



**Groundwater Sample Results,  
Combined Level 2 and Level 4 Laboratory Report,  
Electronic Data Deliverable, Data Validation Report,  
and the Sample Location Report, SDG 18-0391**

*Naval Air Station Willow Grove  
Willow Grove, Pennsylvania*

August 2019

N00158\_000820  
WILLOW\_GROVE\_NAS  
SSIC 5000-33c

**LABORATORY DATA PACKAGE, 18-0391, NAWC WARMINSTER NAS  
WILLOW GROVE PA**

06/28/2018  
BATTELLE

Approved for public release: distribution unlimited.

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

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

*DW*

*Batch 18-0391*

*Package DP-18-0157*

Submitted to:

Tetra Tech

661 Anderson Drive Foster Plaza 7

Pittsburgh, PA 15220 USA

Submitted by:

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

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PA**

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Pittsburgh, PA 15220 USA

NELAP Accreditation Number: E87856 (Florida Department of Health)

Submitted by:

Battelle Norwell Operations

141 Longwater Drive Suite 202

Norwell, MA 02061

Analyst Approval:



schumitzd@battelle.org

2018.06.28 13:33:56 -04'00'

QC Chemist Approval:



Digitally signed by devinec@battelle.org

DN: cn=devinec@battelle.org

Date: 2018.06.29 10:29:05 -04'00'

Project Manager Approval:



Digitally signed by Jonathan Thorn

Date: 2018.06.29 12:06:24 -04'00'

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Naval Air Station Joint Reserve Base Willow Grove,  
PA

Project No 100117920-WE04  
PFAS in drinking water  
DW

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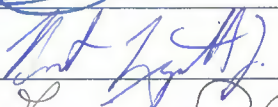
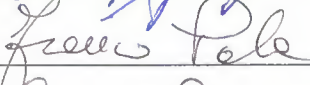





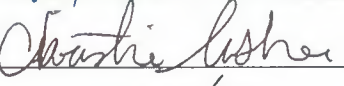

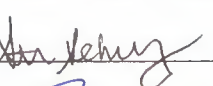

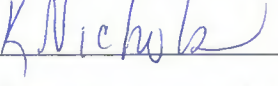



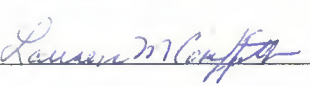
Package DP-18-0157

<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>26</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>44</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>151</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>167</b>
<b>6</b>	<b><i>Analytical Data</i></b> Raw Data Quantification Reports.	<b>241</b>
<b>7</b>	<b><i>Chromatograms</i></b> Sample And Standard Chromatograms.	<b>290</b>
<b>8</b>	<b><i>Unused Data</i></b>	<b>NA</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 Schumitz		DNS	4/4/18
Carol Ann McManis		CM	4/4/2018
Rich Rostucci		RR	4/4/2018
Michael Mena		MM	4/4/2018
Christie Usher		CU	4/4/18
Kevin Matrone		KM	4/4/18
Stephanie Schmitz		SAS	4/4/18
Jordan Tower		JT	4/4/18
KRISTEN NICHOLS		KN	4/4/18
Quimiao H Brown		CB	4/4/18
Matt Schumitz		MS	4-4-18
Sam Guimaraes		SG	4-4-18
Lauren Griffith		LMG	4.4.18



# Work Plan





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## WORK/QUALITY ASSURANCE PROJECT PLAN

### 1.0 GENERAL PROJECT INFORMATION

**Project Title:** WE04 PFAS Analysis  
**Project Number:** 100117920-WE04  
**Client:** Tetra Tech  
 661 Anderson Drive Foster Plaza 7  
 Pittsburgh, PA 15220  
 USA  
  
**Client Contact Information:** Andrew Frebowitz  
 Project Manager  
 (610) 382-1170(V)  
 NA  
 andy.frebowitz@tetrattech.com  
  
**Effective Date of QAPP:** 5/4/2018  
**Version Number:** 100117920-WE04(L)-01  
**Project Manager:** Thorn, Jonathan  
**Laboratory Task Manager:** Thorn, Jonathan  
**Deliverable Due Date:** 5/22/2018

### 2.0 SCOPE OF WORK

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

### 2.1 TECHNICAL APPROACH

#### 2.1.1 Sample Receipt, Storage, and Handling

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

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



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## WORK/QUALITY ASSURANCE PROJECT PLAN

### 2.1.2 Sample Preparation

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

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

Batch quality control samples are defined in Table 1.

Target samples are presented in Attachment 1.

**Table 1: Quality Control Samples**

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

### 2.1.3 Extraction/Preparation

#### 2.1.3.1 Extraction

SOP No.-Rev:	<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:	<ul style="list-style-type: none"> <li>• MQO requirements per SOP 5-371 (EPA Method 537 Version 1.1).</li> <li>• FRB samples will only be analyzed if associated field sample has hits above the LOQ for any individual analyte.</li> </ul>

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



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## WORK/QUALITY ASSURANCE PROJECT PLAN

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

### 2.1.3.2 Cleanup

None.

RIS spiking levels are presented in Table 3.

Extract PIV (uL): 1000

**Table 3: RIS Spiking Level**

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

### 2.1.4 Instrumental Analysis

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

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

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

Deviations: None

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



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## WORK/QUALITY ASSURANCE PROJECT PLAN

### 2.2. DELIVERABLES

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

### 3.0 QUALITY

The Method Quality Objectives are defined in Attachment 3.

### 4.0 ORGANIZATION AND COMMUNICATION

#### 4.1 ORGANIZATION

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

**Table 4: Project Team and Roles**

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

#### 4.2 COMMUNICATION

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

### 5.0 SCHEDULE

The project schedule is presented in Table 5.



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## WORK/QUALITY ASSURANCE PROJECT PLAN

**Table 5. Schedule of Laboratory Activities**

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

### 6.0 BUDGET

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

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

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

### 7.0 STAFF DEVELOPMENT

None anticipated



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## WORK/QUALITY ASSURANCE PROJECT PLAN

### Attachment 1: Target Samples

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

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

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

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

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

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



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## WORK/QUALITY ASSURANCE PROJECT PLAN

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

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

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

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J6204	NAWC-051018-RW-303	05/10/2018 9:10 am	DW	R0118 (NA)			
2	J6205	NAWC-051018-FRB-303	05/10/2018 9:05 am	DW	R0118 (NA)			
3	J6206	WGNA-051018-RW-3220	05/10/2018 9:40 am	DW	R0118 (NA)			
4	J6207	WGNA-051018-FRB-3220	05/10/2018 9:35 am	DW	R0118 (NA)			
5	J6208	NAWC-051018-RW-177	05/10/2018 10:40 am	DW	R0118 (NA)			
6	J6209	NAWC-051018-FRB-177	05/10/2018 10:35 am	DW	R0118 (NA)			
7	J6210	WGNA-051018-RW-3295	05/10/2018 3:10 pm	DW	R0118 (NA)			
8	J6211	WGNA-051018-FRB-3295	05/10/2018 3:05 pm	DW	R0118 (NA)			
9	J6212	WGNA-051018-DUP-36	05/10/2018 7:00 am	DW	R0118 (NA)			



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**Shipment:** SHP-180530-01  
**Status:** Approved  
**Description:** WE04  
**Range:** J6258-J6267  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J6258	WGNA-052918-RW-3124	05/29/2018 9:40 am	DW	R0118	(NA)		
2	J6259	WGNA-052918-FRB-3124	05/29/2018 9:35 am	DW	R0118	(NA)		
3	J6260	WGNA-052918-RW-3493	05/29/2018 10:10 am	DW	R0118	(NA)		
4	J6261	WGNA-052918-FRB-3493	05/29/2018 10:05 am	DW	R0118	(NA)		
5	J6262	WGNA-052918-RW-3882	05/29/2018 10:25 am	DW	R0118	(NA)		
6	J6263	WGNA-052918-FRB-3882	05/29/2018 10:20 am	DW	R0118	(NA)		
7	J6264	WGNA-052918-RW-3978	05/29/2018 10:40 am	DW	R0118	(NA)		
8	J6265	WGNA-052918-FRB-3978	05/29/2018 10:35 am	DW	R0118	(NA)		
9	J6266	NAWC-052918-RW-161	05/29/2018 11:40 am	DW	R0118	(NA)		
10	J6267	NAWC-052918-FRB-161	05/29/2018 11:35 am	DW	R0118	(NA)		

**Shipment:** SHP-180531-02  
**Status:** Approved  
**Description:** WE04  
**Range:** J6270-J6288  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J6270	WGNA-053018-RW-3876	05/30/2018 8:10 am	DW	R0119	(NA)		
2	J6271	WGNA-053018-FRB-3876	05/30/2018 8:05 am	DW	R0119	(NA)		
3	J6272	WGNA-053018-DUP-37	05/30/2018 7:00 am	DW	R0119	(NA)		
4	J6273	NAWC-053018-RW-231	05/30/2018 8:40 am	DW	R0119	(NA)		
5	J6274	NAWC-053018-FRB-231	05/30/2018 8:35 am	DW	R0119	(NA)		
6	J6275	WGNA-053018-RW-3933	05/30/2018 11:10 am	DW	R0119	(NA)		
7	J6276	WGNA-053018-FRB-3933	05/30/2018 11:05 am	DW	R0119	(NA)		
8	J6277	NAWC-053018-RW-164	05/30/2018 2:10 pm	DW	R0119	(NA)		
9	J6278	NAWC-053018-FRB-164	05/30/2018 2:05 pm	DW	R0119	(NA)		
10	J6279	NAWC-053018-RW-292	05/30/2018 2:40 pm	DW	R0119	(NA)		
11	J6280	NAWC-053018-FRB-292	05/30/2018 2:35 pm	DW	R0119	(NA)		
12	J6281	NAWC-053018-RW-271	05/30/2018 3:10 pm	DW	R0119	(NA)		
13	J6282	NAWC-053018-FRB-271	05/30/2018 3:05 pm	DW	R0119	(NA)		
14	J6283	NAWC-053018-RW-270	05/30/2018 3:20 pm	DW	R0119	(NA)		
15	J6284	NAWC-053018-FRB-270	05/30/2018 3:15 pm	DW	R0119	(NA)		
16	J6285	NAWC-053018-RW-196	05/30/2018 3:40 pm	DW	R0119	(NA)		
17	J6286	NAWC-053018-FRB-196	05/30/2018 3:35 pm	DW	R0119	(NA)		
18	J6287	NAWC-053018-RW-172	05/30/2018 4:10 pm	DW	R0119	(NA)		
19	J6288	NAWC-053018-FRB-172	05/30/2018 4:05 pm	DW	R0119	(NA)		





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## WORK/QUALITY ASSURANCE PROJECT PLAN

**Shipment:** SHP-180601-02  
**Status:** Approved  
**Description:** WE04  
**Range:** J6290-J6300  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J6290	NAWC-053118-RW-256	05/31/2018 8:10 am	DW	R0119	(NA)		
2	J6291	NAWC-053118-FRB-256	05/31/2018 8:05 am	DW	R0119	(NA)		
3	J6292	NAWC-053118-RW-126	05/31/2018 8:40 am	DW	R0119	(NA)		
4	J6293	NAWC-053118-FRB-126	05/31/2018 8:35 am	DW	R0119	(NA)		
5	J6294	WGNA-053118-DUP-38	05/31/2018 7:00 am	DW	R0119	(NA)		
6	J6295	WGNA-053118-RW-4850	05/31/2018 9:40 am	DW	R0119	(NA)		
7	J6296	WGNA-053118-FRB-4850	05/31/2018 9:35 am	DW	R0119	(NA)		
8	J6297	NAWC-053118-RW-311	05/31/2018 12:10 pm	DW	R0119	(NA)		
9	J6298	NAWC-053118-FRB-311	05/31/2018 12:05 pm	DW	R0119	(NA)		
10	J6299	NAWC-053118-RW-265	05/31/2018 4:10 pm	DW	R0119	(NA)		
11	J6300	NAWC-053118-FRB-265	05/31/2018 4:05 pm	DW	R0119	(NA)		

**Shipment:** SHP-180605-07  
**Status:** Approved  
**Description:** WE04  
**Range:** J6582-J6591  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J6582	NAWC-060418-RW-230	06/04/2018 8:10 am	DW	R0119	(NA)		
2	J6583	NAWC-060418-FRB-230	06/04/2018 8:05 am	DW	R0119	(NA)		
3	J6584	NAWC-060418-RW-309	06/04/2018 8:40 am	DW	R0119	(NA)		
4	J6585	NAWC-060418-FRB-309	06/04/2018 8:35 am	DW	R0119	(NA)		
5	J6586	NAWC-060418-RW-293	06/04/2018 9:40 am	DW	R0119	(NA)		
6	J6587	NAWC-060418-FRB-293	06/04/2018 9:35 am	DW	R0119	(NA)		
7	J6588	NAWC-060418-RW-038	06/04/2018 9:55 am	DW	R0119	(NA)		
8	J6589	NAWC-060418-FRB-038	06/04/2018 9:50 am	DW	R0119	(NA)		
9	J6590	NAWC-060418-RW-039	06/04/2018 10:10 am	DW	R0119	(NA)		
10	J6591	NAWC-060418-FRB-039	06/04/2018 10:05 am	DW	R0119	(NA)		

**Shipment:** SHP-180608-03  
**Status:** Pending  
**Description:** WE04  
**Range:** J6637-J6643  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J6637	WGNA-060718-RW-0488	06/07/2018 12:40 pm	DW	R0119	(NA)		
2	J6638	WGNA-060718-FRB-0488	06/07/2018 12:35 pm	DW	R0119	(NA)		
3	J6639	NAWC-060718-RW-175	06/07/2018 1:10 pm	DW	R0119	(NA)		



It can be done

## WORK/QUALITY ASSURANCE PROJECT PLAN

**Shipment:** SHP-180608-03  
**Status:** Pending  
**Description:** WE04  
**Range:** J6637-J6643  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
4	J6640	NAWC-060718-FRB-175	06/07/2018 1:05 pm	DW	R0119	(NA)		
5	J6641	WGNA-060718-DUP-39	06/07/2018 7:00 am	DW	R0119	(NA)		
6	J6642	WGNA-060718-RW-0626	06/07/2018 2:10 pm	DW	R0119	(NA)		
7	J6643	WGNA-060718-FRB-0626	06/07/2018 2:05 pm	DW	R0119	(NA)		

**Shipment:** SHP-180613-02  
**Status:** Pending  
**Description:** WE04  
**Range:** J6737-J6746  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J6737	WGNA-061118-RW-3073	06/11/2018 11:10 am	DW	R0119	(NA)		
2	J6738	WGNA-061118-FRB-3073	06/11/2018 11:05 am	DW	R0119	(NA)		
3	J6739	WGNA-061118-RW-0437	06/11/2018 11:40 am	DW	R0119	(NA)		
4	J6740	WGNA-061118-FRB-0437	06/11/2018 11:35 am	DW	R0119	(NA)		
5	J6741	WGNA-061218-RW-3283	06/12/2018 9:10 am	DW	R0119	(NA)		
6	J6742	WGNA-061218-FRB-3283	06/12/2018 9:05 am	DW	R0119	(NA)		
7	J6743	WGNA-061218-RW-3382	06/12/2018 9:40 am	DW	R0119	(NA)		
8	J6744	WGNA-061218-FRB-3382	06/12/2018 9:35 am	DW	R0119	(NA)		
9	J6745	NAWC-061218-RW-276	06/12/2018 10:10 am	DW	R0119	(NA)		
10	J6746	NAWC-061218-FRB-276	06/12/2018 10:05 am	DW	R0119	(NA)		

**Shipment:** SHP-180615-01  
**Status:** Pending  
**Description:** WE04  
**Range:** J6758-J6761  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J6758	NAWC-061418-RW-111	06/14/2018 9:10 am	DW	R0119	(NA)		
2	J6759	NAWC-061418-FRB-111	06/14/2018 9:05 am	DW	R0119	(NA)		
3	J6760	NAWC-061418-RW-056	06/14/2018 9:40 am	DW	R0119	(NA)		
4	J6761	NAWC-061418-FRB-056	06/14/2018 9:35 am	DW	R0119	(NA)		



It can be done

## WORK/QUALITY ASSURANCE PROJECT PLAN

**Shipment:** SHP-180627-01  
**Status:** Pending  
**Description:** WE04  
**Range:** J6816-J6817  
**Comment:** NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J6816	WGNA-062618-RW-3136	06/26/2018 8:40 am	DW	R0119	(NA)		
2	J6817	WGNA-062618-FRB-3136	06/26/2018 8:35 am	DW	R0119	(NA)		



It can be done

## 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> 40 <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-hexanesulfonate	PFHxS	T	13C4-PFOS		No	No
14	Perfluoro-1-octanesulfonate	PFOS	T	13C4-PFOS		No	No
1	13C2-PFHxA	13C2-PFHxA	SIS			No	No
2	13C2-PFDA	13C2-PFDA	SIS			No	No



It can be done

**WORK/QUALITY ASSURANCE PROJECT PLAN**

**Attachment 2: Test Codes**

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

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

**Subtract Peaks:**

None

**Sum Peaks:**

None



It can be done

## WORK/QUALITY ASSURANCE PROJECT PLAN

### Attachment 2: Test Codes

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

**ICAL Acceptance Criteria:**

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

**Continuing Calibration Verification Criteria:**

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

**Independent Calibration Verification:**

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

**Mass Discrimination Criteria:**

*None*

**Degradation Check Criteria:**

*None*



It can be done

## WORK/QUALITY ASSURANCE PROJECT PLAN

### Attachment 3: Method Quality Objectives

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



It can be done

## WORK/QUALITY ASSURANCE PROJECT PLAN

### Attachment 3: Method Quality Objectives

<b>MQO Application</b>	<i>Universal_LC</i>		
<b>MQO:</b>	<b>Acceptance Criteria</b>	<b>Qual:</b>	<b>Corrective Action:</b>
Analytical Triplicate Precision	Organics results less than 30% Relative Standard Deviation (RSD). Analyte concentration must be > 5x MDL.  Organics Results in the Original is less than 5 times the MDL	N  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.



## Sample Receipt Form

Approved:  Authorized

**Project Number:** 112G08005-WE04 **Client:** Tetra Tech  
**Received by:** Schumitz, Matt **Date/Time Received:** Wednesday, May 30, 2018 10:30 AM  
**No. of Shipping Containers:** 1

### SHIPMENT

**Method of Delivery:** Commercial Carrier **Tracking Number:** 7723 3007 0381  
**COC Forms:**  Shipped with samples  No Forms

### Cooler(s)/Box(es)

Cntr	Type	Tracking No.	Seal	Seal	Container	Therm.	Temp C	Smps
1 of 1	Cooler	7723 3007 0381	Tape	Intact	Intact	Therm_2	1.7	10

### Samples

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

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

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

**Temperature upon receipt (°C):** 1.7 Temperature Blank used  Yes  No  
*(Note: If temperature upon receipt differs from required conditions, see sample log comment field)*

**Samples Acidified:**  Yes  No  Unknown

**Initial pH 5-9?:**  Yes  No  NA  
*If no, individual sample adjustments on the Auxiliary Sample Receipt Form*

**Total Residual Chlorine Present?:**  Yes  No  NA  
*If yes, individual sample adjustments on the Auxiliary Sample Receipt Form*

**Head Space <1% in samples for water VOC analysis:**  Yes  No  NA  
*Individual sample deviations noted on sample log*

**Samples Containers:**  
Samples returned in PC-grade jars:  Yes  No  Unknown /Lot No.: Unknown

**Storage Location:** Custody: Refrigerator - R0119 (NA) **BDO IDs Assigned:** J6258 - J6267

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

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

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



It can be done

ShpNo SHP-180530-01

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

**Sample Receipt Form Details**

Approved:  Authorized

**Project Number:** 112G08005-WE04 **Client:** Tetra Tech

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

**No. of Shipping Containers:** 1

BDO Id:	Client Sample ID:	Collection Date:	Login Date:	Ctrs:	Matrix:	Temp:	pH:	TRC:	VOC:	Stored In:	Loc:	No:	Comments:
J6258	WGNA-052918-RW-3124	05/29/18 9:40	05/30/18 13:03	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6259	WGNA-052918-FRB-3124	05/29/18 9:35	05/30/18 13:03	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6260	WGNA-052918-RW-3493	05/29/18 10:10	05/30/18 13:03	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6261	WGNA-052918-FRB-3493	05/29/18 10:05	05/30/18 13:04	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6262	WGNA-052918-RW-3882	05/29/18 10:25	05/30/18 13:04	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6263	WGNA-052918-FRB-3882	05/29/18 10:20	05/30/18 13:04	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6264	WGNA-052918-RW-3978	05/29/18 10:40	05/30/18 13:04	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6265	WGNA-052918-FRB-3978	05/29/18 10:35	05/30/18 13:05	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6266	NAWC-052918-RW-161	05/29/18 11:40	05/30/18 13:05	2	DW	1.7	NA	NA	NA	R0118 (NA)			
J6267	NAWC-052918-FRB-161	05/29/18 11:35	05/30/18 13:06	2	DW	1.7	NA	NA	NA	R0118 (NA)			

**Total Samples:** 10



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

SHIP DATE: 29MAY18  
ACTWGT: 40.00 LB  
CAD: 111283035/NET3980  
DIMS: 24x16x18 IN

BILL SENDER

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

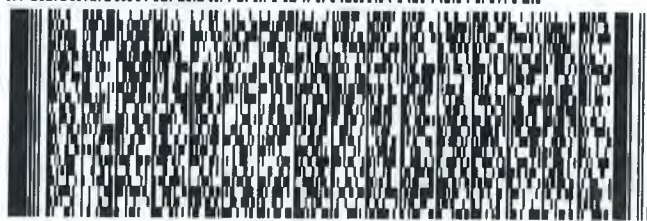
*MOS 1030*  
*1.7°*  
*Thorn 2*

552.127828D/CAS

(781) 681-5565  
INV:  
PO:

REF: 112G08005-WE04 LT.WS

DEPT:



FedEx  
Express



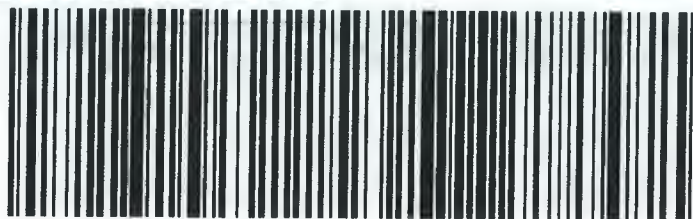
418118912841ur

WED - 30 MAY 10:30A  
PRIORITY OVERNIGHT

TRK# 7723 3007 0381  
0201

EM XPUA

02061  
MA-US BOS



## Sample Receipt Form

Approved:  Authorized

Project Number: 112G08005-WE04 Client: Tetra Tech  
Received by: Schumitz, Matt Date/Time Received: Thursday, May 31, 2018 10:30 AM  
No. of Shipping Containers: 1

### SHIPMENT

Method of Delivery: Commercial Carrier Tracking Number: 7723 4831 5079  
COC Forms:  Shipped with samples  No Forms

### Cooler(s)/Box(es)

Cntr	Type	Tracking No.	Seal	Seal	Container	Therm.	Temp C	Smps
1 of 1	Cooler	7723 4831 5079	Custody Seals	Intact	Intact	Therm_2	1.3	19

### 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): 1.3 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: J6270 - J6288

Samples logged in by: Schumitz, Matt Date/Time: 05/31/2018 10:30 AM

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

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



It can be done

ShpNo SHP-180531-02

Battelle Project No: 7920-WE04

Sample Receipt Form Details

Approved:  Authorized

Project Number: 112G08005-WE04

Client: Tetra Tech

Received by: Schumitz, Matt

Date/Time Received: Thursday, May 31, 2018 10:30 AM

No. of Shipping Containers: 1

BDO Id:	Client Sample ID:	Collection Date:	Login Date:	Ctrs:	Matrix:	Temp:	pH:	TRC:	VOC:	Stored In:	Loc:	No:	Comments:
J6270	WGNA-053018-RW-3876	05/30/18 8:10	05/31/18 11:32	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6271	WGNA-053018-FRB-3876	05/30/18 8:05	05/31/18 11:32	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6272	WGNA-053018-DUP-37	05/30/18 7:00	05/31/18 11:32	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6273	NAWC-053018-RW-231	05/30/18 8:40	05/31/18 11:33	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6274	NAWC-053018-FRB-231	05/30/18 8:35	05/31/18 11:33	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6275	WGNA-053018-RW-3933	05/30/18 11:10	05/31/18 11:34	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6276	WGNA-053018-FRB-3933	05/30/18 11:05	05/31/18 11:34	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6277	NAWC-053018-RW-164	05/30/18 14:10	05/31/18 11:35	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6278	NAWC-053018-FRB-164	05/30/18 14:05	05/31/18 11:35	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6279	NAWC-053018-RW-292	05/30/18 14:40	05/31/18 11:35	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6280	NAWC-053018-FRB-292	05/30/18 14:35	05/31/18 11:36	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6281	NAWC-053018-RW-271	05/30/18 15:10	05/31/18 11:36	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6282	NAWC-053018-FRB-271	05/30/18 15:05	05/31/18 11:37	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6283	NAWC-053018-RW-270	05/30/18 15:20	05/31/18 11:37	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6284	NAWC-053018-FRB-270	05/30/18 15:15	05/31/18 11:38	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6285	NAWC-053018-RW-196	05/30/18 15:40	05/31/18 11:38	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6286	NAWC-053018-FRB-196	05/30/18 15:35	05/31/18 11:38	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6287	NAWC-053018-RW-172	05/30/18 16:10	05/31/18 11:38	2	DW	1.3	NA	NA	NA	R0119 (NA)			
J6288	NAWC-053018-FRB-172	05/30/18 16:05	05/31/18 11:39	2	DW	1.3	NA	NA	NA	R0119 (NA)			

Total Samples: 19

# Battelle

The Business of Innovation

## Chain-of-Custody

Client Contact Information Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170		Project Manager: Jonathan Thorn Sampler Information (print name): Mary Kay Bond Phone: 610-382-1169 Email: mary.bond@tetrattech.com Turnaround Time (TAT) Requested: 21 days		Sampling Site: WE04		Site Information: NAS JRB Willow Grove/WGNA Warminster		
Project Name: WE04		Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/>		Preservative Trizma		COC #		
Project No.: 112G08005-WE04		Time Zone: Eastern				Page# 1 of 1		
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	Analysis PFAS EPA 537 14 analytes	
WGNA-053018-RW-3876 J6270		5/30/2018	8:10	G	DW	2		
WGNA-053018-FRB-3876 71		5/30/2018	8:05	G	DW	2	X	Field Reagent Blank
WGNA-053018-DUP-37 72		5/30/2018	7:00	G	DW	2	X	DUPLICATE
NAWC-053018-RW-231 73		5/30/2018	8:40	G	DW	2	X	
NAWC-053018-FRB-231 74		5/30/2018	8:35	G	DW	2	X	Field Reagent Blank
WGNA-053018-RW-3933 75		5/30/2018	11:10	G	DW	2	X	
WGNA-053018-FRB-3933 76		5/30/2018	11:05	G	DW	2	X	Field Reagent Blank
NAWC-053018-RW-164 77		5/30/2018	14:10	G	DW	2	X	
NAWC-053018-FRB-164 78		5/30/2018	14:05	G	DW	2	X	Field Reagent Blank
NAWC-053018-RW-292 79		5/30/2018	14:40	G	DW	2	X	
NAWC-053018-FRB-292 80		5/30/2018	14:35	G	DW	2	X	Field Reagent Blank
NAWC-053018-RW-271 81		5/30/2018	15:10	G	DW	2	X	
NAWC-053018-FRB-271 82		5/30/2018	15:05	G	DW	2	X	Field Reagent Blank
NAWC-053018-RW-270 83		5/30/2018	15:20	G	DW	2	X	
NAWC-053018-FRB-270 84		5/30/2018	15:15	G	DW	2	X	Field Reagent Blank
NAWC-053018-RW-196 85		5/30/2018	15:40	G	DW	2	X	
NAWC-053018-FRB-196 86		5/30/2018	15:35	G	DW	2	X	Field Reagent Blank
NAWC-053018-RW-172 87		5/30/2018	16:10	G	DW	2	X	
NAWC-053018-FRB-172 J6288		5/30/2018	16:05	G	DW	2	X	Field Reagent Blank
Receipt Temperature:(°C) 1.3		Samples Intact: (Yes) No		Samples on Ice: (Yes) No		Receipt Comments:		
Relinquished by (Print/Sign): Mary Kay Bond		Company: Tetra Tech		Date/Time: 05/30/2018 18:00		Received by (Print/Sign): Matt Schumitz		
Relinquished by (Print/Sign):		Company:		Date/Time:		Company: Battelle		
Relinquished by (Print/Sign):		Company:		Date/Time:		Date/Time: 5-31-18 10 30		
Relinquished by (Print/Sign):		Company:		Date/Time:		Date/Time:		
Comments: FedEx Tracking # 7723 4831 5079								

FedEx  
TRK# 7723 4831 5079  
0201

THU - 31 MAY 10:30A  
PRIORITY OVERNIGHT

EM XPUA

0206  
MA-US BOS

FedEx 7-435 1115 EXP 01/19



#5129952 05/30 552J2/782B/DCA5

Therm - 2 10:30  
mos 1.30





# Data Tables



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

Client ID WGNA-052918-FRB-3124

Battelle ID J6259-FS1  
 Sample Type SA  
 Collection Date 05/29/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.250  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.50 UT	0.22	0.50	2.50
PFHpA	1.00 UT	0.34	1.00	2.50
PFOA	1.00 UT	0.38	1.00	2.50
PFNA	1.00 UT	0.37	1.00	2.50
PFDA	1.00 UT	0.39	1.00	2.50
PFUnA	1.00 UT	0.38	1.00	2.50
PFDoA	1.00 UT	0.42	1.00	2.50
PFTTrDA	1.00 UT	0.42	1.00	2.50
PFTeDA	1.50 UT	0.73	1.50	2.50
NMeFOSAA	1.00 UT	0.42	1.00	2.50
NEtFOSAA	1.00 UT	0.44	1.00	2.50
PFBS	0.50 UT	0.21	0.50	2.50
PFHxS	1.00 UT	0.34	1.00	2.50
PFOS	0.63 JT	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	109
13C2-PFDA	98
d5-EtFOSAA	93



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

Client ID WGNA-052918-FRB-3493

Battelle ID	J6261-FS1			
Sample Type	SA			
Collection Date	05/29/2018			
Extraction Date	06/21/2018			
Analysis Date	06/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.260			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 UT	0.22	0.50	2.50
PFHpA	1.00 UT	0.34	1.00	2.50
PFOA	1.00 UT	0.38	1.00	2.50
PFNA	1.00 UT	0.37	1.00	2.50
PFDA	1.00 UT	0.39	1.00	2.50
PFUnA	1.00 UT	0.38	1.00	2.50
PFDoA	1.00 UT	0.42	1.00	2.50
PFTTrDA	1.00 UT	0.42	1.00	2.50
PFTeDA	1.50 UT	0.73	1.50	2.50
NMeFOSAA	1.00 UT	0.42	1.00	2.50
NEtFOSAA	1.00 UT	0.44	1.00	2.50
PFBS	0.50 UT	0.21	0.50	2.50
PFHxS	1.00 UT	0.34	1.00	2.50
PFOS	0.46 JT	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	119
13C2-PFDA	100
d5-EtFOSAA	98



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

Client ID WGNA-052918-FRB-3882

Battelle ID J6263-FS1  
 Sample Type SA  
 Collection Date 05/29/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.265  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

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

**Surrogate Recoveries (%)**

13C2-PFHxA	115
13C2-PFDA	98
d5-EtFOSAA	105



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

Client ID WGNA-052918-FRB-3978

Battelle ID	J6265-FS1			
Sample Type	SA			
Collection Date	05/29/2018			
Extraction Date	06/21/2018			
Analysis Date	06/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.270			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 UT	0.22	0.50	2.50
PFHpA	1.00 UT	0.34	1.00	2.50
PFOA	1.00 UT	0.38	1.00	2.50
PFNA	1.00 UT	0.37	1.00	2.50
PFDA	1.00 UT	0.39	1.00	2.50
PFUnA	1.00 UT	0.38	1.00	2.50
PFDoA	1.00 UT	0.42	1.00	2.50
PFTTrDA	1.00 UT	0.42	1.00	2.50
PFTeDA	1.50 UT	0.73	1.50	2.50
NMeFOSAA	1.00 UT	0.42	1.00	2.50
NEtFOSAA	1.00 UT	0.44	1.00	2.50
PFBS	0.50 UT	0.21	0.50	2.50
PFHxS	1.00 UT	0.34	1.00	2.50
PFOS	0.35 JT	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	112
13C2-PFDA	103
d5-EtFOSAA	109



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

Client ID	NAWC-052918-FRB-161				
Battelle ID	J6267-FS1				
Sample Type	SA				
Collection Date	05/29/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.260				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDoA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	1.00 UT	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	119
13C2-PFDA	103
d5-EtFOSAA	88



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

Client ID WGNA-053018-FRB-3876

Battelle ID J6271-FS1  
 Sample Type SA  
 Collection Date 05/30/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.255  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

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

**Surrogate Recoveries (%)**

13C2-PFHxA	109
13C2-PFDA	107
d5-EtFOSAA	106



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

Client ID	NAWC-053018-FRB-231				
Battelle ID	J6274-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.270				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDaA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	1.00 UT	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	122
13C2-PFDA	115
d5-EtFOSAA	106





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

Client ID WGNA-053018-FRB-3933

Battelle ID	J6276-FS1			
Sample Type	SA			
Collection Date	05/30/2018			
Extraction Date	06/21/2018			
Analysis Date	06/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.250			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 UT	0.22	0.50	2.50
PFHpA	1.00 UT	0.34	1.00	2.50
PFOA	1.00 UT	0.38	1.00	2.50
PFNA	1.00 UT	0.37	1.00	2.50
PFDA	1.00 UT	0.39	1.00	2.50
PFUnA	1.00 UT	0.38	1.00	2.50
PFDaA	1.00 UT	0.42	1.00	2.50
PFTTrDA	1.00 UT	0.42	1.00	2.50
PFTeDA	1.50 UT	0.73	1.50	2.50
NMeFOSAA	1.00 UT	0.42	1.00	2.50
NEtFOSAA	1.00 UT	0.44	1.00	2.50
PFBS	0.50 UT	0.21	0.50	2.50
PFHxS	1.00 UT	0.34	1.00	2.50
PFOS	0.54 JT	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	120
13C2-PFDA	116
d5-EtFOSAA	110



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

Client ID	NAWC-053018-FRB-164				
Battelle ID	J6278-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.270				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDaA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	1.00 UT	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	123
13C2-PFDA	102
d5-EtFOSAA	106



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

Client ID	NAWC-053018-FRB-292				
Battelle ID	J6280-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.255				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDaA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	2.16 JT	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	104
13C2-PFDA	103
d5-EtFOSAA	114



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

Client ID	NAWC-053018-FRB-271				
Battelle ID	J6282-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.270				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDaA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	1.24 JT	0.30	1.00	2.50	
<b>Surrogate Recoveries (%)</b>					
13C2-PFHxA	115				
13C2-PFDA	98				
d5-EtFOSAA	100				



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

Client ID	NAWC-053018-FRB-270				
Battelle ID	J6284-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.260				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDaA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	0.85 JT	0.30	1.00	2.50	
<b>Surrogate Recoveries (%)</b>					
13C2-PFHxA	124				
13C2-PFDA	105				
d5-EtFOSAA	98				



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

Client ID	NAWC-053018-FRB-196				
Battelle ID	J6286-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.245				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDoA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	0.33 JT	0.30	1.00	2.50	
<b>Surrogate Recoveries (%)</b>					
13C2-PFHxA	115				
13C2-PFDA	103				
d5-EtFOSAA	109				



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

Client ID	NAWC-053018-FRB-172				
Battelle ID	J6288-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.240				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDaA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	1.59 JT	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	111
13C2-PFDA	98
d5-EtFOSAA	89



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

Client ID	Procedural Blank			
Battelle ID	CR038PB-FS			
Sample Type	PB			
Collection Date	06/21/2018			
Extraction Date	06/21/2018			
Analysis Date	06/27/2018			
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	0.44 J	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDaA	1.00 U	0.42	1.00	2.50
PFTTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	106
13C2-PFDA	95
d5-EtFOSAA	104





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

Client ID	Laboratory Control Sample					
Battelle ID	CR039LCS-FS					
Sample Type	LCS					
Collection Date	06/21/2018					
Extraction Date	06/21/2018					
Analysis Date	06/27/2018					
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	37.78	30.00	126		70	130
PFHpA	37.37	30.00	125		70	130
PFOA	35.66	30.00	119		70	130
PFNA	33.66	30.00	112		70	130
PFDA	35.15	30.00	117		70	130
PFUnA	34.43	30.00	115		70	130
PFDoA	34.48	30.00	115		70	130
PFTTrDA	34.47	30.00	115		70	130
PFTeDA	52.57 E	30.00	175	N	70	130
NMeFOSAA	33.79	30.00	113		70	130
NEtFOSAA	37.37	30.00	125		70	130
PFBS	31.67	26.55	119		70	130
PFHxS	32.92	28.35	116		70	130
PFOS	29.27	28.65	102		70	130

**Surrogate Recoveries (%)**

13C2-PFHxA	105
13C2-PFDA	100
d5-EtFOSAA	83



## 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 18-0391**

Project:	CTO-WE04 Naval Air Station Joint Reserve Base Willow Grove
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	DW
Data Set:	DP-18-0157
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
5/29/2018	5/30/2018	1.7
5/30/2018	5/31/2018	1.3

Corrective Actions	None
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	The associated FRB samples are reported in SDG 18-0343.

METHOD SUMMARIES	
Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a weak ion exchange solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were concentrated to dryness under nitrogen with a water bath set between 60 °C and 65 °C, reconstituted with 96:4 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	None.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	<p>Samples analyzed on the Sciex 5500.</p> <p>All field samples were re-extracted (original Battelle SDG 18-0359). These samples were re-extracted due to suspected cross-contamination from other, unrelated PFAS samples in the lab concurrently. New results do not show the levels of PFHxS and PFOS found in the original SDG extraction. The re-extracted samples are "T" qualified as they were extracted outside of the 14 day holding time.</p> <p>PFTeDA in the LCS was above the calibration level and is "E" qualified.</p> <p>There are no ion ratio exceedences above 50% RPD for any analyte detected above the MDL or the LOQ in this SDG.</p>

**QA/QC Summary**  
**Batch 18-0391**

Holding Times	Extraction Date(s)	Analysis Date(s)
	6/21/2018	6/27/2018
Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.	
$\leq 1/3$ the MRL	No exceedances noted.	
	No comments.	
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	One exceedance noted.	
	PFTeDA is over-recovered. Where this target is over-recovered and not detected in any of the associated samples, no further corrective action was taken.	
Matrix Spike (MS) / Duplicate (MSD)	A MS/MSD were prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy. The relative percent difference was calculated to measure precision.	
70-130% of true value, RPD $\leq 30\%$	No exceedances noted.	
	MS/MSD samples were not processed with this batch of field reagent blank samples.	
Surrogates Standard Analytes	Labelled surrogate compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.	
70-130% of true value	No exceedances noted.	
	No comments.	
Internal Standard Analytes	Labelled analog compounds were added prior to analysis.	
ICAL high and low points RPD $\leq 20\%$ , 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted.	
	No comments.	

**QA/QC Summary**  
**Batch 18-0391**

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



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project Number: 100117920-WE04  
 Preparation Batch: 18-0391  
 Data Set: DP-18-0157  
 Test Code: Master\_371

QC Parameter:	Exceed:	Justification:
Procedural Blank	0	None
PB Measurement Quality Objective	0	None
Laboratory Control Sample	1	PFTeDA is above passing criteria however it was non detect in the PB and samples.
Matrix Spike / Matrix Spike Duplicate Recovery	NA	NA
Matrix Spike / Matrix Spike Duplicate Precision	NA	NA
Extracted Internal Standard Analytes (Surrogates)	0	None
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None



It can be done

**BATTELLE - NORWELL OPERATIONS  
MISCELLANEOUS DOCUMENTATION FORM**

<b>Project Title:</b>	Naval Air Station Joint Reserve Base Wi	<b>Data Set Number:</b>	DP-18-0157
<b>Project Number:</b>	100117920-WE04	<b>Prep Batch Number:</b>	18-0391
<b>Entered By:</b>	Denise Schumitz	<b>Entered On:</b>	06/28/2018
<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 6/28/2018

JX67 is not being used for PFOA, PFNA, PFOS and PFDA, there is no impact on the data once this point of the calibration is removed.  
DMS 6/28/2018

JX75 is not being used for PFNA and NMeFOSAA, there is no impact on the data once this point of the calibration is removed.  
JRT 6/29/2018

JX74 and JX75 are not being used for PFTeDA, there is no impact on the data once these points in the calibration are removed.  
DMS 6/28/2018

PFTeDA is over recovered in the LCS however PFTeDA is not found in the Procedural Blank or any of the Field Reagent Blanks. PFTeDA is also above the calibration curve values and is E qualified. DMS 6/28/2018

**Task Leader Approval:**

**Supervisor Approval:**

Digitally signed by Jonathan  
Thorn

**PM Approval:**

Date: 2018.06.29 10:02:56 -04'00'





## Example Calculation for PFAS

Calculation of final concentration from area:

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

Where:

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

Sample ID: CR039LCS-FS(0)  
 Client Sample ID: Laboratory Control Sample  
 Sample Size: 0.25  
 Units: L  
 Dilution Factor: 1.000  
 PIV (L): 0.001  
 Target Analyte: PFTrDA  
 MRM Transition: 663.0 / 619.0  
 Data file: 06252018\_5-371.wiff  
 Result table: 18-0391  
 Area: 2,294,512.17  
 IS Name: 13C2-PFOA  
 IS Area: 51,742.87  
 IS Amount (ng/L): 100  
 y-intercept: 0.05199  
 slope: 0.51402

$$\text{Concentration} = \frac{[(2294512.17/51742.87) - 0.05199]}{0.51402} * 100 * 0.001 * 1 / 0.25$$

ng/L = 34.47



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04  
 Preparation Batch: 18-0391  
 Data Set: DP-18-0157

	CR038PB-FS (Procedural Blank)	CR039LCS-FS (Laboratory Control Sample)	J6259-FS1 (WGNA-052918-FRB-3124)	J6261-FS1 (WGNA-052918-FRB-3493)	J6263-FS1 (WGNA-052918-FRB-3882)	J6265-FS1 (WGNA-052918-FRB-3978)	J6267-FS1 (NAWC-052918-FRB-161)
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	L/Br	L/Br	-	L/Br	-

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



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04  
 Preparation Batch: 18-0391  
 Data Set: DP-18-0157

	J6271-FS1 (WGNA-053018-FRB-3876)	J6274-FS1 (NAWC-053018-FRB-231)	J6276-FS1 (WGNA-053018-FRB-3933)	J6278-FS1 (NAWC-053018-FRB-164)	J6280-FS1 (NAWC-053018-FRB-292)	J6282-FS1 (NAWC-053018-FRB-271)	J6284-FS1 (NAWC-053018-FRB-270)	J6286-FS1 (NAWC-053018-FRB-196)	J6288-FS1 (NAWC-053018-FRB-172)
PFHxA	-	-	-	-	-	-	-	-	-
PFHpA	-	-	-	-	-	-	-	-	-
PFOA	-	-	-	-	-	-	-	-	-
PFNA	-	-	-	-	-	-	-	-	-
PFDA	-	-	-	-	-	-	-	-	-
PFUnA	-	-	-	-	-	-	-	-	-
PFDoA	-	-	-	-	-	-	-	-	-
PFTTrDA	-	-	-	-	-	-	-	-	-
PFTeDA	-	-	-	-	-	-	-	-	-
NMeFOSAA	-	-	-	-	-	-	-	-	-
NEtFOSAA	-	-	-	-	-	-	-	-	-
PFBS	-	-	-	-	-	-	-	-	-
PFHxS	-	-	-	-	-	-	-	-	-
PFOS	-	-	L/Br	-	L/Br	L/Br	L/Br	L/Br	L/Br

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

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	13C4-PFOS	195,712.77	-
JX68	L2	6/27/18 9:14	13C4-PFOS	208,133.24	-
JX69	L3	6/27/18 9:23	13C4-PFOS	196,602.67	-
JX70	L4	6/27/18 9:32	13C4-PFOS	221,233.77	-
JX71	L5	6/27/18 9:41	13C4-PFOS	207,482.97	-
JX72	L6	6/27/18 9:50	13C4-PFOS	205,389.92	-
JX73	L7	6/27/18 9:59	13C4-PFOS	210,418.05	-
JX74	L8	6/27/18 10:08	13C4-PFOS	173,679.17	-
JX75	L9	6/27/18 10:17	13C4-PFOS	184,387.98	6

PASS

Average      Lower      Upper  
 200,337.84    100,168.92    300,506.76

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	6/27/18 9:05	13C4-PFOS	195,712.77	100,168.92	300,506.76		145,238.08	290,476.16	
JX68	L2	6/27/18 9:14	13C4-PFOS	208,133.24	100,168.92	300,506.76		145,238.08	290,476.16	
JX69	L3	6/27/18 9:23	13C4-PFOS	196,602.67	100,168.92	300,506.76		145,238.08	290,476.16	
JX70	L4	6/27/18 9:32	13C4-PFOS	221,233.77	100,168.92	300,506.76		145,238.08	290,476.16	
JX71	L5	6/27/18 9:41	13C4-PFOS	207,482.97	100,168.92	300,506.76		145,238.08	290,476.16	
JX72	L6	6/27/18 9:50	13C4-PFOS	205,389.92	100,168.92	300,506.76		145,238.08	290,476.16	
JX73	L7	6/27/18 9:59	13C4-PFOS	210,418.05	100,168.92	300,506.76		145,238.08	290,476.16	
JX74	L8	6/27/18 10:08	13C4-PFOS	173,679.17	100,168.92	300,506.76		145,238.08	290,476.16	
JX75	L9	6/27/18 10:17	13C4-PFOS	184,387.98	100,168.92	300,506.76		145,238.08	290,476.16	
JV66 ICC	ICC	6/27/18 10:26	13C4-PFOS	198,955.94	100,168.92	300,506.76		145,238.08	290,476.16	
CR038PB-FS(0)	Procedural Blank	6/27/18 10:43	13C4-PFOS	225,022.84	100,168.92	300,506.76		145,238.08	290,476.16	
CR039LCS-FS(0)	Laboratory Control Sample	6/27/18 10:52	13C4-PFOS	152,210.75	100,168.92	300,506.76		145,238.08	290,476.16	
J6259-FS1(0)	WGNA-052918-FRB-3124	6/27/18 11:01	13C4-PFOS	180,195.54	100,168.92	300,506.76		145,238.08	290,476.16	
J6261-FS1(0)	WGNA-052918-FRB-3493	6/27/18 11:10	13C4-PFOS	205,385.70	100,168.92	300,506.76		145,238.08	290,476.16	
J6263-FS1(0)	WGNA-052918-FRB-3882	6/27/18 11:19	13C4-PFOS	188,519.90	100,168.92	300,506.76		145,238.08	290,476.16	
J6265-FS1(0)	WGNA-052918-FRB-3978	6/27/18 11:28	13C4-PFOS	164,186.92	100,168.92	300,506.76		145,238.08	290,476.16	
J6267-FS1(0)	NAWC-052918-FRB-161	6/27/18 11:37	13C4-PFOS	145,398.75	100,168.92	300,506.76		145,238.08	290,476.16	
J6271-FS1(0)	WGNA-053018-FRB-3876	6/27/18 11:46	13C4-PFOS	195,694.27	100,168.92	300,506.76		145,238.08	290,476.16	
JX71 CCV	CCV	6/27/18 11:55	13C4-PFOS	219,627.88	100,168.92	300,506.76		145,238.08	290,476.16	
J6274-FS1(0)	NAWC-053018-FRB-231	6/27/18 12:13	13C4-PFOS	200,366.83	100,168.92	300,506.76		153,739.52	307,479.03	
J6276-FS1(0)	WGNA-053018-FRB-3933	6/27/18 12:22	13C4-PFOS	186,902.87	100,168.92	300,506.76		153,739.52	307,479.03	
J6278-FS1(0)	NAWC-053018-FRB-164	6/27/18 12:31	13C4-PFOS	194,513.22	100,168.92	300,506.76		153,739.52	307,479.03	
J6280-FS1(0)	NAWC-053018-FRB-292	6/27/18 12:40	13C4-PFOS	189,125.92	100,168.92	300,506.76		153,739.52	307,479.03	
J6282-FS1(0)	NAWC-053018-FRB-271	6/27/18 12:48	13C4-PFOS	173,540.17	100,168.92	300,506.76		153,739.52	307,479.03	
J6284-FS1(0)	NAWC-053018-FRB-270	6/27/18 12:57	13C4-PFOS	181,494.76	100,168.92	300,506.76		153,739.52	307,479.03	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	13C4-PFOS	195,712.77	-
JX68	L2	6/27/18 9:14	13C4-PFOS	208,133.24	-
JX69	L3	6/27/18 9:23	13C4-PFOS	196,602.67	-
JX70	L4	6/27/18 9:32	13C4-PFOS	221,233.77	-
JX71	L5	6/27/18 9:41	13C4-PFOS	207,482.97	-
JX72	L6	6/27/18 9:50	13C4-PFOS	205,389.92	-
JX73	L7	6/27/18 9:59	13C4-PFOS	210,418.05	-
JX74	L8	6/27/18 10:08	13C4-PFOS	173,679.17	-
JX75	L9	6/27/18 10:17	13C4-PFOS	184,387.98	6

PASS

Average      Lower      Upper  
 200,337.84    100,168.92    300,506.76

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
J6286-FS1(0)	NAWC-053018-FRB-196	6/27/18 13:06	13C4-PFOS	192,046.27	100,168.92	300,506.76		153,739.52	307,479.03	
J6288-FS1(0)	NAWC-053018-FRB-172	6/27/18 13:15	13C4-PFOS	193,563.16	100,168.92	300,506.76		153,739.52	307,479.03	
JX72 CCV	CCV	6/27/18 13:24	13C4-PFOS	212,681.05	100,168.92	300,506.76		153,739.52	307,479.03	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	13C2-PFOA	62,699.72	-
JX68	L2	6/27/18 9:14	13C2-PFOA	68,551.10	-
JX69	L3	6/27/18 9:23	13C2-PFOA	68,688.50	-
JX70	L4	6/27/18 9:32	13C2-PFOA	68,613.81	-
JX71	L5	6/27/18 9:41	13C2-PFOA	68,780.04	-
JX72	L6	6/27/18 9:50	13C2-PFOA	70,145.13	-
JX73	L7	6/27/18 9:59	13C2-PFOA	68,944.70	-
JX74	L8	6/27/18 10:08	13C2-PFOA	60,796.66	-
JX75	L9	6/27/18 10:17	13C2-PFOA	68,647.41	9.1

PASS

Average 67,318.56 Lower 33,659.28 Upper 100,977.84

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	6/27/18 9:05	13C2-PFOA	62,699.72	33,659.28	100,977.84		48,146.03	96,292.06	
JX68	L2	6/27/18 9:14	13C2-PFOA	68,551.10	33,659.28	100,977.84		48,146.03	96,292.06	
JX69	L3	6/27/18 9:23	13C2-PFOA	68,688.50	33,659.28	100,977.84		48,146.03	96,292.06	
JX70	L4	6/27/18 9:32	13C2-PFOA	68,613.81	33,659.28	100,977.84		48,146.03	96,292.06	
JX71	L5	6/27/18 9:41	13C2-PFOA	68,780.04	33,659.28	100,977.84		48,146.03	96,292.06	
JX72	L6	6/27/18 9:50	13C2-PFOA	70,145.13	33,659.28	100,977.84		48,146.03	96,292.06	
JX73	L7	6/27/18 9:59	13C2-PFOA	68,944.70	33,659.28	100,977.84		48,146.03	96,292.06	
JX74	L8	6/27/18 10:08	13C2-PFOA	60,796.66	33,659.28	100,977.84		48,146.03	96,292.06	
JX75	L9	6/27/18 10:17	13C2-PFOA	68,647.41	33,659.28	100,977.84		48,146.03	96,292.06	
JV66 ICC	ICC	6/27/18 10:26	13C2-PFOA	64,713.81	33,659.28	100,977.84		48,146.03	96,292.06	
CR038PB-FS(0)	Procedural Blank	6/27/18 10:43	13C2-PFOA	74,771.38	33,659.28	100,977.84		48,146.03	96,292.06	
CR039LCS-FS(0)	Laboratory Control Sample	6/27/18 10:52	13C2-PFOA	51,742.87	33,659.28	100,977.84		48,146.03	96,292.06	
J6259-FS1(0)	WGNA-052918-FRB-3124	6/27/18 11:01	13C2-PFOA	59,385.53	33,659.28	100,977.84		48,146.03	96,292.06	
J6261-FS1(0)	WGNA-052918-FRB-3493	6/27/18 11:10	13C2-PFOA	66,889.73	33,659.28	100,977.84		48,146.03	96,292.06	
J6263-FS1(0)	WGNA-052918-FRB-3882	6/27/18 11:19	13C2-PFOA	62,147.50	33,659.28	100,977.84		48,146.03	96,292.06	
J6265-FS1(0)	WGNA-052918-FRB-3978	6/27/18 11:28	13C2-PFOA	55,473.53	33,659.28	100,977.84		48,146.03	96,292.06	
J6267-FS1(0)	NAWC-052918-FRB-161	6/27/18 11:37	13C2-PFOA	48,894.83	33,659.28	100,977.84		48,146.03	96,292.06	
J6271-FS1(0)	WGNA-053018-FRB-3876	6/27/18 11:46	13C2-PFOA	63,825.98	33,659.28	100,977.84		48,146.03	96,292.06	
JX71 CCV	CCV	6/27/18 11:55	13C2-PFOA	74,398.92	33,659.28	100,977.84		48,146.03	96,292.06	
J6274-FS1(0)	NAWC-053018-FRB-231	6/27/18 12:13	13C2-PFOA	60,327.15	33,659.28	100,977.84		52,079.24	104,158.49	
J6276-FS1(0)	WGNA-053018-FRB-3933	6/27/18 12:22	13C2-PFOA	59,078.12	33,659.28	100,977.84		52,079.24	104,158.49	
J6278-FS1(0)	NAWC-053018-FRB-164	6/27/18 12:31	13C2-PFOA	62,085.23	33,659.28	100,977.84		52,079.24	104,158.49	
J6280-FS1(0)	NAWC-053018-FRB-292	6/27/18 12:40	13C2-PFOA	60,490.88	33,659.28	100,977.84		52,079.24	104,158.49	
J6282-FS1(0)	NAWC-053018-FRB-271	6/27/18 12:48	13C2-PFOA	56,098.07	33,659.28	100,977.84		52,079.24	104,158.49	
J6284-FS1(0)	NAWC-053018-FRB-270	6/27/18 12:57	13C2-PFOA	56,641.98	33,659.28	100,977.84		52,079.24	104,158.49	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	13C2-PFOA	62,699.72	-
JX68	L2	6/27/18 9:14	13C2-PFOA	68,551.10	-
JX69	L3	6/27/18 9:23	13C2-PFOA	68,688.50	-
JX70	L4	6/27/18 9:32	13C2-PFOA	68,613.81	-
JX71	L5	6/27/18 9:41	13C2-PFOA	68,780.04	-
JX72	L6	6/27/18 9:50	13C2-PFOA	70,145.13	-
JX73	L7	6/27/18 9:59	13C2-PFOA	68,944.70	-
JX74	L8	6/27/18 10:08	13C2-PFOA	60,796.66	-
JX75	L9	6/27/18 10:17	13C2-PFOA	68,647.41	9.1

PASS

Average      Lower      Upper  
 67,318.56    33,659.28    100,977.84

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
J6286-FS1(0)	NAWC-053018-FRB-196	6/27/18 13:06	13C2-PFOA	64,159.00	33,659.28	100,977.84		52,079.24	104,158.49	
J6288-FS1(0)	NAWC-053018-FRB-172	6/27/18 13:15	13C2-PFOA	68,300.17	33,659.28	100,977.84		52,079.24	104,158.49	
JX72 CCV	CCV	6/27/18 13:24	13C2-PFOA	73,895.68	33,659.28	100,977.84		52,079.24	104,158.49	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	d3-MeFOSAA	19,727.67	-
JX68	L2	6/27/18 9:14	d3-MeFOSAA	21,450.12	-
JX69	L3	6/27/18 9:23	d3-MeFOSAA	19,858.14	-
JX70	L4	6/27/18 9:32	d3-MeFOSAA	23,210.57	-
JX71	L5	6/27/18 9:41	d3-MeFOSAA	21,173.96	-
JX72	L6	6/27/18 9:50	d3-MeFOSAA	23,772.73	-
JX73	L7	6/27/18 9:59	d3-MeFOSAA	21,328.18	-
JX74	L8	6/27/18 10:08	d3-MeFOSAA	18,053.74	-
JX75	L9	6/27/18 10:17	d3-MeFOSAA	21,785.07	9.9

PASS

Average 21,151.13 Lower 10,575.57 Upper 31,726.70

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	6/27/18 9:05	d3-MeFOSAA	19,727.67	10,575.57	31,726.70		14,821.77	29,643.54	
JX68	L2	6/27/18 9:14	d3-MeFOSAA	21,450.12	10,575.57	31,726.70		14,821.77	29,643.54	
JX69	L3	6/27/18 9:23	d3-MeFOSAA	19,858.14	10,575.57	31,726.70		14,821.77	29,643.54	
JX70	L4	6/27/18 9:32	d3-MeFOSAA	23,210.57	10,575.57	31,726.70		14,821.77	29,643.54	
JX71	L5	6/27/18 9:41	d3-MeFOSAA	21,173.96	10,575.57	31,726.70		14,821.77	29,643.54	
JX72	L6	6/27/18 9:50	d3-MeFOSAA	23,772.73	10,575.57	31,726.70		14,821.77	29,643.54	
JX73	L7	6/27/18 9:59	d3-MeFOSAA	21,328.18	10,575.57	31,726.70		14,821.77	29,643.54	
JX74	L8	6/27/18 10:08	d3-MeFOSAA	18,053.74	10,575.57	31,726.70		14,821.77	29,643.54	
JX75	L9	6/27/18 10:17	d3-MeFOSAA	21,785.07	10,575.57	31,726.70		14,821.77	29,643.54	
JV66 ICC	ICC	6/27/18 10:26	d3-MeFOSAA	18,742.21	10,575.57	31,726.70		14,821.77	29,643.54	
CR038PB-FS(0)	Procedural Blank	6/27/18 10:43	d3-MeFOSAA	20,767.55	10,575.57	31,726.70		14,821.77	29,643.54	
CR039LCS-FS(0)	Laboratory Control Sample	6/27/18 10:52	d3-MeFOSAA	17,020.44	10,575.57	31,726.70		14,821.77	29,643.54	
J6259-FS1(0)	WGNA-052918-FRB-3124	6/27/18 11:01	d3-MeFOSAA	16,791.71	10,575.57	31,726.70		14,821.77	29,643.54	
J6261-FS1(0)	WGNA-052918-FRB-3493	6/27/18 11:10	d3-MeFOSAA	18,014.99	10,575.57	31,726.70		14,821.77	29,643.54	
J6263-FS1(0)	WGNA-052918-FRB-3882	6/27/18 11:19	d3-MeFOSAA	17,937.64	10,575.57	31,726.70		14,821.77	29,643.54	
J6265-FS1(0)	WGNA-052918-FRB-3978	6/27/18 11:28	d3-MeFOSAA	15,356.66	10,575.57	31,726.70		14,821.77	29,643.54	
J6267-FS1(0)	NAWC-052918-FRB-161	6/27/18 11:37	d3-MeFOSAA	14,942.44	10,575.57	31,726.70		14,821.77	29,643.54	
J6271-FS1(0)	WGNA-053018-FRB-3876	6/27/18 11:46	d3-MeFOSAA	17,808.82	10,575.57	31,726.70		14,821.77	29,643.54	
JX71 CCV	CCV	6/27/18 11:55	d3-MeFOSAA	20,862.99	10,575.57	31,726.70		14,821.77	29,643.54	
J6274-FS1(0)	NAWC-053018-FRB-231	6/27/18 12:13	d3-MeFOSAA	17,198.28	10,575.57	31,726.70		14,604.09	29,208.19	
J6276-FS1(0)	WGNA-053018-FRB-3933	6/27/18 12:22	d3-MeFOSAA	15,229.19	10,575.57	31,726.70		14,604.09	29,208.19	
J6278-FS1(0)	NAWC-053018-FRB-164	6/27/18 12:31	d3-MeFOSAA	15,284.67	10,575.57	31,726.70		14,604.09	29,208.19	
J6280-FS1(0)	NAWC-053018-FRB-292	6/27/18 12:40	d3-MeFOSAA	14,886.46	10,575.57	31,726.70		14,604.09	29,208.19	
J6282-FS1(0)	NAWC-053018-FRB-271	6/27/18 12:48	d3-MeFOSAA	14,624.86	10,575.57	31,726.70		14,604.09	29,208.19	
J6284-FS1(0)	NAWC-053018-FRB-270	6/27/18 12:57	d3-MeFOSAA	15,232.48	10,575.57	31,726.70		14,604.09	29,208.19	



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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	d3-MeFOSAA	19,727.67	-
JX68	L2	6/27/18 9:14	d3-MeFOSAA	21,450.12	-
JX69	L3	6/27/18 9:23	d3-MeFOSAA	19,858.14	-
JX70	L4	6/27/18 9:32	d3-MeFOSAA	23,210.57	-
JX71	L5	6/27/18 9:41	d3-MeFOSAA	21,173.96	-
JX72	L6	6/27/18 9:50	d3-MeFOSAA	23,772.73	-
JX73	L7	6/27/18 9:59	d3-MeFOSAA	21,328.18	-
JX74	L8	6/27/18 10:08	d3-MeFOSAA	18,053.74	-
JX75	L9	6/27/18 10:17	d3-MeFOSAA	21,785.07	9.9

PASS

Average      Lower      Upper  
 21,151.13    10,575.57    31,726.70

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
J6286-FS1(0)	NAWC-053018-FRB-196	6/27/18 13:06	d3-MeFOSAA	14,939.62	10,575.57	31,726.70		14,604.09	29,208.19	
J6288-FS1(0)	NAWC-053018-FRB-172	6/27/18 13:15	d3-MeFOSAA	18,215.38	10,575.57	31,726.70		14,604.09	29,208.19	
JX72 CCV	CCV	6/27/18 13:24	d3-MeFOSAA	19,404.97	10,575.57	31,726.70		14,604.09	29,208.19	

<b>Sample Name</b>	JX73	<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>	6/27/2018 9:59:20 AM	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<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	1.50	0.96	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.78	1.40	0.8 – 1.5

Sample Name	JX73	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/27/2018 9:59:20 AM	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.50	30	>10
PFBS_2	298.9 / 99.0	1.50	35	>10
PFHxA_1	313.0 / 269.0	1.78	26	>10
PFHxA_2	313.0 / 119.0	1.78	29	>10
PFHpA_1	363.0 / 319.0	2.14	32	>10
PFHpA_2	363.0 / 169.0	2.14	31	>10
PFHxS_1	399.0 / 80.0	2.15	32	>10
PFHxS_2	399.0 / 99.0	2.15	35	>10
PFOA_1	413.0 / 369.0	2.51	35	>10
PFOA_2	413.0 / 169.0	2.51	33	>10
PFNA_1	463.0 / 419.0	2.89	32	>10
PFNA_2	463.0 / 219.0	2.89	25	>10
PFOS_1	499.0 / 80.0	2.88	36	>10
PFOS_2	499.0 / 99.0	2.88	35	>10
PFDA_1	513.0 / 469.0	3.23	27	>10
PFDA_2	513.0 / 219.0	3.23	33	>10
PFUnA_1	563.0 / 519.0	3.55	35	>10
PFUnA_2	563.0 / 269.0	3.55	27	>10
PFDaA_1	613.0 / 569.0	3.84	35	>10
PFDaA_2	613.0 / 319.0	3.84	32	>10
PFTrDA_1	663.0 / 619.0	4.09	31	>10
PFTrDA_2	663.0 / 169.0	4.09	26	>10
PFTeDA_1	713.0 / 669.0	4.31	43	>10
PFTeDA_2	713.0 / 169.0	4.31	37	>10
NMeFOSAA_1	570.0 / 419.0	3.38	35	>10
NMeFOSAA_2	570.0 / 512.0	3.38	46	>10
NEtFOSAA_1	584.0 / 419.0	3.54	31	>10
NEtFOSAA_2	584.0 / 483.0	3.54	35	>10
13C2-PFHxA	315.0 / 270.0	1.77	32	>10
13C2-PFDA	515.0 / 470.0	3.23	35	>10
d5-EtFOSAA	589.0 / 419.0	3.53	30	>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	10.80	1.13	3.39	11
PFHpA	375-85-9	11.18	1.28	3.84	11
PFOA	335-67-1	11.23	1.23	3.69	11
PFNA	375-95-1	11.07	1.19	3.57	11
PFDA	335-76-2	11.07	1.26	3.78	11
PFUnA	2058-94-8	10.94	1.46	4.38	11
PFDoA	307-55-1	10.66	1.71	5.13	11
PFTTrDA	72629-94-8	10.59	1.66	4.98	11
PFTeDA	376-06-7	11.90	1.38	4.14	11
NMeFOSAA	2355-31-9	10.80	0.92	2.76	11
NEtFOSAA	2991-50-6	10.27	1.03	3.09	11
PFBS	375-73-5	8.92	1.32	3.96	11
PFHxS	355-46-4	10.41	1.33	3.99	11
PFOS	1763-23-1	9.82	1.19	3.57	11

# 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	298.9.0 / 80.0	298.9.0 / 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



**Zef Scientific Inc.**

12707 High Bluff Dr.  
Suite 200  
San Diego, CA  
USA 92130

1975 Hymus Blvd.  
Suite 230  
Dorval, QC  
Canada H9P 1J8

Phone: 1.866.854.7988

# 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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12707 High Bluff Dr.  
Suite 200  
San Diego, CA  
USA 92130

1975 Hymus Blvd.  
Suite 230  
Dorval, QC  
Canada H9P 1J8

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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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USA 92130

1975 Hymus Blvd.  
Suite 230  
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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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1975 Hymus Blvd.  
Suite 230  
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Canada H9P 1J8

Phone: 1.866.854.7988

**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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USA 92130

1975 Hymus Blvd.  
Suite 230  
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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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Suite 200  
San Diego, CA  
USA 92130

1975 Hymus Blvd.  
Suite 230  
Dorval, QC  
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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: JV41

Description: PFAS - 537.1 Second Source LCS/MS Solution

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

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

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

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

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



It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JV41

Description: PFAS - 537.1 Second Source LCS/MS Solution

Stock Id: 180425-04

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	500	2.00	1	100.000	1	20	0.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-1-butanefluorobutane	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-butanefluorobutane	.04425
Perfluoro-1-hexanesulfonate	.04725
Perfluoro-1-octanesulfonate	.04775
Perfluoro-n-decanoic Acid	.05000
Perfluoro-n-dodecanoic acid	.05000
Perfluoro-n-heptanoic Acid	.05000
Perfluoro-n-hexanoic acid	.05000
Perfluoro-n-octanoic Acid	.05000
Perfluorononanoic Acid	.05000
Perfluoro-n-tetradecanoic acid	.05000
Perfluoro-n-tridecanoic acid	.05000
Perfluoro-n-undecanoic acid	.05000

## Syringes/Pipettes:

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

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

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

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

It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: JV42

Description: PFAS - 537.1 High ICAL Stock

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

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

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

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



It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JV42

Description: PFAS - 537.1 High ICAL Stock

Stock Id: 180425-03

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

## Final Concentrations:

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

## Syringes/Pipettes:

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

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

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

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

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

It can be done

## Standard Solution Prep Form II

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

Description: PFAS - 537.1 Low ICAL Stock

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

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 4 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

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

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

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



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JV43**

Description: PFAS - 537.1 Low ICAL Stock

Stock Id: **180425-03**

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

Final Concentrations:

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

Syringes/Pipettes:

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

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/2/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 4 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

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

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



It can be done

## Standard Solution Prep Form II

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

Description: PFAS - 537.1 Internal Standard Solution

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

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

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

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

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



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JV59**

Description: PFAS - 537.1 Internal Standard Solution

Stock Id: **JV35**

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

Final Concentrations:

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV35	Pipette	I0400533B

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

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

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

It can be done

## Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: **JV60**

Description: PFAS - 537.1 Surrogate Solution

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

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

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

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

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



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JV60**

Description: PFAS - 537.1 Surrogate Solution

Stock Id: **JV37**

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

Final Concentrations:

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV37	Pipette	I0400533B

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

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

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

It can be done

## Standard Solution Prep Form II

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

Description: PFAS - 537.1 Internal Standard Calibration Stock Solution

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

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

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

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

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



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JV61**

Description: PFAS - 537.1 Internal Standard Calibration Stock Solution

Stock Id: **JV35**

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

It can be done

## Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: **JV62**

Description: PFAS - 537.1 Surrogate Calibration Stock Solution

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

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

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

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

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

**BATTELLE**

It can be done

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

Description: PFAS - 537.1 Surrogate Calibration Stock Solution

Stock Id: **JV37**

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

## Final Concentrations:

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

## Syringes/Pipettes:

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

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

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

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



It can be done

## Standard Solution Prep Form II

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

Description: PFAS - 537.1 ICAL L3

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

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

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

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

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



It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JV66

Description: PFAS - 537.1 ICAL L3

## Stock Id: JV43

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

## Stock Id: JV61

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

## Stock Id: JV62

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

## Final Concentrations:

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

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

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

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

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



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JV66**

Description: PFAS - 537.1 ICAL L3

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

Syringes/Pipettes:

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

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

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

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

It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: JX67

Description: PFAS - 537.1 ICAL L1

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

Solution Prepared By: Schumitz, Denise

Date Prepared: 6/25/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:37:00 PM



It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JX67

Description: PFAS - 537.1 ICAL L1

## Stock Id: JV43

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

## Stock Id: JV61

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

## 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
N-ethylperfluoro-octanesulfonamidoacetic acid	.00003

Solution Prepared By: Schumitz, Denise Date Prepared: 6/25/2018 Expiration Date: 5/2/2019

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:37:00 PM

It can be done

## Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: JX67

Description: PFAS - 537.1 ICAL L1

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

Syringes/Pipettes:

Solution Prepared By: Schumitz, Denise	Date Prepared: 6/25/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:37:00 PM



It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: JX68

Description: PFAS - 537.1 ICAL L2

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

Solution Prepared By: Schumitz, Denise	Date Prepared: 6/25/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:37:00 PM

It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JX68

Description: PFAS - 537.1 ICAL L2

**Stock Id: JV43**

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

**Stock Id: JV61**

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

**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
N-ethylperfluoro-octanesulfonamidoacetic acid	.00005

Solution Prepared By: Schumitz, Denise Date Prepared: 6/25/2018 Expiration Date: 5/2/2019

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:37:00 PM





It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JX68

Description: PFAS - 537.1 ICAL L2

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

Syringes/Pipettes:

Solution Prepared By: Schumitz, Denise Date Prepared: 6/25/2018 Expiration Date: 5/2/2019

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:37:00 PM



It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: JX69

Description: PFAS - 537.1 ICAL L3

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

Solution Prepared By: Schumitz, Denise

Date Prepared: 6/25/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:37:00 PM

It can be done

## Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JX69**

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-butanefulfonate	200	0.00	---	---	1	10	0.00009
Perfluoro-1-hexanesulfonate	200	0.00	---	---	1	10	0.00009
Perfluoro-1-octanesulfonate	200	0.00	---	---	1	10	0.00009
Perfluoro-n-decanoic Acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-dodecanoic acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-heptanoic Acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-hexanoic acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-nonanoic Acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-octanoic Acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-tetradecanoic acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-tridecanoic acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-undecanoic acid	200	0.01	---	---	1	10	0.00010

### Stock Id: JV61

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

### 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
N-ethylperfluoro-octanesulfonamidoacetic acid	.00010

Solution Prepared By: Schumitz, Denise	Date Prepared: 6/25/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:37:00 PM



It can be done

## Standard Solution Concentrations

Approved: 
**Standard Laboratory ID Number: JX69**
**Description:** PFAS - 537.1 ICAL L3

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

**Syringes/Pipettes:**
**Solution Prepared By:** Schumitz, Denise      **Date Prepared:** 6/25/2018      **Expiration Date:** 5/2/2019

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

**Comment:** 96/4 MeOH/MilliQ (RP-180625-2)

**Approved By:** Thorn, Jonathan      **Date:** 6/29/2018 1:37:00 PM

It can be done

## Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: JX70

Description: PFAS - 537.1 ICAL L4

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

Solution Prepared By: Schumitz, Denise

Date Prepared: 6/25/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID:

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:38:00 PM



It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JX70

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-butanedisulfonate	500	0.00	---	---	1	10	0.00022
Perfluoro-1-hexanesulfonate	500	0.00	---	---	1	10	0.00023
Perfluoro-1-octanesulfonate	500	0.00	---	---	1	10	0.00023
Perfluoro-n-decanoic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-dodecanoic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-heptanoic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-hexanoic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-nonanoic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-octanoic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-tetradecanoic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-tridecanoic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-undecanoic acid	500	0.01	---	---	1	10	0.00025

## Stock Id: JV61

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

## 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
N-ethylperfluoro-octanesulfonamidoacetic acid	.00025

Solution Prepared By: Schumitz, Denise Date Prepared: 6/25/2018 Expiration Date: 5/2/2019

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:38:00 PM

It can be done

## Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: JX70

Description: PFAS - 537.1 ICAL L4

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

Syringes/Pipettes:

Solution Prepared By: Schumitz, Denise      Date Prepared: 6/25/2018      Expiration Date: 5/2/2019

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan      Date: 6/29/2018 1:38:00 PM



It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: JX71

Description: PFAS - 537.1 ICAL L5

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

Solution Prepared By: Schumitz, Denise

Date Prepared: 6/25/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:38:00 PM



It can be done

## Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **JX71**

Description: PFAS - 537.1 ICAL L5

**Stock Id: JV43**

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

**Stock Id: JV61**

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

**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
N-ethylperfluoro-octanesulfonamidoacetic acid	.00050

Solution Prepared By: Schumitz, Denise      Date Prepared: 6/25/2018      Expiration Date: 5/2/2019

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan      Date: 6/29/2018 1:38:00 PM

**BATTELLE**

It can be done

**Standard Solution Concentrations**Approved: Standard Laboratory ID Number: **JX71**

Description: PFAS - 537.1 ICAL L5

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:

Solution Prepared By: Schumitz, Denise Date Prepared: 6/25/2018 Expiration Date: 5/2/2019

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:38:00 PM



It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: JX72

Description: PFAS - 537.1 ICAL L6

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

Solution Prepared By: Schumitz, Denise

Date Prepared: 6/25/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:38:00 PM



It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JX72

Description: PFAS - 537.1 ICAL L6

## Stock Id: JV42

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

## 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
N-ethylperfluoro-octanesulfonamidoacetic acid	.00100

Solution Prepared By: Schumitz, Denise Date Prepared: 6/25/2018 Expiration Date: 5/2/2019

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:38:00 PM



It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JX72

Description: PFAS - 537.1 ICAL L6

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:

Solution Prepared By: Schumitz, Denise Date Prepared: 6/25/2018 Expiration Date: 5/2/2019

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:38:00 PM



It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: JX73

Description: PFAS - 537.1 ICAL L7

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

Solution Prepared By: Schumitz, Denise

Date Prepared: 6/25/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:39:00 PM



It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JX73

Description: PFAS - 537.1 ICAL L7

## Stock Id: JV42

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

## Stock Id: JV61

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

## 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
N-ethylperfluoro-octanesulfonamidoacetic acid	.00250

Solution Prepared By: Schumitz, Denise Date Prepared: 6/25/2018 Expiration Date: 5/2/2019

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:39:00 PM

**BATTELLE**

It can be done

**Standard Solution Concentrations**Approved: **Standard Laboratory ID Number: JX73**

Description: PFAS - 537.1 ICAL L7

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:

Solution Prepared By: Schumitz, Denise	Date Prepared: 6/25/2018	Expiration Date: 5/2/2019
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Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107
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Comment: 96/4 MeOH/MilliQ (RP-180625-2)
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Approved By: Thorn, Jonathan	Date: 6/29/2018 1:39:00 PM
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It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: JX74

Description: PFAS - 537.1 ICAL L8

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

Solution Prepared By: Schumitz, Denise

Date Prepared: 6/25/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:41:00 PM



It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JX74

Description: PFAS - 537.1 ICAL L8

## Stock Id: JV42

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

## Stock Id: JV61

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

## 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
N-ethylperfluoro-octanesulfonamidoacetic acid	.00500

Solution Prepared By: Schumitz, Denise Date Prepared: 6/25/2018 Expiration Date: 5/2/2019

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:41:00 PM

**BATTELLE**

It can be done

**Standard Solution Concentrations**Approved: **Standard Laboratory ID Number: JX74**

Description: PFAS - 537.1 ICAL L8

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:

Solution Prepared By: Schumitz, Denise	Date Prepared: 6/25/2018	Expiration Date: 5/2/2019
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Solution Volume 40 mL X 1	Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107
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Comment: 96/4 MeOH/MilliQ (RP-180625-2)
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Approved By: Thorn, Jonathan	Date: 6/29/2018 1:41:00 PM
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It can be done

## Standard Solution Prep Form II

Approved: 

Standard Laboratory ID Number: JX75

Description: PFAS - 537.1 ICAL L9

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV42	PFAS - 537.1 High ICAL Stock	Solution	~0	05/02/19	---	---	1000 uL	1	5	~0.0000
JV61	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	25 uL	1	5	~0.0000
JV62	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	5	~0.0000

Solution Prepared By: Schumitz, Denise

Date Prepared: 6/25/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:40:00 PM



It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JX75

Description: PFAS - 537.1 ICAL L9

## Stock Id: JV42

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

## Stock Id: JV61

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

## 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	5	0.00020
13C2-PFHxA	50	0.02	---	---	1	5	0.00020
d5-EtFOSAA	50	0.08	---	---	1	5	0.00080

## Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.00020
13C2-PFHxA	.00020
13C2-PFOA	.00010
13C4-PFOS	.00029
d3-MeFOSAA	.00040
d5-EtFOSAA	.00080
N-ethylperfluoro-octanesulfonamidoacetic acid	.01000

Solution Prepared By: Schumitz, Denise Date Prepared: 6/25/2018 Expiration Date: 5/2/2019

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:40:00 PM



It can be done

## Standard Solution Concentrations

Approved: 

Standard Laboratory ID Number: JX75

Description: PFAS - 537.1 ICAL L9

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:

Solution Prepared By: Schumitz, Denise Date Prepared: 6/25/2018 Expiration Date: 5/2/2019

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

Comment: 96/4 MeOH/MilliQ (RP-180625-2)

Approved By: Thorn, Jonathan Date: 6/29/2018 1:40:00 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).

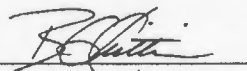


\*\*For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at [www.well-labs.com](http://www.well-labs.com) or contact us directly at [info@well-labs.com](mailto:info@well-labs.com)\*\*

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

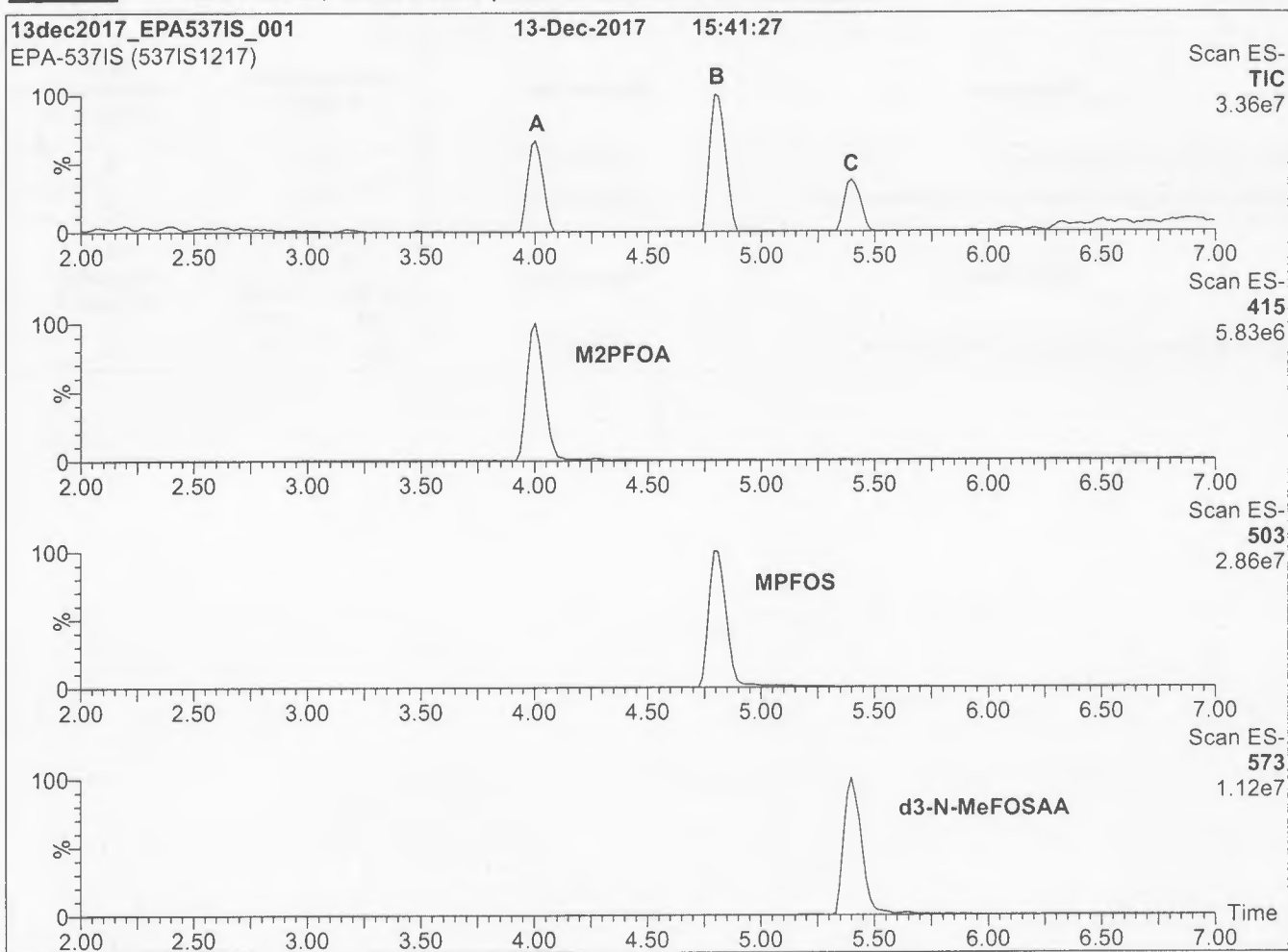
Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Perfluoro-n-[1,2- <sup>13</sup> C <sub>2</sub> ]octanoic acid	M2PFOA	1000		A
N-methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	4000		C
Compound	Abbreviation	Concentration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

Certified By:



B.G. Chittim, General Manager

Date: 12/22/2017  
(mm/dd/yyyy)

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

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

**Chromatographic Conditions**

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

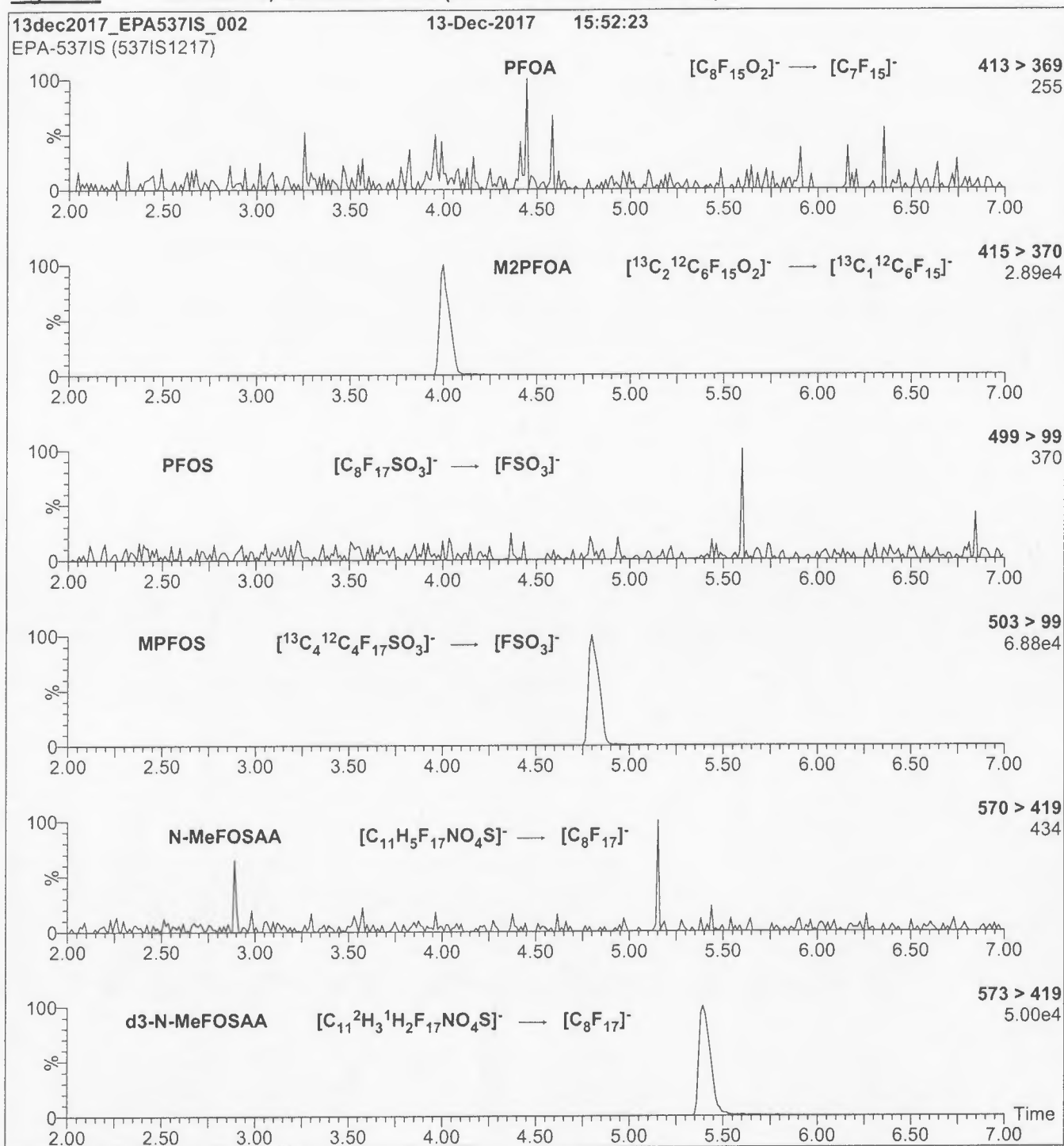
**Mobile phase:** Gradient  
Start: 40% (80:20 MeOH:ACN) / 60% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 7 min  
and hold for 2 min before returning  
to initial conditions in 0.5 min.  
Time: 10 min

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

**MS Parameters**

**Experiment:** Full Scan (150 - 850 amu)

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

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

Injection: On-column (EPA-537IS)

Mobile phase: Same as Figure 1

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

Collision Gas (mbar) = 3.28e-3

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



It can be done

BDO Id: 180425-02

## Reagent Receipt Report

Approved:  Authorized 

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

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert Val:	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).

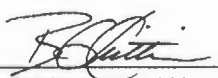


\*\*For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at [www.well-labs.com](http://www.well-labs.com) or contact us directly at [info@well-labs.com](mailto:info@well-labs.com)\*\*

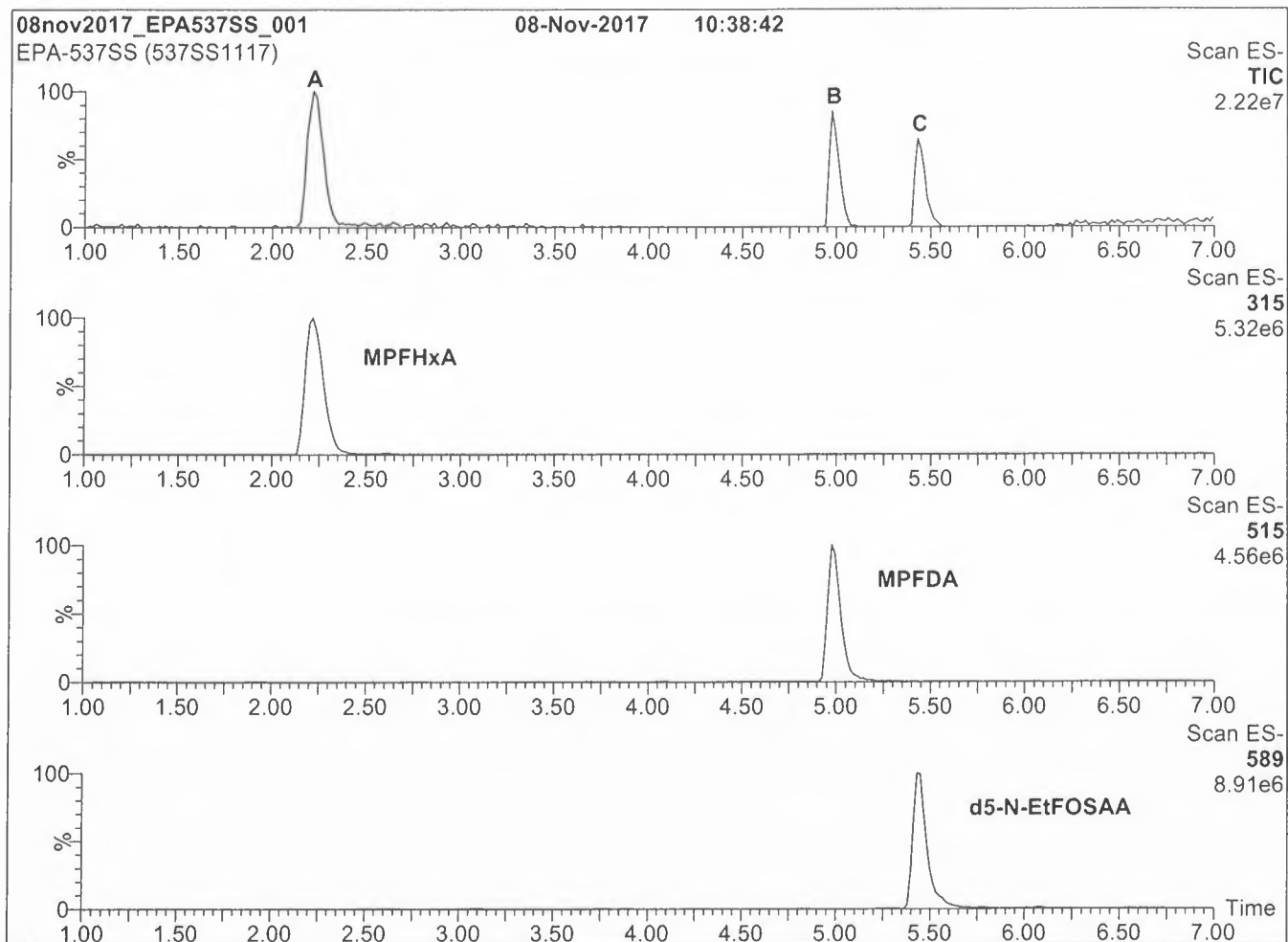
**Table A: EPA-537SS; Components and Concentrations (ng/ml; ± 5% in Methanol / Water (<1%))**

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)

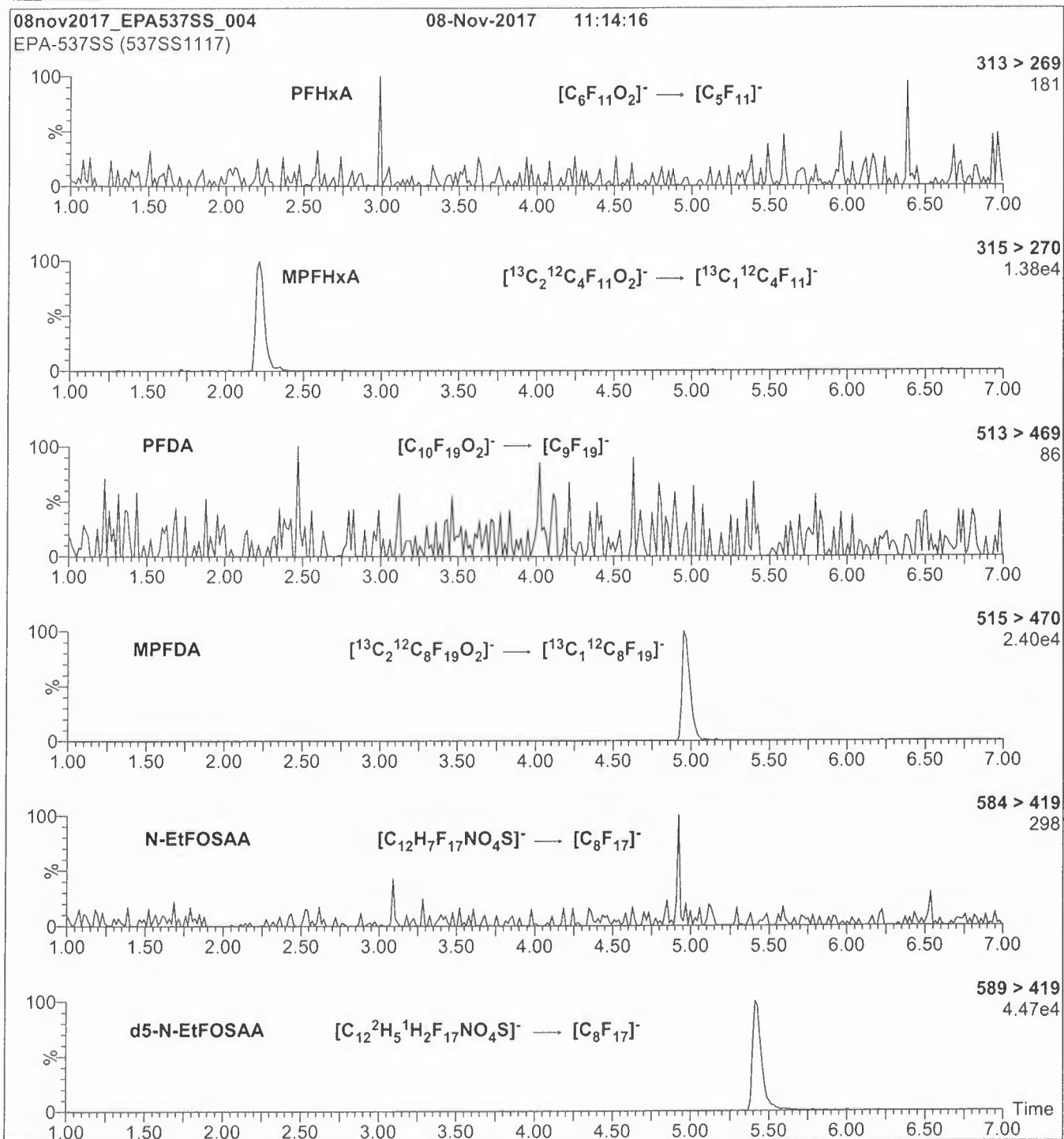
Source: Electrospray (negative)

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  
JNT 5/2/2018

**DESCRIPTION:**

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

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

**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

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

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

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

**INTENDED USE:**

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

**HANDLING:**

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

**SYNTHESIS / CHARACTERIZATION:**

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

**HOMOGENEITY:**

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

**UNCERTAINTY:**

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

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

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

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

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

**TRACEABILITY:**

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

**EXPIRY DATE / PERIOD OF VALIDITY:**

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

**LIMITED WARRANTY:**

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

**QUALITY MANAGEMENT:**

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



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

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

Compound	Abbreviation	Concentration *		Peak Assignment in Figure 1
		(ng/ml)		
Perfluoro-n-hexanoic acid ✓	PFHxA	2000		B
Perfluoro-n-heptanoic acid ✓	PFHpA	2000		C
Perfluoro-n-octanoic acid ✓	PFOA	2000		F
Perfluoro-n-nonanoic acid ✓	PFNA	2000		G
Perfluoro-n-decanoic acid ✓	PFDA	2000		J
Perfluoro-n-undecanoic acid ✓	PFUdA	2000		O
Perfluoro-n-dodecanoic acid ✓	PFDoA	2000		P
Perfluoro-n-tridecanoic acid ✓	PFTrDA	2000		Q
Perfluoro-n-tetradecanoic acid ✓	PFTeDA	2000		R
N-methylperfluorooctanesulfonamidoacetic acid <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 *		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	$\text{CF}_3(\text{CF}_2)_7\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ C <sub>2</sub> H <sub>5</sub>	77.5	77.5
2	N-ethylperfluoro-3-methylheptanesulfonamidoacetic acid	$\text{CF}_3(\text{CF}_2)_3\text{CF}(\text{CF}_2)_2\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF <sub>3</sub> C <sub>2</sub> H <sub>5</sub>	2.3	22.5
3	N-ethylperfluoro-4-methylheptanesulfonamidoacetic acid	$\text{CF}_3(\text{CF}_2)_2\text{CF}(\text{CF}_2)_3\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF <sub>3</sub> C <sub>2</sub> H <sub>5</sub>	2.2	
4	N-ethylperfluoro-5-methylheptanesulfonamidoacetic acid	$\text{CF}_3\text{CF}_2\text{CF}(\text{CF}_2)_4\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF <sub>3</sub> C <sub>2</sub> H <sub>5</sub>	5.4	
5	N-ethylperfluoro-6-methylheptanesulfonamidoacetic acid	$\text{CF}_3\text{CF}(\text{CF}_2)_5\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF <sub>3</sub> C <sub>2</sub> H <sub>5</sub>	10.4	
6	N-ethylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$\text{CF}_3\text{C}(\text{CF}_3)_2(\text{CF}_2)_4\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF <sub>3</sub> C <sub>2</sub> H <sub>5</sub>	0.3	
7	N-ethylperfluoro-4,5-dimethylhexanesulfonamidoacetic acid	$\text{CF}_3\text{CF}(\text{CF}_3)\text{CF}(\text{CF}_2)_3\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF <sub>3</sub> C <sub>2</sub> H <sub>5</sub>	0.3	
8	N-ethylperfluoro-3,5-dimethylhexanesulfonamidoacetic acid	$\text{CF}_3\text{CF}(\text{CF}_3)\text{CF}_2\text{CF}(\text{CF}_2)_2\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF <sub>3</sub> C <sub>2</sub> H <sub>5</sub>	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	$\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+$	81.1	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}(\text{SO}_3\text{K}^+) \\   \\ \text{CF}_3 \end{array}$	2.9	18.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}(\text{CF}_3)\text{CF}_2\text{SO}_3\text{K}^+ \\   \\ \text{CF}_3 \end{array}$	1.4	
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\   \\ \text{CF}_3 \end{array}$	5.0	
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\   \\ \text{CF}_3 \end{array}$	8.9	
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$\begin{array}{c} \text{CF}_3 \\   \\ \text{CF}_3\text{C}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\   \\ \text{CF}_3 \end{array}$	0.2	
7	Other Unidentified Isomers		0.5	

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

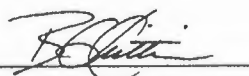
**Table E: PFOSK; Isomeric Components and Percent Composition (by <sup>19</sup>F-NMR)\***

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(CF <sub>3</sub> )SO <sub>3</sub> <sup>-</sup> 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(CF <sub>3</sub> )CF <sub>2</sub> SO <sub>3</sub> <sup>-</sup> 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(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>	2.2	
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	CF <sub>3</sub> CF <sub>2</sub> CF(CF <sub>3</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>	4.5	
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	CF <sub>3</sub> CF(CF <sub>3</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>   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(CF <sub>3</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>	0.4	
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	CF <sub>3</sub>   CF <sub>3</sub> CF(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>	0.07	

\* Percent of total perfluorooctanesulfonate isomers only.

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

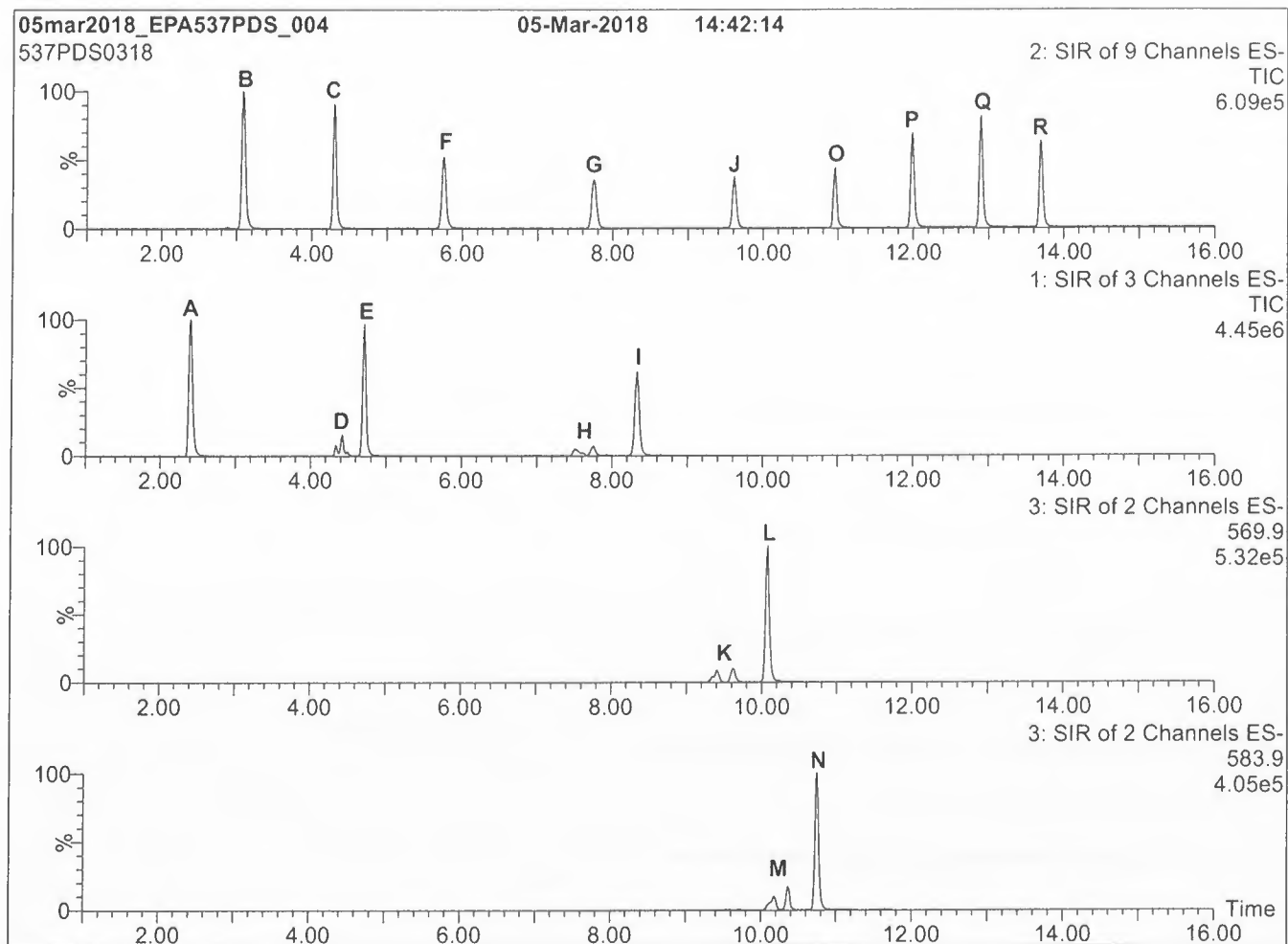
Certified By:



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

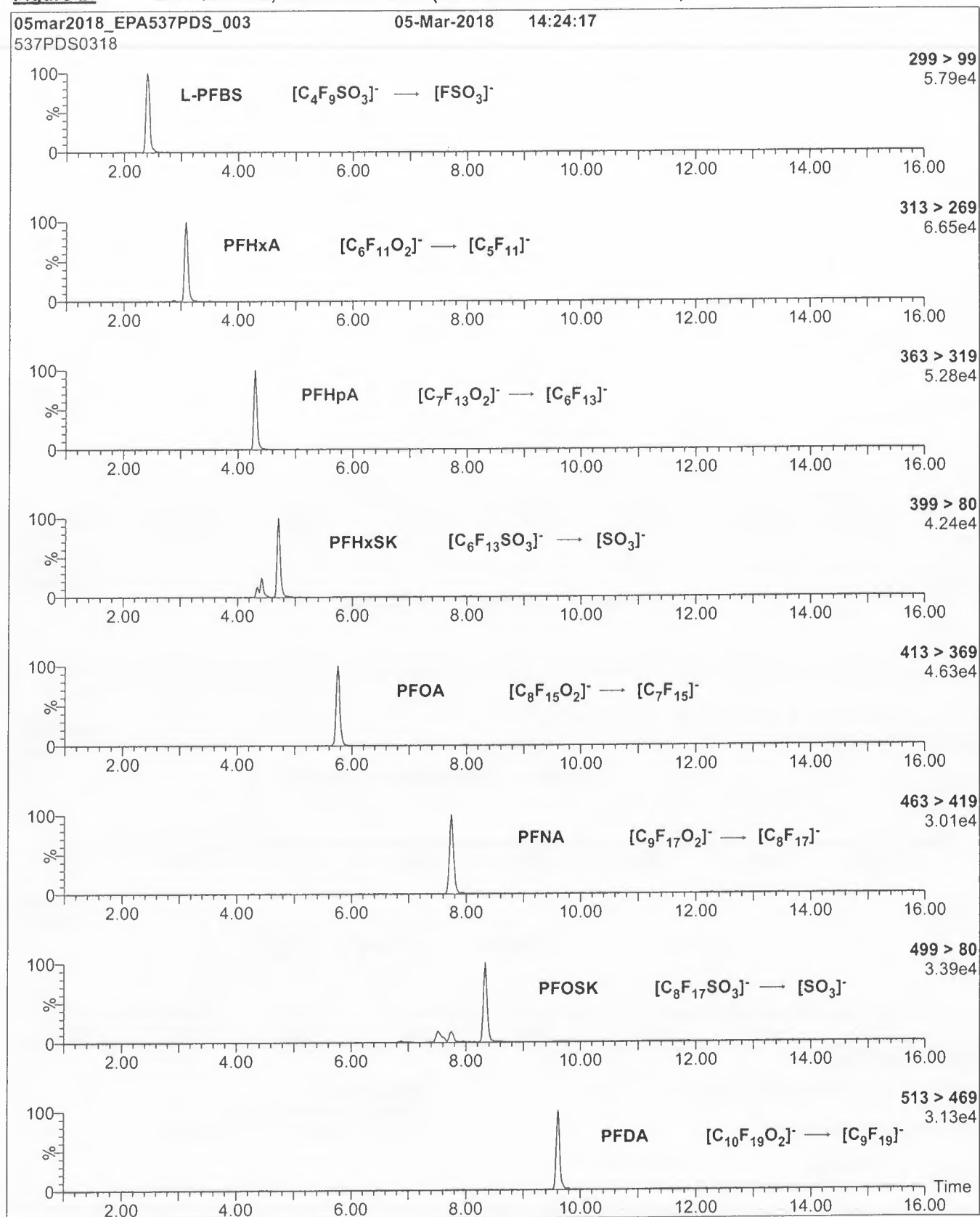
Source: Electrospray (negative)

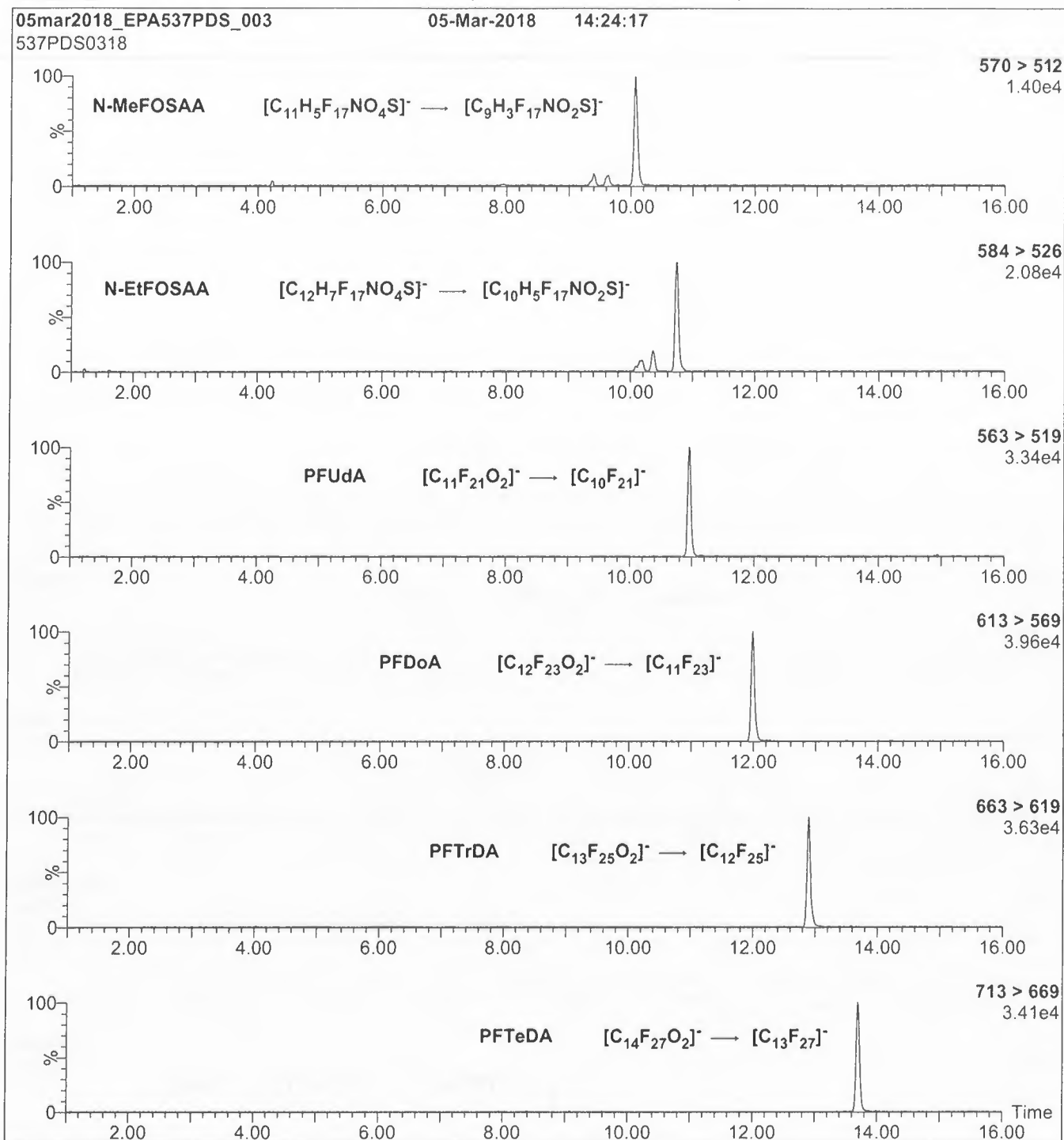
Capillary Voltage (kV) = 3.00

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)

**It can be done**BDO Id: 180425-04**Reagent Receipt Report**Approved:  Authorized 

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

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

Total Analytes: 14

**Notes:**

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

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

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

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

**DESCRIPTION:**

EPA-537PDS-L is a solution/mixture of native linear perfluoroalkylcarboxylic acids (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; ± 5% in Methanol / Water (<1%))**

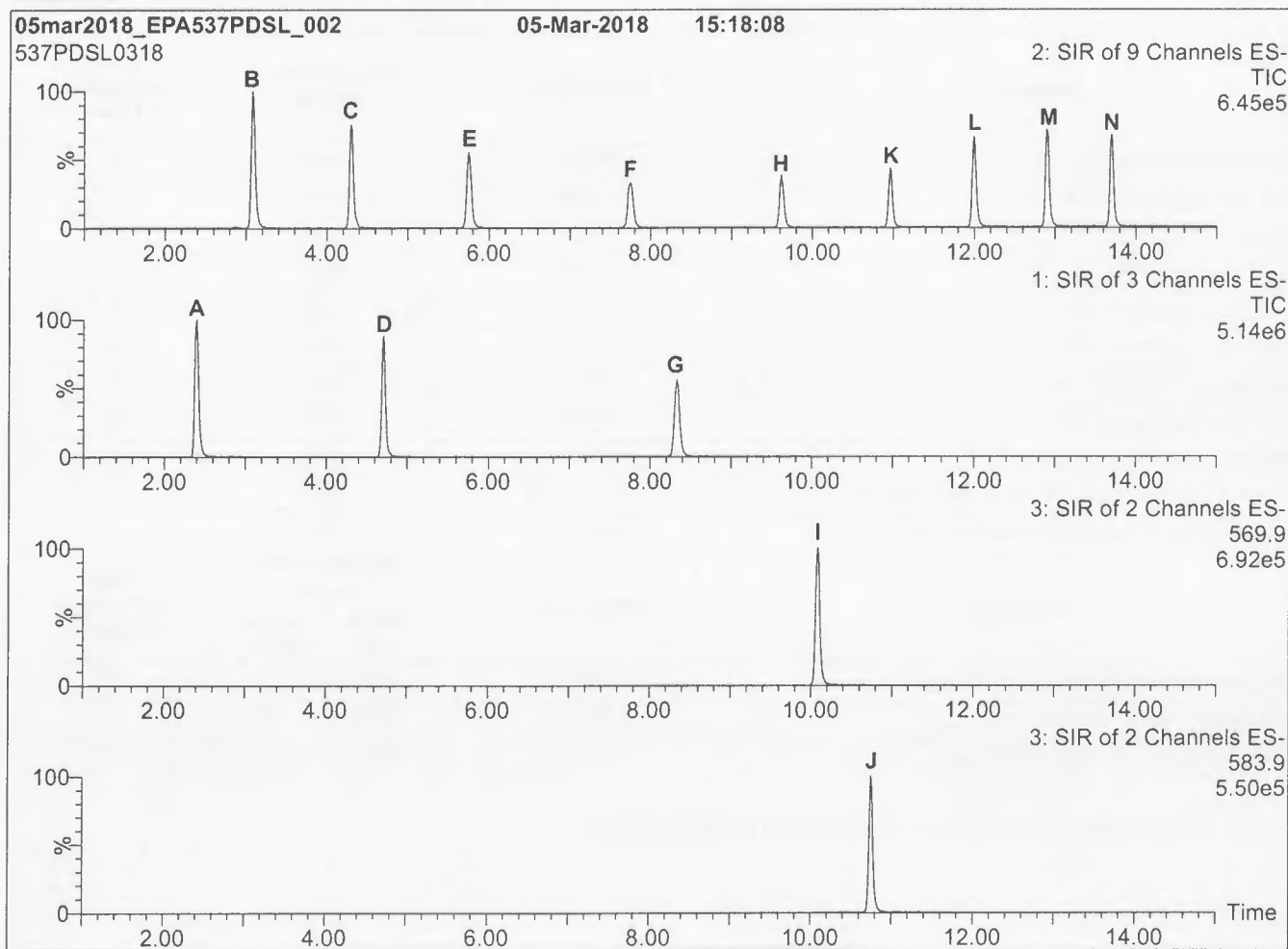
Compound	Abbreviation	Concentration *		Peak Assignment in Figure 1
		(ng/ml)		
Perfluoro-n-hexanoic acid ✓	PFHxA	2000		B
Perfluoro-n-heptanoic acid ✓	PFHpA	2000		C
Perfluoro-n-octanoic acid ✓	PFOA	2000		E
Perfluoro-n-nonanoic acid ✓	PFNA	2000		F
Perfluoro-n-decanoic acid ✓	PFDA	2000		H
Perfluoro-n-undecanoic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

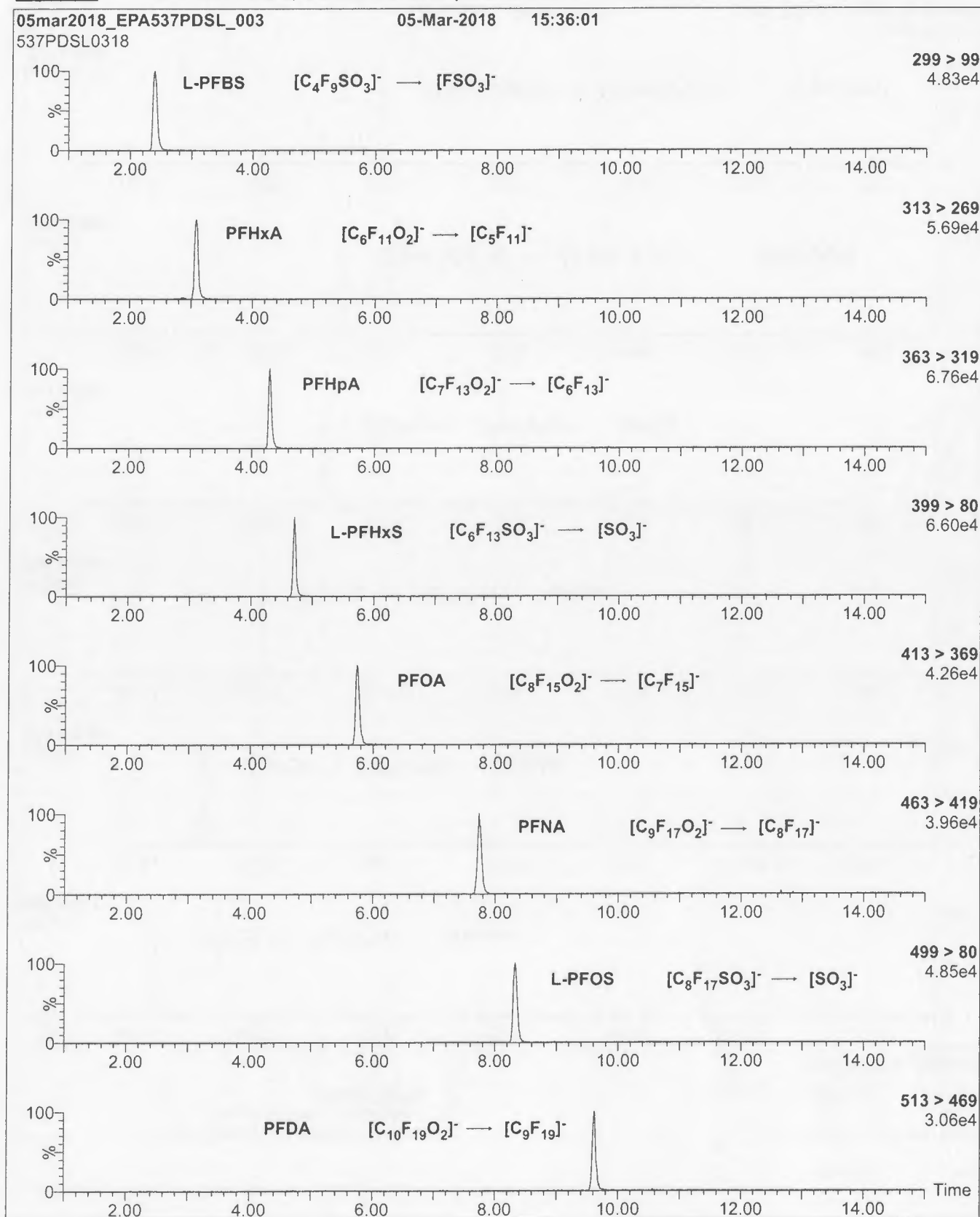
Mobile phase: Gradient  
Start: 40% (80:20 MeOH:ACN) / 60% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 55% organic over 3.5 min.  
Ramp to 70% organic over 6.5 min.  
Ramp to 85% organic over 5 min and hold for  
1 min before returning to initial conditions in 0.5 min.  
Time: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

