



**Off-Base Drinking Water Sample Results,  
Level 4 Laboratory Report, Electronic Data Deliverable,  
Data Validation Report, and the Sample Location Figure,  
SDG 18-0507**

*Naval Air Station Jacksonville  
Jacksonville, Florida*

July 2019

N00207\_004433  
NAS JACKSONVILLE, FL  
SSIC 5000-33c

**LABORATORY DATA PACKAGE 18-0507 NAS JACKSONVILLE FL**  
08/22/2018  
BATTELLE

Approved for public release: distribution unlimited.

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

*W*

*Batch 18-0507*

*Package DP-18-0224*

Submitted to:

Tetra Tech

661 Anderson Drive Foster Plaza 7

Pittsburgh, PA 15220 USA

Submitted by:

Battelle Norwell Operations

141 Longwater Drive Suite 202

Norwell, MA 02061

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NELAP Accreditation Number: E87856 (Florida Department of Health)


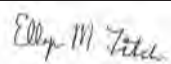

DoD-ELAP Accreditation Number: 91667

Submitted by:

Battelle Norwell Operations

141 Longwater Drive Suite 202

Norwell, MA 02061

Analyst Approval:		schumitzd@battelle.org 2018.08.22 10:07:57 -04'00'
QC Chemist Approval:		fitche@battelle.org 2018.08.22 14:45:40 -04'00'
Project Manager Approval:		Digitally signed by Jonathan Thorn Date: 2018.08.22 15:17:15 -04'00'

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# CTO-SE0375: Naval Air Station Jacksonville

## Project No 100119154-SE0375

### PFAS in drinking water

W

*Batch 18-0507*


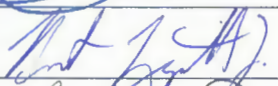



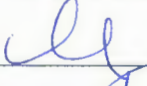
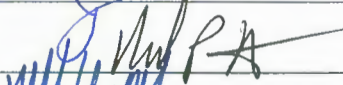

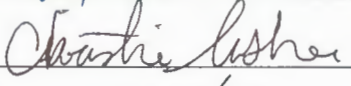
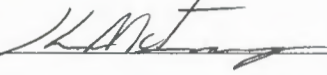
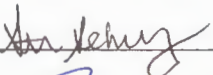

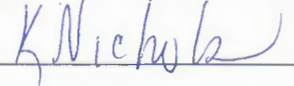

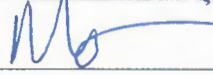
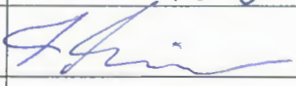
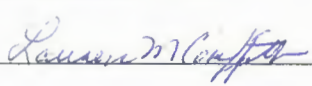
*Package DP-18-0224*

<b>1</b>	<b><i>Work Plan</i></b> Laboratory Work Plan, Addendums To Work Plan, Memos From Project Manager, Special Instructions, Chain-of-Custody Reports.	<b>1</b>
<b>2</b>	<b><i>Tables</i></b> Analytical Data Tables, Qualifier Definitions.	<b>18</b>
<b>3</b>	<b><i>Miscellaneous Documentation</i></b> Case Narrative, Miscellaneous Documentation Form, Quality Control Summary, Example Calculations, Internal Standard Recovery Report, Retention Time Window Report.	<b>25</b>
<b>4</b>	<b><i>Sample Preparation Records</i></b> Sample Preparation Records, Dilution Worksheets, Standard Preparation Records, Certificates Of Analysis, GPC Check Report.	<b>127</b>
<b>5</b>	<b><i>Analytical Calibrations</i></b> Analytical Sequence, Analytical Method, Tune Report, Initial Calibration, Pesticide Degradation Report, RF Summary, Calibration Verifications, Independent Calibration Verification Check.	<b>140</b>
<b>6</b>	<b><i>Analytical Data</i></b> Raw Data Quantification Reports.	<b>208</b>
<b>7</b>	<b><i>Chromatograms</i></b> Sample And Standard Chromatograms.	<b>224</b>
<b>8</b>	<b><i>Unused Data</i></b>	<b>255</b>

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## Signature Page

Battelle 2018 (1 of 2) Signature Page			
Name (Printed)	Signature	Initials	Date
Jonathan Thorn		JRT	4/4/2018
Robert Lizotte, Jr.		BL	4-4-2018
FRANC PALA		FP	4-4-2018
Carla Devine		CRD	4/4/18
Denise 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





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## 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-J7451  
**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-J7451  
**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	J7449	JAX-RES-08152018-1045-33	08/15/2018 10:45 am	W	R0119	(NA)		
4	J7451	JAX-RES-08152018-1130-15	08/15/2018 11:30 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					

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**Subtract Peaks:**

None

**Sum Peaks:**

None



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## WORK/QUALITY ASSURANCE PROJECT PLAN

### Attachment 2: Test Codes

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

**ICAL Acceptance Criteria:**

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

**Continuing Calibration Verification Criteria:**

**CCV Name:** Standard

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

**Independent Calibration Verification:**

**ICC Name:** Standard

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

**Mass Discrimination Criteria:**

*None*

**Degradation Check Criteria:**

*None*



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



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## WORK/QUALITY ASSURANCE PROJECT PLAN

### Attachment 3: Method Quality Objectives

<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

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

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*  
*MDS*  
*1.1.*  
*10:40*  
*8-15-18*

(781) 681-5588  
INU:  
PO:

REF:

DEPT:



FedEx  
Express



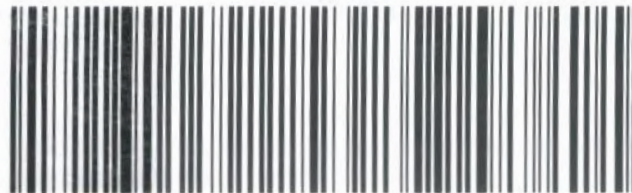
AN102270810281F

WED - 15 AUG 10:30A  
PRIORITY OVERNIGHT

TRK# 7823 0186 7565  
0201

**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-08142018-1045-8

Battelle ID	J7428-FS			
Sample Type	SA			
Collection Date	08/14/2018			
Extraction Date	08/16/2018			
Analysis Date	08/20/2018			
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
PFHxA	0.44 U	0.19	0.44	2.19
PFHpA	0.88 U	0.30	0.88	2.19
PFOA	0.88 U	0.33	0.88	2.19
PFNA	0.88 U	0.32	0.88	2.19
PFDA	0.88 U	0.34	0.88	2.19
PFUnA	0.88 U	0.33	0.88	2.19
PFDoA	0.88 U	0.37	0.88	2.19
PFTTrDA	0.88 U	0.37	0.88	2.19
PFTeDA	1.32 U	0.64	1.32	2.19
NMeFOSAA	0.88 U	0.37	0.88	2.19
NEtFOSAA	0.88 U	0.39	0.88	2.19
PFBS	0.44 U	0.18	0.44	2.19
PFHxS	0.88 U	0.30	0.88	2.19
PFOS	0.66 J	0.26	0.88	2.19

**Surrogate Recoveries (%)**

13C2-PFHxA	86
13C2-PFDA	72
d5-EtFOSAA	70



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-FS			
Sample Type	SA			
Collection Date	08/14/2018			
Extraction Date	08/16/2018			
Analysis Date	08/20/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	W			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.47 U	0.21	0.47	2.36
PFHpA	0.94 U	0.32	0.94	2.36
PFOA	0.94 U	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	0.47 U	0.20	0.47	2.36
PFHxS	0.94 U	0.32	0.94	2.36
PFOS	0.94 U	0.28	0.94	2.36

**Surrogate Recoveries (%)**

13C2-PFHxA	78
13C2-PFDA	55 N
d5-EtFOSAA	64 N



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

Client ID	JZ10 IB				
Battelle ID	JZ10 IB_08/20/2018				
Sample Type	IB				
Collection Date	NA				
Extraction Date	NA				
Analysis Date	08/20/2018				
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	0.50 U	0.22	0.50	2.50	
PFHpA	1.00 U	0.34	1.00	2.50	
PFOA	1.00 U	0.38	1.00	2.50	
PFNA	1.00 U	0.37	1.00	2.50	
PFDA	1.00 U	0.39	1.00	2.50	
PFUnA	1.00 U	0.38	1.00	2.50	
PFDaA	1.00 U	0.42	1.00	2.50	
PFTTrDA	1.00 U	0.42	1.00	2.50	
PFTeDA	1.50 U	0.73	1.50	2.50	
NMeFOSAA	1.00 U	0.42	1.00	2.50	
NEtFOSAA	1.00 U	0.44	1.00	2.50	
PFBS	0.50 U	0.21	0.50	2.50	
PFHxS	1.00 U	0.34	1.00	2.50	
PFOS	1.00 U	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	91
13C2-PFDA	89
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	CR577PB-FS			
Sample Type	PB			
Collection Date	08/16/2018			
Extraction Date	08/16/2018			
Analysis Date	08/20/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	WATER			
Sample Size	0.250			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDaA	1.00 U	0.42	1.00	2.50
PFTTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	0.82 J	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	78
13C2-PFDA	76
d5-EtFOSAA	78



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

Client ID	Laboratory Control Sample					
Battelle ID	CR578LCS-FS					
Sample Type	LCS					
Collection Date	08/16/2018					
Extraction Date	08/16/2018					
Analysis Date	08/20/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	WATER					
Sample Size	0.250					
Size Unit-Basis	L					
Units	ng/L	Target	Recovery	Qual	Control Limits	
					Lower	Upper
PFHxA	18.87	20.00	94		70	130
PFHpA	18.58	20.00	93		70	130
PFOA	17.25	20.00	86		70	130
PFNA	17.58	20.00	88		70	130
PFDA	15.47	20.00	77		70	130
PFUnA	16.74	20.00	84		70	130
PFDoA	15.78	20.00	79		70	130
PFTTrDA	15.18	20.00	76		70	130
PFTeDA	14.58	20.00	73		70	130
NMeFOSAA	20.06	20.00	100		70	130
NEtFOSAA	16.79	20.00	84		70	130
PFBS	14.85	17.70	84		70	130
PFHxS	15.67	18.90	83		70	130
PFOS	14.42	19.10	75		70	130

**Surrogate Recoveries (%)**

13C2-PFHxA	87
13C2-PFDA	79
d5-EtFOSAA	77



## 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 18-0507**

Project:	CTO-SE0375: Naval Air Station (NAS) Jacksonville
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	W
Data Set:	DP-18-0224
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

Corrective Actions	None.
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	FRB sample analysis was not required for these field samples, there are no additional SDG related to this data.

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	Sample J7430 (JAX-RES-08142018-1130-9) had a sulfurous odor.
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 exceedences above 50% RPD for any analyte detected above the MDL or the LOQ in this SDG.

Holding Times	Extraction Date(s)	Analysis Date(s)
	8/16/2018	8/20/2018

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 18-0507**

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	Two exceedances noted. There are 2 surrogates in sample J7430 that are below 70%. The sample was rerun to confirm and there is a prep comment that the sample had a strong sulfur odor. The original data are reported. The rerun for this sample can be found in the unused data section of this data package.
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.

**QA/QC Summary**  
**Batch 18-0507**

Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted.
	No comments.
Continuing Calibration Verification (CCV)	Continuing calibration standards were run at the beginning and end of 10 injections and at the end of the sequence to ensure that initial calibration is still valid.
Target and SIS compounds +/- 30% of true value Low point 50-150% of true value	No exceedances noted.
	No comments.



**It can be done**

Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project Number: 100119154-SE0375  
 Preparation Batch: 18-0507  
 Data Set: DP-18-0224  
 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)	2	There are 2 surrogates in sample J7430 that are below 70%. The sample was rerun to confirm and there is a prep comment that the sample had a strong sulfur odor. The rerun for this sample can be found in the unused data section of this data package. DMS 8/22/2018
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None



## BATTELLE - NORWELL OPERATIONS MISCELLANEOUS DOCUMENTATION FORM

**Project Title:** CTO-SE0375: Naval Air Station Jackson      **Data Set Number:** DP-18-0224  
**Project Number:** 100119154-SE0375      **Prep Batch Number:** 18-0507  
**Entered By:** Denise Schumitz      **Entered On:** 08/22/2018  
**Test Code (Matrix Type):** Master\_371(L)

---

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).  
DMS 8/21/2018

JZ80 is not being used in this method for NMeFOSAA. There is no impact on the data once this point of the calibration is reomoved.  
DMS 8/21/2018

JZ86 is not being used in this method for PFUnA, PFDA d5-EtFOSAA and NEtFOSAA. There is no impact on the data once this point of the calibration is removed.  
DMS 8/21/2018

---

**Task Leader Approval:**

**SupervisorApproval:**

**PM Approval:**

Robert Lizotte, Jr.  
2018.08.22 11:33:18 -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: CR577PB-FS(0)  
 Client Sample ID: Procedural Blank  
 Sample Size: 0.25  
 Units: L  
 Dilution Factor: 1.000  
 PIV (L): 0.001  
 Target Analyte: PFOS  
 MRM Transition: 499.0 / 80.0  
 Data file: DW\_08202018.wiff  
 Result table: 18-0507DW  
 Area: 134,684.65  
 IS Name: 13C4-PFOS  
 IS Area: 167,965.13  
 IS Amount (ng/L): 287  
 y-intercept: 0.08965  
 slope: 0.99547

$$\text{Concentration} = \frac{[(134684.65/167965.13) - 0.08965]}{0.99547} * 287 * 0.001 * 1 / 0.25$$

ng/L = 0.82



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375  
 Preparation Batch: 18-0507  
 Data Set: DP-18-0224

	CR577PB-FS (Procedural Blank)	CR578LCS-FS (Laboratory Control Sample)	J7428-FS (JAX-RES-08142018-1045-8)	J7430-FS (JAX-RES-08142018-1130-9)
PFHxA	-	L	-	-
PFHpA	-	L	-	-
PFOA	-	L	-	-
PFNA	-	L	-	-
PFDA	-	L	-	-
PFUnA	-	L	-	-
PFDoA	-	L	-	-
PFTTrDA	-	L	-	-
PFTeDA	-	L	-	-
NMeFOSAA	-	L	-	-
NEtFOSAA	-	L	-	-
PFBS	-	L	-	-
PFHxS	-	L	-	-
PFOS	L/Br	L	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 (L1/L9)
JZ80	L3	8/20/18 14:59	13C4-PFOS	142,888.22	-
JZ81	L4	8/20/18 15:08	13C4-PFOS	155,034.01	-
JZ82	L5	8/20/18 15:17	13C4-PFOS	162,318.50	-
JZ83	L6	8/20/18 15:26	13C4-PFOS	156,398.53	-
JZ84	L7	8/20/18 15:35	13C4-PFOS	154,347.92	-
JZ85	L8	8/20/18 15:44	13C4-PFOS	140,656.25	-
JZ86	L9	8/20/18 15:52	13C4-PFOS	135,680.11	5.2

PASS

Average      Lower      Upper  
 149,617.65    74,808.83    224,426.48

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/20/18 14:59	13C4-PFOS	142,888.22	74,808.83	224,426.48		113,622.95	227,245.90	
JZ81	L4	8/20/18 15:08	13C4-PFOS	155,034.01	74,808.83	224,426.48		113,622.95	227,245.90	
JZ82	L5	8/20/18 15:17	13C4-PFOS	162,318.50	74,808.83	224,426.48		113,622.95	227,245.90	
JZ83	L6	8/20/18 15:26	13C4-PFOS	156,398.53	74,808.83	224,426.48		113,622.95	227,245.90	
JZ84	L7	8/20/18 15:35	13C4-PFOS	154,347.92	74,808.83	224,426.48		113,622.95	227,245.90	
JZ85	L8	8/20/18 15:44	13C4-PFOS	140,656.25	74,808.83	224,426.48		113,622.95	227,245.90	
JZ86	L9	8/20/18 15:52	13C4-PFOS	135,680.11	74,808.83	224,426.48		113,622.95	227,245.90	
JZ10 IB	Instrument Blank	8/20/18 16:01	13C4-PFOS	183,690.52	74,808.83	224,426.48		113,622.95	227,245.90	
JZ77 ICC	ICC	8/20/18 16:10	13C4-PFOS	134,938.50	74,808.83	224,426.48		113,622.95	227,245.90	
JZ83 CCV	CCV	8/20/18 19:00	13C4-PFOS	156,188.42	74,808.83	224,426.48		113,622.95	227,245.90	
CR577PB-FS(0)	Procedural Blank	8/20/18 19:18	13C4-PFOS	167,965.13	74,808.83	224,426.48		109,331.89	218,663.79	
CR578LCS-FS(0)	Laboratory Control Sample	8/20/18 19:27	13C4-PFOS	155,772.89	74,808.83	224,426.48		109,331.89	218,663.79	
J7428-FS(0)	JAX-RES-08142018-1045-8	8/20/18 19:36	13C4-PFOS	164,570.94	74,808.83	224,426.48		109,331.89	218,663.79	
J7430-FS(0)	JAX-RES-08142018-1130-9	8/20/18 19:45	13C4-PFOS	172,351.12	74,808.83	224,426.48		109,331.89	218,663.79	
JZ82 CCV	CCV	8/20/18 19:54	13C4-PFOS	135,994.66	74,808.83	224,426.48		109,331.89	218,663.79	



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 (L1/L9)
JZ80	L3	8/20/18 14:59	13C2-PFOA	32,082.74	-
JZ81	L4	8/20/18 15:08	13C2-PFOA	33,991.28	-
JZ82	L5	8/20/18 15:17	13C2-PFOA	34,895.40	-
JZ83	L6	8/20/18 15:26	13C2-PFOA	33,573.48	-
JZ84	L7	8/20/18 15:35	13C2-PFOA	33,686.21	-
JZ85	L8	8/20/18 15:44	13C2-PFOA	31,838.05	-
JZ86	L9	8/20/18 15:52	13C2-PFOA	33,937.64	5.6

PASS

Average      Lower      Upper  
 33,429.26    16,714.63    50,143.89

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/20/18 14:59	13C2-PFOA	32,082.74	16,714.63	50,143.89		24,426.78	48,853.56	
JZ81	L4	8/20/18 15:08	13C2-PFOA	33,991.28	16,714.63	50,143.89		24,426.78	48,853.56	
JZ82	L5	8/20/18 15:17	13C2-PFOA	34,895.40	16,714.63	50,143.89		24,426.78	48,853.56	
JZ83	L6	8/20/18 15:26	13C2-PFOA	33,573.48	16,714.63	50,143.89		24,426.78	48,853.56	
JZ84	L7	8/20/18 15:35	13C2-PFOA	33,686.21	16,714.63	50,143.89		24,426.78	48,853.56	
JZ85	L8	8/20/18 15:44	13C2-PFOA	31,838.05	16,714.63	50,143.89		24,426.78	48,853.56	
JZ86	L9	8/20/18 15:52	13C2-PFOA	33,937.64	16,714.63	50,143.89		24,426.78	48,853.56	
JZ10 IB	Instrument Blank	8/20/18 16:01	13C2-PFOA	43,290.28	16,714.63	50,143.89		24,426.78	48,853.56	
JZ77 ICC	ICC	8/20/18 16:10	13C2-PFOA	28,769.08	16,714.63	50,143.89		24,426.78	48,853.56	
JZ83 CCV	CCV	8/20/18 19:00	13C2-PFOA	33,466.43	16,714.63	50,143.89		24,426.78	48,853.56	
CR577PB-FS(0)	Procedural Blank	8/20/18 19:18	13C2-PFOA	35,042.72	16,714.63	50,143.89		23,426.50	46,853.00	
CR578LCS-FS(0)	Laboratory Control Sample	8/20/18 19:27	13C2-PFOA	35,828.75	16,714.63	50,143.89		23,426.50	46,853.00	
J7428-FS(0)	JAX-RES-08142018-1045-8	8/20/18 19:36	13C2-PFOA	39,176.36	16,714.63	50,143.89		23,426.50	46,853.00	
J7430-FS(0)	JAX-RES-08142018-1130-9	8/20/18 19:45	13C2-PFOA	40,599.52	16,714.63	50,143.89		23,426.50	46,853.00	
JZ82 CCV	CCV	8/20/18 19:54	13C2-PFOA	30,206.05	16,714.63	50,143.89		23,426.50	46,853.00	

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 (L1/L9)
JZ80	L3	8/20/18 14:59	d3-MeFOSAA	28,996.86	-
JZ81	L4	8/20/18 15:08	d3-MeFOSAA	26,627.99	-
JZ82	L5	8/20/18 15:17	d3-MeFOSAA	25,150.99	-
JZ83	L6	8/20/18 15:26	d3-MeFOSAA	26,516.87	-
JZ84	L7	8/20/18 15:35	d3-MeFOSAA	28,023.21	-
JZ85	L8	8/20/18 15:44	d3-MeFOSAA	24,307.22	-
JZ86	L9	8/20/18 15:52	d3-MeFOSAA	27,617.78	4.9

PASS

Average      Lower      Upper  
 26,748.70    13,374.35    40,123.05

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/20/18 14:59	d3-MeFOSAA	28,996.86	13,374.35	40,123.05		17,605.69	35,211.39	
JZ81	L4	8/20/18 15:08	d3-MeFOSAA	26,627.99	13,374.35	40,123.05		17,605.69	35,211.39	
JZ82	L5	8/20/18 15:17	d3-MeFOSAA	25,150.99	13,374.35	40,123.05		17,605.69	35,211.39	
JZ83	L6	8/20/18 15:26	d3-MeFOSAA	26,516.87	13,374.35	40,123.05		17,605.69	35,211.39	
JZ84	L7	8/20/18 15:35	d3-MeFOSAA	28,023.21	13,374.35	40,123.05		17,605.69	35,211.39	
JZ85	L8	8/20/18 15:44	d3-MeFOSAA	24,307.22	13,374.35	40,123.05		17,605.69	35,211.39	
JZ86	L9	8/20/18 15:52	d3-MeFOSAA	27,617.78	13,374.35	40,123.05		17,605.69	35,211.39	
JZ10 IB	Instrument Blank	8/20/18 16:01	d3-MeFOSAA	31,459.20	13,374.35	40,123.05		17,605.69	35,211.39	
JZ77 ICC	ICC	8/20/18 16:10	d3-MeFOSAA	22,841.71	13,374.35	40,123.05		17,605.69	35,211.39	
JZ83 CCV	CCV	8/20/18 19:00	d3-MeFOSAA	26,849.70	13,374.35	40,123.05		17,605.69	35,211.39	
CR577PB-FS(0)	Procedural Blank	8/20/18 19:18	d3-MeFOSAA	24,022.00	13,374.35	40,123.05		18,794.79	37,589.58	
CR578LCS-FS(0)	Laboratory Control Sample	8/20/18 19:27	d3-MeFOSAA	28,302.64	13,374.35	40,123.05		18,794.79	37,589.58	
J7428-FS(0)	JAX-RES-08142018-1045-8	8/20/18 19:36	d3-MeFOSAA	30,843.11	13,374.35	40,123.05		18,794.79	37,589.58	
J7430-FS(0)	JAX-RES-08142018-1130-9	8/20/18 19:45	d3-MeFOSAA	27,720.91	13,374.35	40,123.05		18,794.79	37,589.58	
JZ82 CCV	CCV	8/20/18 19:54	d3-MeFOSAA	21,840.01	13,374.35	40,123.05		18,794.79	37,589.58	

<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>	8/20/2018 3:35:06 PM	<b>Data File</b>	DW_08202018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0507DW
<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	1.56	0.98	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.85	1.39	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	8/20/2018 3:35:06 PM	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.56	29	>10
PFBS_2	298.9 / 99.0	1.56	27	>10
PFHxA_1	313.0 / 269.0	1.85	47	>10
PFHxA_2	313.0 / 119.0	1.85	40	>10
PFHpA_1	363.0 / 319.0	2.22	43	>10
PFHpA_2	363.0 / 169.0	2.22	32	>10
PFHxS_1	399.0 / 80.0	2.23	41	>10
PFHxS_2	399.0 / 99.0	2.23	40	>10
PFOA_1	413.0 / 369.0	2.59	36	>10
PFOA_2	413.0 / 169.0	2.59	33	>10
PFNA_1	463.0 / 419.0	2.97	36	>10
PFNA_2	463.0 / 219.0	2.96	34	>10
PFOS_1	499.0 / 80.0	2.96	60	>10
PFOS_2	499.0 / 99.0	2.96	33	>10
PFDA_1	513.0 / 469.0	3.31	30	>10
PFDA_2	513.0 / 219.0	3.31	43	>10
PFUnA_1	563.0 / 519.0	3.65	27	>10
PFUnA_2	563.0 / 269.0	3.65	46	>10
PFDaA_1	613.0 / 569.0	3.94	41	>10
PFDaA_2	613.0 / 319.0	3.94	31	>10
PFTrDA_1	663.0 / 619.0	4.20	53	>10
PFTrDA_2	663.0 / 169.0	4.19	35	>10
PFTeDA_1	713.0 / 669.0	4.43	69	>10
PFTeDA_2	713.0 / 169.0	4.42	45	>10
NMeFOSAA_1	570.0 / 419.0	3.47	37	>10
NMeFOSAA_2	570.0 / 512.0	3.47	34	>10
NEtFOSAA_1	584.0 / 419.0	3.64	31	>10
NEtFOSAA_2	584.0 / 483.0	3.63	49	>10
13C2-PFHxA	315.0 / 270.0	1.84	47	>10
13C2-PFDA	515.0 / 470.0	3.30	31	>10
d5-EtFOSAA	589.0 / 419.0	3.63	26	>10



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

Analyte	CAS No.	Average (ng/L)	ST DEV	3 Sigma	n
PFHxA	307-24-4	10.50	1.30	3.90	17
PFHpA	375-85-9	10.64	1.49	4.47	17
PFOA	335-67-1	10.54	1.52	4.56	17
PFNA	375-95-1	10.52	1.35	4.05	17
PFDA	335-76-2	10.45	1.62	4.86	17
PFUnA	2058-94-8	10.18	1.74	5.22	17
PFDoA	307-55-1	10.09	1.67	5.01	17
PFTTrDA	72629-94-8	10.25	1.83	5.49	17
PFTeDA	376-06-7	11.47	2.47	7.41	17
NMeFOSAA	2355-31-9	10.48	1.08	3.24	17
NEtFOSAA	2991-50-6	10.06	1.29	3.87	17
PFBS	375-73-5	8.65	1.34	4.02	17
PFHxS	355-46-4	9.80	1.55	4.65	17
PFOS	1763-23-1	9.42	1.58	4.74	17

# 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>PFTrDA</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.

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: **JV59**

Description: PFAS - 537.1 Internal Standard Solution

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

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

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

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

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



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JV59**

Description: PFAS - 537.1 Internal Standard Solution

Stock Id: **JV35**

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

Final Concentrations:

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV35	Pipette	I0400533B

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

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

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

It can be done

## Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: **JV61**

Description: PFAS - 537.1 Internal Standard Calibration Stock Solution

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

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

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

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

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



**BATTELLE**

It can be done

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

Description: PFAS - 537.1 Internal Standard Calibration Stock Solution

Stock Id: **JV35**

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

## Final Concentrations:

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

## Syringes/Pipettes:

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

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

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

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: JX76

Description: PFAS - 537.1 Surrogate Solution

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

Solution Prepared By: Schultz, Stephanie	Date Prepared: 6/28/2018	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 (RP-180628-1)

Approved By: Lizotte Jr, Robert Date: 6/29/2018 9:29:00 AM



It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JX76

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	B820865811

Solution Prepared By: Schultz, Stephanie Date Prepared: 6/28/2018 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 (RP-180628-1)

Approved By: Lizotte Jr, Robert Date: 6/29/2018 9:29:00 AM



It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: JZ10

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)
JV61	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JV62	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Schultz, Stephanie	Date Prepared: 7/20/2018	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 water

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



It can be done

## Standard Solution Concentrations

Approved: Standard Laboratory ID Number: **JZ10**

Description: PFAS - 537.1 Instrument Blank

**Stock Id: JV61**

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

**Stock Id: JV62**

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

**Final Concentrations:**

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

**Syringes/Pipettes:**

Stock ID:	Type:	Battelle ID:
JV61	Pipette	B814659662
JV62	Pipette	B814659662

Solution Prepared By: Schultz, Stephanie      Date Prepared: 7/20/2018      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 water

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



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

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

<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> 4 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 2:19:00 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

<b>Solution Prepared By:</b> Schultz, Stephanie	<b>Date Prepared:</b> 8/20/2018	<b>Expiration Date:</b> 8/20/2019
<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 2:19:00 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

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 2:19:00 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-butanefluorobutanoate	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-butanefluoride	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-butanefluorobutane	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-butanefluorobutanoate	.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-butanefulfonate	.00044
Perfluoro-1-hexanesulfonate	.00046
Perfluoro-1-octanesulfonate	.00046
Perfluoro-n-decanoic Acid	.00050
Perfluoro-n-dodecanoic acid	.00050
Perfluoro-n-heptanoic Acid	.00050
Perfluoro-n-hexanoic acid	.00050
Perfluoro-n-nonanoic Acid	.00050
Perfluoro-n-octanoic Acid	.00050
Perfluoro-n-tetradecanoic acid	.00050
Perfluoro-n-tridecanoic acid	.00050
Perfluoro-n-undecanoic acid	.00050

**Syringes/Pipettes:**

Stock ID:	Type:	Battelle ID:
JV43	Pipette	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	
<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: 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

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: **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-butanefulfonate	.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	

**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: 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

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: **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

**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: 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

<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: **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-butanefulfonate	1000	0.04	---	---	1	10	0.00443
Perfluoro-1-hexanesulfonate	1000	0.05	---	---	1	10	0.00456
Perfluoro-1-octanesulfonate	1000	0.05	---	---	1	10	0.00463
Perfluoro-n-decanoic Acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-dodecanoic acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-heptanoic Acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-hexanoic acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-nonanoic Acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-octanoic Acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-tetradecanoic acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-tridecanoic acid	1000	0.05	---	---	1	10	0.00500
Perfluoro-n-undecanoic acid	1000	0.05	---	---	1	10	0.00500

**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-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:
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	

**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

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: **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-butanefulfonate	.00885
Perfluoro-1-hexanesulfonate	.00912
Perfluoro-1-octanesulfonate	.00925
Perfluoro-n-decanoic Acid	.01000
Perfluoro-n-dodecanoic acid	.01000
Perfluoro-n-heptanoic Acid	.01000
Perfluoro-n-hexanoic acid	.01000
Perfluoro-n-nonanoic Acid	.01000
Perfluoro-n-octanoic Acid	.01000
Perfluoro-n-tetradecanoic acid	.01000
Perfluoro-n-tridecanoic acid	.01000
Perfluoro-n-undecanoic acid	.01000

**Syringes/Pipettes:**

Stock ID:	Type:	Battelle ID:
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	

**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).

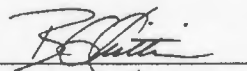


\*\*For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at [www.well-labs.com](http://www.well-labs.com) or contact us directly at [info@well-labs.com](mailto:info@well-labs.com)\*\*

**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

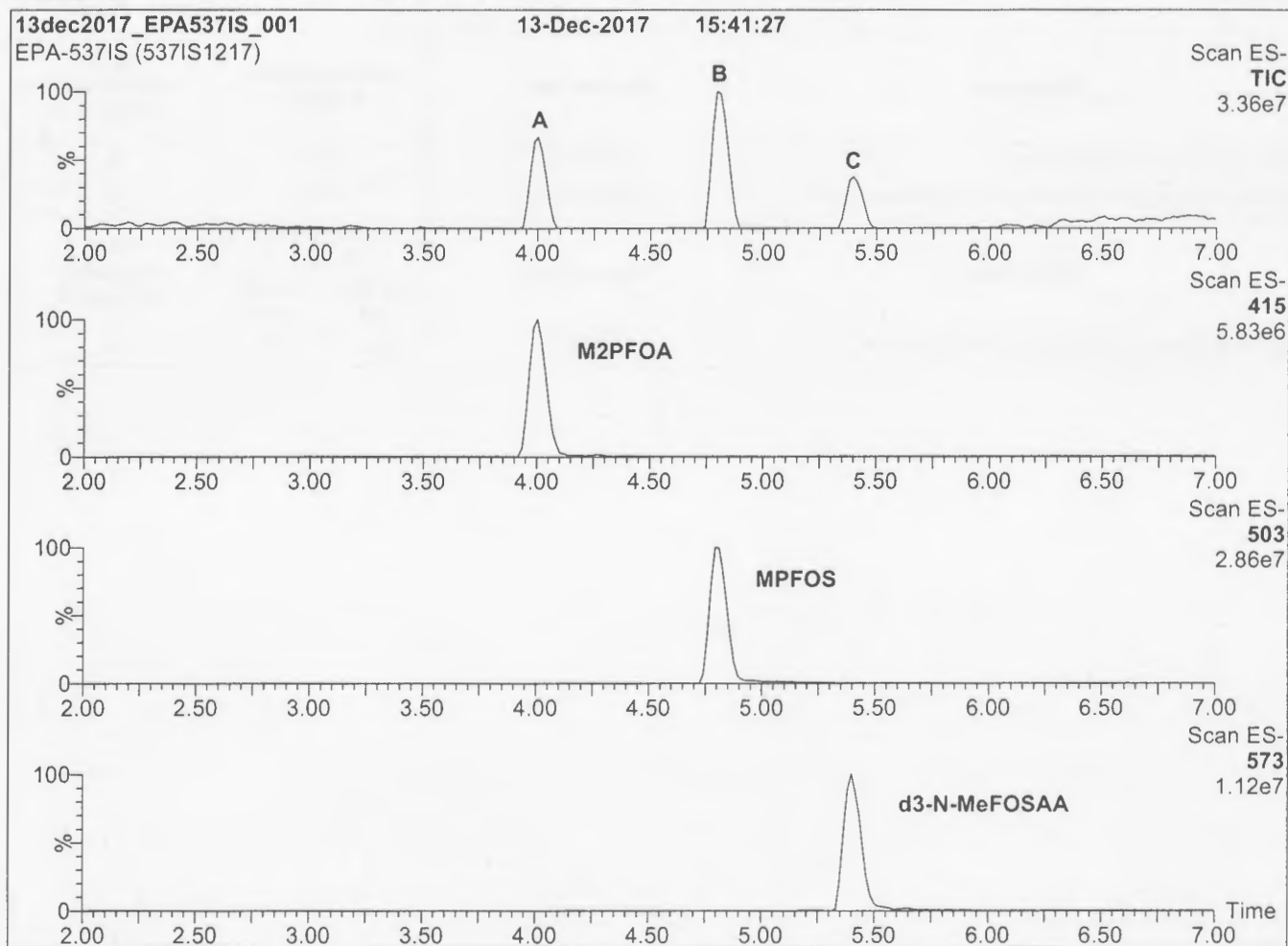
Certified By:



B.G. Chittim, General Manager

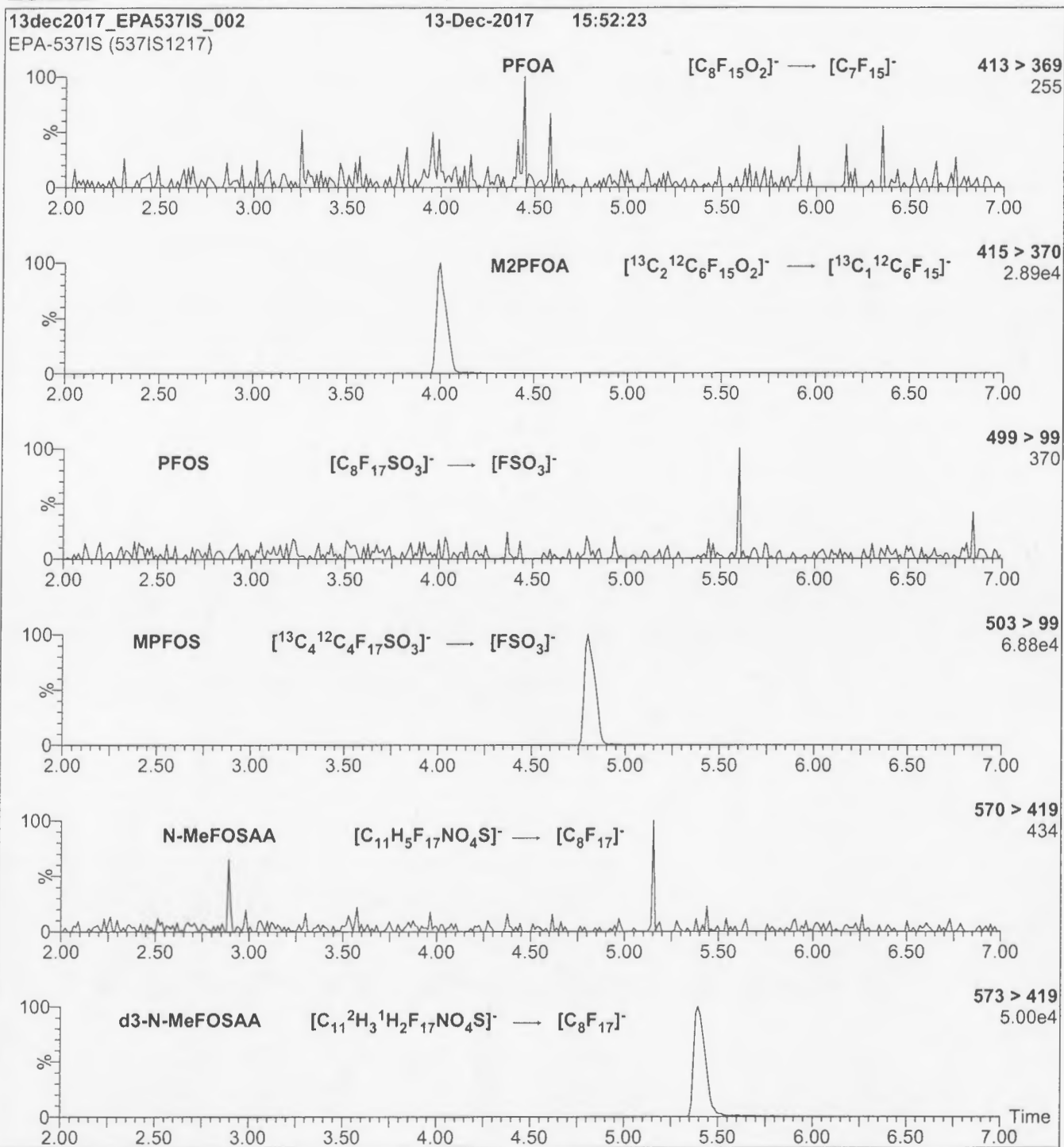
Date: 12/22/2017

(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 mmMobile 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 minFlow: 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).



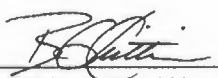
\*\*For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at [www.well-labs.com](http://www.well-labs.com) or contact us directly at [info@well-labs.com](mailto:info@well-labs.com)\*\*

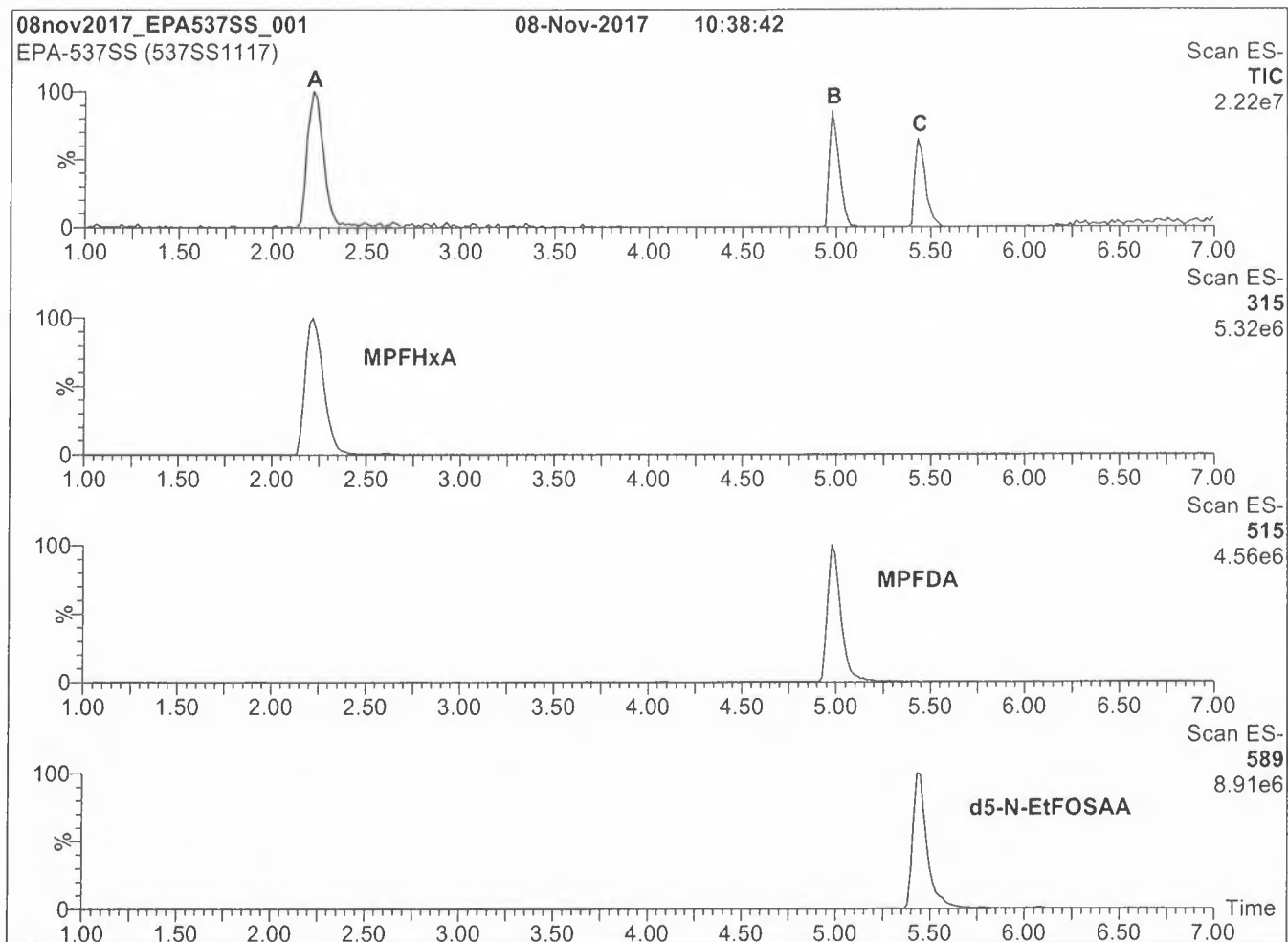


**Table A: EPA-537SS; Components and Concentrations (ng/ml; ± 5% in Methanol / Water (<1%))**

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)

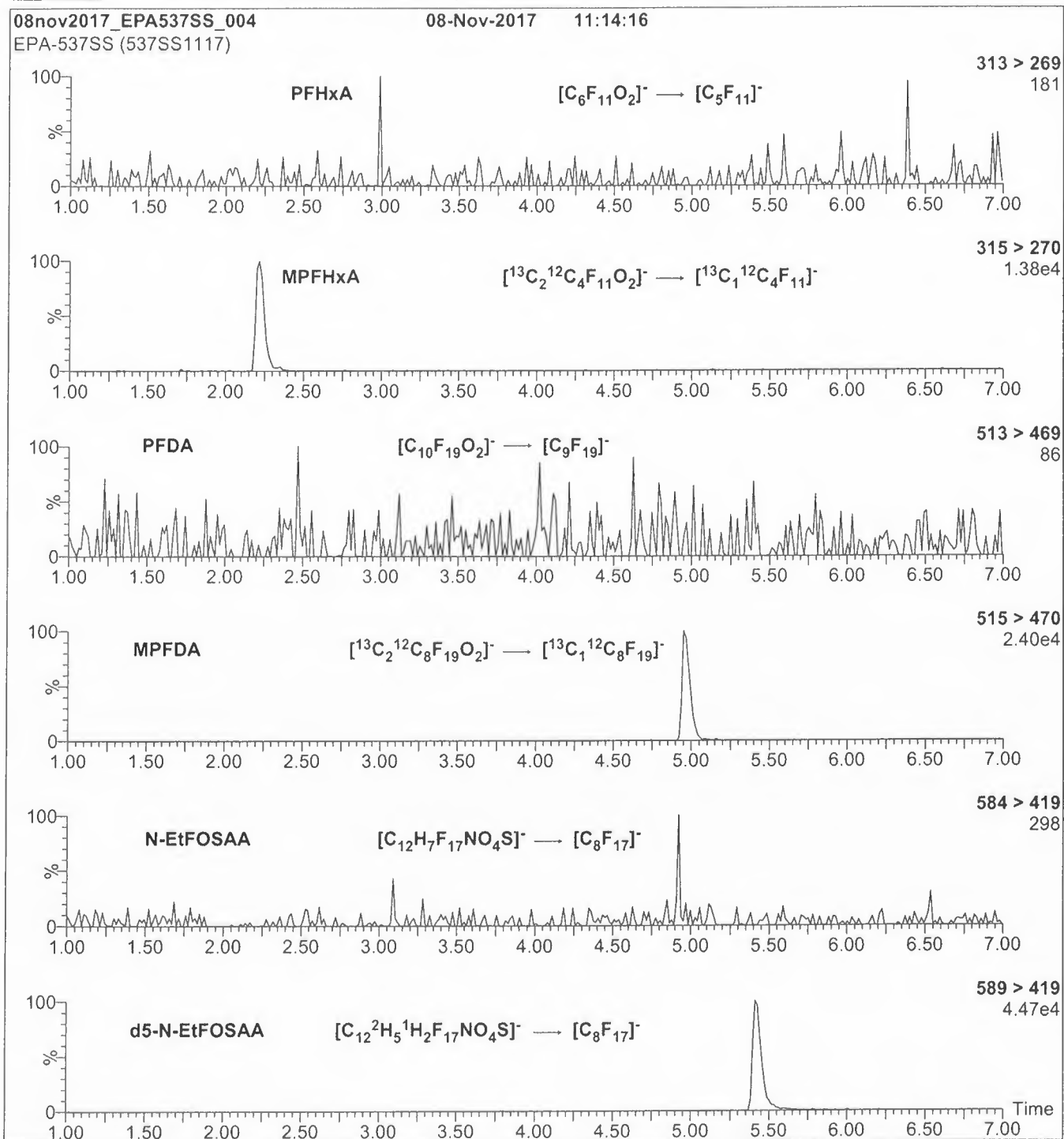
Source: Electrospray (negative)

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:**

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\*\*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.

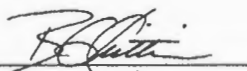
**Table E: PFOSK; Isomeric Components and Percent Composition (by <sup>19</sup>F-NMR)\***

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(SO <sub>3</sub> <sup>-</sup> )CF <sub>2</sub> 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.

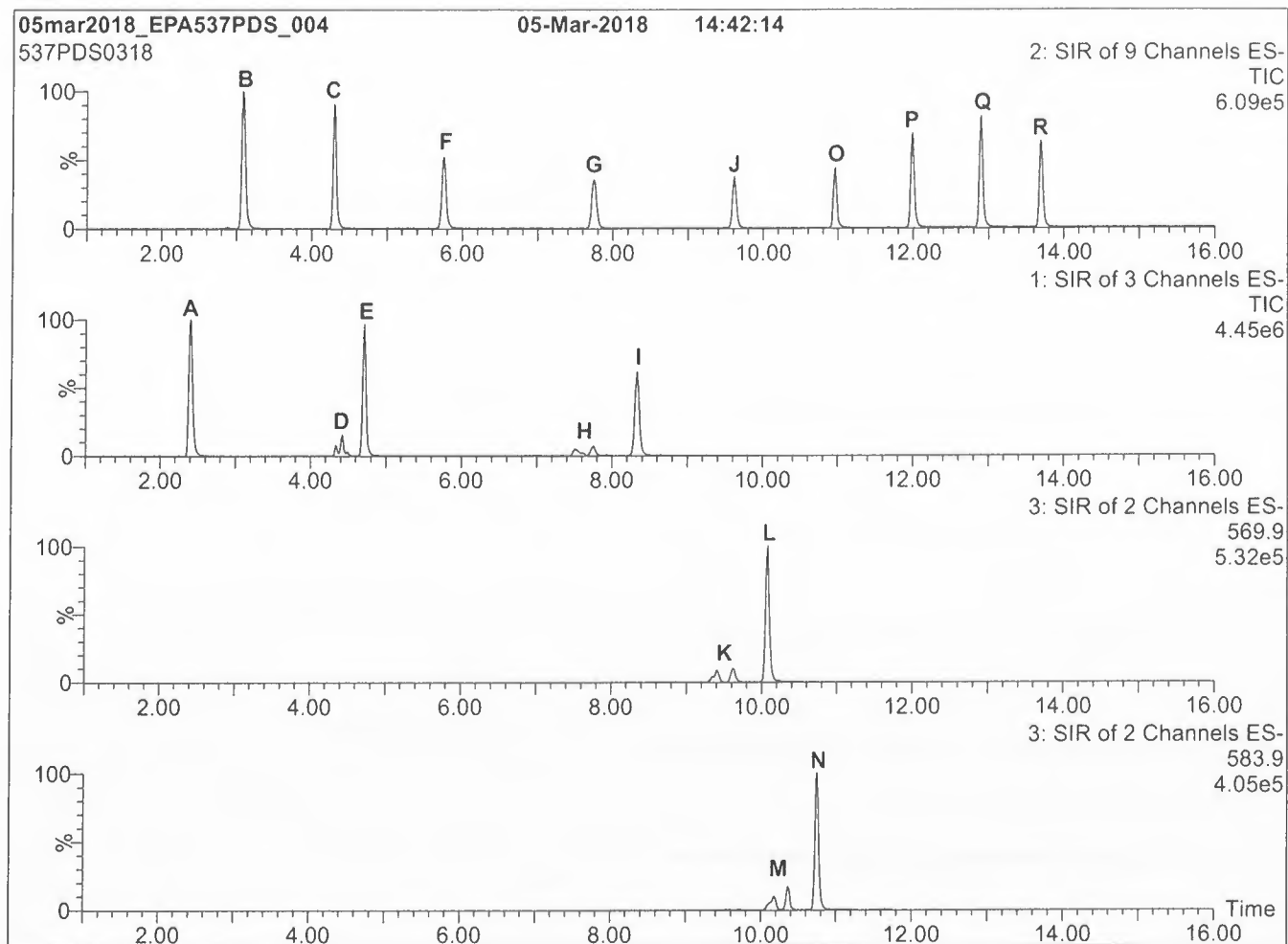
Certified By:



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

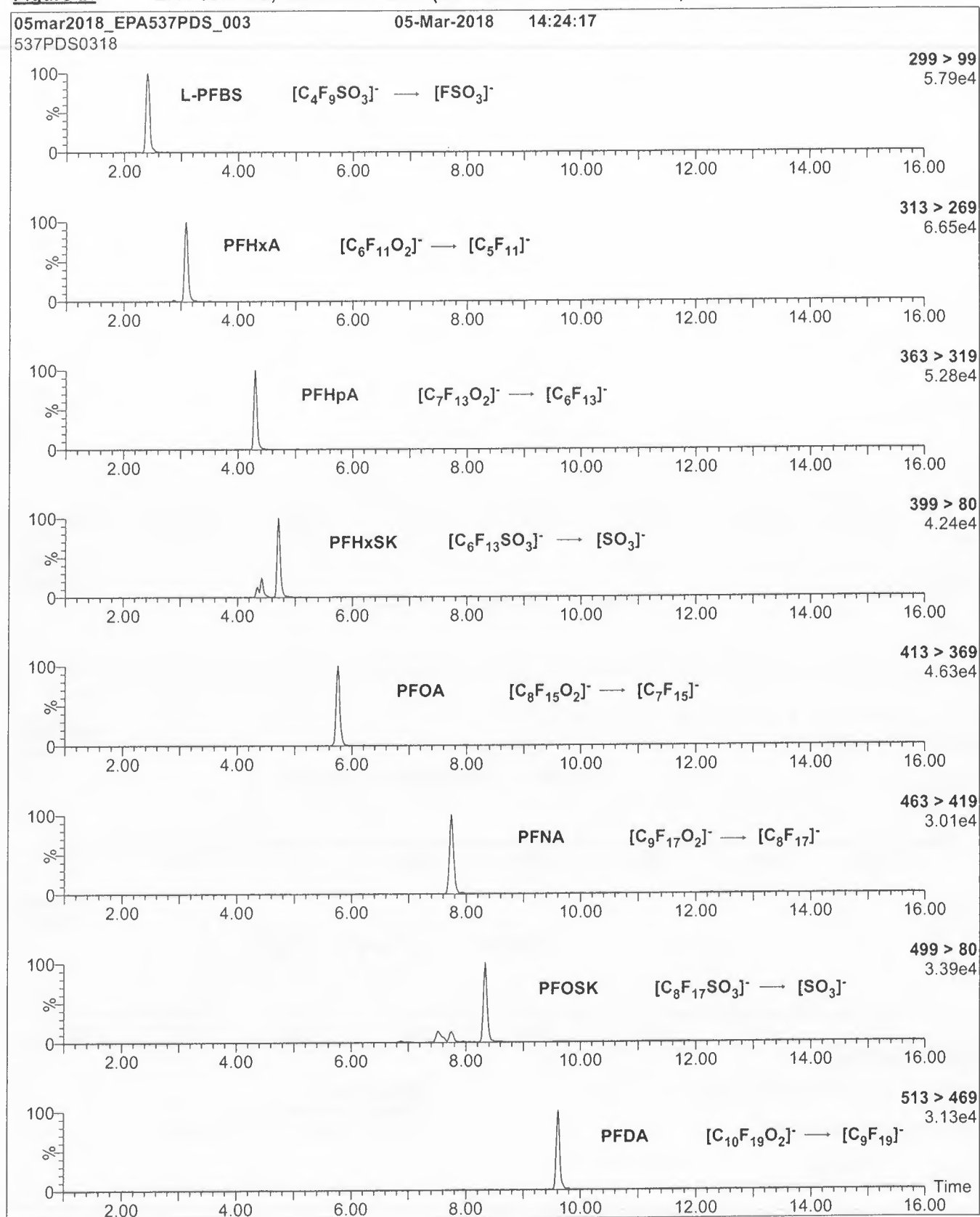
Source: Electrospray (negative)

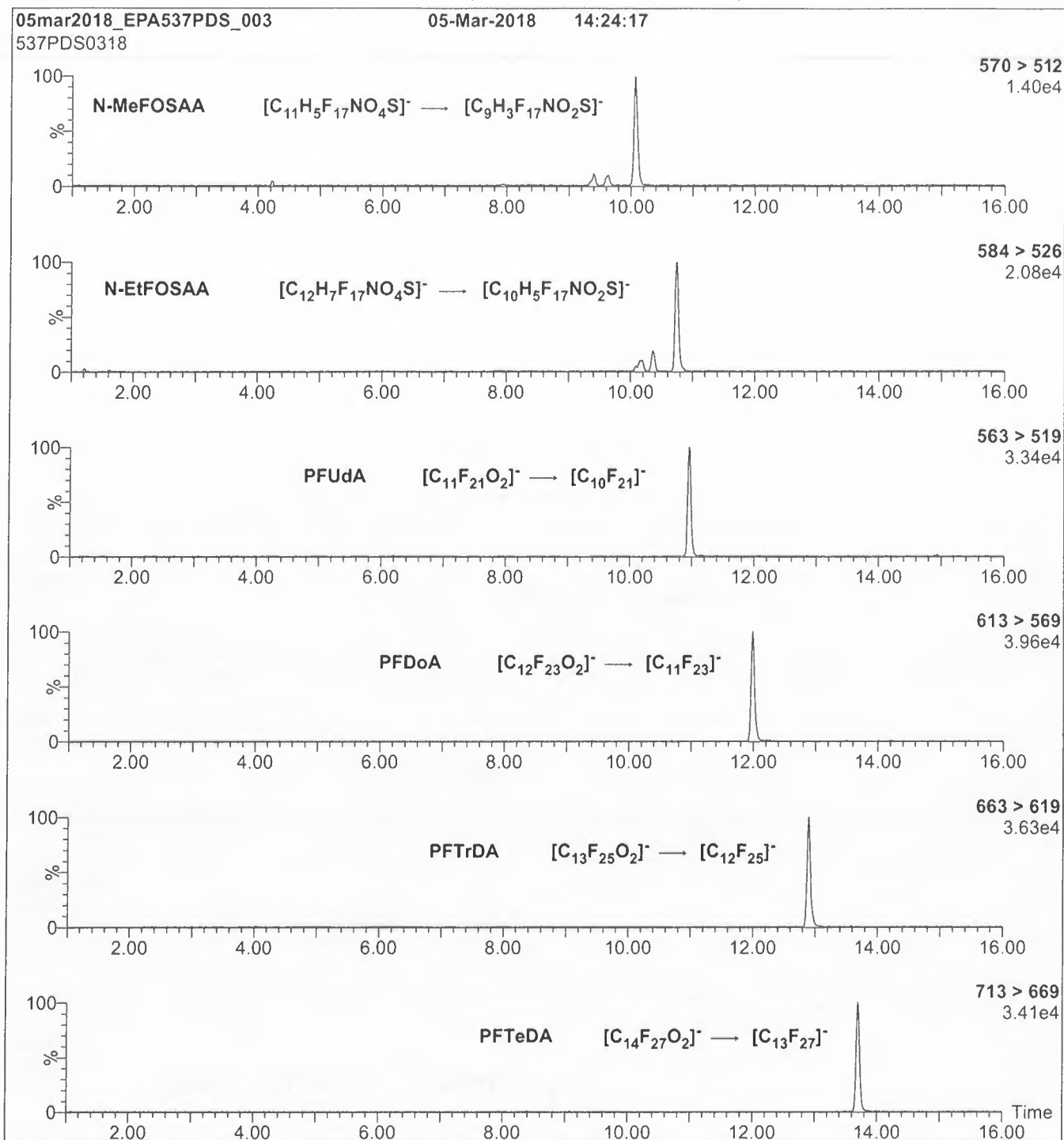
Capillary Voltage (kV) = 3.00

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

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

**DESCRIPTION:**

EPA-537PDS-L is a solution/mixture of native linear perfluoroalkylcarboxylic acids (C<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%))**

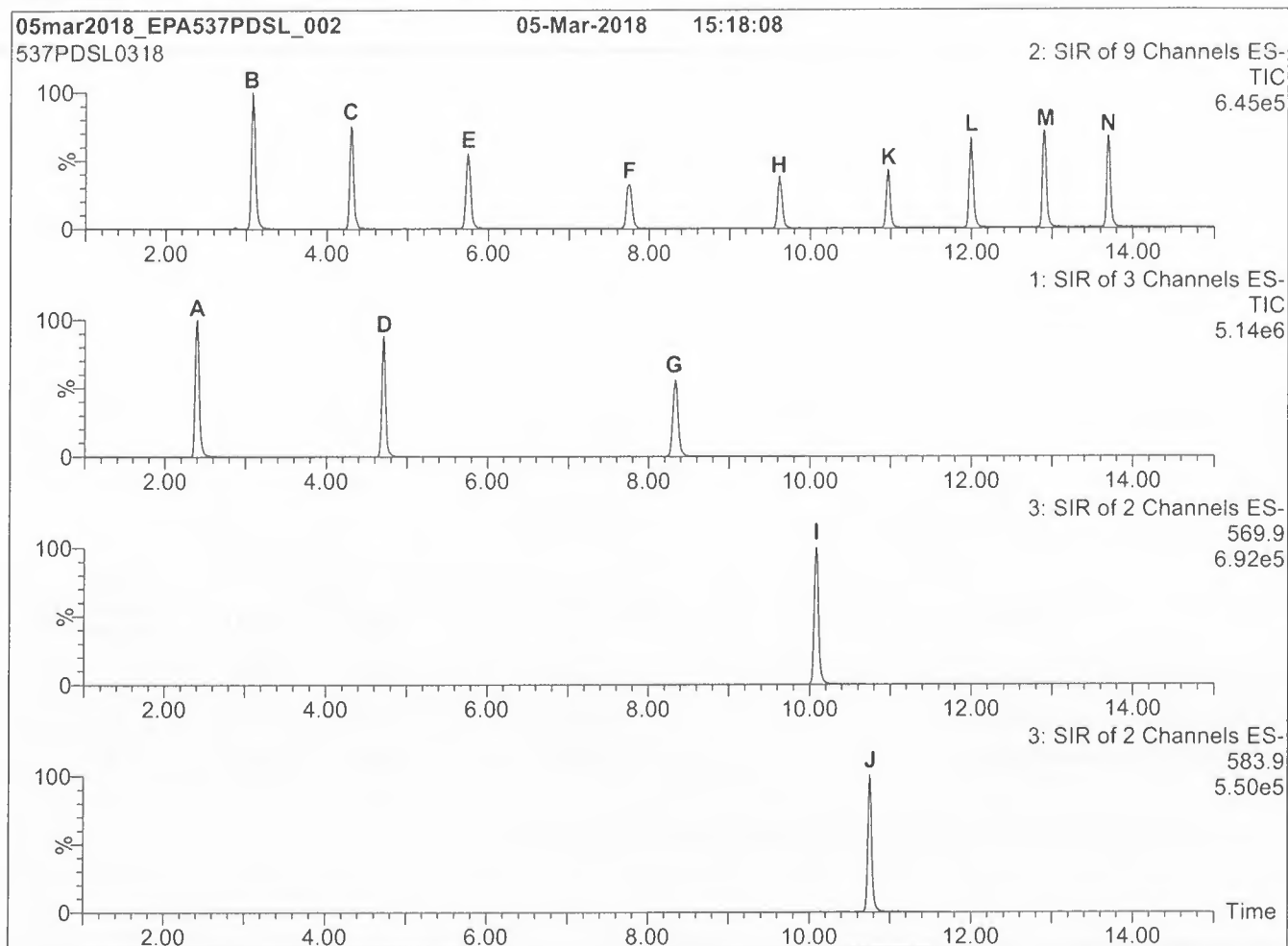
Compound	Abbreviation	Concentration *		Peak Assignment in Figure 1
		(ng/ml)		
Perfluoro-n-hexanoic acid	PFHxA	2000		B
Perfluoro-n-heptanoic acid	PFHpA	2000		C
Perfluoro-n-octanoic acid	PFOA	2000		E
Perfluoro-n-nonanoic acid	PFNA	2000		F
Perfluoro-n-decanoic acid	PFDA	2000		H
Perfluoro-n-undecanoic acid	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-butanefulfonate	L-PFBS	2000	1770	A
Sodium perfluoro-1-hexanesulfonate	L-PFHxS	2000	1890	D
Sodium perfluoro-1-octanesulfonate	L-PFOS	2000	1910	G

\* Concentrations have been rounded to three significant figures.

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

  
B.G. Chittim, General Manager

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

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

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

**Chromatographic Conditions**

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

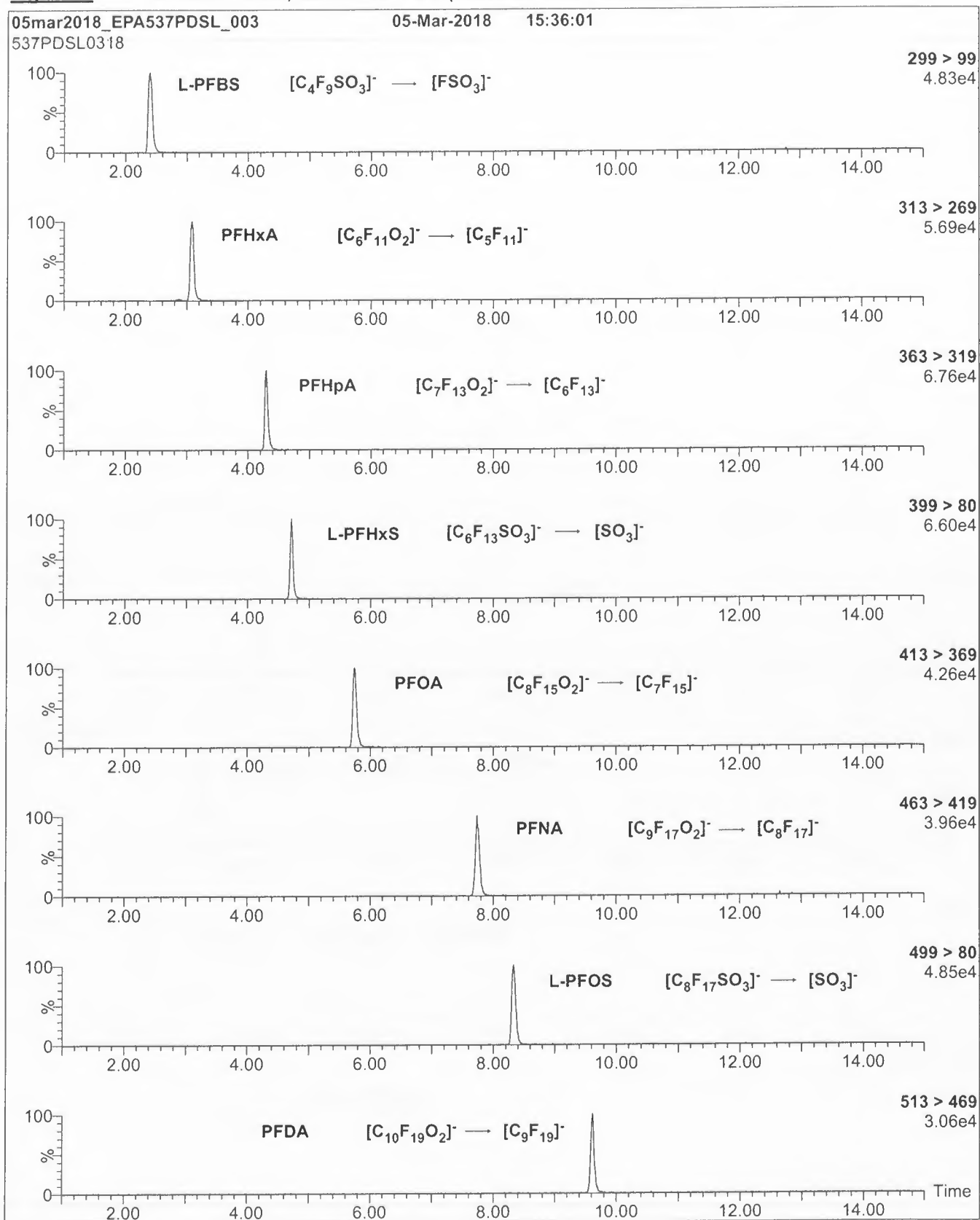
Mobile phase: Gradient  
 Start: 40% (80:20 MeOH:ACN) / 60% H<sub>2</sub>O  
 (both with 10 mM NH<sub>4</sub>OAc buffer)  
 Ramp to 55% organic over 3.5 min.  
 Ramp to 70% organic over 6.5 min.  
 Ramp to 85% organic over 5 min and hold for  
 1 min before returning to initial conditions in 0.5 min.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

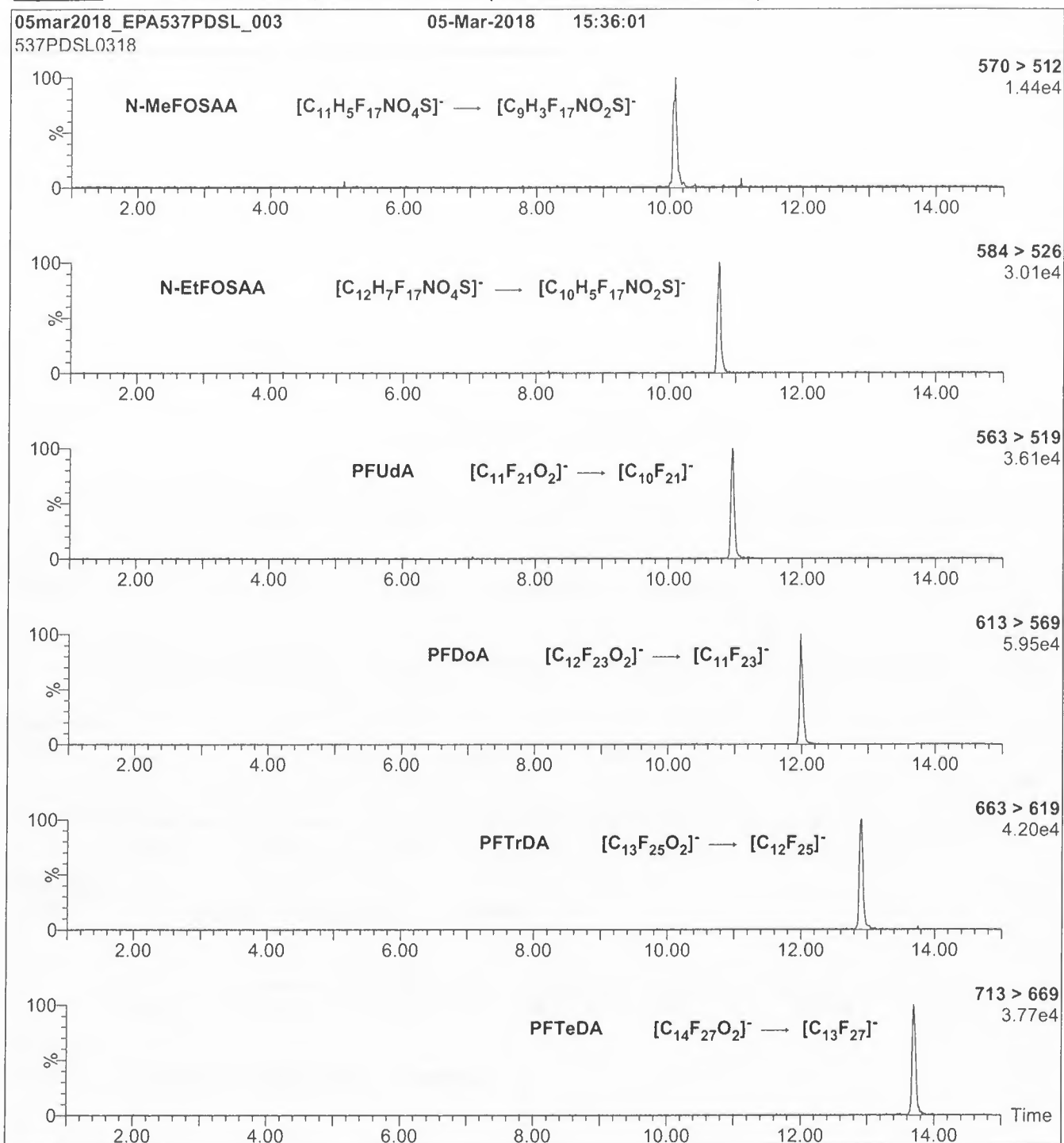
Flow: 300  $\mu$ l/min

**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>18-0507</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>
CR577PB-FS CR578LCS-FS J7428-FS J7430-FS

Laboratory Preparation Records  
COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Jordan Tower	08/21/2018	JCT



It can be done

**BATTELLE - NORWELL OPERATIONS  
SAMPLE IDENTIFICATION PAGE**

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**

100119154-  
SE0375

**18-0507**

**CTO-SE0375: Drinking Water Analysis**

**W**

Sample ID	Description
CR577PB-FS	Procedural Blank
CR578LCS-FS	Laboratory Control Sample
J7428-FS	JAX-RES-08142018-1045-8
J7430-FS	JAX-RES-08142018-1130-9

Samples Assigned By:

Jonathan Thorn

Date : August 15, 2018

Comments:





**BATTELLE - NORWELL OPERATIONS  
SAMPLE CUSTODY LOG**

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**

100119154-  
SE0375

**18-0507**

**CTO-SE0375: Drinking Water Analysis**

**W**

<b>Requested On/By:</b> 08/16/2018 LMG	<b>Purpose:</b> Sample Preparation
<b>Relinquished On/By:</b> 08/16/2018 MDS	<b>Last Activity:</b> Transfer
<b>Accepted On/By:</b> 08/16/2018 LMG <b>Stored In Facility:</b> Sample Preparation <b>Stored Until:</b> 08/16/2018 <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	J7428	1	C	Intact	NA	
2	J7430	1	C	Intact	NA	
<b>Total Samples</b>		2		* "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

**18-0507**

**CTO-SE0375: Drinking Water Analysis**

**W**

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CR577PB-FS	Procedural Blank	250.0	NA	--	08/16/18 LMG
CR578LCS-FS	Laboratory Control Sample	250.0	NA	--	08/16/18 LMG
J7428-FS	JAX-RES-08142018-1045-8	285.0	1	C	08/16/18 LMG
J7430-FS	JAX-RES-08142018-1130-9	265.0	1	C	08/16/18 LMG

**Comments:**

Sample ID:	Comments:
CR577PB-FS	1.23g Trizma(180502-01) weighed on BAL-009
CR578LCS-FS	1.24g Trizma(180502-01) weighed on BAL-009

Samples Assigned By

Jonathan Thorn

Date : August 15, 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**18-0507****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CR577PB-FS	JX76	SIS	1	50	08/16/18 LMG	SG	NA
CR578LCS-FS	JX76	SIS	1	50	08/16/18 LMG	SG	NA
CR578LCS-FS	JZ28	LCS/MS	1	100	08/16/18 LMG	SG	NA
J7428-FS	JX76	SIS	1	50	08/16/18 LMG	SG	NA
J7430-FS	JX76	SIS	1	50	08/16/18 LMG	SG	NA

## Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JX76	Pipette	I0793912B
JZ28	Pipette	I0793912B



It can be done

## BATTELLE - NORWELL OPERATIONS SAMPLE EXTRACTION FORM

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0507****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CR577PB-FS	08/16/18 LMG	NA	NA	NA	NA	NA	NA	See Comments Below
CR578LCS-FS	08/16/18 LMG	NA	NA	NA	NA	NA	NA	NA
J7428-FS	08/16/18 LMG	NA	NA	NA	NA	NA	NA	NA
J7430-FS	08/16/18 LMG	NA	NA	NA	NA	NA	NA	NA

**Solvents/Reagent Preparations:**

Name	ID	Expires	Lot No	Procedure	Comments
Pre-packed SPE Column	RP-180816-1	08/16/18	S214-0075	Pre-packed SPE Column	

**Solvents/Reagents:**

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

Sample Id:	Comments:
CR577PB-FS	Extraction for all samples began at 10:40am



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**18-0507****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
CR577PB-FS(0)	950	50	JV59	50	1	1000	1.000	08/17/18 LMG	SAS
CR578LCS-FS(0)	950	50	JV59	50	1	1000	1.000	08/17/18 LMG	SAS
J7428-FS(0)	950	50	JV59	50	1	1000	1.000	08/17/18 LMG	SAS
J7430-FS(0)	950	50	JV59	50	1	1000	1.000	08/17/18 LMG	SAS

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV59	Pipette	I0793912B

<b>Extract Id:</b>	<b>Comments:</b>
CR577PB-FS	Samples reconstituted in 96/4 Methanol/Milli-q water (RP-180815-2)

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

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



It can be done

## BATTELLE - NORWELL OPERATIONS PREPARATION EXTRACT SPLIT FORM

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0507****CTO-SE0375: Drinking Water Analysis****W**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CR577PB-FS	0	--	8/16/2018	NA		NA	NA	1.000	1.000	08/16/18 LMG
CR578LCS-FS	0	--	8/16/2018	NA		NA	NA	1.000	1.000	08/16/18 LMG
J7428-FS	0	--	8/16/2018	NA		NA	NA	1.000	1.000	08/16/18 LMG
J7430-FS	0	--	8/16/2018	NA		NA	NA	1.000	1.000	08/16/18 LMG

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

**18-0507**

**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 17 2018 1:57PM LMG		<b>Received On/By:</b> Aug 17 2018 1:57PM LMG			
<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	CR577PB-FS(0)	1000	1	Intact	NA
2	CR578LCS-FS(0)	1000	1	Intact	NA
3	J7428-FS(0)	1000	1	Intact	NA
4	J7430-FS(0)	1000	1	Intact	NA
<b>Total Extracts:</b>		4			



It can be done

**BATTELLE - NORWELL OPERATIONS  
MISCELLANEOUS DOCUMENTATION FORM**

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**

100119154-  
SE0375

**18-0507**

**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:

---





It can be done

**BATTELLE - NORWELL OPERATIONS  
MISCELLANEOUS DOCUMENTATION FORM**

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**

100119154-  
SE0375

**18-0507**

**CTO-SE0375: Drinking Water Analysis**

**W**

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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**18-0507****CTO-SE0375: Drinking Water Analysis****W**

Sample ID:	Comment:	Date/Initials:
CR577PB-FS	Extraction for all samples began at 10:40am	08/16/18 LMG
CR577PB-FS	Sample extraction ended at 11:07	08/16/18 LMG
CR578LCS-FS	Sample extraction ended at 11:06	08/16/18 LMG
J7428-FS	Sample extraction ended at 11:16	08/16/18 LMG
J7430-FS	Sample extraction ended at 11:13	08/16/18 LMG
J7430-FS	Sample had a sulfurous odor	08/16/18 LMG

# Analytical Calibrations

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		8/20/2018 2:32:30 PM	5-0371.dam	DW_08202018.wiff
4	JZ80	L3	8/20/2018 2:59:21 PM	5-0371.dam	DW_08202018.wiff
5	JZ81	L4	8/20/2018 3:08:18 PM	5-0371.dam	DW_08202018.wiff
6	JZ82	L5	8/20/2018 3:17:14 PM	5-0371.dam	DW_08202018.wiff
7	JZ83	L6	8/20/2018 3:26:11 PM	5-0371.dam	DW_08202018.wiff
8	JZ84	L7	8/20/2018 3:35:06 PM	5-0371.dam	DW_08202018.wiff
9	JZ85	L8	8/20/2018 3:44:02 PM	5-0371.dam	DW_08202018.wiff
10	JZ86	L9	8/20/2018 3:52:58 PM	5-0371.dam	DW_08202018.wiff
11	JZ10 IB	Instrument Blank	8/20/2018 4:01:53 PM	5-0371.dam	DW_08202018.wiff
12	JZ77 ICC	ICC	8/20/2018 4:10:51 PM	5-0371.dam	DW_08202018.wiff
13	MeOH		8/20/2018 4:19:47 PM	5-0371.dam	DW_08202018.wiff
44	<del>CR612PB-FS(0)</del>	<del>Procedural Blank</del>	<del>8/20/2018 4:28:42 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
45	<del>CR613LCS-FS(0)</del>	<del>Laboratory Control Sample</del>	<del>8/20/2018 4:37:39 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
46	<del>J7404-FS(0)</del>	<del>JAX-RES-08132018-0945-27-FRB</del>	<del>8/20/2018 4:46:36 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
47	<del>J7406-FS(0)</del>	<del>JAX-RES-08132018-1100-30-FRB</del>	<del>8/20/2018 4:55:32 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
48	<del>J7408-FS(0)</del>	<del>JAX-RES-08132018-1145-32-FRB</del>	<del>8/20/2018 5:04:27 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
49	<del>J7412-FS(0)</del>	<del>JAX-RES-08132018-1600-13-FRB</del>	<del>8/20/2018 5:13:23 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
20	<del>J7414-FS(0)</del>	<del>JAX-RES-08132018-1700-31-FRB</del>	<del>8/20/2018 5:22:20 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
24	<del>JZ82-CCV</del>	<del>CCV</del>	<del>8/20/2018 5:31:16 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
22	MeOH		8/20/2018 5:40:13 PM	5-0371.dam	DW_08202018.wiff
23	<del>CR573PB-FS(0)</del>	<del>Procedural Blank</del>	<del>8/20/2018 5:49:10 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
24	<del>CR574LCS-FS(0)</del>	<del>Laboratory Control Sample</del>	<del>8/20/2018 5:58:06 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
25	<del>J7403-FS(2)</del>	<del>JAX-RES-08132018-0945-27</del>	<del>8/20/2018 6:07:03 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
26	<del>J7405-FS(2)</del>	<del>JAX-RES-08132018-1100-30</del>	<del>8/20/2018 6:15:58 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
27	<del>J7407-FS(2)</del>	<del>JAX-RES-08132018-1145-32</del>	<del>8/20/2018 6:24:56 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
28	<del>J7409-FS(2)</del>	<del>X-RES-08132018-1445-16</del>	<del>8/20/2018 6:33:52 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
29	<del>J7411-FS(2)</del>	<del>JAX-RES-08132018-</del>	<del>8/20/2018 6:42:49</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>

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1 These samples are not reported from this batch. DMS 8/22/2018

