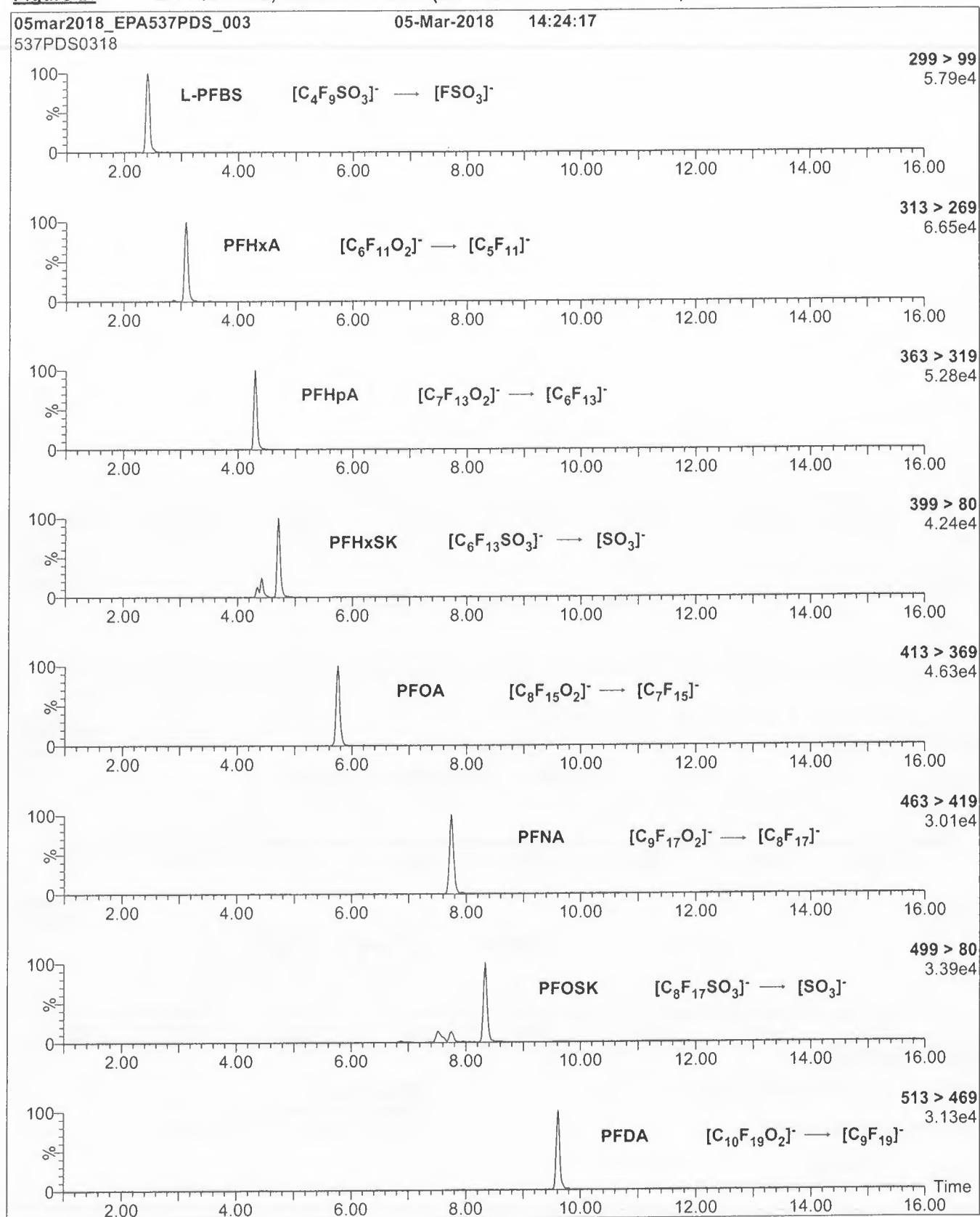
Source: Electrospray (negative)

Capillary Voltage (kV) = 3.00

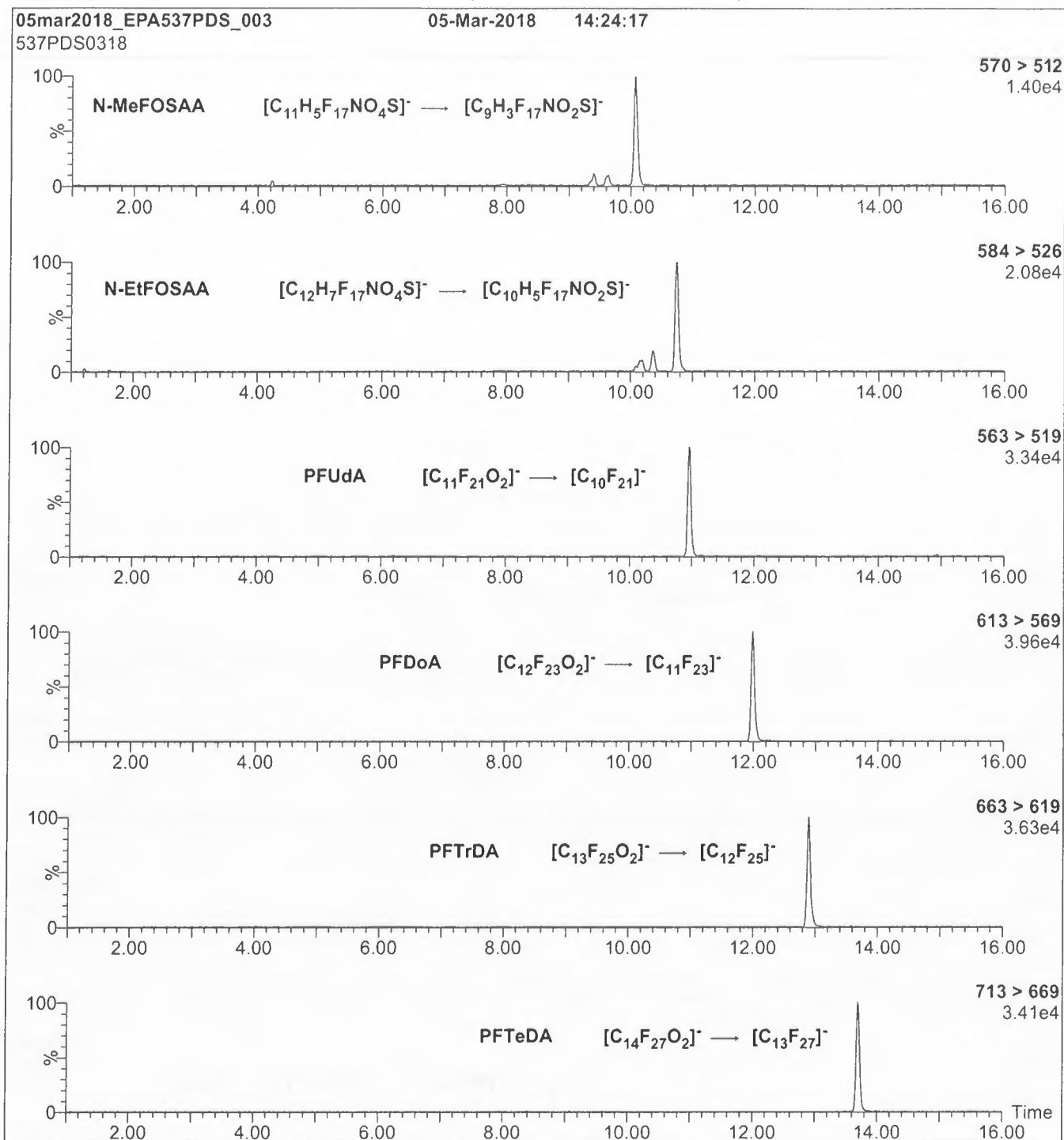
Cone Voltage (V) = variable (15-60)

Cone Gas Flow (l/hr) = 100

Desolvation Gas Flow (l/hr) = 750

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



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

Injection: On-column (EPA-537PDS)

Mobile phase: Same as Figure 1

Flow: 300  $\mu$ l/min**MS Parameters**

Collision Gas (mbar) = 3.10e-3

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

**WELLINGTON**  
LABORATORIESCERTIFICATE 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<sub>6</sub>-C<sub>14</sub>), native linear perfluoroalkylsulfonates (C<sub>4</sub>, C<sub>6</sub>, and C<sub>8</sub>), and native linear perfluorooctanesulfonamidoacetic acids. The components and their concentrations are given in Table A.

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

**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

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

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

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

**INTENDED USE:**

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

**HANDLING:**

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

**SYNTHESIS / CHARACTERIZATION:**

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

**HOMOGENEITY:**

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

**UNCERTAINTY:**

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

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

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

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

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

**TRACEABILITY:**

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

**EXPIRY DATE / PERIOD OF VALIDITY:**

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

**LIMITED WARRANTY:**

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

**QUALITY MANAGEMENT:**

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



\*\*For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at [www.well-labs.com](http://www.well-labs.com) or contact us directly at [info@well-labs.com](mailto:info@well-labs.com)\*\*

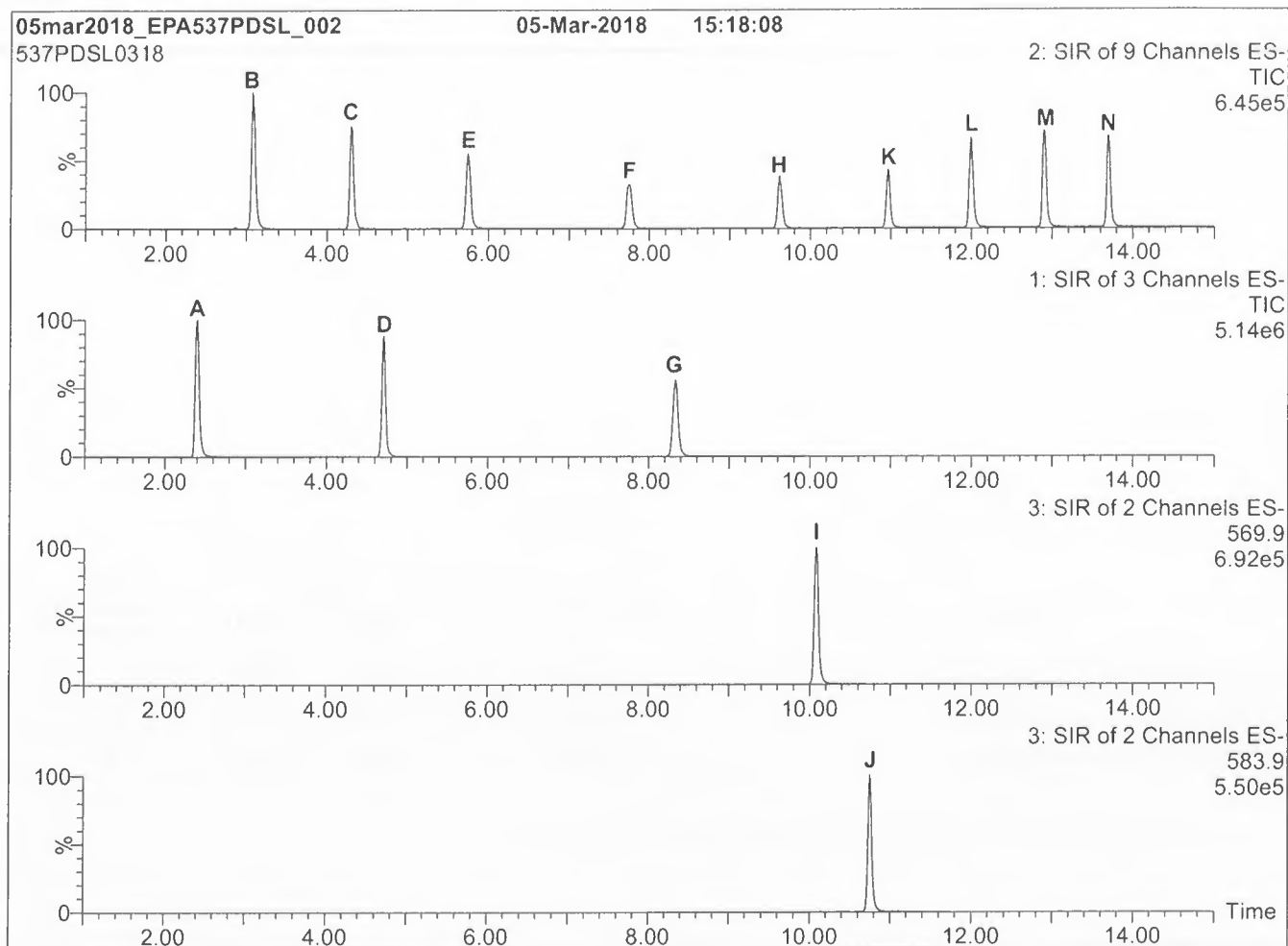
**Table A: EPA-537PDS-L; Components and Concentrations (ng/ml;  $\pm$  5% in Methanol / Water (<1%))**

Compound	Abbreviation	Concentration *		Peak Assignment in Figure 1
		(ng/ml)		
Perfluoro-n-hexanoic acid	PFHxA	2000		B
Perfluoro-n-heptanoic acid	PFHpA	2000		C
Perfluoro-n-octanoic acid	PFOA	2000		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	PFTTrDA	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:   
B.G. Chittim, General Manager

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

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

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

**Chromatographic Conditions**

Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
 1.7  $\mu$ m, 2.1 x 100 mm

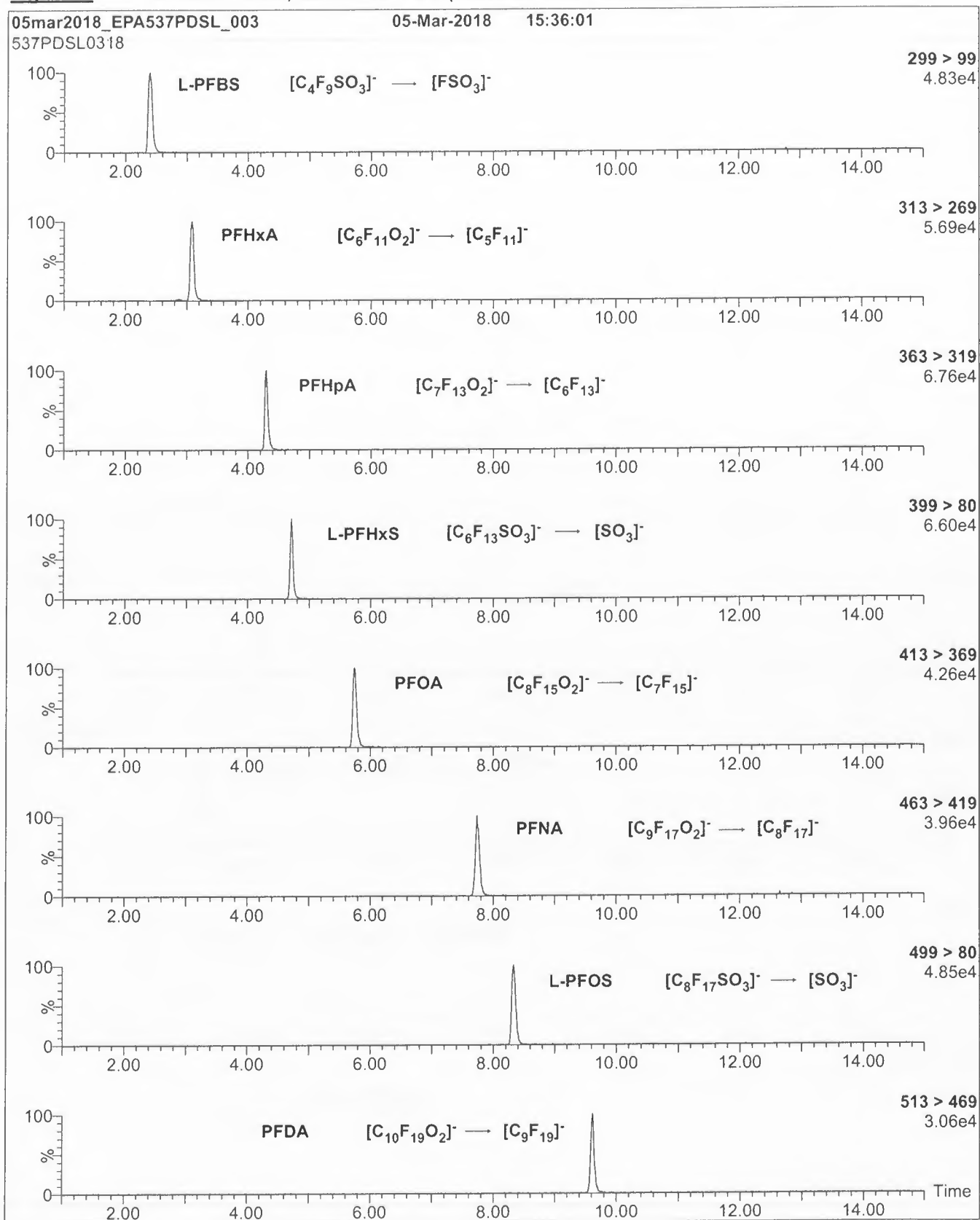
Mobile phase: Gradient  
 Start: 40% (80:20 MeOH:ACN) / 60% H<sub>2</sub>O  
 (both with 10 mM NH<sub>4</sub>OAc buffer)  
 Ramp to 55% organic over 3.5 min.  
 Ramp to 70% organic over 6.5 min.  
 Ramp to 85% organic over 5 min and hold for  
 1 min before returning to initial conditions in 0.5 min.  
 Time: 17 min

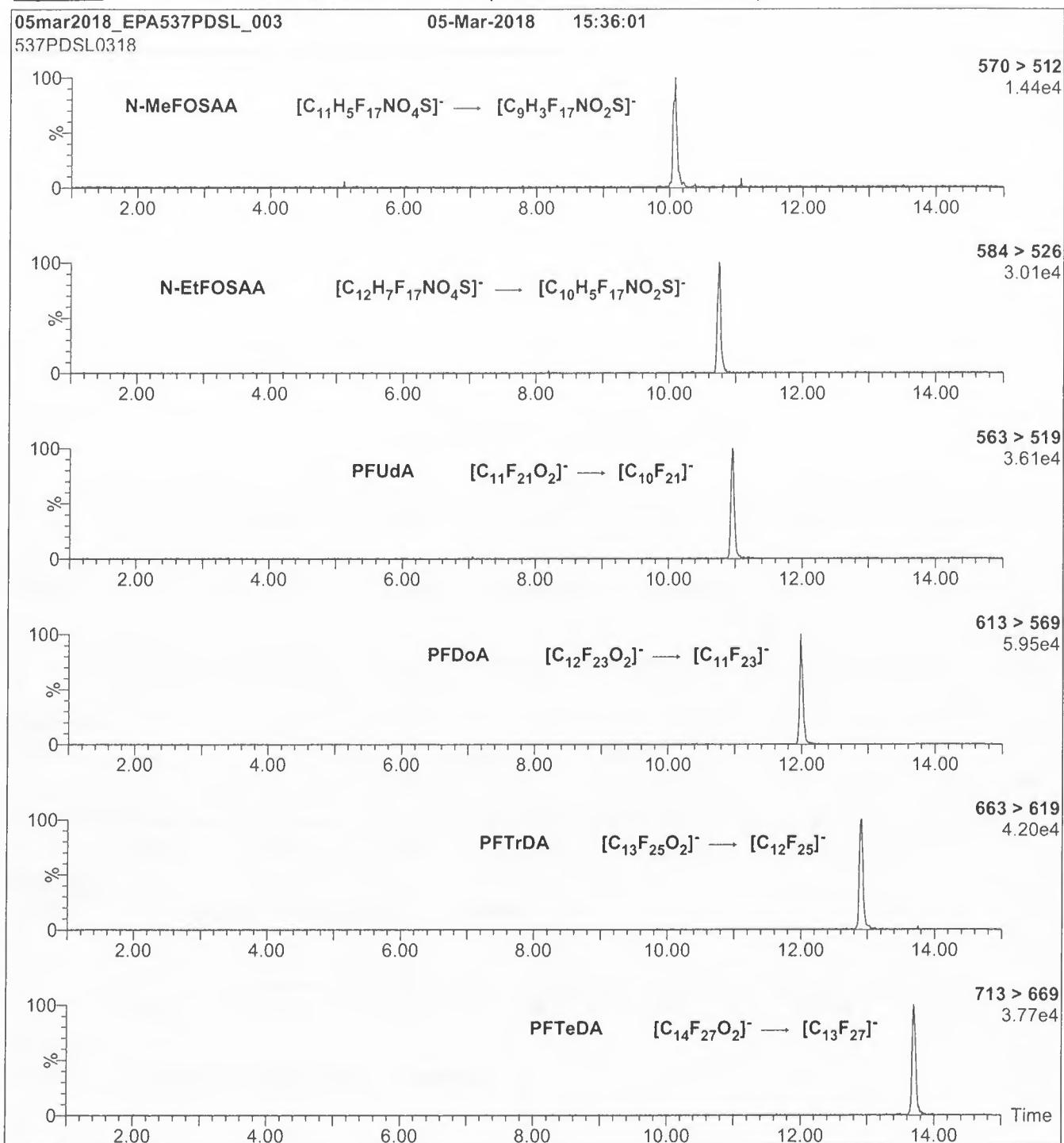
Flow: 300  $\mu$ l/min

**MS Parameters**

Experiment: SIR

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

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

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

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

Mobile phase: Same as Figure 1

Flow: 300  $\mu$ l/min**MS Parameters**

Collision Gas (mbar) = 3.17e-3

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

# Sample Preparation





It can be done

**BATTELLE - NORWELL OPERATIONS  
SAMPLE PREPARATION RECORDS**

<b><u>Project Title(s)</u></b>	<b><u>Project No.(s)</u></b>
CTO-SE0375: Naval Air Station Jacksonville	100119154- SE0375
<b>18-0534</b>	
<b>CTO-SE0375: Drinking Water Analysis</b>	
<b>W</b>	
SOP Numbers (see workplan for modifications)	
VOASOP No.	5-371

<b>This Batch Contains The Following Samples:</b>	
CR676PB-FS	J7451-FS1
CR677LCS-FS	
J7430-FS1	
J7445-FS1	
J7447-FS1	
J7449-FS1	

Laboratory Preparation Records  
COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Denise Schumitz	08/31/2018	DMS



It can be done

**BATTELLE - NORWELL OPERATIONS  
SAMPLE IDENTIFICATION PAGE**

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**

100119154-  
SE0375

**18-0534**

**CTO-SE0375: Drinking Water Analysis**

**W**

Sample ID	Description
CR676PB-FS	Procedural Blank
CR677LCS-FS	Laboratory Control Sample
J7430-FS1	JAX-RES-08142018-1130-9
J7445-FS1	JAX-RES-08152018-0930-18
J7447-FS1	JAX-RES-08152018-1015-34
J7449-FS1	JAX-RES-08152018-1045-33
J7451-FS1	JAX-RES-08152018-1130-15

Samples Assigned By:

Jonathan Thorn

Date : August 28, 2018

Comments:



It can be done

**BATTELLE - NORWELL OPERATIONS  
SAMPLE CUSTODY LOG**

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**

100119154-  
SE0375

**18-0534**

**CTO-SE0375: Drinking Water Analysis**

**W**

<b>Requested On/By:</b> 08/28/2018 SAS	<b>Purpose:</b> Sample Preparation
<b>Relinquished On/By:</b> 08/28/2018 MDS	<b>Last Activity:</b> Transfer
<b>Accepted On/By:</b> 08/28/2018 SAS <b>Stored In Facility:</b> Sample Preparation <b>Stored Until:</b> 08/28/2018 <b>Stored Comment:</b> NA	<b>Returned On/To:</b> <b>Returned To Facility:</b> <b>Returned Comment:</b> NA

No.	BDO-ID:	Ctrs	*	Condition:	Custody Comment:
1	J7430	2	C	Consumed	NA
2	J7445	2	C	Consumed	NA
3	J7447	2	C	Consumed	NA
4	J7449	2	C	Consumed	NA
5	J7451	2	C	Consumed	NA
<b>Total Samples</b>		5		* "C" = Consumed Container	



It can be done

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

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**

100119154-  
SE0375

**18-0534**

**CTO-SE0375: Drinking Water Analysis**

**W**

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CR676PB-FS	Procedural Blank	250.0	NA	--	08/28/18 SAS
CR677LCS-FS	Laboratory Control Sample	250.0	NA	--	08/28/18 SAS
J7430-FS1	JAX-RES-08142018-1130-9	285.0	2	C	08/30/18 SAS
J7445-FS1	JAX-RES-08152018-0930-18	250.0	2	C	08/30/18 SAS
J7447-FS1	JAX-RES-08152018-1015-34	295.0	2	C	08/30/18 SAS
J7449-FS1	JAX-RES-08152018-1045-33	280.0	2	C	08/30/18 SAS
J7451-FS1	JAX-RES-08152018-1130-15	285.0	2	C	08/30/18 SAS

**Comments:**

Sample ID:	Comments:
CR676PB-FS	1.23g Trizma(180502-01) weighed on BAL-009
CR677LCS-FS	1.24g Trizma(180502-01) weighed on BAL-009

Samples Assigned By

Jonathan Thorn

Date : August 28, 2018

\* - "C" = Sample is Consumed



It can be done

## BATTELLE - NORWELL OPERATIONS SURROGATE SPIKE FORM

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0534****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CR676PB-FS	JZ90	SIS	1	50	08/28/18 SAS	LMG	NA
CR677LCS-FS	JZ28	LCS/MS	1	100	08/28/18 SAS	LMG	NA
CR677LCS-FS	JZ90	SIS	1	50	08/28/18 SAS	LMG	NA
J7430-FS1	JZ90	SIS	1	50	08/28/18 SAS	LMG	NA
J7445-FS1	JZ90	SIS	1	50	08/28/18 SAS	LMG	NA
J7447-FS1	JZ90	SIS	1	50	08/28/18 SAS	LMG	NA
J7449-FS1	JZ90	SIS	1	50	08/28/18 SAS	LMG	NA
J7451-FS1	JZ90	SIS	1	50	08/28/18 SAS	LMG	NA

## Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JZ28	Pipette	B814659662
JZ90	Pipette	B814659662



It can be done

## BATTELLE - NORWELL OPERATIONS SAMPLE EXTRACTION FORM

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0534****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CR676PB-FS	08/28/18 SAS	NA	NA	NA	NA	NA	NA	NA
CR677LCS-FS	08/28/18 SAS	NA	NA	NA	NA	NA	NA	NA
J7430-FS1	08/28/18 SAS	NA	NA	NA	NA	NA	NA	NA
J7445-FS1	08/28/18 SAS	NA	NA	NA	NA	NA	NA	NA
J7447-FS1	08/28/18 SAS	NA	NA	NA	NA	NA	NA	NA
J7449-FS1	08/28/18 SAS	NA	NA	NA	NA	NA	NA	NA
J7451-FS1	08/28/18 SAS	NA	NA	NA	NA	NA	NA	NA

**Solvents/Reagent Preparations:**

Name	ID	Expires	Lot No	Procedure	Comments
Pre-packed SPE Column	RP-180828-3	08/28/18	S214-0075	Pre-packed SPE Column	

**Solvents/Reagents:**

Name	Lot No	Comments
Methanol (HPLC) (180724-02)	181704	



It can be done

## BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0534****CTO-SE0375: Drinking Water Analysis****W****(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
CR676PB-FS(0)	950	50	JZ87	50	1	1000	1.000	08/29/18 SAS	MRM
CR677LCS-FS(0)	950	50	JZ87	50	1	1000	1.000	08/29/18 SAS	MRM
J7430-FS1(0)	950	50	JZ87	50	1	1000	1.000	08/29/18 SAS	MRM
J7445-FS1(0)	950	50	JZ87	50	1	1000	1.000	08/29/18 SAS	MRM
J7447-FS1(0)	950	50	JZ87	50	1	1000	1.000	08/29/18 SAS	MRM
J7449-FS1(0)	950	50	JZ87	50	1	1000	1.000	08/29/18 SAS	MRM
J7451-FS1(0)	950	50	JZ87	50	1	1000	1.000	08/29/18 SAS	MRM

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JZ87	Pipette	B814659662

Extract Id:	Comments:
CR676PB-FS	Samples reconstituted in 96/4 methanol/milli-q water

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

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



It can be done

## BATTELLE - NORWELL OPERATIONS PREPARATION EXTRACT SPLIT FORM

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0534****CTO-SE0375: Drinking Water Analysis****W**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CR676PB-FS	0	--	8/28/2018 2:24:00 PM	NA		NA	NA	1.000	1.000	08/28/18 SAS
CR677LCS-FS	0	--	8/28/2018 2:24:00 PM	NA		NA	NA	1.000	1.000	08/28/18 SAS
J7430-FS1	0	--	8/28/2018 2:24:00 PM	NA		NA	NA	1.000	1.000	08/28/18 SAS
J7445-FS1	0	--	8/28/2018 2:24:00 PM	NA		NA	NA	1.000	1.000	08/28/18 SAS
J7447-FS1	0	--	8/28/2018 2:24:00 PM	NA		NA	NA	1.000	1.000	08/28/18 SAS
J7449-FS1	0	--	8/28/2018 2:24:00 PM	NA		NA	NA	1.000	1.000	08/28/18 SAS
J7451-FS1	0	--	8/28/2018 2:24:00 PM	NA		NA	NA	1.000	1.000	08/28/18 SAS

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

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

\* - "C" = Extract is Consumed





It can be done

## BATTELLE - NORWELL OPERATIONS EXTRACT - INSTRUMENT FACILITY CUSTODY PAGE

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0534****CTO-SE0375: Drinking Water Analysis****W**

<b>Purpose:</b>	LC-MS/MS TRANSFER	<b>Last Activity:</b>	Prep->Inst
<b>Relinquished On/By:</b>	Aug 29 2018 3:51PM SAS	<b>Received On/By:</b>	Aug 29 2018 4:20PM DMS
<b>Relinquished From:</b>	Sample Preparation: NA	<b>Received Location:</b>	LC Laboratory: NA
<b>Relinquish Comment:</b>	NA	<b>Received Comment:</b>	NA

No.	BDO-ID:	PIV:	DF:	Condition:	Custody Comment:
1	CR676PB-FS(0)	1000	1	Intact	NA
2	CR677LCS-FS(0)	1000	1	Intact	NA
3	J7430-FS1(0)	1000	1	Intact	NA
4	J7445-FS1(0)	1000	1	Intact	NA
5	J7447-FS1(0)	1000	1	Intact	NA
6	J7449-FS1(0)	1000	1	Intact	NA
7	J7451-FS1(0)	1000	1	Intact	NA

**Total Extracts:** 7



It can be done

**BATTELLE - NORWELL OPERATIONS  
MISCELLANEOUS DOCUMENTATION FORM**

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**

100119154-  
SE0375

**18-0534**

**CTO-SE0375: Drinking Water Analysis**

**W**

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Entered By: \_\_\_\_\_ On: \_\_\_\_\_

---

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Task Leader Approval:

On:

SupervisorApproval:

On:

PM Approval:

On:

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It can be done

## BATTELLE - NORWELL OPERATIONS SAMPLE SPECIFIC COMMENTS

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0534****CTO-SE0375: Drinking Water Analysis****W**

Sample ID:	Comment:	Date/Initials:
CR676PB-FS	Extraction for all samples began at 2:24pm	08/28/18 SAS
CR676PB-FS	Sample extraction ended at 2:52pm	08/28/18 SAS
CR677LCS-FS	Sample extraction ended at 2:51pm	08/28/18 SAS
J7430-FS1	Sample extraction ended at 2:56pm	08/28/18 SAS
J7445-FS1	Sample extraction ended at 2:55pm	08/28/18 SAS
J7447-FS1	Sample extraction ended at 2:55pm	08/28/18 SAS
J7449-FS1	Sample extraction ended at 2:56pm	08/28/18 SAS
J7451-FS1	Sample extraction ended at 2:58pm	08/28/18 SAS

# Analytical Calibrations

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		8/29/2018 5:03:31 PM	5-0371.dam	18-0534.wiff
4	JZ80	L3	8/29/2018 5:30:23 PM	5-0371.dam	18-0534.wiff
5	JZ81	L4	8/29/2018 5:39:21 PM	5-0371.dam	18-0534.wiff
6	JZ82	L5	8/29/2018 5:48:19 PM	5-0371.dam	18-0534.wiff
7	JZ83	L6	8/29/2018 5:57:16 PM	5-0371.dam	18-0534.wiff
8	JZ84	L7	8/29/2018 6:06:15 PM	5-0371.dam	18-0534.wiff
9	JZ85	L8	8/29/2018 6:15:11 PM	5-0371.dam	18-0534.wiff
10	JZ86	L9	8/29/2018 6:24:08 PM	5-0371.dam	18-0534.wiff
11	KA08 IB	Instrument Blank	8/29/2018 6:33:06 PM	5-0371.dam	18-0534.wiff
12	JZ77 ICC	ICC	8/29/2018 6:42:04 PM	5-0371.dam	18-0534.wiff
1	MeOH		8/29/2018 6:51:02 PM	5-0371.dam	18-0534.wiff
13	CR676PB-FS(0)	Procedural Blank	8/29/2018 6:59:59 PM	5-0371.dam	18-0534.wiff
14	CR677LCS-FS(0)	Laboratory Control Sample	8/29/2018 7:08:57 PM	5-0371.dam	18-0534.wiff
15	J7430-FS1(0)	JAX-RES-08142018-1130-9	8/29/2018 7:17:53 PM	5-0371.dam	18-0534.wiff
16	J7445-FS1(0)	JAX-RES-08152018-0930-18	8/29/2018 7:26:50 PM	5-0371.dam	18-0534.wiff
17	J7447-FS1(0)	JAX-RES-08152018-1015-34	8/29/2018 7:35:46 PM	5-0371.dam	18-0534.wiff
18	J7449-FS1(0)	JAX-RES-08152018-1045-33	8/29/2018 7:44:42 PM	5-0371.dam	18-0534.wiff
19	J7451-FS1(0)	JAX-RES-08152018-1130-15	8/29/2018 7:53:38 PM	5-0371.dam	18-0534.wiff
6	JZ82 CCV	CCV	8/29/2018 8:02:34 PM	5-0371.dam	18-0534.wiff



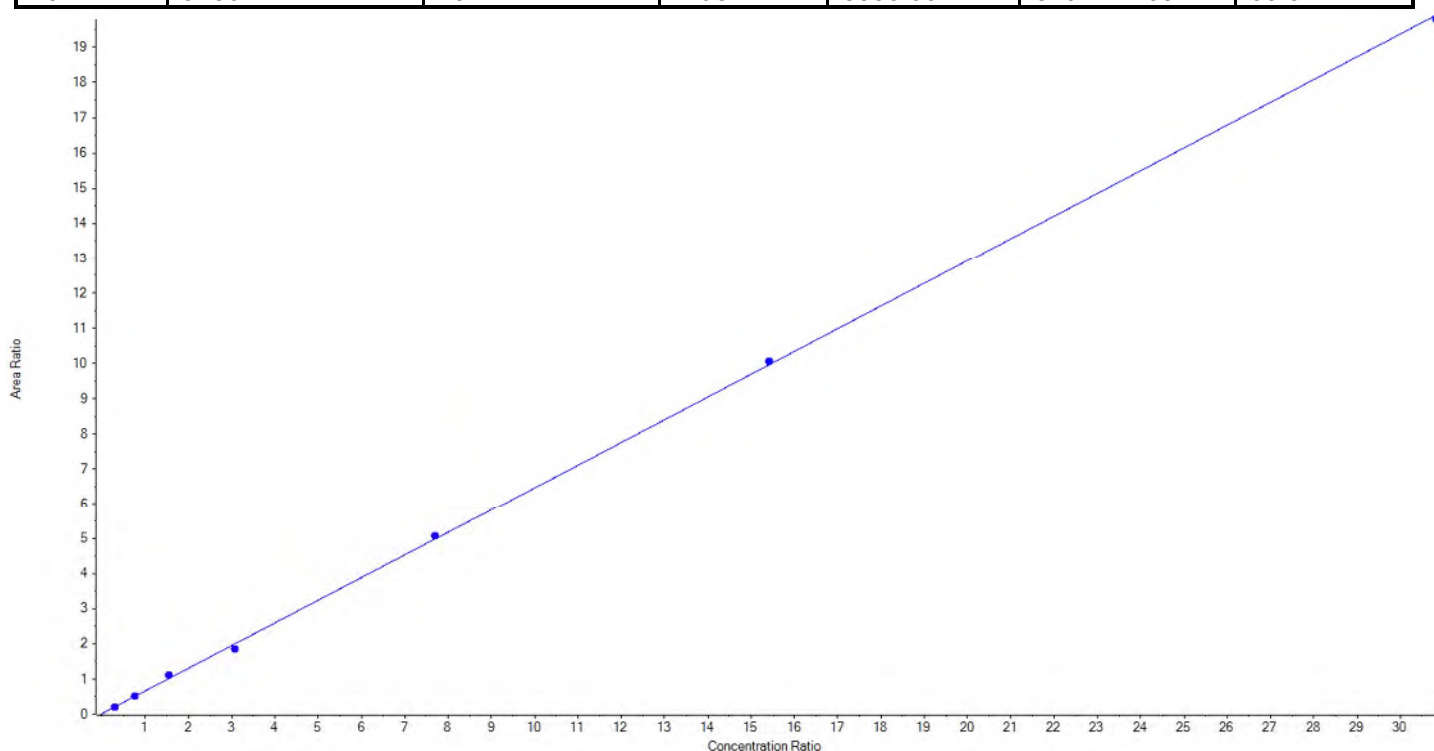
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFBS_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	298.9 / 80.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.64529x + 0.01361$  ( $r = 0.99959$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	84.937595	95.9
5	JZ81	L4	True	221.50	221.916881	100.2
6	JZ82	L5	True	443.00	485.976511	109.7
7	JZ83	L6	True	885.00	812.898624	91.9
8	JZ84	L7	True	2212.50	2256.662639	102.0
9	JZ85	L8	True	4425.00	4471.766066	101.1
10	JZ86	L9	True	8850.00	8791.441684	99.3





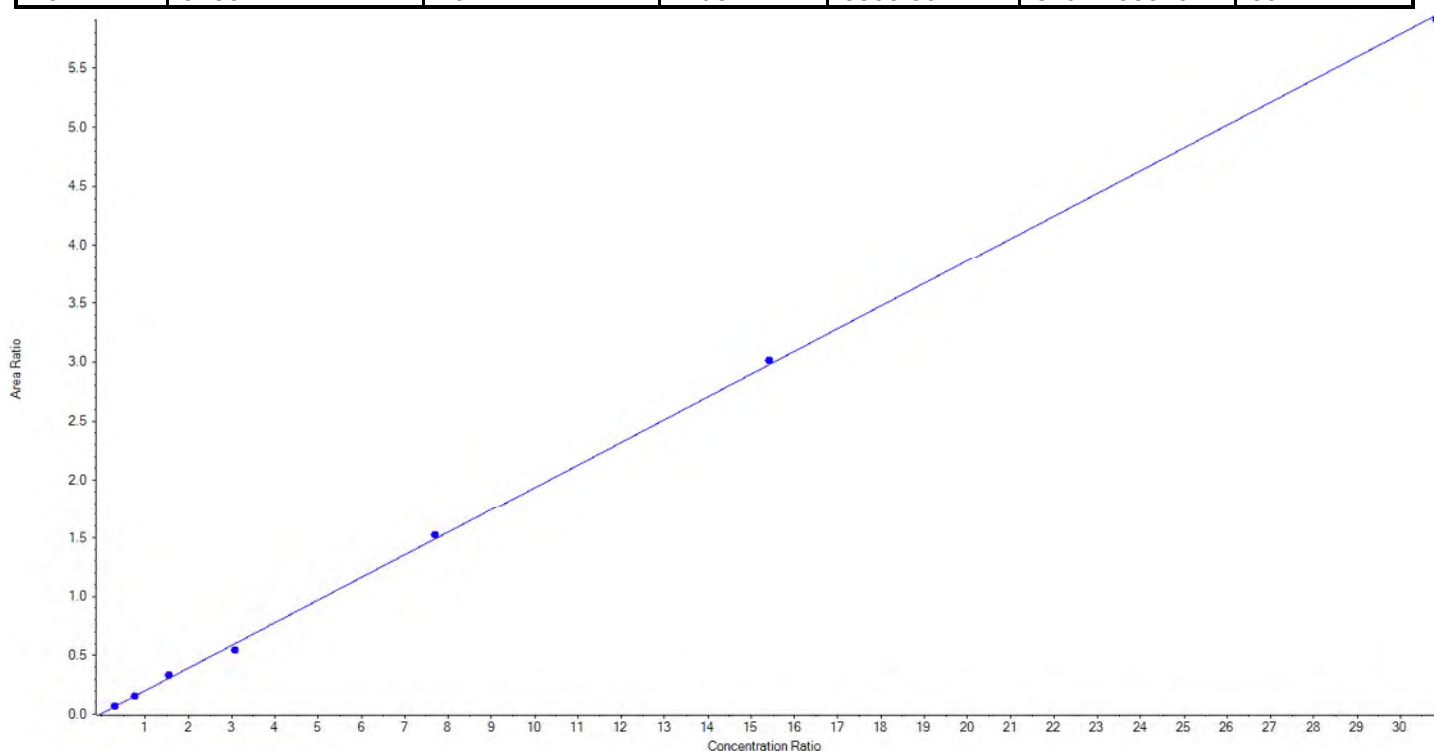
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFBS_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	298.9 / 99.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19281 x + 0.00570$  ( $r = 0.99948$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	86.660338	97.8
5	JZ81	L4	True	221.50	219.719799	99.2
6	JZ82	L5	True	443.00	487.633979	110.1
7	JZ83	L6	True	885.00	797.489114	90.1
8	JZ84	L7	True	2212.50	2261.138566	102.2
9	JZ85	L8	True	4425.00	4480.799327	101.3
10	JZ86	L9	True	8850.00	8792.158876	99.4





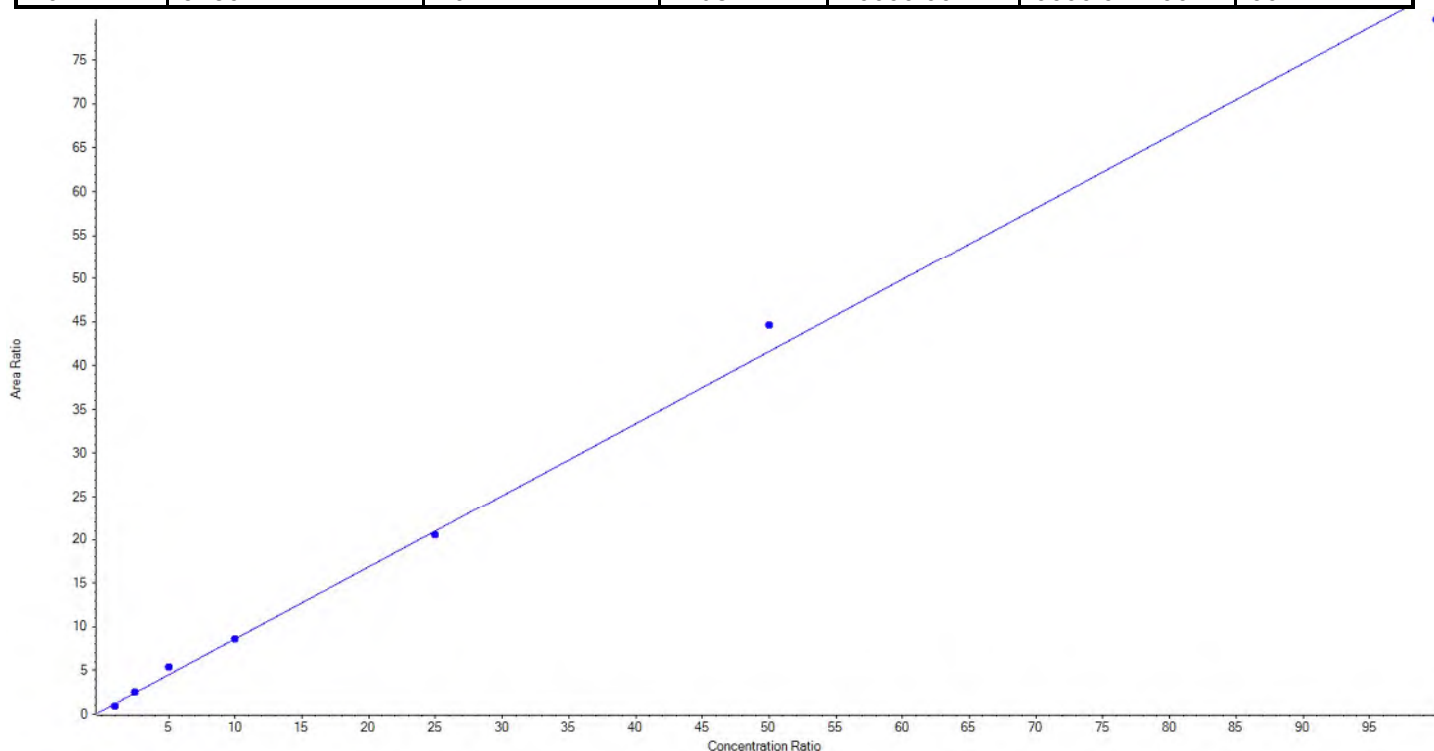
## Calibration Summary Report

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Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFHxA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	313.0 / 269.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.82492x + 0.36716$  ( $r = 0.99774$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	72.850774	72.9
5	JZ81	L4	True	250.00	262.504638	105.0
6	JZ82	L5	True	500.00	608.411016	121.7
7	JZ83	L6	True	1000.00	995.217167	99.5
8	JZ84	L7	True	2500.00	2439.164904	97.6
9	JZ85	L8	True	5000.00	5365.834012	107.3
10	JZ86	L9	True	10000.00	9606.017490	96.1







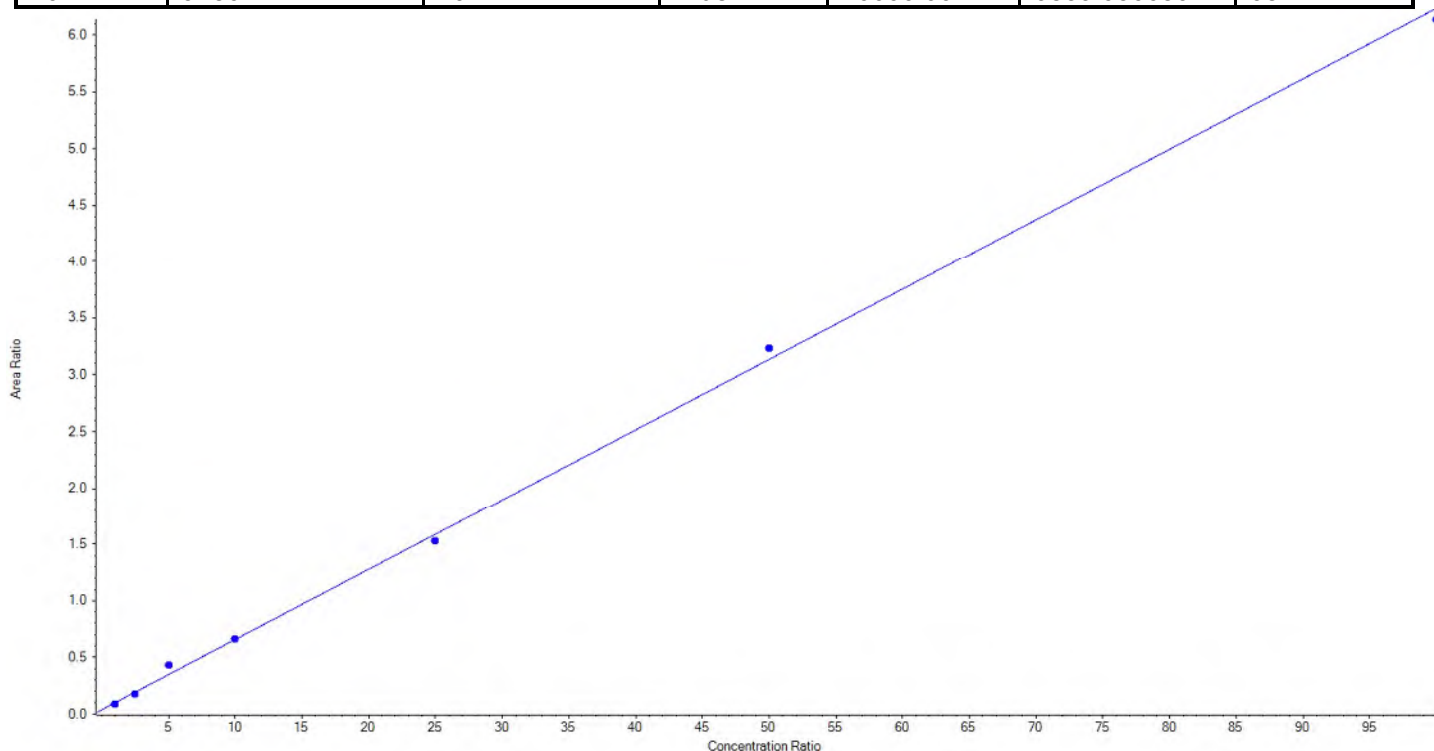
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFHxA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	313.0 / 119.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.06192x + 0.03921$  ( $r = 0.99831$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	86.294657	86.3
5	JZ81	L4	True	250.00	218.827557	87.5
6	JZ82	L5	True	500.00	640.855875	128.2
7	JZ83	L6	True	1000.00	1001.779889	100.2
8	JZ84	L7	True	2500.00	2408.531127	96.3
9	JZ85	L8	True	5000.00	5154.680214	103.1
10	JZ86	L9	True	10000.00	9839.030680	98.4





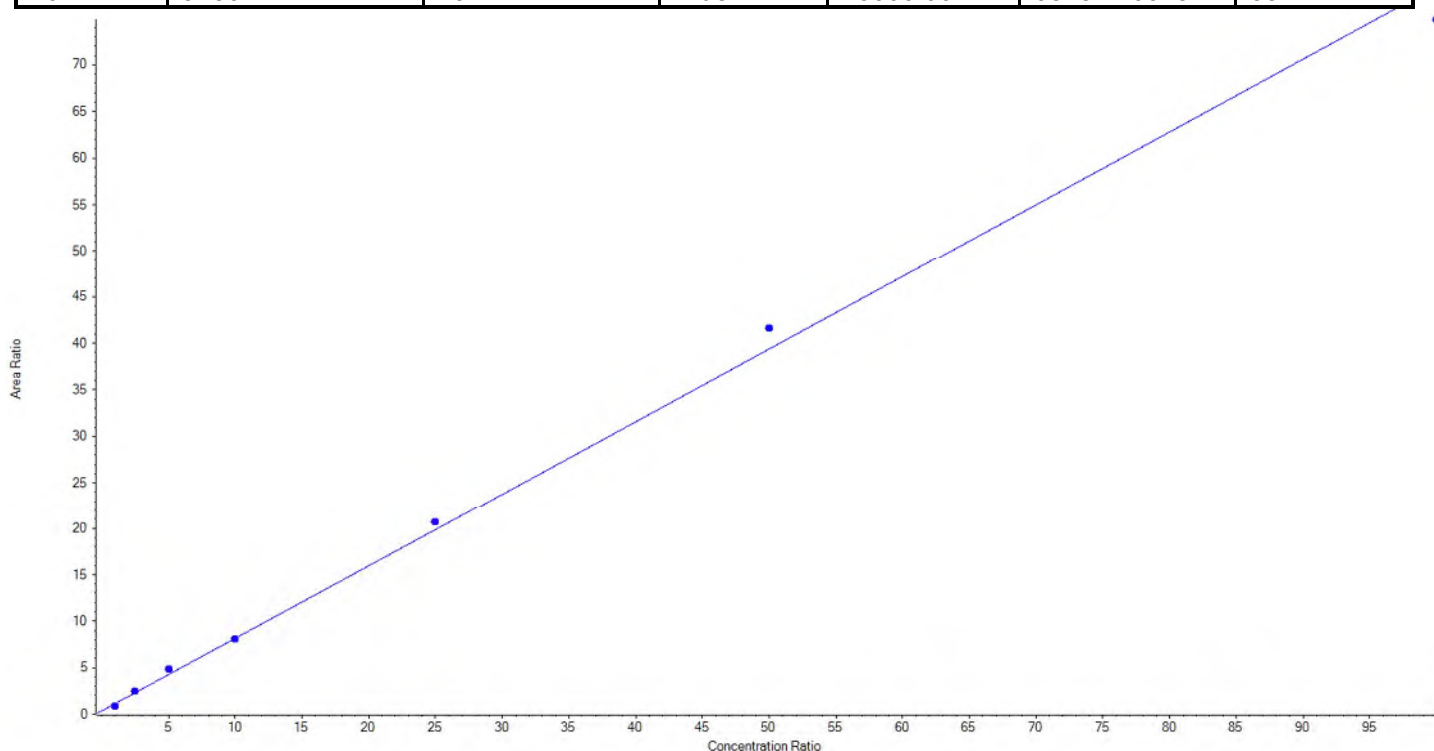
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFHpA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	363.0 / 319.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.78049x + 0.35299$  ( $r = 0.99806$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	70.089730	70.1
5	JZ81	L4	True	250.00	273.300480	109.3
6	JZ82	L5	True	500.00	578.060700	115.6
7	JZ83	L6	True	1000.00	997.339390	99.7
8	JZ84	L7	True	2500.00	2602.575270	104.1
9	JZ85	L8	True	5000.00	5285.464385	105.7
10	JZ86	L9	True	10000.00	9543.170045	95.4





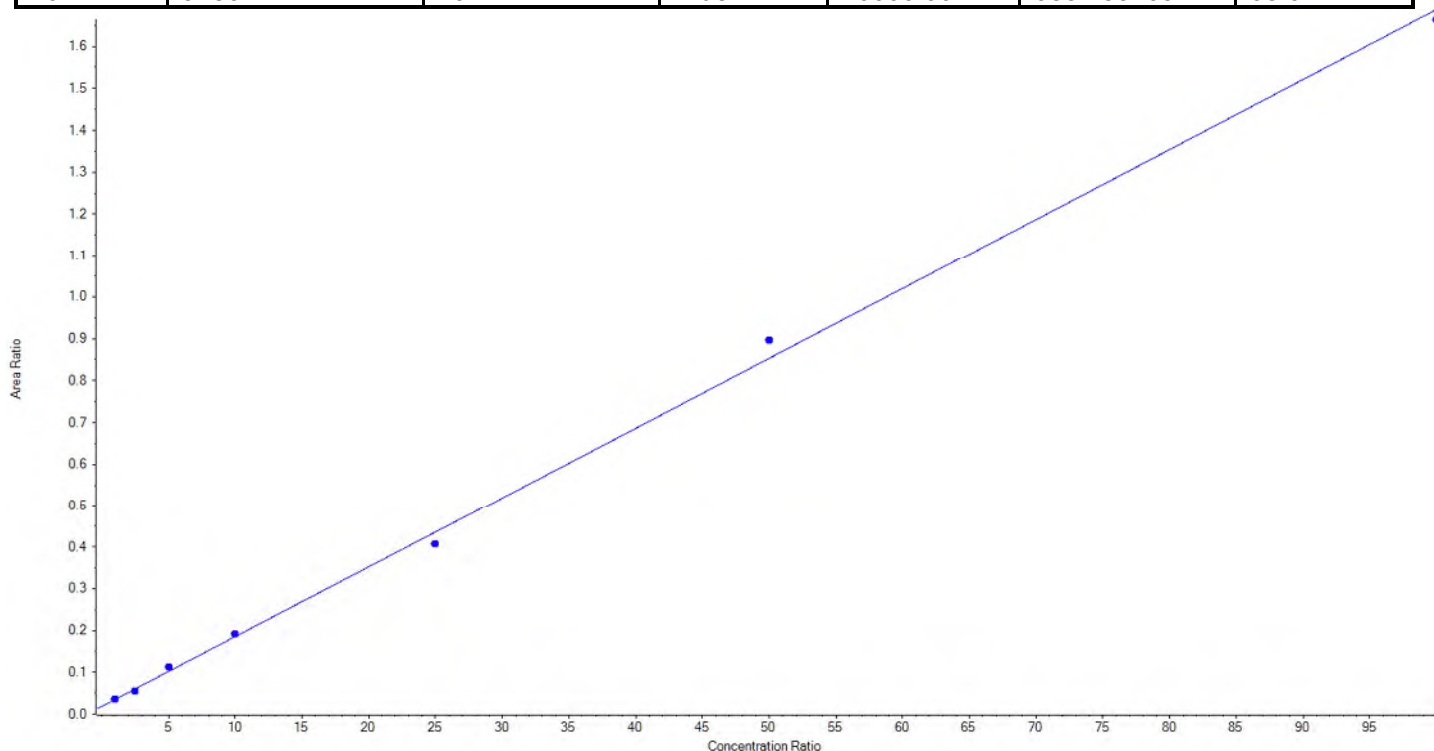
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFHpA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	363.0 / 169.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.01669x + 0.01861$  ( $r = 0.99884$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	99.502697	99.5
5	JZ81	L4	True	250.00	222.133915	88.9
6	JZ82	L5	True	500.00	559.018107	111.8
7	JZ83	L6	True	1000.00	1031.219435	103.1
8	JZ84	L7	True	2500.00	2325.211610	93.0
9	JZ85	L8	True	5000.00	5258.056603	105.2
10	JZ86	L9	True	10000.00	9854.857634	98.6





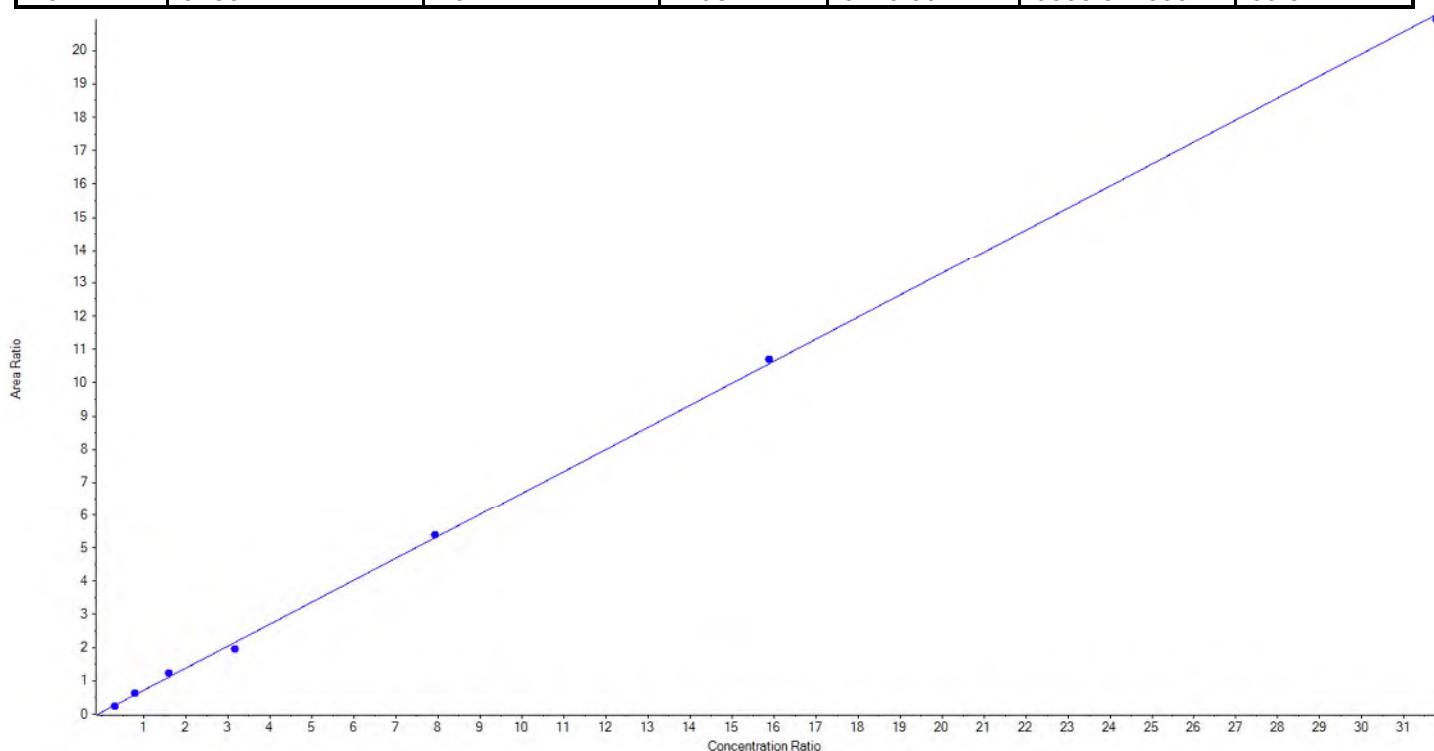
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFHxS_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	399.0 / 80.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.66142x + 0.06010$  ( $r = 0.99935$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	78.530855	86.1
5	JZ81	L4	True	228.00	247.295690	108.5
6	JZ82	L5	True	456.00	513.729049	112.7
7	JZ83	L6	True	912.00	829.922489	91.0
8	JZ84	L7	True	2280.00	2309.680917	101.3
9	JZ85	L8	True	4560.00	4614.516402	101.2
10	JZ86	L9	True	9120.00	9053.524599	99.3





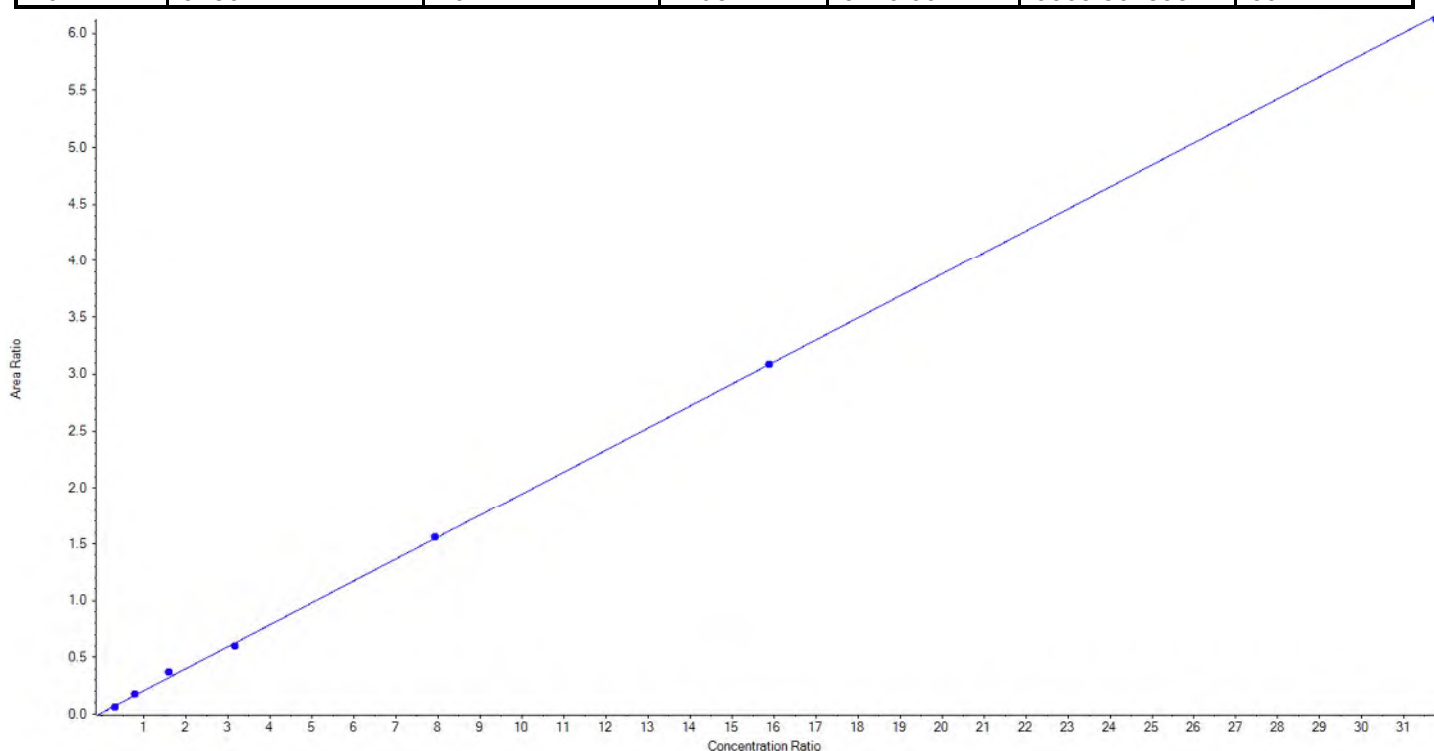
## Calibration Summary Report

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<b>Analyte Name</b>	PFHxS_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	399.0 / 99.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19337 x + 0.01253$  ( $r = 0.99943$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	75.685732	83.0
5	JZ81	L4	True	228.00	237.676257	104.2
6	JZ82	L5	True	456.00	531.121903	116.5
7	JZ83	L6	True	912.00	875.743861	96.0
8	JZ84	L7	True	2280.00	2298.208639	100.8
9	JZ85	L8	True	4560.00	4562.901713	100.1
10	JZ86	L9	True	9120.00	9065.861895	99.4





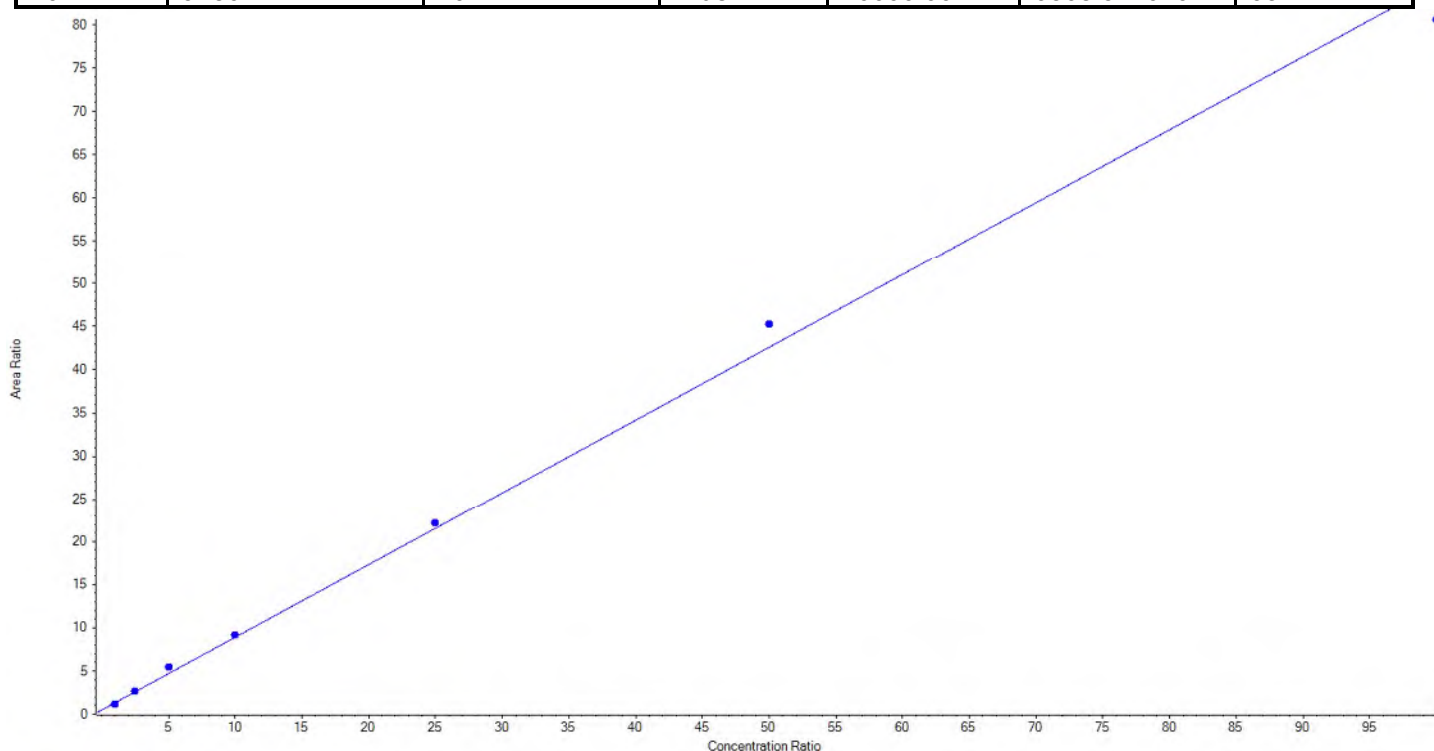
## Calibration Summary Report

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<b>Analyte Name</b>	PFOA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	413.0 / 369.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.84228x + 0.48615$  ( $r = 0.99788$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	73.371168	73.4
5	JZ81	L4	True	250.00	254.447376	101.8
6	JZ82	L5	True	500.00	587.739490	117.6
7	JZ83	L6	True	1000.00	1026.133700	102.6
8	JZ84	L7	True	2500.00	2580.378450	103.2
9	JZ85	L8	True	5000.00	5319.417746	106.4
10	JZ86	L9	True	10000.00	9508.512070	95.1





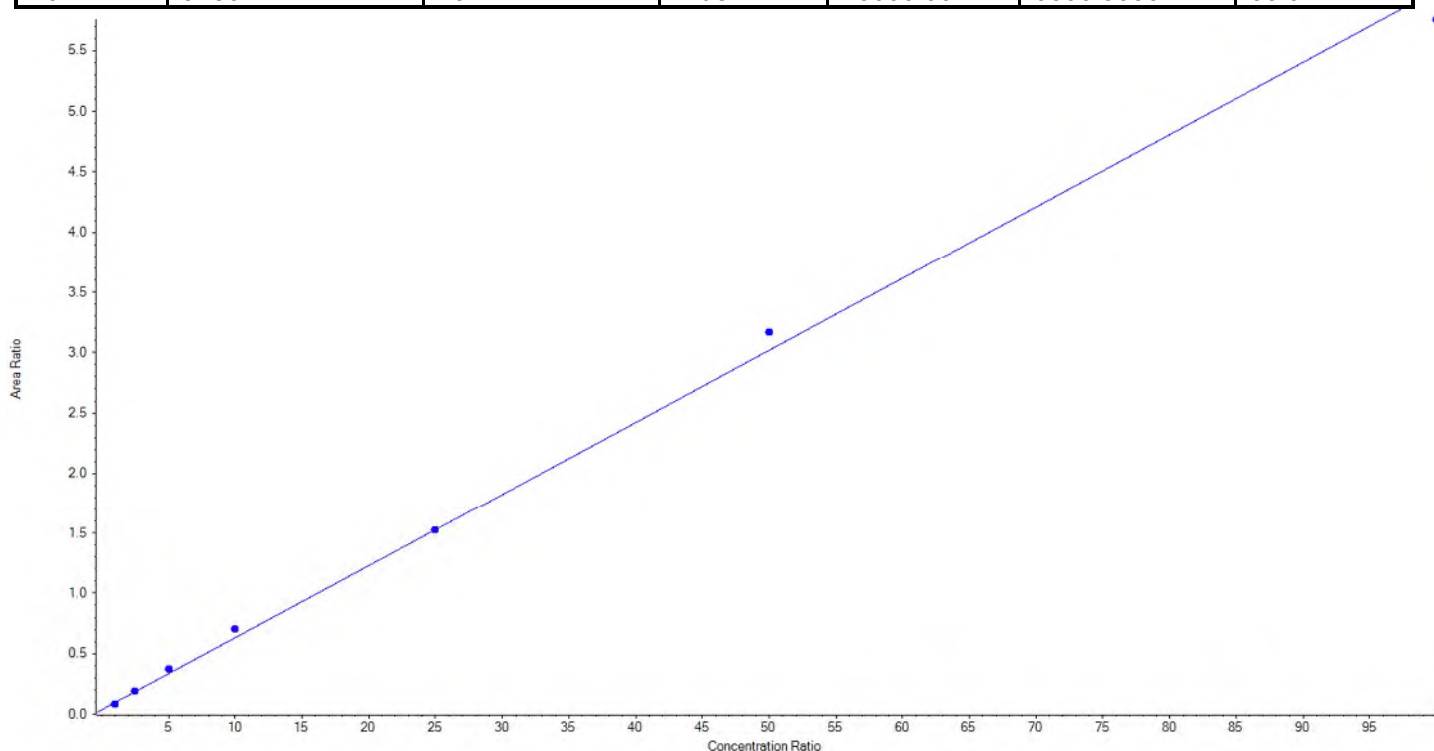
## Calibration Summary Report

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<b>Analyte Name</b>	PFOA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	413.0 / 169.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05963 x + 0.03659$  (r = 0.99830) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	74.879488	74.9
5	JZ81	L4	True	250.00	251.684719	100.7
6	JZ82	L5	True	500.00	557.768094	111.6
7	JZ83	L6	True	1000.00	1117.747800	111.8
8	JZ84	L7	True	2500.00	2503.243230	100.1
9	JZ85	L8	True	5000.00	5254.172998	105.1
10	JZ86	L9	True	10000.00	9590.503672	95.9





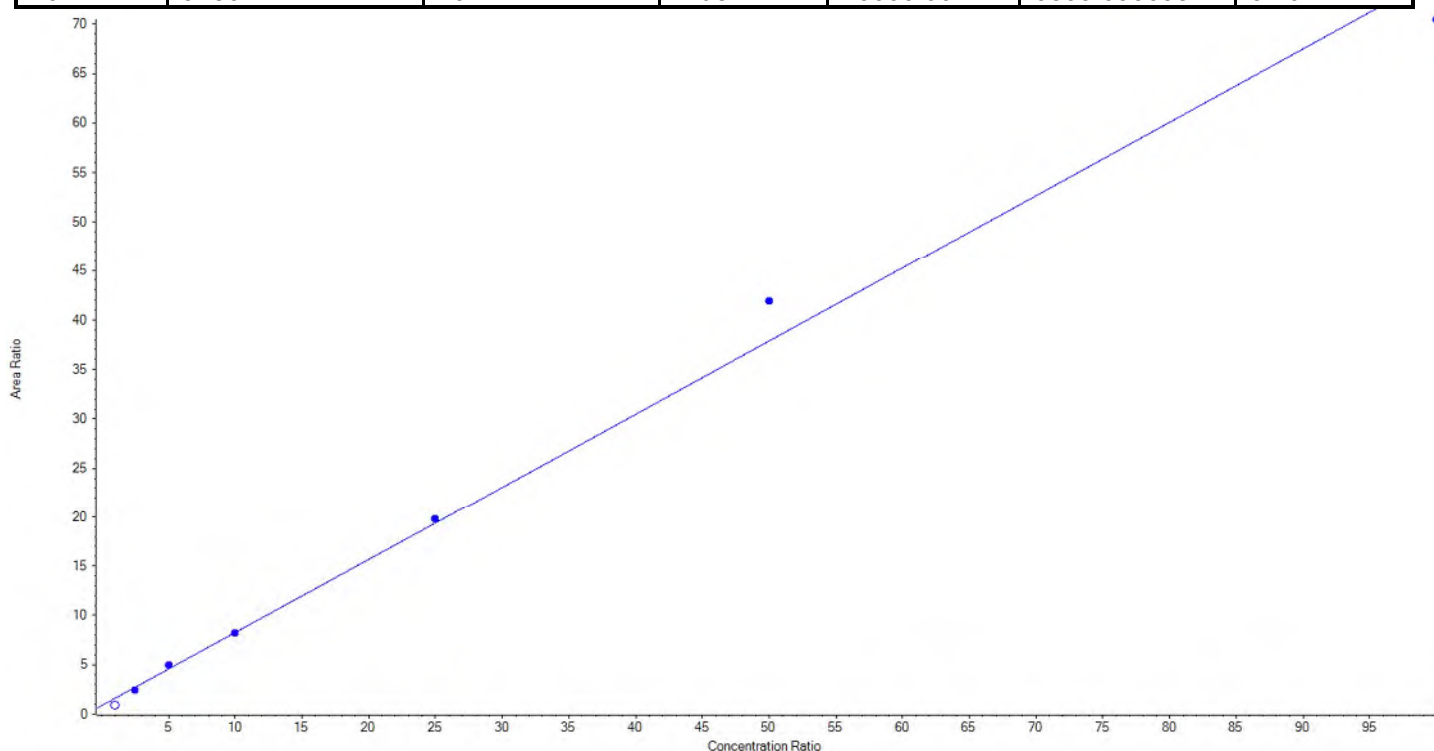
## Calibration Summary Report

Created with Analyst Reporter  
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<b>Analyte Name</b>	PFNA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	463.0 / 419.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.74009x + 0.86930$  ( $r = 0.99632$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	7.249773	7.3
5	JZ81	L4	True	250.00	209.284510	83.7
6	JZ82	L5	True	500.00	548.298615	109.7
7	JZ83	L6	True	1000.00	996.943800	99.7
8	JZ84	L7	True	2500.00	2550.978400	102.0
9	JZ85	L8	True	5000.00	5544.801016	110.9
10	JZ86	L9	True	10000.00	9399.693658	94.0