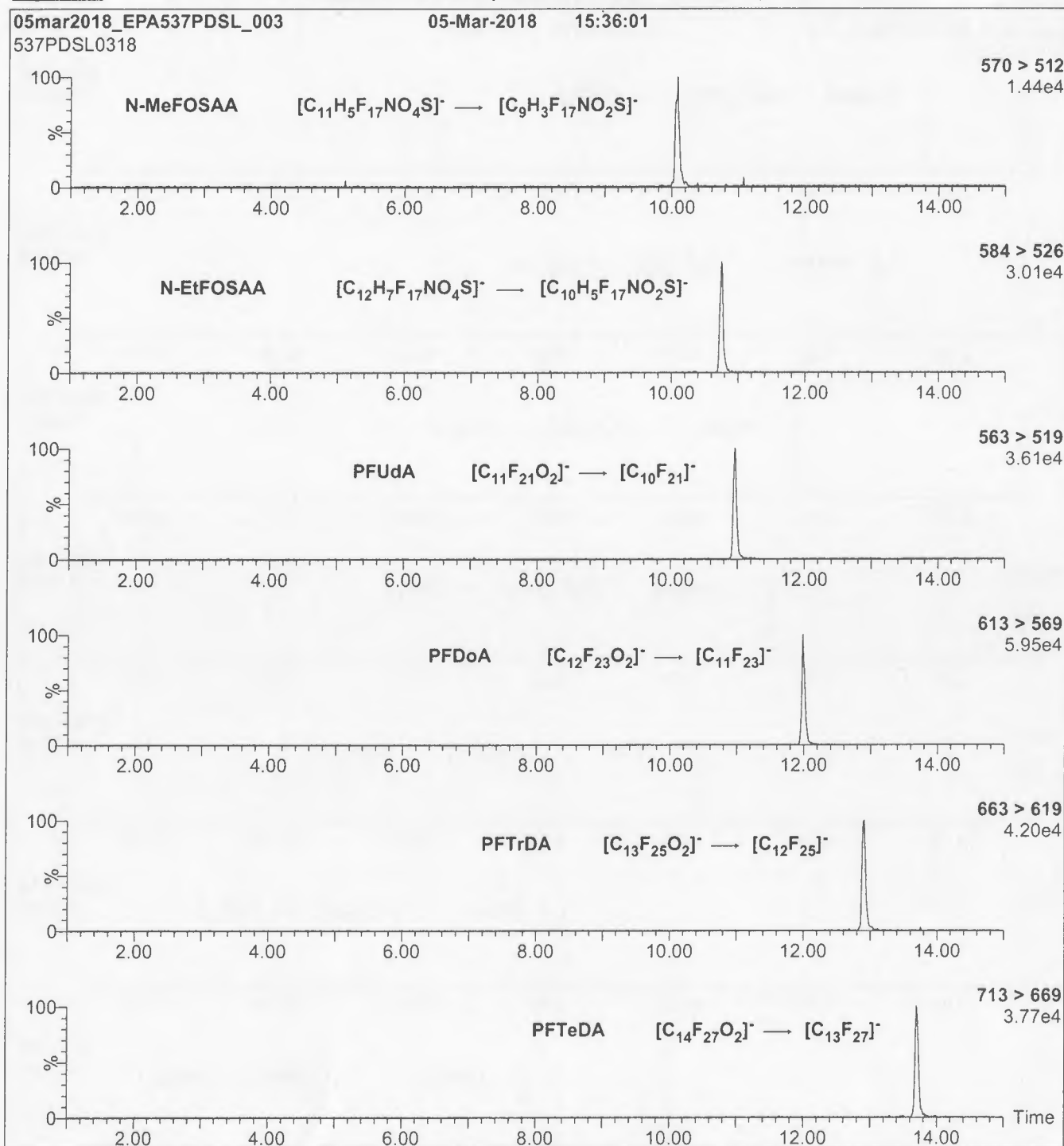
Flow: 300  $\mu$ l/min

**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>
Naval Air Station Joint Reserve Base Willow Grove, PA	100117920-WE04
<b>18-0391</b>	
<b>WE04 PFAS Analysis</b>	
<b>DW</b>	
SOP Numbers (see workplan for modifications)	
VOASOP No.	5-371

<b>This Batch Contains The Following Samples:</b>		
CR038PB-FS	J6267-FS1	J6282-FS1
CR039LCS-FS	J6271-FS1	J6284-FS1
J6259-FS1	J6274-FS1	J6286-FS1
J6261-FS1	J6276-FS1	J6288-FS1
J6263-FS1	J6278-FS1	
J6265-FS1	J6280-FS1	

Laboratory Preparation Records  
COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Denise Schumitz	06/26/2018	DMS



It can be done

## BATTELLE - NORWELL OPERATIONS SAMPLE IDENTIFICATION PAGE

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0391****WE04 PFAS Analysis****DW**

Sample ID	Description
CR038PB-FS	Procedural Blank
CR039LCS-FS	Laboratory Control Sample
J6259-FS1	WGNA-052918-FRB-3124
J6261-FS1	WGNA-052918-FRB-3493
J6263-FS1	WGNA-052918-FRB-3882
J6265-FS1	WGNA-052918-FRB-3978
J6267-FS1	NAWC-052918-FRB-161
J6271-FS1	WGNA-053018-FRB-3876
J6274-FS1	NAWC-053018-FRB-231
J6276-FS1	WGNA-053018-FRB-3933
J6278-FS1	NAWC-053018-FRB-164
J6280-FS1	NAWC-053018-FRB-292
J6282-FS1	NAWC-053018-FRB-271
J6284-FS1	NAWC-053018-FRB-270
J6286-FS1	NAWC-053018-FRB-196
J6288-FS1	NAWC-053018-FRB-172

Samples Assigned By:

Stephanie Schultz

Date :

June 21, 2018

Comments:





It can be done

## BATTELLE - NORWELL OPERATIONS SAMPLE CUSTODY LOG

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0391****WE04 PFAS Analysis****DW**

<b>Requested On/By:</b> 06/21/2018 SAS	<b>Purpose:</b> Sample Preparation
<b>Relinquished On/By:</b> 06/21/2018 MDS	<b>Last Activity:</b> Transfer
<b>Accepted On/By:</b> 06/21/2018 SAS <b>Stored In Facility:</b> Sample Preparation <b>Stored Until:</b> 06/21/2018 <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	J6259	2	C	Consumed	NA
2	J6261	2	C	Consumed	NA
3	J6263	2	C	Consumed	NA
4	J6265	2	C	Consumed	NA
5	J6267	2	C	Consumed	NA
6	J6271	2	C	Consumed	NA
7	J6274	2	C	Consumed	NA
8	J6276	2	C	Consumed	NA
9	J6278	2	C	Consumed	NA
10	J6280	2	C	Consumed	NA
11	J6282	2	C	Consumed	NA
12	J6284	2	C	Consumed	NA
13	J6286	2	C	Consumed	NA
14	J6288	2	C	Consumed	NA
<b>Total Samples</b>		14	* "C" = Consumed Container		



It can be done

## BATTELLE - NORWELL OPERATIONS LIQUID SAMPLE ID FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0391****WE04 PFAS Analysis****DW**

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CR038PB-FS	Procedural Blank	250.0	NA	--	06/21/18 SAS
CR039LCS-FS	Laboratory Control Sample	250.0	NA	--	06/21/18 SAS
J6259-FS1	WGNA-052918-FRB-3124	250.0	2	C	06/21/18 LMG
J6261-FS1	WGNA-052918-FRB-3493	260.0	2	C	06/21/18 LMG
J6263-FS1	WGNA-052918-FRB-3882	265.0	2	C	06/21/18 LMG
J6265-FS1	WGNA-052918-FRB-3978	270.0	2	C	06/21/18 LMG
J6267-FS1	NAWC-052918-FRB-161	260.0	2	C	06/21/18 LMG
J6271-FS1	WGNA-053018-FRB-3876	255.0	2	C	06/21/18 LMG
J6274-FS1	NAWC-053018-FRB-231	270.0	2	C	06/21/18 LMG
J6276-FS1	WGNA-053018-FRB-3933	250.0	2	C	06/21/18 LMG
J6278-FS1	NAWC-053018-FRB-164	270.0	2	C	06/21/18 LMG
J6280-FS1	NAWC-053018-FRB-292	255.0	2	C	06/21/18 LMG
J6282-FS1	NAWC-053018-FRB-271	270.0	2	C	06/21/18 LMG
J6284-FS1	NAWC-053018-FRB-270	260.0	2	C	06/21/18 LMG
J6286-FS1	NAWC-053018-FRB-196	245.0	2	C	06/21/18 LMG
J6288-FS1	NAWC-053018-FRB-172	240.0	2	C	06/21/18 LMG

**Comments:**

Sample ID:	Comments:
CR038PB-FS	1.23g Trizma(170526-01) weighed on BAL-009
CR039LCS-FS	1.26g Trizma(170526-01) weighed on BAL-009

Samples Assigned By

Stephanie Schultz

Date :

June 21, 2018

\* - "C" = Sample is Consumed



It can be done

## BATTELLE - NORWELL OPERATIONS SURROGATE SPIKE FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0391****WE04 PFAS Analysis****DW**

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CR038PB-FS	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
CR039LCS-FS	JV41	LCS/MS	1	150	06/21/18 SAS	LMG	NA
CR039LCS-FS	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6259-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6261-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6263-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6265-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6267-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6271-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6274-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6276-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6278-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6280-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6282-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6284-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6286-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6288-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA

## Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV41	Pipette	B1100287B
JV60	Pipette	D1075429B



It can be done

## BATTELLE - NORWELL OPERATIONS SAMPLE EXTRACTION FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0391****WE04 PFAS Analysis****DW**

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CR038PB-FS	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA
CR039LCS-FS	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6259-FS1	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6261-FS1	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6263-FS1	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6265-FS1	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6267-FS1	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6271-FS1	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6274-FS1	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6276-FS1	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6278-FS1	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6280-FS1	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6282-FS1	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6284-FS1	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6286-FS1	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6288-FS1	06/21/18 SAS	NA	NA	NA	NA	NA	NA	NA

**Solvents/Reagent Preparations:**

Name	ID	Expires	Lot No	Procedure	Comments
Pre-packed SPE Column	RP-180621-2	06/21/18	S214- 0071/S18- 002364	Pre-packed SPE Column	

**Solvents/Reagents:**

Name	Lot No	Comments
Methanol (HPLC) (180531-01)	179315	



It can be done

## BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0391****WE04 PFAS Analysis****DW****(N/A Fraction)**

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm . (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution*	Date Spiked/ Spiked By	Witn'd By
CR038PB-FS(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
CR039LCS-FS(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6259-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6261-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6263-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6265-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6267-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6271-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6274-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6276-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6278-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6280-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6282-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6284-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6286-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6288-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG

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

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



It can be done

## BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0391****WE04 PFAS Analysis****DW****(N/A Fraction)**

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm . (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution *	Date Spiked/ Spiked By	Witn'd By
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Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV59	Pipette	I0793912B

\* - 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)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0391****WE04 PFAS Analysis****DW**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CR038PB-FS	0	--	6/21/2018 10:05:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS
CR039LCS-FS	0	--	6/21/2018 10:05:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6259-FS1	0	--	6/21/2018 10:05:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6261-FS1	0	--	6/21/2018 10:05:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6263-FS1	0	--	6/21/2018 10:05:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6265-FS1	0	--	6/21/2018 10:05:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6267-FS1	0	--	6/21/2018 10:05:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6271-FS1	0	--	6/21/2018 10:05:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6274-FS1	0	--	6/21/2018 10:05:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6276-FS1	0	--	6/21/2018 10:05:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6278-FS1	0	--	6/21/2018 11:06:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6280-FS1	0	--	6/21/2018 11:06:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6282-FS1	0	--	6/21/2018 11:06:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6284-FS1	0	--	6/21/2018 11:06:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS

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

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

\* - "C" = Extract is Consumed



It can be done

## BATTELLE - NORWELL OPERATIONS PREPARATION EXTRACT SPLIT FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0391****WE04 PFAS Analysis****DW**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
J6286-FS1	0	--	6/21/2018 11:06:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6288-FS1	0	--	6/21/2018 11:06:00 AM	NA		NA	NA	1.000	1.000	06/21/18 SAS

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

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

\* - "C" = Extract is Consumed





It can be done

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

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0391****WE04 PFAS Analysis****DW**

<b>Purpose:</b> LC-MS/MS TRANSFER		<b>Last Activity:</b> Prep->Inst	
<b>Relinquished On/By:</b> Jun 22 2018 9:19AM LMG		<b>Received On/By:</b> Jun 22 2018 10:01AM DMS	
<b>Relinquished From:</b> Sample Preparation: NA		<b>Received Location:</b> LC Laboratory: NA	
<b>Relinquish Comment:</b> NA		<b>Received Comment:</b> NA	

No.	BDO-ID:	PIV:	DF:	Condition:	Custody Comment:
1	CR038PB-FS(0)	1000	1	Intact	NA
2	CR039LCS-FS(0)	1000	1	Intact	NA
3	J6259-FS1(0)	1000	1	Intact	NA
4	J6261-FS1(0)	1000	1	Intact	NA
5	J6263-FS1(0)	1000	1	Intact	NA
6	J6265-FS1(0)	1000	1	Intact	NA
7	J6267-FS1(0)	1000	1	Intact	NA
8	J6271-FS1(0)	1000	1	Intact	NA
9	J6274-FS1(0)	1000	1	Intact	NA
10	J6276-FS1(0)	1000	1	Intact	NA
11	J6278-FS1(0)	1000	1	Intact	NA
12	J6280-FS1(0)	1000	1	Intact	NA
13	J6282-FS1(0)	1000	1	Intact	NA
14	J6284-FS1(0)	1000	1	Intact	NA
15	J6286-FS1(0)	1000	1	Intact	NA
16	J6288-FS1(0)	1000	1	Intact	NA

**Total Extracts:** 16



It can be done

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

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**

100117920-WE04

**18-0391**

**WE04 PFAS Analysis**

**DW**

<b>Purpose:</b>	LC-MS/MS TRANSFER	<b>Last Activity:</b>	Prep->Inst
<b>Relinquished On/By:</b>	Jun 25 2018 5:00PM SAS	<b>Received On/By:</b>	Jun 25 2018 5:43PM DMS
<b>Relinquished From:</b>	Sample Preparation: NA	<b>Received Location:</b>	LC Laboratory: NA
<b>Relinquish Comment:</b>	NA	<b>Received Comment:</b>	re-aliquot of original extracts

No.	BDO-ID:	PIV:	DF:	Condition:	Custody Comment:
1	CR038PB-FS(0)	1000	1	Intact	NA
2	CR039LCS-FS(0)	1000	1	Intact	NA
3	J6259-FS1(0)	1000	1	Intact	NA
4	J6261-FS1(0)	1000	1	Intact	NA
5	J6263-FS1(0)	1000	1	Intact	NA
6	J6265-FS1(0)	1000	1	Intact	NA
7	J6267-FS1(0)	1000	1	Intact	NA
8	J6271-FS1(0)	1000	1	Intact	NA
9	J6274-FS1(0)	1000	1	Intact	NA
10	J6276-FS1(0)	1000	1	Intact	NA
11	J6278-FS1(0)	1000	1	Intact	NA
12	J6280-FS1(0)	1000	1	Intact	NA
13	J6282-FS1(0)	1000	1	Intact	NA
14	J6284-FS1(0)	1000	1	Intact	NA
15	J6286-FS1(0)	1000	1	Intact	NA
16	J6288-FS1(0)	1000	1	Intact	NA

**Total Extracts:** 16

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

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**

100117920-  
WE04

**18-0391**

**WE04 PFAS Analysis**

**DW**

<b>Purpose:</b>	LC-MS/MS TRANSFER	<b>Last Activity:</b>	Prep->Inst		
<b>Relinquished On/By:</b>	Jun 27 2018 3:33PM SAS	<b>Received On/By:</b>	Jun 27 2018 3:54PM DMS		
<b>Relinquished From:</b>	Sample Preparation: NA	<b>Received Location:</b>	LC Laboratory: NA		
<b>Relinquish Comment:</b>	NA	<b>Received Comment:</b>	NA		
<b>No.</b>	<b>BDO-ID:</b>	<b>PIV:</b>	<b>DF:</b>	<b>Condition:</b>	<b>Custody Comment:</b>
1	CR039LCS-FS(0)	1000	1	Intact	NA
<b>Total Extracts:</b>	1				



It can be done

**BATTELLE - NORWELL OPERATIONS  
MISCELLANEOUS DOCUMENTATION FORM**

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**

100117920-  
WE04

**18-0391**

**WE04 PFAS Analysis**

**DW**

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Entered By:

On:

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Task Leader Approval:

On:

SupervisorApproval:

On:

PM Approval:

On:

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It can be done

## BATTELLE - NORWELL OPERATIONS SAMPLE SPECIFIC COMMENTS

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**

100117920-  
WE04

**18-0391**

**WE04 PFAS Analysis**

**DW**

Sample ID:	Comment:	Date/Initials:
CR038PB-FS	Sample extraction for samples CR038PB-FS through J6276-FS1 began at 10:05am	06/21/18 SAS
CR038PB-FS	Sample extraction ended at 10:32am	06/21/18 SAS
CR039LCS-FS	Sample extraction ended at 10:31am	06/21/18 SAS
J6259-FS1	Sample extraction ended at 10:31am	06/21/18 SAS
J6261-FS1	Sample extraction ended at 10:32am	06/21/18 SAS
J6263-FS1	Sample extraction ended at 10:37am	06/21/18 SAS
J6265-FS1	Sample extraction ended at 10:42am	06/21/18 SAS
J6267-FS1	Sample extraction ended at 10:40am	06/21/18 SAS
J6271-FS1	Sample extraction ended at 10:39am	06/21/18 SAS
J6274-FS1	Sample extraction ended at 10:37am	06/21/18 SAS
J6276-FS1	Sample extraction ended at 10:40am	06/21/18 SAS
J6278-FS1	Sample extraction for J6278-FS1 through J6288-FS1 began at 11:06am	06/21/18 SAS
J6278-FS1	Sample extraction ended at 11:29am	06/21/18 SAS
J6280-FS1	Sample extraction ended at 11:31am	06/21/18 SAS
J6282-FS1	Sample extraction ended at 11:33am	06/21/18 SAS
J6284-FS1	Sample extraction ended at 11:30am	06/21/18 SAS
J6286-FS1	Sample extraction ended at 11:36am	06/21/18 SAS
J6288-FS1	Sample extraction ended at 11:35am	06/21/18 SAS

# Analytical Calibrations

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		6/27/2018 8:56:44 AM	5-0371.dam	06252018_5-371.wiff
2	JX67	L1	6/27/2018 9:05:43 AM	5-0371.dam	06252018_5-371.wiff
3	JX68	L2	6/27/2018 9:14:41 AM	5-0371.dam	06252018_5-371.wiff
4	JX69	L3	6/27/2018 9:23:38 AM	5-0371.dam	06252018_5-371.wiff
5	JX70	L4	6/27/2018 9:32:34 AM	5-0371.dam	06252018_5-371.wiff
6	JX71	L5	6/27/2018 9:41:29 AM	5-0371.dam	06252018_5-371.wiff
7	JX72	L6	6/27/2018 9:50:24 AM	5-0371.dam	06252018_5-371.wiff
8	JX73	L7	6/27/2018 9:59:20 AM	5-0371.dam	06252018_5-371.wiff
9	JX74	L8	6/27/2018 10:08:14 AM	5-0371.dam	06252018_5-371.wiff
10	JX75	L9	6/27/2018 10:17:08 AM	5-0371.dam	06252018_5-371.wiff
11	JV66 ICC	ICC	6/27/2018 10:26:04 AM	5-0371.dam	06252018_5-371.wiff
12	MeOH		6/27/2018 10:34:59 AM	5-0371.dam	06252018_5-371.wiff
13	CR038PB-FS(0)	Procedural Blank	6/27/2018 10:43:54 AM	5-0371.dam	06252018_5-371.wiff
14	CR039LCS-FS(0)	Laboratory Control Sample	6/27/2018 10:52:49 AM	5-0371.dam	06252018_5-371.wiff
15	J6259-FS1(0)	WGNA-052918-FRB-3124	6/27/2018 11:01:45 AM	5-0371.dam	06252018_5-371.wiff
16	J6261-FS1(0)	WGNA-052918-FRB-3493	6/27/2018 11:10:41 AM	5-0371.dam	06252018_5-371.wiff
17	J6263-FS1(0)	WGNA-052918-FRB-3882	6/27/2018 11:19:39 AM	5-0371.dam	06252018_5-371.wiff
18	J6265-FS1(0)	WGNA-052918-FRB-3978	6/27/2018 11:28:34 AM	5-0371.dam	06252018_5-371.wiff
19	J6267-FS1(0)	NAWC-052918-FRB-161	6/27/2018 11:37:30 AM	5-0371.dam	06252018_5-371.wiff
20	J6271-FS1(0)	WGNA-053018-FRB-3876	6/27/2018 11:46:27 AM	5-0371.dam	06252018_5-371.wiff
21	JX71 CCV	CCV	6/27/2018 11:55:23 AM	5-0371.dam	06252018_5-371.wiff
12	MeOH		6/27/2018 12:04:19 PM	5-0371.dam	06252018_5-371.wiff
22	J6274-FS1(0)	NAWC-053018-FRB-231	6/27/2018 12:13:16 PM	5-0371.dam	06252018_5-371.wiff
23	J6276-FS1(0)	WGNA-053018-FRB-3933	6/27/2018 12:22:12 PM	5-0371.dam	06252018_5-371.wiff
24	J6278-FS1(0)	NAWC-053018-FRB-164	6/27/2018 12:31:07 PM	5-0371.dam	06252018_5-371.wiff
25	J6280-FS1(0)	NAWC-053018-FRB-292	6/27/2018 12:40:02 PM	5-0371.dam	06252018_5-371.wiff
26	J6282-FS1(0)	NAWC-053018-FRB-	6/27/2018 12:48:57	5-0371.dam	06252018_5-371.wiff

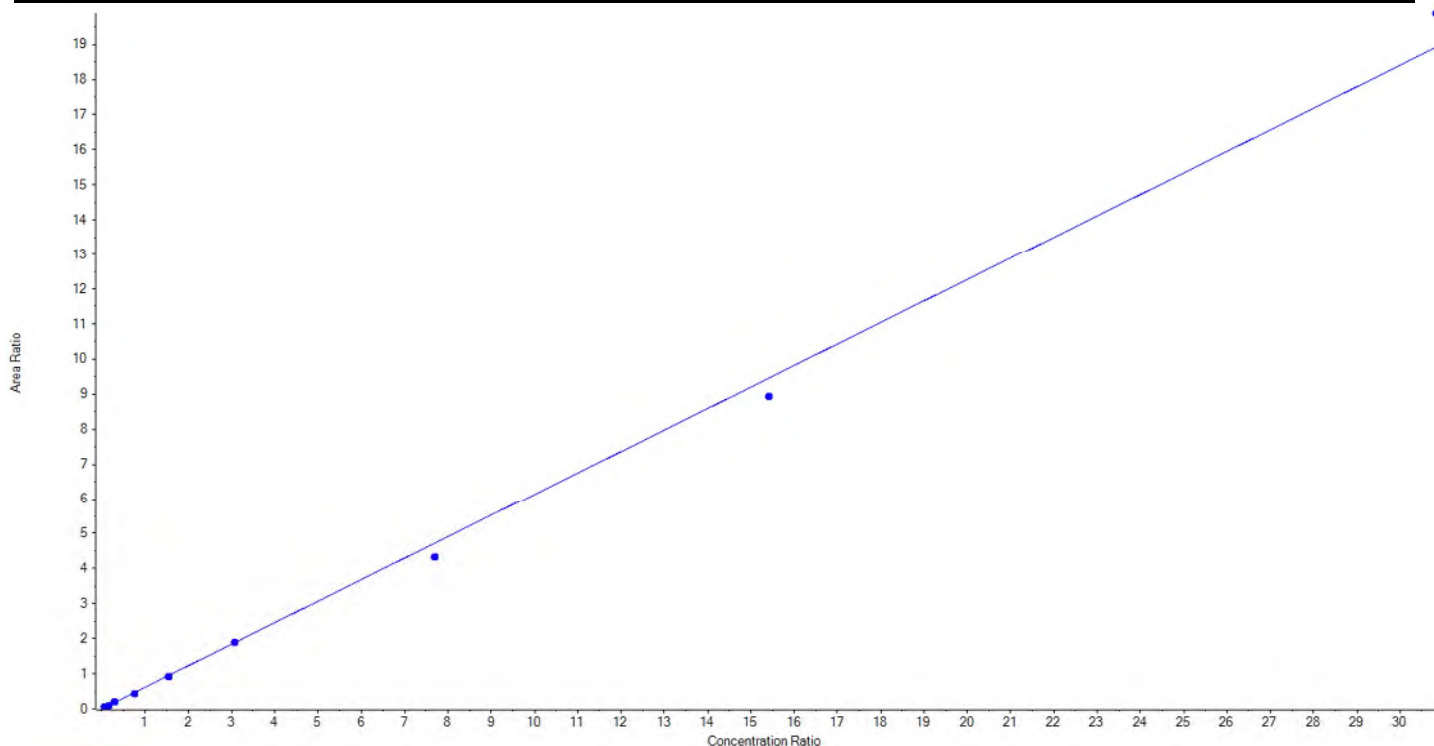
Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
		271	PM		
27	J6284-FS1(0)	NAWC-053018-FRB-270	6/27/2018 12:57:53 PM	5-0371.dam	06252018_5-371.wiff
28	J6286-FS1(0)	NAWC-053018-FRB-196	6/27/2018 1:06:48 PM	5-0371.dam	06252018_5-371.wiff
29	J6288-FS1(0)	NAWC-053018-FRB-172	6/27/2018 1:15:44 PM	5-0371.dam	06252018_5-371.wiff
30	JX72 CCV	CCV	6/27/2018 1:24:40 PM	5-0371.dam	06252018_5-371.wiff



<b>Analyte Name</b>	PFBS_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	298.9 / 80.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.61363x + -0.00126$  (r = 0.99834) (weighting: 1 / x)

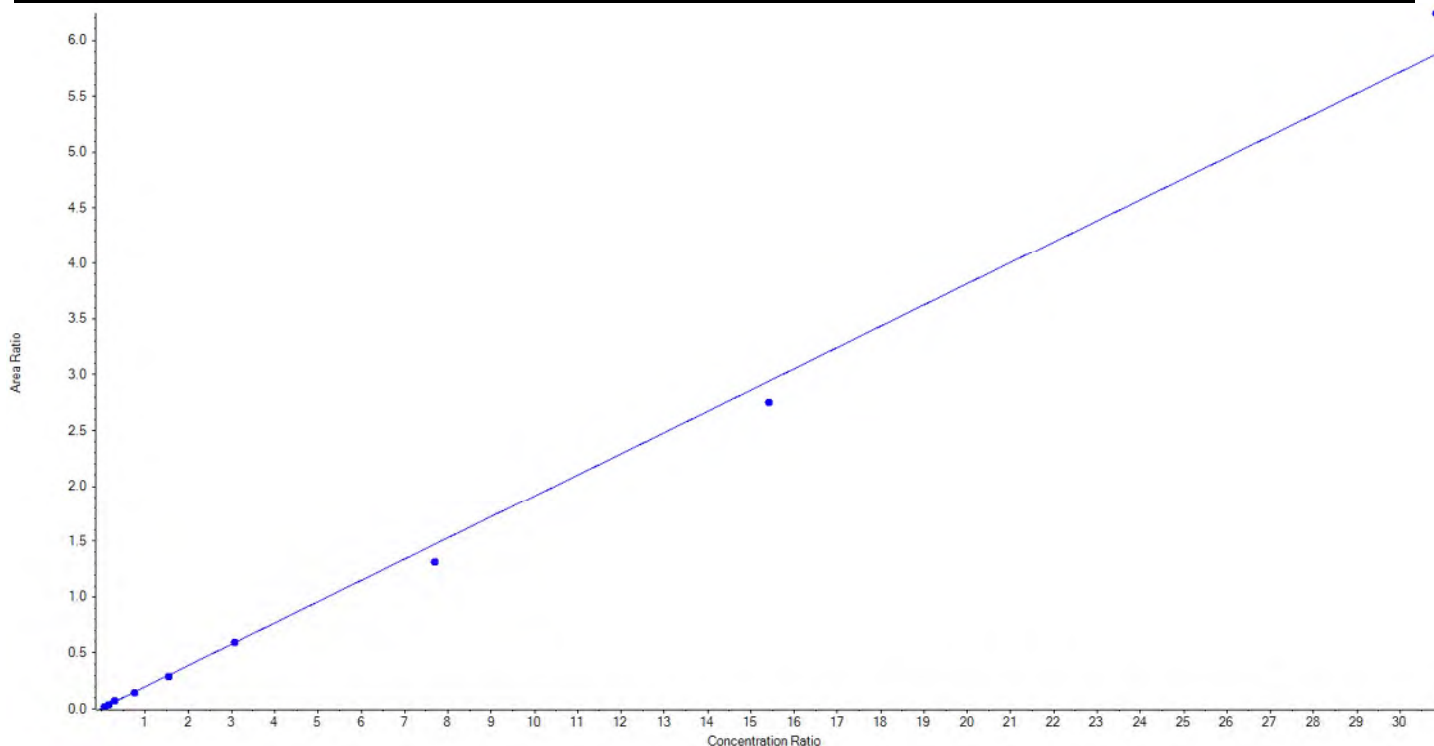
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.15	23.830433	107.6
3	JX68	L2	True	44.30	46.278541	104.5
4	JX69	L3	True	88.60	93.683891	105.7
5	JX70	L4	True	221.50	206.327632	93.2
6	JX71	L5	True	443.00	432.516100	97.6
7	JX72	L6	True	885.00	888.747710	100.4
8	JX73	L7	True	2212.50	2024.674722	91.5
9	JX74	L8	True	4425.00	4178.992960	94.4
10	JX75	L9	True	8850.00	9296.998012	105.1



<b>Analyte Name</b>	PFBS_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	298.9 / 99.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19036 x + 0.00658$  (r = 0.99747) (weighting: 1 / x)

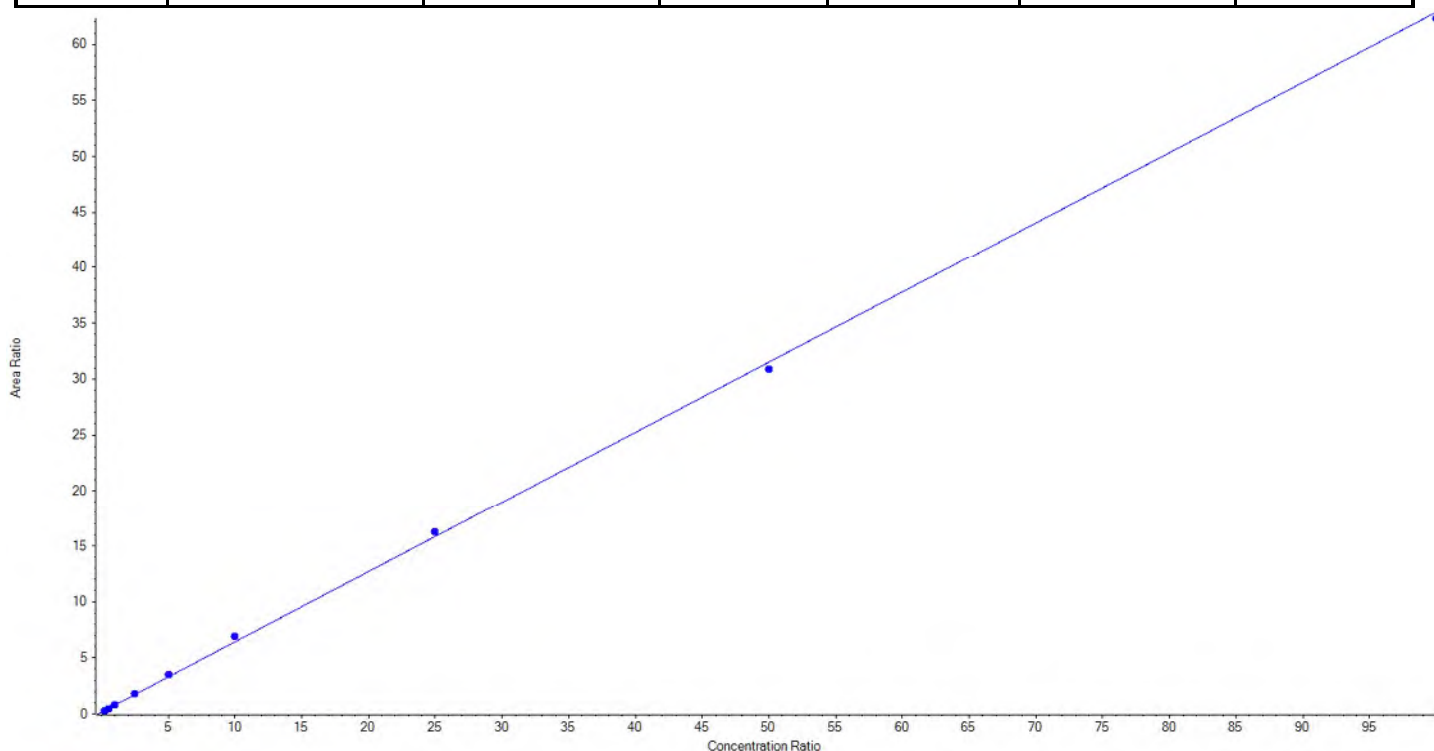
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.15	22.983577	103.8
3	JX68	L2	True	44.30	49.356949	111.4
4	JX69	L3	True	88.60	93.887974	106.0
5	JX70	L4	True	221.50	205.818634	92.9
6	JX71	L5	True	443.00	429.643049	97.0
7	JX72	L6	True	885.00	889.170002	100.5
8	JX73	L7	True	2212.50	1962.210653	88.7
9	JX74	L8	True	4425.00	4142.359203	93.6
10	JX75	L9	True	8850.00	9396.619960	106.2



<b>Analyte Name</b>	PFHxA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	313.0 / 269.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.62713x + 0.16053$  (r = 0.99957) (weighting: 1 / x)

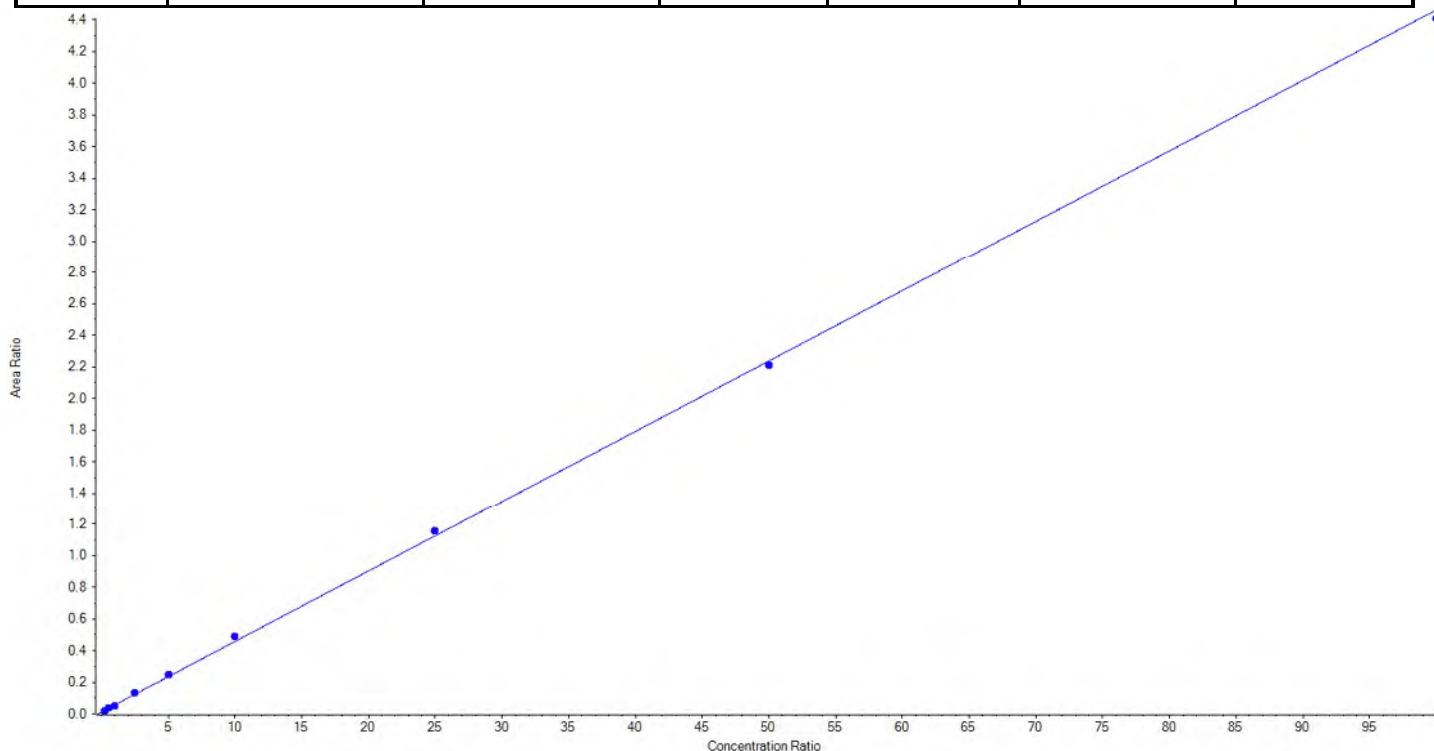
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.791994	75.2
3	JX68	L2	True	50.00	51.402415	102.8
4	JX69	L3	True	100.00	104.015969	104.0
5	JX70	L4	True	250.00	256.894451	102.8
6	JX71	L5	True	500.00	536.593763	107.3
7	JX72	L6	True	1000.00	1083.560155	108.4
8	JX73	L7	True	2500.00	2559.637674	102.4
9	JX74	L8	True	5000.00	4905.213315	98.1
10	JX75	L9	True	10000.00	9908.890264	99.1



<b>Analyte Name</b>	PFHxA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	313.0 / 119.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04450x + 0.01264$  (r = 0.99956) (weighting: 1 / x)

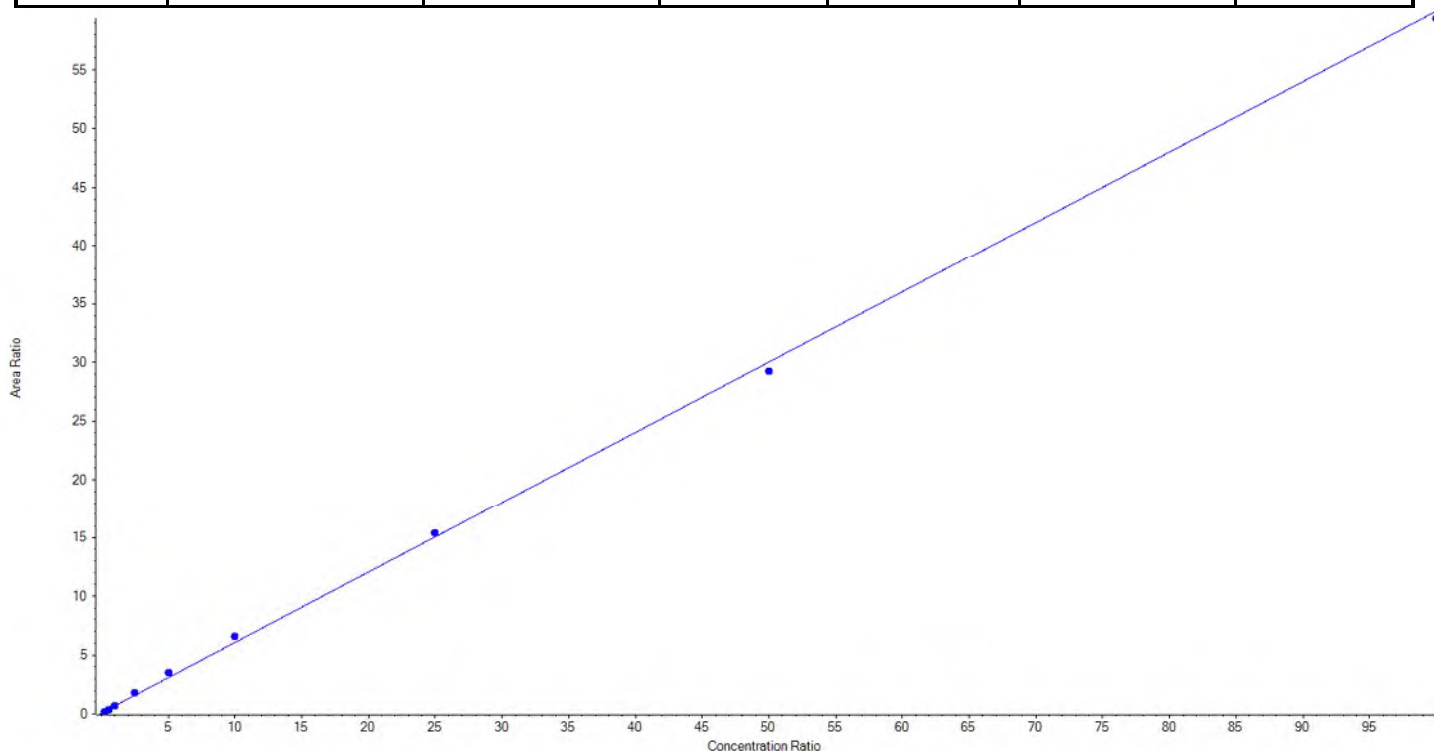
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	20.296701	81.2
3	JX68	L2	True	50.00	53.760551	107.5
4	JX69	L3	True	100.00	88.961255	89.0
5	JX70	L4	True	250.00	271.044383	108.4
6	JX71	L5	True	500.00	529.040331	105.8
7	JX72	L6	True	1000.00	1077.865222	107.8
8	JX73	L7	True	2500.00	2570.917958	102.8
9	JX74	L8	True	5000.00	4935.064490	98.7
10	JX75	L9	True	10000.00	9878.049109	98.8



<b>Analyte Name</b>	PFHpA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	363.0 / 319.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.59900x + 0.08720$  (r = 0.99924) (weighting: 1 / x)

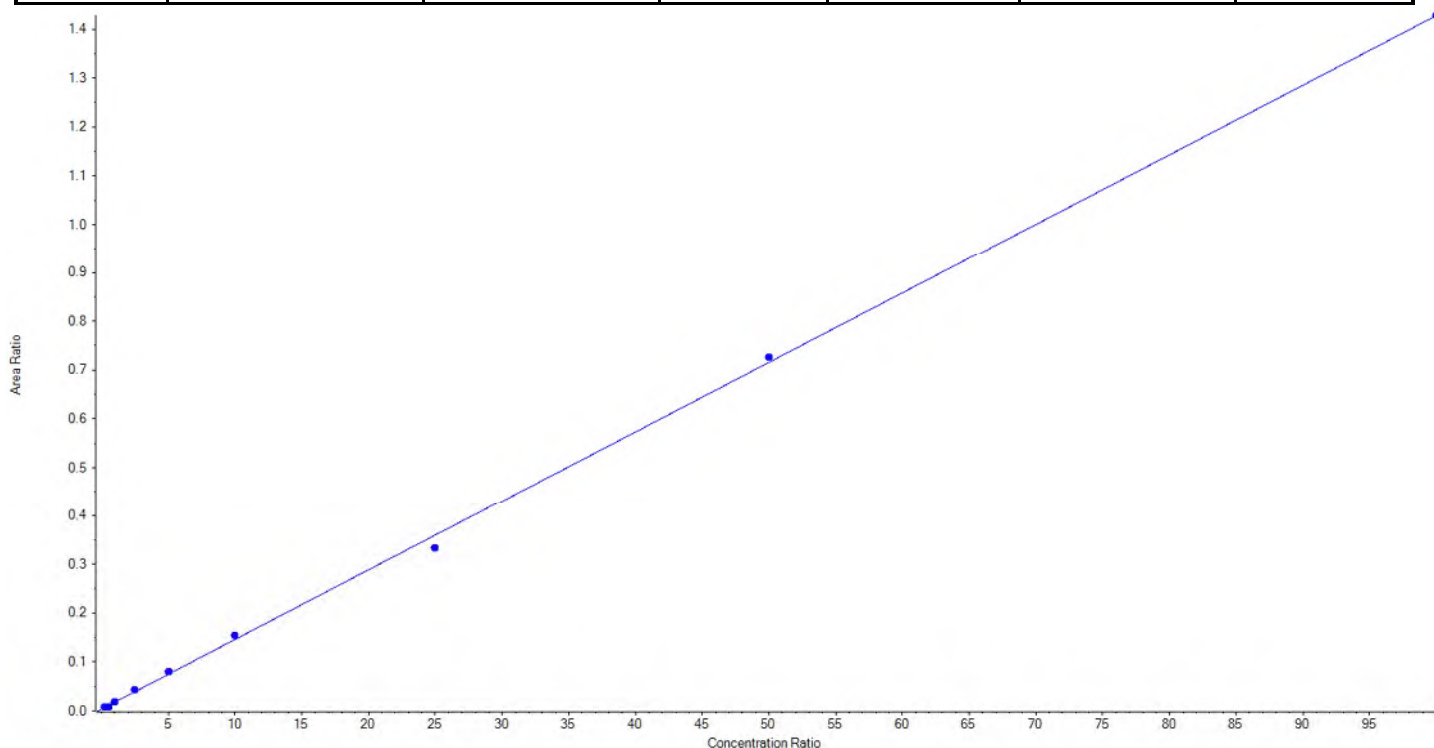
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.302340	73.2
3	JX68	L2	True	50.00	44.691384	89.4
4	JX69	L3	True	100.00	104.066690	104.1
5	JX70	L4	True	250.00	283.179151	113.3
6	JX71	L5	True	500.00	564.092719	112.8
7	JX72	L6	True	1000.00	1085.640666	108.6
8	JX73	L7	True	2500.00	2557.091682	102.3
9	JX74	L8	True	5000.00	4872.389047	97.5
10	JX75	L9	True	10000.00	9895.546320	99.0



<b>Analyte Name</b>	PFHpA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	363.0 / 169.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.01424 x + 0.00368$  (r = 0.99920) (weighting: 1 / x)

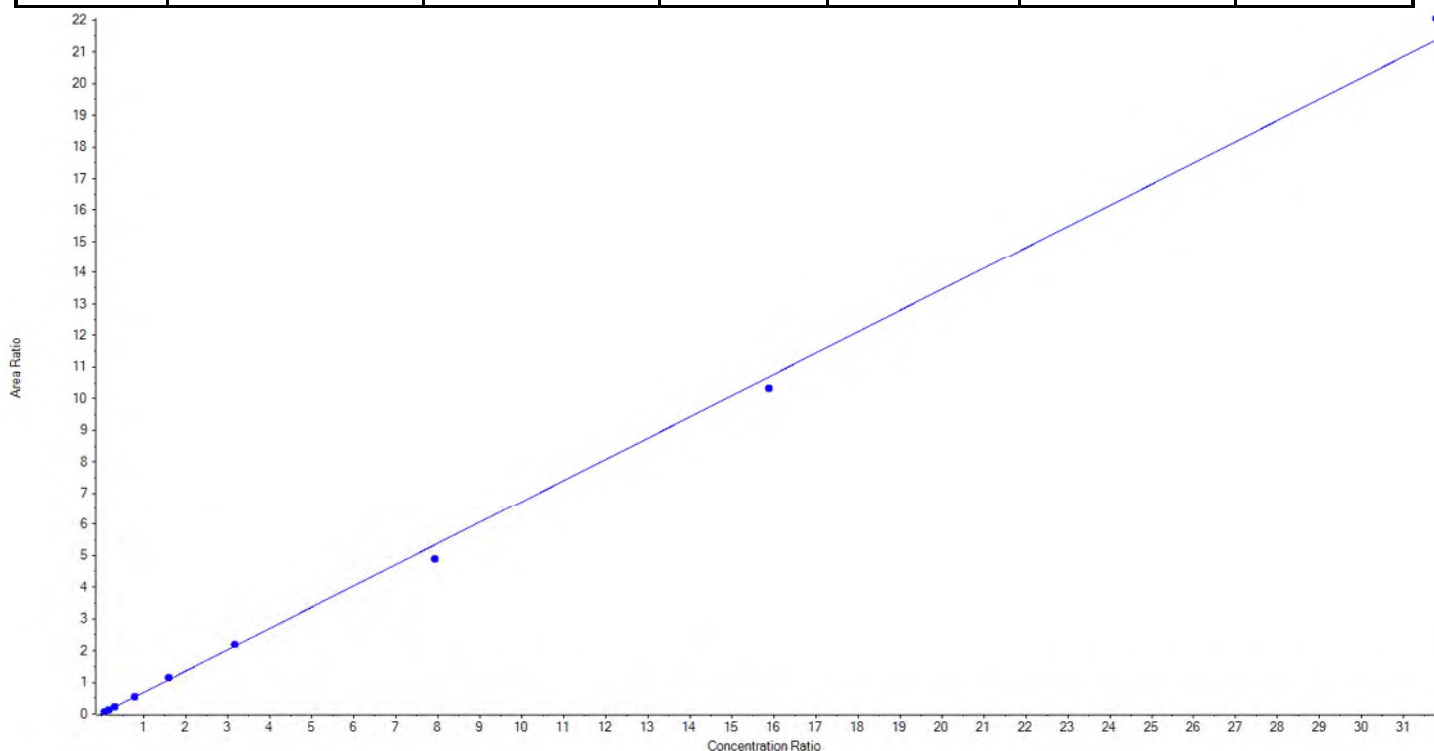
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	25.182337	100.7
3	JX68	L2	True	50.00	37.004714	74.0
4	JX69	L3	True	100.00	106.084205	106.1
5	JX70	L4	True	250.00	279.413504	111.8
6	JX71	L5	True	500.00	537.484438	107.5
7	JX72	L6	True	1000.00	1062.086999	106.2
8	JX73	L7	True	2500.00	2307.985347	92.3
9	JX74	L8	True	5000.00	5068.903345	101.4
10	JX75	L9	True	10000.00	10000.855110	100.0



<b>Analyte Name</b>	PFHxS_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	399.0 / 80.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.67255x + 0.00557$  (r = 0.99899) (weighting: 1 / x)

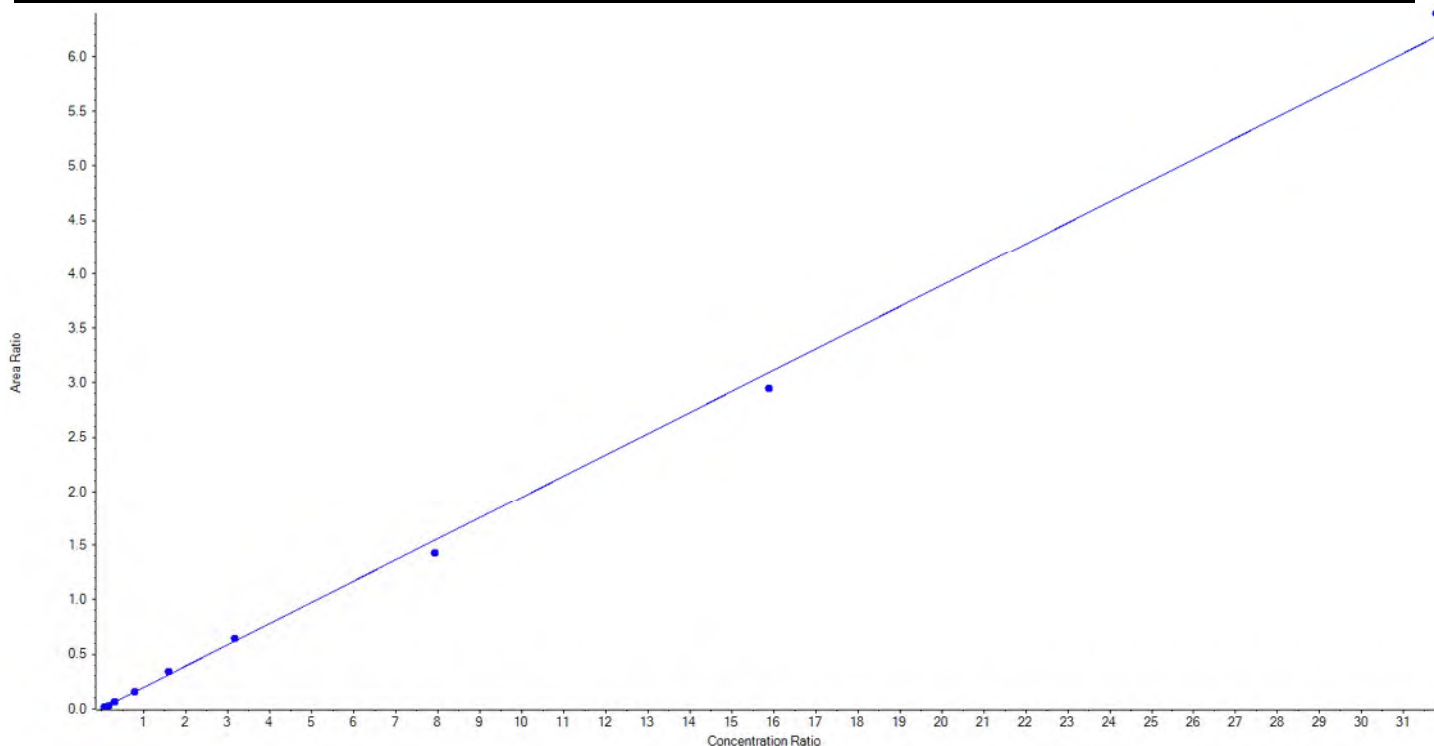
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.80	21.540088	94.5
3	JX68	L2	True	45.60	45.354398	99.5
4	JX69	L3	True	91.20	94.429375	103.5
5	JX70	L4	True	228.00	231.961115	101.7
6	JX71	L5	True	456.00	490.677670	107.6
7	JX72	L6	True	912.00	928.885400	101.9
8	JX73	L7	True	2280.00	2086.096882	91.5
9	JX74	L8	True	4560.00	4408.253001	96.7
10	JX75	L9	True	9120.00	9408.402070	103.2



<b>Analyte Name</b>	PFHxS_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	399.0 / 99.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19454 x + 0.00249$  (r = 0.99879) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.80	21.831569	95.8
3	JX68	L2	True	45.60	43.862949	96.2
4	JX69	L3	True	91.20	95.814283	105.1
5	JX70	L4	True	228.00	224.050348	98.3
6	JX71	L5	True	456.00	499.804218	109.6
7	JX72	L6	True	912.00	950.335119	104.2
8	JX73	L7	True	2280.00	2101.773991	92.2
9	JX74	L8	True	4560.00	4346.681282	95.3
10	JX75	L9	True	9120.00	9431.446241	103.4

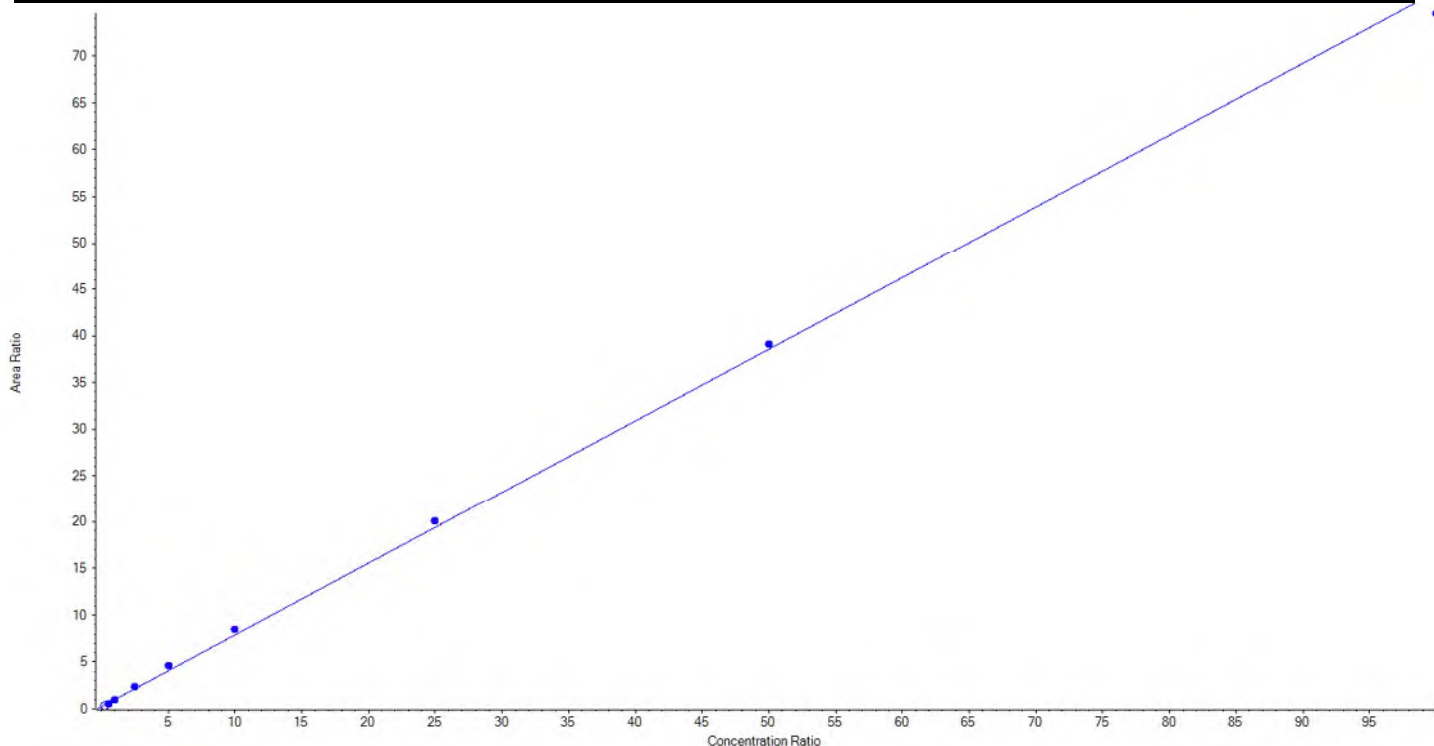




<b>Analyte Name</b>	PFOA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	413.0 / 369.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.76657 x + 0.23682$  (r = 0.99897) (weighting: 1 / x)

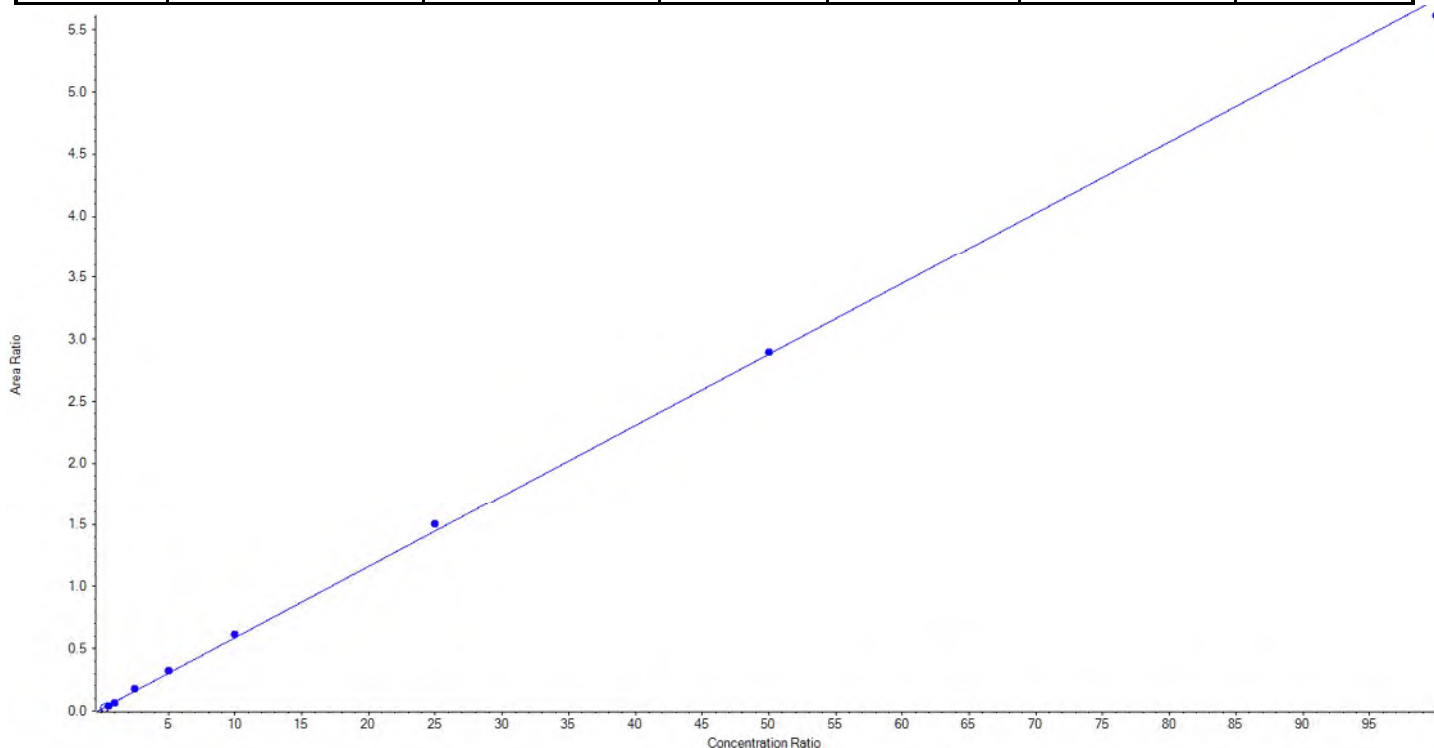
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	5.415311	21.7
3	JX68	L2	True	50.00	36.683792	73.4
4	JX69	L3	True	100.00	92.235736	92.2
5	JX70	L4	True	250.00	275.902665	110.4
6	JX71	L5	True	500.00	572.330827	114.5
7	JX72	L6	True	1000.00	1079.143229	107.9
8	JX73	L7	True	2500.00	2586.190651	103.5
9	JX74	L8	True	5000.00	5063.236772	101.3
10	JX75	L9	True	10000.00	9694.276329	96.9



<b>Analyte Name</b>	PFOA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	413.0 / 169.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05729x + 0.01572$  (r = 0.99941) (weighting: 1 / x)

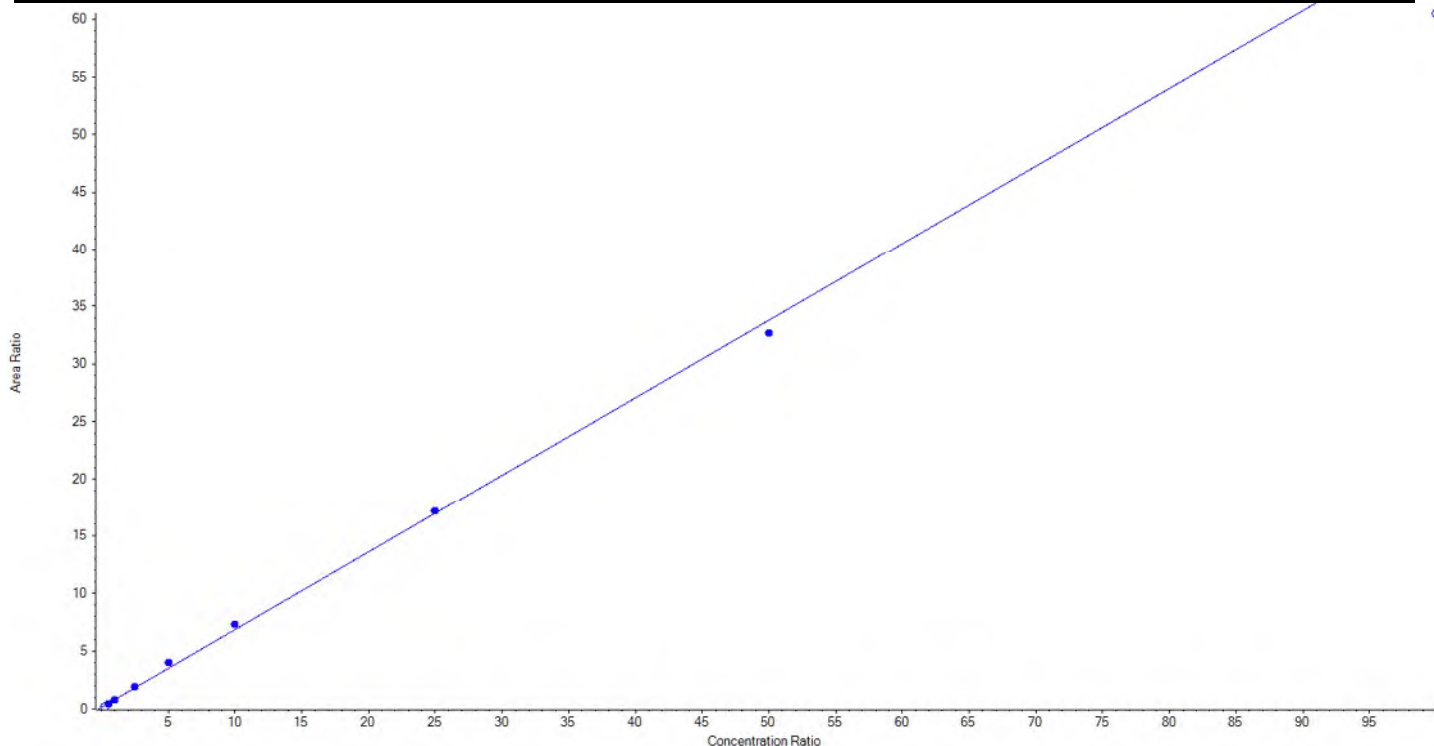
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	12.318640	49.3
3	JX68	L2	True	50.00	43.335566	86.7
4	JX69	L3	True	100.00	86.590381	86.6
5	JX70	L4	True	250.00	279.024584	111.6
6	JX71	L5	True	500.00	542.178268	108.4
7	JX72	L6	True	1000.00	1042.123910	104.2
8	JX73	L7	True	2500.00	2604.616479	104.2
9	JX74	L8	True	5000.00	5027.464128	100.6
10	JX75	L9	True	10000.00	9774.666684	97.8



<b>Analyte Name</b>	PFNA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	463.0 / 419.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.67314x + 0.14207$  (r = 0.99841) (weighting: 1 / x)

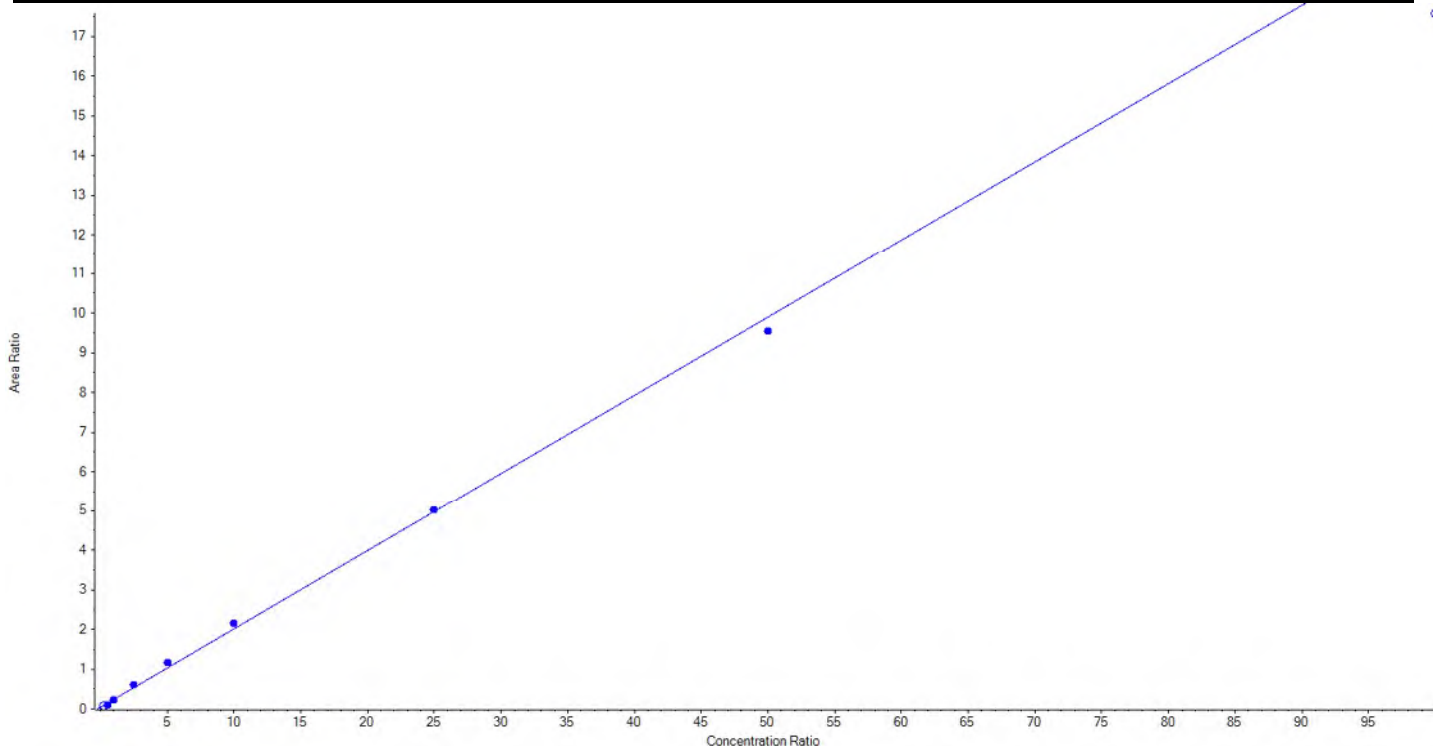
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	7.876482	31.5
3	JX68	L2	True	50.00	38.471445	76.9
4	JX69	L3	True	100.00	96.355173	96.4
5	JX70	L4	True	250.00	268.580288	107.4
6	JX71	L5	True	500.00	575.970800	115.2
7	JX72	L6	True	1000.00	1064.317609	106.4
8	JX73	L7	True	2500.00	2525.890341	101.0
9	JX74	L8	True	5000.00	4830.414344	96.6
10	JX75	L9	False	10000.00	8963.600323	89.6



<b>Analyte Name</b>	PFNA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	463.0 / 219.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19709x + 0.04473$  (r = 0.99821) (weighting: 1 / x)

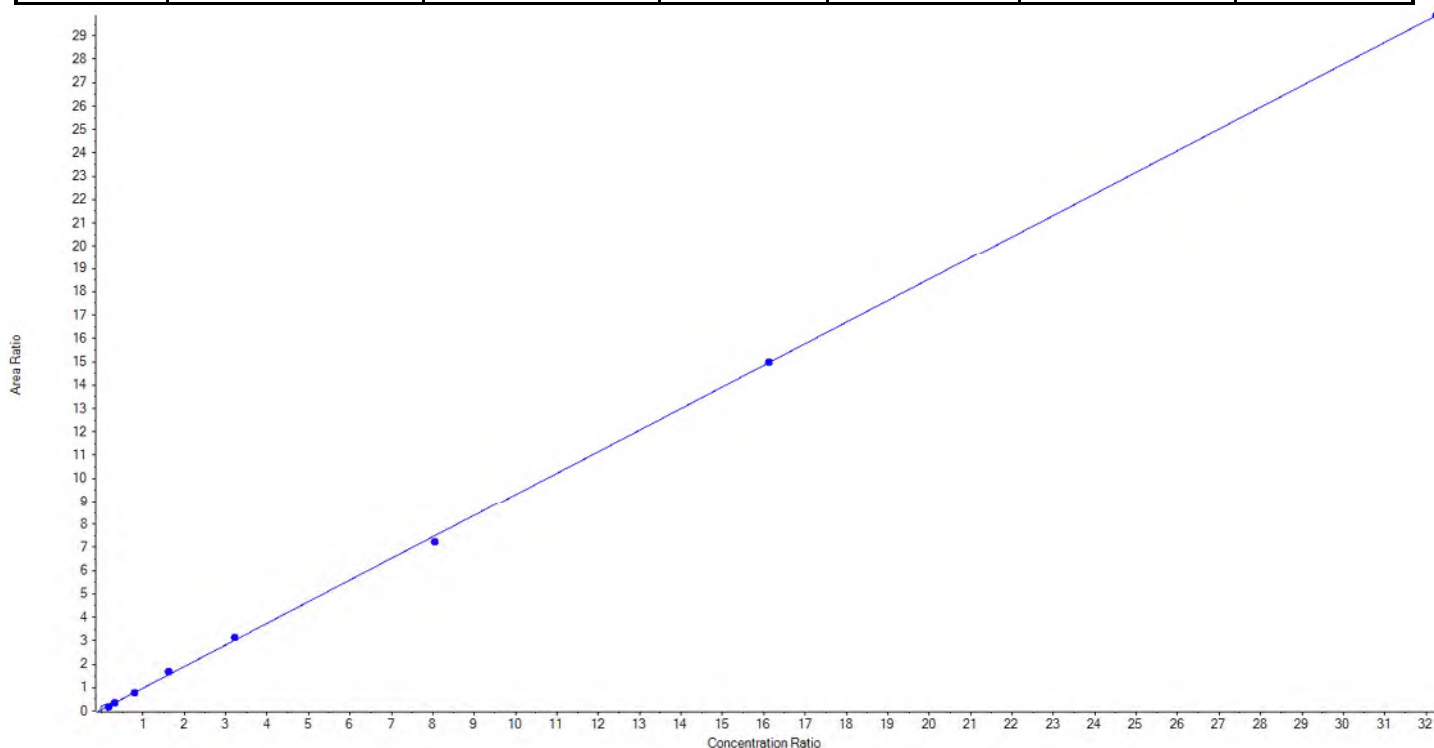
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	17.483575	69.9
3	JX68	L2	True	50.00	35.058175	70.1
4	JX69	L3	True	100.00	99.127432	99.1
5	JX70	L4	True	250.00	282.168603	112.9
6	JX71	L5	True	500.00	566.768331	113.4
7	JX72	L6	True	1000.00	1073.450506	107.4
8	JX73	L7	True	2500.00	2516.076067	100.6
9	JX74	L8	True	5000.00	4827.350887	96.6
10	JX75	L9	False	10000.00	8895.837853	89.0



<b>Analyte Name</b>	PFOS_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	499.0 / 80.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.92479x + 0.04857$  (r = 0.99974) (weighting: 1 / x)

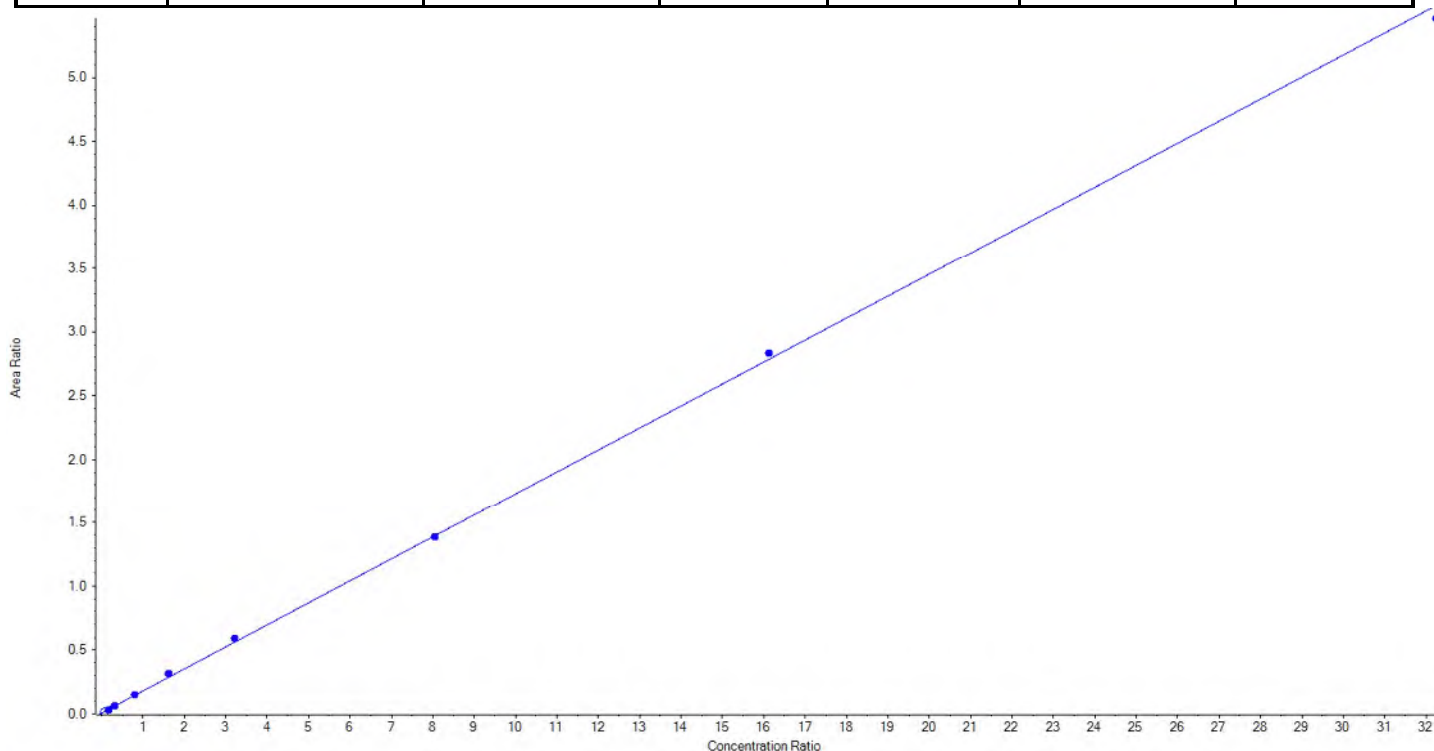
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	23.15	14.967381	64.7
3	JX68	L2	True	46.30	41.416707	89.5
4	JX69	L3	True	92.60	94.155588	101.7
5	JX70	L4	True	231.50	229.522123	99.2
6	JX71	L5	True	463.00	504.911983	109.1
7	JX72	L6	True	925.60	962.388374	104.0
8	JX73	L7	True	2314.00	2234.023744	96.5
9	JX74	L8	True	4628.00	4635.388250	100.2
10	JX75	L9	True	9256.00	9255.193233	100.0



<b>Analyte Name</b>	PFOS_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	499.0 / 99.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.17232 x + 0.00703$  (r = 0.99957) (weighting: 1 / x)

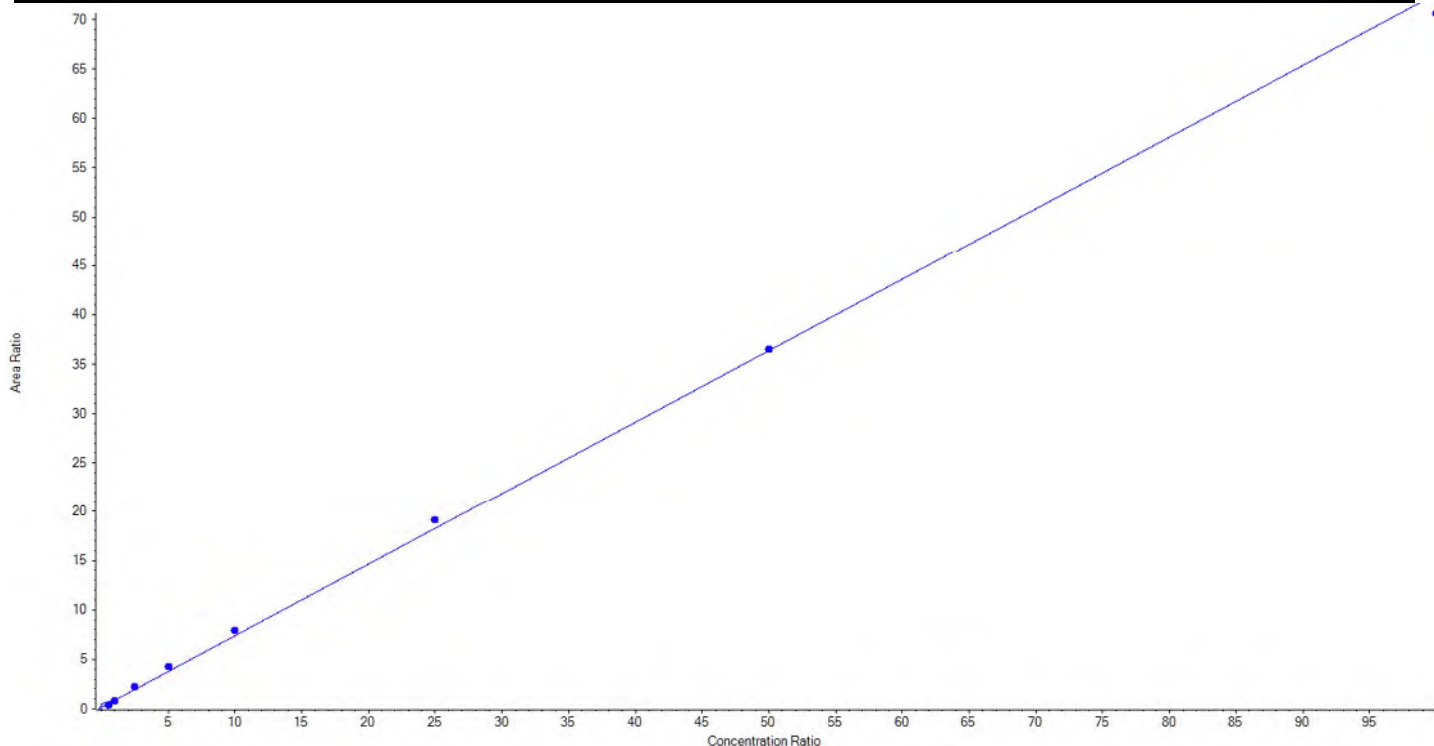
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	23.15	17.551763	75.8
3	JX68	L2	True	46.30	36.618609	79.1
4	JX69	L3	True	92.60	94.778219	102.4
5	JX70	L4	True	231.50	241.187429	104.2
6	JX71	L5	True	463.00	506.365979	109.4
7	JX72	L6	True	925.60	976.906219	105.5
8	JX73	L7	True	2314.00	2301.363562	99.5
9	JX74	L8	True	4628.00	4713.142959	101.8
10	JX75	L9	True	9256.00	9086.637025	98.2



<b>Analyte Name</b>	PFDA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	513.0 / 469.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.72444 x + 0.16011$  (r = 0.99902) (weighting: 1 / x)

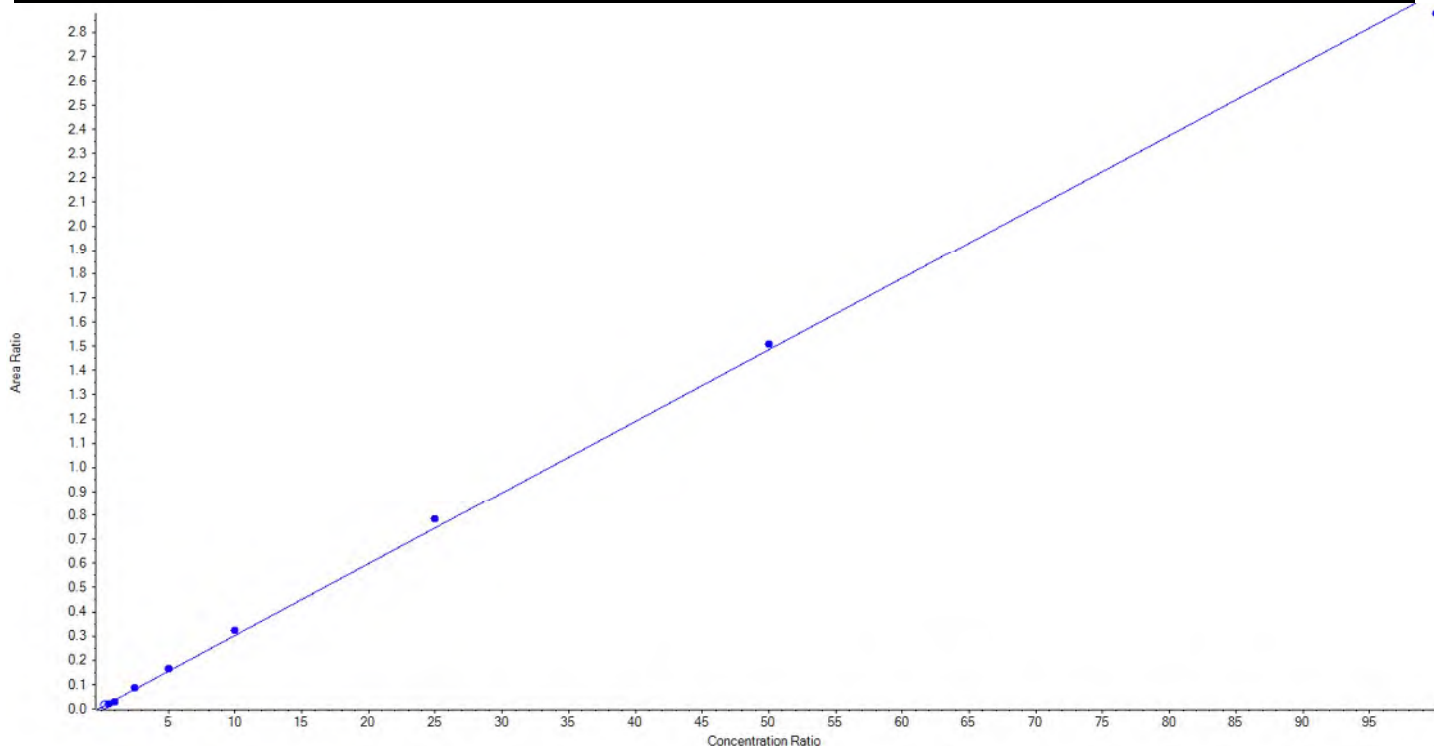
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	4.293986	17.2
3	JX68	L2	True	50.00	38.400405	76.8
4	JX69	L3	True	100.00	87.838796	87.8
5	JX70	L4	True	250.00	283.367571	113.4
6	JX71	L5	True	500.00	562.746141	112.6
7	JX72	L6	True	1000.00	1073.347869	107.3
8	JX73	L7	True	2500.00	2614.798969	104.6
9	JX74	L8	True	5000.00	5014.238853	100.3
10	JX75	L9	True	10000.00	9725.261395	97.3



<b>Analyte Name</b>	PFDA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	513.0 / 219.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.02959x + 0.00688$  (r = 0.99915) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	27.987541	112.0
3	JX68	L2	True	50.00	48.305605	96.6
4	JX69	L3	True	100.00	78.774590	78.8
5	JX70	L4	True	250.00	266.338265	106.5
6	JX71	L5	True	500.00	536.324707	107.3
7	JX72	L6	True	1000.00	1073.774687	107.4
8	JX73	L7	True	2500.00	2625.689392	105.0
9	JX74	L8	True	5000.00	5070.098049	101.4
10	JX75	L9	True	10000.00	9700.694705	97.0

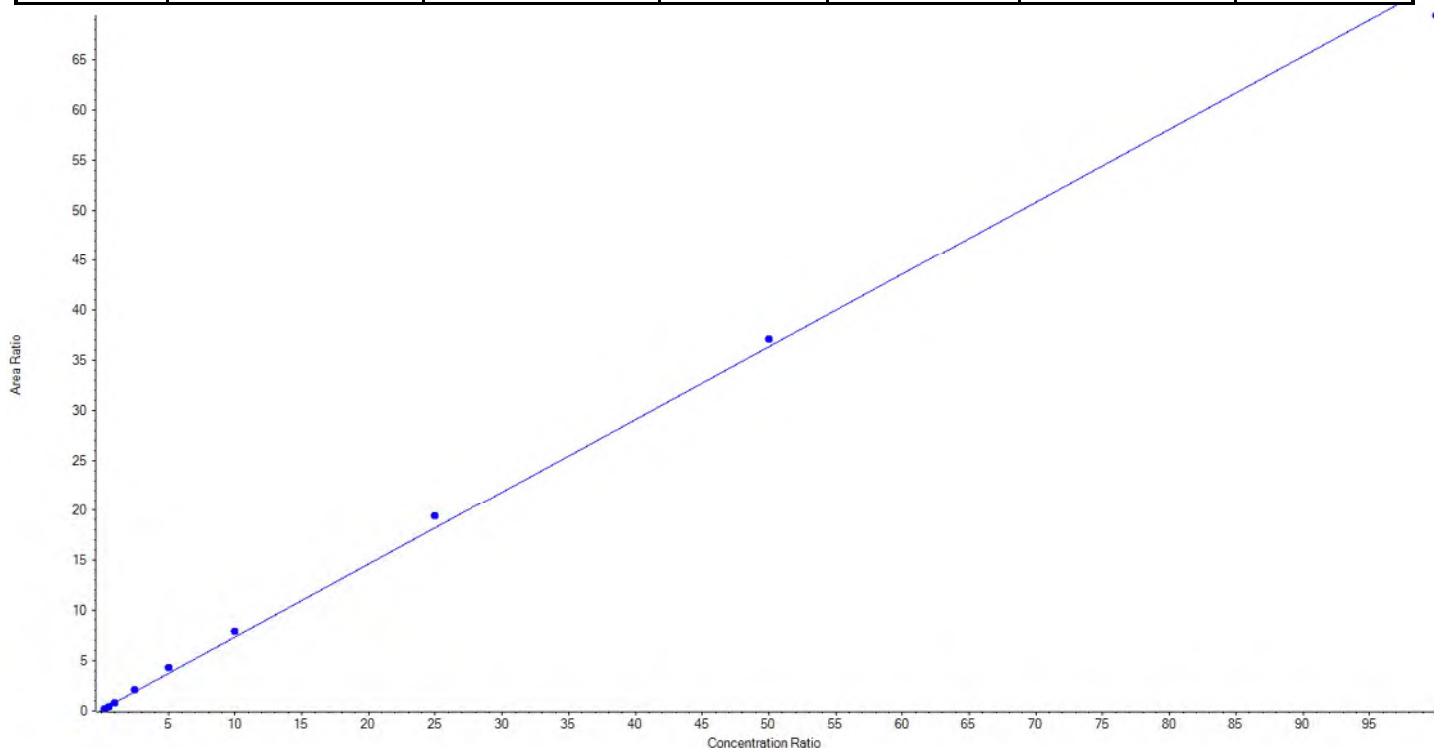




<b>Analyte Name</b>	PFUnA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	563.0 / 519.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.72537 x + 0.09471$  (r = 0.99844) (weighting: 1 / x)

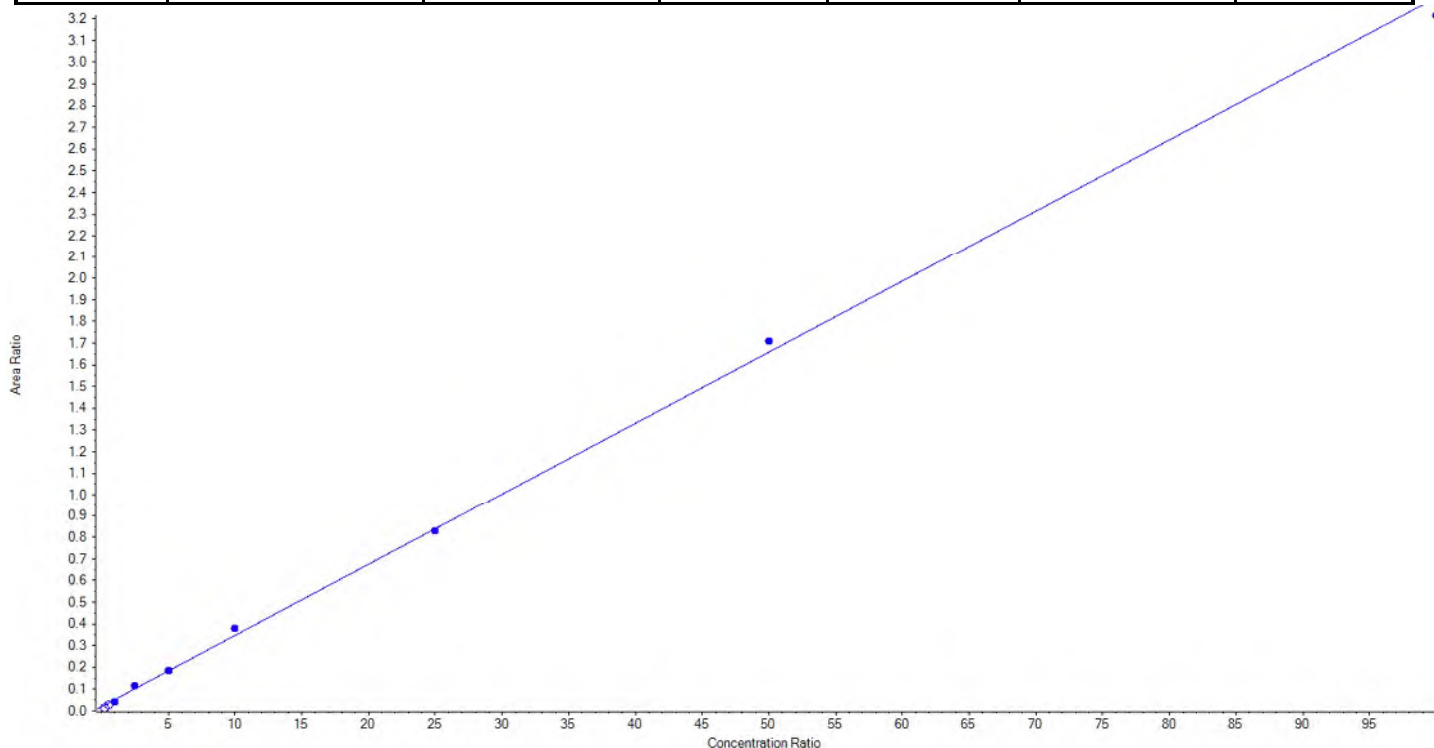
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	20.073088	80.3
3	JX68	L2	True	50.00	42.388703	84.8
4	JX69	L3	True	100.00	95.029236	95.0
5	JX70	L4	True	250.00	279.090767	111.6
6	JX71	L5	True	500.00	579.829398	116.0
7	JX72	L6	True	1000.00	1079.142455	107.9
8	JX73	L7	True	2500.00	2669.633957	106.8
9	JX74	L8	True	5000.00	5100.109139	102.0
10	JX75	L9	True	10000.00	9559.703256	95.6



<b>Analyte Name</b>	PFUnA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	563.0 / 269.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.03278 x + 0.01985$  (r = 0.99876) (weighting: 1 / x)

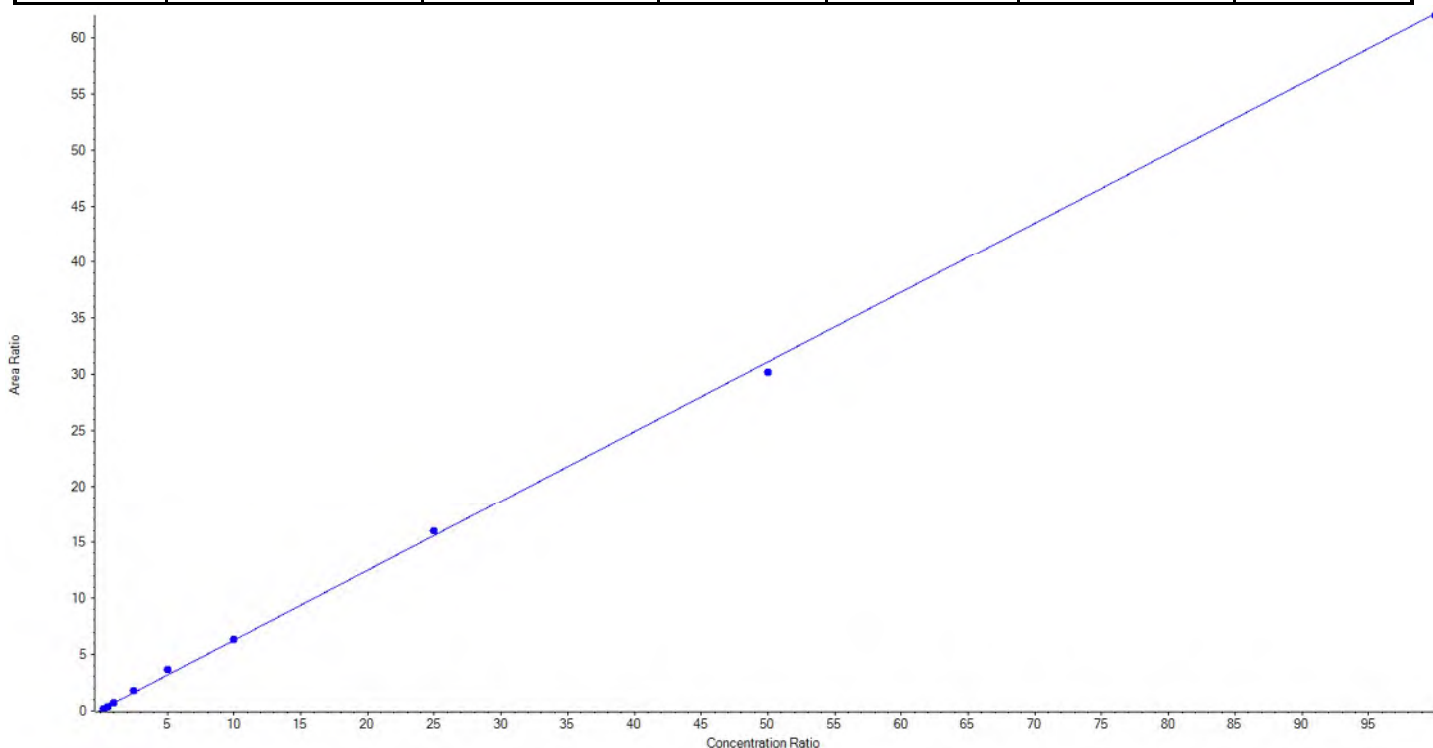
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	< 0	N/A
3	JX68	L2	False	50.00	25.569843	51.1
4	JX69	L3	True	100.00	70.257455	70.3
5	JX70	L4	True	250.00	299.570771	119.8
6	JX71	L5	True	500.00	500.697313	100.1
7	JX72	L6	True	1000.00	1103.433343	110.3
8	JX73	L7	True	2500.00	2469.487594	98.8
9	JX74	L8	True	5000.00	5158.640024	103.2
10	JX75	L9	True	10000.00	9747.913499	97.5



<b>Analyte Name</b>	PFD <sub>o</sub> A_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	613.0 / 569.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.62092x + 0.06665$  (r = 0.99942) (weighting: 1 / x)

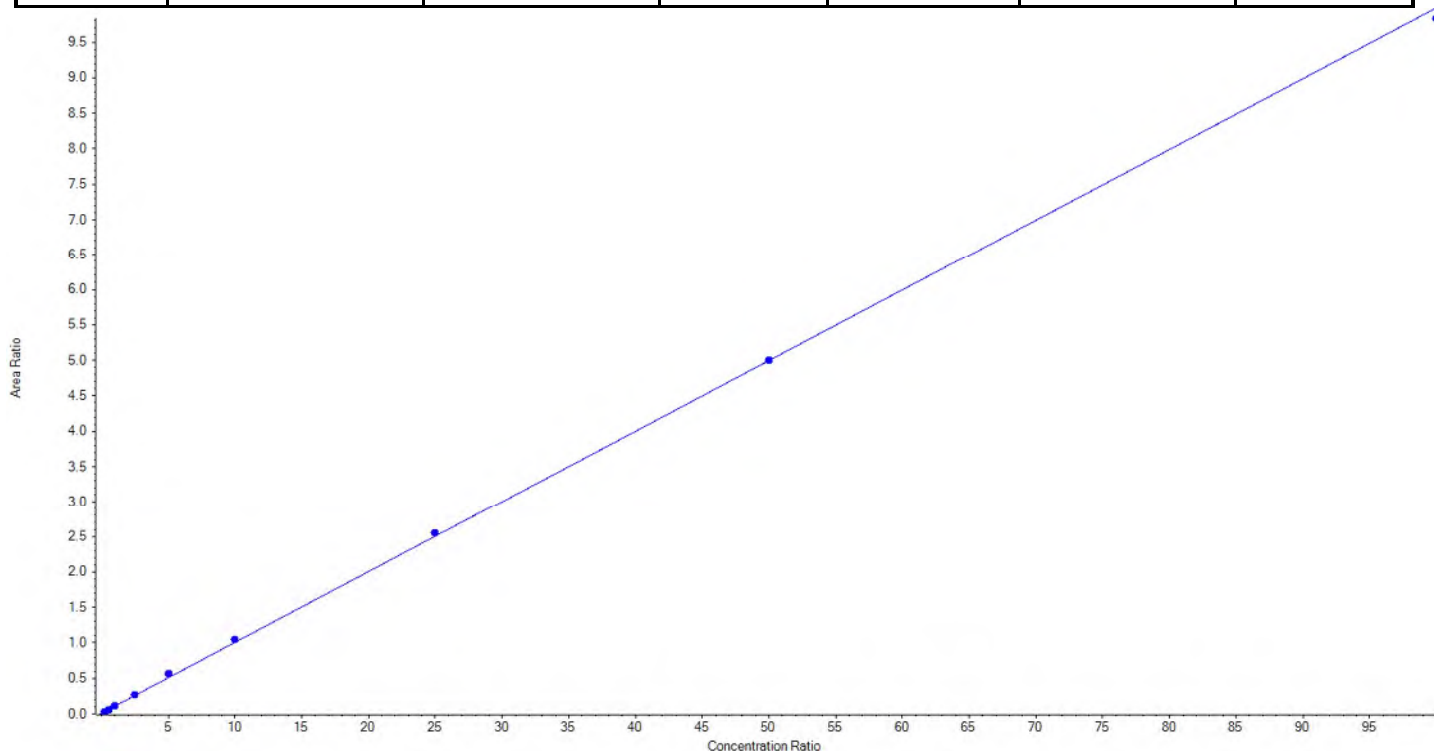
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.731070	74.9
3	JX68	L2	True	50.00	47.819194	95.6
4	JX69	L3	True	100.00	102.981838	103.0
5	JX70	L4	True	250.00	277.158464	110.9
6	JX71	L5	True	500.00	573.374778	114.7
7	JX72	L6	True	1000.00	1016.155480	101.6
8	JX73	L7	True	2500.00	2561.606452	102.5
9	JX74	L8	True	5000.00	4856.561924	97.1
10	JX75	L9	True	10000.00	9970.610800	99.7



<b>Analyte Name</b>	PFD <sub>o</sub> A_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	613.0 / 319.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.09973 x + 0.01082$  (r = 0.99967) (weighting: 1 / x)

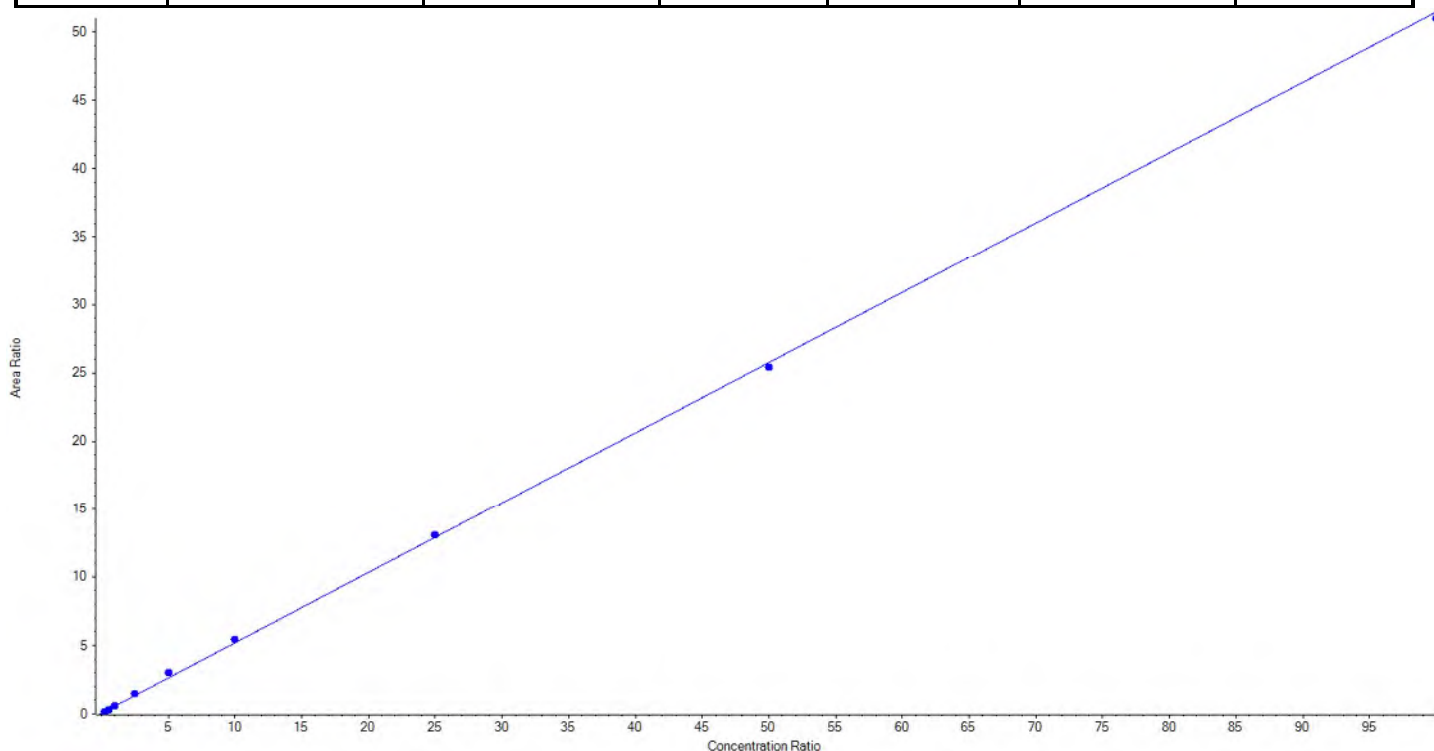
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	20.603828	82.4
3	JX68	L2	True	50.00	49.166918	98.3
4	JX69	L3	True	100.00	98.860597	98.9
5	JX70	L4	True	250.00	262.630095	105.1
6	JX71	L5	True	500.00	555.711859	111.1
7	JX72	L6	True	1000.00	1035.902153	103.6
8	JX73	L7	True	2500.00	2553.060598	102.1
9	JX74	L8	True	5000.00	4999.256910	100.0
10	JX75	L9	True	10000.00	9849.807043	98.5



<b>Analyte Name</b>	PFTrDA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	663.0 / 619.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.51402 x + 0.05199$  (r = 0.99946) (weighting: 1 / x)

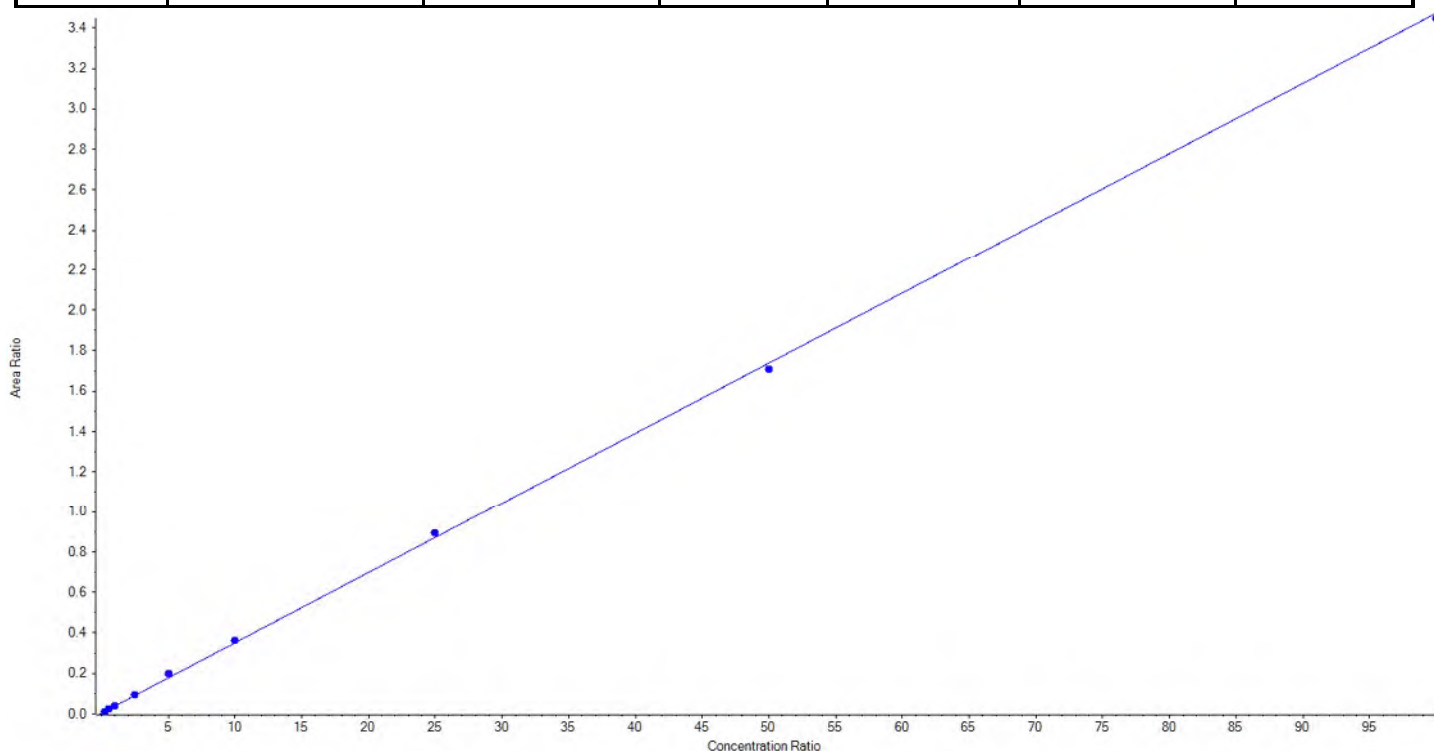
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	21.244818	85.0
3	JX68	L2	True	50.00	43.984299	88.0
4	JX69	L3	True	100.00	100.101285	100.1
5	JX70	L4	True	250.00	268.672318	107.5
6	JX71	L5	True	500.00	581.148596	116.2
7	JX72	L6	True	1000.00	1043.469036	104.4
8	JX73	L7	True	2500.00	2531.653493	101.3
9	JX74	L8	True	5000.00	4929.189379	98.6
10	JX75	L9	True	10000.00	9905.536776	99.1



<b>Analyte Name</b>	PFTTrDA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	663.0 / 169.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.03468 x + 0.00436$  (r = 0.99956) (weighting: 1 / x)

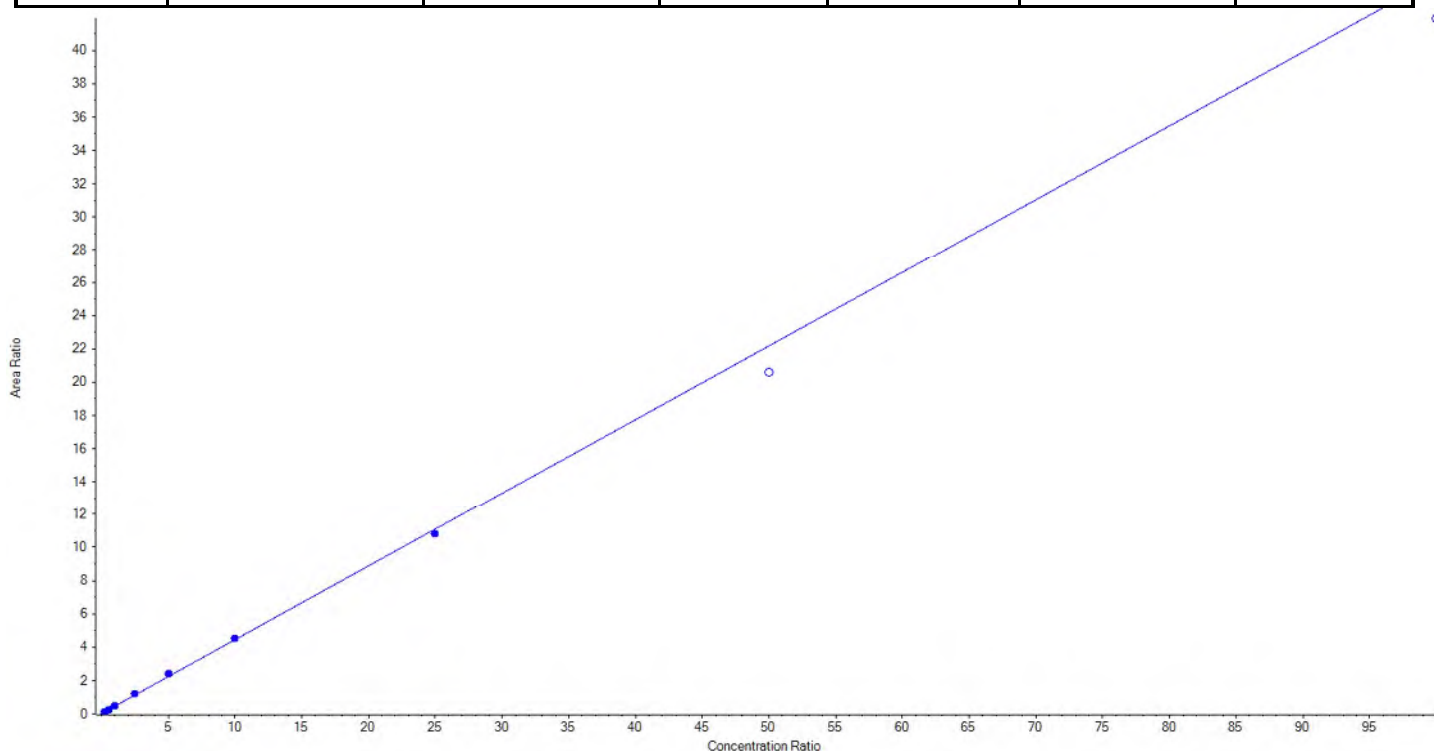
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	17.673504	70.7
3	JX68	L2	True	50.00	57.354613	114.7
4	JX69	L3	True	100.00	96.213165	96.2
5	JX70	L4	True	250.00	256.853828	102.7
6	JX71	L5	True	500.00	557.870213	111.6
7	JX72	L6	True	1000.00	1038.781670	103.9
8	JX73	L7	True	2500.00	2570.884235	102.8
9	JX74	L8	True	5000.00	4906.079605	98.1
10	JX75	L9	True	10000.00	9923.289167	99.2



<b>Analyte Name</b>	PFTeDA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	713.0 / 669.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.44304 x + 0.02551$  (r = 0.99930) (weighting: 1 / x)

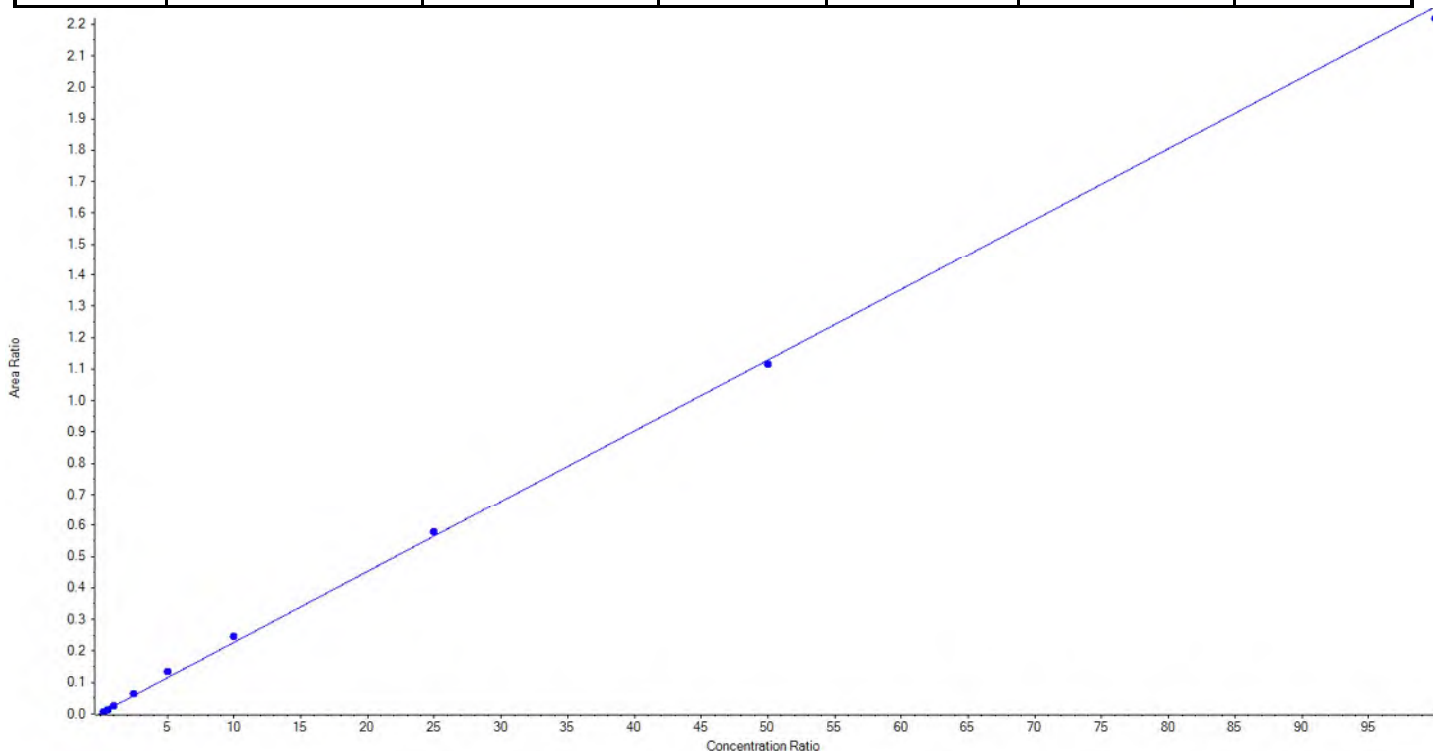
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	22.496691	90.0
3	JX68	L2	True	50.00	50.162035	100.3
4	JX69	L3	True	100.00	97.908267	97.9
5	JX70	L4	True	250.00	263.855723	105.5
6	JX71	L5	True	500.00	536.286828	107.3
7	JX72	L6	True	1000.00	1013.493738	101.4
8	JX73	L7	True	2500.00	2440.796718	97.6
9	JX74	L8	False	5000.00	4644.931633	92.9
10	JX75	L9	False	10000.00	9454.981719	94.6



<b>Analyte Name</b>	PFTeDA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	713.0 / 169.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.02254 x + 0.00202$  (r = 0.99919) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	17.926807	71.7
3	JX68	L2	True	50.00	48.266278	96.5
4	JX69	L3	True	100.00	99.954762	100.0
5	JX70	L4	True	250.00	267.694654	107.1
6	JX71	L5	True	500.00	588.228040	117.7
7	JX72	L6	True	1000.00	1078.884415	107.9
8	JX73	L7	True	2500.00	2552.861984	102.1
9	JX74	L8	True	5000.00	4936.723449	98.7
10	JX75	L9	True	10000.00	9834.459611	98.3