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
		1600-13	PM		
30	<del>J7413-FS(2)</del>	<del>JAX-RES-08132018-1700-34</del>	<del>8/20/2018 6:51:46 PM</del>	<del>5-0371.dam</del>	DW_08202018.wiff
31	JZ83 CCV	CCV	8/20/2018 7:00:42 PM	5-0371.dam	DW_08202018.wiff
32	MeOH		8/20/2018 7:09:38 PM	5-0371.dam	DW_08202018.wiff
33	CR577PB-FS(0)	Procedural Blank	8/20/2018 7:18:36 PM	5-0371.dam	DW_08202018.wiff
34	CR578LCS-FS(0)	Laboratory Control Sample	8/20/2018 7:27:33 PM	5-0371.dam	DW_08202018.wiff
35	J7428-FS(0)	JAX-RES-08142018-1045-8	8/20/2018 7:36:30 PM	5-0371.dam	DW_08202018.wiff
36	J7430-FS(0)	JAX-RES-08142018-1130-9	8/20/2018 7:45:25 PM	5-0371.dam	DW_08202018.wiff
37	JZ82 CCV	CCV	8/20/2018 7:54:22 PM	5-0371.dam	DW_08202018.wiff
38	<del>MeOH</del>		<del>8/20/2018 8:03:18 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
39	<del>SPE PB</del>	<del>CHECK</del>	<del>8/20/2018 8:12:15 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
40	<del>SPE LCS</del>	<del>CHECK</del>	<del>8/20/2018 8:21:11 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
44	<del>JZ83-CCV</del>	<del>CCV</del>	<del>8/20/2018 8:30:08 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
38	MeOH		8/20/2018 8:39:04 PM	5-0371.dam	DW_08202018.wiff
42	<del>CR592PB-FS(0)</del>	<del>Procedural Blank</del>	<del>8/20/2018 8:48:01 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
43	<del>CR593LCS-FS(0)</del>	<del>Laboratory Control Sample</del>	<del>8/20/2018 8:56:57 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
44	<del>J7445-FS(0)</del>	<del>JAX-RES-08152018-0930-18</del>	<del>8/20/2018 9:05:52 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
45	<del>J7447-FS(0)</del>	<del>JAX-RES-08152018-1015-34</del>	<del>8/20/2018 9:14:47 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
46	<del>J7449-FS(0)</del>	<del>JAX-RES-08152018-1045-33</del>	<del>8/20/2018 9:23:44 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
47	<del>J7451-FS(0)</del>	<del>JAX-RES-08152018-1130-15</del>	<del>8/20/2018 9:32:41 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
48	<del>JZ84-CCV</del>	<del>CCV</del>	<del>8/20/2018 9:41:38 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>

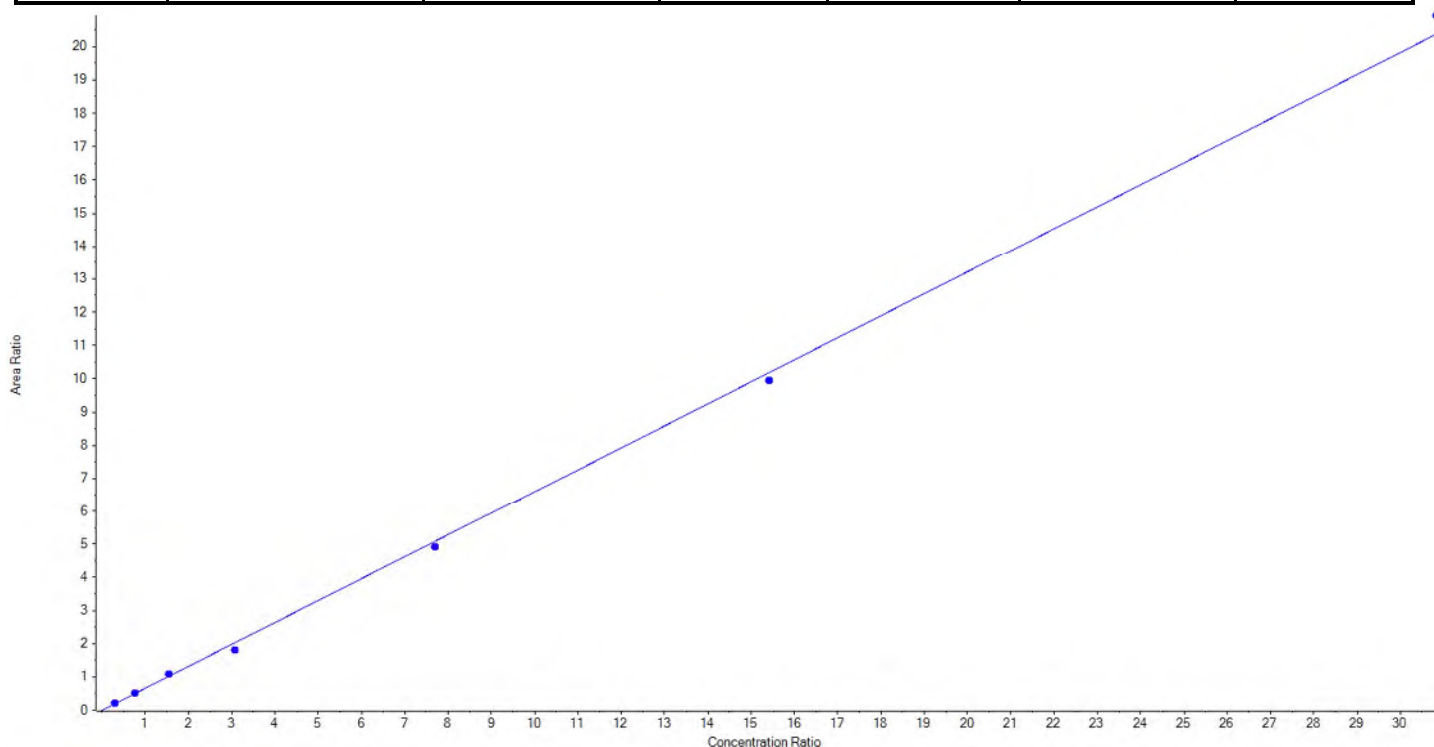
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1 These samples are not reported from this batch. DMS 8/22/2018

<b>Analyte Name</b>	PFBS_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	298.9 / 80.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.66086 x + -0.00678$  (r = 0.99915) (weighting: 1 / x)

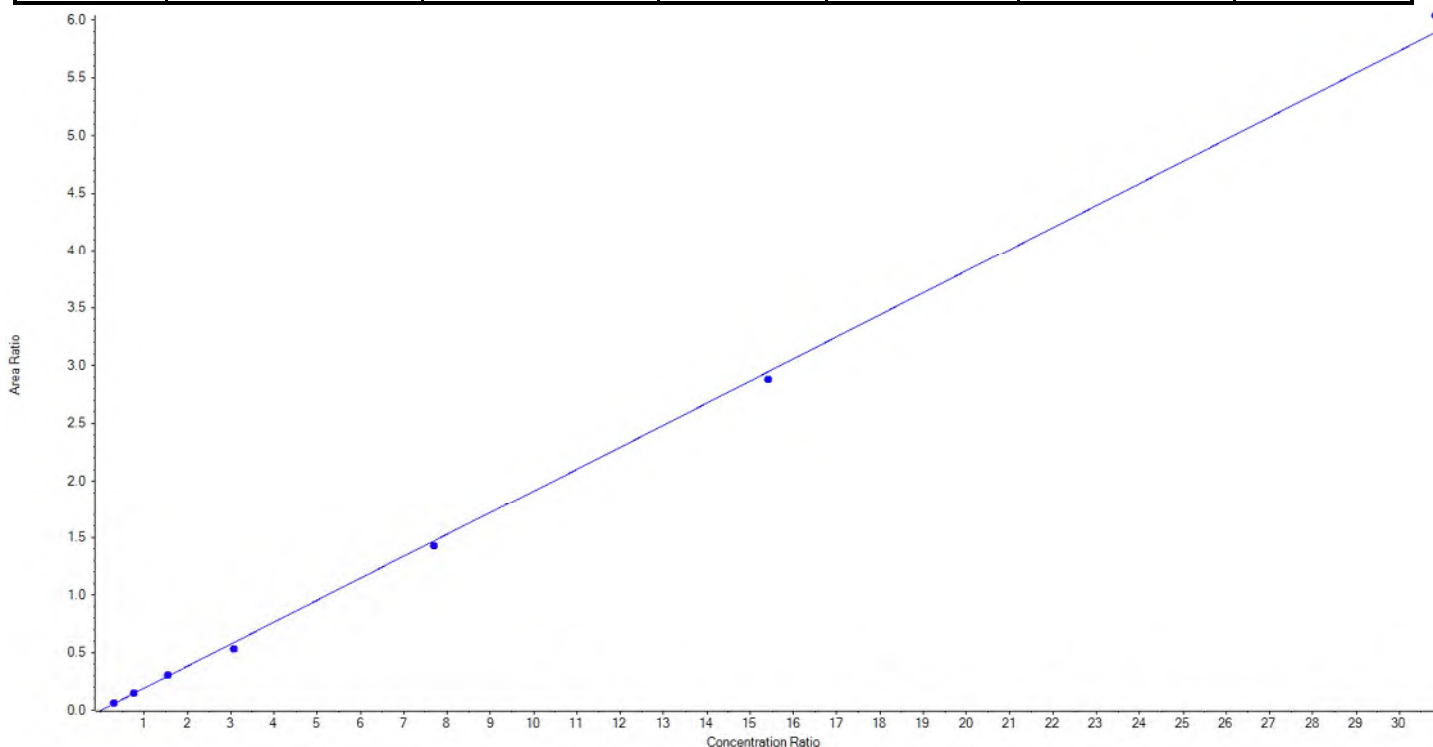
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	92.373246	104.3
5	JZ81	L4	True	221.50	228.227234	103.0
6	JZ82	L5	True	443.00	473.621611	106.9
7	JZ83	L6	True	885.00	787.235152	89.0
8	JZ84	L7	True	2212.50	2136.140902	96.6
9	JZ85	L8	True	4425.00	4317.657703	97.6
10	JZ86	L9	True	8850.00	9090.344152	102.7



<b>Analyte Name</b>	PFBS_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	298.9 / 99.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19104 x + -0.00133$  (r = 0.99933) (weighting: 1 / x)

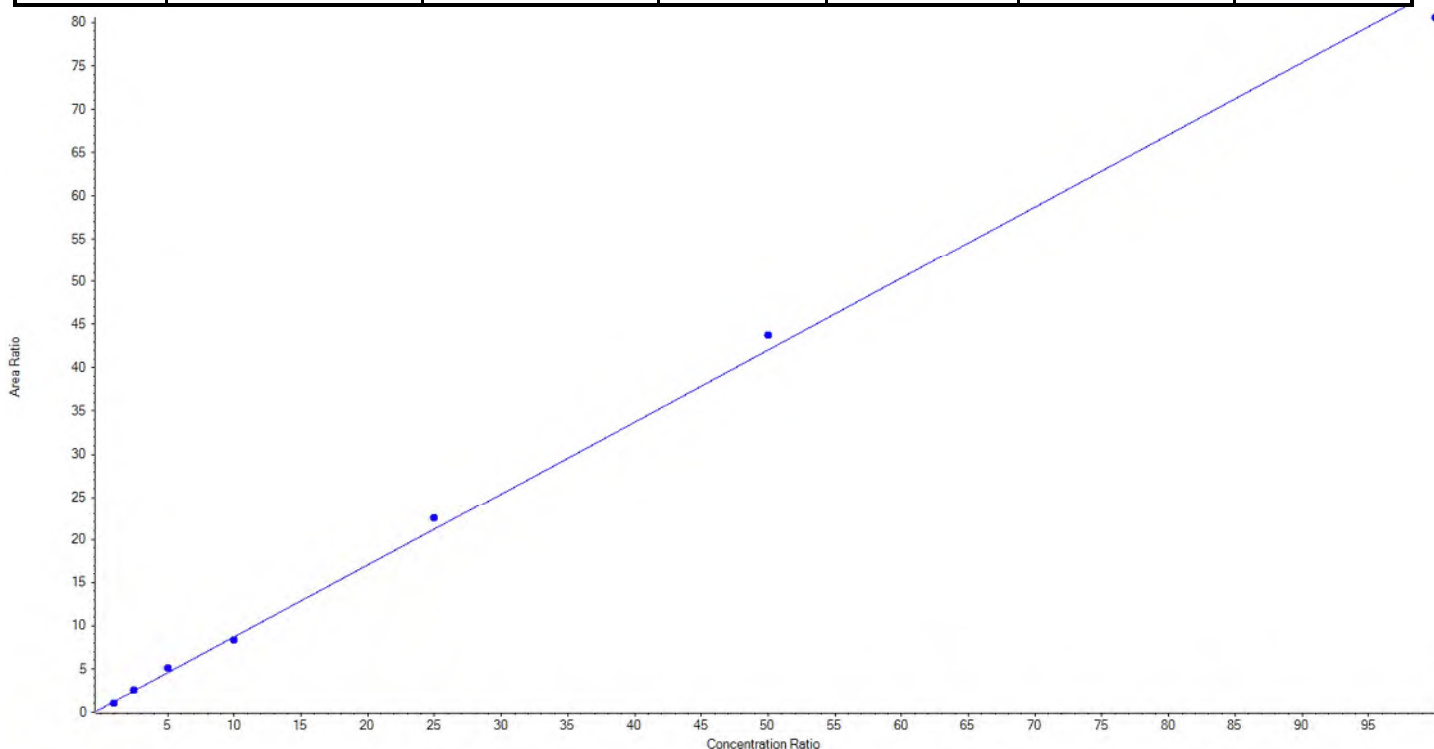
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	93.214828	105.2
5	JZ81	L4	True	221.50	227.341080	102.6
6	JZ82	L5	True	443.00	463.948422	104.7
7	JZ83	L6	True	885.00	796.949611	90.1
8	JZ84	L7	True	2212.50	2149.034279	97.1
9	JZ85	L8	True	4425.00	4326.418052	97.8
10	JZ86	L9	True	8850.00	9068.693729	102.5



<b>Analyte Name</b>	PFHxA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	313.0 / 269.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.83313x + 0.38835$  (r = 0.99851) (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	78.044303	78.0
5	JZ81	L4	True	250.00	265.769546	106.3
6	JZ82	L5	True	500.00	568.874261	113.8
7	JZ83	L6	True	1000.00	954.283032	95.4
8	JZ84	L7	True	2500.00	2650.811567	106.0
9	JZ85	L8	True	5000.00	5209.008771	104.2
10	JZ86	L9	True	10000.00	9623.208520	96.2

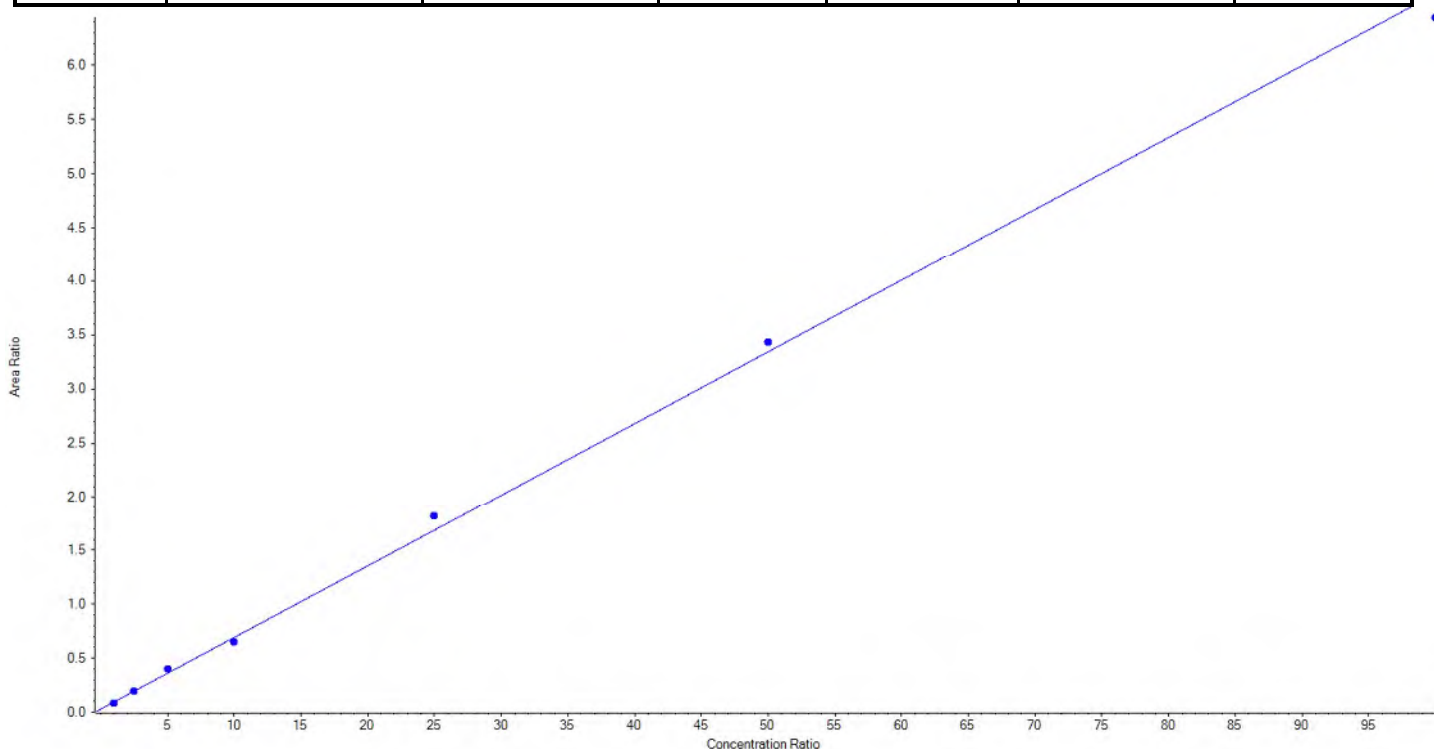




<b>Analyte Name</b>	PFHxA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	313.0 / 119.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.06630 x + 0.02846$  (r = 0.99864) (weighting: 1 / x)

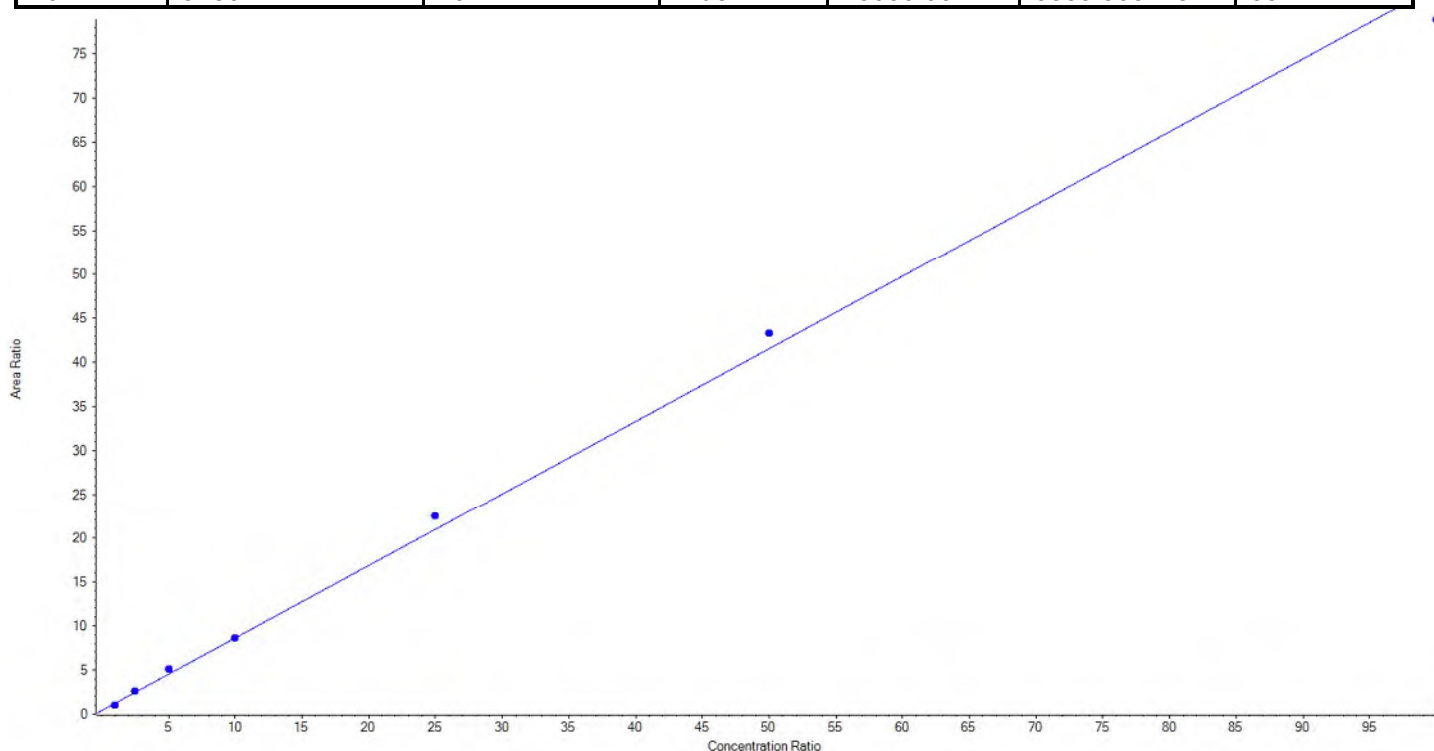
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	86.317867	86.3
5	JZ81	L4	True	250.00	247.710359	99.1
6	JZ82	L5	True	500.00	564.939492	113.0
7	JZ83	L6	True	1000.00	940.194006	94.0
8	JZ84	L7	True	2500.00	2702.578330	108.1
9	JZ85	L8	True	5000.00	5140.495784	102.8
10	JZ86	L9	True	10000.00	9667.764162	96.7



<b>Analyte Name</b>	PFHpA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	363.0 / 319.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.82233x + 0.41213$  (r = 0.99811) (weighting: 1 / x)

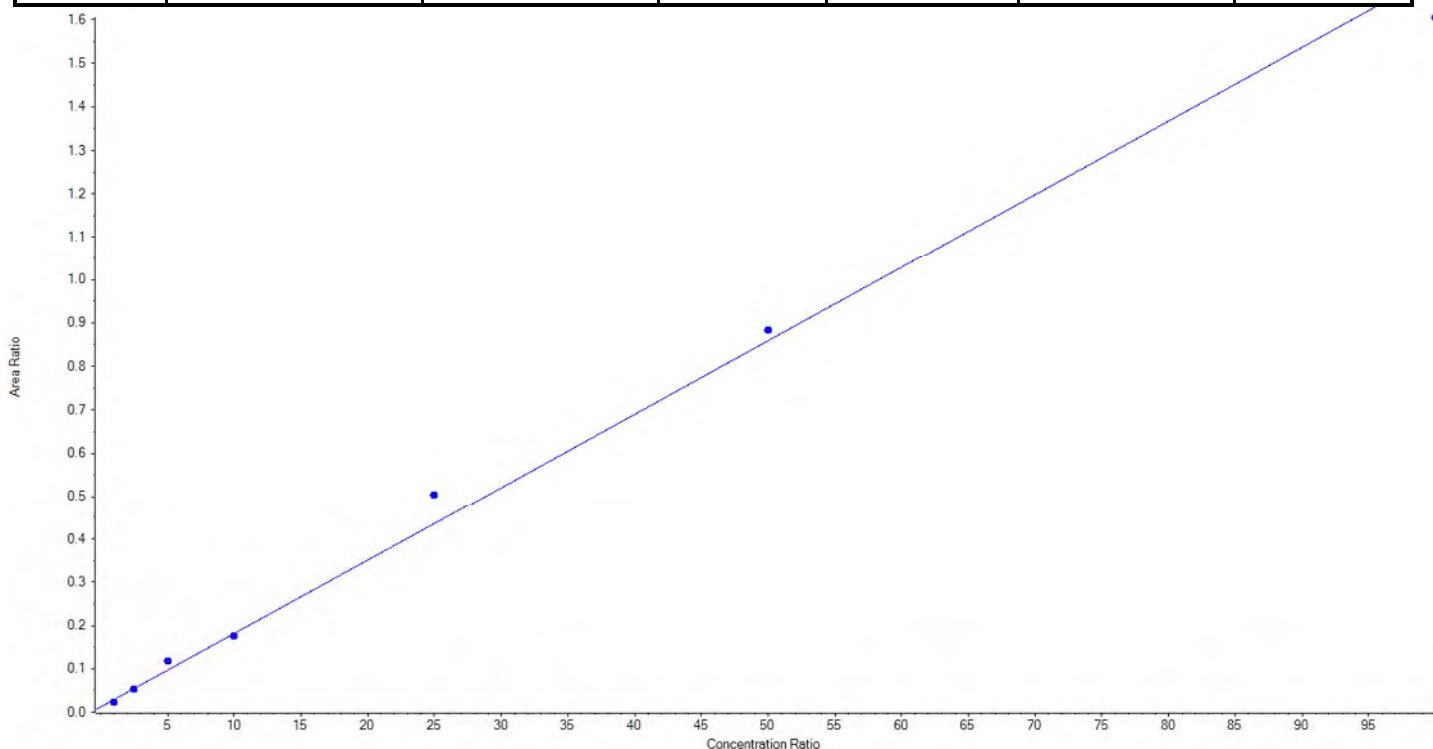
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	73.016068	73.0
5	JZ81	L4	True	250.00	261.130318	104.5
6	JZ82	L5	True	500.00	574.230055	114.9
7	JZ83	L6	True	1000.00	1005.928310	100.6
8	JZ84	L7	True	2500.00	2688.604760	107.5
9	JZ85	L8	True	5000.00	5207.786711	104.2
10	JZ86	L9	True	10000.00	9539.303778	95.4



<b>Analyte Name</b>	PFHpA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	363.0 / 169.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.01694 x + 0.01216$  (r = 0.99569) (weighting: 1 / x)

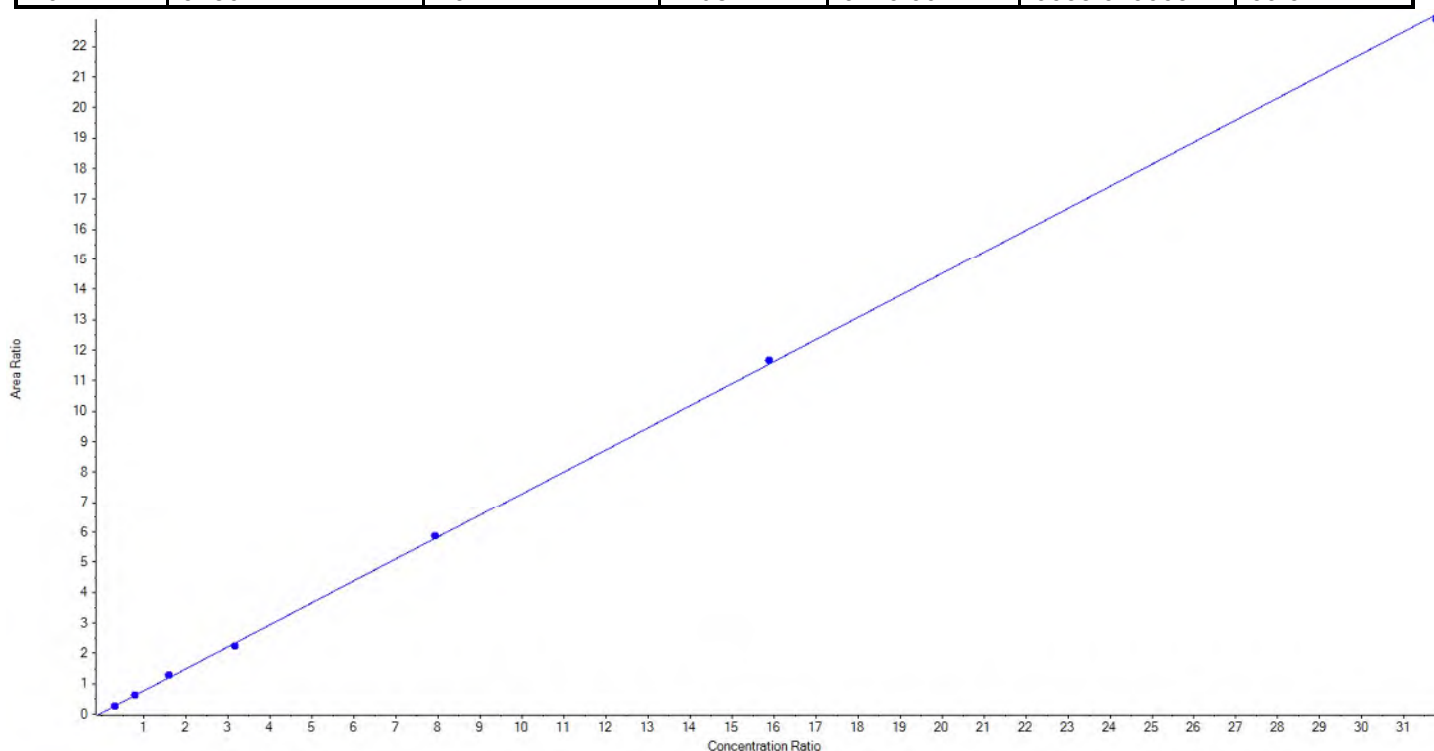
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	70.272325	70.3
5	JZ81	L4	True	250.00	239.260354	95.7
6	JZ82	L5	True	500.00	619.165193	123.8
7	JZ83	L6	True	1000.00	971.164630	97.1
8	JZ84	L7	True	2500.00	2905.414878	116.2
9	JZ85	L8	True	5000.00	5141.021060	102.8
10	JZ86	L9	True	10000.00	9403.701561	94.0



<b>Analyte Name</b>	PFHxS_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	399.0 / 80.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.72416x + 0.03976$  (r = 0.99978) (weighting: 1 / x)

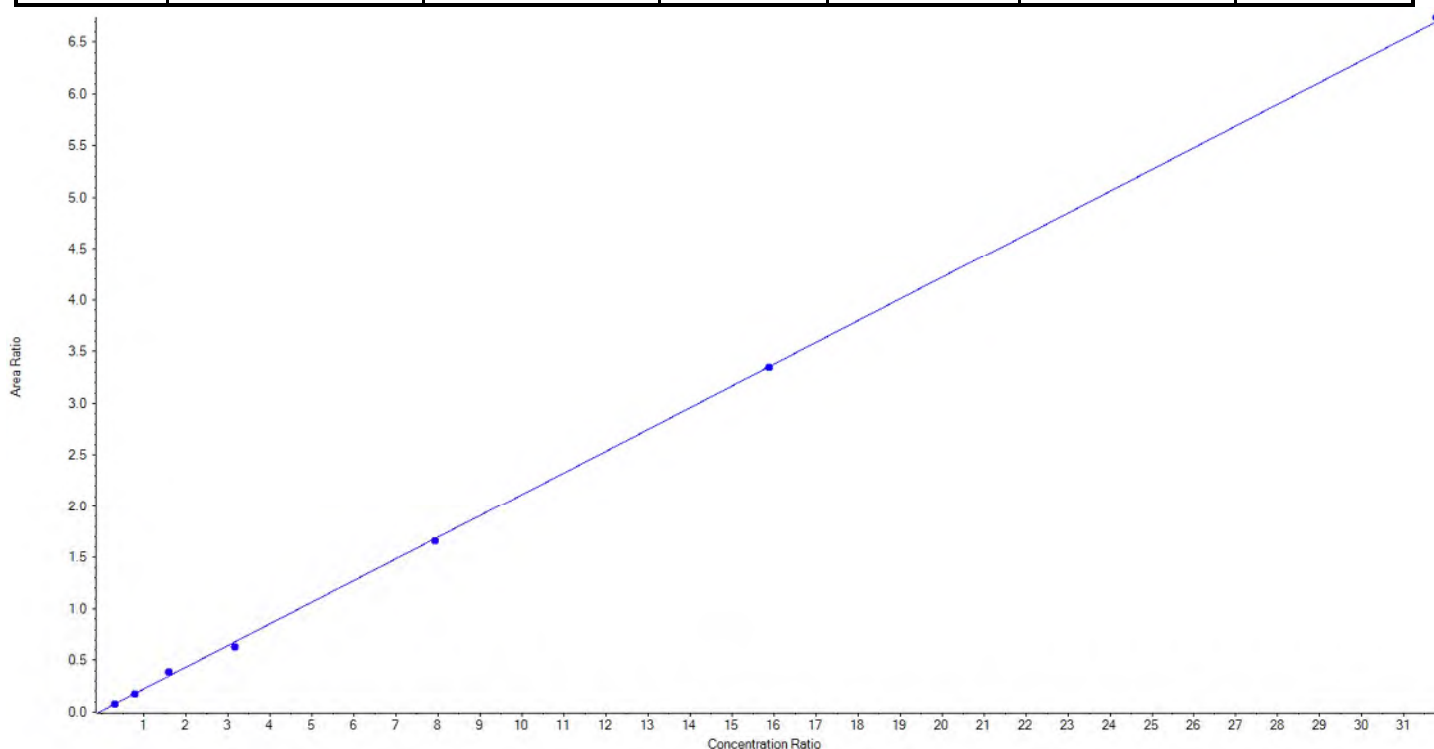
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	83.545773	91.6
5	JZ81	L4	True	228.00	236.640313	103.8
6	JZ82	L5	True	456.00	490.800076	107.6
7	JZ83	L6	True	912.00	872.158270	95.6
8	JZ84	L7	True	2280.00	2303.866920	101.1
9	JZ85	L8	True	4560.00	4606.569585	101.0
10	JZ86	L9	True	9120.00	9053.619063	99.3



<b>Analyte Name</b>	PFHxS_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	399.0 / 99.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.21033 x + 0.01337$  (r = 0.99964) (weighting: 1 / x)

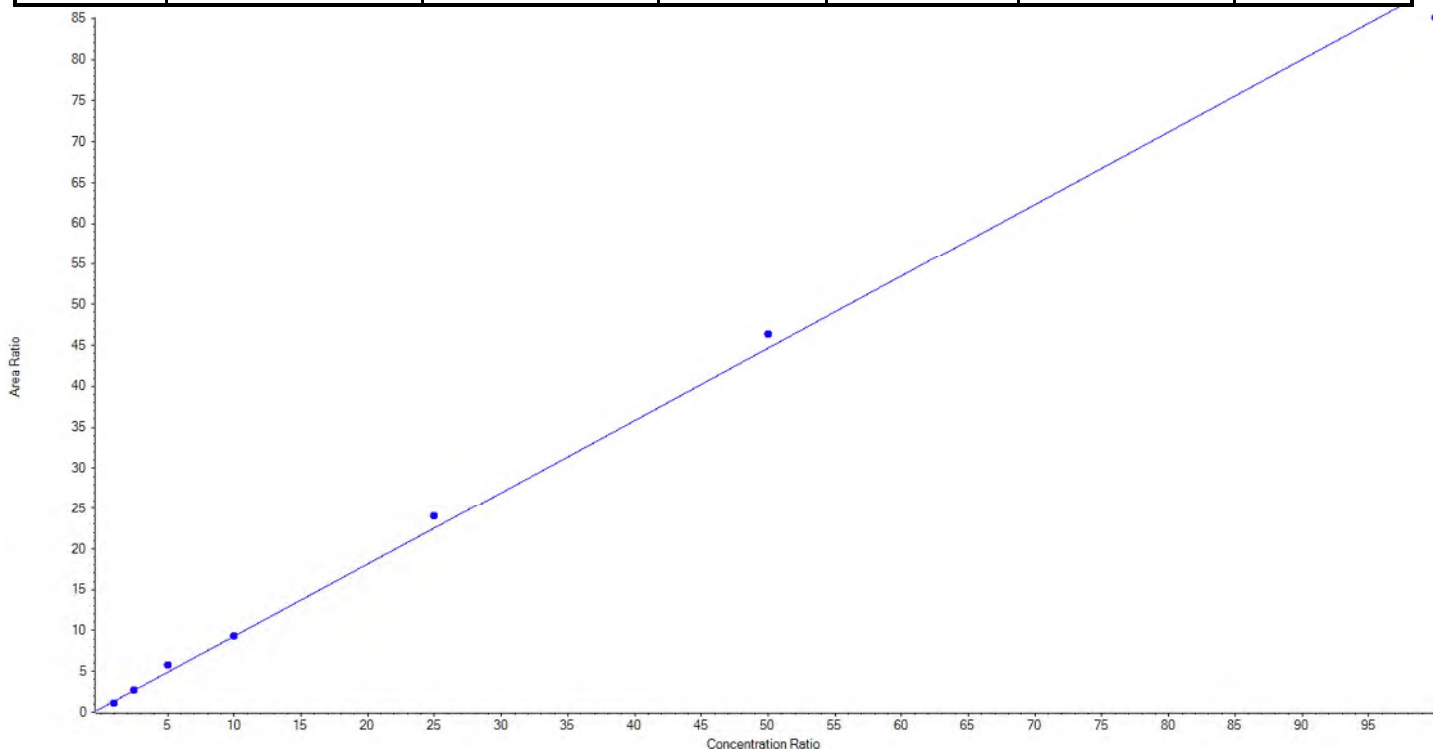
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	89.539693	98.2
5	JZ81	L4	True	228.00	224.603434	98.5
6	JZ82	L5	True	456.00	506.958424	111.2
7	JZ83	L6	True	912.00	847.353462	92.9
8	JZ84	L7	True	2280.00	2253.455709	98.8
9	JZ85	L8	True	4560.00	4550.078070	99.8
10	JZ86	L9	True	9120.00	9175.211206	100.6



<b>Analyte Name</b>	PFOA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	413.0 / 369.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.88380 x + 0.45664$  (r = 0.99819) (weighting: 1 / x)

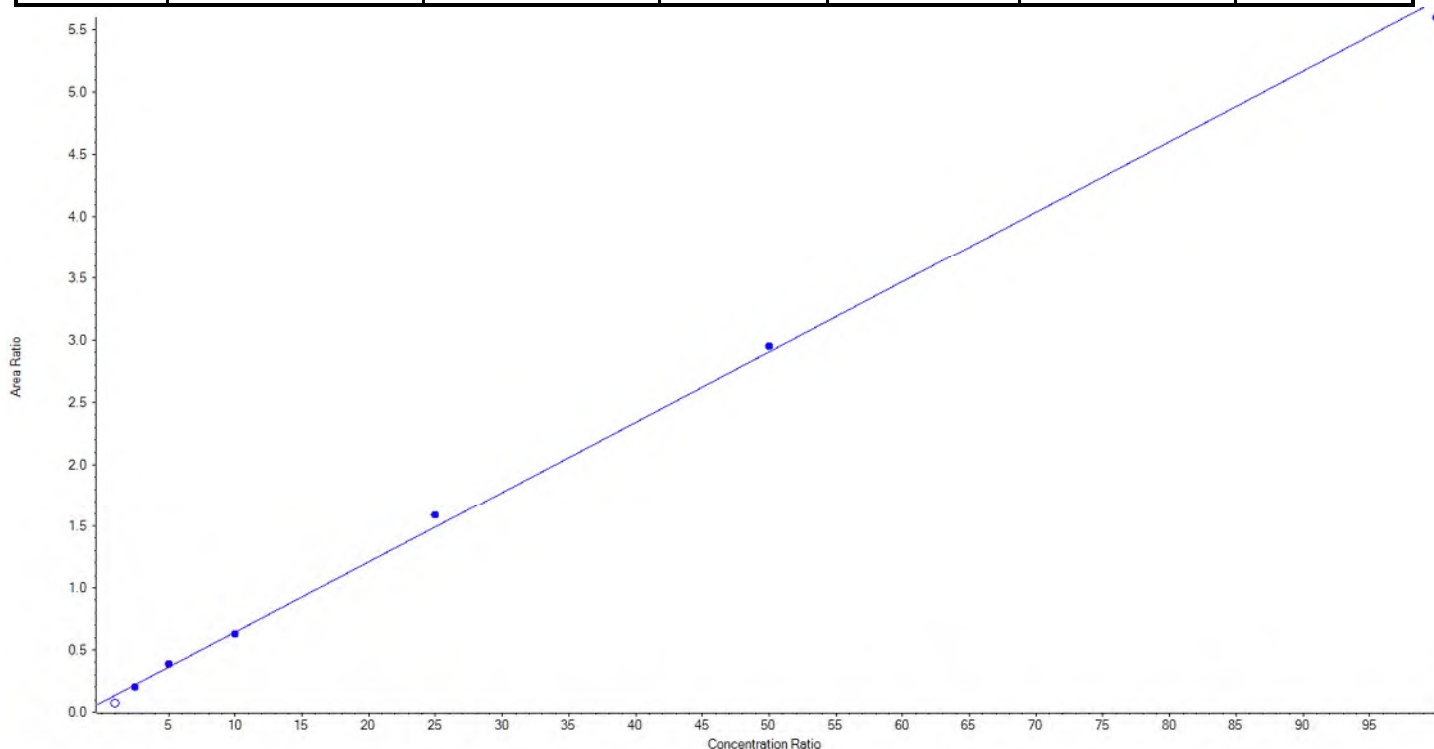
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	75.344758	75.3
5	JZ81	L4	True	250.00	248.563445	99.4
6	JZ82	L5	True	500.00	595.816684	119.2
7	JZ83	L6	True	1000.00	999.884858	100.0
8	JZ84	L7	True	2500.00	2662.530234	106.5
9	JZ85	L8	True	5000.00	5189.823202	103.8
10	JZ86	L9	True	10000.00	9578.036819	95.8



<b>Analyte Name</b>	PFOA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	413.0 / 169.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05655x + 0.07872$  (r = 0.99909) (weighting: 1 / x)

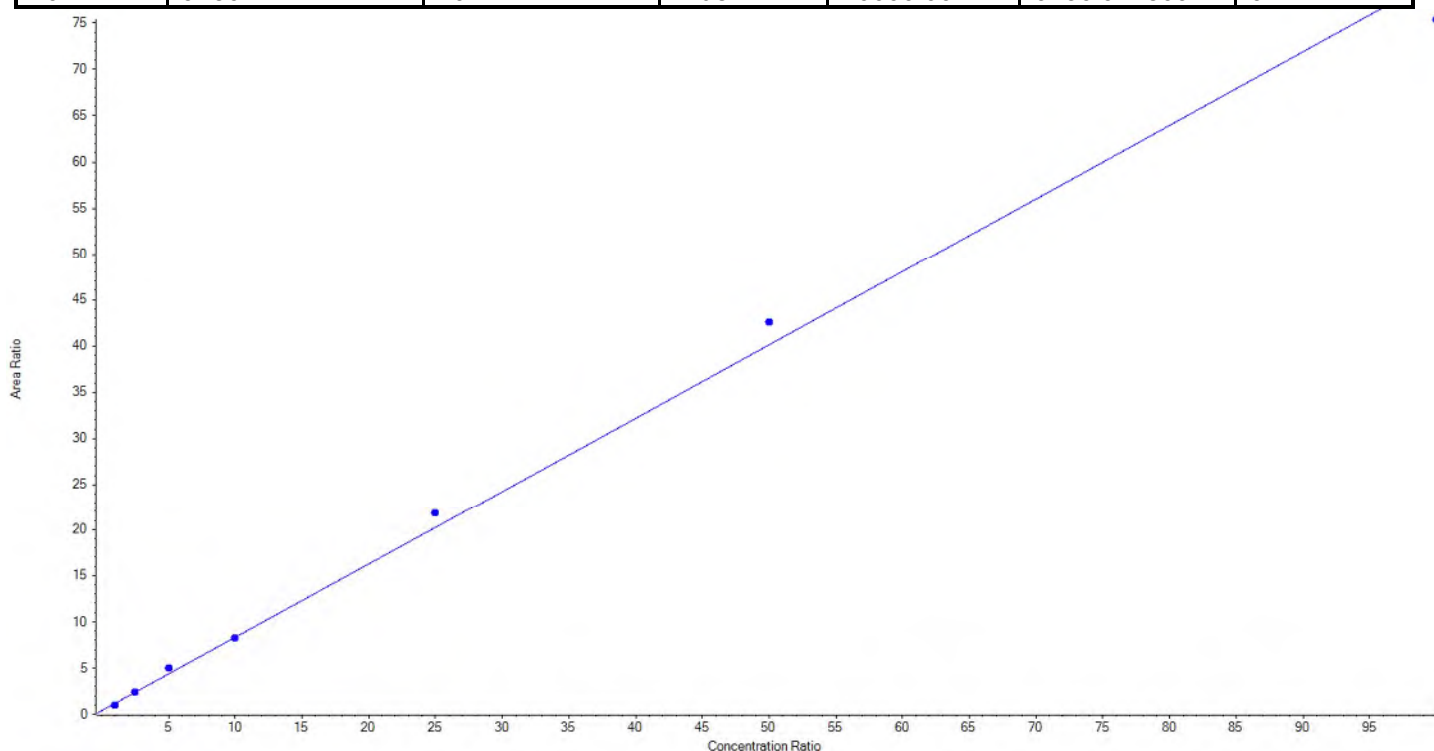
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	220.206466	88.1
6	JZ82	L5	True	500.00	542.585785	108.5
7	JZ83	L6	True	1000.00	973.653818	97.4
8	JZ84	L7	True	2500.00	2667.533138	106.7
9	JZ85	L8	True	5000.00	5087.334111	101.8
10	JZ86	L9	True	10000.00	9758.686681	97.6



<b>Analyte Name</b>	PFNA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	463.0 / 419.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.79456 x + 0.38579$  (r = 0.99739) (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	73.842400	73.8
5	JZ81	L4	True	250.00	253.735140	101.5
6	JZ82	L5	True	500.00	583.193244	116.6
7	JZ83	L6	True	1000.00	996.921572	99.7
8	JZ84	L7	True	2500.00	2692.800630	107.7
9	JZ85	L8	True	5000.00	5312.564204	106.3
10	JZ86	L9	True	10000.00	9436.942809	94.4

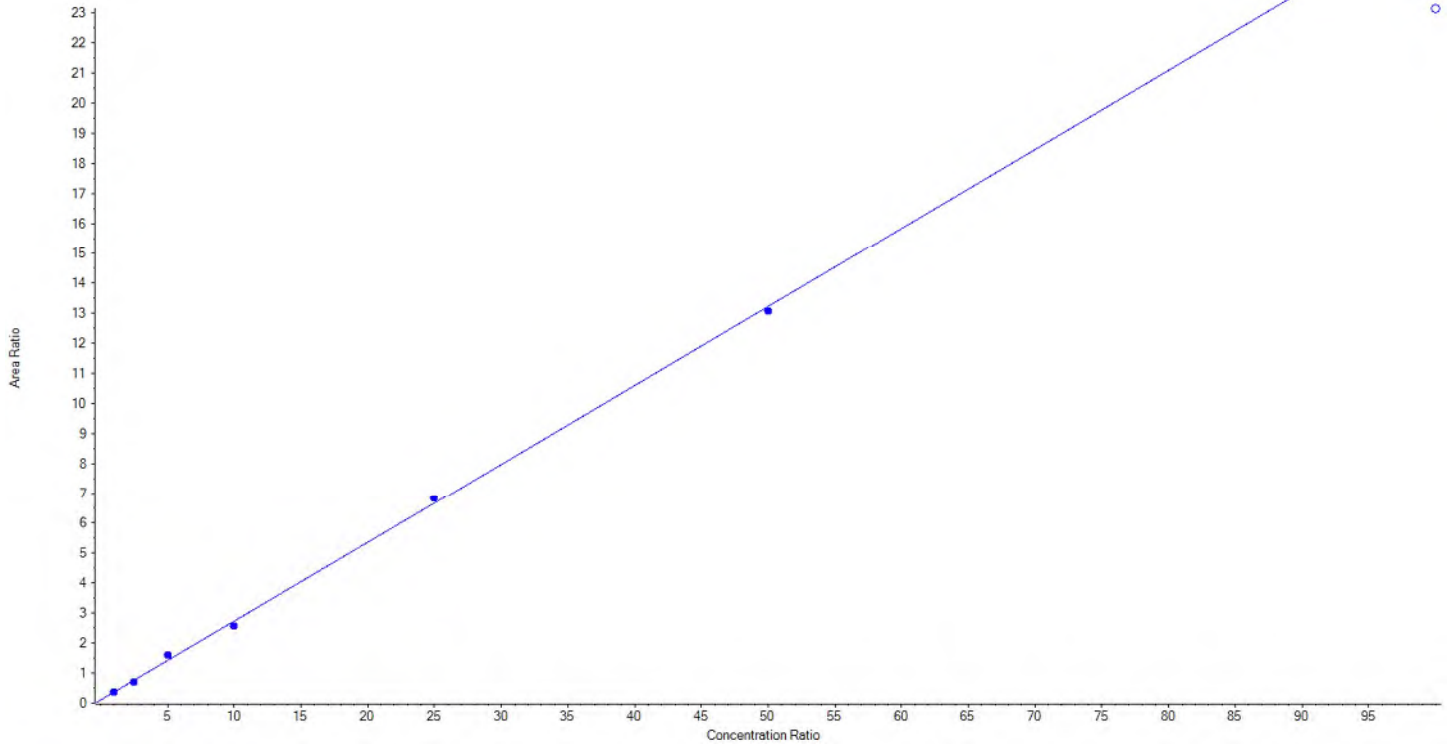




<b>Analyte Name</b>	PFNA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	463.0 / 219.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.26245x + 0.10725$  (r = 0.99871) (weighting: 1 / x)

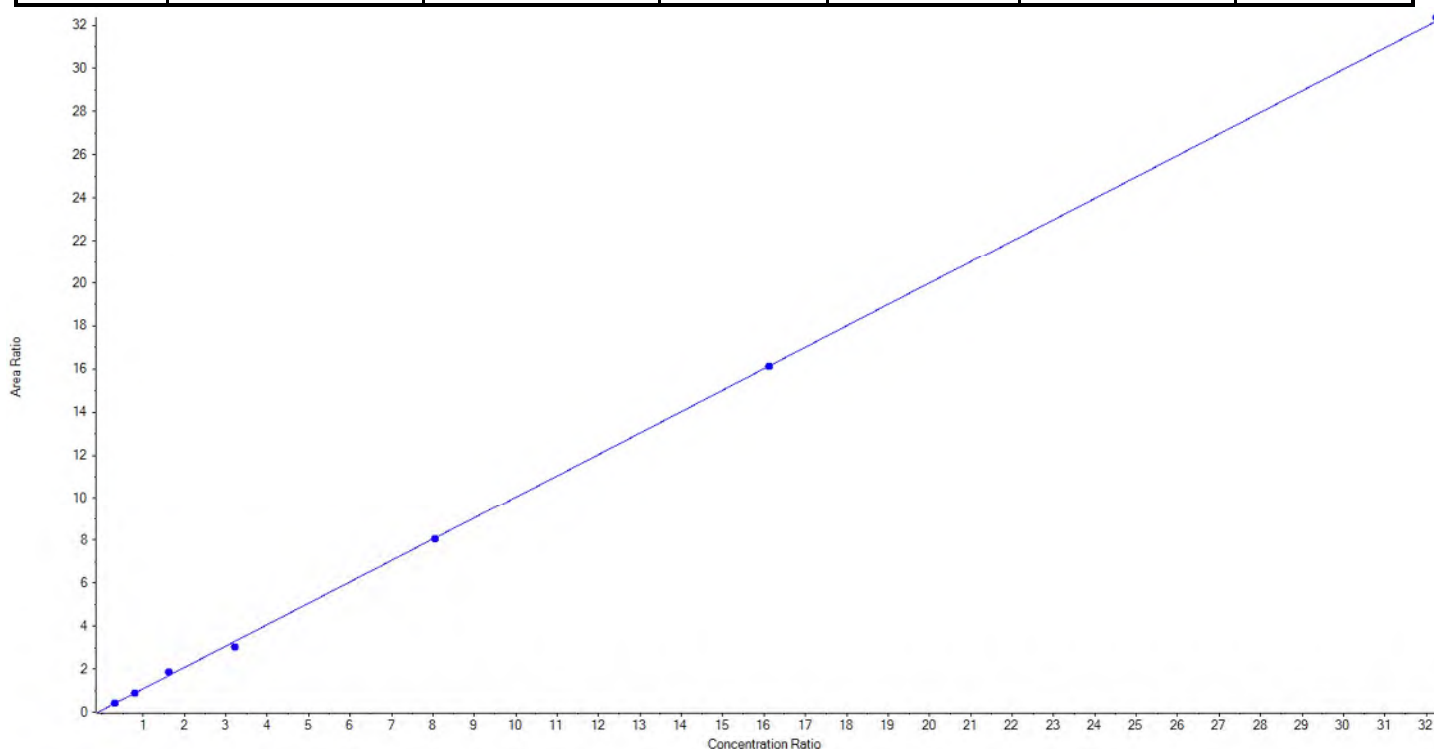
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	98.915434	98.9
5	JZ81	L4	True	250.00	225.999392	90.4
6	JZ82	L5	True	500.00	574.910926	115.0
7	JZ83	L6	True	1000.00	943.227550	94.3
8	JZ84	L7	True	2500.00	2562.046738	102.5
9	JZ85	L8	True	5000.00	4944.899960	98.9
10	JZ86	L9	False	10000.00	8779.689356	87.8



<b>Analyte Name</b>	PFOS_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	499.0 / 80.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.99547 x + 0.08965$  (r = 0.99963) (weighting: 1 / x)

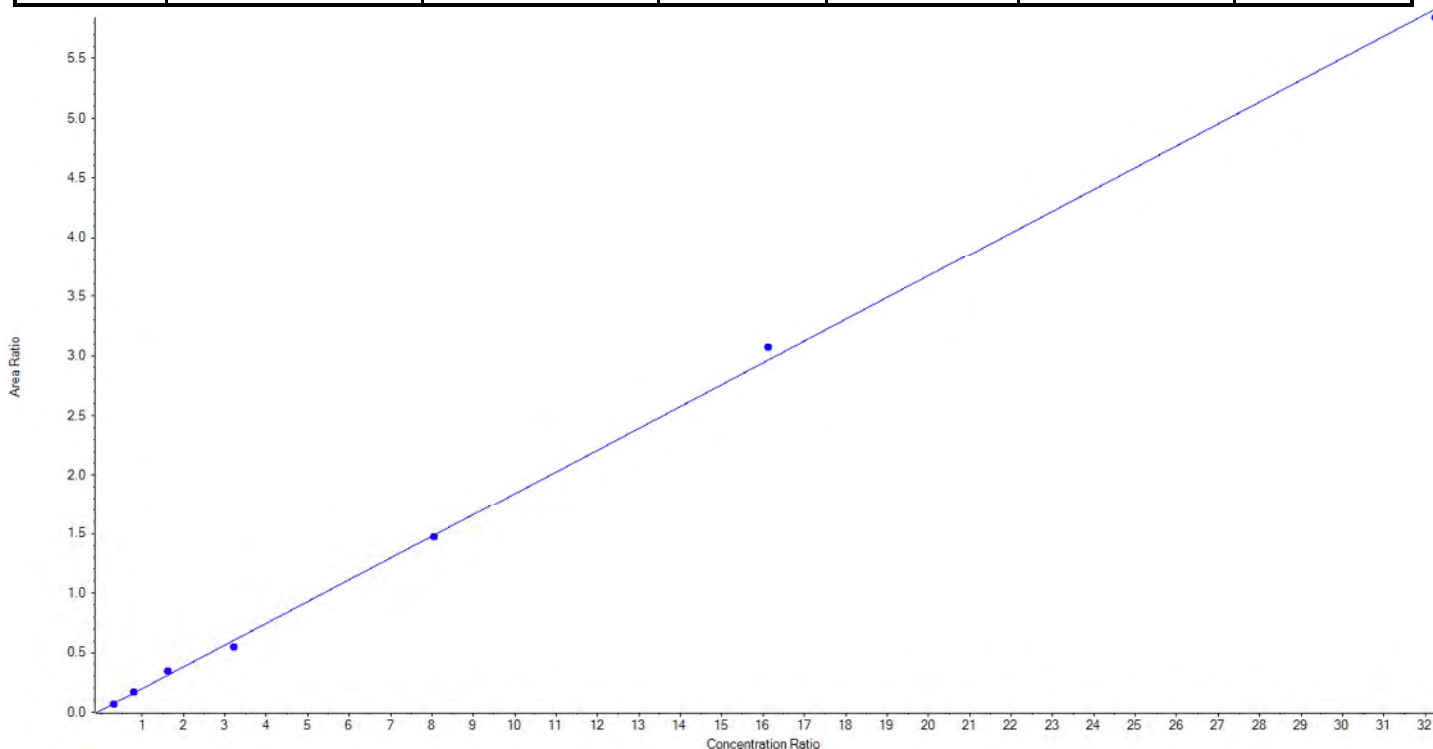
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	92.60	90.074645	97.3
5	JZ81	L4	True	231.50	233.560454	100.9
6	JZ82	L5	True	463.00	509.926226	110.1
7	JZ83	L6	True	925.60	850.198897	91.9
8	JZ84	L7	True	2314.00	2300.749587	99.4
9	JZ85	L8	True	4628.00	4624.747250	99.9
10	JZ86	L9	True	9256.00	9301.442940	100.5



<b>Analyte Name</b>	PFOS_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	499.0 / 99.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.18289x + 0.01429$  (r = 0.99916) (weighting: 1 / x)

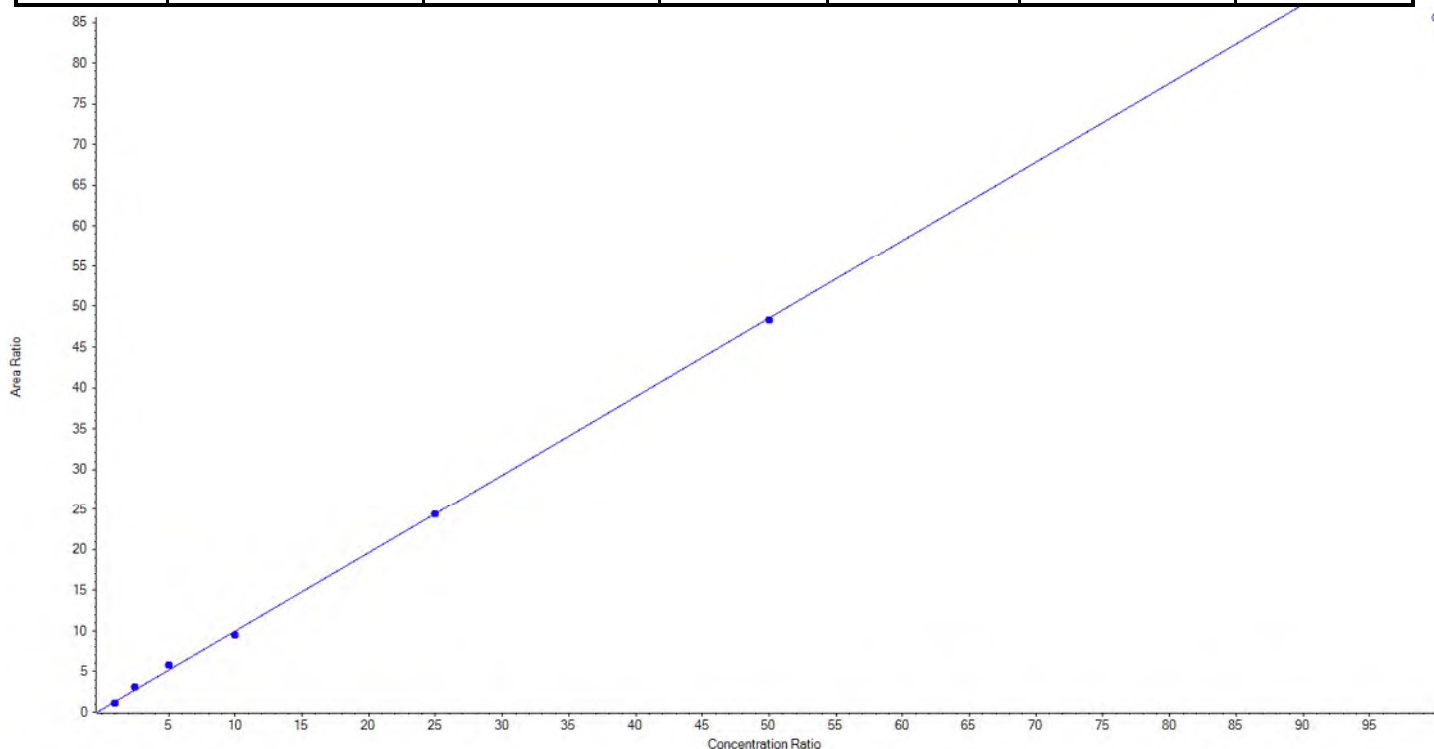
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	92.60	85.330602	92.2
5	JZ81	L4	True	231.50	239.054912	103.3
6	JZ82	L5	True	463.00	523.798062	113.1
7	JZ83	L6	True	925.60	835.646773	90.3
8	JZ84	L7	True	2314.00	2283.143402	98.7
9	JZ85	L8	True	4628.00	4800.356255	103.7
10	JZ86	L9	True	9256.00	9143.369993	98.8



<b>Analyte Name</b>	PFDA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	513.0 / 469.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.96480x + 0.33130$  ( $r = 0.99876$ ) (weighting: 1 / x)

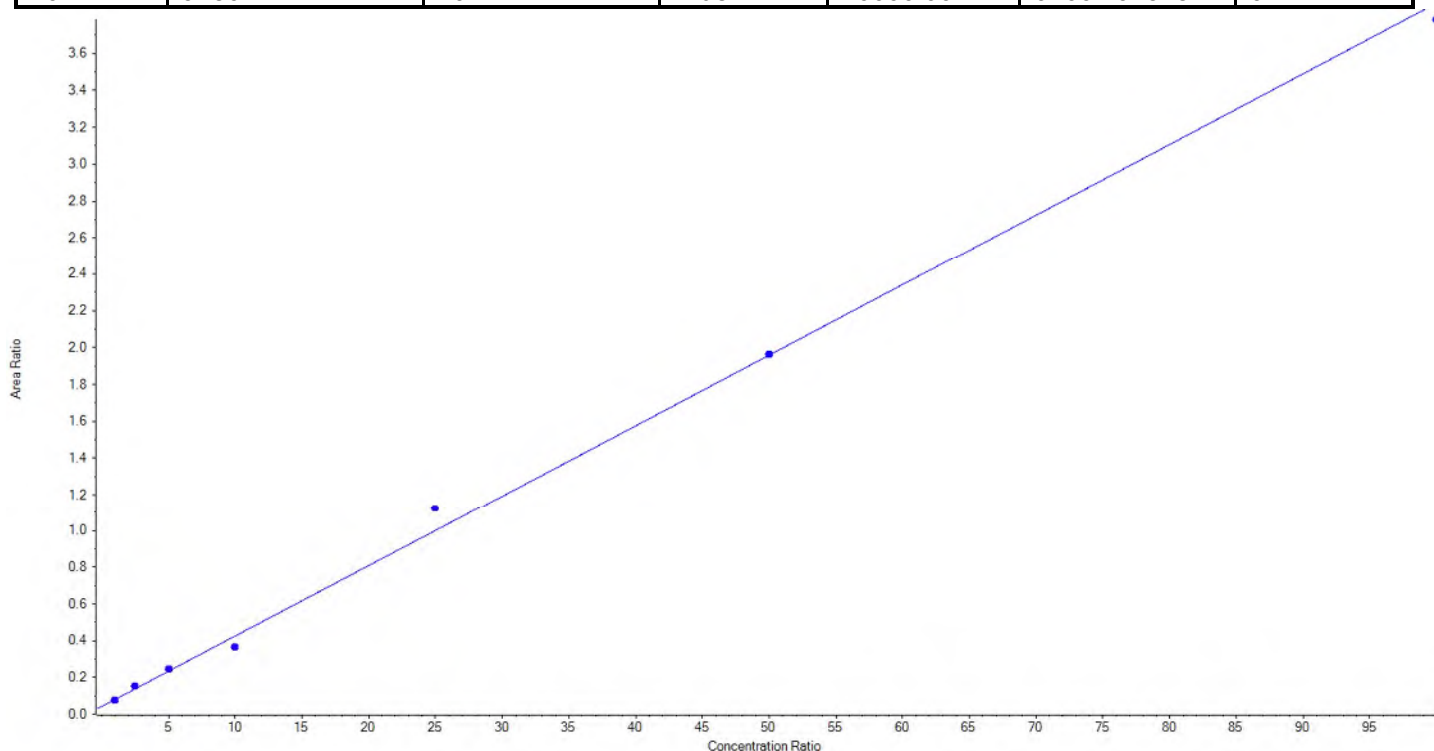
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	80.106807	80.1
5	JZ81	L4	True	250.00	280.729423	112.3
6	JZ82	L5	True	500.00	563.698304	112.7
7	JZ83	L6	True	1000.00	954.476766	95.5
8	JZ84	L7	True	2500.00	2499.715620	100.0
9	JZ85	L8	True	5000.00	4971.273080	99.4
10	JZ86	L9	False	10000.00	8834.017081	88.3



<b>Analyte Name</b>	PFDA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	513.0 / 219.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.03832 x + 0.04215$  (r = 0.99749) (weighting: 1 / x)

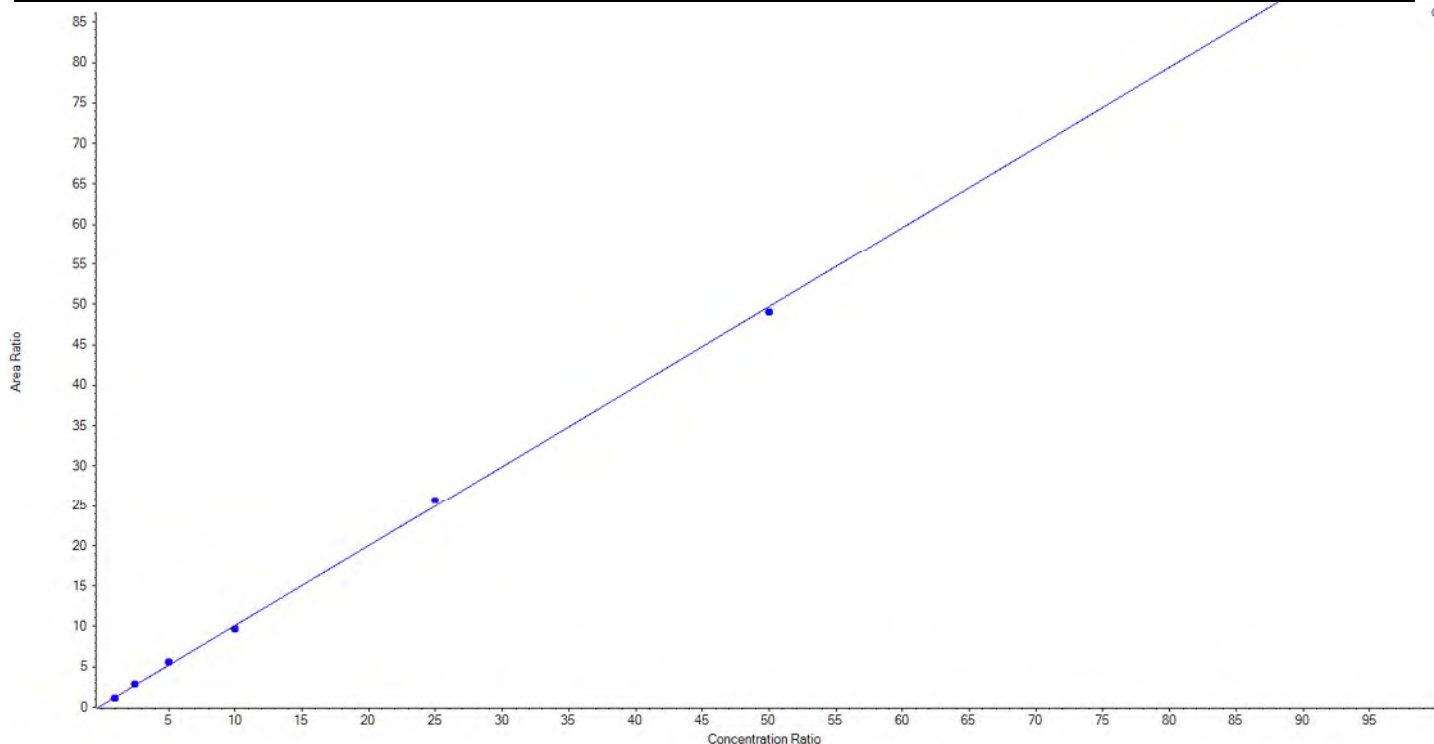
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	82.659189	82.7
5	JZ81	L4	True	250.00	291.516310	116.6
6	JZ82	L5	True	500.00	526.038890	105.2
7	JZ83	L6	True	1000.00	845.483275	84.6
8	JZ84	L7	True	2500.00	2828.003878	113.1
9	JZ85	L8	True	5000.00	5009.504139	100.2
10	JZ86	L9	True	10000.00	9766.794318	97.7



<b>Analyte Name</b>	PFUnA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	563.0 / 519.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.98972 x + 0.23163$  (r = 0.99936) (weighting: 1 / x)

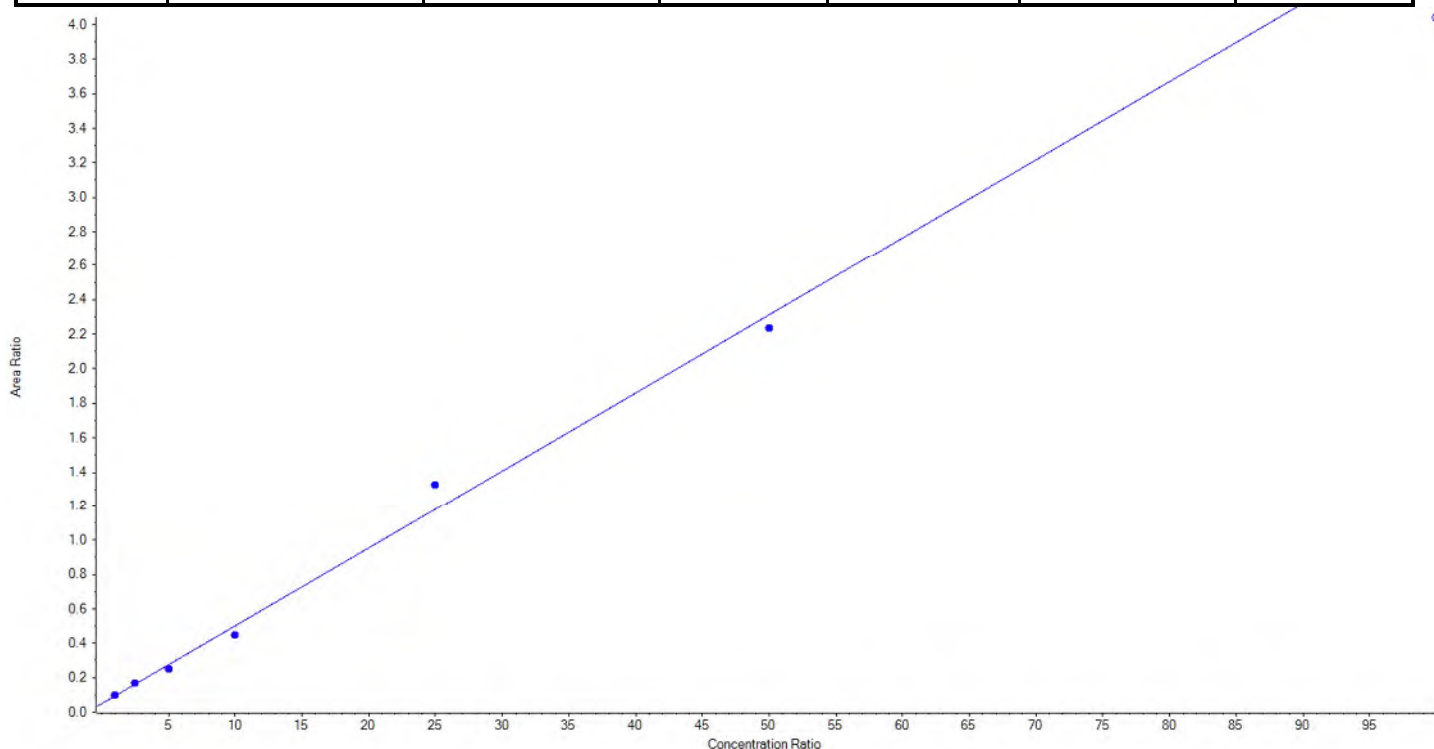
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	90.745593	90.8
5	JZ81	L4	True	250.00	261.466823	104.6
6	JZ82	L5	True	500.00	537.055487	107.4
7	JZ83	L6	True	1000.00	956.627338	95.7
8	JZ84	L7	True	2500.00	2575.587569	103.0
9	JZ85	L8	True	5000.00	4928.517189	98.6
10	JZ86	L9	False	10000.00	8681.593682	86.8



<b>Analyte Name</b>	PFUnA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	563.0 / 269.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04526 x + 0.04900$  (r = 0.99522) (weighting: 1 / x)

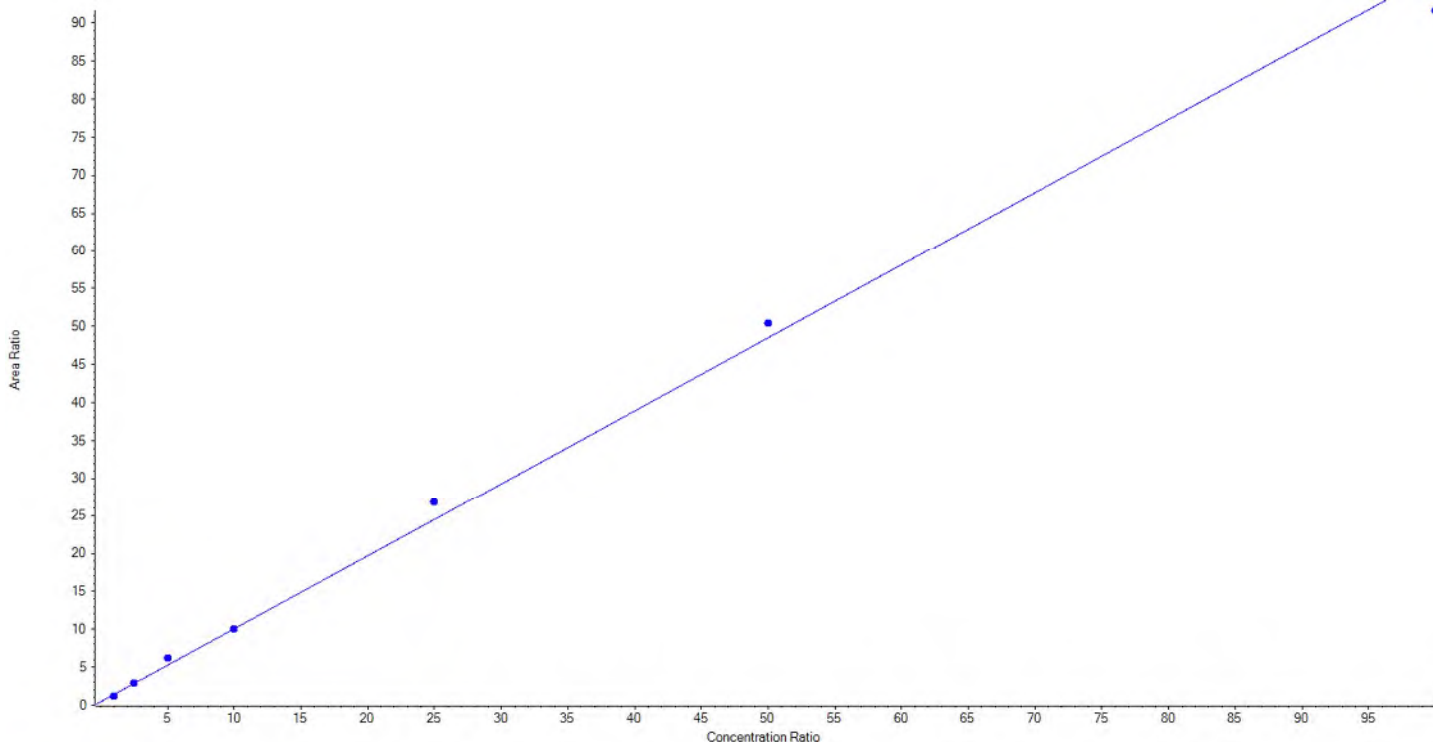
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	108.896169	108.9
5	JZ81	L4	True	250.00	263.189166	105.3
6	JZ82	L5	True	500.00	440.534454	88.1
7	JZ83	L6	True	1000.00	881.098760	88.1
8	JZ84	L7	True	2500.00	2824.288451	113.0
9	JZ85	L8	True	5000.00	4831.993000	96.6
10	JZ86	L9	False	10000.00	8817.375193	88.2



<b>Analyte Name</b>	PFD <sub>o</sub> A_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	613.0 / 569.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.96118x + 0.45533$  (r = 0.99745) (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	70.165430	70.2
5	JZ81	L4	True	250.00	255.545507	102.2
6	JZ82	L5	True	500.00	595.482174	119.1
7	JZ83	L6	True	1000.00	999.847927	100.0
8	JZ84	L7	True	2500.00	2741.086918	109.6
9	JZ85	L8	True	5000.00	5201.294237	104.0
10	JZ86	L9	True	10000.00	9486.577807	94.9

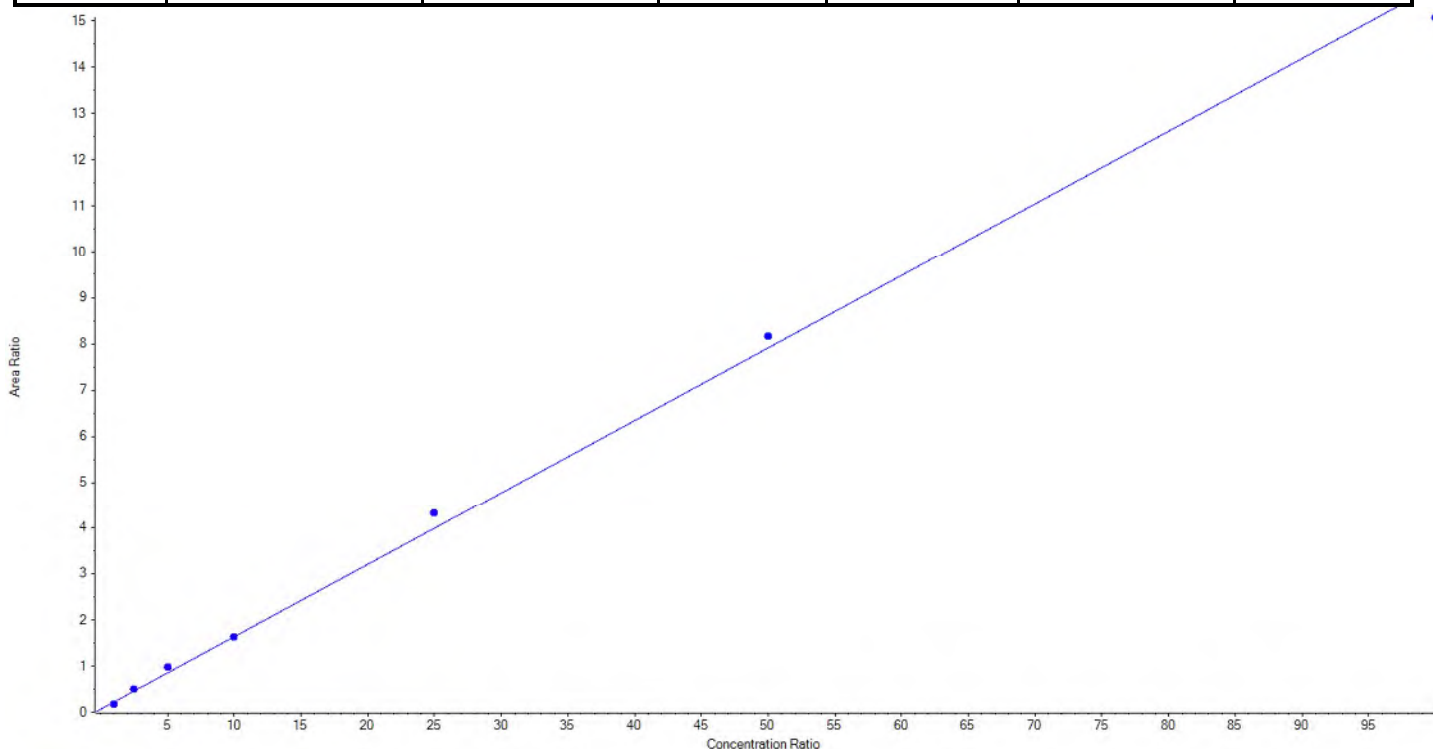




<b>Analyte Name</b>	PFD <sub>o</sub> A_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	613.0 / 319.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.15690x + 0.06506$  (r = 0.99787) (weighting: 1 / x)