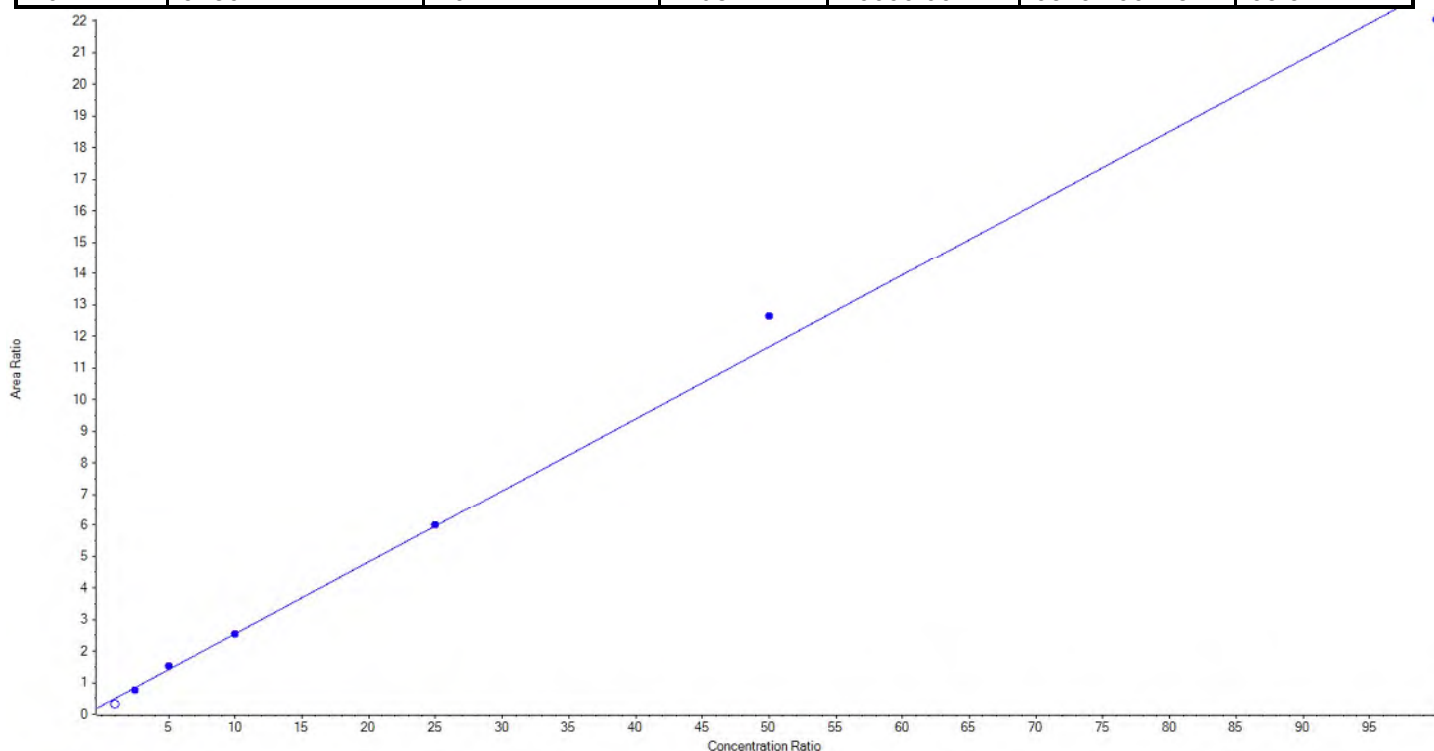
## Calibration Summary Report

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<b>Analyte Name</b>	PFNA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	463.0 / 219.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.22802x + 0.26815$  ( $r = 0.99773$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	18.776472	18.8
5	JZ81	L4	True	250.00	214.573585	85.8
6	JZ82	L5	True	500.00	551.002173	110.2
7	JZ83	L6	True	1000.00	991.839550	99.2
8	JZ84	L7	True	2500.00	2521.277368	100.9
9	JZ85	L8	True	5000.00	5422.200845	108.4
10	JZ86	L9	True	10000.00	9549.106478	95.5





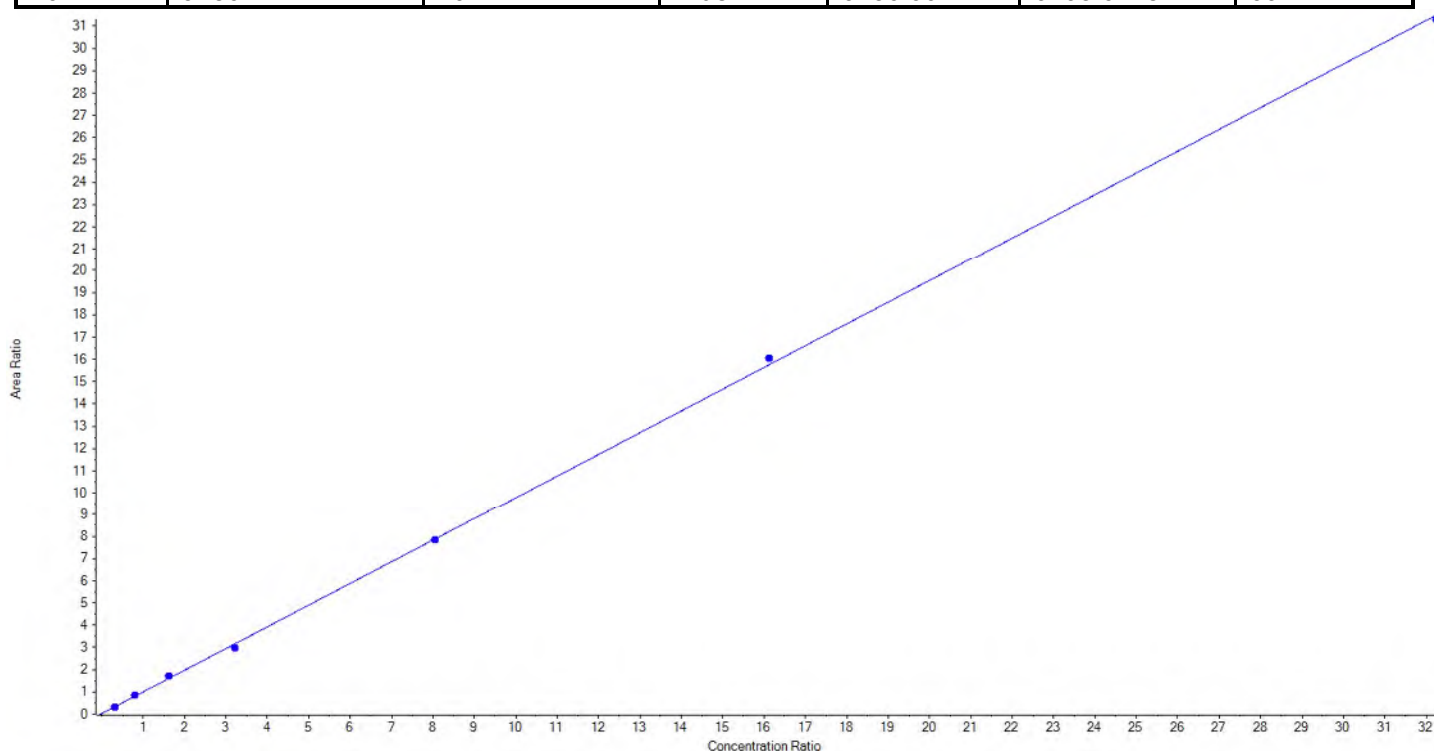
## Calibration Summary Report

Created with Analyst Reporter  
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<b>Analyte Name</b>	PFOS_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	499.0 / 80.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.97576 x + 0.02472$  ( $r = 0.99970$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	92.60	86.917577	93.9
5	JZ81	L4	True	231.50	238.441228	103.0
6	JZ82	L5	True	463.00	501.919227	108.4
7	JZ83	L6	True	925.60	870.019821	94.0
8	JZ84	L7	True	2314.00	2302.514320	99.5
9	JZ85	L8	True	4628.00	4715.275999	101.9
10	JZ86	L9	True	9256.00	9195.611827	99.4





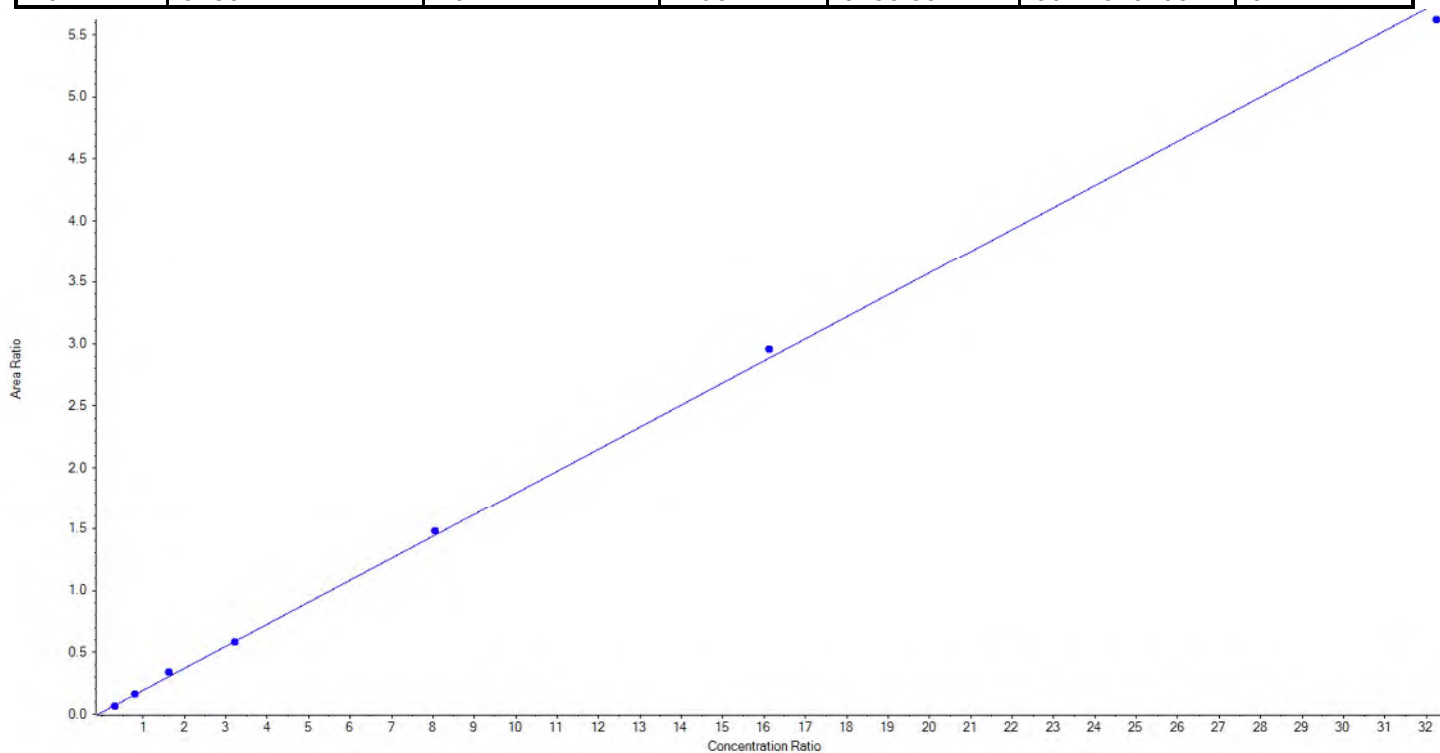
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<b>Analyte Name</b>	PFOS_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	499.0 / 99.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.17792 x + 0.01489$  ( $r = 0.99933$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	92.60	76.588582	82.7
5	JZ81	L4	True	231.50	235.299807	101.6
6	JZ82	L5	True	463.00	527.128024	113.9
7	JZ83	L6	True	925.60	920.293149	99.4
8	JZ84	L7	True	2314.00	2363.591978	102.1
9	JZ85	L8	True	4628.00	4745.419194	102.5
10	JZ86	L9	True	9256.00	9042.379266	97.7





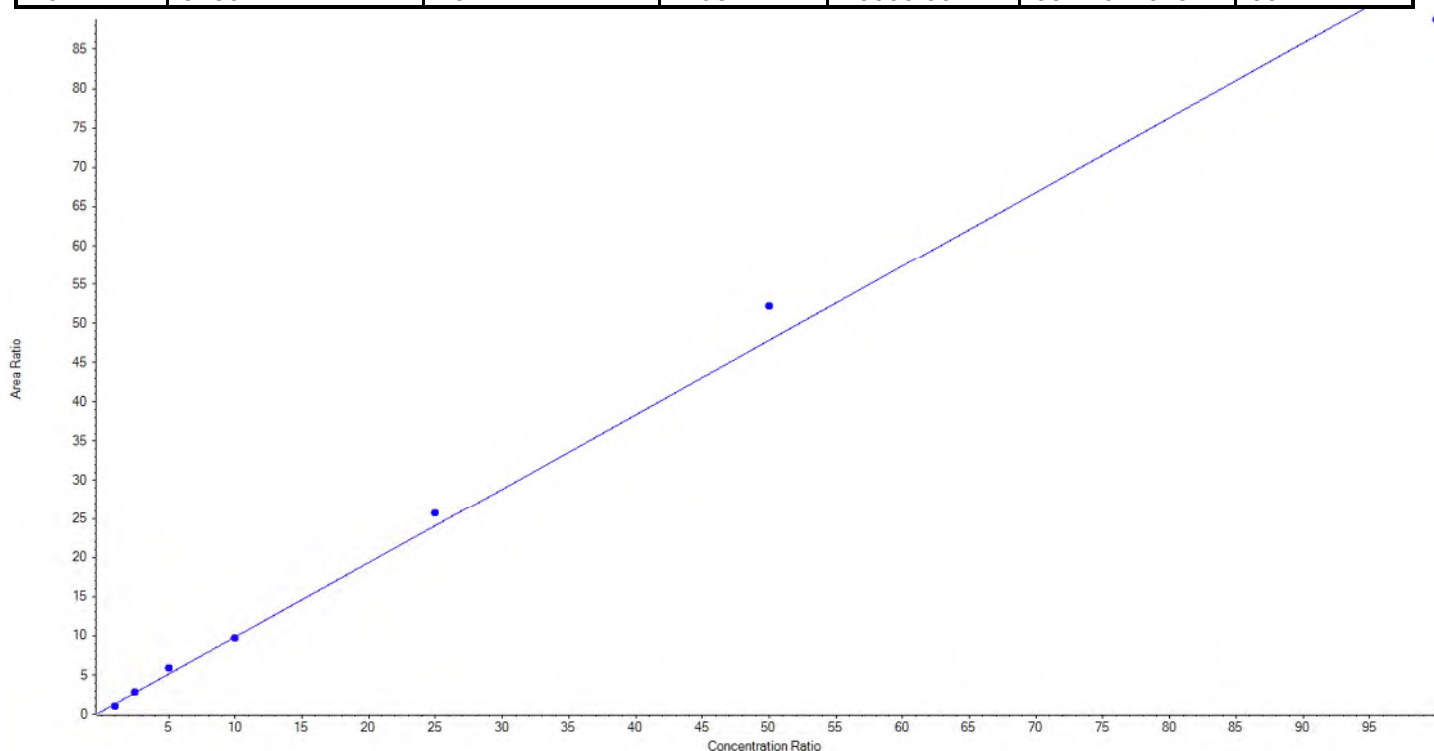
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFDA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	513.0 / 469.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.94914x + 0.36206$  ( $r = 0.99630$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	70.608727	70.6
5	JZ81	L4	True	250.00	262.340714	104.9
6	JZ82	L5	True	500.00	580.828624	116.2
7	JZ83	L6	True	1000.00	989.889072	99.0
8	JZ84	L7	True	2500.00	2676.005715	107.0
9	JZ85	L8	True	5000.00	5455.685524	109.1
10	JZ86	L9	True	10000.00	9314.641625	93.2





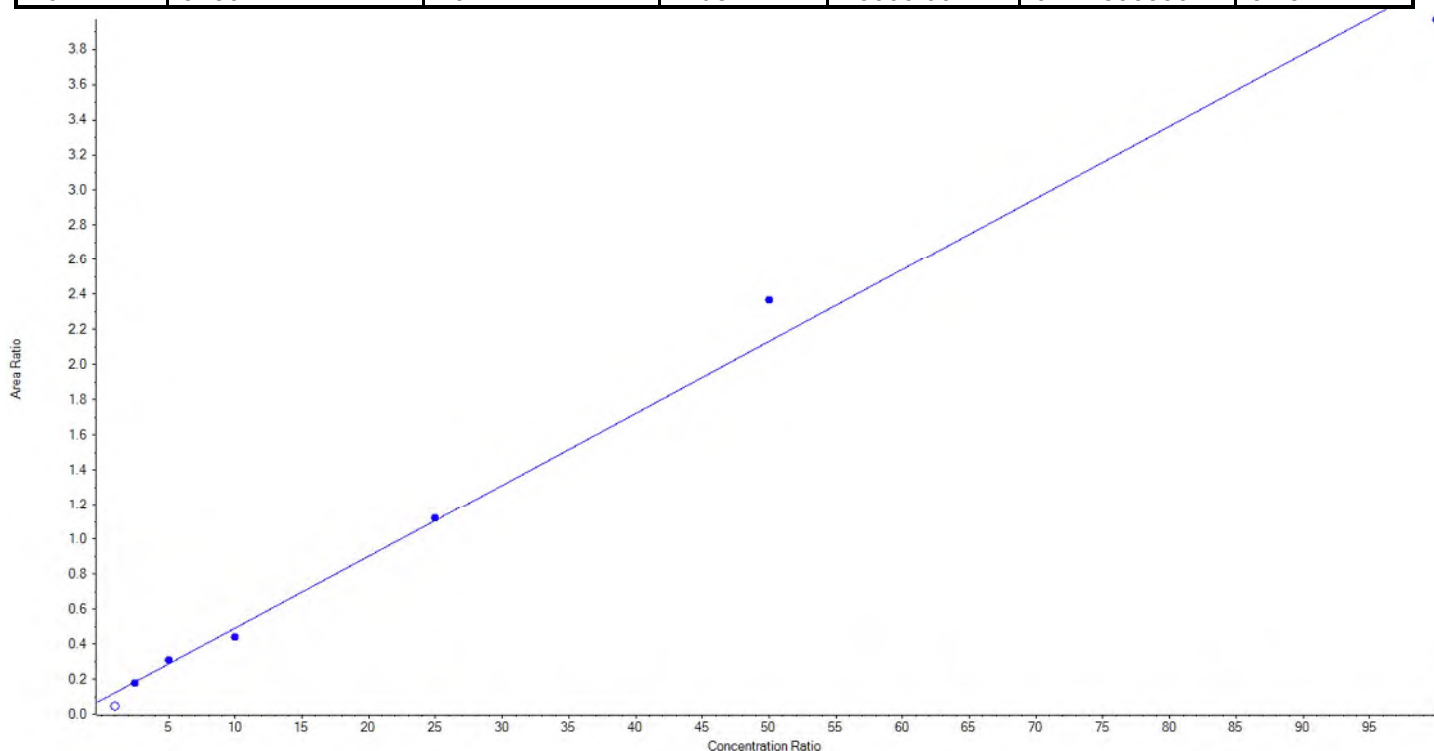
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFDA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	513.0 / 219.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04102 x + 0.08115$  ( $r = 0.99602$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	234.401702	93.8
6	JZ82	L5	True	500.00	556.023143	111.2
7	JZ83	L6	True	1000.00	875.230246	87.5
8	JZ84	L7	True	2500.00	2530.186180	101.2
9	JZ85	L8	True	5000.00	5576.263174	111.5
10	JZ86	L9	True	10000.00	9477.895556	94.8





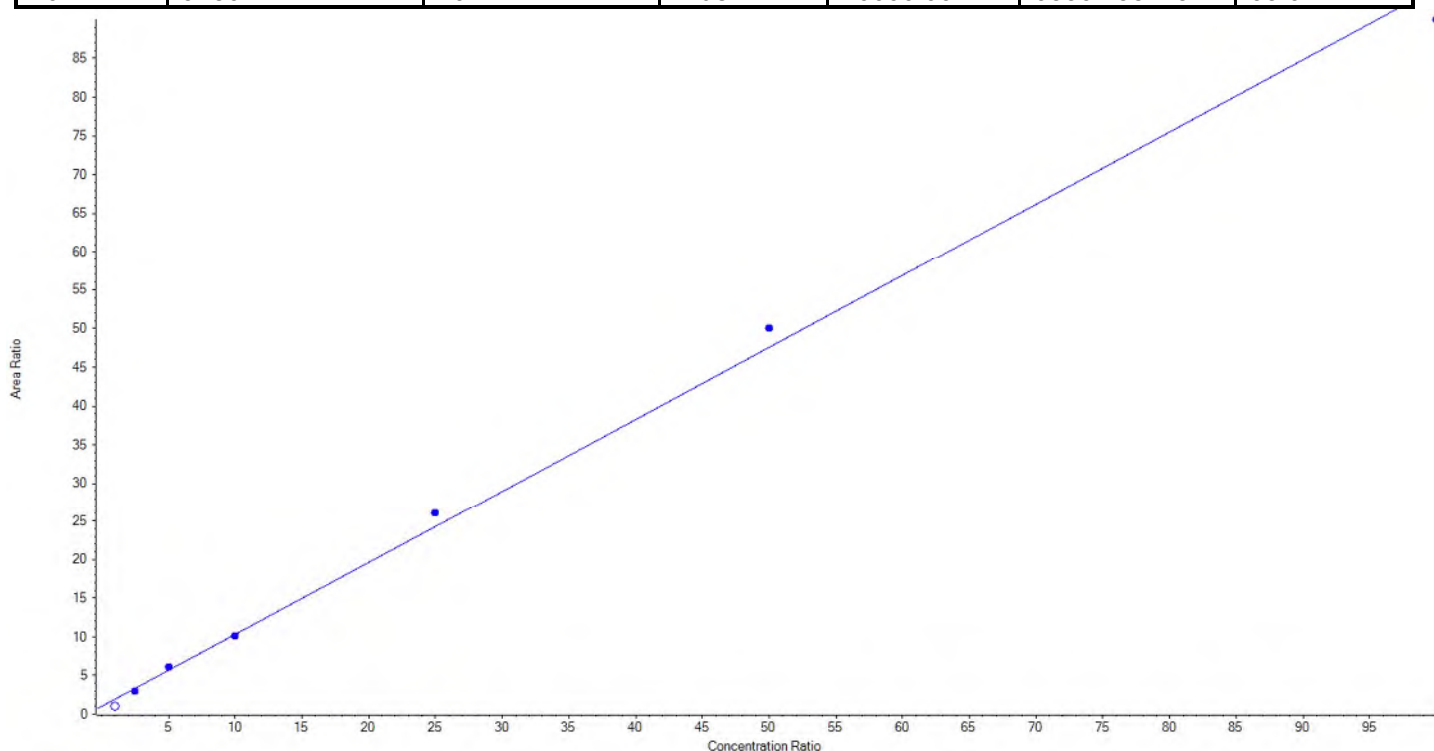
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFUnA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	563.0 / 519.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.93110x + 1.01235$  ( $r = 0.99793$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	7.191231	7.2
5	JZ81	L4	True	250.00	208.971754	83.6
6	JZ82	L5	True	500.00	551.142340	110.2
7	JZ83	L6	True	1000.00	977.769189	97.8
8	JZ84	L7	True	2500.00	2686.308101	107.5
9	JZ85	L8	True	5000.00	5269.550143	105.4
10	JZ86	L9	True	10000.00	9556.258473	95.6





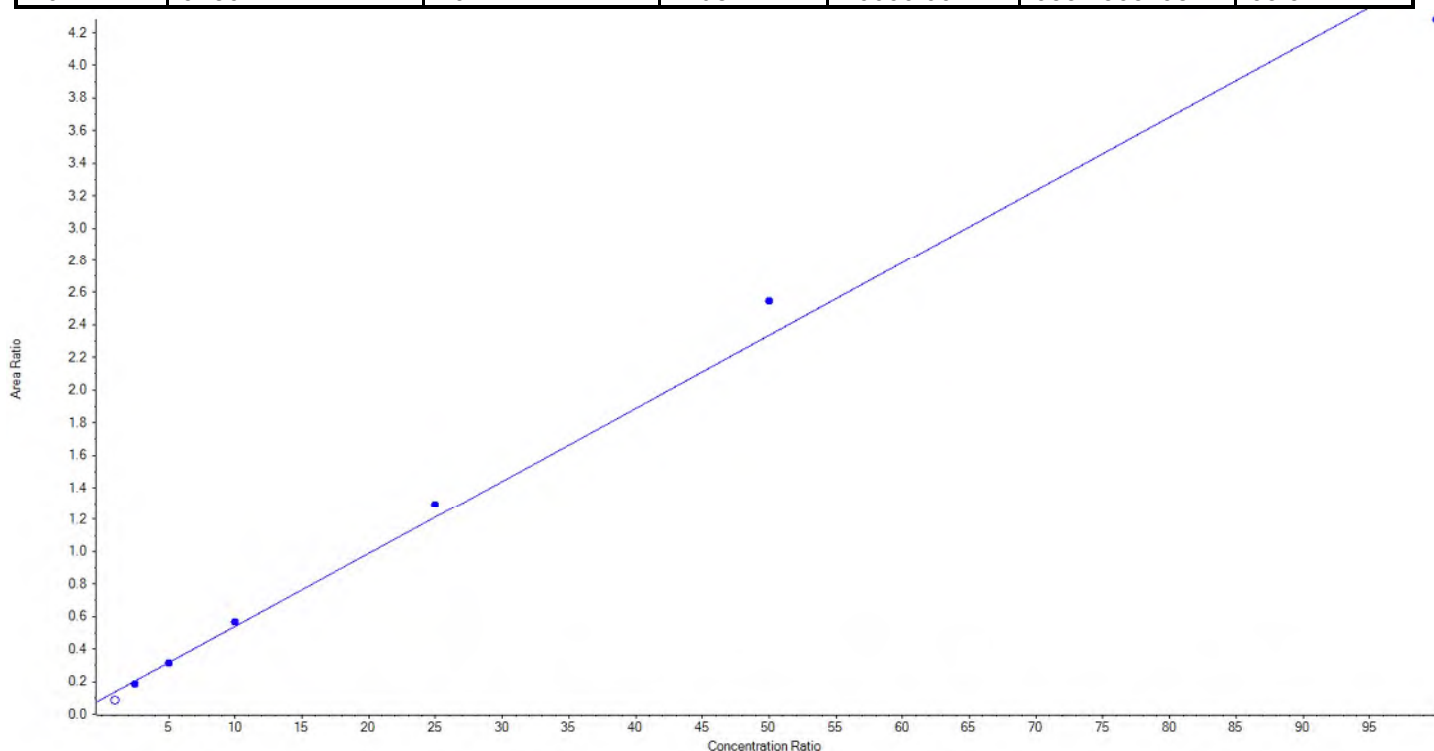
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFUnA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	563.0 / 269.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04488x + 0.09195$  ( $r = 0.99621$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	211.046084	84.4
6	JZ82	L5	True	500.00	500.508430	100.1
7	JZ83	L6	True	1000.00	1053.643664	105.4
8	JZ84	L7	True	2500.00	2686.725778	107.5
9	JZ85	L8	True	5000.00	5466.572246	109.3
10	JZ86	L9	True	10000.00	9331.503798	93.3





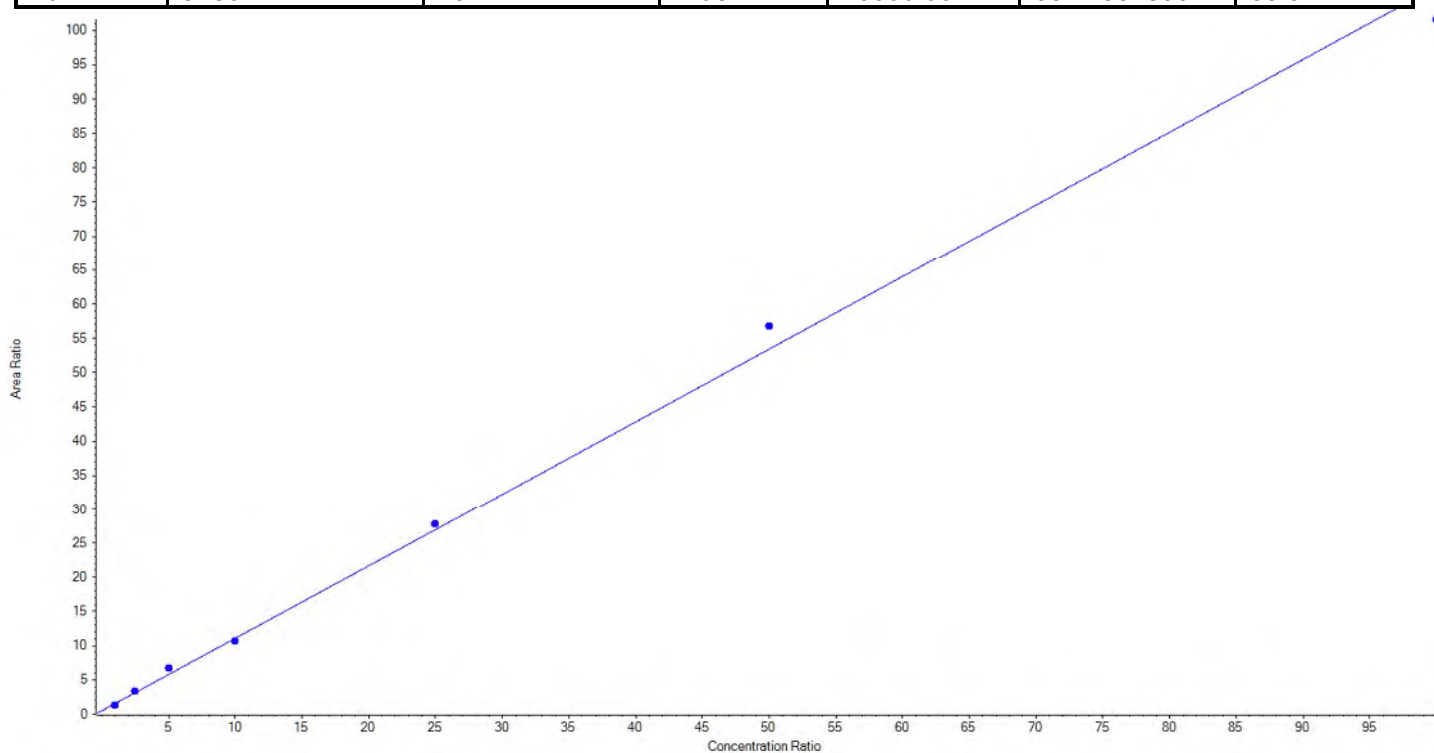
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFDaA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	613.0 / 569.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.05853x + 0.48729$  ( $r = 0.99792$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	72.576388	72.6
5	JZ81	L4	True	250.00	268.921030	107.6
6	JZ82	L5	True	500.00	588.523137	117.7
7	JZ83	L6	True	1000.00	968.815455	96.9
8	JZ84	L7	True	2500.00	2586.064793	103.4
9	JZ85	L8	True	5000.00	5317.544392	106.4
10	JZ86	L9	True	10000.00	9547.554806	95.5







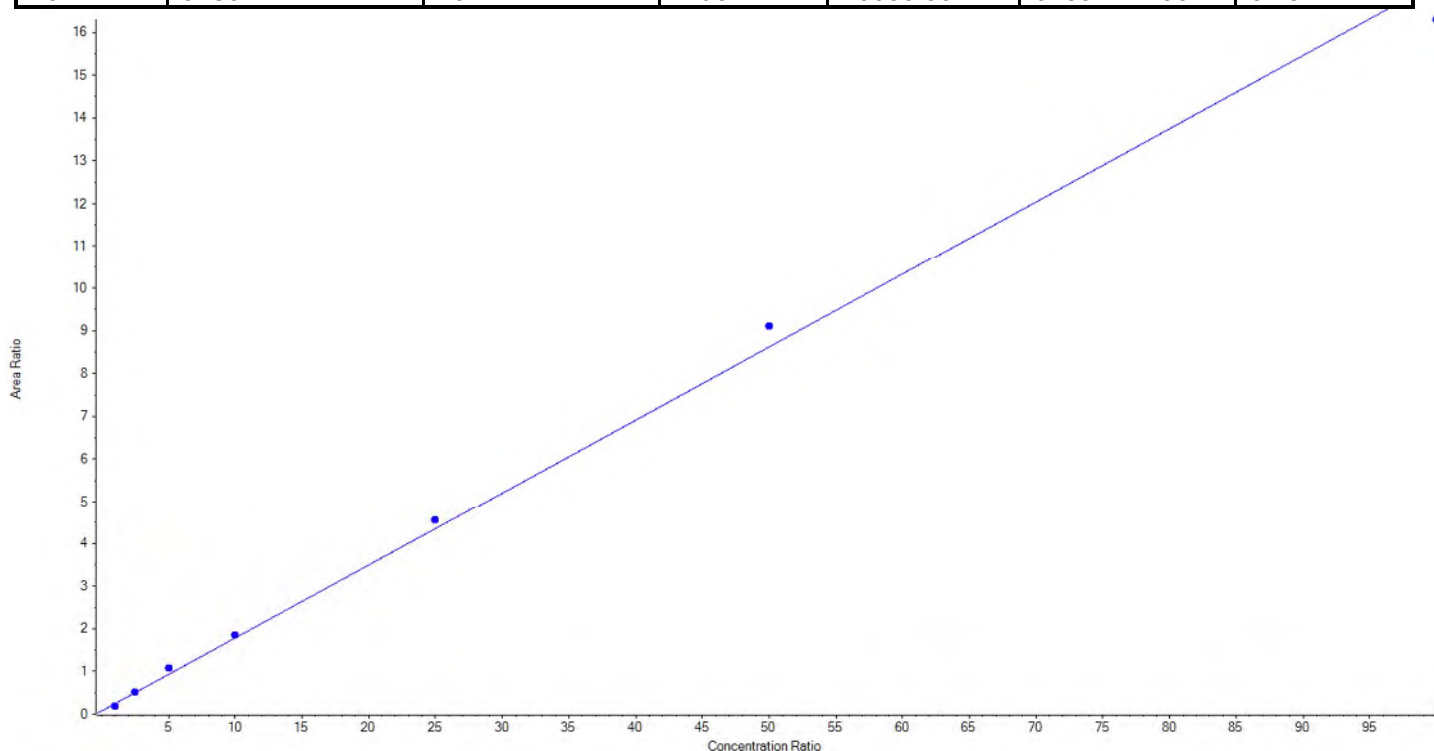
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFD <sub>o</sub> A_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	613.0 / 319.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C <sub>2</sub> -PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.17089x + 0.07667$  ( $r = 0.99779$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	70.026787	70.0
5	JZ81	L4	True	250.00	259.553279	103.8
6	JZ82	L5	True	500.00	584.894503	117.0
7	JZ83	L6	True	1000.00	1035.886078	103.6
8	JZ84	L7	True	2500.00	2624.466676	105.0
9	JZ85	L8	True	5000.00	5285.399886	105.7
10	JZ86	L9	True	10000.00	9489.772790	94.9





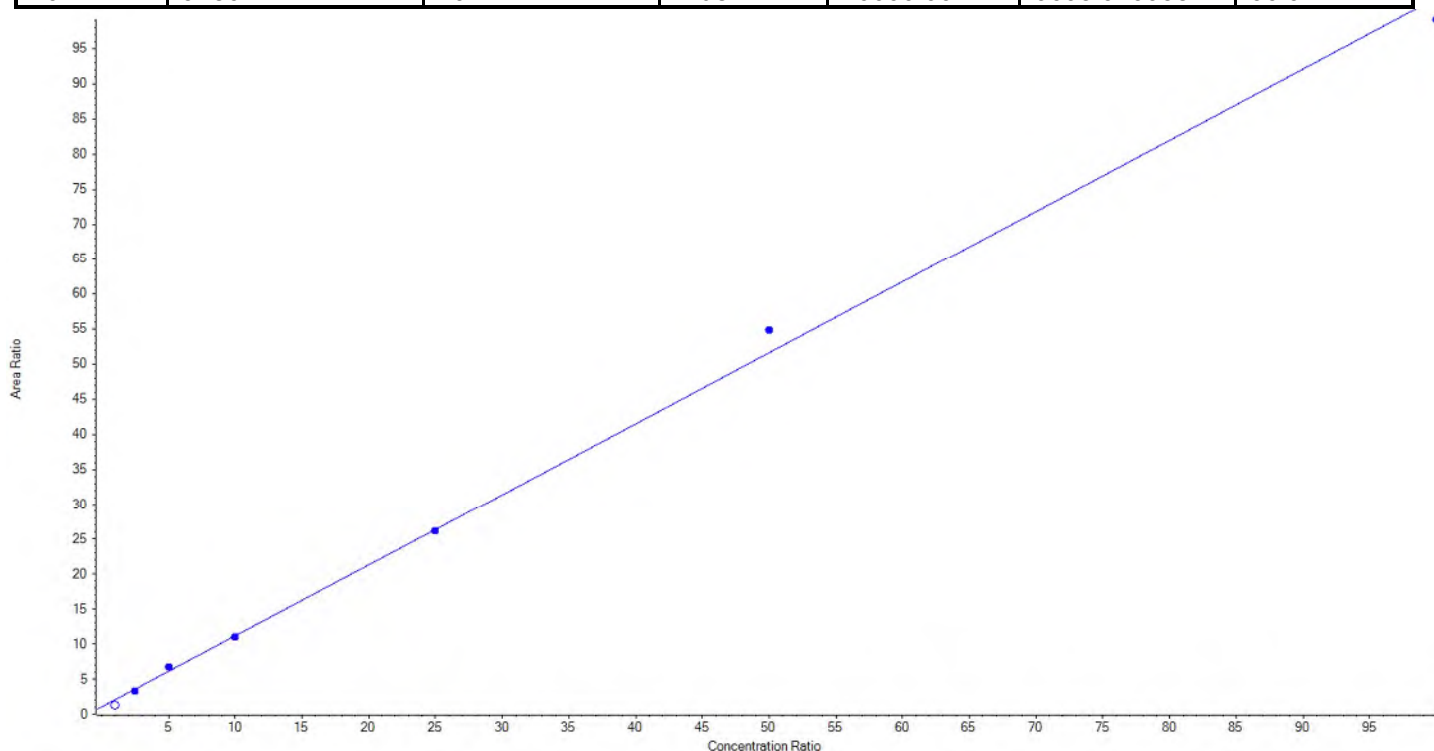
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFTTrDA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	663.0 / 619.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.01143x + 1.04464$  ( $r = 0.99865$ ) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	19.083620	19.1
5	JZ81	L4	True	250.00	219.466117	87.8
6	JZ82	L5	True	500.00	555.651930	111.1
7	JZ83	L6	True	1000.00	986.485402	98.7
8	JZ84	L7	True	2500.00	2480.324765	99.2
9	JZ85	L8	True	5000.00	5314.091848	106.3
10	JZ86	L9	True	10000.00	9693.979938	96.9





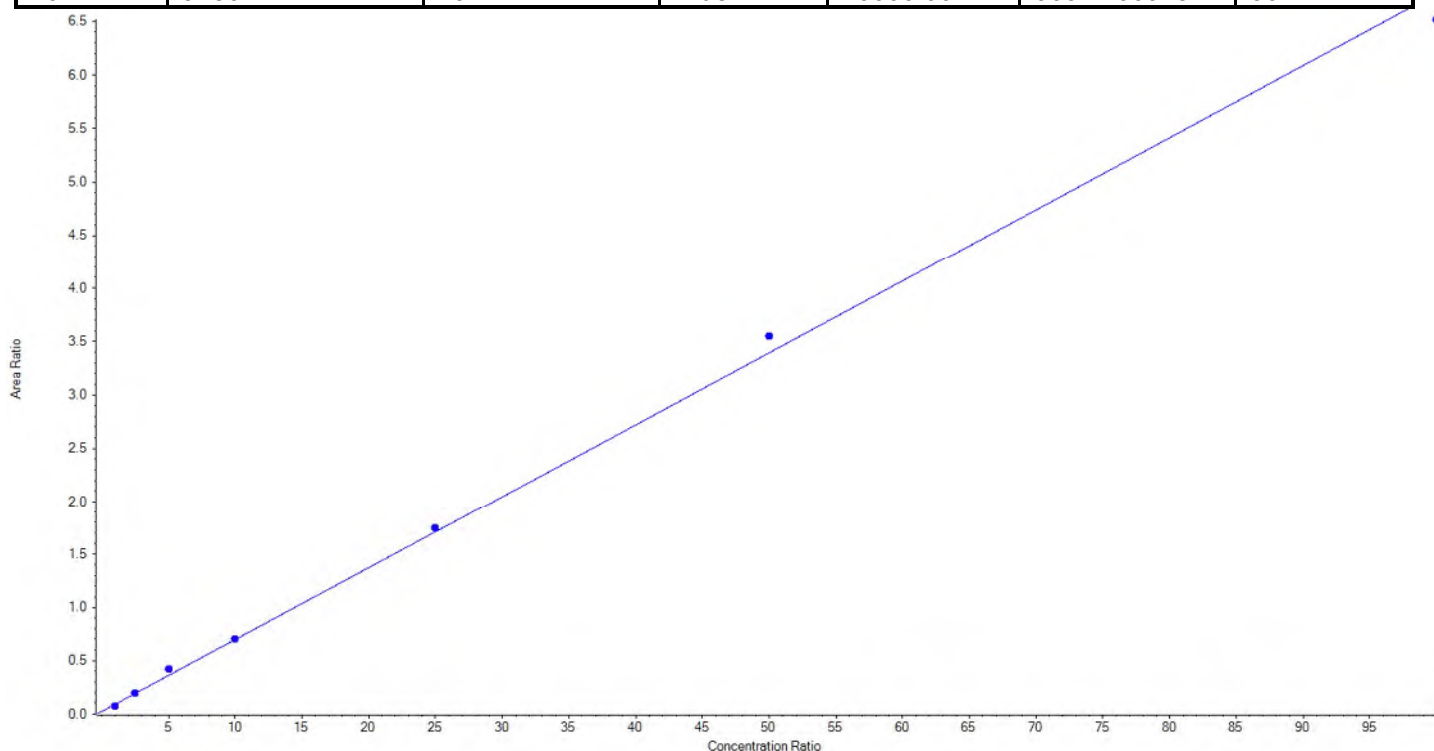
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFTTrDA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	663.0 / 169.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.06735x + 0.02565$  ( $r = 0.99864$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	76.468157	76.5
5	JZ81	L4	True	250.00	256.772725	102.7
6	JZ82	L5	True	500.00	584.799168	117.0
7	JZ83	L6	True	1000.00	1005.044407	100.5
8	JZ84	L7	True	2500.00	2559.608872	102.4
9	JZ85	L8	True	5000.00	5230.105725	104.6
10	JZ86	L9	True	10000.00	9637.200945	96.4





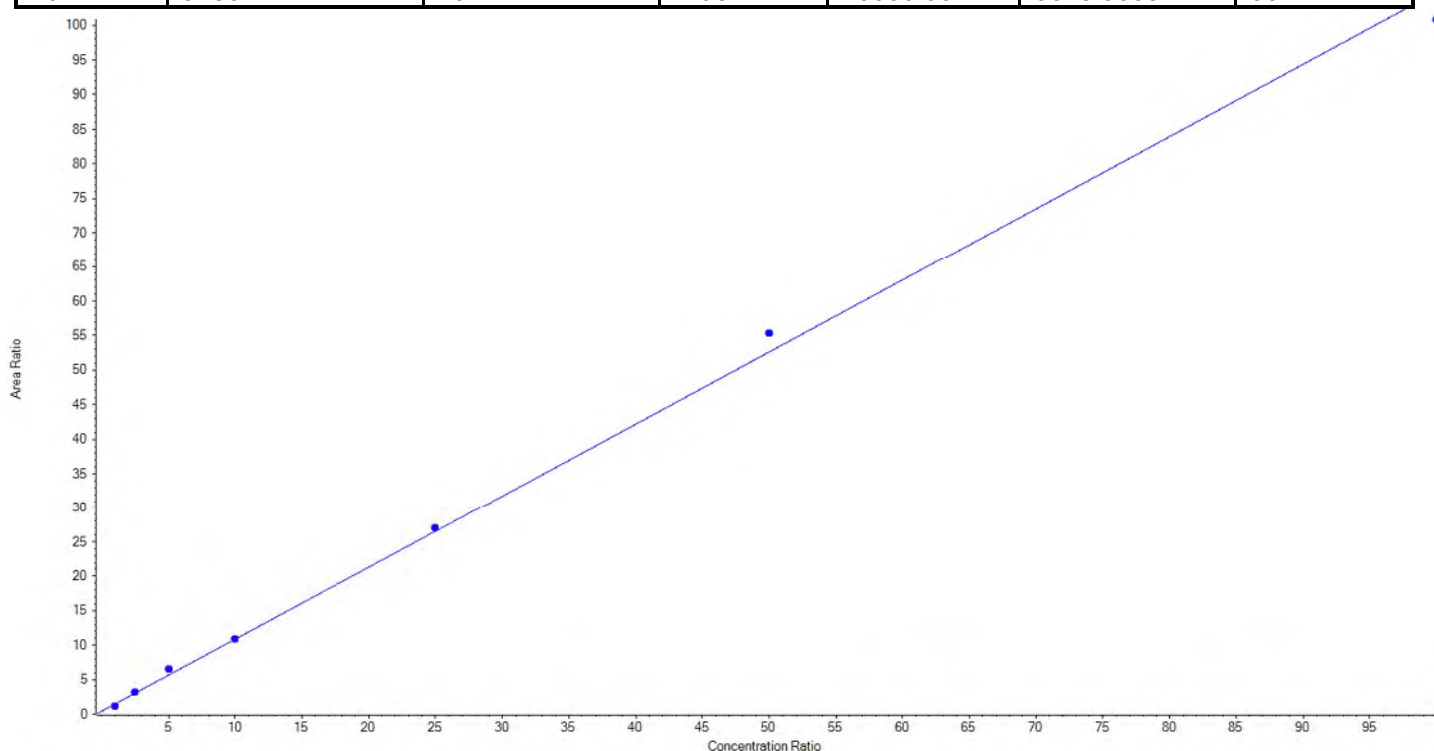
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFTeDA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	713.0 / 669.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.04367 x + 0.43687$  ( $r = 0.99855$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	76.215039	76.2
5	JZ81	L4	True	250.00	259.625152	103.9
6	JZ82	L5	True	500.00	580.330474	116.1
7	JZ83	L6	True	1000.00	1005.642398	100.6
8	JZ84	L7	True	2500.00	2546.323019	101.9
9	JZ85	L8	True	5000.00	5263.300577	105.3
10	JZ86	L9	True	10000.00	9618.563342	96.2





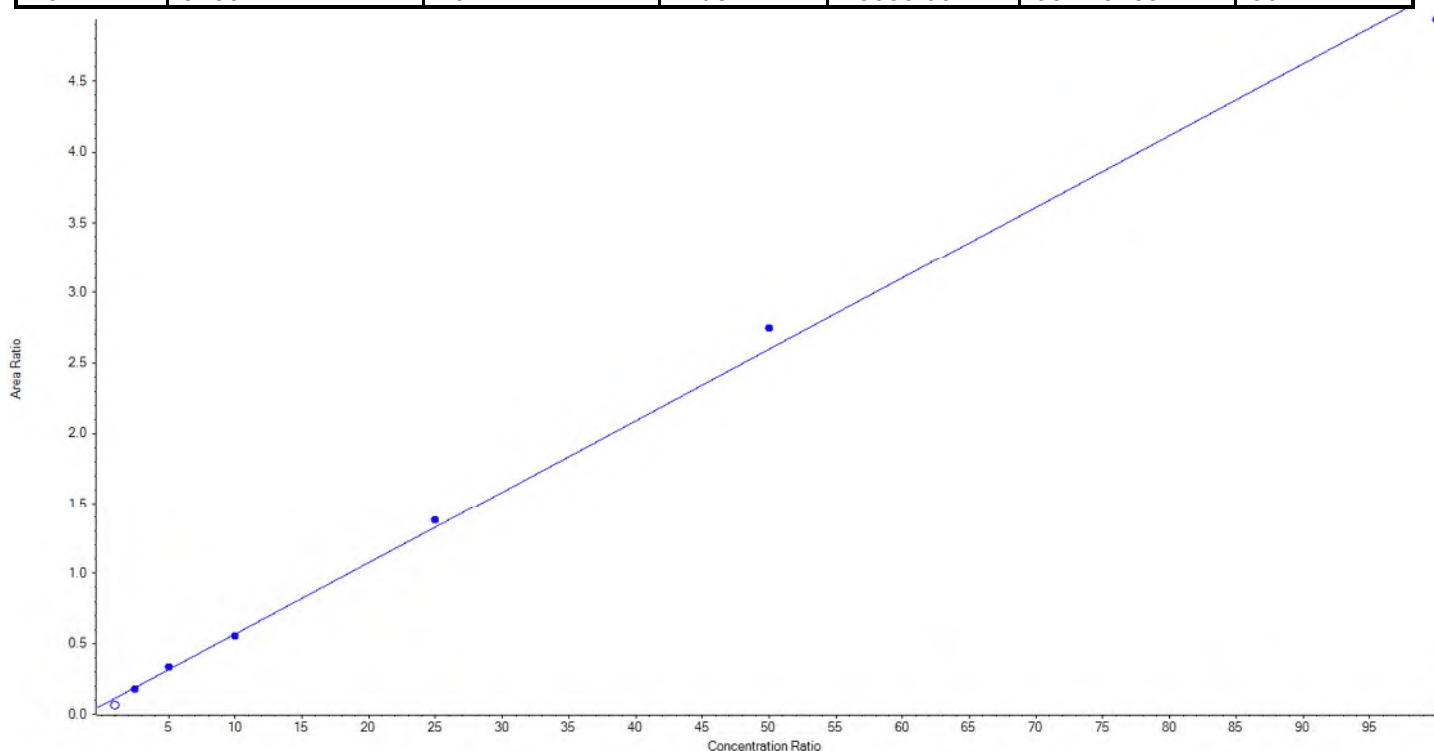
## Calibration Summary Report

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Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFTeDA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	713.0 / 169.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05069x + 0.06175$  ( $r = 0.99856$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	7.037031	7.0
5	JZ81	L4	True	250.00	222.200113	88.9
6	JZ82	L5	True	500.00	535.693008	107.1
7	JZ83	L6	True	1000.00	978.074216	97.8
8	JZ84	L7	True	2500.00	2603.422173	104.1
9	JZ85	L8	True	5000.00	5293.093979	105.9
10	JZ86	L9	True	10000.00	9617.516511	96.2





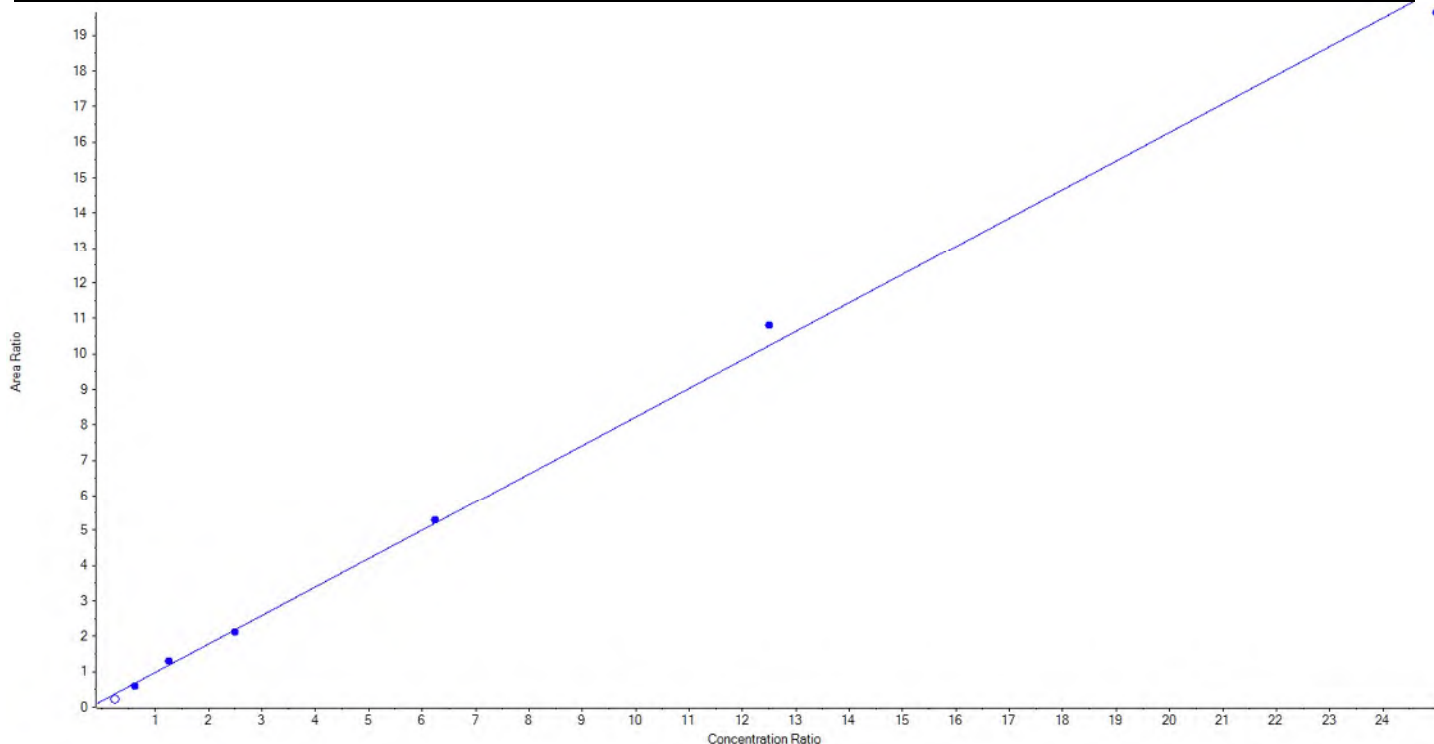
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	NMeFOSAA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	570.0 / 419.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.80488x + 0.17329$  ( $r = 0.99858$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	20.249537	20.3
5	JZ81	L4	True	250.00	215.870364	86.4
6	JZ82	L5	True	500.00	563.783035	112.8
7	JZ83	L6	True	1000.00	967.201627	96.7
8	JZ84	L7	True	2500.00	2543.159964	101.7
9	JZ85	L8	True	5000.00	5284.883606	105.7
10	JZ86	L9	True	10000.00	9675.101405	96.8





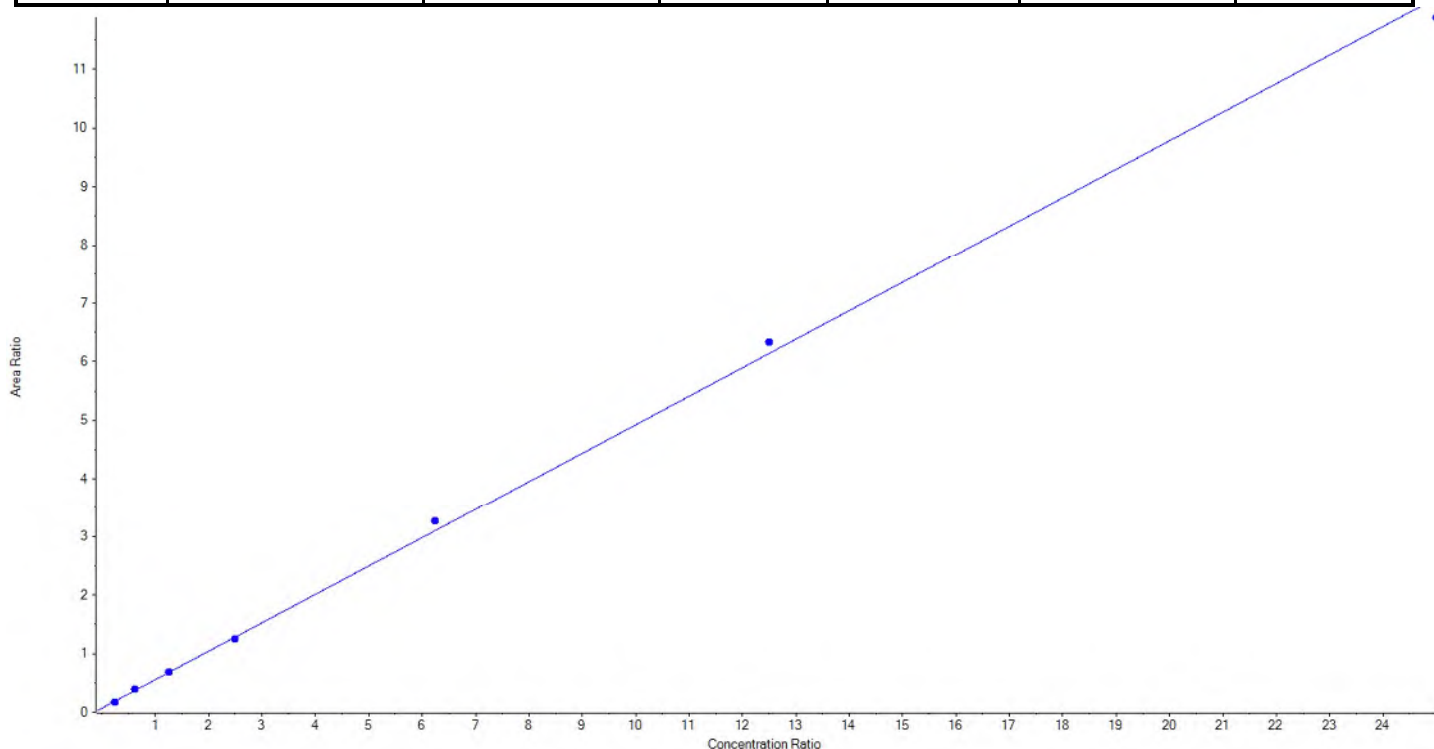
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	NMeFOSAA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	570.0 / 512.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.48579x + 0.06749$  ( $r = 0.99933$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	90.069372	90.1
5	JZ81	L4	True	250.00	262.821109	105.1
6	JZ82	L5	True	500.00	509.147028	101.8
7	JZ83	L6	True	1000.00	972.634016	97.3
8	JZ84	L7	True	2500.00	2632.013721	105.3
9	JZ85	L8	True	5000.00	5159.568108	103.2
10	JZ86	L9	True	10000.00	9723.746646	97.2





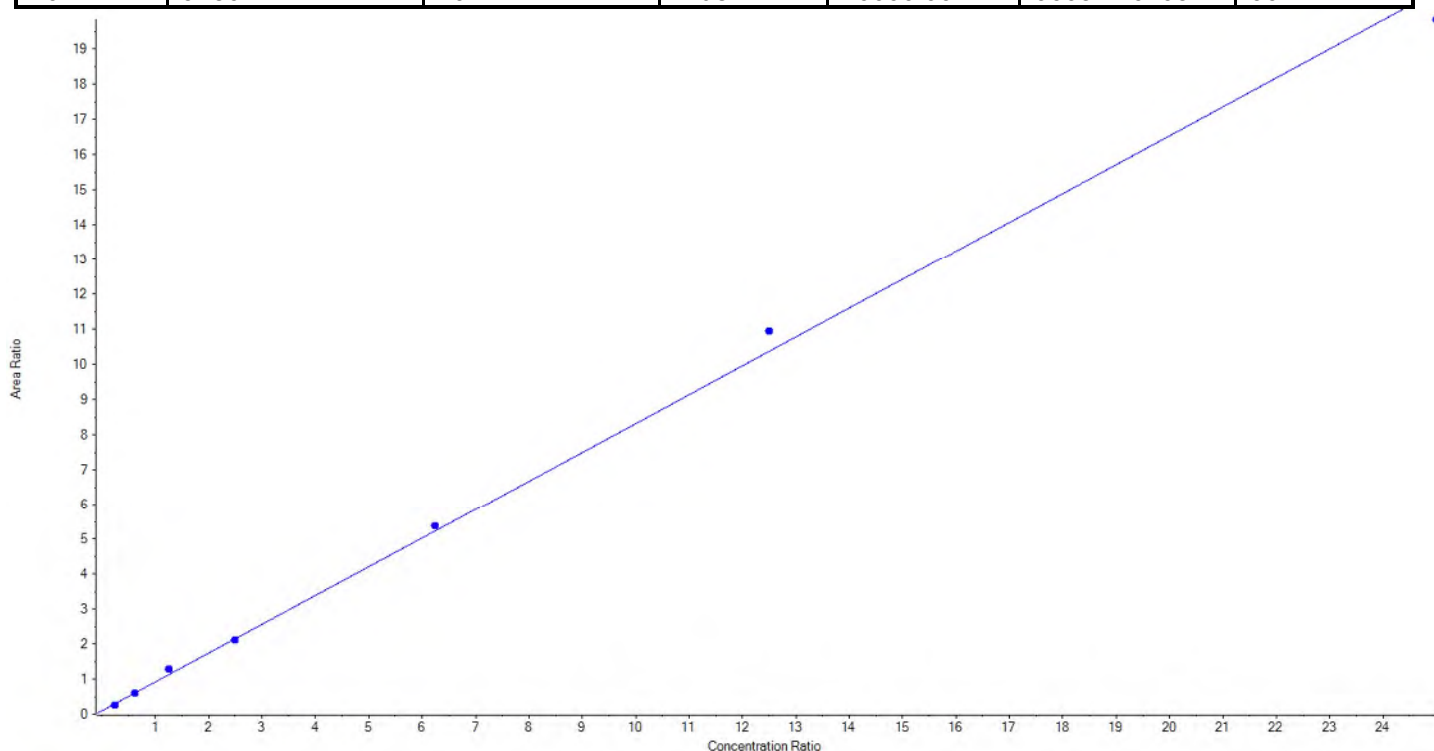
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	NEtFOSAA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	584.0 / 419.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.82199x + 0.09456$  ( $r = 0.99847$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	80.976122	81.0
5	JZ81	L4	True	250.00	249.133758	99.7
6	JZ82	L5	True	500.00	583.156144	116.6
7	JZ83	L6	True	1000.00	984.965387	98.5
8	JZ84	L7	True	2500.00	2562.997010	102.5
9	JZ85	L8	True	5000.00	5283.501177	105.7
10	JZ86	L9	True	10000.00	9605.270403	96.1







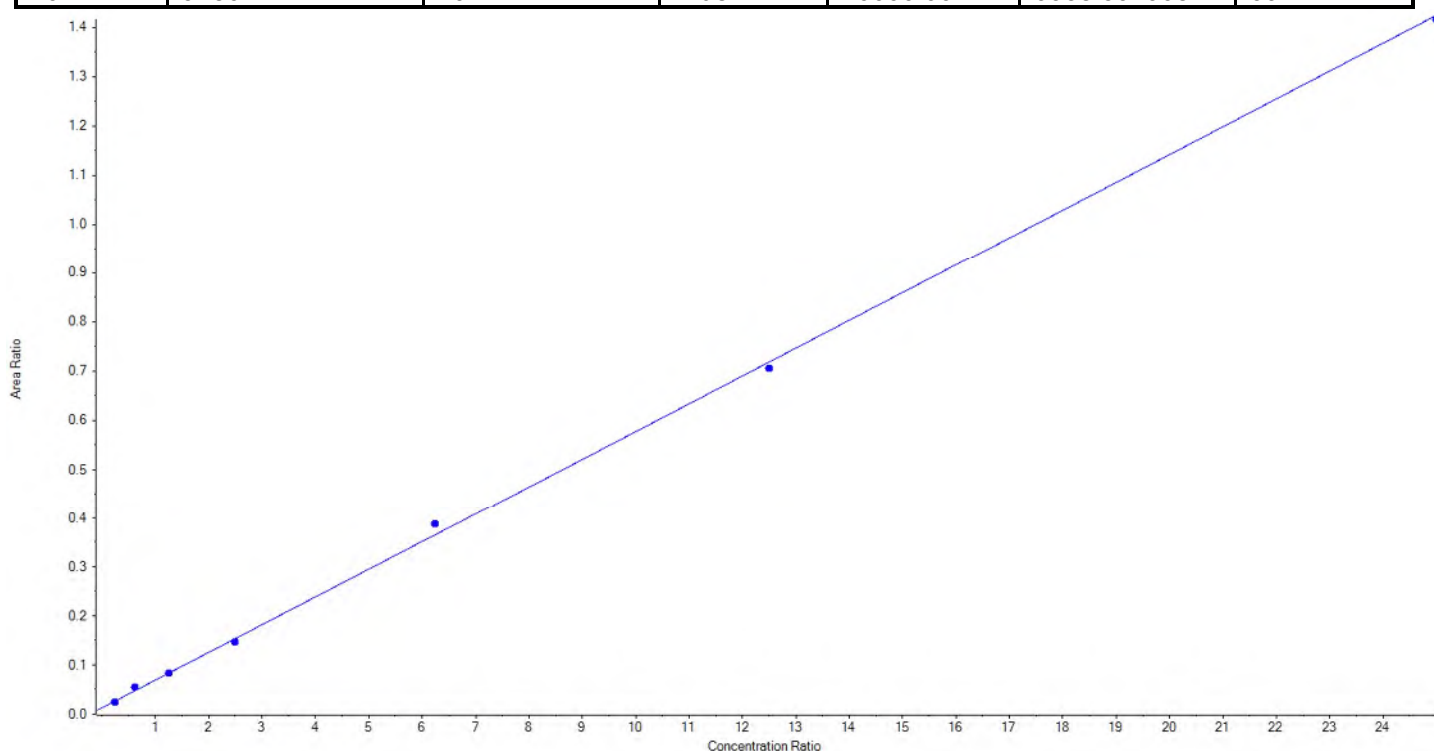
## Calibration Summary Report

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Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	NEtFOSAA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	584.0 / 483.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05648x + 0.01255$  ( $r = 0.99922$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	80.132797	80.1
5	JZ81	L4	True	250.00	296.658651	118.7
6	JZ82	L5	True	500.00	507.581298	101.5
7	JZ83	L6	True	1000.00	958.289586	95.8
8	JZ84	L7	True	2500.00	2654.784503	106.2
9	JZ85	L8	True	5000.00	4914.161258	98.3
10	JZ86	L9	True	10000.00	9938.391908	99.4





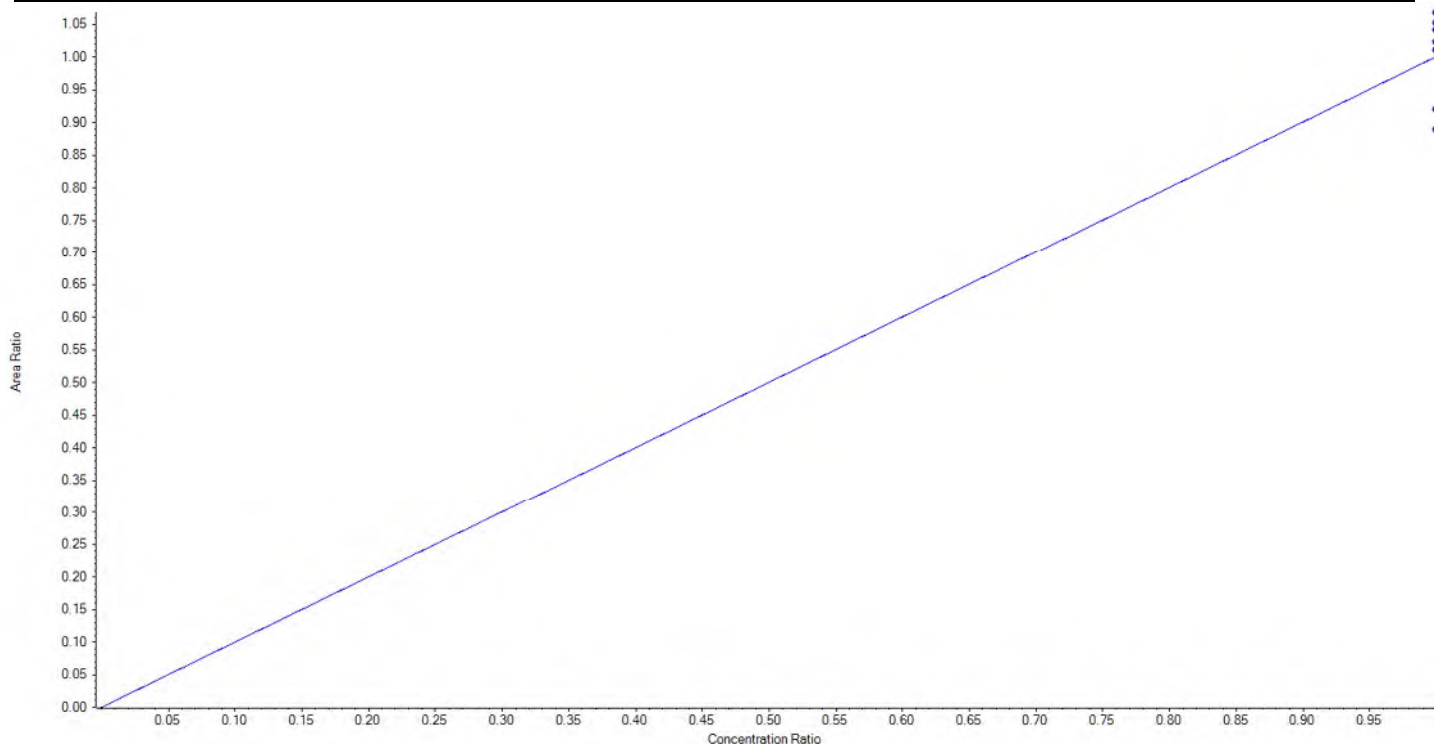
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	13C2-PFHxA	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	315.0 / 270.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.00081 x$  (std. dev. = 0.06898) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	104.123002	104.1
5	JZ81	L4	True	100.00	101.058325	101.1
6	JZ82	L5	True	100.00	106.703420	106.7
7	JZ83	L6	True	100.00	105.190662	105.2
8	JZ84	L7	True	100.00	88.820232	88.8
9	JZ85	L8	True	100.00	102.185074	102.2
10	JZ86	L9	True	100.00	91.919285	91.9





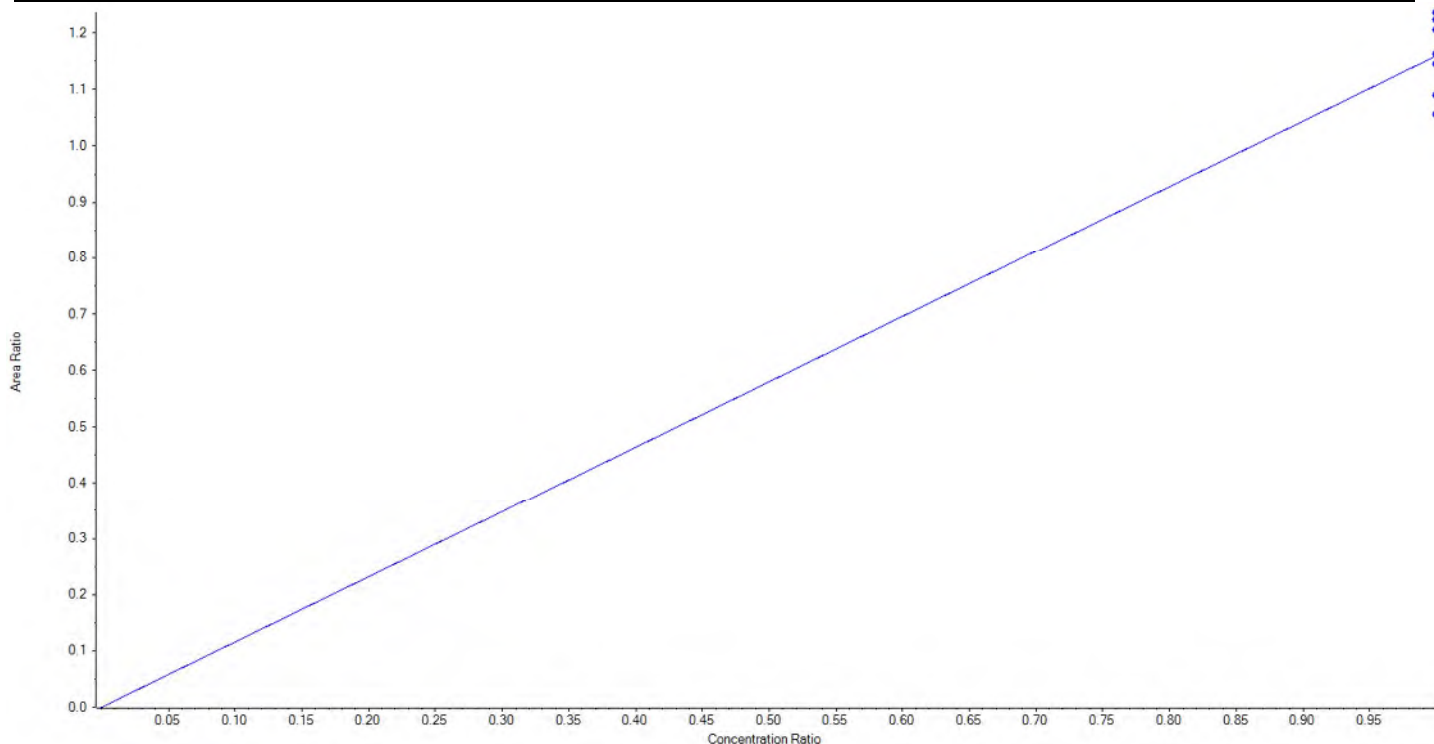
## Calibration Summary Report

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Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	13C2-PFDA	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	515.0 / 470.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.15979 x$  (std. dev. = 0.06781) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	100.220969	100.2
5	JZ81	L4	True	100.00	106.562114	106.6
6	JZ82	L5	True	100.00	94.021052	94.0
7	JZ83	L6	True	100.00	98.750950	98.8
8	JZ84	L7	True	100.00	105.432438	105.4
9	JZ85	L8	True	100.00	103.938838	103.9
10	JZ86	L9	True	100.00	91.073639	91.1





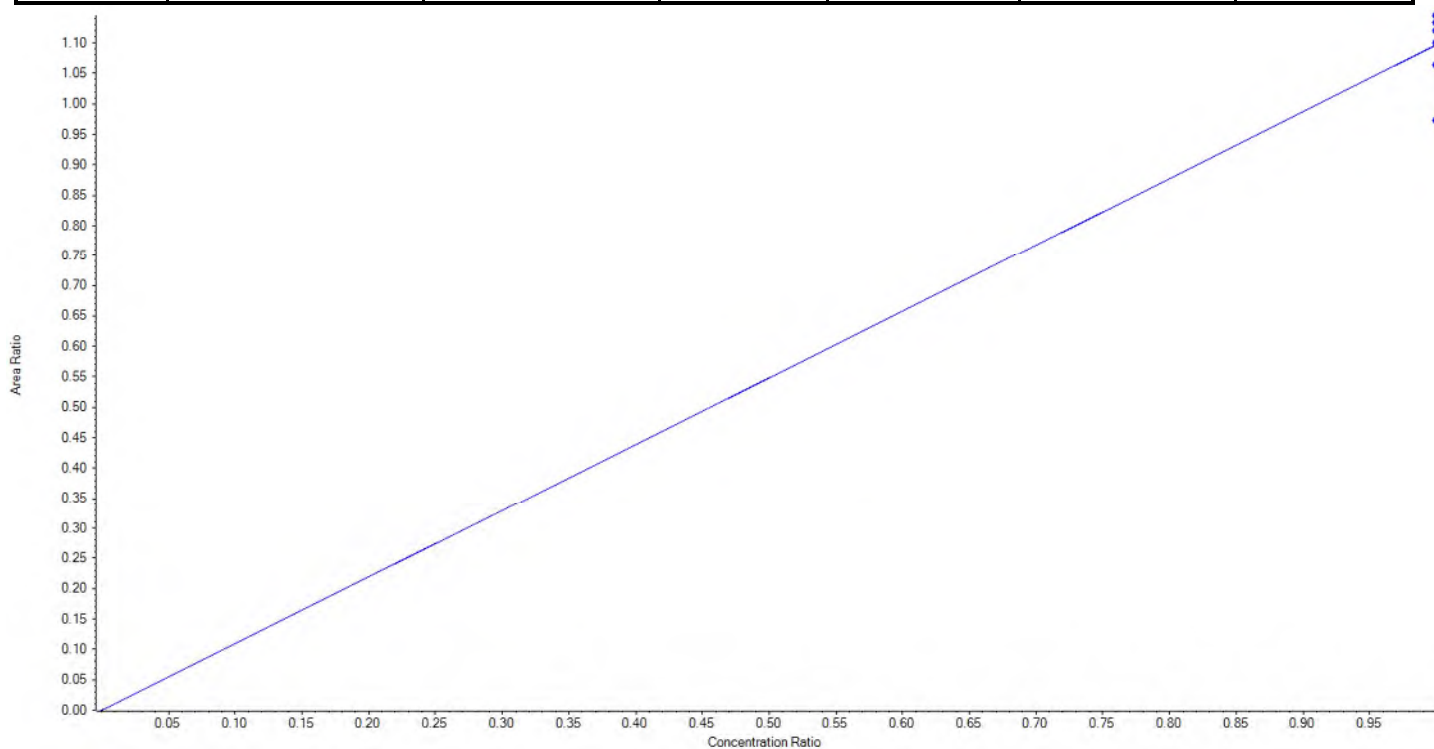
## Calibration Summary Report

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<b>Analyte Name</b>	d5-EtFOSAA	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	589.0 / 419.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.09670 x$  (std. dev. = 0.06181) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	400.00	413.231629	103.3
5	JZ81	L4	True	400.00	387.990069	97.0
6	JZ82	L5	True	400.00	400.957254	100.2
7	JZ83	L6	True	400.00	408.351808	102.1
8	JZ84	L7	True	400.00	417.443203	104.4
9	JZ85	L8	True	400.00	417.351838	104.3
10	JZ86	L9	True	400.00	354.674199	88.7





Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T17:30:23	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	33786.84	84.937595	285.9	false
PFBS_2	298.9 / 99.0	1.51	10556.59	86.660338	165.6	false
PFHxA_1	313.0 / 269.0	1.82	34427.09	72.850774	13.2	true
PFHxA_2	313.0 / 119.0	1.83	3294.70	86.294657	12.9	true
PFHpA_1	363.0 / 319.0	2.23	32005.98	70.089730	26.6	true
PFHpA_2	363.0 / 169.0	2.23	1252.47	99.502697	33.6	true
PFHxS_1	399.0 / 80.0	2.25	39815.47	78.530855	65.1	true
PFHxS_2	399.0 / 99.0	2.25	10491.46	75.685732	103.3	true
PFOA_1	413.0 / 369.0	2.63	39264.25	73.371168	56.3	true
PFOA_2	413.0 / 169.0	2.63	2889.26	74.879488	45.4	true
PFNA_1	463.0 / 419.0	3.03	32820.99	7.249773	65.7	false
PFNA_2	463.0 / 219.0	3.03	11058.21	18.776472	64.8	false
PFOS_1	499.0 / 80.0	3.03	52886.49	86.917577	70.3	false
PFOS_2	499.0 / 99.0	3.02	10301.08	76.588582	112.5	false
PFDA_1	513.0 / 469.0	3.38	36707.16	70.608727	85.8	false
PFDA_2	513.0 / 219.0	3.38	1649.39	< 0	48.5	true
PFUnA_1	563.0 / 519.0	3.71	38381.00	7.191231	80.0	false
PFUnA_2	563.0 / 269.0	3.70	3021.65	< 0	43.6	false
PFDoA_1	613.0 / 569.0	3.98	44647.75	72.576388	152.8	false
PFDoA_2	613.0 / 319.0	3.98	6982.10	70.026787	112.2	false
PFTTrDA_1	663.0 / 619.0	4.23	44012.21	19.083620	205.2	false
PFTTrDA_2	663.0 / 169.0	4.22	2743.85	76.468157	101.4	false
PFTeDA_1	713.0 / 669.0	4.44	43821.84	76.215039	375.0	false
PFTeDA_2	713.0 / 169.0	4.44	2322.84	7.037031	151.4	false
NMeFOSAA_1	570.0 / 419.0	3.53	5691.06	20.249537	222.4	false
NMeFOSAA_2	570.0 / 512.0	3.53	4702.91	90.069372	114.5	true
NEtFOSAA_1	584.0 / 419.0	3.69	6938.83	80.976122	183.9	true
NEtFOSAA_2	584.0 / 483.0	3.69	634.57	80.132797	30.4	false
13C2-PFHxA	315.0 / 270.0	1.81	37056.85	104.123002	1142.1	false
13C2-PFDA	515.0 / 470.0	3.37	41334.33	100.220969	1656.1	false
d5-EtFOSAA	589.0 / 419.0	3.68	30124.62	413.231629	277.5	false

Sample Name	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T17:39:21	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	84104.41	221.916881	452.5	false
PFBS_2	298.9 / 99.0	1.51	25156.12	219.719799	283.4	false
PFHxA_1	313.0 / 269.0	1.82	89916.75	262.504638	22.4	true
PFHxA_2	313.0 / 119.0	1.82	6203.14	218.827557	17.4	true
PFHpA_1	363.0 / 319.0	2.22	88264.76	273.300480	51.8	true
PFHpA_2	363.0 / 169.0	2.22	1977.28	222.133915	40.3	true
PFHxS_1	399.0 / 80.0	2.24	103377.38	247.295690	133.0	false
PFHxS_2	399.0 / 99.0	2.24	28332.51	237.676257	211.5	false
PFOA_1	413.0 / 369.0	2.63	93350.47	254.447376	88.9	true
PFOA_2	413.0 / 169.0	2.63	6628.01	251.684719	77.4	true
PFNA_1	463.0 / 419.0	3.02	85854.94	209.284510	118.8	false
PFNA_2	463.0 / 219.0	3.02	26891.17	214.573585	132.4	false
PFOS_1	499.0 / 80.0	3.02	137075.27	238.441228	104.5	false
PFOS_2	499.0 / 99.0	3.02	26379.13	235.299807	253.2	false
PFDA_1	513.0 / 469.0	3.38	101257.84	262.340714	153.1	false
PFDA_2	513.0 / 219.0	3.38	6295.18	234.401702	114.4	false
PFUnA_1	563.0 / 519.0	3.70	105023.11	208.971754	179.4	false
PFUnA_2	563.0 / 269.0	3.70	6627.45	211.046084	74.9	false
PFDoA_1	613.0 / 569.0	3.98	118365.63	268.921030	260.2	false
PFDoA_2	613.0 / 319.0	3.98	18469.98	259.553279	209.8	false
PFTTrDA_1	663.0 / 619.0	4.22	115897.82	219.466117	275.9	false
PFTTrDA_2	663.0 / 169.0	4.22	7051.12	256.772725	168.2	false
PFTeDA_1	713.0 / 669.0	4.43	111712.49	259.625152	477.7	false
PFTeDA_2	713.0 / 169.0	4.43	6191.55	222.200113	284.0	false
NMeFOSAA_1	570.0 / 419.0	3.53	16301.45	215.870364	321.0	false
NMeFOSAA_2	570.0 / 512.0	3.52	10373.07	262.821109	214.7	false
NEtFOSAA_1	584.0 / 419.0	3.69	16270.78	249.133758	285.3	false
NEtFOSAA_2	584.0 / 483.0	3.69	1460.34	296.658651	63.4	false
13C2-PFHxA	315.0 / 270.0	1.81	35908.36	101.058325	853.0	false
13C2-PFDA	515.0 / 470.0	3.36	43879.00	106.562114	310.2	false
d5-EtFOSAA	589.0 / 419.0	3.68	28536.97	387.990069	266.1	false

Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T17:48:19	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	173114.59	485.976511	802.4	false
PFBS_2	298.9 / 99.0	1.51	52155.87	487.633979	438.0	false
PFHxA_1	313.0 / 269.0	1.82	181623.30	608.411016	46.2	true
PFHxA_2	313.0 / 119.0	1.81	14704.13	640.855875	44.1	true
PFHpA_1	363.0 / 319.0	2.22	164042.93	578.060700	83.8	true
PFHpA_2	363.0 / 169.0	2.22	3774.41	559.018107	65.8	true
PFHxS_1	399.0 / 80.0	2.25	194673.55	513.729049	200.2	false
PFHxS_2	399.0 / 99.0	2.24	57958.84	531.121903	233.6	false
PFOA_1	413.0 / 369.0	2.63	183327.57	587.739490	127.5	false
PFOA_2	413.0 / 169.0	2.63	12450.39	557.768094	120.4	false
PFNA_1	463.0 / 419.0	3.02	166151.26	548.298615	207.2	false
PFNA_2	463.0 / 219.0	3.02	51409.12	551.002173	229.3	false
PFOS_1	499.0 / 80.0	3.02	270901.94	501.919227	145.1	false
PFOS_2	499.0 / 99.0	3.02	53467.49	527.128024	327.4	false
PFDA_1	513.0 / 469.0	3.38	198109.13	580.828624	253.0	false
PFDA_2	513.0 / 219.0	3.38	10428.36	556.023143	184.4	false
PFUnA_1	563.0 / 519.0	3.70	207184.27	551.142340	305.1	false
PFUnA_2	563.0 / 269.0	3.70	10675.58	500.508430	96.0	true
PFDoA_1	613.0 / 569.0	3.97	226504.01	588.523137	260.3	false
PFDoA_2	613.0 / 319.0	3.97	36290.93	584.894503	259.5	false
PFTrDA_1	663.0 / 619.0	4.22	224740.20	555.651930	376.2	false
PFTrDA_2	663.0 / 169.0	4.22	14147.46	584.799168	217.9	false
PFTeDA_1	713.0 / 669.0	4.43	218971.82	580.330474	701.8	false
PFTeDA_2	713.0 / 169.0	4.43	11239.55	535.693008	361.5	false
NMeFOSAA_1	570.0 / 419.0	3.52	33423.04	563.783035	469.4	false
NMeFOSAA_2	570.0 / 512.0	3.52	17528.38	509.147028	260.7	false
NEtFOSAA_1	584.0 / 419.0	3.69	33044.51	583.156144	400.5	false
NEtFOSAA_2	584.0 / 483.0	3.69	2152.40	507.581298	105.8	true
13C2-PFHxA	315.0 / 270.0	1.81	36010.59	106.703420	868.8	false
13C2-PFDA	515.0 / 470.0	3.36	36771.17	94.021052	556.4	false
d5-EtFOSAA	589.0 / 419.0	3.67	28096.37	400.957254	215.6	false



Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T17:57:16	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	259274.64	812.898624	947.0	false
PFBS_2	298.9 / 99.0	1.51	76242.45	797.489114	544.8	false
PFHxA_1	313.0 / 269.0	1.82	261873.66	995.217167	57.6	true
PFHxA_2	313.0 / 119.0	1.82	20137.63	1001.779889	46.9	true
PFHpA_1	363.0 / 319.0	2.23	248447.09	997.339390	101.4	true
PFHpA_2	363.0 / 169.0	2.23	5824.31	1031.219435	86.2	true
PFHxS_1	399.0 / 80.0	2.25	277780.09	829.922489	281.8	false
PFHxS_2	399.0 / 99.0	2.25	84847.68	875.743861	314.9	false
PFOA_1	413.0 / 369.0	2.63	278734.79	1026.133700	185.3	false
PFOA_2	413.0 / 169.0	2.63	21469.20	1117.747800	216.1	false
PFNA_1	463.0 / 419.0	3.02	251820.56	996.943800	280.8	false
PFNA_2	463.0 / 219.0	3.02	77239.05	991.839550	283.4	false
PFOS_1	499.0 / 80.0	3.02	419985.57	870.019821	140.1	false
PFOS_2	499.0 / 99.0	3.02	82431.88	920.293149	349.6	false
PFDA_1	513.0 / 469.0	3.38	297920.73	989.889072	423.1	false
PFDA_2	513.0 / 219.0	3.38	13440.59	875.230246	204.5	false
PFUnA_1	563.0 / 519.0	3.70	308879.18	977.769189	376.0	false
PFUnA_2	563.0 / 269.0	3.70	17246.01	1053.643664	147.4	false
PFDoA_1	613.0 / 569.0	3.98	327995.48	968.815455	281.0	false
PFDoA_2	613.0 / 319.0	3.97	56391.02	1035.886078	306.3	false
PFTrDA_1	663.0 / 619.0	4.22	336537.53	986.485402	433.6	false
PFTrDA_2	663.0 / 169.0	4.22	21452.09	1005.044407	325.9	false
PFTeDA_1	713.0 / 669.0	4.43	333796.17	1005.642398	723.1	false
PFTeDA_2	713.0 / 169.0	4.43	17023.83	978.074216	442.6	false
NMeFOSAA_1	570.0 / 419.0	3.53	49660.23	967.201627	955.7	false
NMeFOSAA_2	570.0 / 512.0	3.52	29257.72	972.634016	349.9	false
NEtFOSAA_1	584.0 / 419.0	3.69	49639.89	984.965387	446.0	false
NEtFOSAA_2	584.0 / 483.0	3.68	3464.17	958.289586	108.0	false
13C2-PFHxA	315.0 / 270.0	1.81	32143.29	105.190662	739.3	false
13C2-PFDA	515.0 / 470.0	3.36	34969.14	98.750950	815.9	false
d5-EtFOSAA	589.0 / 419.0	3.67	26232.35	408.351808	210.0	false

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T18:06:15	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	795138.84	2256.662639	1853.9	false
PFBS_2	298.9 / 99.0	1.51	238308.67	2261.138566	1067.0	false
PFHxA_1	313.0 / 269.0	1.82	730290.55	2439.164904	124.3	false
PFHxA_2	313.0 / 119.0	1.82	54559.08	2408.531127	92.9	false
PFHpA_1	363.0 / 319.0	2.22	736620.80	2602.575270	249.9	false
PFHpA_2	363.0 / 169.0	2.22	14499.12	2325.211610	173.1	true
PFHxS_1	399.0 / 80.0	2.24	841328.79	2309.680917	501.0	false
PFHxS_2	399.0 / 99.0	2.24	243969.98	2298.208639	673.9	false
PFOA_1	413.0 / 369.0	2.62	792027.33	2580.378450	419.6	false
PFOA_2	413.0 / 169.0	2.62	54514.23	2503.243230	333.7	false
PFNA_1	463.0 / 419.0	3.01	703938.07	2550.978400	495.2	false
PFNA_2	463.0 / 219.0	3.01	214476.87	2521.277368	468.5	false
PFOS_1	499.0 / 80.0	3.01	1227363.24	2302.514320	193.4	false
PFOS_2	499.0 / 99.0	3.01	231341.05	2363.591978	592.1	false
PFDA_1	513.0 / 469.0	3.36	918237.56	2676.005715	668.1	false
PFDA_2	513.0 / 219.0	3.36	39890.96	2530.186180	326.3	false
PFUnA_1	563.0 / 519.0	3.69	927633.13	2686.308101	702.6	false
PFUnA_2	563.0 / 269.0	3.69	46259.02	2686.725778	234.5	false
PFDaA_1	613.0 / 569.0	3.96	993108.00	2586.064793	337.6	false
PFDaA_2	613.0 / 319.0	3.96	162597.82	2624.466676	286.2	false
PFTrDA_1	663.0 / 619.0	4.21	931437.94	2480.324765	554.9	false
PFTrDA_2	663.0 / 169.0	4.20	62365.81	2559.608872	441.0	false
PFTeDA_1	713.0 / 669.0	4.42	962830.24	2546.323019	1042.6	false
PFTeDA_2	713.0 / 169.0	4.41	49242.49	2603.422173	762.7	false
NMeFOSAA_1	570.0 / 419.0	3.51	136159.33	2543.159964	1059.3	false
NMeFOSAA_2	570.0 / 512.0	3.51	84001.32	2632.013721	564.8	false
NEtFOSAA_1	584.0 / 419.0	3.67	137980.90	2562.997010	809.4	false
NEtFOSAA_2	584.0 / 483.0	3.67	9969.42	2654.784503	207.9	false
13C2-PFHxA	315.0 / 270.0	1.81	31684.97	88.820232	805.0	false
13C2-PFDA	515.0 / 470.0	3.35	43585.91	105.432438	643.6	false
d5-EtFOSAA	589.0 / 419.0	3.66	29455.28	417.443203	243.0	false

Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T18:15:11	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	1423337.04	4471.766066	2697.0	false
PFBS_2	298.9 / 99.0	1.51	426374.36	4480.799327	1387.0	false
PFHxA_1	313.0 / 269.0	1.82	1439929.08	5365.834012	173.6	false
PFHxA_2	313.0 / 119.0	1.82	104246.97	5154.680214	131.7	false
PFHpA_1	363.0 / 319.0	2.23	1342323.38	5285.464385	409.0	false
PFHpA_2	363.0 / 169.0	2.22	28919.64	5258.056603	238.2	false
PFHxS_1	399.0 / 80.0	2.25	1511956.87	4614.516402	569.7	false
PFHxS_2	399.0 / 99.0	2.24	436397.43	4562.901713	966.2	false
PFOA_1	413.0 / 369.0	2.63	1461220.20	5319.417746	567.4	false
PFOA_2	413.0 / 169.0	2.63	102270.71	5254.172998	516.6	false
PFNA_1	463.0 / 419.0	3.02	1352018.12	5544.801016	837.9	false
PFNA_2	463.0 / 219.0	3.02	407540.22	5422.200845	806.8	false
PFOS_1	499.0 / 80.0	3.02	2269895.47	4715.275999	351.8	false
PFOS_2	499.0 / 99.0	3.02	418007.46	4745.419194	878.1	false
PFDA_1	513.0 / 469.0	3.37	1682330.92	5455.685524	750.7	false
PFDA_2	513.0 / 219.0	3.37	76423.73	5576.263174	411.3	false
PFUnA_1	563.0 / 519.0	3.69	1615650.60	5269.550143	771.9	false
PFUnA_2	563.0 / 269.0	3.69	82123.52	5466.572246	236.9	false
PFDoA_1	613.0 / 569.0	3.97	1831740.97	5317.544392	470.7	false
PFDoA_2	613.0 / 319.0	3.97	293884.07	5285.399886	397.4	false
PFTrDA_1	663.0 / 619.0	4.21	1767792.76	5314.091848	592.0	false
PFTrDA_2	663.0 / 169.0	4.21	114481.41	5230.105725	455.8	false
PFTeDA_1	713.0 / 669.0	4.42	1786358.10	5263.300577	1247.6	false
PFTeDA_2	713.0 / 169.0	4.42	88560.84	5293.093979	869.8	false
NMeFOSAA_1	570.0 / 419.0	3.52	249174.73	5284.883606	1024.7	false
NMeFOSAA_2	570.0 / 512.0	3.52	146025.24	5159.568108	664.2	false
NEtFOSAA_1	584.0 / 419.0	3.68	252504.15	5283.501177	938.9	false
NEtFOSAA_2	584.0 / 483.0	3.68	16285.81	4914.161258	349.6	false
13C2-PFHxA	315.0 / 270.0	1.81	32994.69	102.185074	798.2	false
13C2-PFDA	515.0 / 470.0	3.36	38892.41	103.938838	1237.4	false
d5-EtFOSAA	589.0 / 419.0	3.67	26381.90	417.351838	233.0	false

Sample Name	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T18:24:08	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	2802852.60	8791.441684	4080.8	false
PFBS_2	298.9 / 99.0	1.51	837776.79	8792.158876	2031.6	false
PFHxA_1	313.0 / 269.0	1.82	2790620.15	9606.017490	290.3	false
PFHxA_2	313.0 / 119.0	1.82	214946.73	9839.030680	221.9	false
PFHpA_1	363.0 / 319.0	2.23	2623330.66	9543.170045	577.9	false
PFHpA_2	363.0 / 169.0	2.22	58321.01	9854.857634	495.9	false
PFHxS_1	399.0 / 80.0	2.25	2965053.85	9053.524599	700.1	true
PFHxS_2	399.0 / 99.0	2.25	867308.32	9065.861895	1233.3	false
PFOA_1	413.0 / 369.0	2.63	2824482.52	9508.512070	795.5	false
PFOA_2	413.0 / 169.0	2.63	201766.42	9590.503672	721.1	false
PFNA_1	463.0 / 419.0	3.02	2469068.74	9399.693658	1090.6	false
PFNA_2	463.0 / 219.0	3.02	772659.64	9549.106478	1148.8	false
PFOS_1	499.0 / 80.0	3.02	4433568.55	9195.611827	423.7	false
PFOS_2	499.0 / 99.0	3.02	796436.91	9042.379266	843.4	false
PFDA_1	513.0 / 469.0	3.37	3111792.02	9314.641625	1079.3	false
PFDA_2	513.0 / 219.0	3.37	139143.22	9477.895556	693.6	false
PFUnA_1	563.0 / 519.0	3.69	3154561.04	9556.258473	1110.8	false
PFUnA_2	563.0 / 269.0	3.69	150034.35	9331.503798	292.0	false
PFDoA_1	613.0 / 569.0	3.97	3559786.20	9547.554806	622.0	false
PFDoA_2	613.0 / 319.0	3.97	571169.25	9489.772790	589.6	false
PFTrDA_1	663.0 / 619.0	4.21	3473606.46	9693.979938	778.6	false
PFTrDA_2	663.0 / 169.0	4.21	228439.16	9637.200945	620.4	false
PFTeDA_1	713.0 / 669.0	4.42	3534268.89	9618.563342	1604.0	false
PFTeDA_2	713.0 / 169.0	4.42	173066.49	9617.516511	1158.0	false
NMeFOSAA_1	570.0 / 419.0	3.52	483463.08	9675.101405	1161.8	false
NMeFOSAA_2	570.0 / 512.0	3.52	292335.29	9723.746646	1068.9	false
NEtFOSAA_1	584.0 / 419.0	3.68	488176.02	9605.270403	1000.9	false
NEtFOSAA_2	584.0 / 483.0	3.68	34847.18	9938.391908	544.3	false
13C2-PFHxA	315.0 / 270.0	1.81	32247.54	91.919285	851.8	false
13C2-PFDA	515.0 / 470.0	3.36	37026.54	91.073639	1198.2	false
d5-EtFOSAA	589.0 / 419.0	3.67	23935.58	354.674199	220.0	false

Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T17:30:23	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
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	0.312	0.301	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.096	0.078	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.23	PFHpA	0.039	0.025	
PFHxS_1	399.0 / 80.0	2.25	PFHxS			
PFHxS_2	399.0 / 99.0	2.25	PFHxS	0.264	0.287	ü
PFOA_1	413.0 / 369.0	2.63	PFOA			
PFOA_2	413.0 / 169.0	2.63	PFOA	0.074	0.071	ü
PFNA_1	463.0 / 419.0	3.03	PFNA			
PFNA_2	463.0 / 219.0	3.03	PFNA	0.337	0.308	ü
PFOS_1	499.0 / 80.0	3.03	PFOS			
PFOS_2	499.0 / 99.0	3.02	PFOS	0.195	0.190	ü
PFDA_1	513.0 / 469.0	3.38	PFDA			
PFDA_2	513.0 / 219.0	3.38	PFDA	0.045	0.049	ü
PFUnA_1	563.0 / 519.0	3.71	PFUnA			
PFUnA_2	563.0 / 269.0	3.70	PFUnA	0.079	0.053	ü
PFDaA_1	613.0 / 569.0	3.98	PFDaA			
PFDaA_2	613.0 / 319.0	3.98	PFDaA	0.156	0.161	ü
PFTrDA_1	663.0 / 619.0	4.23	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.22	PFTrDA	0.062	0.064	ü
PFTeDA_1	713.0 / 669.0	4.44	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.44	PFTeDA	0.053	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.53	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.53	NMeFOSAA	0.826	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.69	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.69	NEtFOSAA	0.092	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.37		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.68		N/A	N/A	ü

Sample Name	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T17:39:21	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
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	0.299	0.301	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.069	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.022	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.274	0.287	ü
PFOA_1	413.0 / 369.0	2.63	PFOA			
PFOA_2	413.0 / 169.0	2.63	PFOA	0.071	0.071	ü
PFNA_1	463.0 / 419.0	3.02	PFNA			
PFNA_2	463.0 / 219.0	3.02	PFNA	0.313	0.308	ü
PFOS_1	499.0 / 80.0	3.02	PFOS			
PFOS_2	499.0 / 99.0	3.02	PFOS	0.192	0.190	ü
PFDA_1	513.0 / 469.0	3.38	PFDA			
PFDA_2	513.0 / 219.0	3.38	PFDA	0.062	0.049	ü
PFAUnA_1	563.0 / 519.0	3.70	PFAUnA			
PFAUnA_2	563.0 / 269.0	3.70	PFAUnA	0.063	0.053	ü
PFADoA_1	613.0 / 569.0	3.98	PFADoA			
PFADoA_2	613.0 / 319.0	3.98	PFADoA	0.156	0.161	ü
PFATrDA_1	663.0 / 619.0	4.22	PFATrDA			
PFATrDA_2	663.0 / 169.0	4.22	PFATrDA	0.061	0.064	ü
PFATeDA_1	713.0 / 669.0	4.43	PFATeDA			
PFATeDA_2	713.0 / 169.0	4.43	PFATeDA	0.055	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.53	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.52	NMeFOSAA	0.636	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.69	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.69	NEtFOSAA	0.090	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.36		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.68		N/A	N/A	ü

<b>Sample Name</b>	JZ82	<b>Injection Vial</b>	6
<b>Sample ID</b>	L5	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T17:48:19	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.301	0.301	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.081	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.023	0.025	ü
PFHxS_1	399.0 / 80.0	2.25	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.298	0.287	ü
PFOA_1	413.0 / 369.0	2.63	PFOA			
PFOA_2	413.0 / 169.0	2.63	PFOA	0.068	0.071	ü
PFNA_1	463.0 / 419.0	3.02	PFNA			
PFNA_2	463.0 / 219.0	3.02	PFNA	0.309	0.308	ü
PFOS_1	499.0 / 80.0	3.02	PFOS			
PFOS_2	499.0 / 99.0	3.02	PFOS	0.197	0.190	ü
PFDA_1	513.0 / 469.0	3.38	PFDA			
PFDA_2	513.0 / 219.0	3.38	PFDA	0.053	0.049	ü
PFUnA_1	563.0 / 519.0	3.70	PFUnA			
PFUnA_2	563.0 / 269.0	3.70	PFUnA	0.052	0.053	ü
PFDaA_1	613.0 / 569.0	3.97	PFDaA			
PFDaA_2	613.0 / 319.0	3.97	PFDaA	0.160	0.161	ü
PFTrDA_1	663.0 / 619.0	4.22	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.22	PFTrDA	0.063	0.064	ü
PFTeDA_1	713.0 / 669.0	4.43	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.43	PFTeDA	0.051	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.52	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.52	NMeFOSAA	0.524	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.69	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.69	NEtFOSAA	0.065	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.36		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.67		N/A	N/A	ü

Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T17:57:16	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
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	0.294	0.301	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.077	0.078	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.23	PFHpA	0.023	0.025	ü
PFHxS_1	399.0 / 80.0	2.25	PFHxS			
PFHxS_2	399.0 / 99.0	2.25	PFHxS	0.305	0.287	ü
PFOA_1	413.0 / 369.0	2.63	PFOA			
PFOA_2	413.0 / 169.0	2.63	PFOA	0.077	0.071	ü
PFNA_1	463.0 / 419.0	3.02	PFNA			
PFNA_2	463.0 / 219.0	3.02	PFNA	0.307	0.308	ü
PFOS_1	499.0 / 80.0	3.02	PFOS			
PFOS_2	499.0 / 99.0	3.02	PFOS	0.196	0.190	ü
PFDA_1	513.0 / 469.0	3.38	PFDA			
PFDA_2	513.0 / 219.0	3.38	PFDA	0.045	0.049	ü
PFUnA_1	563.0 / 519.0	3.70	PFUnA			
PFUnA_2	563.0 / 269.0	3.70	PFUnA	0.056	0.053	ü
PFDaA_1	613.0 / 569.0	3.98	PFDaA			
PFDaA_2	613.0 / 319.0	3.97	PFDaA	0.172	0.161	ü
PFTrDA_1	663.0 / 619.0	4.22	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.22	PFTrDA	0.064	0.064	ü
PFTeDA_1	713.0 / 669.0	4.43	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.43	PFTeDA	0.051	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.53	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.52	NMeFOSAA	0.589	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.69	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.68	NEtFOSAA	0.070	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.36		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.67		N/A	N/A	ü



<b>Sample Name</b>	JZ84	<b>Injection Vial</b>	8
<b>Sample ID</b>	L7	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:06:15	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.300	0.301	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.075	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.020	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.290	0.287	ü
PFOA_1	413.0 / 369.0	2.62	PFOA			
PFOA_2	413.0 / 169.0	2.62	PFOA	0.069	0.071	ü
PFNA_1	463.0 / 419.0	3.01	PFNA			
PFNA_2	463.0 / 219.0	3.01	PFNA	0.305	0.308	ü
PFOS_1	499.0 / 80.0	3.01	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.189	0.190	ü
PFDA_1	513.0 / 469.0	3.36	PFDA			
PFDA_2	513.0 / 219.0	3.36	PFDA	0.043	0.049	ü
PFUnA_1	563.0 / 519.0	3.69	PFUnA			
PFUnA_2	563.0 / 269.0	3.69	PFUnA	0.050	0.053	ü
PFDaA_1	613.0 / 569.0	3.96	PFDaA			
PFDaA_2	613.0 / 319.0	3.96	PFDaA	0.164	0.161	ü
PFTrDA_1	663.0 / 619.0	4.21	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.20	PFTrDA	0.067	0.064	ü
PFTeDA_1	713.0 / 669.0	4.42	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.41	PFTeDA	0.051	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.51	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.51	NMeFOSAA	0.617	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.67	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.67	NEtFOSAA	0.072	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	JZ85	<b>Injection Vial</b>	9
<b>Sample ID</b>	L8	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:15:11	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.300	0.301	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.072	0.078	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.022	0.025	ü
PFHxS_1	399.0 / 80.0	2.25	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.289	0.287	ü
PFOA_1	413.0 / 369.0	2.63	PFOA			
PFOA_2	413.0 / 169.0	2.63	PFOA	0.070	0.071	ü
PFNA_1	463.0 / 419.0	3.02	PFNA			
PFNA_2	463.0 / 219.0	3.02	PFNA	0.301	0.308	ü
PFOS_1	499.0 / 80.0	3.02	PFOS			
PFOS_2	499.0 / 99.0	3.02	PFOS	0.184	0.190	ü
PFDA_1	513.0 / 469.0	3.37	PFDA			
PFDA_2	513.0 / 219.0	3.37	PFDA	0.045	0.049	ü
PFUnA_1	563.0 / 519.0	3.69	PFUnA			
PFUnA_2	563.0 / 269.0	3.69	PFUnA	0.051	0.053	ü
PFDaA_1	613.0 / 569.0	3.97	PFDaA			
PFDaA_2	613.0 / 319.0	3.97	PFDaA	0.160	0.161	ü
PFTrDA_1	663.0 / 619.0	4.21	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.21	PFTrDA	0.065	0.064	ü
PFTeDA_1	713.0 / 669.0	4.42	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.42	PFTeDA	0.050	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.52	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.52	NMeFOSAA	0.586	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.68	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.68	NEtFOSAA	0.065	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.36		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.67		N/A	N/A	ü

<b>Sample Name</b>	JZ86	<b>Injection Vial</b>	10
<b>Sample ID</b>	L9	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:24:08	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.299	0.301	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.077	0.078	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.022	0.025	ü
PFHxS_1	399.0 / 80.0	2.25	PFHxS			
PFHxS_2	399.0 / 99.0	2.25	PFHxS	0.293	0.287	ü
PFOA_1	413.0 / 369.0	2.63	PFOA			
PFOA_2	413.0 / 169.0	2.63	PFOA	0.071	0.071	ü
PFNA_1	463.0 / 419.0	3.02	PFNA			
PFNA_2	463.0 / 219.0	3.02	PFNA	0.313	0.308	ü
PFOS_1	499.0 / 80.0	3.02	PFOS			
PFOS_2	499.0 / 99.0	3.02	PFOS	0.180	0.190	ü
PFDA_1	513.0 / 469.0	3.37	PFDA			
PFDA_2	513.0 / 219.0	3.37	PFDA	0.045	0.049	ü
PFUnA_1	563.0 / 519.0	3.69	PFUnA			
PFUnA_2	563.0 / 269.0	3.69	PFUnA	0.048	0.053	ü
PFDaA_1	613.0 / 569.0	3.97	PFDaA			
PFDaA_2	613.0 / 319.0	3.97	PFDaA	0.161	0.161	ü
PFTrDA_1	663.0 / 619.0	4.21	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.21	PFTrDA	0.066	0.064	ü
PFTeDA_1	713.0 / 669.0	4.42	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.42	PFTeDA	0.049	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.52	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.52	NMeFOSAA	0.605	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.68	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.68	NEtFOSAA	0.071	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.36		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.67		N/A	N/A	ü

Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T17:30:23	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	165152.53	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	165152.53	287.00
PFHxA_1	313.0 / 269.0	1.82	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFHxA_2	313.0 / 119.0	1.83	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFHpA_1	363.0 / 319.0	2.23	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFHpA_2	363.0 / 169.0	2.23	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFHxS_1	399.0 / 80.0	2.25	13C4-PFOS	503.0 / 80.0	165152.53	287.00
PFHxS_2	399.0 / 99.0	2.25	13C4-PFOS	503.0 / 80.0	165152.53	287.00
PFOA_1	413.0 / 369.0	2.63	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFOA_2	413.0 / 169.0	2.63	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFNA_1	463.0 / 419.0	3.03	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFNA_2	463.0 / 219.0	3.03	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFOS_1	499.0 / 80.0	3.03	13C4-PFOS	503.0 / 80.0	165152.53	287.00
PFOS_2	499.0 / 99.0	3.02	13C4-PFOS	503.0 / 80.0	165152.53	287.00
PFDA_1	513.0 / 469.0	3.38	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFDA_2	513.0 / 219.0	3.38	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFUnA_1	563.0 / 519.0	3.71	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFUnA_2	563.0 / 269.0	3.70	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFDaA_1	613.0 / 569.0	3.98	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFDaA_2	613.0 / 319.0	3.98	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFTTrDA_1	663.0 / 619.0	4.23	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFTTrDA_2	663.0 / 169.0	4.22	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFTeDA_1	713.0 / 669.0	4.44	13C2-PFOA	415.0 / 370.0	35560.82	100.00
PFTeDA_2	713.0 / 169.0	4.44	13C2-PFOA	415.0 / 370.0	35560.82	100.00
NMeFOSAA_1	570.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	26588.90	400.00
NMeFOSAA_2	570.0 / 512.0	3.53	d3-MeFOSAA	573.0 / 419.0	26588.90	400.00
NEtFOSAA_1	584.0 / 419.0	3.69	d3-MeFOSAA	573.0 / 419.0	26588.90	400.00
NEtFOSAA_2	584.0 / 483.0	3.69	d3-MeFOSAA	573.0 / 419.0	26588.90	400.00
13C2-PFHxA	315.0 / 270.0	1.81	13C2-PFOA	415.0 / 370.0	35560.82	100.00
13C2-PFDA	515.0 / 470.0	3.37	13C2-PFOA	415.0 / 370.0	35560.82	100.00
d5-EtFOSAA	589.0 / 419.0	3.68	d3-MeFOSAA	573.0 / 419.0	26588.90	400.00

Sample Name	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T17:39:21	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	164086.22	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	164086.22	287.00
PFHxA_1	313.0 / 269.0	1.82	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFHxA_2	313.0 / 119.0	1.82	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFHpA_1	363.0 / 319.0	2.22	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFHpA_2	363.0 / 169.0	2.22	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFHxS_1	399.0 / 80.0	2.24	13C4-PFOS	503.0 / 80.0	164086.22	287.00
PFHxS_2	399.0 / 99.0	2.24	13C4-PFOS	503.0 / 80.0	164086.22	287.00
PFOA_1	413.0 / 369.0	2.63	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFOA_2	413.0 / 169.0	2.63	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFNA_1	463.0 / 419.0	3.02	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFNA_2	463.0 / 219.0	3.02	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFOS_1	499.0 / 80.0	3.02	13C4-PFOS	503.0 / 80.0	164086.22	287.00
PFOS_2	499.0 / 99.0	3.02	13C4-PFOS	503.0 / 80.0	164086.22	287.00
PFDA_1	513.0 / 469.0	3.38	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFDA_2	513.0 / 219.0	3.38	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFUnA_1	563.0 / 519.0	3.70	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFUnA_2	563.0 / 269.0	3.70	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFDaA_1	613.0 / 569.0	3.98	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFDaA_2	613.0 / 319.0	3.98	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFTTrDA_1	663.0 / 619.0	4.22	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFTTrDA_2	663.0 / 169.0	4.22	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFTeDA_1	713.0 / 669.0	4.43	13C2-PFOA	415.0 / 370.0	35503.68	100.00
PFTeDA_2	713.0 / 169.0	4.43	13C2-PFOA	415.0 / 370.0	35503.68	100.00
NMeFOSAA_1	570.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	26826.23	400.00
NMeFOSAA_2	570.0 / 512.0	3.52	d3-MeFOSAA	573.0 / 419.0	26826.23	400.00
NEtFOSAA_1	584.0 / 419.0	3.69	d3-MeFOSAA	573.0 / 419.0	26826.23	400.00
NEtFOSAA_2	584.0 / 483.0	3.69	d3-MeFOSAA	573.0 / 419.0	26826.23	400.00
13C2-PFHxA	315.0 / 270.0	1.81	13C2-PFOA	415.0 / 370.0	35503.68	100.00
13C2-PFDA	515.0 / 470.0	3.36	13C2-PFOA	415.0 / 370.0	35503.68	100.00
d5-EtFOSAA	589.0 / 419.0	3.68	d3-MeFOSAA	573.0 / 419.0	26826.23	400.00

Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T17:48:19	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	156484.80	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	156484.80	287.00
PFHxA_1	313.0 / 269.0	1.82	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFHpA_1	363.0 / 319.0	2.22	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFHpA_2	363.0 / 169.0	2.22	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFHxS_1	399.0 / 80.0	2.25	13C4-PFOS	503.0 / 80.0	156484.80	287.00
PFHxS_2	399.0 / 99.0	2.24	13C4-PFOS	503.0 / 80.0	156484.80	287.00
PFOA_1	413.0 / 369.0	2.63	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFOA_2	413.0 / 169.0	2.63	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFNA_1	463.0 / 419.0	3.02	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFNA_2	463.0 / 219.0	3.02	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFOS_1	499.0 / 80.0	3.02	13C4-PFOS	503.0 / 80.0	156484.80	287.00
PFOS_2	499.0 / 99.0	3.02	13C4-PFOS	503.0 / 80.0	156484.80	287.00
PFDA_1	513.0 / 469.0	3.38	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFDA_2	513.0 / 219.0	3.38	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFUnA_1	563.0 / 519.0	3.70	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFUnA_2	563.0 / 269.0	3.70	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFDaA_1	613.0 / 569.0	3.97	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFDaA_2	613.0 / 319.0	3.97	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFTTrDA_1	663.0 / 619.0	4.22	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFTTrDA_2	663.0 / 169.0	4.22	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFTTeDA_1	713.0 / 669.0	4.43	13C2-PFOA	415.0 / 370.0	33721.12	100.00
PFTTeDA_2	713.0 / 169.0	4.43	13C2-PFOA	415.0 / 370.0	33721.12	100.00
NMeFOSAA_1	570.0 / 419.0	3.52	d3-MeFOSAA	573.0 / 419.0	25557.87	400.00
NMeFOSAA_2	570.0 / 512.0	3.52	d3-MeFOSAA	573.0 / 419.0	25557.87	400.00
NEtFOSAA_1	584.0 / 419.0	3.69	d3-MeFOSAA	573.0 / 419.0	25557.87	400.00
NEtFOSAA_2	584.0 / 483.0	3.69	d3-MeFOSAA	573.0 / 419.0	25557.87	400.00
13C2-PFHxA	315.0 / 270.0	1.81	13C2-PFOA	415.0 / 370.0	33721.12	100.00
13C2-PFDA	515.0 / 470.0	3.36	13C2-PFOA	415.0 / 370.0	33721.12	100.00
d5-EtFOSAA	589.0 / 419.0	3.67	d3-MeFOSAA	573.0 / 419.0	25557.87	400.00

Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T17:57:16	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	140809.20	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	140809.20	287.00
PFHxA_1	313.0 / 269.0	1.82	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFHxA_2	313.0 / 119.0	1.82	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFHpA_1	363.0 / 319.0	2.23	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFHpA_2	363.0 / 169.0	2.23	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFHxS_1	399.0 / 80.0	2.25	13C4-PFOS	503.0 / 80.0	140809.20	287.00
PFHxS_2	399.0 / 99.0	2.25	13C4-PFOS	503.0 / 80.0	140809.20	287.00
PFOA_1	413.0 / 369.0	2.63	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFOA_2	413.0 / 169.0	2.63	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFNA_1	463.0 / 419.0	3.02	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFNA_2	463.0 / 219.0	3.02	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFOS_1	499.0 / 80.0	3.02	13C4-PFOS	503.0 / 80.0	140809.20	287.00
PFOS_2	499.0 / 99.0	3.02	13C4-PFOS	503.0 / 80.0	140809.20	287.00
PFDA_1	513.0 / 469.0	3.38	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFDA_2	513.0 / 219.0	3.38	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFUnA_1	563.0 / 519.0	3.70	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFUnA_2	563.0 / 269.0	3.70	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFDaA_1	613.0 / 569.0	3.98	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFDaA_2	613.0 / 319.0	3.97	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFTTrDA_1	663.0 / 619.0	4.22	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFTTrDA_2	663.0 / 169.0	4.22	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFTTeDA_1	713.0 / 669.0	4.43	13C2-PFOA	415.0 / 370.0	30532.56	100.00
PFTTeDA_2	713.0 / 169.0	4.43	13C2-PFOA	415.0 / 370.0	30532.56	100.00
NMeFOSAA_1	570.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	23430.15	400.00
NMeFOSAA_2	570.0 / 512.0	3.52	d3-MeFOSAA	573.0 / 419.0	23430.15	400.00
NEtFOSAA_1	584.0 / 419.0	3.69	d3-MeFOSAA	573.0 / 419.0	23430.15	400.00
NEtFOSAA_2	584.0 / 483.0	3.68	d3-MeFOSAA	573.0 / 419.0	23430.15	400.00
13C2-PFHxA	315.0 / 270.0	1.81	13C2-PFOA	415.0 / 370.0	30532.56	100.00
13C2-PFDA	515.0 / 470.0	3.36	13C2-PFOA	415.0 / 370.0	30532.56	100.00
d5-EtFOSAA	589.0 / 419.0	3.67	d3-MeFOSAA	573.0 / 419.0	23430.15	400.00

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T18:06:15	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	156293.84	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	156293.84	287.00
PFHxA_1	313.0 / 269.0	1.82	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFHxA_2	313.0 / 119.0	1.82	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFHpA_1	363.0 / 319.0	2.22	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFHpA_2	363.0 / 169.0	2.22	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFHxS_1	399.0 / 80.0	2.24	13C4-PFOS	503.0 / 80.0	156293.84	287.00
PFHxS_2	399.0 / 99.0	2.24	13C4-PFOS	503.0 / 80.0	156293.84	287.00
PFOA_1	413.0 / 369.0	2.62	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFOA_2	413.0 / 169.0	2.62	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFNA_1	463.0 / 419.0	3.01	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFNA_2	463.0 / 219.0	3.01	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFOS_1	499.0 / 80.0	3.01	13C4-PFOS	503.0 / 80.0	156293.84	287.00
PFOS_2	499.0 / 99.0	3.01	13C4-PFOS	503.0 / 80.0	156293.84	287.00
PFDA_1	513.0 / 469.0	3.36	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFDA_2	513.0 / 219.0	3.36	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFUnA_1	563.0 / 519.0	3.69	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFUnA_2	563.0 / 269.0	3.69	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFDaA_1	613.0 / 569.0	3.96	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFDaA_2	613.0 / 319.0	3.96	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFTTrDA_1	663.0 / 619.0	4.21	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFTTrDA_2	663.0 / 169.0	4.20	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFTeDA_1	713.0 / 669.0	4.42	13C2-PFOA	415.0 / 370.0	35644.41	100.00
PFTeDA_2	713.0 / 169.0	4.41	13C2-PFOA	415.0 / 370.0	35644.41	100.00
NMeFOSAA_1	570.0 / 419.0	3.51	d3-MeFOSAA	573.0 / 419.0	25735.83	400.00
NMeFOSAA_2	570.0 / 512.0	3.51	d3-MeFOSAA	573.0 / 419.0	25735.83	400.00
NEtFOSAA_1	584.0 / 419.0	3.67	d3-MeFOSAA	573.0 / 419.0	25735.83	400.00
NEtFOSAA_2	584.0 / 483.0	3.67	d3-MeFOSAA	573.0 / 419.0	25735.83	400.00
13C2-PFHxA	315.0 / 270.0	1.81	13C2-PFOA	415.0 / 370.0	35644.41	100.00
13C2-PFDA	515.0 / 470.0	3.35	13C2-PFOA	415.0 / 370.0	35644.41	100.00
d5-EtFOSAA	589.0 / 419.0	3.66	d3-MeFOSAA	573.0 / 419.0	25735.83	400.00



Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T18:15:11	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	141374.13	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	141374.13	287.00
PFHxA_1	313.0 / 269.0	1.82	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFHxA_2	313.0 / 119.0	1.82	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFHpA_1	363.0 / 319.0	2.23	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFHpA_2	363.0 / 169.0	2.22	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFHxS_1	399.0 / 80.0	2.25	13C4-PFOS	503.0 / 80.0	141374.13	287.00
PFHxS_2	399.0 / 99.0	2.24	13C4-PFOS	503.0 / 80.0	141374.13	287.00
PFOA_1	413.0 / 369.0	2.63	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFOA_2	413.0 / 169.0	2.63	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFNA_1	463.0 / 419.0	3.02	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFNA_2	463.0 / 219.0	3.02	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFOS_1	499.0 / 80.0	3.02	13C4-PFOS	503.0 / 80.0	141374.13	287.00
PFOS_2	499.0 / 99.0	3.02	13C4-PFOS	503.0 / 80.0	141374.13	287.00
PFDA_1	513.0 / 469.0	3.37	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFDA_2	513.0 / 219.0	3.37	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFUnA_1	563.0 / 519.0	3.69	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFUnA_2	563.0 / 269.0	3.69	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFDaA_1	613.0 / 569.0	3.97	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFDaA_2	613.0 / 319.0	3.97	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFTTrDA_1	663.0 / 619.0	4.21	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFTTrDA_2	663.0 / 169.0	4.21	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFTeDA_1	713.0 / 669.0	4.42	13C2-PFOA	415.0 / 370.0	32263.14	100.00
PFTeDA_2	713.0 / 169.0	4.42	13C2-PFOA	415.0 / 370.0	32263.14	100.00
NMeFOSAA_1	570.0 / 419.0	3.52	d3-MeFOSAA	573.0 / 419.0	23055.59	400.00
NMeFOSAA_2	570.0 / 512.0	3.52	d3-MeFOSAA	573.0 / 419.0	23055.59	400.00
NEtFOSAA_1	584.0 / 419.0	3.68	d3-MeFOSAA	573.0 / 419.0	23055.59	400.00
NEtFOSAA_2	584.0 / 483.0	3.68	d3-MeFOSAA	573.0 / 419.0	23055.59	400.00
13C2-PFHxA	315.0 / 270.0	1.81	13C2-PFOA	415.0 / 370.0	32263.14	100.00
13C2-PFDA	515.0 / 470.0	3.36	13C2-PFOA	415.0 / 370.0	32263.14	100.00
d5-EtFOSAA	589.0 / 419.0	3.67	d3-MeFOSAA	573.0 / 419.0	23055.59	400.00

Sample Name	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T18:24:08	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	141700.03	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	141700.03	287.00
PFHxA_1	313.0 / 269.0	1.82	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFHxA_2	313.0 / 119.0	1.82	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFHpA_1	363.0 / 319.0	2.23	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFHpA_2	363.0 / 169.0	2.22	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFHxS_1	399.0 / 80.0	2.25	13C4-PFOS	503.0 / 80.0	141700.03	287.00
PFHxS_2	399.0 / 99.0	2.25	13C4-PFOS	503.0 / 80.0	141700.03	287.00
PFOA_1	413.0 / 369.0	2.63	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFOA_2	413.0 / 169.0	2.63	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFNA_1	463.0 / 419.0	3.02	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFNA_2	463.0 / 219.0	3.02	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFOS_1	499.0 / 80.0	3.02	13C4-PFOS	503.0 / 80.0	141700.03	287.00
PFOS_2	499.0 / 99.0	3.02	13C4-PFOS	503.0 / 80.0	141700.03	287.00
PFDA_1	513.0 / 469.0	3.37	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFDA_2	513.0 / 219.0	3.37	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFUnA_1	563.0 / 519.0	3.69	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFUnA_2	563.0 / 269.0	3.69	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFDaA_1	613.0 / 569.0	3.97	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFDaA_2	613.0 / 319.0	3.97	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFTTrDA_1	663.0 / 619.0	4.21	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFTTrDA_2	663.0 / 169.0	4.21	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFTTeDA_1	713.0 / 669.0	4.42	13C2-PFOA	415.0 / 370.0	35054.19	100.00
PFTTeDA_2	713.0 / 169.0	4.42	13C2-PFOA	415.0 / 370.0	35054.19	100.00
NMeFOSAA_1	570.0 / 419.0	3.52	d3-MeFOSAA	573.0 / 419.0	24614.26	400.00
NMeFOSAA_2	570.0 / 512.0	3.52	d3-MeFOSAA	573.0 / 419.0	24614.26	400.00
NEtFOSAA_1	584.0 / 419.0	3.68	d3-MeFOSAA	573.0 / 419.0	24614.26	400.00
NEtFOSAA_2	584.0 / 483.0	3.68	d3-MeFOSAA	573.0 / 419.0	24614.26	400.00
13C2-PFHxA	315.0 / 270.0	1.81	13C2-PFOA	415.0 / 370.0	35054.19	100.00
13C2-PFDA	515.0 / 470.0	3.36	13C2-PFOA	415.0 / 370.0	35054.19	100.00
d5-EtFOSAA	589.0 / 419.0	3.67	d3-MeFOSAA	573.0 / 419.0	24614.26	400.00

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T18:42:04	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	841.199900	885.00	95.05
PFBS_2	298.9 / 99.0	1.50	815.447042	885.00	92.14
PFHxA_1	313.0 / 269.0	1.81	1050.206144	1000.00	105.02
PFHxA_2	313.0 / 119.0	1.81	1077.965366	1000.00	107.80
PFHpA_1	363.0 / 319.0	2.22	1050.141237	1000.00	105.01
PFHpA_2	363.0 / 169.0	2.22	930.003377	1000.00	93.00
PFHxS_1	399.0 / 80.0	2.24	897.518493	912.00	98.41
PFHxS_2	399.0 / 99.0	2.24	869.466177	912.00	95.34
PFOA_1	413.0 / 369.0	2.62	1023.910460	1000.00	102.39
PFOA_2	413.0 / 169.0	2.62	1008.951589	1000.00	100.90
PFNA_1	463.0 / 419.0	3.02	1017.242171	1000.00	101.72
PFNA_2	463.0 / 219.0	3.01	1008.515599	1000.00	100.85
PFOS_1	499.0 / 80.0	3.01	854.884035	925.60	92.36
PFOS_2	499.0 / 99.0	3.01	1032.227238	925.60	111.52
PFDA_1	513.0 / 469.0	3.37	1055.542149	1000.00	105.55
PFDA_2	513.0 / 219.0	3.37	1000.451194	1000.00	100.05
PFUnA_1	563.0 / 519.0	3.69	963.287969	1000.00	96.33
PFUnA_2	563.0 / 269.0	3.69	931.203582	1000.00	93.12
PFDoA_1	613.0 / 569.0	3.97	1036.656434	1000.00	103.67
PFDoA_2	613.0 / 319.0	3.96	1072.810968	1000.00	107.28
PFTTrDA_1	663.0 / 619.0	4.21	968.105041	1000.00	96.81
PFTTrDA_2	663.0 / 169.0	4.21	998.940468	1000.00	99.89
PFTeDA_1	713.0 / 669.0	4.42	1024.995028	1000.00	102.50
PFTeDA_2	713.0 / 169.0	4.41	969.495337	1000.00	96.95
NMeFOSAA_1	570.0 / 419.0	3.52	1131.489263	1000.00	113.15
NMeFOSAA_2	570.0 / 512.0	3.51	1040.295312	1000.00	104.03
NEtFOSAA_1	584.0 / 419.0	3.68	1157.818269	1000.00	115.78
NEtFOSAA_2	584.0 / 483.0	3.67	1021.439156	1000.00	102.14
13C2-PFHxA	315.0 / 270.0	1.80	104.577355	100.00	104.58
13C2-PFDA	515.0 / 470.0	3.36	99.363797	100.00	99.36
d5-EtFOSAA	589.0 / 419.0	3.66	454.104097	400.00	113.53

Sample Name	JZ82 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T20:02:34	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	480.715945	443.00	108.51
PFBS_2	298.9 / 99.0	1.51	471.699280	443.00	106.48
PFHxA_1	313.0 / 269.0	1.81	600.479475	500.00	120.10
PFHxA_2	313.0 / 119.0	1.81	572.913640	500.00	114.58
PFHpA_1	363.0 / 319.0	2.22	593.460099	500.00	118.69
PFHpA_2	363.0 / 169.0	2.22	489.913016	500.00	97.98
PFHxS_1	399.0 / 80.0	2.24	499.848142	456.00	109.62
PFHxS_2	399.0 / 99.0	2.24	468.056553	456.00	102.64
PFOA_1	413.0 / 369.0	2.62	560.341203	500.00	112.07
PFOA_2	413.0 / 169.0	2.62	542.285098	500.00	108.46
PFNA_1	463.0 / 419.0	3.01	544.367348	500.00	108.87
PFNA_2	463.0 / 219.0	3.01	545.382064	500.00	109.08
PFOS_1	499.0 / 80.0	3.01	507.229335	463.00	109.55
PFOS_2	499.0 / 99.0	3.01	513.236301	463.00	110.85
PFDA_1	513.0 / 469.0	3.36	604.788776	500.00	120.96
PFDA_2	513.0 / 219.0	3.36	522.768432	500.00	104.55
PFUnA_1	563.0 / 519.0	3.68	537.871928	500.00	107.57
PFUnA_2	563.0 / 269.0	3.68	486.542909	500.00	97.31
PFDoA_1	613.0 / 569.0	3.95	567.744188	500.00	113.55
PFDoA_2	613.0 / 319.0	3.95	577.152111	500.00	115.43
PFTrDA_1	663.0 / 619.0	4.19	515.169290	500.00	103.03
PFTrDA_2	663.0 / 169.0	4.19	590.141782	500.00	118.03
PFTeDA_1	713.0 / 669.0	4.40	570.783859	500.00	114.16
PFTeDA_2	713.0 / 169.0	4.40	532.702041	500.00	106.54
NMeFOSAA_1	570.0 / 419.0	3.51	506.135809	500.00	101.23
NMeFOSAA_2	570.0 / 512.0	3.51	562.842199	500.00	112.57
NEtFOSAA_1	584.0 / 419.0	3.67	558.694513	500.00	111.74
NEtFOSAA_2	584.0 / 483.0	3.67	613.033664	500.00	122.61
13C2-PFHxA	315.0 / 270.0	1.80	102.477136	100.00	102.48
13C2-PFDA	515.0 / 470.0	3.35	102.256058	100.00	102.26
d5-EtFOSAA	589.0 / 419.0	3.66	400.190137	400.00	100.05

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T18:42:04	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	280420.61	841.199900	941.2	false
PFBS_2	298.9 / 99.0	1.50	81482.09	815.447042	556.4	false
PFHxA_1	313.0 / 269.0	1.81	291863.69	1050.206144	60.6	true
PFHxA_2	313.0 / 119.0	1.81	22841.16	1077.965366	48.5	true
PFHpA_1	363.0 / 319.0	2.22	276309.89	1050.141237	104.7	true
PFHpA_2	363.0 / 169.0	2.22	5619.16	930.003377	87.9	true
PFHxS_1	399.0 / 80.0	2.24	313331.75	897.518493	328.7	false
PFHxS_2	399.0 / 99.0	2.24	88079.70	869.466177	445.8	false
PFOA_1	413.0 / 369.0	2.62	294445.90	1023.910460	198.0	false
PFOA_2	413.0 / 169.0	2.62	20629.03	1008.951589	157.4	false
PFNA_1	463.0 / 419.0	3.02	271416.72	1017.242171	299.2	false
PFNA_2	463.0 / 219.0	3.01	82989.35	1008.515599	315.8	false
PFOS_1	499.0 / 80.0	3.01	431490.48	854.884035	428.1	false
PFOS_2	499.0 / 99.0	3.01	96391.70	1032.227238	552.5	false
PFDA_1	513.0 / 469.0	3.37	335499.89	1055.542149	412.4	false
PFDA_2	513.0 / 219.0	3.37	15887.66	1000.451194	230.5	false
PFUnA_1	563.0 / 519.0	3.69	322602.23	963.287969	345.8	false
PFUnA_2	563.0 / 269.0	3.69	16479.47	931.203582	150.0	false
PFDaA_1	613.0 / 569.0	3.97	370404.80	1036.656434	268.2	false
PFDaA_2	613.0 / 319.0	3.96	61731.42	1072.810968	237.7	false
PFTrDA_1	663.0 / 619.0	4.21	350229.06	968.105041	487.6	false
PFTrDA_2	663.0 / 169.0	4.21	22574.96	998.940468	332.9	false
PFTeDA_1	713.0 / 669.0	4.42	359863.53	1024.995028	722.0	false
PFTeDA_2	713.0 / 169.0	4.41	17879.80	969.495337	498.6	false
NMeFOSAA_1	570.0 / 419.0	3.52	60100.07	1131.489263	531.1	false
NMeFOSAA_2	570.0 / 512.0	3.51	32646.58	1040.295312	532.6	false
NEtFOSAA_1	584.0 / 419.0	3.68	60682.86	1157.818269	572.4	false
NEtFOSAA_2	584.0 / 483.0	3.67	3845.47	1021.439156	120.0	true
13C2-PFHxA	315.0 / 270.0	1.80	33826.49	104.577355	979.4	false
13C2-PFDA	515.0 / 470.0	3.36	37245.85	99.363797	1474.7	false
d5-EtFOSAA	589.0 / 419.0	3.66	30540.60	454.104097	257.2	false

Sample Name	JZ82 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T20:02:34	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	182189.33	480.715945	868.7	false
PFBS_2	298.9 / 99.0	1.51	53701.07	471.699280	370.4	false
PFHxA_1	313.0 / 269.0	1.81	193897.35	600.479475	50.9	true
PFHxA_2	313.0 / 119.0	1.81	14357.65	572.913640	39.0	true
PFHpA_1	363.0 / 319.0	2.22	181662.57	593.460099	92.4	true
PFHpA_2	363.0 / 169.0	2.22	3658.63	489.913016	63.0	true
PFHxS_1	399.0 / 80.0	2.24	201767.28	499.848142	257.4	false
PFHxS_2	399.0 / 99.0	2.24	54582.92	468.056553	284.9	false
PFOA_1	413.0 / 369.0	2.62	189713.65	560.341203	140.1	false
PFOA_2	413.0 / 169.0	2.62	13118.76	542.285098	124.0	false
PFNA_1	463.0 / 419.0	3.01	178500.69	544.367348	229.1	false
PFNA_2	463.0 / 219.0	3.01	55091.23	545.382064	282.2	false
PFOS_1	499.0 / 80.0	3.01	291189.20	507.229335	129.0	false
PFOS_2	499.0 / 99.0	3.01	55444.78	513.236301	267.3	true
PFDA_1	513.0 / 469.0	3.36	222385.73	604.788776	269.5	false
PFDA_2	513.0 / 219.0	3.36	10772.84	522.768432	169.8	false
PFUnA_1	563.0 / 519.0	3.68	219402.79	537.871928	351.3	false
PFUnA_2	563.0 / 269.0	3.68	11308.77	486.542909	110.4	true
PFDaA_1	613.0 / 569.0	3.95	236769.07	567.744188	232.1	false
PFDaA_2	613.0 / 319.0	3.95	38737.72	577.152111	258.5	false
PFTrDA_1	663.0 / 619.0	4.19	227956.94	515.169290	334.4	false
PFTrDA_2	663.0 / 169.0	4.19	15420.41	590.141782	276.2	false
PFTeDA_1	713.0 / 669.0	4.40	233013.62	570.783859	617.1	false
PFTeDA_2	713.0 / 169.0	4.40	12091.42	532.702041	448.2	false
NMeFOSAA_1	570.0 / 419.0	3.51	34258.39	506.135809	959.9	false
NMeFOSAA_2	570.0 / 512.0	3.51	21589.82	562.842199	374.0	false
NEtFOSAA_1	584.0 / 419.0	3.67	35722.15	558.694513	409.0	false
NEtFOSAA_2	584.0 / 483.0	3.67	2848.93	613.033664	69.5	false
13C2-PFHxA	315.0 / 270.0	1.80	37375.52	102.477136	751.9	false
13C2-PFDA	515.0 / 470.0	3.35	43219.50	102.256058	963.7	false
d5-EtFOSAA	589.0 / 419.0	3.66	31541.24	400.190137	289.9	false

<b>Sample Name</b>	JZ77 ICC	<b>Injection Vial</b>	12
<b>Sample ID</b>	ICC	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Quality Control	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:42:04	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## 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	0.291	0.301	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.078	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.020	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.281	0.287	ü
PFOA_1	413.0 / 369.0	2.62	PFOA			
PFOA_2	413.0 / 169.0	2.62	PFOA	0.070	0.071	ü
PFNA_1	463.0 / 419.0	3.02	PFNA			
PFNA_2	463.0 / 219.0	3.01	PFNA	0.306	0.308	ü
PFOS_1	499.0 / 80.0	3.01	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.223	0.190	ü
PFDA_1	513.0 / 469.0	3.37	PFDA			
PFDA_2	513.0 / 219.0	3.37	PFDA	0.047	0.049	ü
PFUnA_1	563.0 / 519.0	3.69	PFUnA			
PFUnA_2	563.0 / 269.0	3.69	PFUnA	0.051	0.053	ü
PFDaA_1	613.0 / 569.0	3.97	PFDaA			
PFDaA_2	613.0 / 319.0	3.96	PFDaA	0.167	0.161	ü
PFTrDA_1	663.0 / 619.0	4.21	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.21	PFTrDA	0.065	0.064	ü
PFTeDA_1	713.0 / 669.0	4.42	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.41	PFTeDA	0.050	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.52	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.51	NMeFOSAA	0.543	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.68	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.67	NEtFOSAA	0.063	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.36		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	JZ82 CCV	<b>Injection Vial</b>	6
<b>Sample ID</b>	CCV	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Quality Control	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T20:02:34	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## 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	0.295	0.301	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.074	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.020	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.271	0.287	ü
PFOA_1	413.0 / 369.0	2.62	PFOA			
PFOA_2	413.0 / 169.0	2.62	PFOA	0.069	0.071	ü
PFNA_1	463.0 / 419.0	3.01	PFNA			
PFNA_2	463.0 / 219.0	3.01	PFNA	0.309	0.308	ü
PFOS_1	499.0 / 80.0	3.01	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.190	0.190	ü
PFDA_1	513.0 / 469.0	3.36	PFDA			
PFDA_2	513.0 / 219.0	3.36	PFDA	0.048	0.049	ü
PFUnA_1	563.0 / 519.0	3.68	PFUnA			
PFUnA_2	563.0 / 269.0	3.68	PFUnA	0.052	0.053	ü
PFDaA_1	613.0 / 569.0	3.95	PFDaA			
PFDaA_2	613.0 / 319.0	3.95	PFDaA	0.164	0.161	ü
PFTrDA_1	663.0 / 619.0	4.19	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.19	PFTrDA	0.068	0.064	ü
PFTeDA_1	713.0 / 669.0	4.40	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.40	PFTeDA	0.052	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.51	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.51	NMeFOSAA	0.630	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.67	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.67	NEtFOSAA	0.080	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü



Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T18:42:04	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	147206.20	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	147206.20	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFHpA_1	363.0 / 319.0	2.22	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFHpA_2	363.0 / 169.0	2.22	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFHxS_1	399.0 / 80.0	2.24	13C4-PFOS	503.0 / 80.0	147206.20	287.00
PFHxS_2	399.0 / 99.0	2.24	13C4-PFOS	503.0 / 80.0	147206.20	287.00
PFOA_1	413.0 / 369.0	2.62	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFOA_2	413.0 / 169.0	2.62	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFNA_1	463.0 / 419.0	3.02	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFNA_2	463.0 / 219.0	3.01	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFOS_1	499.0 / 80.0	3.01	13C4-PFOS	503.0 / 80.0	147206.20	287.00
PFOS_2	499.0 / 99.0	3.01	13C4-PFOS	503.0 / 80.0	147206.20	287.00
PFDA_1	513.0 / 469.0	3.37	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFDA_2	513.0 / 219.0	3.37	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFUnA_1	563.0 / 519.0	3.69	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFUnA_2	563.0 / 269.0	3.69	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFDaA_1	613.0 / 569.0	3.97	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFDaA_2	613.0 / 319.0	3.96	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFTrDA_1	663.0 / 619.0	4.21	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFTrDA_2	663.0 / 169.0	4.21	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFTeDA_1	713.0 / 669.0	4.42	13C2-PFOA	415.0 / 370.0	32319.84	100.00
PFTeDA_2	713.0 / 169.0	4.41	13C2-PFOA	415.0 / 370.0	32319.84	100.00
NMeFOSAA_1	570.0 / 419.0	3.52	d3-MeFOSAA	573.0 / 419.0	24529.83	400.00
NMeFOSAA_2	570.0 / 512.0	3.51	d3-MeFOSAA	573.0 / 419.0	24529.83	400.00
NEtFOSAA_1	584.0 / 419.0	3.68	d3-MeFOSAA	573.0 / 419.0	24529.83	400.00
NEtFOSAA_2	584.0 / 483.0	3.67	d3-MeFOSAA	573.0 / 419.0	24529.83	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	32319.84	100.00
13C2-PFDA	515.0 / 470.0	3.36	13C2-PFOA	415.0 / 370.0	32319.84	100.00
d5-EtFOSAA	589.0 / 419.0	3.66	d3-MeFOSAA	573.0 / 419.0	24529.83	400.00

Sample Name	JZ82 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T20:02:34	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	166467.60	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	166467.60	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFHpA_1	363.0 / 319.0	2.22	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFHpA_2	363.0 / 169.0	2.22	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFHxS_1	399.0 / 80.0	2.24	13C4-PFOS	503.0 / 80.0	166467.60	287.00
PFHxS_2	399.0 / 99.0	2.24	13C4-PFOS	503.0 / 80.0	166467.60	287.00
PFOA_1	413.0 / 369.0	2.62	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFOA_2	413.0 / 169.0	2.62	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFNA_1	463.0 / 419.0	3.01	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFNA_2	463.0 / 219.0	3.01	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFOS_1	499.0 / 80.0	3.01	13C4-PFOS	503.0 / 80.0	166467.60	287.00
PFOS_2	499.0 / 99.0	3.01	13C4-PFOS	503.0 / 80.0	166467.60	287.00
PFDA_1	513.0 / 469.0	3.36	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFDA_2	513.0 / 219.0	3.36	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFUnA_1	563.0 / 519.0	3.68	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFUnA_2	563.0 / 269.0	3.68	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFDaA_1	613.0 / 569.0	3.95	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFDaA_2	613.0 / 319.0	3.95	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFTTrDA_1	663.0 / 619.0	4.19	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFTTrDA_2	663.0 / 169.0	4.19	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFTeDA_1	713.0 / 669.0	4.40	13C2-PFOA	415.0 / 370.0	36442.68	100.00
PFTeDA_2	713.0 / 169.0	4.40	13C2-PFOA	415.0 / 370.0	36442.68	100.00
NMeFOSAA_1	570.0 / 419.0	3.51	d3-MeFOSAA	573.0 / 419.0	28746.48	400.00
NMeFOSAA_2	570.0 / 512.0	3.51	d3-MeFOSAA	573.0 / 419.0	28746.48	400.00
NEtFOSAA_1	584.0 / 419.0	3.67	d3-MeFOSAA	573.0 / 419.0	28746.48	400.00
NEtFOSAA_2	584.0 / 483.0	3.67	d3-MeFOSAA	573.0 / 419.0	28746.48	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	36442.68	100.00
13C2-PFDA	515.0 / 470.0	3.35	13C2-PFOA	415.0 / 370.0	36442.68	100.00
d5-EtFOSAA	589.0 / 419.0	3.66	d3-MeFOSAA	573.0 / 419.0	28746.48	400.00

# Raw Analytical Data

Sample Name	KA08 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T18:33:06	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	true
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	true
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	true
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	true
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.81	31797.18	95.749393	916.5	false
13C2-PFDA	515.0 / 470.0	3.36	36202.77	94.071642	712.7	false
d5-EtFOSAA	589.0 / 419.0	3.67	26776.76	393.691792	240.7	false

Sample Name	CR676PB-FS(0)	Injection Vial	13
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T18:59:59	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
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	3.01	15049.91	21.645476	24.0	true
PFOS_2	499.0 / 99.0	3.01	2548.39	2.829398	26.7	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.80	36875.63	102.639616	815.1	false
13C2-PFDA	515.0 / 470.0	3.35	40291.31	96.773533	1026.4	false
d5-EtFOSAA	589.0 / 419.0	3.66	31677.57	411.850912	245.6	false

Sample Name	CR677LCS-FS(0)	Injection Vial	14
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:08:57	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	1612422.22	5081.214389	2034.5	false
PFBS_2	298.9 / 99.0	1.50	478618.37	5045.365819	935.9	false
PFHxA_1	313.0 / 269.0	1.81	1631374.45	6012.543520	216.3	false
PFHxA_2	313.0 / 119.0	1.81	125576.36	6147.838214	166.7	false
PFHpA_1	363.0 / 319.0	2.22	1566532.26	6102.148125	400.4	false
PFHpA_2	363.0 / 169.0	2.22	32863.39	5918.005732	263.9	false
PFHxS_1	399.0 / 80.0	2.24	1774673.87	5436.526857	794.6	false
PFHxS_2	399.0 / 99.0	2.24	505025.39	5298.635503	1035.3	false
PFOA_1	413.0 / 369.0	2.62	1616671.00	5820.977552	714.2	false
PFOA_2	413.0 / 169.0	2.62	112682.40	5725.935111	426.8	false
PFNA_1	463.0 / 419.0	3.01	1477215.61	5995.833344	753.5	false
PFNA_2	463.0 / 219.0	3.01	450567.99	5934.526627	852.9	false
PFOS_1	499.0 / 80.0	3.01	2324845.35	4843.508265	620.1	false
PFOS_2	499.0 / 99.0	3.01	501335.48	5712.635726	675.3	false
PFDA_1	513.0 / 469.0	3.36	1856157.08	5951.520280	788.1	false
PFDA_2	513.0 / 219.0	3.36	84870.56	6138.480533	494.5	false
PFUnA_1	563.0 / 519.0	3.69	1733887.52	5594.762306	818.5	false
PFUnA_2	563.0 / 269.0	3.68	88667.43	5845.948255	302.5	false
PFDoA_1	613.0 / 569.0	3.96	1964679.38	5638.648988	493.9	false
PFDoA_2	613.0 / 319.0	3.96	316937.97	5635.431462	443.4	false
PFTTrDA_1	663.0 / 619.0	4.20	1870298.29	5560.314747	742.0	false
PFTTrDA_2	663.0 / 169.0	4.20	119723.15	5406.047119	538.5	false
PFTeDA_1	713.0 / 669.0	4.41	1917304.68	5584.728126	1311.5	false
PFTeDA_2	713.0 / 169.0	4.41	96415.53	5703.513460	863.3	false
NMeFOSAA_1	570.0 / 419.0	3.51	301158.17	6125.734588	1648.8	false
NMeFOSAA_2	570.0 / 512.0	3.51	170168.28	5759.991598	1197.4	false
NEtFOSAA_1	584.0 / 419.0	3.67	304952.06	6113.209533	1130.7	false
NEtFOSAA_2	584.0 / 483.0	3.67	19629.21	5681.480852	524.0	false
13C2-PFHxA	315.0 / 270.0	1.81	35166.09	107.619638	673.1	false
13C2-PFDA	515.0 / 470.0	3.35	42239.61	111.546725	1032.6	false
d5-EtFOSAA	589.0 / 419.0	3.66	28699.09	434.449741	206.8	false

Sample Name	J7430-FS1(0)	Injection Vial	15
Sample ID	JAX-RES-08142018-1130-9	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:17:53	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
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	3.01	8107.02	9.114587	21.0	false
PFOS_2	499.0 / 99.0	3.01	1473.64	< 0	12.9	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.80	41100.14	121.466626	542.5	false
13C2-PFDA	515.0 / 470.0	3.35	35126.10	89.580426	847.9	false
d5-EtFOSAA	589.0 / 419.0	3.66	23849.78	353.227990	223.5	false

Sample Name	J7445-FS1(0)	Injection Vial	16
Sample ID	JAX-RES-08152018-0930-18	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:26:50	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
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	3.01	6936.63	6.526124	21.2	false
PFOS_2	499.0 / 99.0	3.00	1437.05	< 0	20.3	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.80	43230.08	117.149239	480.9	false
13C2-PFDA	515.0 / 470.0	3.35	39808.45	93.089000	758.9	false
d5-EtFOSAA	589.0 / 419.0	3.66	26190.70	393.298272	210.1	false



Sample Name	J7447-FS1(0)	Injection Vial	17
Sample ID	JAX-RES-08152018-1015-34	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:35:46	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	861882.75	2682.263904	421.1	false
PFBS_2	298.9 / 99.0	1.51	218180.50	2269.103296	484.0	false
PFHxA_1	313.0 / 269.0	1.81	509834.87	1621.854838	52.9	true
PFHxA_2	313.0 / 119.0	1.81	36731.14	1535.981825	57.6	true
PFHpA_1	363.0 / 319.0	2.22	310765.91	1028.308318	49.1	true
PFHpA_2	363.0 / 169.0	2.21	8413.42	1247.374894	82.5	false
PFHxS_1	399.0 / 80.0	2.24	1594582.61	4826.300239	300.2	false
PFHxS_2	399.0 / 99.0	2.24	464268.62	4813.861639	506.1	false
PFOA_1	413.0 / 369.0	2.62	960450.83	3016.729146	204.5	false
PFOA_2	413.0 / 169.0	2.58	100078.09	4463.352910	139.7	true
PFNA_1	463.0 / 419.0	3.01	34376.13	7.775539	48.6	true
PFNA_2	463.0 / 219.0	3.01	10216.22	3.199793	60.2	true
PFOS_1	499.0 / 80.0	2.95	1994506.00	4106.870123	156.0	false
PFOS_2	499.0 / 99.0	3.01	273377.43	3068.547310	292.7	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.80	42863.92	115.476029	381.3	false
13C2-PFDA	515.0 / 470.0	3.35	36019.86	83.735877	716.6	false
d5-EtFOSAA	589.0 / 419.0	3.66	22519.18	353.894474	192.7	false

Sample Name	J7449-FS1(0)	Injection Vial	18
Sample ID	JAX-RES-08152018-1045-33	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:44:42	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	272406.45	813.676883	279.9	false
PFBS_2	298.9 / 99.0	1.51	71554.84	712.154997	262.5	false
PFHxA_1	313.0 / 269.0	1.81	259685.04	874.597992	42.6	true
PFHxA_2	313.0 / 119.0	1.81	19800.40	870.251451	45.2	true
PFHpA_1	363.0 / 319.0	2.22	164109.70	568.670731	43.3	true
PFHpA_2	363.0 / 169.0	2.21	4439.38	664.948684	48.4	true
PFHxS_1	399.0 / 80.0	2.24	796077.01	2311.054520	227.5	false
PFHxS_2	399.0 / 99.0	2.24	229573.22	2286.771811	329.8	false
PFOA_1	413.0 / 369.0	2.62	505981.30	1696.183315	166.1	false
PFOA_2	413.0 / 169.0	2.57	52153.90	2492.031226	99.8	true
PFNA_1	463.0 / 419.0	3.01	12798.45	< 0	27.4	true
PFNA_2	463.0 / 219.0	3.01	5060.96	< 0	34.5	true
PFOS_1	499.0 / 80.0	2.95	1059561.61	2101.312016	109.4	false
PFOS_2	499.0 / 99.0	3.01	122707.27	1315.184155	228.1	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.81	42538.40	124.096619	441.9	false
13C2-PFDA	515.0 / 470.0	3.35	39635.54	99.777629	795.4	false
d5-EtFOSAA	589.0 / 419.0	3.66	26877.65	381.493854	241.8	false

Sample Name	J7451-FS1(0)	Injection Vial	19
Sample ID	JAX-RES-08152018-1130-15	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:53:38	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	69507.51	223.586707	93.8	true
PFBS_2	298.9 / 99.0	1.50	13796.39	144.061279	98.8	true
PFHxA_1	313.0 / 269.0	1.81	73297.41	201.610909	16.7	true
PFHxA_2	313.0 / 119.0	1.81	6638.53	233.626363	17.9	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	2.24	112549.83	336.693189	105.6	false
PFHxS_2	399.0 / 99.0	2.24	32046.12	334.709548	124.7	false
PFOA_1	413.0 / 369.0	2.62	159001.82	465.173332	73.4	false
PFOA_2	413.0 / 169.0	2.60	14188.30	597.658267	64.3	true
PFNA_1	463.0 / 419.0	3.01	16984.70	< 0	32.1	true
PFNA_2	463.0 / 219.0	3.01	4552.42	< 0	40.4	true
PFOS_1	499.0 / 80.0	2.99	666212.00	1448.312686	116.6	false
PFOS_2	499.0 / 99.0	3.01	99535.07	1168.629346	216.4	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.80	41373.52	114.509101	457.9	false
13C2-PFDA	515.0 / 470.0	3.35	37936.44	90.603229	753.5	false
d5-EtFOSAA	589.0 / 419.0	3.66	23673.74	344.169988	220.3	false

<b>Sample Name</b>	KA08 IB	<b>Injection Vial</b>	11
<b>Sample ID</b>	Instrument Blank	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:33:06	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.301	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.078	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.025	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.287	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.071	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.308	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.190	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.049	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.161	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	0.051	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.626	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.36		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.67		N/A	N/A	ü

<b>Sample Name</b>	CR676PB-FS(0)	<b>Injection Vial</b>	13
<b>Sample ID</b>	Procedural Blank	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:59:59	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## 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	0.301	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.078	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.025	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.287	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.071	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.308	ü
PFOS_1	499.0 / 80.0	3.01	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.169	0.190	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.049	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.161	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	0.051	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.626	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	CR677LCS-FS(0)	<b>Injection Vial</b>	14
<b>Sample ID</b>	Laboratory Control Sample	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T19:08:57	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.297	0.301	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.077	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.021	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.285	0.287	ü
PFOA_1	413.0 / 369.0	2.62	PFOA			
PFOA_2	413.0 / 169.0	2.62	PFOA	0.070	0.071	ü
PFNA_1	463.0 / 419.0	3.01	PFNA			
PFNA_2	463.0 / 219.0	3.01	PFNA	0.305	0.308	ü
PFOS_1	499.0 / 80.0	3.01	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.216	0.190	ü
PFDA_1	513.0 / 469.0	3.36	PFDA			
PFDA_2	513.0 / 219.0	3.36	PFDA	0.046	0.049	ü
PFUnA_1	563.0 / 519.0	3.69	PFUnA			
PFUnA_2	563.0 / 269.0	3.68	PFUnA	0.051	0.053	ü
PFDaA_1	613.0 / 569.0	3.96	PFDaA			
PFDaA_2	613.0 / 319.0	3.96	PFDaA	0.161	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.20	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.20	PFTTrDA	0.064	0.064	ü
PFTeDA_1	713.0 / 669.0	4.41	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.41	PFTeDA	0.050	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.51	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.51	NMeFOSAA	0.565	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.67	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.67	NEtFOSAA	0.064	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	J7430-FS1(0)	<b>Injection Vial</b>	15
<b>Sample ID</b>	JAX-RES-08142018-1130-9	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T19:17:53	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.301	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.078	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.025	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.287	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.071	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.308	ü
PFOS_1	499.0 / 80.0	3.01	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.182	0.190	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.049	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.161	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	0.051	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.626	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	J7445-FS1(0)	<b>Injection Vial</b>	16
<b>Sample ID</b>	JAX-RES-08152018-0930-18	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T19:26:50	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.301	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.078	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.025	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.287	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.071	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.308	ü
PFOS_1	499.0 / 80.0	3.01	PFOS			
PFOS_2	499.0 / 99.0	3.00	PFOS	0.207	0.190	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.049	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.161	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	0.051	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.626	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü