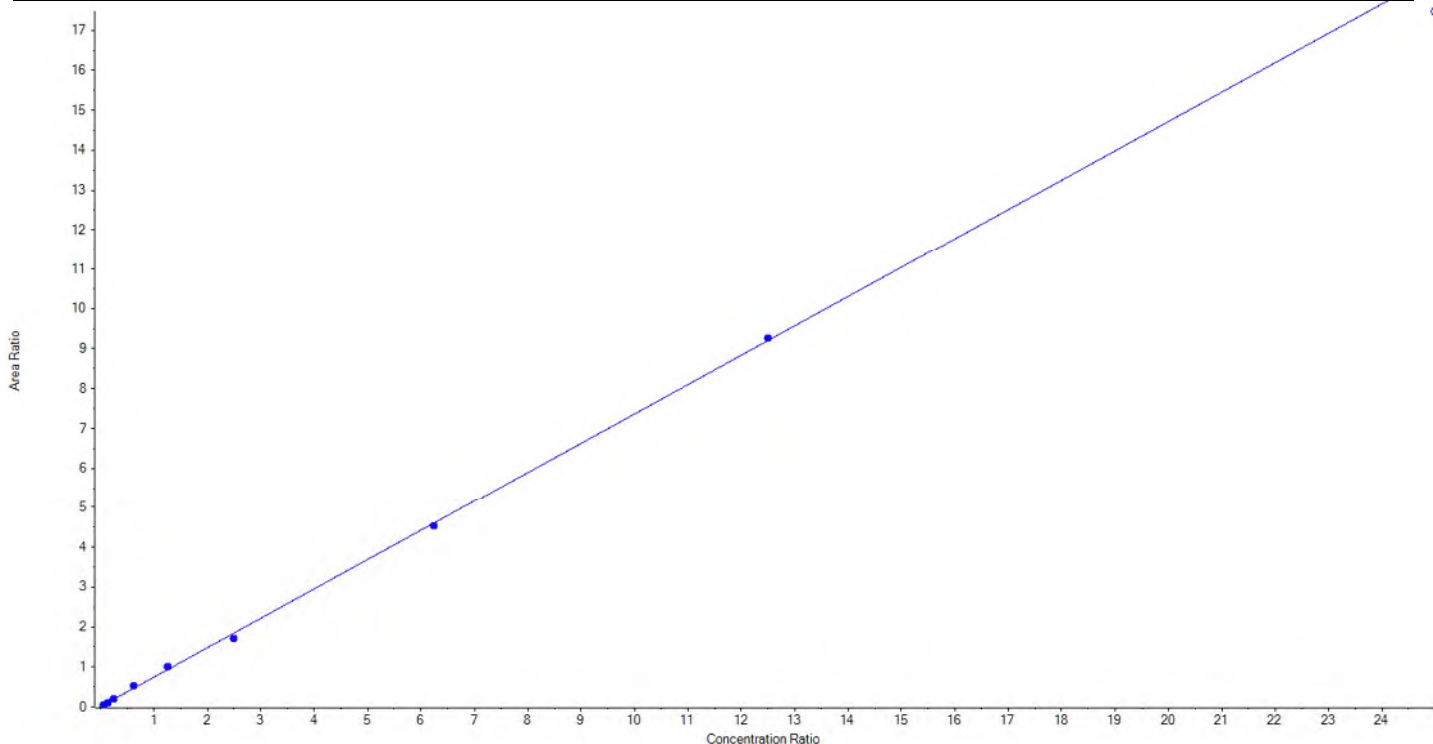




<b>Analyte Name</b>	NMeFOSAA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	570.0 / 419.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.73537 x + 0.01025$  (r = 0.99898) (weighting: 1 / x)

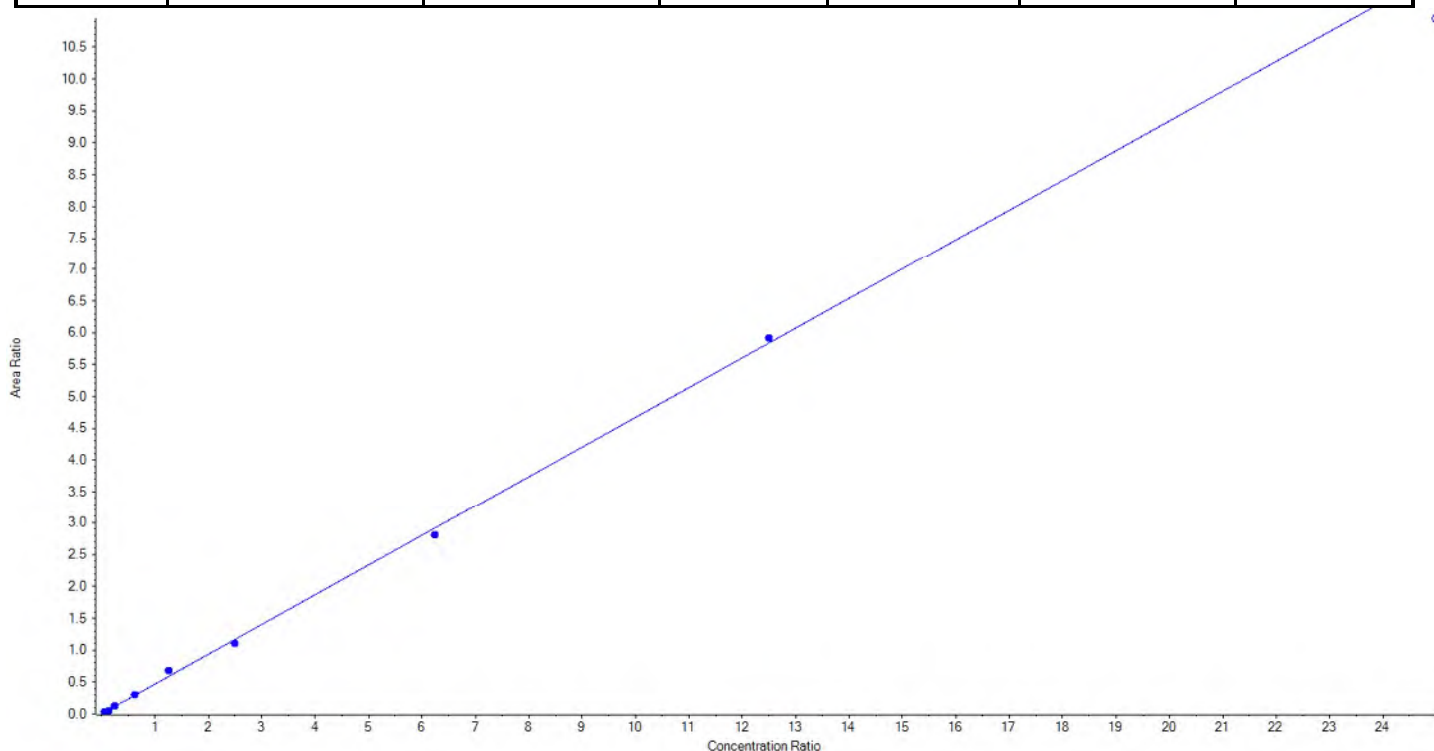
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.491095	74.0
3	JX68	L2	True	50.00	51.518002	103.0
4	JX69	L3	True	100.00	108.232072	108.2
5	JX70	L4	True	250.00	284.801456	113.9
6	JX71	L5	True	500.00	545.527150	109.1
7	JX72	L6	True	1000.00	929.237418	92.9
8	JX73	L7	True	2500.00	2453.696787	98.2
9	JX74	L8	True	5000.00	5033.496021	100.7
10	JX75	L9	False	10000.00	9496.783651	95.0



<b>Analyte Name</b>	NMeFOSAA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	570.0 / 512.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.46708x + 2.81156e-4$  ( $r = 0.99871$ ) (weighting:  $1/x$ )

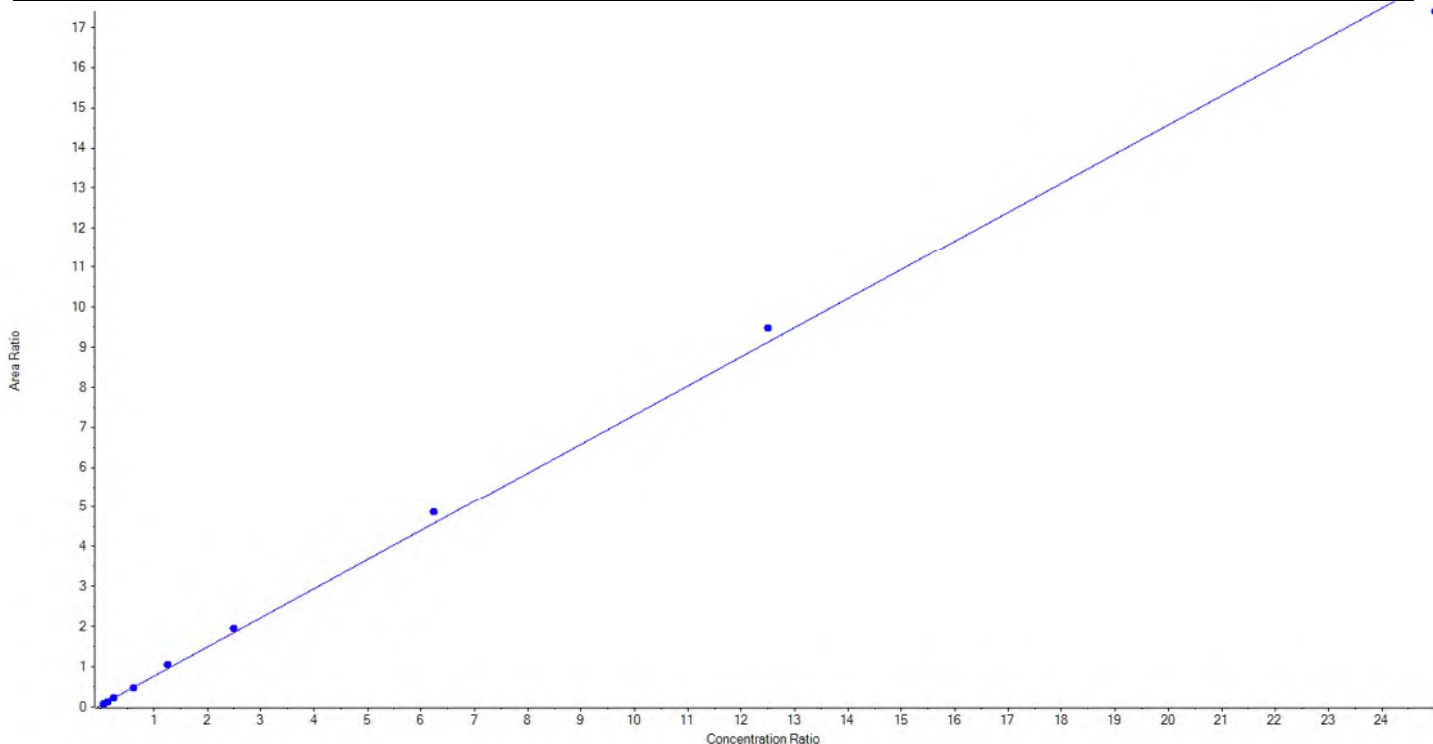
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	23.276176	93.1
3	JX68	L2	True	50.00	43.005903	86.0
4	JX69	L3	True	100.00	109.574657	109.6
5	JX70	L4	True	250.00	261.966030	104.8
6	JX71	L5	True	500.00	574.602501	114.9
7	JX72	L6	True	1000.00	942.155059	94.2
8	JX73	L7	True	2500.00	2398.901036	96.0
9	JX74	L8	True	5000.00	5071.518638	101.4
10	JX75	L9	False	10000.00	9375.584195	93.8



<b>Analyte Name</b>	NEtFOSAA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	584.0 / 419.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.72682x + 0.03896$  (r = 0.99871) (weighting: 1 / x)

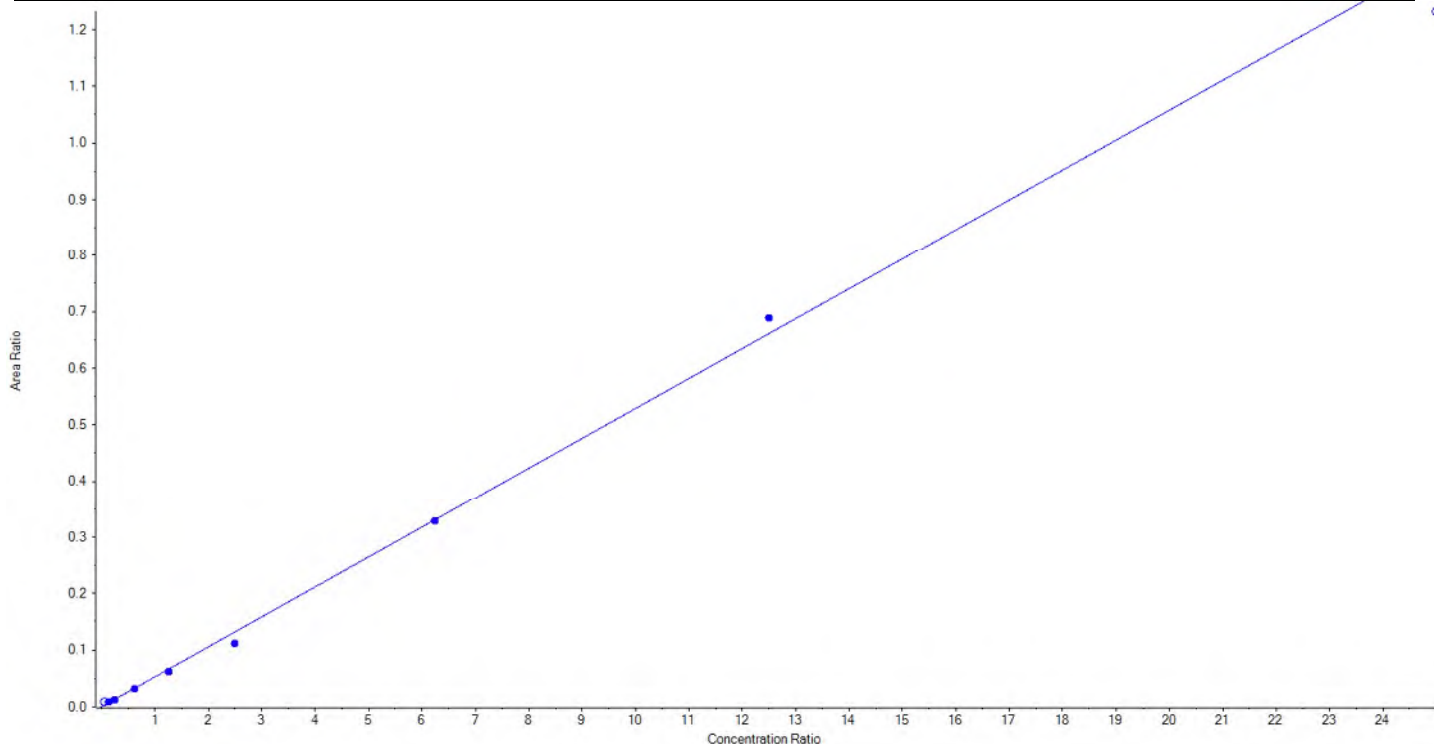
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	22.907735	91.6
3	JX68	L2	True	50.00	41.483663	83.0
4	JX69	L3	True	100.00	105.864049	105.9
5	JX70	L4	True	250.00	244.778528	97.9
6	JX71	L5	True	500.00	554.849012	111.0
7	JX72	L6	True	1000.00	1050.849199	105.1
8	JX73	L7	True	2500.00	2651.436287	106.1
9	JX74	L8	True	5000.00	5198.578588	104.0
10	JX75	L9	True	10000.00	9554.252939	95.5



<b>Analyte Name</b>	NEtFOSAA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	584.0 / 483.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05288 x + 1.72730e-4$  (r = 0.99760) (weighting: 1 / x)

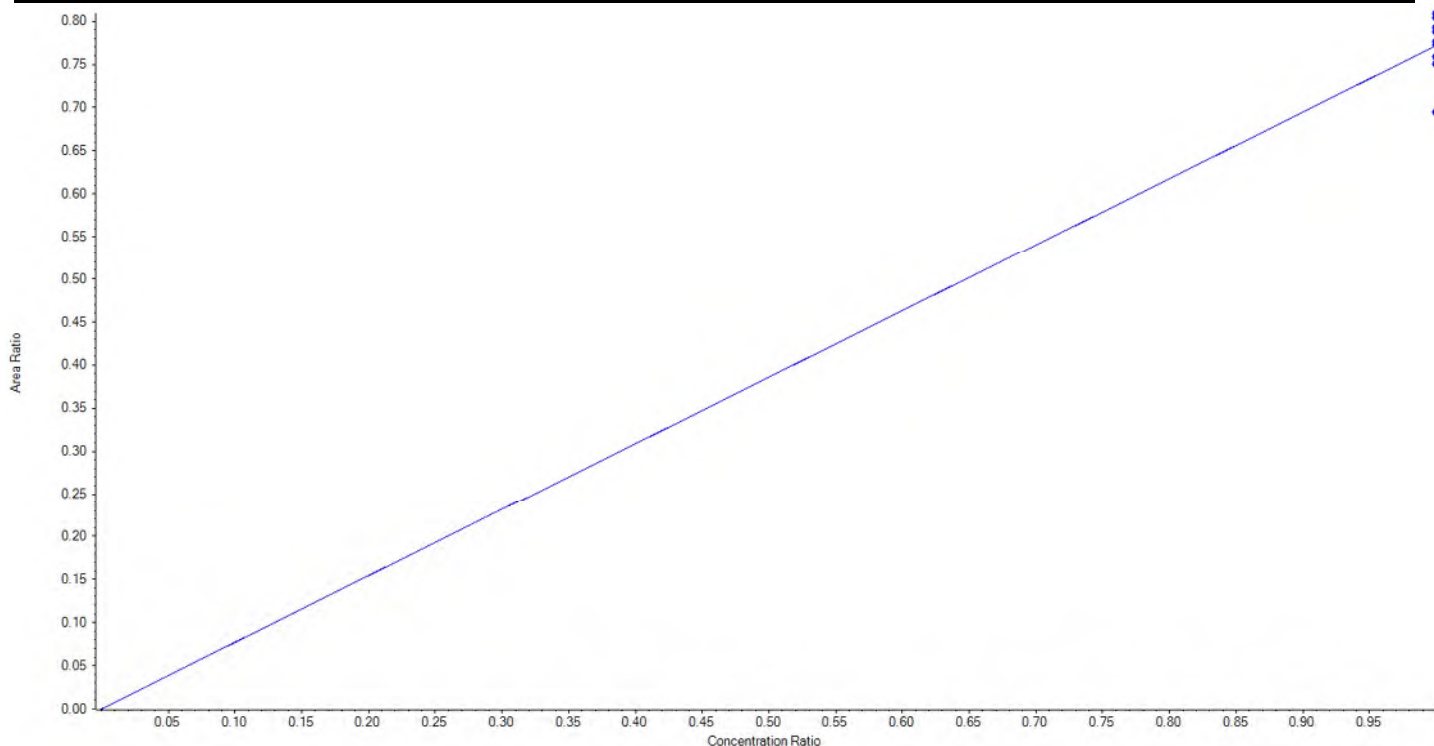
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	61.454013	245.8
3	JX68	L2	True	50.00	62.258168	124.5
4	JX69	L3	True	100.00	96.211192	96.2
5	JX70	L4	True	250.00	246.407835	98.6
6	JX71	L5	True	500.00	465.379465	93.1
7	JX72	L6	True	1000.00	843.713651	84.4
8	JX73	L7	True	2500.00	2477.074244	99.1
9	JX74	L8	True	5000.00	5208.955444	104.2
10	JX75	L9	False	10000.00	9316.361301	93.2



<b>Analyte Name</b>	13C2-PFHxA	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	315.0 / 270.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.77198 x$  (std. dev. = 0.03460) (weighting: 1 / x)

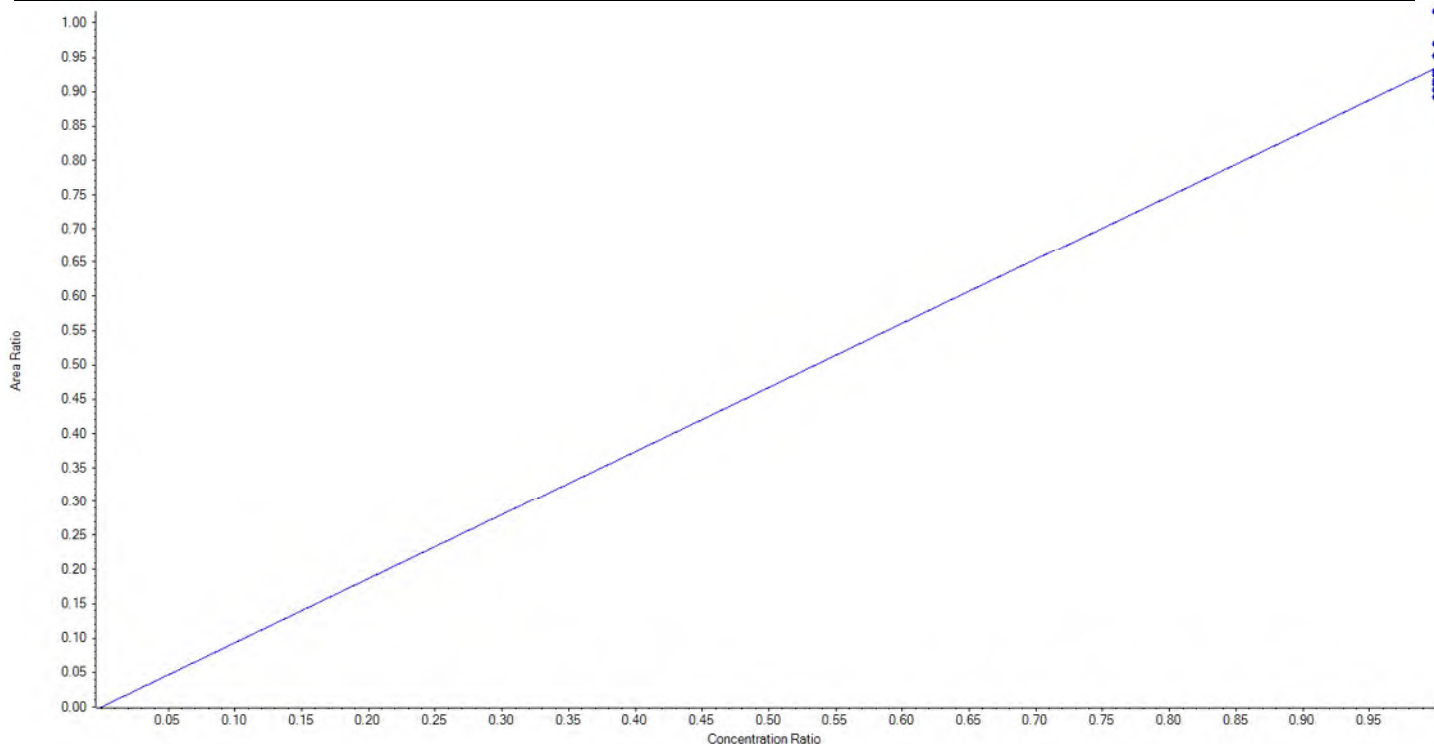
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	100.00	100.522490	100.5
3	JX68	L2	True	100.00	102.130076	102.1
4	JX69	L3	True	100.00	90.053805	90.1
5	JX70	L4	True	100.00	104.133528	104.1
6	JX71	L5	True	100.00	104.788803	104.8
7	JX72	L6	True	100.00	97.310023	97.3
8	JX73	L7	True	100.00	102.653028	102.7
9	JX74	L8	True	100.00	100.046313	100.1
10	JX75	L9	True	100.00	98.361935	98.4



<b>Analyte Name</b>	13C2-PFDA	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	515.0 / 470.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.93480 x$  (std. dev. = 0.03885) (weighting: 1 / x)

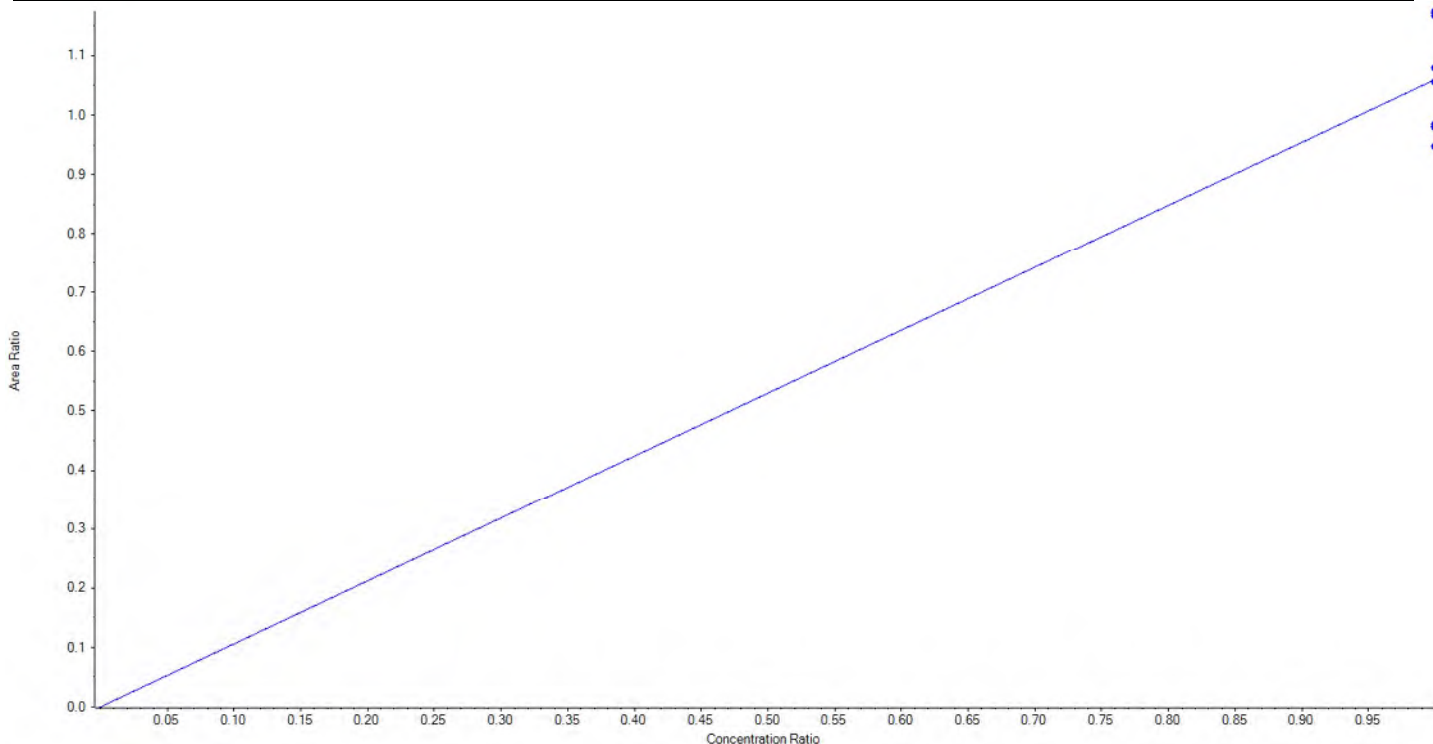
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	100.00	99.317491	99.3
3	JX68	L2	True	100.00	98.862375	98.9
4	JX69	L3	True	100.00	95.522050	95.5
5	JX70	L4	True	100.00	108.772082	108.8
6	JX71	L5	True	100.00	103.707342	103.7
7	JX72	L6	True	100.00	96.563890	96.6
8	JX73	L7	True	100.00	101.824457	101.8
9	JX74	L8	True	100.00	97.535816	97.5
10	JX75	L9	True	100.00	97.894498	97.9



<b>Analyte Name</b>	d5-EtFOSAA	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	589.0 / 419.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.06022 x$  (std. dev. = 0.09213) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	400.00	440.215305	110.1
3	JX68	L2	True	400.00	398.226762	99.6
4	JX69	L3	True	400.00	407.354331	101.8
5	JX70	L4	True	400.00	369.896471	92.5
6	JX71	L5	True	400.00	443.014546	110.8
7	JX72	L6	True	400.00	370.308930	92.6
8	JX73	L7	True	400.00	441.780770	110.5
9	JX74	L8	True	400.00	357.526578	89.4
10	JX75	L9	True	400.00	371.676308	92.9







Sample Name	JX67	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:05:43	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	9724.81	23.830433	224.5	false
PFBS_2	298.9 / 99.0	1.50	4271.95	22.983577	140.0	false
PFHxA_1	313.0 / 269.0	1.79	17454.52	18.791994	29.6	true
PFHxA_2	313.0 / 119.0	1.79	1358.55	20.296701	18.1	true
PFHpA_1	363.0 / 319.0	2.15	12341.36	18.302340	45.1	true
PFHpA_2	363.0 / 169.0	2.15	455.87	25.182337	25.8	true
PFHxS_1	399.0 / 80.0	2.16	10968.75	21.540088	145.3	false
PFHxS_2	399.0 / 99.0	2.16	3383.40	21.831569	65.6	false
PFOA_1	413.0 / 369.0	2.52	17451.54	5.415311	49.0	true
PFOA_2	413.0 / 169.0	2.52	1428.21	12.318640	28.8	true
PFNA_1	463.0 / 419.0	2.90	12231.96	7.876482	71.5	false
PFNA_2	463.0 / 219.0	2.90	4965.37	17.483575	52.8	false
PFOS_1	499.0 / 80.0	2.89	18944.48	14.967381	77.5	true
PFOS_2	499.0 / 99.0	2.89	3437.46	17.551763	52.2	true
PFDA_1	513.0 / 469.0	3.25	11989.32	4.293986	109.1	false
PFDA_2	513.0 / 219.0	3.25	950.52	27.987541	62.5	false
PFUnA_1	563.0 / 519.0	3.56	15067.92	20.073088	142.8	false
PFUnA_2	563.0 / 269.0	3.56	883.16	< 0	41.4	false
PFDoA_1	613.0 / 569.0	3.85	11471.29	18.731070	146.8	false
PFDoA_2	613.0 / 319.0	3.85	1966.61	20.603828	185.4	false
PFTTrDA_1	663.0 / 619.0	4.10	10106.46	21.244818	192.0	false
PFTTrDA_2	663.0 / 169.0	4.10	657.90	17.673504	73.3	true
PFTeDA_1	713.0 / 669.0	4.32	7848.82	22.496691	248.9	false
PFTeDA_2	713.0 / 169.0	4.32	379.90	17.926807	75.3	false
NMeFOSAA_1	570.0 / 419.0	3.39	872.84	18.491095	100.2	false
NMeFOSAA_2	570.0 / 512.0	3.38	541.74	23.276176	235.3	false
NEtFOSAA_1	584.0 / 419.0	3.56	1589.82	22.907735	140.0	false
NEtFOSAA_2	584.0 / 483.0	3.57	163.69	61.454013	54.0	false
13C2-PFHxA	315.0 / 270.0	1.78	48655.59	100.522490	911.0	false
13C2-PFDA	515.0 / 470.0	3.23	58211.49	99.317491	1235.6	false
d5-EtFOSAA	589.0 / 419.0	3.55	23018.54	440.215305	509.1	false

Sample Name	JX68	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:14:41	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	20331.48	46.278541	379.8	false
PFBS_2	298.9 / 99.0	1.50	8183.81	49.356949	234.3	true
PFHxA_1	313.0 / 269.0	1.78	33102.86	51.402415	46.1	false
PFHxA_2	313.0 / 119.0	1.77	2506.07	53.760551	24.7	false
PFHpA_1	363.0 / 319.0	2.14	24329.04	44.691384	68.8	false
PFHpA_2	363.0 / 169.0	2.15	613.84	37.004714	31.3	true
PFHxS_1	399.0 / 80.0	2.16	23279.94	45.354398	214.6	false
PFHxS_2	399.0 / 99.0	2.16	6706.27	43.862949	120.2	false
PFOA_1	413.0 / 369.0	2.52	35511.56	36.683792	73.3	false
PFOA_2	413.0 / 169.0	2.52	2779.57	43.335566	54.8	true
PFNA_1	463.0 / 419.0	2.90	27491.42	38.471445	126.3	false
PFNA_2	463.0 / 219.0	2.89	7803.23	35.058175	71.8	false
PFOS_1	499.0 / 80.0	2.89	37885.21	41.416707	105.6	true
PFOS_2	499.0 / 99.0	2.89	6038.28	36.618609	105.1	true
PFDA_1	513.0 / 469.0	3.24	30045.95	38.400405	205.8	false
PFDA_2	513.0 / 219.0	3.24	1451.37	48.305605	153.4	false
PFUnA_1	563.0 / 519.0	3.56	27570.53	42.388703	180.1	false
PFUnA_2	563.0 / 269.0	3.55	1935.39	25.569843	97.6	false
PFDoA_1	613.0 / 569.0	3.85	24923.14	47.819194	254.2	false
PFDoA_2	613.0 / 319.0	3.84	4102.80	49.166918	258.5	false
PFTrDA_1	663.0 / 619.0	4.10	19062.23	43.984299	279.9	false
PFTrDA_2	663.0 / 169.0	4.10	1662.69	57.354613	204.7	false
PFTeDA_1	713.0 / 669.0	4.32	16983.52	50.162035	302.8	false
PFTeDA_2	713.0 / 169.0	4.32	884.05	48.266278	193.7	false
NMeFOSAA_1	570.0 / 419.0	3.39	2251.45	51.518002	189.8	false
NMeFOSAA_2	570.0 / 512.0	3.38	1083.22	43.005903	308.8	false
NEtFOSAA_1	584.0 / 419.0	3.56	2452.65	41.483663	167.7	false
NEtFOSAA_2	584.0 / 483.0	3.55	180.26	62.258168	266.5	false
13C2-PFHxA	315.0 / 270.0	1.77	54047.05	102.130076	804.0	false
13C2-PFDA	515.0 / 470.0	3.23	63352.37	98.862375	922.7	false
d5-EtFOSAA	589.0 / 419.0	3.54	22641.07	398.226762	485.8	false

Sample Name	JX69	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:23:38	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	39132.01	93.683891	658.7	false
PFBS_2	298.9 / 99.0	1.50	13537.21	93.887974	303.8	false
PFHxA_1	313.0 / 269.0	1.78	55833.42	104.015969	60.4	false
PFHxA_2	313.0 / 119.0	1.78	3586.96	88.961255	38.2	true
PFHpA_1	363.0 / 319.0	2.14	48807.51	104.066690	93.6	false
PFHpA_2	363.0 / 169.0	2.15	1290.83	106.084205	53.0	false
PFHxS_1	399.0 / 80.0	2.16	44599.81	94.429375	258.9	false
PFHxS_2	399.0 / 99.0	2.16	13257.93	95.814283	152.5	false
PFOA_1	413.0 / 369.0	2.52	64833.40	92.235736	97.1	false
PFOA_2	413.0 / 169.0	2.52	4487.21	86.590381	82.2	false
PFNA_1	463.0 / 419.0	2.90	54310.27	96.355173	176.0	false
PFNA_2	463.0 / 219.0	2.89	16492.51	99.127432	131.3	false
PFOS_1	499.0 / 80.0	2.89	69196.66	94.155588	126.1	false
PFOS_2	499.0 / 99.0	2.89	12568.97	94.778219	133.5	true
PFDA_1	513.0 / 469.0	3.24	54707.20	87.838796	273.3	false
PFDA_2	513.0 / 219.0	3.25	2073.56	78.774590	199.1	false
PFUnA_1	563.0 / 519.0	3.56	53853.69	95.029236	193.6	false
PFUnA_2	563.0 / 269.0	3.55	2945.52	70.257455	111.8	false
PFDaA_1	613.0 / 569.0	3.85	48500.01	102.981838	322.2	false
PFDaA_2	613.0 / 319.0	3.85	7515.03	98.860597	362.0	false
PFTrDA_1	663.0 / 619.0	4.10	38913.73	100.101285	329.7	false
PFTrDA_2	663.0 / 169.0	4.10	2591.70	96.213165	282.4	false
PFTeDA_1	713.0 / 669.0	4.32	31547.60	97.908267	497.2	false
PFTeDA_2	713.0 / 169.0	4.32	1685.94	99.954762	308.9	false
NMeFOSAA_1	570.0 / 419.0	3.39	4154.85	108.232072	274.3	false
NMeFOSAA_2	570.0 / 512.0	3.39	2546.45	109.574657	192.0	false
NEtFOSAA_1	584.0 / 419.0	3.55	4593.67	105.864049	265.4	false
NEtFOSAA_2	584.0 / 483.0	3.54	256.02	96.211192	109.2	false
13C2-PFHxA	315.0 / 270.0	1.77	47751.83	90.053805	797.4	false
13C2-PFDA	515.0 / 470.0	3.23	61334.53	95.522050	1220.4	false
d5-EtFOSAA	589.0 / 419.0	3.54	21441.13	407.354331	473.1	false

Sample Name	JX70	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:32:34	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	97316.72	206.327632	1084.3	false
PFBS_2	298.9 / 99.0	1.49	31657.39	205.818634	524.9	false
PFHxA_1	313.0 / 269.0	1.78	121556.21	256.894451	101.0	false
PFHxA_2	313.0 / 119.0	1.78	9142.19	271.044383	81.0	false
PFHpA_1	363.0 / 319.0	2.14	122369.32	283.179151	130.7	false
PFHpA_2	363.0 / 169.0	2.15	2983.14	279.413504	94.7	false
PFHxS_1	399.0 / 80.0	2.15	121488.70	231.961115	455.9	false
PFHxS_2	399.0 / 99.0	2.15	34149.02	224.050348	244.4	false
PFOA_1	413.0 / 369.0	2.52	161366.89	275.902665	157.6	false
PFOA_2	413.0 / 169.0	2.52	12046.34	279.024584	119.7	false
PFNA_1	463.0 / 419.0	2.89	133796.53	268.580288	259.8	false
PFNA_2	463.0 / 219.0	2.89	41227.59	282.168603	185.1	false
PFOS_1	499.0 / 80.0	2.89	174364.84	229.522123	175.3	false
PFOS_2	499.0 / 99.0	2.89	33591.10	241.187429	211.9	false
PFDA_1	513.0 / 469.0	3.24	151838.94	283.367571	441.7	false
PFDA_2	513.0 / 219.0	3.24	5879.40	266.338265	290.5	false
PFUnA_1	563.0 / 519.0	3.56	145403.24	279.090767	302.8	false
PFUnA_2	563.0 / 269.0	3.55	8100.22	299.570771	408.0	true
PFDaA_1	613.0 / 569.0	3.84	122653.02	277.158464	506.4	false
PFDaA_2	613.0 / 319.0	3.84	18712.86	262.630095	336.4	false
PFTrDA_1	663.0 / 619.0	4.09	98324.28	268.672318	466.6	false
PFTrDA_2	663.0 / 169.0	4.09	6411.48	256.853828	343.6	false
PFTeDA_1	713.0 / 669.0	4.31	81959.20	263.855723	806.4	false
PFTeDA_2	713.0 / 169.0	4.31	4277.82	267.694654	506.8	false
NMeFOSAA_1	570.0 / 419.0	3.39	12390.63	284.801456	387.8	false
NMeFOSAA_2	570.0 / 512.0	3.39	7106.61	261.966030	1669.1	false
NEtFOSAA_1	584.0 / 419.0	3.55	11227.85	244.778528	418.0	false
NEtFOSAA_2	584.0 / 483.0	3.53	760.13	246.407835	487.9	false
13C2-PFHxA	315.0 / 270.0	1.77	55157.68	104.133528	856.7	false
13C2-PFDA	515.0 / 470.0	3.23	69766.41	108.772082	1351.4	false
d5-EtFOSAA	589.0 / 419.0	3.54	22756.36	369.896471	540.4	false

Sample Name	JX71	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:41:29	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	191608.38	432.516100	1596.9	false
PFBS_2	298.9 / 99.0	1.50	60491.34	429.643049	679.7	false
PFHxA_1	313.0 / 269.0	1.78	242496.69	536.593763	125.9	true
PFHxA_2	313.0 / 119.0	1.78	17060.21	529.040331	113.9	false
PFHpA_1	363.0 / 319.0	2.14	238400.44	564.092719	191.0	false
PFHpA_2	363.0 / 169.0	2.14	5518.27	537.484438	137.9	false
PFHxS_1	399.0 / 80.0	2.16	239728.54	490.677670	591.5	false
PFHxS_2	399.0 / 99.0	2.16	70807.91	499.804218	355.5	false
PFOA_1	413.0 / 369.0	2.52	318049.00	572.330827	212.1	false
PFOA_2	413.0 / 169.0	2.51	22444.38	542.178268	153.7	false
PFNA_1	463.0 / 419.0	2.89	276438.53	575.970800	355.3	false
PFNA_2	463.0 / 219.0	2.89	79907.67	566.768331	264.5	false
PFOS_1	499.0 / 80.0	2.89	347642.66	504.911983	223.7	false
PFOS_2	499.0 / 99.0	2.89	64537.43	506.365979	328.9	false
PFDA_1	513.0 / 469.0	3.24	291413.56	562.746141	613.6	false
PFDA_2	513.0 / 219.0	3.24	11388.45	536.324707	560.6	false
PFUnA_1	563.0 / 519.0	3.56	295796.83	579.829398	399.9	false
PFUnA_2	563.0 / 269.0	3.55	12654.71	500.697313	244.8	false
PFDaA_1	613.0 / 569.0	3.84	249455.11	573.374778	597.6	false
PFDaA_2	613.0 / 319.0	3.84	38861.01	555.711859	505.6	false
PFTrDA_1	663.0 / 619.0	4.09	209035.89	581.148596	594.6	false
PFTrDA_2	663.0 / 169.0	4.09	13607.33	557.870213	562.6	false
PFTeDA_1	713.0 / 669.0	4.31	165173.95	536.286828	943.4	false
PFTeDA_2	713.0 / 169.0	4.31	9256.50	588.228040	702.7	false
NMeFOSAA_1	570.0 / 419.0	3.39	21452.60	545.527150	709.1	false
NMeFOSAA_2	570.0 / 512.0	3.38	14212.95	574.602501	1181.0	false
NEtFOSAA_1	584.0 / 419.0	3.55	22172.35	554.849012	486.0	false
NEtFOSAA_2	584.0 / 483.0	3.53	1306.40	465.379465	278.4	false
13C2-PFHxA	315.0 / 270.0	1.77	55639.24	104.788803	928.7	false
13C2-PFDA	515.0 / 470.0	3.23	66679.04	103.707342	971.5	false
d5-EtFOSAA	589.0 / 419.0	3.54	24863.20	443.014546	518.3	false

Sample Name	JX72	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:50:24	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	390024.57	888.747710	2194.0	false
PFBS_2	298.9 / 99.0	1.50	122481.02	889.170002	917.6	false
PFHxA_1	313.0 / 269.0	1.78	487921.52	1083.560155	155.4	false
PFHxA_2	313.0 / 119.0	1.78	34528.76	1077.865222	140.8	false
PFHpA_1	363.0 / 319.0	2.14	462271.21	1085.640666	247.6	false
PFHpA_2	363.0 / 169.0	2.14	10868.45	1062.086999	194.5	false
PFHxS_1	399.0 / 80.0	2.16	448222.57	928.885400	699.7	false
PFHxS_2	399.0 / 99.0	2.16	132816.12	950.335119	479.0	false
PFOA_1	413.0 / 369.0	2.51	596880.69	1079.143229	263.0	false
PFOA_2	413.0 / 169.0	2.51	42979.79	1042.123910	223.3	false
PFNA_1	463.0 / 419.0	2.89	512510.77	1064.317609	464.6	false
PFNA_2	463.0 / 219.0	2.89	151542.42	1073.450506	318.2	false
PFOS_1	499.0 / 80.0	2.89	646902.17	962.388374	301.1	false
PFOS_2	499.0 / 99.0	2.89	121911.87	976.906219	380.8	false
PFDA_1	513.0 / 469.0	3.24	556665.80	1073.347869	709.3	false
PFDA_2	513.0 / 219.0	3.24	22769.82	1073.774687	822.3	false
PFUnA_1	563.0 / 519.0	3.55	555723.73	1079.142455	488.1	false
PFUnA_2	563.0 / 269.0	3.55	26765.68	1103.433343	402.3	false
PFDoA_1	613.0 / 569.0	3.84	447257.26	1016.155480	632.3	false
PFDoA_2	613.0 / 319.0	3.84	73222.82	1035.902153	489.1	false
PFTrDA_1	663.0 / 619.0	4.09	379878.25	1043.469036	699.2	false
PFTrDA_2	663.0 / 169.0	4.09	25576.54	1038.781670	659.9	false
PFTeDA_1	713.0 / 669.0	4.31	316754.50	1013.493738	1200.3	false
PFTeDA_2	713.0 / 169.0	4.31	17196.41	1078.884415	965.4	false
NMeFOSAA_1	570.0 / 419.0	3.38	40855.36	929.237418	830.0	false
NMeFOSAA_2	570.0 / 512.0	3.38	26160.44	942.155059	613.4	false
NEtFOSAA_1	584.0 / 419.0	3.55	46318.97	1050.849199	664.8	false
NEtFOSAA_2	584.0 / 483.0	3.55	2655.80	843.713651	270.4	false
13C2-PFHxA	315.0 / 270.0	1.77	52693.74	97.310023	981.3	false
13C2-PFDA	515.0 / 470.0	3.23	63318.36	96.563890	7483.6	false
d5-EtFOSAA	589.0 / 419.0	3.54	23333.51	370.308930	448.4	false

Sample Name	JX73	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:59:20	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	910614.39	2024.674722	3776.8	false
PFBS_2	298.9 / 99.0	1.50	275234.96	1962.210653	1531.7	false
PFHxA_1	313.0 / 269.0	1.78	1117789.54	2559.637674	194.1	false
PFHxA_2	313.0 / 119.0	1.78	79741.59	2570.917958	216.2	false
PFHpA_1	363.0 / 319.0	2.14	1062040.19	2557.091682	312.0	false
PFHpA_2	363.0 / 169.0	2.14	22915.70	2307.985347	270.2	false
PFHxS_1	399.0 / 80.0	2.15	1029804.42	2086.096882	822.5	false
PFHxS_2	399.0 / 99.0	2.15	300294.20	2101.773991	578.9	false
PFOA_1	413.0 / 369.0	2.51	1383155.99	2586.190651	483.5	false
PFOA_2	413.0 / 169.0	2.51	103957.38	2604.616479	354.2	false
PFNA_1	463.0 / 419.0	2.89	1182049.30	2525.890341	615.9	false
PFNA_2	463.0 / 219.0	2.89	344978.81	2516.076067	498.4	false
PFOS_1	499.0 / 80.0	2.88	1524933.95	2234.023744	398.8	false
PFOS_2	499.0 / 99.0	2.88	292222.52	2301.363562	467.4	false
PFDA_1	513.0 / 469.0	3.23	1317041.32	2614.798969	1030.8	false
PFDA_2	513.0 / 219.0	3.23	54040.54	2625.689392	883.2	false
PFUnA_1	563.0 / 519.0	3.55	1341624.21	2669.633957	686.3	false
PFUnA_2	563.0 / 269.0	3.55	57182.23	2469.487594	549.3	false
PFDoA_1	613.0 / 569.0	3.84	1101198.09	2561.606452	888.5	false
PFDoA_2	613.0 / 319.0	3.84	176282.53	2553.060598	785.2	false
PFTrDA_1	663.0 / 619.0	4.09	900772.07	2531.653493	1009.4	false
PFTrDA_2	663.0 / 169.0	4.09	61772.48	2570.884235	908.7	false
PFTeDA_1	713.0 / 669.0	4.31	747307.86	2440.796718	1555.8	false
PFTeDA_2	713.0 / 169.0	4.31	39803.70	2552.861984	1267.0	false
NMeFOSAA_1	570.0 / 419.0	3.38	96428.59	2453.696787	1002.9	false
NMeFOSAA_2	570.0 / 512.0	3.38	59750.63	2398.901036	1603.2	false
NEtFOSAA_1	584.0 / 419.0	3.54	103585.68	2651.436287	958.2	false
NEtFOSAA_2	584.0 / 483.0	3.54	6988.30	2477.074244	686.2	false
13C2-PFHxA	315.0 / 270.0	1.77	54635.70	102.653028	882.5	false
13C2-PFDA	515.0 / 470.0	3.23	65625.16	101.824457	1943.0	false
d5-EtFOSAA	589.0 / 419.0	3.53	24974.54	441.780770	470.7	false

Sample Name	JX74	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:08:14	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	1551604.07	4178.992960	4821.9	false
PFBS_2	298.9 / 99.0	1.50	478319.95	4142.359203	1852.1	false
PFHxA_1	313.0 / 269.0	1.78	1879996.99	4905.213315	233.8	false
PFHxA_2	313.0 / 119.0	1.78	134273.21	4935.064490	257.2	false
PFHpA_1	363.0 / 319.0	2.14	1779695.28	4872.389047	459.3	false
PFHpA_2	363.0 / 169.0	2.14	44112.63	5068.903345	395.0	false
PFHxS_1	399.0 / 80.0	2.15	1795110.33	4408.253001	1015.6	false
PFHxS_2	399.0 / 99.0	2.16	512143.92	4346.681282	717.8	false
PFOA_1	413.0 / 369.0	2.51	2374118.28	5063.236772	484.3	false
PFOA_2	413.0 / 169.0	2.51	176056.33	5027.464128	429.8	false
PFNA_1	463.0 / 419.0	2.89	1985473.25	4830.414344	825.8	false
PFNA_2	463.0 / 219.0	2.89	581156.90	4827.350887	654.1	false
PFOS_1	499.0 / 80.0	2.88	2602577.54	4635.388250	458.6	false
PFOS_2	499.0 / 99.0	2.89	492694.92	4713.142959	554.2	false
PFDA_1	513.0 / 469.0	3.23	2218194.46	5014.238853	1056.0	false
PFDA_2	513.0 / 219.0	3.23	91628.43	5070.098049	953.0	false
PFUnA_1	563.0 / 519.0	3.55	2254908.71	5100.109139	826.3	false
PFUnA_2	563.0 / 269.0	3.55	104019.73	5158.640024	567.1	false
PFDaA_1	613.0 / 569.0	3.84	1837399.50	4856.561924	981.5	false
PFDaA_2	613.0 / 319.0	3.84	303761.27	4999.256910	736.5	false
PFTrDA_1	663.0 / 619.0	4.09	1543560.56	4929.189379	1156.1	false
PFTrDA_2	663.0 / 169.0	4.09	103709.38	4906.079605	1122.3	false
PFTeDA_1	713.0 / 669.0	4.31	1252681.91	4644.931633	1727.7	false
PFTeDA_2	713.0 / 169.0	4.30	67760.99	4936.723449	1580.4	false
NMeFOSAA_1	570.0 / 419.0	3.38	167248.83	5033.496021	1090.8	false
NMeFOSAA_2	570.0 / 512.0	3.38	106919.92	5071.518638	1208.4	false
NEtFOSAA_1	584.0 / 419.0	3.54	171240.32	5198.578588	868.6	false
NEtFOSAA_2	584.0 / 483.0	3.54	12435.88	5208.955444	1033.7	false
13C2-PFHxA	315.0 / 270.0	1.77	46955.31	100.046313	737.0	false
13C2-PFDA	515.0 / 470.0	3.23	55432.09	97.535816	1130.6	false
d5-EtFOSAA	589.0 / 419.0	3.54	17108.52	357.526578	479.3	false



Sample Name	JX75	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:17:08	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	3664972.03	9296.998012	6123.2	false
PFBS_2	298.9 / 99.0	1.49	1150393.40	9396.619960	3295.1	false
PFHxA_1	313.0 / 269.0	1.78	4276895.65	9908.890264	315.9	false
PFHxA_2	313.0 / 119.0	1.77	302598.61	9878.049109	308.6	false
PFHpA_1	363.0 / 319.0	2.14	4075028.27	9895.546320	586.7	false
PFHpA_2	363.0 / 169.0	2.14	98026.05	10000.855110	565.9	false
PFHxS_1	399.0 / 80.0	2.15	4066314.99	9408.402070	1195.1	false
PFHxS_2	399.0 / 99.0	2.15	1179233.17	9431.446241	855.1	false
PFOA_1	413.0 / 369.0	2.51	5117688.66	9694.276329	730.6	false
PFOA_2	413.0 / 169.0	2.51	385480.47	9774.666684	670.8	false
PFNA_1	463.0 / 419.0	2.89	4151781.39	8963.600323	1005.4	false
PFNA_2	463.0 / 219.0	2.89	1206660.92	8895.837853	963.2	false
PFOS_1	499.0 / 80.0	2.88	5507883.48	9255.193233	533.5	false
PFOS_2	499.0 / 99.0	2.88	1007250.60	9086.637025	599.0	false
PFDA_1	513.0 / 469.0	3.23	4847480.47	9725.261395	1739.6	false
PFDA_2	513.0 / 219.0	3.23	197521.30	9700.694705	1103.4	false
PFUnA_1	563.0 / 519.0	3.55	4766730.52	9559.703256	929.9	false
PFUnA_2	563.0 / 269.0	3.55	220728.21	9747.913499	783.2	false
PFDaA_1	613.0 / 569.0	3.84	4254507.22	9970.610800	1179.7	false
PFDaA_2	613.0 / 319.0	3.83	675049.65	9849.807043	1037.9	false
PFTrDA_1	663.0 / 619.0	4.09	3498835.96	9905.536776	1237.0	false
PFTrDA_2	663.0 / 169.0	4.08	236549.17	9923.289167	1361.0	false
PFTeDA_1	713.0 / 669.0	4.30	2877351.40	9454.981719	1785.6	false
PFTeDA_2	713.0 / 169.0	4.30	152280.34	9834.459611	2016.5	false
NMeFOSAA_1	570.0 / 419.0	3.38	380571.03	9496.783651	1377.4	false
NMeFOSAA_2	570.0 / 512.0	3.38	238507.03	9375.584195	1038.4	false
NEtFOSAA_1	584.0 / 419.0	3.54	379049.37	9554.252939	1099.1	false
NEtFOSAA_2	584.0 / 483.0	3.54	26835.88	9316.361301	1820.7	false
13C2-PFHxA	315.0 / 270.0	1.77	52126.08	98.361935	1066.4	false
13C2-PFDA	515.0 / 470.0	3.22	62820.27	97.894498	1510.3	false
d5-EtFOSAA	589.0 / 419.0	3.53	21461.53	371.676308	401.9	false

Sample Name	JX67	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:05:43	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.439	0.341	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.078	0.072	ü
PFHpA_1	363.0 / 319.0	2.15	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.037	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.309	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.082	0.074	ü
PFNA_1	463.0 / 419.0	2.90	PFNA			
PFNA_2	463.0 / 219.0	2.90	PFNA	0.406	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.181	0.184	ü
PFDA_1	513.0 / 469.0	3.25	PFDA			
PFDA_2	513.0 / 219.0	3.25	PFDA	0.079	0.041	
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.56	PFUnA	0.059	0.048	ü
PFDoA_1	613.0 / 569.0	3.85	PFDoA			
PFDoA_2	613.0 / 319.0	3.85	PFDoA	0.171	0.161	ü
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.10	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.048	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.621	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.56	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.57	NEtFOSAA	0.103	0.065	
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.55		N/A	N/A	ü

Sample Name	JX68	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:14:41	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.403	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.77	PFHxA	0.076	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.025	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.288	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.078	0.074	ü
PFNA_1	463.0 / 419.0	2.90	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.284	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.159	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.048	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.070	0.048	ü
PFDoA_1	613.0 / 569.0	3.85	PFDoA			
PFDoA_2	613.0 / 319.0	3.84	PFDoA	0.165	0.161	ü
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.10	PFTrDA	0.087	0.069	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.052	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.481	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.56	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.55	NEtFOSAA	0.074	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	JX69	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:23:38	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.346	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.064	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.026	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.297	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.069	0.074	ü
PFNA_1	463.0 / 419.0	2.90	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.304	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.182	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.25	PFDA	0.038	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.055	0.048	ü
PFDoA_1	613.0 / 569.0	3.85	PFDoA			
PFDoA_2	613.0 / 319.0	3.85	PFDoA	0.155	0.161	ü
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.10	PFTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.39	NMeFOSAA	0.613	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.056	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	JX70	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:32:34	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.325	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.075	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.281	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.075	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.308	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.193	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.039	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.056	0.048	ü
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	3.84	PFDoA	0.153	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.31	PFTeDA	0.052	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.39	NMeFOSAA	0.574	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.53	NEtFOSAA	0.068	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	JX71	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:41:29	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.316	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.070	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.023	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.295	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.071	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.289	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.186	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.039	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.043	0.048	ü
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	3.84	PFDoA	0.156	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.31	PFTeDA	0.056	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.663	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.53	NEtFOSAA	0.059	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	JX72	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:50:24	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.314	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.296	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.072	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.296	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.189	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.048	0.048	ü
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	3.84	PFDoA	0.164	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.31	PFTeDA	0.054	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.640	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.55	NEtFOSAA	0.057	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	JX73	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:59:20	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.302	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.022	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.292	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.075	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.292	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.192	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.043	0.048	ü
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	3.84	PFDoA	0.160	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.069	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.31	PFTeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.620	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.068	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü



Sample Name	JX74	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:08:14	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.308	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.025	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.285	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.074	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.293	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.189	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.046	0.048	ü
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	3.84	PFDoA	0.165	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.30	PFTeDA	0.054	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.639	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.073	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	JX75	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:17:08	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.314	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.77	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.290	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.075	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.291	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.183	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.046	0.048	ü
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	3.83	PFDoA	0.159	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.08	PFTrDA	0.068	0.069	ü
PFTeDA_1	713.0 / 669.0	4.30	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.30	PFTeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.627	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.071	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	JX67	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:05:43	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	195712.77	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	195712.77	287.00
PFHxA_1	313.0 / 269.0	1.79	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFHxA_2	313.0 / 119.0	1.79	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFHpA_1	363.0 / 319.0	2.15	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFHpA_2	363.0 / 169.0	2.15	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFHxS_1	399.0 / 80.0	2.16	13C4-PFOS	503.0 / 80.0	195712.77	287.00
PFHxS_2	399.0 / 99.0	2.16	13C4-PFOS	503.0 / 80.0	195712.77	287.00
PFOA_1	413.0 / 369.0	2.52	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFOA_2	413.0 / 169.0	2.52	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFNA_1	463.0 / 419.0	2.90	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFNA_2	463.0 / 219.0	2.90	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFOS_1	499.0 / 80.0	2.89	13C4-PFOS	503.0 / 80.0	195712.77	287.00
PFOS_2	499.0 / 99.0	2.89	13C4-PFOS	503.0 / 80.0	195712.77	287.00
PFDA_1	513.0 / 469.0	3.25	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFDA_2	513.0 / 219.0	3.25	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFUnA_1	563.0 / 519.0	3.56	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFUnA_2	563.0 / 269.0	3.56	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFDaA_1	613.0 / 569.0	3.85	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFDaA_2	613.0 / 319.0	3.85	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFTTrDA_1	663.0 / 619.0	4.10	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFTTrDA_2	663.0 / 169.0	4.10	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFTeDA_1	713.0 / 669.0	4.32	13C2-PFOA	415.0 / 370.0	62699.72	100.00
PFTeDA_2	713.0 / 169.0	4.32	13C2-PFOA	415.0 / 370.0	62699.72	100.00
NMeFOSAA_1	570.0 / 419.0	3.39	d3-MeFOSAA	573.0 / 419.0	19727.67	400.00
NMeFOSAA_2	570.0 / 512.0	3.38	d3-MeFOSAA	573.0 / 419.0	19727.67	400.00
NEtFOSAA_1	584.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	19727.67	400.00
NEtFOSAA_2	584.0 / 483.0	3.57	d3-MeFOSAA	573.0 / 419.0	19727.67	400.00
13C2-PFHxA	315.0 / 270.0	1.78	13C2-PFOA	415.0 / 370.0	62699.72	100.00
13C2-PFDA	515.0 / 470.0	3.23	13C2-PFOA	415.0 / 370.0	62699.72	100.00
d5-EtFOSAA	589.0 / 419.0	3.55	d3-MeFOSAA	573.0 / 419.0	19727.67	400.00

<b>Sample Name</b>	JX68	<b>Injection Vial</b>	3
<b>Sample ID</b>	L2	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T09:14:41	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	208133.24	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	208133.24	287.00
PFHxA_1	313.0 / 269.0	1.78	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFHxA_2	313.0 / 119.0	1.77	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFHpA_1	363.0 / 319.0	2.14	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFHpA_2	363.0 / 169.0	2.15	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFHxS_1	399.0 / 80.0	2.16	13C4-PFOS	503.0 / 80.0	208133.24	287.00
PFHxS_2	399.0 / 99.0	2.16	13C4-PFOS	503.0 / 80.0	208133.24	287.00
PFOA_1	413.0 / 369.0	2.52	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFOA_2	413.0 / 169.0	2.52	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFNA_1	463.0 / 419.0	2.90	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFNA_2	463.0 / 219.0	2.89	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFOS_1	499.0 / 80.0	2.89	13C4-PFOS	503.0 / 80.0	208133.24	287.00
PFOS_2	499.0 / 99.0	2.89	13C4-PFOS	503.0 / 80.0	208133.24	287.00
PFDA_1	513.0 / 469.0	3.24	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFDA_2	513.0 / 219.0	3.24	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFUnA_1	563.0 / 519.0	3.56	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFUnA_2	563.0 / 269.0	3.55	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFDaA_1	613.0 / 569.0	3.85	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFDaA_2	613.0 / 319.0	3.84	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFTrDA_1	663.0 / 619.0	4.10	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFTrDA_2	663.0 / 169.0	4.10	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFTeDA_1	713.0 / 669.0	4.32	13C2-PFOA	415.0 / 370.0	68551.10	100.00
PFTeDA_2	713.0 / 169.0	4.32	13C2-PFOA	415.0 / 370.0	68551.10	100.00
NMeFOSAA_1	570.0 / 419.0	3.39	d3-MeFOSAA	573.0 / 419.0	21450.12	400.00
NMeFOSAA_2	570.0 / 512.0	3.38	d3-MeFOSAA	573.0 / 419.0	21450.12	400.00
NEtFOSAA_1	584.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	21450.12	400.00
NEtFOSAA_2	584.0 / 483.0	3.55	d3-MeFOSAA	573.0 / 419.0	21450.12	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	68551.10	100.00
13C2-PFDA	515.0 / 470.0	3.23	13C2-PFOA	415.0 / 370.0	68551.10	100.00
d5-EtFOSAA	589.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	21450.12	400.00

Sample Name	JX69	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:23:38	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	196602.67	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	196602.67	287.00
PFHxA_1	313.0 / 269.0	1.78	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFHxA_2	313.0 / 119.0	1.78	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFHpA_1	363.0 / 319.0	2.14	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFHpA_2	363.0 / 169.0	2.15	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFHxS_1	399.0 / 80.0	2.16	13C4-PFOS	503.0 / 80.0	196602.67	287.00
PFHxS_2	399.0 / 99.0	2.16	13C4-PFOS	503.0 / 80.0	196602.67	287.00
PFOA_1	413.0 / 369.0	2.52	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFOA_2	413.0 / 169.0	2.52	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFNA_1	463.0 / 419.0	2.90	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFNA_2	463.0 / 219.0	2.89	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFOS_1	499.0 / 80.0	2.89	13C4-PFOS	503.0 / 80.0	196602.67	287.00
PFOS_2	499.0 / 99.0	2.89	13C4-PFOS	503.0 / 80.0	196602.67	287.00
PFDA_1	513.0 / 469.0	3.24	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFDA_2	513.0 / 219.0	3.25	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFUnA_1	563.0 / 519.0	3.56	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFUnA_2	563.0 / 269.0	3.55	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFDaA_1	613.0 / 569.0	3.85	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFDaA_2	613.0 / 319.0	3.85	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFTTrDA_1	663.0 / 619.0	4.10	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFTTrDA_2	663.0 / 169.0	4.10	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFTeDA_1	713.0 / 669.0	4.32	13C2-PFOA	415.0 / 370.0	68688.50	100.00
PFTeDA_2	713.0 / 169.0	4.32	13C2-PFOA	415.0 / 370.0	68688.50	100.00
NMeFOSAA_1	570.0 / 419.0	3.39	d3-MeFOSAA	573.0 / 419.0	19858.14	400.00
NMeFOSAA_2	570.0 / 512.0	3.39	d3-MeFOSAA	573.0 / 419.0	19858.14	400.00
NEtFOSAA_1	584.0 / 419.0	3.55	d3-MeFOSAA	573.0 / 419.0	19858.14	400.00
NEtFOSAA_2	584.0 / 483.0	3.54	d3-MeFOSAA	573.0 / 419.0	19858.14	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	68688.50	100.00
13C2-PFDA	515.0 / 470.0	3.23	13C2-PFOA	415.0 / 370.0	68688.50	100.00
d5-EtFOSAA	589.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	19858.14	400.00

Sample Name	JX70	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:32:34	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	221233.77	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	221233.77	287.00
PFHxA_1	313.0 / 269.0	1.78	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFHxA_2	313.0 / 119.0	1.78	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFHpA_1	363.0 / 319.0	2.14	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFHpA_2	363.0 / 169.0	2.15	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	221233.77	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	221233.77	287.00
PFOA_1	413.0 / 369.0	2.52	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFOA_2	413.0 / 169.0	2.52	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFNA_1	463.0 / 419.0	2.89	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFNA_2	463.0 / 219.0	2.89	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFOS_1	499.0 / 80.0	2.89	13C4-PFOS	503.0 / 80.0	221233.77	287.00
PFOS_2	499.0 / 99.0	2.89	13C4-PFOS	503.0 / 80.0	221233.77	287.00
PFDA_1	513.0 / 469.0	3.24	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFDA_2	513.0 / 219.0	3.24	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFUnA_1	563.0 / 519.0	3.56	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFUnA_2	563.0 / 269.0	3.55	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFDaA_1	613.0 / 569.0	3.84	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFDaA_2	613.0 / 319.0	3.84	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFTTrDA_1	663.0 / 619.0	4.09	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFTTrDA_2	663.0 / 169.0	4.09	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFTeDA_1	713.0 / 669.0	4.31	13C2-PFOA	415.0 / 370.0	68613.81	100.00
PFTeDA_2	713.0 / 169.0	4.31	13C2-PFOA	415.0 / 370.0	68613.81	100.00
NMeFOSAA_1	570.0 / 419.0	3.39	d3-MeFOSAA	573.0 / 419.0	23210.57	400.00
NMeFOSAA_2	570.0 / 512.0	3.39	d3-MeFOSAA	573.0 / 419.0	23210.57	400.00
NEtFOSAA_1	584.0 / 419.0	3.55	d3-MeFOSAA	573.0 / 419.0	23210.57	400.00
NEtFOSAA_2	584.0 / 483.0	3.53	d3-MeFOSAA	573.0 / 419.0	23210.57	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	68613.81	100.00
13C2-PFDA	515.0 / 470.0	3.23	13C2-PFOA	415.0 / 370.0	68613.81	100.00
d5-EtFOSAA	589.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	23210.57	400.00

Sample Name	JX71	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:41:29	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	207482.97	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	207482.97	287.00
PFHxA_1	313.0 / 269.0	1.78	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFHxA_2	313.0 / 119.0	1.78	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFHpA_1	363.0 / 319.0	2.14	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFHpA_2	363.0 / 169.0	2.14	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFHxS_1	399.0 / 80.0	2.16	13C4-PFOS	503.0 / 80.0	207482.97	287.00
PFHxS_2	399.0 / 99.0	2.16	13C4-PFOS	503.0 / 80.0	207482.97	287.00
PFOA_1	413.0 / 369.0	2.52	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFOA_2	413.0 / 169.0	2.51	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFNA_1	463.0 / 419.0	2.89	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFNA_2	463.0 / 219.0	2.89	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFOS_1	499.0 / 80.0	2.89	13C4-PFOS	503.0 / 80.0	207482.97	287.00
PFOS_2	499.0 / 99.0	2.89	13C4-PFOS	503.0 / 80.0	207482.97	287.00
PFDA_1	513.0 / 469.0	3.24	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFDA_2	513.0 / 219.0	3.24	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFUnA_1	563.0 / 519.0	3.56	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFUnA_2	563.0 / 269.0	3.55	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFDaA_1	613.0 / 569.0	3.84	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFDaA_2	613.0 / 319.0	3.84	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFTrDA_1	663.0 / 619.0	4.09	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFTrDA_2	663.0 / 169.0	4.09	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFTeDA_1	713.0 / 669.0	4.31	13C2-PFOA	415.0 / 370.0	68780.04	100.00
PFTeDA_2	713.0 / 169.0	4.31	13C2-PFOA	415.0 / 370.0	68780.04	100.00
NMeFOSAA_1	570.0 / 419.0	3.39	d3-MeFOSAA	573.0 / 419.0	21173.96	400.00
NMeFOSAA_2	570.0 / 512.0	3.38	d3-MeFOSAA	573.0 / 419.0	21173.96	400.00
NEtFOSAA_1	584.0 / 419.0	3.55	d3-MeFOSAA	573.0 / 419.0	21173.96	400.00
NEtFOSAA_2	584.0 / 483.0	3.53	d3-MeFOSAA	573.0 / 419.0	21173.96	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	68780.04	100.00
13C2-PFDA	515.0 / 470.0	3.23	13C2-PFOA	415.0 / 370.0	68780.04	100.00
d5-EtFOSAA	589.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	21173.96	400.00

Sample Name	JX72	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:50:24	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	205389.92	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	205389.92	287.00
PFHxA_1	313.0 / 269.0	1.78	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFHxA_2	313.0 / 119.0	1.78	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFHpA_1	363.0 / 319.0	2.14	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFHpA_2	363.0 / 169.0	2.14	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFHxS_1	399.0 / 80.0	2.16	13C4-PFOS	503.0 / 80.0	205389.92	287.00
PFHxS_2	399.0 / 99.0	2.16	13C4-PFOS	503.0 / 80.0	205389.92	287.00
PFOA_1	413.0 / 369.0	2.51	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFOA_2	413.0 / 169.0	2.51	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFNA_1	463.0 / 419.0	2.89	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFNA_2	463.0 / 219.0	2.89	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFOS_1	499.0 / 80.0	2.89	13C4-PFOS	503.0 / 80.0	205389.92	287.00
PFOS_2	499.0 / 99.0	2.89	13C4-PFOS	503.0 / 80.0	205389.92	287.00
PFDA_1	513.0 / 469.0	3.24	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFDA_2	513.0 / 219.0	3.24	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFUnA_1	563.0 / 519.0	3.55	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFUnA_2	563.0 / 269.0	3.55	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFDaA_1	613.0 / 569.0	3.84	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFDaA_2	613.0 / 319.0	3.84	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFTTrDA_1	663.0 / 619.0	4.09	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFTTrDA_2	663.0 / 169.0	4.09	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFTTeDA_1	713.0 / 669.0	4.31	13C2-PFOA	415.0 / 370.0	70145.13	100.00
PFTTeDA_2	713.0 / 169.0	4.31	13C2-PFOA	415.0 / 370.0	70145.13	100.00
NMeFOSAA_1	570.0 / 419.0	3.38	d3-MeFOSAA	573.0 / 419.0	23772.73	400.00
NMeFOSAA_2	570.0 / 512.0	3.38	d3-MeFOSAA	573.0 / 419.0	23772.73	400.00
NEtFOSAA_1	584.0 / 419.0	3.55	d3-MeFOSAA	573.0 / 419.0	23772.73	400.00
NEtFOSAA_2	584.0 / 483.0	3.55	d3-MeFOSAA	573.0 / 419.0	23772.73	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	70145.13	100.00
13C2-PFDA	515.0 / 470.0	3.23	13C2-PFOA	415.0 / 370.0	70145.13	100.00
d5-EtFOSAA	589.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	23772.73	400.00



Sample Name	JX73	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:59:20	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	210418.05	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	210418.05	287.00
PFHxA_1	313.0 / 269.0	1.78	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFHxA_2	313.0 / 119.0	1.78	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFHpA_1	363.0 / 319.0	2.14	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFHpA_2	363.0 / 169.0	2.14	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	210418.05	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	210418.05	287.00
PFOA_1	413.0 / 369.0	2.51	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFOA_2	413.0 / 169.0	2.51	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFNA_1	463.0 / 419.0	2.89	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFNA_2	463.0 / 219.0	2.89	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	210418.05	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	210418.05	287.00
PFDA_1	513.0 / 469.0	3.23	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFDA_2	513.0 / 219.0	3.23	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFUnA_1	563.0 / 519.0	3.55	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFUnA_2	563.0 / 269.0	3.55	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFDaA_1	613.0 / 569.0	3.84	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFDaA_2	613.0 / 319.0	3.84	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFTrDA_1	663.0 / 619.0	4.09	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFTrDA_2	663.0 / 169.0	4.09	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFTeDA_1	713.0 / 669.0	4.31	13C2-PFOA	415.0 / 370.0	68944.70	100.00
PFTeDA_2	713.0 / 169.0	4.31	13C2-PFOA	415.0 / 370.0	68944.70	100.00
NMeFOSAA_1	570.0 / 419.0	3.38	d3-MeFOSAA	573.0 / 419.0	21328.18	400.00
NMeFOSAA_2	570.0 / 512.0	3.38	d3-MeFOSAA	573.0 / 419.0	21328.18	400.00
NEtFOSAA_1	584.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	21328.18	400.00
NEtFOSAA_2	584.0 / 483.0	3.54	d3-MeFOSAA	573.0 / 419.0	21328.18	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	68944.70	100.00
13C2-PFDA	515.0 / 470.0	3.23	13C2-PFOA	415.0 / 370.0	68944.70	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	21328.18	400.00

Sample Name	JX74	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:08:14	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	173679.17	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	173679.17	287.00
PFHxA_1	313.0 / 269.0	1.78	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFHxA_2	313.0 / 119.0	1.78	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFHpA_1	363.0 / 319.0	2.14	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFHpA_2	363.0 / 169.0	2.14	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	173679.17	287.00
PFHxS_2	399.0 / 99.0	2.16	13C4-PFOS	503.0 / 80.0	173679.17	287.00
PFOA_1	413.0 / 369.0	2.51	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFOA_2	413.0 / 169.0	2.51	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFNA_1	463.0 / 419.0	2.89	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFNA_2	463.0 / 219.0	2.89	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	173679.17	287.00
PFOS_2	499.0 / 99.0	2.89	13C4-PFOS	503.0 / 80.0	173679.17	287.00
PFDA_1	513.0 / 469.0	3.23	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFDA_2	513.0 / 219.0	3.23	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFUnA_1	563.0 / 519.0	3.55	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFUnA_2	563.0 / 269.0	3.55	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFDaA_1	613.0 / 569.0	3.84	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFDaA_2	613.0 / 319.0	3.84	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFTTrDA_1	663.0 / 619.0	4.09	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFTTrDA_2	663.0 / 169.0	4.09	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFTeDA_1	713.0 / 669.0	4.31	13C2-PFOA	415.0 / 370.0	60796.66	100.00
PFTeDA_2	713.0 / 169.0	4.30	13C2-PFOA	415.0 / 370.0	60796.66	100.00
NMeFOSAA_1	570.0 / 419.0	3.38	d3-MeFOSAA	573.0 / 419.0	18053.74	400.00
NMeFOSAA_2	570.0 / 512.0	3.38	d3-MeFOSAA	573.0 / 419.0	18053.74	400.00
NEtFOSAA_1	584.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	18053.74	400.00
NEtFOSAA_2	584.0 / 483.0	3.54	d3-MeFOSAA	573.0 / 419.0	18053.74	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	60796.66	100.00
13C2-PFDA	515.0 / 470.0	3.23	13C2-PFOA	415.0 / 370.0	60796.66	100.00
d5-EtFOSAA	589.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	18053.74	400.00

Sample Name	JX75	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:17:08	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	184387.98	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	184387.98	287.00
PFHxA_1	313.0 / 269.0	1.78	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFHxA_2	313.0 / 119.0	1.77	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFHpA_1	363.0 / 319.0	2.14	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFHpA_2	363.0 / 169.0	2.14	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	184387.98	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	184387.98	287.00
PFOA_1	413.0 / 369.0	2.51	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFOA_2	413.0 / 169.0	2.51	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFNA_1	463.0 / 419.0	2.89	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFNA_2	463.0 / 219.0	2.89	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	184387.98	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	184387.98	287.00
PFDA_1	513.0 / 469.0	3.23	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFDA_2	513.0 / 219.0	3.23	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFUnA_1	563.0 / 519.0	3.55	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFUnA_2	563.0 / 269.0	3.55	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFDaA_1	613.0 / 569.0	3.84	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFDaA_2	613.0 / 319.0	3.83	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFTTrDA_1	663.0 / 619.0	4.09	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFTTrDA_2	663.0 / 169.0	4.08	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFTTeDA_1	713.0 / 669.0	4.30	13C2-PFOA	415.0 / 370.0	68647.41	100.00
PFTTeDA_2	713.0 / 169.0	4.30	13C2-PFOA	415.0 / 370.0	68647.41	100.00
NMeFOSAA_1	570.0 / 419.0	3.38	d3-MeFOSAA	573.0 / 419.0	21785.07	400.00
NMeFOSAA_2	570.0 / 512.0	3.38	d3-MeFOSAA	573.0 / 419.0	21785.07	400.00
NEtFOSAA_1	584.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	21785.07	400.00
NEtFOSAA_2	584.0 / 483.0	3.54	d3-MeFOSAA	573.0 / 419.0	21785.07	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	68647.41	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	68647.41	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	21785.07	400.00

Sample Name	JV66 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:26:04	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	805.276200	885.00	90.99
PFBS_2	298.9 / 99.0	1.49	795.986368	885.00	89.94
PFHxA_1	313.0 / 269.0	1.77	996.404291	1000.00	99.64
PFHxA_2	313.0 / 119.0	1.77	997.489769	1000.00	99.75
PFHpA_1	363.0 / 319.0	2.14	1031.124835	1000.00	103.11
PFHpA_2	363.0 / 169.0	2.14	1161.534315	1000.00	116.15
PFHxS_1	399.0 / 80.0	2.15	920.448980	912.00	100.93
PFHxS_2	399.0 / 99.0	2.15	870.009843	912.00	95.40
PFOA_1	413.0 / 369.0	2.51	1050.976678	1000.00	105.10
PFOA_2	413.0 / 169.0	2.51	1048.582291	1000.00	104.86
PFNA_1	463.0 / 419.0	2.88	1000.643194	1000.00	100.06
PFNA_2	463.0 / 219.0	2.88	1035.420136	1000.00	103.54
PFOS_1	499.0 / 80.0	2.88	809.974713	925.60	87.51
PFOS_2	499.0 / 99.0	2.88	951.613036	925.60	102.81
PFDA_1	513.0 / 469.0	3.23	1068.328726	1000.00	106.83
PFDA_2	513.0 / 219.0	3.23	1022.246333	1000.00	102.22
PFUnA_1	563.0 / 519.0	3.55	1036.138808	1000.00	103.61
PFUnA_2	563.0 / 269.0	3.55	1023.503647	1000.00	102.35
PFDoA_1	613.0 / 569.0	3.83	1033.267977	1000.00	103.33
PFDoA_2	613.0 / 319.0	3.83	1036.887732	1000.00	103.69
PFTTrDA_1	663.0 / 619.0	4.08	1007.914002	1000.00	100.79
PFTTrDA_2	663.0 / 169.0	4.08	1068.145164	1000.00	106.81
PFTeDA_1	713.0 / 669.0	4.30	958.601170	1000.00	95.86
PFTeDA_2	713.0 / 169.0	4.30	990.767060	1000.00	99.08
NMeFOSAA_1	570.0 / 419.0	3.38	1288.934423	1000.00	128.89
NMeFOSAA_2	570.0 / 512.0	3.38	1103.628737	1000.00	110.36
NEtFOSAA_1	584.0 / 419.0	3.54	1241.276530	1000.00	124.13
NEtFOSAA_2	584.0 / 483.0	3.54	1261.461923	1000.00	126.15
13C2-PFHxA	315.0 / 270.0	1.76	102.268470	100.00	102.27
13C2-PFDA	515.0 / 470.0	3.22	104.026718	100.00	104.03
d5-EtFOSAA	589.0 / 419.0	3.53	467.050507	400.00	116.76

Sample Name	JX71 CCV	Injection Vial	21
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:55:23	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	431.881933	443.00	97.49
PFBS_2	298.9 / 99.0	1.49	432.842409	443.00	97.71
PFHxA_1	313.0 / 269.0	1.77	499.346827	500.00	99.87
PFHxA_2	313.0 / 119.0	1.77	601.194956	500.00	120.24
PFHpA_1	363.0 / 319.0	2.14	541.137827	500.00	108.23
PFHpA_2	363.0 / 169.0	2.13	549.226276	500.00	109.85
PFHxS_1	399.0 / 80.0	2.15	473.730771	456.00	103.89
PFHxS_2	399.0 / 99.0	2.15	464.108904	456.00	101.78
PFOA_1	413.0 / 369.0	2.51	534.461015	500.00	106.89
PFOA_2	413.0 / 169.0	2.51	540.865692	500.00	108.17
PFNA_1	463.0 / 419.0	2.89	515.537411	500.00	103.11
PFNA_2	463.0 / 219.0	2.89	527.595925	500.00	105.52
PFOS_1	499.0 / 80.0	2.88	472.903639	463.00	102.14
PFOS_2	499.0 / 99.0	2.88	475.600795	463.00	102.72
PFDA_1	513.0 / 469.0	3.23	537.193840	500.00	107.44
PFDA_2	513.0 / 219.0	3.23	557.879409	500.00	111.58
PFUnA_1	563.0 / 519.0	3.55	538.580498	500.00	107.72
PFUnA_2	563.0 / 269.0	3.55	490.036421	500.00	98.01
PFDoA_1	613.0 / 569.0	3.83	550.806616	500.00	110.16
PFDoA_2	613.0 / 319.0	3.83	541.209516	500.00	108.24
PFTTrDA_1	663.0 / 619.0	4.08	525.581751	500.00	105.12
PFTTrDA_2	663.0 / 169.0	4.08	523.897503	500.00	104.78
PFTeDA_1	713.0 / 669.0	4.30	504.237460	500.00	100.85
PFTeDA_2	713.0 / 169.0	4.29	519.757693	500.00	103.95
NMeFOSAA_1	570.0 / 419.0	3.38	561.321770	500.00	112.26
NMeFOSAA_2	570.0 / 512.0	3.38	610.613795	500.00	122.12
NEtFOSAA_1	584.0 / 419.0	3.54	536.007711	500.00	107.20
NEtFOSAA_2	584.0 / 483.0	3.55	415.396690	500.00	83.08
13C2-PFHxA	315.0 / 270.0	1.77	99.025613	100.00	99.03
13C2-PFDA	515.0 / 470.0	3.22	100.563413	100.00	100.56
d5-EtFOSAA	589.0 / 419.0	3.53	404.160124	400.00	101.04

Sample Name	JX72 CCV	Injection Vial	30
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T13:24:40	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	873.898884	885.00	98.75
PFBS_2	298.9 / 99.0	1.49	850.361283	885.00	96.09
PFHxA_1	313.0 / 269.0	1.77	1011.323638	1000.00	101.13
PFHxA_2	313.0 / 119.0	1.77	1023.827578	1000.00	102.38
PFHpA_1	363.0 / 319.0	2.14	1008.604509	1000.00	100.86
PFHpA_2	363.0 / 169.0	2.13	1038.882110	1000.00	103.89
PFHxS_1	399.0 / 80.0	2.15	919.893376	912.00	100.87
PFHxS_2	399.0 / 99.0	2.15	895.456758	912.00	98.19
PFOA_1	413.0 / 369.0	2.51	1061.720067	1000.00	106.17
PFOA_2	413.0 / 169.0	2.51	1104.882265	1000.00	110.49
PFNA_1	463.0 / 419.0	2.88	1070.564835	1000.00	107.06
PFNA_2	463.0 / 219.0	2.88	1046.084937	1000.00	104.61
PFOS_1	499.0 / 80.0	2.88	940.951689	925.60	101.66
PFOS_2	499.0 / 99.0	2.88	969.972216	925.60	104.79
PFDA_1	513.0 / 469.0	3.23	1071.568690	1000.00	107.16
PFDA_2	513.0 / 219.0	3.23	1064.413417	1000.00	106.44
PFUnA_1	563.0 / 519.0	3.54	1062.504413	1000.00	106.25
PFUnA_2	563.0 / 269.0	3.54	1013.193735	1000.00	101.32
PFDoA_1	613.0 / 569.0	3.83	1046.611117	1000.00	104.66
PFDoA_2	613.0 / 319.0	3.83	990.540295	1000.00	99.05
PFTTrDA_1	663.0 / 619.0	4.08	1008.167322	1000.00	100.82
PFTTrDA_2	663.0 / 169.0	4.08	1046.383088	1000.00	104.64
PFTeDA_1	713.0 / 669.0	4.30	987.704415	1000.00	98.77
PFTeDA_2	713.0 / 169.0	4.30	1075.545077	1000.00	107.55
NMeFOSAA_1	570.0 / 419.0	3.38	1036.794321	1000.00	103.68
NMeFOSAA_2	570.0 / 512.0	3.37	1016.394788	1000.00	101.64
NEtFOSAA_1	584.0 / 419.0	3.53	1130.780071	1000.00	113.08
NEtFOSAA_2	584.0 / 483.0	3.53	1106.039654	1000.00	110.60
13C2-PFHxA	315.0 / 270.0	1.76	95.635483	100.00	95.64
13C2-PFDA	515.0 / 470.0	3.22	99.367146	100.00	99.37
d5-EtFOSAA	589.0 / 419.0	3.53	420.922541	400.00	105.23

Sample Name	JV66 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:26:04	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.49	342299.45	805.276200	2068.6	false
PFBS_2	298.9 / 99.0	1.49	106347.76	795.986368	985.2	false
PFHxA_1	313.0 / 269.0	1.77	414770.42	996.404291	138.3	false
PFHxA_2	313.0 / 119.0	1.77	29540.77	997.489769	118.7	false
PFHpA_1	363.0 / 319.0	2.14	405345.28	1031.124835	251.2	false
PFHpA_2	363.0 / 169.0	2.14	10943.44	1161.534315	235.4	false
PFHxS_1	399.0 / 80.0	2.15	430248.38	920.448980	831.0	false
PFHxS_2	399.0 / 99.0	2.15	117823.06	870.009843	526.4	false
PFOA_1	413.0 / 369.0	2.51	536691.54	1050.976678	282.2	false
PFOA_2	413.0 / 169.0	2.51	39891.30	1048.582291	267.6	false
PFNA_1	463.0 / 419.0	2.88	445089.58	1000.643194	539.0	false
PFNA_2	463.0 / 219.0	2.88	134957.92	1035.420136	354.9	false
PFOS_1	499.0 / 80.0	2.88	528927.12	809.974713	363.6	false
PFOS_2	499.0 / 99.0	2.88	115071.53	951.613036	325.8	false
PFDA_1	513.0 / 469.0	3.23	511210.21	1068.328726	615.0	false
PFDA_2	513.0 / 219.0	3.23	20020.05	1022.246333	640.7	false
PFUnA_1	563.0 / 519.0	3.55	492507.62	1036.138808	601.1	false
PFUnA_2	563.0 / 269.0	3.55	22997.56	1023.503647	412.3	false
PFDaA_1	613.0 / 569.0	3.83	419502.38	1033.267977	624.6	false
PFDaA_2	613.0 / 319.0	3.83	67616.79	1036.887732	714.9	false
PFTrDA_1	663.0 / 619.0	4.08	338637.30	1007.914002	674.8	false
PFTrDA_2	663.0 / 169.0	4.08	24255.17	1068.145164	629.4	false
PFTeDA_1	713.0 / 669.0	4.30	276490.09	958.601170	1244.3	false
PFTeDA_2	713.0 / 169.0	4.30	14579.81	990.767060	1075.3	false
NMeFOSAA_1	570.0 / 419.0	3.38	44603.76	1288.934423	1064.9	false
NMeFOSAA_2	570.0 / 512.0	3.38	24158.57	1103.628737	822.7	false
NEtFOSAA_1	584.0 / 419.0	3.54	43002.56	1241.276530	631.4	false
NEtFOSAA_2	584.0 / 483.0	3.54	3128.92	1261.461923	688.2	false
13C2-PFHxA	315.0 / 270.0	1.76	51090.79	102.268470	1076.0	false
13C2-PFDA	515.0 / 470.0	3.22	62930.22	104.026718	1897.8	false
d5-EtFOSAA	589.0 / 419.0	3.53	23201.78	467.050507	420.9	false

Sample Name	JX71 CCV	Injection Vial	21
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:55:23	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.49	202526.29	431.881933	2135.3	false
PFBS_2	298.9 / 99.0	1.49	64498.22	432.842409	802.8	false
PFHxA_1	313.0 / 269.0	1.77	244928.42	499.346827	97.9	false
PFHxA_2	313.0 / 119.0	1.77	20842.58	601.194956	95.8	false
PFHpA_1	363.0 / 319.0	2.14	247646.33	541.137827	201.3	false
PFHpA_2	363.0 / 169.0	2.13	6093.49	549.226276	176.1	false
PFHxS_1	399.0 / 80.0	2.15	245038.84	473.730771	540.3	false
PFHxS_2	399.0 / 99.0	2.15	69638.65	464.108904	351.3	false
PFOA_1	413.0 / 369.0	2.51	322433.58	534.461015	200.9	false
PFOA_2	413.0 / 169.0	2.51	24221.99	540.865692	154.3	false
PFNA_1	463.0 / 419.0	2.89	268756.09	515.537411	368.8	false
PFNA_2	463.0 / 219.0	2.89	80691.60	527.595925	274.4	false
PFOS_1	499.0 / 80.0	2.88	345339.54	472.903639	190.3	false
PFOS_2	499.0 / 99.0	2.88	64258.24	475.600795	295.4	false
PFDA_1	513.0 / 469.0	3.23	301448.00	537.193840	469.0	false
PFDA_2	513.0 / 219.0	3.23	12793.33	557.879409	363.7	false
PFUnA_1	563.0 / 519.0	3.55	297700.83	538.580498	380.6	false
PFUnA_2	563.0 / 269.0	3.55	13428.50	490.036421	389.4	false
PFDoA_1	613.0 / 569.0	3.83	259408.41	550.806616	488.0	false
PFDoA_2	613.0 / 319.0	3.83	40959.71	541.209516	438.9	false
PFTrDA_1	663.0 / 619.0	4.08	204862.67	525.581751	638.8	false
PFTrDA_2	663.0 / 169.0	4.08	13842.39	523.897503	427.6	false
PFTeDA_1	713.0 / 669.0	4.30	168103.54	504.237460	1132.0	false
PFTeDA_2	713.0 / 169.0	4.29	8864.69	519.757693	724.2	false
NMeFOSAA_1	570.0 / 419.0	3.38	21743.34	561.321770	590.5	false
NMeFOSAA_2	570.0 / 512.0	3.38	14881.51	610.613795	645.0	false
NEtFOSAA_1	584.0 / 419.0	3.54	21132.46	536.007711	497.0	false
NEtFOSAA_2	584.0 / 483.0	3.55	1149.35	415.396690	196.9	false
13C2-PFHxA	315.0 / 270.0	1.77	56874.56	99.025613	1003.2	false
13C2-PFDA	515.0 / 470.0	3.22	69939.74	100.563413	41798.0	false
d5-EtFOSAA	589.0 / 419.0	3.53	22349.45	404.160124	349.1	false



Sample Name	JX72 CCV	Injection Vial	30
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T13:24:40	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.49	397117.85	873.898884	2291.4	false
PFBS_2	298.9 / 99.0	1.49	121354.51	850.361283	621.6	false
PFHxA_1	313.0 / 269.0	1.77	480533.81	1011.323638	134.8	false
PFHxA_2	313.0 / 119.0	1.77	34598.15	1023.827578	110.9	false
PFHpA_1	363.0 / 319.0	2.14	452889.09	1008.604509	248.5	false
PFHpA_2	363.0 / 169.0	2.13	11205.37	1038.882110	222.7	false
PFHxS_1	399.0 / 80.0	2.15	459652.43	919.893376	716.3	false
PFHxS_2	399.0 / 99.0	2.15	129619.62	895.456758	460.0	false
PFOA_1	413.0 / 369.0	2.51	618925.38	1061.720067	277.0	false
PFOA_2	413.0 / 169.0	2.51	47934.59	1104.882265	213.0	false
PFNA_1	463.0 / 419.0	2.88	543021.41	1070.564835	504.1	false
PFNA_2	463.0 / 219.0	2.88	155659.58	1046.084937	397.2	false
PFOS_1	499.0 / 80.0	2.88	655175.67	940.951689	281.8	false
PFOS_2	499.0 / 99.0	2.88	125354.18	969.972216	418.2	false
PFDA_1	513.0 / 469.0	3.23	585477.38	1071.568690	605.0	false
PFDA_2	513.0 / 219.0	3.23	23782.60	1064.413417	562.9	false
PFUnA_1	563.0 / 519.0	3.54	576519.13	1062.504413	627.7	false
PFUnA_2	563.0 / 269.0	3.54	26010.80	1013.193735	530.5	false
PFDaA_1	613.0 / 569.0	3.83	485145.47	1046.611117	660.0	false
PFDaA_2	613.0 / 319.0	3.83	73795.08	990.540295	625.6	false
PFTrDA_1	663.0 / 619.0	4.08	386780.83	1008.167322	734.5	false
PFTrDA_2	663.0 / 169.0	4.08	27138.89	1046.383088	671.4	false
PFTeDA_1	713.0 / 669.0	4.30	325247.74	987.704415	1257.1	false
PFTeDA_2	713.0 / 169.0	4.30	18060.26	1075.545077	855.2	false
NMeFOSAA_1	570.0 / 419.0	3.38	37186.07	1036.794321	959.7	false
NMeFOSAA_2	570.0 / 512.0	3.37	23036.21	1016.394788	707.0	false
NEtFOSAA_1	584.0 / 419.0	3.53	40627.15	1130.780071	735.9	false
NEtFOSAA_2	584.0 / 483.0	3.53	2840.84	1106.039654	492.2	false
13C2-PFHxA	315.0 / 270.0	1.76	54555.93	95.635483	957.0	false
13C2-PFDA	515.0 / 470.0	3.22	68640.31	99.367146	1348.6	false
d5-EtFOSAA	589.0 / 419.0	3.53	21649.71	420.922541	416.4	false

Sample Name	JV66 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:26:04	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.49	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.311	0.341	ü
PFHxA_1	313.0 / 269.0	1.77	PFHxA			
PFHxA_2	313.0 / 119.0	1.77	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.027	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.274	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.074	0.074	ü
PFNA_1	463.0 / 419.0	2.88	PFNA			
PFNA_2	463.0 / 219.0	2.88	PFNA	0.303	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.218	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.039	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.047	0.048	ü
PFDoA_1	613.0 / 569.0	3.83	PFDoA			
PFDoA_2	613.0 / 319.0	3.83	PFDoA	0.161	0.161	ü
PFTrDA_1	663.0 / 619.0	4.08	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.08	PFTrDA	0.072	0.069	ü
PFTeDA_1	713.0 / 669.0	4.30	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.30	PFTeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.542	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.073	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.76				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	JX71 CCV	Injection Vial	21
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:55:23	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.49	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.319	0.341	ü
PFHxA_1	313.0 / 269.0	1.77	PFHxA			
PFHxA_2	313.0 / 119.0	1.77	PFHxA	0.085	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.13	PFHpA	0.025	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.284	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.075	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.300	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.186	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.042	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.045	0.048	ü
PFDoA_1	613.0 / 569.0	3.83	PFDoA			
PFDoA_2	613.0 / 319.0	3.83	PFDoA	0.158	0.161	ü
PFTrDA_1	663.0 / 619.0	4.08	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.08	PFTrDA	0.068	0.069	ü
PFTeDA_1	713.0 / 669.0	4.30	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.29	PFTeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.684	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.55	NEtFOSAA	0.054	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	JX72 CCV	Injection Vial	30
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T13:24:40	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.49	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.306	0.341	ü
PFHxA_1	313.0 / 269.0	1.77	PFHxA			
PFHxA_2	313.0 / 119.0	1.77	PFHxA	0.072	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.13	PFHpA	0.025	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.282	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.077	0.074	ü
PFNA_1	463.0 / 419.0	2.88	PFNA			
PFNA_2	463.0 / 219.0	2.88	PFNA	0.287	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.191	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.54	PFUnA			
PFUnA_2	563.0 / 269.0	3.54	PFUnA	0.045	0.048	ü
PFDoA_1	613.0 / 569.0	3.83	PFDoA			
PFDoA_2	613.0 / 319.0	3.83	PFDoA	0.152	0.161	ü
PFTrDA_1	663.0 / 619.0	4.08	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.08	PFTrDA	0.070	0.069	ü
PFTeDA_1	713.0 / 669.0	4.30	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.30	PFTeDA	0.056	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.37	NMeFOSAA	0.620	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.53	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.53	NEtFOSAA	0.070	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.76				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	JV66 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:26:04	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.49	13C4-PFOS	503.0 / 80.0	198955.94	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	198955.94	287.00
PFHxA_1	313.0 / 269.0	1.77	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFHxA_2	313.0 / 119.0	1.77	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFHpA_1	363.0 / 319.0	2.14	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFHpA_2	363.0 / 169.0	2.14	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	198955.94	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	198955.94	287.00
PFOA_1	413.0 / 369.0	2.51	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFOA_2	413.0 / 169.0	2.51	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFNA_1	463.0 / 419.0	2.88	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFNA_2	463.0 / 219.0	2.88	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	198955.94	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	198955.94	287.00
PFDA_1	513.0 / 469.0	3.23	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFDA_2	513.0 / 219.0	3.23	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFUnA_1	563.0 / 519.0	3.55	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFUnA_2	563.0 / 269.0	3.55	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFDaA_1	613.0 / 569.0	3.83	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFDaA_2	613.0 / 319.0	3.83	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFTrDA_1	663.0 / 619.0	4.08	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFTrDA_2	663.0 / 169.0	4.08	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFTeDA_1	713.0 / 669.0	4.30	13C2-PFOA	415.0 / 370.0	64713.81	100.00
PFTeDA_2	713.0 / 169.0	4.30	13C2-PFOA	415.0 / 370.0	64713.81	100.00
NMeFOSAA_1	570.0 / 419.0	3.38	d3-MeFOSAA	573.0 / 419.0	18742.21	400.00
NMeFOSAA_2	570.0 / 512.0	3.38	d3-MeFOSAA	573.0 / 419.0	18742.21	400.00
NEtFOSAA_1	584.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	18742.21	400.00
NEtFOSAA_2	584.0 / 483.0	3.54	d3-MeFOSAA	573.0 / 419.0	18742.21	400.00
13C2-PFHxA	315.0 / 270.0	1.76	13C2-PFOA	415.0 / 370.0	64713.81	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	64713.81	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	18742.21	400.00

<b>Sample Name</b>	JX71 CCV	<b>Injection Vial</b>	21
<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>	2018-06-27T11:55:23	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.49	13C4-PFOS	503.0 / 80.0	219627.88	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	219627.88	287.00
PFHxA_1	313.0 / 269.0	1.77	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFHxA_2	313.0 / 119.0	1.77	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFHpA_1	363.0 / 319.0	2.14	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFHpA_2	363.0 / 169.0	2.13	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	219627.88	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	219627.88	287.00
PFOA_1	413.0 / 369.0	2.51	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFOA_2	413.0 / 169.0	2.51	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFNA_1	463.0 / 419.0	2.89	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFNA_2	463.0 / 219.0	2.89	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	219627.88	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	219627.88	287.00
PFDA_1	513.0 / 469.0	3.23	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFDA_2	513.0 / 219.0	3.23	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFUnA_1	563.0 / 519.0	3.55	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFUnA_2	563.0 / 269.0	3.55	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFDaA_1	613.0 / 569.0	3.83	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFDaA_2	613.0 / 319.0	3.83	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFTrDA_1	663.0 / 619.0	4.08	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFTrDA_2	663.0 / 169.0	4.08	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFTeDA_1	713.0 / 669.0	4.30	13C2-PFOA	415.0 / 370.0	74398.92	100.00
PFTeDA_2	713.0 / 169.0	4.29	13C2-PFOA	415.0 / 370.0	74398.92	100.00
NMeFOSAA_1	570.0 / 419.0	3.38	d3-MeFOSAA	573.0 / 419.0	20862.99	400.00
NMeFOSAA_2	570.0 / 512.0	3.38	d3-MeFOSAA	573.0 / 419.0	20862.99	400.00
NEtFOSAA_1	584.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	20862.99	400.00
NEtFOSAA_2	584.0 / 483.0	3.55	d3-MeFOSAA	573.0 / 419.0	20862.99	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	74398.92	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	74398.92	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	20862.99	400.00

Sample Name	JX72 CCV	Injection Vial	30
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T13:24:40	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.49	13C4-PFOS	503.0 / 80.0	212681.05	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	212681.05	287.00
PFHxA_1	313.0 / 269.0	1.77	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFHxA_2	313.0 / 119.0	1.77	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFHpA_1	363.0 / 319.0	2.14	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFHpA_2	363.0 / 169.0	2.13	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	212681.05	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	212681.05	287.00
PFOA_1	413.0 / 369.0	2.51	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFOA_2	413.0 / 169.0	2.51	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFNA_1	463.0 / 419.0	2.88	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFNA_2	463.0 / 219.0	2.88	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	212681.05	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	212681.05	287.00
PFDA_1	513.0 / 469.0	3.23	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFDA_2	513.0 / 219.0	3.23	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFUnA_1	563.0 / 519.0	3.54	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFUnA_2	563.0 / 269.0	3.54	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFDaA_1	613.0 / 569.0	3.83	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFDaA_2	613.0 / 319.0	3.83	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFTTrDA_1	663.0 / 619.0	4.08	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFTTrDA_2	663.0 / 169.0	4.08	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFTeDA_1	713.0 / 669.0	4.30	13C2-PFOA	415.0 / 370.0	73895.68	100.00
PFTeDA_2	713.0 / 169.0	4.30	13C2-PFOA	415.0 / 370.0	73895.68	100.00
NMeFOSAA_1	570.0 / 419.0	3.38	d3-MeFOSAA	573.0 / 419.0	19404.97	400.00
NMeFOSAA_2	570.0 / 512.0	3.37	d3-MeFOSAA	573.0 / 419.0	19404.97	400.00
NEtFOSAA_1	584.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	19404.97	400.00
NEtFOSAA_2	584.0 / 483.0	3.53	d3-MeFOSAA	573.0 / 419.0	19404.97	400.00
13C2-PFHxA	315.0 / 270.0	1.76	13C2-PFOA	415.0 / 370.0	73895.68	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	73895.68	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	19404.97	400.00

# Raw Analytical Data



Sample Name	CR038PB-FS(0)	Injection Vial	13
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:43:54	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	10003.06	21.381663	170.4	true
PFBS_2	298.9 / 99.0	1.50	4603.59	20.919032	103.7	true
PFHxA_1	313.0 / 269.0	1.78	64096.98	111.094202	65.7	true
PFHxA_2	313.0 / 119.0	1.77	4622.24	110.530507	52.6	true
PFHpA_1	363.0 / 319.0	2.14	22515.68	35.713651	64.8	true
PFHpA_2	363.0 / 169.0	2.13	680.44	38.028466	30.7	true
PFHxS_1	399.0 / 80.0	2.16	1620.40	0.696661	32.6	true
PFHxS_2	399.0 / 99.0	2.14	505.42	< 0	22.3	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	2.89	6539.22	< 0	37.3	true
PFNA_2	463.0 / 219.0	2.88	2248.89	< 0	28.7	true
PFOS_1	499.0 / 80.0	2.88	44235.98	45.935458	80.7	true
PFOS_2	499.0 / 99.0	2.88	7582.97	44.425108	71.2	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	3.55	1813.12	< 0	27.7	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.83	1078.98	< 0	23.9	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	4.08	1298.72	< 0	52.5	false
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.31	2701.33	2.396238	33.4	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	1.77	61452.84	106.463979	903.5	false
13C2-PFDA	515.0 / 470.0	3.22	66483.65	95.117854	1571.2	false
d5-EtFOSAA	589.0 / 419.0	3.53	22952.25	416.968413	424.6	false

Sample Name	CR039LCS-FS(0)	Injection Vial	14
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:52:49	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	2576683.50	7918.177670	3562.8	false
PFBS_2	298.9 / 99.0	1.50	790826.18	7823.506847	1970.3	false
PFHxA_1	313.0 / 269.0	1.78	3073562.09	9446.199911	313.2	false
PFHxA_2	313.0 / 119.0	1.78	214564.56	9290.886275	312.9	false
PFHpA_1	363.0 / 319.0	2.14	2899775.20	9341.340849	529.9	false
PFHpA_2	363.0 / 169.0	2.14	65579.96	8873.562604	346.5	false
PFHxS_1	399.0 / 80.0	2.16	2936400.71	8230.036500	1025.3	false
PFHxS_2	399.0 / 99.0	2.16	839217.68	8130.429119	931.8	false
PFOA_1	413.0 / 369.0	2.51	3547951.15	8913.987111	636.1	false
PFOA_2	413.0 / 169.0	2.51	257788.79	8669.262987	498.2	false
PFNA_1	463.0 / 419.0	2.89	2938390.51	8415.203599	930.0	false
PFNA_2	463.0 / 219.0	2.89	830771.46	8123.659664	718.7	false
PFOS_1	499.0 / 80.0	2.88	3596477.72	7317.765653	711.2	false
PFOS_2	499.0 / 99.0	2.88	761533.66	8321.290148	764.2	false
PFDA_1	513.0 / 469.0	3.23	3302048.83	8786.929640	1273.3	false
PFDA_2	513.0 / 219.0	3.23	144472.09	9412.710225	717.8	false
PFUnA_1	563.0 / 519.0	3.55	3235731.70	8608.042713	820.1	false
PFUnA_2	563.0 / 269.0	3.55	152852.51	8950.788180	713.9	false
PFDoA_1	613.0 / 569.0	3.83	2773024.40	8620.384289	1001.1	false
PFDoA_2	613.0 / 319.0	3.83	433531.49	8390.796292	751.7	false
PFTTrDA_1	663.0 / 619.0	4.08	2294512.17	8616.921679	1150.3	false
PFTTrDA_2	663.0 / 169.0	4.08	155801.16	8669.598162	1192.7	false
PFTeDA_1	713.0 / 669.0	4.30	3014237.13	13142.953454	2593.6	true
PFTeDA_2	713.0 / 169.0	4.30	161402.91	13832.665904	1690.1	false
NMeFOSAA_1	570.0 / 419.0	3.38	264487.99	8447.016427	1128.1	false
NMeFOSAA_2	570.0 / 512.0	3.38	152299.69	7662.701710	1212.9	false
NEtFOSAA_1	584.0 / 419.0	3.54	289599.26	9342.531999	1077.3	false
NEtFOSAA_2	584.0 / 483.0	3.54	15707.01	6978.975572	1026.0	false
13C2-PFHxA	315.0 / 270.0	1.77	41855.63	104.785092	661.3	false
13C2-PFDA	515.0 / 470.0	3.22	48313.78	99.885656	1884.3	false
d5-EtFOSAA	589.0 / 419.0	3.53	15046.58	333.526528	346.8	false

Sample Name	J6259-FS1(0)	Injection Vial	15
Sample ID	WGNA-052918-FRB-3124	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:01:45	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	4328.89	11.826232	126.0	true
PFBS_2	298.9 / 99.0	1.50	2198.91	8.472329	33.8	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.15	9832.30	20.908289	133.4	false
PFHxS_2	399.0 / 99.0	2.14	3622.90	25.988676	80.4	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	2.89	5056.76	< 0	33.9	true
PFNA_2	463.0 / 219.0	2.89	1548.03	< 0	26.0	true
PFOS_1	499.0 / 80.0	2.88	100282.05	157.637842	111.1	false
PFOS_2	499.0 / 99.0	2.88	18336.99	157.787292	165.8	false
PFDA_1	513.0 / 469.0	3.23	2852.66	< 0	36.1	false
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	3.55	3708.35	< 0	38.7	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.83	2473.81	< 0	54.7	false
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	4.08	2375.54	< 0	66.4	false
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.30	2939.00	5.412271	35.4	true
PFTeDA_2	713.0 / 169.0	4.30	118.49	< 0	15.5	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	1.77	50001.77	109.068885	812.9	false
13C2-PFDA	515.0 / 470.0	3.22	54656.89	98.457073	975.6	false
d5-EtFOSAA	589.0 / 419.0	3.53	16638.58	373.838893	282.6	false

Sample Name	J6261-FS1(0)	Injection Vial	16
Sample ID	WGNA-052918-FRB-3493	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:10:41	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	3322.66	8.156747	78.5	true
PFBS_2	298.9 / 99.0	1.49	1857.41	3.708863	26.1	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.15	9125.89	16.584771	105.9	true
PFHxS_2	399.0 / 99.0	2.14	3031.68	18.104032	70.5	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	2.87	89230.91	119.756727	92.6	false
PFOS_2	499.0 / 99.0	2.88	14544.17	106.242398	116.7	false
PFDA_1	513.0 / 469.0	3.23	1498.07	< 0	25.1	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	3.55	2047.74	< 0	31.3	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.83	1326.91	< 0	24.9	false
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	4.07	914.90	< 0	35.8	false
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.30	1078.95	< 0	14.5	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	1.77	61217.15	118.552237	992.2	false
13C2-PFDA	515.0 / 470.0	3.22	62355.28	99.723238	1270.6	false
d5-EtFOSAA	589.0 / 419.0	3.53	18722.89	392.104669	306.5	false

Sample Name	J6263-FS1(0)	Injection Vial	17
Sample ID	WGNA-052918-FRB-3882	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:19:39	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	1588.61	4.531552	44.2	true
PFBS_2	298.9 / 99.0	1.49	1559.07	2.542758	21.8	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.15	3922.07	6.501727	66.9	false
PFHxS_2	399.0 / 99.0	2.14	1080.94	4.786349	34.2	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	2.88	52854.84	71.936819	96.4	false
PFOS_2	499.0 / 99.0	2.88	9920.60	75.945565	111.9	false
PFDA_1	513.0 / 469.0	3.22	1720.17	< 0	29.3	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	1.77	55006.55	114.653371	878.4	false
13C2-PFDA	515.0 / 470.0	3.22	56955.12	98.037387	1047.5	false
d5-EtFOSAA	589.0 / 419.0	3.53	19982.21	420.282503	360.8	false

Sample Name	J6265-FS1(0)	Injection Vial	18
Sample ID	WGNA-052918-FRB-3978	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:28:34	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.49	5884.74	17.353819	133.3	false
PFBS_2	298.9 / 99.0	1.49	2669.45	14.587112	43.7	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.14	4313.78	8.835548	76.1	false
PFHxS_2	399.0 / 99.0	2.11	2028.04	14.550186	47.6	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	2.89	2367.99	< 0	22.9	true
PFNA_2	463.0 / 219.0	2.88	1240.85	< 0	18.4	true
PFOS_1	499.0 / 80.0	2.88	57500.80	93.613594	88.4	false
PFOS_2	499.0 / 99.0	2.87	8935.28	78.939821	91.4	false
PFDA_1	513.0 / 469.0	3.22	1711.25	< 0	35.3	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	1.76	47950.42	111.970283	861.8	false
13C2-PFDA	515.0 / 470.0	3.22	53497.01	103.163561	1387.6	false
d5-EtFOSAA	589.0 / 419.0	3.53	17706.37	435.006846	400.0	false

Sample Name	J6267-FS1(0)	Injection Vial	19
Sample ID	NAWC-052918-FRB-161	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:37:30	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	1302.95	4.781523	38.8	true
PFBS_2	298.9 / 99.0	1.49	1176.31	2.271607	20.3	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	2.14	2868.42	6.042303	58.2	false
PFHxS_2	399.0 / 99.0	2.13	1374.60	10.274670	29.0	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	2.88	34374.49	58.296643	73.8	true
PFOS_2	499.0 / 99.0	2.89	5564.45	52.039327	80.5	true
PFDA_1	513.0 / 469.0	3.22	1450.37	< 0	24.7	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	1.77	44937.70	119.053999	699.0	false
13C2-PFDA	515.0 / 470.0	3.22	47043.88	102.925451	5055.7	false
d5-EtFOSAA	589.0 / 419.0	3.53	13971.94	352.775542	258.2	false

Sample Name	J6271-FS1(0)	Injection Vial	20
Sample ID	WGNA-053018-FRB-3876	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:46:27	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.49	4440.54	11.203185	112.0	true
PFBS_2	298.9 / 99.0	1.49	2122.63	6.427475	30.7	true
PFHxA_1	313.0 / 269.0	1.77	32064.46	54.508624	38.3	false
PFHxA_2	313.0 / 119.0	1.77	3418.55	91.972291	28.3	false
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	2.15	2528.49	3.137396	40.6	false
PFHxS_2	399.0 / 99.0	2.14	1152.86	5.018390	26.6	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	2.88	19813.55	16.348439	65.4	true
PFOS_2	499.0 / 99.0	2.88	4148.43	23.605519	55.8	true
PFDA_1	513.0 / 469.0	3.23	2226.99	< 0	31.0	false
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	4.08	923.80	< 0	40.8	false
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.32	2088.34	1.626879	26.8	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	1.77	53728.16	109.043710	806.5	false
13C2-PFDA	515.0 / 470.0	3.22	64044.28	107.340951	1433.8	false
d5-EtFOSAA	589.0 / 419.0	3.53	19923.51	422.079020	383.7	false



Sample Name	J6274-FS1(0)	Injection Vial	22
Sample ID	NAWC-053018-FRB-231	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:13:16	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.49	4445.66	10.967664	82.5	true
PFBS_2	298.9 / 99.0	1.49	2002.37	5.141194	28.8	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.15	6876.66	12.269379	97.7	false
PFHxS_2	399.0 / 99.0	2.14	2134.57	12.044087	50.6	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	2.88	60231.39	78.217570	85.7	false
PFOS_2	499.0 / 99.0	2.88	11665.87	85.270853	94.5	false
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
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	1.77	56867.83	122.109634	840.8	false
13C2-PFDA	515.0 / 470.0	3.22	64969.23	115.206638	1566.5	false
d5-EtFOSAA	589.0 / 419.0	3.53	19418.23	425.978585	351.1	false

Sample Name	J6276-FS1(0)	Injection Vial	23
Sample ID	WGNA-053018-FRB-3933	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:22:12	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	4808.84	12.624052	51.7	true
PFBS_2	298.9 / 99.0	1.49	2294.65	8.584352	21.5	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	2.15	8028.97	15.955342	126.3	false
PFHxS_2	399.0 / 99.0	2.13	3223.54	21.771947	61.2	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	2.88	90243.54	134.771431	113.9	false
PFOS_2	499.0 / 99.0	2.88	14244.25	115.233240	143.1	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	1.77	54764.32	120.079035	853.1	false
13C2-PFDA	515.0 / 470.0	3.22	64055.98	115.988688	1483.4	false
d5-EtFOSAA	589.0 / 419.0	3.53	17773.22	440.303735	444.3	false

Sample Name	J6278-FS1(0)	Injection Vial	24
Sample ID	NAWC-053018-FRB-164	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:31:07	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	1227.52	3.541876	19.0	true
PFBS_2	298.9 / 99.0	1.49	1121.91	< 0	15.2	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.14	4809.27	8.174570	76.7	false
PFHxS_2	399.0 / 99.0	2.14	1941.85	11.055301	46.6	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	2.89	47244.28	60.304370	95.5	false
PFOS_2	499.0 / 99.0	2.89	9754.93	71.826393	114.9	false
PFDA_1	513.0 / 469.0	3.24	1247.81	< 0	21.6	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	1.77	58740.94	122.559995	711.6	false
13C2-PFDA	515.0 / 470.0	3.23	59487.67	102.499387	1395.2	false
d5-EtFOSAA	589.0 / 419.0	3.53	17160.78	423.588573	401.9	false

Sample Name	J6280-FS1(0)	Injection Vial	25
Sample ID	NAWC-053018-FRB-292	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:40:02	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	4665.88	12.129059	48.3	true
PFBS_2	298.9 / 99.0	1.49	2015.06	6.137938	19.7	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.15	27167.32	58.922649	223.0	false
PFHxS_2	399.0 / 99.0	2.15	9489.47	70.350970	116.7	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	2.88	344468.43	550.174368	149.9	false
PFOS_2	499.0 / 99.0	2.88	61984.59	534.169208	275.7	false
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	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	1.77	48424.62	103.698473	776.4	false
13C2-PFDA	515.0 / 470.0	3.22	58107.35	102.759918	1260.5	false
d5-EtFOSAA	589.0 / 419.0	3.54	18049.27	457.437049	428.0	false

Sample Name	J6282-FS1(0)	Injection Vial	26
Sample ID	NAWC-053018-FRB-271	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:48:57	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	10230.31	28.162115	79.8	true
PFBS_2	298.9 / 99.0	1.50	3499.96	20.481319	32.6	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.15	19725.74	46.129168	208.1	false
PFHxS_2	399.0 / 99.0	2.15	6530.62	51.845373	96.6	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	2.87	195825.76	335.122075	129.4	false
PFOS_2	499.0 / 99.0	2.88	35001.61	324.225554	209.8	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	1.77	50016.33	115.494148	762.3	false
13C2-PFDA	515.0 / 470.0	3.22	51444.18	98.100424	1459.6	false
d5-EtFOSAA	589.0 / 419.0	3.53	15455.14	398.698156	489.4	false

Sample Name	J6284-FS1(0)	Injection Vial	27
Sample ID	NAWC-053018-FRB-270	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:57:53	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	2300.98	6.519875	35.2	true
PFBS_2	298.9 / 99.0	1.49	1056.03	< 0	13.5	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	2.15	10982.81	23.446710	155.7	false
PFHxS_2	399.0 / 99.0	2.15	3829.15	27.452858	63.3	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	2.88	137515.25	220.067318	118.1	false
PFOS_2	499.0 / 99.0	2.88	23291.63	202.041898	162.6	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	1.77	54370.05	124.341887	905.5	false
13C2-PFDA	515.0 / 470.0	3.22	55745.81	105.282553	1028.5	false
d5-EtFOSAA	589.0 / 419.0	3.53	15820.23	391.837096	310.1	false

Sample Name	J6286-FS1(0)	Injection Vial	28
Sample ID	NAWC-053018-FRB-196	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T13:06:48	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.49	1454.94	4.133645	25.5	true
PFBS_2	298.9 / 99.0	1.49	896.89	< 0	10.3	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	2.14	7505.92	14.302152	106.4	false
PFHxS_2	399.0 / 99.0	2.13	2314.22	14.105109	55.2	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	2.88	59094.07	80.421576	88.3	false
PFOS_2	499.0 / 99.0	2.88	10330.11	77.887670	107.7	false
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	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	1.77	57022.29	115.128579	886.3	false
13C2-PFDA	515.0 / 470.0	3.22	61588.65	102.689423	910.6	false
d5-EtFOSAA	589.0 / 419.0	3.53	17305.09	437.016184	362.0	false

Sample Name	J6288-FS1(0)	Injection Vial	29
Sample ID	NAWC-053018-FRB-172	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T13:15:44	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.49	3906.36	10.029285	49.4	true
PFBS_2	298.9 / 99.0	1.49	2039.17	5.957468	20.9	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	2.15	23022.27	48.379157	198.8	false
PFHxS_2	399.0 / 99.0	2.15	7004.39	49.713271	113.2	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	2.87	247886.66	382.366171	133.3	false
PFOS_2	499.0 / 99.0	2.88	45560.68	380.333232	242.1	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	1.77	58297.61	110.566878	930.6	false
13C2-PFDA	515.0 / 470.0	3.22	62573.01	98.004915	1039.7	false
d5-EtFOSAA	589.0 / 419.0	3.53	17274.61	357.794249	414.7	false