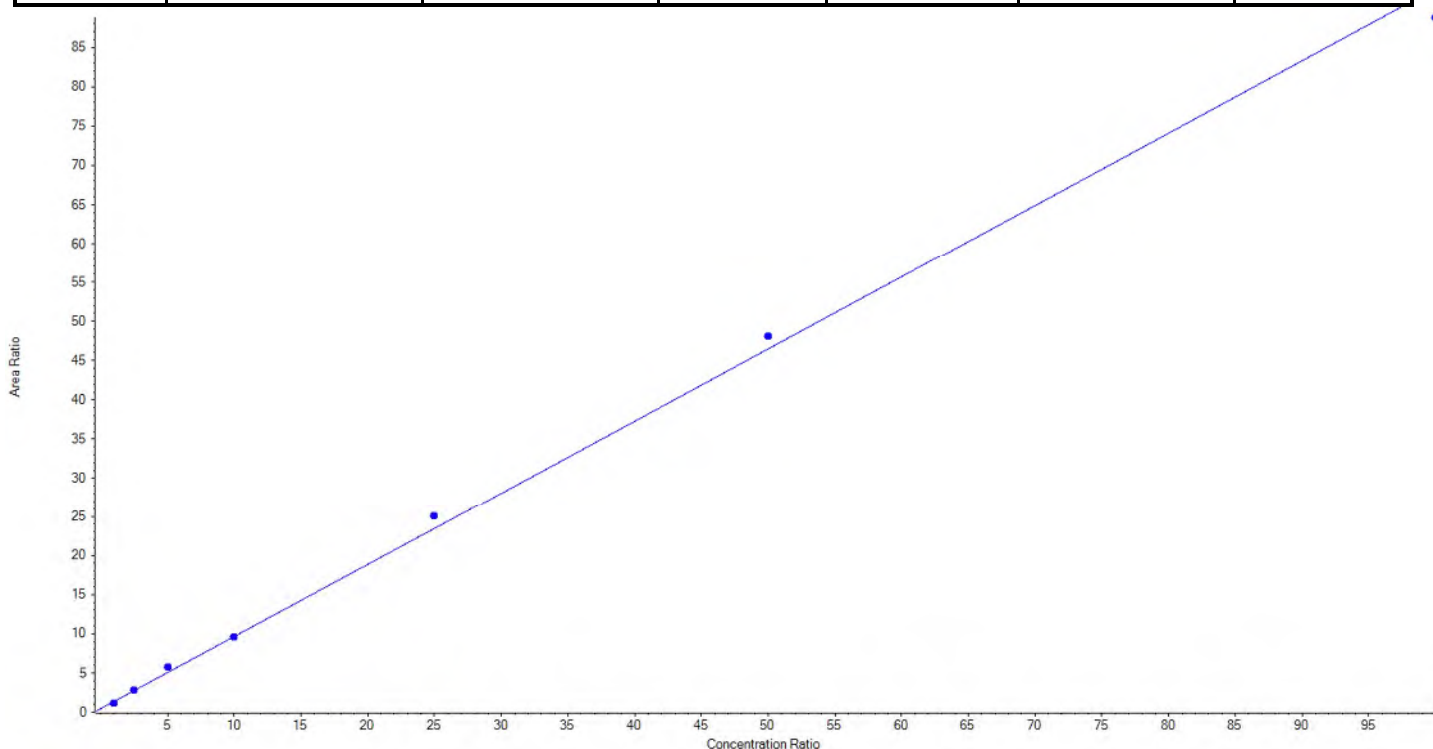
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	65.429332	65.4
5	JZ81	L4	True	250.00	279.451874	111.8
6	JZ82	L5	True	500.00	582.305679	116.5
7	JZ83	L6	True	1000.00	991.062905	99.1
8	JZ84	L7	True	2500.00	2710.804043	108.4
9	JZ85	L8	True	5000.00	5158.086891	103.2
10	JZ86	L9	True	10000.00	9562.859276	95.6



<b>Analyte Name</b>	PFTTrDA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	663.0 / 619.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.92044 x + 0.45193$  (r = 0.99838) (weighting: 1 / x)

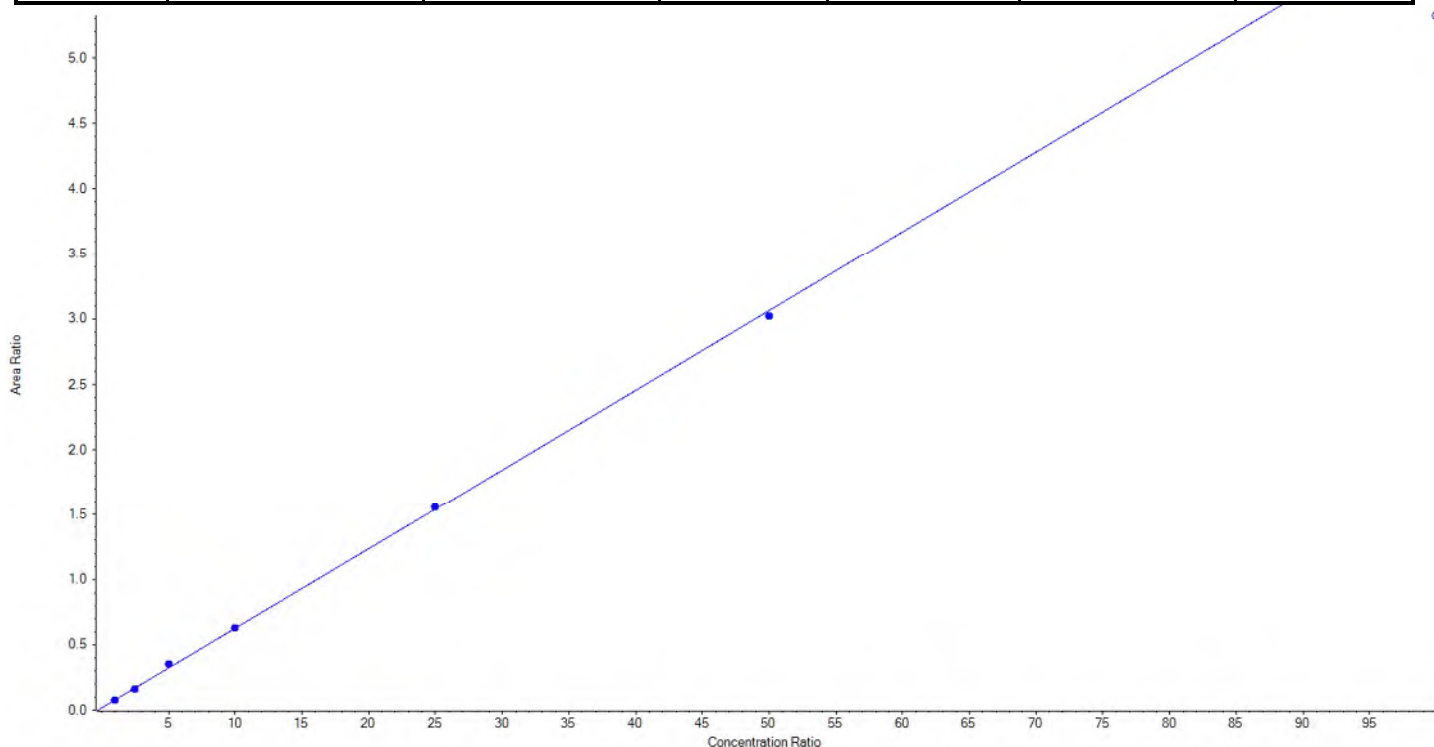
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	75.193967	75.2
5	JZ81	L4	True	250.00	256.669564	102.7
6	JZ82	L5	True	500.00	582.232667	116.5
7	JZ83	L6	True	1000.00	994.209819	99.4
8	JZ84	L7	True	2500.00	2670.073088	106.8
9	JZ85	L8	True	5000.00	5175.155953	103.5
10	JZ86	L9	True	10000.00	9596.464942	96.0



<b>Analyte Name</b>	PFTrDA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	663.0 / 169.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.06093x + 0.01745$  (r = 0.99946) (weighting: 1 / x)

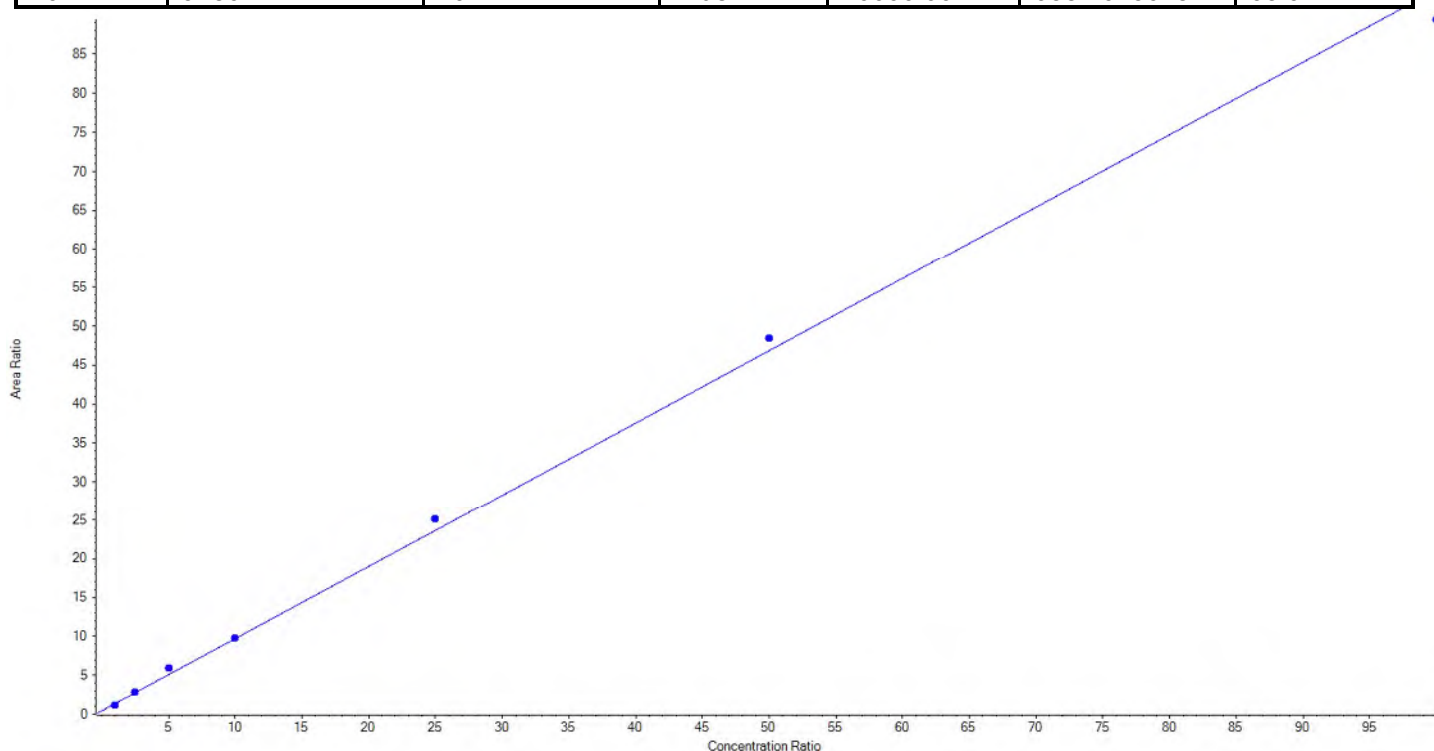
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	94.956102	95.0
5	JZ81	L4	True	250.00	235.261163	94.1
6	JZ82	L5	True	500.00	552.992832	110.6
7	JZ83	L6	True	1000.00	1005.695204	100.6
8	JZ84	L7	True	2500.00	2527.472597	101.1
9	JZ85	L8	True	5000.00	4933.622102	98.7
10	JZ86	L9	False	10000.00	8706.882200	87.1



<b>Analyte Name</b>	PFTeDA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	713.0 / 669.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.92843 x + 0.43240$  (r = 0.99832) (weighting: 1 / x)

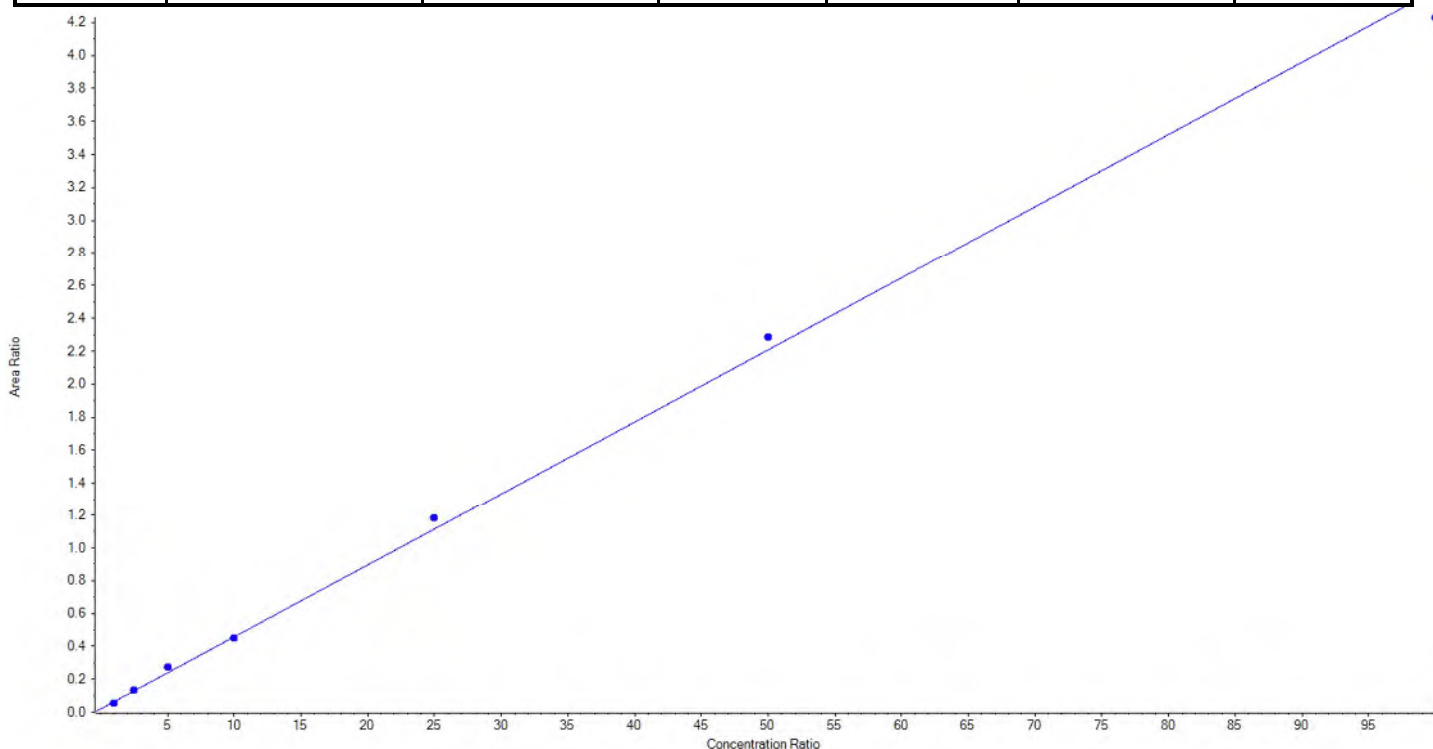
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	74.139371	74.1
5	JZ81	L4	True	250.00	252.243928	100.9
6	JZ82	L5	True	500.00	588.041720	117.6
7	JZ83	L6	True	1000.00	1015.343392	101.5
8	JZ84	L7	True	2500.00	2664.593960	106.6
9	JZ85	L8	True	5000.00	5168.023982	103.4
10	JZ86	L9	True	10000.00	9587.613648	95.9



<b>Analyte Name</b>	PFTeDA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	713.0 / 169.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04376 x + 0.01999$  (r = 0.99850) (weighting: 1 / x)

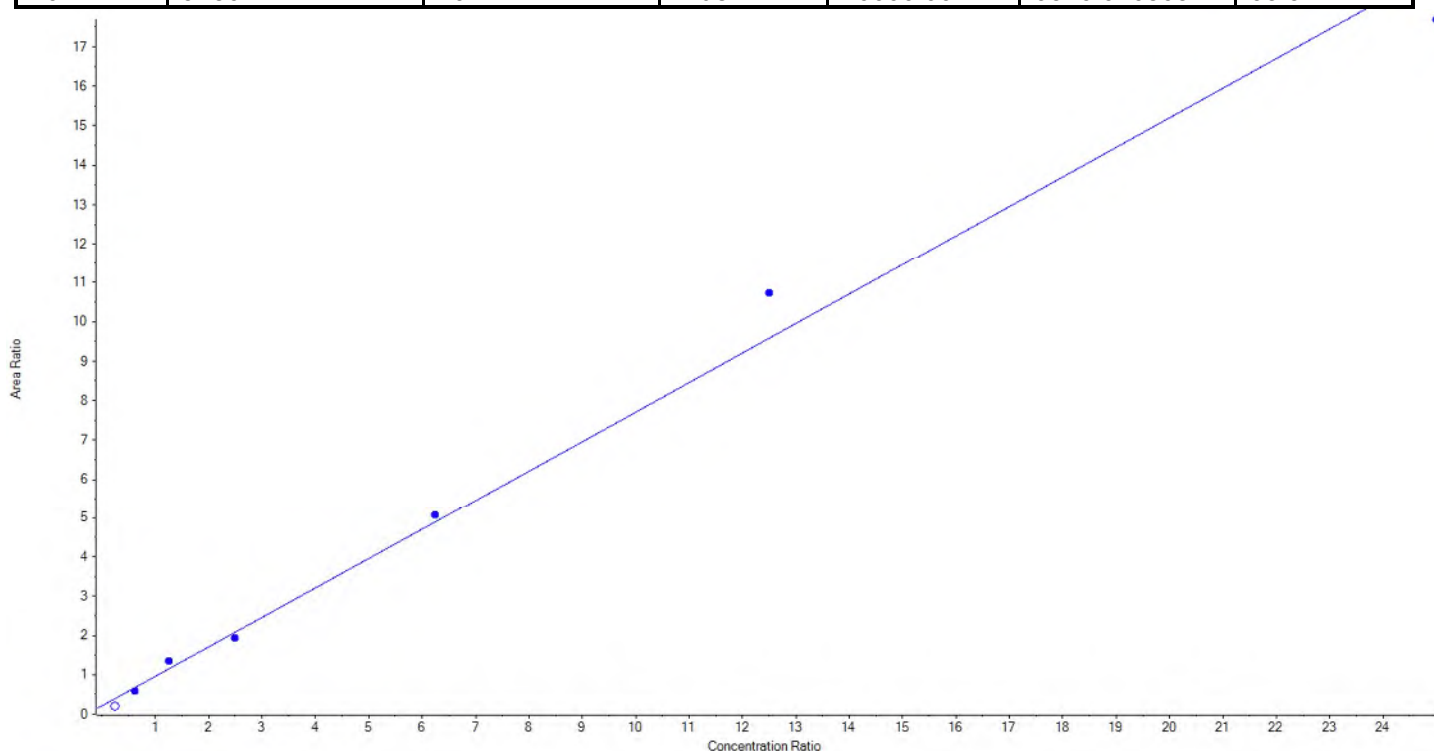
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	76.152455	76.2
5	JZ81	L4	True	250.00	259.120924	103.7
6	JZ82	L5	True	500.00	579.712333	115.9
7	JZ83	L6	True	1000.00	982.560002	98.3
8	JZ84	L7	True	2500.00	2656.578647	106.3
9	JZ85	L8	True	5000.00	5177.880651	103.6
10	JZ86	L9	True	10000.00	9617.994988	96.2



<b>Analyte Name</b>	NMeFOSAA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	570.0 / 419.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.74962x + 0.20963$  (r = 0.99451) (weighting: 1 / x)

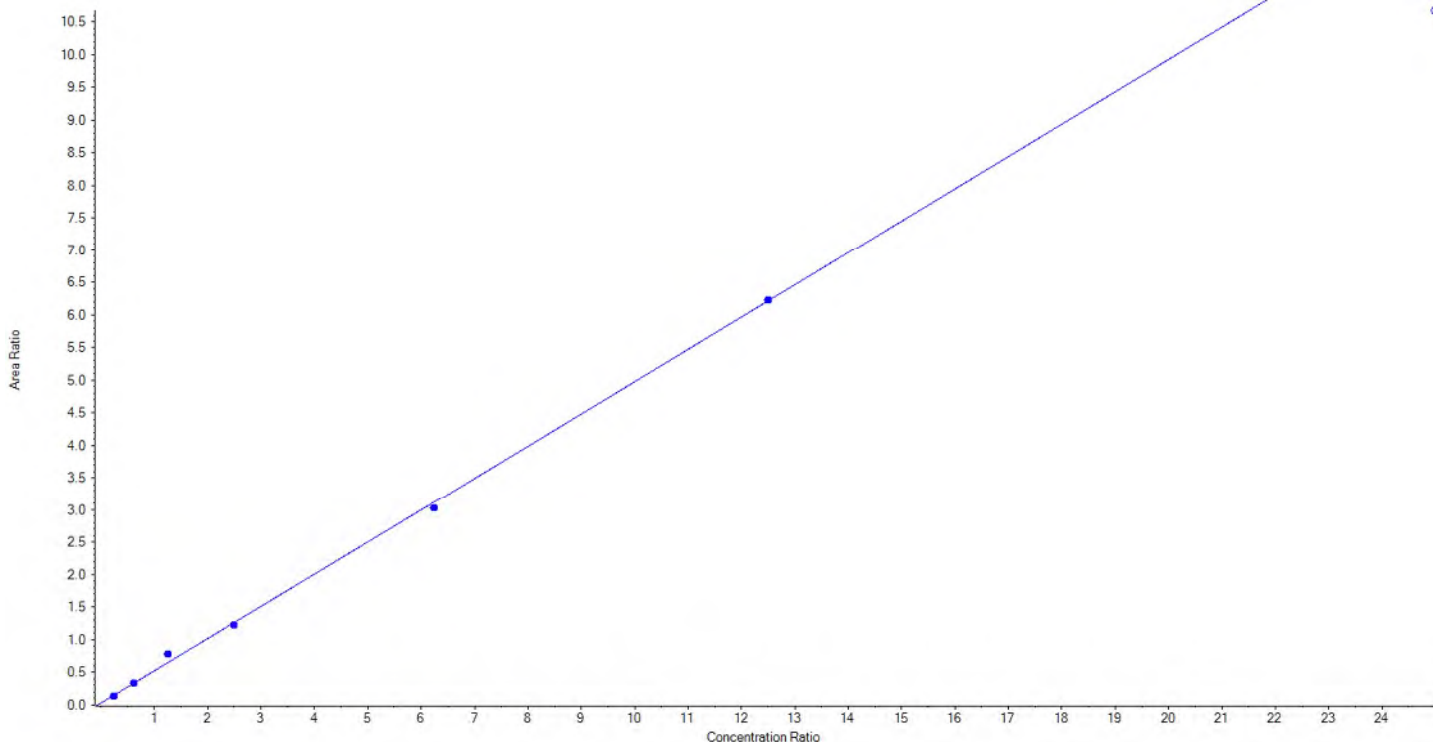
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	194.473724	77.8
6	JZ82	L5	True	500.00	602.255659	120.5
7	JZ83	L6	True	1000.00	926.843028	92.7
8	JZ84	L7	True	2500.00	2590.634631	103.6
9	JZ85	L8	True	5000.00	5609.176094	112.2
10	JZ86	L9	True	10000.00	9326.616863	93.3



<b>Analyte Name</b>	NMeFOSAA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	570.0 / 512.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.49493x + 0.03076$  (r = 0.99787) (weighting: 1 / x)

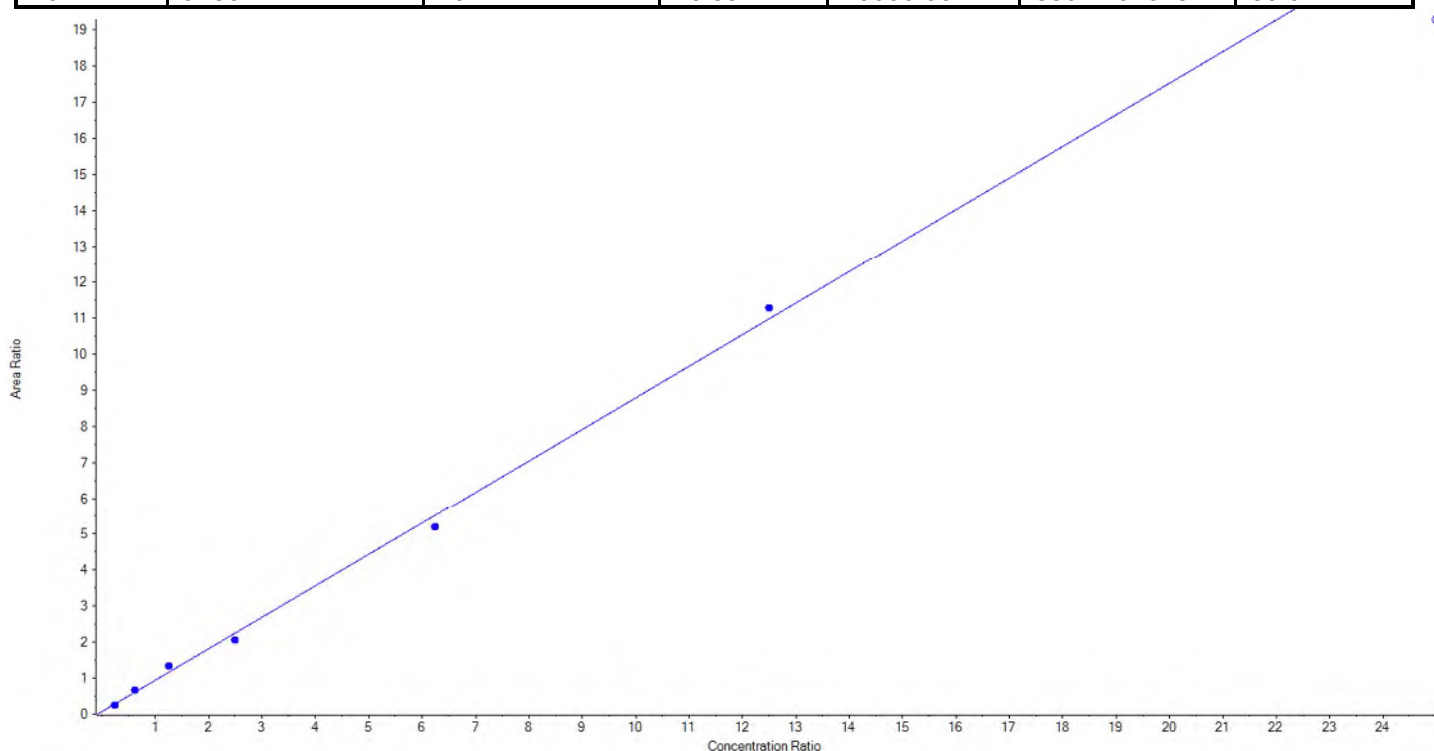
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	83.849866	83.9
5	JZ81	L4	True	250.00	249.432489	99.8
6	JZ82	L5	True	500.00	612.660544	122.5
7	JZ83	L6	True	1000.00	964.777836	96.5
8	JZ84	L7	True	2500.00	2429.083037	97.2
9	JZ85	L8	True	5000.00	5010.196228	100.2
10	JZ86	L9	False	10000.00	8603.598683	86.0



<b>Analyte Name</b>	NEtFOSAA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	584.0 / 419.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.87347 x + 0.06627$  (r = 0.99734) (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	84.758563	84.8
5	JZ81	L4	True	250.00	275.112837	110.1
6	JZ82	L5	True	500.00	583.472638	116.7
7	JZ83	L6	True	1000.00	917.942369	91.8
8	JZ84	L7	True	2500.00	2346.663317	93.9
9	JZ85	L8	True	5000.00	5142.050277	102.8
10	JZ86	L9	False	10000.00	8804.104625	88.0

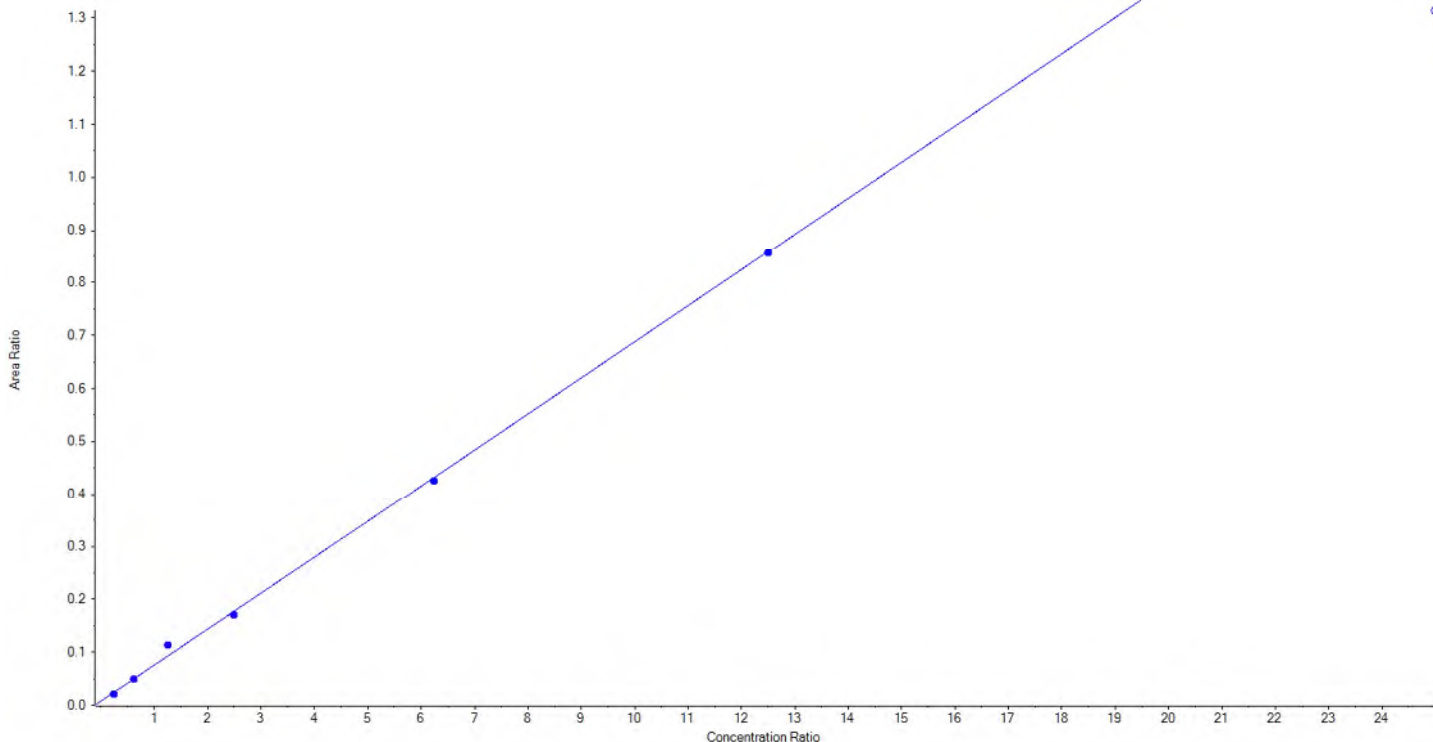




<b>Analyte Name</b>	NEtFOSAA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	584.0 / 483.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.06807 x + 0.00743$  (r = 0.99771) (weighting: 1 / x)

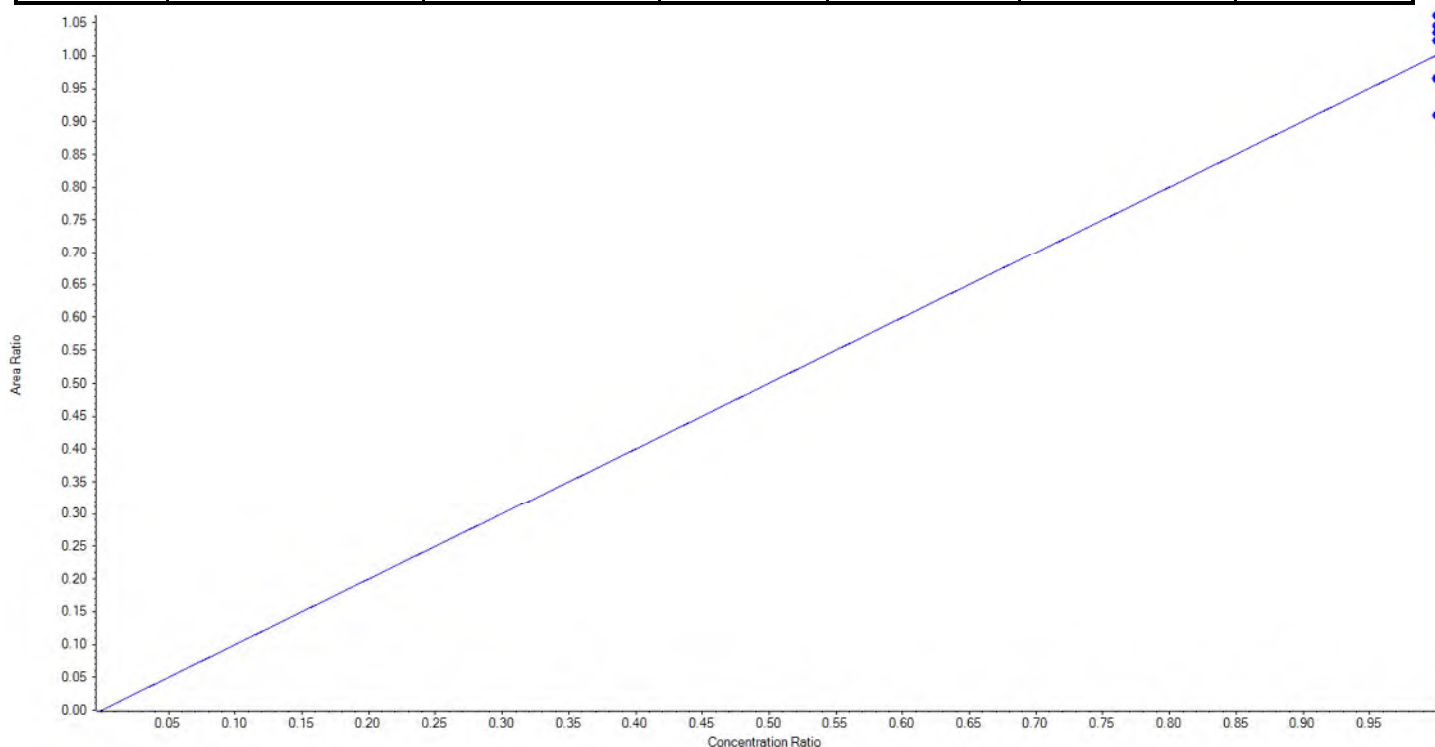
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	82.387514	82.4
5	JZ81	L4	True	250.00	249.755816	99.9
6	JZ82	L5	True	500.00	618.499663	123.7
7	JZ83	L6	True	1000.00	961.057859	96.1
8	JZ84	L7	True	2500.00	2456.922918	98.3
9	JZ85	L8	True	5000.00	4981.376230	99.6
10	JZ86	L9	False	10000.00	7676.823562	76.8



<b>Analyte Name</b>	13C2-PFHxA	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	315.0 / 270.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.00047 x$  (std. dev. = 0.05493) (weighting: 1 / x)

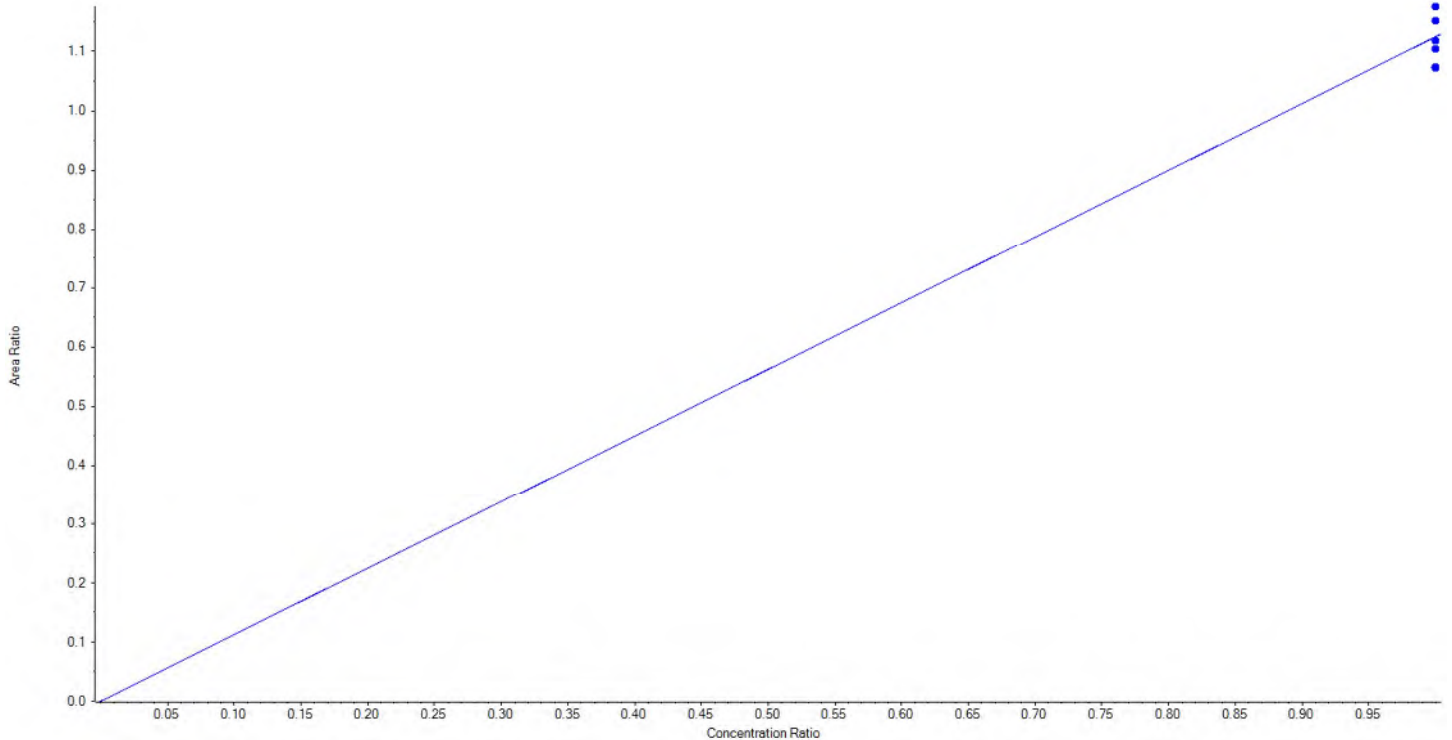
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	96.439494	96.4
5	JZ81	L4	True	100.00	96.506267	96.5
6	JZ82	L5	True	100.00	104.533761	104.5
7	JZ83	L6	True	100.00	103.436575	103.4
8	JZ84	L7	True	100.00	102.139355	102.1
9	JZ85	L8	True	100.00	106.033981	106.0
10	JZ86	L9	True	100.00	90.910566	90.9



<b>Analyte Name</b>	13C2-PFDA	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	515.0 / 470.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.12453 x$  (std. dev. = 0.04396) (weighting: 1 / x)

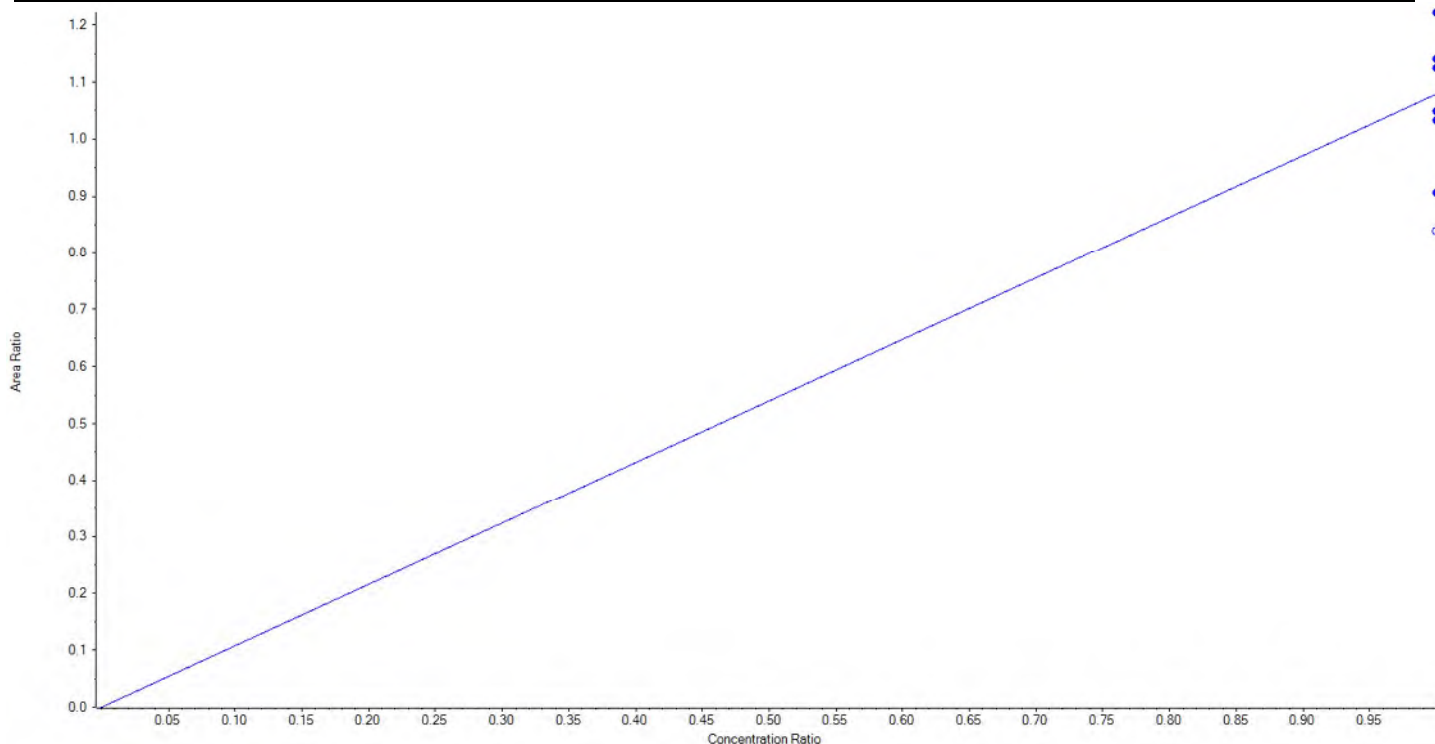
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	104.516087	104.5
5	JZ81	L4	True	100.00	98.256587	98.3
6	JZ82	L5	True	100.00	95.457273	95.5
7	JZ83	L6	True	100.00	102.404610	102.4
8	JZ84	L7	True	100.00	104.507065	104.5
9	JZ85	L8	True	100.00	99.466561	99.5
10	JZ86	L9	True	100.00	95.391818	95.4



<b>Analyte Name</b>	d5-EtFOSAA	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	589.0 / 419.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.07933 x$  (std. dev. = 0.10858) (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	336.154687	84.0
5	JZ81	L4	True	400.00	382.599033	95.7
6	JZ82	L5	True	400.00	452.712991	113.2
7	JZ83	L6	True	400.00	416.933912	104.2
8	JZ84	L7	True	400.00	388.706932	97.2
9	JZ85	L8	True	400.00	422.892445	105.7
10	JZ86	L9	False	400.00	311.251208	77.8





Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T14:59:21	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.57	29423.40	92.373246	236.0	false
PFBS_2	298.9 / 99.0	1.56	8676.60	93.214828	199.8	false
PFHxA_1	313.0 / 269.0	1.86	33319.87	78.044303	108.0	false
PFHxA_2	313.0 / 119.0	1.86	2749.15	86.317867	65.8	false
PFHpA_1	363.0 / 319.0	2.22	32485.70	73.016068	110.5	false
PFHpA_2	363.0 / 169.0	2.22	771.99	70.272325	45.5	false
PFHxS_1	399.0 / 80.0	2.24	35802.91	83.545773	129.0	false
PFHxS_2	399.0 / 99.0	2.23	11286.56	89.539693	164.7	false
PFOA_1	413.0 / 369.0	2.60	36014.10	75.344758	114.3	false
PFOA_2	413.0 / 169.0	2.60	2435.55	< 0	71.8	false
PFNA_1	463.0 / 419.0	2.97	31200.74	73.842400	118.0	false
PFNA_2	463.0 / 219.0	2.97	11769.67	98.915434	159.1	false
PFOS_1	499.0 / 80.0	2.96	57451.64	90.074645	95.4	true
PFOS_2	499.0 / 99.0	2.96	9812.00	85.330602	151.3	false
PFDA_1	513.0 / 469.0	3.32	35424.95	80.106807	136.7	true
PFDA_2	513.0 / 219.0	3.33	2368.29	82.659189	51.4	true
PFUnA_1	563.0 / 519.0	3.65	36245.83	90.745593	138.7	false
PFUnA_2	563.0 / 269.0	3.65	3153.41	108.896169	39.2	false
PFDaA_1	613.0 / 569.0	3.95	36245.45	70.165430	150.6	true
PFDaA_2	613.0 / 319.0	3.95	5380.85	65.429332	93.3	true
PFTrDA_1	663.0 / 619.0	4.21	36704.17	75.193967	211.4	false
PFTrDA_2	663.0 / 169.0	4.21	2415.84	94.956102	89.3	false
PFTeDA_1	713.0 / 669.0	4.44	35956.05	74.139371	398.3	false
PFTeDA_2	713.0 / 169.0	4.44	1710.59	76.152455	144.1	false
NMeFOSAA_1	570.0 / 419.0	3.48	5709.02	< 0	131.7	false
NMeFOSAA_2	570.0 / 512.0	3.48	3900.43	83.849866	82.9	false
NEtFOSAA_1	584.0 / 419.0	3.64	7288.37	84.758563	168.2	false
NEtFOSAA_2	584.0 / 483.0	3.64	621.98	82.387514	25.0	false
13C2-PFHxA	315.0 / 270.0	1.85	30954.95	96.439494	1026.5	false
13C2-PFDA	515.0 / 470.0	3.31	37707.47	104.516087	843.6	true
d5-EtFOSAA	589.0 / 419.0	3.64	26301.82	336.154687	209.1	true

Sample Name	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:08:18	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.56	80422.85	228.227234	544.6	false
PFBS_2	298.9 / 99.0	1.56	23255.98	227.341080	392.2	false
PFHxA_1	313.0 / 269.0	1.86	88464.27	265.769546	155.3	false
PFHxA_2	313.0 / 119.0	1.86	6549.80	247.710359	116.2	false
PFHpA_1	363.0 / 319.0	2.22	86999.92	261.130318	150.5	false
PFHpA_2	363.0 / 169.0	2.23	1790.97	239.260354	99.1	false
PFHxS_1	399.0 / 80.0	2.23	98733.77	236.640313	188.1	false
PFHxS_2	399.0 / 99.0	2.23	27591.88	224.603434	279.8	false
PFOA_1	413.0 / 369.0	2.59	90194.06	248.563445	180.3	false
PFOA_2	413.0 / 169.0	2.59	6909.07	220.206466	125.1	false
PFNA_1	463.0 / 419.0	2.97	81642.26	253.735140	181.0	false
PFNA_2	463.0 / 219.0	2.97	23806.84	225.999392	178.3	false
PFOS_1	499.0 / 80.0	2.96	139493.08	233.560454	125.7	true
PFOS_2	499.0 / 99.0	2.96	25832.85	239.054912	291.3	false
PFDA_1	513.0 / 469.0	3.32	103326.43	280.729423	218.0	false
PFDA_2	513.0 / 219.0	3.33	5229.31	291.516310	84.5	false
PFUnA_1	563.0 / 519.0	3.65	95836.06	261.466823	199.3	false
PFUnA_2	563.0 / 269.0	3.65	5714.97	263.189166	77.9	false
PFDaA_1	613.0 / 569.0	3.94	98968.51	255.545507	198.0	false
PFDaA_2	613.0 / 319.0	3.94	17115.29	279.451874	195.4	false
PFTrDA_1	663.0 / 619.0	4.20	95666.02	256.669564	356.6	false
PFTrDA_2	663.0 / 169.0	4.20	5465.16	235.261163	179.5	false
PFTeDA_1	713.0 / 669.0	4.44	94302.05	252.243928	558.4	false
PFTeDA_2	713.0 / 169.0	4.43	4534.00	259.120924	264.2	false
NMeFOSAA_1	570.0 / 419.0	3.47	15286.55	194.473724	264.5	false
NMeFOSAA_2	570.0 / 512.0	3.47	9037.37	249.432489	173.2	false
NEtFOSAA_1	584.0 / 419.0	3.64	17761.47	275.112837	336.4	false
NEtFOSAA_2	584.0 / 483.0	3.65	1329.53	249.755816	36.8	false
13C2-PFHxA	315.0 / 270.0	1.84	32819.11	96.506267	938.0	false
13C2-PFDA	515.0 / 470.0	3.31	37557.96	98.256587	1102.0	true
d5-EtFOSAA	589.0 / 419.0	3.63	27490.19	382.599033	256.0	true

Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:17:14	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.56	175920.92	473.621611	901.7	false
PFBS_2	298.9 / 99.0	1.56	49913.91	463.948422	508.5	false
PFHxA_1	313.0 / 269.0	1.85	178937.19	568.874261	195.4	false
PFHxA_2	313.0 / 119.0	1.85	14063.16	564.939492	174.4	false
PFHpA_1	363.0 / 319.0	2.21	179159.44	574.230055	260.7	false
PFHpA_2	363.0 / 169.0	2.21	4084.34	619.165193	157.9	false
PFHxS_1	399.0 / 80.0	2.23	207466.65	490.800076	199.0	false
PFHxS_2	399.0 / 99.0	2.23	62476.88	506.958424	255.3	false
PFOA_1	413.0 / 369.0	2.59	199687.99	595.816684	220.4	false
PFOA_2	413.0 / 169.0	2.59	13454.99	542.585785	149.5	false
PFNA_1	463.0 / 419.0	2.97	175160.61	583.193244	298.1	false
PFNA_2	463.0 / 219.0	2.96	56393.93	574.910926	294.0	false
PFOS_1	499.0 / 80.0	2.96	301642.83	509.926226	118.3	true
PFOS_2	499.0 / 99.0	2.96	56498.90	523.798062	278.5	false
PFDA_1	513.0 / 469.0	3.32	201342.58	563.698304	293.7	false
PFDA_2	513.0 / 219.0	3.32	8504.05	526.038890	135.9	false
PFUnA_1	563.0 / 519.0	3.65	193564.69	537.055487	286.4	false
PFUnA_2	563.0 / 269.0	3.65	8668.21	440.534454	84.5	true
PFDoA_1	613.0 / 569.0	3.94	215618.19	595.482174	306.6	false
PFDoA_2	613.0 / 319.0	3.94	34152.09	582.305679	264.3	false
PFTrDA_1	663.0 / 619.0	4.20	202778.98	582.232667	479.9	false
PFTrDA_2	663.0 / 169.0	4.20	12365.52	552.992832	253.2	false
PFTeDA_1	713.0 / 669.0	4.43	205601.61	588.041720	785.2	false
PFTeDA_2	713.0 / 169.0	4.43	9550.24	579.712333	414.3	false
NMeFOSAA_1	570.0 / 419.0	3.47	33659.05	602.255659	514.2	false
NMeFOSAA_2	570.0 / 512.0	3.47	19839.84	612.660544	477.1	false
NEtFOSAA_1	584.0 / 419.0	3.64	33711.90	583.472638	411.4	false
NEtFOSAA_2	584.0 / 483.0	3.64	2833.92	618.499663	69.7	true
13C2-PFHxA	315.0 / 270.0	1.84	36494.58	104.533761	1027.4	false
13C2-PFDA	515.0 / 470.0	3.31	37458.46	95.457273	750.6	true
d5-EtFOSAA	589.0 / 419.0	3.63	30723.70	452.712991	278.4	true



Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:26:11	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.56	282446.86	787.235152	1271.4	false
PFBS_2	298.9 / 99.0	1.56	82761.71	796.949611	780.6	false
PFHxA_1	313.0 / 269.0	1.85	279961.77	954.283032	239.2	false
PFHxA_2	313.0 / 119.0	1.85	21883.12	940.194006	259.7	false
PFHpA_1	363.0 / 319.0	2.22	291557.62	1005.928310	256.8	false
PFHpA_2	363.0 / 169.0	2.22	5931.56	971.164630	145.2	false
PFHxS_1	399.0 / 80.0	2.23	350392.81	872.158270	306.7	false
PFHxS_2	399.0 / 99.0	2.23	99214.35	847.353462	435.2	false
PFOA_1	413.0 / 369.0	2.59	312019.61	999.884858	277.3	false
PFOA_2	413.0 / 169.0	2.59	21130.14	973.653818	222.6	false
PFNA_1	463.0 / 419.0	2.97	278891.49	996.921572	365.2	false
PFNA_2	463.0 / 219.0	2.97	86710.83	943.227550	361.8	false
PFOS_1	499.0 / 80.0	2.96	475229.91	850.198897	168.6	true
PFOS_2	499.0 / 99.0	2.96	85517.80	835.646773	405.8	false
PFDA_1	513.0 / 469.0	3.32	320295.72	954.476766	365.3	false
PFDA_2	513.0 / 219.0	3.32	12291.19	845.483275	154.9	false
PFUnA_1	563.0 / 519.0	3.65	325649.43	956.627338	382.3	false
PFUnA_2	563.0 / 269.0	3.65	15035.09	881.098760	124.0	true
PFDaA_1	613.0 / 569.0	3.94	337939.54	999.847927	347.6	false
PFDaA_2	613.0 / 319.0	3.94	54390.41	991.062905	289.4	false
PFTrDA_1	663.0 / 619.0	4.21	322408.52	994.209819	575.0	false
PFTrDA_2	663.0 / 169.0	4.20	21156.97	1005.695204	355.2	false
PFTeDA_1	713.0 / 669.0	4.43	331005.28	1015.343392	975.7	false
PFTeDA_2	713.0 / 169.0	4.43	15107.16	982.560002	483.6	false
NMeFOSAA_1	570.0 / 419.0	3.47	51616.94	926.843028	791.3	false
NMeFOSAA_2	570.0 / 512.0	3.47	32470.36	964.777836	425.6	false
NEtFOSAA_1	584.0 / 419.0	3.64	54909.94	917.942369	489.2	false
NEtFOSAA_2	584.0 / 483.0	3.64	4533.51	961.057859	122.9	false
13C2-PFHxA	315.0 / 270.0	1.84	34743.56	103.436575	1021.5	false
13C2-PFDA	515.0 / 470.0	3.31	38662.39	102.404610	985.8	true
d5-EtFOSAA	589.0 / 419.0	3.63	29832.18	416.933912	284.8	true

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:35:06	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.56	758157.27	2136.140902	2078.4	false
PFBS_2	298.9 / 99.0	1.56	220594.37	2149.034279	1236.4	false
PFHxA_1	313.0 / 269.0	1.85	757032.90	2650.811567	396.5	false
PFHxA_2	313.0 / 119.0	1.85	61316.81	2702.578330	386.4	false
PFHpA_1	363.0 / 319.0	2.22	758656.95	2688.604760	420.8	false
PFHpA_2	363.0 / 169.0	2.22	16989.17	2905.414878	277.1	false
PFHxS_1	399.0 / 80.0	2.23	903376.15	2303.866920	480.2	false
PFHxS_2	399.0 / 99.0	2.23	256967.85	2253.455709	740.4	false
PFOA_1	413.0 / 369.0	2.59	808068.41	2662.530234	425.0	false
PFOA_2	413.0 / 169.0	2.59	53471.41	2667.533138	352.7	false
PFNA_1	463.0 / 419.0	2.97	733740.27	2692.800630	505.2	false
PFNA_2	463.0 / 219.0	2.96	230118.75	2562.046738	576.9	false
PFOS_1	499.0 / 80.0	2.96	1245564.96	2300.749587	200.0	true
PFOS_2	499.0 / 99.0	2.96	226765.60	2283.143402	541.1	false
PFDA_1	513.0 / 469.0	3.31	823583.41	2499.715620	576.8	false
PFDA_2	513.0 / 219.0	3.31	37920.94	2828.003878	328.9	false
PFUnA_1	563.0 / 519.0	3.65	866505.09	2575.587569	542.6	false
PFUnA_2	563.0 / 269.0	3.65	44715.34	2824.288451	205.0	false
PFDaA_1	613.0 / 569.0	3.94	902861.24	2741.086918	504.4	false
PFDaA_2	613.0 / 319.0	3.94	145467.89	2710.804043	410.3	false
PFTrDA_1	663.0 / 619.0	4.20	843113.52	2670.073088	651.4	false
PFTrDA_2	663.0 / 169.0	4.19	52460.00	2527.472597	430.7	false
PFTeDA_1	713.0 / 669.0	4.43	847923.31	2664.593960	1333.6	false
PFTeDA_2	713.0 / 169.0	4.42	39835.42	2656.578647	826.8	false
NMeFOSAA_1	570.0 / 419.0	3.47	141925.97	2590.634631	1034.9	false
NMeFOSAA_2	570.0 / 512.0	3.47	85088.45	2429.083037	644.3	false
NEtFOSAA_1	584.0 / 419.0	3.64	145457.83	2346.663317	741.0	false
NEtFOSAA_2	584.0 / 483.0	3.63	11924.09	2456.922918	185.1	false
13C2-PFHxA	315.0 / 270.0	1.84	34423.02	102.139355	1017.7	false
13C2-PFDA	515.0 / 470.0	3.30	39588.64	104.507065	948.6	true
d5-EtFOSAA	589.0 / 419.0	3.63	29392.44	388.706932	208.5	false

Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:44:02	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.56	1397458.18	4317.657703	2437.2	false
PFBS_2	298.9 / 99.0	1.56	404893.31	4326.418052	1721.9	false
PFHxA_1	313.0 / 269.0	1.85	1394067.44	5209.008771	524.6	false
PFHxA_2	313.0 / 119.0	1.85	109412.75	5140.495784	466.0	false
PFHpA_1	363.0 / 319.0	2.22	1376589.31	5207.786711	535.8	false
PFHpA_2	363.0 / 169.0	2.21	28114.53	5141.021060	384.2	false
PFHxS_1	399.0 / 80.0	2.23	1640475.23	4606.569585	642.2	false
PFHxS_2	399.0 / 99.0	2.23	470915.73	4550.078070	902.2	false
PFOA_1	413.0 / 369.0	2.59	1474876.64	5189.823202	625.0	false
PFOA_2	413.0 / 169.0	2.59	94108.47	5087.334111	490.8	false
PFNA_1	463.0 / 419.0	2.96	1356209.48	5312.564204	718.5	false
PFNA_2	463.0 / 219.0	2.96	416599.22	4944.899960	717.9	false
PFOS_1	499.0 / 80.0	2.96	2268882.80	4624.747250	253.5	true
PFOS_2	499.0 / 99.0	2.95	432269.30	4800.356255	790.3	false
PFDA_1	513.0 / 469.0	3.31	1537599.03	4971.273080	904.5	false
PFDA_2	513.0 / 219.0	3.31	62452.37	5009.504139	485.1	false
PFUnA_1	563.0 / 519.0	3.64	1560393.99	4928.517189	879.3	false
PFUnA_2	563.0 / 269.0	3.64	71195.98	4831.993000	285.0	false
PFDaA_1	613.0 / 569.0	3.93	1606201.19	5201.294237	714.4	false
PFDaA_2	613.0 / 319.0	3.93	259738.55	5158.086891	580.9	false
PFTrDA_1	663.0 / 619.0	4.19	1530974.56	5175.155953	792.6	false
PFTrDA_2	663.0 / 169.0	4.19	96254.79	4933.622102	567.5	false
PFTeDA_1	713.0 / 669.0	4.42	1541399.81	5168.023982	1614.5	false
PFTeDA_2	713.0 / 169.0	4.42	72778.48	5177.880651	1131.2	false
NMeFOSAA_1	570.0 / 419.0	3.47	260608.95	5609.176094	1339.4	false
NMeFOSAA_2	570.0 / 512.0	3.47	151435.52	5010.196228	708.0	false
NEtFOSAA_1	584.0 / 419.0	3.63	274546.21	5142.050277	849.1	false
NEtFOSAA_2	584.0 / 483.0	3.63	20784.52	4981.376230	346.5	false
13C2-PFHxA	315.0 / 270.0	1.84	33774.99	106.033981	1110.5	false
13C2-PFDA	515.0 / 470.0	3.30	35612.00	99.466561	743.3	true
d5-EtFOSAA	589.0 / 419.0	3.62	27737.08	422.892445	215.3	true

Sample Name	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:52:58	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.56	2839120.10	9090.344152	4256.5	false
PFBS_2	298.9 / 99.0	1.56	818876.96	9068.693729	2364.8	false
PFHxA_1	313.0 / 269.0	1.85	2734093.83	9623.208520	714.5	false
PFHxA_2	313.0 / 119.0	1.85	218492.54	9667.764162	698.4	false
PFHpA_1	363.0 / 319.0	2.22	2676205.23	9539.303778	700.5	false
PFHpA_2	363.0 / 169.0	2.22	54474.90	9403.701561	445.2	false
PFHxS_1	399.0 / 80.0	2.23	3104870.59	9053.619063	895.5	false
PFHxS_2	399.0 / 99.0	2.23	914160.79	9175.211206	1289.2	false
PFOA_1	413.0 / 369.0	2.59	2888345.24	9578.036819	732.3	false
PFOA_2	413.0 / 169.0	2.58	189973.39	9758.686681	560.9	false
PFNA_1	463.0 / 419.0	2.96	2557801.06	9436.942809	1009.4	false
PFNA_2	463.0 / 219.0	2.96	785629.42	8779.689356	1037.5	false
PFOS_1	499.0 / 80.0	2.95	4389512.45	9301.442940	323.0	true
PFOS_2	499.0 / 99.0	2.95	792471.90	9143.369993	961.5	false
PFDA_1	513.0 / 469.0	3.31	2903784.15	8834.017081	1146.5	false
PFDA_2	513.0 / 219.0	3.31	128431.73	9766.794318	573.0	false
PFUnA_1	563.0 / 519.0	3.64	2923913.43	8681.593682	1026.2	false
PFUnA_2	563.0 / 269.0	3.64	137113.81	8817.375193	298.9	false
PFDaA_1	613.0 / 569.0	3.93	3109990.91	9486.577807	788.2	false
PFDaA_2	613.0 / 319.0	3.93	511413.98	9562.859276	723.4	false
PFTrDA_1	663.0 / 619.0	4.19	3013051.26	9596.464942	1275.8	false
PFTrDA_2	663.0 / 169.0	4.19	180620.43	8706.882200	820.0	false
PFTeDA_1	713.0 / 669.0	4.42	3035602.40	9587.613648	1961.0	false
PFTeDA_2	713.0 / 169.0	4.42	143520.42	9617.994988	1413.0	false
NMeFOSAA_1	570.0 / 419.0	3.46	488506.19	9326.616863	1107.6	false
NMeFOSAA_2	570.0 / 512.0	3.46	294856.07	8603.598683	779.0	false
NEtFOSAA_1	584.0 / 419.0	3.63	532790.74	8804.104625	1056.2	false
NEtFOSAA_2	584.0 / 483.0	3.63	36282.60	7676.823562	391.3	false
13C2-PFHxA	315.0 / 270.0	1.84	30867.38	90.910566	1147.6	false
13C2-PFDA	515.0 / 470.0	3.30	36405.38	95.391818	854.3	true
d5-EtFOSAA	589.0 / 419.0	3.62	23195.05	311.251208	189.1	false

Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T14:59:21	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.57	PFBS			
PFBS_2	298.9 / 99.0	1.56	PFBS	0.295	0.290	ü
PFHxA_1	313.0 / 269.0	1.86	PFHxA			
PFHxA_2	313.0 / 119.0	1.86	PFHxA	0.083	0.079	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.024	0.022	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.23	PFHxS	0.315	0.292	ü
PFOA_1	413.0 / 369.0	2.60	PFOA			
PFOA_2	413.0 / 169.0	2.60	PFOA	0.068	0.068	ü
PFNA_1	463.0 / 419.0	2.97	PFNA			
PFNA_2	463.0 / 219.0	2.97	PFNA	0.377	0.320	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.171	0.182	ü
PFDA_1	513.0 / 469.0	3.32	PFDA			
PFDA_2	513.0 / 219.0	3.33	PFDA	0.067	0.047	ü
PFUnA_1	563.0 / 519.0	3.65	PFUnA			
PFUnA_2	563.0 / 269.0	3.65	PFUnA	0.087	0.056	
PFDoA_1	613.0 / 569.0	3.95	PFDoA			
PFDoA_2	613.0 / 319.0	3.95	PFDoA	0.149	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.21	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.21	PFTTrDA	0.066	0.062	ü
PFTeDA_1	713.0 / 669.0	4.44	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.44	PFTeDA	0.048	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.48	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.48	NMeFOSAA	0.683	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.64	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.64	NEtFOSAA	0.085	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.85				
13C2-PFDA	515.0 / 470.0	3.31		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.64		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	2018-08-20T15:08:18	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.56	PFBS			
PFBS_2	298.9 / 99.0	1.56	PFBS	0.289	0.290	ü
PFHxA_1	313.0 / 269.0	1.86	PFHxA			
PFHxA_2	313.0 / 119.0	1.86	PFHxA	0.074	0.079	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.23	PFHpA	0.021	0.022	ü
PFHxS_1	399.0 / 80.0	2.23	PFHxS			
PFHxS_2	399.0 / 99.0	2.23	PFHxS	0.280	0.292	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.59	PFOA	0.077	0.068	ü
PFNA_1	463.0 / 419.0	2.97	PFNA			
PFNA_2	463.0 / 219.0	2.97	PFNA	0.292	0.320	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.185	0.182	ü
PFDA_1	513.0 / 469.0	3.32	PFDA			
PFDA_2	513.0 / 219.0	3.33	PFDA	0.051	0.047	ü
PFUnA_1	563.0 / 519.0	3.65	PFUnA			
PFUnA_2	563.0 / 269.0	3.65	PFUnA	0.060	0.056	ü
PFDoA_1	613.0 / 569.0	3.94	PFDoA			
PFDoA_2	613.0 / 319.0	3.94	PFDoA	0.173	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.20	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.20	PFTTrDA	0.057	0.062	ü
PFTeDA_1	713.0 / 669.0	4.44	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.43	PFTeDA	0.048	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.47	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.47	NMeFOSAA	0.591	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.64	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.65	NEtFOSAA	0.075	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.31		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.63		N/A	N/A	ü

Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:17:14	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.56	PFBS			
PFBS_2	298.9 / 99.0	1.56	PFBS	0.284	0.290	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.079	0.079	ü
PFHpA_1	363.0 / 319.0	2.21	PFHpA			
PFHpA_2	363.0 / 169.0	2.21	PFHpA	0.023	0.022	ü
PFHxS_1	399.0 / 80.0	2.23	PFHxS			
PFHxS_2	399.0 / 99.0	2.23	PFHxS	0.301	0.292	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.59	PFOA	0.067	0.068	ü
PFNA_1	463.0 / 419.0	2.97	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.322	0.320	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.187	0.182	ü
PFDA_1	513.0 / 469.0	3.32	PFDA			
PFDA_2	513.0 / 219.0	3.32	PFDA	0.042	0.047	ü
PFUnA_1	563.0 / 519.0	3.65	PFUnA			
PFUnA_2	563.0 / 269.0	3.65	PFUnA	0.045	0.056	ü
PFDoA_1	613.0 / 569.0	3.94	PFDoA			
PFDoA_2	613.0 / 319.0	3.94	PFDoA	0.158	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.20	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.20	PFTTrDA	0.061	0.062	ü
PFTeDA_1	713.0 / 669.0	4.43	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.43	PFTeDA	0.047	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.47	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.47	NMeFOSAA	0.589	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.64	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.64	NEtFOSAA	0.084	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.31		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.63		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	2018-08-20T15:26:11	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.56	PFBS			
PFBS_2	298.9 / 99.0	1.56	PFBS	0.293	0.290	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.078	0.079	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.23	PFHxS			
PFHxS_2	399.0 / 99.0	2.23	PFHxS	0.283	0.292	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.59	PFOA	0.068	0.068	ü
PFNA_1	463.0 / 419.0	2.97	PFNA			
PFNA_2	463.0 / 219.0	2.97	PFNA	0.311	0.320	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.180	0.182	ü
PFDA_1	513.0 / 469.0	3.32	PFDA			
PFDA_2	513.0 / 219.0	3.32	PFDA	0.038	0.047	ü
PFUnA_1	563.0 / 519.0	3.65	PFUnA			
PFUnA_2	563.0 / 269.0	3.65	PFUnA	0.046	0.056	ü
PFDoA_1	613.0 / 569.0	3.94	PFDoA			
PFDoA_2	613.0 / 319.0	3.94	PFDoA	0.161	0.161	ü
PFTrDA_1	663.0 / 619.0	4.21	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.20	PFTrDA	0.066	0.062	ü
PFTeDA_1	713.0 / 669.0	4.43	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.43	PFTeDA	0.046	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.47	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.47	NMeFOSAA	0.629	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.64	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.64	NEtFOSAA	0.083	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.31		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.63		N/A	N/A	ü



Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:35:06	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.56	PFBS			
PFBS_2	298.9 / 99.0	1.56	PFBS	0.291	0.290	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.081	0.079	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.022	0.022	ü
PFHxS_1	399.0 / 80.0	2.23	PFHxS			
PFHxS_2	399.0 / 99.0	2.23	PFHxS	0.285	0.292	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.59	PFOA	0.066	0.068	ü
PFNA_1	463.0 / 419.0	2.97	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.314	0.320	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.182	0.182	ü
PFDA_1	513.0 / 469.0	3.31	PFDA			
PFDA_2	513.0 / 219.0	3.31	PFDA	0.046	0.047	ü
PFUnA_1	563.0 / 519.0	3.65	PFUnA			
PFUnA_2	563.0 / 269.0	3.65	PFUnA	0.052	0.056	ü
PFDoA_1	613.0 / 569.0	3.94	PFDoA			
PFDoA_2	613.0 / 319.0	3.94	PFDoA	0.161	0.161	ü
PFTrDA_1	663.0 / 619.0	4.20	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.19	PFTrDA	0.062	0.062	ü
PFTeDA_1	713.0 / 669.0	4.43	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.42	PFTeDA	0.047	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.47	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.47	NMeFOSAA	0.600	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.64	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.63	NEtFOSAA	0.082	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.30		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.63		N/A	N/A	ü

Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:44:02	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.56	PFBS			
PFBS_2	298.9 / 99.0	1.56	PFBS	0.290	0.290	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.079	0.079	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.21	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.23	PFHxS			
PFHxS_2	399.0 / 99.0	2.23	PFHxS	0.287	0.292	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.59	PFOA	0.064	0.068	ü
PFNA_1	463.0 / 419.0	2.96	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.307	0.320	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.95	PFOS	0.191	0.182	ü
PFDA_1	513.0 / 469.0	3.31	PFDA			
PFDA_2	513.0 / 219.0	3.31	PFDA	0.041	0.047	ü
PFUnA_1	563.0 / 519.0	3.64	PFUnA			
PFUnA_2	563.0 / 269.0	3.64	PFUnA	0.046	0.056	ü
PFDoA_1	613.0 / 569.0	3.93	PFDoA			
PFDoA_2	613.0 / 319.0	3.93	PFDoA	0.162	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.19	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.19	PFTTrDA	0.063	0.062	ü
PFTeDA_1	713.0 / 669.0	4.42	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.42	PFTeDA	0.047	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.47	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.47	NMeFOSAA	0.581	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.63	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.63	NEtFOSAA	0.076	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.30		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.62		N/A	N/A	ü

Sample Name	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:52:58	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.56	PFBS			
PFBS_2	298.9 / 99.0	1.56	PFBS	0.288	0.290	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.080	0.079	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.23	PFHxS			
PFHxS_2	399.0 / 99.0	2.23	PFHxS	0.294	0.292	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.066	0.068	ü
PFNA_1	463.0 / 419.0	2.96	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.307	0.320	ü
PFOS_1	499.0 / 80.0	2.95	PFOS			
PFOS_2	499.0 / 99.0	2.95	PFOS	0.181	0.182	ü
PFDA_1	513.0 / 469.0	3.31	PFDA			
PFDA_2	513.0 / 219.0	3.31	PFDA	0.044	0.047	ü
PFUnA_1	563.0 / 519.0	3.64	PFUnA			
PFUnA_2	563.0 / 269.0	3.64	PFUnA	0.047	0.056	ü
PFDoA_1	613.0 / 569.0	3.93	PFDoA			
PFDoA_2	613.0 / 319.0	3.93	PFDoA	0.164	0.161	ü
PFTrDA_1	663.0 / 619.0	4.19	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.19	PFTrDA	0.060	0.062	ü
PFTeDA_1	713.0 / 669.0	4.42	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.42	PFTeDA	0.047	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.46	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.46	NMeFOSAA	0.604	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.63	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.63	NEtFOSAA	0.068	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.30		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.62		N/A	N/A	ü

Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T14:59:21	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.57	13C4-PFOS	503.0 / 80.0	142888.22	287.00
PFBS_2	298.9 / 99.0	1.56	13C4-PFOS	503.0 / 80.0	142888.22	287.00
PFHxA_1	313.0 / 269.0	1.86	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFHxA_2	313.0 / 119.0	1.86	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFHpA_1	363.0 / 319.0	2.22	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFHpA_2	363.0 / 169.0	2.22	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFHxS_1	399.0 / 80.0	2.24	13C4-PFOS	503.0 / 80.0	142888.22	287.00
PFHxS_2	399.0 / 99.0	2.23	13C4-PFOS	503.0 / 80.0	142888.22	287.00
PFOA_1	413.0 / 369.0	2.60	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFOA_2	413.0 / 169.0	2.60	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFNA_1	463.0 / 419.0	2.97	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFNA_2	463.0 / 219.0	2.97	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFOS_1	499.0 / 80.0	2.96	13C4-PFOS	503.0 / 80.0	142888.22	287.00
PFOS_2	499.0 / 99.0	2.96	13C4-PFOS	503.0 / 80.0	142888.22	287.00
PFDA_1	513.0 / 469.0	3.32	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFDA_2	513.0 / 219.0	3.33	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFUnA_1	563.0 / 519.0	3.65	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFUnA_2	563.0 / 269.0	3.65	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFDaA_1	613.0 / 569.0	3.95	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFDaA_2	613.0 / 319.0	3.95	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFTTrDA_1	663.0 / 619.0	4.21	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFTTrDA_2	663.0 / 169.0	4.21	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFTeDA_1	713.0 / 669.0	4.44	13C2-PFOA	415.0 / 370.0	32082.74	100.00
PFTeDA_2	713.0 / 169.0	4.44	13C2-PFOA	415.0 / 370.0	32082.74	100.00
NMeFOSAA_1	570.0 / 419.0	3.48	d3-MeFOSAA	573.0 / 419.0	28996.86	400.00
NMeFOSAA_2	570.0 / 512.0	3.48	d3-MeFOSAA	573.0 / 419.0	28996.86	400.00
NEtFOSAA_1	584.0 / 419.0	3.64	d3-MeFOSAA	573.0 / 419.0	28996.86	400.00
NEtFOSAA_2	584.0 / 483.0	3.64	d3-MeFOSAA	573.0 / 419.0	28996.86	400.00
13C2-PFHxA	315.0 / 270.0	1.85	13C2-PFOA	415.0 / 370.0	32082.74	100.00
13C2-PFDA	515.0 / 470.0	3.31	13C2-PFOA	415.0 / 370.0	32082.74	100.00
d5-EtFOSAA	589.0 / 419.0	3.64	d3-MeFOSAA	573.0 / 419.0	28996.86	400.00

Sample Name	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:08:18	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.56	13C4-PFOS	503.0 / 80.0	155034.01	287.00
PFBS_2	298.9 / 99.0	1.56	13C4-PFOS	503.0 / 80.0	155034.01	287.00
PFHxA_1	313.0 / 269.0	1.86	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFHxA_2	313.0 / 119.0	1.86	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFHpA_1	363.0 / 319.0	2.22	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFHpA_2	363.0 / 169.0	2.23	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFHxS_1	399.0 / 80.0	2.23	13C4-PFOS	503.0 / 80.0	155034.01	287.00
PFHxS_2	399.0 / 99.0	2.23	13C4-PFOS	503.0 / 80.0	155034.01	287.00
PFOA_1	413.0 / 369.0	2.59	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFOA_2	413.0 / 169.0	2.59	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFNA_1	463.0 / 419.0	2.97	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFNA_2	463.0 / 219.0	2.97	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFOS_1	499.0 / 80.0	2.96	13C4-PFOS	503.0 / 80.0	155034.01	287.00
PFOS_2	499.0 / 99.0	2.96	13C4-PFOS	503.0 / 80.0	155034.01	287.00
PFDA_1	513.0 / 469.0	3.32	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFDA_2	513.0 / 219.0	3.33	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFUnA_1	563.0 / 519.0	3.65	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFUnA_2	563.0 / 269.0	3.65	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFDaA_1	613.0 / 569.0	3.94	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFDaA_2	613.0 / 319.0	3.94	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFTTrDA_1	663.0 / 619.0	4.20	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFTTrDA_2	663.0 / 169.0	4.20	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFTeDA_1	713.0 / 669.0	4.44	13C2-PFOA	415.0 / 370.0	33991.28	100.00
PFTeDA_2	713.0 / 169.0	4.43	13C2-PFOA	415.0 / 370.0	33991.28	100.00
NMeFOSAA_1	570.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	26627.99	400.00
NMeFOSAA_2	570.0 / 512.0	3.47	d3-MeFOSAA	573.0 / 419.0	26627.99	400.00
NEtFOSAA_1	584.0 / 419.0	3.64	d3-MeFOSAA	573.0 / 419.0	26627.99	400.00
NEtFOSAA_2	584.0 / 483.0	3.65	d3-MeFOSAA	573.0 / 419.0	26627.99	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	33991.28	100.00
13C2-PFDA	515.0 / 470.0	3.31	13C2-PFOA	415.0 / 370.0	33991.28	100.00
d5-EtFOSAA	589.0 / 419.0	3.63	d3-MeFOSAA	573.0 / 419.0	26627.99	400.00

Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:17:14	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.56	13C4-PFOS	503.0 / 80.0	162318.50	287.00
PFBS_2	298.9 / 99.0	1.56	13C4-PFOS	503.0 / 80.0	162318.50	287.00
PFHxA_1	313.0 / 269.0	1.85	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFHxA_2	313.0 / 119.0	1.85	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFHpA_1	363.0 / 319.0	2.21	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFHpA_2	363.0 / 169.0	2.21	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFHxS_1	399.0 / 80.0	2.23	13C4-PFOS	503.0 / 80.0	162318.50	287.00
PFHxS_2	399.0 / 99.0	2.23	13C4-PFOS	503.0 / 80.0	162318.50	287.00
PFOA_1	413.0 / 369.0	2.59	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFOA_2	413.0 / 169.0	2.59	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFNA_1	463.0 / 419.0	2.97	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFNA_2	463.0 / 219.0	2.96	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFOS_1	499.0 / 80.0	2.96	13C4-PFOS	503.0 / 80.0	162318.50	287.00
PFOS_2	499.0 / 99.0	2.96	13C4-PFOS	503.0 / 80.0	162318.50	287.00
PFDA_1	513.0 / 469.0	3.32	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFDA_2	513.0 / 219.0	3.32	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFUnA_1	563.0 / 519.0	3.65	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFUnA_2	563.0 / 269.0	3.65	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFDaA_1	613.0 / 569.0	3.94	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFDaA_2	613.0 / 319.0	3.94	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFTTrDA_1	663.0 / 619.0	4.20	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFTTrDA_2	663.0 / 169.0	4.20	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFTeDA_1	713.0 / 669.0	4.43	13C2-PFOA	415.0 / 370.0	34895.40	100.00
PFTeDA_2	713.0 / 169.0	4.43	13C2-PFOA	415.0 / 370.0	34895.40	100.00
NMeFOSAA_1	570.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	25150.99	400.00
NMeFOSAA_2	570.0 / 512.0	3.47	d3-MeFOSAA	573.0 / 419.0	25150.99	400.00
NEtFOSAA_1	584.0 / 419.0	3.64	d3-MeFOSAA	573.0 / 419.0	25150.99	400.00
NEtFOSAA_2	584.0 / 483.0	3.64	d3-MeFOSAA	573.0 / 419.0	25150.99	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	34895.40	100.00
13C2-PFDA	515.0 / 470.0	3.31	13C2-PFOA	415.0 / 370.0	34895.40	100.00
d5-EtFOSAA	589.0 / 419.0	3.63	d3-MeFOSAA	573.0 / 419.0	25150.99	400.00

Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:26:11	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.56	13C4-PFOS	503.0 / 80.0	156398.53	287.00
PFBS_2	298.9 / 99.0	1.56	13C4-PFOS	503.0 / 80.0	156398.53	287.00
PFHxA_1	313.0 / 269.0	1.85	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFHxA_2	313.0 / 119.0	1.85	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFHpA_1	363.0 / 319.0	2.22	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFHpA_2	363.0 / 169.0	2.22	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFHxS_1	399.0 / 80.0	2.23	13C4-PFOS	503.0 / 80.0	156398.53	287.00
PFHxS_2	399.0 / 99.0	2.23	13C4-PFOS	503.0 / 80.0	156398.53	287.00
PFOA_1	413.0 / 369.0	2.59	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFOA_2	413.0 / 169.0	2.59	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFNA_1	463.0 / 419.0	2.97	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFNA_2	463.0 / 219.0	2.97	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFOS_1	499.0 / 80.0	2.96	13C4-PFOS	503.0 / 80.0	156398.53	287.00
PFOS_2	499.0 / 99.0	2.96	13C4-PFOS	503.0 / 80.0	156398.53	287.00
PFDA_1	513.0 / 469.0	3.32	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFDA_2	513.0 / 219.0	3.32	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFUnA_1	563.0 / 519.0	3.65	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFUnA_2	563.0 / 269.0	3.65	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFDaA_1	613.0 / 569.0	3.94	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFDaA_2	613.0 / 319.0	3.94	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFTTrDA_1	663.0 / 619.0	4.21	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFTTrDA_2	663.0 / 169.0	4.20	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFTeDA_1	713.0 / 669.0	4.43	13C2-PFOA	415.0 / 370.0	33573.48	100.00
PFTeDA_2	713.0 / 169.0	4.43	13C2-PFOA	415.0 / 370.0	33573.48	100.00
NMeFOSAA_1	570.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	26516.87	400.00
NMeFOSAA_2	570.0 / 512.0	3.47	d3-MeFOSAA	573.0 / 419.0	26516.87	400.00
NEtFOSAA_1	584.0 / 419.0	3.64	d3-MeFOSAA	573.0 / 419.0	26516.87	400.00
NEtFOSAA_2	584.0 / 483.0	3.64	d3-MeFOSAA	573.0 / 419.0	26516.87	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	33573.48	100.00
13C2-PFDA	515.0 / 470.0	3.31	13C2-PFOA	415.0 / 370.0	33573.48	100.00
d5-EtFOSAA	589.0 / 419.0	3.63	d3-MeFOSAA	573.0 / 419.0	26516.87	400.00

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:35:06	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.56	13C4-PFOS	503.0 / 80.0	154347.92	287.00
PFBS_2	298.9 / 99.0	1.56	13C4-PFOS	503.0 / 80.0	154347.92	287.00
PFHxA_1	313.0 / 269.0	1.85	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFHxA_2	313.0 / 119.0	1.85	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFHpA_1	363.0 / 319.0	2.22	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFHpA_2	363.0 / 169.0	2.22	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFHxS_1	399.0 / 80.0	2.23	13C4-PFOS	503.0 / 80.0	154347.92	287.00
PFHxS_2	399.0 / 99.0	2.23	13C4-PFOS	503.0 / 80.0	154347.92	287.00
PFOA_1	413.0 / 369.0	2.59	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFOA_2	413.0 / 169.0	2.59	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFNA_1	463.0 / 419.0	2.97	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFNA_2	463.0 / 219.0	2.96	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFOS_1	499.0 / 80.0	2.96	13C4-PFOS	503.0 / 80.0	154347.92	287.00
PFOS_2	499.0 / 99.0	2.96	13C4-PFOS	503.0 / 80.0	154347.92	287.00
PFDA_1	513.0 / 469.0	3.31	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFDA_2	513.0 / 219.0	3.31	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFUnA_1	563.0 / 519.0	3.65	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFUnA_2	563.0 / 269.0	3.65	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFDaA_1	613.0 / 569.0	3.94	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFDaA_2	613.0 / 319.0	3.94	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFTTrDA_1	663.0 / 619.0	4.20	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFTTrDA_2	663.0 / 169.0	4.19	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFTeDA_1	713.0 / 669.0	4.43	13C2-PFOA	415.0 / 370.0	33686.21	100.00
PFTeDA_2	713.0 / 169.0	4.42	13C2-PFOA	415.0 / 370.0	33686.21	100.00
NMeFOSAA_1	570.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	28023.21	400.00
NMeFOSAA_2	570.0 / 512.0	3.47	d3-MeFOSAA	573.0 / 419.0	28023.21	400.00
NEtFOSAA_1	584.0 / 419.0	3.64	d3-MeFOSAA	573.0 / 419.0	28023.21	400.00
NEtFOSAA_2	584.0 / 483.0	3.63	d3-MeFOSAA	573.0 / 419.0	28023.21	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	33686.21	100.00
13C2-PFDA	515.0 / 470.0	3.30	13C2-PFOA	415.0 / 370.0	33686.21	100.00
d5-EtFOSAA	589.0 / 419.0	3.63	d3-MeFOSAA	573.0 / 419.0	28023.21	400.00



Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:44:02	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.56	13C4-PFOS	503.0 / 80.0	140656.25	287.00
PFBS_2	298.9 / 99.0	1.56	13C4-PFOS	503.0 / 80.0	140656.25	287.00
PFHxA_1	313.0 / 269.0	1.85	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFHxA_2	313.0 / 119.0	1.85	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFHpA_1	363.0 / 319.0	2.22	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFHpA_2	363.0 / 169.0	2.21	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFHxS_1	399.0 / 80.0	2.23	13C4-PFOS	503.0 / 80.0	140656.25	287.00
PFHxS_2	399.0 / 99.0	2.23	13C4-PFOS	503.0 / 80.0	140656.25	287.00
PFOA_1	413.0 / 369.0	2.59	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFOA_2	413.0 / 169.0	2.59	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFNA_1	463.0 / 419.0	2.96	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFNA_2	463.0 / 219.0	2.96	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFOS_1	499.0 / 80.0	2.96	13C4-PFOS	503.0 / 80.0	140656.25	287.00
PFOS_2	499.0 / 99.0	2.95	13C4-PFOS	503.0 / 80.0	140656.25	287.00
PFDA_1	513.0 / 469.0	3.31	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFDA_2	513.0 / 219.0	3.31	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFUnA_1	563.0 / 519.0	3.64	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFUnA_2	563.0 / 269.0	3.64	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFDaA_1	613.0 / 569.0	3.93	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFDaA_2	613.0 / 319.0	3.93	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFTTrDA_1	663.0 / 619.0	4.19	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFTTrDA_2	663.0 / 169.0	4.19	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFTTeDA_1	713.0 / 669.0	4.42	13C2-PFOA	415.0 / 370.0	31838.05	100.00
PFTTeDA_2	713.0 / 169.0	4.42	13C2-PFOA	415.0 / 370.0	31838.05	100.00
NMeFOSAA_1	570.0 / 419.0	3.47	d3-MeFOSAA	573.0 / 419.0	24307.22	400.00
NMeFOSAA_2	570.0 / 512.0	3.47	d3-MeFOSAA	573.0 / 419.0	24307.22	400.00
NEtFOSAA_1	584.0 / 419.0	3.63	d3-MeFOSAA	573.0 / 419.0	24307.22	400.00
NEtFOSAA_2	584.0 / 483.0	3.63	d3-MeFOSAA	573.0 / 419.0	24307.22	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	31838.05	100.00
13C2-PFDA	515.0 / 470.0	3.30	13C2-PFOA	415.0 / 370.0	31838.05	100.00
d5-EtFOSAA	589.0 / 419.0	3.62	d3-MeFOSAA	573.0 / 419.0	24307.22	400.00

Sample Name	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:52:58	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.56	13C4-PFOS	503.0 / 80.0	135680.11	287.00
PFBS_2	298.9 / 99.0	1.56	13C4-PFOS	503.0 / 80.0	135680.11	287.00
PFHxA_1	313.0 / 269.0	1.85	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFHxA_2	313.0 / 119.0	1.85	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFHpA_1	363.0 / 319.0	2.22	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFHpA_2	363.0 / 169.0	2.22	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFHxS_1	399.0 / 80.0	2.23	13C4-PFOS	503.0 / 80.0	135680.11	287.00
PFHxS_2	399.0 / 99.0	2.23	13C4-PFOS	503.0 / 80.0	135680.11	287.00
PFOA_1	413.0 / 369.0	2.59	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFOA_2	413.0 / 169.0	2.58	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFNA_1	463.0 / 419.0	2.96	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFNA_2	463.0 / 219.0	2.96	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFOS_1	499.0 / 80.0	2.95	13C4-PFOS	503.0 / 80.0	135680.11	287.00
PFOS_2	499.0 / 99.0	2.95	13C4-PFOS	503.0 / 80.0	135680.11	287.00
PFDA_1	513.0 / 469.0	3.31	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFDA_2	513.0 / 219.0	3.31	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFUnA_1	563.0 / 519.0	3.64	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFUnA_2	563.0 / 269.0	3.64	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFDaA_1	613.0 / 569.0	3.93	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFDaA_2	613.0 / 319.0	3.93	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFTTrDA_1	663.0 / 619.0	4.19	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFTTrDA_2	663.0 / 169.0	4.19	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFTeDA_1	713.0 / 669.0	4.42	13C2-PFOA	415.0 / 370.0	33937.64	100.00
PFTeDA_2	713.0 / 169.0	4.42	13C2-PFOA	415.0 / 370.0	33937.64	100.00
NMeFOSAA_1	570.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	27617.78	400.00
NMeFOSAA_2	570.0 / 512.0	3.46	d3-MeFOSAA	573.0 / 419.0	27617.78	400.00
NEtFOSAA_1	584.0 / 419.0	3.63	d3-MeFOSAA	573.0 / 419.0	27617.78	400.00
NEtFOSAA_2	584.0 / 483.0	3.63	d3-MeFOSAA	573.0 / 419.0	27617.78	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	33937.64	100.00
13C2-PFDA	515.0 / 470.0	3.30	13C2-PFOA	415.0 / 370.0	33937.64	100.00
d5-EtFOSAA	589.0 / 419.0	3.62	d3-MeFOSAA	573.0 / 419.0	27617.78	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	2018-08-20T16:10:51	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.56	841.565895	885.00	95.09
PFBS_2	298.9 / 99.0	1.56	874.300913	885.00	98.79
PFHxA_1	313.0 / 269.0	1.85	1062.726354	1000.00	106.27
PFHxA_2	313.0 / 119.0	1.85	1018.158141	1000.00	101.82
PFHpA_1	363.0 / 319.0	2.21	1060.501779	1000.00	106.05
PFHpA_2	363.0 / 169.0	2.21	1078.405828	1000.00	107.84
PFHxS_1	399.0 / 80.0	2.23	937.846931	912.00	102.83
PFHxS_2	399.0 / 99.0	2.23	897.714357	912.00	98.43
PFOA_1	413.0 / 369.0	2.58	1062.648816	1000.00	106.26
PFOA_2	413.0 / 169.0	2.58	1004.684982	1000.00	100.47
PFNA_1	463.0 / 419.0	2.96	1090.862692	1000.00	109.09
PFNA_2	463.0 / 219.0	2.96	1044.682874	1000.00	104.47
PFOS_1	499.0 / 80.0	2.95	846.596157	925.60	91.46
PFOS_2	499.0 / 99.0	2.95	980.456621	925.60	105.93
PFDA_1	513.0 / 469.0	3.31	1013.511468	1000.00	101.35
PFDA_2	513.0 / 219.0	3.31	1123.488192	1000.00	112.35
PFUnA_1	563.0 / 519.0	3.64	1013.728757	1000.00	101.37
PFUnA_2	563.0 / 269.0	3.64	1114.846944	1000.00	111.48
PFDoA_1	613.0 / 569.0	3.93	1083.332675	1000.00	108.33
PFDoA_2	613.0 / 319.0	3.93	1098.130149	1000.00	109.81
PFTTrDA_1	663.0 / 619.0	4.19	1075.423268	1000.00	107.54
PFTTrDA_2	663.0 / 169.0	4.18	1017.730417	1000.00	101.77
PFTeDA_1	713.0 / 669.0	4.41	1061.391737	1000.00	106.14
PFTeDA_2	713.0 / 169.0	4.41	1023.088379	1000.00	102.31
NMeFOSAA_1	570.0 / 419.0	3.46	1208.654842	1000.00	120.87
NMeFOSAA_2	570.0 / 512.0	3.46	1026.080779	1000.00	102.61
NEtFOSAA_1	584.0 / 419.0	3.63	1147.648798	1000.00	114.76
NEtFOSAA_2	584.0 / 483.0	3.62	753.328653	1000.00	75.33
13C2-PFHxA	315.0 / 270.0	1.84	104.596106	100.00	104.60
13C2-PFDA	515.0 / 470.0	3.30	100.438626	100.00	100.44
d5-EtFOSAA	589.0 / 419.0	3.62	417.249639	400.00	104.31

Sample Name	JZ83 CCV	Injection Vial	31
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:00:42	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.55	806.231398	885.00	91.10
PFBS_2	298.9 / 99.0	1.54	810.369744	885.00	91.57
PFHxA_1	313.0 / 269.0	1.83	1035.206375	1000.00	103.52
PFHxA_2	313.0 / 119.0	1.83	982.603081	1000.00	98.26
PFHpA_1	363.0 / 319.0	2.18	998.626779	1000.00	99.86
PFHpA_2	363.0 / 169.0	2.18	980.458516	1000.00	98.05
PFHxS_1	399.0 / 80.0	2.20	823.362936	912.00	90.28
PFHxS_2	399.0 / 99.0	2.20	806.399314	912.00	88.42
PFOA_1	413.0 / 369.0	2.55	1004.497885	1000.00	100.45
PFOA_2	413.0 / 169.0	2.55	925.143438	1000.00	92.51
PFNA_1	463.0 / 419.0	2.92	1025.361386	1000.00	102.54
PFNA_2	463.0 / 219.0	2.92	972.973976	1000.00	97.30
PFOS_1	499.0 / 80.0	2.91	845.251554	925.60	91.32
PFOS_2	499.0 / 99.0	2.91	856.448928	925.60	92.53
PFDA_1	513.0 / 469.0	3.26	919.567747	1000.00	91.96
PFDA_2	513.0 / 219.0	3.26	865.392365	1000.00	86.54
PFUnA_1	563.0 / 519.0	3.58	1053.504804	1000.00	105.35
PFUnA_2	563.0 / 269.0	3.58	1249.574105	1000.00	124.96
PFDoA_1	613.0 / 569.0	3.87	993.640967	1000.00	99.36
PFDoA_2	613.0 / 319.0	3.87	990.814427	1000.00	99.08
PFTrDA_1	663.0 / 619.0	4.13	989.387819	1000.00	98.94
PFTrDA_2	663.0 / 169.0	4.13	962.771293	1000.00	96.28
PFTeDA_1	713.0 / 669.0	4.36	976.895780	1000.00	97.69
PFTeDA_2	713.0 / 169.0	4.36	1006.984838	1000.00	100.70
NMeFOSAA_1	570.0 / 419.0	3.41	1004.951128	1000.00	100.50
NMeFOSAA_2	570.0 / 512.0	3.41	990.955253	1000.00	99.10
NEtFOSAA_1	584.0 / 419.0	3.57	889.224584	1000.00	88.92
NEtFOSAA_2	584.0 / 483.0	3.57	713.329571	1000.00	71.33
13C2-PFHxA	315.0 / 270.0	1.82	105.043945	100.00	105.04
13C2-PFDA	515.0 / 470.0	3.25	97.833171	100.00	97.83
d5-EtFOSAA	589.0 / 419.0	3.57	402.491028	400.00	100.62

Sample Name	JZ82 CCV	Injection Vial	37
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:54:22	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.55	452.672361	443.00	102.18
PFBS_2	298.9 / 99.0	1.55	458.472072	443.00	103.49
PFHxA_1	313.0 / 269.0	1.83	555.621289	500.00	111.12
PFHxA_2	313.0 / 119.0	1.83	528.086048	500.00	105.62
PFHpA_1	363.0 / 319.0	2.18	563.879400	500.00	112.78
PFHpA_2	363.0 / 169.0	2.18	602.483149	500.00	120.50
PFHxS_1	399.0 / 80.0	2.20	505.384031	456.00	110.83
PFHxS_2	399.0 / 99.0	2.20	513.443632	456.00	112.60
PFOA_1	413.0 / 369.0	2.55	522.236946	500.00	104.45
PFOA_2	413.0 / 169.0	2.55	492.375765	500.00	98.48
PFNA_1	463.0 / 419.0	2.92	603.050165	500.00	120.61
PFNA_2	463.0 / 219.0	2.92	579.002792	500.00	115.80
PFOS_1	499.0 / 80.0	2.91	490.144605	463.00	105.86
PFOS_2	499.0 / 99.0	2.91	533.729497	463.00	115.28
PFDA_1	513.0 / 469.0	3.26	527.454242	500.00	105.49
PFDA_2	513.0 / 219.0	3.26	618.622813	500.00	123.72
PFUnA_1	563.0 / 519.0	3.58	601.507068	500.00	120.30
PFUnA_2	563.0 / 269.0	3.58	634.067674	500.00	126.81
PFDoA_1	613.0 / 569.0	3.87	532.905196	500.00	106.58
PFDoA_2	613.0 / 319.0	3.87	572.897063	500.00	114.58
PFTTrDA_1	663.0 / 619.0	4.13	555.092504	500.00	111.02
PFTTrDA_2	663.0 / 169.0	4.13	554.259978	500.00	110.85
PFTeDA_1	713.0 / 669.0	4.36	535.059612	500.00	107.01
PFTeDA_2	713.0 / 169.0	4.36	554.533001	500.00	110.91
NMeFOSAA_1	570.0 / 419.0	3.41	577.049020	500.00	115.41
NMeFOSAA_2	570.0 / 512.0	3.41	580.819210	500.00	116.16
NEtFOSAA_1	584.0 / 419.0	3.57	541.253568	500.00	108.25
NEtFOSAA_2	584.0 / 483.0	3.57	572.213706	500.00	114.44
13C2-PFHxA	315.0 / 270.0	1.82	100.037442	100.00	100.04
13C2-PFDA	515.0 / 470.0	3.25	95.504012	100.00	95.50
d5-EtFOSAA	589.0 / 419.0	3.57	433.669356	400.00	108.42

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T16:10:51	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.56	260572.70	841.565895	1179.8	false
PFBS_2	298.9 / 99.0	1.56	78353.61	874.300913	744.4	false
PFHxA_1	313.0 / 269.0	1.85	265891.04	1062.726354	235.4	false
PFHxA_2	313.0 / 119.0	1.85	20238.67	1018.158141	196.8	false
PFHpA_1	363.0 / 319.0	2.21	262746.16	1060.501779	294.7	false
PFHpA_2	363.0 / 169.0	2.21	5605.38	1078.405828	172.8	false
PFHxS_1	399.0 / 80.0	2.23	324679.46	937.846931	228.8	false
PFHxS_2	399.0 / 99.0	2.23	90581.10	897.714357	337.9	false
PFOA_1	413.0 / 369.0	2.58	283327.67	1062.648816	291.3	false
PFOA_2	413.0 / 169.0	2.58	18611.28	1004.684982	232.6	false
PFNA_1	463.0 / 419.0	2.96	260455.47	1090.862692	351.3	false
PFNA_2	463.0 / 219.0	2.96	81962.62	1044.682874	327.6	false
PFOS_1	499.0 / 80.0	2.95	408335.60	846.596157	282.2	false
PFOS_2	499.0 / 99.0	2.95	86235.36	980.456621	506.6	false
PFDA_1	513.0 / 469.0	3.31	290847.01	1013.511468	401.0	false
PFDA_2	513.0 / 219.0	3.31	13596.76	1123.488192	230.0	false
PFUnA_1	563.0 / 519.0	3.64	295307.35	1013.728757	346.6	false
PFUnA_2	563.0 / 269.0	3.64	15927.48	1114.846944	114.2	false
PFDoA_1	613.0 / 569.0	3.93	312665.39	1083.332675	324.4	false
PFDoA_2	613.0 / 319.0	3.93	51439.96	1098.130149	270.1	false
PFTrDA_1	663.0 / 619.0	4.19	297777.05	1075.423268	556.3	false
PFTrDA_2	663.0 / 169.0	4.18	18340.33	1017.730417	286.0	false
PFTeDA_1	713.0 / 669.0	4.41	295937.54	1061.391737	1020.0	false
PFTeDA_2	713.0 / 169.0	4.41	13455.55	1023.088379	518.7	false
NMeFOSAA_1	570.0 / 419.0	3.46	56526.31	1208.654842	793.1	false
NMeFOSAA_2	570.0 / 512.0	3.46	29702.66	1026.080779	426.8	false
NEtFOSAA_1	584.0 / 419.0	3.63	58757.08	1147.648798	535.3	false
NEtFOSAA_2	584.0 / 483.0	3.62	3097.77	753.328653	106.5	false
13C2-PFHxA	315.0 / 270.0	1.84	30105.45	104.596106	1000.6	false
13C2-PFDA	515.0 / 470.0	3.30	32493.72	100.438626	741.1	false
d5-EtFOSAA	589.0 / 419.0	3.62	25716.98	417.249639	221.4	false

Sample Name	JZ83 CCV	Injection Vial	31
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:00:42	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.55	288899.36	806.231398	1231.8	false
PFBS_2	298.9 / 99.0	1.54	84045.79	810.369744	699.8	false
PFHxA_1	313.0 / 269.0	1.83	301632.02	1035.206375	214.5	false
PFHxA_2	313.0 / 119.0	1.83	22754.31	982.603081	228.6	false
PFHpA_1	363.0 / 319.0	2.18	288618.50	998.626779	283.0	false
PFHpA_2	363.0 / 169.0	2.18	5965.33	980.458516	183.3	false
PFHxS_1	399.0 / 80.0	2.20	330692.18	823.362936	275.1	false
PFHxS_2	399.0 / 99.0	2.20	94393.21	806.399314	424.3	false
PFOA_1	413.0 / 369.0	2.55	312389.08	1004.497885	251.9	false
PFOA_2	413.0 / 169.0	2.55	20144.62	925.143438	230.0	false
PFNA_1	463.0 / 419.0	2.92	285564.60	1025.361386	331.3	false
PFNA_2	463.0 / 219.0	2.92	89047.00	972.973976	384.5	false
PFOS_1	499.0 / 80.0	2.91	471911.28	845.251554	166.4	false
PFOS_2	499.0 / 99.0	2.91	87473.32	856.448928	414.0	false
PFDA_1	513.0 / 469.0	3.26	308002.76	919.567747	359.8	false
PFDA_2	513.0 / 219.0	3.26	12507.28	865.392365	172.3	true
PFUnA_1	563.0 / 519.0	3.58	356699.29	1053.504804	372.2	false
PFUnA_2	563.0 / 269.0	3.58	20569.00	1249.574105	143.3	false
PFDoA_1	613.0 / 569.0	3.87	334865.33	993.640967	354.4	false
PFDoA_2	613.0 / 319.0	3.87	54203.93	990.814427	293.3	false
PFTrDA_1	663.0 / 619.0	4.13	319895.08	989.387819	486.8	false
PFTrDA_2	663.0 / 169.0	4.13	20214.31	962.771293	315.7	false
PFTeDA_1	713.0 / 669.0	4.36	318003.68	976.895780	972.5	false
PFTeDA_2	713.0 / 169.0	4.36	15416.70	1006.984838	616.0	false
NMeFOSAA_1	570.0 / 419.0	3.41	56195.03	1004.951128	826.3	false
NMeFOSAA_2	570.0 / 512.0	3.41	33747.59	990.955253	703.4	false
NEtFOSAA_1	584.0 / 419.0	3.57	53915.39	889.224584	502.4	false
NEtFOSAA_2	584.0 / 483.0	3.57	3458.58	713.329571	117.2	false
13C2-PFHxA	315.0 / 270.0	1.82	35170.95	105.043945	1150.7	false
13C2-PFDA	515.0 / 470.0	3.25	36818.68	97.833171	1121.5	false
d5-EtFOSAA	589.0 / 419.0	3.57	29160.25	402.491028	253.7	false

Sample Name	JZ82 CCV	Injection Vial	37
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:54:22	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.55	140830.89	452.672361	746.2	false
PFBS_2	298.9 / 99.0	1.55	41323.41	458.472072	847.1	false
PFHxA_1	313.0 / 269.0	1.83	151555.89	555.621289	170.9	false
PFHxA_2	313.0 / 119.0	1.83	11435.28	528.086048	152.4	false
PFHpA_1	363.0 / 319.0	2.18	152512.43	563.879400	192.1	false
PFHpA_2	363.0 / 169.0	2.18	3450.11	602.483149	137.8	false
PFHxS_1	399.0 / 80.0	2.20	178825.30	505.384031	236.7	false
PFHxS_2	399.0 / 99.0	2.20	52991.11	513.443632	344.2	false
PFOA_1	413.0 / 369.0	2.55	153210.39	522.236946	265.0	false
PFOA_2	413.0 / 169.0	2.55	10789.14	492.375765	161.4	false
PFNA_1	463.0 / 419.0	2.92	156387.75	603.050165	254.5	false
PFNA_2	463.0 / 219.0	2.92	49139.93	579.002792	315.4	false
PFOS_1	499.0 / 80.0	2.91	243393.20	490.144605	133.2	false
PFOS_2	499.0 / 99.0	2.91	48196.91	533.729497	361.5	false
PFDA_1	513.0 / 469.0	3.26	163722.98	527.454242	267.3	false
PFDA_2	513.0 / 219.0	3.26	8432.78	618.622813	160.2	false
PFUnA_1	563.0 / 519.0	3.58	186821.12	601.507068	305.3	false
PFUnA_2	563.0 / 269.0	3.58	10149.47	634.067674	115.8	true
PFDoA_1	613.0 / 569.0	3.87	168474.53	532.905196	278.9	false
PFDoA_2	613.0 / 319.0	3.87	29116.72	572.897063	234.5	false
PFTTrDA_1	663.0 / 619.0	4.13	167983.18	555.092504	380.5	false
PFTTrDA_2	663.0 / 169.0	4.13	10727.13	554.259978	251.9	false
PFTeDA_1	713.0 / 669.0	4.36	163113.88	535.059612	771.9	false
PFTeDA_2	713.0 / 169.0	4.36	7934.02	554.533001	423.3	false
NMeFOSAA_1	570.0 / 419.0	3.41	28196.35	577.049020	419.9	false
NMeFOSAA_2	570.0 / 512.0	3.41	16367.58	580.819210	238.4	false
NEtFOSAA_1	584.0 / 419.0	3.57	27260.44	541.253568	416.1	false
NEtFOSAA_2	584.0 / 483.0	3.57	2288.83	572.213706	111.8	true
13C2-PFHxA	315.0 / 270.0	1.82	30231.54	100.037442	783.7	false
13C2-PFDA	515.0 / 470.0	3.25	32440.56	95.504012	898.4	false
d5-EtFOSAA	589.0 / 419.0	3.57	25556.84	433.669356	254.4	false



Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T16:10:51	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.56	PFBS			
PFBS_2	298.9 / 99.0	1.56	PFBS	0.301	0.290	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.076	0.079	ü
PFHpA_1	363.0 / 319.0	2.21	PFHpA			
PFHpA_2	363.0 / 169.0	2.21	PFHpA	0.021	0.022	ü
PFHxS_1	399.0 / 80.0	2.23	PFHxS			
PFHxS_2	399.0 / 99.0	2.23	PFHxS	0.279	0.292	ü
PFOA_1	413.0 / 369.0	2.58	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.066	0.068	ü
PFNA_1	463.0 / 419.0	2.96	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.315	0.320	ü
PFOS_1	499.0 / 80.0	2.95	PFOS			
PFOS_2	499.0 / 99.0	2.95	PFOS	0.211	0.182	ü
PFDA_1	513.0 / 469.0	3.31	PFDA			
PFDA_2	513.0 / 219.0	3.31	PFDA	0.047	0.047	ü
PFUnA_1	563.0 / 519.0	3.64	PFUnA			
PFUnA_2	563.0 / 269.0	3.64	PFUnA	0.054	0.056	ü
PFDoA_1	613.0 / 569.0	3.93	PFDoA			
PFDoA_2	613.0 / 319.0	3.93	PFDoA	0.165	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.19	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.18	PFTTrDA	0.062	0.062	ü
PFTeDA_1	713.0 / 669.0	4.41	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.41	PFTeDA	0.046	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.46	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.46	NMeFOSAA	0.526	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.63	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.62	NEtFOSAA	0.053	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.30		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.62		N/A	N/A	ü

Sample Name	JZ83 CCV	Injection Vial	31
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:00:42	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.55	PFBS			
PFBS_2	298.9 / 99.0	1.54	PFBS	0.291	0.290	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.075	0.079	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.021	0.022	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.285	0.292	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.065	0.068	ü
PFNA_1	463.0 / 419.0	2.92	PFNA			
PFNA_2	463.0 / 219.0	2.92	PFNA	0.312	0.320	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.185	0.182	ü
PFDA_1	513.0 / 469.0	3.26	PFDA			
PFDA_2	513.0 / 219.0	3.26	PFDA	0.041	0.047	ü
PFUnA_1	563.0 / 519.0	3.58	PFUnA			
PFUnA_2	563.0 / 269.0	3.58	PFUnA	0.058	0.056	ü
PFDoA_1	613.0 / 569.0	3.87	PFDoA			
PFDoA_2	613.0 / 319.0	3.87	PFDoA	0.162	0.161	ü
PFTrDA_1	663.0 / 619.0	4.13	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.13	PFTrDA	0.063	0.062	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.049	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.41	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.41	NMeFOSAA	0.601	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.57	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.57	NEtFOSAA	0.064	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		N/A	N/A	ü

Sample Name	JZ82 CCV	Injection Vial	37
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:54:22	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.55	PFBS			
PFBS_2	298.9 / 99.0	1.55	PFBS	0.293	0.290	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.076	0.079	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.023	0.022	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.296	0.292	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.070	0.068	ü
PFNA_1	463.0 / 419.0	2.92	PFNA			
PFNA_2	463.0 / 219.0	2.92	PFNA	0.314	0.320	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.198	0.182	ü
PFDA_1	513.0 / 469.0	3.26	PFDA			
PFDA_2	513.0 / 219.0	3.26	PFDA	0.052	0.047	ü
PFUnA_1	563.0 / 519.0	3.58	PFUnA			
PFUnA_2	563.0 / 269.0	3.58	PFUnA	0.054	0.056	ü
PFDoA_1	613.0 / 569.0	3.87	PFDoA			
PFDoA_2	613.0 / 319.0	3.87	PFDoA	0.173	0.161	ü
PFTrDA_1	663.0 / 619.0	4.13	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.13	PFTrDA	0.064	0.062	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.049	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.41	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.41	NMeFOSAA	0.581	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.57	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.57	NEtFOSAA	0.084	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		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	2018-08-20T16:10:51	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.56	13C4-PFOS	503.0 / 80.0	134938.50	287.00
PFBS_2	298.9 / 99.0	1.56	13C4-PFOS	503.0 / 80.0	134938.50	287.00
PFHxA_1	313.0 / 269.0	1.85	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFHxA_2	313.0 / 119.0	1.85	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFHpA_1	363.0 / 319.0	2.21	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFHpA_2	363.0 / 169.0	2.21	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFHxS_1	399.0 / 80.0	2.23	13C4-PFOS	503.0 / 80.0	134938.50	287.00
PFHxS_2	399.0 / 99.0	2.23	13C4-PFOS	503.0 / 80.0	134938.50	287.00
PFOA_1	413.0 / 369.0	2.58	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFOA_2	413.0 / 169.0	2.58	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFNA_1	463.0 / 419.0	2.96	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFNA_2	463.0 / 219.0	2.96	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFOS_1	499.0 / 80.0	2.95	13C4-PFOS	503.0 / 80.0	134938.50	287.00
PFOS_2	499.0 / 99.0	2.95	13C4-PFOS	503.0 / 80.0	134938.50	287.00
PFDA_1	513.0 / 469.0	3.31	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFDA_2	513.0 / 219.0	3.31	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFUnA_1	563.0 / 519.0	3.64	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFUnA_2	563.0 / 269.0	3.64	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFDaA_1	613.0 / 569.0	3.93	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFDaA_2	613.0 / 319.0	3.93	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFTrDA_1	663.0 / 619.0	4.19	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFTrDA_2	663.0 / 169.0	4.18	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFTeDA_1	713.0 / 669.0	4.41	13C2-PFOA	415.0 / 370.0	28769.08	100.00
PFTeDA_2	713.0 / 169.0	4.41	13C2-PFOA	415.0 / 370.0	28769.08	100.00
NMeFOSAA_1	570.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	22841.71	400.00
NMeFOSAA_2	570.0 / 512.0	3.46	d3-MeFOSAA	573.0 / 419.0	22841.71	400.00
NEtFOSAA_1	584.0 / 419.0	3.63	d3-MeFOSAA	573.0 / 419.0	22841.71	400.00
NEtFOSAA_2	584.0 / 483.0	3.62	d3-MeFOSAA	573.0 / 419.0	22841.71	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	28769.08	100.00
13C2-PFDA	515.0 / 470.0	3.30	13C2-PFOA	415.0 / 370.0	28769.08	100.00
d5-EtFOSAA	589.0 / 419.0	3.62	d3-MeFOSAA	573.0 / 419.0	22841.71	400.00

Sample Name	JZ83 CCV	Injection Vial	31
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:00:42	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.55	13C4-PFOS	503.0 / 80.0	156188.42	287.00
PFBS_2	298.9 / 99.0	1.54	13C4-PFOS	503.0 / 80.0	156188.42	287.00
PFHxA_1	313.0 / 269.0	1.83	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFHxA_2	313.0 / 119.0	1.83	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFHpA_1	363.0 / 319.0	2.18	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFHpA_2	363.0 / 169.0	2.18	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	156188.42	287.00
PFHxS_2	399.0 / 99.0	2.20	13C4-PFOS	503.0 / 80.0	156188.42	287.00
PFOA_1	413.0 / 369.0	2.55	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFOA_2	413.0 / 169.0	2.55	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFNA_1	463.0 / 419.0	2.92	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFNA_2	463.0 / 219.0	2.92	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	156188.42	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	156188.42	287.00
PFDA_1	513.0 / 469.0	3.26	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFDA_2	513.0 / 219.0	3.26	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFUnA_1	563.0 / 519.0	3.58	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFUnA_2	563.0 / 269.0	3.58	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFDaA_1	613.0 / 569.0	3.87	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFDaA_2	613.0 / 319.0	3.87	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFTTrDA_1	663.0 / 619.0	4.13	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFTTrDA_2	663.0 / 169.0	4.13	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFTTeDA_1	713.0 / 669.0	4.36	13C2-PFOA	415.0 / 370.0	33466.43	100.00
PFTTeDA_2	713.0 / 169.0	4.36	13C2-PFOA	415.0 / 370.0	33466.43	100.00
NMeFOSAA_1	570.0 / 419.0	3.41	d3-MeFOSAA	573.0 / 419.0	26849.70	400.00
NMeFOSAA_2	570.0 / 512.0	3.41	d3-MeFOSAA	573.0 / 419.0	26849.70	400.00
NEtFOSAA_1	584.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	26849.70	400.00
NEtFOSAA_2	584.0 / 483.0	3.57	d3-MeFOSAA	573.0 / 419.0	26849.70	400.00
13C2-PFHxA	315.0 / 270.0	1.82	13C2-PFOA	415.0 / 370.0	33466.43	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	33466.43	100.00
d5-EtFOSAA	589.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	26849.70	400.00

Sample Name	JZ82 CCV	Injection Vial	37
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:54:22	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.55	13C4-PFOS	503.0 / 80.0	135994.66	287.00
PFBS_2	298.9 / 99.0	1.55	13C4-PFOS	503.0 / 80.0	135994.66	287.00
PFHxA_1	313.0 / 269.0	1.83	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFHxA_2	313.0 / 119.0	1.83	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFHpA_1	363.0 / 319.0	2.18	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFHpA_2	363.0 / 169.0	2.18	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	135994.66	287.00
PFHxS_2	399.0 / 99.0	2.20	13C4-PFOS	503.0 / 80.0	135994.66	287.00
PFOA_1	413.0 / 369.0	2.55	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFOA_2	413.0 / 169.0	2.55	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFNA_1	463.0 / 419.0	2.92	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFNA_2	463.0 / 219.0	2.92	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	135994.66	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	135994.66	287.00
PFDA_1	513.0 / 469.0	3.26	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFDA_2	513.0 / 219.0	3.26	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFUnA_1	563.0 / 519.0	3.58	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFUnA_2	563.0 / 269.0	3.58	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFDaA_1	613.0 / 569.0	3.87	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFDaA_2	613.0 / 319.0	3.87	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFTTrDA_1	663.0 / 619.0	4.13	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFTTrDA_2	663.0 / 169.0	4.13	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFTTeDA_1	713.0 / 669.0	4.36	13C2-PFOA	415.0 / 370.0	30206.05	100.00
PFTTeDA_2	713.0 / 169.0	4.36	13C2-PFOA	415.0 / 370.0	30206.05	100.00
NMeFOSAA_1	570.0 / 419.0	3.41	d3-MeFOSAA	573.0 / 419.0	21840.01	400.00
NMeFOSAA_2	570.0 / 512.0	3.41	d3-MeFOSAA	573.0 / 419.0	21840.01	400.00
NEtFOSAA_1	584.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	21840.01	400.00
NEtFOSAA_2	584.0 / 483.0	3.57	d3-MeFOSAA	573.0 / 419.0	21840.01	400.00
13C2-PFHxA	315.0 / 270.0	1.82	13C2-PFOA	415.0 / 370.0	30206.05	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	30206.05	100.00
d5-EtFOSAA	589.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	21840.01	400.00

# Raw Analytical Data

Sample Name	JZ10 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T16:01:53	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
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	2.59	2436.97	< 0	19.4	true
PFOA_2	413.0 / 169.0	2.60	258.24	< 0	11.9	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	4.42	2862.15	< 0	88.8	false
PFTeDA_2	713.0 / 169.0	4.44	140.89	< 0	16.7	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	1.84	39242.30	90.606725	1217.2	false
13C2-PFDA	515.0 / 470.0	3.30	43380.39	89.110800	902.4	false
d5-EtFOSAA	589.0 / 419.0	3.62	33206.27	391.180329	267.9	false



Sample Name	CR577PB-FS(0)	Injection Vial	33
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:18:36	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
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	2.20	10112.23	8.100976	44.8	false
PFHxS_2	399.0 / 99.0	2.21	3318.87	8.721370	44.9	false
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	2.92	134684.65	205.335992	80.7	true
PFOS_2	499.0 / 99.0	2.92	27110.43	230.860239	178.3	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	1.83	27433.74	78.249843	680.0	false
13C2-PFDA	515.0 / 470.0	3.26	29928.11	75.946671	949.0	false
d5-EtFOSAA	589.0 / 419.0	3.57	20167.61	311.135681	198.4	false

Sample Name	CR578LCS-FS(0)	Injection Vial	34
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:27:33	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.55	1330784.15	3713.064222	2468.5	false
PFBS_2	298.9 / 99.0	1.55	383302.37	3698.541674	1049.4	false
PFHxA_1	313.0 / 269.0	1.83	1422169.05	4717.766445	515.8	false
PFHxA_2	313.0 / 119.0	1.83	106322.38	4433.053378	472.8	false
PFHpA_1	363.0 / 319.0	2.18	1383243.85	4644.733670	569.7	false
PFHpA_2	363.0 / 169.0	2.18	26850.16	4352.087703	368.2	false
PFHxS_1	399.0 / 80.0	2.20	1546248.54	3918.270310	606.8	false
PFHxS_2	399.0 / 99.0	2.20	447892.98	3905.087398	1309.5	false
PFOA_1	413.0 / 369.0	2.55	1382329.96	4313.748528	607.1	false
PFOA_2	413.0 / 169.0	2.55	96147.10	4605.798211	452.3	false
PFNA_1	463.0 / 419.0	2.92	1265061.37	4395.251108	717.6	false
PFNA_2	463.0 / 219.0	2.92	400317.48	4216.419490	827.4	false
PFOS_1	499.0 / 80.0	2.91	1962084.18	3605.612508	471.1	false
PFOS_2	499.0 / 99.0	2.91	405312.40	4060.770041	1000.9	false
PFDA_1	513.0 / 469.0	3.26	1348647.12	3867.121664	879.4	false
PFDA_2	513.0 / 219.0	3.26	59945.43	4256.665153	397.8	false
PFUnA_1	563.0 / 519.0	3.58	1492214.13	4184.689794	631.7	false
PFUnA_2	563.0 / 269.0	3.58	71683.05	4311.768817	277.6	false
PFDoA_1	613.0 / 569.0	3.87	1375078.16	3945.553341	608.8	false
PFDoA_2	613.0 / 319.0	3.87	222533.08	3917.110012	492.2	false
PFTTrDA_1	663.0 / 619.0	4.13	1267625.56	3794.713306	846.0	false
PFTTrDA_2	663.0 / 169.0	4.13	80511.41	3659.688751	512.1	false
PFTeDA_1	713.0 / 669.0	4.36	1228375.78	3646.190431	1529.6	false
PFTeDA_2	713.0 / 169.0	4.36	56806.30	3577.373532	976.2	false
NMeFOSAA_1	570.0 / 419.0	3.41	271956.54	5015.493231	1353.2	false
NMeFOSAA_2	570.0 / 512.0	3.41	136227.39	3865.137583	971.9	false
NEtFOSAA_1	584.0 / 419.0	3.57	261247.77	4196.703019	1118.8	false
NEtFOSAA_2	584.0 / 483.0	3.57	16871.27	3459.460984	501.9	false
13C2-PFHxA	315.0 / 270.0	1.82	31278.50	87.259062	828.5	false
13C2-PFDA	515.0 / 470.0	3.25	32005.37	79.436190	1109.3	false
d5-EtFOSAA	589.0 / 419.0	3.57	23590.35	308.895736	230.1	true

Sample Name	J7428-FS(0)	Injection Vial	35
Sample ID	JAX-RES-08142018-1045-8	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:36:30	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
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	2.20	12756.75	14.961675	31.7	false
PFHxS_2	399.0 / 99.0	2.20	4495.99	19.037178	34.3	false
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	2.91	121515.59	187.033524	73.2	false
PFOS_2	499.0 / 99.0	2.91	19853.75	166.887171	156.6	false
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	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	1.82	33815.31	86.275109	487.1	false
13C2-PFDA	515.0 / 470.0	3.25	31632.75	71.802588	893.5	true
d5-EtFOSAA	589.0 / 419.0	3.57	23137.72	278.014087	225.2	true

Sample Name	J7430-FS(0)	Injection Vial	36
Sample ID	JAX-RES-08142018-1130-9	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:45:25	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
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	2.91	57661.54	70.609451	58.9	false
PFOS_2	499.0 / 99.0	2.91	10630.56	74.362229	108.2	false
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	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	1.82	31677.04	77.986594	577.5	false
13C2-PFDA	515.0 / 470.0	3.25	25314.30	55.446266	1033.2	true
d5-EtFOSAA	589.0 / 419.0	3.57	19038.29	254.521729	210.2	true

<b>Sample Name</b>	JZ10 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>	2018-08-20T16:01:53	<b>Data File</b>	DW_08202018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0507DW
<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	0.290	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.079	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.022	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.292	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.60	PFOA	0.106	0.068	
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.320	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.182	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.056	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	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	0.062	ü
PFTeDA_1	713.0 / 669.0	4.42	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.44	PFTeDA	0.049	0.047	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.612	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.30		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.62		N/A	N/A	ü

Sample Name	CR577PB-FS(0)	Injection Vial	33
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:18:36	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	N/A	PFBS			
PFBS_2	298.9 / 99.0	N/A	PFBS	N/A	0.290	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.079	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.022	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.328	0.292	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.068	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.320	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.201	0.182	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.056	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	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	0.062	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.047	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.612	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.26		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		N/A	N/A	ü

<b>Sample Name</b>	CR578LCS-FS(0)	<b>Injection Vial</b>	34
<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>	2018-08-20T19:27:33	<b>Data File</b>	DW_08202018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0507DW
<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	1.55	PFBS			
PFBS_2	298.9 / 99.0	1.55	PFBS	0.288	0.290	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.075	0.079	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.019	0.022	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.290	0.292	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.070	0.068	ü
PFNA_1	463.0 / 419.0	2.92	PFNA			
PFNA_2	463.0 / 219.0	2.92	PFNA	0.316	0.320	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.207	0.182	ü
PFDA_1	513.0 / 469.0	3.26	PFDA			
PFDA_2	513.0 / 219.0	3.26	PFDA	0.044	0.047	ü
PFUnA_1	563.0 / 519.0	3.58	PFUnA			
PFUnA_2	563.0 / 269.0	3.58	PFUnA	0.048	0.056	ü
PFDoA_1	613.0 / 569.0	3.87	PFDoA			
PFDoA_2	613.0 / 319.0	3.87	PFDoA	0.162	0.161	ü
PFTrDA_1	663.0 / 619.0	4.13	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.13	PFTrDA	0.064	0.062	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.046	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.41	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.41	NMeFOSAA	0.501	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.57	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.57	NEtFOSAA	0.065	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		N/A	N/A	ü

Sample Name	J7428-FS(0)	Injection Vial	35
Sample ID	JAX-RES-08142018-1045-8	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:36:30	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.21	PFBS			
PFBS_2	298.9 / 99.0	1.81	PFBS	0.265	0.290	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.079	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.022	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.352	0.292	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.068	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.320	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.163	0.182	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.056	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	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	0.062	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.047	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.612	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		N/A	N/A	ü



Sample Name	J7430-FS(0)	Injection Vial	36
Sample ID	JAX-RES-08142018-1130-9	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:45:25	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	N/A	PFBS			
PFBS_2	298.9 / 99.0	N/A	PFBS	N/A	0.290	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.079	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.022	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.292	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.068	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.320	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.184	0.182	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.056	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	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	0.062	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.047	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.612	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		N/A	N/A	ü

Sample Name	JZ10 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T16:01:53	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
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	183690.52	287.00
PFBS_2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	183690.52	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	183690.52	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	183690.52	287.00
PFOA_1	413.0 / 369.0	2.59	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFOA_2	413.0 / 169.0	2.60	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	183690.52	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	183690.52	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFTeDA_1	713.0 / 669.0	4.42	13C2-PFOA	415.0 / 370.0	43290.28	100.00
PFTeDA_2	713.0 / 169.0	4.44	13C2-PFOA	415.0 / 370.0	43290.28	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	31459.20	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	31459.20	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	31459.20	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	31459.20	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	43290.28	100.00
13C2-PFDA	515.0 / 470.0	3.30	13C2-PFOA	415.0 / 370.0	43290.28	100.00
d5-EtFOSAA	589.0 / 419.0	3.62	d3-MeFOSAA	573.0 / 419.0	31459.20	400.00

Sample Name	CR577PB-FS(0)	Injection Vial	33
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:18:36	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
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	167965.13	287.00
PFBS_2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	167965.13	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	167965.13	287.00
PFHxS_2	399.0 / 99.0	2.21	13C4-PFOS	503.0 / 80.0	167965.13	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFOS_1	499.0 / 80.0	2.92	13C4-PFOS	503.0 / 80.0	167965.13	287.00
PFOS_2	499.0 / 99.0	2.92	13C4-PFOS	503.0 / 80.0	167965.13	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	35042.72	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	24022.00	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	24022.00	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	24022.00	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	24022.00	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	35042.72	100.00
13C2-PFDA	515.0 / 470.0	3.26	13C2-PFOA	415.0 / 370.0	35042.72	100.00
d5-EtFOSAA	589.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	24022.00	400.00

Sample Name	CR578LCS-FS(0)	Injection Vial	34
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:27:33	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.55	13C4-PFOS	503.0 / 80.0	155772.89	287.00
PFBS_2	298.9 / 99.0	1.55	13C4-PFOS	503.0 / 80.0	155772.89	287.00
PFHxA_1	313.0 / 269.0	1.83	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFHxA_2	313.0 / 119.0	1.83	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFHpA_1	363.0 / 319.0	2.18	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFHpA_2	363.0 / 169.0	2.18	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	155772.89	287.00
PFHxS_2	399.0 / 99.0	2.20	13C4-PFOS	503.0 / 80.0	155772.89	287.00
PFOA_1	413.0 / 369.0	2.55	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFOA_2	413.0 / 169.0	2.55	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFNA_1	463.0 / 419.0	2.92	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFNA_2	463.0 / 219.0	2.92	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	155772.89	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	155772.89	287.00
PFDA_1	513.0 / 469.0	3.26	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFDA_2	513.0 / 219.0	3.26	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFUnA_1	563.0 / 519.0	3.58	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFUnA_2	563.0 / 269.0	3.58	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFDoA_1	613.0 / 569.0	3.87	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFDoA_2	613.0 / 319.0	3.87	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFTTrDA_1	663.0 / 619.0	4.13	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFTTrDA_2	663.0 / 169.0	4.13	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFTeDA_1	713.0 / 669.0	4.36	13C2-PFOA	415.0 / 370.0	35828.75	100.00
PFTeDA_2	713.0 / 169.0	4.36	13C2-PFOA	415.0 / 370.0	35828.75	100.00
NMeFOSAA_1	570.0 / 419.0	3.41	d3-MeFOSAA	573.0 / 419.0	28302.64	400.00
NMeFOSAA_2	570.0 / 512.0	3.41	d3-MeFOSAA	573.0 / 419.0	28302.64	400.00
NEtFOSAA_1	584.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	28302.64	400.00
NEtFOSAA_2	584.0 / 483.0	3.57	d3-MeFOSAA	573.0 / 419.0	28302.64	400.00
13C2-PFHxA	315.0 / 270.0	1.82	13C2-PFOA	415.0 / 370.0	35828.75	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	35828.75	100.00
d5-EtFOSAA	589.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	28302.64	400.00

Sample Name	J7428-FS(0)	Injection Vial	35
Sample ID	JAX-RES-08142018-1045-8	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:36:30	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.21	13C4-PFOS	503.0 / 80.0	164570.94	287.00
PFBS_2	298.9 / 99.0	1.81	13C4-PFOS	503.0 / 80.0	164570.94	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	164570.94	287.00
PFHxS_2	399.0 / 99.0	2.20	13C4-PFOS	503.0 / 80.0	164570.94	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	164570.94	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	164570.94	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	30843.11	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	30843.11	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	30843.11	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	30843.11	400.00
13C2-PFHxA	315.0 / 270.0	1.82	13C2-PFOA	415.0 / 370.0	39176.36	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	39176.36	100.00
d5-EtFOSAA	589.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	30843.11	400.00

Sample Name	J7430-FS(0)	Injection Vial	36
Sample ID	JAX-RES-08142018-1130-9	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:45:25	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

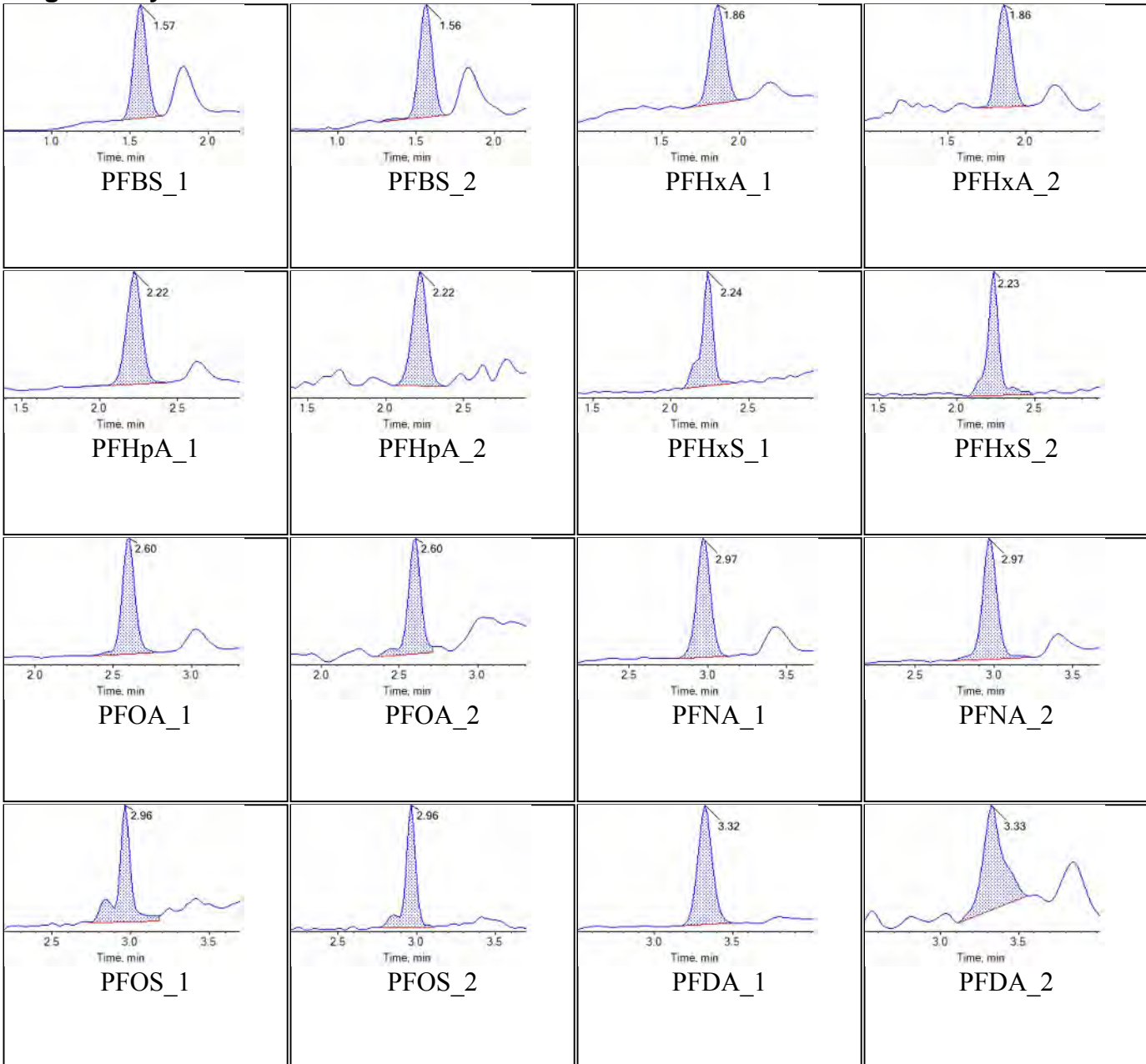
Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	172351.12	287.00
PFBS_2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	172351.12	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	172351.12	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	172351.12	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	172351.12	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	172351.12	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	40599.52	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	27720.91	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	27720.91	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	27720.91	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	27720.91	400.00
13C2-PFHxA	315.0 / 270.0	1.82	13C2-PFOA	415.0 / 370.0	40599.52	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	40599.52	100.00
d5-EtFOSAA	589.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	27720.91	400.00

# Chromatograms

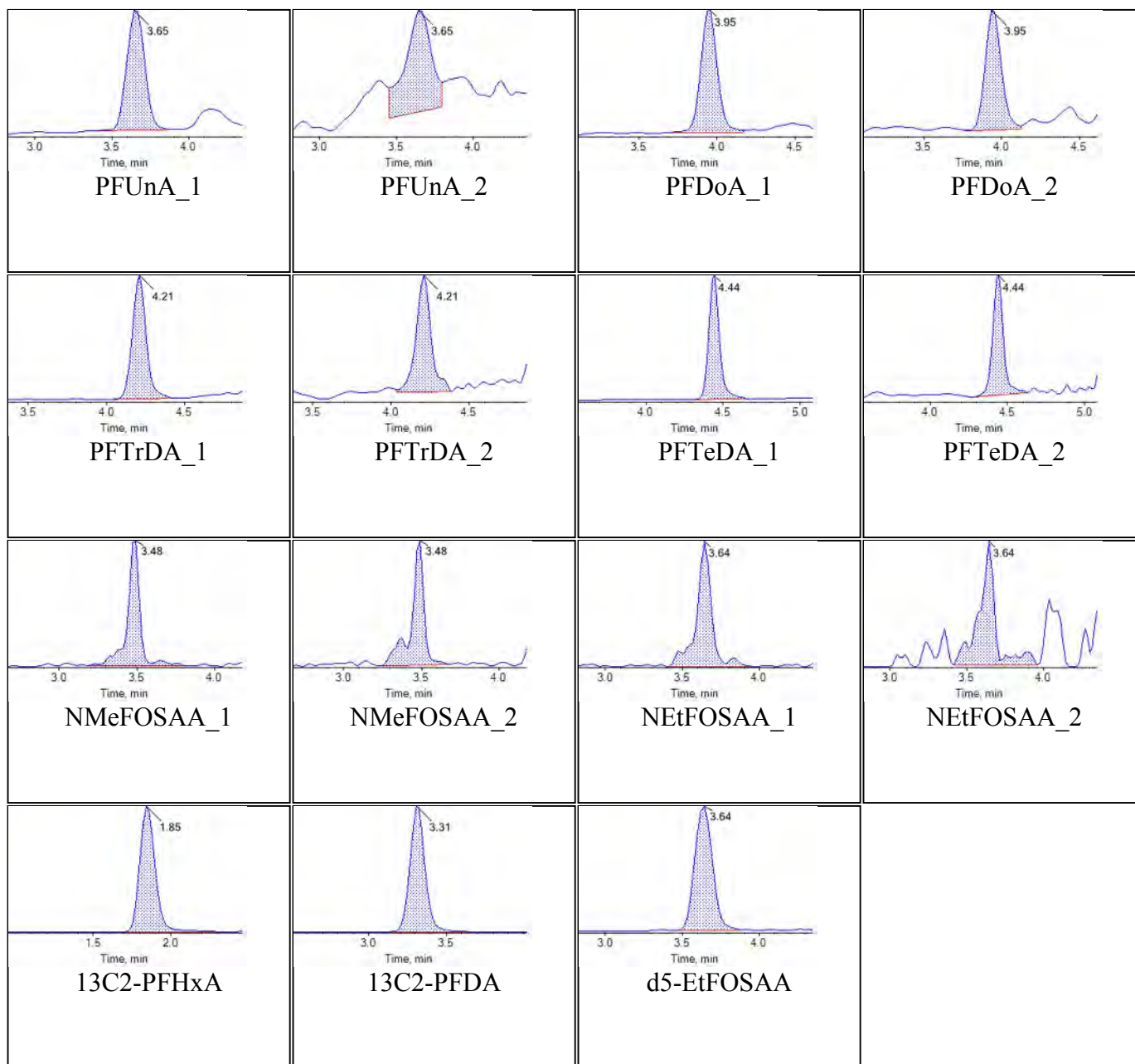
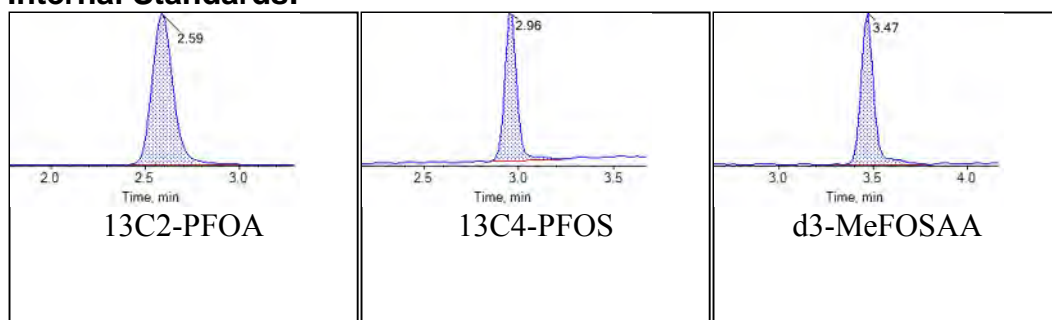
<b>Sample Name</b>	JZ80	<b>Injection Vial</b>	4
<b>Sample ID</b>	L3	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-20T14:59:21	<b>Data File</b>	DW_08202018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0507DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:



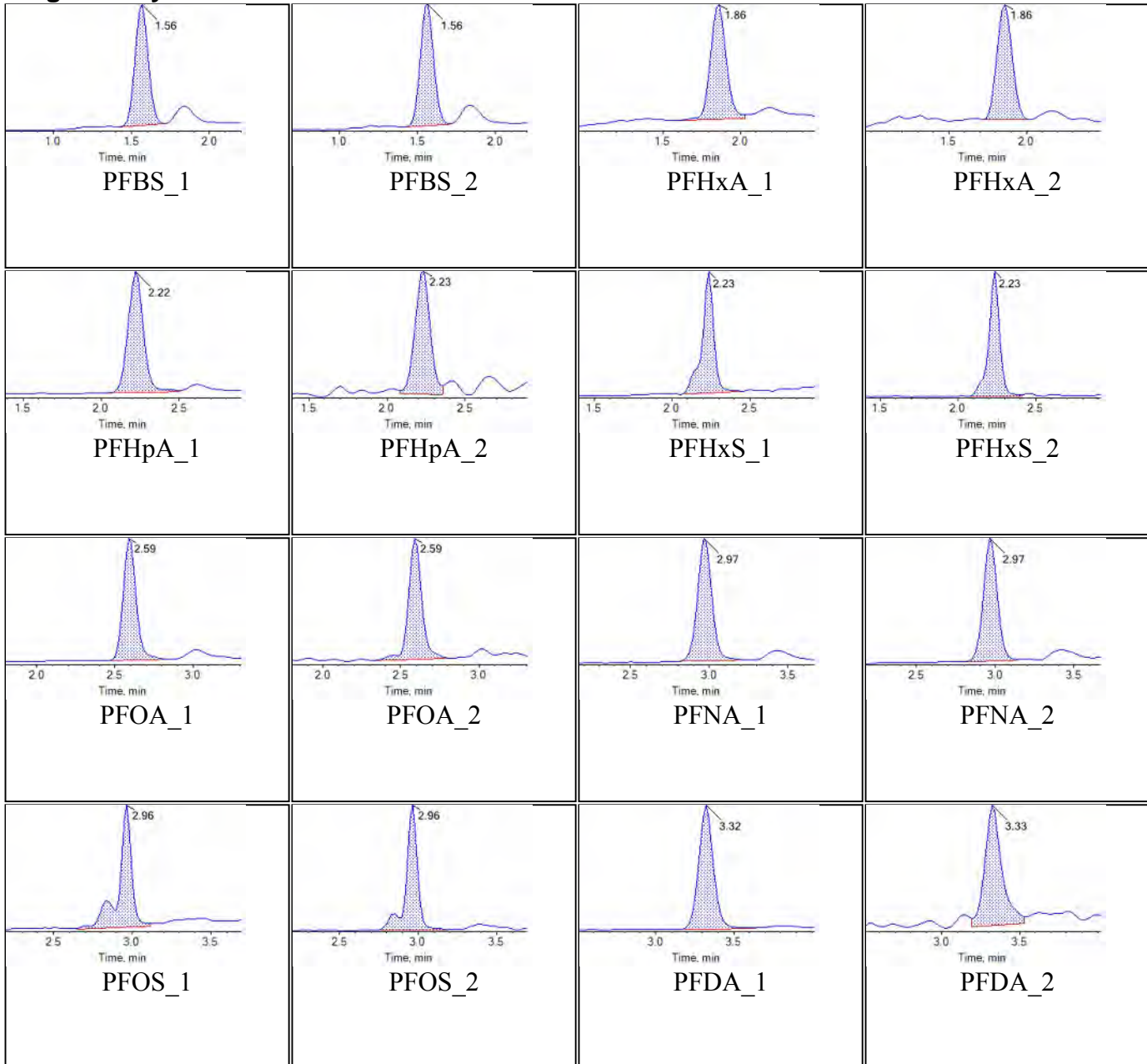


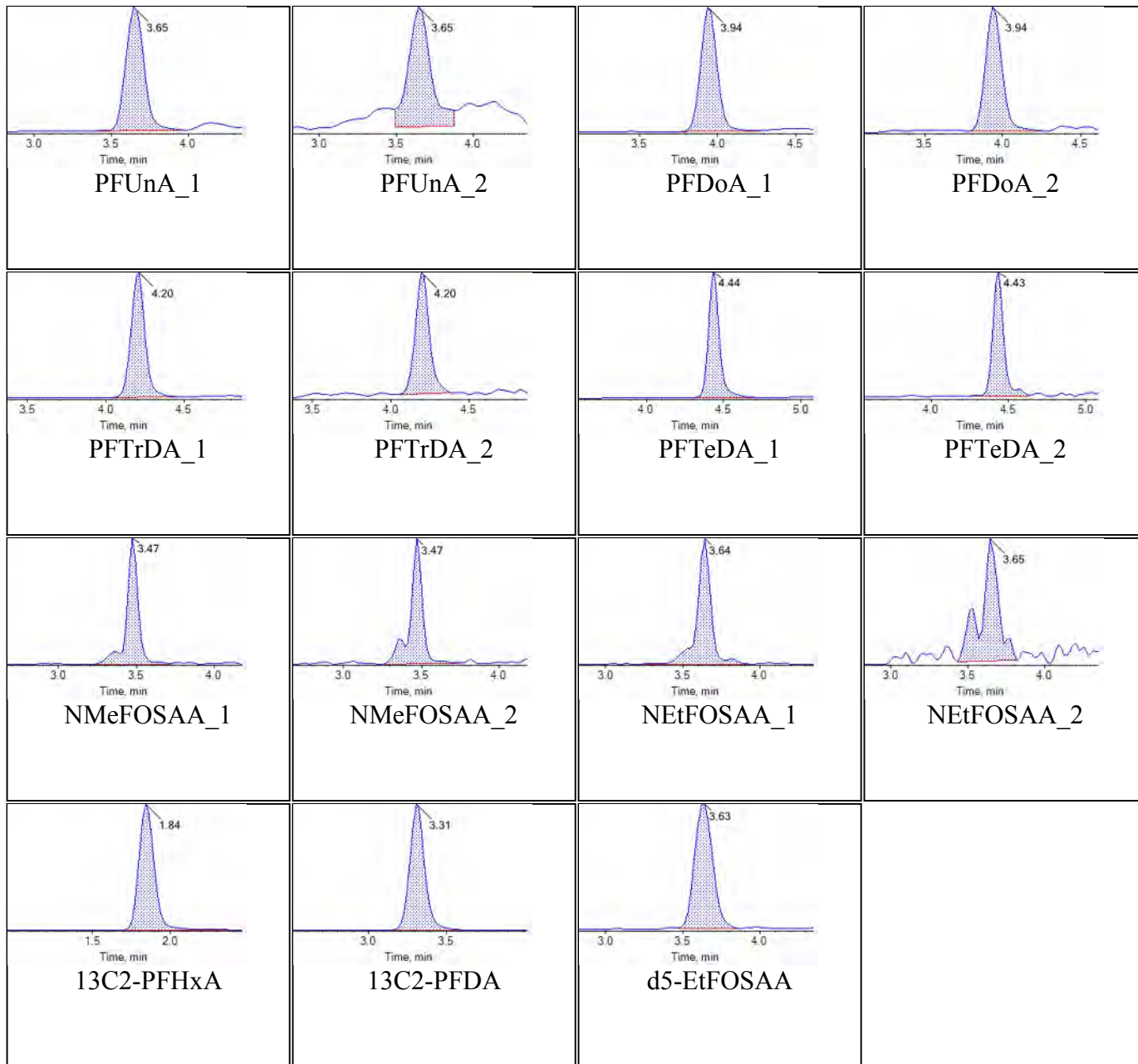
**Internal Standards:**

<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>	2018-08-20T15:08:18	<b>Data File</b>	DW_08202018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0507DW
<b>Sample Comment</b>			

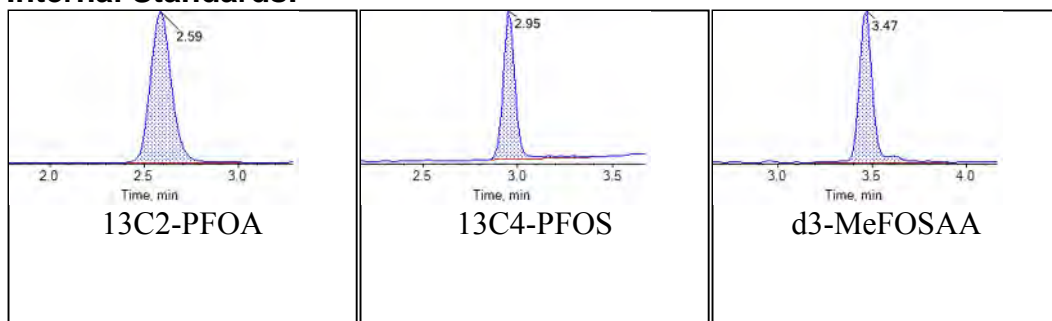
## Chromatograms

### Target Analytes:





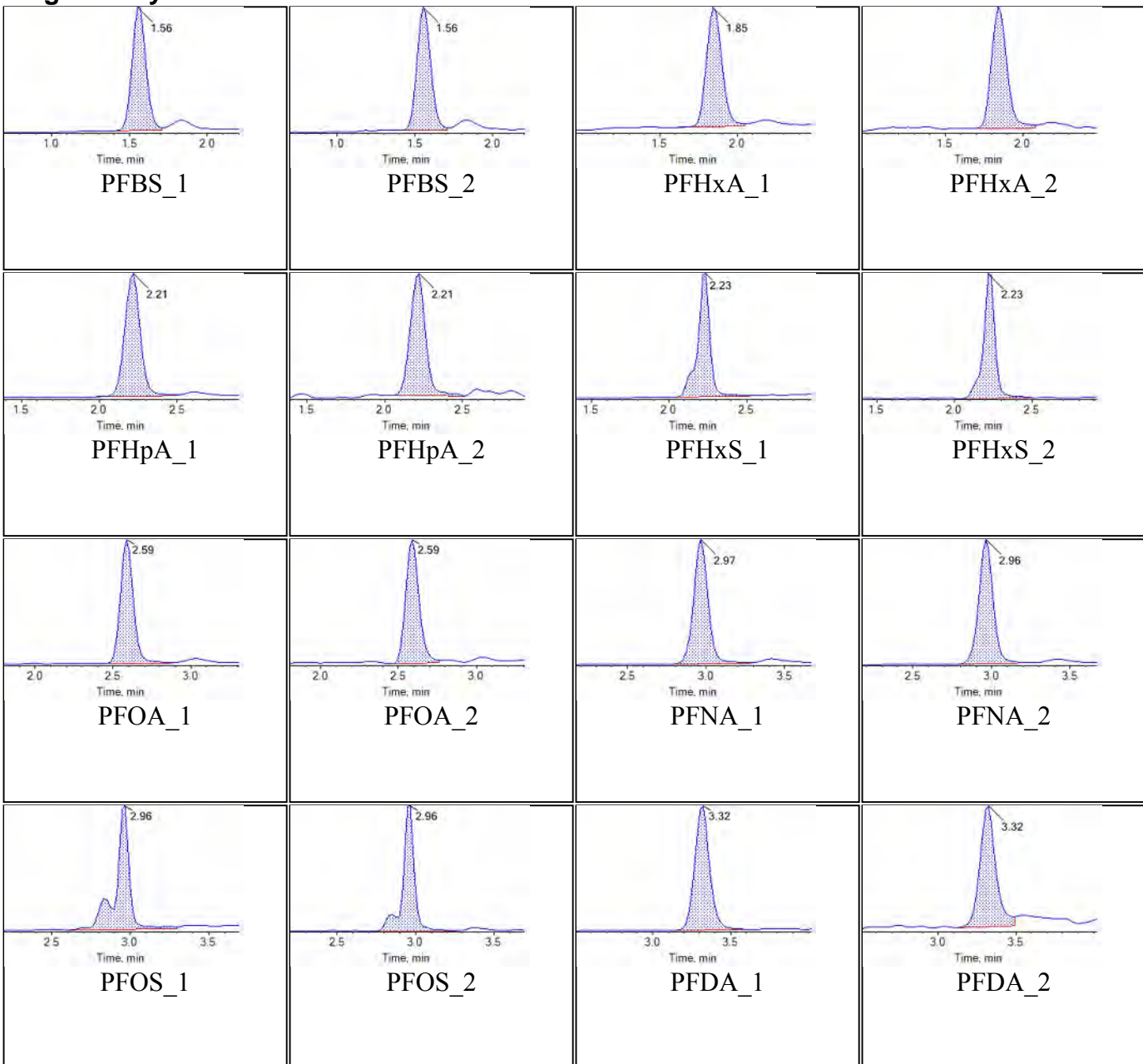
**Internal Standards:**

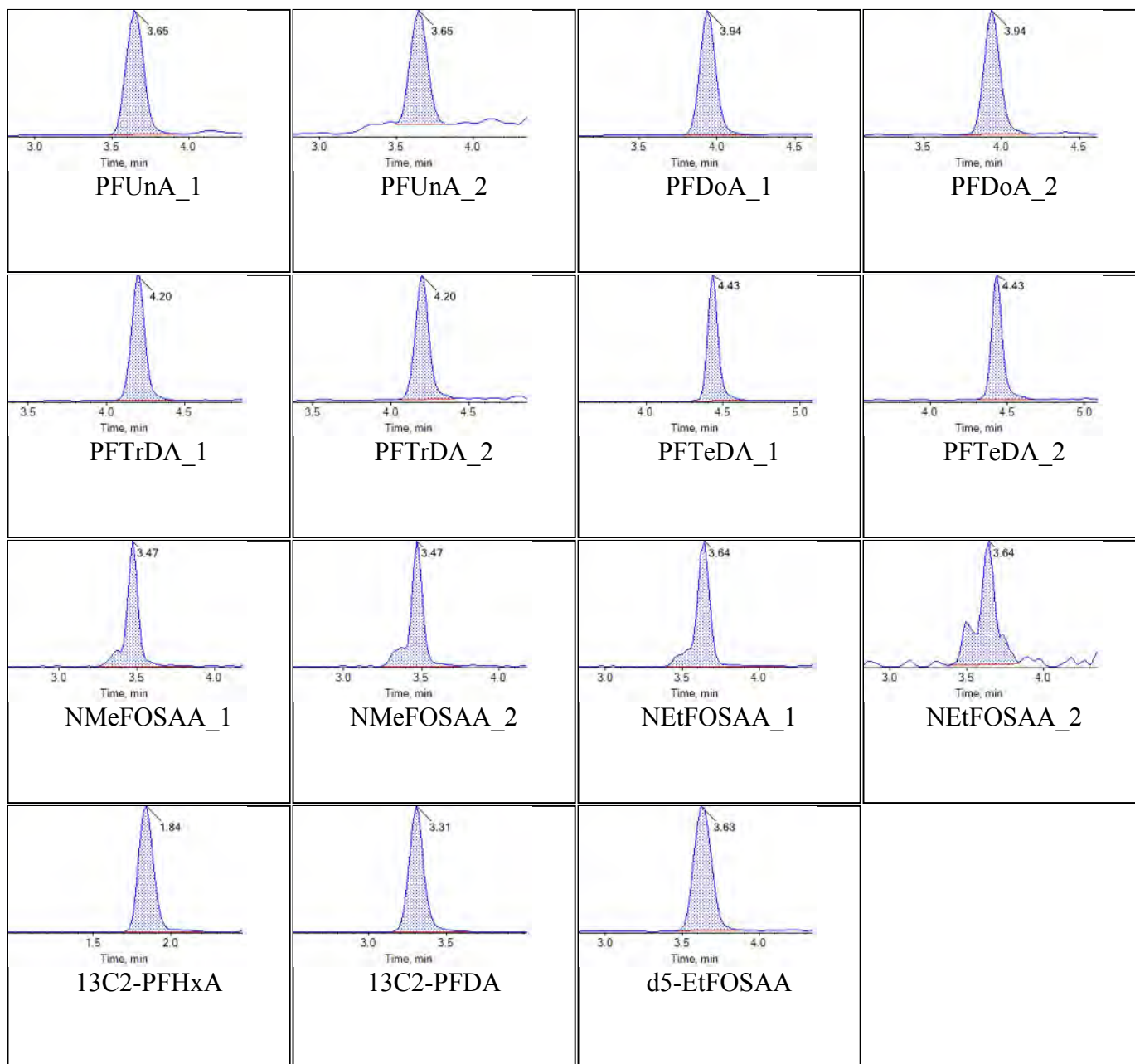
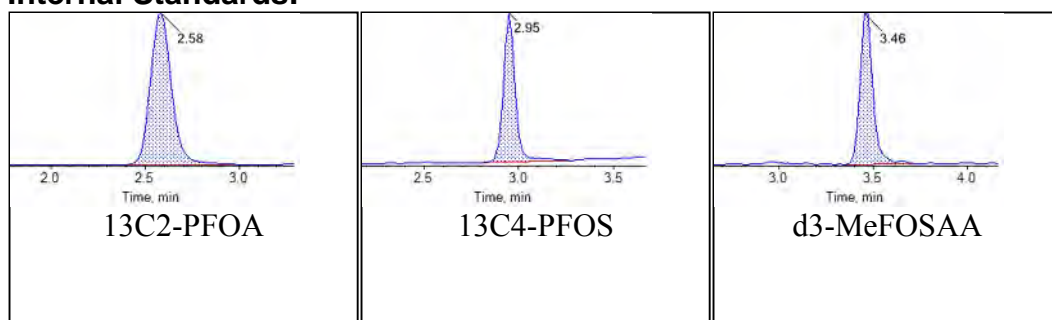


Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:17:14	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Chromatograms