<b>Sample Name</b>	J7447-FS1(0)	<b>Injection Vial</b>	17
<b>Sample ID</b>	JAX-RES-08152018-1015-34	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T19:35:46	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.253	0.301	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.072	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.21	PFHpA	0.027	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.291	0.287	ü
PFOA_1	413.0 / 369.0	2.62	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.104	0.071	ü
PFNA_1	463.0 / 419.0	3.01	PFNA			
PFNA_2	463.0 / 219.0	3.01	PFNA	0.297	0.308	ü
PFOS_1	499.0 / 80.0	2.95	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.137	0.190	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.049	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.161	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	0.051	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.626	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	J7449-FS1(0)	<b>Injection Vial</b>	18
<b>Sample ID</b>	JAX-RES-08152018-1045-33	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T19:44:42	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.263	0.301	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.076	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.21	PFHpA	0.027	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.288	0.287	ü
PFOA_1	413.0 / 369.0	2.62	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.103	0.071	ü
PFNA_1	463.0 / 419.0	3.01	PFNA			
PFNA_2	463.0 / 219.0	3.01	PFNA	0.395	0.308	ü
PFOS_1	499.0 / 80.0	2.95	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.116	0.190	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.049	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.161	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	0.051	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.626	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	J7451-FS1(0)	<b>Injection Vial</b>	19
<b>Sample ID</b>	JAX-RES-08152018-1130-15	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T19:53:38	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.199	0.301	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.091	0.078	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.285	0.287	ü
PFOA_1	413.0 / 369.0	2.62	PFOA			
PFOA_2	413.0 / 169.0	2.60	PFOA	0.089	0.071	ü
PFNA_1	463.0 / 419.0	3.01	PFNA			
PFNA_2	463.0 / 219.0	3.01	PFNA	0.268	0.308	ü
PFOS_1	499.0 / 80.0	2.99	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.149	0.190	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.049	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.161	ü
PFTTrDA_1	663.0 / 619.0	N/A	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	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	0.051	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.626	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

Sample Name	KA08 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T18:33:06	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
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	149777.87	287.00
PFBS_2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	149777.87	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	149777.87	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	149777.87	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	149777.87	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	149777.87	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33182.00	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	24806.99	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	24806.99	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	24806.99	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	24806.99	400.00
13C2-PFHxA	315.0 / 270.0	1.81	13C2-PFOA	415.0 / 370.0	33182.00	100.00
13C2-PFDA	515.0 / 470.0	3.36	13C2-PFOA	415.0 / 370.0	33182.00	100.00
d5-EtFOSAA	589.0 / 419.0	3.67	d3-MeFOSAA	573.0 / 419.0	24806.99	400.00

Sample Name	CR676PB-FS(0)	Injection Vial	13
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T18:59:59	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
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	153081.77	287.00
PFBS_2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	153081.77	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	153081.77	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	153081.77	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFOS_1	499.0 / 80.0	3.01	13C4-PFOS	503.0 / 80.0	153081.77	287.00
PFOS_2	499.0 / 99.0	3.01	13C4-PFOS	503.0 / 80.0	153081.77	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	35898.34	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	28053.31	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	28053.31	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	28053.31	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	28053.31	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	35898.34	100.00
13C2-PFDA	515.0 / 470.0	3.35	13C2-PFOA	415.0 / 370.0	35898.34	100.00
d5-EtFOSAA	589.0 / 419.0	3.66	d3-MeFOSAA	573.0 / 419.0	28053.31	400.00

Sample Name	CR677LCS-FS(0)	Injection Vial	14
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:08:57	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	140968.78	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	140968.78	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFHpA_1	363.0 / 319.0	2.22	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFHpA_2	363.0 / 169.0	2.22	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFHxS_1	399.0 / 80.0	2.24	13C4-PFOS	503.0 / 80.0	140968.78	287.00
PFHxS_2	399.0 / 99.0	2.24	13C4-PFOS	503.0 / 80.0	140968.78	287.00
PFOA_1	413.0 / 369.0	2.62	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFOA_2	413.0 / 169.0	2.62	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFNA_1	463.0 / 419.0	3.01	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFNA_2	463.0 / 219.0	3.01	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFOS_1	499.0 / 80.0	3.01	13C4-PFOS	503.0 / 80.0	140968.78	287.00
PFOS_2	499.0 / 99.0	3.01	13C4-PFOS	503.0 / 80.0	140968.78	287.00
PFDA_1	513.0 / 469.0	3.36	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFDA_2	513.0 / 219.0	3.36	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFUnA_1	563.0 / 519.0	3.69	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFUnA_2	563.0 / 269.0	3.68	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFDoA_1	613.0 / 569.0	3.96	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFDoA_2	613.0 / 319.0	3.96	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFTTrDA_1	663.0 / 619.0	4.20	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFTTrDA_2	663.0 / 169.0	4.20	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFTeDA_1	713.0 / 669.0	4.41	13C2-PFOA	415.0 / 370.0	32649.95	100.00
PFTeDA_2	713.0 / 169.0	4.41	13C2-PFOA	415.0 / 370.0	32649.95	100.00
NMeFOSAA_1	570.0 / 419.0	3.51	d3-MeFOSAA	573.0 / 419.0	24093.56	400.00
NMeFOSAA_2	570.0 / 512.0	3.51	d3-MeFOSAA	573.0 / 419.0	24093.56	400.00
NEtFOSAA_1	584.0 / 419.0	3.67	d3-MeFOSAA	573.0 / 419.0	24093.56	400.00
NEtFOSAA_2	584.0 / 483.0	3.67	d3-MeFOSAA	573.0 / 419.0	24093.56	400.00
13C2-PFHxA	315.0 / 270.0	1.81	13C2-PFOA	415.0 / 370.0	32649.95	100.00
13C2-PFDA	515.0 / 470.0	3.35	13C2-PFOA	415.0 / 370.0	32649.95	100.00
d5-EtFOSAA	589.0 / 419.0	3.66	d3-MeFOSAA	573.0 / 419.0	24093.56	400.00

Sample Name	J7430-FS1(0)	Injection Vial	15
Sample ID	JAX-RES-08142018-1130-9	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:17:53	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
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	145522.53	287.00
PFBS_2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	145522.53	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	145522.53	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	145522.53	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFOS_1	499.0 / 80.0	3.01	13C4-PFOS	503.0 / 80.0	145522.53	287.00
PFOS_2	499.0 / 99.0	3.01	13C4-PFOS	503.0 / 80.0	145522.53	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33809.31	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	24626.44	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	24626.44	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	24626.44	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	24626.44	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	33809.31	100.00
13C2-PFDA	515.0 / 470.0	3.35	13C2-PFOA	415.0 / 370.0	33809.31	100.00
d5-EtFOSAA	589.0 / 419.0	3.66	d3-MeFOSAA	573.0 / 419.0	24626.44	400.00

Sample Name	J7445-FS1(0)	Injection Vial	16
Sample ID	JAX-RES-08152018-0930-18	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:26:50	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
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	147873.11	287.00
PFBS_2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	147873.11	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	147873.11	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	147873.11	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFOS_1	499.0 / 80.0	3.01	13C4-PFOS	503.0 / 80.0	147873.11	287.00
PFOS_2	499.0 / 99.0	3.00	13C4-PFOS	503.0 / 80.0	147873.11	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	36871.98	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	24288.32	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	24288.32	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	24288.32	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	24288.32	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	36871.98	100.00
13C2-PFDA	515.0 / 470.0	3.35	13C2-PFOA	415.0 / 370.0	36871.98	100.00
d5-EtFOSAA	589.0 / 419.0	3.66	d3-MeFOSAA	573.0 / 419.0	24288.32	400.00



Sample Name	J7447-FS1(0)	Injection Vial	17
Sample ID	JAX-RES-08152018-1015-34	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:35:46	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	142592.45	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	142592.45	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFHpA_1	363.0 / 319.0	2.22	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFHpA_2	363.0 / 169.0	2.21	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFHxS_1	399.0 / 80.0	2.24	13C4-PFOS	503.0 / 80.0	142592.45	287.00
PFHxS_2	399.0 / 99.0	2.24	13C4-PFOS	503.0 / 80.0	142592.45	287.00
PFOA_1	413.0 / 369.0	2.62	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFOA_2	413.0 / 169.0	2.58	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFNA_1	463.0 / 419.0	3.01	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFNA_2	463.0 / 219.0	3.01	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFOS_1	499.0 / 80.0	2.95	13C4-PFOS	503.0 / 80.0	142592.45	287.00
PFOS_2	499.0 / 99.0	3.01	13C4-PFOS	503.0 / 80.0	142592.45	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	23208.72	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	23208.72	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	23208.72	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	23208.72	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	37089.42	100.00
13C2-PFDA	515.0 / 470.0	3.35	13C2-PFOA	415.0 / 370.0	37089.42	100.00
d5-EtFOSAA	589.0 / 419.0	3.66	d3-MeFOSAA	573.0 / 419.0	23208.72	400.00

Sample Name	J7449-FS1(0)	Injection Vial	18
Sample ID	JAX-RES-08152018-1045-33	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:44:42	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	147800.48	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	147800.48	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFHpA_1	363.0 / 319.0	2.22	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFHpA_2	363.0 / 169.0	2.21	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFHxS_1	399.0 / 80.0	2.24	13C4-PFOS	503.0 / 80.0	147800.48	287.00
PFHxS_2	399.0 / 99.0	2.24	13C4-PFOS	503.0 / 80.0	147800.48	287.00
PFOA_1	413.0 / 369.0	2.62	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFOA_2	413.0 / 169.0	2.57	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFNA_1	463.0 / 419.0	3.01	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFNA_2	463.0 / 219.0	3.01	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFOS_1	499.0 / 80.0	2.95	13C4-PFOS	503.0 / 80.0	147800.48	287.00
PFOS_2	499.0 / 99.0	3.01	13C4-PFOS	503.0 / 80.0	147800.48	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	34250.84	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	34250.84	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	25696.63	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	25696.63	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	25696.63	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	25696.63	400.00
13C2-PFHxA	315.0 / 270.0	1.81	13C2-PFOA	415.0 / 370.0	34250.84	100.00
13C2-PFDA	515.0 / 470.0	3.35	13C2-PFOA	415.0 / 370.0	34250.84	100.00
d5-EtFOSAA	589.0 / 419.0	3.66	d3-MeFOSAA	573.0 / 419.0	25696.63	400.00

Sample Name	J7451-FS1(0)	Injection Vial	19
Sample ID	JAX-RES-08152018-1130-15	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:53:38	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Results Summary

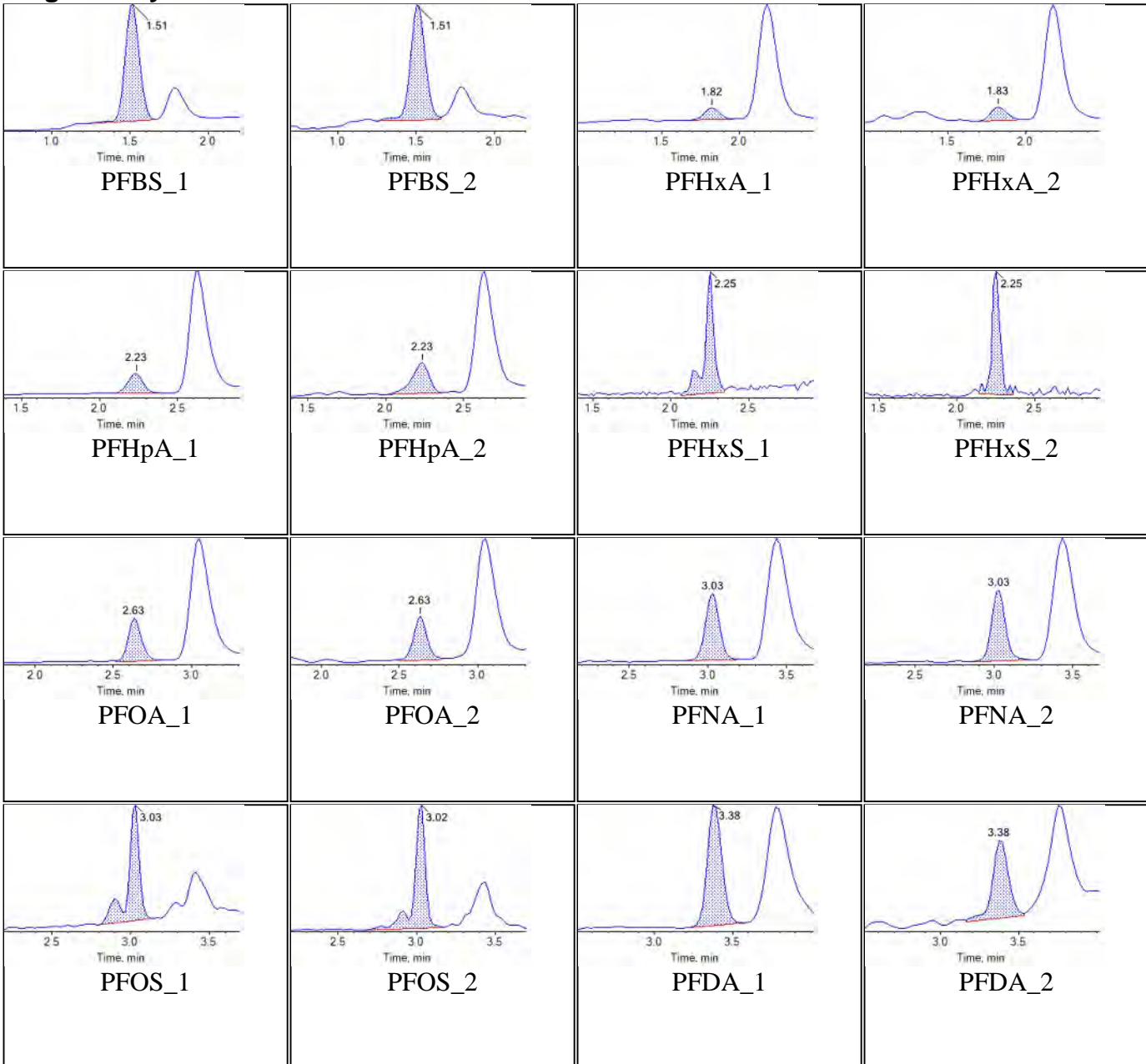
Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	134621.86	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	134621.86	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFHxS_1	399.0 / 80.0	2.24	13C4-PFOS	503.0 / 80.0	134621.86	287.00
PFHxS_2	399.0 / 99.0	2.24	13C4-PFOS	503.0 / 80.0	134621.86	287.00
PFOA_1	413.0 / 369.0	2.62	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFOA_2	413.0 / 169.0	2.60	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFNA_1	463.0 / 419.0	3.01	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFNA_2	463.0 / 219.0	3.01	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFOS_1	499.0 / 80.0	2.99	13C4-PFOS	503.0 / 80.0	134621.86	287.00
PFOS_2	499.0 / 99.0	3.01	13C4-PFOS	503.0 / 80.0	134621.86	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	36102.10	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	36102.10	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	25088.01	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	25088.01	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	25088.01	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	25088.01	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	36102.10	100.00
13C2-PFDA	515.0 / 470.0	3.35	13C2-PFOA	415.0 / 370.0	36102.10	100.00
d5-EtFOSAA	589.0 / 419.0	3.66	d3-MeFOSAA	573.0 / 419.0	25088.01	400.00

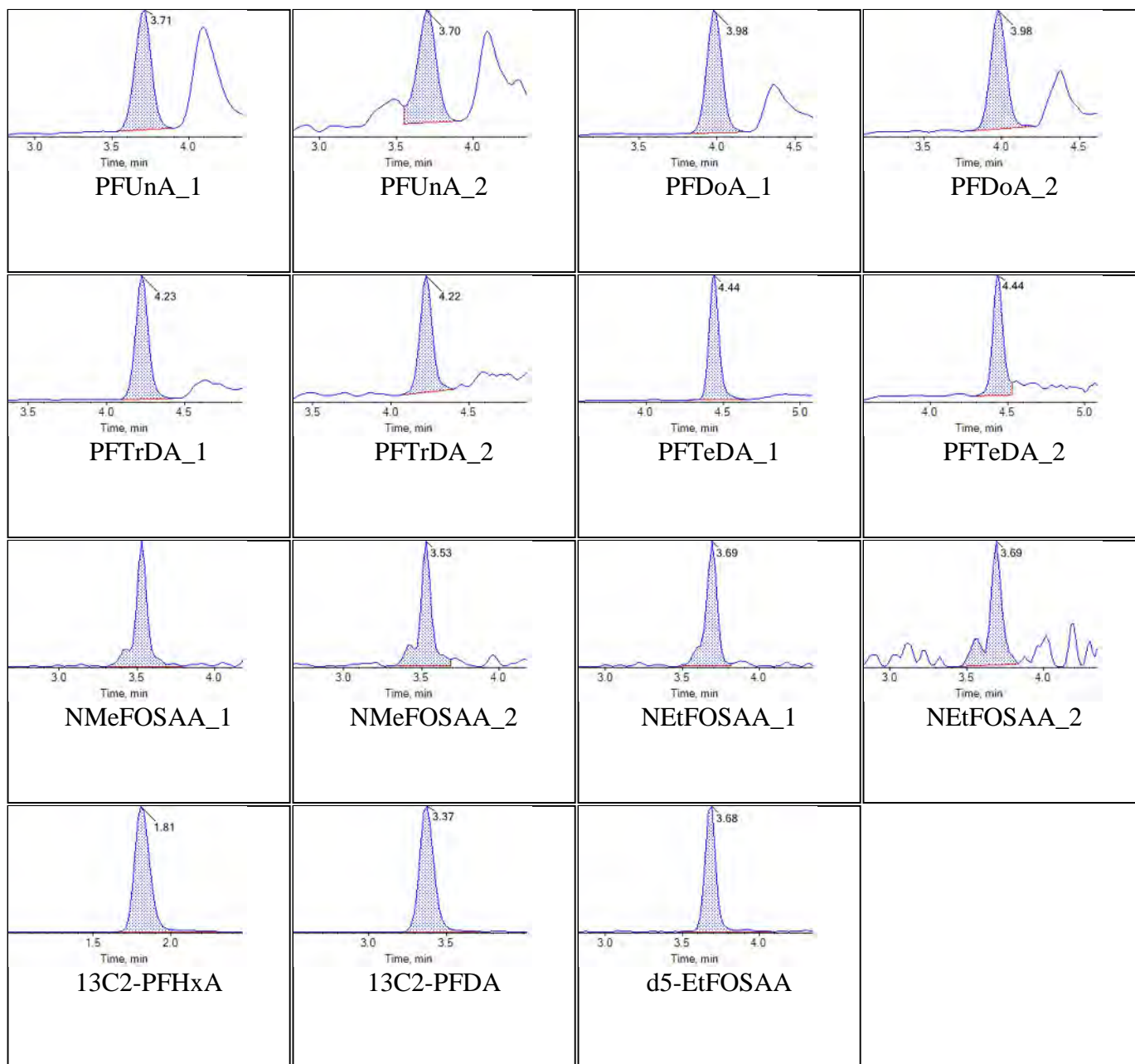
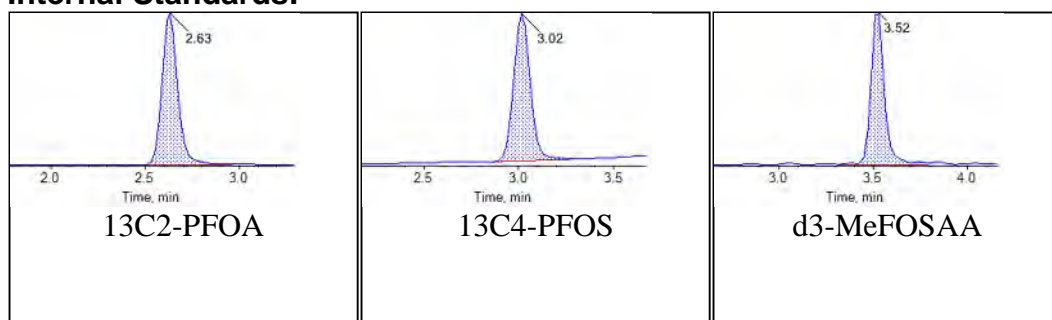
# Chromatograms

<b>Sample Name</b>	JZ80	<b>Injection Vial</b>	4
<b>Sample ID</b>	L3	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T17:30:23	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

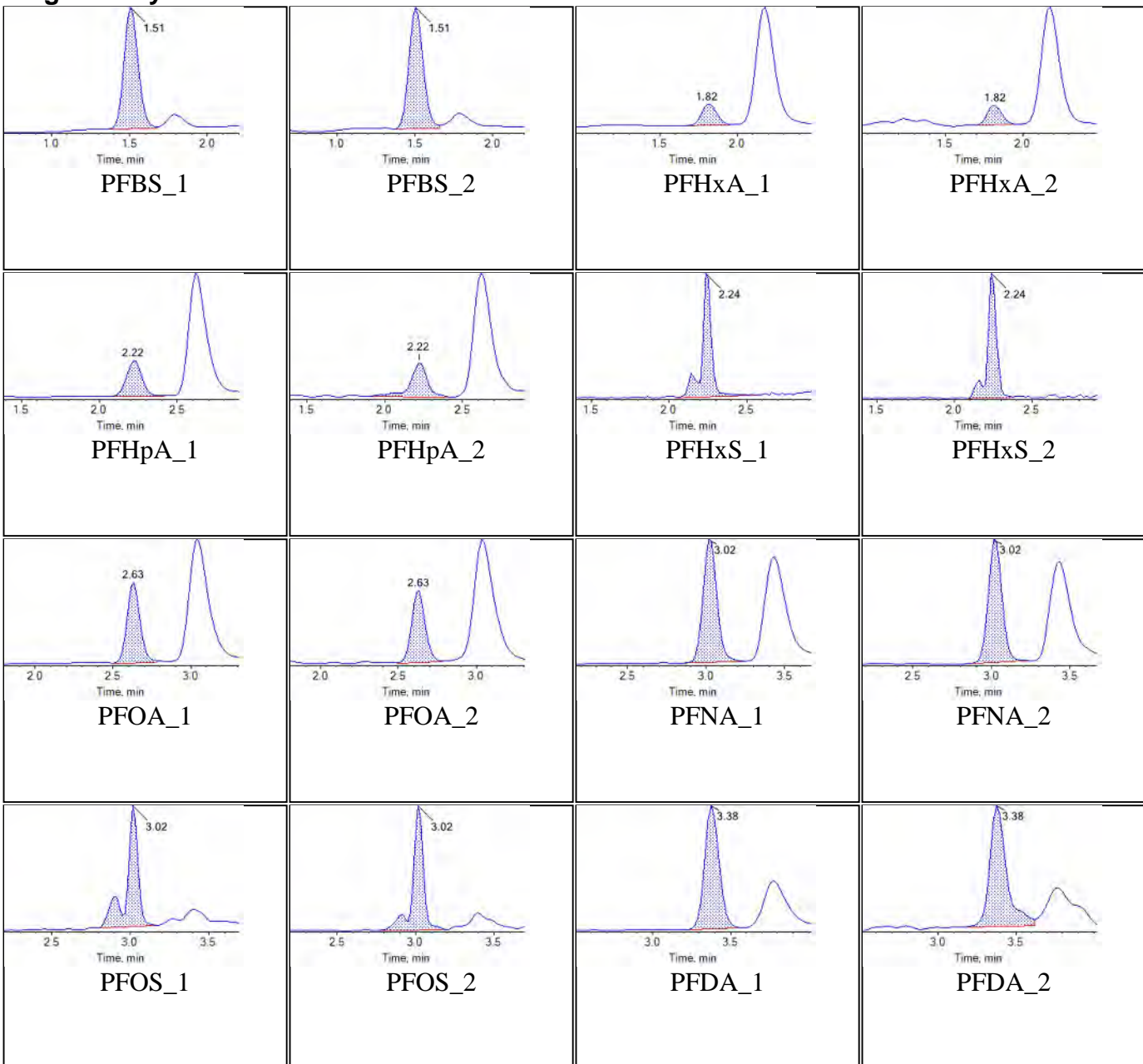


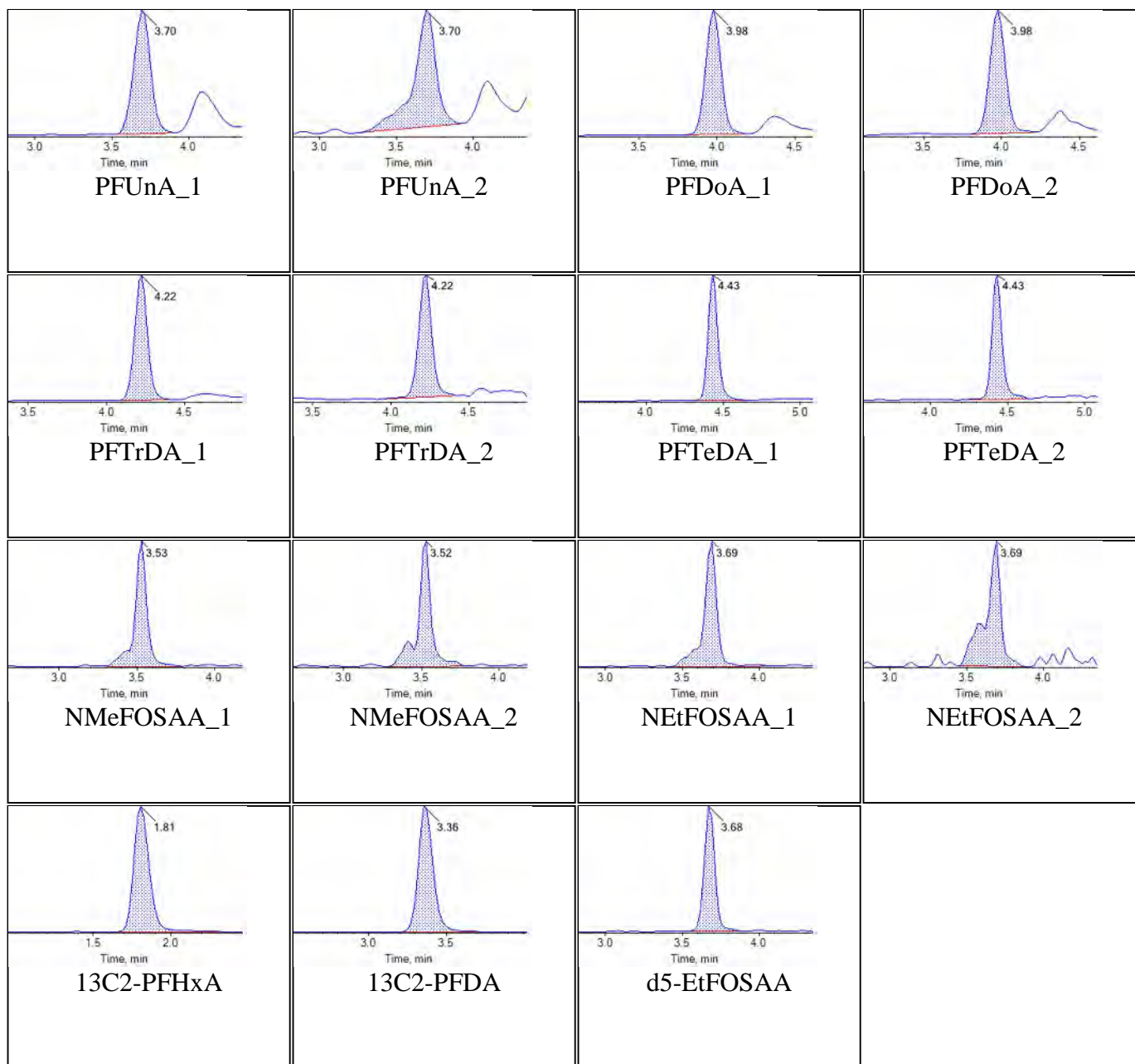
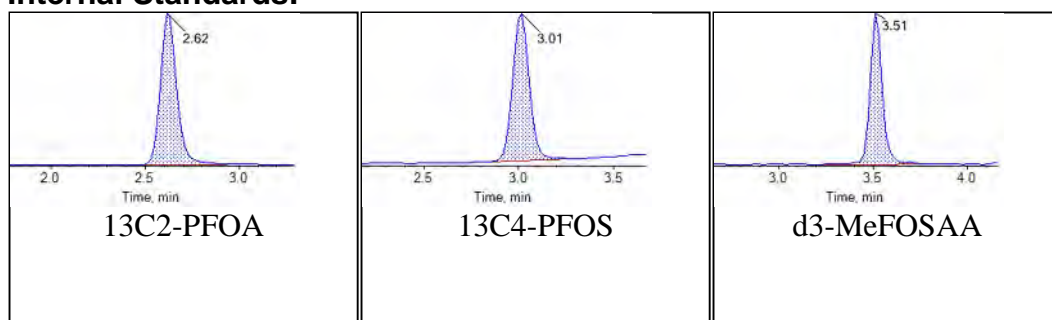
**Internal Standards:**

<b>Sample Name</b>	JZ81	<b>Injection Vial</b>	5
<b>Sample ID</b>	L4	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T17:39:21	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:



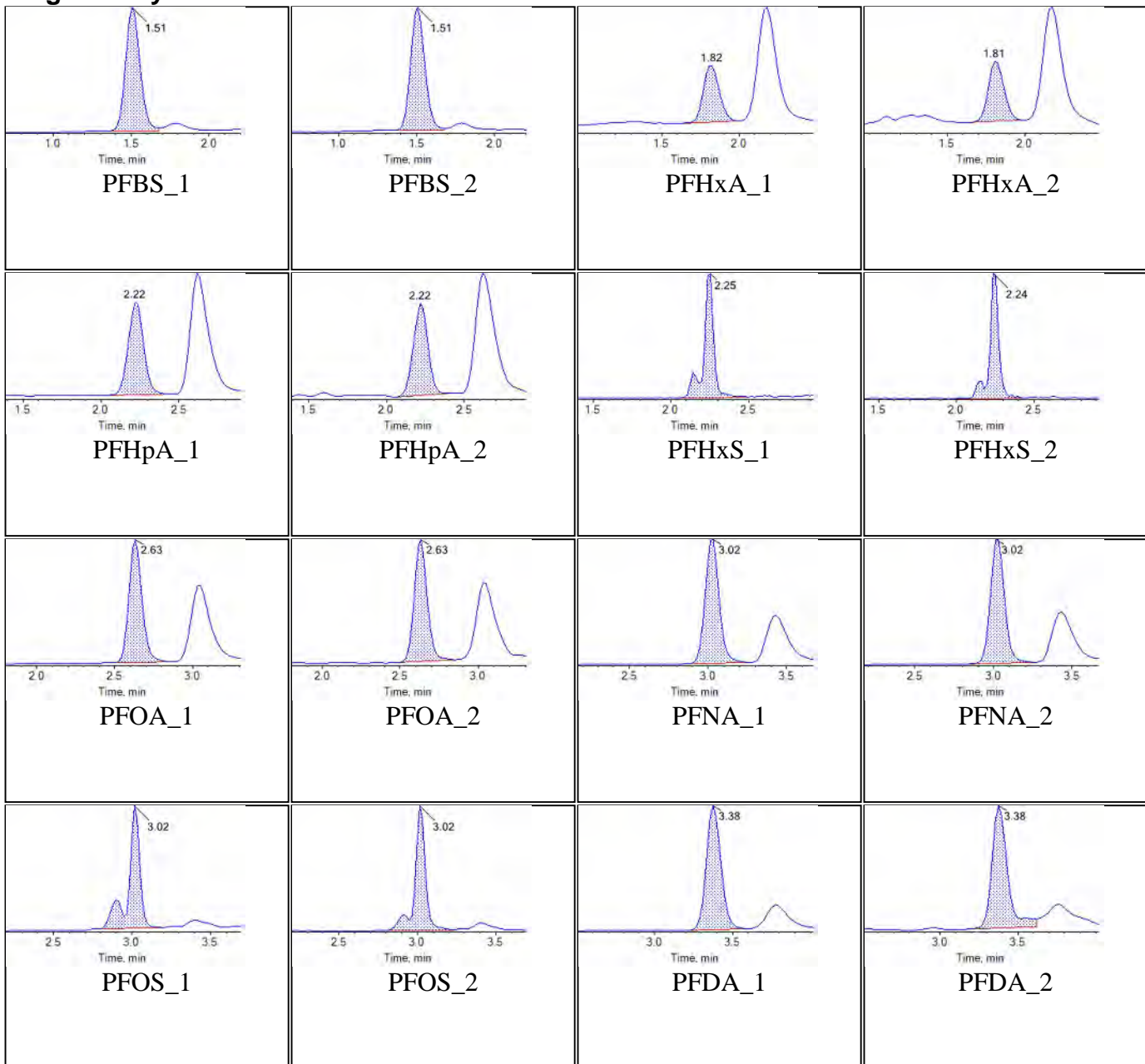
**Internal Standards:**

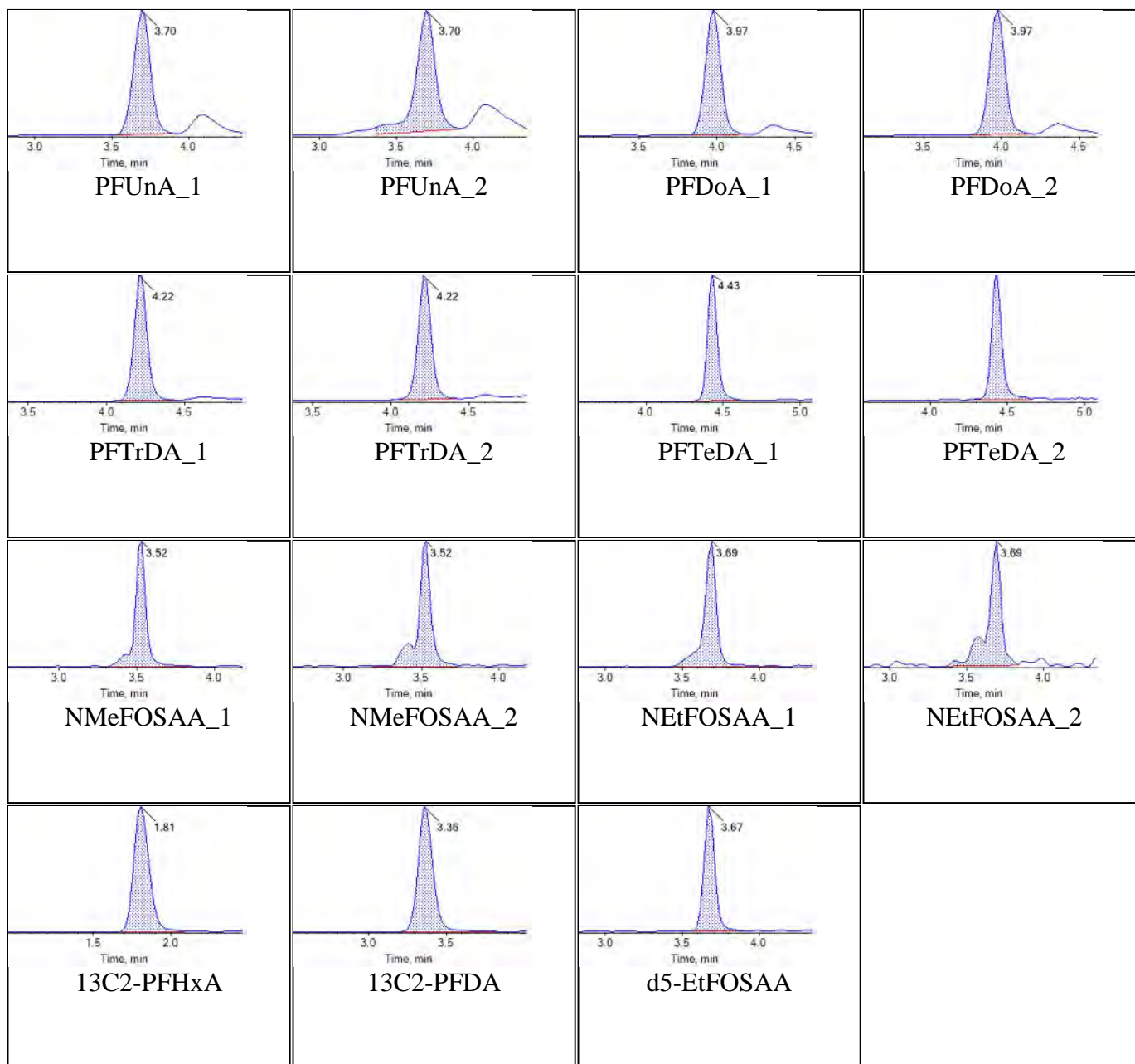
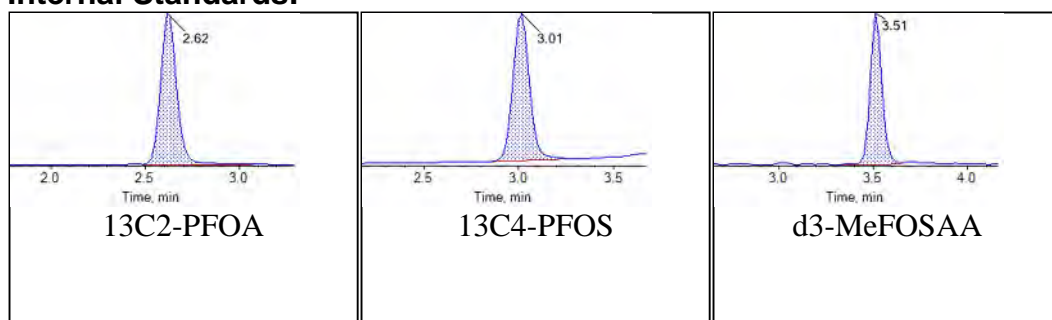


Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T17:48:19	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Chromatograms

### Target Analytes:

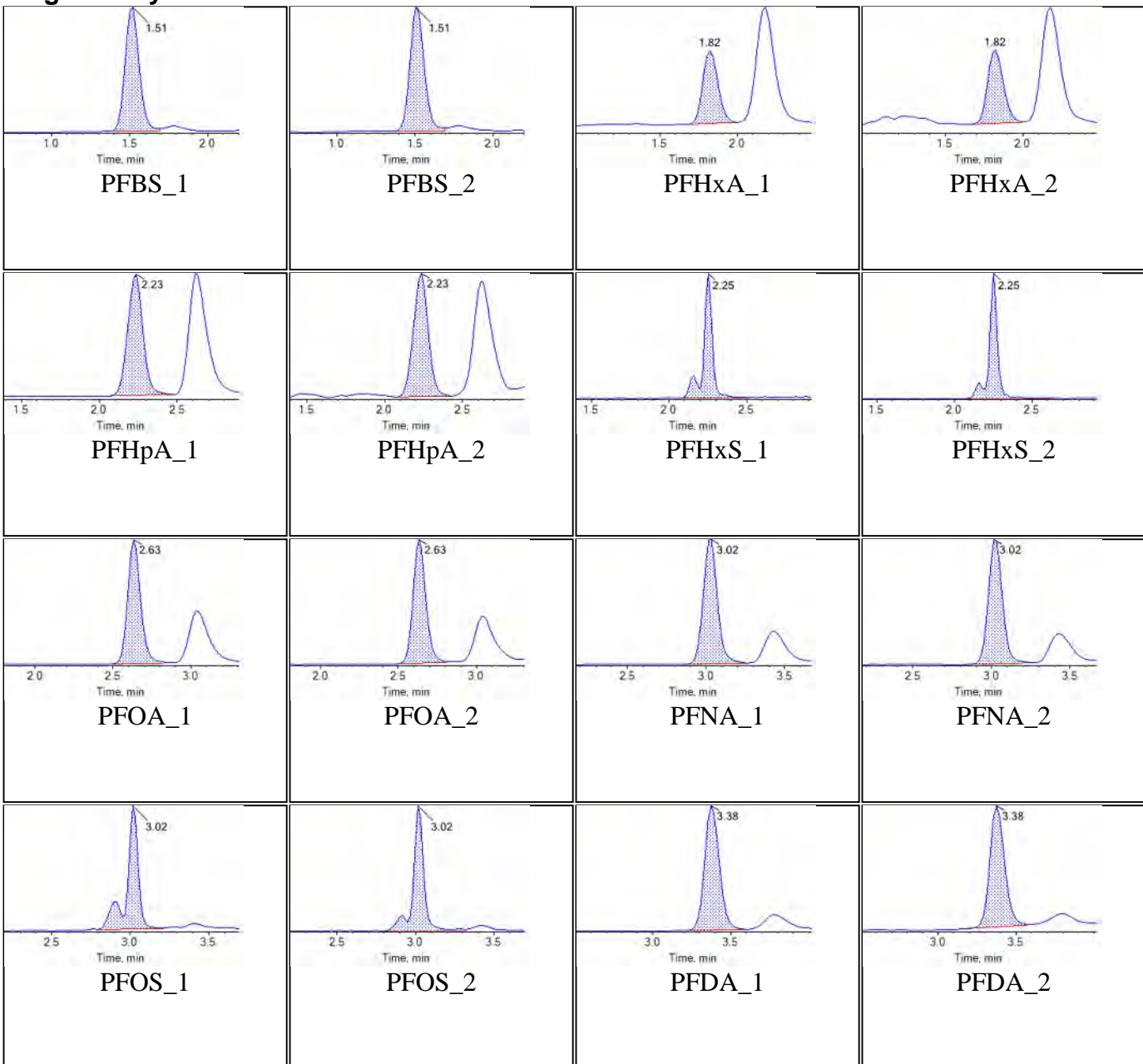


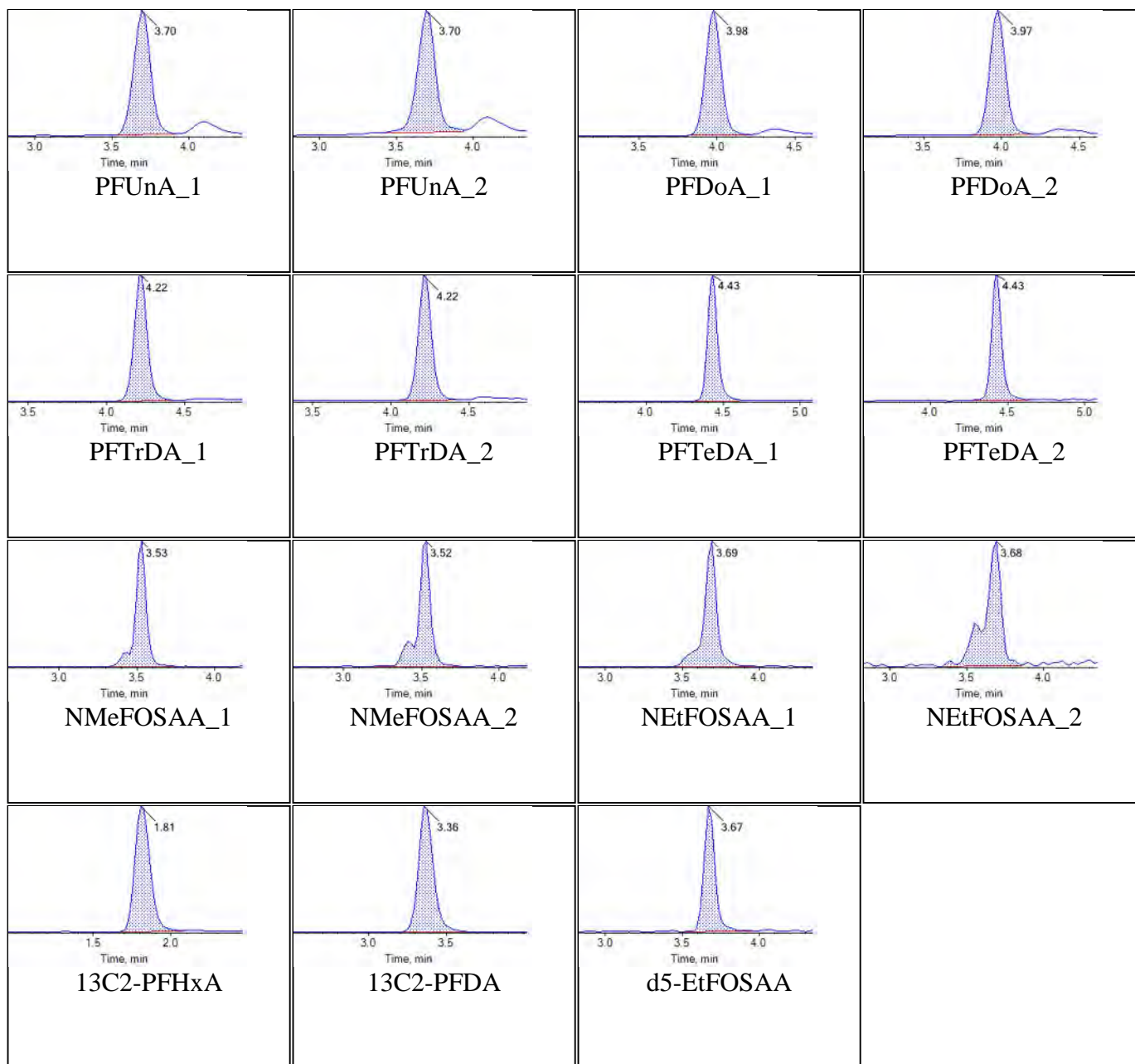
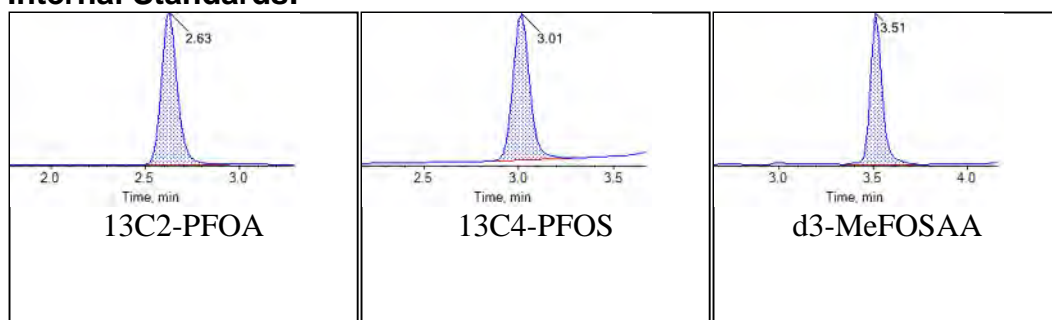
**Internal Standards:**

<b>Sample Name</b>	JZ83	<b>Injection Vial</b>	7
<b>Sample ID</b>	L6	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T17:57:16	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

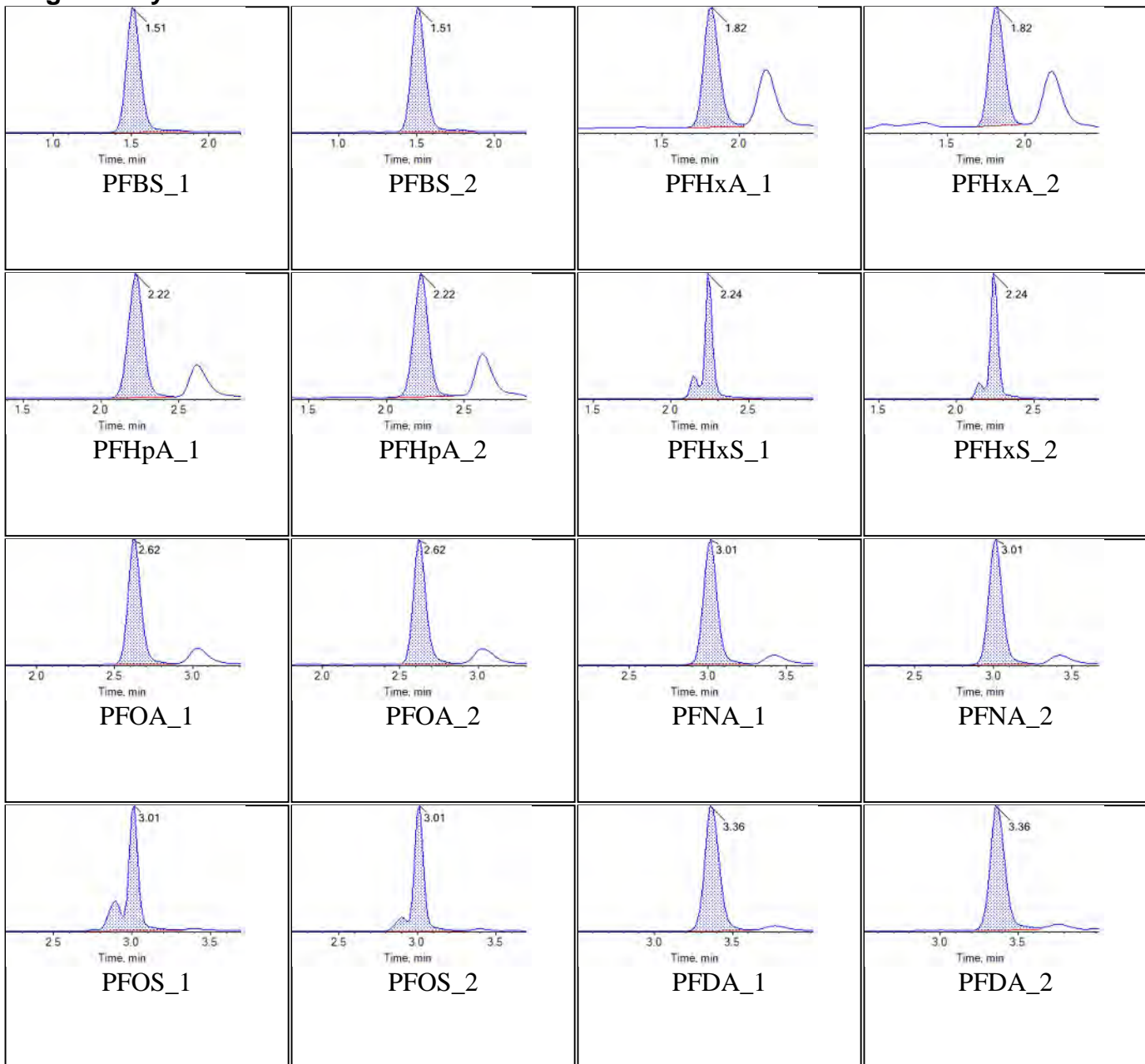


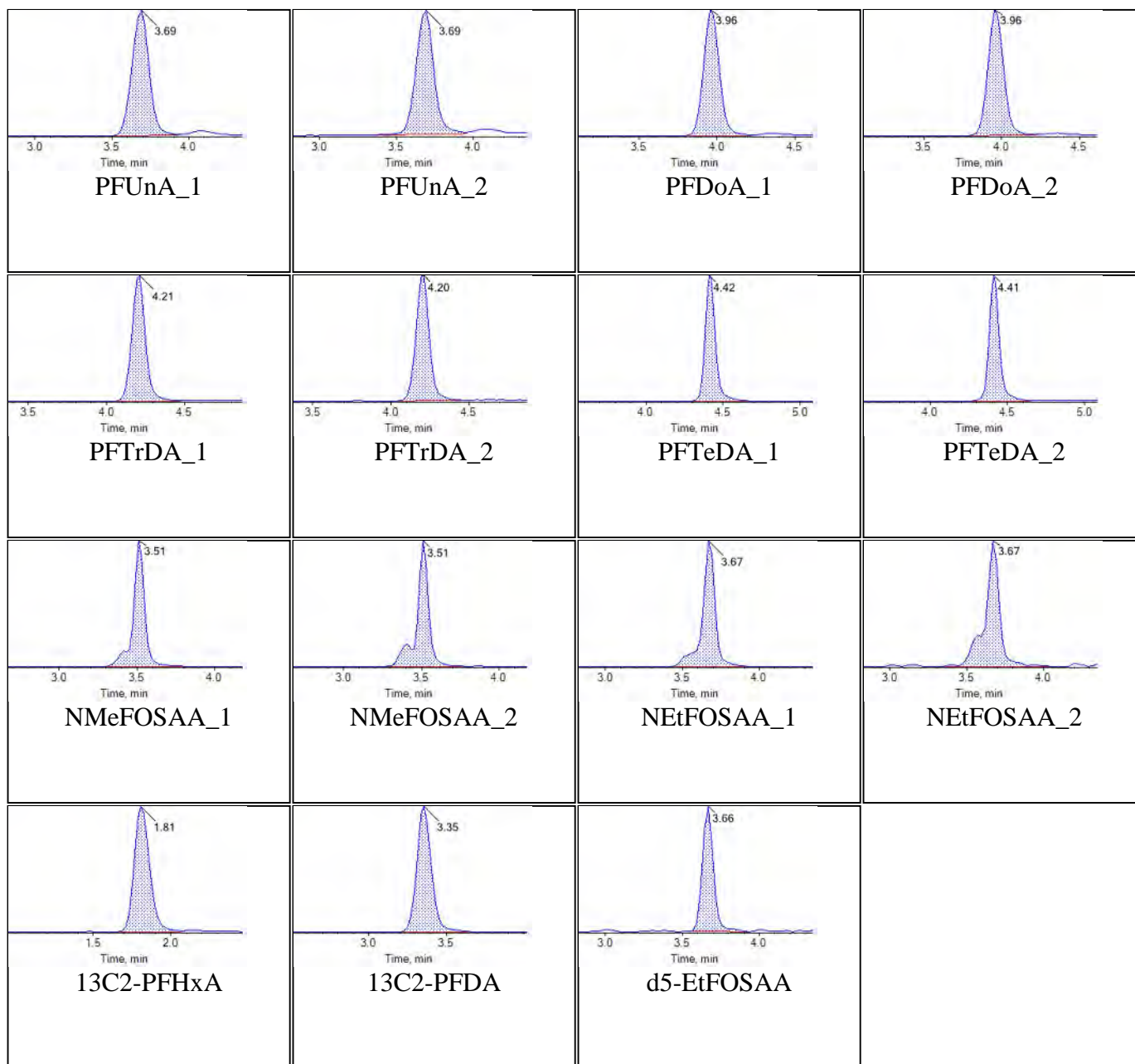
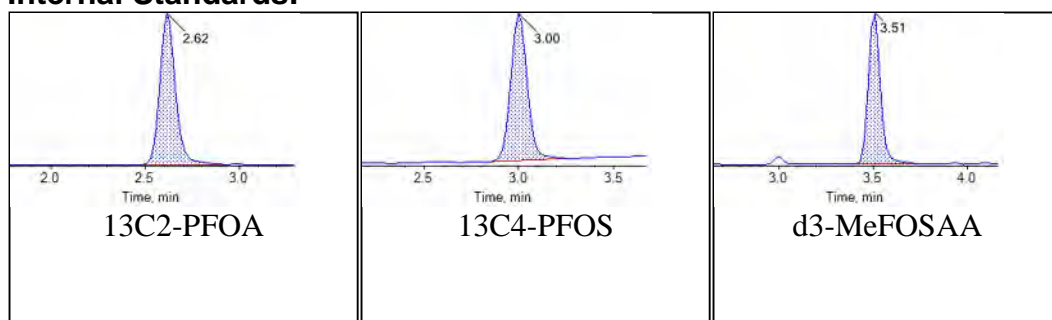
**Internal Standards:**

<b>Sample Name</b>	JZ84	<b>Injection Vial</b>	8
<b>Sample ID</b>	L7	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:06:15	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

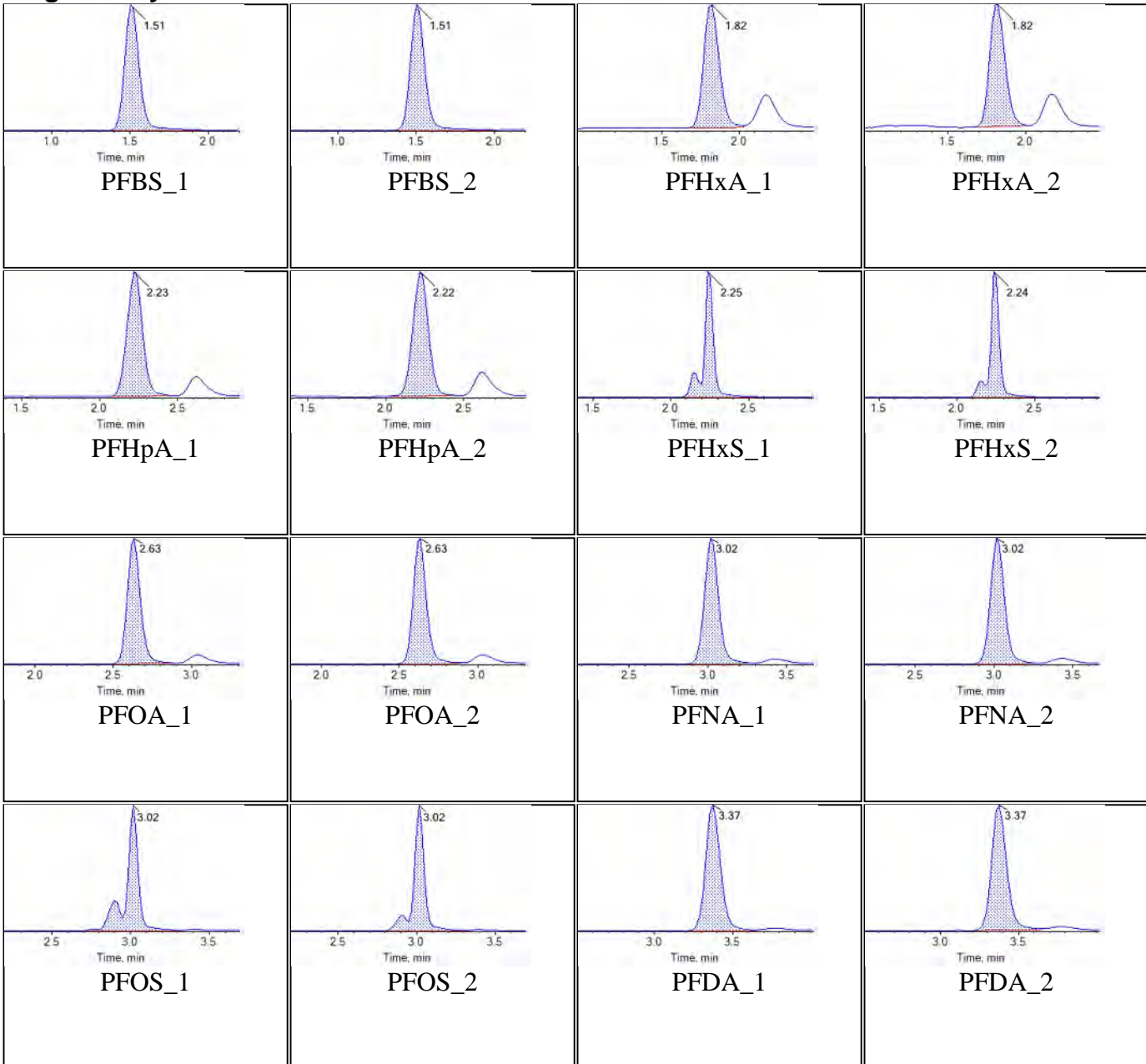


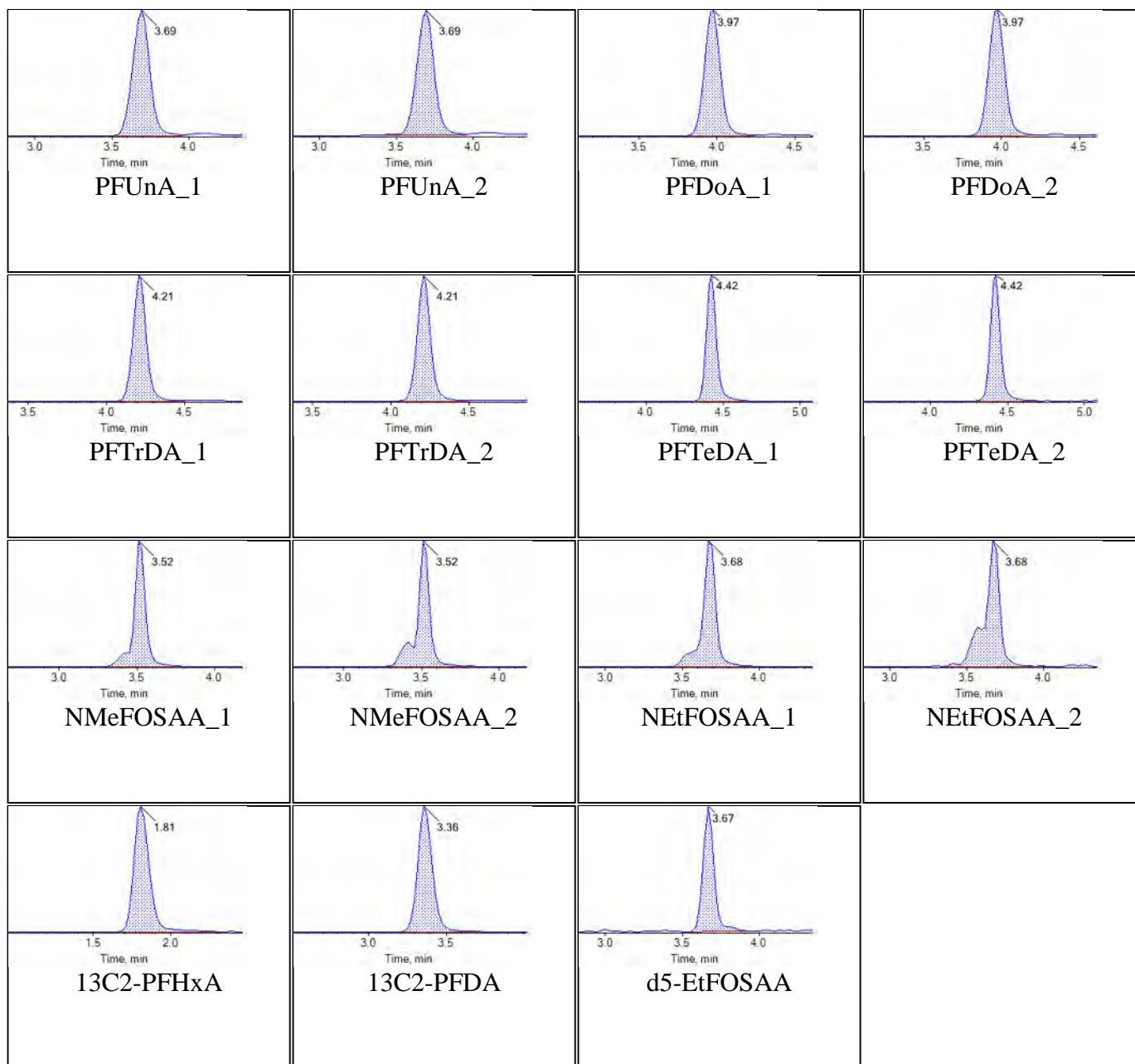
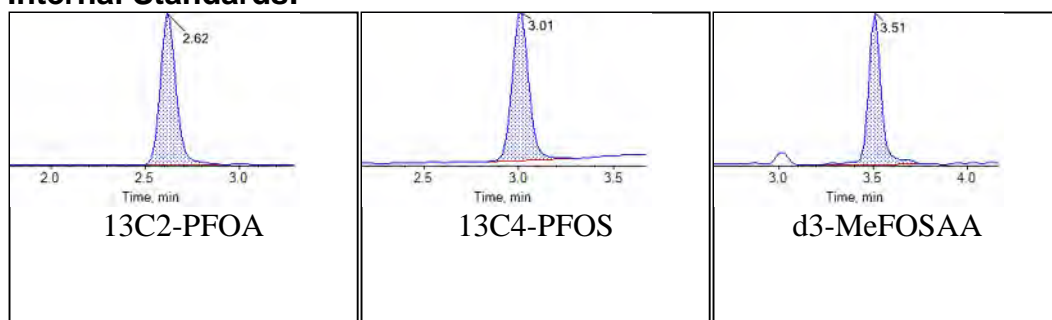
**Internal Standards:**

<b>Sample Name</b>	JZ85	<b>Injection Vial</b>	9
<b>Sample ID</b>	L8	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:15:11	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:



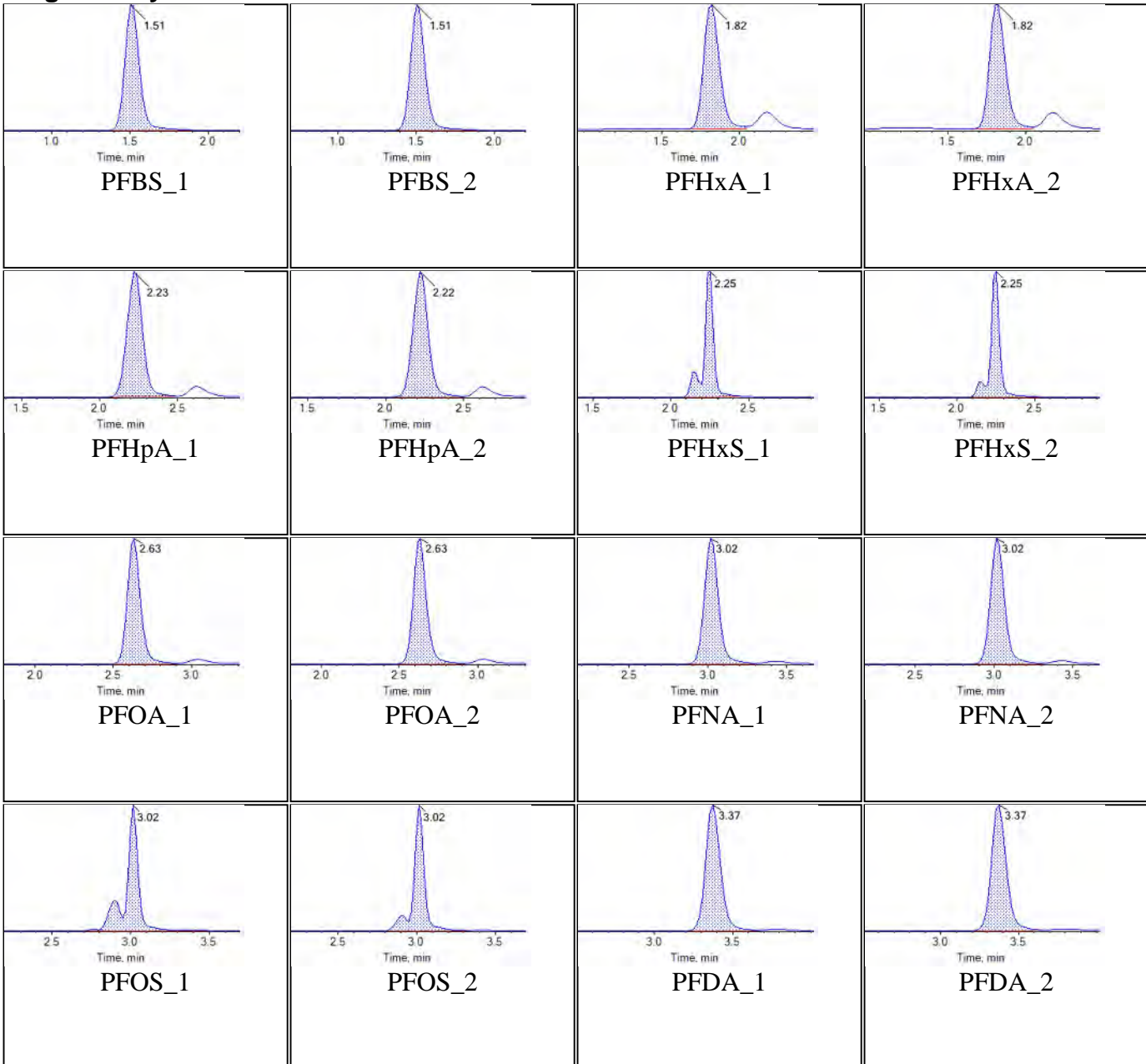
**Internal Standards:**

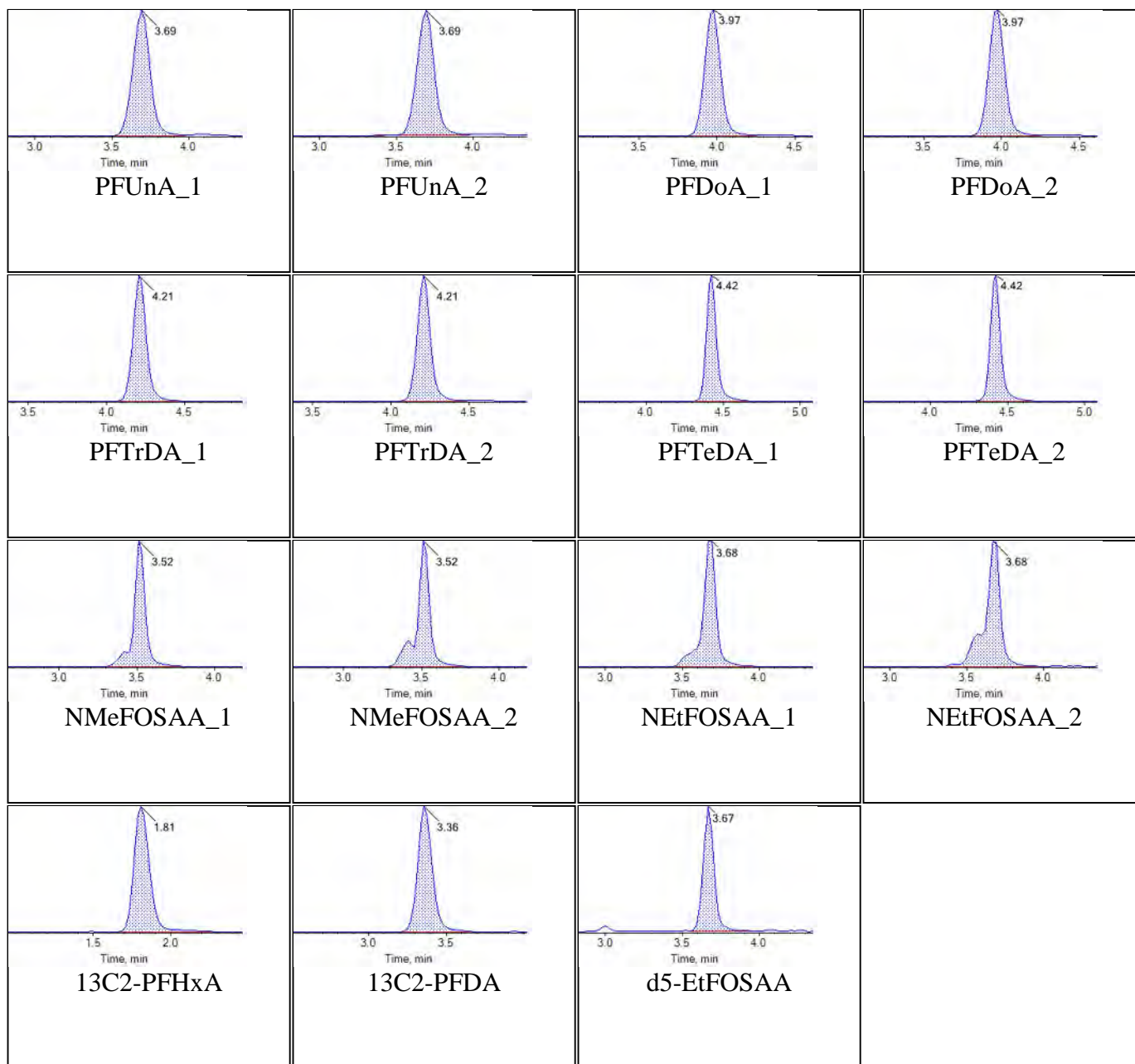
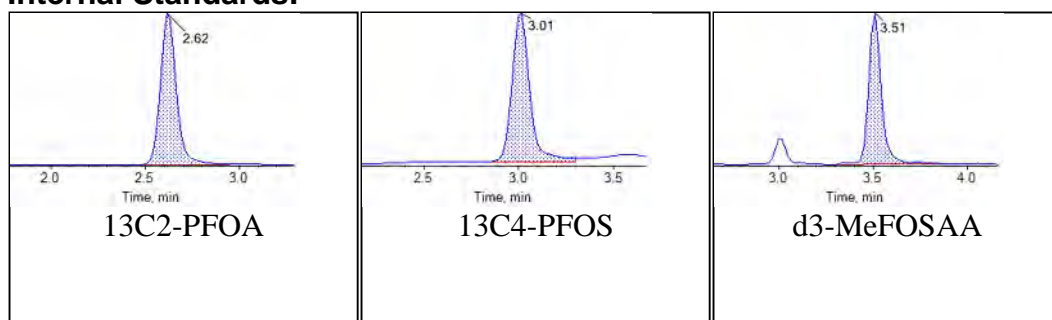


<b>Sample Name</b>	JZ86	<b>Injection Vial</b>	10
<b>Sample ID</b>	L9	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:24:08	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

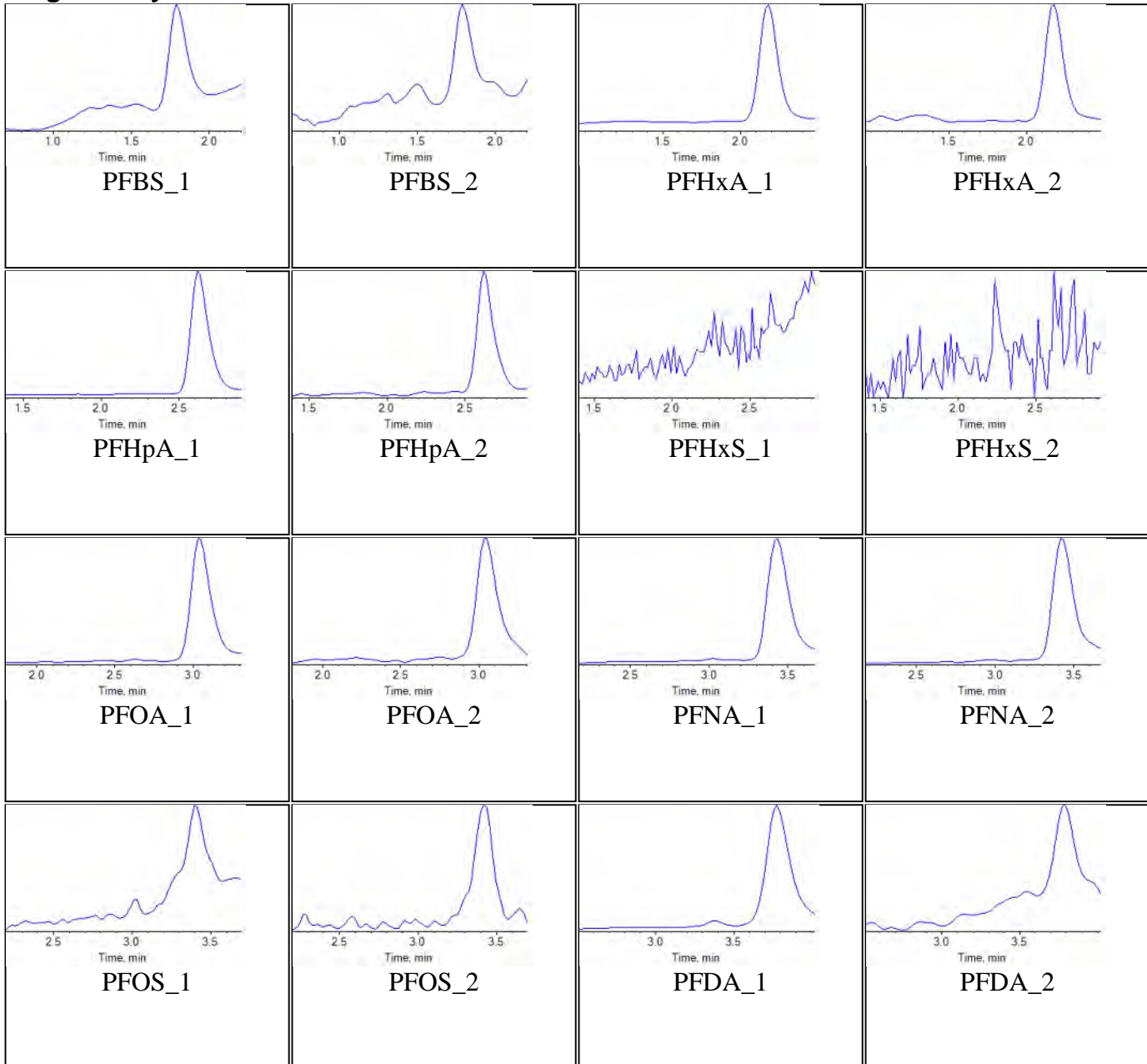


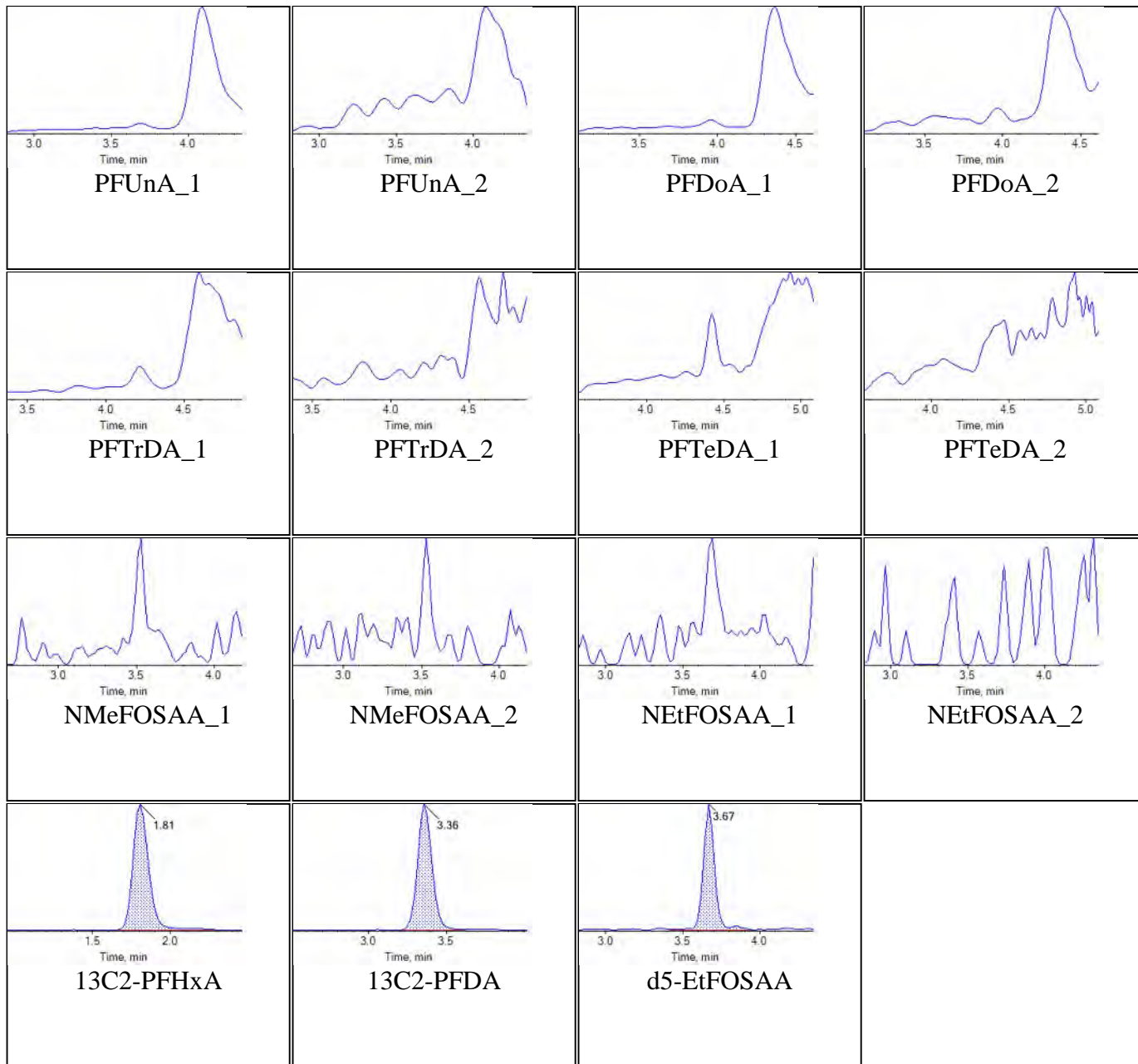
**Internal Standards:**

<b>Sample Name</b>	KA08 IB	<b>Injection Vial</b>	11
<b>Sample ID</b>	Instrument Blank	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:33:06	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