<b>Sample Name</b>	CR038PB-FS(0)	<b>Injection Vial</b>	13
<b>Sample ID</b>	Procedural Blank	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T10:43:54	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.460	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.77	PFHxA	0.072	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.13	PFHpA	0.030	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.14	PFHxS	0.312	0.293	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.88	PFNA	0.344	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.171	0.184	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	
PFDoA_1	613.0 / 569.0	3.83	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.161	
PFTrDA_1	663.0 / 619.0	4.08	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.069	
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.606	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

<b>Sample Name</b>	CR039LCS-FS(0)	<b>Injection Vial</b>	14
<b>Sample ID</b>	Laboratory Control Sample	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T10:52:49	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.307	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.070	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.023	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.286	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.073	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.283	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.212	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.044	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.047	0.048	ü
PFDoA_1	613.0 / 569.0	3.83	PFDoA			
PFDoA_2	613.0 / 319.0	3.83	PFDoA	0.156	0.161	ü
PFTrDA_1	663.0 / 619.0	4.08	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.08	PFTrDA	0.068	0.069	ü
PFTeDA_1	713.0 / 669.0	4.30	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.30	PFTeDA	0.054	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.576	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.054	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	J6259-FS1(0)	Injection Vial	15
Sample ID	WGNA-052918-FRB-3124	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:01:45	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.508	0.341	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.072	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.14	PFHxS	0.369	0.293	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.306	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.183	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	
PFDoA_1	613.0 / 569.0	3.83	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.161	
PFTrDA_1	663.0 / 619.0	4.08	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.069	
PFTeDA_1	713.0 / 669.0	4.30	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.30	PFTeDA	0.040	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.606	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	J6261-FS1(0)	Injection Vial	16
Sample ID	WGNA-052918-FRB-3493	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:10:41	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.559	0.341	
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.072	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.14	PFHxS	0.332	0.293	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.074	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.295	ü
PFOS_1	499.0 / 80.0	2.87	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.163	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	
PFDoA_1	613.0 / 569.0	3.83	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.161	
PFTrDA_1	663.0 / 619.0	4.07	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.069	
PFTeDA_1	713.0 / 669.0	4.30	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.606	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	J6263-FS1(0)	Injection Vial	17
Sample ID	WGNA-052918-FRB-3882	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:19:39	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.981	0.341	
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.072	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.14	PFHxS	0.276	0.293	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.074	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.188	0.184	ü
PFDA_1	513.0 / 469.0	3.22	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	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	0.069	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.606	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	J6265-FS1(0)	Injection Vial	18
Sample ID	WGNA-052918-FRB-3978	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:28:34	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.49	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.454	0.341	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.072	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	ü
PFHxS_1	399.0 / 80.0	2.14	PFHxS			
PFHxS_2	399.0 / 99.0	2.11	PFHxS	0.470	0.293	
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.88	PFNA	0.524	0.295	
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.87	PFOS	0.155	0.184	ü
PFDA_1	513.0 / 469.0	3.22	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	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	0.069	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.606	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.76				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	J6267-FS1(0)	Injection Vial	19
Sample ID	NAWC-052918-FRB-161	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:37:30	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.903	0.341	
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.072	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	ü
PFHxS_1	399.0 / 80.0	2.14	PFHxS			
PFHxS_2	399.0 / 99.0	2.13	PFHxS	0.479	0.293	
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.074	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.162	0.184	ü
PFDA_1	513.0 / 469.0	3.22	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	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	0.069	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.606	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	J6271-FS1(0)	Injection Vial	20
Sample ID	WGNA-053018-FRB-3876	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:46:27	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.49	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.478	0.341	ü
PFHxA_1	313.0 / 269.0	1.77	PFHxA			
PFHxA_2	313.0 / 119.0	1.77	PFHxA	0.107	0.072	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.14	PFHxS	0.456	0.293	
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.074	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.209	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	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	4.08	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.069	
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.606	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü



Sample Name	J6274-FS1(0)	Injection Vial	22
Sample ID	NAWC-053018-FRB-231	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:13:16	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.49	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.450	0.341	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.072	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.14	PFHxS	0.310	0.293	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.074	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.194	0.184	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	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	0.069	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.606	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	J6276-FS1(0)	Injection Vial	23
Sample ID	WGNA-053018-FRB-3933	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:22:12	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.477	0.341	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.072	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.13	PFHxS	0.402	0.293	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.074	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.158	0.184	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	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	0.069	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.606	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	J6278-FS1(0)	Injection Vial	24
Sample ID	NAWC-053018-FRB-164	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:31:07	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.914	0.341	
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.072	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	ü
PFHxS_1	399.0 / 80.0	2.14	PFHxS			
PFHxS_2	399.0 / 99.0	2.14	PFHxS	0.404	0.293	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.074	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.207	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	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	0.069	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.606	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	J6280-FS1(0)	Injection Vial	25
Sample ID	NAWC-053018-FRB-292	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:40:02	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.432	0.341	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.072	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.349	0.293	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.074	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.180	0.184	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	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	0.069	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.606	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	J6282-FS1(0)	Injection Vial	26
Sample ID	NAWC-053018-FRB-271	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:48:57	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.342	0.341	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.072	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.331	0.293	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.074	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.295	ü
PFOS_1	499.0 / 80.0	2.87	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.179	0.184	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	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	0.069	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.606	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	J6284-FS1(0)	Injection Vial	27
Sample ID	NAWC-053018-FRB-270	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:57:53	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.459	0.341	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.072	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.349	0.293	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.074	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.169	0.184	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	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	0.069	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.606	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	J6286-FS1(0)	Injection Vial	28
Sample ID	NAWC-053018-FRB-196	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T13:06:48	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.49	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.616	0.341	
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.072	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	ü
PFHxS_1	399.0 / 80.0	2.14	PFHxS			
PFHxS_2	399.0 / 99.0	2.13	PFHxS	0.308	0.293	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.074	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.175	0.184	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	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	0.069	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.606	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	J6288-FS1(0)	Injection Vial	29
Sample ID	NAWC-053018-FRB-172	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T13:15:44	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.49	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.522	0.341	
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.072	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.304	0.293	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.074	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.295	ü
PFOS_1	499.0 / 80.0	2.87	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.184	0.184	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.041	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	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	0.069	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.053	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.606	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü



Sample Name	CR038PB-FS(0)	Injection Vial	13
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:43:54	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	225022.84	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	225022.84	287.00
PFHxA_1	313.0 / 269.0	1.78	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFHxA_2	313.0 / 119.0	1.77	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFHpA_1	363.0 / 319.0	2.14	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFHpA_2	363.0 / 169.0	2.13	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFHxS_1	399.0 / 80.0	2.16	13C4-PFOS	503.0 / 80.0	225022.84	287.00
PFHxS_2	399.0 / 99.0	2.14	13C4-PFOS	503.0 / 80.0	225022.84	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFNA_1	463.0 / 419.0	2.89	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFNA_2	463.0 / 219.0	2.88	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	225022.84	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	225022.84	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFUnA_1	563.0 / 519.0	3.55	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFDoA_1	613.0 / 569.0	3.83	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFTTrDA_1	663.0 / 619.0	4.08	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFTeDA_1	713.0 / 669.0	4.31	13C2-PFOA	415.0 / 370.0	74771.38	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	74771.38	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	20767.55	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	20767.55	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	20767.55	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	20767.55	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	74771.38	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	74771.38	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	20767.55	400.00

Sample Name	CR039LCS-FS(0)	Injection Vial	14
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:52:49	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	152210.75	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	152210.75	287.00
PFHxA_1	313.0 / 269.0	1.78	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFHxA_2	313.0 / 119.0	1.78	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFHpA_1	363.0 / 319.0	2.14	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFHpA_2	363.0 / 169.0	2.14	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFHxS_1	399.0 / 80.0	2.16	13C4-PFOS	503.0 / 80.0	152210.75	287.00
PFHxS_2	399.0 / 99.0	2.16	13C4-PFOS	503.0 / 80.0	152210.75	287.00
PFOA_1	413.0 / 369.0	2.51	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFOA_2	413.0 / 169.0	2.51	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFNA_1	463.0 / 419.0	2.89	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFNA_2	463.0 / 219.0	2.89	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	152210.75	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	152210.75	287.00
PFDA_1	513.0 / 469.0	3.23	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFDA_2	513.0 / 219.0	3.23	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFUnA_1	563.0 / 519.0	3.55	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFUnA_2	563.0 / 269.0	3.55	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFDoA_1	613.0 / 569.0	3.83	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFDoA_2	613.0 / 319.0	3.83	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFTTrDA_1	663.0 / 619.0	4.08	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFTTrDA_2	663.0 / 169.0	4.08	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFTeDA_1	713.0 / 669.0	4.30	13C2-PFOA	415.0 / 370.0	51742.87	100.00
PFTeDA_2	713.0 / 169.0	4.30	13C2-PFOA	415.0 / 370.0	51742.87	100.00
NMeFOSAA_1	570.0 / 419.0	3.38	d3-MeFOSAA	573.0 / 419.0	17020.44	400.00
NMeFOSAA_2	570.0 / 512.0	3.38	d3-MeFOSAA	573.0 / 419.0	17020.44	400.00
NEtFOSAA_1	584.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	17020.44	400.00
NEtFOSAA_2	584.0 / 483.0	3.54	d3-MeFOSAA	573.0 / 419.0	17020.44	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	51742.87	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	51742.87	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	17020.44	400.00

Sample Name	J6259-FS1(0)	Injection Vial	15
Sample ID	WGNA-052918-FRB-3124	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:01:45	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	180195.54	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	180195.54	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	180195.54	287.00
PFHxS_2	399.0 / 99.0	2.14	13C4-PFOS	503.0 / 80.0	180195.54	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFNA_1	463.0 / 419.0	2.89	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFNA_2	463.0 / 219.0	2.89	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	180195.54	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	180195.54	287.00
PFDA_1	513.0 / 469.0	3.23	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFUnA_1	563.0 / 519.0	3.55	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFDoA_1	613.0 / 569.0	3.83	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFTTrDA_1	663.0 / 619.0	4.08	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFTeDA_1	713.0 / 669.0	4.30	13C2-PFOA	415.0 / 370.0	59385.53	100.00
PFTeDA_2	713.0 / 169.0	4.30	13C2-PFOA	415.0 / 370.0	59385.53	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	16791.71	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	16791.71	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	16791.71	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	16791.71	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	59385.53	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	59385.53	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	16791.71	400.00

Sample Name	J6261-FS1(0)	Injection Vial	16
Sample ID	WGNA-052918-FRB-3493	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:10:41	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	205385.70	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	205385.70	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	205385.70	287.00
PFHxS_2	399.0 / 99.0	2.14	13C4-PFOS	503.0 / 80.0	205385.70	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFOS_1	499.0 / 80.0	2.87	13C4-PFOS	503.0 / 80.0	205385.70	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	205385.70	287.00
PFDA_1	513.0 / 469.0	3.23	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFUnA_1	563.0 / 519.0	3.55	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFDoA_1	613.0 / 569.0	3.83	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFTTrDA_1	663.0 / 619.0	4.07	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFTeDA_1	713.0 / 669.0	4.30	13C2-PFOA	415.0 / 370.0	66889.73	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	66889.73	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	18014.99	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	18014.99	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	18014.99	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	18014.99	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	66889.73	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	66889.73	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	18014.99	400.00

Sample Name	J6263-FS1(0)	Injection Vial	17
Sample ID	WGNA-052918-FRB-3882	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:19:39	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	188519.90	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	188519.90	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	188519.90	287.00
PFHxS_2	399.0 / 99.0	2.14	13C4-PFOS	503.0 / 80.0	188519.90	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	188519.90	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	188519.90	287.00
PFDA_1	513.0 / 469.0	3.22	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	62147.50	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	17937.64	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	17937.64	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	17937.64	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	17937.64	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	62147.50	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	62147.50	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	17937.64	400.00

Sample Name	J6265-FS1(0)	Injection Vial	18
Sample ID	WGNA-052918-FRB-3978	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:28:34	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.49	13C4-PFOS	503.0 / 80.0	164186.92	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	164186.92	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFHxS_1	399.0 / 80.0	2.14	13C4-PFOS	503.0 / 80.0	164186.92	287.00
PFHxS_2	399.0 / 99.0	2.11	13C4-PFOS	503.0 / 80.0	164186.92	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	164186.92	287.00
PFOS_2	499.0 / 99.0	2.87	13C4-PFOS	503.0 / 80.0	164186.92	287.00
PFDA_1	513.0 / 469.0	3.22	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	55473.53	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	15356.66	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	15356.66	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	15356.66	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	15356.66	400.00
13C2-PFHxA	315.0 / 270.0	1.76	13C2-PFOA	415.0 / 370.0	55473.53	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	55473.53	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	15356.66	400.00

Sample Name	J6267-FS1(0)	Injection Vial	19
Sample ID	NAWC-052918-FRB-161	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:37:30	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	145398.75	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	145398.75	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFHxS_1	399.0 / 80.0	2.14	13C4-PFOS	503.0 / 80.0	145398.75	287.00
PFHxS_2	399.0 / 99.0	2.13	13C4-PFOS	503.0 / 80.0	145398.75	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	145398.75	287.00
PFOS_2	499.0 / 99.0	3.36	13C4-PFOS	503.0 / 80.0	145398.75	287.00
PFDA_1	513.0 / 469.0	3.22	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	48894.83	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14942.44	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	14942.44	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14942.44	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	14942.44	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	48894.83	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	48894.83	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	14942.44	400.00

Sample Name	J6271-FS1(0)	Injection Vial	20
Sample ID	WGNA-053018-FRB-3876	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:46:27	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.49	13C4-PFOS	503.0 / 80.0	195694.27	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	195694.27	287.00
PFHxA_1	313.0 / 269.0	1.77	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFHxA_2	313.0 / 119.0	1.77	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	195694.27	287.00
PFHxS_2	399.0 / 99.0	2.14	13C4-PFOS	503.0 / 80.0	195694.27	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	195694.27	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	195694.27	287.00
PFDA_1	513.0 / 469.0	3.23	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFTTrDA_1	663.0 / 619.0	4.08	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFTeDA_1	713.0 / 669.0	4.32	13C2-PFOA	415.0 / 370.0	63825.98	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	63825.98	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	17808.82	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	17808.82	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	17808.82	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	17808.82	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	63825.98	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	63825.98	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	17808.82	400.00



Sample Name	J6274-FS1(0)	Injection Vial	22
Sample ID	NAWC-053018-FRB-231	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:13:16	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.49	13C4-PFOS	503.0 / 80.0	200366.83	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	200366.83	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	200366.83	287.00
PFHxS_2	399.0 / 99.0	2.14	13C4-PFOS	503.0 / 80.0	200366.83	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	200366.83	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	200366.83	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	60327.15	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	17198.28	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	17198.28	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	17198.28	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	17198.28	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	60327.15	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	60327.15	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	17198.28	400.00

Sample Name	J6276-FS1(0)	Injection Vial	23
Sample ID	WGNA-053018-FRB-3933	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:22:12	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	186902.87	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	186902.87	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	186902.87	287.00
PFHxS_2	399.0 / 99.0	2.13	13C4-PFOS	503.0 / 80.0	186902.87	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	186902.87	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	186902.87	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	59078.12	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	15229.19	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	15229.19	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	15229.19	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	15229.19	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	59078.12	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	59078.12	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	15229.19	400.00

Sample Name	J6278-FS1(0)	Injection Vial	24
Sample ID	NAWC-053018-FRB-164	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:31:07	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	194513.22	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	194513.22	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFHxS_1	399.0 / 80.0	2.14	13C4-PFOS	503.0 / 80.0	194513.22	287.00
PFHxS_2	399.0 / 99.0	2.14	13C4-PFOS	503.0 / 80.0	194513.22	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFOS_1	499.0 / 80.0	2.89	13C4-PFOS	503.0 / 80.0	194513.22	287.00
PFOS_2	499.0 / 99.0	2.89	13C4-PFOS	503.0 / 80.0	194513.22	287.00
PFDA_1	513.0 / 469.0	3.24	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	62085.23	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	15284.67	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	15284.67	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	15284.67	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	15284.67	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	62085.23	100.00
13C2-PFDA	515.0 / 470.0	3.23	13C2-PFOA	415.0 / 370.0	62085.23	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	15284.67	400.00

Sample Name	J6280-FS1(0)	Injection Vial	25
Sample ID	NAWC-053018-FRB-292	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:40:02	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	189125.92	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	189125.92	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	189125.92	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	189125.92	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	189125.92	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	189125.92	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	60490.88	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14886.46	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	14886.46	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14886.46	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	14886.46	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	60490.88	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	60490.88	100.00
d5-EtFOSAA	589.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	14886.46	400.00

Sample Name	J6282-FS1(0)	Injection Vial	26
Sample ID	NAWC-053018-FRB-271	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:48:57	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	173540.17	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	173540.17	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	173540.17	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	173540.17	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFOS_1	499.0 / 80.0	2.87	13C4-PFOS	503.0 / 80.0	173540.17	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	173540.17	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	56098.07	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14624.86	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	14624.86	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14624.86	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	14624.86	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	56098.07	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	56098.07	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	14624.86	400.00

Sample Name	J6284-FS1(0)	Injection Vial	27
Sample ID	NAWC-053018-FRB-270	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:57:53	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	181494.76	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	181494.76	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	181494.76	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	181494.76	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	181494.76	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	181494.76	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	56641.98	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	15232.48	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	15232.48	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	15232.48	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	15232.48	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	56641.98	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	56641.98	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	15232.48	400.00

Sample Name	J6286-FS1(0)	Injection Vial	28
Sample ID	NAWC-053018-FRB-196	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T13:06:48	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.49	13C4-PFOS	503.0 / 80.0	192046.27	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	192046.27	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFHxS_1	399.0 / 80.0	2.14	13C4-PFOS	503.0 / 80.0	192046.27	287.00
PFHxS_2	399.0 / 99.0	2.13	13C4-PFOS	503.0 / 80.0	192046.27	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	192046.27	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	192046.27	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	64159.00	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14939.62	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	14939.62	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14939.62	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	14939.62	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	64159.00	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	64159.00	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	14939.62	400.00

Sample Name	J6288-FS1(0)	Injection Vial	29
Sample ID	NAWC-053018-FRB-172	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T13:15:44	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.49	13C4-PFOS	503.0 / 80.0	193563.16	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	193563.16	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	193563.16	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	193563.16	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFOS_1	499.0 / 80.0	2.87	13C4-PFOS	503.0 / 80.0	193563.16	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	193563.16	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	68300.17	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	18215.38	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	18215.38	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	18215.38	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	18215.38	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	68300.17	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	68300.17	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	18215.38	400.00

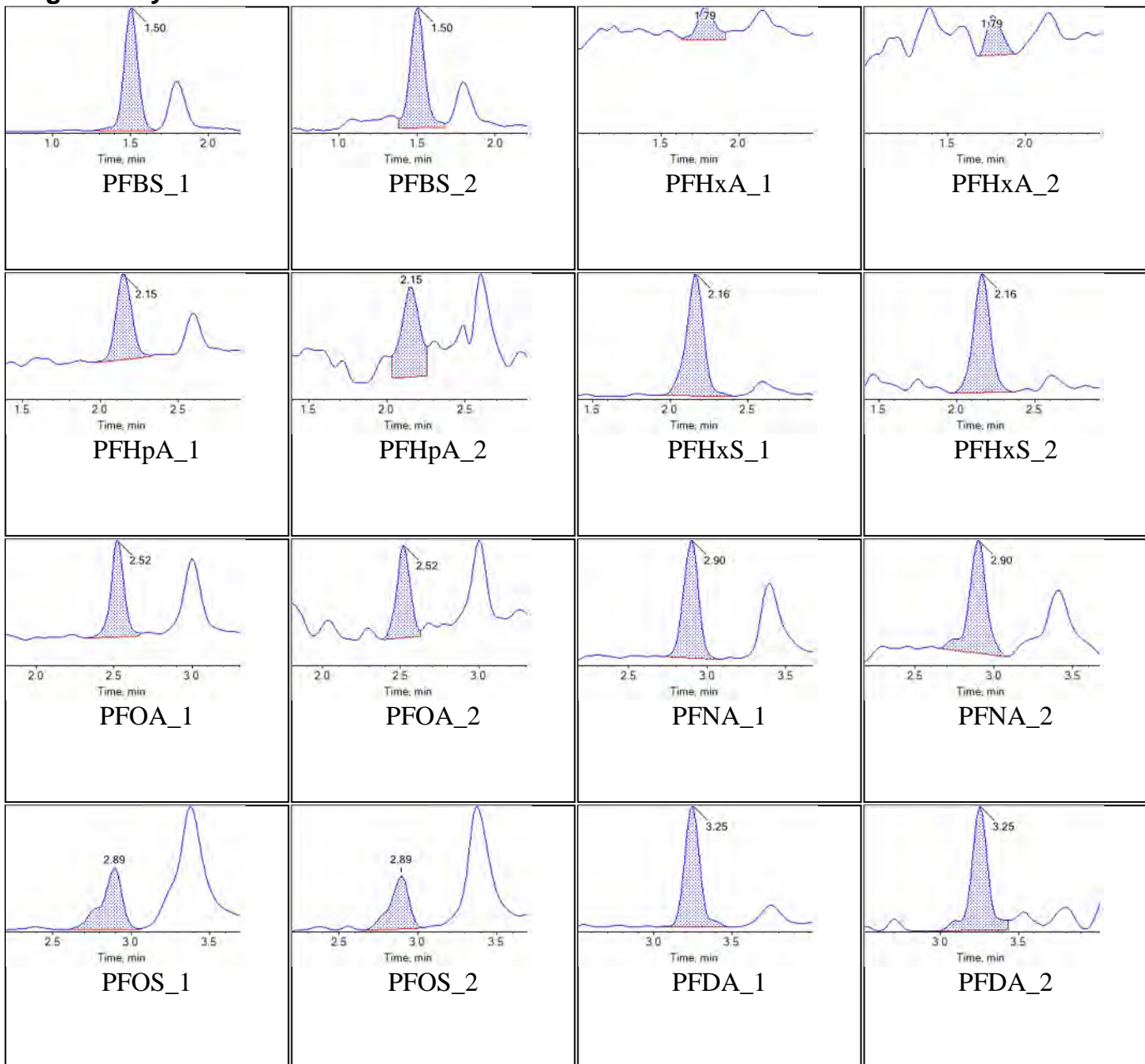


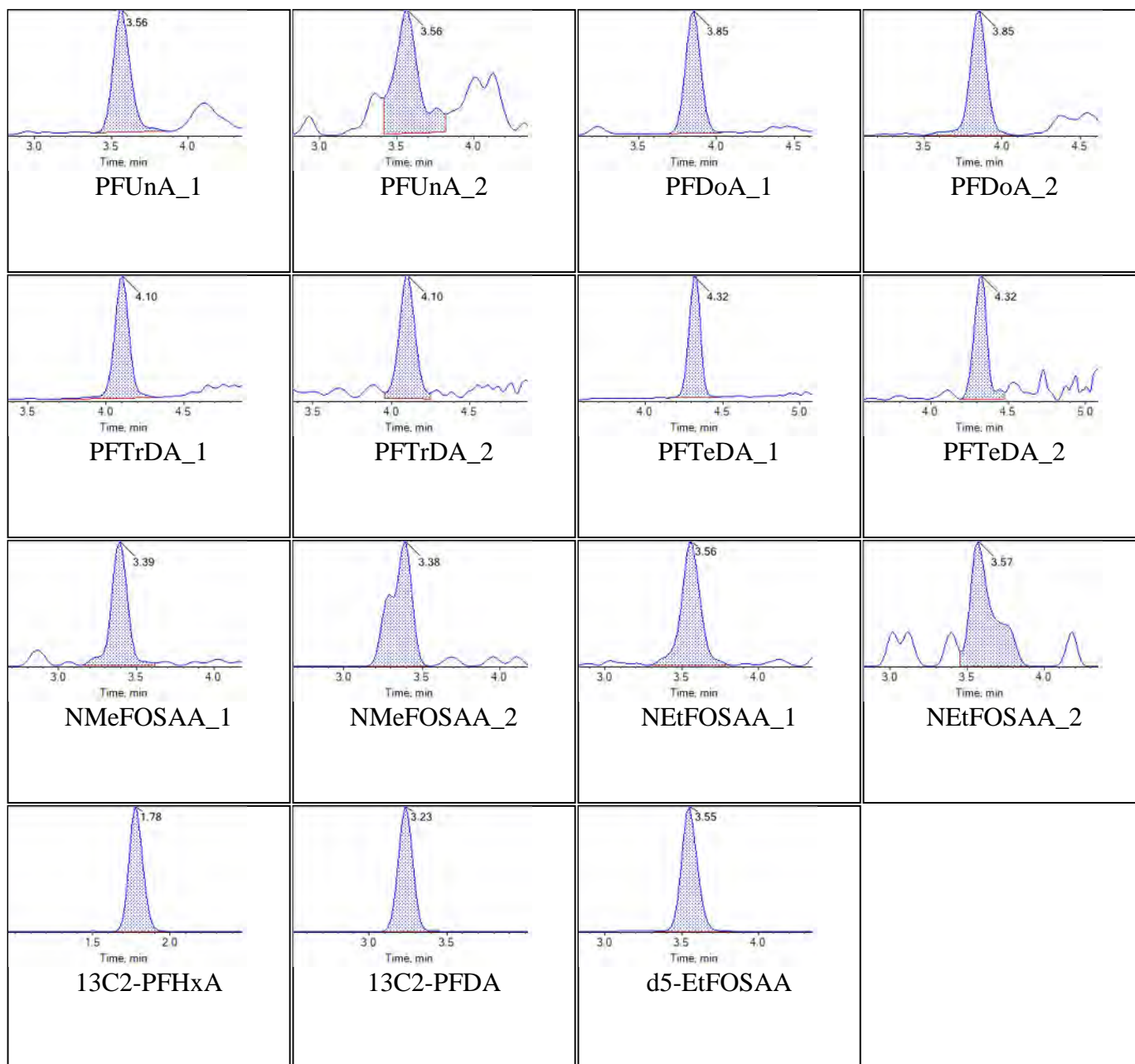
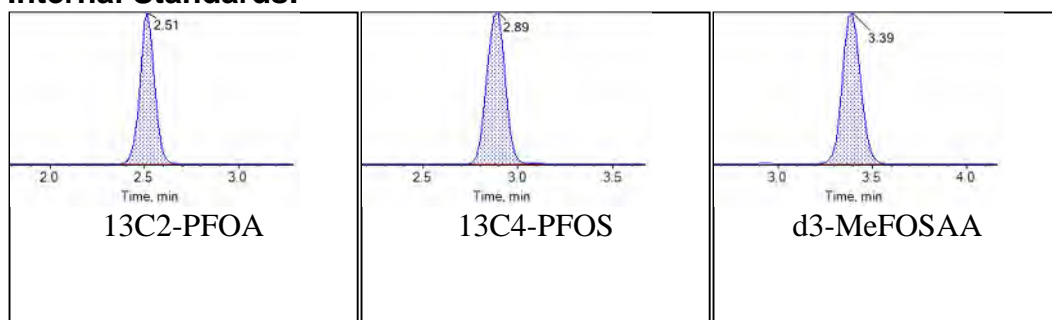
# Chromatograms

<b>Sample Name</b>	JX67	<b>Injection Vial</b>	2
<b>Sample ID</b>	L1	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T09:05:43	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

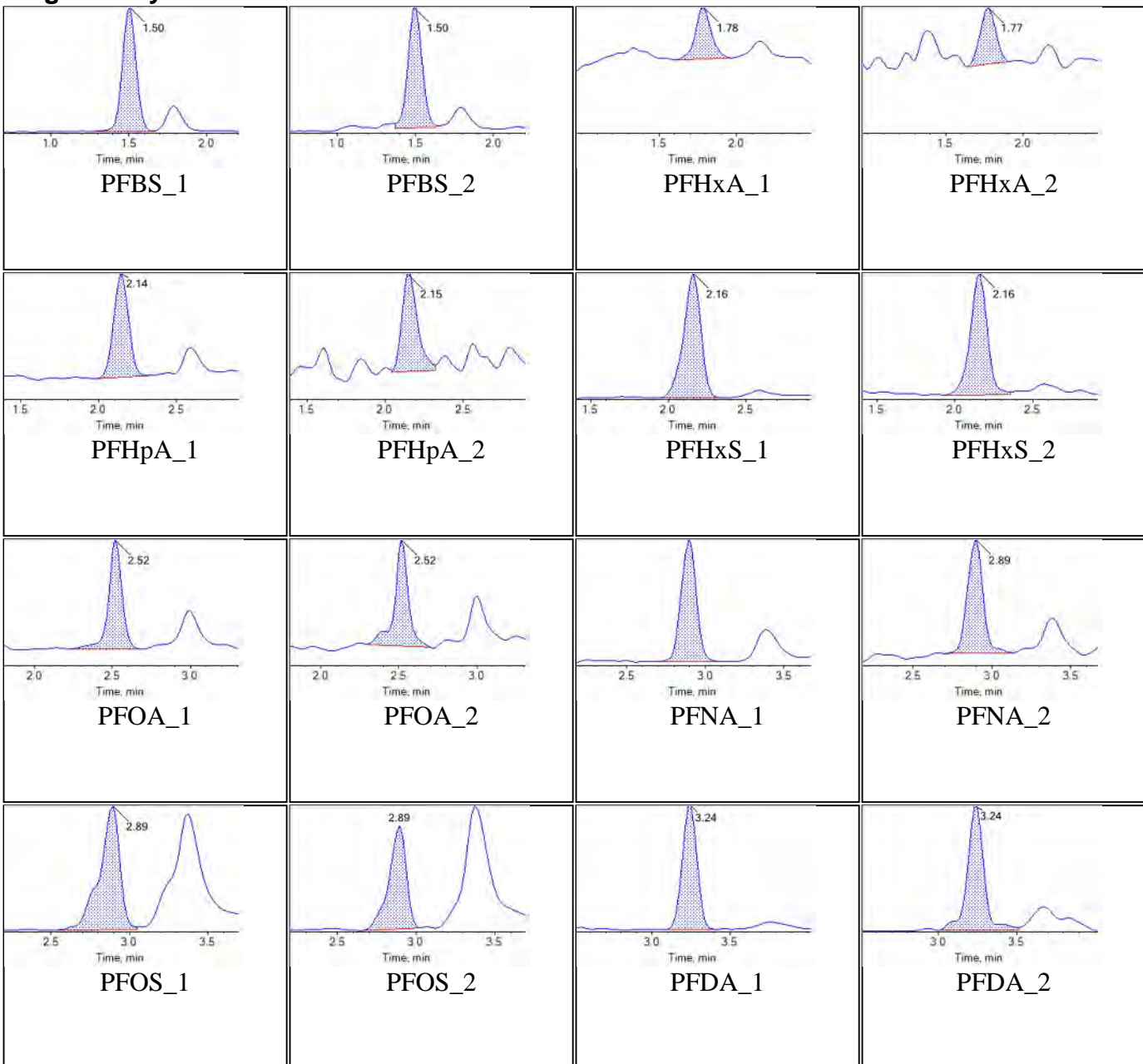


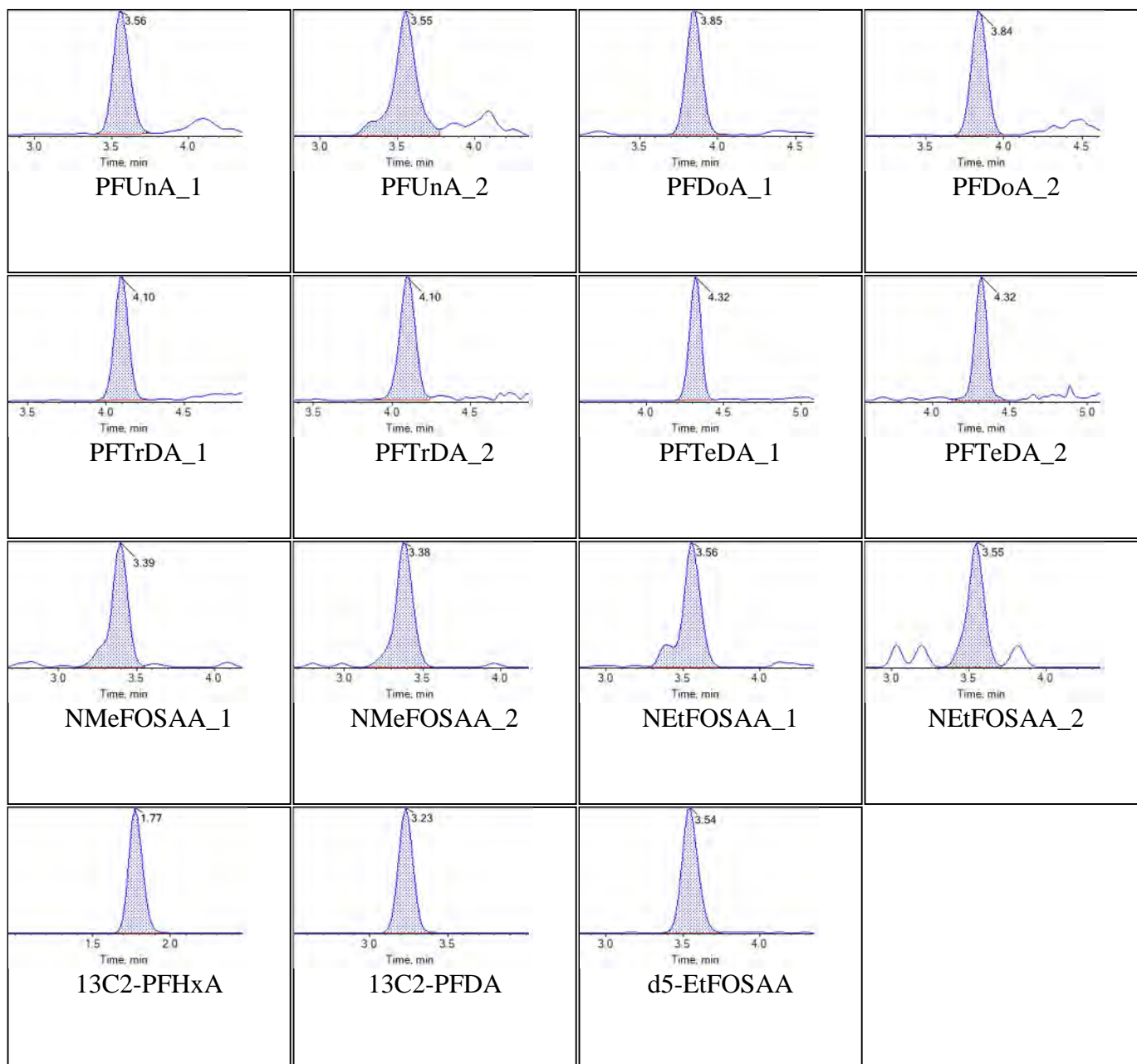
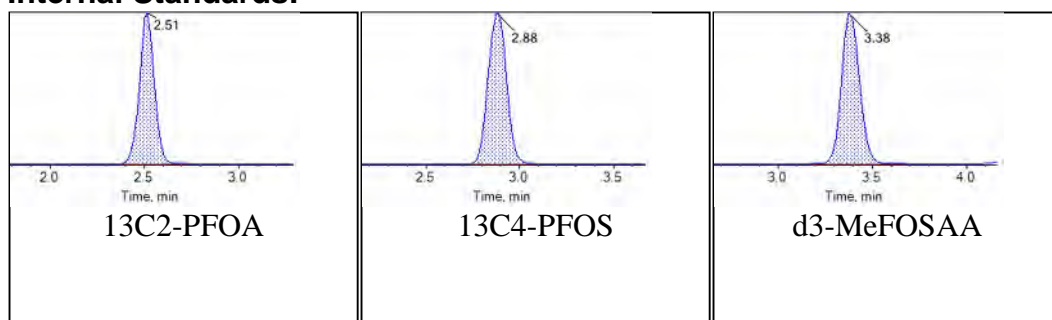
**Internal Standards:**

<b>Sample Name</b>	JX68	<b>Injection Vial</b>	3
<b>Sample ID</b>	L2	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T09:14:41	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

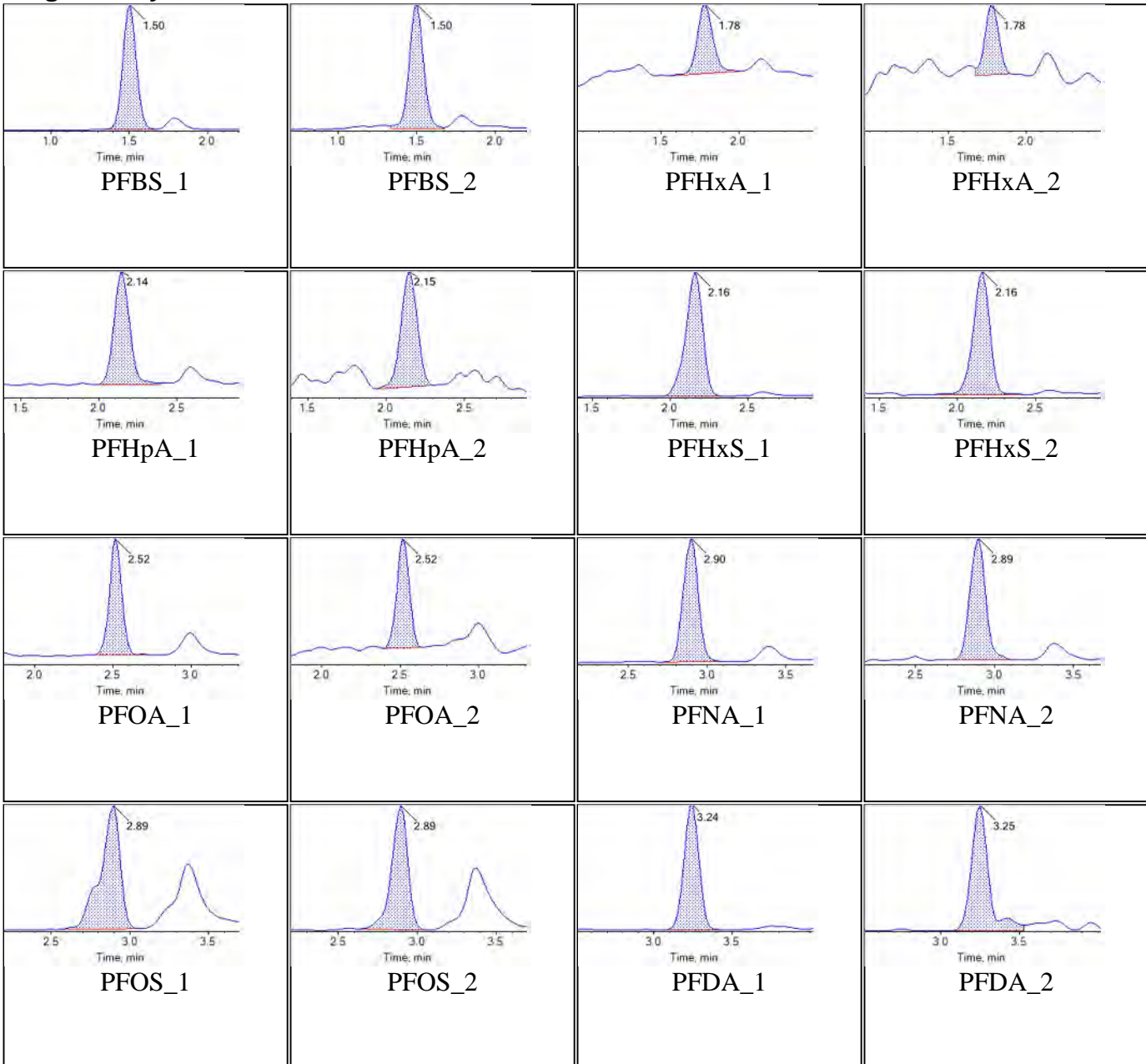


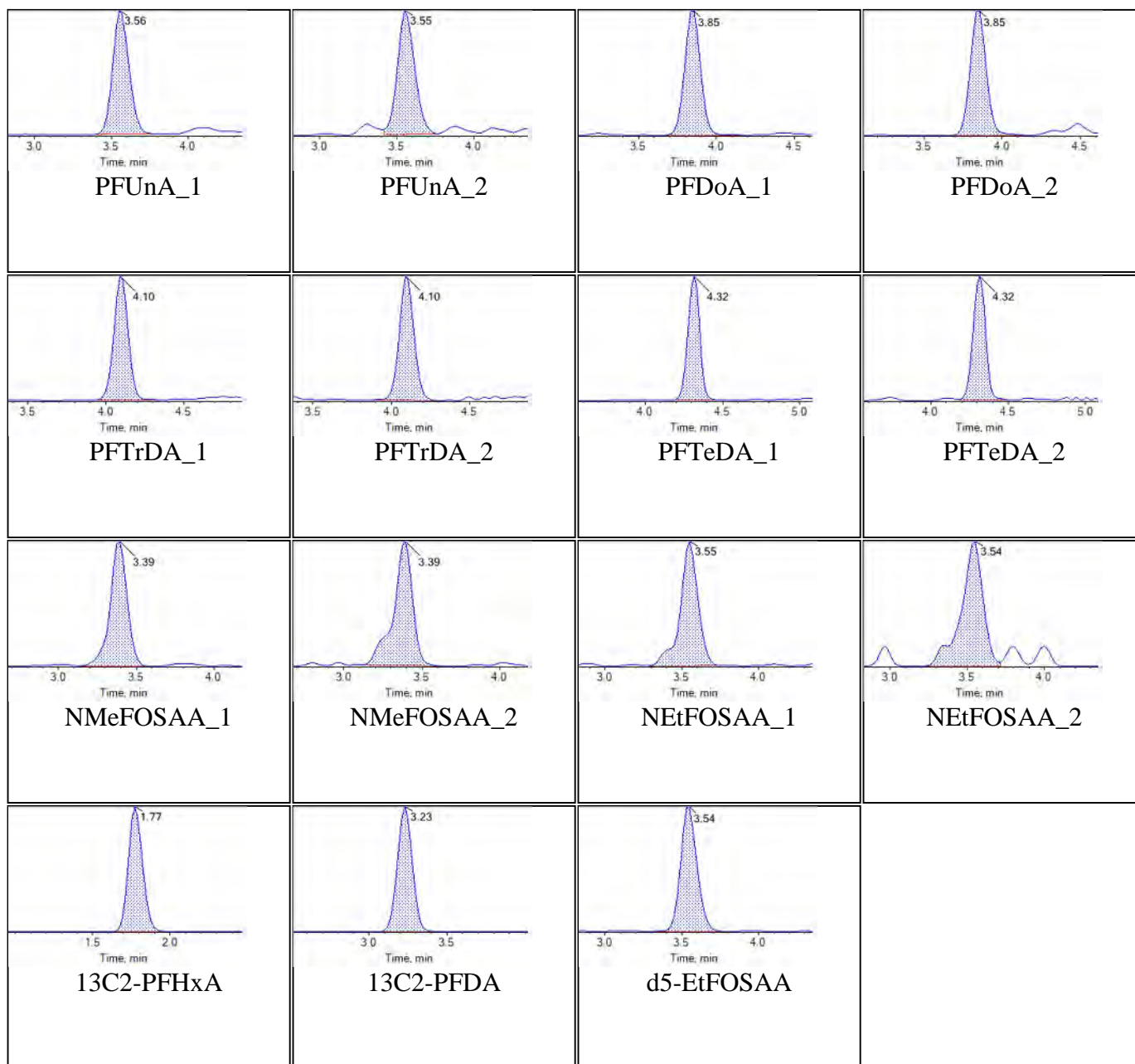
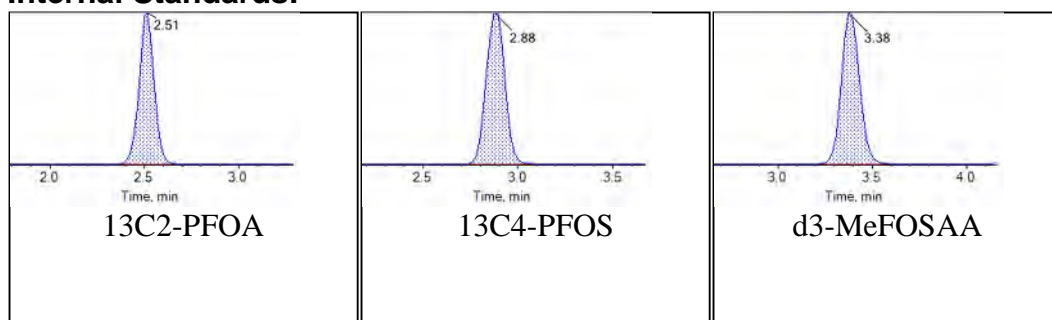
**Internal Standards:**

<b>Sample Name</b>	JX69	<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>	2018-06-27T09:23:38	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

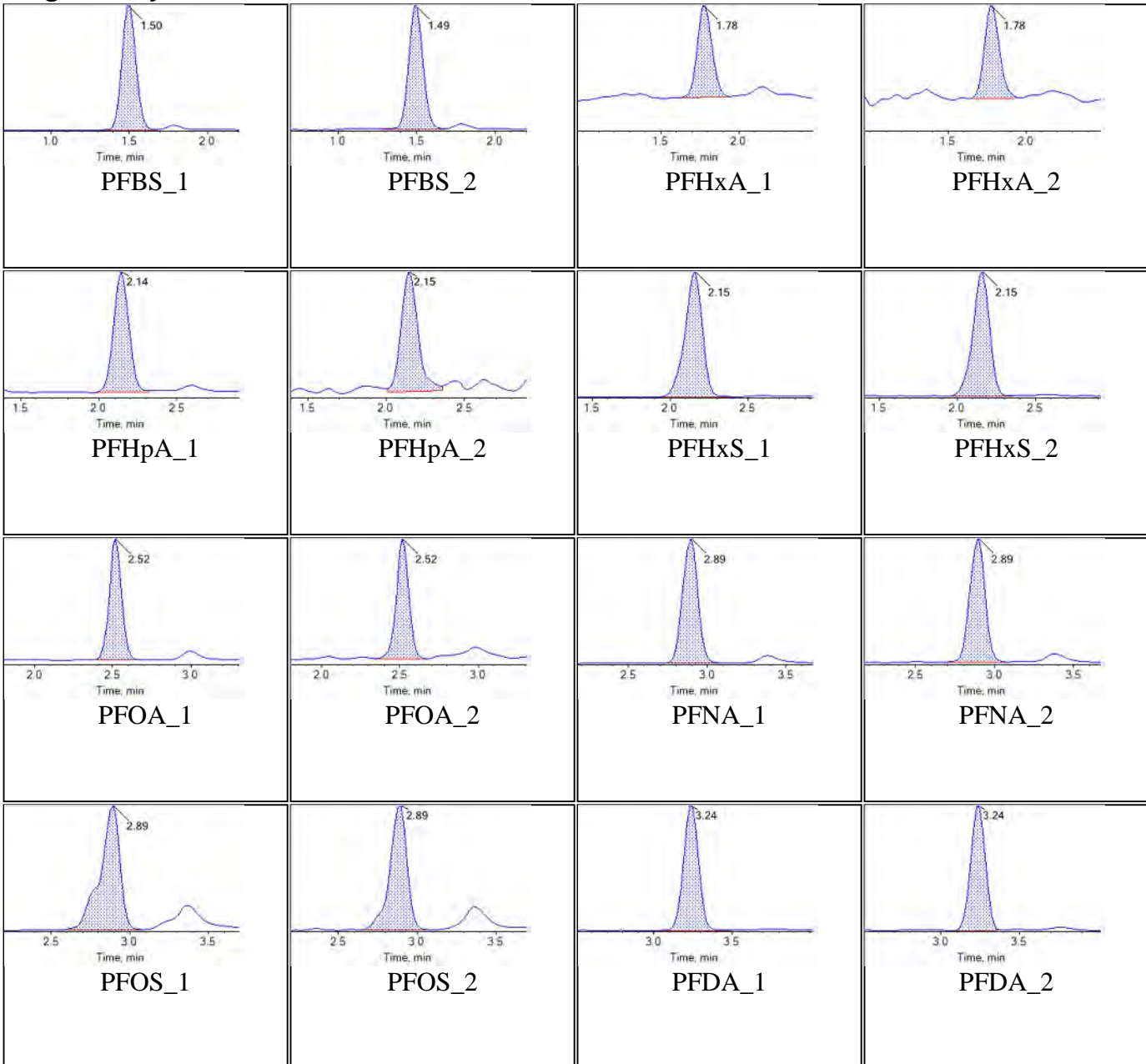


**Internal Standards:**

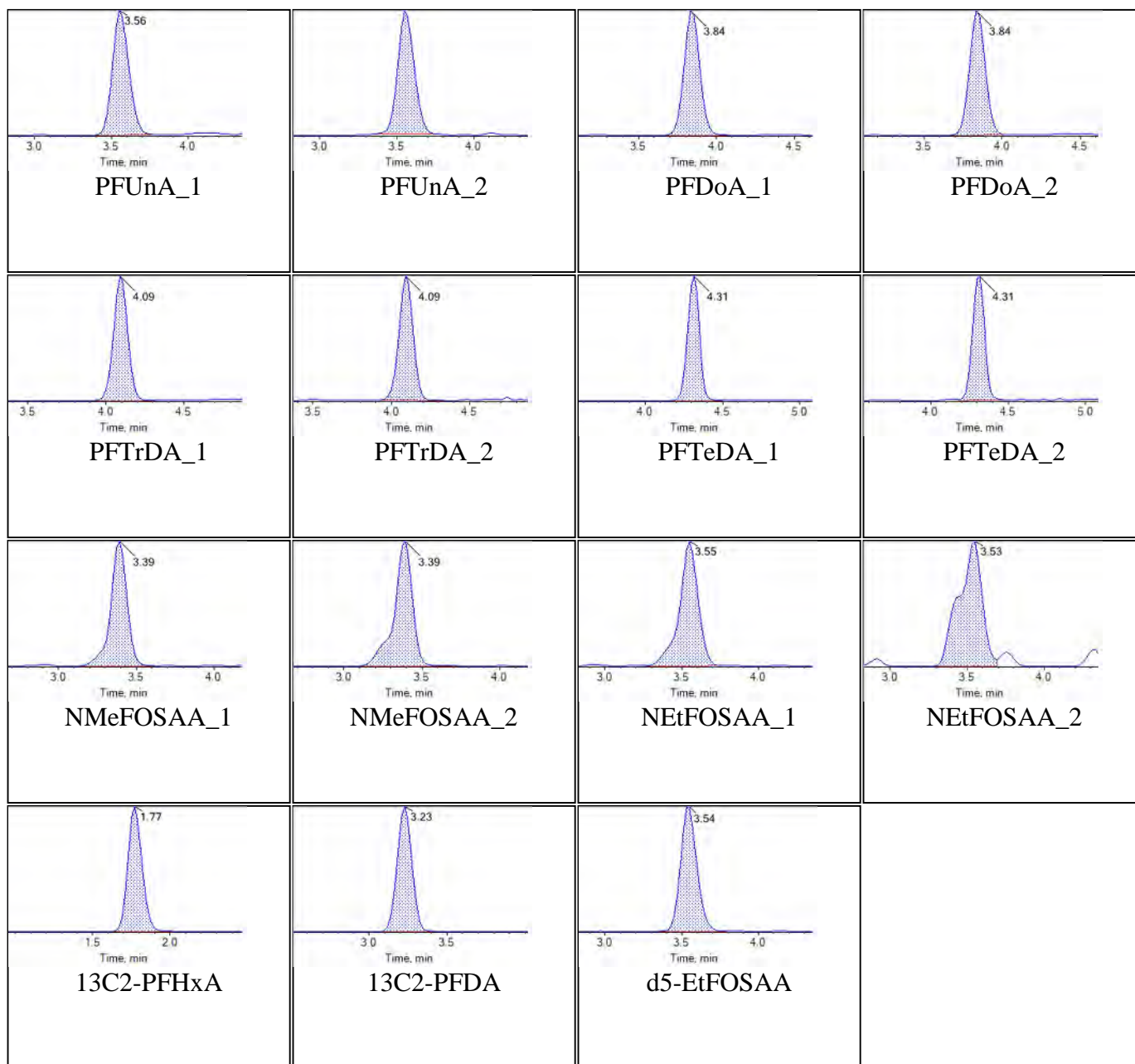
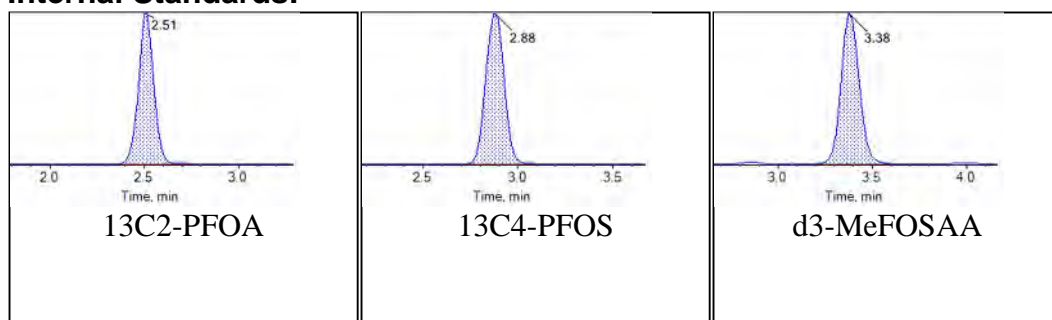
<b>Sample Name</b>	JX70	<b>Injection Vial</b>	5
<b>Sample ID</b>	L4	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T09:32:34	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:



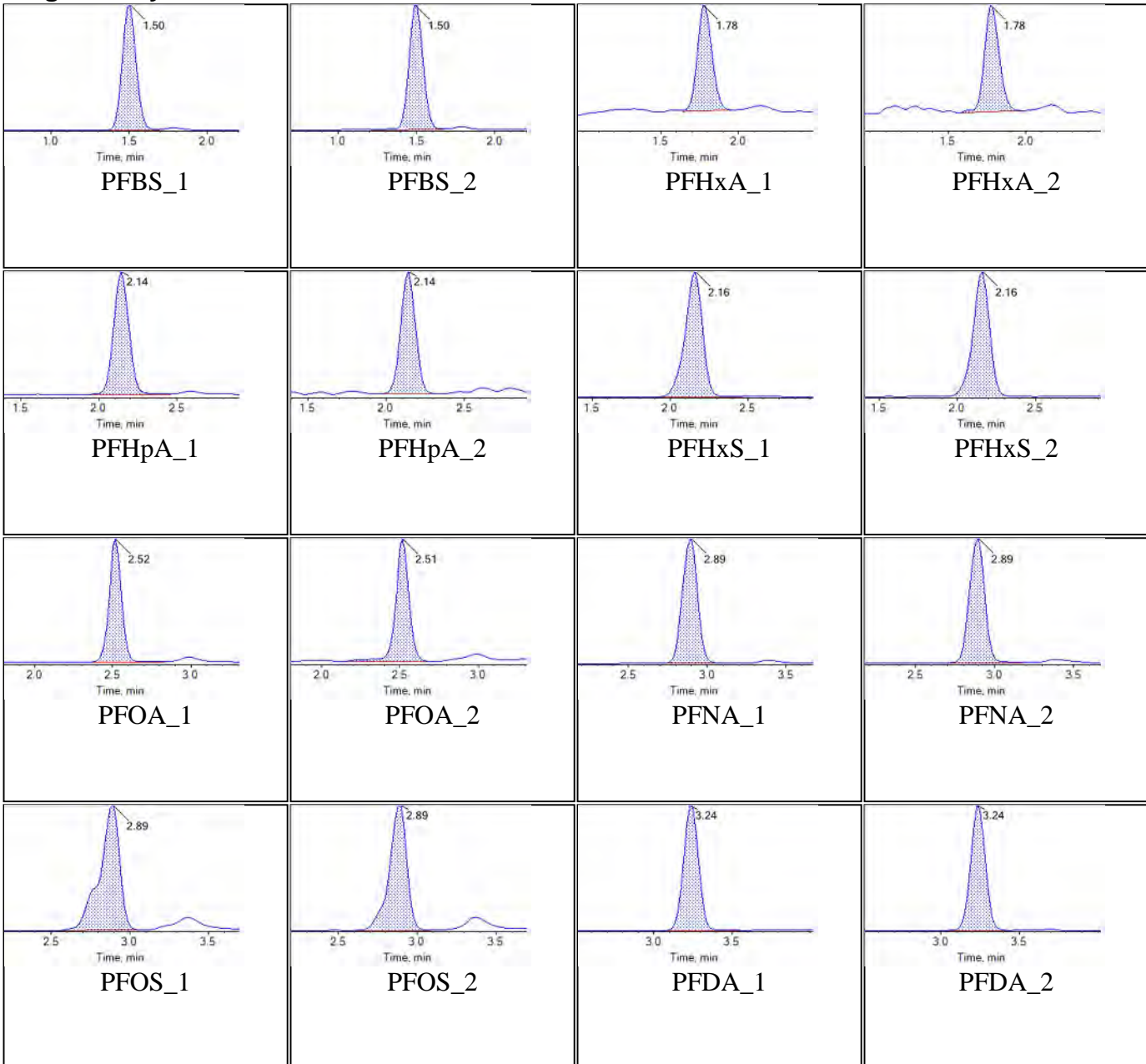


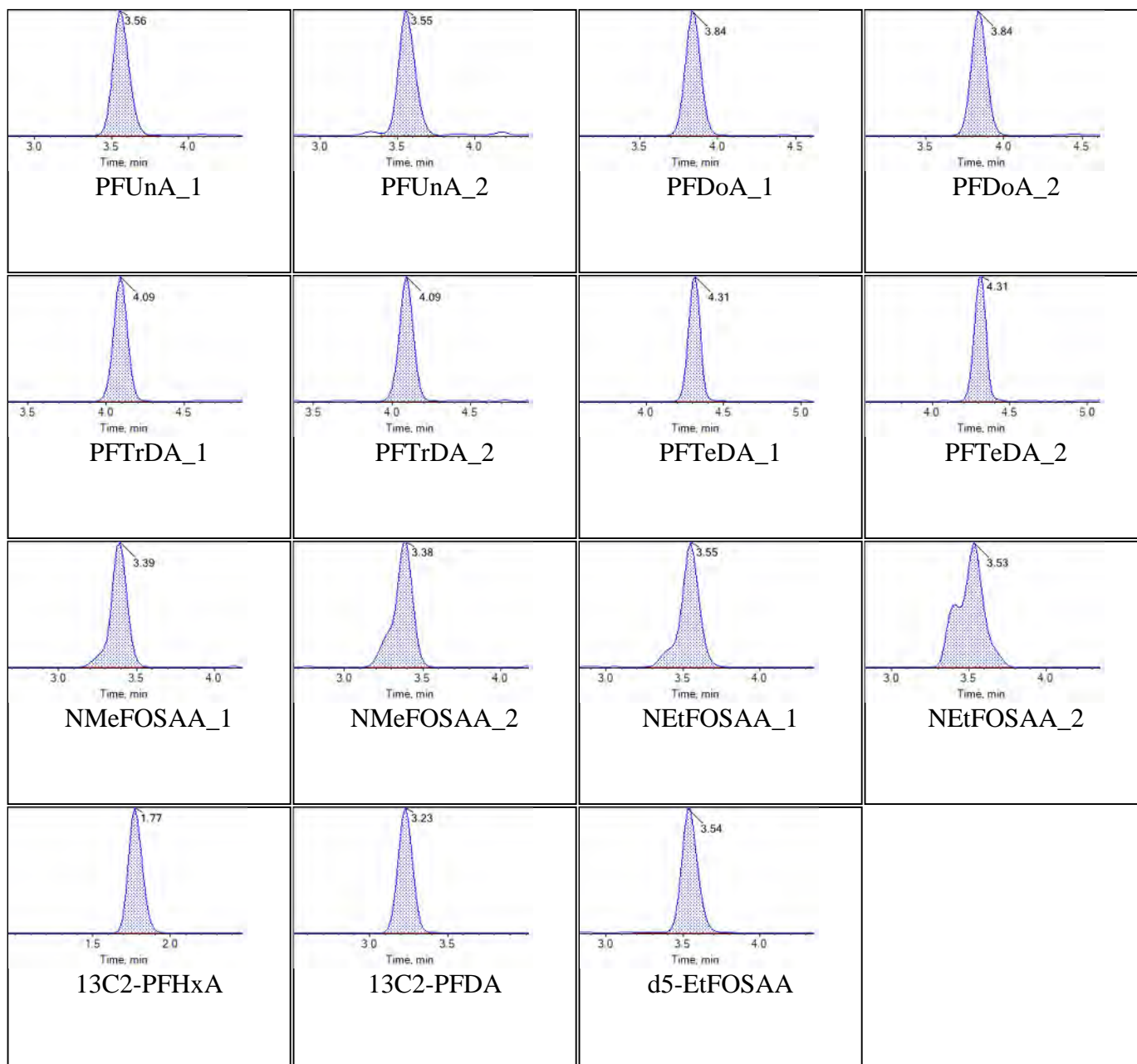
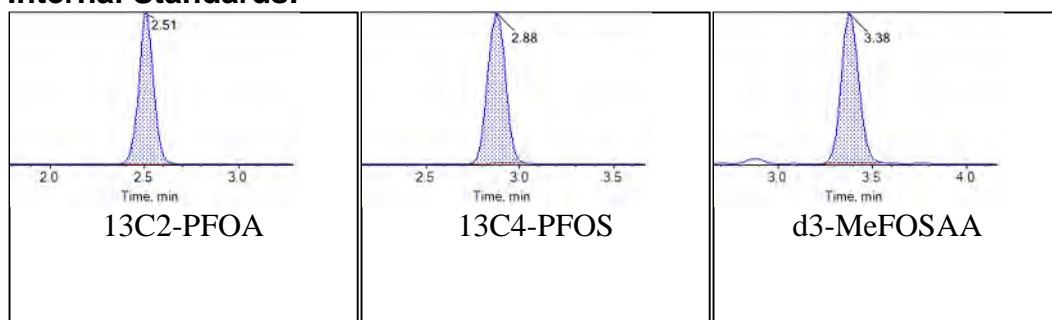
**Internal Standards:**

<b>Sample Name</b>	JX71	<b>Injection Vial</b>	6
<b>Sample ID</b>	L5	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T09:41:29	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

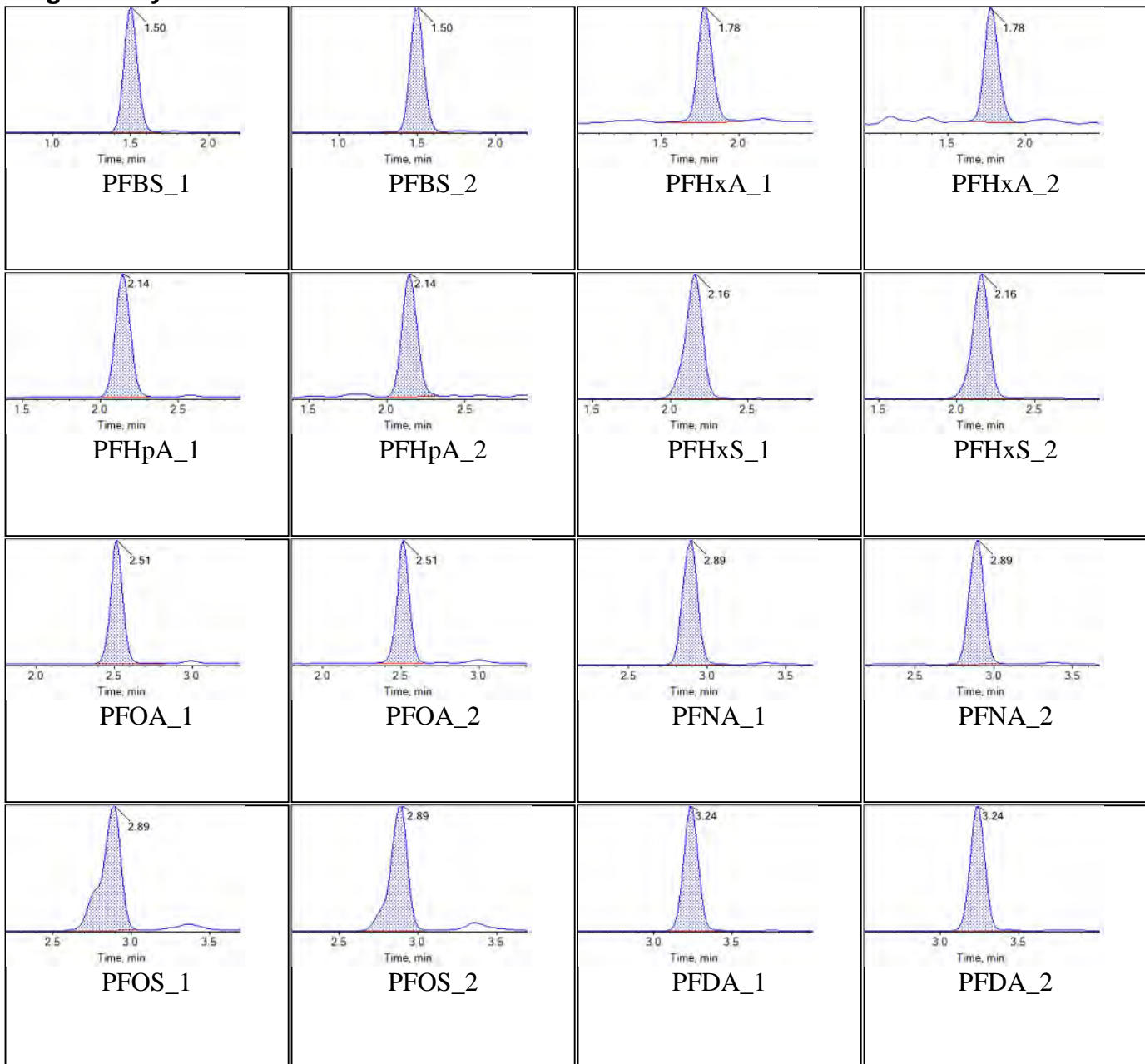


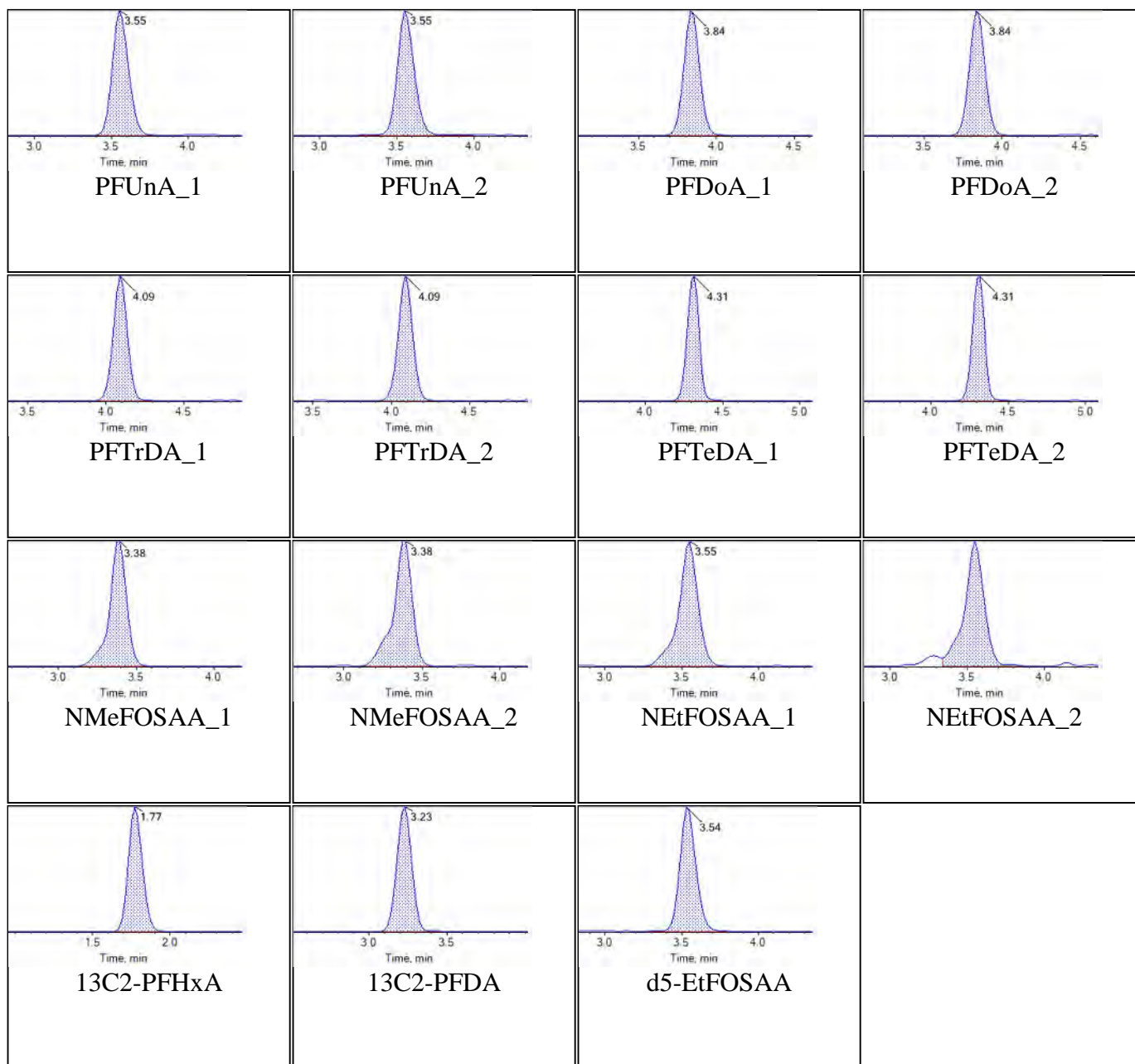
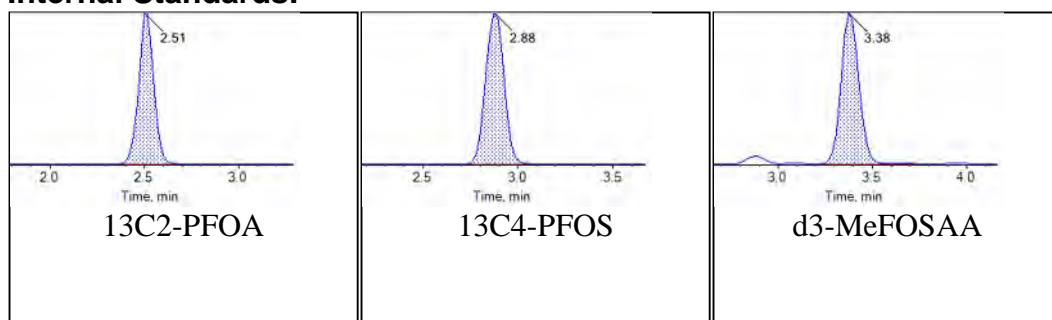
**Internal Standards:**

<b>Sample Name</b>	JX72	<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>	2018-06-27T09:50:24	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

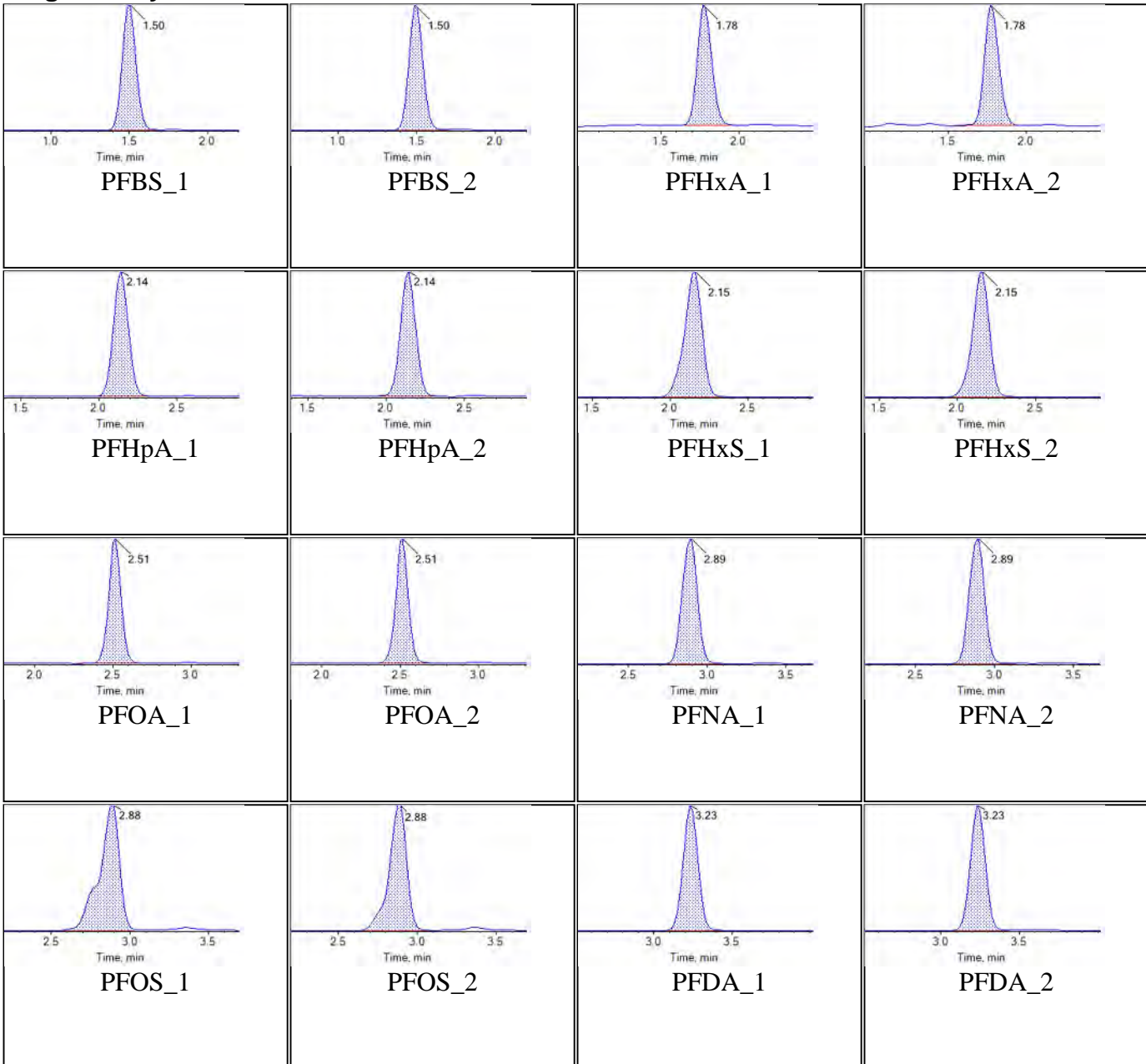


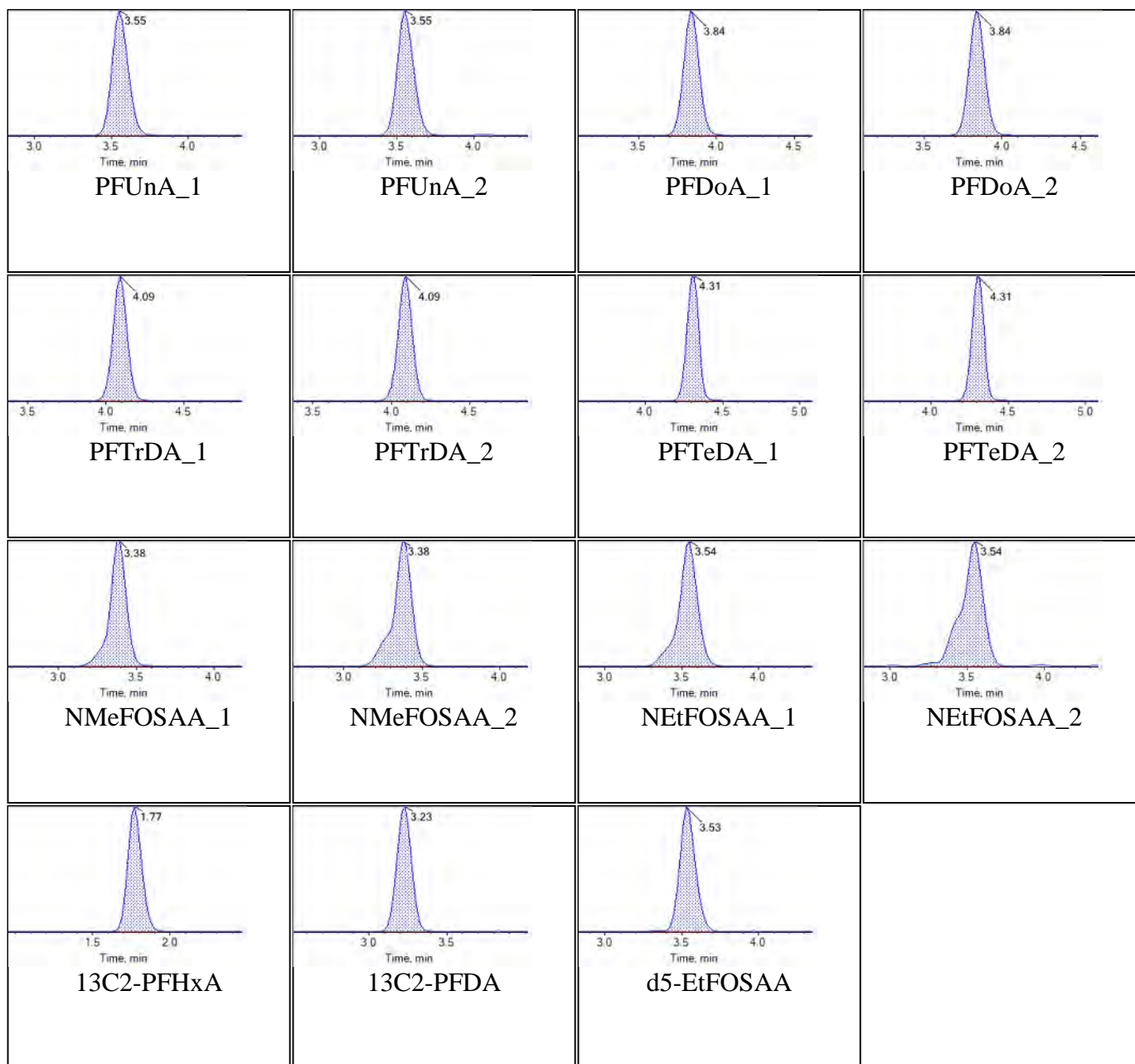
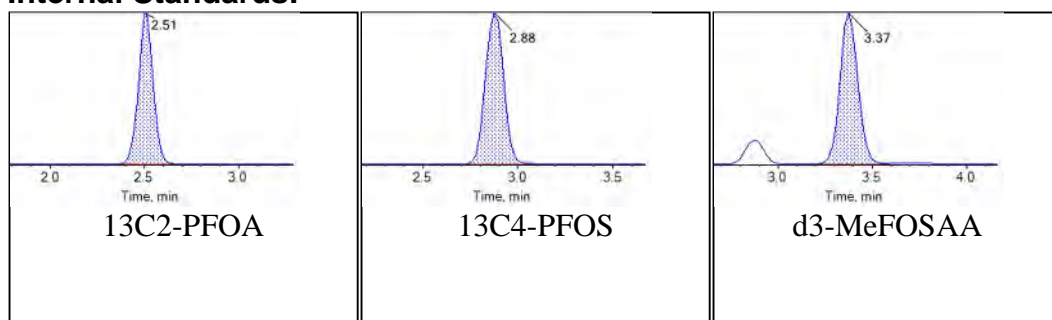
**Internal Standards:**

<b>Sample Name</b>	JX73	<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>	2018-06-27T09:59:20	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

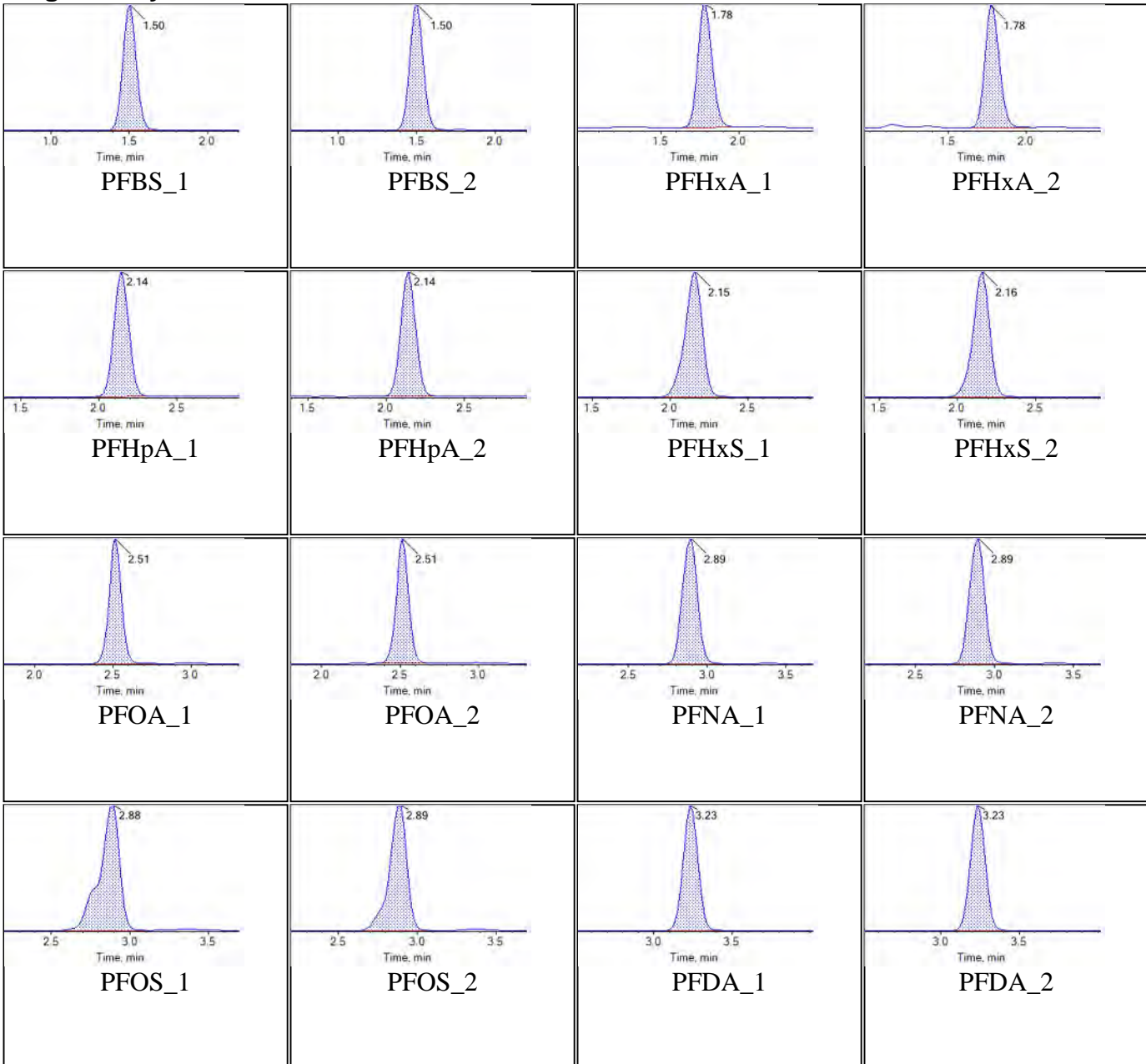


**Internal Standards:**

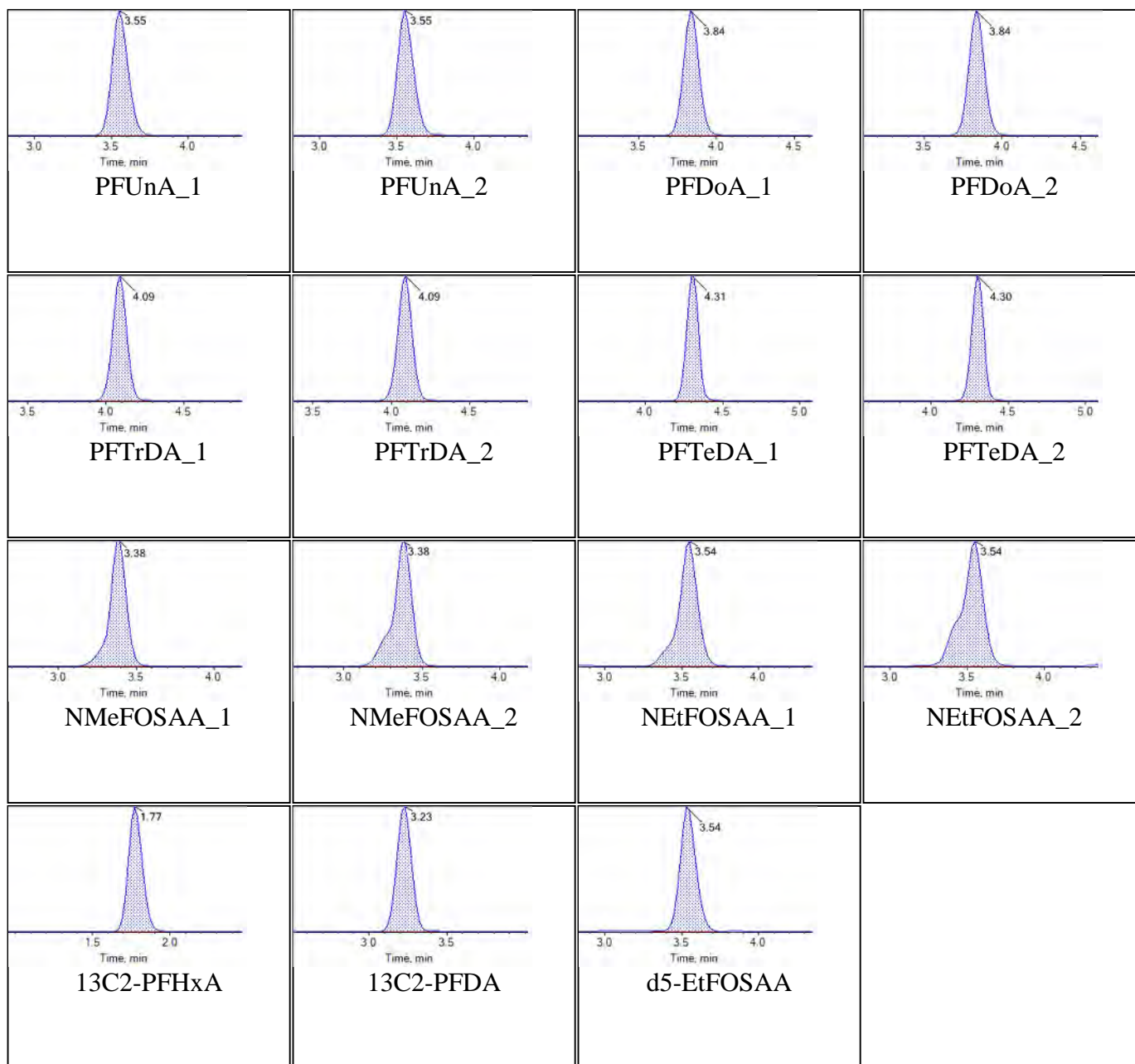
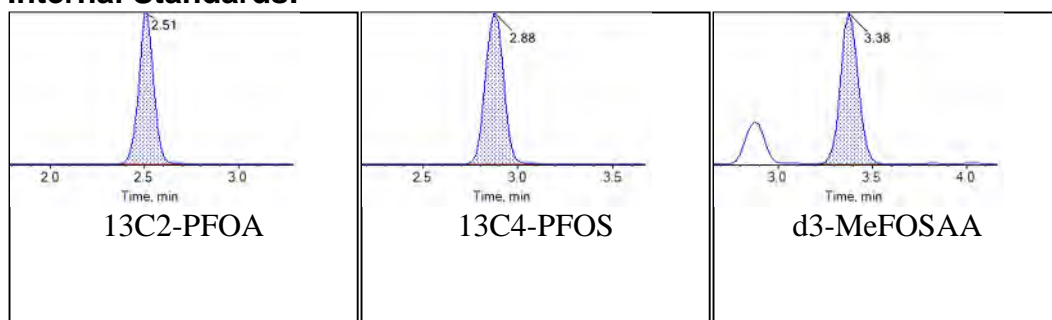
<b>Sample Name</b>	JX74	<b>Injection Vial</b>	9
<b>Sample ID</b>	L8	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T10:08:14	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:



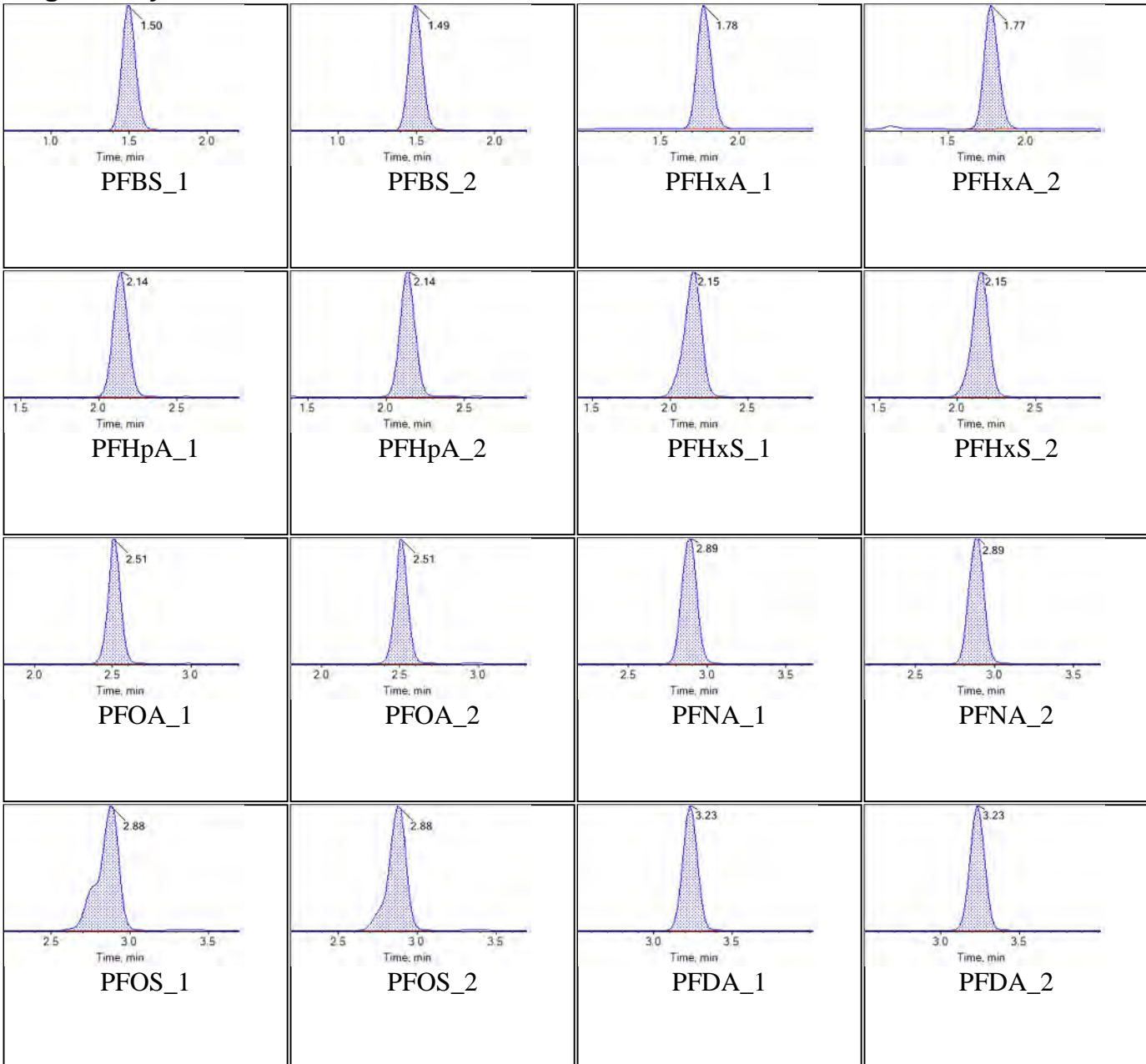


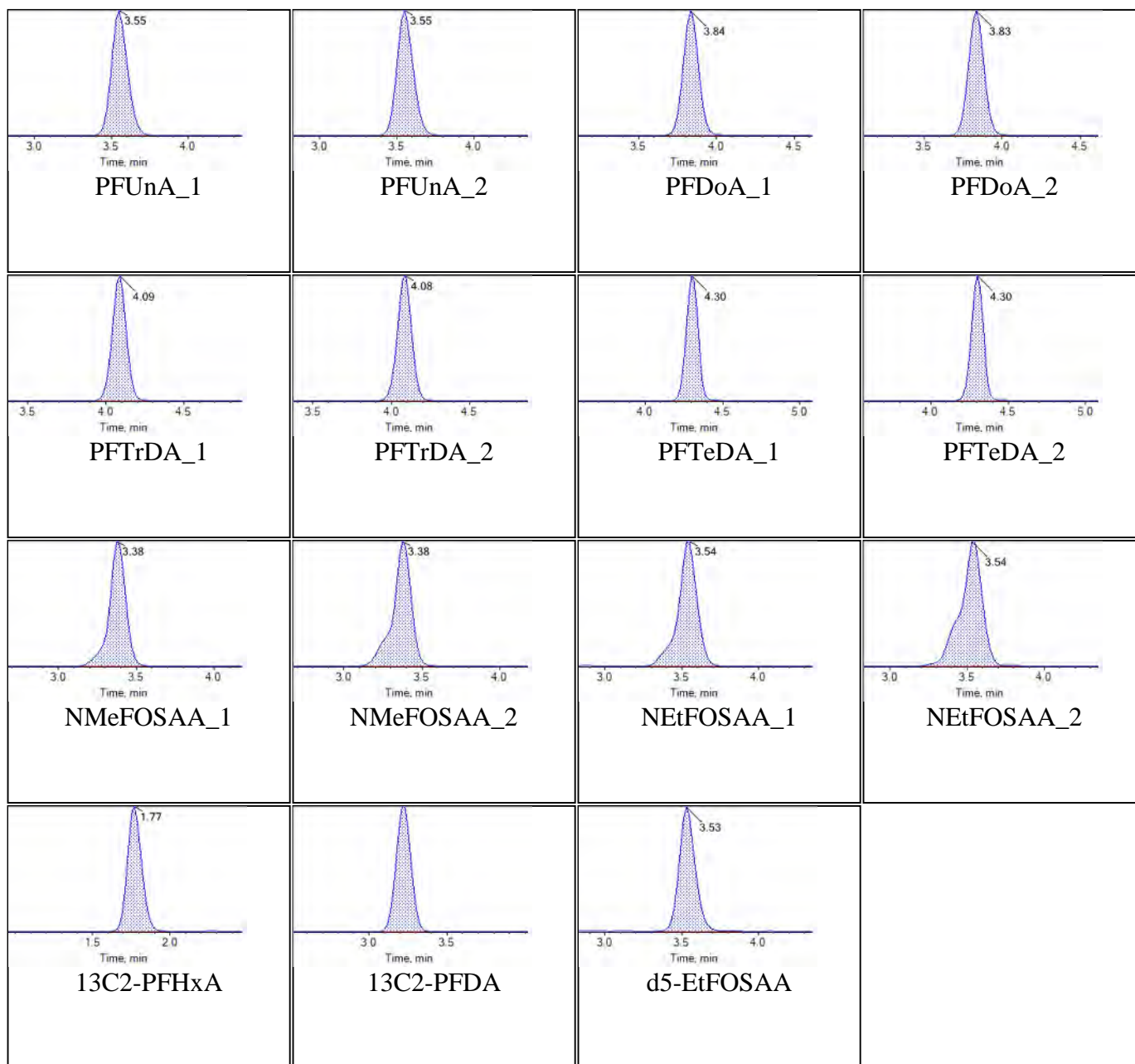
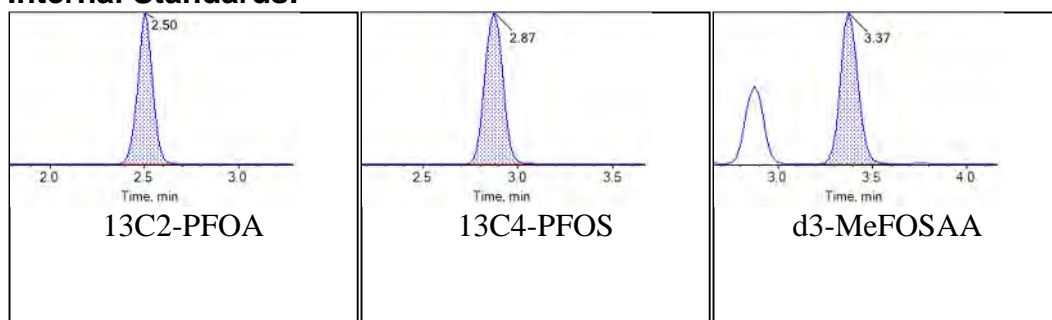
**Internal Standards:**

<b>Sample Name</b>	JX75	<b>Injection Vial</b>	10
<b>Sample ID</b>	L9	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T10:17:08	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

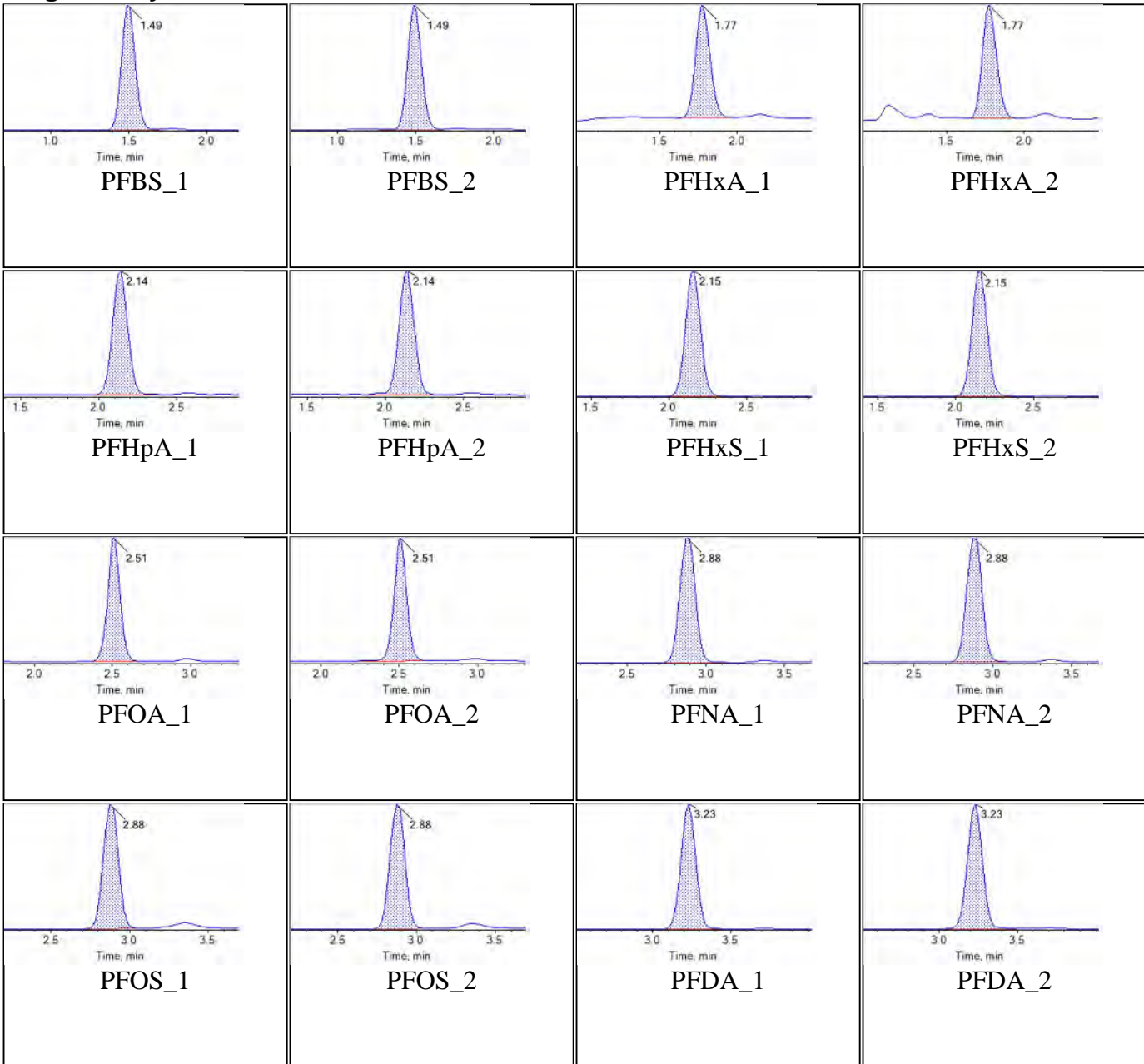


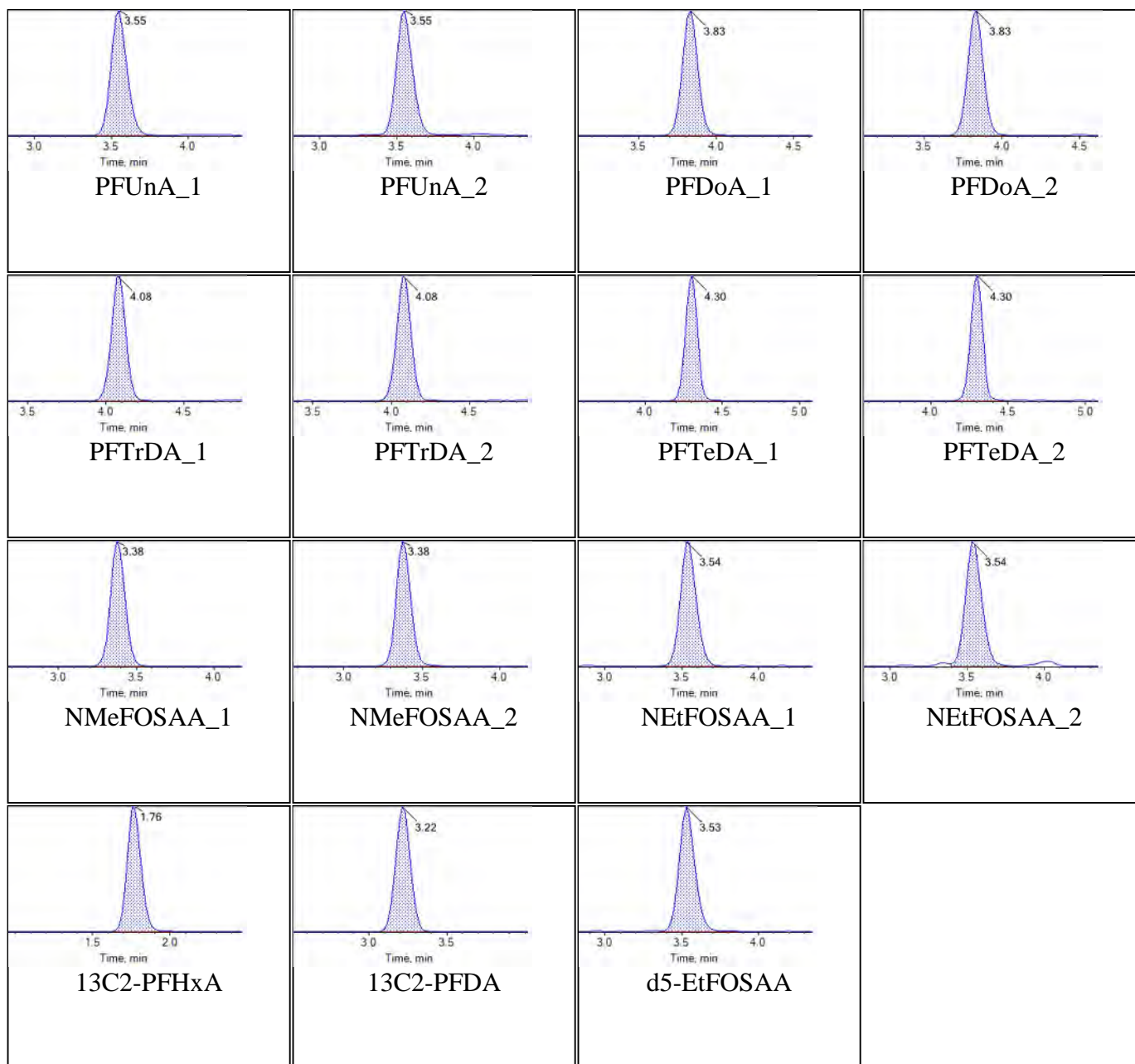
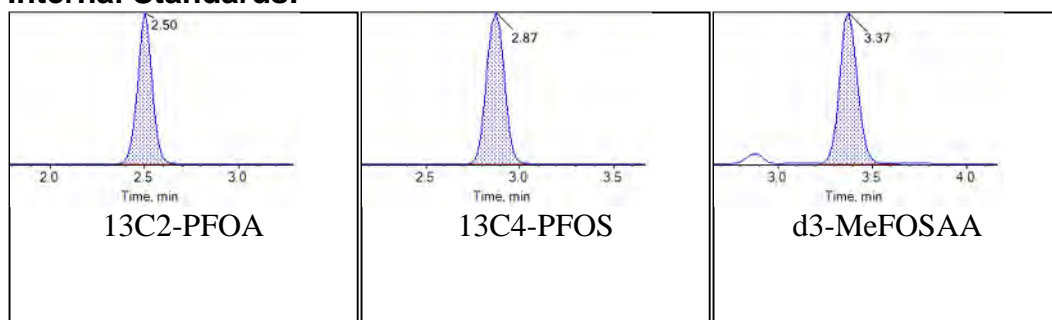
**Internal Standards:**

<b>Sample Name</b>	JV66 ICC	<b>Injection Vial</b>	11
<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>	2018-06-27T10:26:04	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

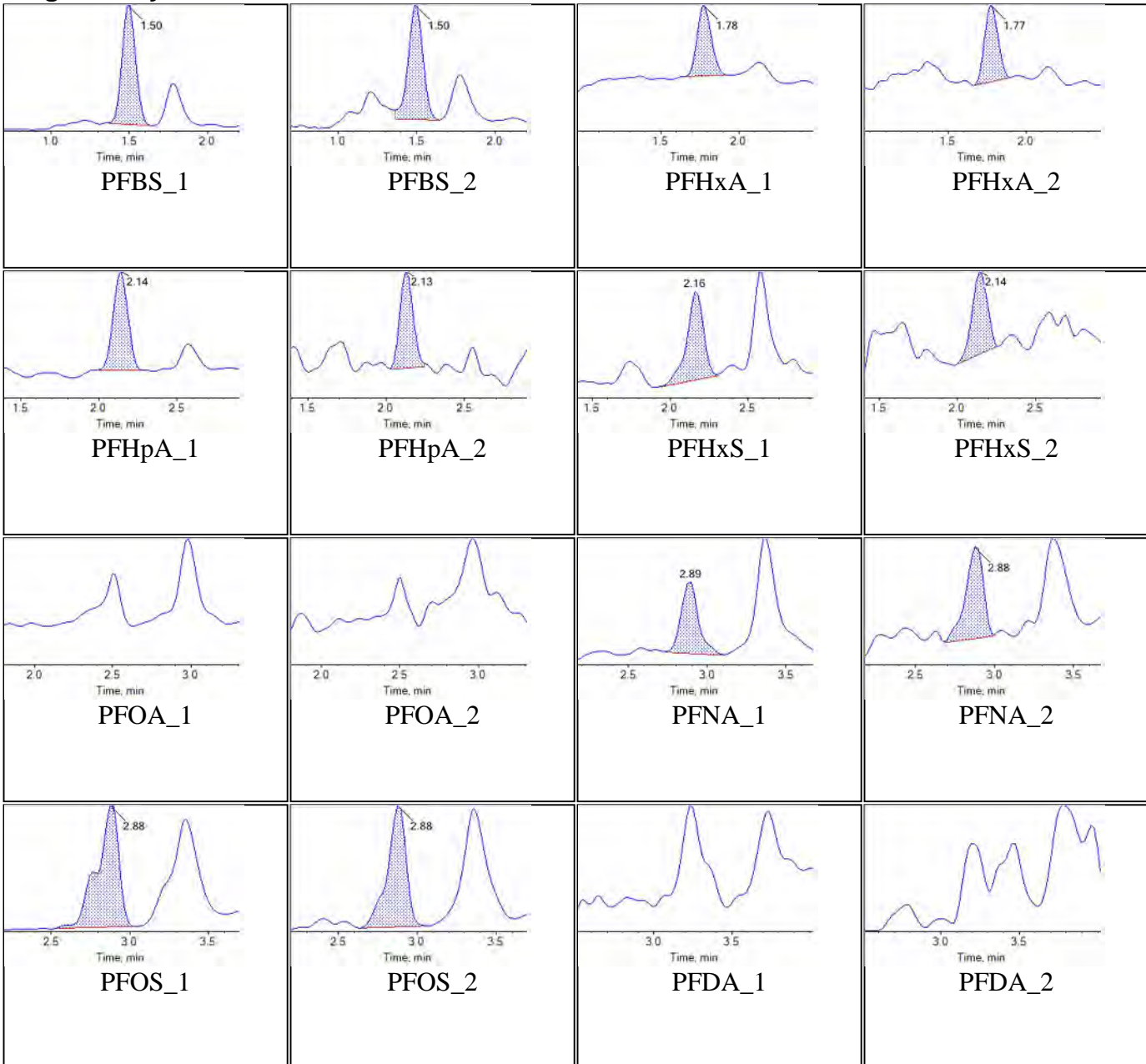


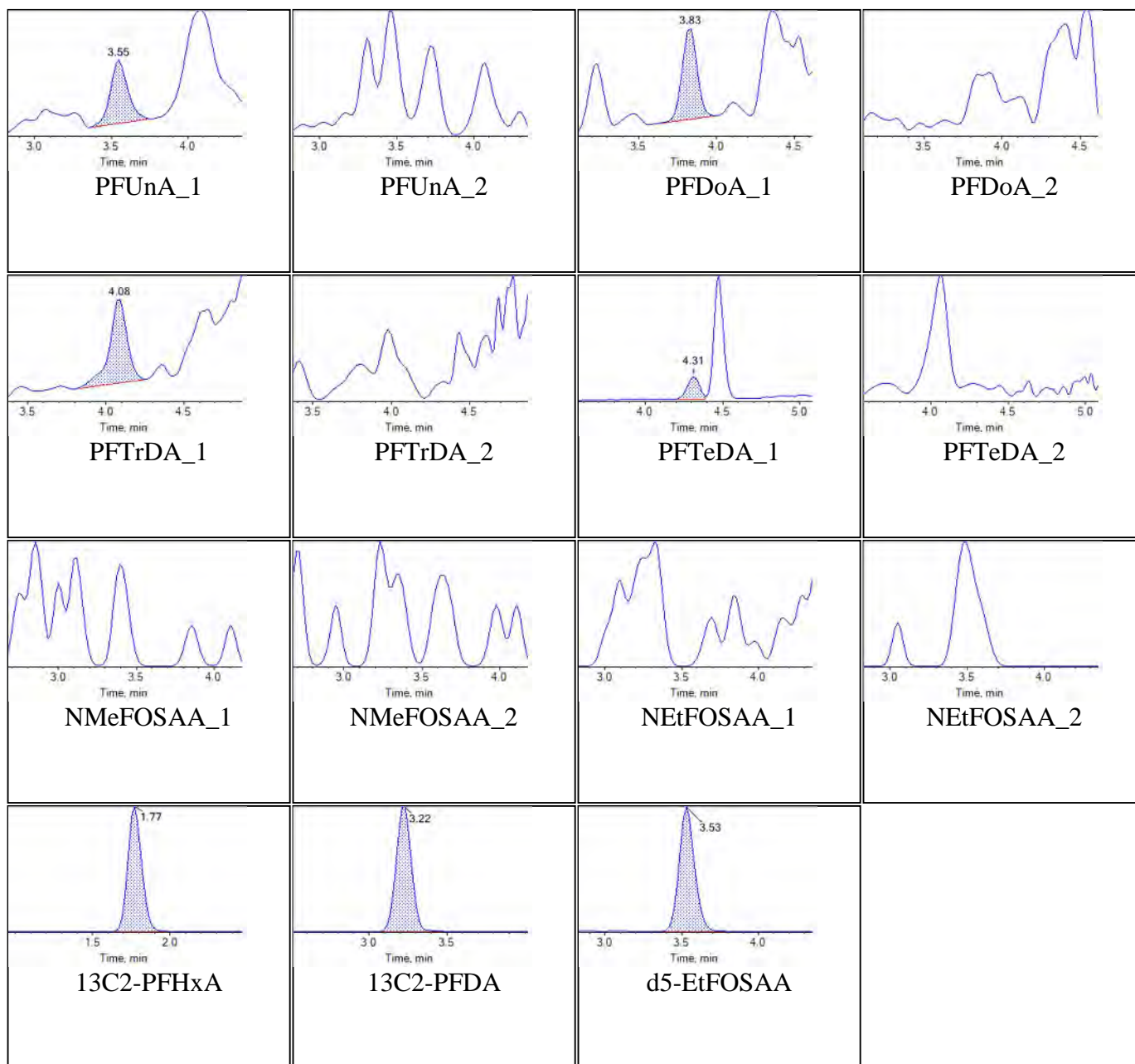
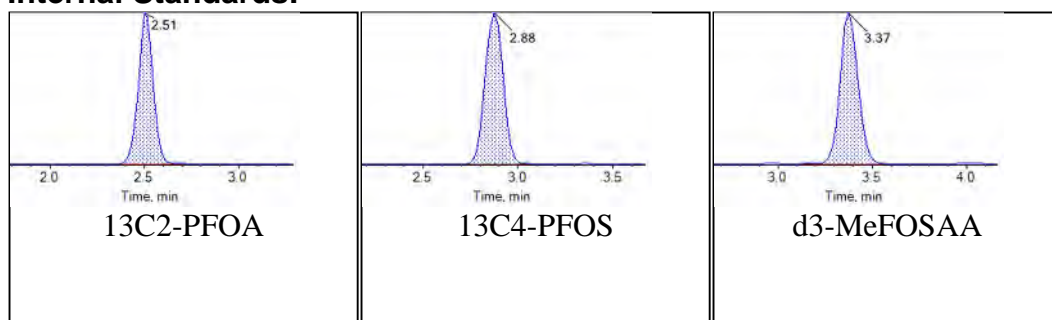
**Internal Standards:**

<b>Sample Name</b>	CR038PB-FS(0)	<b>Injection Vial</b>	13
<b>Sample ID</b>	Procedural Blank	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T10:43:54	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

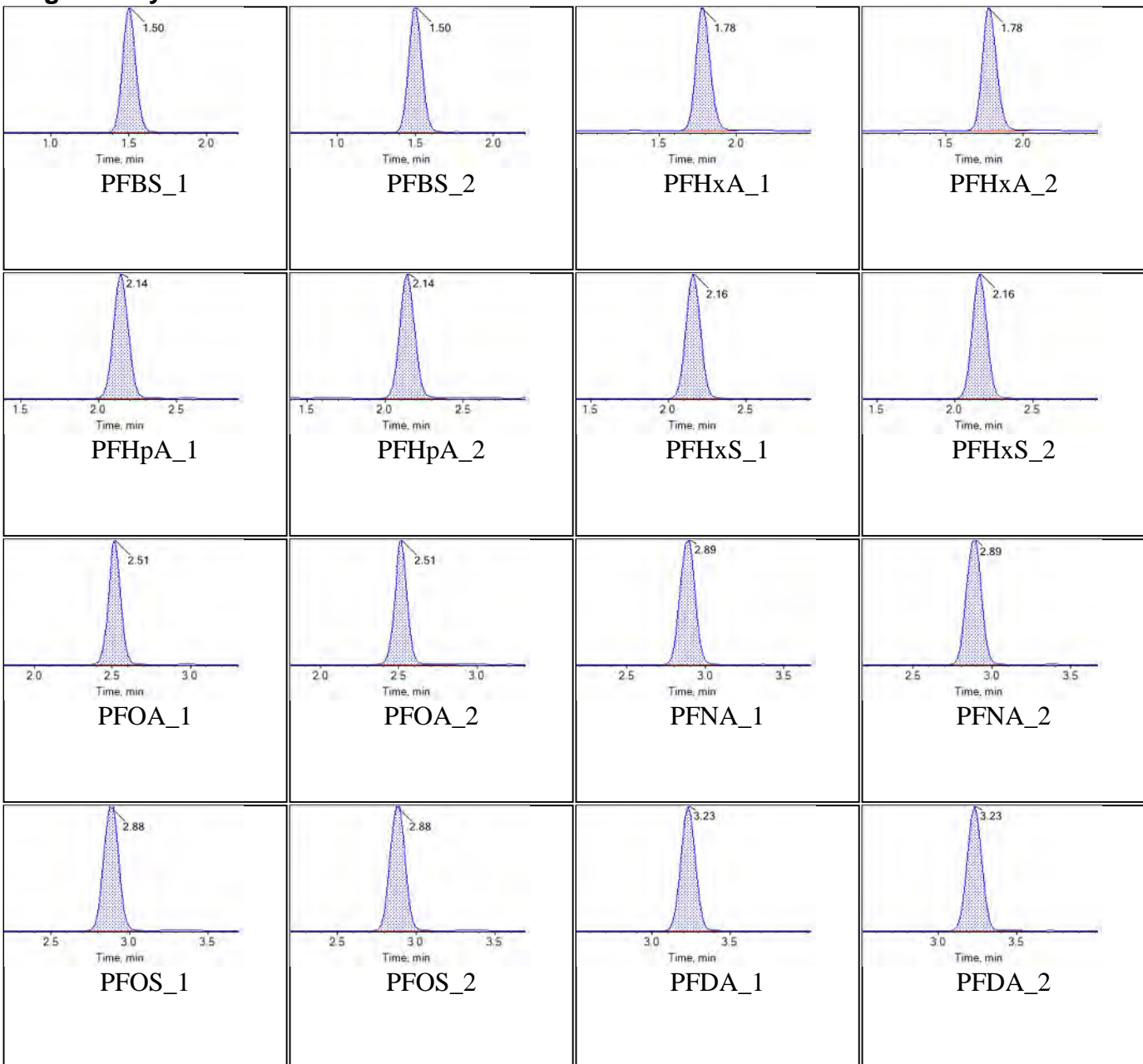


**Internal Standards:**

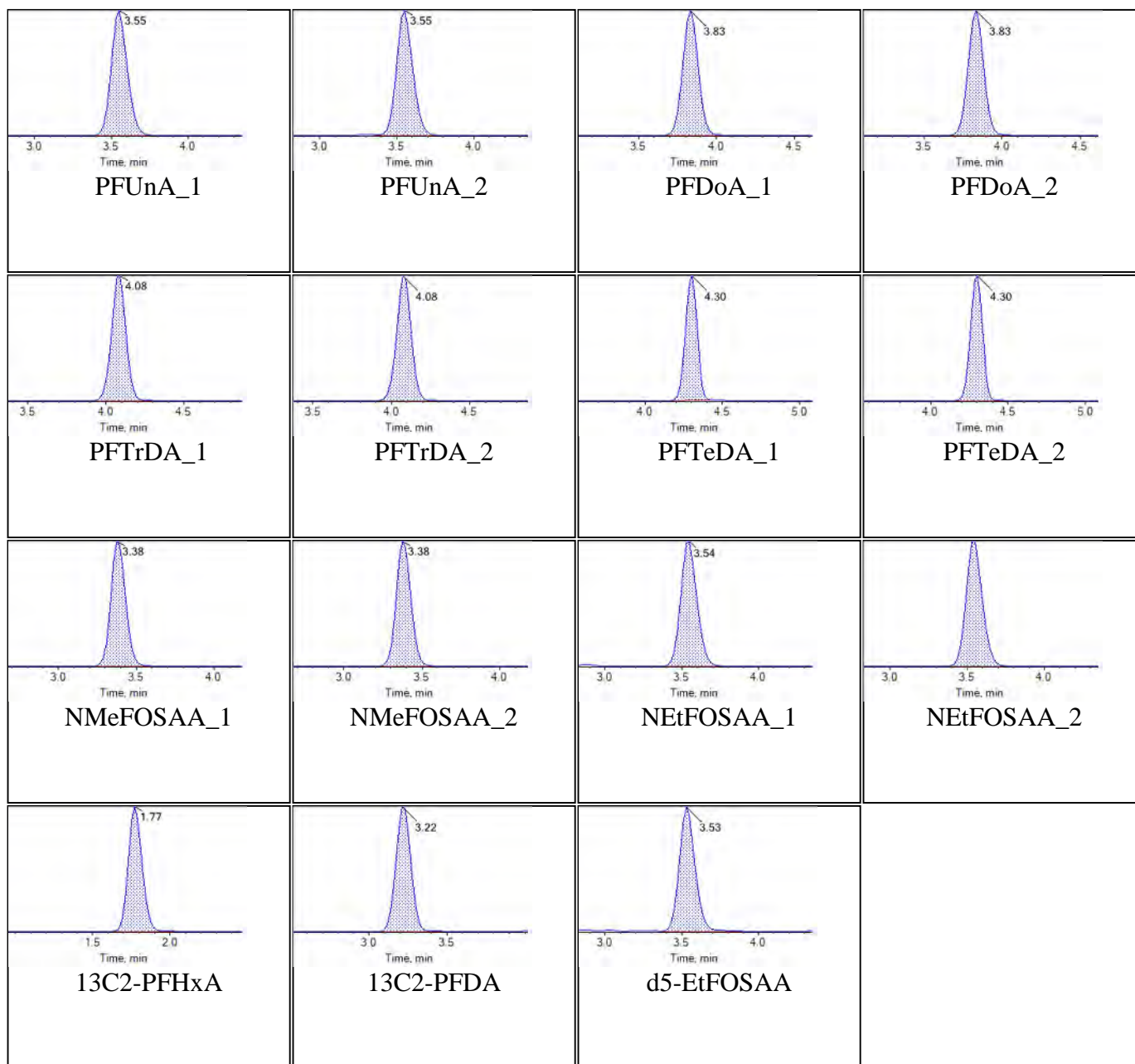
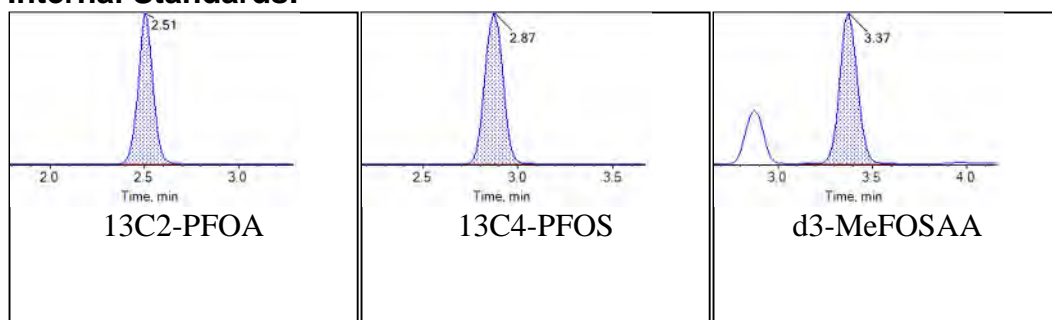
<b>Sample Name</b>	CR039LCS-FS(0)	<b>Injection Vial</b>	14
<b>Sample ID</b>	Laboratory Control Sample	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T10:52:49	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:



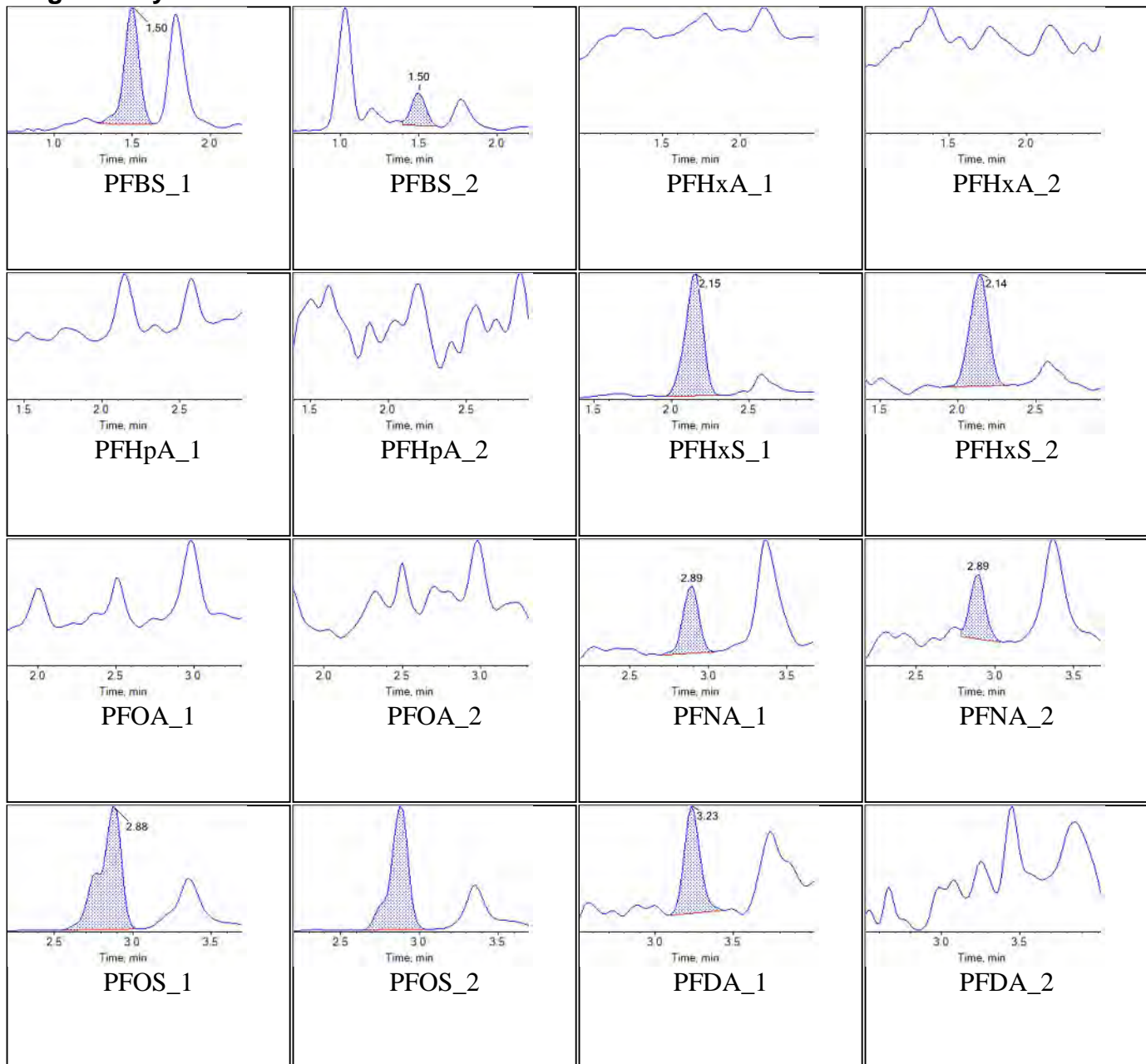


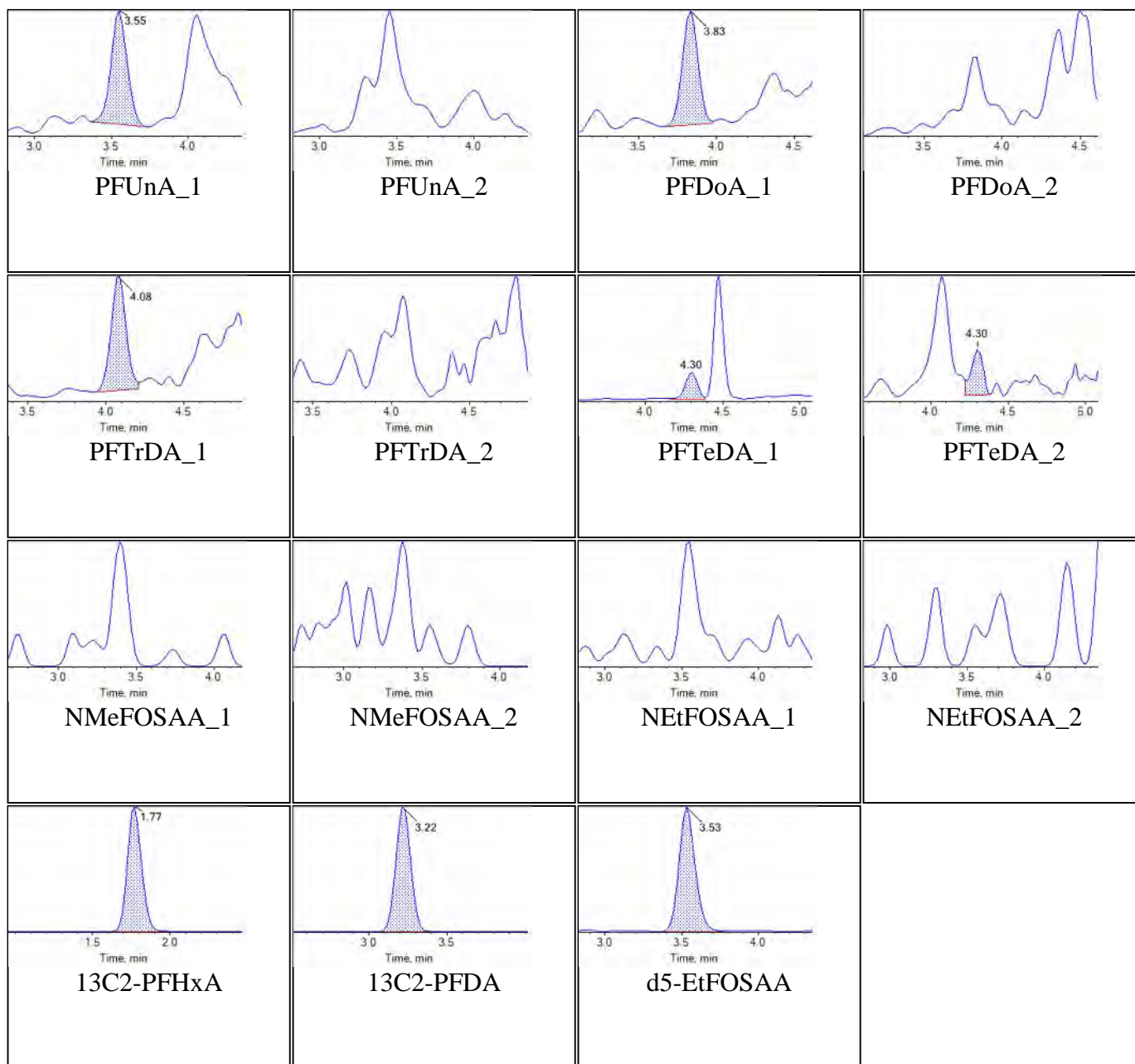
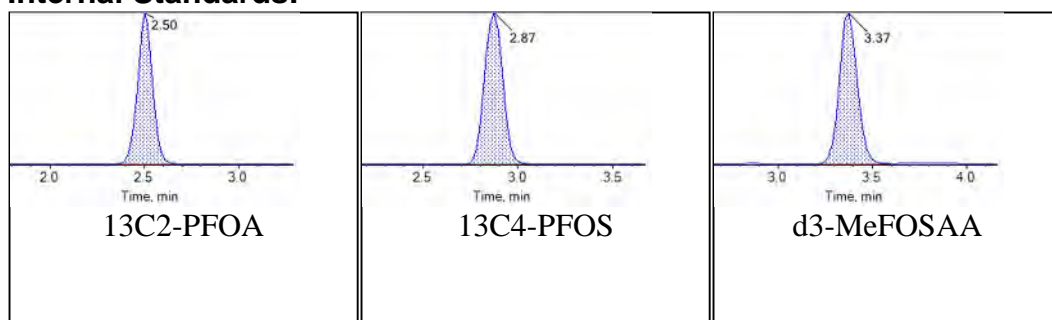
**Internal Standards:**

<b>Sample Name</b>	J6259-FS1(0)	<b>Injection Vial</b>	15
<b>Sample ID</b>	WGNA-052918-FRB-3124	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T11:01:45	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

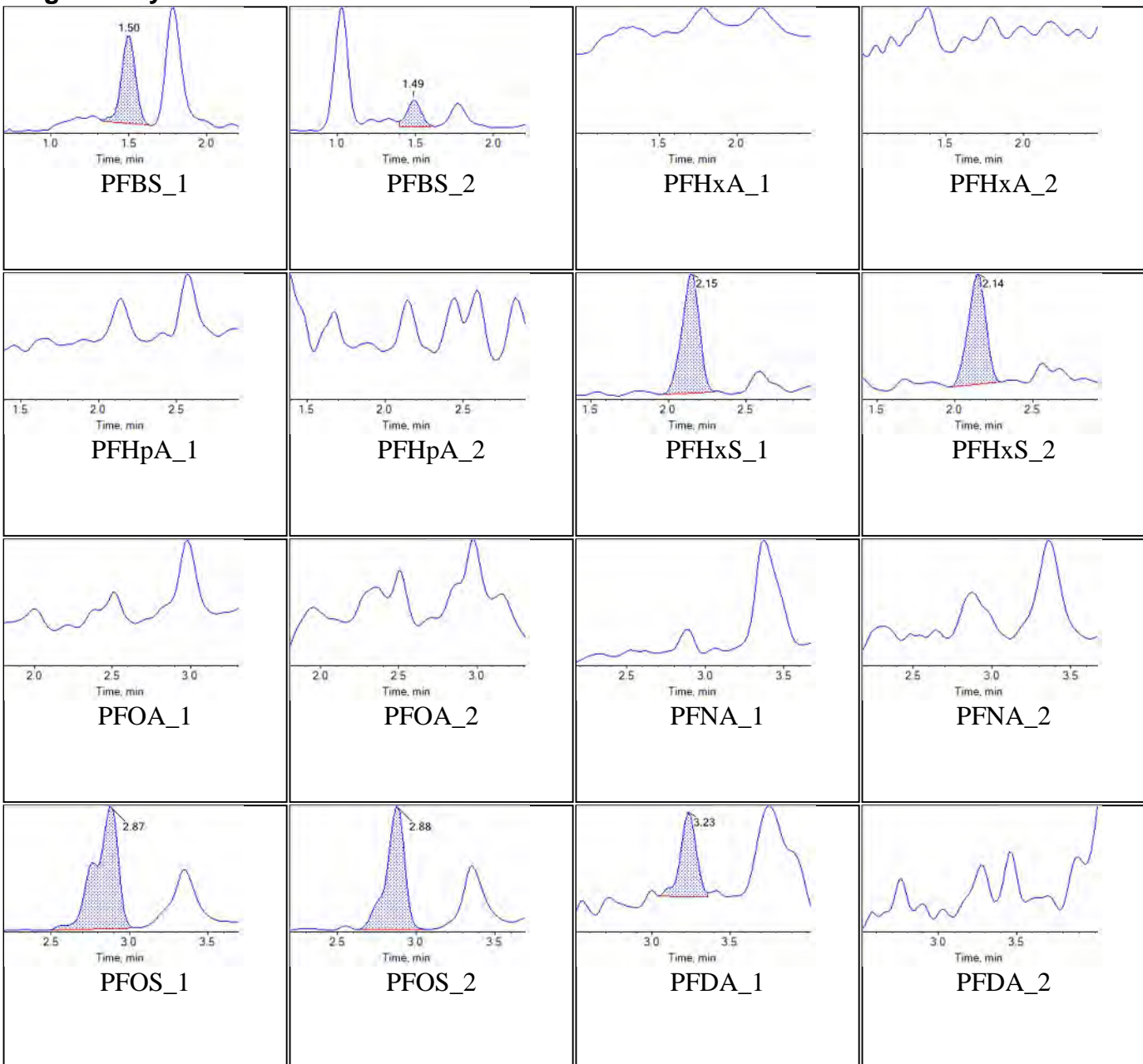


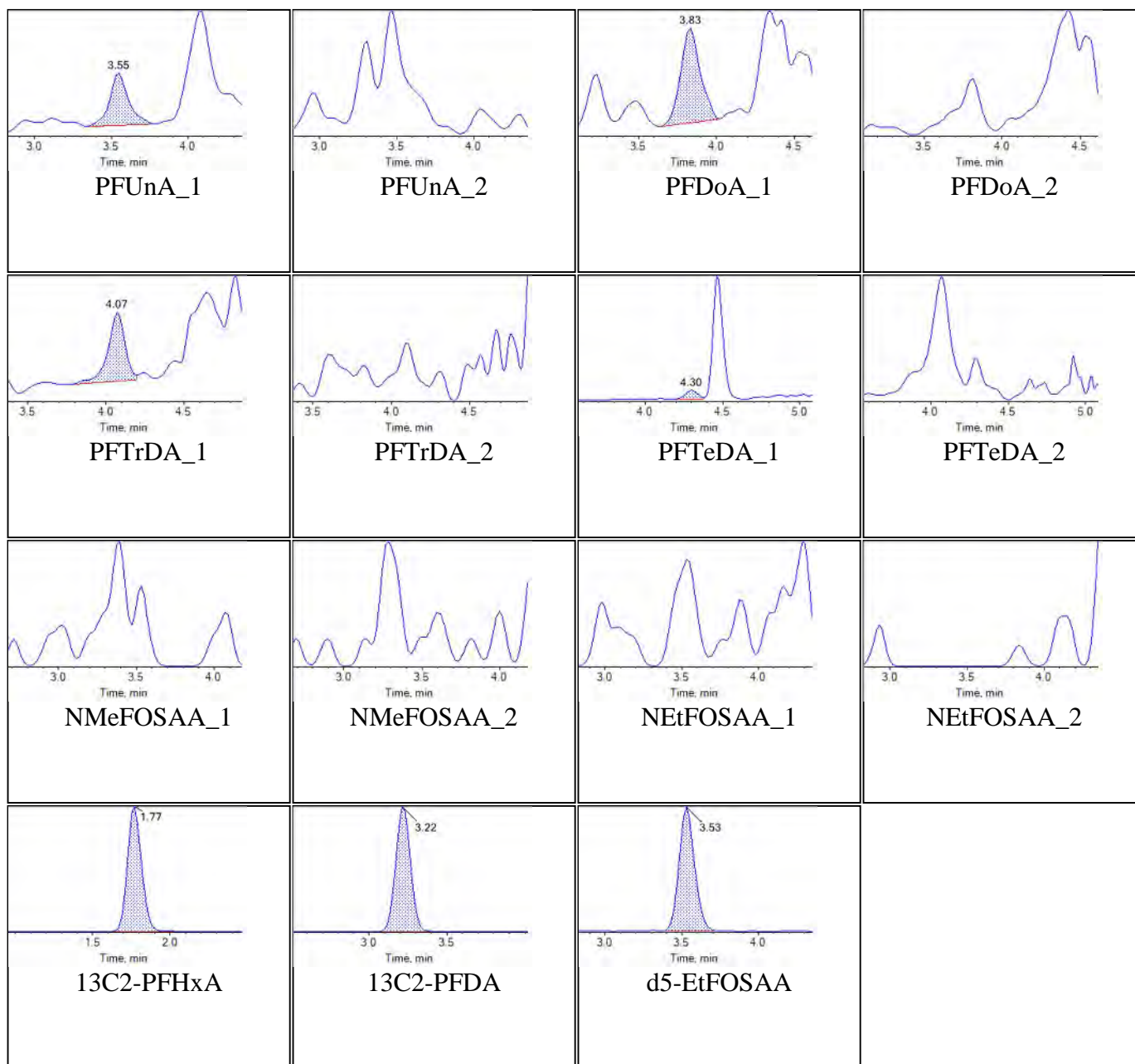
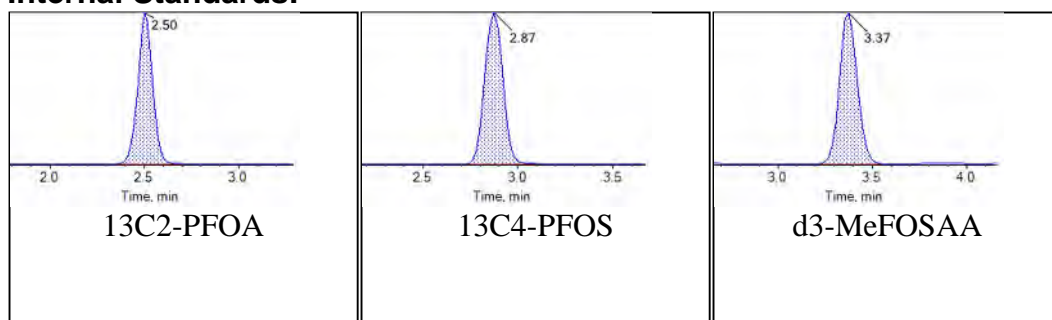
**Internal Standards:**

<b>Sample Name</b>	J6261-FS1(0)	<b>Injection Vial</b>	16
<b>Sample ID</b>	WGNA-052918-FRB-3493	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T11:10:41	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

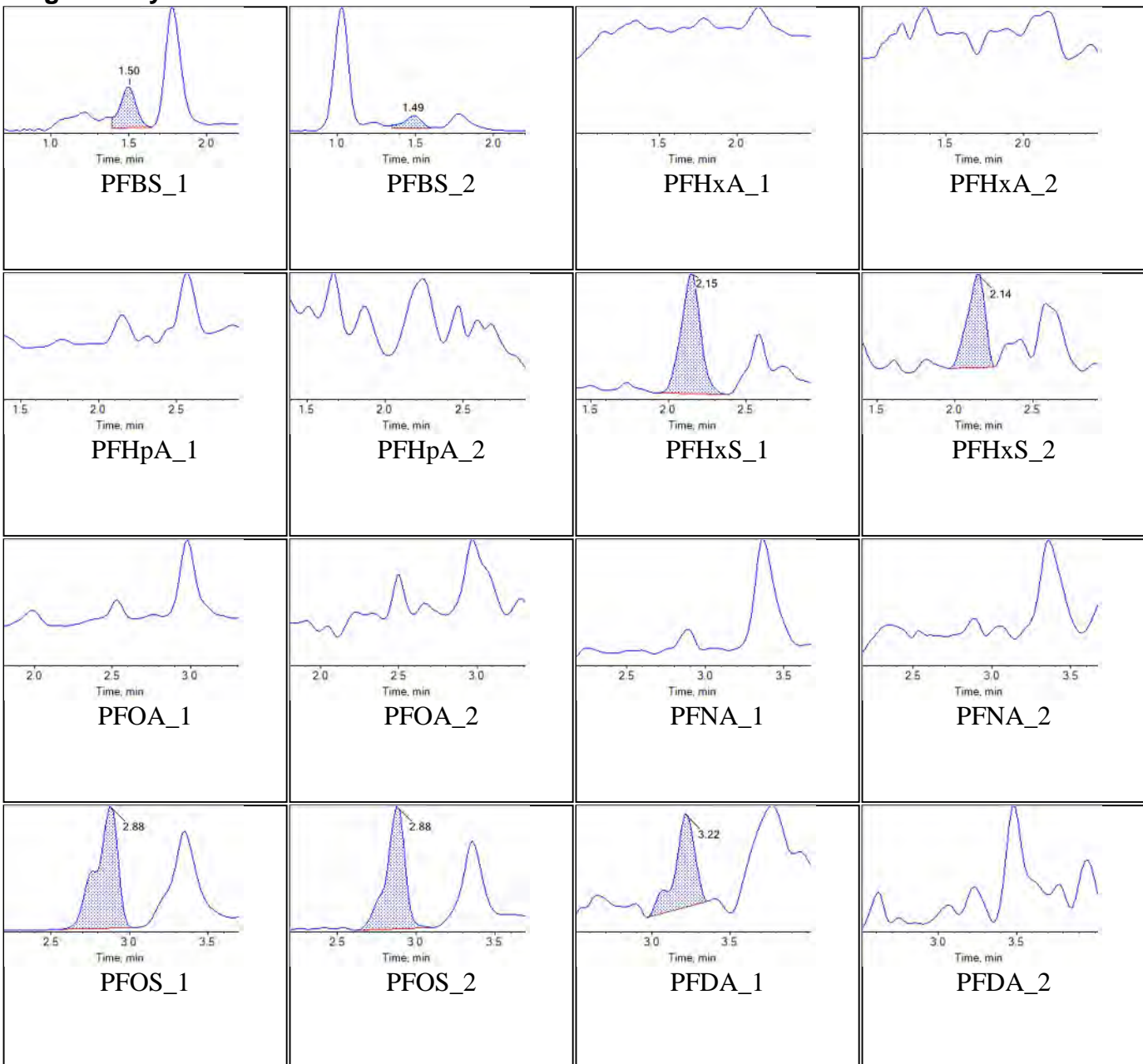


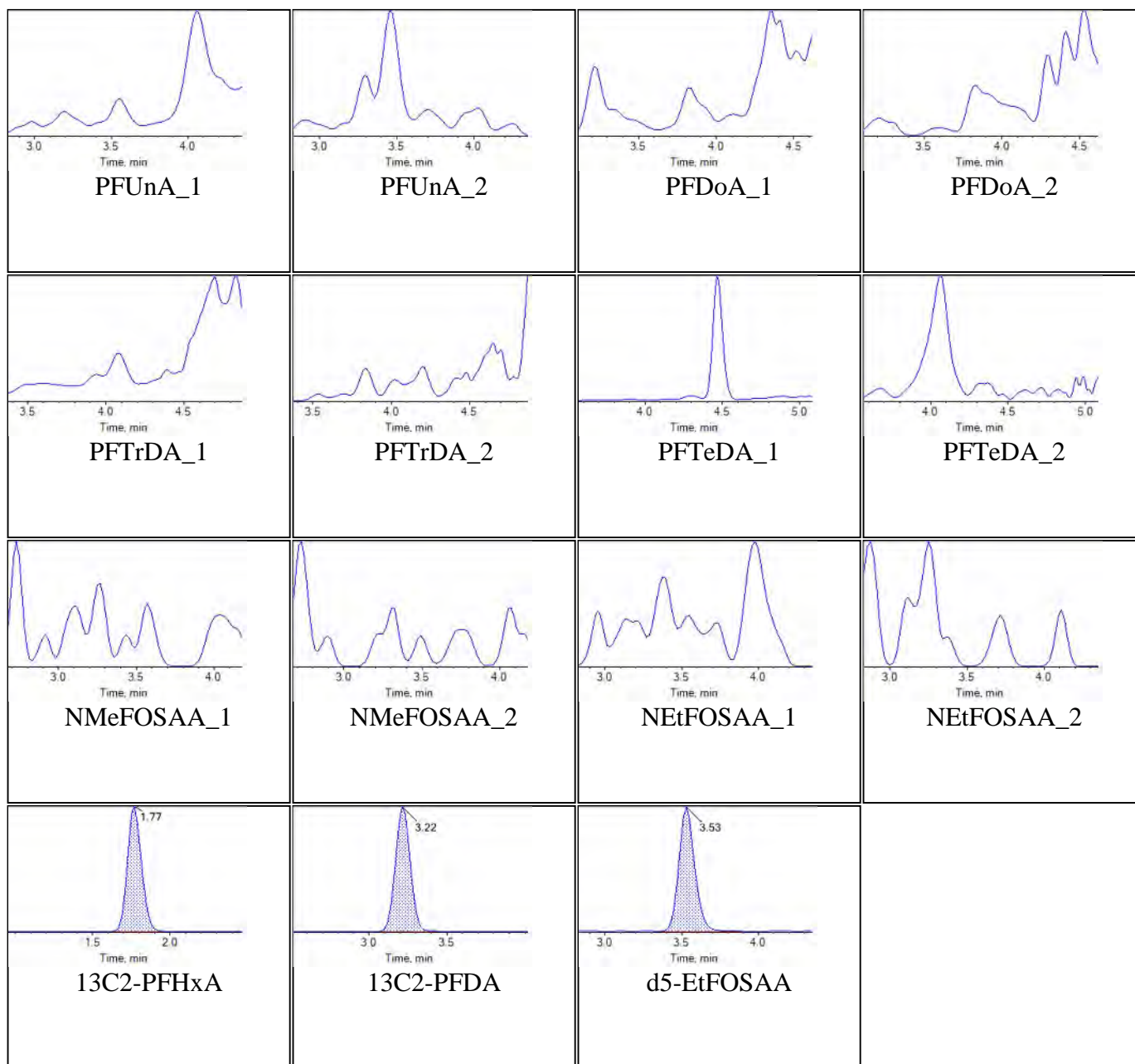
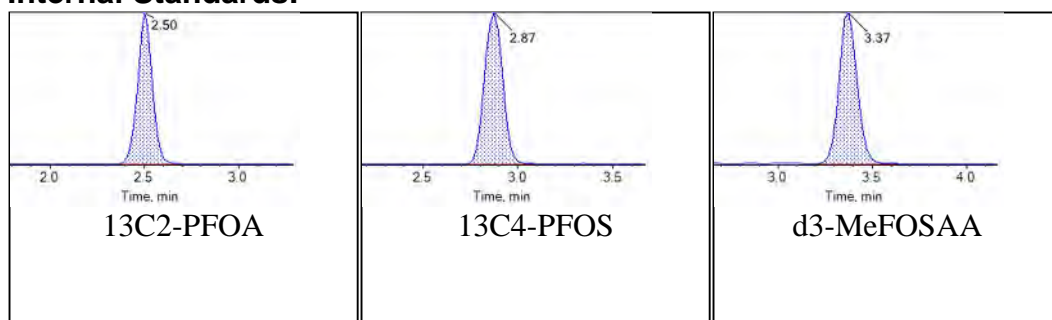
**Internal Standards:**

<b>Sample Name</b>	J6263-FS1(0)	<b>Injection Vial</b>	17
<b>Sample ID</b>	WGNA-052918-FRB-3882	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T11:19:39	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

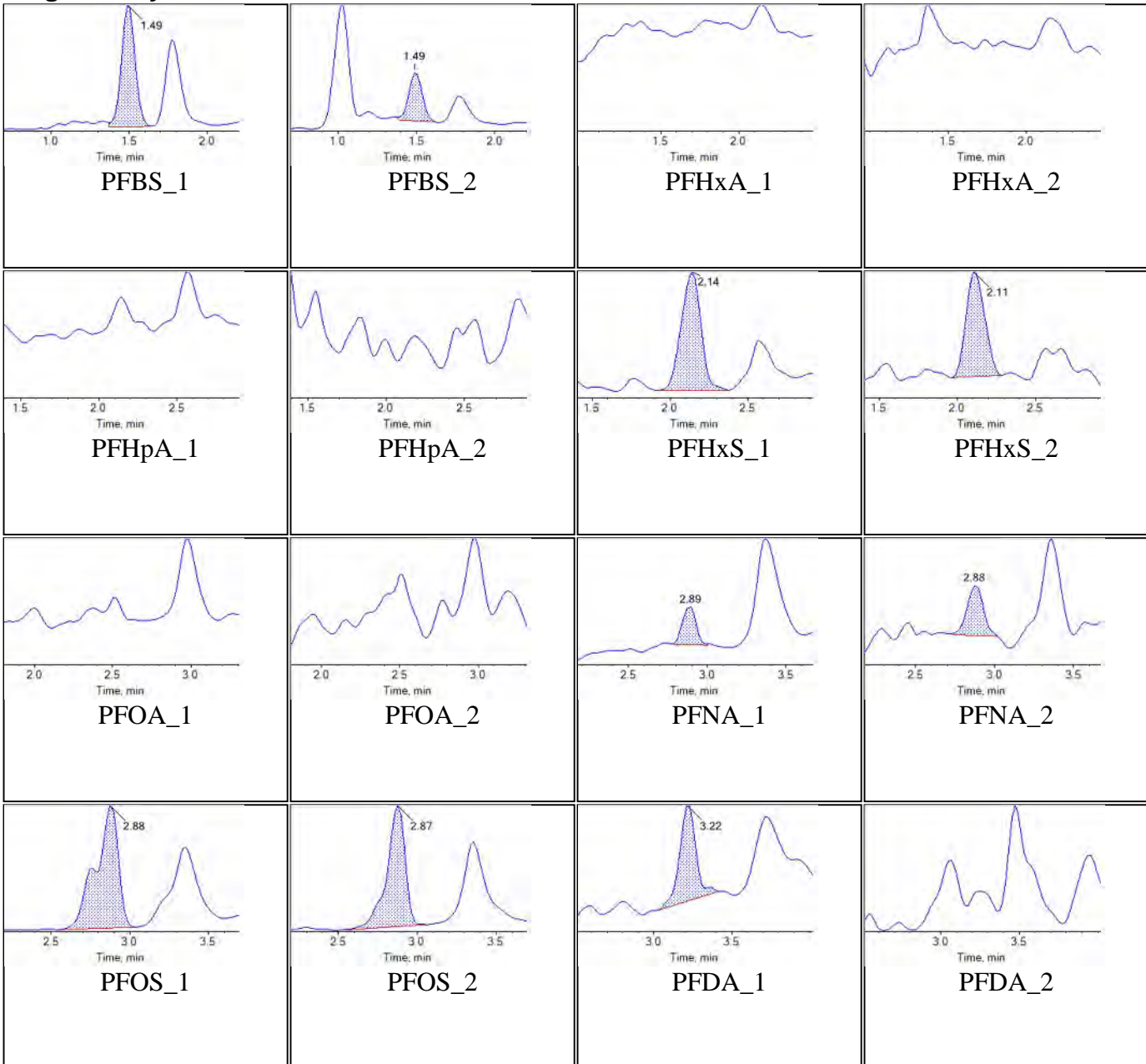


**Internal Standards:**

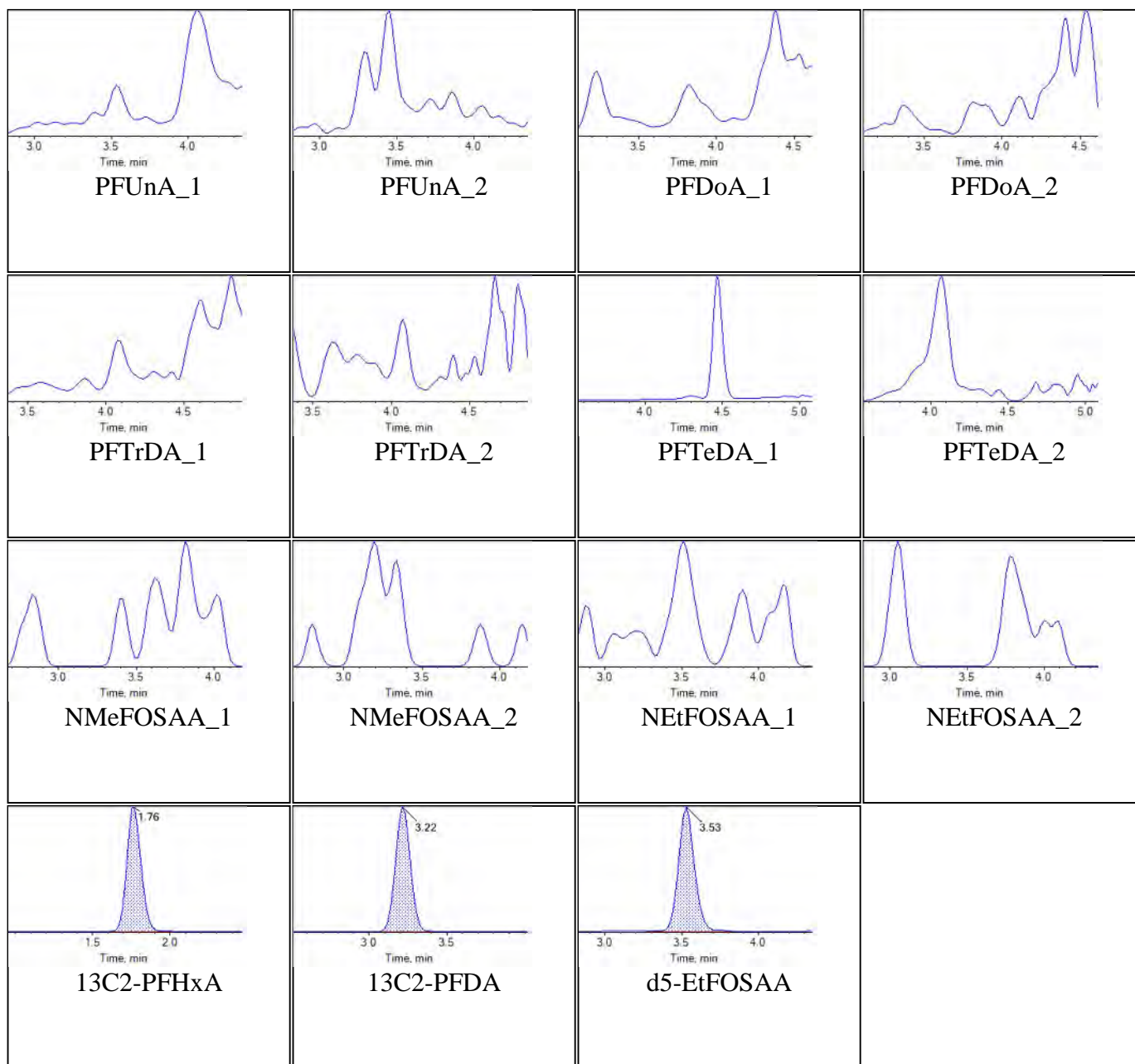
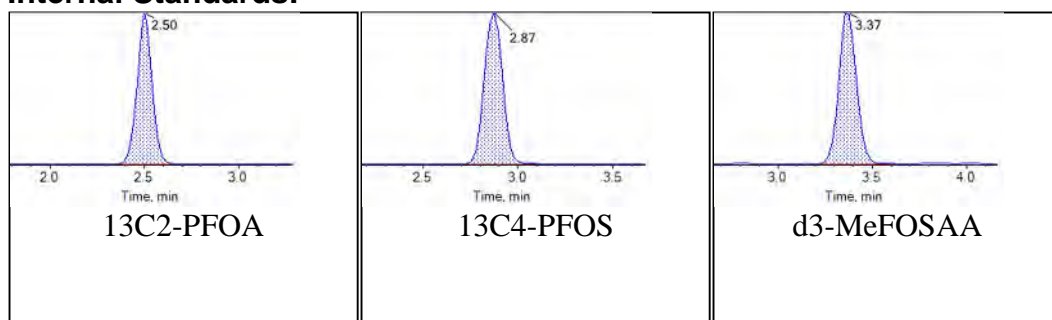
<b>Sample Name</b>	J6265-FS1(0)	<b>Injection Vial</b>	18
<b>Sample ID</b>	WGNA-052918-FRB-3978	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T11:28:34	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:



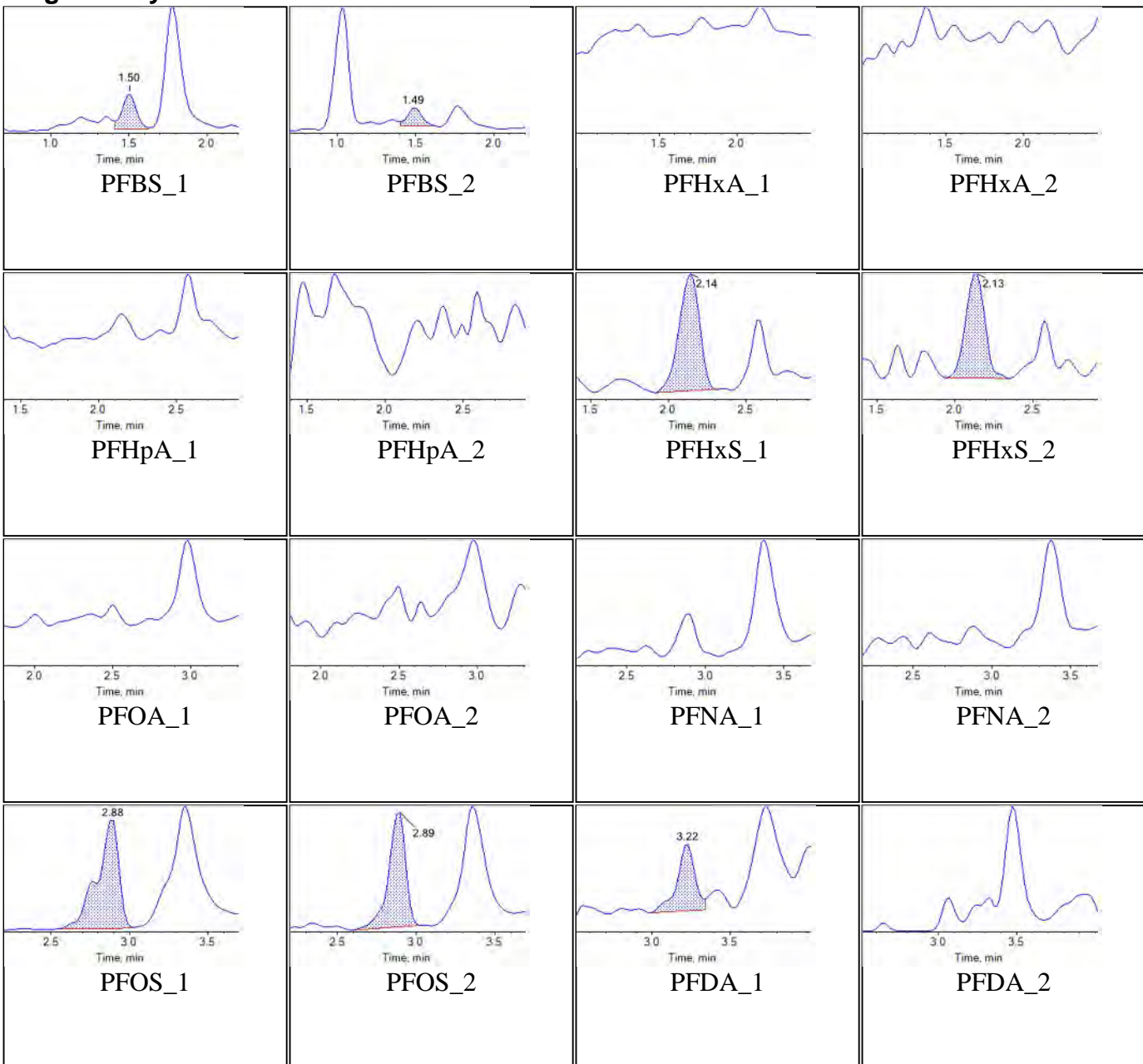


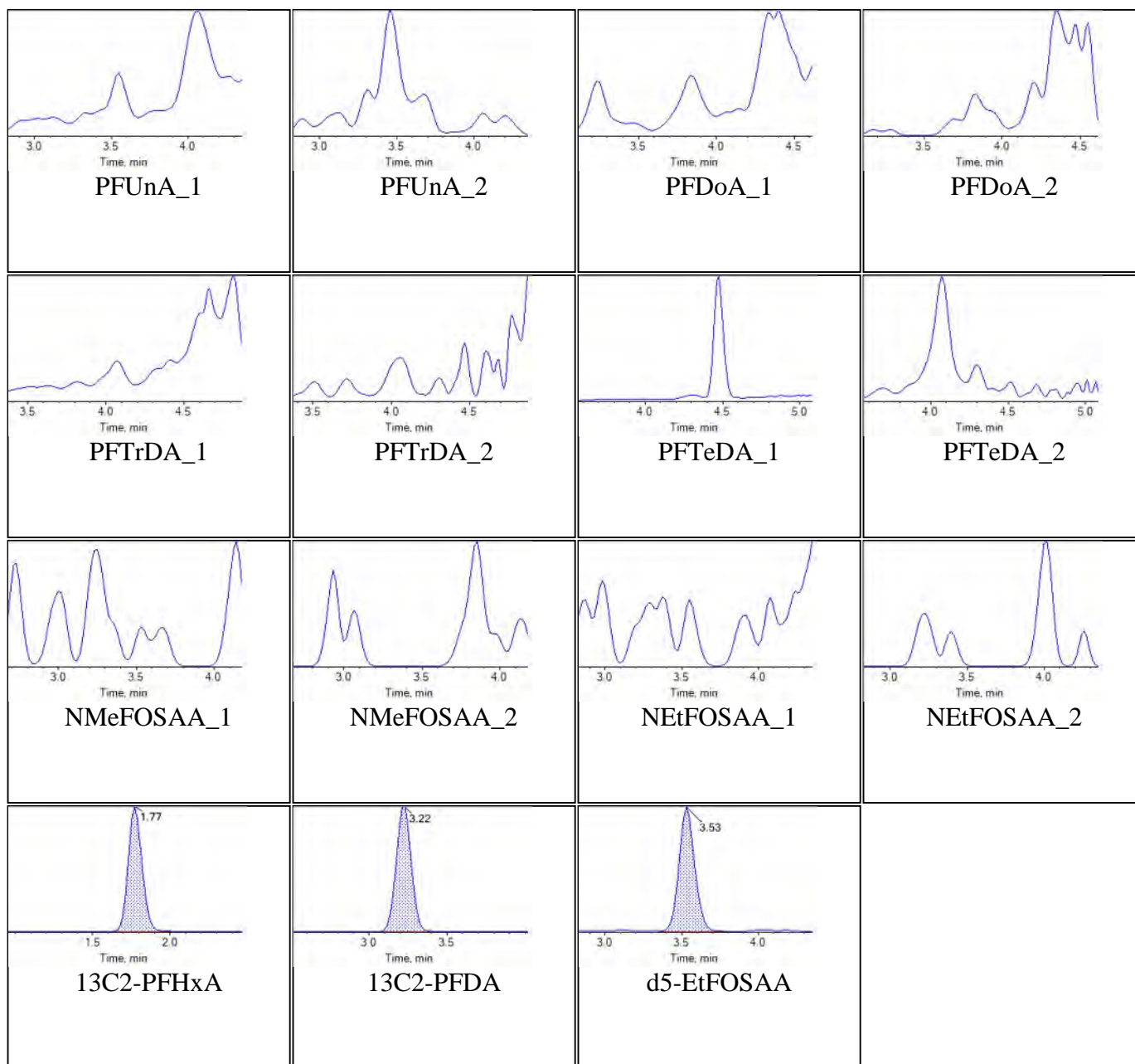
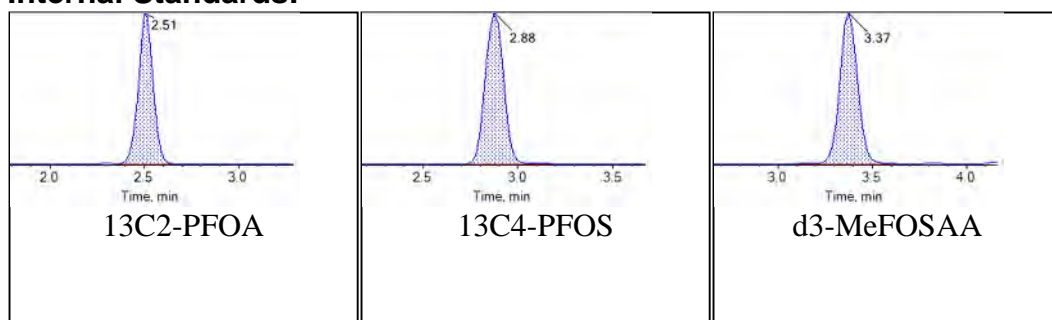
**Internal Standards:**

<b>Sample Name</b>	J6267-FS1(0)	<b>Injection Vial</b>	19
<b>Sample ID</b>	NAWC-052918-FRB-161	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T11:37:30	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

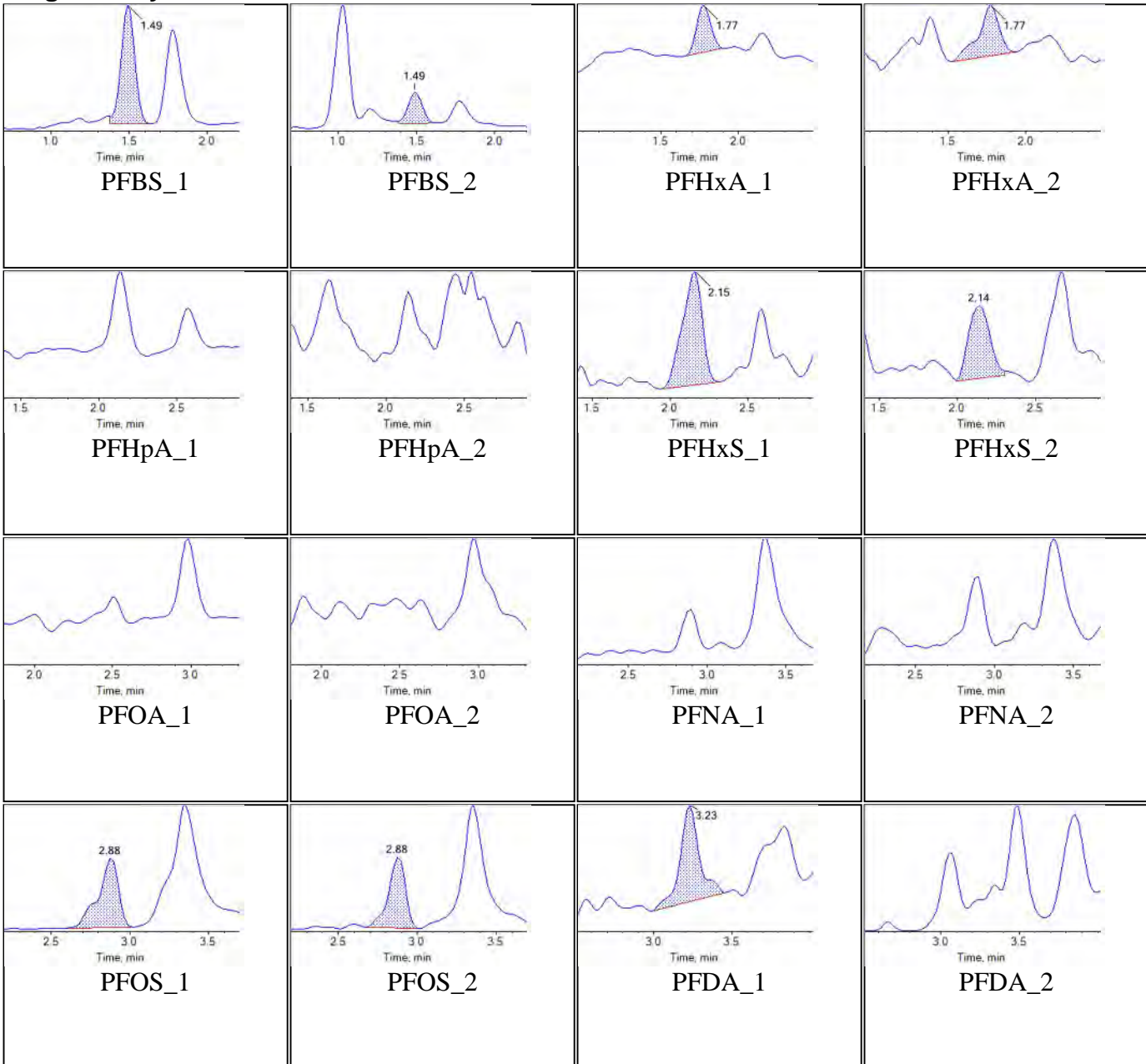


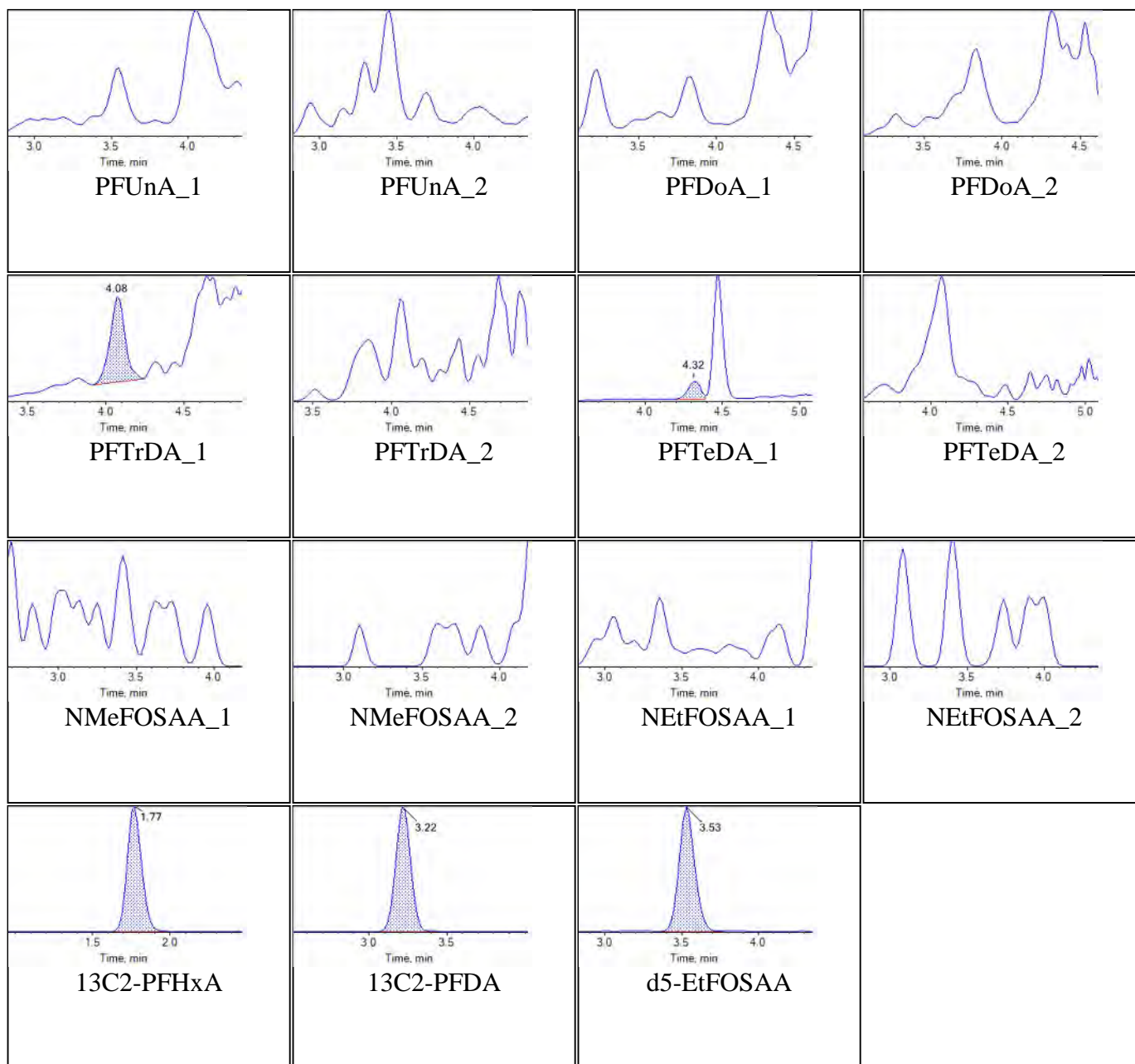
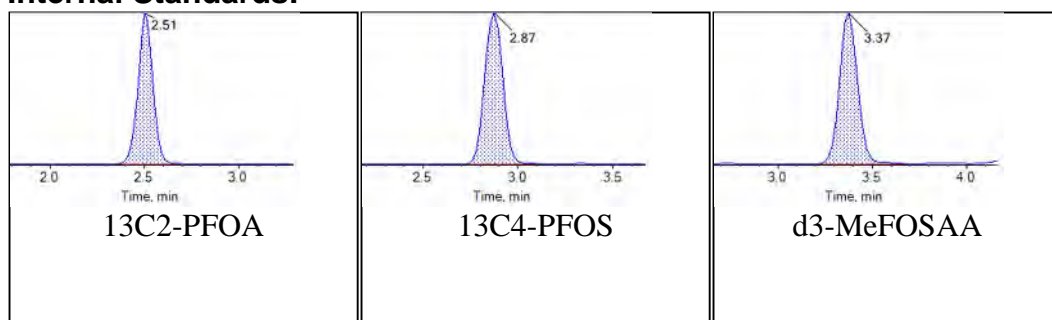
**Internal Standards:**

<b>Sample Name</b>	J6271-FS1(0)	<b>Injection Vial</b>	20
<b>Sample ID</b>	WGNA-053018-FRB-3876	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T11:46:27	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

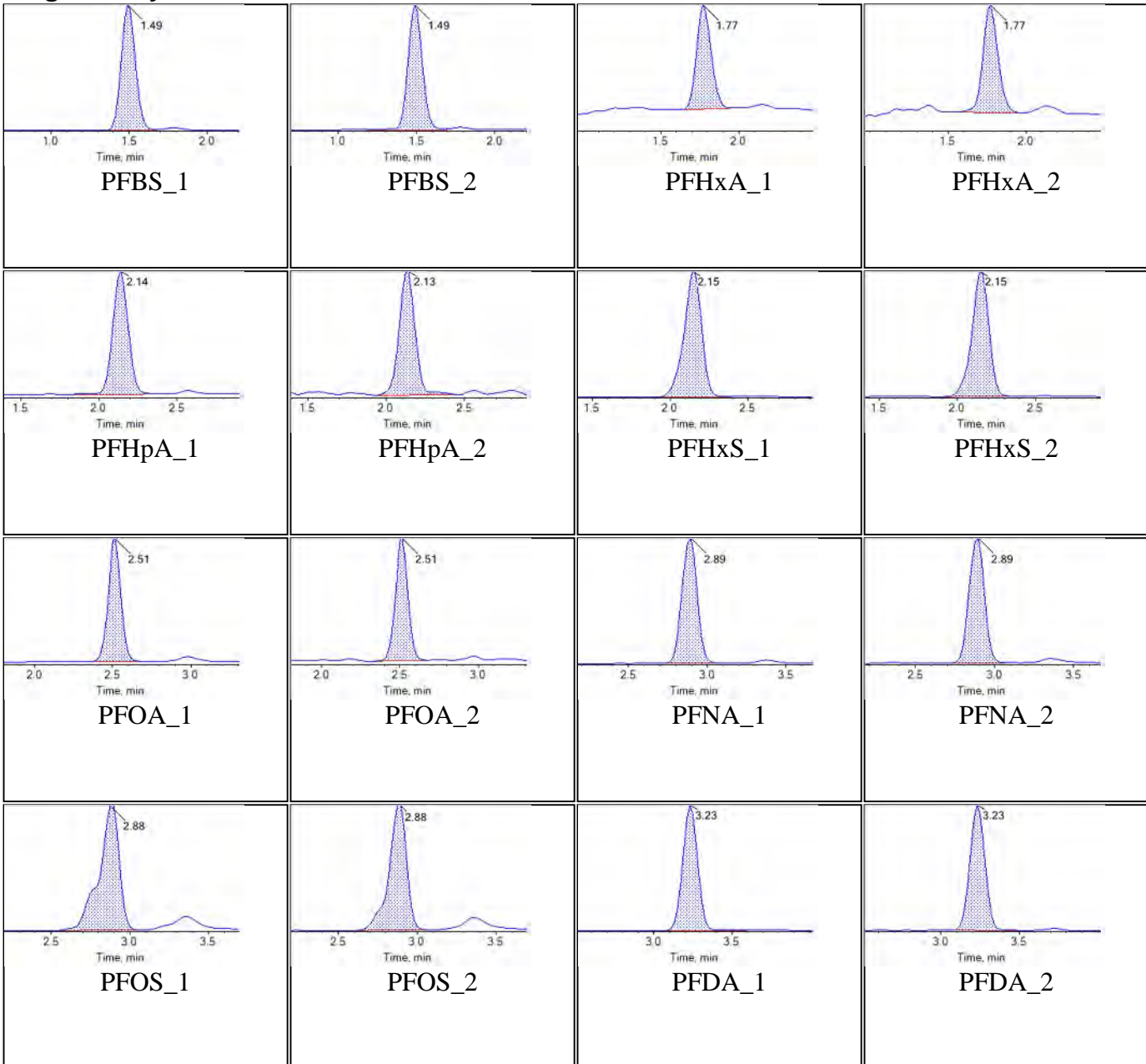


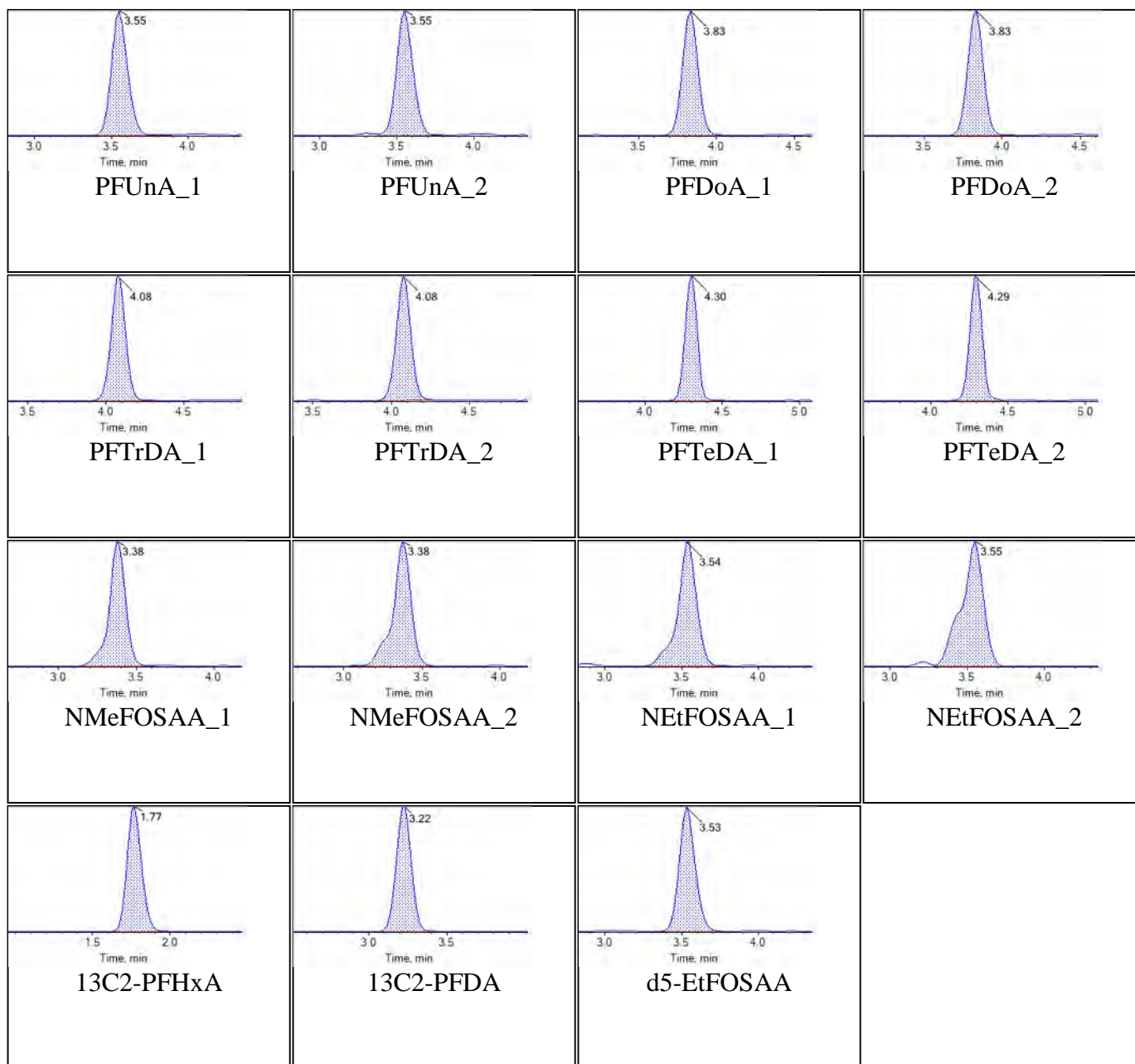
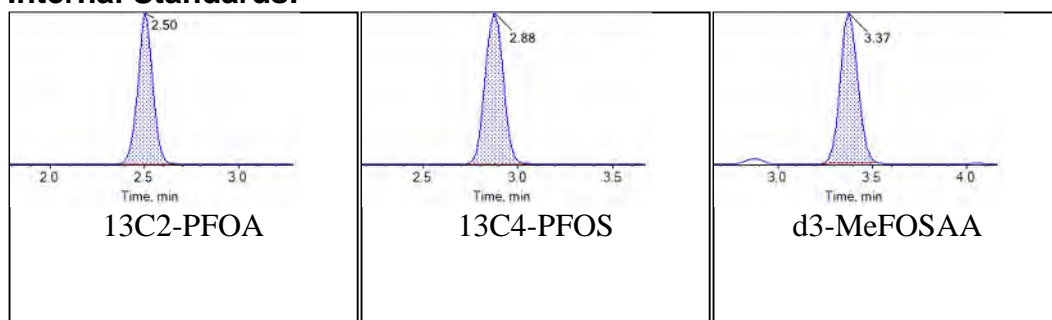
**Internal Standards:**

<b>Sample Name</b>	JX71 CCV	<b>Injection Vial</b>	21
<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>	2018-06-27T11:55:23	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

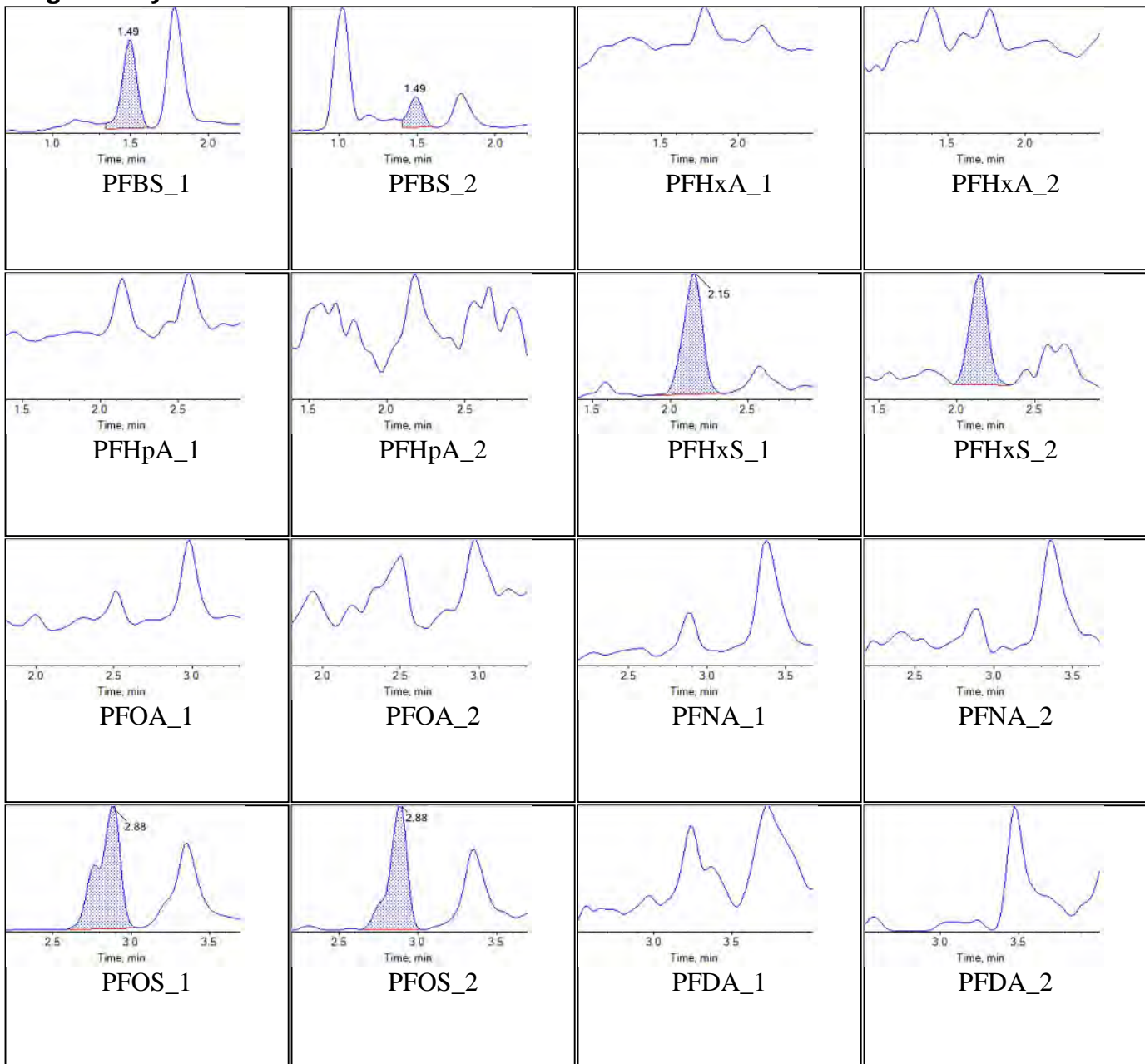


**Internal Standards:**

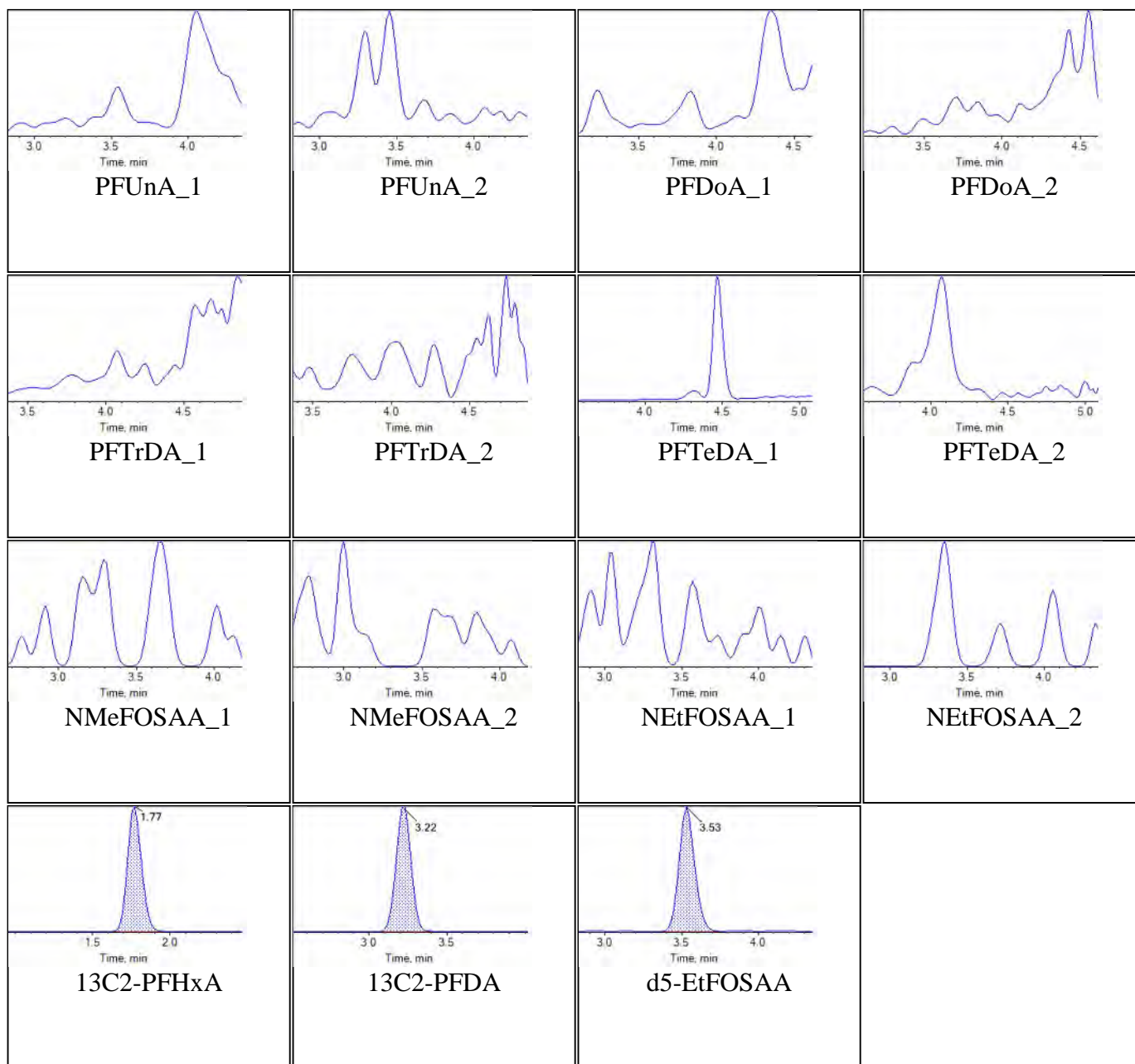
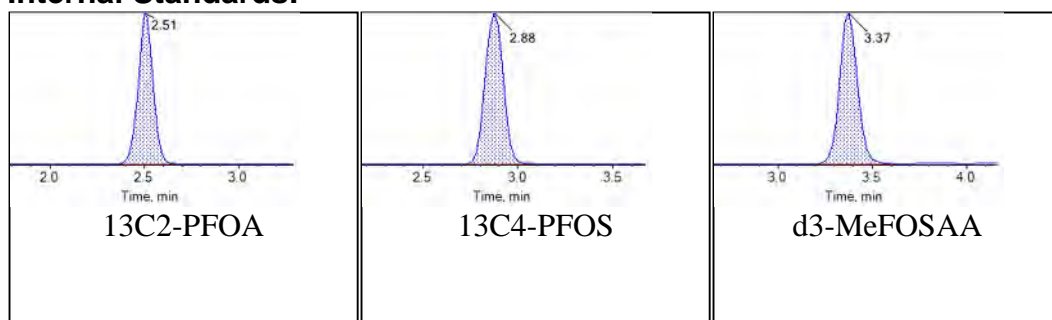
Sample Name	J6274-FS1(0)	Injection Vial	22
Sample ID	NAWC-053018-FRB-231	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:13:16	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Chromatograms

### Target Analytes:



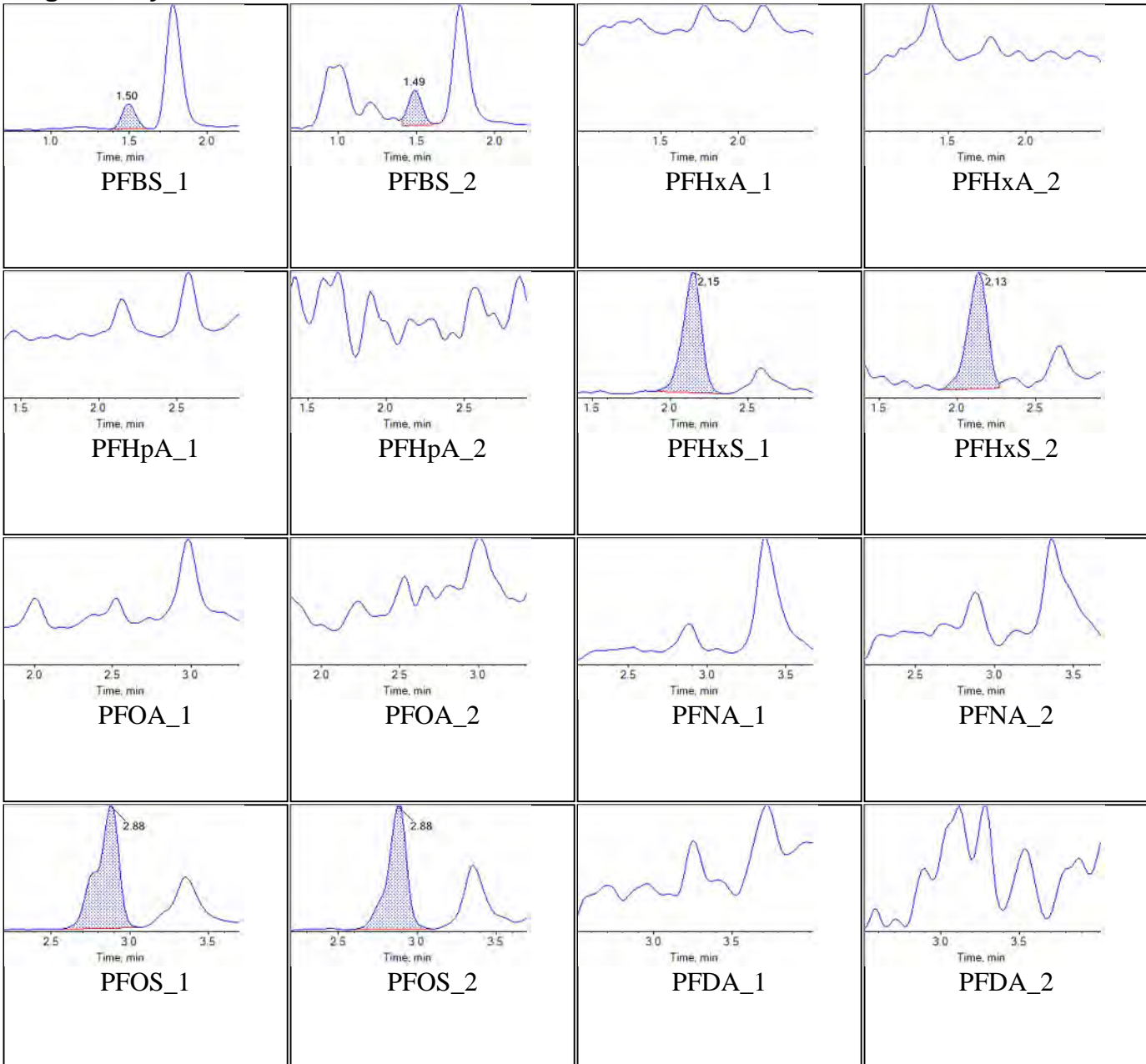


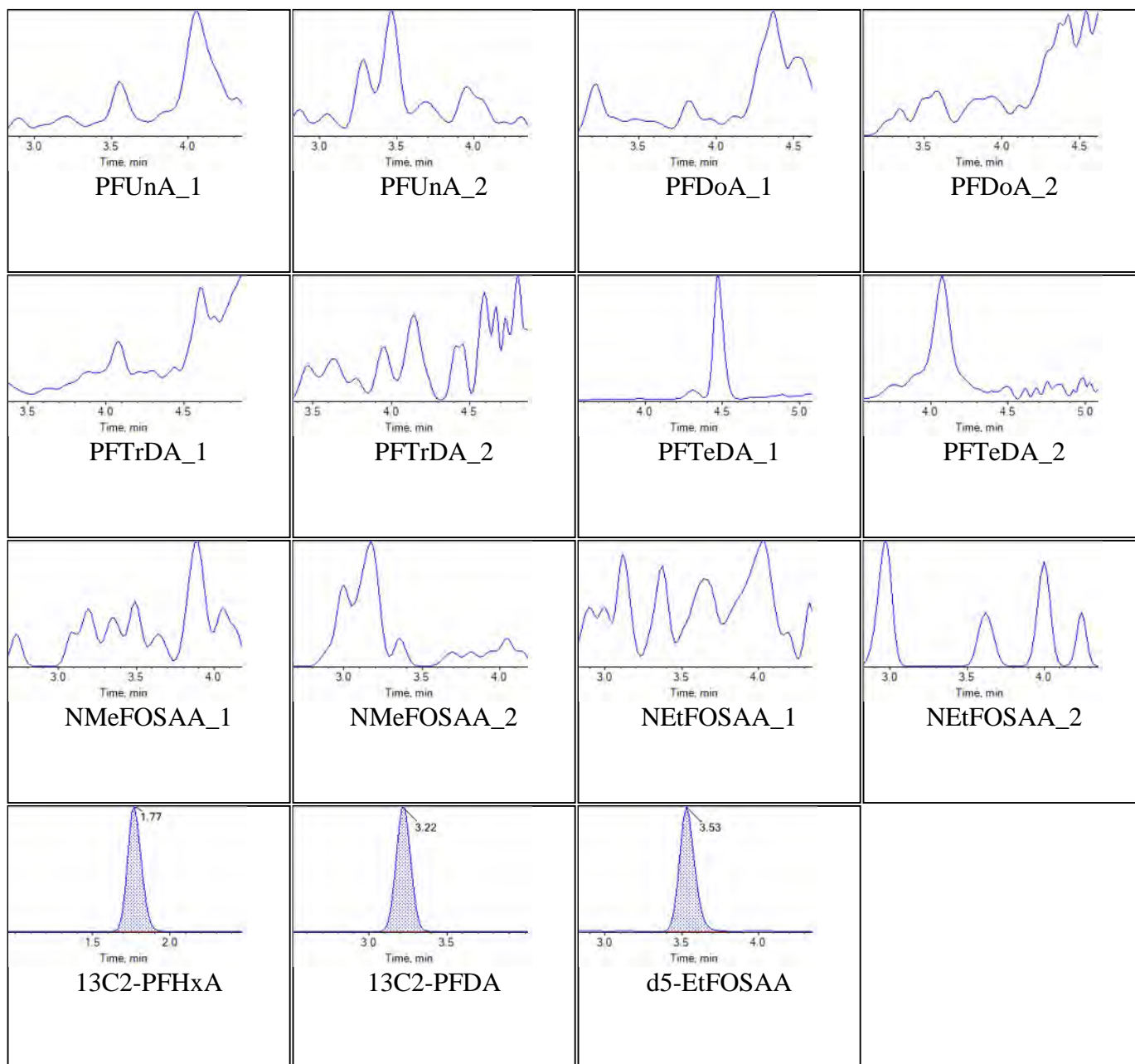
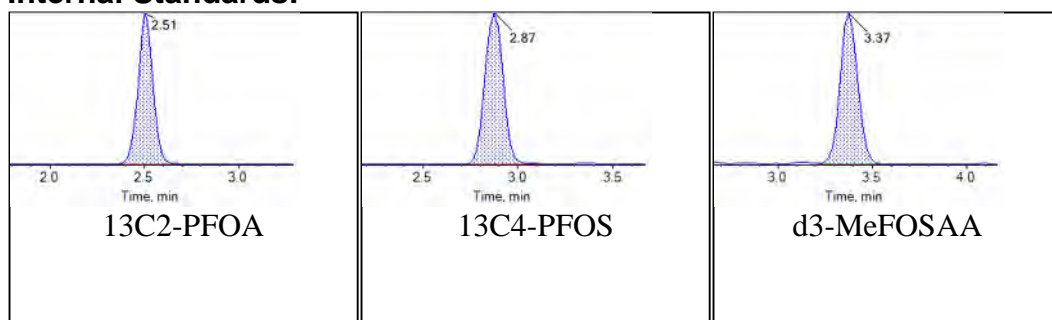
**Internal Standards:**

<b>Sample Name</b>	J6276-FS1(0)	<b>Injection Vial</b>	23
<b>Sample ID</b>	WGNA-053018-FRB-3933	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T12:22:12	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

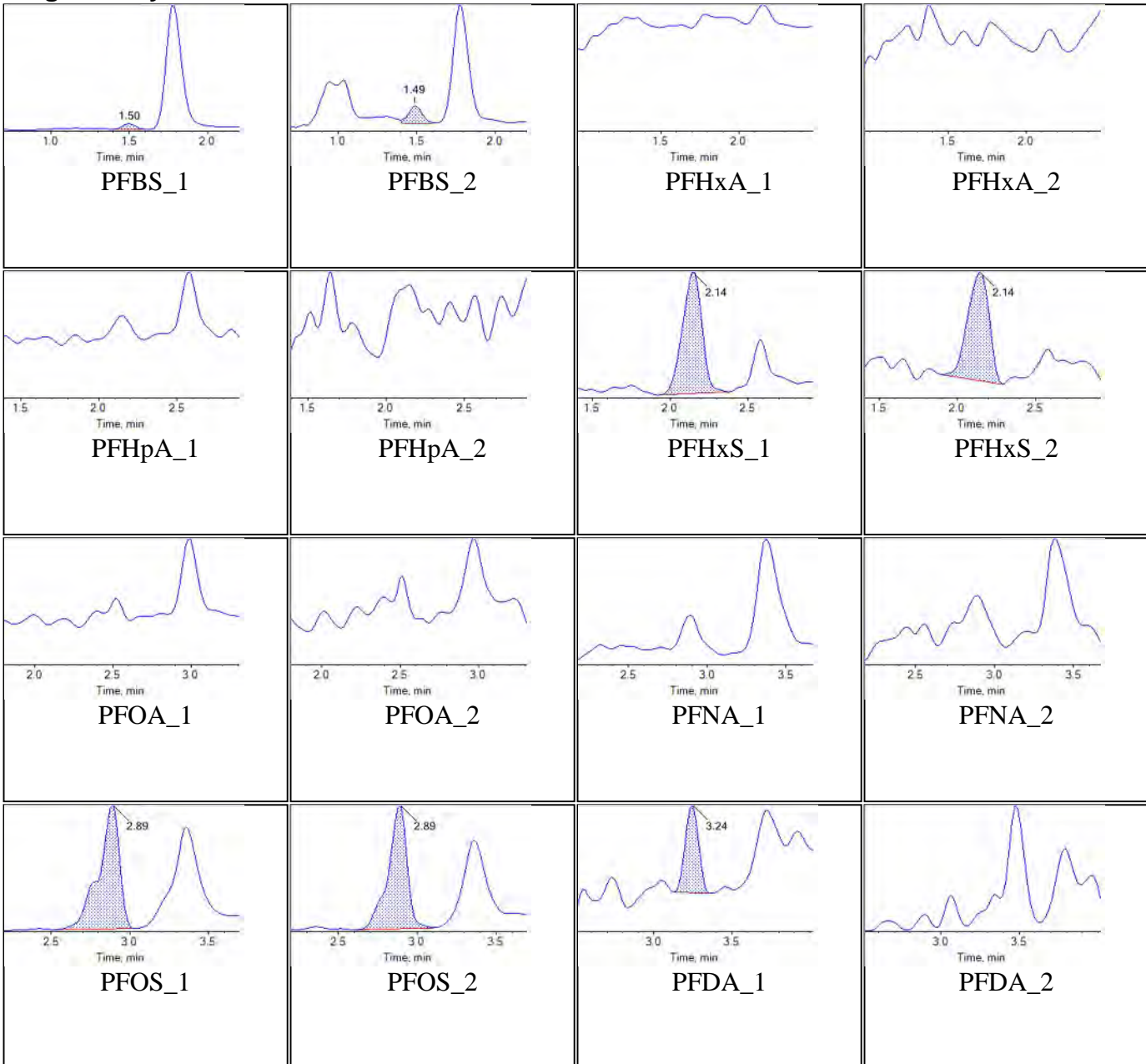


**Internal Standards:**

<b>Sample Name</b>	J6278-FS1(0)	<b>Injection Vial</b>	24
<b>Sample ID</b>	NAWC-053018-FRB-164	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T12:31:07	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

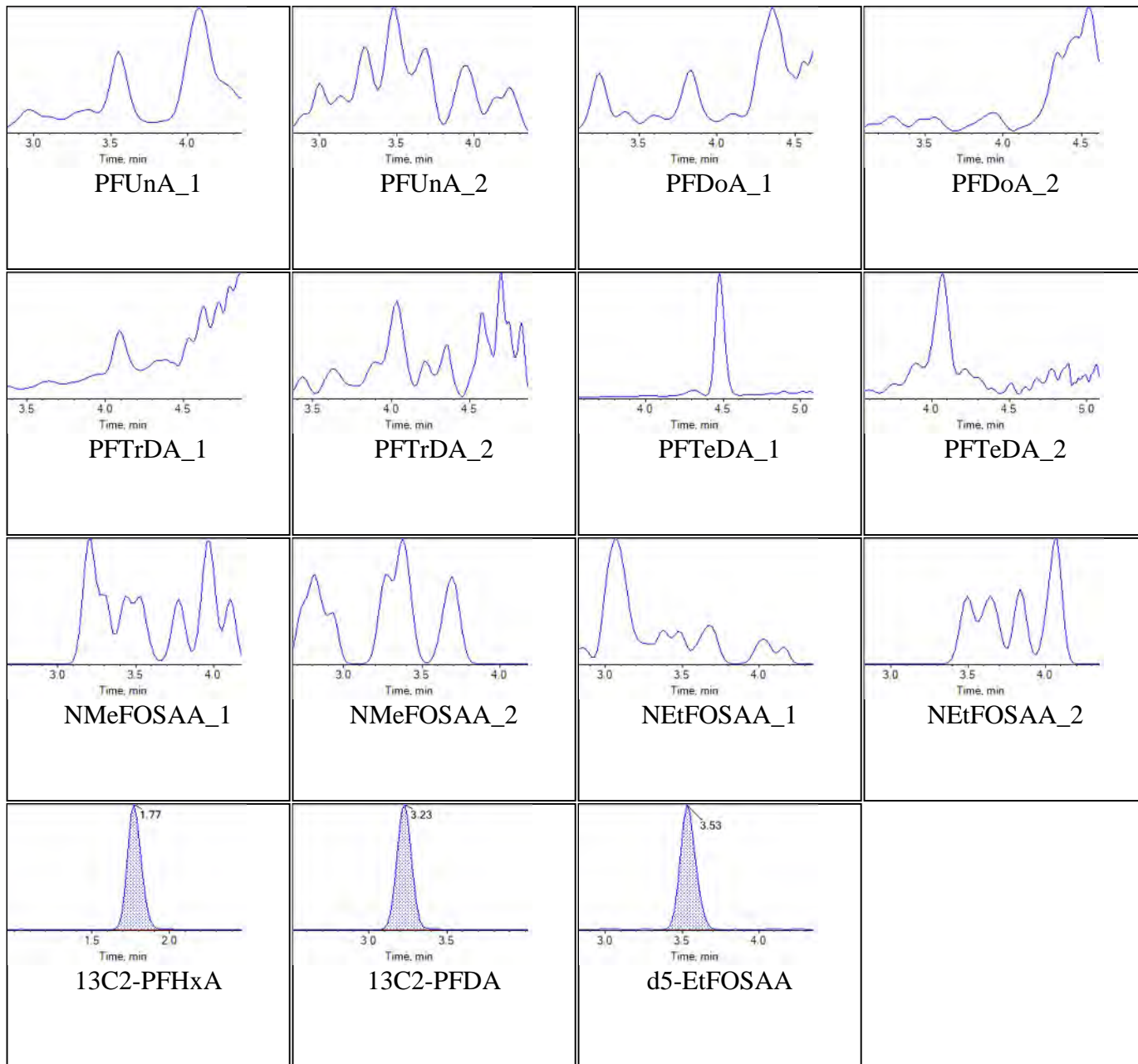
### Target Analytes:



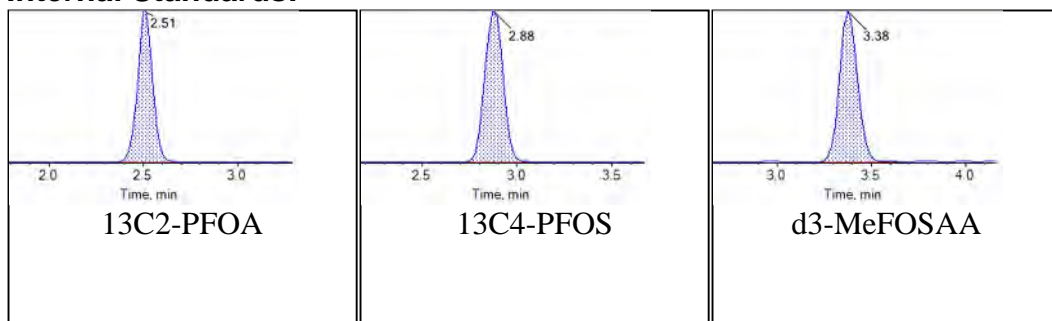


Chromatogram Report

Created with Analyst Reporter  
Printed: 29/06/2018 10:41:23 AM



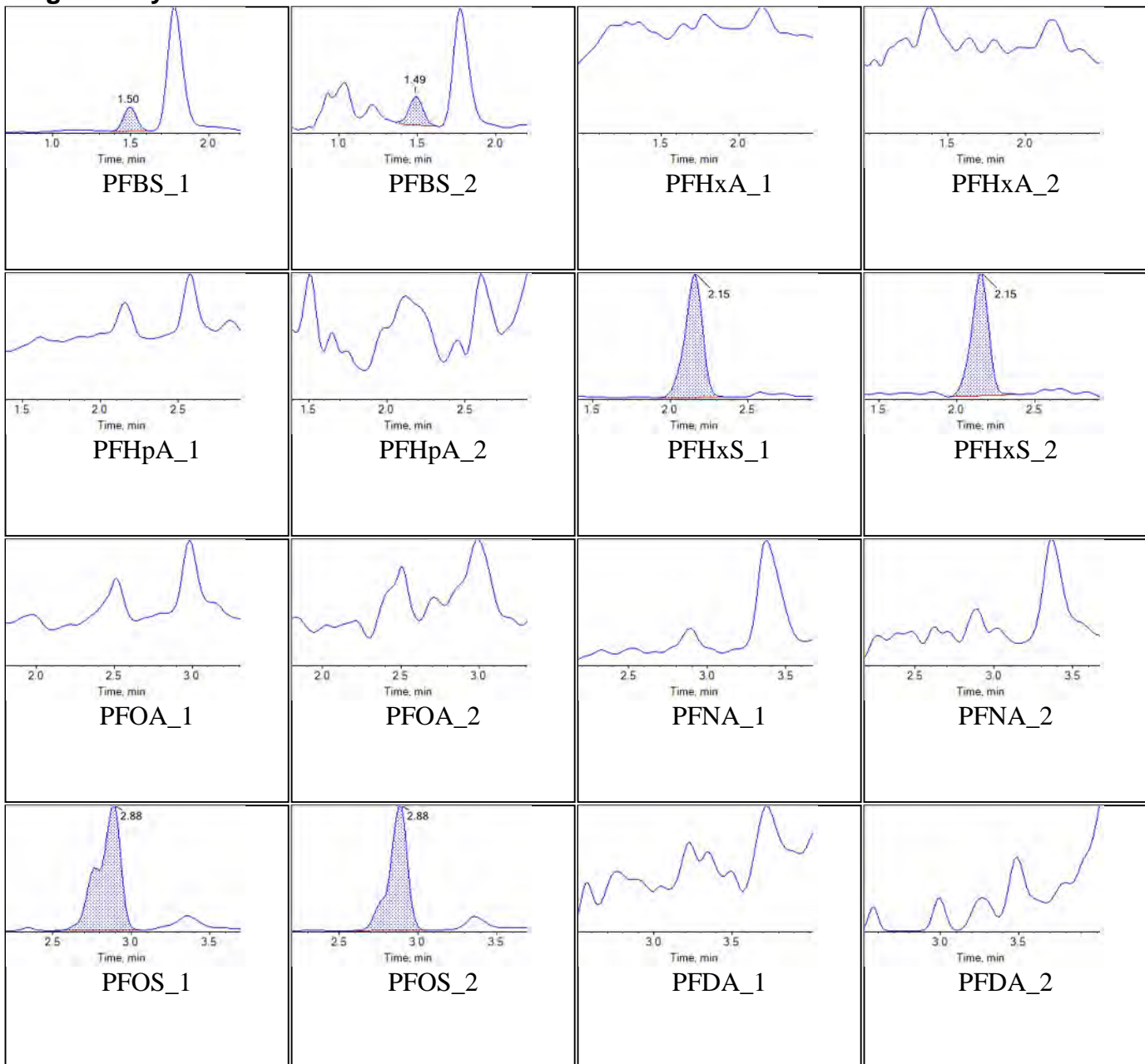
Internal Standards:

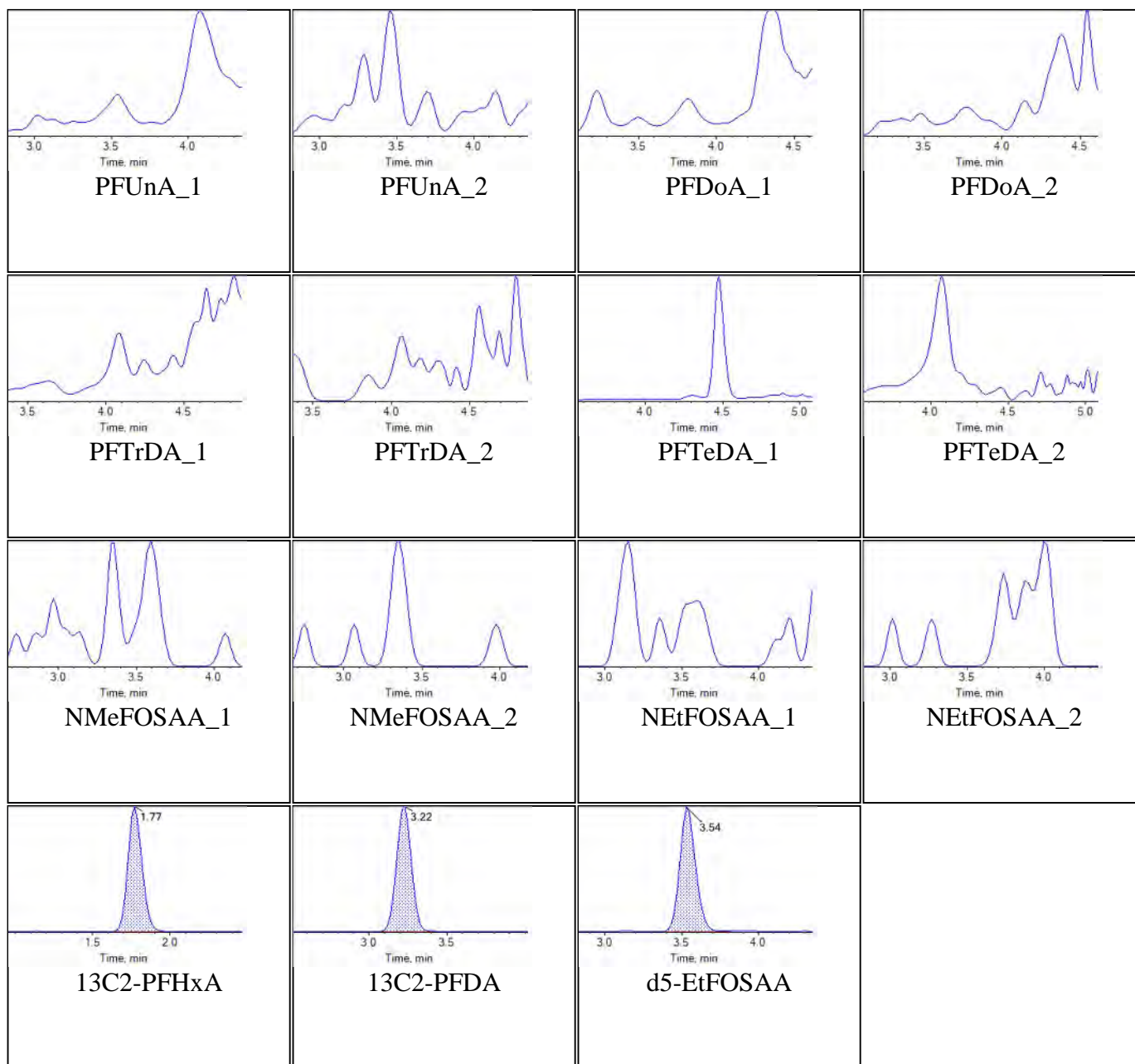
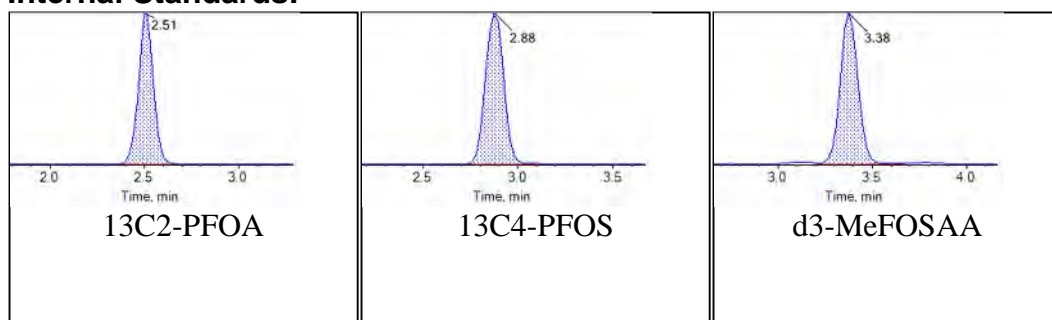


Sample Name	J6280-FS1(0)	Injection Vial	25
Sample ID	NAWC-053018-FRB-292	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:40:02	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Chromatograms

### Target Analytes:

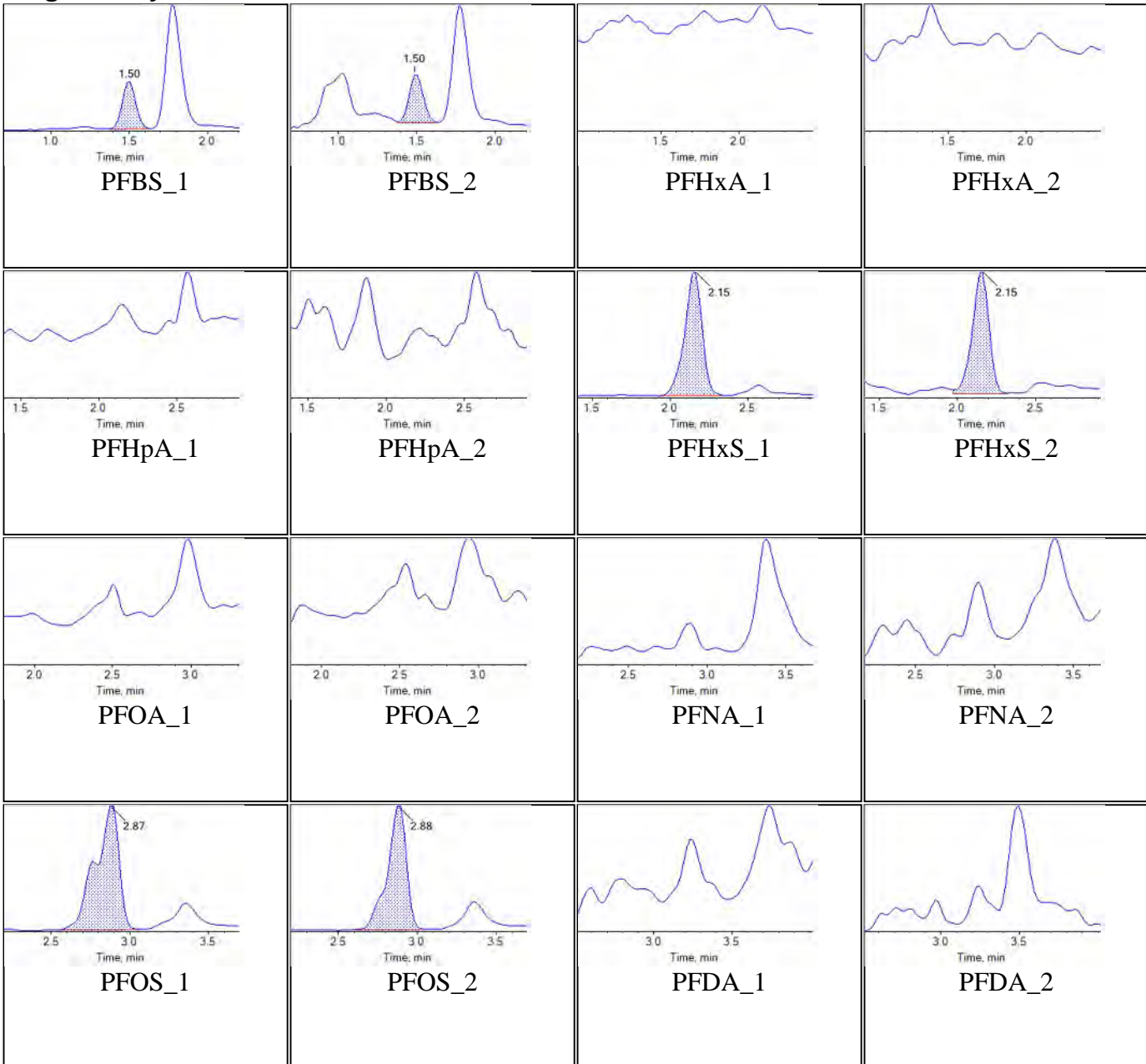


**Internal Standards:**

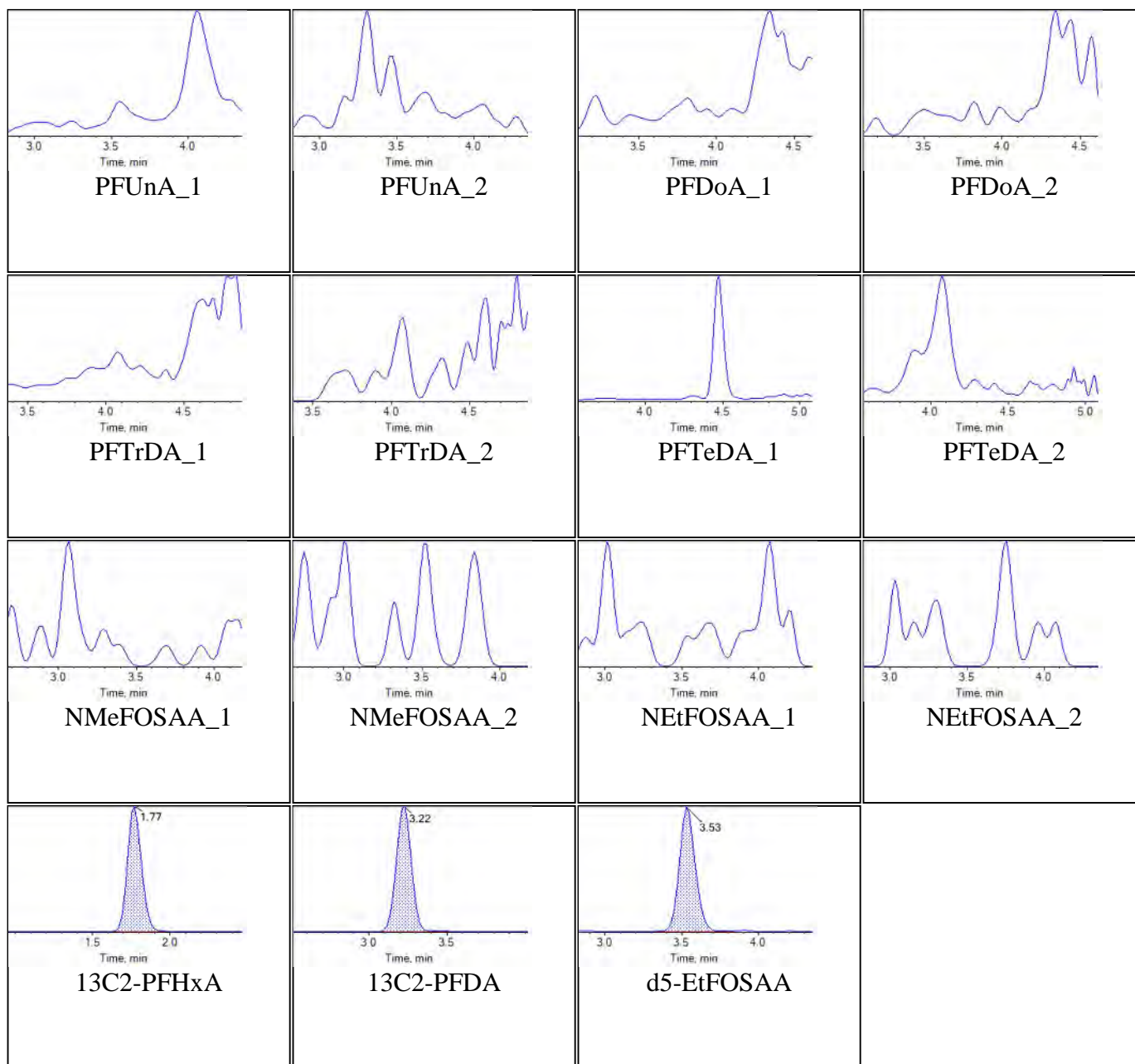
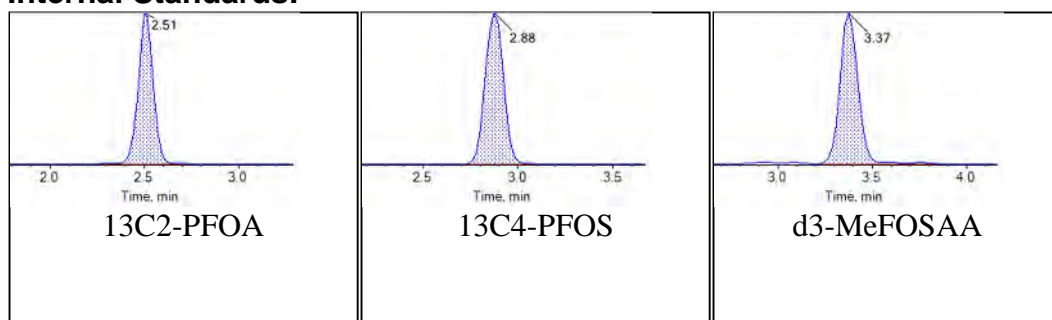
Sample Name	J6282-FS1(0)	Injection Vial	26
Sample ID	NAWC-053018-FRB-271	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:48:57	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Chromatograms

### Target Analytes:



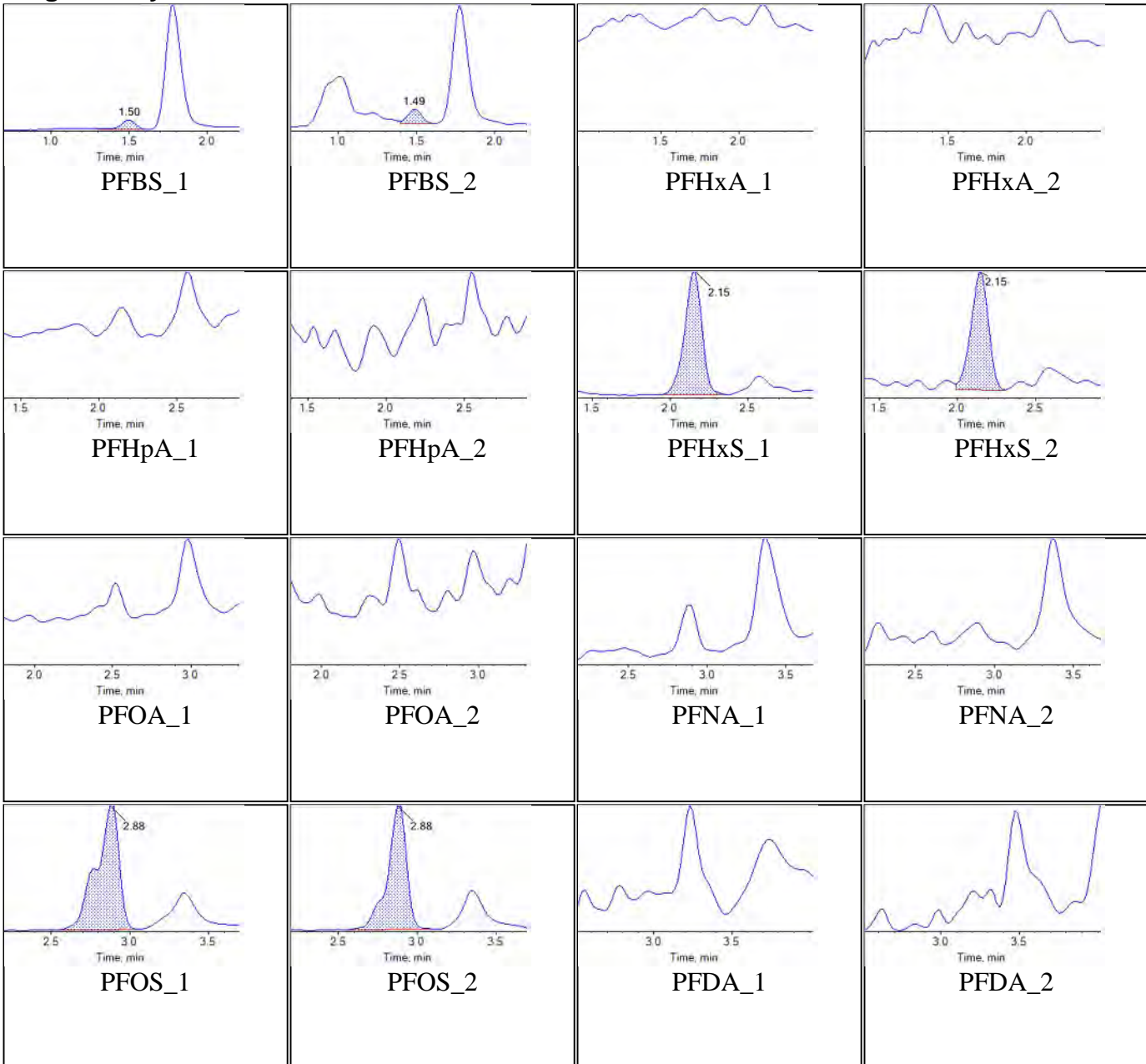


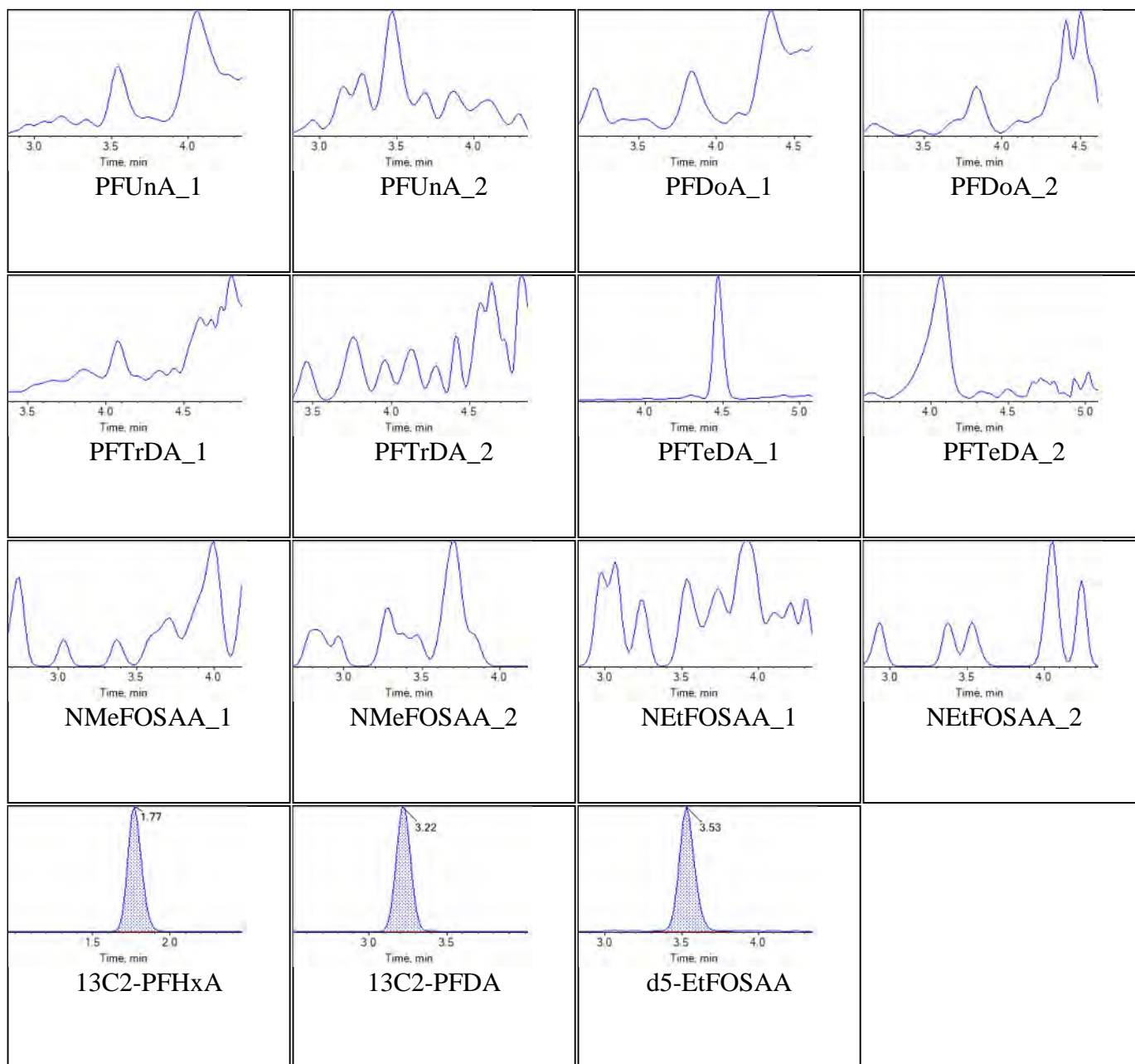
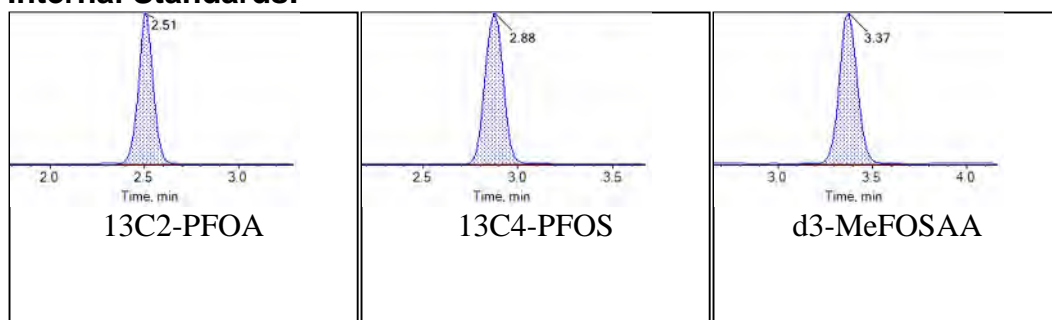
**Internal Standards:**

Sample Name	J6284-FS1(0)	Injection Vial	27
Sample ID	NAWC-053018-FRB-270	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T12:57:53	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Chromatograms