### Target Analytes:

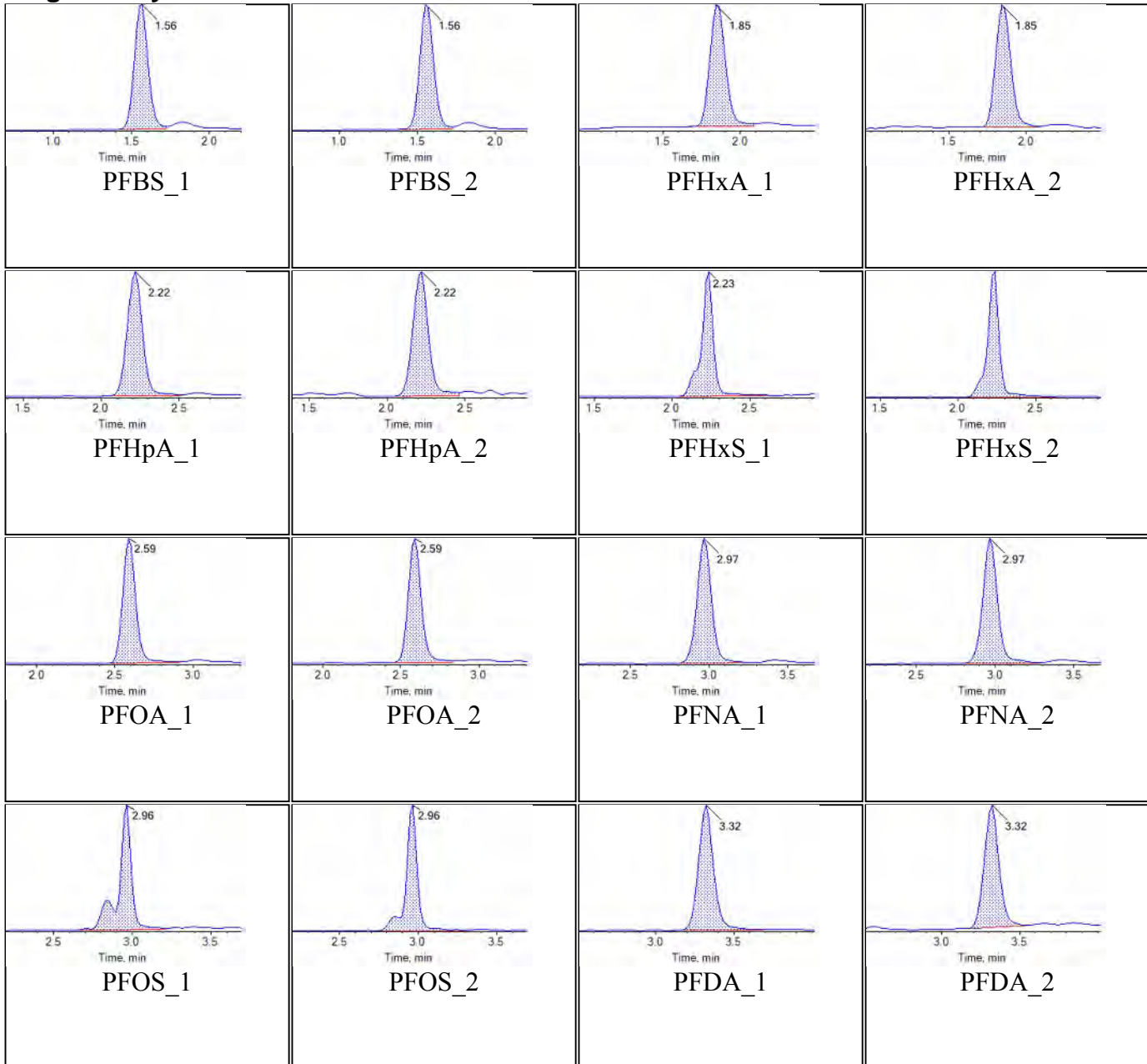


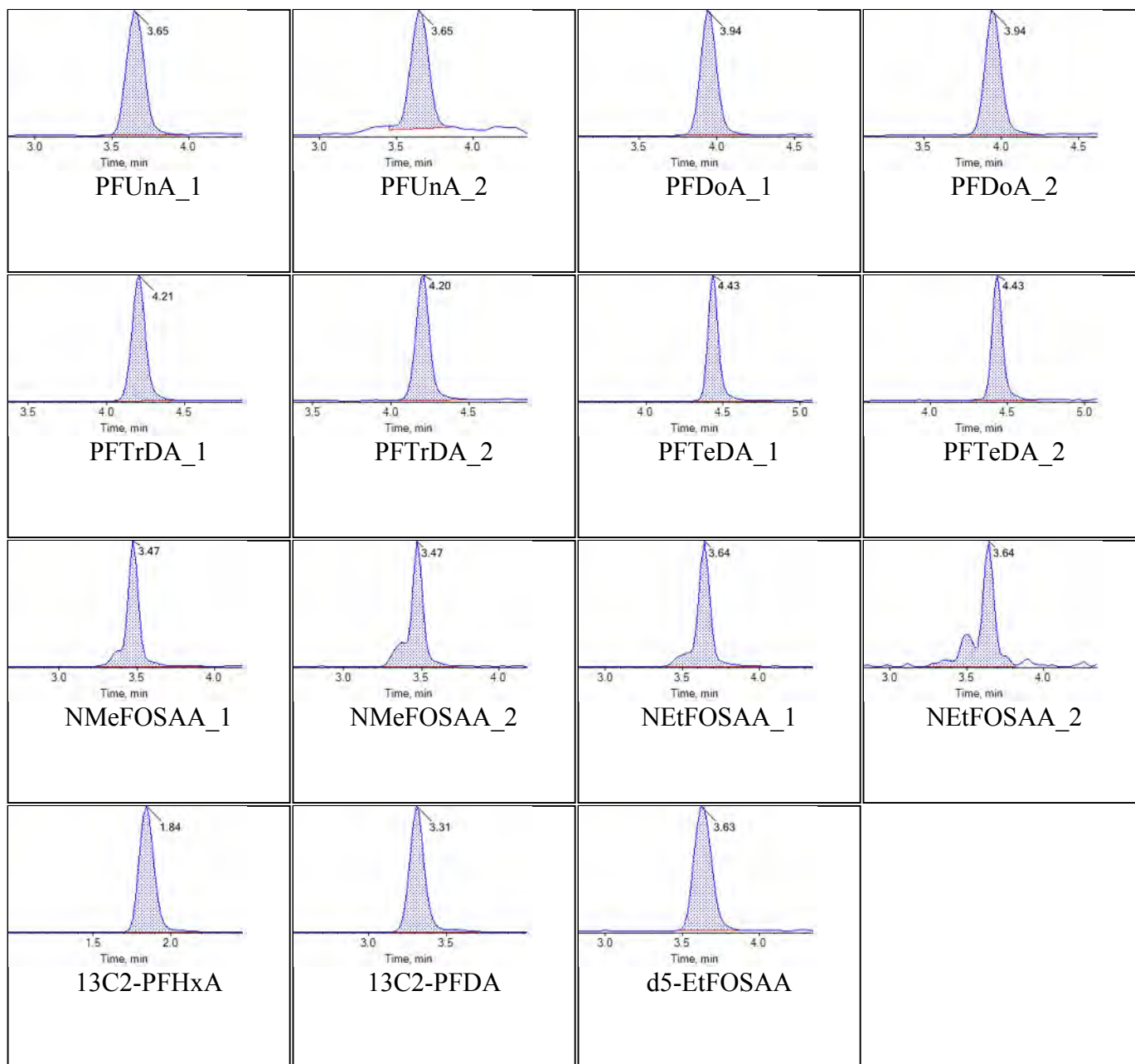
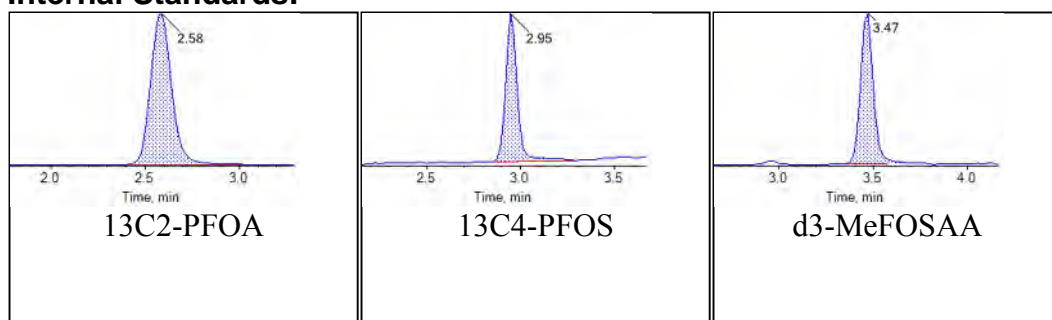
**Internal Standards:**

<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>	2018-08-20T15:26:11	<b>Data File</b>	DW_08202018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0507DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

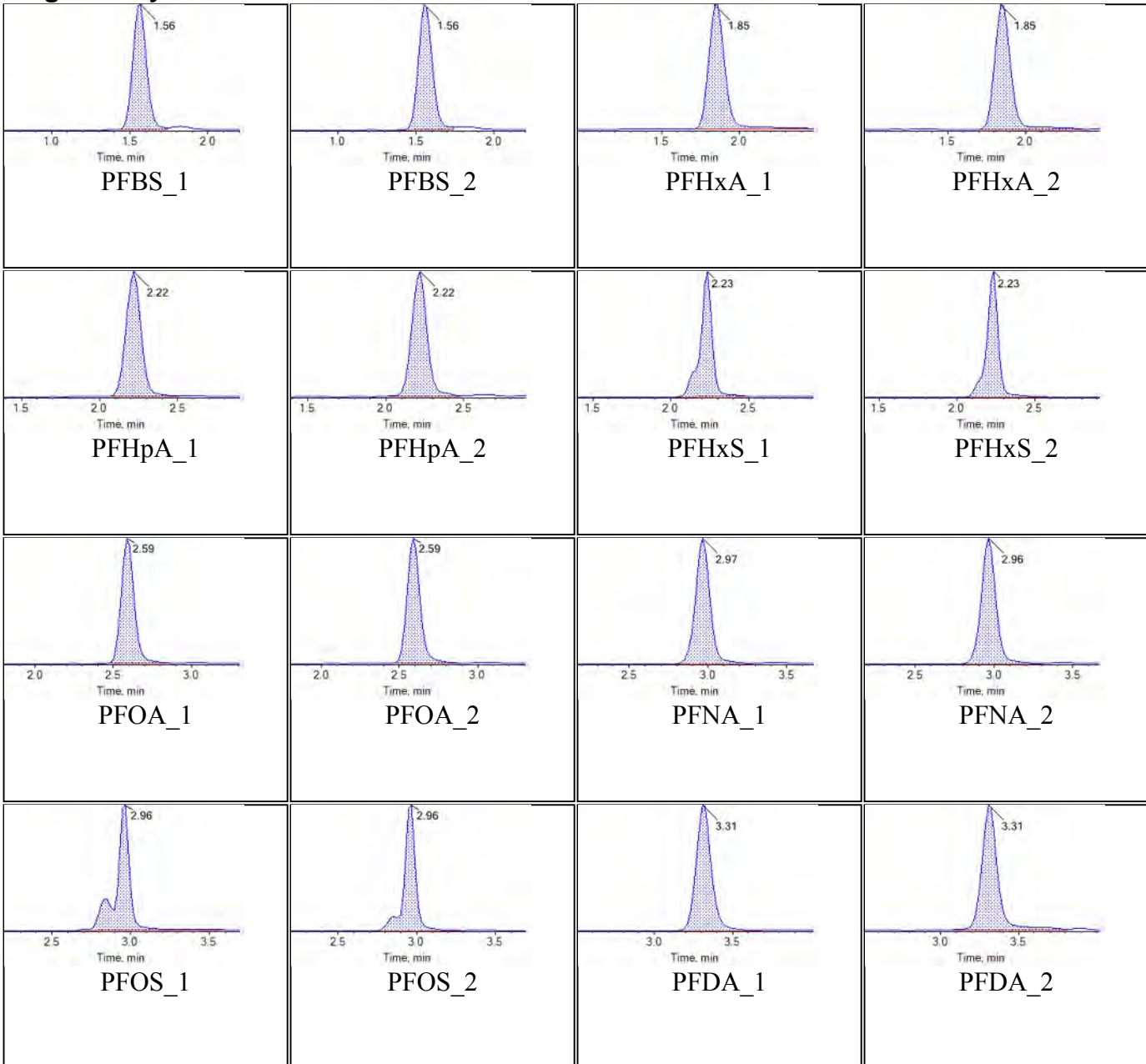


**Internal Standards:**

<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>	2018-08-20T15:35:06	<b>Data File</b>	DW_08202018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0507DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

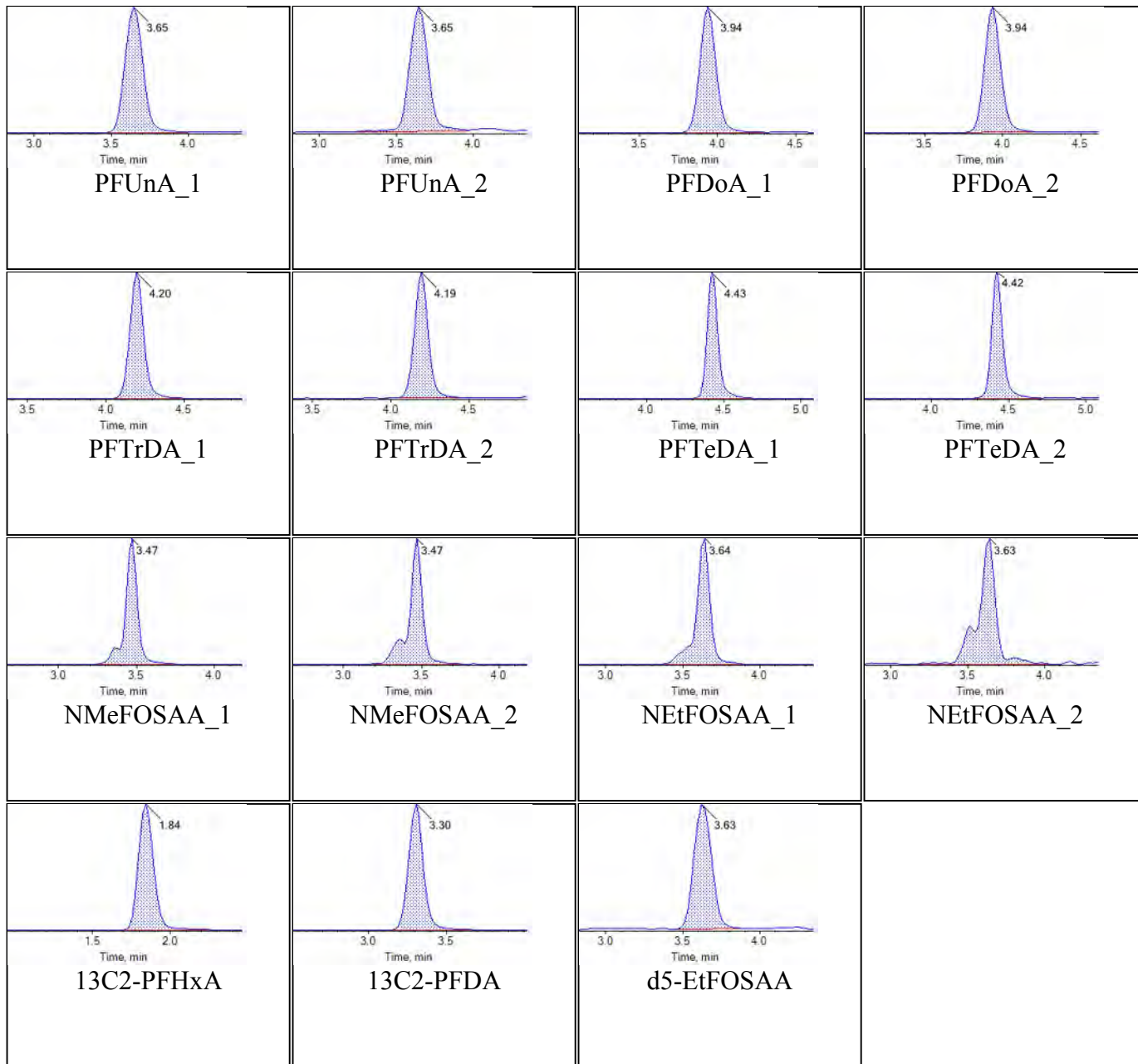




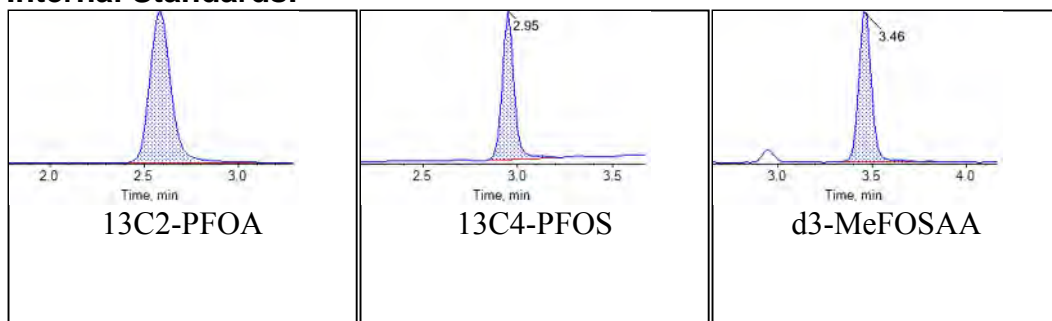


Chromatogram Report

Created with Analyst Reporter  
Printed: 22/08/2018 11:00:24 AM



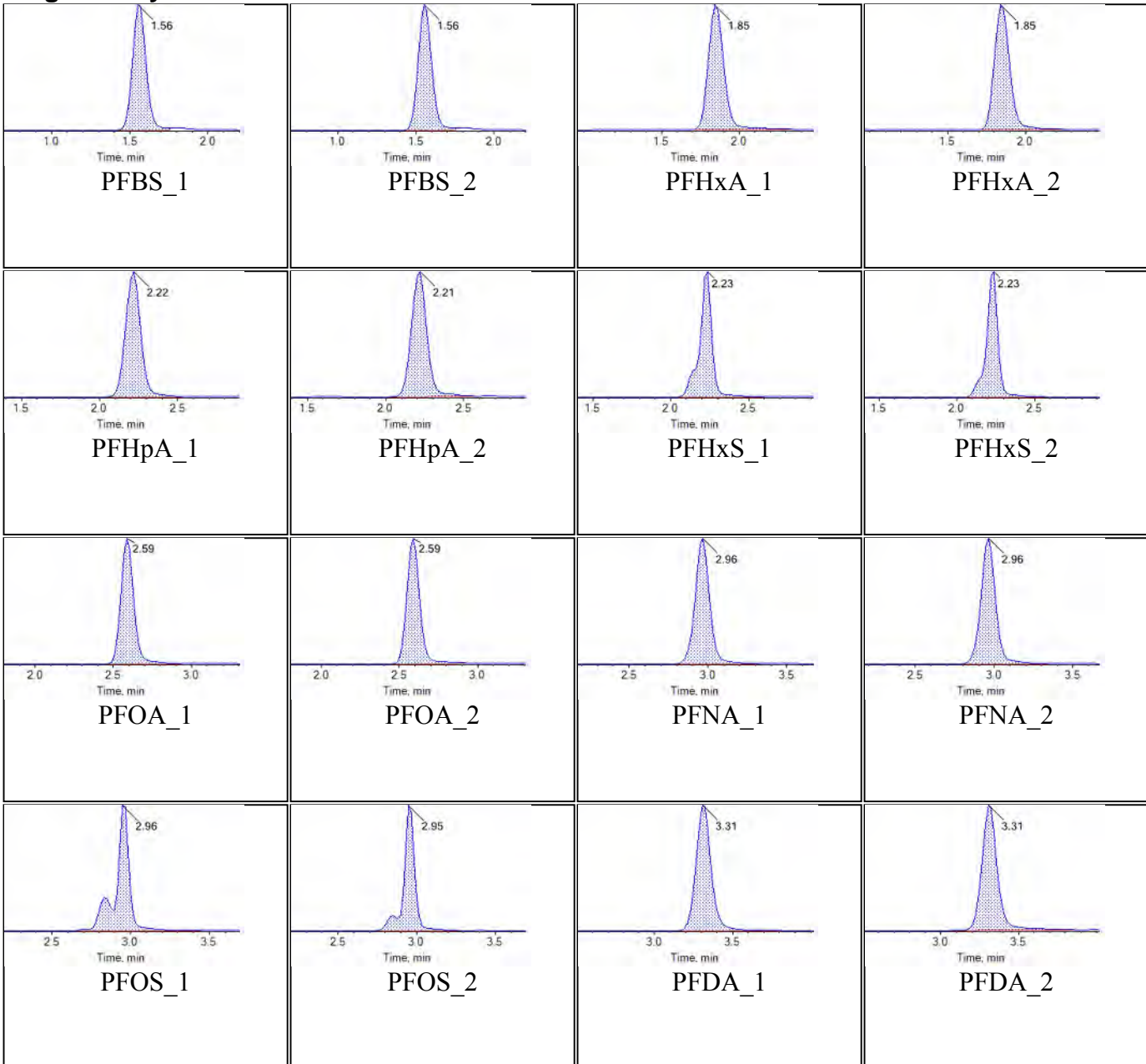
Internal Standards:

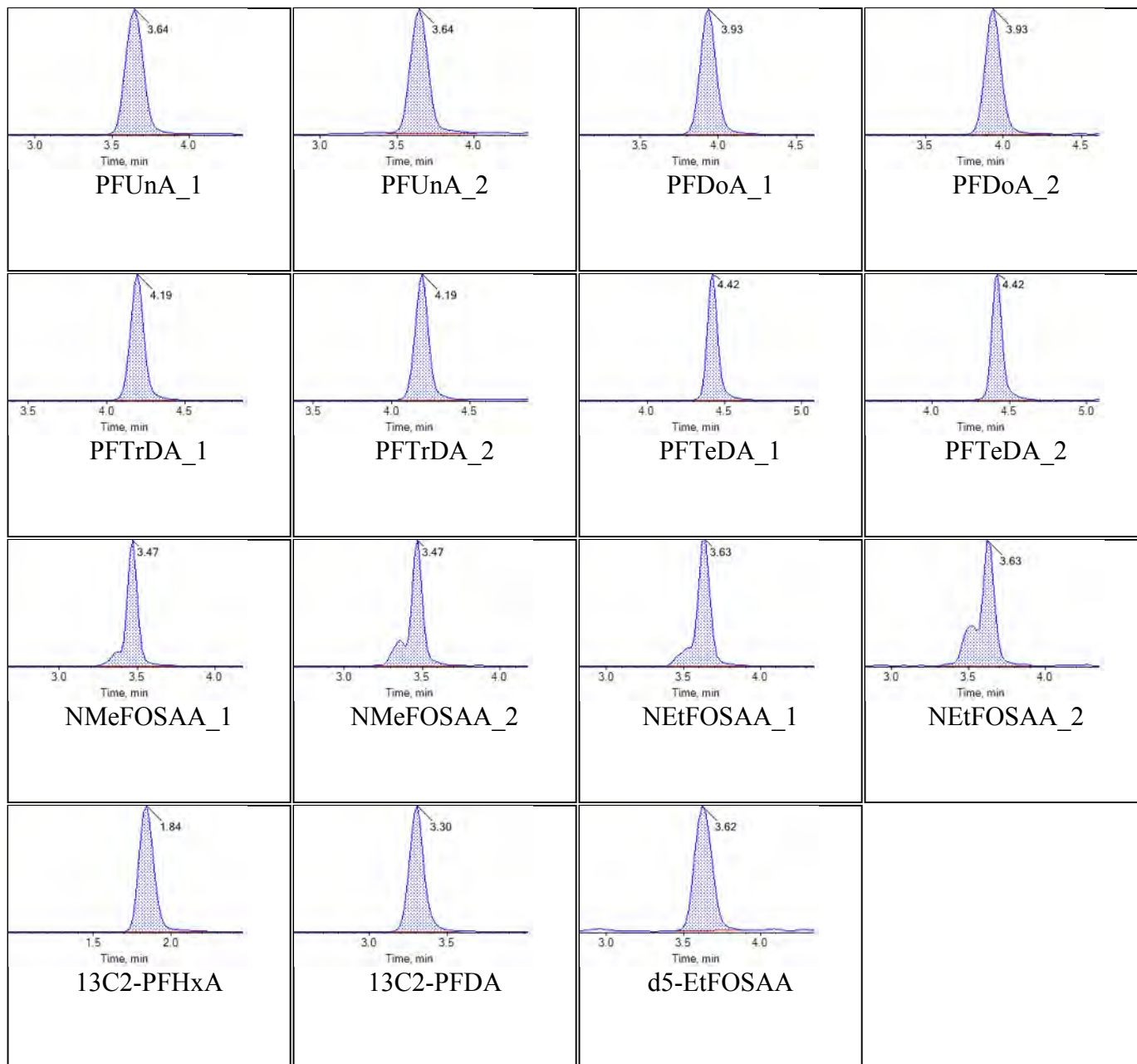
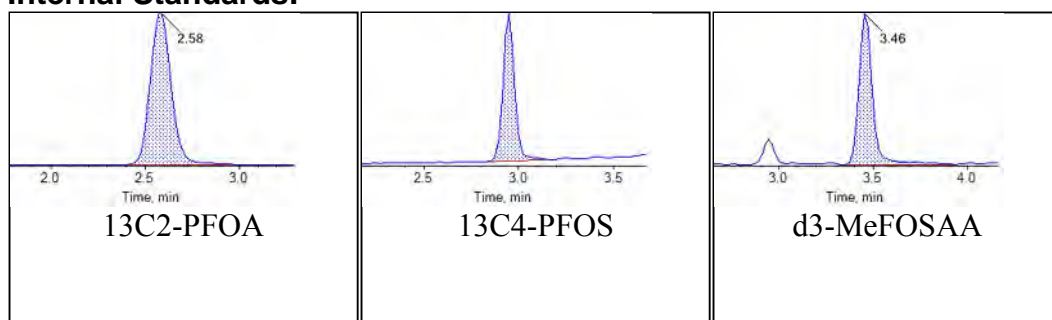


Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:44:02	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Chromatograms

### Target Analytes:

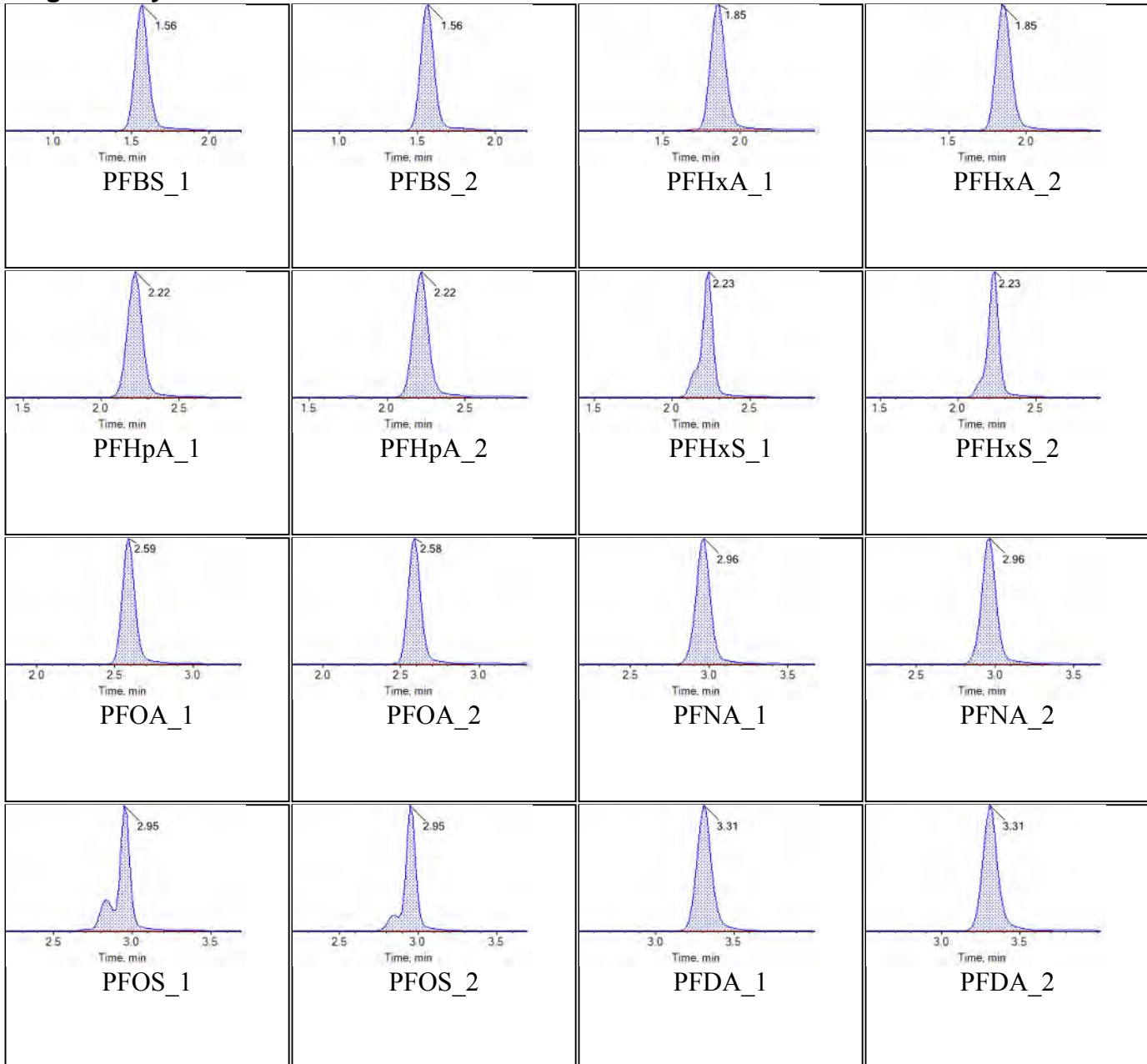


**Internal Standards:**

Sample Name	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:52:58	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Chromatograms

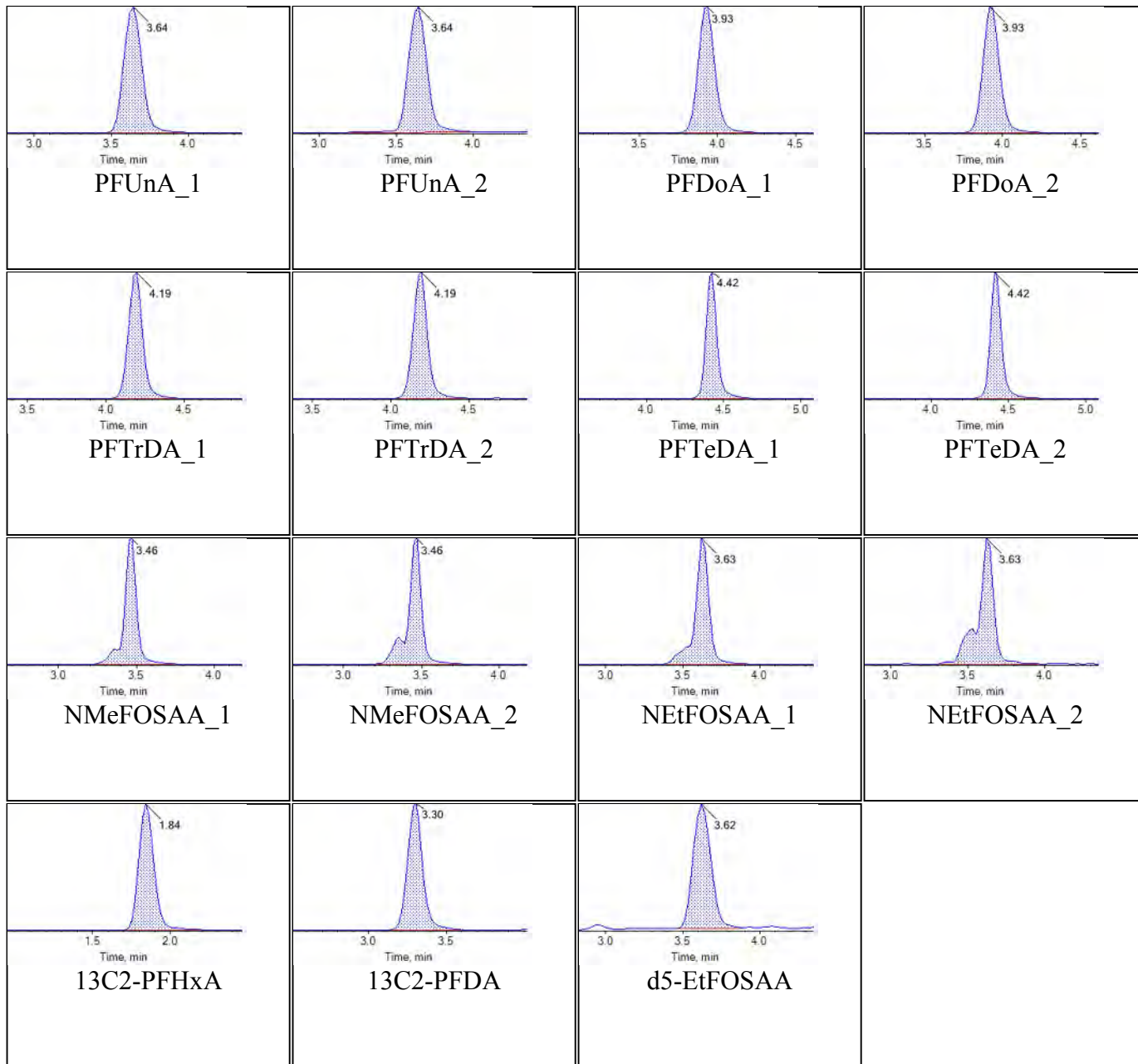
### Target Analytes:



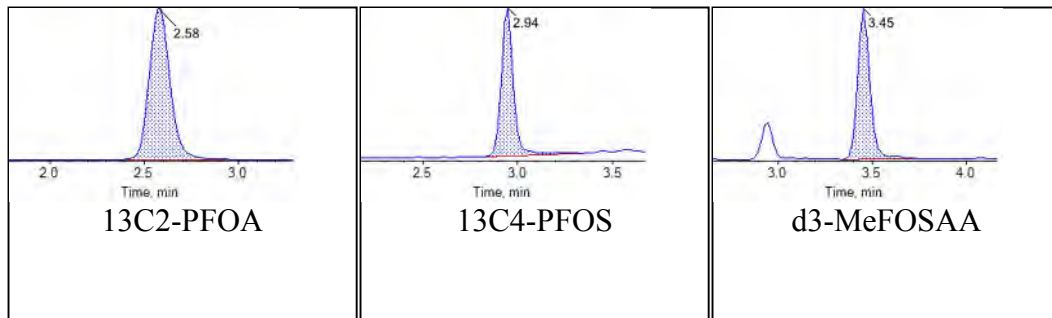


Chromatogram Report

Created with Analyst Reporter  
Printed: 22/08/2018 11:00:34 AM



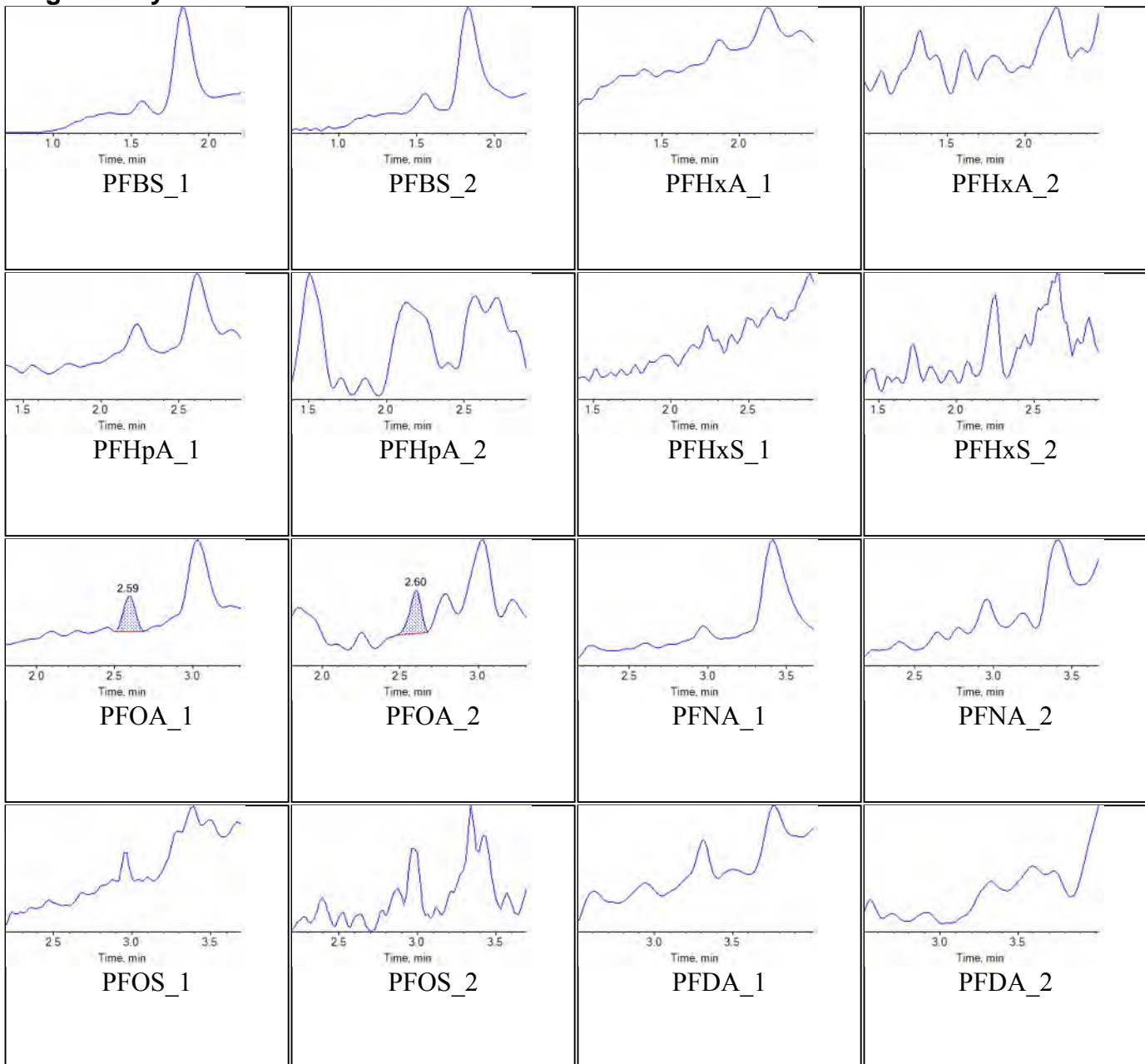
Internal Standards:

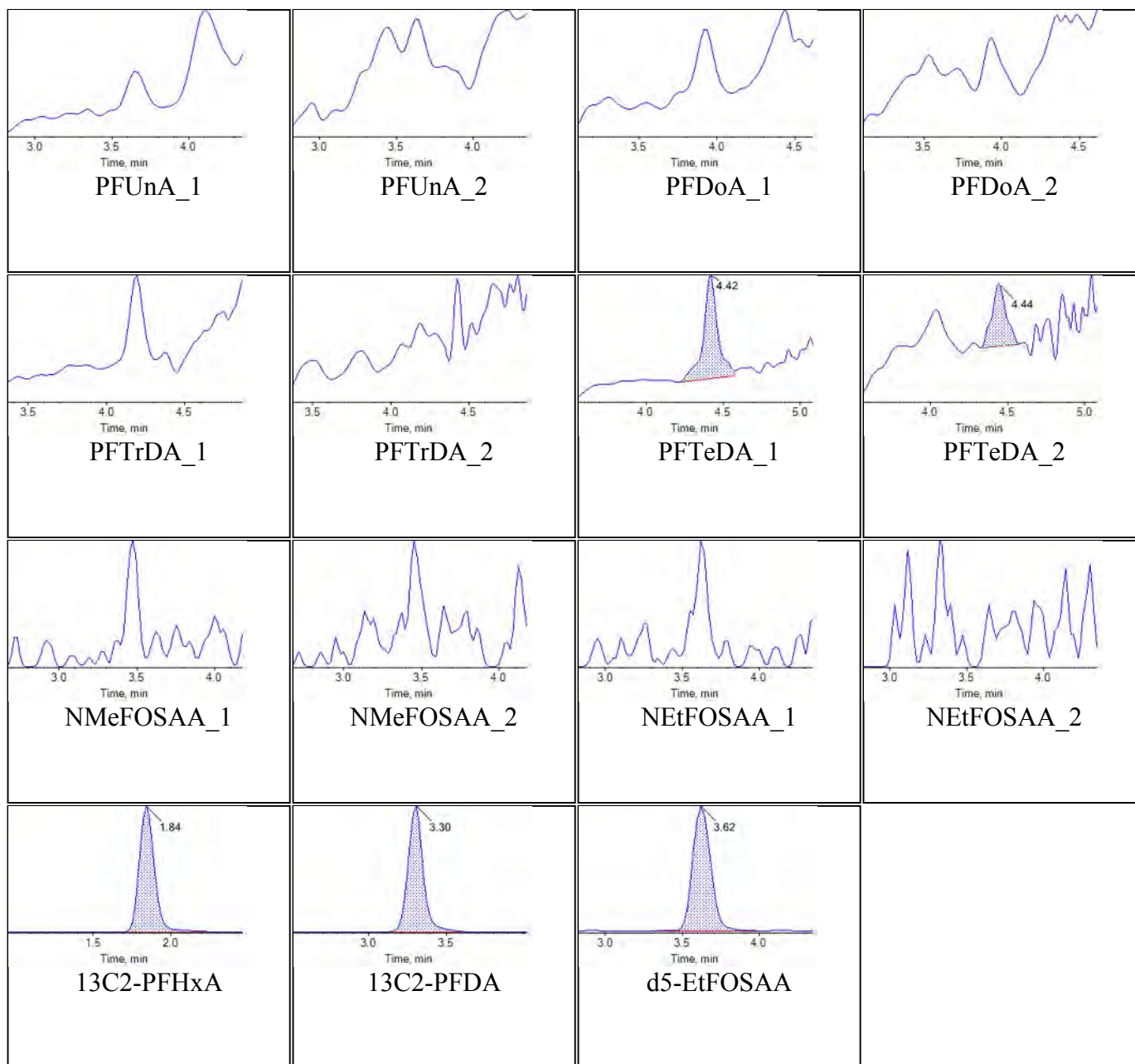
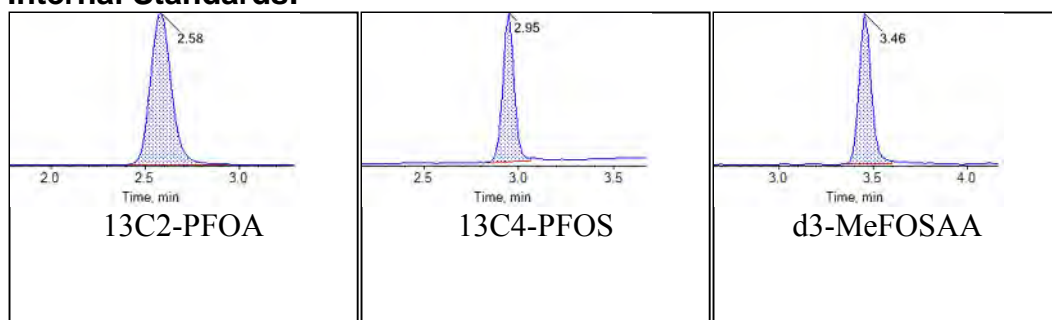


Sample Name	JZ10 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T16:01:53	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Chromatograms

### Target Analytes:

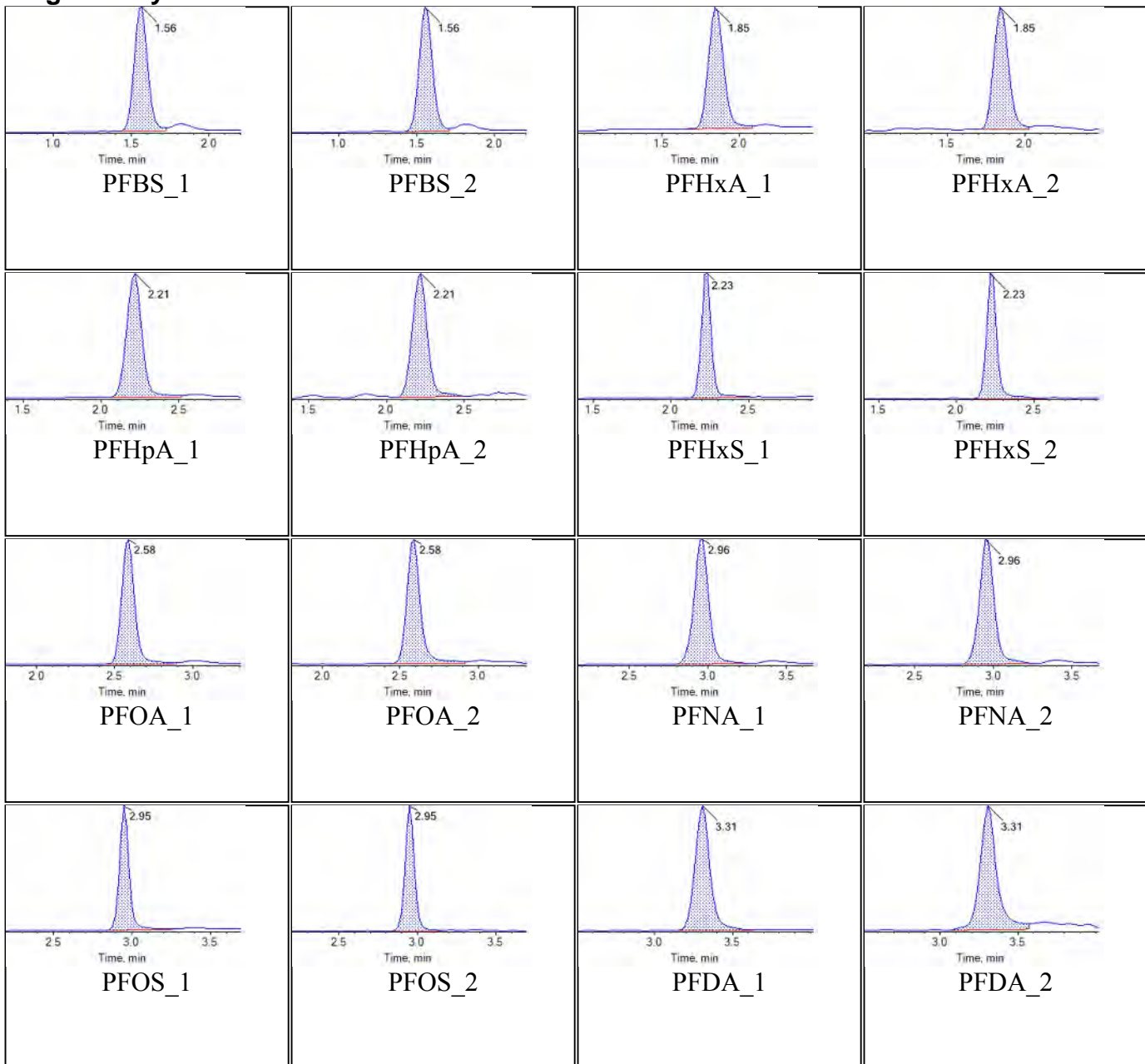


**Internal Standards:**

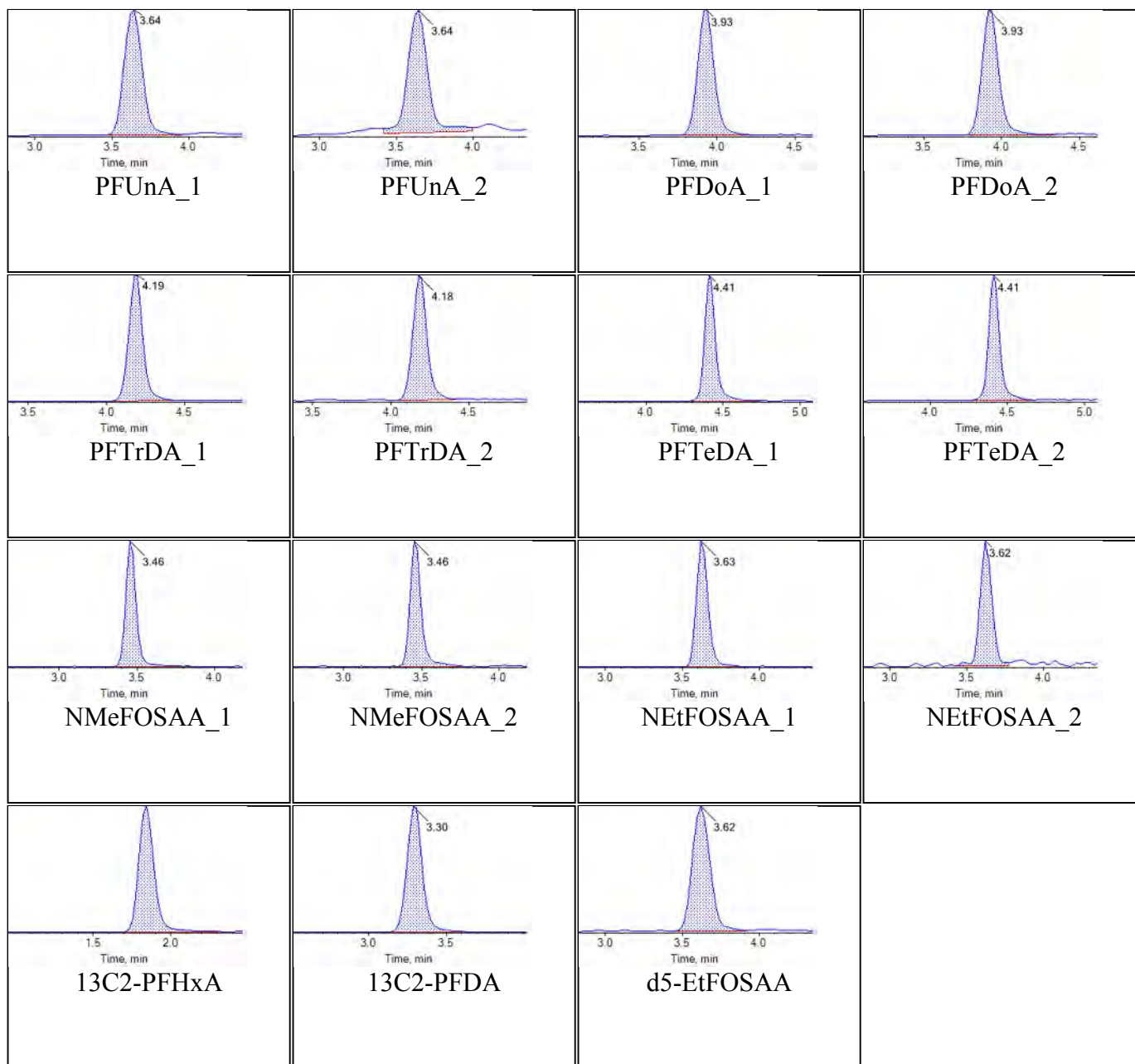
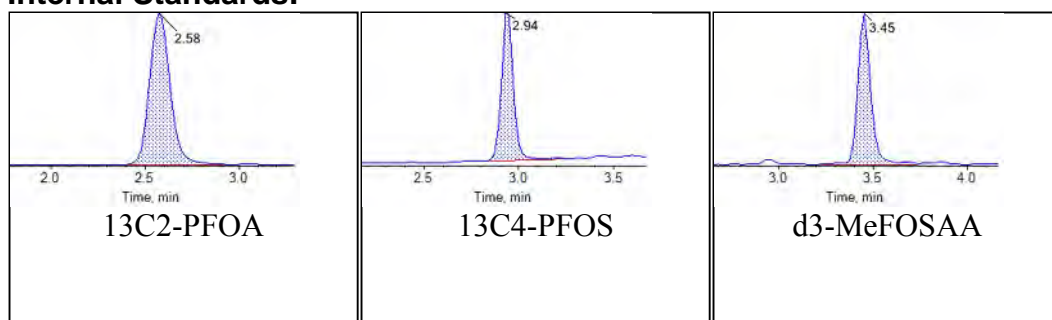
<b>Sample Name</b>	JZ77 ICC	<b>Injection Vial</b>	12
<b>Sample ID</b>	ICC	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Quality Control	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-20T16:10:51	<b>Data File</b>	DW_08202018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0507DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:



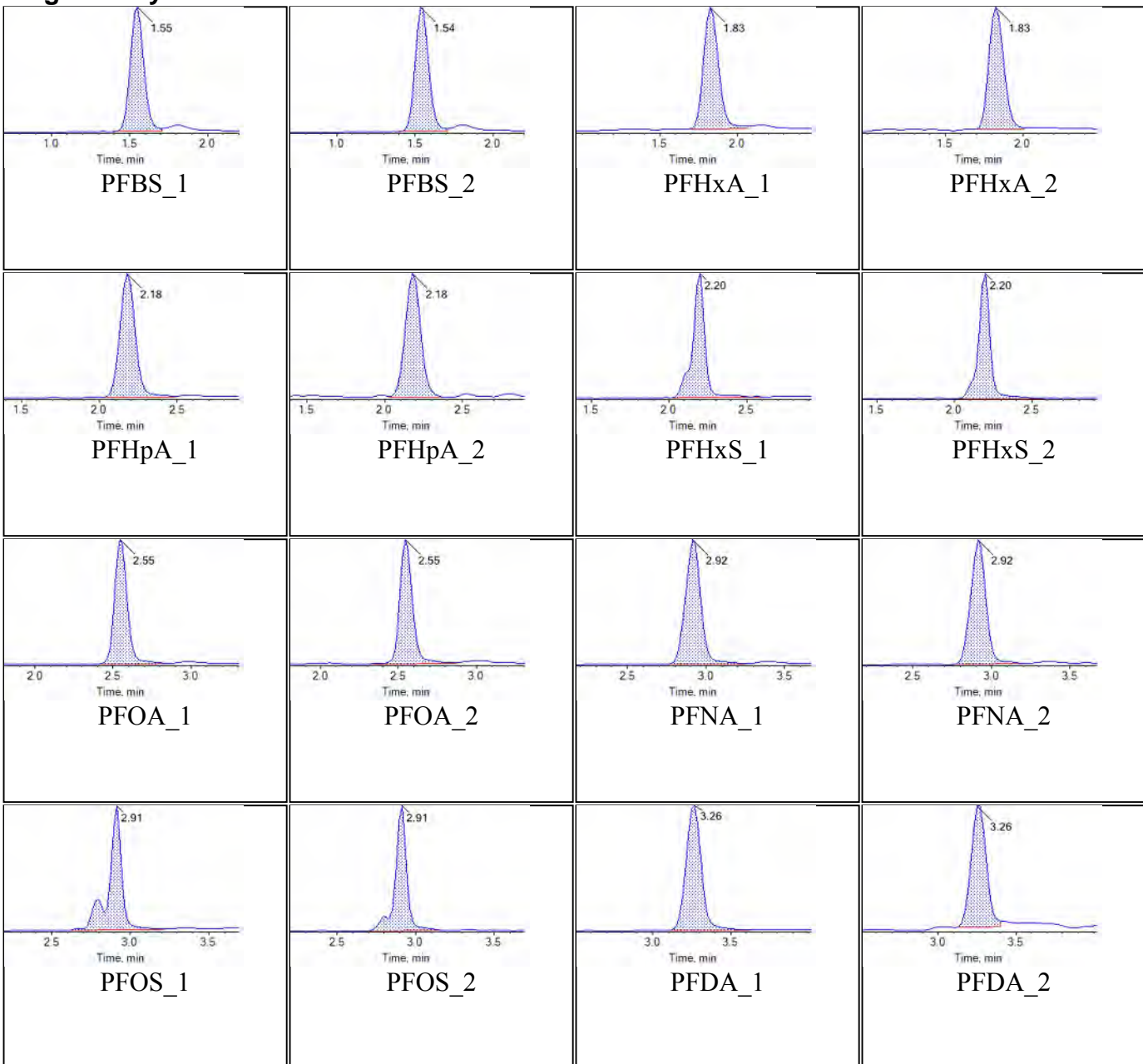


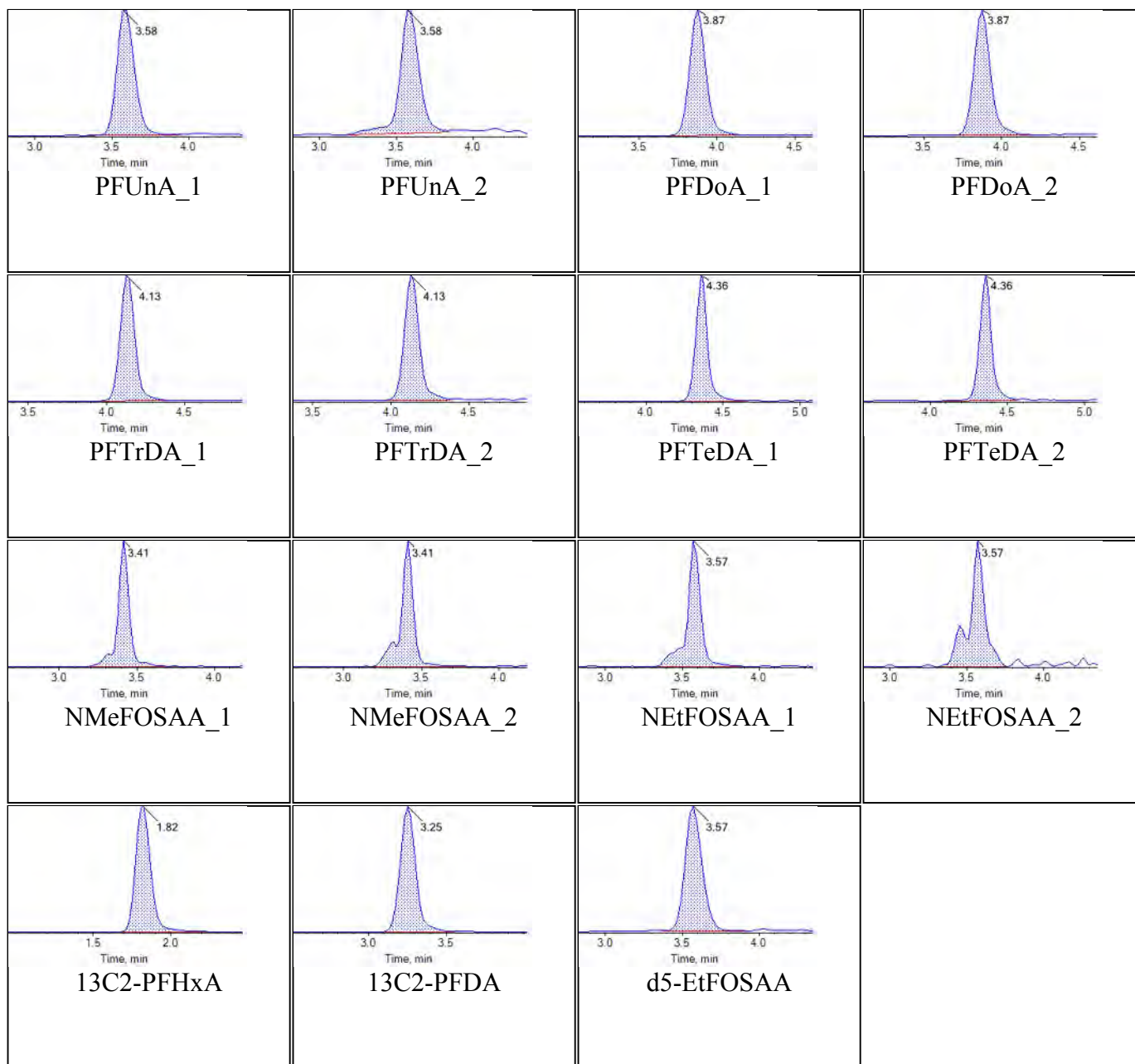
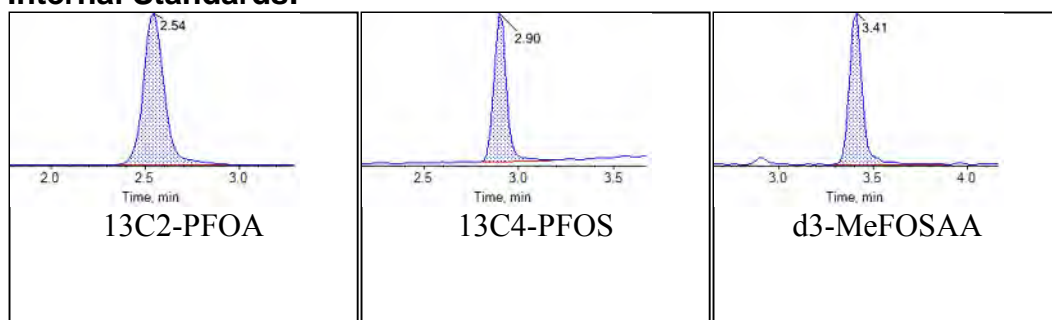
**Internal Standards:**

<b>Sample Name</b>	JZ83 CCV	<b>Injection Vial</b>	31
<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>	2018-08-20T19:00:42	<b>Data File</b>	DW_08202018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0507DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

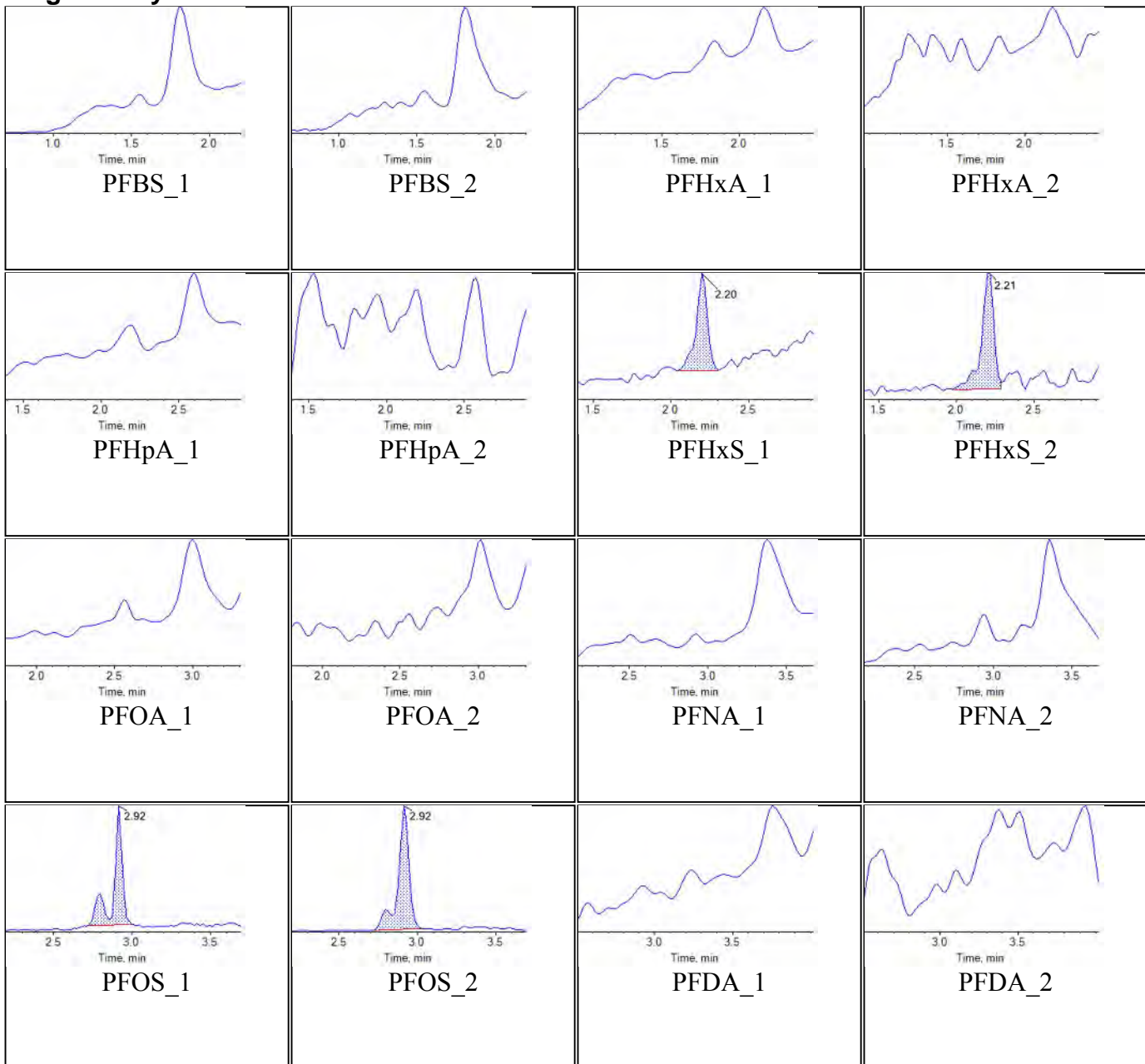


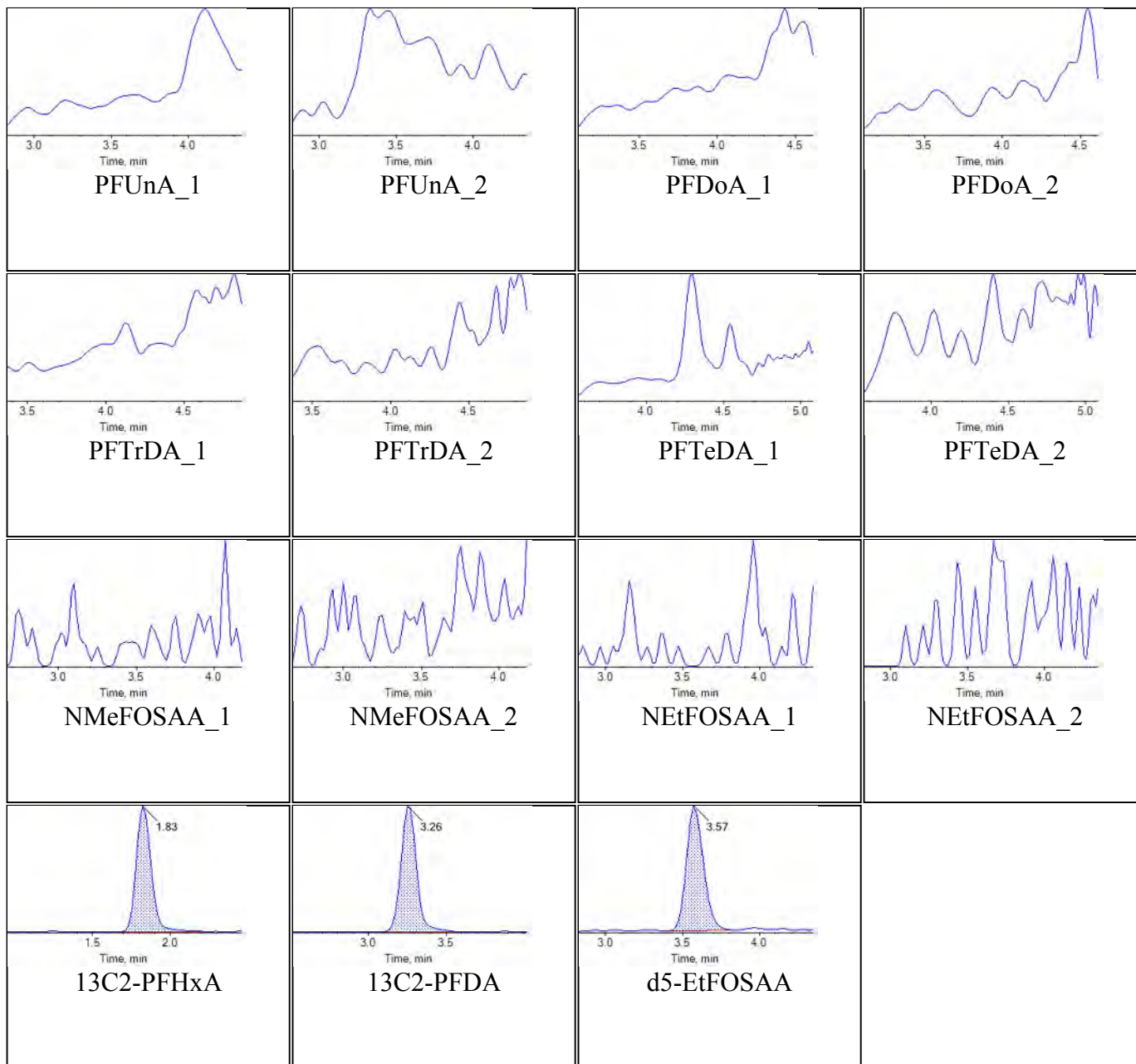
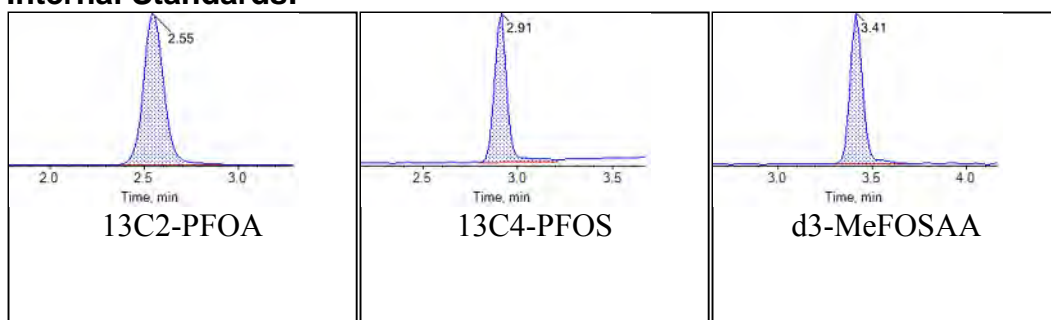
**Internal Standards:**

Sample Name	CR577PB-FS(0)	Injection Vial	33
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:18:36	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Chromatograms

### Target Analytes:

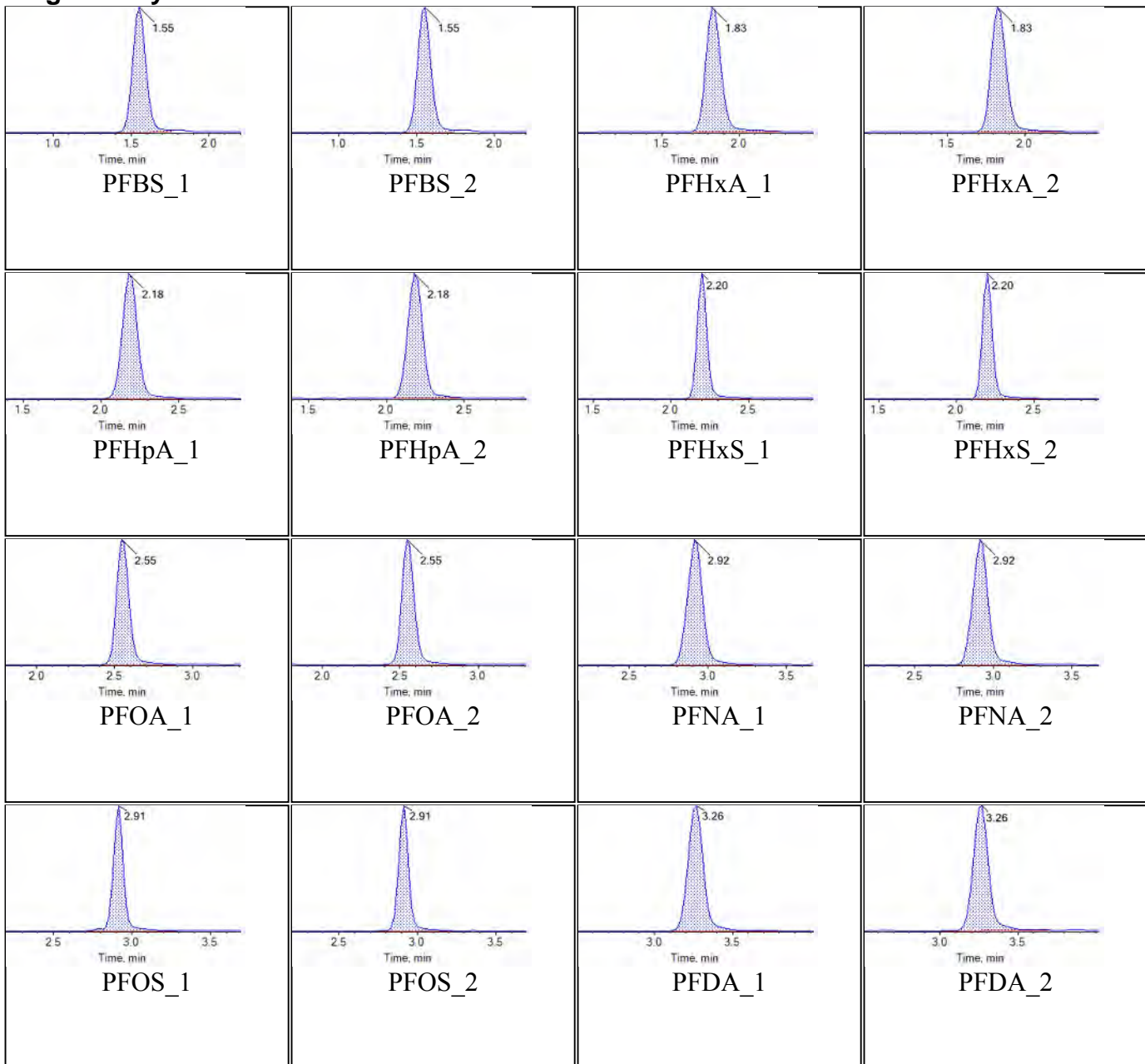


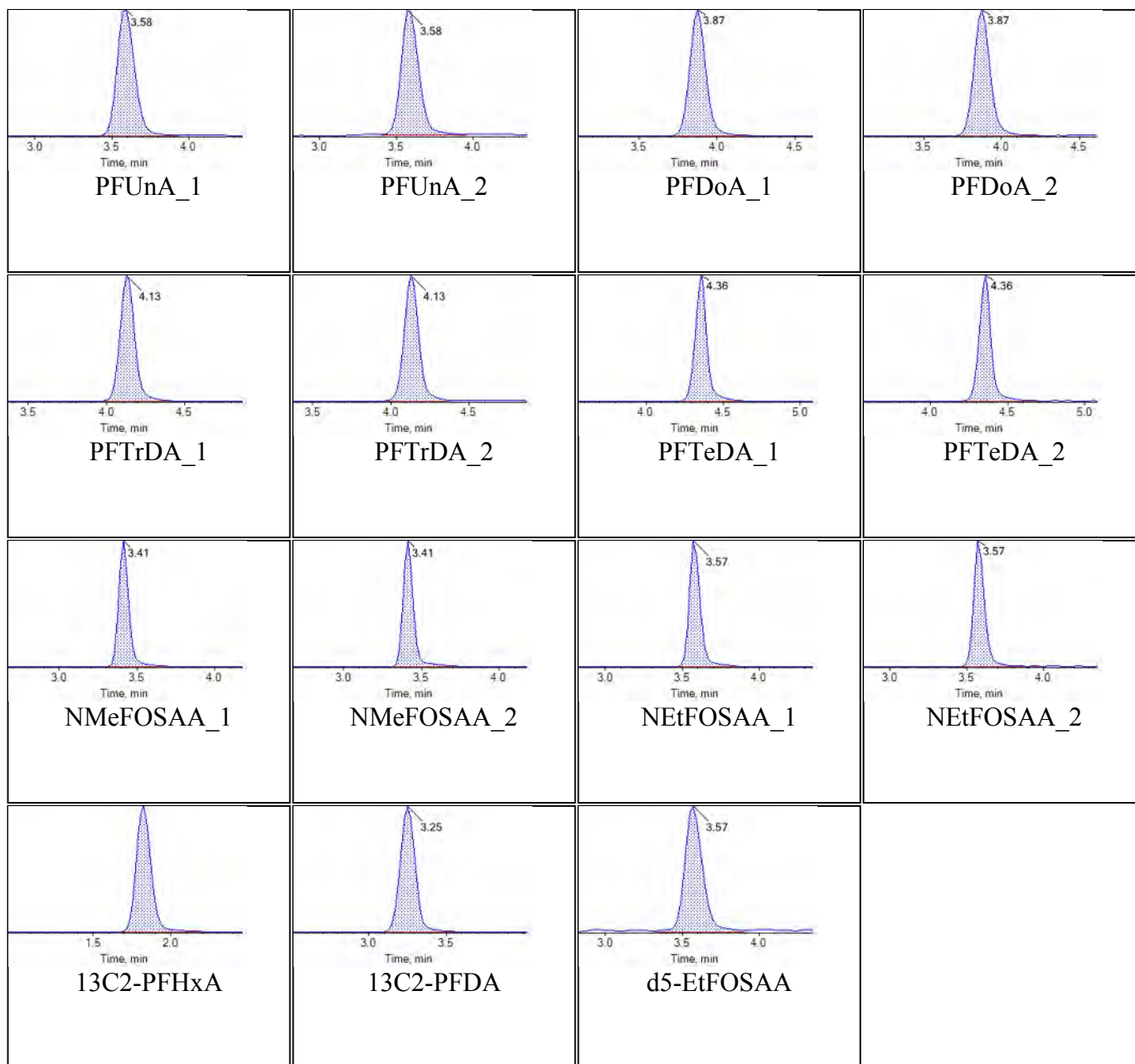
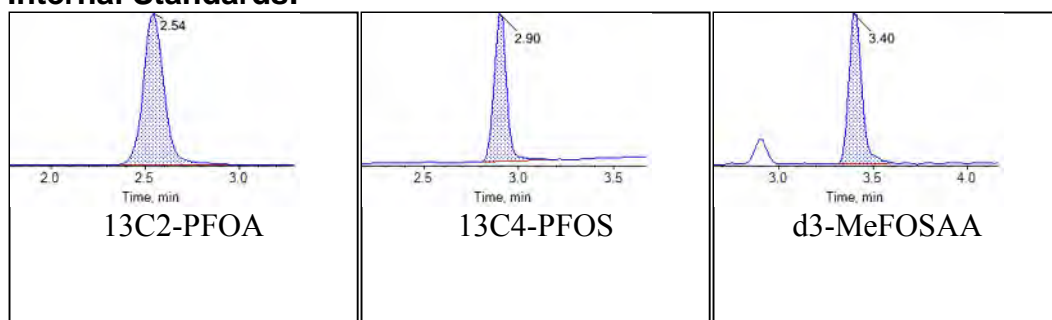
**Internal Standards:**

Sample Name	CR578LCS-FS(0)	Injection Vial	34
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:27:33	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Chromatograms