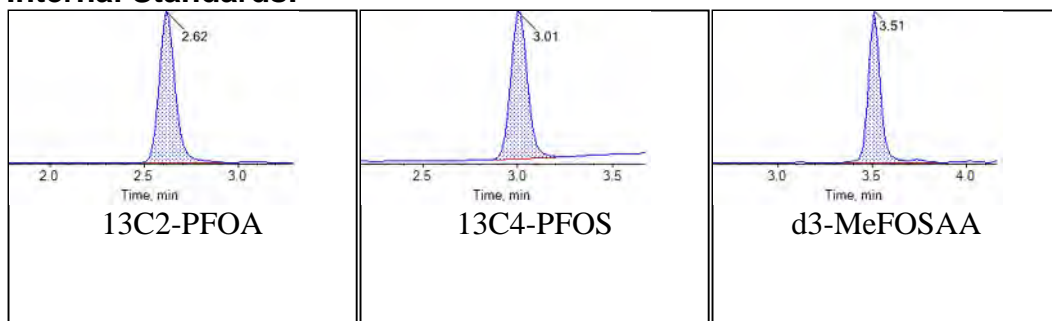
## Chromatograms

### Target Analytes:





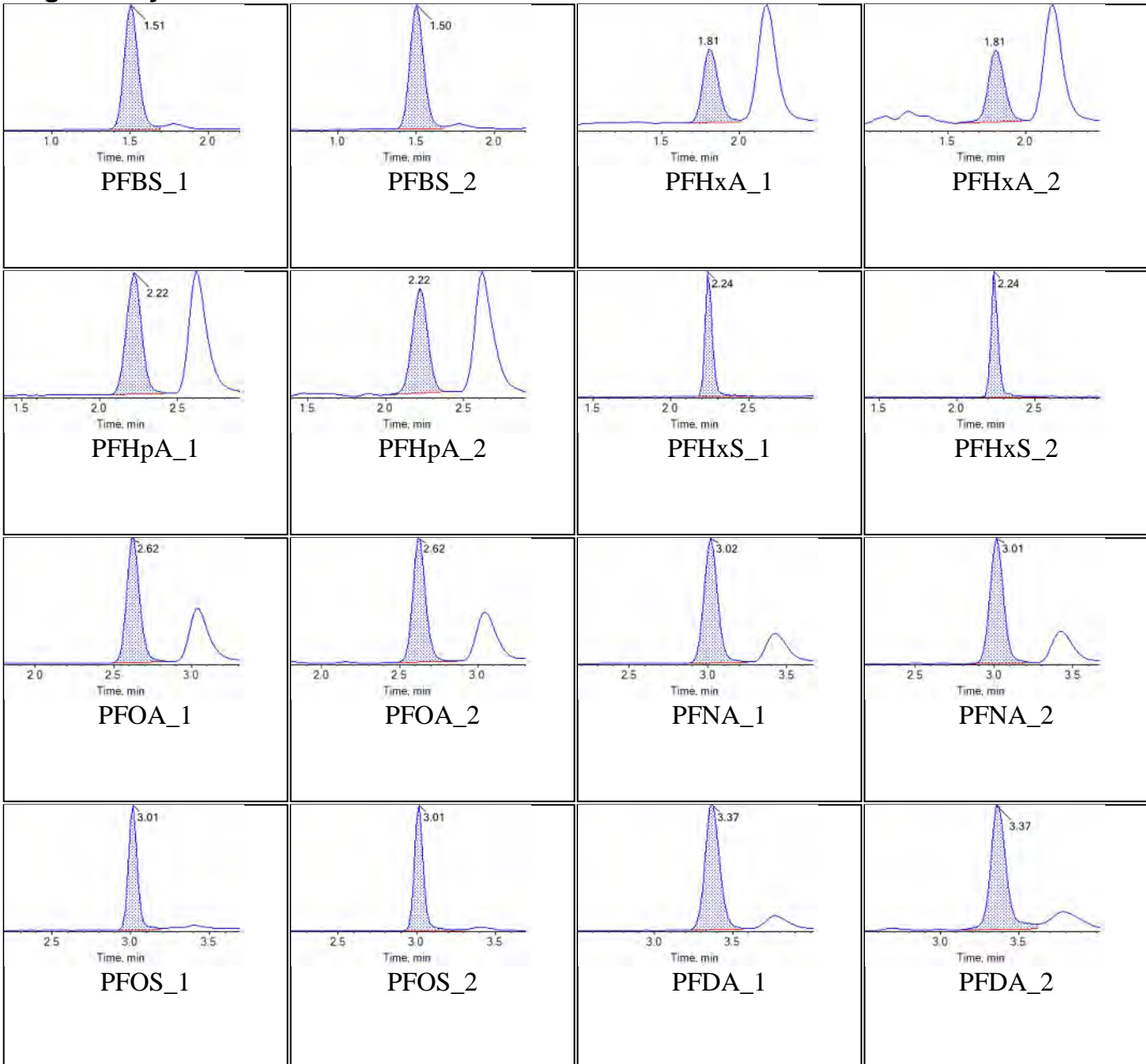
### Internal Standards:

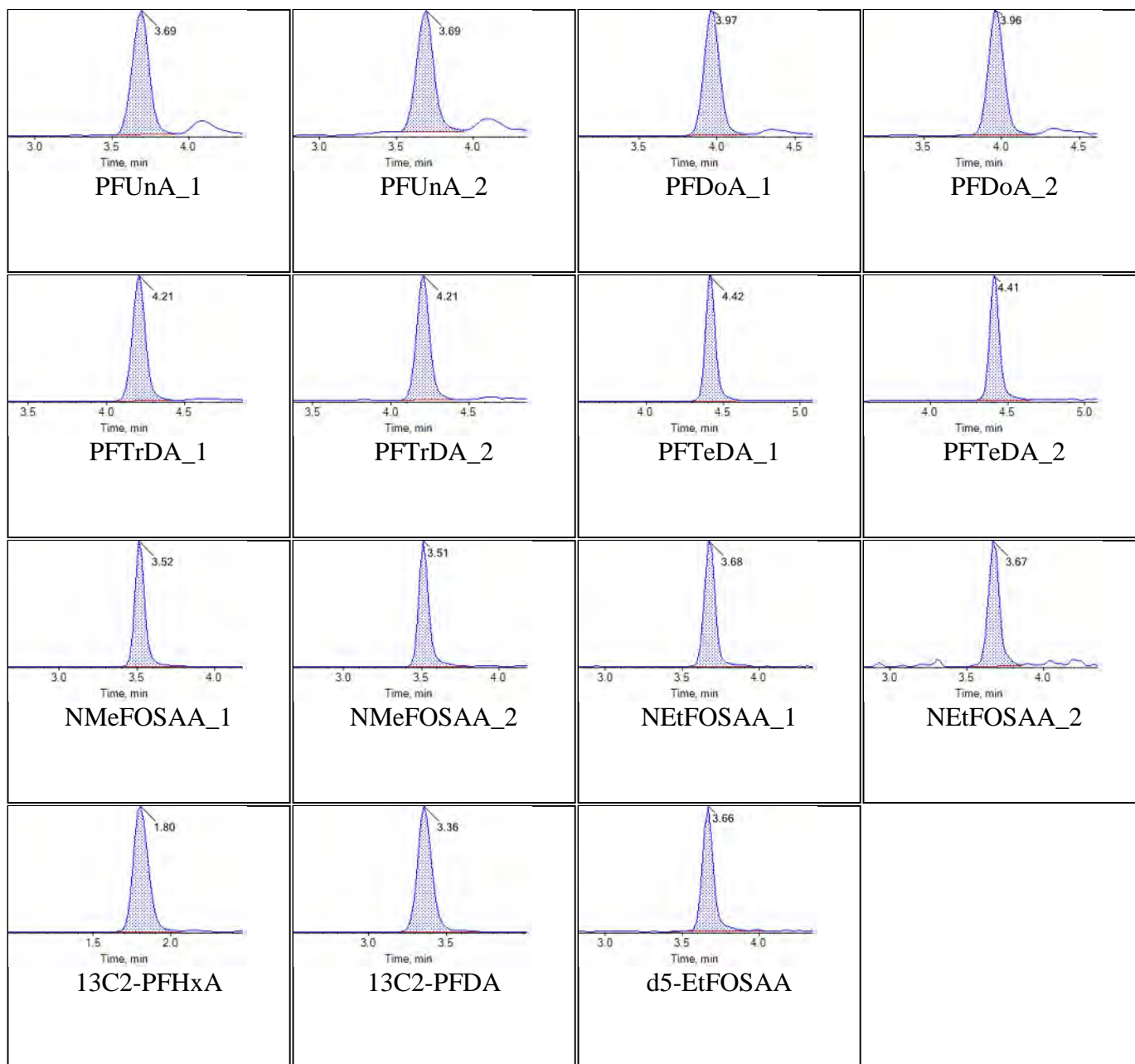
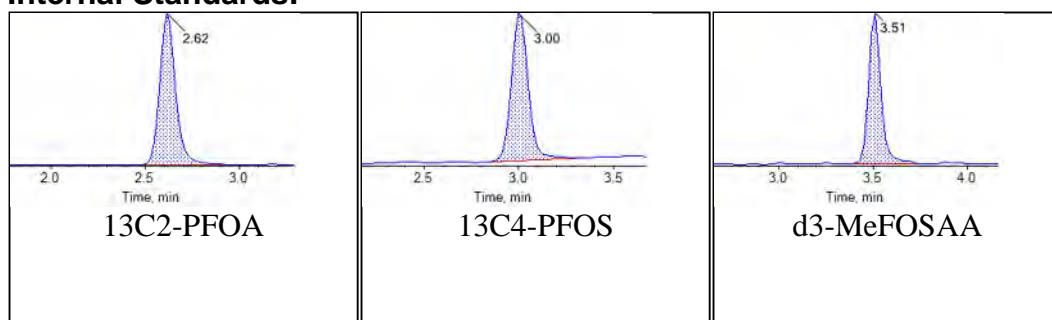


<b>Sample Name</b>	JZ77 ICC	<b>Injection Vial</b>	12
<b>Sample ID</b>	ICC	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Quality Control	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:42:04	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

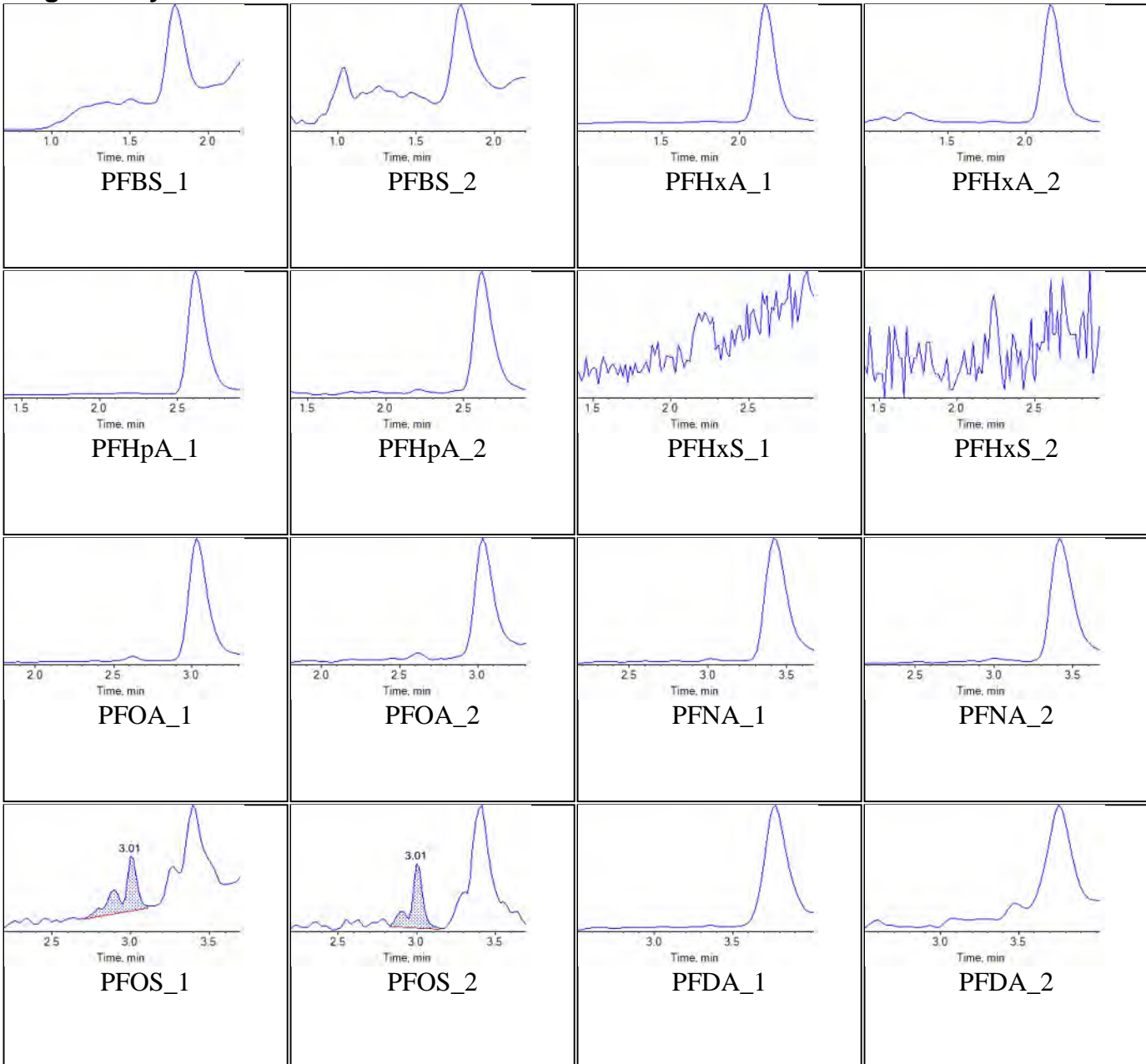


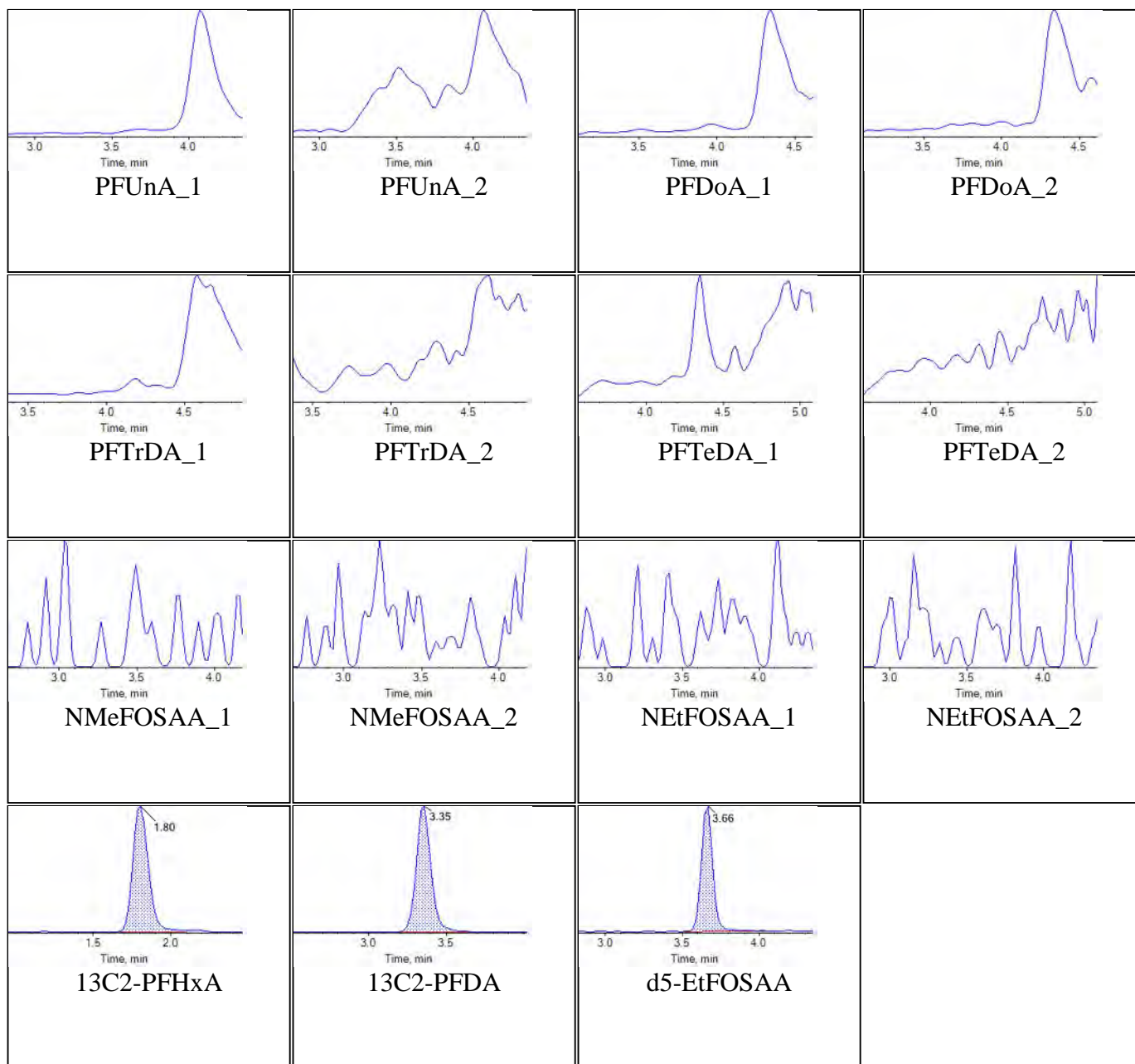
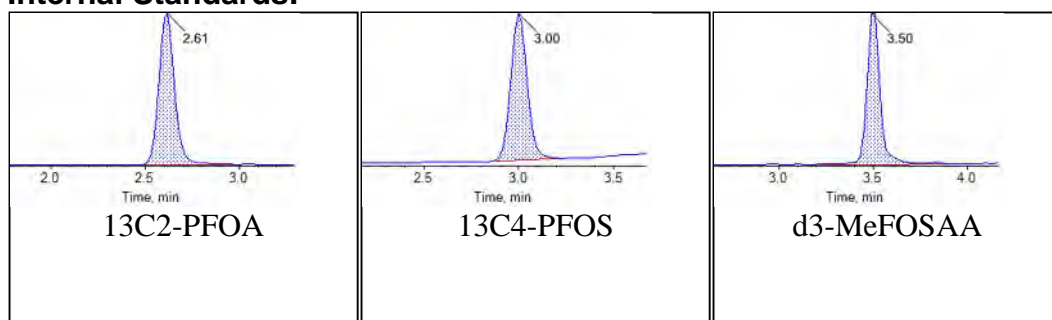
**Internal Standards:**

Sample Name	CR676PB-FS(0)	Injection Vial	13
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T18:59:59	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Chromatograms

### Target Analytes:



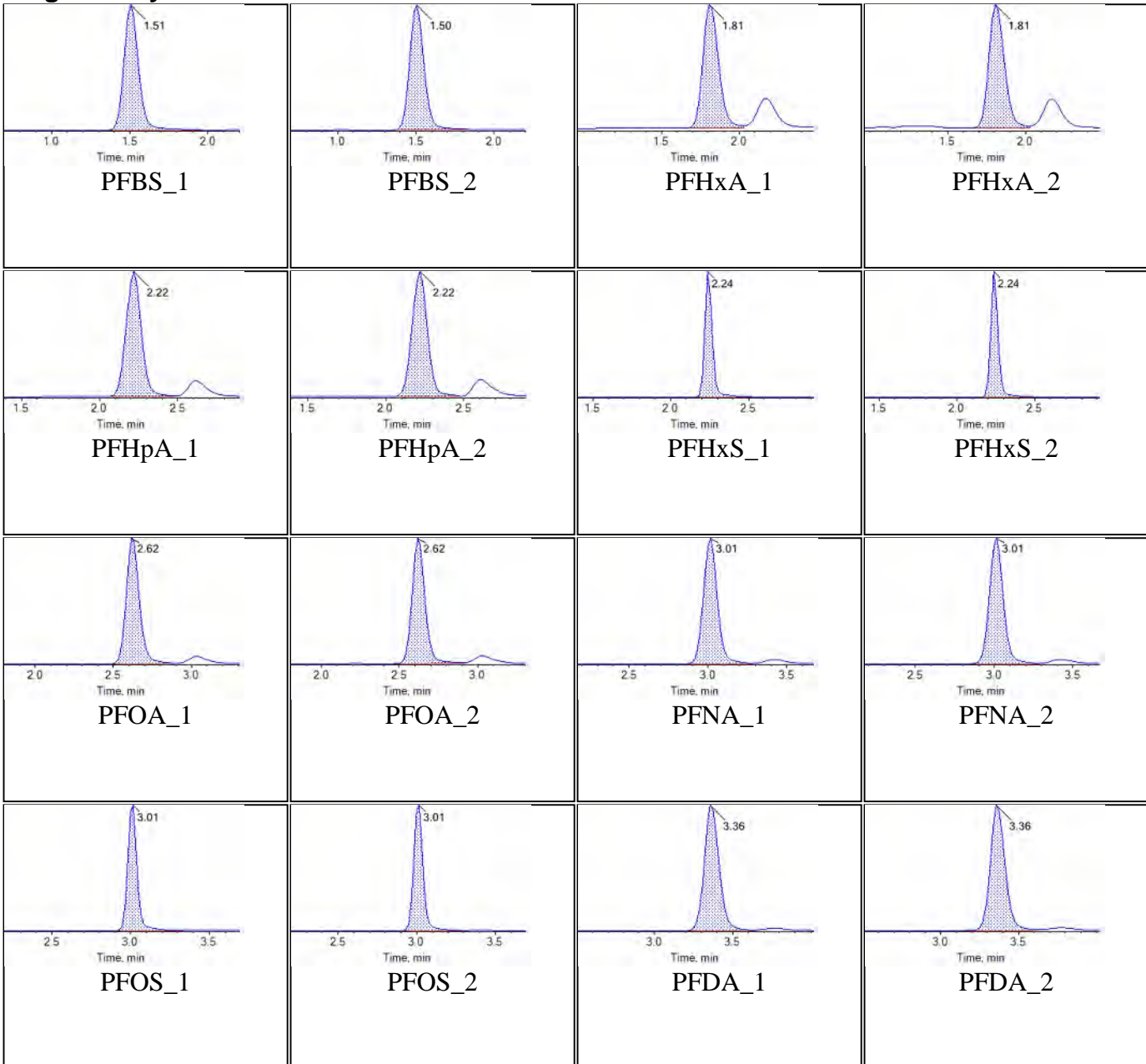
**Internal Standards:**

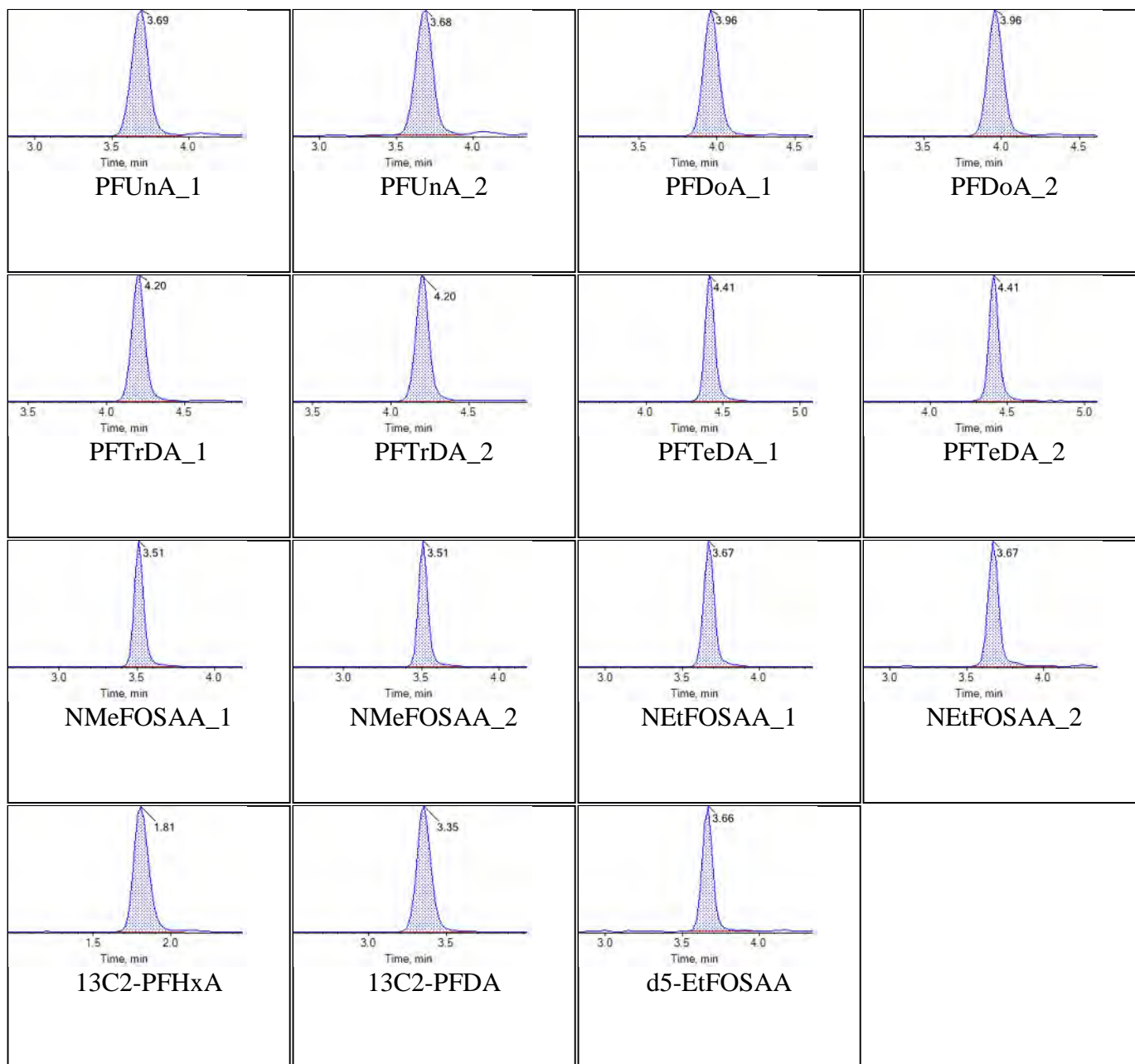
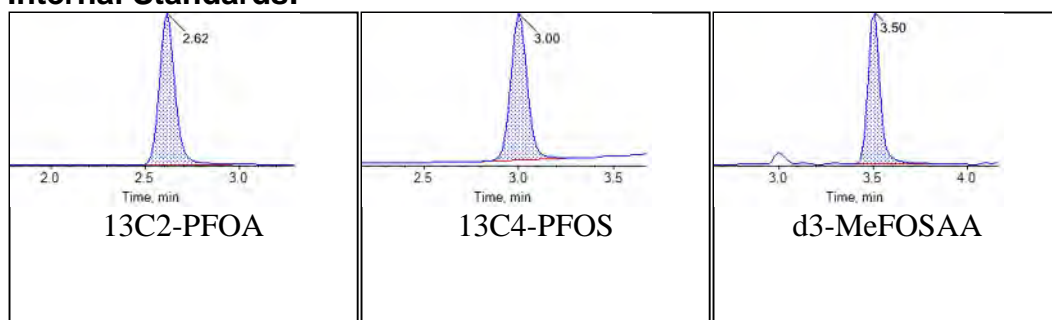


<b>Sample Name</b>	CR677LCS-FS(0)	<b>Injection Vial</b>	14
<b>Sample ID</b>	Laboratory Control Sample	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T19:08:57	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

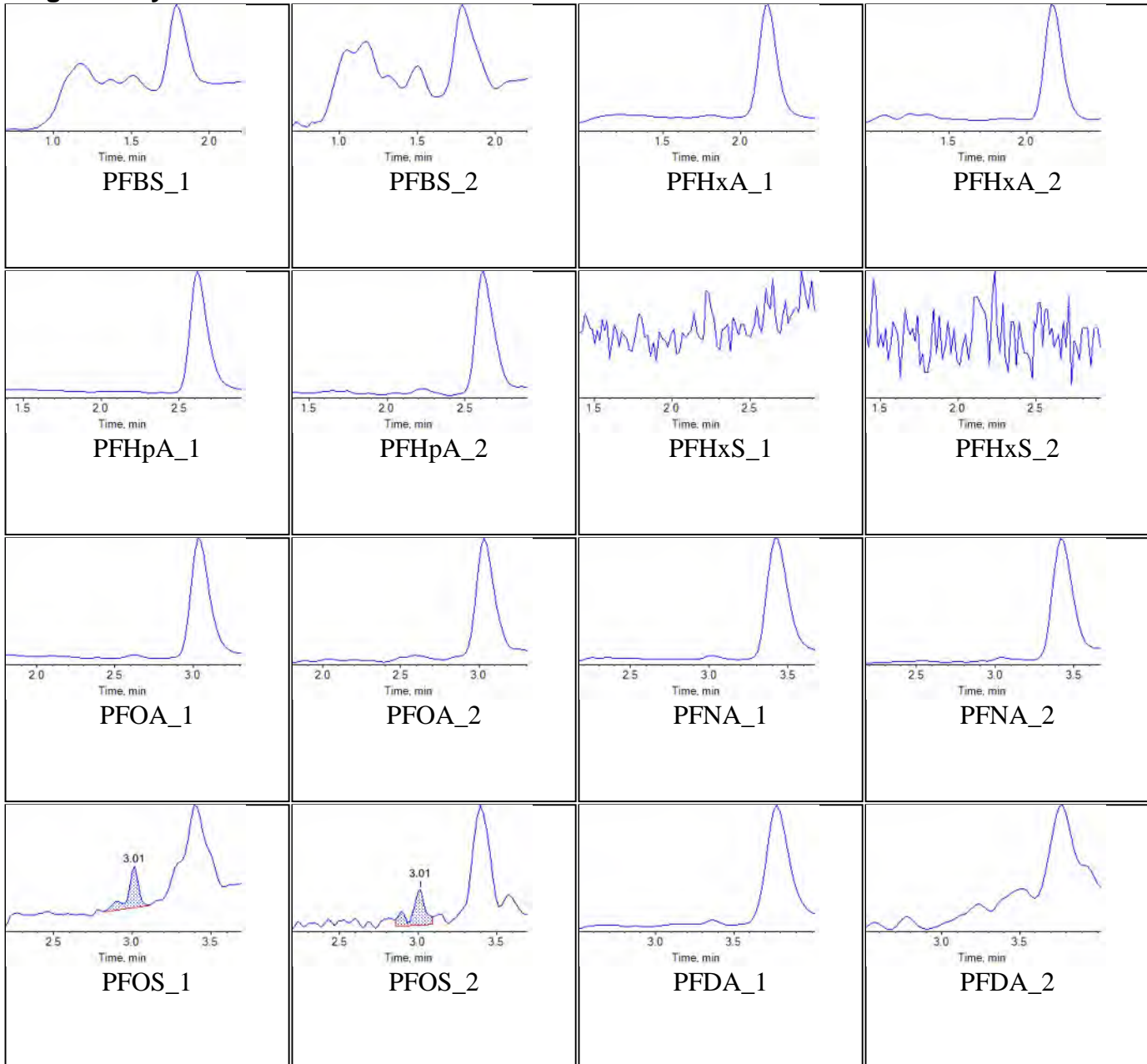


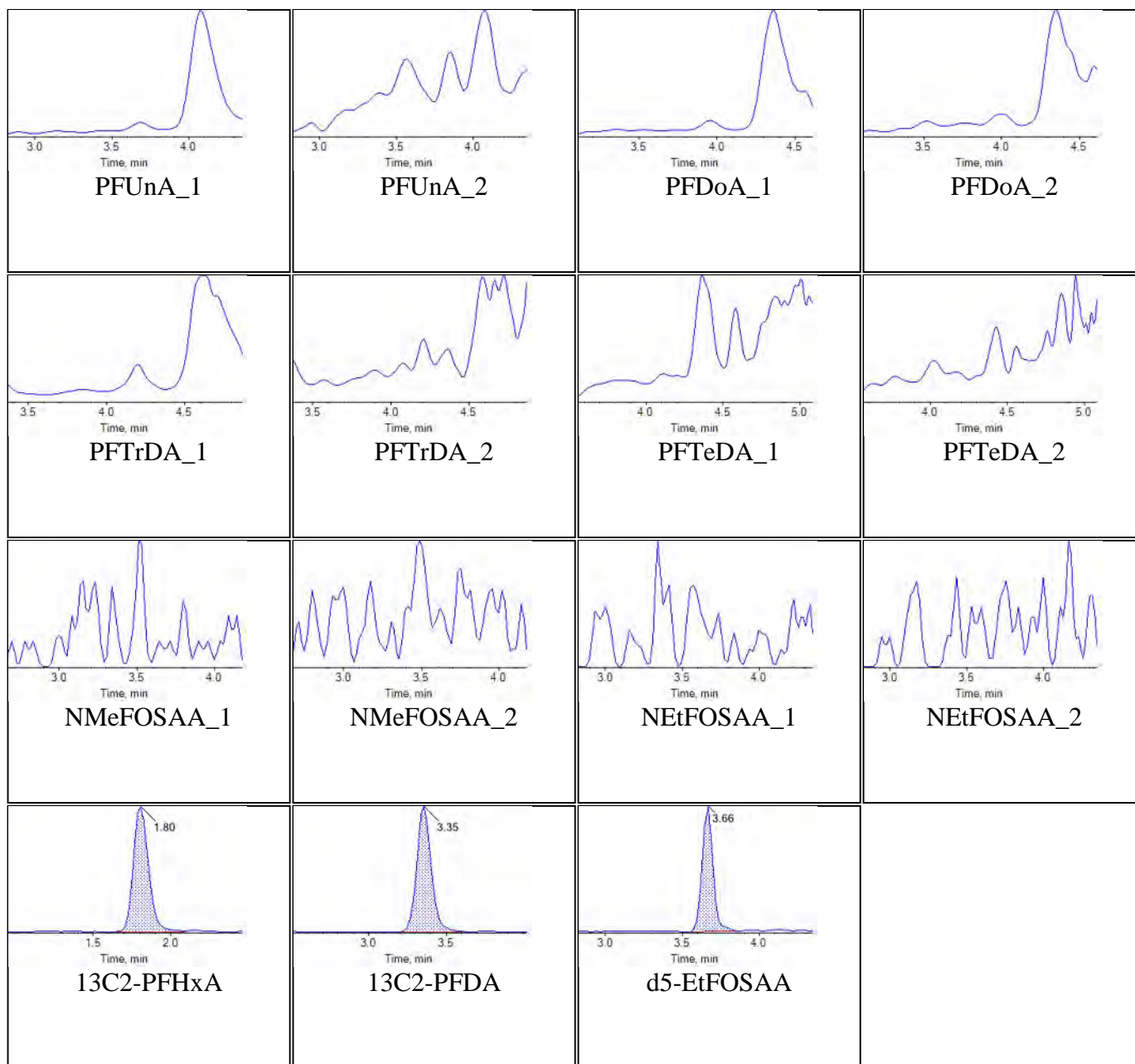
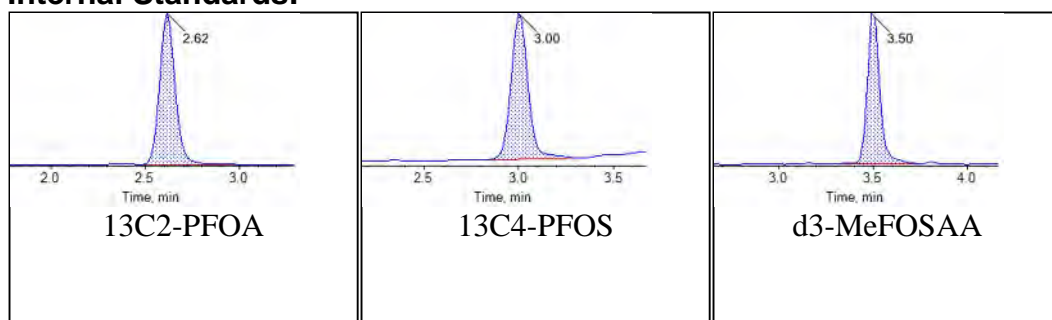
**Internal Standards:**

Sample Name	J7430-FS1(0)	Injection Vial	15
Sample ID	JAX-RES-08142018-1130-9	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:17:53	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Chromatograms

### Target Analytes:

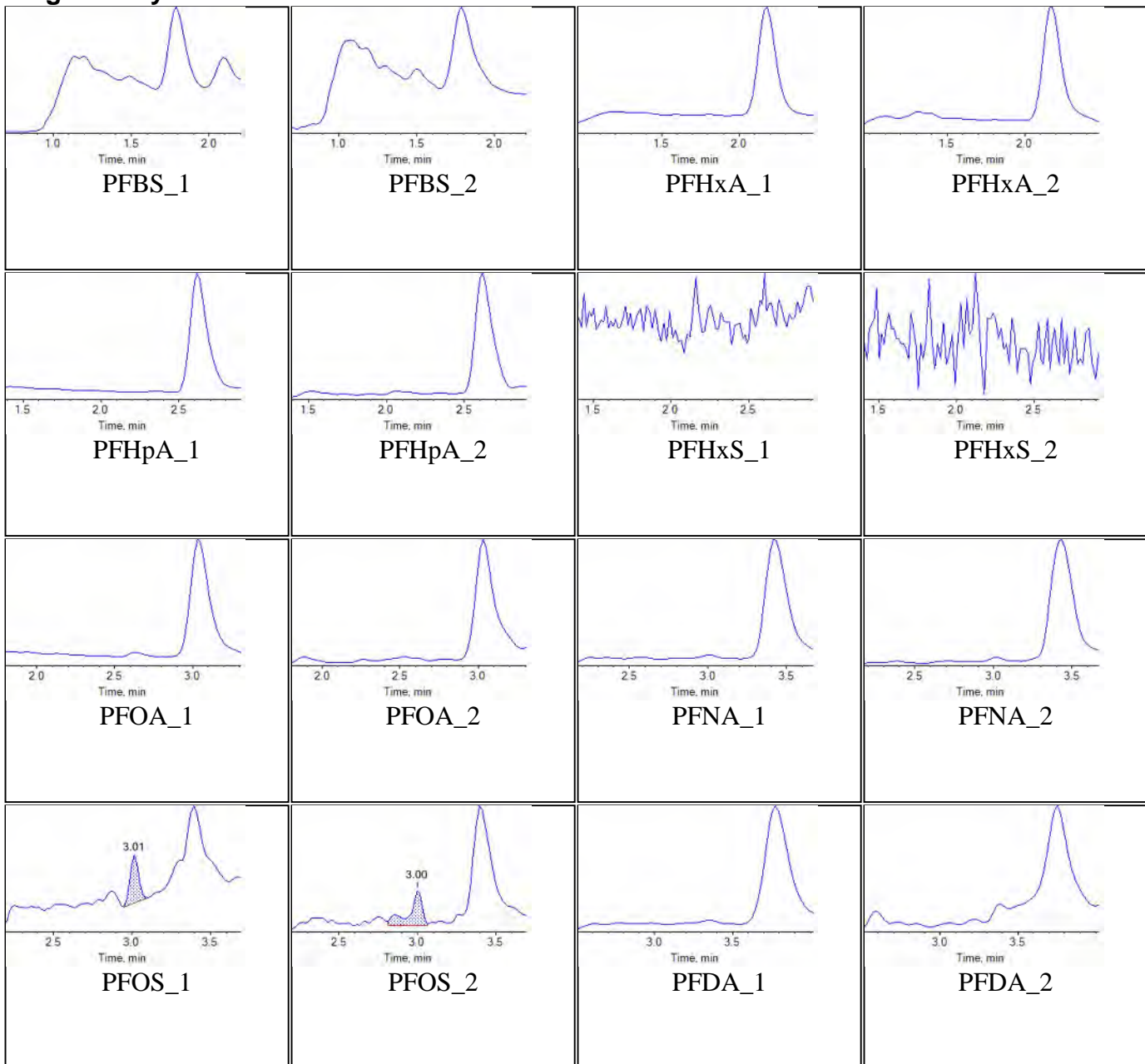


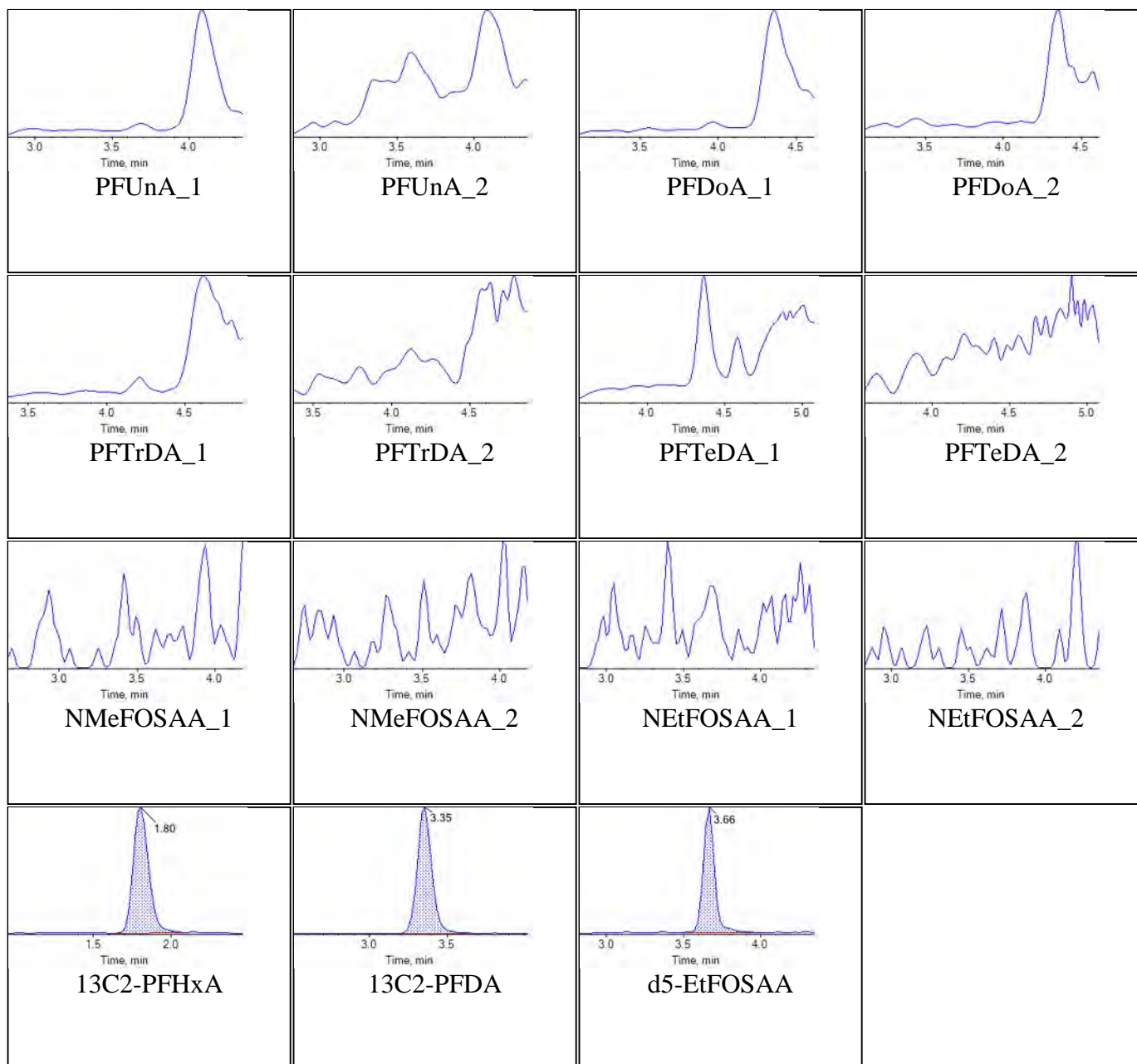
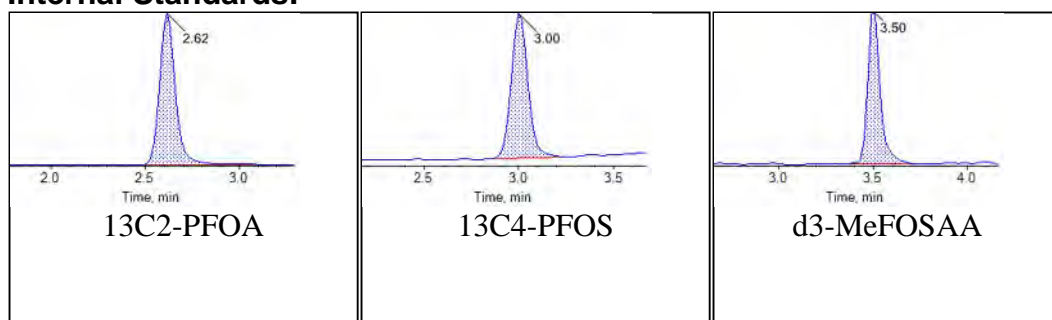
**Internal Standards:**

Sample Name	J7445-FS1(0)	Injection Vial	16
Sample ID	JAX-RES-08152018-0930-18	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:26:50	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Chromatograms

### Target Analytes:

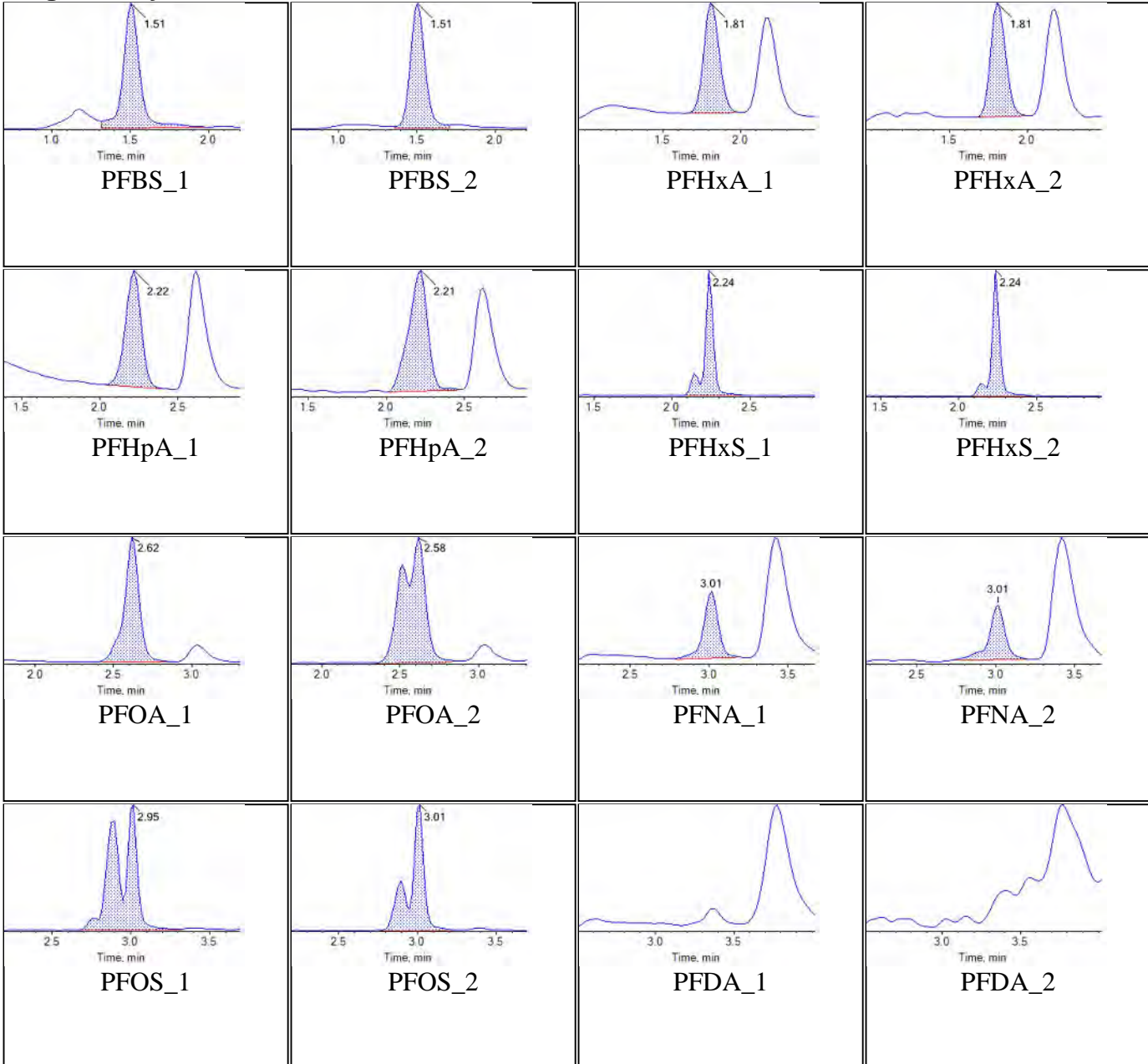


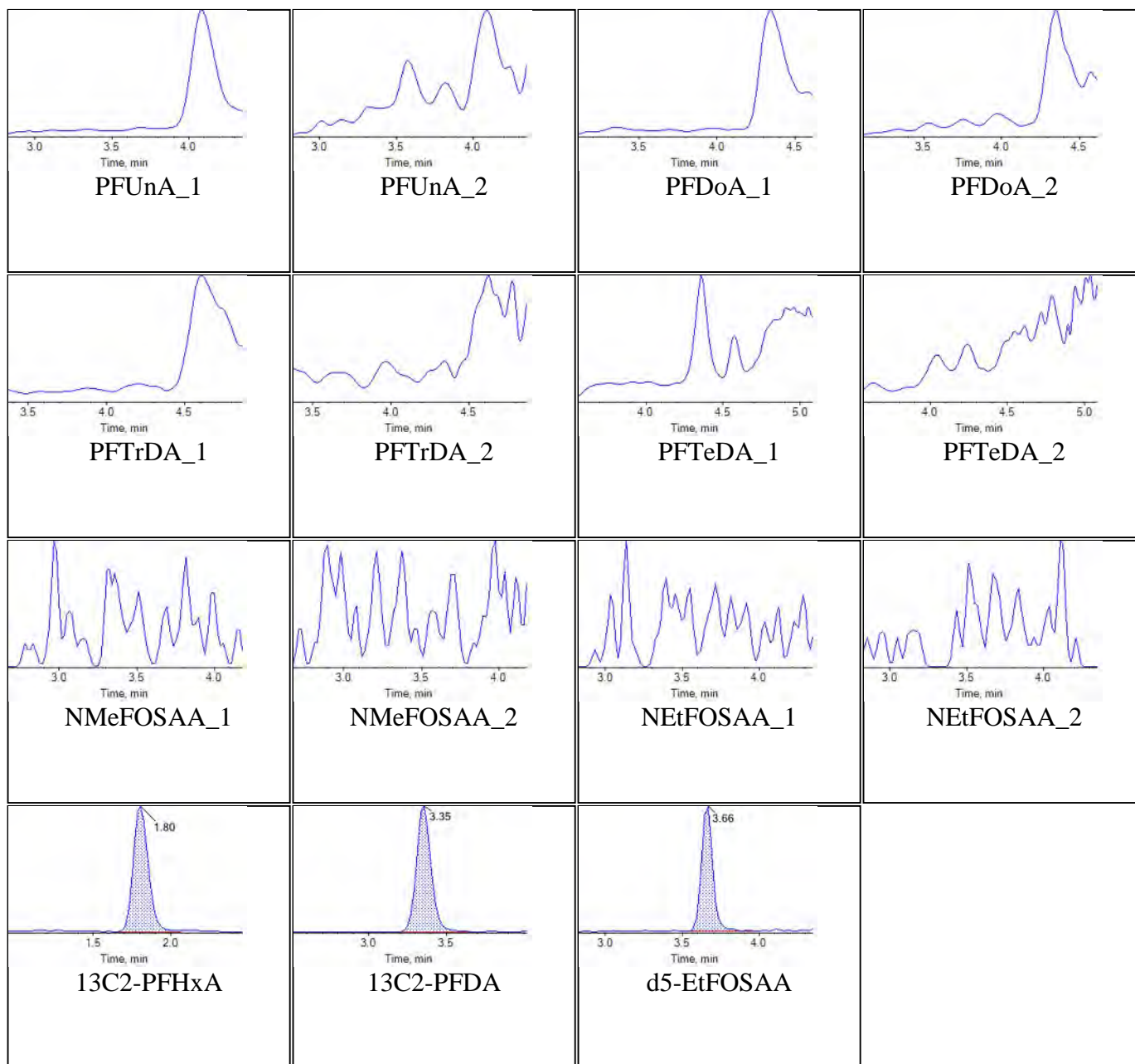
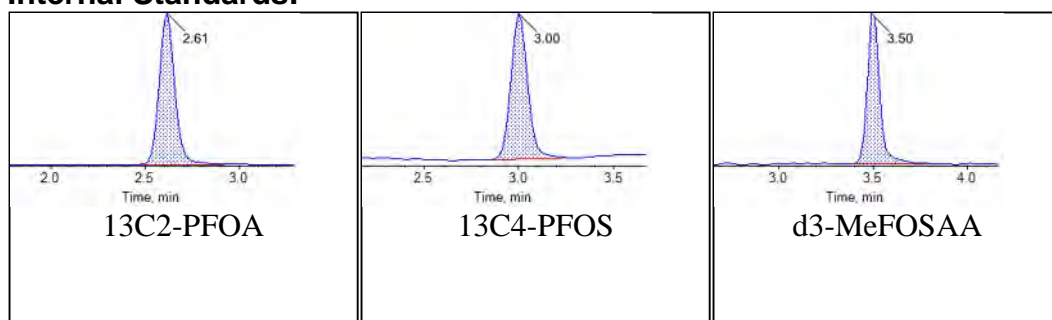
**Internal Standards:**

<b>Sample Name</b>	J7447-FS1(0)	<b>Injection Vial</b>	17
<b>Sample ID</b>	JAX-RES-08152018-1015-34	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T19:35:46	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:



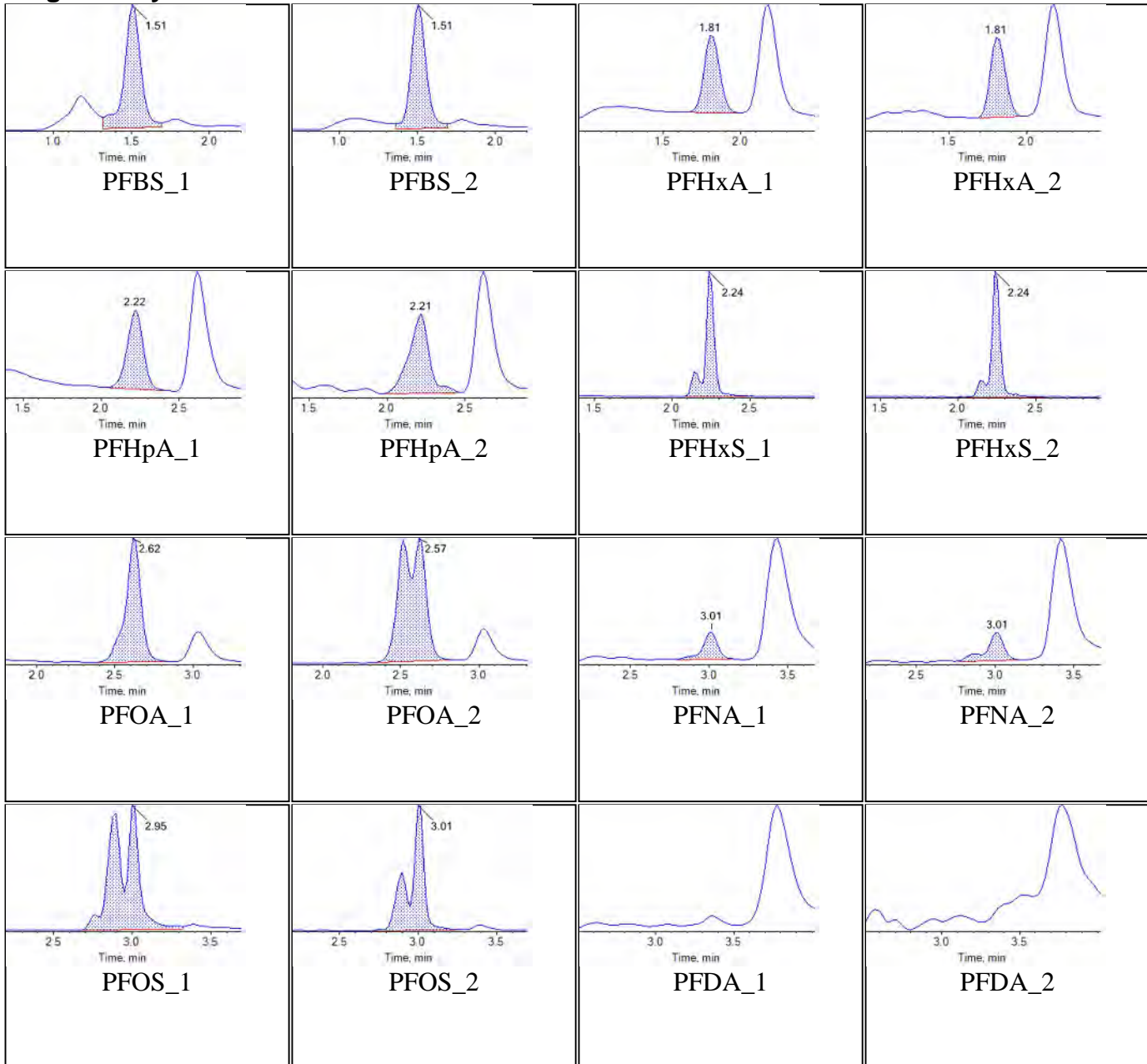
**Internal Standards:**

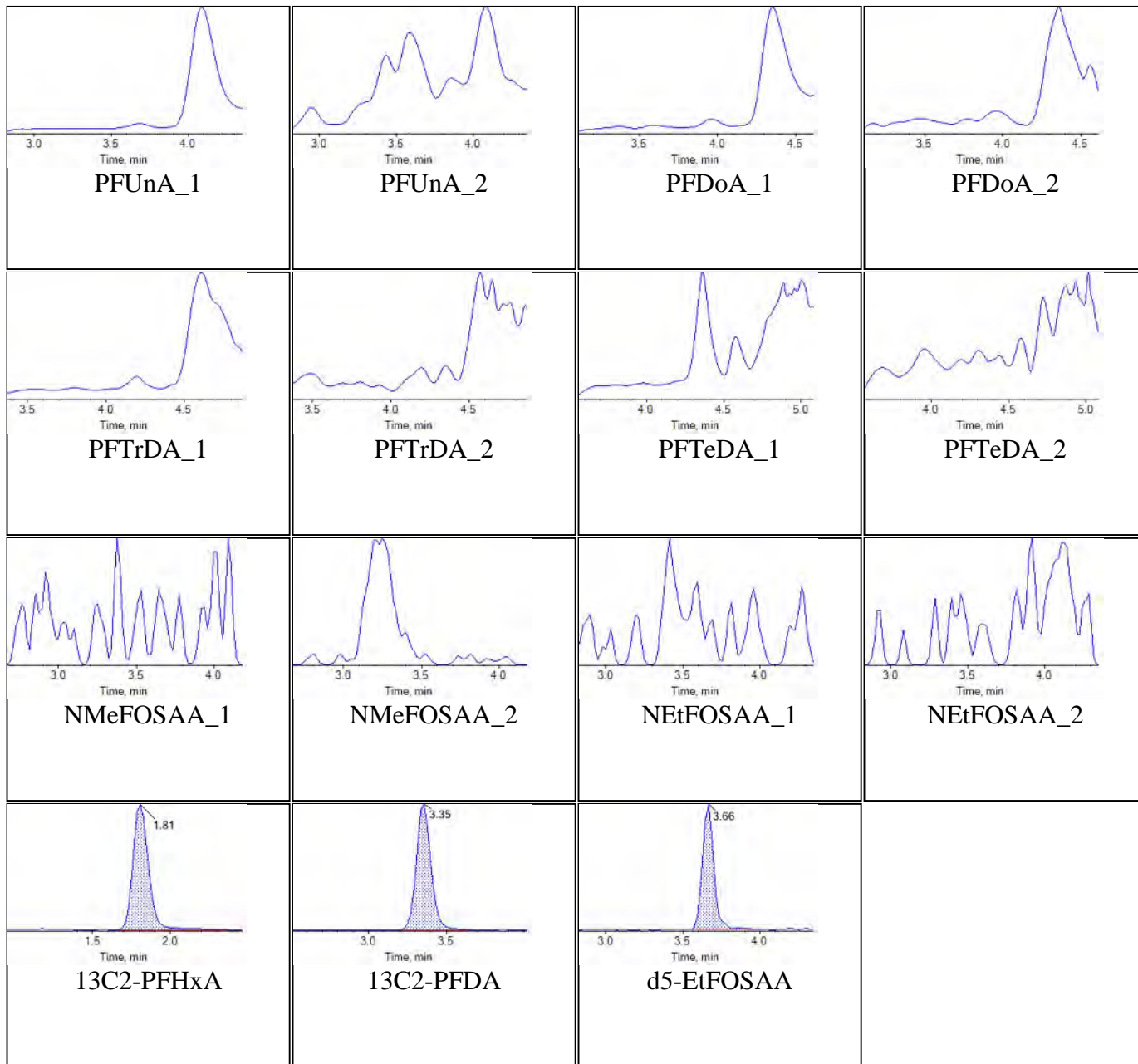


Sample Name	J7449-FS1(0)	Injection Vial	18
Sample ID	JAX-RES-08152018-1045-33	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:44:42	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

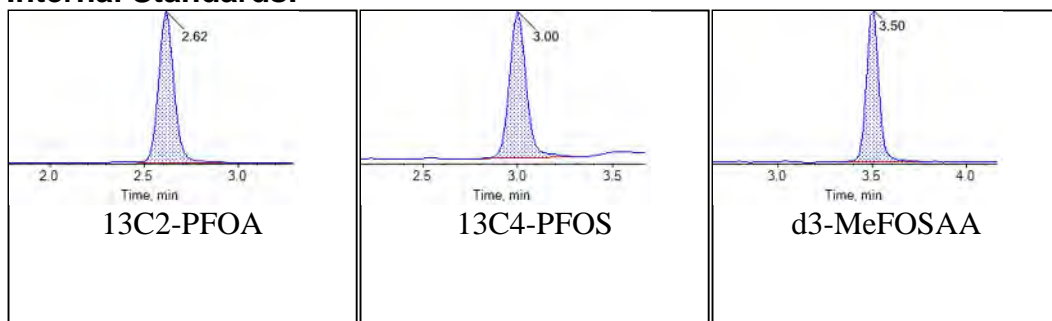
## Chromatograms

### Target Analytes:





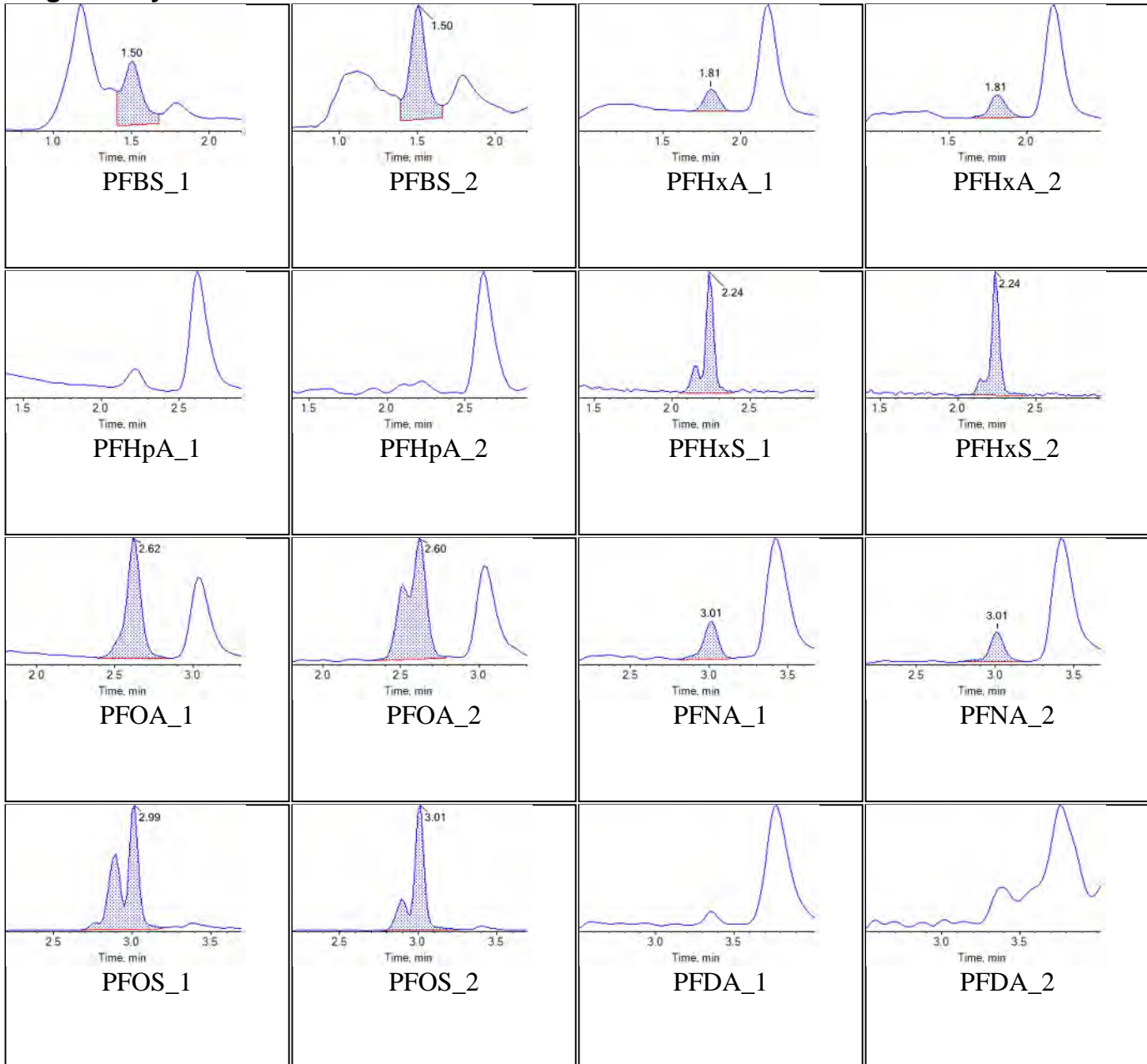
### Internal Standards:

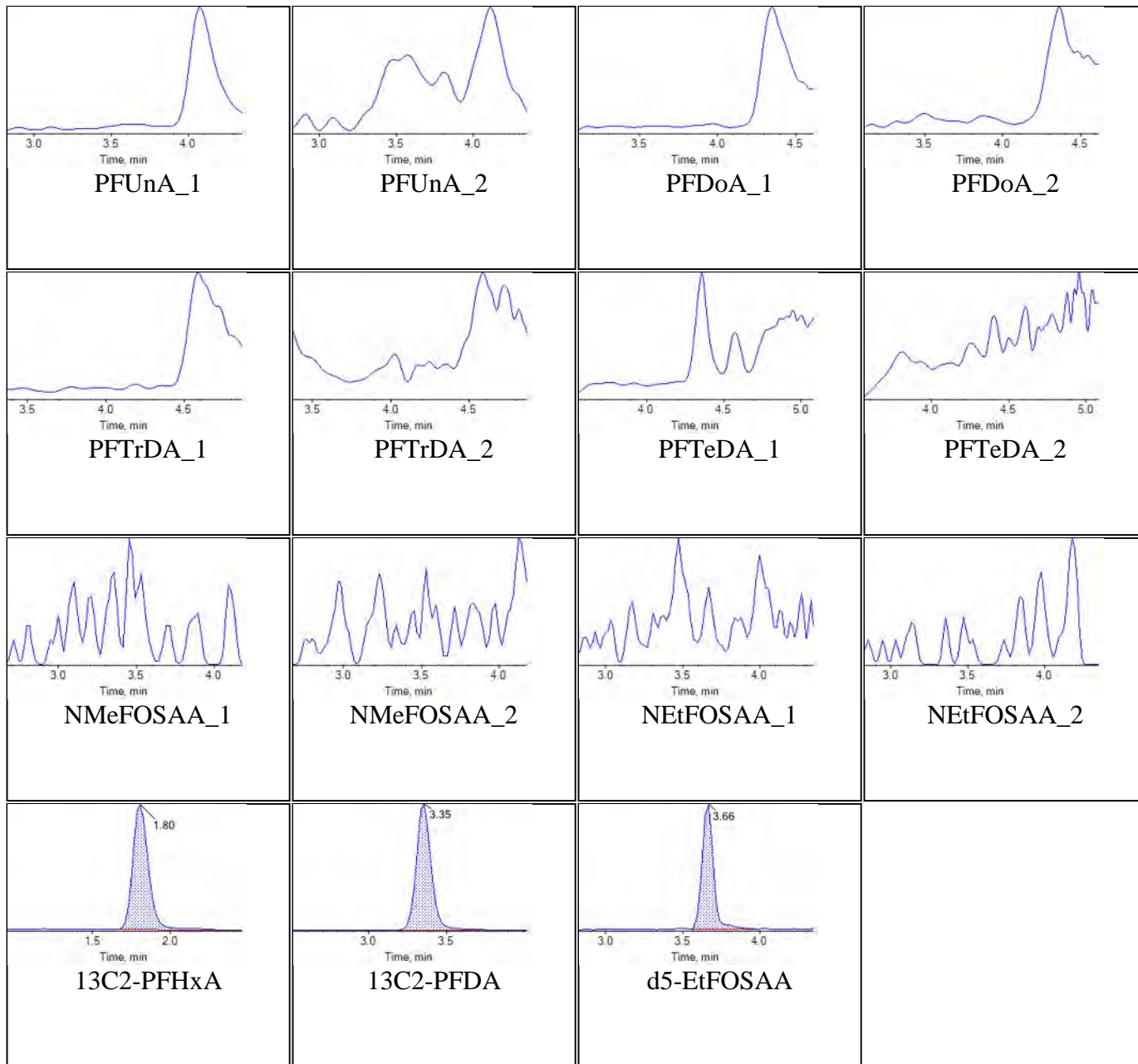


Sample Name	J7451-FS1(0)	Injection Vial	19
Sample ID	JAX-RES-08152018-1130-15	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:53:38	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

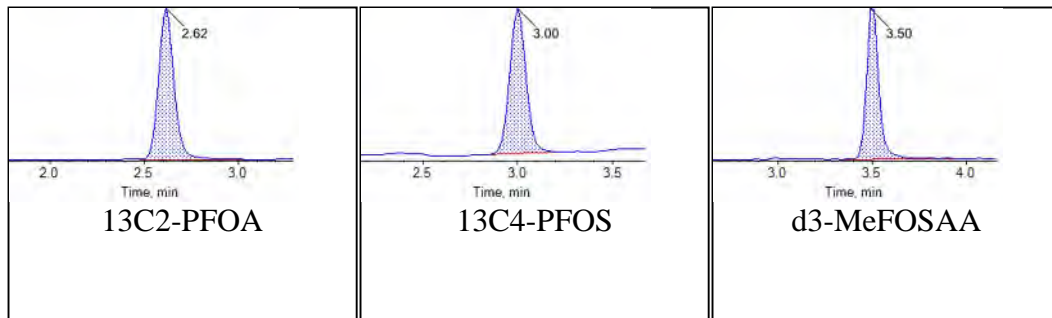
## Chromatograms

### Target Analytes:





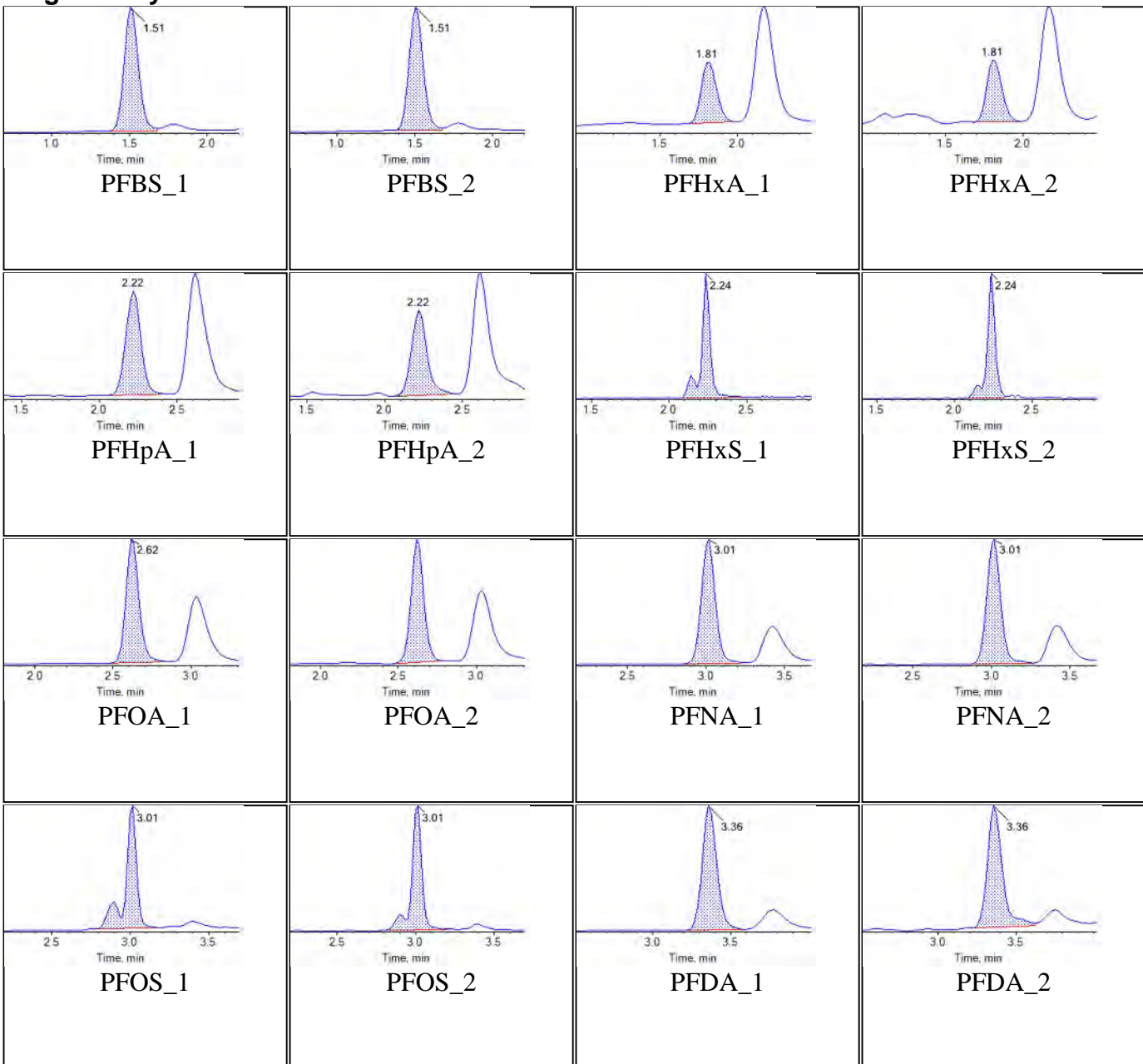
### Internal Standards:

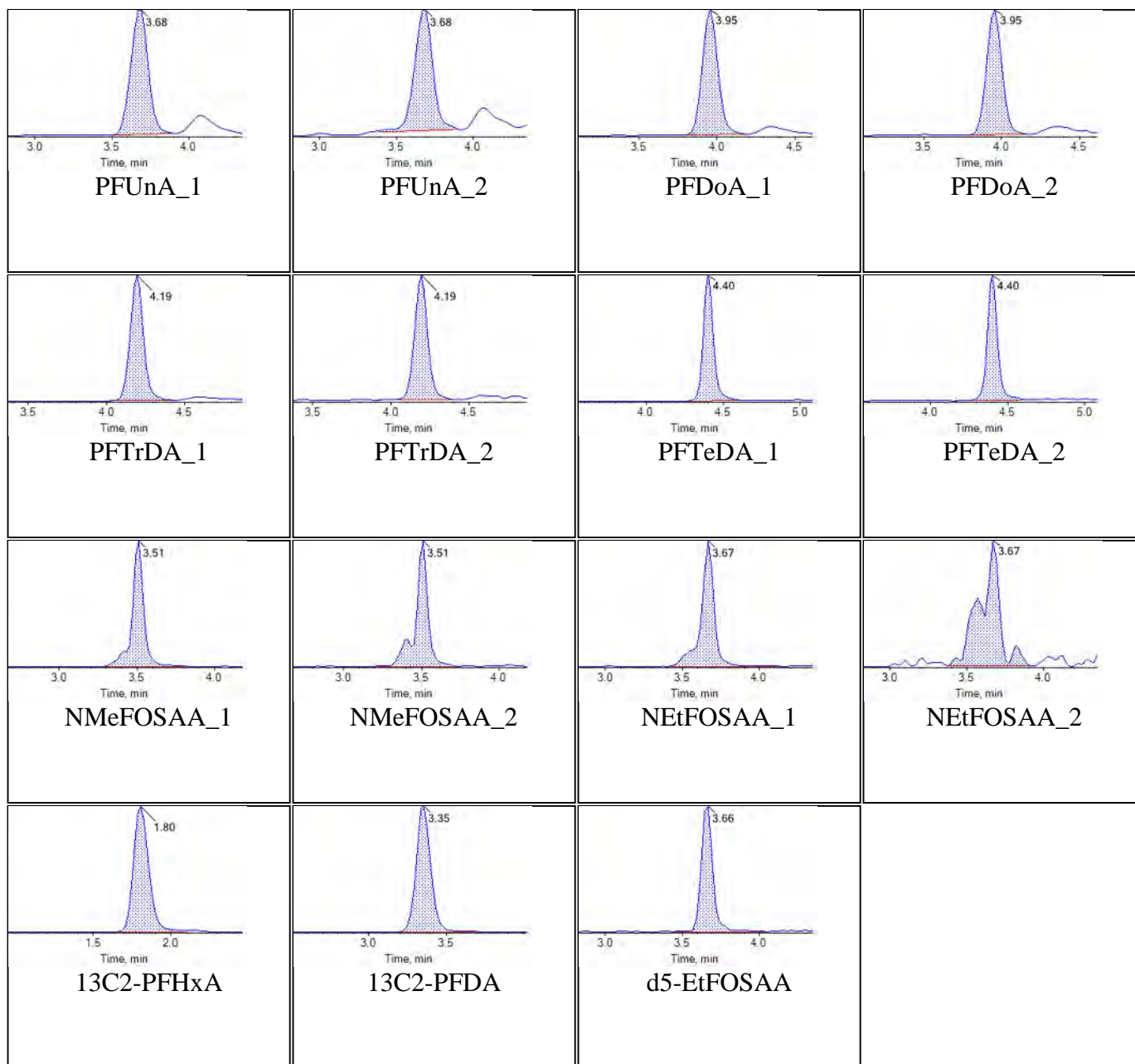
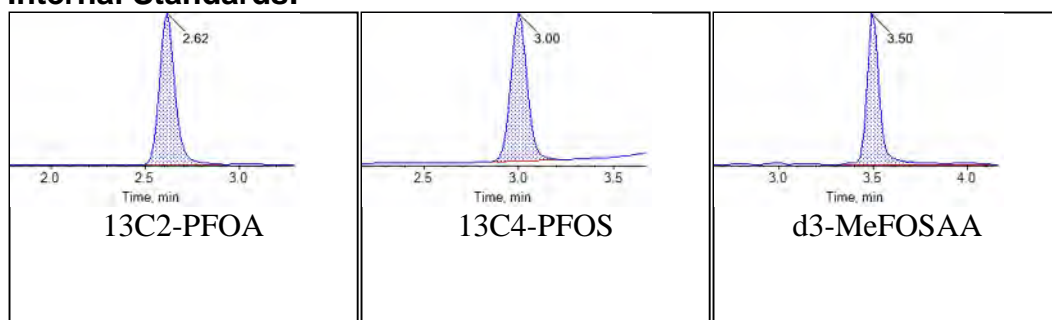


<b>Sample Name</b>	JZ82 CCV	<b>Injection Vial</b>	6
<b>Sample ID</b>	CCV	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Quality Control	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T20:02:34	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:



**Internal Standards:**

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","307-24-4","PFHxA",".500000","ng/L","U",".22","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500",".50",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","375-85-9","PFHpA","1.000000","ng/L","U",".34","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","335-67-1","PFOA","1.000000","ng/L","U",".38","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","375-95-1","PFNA","1.000000","ng/L","U",".37","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","335-76-2","PFDA","1.000000","ng/L","U",".39","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","2058-94-8","PFUnA","1.000000","ng/L","U",".38","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","307-55-1","PFDaA","1.000000","ng/L","U",".42","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","72629-94-8","PFTTrDA","1.000000","ng/L","U",".42","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","376-06-7","PFTeDA","1.500000","ng/L","U",".73","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.50",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","2355-31-9","NMeFOSAA","1.000000","ng/L","U",".42","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","2991-50-6","NEtFOSAA","1.000000","ng/L","U",".44","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","375-73-5","PFBS",".500000","ng/L","U",".21","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500",".50",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","1763-23-1","PFOS","1.000000","ng/L","U",".30","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","355-46-4","PFHxS","1.000000","ng/L","U",".34","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","BDO-2106","13C2-PFHxA",".410000","ng/L","","-99.00","NA","","SIS","103.00","","-99.00","NA","YES",".400000","",".250000",".000500",".50",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","BDO-2110","13C2-PFDA",".390000","ng/L","","-99.00","NA","","SIS","97.00","","-99.00","NA","YES",".400000","",".250000",".000500",".50",""

"CR676PB-FS","SOP 5-369","Initial","CR676PB-FS","BNO","BDO-1839","d5-EtFOSAA","1.650000","ng/L","","-99.00","NA","","SIS","103.00","","-99.00","NA","YES","1.600000","",".250000",".000500",".50",""

"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","307-24-4","PFHxA","24.050000","ng/L","",".22","MDL","","T","20.00","","2.50","LOQ","YES","20.000000","",".250000",".000500","24.050000",""

00500",".50",""  
"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","375-85-9","PFHpA","24.410000","ng/L","",".34","MDL","", "T","20.00","", "2.50","LOQ","YES","20.000000","", ".250000",".000500","1.00",""  
"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","335-67-1","PFOA","23.280000","ng/L","", ".38","MDL","", "T","20.00","", "2.50","LOQ","YES","20.000000","", ".250000",".000500","1.00",""  
"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","375-95-1","PFNA","23.980000","ng/L","", ".37","MDL","", "T","20.00","", "2.50","LOQ","YES","20.000000","", ".250000",".000500","1.00",""  
"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","335-76-2","PFDA","23.810000","ng/L","", ".39","MDL","", "T","20.00","", "2.50","LOQ","YES","20.000000","", ".250000",".000500","1.00",""  
"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","2058-94-8","PFUnA","22.380000","ng/L","", ".38","MDL","", "T","20.00","", "2.50","LOQ","YES","20.000000","", ".250000",".000500","1.00",""  
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"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","72629-94-8","PFTTrDA","22.240000","ng/L","", ".42","MDL","", "T","20.00","", "2.50","LOQ","YES","20.000000","", ".250000",".000500","1.00",""  
"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","376-06-7","PFTeDA","22.340000","ng/L","", ".73","MDL","", "T","20.00","", "2.50","LOQ","YES","20.000000","", ".250000",".000500","1.50",""  
"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","2355-31-9","NMeFOSAA","24.500000","ng/L","", ".42","MDL","", "T","20.00","", "2.50","LOQ","YES","20.000000","", ".250000",".000500","1.00",""  
"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","2991-50-6","NEtFOSAA","24.450000","ng/L","", ".44","MDL","", "T","20.00","", "2.50","LOQ","YES","20.000000","", ".250000",".000500","1.00",""  
"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","375-73-5","PFBS","20.320000","ng/L","", ".21","MDL","", "T","17.00","", "2.50","LOQ","YES","17.700000","", ".250000",".000500",".50",""  
"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","1763-23-1","PFOS","19.370000","ng/L","", ".30","MDL","", "T","19.00","", "2.50","LOQ","YES","19.100000","", ".250000",".000500","1.00",""  
"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","355-46-4","PFHxA","21.750000","ng/L","", ".34","MDL","", "T","18.00","", "2.50","LOQ","YES","18.900000","", ".250000",".000500","1.00",""  
"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","BDO-2106","13C2-PFHxA",".430000","ng/L","", "-99.00","NA","", "SIS","108.00","", "-99.00","NA","YES",".400000","", ".250000",".000500",".50",""  
"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","BDO-2110","13C2-PFDA",".450000","ng/L","", "-99.00","NA","", "SIS","112.00","", "-99.00","NA","YES",".400000","", ".250000",".000500",".50",""  
"CR677LCS-FS","SOP 5-369","Initial","CR677LCS-FS","BNO","BDO-1839","d5-EtFOSAA","1.740000","ng/L","", "-99.00","NA","", "SIS","109.00","", "-99.00","NA","YES","1.600000","", ".250000",".000500",".50",""  
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"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS1","BNO","375-85-9","PFHpA",".880000","ng/L","U",".30","MDL","", "T","", "2.19","LOQ","YES","-99.000000","", ".285000",".000500"



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"112G08005-SE0375", "SE0375 ? NAS Jacksonville", "JAX-RES-08152018-1015-34", "08/15/2018 10:15", "W", "J7447-FS1", "NM", "SHP-180816-02", "1.400000", "SOP 5-369", "Gen Prep", "Initial", "08/28/2018 14:24", "08/29/2018 19:35", "BNO", "COA", "NA", "T", "1.000", "NA", "NA", "", "100.000000", "18-0534", "18-0534", "DP-18-0246", "DP-18-0246", "18-0534", "08/16/2018 11:00", "09/04/2018 15:33", ""  
"112G08005-SE0375", "SE0375 ? NAS Jacksonville", "JAX-RES-08152018-1045-33", "08/15/2018 10:45", "W", "J7449-FS1", "NM", "SHP-180816-02", "1.400000", "SOP 5-369", "Gen Prep", "Initial", "08/28/2018 14:24", "08/29/2018 19:44", "BNO", "COA", "NA", "T", "1.000", "NA", "NA", "", "100.000000", "18-0534", "18-0534", "DP-18-0246", "DP-18-

0246","18-0534","08/16/2018 11:00","09/04/2018 15:33",""  
"112G08005-SE0375","SE0375 ? NAS Jacksonville","JAX-RES-08152018-1130-15","08/15/2018 11:30","W","J7451-  
FS1","NM","SHP-180816-02","1.400000","SOP 5-369","Gen Prep","Initial","08/28/2018 14:24","08/29/2018  
19:53","BNO","COA","NA","T","1.000","NA","NA","","100.000000","18-0534","18-0534","DP-18-0246","DP-18-  
0246","18-0534","08/16/2018 11:00","09/04/2018 15:33",""



**PFAS**

No issues were identified.