### Target Analytes:

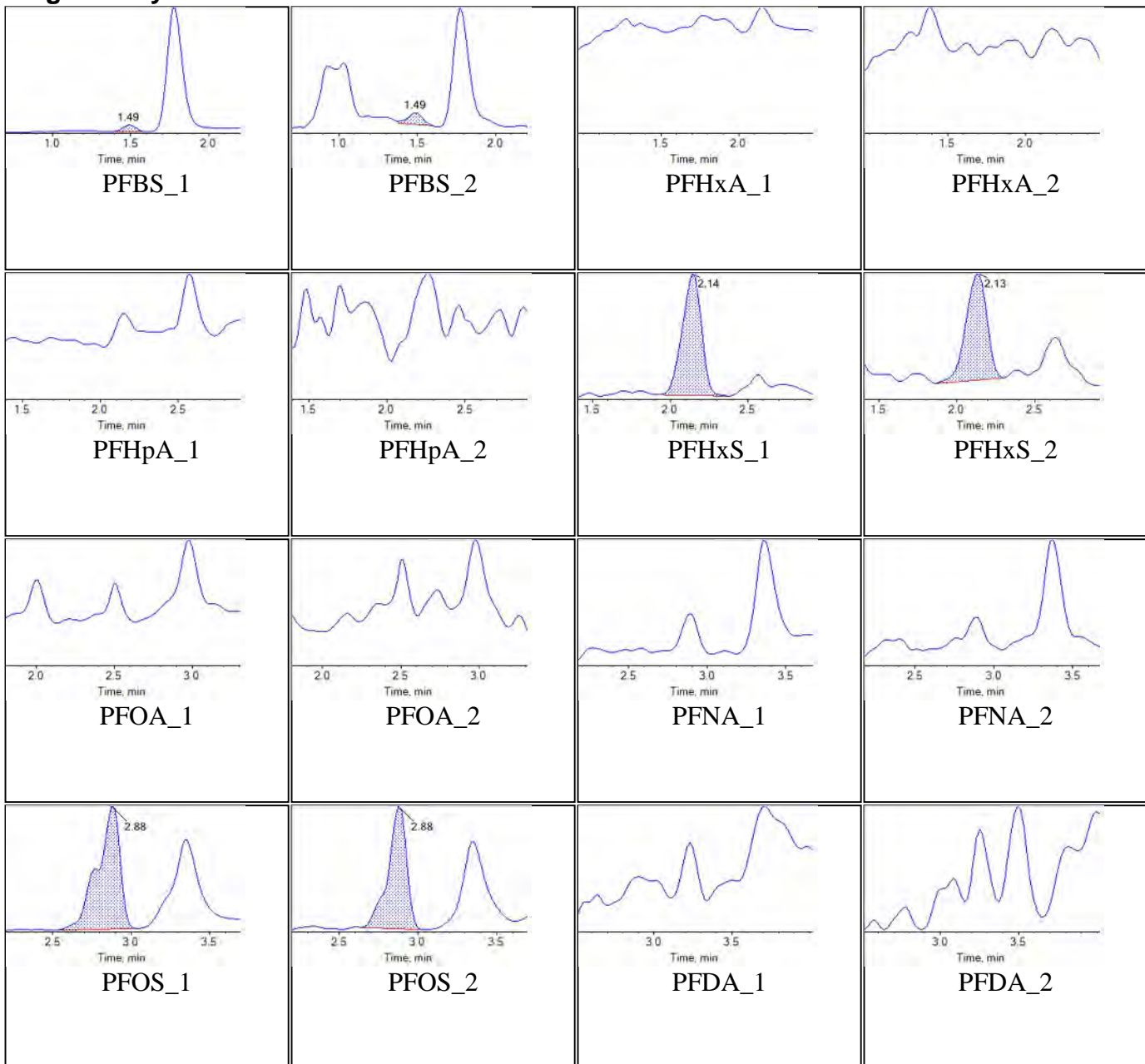


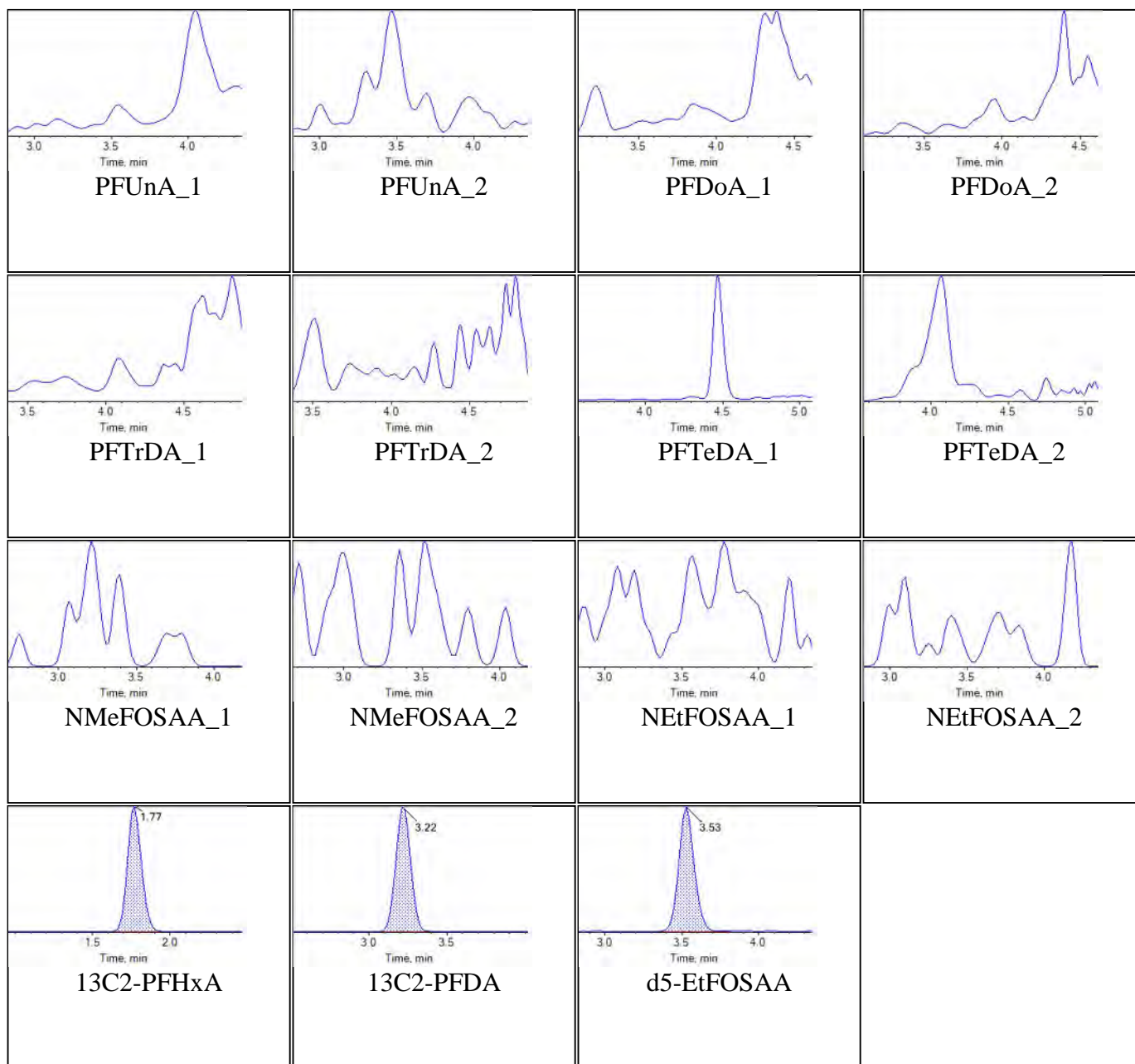
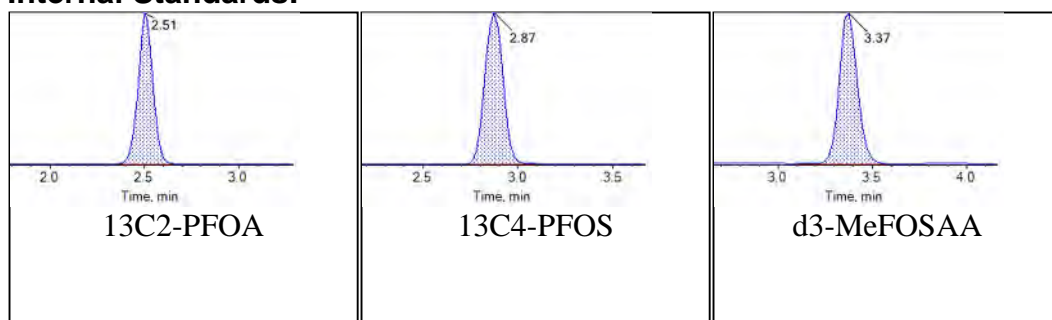
**Internal Standards:**

<b>Sample Name</b>	J6286-FS1(0)	<b>Injection Vial</b>	28
<b>Sample ID</b>	NAWC-053018-FRB-196	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T13:06:48	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

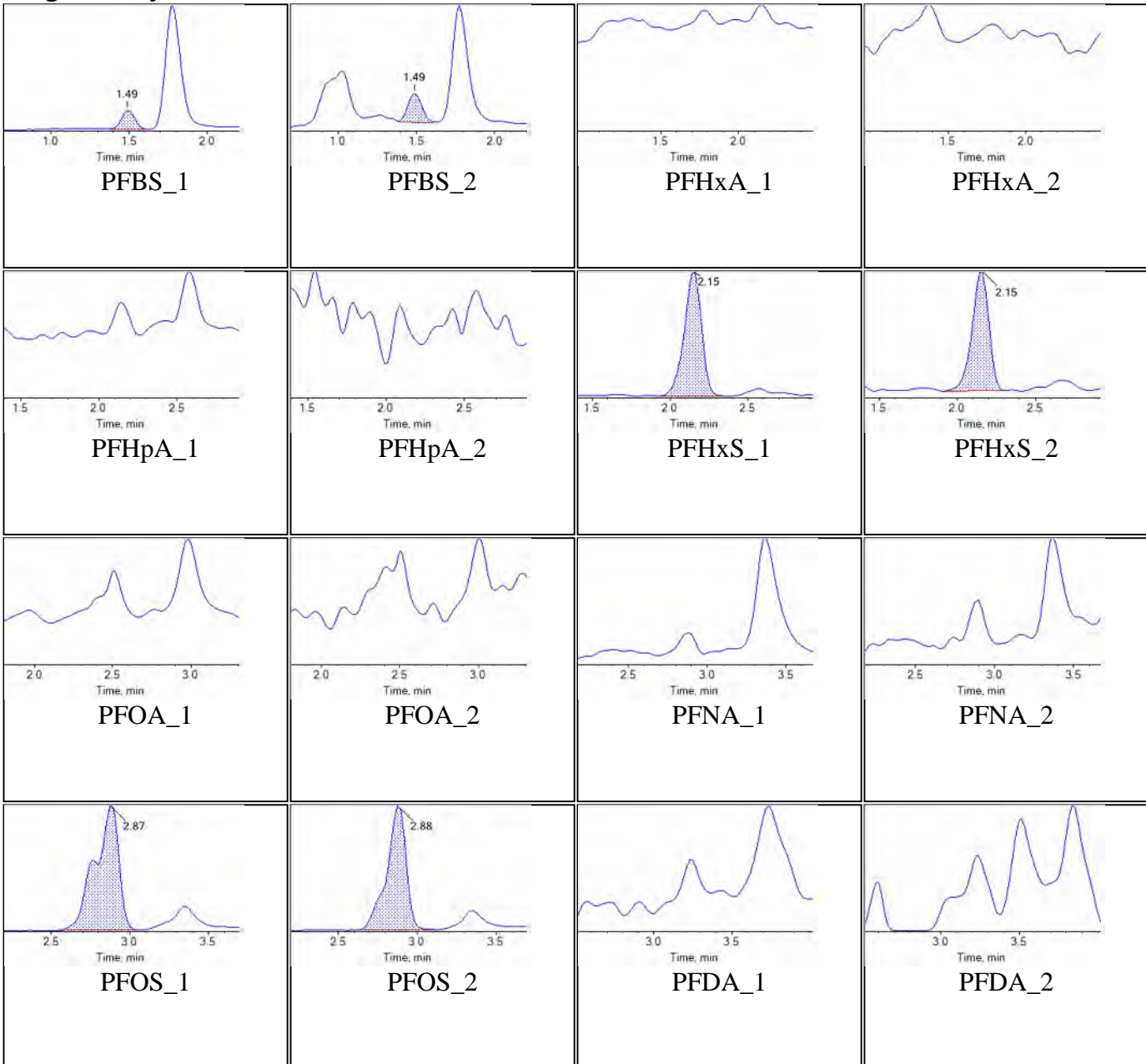


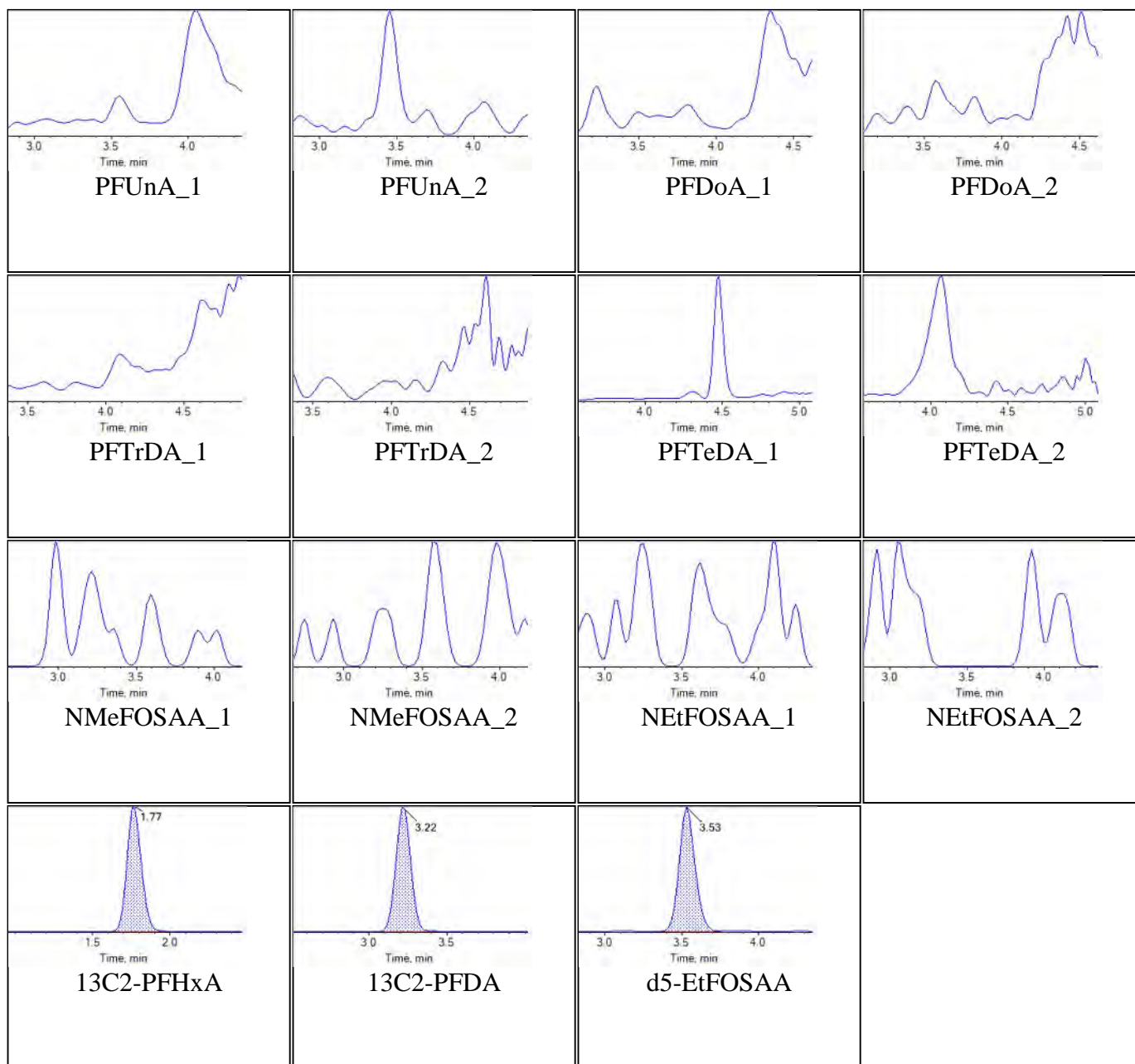
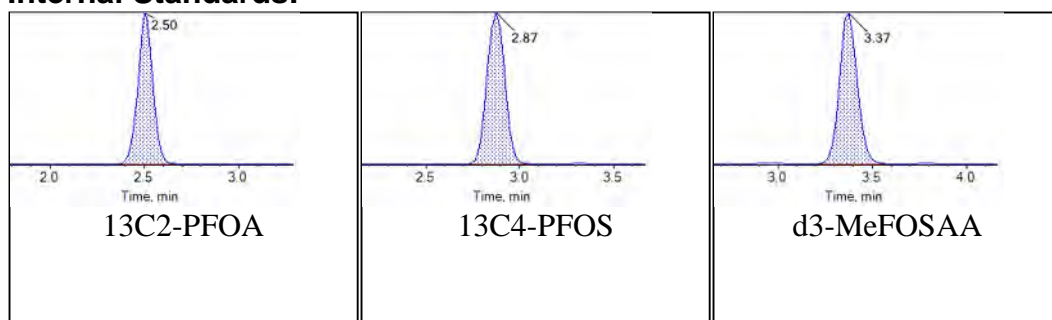
**Internal Standards:**

<b>Sample Name</b>	J6288-FS1(0)	<b>Injection Vial</b>	29
<b>Sample ID</b>	NAWC-053018-FRB-172	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Unknown	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T13:15:44	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:

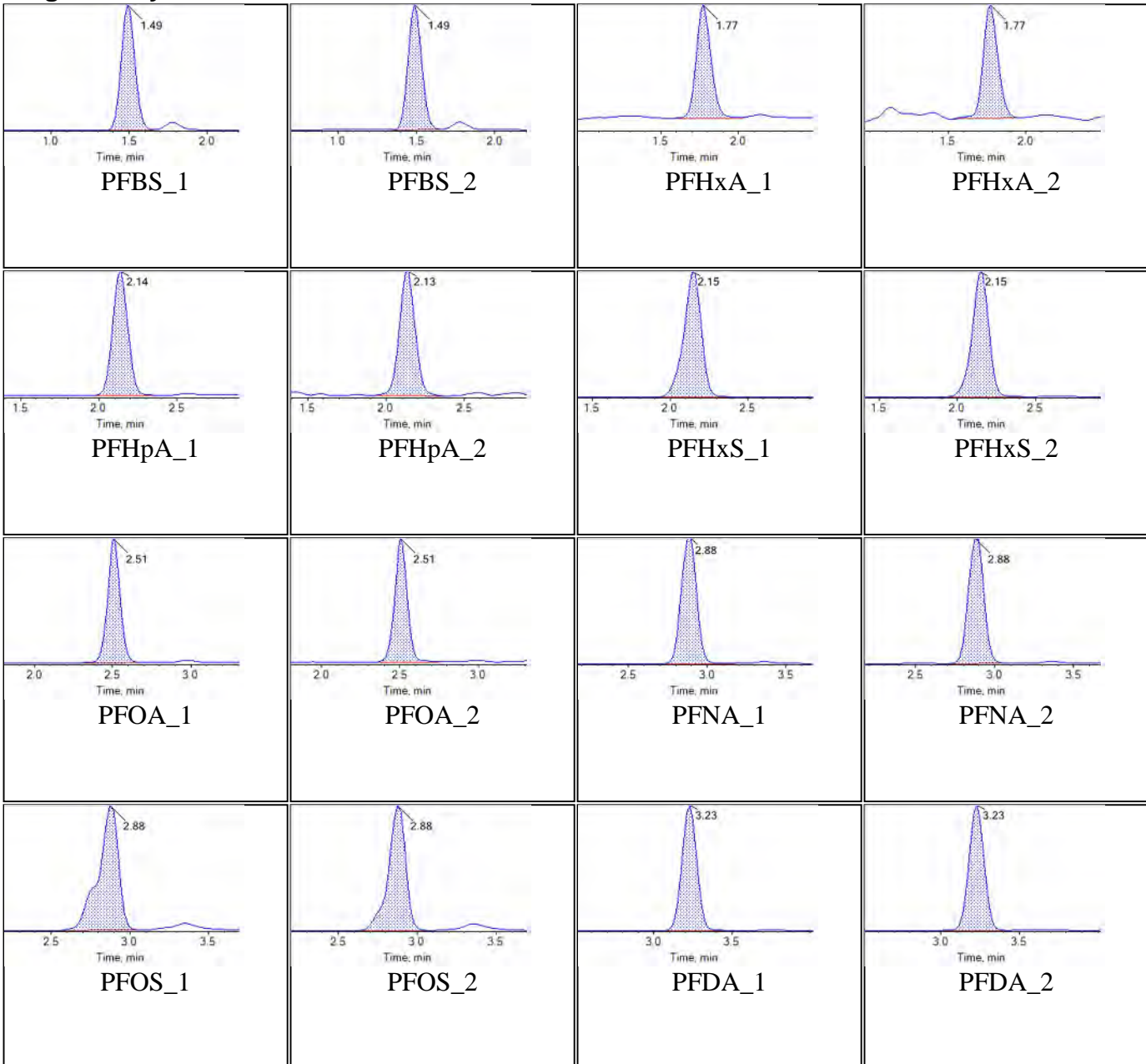


**Internal Standards:**

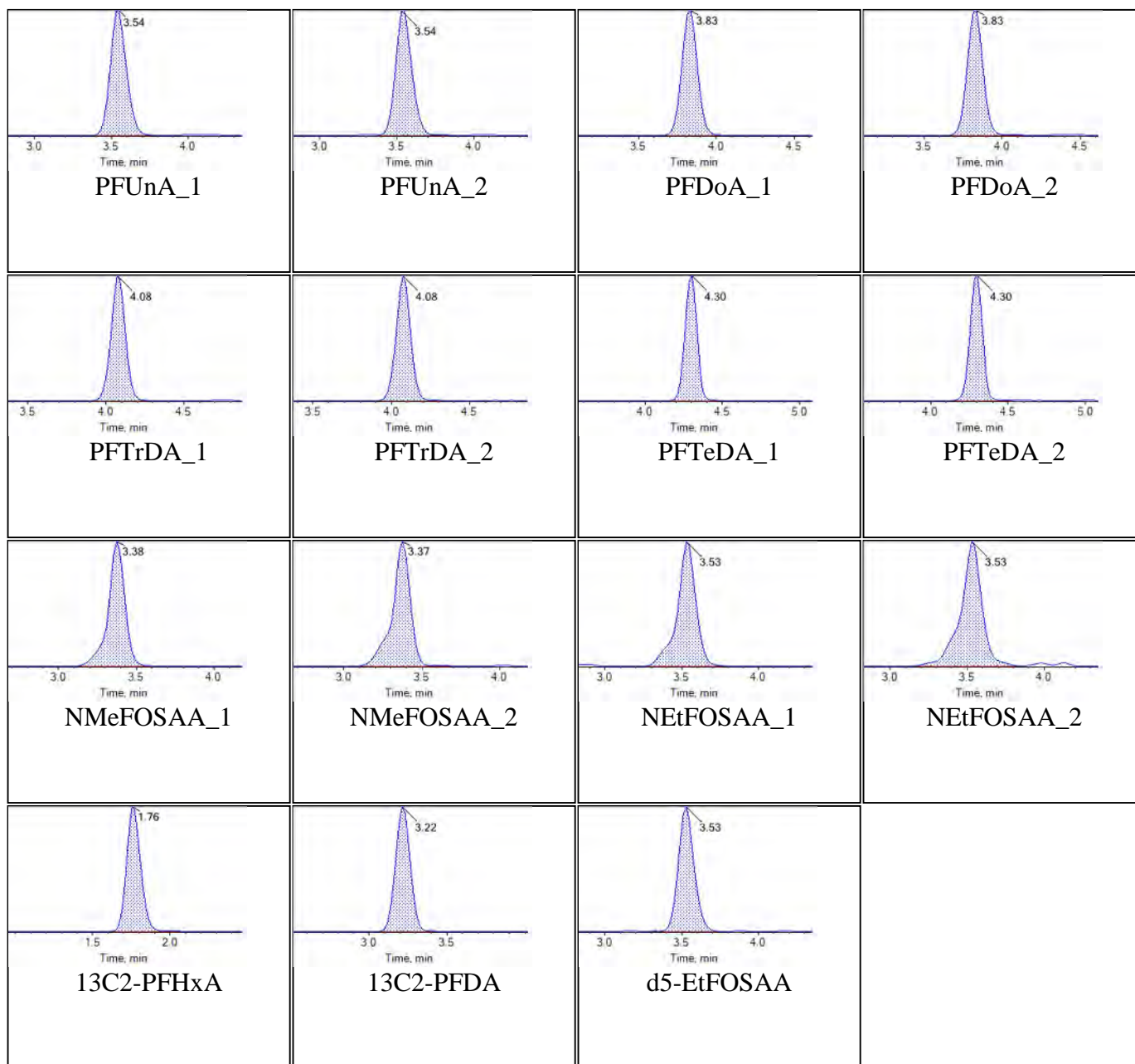
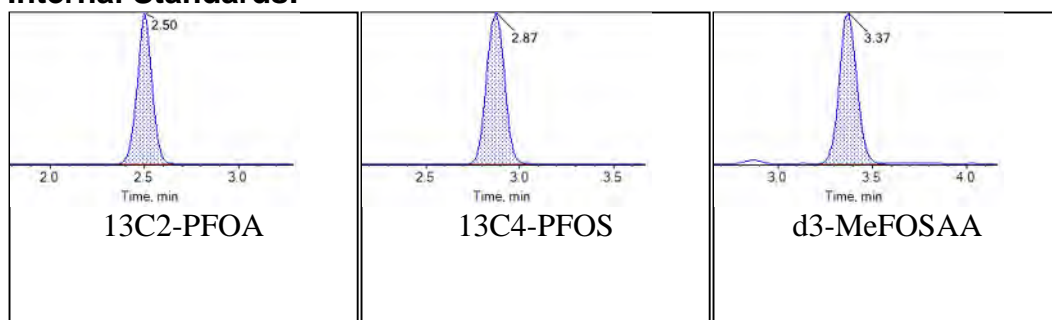
<b>Sample Name</b>	JX72 CCV	<b>Injection Vial</b>	30
<b>Sample ID</b>	CCV	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Quality Control	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-27T13:24:40	<b>Data File</b>	06252018_5-371.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0391
<b>Sample Comment</b>			

## Chromatograms

### Target Analytes:





**Internal Standards:**

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","307-24-4","PFHxA",".440000","ng/L","J",".220000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250000",".000500",".500000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","375-85-9","PFHpA","1.000000","ng/L","U",".340000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250000",".000500","1.000000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","335-67-1","PFOA","1.000000","ng/L","U",".380000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250000",".000500","1.000000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","375-95-1","PFNA","1.000000","ng/L","U",".370000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250000",".000500","1.000000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","335-76-2","PFDA","1.000000","ng/L","U",".390000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250000",".000500","1.000000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","2058-94-8","PFUnA","1.000000","ng/L","U",".380000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250000",".000500","1.000000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","307-55-1","PFDaA","1.000000","ng/L","U",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250000",".000500","1.000000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","72629-94-8","PFTTrDA","1.000000","ng/L","U",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250000",".000500","1.000000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","376-06-7","PFTeDA","1.500000","ng/L","U",".730000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250000",".000500","1.500000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","2355-31-9","NMeFOSAA","1.000000","ng/L","U",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250000",".000500","1.000000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","2991-50-6","NEtFOSAA","1.000000","ng/L","U",".440000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250000",".000500","1.000000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","375-73-5","PFBS",".500000","ng/L","U",".210000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250000",".000500",".500000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","355-46-4","PFHxS","1.000000","ng/L","U",".340000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250000",".000500","1.000000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","1763-23-1","PFOS","1.000000","ng/L","U",".300000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250000",".000500","1.000000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","BDO-2106","13C2-PFHxA",".430000","ng/L","","-99.000000","NA","","SIS","106.00","","-99.000000","NA","YES",".400000","",".250000",".000500",".500000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","BDO-2110","13C2-PFDA",".380000","ng/L","","-99.000000","NA","","SIS","95.00","","-99.000000","NA","YES",".400000","",".250000",".000500",".500000",""

"CR038PB-FS","SOP 5-369","Initial","CR038PB-FS","BNO","BDO-1839","d5-EtFOSAA","1.670000","ng/L","","-99.000000","NA","","SIS","104.00","","-99.000000","NA","YES","1.600000","",".250000",".000500",".500000",""

"CR039LCS-FS","SOP 5-369","Initial","CR039LCS-FS","BNO","307-24-4","PFHxA","37.780000","ng/L","",".220000","MDL","","T","126.00","","2.500000","LOQ","YES","30.000000","",".250000",".000500","1.000000",""

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9","PFHpA","37.370000","ng/L","",".340000","MDL","", "T","125.00","", "2.500000","LOQ","YES","30.000000","", ".2  
50000",".000500","1.000000",""  
"CR039LCS-FS","SOP 5-369","Initial","CR039LCS-FS","BNO","335-67-  
1","PFOA","35.660000","ng/L","", ".380000","MDL","", "T","119.00","", "2.500000","LOQ","YES","30.000000","", ".25  
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"CR039LCS-FS","SOP 5-369","Initial","CR039LCS-FS","BNO","375-95-  
1","PFNA","33.660000","ng/L","", ".370000","MDL","", "T","112.00","", "2.500000","LOQ","YES","30.000000","", ".25  
0000",".000500","1.000000",""  
"CR039LCS-FS","SOP 5-369","Initial","CR039LCS-FS","BNO","335-76-  
2","PFDA","35.150000","ng/L","", ".390000","MDL","", "T","117.00","", "2.500000","LOQ","YES","30.000000","", ".25  
0000",".000500","1.000000",""  
"CR039LCS-FS","SOP 5-369","Initial","CR039LCS-FS","BNO","2058-94-  
8","PFUnA","34.430000","ng/L","", ".380000","MDL","", "T","115.00","", "2.500000","LOQ","YES","30.000000","", ".2  
50000",".000500","1.000000",""  
"CR039LCS-FS","SOP 5-369","Initial","CR039LCS-FS","BNO","307-55-  
1","PFD<sub>o</sub>A","34.480000","ng/L","", ".420000","MDL","", "T","115.00","", "2.500000","LOQ","YES","30.000000","", ".2  
50000",".000500","1.000000",""  
"CR039LCS-FS","SOP 5-369","Initial","CR039LCS-FS","BNO","72629-94-  
8","PFT<sub>r</sub>DA","34.470000","ng/L","", ".420000","MDL","", "T","115.00","", "2.500000","LOQ","YES","30.000000","", ".  
250000",".000500","1.000000",""  
"CR039LCS-FS","SOP 5-369","Initial","CR039LCS-FS","BNO","376-06-  
7","PFT<sub>e</sub>DA","52.570000","ng/L","E",".730000","MDL","", "T","175.00","", "2.500000","LOQ","YES","30.000000","", "  
.250000",".000500","1.500000",""  
"CR039LCS-FS","SOP 5-369","Initial","CR039LCS-FS","BNO","2355-31-  
9","NMeFOSAA","33.790000","ng/L","", ".420000","MDL","", "T","113.00","", "2.500000","LOQ","YES","30.000000"  
", ".250000",".000500","1.000000",""  
"CR039LCS-FS","SOP 5-369","Initial","CR039LCS-FS","BNO","2991-50-  
6","NEtFOSAA","37.370000","ng/L","", ".440000","MDL","", "T","125.00","", "2.500000","LOQ","YES","30.000000","  
", ".250000",".000500","1.000000",""  
"CR039LCS-FS","SOP 5-369","Initial","CR039LCS-FS","BNO","375-73-  
5","PFBS","31.670000","ng/L","", ".210000","MDL","", "T","119.00","", "2.500000","LOQ","YES","26.550000","", ".25  
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4","PFH<sub>x</sub>S","32.920000","ng/L","", ".340000","MDL","", "T","116.00","", "2.500000","LOQ","YES","28.350000","", ".2  
50000",".000500","1.000000",""  
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PFH<sub>x</sub>A",".420000","ng/L","", "-99.000000","NA","", "SIS","105.00","", "-99.000000","NA","YES",".400000","", ".2500  
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PFDA",".400000","ng/L","", "-99.000000","NA","", "SIS","100.00","", "-99.000000","NA","YES",".400000","", ".25000  
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EtFOSAA","1.330000","ng/L","", "-99.000000","NA","", "SIS","83.00","", "-99.000000","NA","YES","1.600000","", ".2  
50000",".000500",".500000",""  
"WGNA-052918-FRB-3124","SOP 5-369","Initial","J6259-FS1","BNO","307-24-  
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0",".000500",".500000",""  
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9","PFHpA","1.000000","ng/L","UT",".340000","MDL","", "T","", "2.500000","LOQ","YES","-99.000000","", ".2500

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"WGNA-052918-FRB-3124","SOP 5-369","Initial","J6259-FS1","BNO","2355-31-9","NMeFOSAA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".250000",".000500","1.000000", ""  
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"WGNA-052918-FRB-3124","SOP 5-369","Initial","J6259-FS1","BNO","375-73-5","PFBS",".500000","ng/L","UT",".210000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".250000",".000500",".500000", ""  
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"WGNA-052918-FRB-3124","SOP 5-369","Initial","J6259-FS1","BNO","BDO-2110","13C2-PFDA",".390000","ng/L","","-99.000000","NA","","SIS","98.00","","-99.000000","NA","YES",".400000","",".250000",".000500",".500000", ""  
"WGNA-052918-FRB-3124","SOP 5-369","Initial","J6259-FS1","BNO","BDO-1839","d5-EtFOSAA","1.500000","ng/L","","-99.000000","NA","","SIS","93.00","","-99.000000","NA","YES","1.600000","",".250000",".000500",".500000", ""  
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0",".000500","1.000000",""  
"WGNA-052918-FRB-3493","SOP 5-369","Initial","J6261-FS1","BNO","375-95-1","PFNA","1.000000","ng/L","UT",".370000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500","1.000000",""  
"WGNA-052918-FRB-3493","SOP 5-369","Initial","J6261-FS1","BNO","335-76-2","PFDA","1.000000","ng/L","UT",".390000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500","1.000000",""  
"WGNA-052918-FRB-3493","SOP 5-369","Initial","J6261-FS1","BNO","2058-94-8","PFUnA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500","1.000000",""  
"WGNA-052918-FRB-3493","SOP 5-369","Initial","J6261-FS1","BNO","307-55-1","PFDoA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500","1.000000",""  
"WGNA-052918-FRB-3493","SOP 5-369","Initial","J6261-FS1","BNO","72629-94-8","PFTTrDA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500","1.000000",""  
"WGNA-052918-FRB-3493","SOP 5-369","Initial","J6261-FS1","BNO","376-06-7","PFTeDA","1.500000","ng/L","UT",".730000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500","1.500000",""  
"WGNA-052918-FRB-3493","SOP 5-369","Initial","J6261-FS1","BNO","2355-31-9","NMeFOSAA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500","1.000000",""  
"WGNA-052918-FRB-3493","SOP 5-369","Initial","J6261-FS1","BNO","2991-50-6","NEtFOSAA","1.000000","ng/L","UT",".440000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500","1.000000",""  
"WGNA-052918-FRB-3493","SOP 5-369","Initial","J6261-FS1","BNO","375-73-5","PFBS",".500000","ng/L","UT",".210000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500",".500000",""  
"WGNA-052918-FRB-3493","SOP 5-369","Initial","J6261-FS1","BNO","355-46-4","PFHxS","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500","1.000000",""  
"WGNA-052918-FRB-3493","SOP 5-369","Initial","J6261-FS1","BNO","1763-23-1","PFOS",".460000","ng/L","JT",".300000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500","1.000000",""  
"WGNA-052918-FRB-3493","SOP 5-369","Initial","J6261-FS1","BNO","BDO-2106","13C2-PFHxA",".460000","ng/L","","-99.000000","NA","","SIS","119.00","","-99.000000","NA","YES",".380000","",".260000",".000500",".500000",""  
"WGNA-052918-FRB-3493","SOP 5-369","Initial","J6261-FS1","BNO","BDO-2110","13C2-PFDA",".380000","ng/L","","-99.000000","NA","","SIS","100.00","","-99.000000","NA","YES",".380000","",".260000",".000500",".500000",""  
"WGNA-052918-FRB-3493","SOP 5-369","Initial","J6261-FS1","BNO","BDO-1839","d5-EtFOSAA","1.510000","ng/L","","-99.000000","NA","","SIS","98.00","","-99.000000","NA","YES","1.540000","",".260000",".000500",".500000",""  
"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","307-24-4","PFHxA",".500000","ng/L","UT",".220000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".265000",".000500",".500000",""  
"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","375-85-9","PFHpA","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".265000",".000500","1.000000",""  
"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","335-67-1","PFOA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".265000",".000500","1.000000",""  
"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","375-95-1","PFNA","1.000000","ng/L","UT",".370000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".265000",".000500","1.000000",""

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"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","335-76-  
2","PFDA","1.000000","ng/L","UT",".390000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".26500  
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"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","2058-94-  
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"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","307-55-  
1","PFDoA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".2650  
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"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","72629-94-  
8","PFTTrDA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".265  
000",".000500","1.000000",""  
"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","376-06-  
7","PFTeDA","1.500000","ng/L","UT",".730000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".265  
000",".000500","1.500000",""  
"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","2355-31-  
9","NMeFOSAA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","","  
.265000",".000500","1.000000",""  
"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","2991-50-  
6","NEtFOSAA","1.000000","ng/L","UT",".440000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".  
265000",".000500","1.000000",""  
"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","375-73-  
5","PFBS",".500000","ng/L","UT",".210000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".265000  
",".000500",".500000",""  
"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","355-46-  
4","PFHxS","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".2650  
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"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","1763-23-  
1","PFOS","1.000000","ng/L","UT",".300000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".26500  
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"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","BDO-2106","13C2-  
PFHxA",".430000","ng/L","","-99.000000","NA","","SIS","115.00","","-99.000000","NA","YES",".380000","",".2650  
00",".000500",".500000",""  
"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","BDO-2110","13C2-  
PFDA",".370000","ng/L","","-99.000000","NA","","SIS","98.00","","-99.000000","NA","YES",".380000","",".265000"  
",".000500",".500000",""  
"WGNA-052918-FRB-3882","SOP 5-369","Initial","J6263-FS1","BNO","BDO-1839","d5-  
EtFOSAA","1.590000","ng/L","","-99.000000","NA","","SIS","105.00","","-99.000000","NA","YES","1.510000","",".  
265000",".000500",".500000",""  
"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","307-24-  
4","PFHxA",".500000","ng/L","UT",".220000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".27000  
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"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","375-85-  
9","PFHpA","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".2700  
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"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","335-67-  
1","PFOA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".27000  
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"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","375-95-  
1","PFNA","1.000000","ng/L","UT",".370000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".27000  
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"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","335-76-  
2","PFDA","1.000000","ng/L","UT",".390000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".27000

0",".000500","1.000000",""  
"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","2058-94-8","PFUnA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000",""  
"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","307-55-1","PFDaA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000",""  
"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","72629-94-8","PFTDA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000",""  
"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","376-06-7","PFTeDA","1.500000","ng/L","UT",".730000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.500000",""  
"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","2355-31-9","NMeFOSAA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000",""  
"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","2991-50-6","NEtFOSAA","1.000000","ng/L","UT",".440000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000",""  
"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","375-73-5","PFBS",".500000","ng/L","UT",".210000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500",".500000",""  
"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","355-46-4","PFHxS","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000",""  
"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","1763-23-1","PFOS",".350000","ng/L","JT",".300000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000",""  
"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","BDO-2106","13C2-PFHxA",".410000","ng/L","","-99.000000","NA","","SIS","112.00","","-99.000000","NA","YES",".370000","",".270000",".000500",".500000",""  
"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","BDO-2110","13C2-PFDA",".380000","ng/L","","-99.000000","NA","","SIS","103.00","","-99.000000","NA","YES",".370000","",".270000",".000500",".500000",""  
"WGNA-052918-FRB-3978","SOP 5-369","Initial","J6265-FS1","BNO","BDO-1839","d5-EtFOSAA","1.610000","ng/L","","-99.000000","NA","","SIS","109.00","","-99.000000","NA","YES","1.480000","",".270000",".000500",".500000",""  
"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","307-24-4","PFHxA",".500000","ng/L","UT",".220000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500",".500000",""  
"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","375-85-9","PFHpA","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500","1.000000",""  
"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","335-67-1","PFOA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500","1.000000",""  
"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","375-95-1","PFNA","1.000000","ng/L","UT",".370000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500","1.000000",""  
"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","335-76-2","PFDA","1.000000","ng/L","UT",".390000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500","1.000000",""  
"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","2058-94-8","PFUnA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".260000",".000500","1.000000",""

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1","PFD<sub>o</sub>A","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".2600  
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"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","72629-94-  
8","PFT<sub>r</sub>DA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".260  
000",".000500","1.000000",""  
"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","376-06-  
7","PFT<sub>e</sub>DA","1.500000","ng/L","UT",".730000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".260  
000",".000500","1.500000",""  
"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","2355-31-  
9","NMeFOSAA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","","  
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"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","2991-50-  
6","NEtFOSAA","1.000000","ng/L","UT",".440000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".  
260000",".000500","1.000000",""  
"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","375-73-  
5","PFBS",".500000","ng/L","UT",".210000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".260000  
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"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","355-46-  
4","PFH<sub>x</sub>S","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".2600  
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"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","1763-23-  
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"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","BDO-2106","13C2-  
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"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","BDO-2110","13C2-  
PFDA",".400000","ng/L","","-99.000000","NA","","SIS","103.00","","-99.000000","NA","YES",".380000","",".26000  
0",".000500",".500000",""  
"NAWC-052918-FRB-161","SOP 5-369","Initial","J6267-FS1","BNO","BDO-1839","d5-  
EtFOSAA","1.360000","ng/L","","-99.000000","NA","","SIS","88.00","","-99.000000","NA","YES","1.540000","",".2  
60000",".000500",".500000",""  
"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","307-24-  
4","PFH<sub>x</sub>A",".500000","ng/L","UT",".220000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".25500  
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9","PFH<sub>p</sub>A","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".2550  
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"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","335-67-  
1","PFOA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".25500  
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"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","375-95-  
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"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","335-76-  
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0",".000500","1.000000",""  
"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","2058-94-  
8","PFUnA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".2550  
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"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","307-55-  
1","PFD<sub>o</sub>A","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".2550



00",".000500","1.000000",""  
"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","72629-94-8","PFTTrDA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".255000",".000500","1.000000",""  
"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","376-06-7","PFTeDA","1.500000","ng/L","UT",".730000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".255000",".000500","1.500000",""  
"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","2355-31-9","NMeFOSAA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".255000",".000500","1.000000",""  
"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","2991-50-6","NEtFOSAA","1.000000","ng/L","UT",".440000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".255000",".000500","1.000000",""  
"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","375-73-5","PFBS",".500000","ng/L","UT",".210000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".255000",".000500",".500000",""  
"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","355-46-4","PFHxS","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".255000",".000500","1.000000",""  
"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","1763-23-1","PFOS","1.000000","ng/L","UT",".300000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".255000",".000500","1.000000",""  
"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","BDO-2106","13C2-PFHxA",".430000","ng/L","","-99.000000","NA","","SIS","109.00","","-99.000000","NA","YES",".390000","",".255000",".000500",".500000",""  
"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","BDO-2110","13C2-PFDA",".420000","ng/L","","-99.000000","NA","","SIS","107.00","","-99.000000","NA","YES",".390000","",".255000",".000500",".500000",""  
"WGNA-053018-FRB-3876","SOP 5-369","Initial","J6271-FS1","BNO","BDO-1839","d5-EtFOSAA","1.660000","ng/L","","-99.000000","NA","","SIS","106.00","","-99.000000","NA","YES","1.570000","",".255000",".000500",".500000",""  
"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","307-24-4","PFHxA",".500000","ng/L","UT",".220000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".270000",".000500",".500000",""  
"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","375-85-9","PFHpA","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".270000",".000500","1.000000",""  
"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","335-67-1","PFOA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".270000",".000500","1.000000",""  
"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","375-95-1","PFNA","1.000000","ng/L","UT",".370000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".270000",".000500","1.000000",""  
"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","335-76-2","PFDA","1.000000","ng/L","UT",".390000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".270000",".000500","1.000000",""  
"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","2058-94-8","PFUnA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".270000",".000500","1.000000",""  
"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","307-55-1","PFD<sub>o</sub>A","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".270000",".000500","1.000000",""  
"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","72629-94-8","PFTTrDA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".270

000",".000500","1.000000",""  
"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","376-06-  
7","PFTeDA","1.500000","ng/L","UT",".730000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".270  
000",".000500","1.500000",""  
"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","2355-31-  
9","NMeFOSAA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","","  
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"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","2991-50-  
6","NEtFOSAA","1.000000","ng/L","UT",".440000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".  
270000",".000500","1.000000",""  
"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","375-73-  
5","PFBS",".500000","ng/L","UT",".210000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".270000  
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"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","355-46-  
4","PFHxS","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".2700  
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"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","1763-23-  
1","PFOS","1.000000","ng/L","UT",".300000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".27000  
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PFHxA",".450000","ng/L","","-99.000000","NA","","SIS","122.00","","-99.000000","NA","YES",".370000","",".2700  
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"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","BDO-2110","13C2-  
PFDA",".430000","ng/L","","-99.000000","NA","","SIS","115.00","","-99.000000","NA","YES",".370000","",".27000  
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"NAWC-053018-FRB-231","SOP 5-369","Initial","J6274-FS1","BNO","BDO-1839","d5-  
EtFOSAA","1.580000","ng/L","","-99.000000","NA","","SIS","106.00","","-99.000000","NA","YES","1.480000","",".  
270000",".000500",".500000",""  
"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","307-24-  
4","PFHxA",".500000","ng/L","UT",".220000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".25000  
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"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","375-85-  
9","PFHpA","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".2500  
00",".000500","1.000000",""  
"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","335-67-  
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0",".000500","1.000000",""  
"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","375-95-  
1","PFNA","1.000000","ng/L","UT",".370000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".25000  
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"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","335-76-  
2","PFDA","1.000000","ng/L","UT",".390000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".25000  
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"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","2058-94-  
8","PFUnA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".2500  
00",".000500","1.000000",""  
"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","307-55-  
1","PFDaA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".2500  
00",".000500","1.000000",""  
"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","72629-94-  
8","PFTTrDA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250  
000",".000500","1.000000",""  
"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","376-06-  
7","PFTeDA","1.500000","ng/L","UT",".730000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".250

000",".000500","1.500000", ""  
"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","2355-31-9","NMeFOSAA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000", "", ".250000", ".000500", "1.000000", ""  
"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","2991-50-6","NEtFOSAA","1.000000","ng/L","UT",".440000","MDL","","T","","","2.500000","LOQ","YES","-99.000000", "", ".250000", ".000500", "1.000000", ""  
"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","375-73-5","PFBS",".500000","ng/L","UT",".210000","MDL","","T","","","2.500000","LOQ","YES","-99.000000", "", ".250000", ".000500", ".500000", ""  
"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","355-46-4","PFHxS","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES","-99.000000", "", ".250000", ".000500", "1.000000", ""  
"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","1763-23-1","PFOS",".540000","ng/L","JT",".300000","MDL","","T","","","2.500000","LOQ","YES","-99.000000", "", ".250000", ".000500", "1.000000", ""  
"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","BDO-2106","13C2-PFHxA",".480000","ng/L", "", "-99.000000","NA", "", "SIS", "120.00", "", "-99.000000","NA","YES", ".400000", "", ".250000", ".000500", ".500000", ""  
"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","BDO-2110","13C2-PFDA",".460000","ng/L", "", "-99.000000","NA", "", "SIS", "116.00", "", "-99.000000","NA","YES", ".400000", "", ".250000", ".000500", ".500000", ""  
"WGNA-053018-FRB-3933","SOP 5-369","Initial","J6276-FS1","BNO","BDO-1839","d5-EtFOSAA","1.760000","ng/L", "", "-99.000000","NA", "", "SIS", "110.00", "", "-99.000000","NA","YES", "1.600000", "", ".250000", ".000500", ".500000", ""  
"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","307-24-4","PFHxA",".500000","ng/L","UT",".220000","MDL","","T","","","2.500000","LOQ","YES","-99.000000", "", ".270000", ".000500", ".500000", ""  
"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","375-85-9","PFHpA","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES","-99.000000", "", ".270000", ".000500", "1.000000", ""  
"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","335-67-1","PFOA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES","-99.000000", "", ".270000", ".000500", "1.000000", ""  
"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","375-95-1","PFNA","1.000000","ng/L","UT",".370000","MDL","","T","","","2.500000","LOQ","YES","-99.000000", "", ".270000", ".000500", "1.000000", ""  
"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","335-76-2","PFDA","1.000000","ng/L","UT",".390000","MDL","","T","","","2.500000","LOQ","YES","-99.000000", "", ".270000", ".000500", "1.000000", ""  
"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","2058-94-8","PFUnA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES","-99.000000", "", ".270000", ".000500", "1.000000", ""  
"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","307-55-1","PFDa","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000", "", ".270000", ".000500", "1.000000", ""  
"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","72629-94-8","PFTTrDA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000", "", ".270000", ".000500", "1.000000", ""  
"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","376-06-7","PFTeDA","1.500000","ng/L","UT",".730000","MDL","","T","","","2.500000","LOQ","YES","-99.000000", "", ".270000", ".000500", "1.500000", ""  
"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","2355-31-9","NMeFOSAA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000", "", "

.270000",".000500","1.000000",""  
"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","2991-50-  
6","NEtFOSAA","1.000000","ng/L","UT",".440000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".270000",".000500","1.000000",""  
"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","375-73-  
5","PFBS",".500000","ng/L","UT",".210000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".270000  
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"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","355-46-  
4","PFHxS","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".2700  
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"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","1763-23-  
1","PFOS","1.000000","ng/L","UT",".300000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".27000  
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"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","BDO-2106","13C2-  
PFHxA",".450000","ng/L","","-99.000000","NA","","SIS","123.00","","-99.000000","NA","YES",".370000","",".2700  
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"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","BDO-2110","13C2-  
PFDA",".380000","ng/L","","-99.000000","NA","","SIS","102.00","","-99.000000","NA","YES",".370000","",".27000  
0",".000500",".500000",""  
"NAWC-053018-FRB-164","SOP 5-369","Initial","J6278-FS1","BNO","BDO-1839","d5-  
EtFOSAA","1.570000","ng/L","","-99.000000","NA","","SIS","106.00","","-99.000000","NA","YES","1.480000","",".27  
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"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","307-24-  
4","PFHxA",".500000","ng/L","UT",".220000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".25500  
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"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","375-85-  
9","PFHpA","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".2550  
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"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","335-67-  
1","PFOA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".25500  
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"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","375-95-  
1","PFNA","1.000000","ng/L","UT",".370000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".25500  
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"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","335-76-  
2","PFDA","1.000000","ng/L","UT",".390000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".25500  
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"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","2058-94-  
8","PFUnA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".2550  
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"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","307-55-  
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"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","72629-94-  
8","PFTTrDA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".255  
000",".000500","1.000000",""  
"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","376-06-  
7","PFTeDA","1.500000","ng/L","UT",".730000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".255  
000",".000500","1.500000",""  
"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","2355-31-  
9","NMeFOSAA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","","  
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"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","2991-50-  
6","NEtFOSAA","1.000000","ng/L","UT",".440000","MDL","","T","","","2.500000","LOQ","YES","-99.000000","",".

255000",".000500","1.000000", ""  
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"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","355-46-4","PFHxS","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".255000",".000500","1.000000", ""  
"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","1763-23-1","PFOS","2.160000","ng/L","JT",".300000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".255000",".000500","1.000000", ""  
"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","BDO-2106","13C2-PFHxA",".410000","ng/L","","-99.000000","NA","","SIS","104.00","","-99.000000","NA","YES",".390000","",".255000",".000500",".500000", ""  
"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","BDO-2110","13C2-PFDA",".400000","ng/L","","-99.000000","NA","","SIS","103.00","","-99.000000","NA","YES",".390000","",".255000",".000500",".500000", ""  
"NAWC-053018-FRB-292","SOP 5-369","Initial","J6280-FS1","BNO","BDO-1839","d5-EtFOSAA","1.790000","ng/L","","-99.000000","NA","","SIS","114.00","","-99.000000","NA","YES","1.570000","",".255000",".000500",".500000", ""  
"NAWC-053018-FRB-271","SOP 5-369","Initial","J6282-FS1","BNO","307-24-4","PFHxA",".500000","ng/L","UT",".220000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500",".500000", ""  
"NAWC-053018-FRB-271","SOP 5-369","Initial","J6282-FS1","BNO","375-85-9","PFHpA","1.000000","ng/L","UT",".340000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000", ""  
"NAWC-053018-FRB-271","SOP 5-369","Initial","J6282-FS1","BNO","335-67-1","PFOA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000", ""  
"NAWC-053018-FRB-271","SOP 5-369","Initial","J6282-FS1","BNO","375-95-1","PFNA","1.000000","ng/L","UT",".370000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000", ""  
"NAWC-053018-FRB-271","SOP 5-369","Initial","J6282-FS1","BNO","335-76-2","PFDA","1.000000","ng/L","UT",".390000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000", ""  
"NAWC-053018-FRB-271","SOP 5-369","Initial","J6282-FS1","BNO","2058-94-8","PFUnA","1.000000","ng/L","UT",".380000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000", ""  
"NAWC-053018-FRB-271","SOP 5-369","Initial","J6282-FS1","BNO","307-55-1","PFDoA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000", ""  
"NAWC-053018-FRB-271","SOP 5-369","Initial","J6282-FS1","BNO","72629-94-8","PFTrDA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000", ""  
"NAWC-053018-FRB-271","SOP 5-369","Initial","J6282-FS1","BNO","376-06-7","PFTeDA","1.500000","ng/L","UT",".730000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.500000", ""  
"NAWC-053018-FRB-271","SOP 5-369","Initial","J6282-FS1","BNO","2355-31-9","NMeFOSAA","1.000000","ng/L","UT",".420000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000", ""  
"NAWC-053018-FRB-271","SOP 5-369","Initial","J6282-FS1","BNO","2991-50-6","NEtFOSAA","1.000000","ng/L","UT",".440000","MDL","","T","","","2.500000","LOQ","YES",-99.000000","",".270000",".000500","1.000000", ""  
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"NAWC-053018-FRB-271","SOP 5-369","Initial","J6282-FS1","BNO","BDO-2110","13C2-PFDA",".360000","ng/L","","-99.000000","NA","","SIS","98.00","","-99.000000","NA","YES",".370000","",".270000",".000500",".500000",""  
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0157","18-0391","05/31/2018 10:30","06/29/2018 12:46",""



**TO:** A. FREBOWITZ **DATE:** AUGUST 7, 2018  
**FROM:** TERRI L. SOLOMON **COPIES:** DV FILE  
**SUBJECT:** ORGANIC DATA VALIDATION –POLYFLUOROALKYL SUBSTANCES (PFAS)  
NAS JRB WILLOW GROVE  
SAMPLE DELIVERY GROUPS (SDGs) 18-0343, 18-0391

**SAMPLES:** SDG 18-0343  
15/Drinking Water  
NAWC-052918-RW-161 NAWC-053018-RW-164  
NAWC-053018-RW-172 NAWC-053018-RW-196  
NAWC-053018-RW-231 NAWC-053018-RW-270  
NAWC-053018-RW-271 NAWC-053018-RW-292  
WGNA-052918-RW-3124 WGNA-052918-RW-3493  
WGNA-052918-RW-3882 WGNA-052918-RW-3978  
WGNA-053018-DUP-37 WGNA-053018-RW-3876  
WGNA-053018-RW-3933

SDG 18-0391  
14/Field Reagent Blank (FRB)  
NAWC-052918-FRB-161 NAWC-053018-FRB-164  
NAWC-053018-FRB-172 NAWC-053018-FRB-196  
NAWC-053018-FRB-231 NAWC-053018-FRB-270  
NAWC-053018-FRB-271 NAWC-053018-FRB-292  
WGNA-052918-FRB-3124 WGNA-052918-FRB-3493  
WGNA-052918-FRB-3882 WGNA-052918-FRB-3978  
WGNA-053018-FRB-3876 WGNA-053018-FRB-3933

Overview

The sample sets for NAS JRB Willow Grove, SDGs 18-0343 and 18-0391, consisted of fifteen (15) drinking water samples and fourteen (14) FRB samples. All samples were analyzed for select perfluorinated alkyl acids including pentadecafluorooctanoic acid (PFOA), perfluorobutane sulfonic acid (PFBS), perfluoroheptanoic acid (PFHpA), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA), perfluorooctane sulfonic acid (PFOS), N-ethylperfluorooctane sulfonamidoacetate (NMeFOSA), N-methylperfluorooctane sulfonamidoacetate (NEtFOSA), perfluorodecanoic acid (PFDA), perfluorododecanoic acid (PFDoA), perfluorohexanoic acid (PFHxA), perfluorotetradecanoic acid (PFTeDA), perfluorotridecanoic acid (PFTrDA) and perfluoroundecanoic acid (PFUnA). One (1) field duplicate pair, samples WGNA-053018-DUP-37 and WGNA-053018-RW-3876, was included in this SDG.

The samples were collected by Tetra Tech on May 29 and 30, 2018 and analyzed by Battelle Norwell Operations. All sample analyses were conducted in accordance with EPA Method 537 version 1.1 analytical and reporting protocols.

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

**Major**

The following compounds were detected in several FRB samples at concentrations > 1/3 the limit of quantitation (LOQ).

<u>Sample</u>	<u>Compound</u>	<u>Concentration</u>
NAWC-053018-FRB-172	PFOS	1.59 ng/L
NAWC-053018-FRB-270	PFOS	0.85 ng/L
NAWC-053018-FRB-271	PFOS	1.24 ng/L
NAWC-053018-FRB-292	PFOS	2.16 ng/L

The detected results for PFOS in the associated drinking water samples were qualified as having serious deficiencies (X). The associated sample results were all less than 10 times the LOQ (< 25 ng/L).

**Minor**

All FRB samples were re-prepared 8-9 days past the 14 day extraction hold time due to laboratory suspected contamination from other unrelated PFAS samples. Only re-extracted data was provided by the laboratory. The detected and nondetected results reported for the FRB samples were qualified as estimated (J) and (UJ) as a result of hold time exceedances.

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

**Notes**

The laboratory uses a primary transition for the quantitation of each analyte and a secondary transition for confirmation.

Sample NAWC-053018-RW-231 was analyzed at a 20X dilution for PFOS and PFHxS.

The method blank for SDG 18-0343 had a detected result reported for PFHxA of 0.45 ng/L. The detected result was < 1/3 the LOQ. No validation actions were required as all detected sample results were reported above the LOQ.

The method blank for SDG 18-0391 had a detected result reported for PFHxA of 0.44 ng/L. The detected result was < 1/3 the LOQ. No validation actions were required as all FRB sample results nondetects.

The laboratory control sample for SDG 18-0391 had a percent recovery for PFTeDA that was above the quality control limit. No validation actions were required as all FRB sample results were nondetects.

The following compounds were detected in several FRB samples at concentrations < 1/3 the LOQ.

<u>Sample</u>	<u>Compound</u>	<u>Concentration</u>
WGNA-052918-FRB-3124	PFOS	0.63 ng/L
WGNA-052918-FRB-3493	PFOS	0.46 ng/L
WGNA-052918-FRB-3978	PFOS	0.35 ng/L
NAWC-053018-FRB-196	PFOS	0.33 ng/L
WGNA-053018-RW-3933	PFOS	0.54 ng/L

No validation actions were required as all associated drinking water detected sample results were reported above the LOQ.

The internal standard recovery for N-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (d3-NMeFOSAA) was below the continuing calibration lower limit for sample WGNA-052918-RW-3978. The compounds affected were NMeFOSA and NEtFOSA. The laboratory reanalyzed the sample and the internal standard was within quality control limits. No validation actions were required as the sample results for NMeFOSA and NEtFOSA were reported from the reanalyses.

Samples with detections and their associated FRBs are summarized below.

<u>Sample</u>	<u>Associated FRB</u>
NAWC-052918-RW-161	NAWC-052918-FRB-161
NAWC-053018-RW-164	NAWC-053018-FRB-164
NAWC-053018-RW-172	NAWC-053018-FRB-172
NAWC-053018-RW-196	NAWC-053018-FRB-196
NAWC-053018-RW-231	NAWC-053018-FRB-213
NAWC-053018-RW-270	NAWC-053018-FRB-270
NAWC-053018-RW-271	NAWC-053018-FRB-271
NAWC-053018-RW-292	NAWC-053018-FRB-292
WGNA-052918-RW-3124	WGNA-052918-FRB-3124
WGNA-052918-RW-3493	WGNA-052918-FRB-3493
WGNA-052918-RW-3882	WGNA-052918-FRB-3882
WGNA-052918-RW-3978	WGNA-052918-FRB-3978
WGNA-053018-DUP-37	WGNA-053018-FRB-3876
WGNA-053018-RW-3876	WGNA-053018-FRB-3876
WGNA-053018-RW-3933	WGNA-053018-FRB-3933

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

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

### Executive Summary

**Laboratory Performance:** The 14 day extraction hold time was exceeded for all FRB samples. Blank contamination was present affecting several samples.

**Other Factors Affecting Data Quality:** Results below the RL were estimated.

The data for these analyses were reviewed with reference to the Environmental Protection Agency document EPA/600/R-08/092, Method 537, "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)", (September 2009), US EPA National Functional Guidelines for Organic Data Review (January 2017), and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories version 5.1" (2017) as applicable. The text of this report has been formulated to address only those areas affecting data quality.

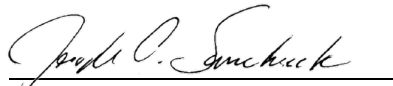


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Tetra Tech, Inc.  
Terri L. Solomon  
Chemist/Data Validator

TO: A. FREBOWITZ  
SDGS: 18-0343; 18-0391

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Tetra Tech, Inc.  
Joseph A. Samchuck  
Data Validation Manager

Attachments:

Appendix A – Qualified Analytical Results  
Appendix B – Results as Reported by the Laboratory  
Appendix C – Support Documentation

### Data Qualifier Definitions

The following definitions provide brief explanations of the validation qualifiers assigned to results in the data review process.

<b>U</b>	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted detection limit.
<b>J</b>	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the reporting limit).
<b>J+</b>	The result is an estimated quantity, but the result may be biased high.
<b>J-</b>	The result is an estimated quantity, but the result may be biased low.
<b>UJ</b>	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
<b>NJ</b>	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
<b>R</b>	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
<b>UR</b>	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
<b>X</b>	The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team, but exclusion of the data is recommended.

**Appendix A**

Qualified Analytical Results



**Qualifier Codes:**

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's  $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ( $< 2 \times$  IDL for inorganics and  $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues; i.e. chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors  $>40\%$  for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient  $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids  $<30\%$
- Z = Uncertainty at 2 standard deviations is greater than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed
- Z3 = Tentatively Identified Compound aldol condensate
- Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
- Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PROJ_NO: 08005-WE04	NSAMPLE NAWC-052918-RW-161			NAWC-053018-RW-164			NAWC-053018-RW-172			NAWC-053018-RW-196		
SDG: 18-0343	LAB_ID J6266-FS			J6277-FS			J6287-FS			J6285-FS		
FRACTION: PFAS	SAMP_DATE 5/29/2018			5/30/2018			5/30/2018			5/30/2018		
MEDIA: WATER	QC_TYPE NM			NM			NM			NM		
	UNITS NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS 0.0			0.0			0.0			0.0		
	DUP_OF											
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	1	U		1	U		1	U		1	U	
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	1	U		1	U		1	U		1	U	
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	18.42			18.79			10.26			15.77		
PERFLUOROBUTANESULFONIC ACID (PFBS)	7.62			29.34			2.83			7.55		
PERFLUORODECANOIC ACID (PFDA)	0.58	J	P	1	U		1	U		0.69	J	P
PERFLUORODODECANOIC ACID (PFDOA)	1	U		1	U		1	U		1	U	
PERFLUOROHEPTANOIC ACID (PFHPA)	6.13			5.55			3.31			6.7		
PERFLUOROHEXANESULFONIC ACID (PFHXS)	13.47			6.74			3.67			2.31	J	P
PERFLUOROHEXANOIC ACID (PFHXA)	11.56			8.14			4.9			13.18		
PERFLUORONONANOIC ACID (PFNA)	3.39			2.18	J	P	1.08	J	P	2.27	J	P
PERFLUOROOCCTANESULFONIC ACID (PFOS)	35.04			14.52			8.12	X	B	12.2		
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.5	U		1.5	U		1.5	U		1.5	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)	1	U		1	U		1	U		1	U	
PERFLUOROUNDECANOIC ACID (PFUNA)	1	U		1	U		1	U		1	U	

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 18-0343</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	NAWC-053018-RW-231			NAWC-053018-RW-270			NAWC-053018-RW-271			NAWC-053018-RW-292		
	LAB_ID	J6273-FS			J6283-FS			J6281-FS			J6279-FS		
	SAMP_DATE	5/30/2018			5/30/2018			5/30/2018			5/30/2018		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	1	U		1	U		1	U		1	U		
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	1	U		1	U		1	U		1	U		
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	10.51			10.97			12.38			24.37			
PERFLUOROBUTANESULFONIC ACID (PFBS)	5.78			6.24			3.1			5.6			
PERFLUORODECANOIC ACID (PFDA)	1	U		1	U		1	U		0.46	J	P	
PERFLUORODODECANOIC ACID (PFDOA)	1	U		1	U		1	U		1	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	4.11			3.35			3.38			6.81			
PERFLUOROHEXANESULFONIC ACID (PFHXS)	37.2			4.45			5.44			7.86			
PERFLUOROHEXANOIC ACID (PFHXA)	9.35			4.51			5.47			10.15			
PERFLUORONONANOIC ACID (PFNA)	1.76	J	P	1.8	J	P	1.32	J	P	3.39			
PERFLUOROOCCTANESULFONIC ACID (PFOS)	57.09			12.57	X	B	10.03	X	B	20.09	X	B	
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.5	U		1.5	U		1.5	U		1.5	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)	1	U		1	U		1	U		1	U		
PERFLUOROUNDECANOIC ACID (PFUNA)	1	U		1	U		1	U		1	U		

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 18-0343</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	WGNA-052918-RW-3124			WGNA-052918-RW-3493			WGNA-052918-RW-3882			WGNA-052918-RW-3978		
	LAB_ID	J6258-FS			J6260-FS			J6262-FS			J6264-FS		
	SAMP_DATE	5/29/2018			5/29/2018			5/29/2018			5/29/2018		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	1	U		1	U		1	U					
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	1	U		1	U		1	U					
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	11.54			14.59			8.47			11.26			
PERFLUOROBUTANESULFONIC ACID (PFBS)	3.32			8.41			4.09			4.11			
PERFLUORODECANOIC ACID (PFDA)	1	U		1	U		1	U		0.69	J	P	
PERFLUORODODECANOIC ACID (PFDOA)	1	U		1	U		1	U		1	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	3.13			4.29			4.41			4.86			
PERFLUOROHEXANESULFONIC ACID (PFHXS)	5.7			9.19			9.46			6.64			
PERFLUOROHEXANOIC ACID (PFHXA)	5.59			7.38			8.74			8.86			
PERFLUORONONANOIC ACID (PFNA)	1.42	J	P	2.23	J	P	3.04			2.34	J	P	
PERFLUOROOCCTANESULFONIC ACID (PFOS)	10.06			17.7			25.23			14.01			
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.5	U		1.5	U		1.5	U		1.5	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)	1	U		1	U		1	U		1	U		
PERFLUOROUNDECANOIC ACID (PFUNA)	1	U		1	U		1	U		1	U		

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 18-0343</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	WGNA-052918-RW-3978-RE			WGNA-053018-DUP-37			WGNA-053018-RW-3876			WGNA-053018-RW-3933		
	LAB_ID	J6264-FS			J6272-FS			J6270-FS			J6275-FS		
	SAMP_DATE	5/29/2018			5/30/2018			5/30/2018			5/30/2018		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF				WGNA-053018-RW-3876								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	1	U		1	U		1	U		1	U		
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	1	U		1	U		1	U		1	U		
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)				10.75			10.65			18.92			
PERFLUOROBUTANESULFONIC ACID (PFBS)				2.96			2.96			7.61			
PERFLUORODECANOIC ACID (PFDA)				1	U		1	U		1	U		
PERFLUORODODECANOIC ACID (PFDOA)				1	U		1	U		1	U		
PERFLUOROHEPTANOIC ACID (PFHPA)				3.03			2.84			6.85			
PERFLUOROHEXANESULFONIC ACID (PFHXS)				4.84			4.42			4.8			
PERFLUOROHEXANOIC ACID (PFHXA)				4.56			4.58			9.95			
PERFLUORONONANOIC ACID (PFNA)				1.78	J	P	1.54	J	P	2.35	J	P	
PERFLUOROOCCTANESULFONIC ACID (PFOS)				10.28			9.86			19.86			
PERFLUOROTETRADECANOIC ACID (PFTEA)				1.5	U		1.5	U		1.5	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)				1	U		1	U		1	U		
PERFLUOROUNDECANOIC ACID (PFUNA)				1	U		1	U		1	U		

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 18-0391</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	NAWC-052918-FRB-161			NAWC-053018-FRB-164			NAWC-053018-FRB-172			NAWC-053018-FRB-196		
	LAB_ID	J6267-FS1			J6278-FS1			J6288-FS1			J6286-FS1		
	SAMP_DATE	5/29/2018			5/30/2018			5/30/2018			5/30/2018		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROBUTANESULFONIC ACID (PFBS)	0.5	UJ	H	0.5	UJ	H	0.5	UJ	H	0.5	UJ	H	
PERFLUORODECANOIC ACID (PFDA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUORODODECANOIC ACID (PFDOA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROHEPTANOIC ACID (PFHPA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROHEXANESULFONIC ACID (PFHXS)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROHEXANOIC ACID (PFHXA)	0.5	UJ	H	0.5	UJ	H	0.5	UJ	H	0.5	UJ	H	
PERFLUORONONANOIC ACID (PFNA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROOCCTANESULFONIC ACID (PFOS)	1	UJ	H	1	UJ	H	1.59	J	HP	0.33	J	HP	
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.5	UJ	H	1.5	UJ	H	1.5	UJ	H	1.5	UJ	H	
PERFLUOROTRIDECANOIC ACID (PFTRIA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROUNDECANOIC ACID (PFUNA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 18-0391</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	NAWC-053018-FRB-231			NAWC-053018-FRB-270			NAWC-053018-FRB-271			NAWC-053018-FRB-292		
	LAB_ID	J6274-FS1			J6284-FS1			J6282-FS1			J6280-FS1		
	SAMP_DATE	5/30/2018			5/30/2018			5/30/2018			5/30/2018		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROBUTANESULFONIC ACID (PFBS)	0.5	UJ	H	0.5	UJ	H	0.5	UJ	H	0.5	UJ	H	
PERFLUORODECANOIC ACID (PFDA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUORODODECANOIC ACID (PFDOA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROHEPTANOIC ACID (PFHPA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROHEXANESULFONIC ACID (PFHXS)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROHEXANOIC ACID (PFHXA)	0.5	UJ	H	0.5	UJ	H	0.5	UJ	H	0.5	UJ	H	
PERFLUORONONANOIC ACID (PFNA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROOCCTANESULFONIC ACID (PFOS)	1	UJ	H	0.85	J	HP	1.24	J	HP	2.16	J	HP	
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.5	UJ	H	1.5	UJ	H	1.5	UJ	H	1.5	UJ	H	
PERFLUOROTRIDECANOIC ACID (PFTRIA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROUNDECANOIC ACID (PFUNA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 18-0391</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	WGNA-052918-FRB-3124			WGNA-052918-FRB-3493			WGNA-052918-FRB-3882			WGNA-052918-FRB-3978		
	LAB_ID	J6259-FS1			J6261-FS1			J6263-FS1			J6265-FS1		
	SAMP_DATE	5/29/2018			5/29/2018			5/29/2018			5/29/2018		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NEFOSA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
N-METHYLPERFLUOROOCCTANE SULFONAMIDOACETATE(NMFOSA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PENTADEC AFLUOROOCCTANOIC ACID (PFOA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROBUTANESULFONIC ACID (PFBS)	0.5	UJ	H	0.5	UJ	H	0.5	UJ	H	0.5	UJ	H	
PERFLUORODECANOIC ACID (PFDA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUORODODECANOIC ACID (PFDOA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROHEPTANOIC ACID (PFHPA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROHEXANESULFONIC ACID (PFHXS)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROHEXANOIC ACID (PFHXA)	0.5	UJ	H	0.5	UJ	H	0.5	UJ	H	0.5	UJ	H	
PERFLUORONONANOIC ACID (PFNA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROOCCTANESULFONIC ACID (PFOS)	0.63	J	HP	0.46	J	HP	1	UJ	H	0.35	J	HP	
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.5	UJ	H	1.5	UJ	H	1.5	UJ	H	1.5	UJ	H	
PERFLUOROTRIDECANOIC ACID (PFTRIA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	
PERFLUOROUNDECANOIC ACID (PFUNA)	1	UJ	H	1	UJ	H	1	UJ	H	1	UJ	H	



<b>PROJ_NO: 08005-WE04</b> <b>SDG: 18-0391</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	WGNA-053018-FRB-3876			WGNA-053018-FRB-3933		
	LAB_ID	J6271-FS1			J6276-FS1		
	SAMP_DATE	5/30/2018			5/30/2018		
	QC_TYPE	NM			NM		
	UNITS	NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)	1	UJ	H	1	UJ	H	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)	1	UJ	H	1	UJ	H	
PENTADECAFLUOROOCTANOIC ACID (PFOA)	1	UJ	H	1	UJ	H	
PERFLUOROBUTANESULFONIC ACID (PFBS)	0.5	UJ	H	0.5	UJ	H	
PERFLUORODECANOIC ACID (PFDA)	1	UJ	H	1	UJ	H	
PERFLUORODODECANOIC ACID (PFDOA)	1	UJ	H	1	UJ	H	
PERFLUOROHEPTANOIC ACID (PFHPA)	1	UJ	H	1	UJ	H	
PERFLUOROHEXANESULFONIC ACID (PFHXS)	1	UJ	H	1	UJ	H	
PERFLUOROHEXANOIC ACID (PFHXA)	0.5	UJ	H	0.5	UJ	H	
PERFLUORONONANOIC ACID (PFNA)	1	UJ	H	1	UJ	H	
PERFLUOROOCTANESULFONIC ACID (PFOS)	1	UJ	H	0.54	J	HP	
PERFLUOROTETRADECANOIC ACID (PFTEA)	1.5	UJ	H	1.5	UJ	H	
PERFLUOROTRIDECANOIC ACID (PFTRIA)	1	UJ	H	1	UJ	H	
PERFLUOROUNDECANOIC ACID (PFUNA)	1	UJ	H	1	UJ	H	



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


Client ID WGNA-052918-RW-3124

Battelle ID J6258-FS  
 Sample Type SA  
 Collection Date 05/29/2018  
 Extraction Date 06/01/2018  
 Analysis Date 06/12/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.260  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	5.59	0.22	0.50	2.50
PFHpA	3.13	0.34	1.00	2.50
PFOA	11.54	0.38	1.00	2.50
PFNA	1.42 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	3.32	0.21	0.50	2.50
PFHxS	5.70	0.34	1.00	2.50
PFOS	10.06	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	107
13C2-PFDA	97
d5-EtFOSAA	104

  
 07/17/2018



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

Client ID WGNA-052918-RW-3493

Battelle ID J6260-FS  
 Sample Type SA  
 Collection Date 05/29/2018  
 Extraction Date 06/01/2018  
 Analysis Date 06/12/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.275  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	7.38	0.22	0.50	2.50
PFHpA	4.29	0.34	1.00	2.50
PFOA	14.59	0.38	1.00	2.50
PFNA	2.23 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	8.41	0.21	0.50	2.50
PFHxS	9.19	0.34	1.00	2.50
PFOS	17.70	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	117
13C2-PFDA	115
d5-EtFOSAA	108

*Wesley L. Selman*  
 07/17/2018



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

Client ID WGNA-052918-RW-3882

Battelle ID	J6262-FS			
Sample Type	SA			
Collection Date	05/29/2018			
Extraction Date	06/01/2018			
Analysis Date	06/12/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.290			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	8.74	0.22	0.50	2.50
PFHpA	4.41	0.34	1.00	2.50
PFOA	8.47	0.38	1.00	2.50
PFNA	3.04	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	4.09	0.21	0.50	2.50
PFHxS	9.46	0.34	1.00	2.50
PFOS	25.23	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	103
13C2-PFDA	93
d5-EtFOSAA	103

*Steve L. Salomon*

07/17/2018



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

Client ID WGNA-052918-RW-3978

Battelle ID J6264-FS  
 Sample Type SA  
 Collection Date 05/29/2018  
 Extraction Date 06/01/2018  
 Analysis Date 06/12/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.270  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	8.86	0.22	0.50	2.50
PFHpA	4.86	0.34	1.00	2.50
PFOA	11.26	0.38	1.00	2.50
PFNA	2.34 J	0.37	1.00	2.50
PFDA	0.69 J	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	4.11	0.21	0.50	2.50
PFHxS	6.64	0.34	1.00	2.50
PFOS	14.01	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	114
13C2-PFDA	103
d5-EtFOSAA	91

07/17/2018



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

Client ID	NAWC-052918-RW-161			
Battelle ID	J6266-FS			
Sample Type	SA			
Collection Date	05/29/2018			
Extraction Date	06/01/2018			
Analysis Date	06/12/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.290			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	11.56	0.22	0.50	2.50
PFHpA	6.13	0.34	1.00	2.50
PFOA	18.42	0.38	1.00	2.50
PFNA	3.39	0.37	1.00	2.50
PFDA	0.58 J	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	7.62	0.21	0.50	2.50
PFHxS	13.47	0.34	1.00	2.50
PFOS	35.04	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	119
13C2-PFDA	100
d5-EtFOSAA	113

*Heidi L. Salzman*  
 07/17/2018



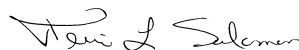
Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04

Client ID WGNA-053018-RW-3876

Battelle ID	J6270-FS			
Sample Type	SA			
Collection Date	05/30/2018			
Extraction Date	06/01/2018			
Analysis Date	06/12/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.275			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	4.58	0.22	0.50	2.50
PFHpA	2.84	0.34	1.00	2.50
PFOA	10.65	0.38	1.00	2.50
PFNA	1.54 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	2.96	0.21	0.50	2.50
PFHxS	4.42	0.34	1.00	2.50
PFOS	9.86	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	117
13C2-PFDA	101
d5-EtFOSAA	111

  
 07/17/2018



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

Client ID WGNA-053018-DUP-37

Battelle ID J6272-FS  
 Sample Type SA  
 Collection Date 05/30/2018  
 Extraction Date 06/01/2018  
 Analysis Date 06/12/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.275  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	4.56	0.22	0.50	2.50
PFHpA	3.03	0.34	1.00	2.50
PFOA	10.75	0.38	1.00	2.50
PFNA	1.78 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	2.96	0.21	0.50	2.50
PFHxS	4.84	0.34	1.00	2.50
PFOS	10.28	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	119
13C2-PFDA	110
d5-EtFOSAA	109

*Wesley L. Salomon*  
 07/17/2018





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

Client ID NAWC-053018-RW-231

Battelle ID J6273-FS  
 Sample Type SA  
 Collection Date 05/30/2018  
 Extraction Date 06/01/2018  
 Analysis Date 06/12/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.285  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	9.35	0.22	0.50	2.50
PFHpA	4.11	0.34	1.00	2.50
PFOA	10.51	0.38	1.00	2.50
PFNA	1.76 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	5.78	0.21	0.50	2.50
PFHxS	37.20 D	0.34	1.00	2.50
PFOS	57.09 D	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	107
13C2-PFDA	97
d5-EtFOSAA	88

*Wesley L. Salomon*  
 07/17/2018



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

Client ID WGNA-053018-RW-3933

Battelle ID J6275-FS  
 Sample Type SA  
 Collection Date 05/30/2018  
 Extraction Date 06/01/2018  
 Analysis Date 06/12/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.285  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	9.95	0.22	0.50	2.50
PFHpA	6.85	0.34	1.00	2.50
PFOA	18.92	0.38	1.00	2.50
PFNA	2.35 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	7.61	0.21	0.50	2.50
PFHxS	4.80	0.34	1.00	2.50
PFOS	19.86	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	111
13C2-PFDA	103
d5-EtFOSAA	103

07/17/2018



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

Client ID	NAWC-053018-RW-164				
Battelle ID	J6277-FS				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/01/2018				
Analysis Date	06/12/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.270				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	8.14	0.22	0.50	2.50	
PFHpA	5.55	0.34	1.00	2.50	
PFOA	18.79	0.38	1.00	2.50	
PFNA	2.18 J	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDaA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	29.34	0.21	0.50	2.50	
PFHxS	6.74	0.34	1.00	2.50	
PFOS	14.52	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	119
13C2-PFDA	105
d5-EtFOSAA	126

*Steve L. Salomon*  
 07/17/2018



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

Client ID	NAWC-053018-RW-292				
Battelle ID	J6279-FS				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/01/2018				
Analysis Date	06/12/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.285				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	10.15	0.22	0.50	2.50	
PFHpA	6.81	0.34	1.00	2.50	
PFOA	24.37	0.38	1.00	2.50	
PFNA	3.39	0.37	1.00	2.50	
PFDA	0.46 J	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDaA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	5.60	0.21	0.50	2.50	
PFHxS	7.86	0.34	1.00	2.50	
PFOS	20.09 X	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	116
13C2-PFDA	93
d5-EtFOSAA	107

*Denise L. Schumitz*

07/17/2018



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

Client ID	NAWC-053018-RW-271				
Battelle ID	J6281-FS				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/01/2018				
Analysis Date	06/12/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.275				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	5.47	0.22	0.50	2.50	
PFHpA	3.38	0.34	1.00	2.50	
PFOA	12.38	0.38	1.00	2.50	
PFNA	1.32 J	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDaA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	3.10	0.21	0.50	2.50	
PFHxS	5.44	0.34	1.00	2.50	
PFOS	10.03	X 0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	106
13C2-PFDA	103
d5-EtFOSAA	107

*Steve L. Salaman*  
 07/17/2018



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

Client ID	NAWC-053018-RW-270				
Battelle ID	J6283-FS				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/01/2018				
Analysis Date	06/12/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.275				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	4.51	0.22	0.50	2.50	
PFHpA	3.35	0.34	1.00	2.50	
PFOA	10.97	0.38	1.00	2.50	
PFNA	1.80 J	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDaA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	6.24	0.21	0.50	2.50	
PFHxS	4.45	0.34	1.00	2.50	
PFOS	12.57 X	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	114
13C2-PFDA	99
d5-EtFOSAA	113

*Denise L. Schumitz*  
 07/17/2018



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

Client ID	NAWC-053018-RW-196				
Battelle ID	J6285-FS				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/01/2018				
Analysis Date	06/12/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.275				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	13.18	0.22	0.50	2.50	
PFHpA	6.70	0.34	1.00	2.50	
PFOA	15.77	0.38	1.00	2.50	
PFNA	2.27 J	0.37	1.00	2.50	
PFDA	0.69 J	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDaA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	7.55	0.21	0.50	2.50	
PFHxS	2.31 J	0.34	1.00	2.50	
PFOS	12.20	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	108
13C2-PFDA	97
d5-EtFOSAA	108

*Steven L. Salzman*  
 07/17/2018



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

Client ID	NAWC-053018-RW-172				
Battelle ID	J6287-FS				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/01/2018				
Analysis Date	06/12/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.270				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	4.90	0.22	0.50	2.50	
PFHpA	3.31	0.34	1.00	2.50	
PFOA	10.26	0.38	1.00	2.50	
PFNA	1.08 J	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDaA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	2.83	0.21	0.50	2.50	
PFHxS	3.67	0.34	1.00	2.50	
PFOS	8.12	X 0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	115
13C2-PFDA	109
d5-EtFOSAA	120

*Heidi L. Selman*  
 07/17/2018





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

Client ID WGNA-052918-FRB-3124

Battelle ID J6259-FS1  
 Sample Type SA  
 Collection Date 05/29/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.250  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.50 <del>UT</del> UJ	0.22	0.50	2.50
PFHpA	1.00 <del>UT</del> UJ	0.34	1.00	2.50
PFOA	1.00 <del>UT</del> UJ	0.38	1.00	2.50
PFNA	1.00 <del>UT</del> UJ	0.37	1.00	2.50
PFDA	1.00 <del>UT</del> UJ	0.39	1.00	2.50
PFUnA	1.00 <del>UT</del> UJ	0.38	1.00	2.50
PFDoA	1.00 <del>UT</del> UJ	0.42	1.00	2.50
PFTTrDA	1.00 <del>UT</del> UJ	0.42	1.00	2.50
PFTeDA	1.50 <del>UT</del> UJ	0.73	1.50	2.50
NMeFOSAA	1.00 <del>UT</del> UJ	0.42	1.00	2.50
NEtFOSAA	1.00 <del>UT</del> UJ	0.44	1.00	2.50
PFBS	0.50 <del>UT</del> UJ	0.21	0.50	2.50
PFHxS	1.00 <del>UT</del> UJ	0.34	1.00	2.50
PFOS	0.63 <del>JT</del> J	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	109
13C2-PFDA	98
d5-EtFOSAA	93

*Steph L. Salomon*  
 07/17/2018



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

Client ID WGNA-052918-FRB-3493

Battelle ID	J6261-FS1				
Sample Type	SA				
Collection Date	05/29/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.260				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	0.50 <del>UT</del> UJ	0.22	0.50	2.50	
PFHpA	1.00 <del>UT</del> UJ	0.34	1.00	2.50	
PFOA	1.00 <del>UT</del> UJ	0.38	1.00	2.50	
PFNA	1.00 <del>UT</del> UJ	0.37	1.00	2.50	
PFDA	1.00 <del>UT</del> UJ	0.39	1.00	2.50	
PFUnA	1.00 <del>UT</del> UJ	0.38	1.00	2.50	
PFDaA	1.00 <del>UT</del> UJ	0.42	1.00	2.50	
PFTTrDA	1.00 <del>UT</del> UJ	0.42	1.00	2.50	
PFTeDA	1.50 <del>UT</del> UJ	0.73	1.50	2.50	
NMeFOSAA	1.00 <del>UT</del> UJ	0.42	1.00	2.50	
NEtFOSAA	1.00 <del>UT</del> UJ	0.44	1.00	2.50	
PFBS	0.50 <del>UT</del> UJ	0.21	0.50	2.50	
PFHxS	1.00 <del>UT</del> UJ	0.34	1.00	2.50	
PFOS	0.46 <del>JT</del> J	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	119
13C2-PFDA	100
d5-EtFOSAA	98

*Denise L. Schumitz*

07/17/2018



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

Client ID WGNA-052918-FRB-3882

Battelle ID J6263-FS1  
 Sample Type SA  
 Collection Date 05/29/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.265  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

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

**Surrogate Recoveries (%)**

13C2-PFHxA	115
13C2-PFDA	98
d5-EtFOSAA	105

*Marie L. Selman*  
 07/17/2018



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

Client ID WGNA-052918-FRB-3978

Battelle ID	J6265-FS1					
Sample Type	SA					
Collection Date	05/29/2018					
Extraction Date	06/21/2018					
Analysis Date	06/27/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	DW					
Sample Size	0.270					
Size Unit-Basis	L					
Units	ng/L		MDL	LOD	LOQ	
PFHxA	0.50	<del>UT</del> UJ	0.22	0.50	2.50	
PFHpA	1.00	<del>UT</del> UJ	0.34	1.00	2.50	
PFOA	1.00	<del>UT</del> UJ	0.38	1.00	2.50	
PFNA	1.00	<del>UT</del> UJ	0.37	1.00	2.50	
PFDA	1.00	<del>UT</del> UJ	0.39	1.00	2.50	
PFUnA	1.00	<del>UT</del> UJ	0.38	1.00	2.50	
PFDaA	1.00	<del>UT</del> UJ	0.42	1.00	2.50	
PFTrDA	1.00	<del>UT</del> UJ	0.42	1.00	2.50	
PFTeDA	1.50	<del>UT</del> UJ	0.73	1.50	2.50	
NMeFOSAA	1.00	<del>UT</del> UJ	0.42	1.00	2.50	
NEtFOSAA	1.00	<del>UT</del> UJ	0.44	1.00	2.50	
PFBS	0.50	<del>UT</del> UJ	0.21	0.50	2.50	
PFHxS	1.00	<del>UT</del> UJ	0.34	1.00	2.50	
PFOS	0.35	<del>JT</del> J	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	112
13C2-PFDA	103
d5-EtFOSAA	109

*Denise L. Schumitz*  
 07/17/2018



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

Client ID	NAWC-052918-FRB-161				
Battelle ID	J6267-FS1				
Sample Type	SA				
Collection Date	05/29/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.260				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 <del>UT</del> UJ	0.22	0.50	2.50	
PFHpA	1.00 <del>UT</del> UJ	0.34	1.00	2.50	
PFOA	1.00 <del>UT</del> UJ	0.38	1.00	2.50	
PFNA	1.00 <del>UT</del> UJ	0.37	1.00	2.50	
PFDA	1.00 <del>UT</del> UJ	0.39	1.00	2.50	
PFUnA	1.00 <del>UT</del> UJ	0.38	1.00	2.50	
PFDaA	1.00 <del>UT</del> UJ	0.42	1.00	2.50	
PFTTrDA	1.00 <del>UT</del> UJ	0.42	1.00	2.50	
PFTeDA	1.50 <del>UT</del> UJ	0.73	1.50	2.50	
NMeFOSAA	1.00 <del>UT</del> UJ	0.42	1.00	2.50	
NEtFOSAA	1.00 <del>UT</del> UJ	0.44	1.00	2.50	
PFBS	0.50 <del>UT</del> UJ	0.21	0.50	2.50	
PFHxS	1.00 <del>UT</del> UJ	0.34	1.00	2.50	
PFOS	1.00 <del>UT</del> UJ	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	119
13C2-PFDA	103
d5-EtFOSAA	88

07/17/2018



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

Client ID WGNA-053018-FRB-3876

Battelle ID J6271-FS1  
 Sample Type SA  
 Collection Date 05/30/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.255  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

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

**Surrogate Recoveries (%)**

13C2-PFHxA	109
13C2-PFDA	107
d5-EtFOSAA	106

*Steve L. Selman*  
 07/17/2018



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

Client ID	NAWC-053018-FRB-231					
Battelle ID	J6274-FS1					
Sample Type	SA					
Collection Date	05/30/2018					
Extraction Date	06/21/2018					
Analysis Date	06/27/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	DW					
Sample Size	0.270					
Size Unit-Basis	L					
Units	ng/L		MDL	LOD	LOQ	
PFHxA	0.50	<del>UT</del> UJ	0.22	0.50	2.50	
PFHpA	1.00	<del>UT</del> UJ	0.34	1.00	2.50	
PFOA	1.00	<del>UT</del> UJ	0.38	1.00	2.50	
PFNA	1.00	<del>UT</del> UJ	0.37	1.00	2.50	
PFDA	1.00	<del>UT</del> UJ	0.39	1.00	2.50	
PFUnA	1.00	<del>UT</del> UJ	0.38	1.00	2.50	
PFDaA	1.00	<del>UT</del> UJ	0.42	1.00	2.50	
PFTrDA	1.00	<del>UT</del> UJ	0.42	1.00	2.50	
PFTeDA	1.50	<del>UT</del> UJ	0.73	1.50	2.50	
NMeFOSAA	1.00	<del>UT</del> UJ	0.42	1.00	2.50	
NEtFOSAA	1.00	<del>UT</del> UJ	0.44	1.00	2.50	
PFBS	0.50	<del>UT</del> UJ	0.21	0.50	2.50	
PFHxS	1.00	<del>UT</del> UJ	0.34	1.00	2.50	
PFOS	1.00	<del>UT</del> UJ	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	122
13C2-PFDA	115
d5-EtFOSAA	106

*Steve L. Selman*

07/17/2018



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

Client ID WGNA-053018-FRB-3933

Battelle ID J6276-FS1  
 Sample Type SA  
 Collection Date 05/30/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.250  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.50 <del>UT</del> UJ	0.22	0.50	2.50
PFHpA	1.00 <del>UT</del> UJ	0.34	1.00	2.50
PFOA	1.00 <del>UT</del> UJ	0.38	1.00	2.50
PFNA	1.00 <del>UT</del> UJ	0.37	1.00	2.50
PFDA	1.00 <del>UT</del> UJ	0.39	1.00	2.50
PFUnA	1.00 <del>UT</del> UJ	0.38	1.00	2.50
PFDaA	1.00 <del>UT</del> UJ	0.42	1.00	2.50
PFTrDA	1.00 <del>UT</del> UJ	0.42	1.00	2.50
PFTeDA	1.50 <del>UT</del> UJ	0.73	1.50	2.50
NMeFOSAA	1.00 <del>UT</del> UJ	0.42	1.00	2.50
NEtFOSAA	1.00 <del>UT</del> UJ	0.44	1.00	2.50
PFBS	0.50 <del>UT</del> UJ	0.21	0.50	2.50
PFHxS	1.00 <del>UT</del> UJ	0.34	1.00	2.50
PFOS	0.54 <del>J</del> J	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	120
13C2-PFDA	116
d5-EtFOSAA	110

*Denise L. Schumitz*  
 07/17/2018





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

Client ID NAWC-053018-FRB-164

Battelle ID J6278-FS1  
 Sample Type SA  
 Collection Date 05/30/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.270  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

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

**Surrogate Recoveries (%)**

13C2-PFHxA	123
13C2-PFDA	102
d5-EtFOSAA	106

*Steve L. Salzman*  
 07/17/2018



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

Client ID NAWC-053018-FRB-292

Battelle ID J6280-FS1  
 Sample Type SA  
 Collection Date 05/30/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.255  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.50 <del>UT</del> UJ	0.22	0.50	2.50
PFHpA	1.00 <del>UT</del> UJ	0.34	1.00	2.50
PFOA	1.00 <del>UT</del> UJ	0.38	1.00	2.50
PFNA	1.00 <del>UT</del> UJ	0.37	1.00	2.50
PFDA	1.00 <del>UT</del> UJ	0.39	1.00	2.50
PFUnA	1.00 <del>UT</del> UJ	0.38	1.00	2.50
PFDaA	1.00 <del>UT</del> UJ	0.42	1.00	2.50
PFTrDA	1.00 <del>UT</del> UJ	0.42	1.00	2.50
PFTeDA	1.50 <del>UT</del> UJ	0.73	1.50	2.50
NMeFOSAA	1.00 <del>UT</del> UJ	0.42	1.00	2.50
NEtFOSAA	1.00 <del>UT</del> UJ	0.44	1.00	2.50
PFBS	0.50 <del>UT</del> UJ	0.21	0.50	2.50
PFHxS	1.00 <del>UT</del> UJ	0.34	1.00	2.50
PFOS	2.16 <del>JT</del> J	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	104
13C2-PFDA	103
d5-EtFOSAA	114

*Wesley L. Salomon*  
 07/17/2018



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

Client ID	NAWC-053018-FRB-271					
Battelle ID	J6282-FS1					
Sample Type	SA					
Collection Date	05/30/2018					
Extraction Date	06/21/2018					
Analysis Date	06/27/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	DW					
Sample Size	0.270					
Size Unit-Basis	L					
Units	ng/L		MDL	LOD	LOQ	
PFHxA	0.50	<del>UT</del> UJ	0.22	0.50	2.50	
PFHpA	1.00	<del>UT</del> UJ	0.34	1.00	2.50	
PFOA	1.00	<del>UT</del> UJ	0.38	1.00	2.50	
PFNA	1.00	<del>UT</del> UJ	0.37	1.00	2.50	
PFDA	1.00	<del>UT</del> UJ	0.39	1.00	2.50	
PFUnA	1.00	<del>UT</del> UJ	0.38	1.00	2.50	
PFDaA	1.00	<del>UT</del> UJ	0.42	1.00	2.50	
PFTrDA	1.00	<del>UT</del> UJ	0.42	1.00	2.50	
PFTeDA	1.50	<del>UT</del> UJ	0.73	1.50	2.50	
NMeFOSAA	1.00	<del>UT</del> UJ	0.42	1.00	2.50	
NEtFOSAA	1.00	<del>UT</del> UJ	0.44	1.00	2.50	
PFBS	0.50	<del>UT</del> UJ	0.21	0.50	2.50	
PFHxS	1.00	<del>UT</del> UJ	0.34	1.00	2.50	
PFOS	1.24	<del>JF</del> J	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	115
13C2-PFDA	98
d5-EtFOSAA	100

*Stacy L. Selman*

07/17/2018



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

Client ID	NAWC-053018-FRB-270					
Battelle ID	J6284-FS1					
Sample Type	SA					
Collection Date	05/30/2018					
Extraction Date	06/21/2018					
Analysis Date	06/27/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	DW					
Sample Size	0.260					
Size Unit-Basis	L					
Units	ng/L		MDL	LOD	LOQ	
PFHxA	0.50	<del>UT</del> UJ	0.22	0.50	2.50	
PFHpA	1.00	<del>UT</del> UJ	0.34	1.00	2.50	
PFOA	1.00	<del>UT</del> UJ	0.38	1.00	2.50	
PFNA	1.00	<del>UT</del> UJ	0.37	1.00	2.50	
PFDA	1.00	<del>UT</del> UJ	0.39	1.00	2.50	
PFUnA	1.00	<del>UT</del> UJ	0.38	1.00	2.50	
PFDaA	1.00	<del>UT</del> UJ	0.42	1.00	2.50	
PFTrDA	1.00	<del>UT</del> UJ	0.42	1.00	2.50	
PFTeDA	1.50	<del>UT</del> UJ	0.73	1.50	2.50	
NMeFOSAA	1.00	<del>UT</del> UJ	0.42	1.00	2.50	
NEtFOSAA	1.00	<del>UT</del> UJ	0.44	1.00	2.50	
PFBS	0.50	<del>UT</del> UJ	0.21	0.50	2.50	
PFHxS	1.00	<del>UT</del> UJ	0.34	1.00	2.50	
PFOS	0.85	<del>JT</del> J	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	124
13C2-PFDA	105
d5-EtFOSAA	98

*Denise L. Schumitz*  
 07/17/2018



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

Client ID	NAWC-053018-FRB-196				
Battelle ID	J6286-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.245				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 <del>UT</del> UJ	0.22	0.50	2.50	
PFHpA	1.00 <del>UT</del> UJ	0.34	1.00	2.50	
PFOA	1.00 <del>UT</del> UJ	0.38	1.00	2.50	
PFNA	1.00 <del>UT</del> UJ	0.37	1.00	2.50	
PFDA	1.00 <del>UT</del> UJ	0.39	1.00	2.50	
PFUnA	1.00 <del>UT</del> UJ	0.38	1.00	2.50	
PFDaA	1.00 <del>UT</del> UJ	0.42	1.00	2.50	
PFTrDA	1.00 <del>UT</del> UJ	0.42	1.00	2.50	
PFTeDA	1.50 <del>UT</del> UJ	0.73	1.50	2.50	
NMeFOSAA	1.00 <del>UT</del> UJ	0.42	1.00	2.50	
NEtFOSAA	1.00 <del>UT</del> UJ	0.44	1.00	2.50	
PFBS	0.50 <del>UT</del> UJ	0.21	0.50	2.50	
PFHxS	1.00 <del>UT</del> UJ	0.34	1.00	2.50	
PFOS	0.33 <del>UT</del> J	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	115
13C2-PFDA	103
d5-EtFOSAA	109

*Steve L. Salzman*

07/17/2018



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

Client ID	NAWC-053018-FRB-172				
Battelle ID	J6288-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.240				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 <del>UT</del> UJ	0.22	0.50	2.50	
PFHpA	1.00 <del>UT</del> UJ	0.34	1.00	2.50	
PFOA	1.00 <del>UT</del> UJ	0.38	1.00	2.50	
PFNA	1.00 <del>UT</del> UJ	0.37	1.00	2.50	
PFDA	1.00 <del>UT</del> UJ	0.39	1.00	2.50	
PFUnA	1.00 <del>UT</del> UJ	0.38	1.00	2.50	
PFDaA	1.00 <del>UT</del> UJ	0.42	1.00	2.50	
PFTrDA	1.00 <del>UT</del> UJ	0.42	1.00	2.50	
PFTeDA	1.50 <del>UT</del> UJ	0.73	1.50	2.50	
NMeFOSAA	1.00 <del>UT</del> UJ	0.42	1.00	2.50	
NEtFOSAA	1.00 <del>UT</del> UJ	0.44	1.00	2.50	
PFBS	0.50 <del>UT</del> UJ	0.21	0.50	2.50	
PFHxS	1.00 <del>UT</del> UJ	0.34	1.00	2.50	
PFOS	1.59 <del>UT</del> J	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	111
13C2-PFDA	98
d5-EtFOSAA	89

07/17/2018

**Appendix B**

Results as Reported by the Laboratory



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

Client ID WGNA-052918-RW-3124

Battelle ID	J6258-FS			
Sample Type	SA			
Collection Date	05/29/2018			
Extraction Date	06/01/2018			
Analysis Date	06/12/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.260			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	5.59	0.22	0.50	2.50
PFHpA	3.13	0.34	1.00	2.50
PFOA	11.54	0.38	1.00	2.50
PFNA	1.42 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	3.32	0.21	0.50	2.50
PFHxS	5.70	0.34	1.00	2.50
PFOS	10.06	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	107
13C2-PFDA	97
d5-EtFOSAA	104





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

Client ID WGNA-052918-RW-3493

Battelle ID	J6260-FS			
Sample Type	SA			
Collection Date	05/29/2018			
Extraction Date	06/01/2018			
Analysis Date	06/12/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.275			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	7.38	0.22	0.50	2.50
PFHpA	4.29	0.34	1.00	2.50
PFOA	14.59	0.38	1.00	2.50
PFNA	2.23 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	8.41	0.21	0.50	2.50
PFHxS	9.19	0.34	1.00	2.50
PFOS	17.70	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	117
13C2-PFDA	115
d5-EtFOSAA	108



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

Client ID WGNA-052918-RW-3882

Battelle ID J6262-FS  
 Sample Type SA  
 Collection Date 05/29/2018  
 Extraction Date 06/01/2018  
 Analysis Date 06/12/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.290  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	8.74	0.22	0.50	2.50
PFHpA	4.41	0.34	1.00	2.50
PFOA	8.47	0.38	1.00	2.50
PFNA	3.04	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	4.09	0.21	0.50	2.50
PFHxS	9.46	0.34	1.00	2.50
PFOS	25.23	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	103
13C2-PFDA	93
d5-EtFOSAA	103



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

Client ID WGNA-052918-RW-3978

Battelle ID	J6264-FS			
Sample Type	SA			
Collection Date	05/29/2018			
Extraction Date	06/01/2018			
Analysis Date	06/12/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.270			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	8.86	0.22	0.50	2.50
PFHpA	4.86	0.34	1.00	2.50
PFOA	11.26	0.38	1.00	2.50
PFNA	2.34 J	0.37	1.00	2.50
PFDA	0.69 J	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	4.11	0.21	0.50	2.50
PFHxS	6.64	0.34	1.00	2.50
PFOS	14.01	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	114
13C2-PFDA	103
d5-EtFOSAA	91



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

Client ID	NAWC-052918-RW-161			
Battelle ID	J6266-FS			
Sample Type	SA			
Collection Date	05/29/2018			
Extraction Date	06/01/2018			
Analysis Date	06/12/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.290			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	11.56	0.22	0.50	2.50
PFHpA	6.13	0.34	1.00	2.50
PFOA	18.42	0.38	1.00	2.50
PFNA	3.39	0.37	1.00	2.50
PFDA	0.58 J	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	7.62	0.21	0.50	2.50
PFHxS	13.47	0.34	1.00	2.50
PFOS	35.04	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	119
13C2-PFDA	100
d5-EtFOSAA	113



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

Client ID	WGNA-053018-RW-3876			
Battelle ID	J6270-FS			
Sample Type	SA			
Collection Date	05/30/2018			
Extraction Date	06/01/2018			
Analysis Date	06/12/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.275			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	4.58	0.22	0.50	2.50
PFHpA	2.84	0.34	1.00	2.50
PFOA	10.65	0.38	1.00	2.50
PFNA	1.54 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	2.96	0.21	0.50	2.50
PFHxS	4.42	0.34	1.00	2.50
PFOS	9.86	0.30	1.00	2.50
<b>Surrogate Recoveries (%)</b>				
13C2-PFHxA	117			
13C2-PFDA	101			
d5-EtFOSAA	111			



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

Client ID	WGNA-053018-DUP-37			
Battelle ID	J6272-FS			
Sample Type	SA			
Collection Date	05/30/2018			
Extraction Date	06/01/2018			
Analysis Date	06/12/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.275			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	4.56	0.22	0.50	2.50
PFHpA	3.03	0.34	1.00	2.50
PFOA	10.75	0.38	1.00	2.50
PFNA	1.78 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	2.96	0.21	0.50	2.50
PFHxS	4.84	0.34	1.00	2.50
PFOS	10.28	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	119
13C2-PFDA	110
d5-EtFOSAA	109



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

Client ID	NAWC-053018-RW-231			
Battelle ID	J6273-FS			
Sample Type	SA			
Collection Date	05/30/2018			
Extraction Date	06/01/2018			
Analysis Date	06/12/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.285			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	9.35	0.22	0.50	2.50
PFHpA	4.11	0.34	1.00	2.50
PFOA	10.51	0.38	1.00	2.50
PFNA	1.76 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	5.78	0.21	0.50	2.50
PFHxS	37.20 D	0.34	1.00	2.50
PFOS	57.09 D	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	107
13C2-PFDA	97
d5-EtFOSAA	88



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

Client ID WGNA-053018-RW-3933

Battelle ID	J6275-FS			
Sample Type	SA			
Collection Date	05/30/2018			
Extraction Date	06/01/2018			
Analysis Date	06/12/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.285			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	9.95	0.22	0.50	2.50
PFHpA	6.85	0.34	1.00	2.50
PFOA	18.92	0.38	1.00	2.50
PFNA	2.35 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	7.61	0.21	0.50	2.50
PFHxS	4.80	0.34	1.00	2.50
PFOS	19.86	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	111
13C2-PFDA	103
d5-EtFOSAA	103





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

Client ID	NAWC-053018-RW-164			
Battelle ID	J6277-FS			
Sample Type	SA			
Collection Date	05/30/2018			
Extraction Date	06/01/2018			
Analysis Date	06/12/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.270			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	8.14	0.22	0.50	2.50
PFHpA	5.55	0.34	1.00	2.50
PFOA	18.79	0.38	1.00	2.50
PFNA	2.18 J	0.37	1.00	2.50
PFDA	0.39 U	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	29.34	0.21	0.50	2.50
PFHxS	6.74	0.34	1.00	2.50
PFOS	14.52	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	119
13C2-PFDA	105
d5-EtFOSAA	126



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

Client ID	NAWC-053018-RW-292			
Battelle ID	J6279-FS			
Sample Type	SA			
Collection Date	05/30/2018			
Extraction Date	06/01/2018			
Analysis Date	06/12/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.285			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	10.15	0.22	0.50	2.50
PFHpA	6.81	0.34	1.00	2.50
PFOA	24.37	0.38	1.00	2.50
PFNA	3.39	0.37	1.00	2.50
PFDA	0.46 J	0.39	1.00	2.50
PFUnA	0.38 U	0.38	1.00	2.50
PFDaA	0.42 U	0.42	1.00	2.50
PFTTrDA	0.42 U	0.42	1.00	2.50
PFTeDA	0.73 U	0.73	1.50	2.50
NMeFOSAA	0.42 U	0.42	1.00	2.50
NEtFOSAA	0.44 U	0.44	1.00	2.50
PFBS	5.60	0.21	0.50	2.50
PFHxS	7.86	0.34	1.00	2.50
PFOS	20.09	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	116
13C2-PFDA	93
d5-EtFOSAA	107



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

Client ID	NAWC-053018-RW-271				
Battelle ID	J6281-FS				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/01/2018				
Analysis Date	06/12/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.275				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	5.47	0.22	0.50	2.50	
PFHpA	3.38	0.34	1.00	2.50	
PFOA	12.38	0.38	1.00	2.50	
PFNA	1.32 J	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDaA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	3.10	0.21	0.50	2.50	
PFHxS	5.44	0.34	1.00	2.50	
PFOS	10.03	0.30	1.00	2.50	
<b>Surrogate Recoveries (%)</b>					
13C2-PFHxA	106				
13C2-PFDA	103				
d5-EtFOSAA	107				



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

Client ID	NAWC-053018-RW-270				
Battelle ID	J6283-FS				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/01/2018				
Analysis Date	06/12/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.275				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	4.51	0.22	0.50	2.50	
PFHpA	3.35	0.34	1.00	2.50	
PFOA	10.97	0.38	1.00	2.50	
PFNA	1.80 J	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDaA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	6.24	0.21	0.50	2.50	
PFHxS	4.45	0.34	1.00	2.50	
PFOS	12.57	0.30	1.00	2.50	
<b>Surrogate Recoveries (%)</b>					
13C2-PFHxA	114				
13C2-PFDA	99				
d5-EtFOSAA	113				



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

Client ID	NAWC-053018-RW-196				
Battelle ID	J6285-FS				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/01/2018				
Analysis Date	06/12/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.275				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	13.18	0.22	0.50	2.50	
PFHpA	6.70	0.34	1.00	2.50	
PFOA	15.77	0.38	1.00	2.50	
PFNA	2.27 J	0.37	1.00	2.50	
PFDA	0.69 J	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDaA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	7.55	0.21	0.50	2.50	
PFHxS	2.31 J	0.34	1.00	2.50	
PFOS	12.20	0.30	1.00	2.50	
<b>Surrogate Recoveries (%)</b>					
13C2-PFHxA	108				
13C2-PFDA	97				
d5-EtFOSAA	108				



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

Client ID	NAWC-053018-RW-172				
Battelle ID	J6287-FS				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/01/2018				
Analysis Date	06/12/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.270				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	4.90	0.22	0.50	2.50	
PFHpA	3.31	0.34	1.00	2.50	
PFOA	10.26	0.38	1.00	2.50	
PFNA	1.08 J	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDaA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	2.83	0.21	0.50	2.50	
PFHxS	3.67	0.34	1.00	2.50	
PFOS	8.12	0.30	1.00	2.50	
<b>Surrogate Recoveries (%)</b>					
13C2-PFHxA	115				
13C2-PFDA	109				
d5-EtFOSAA	120				



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

Client ID WGNA-052918-FRB-3124

Battelle ID	J6259-FS1			
Sample Type	SA			
Collection Date	05/29/2018			
Extraction Date	06/21/2018			
Analysis Date	06/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.250			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 UT	0.22	0.50	2.50
PFHpA	1.00 UT	0.34	1.00	2.50
PFOA	1.00 UT	0.38	1.00	2.50
PFNA	1.00 UT	0.37	1.00	2.50
PFDA	1.00 UT	0.39	1.00	2.50
PFUnA	1.00 UT	0.38	1.00	2.50
PFDoA	1.00 UT	0.42	1.00	2.50
PFTTrDA	1.00 UT	0.42	1.00	2.50
PFTeDA	1.50 UT	0.73	1.50	2.50
NMeFOSAA	1.00 UT	0.42	1.00	2.50
NEtFOSAA	1.00 UT	0.44	1.00	2.50
PFBS	0.50 UT	0.21	0.50	2.50
PFHxS	1.00 UT	0.34	1.00	2.50
PFOS	0.63 JT	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	109
13C2-PFDA	98
d5-EtFOSAA	93



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

Client ID WGNA-052918-FRB-3493

Battelle ID	J6261-FS1			
Sample Type	SA			
Collection Date	05/29/2018			
Extraction Date	06/21/2018			
Analysis Date	06/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.260			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 UT	0.22	0.50	2.50
PFHpA	1.00 UT	0.34	1.00	2.50
PFOA	1.00 UT	0.38	1.00	2.50
PFNA	1.00 UT	0.37	1.00	2.50
PFDA	1.00 UT	0.39	1.00	2.50
PFUnA	1.00 UT	0.38	1.00	2.50
PFDaA	1.00 UT	0.42	1.00	2.50
PFTTrDA	1.00 UT	0.42	1.00	2.50
PFTeDA	1.50 UT	0.73	1.50	2.50
NMeFOSAA	1.00 UT	0.42	1.00	2.50
NEtFOSAA	1.00 UT	0.44	1.00	2.50
PFBS	0.50 UT	0.21	0.50	2.50
PFHxS	1.00 UT	0.34	1.00	2.50
PFOS	0.46 JT	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	119
13C2-PFDA	100
d5-EtFOSAA	98





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

Client ID WGNA-052918-FRB-3882

Battelle ID J6263-FS1  
 Sample Type SA  
 Collection Date 05/29/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.265  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

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

**Surrogate Recoveries (%)**

13C2-PFHxA	115
13C2-PFDA	98
d5-EtFOSAA	105



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

Client ID WGNA-052918-FRB-3978

Battelle ID	J6265-FS1			
Sample Type	SA			
Collection Date	05/29/2018			
Extraction Date	06/21/2018			
Analysis Date	06/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.270			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 UT	0.22	0.50	2.50
PFHpA	1.00 UT	0.34	1.00	2.50
PFOA	1.00 UT	0.38	1.00	2.50
PFNA	1.00 UT	0.37	1.00	2.50
PFDA	1.00 UT	0.39	1.00	2.50
PFUnA	1.00 UT	0.38	1.00	2.50
PFDaA	1.00 UT	0.42	1.00	2.50
PFTTrDA	1.00 UT	0.42	1.00	2.50
PFTeDA	1.50 UT	0.73	1.50	2.50
NMeFOSAA	1.00 UT	0.42	1.00	2.50
NEtFOSAA	1.00 UT	0.44	1.00	2.50
PFBS	0.50 UT	0.21	0.50	2.50
PFHxS	1.00 UT	0.34	1.00	2.50
PFOS	0.35 JT	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	112
13C2-PFDA	103
d5-EtFOSAA	109



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

Client ID	NAWC-052918-FRB-161				
Battelle ID	J6267-FS1				
Sample Type	SA				
Collection Date	05/29/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.260				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDoA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	1.00 UT	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	119
13C2-PFDA	103
d5-EtFOSAA	88



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

Client ID WGNA-053018-FRB-3876

Battelle ID J6271-FS1  
 Sample Type SA  
 Collection Date 05/30/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.255  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

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

**Surrogate Recoveries (%)**

13C2-PFHxA	109
13C2-PFDA	107
d5-EtFOSAA	106



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

Client ID	NAWC-053018-FRB-231				
Battelle ID	J6274-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.270				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDaA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	1.00 UT	0.30	1.00	2.50	
<b>Surrogate Recoveries (%)</b>					
13C2-PFHxA	122				
13C2-PFDA	115				
d5-EtFOSAA	106				



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

Client ID WGNA-053018-FRB-3933

Battelle ID J6276-FS1  
 Sample Type SA  
 Collection Date 05/30/2018  
 Extraction Date 06/21/2018  
 Analysis Date 06/27/2018  
 Analytical Instrument Sciex 5500 LC/MS/MS  
 % Moisture NA  
 Matrix DW  
 Sample Size 0.250  
 Size Unit-Basis L  
 Units ng/L MDL LOD LOQ

	ng/L	MDL	LOD	LOQ
PFHxA	0.50 UT	0.22	0.50	2.50
PFHpA	1.00 UT	0.34	1.00	2.50
PFOA	1.00 UT	0.38	1.00	2.50
PFNA	1.00 UT	0.37	1.00	2.50
PFDA	1.00 UT	0.39	1.00	2.50
PFUnA	1.00 UT	0.38	1.00	2.50
PFDaA	1.00 UT	0.42	1.00	2.50
PFTrDA	1.00 UT	0.42	1.00	2.50
PFTeDA	1.50 UT	0.73	1.50	2.50
NMeFOSAA	1.00 UT	0.42	1.00	2.50
NEtFOSAA	1.00 UT	0.44	1.00	2.50
PFBS	0.50 UT	0.21	0.50	2.50
PFHxS	1.00 UT	0.34	1.00	2.50
PFOS	0.54 JT	0.30	1.00	2.50

**Surrogate Recoveries (%)**

13C2-PFHxA	120
13C2-PFDA	116
d5-EtFOSAA	110



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

Client ID	NAWC-053018-FRB-164				
Battelle ID	J6278-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.270				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDaA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	1.00 UT	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	123
13C2-PFDA	102
d5-EtFOSAA	106



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

Client ID	NAWC-053018-FRB-292				
Battelle ID	J6280-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.255				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDaA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	2.16 JT	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	104
13C2-PFDA	103
d5-EtFOSAA	114





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

Client ID	NAWC-053018-FRB-271				
Battelle ID	J6282-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.270				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDaA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	1.24 JT	0.30	1.00	2.50	
<b>Surrogate Recoveries (%)</b>					
13C2-PFHxA	115				
13C2-PFDA	98				
d5-EtFOSAA	100				



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

Client ID	NAWC-053018-FRB-270				
Battelle ID	J6284-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.260				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDaA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	0.85 JT	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	124
13C2-PFDA	105
d5-EtFOSAA	98



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

Client ID	NAWC-053018-FRB-196				
Battelle ID	J6286-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.245				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDoA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	0.33 JT	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	115
13C2-PFDA	103
d5-EtFOSAA	109



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

Client ID	NAWC-053018-FRB-172				
Battelle ID	J6288-FS1				
Sample Type	SA				
Collection Date	05/30/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.240				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 UT	0.22	0.50	2.50	
PFHpA	1.00 UT	0.34	1.00	2.50	
PFOA	1.00 UT	0.38	1.00	2.50	
PFNA	1.00 UT	0.37	1.00	2.50	
PFDA	1.00 UT	0.39	1.00	2.50	
PFUnA	1.00 UT	0.38	1.00	2.50	
PFDaA	1.00 UT	0.42	1.00	2.50	
PFTTrDA	1.00 UT	0.42	1.00	2.50	
PFTeDA	1.50 UT	0.73	1.50	2.50	
NMeFOSAA	1.00 UT	0.42	1.00	2.50	
NEtFOSAA	1.00 UT	0.44	1.00	2.50	
PFBS	0.50 UT	0.21	0.50	2.50	
PFHxS	1.00 UT	0.34	1.00	2.50	
PFOS	1.59 JT	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	111
13C2-PFDA	98
d5-EtFOSAA	89

**Appendix C**

Support Documentation

# Battelle

*The Business of Innovation*

## Chain-of-Custody

<b>Client Contact Information</b> Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170		Project Manager: Jonathan Thorn Sampler Information (print name): Mary Kay Bond Phone: 610-382-1169 Email: mary.bond@tetrattech.com Turnaround Time (TAT) Requested: 21 days		Sampling Site: WE04 Site Information: NAS JRB Willow Grove/WGNA Warmminster																			
Project Name: WE04 Project No.: 112G08005-WE04		Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/> Time Zone: Eastern		COC #  Page# 1 of 1																			
Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	Analysis																	
WGNA-052918-RW-3124 J6258	5/29/2018	9:40	G	DW	2	PFAS EPA 537 14 analytes	X																
WGNA-052918-FRB-3124 J6259	5/29/2018	9:35	G	DW	2		X																
WGNA-052918-RW-3493 J6260	5/29/2018	10:10	G	DW	2		X																
WGNA-052918-FRB-3493 J6261	5/29/2018	10:05	G	DW	2		X																
WGNA-052918-RW-3882 J6262	5/29/2018	10:25	G	DW	2		X																
WGNA-052918-FRB-3882 J6263	5/29/2018	10:20	G	DW	2		X																
WGNA-052918-RW-3978 J6264	5/29/2018	10:40	G	DW	2		X																
WGNA-052918-FRB-3978 J6265	5/29/2018	10:35	G	DW	2		X																
NAWC-052918-RW-161 J6266	5/29/2018	11:40	G	DW	2		X																
NAWC-052918-FRB-161 J6267	5/29/2018	11:35	G	DW	2		X																
Receipt Temperature: (°C) 1.7°		Samples Intact: Yes - No			Samples on Ice: Yes - No			Receipt Comments:															
Relinquished by (Print/Sign):		Company: Tetra Tech		Date/Time: 05/29/2018 16:00		Received by (Print/Sign):		Company: Battelle		Date/Time: 5-30-18 10:30													
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):		Company:		Date/Time:													
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):		Company:		Date/Time:													
Comments: FedEx Tracking # 7723 3007 0381																							

# Battelle

The Business of Innovation

## Chain-of-Custody

<b>Client Contact Information</b> Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170		<b>Project Manager: Jonathan Thorn</b> Sampler Information (print name): Mary Kay Bond Phone: 610-382-1169 Email: mary.bond@tetrattech.com		Sampling Site: WE04		Site Information: NAS JRB Willow Grove/WGNA Warminster	
Project Name: WE04		Turnaround Time (TAT) Requested: 21 days Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/>		Preservation Trizma		COC #	
Project No.: 112G08005-WE04		Time Zone: Eastern				Page# 1 of 1	
Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	Analysis	
WGNA-053018-RW-3876 J6270	5/30/2018	8:10	G	DW	2	PFAS EPA 537 14 analytes	X
WGNA-053018-FRB-3876 71	5/30/2018	8:05	G	DW	2		X
WGNA-053018-DUP-37 72	5/30/2018	7:00	G	DW	2		X
NAWC-053018-RW-231 73	5/30/2018	8:40	G	DW	2		X
NAWC-053018-FRB-231 74	5/30/2018	8:35	G	DW	2		X
WGNA-053018-RW-3933 75	5/30/2018	11:10	G	DW	2		X
WGNA-053018-FRB-3933 76	5/30/2018	11:05	G	DW	2		X
NAWC-053018-RW-164 77	5/30/2018	14:10	G	DW	2		X
NAWC-053018-FRB-164 78	5/30/2018	14:05	G	DW	2		X
NAWC-053018-RW-292 79	5/30/2018	14:40	G	DW	2		X
NAWC-053018-FRB-292 80	5/30/2018	14:35	G	DW	2		X
NAWC-053018-RW-271 81	5/30/2018	15:10	G	DW	2		X
NAWC-053018-FRB-271 82	5/30/2018	15:05	G	DW	2		X
NAWC-053018-RW-270 83	5/30/2018	15:20	G	DW	2		X
NAWC-053018-FRB-270 84	5/30/2018	15:15	G	DW	2		X
NAWC-053018-RW-196 85	5/30/2018	15:40	G	DW	2		X
NAWC-053018-FRB-196 86	5/30/2018	15:35	G	DW	2		X
NAWC-053018-RW-172 87	5/30/2018	16:10	G	DW	2		X
NAWC-053018-FRB-172 J6288	5/30/2018	16:05	G	DW	2		X
Receipt Temperature: (°C) 1.3		Samples Intact: (Yes) No		Samples on Ice: (Yes) No		Receipt Comments:	
Relinquished by (Print/Sign): Mary Kay Bond		Company: Tetra Tech Date/Time: 05/30/2018 18:00		Received by (Print/Sign): Matt Schumitz		Company: Battelle Date/Time: 5-31-18 10 30	
Relinquished by (Print/Sign):		Company:		Received by (Print/Sign):		Company:	
Relinquished by (Print/Sign):		Company:		Received by (Print/Sign):		Company:	
Comments: FedEx Tracking # 7723 4831 5079							

**QA/QC Summary**  
**Batch 18-0343**

Project:	CTO-WE04 Naval Air Station Joint Reserve Base Willow Grove
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	DW
Data Set:	DP-18-0135
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
5/29/2018	5/30/2018	1.7
5/30/2018	5/31/2018	1.3

Corrective Actions	None
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	Field samples associated with these FRB samples are extracted in SDG 18-0359.