### Target Analytes:

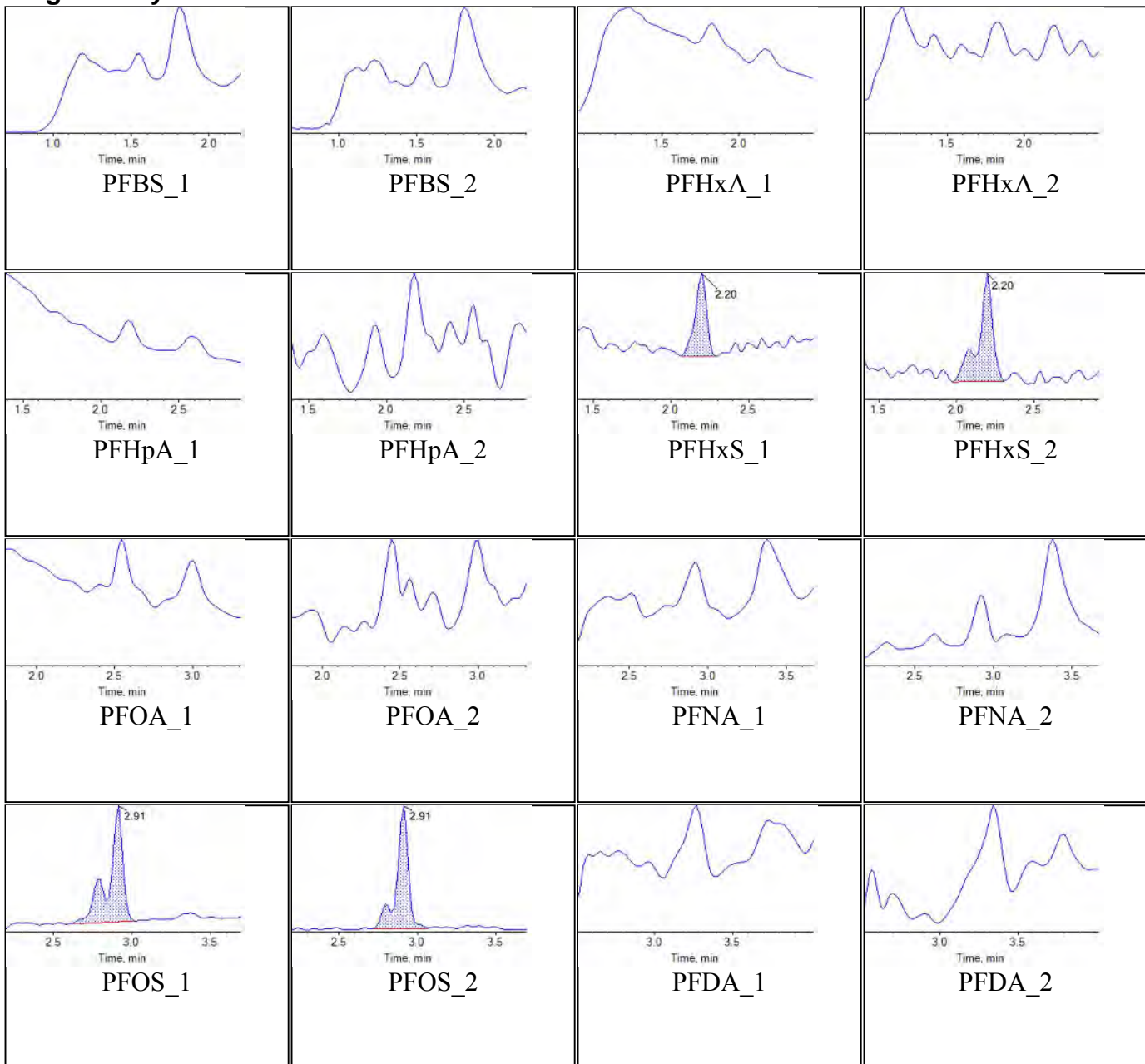


**Internal Standards:**

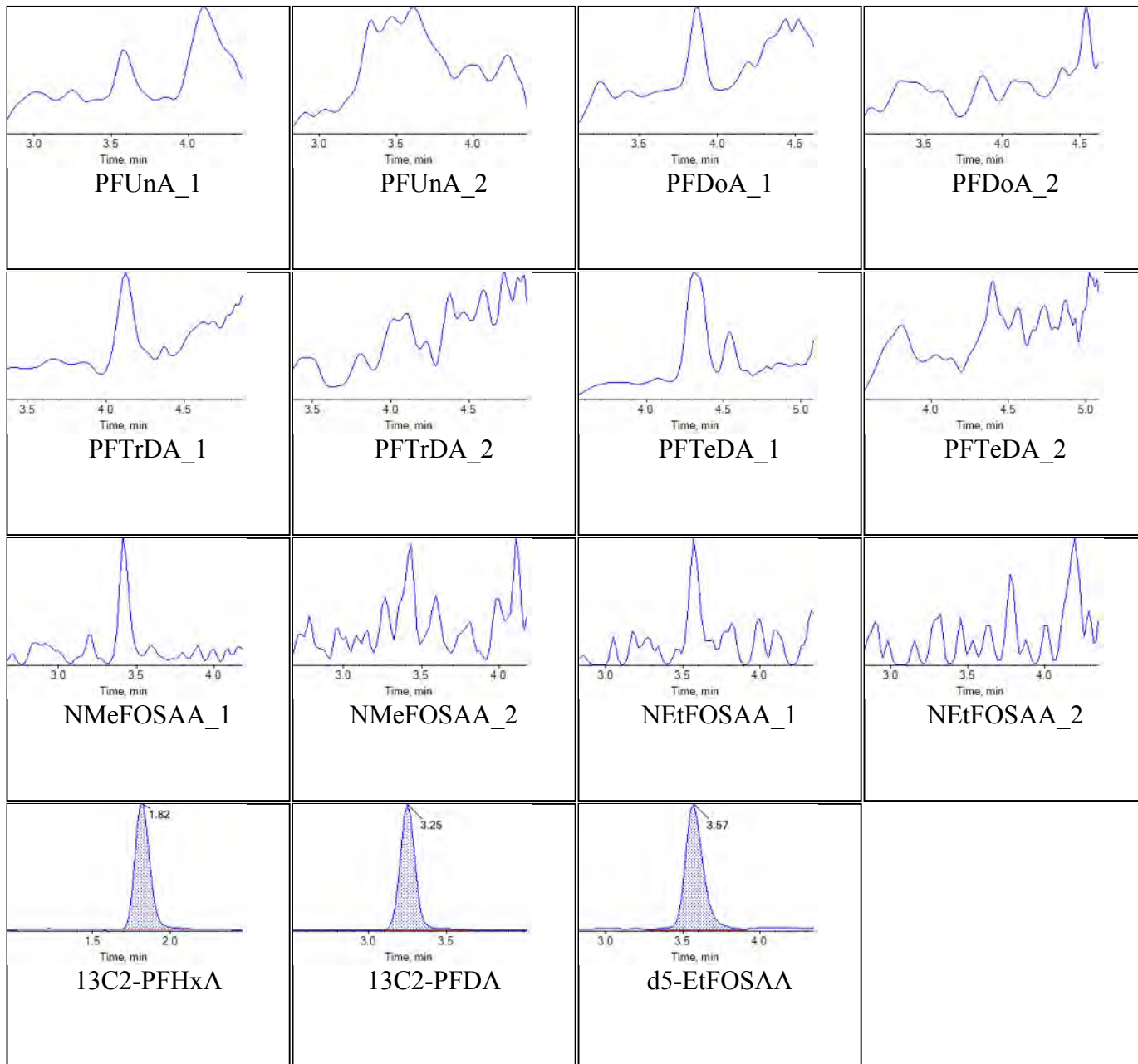
Sample Name	J7428-FS(0)	Injection Vial	35
Sample ID	JAX-RES-08142018-1045-8	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:36:30	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Chromatograms

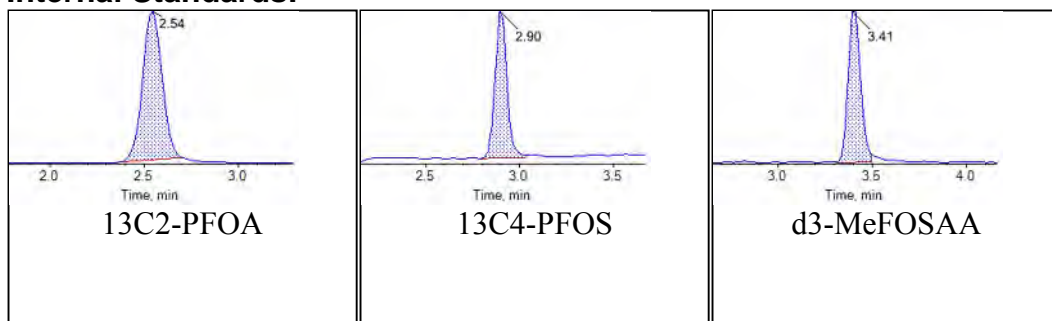
### Target Analytes:







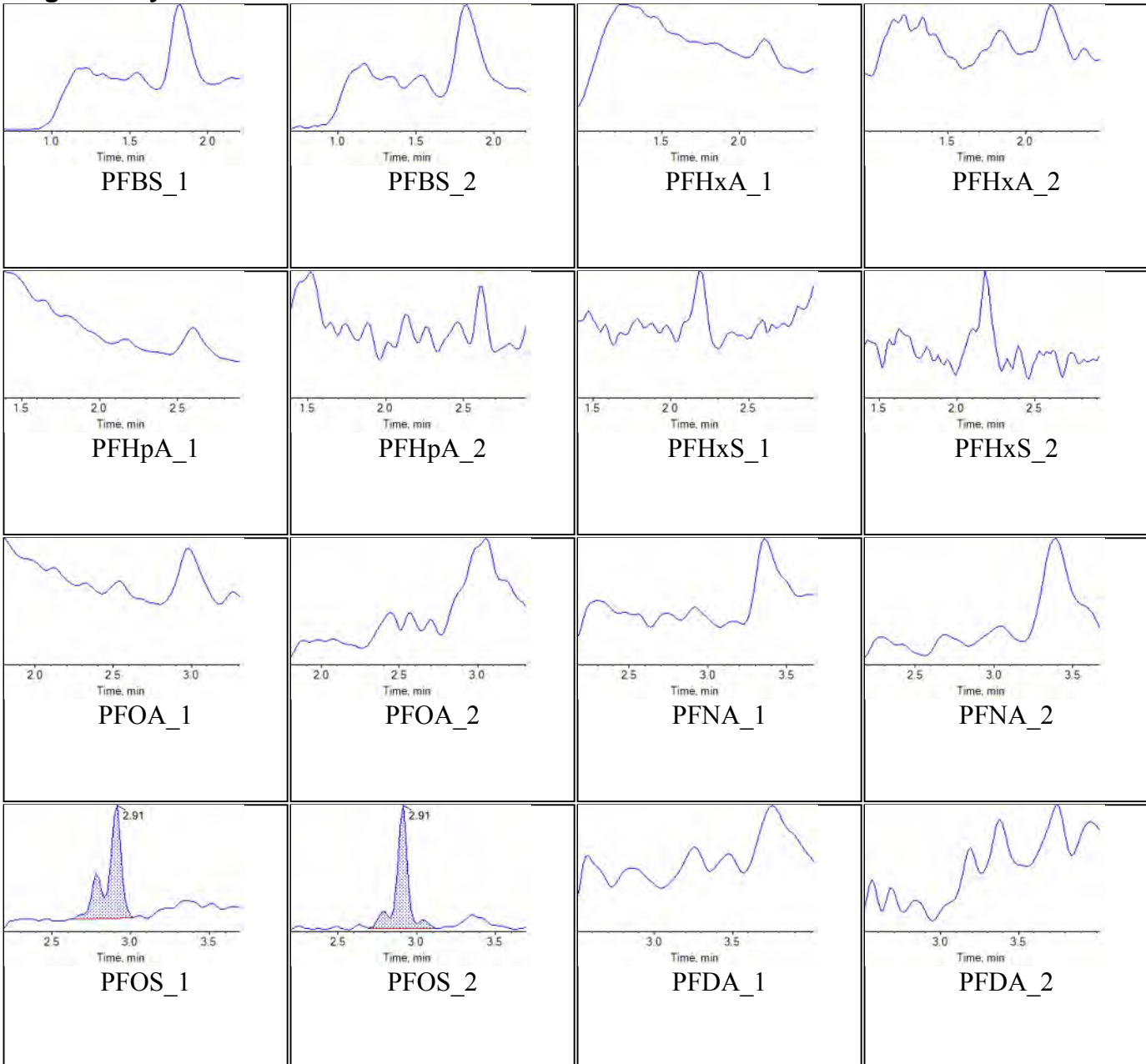
### Internal Standards:

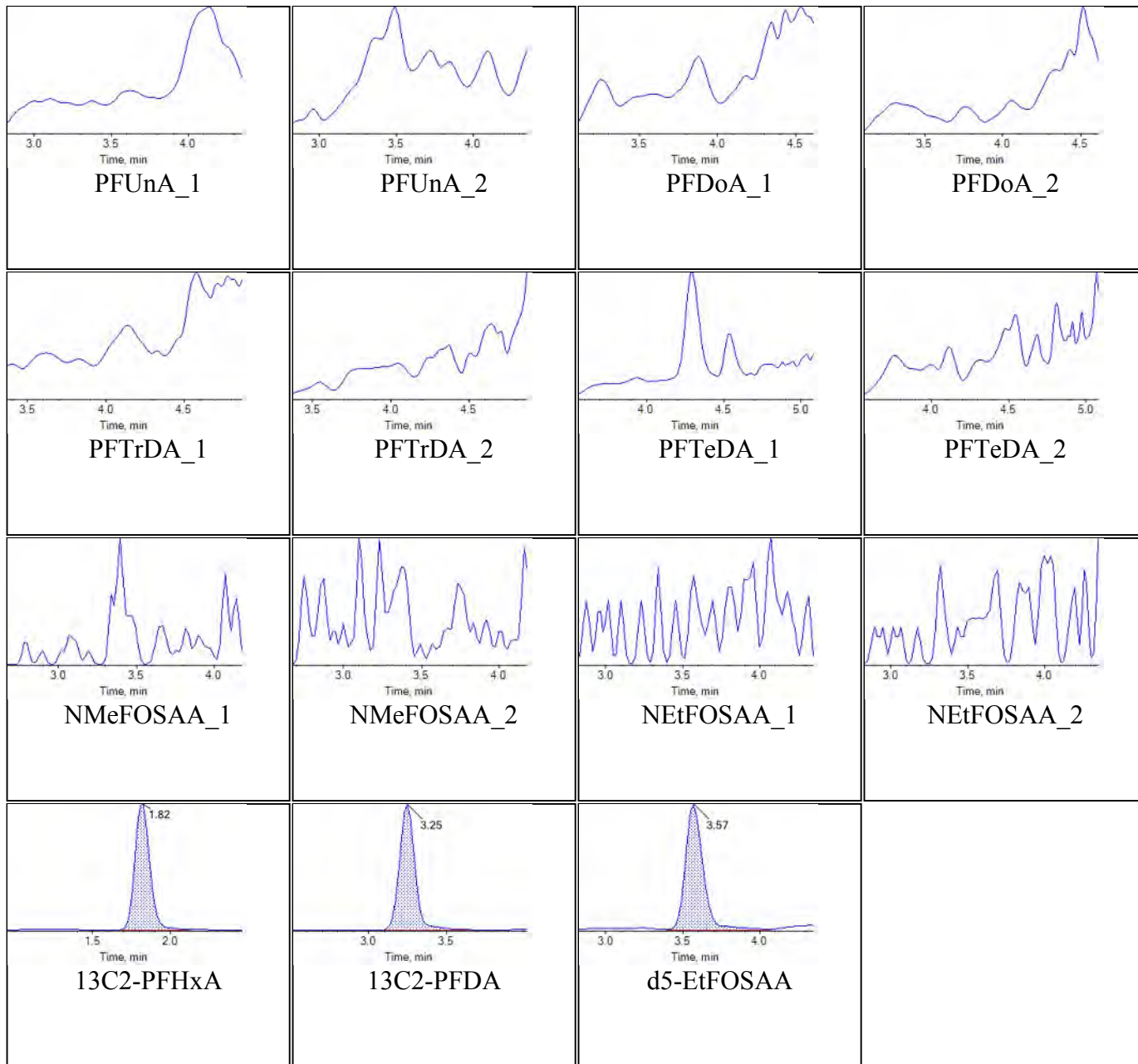


Sample Name	J7430-FS(0)	Injection Vial	36
Sample ID	JAX-RES-08142018-1130-9	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:45:25	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

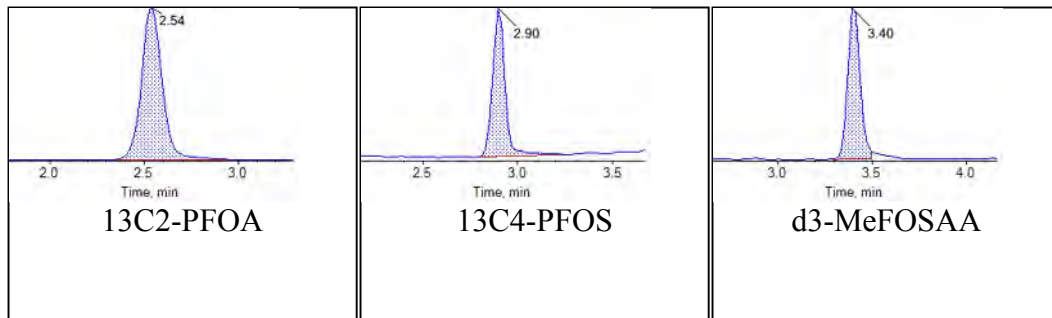
## Chromatograms

### Target Analytes:





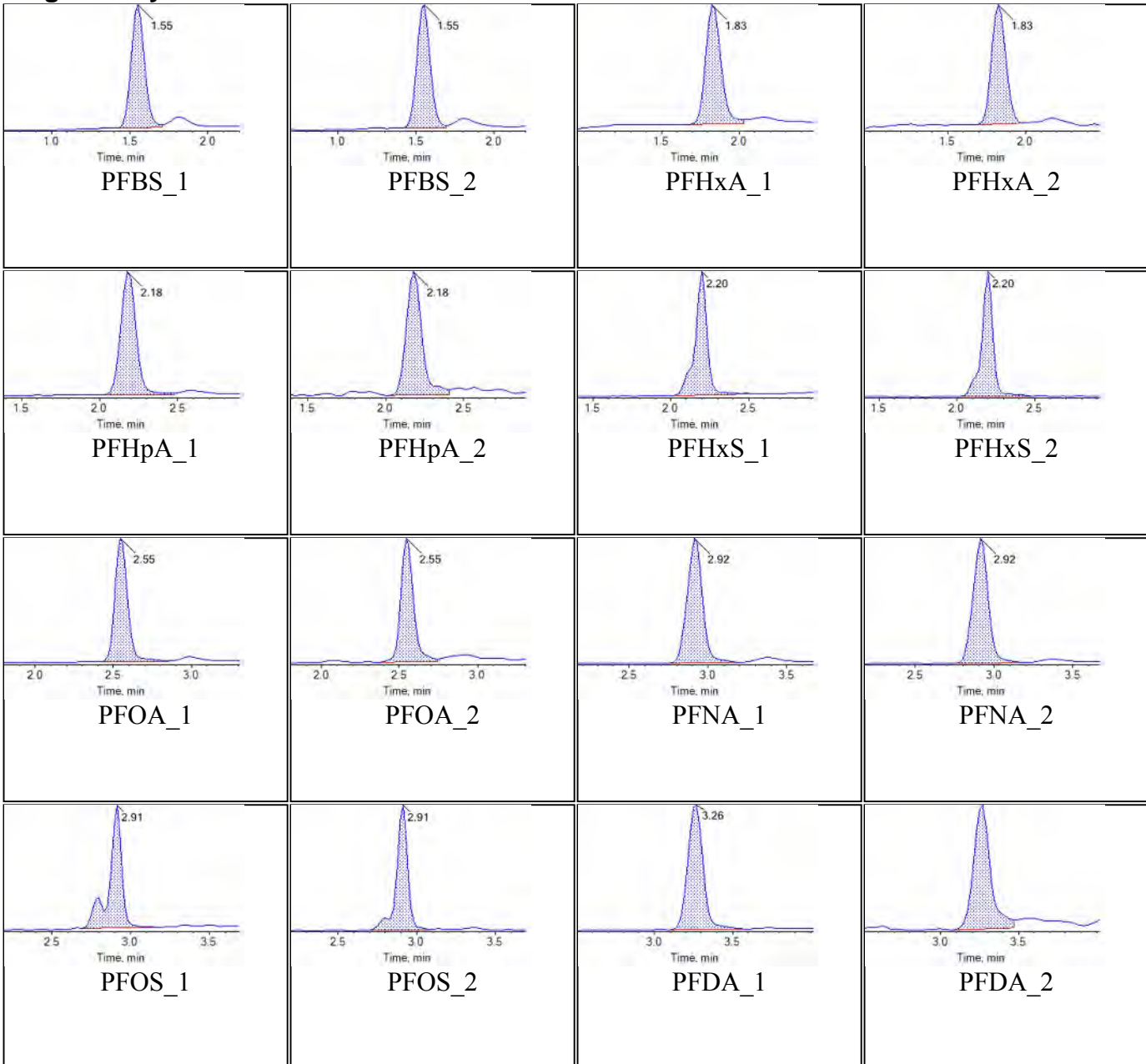
### Internal Standards:

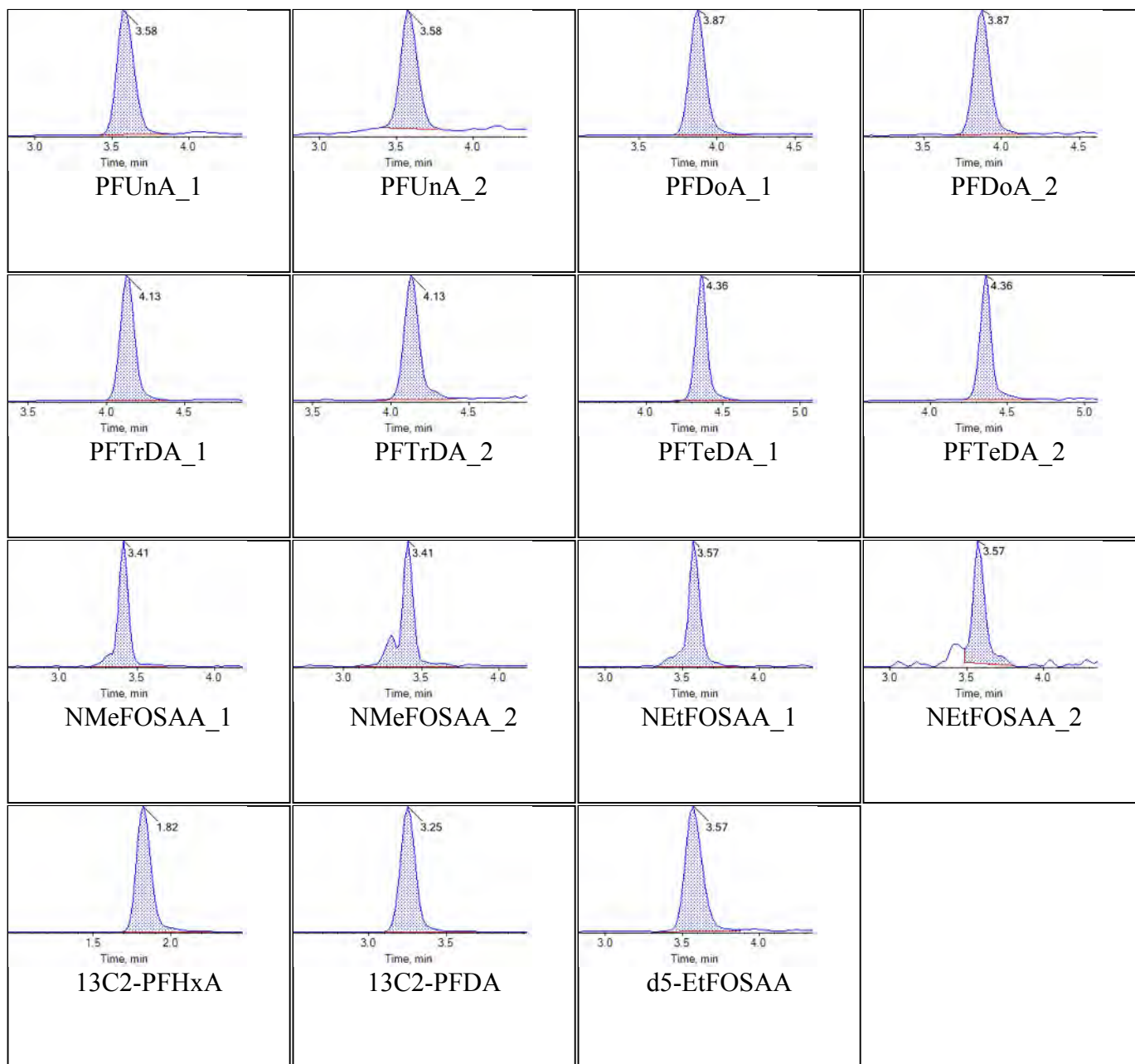
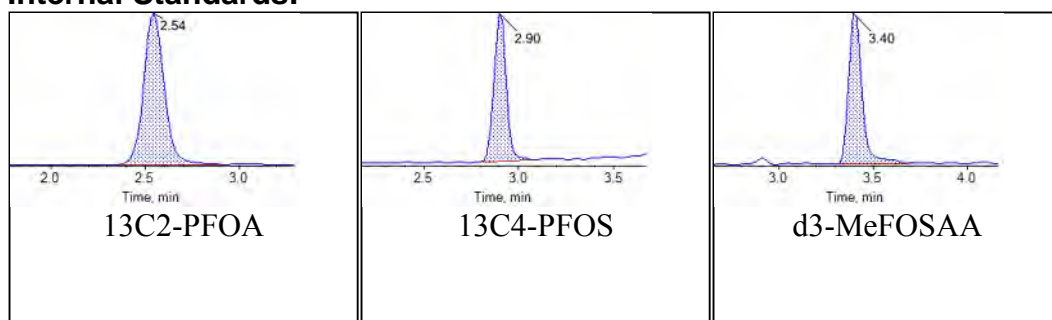


<b>Sample Name</b>	JZ82 CCV	<b>Injection Vial</b>	37
<b>Sample ID</b>	CCV	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Quality Control	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-08-20T19:54:22	<b>Data File</b>	DW_08202018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0507DW
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:



**Internal Standards:**

# Unused Data

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		8/21/2018 4:55:10 PM	5-0371.dam	SET1DW_08212018.wiff
2	JZ80		8/21/2018 5:04:08 PM	5-0371.dam	SET1DW_08212018.wiff
3	JZ81		8/21/2018 5:13:06 PM	5-0371.dam	SET1DW_08212018.wiff
4	JZ82		8/21/2018 5:22:02 PM	5-0371.dam	SET1DW_08212018.wiff
5	JZ83		8/21/2018 5:31:01 PM	5-0371.dam	SET1DW_08212018.wiff
6	JZ84		8/21/2018 5:39:58 PM	5-0371.dam	SET1DW_08212018.wiff
7	JZ85		8/21/2018 5:48:55 PM	5-0371.dam	SET1DW_08212018.wiff
8	JZ86		8/21/2018 5:57:53 PM	5-0371.dam	SET1DW_08212018.wiff
9	JZ10 IB		8/21/2018 6:06:49 PM	5-0371.dam	SET1DW_08212018.wiff
10	JZ77 ICC		8/21/2018 6:15:45 PM	5-0371.dam	SET1DW_08212018.wiff
11	MeOH		8/21/2018 6:24:43 PM	5-0371.dam	SET1DW_08212018.wiff
12	CR577PB-FS(0)		8/21/2018 6:33:39 PM	5-0371.dam	SET1DW_08212018.wiff
13	J7430-FS(0)		8/21/2018 6:42:36 PM	5-0371.dam	SET1DW_08212018.wiff
4	JZ82 CCV		8/21/2018 6:51:32 PM	5-0371.dam	SET1DW_08212018.wiff

Sample Name	JZ80	Injection Vial	2
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-21T17:04:08	Data File	SET1DW_08212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.91	64664.08	82.981758	85.4	true
PFOS_2	499.0 / 99.0	2.91	10897.02	82.811373	133.9	false
13C2-PFHxA	315.0 / 270.0	1.82	35292.66	104.777507	1069.4	false
13C2-PFDA	515.0 / 470.0	3.25	38875.59	103.428613	1280.6	true
d5-EtFOSAA	589.0 / 419.0	3.57	31494.57	443.115040	392.0	false



Sample Name	JZ81	Injection Vial	3
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-21T17:13:06	Data File	SET1DW_08212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.91	121111.32	235.980461	100.4	true
PFOS_2	499.0 / 99.0	2.91	19397.59	208.153868	187.8	false
13C2-PFHxA	315.0 / 270.0	1.82	26408.53	99.533843	882.9	false
13C2-PFDA	515.0 / 470.0	3.25	28776.88	97.196426	1277.5	true
d5-EtFOSAA	589.0 / 419.0	3.56	22505.21	385.694425	204.1	false

Sample Name	JZ82	Injection Vial	4
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-21T17:22:02	Data File	SET1DW_08212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.91	262232.33	497.766890	111.0	true
PFOS_2	499.0 / 99.0	2.90	49417.05	510.319066	202.5	true
13C2-PFHxA	315.0 / 270.0	1.82	30076.16	97.468119	1358.7	false
13C2-PFDA	515.0 / 470.0	3.24	33923.80	98.520084	15744.3	true
d5-EtFOSAA	589.0 / 419.0	3.56	25790.28	361.948006	212.6	false

Sample Name	JZ83	Injection Vial	5
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-21T17:31:01	Data File	SET1DW_08212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.91	479100.00	880.066011	147.2	true
PFOS_2	499.0 / 99.0	2.90	95505.73	946.087935	366.6	false
13C2-PFHxA	315.0 / 270.0	1.82	31518.94	102.396359	1088.8	false
13C2-PFDA	515.0 / 470.0	3.25	37080.42	107.953727	877.8	true
d5-EtFOSAA	589.0 / 419.0	3.56	29325.92	409.833525	234.7	false

Sample Name	JZ84	Injection Vial	6
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-21T17:39:58	Data File	SET1DW_08212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.90	1047597.99	2484.334137	202.9	true
PFOS_2	499.0 / 99.0	2.90	202830.89	2570.133132	553.3	false
13C2-PFHxA	315.0 / 270.0	1.82	27972.37	98.746659	889.4	false
13C2-PFDA	515.0 / 470.0	3.23	32360.54	102.373847	806.5	true
d5-EtFOSAA	589.0 / 419.0	3.55	27928.76	403.583203	284.0	false

Sample Name	JZ85	Injection Vial	7
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-21T17:48:55	Data File	SET1DW_08212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.89	2004935.98	4643.662880	259.4	true
PFOS_2	499.0 / 99.0	2.89	377046.79	4655.302702	590.4	false
13C2-PFHxA	315.0 / 270.0	1.82	28202.17	101.291726	893.6	false
13C2-PFDA	515.0 / 470.0	3.22	30434.97	97.959034	1028.6	true
d5-EtFOSAA	589.0 / 419.0	3.53	26549.94	456.987170	290.3	false

Sample Name	JZ86	Injection Vial	8
Sample ID		Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-21T17:57:53	Data File	SET1DW_08212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.86	4216306.49	9085.907863	345.6	false
PFOS_2	499.0 / 99.0	2.86	779010.87	8937.891923	769.4	false
13C2-PFHxA	315.0 / 270.0	1.82	31750.06	95.785787	1101.5	false
13C2-PFDA	515.0 / 470.0	3.20	34239.35	92.568270	830.1	true
d5-EtFOSAA	589.0 / 419.0	3.52	23950.71	338.838631	248.1	false

Sample Name	JZ77 ICC	Injection Vial	10
Sample ID		Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-21T18:15:45	Data File	SET1DW_08212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.85	422270.17	866.789097	364.7	false
PFOS_2	499.0 / 99.0	2.85	89427.49	991.230554	511.8	false
13C2-PFHxA	315.0 / 270.0	1.81	29934.21	92.514058	884.5	false
13C2-PFDA	515.0 / 470.0	3.19	33012.25	91.431375	552.0	false
d5-EtFOSAA	589.0 / 419.0	3.51	26331.74	401.209629	326.1	false

Sample Name	JZ82 CCV	Injection Vial	4
Sample ID		Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-21T18:51:32	Data File	SET1DW_08212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.85	262496.89	475.367155	134.2	false
PFOS_2	499.0 / 99.0	2.85	51887.39	512.594404	379.8	false
13C2-PFHxA	315.0 / 270.0	1.81	31978.90	98.347149	1024.7	false
13C2-PFDA	515.0 / 470.0	3.19	37236.89	102.624668	1152.1	false
d5-EtFOSAA	589.0 / 419.0	3.51	29216.45	402.848556	305.9	false



Sample Name	JZ10 IB	Injection Vial	9
Sample ID		Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-21T18:06:49	Data File	SET1DW_08212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
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
13C2-PFHxA	315.0 / 270.0	1.81	47422.44	100.796447	1344.9	false
13C2-PFDA	515.0 / 470.0	3.20	53786.24	102.450141	1155.3	false
d5-EtFOSAA	589.0 / 419.0	3.52	39319.03	393.035727	368.7	false

Sample Name	CR577PB-FS(0)	Injection Vial	12
Sample ID		Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-21T18:33:39	Data File	SET1DW_08212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.86	171692.48	260.369455	73.5	true
PFOS_2	499.0 / 99.0	2.85	33427.48	282.026869	257.2	false
13C2-PFHxA	315.0 / 270.0	1.82	28076.31	80.938829	902.1	false
13C2-PFDA	515.0 / 470.0	3.20	28093.72	72.578203	2034.5	true
d5-EtFOSAA	589.0 / 419.0	3.51	23913.31	286.310730	284.7	false

Sample Name	J7430-FS(0)	Injection Vial	13
Sample ID		Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-21T18:42:36	Data File	SET1DW_08212018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507_DW_A
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.85	69880.95	77.103253	65.5	false
PFOS_2	499.0 / 99.0	2.85	10185.24	64.720813	114.5	false
13C2-PFHxA	315.0 / 270.0	1.81	34969.97	81.104339	624.4	false
13C2-PFDA	515.0 / 470.0	3.19	27355.76	56.856175	610.9	false
d5-EtFOSAA	589.0 / 419.0	3.51	17599.43	183.859337	235.7	false

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","307-24-4","PFHxA",".500000","ng/L","U",".22","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500",".50",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","375-85-9","PFHpA","1.000000","ng/L","U",".34","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","335-67-1","PFOA","1.000000","ng/L","U",".38","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","375-95-1","PFNA","1.000000","ng/L","U",".37","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","335-76-2","PFDA","1.000000","ng/L","U",".39","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","2058-94-8","PFUnA","1.000000","ng/L","U",".38","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","307-55-1","PFDaA","1.000000","ng/L","U",".42","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","72629-94-8","PFTTrDA","1.000000","ng/L","U",".42","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","376-06-7","PFTeDA","1.500000","ng/L","U",".73","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.50",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","2355-31-9","NMeFOSAA","1.000000","ng/L","U",".42","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","2991-50-6","NEtFOSAA","1.000000","ng/L","U",".44","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","375-73-5","PFBS",".500000","ng/L","U",".21","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500",".50",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","1763-23-1","PFOS",".820000","ng/L","J",".30","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","355-46-4","PFHxS","1.000000","ng/L","U",".34","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","BDO-2106","13C2-PFHxA",".310000","ng/L","","-99.00","NA","","SIS","78.00","","-99.00","NA","YES",".400000","",".250000",".000500",".50",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","BDO-2110","13C2-PFDA",".300000","ng/L","","-99.00","NA","","SIS","76.00","","-99.00","NA","YES",".400000","",".250000",".000500",".50",""

"CR577PB-FS","SOP 5-369","Initial","CR577PB-FS","BNO","BDO-1839","d5-EtFOSAA","1.240000","ng/L","","-99.00","NA","","SIS","78.00","","-99.00","NA","YES","1.600000","",".250000",".000500",".50",""

"CR578LCS-FS","SOP 5-369","Initial","CR578LCS-FS","BNO","307-24-4","PFHxA","18.870000","ng/L","",".22","MDL","","T","94.00","","2.50","LOQ","YES","20.000000","",".250000",".000500","18.870000",""

00500", ".50", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "375-85-9", "PFHpA", "18.580000", "ng/L", "", ".34", "MDL", "", "T", "93.00", "", "2.50", "LOQ", "YES", "20.000000", "", ".250000", ".000500", "1.00", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "335-67-1", "PFOA", "17.250000", "ng/L", "", ".38", "MDL", "", "T", "86.00", "", "2.50", "LOQ", "YES", "20.000000", "", ".250000", ".000500", "1.00", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "375-95-1", "PFNA", "17.580000", "ng/L", "", ".37", "MDL", "", "T", "88.00", "", "2.50", "LOQ", "YES", "20.000000", "", ".250000", ".000500", "1.00", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "335-76-2", "PFDA", "15.470000", "ng/L", "", ".39", "MDL", "", "T", "77.00", "", "2.50", "LOQ", "YES", "20.000000", "", ".250000", ".000500", "1.00", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "2058-94-8", "PFUnA", "16.740000", "ng/L", "", ".38", "MDL", "", "T", "84.00", "", "2.50", "LOQ", "YES", "20.000000", "", ".250000", ".000500", "1.00", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "307-55-1", "PFDoA", "15.780000", "ng/L", "", ".42", "MDL", "", "T", "79.00", "", "2.50", "LOQ", "YES", "20.000000", "", ".250000", ".000500", "1.00", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "72629-94-8", "PFTTrDA", "15.180000", "ng/L", "", ".42", "MDL", "", "T", "76.00", "", "2.50", "LOQ", "YES", "20.000000", "", ".250000", ".000500", "1.00", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "376-06-7", "PFTeDA", "14.580000", "ng/L", "", ".73", "MDL", "", "T", "73.00", "", "2.50", "LOQ", "YES", "20.000000", "", ".250000", ".000500", "1.50", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "2355-31-9", "NMeFOSAA", "20.060000", "ng/L", "", ".42", "MDL", "", "T", "100.00", "", "2.50", "LOQ", "YES", "20.000000", "", ".250000", ".000500", "1.00", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "2991-50-6", "NEtFOSAA", "16.790000", "ng/L", "", ".44", "MDL", "", "T", "84.00", "", "2.50", "LOQ", "YES", "20.000000", "", ".250000", ".000500", "1.00", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "375-73-5", "PFBS", "14.850000", "ng/L", "", ".21", "MDL", "", "T", "84.00", "", "2.50", "LOQ", "YES", "17.700000", "", ".250000", ".000500", ".50", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "1763-23-1", "PFOS", "14.420000", "ng/L", "", ".30", "MDL", "", "T", "75.00", "", "2.50", "LOQ", "YES", "19.100000", "", ".250000", ".000500", "1.00", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "355-46-4", "PFHxS", "15.670000", "ng/L", "", ".34", "MDL", "", "T", "83.00", "", "2.50", "LOQ", "YES", "18.900000", "", ".250000", ".000500", "1.00", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "BDO-2106", "13C2-PFHxA", ".350000", "ng/L", "", "-99.00", "NA", "", "SIS", "87.00", "", "-99.00", "NA", "YES", ".400000", "", ".250000", ".000500", ".50", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "BDO-2110", "13C2-PFDA", ".320000", "ng/L", "", "-99.00", "NA", "", "SIS", "79.00", "", "-99.00", "NA", "YES", ".400000", "", ".250000", ".000500", ".50", ""  
"CR578LCS-FS", "SOP 5-369", "Initial", "CR578LCS-FS", "BNO", "BDO-1839", "d5-EtFOSAA", "1.240000", "ng/L", "", "-99.00", "NA", "", "SIS", "77.00", "", "-99.00", "NA", "YES", "1.600000", "", ".250000", ".000500", ".50", ""  
"JAX-RES-08142018-1045-8", "SOP 5-369", "Initial", "J7428-FS", "BNO", "307-24-4", "PFHxA", ".440000", "ng/L", "U", ".19", "MDL", "", "T", "", "", "2.19", "LOQ", "YES", "-99.000000", "", ".285000", ".000500", ".44", ""  
"JAX-RES-08142018-1045-8", "SOP 5-369", "Initial", "J7428-FS", "BNO", "375-85-9", "PFHpA", ".880000", "ng/L", "U", ".30", "MDL", "", "T", "", "", "2.19", "LOQ", "YES", "-99.000000", "", ".285000", ".000500", ".44", ""

0",".88",""  
"JAX-RES-08142018-1045-8","SOP 5-369","Initial","J7428-FS","BNO","335-67-1","PFOA",".880000","ng/L","U",".33","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88",""  
"JAX-RES-08142018-1045-8","SOP 5-369","Initial","J7428-FS","BNO","375-95-1","PFNA",".880000","ng/L","U",".32","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88",""  
"JAX-RES-08142018-1045-8","SOP 5-369","Initial","J7428-FS","BNO","335-76-2","PFDA",".880000","ng/L","U",".34","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88",""  
"JAX-RES-08142018-1045-8","SOP 5-369","Initial","J7428-FS","BNO","2058-94-8","PFUnA",".880000","ng/L","U",".33","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88",""  
"JAX-RES-08142018-1045-8","SOP 5-369","Initial","J7428-FS","BNO","307-55-1","PFDoA",".880000","ng/L","U",".37","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88",""  
"JAX-RES-08142018-1045-8","SOP 5-369","Initial","J7428-FS","BNO","72629-94-8","PFTrDA",".880000","ng/L","U",".37","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88",""  
"JAX-RES-08142018-1045-8","SOP 5-369","Initial","J7428-FS","BNO","376-06-7","PFTeDA","1.320000","ng/L","U",".64","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500","1.32",""  
"JAX-RES-08142018-1045-8","SOP 5-369","Initial","J7428-FS","BNO","2355-31-9","NMeFOSAA",".880000","ng/L","U",".37","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88",""  
"JAX-RES-08142018-1045-8","SOP 5-369","Initial","J7428-FS","BNO","2991-50-6","NEtFOSAA",".880000","ng/L","U",".39","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88",""  
"JAX-RES-08142018-1045-8","SOP 5-369","Initial","J7428-FS","BNO","375-73-5","PFBS",".440000","ng/L","U",".18","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".44",""  
"JAX-RES-08142018-1045-8","SOP 5-369","Initial","J7428-FS","BNO","1763-23-1","PFOS",".660000","ng/L","J",".26","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88",""  
"JAX-RES-08142018-1045-8","SOP 5-369","Initial","J7428-FS","BNO","355-46-4","PFHxS",".880000","ng/L","U",".30","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88",""  
"JAX-RES-08142018-1045-8","SOP 5-369","Initial","J7428-FS","BNO","BDO-2106","13C2-PFHxA",".300000","ng/L","","-99.00","NA","","SIS","86.00","","-99.00","NA","YES",".350000","",".285000",".000500",".50",""  
"JAX-RES-08142018-1045-8","SOP 5-369","Initial","J7428-FS","BNO","BDO-2110","13C2-PFDA",".250000","ng/L","","-99.00","NA","","SIS","72.00","","-99.00","NA","YES",".350000","",".285000",".000500",".50",""  
"JAX-RES-08142018-1045-8","SOP 5-369","Initial","J7428-FS","BNO","BDO-1839","d5-EtFOSAA",".980000","ng/L","","-99.00","NA","","SIS","70.00","","-99.00","NA","YES","1.400000","",".285000",".000500",".50",""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","307-24-4","PFHxA",".470000","ng/L","U",".21","MDL","","T","","","2.36","LOQ","YES","-99.000000","",".265000",".000500",".47",""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","375-85-9","PFHpA",".940000","ng/L","U",".32","MDL","","T","","","2.36","LOQ","YES","-99.000000","",".265000",".000500",".94",""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","335-67-1","PFOA",".940000","ng/L","U",".36","MDL","","T","","","2.36","LOQ","YES","-99.000000","",".265000",".000500

",".94","""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","375-95-1","PFNA",".940000","ng/L","U",".35","MDL","","T","","","2.36","LOQ","YES","-99.000000","",".265000",".000500",".94","""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","335-76-2","PFDA",".940000","ng/L","U",".37","MDL","","T","","","2.36","LOQ","YES","-99.000000","",".265000",".000500",".94","""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","2058-94-8","PFUnA",".940000","ng/L","U",".36","MDL","","T","","","2.36","LOQ","YES","-99.000000","",".265000",".000500",".94","""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","307-55-1","PFDoA",".940000","ng/L","U",".40","MDL","","T","","","2.36","LOQ","YES","-99.000000","",".265000",".000500",".94","""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","72629-94-8","PFTTrDA",".940000","ng/L","U",".40","MDL","","T","","","2.36","LOQ","YES","-99.000000","",".265000",".000500",".94","""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","376-06-7","PFTeDA","1.420000","ng/L","U",".69","MDL","","T","","","2.36","LOQ","YES","-99.000000","",".265000",".000500","1.42","""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","2355-31-9","NMeFOSAA",".940000","ng/L","U",".40","MDL","","T","","","2.36","LOQ","YES","-99.000000","",".265000",".000500",".94","""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","2991-50-6","NEtFOSAA",".940000","ng/L","U",".42","MDL","","T","","","2.36","LOQ","YES","-99.000000","",".265000",".000500",".94","""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","375-73-5","PFBS",".470000","ng/L","U",".20","MDL","","T","","","2.36","LOQ","YES","-99.000000","",".265000",".000500",".47","""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","1763-23-1","PFOS",".940000","ng/L","U",".28","MDL","","T","","","2.36","LOQ","YES","-99.000000","",".265000",".000500",".94","""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","355-46-4","PFHxS",".940000","ng/L","U",".32","MDL","","T","","","2.36","LOQ","YES","-99.000000","",".265000",".000500",".94","""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","BDO-2106","13C2-PFHxA",".290000","ng/L","","-99.00","NA","","SIS","78.00","","-99.00","NA","YES",".380000","",".265000",".000500",".50","""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","BDO-2110","13C2-PFDA",".210000","ng/L","","-99.00","NA","","SIS","55.00","","-99.00","NA","YES",".380000","",".265000",".000500",".50","""  
"JAX-RES-08142018-1130-9","SOP 5-369","Initial","J7430-FS","BNO","BDO-1839","d5-EtFOSAA",".960000","ng/L","","-99.00","NA","","SIS","64.00","","-99.00","NA","YES","1.510000","",".265000",".000500",".50","""  
"112G08005-SE0375","SE0375 ? NAS Jacksonville","CR577PB-FS","","WATER","CR577PB-FS","Method Bla","","-99.000000","SOP 5-369","Gen Prep","Initial","08/16/2018 00:00","08/20/2018 19:18","BNO","COA","NA","T","1.000","NA","NA","","100.000000","18-0507","18-0507","DP-18-0224","DP-18-0224","18-0507","08/16/2018 00:00","08/22/2018 16:21","""  
"112G08005-SE0375","SE0375 ? NAS Jacksonville","CR578LCS-FS","","WATER","CR578LCS-FS","LCS","","-99.000000","SOP 5-369","Gen Prep","Initial","08/16/2018 00:00","08/20/2018 19:27","BNO","COA","NA","T","1.000","NA","NA","","100.000000","18-0507","18-0507","DP-18-0224","DP-18-0224","18-0507","08/16/2018 00:00","08/22/2018 16:21","""  
"112G08005-SE0375","SE0375 ? NAS Jacksonville","JAX-RES-08142018-1045-8","08/14/2018 10:45","W","J7428-FS","NM","SHP-180815-02","1.100000","SOP 5-369","Gen Prep","Initial","08/16/2018 00:00","08/20/2018 19:36","BNO","COA","NA","T","1.000","NA","NA","","100.000000","18-0507","18-0507","DP-18-0224","DP-18-

0224","18-0507","08/15/2018 10:40","08/22/2018 16:21",""  
"112G08005-SE0375","SE0375 ? NAS Jacksonville","JAX-RES-08142018-1130-9","08/14/2018 11:30","W","J7430-  
FS","NM","SHP-180815-02","1.100000","SOP 5-369","Gen Prep","Initial","08/16/2018 00:00","08/20/2018  
19:45","BNO","COA","NA","T","1.000","NA","NA","","100.000000","18-0507","18-0507","DP-18-0224","DP-18-  
0224","18-0507","08/15/2018 10:40","08/22/2018 16:21",""





**TETRA TECH**

**INTERNAL CORRESPONDENCE**

**TO:** M. PETERSON                      **DATE:** SEPTEMBER 6, 2018  
**FROM:** MICHELLE L. WOEBER              **COPIES:** DV FILE/REV 1  
**SUBJECT:** ORGANIC DATA VALIDATION – POLYFLUOROALKYL SUBSTANCES (PFAS)  
NAVAL AIR STATION (NAS), JACKSONVILLE  
JACKSONVILLE, FLORIDA  
SAMPLE DELIVERY GROUP (SDG) 18-0507  
  
**SAMPLES:** 1/Drinking Water/PFAS  
JAX-RES-08142018-1045-8

**Overview**

The sample set for NAS Jacksonville, SDG 18-0507 consisted of one (1) drinking water sample. The one (1) sample was analyzed for PFAS. No field duplicate sample pair was included in this SDG.

The sample was collected by Tetra Tech, Inc. on August 14, 2018 and analyzed by Battelle Norwell Operations. All analyses were conducted in accordance with EPA Method 537 version 1.1 analytical and reporting protocols. The data contained in this SDG was validated at EPA Stage 4 with regard to the following parameters:

- \*     •     Data completeness
- \*     •     Hold times/Sample Preservation
- \*     •     Mass Calibration
- \*     •     LC/MS/MS System Tuning and Performance
- \*     •     Mass Spectral Acquisition Rate
- \*     •     Instrument Sensitivity Check
- \*     •     Ion Transition Check
- \*     •     Asymmetry Factor Results
- \*     •     Initial/Continuing Calibrations
- Laboratory Preparation/Method Blank Results
- Surrogate Spike Recoveries
- \*     •     Injection Internal Standard Recoveries
- \*     •     Laboratory Control Sample Recoveries
- \*     •     Compound Identification
- \*     •     Compound Quantitation
- \*     •     Detection Limits

The symbol (\*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, and documentation supporting these findings is presented in Appendix C.

### **PFAS**

The following contaminant was detected in the instrument blank at the following maximum concentration:

<u>Compound</u>	<u>Maximum Concentration (ng/L)</u>	<u>Action Level</u> <u>&gt; or &lt; Limit of Quantitation (LOQ)</u>
Perfluorooctanesulfonic acid (PFOS)	0.82	> LOQ

The detected result reported for PFOS in sample JAX-RES-08142018-1045-8 below the LOQ was qualified as non-detected, (U).

Surrogate spike recoveries were low (<70%) in sample JAX-RES-08142018-1130-9 for 13C2-Perfluorodecanoic acid (13C2-PFDA) and N-deuterioethylperfluorooctanesulfonamidoacetic acid (d5-EtFOSAA). The recovery of the third surrogate, 13C2-perfluorohexanoic acid (13C2-PFHxA) was 78% which was within the acceptance limits of 70% - 130%. The laboratory narrative indicated that the sample was re-analyzed with similar results. The sample was not re-extracted. The laboratory was contacted and was able to re-extract the sample within the 14-day holding time. The results from the re-extraction were used in the validation and these results are presented in SDG 18-0534.

### **Additional Comments**

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 the drinking water samples.

Non-detected results were reported to the Method Detection Limit in the database.

### **Executive Summary**

**Laboratory Performance Issues:** One contaminant was detected in the laboratory preparation blank. Two surrogate recoveries were low in sample JAX-RES-08142018-1130-9. The re-extracted results for this sample are presented in SDG 18-0534.

**Other Factors Affecting Data Quality:** None.

TO: M. PETERSON  
SDG: 18-0507

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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.

*Michelle L. Woeber*

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Tetra Tech, Inc.  
Michelle L. Woeber  
Chemist/Data Validator

*Joseph A. Samchuck*

---

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: 18-0507</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	JAX-RES-08142018-1045-8		
	LAB_ID	J7428-FS		
	SAMP_DATE	8/14/2018		
	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		
PENTADEC AFLUOROOCTANOIC ACID (PFOA)	0.33	U		
PERFLUOROBUTANESULFONIC ACID (PFBS)	0.18	U		
PERFLUORODECANOIC ACID (PFDA)	0.34	U		
PERFLUORODODECANOIC ACID (PFDOA)	0.37	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	0.3	U		
PERFLUOROHEXANESULFONIC ACID (PFHXS)	0.3	U		
PERFLUOROHEXANOIC ACID (PFHXA)	0.19	U		
PERFLUORONONANOIC ACID (PFNA)	0.32	U		
PERFLUOROOCTANESULFONIC ACID (PFOS)	0.26	U	A	
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-08142018-1045-8

Battelle ID J7428-FS  
 Sample Type SA  
 Collection Date 08/14/2018  
 Extraction Date 08/16/2018  
 Analysis Date 08/20/2018  
 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	0.44 U	0.19	0.44	2.19
PFHpA	0.88 U	0.30	0.88	2.19
PFOA	0.88 U	0.33	0.88	2.19
PFNA	0.88 U	0.32	0.88	2.19
PFDA	0.88 U	0.34	0.88	2.19
PFUnA	0.88 U	0.33	0.88	2.19
PFDaA	0.88 U	0.37	0.88	2.19
PFTTrDA	0.88 U	0.37	0.88	2.19
PFTeDA	1.32 U	0.64	1.32	2.19
NMeFOSAA	0.88 U	0.37	0.88	2.19
NEtFOSAA	0.88 U	0.39	0.88	2.19
PFBS	0.44 U	0.18	0.44	2.19
PFHxS	0.88 U	0.30	0.88	2.19
PFOS	0.66 J	0.26	0.88	2.19

**Surrogate Recoveries (%)**

13C2-PFHxA	86
13C2-PFDA	72
d5-EtFOSAA	70

**APPENDIX C**

**SUPPORT DOCUMENTATION**

NAS JACKSONVILLE  
SDG 18-0507

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

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	PFOS
Sample ID	JAX-RES-08142018-1045-8
Laboratory Sample ID	J7405-FS
Sample Size (L)	0.285
Dilution Factor	1
PIV (L)	0.001
PFOS Area	121515.59
IS Area	164570.94
IS Amount (ng/L)	287
Calibration Curve	y = 0.99547 x + 0.08965
Concentration (ng/L)	0.66

$$(((121515.59-164570.94)-0.08965)/0.99547)*287*0.001*1/0.285$$

Sample Name	J7428-FS(0)	Injection Vial	35
Sample ID	JAX-RES-08142018-1045-8	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:36:30	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
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	2.20	12756.75	14.961675	31.7	false
PFHxS_2	399.0 / 99.0	2.20	4495.99	19.037178	34.3	false
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	2.91	121515.59	187.033524	73.2	false
PFOS_2	499.0 / 99.0	2.91	19853.75	166.887171	156.6	false
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	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	1.82	33815.31	86.275109	487.1	false
13C2-PFDA	515.0 / 470.0	3.25	31632.75	71.802588	893.5	true
d5-EtFOSAA	589.0 / 419.0	3.57	23137.72	278.014087	225.2	true

Sample Name	J7428-FS(0)	Injection Vial	35
Sample ID	JAX-RES-08142018-1045-8	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:36:30	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

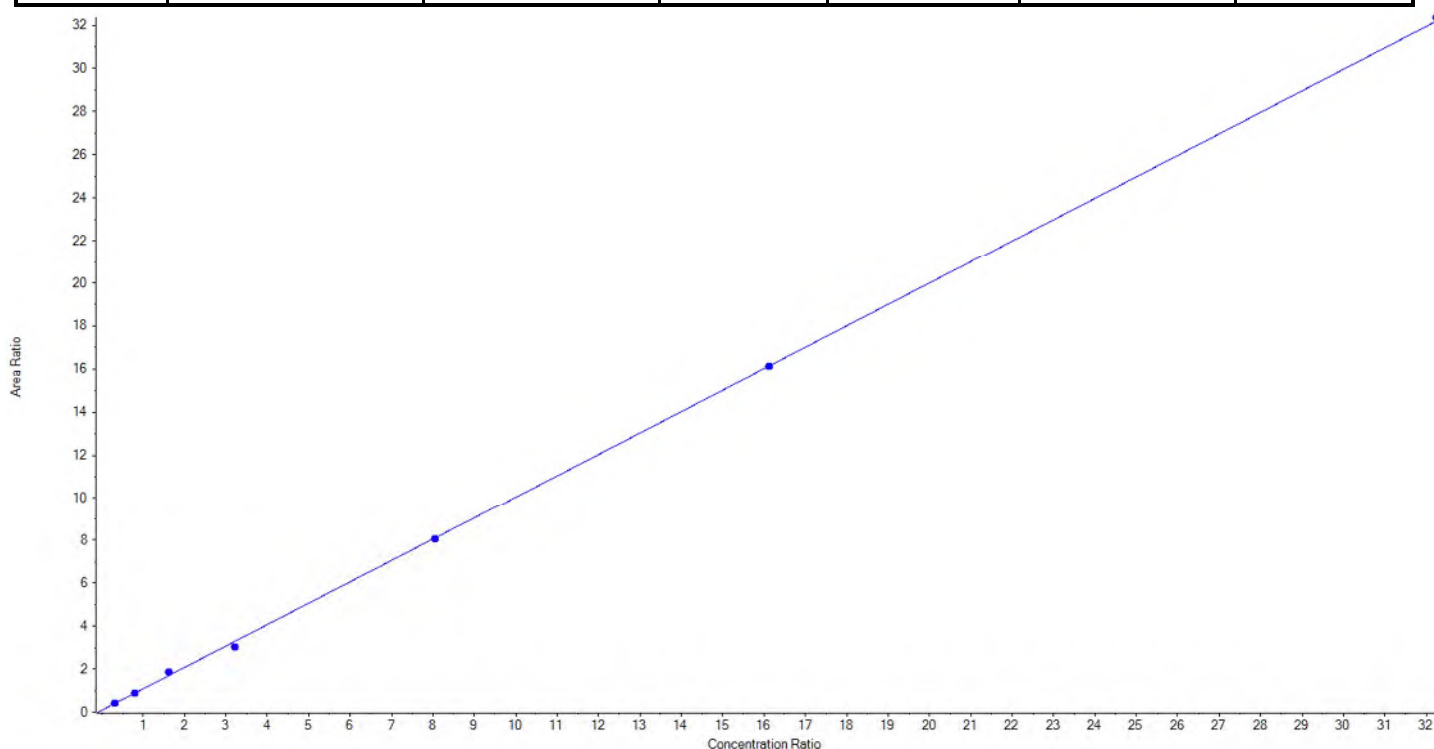
### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.21	13C4-PFOS	503.0 / 80.0	164570.94	287.00
PFBS_2	298.9 / 99.0	1.81	13C4-PFOS	503.0 / 80.0	164570.94	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	164570.94	287.00
PFHxS_2	399.0 / 99.0	2.20	13C4-PFOS	503.0 / 80.0	164570.94	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	164570.94	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	164570.94	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	39176.36	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	30843.11	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	30843.11	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	30843.11	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	30843.11	400.00
13C2-PFHxA	315.0 / 270.0	1.82	13C2-PFOA	415.0 / 370.0	39176.36	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	39176.36	100.00
d5-EtFOSAA	589.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	30843.11	400.00

<b>Analyte Name</b>	PFOS_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	499.0 / 80.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.99547 x + 0.08965$  (r = 0.99963) (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	90.074645	97.3
5	JZ81	L4	True	231.50	233.560454	100.9
6	JZ82	L5	True	463.00	509.926226	110.1
7	JZ83	L6	True	925.60	850.198897	91.9
8	JZ84	L7	True	2314.00	2300.749587	99.4
9	JZ85	L8	True	4628.00	4624.747250	99.9
10	JZ86	L9	True	9256.00	9301.442940	100.5



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SDG 18-0507

LABORATORY CONTROL SAMPLE

	Result	Target	Calculation	Recovery	Reported Recovery
PFHxA	18.87 ng/L	20.0 ng/L	$18.87/20*100$	94.35	94



It can be done

### Chain-of-Custody

<b>Client Contact Information</b> Tetra Tech		Project Manager: <u>Mark Peterson</u> Sampler Information (print name): <u>David Siefuen</u> Phone: <u>904.334.7260</u> Email: _____			Sampling Site: <u>Residential</u>		Site Information: _____	
Project Name: <u>NAS JAX - PFAS</u> Project No.: <u>112 G08005-5E0375</u>		Turnaround Time (TAT) Requested: _____ Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/>			Preservative: _____ Analysis: <u>PFAS 537</u>		COC # <u>002</u>	
Time Zone: _____		Sample Identification					Page# <u>1</u>	
		2018 Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.		
J7428	JAX-RES-08142018-1045-P	8-14	1045	G	W	2	1 Bottle # 31 # 32	
J7429	JAX-RES-08142018-1045-E-PFB	8-14	1045	G	W	1	Bottle # 17	
J7430	JAX-RES-08142018-1130-9	8-14	1130	G	W	2	Bottles # 87 # 88	
J7431	JAX-RES-08142018-1130-9 FRS	8-14	1130	G	W	1	Bottle # 24	
								AG
Receipt Temperature: (°C)		Samples Intact: Yes - No			Samples on Ice: <u>Yes</u> - No			Receipt Comments:
Relinquished by (Print/Sign): <u>David Siefuen</u>		Company: <u>Tetra Tech</u>	Date/Time: <u>8-14-18 1630</u>		Received by (Print/Sign): <u>Fed Ex</u>		Company: _____	Date/Time: _____
Relinquished by (Print/Sign): _____		Company: _____	Date/Time: _____		Received by (Print/Sign): <u>Mark Schwartz</u>		Company: <u>Battelle</u>	Date/Time: <u>8-15-18 10:40</u>
Relinquished by (Print/Sign): _____		Company: _____	Date/Time: _____		Received by (Print/Sign): _____		Company: _____	Date/Time: _____
Comments: <u>All samples Potable Water, Cool 4°C</u>								



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  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: J7428 - J7431

Samples logged in by: Schumitz, Matt Date/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

**QA/QC Summary**  
**Batch 18-0507**

Project:	CTO-SE0375: Naval Air Station (NAS) Jacksonville
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	W
Data Set:	DP-18-0224
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

Corrective Actions	None.
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	FRB sample analysis was not required for these field samples, there are no additional SDG related to this data.

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	Sample J7430 (JAX-RES-08142018-1130-9) had a sulfurous odor.
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 exceedences above 50% RPD for any analyte detected above the MDL or the LOQ in this SDG.

Holding Times	Extraction Date(s)	Analysis Date(s)
	8/16/2018	8/20/2018

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 18-0507**

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	Two exceedances noted. There are 2 surrogates in sample J7430 that are below 70%. The sample was rerun to confirm and there is a prep comment that the sample had a strong sulfur odor. The original data are reported. The rerun for this sample can be found in the unused data section of this data package.
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.

**QA/QC Summary**  
**Batch 18-0507**

Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted.
	No comments.
Continuing Calibration Verification (CCV)	Continuing calibration standards were run at the beginning and end of 10 injections and at the end of the sequence to ensure that initial calibration is still valid.
Target and SIS compounds +/- 30% of true value Low point 50-150% of true value	No exceedances noted.
	No comments.



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project Number: 100119154-SE0375  
 Preparation Batch: 18-0507  
 Data Set: DP-18-0224  
 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)	2	There are 2 surrogates in sample J7430 that are below 70%. The sample was rerun to confirm and there is a prep comment that the sample had a strong sulfur odor. The rerun for this sample can be found in the unused data section of this data package. DMS 8/22/2018
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None



## BATTELLE - NORWELL OPERATIONS MISCELLANEOUS DOCUMENTATION FORM

<b>Project Title:</b>	CTO-SE0375: Naval Air Station Jackson	<b>Data Set Number:</b>	DP-18-0224
<b>Project Number:</b>	100119154-SE0375	<b>Prep Batch Number:</b>	18-0507
<b>Entered By:</b>	Denise Schumitz	<b>Entered On:</b>	08/22/2018
<b>Test Code (Matrix Type):</b>	Master_371(L)		

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).  
DMS 8/21/2018

JZ80 is not being used in this method for NMeFOSAA. There is no impact on the data once this point of the calibration is removed.  
DMS 8/21/2018

JZ86 is not being used in this method for PFUnA, PFDA d5-EtFOSAA and NEtFOSAA. There is no impact on the data once this point of the calibration is removed.  
DMS 8/21/2018

**Task Leader Approval:**

**Supervisor Approval:**

**PM Approval:**

Robert Lizotte, Jr.

2018.08.22 11:33:18 -04'00'



## 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: CR577PB-FS(0)  
 Client Sample ID: Procedural Blank  
 Sample Size: 0.25  
 Units: L  
 Dilution Factor: 1.000  
 PIV (L): 0.001  
 Target Analyte: PFOS  
 MRM Transition: 499.0 / 80.0  
 Data file: DW\_08202018.wiff  
 Result table: 18-0507DW  
 Area: 134,684.65  
 IS Name: 13C4-PFOS  
 IS Area: 167,965.13  
 IS Amount (ng/L): 287  
 y-intercept: 0.08965  
 slope: 0.99547

$$\text{Concentration} = \frac{[(134684.65/167965.13) - 0.08965]}{0.99547} * 287 * 0.001 * 1 / 0.25$$

ng/L = 0.82



Project Client: Tetra Tech  
 Project Name: CTO-SE0375: Naval Air Station Jacksonville  
 Project No.: 100119154-SE0375  
 Preparation Batch: 18-0507  
 Data Set: DP-18-0224

	CR577PB-FS (Procedural Blank)	CR578LCS-FS (Laboratory Control Sample)	J7428-FS (JAX-RES-08142018-1045-8)	J7430-FS (JAX-RES-08142018-1130-9)
PFHxA	-	L	-	-
PFHpA	-	L	-	-
PFOA	-	L	-	-
PFNA	-	L	-	-
PFDA	-	L	-	-
PFUnA	-	L	-	-
PFDoA	-	L	-	-
PFTTrDA	-	L	-	-
PFTeDA	-	L	-	-
NMeFOSAA	-	L	-	-
NEtFOSAA	-	L	-	-
PFBS	-	L	-	-
PFHxS	-	L	-	-
PFOS	L/Br	L	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 (L1/L9)
JZ80	L3	8/20/18 14:59	13C4-PFOS	142,888.22	-
JZ81	L4	8/20/18 15:08	13C4-PFOS	155,034.01	-
JZ82	L5	8/20/18 15:17	13C4-PFOS	162,318.50	-
JZ83	L6	8/20/18 15:26	13C4-PFOS	156,398.53	-
JZ84	L7	8/20/18 15:35	13C4-PFOS	154,347.92	-
JZ85	L8	8/20/18 15:44	13C4-PFOS	140,656.25	-
JZ86	L9	8/20/18 15:52	13C4-PFOS	135,680.11	5.2

PASS

Average      Lower      Upper  
 149,617.65    74,808.83    224,426.48

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/20/18 14:59	13C4-PFOS	142,888.22	74,808.83	224,426.48		113,622.95	227,245.90	
JZ81	L4	8/20/18 15:08	13C4-PFOS	155,034.01	74,808.83	224,426.48		113,622.95	227,245.90	
JZ82	L5	8/20/18 15:17	13C4-PFOS	162,318.50	74,808.83	224,426.48		113,622.95	227,245.90	
JZ83	L6	8/20/18 15:26	13C4-PFOS	156,398.53	74,808.83	224,426.48		113,622.95	227,245.90	
JZ84	L7	8/20/18 15:35	13C4-PFOS	154,347.92	74,808.83	224,426.48		113,622.95	227,245.90	
JZ85	L8	8/20/18 15:44	13C4-PFOS	140,656.25	74,808.83	224,426.48		113,622.95	227,245.90	
JZ86	L9	8/20/18 15:52	13C4-PFOS	135,680.11	74,808.83	224,426.48		113,622.95	227,245.90	
JZ10 IB	Instrument Blank	8/20/18 16:01	13C4-PFOS	183,690.52	74,808.83	224,426.48		113,622.95	227,245.90	
JZ77 ICC	ICC	8/20/18 16:10	13C4-PFOS	134,938.50	74,808.83	224,426.48		113,622.95	227,245.90	
JZ83 CCV	CCV	8/20/18 19:00	13C4-PFOS	156,188.42	74,808.83	224,426.48		113,622.95	227,245.90	
CR577PB-FS(0)	Procedural Blank	8/20/18 19:18	13C4-PFOS	167,965.13	74,808.83	224,426.48		109,331.89	218,663.79	
CR578LCS-FS(0)	Laboratory Control Sample	8/20/18 19:27	13C4-PFOS	155,772.89	74,808.83	224,426.48		109,331.89	218,663.79	
J7428-FS(0)	JAX-RES-08142018-1045-8	8/20/18 19:36	13C4-PFOS	164,570.94	74,808.83	224,426.48		109,331.89	218,663.79	
J7430-FS(0)	JAX-RES-08142018-1130-9	8/20/18 19:45	13C4-PFOS	172,351.12	74,808.83	224,426.48		109,331.89	218,663.79	
JZ82 CCV	CCV	8/20/18 19:54	13C4-PFOS	135,994.66	74,808.83	224,426.48		109,331.89	218,663.79	

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 (L1/L9)
JZ80	L3	8/20/18 14:59	13C2-PFOA	32,082.74	-
JZ81	L4	8/20/18 15:08	13C2-PFOA	33,991.28	-
JZ82	L5	8/20/18 15:17	13C2-PFOA	34,895.40	-
JZ83	L6	8/20/18 15:26	13C2-PFOA	33,573.48	-
JZ84	L7	8/20/18 15:35	13C2-PFOA	33,686.21	-
JZ85	L8	8/20/18 15:44	13C2-PFOA	31,838.05	-
JZ86	L9	8/20/18 15:52	13C2-PFOA	33,937.64	5.6

PASS

Average      Lower      Upper  
 33,429.26    16,714.63    50,143.89

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/20/18 14:59	13C2-PFOA	32,082.74	16,714.63	50,143.89		24,426.78	48,853.56	
JZ81	L4	8/20/18 15:08	13C2-PFOA	33,991.28	16,714.63	50,143.89		24,426.78	48,853.56	
JZ82	L5	8/20/18 15:17	13C2-PFOA	34,895.40	16,714.63	50,143.89		24,426.78	48,853.56	
JZ83	L6	8/20/18 15:26	13C2-PFOA	33,573.48	16,714.63	50,143.89		24,426.78	48,853.56	
JZ84	L7	8/20/18 15:35	13C2-PFOA	33,686.21	16,714.63	50,143.89		24,426.78	48,853.56	
JZ85	L8	8/20/18 15:44	13C2-PFOA	31,838.05	16,714.63	50,143.89		24,426.78	48,853.56	
JZ86	L9	8/20/18 15:52	13C2-PFOA	33,937.64	16,714.63	50,143.89		24,426.78	48,853.56	
JZ10 IB	Instrument Blank	8/20/18 16:01	13C2-PFOA	43,290.28	16,714.63	50,143.89		24,426.78	48,853.56	
JZ77 ICC	ICC	8/20/18 16:10	13C2-PFOA	28,769.08	16,714.63	50,143.89		24,426.78	48,853.56	
JZ83 CCV	CCV	8/20/18 19:00	13C2-PFOA	33,466.43	16,714.63	50,143.89		24,426.78	48,853.56	
CR577PB-FS(0)	Procedural Blank	8/20/18 19:18	13C2-PFOA	35,042.72	16,714.63	50,143.89		23,426.50	46,853.00	
CR578LCS-FS(0)	Laboratory Control Sample	8/20/18 19:27	13C2-PFOA	35,828.75	16,714.63	50,143.89		23,426.50	46,853.00	
J7428-FS(0)	JAX-RES-08142018-1045-8	8/20/18 19:36	13C2-PFOA	39,176.36	16,714.63	50,143.89		23,426.50	46,853.00	
J7430-FS(0)	JAX-RES-08142018-1130-9	8/20/18 19:45	13C2-PFOA	40,599.52	16,714.63	50,143.89		23,426.50	46,853.00	
JZ82 CCV	CCV	8/20/18 19:54	13C2-PFOA	30,206.05	16,714.63	50,143.89		23,426.50	46,853.00	

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 (L1/L9)
JZ80	L3	8/20/18 14:59	d3-MeFOSAA	28,996.86	-
JZ81	L4	8/20/18 15:08	d3-MeFOSAA	26,627.99	-
JZ82	L5	8/20/18 15:17	d3-MeFOSAA	25,150.99	-
JZ83	L6	8/20/18 15:26	d3-MeFOSAA	26,516.87	-
JZ84	L7	8/20/18 15:35	d3-MeFOSAA	28,023.21	-
JZ85	L8	8/20/18 15:44	d3-MeFOSAA	24,307.22	-
JZ86	L9	8/20/18 15:52	d3-MeFOSAA	27,617.78	4.9

PASS

Average      Lower      Upper  
 26,748.70    13,374.35    40,123.05

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/20/18 14:59	d3-MeFOSAA	28,996.86	13,374.35	40,123.05		17,605.69	35,211.39	
JZ81	L4	8/20/18 15:08	d3-MeFOSAA	26,627.99	13,374.35	40,123.05		17,605.69	35,211.39	
JZ82	L5	8/20/18 15:17	d3-MeFOSAA	25,150.99	13,374.35	40,123.05		17,605.69	35,211.39	
JZ83	L6	8/20/18 15:26	d3-MeFOSAA	26,516.87	13,374.35	40,123.05		17,605.69	35,211.39	
JZ84	L7	8/20/18 15:35	d3-MeFOSAA	28,023.21	13,374.35	40,123.05		17,605.69	35,211.39	
JZ85	L8	8/20/18 15:44	d3-MeFOSAA	24,307.22	13,374.35	40,123.05		17,605.69	35,211.39	
JZ86	L9	8/20/18 15:52	d3-MeFOSAA	27,617.78	13,374.35	40,123.05		17,605.69	35,211.39	
JZ10 IB	Instrument Blank	8/20/18 16:01	d3-MeFOSAA	31,459.20	13,374.35	40,123.05		17,605.69	35,211.39	
JZ77 ICC	ICC	8/20/18 16:10	d3-MeFOSAA	22,841.71	13,374.35	40,123.05		17,605.69	35,211.39	
JZ83 CCV	CCV	8/20/18 19:00	d3-MeFOSAA	26,849.70	13,374.35	40,123.05		17,605.69	35,211.39	
CR577PB-FS(0)	Procedural Blank	8/20/18 19:18	d3-MeFOSAA	24,022.00	13,374.35	40,123.05		18,794.79	37,589.58	
CR578LCS-FS(0)	Laboratory Control Sample	8/20/18 19:27	d3-MeFOSAA	28,302.64	13,374.35	40,123.05		18,794.79	37,589.58	
J7428-FS(0)	JAX-RES-08142018-1045-8	8/20/18 19:36	d3-MeFOSAA	30,843.11	13,374.35	40,123.05		18,794.79	37,589.58	
J7430-FS(0)	JAX-RES-08142018-1130-9	8/20/18 19:45	d3-MeFOSAA	27,720.91	13,374.35	40,123.05		18,794.79	37,589.58	
JZ82 CCV	CCV	8/20/18 19:54	d3-MeFOSAA	21,840.01	13,374.35	40,123.05		18,794.79	37,589.58	

<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>	8/20/2018 3:35:06 PM	<b>Data File</b>	DW_08202018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0507DW
<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	1.56	0.98	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.85	1.39	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	8/20/2018 3:35:06 PM	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.56	29	>10
PFBS_2	298.9 / 99.0	1.56	27	>10
PFHxA_1	313.0 / 269.0	1.85	47	>10
PFHxA_2	313.0 / 119.0	1.85	40	>10
PFHpA_1	363.0 / 319.0	2.22	43	>10
PFHpA_2	363.0 / 169.0	2.22	32	>10
PFHxS_1	399.0 / 80.0	2.23	41	>10
PFHxS_2	399.0 / 99.0	2.23	40	>10
PFOA_1	413.0 / 369.0	2.59	36	>10
PFOA_2	413.0 / 169.0	2.59	33	>10
PFNA_1	463.0 / 419.0	2.97	36	>10
PFNA_2	463.0 / 219.0	2.96	34	>10
PFOS_1	499.0 / 80.0	2.96	60	>10
PFOS_2	499.0 / 99.0	2.96	33	>10
PFDA_1	513.0 / 469.0	3.31	30	>10
PFDA_2	513.0 / 219.0	3.31	43	>10
PFUnA_1	563.0 / 519.0	3.65	27	>10
PFUnA_2	563.0 / 269.0	3.65	46	>10
PFDaA_1	613.0 / 569.0	3.94	41	>10
PFDaA_2	613.0 / 319.0	3.94	31	>10
PFTrDA_1	663.0 / 619.0	4.20	53	>10
PFTrDA_2	663.0 / 169.0	4.19	35	>10
PFTeDA_1	713.0 / 669.0	4.43	69	>10
PFTeDA_2	713.0 / 169.0	4.42	45	>10
NMeFOSAA_1	570.0 / 419.0	3.47	37	>10
NMeFOSAA_2	570.0 / 512.0	3.47	34	>10
NEtFOSAA_1	584.0 / 419.0	3.64	31	>10
NEtFOSAA_2	584.0 / 483.0	3.63	49	>10
13C2-PFHxA	315.0 / 270.0	1.84	47	>10
13C2-PFDA	515.0 / 470.0	3.30	31	>10
d5-EtFOSAA	589.0 / 419.0	3.63	26	>10



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

Analyte	CAS No.	Average (ng/L)	ST DEV	3 Sigma	n
PFHxA	307-24-4	10.50	1.30	3.90	17
PFHpA	375-85-9	10.64	1.49	4.47	17
PFOA	335-67-1	10.54	1.52	4.56	17
PFNA	375-95-1	10.52	1.35	4.05	17
PFDA	335-76-2	10.45	1.62	4.86	17
PFUnA	2058-94-8	10.18	1.74	5.22	17
PFDoA	307-55-1	10.09	1.67	5.01	17
PFTTrDA	72629-94-8	10.25	1.83	5.49	17
PFTeDA	376-06-7	11.47	2.47	7.41	17
NMeFOSAA	2355-31-9	10.48	1.08	3.24	17
NEtFOSAA	2991-50-6	10.06	1.29	3.87	17
PFBS	375-73-5	8.65	1.34	4.02	17
PFHxS	355-46-4	9.80	1.55	4.65	17
PFOS	1763-23-1	9.42	1.58	4.74	17



# 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>PFTrDA</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



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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.