**Additional Comments**

The samples in this SDG had low surrogate spike Percent Recoveries (%Rs) in the initial analyses included in SDGs 18-0507 and 18-0509. The laboratory re-analyzed the samples with similar results. After reviewing the initial sample results, the data validator contacted the laboratory and requested that the samples be re-extracted (as per EPA Method 537) because the 14-day holding time was not exceeded. The laboratory re-extracted the samples and the surrogate %Rs were within the 70% - 130% quality control limits. The results presented in this SDG were used in the data validation.

The laboratory uses a primary transition for the quantitation of a compound and a secondary transition for confirmation.

The Field Reagent Blanks (FRBs) were not analyzed because the associated drinking water samples did not contain detections greater than the Limit of Quantitation (LOQ).

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

Detected results reported below the Limit of Quantitation (LOQ) but above the Method Detection Limit (MDL) were qualified as estimated, (J). Non-detected results were reported to the MDL in the database.

**Executive Summary**

**Laboratory Performance Issues:** None.

**Other Factors Affecting Data Quality:** None.



TO: M. PETERSON  
SDG: 18-0534

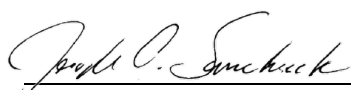
PAGE 3

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.



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Tetra Tech, Inc.  
Michelle L. Woeber  
Chemist/Data Validator



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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.

<b>U</b>	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted detection limit.
<b>J</b>	The result is an estimated quantity. 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).
<b>J+</b>	The result is an estimated quantity, but the result may be biased high.
<b>J-</b>	The result is an estimated quantity, but the result may be biased low.
<b>UJ</b>	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
<b>NJ</b>	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
<b>R</b>	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.
<b>UR</b>	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.
<b>X</b>	The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team, but exclusion of the data is recommended.

**APPENDIX A**

**QUALIFIED ANALYTICAL RESULTS**

**Qualifier Codes:**

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's  $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ( $< 2 \times$  IDL for inorganics and  $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues; i.e. chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors  $>40\%$  for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient  $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids  $<30\%$
- Z = Uncertainty at 2 standard deviations is greater than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed
- Z3 = Tentatively Identified Compound aldol condensate
- Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
- Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

<b>PROJ_NO: 08005-SE03</b> <b>SDG: 18-0534</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	JAX-RES-08142018-1130-9RE			JAX-RES-08152018-0930-18RE			JAX-RES-08152018-1015-34RE			JAX-RES-08152018-1045-33RE		
	LAB_ID	J7430-FS1			J7445-FS1			J7447-FS1			J7449-FS1		
	SAMP_DATE	8/14/2018			8/15/2018			8/15/2018			8/15/2018		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	0.39	U		0.44	U		0.37	U		0.39	U		
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	0.37	U		0.42	U		0.36	U		0.38	U		
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	0.33	U		0.38	U		10.23			6.06			
PERFLUOROBUTANESULFONIC ACID (PFBS)	0.18	U		0.21	U		9.09			2.91			
PERFLUORODECANOIC ACID (PFDA)	0.34	U		0.39	U		0.33	U		0.35	U		
PERFLUORODODECANOIC ACID (PFDOA)	0.37	U		0.42	U		0.36	U		0.38	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	0.3	U		0.34	U		3.49			2.03	J	P	
PERFLUOROHEXANESULFONIC ACID (PFHXS)	0.3	U		0.34	U		16.36			8.25			
PERFLUOROHEXANOIC ACID (PFHXA)	0.19	U		0.22	U		5.5			3.12			
PERFLUORONONANOIC ACID (PFNA)	0.32	U		0.37	U		0.31	U		0.33	U		
PERFLUOROOCCTANESULFONIC ACID (PFOS)	0.26	U		0.3	U		13.92			7.5			
PERFLUOROTETRADECANOIC ACID (PFTEA)	0.64	U		0.73	U		0.62	U		0.65	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)	0.37	U		0.42	U		0.36	U		0.38	U		
PERFLUOROUNDECANOIC ACID (PFUNA)	0.33	U		0.38	U		0.32	U		0.34	U		

<b>PROJ_NO: 08005-SE03</b> <b>SDG: 18-0534</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	JAX-RES-08152018-1130-15RE		
	LAB_ID	J7451-FS1		
	SAMP_DATE	8/15/2018		
	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)	0.39	U		
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)	0.37	U		
PENTADECAFLUOROOCTANOIC ACID (PFOA)	1.63	J	P	
PERFLUOROBUTANESULFONIC ACID (PFBS)	0.78	J	P	
PERFLUORODECANOIC ACID (PFDA)	0.34	U		
PERFLUORODODECANOIC ACID (PFDOA)	0.37	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	0.3	U		
PERFLUOROHEXANESULFONIC ACID (PFHXS)	1.18	J	P	
PERFLUOROHEXANOIC ACID (PFHXA)	0.71	J	P	
PERFLUORONONANOIC ACID (PFNA)	0.32	U		
PERFLUOROOCTANESULFONIC ACID (PFOS)	5.08			
PERFLUOROTETRADECANOIC ACID (PFTEA)	0.64	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)	0.37	U		
PERFLUOROUNDECANOIC ACID (PFUNA)	0.33	U		

**APPENDIX B**

**RESULTS AS REPORTED BY THE LABORATORY**



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID JAX-RES-08142018-1130-9

Battelle ID J7430-FS1  
 Sample Type SA  
 Collection Date 08/14/2018  
 Extraction Date 08/28/2018  
 Analysis Date 08/29/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix W  
 Sample Size 0.285  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

			MDL	LOD	LOQ
PFHxA	307-24-4	0.44 U	0.19	0.44	2.19
PFHpA	375-85-9	0.88 U	0.30	0.88	2.19
PFOA	335-67-1	0.88 U	0.33	0.88	2.19
PFNA	375-95-1	0.88 U	0.32	0.88	2.19
PFDA	335-76-2	0.88 U	0.34	0.88	2.19
PFUnA	2058-94-8	0.88 U	0.33	0.88	2.19
PFDoA	307-55-1	0.88 U	0.37	0.88	2.19
PFTTrDA	72629-94-8	0.88 U	0.37	0.88	2.19
PFTeDA	376-06-7	1.32 U	0.64	1.32	2.19
NMeFOSAA	2355-31-9	0.88 U	0.37	0.88	2.19
NEtFOSAA	2991-50-6	0.88 U	0.39	0.88	2.19
PFBS	375-73-5	0.44 U	0.18	0.44	2.19
PFHxS	355-46-4	0.88 U	0.30	0.88	2.19
PFOS	1763-23-1	0.88 U	0.26	0.88	2.19

**Surrogate Recoveries (%)**

13C2-PFHxA	121
13C2-PFDA	90
d5-EtFOSAA	88





Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID JAX-RES-08152018-0930-18

Battelle ID J7445-FS1  
 Sample Type SA  
 Collection Date 08/15/2018  
 Extraction Date 08/28/2018  
 Analysis Date 08/29/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix W  
 Sample Size 0.250  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

		ng/L	MDL	LOD	LOQ
PFHxA	307-24-4	0.50 U	0.22	0.50	2.50
PFHpA	375-85-9	1.00 U	0.34	1.00	2.50
PFOA	335-67-1	1.00 U	0.38	1.00	2.50
PFNA	375-95-1	1.00 U	0.37	1.00	2.50
PFDA	335-76-2	1.00 U	0.39	1.00	2.50
PFUnA	2058-94-8	1.00 U	0.38	1.00	2.50
PFDoA	307-55-1	1.00 U	0.42	1.00	2.50
PFTTrDA	72629-94-8	1.00 U	0.42	1.00	2.50
PFTeDA	376-06-7	1.50 U	0.73	1.50	2.50
NMeFOSAA	2355-31-9	1.00 U	0.42	1.00	2.50
NEtFOSAA	2991-50-6	1.00 U	0.44	1.00	2.50
PFBS	375-73-5	0.50 U	0.21	0.50	2.50
PFHxS	355-46-4	1.00 U	0.34	1.00	2.50
PFOS	1763-23-1	1.00 U	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	117
13C2-PFDA	93
d5-EtFOSAA	98



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID JAX-RES-08152018-1015-34

Battelle ID J7447-FS1  
 Sample Type SA  
 Collection Date 08/15/2018  
 Extraction Date 08/28/2018  
 Analysis Date 08/29/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix W  
 Sample Size 0.295  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

		ng/L	MDL	LOD	LOQ
PFHxA	307-24-4	5.50	0.19	0.42	2.12
PFHpA	375-85-9	3.49	0.29	0.85	2.12
PFOA	335-67-1	10.23	0.32	0.85	2.12
PFNA	375-95-1	0.85 U	0.31	0.85	2.12
PFDA	335-76-2	0.85 U	0.33	0.85	2.12
PFUnA	2058-94-8	0.85 U	0.32	0.85	2.12
PFDoA	307-55-1	0.85 U	0.36	0.85	2.12
PFTTrDA	72629-94-8	0.85 U	0.36	0.85	2.12
PFTeDA	376-06-7	1.27 U	0.62	1.27	2.12
NMeFOSAA	2355-31-9	0.85 U	0.36	0.85	2.12
NEtFOSAA	2991-50-6	0.85 U	0.37	0.85	2.12
PFBS	375-73-5	9.09	0.18	0.42	2.12
PFHxS	355-46-4	16.36	0.29	0.85	2.12
PFOS	1763-23-1	13.92	0.25	0.85	2.12

**Surrogate Recoveries (%)**

13C2-PFHxA	115
13C2-PFDA	84
d5-EtFOSAA	88



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID JAX-RES-08152018-1045-33

Battelle ID J7449-FS1  
 Sample Type SA  
 Collection Date 08/15/2018  
 Extraction Date 08/28/2018  
 Analysis Date 08/29/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix W  
 Sample Size 0.280  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

		ng/L	MDL	LOD	LOQ
PFHxA	307-24-4	3.12	0.20	0.45	2.23
PFHpA	375-85-9	2.03 J	0.30	0.89	2.23
PFOA	335-67-1	6.06	0.34	0.89	2.23
PFNA	375-95-1	0.89 U	0.33	0.89	2.23
PFDA	335-76-2	0.89 U	0.35	0.89	2.23
PFUnA	2058-94-8	0.89 U	0.34	0.89	2.23
PFDoA	307-55-1	0.89 U	0.38	0.89	2.23
PFTTrDA	72629-94-8	0.89 U	0.38	0.89	2.23
PFTeDA	376-06-7	1.34 U	0.65	1.34	2.23
NMeFOSAA	2355-31-9	0.89 U	0.38	0.89	2.23
NEtFOSAA	2991-50-6	0.89 U	0.39	0.89	2.23
PFBS	375-73-5	2.91	0.19	0.45	2.23
PFHxS	355-46-4	8.25	0.30	0.89	2.23
PFOS	1763-23-1	7.50	0.27	0.89	2.23

**Surrogate Recoveries (%)**

13C2-PFHxA	124
13C2-PFDA	100
d5-EtFOSAA	95



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID JAX-RES-08152018-1130-15

Battelle ID J7451-FS1  
 Sample Type SA  
 Collection Date 08/15/2018  
 Extraction Date 08/28/2018  
 Analysis Date 08/29/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix W  
 Sample Size 0.285  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

			MDL	LOD	LOQ
PFHxA	307-24-4	0.71 J	0.19	0.44	2.19
PFHpA	375-85-9	0.88 U	0.30	0.88	2.19
PFOA	335-67-1	1.63 J	0.33	0.88	2.19
PFNA	375-95-1	0.88 U	0.32	0.88	2.19
PFDA	335-76-2	0.88 U	0.34	0.88	2.19
PFUnA	2058-94-8	0.88 U	0.33	0.88	2.19
PFDoA	307-55-1	0.88 U	0.37	0.88	2.19
PFTTrDA	72629-94-8	0.88 U	0.37	0.88	2.19
PFTeDA	376-06-7	1.32 U	0.64	1.32	2.19
NMeFOSAA	2355-31-9	0.88 U	0.37	0.88	2.19
NEtFOSAA	2991-50-6	0.88 U	0.39	0.88	2.19
PFBS	375-73-5	0.78 J	0.18	0.44	2.19
PFHxS	355-46-4	1.18 J	0.30	0.88	2.19
PFOS	1763-23-1	5.08	0.26	0.88	2.19

**Surrogate Recoveries (%)**

13C2-PFHxA	115
13C2-PFDA	91
d5-EtFOSAA	86

**APPENDIX C**

**SUPPORT DOCUMENTATION**

NAS JACKSONVILLE  
SDG 18-0534

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

Where:

PA	Area of target analyte/ area of internal standard
b	y Intercept from calibration curve
C <sub>IS</sub>	Concentration of internal standard (ng/L)
m	Slope of calibration
DF	Dilution factor
S	Sample Size
PIV	Pre-injection volume (L)

Target Analyte	PFHxS
Sample ID	JAX-RES-08152018-1015-34
Laboratory Sample ID	J7447-FS1
Sample Size (L)	0.295
Dilution Factor	1
PIV (L)	0.001
PFOS Area	1594582.61
IS Area	142592.45
IS Amount (ng/L)	287
Calibration Curve	y = 0.66142 x + 0.06010
Concentration (ng/L)	16.36

$$(((1594582.61/142592.45)-0.06010)/0.66142)*287*0.001*1/0.295$$

Sample Name	J7447-FS1(0)	Injection Vial	17
Sample ID	JAX-RES-08152018-1015-34	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:35:46	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	861882.75	2682.263904	421.1	false
PFBS_2	298.9 / 99.0	1.51	218180.50	2269.103296	484.0	false
PFHxA_1	313.0 / 269.0	1.81	509834.87	1621.854838	52.9	true
PFHxA_2	313.0 / 119.0	1.81	36731.14	1535.981825	57.6	true
PFHpA_1	363.0 / 319.0	2.22	310765.91	1028.308318	49.1	true
PFHpA_2	363.0 / 169.0	2.21	8413.42	1247.374894	82.5	false
PFHxS_1	399.0 / 80.0	2.24	1594582.61	4826.300239	300.2	false
PFHxS_2	399.0 / 99.0	2.24	464268.62	4813.861639	506.1	false
PFOA_1	413.0 / 369.0	2.62	960450.83	3016.729146	204.5	false
PFOA_2	413.0 / 169.0	2.58	100078.09	4463.352910	139.7	true
PFNA_1	463.0 / 419.0	3.01	34376.13	7.775539	48.6	true
PFNA_2	463.0 / 219.0	3.01	10216.22	3.199793	60.2	true
PFOS_1	499.0 / 80.0	2.95	1994506.00	4106.870123	156.0	false
PFOS_2	499.0 / 99.0	3.01	273377.43	3068.547310	292.7	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
13C2-PFHxA	315.0 / 270.0	1.80	42863.92	115.476029	381.3	false
13C2-PFDA	515.0 / 470.0	3.35	36019.86	83.735877	716.6	false
d5-EtFOSAA	589.0 / 419.0	3.66	22519.18	353.894474	192.7	false

Sample Name	J7447-FS1(0)	Injection Vial	17
Sample ID	JAX-RES-08152018-1015-34	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T19:35:46	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	142592.45	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	142592.45	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFHpA_1	363.0 / 319.0	2.22	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFHpA_2	363.0 / 169.0	2.21	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFHxS_1	399.0 / 80.0	2.24	13C4-PFOS	503.0 / 80.0	142592.45	287.00
PFHxS_2	399.0 / 99.0	2.24	13C4-PFOS	503.0 / 80.0	142592.45	287.00
PFOA_1	413.0 / 369.0	2.62	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFOA_2	413.0 / 169.0	2.58	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFNA_1	463.0 / 419.0	3.01	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFNA_2	463.0 / 219.0	3.01	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFOS_1	499.0 / 80.0	2.95	13C4-PFOS	503.0 / 80.0	142592.45	287.00
PFOS_2	499.0 / 99.0	3.01	13C4-PFOS	503.0 / 80.0	142592.45	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	37089.42	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	23208.72	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	23208.72	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	23208.72	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	23208.72	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	37089.42	100.00
13C2-PFDA	515.0 / 470.0	3.35	13C2-PFOA	415.0 / 370.0	37089.42	100.00
d5-EtFOSAA	589.0 / 419.0	3.66	d3-MeFOSAA	573.0 / 419.0	23208.72	400.00



NAS JACKSONVILLE  
SDG 18-0534

LABORATORY CONTROL SAMPLE

	Result	Target	Calculation	Recovery	Reported Recovery	QC Limits
PFHxA	24.05 ng/L	20.0 ng/L	$24.05/20*100$	120.25	120	70-130



It can be done

Chain-of-Custody

Client Contact Information <b>Tetra Tech</b>		Project Manager: <b>Mark Peterson</b> Sampler Information (print name): <b>David Siefuen</b> Phone: <b>904.334.7260</b> Email: Turnaround Time (TAT) Requested:		Sampling Site: <b>Residential</b>		Site Information: <b>-</b>	
Project Name: <b>NAS JAX - PFAS</b> Project No.: <b>112 G08005-8E0375</b>		Time Zone: <input checked="" type="radio"/> Normal <input type="radio"/> Priority <input type="radio"/> RUSH		Preservative <b>F2224</b>		COC # <b>002</b>	
Sample Identification		2018		Analysis <b>PFAS 537</b>		Page # <b>1</b>	
Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.			
<b>J7428 JAX-RES-08142018-1045-P</b>	<b>8-14 1045</b>	<b>G</b>	<b>W</b>	<b>2</b>	<b>2</b>		<b>1 Bottle # 31 # 32</b>
<b>J7429 JAX-RES-08142018-1045-S-PFB</b>	<b>8-14 1045</b>	<b>G</b>	<b>W</b>	<b>1</b>	<b>1</b>		<b>Bottle # 17</b>
<b>J7430 JAX-RES-08142018-1130-9</b>	<b>8-14 1130</b>	<b>G</b>	<b>W</b>	<b>2</b>	<b>2</b>		<b>Bottles # 87 # 88</b>
<b>J7431 JAX-RES-08142018-1130-9 FRS</b>	<b>8-14 1130</b>	<b>G</b>	<b>W</b>	<b>1</b>	<b>1</b>		<b>Bottle # 24</b>
Receipt Temperature: (°C)		Samples Intact: <b>Yes - No</b>		Samples on Ice: <b>Yes - No</b>		Receipt Comments:	
Relinquished by (Print/Sign) <b>David Siefuen</b>	Company: <b>Tetra Tech</b>	Date/Time: <b>8-14-18 1630</b>	Received by (Print/Sign) <b>Fcd Ex</b>		Company: <b>Battelle</b>	Date/Time: <b>8-15-18 10:40</b>	
Relinquished by (Print/Sign)	Company:	Date/Time:	Received by (Print/Sign) <b>Mark Schwartz</b>		Company:	Date/Time:	
Relinquished by (Print/Sign)	Company:	Date/Time:	Received by (Print/Sign)		Company:	Date/Time:	
Comments: <b>All samples Potable Water, Cool 4°C</b>							



### Chain-of-Custody

<u>Client Contact Information</u> <b>Tetra Tech</b>		Project Manager: <b>Mark Peterson</b> Sampler Information (print name): <b>David Siefken</b> Phone: <b>904.334.7260</b> Email: Turnaround Time (TAT) Requested:				Sampling Site: <b>NAS JAX</b>			Site Information: <b>Residential Wells</b>				
Project Name: <b>112608005 SE0375</b>		<input checked="" type="checkbox"/> Normal <input type="checkbox"/> Priority <input type="checkbox"/> RUSH				Preservative <b>Trizma</b>			COC # <b>003</b>				
Project No.: <b>NAS JAX PFAS</b>		Time Zone:										Analysis <b>PFAS-537</b>	
Sample Identification		2018 Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.							
<b>J7445</b>	<b>JAX-RES-08152018-0930-18</b>	<b>8-15</b>	<b>0930</b>	<b>G</b>	<b>W</b>	<b>2</b>	<b>2</b>						
<b>J7446</b>	<b>JAX-RES-08152018-0930-18-FRB</b>	<b>8-15</b>	<b>0930</b>	<b>G</b>	<b>W</b>	<b>1</b>	<b>1</b>						
<b>J7447</b>	<b>JAX-RES-08152018-1015-34</b>	<b>8-15</b>	<b>1015</b>	<b>G</b>	<b>W</b>	<b>2</b>	<b>2</b>						
<b>J7448</b>	<b>JAX-RES-08152018-1015-34-FRB</b>	<b>8-15</b>	<b>1015</b>	<b>G</b>	<b>W</b>	<b>1</b>	<b>1</b>						
<b>J7449</b>	<b>JAX-RES-08152018-1045-33</b>	<b>8-15</b>	<b>1045</b>	<b>G</b>	<b>W</b>	<b>2</b>	<b>2</b>						
<b>J7450</b>	<b>JAX-RES-08152018-1045-33-FRB</b>	<b>8-15</b>	<b>1045</b>	<b>G</b>	<b>W</b>	<b>1</b>	<b>1</b>						
<b>J7451</b>	<b>JAX-RES-08152018-1130-15</b>	<b>8-15</b>	<b>1130</b>	<b>G</b>	<b>W</b>	<b>2</b>	<b>2</b>						
<b>J7452</b>	<b>JAX-RES-08152018-1130-15-FRB</b>	<b>8-15</b>	<b>1130</b>	<b>G</b>	<b>W</b>	<b>1</b>	<b>1</b>						
Receipt Temperature:(°C) <b>1.4°</b>		Samples Intact: <input checked="" type="checkbox"/> Yes - No				Samples on Ice <input checked="" type="checkbox"/> Yes No				Receipt Comments:			
Relinquished by (Print/Sign): <b>David Siefken</b>		Company: <b>Tetra Tech</b>		Date/Time: <b>8-15-18 / 1300</b>		Received by (Print/Sign): <b>Fed Ex</b>		Company:		Date/Time:			
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign): <b>Matt Schmitz MS</b>		Company: <b>Battelle</b>		Date/Time: <b>8-16-18 1100</b>			
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):		Company:		Date/Time:			
Comments: <b>All Potable Water Samples</b>													

ShpNo SHP-180815-02

It can be done

Battelle Project No: \_\_\_\_\_

## Sample Receipt Form

Approved:  Authorized Project Number: 11208005-SE0375Client: Tetra TechReceived by: Schumitz, MattDate/Time Received: Wednesday, August 15, 2018 10:40 AMNo. of Shipping Containers: 1**SHIPMENT**Method of Delivery: Commercial CarrierTracking Number: 7823 01867565COC 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	7823 0186 7565	Custody Seals	Intact	Intact	Therm_2	1.1	4

**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): 1.1 Temperature Blank used  Yes  No*(Note: If temperature upon receipt differs from required conditions, see sample log comment field)*Samples Acidified:  Yes  No  UnknownInitial pH 5-9?:  Yes  No  NA*If no, individual sample adjustments on the Auxiliary Sample Receipt Form*Total Residual Chlorine Present?:  Yes  No  NA*If yes, individual sample adjustments on the Auxiliary Sample Receipt Form*Head Space <1% in samples for water VOC analysis:  Yes  No  NA*Individual sample deviations noted on sample log*

## Samples Containers:

Samples returned in PC-grade jars:  Yes  No  Unknown /Lot No.: UnKnownStorage Location: Custody: Refrigerator - R0119 (NA)BDO IDs Assigned: J7428 - J7431Samples logged in by: Schumitz, MattDate/Time: 08/15/2018 10:40 AM

Approved By: \_\_\_\_\_

Approved On: \_\_\_\_\_

Authorized By: \_\_\_\_\_

Authorized On: \_\_\_\_\_



It can be done

ShpNo SHP-180815-02

Battelle Project No: \_\_\_\_\_

Sample Receipt Form Details

Approved:  Authorized

Project Number: 11208005-SE0375 Client: Tetra Tech

Received by: Schumitz, Matt Date/Time Received: Wednesday, August 15, 2018 10:40 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:
J7428	JAX-RES-08142018-1045-8	08/14/18 10:45	08/15/18 10:57	2	W	1.1	NA	NA	NA	R0119 (NA)			
J7429	JAX-RES-08142018-1045-8-FRB	08/14/18 10:45	08/15/18 10:57	1	W	1.1	NA	NA	NA	R0119 (NA)			
J7430	JAX-RES-08142018-1130-9	08/14/18 11:30	08/15/18 10:57	2	W	1.1	NA	NA	NA	R0119 (NA)			
J7431	JAX-RES-08142018-1130-9-FRB	08/14/18 11:30	08/15/18 10:58	1	W	1.1	NA	NA	NA	R0119 (NA)			

Total Samples: 4

It can be done

Battelle Project No: \_\_\_\_\_

## Sample Receipt Form

Approved:  Authorized Project Number: 112G08005 SE0375Client: Tetra TechReceived by: Schumitz, MattDate/Time Received: Thursday, August 16, 2018 11:00 AMNo. of Shipping Containers: 1

### SHIPMENT

Method of Delivery: Commercial CarrierTracking Number: Fed ExCOC Forms:  Shipped with samples  No Forms

### Cooler(s)/Box(es)

Cntr	Type	Tracking No.	Seal	Seal	Container	Therm.	Temp C	Smpls
1 of 1	Cooler	7823 1551 4077	Custody Seal	Intact	Intact	Therm_2	1.4	8

### Samples

Sample Labels:  Sample labels agree with COC forms  
 Discrepancies (see Sample Custody Corrective Action Form)Container Seals:  Tape  Custody Seals  Other Seals (See sample Log)  
 Seals intact for each shipping container  
 Seals broken (See sample log for impacted samples)Condition of Samples:  Sample containers intact  
 Sample containers broken/leaking (See Custody Corrective Action Form)Temperature upon receipt (°C): 1.4 Temperature Blank used  Yes  No  
*(Note: If temperature upon receipt differs from required conditions, see sample log comment field)*Samples Acidified:  Yes  No  UnknownInitial pH 5-9?:  Yes  No  NA  
*If no, individual sample adjustments on the Auxiliary Sample Receipt Form*Total Residual Chlorine Present?:  Yes  No  NA  
*If yes, individual sample adjustments on the Auxiliary Sample Receipt Form*Head Space <1% in samples for water VOC analysis:  Yes  No  NA  
*Individual sample deviations noted on sample log*Samples Containers: Samples returned in PC-grade jars:  Yes  No  Unknown /Lot No.: UnKnownStorage Location: Custody: Refrigerator - R0119 (NA) BDO IDs Assigned: J7445 - J7452Samples logged in by: Schumitz, Matt Date/Time: 08/16/2018 11:00 AM

Approved By: \_\_\_\_\_ Approved On: \_\_\_\_\_

Authorized By: \_\_\_\_\_ Authorized On: \_\_\_\_\_



It can be done

ShpNo SHP-180816-02

Battelle Project No: \_\_\_\_\_

Sample Receipt Form Details

Approved:  Authorized

Project Number: 112G08005 SE0375 Client: Tetra Tech

Received by: Schumitz, Matt Date/Time Received: Thursday, August 16, 2018 11:00 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:
J7445	JAX-RES-08152018-0930-18	08/15/18 9:30	08/16/18 11:25	2	W	1.4	NA	NA	NA	R0119 (NA)			
J7446	JAX-RES-08152018-0930-18-FRB	08/15/18 9:30	08/16/18 11:25	1	W	1.4	NA	NA	NA	R0119 (NA)			
J7447	JAX-RES-08152018-1015-34	08/15/18 10:15	08/16/18 11:25	2	W	1.4	NA	NA	NA	R0119 (NA)			
J7448	JAX-RES-08152018-1015-34-FRB	08/15/18 10:15	08/16/18 11:26	1	W	1.4	NA	NA	NA	R0119 (NA)			
J7449	JAX-RES-08152018-1045-33	08/15/18 10:45	08/16/18 11:26	2	W	1.4	NA	NA	NA	R0119 (NA)			
J7450	JAX-RES-08152018-1045-33-FRB	08/15/18 10:45	08/16/18 11:26	1	W	1.4	NA	NA	NA	R0119 (NA)			
J7451	JAX-RES-08152018-1130-15	08/15/18 11:30	08/16/18 11:26	2	W	1.4	NA	NA	NA	R0119 (NA)			
J7452	JAX-RES-08152018-1130-15-FRB	08/15/18 11:30	08/16/18 11:27	1	W	1.4	NA	NA	NA	R0119 (NA)			

Total Samples: 8

**QA/QC Summary  
Batch 18-0534**

Project:	CTO-SE0375: Naval Air Station (NAS) Jacksonville
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	W
Data Set:	DP-18-0246
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
08/14/2018	08/15/2018	1.1
8/15/2018	8/16/2018	1.4

Corrective Actions	None.
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	This SDG contains samples re-extracted from SDG 18-0507 and 18-0509 to verify surrogate recoveries.

METHOD SUMMARIES	
Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were 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.  There are no ion ratio exceedances above 50% RPD for any analyte detected above the MDL or the LOQ in this SDG.

Holding Times	Extraction Date(s)	Analysis Date(s)
	8/28/2018	8/29/2018

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



**QA/QC Summary**  
**Batch 18-0534**

Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
70-130% of true value	No exceedances noted. No comments.
Matrix Spike (MS) / Duplicate (MSD)	A MS/MSD were prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy. The relative percent difference was calculated to measure precision.
70-130% of true value, RPD $\leq$ 30%	Not applicable. MS/MSD samples were not prepared with this batch of 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 $\leq$ 20%, 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted. No comments.
Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadratic curve fitting.
R <sup>2</sup> >0.99 Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No exceedances noted. No comments.
Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted. No comments.

**QA/QC Summary**  
**Batch 18-0534**

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Continuing Calibration Verification (CCV)	Continuing calibration standards were run at the beginning and end of 10 injections and at the end of the sequence to ensure that initial calibration is still valid.
Target and SIS compounds +/- 30% of true value	No exceedances noted.
Low point 50-150% of true value	No comments.



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project Number: 100119154-SE0375  
 Preparation Batch: 18-0534  
 Data Set: DP-18-0246  
 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	NA
Matrix Spike / Matrix Spike Duplicate Precision	NA	NA
Extracted Internal Standard Analytes (Surrogates)	0	None
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None



It can be done

**BATTELLE - NORWELL OPERATIONS  
MISCELLANEOUS DOCUMENTATION FORM**

**Project Title:** CTO-SE0375: Naval Air Station Jackson      **Data Set Number:** DP-18-0246  
**Project Number:** 100119154-SE0375      **Prep Batch Number:** 18-0534  
**Entered By:** Denise Schumitz      **Entered On:** 08/31/2018  
**Test Code (Matrix Type):** Master\_371(L)

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Samples that were manually integrated are noted on the quant reports with the comment (TRUE).  
DMS 8/31/2018

JZ80 is not being used in this method for PFNA, PFUnA, PFTrDA and NMeFOSAA. There is no impact on the data once this point is removed from the calibration.  
DMS 8/31/2018

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**Task Leader Approval:**

**Supervisor Approval:**

Digitally signed by Jonathan Thorn  
Date: 2018.08.31 14:48:37 -04'00'

**PM Approval:**



## Glossary of Data Qualifiers

Flag:      Application:

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



## Example Calculation for PFAS

Calculation of final concentration from area:

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

Where:

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

Sample ID: J7447-FS1(0)  
 Client Sample ID: JAX-RES-08152018-1015-34  
 Sample Size: 0.295  
 Units: L  
 Dilution Factor: 1.000  
 PIV (L): 0.001  
 Target Analyte: PFHxS  
 MRM Transition: 399.0 / 80.0  
 Data file: 18-0534.wiff  
 Result table: 18-0534\_DW  
 Area: 1,594,582.61  
 IS Name: 13C4-PFOS  
 IS Area: 142,592.45  
 IS Amount (ng/L): 287  
 y-intercept: 0.0601  
 slope: 0.66142

$$\text{Concentration} = \frac{[(1594582.61/142592.45) - 0.0601]}{0.66142} * 287 * 0.001 * 1 / 0.295$$

ng/L = 16.36



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375  
 Preparation Batch: 18-0534  
 Data Set: DP-18-0246

	CR676PB-FS (Procedural Blank)	CR677LCS-FS (Laboratory Control Sample)	J7430-FS1 (JAX-RES-08142018-1130-9)	J7445-FS1 (JAX-RES-08152018-0930-18)	J7447-FS1 (JAX-RES-08152018-1015-34)	J7449-FS1 (JAX-RES-08152018-1045-33)	J7451-FS1 (JAX-RES-08152018-1130-15)
PFHxA (307-24-4)	-	L	-	-	L	L	L
PFHpA (375-85-9)	-	L	-	-	L	L	L
PFOA (335-67-1)	-	L	-	-	L	L	L
PFNA (375-95-1)	-	L	-	-	-	-	-
PFDA (335-76-2)	-	L	-	-	-	-	-
PFUnA (2058-94-8)	-	L	-	-	-	-	-
PFDoA (307-55-1)	-	L	-	-	-	-	-
PFTTrDA (72629-94-8)	-	L	-	-	-	-	-
PFTeDA (376-06-7)	-	L	-	-	-	-	-
NMeFOSAA (2355-31-9)	-	L	-	-	-	-	-
NEtFOSAA (2991-50-6)	-	L	-	-	-	-	-
PFBS (375-73-5)	-	L	-	-	L	L	L
PFHxS (355-46-4)	-	L	-	-	L/Br	L/Br	L/Br
PFOS (1763-23-1)	-	L	-	-	L/Br	L/Br	L/Br

"L" :Linear

"Br": branched

"L/Br": Linear/Branched

"-": Not detected

Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L3/L9)
JZ80	L3	8/29/18 17:30	13C4-PFOS	165,152.53	-
JZ81	L4	8/29/18 17:39	13C4-PFOS	164,086.22	-
JZ82	L5	8/29/18 17:48	13C4-PFOS	156,484.80	-
JZ83	L6	8/29/18 17:57	13C4-PFOS	140,809.20	-
JZ84	L7	8/29/18 18:06	13C4-PFOS	156,293.84	-
JZ85	L8	8/29/18 18:15	13C4-PFOS	141,374.13	-
JZ86	L9	8/29/18 18:24	13C4-PFOS	141,700.03	15.3

PASS

Average 152,271.54 Lower 76,135.77 Upper 228,407.31

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/29/18 17:30	13C4-PFOS	165,152.53	76,135.77	228,407.31		109,539.36	219,078.72	
JZ81	L4	8/29/18 17:39	13C4-PFOS	164,086.22	76,135.77	228,407.31		109,539.36	219,078.72	
JZ82	L5	8/29/18 17:48	13C4-PFOS	156,484.80	76,135.77	228,407.31		109,539.36	219,078.72	
JZ83	L6	8/29/18 17:57	13C4-PFOS	140,809.20	76,135.77	228,407.31		109,539.36	219,078.72	
JZ84	L7	8/29/18 18:06	13C4-PFOS	156,293.84	76,135.77	228,407.31		109,539.36	219,078.72	
JZ85	L8	8/29/18 18:15	13C4-PFOS	141,374.13	76,135.77	228,407.31		109,539.36	219,078.72	
JZ86	L9	8/29/18 18:24	13C4-PFOS	141,700.03	76,135.77	228,407.31		109,539.36	219,078.72	
KA08 IB	Instrument Blank	8/29/18 18:33	13C4-PFOS	149,777.87	76,135.77	228,407.31		109,539.36	219,078.72	
JZ77 ICC	ICC	8/29/18 18:42	13C4-PFOS	147,206.20	76,135.77	228,407.31		109,539.36	219,078.72	
CR676PB-FS(0)	Procedural Blank	8/29/18 18:59	13C4-PFOS	153,081.77	76,135.77	228,407.31		109,539.36	219,078.72	
CR677LCS-FS(0)	Laboratory Control Sample	8/29/18 19:08	13C4-PFOS	140,968.78	76,135.77	228,407.31		109,539.36	219,078.72	
J7430-FS1(0)	JAX-RES-08142018-1130-9	8/29/18 19:17	13C4-PFOS	145,522.53	76,135.77	228,407.31		109,539.36	219,078.72	
J7445-FS1(0)	JAX-RES-08152018-0930-18	8/29/18 19:26	13C4-PFOS	147,873.11	76,135.77	228,407.31		109,539.36	219,078.72	
J7447-FS1(0)	JAX-RES-08152018-1015-34	8/29/18 19:35	13C4-PFOS	142,592.45	76,135.77	228,407.31		109,539.36	219,078.72	
J7449-FS1(0)	JAX-RES-08152018-1045-33	8/29/18 19:44	13C4-PFOS	147,800.48	76,135.77	228,407.31		109,539.36	219,078.72	
J7451-FS1(0)	JAX-RES-08152018-1130-15	8/29/18 19:53	13C4-PFOS	134,621.86	76,135.77	228,407.31		109,539.36	219,078.72	
JZ82 CCV	CCV	8/29/18 20:02	13C4-PFOS	166,467.60	76,135.77	228,407.31		109,539.36	219,078.72	



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L3/L9)
JZ80	L3	8/29/18 17:30	13C2-PFOA	35,560.82	-
JZ81	L4	8/29/18 17:39	13C2-PFOA	35,503.68	-
JZ82	L5	8/29/18 17:48	13C2-PFOA	33,721.12	-
JZ83	L6	8/29/18 17:57	13C2-PFOA	30,532.56	-
JZ84	L7	8/29/18 18:06	13C2-PFOA	35,644.41	-
JZ85	L8	8/29/18 18:15	13C2-PFOA	32,263.14	-
JZ86	L9	8/29/18 18:24	13C2-PFOA	35,054.19	1.4

PASS

Average 34,039.99 Lower 17,020.00 Upper 51,059.99

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/29/18 17:30	13C2-PFOA	35,560.82	17,020.00	51,059.99		23,604.78	47,209.57	
JZ81	L4	8/29/18 17:39	13C2-PFOA	35,503.68	17,020.00	51,059.99		23,604.78	47,209.57	
JZ82	L5	8/29/18 17:48	13C2-PFOA	33,721.12	17,020.00	51,059.99		23,604.78	47,209.57	
JZ83	L6	8/29/18 17:57	13C2-PFOA	30,532.56	17,020.00	51,059.99		23,604.78	47,209.57	
JZ84	L7	8/29/18 18:06	13C2-PFOA	35,644.41	17,020.00	51,059.99		23,604.78	47,209.57	
JZ85	L8	8/29/18 18:15	13C2-PFOA	32,263.14	17,020.00	51,059.99		23,604.78	47,209.57	
JZ86	L9	8/29/18 18:24	13C2-PFOA	35,054.19	17,020.00	51,059.99		23,604.78	47,209.57	
KA08 IB	Instrument Blank	8/29/18 18:33	13C2-PFOA	33,182.00	17,020.00	51,059.99		23,604.78	47,209.57	
JZ77 ICC	ICC	8/29/18 18:42	13C2-PFOA	32,319.84	17,020.00	51,059.99		23,604.78	47,209.57	
CR676PB-FS(0)	Procedural Blank	8/29/18 18:59	13C2-PFOA	35,898.34	17,020.00	51,059.99		23,604.78	47,209.57	
CR677LCS-FS(0)	Laboratory Control Sample	8/29/18 19:08	13C2-PFOA	32,649.95	17,020.00	51,059.99		23,604.78	47,209.57	
J7430-FS1(0)	JAX-RES-08142018-1130-9	8/29/18 19:17	13C2-PFOA	33,809.31	17,020.00	51,059.99		23,604.78	47,209.57	
J7445-FS1(0)	JAX-RES-08152018-0930-18	8/29/18 19:26	13C2-PFOA	36,871.98	17,020.00	51,059.99		23,604.78	47,209.57	
J7447-FS1(0)	JAX-RES-08152018-1015-34	8/29/18 19:35	13C2-PFOA	37,089.42	17,020.00	51,059.99		23,604.78	47,209.57	
J7449-FS1(0)	JAX-RES-08152018-1045-33	8/29/18 19:44	13C2-PFOA	34,250.84	17,020.00	51,059.99		23,604.78	47,209.57	
J7451-FS1(0)	JAX-RES-08152018-1130-15	8/29/18 19:53	13C2-PFOA	36,102.10	17,020.00	51,059.99		23,604.78	47,209.57	
JZ82 CCV	CCV	8/29/18 20:02	13C2-PFOA	36,442.68	17,020.00	51,059.99		23,604.78	47,209.57	

Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L3/L9)
JZ80	L3	8/29/18 17:30	d3-MeFOSAA	26,588.90	-
JZ81	L4	8/29/18 17:39	d3-MeFOSAA	26,826.23	-
JZ82	L5	8/29/18 17:48	d3-MeFOSAA	25,557.87	-
JZ83	L6	8/29/18 17:57	d3-MeFOSAA	23,430.15	-
JZ84	L7	8/29/18 18:06	d3-MeFOSAA	25,735.83	-
JZ85	L8	8/29/18 18:15	d3-MeFOSAA	23,055.59	-
JZ86	L9	8/29/18 18:24	d3-MeFOSAA	24,614.26	7.7

PASS

Average      Lower      Upper  
 25,115.55    12,557.78    37,673.33

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/29/18 17:30	d3-MeFOSAA	26,588.90	12,557.78	37,673.33		17,890.51	35,781.02	
JZ81	L4	8/29/18 17:39	d3-MeFOSAA	26,826.23	12,557.78	37,673.33		17,890.51	35,781.02	
JZ82	L5	8/29/18 17:48	d3-MeFOSAA	25,557.87	12,557.78	37,673.33		17,890.51	35,781.02	
JZ83	L6	8/29/18 17:57	d3-MeFOSAA	23,430.15	12,557.78	37,673.33		17,890.51	35,781.02	
JZ84	L7	8/29/18 18:06	d3-MeFOSAA	25,735.83	12,557.78	37,673.33		17,890.51	35,781.02	
JZ85	L8	8/29/18 18:15	d3-MeFOSAA	23,055.59	12,557.78	37,673.33		17,890.51	35,781.02	
JZ86	L9	8/29/18 18:24	d3-MeFOSAA	24,614.26	12,557.78	37,673.33		17,890.51	35,781.02	
KA08 IB	Instrument Blank	8/29/18 18:33	d3-MeFOSAA	24,806.99	12,557.78	37,673.33		17,890.51	35,781.02	
JZ77 ICC	ICC	8/29/18 18:42	d3-MeFOSAA	24,529.83	12,557.78	37,673.33		17,890.51	35,781.02	
CR676PB-FS(0)	Procedural Blank	8/29/18 18:59	d3-MeFOSAA	28,053.31	12,557.78	37,673.33		17,890.51	35,781.02	
CR677LCS-FS(0)	Laboratory Control Sample	8/29/18 19:08	d3-MeFOSAA	24,093.56	12,557.78	37,673.33		17,890.51	35,781.02	
J7430-FS1(0)	JAX-RES-08142018-1130-9	8/29/18 19:17	d3-MeFOSAA	24,626.44	12,557.78	37,673.33		17,890.51	35,781.02	
J7445-FS1(0)	JAX-RES-08152018-0930-18	8/29/18 19:26	d3-MeFOSAA	24,288.32	12,557.78	37,673.33		17,890.51	35,781.02	
J7447-FS1(0)	JAX-RES-08152018-1015-34	8/29/18 19:35	d3-MeFOSAA	23,208.72	12,557.78	37,673.33		17,890.51	35,781.02	
J7449-FS1(0)	JAX-RES-08152018-1045-33	8/29/18 19:44	d3-MeFOSAA	25,696.63	12,557.78	37,673.33		17,890.51	35,781.02	
J7451-FS1(0)	JAX-RES-08152018-1130-15	8/29/18 19:53	d3-MeFOSAA	25,088.01	12,557.78	37,673.33		17,890.51	35,781.02	
JZ82 CCV	CCV	8/29/18 20:02	d3-MeFOSAA	28,746.48	12,557.78	37,673.33		17,890.51	35,781.02	

<b>Sample Name</b>	JZ84	<b>Injection Vial</b>	8
<b>Sample ID</b>	L7	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 6:06:15 PM	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

**Results Summary**

<b>Analyte</b>	<b>MRM Transition</b>	<b>RT</b>	<b>Asymmetry Factor</b>	<b>Passing Range</b>
PFBS_1	298.9 / 80.0	1.51	1.38	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.82	1.10	0.8 – 1.5

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	8/29/2018 6:06:15 PM	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.51	59	>10
PFBS_2	298.9 / 99.0	1.51	43	>10
PFHxA_1	313.0 / 269.0	1.82	25	>10
PFHxA_2	313.0 / 119.0	1.82	21	>10
PFHpA_1	363.0 / 319.0	2.22	25	>10
PFHpA_2	363.0 / 169.0	2.22	29	>10
PFHxS_1	399.0 / 80.0	2.24	34	>10
PFHxS_2	399.0 / 99.0	2.24	27	>10
PFOA_1	413.0 / 369.0	2.62	27	>10
PFOA_2	413.0 / 169.0	2.62	24	>10
PFNA_1	463.0 / 419.0	3.01	26	>10
PFNA_2	463.0 / 219.0	3.01	26	>10
PFOS_1	499.0 / 80.0	3.01	37	>10
PFOS_2	499.0 / 99.0	3.01	35	>10
PFDA_1	513.0 / 469.0	3.36	24	>10
PFDA_2	513.0 / 219.0	3.36	30	>10
PFUnA_1	563.0 / 519.0	3.69	23	>10
PFUnA_2	563.0 / 269.0	3.69	32	>10
PFDaA_1	613.0 / 569.0	3.96	26	>10
PFDaA_2	613.0 / 319.0	3.96	27	>10
PFTrDA_1	663.0 / 619.0	4.21	33	>10
PFTrDA_2	663.0 / 169.0	4.20	36	>10
PFTeDA_1	713.0 / 669.0	4.42	49	>10
PFTeDA_2	713.0 / 169.0	4.41	42	>10
NMeFOSAA_1	570.0 / 419.0	3.51	40	>10
NMeFOSAA_2	570.0 / 512.0	3.51	33	>10
NEtFOSAA_1	584.0 / 419.0	3.67	39	>10
NEtFOSAA_2	584.0 / 483.0	3.67	42	>10
13C2-PFHxA	315.0 / 270.0	1.81	28	>10
13C2-PFDA	515.0 / 470.0	3.35	29	>10
d5-EtFOSAA	589.0 / 419.0	3.66	19	>10



## Precision and Bias at the LOQ for PFAS in Drinking Water

Analyte	CAS No.	Average (ng/L)	ST DEV	2 Sigma	n
PFHxA	307-24-4	10.41	1.25	2.50	19
PFHpA	375-85-9	10.59	1.42	2.84	19
PFOA	335-67-1	10.45	1.47	2.94	19
PFNA	375-95-1	10.49	1.28	2.56	19
PFDA	335-76-2	10.39	1.57	3.14	19
PFUnA	2058-94-8	10.05	1.71	3.42	19
PFDoA	307-55-1	9.99	1.63	3.26	19
PFTTrDA	72629-94-8	10.09	1.79	3.58	19
PFTeDA	376-06-7	11.27	2.41	4.82	19
NMeFOSAA	2355-31-9	10.60	1.12	2.24	19
NEtFOSAA	2991-50-6	10.17	1.29	2.58	19
PFBS	375-73-5	8.64	1.26	2.52	19
PFHxS	355-46-4	9.73	1.49	2.98	19
PFOS	1763-23-1	9.32	1.52	3.04	19

# 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)
<b>PFHxA</b>	307-24-4	0.22	0.5	2.5	2.5
<b>PFHpA</b>	375-85-9	0.34	1.0	2.5	2.5
<b>PFOA</b>	335-67-1	0.38	1.0	2.5	2.5
<b>PFNA</b>	375-95-1	0.37	1.0	2.5	2.5
<b>PFDA</b>	335-76-2	0.39	1.0	2.5	2.5
<b>PFUnA</b>	2058-94-8	0.38	1.0	2.5	2.5
<b>PFDoA</b>	307-55-1	0.42	1.0	2.5	2.5
<b>PFTTrDA</b>	72629-94-8	0.42	1.0	2.5	2.5
<b>PFTeDA</b>	376-06-7	0.73	1.5	2.5	2.5
<b>NMeFOSAA</b>	2355-31-9	0.42	1.0	2.5	2.5
<b>NEtFOSAA</b>	2991-50-6	0.44	1.0	2.5	2.5
<b>PFBS</b>	375-73-5	0.21	0.5	2.5	2.5
<b>PFHxS</b>	3871-99-6	0.34	1.0	2.5	2.5
<b>PFOS</b>	1763-23-1	0.30	1.0	2.5	2.5

*Analytes on NELAP and ELAP QSM 5.1 Scope of accreditation*

## Analytical Transitions for PFAS in drinking water

SOP 5-371 (EPA 537 Version 1.1)

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
<b>PFHxA</b>	307-24-4	Target	313.0 / 269.0	313.0 / 119.0
<b>PFHpA</b>	375-85-9	Target	363.0 / 319.0	363.0 / 169.0
<b>PFOA</b>	335-67-1	Target	413.0 / 369.0	413.0 / 169.0
<b>PFNA</b>	375-95-1	Target	463.0 / 419.0	463.0 / 219.0
<b>PFDA</b>	335-76-2	Target	513.0 / 469.0	513.0 / 219.0
<b>PFUnA</b>	2058-94-8	Target	563.0 / 519.0	563.0 / 269.0
<b>PFDoA</b>	307-55-1	Target	613.0 / 569.0	613.0 / 319.0
<b>PFTTrDA</b>	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
<b>PFTeDA</b>	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
<b>NMeFOSAA</b>	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
<b>NEtFOSAA</b>	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
<b>PFBS</b>	375-73-5	Target	299.0 / 80.0	299.0 / 99.0
<b>PFHxS</b>	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
<b>PFOS</b>	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
<b><sup>13</sup>C<sub>2</sub>-PFHxA</b>	NA	SIS	315.0 / 270.0	NA
<b><sup>13</sup>C<sub>2</sub>-PFDA</b>	NA	SIS	515.0 / 470.0	NA
<b>d<sub>5</sub>-EtFOSAA</b>	NA	SIS	589.0 / 419.0	NA
<b><sup>13</sup>C<sub>2</sub>-PFOA</b>	NA	IS	415.0 / 270.0	NA
<b><sup>13</sup>C<sub>4</sub>-PFOS</b>	NA	IS	503.0 / 80.0	NA
<b>d<sub>3</sub>-MeFOSAA</b>	NA	IS	573.0 / 419.0	NA



## Drinking Water Calibration to Sample Equivalents

ICAL (ng/L)	PIV (mL)	DF <sup>1</sup>	Sample Size (L)	Sample Equivalent (ng/L) <sup>2</sup>
25	1	1	0.250	0.1
50	1	1	0.250	0.2
100	1	1	0.250	0.4
250	1	1	0.250	1.0
500	1	1	0.250	2.0
1,000	1	1	0.250	4.0
2,500	1	1	0.250	10.0
5,000	1	1	0.250	20.0
10,000	1	1	0.250	40.0

<sup>1</sup> - base level dilution as part of the extraction procedure

<sup>2</sup> - calculated equivalent of a sample based on the ICAL concentration





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# QTRAP 5500

**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

## QTRAP 5500 Preventive Maintenance Checklist

<b>Preventive Maintenance Date:</b>	22-Feb-2017
<b>Request ID:</b>	3683
<b>Company Name:</b>	Battelle Memorial Institute
<b>Instrument ID:</b>	X60666
<b>Instrument Model:</b>	QTRAP 5500
<b>Instrument Serial Number:</b>	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 <sup>-5</sup> Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.5	0.4 to 1.1 x10 <sup>-5</sup> Torr
<input checked="" type="checkbox"/> CAD Low	1.9	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.4	Read Only
<input checked="" type="checkbox"/> CAD High	3.4	Read Only
<input checked="" type="checkbox"/> CAD 12	3.4	2.4 to 4.5 x10 <sup>-5</sup> Torr

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

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

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

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

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

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

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

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

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

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

Appendix ZEFPM003-2L

**PREVENTIVE MAINTENANCE CHECKLIST:**

- Check Cooling Fans for Turbo Pumps while MS is ON.
- Check QJet and QPS tuning voltage for reference.
- Record AC input Voltage while MS is OFF: \_\_\_\_\_(200-240VAC).  
If Out-of-Range, notify customer.
  
- Clean Interface
  - Curtain Plate
  - Orifice Plate
  - QJet
  - Q0 Rods.
  
- Replace Roughing Pump Oil.
- Inspect Oil Exhaust Filter, if Applicable.  N/A
- Clean and inspect built-in divert valve if used.  N/A
- Check Multiplier Voltage, optimize if necessary.
- Replace four Air Filters at the bottom of the mass spectrometer.
  
- Pump down overnight if possible.  N/A
  
- Perform Maintenance on Turbo V source.
  
- Replace Electrode, if necessary.  N/A
- Check Turbo heaters resistances.
- Check if Temperature is reached at 500C with TIS Probe installed.
- Check if Temperature is reached at 500C with APCI Probe installed.  N/A

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

Appendix ZEFPM003-2L

**POST PM PPG PERFORMANCE TESTS:**

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

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

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

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

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

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

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

Transmission Efficiency: 16.93% (≥ 10.0%)

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

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

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

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

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

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

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

Appendix ZEFPM003-2L

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

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

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

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

**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.

Battelle Standard ID	Description	Intermediate Solutions		Battelle Reagent ID (purchased solutions)
JZ87	PFAS - 537.1 Internal Standard Solution	JV35	-	180425-01
JZ90	PFAS - 537.1 Surrogate Solution	JV37	-	180425-02
KA08	PFAS - 537.1 Instrument Blank	JV61	JV35	180425-01
KA08	PFAS - 537.1 Instrument Blank	JV62	JV37	180425-02
JZ28	PFAS - 537.1 Second Source LCS/MS Solution	-	-	180705-01
JZ77	PFAS - 537.1 ICC	JZ28	-	180705-01
JZ77	PFAS - 537.1 ICC	JZ74	JV35	180425-01
JZ77	PFAS - 537.1 ICC	JZ75	JV37	180425-02
JZ80	PFAS - 537.1 ICAL L3	JV43	-	180425-03
JZ80	PFAS - 537.1 ICAL L3	JZ74	JV35	180425-01
JZ80	PFAS - 537.1 ICAL L3	JZ75	JV37	180425-02
JZ81	PFAS - 537.1 ICAL L4	JV43	-	180425-03
JZ81	PFAS - 537.1 ICAL L4	JZ74	JV35	180425-01
JZ81	PFAS - 537.1 ICAL L4	JZ75	JV37	180425-02
JZ82	PFAS - 537.1 ICAL L5	JV43	-	180425-03
JZ82	PFAS - 537.1 ICAL L5	JZ74	JV35	180425-01
JZ82	PFAS - 537.1 ICAL L5	JZ75	JV37	180425-02
JZ83	PFAS - 537.1 ICAL L6	JZ76	-	180425-03
JZ83	PFAS - 537.1 ICAL L6	JZ74	JV35	180425-01
JZ83	PFAS - 537.1 ICAL L6	JZ75	JV37	180425-02
JZ84	PFAS - 537.1 ICAL L7	JZ76	-	180425-03
JZ84	PFAS - 537.1 ICAL L7	JZ74	JV35	180425-01
JZ84	PFAS - 537.1 ICAL L7	JZ75	JV37	180425-02
JZ85	PFAS - 537.1 ICAL L8	JZ76	-	180425-03
JZ85	PFAS - 537.1 ICAL L8	JZ74	JV35	180425-01
JZ85	PFAS - 537.1 ICAL L8	JZ75	JV37	180425-02
JZ86	PFAS - 537.1 ICAL L9	JZ76	-	180425-03
JZ86	PFAS - 537.1 ICAL L9	JZ74	JV35	180425-01
JZ86	PFAS - 537.1 ICAL L9	JZ75	JV37	180425-02





Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID	KA08 IB				
Battelle ID	KA08 IB_08/29/2018				
Sample Type	IB				
Collection Date	NA				
Extraction Date	NA				
Analysis Date	08/29/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	NA				
Sample Size	0.250				
Size Unit-Basis	NA				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	307-24-4	0.50 U	0.22	0.50	2.50
PFHpA	375-85-9	1.00 U	0.34	1.00	2.50
PFOA	335-67-1	1.00 U	0.38	1.00	2.50
PFNA	375-95-1	1.00 U	0.37	1.00	2.50
PFDA	335-76-2	1.00 U	0.39	1.00	2.50
PFUnA	2058-94-8	1.00 U	0.38	1.00	2.50
PFDaA	307-55-1	1.00 U	0.42	1.00	2.50
PFTTrDA	72629-94-8	1.00 U	0.42	1.00	2.50
PFTeDA	376-06-7	1.50 U	0.73	1.50	2.50
NMeFOSAA	2355-31-9	1.00 U	0.42	1.00	2.50
NEtFOSAA	2991-50-6	1.00 U	0.44	1.00	2.50
PFBS	375-73-5	0.50 U	0.21	0.50	2.50
PFHxS	355-46-4	1.00 U	0.34	1.00	2.50
PFOS	1763-23-1	1.00 U	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	96
13C2-PFDA	94
d5-EtFOSAA	98



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID		Procedural Blank			
Battelle ID		CR676PB-FS			
Sample Type		PB			
Collection Date		08/28/2018			
Extraction Date		08/28/2018			
Analysis Date		08/29/2018			
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	307-24-4	0.50 U	0.22	0.50	2.50
PFHpA	375-85-9	1.00 U	0.34	1.00	2.50
PFOA	335-67-1	1.00 U	0.38	1.00	2.50
PFNA	375-95-1	1.00 U	0.37	1.00	2.50
PFDA	335-76-2	1.00 U	0.39	1.00	2.50
PFUnA	2058-94-8	1.00 U	0.38	1.00	2.50
PFDaA	307-55-1	1.00 U	0.42	1.00	2.50
PFTTrDA	72629-94-8	1.00 U	0.42	1.00	2.50
PFTeDA	376-06-7	1.50 U	0.73	1.50	2.50
NMeFOSAA	2355-31-9	1.00 U	0.42	1.00	2.50
NEtFOSAA	2991-50-6	1.00 U	0.44	1.00	2.50
PFBS	375-73-5	0.50 U	0.21	0.50	2.50
PFHxS	355-46-4	1.00 U	0.34	1.00	2.50
PFOS	1763-23-1	1.00 U	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	103
13C2-PFDA	97
d5-EtFOSAA	103



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375

Client ID		Laboratory Control Sample					Control Limits	
Battelle ID		CR677LCS-FS				Lower	Upper	
Sample Type		LCS						
Collection Date		08/28/2018						
Extraction Date		08/28/2018						
Analysis Date		08/29/2018						
Analytical Instrument		Sciex 5500 LC/MS/MS						
% Moisture		NA						
Matrix		WATER						
Sample Size		0.250						
Size Unit-Basis		L						
Units		ng/L	Target	Recovery	Qual	Lower	Upper	
PFHxA	307-24-4	24.05	20.00	120		70	130	
PFHpA	375-85-9	24.41	20.00	122		70	130	
PFOA	335-67-1	23.28	20.00	116		70	130	
PFNA	375-95-1	23.98	20.00	120		70	130	
PFDA	335-76-2	23.81	20.00	119		70	130	
PFUnA	2058-94-8	22.38	20.00	112		70	130	
PFDoA	307-55-1	22.55	20.00	113		70	130	
PFTTrDA	72629-94-8	22.24	20.00	111		70	130	
PFTeDA	376-06-7	22.34	20.00	112		70	130	
NMeFOSAA	2355-31-9	24.50	20.00	123		70	130	
NEtFOSAA	2991-50-6	24.45	20.00	122		70	130	
PFBS	375-73-5	20.32	17.70	115		70	130	
PFHxS	355-46-4	21.75	18.90	115		70	130	
PFOS	1763-23-1	19.37	19.10	101		70	130	

**Surrogate Recoveries (%)**

13C2-PFHxA	108
13C2-PFDA	112
d5-EtFOSAA	109



It can be done

**BATTELLE - NORWELL OPERATIONS  
SAMPLE PREPARATION RECORDS**

<b><u>Project Title(s)</u></b>	<b><u>Project No.(s)</u></b>
CTO-SE0375: Naval Air Station Jacksonville	100119154- SE0375
<b>18-0534</b>	
<b>CTO-SE0375: Drinking Water Analysis</b>	
<b>W</b>	
SOP Numbers (see workplan for modifications)	
VOASOP No.	5-371

<b>This Batch Contains The Following Samples:</b>	
CR676PB-FS	J7451-FS1
CR677LCS-FS	
J7430-FS1	
J7445-FS1	
J7447-FS1	
J7449-FS1	

Laboratory Preparation Records  
COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Denise Schumitz	08/31/2018	DMS



It can be done

## BATTELLE - NORWELL OPERATIONS SAMPLE IDENTIFICATION PAGE

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0534****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	Description
CR676PB-FS	Procedural Blank
CR677LCS-FS	Laboratory Control Sample
J7430-FS1	JAX-RES-08142018-1130-9
J7445-FS1	JAX-RES-08152018-0930-18
J7447-FS1	JAX-RES-08152018-1015-34
J7449-FS1	JAX-RES-08152018-1045-33
J7451-FS1	JAX-RES-08152018-1130-15

Samples Assigned By:

Jonathan Thorn

Date : August 28, 2018

Comments:



It can be done

BATTELLE - NORWELL OPERATIONS  
LIQUID SAMPLE ID FORM

**Project Title(s)**  
CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**  
100119154-  
SE0375

18-0534

CTO-SE0375: Drinking Water Analysis

W

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CR676PB-FS	Procedural Blank	250.0	NA	--	08/28/18 SAS
CR677LCS-FS	Laboratory Control Sample	250.0	NA	--	08/28/18 SAS
J7430-FS1	JAX-RES-08142018-1130-9	285.0	2	C	08/30/18 SAS
J7445-FS1	JAX-RES-08152018-0930-18	250.0	2	C	08/30/18 SAS
J7447-FS1	JAX-RES-08152018-1015-34	295.0	2	C	08/30/18 SAS
J7449-FS1	JAX-RES-08152018-1045-33	280.0	2	C	08/30/18 SAS
J7451-FS1	JAX-RES-08152018-1130-15	285.0	2	C	08/30/18 SAS

Comments:

Sample ID:	Comments:
CR676PB-FS	1.23g Trizma(180502-01) weighed on BAL-009
CR677LCS-FS	1.24g Trizma(180502-01) weighed on BAL-009

Samples Assigned By

Jonathan Thorn

Date : August 28, 2018

\* - "C" = Sample is Consumed



It can be done

## BATTELLE - NORWELL OPERATIONS SURROGATE SPIKE FORM

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0534****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CR676PB-FS	JZ90	SIS	1	50	08/28/18 SAS	LMG	NA
CR677LCS-FS	JZ28	LCS/MS	1	100	08/28/18 SAS	LMG	NA
CR677LCS-FS	JZ90	SIS	1	50	08/28/18 SAS	LMG	NA
J7430-FS1	JZ90	SIS	1	50	08/28/18 SAS	LMG	NA
J7445-FS1	JZ90	SIS	1	50	08/28/18 SAS	LMG	NA
J7447-FS1	JZ90	SIS	1	50	08/28/18 SAS	LMG	NA
J7449-FS1	JZ90	SIS	1	50	08/28/18 SAS	LMG	NA
J7451-FS1	JZ90	SIS	1	50	08/28/18 SAS	LMG	NA

## Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JZ28	Pipette	B814659662
JZ90	Pipette	B814659662



It can be done

## BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0534****CTO-SE0375: Drinking Water Analysis****W****(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
CR676PB-FS(0)	950	50	JZ87	50	1	1000	1.000	08/29/18 SAS	MRM
CR677LCS-FS(0)	950	50	JZ87	50	1	1000	1.000	08/29/18 SAS	MRM
J7430-FS1(0)	950	50	JZ87	50	1	1000	1.000	08/29/18 SAS	MRM
J7445-FS1(0)	950	50	JZ87	50	1	1000	1.000	08/29/18 SAS	MRM
J7447-FS1(0)	950	50	JZ87	50	1	1000	1.000	08/29/18 SAS	MRM
J7449-FS1(0)	950	50	JZ87	50	1	1000	1.000	08/29/18 SAS	MRM
J7451-FS1(0)	950	50	JZ87	50	1	1000	1.000	08/29/18 SAS	MRM

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JZ87	Pipette	B814659662

Extract Id:	Comments:
CR676PB-FS	Samples reconstituted in 96/4 methanol/milli-q water

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

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





It can be done

## BATTELLE - NORWELL OPERATIONS PREPARATION EXTRACT SPLIT FORM

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0534****CTO-SE0375: Drinking Water Analysis****W**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CR676PB-FS	0	--	8/28/2018 2:24:00 PM	NA		NA	NA	1.000	1.000	08/28/18 SAS
CR677LCS-FS	0	--	8/28/2018 2:24:00 PM	NA		NA	NA	1.000	1.000	08/28/18 SAS
J7430-FS1	0	--	8/28/2018 2:24:00 PM	NA		NA	NA	1.000	1.000	08/28/18 SAS
J7445-FS1	0	--	8/28/2018 2:24:00 PM	NA		NA	NA	1.000	1.000	08/28/18 SAS
J7447-FS1	0	--	8/28/2018 2:24:00 PM	NA		NA	NA	1.000	1.000	08/28/18 SAS
J7449-FS1	0	--	8/28/2018 2:24:00 PM	NA		NA	NA	1.000	1.000	08/28/18 SAS
J7451-FS1	0	--	8/28/2018 2:24:00 PM	NA		NA	NA	1.000	1.000	08/28/18 SAS

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

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

\* - "C" = Extract is Consumed



It can be done

## BATTELLE - NORWELL OPERATIONS EXTRACT - INSTRUMENT FACILITY CUSTODY PAGE

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0534****CTO-SE0375: Drinking Water Analysis****W**

<b>Purpose:</b>	LC-MS/MS TRANSFER	<b>Last Activity:</b>	Prep->Inst
<b>Relinquished On/By:</b>	Aug 29 2018 3:51PM SAS	<b>Received On/By:</b>	Aug 29 2018 4:20PM DMS
<b>Relinquished From:</b>	Sample Preparation: NA	<b>Received Location:</b>	LC Laboratory: NA
<b>Relinquish Comment:</b>	NA	<b>Received Comment:</b>	NA

No.	BDO-ID:	PIV:	DF:	Condition:	Custody Comment:
1	CR676PB-FS(0)	1000	1	Intact	NA
2	CR677LCS-FS(0)	1000	1	Intact	NA
3	J7430-FS1(0)	1000	1	Intact	NA
4	J7445-FS1(0)	1000	1	Intact	NA
5	J7447-FS1(0)	1000	1	Intact	NA
6	J7449-FS1(0)	1000	1	Intact	NA
7	J7451-FS1(0)	1000	1	Intact	NA

**Total Extracts:** 7



It can be done

## BATTELLE - NORWELL OPERATIONS SAMPLE SPECIFIC COMMENTS

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0534****CTO-SE0375: Drinking Water Analysis****W**