METHOD SUMMARIES	
Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a weak ion exchange solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were concentrated to dryness under nitrogen with a water bath set between 60 °C and 65 °C, reconstituted with 96:4 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	None.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on the Sciex 5500. The confirmation ion ratio was above 50% RPD for the selected samples, however, the detected concentrations were below the LOQ or below the detection limits with the following exceptions: WGNA-053018-RW-3876 (J6270) – PFHpA and PFOA WGNA-053018-DUP-37 (J6272) – PFHpA and PFOA

Holding Times	Extraction Date(s)	Analysis Date(s)
	6/1/2018	6/12 and 14/2018



**QA/QC Summary**  
**Batch 18-0343**

Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.
$\leq 1/3$ the MRL	No exceedances noted. No comments.
Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
70-130% of true value	No exceedances noted. No comments.
Matrix Spike (MS) / Duplicate (MSD)	A MS/MSD were prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy. The relative percent difference was calculated to measure precision.
70-130% of true value, RPD $\leq 30\%$	No exceedances noted. MS/MSD samples were not processed with this batch of field samples.
Surrogates Standard Analytes	Labelled surrogate compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
70-130% of true value	No exceedances noted. No comments.
Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
ICal high and low points RPD $\leq 20\%$ , 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted. No comments.

--	--

**QA/QC Summary**  
**Batch 18-0343**

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



It can be done

**BATTELLE - NORWELL OPERATIONS  
SAMPLE IDENTIFICATION PAGE**

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**

100117920-  
WE04

**18-0343**

**WE04 PFAS Analysis**

**DW**

<b>Sample ID</b>	<b>Description</b>
CQ870PB-FS	Procedural Blank
CQ871LCS-FS	Laboratory Control Sample
J6258-FS	WGNA-052918-RW-3124
J6260-FS	WGNA-052918-RW-3493
J6262-FS	WGNA-052918-RW-3882
J6264-FS	WGNA-052918-RW-3978
J6266-FS	NAWC-052918-RW-161
J6270-FS	WGNA-053018-RW-3876
J6272-FS	WGNA-053018-DUP-37
J6273-FS	NAWC-053018-RW-231
J6275-FS	WGNA-053018-RW-3933
J6277-FS	NAWC-053018-RW-164
J6279-FS	NAWC-053018-RW-292
J6281-FS	NAWC-053018-RW-271
J6283-FS	NAWC-053018-RW-270
J6285-FS	NAWC-053018-RW-196
J6287-FS	NAWC-053018-RW-172

Samples Assigned By:

Stephanie Schultz

Date :

June 11, 2018

Comments:



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

Client ID	Procedural Blank				
Battelle ID	CQ870PB-FS				
Sample Type	PB				
Collection Date	06/01/2018				
Extraction Date	06/01/2018				
Analysis Date	06/12/2018				
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	0.45 J	0.22	0.50	2.50	
PFHpA	0.34 U	0.34	1.00	2.50	
PFOA	0.38 U	0.38	1.00	2.50	
PFNA	0.37 U	0.37	1.00	2.50	
PFDA	0.39 U	0.39	1.00	2.50	
PFUnA	0.38 U	0.38	1.00	2.50	
PFDaA	0.42 U	0.42	1.00	2.50	
PFTTrDA	0.42 U	0.42	1.00	2.50	
PFTeDA	0.73 U	0.73	1.50	2.50	
NMeFOSAA	0.42 U	0.42	1.00	2.50	
NEtFOSAA	0.44 U	0.44	1.00	2.50	
PFBS	0.21 U	0.21	0.50	2.50	
PFHxS	0.34 U	0.34	1.00	2.50	
PFOS	0.30 U	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	110
13C2-PFDA	96
d5-EtFOSAA	109



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

Client ID	Laboratory Control Sample					
Battelle ID	CQ871LCS-FS					
Sample Type	LCS					
Collection Date	06/01/2018					
Extraction Date	06/01/2018					
Analysis Date	06/12/2018					
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	29.82	30.00	99		70	130
PFHpA	28.21	30.00	94		70	130
PFOA	27.75	30.00	93		70	130
PFNA	28.01	30.00	93		70	130
PFDA	26.56	30.00	89		70	130
PFUnA	27.19	30.00	91		70	130
PFDoA	27.67	30.00	92		70	130
PFTTrDA	29.69	30.00	99		70	130
PFTeDA	38.21	30.00	127		70	130
NMeFOSAA	31.27	30.00	104		70	130
NEtFOSAA	32.32	30.00	108		70	130
PFBS	25.39	26.55	96		70	130
PFHxS	26.33	28.35	93		70	130
PFOS	25.47	28.65	89		70	130

**Surrogate Recoveries (%)**

13C2-PFHxA	108
13C2-PFDA	103
d5-EtFOSAA	107



**It can be done**

Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project Number: 100117920-WE04  
 Preparation Batch: 18-0343  
 Data Set: DP-18-0135  
 Test Code: Master\_371

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



It can be done

## BATTELLE - NORWELL OPERATIONS MISCELLANEOUS DOCUMENTATION FORM

<b>Project Title:</b>	Naval Air Station Joint Reserve Base Wi	<b>Data Set Number:</b>	DP-18-0135
<b>Project Number:</b>	100117920-WE04	<b>Prep Batch Number:</b>	18-0343
<b>Entered By:</b>	Denise Schumitz	<b>Entered On:</b>	06/15/2018
<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 6/15/2018

Sample J6264 did not meet the criteria for the internal standard d3-MeFOSAA. This sample was re-aliquoted, run and passes. All analytes for this sample being quantified from d3-MeFOSAA are being reported from 18-0343\_D. DMS 6/15/2018

JV64 is not being used in the calibration curve for all analytes in method 18-0343. There is no impact on the data once this point is removed from the calibration. DMS 6/15/2018

JV65 is not being used in the calibration curve for PFHxA and PFOS in method 18-0343. There is no impact on the data. DMS 6/15/2018

JV72 is not being used in the calibration curve for NMeFOSAA, NEtFOSAA, and d5-EtFOSAA in method 18-0343\_D. There is no impact on the data once this point is removed from the calibration. DMS 6/15/2018

JV65, in method 18-0343, has an ion ratio of >50% for PFHpA and NEtFOSAA. DMS 6/15/2018

CQ870PB, in method 18-0343, has an ion ratio of >50% for PFBS, FHpA, PFOA, PFDA, NMeFOSAA, and NEtFOSAA. DMS 6/15/2018

J6258, in method 18-0343, has an ion ratio of >50% for NEtFOSAA. DMS 6/15/2018

J6260, in method 18-0343, has an ion ratio of >50% for PFDoA, PFTrDA, and NMeFOSAA. DMS 6/15/2018

J6262, in method 18-0343, has an ion ratio of >50% for PFDoA, PFTrDA, and PFTeDA. DMS 6/15/2018

J6264, in method 18-0343, has an ion ratio of >50% for PFTrDA and PFTeDA. DMS 6/15/2018

J6266, in method 18-0343, has an ion ratio of >50% for PFTrDA and PFTeDA. DMS 6/15/2018

J6270, in method 18-0343, has an ion ratio of >50% for PFHpA, PFOA, PFDoA, PFTrDA, and PFTeDA. DMS 6/15/2018

J6272, in method 18-0343, has an ion ratio of >50% for PFHpA, PFOA, PFDA, PFDoA, PFTrDA, and PFTeDA. DMS 6/15/2018

J6275, in method 18-0343, has an ion ratio of >50% for PFTrDA and PFTeDA. DMS 6/15/2018

J6273, J6277, J6279, J6281, J6283, J6285, and J6287 in method 18-0343, have an ion ratio of >50% for PFDoA, PFTrDA and PFTeDA. DMS 6/15/2018

**Task Leader Approval:**

**Supervisor Approval:**

**PM Approval:**

Digitally signed by Jonathan Thorn

Date: 2018.06.18 09:44:21 -04'00'



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04  
 Preparation Batch: 18-0343  
 Data Set: DP-18-0135

	CQ870PB-FS (Procedural Blank)	CQ871LCS-FS (Laboratory Control Sample)	J6258-FS (WGNNA-052918-RW-3124)	J6260-FS (WGNNA-052918-RW-3493)	J6262-FS (WGNNA-052918-RW-3882)	J6264-FS (WGNNA-052918-RW-3978)
PFHxA	-	L	L	L	L	L
PFHpA	-	L	L	L	L	L
PFOA	-	L	L	L	L	L
PFNA	-	L	L	L	L	L
PFDA	-	L	-	-	-	L
PFUnA	-	L	-	-	-	-
PFDoA	-	L	-	-	-	-
PFTTrDA	-	L	-	-	-	-
PFTeDA	-	L	-	-	-	-
NMeFOSAA	-	L	-	-	-	-
NEtFOSAA	-	L	-	-	-	-
PFBS	-	L	L	L	L	L
PFHxS	-	L	L	L	L	L
PFOS	-	L/Br	L/Br	L/Br	L/Br	L/Br

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





Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04  
 Preparation Batch: 18-0343  
 Data Set: DP-18-0135

	J6266-FS (NAWC-052918-RW-161)	J6270-FS (WGNA-053018-RW-3876)	J6272-FS (WGNA-053018-DUP-37)	J6273-FS (NAWC-053018-RW-231)	J6275-FS (WGNA-053018-RW-3933)	J6277-FS (NAWC-053018-RW-164)	J6279-FS (NAWC-053018-RW-292)	J6281-FS (NAWC-053018-RW-271)
PFHxA	L	L	L	L	L	L	L	L
PFHpA	L	L	L	L	L	L	L	L
PFOA	L	L	L	L	L	L	L	L
PFNA	L	L	L	L	L	L	L	L
PFDA	L	-	-	-	-	-	L	-
PFUnA	-	-	-	-	-	-	-	-
PFDaA	-	-	-	-	-	-	-	-
PFTTrDA	-	-	-	-	-	-	-	-
PFTeDA	-	-	-	-	-	-	-	-
NMeFOSAA	-	-	-	-	-	-	-	-
NEtFOSAA	-	-	-	-	-	-	-	-
PFBS	L	L	L	L	L	L	L	L
PFHxS	L	L	L	L	L	L	L	L
PFOS	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br

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



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04  
 Preparation Batch: 18-0343  
 Data Set: DP-18-0135

	J6283-FS (NAWC-053018-RW-270)	J6285-FS (NAWC-053018-RW-196)	J6287-FS (NAWC-053018-RW-172)
PFHxA	L	L	L
PFHpA	L	L	L
PFOA	L	L	L
PFNA	L	L	L
PFDA	-	-	-
PFUnA	-	-	-
PFDoA	-	-	-
PFTTrDA	-	-	-
PFTeDA	-	-	-
NMeFOSAA	-	-	-
NEtFOSAA	-	-	-
PFBS	L	L	L
PFHxS	L	L	L
PFOS	L/Br	L/Br	L/Br

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

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV65	L2	6/12/18 15:56	13C4-PFOS	175,225.42	-
JV66	L3	6/12/18 16:05	13C4-PFOS	156,308.21	-
JV67	L4	6/12/18 16:14	13C4-PFOS	144,107.35	-
JV68	L5	6/12/18 16:23	13C4-PFOS	172,723.18	-
JV69	L6	6/12/18 16:32	13C4-PFOS	171,696.69	-
JV70	L7	6/12/18 16:40	13C4-PFOS	157,911.70	-
JV71	L8	6/12/18 16:49	13C4-PFOS	143,877.70	-
JV72	L9	6/12/18 16:58	13C4-PFOS	178,415.29	1.8

PASS

Average      Lower      Upper  
 162,533.19    81,266.60    243,799.79

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV65	L2	6/12/18 15:56	13C4-PFOS	175,225.42	81,266.60	243,799.79		120,187.68	240,375.37	
JV66	L3	6/12/18 16:05	13C4-PFOS	156,308.21	81,266.60	243,799.79		120,187.68	240,375.37	
JV67	L4	6/12/18 16:14	13C4-PFOS	144,107.35	81,266.60	243,799.79		120,187.68	240,375.37	
JV68	L5	6/12/18 16:23	13C4-PFOS	172,723.18	81,266.60	243,799.79		120,187.68	240,375.37	
JV69	L6	6/12/18 16:32	13C4-PFOS	171,696.69	81,266.60	243,799.79		120,187.68	240,375.37	
JV70	L7	6/12/18 16:40	13C4-PFOS	157,911.70	81,266.60	243,799.79		120,187.68	240,375.37	
JV71	L8	6/12/18 16:49	13C4-PFOS	143,877.70	81,266.60	243,799.79		120,187.68	240,375.37	
JV72	L9	6/12/18 16:58	13C4-PFOS	178,415.29	81,266.60	243,799.79		120,187.68	240,375.37	
JV63 ICC	ICC	6/12/18 17:07	13C4-PFOS	144,565.71	81,266.60	243,799.79		120,187.68	240,375.37	
CQ870PB-FS(0)	Procedural Blank	6/12/18 17:16	13C4-PFOS	155,430.77	81,266.60	243,799.79		120,187.68	240,375.37	
CQ871LCS-FS(0)	Laboratory Control Sample	6/12/18 17:25	13C4-PFOS	146,577.61	81,266.60	243,799.79		120,187.68	240,375.37	
J6258-FS(0)	WGNA-052918-RW-3124	6/12/18 17:34	13C4-PFOS	157,775.26	81,266.60	243,799.79		120,187.68	240,375.37	
J6260-FS(0)	WGNA-052918-RW-3493	6/12/18 17:43	13C4-PFOS	161,208.59	81,266.60	243,799.79		120,187.68	240,375.37	
J6262-FS(0)	WGNA-052918-RW-3882	6/12/18 17:52	13C4-PFOS	183,824.83	81,266.60	243,799.79		120,187.68	240,375.37	
J6264-FS(0)	WGNA-052918-RW-3978	6/12/18 18:01	13C4-PFOS	122,165.48	81,266.60	243,799.79		120,187.68	240,375.37	
J6266-FS(0)	NAWC-052918-RW-161	6/12/18 18:10	13C4-PFOS	129,333.17	81,266.60	243,799.79		120,187.68	240,375.37	
J6270-FS(0)	WGNA-053018-RW-3876	6/12/18 18:19	13C4-PFOS	157,613.34	81,266.60	243,799.79		120,187.68	240,375.37	
JV69 CCV	CCV	6/12/18 18:27	13C4-PFOS	164,027.66	81,266.60	243,799.79		120,187.68	240,375.37	
J6272-FS(0)	WGNA-053018-DUP-37	6/12/18 18:36	13C4-PFOS	134,976.88	81,266.60	243,799.79		114,819.36	229,638.72	
J6273-FS(0)	NAWC-053018-RW-231	6/12/18 18:45	13C4-PFOS	135,894.71	81,266.60	243,799.79		114,819.36	229,638.72	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV65	L2	6/12/18 15:56	13C4-PFOS	175,225.42	-
JV66	L3	6/12/18 16:05	13C4-PFOS	156,308.21	-
JV67	L4	6/12/18 16:14	13C4-PFOS	144,107.35	-
JV68	L5	6/12/18 16:23	13C4-PFOS	172,723.18	-
JV69	L6	6/12/18 16:32	13C4-PFOS	171,696.69	-
JV70	L7	6/12/18 16:40	13C4-PFOS	157,911.70	-
JV71	L8	6/12/18 16:49	13C4-PFOS	143,877.70	-
JV72	L9	6/12/18 16:58	13C4-PFOS	178,415.29	1.8

PASS

Average      Lower      Upper  
 162,533.19    81,266.60    243,799.79

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
J6275-FS(0)	WGNA-053018-RW-3933	6/12/18 18:54	13C4-PFOS	166,359.15	81,266.60	243,799.79		114,819.36	229,638.72	
J6277-FS(0)	NAWC-053018-RW-164	6/12/18 19:03	13C4-PFOS	139,897.42	81,266.60	243,799.79		114,819.36	229,638.72	
J6279-FS(0)	NAWC-053018-RW-292	6/12/18 19:12	13C4-PFOS	155,414.60	81,266.60	243,799.79		114,819.36	229,638.72	
J6281-FS(0)	NAWC-053018-RW-271	6/12/18 19:21	13C4-PFOS	152,042.85	81,266.60	243,799.79		114,819.36	229,638.72	
J6283-FS(0)	NAWC-053018-RW-270	6/12/18 19:30	13C4-PFOS	144,534.07	81,266.60	243,799.79		114,819.36	229,638.72	
J6285-FS(0)	NAWC-053018-RW-196	6/12/18 19:39	13C4-PFOS	151,326.78	81,266.60	243,799.79		114,819.36	229,638.72	
J6287-FS(0)	NAWC-053018-RW-172	6/12/18 19:48	13C4-PFOS	161,065.81	81,266.60	243,799.79		114,819.36	229,638.72	
JV70 CCV	CCV	6/12/18 19:57	13C4-PFOS	156,969.18	81,266.60	243,799.79		114,819.36	229,638.72	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV65	L2	6/12/18 15:56	13C2-PFOA	64,554.53	-
JV66	L3	6/12/18 16:05	13C2-PFOA	54,463.23	-
JV67	L4	6/12/18 16:14	13C2-PFOA	54,513.09	-
JV68	L5	6/12/18 16:23	13C2-PFOA	57,342.63	-
JV69	L6	6/12/18 16:32	13C2-PFOA	59,704.88	-
JV70	L7	6/12/18 16:40	13C2-PFOA	55,898.24	-
JV71	L8	6/12/18 16:49	13C2-PFOA	54,881.78	-
JV72	L9	6/12/18 16:58	13C2-PFOA	68,255.79	5.6

PASS

Average 58,701.77      Lower 29,350.89      Upper 88,052.66

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV65	L2	6/12/18 15:56	13C2-PFOA	64,554.53	29,350.89	88,052.66		41,793.42	83,586.83	
JV66	L3	6/12/18 16:05	13C2-PFOA	54,463.23	29,350.89	88,052.66		41,793.42	83,586.83	
JV67	L4	6/12/18 16:14	13C2-PFOA	54,513.09	29,350.89	88,052.66		41,793.42	83,586.83	
JV68	L5	6/12/18 16:23	13C2-PFOA	57,342.63	29,350.89	88,052.66		41,793.42	83,586.83	
JV69	L6	6/12/18 16:32	13C2-PFOA	59,704.88	29,350.89	88,052.66		41,793.42	83,586.83	
JV70	L7	6/12/18 16:40	13C2-PFOA	55,898.24	29,350.89	88,052.66		41,793.42	83,586.83	
JV71	L8	6/12/18 16:49	13C2-PFOA	54,881.78	29,350.89	88,052.66		41,793.42	83,586.83	
JV72	L9	6/12/18 16:58	13C2-PFOA	68,255.79	29,350.89	88,052.66		41,793.42	83,586.83	
JV63 ICC	ICC	6/12/18 17:07	13C2-PFOA	51,704.19	29,350.89	88,052.66		41,793.42	83,586.83	
CQ870PB-FS(0)	Procedural Blank	6/12/18 17:16	13C2-PFOA	55,526.05	29,350.89	88,052.66		41,793.42	83,586.83	
CQ871LCS-FS(0)	Laboratory Control Sample	6/12/18 17:25	13C2-PFOA	55,354.18	29,350.89	88,052.66		41,793.42	83,586.83	
J6258-FS(0)	WGNA-052918-RW-3124	6/12/18 17:34	13C2-PFOA	54,433.08	29,350.89	88,052.66		41,793.42	83,586.83	
J6260-FS(0)	WGNA-052918-RW-3493	6/12/18 17:43	13C2-PFOA	52,441.71	29,350.89	88,052.66		41,793.42	83,586.83	
J6262-FS(0)	WGNA-052918-RW-3882	6/12/18 17:52	13C2-PFOA	66,948.59	29,350.89	88,052.66		41,793.42	83,586.83	
J6264-FS(0)	WGNA-052918-RW-3978	6/12/18 18:01	13C2-PFOA	42,085.38	29,350.89	88,052.66		41,793.42	83,586.83	
J6266-FS(0)	NAWC-052918-RW-161	6/12/18 18:10	13C2-PFOA	46,988.17	29,350.89	88,052.66		41,793.42	83,586.83	
J6270-FS(0)	WGNA-053018-RW-3876	6/12/18 18:19	13C2-PFOA	53,326.49	29,350.89	88,052.66		41,793.42	83,586.83	
JV69 CCV	CCV	6/12/18 18:27	13C2-PFOA	59,011.92	29,350.89	88,052.66		41,793.42	83,586.83	
J6272-FS(0)	WGNA-053018-DUP-37	6/12/18 18:36	13C2-PFOA	46,385.06	29,350.89	88,052.66		41,308.34	82,616.69	
J6273-FS(0)	NAWC-053018-RW-231	6/12/18 18:45	13C2-PFOA	52,187.27	29,350.89	88,052.66		41,308.34	82,616.69	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV65	L2	6/12/18 15:56	13C2-PFOA	64,554.53	-
JV66	L3	6/12/18 16:05	13C2-PFOA	54,463.23	-
JV67	L4	6/12/18 16:14	13C2-PFOA	54,513.09	-
JV68	L5	6/12/18 16:23	13C2-PFOA	57,342.63	-
JV69	L6	6/12/18 16:32	13C2-PFOA	59,704.88	-
JV70	L7	6/12/18 16:40	13C2-PFOA	55,898.24	-
JV71	L8	6/12/18 16:49	13C2-PFOA	54,881.78	-
JV72	L9	6/12/18 16:58	13C2-PFOA	68,255.79	5.6

PASS

Average      Lower      Upper  
 58,701.77    29,350.89    88,052.66

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
J6275-FS(0)	WGNA-053018-RW-3933	6/12/18 18:54	13C2-PFOA	55,544.96	29,350.89	88,052.66		41,308.34	82,616.69	
J6277-FS(0)	NAWC-053018-RW-164	6/12/18 19:03	13C2-PFOA	48,439.85	29,350.89	88,052.66		41,308.34	82,616.69	
J6279-FS(0)	NAWC-053018-RW-292	6/12/18 19:12	13C2-PFOA	53,372.20	29,350.89	88,052.66		41,308.34	82,616.69	
J6281-FS(0)	NAWC-053018-RW-271	6/12/18 19:21	13C2-PFOA	52,163.07	29,350.89	88,052.66		41,308.34	82,616.69	
J6283-FS(0)	NAWC-053018-RW-270	6/12/18 19:30	13C2-PFOA	50,529.43	29,350.89	88,052.66		41,308.34	82,616.69	
J6285-FS(0)	NAWC-053018-RW-196	6/12/18 19:39	13C2-PFOA	51,863.51	29,350.89	88,052.66		41,308.34	82,616.69	
J6287-FS(0)	NAWC-053018-RW-172	6/12/18 19:48	13C2-PFOA	54,098.71	29,350.89	88,052.66		41,308.34	82,616.69	
JV70 CCV	CCV	6/12/18 19:57	13C2-PFOA	56,830.73	29,350.89	88,052.66		41,308.34	82,616.69	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV65	L2	6/12/18 15:56	d3-MeFOSAA	30,047.71	-
JV66	L3	6/12/18 16:05	d3-MeFOSAA	29,451.11	-
JV67	L4	6/12/18 16:14	d3-MeFOSAA	28,401.10	-
JV68	L5	6/12/18 16:23	d3-MeFOSAA	29,501.89	-
JV69	L6	6/12/18 16:32	d3-MeFOSAA	26,489.77	-
JV70	L7	6/12/18 16:40	d3-MeFOSAA	28,765.47	-
JV71	L8	6/12/18 16:49	d3-MeFOSAA	25,759.72	-
JV72	L9	6/12/18 16:58	d3-MeFOSAA	34,157.92	12.8

PASS

Average 29,071.84      Lower 14,535.92      Upper 43,607.76

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV65	L2	6/12/18 15:56	d3-MeFOSAA	30,047.71	14,535.92	43,607.76		18,542.84	37,085.68	
JV66	L3	6/12/18 16:05	d3-MeFOSAA	29,451.11	14,535.92	43,607.76		18,542.84	37,085.68	
JV67	L4	6/12/18 16:14	d3-MeFOSAA	28,401.10	14,535.92	43,607.76		18,542.84	37,085.68	
JV68	L5	6/12/18 16:23	d3-MeFOSAA	29,501.89	14,535.92	43,607.76		18,542.84	37,085.68	
JV69	L6	6/12/18 16:32	d3-MeFOSAA	26,489.77	14,535.92	43,607.76		18,542.84	37,085.68	
JV70	L7	6/12/18 16:40	d3-MeFOSAA	28,765.47	14,535.92	43,607.76		18,542.84	37,085.68	
JV71	L8	6/12/18 16:49	d3-MeFOSAA	25,759.72	14,535.92	43,607.76		18,542.84	37,085.68	
JV72	L9	6/12/18 16:58	d3-MeFOSAA	34,157.92	14,535.92	43,607.76		18,542.84	37,085.68	
JV63 ICC	ICC	6/12/18 17:07	d3-MeFOSAA	24,696.95	14,535.92	43,607.76		18,542.84	37,085.68	
CQ870PB-FS(0)	Procedural Blank	6/12/18 17:16	d3-MeFOSAA	24,513.53	14,535.92	43,607.76		18,542.84	37,085.68	
CQ871LCS-FS(0)	Laboratory Control Sample	6/12/18 17:25	d3-MeFOSAA	23,938.40	14,535.92	43,607.76		18,542.84	37,085.68	
J6258-FS(0)	WGNA-052918-RW-3124	6/12/18 17:34	d3-MeFOSAA	24,921.35	14,535.92	43,607.76		18,542.84	37,085.68	
J6260-FS(0)	WGNA-052918-RW-3493	6/12/18 17:43	d3-MeFOSAA	25,292.77	14,535.92	43,607.76		18,542.84	37,085.68	
J6262-FS(0)	WGNA-052918-RW-3882	6/12/18 17:52	d3-MeFOSAA	27,867.86	14,535.92	43,607.76		18,542.84	37,085.68	
J6264-FS(0)	WGNA-052918-RW-3978	6/12/18 18:01	d3-MeFOSAA	16,633.31	14,535.92	43,607.76		18,542.84	37,085.68	N 1
J6266-FS(0)	NAWC-052918-RW-161	6/12/18 18:10	d3-MeFOSAA	19,968.15	14,535.92	43,607.76		18,542.84	37,085.68	
J6270-FS(0)	WGNA-053018-RW-3876	6/12/18 18:19	d3-MeFOSAA	23,622.47	14,535.92	43,607.76		18,542.84	37,085.68	
JV69 CCV	CCV	6/12/18 18:27	d3-MeFOSAA	28,673.97	14,535.92	43,607.76		18,542.84	37,085.68	
J6272-FS(0)	WGNA-053018-DUP-37	6/12/18 18:36	d3-MeFOSAA	20,387.57	14,535.92	43,607.76		20,071.78	40,143.56	
J6273-FS(0)	NAWC-053018-RW-231	6/12/18 18:45	d3-MeFOSAA	23,179.84	14,535.92	43,607.76		20,071.78	40,143.56	

1 - sample rerun and reported with dilution method, see miscellaneous documentation for details. JRT 6/21/2018

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV65	L2	6/12/18 15:56	d3-MeFOSAA	30,047.71	-
JV66	L3	6/12/18 16:05	d3-MeFOSAA	29,451.11	-
JV67	L4	6/12/18 16:14	d3-MeFOSAA	28,401.10	-
JV68	L5	6/12/18 16:23	d3-MeFOSAA	29,501.89	-
JV69	L6	6/12/18 16:32	d3-MeFOSAA	26,489.77	-
JV70	L7	6/12/18 16:40	d3-MeFOSAA	28,765.47	-
JV71	L8	6/12/18 16:49	d3-MeFOSAA	25,759.72	-
JV72	L9	6/12/18 16:58	d3-MeFOSAA	34,157.92	12.8

PASS

Average      Lower      Upper  
 29,071.84    14,535.92    43,607.76

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
J6275-FS(0)	WGNA-053018-RW-3933	6/12/18 18:54	d3-MeFOSAA	24,444.25	14,535.92	43,607.76		20,071.78	40,143.56	
J6277-FS(0)	NAWC-053018-RW-164	6/12/18 19:03	d3-MeFOSAA	20,180.76	14,535.92	43,607.76		20,071.78	40,143.56	
J6279-FS(0)	NAWC-053018-RW-292	6/12/18 19:12	d3-MeFOSAA	22,574.43	14,535.92	43,607.76		20,071.78	40,143.56	
J6281-FS(0)	NAWC-053018-RW-271	6/12/18 19:21	d3-MeFOSAA	23,039.11	14,535.92	43,607.76		20,071.78	40,143.56	
J6283-FS(0)	NAWC-053018-RW-270	6/12/18 19:30	d3-MeFOSAA	21,960.54	14,535.92	43,607.76		20,071.78	40,143.56	
J6285-FS(0)	NAWC-053018-RW-196	6/12/18 19:39	d3-MeFOSAA	21,907.00	14,535.92	43,607.76		20,071.78	40,143.56	
J6287-FS(0)	NAWC-053018-RW-172	6/12/18 19:48	d3-MeFOSAA	24,066.54	14,535.92	43,607.76		20,071.78	40,143.56	
JV70 CCV	CCV	6/12/18 19:57	d3-MeFOSAA	26,847.56	14,535.92	43,607.76		20,071.78	40,143.56	



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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV65	L2	6/14/18 17:08	13C4-PFOS	171,472.33	-
JV66	L3	6/14/18 17:17	13C4-PFOS	175,183.49	-
JV67	L4	6/14/18 17:26	13C4-PFOS	183,218.28	-
JV68	L5	6/14/18 17:35	13C4-PFOS	184,815.34	-
JV69	L6	6/14/18 17:44	13C4-PFOS	190,902.07	-
JV70	L7	6/14/18 17:53	13C4-PFOS	158,687.91	-
JV71	L8	6/14/18 18:02	13C4-PFOS	174,160.49	-
JV72	L9	6/14/18 18:11	13C4-PFOS	186,617.72	8.5

PASS

Average      Lower      Upper  
 178,132.20    89,066.10    267,198.30

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	6/14/18 16:59	13C4-PFOS	173,918.05	89,066.10	267,198.30		122,628.44	245,256.89	
JV65	L2	6/14/18 17:08	13C4-PFOS	171,472.33	89,066.10	267,198.30		122,628.44	245,256.89	
JV66	L3	6/14/18 17:17	13C4-PFOS	175,183.49	89,066.10	267,198.30		122,628.44	245,256.89	
JV67	L4	6/14/18 17:26	13C4-PFOS	183,218.28	89,066.10	267,198.30		122,628.44	245,256.89	
JV68	L5	6/14/18 17:35	13C4-PFOS	184,815.34	89,066.10	267,198.30		122,628.44	245,256.89	
JV69	L6	6/14/18 17:44	13C4-PFOS	190,902.07	89,066.10	267,198.30		122,628.44	245,256.89	
JV70	L7	6/14/18 17:53	13C4-PFOS	158,687.91	89,066.10	267,198.30		122,628.44	245,256.89	
JV71	L8	6/14/18 18:02	13C4-PFOS	174,160.49	89,066.10	267,198.30		122,628.44	245,256.89	
JV72	L9	6/14/18 18:11	13C4-PFOS	186,617.72	89,066.10	267,198.30		122,628.44	245,256.89	
JV63 ICC	ICC	6/14/18 18:20	13C4-PFOS	181,871.52	89,066.10	267,198.30		122,628.44	245,256.89	
J6264-FS(0)	WGNA-052918-RW-3978	6/14/18 19:22	13C4-PFOS	123,093.54	89,066.10	267,198.30		122,628.44	245,256.89	
J6273-FS-D(3)	NAWC-050318-RW-231	6/14/18 20:16	13C4-PFOS	128,628.34	89,066.10	267,198.30		122,628.44	245,256.89	
JV70 CCV	CCV	6/14/18 21:36	13C4-PFOS	185,911.85	89,066.10	267,198.30		122,628.44	245,256.89	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JV64	L1	6/14/18 16:59	d3-MeFOSAA	27,400.65	-
JV65	L2	6/14/18 17:08	d3-MeFOSAA	26,560.24	-
JV66	L3	6/14/18 17:17	d3-MeFOSAA	26,965.18	-
JV67	L4	6/14/18 17:26	d3-MeFOSAA	26,904.87	-
JV68	L5	6/14/18 17:35	d3-MeFOSAA	29,945.65	-
JV69	L6	6/14/18 17:44	d3-MeFOSAA	31,231.68	-
JV70	L7	6/14/18 17:53	d3-MeFOSAA	27,896.75	-
JV71	L8	6/14/18 18:02	d3-MeFOSAA	29,364.62	6.9

PASS

Average      Lower      Upper  
 28,283.71    14,141.86    42,425.57

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	6/14/18 16:59	d3-MeFOSAA	27,400.65	14,141.86	42,425.57		18,875.63	37,751.25	
JV65	L2	6/14/18 17:08	d3-MeFOSAA	26,560.24	14,141.86	42,425.57		18,875.63	37,751.25	
JV66	L3	6/14/18 17:17	d3-MeFOSAA	26,965.18	14,141.86	42,425.57		18,875.63	37,751.25	
JV67	L4	6/14/18 17:26	d3-MeFOSAA	26,904.87	14,141.86	42,425.57		18,875.63	37,751.25	
JV68	L5	6/14/18 17:35	d3-MeFOSAA	29,945.65	14,141.86	42,425.57		18,875.63	37,751.25	
JV69	L6	6/14/18 17:44	d3-MeFOSAA	31,231.68	14,141.86	42,425.57		18,875.63	37,751.25	
JV70	L7	6/14/18 17:53	d3-MeFOSAA	27,896.75	14,141.86	42,425.57		18,875.63	37,751.25	
JV71	L8	6/14/18 18:02	d3-MeFOSAA	29,364.62	14,141.86	42,425.57		18,875.63	37,751.25	
JV72	L9	6/14/18 18:11	d3-MeFOSAA	33,539.90	14,141.86	42,425.57		18,875.63	37,751.25	
JV63 ICC	ICC	6/14/18 18:20	d3-MeFOSAA	29,716.93	14,141.86	42,425.57		18,875.63	37,751.25	
J6264-FS(0)	WGNA-052918-RW-3978	6/14/18 19:22	d3-MeFOSAA	19,049.25	14,141.86	42,425.57		18,875.63	37,751.25	
J6273-FS-D(3)	NAWC-050318-RW-231	6/14/18 20:16	d3-MeFOSAA	21,272.16	14,141.86	42,425.57		18,875.63	37,751.25	
JV70 CCV	CCV	6/14/18 21:36	d3-MeFOSAA	29,545.42	14,141.86	42,425.57		18,875.63	37,751.25	

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/12/2018 4:40:56 PM	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.54	1.16	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.83	1.31	0.8 – 1.5

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/12/2018 4:40:56 PM	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.54	25	>10
PFBS_2	298.9 / 99.0	1.53	37	>10
PFHxA_1	313.0 / 269.0	1.83	24	>10
PFHxA_2	313.0 / 119.0	1.83	32	>10
PFHpA_1	363.0 / 319.0	2.20	28	>10
PFHpA_2	363.0 / 169.0	2.20	31	>10
PFHxS_1	399.0 / 80.0	2.22	28	>10
PFHxS_2	399.0 / 99.0	2.22	28	>10
PFOA_1	413.0 / 369.0	2.59	31	>10
PFOA_2	413.0 / 169.0	2.58	36	>10
PFNA_1	463.0 / 419.0	2.96	31	>10
PFNA_2	463.0 / 219.0	2.96	27	>10
PFOS_1	499.0 / 80.0	2.96	29	>10
PFOS_2	499.0 / 99.0	2.96	25	>10
PFDA_1	513.0 / 469.0	3.32	28	>10
PFDA_2	513.0 / 219.0	3.32	23	>10
PFUnA_1	563.0 / 519.0	3.64	32	>10
PFUnA_2	563.0 / 269.0	3.64	27	>10
PFDaA_1	613.0 / 569.0	3.93	32	>10
PFDaA_2	613.0 / 319.0	3.93	35	>10
PFTrDA_1	663.0 / 619.0	4.18	37	>10
PFTrDA_2	663.0 / 169.0	4.18	41	>10
PFTeDA_1	713.0 / 669.0	4.40	56	>10
PFTeDA_2	713.0 / 169.0	4.40	47	>10
NMeFOSAA_1	570.0 / 419.0	3.47	43	>10
NMeFOSAA_2	570.0 / 512.0	3.47	43	>10
NEtFOSAA_1	584.0 / 419.0	3.63	33	>10
NEtFOSAA_2	584.0 / 483.0	3.62	37	>10
13C2-PFHxA	315.0 / 270.0	1.82	34	>10
13C2-PFDA	515.0 / 470.0	3.31	33	>10
d5-EtFOSAA	589.0 / 419.0	3.62	26	>10

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/14/2018 5:53:22 PM	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343_D
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFOS_1	499.0 / 80.0	2.93	26	>10
PFOS_2	499.0 / 99.0	2.93	27	>10
NMeFOSAA_1	570.0 / 419.0	3.44	40	>10
NMeFOSAA_2	570.0 / 512.0	3.44	38	>10
NEtFOSAA_1	584.0 / 419.0	3.60	37	>10
NEtFOSAA_2	584.0 / 483.0	3.59	46	>10
d5-EtFOSAA	589.0 / 419.0	3.59	33	>10

# BATTELLE DETECTION LIMITS FOR PFAS IN DRINKING WATER

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

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

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

Analytical Transitions for PFAS in drinking water

SOP 5-371 (EPA 537 Version 1.1)

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
<b>PFHxA</b>	307-24-4	Target	313.0 / 269.0	313.0 / 119.0
<b>PFHpA</b>	375-85-9	Target	363.0 / 319.0	363.0 / 169.0
<b>PFOA</b>	335-67-1	Target	413.0 / 369.0	413.0 / 169.0
<b>PFNA</b>	375-95-1	Target	463.0 / 419.0	463.0 / 219.0
<b>PFDA</b>	335-76-2	Target	513.0 / 469.0	513.0 / 219.0
<b>PFUnA</b>	2058-94-8	Target	563.0 / 519.0	563.0 / 269.0
<b>PFDoA</b>	307-55-1	Target	613.0 / 569.0	613.0 / 319.0
<b>PFTTrDA</b>	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
<b>PFTeDA</b>	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
<b>NMeFOSAA</b>	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
<b>NEtFOSAA</b>	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
<b>PFBS</b>	375-73-5	Target	298.9.0 / 80.0	298.9.0 / 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



**Zef Scientific Inc.**

12707 High Bluff Dr.  
Suite 200  
San Diego, CA  
USA 92130

1975 Hymus Blvd.  
Suite 230  
Dorval, QC  
Canada H9P 1J8

Phone: 1.866.854.7988

# QTRAP 5500

**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

Mass calibration and Tune Check

## 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:** \_\_\_\_\_



**Zef Scientific Inc.**

12707 High Bluff Dr.  
Suite 200  
San Diego, CA  
USA 92130

1975 Hymus Blvd.  
Suite 230  
Dorval, QC  
Canada H9P 1J8

Phone: 1.866.854.7988

**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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1975 Hymus Blvd.  
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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

**BATTELLE - NORWELL OPERATIONS  
SAMPLE PREPARATION RECORDS**

<b><u>Project Title(s)</u></b>	<b><u>Project No.(s)</u></b>
Naval Air Station Joint Reserve Base Willow Grove, PA	100117920- WE04
<b>18-0343</b>	
<b>WE04 PFAS Analysis</b>	
<b>DW</b>	
SOP Numbers (see workplan for modifications)	
VOASOP No.	5-371

<b>This Batch Contains The Following Samples:</b>		
CQ870PB-FS	J6266-FS	J6279-FS
CQ871LCS-FS	J6270-FS	J6281-FS
J6258-FS	J6272-FS	J6283-FS
J6260-FS	J6273-FS	J6285-FS
J6262-FS	J6275-FS	J6287-FS
J6264-FS	J6277-FS	

Laboratory Preparation Records  
COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Denise Schumitz	06/11/2018	DMS



It can be done

## BATTELLE - NORWELL OPERATIONS LIQUID SAMPLE ID FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0343****WE04 PFAS Analysis****DW**

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CQ870PB-FS	Procedural Blank	250.0	NA	--	06/01/18 SAS
CQ871LCS-FS	Laboratory Control Sample	250.0	NA	--	06/01/18 SAS
J6258-FS	WGNA-052918-RW-3124	260.0	1	C	06/04/18 SAS
J6260-FS	WGNA-052918-RW-3493	275.0	1	C	06/04/18 SAS
J6262-FS	WGNA-052918-RW-3882	290.0	1	C	06/04/18 SAS
J6264-FS	WGNA-052918-RW-3978	270.0	1	C	06/04/18 SAS
J6266-FS	NAWC-052918-RW-161	290.0	1	C	06/04/18 SAS
J6270-FS	WGNA-053018-RW-3876	275.0	1	C	06/04/18 SAS
J6272-FS	WGNA-053018-DUP-37	275.0	1	C	06/04/18 SAS
J6273-FS	NAWC-053018-RW-231	285.0	1	C	06/04/18 SAS
J6275-FS	WGNA-053018-RW-3933	285.0	1	C	06/04/18 SAS
J6277-FS	NAWC-053018-RW-164	270.0	1	C	06/04/18 SAS
J6279-FS	NAWC-053018-RW-292	285.0	1	C	06/04/18 SAS
J6281-FS	NAWC-053018-RW-271	275.0	1	C	06/04/18 SAS
J6283-FS	NAWC-053018-RW-270	275.0	1	C	06/04/18 SAS
J6285-FS	NAWC-053018-RW-196	275.0	1	C	06/04/18 SAS
J6287-FS	NAWC-053018-RW-172	270.0	1	C	06/04/18 SAS

**Comments:**

Sample ID:	Comments:
CQ870PB-FS	1.24g Trizma(180502-01) weighed on BAL-009
CQ871LCS-FS	1.27g Trizma(180502-01) weighed on BAL-009

Samples Assigned By

Stephanie Schultz

Date :

June 11, 2018

\* - "C" = Sample is Consumed





It can be done

## BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0343****WE04 PFAS Analysis****DW****(N/A Fraction)**

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm . (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution*	Date Spiked/ Spiked By	Witn'd By
CQ870PB-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
CQ871LCS-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
J6258-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
J6260-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
J6262-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
J6264-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
J6266-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
J6270-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
J6272-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
J6273-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
J6273-FS-D(3)	952	48	JV59	50.5	1	1000	20.000	06/14/18 DMS	SAS
J6275-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
J6277-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
J6279-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
J6281-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
J6283-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
J6285-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR
J6287-FS(0)	950	50	JV59	50	1	1000	1.000	06/06/18 SAS	RR

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

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

## Sequence Report

Created with Analyst Reporter  
 Printed: 15/06/2018 10:18:19 AM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		6/12/2018 3:38:26 PM	5-0371.dam	5500_06122018.wiff
2	JV64	L1	6/12/2018 3:47:21 PM	5-0371.dam	5500_06122018.wiff
3	JV65	L2	6/12/2018 3:56:17 PM	5-0371.dam	5500_06122018.wiff
4	JV66	L3	6/12/2018 4:05:13 PM	5-0371.dam	5500_06122018.wiff
5	JV67	L4	6/12/2018 4:14:09 PM	5-0371.dam	5500_06122018.wiff
6	JV68	L5	6/12/2018 4:23:04 PM	5-0371.dam	5500_06122018.wiff
7	JV69	L6	6/12/2018 4:32:01 PM	5-0371.dam	5500_06122018.wiff
8	JV70	L7	6/12/2018 4:40:56 PM	5-0371.dam	5500_06122018.wiff
9	JV71	L8	6/12/2018 4:49:51 PM	5-0371.dam	5500_06122018.wiff
10	JV72	L9	6/12/2018 4:58:44 PM	5-0371.dam	5500_06122018.wiff
11	JV63 ICC	ICC	6/12/2018 5:07:40 PM	5-0371.dam	5500_06122018.wiff
12	CQ870PB-FS(0)	Procedural Blank	6/12/2018 5:16:36 PM	5-0371.dam	5500_06122018.wiff
13	CQ871LCS-FS(0)	Laboratory Control Sample	6/12/2018 5:25:31 PM	5-0371.dam	5500_06122018.wiff
14	J6258-FS(0)	WGNA-052918-RW-3124	6/12/2018 5:34:27 PM	5-0371.dam	5500_06122018.wiff
15	J6260-FS(0)	WGNA-052918-RW-3493	6/12/2018 5:43:21 PM	5-0371.dam	5500_06122018.wiff
16	J6262-FS(0)	WGNA-052918-RW-3882	6/12/2018 5:52:16 PM	5-0371.dam	5500_06122018.wiff
17	J6264-FS(0)	WGNA-052918-RW-3978	6/12/2018 6:01:12 PM	5-0371.dam	5500_06122018.wiff
18	J6266-FS(0)	NAWC-052918-RW-161	6/12/2018 6:10:07 PM	5-0371.dam	5500_06122018.wiff
19	J6270-FS(0)	WGNA-053018-RW-3876	6/12/2018 6:19:01 PM	5-0371.dam	5500_06122018.wiff
20	JV69 CCV	CCV	6/12/2018 6:27:56 PM	5-0371.dam	5500_06122018.wiff
21	J6272-FS(0)	WGNA-053018-DUP-37	6/12/2018 6:36:51 PM	5-0371.dam	5500_06122018.wiff
22	J6273-FS(0)	NAWC-053018-RW-231	6/12/2018 6:45:47 PM	5-0371.dam	5500_06122018.wiff
23	J6275-FS(0)	WGNA-053018-RW-3933	6/12/2018 6:54:42 PM	5-0371.dam	5500_06122018.wiff
24	J6277-FS(0)	NAWC-053018-RW-164	6/12/2018 7:03:37 PM	5-0371.dam	5500_06122018.wiff
25	J6279-FS(0)	NAWC-053018-RW-292	6/12/2018 7:12:32 PM	5-0371.dam	5500_06122018.wiff
26	J6281-FS(0)	NAWC-053018-RW-271	6/12/2018 7:21:26 PM	5-0371.dam	5500_06122018.wiff
27	J6283-FS(0)	NAWC-053018-RW-	6/12/2018 7:30:21	5-0371.dam	5500_06122018.wiff

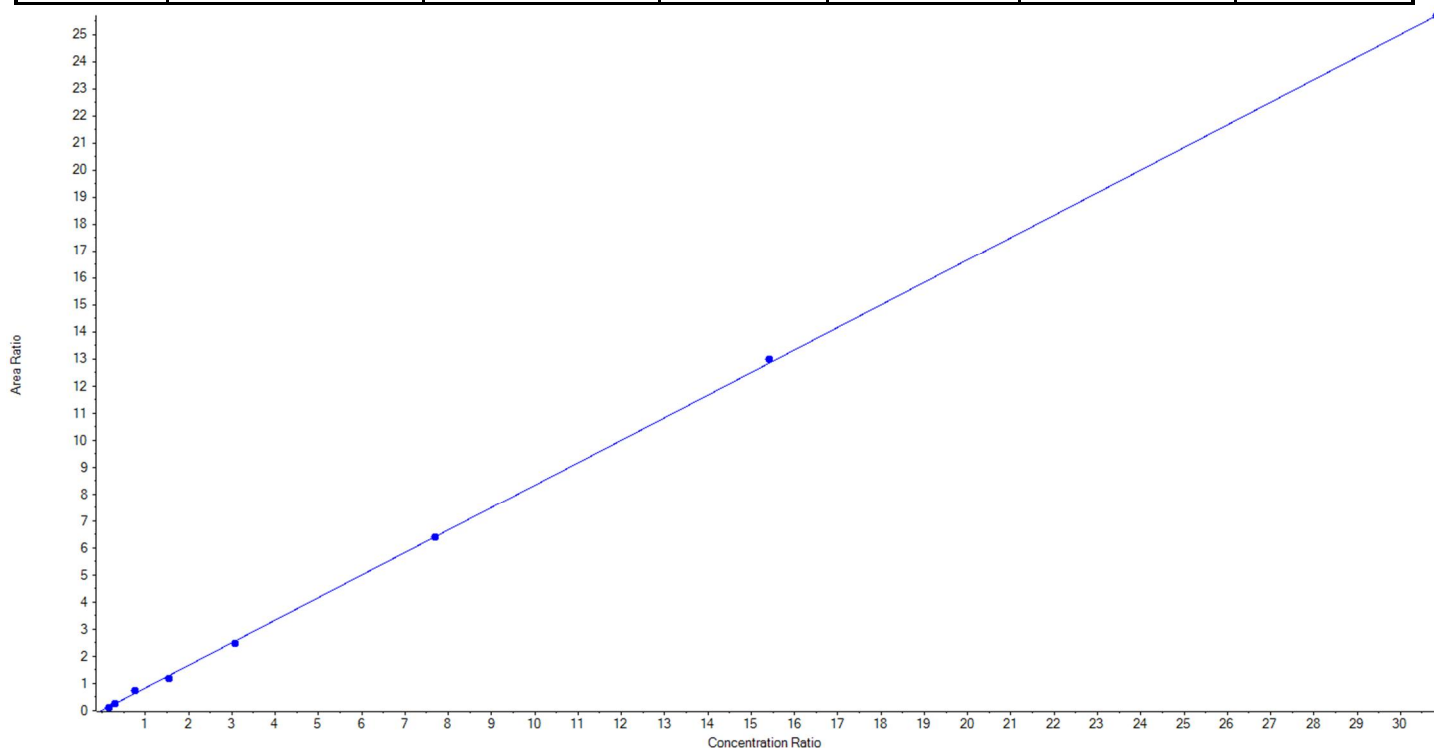
Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
		270	PM		
28	J6285-FS(0)	NAWC-053018-RW-196	6/12/2018 7:39:16 PM	5-0371.dam	5500_06122018.wiff
29	J6287-FS(0)	NAWC-053018-RW-172	6/12/2018 7:48:13 PM	5-0371.dam	5500_06122018.wiff
30	JV70 CCV	CCV	6/12/2018 7:57:07 PM	5-0371.dam	5500_06122018.wiff

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		6/14/2018 4:50:52 PM	5-0371.dam	06142018.wiff
2	JV64	L1	6/14/2018 4:59:48 PM	5-0371.dam	06142018.wiff
3	JV65	L2	6/14/2018 5:08:44 PM	5-0371.dam	06142018.wiff
4	JV66	L3	6/14/2018 5:17:40 PM	5-0371.dam	06142018.wiff
5	JV67	L4	6/14/2018 5:26:35 PM	5-0371.dam	06142018.wiff
6	JV68	L5	6/14/2018 5:35:30 PM	5-0371.dam	06142018.wiff
7	JV69	L6	6/14/2018 5:44:26 PM	5-0371.dam	06142018.wiff
8	JV70	L7	6/14/2018 5:53:22 PM	5-0371.dam	06142018.wiff
9	JV71	L8	6/14/2018 6:02:19 PM	5-0371.dam	06142018.wiff
10	JV72	L9	6/14/2018 6:11:15 PM	5-0371.dam	06142018.wiff
11	JV63 ICC	ICC	6/14/2018 6:20:10 PM	5-0371.dam	06142018.wiff
12	MeOH		6/14/2018 6:29:05 PM	5-0371.dam	06142018.wiff
18	J6264-FS(0)	WGNA-052918-RW-3978	6/14/2018 7:22:36 PM	5-0371.dam	06142018.wiff
31	J6273-FS-D(3)	NAWC-050318-RW-231	6/14/2018 8:16:14 PM	5-0371.dam	06142018.wiff
8	JV70 CCV	CCV	6/14/2018 9:36:35 PM	5-0371.dam	06142018.wiff

<b>Analyte Name</b>	PFBS_1	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	298.9 / 80.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.83341 x + 0.00340$  (r = 0.99975) (weighting: 1 / x)

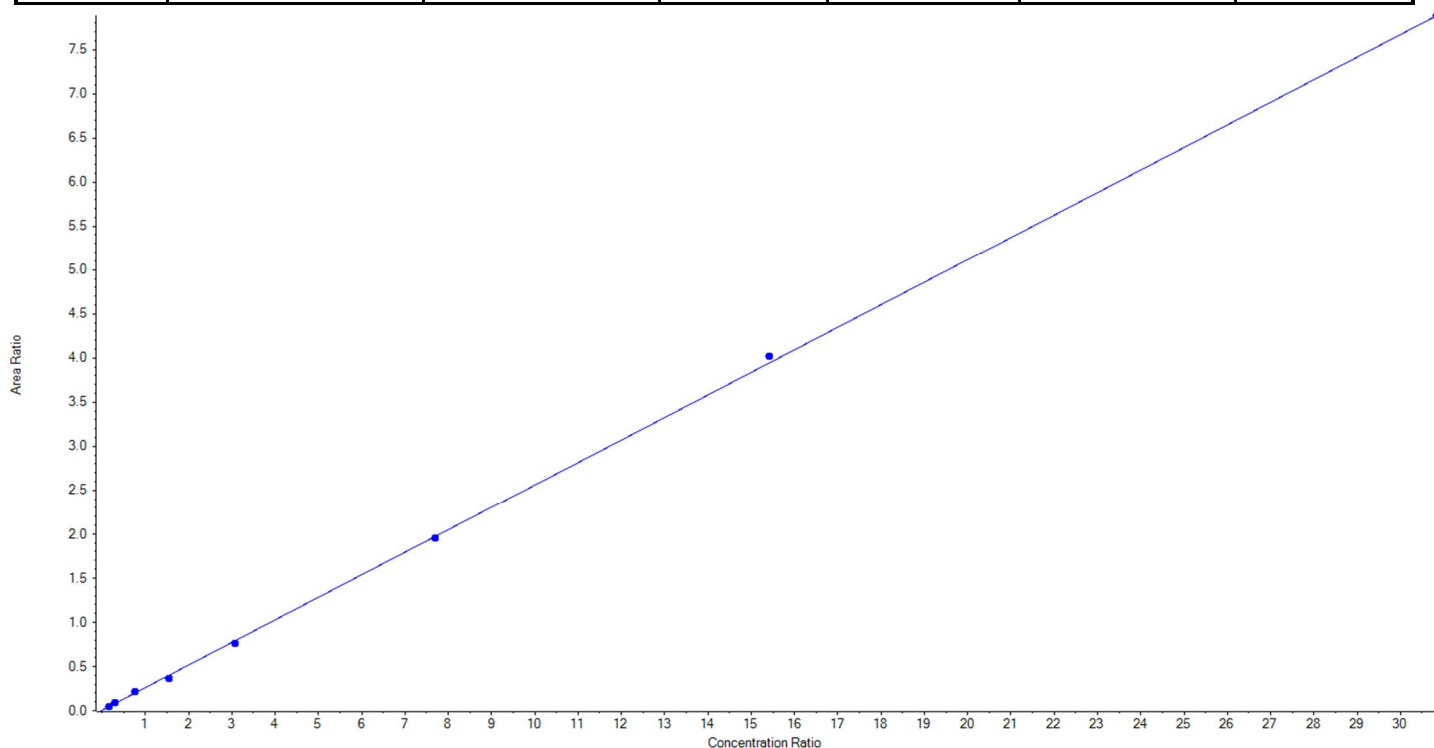
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	22.15	N/A	N/A
3	JV65	L2	True	44.30	43.213844	97.6
4	JV66	L3	True	88.60	89.988738	101.6
5	JV67	L4	True	221.50	247.673064	111.8
6	JV68	L5	True	443.00	403.940540	91.2
7	JV69	L6	True	885.00	859.283953	97.1
8	JV70	L7	True	2212.50	2207.781220	99.8
9	JV71	L8	True	4425.00	4470.852431	101.0
10	JV72	L9	True	8850.00	8847.166208	100.0



<b>Analyte Name</b>	PFBS_2	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	298.9 / 99.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.25546 x + 0.00523$  (r = 0.99971) (weighting: 1 / x)

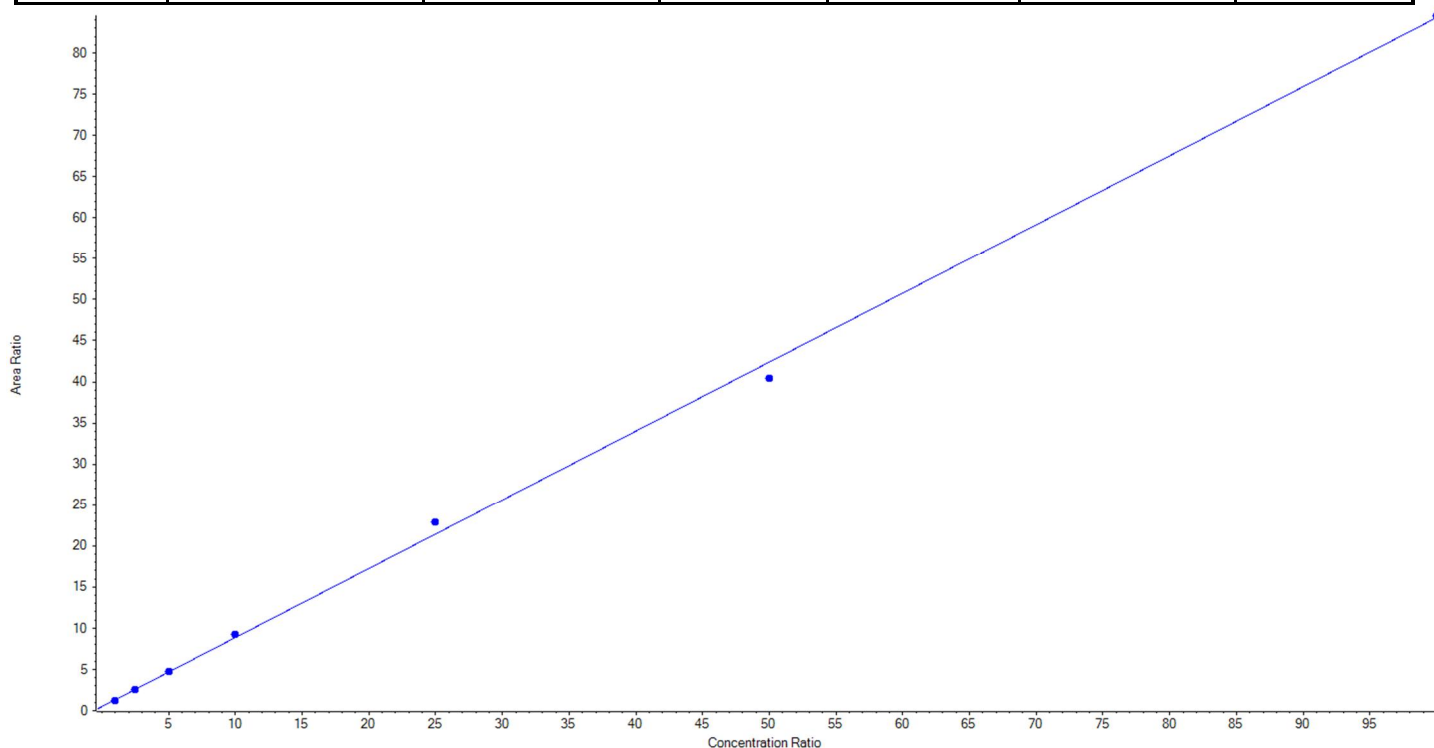
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	22.15	N/A	N/A
3	JV65	L2	True	44.30	45.544704	102.8
4	JV66	L3	True	88.60	90.777650	102.5
5	JV67	L4	True	221.50	239.032605	107.9
6	JV68	L5	True	443.00	401.078422	90.5
7	JV69	L6	True	885.00	842.792276	95.2
8	JV70	L7	True	2212.50	2194.855139	99.2
9	JV71	L8	True	4425.00	4507.631063	101.9
10	JV72	L9	True	8850.00	8848.188142	100.0



<b>Analyte Name</b>	PFHxA_1	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	313.0 / 269.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.83805 x + 0.49545$  (r = 0.99927) (weighting: 1 / x)

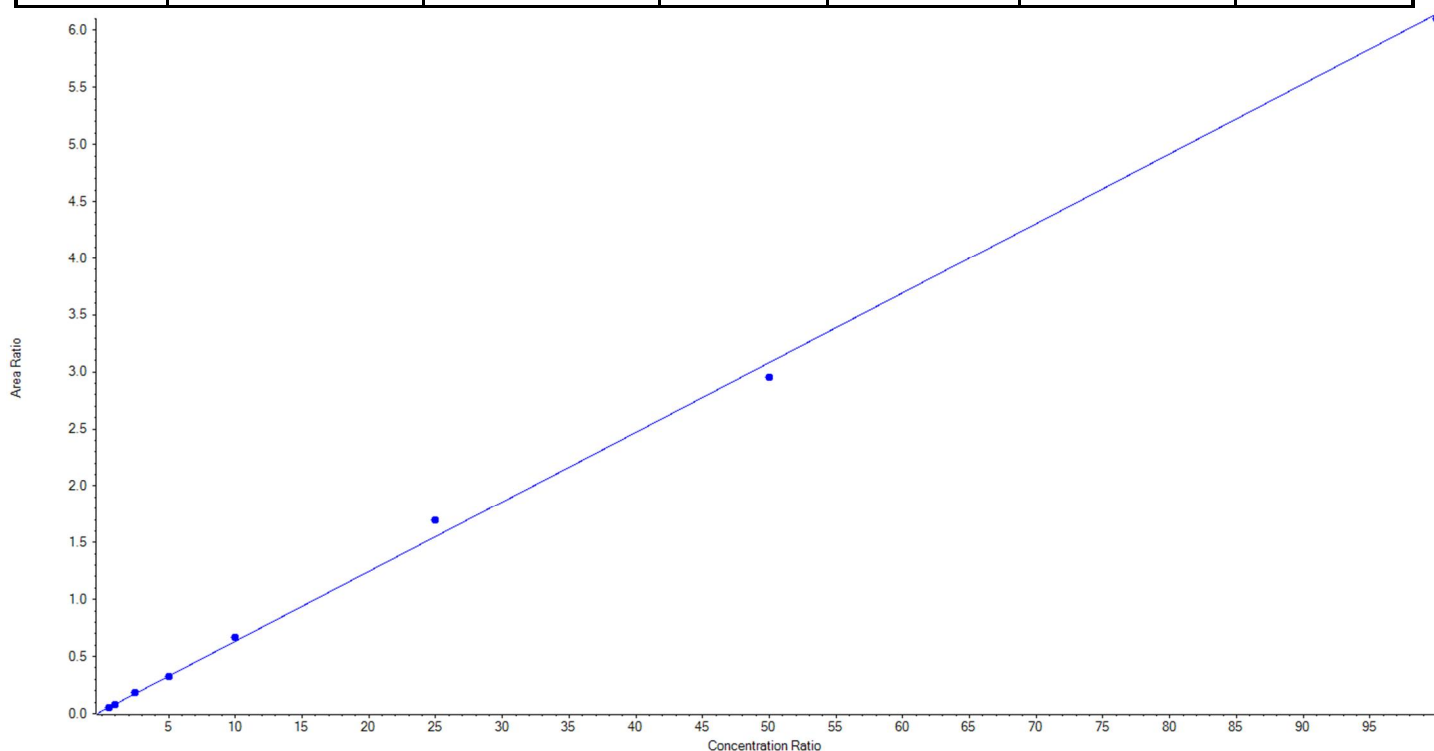
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	False	50.00	N/A	N/A
4	JV66	L3	True	100.00	93.424536	93.4
5	JV67	L4	True	250.00	248.896045	99.6
6	JV68	L5	True	500.00	502.164583	100.4
7	JV69	L6	True	1000.00	1042.105925	104.2
8	JV70	L7	True	2500.00	2668.171989	106.7
9	JV71	L8	True	5000.00	4769.428796	95.4
10	JV72	L9	True	10000.00	10025.808125	100.3



<b>Analyte Name</b>	PFHxA_2	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	313.0 / 119.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.06120 x + 0.02261$  (r = 0.99897) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	49.540681	99.1
4	JV66	L3	True	100.00	87.486557	87.5
5	JV67	L4	True	250.00	263.369148	105.4
6	JV68	L5	True	500.00	490.613382	98.1
7	JV69	L6	True	1000.00	1055.712476	105.6
8	JV70	L7	True	2500.00	2732.015423	109.3
9	JV71	L8	True	5000.00	4789.725663	95.8
10	JV72	L9	True	10000.00	9931.536669	99.3

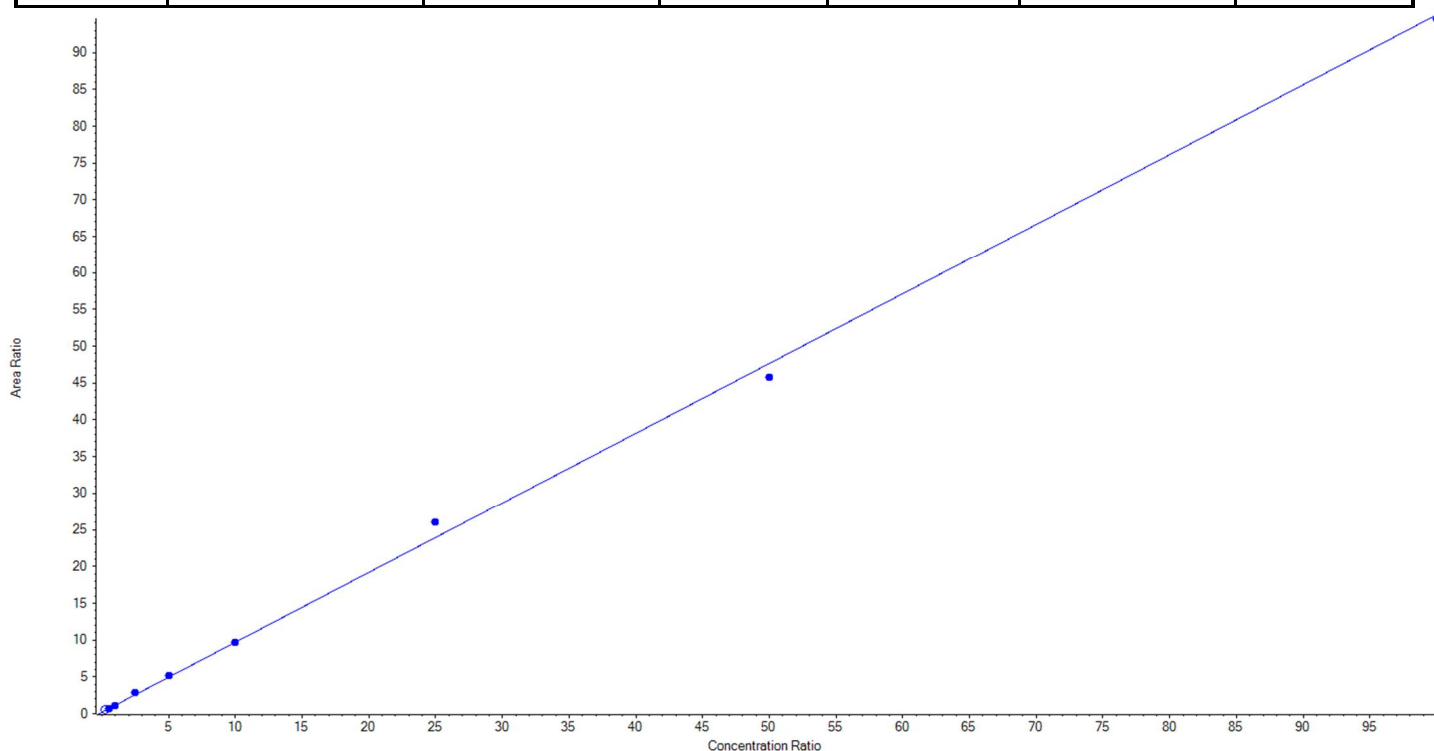




<b>Analyte Name</b>	PFHpA_1	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	363.0 / 319.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.94912x + 0.20808$  (r = 0.99907) (weighting: 1 / x)

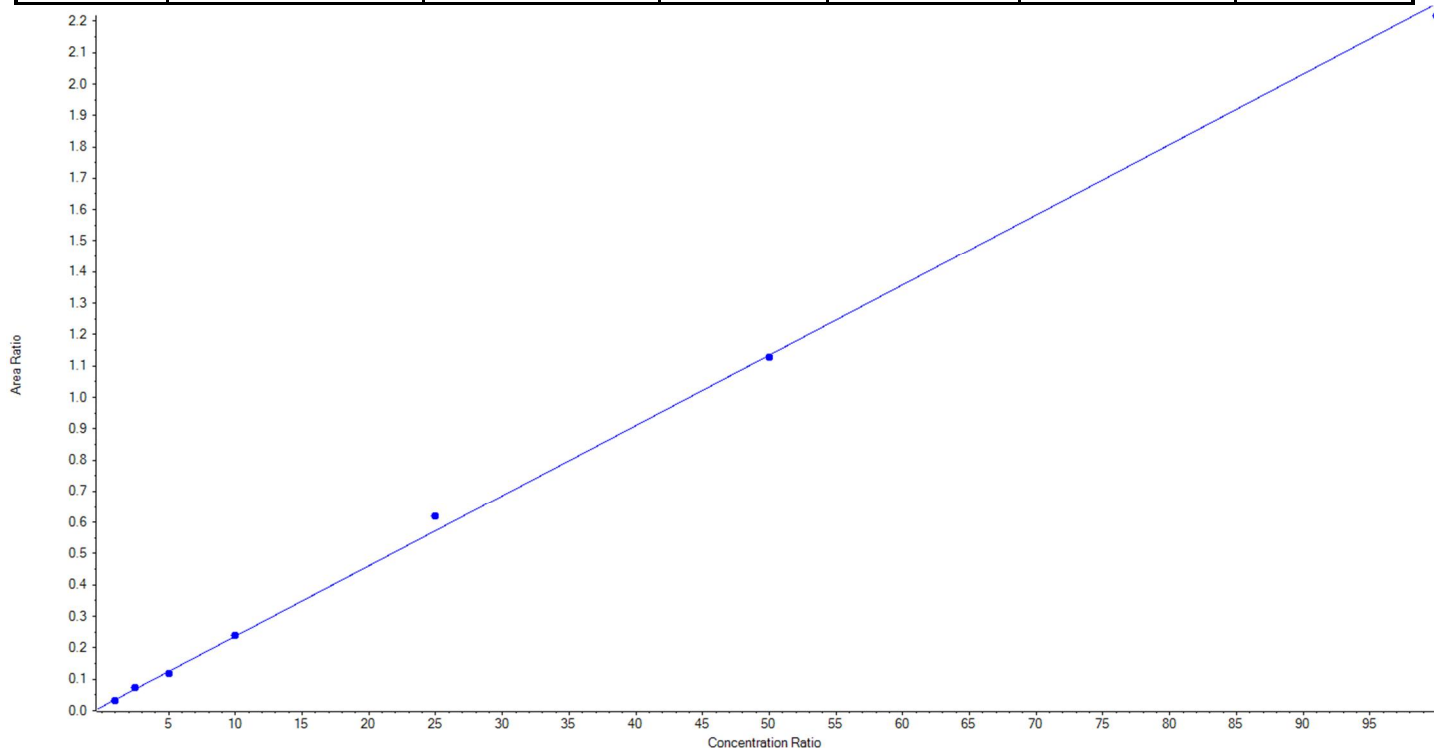
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	29.060439	116.2
3	JV65	L2	True	50.00	42.712949	85.4
4	JV66	L3	True	100.00	95.603273	95.6
5	JV67	L4	True	250.00	273.571001	109.4
6	JV68	L5	True	500.00	530.187129	106.0
7	JV69	L6	True	1000.00	992.178774	99.2
8	JV70	L7	True	2500.00	2720.096808	108.8
9	JV71	L8	True	5000.00	4802.675276	96.1
10	JV72	L9	True	10000.00	9942.974789	99.4



<b>Analyte Name</b>	PFHpA_2	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	363.0 / 169.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.02243 x + 0.01260$  (r = 0.99918) (weighting: 1 / x)

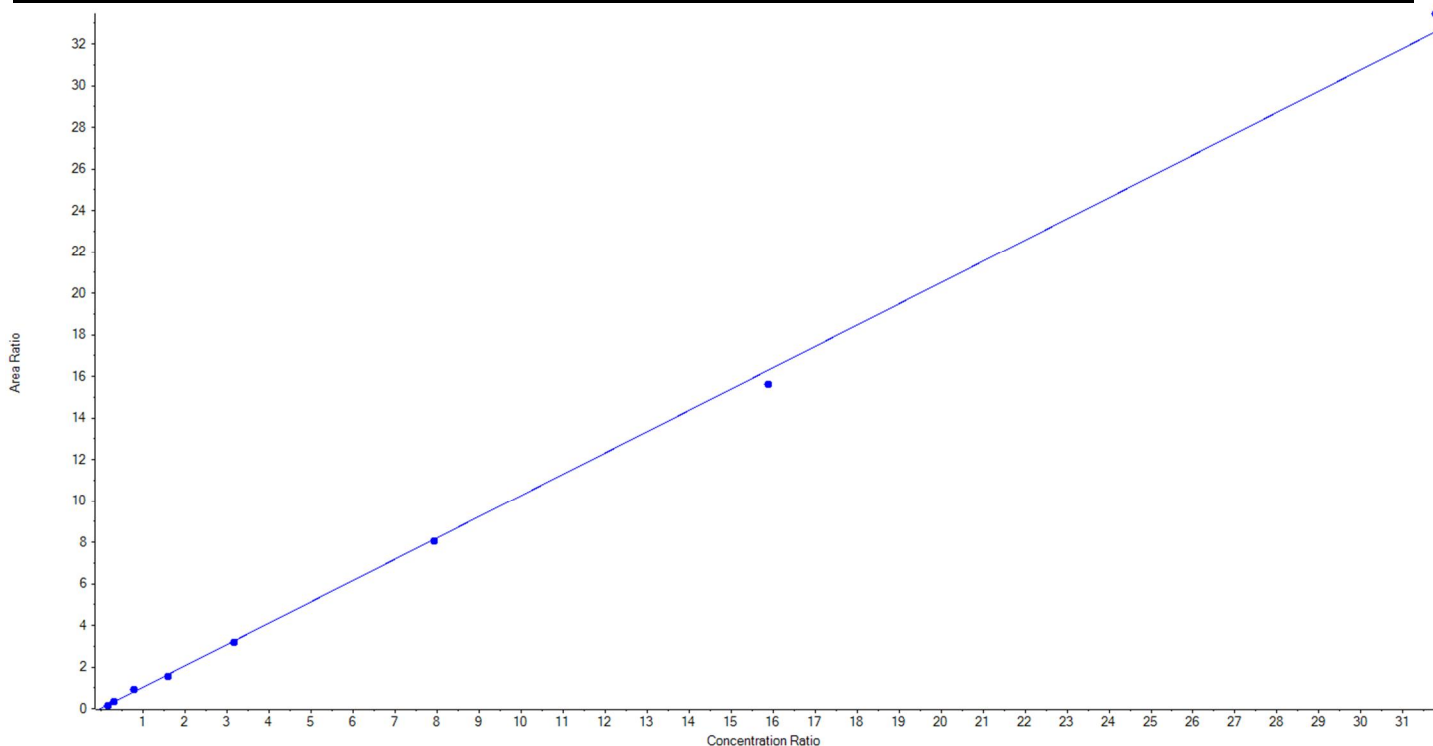
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	False	50.00	N/A	N/A
4	JV66	L3	True	100.00	86.912658	86.9
5	JV67	L4	True	250.00	277.726029	111.1
6	JV68	L5	True	500.00	474.792061	95.0
7	JV69	L6	True	1000.00	1011.164660	101.1
8	JV70	L7	True	2500.00	2709.693669	108.4
9	JV71	L8	True	5000.00	4963.719656	99.3
10	JV72	L9	True	10000.00	9825.991267	98.3



<b>Analyte Name</b>	PFHxS_1	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	399.0 / 80.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.02546 x + 0.00270$  (r = 0.99932) (weighting: 1 / x)

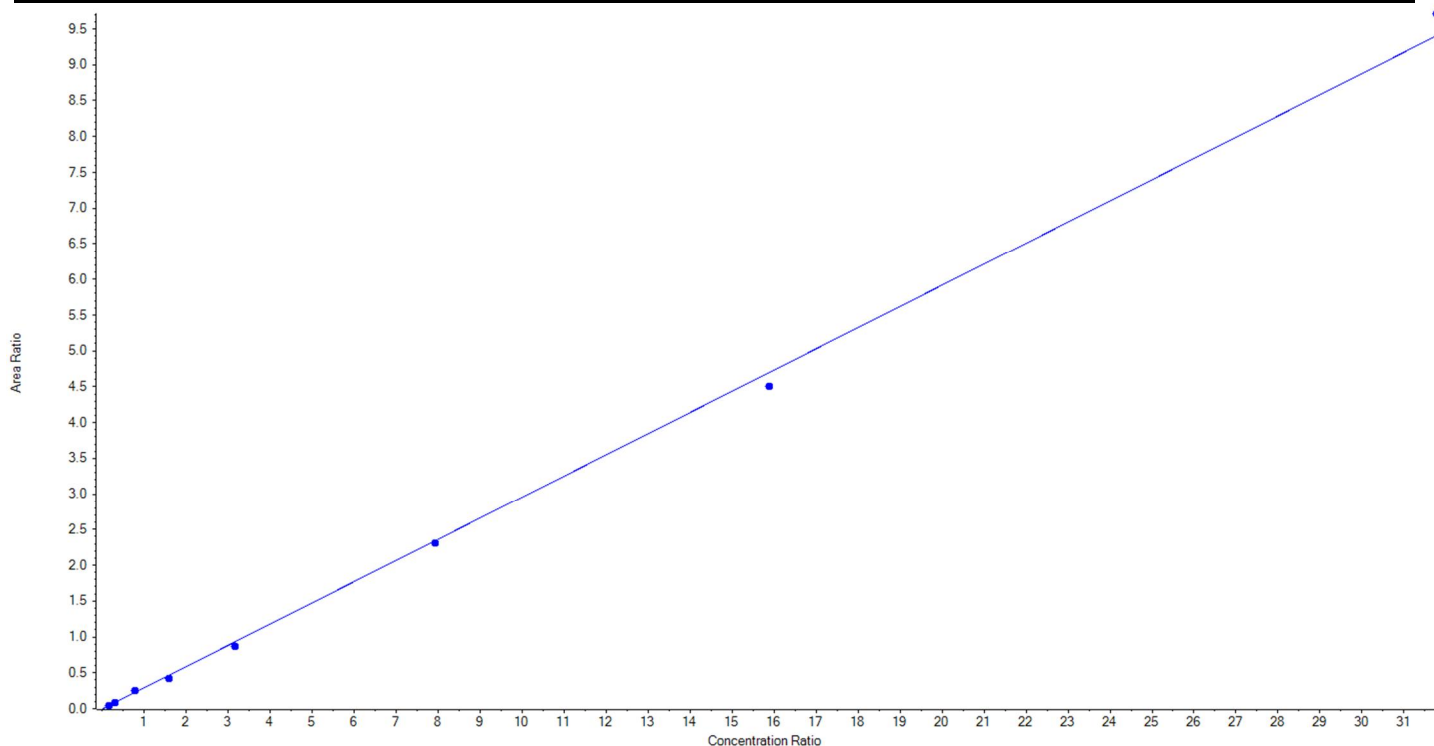
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	22.80	N/A	N/A
3	JV65	L2	True	45.60	46.187690	101.3
4	JV66	L3	True	91.20	87.480349	95.9
5	JV67	L4	True	228.00	260.566228	114.3
6	JV68	L5	True	456.00	427.831245	93.8
7	JV69	L6	True	912.00	887.810797	97.4
8	JV70	L7	True	2280.00	2255.837318	98.9
9	JV71	L8	True	4560.00	4366.609379	95.8
10	JV72	L9	True	9120.00	9360.476993	102.6



<b>Analyte Name</b>	PFHxS_2	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	399.0 / 99.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.29618x + -0.00713$  (r = 0.99913) (weighting: 1 / x)

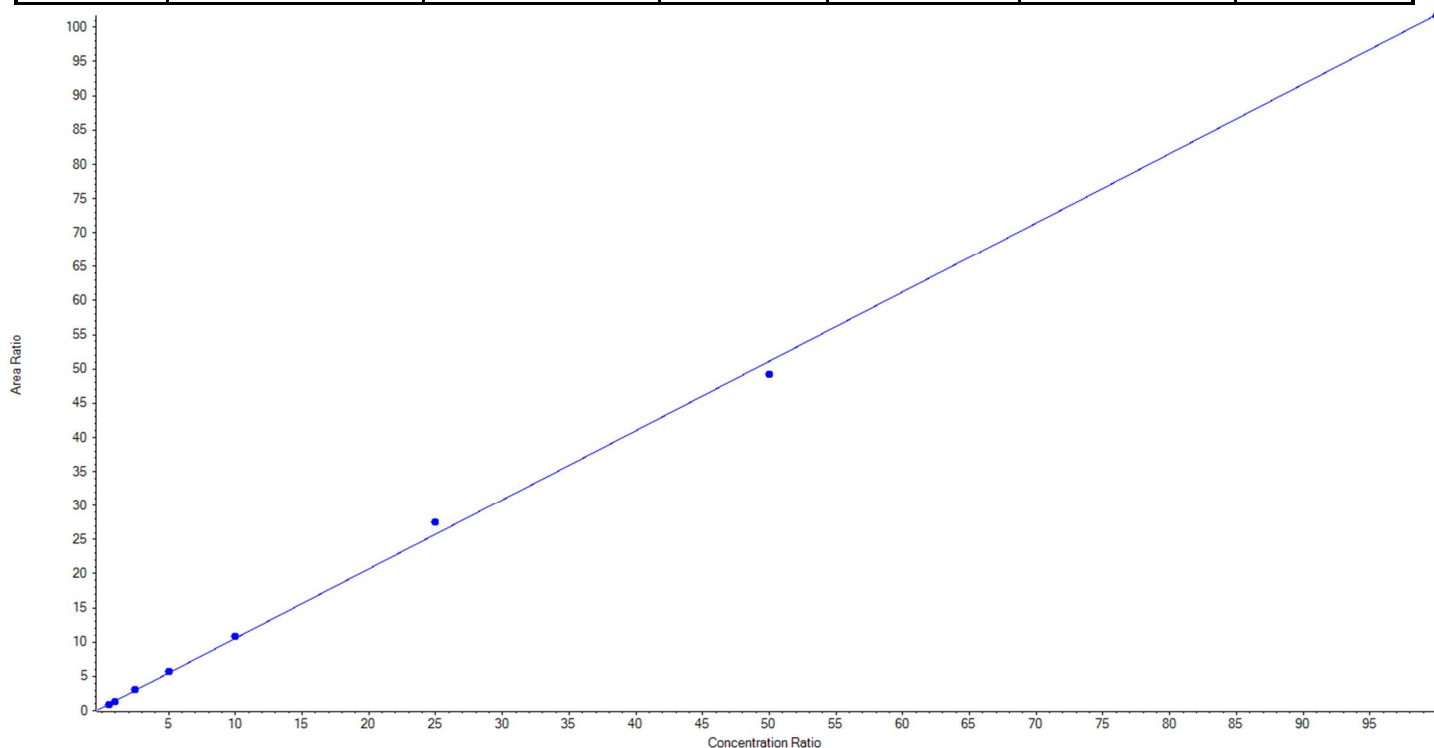
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	22.80	N/A	N/A
3	JV65	L2	True	45.60	49.529878	108.6
4	JV66	L3	True	91.20	88.910765	97.5
5	JV67	L4	True	228.00	253.133590	111.0
6	JV68	L5	True	456.00	418.795290	91.8
7	JV69	L6	True	912.00	853.057542	93.5
8	JV70	L7	True	2280.00	2244.055800	98.4
9	JV71	L8	True	4560.00	4369.582780	95.8
10	JV72	L9	True	9120.00	9415.734356	103.2



<b>Analyte Name</b>	PFOA_1	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	413.0 / 369.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.01411x + 0.42321$  (r = 0.99934) (weighting: 1 / x)

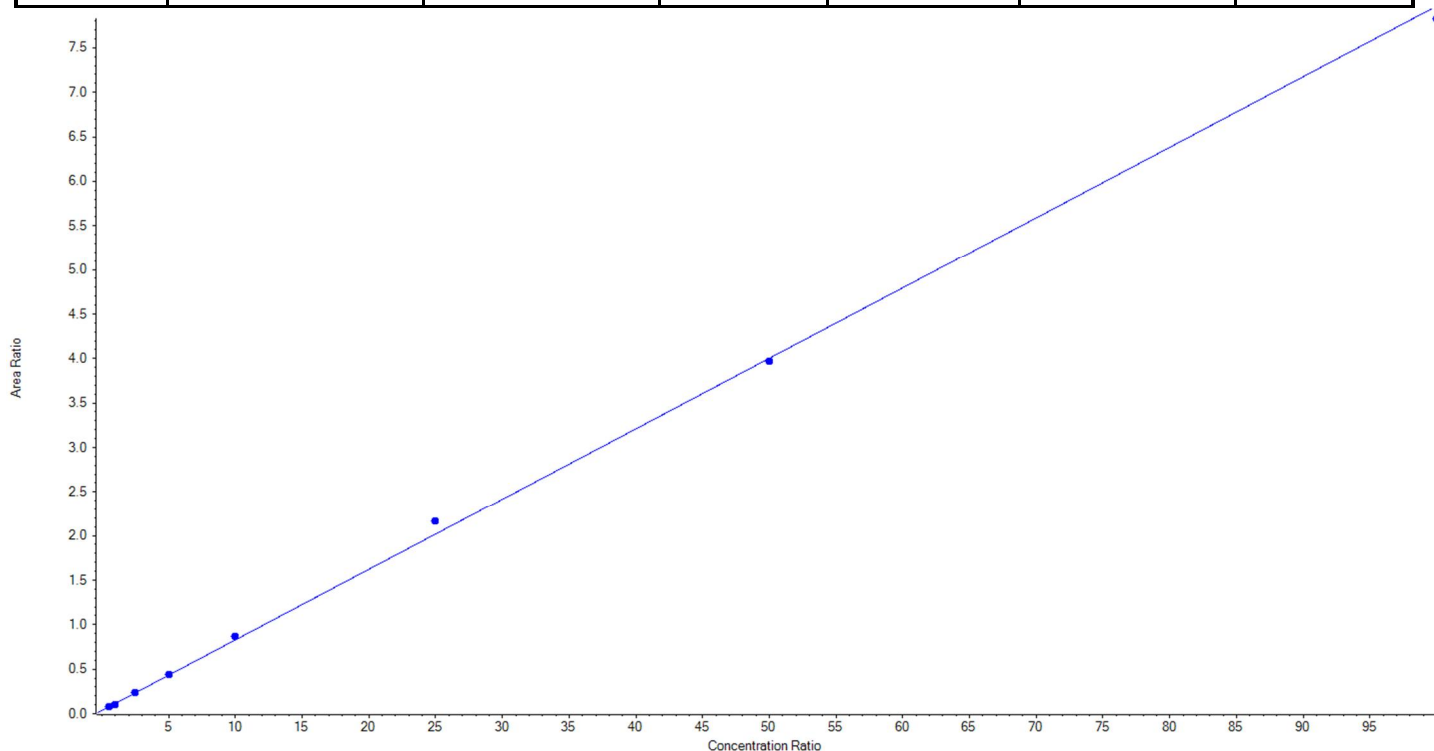
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	50.338209	100.7
4	JV66	L3	True	100.00	84.707195	84.7
5	JV67	L4	True	250.00	265.523841	106.2
6	JV68	L5	True	500.00	515.478392	103.1
7	JV69	L6	True	1000.00	1026.033578	102.6
8	JV70	L7	True	2500.00	2669.074700	106.8
9	JV71	L8	True	5000.00	4805.638526	96.1
10	JV72	L9	True	10000.00	9983.205560	99.8



<b>Analyte Name</b>	PFOA_2	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	413.0 / 169.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.07932 x + 0.03574$  (r = 0.99937) (weighting: 1 / x)

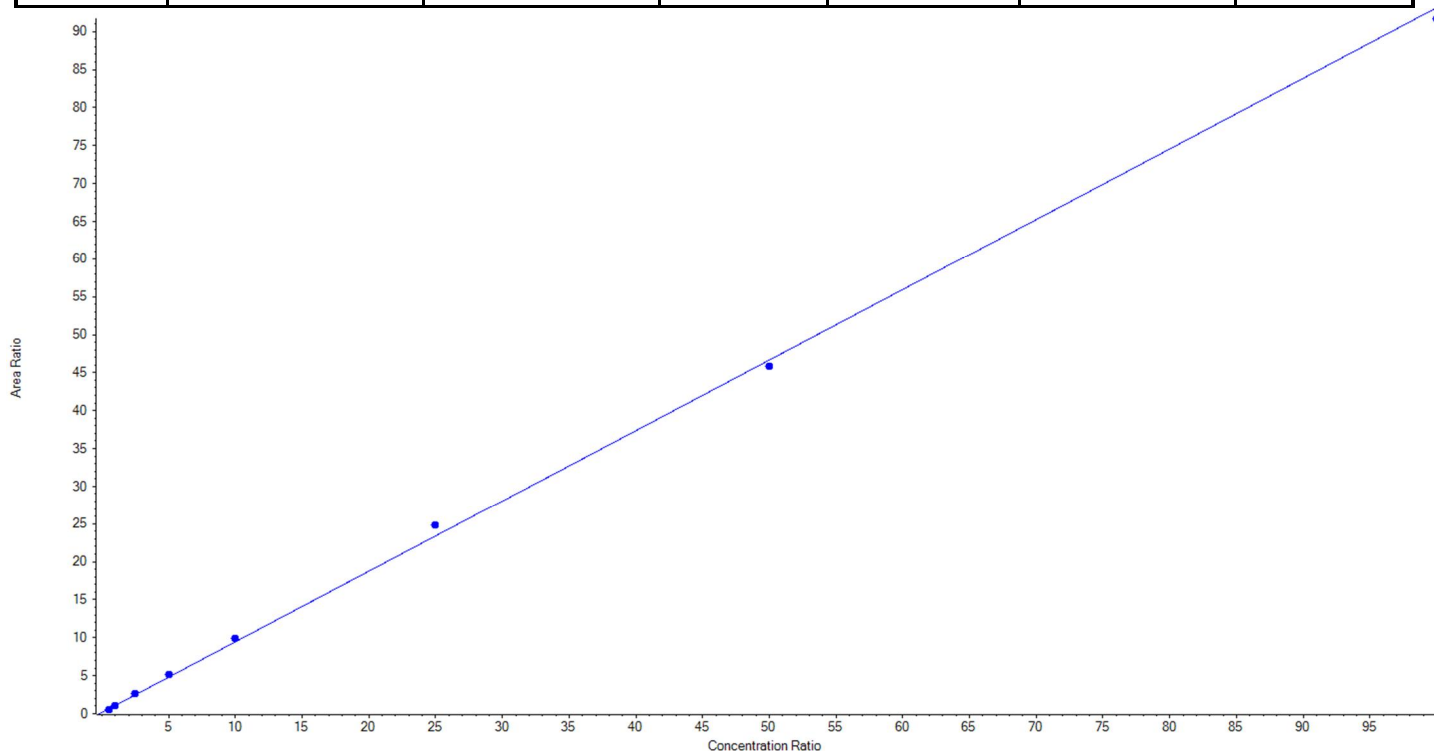
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	52.109683	104.2
4	JV66	L3	True	100.00	84.079239	84.1
5	JV67	L4	True	250.00	252.081302	100.8
6	JV68	L5	True	500.00	504.406238	100.9
7	JV69	L6	True	1000.00	1055.853791	105.6
8	JV70	L7	True	2500.00	2678.463894	107.1
9	JV71	L8	True	5000.00	4953.363354	99.1
10	JV72	L9	True	10000.00	9819.642500	98.2



<b>Analyte Name</b>	PFNA_1	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	463.0 / 419.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.92987x + 0.16135$  (r = 0.99939) (weighting: 1 / x)

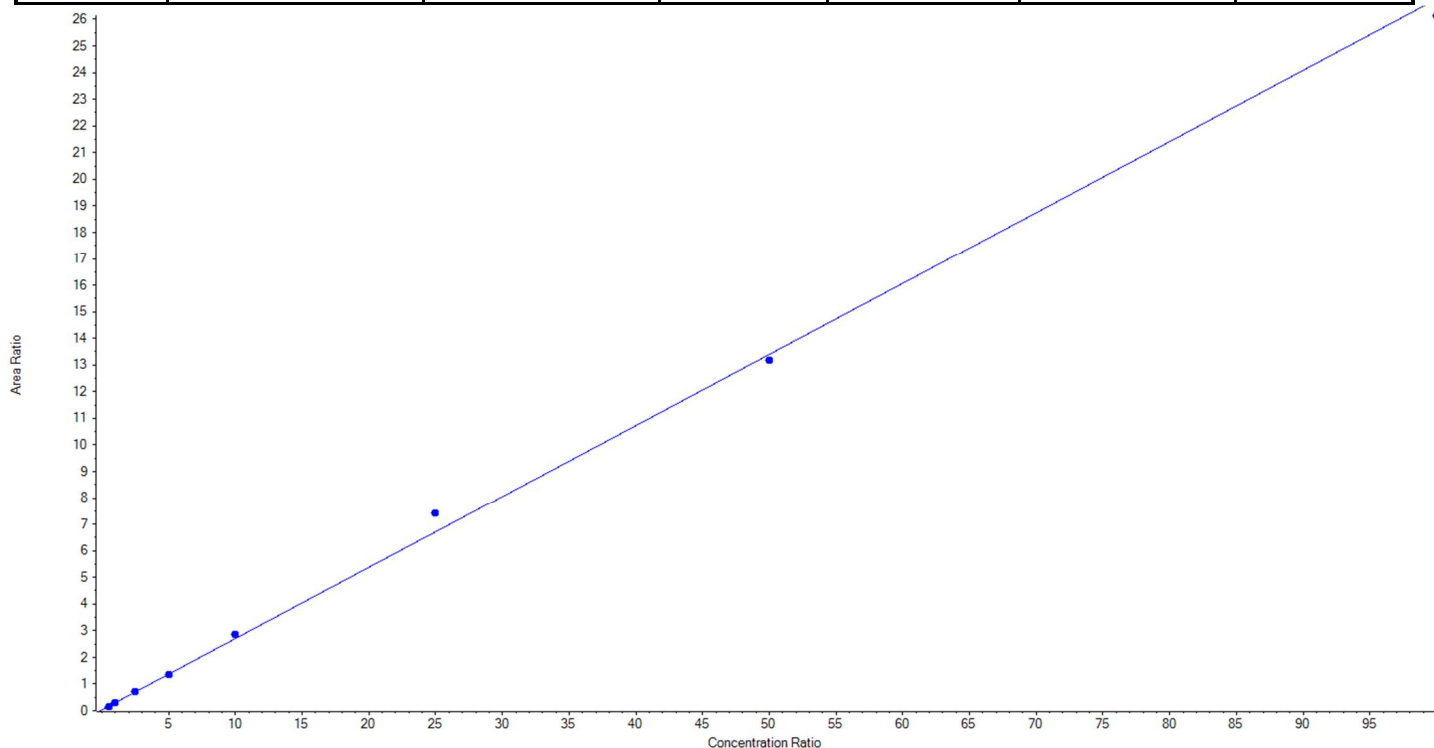
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	39.449837	78.9
4	JV66	L3	True	100.00	100.138720	100.1
5	JV67	L4	True	250.00	264.651374	105.9
6	JV68	L5	True	500.00	534.761281	107.0
7	JV69	L6	True	1000.00	1054.207944	105.4
8	JV70	L7	True	2500.00	2650.586292	106.0
9	JV71	L8	True	5000.00	4914.250945	98.3
10	JV72	L9	True	10000.00	9841.953608	98.4



<b>Analyte Name</b>	PFNA_2	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	463.0 / 219.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.26726 x + 0.03412$  (r = 0.99888) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	42.777773	85.6
4	JV66	L3	True	100.00	102.807845	102.8
5	JV67	L4	True	250.00	248.524822	99.4
6	JV68	L5	True	500.00	501.019505	100.2
7	JV69	L6	True	1000.00	1052.266180	105.2
8	JV70	L7	True	2500.00	2769.495936	110.8
9	JV71	L8	True	5000.00	4918.524474	98.4
10	JV72	L9	True	10000.00	9764.583465	97.7

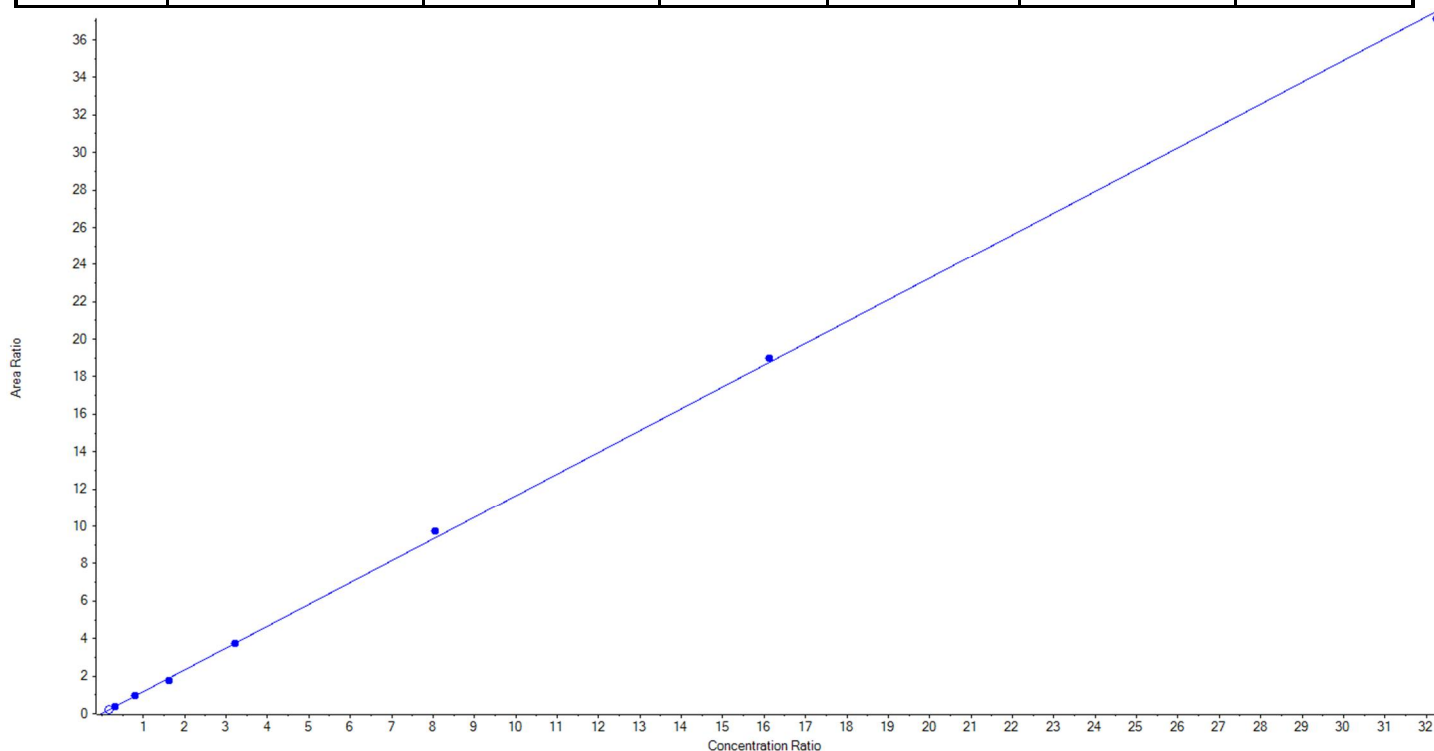




<b>Analyte Name</b>	PFOS_1	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	499.0 / 80.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.16304 x + 0.00952$  (r = 0.99976) (weighting: 1 / x)

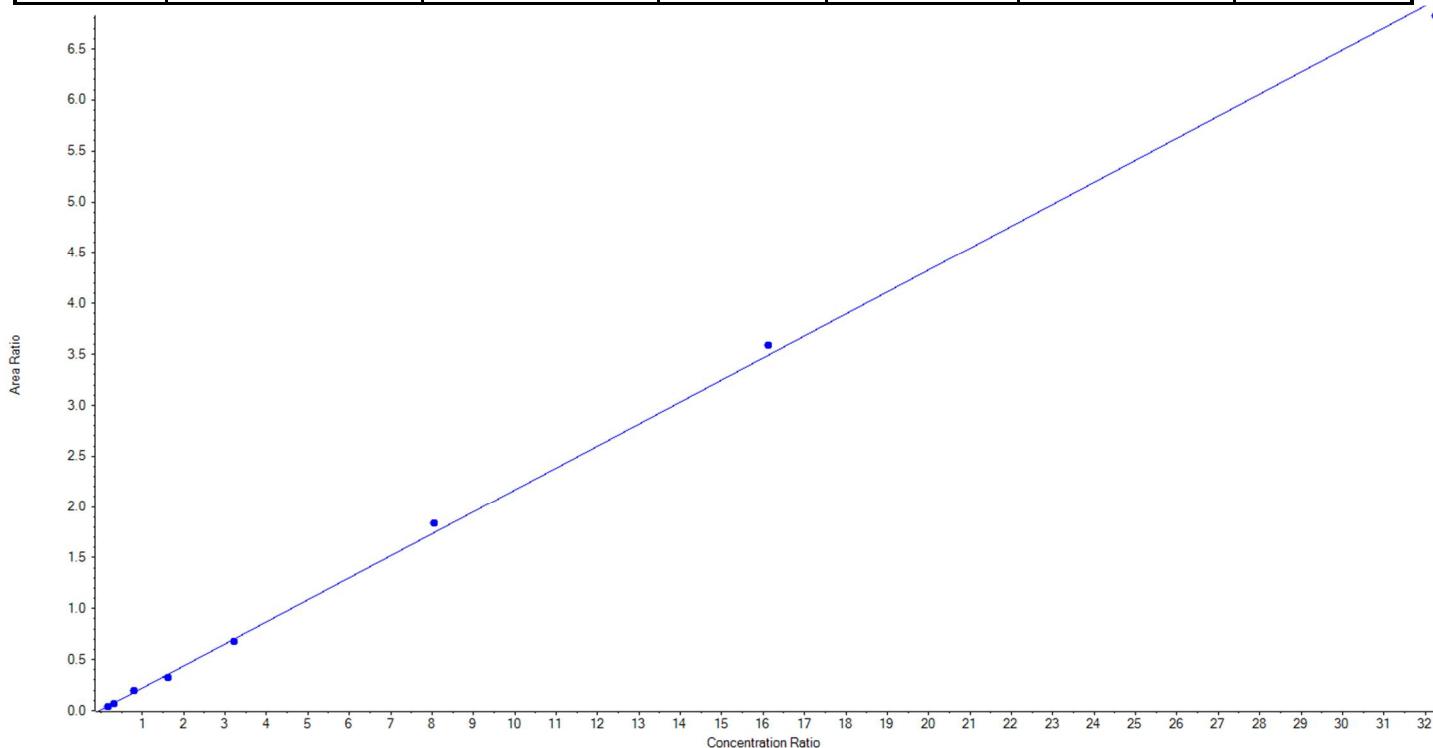
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	23.15	N/A	N/A
3	JV65	L2	False	46.30	48.187813	104.1
4	JV66	L3	True	92.60	95.378162	103.0
5	JV67	L4	True	231.50	234.863467	101.5
6	JV68	L5	True	463.00	428.486526	92.6
7	JV69	L6	True	925.60	920.372302	99.4
8	JV70	L7	True	2314.00	2396.428880	103.6
9	JV71	L8	True	4628.00	4677.185328	101.1
10	JV72	L9	True	9256.00	9157.985335	98.9



<b>Analyte Name</b>	PFOS_2	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	499.0 / 99.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.21614 x + 0.00561$  (r = 0.99933) (weighting: 1 / x)

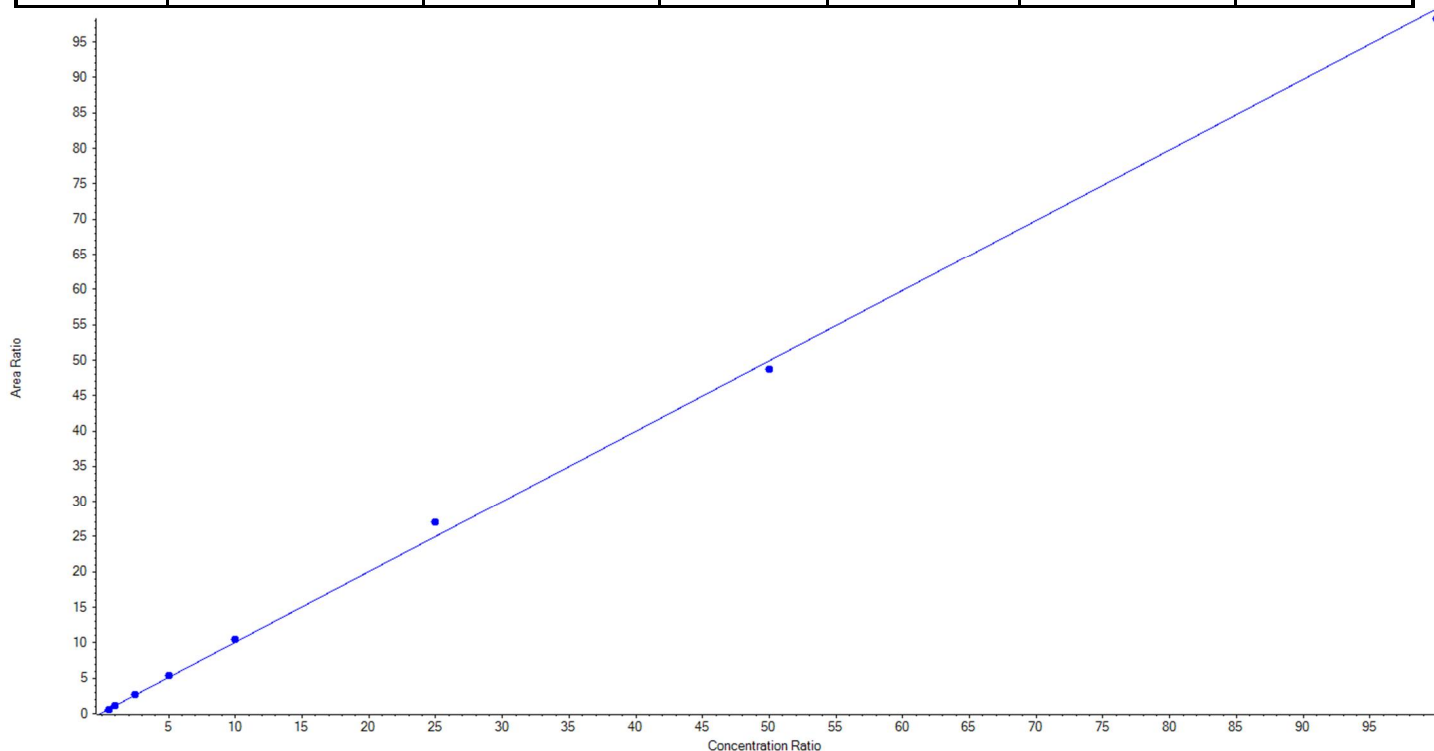
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	23.15	N/A	N/A
3	JV65	L2	True	46.30	48.850325	105.5
4	JV66	L3	True	92.60	84.477615	91.2
5	JV67	L4	True	231.50	252.027708	108.9
6	JV68	L5	True	463.00	423.495829	91.5
7	JV69	L6	True	925.60	896.469482	96.9
8	JV70	L7	True	2314.00	2440.469794	105.5
9	JV71	L8	True	4628.00	4757.248377	102.8
10	JV72	L9	True	9256.00	9053.960872	97.8



<b>Analyte Name</b>	PFDA_1	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	513.0 / 469.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.99557 x + 0.13515$  (r = 0.99929) (weighting: 1 / x)

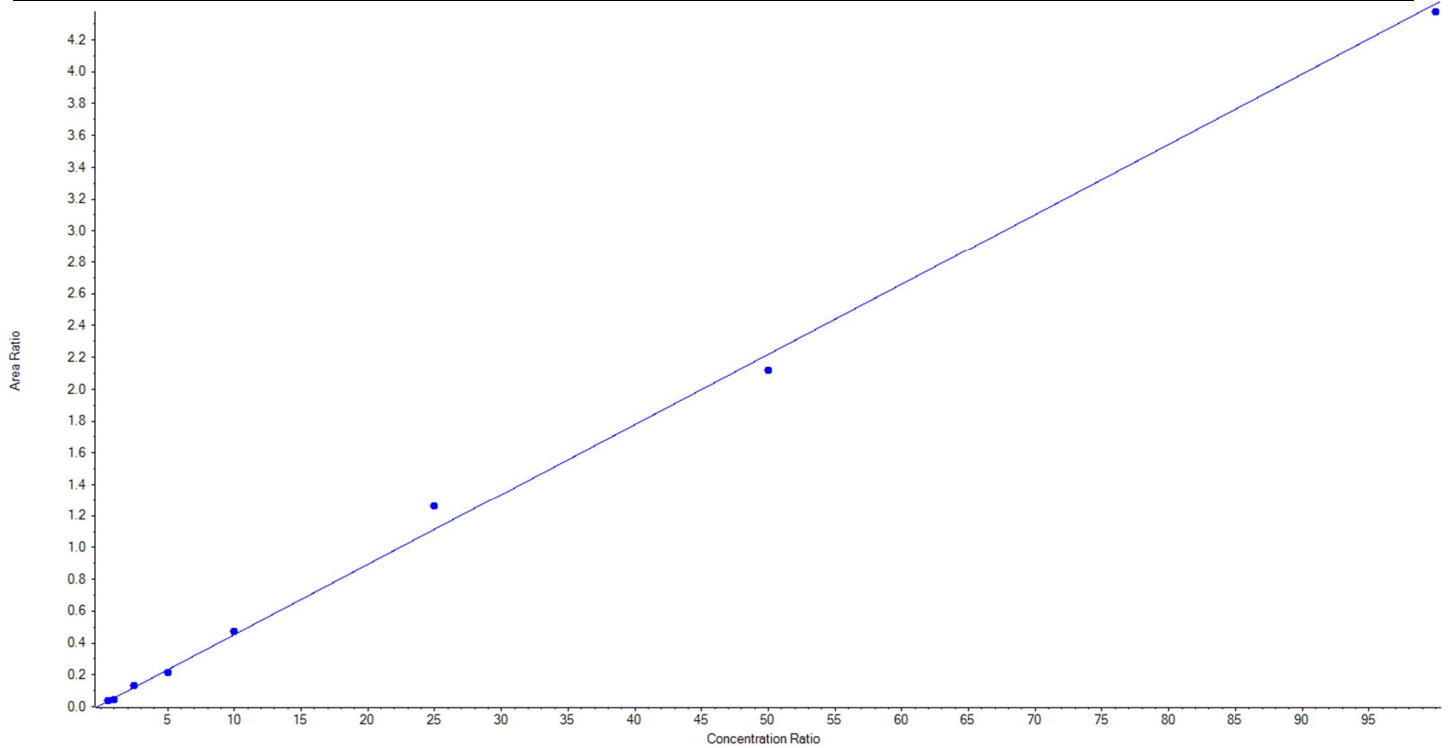
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	44.435832	88.9
4	JV66	L3	True	100.00	93.145766	93.2
5	JV67	L4	True	250.00	261.832997	104.7
6	JV68	L5	True	500.00	525.405873	105.1
7	JV69	L6	True	1000.00	1041.326506	104.1
8	JV70	L7	True	2500.00	2697.013223	107.9
9	JV71	L8	True	5000.00	4878.661940	97.6
10	JV72	L9	True	10000.00	9858.177863	98.6



<b>Analyte Name</b>	PFDA_2	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	513.0 / 219.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04416 x + 0.01106$  (r = 0.99805) (weighting: 1 / x)

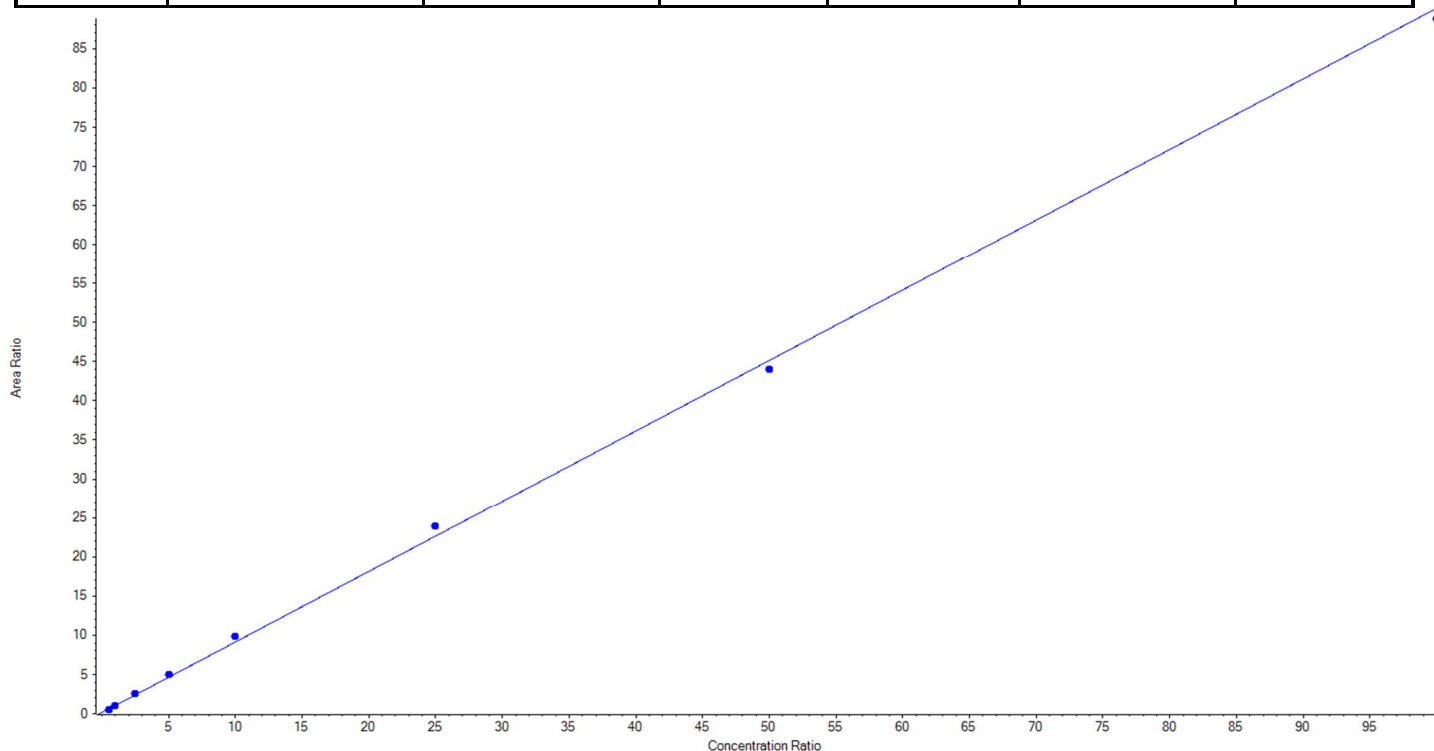
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	55.236183	110.5
4	JV66	L3	True	100.00	76.398204	76.4
5	JV67	L4	True	250.00	272.771787	109.1
6	JV68	L5	True	500.00	459.878276	92.0
7	JV69	L6	True	1000.00	1044.129829	104.4
8	JV70	L7	True	2500.00	2833.104819	113.3
9	JV71	L8	True	5000.00	4772.307574	95.5
10	JV72	L9	True	10000.00	9886.173328	98.9



<b>Analyte Name</b>	PFUnA_1	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	563.0 / 519.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.90013x + 0.14078$  (r = 0.99919) (weighting: 1 / x)