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

Client ID	JZ10 IB				
Battelle ID	JZ10 IB_08/20/2018				
Sample Type	IB				
Collection Date	NA				
Extraction Date	NA				
Analysis Date	08/20/2018				
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	0.50 U	0.22	0.50	2.50	
PFHpA	1.00 U	0.34	1.00	2.50	
PFOA	1.00 U	0.38	1.00	2.50	
PFNA	1.00 U	0.37	1.00	2.50	
PFDA	1.00 U	0.39	1.00	2.50	
PFUnA	1.00 U	0.38	1.00	2.50	
PFDaA	1.00 U	0.42	1.00	2.50	
PFTTrDA	1.00 U	0.42	1.00	2.50	
PFTeDA	1.50 U	0.73	1.50	2.50	
NMeFOSAA	1.00 U	0.42	1.00	2.50	
NEtFOSAA	1.00 U	0.44	1.00	2.50	
PFBS	0.50 U	0.21	0.50	2.50	
PFHxS	1.00 U	0.34	1.00	2.50	
PFOS	1.00 U	0.30	1.00	2.50	
<b>Surrogate Recoveries (%)</b>					
13C2-PFHxA	91				
13C2-PFDA	89				
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	CR577PB-FS			
Sample Type	PB			
Collection Date	08/16/2018			
Extraction Date	08/16/2018			
Analysis Date	08/20/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	WATER			
Sample Size	0.250			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDaA	1.00 U	0.42	1.00	2.50
PFTTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	0.82 J	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	78
13C2-PFDA	76
d5-EtFOSAA	78



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

Client ID	Laboratory Control Sample					
Battelle ID	CR578LCS-FS					
Sample Type	LCS					
Collection Date	08/16/2018					
Extraction Date	08/16/2018					
Analysis Date	08/20/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	WATER					
Sample Size	0.250					
Size Unit-Basis	L					
Units	ng/L	Target	Recovery	Qual	Control Limits	
					Lower	Upper
PFHxA	18.87	20.00	94		70	130
PFHpA	18.58	20.00	93		70	130
PFOA	17.25	20.00	86		70	130
PFNA	17.58	20.00	88		70	130
PFDA	15.47	20.00	77		70	130
PFUnA	16.74	20.00	84		70	130
PFDoA	15.78	20.00	79		70	130
PFTTrDA	15.18	20.00	76		70	130
PFTeDA	14.58	20.00	73		70	130
NMeFOSAA	20.06	20.00	100		70	130
NEtFOSAA	16.79	20.00	84		70	130
PFBS	14.85	17.70	84		70	130
PFHxS	15.67	18.90	83		70	130
PFOS	14.42	19.10	75		70	130

**Surrogate Recoveries (%)**

13C2-PFHxA	87
13C2-PFDA	79
d5-EtFOSAA	77



**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>18-0507</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>
CR577PB-FS CR578LCS-FS J7428-FS J7430-FS

Laboratory Preparation Records  
COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Jordan Tower	08/21/2018	JCT



It can be done

**BATTELLE - NORWELL OPERATIONS  
SAMPLE IDENTIFICATION PAGE**

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**

100119154-  
SE0375

**18-0507**

**CTO-SE0375: Drinking Water Analysis**

**W**

Sample ID	Description
CR577PB-FS	Procedural Blank
CR578LCS-FS	Laboratory Control Sample
J7428-FS	JAX-RES-08142018-1045-8
J7430-FS	JAX-RES-08142018-1130-9

Samples Assigned By:

Jonathan Thorn

Date : August 15, 2018

Comments:



**BATTELLE - NORWELL OPERATIONS  
SAMPLE CUSTODY LOG**

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**

100119154-  
SE0375

**18-0507**

**CTO-SE0375: Drinking Water Analysis**

**W**

<b>Requested On/By:</b> 08/16/2018 LMG	<b>Purpose:</b> Sample Preparation
<b>Relinquished On/By:</b> 08/16/2018 MDS	<b>Last Activity:</b> Transfer
<b>Accepted On/By:</b> 08/16/2018 LMG <b>Stored In Facility:</b> Sample Preparation <b>Stored Until:</b> 08/16/2018 <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	J7428	1	C	Intact	NA	
2	J7430	1	C	Intact	NA	
<b>Total Samples</b>		2	* "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

**18-0507**

**CTO-SE0375: Drinking Water Analysis**

**W**

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CR577PB-FS	Procedural Blank	250.0	NA	--	08/16/18 LMG
CR578LCS-FS	Laboratory Control Sample	250.0	NA	--	08/16/18 LMG
J7428-FS	JAX-RES-08142018-1045-8	285.0	1	C	08/16/18 LMG
J7430-FS	JAX-RES-08142018-1130-9	265.0	1	C	08/16/18 LMG

**Comments:**

Sample ID:	Comments:
CR577PB-FS	1.23g Trizma(180502-01) weighed on BAL-009
CR578LCS-FS	1.24g Trizma(180502-01) weighed on BAL-009

Samples Assigned By

Jonathan Thorn

Date : August 15, 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**18-0507****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CR577PB-FS	JX76	SIS	1	50	08/16/18 LMG	SG	NA
CR578LCS-FS	JX76	SIS	1	50	08/16/18 LMG	SG	NA
CR578LCS-FS	JZ28	LCS/MS	1	100	08/16/18 LMG	SG	NA
J7428-FS	JX76	SIS	1	50	08/16/18 LMG	SG	NA
J7430-FS	JX76	SIS	1	50	08/16/18 LMG	SG	NA

## Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JX76	Pipette	I0793912B
JZ28	Pipette	I0793912B



It can be done

## BATTELLE - NORWELL OPERATIONS SAMPLE EXTRACTION FORM

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0507****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CR577PB-FS	08/16/18 LMG	NA	NA	NA	NA	NA	NA	See Comments Below
CR578LCS-FS	08/16/18 LMG	NA	NA	NA	NA	NA	NA	NA
J7428-FS	08/16/18 LMG	NA	NA	NA	NA	NA	NA	NA
J7430-FS	08/16/18 LMG	NA	NA	NA	NA	NA	NA	NA

**Solvents/Reagent Preparations:**

Name	ID	Expires	Lot No	Procedure	Comments
Pre-packed SPE Column	RP-180816-1	08/16/18	S214-0075	Pre-packed SPE Column	

**Solvents/Reagents:**

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

Sample Id:	Comments:
CR577PB-FS	Extraction for all samples began at 10:40am



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**18-0507****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
CR577PB-FS(0)	950	50	JV59	50	1	1000	1.000	08/17/18 LMG	SAS
CR578LCS-FS(0)	950	50	JV59	50	1	1000	1.000	08/17/18 LMG	SAS
J7428-FS(0)	950	50	JV59	50	1	1000	1.000	08/17/18 LMG	SAS
J7430-FS(0)	950	50	JV59	50	1	1000	1.000	08/17/18 LMG	SAS

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV59	Pipette	I0793912B

<b>Extract Id:</b>	<b>Comments:</b>
CR577PB-FS	Samples reconstituted in 96/4 Methanol/Milli-q water (RP-180815-2)

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

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



It can be done

## BATTELLE - NORWELL OPERATIONS PREPARATION EXTRACT SPLIT FORM

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**100119154-  
SE0375**18-0507****CTO-SE0375: Drinking Water Analysis****W**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CR577PB-FS	0	--	8/16/2018	NA		NA	NA	1.000	1.000	08/16/18 LMG
CR578LCS-FS	0	--	8/16/2018	NA		NA	NA	1.000	1.000	08/16/18 LMG
J7428-FS	0	--	8/16/2018	NA		NA	NA	1.000	1.000	08/16/18 LMG
J7430-FS	0	--	8/16/2018	NA		NA	NA	1.000	1.000	08/16/18 LMG

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

**18-0507**

**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 17 2018 1:57PM LMG		<b>Received On/By:</b> Aug 17 2018 1:57PM LMG			
<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	CR577PB-FS(0)	1000	1	Intact	NA
2	CR578LCS-FS(0)	1000	1	Intact	NA
3	J7428-FS(0)	1000	1	Intact	NA
4	J7430-FS(0)	1000	1	Intact	NA
<b>Total Extracts:</b>		4			



It can be done

**BATTELLE - NORWELL OPERATIONS  
MISCELLANEOUS DOCUMENTATION FORM**

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**

100119154-  
SE0375

**18-0507**

**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  
MISCELLANEOUS DOCUMENTATION FORM**

**Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

**Project No.(s)**

100119154-  
SE0375

**18-0507**

**CTO-SE0375: Drinking Water Analysis**

**W**

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Task Leader Approval:

On:

Supervisor Approval:

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**18-0507****CTO-SE0375: Drinking Water Analysis****W**

Sample ID:	Comment:	Date/Initials:
CR577PB-FS	Extraction for all samples began at 10:40am	08/16/18 LMG
CR577PB-FS	Sample extraction ended at 11:07	08/16/18 LMG
CR578LCS-FS	Sample extraction ended at 11:06	08/16/18 LMG
J7428-FS	Sample extraction ended at 11:16	08/16/18 LMG
J7430-FS	Sample extraction ended at 11:13	08/16/18 LMG
J7430-FS	Sample had a sulfurous odor	08/16/18 LMG

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		8/20/2018 2:32:30 PM	5-0371.dam	DW_08202018.wiff
4	JZ80	L3	8/20/2018 2:59:21 PM	5-0371.dam	DW_08202018.wiff
5	JZ81	L4	8/20/2018 3:08:18 PM	5-0371.dam	DW_08202018.wiff
6	JZ82	L5	8/20/2018 3:17:14 PM	5-0371.dam	DW_08202018.wiff
7	JZ83	L6	8/20/2018 3:26:11 PM	5-0371.dam	DW_08202018.wiff
8	JZ84	L7	8/20/2018 3:35:06 PM	5-0371.dam	DW_08202018.wiff
9	JZ85	L8	8/20/2018 3:44:02 PM	5-0371.dam	DW_08202018.wiff
10	JZ86	L9	8/20/2018 3:52:58 PM	5-0371.dam	DW_08202018.wiff
11	JZ10 IB	Instrument Blank	8/20/2018 4:01:53 PM	5-0371.dam	DW_08202018.wiff
12	JZ77 ICC	ICC	8/20/2018 4:10:51 PM	5-0371.dam	DW_08202018.wiff
13	MeOH		8/20/2018 4:19:47 PM	5-0371.dam	DW_08202018.wiff
44	<del>CR612PB-FS(0)</del>	<del>Procedural Blank</del>	<del>8/20/2018 4:28:42 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
45	<del>CR613LCS-FS(0)</del>	<del>Laboratory Control Sample</del>	<del>8/20/2018 4:37:39 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
46	<del>J7404-FS(0)</del>	<del>JAX-RES-08132018-0945-27-FRB</del>	<del>8/20/2018 4:46:36 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
47	<del>J7406-FS(0)</del>	<del>JAX-RES-08132018-1100-30-FRB</del>	<del>8/20/2018 4:55:32 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
48	<del>J7408-FS(0)</del>	<del>JAX-RES-08132018-1145-32-FRB</del>	<del>8/20/2018 5:04:27 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
49	<del>J7412-FS(0)</del>	<del>JAX-RES-08132018-1600-13-FRB</del>	<del>8/20/2018 5:13:23 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
20	<del>J7414-FS(0)</del>	<del>JAX-RES-08132018-1700-31-FRB</del>	<del>8/20/2018 5:22:20 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
24	<del>JZ82-CCV</del>	<del>CCV</del>	<del>8/20/2018 5:31:16 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
22	MeOH		8/20/2018 5:40:13 PM	5-0371.dam	DW_08202018.wiff
23	<del>CR573PB-FS(0)</del>	<del>Procedural Blank</del>	<del>8/20/2018 5:49:10 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
24	<del>CR574LCS-FS(0)</del>	<del>Laboratory Control Sample</del>	<del>8/20/2018 5:58:06 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
25	<del>J7403-FS(2)</del>	<del>JAX-RES-08132018-0945-27</del>	<del>8/20/2018 6:07:03 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
26	<del>J7405-FS(2)</del>	<del>JAX-RES-08132018-1100-30</del>	<del>8/20/2018 6:15:58 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
27	<del>J7407-FS(2)</del>	<del>JAX-RES-08132018-1145-32</del>	<del>8/20/2018 6:24:56 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
28	<del>J7409-FS(2)</del>	<del>X-RES-08132018-1445-16</del>	<del>8/20/2018 6:33:52 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
29	<del>J7411-FS(2)</del>	<del>JAX-RES-08132018-</del>	<del>8/20/2018 6:42:49</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>

1 ↓

1 These samples are not reported from this batch. DMS 8/22/2018

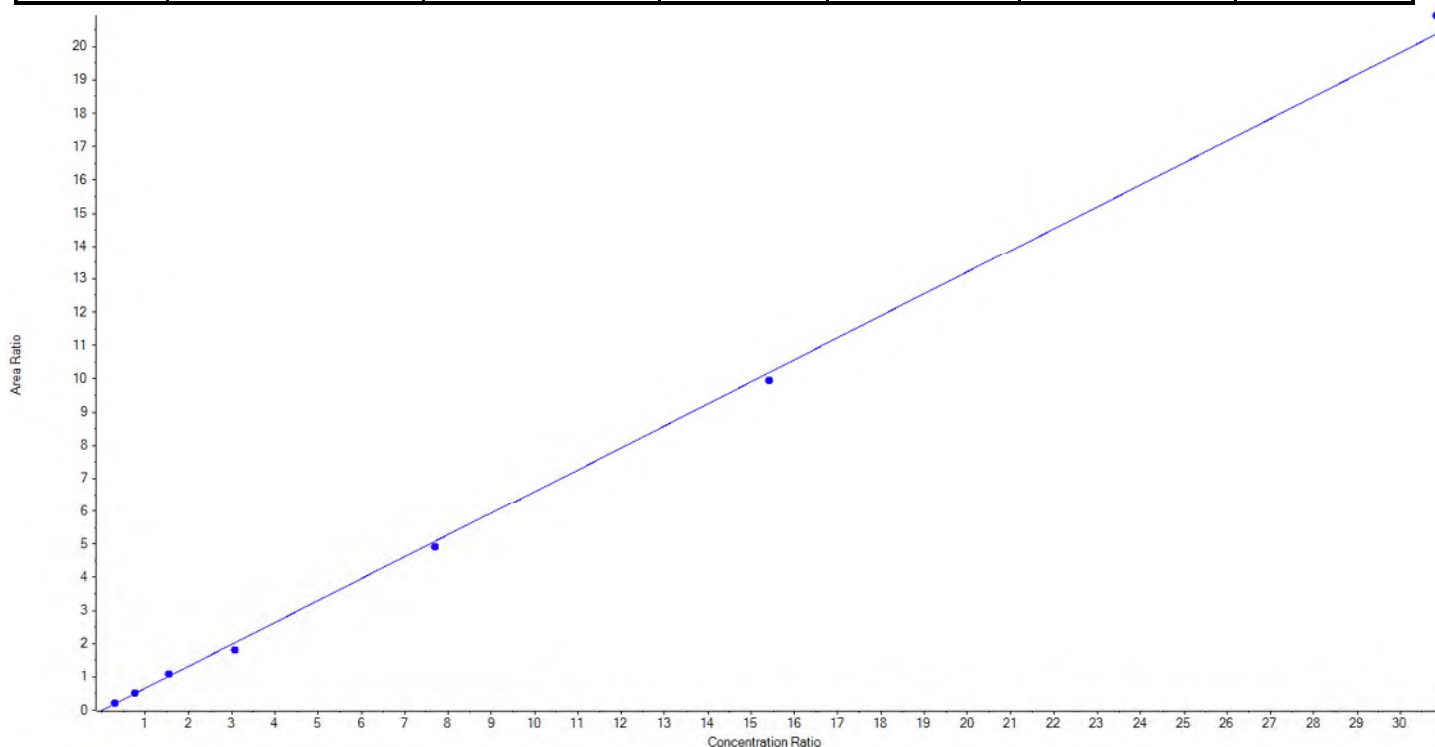
Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
		1600-13	PM		
30	<del>J7413-FS(2)</del>	<del>JAX-RES-08132018-1700-34</del>	<del>8/20/2018 6:51:46 PM</del>	<del>5-0371.dam</del>	DW_08202018.wiff
31	JZ83 CCV	CCV	8/20/2018 7:00:42 PM	5-0371.dam	DW_08202018.wiff
32	MeOH		8/20/2018 7:09:38 PM	5-0371.dam	DW_08202018.wiff
33	CR577PB-FS(0)	Procedural Blank	8/20/2018 7:18:36 PM	5-0371.dam	DW_08202018.wiff
34	CR578LCS-FS(0)	Laboratory Control Sample	8/20/2018 7:27:33 PM	5-0371.dam	DW_08202018.wiff
35	J7428-FS(0)	JAX-RES-08142018-1045-8	8/20/2018 7:36:30 PM	5-0371.dam	DW_08202018.wiff
36	J7430-FS(0)	JAX-RES-08142018-1130-9	8/20/2018 7:45:25 PM	5-0371.dam	DW_08202018.wiff
37	JZ82 CCV	CCV	8/20/2018 7:54:22 PM	5-0371.dam	DW_08202018.wiff
38	<del>MeOH</del>		<del>8/20/2018 8:03:18 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
39	<del>SPE PB</del>	<del>CHECK</del>	<del>8/20/2018 8:12:15 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
40	<del>SPE LCS</del>	<del>CHECK</del>	<del>8/20/2018 8:21:11 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
44	<del>JZ83-CCV</del>	<del>CCV</del>	<del>8/20/2018 8:30:08 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
38	MeOH		8/20/2018 8:39:04 PM	5-0371.dam	DW_08202018.wiff
42	<del>CR592PB-FS(0)</del>	<del>Procedural Blank</del>	<del>8/20/2018 8:48:01 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
43	<del>CR593LCS-FS(0)</del>	<del>Laboratory Control Sample</del>	<del>8/20/2018 8:56:57 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
44	<del>J7445-FS(0)</del>	<del>JAX-RES-08152018-0930-18</del>	<del>8/20/2018 9:05:52 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
45	<del>J7447-FS(0)</del>	<del>JAX-RES-08152018-1015-34</del>	<del>8/20/2018 9:14:47 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
46	<del>J7449-FS(0)</del>	<del>JAX-RES-08152018-1045-33</del>	<del>8/20/2018 9:23:44 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
47	<del>J7451-FS(0)</del>	<del>JAX-RES-08152018-1130-15</del>	<del>8/20/2018 9:32:41 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>
48	<del>JZ84-CCV</del>	<del>CCV</del>	<del>8/20/2018 9:41:38 PM</del>	<del>5-0371.dam</del>	<del>DW_08202018.wiff</del>

1 These samples are not reported from this batch. DMS 8/22/2018

<b>Analyte Name</b>	PFBS_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	298.9 / 80.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.66086 x + -0.00678$  (r = 0.99915) (weighting: 1 / x)

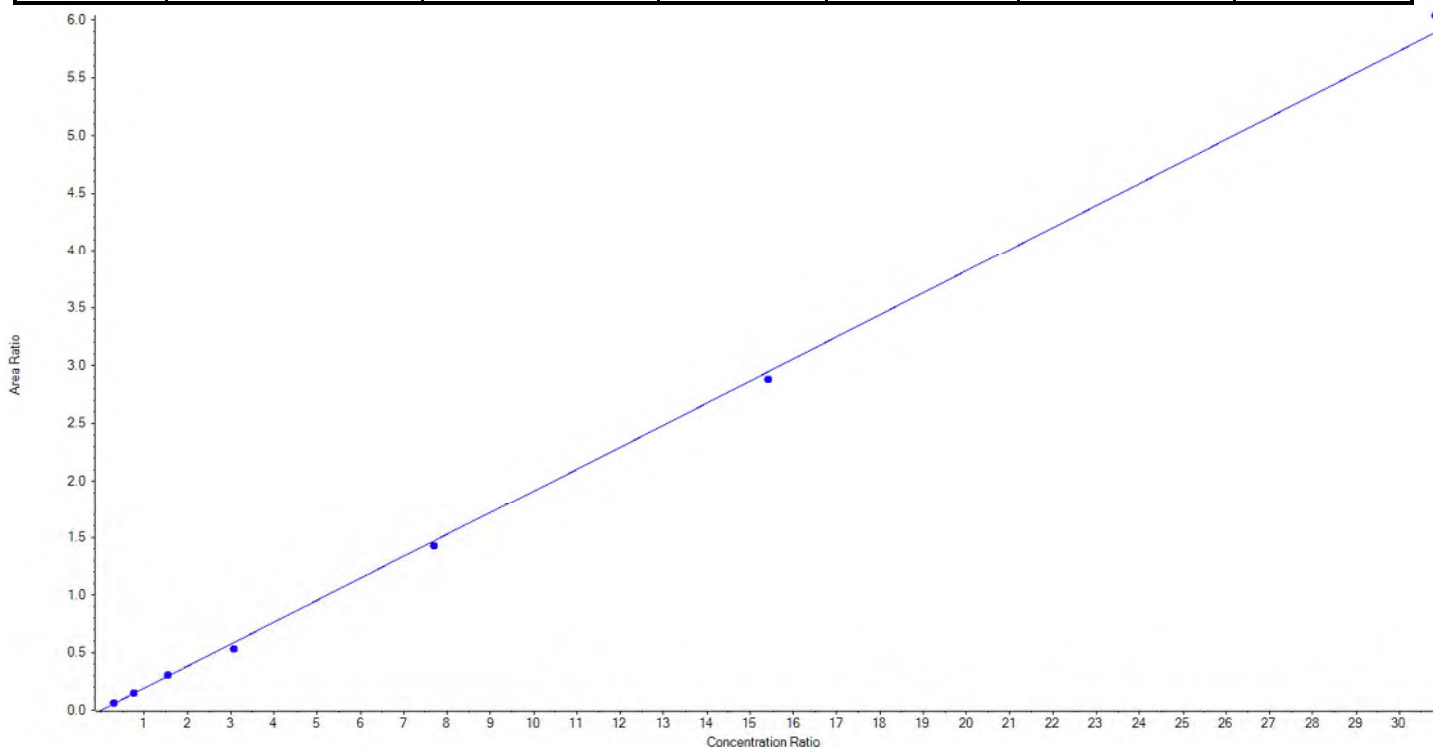
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	92.373246	104.3
5	JZ81	L4	True	221.50	228.227234	103.0
6	JZ82	L5	True	443.00	473.621611	106.9
7	JZ83	L6	True	885.00	787.235152	89.0
8	JZ84	L7	True	2212.50	2136.140902	96.6
9	JZ85	L8	True	4425.00	4317.657703	97.6
10	JZ86	L9	True	8850.00	9090.344152	102.7



<b>Analyte Name</b>	PFBS_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	298.9 / 99.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19104 x + -0.00133$  (r = 0.99933) (weighting: 1 / x)

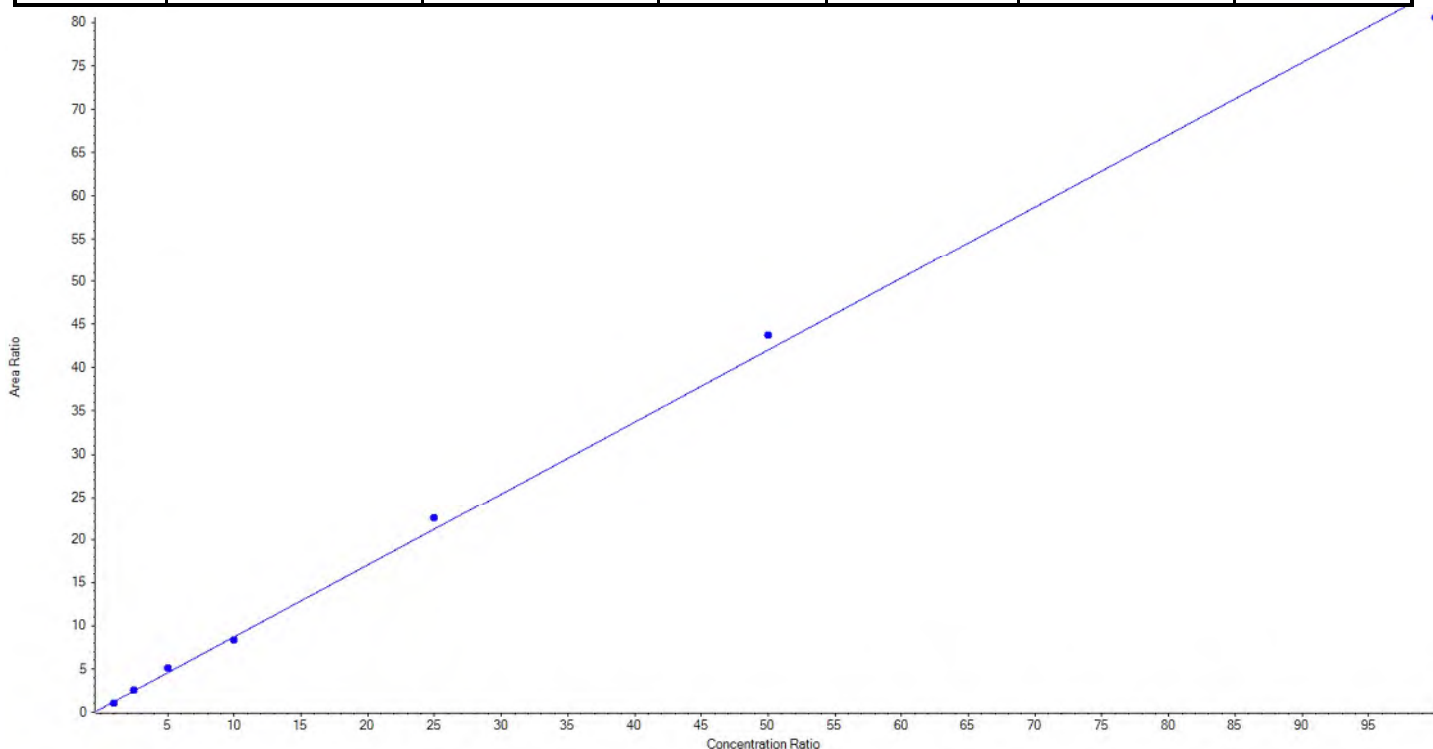
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	93.214828	105.2
5	JZ81	L4	True	221.50	227.341080	102.6
6	JZ82	L5	True	443.00	463.948422	104.7
7	JZ83	L6	True	885.00	796.949611	90.1
8	JZ84	L7	True	2212.50	2149.034279	97.1
9	JZ85	L8	True	4425.00	4326.418052	97.8
10	JZ86	L9	True	8850.00	9068.693729	102.5



<b>Analyte Name</b>	PFHxA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	313.0 / 269.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.83313x + 0.38835$  (r = 0.99851) (weighting: 1 / x)

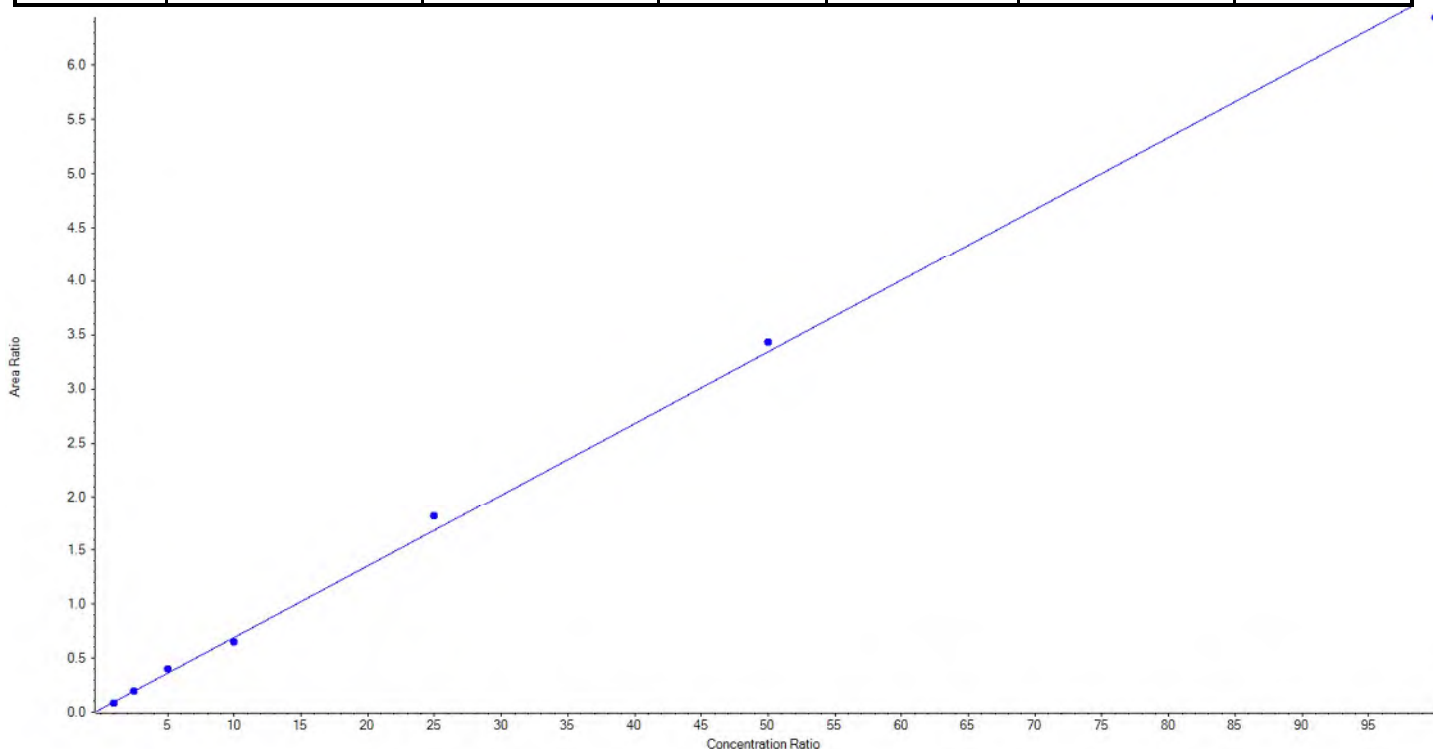
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	78.044303	78.0
5	JZ81	L4	True	250.00	265.769546	106.3
6	JZ82	L5	True	500.00	568.874261	113.8
7	JZ83	L6	True	1000.00	954.283032	95.4
8	JZ84	L7	True	2500.00	2650.811567	106.0
9	JZ85	L8	True	5000.00	5209.008771	104.2
10	JZ86	L9	True	10000.00	9623.208520	96.2



<b>Analyte Name</b>	PFHxA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	313.0 / 119.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.06630 x + 0.02846$  (r = 0.99864) (weighting: 1 / x)

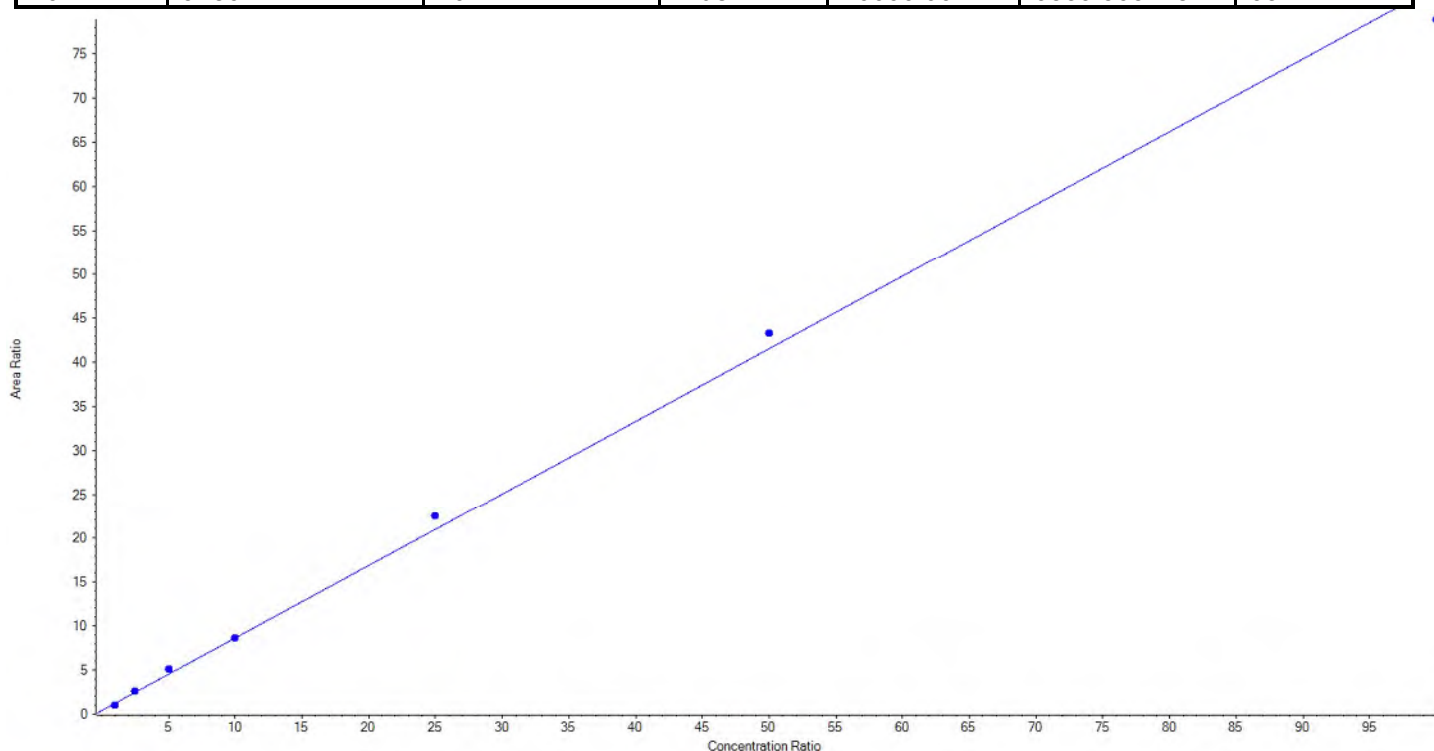
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	86.317867	86.3
5	JZ81	L4	True	250.00	247.710359	99.1
6	JZ82	L5	True	500.00	564.939492	113.0
7	JZ83	L6	True	1000.00	940.194006	94.0
8	JZ84	L7	True	2500.00	2702.578330	108.1
9	JZ85	L8	True	5000.00	5140.495784	102.8
10	JZ86	L9	True	10000.00	9667.764162	96.7



<b>Analyte Name</b>	PFHpA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	363.0 / 319.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.82233x + 0.41213$  (r = 0.99811) (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	73.016068	73.0
5	JZ81	L4	True	250.00	261.130318	104.5
6	JZ82	L5	True	500.00	574.230055	114.9
7	JZ83	L6	True	1000.00	1005.928310	100.6
8	JZ84	L7	True	2500.00	2688.604760	107.5
9	JZ85	L8	True	5000.00	5207.786711	104.2
10	JZ86	L9	True	10000.00	9539.303778	95.4

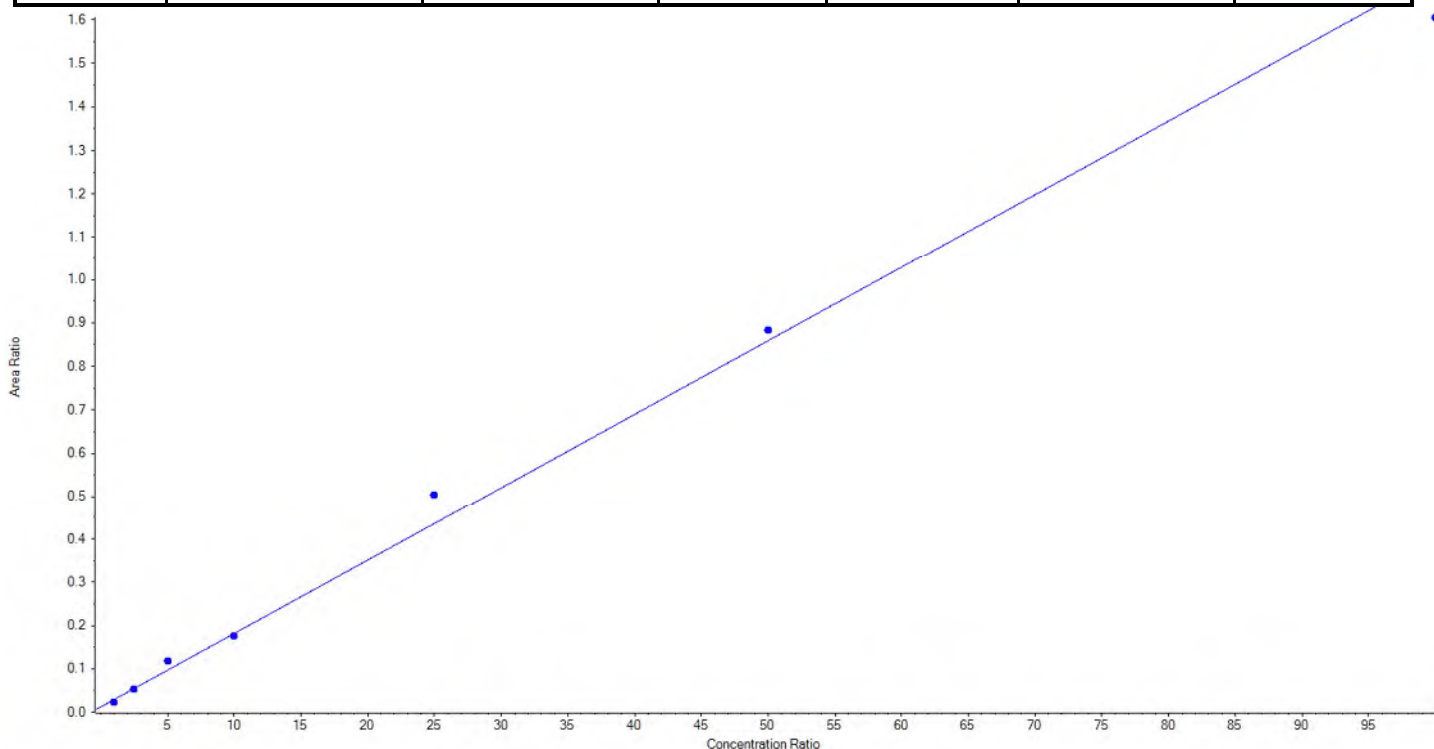




<b>Analyte Name</b>	PFHpA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	363.0 / 169.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.01694 x + 0.01216$  (r = 0.99569) (weighting: 1 / x)

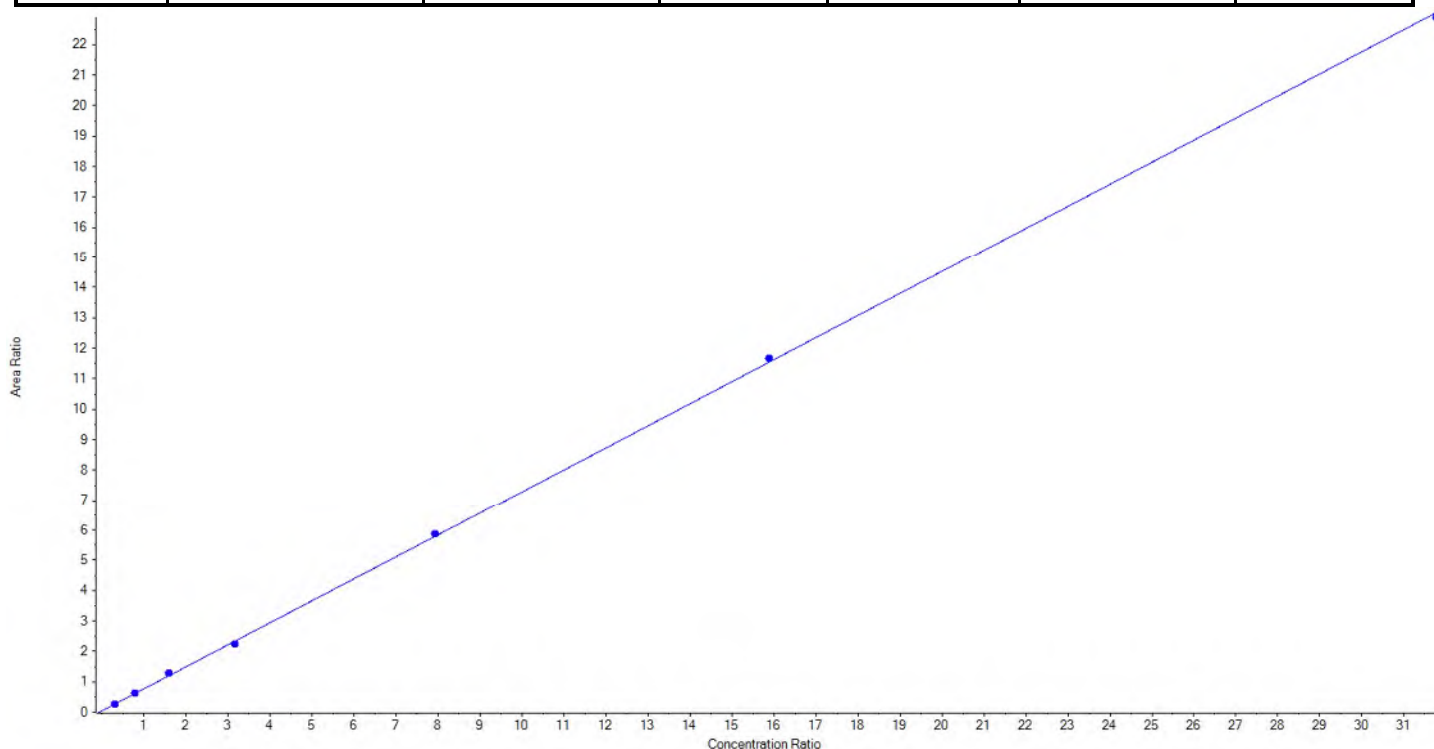
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	70.272325	70.3
5	JZ81	L4	True	250.00	239.260354	95.7
6	JZ82	L5	True	500.00	619.165193	123.8
7	JZ83	L6	True	1000.00	971.164630	97.1
8	JZ84	L7	True	2500.00	2905.414878	116.2
9	JZ85	L8	True	5000.00	5141.021060	102.8
10	JZ86	L9	True	10000.00	9403.701561	94.0



<b>Analyte Name</b>	PFHxS_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	399.0 / 80.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.72416x + 0.03976$  (r = 0.99978) (weighting: 1 / x)

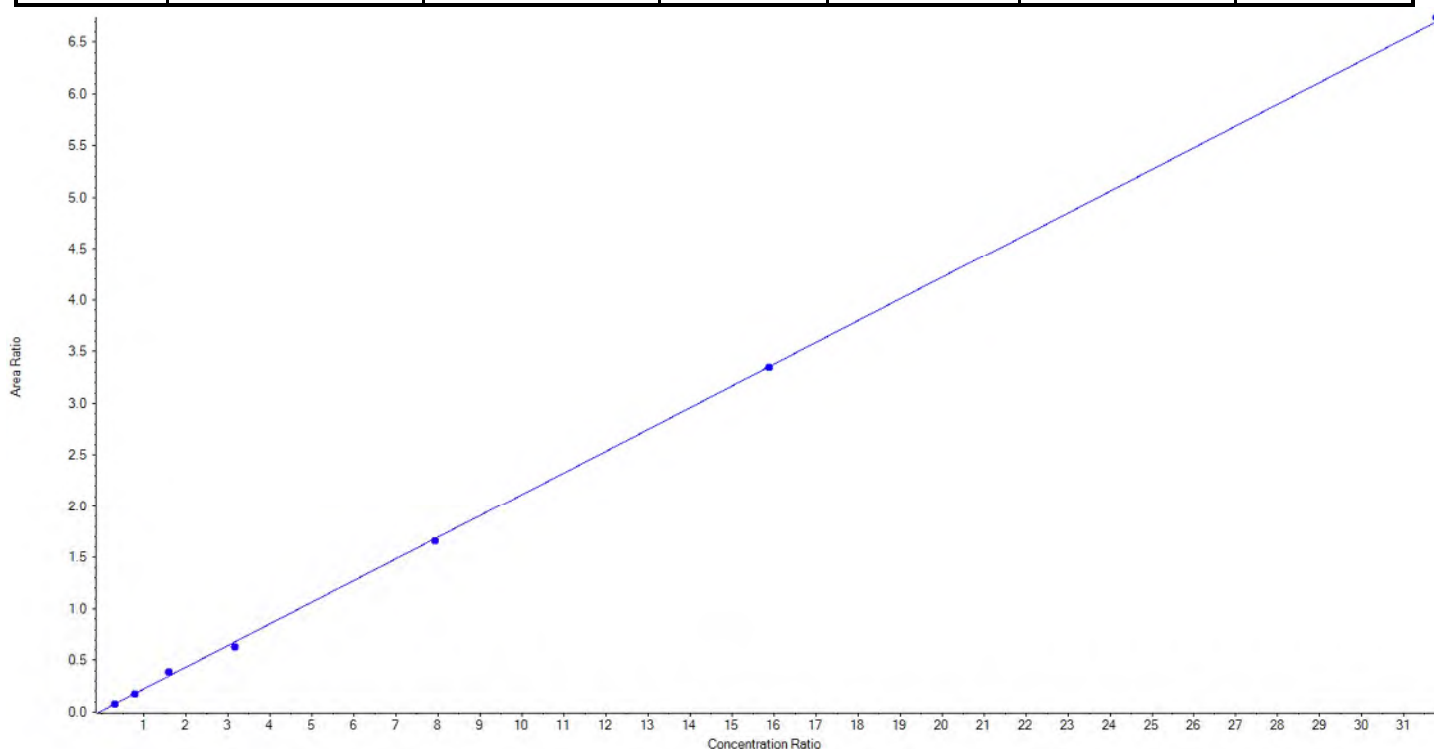
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	83.545773	91.6
5	JZ81	L4	True	228.00	236.640313	103.8
6	JZ82	L5	True	456.00	490.800076	107.6
7	JZ83	L6	True	912.00	872.158270	95.6
8	JZ84	L7	True	2280.00	2303.866920	101.1
9	JZ85	L8	True	4560.00	4606.569585	101.0
10	JZ86	L9	True	9120.00	9053.619063	99.3



<b>Analyte Name</b>	PFHxS_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	399.0 / 99.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.21033 x + 0.01337$  (r = 0.99964) (weighting: 1 / x)

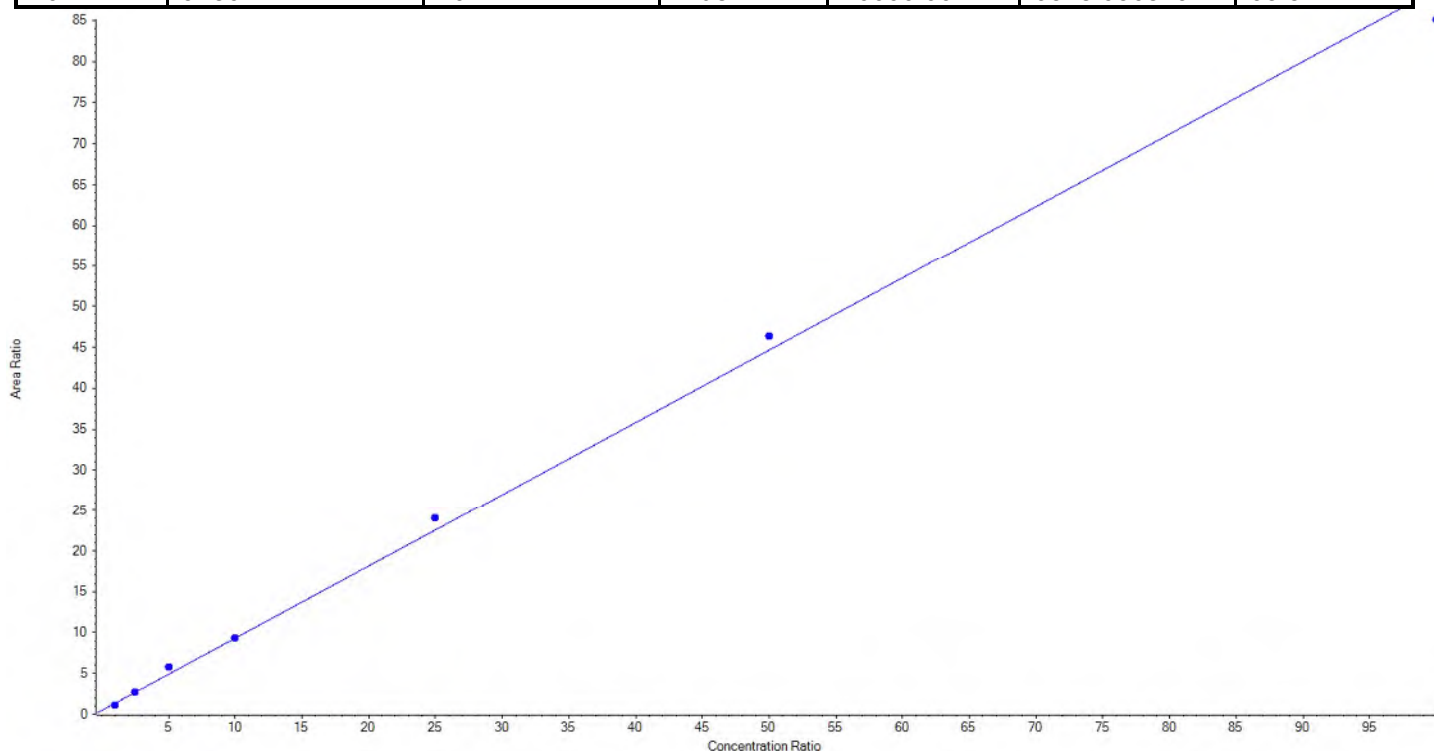
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	89.539693	98.2
5	JZ81	L4	True	228.00	224.603434	98.5
6	JZ82	L5	True	456.00	506.958424	111.2
7	JZ83	L6	True	912.00	847.353462	92.9
8	JZ84	L7	True	2280.00	2253.455709	98.8
9	JZ85	L8	True	4560.00	4550.078070	99.8
10	JZ86	L9	True	9120.00	9175.211206	100.6



<b>Analyte Name</b>	PFOA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	413.0 / 369.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.88380 x + 0.45664$  (r = 0.99819) (weighting: 1 / x)

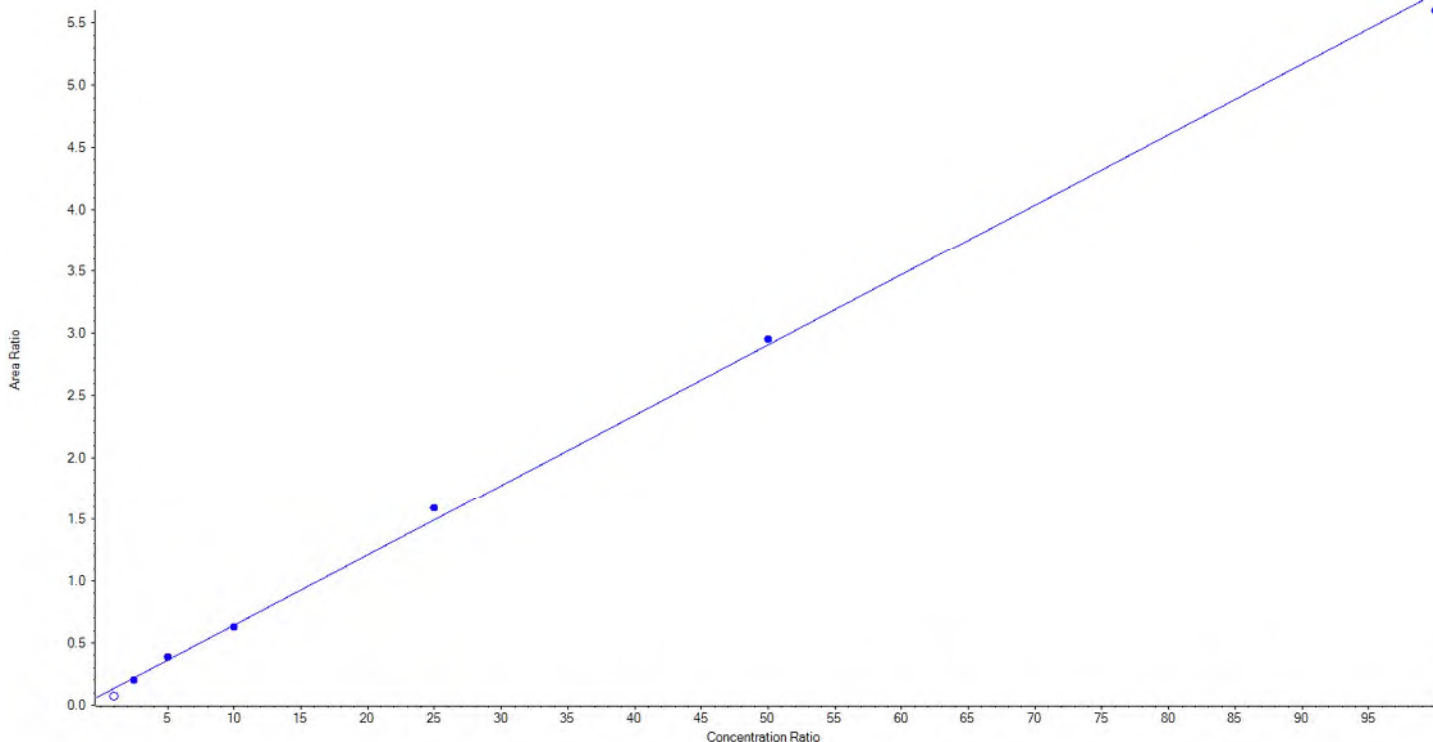
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	75.344758	75.3
5	JZ81	L4	True	250.00	248.563445	99.4
6	JZ82	L5	True	500.00	595.816684	119.2
7	JZ83	L6	True	1000.00	999.884858	100.0
8	JZ84	L7	True	2500.00	2662.530234	106.5
9	JZ85	L8	True	5000.00	5189.823202	103.8
10	JZ86	L9	True	10000.00	9578.036819	95.8



<b>Analyte Name</b>	PFOA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	413.0 / 169.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05655x + 0.07872$  (r = 0.99909) (weighting: 1 / x)

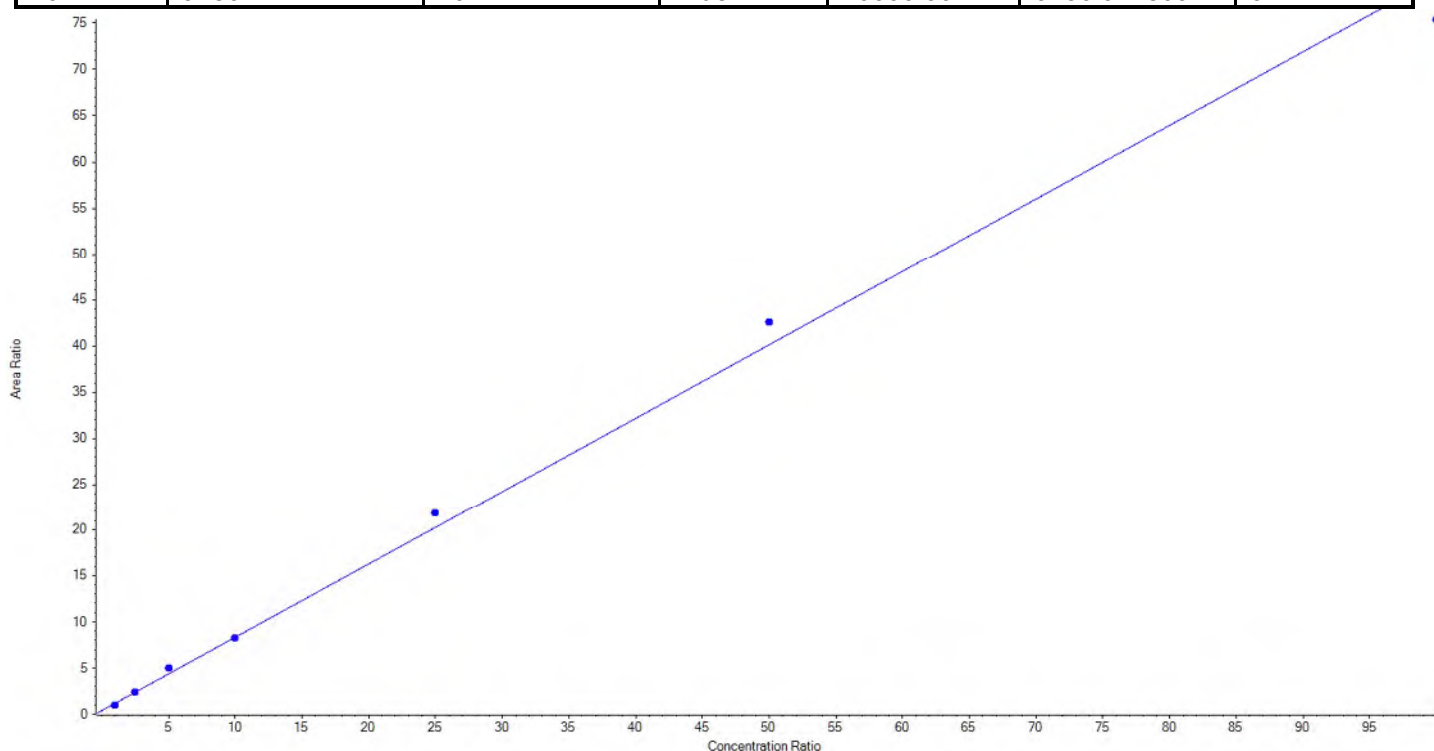
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	220.206466	88.1
6	JZ82	L5	True	500.00	542.585785	108.5
7	JZ83	L6	True	1000.00	973.653818	97.4
8	JZ84	L7	True	2500.00	2667.533138	106.7
9	JZ85	L8	True	5000.00	5087.334111	101.8
10	JZ86	L9	True	10000.00	9758.686681	97.6



<b>Analyte Name</b>	PFNA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	463.0 / 419.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.79456 x + 0.38579$  (r = 0.99739) (weighting: 1 / x)

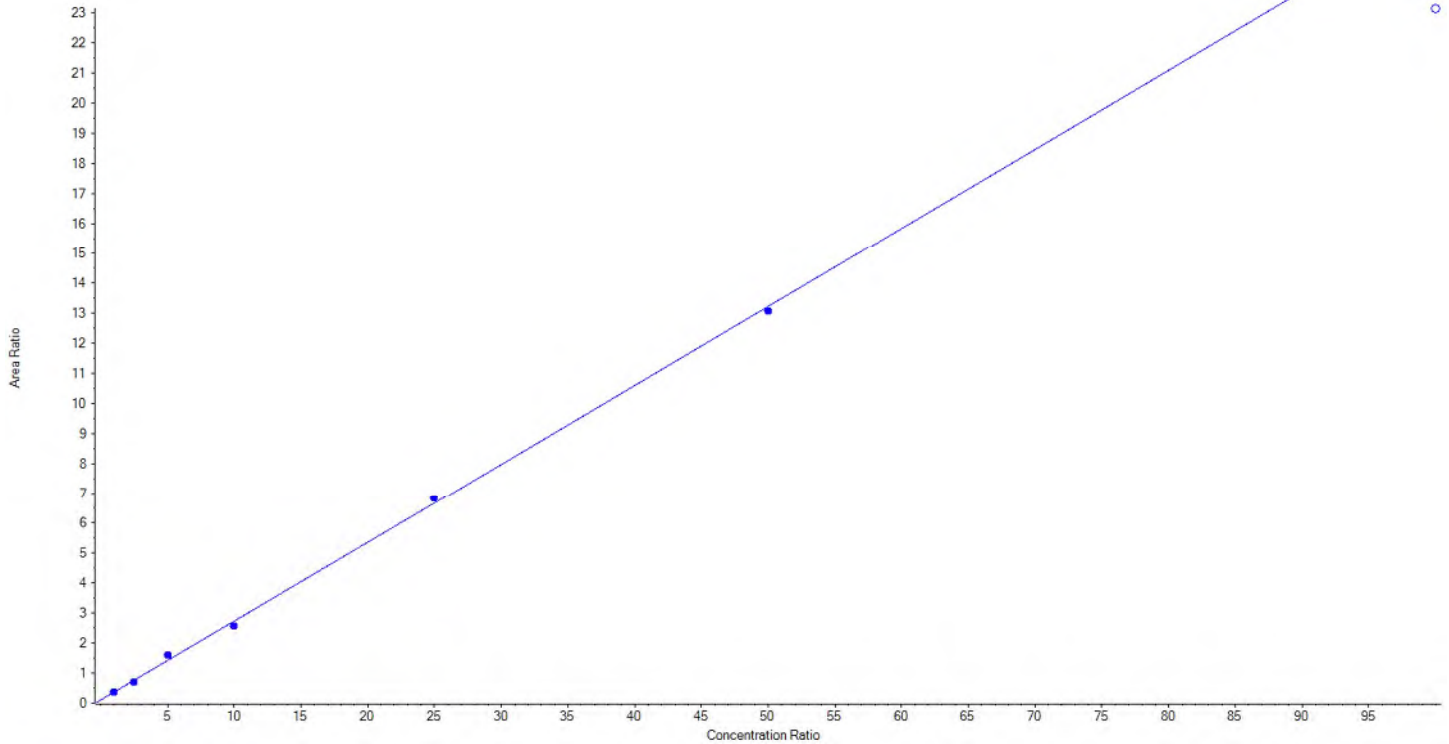
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	73.842400	73.8
5	JZ81	L4	True	250.00	253.735140	101.5
6	JZ82	L5	True	500.00	583.193244	116.6
7	JZ83	L6	True	1000.00	996.921572	99.7
8	JZ84	L7	True	2500.00	2692.800630	107.7
9	JZ85	L8	True	5000.00	5312.564204	106.3
10	JZ86	L9	True	10000.00	9436.942809	94.4



<b>Analyte Name</b>	PFNA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	463.0 / 219.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.26245x + 0.10725$  (r = 0.99871) (weighting: 1 / x)

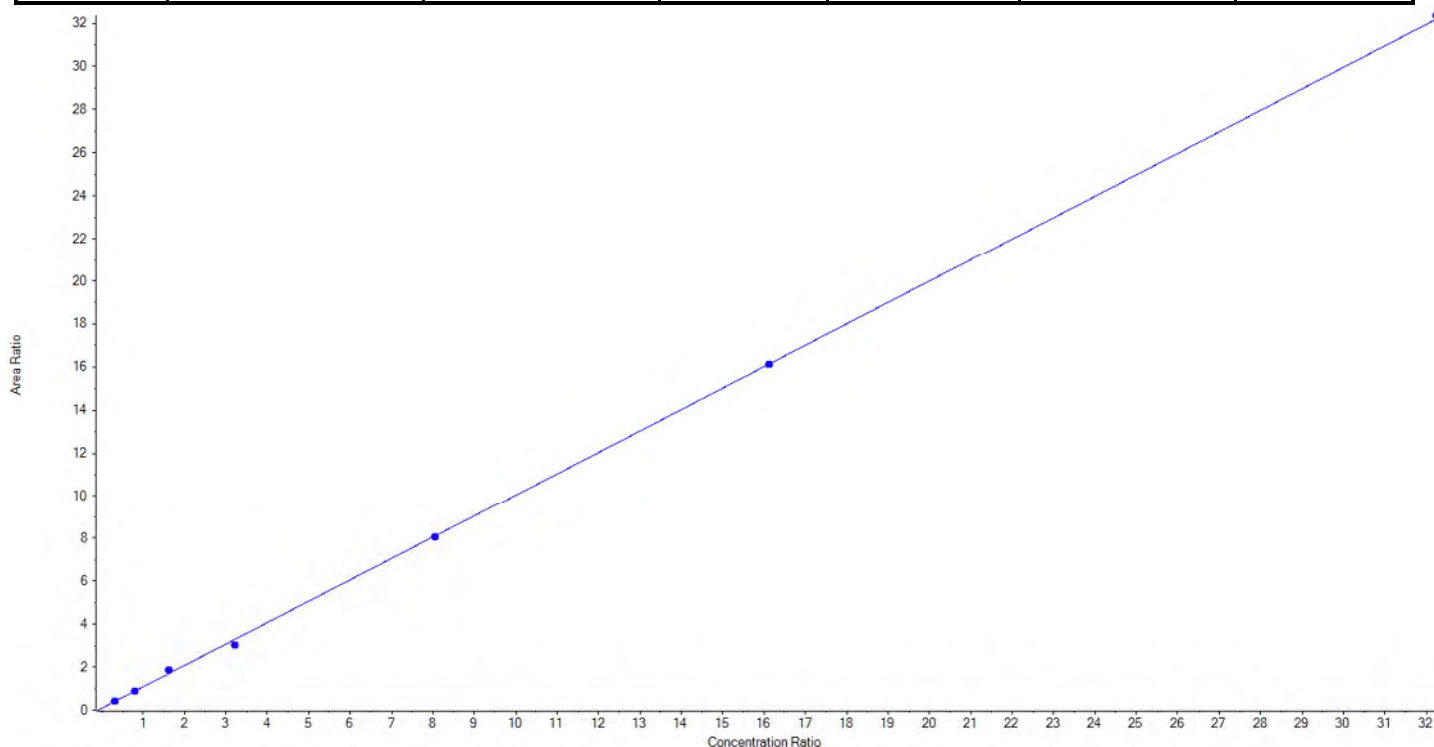
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	98.915434	98.9
5	JZ81	L4	True	250.00	225.999392	90.4
6	JZ82	L5	True	500.00	574.910926	115.0
7	JZ83	L6	True	1000.00	943.227550	94.3
8	JZ84	L7	True	2500.00	2562.046738	102.5
9	JZ85	L8	True	5000.00	4944.899960	98.9
10	JZ86	L9	False	10000.00	8779.689356	87.8



<b>Analyte Name</b>	PFOS_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	499.0 / 80.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.99547 x + 0.08965$  (r = 0.99963) (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	90.074645	97.3
5	JZ81	L4	True	231.50	233.560454	100.9
6	JZ82	L5	True	463.00	509.926226	110.1
7	JZ83	L6	True	925.60	850.198897	91.9
8	JZ84	L7	True	2314.00	2300.749587	99.4
9	JZ85	L8	True	4628.00	4624.747250	99.9
10	JZ86	L9	True	9256.00	9301.442940	100.5

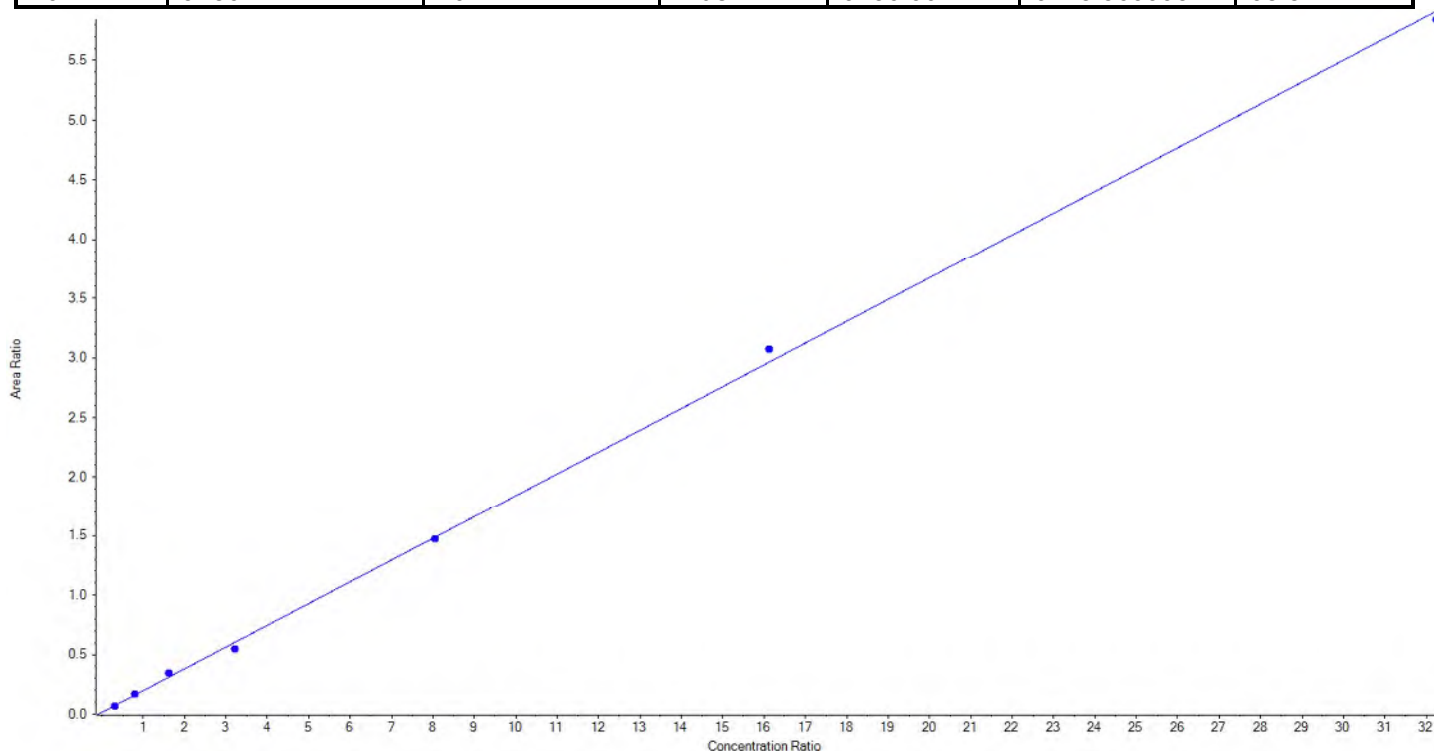




<b>Analyte Name</b>	PFOS_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	499.0 / 99.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.18289x + 0.01429$  (r = 0.99916) (weighting: 1 / x)

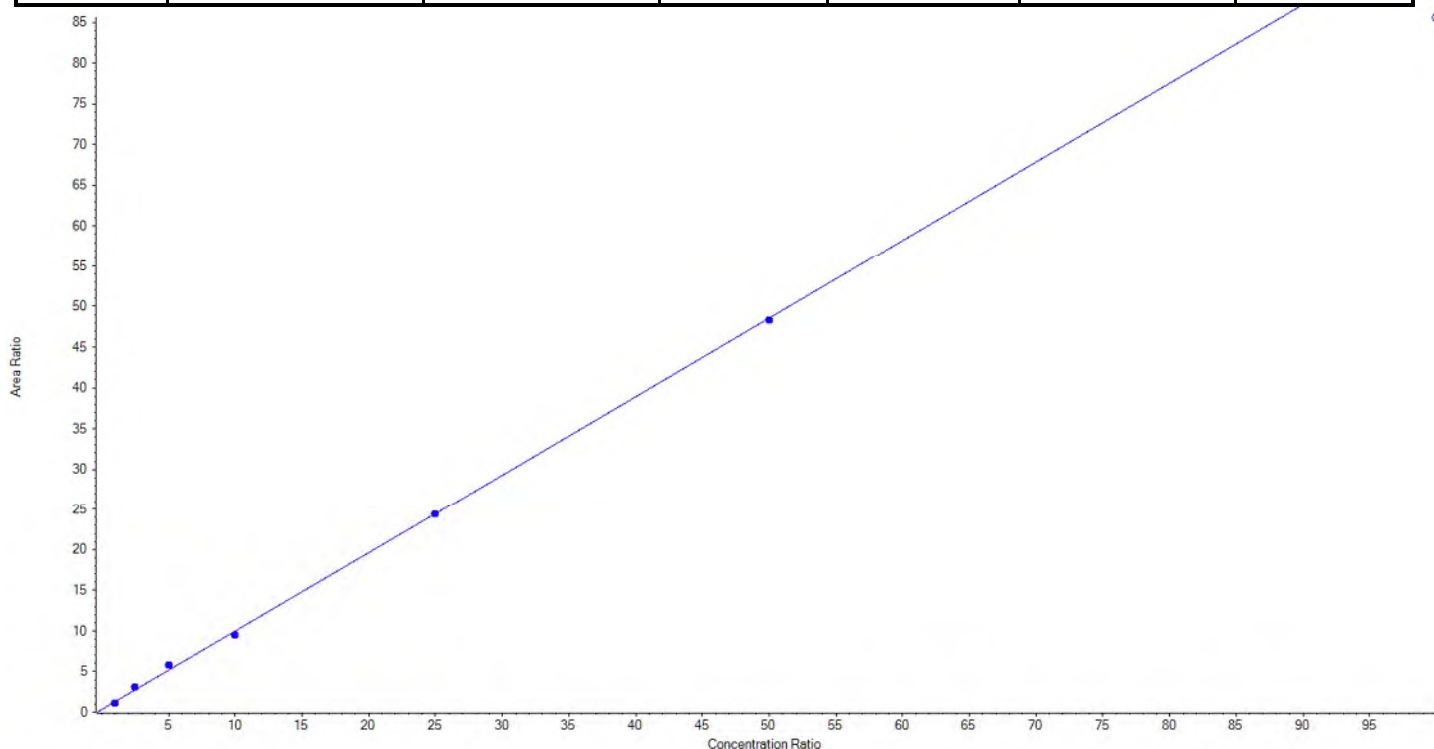
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	92.60	85.330602	92.2
5	JZ81	L4	True	231.50	239.054912	103.3
6	JZ82	L5	True	463.00	523.798062	113.1
7	JZ83	L6	True	925.60	835.646773	90.3
8	JZ84	L7	True	2314.00	2283.143402	98.7
9	JZ85	L8	True	4628.00	4800.356255	103.7
10	JZ86	L9	True	9256.00	9143.369993	98.8



<b>Analyte Name</b>	PFDA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	513.0 / 469.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.96480x + 0.33130$  ( $r = 0.99876$ ) (weighting: 1 / x)

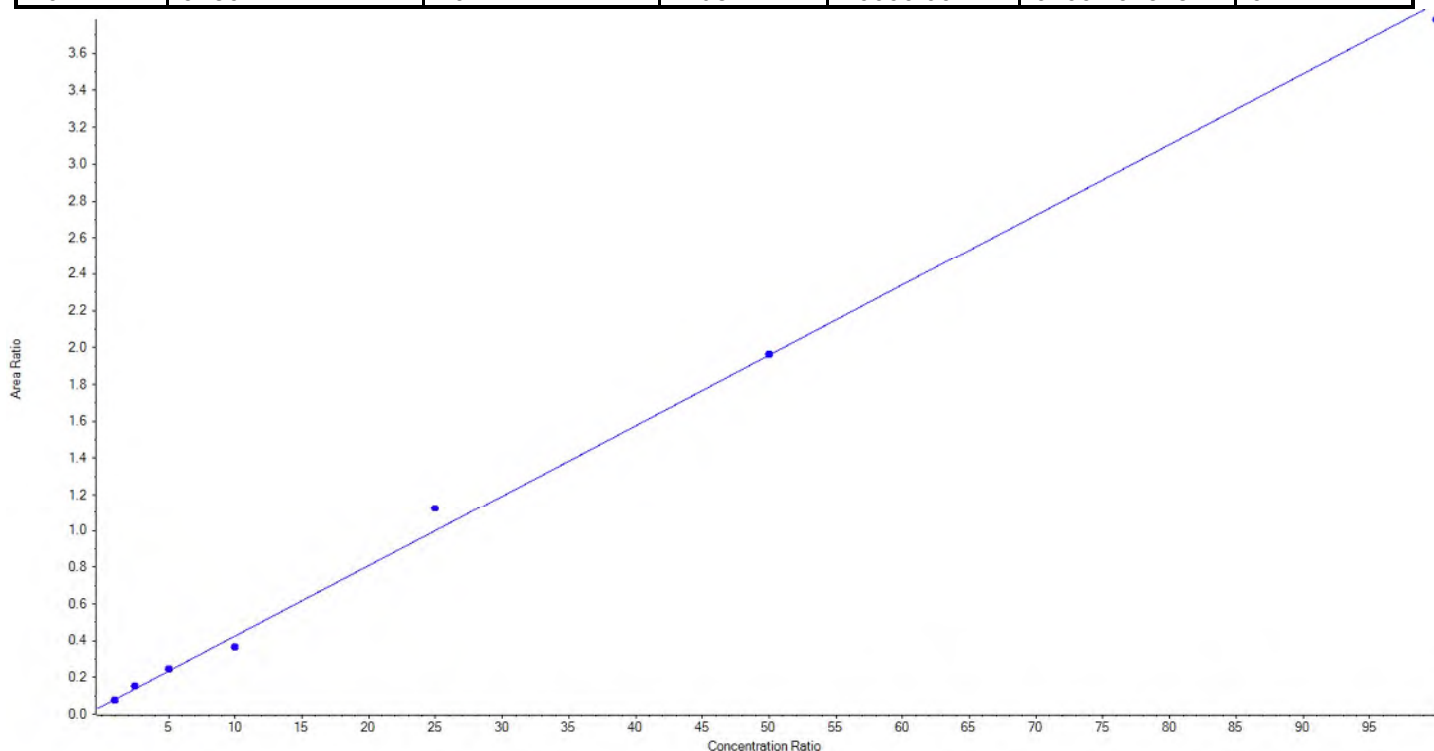
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	80.106807	80.1
5	JZ81	L4	True	250.00	280.729423	112.3
6	JZ82	L5	True	500.00	563.698304	112.7
7	JZ83	L6	True	1000.00	954.476766	95.5
8	JZ84	L7	True	2500.00	2499.715620	100.0
9	JZ85	L8	True	5000.00	4971.273080	99.4
10	JZ86	L9	False	10000.00	8834.017081	88.3



<b>Analyte Name</b>	PFDA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	513.0 / 219.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.03832 x + 0.04215$  (r = 0.99749) (weighting: 1 / x)

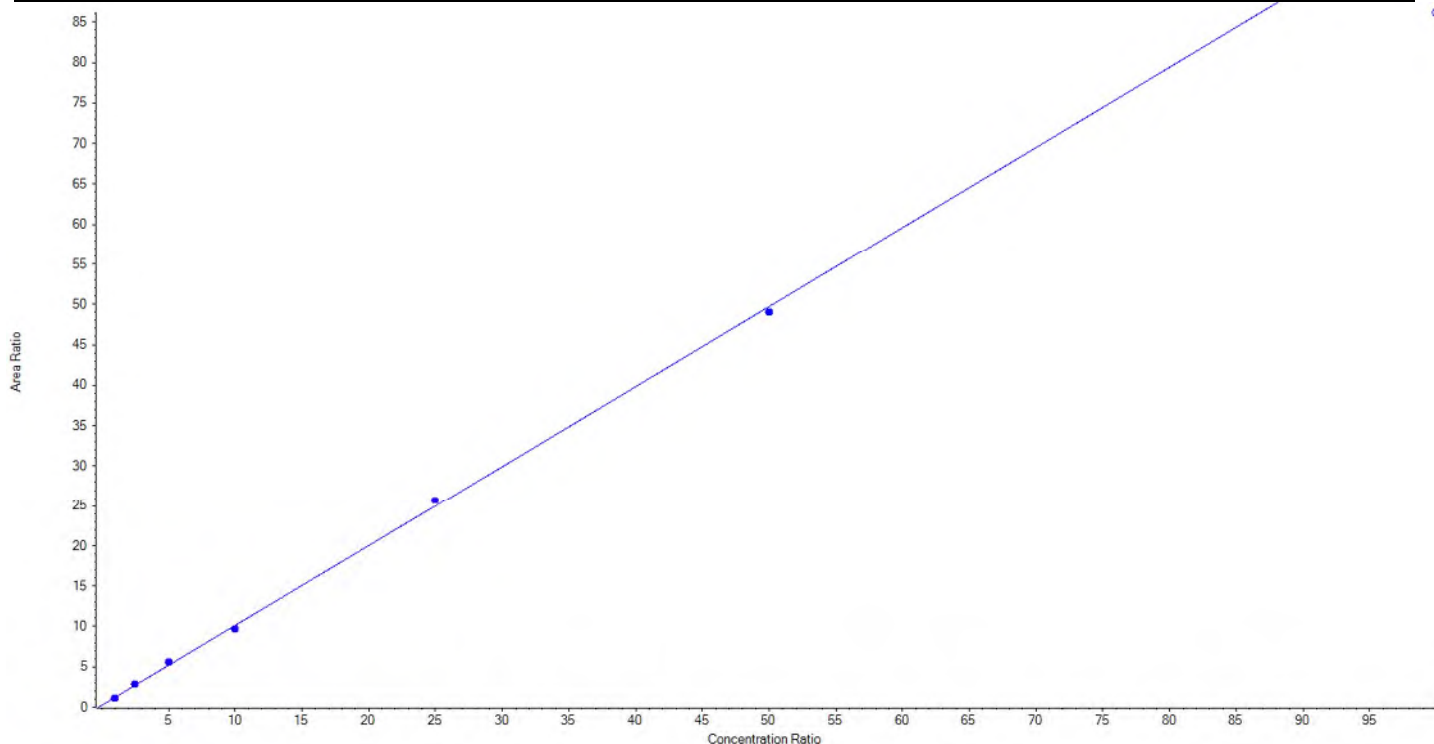
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	82.659189	82.7
5	JZ81	L4	True	250.00	291.516310	116.6
6	JZ82	L5	True	500.00	526.038890	105.2
7	JZ83	L6	True	1000.00	845.483275	84.6
8	JZ84	L7	True	2500.00	2828.003878	113.1
9	JZ85	L8	True	5000.00	5009.504139	100.2
10	JZ86	L9	True	10000.00	9766.794318	97.7



<b>Analyte Name</b>	PFUnA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	563.0 / 519.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.98972 x + 0.23163$  (r = 0.99936) (weighting: 1 / x)

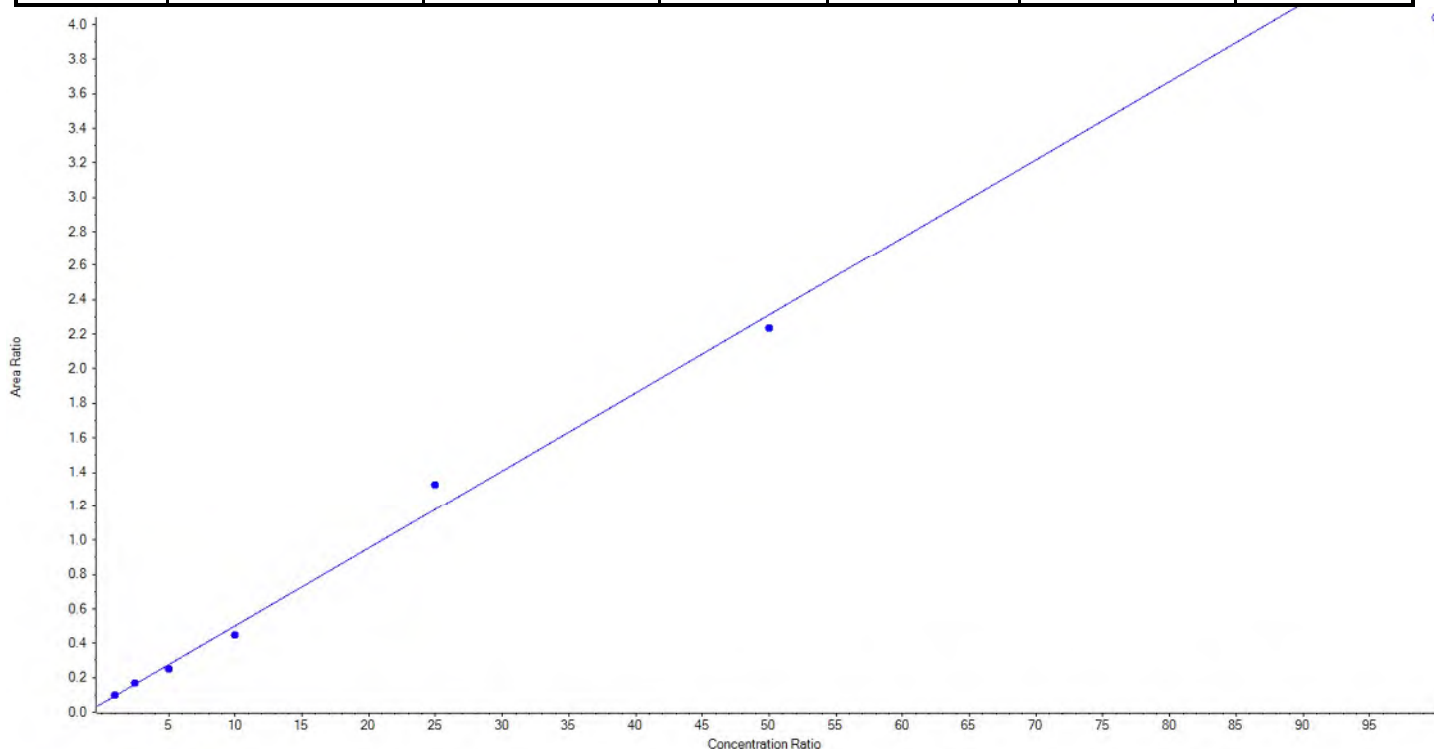
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	90.745593	90.8
5	JZ81	L4	True	250.00	261.466823	104.6
6	JZ82	L5	True	500.00	537.055487	107.4
7	JZ83	L6	True	1000.00	956.627338	95.7
8	JZ84	L7	True	2500.00	2575.587569	103.0
9	JZ85	L8	True	5000.00	4928.517189	98.6
10	JZ86	L9	False	10000.00	8681.593682	86.8



<b>Analyte Name</b>	PFUnA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	563.0 / 269.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04526 x + 0.04900$  (r = 0.99522) (weighting: 1 / x)