Sample ID:	Comment:	Date/Initials:
CR676PB-FS	Extraction for all samples began at 2:24pm	08/28/18 SAS
CR676PB-FS	Sample extraction ended at 2:52pm	08/28/18 SAS
CR677LCS-FS	Sample extraction ended at 2:51pm	08/28/18 SAS
J7430-FS1	Sample extraction ended at 2:56pm	08/28/18 SAS
J7445-FS1	Sample extraction ended at 2:55pm	08/28/18 SAS
J7447-FS1	Sample extraction ended at 2:55pm	08/28/18 SAS
J7449-FS1	Sample extraction ended at 2:56pm	08/28/18 SAS
J7451-FS1	Sample extraction ended at 2:58pm	08/28/18 SAS

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		8/29/2018 5:03:31 PM	5-0371.dam	18-0534.wiff
4	JZ80	L3	8/29/2018 5:30:23 PM	5-0371.dam	18-0534.wiff
5	JZ81	L4	8/29/2018 5:39:21 PM	5-0371.dam	18-0534.wiff
6	JZ82	L5	8/29/2018 5:48:19 PM	5-0371.dam	18-0534.wiff
7	JZ83	L6	8/29/2018 5:57:16 PM	5-0371.dam	18-0534.wiff
8	JZ84	L7	8/29/2018 6:06:15 PM	5-0371.dam	18-0534.wiff
9	JZ85	L8	8/29/2018 6:15:11 PM	5-0371.dam	18-0534.wiff
10	JZ86	L9	8/29/2018 6:24:08 PM	5-0371.dam	18-0534.wiff
11	KA08 IB	Instrument Blank	8/29/2018 6:33:06 PM	5-0371.dam	18-0534.wiff
12	JZ77 ICC	ICC	8/29/2018 6:42:04 PM	5-0371.dam	18-0534.wiff
1	MeOH		8/29/2018 6:51:02 PM	5-0371.dam	18-0534.wiff
13	CR676PB-FS(0)	Procedural Blank	8/29/2018 6:59:59 PM	5-0371.dam	18-0534.wiff
14	CR677LCS-FS(0)	Laboratory Control Sample	8/29/2018 7:08:57 PM	5-0371.dam	18-0534.wiff
15	J7430-FS1(0)	JAX-RES-08142018-1130-9	8/29/2018 7:17:53 PM	5-0371.dam	18-0534.wiff
16	J7445-FS1(0)	JAX-RES-08152018-0930-18	8/29/2018 7:26:50 PM	5-0371.dam	18-0534.wiff
17	J7447-FS1(0)	JAX-RES-08152018-1015-34	8/29/2018 7:35:46 PM	5-0371.dam	18-0534.wiff
18	J7449-FS1(0)	JAX-RES-08152018-1045-33	8/29/2018 7:44:42 PM	5-0371.dam	18-0534.wiff
19	J7451-FS1(0)	JAX-RES-08152018-1130-15	8/29/2018 7:53:38 PM	5-0371.dam	18-0534.wiff
6	JZ82 CCV	CCV	8/29/2018 8:02:34 PM	5-0371.dam	18-0534.wiff



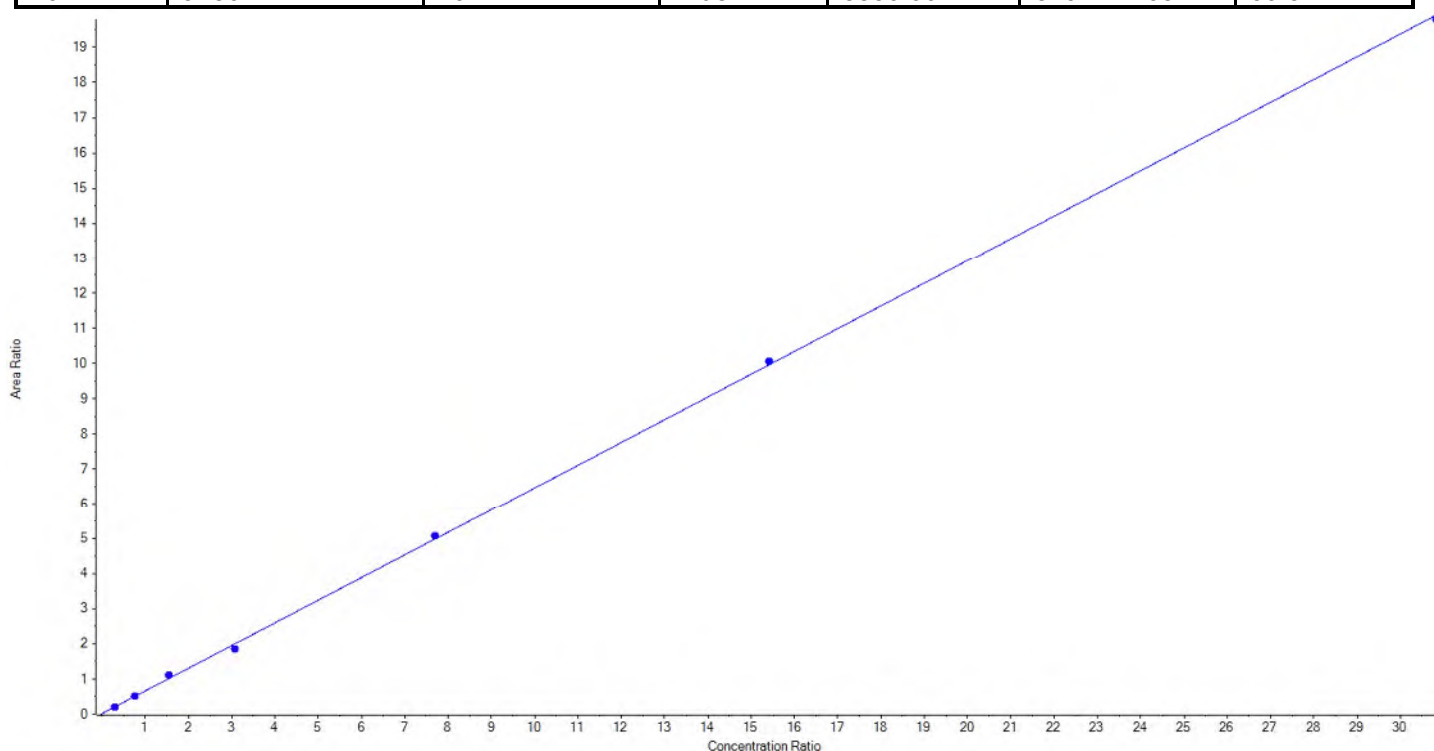
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFBS_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	298.9 / 80.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.64529x + 0.01361$  ( $r = 0.99959$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	84.937595	95.9
5	JZ81	L4	True	221.50	221.916881	100.2
6	JZ82	L5	True	443.00	485.976511	109.7
7	JZ83	L6	True	885.00	812.898624	91.9
8	JZ84	L7	True	2212.50	2256.662639	102.0
9	JZ85	L8	True	4425.00	4471.766066	101.1
10	JZ86	L9	True	8850.00	8791.441684	99.3





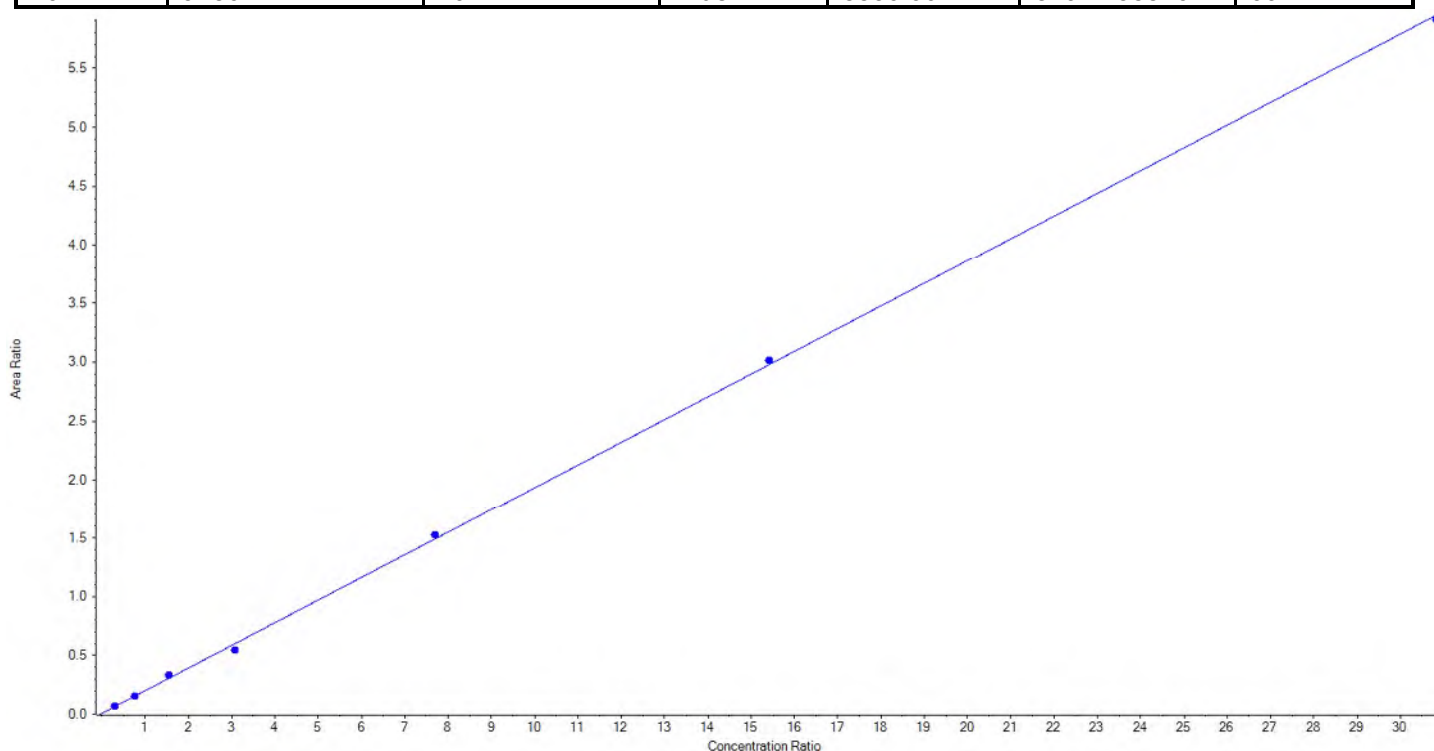
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFBS_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	298.9 / 99.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19281 x + 0.00570$  ( $r = 0.99948$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	86.660338	97.8
5	JZ81	L4	True	221.50	219.719799	99.2
6	JZ82	L5	True	443.00	487.633979	110.1
7	JZ83	L6	True	885.00	797.489114	90.1
8	JZ84	L7	True	2212.50	2261.138566	102.2
9	JZ85	L8	True	4425.00	4480.799327	101.3
10	JZ86	L9	True	8850.00	8792.158876	99.4





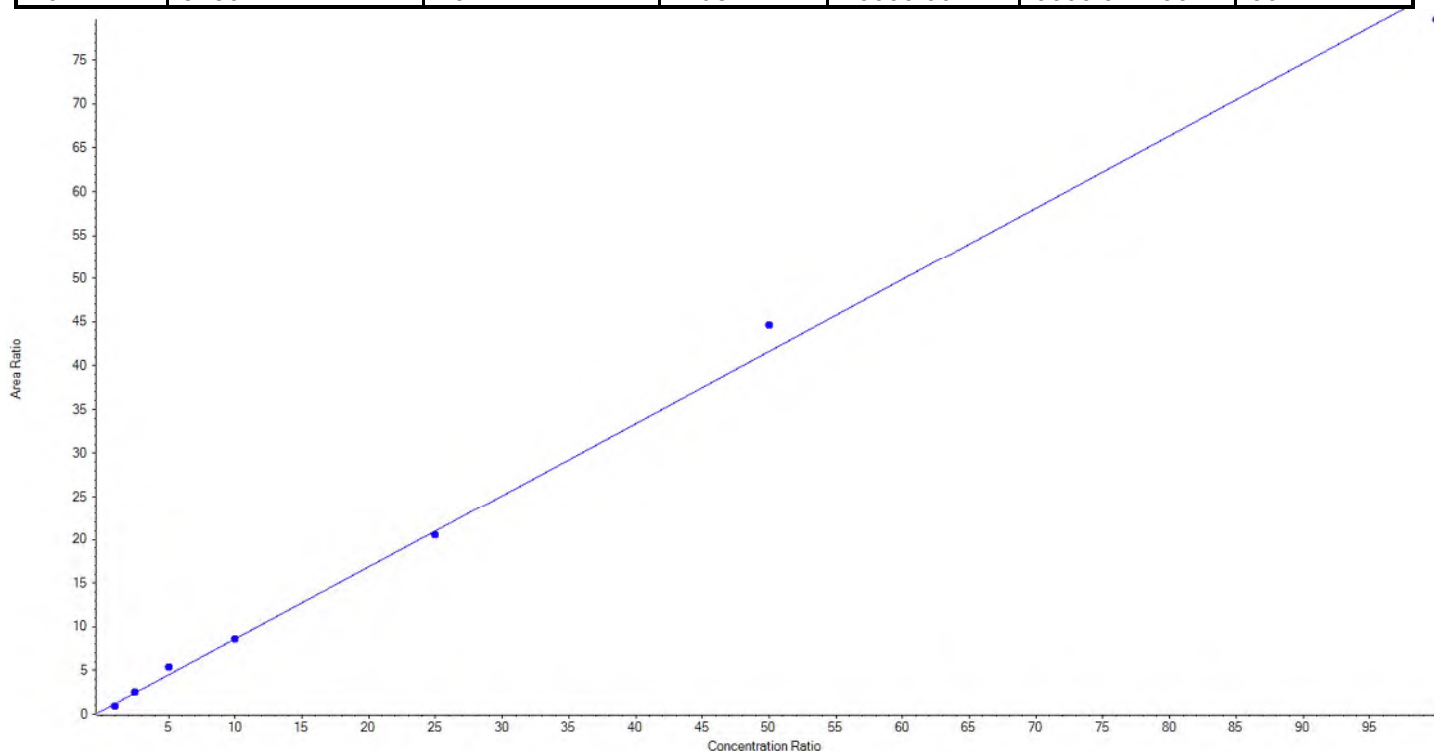
## Calibration Summary Report

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<b>Analyte Name</b>	PFHxA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	313.0 / 269.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.82492x + 0.36716$  ( $r = 0.99774$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	72.850774	72.9
5	JZ81	L4	True	250.00	262.504638	105.0
6	JZ82	L5	True	500.00	608.411016	121.7
7	JZ83	L6	True	1000.00	995.217167	99.5
8	JZ84	L7	True	2500.00	2439.164904	97.6
9	JZ85	L8	True	5000.00	5365.834012	107.3
10	JZ86	L9	True	10000.00	9606.017490	96.1





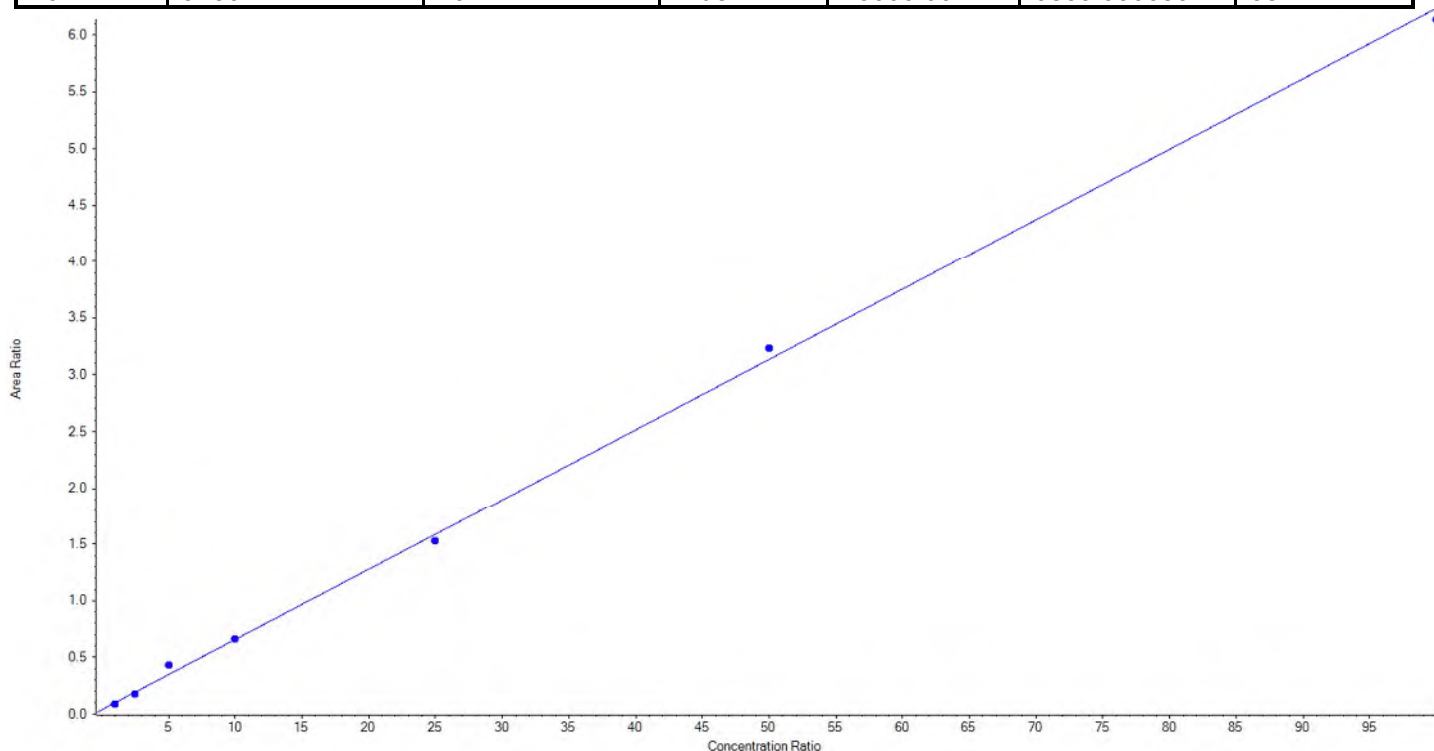
## Calibration Summary Report

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Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFHxA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	313.0 / 119.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.06192x + 0.03921$  ( $r = 0.99831$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	86.294657	86.3
5	JZ81	L4	True	250.00	218.827557	87.5
6	JZ82	L5	True	500.00	640.855875	128.2
7	JZ83	L6	True	1000.00	1001.779889	100.2
8	JZ84	L7	True	2500.00	2408.531127	96.3
9	JZ85	L8	True	5000.00	5154.680214	103.1
10	JZ86	L9	True	10000.00	9839.030680	98.4







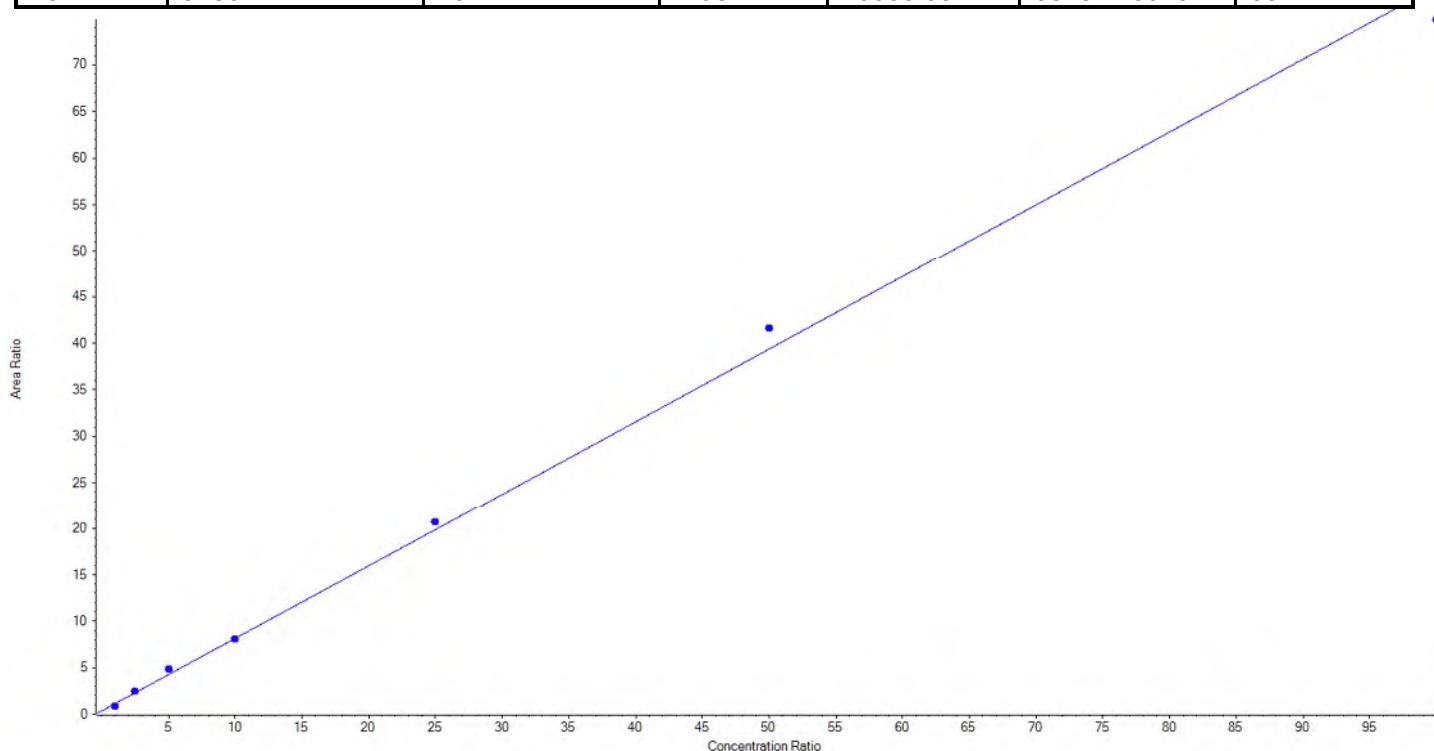
## Calibration Summary Report

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<b>Analyte Name</b>	PFHpA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	363.0 / 319.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.78049x + 0.35299$  ( $r = 0.99806$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	70.089730	70.1
5	JZ81	L4	True	250.00	273.300480	109.3
6	JZ82	L5	True	500.00	578.060700	115.6
7	JZ83	L6	True	1000.00	997.339390	99.7
8	JZ84	L7	True	2500.00	2602.575270	104.1
9	JZ85	L8	True	5000.00	5285.464385	105.7
10	JZ86	L9	True	10000.00	9543.170045	95.4





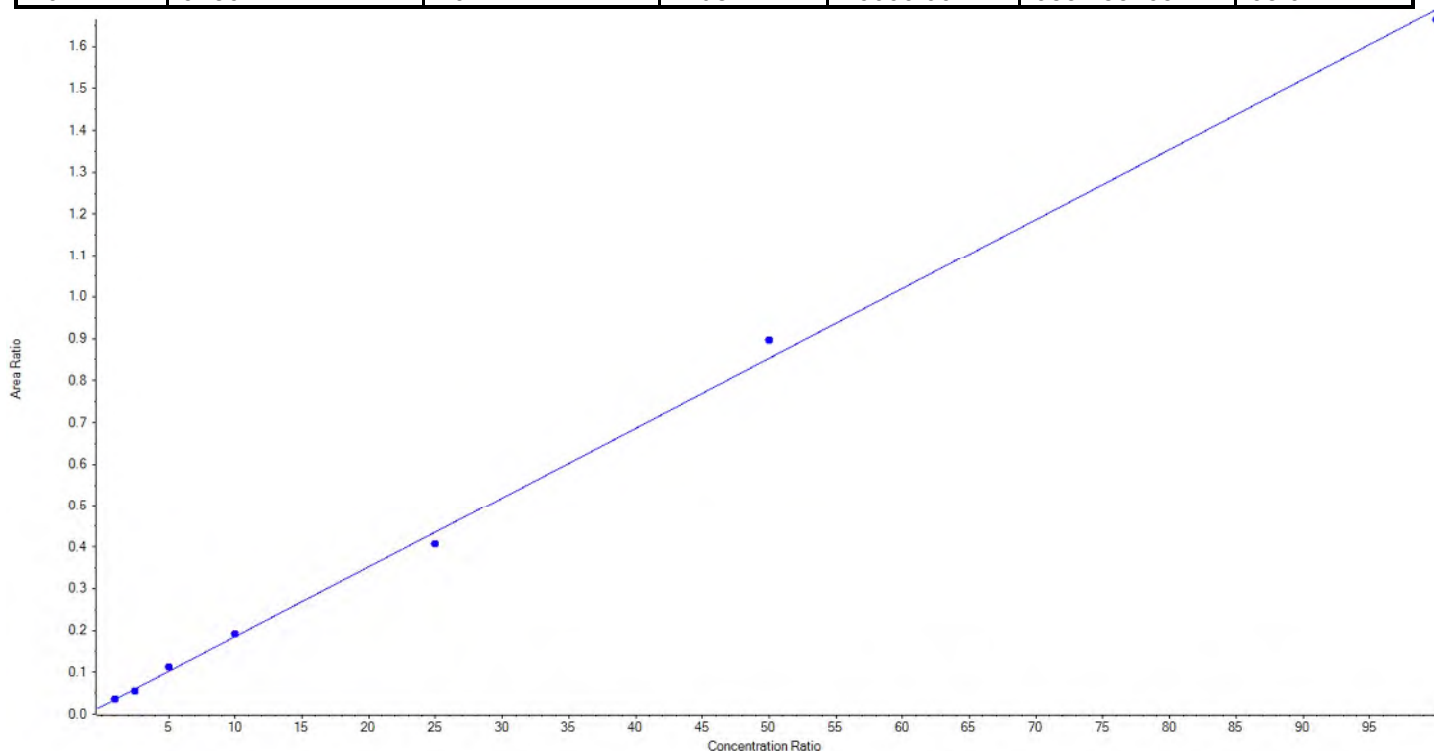
## Calibration Summary Report

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<b>Analyte Name</b>	PFHpA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	363.0 / 169.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.01669x + 0.01861$  ( $r = 0.99884$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	99.502697	99.5
5	JZ81	L4	True	250.00	222.133915	88.9
6	JZ82	L5	True	500.00	559.018107	111.8
7	JZ83	L6	True	1000.00	1031.219435	103.1
8	JZ84	L7	True	2500.00	2325.211610	93.0
9	JZ85	L8	True	5000.00	5258.056603	105.2
10	JZ86	L9	True	10000.00	9854.857634	98.6





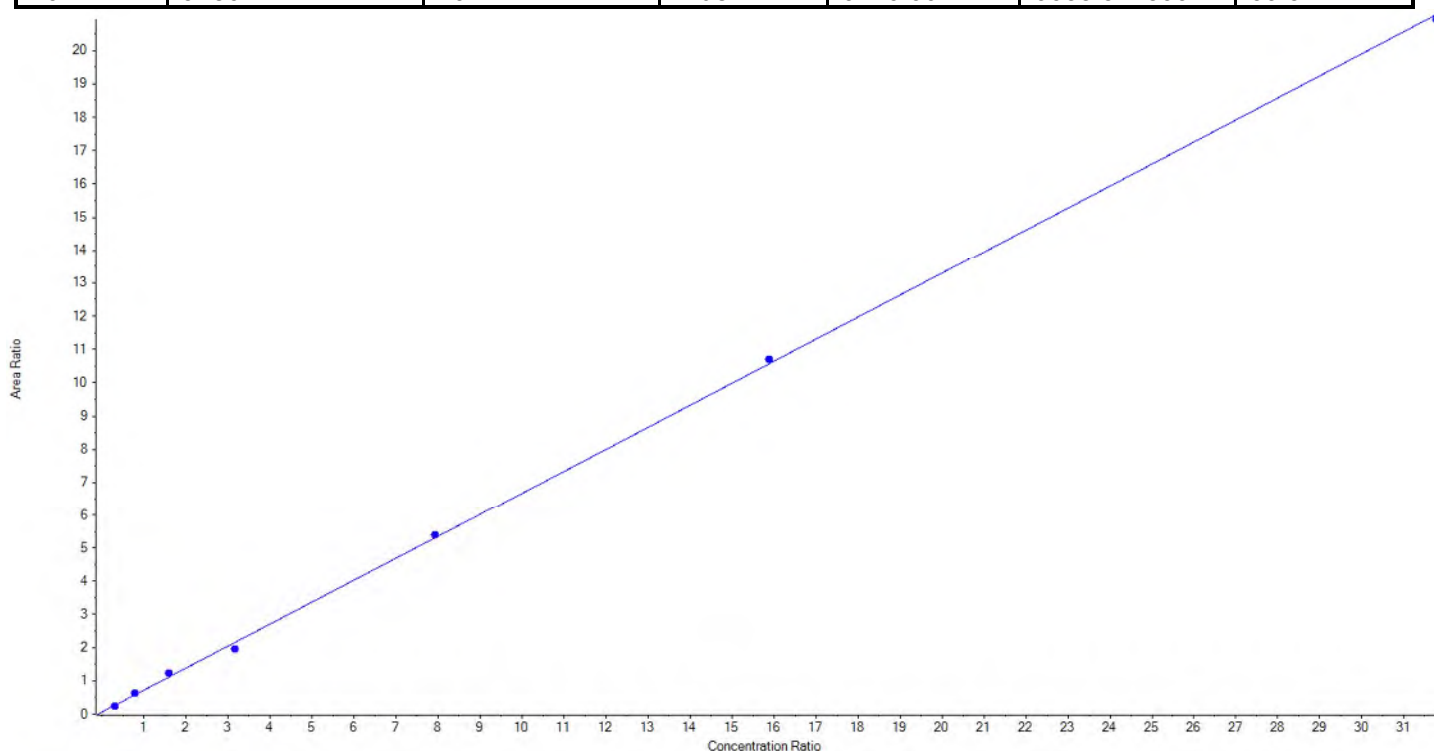
## Calibration Summary Report

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Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFHxS_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	399.0 / 80.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.66142x + 0.06010$  ( $r = 0.99935$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	78.530855	86.1
5	JZ81	L4	True	228.00	247.295690	108.5
6	JZ82	L5	True	456.00	513.729049	112.7
7	JZ83	L6	True	912.00	829.922489	91.0
8	JZ84	L7	True	2280.00	2309.680917	101.3
9	JZ85	L8	True	4560.00	4614.516402	101.2
10	JZ86	L9	True	9120.00	9053.524599	99.3





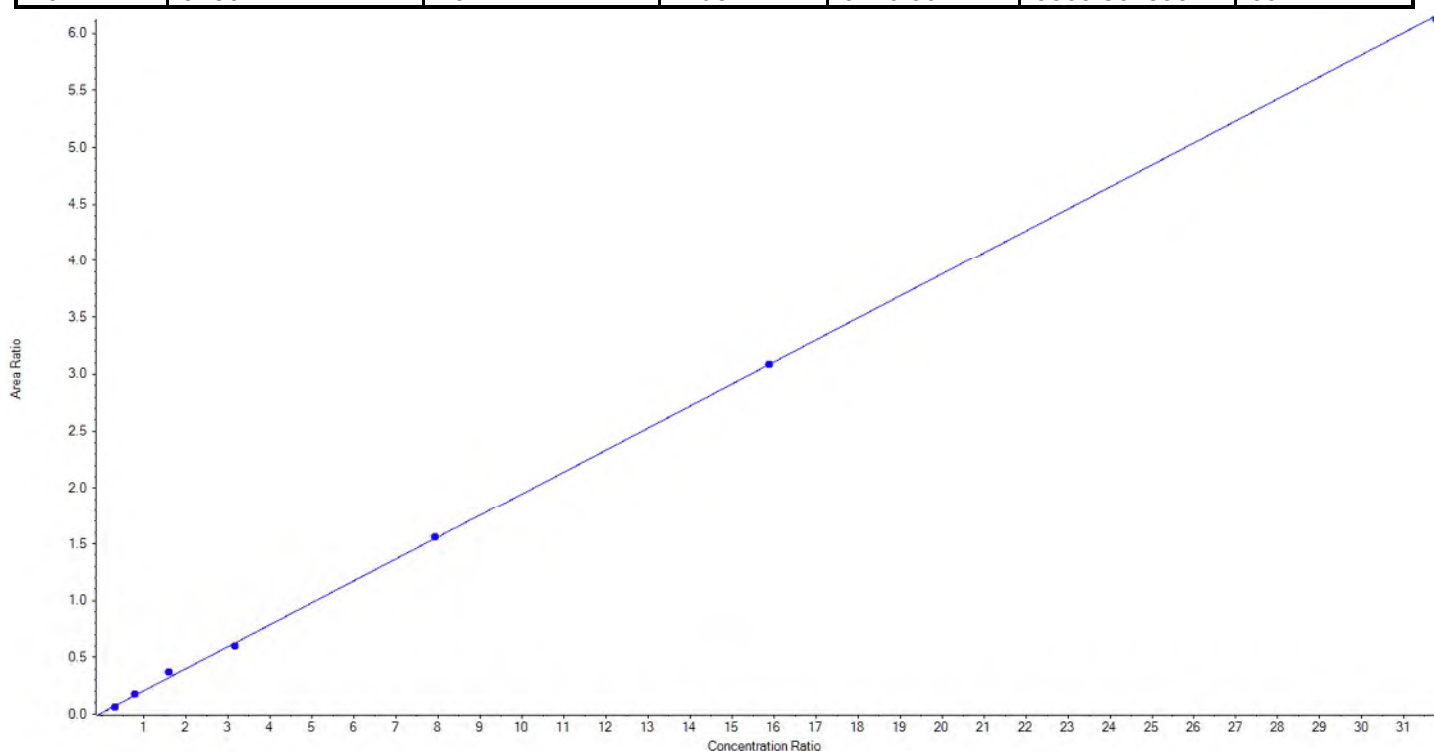
## Calibration Summary Report

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Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFHxS_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	399.0 / 99.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19337 x + 0.01253$  ( $r = 0.99943$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	75.685732	83.0
5	JZ81	L4	True	228.00	237.676257	104.2
6	JZ82	L5	True	456.00	531.121903	116.5
7	JZ83	L6	True	912.00	875.743861	96.0
8	JZ84	L7	True	2280.00	2298.208639	100.8
9	JZ85	L8	True	4560.00	4562.901713	100.1
10	JZ86	L9	True	9120.00	9065.861895	99.4





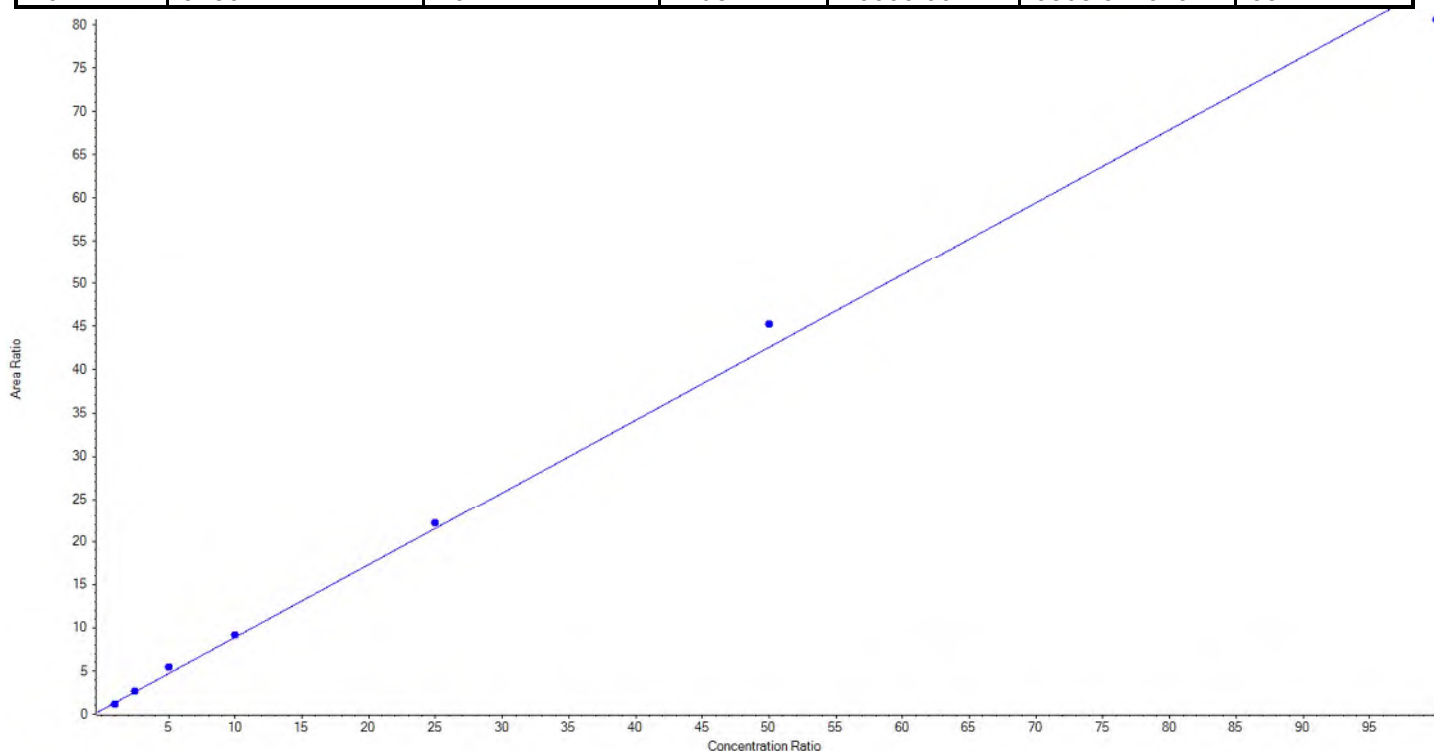
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFOA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	413.0 / 369.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.84228x + 0.48615$  ( $r = 0.99788$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	73.371168	73.4
5	JZ81	L4	True	250.00	254.447376	101.8
6	JZ82	L5	True	500.00	587.739490	117.6
7	JZ83	L6	True	1000.00	1026.133700	102.6
8	JZ84	L7	True	2500.00	2580.378450	103.2
9	JZ85	L8	True	5000.00	5319.417746	106.4
10	JZ86	L9	True	10000.00	9508.512070	95.1





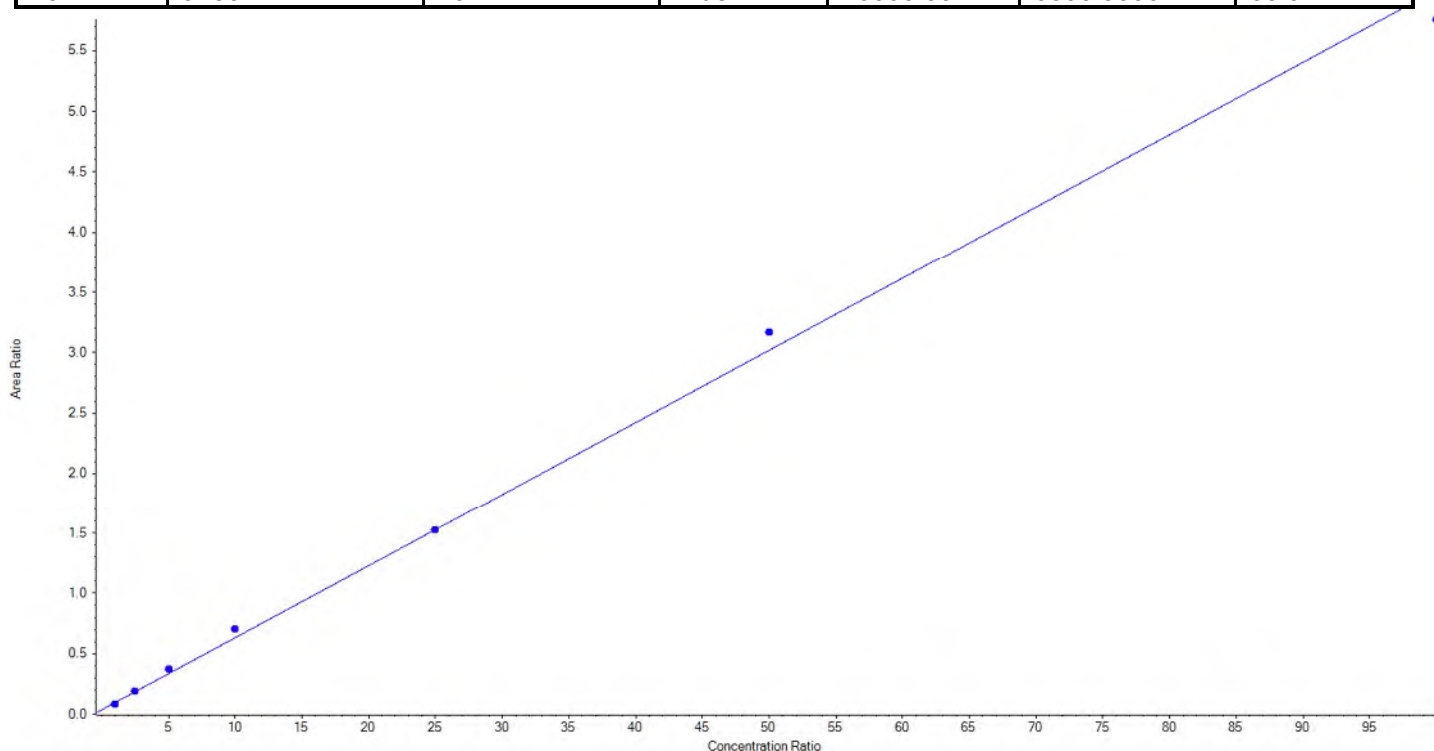
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFOA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	413.0 / 169.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05963 x + 0.03659$  (r = 0.99830) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	74.879488	74.9
5	JZ81	L4	True	250.00	251.684719	100.7
6	JZ82	L5	True	500.00	557.768094	111.6
7	JZ83	L6	True	1000.00	1117.747800	111.8
8	JZ84	L7	True	2500.00	2503.243230	100.1
9	JZ85	L8	True	5000.00	5254.172998	105.1
10	JZ86	L9	True	10000.00	9590.503672	95.9





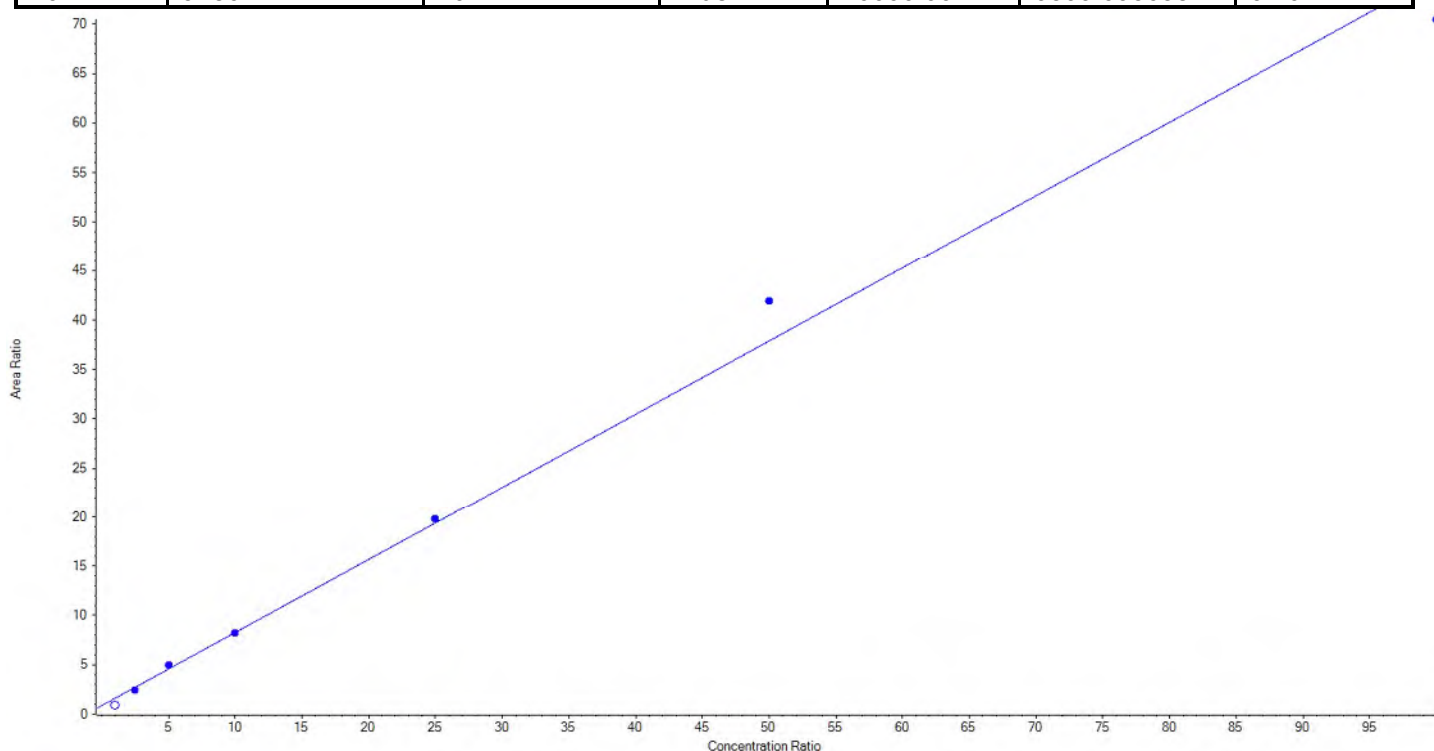
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFNA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	463.0 / 419.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.74009x + 0.86930$  ( $r = 0.99632$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	7.249773	7.3
5	JZ81	L4	True	250.00	209.284510	83.7
6	JZ82	L5	True	500.00	548.298615	109.7
7	JZ83	L6	True	1000.00	996.943800	99.7
8	JZ84	L7	True	2500.00	2550.978400	102.0
9	JZ85	L8	True	5000.00	5544.801016	110.9
10	JZ86	L9	True	10000.00	9399.693658	94.0





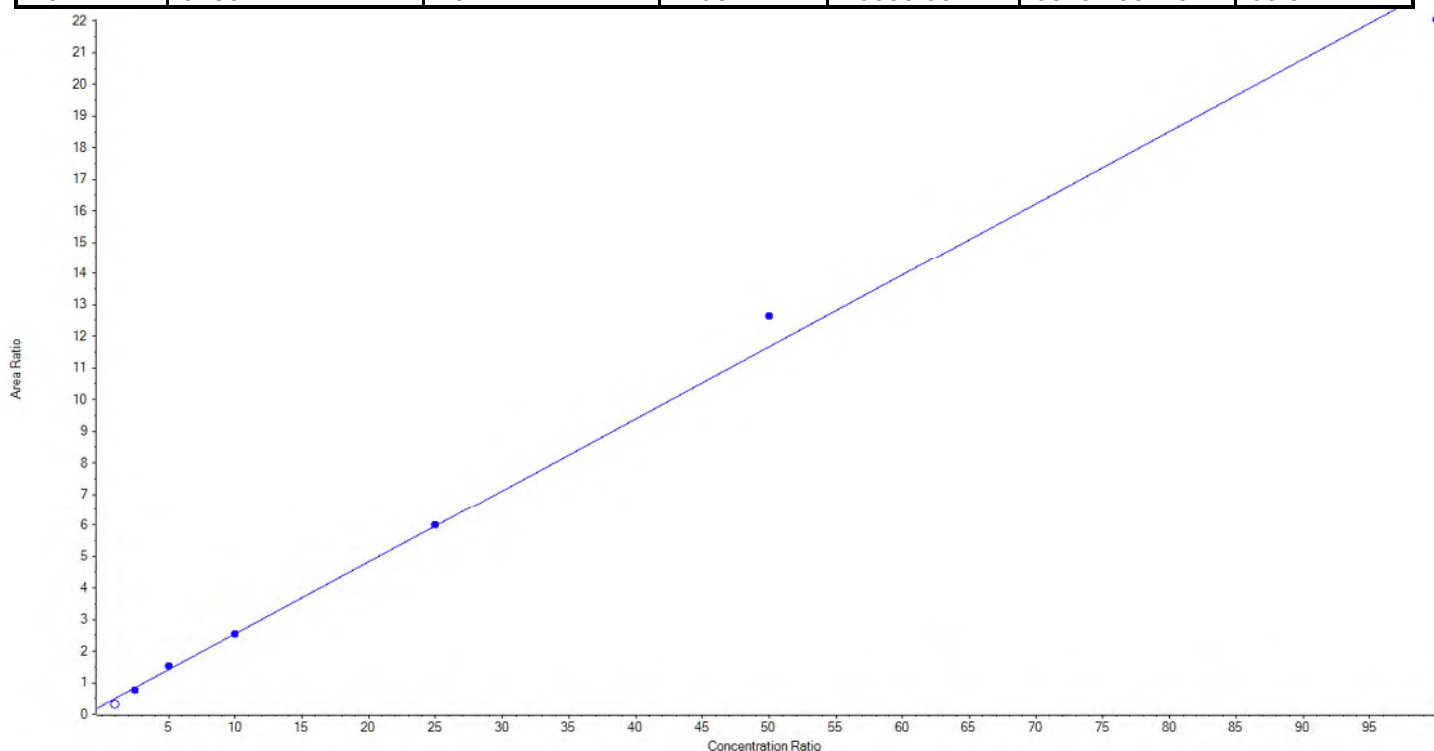
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFNA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	463.0 / 219.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.22802 x + 0.26815$  ( $r = 0.99773$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	18.776472	18.8
5	JZ81	L4	True	250.00	214.573585	85.8
6	JZ82	L5	True	500.00	551.002173	110.2
7	JZ83	L6	True	1000.00	991.839550	99.2
8	JZ84	L7	True	2500.00	2521.277368	100.9
9	JZ85	L8	True	5000.00	5422.200845	108.4
10	JZ86	L9	True	10000.00	9549.106478	95.5







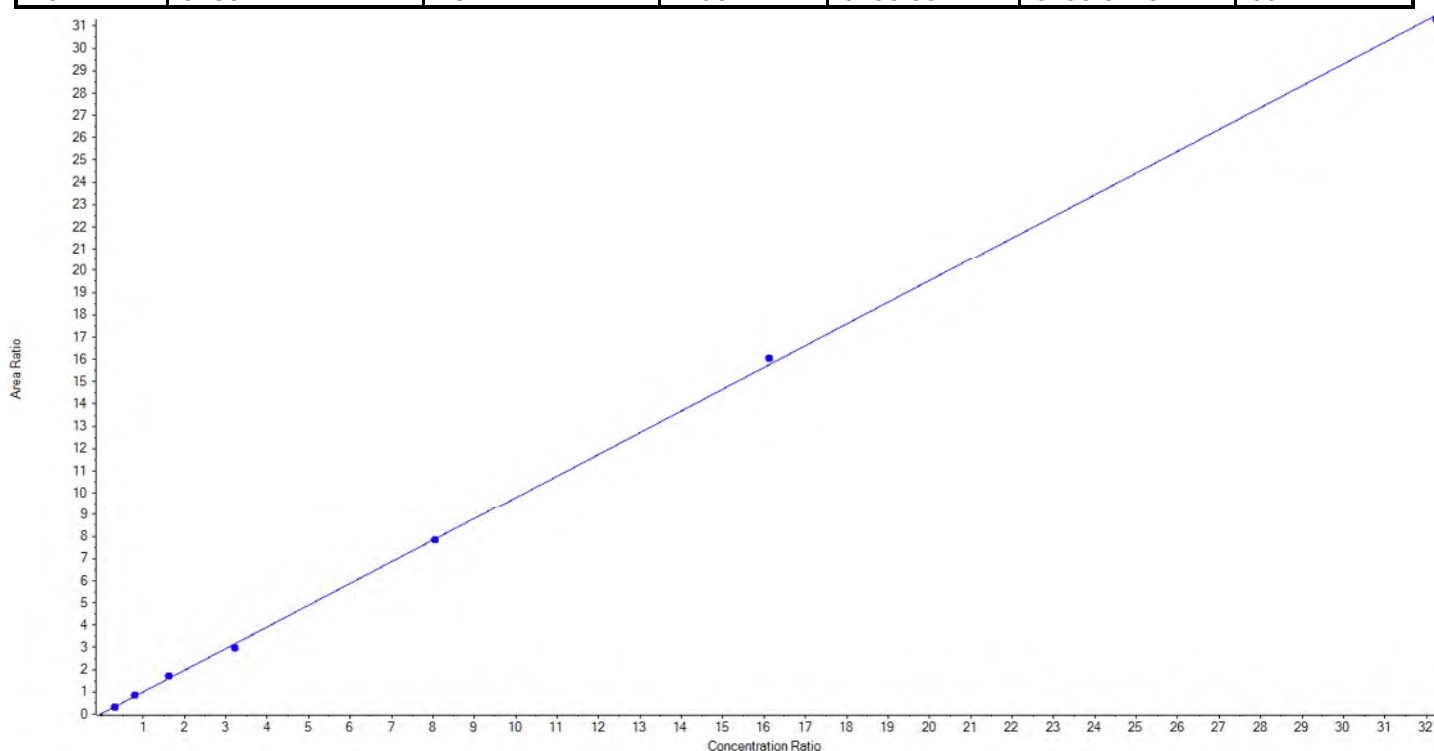
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFOS_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	499.0 / 80.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.97576x + 0.02472$  ( $r = 0.99970$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	92.60	86.917577	93.9
5	JZ81	L4	True	231.50	238.441228	103.0
6	JZ82	L5	True	463.00	501.919227	108.4
7	JZ83	L6	True	925.60	870.019821	94.0
8	JZ84	L7	True	2314.00	2302.514320	99.5
9	JZ85	L8	True	4628.00	4715.275999	101.9
10	JZ86	L9	True	9256.00	9195.611827	99.4





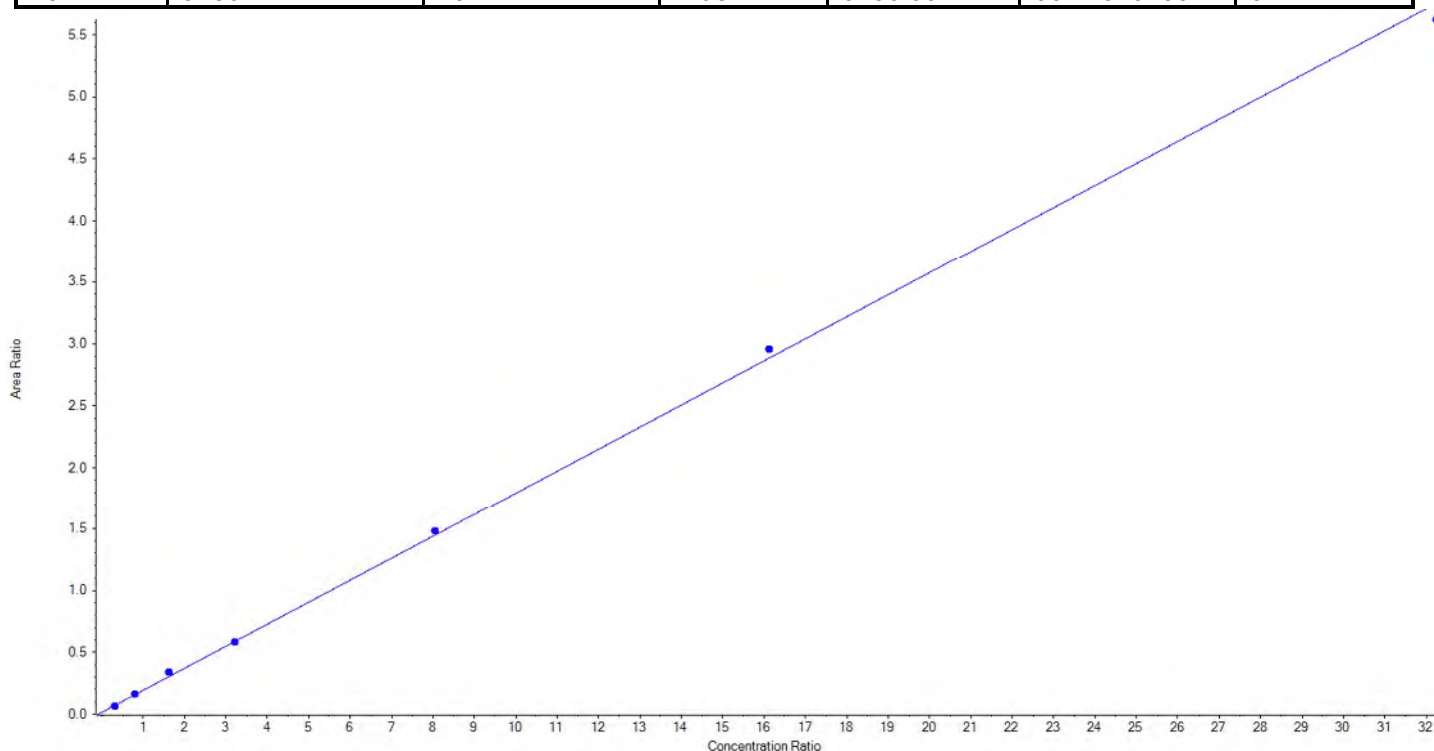
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFOS_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	499.0 / 99.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.17792 x + 0.01489$  ( $r = 0.99933$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	92.60	76.588582	82.7
5	JZ81	L4	True	231.50	235.299807	101.6
6	JZ82	L5	True	463.00	527.128024	113.9
7	JZ83	L6	True	925.60	920.293149	99.4
8	JZ84	L7	True	2314.00	2363.591978	102.1
9	JZ85	L8	True	4628.00	4745.419194	102.5
10	JZ86	L9	True	9256.00	9042.379266	97.7





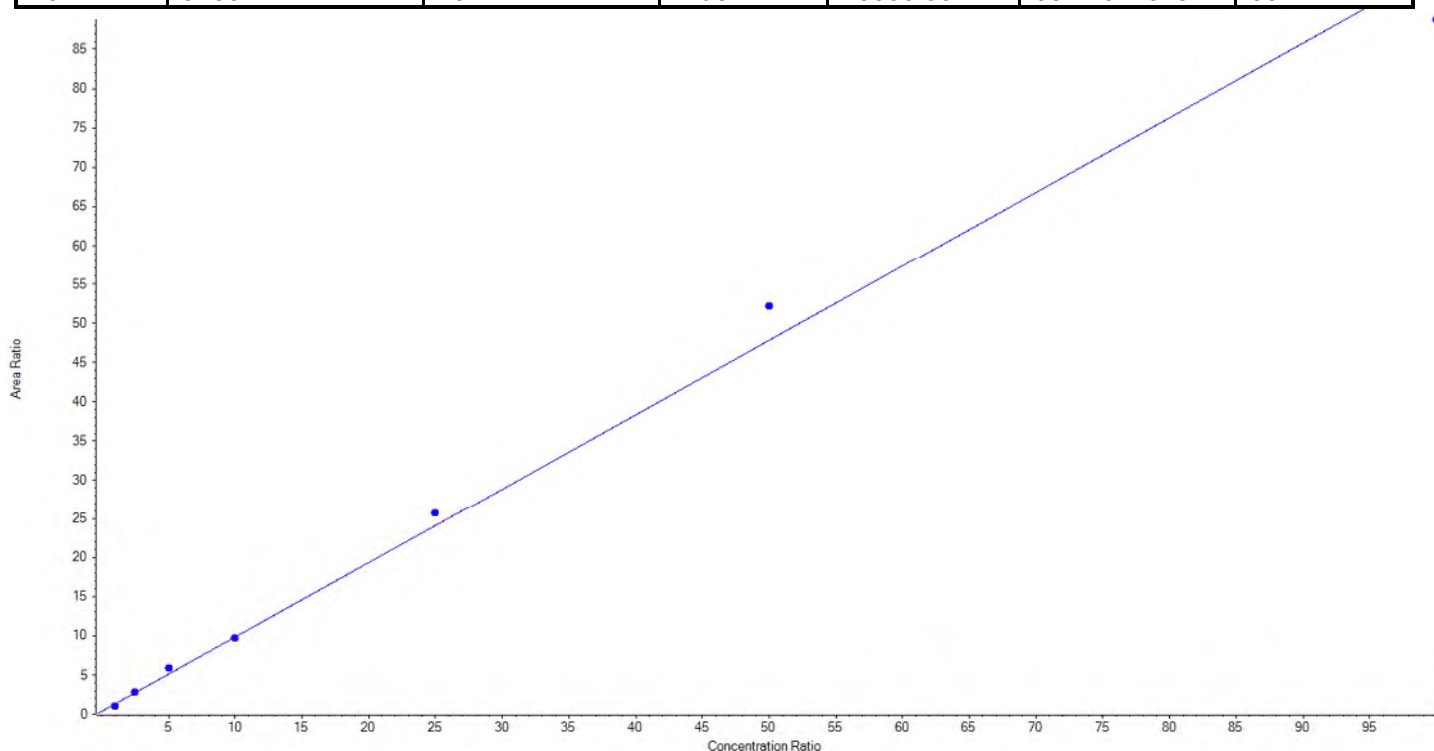
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFDA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	513.0 / 469.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.94914x + 0.36206$  ( $r = 0.99630$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	70.608727	70.6
5	JZ81	L4	True	250.00	262.340714	104.9
6	JZ82	L5	True	500.00	580.828624	116.2
7	JZ83	L6	True	1000.00	989.889072	99.0
8	JZ84	L7	True	2500.00	2676.005715	107.0
9	JZ85	L8	True	5000.00	5455.685524	109.1
10	JZ86	L9	True	10000.00	9314.641625	93.2





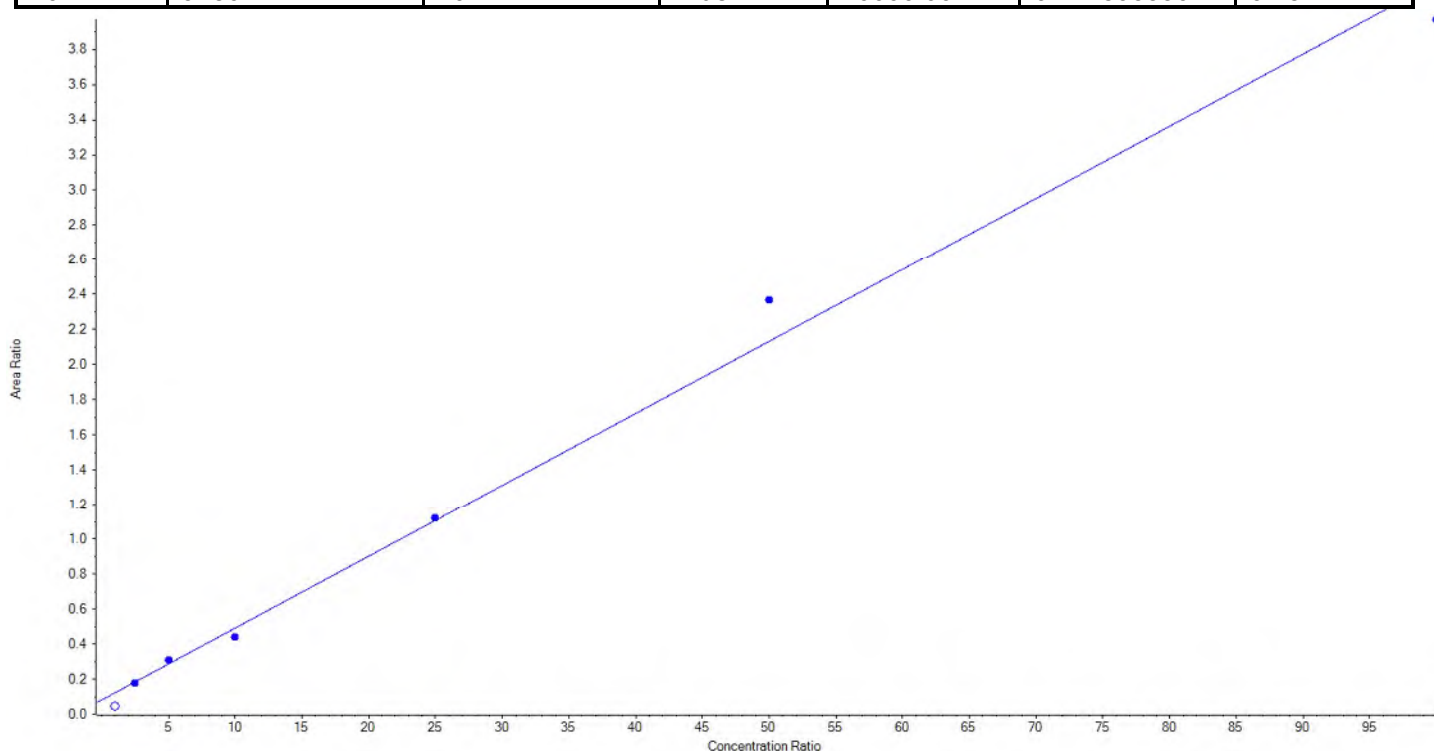
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFDA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	513.0 / 219.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04102 x + 0.08115$  ( $r = 0.99602$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	234.401702	93.8
6	JZ82	L5	True	500.00	556.023143	111.2
7	JZ83	L6	True	1000.00	875.230246	87.5
8	JZ84	L7	True	2500.00	2530.186180	101.2
9	JZ85	L8	True	5000.00	5576.263174	111.5
10	JZ86	L9	True	10000.00	9477.895556	94.8





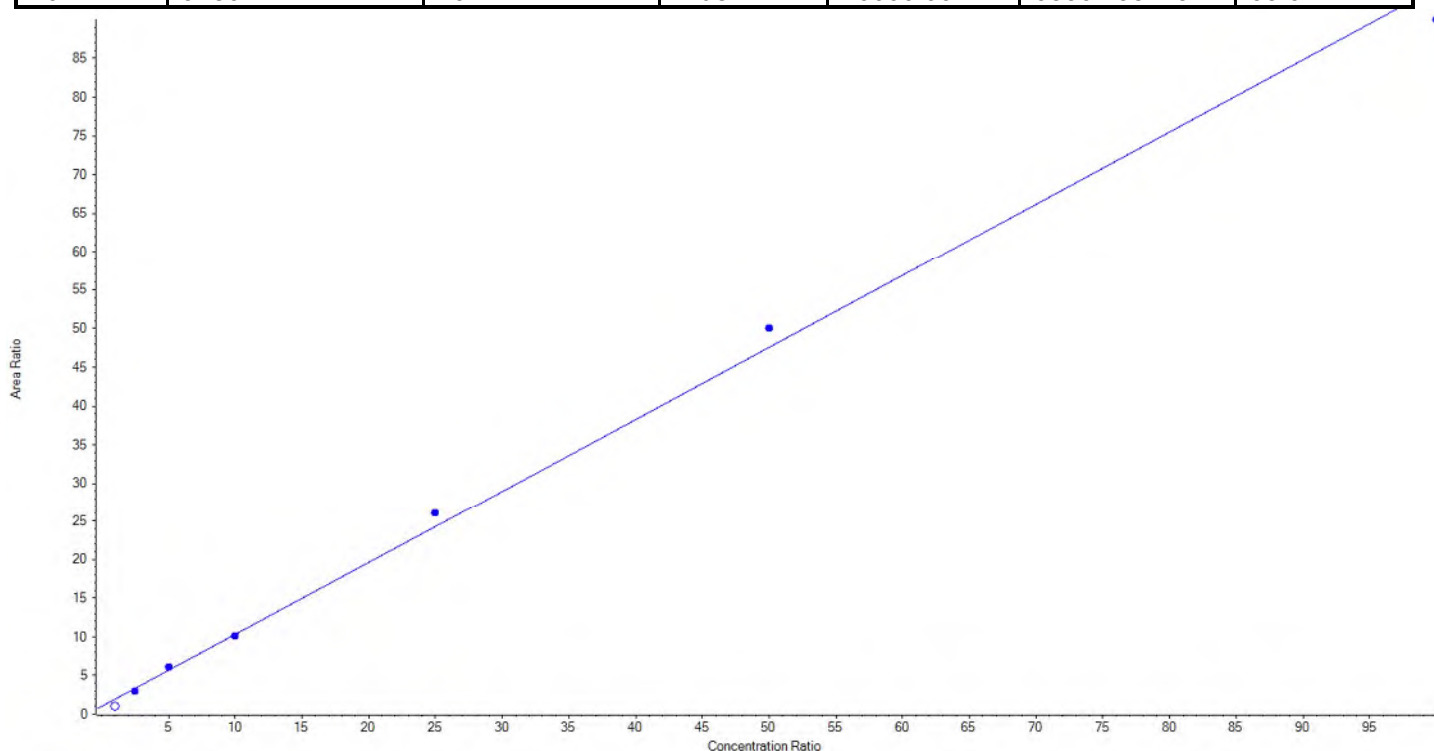
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFUnA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	563.0 / 519.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.93110x + 1.01235$  ( $r = 0.99793$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	7.191231	7.2
5	JZ81	L4	True	250.00	208.971754	83.6
6	JZ82	L5	True	500.00	551.142340	110.2
7	JZ83	L6	True	1000.00	977.769189	97.8
8	JZ84	L7	True	2500.00	2686.308101	107.5
9	JZ85	L8	True	5000.00	5269.550143	105.4
10	JZ86	L9	True	10000.00	9556.258473	95.6





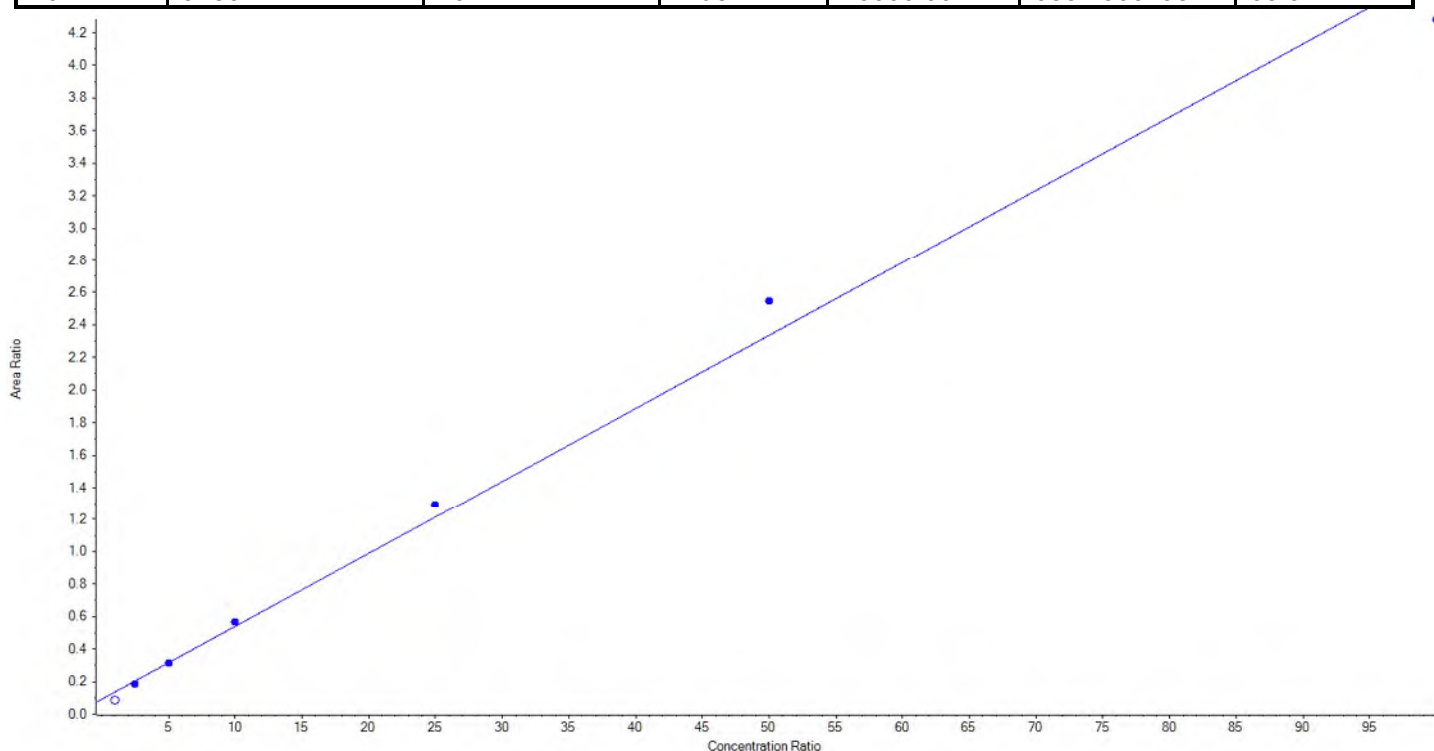
## Calibration Summary Report

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<b>Analyte Name</b>	PFUnA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	563.0 / 269.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04488x + 0.09195$  ( $r = 0.99621$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	211.046084	84.4
6	JZ82	L5	True	500.00	500.508430	100.1
7	JZ83	L6	True	1000.00	1053.643664	105.4
8	JZ84	L7	True	2500.00	2686.725778	107.5
9	JZ85	L8	True	5000.00	5466.572246	109.3
10	JZ86	L9	True	10000.00	9331.503798	93.3





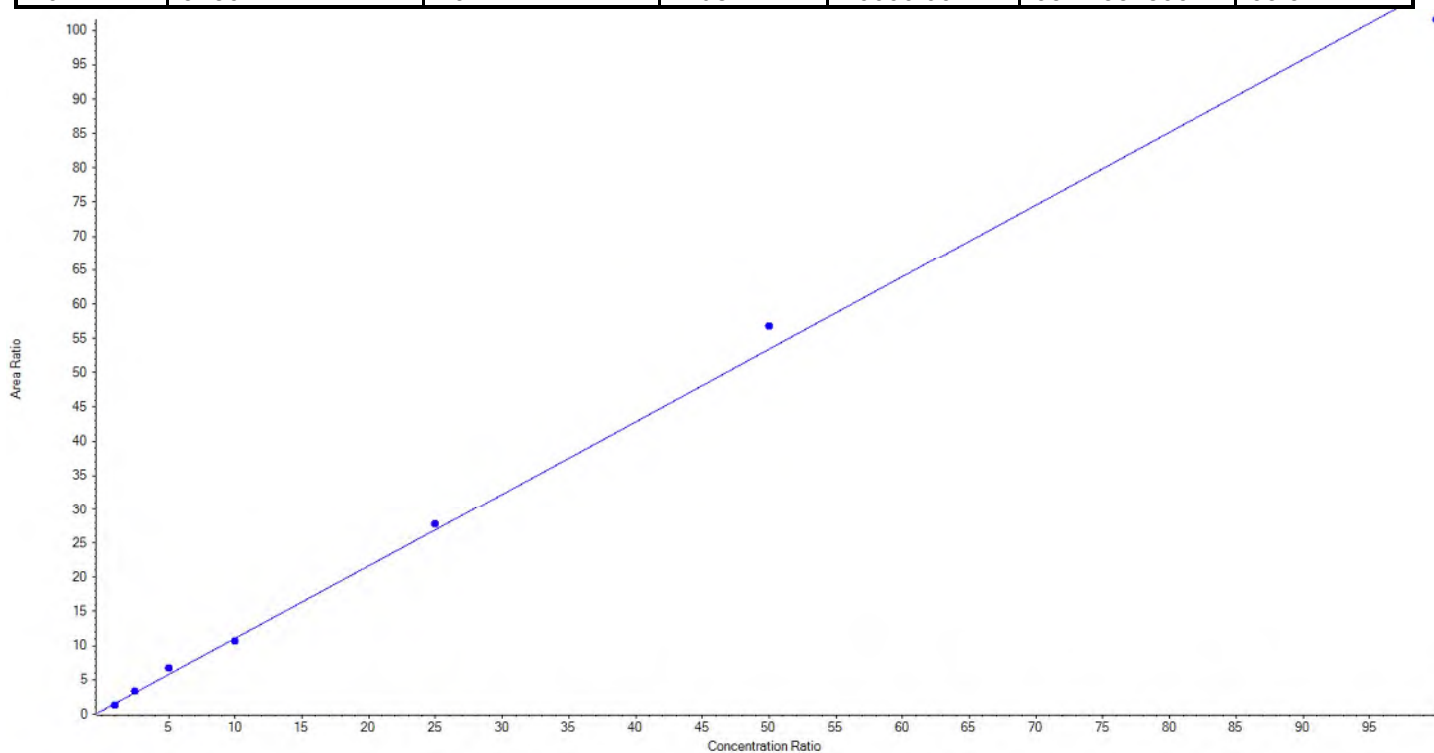
## Calibration Summary Report

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<b>Analyte Name</b>	PFDaA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	613.0 / 569.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.05853x + 0.48729$  ( $r = 0.99792$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	72.576388	72.6
5	JZ81	L4	True	250.00	268.921030	107.6
6	JZ82	L5	True	500.00	588.523137	117.7
7	JZ83	L6	True	1000.00	968.815455	96.9
8	JZ84	L7	True	2500.00	2586.064793	103.4
9	JZ85	L8	True	5000.00	5317.544392	106.4
10	JZ86	L9	True	10000.00	9547.554806	95.5





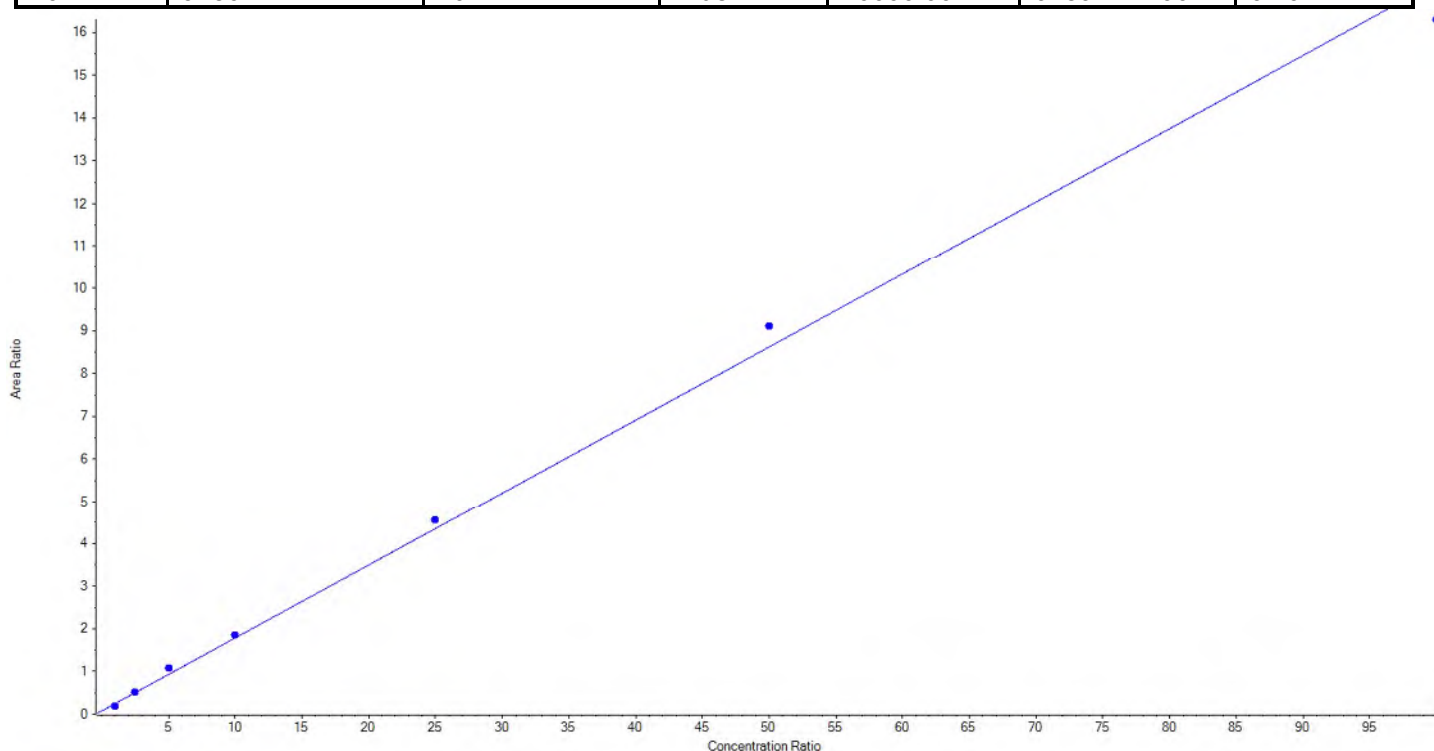
## Calibration Summary Report

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<b>Analyte Name</b>	PFD <sub>o</sub> A_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	613.0 / 319.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C <sub>2</sub> -PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.17089x + 0.07667$  ( $r = 0.99779$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	70.026787	70.0
5	JZ81	L4	True	250.00	259.553279	103.8
6	JZ82	L5	True	500.00	584.894503	117.0
7	JZ83	L6	True	1000.00	1035.886078	103.6
8	JZ84	L7	True	2500.00	2624.466676	105.0
9	JZ85	L8	True	5000.00	5285.399886	105.7
10	JZ86	L9	True	10000.00	9489.772790	94.9







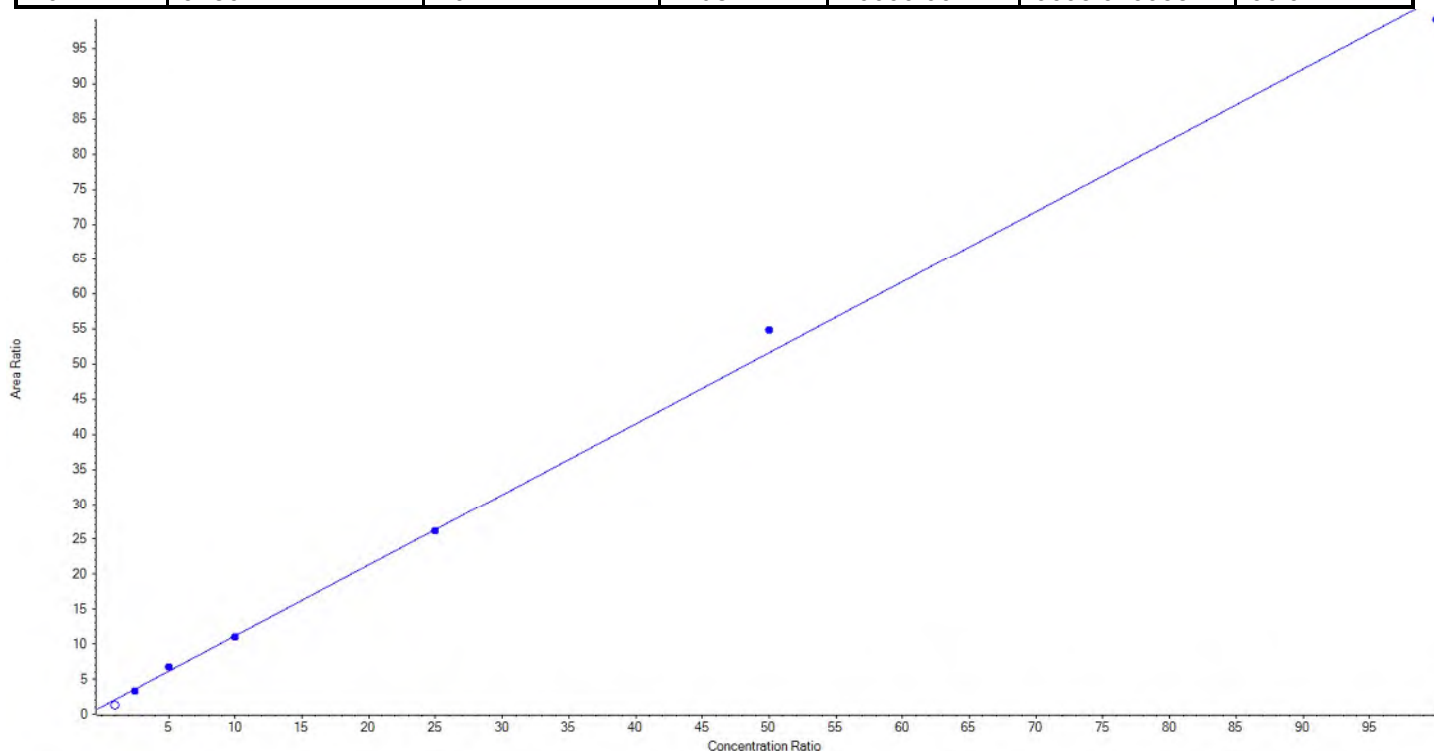
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFTTrDA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	663.0 / 619.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.01143x + 1.04464$  ( $r = 0.99865$ ) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	19.083620	19.1
5	JZ81	L4	True	250.00	219.466117	87.8
6	JZ82	L5	True	500.00	555.651930	111.1
7	JZ83	L6	True	1000.00	986.485402	98.7
8	JZ84	L7	True	2500.00	2480.324765	99.2
9	JZ85	L8	True	5000.00	5314.091848	106.3
10	JZ86	L9	True	10000.00	9693.979938	96.9





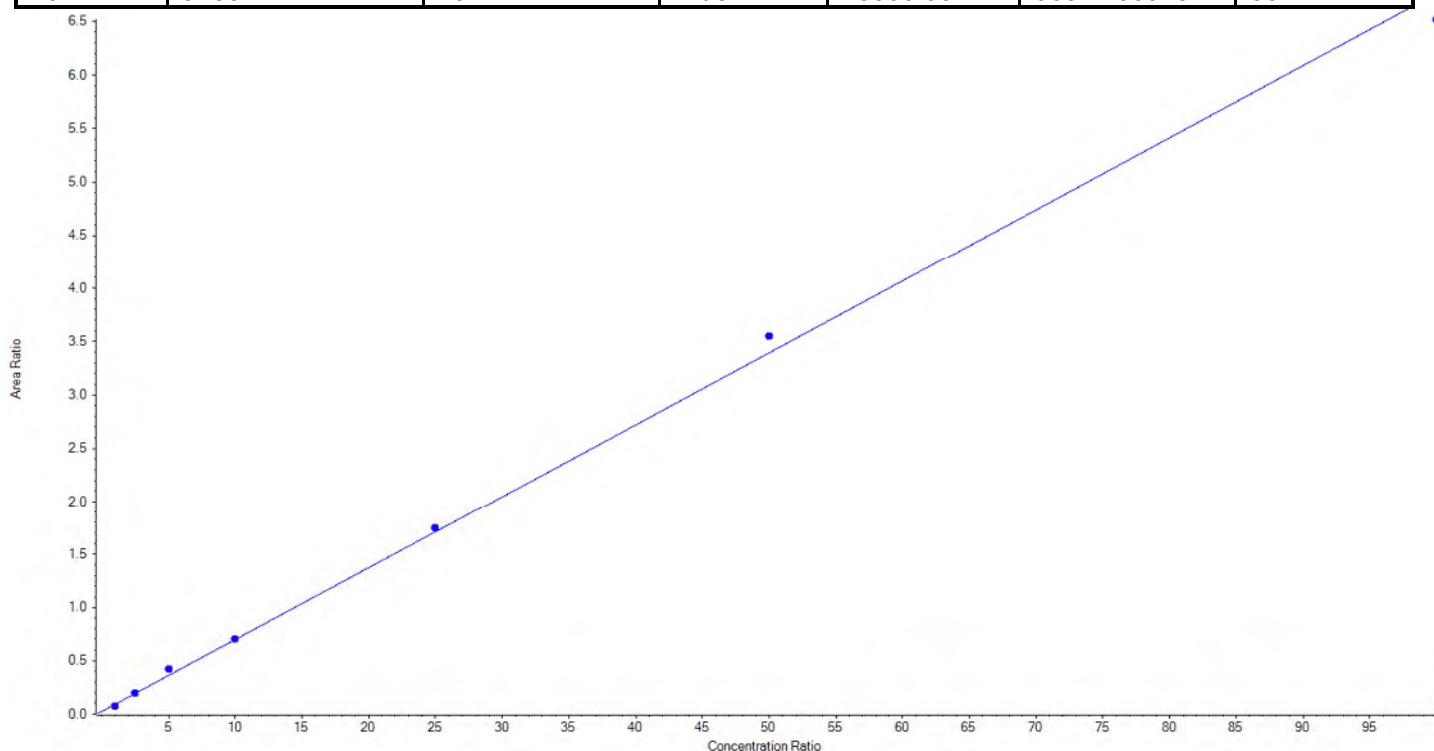
## Calibration Summary Report

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<b>Analyte Name</b>	PFTTrDA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	663.0 / 169.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.06735x + 0.02565$  ( $r = 0.99864$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	76.468157	76.5
5	JZ81	L4	True	250.00	256.772725	102.7
6	JZ82	L5	True	500.00	584.799168	117.0
7	JZ83	L6	True	1000.00	1005.044407	100.5
8	JZ84	L7	True	2500.00	2559.608872	102.4
9	JZ85	L8	True	5000.00	5230.105725	104.6
10	JZ86	L9	True	10000.00	9637.200945	96.4





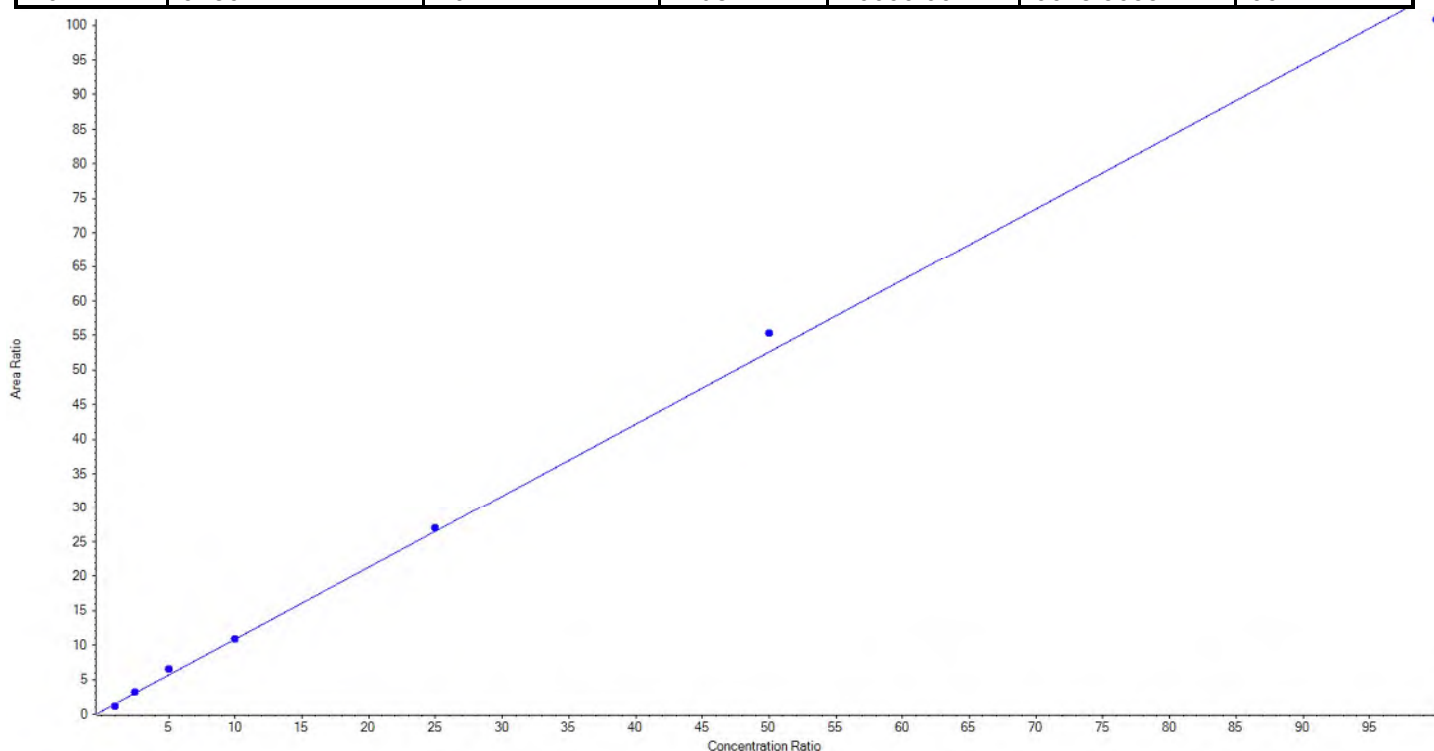
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Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFTeDA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	713.0 / 669.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.04367 x + 0.43687$  ( $r = 0.99855$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	76.215039	76.2
5	JZ81	L4	True	250.00	259.625152	103.9
6	JZ82	L5	True	500.00	580.330474	116.1
7	JZ83	L6	True	1000.00	1005.642398	100.6
8	JZ84	L7	True	2500.00	2546.323019	101.9
9	JZ85	L8	True	5000.00	5263.300577	105.3
10	JZ86	L9	True	10000.00	9618.563342	96.2





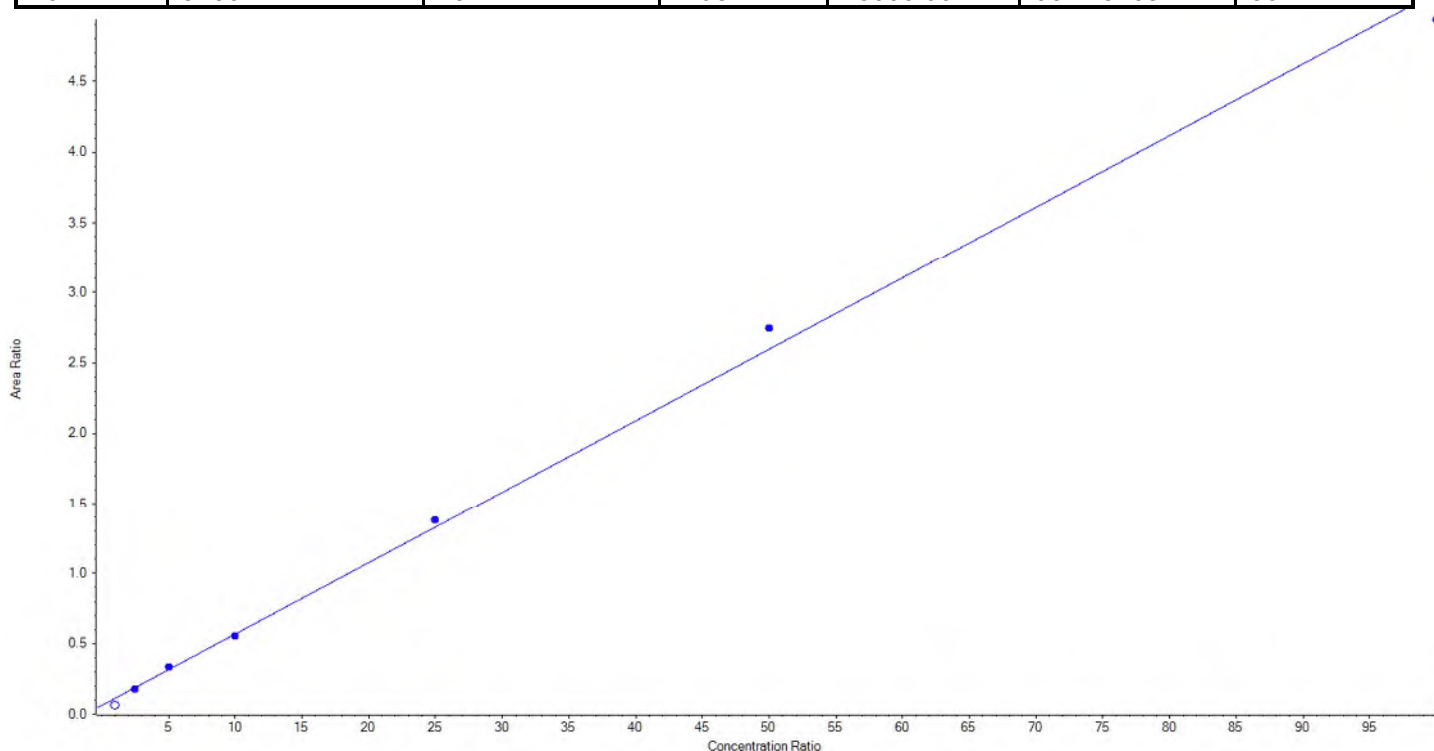
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Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	PFTeDA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	713.0 / 169.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05069x + 0.06175$  ( $r = 0.99856$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	7.037031	7.0
5	JZ81	L4	True	250.00	222.200113	88.9
6	JZ82	L5	True	500.00	535.693008	107.1
7	JZ83	L6	True	1000.00	978.074216	97.8
8	JZ84	L7	True	2500.00	2603.422173	104.1
9	JZ85	L8	True	5000.00	5293.093979	105.9
10	JZ86	L9	True	10000.00	9617.516511	96.2





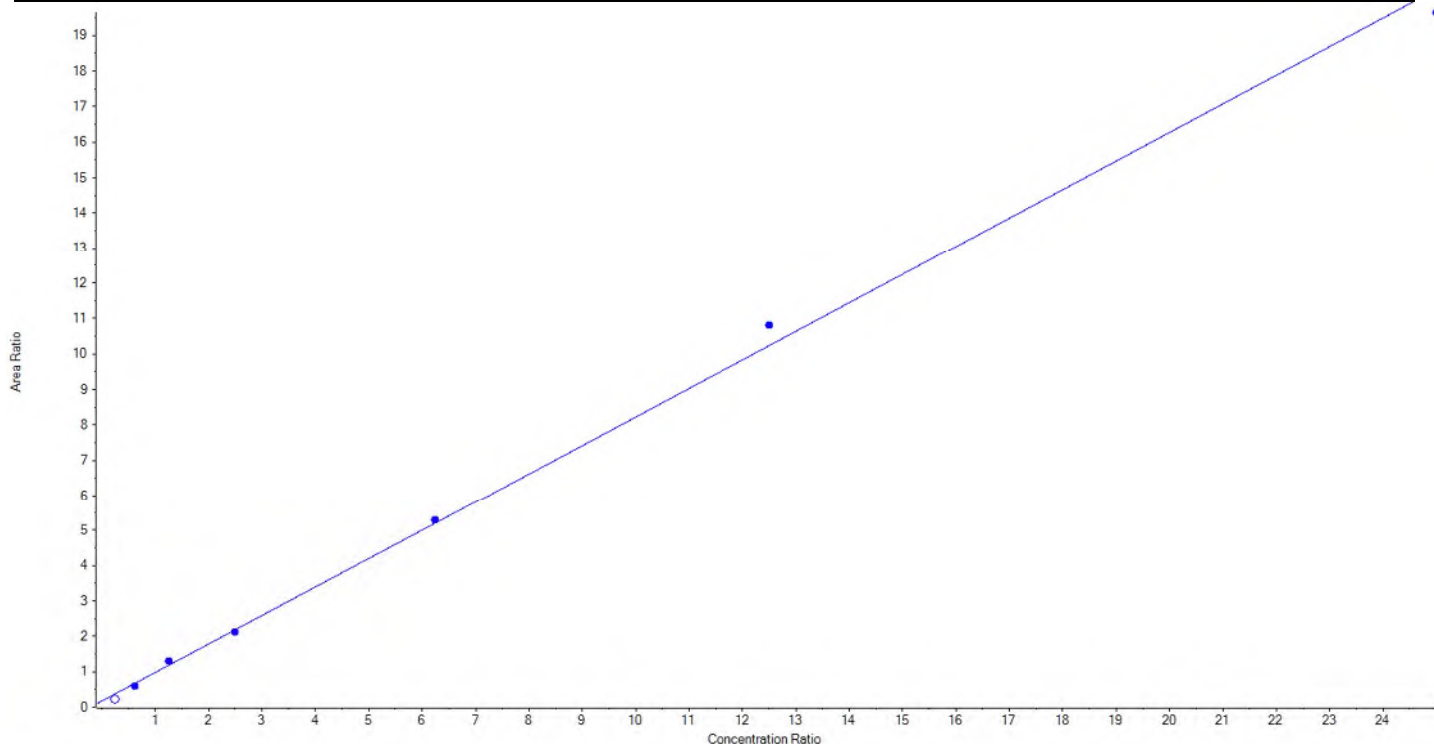
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	NMeFOSAA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	570.0 / 419.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.80488x + 0.17329$  ( $r = 0.99858$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	20.249537	20.3
5	JZ81	L4	True	250.00	215.870364	86.4
6	JZ82	L5	True	500.00	563.783035	112.8
7	JZ83	L6	True	1000.00	967.201627	96.7
8	JZ84	L7	True	2500.00	2543.159964	101.7
9	JZ85	L8	True	5000.00	5284.883606	105.7
10	JZ86	L9	True	10000.00	9675.101405	96.8





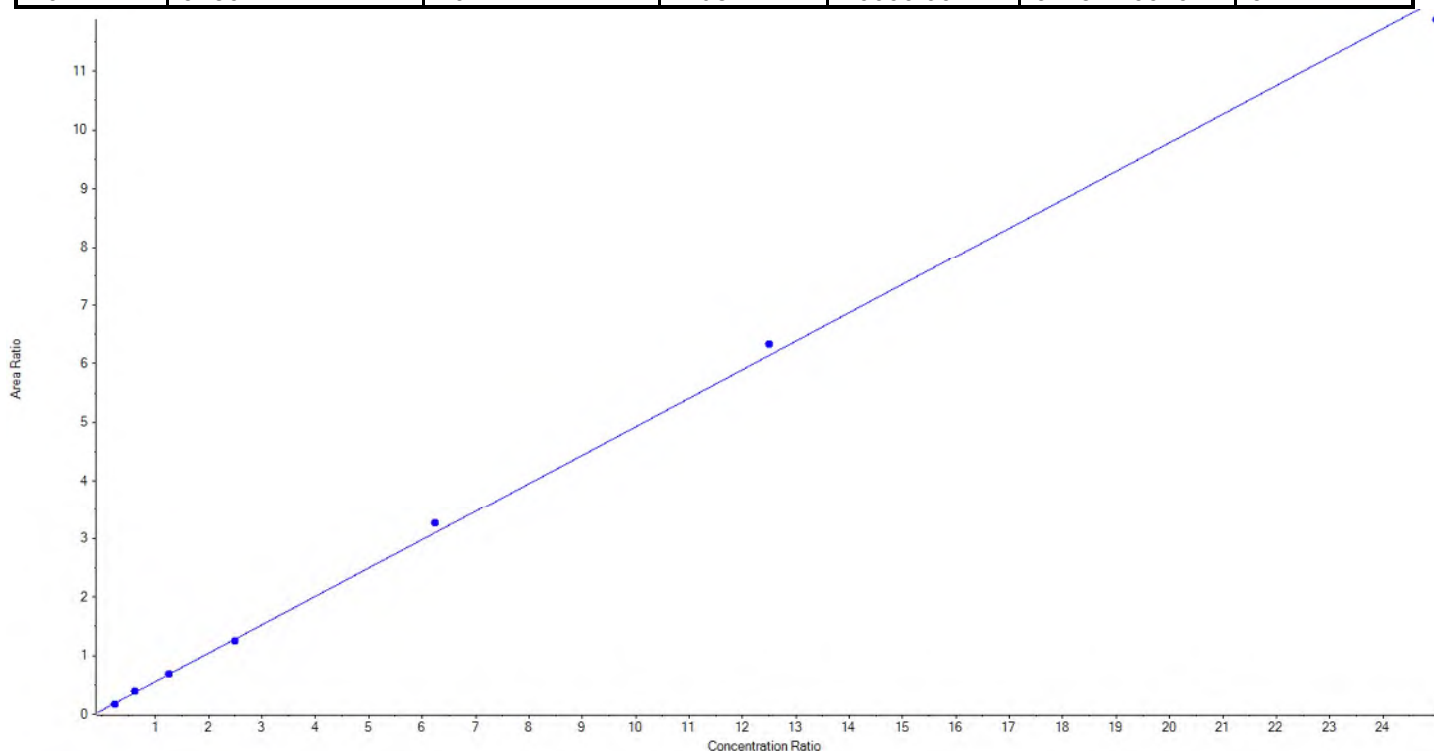
## Calibration Summary Report

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Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	NMeFOSAA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	570.0 / 512.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.48579x + 0.06749$  ( $r = 0.99933$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	90.069372	90.1
5	JZ81	L4	True	250.00	262.821109	105.1
6	JZ82	L5	True	500.00	509.147028	101.8
7	JZ83	L6	True	1000.00	972.634016	97.3
8	JZ84	L7	True	2500.00	2632.013721	105.3
9	JZ85	L8	True	5000.00	5159.568108	103.2
10	JZ86	L9	True	10000.00	9723.746646	97.2





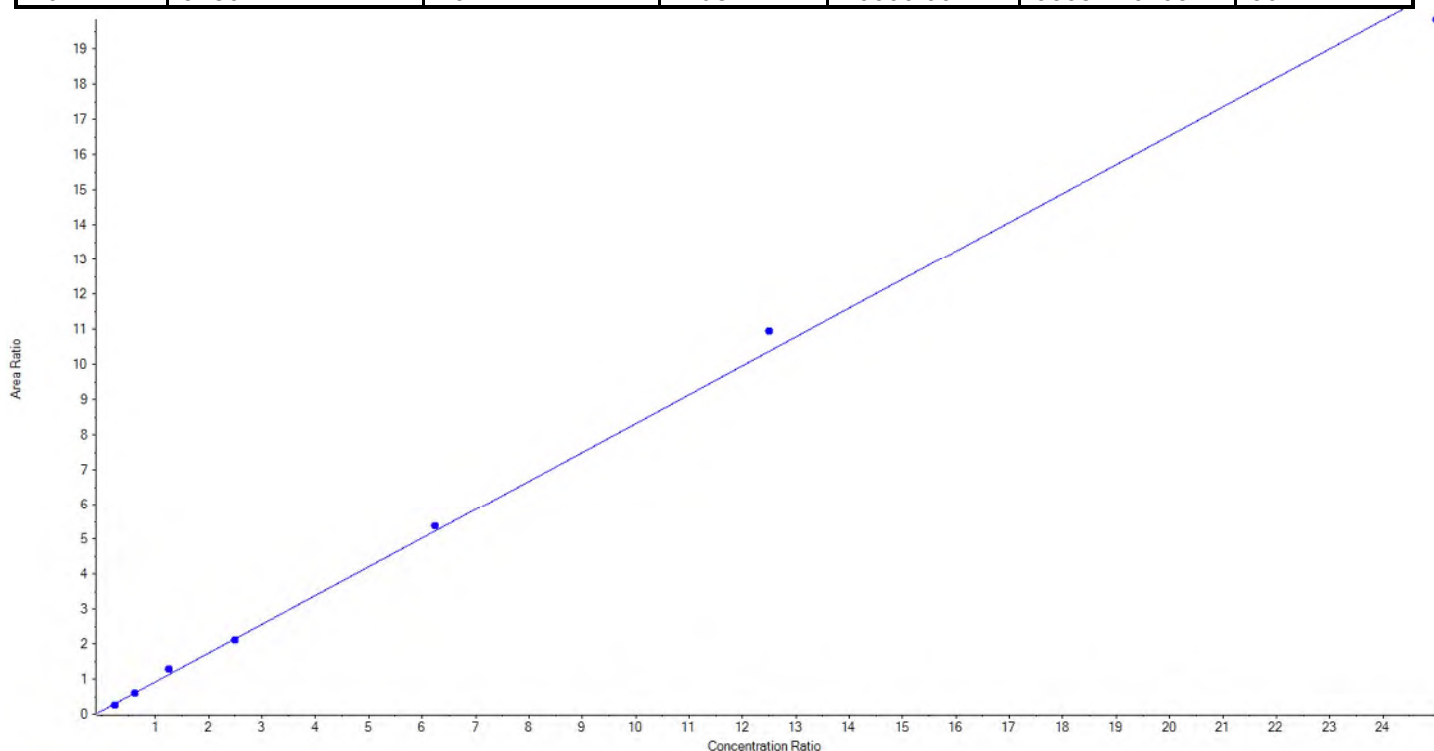
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	NEtFOSAA_1	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	584.0 / 419.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.82199x + 0.09456$  ( $r = 0.99847$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	80.976122	81.0
5	JZ81	L4	True	250.00	249.133758	99.7
6	JZ82	L5	True	500.00	583.156144	116.6
7	JZ83	L6	True	1000.00	984.965387	98.5
8	JZ84	L7	True	2500.00	2562.997010	102.5
9	JZ85	L8	True	5000.00	5283.501177	105.7
10	JZ86	L9	True	10000.00	9605.270403	96.1





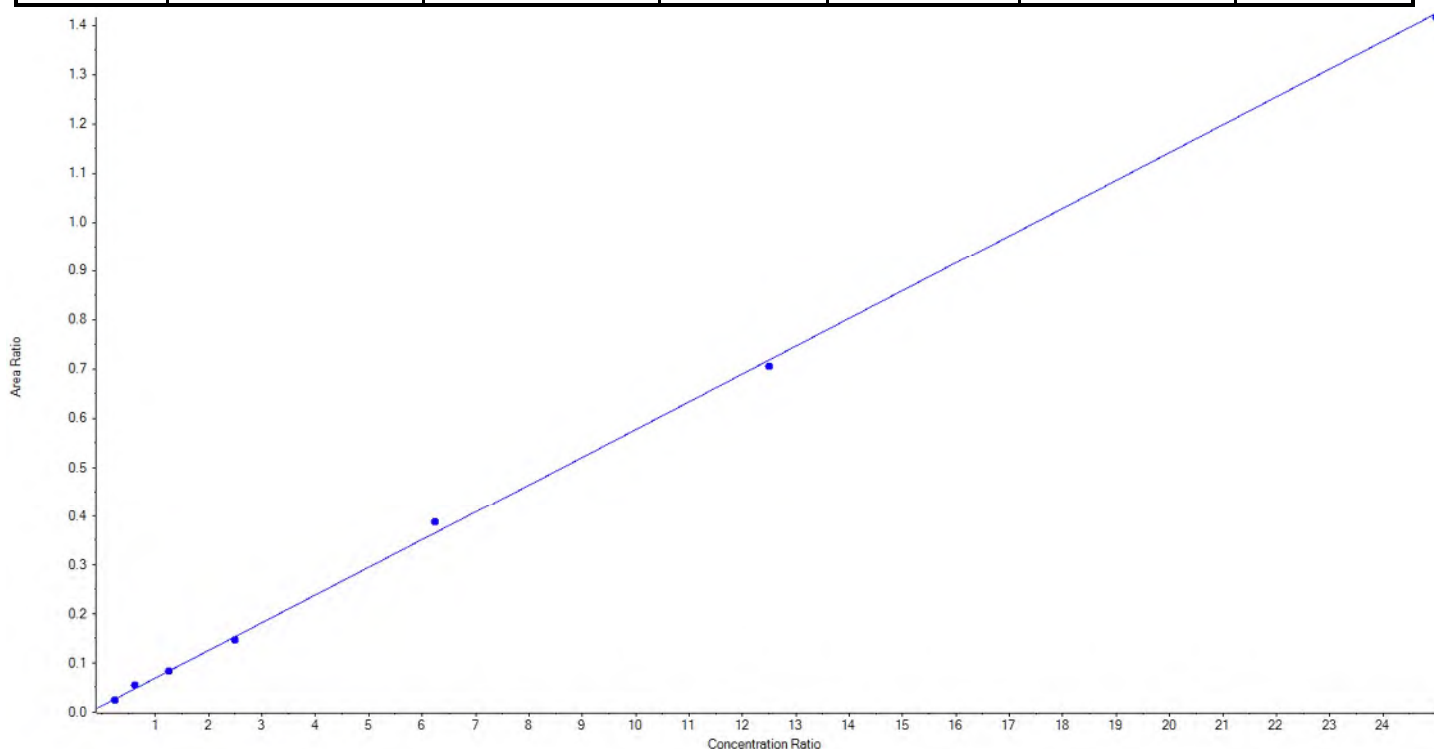
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	NEtFOSAA_2	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	584.0 / 483.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05648x + 0.01255$  ( $r = 0.99922$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	80.132797	80.1
5	JZ81	L4	True	250.00	296.658651	118.7
6	JZ82	L5	True	500.00	507.581298	101.5
7	JZ83	L6	True	1000.00	958.289586	95.8
8	JZ84	L7	True	2500.00	2654.784503	106.2
9	JZ85	L8	True	5000.00	4914.161258	98.3
10	JZ86	L9	True	10000.00	9938.391908	99.4







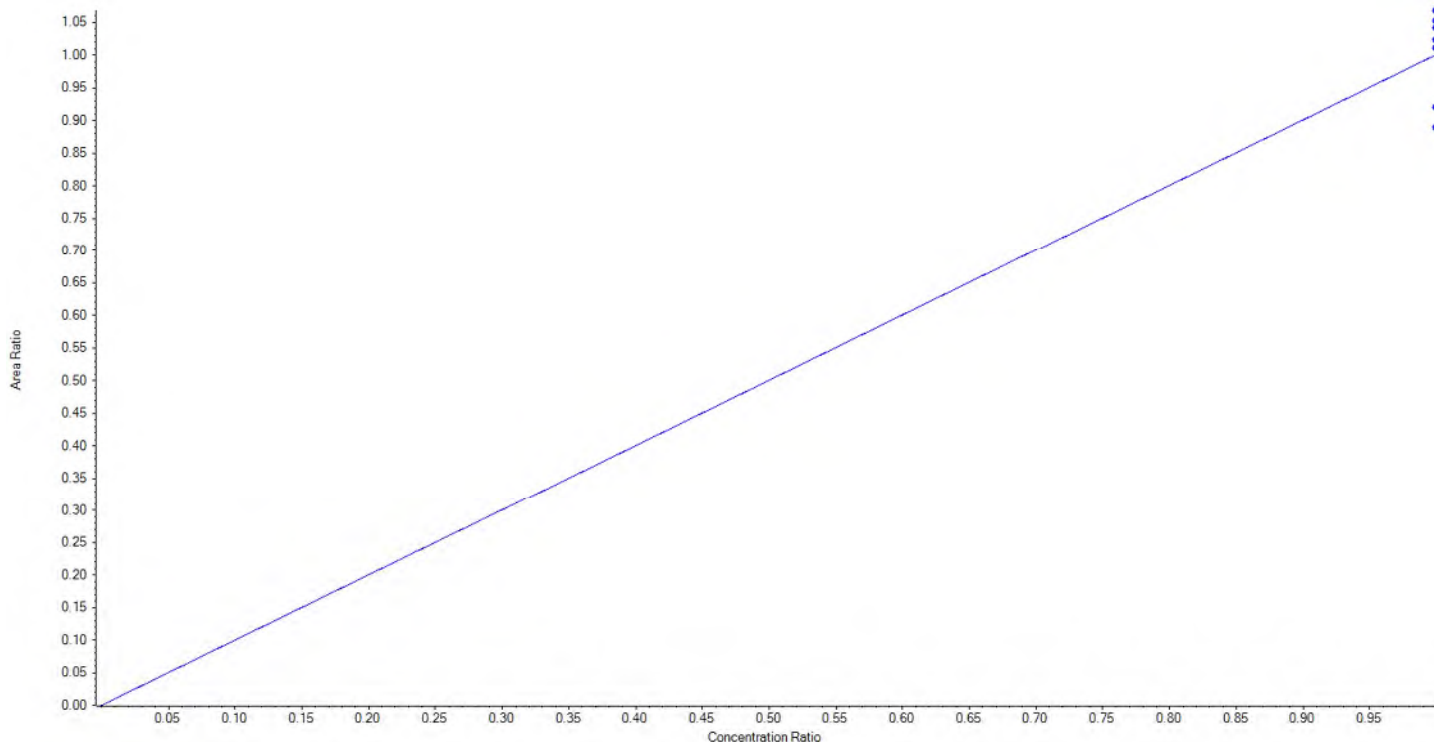
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	13C2-PFHxA	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	315.0 / 270.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.00081 x$  (std. dev. = 0.06898) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	104.123002	104.1
5	JZ81	L4	True	100.00	101.058325	101.1
6	JZ82	L5	True	100.00	106.703420	106.7
7	JZ83	L6	True	100.00	105.190662	105.2
8	JZ84	L7	True	100.00	88.820232	88.8
9	JZ85	L8	True	100.00	102.185074	102.2
10	JZ86	L9	True	100.00	91.919285	91.9





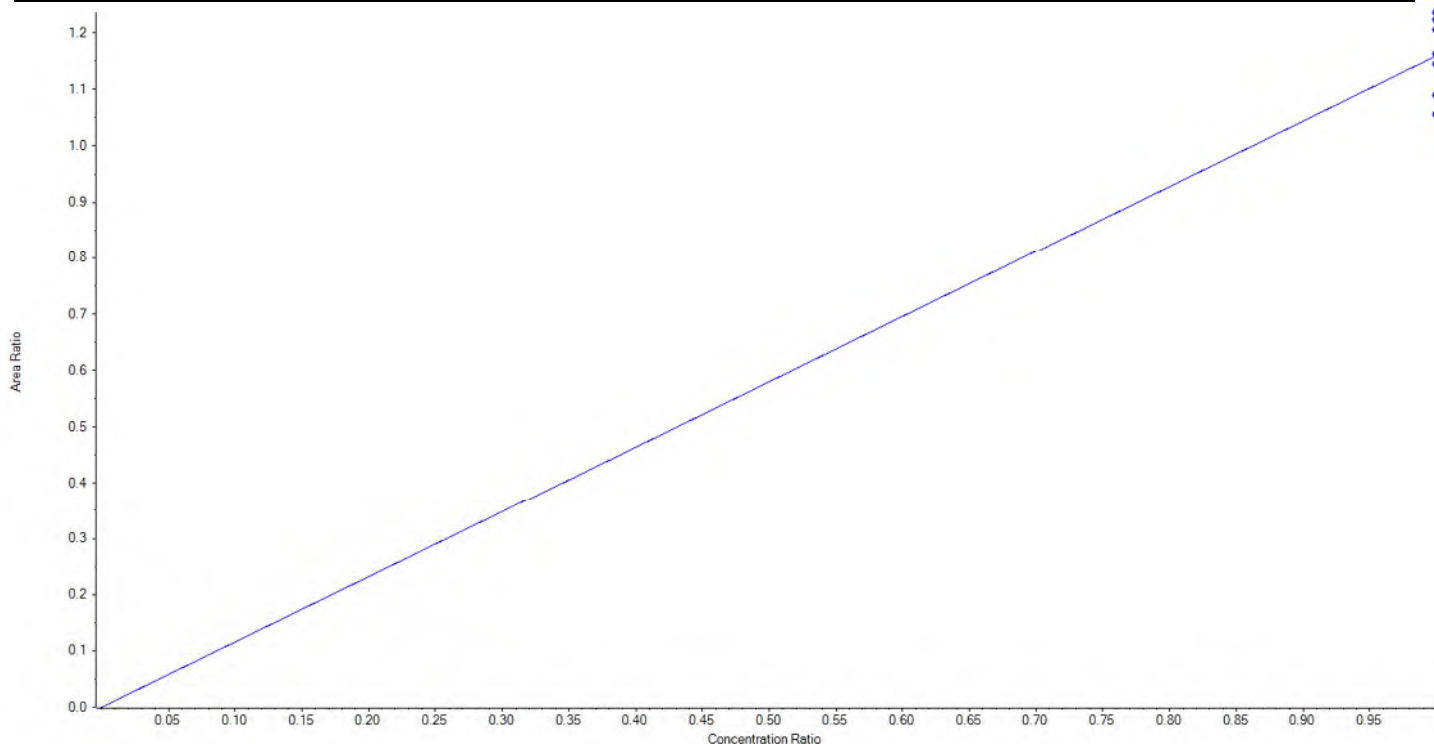
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	13C2-PFDA	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	515.0 / 470.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.15979 x$  (std. dev. = 0.06781) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	100.220969	100.2
5	JZ81	L4	True	100.00	106.562114	106.6
6	JZ82	L5	True	100.00	94.021052	94.0
7	JZ83	L6	True	100.00	98.750950	98.8
8	JZ84	L7	True	100.00	105.432438	105.4
9	JZ85	L8	True	100.00	103.938838	103.9
10	JZ86	L9	True	100.00	91.073639	91.1





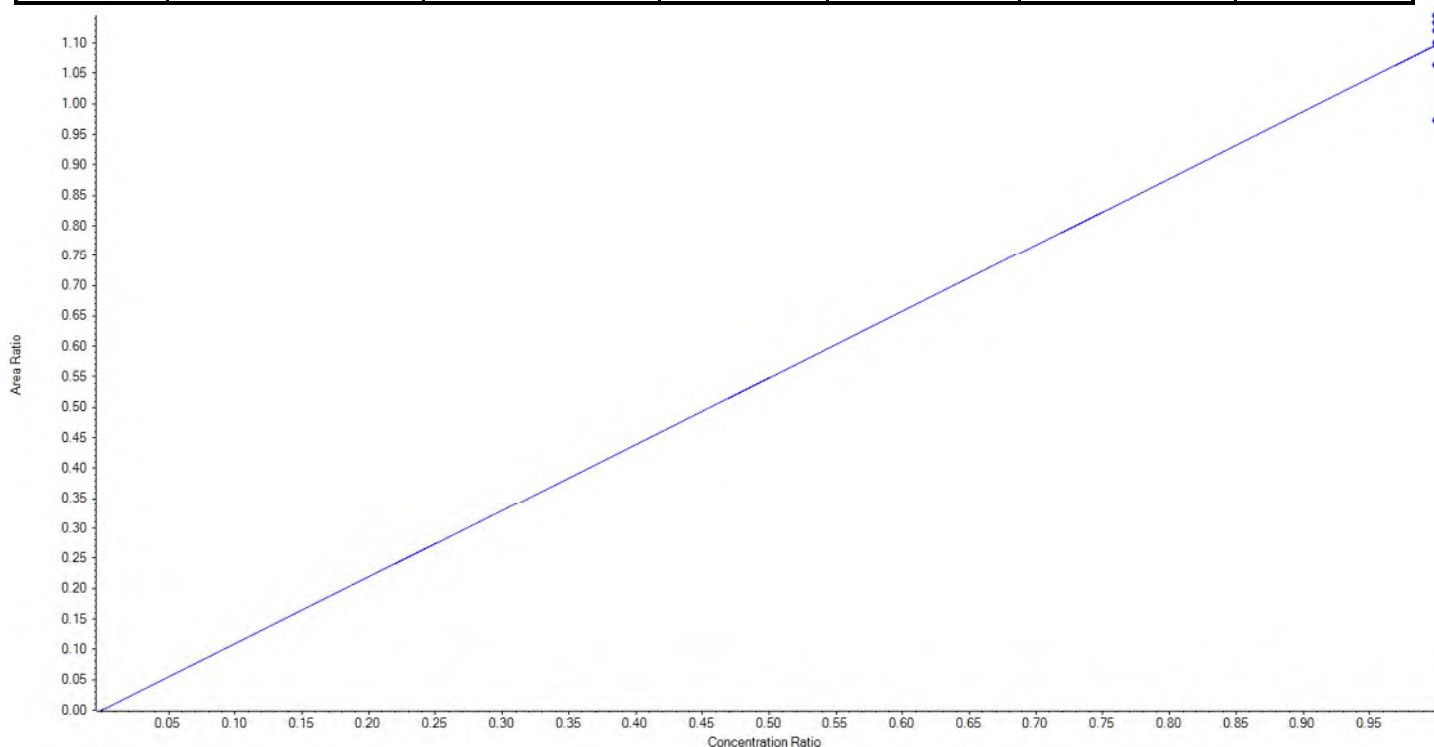
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 31/08/2018 2:00:06 PM

<b>Analyte Name</b>	d5-EtFOSAA	<b>Data File</b>	18-0534.wiff
<b>MRM Transition</b>	589.0 / 419.0	<b>Result Table</b>	18-0534_DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/29/2018 5:03:31 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.09670 x$  (std. dev. = 0.06181) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	400.00	413.231629	103.3
5	JZ81	L4	True	400.00	387.990069	97.0
6	JZ82	L5	True	400.00	400.957254	100.2
7	JZ83	L6	True	400.00	408.351808	102.1
8	JZ84	L7	True	400.00	417.443203	104.4
9	JZ85	L8	True	400.00	417.351838	104.3
10	JZ86	L9	True	400.00	354.674199	88.7





Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T17:30:23	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
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	0.312	0.301	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.096	0.078	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.23	PFHpA	0.039	0.025	
PFHxS_1	399.0 / 80.0	2.25	PFHxS			
PFHxS_2	399.0 / 99.0	2.25	PFHxS	0.264	0.287	ü
PFOA_1	413.0 / 369.0	2.63	PFOA			
PFOA_2	413.0 / 169.0	2.63	PFOA	0.074	0.071	ü
PFNA_1	463.0 / 419.0	3.03	PFNA			
PFNA_2	463.0 / 219.0	3.03	PFNA	0.337	0.308	ü
PFOS_1	499.0 / 80.0	3.03	PFOS			
PFOS_2	499.0 / 99.0	3.02	PFOS	0.195	0.190	ü
PFDA_1	513.0 / 469.0	3.38	PFDA			
PFDA_2	513.0 / 219.0	3.38	PFDA	0.045	0.049	ü
PFUnA_1	563.0 / 519.0	3.71	PFUnA			
PFUnA_2	563.0 / 269.0	3.70	PFUnA	0.079	0.053	ü
PFDaA_1	613.0 / 569.0	3.98	PFDaA			
PFDaA_2	613.0 / 319.0	3.98	PFDaA	0.156	0.161	ü
PFTrDA_1	663.0 / 619.0	4.23	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.22	PFTrDA	0.062	0.064	ü
PFTeDA_1	713.0 / 669.0	4.44	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.44	PFTeDA	0.053	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.53	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.53	NMeFOSAA	0.826	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.69	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.69	NEtFOSAA	0.092	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.37		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.68		N/A	N/A	ü

Sample Name	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T17:39:21	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
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	0.299	0.301	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.069	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.022	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.274	0.287	ü
PFOA_1	413.0 / 369.0	2.63	PFOA			
PFOA_2	413.0 / 169.0	2.63	PFOA	0.071	0.071	ü
PFNA_1	463.0 / 419.0	3.02	PFNA			
PFNA_2	463.0 / 219.0	3.02	PFNA	0.313	0.308	ü
PFOS_1	499.0 / 80.0	3.02	PFOS			
PFOS_2	499.0 / 99.0	3.02	PFOS	0.192	0.190	ü
PFDA_1	513.0 / 469.0	3.38	PFDA			
PFDA_2	513.0 / 219.0	3.38	PFDA	0.062	0.049	ü
PFAUnA_1	563.0 / 519.0	3.70	PFAUnA			
PFAUnA_2	563.0 / 269.0	3.70	PFAUnA	0.063	0.053	ü
PFADoA_1	613.0 / 569.0	3.98	PFADoA			
PFADoA_2	613.0 / 319.0	3.98	PFADoA	0.156	0.161	ü
PFATrDA_1	663.0 / 619.0	4.22	PFATrDA			
PFATrDA_2	663.0 / 169.0	4.22	PFATrDA	0.061	0.064	ü
PFATeDA_1	713.0 / 669.0	4.43	PFATeDA			
PFATeDA_2	713.0 / 169.0	4.43	PFATeDA	0.055	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.53	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.52	NMeFOSAA	0.636	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.69	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.69	NEtFOSAA	0.090	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.36		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.68		N/A	N/A	ü

<b>Sample Name</b>	JZ82	<b>Injection Vial</b>	6
<b>Sample ID</b>	L5	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T17:48:19	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## 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	0.301	0.301	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.081	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.023	0.025	ü
PFHxS_1	399.0 / 80.0	2.25	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.298	0.287	ü
PFOA_1	413.0 / 369.0	2.63	PFOA			
PFOA_2	413.0 / 169.0	2.63	PFOA	0.068	0.071	ü
PFNA_1	463.0 / 419.0	3.02	PFNA			
PFNA_2	463.0 / 219.0	3.02	PFNA	0.309	0.308	ü
PFOS_1	499.0 / 80.0	3.02	PFOS			
PFOS_2	499.0 / 99.0	3.02	PFOS	0.197	0.190	ü
PFDA_1	513.0 / 469.0	3.38	PFDA			
PFDA_2	513.0 / 219.0	3.38	PFDA	0.053	0.049	ü
PFA_1	563.0 / 519.0	3.70	PFA			
PFA_2	563.0 / 269.0	3.70	PFA	0.052	0.053	ü
PFA_1	613.0 / 569.0	3.97	PFA			
PFA_2	613.0 / 319.0	3.97	PFA	0.160	0.161	ü
PFA_1	663.0 / 619.0	4.22	PFA			
PFA_2	663.0 / 169.0	4.22	PFA	0.063	0.064	ü
PFA_1	713.0 / 669.0	4.43	PFA			
PFA_2	713.0 / 169.0	4.43	PFA	0.051	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.52	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.52	NMeFOSAA	0.524	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.69	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.69	NEtFOSAA	0.065	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.36		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.67		N/A	N/A	ü

<b>Sample Name</b>	JZ83	<b>Injection Vial</b>	7
<b>Sample ID</b>	L6	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T17:57:16	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.294	0.301	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.077	0.078	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.23	PFHpA	0.023	0.025	ü
PFHxS_1	399.0 / 80.0	2.25	PFHxS			
PFHxS_2	399.0 / 99.0	2.25	PFHxS	0.305	0.287	ü
PFOA_1	413.0 / 369.0	2.63	PFOA			
PFOA_2	413.0 / 169.0	2.63	PFOA	0.077	0.071	ü
PFNA_1	463.0 / 419.0	3.02	PFNA			
PFNA_2	463.0 / 219.0	3.02	PFNA	0.307	0.308	ü
PFOS_1	499.0 / 80.0	3.02	PFOS			
PFOS_2	499.0 / 99.0	3.02	PFOS	0.196	0.190	ü
PFDA_1	513.0 / 469.0	3.38	PFDA			
PFDA_2	513.0 / 219.0	3.38	PFDA	0.045	0.049	ü
PFUnA_1	563.0 / 519.0	3.70	PFUnA			
PFUnA_2	563.0 / 269.0	3.70	PFUnA	0.056	0.053	ü
PFDaA_1	613.0 / 569.0	3.98	PFDaA			
PFDaA_2	613.0 / 319.0	3.97	PFDaA	0.172	0.161	ü
PFTrDA_1	663.0 / 619.0	4.22	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.22	PFTrDA	0.064	0.064	ü
PFTeDA_1	713.0 / 669.0	4.43	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.43	PFTeDA	0.051	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.53	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.52	NMeFOSAA	0.589	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.69	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.68	NEtFOSAA	0.070	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.36		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.67		N/A	N/A	ü



<b>Sample Name</b>	JZ84	<b>Injection Vial</b>	8
<b>Sample ID</b>	L7	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:06:15	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.300	0.301	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.075	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.020	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.290	0.287	ü
PFOA_1	413.0 / 369.0	2.62	PFOA			
PFOA_2	413.0 / 169.0	2.62	PFOA	0.069	0.071	ü
PFNA_1	463.0 / 419.0	3.01	PFNA			
PFNA_2	463.0 / 219.0	3.01	PFNA	0.305	0.308	ü
PFOS_1	499.0 / 80.0	3.01	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.189	0.190	ü
PFDA_1	513.0 / 469.0	3.36	PFDA			
PFDA_2	513.0 / 219.0	3.36	PFDA	0.043	0.049	ü
PFUnA_1	563.0 / 519.0	3.69	PFUnA			
PFUnA_2	563.0 / 269.0	3.69	PFUnA	0.050	0.053	ü
PFDaA_1	613.0 / 569.0	3.96	PFDaA			
PFDaA_2	613.0 / 319.0	3.96	PFDaA	0.164	0.161	ü
PFTrDA_1	663.0 / 619.0	4.21	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.20	PFTrDA	0.067	0.064	ü
PFTeDA_1	713.0 / 669.0	4.42	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.41	PFTeDA	0.051	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.51	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.51	NMeFOSAA	0.617	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.67	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.67	NEtFOSAA	0.072	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	JZ85	<b>Injection Vial</b>	9
<b>Sample ID</b>	L8	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:15:11	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## 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	0.300	0.301	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.072	0.078	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.022	0.025	ü
PFHxS_1	399.0 / 80.0	2.25	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.289	0.287	ü
PFOA_1	413.0 / 369.0	2.63	PFOA			
PFOA_2	413.0 / 169.0	2.63	PFOA	0.070	0.071	ü
PFNA_1	463.0 / 419.0	3.02	PFNA			
PFNA_2	463.0 / 219.0	3.02	PFNA	0.301	0.308	ü
PFOS_1	499.0 / 80.0	3.02	PFOS			
PFOS_2	499.0 / 99.0	3.02	PFOS	0.184	0.190	ü
PFDA_1	513.0 / 469.0	3.37	PFDA			
PFDA_2	513.0 / 219.0	3.37	PFDA	0.045	0.049	ü
PFUnA_1	563.0 / 519.0	3.69	PFUnA			
PFUnA_2	563.0 / 269.0	3.69	PFUnA	0.051	0.053	ü
PFDaA_1	613.0 / 569.0	3.97	PFDaA			
PFDaA_2	613.0 / 319.0	3.97	PFDaA	0.160	0.161	ü
PFTrDA_1	663.0 / 619.0	4.21	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.21	PFTrDA	0.065	0.064	ü
PFTeDA_1	713.0 / 669.0	4.42	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.42	PFTeDA	0.050	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.52	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.52	NMeFOSAA	0.586	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.68	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.68	NEtFOSAA	0.065	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.36		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.67		N/A	N/A	ü

<b>Sample Name</b>	JZ86	<b>Injection Vial</b>	10
<b>Sample ID</b>	L9	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:24:08	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.299	0.301	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.077	0.078	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.022	0.025	ü
PFHxS_1	399.0 / 80.0	2.25	PFHxS			
PFHxS_2	399.0 / 99.0	2.25	PFHxS	0.293	0.287	ü
PFOA_1	413.0 / 369.0	2.63	PFOA			
PFOA_2	413.0 / 169.0	2.63	PFOA	0.071	0.071	ü
PFNA_1	463.0 / 419.0	3.02	PFNA			
PFNA_2	463.0 / 219.0	3.02	PFNA	0.313	0.308	ü
PFOS_1	499.0 / 80.0	3.02	PFOS			
PFOS_2	499.0 / 99.0	3.02	PFOS	0.180	0.190	ü
PFDA_1	513.0 / 469.0	3.37	PFDA			
PFDA_2	513.0 / 219.0	3.37	PFDA	0.045	0.049	ü
PFUnA_1	563.0 / 519.0	3.69	PFUnA			
PFUnA_2	563.0 / 269.0	3.69	PFUnA	0.048	0.053	ü
PFDaA_1	613.0 / 569.0	3.97	PFDaA			
PFDaA_2	613.0 / 319.0	3.97	PFDaA	0.161	0.161	ü
PFTrDA_1	663.0 / 619.0	4.21	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.21	PFTrDA	0.066	0.064	ü
PFTeDA_1	713.0 / 669.0	4.42	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.42	PFTeDA	0.049	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.52	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.52	NMeFOSAA	0.605	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.68	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.68	NEtFOSAA	0.071	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.36		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.67		N/A	N/A	ü

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T18:42:04	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	841.199900	885.00	95.05
PFBS_2	298.9 / 99.0	1.50	815.447042	885.00	92.14
PFHxA_1	313.0 / 269.0	1.81	1050.206144	1000.00	105.02
PFHxA_2	313.0 / 119.0	1.81	1077.965366	1000.00	107.80
PFHpA_1	363.0 / 319.0	2.22	1050.141237	1000.00	105.01
PFHpA_2	363.0 / 169.0	2.22	930.003377	1000.00	93.00
PFHxS_1	399.0 / 80.0	2.24	897.518493	912.00	98.41
PFHxS_2	399.0 / 99.0	2.24	869.466177	912.00	95.34
PFOA_1	413.0 / 369.0	2.62	1023.910460	1000.00	102.39
PFOA_2	413.0 / 169.0	2.62	1008.951589	1000.00	100.90
PFNA_1	463.0 / 419.0	3.02	1017.242171	1000.00	101.72
PFNA_2	463.0 / 219.0	3.01	1008.515599	1000.00	100.85
PFOS_1	499.0 / 80.0	3.01	854.884035	925.60	92.36
PFOS_2	499.0 / 99.0	3.01	1032.227238	925.60	111.52
PFDA_1	513.0 / 469.0	3.37	1055.542149	1000.00	105.55
PFDA_2	513.0 / 219.0	3.37	1000.451194	1000.00	100.05
PFUnA_1	563.0 / 519.0	3.69	963.287969	1000.00	96.33
PFUnA_2	563.0 / 269.0	3.69	931.203582	1000.00	93.12
PFDoA_1	613.0 / 569.0	3.97	1036.656434	1000.00	103.67
PFDoA_2	613.0 / 319.0	3.96	1072.810968	1000.00	107.28
PFTTrDA_1	663.0 / 619.0	4.21	968.105041	1000.00	96.81
PFTTrDA_2	663.0 / 169.0	4.21	998.940468	1000.00	99.89
PFTeDA_1	713.0 / 669.0	4.42	1024.995028	1000.00	102.50
PFTeDA_2	713.0 / 169.0	4.41	969.495337	1000.00	96.95
NMeFOSAA_1	570.0 / 419.0	3.52	1131.489263	1000.00	113.15
NMeFOSAA_2	570.0 / 512.0	3.51	1040.295312	1000.00	104.03
NEtFOSAA_1	584.0 / 419.0	3.68	1157.818269	1000.00	115.78
NEtFOSAA_2	584.0 / 483.0	3.67	1021.439156	1000.00	102.14
13C2-PFHxA	315.0 / 270.0	1.80	104.577355	100.00	104.58
13C2-PFDA	515.0 / 470.0	3.36	99.363797	100.00	99.36
d5-EtFOSAA	589.0 / 419.0	3.66	454.104097	400.00	113.53

Sample Name	JZ82 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-29T20:02:34	Data File	18-0534.wiff
Acquisition Method	5-0371.dam	Result Table	18-0534_DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	480.715945	443.00	108.51
PFBS_2	298.9 / 99.0	1.51	471.699280	443.00	106.48
PFHxA_1	313.0 / 269.0	1.81	600.479475	500.00	120.10
PFHxA_2	313.0 / 119.0	1.81	572.913640	500.00	114.58
PFHpA_1	363.0 / 319.0	2.22	593.460099	500.00	118.69
PFHpA_2	363.0 / 169.0	2.22	489.913016	500.00	97.98
PFHxS_1	399.0 / 80.0	2.24	499.848142	456.00	109.62
PFHxS_2	399.0 / 99.0	2.24	468.056553	456.00	102.64
PFOA_1	413.0 / 369.0	2.62	560.341203	500.00	112.07
PFOA_2	413.0 / 169.0	2.62	542.285098	500.00	108.46
PFNA_1	463.0 / 419.0	3.01	544.367348	500.00	108.87
PFNA_2	463.0 / 219.0	3.01	545.382064	500.00	109.08
PFOS_1	499.0 / 80.0	3.01	507.229335	463.00	109.55
PFOS_2	499.0 / 99.0	3.01	513.236301	463.00	110.85
PFDA_1	513.0 / 469.0	3.36	604.788776	500.00	120.96
PFDA_2	513.0 / 219.0	3.36	522.768432	500.00	104.55
PFUnA_1	563.0 / 519.0	3.68	537.871928	500.00	107.57
PFUnA_2	563.0 / 269.0	3.68	486.542909	500.00	97.31
PFDoA_1	613.0 / 569.0	3.95	567.744188	500.00	113.55
PFDoA_2	613.0 / 319.0	3.95	577.152111	500.00	115.43
PFTTrDA_1	663.0 / 619.0	4.19	515.169290	500.00	103.03
PFTTrDA_2	663.0 / 169.0	4.19	590.141782	500.00	118.03
PFTeDA_1	713.0 / 669.0	4.40	570.783859	500.00	114.16
PFTeDA_2	713.0 / 169.0	4.40	532.702041	500.00	106.54
NMeFOSAA_1	570.0 / 419.0	3.51	506.135809	500.00	101.23
NMeFOSAA_2	570.0 / 512.0	3.51	562.842199	500.00	112.57
NEtFOSAA_1	584.0 / 419.0	3.67	558.694513	500.00	111.74
NEtFOSAA_2	584.0 / 483.0	3.67	613.033664	500.00	122.61
13C2-PFHxA	315.0 / 270.0	1.80	102.477136	100.00	102.48
13C2-PFDA	515.0 / 470.0	3.35	102.256058	100.00	102.26
d5-EtFOSAA	589.0 / 419.0	3.66	400.190137	400.00	100.05

<b>Sample Name</b>	JZ77 ICC	<b>Injection Vial</b>	12
<b>Sample ID</b>	ICC	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Quality Control	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:42:04	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## 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	0.291	0.301	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.078	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.020	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.281	0.287	ü
PFOA_1	413.0 / 369.0	2.62	PFOA			
PFOA_2	413.0 / 169.0	2.62	PFOA	0.070	0.071	ü
PFNA_1	463.0 / 419.0	3.02	PFNA			
PFNA_2	463.0 / 219.0	3.01	PFNA	0.306	0.308	ü
PFOS_1	499.0 / 80.0	3.01	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.223	0.190	ü
PFDA_1	513.0 / 469.0	3.37	PFDA			
PFDA_2	513.0 / 219.0	3.37	PFDA	0.047	0.049	ü
PFUnA_1	563.0 / 519.0	3.69	PFUnA			
PFUnA_2	563.0 / 269.0	3.69	PFUnA	0.051	0.053	ü
PFDaA_1	613.0 / 569.0	3.97	PFDaA			
PFDaA_2	613.0 / 319.0	3.96	PFDaA	0.167	0.161	ü
PFTrDA_1	663.0 / 619.0	4.21	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.21	PFTrDA	0.065	0.064	ü
PFTeDA_1	713.0 / 669.0	4.42	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.41	PFTeDA	0.050	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.52	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.51	NMeFOSAA	0.543	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.68	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.67	NEtFOSAA	0.063	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.36		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	JZ82 CCV	<b>Injection Vial</b>	6
<b>Sample ID</b>	CCV	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Quality Control	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T20:02:34	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## 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	0.295	0.301	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.074	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.020	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.271	0.287	ü
PFOA_1	413.0 / 369.0	2.62	PFOA			
PFOA_2	413.0 / 169.0	2.62	PFOA	0.069	0.071	ü
PFNA_1	463.0 / 419.0	3.01	PFNA			
PFNA_2	463.0 / 219.0	3.01	PFNA	0.309	0.308	ü
PFOS_1	499.0 / 80.0	3.01	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.190	0.190	ü
PFDA_1	513.0 / 469.0	3.36	PFDA			
PFDA_2	513.0 / 219.0	3.36	PFDA	0.048	0.049	ü
PFUnA_1	563.0 / 519.0	3.68	PFUnA			
PFUnA_2	563.0 / 269.0	3.68	PFUnA	0.052	0.053	ü
PFDaA_1	613.0 / 569.0	3.95	PFDaA			
PFDaA_2	613.0 / 319.0	3.95	PFDaA	0.164	0.161	ü
PFTrDA_1	663.0 / 619.0	4.19	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.19	PFTrDA	0.068	0.064	ü
PFTeDA_1	713.0 / 669.0	4.40	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.40	PFTeDA	0.052	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.51	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.51	NMeFOSAA	0.630	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.67	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.67	NEtFOSAA	0.080	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	KA08 IB	<b>Injection Vial</b>	11
<b>Sample ID</b>	Instrument Blank	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:33:06	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.301	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.078	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.025	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.287	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.071	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.308	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.190	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.049	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.161	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	0.051	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.626	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.36		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.67		N/A	N/A	ü



<b>Sample Name</b>	CR676PB-FS(0)	<b>Injection Vial</b>	13
<b>Sample ID</b>	Procedural Blank	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T18:59:59	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.301	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.078	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.025	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.287	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.071	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.308	ü
PFOS_1	499.0 / 80.0	3.01	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.169	0.190	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.049	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.161	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	0.051	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.626	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	CR677LCS-FS(0)	<b>Injection Vial</b>	14
<b>Sample ID</b>	Laboratory Control Sample	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T19:08:57	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.297	0.301	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.077	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.021	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.285	0.287	ü
PFOA_1	413.0 / 369.0	2.62	PFOA			
PFOA_2	413.0 / 169.0	2.62	PFOA	0.070	0.071	ü
PFNA_1	463.0 / 419.0	3.01	PFNA			
PFNA_2	463.0 / 219.0	3.01	PFNA	0.305	0.308	ü
PFOS_1	499.0 / 80.0	3.01	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.216	0.190	ü
PFDA_1	513.0 / 469.0	3.36	PFDA			
PFDA_2	513.0 / 219.0	3.36	PFDA	0.046	0.049	ü
PFUnA_1	563.0 / 519.0	3.69	PFUnA			
PFUnA_2	563.0 / 269.0	3.68	PFUnA	0.051	0.053	ü
PFDaA_1	613.0 / 569.0	3.96	PFDaA			
PFDaA_2	613.0 / 319.0	3.96	PFDaA	0.161	0.161	ü
PFTrDA_1	663.0 / 619.0	4.20	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.20	PFTrDA	0.064	0.064	ü
PFTeDA_1	713.0 / 669.0	4.41	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.41	PFTeDA	0.050	0.051	ü
NMeFOSAA_1	570.0 / 419.0	3.51	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.51	NMeFOSAA	0.565	0.626	ü
NEtFOSAA_1	584.0 / 419.0	3.67	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.67	NEtFOSAA	0.064	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	J7430-FS1(0)	<b>Injection Vial</b>	15
<b>Sample ID</b>	JAX-RES-08142018-1130-9	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T19:17:53	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## 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	0.301	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.078	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.025	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.287	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.071	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.308	ü
PFOS_1	499.0 / 80.0	3.01	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.182	0.190	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.049	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.161	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	0.051	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.626	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	J7445-FS1(0)	<b>Injection Vial</b>	16
<b>Sample ID</b>	JAX-RES-08152018-0930-18	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T19:26:50	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

## 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	0.301	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.078	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.025	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.287	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.071	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.308	ü
PFOS_1	499.0 / 80.0	3.01	PFOS			
PFOS_2	499.0 / 99.0	3.00	PFOS	0.207	0.190	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.049	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.161	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	0.051	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.626	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	J7447-FS1(0)	<b>Injection Vial</b>	17
<b>Sample ID</b>	JAX-RES-08152018-1015-34	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T19:35:46	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.253	0.301	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.072	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.21	PFHpA	0.027	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.291	0.287	ü
PFOA_1	413.0 / 369.0	2.62	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.104	0.071	ü
PFNA_1	463.0 / 419.0	3.01	PFNA			
PFNA_2	463.0 / 219.0	3.01	PFNA	0.297	0.308	ü
PFOS_1	499.0 / 80.0	2.95	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.137	0.190	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.049	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.161	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	0.051	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.626	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	J7449-FS1(0)	<b>Injection Vial</b>	18
<b>Sample ID</b>	JAX-RES-08152018-1045-33	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T19:44:42	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

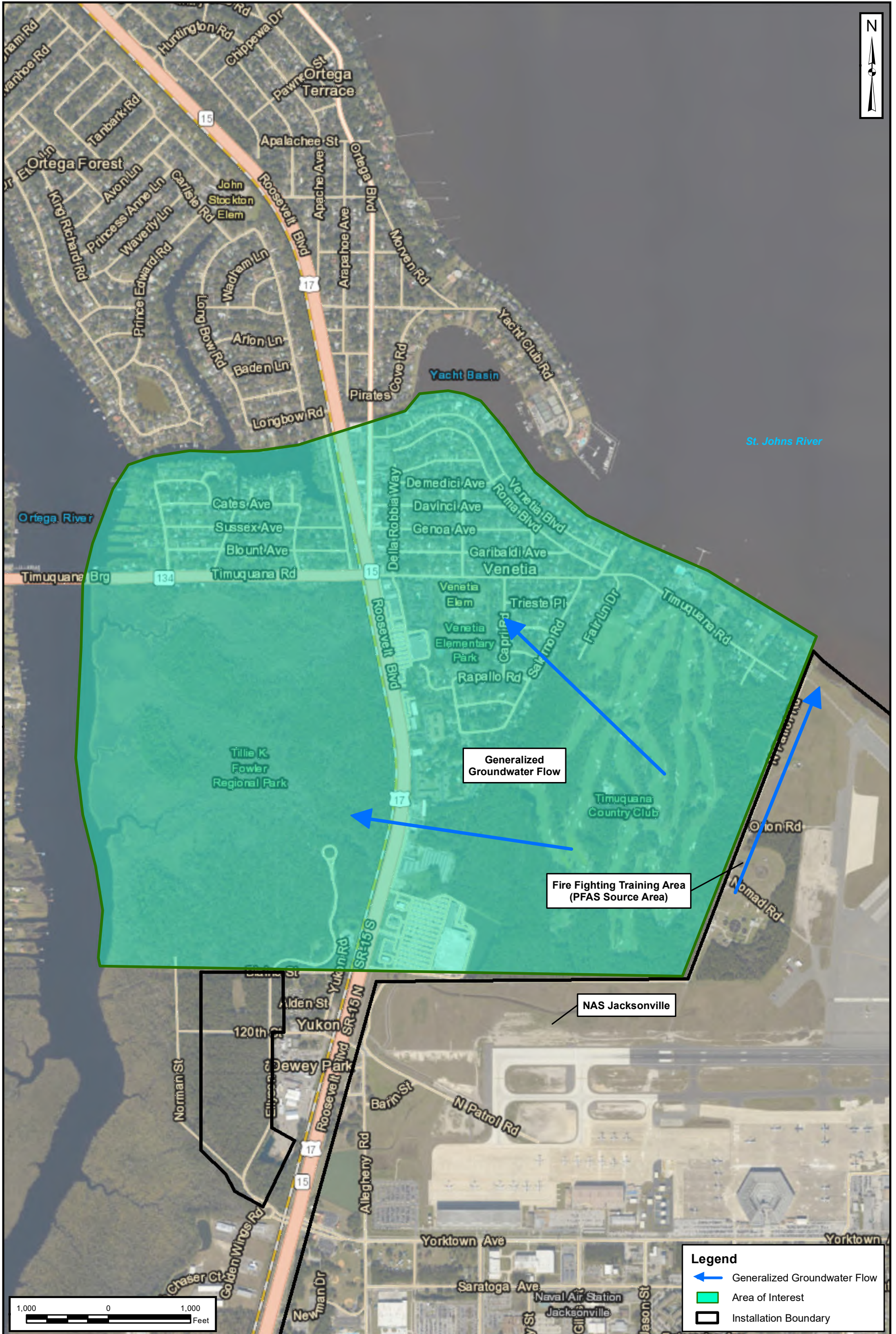
### Results Summary

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	0.263	0.301	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.076	0.078	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.21	PFHpA	0.027	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.288	0.287	ü
PFOA_1	413.0 / 369.0	2.62	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.103	0.071	ü
PFNA_1	463.0 / 419.0	3.01	PFNA			
PFNA_2	463.0 / 219.0	3.01	PFNA	0.395	0.308	ü
PFOS_1	499.0 / 80.0	2.95	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.116	0.190	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.049	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.161	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	0.051	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.626	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü

<b>Sample Name</b>	J7451-FS1(0)	<b>Injection Vial</b>	19
<b>Sample ID</b>	JAX-RES-08152018-1130-15	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-29T19:53:38	<b>Data File</b>	18-0534.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0534_DW
<b>Sample Comment</b>			

### 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	0.199	0.301	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.091	0.078	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.025	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.24	PFHxS	0.285	0.287	ü
PFOA_1	413.0 / 369.0	2.62	PFOA			
PFOA_2	413.0 / 169.0	2.60	PFOA	0.089	0.071	ü
PFNA_1	463.0 / 419.0	3.01	PFNA			
PFNA_2	463.0 / 219.0	3.01	PFNA	0.268	0.308	ü
PFOS_1	499.0 / 80.0	2.99	PFOS			
PFOS_2	499.0 / 99.0	3.01	PFOS	0.149	0.190	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.049	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.161	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	0.051	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.626	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.075	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.35		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.66		N/A	N/A	ü



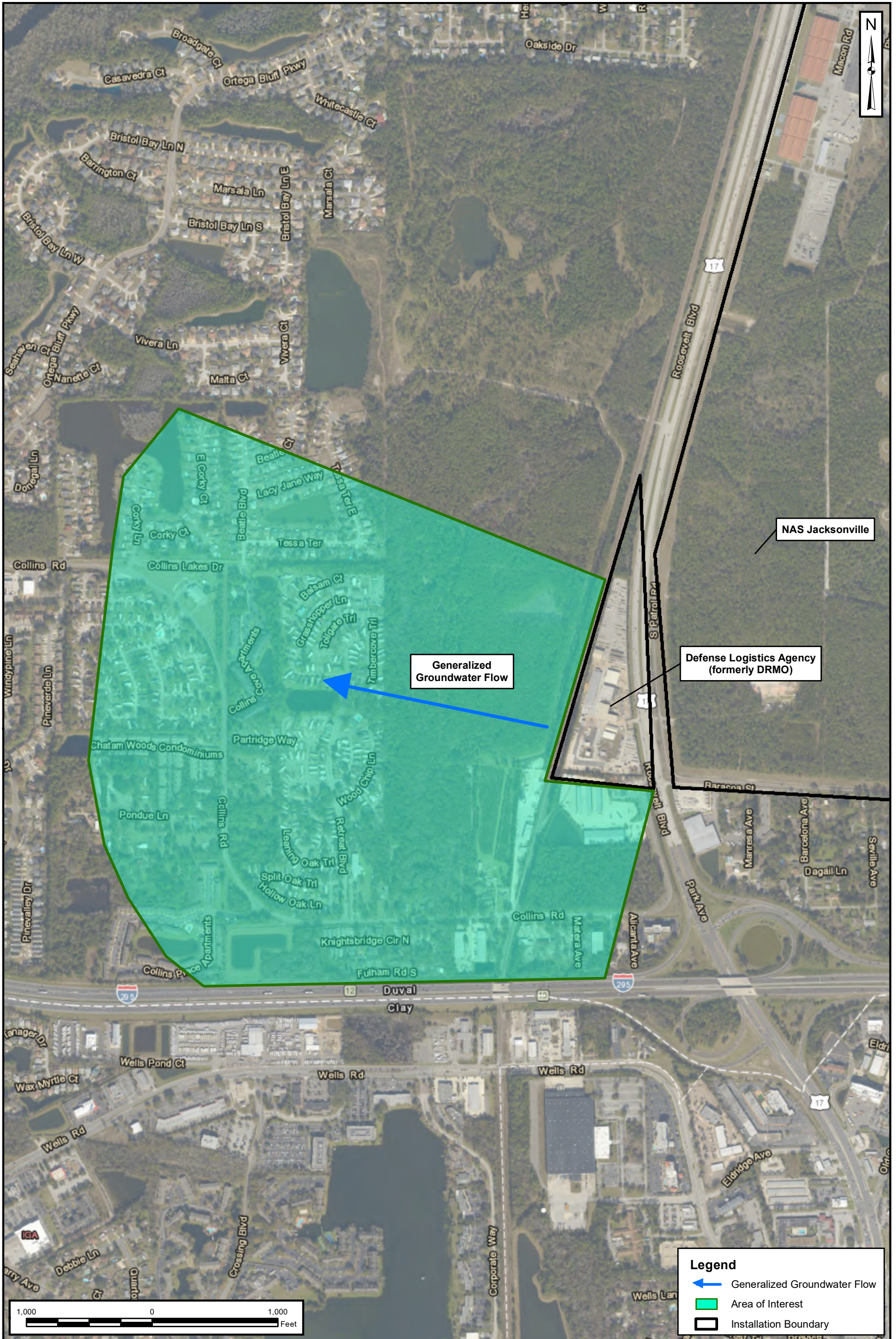
Legend	
	Generalized Groundwater Flow
	Area of Interest
	Installation Boundary



AREA OF INTEREST FOR PUBLIC/PRIVATE SHALLOW DRINKING WATER WELL SAMPLING  
 NAS JACKSONVILLE & SURROUNDING AREA  
 JACKSONVILLE, FLORIDA

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J.MADDEN	01/16/19
CHECKED BY	DATE
M.GRZEGOREK	01/16/19
FIGURE NUMBER	
1-4	





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CTO	
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J.MADDEN	01/16/19
CHECKED BY	DATE
M.GRZEGOREK	01/16/19
FIGURE NUMBER	
1-5	