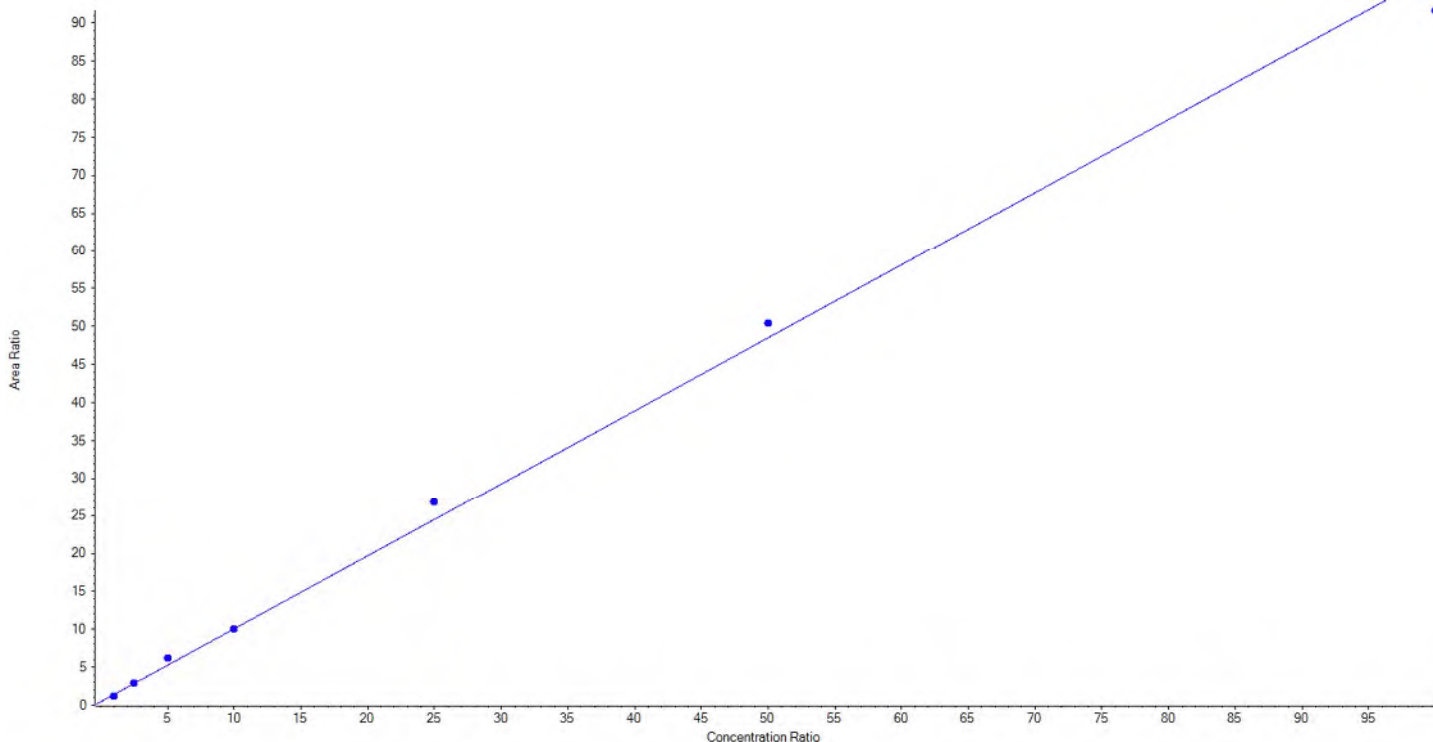
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	108.896169	108.9
5	JZ81	L4	True	250.00	263.189166	105.3
6	JZ82	L5	True	500.00	440.534454	88.1
7	JZ83	L6	True	1000.00	881.098760	88.1
8	JZ84	L7	True	2500.00	2824.288451	113.0
9	JZ85	L8	True	5000.00	4831.993000	96.6
10	JZ86	L9	False	10000.00	8817.375193	88.2



<b>Analyte Name</b>	PFD <sub>o</sub> A_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	613.0 / 569.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.96118x + 0.45533$  (r = 0.99745) (weighting: 1 / x)

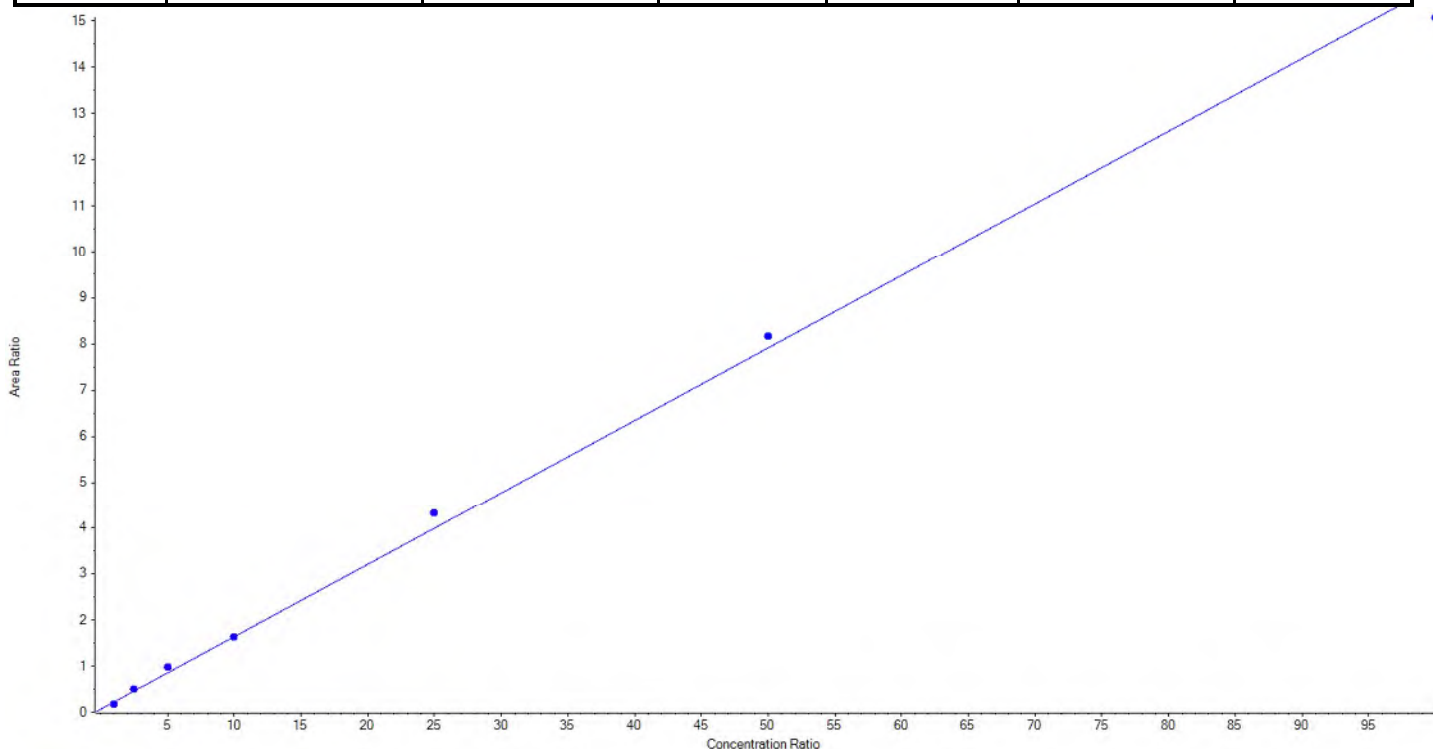
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	70.165430	70.2
5	JZ81	L4	True	250.00	255.545507	102.2
6	JZ82	L5	True	500.00	595.482174	119.1
7	JZ83	L6	True	1000.00	999.847927	100.0
8	JZ84	L7	True	2500.00	2741.086918	109.6
9	JZ85	L8	True	5000.00	5201.294237	104.0
10	JZ86	L9	True	10000.00	9486.577807	94.9



<b>Analyte Name</b>	PFDaA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	613.0 / 319.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.15690 x + 0.06506$  (r = 0.99787) (weighting: 1 / x)

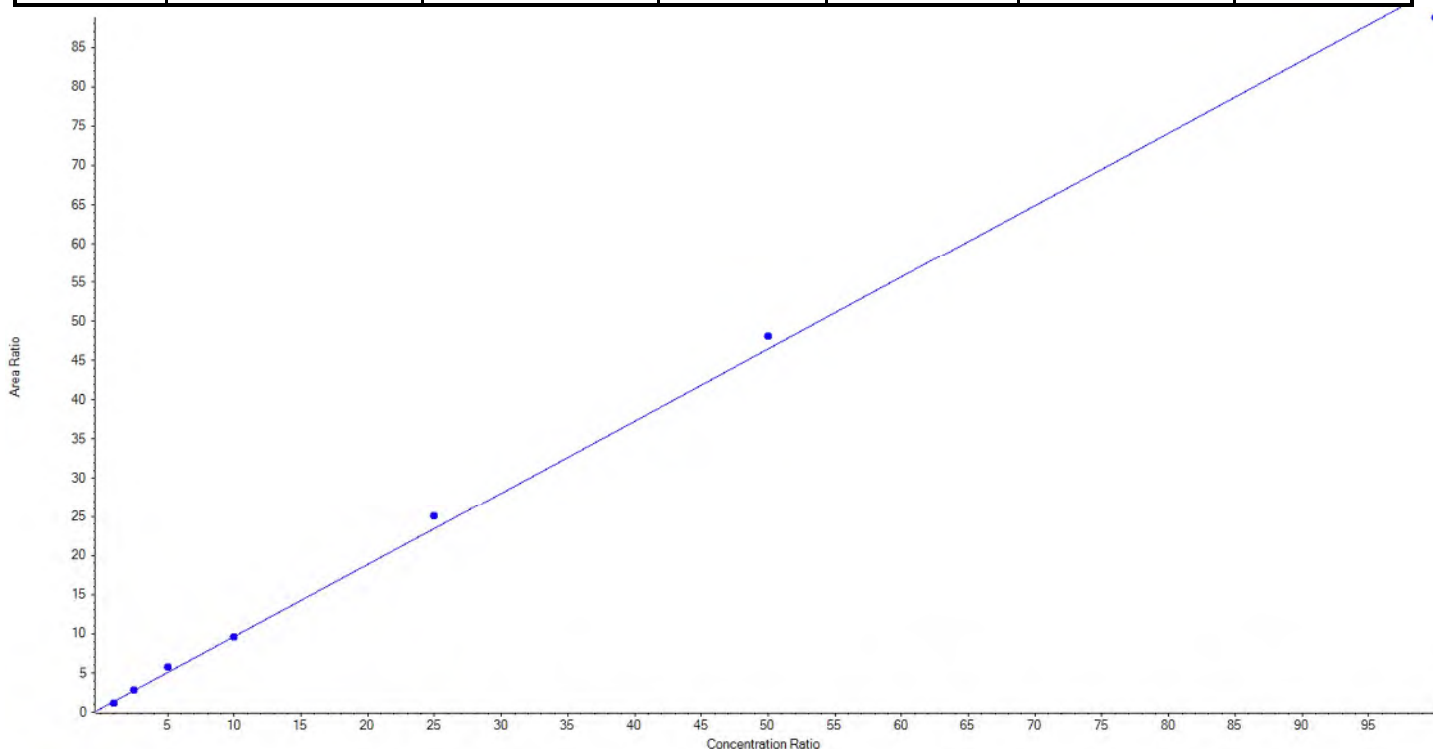
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	65.429332	65.4
5	JZ81	L4	True	250.00	279.451874	111.8
6	JZ82	L5	True	500.00	582.305679	116.5
7	JZ83	L6	True	1000.00	991.062905	99.1
8	JZ84	L7	True	2500.00	2710.804043	108.4
9	JZ85	L8	True	5000.00	5158.086891	103.2
10	JZ86	L9	True	10000.00	9562.859276	95.6



<b>Analyte Name</b>	PFTrDA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	663.0 / 619.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.92044 x + 0.45193$  (r = 0.99838) (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	75.193967	75.2
5	JZ81	L4	True	250.00	256.669564	102.7
6	JZ82	L5	True	500.00	582.232667	116.5
7	JZ83	L6	True	1000.00	994.209819	99.4
8	JZ84	L7	True	2500.00	2670.073088	106.8
9	JZ85	L8	True	5000.00	5175.155953	103.5
10	JZ86	L9	True	10000.00	9596.464942	96.0

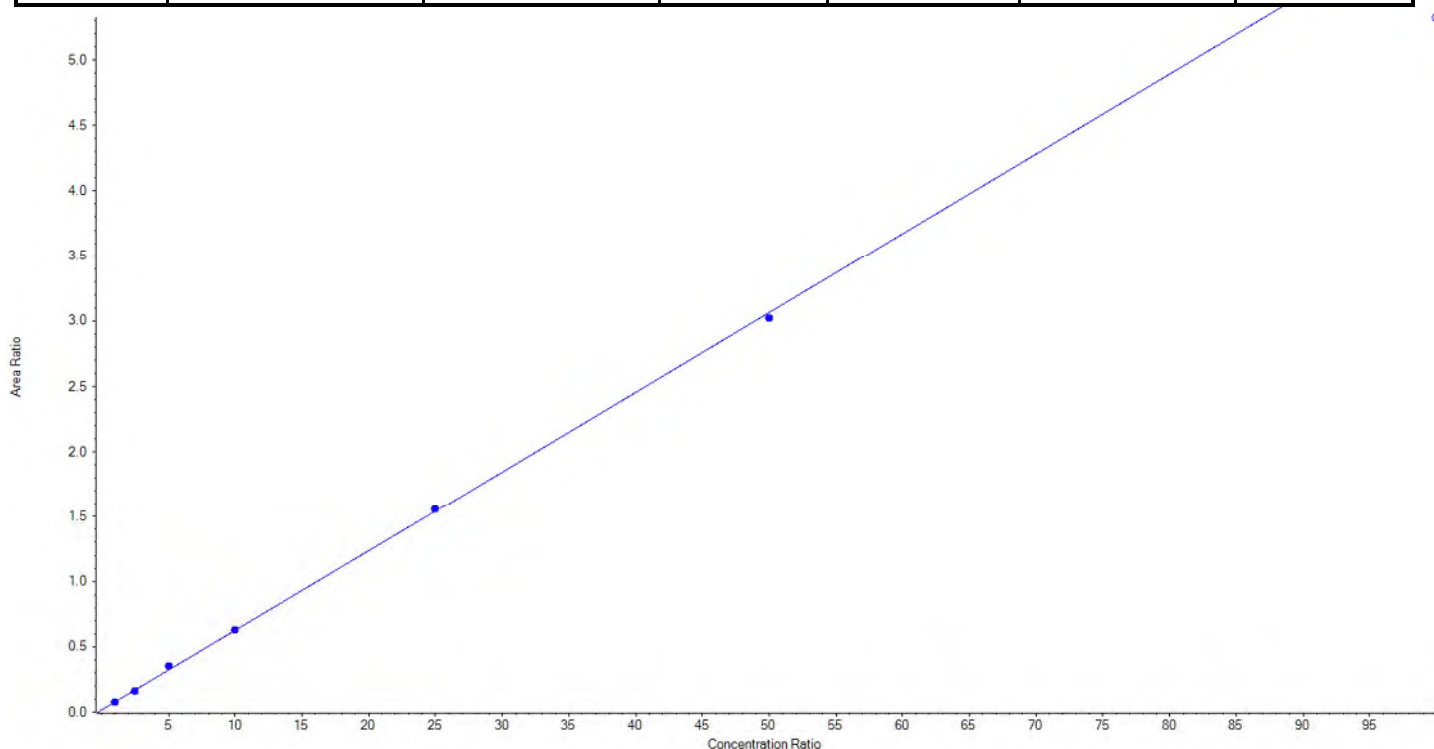




<b>Analyte Name</b>	PFTrDA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	663.0 / 169.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.06093x + 0.01745$  (r = 0.99946) (weighting: 1 / x)

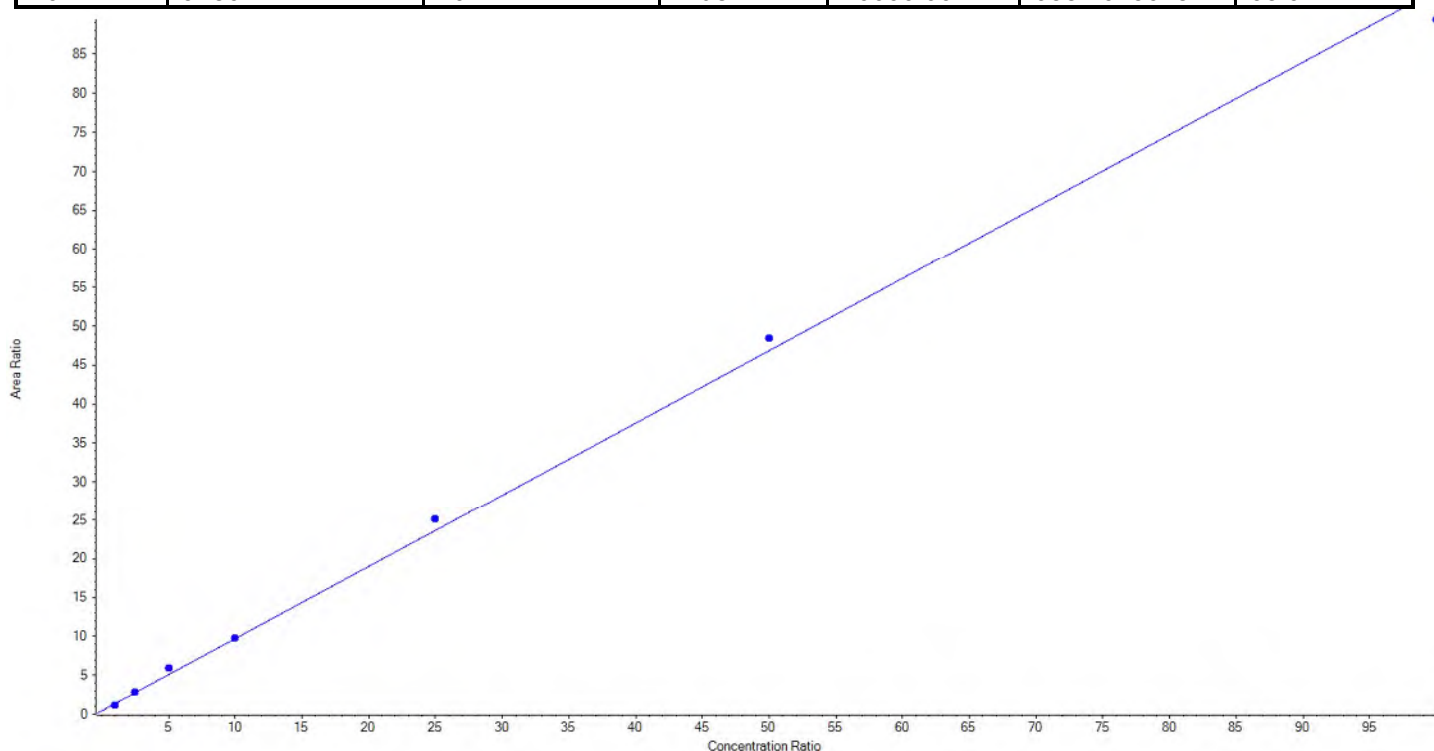
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	94.956102	95.0
5	JZ81	L4	True	250.00	235.261163	94.1
6	JZ82	L5	True	500.00	552.992832	110.6
7	JZ83	L6	True	1000.00	1005.695204	100.6
8	JZ84	L7	True	2500.00	2527.472597	101.1
9	JZ85	L8	True	5000.00	4933.622102	98.7
10	JZ86	L9	False	10000.00	8706.882200	87.1



<b>Analyte Name</b>	PFTeDA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	713.0 / 669.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.92843 x + 0.43240$  (r = 0.99832) (weighting: 1 / x)

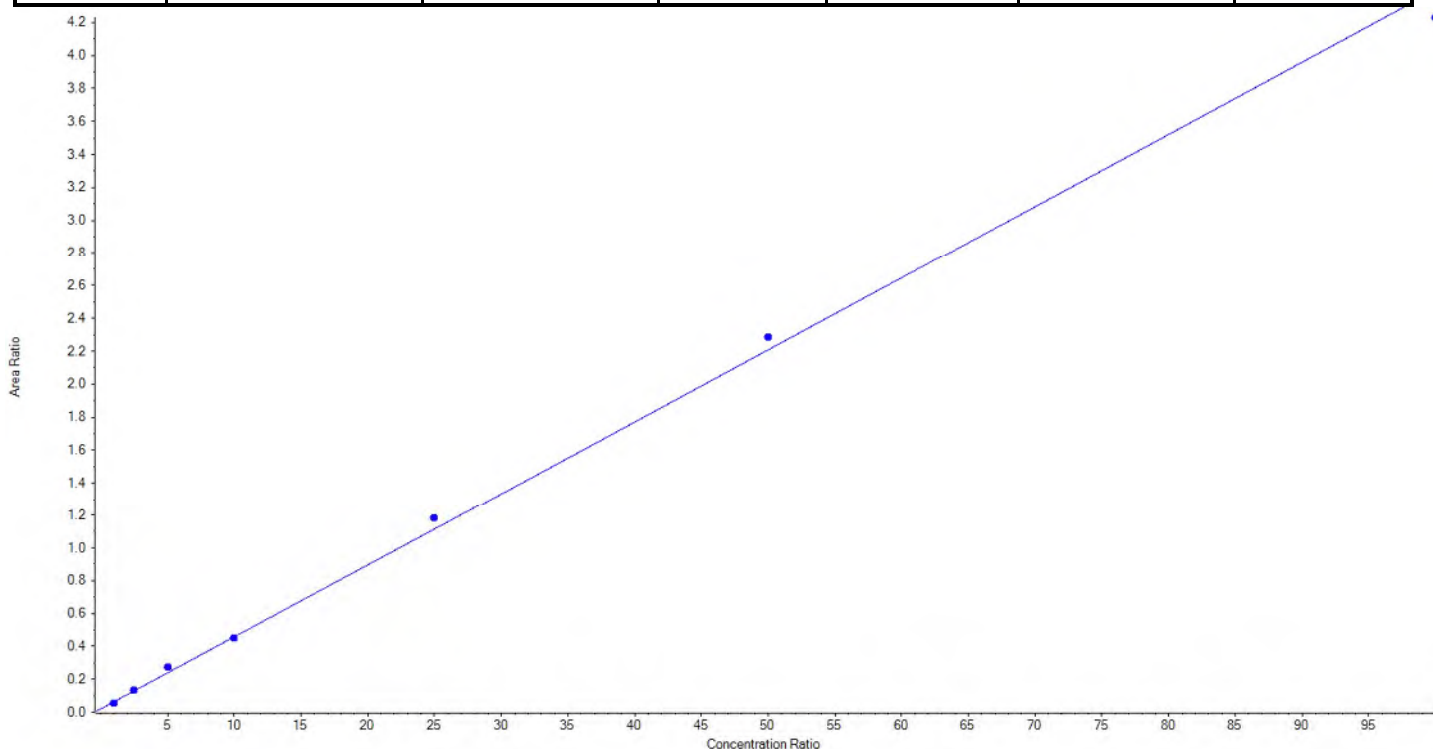
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	74.139371	74.1
5	JZ81	L4	True	250.00	252.243928	100.9
6	JZ82	L5	True	500.00	588.041720	117.6
7	JZ83	L6	True	1000.00	1015.343392	101.5
8	JZ84	L7	True	2500.00	2664.593960	106.6
9	JZ85	L8	True	5000.00	5168.023982	103.4
10	JZ86	L9	True	10000.00	9587.613648	95.9



<b>Analyte Name</b>	PFTeDA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	713.0 / 169.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04376 x + 0.01999$  (r = 0.99850) (weighting: 1 / x)

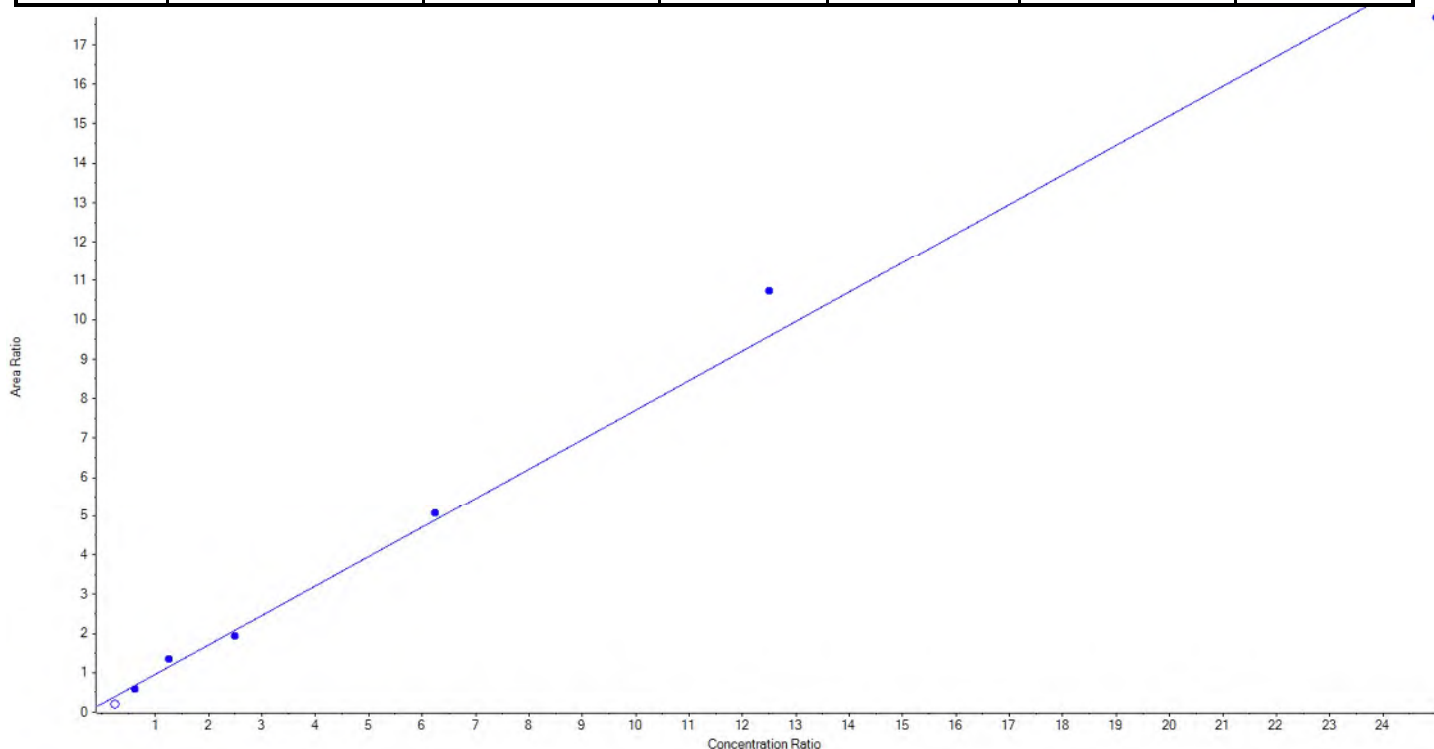
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	76.152455	76.2
5	JZ81	L4	True	250.00	259.120924	103.7
6	JZ82	L5	True	500.00	579.712333	115.9
7	JZ83	L6	True	1000.00	982.560002	98.3
8	JZ84	L7	True	2500.00	2656.578647	106.3
9	JZ85	L8	True	5000.00	5177.880651	103.6
10	JZ86	L9	True	10000.00	9617.994988	96.2



<b>Analyte Name</b>	NMeFOSAA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	570.0 / 419.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.74962x + 0.20963$  (r = 0.99451) (weighting: 1 / x)

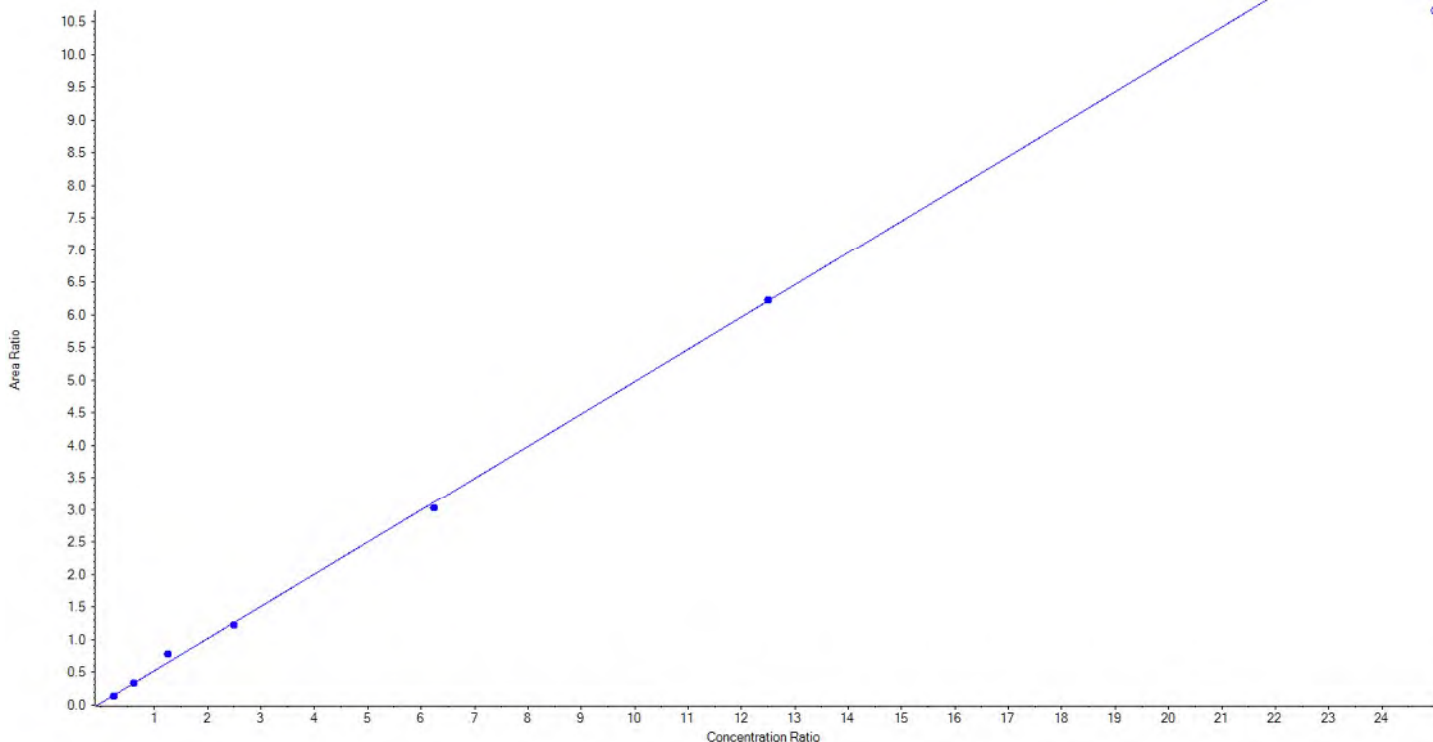
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	194.473724	77.8
6	JZ82	L5	True	500.00	602.255659	120.5
7	JZ83	L6	True	1000.00	926.843028	92.7
8	JZ84	L7	True	2500.00	2590.634631	103.6
9	JZ85	L8	True	5000.00	5609.176094	112.2
10	JZ86	L9	True	10000.00	9326.616863	93.3



<b>Analyte Name</b>	NMeFOSAA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	570.0 / 512.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.49493x + 0.03076$  (r = 0.99787) (weighting: 1 / x)

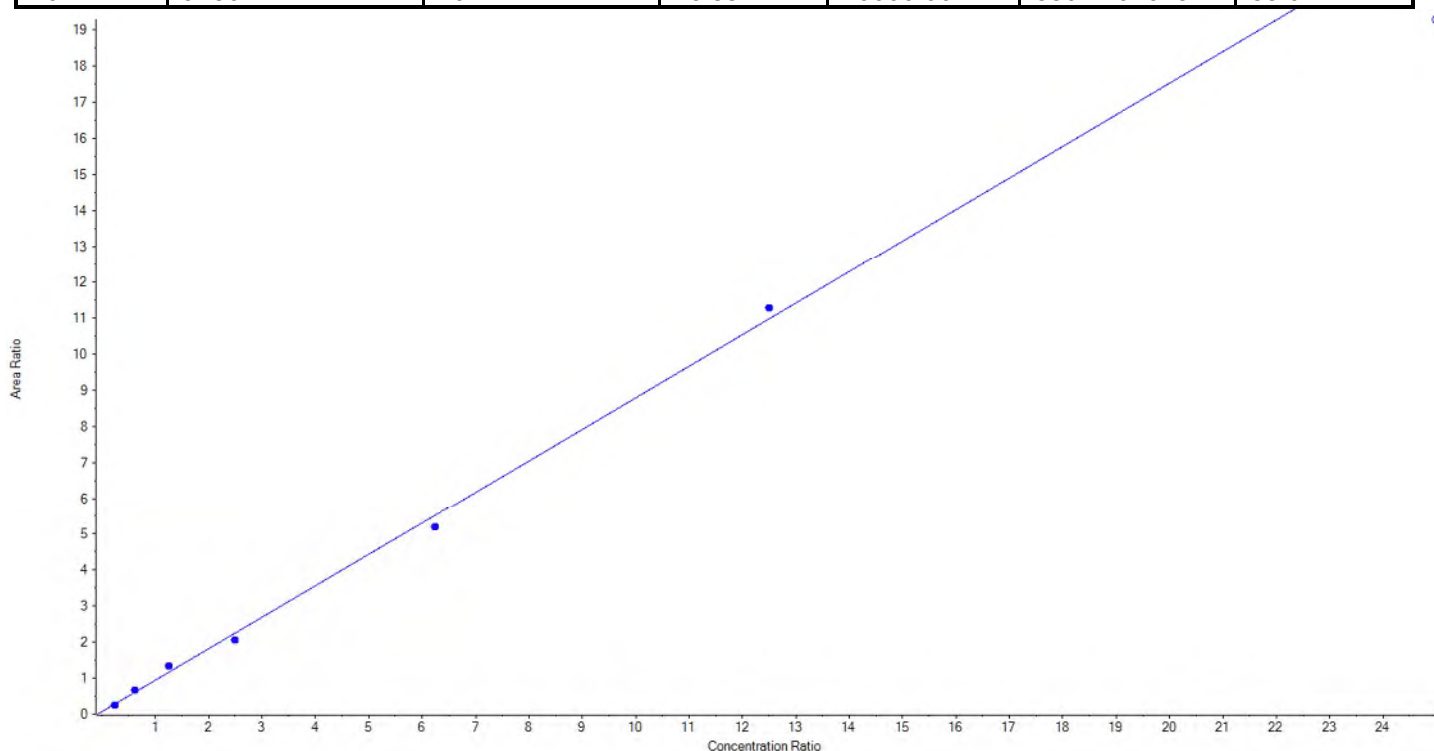
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	83.849866	83.9
5	JZ81	L4	True	250.00	249.432489	99.8
6	JZ82	L5	True	500.00	612.660544	122.5
7	JZ83	L6	True	1000.00	964.777836	96.5
8	JZ84	L7	True	2500.00	2429.083037	97.2
9	JZ85	L8	True	5000.00	5010.196228	100.2
10	JZ86	L9	False	10000.00	8603.598683	86.0



<b>Analyte Name</b>	NEtFOSAA_1	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	584.0 / 419.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.87347 x + 0.06627$  (r = 0.99734) (weighting: 1 / x)

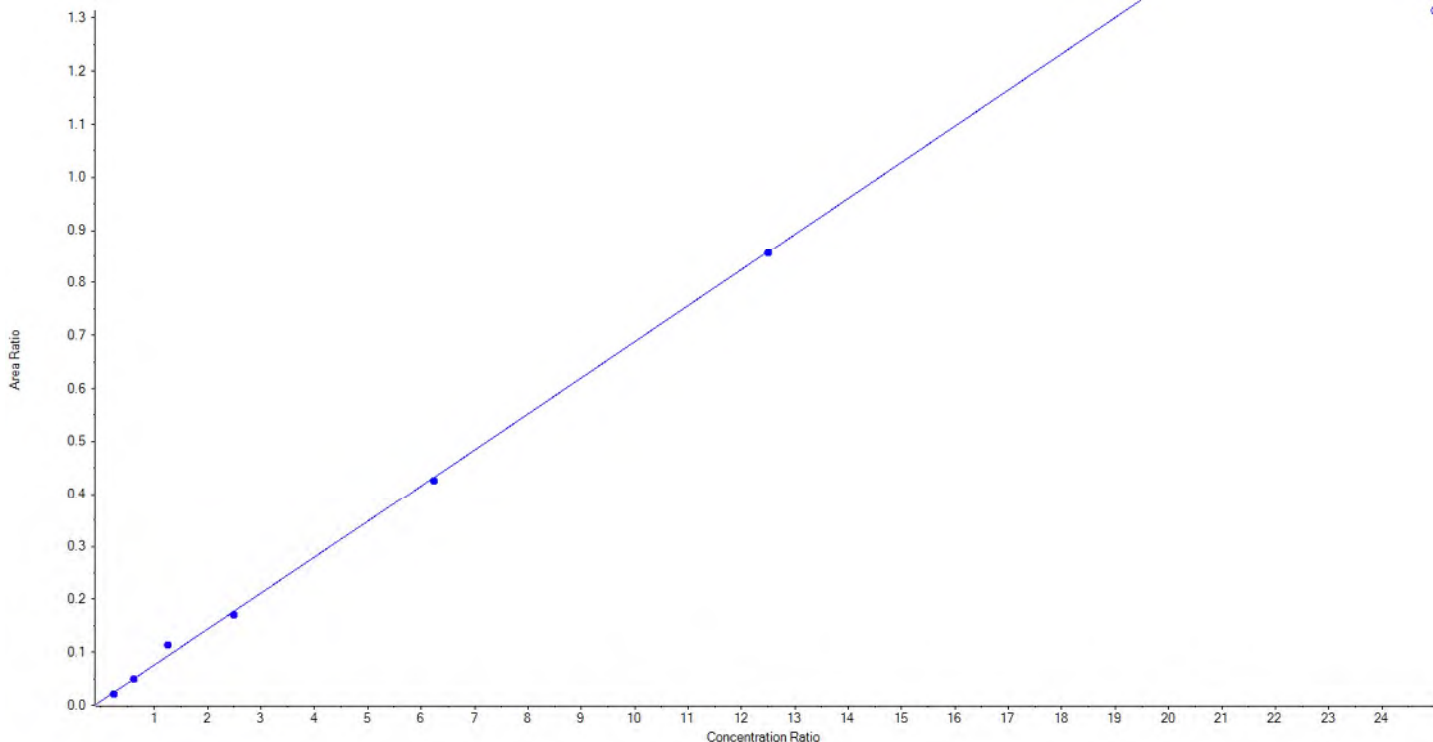
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	84.758563	84.8
5	JZ81	L4	True	250.00	275.112837	110.1
6	JZ82	L5	True	500.00	583.472638	116.7
7	JZ83	L6	True	1000.00	917.942369	91.8
8	JZ84	L7	True	2500.00	2346.663317	93.9
9	JZ85	L8	True	5000.00	5142.050277	102.8
10	JZ86	L9	False	10000.00	8804.104625	88.0



<b>Analyte Name</b>	NEtFOSAA_2	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	584.0 / 483.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.06807 x + 0.00743$  (r = 0.99771) (weighting: 1 / x)

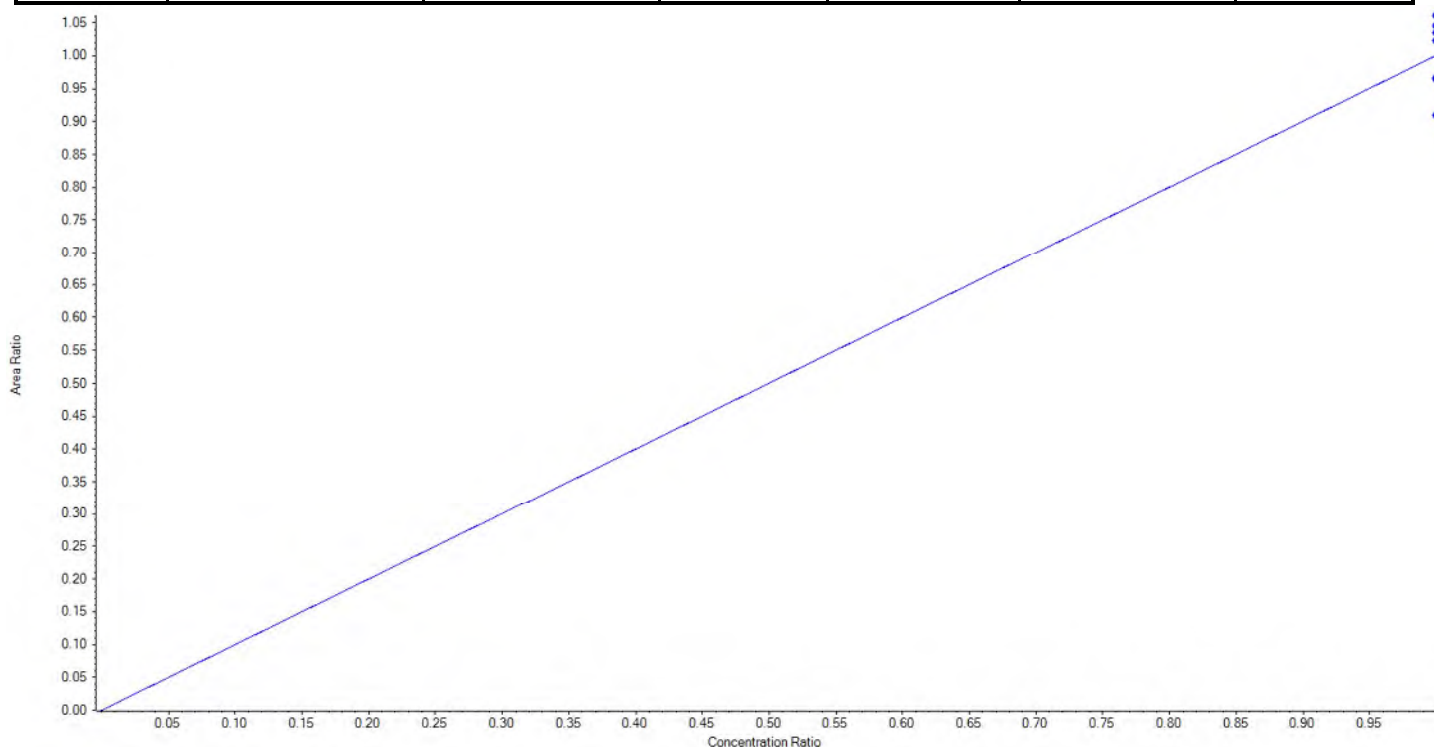
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	82.387514	82.4
5	JZ81	L4	True	250.00	249.755816	99.9
6	JZ82	L5	True	500.00	618.499663	123.7
7	JZ83	L6	True	1000.00	961.057859	96.1
8	JZ84	L7	True	2500.00	2456.922918	98.3
9	JZ85	L8	True	5000.00	4981.376230	99.6
10	JZ86	L9	False	10000.00	7676.823562	76.8



<b>Analyte Name</b>	13C2-PFHxA	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	315.0 / 270.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.00047 x$  (std. dev. = 0.05493) (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	96.439494	96.4
5	JZ81	L4	True	100.00	96.506267	96.5
6	JZ82	L5	True	100.00	104.533761	104.5
7	JZ83	L6	True	100.00	103.436575	103.4
8	JZ84	L7	True	100.00	102.139355	102.1
9	JZ85	L8	True	100.00	106.033981	106.0
10	JZ86	L9	True	100.00	90.910566	90.9

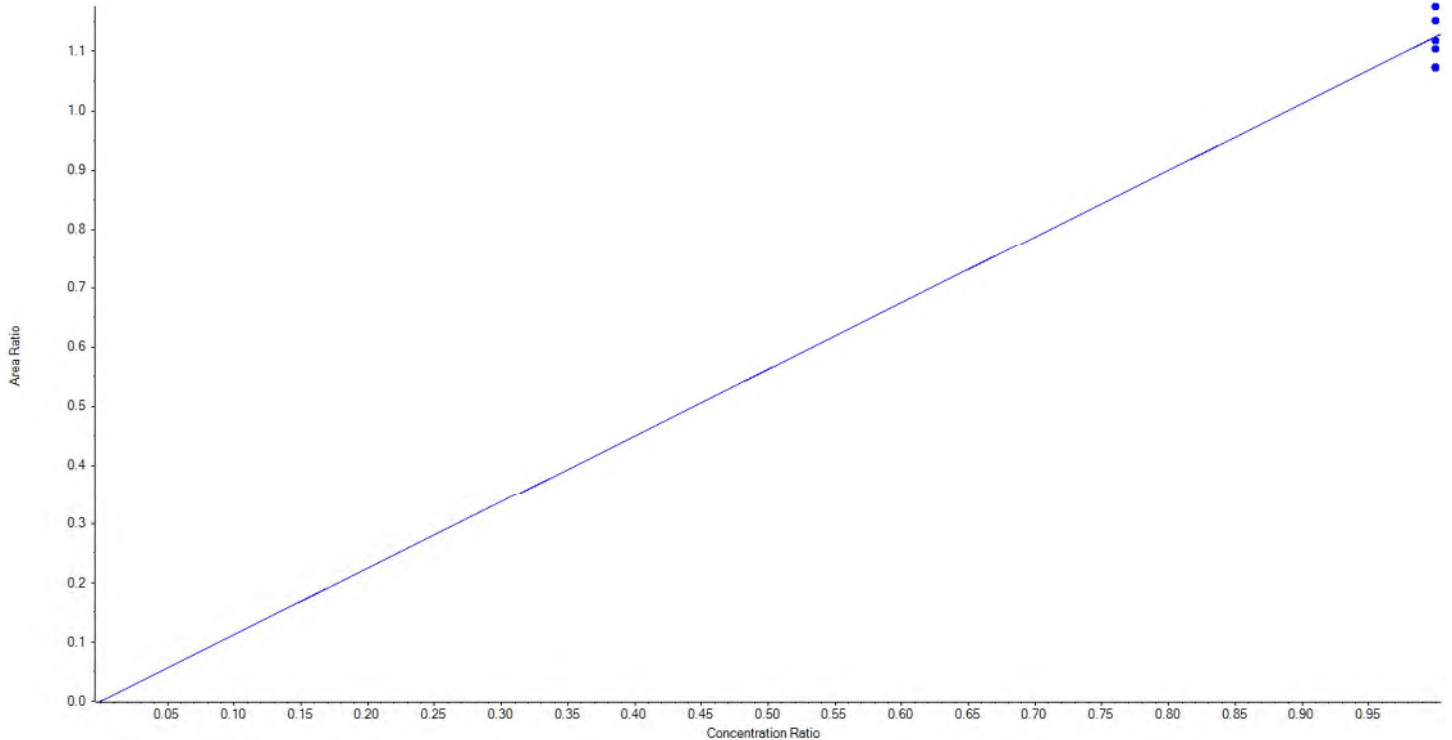




<b>Analyte Name</b>	13C2-PFDA	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	515.0 / 470.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.12453 x$  (std. dev. = 0.04396) (weighting: 1 / x)

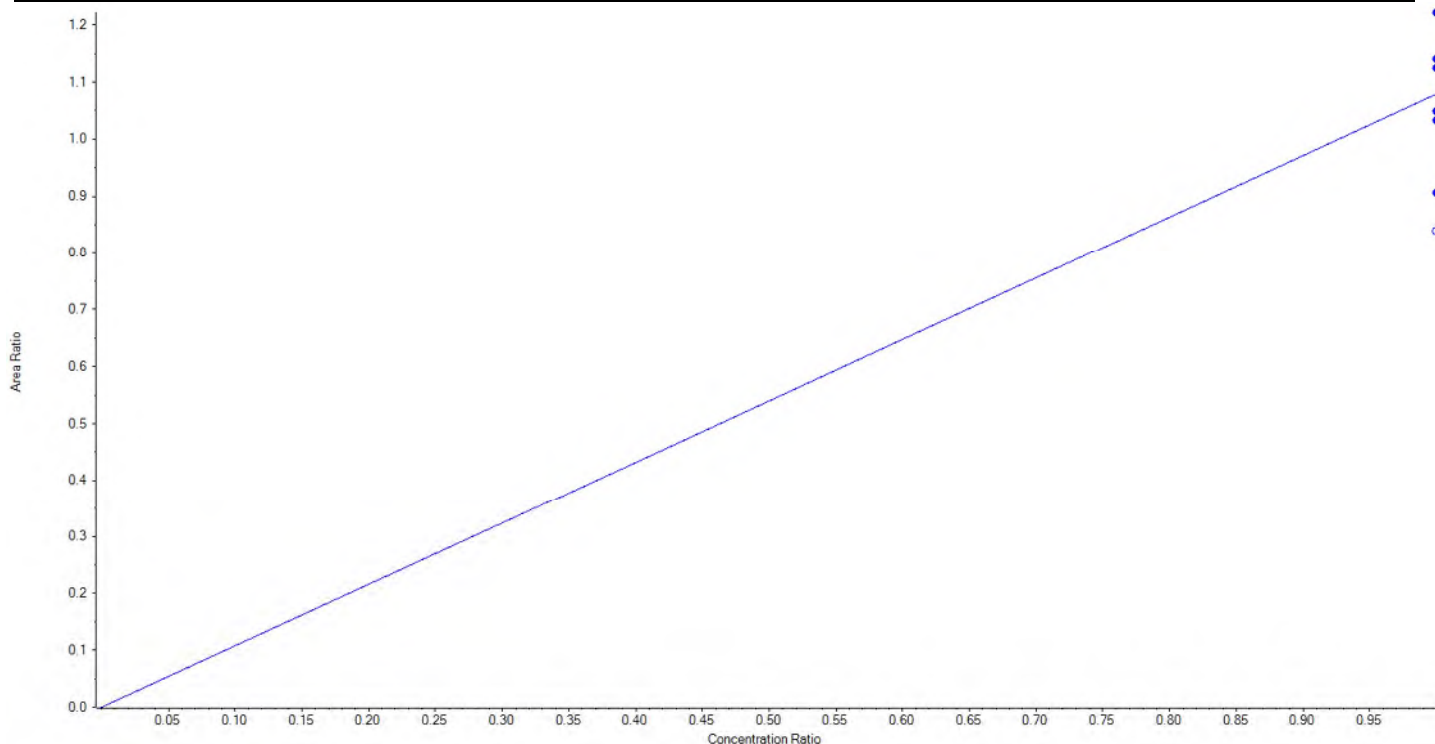
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	104.516087	104.5
5	JZ81	L4	True	100.00	98.256587	98.3
6	JZ82	L5	True	100.00	95.457273	95.5
7	JZ83	L6	True	100.00	102.404610	102.4
8	JZ84	L7	True	100.00	104.507065	104.5
9	JZ85	L8	True	100.00	99.466561	99.5
10	JZ86	L9	True	100.00	95.391818	95.4



<b>Analyte Name</b>	d5-EtFOSAA	<b>Data File</b>	DW_08202018.wiff
<b>MRM Transition</b>	589.0 / 419.0	<b>Result Table</b>	18-0507DW
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	8/20/2018 2:32:30 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.07933 x$  (std. dev. = 0.10858) (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	336.154687	84.0
5	JZ81	L4	True	400.00	382.599033	95.7
6	JZ82	L5	True	400.00	452.712991	113.2
7	JZ83	L6	True	400.00	416.933912	104.2
8	JZ84	L7	True	400.00	388.706932	97.2
9	JZ85	L8	True	400.00	422.892445	105.7
10	JZ86	L9	False	400.00	311.251208	77.8





Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T14:59:21	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.57	PFBS			
PFBS_2	298.9 / 99.0	1.56	PFBS	0.295	0.290	ü
PFHxA_1	313.0 / 269.0	1.86	PFHxA			
PFHxA_2	313.0 / 119.0	1.86	PFHxA	0.083	0.079	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.024	0.022	ü
PFHxS_1	399.0 / 80.0	2.24	PFHxS			
PFHxS_2	399.0 / 99.0	2.23	PFHxS	0.315	0.292	ü
PFOA_1	413.0 / 369.0	2.60	PFOA			
PFOA_2	413.0 / 169.0	2.60	PFOA	0.068	0.068	ü
PFNA_1	463.0 / 419.0	2.97	PFNA			
PFNA_2	463.0 / 219.0	2.97	PFNA	0.377	0.320	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.171	0.182	ü
PFDA_1	513.0 / 469.0	3.32	PFDA			
PFDA_2	513.0 / 219.0	3.33	PFDA	0.067	0.047	ü
PFUnA_1	563.0 / 519.0	3.65	PFUnA			
PFUnA_2	563.0 / 269.0	3.65	PFUnA	0.087	0.056	
PFDoA_1	613.0 / 569.0	3.95	PFDoA			
PFDoA_2	613.0 / 319.0	3.95	PFDoA	0.149	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.21	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.21	PFTTrDA	0.066	0.062	ü
PFTeDA_1	713.0 / 669.0	4.44	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.44	PFTeDA	0.048	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.48	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.48	NMeFOSAA	0.683	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.64	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.64	NEtFOSAA	0.085	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.85				
13C2-PFDA	515.0 / 470.0	3.31		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.64		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	2018-08-20T15:08:18	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.56	PFBS			
PFBS_2	298.9 / 99.0	1.56	PFBS	0.289	0.290	ü
PFHxA_1	313.0 / 269.0	1.86	PFHxA			
PFHxA_2	313.0 / 119.0	1.86	PFHxA	0.074	0.079	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.23	PFHpA	0.021	0.022	ü
PFHxS_1	399.0 / 80.0	2.23	PFHxS			
PFHxS_2	399.0 / 99.0	2.23	PFHxS	0.280	0.292	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.59	PFOA	0.077	0.068	ü
PFNA_1	463.0 / 419.0	2.97	PFNA			
PFNA_2	463.0 / 219.0	2.97	PFNA	0.292	0.320	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.185	0.182	ü
PFDA_1	513.0 / 469.0	3.32	PFDA			
PFDA_2	513.0 / 219.0	3.33	PFDA	0.051	0.047	ü
PFUnA_1	563.0 / 519.0	3.65	PFUnA			
PFUnA_2	563.0 / 269.0	3.65	PFUnA	0.060	0.056	ü
PFDoA_1	613.0 / 569.0	3.94	PFDoA			
PFDoA_2	613.0 / 319.0	3.94	PFDoA	0.173	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.20	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.20	PFTTrDA	0.057	0.062	ü
PFTeDA_1	713.0 / 669.0	4.44	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.43	PFTeDA	0.048	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.47	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.47	NMeFOSAA	0.591	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.64	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.65	NEtFOSAA	0.075	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.31		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.63		N/A	N/A	ü

Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:17:14	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.56	PFBS			
PFBS_2	298.9 / 99.0	1.56	PFBS	0.284	0.290	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.079	0.079	ü
PFHpA_1	363.0 / 319.0	2.21	PFHpA			
PFHpA_2	363.0 / 169.0	2.21	PFHpA	0.023	0.022	ü
PFHxS_1	399.0 / 80.0	2.23	PFHxS			
PFHxS_2	399.0 / 99.0	2.23	PFHxS	0.301	0.292	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.59	PFOA	0.067	0.068	ü
PFNA_1	463.0 / 419.0	2.97	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.322	0.320	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.187	0.182	ü
PFDA_1	513.0 / 469.0	3.32	PFDA			
PFDA_2	513.0 / 219.0	3.32	PFDA	0.042	0.047	ü
PFUnA_1	563.0 / 519.0	3.65	PFUnA			
PFUnA_2	563.0 / 269.0	3.65	PFUnA	0.045	0.056	ü
PFDoA_1	613.0 / 569.0	3.94	PFDoA			
PFDoA_2	613.0 / 319.0	3.94	PFDoA	0.158	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.20	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.20	PFTTrDA	0.061	0.062	ü
PFTeDA_1	713.0 / 669.0	4.43	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.43	PFTeDA	0.047	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.47	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.47	NMeFOSAA	0.589	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.64	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.64	NEtFOSAA	0.084	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.31		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.63		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	2018-08-20T15:26:11	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.56	PFBS			
PFBS_2	298.9 / 99.0	1.56	PFBS	0.293	0.290	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.078	0.079	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.23	PFHxS			
PFHxS_2	399.0 / 99.0	2.23	PFHxS	0.283	0.292	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.59	PFOA	0.068	0.068	ü
PFNA_1	463.0 / 419.0	2.97	PFNA			
PFNA_2	463.0 / 219.0	2.97	PFNA	0.311	0.320	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.180	0.182	ü
PFDA_1	513.0 / 469.0	3.32	PFDA			
PFDA_2	513.0 / 219.0	3.32	PFDA	0.038	0.047	ü
PFUnA_1	563.0 / 519.0	3.65	PFUnA			
PFUnA_2	563.0 / 269.0	3.65	PFUnA	0.046	0.056	ü
PFDoA_1	613.0 / 569.0	3.94	PFDoA			
PFDoA_2	613.0 / 319.0	3.94	PFDoA	0.161	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.21	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.20	PFTTrDA	0.066	0.062	ü
PFTeDA_1	713.0 / 669.0	4.43	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.43	PFTeDA	0.046	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.47	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.47	NMeFOSAA	0.629	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.64	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.64	NEtFOSAA	0.083	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.31		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.63		N/A	N/A	ü

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:35:06	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.56	PFBS			
PFBS_2	298.9 / 99.0	1.56	PFBS	0.291	0.290	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.081	0.079	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.022	0.022	ü
PFHxS_1	399.0 / 80.0	2.23	PFHxS			
PFHxS_2	399.0 / 99.0	2.23	PFHxS	0.285	0.292	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.59	PFOA	0.066	0.068	ü
PFNA_1	463.0 / 419.0	2.97	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.314	0.320	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.182	0.182	ü
PFDA_1	513.0 / 469.0	3.31	PFDA			
PFDA_2	513.0 / 219.0	3.31	PFDA	0.046	0.047	ü
PFUnA_1	563.0 / 519.0	3.65	PFUnA			
PFUnA_2	563.0 / 269.0	3.65	PFUnA	0.052	0.056	ü
PFDoA_1	613.0 / 569.0	3.94	PFDoA			
PFDoA_2	613.0 / 319.0	3.94	PFDoA	0.161	0.161	ü
PFTrDA_1	663.0 / 619.0	4.20	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.19	PFTrDA	0.062	0.062	ü
PFTeDA_1	713.0 / 669.0	4.43	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.42	PFTeDA	0.047	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.47	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.47	NMeFOSAA	0.600	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.64	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.63	NEtFOSAA	0.082	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.30		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.63		N/A	N/A	ü



Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:44:02	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.56	PFBS			
PFBS_2	298.9 / 99.0	1.56	PFBS	0.290	0.290	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.079	0.079	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.21	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.23	PFHxS			
PFHxS_2	399.0 / 99.0	2.23	PFHxS	0.287	0.292	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.59	PFOA	0.064	0.068	ü
PFNA_1	463.0 / 419.0	2.96	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.307	0.320	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.95	PFOS	0.191	0.182	ü
PFDA_1	513.0 / 469.0	3.31	PFDA			
PFDA_2	513.0 / 219.0	3.31	PFDA	0.041	0.047	ü
PFUnA_1	563.0 / 519.0	3.64	PFUnA			
PFUnA_2	563.0 / 269.0	3.64	PFUnA	0.046	0.056	ü
PFDoA_1	613.0 / 569.0	3.93	PFDoA			
PFDoA_2	613.0 / 319.0	3.93	PFDoA	0.162	0.161	ü
PFTrDA_1	663.0 / 619.0	4.19	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.19	PFTrDA	0.063	0.062	ü
PFTeDA_1	713.0 / 669.0	4.42	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.42	PFTeDA	0.047	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.47	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.47	NMeFOSAA	0.581	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.63	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.63	NEtFOSAA	0.076	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.30		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.62		N/A	N/A	ü

Sample Name	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T15:52:58	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.56	PFBS			
PFBS_2	298.9 / 99.0	1.56	PFBS	0.288	0.290	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.080	0.079	ü
PFHpA_1	363.0 / 319.0	2.22	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.23	PFHxS			
PFHxS_2	399.0 / 99.0	2.23	PFHxS	0.294	0.292	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.066	0.068	ü
PFNA_1	463.0 / 419.0	2.96	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.307	0.320	ü
PFOS_1	499.0 / 80.0	2.95	PFOS			
PFOS_2	499.0 / 99.0	2.95	PFOS	0.181	0.182	ü
PFDA_1	513.0 / 469.0	3.31	PFDA			
PFDA_2	513.0 / 219.0	3.31	PFDA	0.044	0.047	ü
PFUnA_1	563.0 / 519.0	3.64	PFUnA			
PFUnA_2	563.0 / 269.0	3.64	PFUnA	0.047	0.056	ü
PFDoA_1	613.0 / 569.0	3.93	PFDoA			
PFDoA_2	613.0 / 319.0	3.93	PFDoA	0.164	0.161	ü
PFTrDA_1	663.0 / 619.0	4.19	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.19	PFTrDA	0.060	0.062	ü
PFTeDA_1	713.0 / 669.0	4.42	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.42	PFTeDA	0.047	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.46	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.46	NMeFOSAA	0.604	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.63	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.63	NEtFOSAA	0.068	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.30		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.62		N/A	N/A	ü

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T16:10:51	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.56	841.565895	885.00	95.09
PFBS_2	298.9 / 99.0	1.56	874.300913	885.00	98.79
PFHxA_1	313.0 / 269.0	1.85	1062.726354	1000.00	106.27
PFHxA_2	313.0 / 119.0	1.85	1018.158141	1000.00	101.82
PFHpA_1	363.0 / 319.0	2.21	1060.501779	1000.00	106.05
PFHpA_2	363.0 / 169.0	2.21	1078.405828	1000.00	107.84
PFHxS_1	399.0 / 80.0	2.23	937.846931	912.00	102.83
PFHxS_2	399.0 / 99.0	2.23	897.714357	912.00	98.43
PFOA_1	413.0 / 369.0	2.58	1062.648816	1000.00	106.26
PFOA_2	413.0 / 169.0	2.58	1004.684982	1000.00	100.47
PFNA_1	463.0 / 419.0	2.96	1090.862692	1000.00	109.09
PFNA_2	463.0 / 219.0	2.96	1044.682874	1000.00	104.47
PFOS_1	499.0 / 80.0	2.95	846.596157	925.60	91.46
PFOS_2	499.0 / 99.0	2.95	980.456621	925.60	105.93
PFDA_1	513.0 / 469.0	3.31	1013.511468	1000.00	101.35
PFDA_2	513.0 / 219.0	3.31	1123.488192	1000.00	112.35
PFUnA_1	563.0 / 519.0	3.64	1013.728757	1000.00	101.37
PFUnA_2	563.0 / 269.0	3.64	1114.846944	1000.00	111.48
PFDoA_1	613.0 / 569.0	3.93	1083.332675	1000.00	108.33
PFDoA_2	613.0 / 319.0	3.93	1098.130149	1000.00	109.81
PFTrDA_1	663.0 / 619.0	4.19	1075.423268	1000.00	107.54
PFTrDA_2	663.0 / 169.0	4.18	1017.730417	1000.00	101.77
PFTeDA_1	713.0 / 669.0	4.41	1061.391737	1000.00	106.14
PFTeDA_2	713.0 / 169.0	4.41	1023.088379	1000.00	102.31
NMeFOSAA_1	570.0 / 419.0	3.46	1208.654842	1000.00	120.87
NMeFOSAA_2	570.0 / 512.0	3.46	1026.080779	1000.00	102.61
NEtFOSAA_1	584.0 / 419.0	3.63	1147.648798	1000.00	114.76
NEtFOSAA_2	584.0 / 483.0	3.62	753.328653	1000.00	75.33
13C2-PFHxA	315.0 / 270.0	1.84	104.596106	100.00	104.60
13C2-PFDA	515.0 / 470.0	3.30	100.438626	100.00	100.44
d5-EtFOSAA	589.0 / 419.0	3.62	417.249639	400.00	104.31

Sample Name	JZ83 CCV	Injection Vial	31
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:00:42	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.55	806.231398	885.00	91.10
PFBS_2	298.9 / 99.0	1.54	810.369744	885.00	91.57
PFHxA_1	313.0 / 269.0	1.83	1035.206375	1000.00	103.52
PFHxA_2	313.0 / 119.0	1.83	982.603081	1000.00	98.26
PFHpA_1	363.0 / 319.0	2.18	998.626779	1000.00	99.86
PFHpA_2	363.0 / 169.0	2.18	980.458516	1000.00	98.05
PFHxS_1	399.0 / 80.0	2.20	823.362936	912.00	90.28
PFHxS_2	399.0 / 99.0	2.20	806.399314	912.00	88.42
PFOA_1	413.0 / 369.0	2.55	1004.497885	1000.00	100.45
PFOA_2	413.0 / 169.0	2.55	925.143438	1000.00	92.51
PFNA_1	463.0 / 419.0	2.92	1025.361386	1000.00	102.54
PFNA_2	463.0 / 219.0	2.92	972.973976	1000.00	97.30
PFOS_1	499.0 / 80.0	2.91	845.251554	925.60	91.32
PFOS_2	499.0 / 99.0	2.91	856.448928	925.60	92.53
PFDA_1	513.0 / 469.0	3.26	919.567747	1000.00	91.96
PFDA_2	513.0 / 219.0	3.26	865.392365	1000.00	86.54
PFUnA_1	563.0 / 519.0	3.58	1053.504804	1000.00	105.35
PFUnA_2	563.0 / 269.0	3.58	1249.574105	1000.00	124.96
PFDoA_1	613.0 / 569.0	3.87	993.640967	1000.00	99.36
PFDoA_2	613.0 / 319.0	3.87	990.814427	1000.00	99.08
PFTrDA_1	663.0 / 619.0	4.13	989.387819	1000.00	98.94
PFTrDA_2	663.0 / 169.0	4.13	962.771293	1000.00	96.28
PFTeDA_1	713.0 / 669.0	4.36	976.895780	1000.00	97.69
PFTeDA_2	713.0 / 169.0	4.36	1006.984838	1000.00	100.70
NMeFOSAA_1	570.0 / 419.0	3.41	1004.951128	1000.00	100.50
NMeFOSAA_2	570.0 / 512.0	3.41	990.955253	1000.00	99.10
NEtFOSAA_1	584.0 / 419.0	3.57	889.224584	1000.00	88.92
NEtFOSAA_2	584.0 / 483.0	3.57	713.329571	1000.00	71.33
13C2-PFHxA	315.0 / 270.0	1.82	105.043945	100.00	105.04
13C2-PFDA	515.0 / 470.0	3.25	97.833171	100.00	97.83
d5-EtFOSAA	589.0 / 419.0	3.57	402.491028	400.00	100.62

Sample Name	JZ82 CCV	Injection Vial	37
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:54:22	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.55	452.672361	443.00	102.18
PFBS_2	298.9 / 99.0	1.55	458.472072	443.00	103.49
PFHxA_1	313.0 / 269.0	1.83	555.621289	500.00	111.12
PFHxA_2	313.0 / 119.0	1.83	528.086048	500.00	105.62
PFHpA_1	363.0 / 319.0	2.18	563.879400	500.00	112.78
PFHpA_2	363.0 / 169.0	2.18	602.483149	500.00	120.50
PFHxS_1	399.0 / 80.0	2.20	505.384031	456.00	110.83
PFHxS_2	399.0 / 99.0	2.20	513.443632	456.00	112.60
PFOA_1	413.0 / 369.0	2.55	522.236946	500.00	104.45
PFOA_2	413.0 / 169.0	2.55	492.375765	500.00	98.48
PFNA_1	463.0 / 419.0	2.92	603.050165	500.00	120.61
PFNA_2	463.0 / 219.0	2.92	579.002792	500.00	115.80
PFOS_1	499.0 / 80.0	2.91	490.144605	463.00	105.86
PFOS_2	499.0 / 99.0	2.91	533.729497	463.00	115.28
PFDA_1	513.0 / 469.0	3.26	527.454242	500.00	105.49
PFDA_2	513.0 / 219.0	3.26	618.622813	500.00	123.72
PFUnA_1	563.0 / 519.0	3.58	601.507068	500.00	120.30
PFUnA_2	563.0 / 269.0	3.58	634.067674	500.00	126.81
PFDoA_1	613.0 / 569.0	3.87	532.905196	500.00	106.58
PFDoA_2	613.0 / 319.0	3.87	572.897063	500.00	114.58
PFTrDA_1	663.0 / 619.0	4.13	555.092504	500.00	111.02
PFTrDA_2	663.0 / 169.0	4.13	554.259978	500.00	110.85
PFTeDA_1	713.0 / 669.0	4.36	535.059612	500.00	107.01
PFTeDA_2	713.0 / 169.0	4.36	554.533001	500.00	110.91
NMeFOSAA_1	570.0 / 419.0	3.41	577.049020	500.00	115.41
NMeFOSAA_2	570.0 / 512.0	3.41	580.819210	500.00	116.16
NEtFOSAA_1	584.0 / 419.0	3.57	541.253568	500.00	108.25
NEtFOSAA_2	584.0 / 483.0	3.57	572.213706	500.00	114.44
13C2-PFHxA	315.0 / 270.0	1.82	100.037442	100.00	100.04
13C2-PFDA	515.0 / 470.0	3.25	95.504012	100.00	95.50
d5-EtFOSAA	589.0 / 419.0	3.57	433.669356	400.00	108.42

Sample Name	JZ10 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T16:01:53	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	N/A	PFBS			
PFBS_2	298.9 / 99.0	N/A	PFBS	N/A	0.290	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.079	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.022	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.292	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.60	PFOA	0.106	0.068	
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.320	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.182	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.056	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	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	0.062	ü
PFTeDA_1	713.0 / 669.0	4.42	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.44	PFTeDA	0.049	0.047	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.612	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.30		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.62		N/A	N/A	ü

Sample Name	CR577PB-FS(0)	Injection Vial	33
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:18:36	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	N/A	PFBS			
PFBS_2	298.9 / 99.0	N/A	PFBS	N/A	0.290	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.079	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.022	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.328	0.292	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.068	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.320	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.201	0.182	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.056	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	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	0.062	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.047	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.612	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.26		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		N/A	N/A	ü

Sample Name	CR578LCS-FS(0)	Injection Vial	34
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:27:33	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.55	PFBS			
PFBS_2	298.9 / 99.0	1.55	PFBS	0.288	0.290	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.075	0.079	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.019	0.022	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.290	0.292	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.070	0.068	ü
PFNA_1	463.0 / 419.0	2.92	PFNA			
PFNA_2	463.0 / 219.0	2.92	PFNA	0.316	0.320	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.207	0.182	ü
PFDA_1	513.0 / 469.0	3.26	PFDA			
PFDA_2	513.0 / 219.0	3.26	PFDA	0.044	0.047	ü
PFUnA_1	563.0 / 519.0	3.58	PFUnA			
PFUnA_2	563.0 / 269.0	3.58	PFUnA	0.048	0.056	ü
PFDoA_1	613.0 / 569.0	3.87	PFDoA			
PFDoA_2	613.0 / 319.0	3.87	PFDoA	0.162	0.161	ü
PFTrDA_1	663.0 / 619.0	4.13	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.13	PFTrDA	0.064	0.062	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.046	0.047	ü
NMeFOSAA_1	570.0 / 419.0	3.41	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.41	NMeFOSAA	0.501	0.612	ü
NEtFOSAA_1	584.0 / 419.0	3.57	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.57	NEtFOSAA	0.065	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		N/A	N/A	ü



Sample Name	J7428-FS(0)	Injection Vial	35
Sample ID	JAX-RES-08142018-1045-8	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:36:30	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

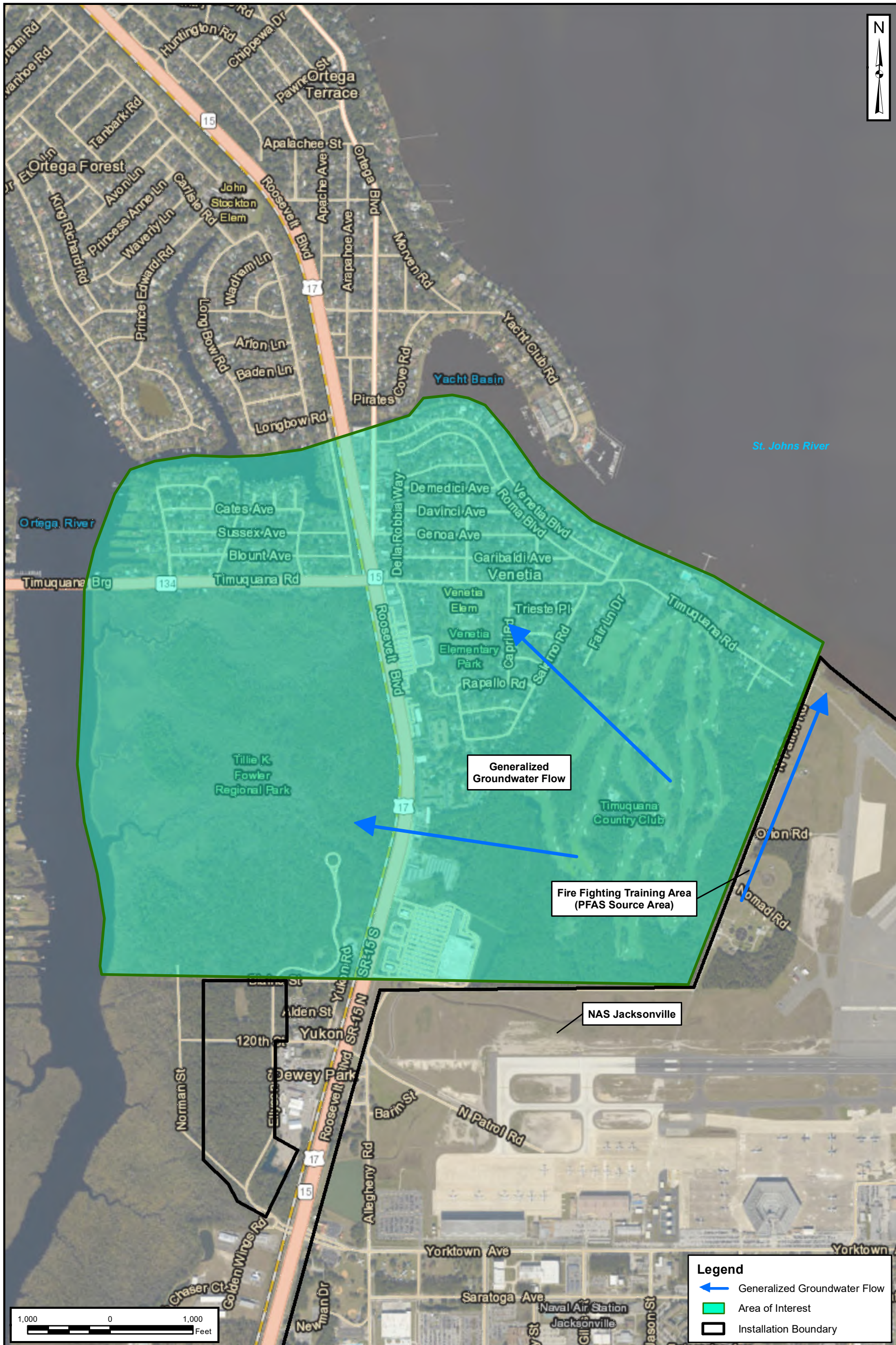
## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.21	PFBS			
PFBS_2	298.9 / 99.0	1.81	PFBS	0.265	0.290	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.079	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.022	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.352	0.292	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.068	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.320	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.163	0.182	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.056	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	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	0.062	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.047	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.612	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		N/A	N/A	ü

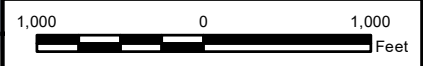
Sample Name	J7430-FS(0)	Injection Vial	36
Sample ID	JAX-RES-08142018-1130-9	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-20T19:45:25	Data File	DW_08202018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0507DW
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	N/A	PFBS			
PFBS_2	298.9 / 99.0	N/A	PFBS	N/A	0.290	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.079	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.022	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.292	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.068	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.320	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.184	0.182	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.056	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	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	0.062	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.047	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.612	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.081	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		N/A	N/A	ü

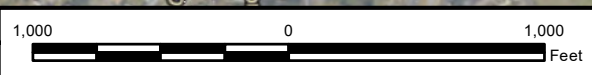
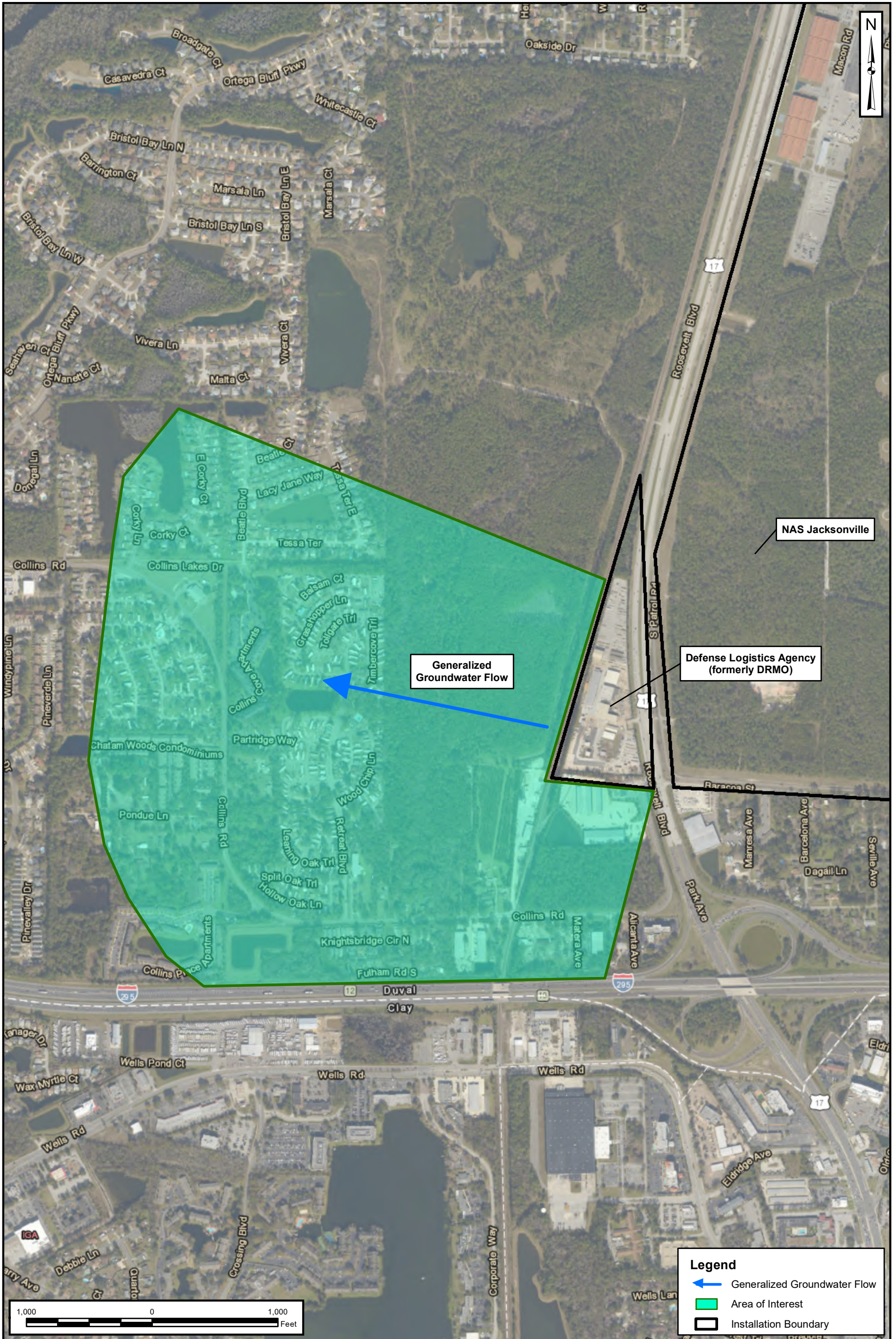


Legend	
	Generalized Groundwater Flow
	Area of Interest
	Installation Boundary



AREA OF INTEREST FOR PUBLIC/PRIVATE SHALLOW DRINKING WATER WELL SAMPLING  
 NAS JACKSONVILLE & SURROUNDING AREA  
 JACKSONVILLE, FLORIDA

CTO	
DRAWN BY	DATE
J.MADDEN	01/16/19
CHECKED BY	DATE
M.GRZEGOREK	01/16/19
FIGURE NUMBER	
1-4	



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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CHECKED BY	DATE
M.GRZEGOREK	01/16/19
FIGURE NUMBER	
	1-5