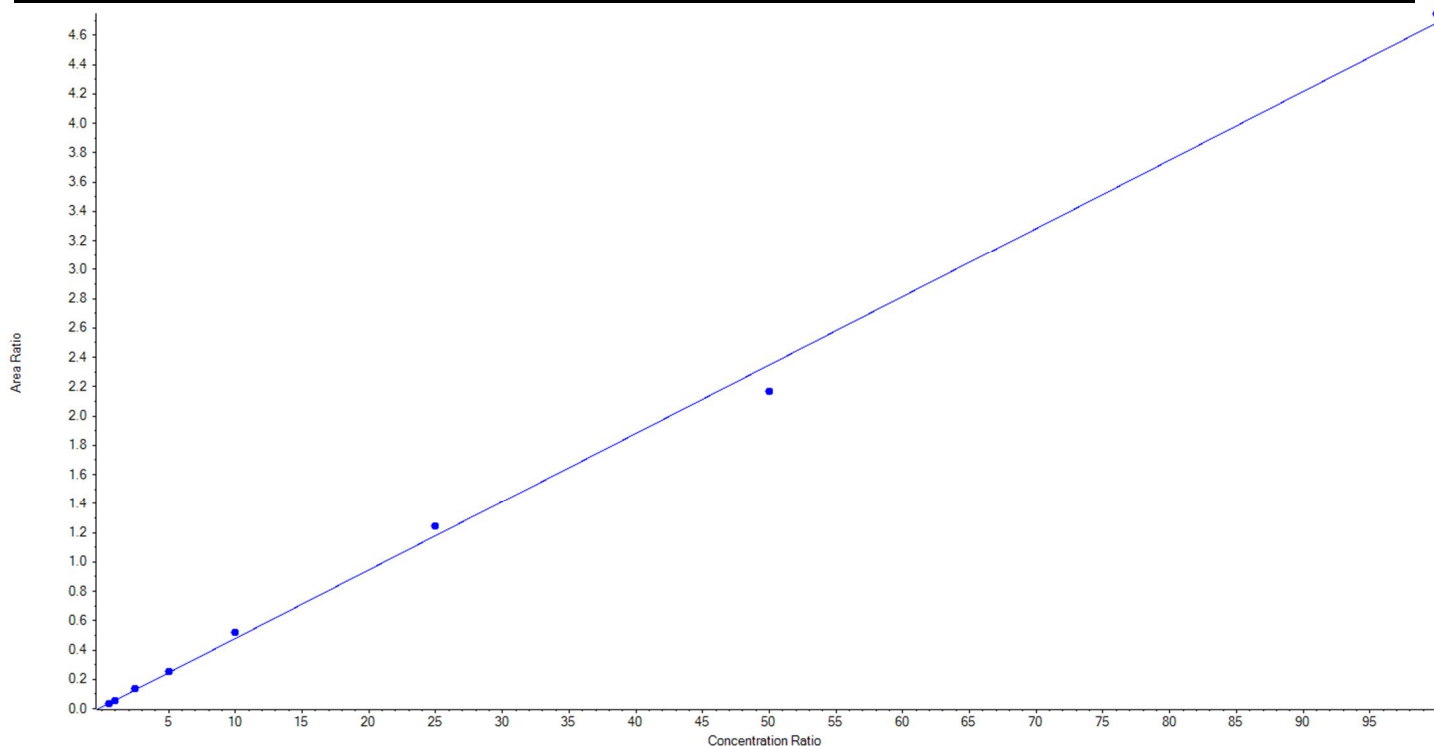
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	37.715784	75.4
4	JV66	L3	True	100.00	96.757681	96.8
5	JV67	L4	True	250.00	272.425126	109.0
6	JV68	L5	True	500.00	545.715689	109.1
7	JV69	L6	True	1000.00	1081.252644	108.1
8	JV70	L7	True	2500.00	2637.960702	105.5
9	JV71	L8	True	5000.00	4877.214697	97.5
10	JV72	L9	True	10000.00	9850.957676	98.5



<b>Analyte Name</b>	PFUnA_2	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	563.0 / 269.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04673x + 0.01136$  (r = 0.99863) (weighting: 1 / x)

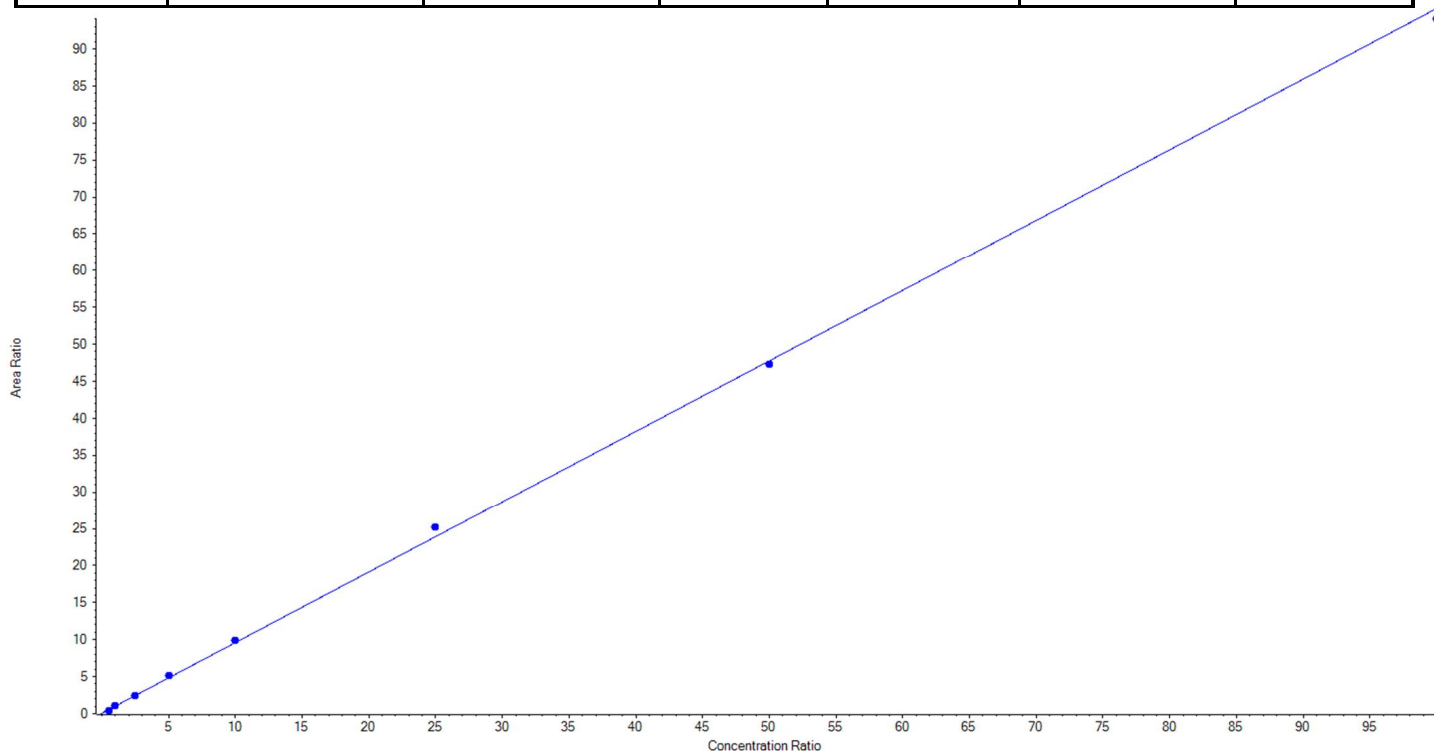
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	43.007491	86.0
4	JV66	L3	True	100.00	96.202057	96.2
5	JV67	L4	True	250.00	264.918139	106.0
6	JV68	L5	True	500.00	520.578495	104.1
7	JV69	L6	True	1000.00	1084.199708	108.4
8	JV70	L7	True	2500.00	2639.439523	105.6
9	JV71	L8	True	5000.00	4618.590848	92.4
10	JV72	L9	True	10000.00	10133.063739	101.3



<b>Analyte Name</b>	PFD <sub>o</sub> A_1	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	613.0 / 569.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.95393x + 0.06668$  (r = 0.99961) (weighting: 1 / x)

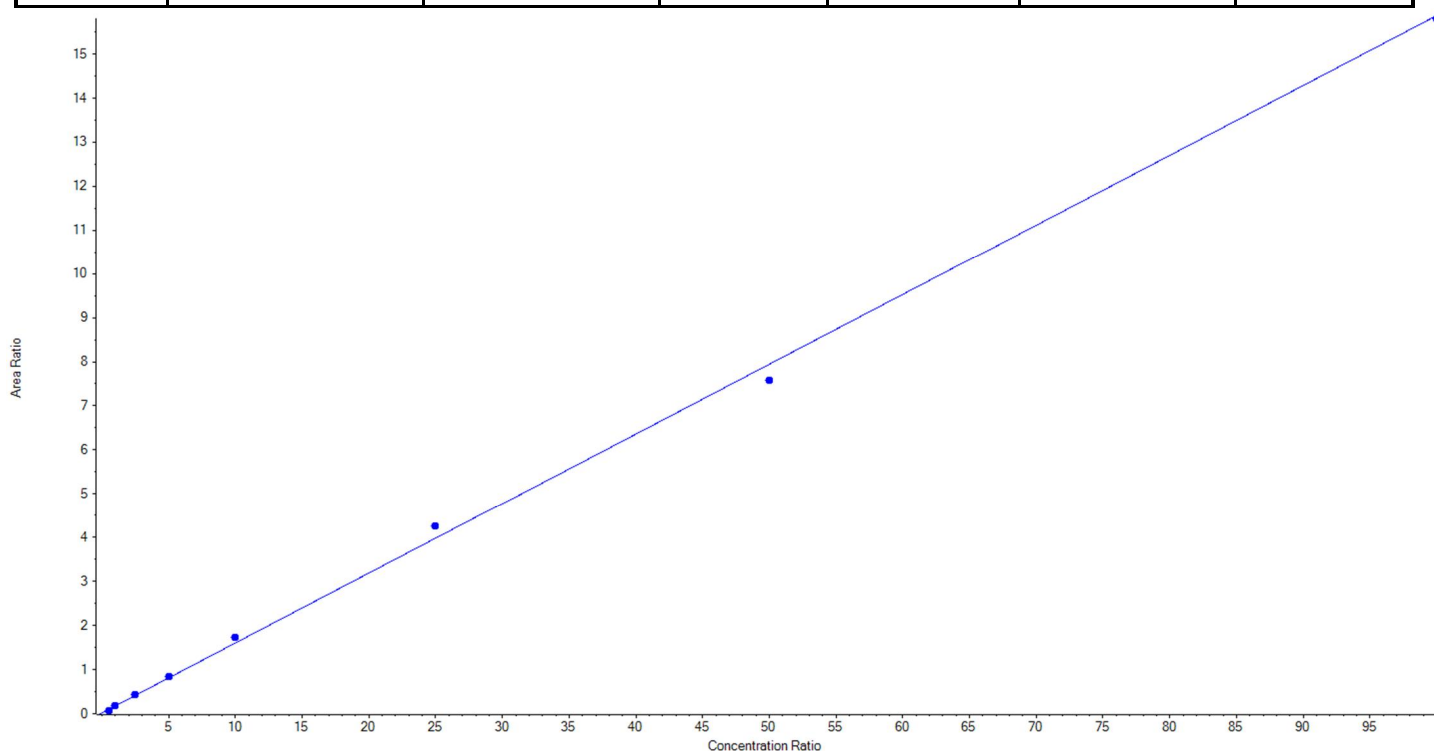
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	41.996263	84.0
4	JV66	L3	True	100.00	102.502704	102.5
5	JV67	L4	True	250.00	254.423652	101.8
6	JV68	L5	True	500.00	531.541408	106.3
7	JV69	L6	True	1000.00	1023.170252	102.3
8	JV70	L7	True	2500.00	2636.134326	105.5
9	JV71	L8	True	5000.00	4956.231482	99.1
10	JV72	L9	True	10000.00	9853.999912	98.5



<b>Analyte Name</b>	PFD <sub>o</sub> A_2	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	613.0 / 319.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.15850x + 0.01900$  (r = 0.99906) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	37.377887	74.8
4	JV66	L3	True	100.00	107.351795	107.4
5	JV67	L4	True	250.00	260.643724	104.3
6	JV68	L5	True	500.00	522.047312	104.4
7	JV69	L6	True	1000.00	1072.560309	107.3
8	JV70	L7	True	2500.00	2675.490267	107.0
9	JV71	L8	True	5000.00	4770.454972	95.4
10	JV72	L9	True	10000.00	9954.073734	99.5

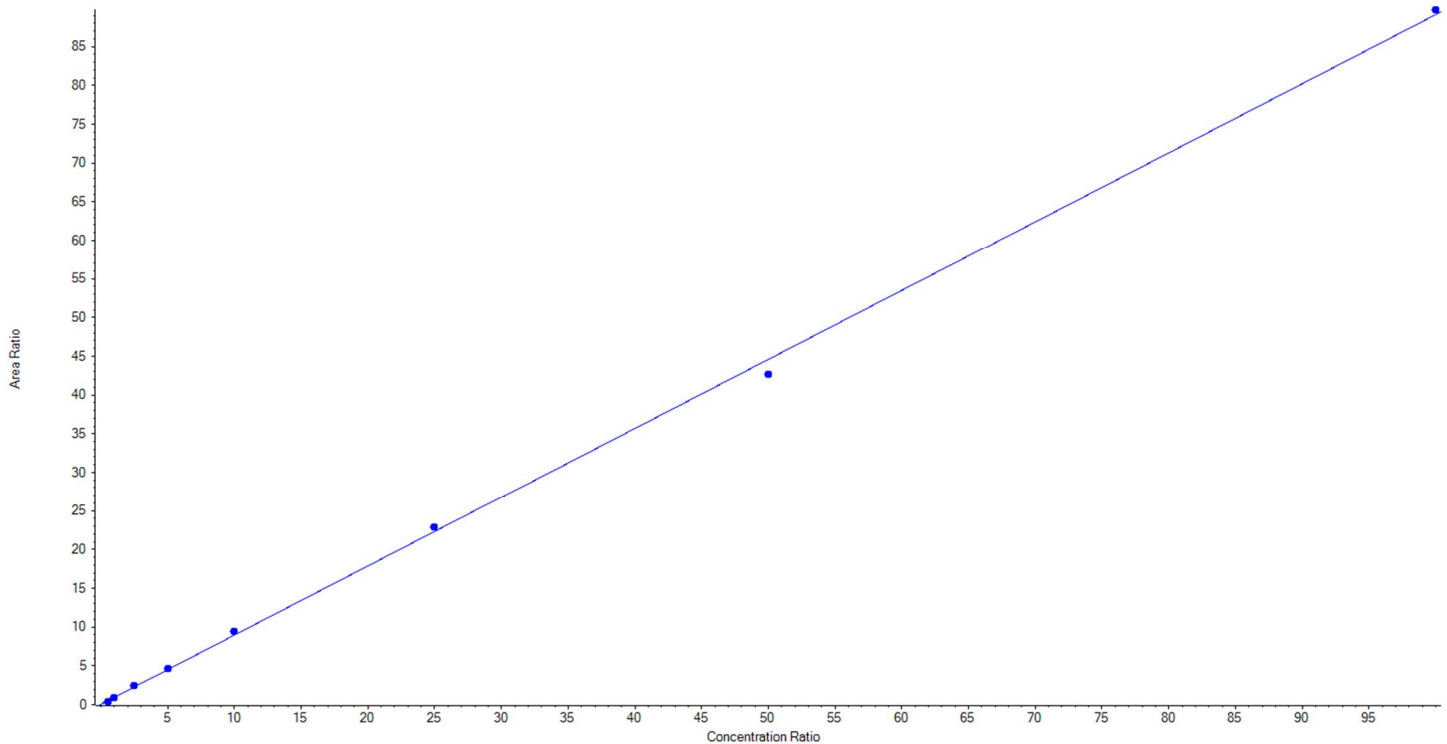




<b>Analyte Name</b>	PFTTrDA_1	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	663.0 / 619.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.89048x + 0.06159$  (r = 0.99953) (weighting: 1 / x)

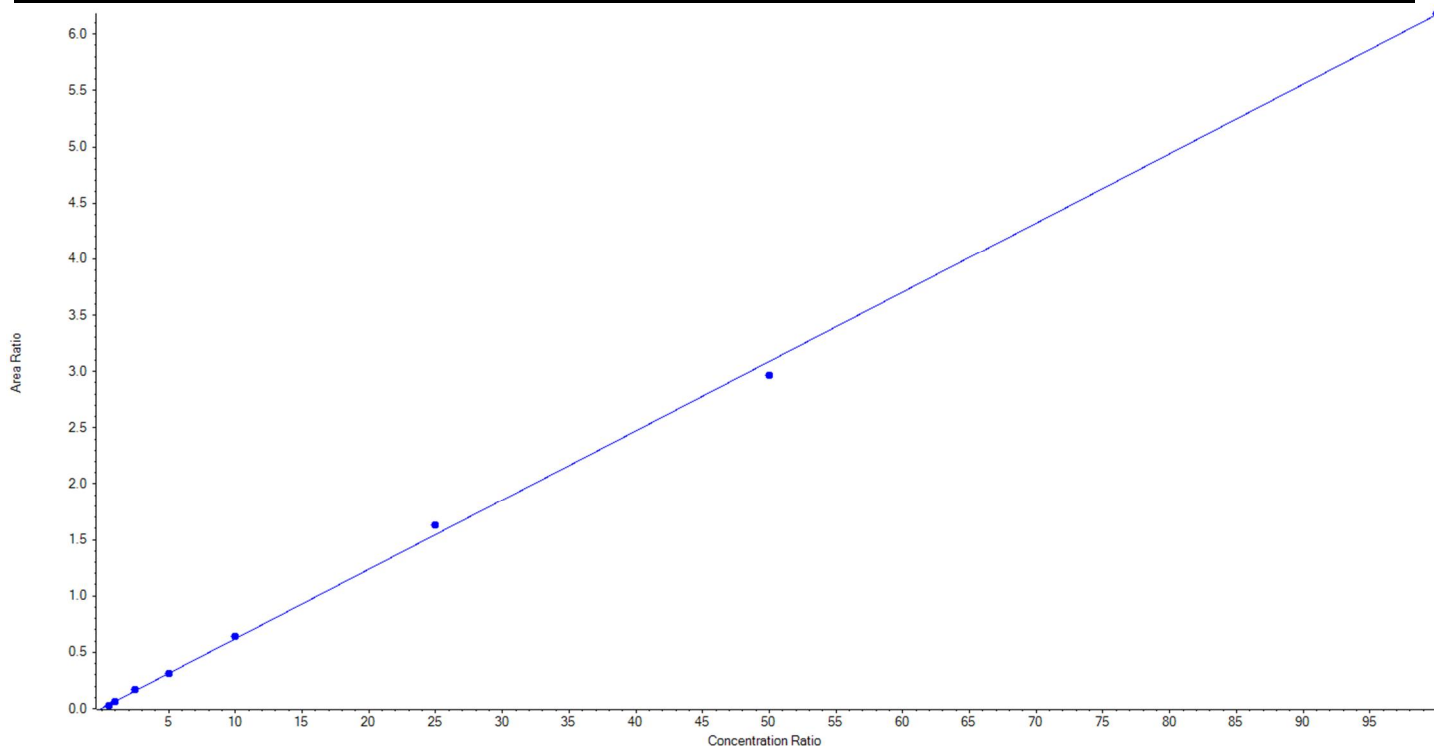
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	43.306796	86.6
4	JV66	L3	True	100.00	97.875153	97.9
5	JV67	L4	True	250.00	268.128055	107.3
6	JV68	L5	True	500.00	519.973497	104.0
7	JV69	L6	True	1000.00	1055.027052	105.5
8	JV70	L7	True	2500.00	2557.249009	102.3
9	JV71	L8	True	5000.00	4788.826360	95.8
10	JV72	L9	True	10000.00	10069.614078	100.7



<b>Analyte Name</b>	PFTTrDA_2	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	663.0 / 169.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.06169x + 0.00409$  (r = 0.99944) (weighting: 1 / x)

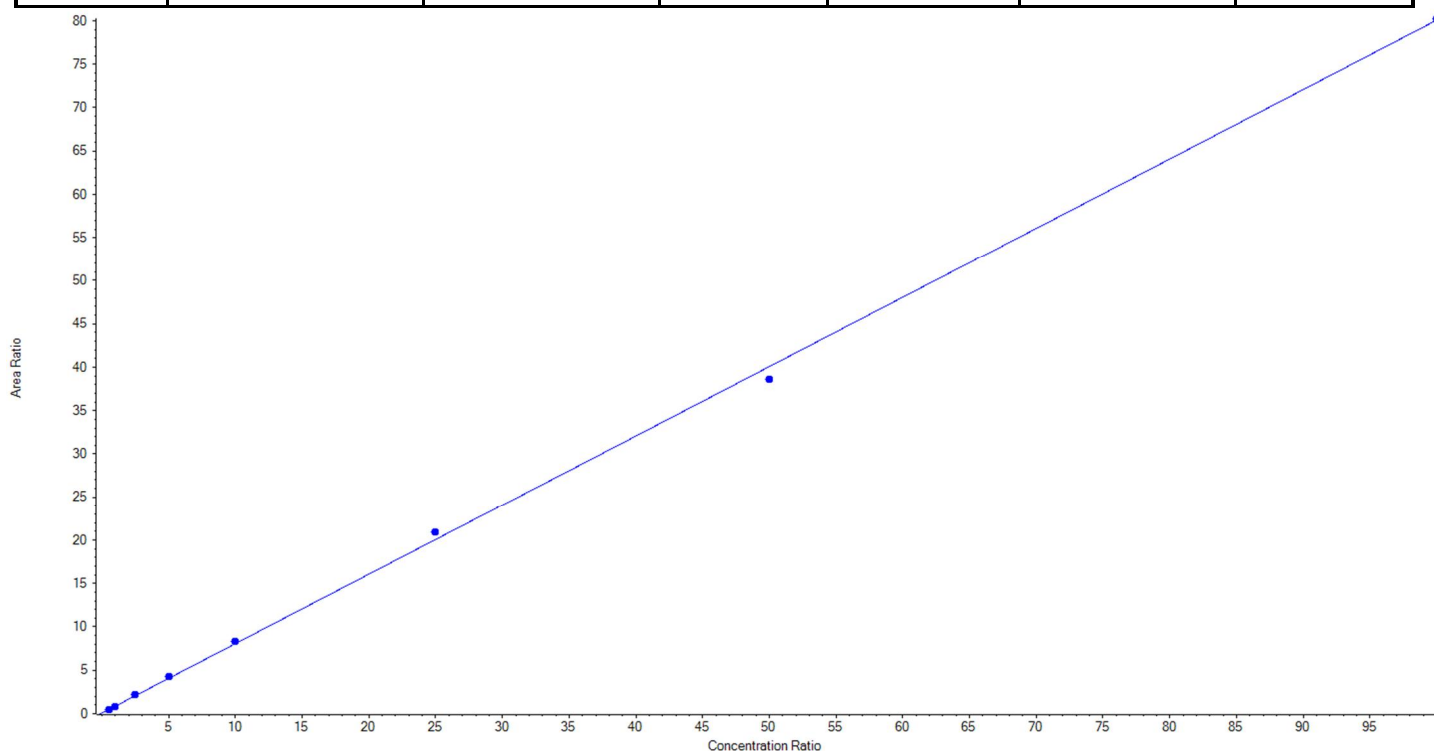
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	42.710965	85.4
4	JV66	L3	True	100.00	101.078791	101.1
5	JV67	L4	True	250.00	268.774951	107.5
6	JV68	L5	True	500.00	503.487021	100.7
7	JV69	L6	True	1000.00	1037.186073	103.7
8	JV70	L7	True	2500.00	2637.864972	105.5
9	JV71	L8	True	5000.00	4796.971525	95.9
10	JV72	L9	True	10000.00	10011.925702	100.1



<b>Analyte Name</b>	PFTeDA_1	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	713.0 / 669.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.80004 x + 0.06870$  (r = 0.99959) (weighting: 1 / x)

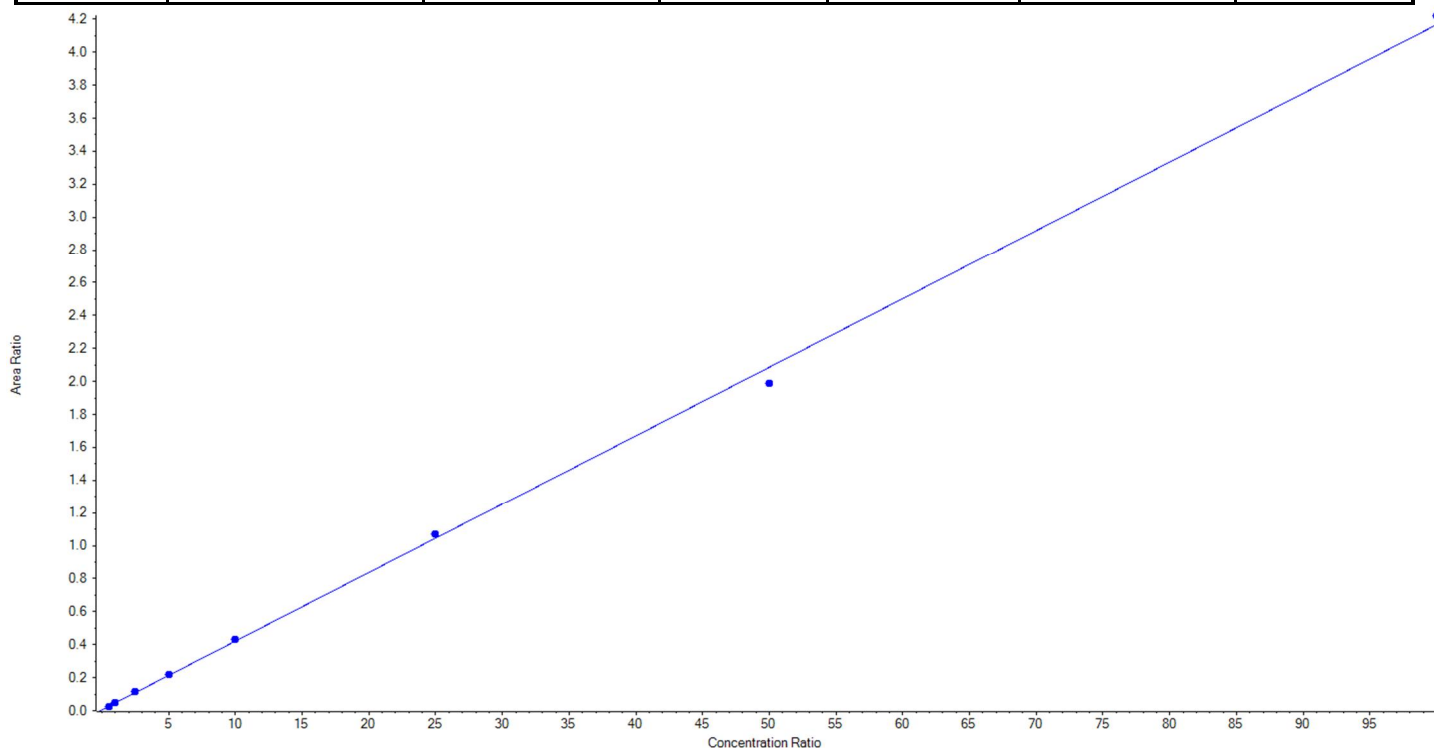
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	45.773410	91.6
4	JV66	L3	True	100.00	94.128615	94.1
5	JV67	L4	True	250.00	264.348234	105.7
6	JV68	L5	True	500.00	524.723513	104.9
7	JV69	L6	True	1000.00	1029.276875	102.9
8	JV70	L7	True	2500.00	2603.251203	104.1
9	JV71	L8	True	5000.00	4819.785187	96.4
10	JV72	L9	True	10000.00	10018.712963	100.2



<b>Analyte Name</b>	PFTeDA_2	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	713.0 / 169.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04161 x + 0.00538$  (r = 0.99955) (weighting: 1 / x)

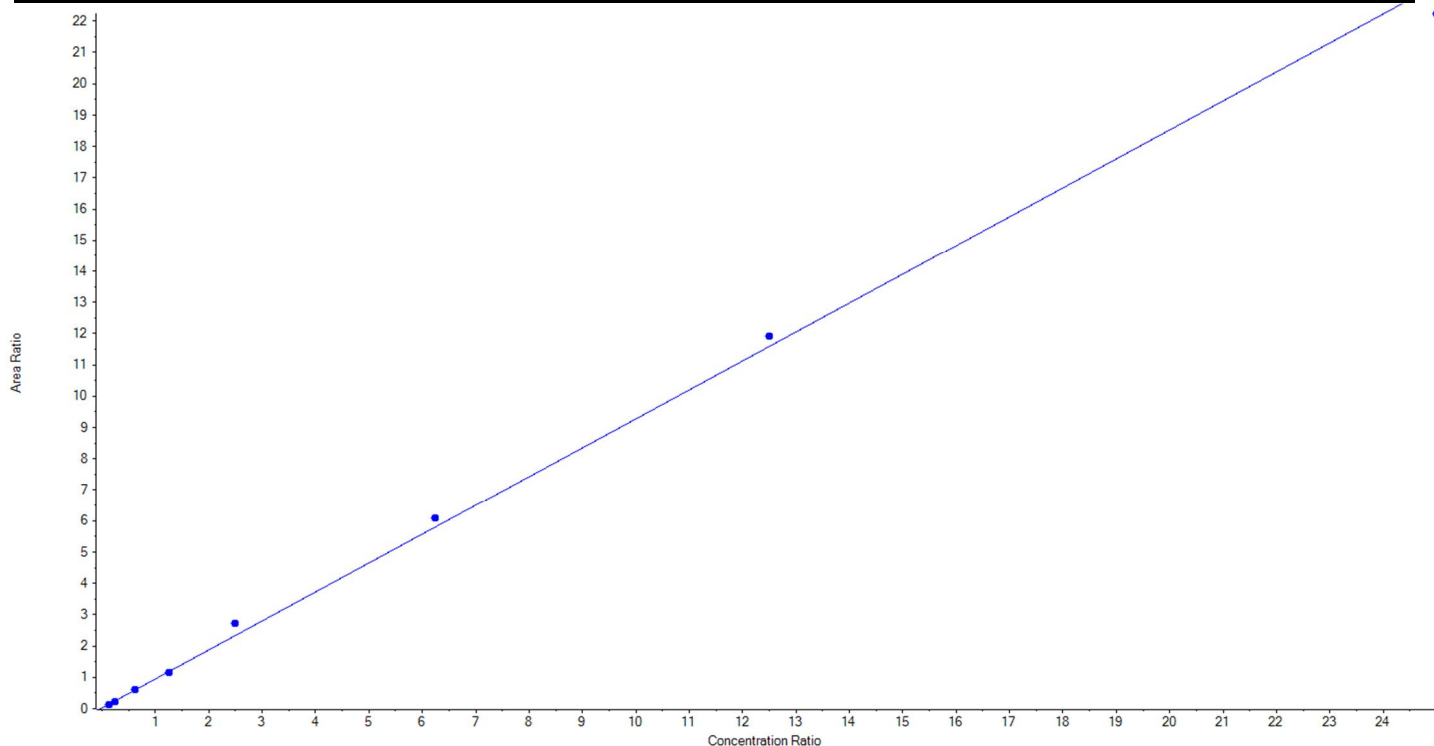
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	44.375819	88.8
4	JV66	L3	True	100.00	103.538442	103.5
5	JV67	L4	True	250.00	259.862901	104.0
6	JV68	L5	True	500.00	508.886391	101.8
7	JV69	L6	True	1000.00	1031.689261	103.2
8	JV70	L7	True	2500.00	2553.743509	102.2
9	JV71	L8	True	5000.00	4768.977837	95.4
10	JV72	L9	True	10000.00	10128.925840	101.3



<b>Analyte Name</b>	NMeFOSAA_1	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	570.0 / 419.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.92525x + 0.02274$  (r = 0.99850) (weighting: 1 / x)

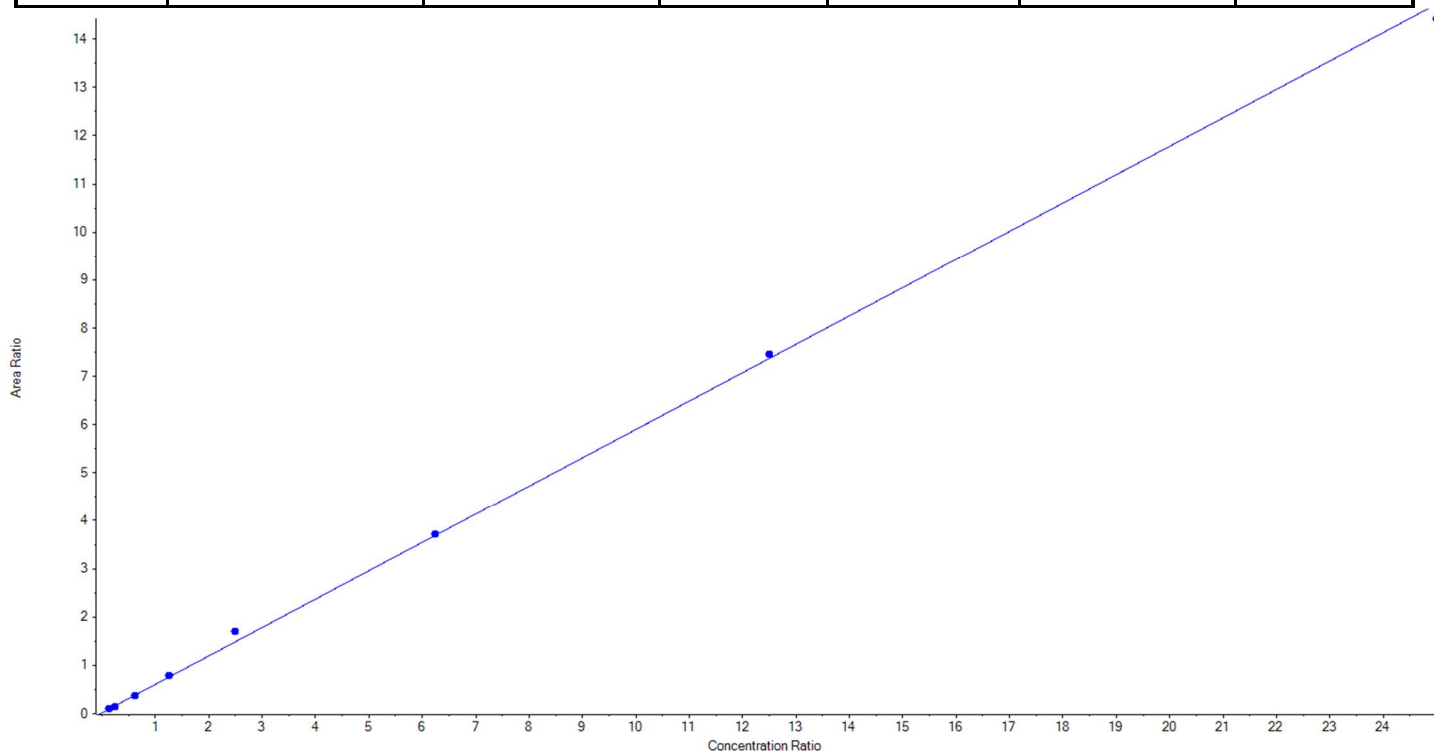
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	44.993770	90.0
4	JV66	L3	True	100.00	89.798642	89.8
5	JV67	L4	True	250.00	254.880308	102.0
6	JV68	L5	True	500.00	492.964120	98.6
7	JV69	L6	True	1000.00	1162.362016	116.2
8	JV70	L7	True	2500.00	2617.467082	104.7
9	JV71	L8	True	5000.00	5135.864638	102.7
10	JV72	L9	True	10000.00	9601.669425	96.0



<b>Analyte Name</b>	NMeFOSAA_2	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	570.0 / 512.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.58812 x + 0.01851$  (r = 0.99910) (weighting: 1 / x)

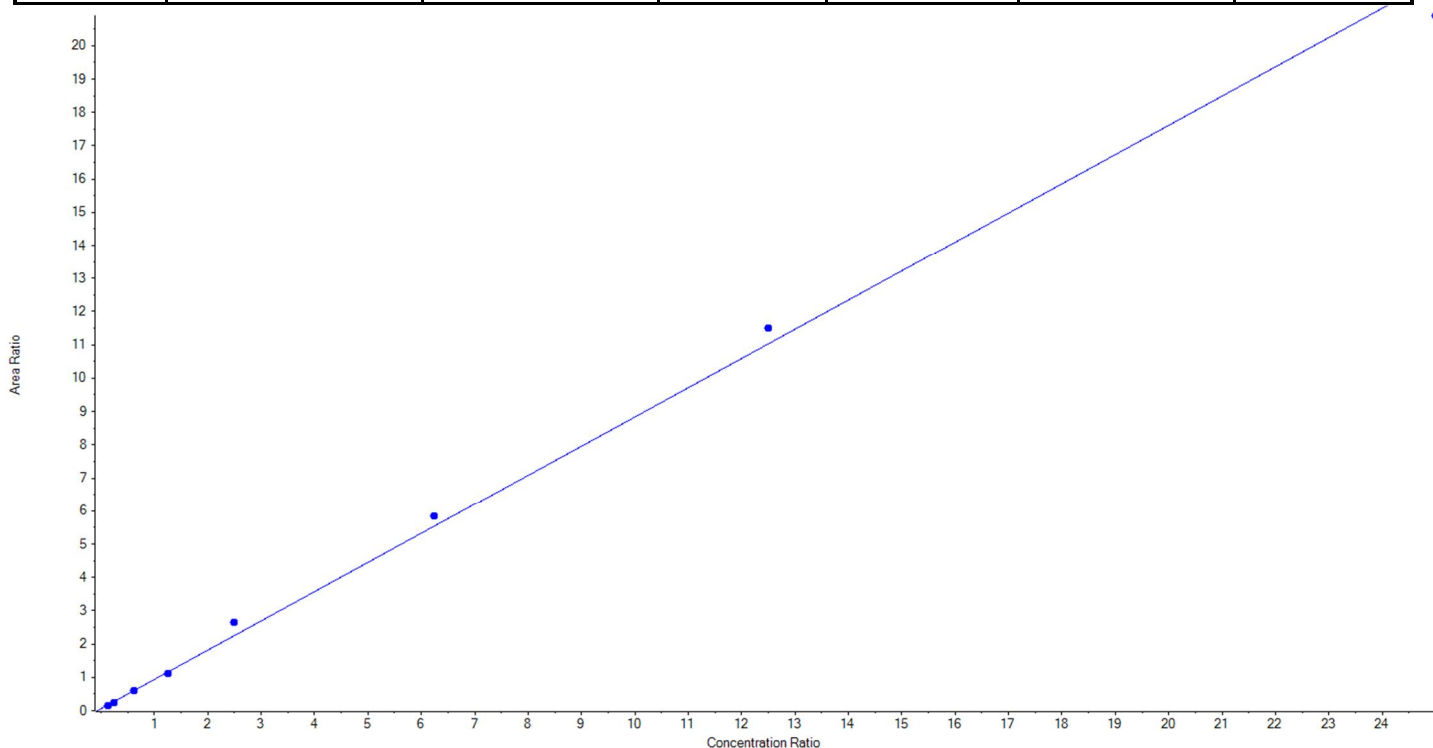
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	53.131505	106.3
4	JV66	L3	True	100.00	81.277095	81.3
5	JV67	L4	True	250.00	234.789364	93.9
6	JV68	L5	True	500.00	521.635618	104.3
7	JV69	L6	True	1000.00	1146.164220	114.6
8	JV70	L7	True	2500.00	2513.765137	100.6
9	JV71	L8	True	5000.00	5055.762729	101.1
10	JV72	L9	True	10000.00	9793.474332	97.9



<b>Analyte Name</b>	NEtFOSAA_1	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	584.0 / 419.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.87755x + 0.05939$  (r = 0.99776) (weighting: 1 / x)

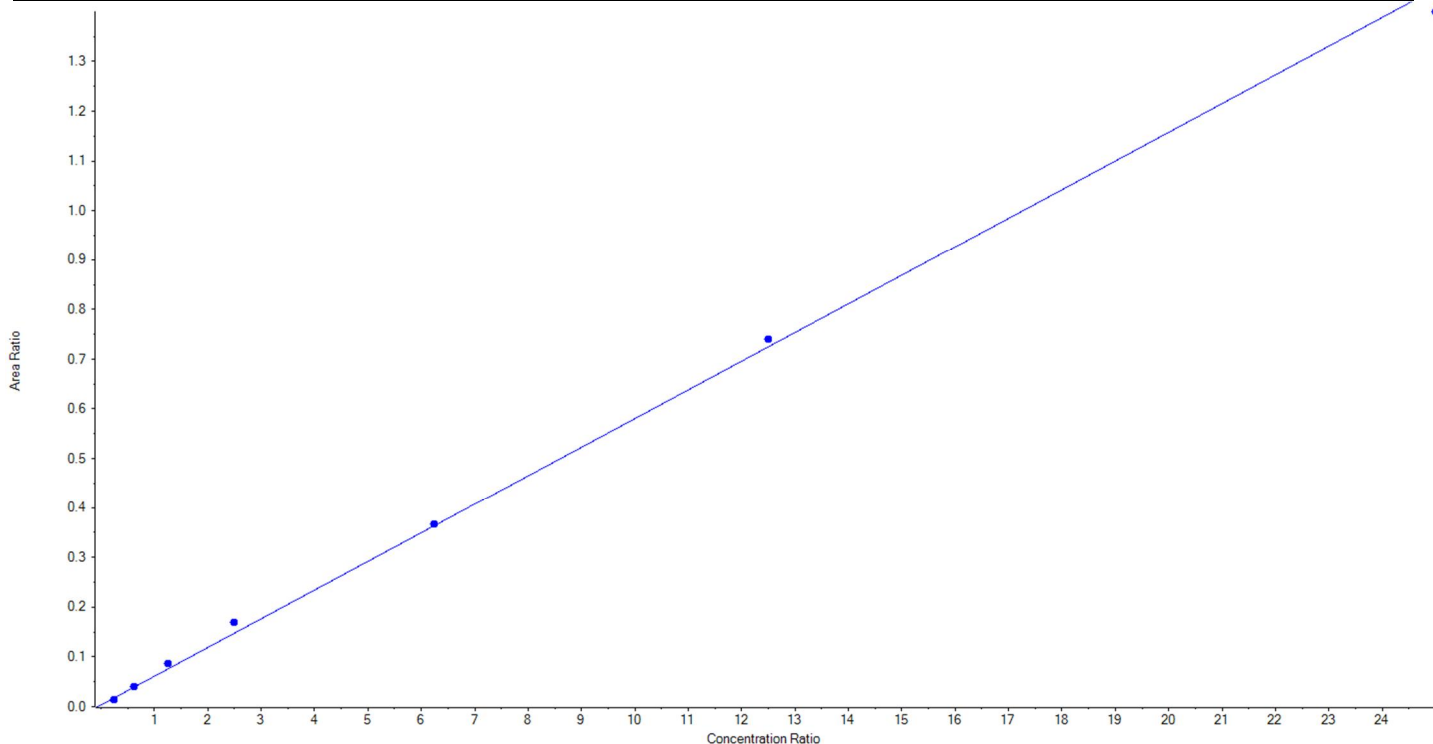
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	True	50.00	47.804781	95.6
4	JV66	L3	True	100.00	84.814537	84.8
5	JV67	L4	True	250.00	252.859431	101.1
6	JV68	L5	True	500.00	476.518984	95.3
7	JV69	L6	True	1000.00	1182.459476	118.3
8	JV70	L7	True	2500.00	2637.173291	105.5
9	JV71	L8	True	5000.00	5221.175648	104.4
10	JV72	L9	True	10000.00	9497.193850	95.0



<b>Analyte Name</b>	NEtFOSAA_2	<b>Data File</b>	5500_06122018.wiff
<b>MRM Transition</b>	584.0 / 483.0	<b>Result Table</b>	18-0343
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/12/2018 3:38:26 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05771 x + 0.00339$  (r = 0.99834) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	N/A	N/A
3	JV65	L2	False	50.00	N/A	N/A
4	JV66	L3	True	100.00	70.704094	70.7
5	JV67	L4	True	250.00	249.151225	99.7
6	JV68	L5	True	500.00	575.232732	115.1
7	JV69	L6	True	1000.00	1149.132061	114.9
8	JV70	L7	True	2500.00	2516.924520	100.7
9	JV71	L8	True	5000.00	5111.012896	102.2
10	JV72	L9	True	10000.00	9677.842472	96.8







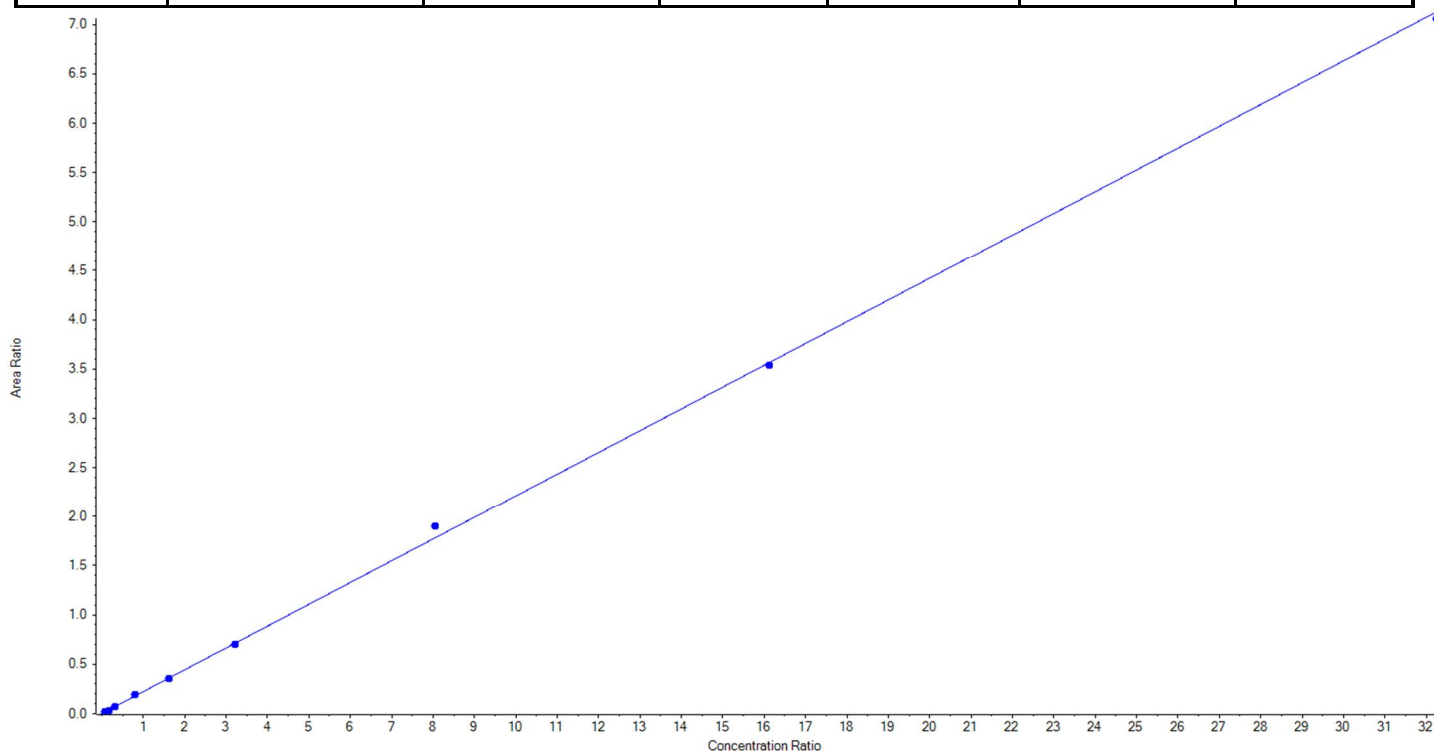
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 19/06/2018 2:42:29 PM

<b>Analyte Name</b>	PFOS_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	499.0 / 99.0	<b>Result Table</b>	18-0343_D
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.22092 x + 0.00318$  (r = 0.99956) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	23.15	26.735128	115.5
3	JV65	L2	True	46.30	36.731310	79.3
4	JV66	L3	True	92.60	88.887552	96.0
5	JV67	L4	True	231.50	249.396516	107.7
6	JV68	L5	True	463.00	458.995774	99.1
7	JV69	L6	True	925.60	905.536816	97.8
8	JV70	L7	True	2314.00	2459.747244	106.3
9	JV71	L8	True	4628.00	4590.585831	99.2
10	JV72	L9	True	9256.00	9163.533829	99.0





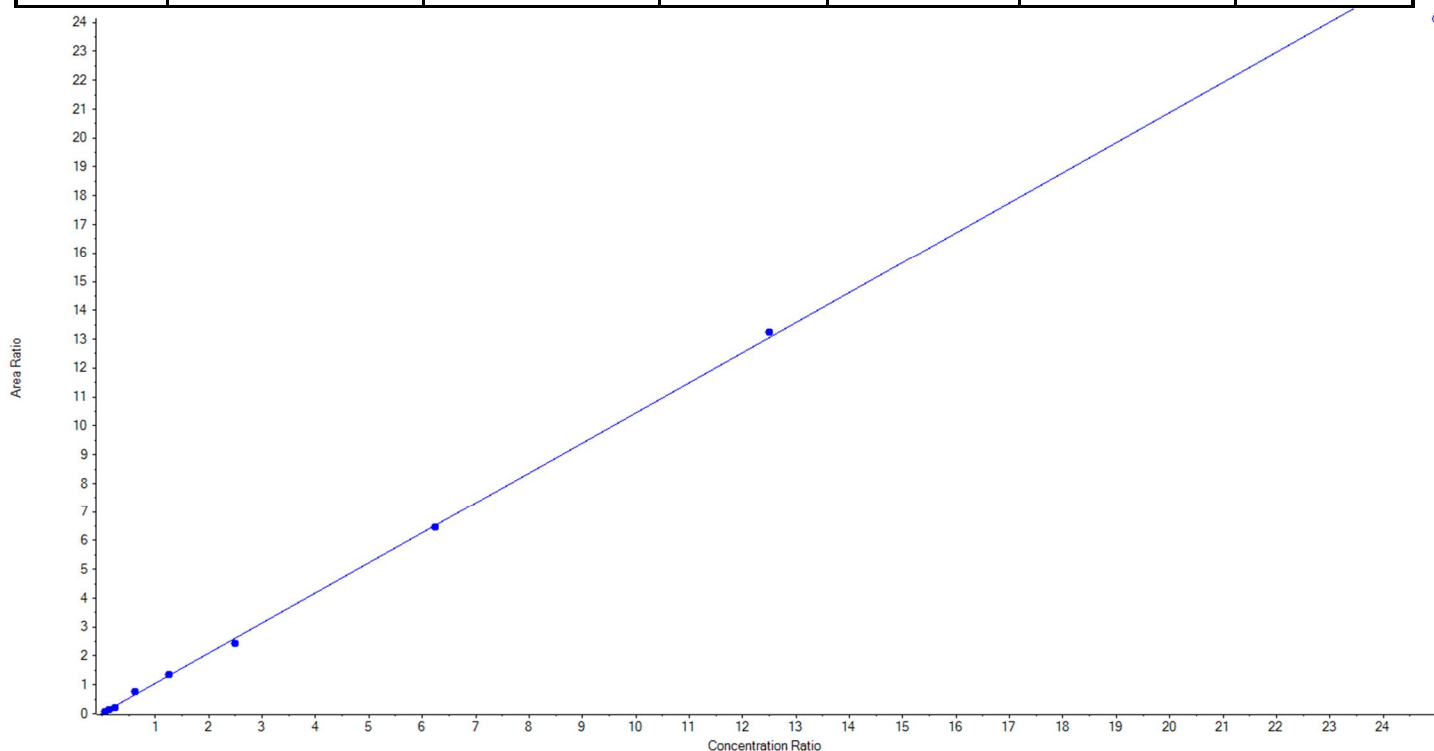
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 19/06/2018 2:42:29 PM

<b>Analyte Name</b>	NMeFOSAA_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	570.0 / 419.0	<b>Result Table</b>	18-0343_D
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 1.04367 x + 0.00890$  ( $r = 0.99895$ ) (weighting:  $1 / x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	27.548977	110.2
3	JV65	L2	True	50.00	50.212959	100.4
4	JV66	L3	True	100.00	78.681781	78.7
5	JV67	L4	True	250.00	288.160229	115.3
6	JV68	L5	True	500.00	513.619150	102.7
7	JV69	L6	True	1000.00	923.273499	92.3
8	JV70	L7	True	2500.00	2475.552639	99.0
9	JV71	L8	True	5000.00	5067.950766	101.4
10	JV72	L9	False	10000.00	9243.627332	92.4





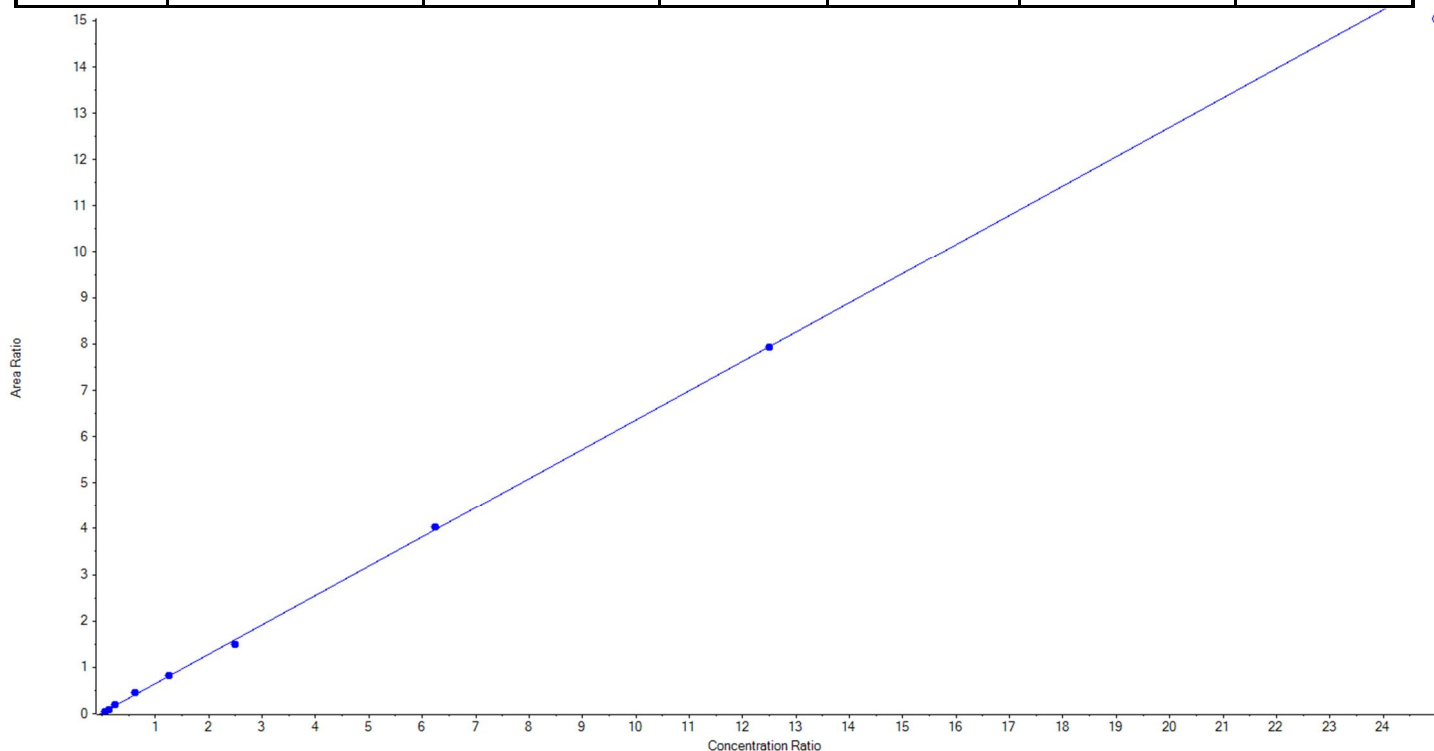
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 19/06/2018 2:42:29 PM

<b>Analyte Name</b>	NMeFOSAA_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	570.0 / 512.0	<b>Result Table</b>	18-0343_D
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.63405x + 0.01526$  ( $r = 0.99945$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	22.615513	90.5
3	JV65	L2	True	50.00	47.579201	95.2
4	JV66	L3	True	100.00	107.001946	107.0
5	JV67	L4	True	250.00	275.582161	110.2
6	JV68	L5	True	500.00	515.586020	103.1
7	JV69	L6	True	1000.00	928.182576	92.8
8	JV70	L7	True	2500.00	2532.011080	101.3
9	JV71	L8	True	5000.00	4996.441503	99.9
10	JV72	L9	False	10000.00	9477.219279	94.8





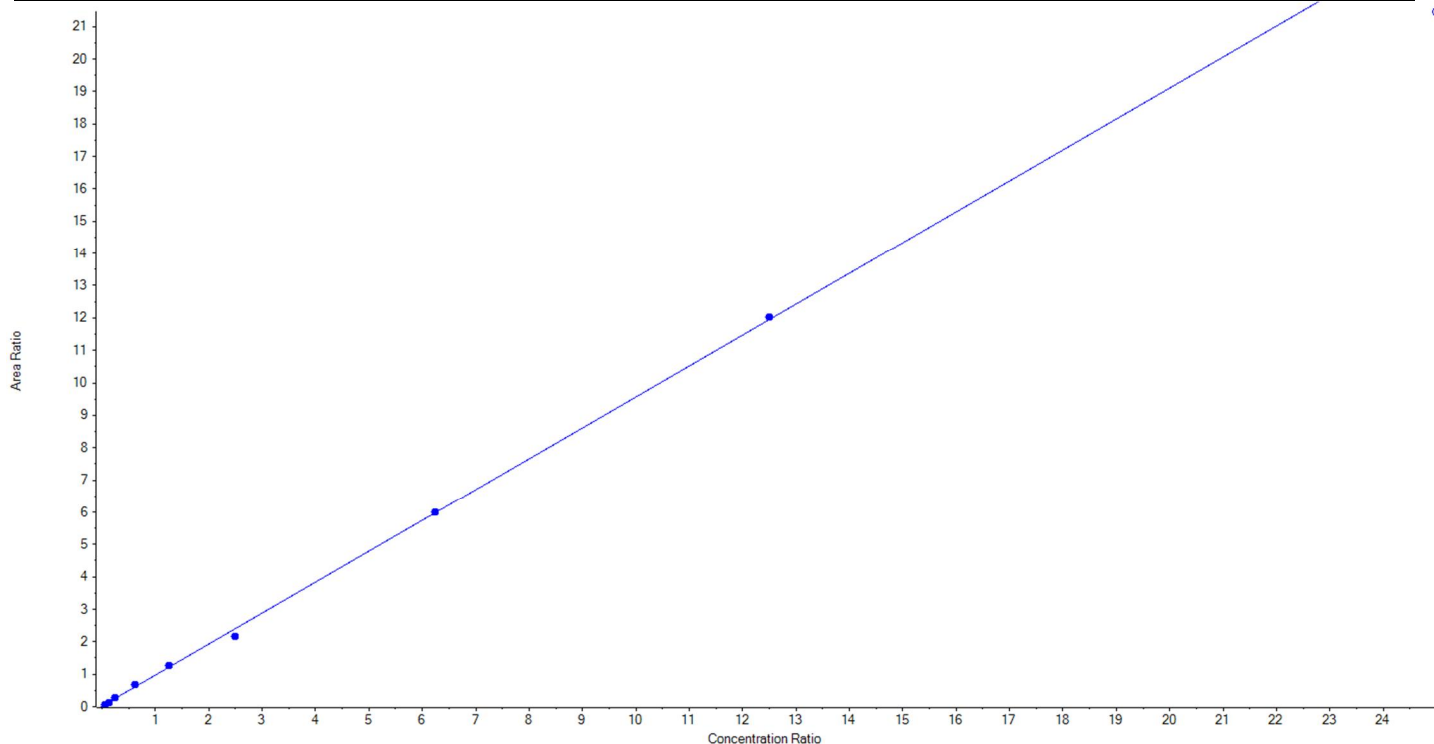
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 19/06/2018 2:42:29 PM

<b>Analyte Name</b>	NEtFOSAA_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	584.0 / 419.0	<b>Result Table</b>	18-0343_D
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.95440x + 0.01894$  ( $r = 0.99905$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	21.706634	86.8
3	JV65	L2	True	50.00	50.086096	100.2
4	JV66	L3	True	100.00	104.127892	104.1
5	JV67	L4	True	250.00	281.802609	112.7
6	JV68	L5	True	500.00	526.305609	105.3
7	JV69	L6	True	1000.00	899.501802	90.0
8	JV70	L7	True	2500.00	2505.582444	100.2
9	JV71	L8	True	5000.00	5035.886915	100.7
10	JV72	L9	False	10000.00	8983.565719	89.8





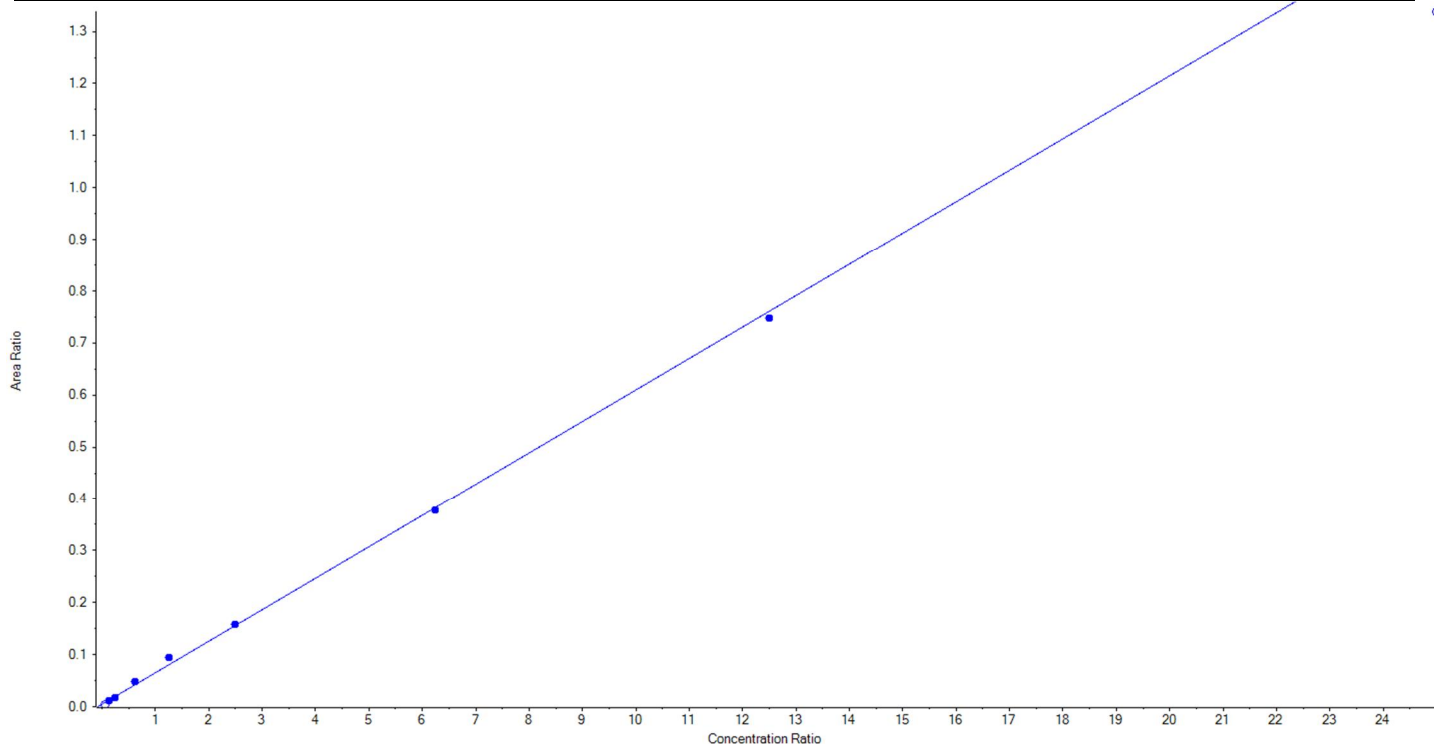
## Calibration Summary Report

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Printed: 19/06/2018 2:42:29 PM

<b>Analyte Name</b>	NEtFOSAA_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	584.0 / 483.0	<b>Result Table</b>	18-0343_D
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.06052 x + 0.00462$  (r = 0.99821) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	< 0	N/A
3	JV65	L2	True	50.00	43.168842	86.3
4	JV66	L3	True	100.00	81.448858	81.5
5	JV67	L4	True	250.00	288.381153	115.4
6	JV68	L5	True	500.00	590.474442	118.1
7	JV69	L6	True	1000.00	1018.984274	101.9
8	JV70	L7	True	2500.00	2465.841563	98.6
9	JV71	L8	True	5000.00	4911.700867	98.2
10	JV72	L9	False	10000.00	8811.481525	88.1





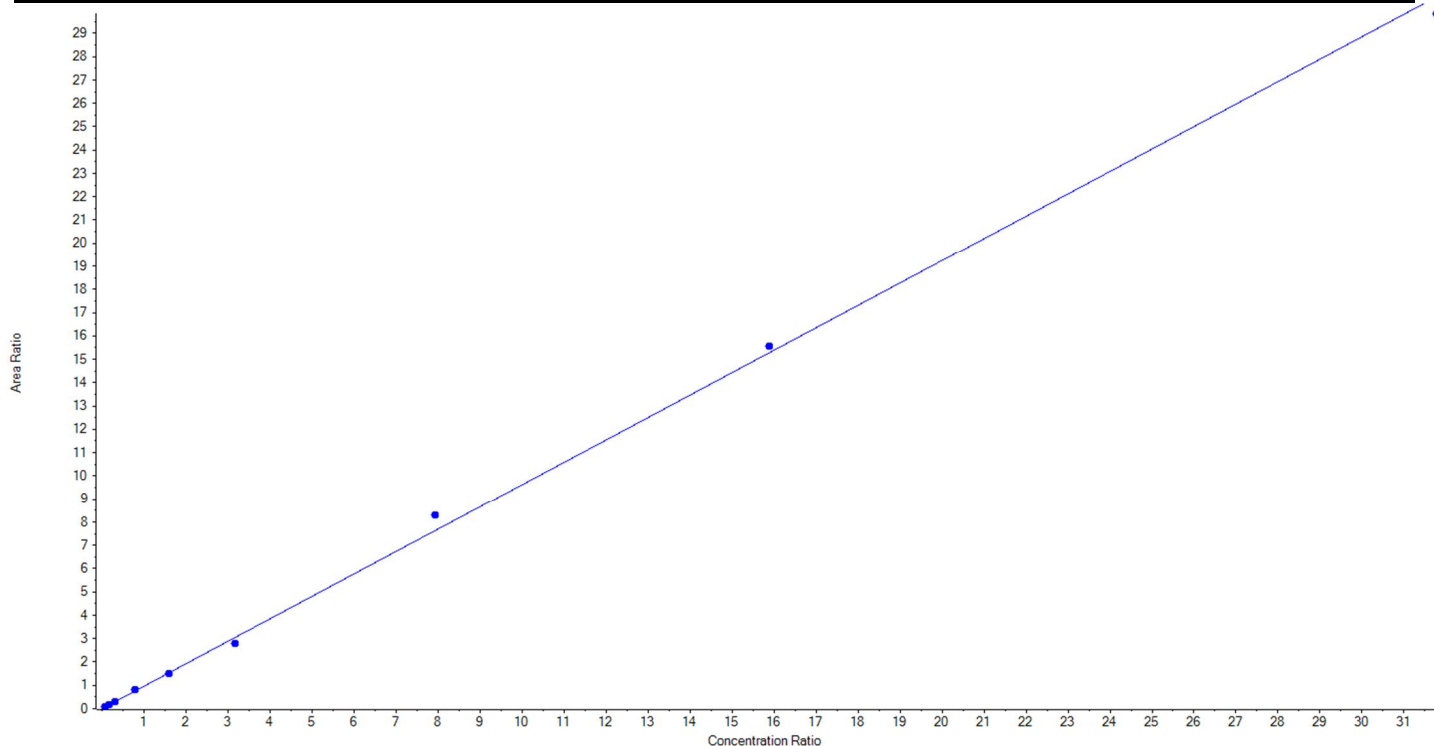
## Calibration Summary Report

Created with Analyst Reporter  
Printed: 19/06/2018 2:42:29 PM

<b>Analyte Name</b>	PFHxS_1	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	399.0 / 80.0	<b>Result Table</b>	18-0343_D
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.96173x + 8.14311e-4$  ( $r = 0.99904$ ) (weighting:  $1/x$ )

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.80	23.113979	101.4
3	JV65	L2	True	45.60	45.133652	99.0
4	JV66	L3	True	91.20	85.929781	94.2
5	JV67	L4	True	228.00	242.553797	106.4
6	JV68	L5	True	456.00	451.959127	99.1
7	JV69	L6	True	912.00	835.159405	91.6
8	JV70	L7	True	2280.00	2480.305200	108.8
9	JV71	L8	True	4560.00	4649.105634	102.0
10	JV72	L9	True	9120.00	8902.339424	97.6





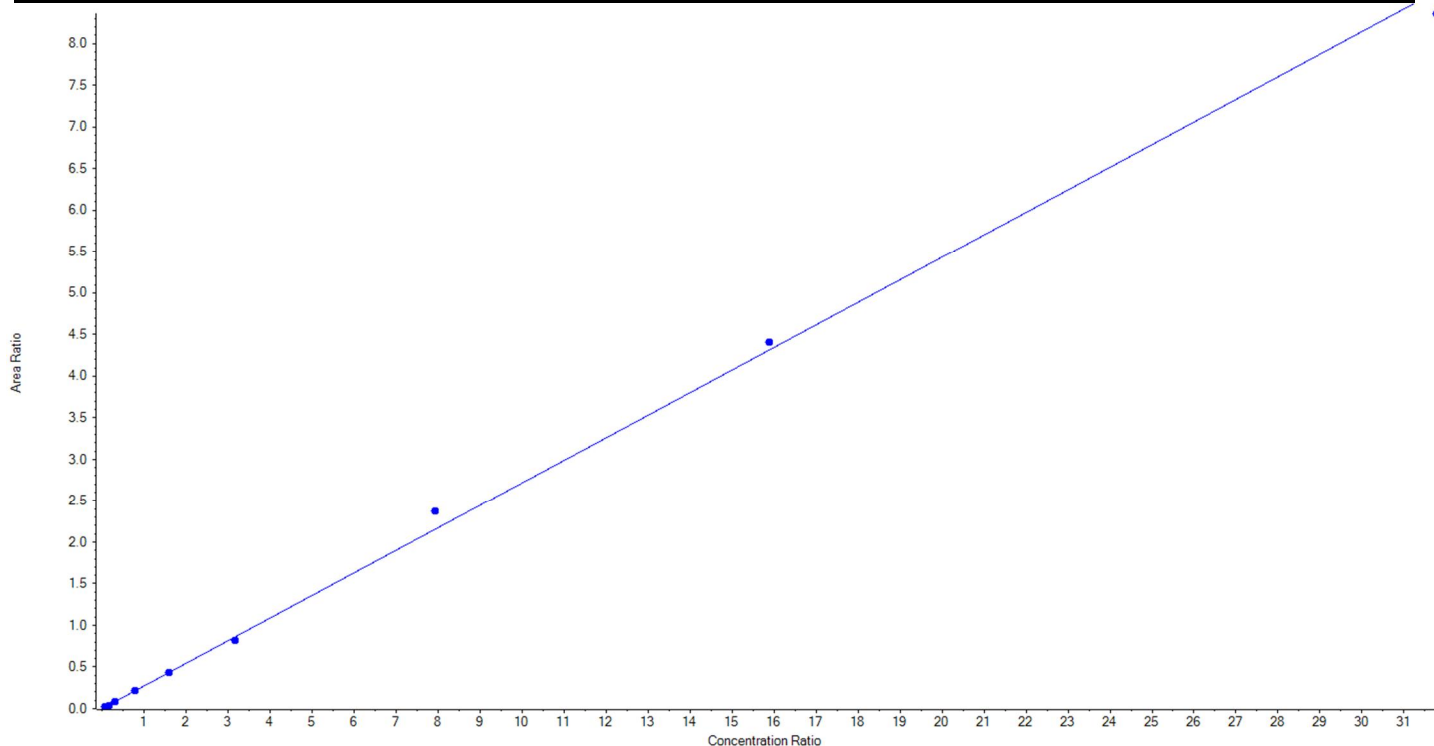
## Calibration Summary Report

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Printed: 19/06/2018 2:42:29 PM

<b>Analyte Name</b>	PFHxS_2	<b>Data File</b>	06142018.wiff
<b>MRM Transition</b>	399.0 / 99.0	<b>Result Table</b>	18-0343_D
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/14/2018 4:50:52 PM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.27149x + 2.53933e-4$  ( $r = 0.99889$ ) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.80	22.866571	100.3
3	JV65	L2	True	45.60	42.803628	93.9
4	JV66	L3	True	91.20	89.969775	98.7
5	JV67	L4	True	228.00	233.773888	102.5
6	JV68	L5	True	456.00	461.321184	101.2
7	JV69	L6	True	912.00	860.777010	94.4
8	JV70	L7	True	2280.00	2508.578625	110.0
9	JV71	L8	True	4560.00	4660.695287	102.2
10	JV72	L9	True	9120.00	8834.814031	96.9







Sample Name	JV65	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T15:56:17	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.355	0.314	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	N/A	0.070	
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.025	
PFHxS_1	399.0 / 80.0	2.22	PFHxS			
PFHxS_2	399.0 / 99.0	2.22	PFHxS	0.262	0.278	ü
PFOA_1	413.0 / 369.0	2.58	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.083	0.079	ü
PFNA_1	463.0 / 419.0	2.97	PFNA			
PFNA_2	463.0 / 219.0	2.97	PFNA	0.281	0.282	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.207	0.190	ü
PFDA_1	513.0 / 469.0	3.32	PFDA			
PFDA_2	513.0 / 219.0	3.32	PFDA	0.061	0.046	ü
PFUnA_1	563.0 / 519.0	3.65	PFUnA			
PFUnA_2	563.0 / 269.0	3.64	PFUnA	0.066	0.054	ü
PFDoA_1	613.0 / 569.0	3.93	PFDoA			
PFDoA_2	613.0 / 319.0	3.94	PFDoA	0.167	0.170	ü
PFTrDA_1	663.0 / 619.0	4.19	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.18	PFTrDA	0.068	0.069	ü
PFTeDA_1	713.0 / 669.0	4.41	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.41	PFTeDA	0.055	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.47	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.47	NMeFOSAA	0.762	0.643	ü
NEtFOSAA_1	584.0 / 419.0	3.63	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.065	
13C2-PFHxA	315.0 / 270.0	1.82				
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	JV66	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T16:05:13	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.53	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.325	0.314	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.060	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.029	0.025	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.22	PFHxS	0.268	0.278	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.080	0.079	ü
PFNA_1	463.0 / 419.0	2.97	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.283	0.282	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.175	0.190	ü
PFDA_1	513.0 / 469.0	3.32	PFDA			
PFDA_2	513.0 / 219.0	3.32	PFDA	0.042	0.046	ü
PFUnA_1	563.0 / 519.0	3.65	PFUnA			
PFUnA_2	563.0 / 269.0	3.65	PFUnA	0.056	0.054	ü
PFDoA_1	613.0 / 569.0	3.93	PFDoA			
PFDoA_2	613.0 / 319.0	3.93	PFDoA	0.181	0.170	ü
PFTrDA_1	663.0 / 619.0	4.19	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.18	PFTrDA	0.071	0.069	ü
PFTeDA_1	713.0 / 669.0	4.41	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.41	PFTeDA	0.059	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.47	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.47	NMeFOSAA	0.599	0.643	ü
NEtFOSAA_1	584.0 / 419.0	3.63	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.63	NEtFOSAA	0.055	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.31		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.62		N/A	N/A	ü

Sample Name	JV67	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T16:14:09	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.302	0.314	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.071	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.027	0.025	ü
PFHxS_1	399.0 / 80.0	2.22	PFHxS			
PFHxS_2	399.0 / 99.0	2.22	PFHxS	0.272	0.278	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.076	0.079	ü
PFNA_1	463.0 / 419.0	2.97	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.266	0.282	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.203	0.190	ü
PFDA_1	513.0 / 469.0	3.32	PFDA			
PFDA_2	513.0 / 219.0	3.31	PFDA	0.048	0.046	ü
PFUnA_1	563.0 / 519.0	3.64	PFUnA			
PFUnA_2	563.0 / 269.0	3.64	PFUnA	0.052	0.054	ü
PFDoA_1	613.0 / 569.0	3.93	PFDoA			
PFDoA_2	613.0 / 319.0	3.93	PFDoA	0.173	0.170	ü
PFTrDA_1	663.0 / 619.0	4.18	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.18	PFTrDA	0.069	0.069	ü
PFTeDA_1	713.0 / 669.0	4.41	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.41	PFTeDA	0.052	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.47	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.47	NMeFOSAA	0.594	0.643	ü
NEtFOSAA_1	584.0 / 419.0	3.63	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.61	NEtFOSAA	0.064	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.31		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.62		N/A	N/A	ü

Sample Name	JV68	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T16:23:04	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.53	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.308	0.314	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.069	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.023	0.025	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.278	0.278	ü
PFOA_1	413.0 / 369.0	2.58	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.077	0.079	ü
PFNA_1	463.0 / 419.0	2.96	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.268	0.282	ü
PFOS_1	499.0 / 80.0	2.95	PFOS			
PFOS_2	499.0 / 99.0	2.95	PFOS	0.186	0.190	ü
PFDA_1	513.0 / 469.0	3.31	PFDA			
PFDA_2	513.0 / 219.0	3.31	PFDA	0.040	0.046	ü
PFUnA_1	563.0 / 519.0	3.64	PFUnA			
PFUnA_2	563.0 / 269.0	3.64	PFUnA	0.050	0.054	ü
PFDoA_1	613.0 / 569.0	3.93	PFDoA			
PFDoA_2	613.0 / 319.0	3.92	PFDoA	0.165	0.170	ü
PFTTrDA_1	663.0 / 619.0	4.18	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.18	PFTTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.40	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.40	PFTeDA	0.051	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.46	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.46	NMeFOSAA	0.675	0.643	ü
NEtFOSAA_1	584.0 / 419.0	3.62	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.61	NEtFOSAA	0.078	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.81				
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	JV69	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T16:32:01	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.53	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.302	0.314	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.073	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.025	0.025	ü
PFHxS_1	399.0 / 80.0	2.22	PFHxS			
PFHxS_2	399.0 / 99.0	2.22	PFHxS	0.275	0.278	ü
PFOA_1	413.0 / 369.0	2.58	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.081	0.079	ü
PFNA_1	463.0 / 419.0	2.97	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.286	0.282	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.182	0.190	ü
PFDA_1	513.0 / 469.0	3.32	PFDA			
PFDA_2	513.0 / 219.0	3.32	PFDA	0.045	0.046	ü
PFUnA_1	563.0 / 519.0	3.64	PFUnA			
PFUnA_2	563.0 / 269.0	3.64	PFUnA	0.053	0.054	ü
PFDoA_1	613.0 / 569.0	3.93	PFDoA			
PFDoA_2	613.0 / 319.0	3.93	PFDoA	0.175	0.170	ü
PFTTrDA_1	663.0 / 619.0	4.18	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.18	PFTTrDA	0.068	0.069	ü
PFTeDA_1	713.0 / 669.0	4.40	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.40	PFTeDA	0.052	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.47	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.46	NMeFOSAA	0.628	0.643	ü
NEtFOSAA_1	584.0 / 419.0	3.63	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.62	NEtFOSAA	0.064	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.31		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.62		N/A	N/A	ü

Sample Name	JV70	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T16:40:56	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.305	0.314	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.074	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.024	0.025	ü
PFHxS_1	399.0 / 80.0	2.22	PFHxS			
PFHxS_2	399.0 / 99.0	2.22	PFHxS	0.286	0.278	ü
PFOA_1	413.0 / 369.0	2.59	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.079	0.079	ü
PFNA_1	463.0 / 419.0	2.96	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.300	0.282	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.190	0.190	ü
PFDA_1	513.0 / 469.0	3.32	PFDA			
PFDA_2	513.0 / 219.0	3.32	PFDA	0.047	0.046	ü
PFUnA_1	563.0 / 519.0	3.64	PFUnA			
PFUnA_2	563.0 / 269.0	3.64	PFUnA	0.052	0.054	ü
PFDoA_1	613.0 / 569.0	3.93	PFDoA			
PFDoA_2	613.0 / 319.0	3.93	PFDoA	0.169	0.170	ü
PFTrDA_1	663.0 / 619.0	4.18	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.18	PFTrDA	0.071	0.069	ü
PFTeDA_1	713.0 / 669.0	4.40	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.40	PFTeDA	0.051	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.47	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.47	NMeFOSAA	0.611	0.643	ü
NEtFOSAA_1	584.0 / 419.0	3.63	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.62	NEtFOSAA	0.063	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.31		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.62		N/A	N/A	ü

Sample Name	JV71	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T16:49:51	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.309	0.314	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.073	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.025	0.025	ü
PFHxS_1	399.0 / 80.0	2.22	PFHxS			
PFHxS_2	399.0 / 99.0	2.22	PFHxS	0.289	0.278	ü
PFOA_1	413.0 / 369.0	2.58	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.081	0.079	ü
PFNA_1	463.0 / 419.0	2.96	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.287	0.282	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.189	0.190	ü
PFDA_1	513.0 / 469.0	3.31	PFDA			
PFDA_2	513.0 / 219.0	3.31	PFDA	0.044	0.046	ü
PFUnA_1	563.0 / 519.0	3.64	PFUnA			
PFUnA_2	563.0 / 269.0	3.64	PFUnA	0.049	0.054	ü
PFDoA_1	613.0 / 569.0	3.92	PFDoA			
PFDoA_2	613.0 / 319.0	3.92	PFDoA	0.160	0.170	ü
PFTTrDA_1	663.0 / 619.0	4.18	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.18	PFTTrDA	0.069	0.069	ü
PFTeDA_1	713.0 / 669.0	4.40	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.40	PFTeDA	0.052	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.46	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.46	NMeFOSAA	0.626	0.643	ü
NEtFOSAA_1	584.0 / 419.0	3.62	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.62	NEtFOSAA	0.064	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.82				
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	JV72	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T16:58:44	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.53	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.307	0.314	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.072	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.023	0.025	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.290	0.278	ü
PFOA_1	413.0 / 369.0	2.58	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.077	0.079	ü
PFNA_1	463.0 / 419.0	2.96	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.285	0.282	ü
PFOS_1	499.0 / 80.0	2.95	PFOS			
PFOS_2	499.0 / 99.0	2.95	PFOS	0.184	0.190	ü
PFDA_1	513.0 / 469.0	3.31	PFDA			
PFDA_2	513.0 / 219.0	3.31	PFDA	0.045	0.046	ü
PFUnA_1	563.0 / 519.0	3.64	PFUnA			
PFUnA_2	563.0 / 269.0	3.64	PFUnA	0.053	0.054	ü
PFDoA_1	613.0 / 569.0	3.92	PFDoA			
PFDoA_2	613.0 / 319.0	3.92	PFDoA	0.168	0.170	ü
PFTrDA_1	663.0 / 619.0	4.17	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.17	PFTrDA	0.069	0.069	ü
PFTeDA_1	713.0 / 669.0	4.40	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.39	PFTeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.46	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.46	NMeFOSAA	0.649	0.643	ü
NEtFOSAA_1	584.0 / 419.0	3.62	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.62	NEtFOSAA	0.067	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.81				
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



<b>Sample Name</b>	JV64	<b>Injection Vial</b>	2
<b>Sample ID</b>	L1	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-14T16:59:48	<b>Data File</b>	06142018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0343_D
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.208	0.193	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.633	0.649	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.58	NEtFOSAA	0.042	0.069	ü
d5-EtFOSAA	589.0 / 419.0	3.60				
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.280	0.283	ü

<b>Sample Name</b>	JV65	<b>Injection Vial</b>	3
<b>Sample ID</b>	L2	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-14T17:08:44	<b>Data File</b>	06142018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0343_D
<b>Sample Comment</b>			

**Results Summary**

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.175	0.193	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.648	0.649	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.081	0.069	ü
d5-EtFOSAA	589.0 / 419.0	3.60				
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.268	0.283	ü

<b>Sample Name</b>	JV66	<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>	2018-06-14T17:17:40	<b>Data File</b>	06142018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0343_D
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.196	0.193	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.863	0.649	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.063	0.069	ü
d5-EtFOSAA	589.0 / 419.0	3.60				
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.296	0.283	ü

<b>Sample Name</b>	JV67	<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>	2018-06-14T17:26:35	<b>Data File</b>	06142018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0343_D
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.202	0.193	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.594	0.649	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.070	0.069	ü
d5-EtFOSAA	589.0 / 419.0	3.60				
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.272	0.283	ü

<b>Sample Name</b>	JV68	<b>Injection Vial</b>	6
<b>Sample ID</b>	L5	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-14T17:35:30	<b>Data File</b>	06142018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0343_D
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.201	0.193	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.617	0.649	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.074	0.069	ü
d5-EtFOSAA	589.0 / 419.0	3.59				
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.288	0.283	ü

<b>Sample Name</b>	JV69	<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>	2018-06-14T17:44:26	<b>Data File</b>	06142018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0343_D
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.194	0.193	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.615	0.649	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.073	0.069	ü
d5-EtFOSAA	589.0 / 419.0	3.59				
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.291	0.283	ü

<b>Sample Name</b>	JV70	<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>	2018-06-14T17:53:22	<b>Data File</b>	06142018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0343_D
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.190	0.193	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.623	0.649	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.063	0.069	ü
d5-EtFOSAA	589.0 / 419.0	3.59				
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.286	0.283	ü

Sample Name	JV71	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T18:02:19	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343_D
Sample Comment			

**Results Summary**

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.188	0.193	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.43	NMeFOSAA	0.600	0.649	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.062	0.069	ü
d5-EtFOSAA	589.0 / 419.0	3.59				
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.283	0.283	ü



<b>Sample Name</b>	JV72	<b>Injection Vial</b>	10
<b>Sample ID</b>	L9	<b>Injection Volume</b>	10.00
<b>Sample Type</b>	Standard	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	2018-06-14T18:11:15	<b>Data File</b>	06142018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0343_D
<b>Sample Comment</b>			

### Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.181	0.193	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.623	0.649	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.062	0.069	ü
d5-EtFOSAA	589.0 / 419.0	3.59				
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.280	0.283	ü

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T17:07:40	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.53	769.814184	885.00	86.98
PFBS_2	298.9 / 99.0	1.53	768.732726	885.00	86.86
PFHxA_1	313.0 / 269.0	1.83	913.521393	1000.00	91.35
PFHxA_2	313.0 / 119.0	1.83	959.405514	1000.00	95.94
PFHpA_1	363.0 / 319.0	2.20	975.515715	1000.00	97.55
PFHpA_2	363.0 / 169.0	2.20	933.315191	1000.00	93.33
PFHxS_1	399.0 / 80.0	2.22	811.740410	912.00	89.01
PFHxS_2	399.0 / 99.0	2.22	817.049228	912.00	89.59
PFOA_1	413.0 / 369.0	2.58	965.386755	1000.00	96.54
PFOA_2	413.0 / 169.0	2.58	998.658491	1000.00	99.87
PFNA_1	463.0 / 419.0	2.96	1012.084378	1000.00	101.21
PFNA_2	463.0 / 219.0	2.96	999.124217	1000.00	99.91
PFOS_1	499.0 / 80.0	2.96	830.439673	925.60	89.72
PFOS_2	499.0 / 99.0	2.96	958.171478	925.60	103.52
PFDA_1	513.0 / 469.0	3.31	991.407583	1000.00	99.14
PFDA_2	513.0 / 219.0	3.31	945.139477	1000.00	94.51
PFUnA_1	563.0 / 519.0	3.64	967.807751	1000.00	96.78
PFUnA_2	563.0 / 269.0	3.64	916.483234	1000.00	91.65
PFDoA_1	613.0 / 569.0	3.92	941.687144	1000.00	94.17
PFDoA_2	613.0 / 319.0	3.92	1014.928377	1000.00	101.49
PFTTrDA_1	663.0 / 619.0	4.17	1018.529815	1000.00	101.85
PFTTrDA_2	663.0 / 169.0	4.17	949.195149	1000.00	94.92
PFTeDA_1	713.0 / 669.0	4.40	968.709307	1000.00	96.87
PFTeDA_2	713.0 / 169.0	4.39	951.457285	1000.00	95.15
NMeFOSAA_1	570.0 / 419.0	3.46	1180.922001	1000.00	118.09
NMeFOSAA_2	570.0 / 512.0	3.46	1019.447817	1000.00	101.94
NEtFOSAA_1	584.0 / 419.0	3.63	1095.902443	1000.00	109.59
NEtFOSAA_2	584.0 / 483.0	3.62	910.459126	1000.00	91.05
13C2-PFHxA	315.0 / 270.0	1.82	95.569328	100.00	95.57
13C2-PFDA	515.0 / 470.0	3.30	99.569731	100.00	99.57
d5-EtFOSAA	589.0 / 419.0	3.62	396.879979	400.00	99.22

Sample Name	JV69 CCV	Injection Vial	20
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T18:27:56	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.53	881.857889	885.00	99.64
PFBS_2	298.9 / 99.0	1.52	849.892294	885.00	96.03
PFHxA_1	313.0 / 269.0	1.82	1034.069600	1000.00	103.41
PFHxA_2	313.0 / 119.0	1.81	1091.443831	1000.00	109.14
PFHpA_1	363.0 / 319.0	2.19	1002.612281	1000.00	100.26
PFHpA_2	363.0 / 169.0	2.19	998.898230	1000.00	99.89
PFHxS_1	399.0 / 80.0	2.20	876.169410	912.00	96.07
PFHxS_2	399.0 / 99.0	2.20	876.686414	912.00	96.13
PFOA_1	413.0 / 369.0	2.57	1002.975354	1000.00	100.30
PFOA_2	413.0 / 169.0	2.57	1038.225708	1000.00	103.82
PFNA_1	463.0 / 419.0	2.95	1037.366769	1000.00	103.74
PFNA_2	463.0 / 219.0	2.95	1031.087202	1000.00	103.11
PFOS_1	499.0 / 80.0	2.95	948.400082	925.60	102.46
PFOS_2	499.0 / 99.0	2.95	955.315612	925.60	103.21
PFDA_1	513.0 / 469.0	3.30	991.771585	1000.00	99.18
PFDA_2	513.0 / 219.0	3.30	1035.697641	1000.00	103.57
PFUnA_1	563.0 / 519.0	3.63	1034.712043	1000.00	103.47
PFUnA_2	563.0 / 269.0	3.63	1059.849536	1000.00	105.98
PFDoA_1	613.0 / 569.0	3.91	1010.145399	1000.00	101.01
PFDoA_2	613.0 / 319.0	3.91	1032.524238	1000.00	103.25
PFTrDA_1	663.0 / 619.0	4.16	1075.677948	1000.00	107.57
PFTrDA_2	663.0 / 169.0	4.16	1075.514084	1000.00	107.55
PFTeDA_1	713.0 / 669.0	4.38	1058.986582	1000.00	105.90
PFTeDA_2	713.0 / 169.0	4.38	1044.190425	1000.00	104.42
NMeFOSAA_1	570.0 / 419.0	3.45	1022.268574	1000.00	102.23
NMeFOSAA_2	570.0 / 512.0	3.45	985.718286	1000.00	98.57
NEtFOSAA_1	584.0 / 419.0	3.61	1020.436238	1000.00	102.04
NEtFOSAA_2	584.0 / 483.0	3.60	1052.187110	1000.00	105.22
13C2-PFHxA	315.0 / 270.0	1.81	101.542239	100.00	101.54
13C2-PFDA	515.0 / 470.0	3.29	102.044634	100.00	102.04
d5-EtFOSAA	589.0 / 419.0	3.61	398.416383	400.00	99.60

Sample Name	JV70 CCV	Injection Vial	30
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T19:57:07	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.52	2259.136103	2212.50	102.11
PFBS_2	298.9 / 99.0	1.52	2194.392765	2212.50	99.18
PFHxA_1	313.0 / 269.0	1.81	2620.579452	2500.00	104.82
PFHxA_2	313.0 / 119.0	1.81	2687.066684	2500.00	107.48
PFHpA_1	363.0 / 319.0	2.19	2540.015150	2500.00	101.60
PFHpA_2	363.0 / 169.0	2.18	2555.364373	2500.00	102.21
PFHxS_1	399.0 / 80.0	2.20	2239.862810	2280.00	98.24
PFHxS_2	399.0 / 99.0	2.20	2185.367686	2280.00	95.85
PFOA_1	413.0 / 369.0	2.57	2497.354006	2500.00	99.89
PFOA_2	413.0 / 169.0	2.56	2655.754414	2500.00	106.23
PFNA_1	463.0 / 419.0	2.95	2664.589533	2500.00	106.58
PFNA_2	463.0 / 219.0	2.94	2686.051730	2500.00	107.44
PFOS_1	499.0 / 80.0	2.94	2274.079112	2314.00	98.27
PFOS_2	499.0 / 99.0	2.94	2484.053411	2314.00	107.35
PFDA_1	513.0 / 469.0	3.29	2543.892704	2500.00	101.76
PFDA_2	513.0 / 219.0	3.29	2396.781290	2500.00	95.87
PFUnA_1	563.0 / 519.0	3.62	2719.449304	2500.00	108.78
PFUnA_2	563.0 / 269.0	3.62	2669.210041	2500.00	106.77
PFDoA_1	613.0 / 569.0	3.90	2682.223083	2500.00	107.29
PFDoA_2	613.0 / 319.0	3.90	2526.462529	2500.00	101.06
PFTTrDA_1	663.0 / 619.0	4.15	2822.284791	2500.00	112.89
PFTTrDA_2	663.0 / 169.0	4.15	2811.064588	2500.00	112.44
PFTeDA_1	713.0 / 669.0	4.37	2618.133951	2500.00	104.73
PFTeDA_2	713.0 / 169.0	4.37	2638.079251	2500.00	105.52
NMeFOSAA_1	570.0 / 419.0	3.44	2701.184358	2500.00	108.05
NMeFOSAA_2	570.0 / 512.0	3.44	2750.606573	2500.00	110.02
NEtFOSAA_1	584.0 / 419.0	3.61	2771.708903	2500.00	110.87
NEtFOSAA_2	584.0 / 483.0	3.60	2685.150118	2500.00	107.41
13C2-PFHxA	315.0 / 270.0	1.80	106.376897	100.00	106.38
13C2-PFDA	515.0 / 470.0	3.28	107.168729	100.00	107.17
d5-EtFOSAA	589.0 / 419.0	3.60	402.783760	400.00	100.70

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T18:20:10	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343_D
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFOS_1	499.0 / 80.0	2.94	776.808686	925.60	83.92
PFOS_2	499.0 / 99.0	2.94	927.382992	925.60	100.19
NMeFOSAA_1	570.0 / 419.0	3.44	1047.991249	1000.00	104.80
NMeFOSAA_2	570.0 / 512.0	3.44	958.185598	1000.00	95.82
NEtFOSAA_1	584.0 / 419.0	3.60	1011.174456	1000.00	101.12
NEtFOSAA_2	584.0 / 483.0	3.60	968.508372	1000.00	96.85
d5-EtFOSAA	589.0 / 419.0	3.59	336.683989	400.00	84.17
PFHxS_1	399.0 / 80.0	2.20	834.309815	912.00	91.48
PFHxS_2	399.0 / 99.0	2.20	828.791116	912.00	90.88

Sample Name	JV70 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T21:36:35	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343_D
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFOS_1	499.0 / 80.0	2.92	2382.188057	2314.00	102.95
PFOS_2	499.0 / 99.0	2.92	2415.297397	2314.00	104.38
NMeFOSAA_1	570.0 / 419.0	3.43	2363.483557	2500.00	94.54
NMeFOSAA_2	570.0 / 512.0	3.42	2517.716065	2500.00	100.71
NEtFOSAA_1	584.0 / 419.0	3.59	2529.071006	2500.00	101.16
NEtFOSAA_2	584.0 / 483.0	3.57	2582.116782	2500.00	103.28
d5-EtFOSAA	589.0 / 419.0	3.58	396.266324	400.00	99.07
PFHxS_1	399.0 / 80.0	2.19	2224.752859	2280.00	97.58
PFHxS_2	399.0 / 99.0	2.19	2274.191190	2280.00	99.75

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T17:07:40	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.53	323659.14	769.814184	1310.9	false
PFBS_2	298.9 / 99.0	1.53	99677.31	768.732726	712.6	false
PFHxA_1	313.0 / 269.0	1.83	421454.43	913.521393	100.3	true
PFHxA_2	313.0 / 119.0	1.83	31525.30	959.405514	79.2	false
PFHpA_1	363.0 / 319.0	2.20	489477.54	975.515715	171.5	false
PFHpA_2	363.0 / 169.0	2.20	11477.65	933.315191	158.3	true
PFHxS_1	399.0 / 80.0	2.22	419684.42	811.740410	359.7	false
PFHxS_2	399.0 / 99.0	2.22	120864.86	817.049228	309.4	false
PFOA_1	413.0 / 369.0	2.58	528070.92	965.386755	186.6	false
PFOA_2	413.0 / 169.0	2.58	42807.17	998.658491	151.2	false
PFNA_1	463.0 / 419.0	2.96	494935.41	1012.084378	330.3	false
PFNA_2	463.0 / 219.0	2.96	139828.85	999.124217	247.0	false
PFOS_1	499.0 / 80.0	2.96	487877.99	830.439673	75.2	true
PFOS_2	499.0 / 99.0	2.96	105127.24	958.171478	90.0	true
PFDA_1	513.0 / 469.0	3.31	517316.64	991.407583	588.2	false
PFDA_2	513.0 / 219.0	3.31	22152.46	945.139477	581.6	false
PFUnA_1	563.0 / 519.0	3.64	457702.03	967.807751	512.2	false
PFUnA_2	563.0 / 269.0	3.64	22728.78	916.483234	277.8	false
PFDaA_1	613.0 / 569.0	3.92	467909.25	941.687144	451.5	false
PFDaA_2	613.0 / 319.0	3.92	84158.50	1014.928377	599.8	false
PFTrDA_1	663.0 / 619.0	4.17	472130.14	1018.529815	696.2	false
PFTrDA_2	663.0 / 169.0	4.17	30487.30	949.195149	426.1	false
PFTeDA_1	713.0 / 669.0	4.40	404261.23	968.709307	1154.4	false
PFTeDA_2	713.0 / 169.0	4.39	20747.44	951.457285	806.7	false
NMeFOSAA_1	570.0 / 419.0	3.46	68024.59	1180.922001	914.7	false
NMeFOSAA_2	570.0 / 512.0	3.46	37475.24	1019.447817	642.2	false
NEtFOSAA_1	584.0 / 419.0	3.63	60844.62	1095.902443	540.2	false
NEtFOSAA_2	584.0 / 483.0	3.62	3327.84	910.459126	362.3	false
13C2-PFHxA	315.0 / 270.0	1.82	42294.38	95.569328	792.8	false
13C2-PFDA	515.0 / 470.0	3.30	50904.40	99.569731	666.5	false
d5-EtFOSAA	589.0 / 419.0	3.62	24796.73	396.879979	241.7	false

Sample Name	JV69 CCV	Injection Vial	20
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T18:27:56	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.53	420599.32	881.857889	1612.8	false
PFBS_2	298.9 / 99.0	1.52	124945.86	849.892294	874.2	false
PFHxA_1	313.0 / 269.0	1.82	540639.07	1034.069600	123.9	false
PFHxA_2	313.0 / 119.0	1.81	40749.30	1091.443831	77.9	false
PFHpA_1	363.0 / 319.0	2.19	573835.63	1002.612281	221.6	false
PFHpA_2	363.0 / 169.0	2.19	13968.12	998.898230	181.4	false
PFHxS_1	399.0 / 80.0	2.20	513944.02	876.169410	361.5	false
PFHxS_2	399.0 / 99.0	2.20	147231.22	876.686414	295.8	false
PFOA_1	413.0 / 369.0	2.57	625201.86	1002.975354	185.7	false
PFOA_2	413.0 / 169.0	2.57	50709.60	1038.225708	156.1	false
PFNA_1	463.0 / 419.0	2.95	578761.62	1037.366769	410.8	false
PFNA_2	463.0 / 219.0	2.95	164632.98	1031.087202	253.3	false
PFOS_1	499.0 / 80.0	2.95	631966.64	948.400082	40.4	true
PFOS_2	499.0 / 99.0	2.95	118927.06	955.315612	70.1	true
PFDA_1	513.0 / 469.0	3.30	590646.67	991.771585	510.7	false
PFDA_2	513.0 / 219.0	3.30	27643.42	1035.697641	475.8	false
PFUnA_1	563.0 / 519.0	3.63	557930.97	1034.712043	510.1	false
PFUnA_2	563.0 / 269.0	3.63	29894.37	1059.849536	310.9	false
PFDaA_1	613.0 / 569.0	3.91	572579.78	1010.145399	565.0	false
PFDaA_2	613.0 / 319.0	3.91	97699.08	1032.524238	664.5	false
PFTrDA_1	663.0 / 619.0	4.16	568890.44	1075.677948	692.9	false
PFTrDA_2	663.0 / 169.0	4.16	39394.89	1075.514084	466.0	false
PFTeDA_1	713.0 / 669.0	4.38	504019.89	1058.986582	1280.6	false
PFTeDA_2	713.0 / 169.0	4.38	25956.85	1044.190425	956.3	false
NMeFOSAA_1	570.0 / 419.0	3.45	68455.79	1022.268574	639.0	false
NMeFOSAA_2	570.0 / 512.0	3.45	42087.96	985.718286	741.8	false
NEtFOSAA_1	584.0 / 419.0	3.61	65895.25	1020.436238	499.2	false
NEtFOSAA_2	584.0 / 483.0	3.60	4450.04	1052.187110	541.1	false
13C2-PFHxA	315.0 / 270.0	1.81	51289.08	101.542239	598.9	false
13C2-PFDA	515.0 / 470.0	3.29	59543.20	102.044634	3309.8	false
d5-EtFOSAA	589.0 / 419.0	3.61	28901.26	398.416383	282.6	false



Sample Name	JV70 CCV	Injection Vial	30
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T19:57:07	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.52	1030287.58	2259.136103	2804.2	false
PFBS_2	298.9 / 99.0	1.52	307424.60	2194.392765	1315.3	false
PFHxA_1	313.0 / 269.0	1.81	1276267.02	2620.579452	161.5	false
PFHxA_2	313.0 / 119.0	1.81	94735.97	2687.066684	139.5	false
PFHpA_1	363.0 / 319.0	2.19	1381887.26	2540.015150	327.0	false
PFHpA_2	363.0 / 169.0	2.18	33296.17	2555.364373	258.2	false
PFHxS_1	399.0 / 80.0	2.20	1256661.02	2239.862810	421.2	false
PFHxS_2	399.0 / 99.0	2.20	352890.21	2185.367686	440.2	false
PFOA_1	413.0 / 369.0	2.57	1463344.19	2497.354006	297.2	false
PFOA_2	413.0 / 169.0	2.56	121754.86	2655.754414	275.5	false
PFNA_1	463.0 / 419.0	2.95	1417280.19	2664.589533	591.6	false
PFNA_2	463.0 / 219.0	2.94	409915.06	2686.051730	398.9	false
PFOS_1	499.0 / 80.0	2.94	1448036.67	2274.079112	81.3	true
PFOS_2	499.0 / 99.0	2.94	294523.82	2484.053411	125.1	true
PFDA_1	513.0 / 469.0	3.29	1446990.07	2543.892704	839.5	false
PFDA_2	513.0 / 219.0	3.29	60781.02	2396.781290	772.6	false
PFUnA_1	563.0 / 519.0	3.62	1399137.76	2719.449304	707.4	false
PFUnA_2	563.0 / 269.0	3.62	71525.44	2669.210041	494.7	false
PFDaA_1	613.0 / 569.0	3.90	1457893.86	2682.223083	685.5	false
PFDaA_2	613.0 / 319.0	3.90	228659.80	2526.462529	767.8	false
PFTrDA_1	663.0 / 619.0	4.15	1431759.68	2822.284791	1008.1	false
PFTrDA_2	663.0 / 169.0	4.15	98785.47	2811.064588	745.4	false
PFTeDA_1	713.0 / 669.0	4.37	1194282.68	2618.133951	1728.2	false
PFTeDA_2	713.0 / 169.0	4.37	62688.10	2638.079251	1321.4	false
NMeFOSAA_1	570.0 / 419.0	3.44	168359.65	2701.184358	1174.2	false
NMeFOSAA_2	570.0 / 512.0	3.44	109074.47	2750.606573	981.8	false
NEtFOSAA_1	584.0 / 419.0	3.61	164847.86	2771.708903	653.9	false
NEtFOSAA_2	584.0 / 483.0	3.60	10491.60	2685.150118	405.3	false
13C2-PFHxA	315.0 / 270.0	1.80	51745.06	106.376897	674.5	false
13C2-PFDA	515.0 / 470.0	3.28	60221.77	107.168729	965.0	false
d5-EtFOSAA	589.0 / 419.0	3.60	27357.01	402.783760	236.3	false

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T18:20:10	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343_D
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.94	587622.45	776.808686	164.3	true
PFOS_2	499.0 / 99.0	2.94	130411.74	927.382992	168.0	true
NMeFOSAA_1	570.0 / 419.0	3.44	81522.04	1047.991249	1008.7	false
NMeFOSAA_2	570.0 / 512.0	3.44	45589.20	958.185598	888.7	false
NEtFOSAA_1	584.0 / 419.0	3.60	72260.20	1011.174456	777.2	false
NEtFOSAA_2	584.0 / 483.0	3.60	4491.63	968.508372	318.3	false
d5-EtFOSAA	589.0 / 419.0	3.59	27828.01	336.683989	310.7	false
PFHxS_1	399.0 / 80.0	2.20	508615.46	834.309815	498.4	false
PFHxS_2	399.0 / 99.0	2.20	142633.50	828.791116	438.8	false

Sample Name	JV70 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T21:36:35	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343_D
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.92	1842903.58	2382.188057	157.8	false
PFOS_2	499.0 / 99.0	2.92	346243.35	2415.297397	198.4	false
NMeFOSAA_1	570.0 / 419.0	3.43	182461.28	2363.483557	1200.0	false
NMeFOSAA_2	570.0 / 512.0	3.42	118364.27	2517.716065	1154.8	false
NEtFOSAA_1	584.0 / 419.0	3.59	178848.30	2529.071006	663.0	false
NEtFOSAA_2	584.0 / 483.0	3.57	11678.49	2582.116782	488.1	false
d5-EtFOSAA	589.0 / 419.0	3.58	32563.64	396.266324	321.4	false
PFHxS_1	399.0 / 80.0	2.19	1386140.69	2224.752859	506.0	false
PFHxS_2	399.0 / 99.0	2.19	399996.71	2274.191190	420.4	false

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T17:07:40	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.53	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.308	0.314	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.075	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.023	0.025	ü
PFHxS_1	399.0 / 80.0	2.22	PFHxS			
PFHxS_2	399.0 / 99.0	2.22	PFHxS	0.288	0.278	ü
PFOA_1	413.0 / 369.0	2.58	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.081	0.079	ü
PFNA_1	463.0 / 419.0	2.96	PFNA			
PFNA_2	463.0 / 219.0	2.96	PFNA	0.283	0.282	ü
PFOS_1	499.0 / 80.0	2.96	PFOS			
PFOS_2	499.0 / 99.0	2.96	PFOS	0.216	0.190	ü
PFDA_1	513.0 / 469.0	3.31	PFDA			
PFDA_2	513.0 / 219.0	3.31	PFDA	0.043	0.046	ü
PFUnA_1	563.0 / 519.0	3.64	PFUnA			
PFUnA_2	563.0 / 269.0	3.64	PFUnA	0.050	0.054	ü
PFDoA_1	613.0 / 569.0	3.92	PFDoA			
PFDoA_2	613.0 / 319.0	3.92	PFDoA	0.180	0.170	ü
PFTrDA_1	663.0 / 619.0	4.17	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.17	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.40	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.39	PFTeDA	0.051	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.46	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.46	NMeFOSAA	0.551	0.643	ü
NEtFOSAA_1	584.0 / 419.0	3.63	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.62	NEtFOSAA	0.055	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.82				
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	JV69 CCV	Injection Vial	20
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T18:27:56	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.53	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.297	0.314	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.075	0.070	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.19	PFHpA	0.024	0.025	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.287	0.278	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.081	0.079	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.285	0.282	ü
PFOS_1	499.0 / 80.0	2.95	PFOS			
PFOS_2	499.0 / 99.0	2.95	PFOS	0.188	0.190	ü
PFDA_1	513.0 / 469.0	3.30	PFDA			
PFDA_2	513.0 / 219.0	3.30	PFDA	0.047	0.046	ü
PFUnA_1	563.0 / 519.0	3.63	PFUnA			
PFUnA_2	563.0 / 269.0	3.63	PFUnA	0.054	0.054	ü
PFDoA_1	613.0 / 569.0	3.91	PFDoA			
PFDoA_2	613.0 / 319.0	3.91	PFDoA	0.171	0.170	ü
PFTrDA_1	663.0 / 619.0	4.16	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.16	PFTrDA	0.069	0.069	ü
PFTeDA_1	713.0 / 669.0	4.38	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.38	PFTeDA	0.052	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.615	0.643	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.068	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.29		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.61		N/A	N/A	ü

Sample Name	JV70 CCV	Injection Vial	30
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T19:57:07	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.298	0.314	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.074	0.070	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.024	0.025	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.281	0.278	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.083	0.079	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.289	0.282	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.203	0.190	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.042	0.046	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.051	0.054	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.157	0.170	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.069	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.648	0.643	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.064	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.28		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.60		N/A	N/A	ü

<b>Sample Name</b>	JV63 ICC	<b>Injection Vial</b>	11
<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>	2018-06-14T18:20:10	<b>Data File</b>	06142018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0343_D
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.222	0.193	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.559	0.649	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.062	0.069	ü
d5-EtFOSAA	589.0 / 419.0	3.59				
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.280	0.283	ü

<b>Sample Name</b>	JV70 CCV	<b>Injection Vial</b>	8
<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>	2018-06-14T21:36:35	<b>Data File</b>	06142018.wiff
<b>Acquisition Method</b>	5-0371.dam	<b>Result Table</b>	18-0343_D
<b>Sample Comment</b>			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.188	0.193	ü
NMeFOSAA_1	570.0 / 419.0	3.43	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.42	NMeFOSAA	0.649	0.649	ü
NEtFOSAA_1	584.0 / 419.0	3.59	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.57	NEtFOSAA	0.065	0.069	ü
d5-EtFOSAA	589.0 / 419.0	3.58				
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.289	0.283	ü



Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T17:07:40	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.53	13C4-PFOS	503.0 / 80.0	144565.71	287.00
PFBS_2	298.9 / 99.0	1.53	13C4-PFOS	503.0 / 80.0	144565.71	287.00
PFHxA_1	313.0 / 269.0	1.83	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFHxA_2	313.0 / 119.0	1.83	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFHpA_1	363.0 / 319.0	2.20	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFHpA_2	363.0 / 169.0	2.20	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFHxS_1	399.0 / 80.0	2.22	13C4-PFOS	503.0 / 80.0	144565.71	287.00
PFHxS_2	399.0 / 99.0	2.22	13C4-PFOS	503.0 / 80.0	144565.71	287.00
PFOA_1	413.0 / 369.0	2.58	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFOA_2	413.0 / 169.0	2.58	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFNA_1	463.0 / 419.0	2.96	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFNA_2	463.0 / 219.0	2.96	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFOS_1	499.0 / 80.0	2.96	13C4-PFOS	503.0 / 80.0	144565.71	287.00
PFOS_2	499.0 / 99.0	2.96	13C4-PFOS	503.0 / 80.0	144565.71	287.00
PFDA_1	513.0 / 469.0	3.31	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFDA_2	513.0 / 219.0	3.31	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFUnA_1	563.0 / 519.0	3.64	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFUnA_2	563.0 / 269.0	3.64	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFDaA_1	613.0 / 569.0	3.92	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFDaA_2	613.0 / 319.0	3.92	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFTTrDA_1	663.0 / 619.0	4.17	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFTTrDA_2	663.0 / 169.0	4.17	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFTeDA_1	713.0 / 669.0	4.40	13C2-PFOA	415.0 / 370.0	51704.19	100.00
PFTeDA_2	713.0 / 169.0	4.39	13C2-PFOA	415.0 / 370.0	51704.19	100.00
NMeFOSAA_1	570.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	24696.95	400.00
NMeFOSAA_2	570.0 / 512.0	3.46	d3-MeFOSAA	573.0 / 419.0	24696.95	400.00
NEtFOSAA_1	584.0 / 419.0	3.63	d3-MeFOSAA	573.0 / 419.0	24696.95	400.00
NEtFOSAA_2	584.0 / 483.0	3.62	d3-MeFOSAA	573.0 / 419.0	24696.95	400.00
13C2-PFHxA	315.0 / 270.0	1.82	13C2-PFOA	415.0 / 370.0	51704.19	100.00
13C2-PFDA	515.0 / 470.0	3.30	13C2-PFOA	415.0 / 370.0	51704.19	100.00
d5-EtFOSAA	589.0 / 419.0	3.62	d3-MeFOSAA	573.0 / 419.0	24696.95	400.00

Sample Name	JV69 CCV	Injection Vial	20
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T18:27:56	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.53	13C4-PFOS	503.0 / 80.0	164027.66	287.00
PFBS_2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	164027.66	287.00
PFHxA_1	313.0 / 269.0	1.82	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFHpA_1	363.0 / 319.0	2.19	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFHpA_2	363.0 / 169.0	2.19	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	164027.66	287.00
PFHxS_2	399.0 / 99.0	2.20	13C4-PFOS	503.0 / 80.0	164027.66	287.00
PFOA_1	413.0 / 369.0	2.57	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFOA_2	413.0 / 169.0	2.57	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFNA_1	463.0 / 419.0	2.95	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFNA_2	463.0 / 219.0	2.95	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFOS_1	499.0 / 80.0	2.95	13C4-PFOS	503.0 / 80.0	164027.66	287.00
PFOS_2	499.0 / 99.0	2.95	13C4-PFOS	503.0 / 80.0	164027.66	287.00
PFDA_1	513.0 / 469.0	3.30	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFDA_2	513.0 / 219.0	3.30	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFUnA_1	563.0 / 519.0	3.63	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFUnA_2	563.0 / 269.0	3.63	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFDaA_1	613.0 / 569.0	3.91	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFDaA_2	613.0 / 319.0	3.91	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFTTrDA_1	663.0 / 619.0	4.16	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFTTrDA_2	663.0 / 169.0	4.16	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFTeDA_1	713.0 / 669.0	4.38	13C2-PFOA	415.0 / 370.0	59011.92	100.00
PFTeDA_2	713.0 / 169.0	4.38	13C2-PFOA	415.0 / 370.0	59011.92	100.00
NMeFOSAA_1	570.0 / 419.0	3.45	d3-MeFOSAA	573.0 / 419.0	28673.97	400.00
NMeFOSAA_2	570.0 / 512.0	3.45	d3-MeFOSAA	573.0 / 419.0	28673.97	400.00
NEtFOSAA_1	584.0 / 419.0	3.61	d3-MeFOSAA	573.0 / 419.0	28673.97	400.00
NEtFOSAA_2	584.0 / 483.0	3.60	d3-MeFOSAA	573.0 / 419.0	28673.97	400.00
13C2-PFHxA	315.0 / 270.0	1.81	13C2-PFOA	415.0 / 370.0	59011.92	100.00
13C2-PFDA	515.0 / 470.0	3.29	13C2-PFOA	415.0 / 370.0	59011.92	100.00
d5-EtFOSAA	589.0 / 419.0	3.61	d3-MeFOSAA	573.0 / 419.0	28673.97	400.00

Sample Name	JV70 CCV	Injection Vial	30
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T19:57:07	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

### Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.52	13C4-PFOS	503.0 / 80.0	156969.18	287.00
PFBS_2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	156969.18	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFHpA_1	363.0 / 319.0	2.19	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFHpA_2	363.0 / 169.0	2.18	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	156969.18	287.00
PFHxS_2	399.0 / 99.0	2.20	13C4-PFOS	503.0 / 80.0	156969.18	287.00
PFOA_1	413.0 / 369.0	2.57	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFOA_2	413.0 / 169.0	2.56	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFNA_1	463.0 / 419.0	2.95	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFNA_2	463.0 / 219.0	2.94	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFOS_1	499.0 / 80.0	2.94	13C4-PFOS	503.0 / 80.0	156969.18	287.00
PFOS_2	499.0 / 99.0	2.94	13C4-PFOS	503.0 / 80.0	156969.18	287.00
PFDA_1	513.0 / 469.0	3.29	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFDA_2	513.0 / 219.0	3.29	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFUnA_1	563.0 / 519.0	3.62	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFUnA_2	563.0 / 269.0	3.62	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFDaA_1	613.0 / 569.0	3.90	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFDaA_2	613.0 / 319.0	3.90	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFTrDA_1	663.0 / 619.0	4.15	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFTrDA_2	663.0 / 169.0	4.15	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFTeDA_1	713.0 / 669.0	4.37	13C2-PFOA	415.0 / 370.0	56830.73	100.00
PFTeDA_2	713.0 / 169.0	4.37	13C2-PFOA	415.0 / 370.0	56830.73	100.00
NMeFOSAA_1	570.0 / 419.0	3.44	d3-MeFOSAA	573.0 / 419.0	26847.56	400.00
NMeFOSAA_2	570.0 / 512.0	3.44	d3-MeFOSAA	573.0 / 419.0	26847.56	400.00
NEtFOSAA_1	584.0 / 419.0	3.61	d3-MeFOSAA	573.0 / 419.0	26847.56	400.00
NEtFOSAA_2	584.0 / 483.0	3.60	d3-MeFOSAA	573.0 / 419.0	26847.56	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	56830.73	100.00
13C2-PFDA	515.0 / 470.0	3.28	13C2-PFOA	415.0 / 370.0	56830.73	100.00
d5-EtFOSAA	589.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	26847.56	400.00

Sample Name	JV63 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T18:20:10	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343_D
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFOS_1	499.0 / 80.0	2.94	13C4-PFOS	503.0 / 80.0	181871.52	287.00
PFOS_2	499.0 / 99.0	2.94	13C4-PFOS	503.0 / 80.0	181871.52	287.00
NMeFOSAA_1	570.0 / 419.0	3.44	d3-MeFOSAA	573.0 / 419.0	29716.93	400.00
NMeFOSAA_2	570.0 / 512.0	3.44	d3-MeFOSAA	573.0 / 419.0	29716.93	400.00
NEtFOSAA_1	584.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	29716.93	400.00
NEtFOSAA_2	584.0 / 483.0	3.60	d3-MeFOSAA	573.0 / 419.0	29716.93	400.00
d5-EtFOSAA	589.0 / 419.0	3.59	d3-MeFOSAA	573.0 / 419.0	29716.93	400.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	181871.52	287.00
PFHxS_2	399.0 / 99.0	2.20	13C4-PFOS	503.0 / 80.0	181871.52	287.00

Sample Name	JV70 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-14T21:36:35	Data File	06142018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343_D
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFOS_1	499.0 / 80.0	2.92	13C4-PFOS	503.0 / 80.0	185911.85	287.00
PFOS_2	499.0 / 99.0	2.92	13C4-PFOS	503.0 / 80.0	185911.85	287.00
NMeFOSAA_1	570.0 / 419.0	3.43	d3-MeFOSAA	573.0 / 419.0	29545.42	400.00
NMeFOSAA_2	570.0 / 512.0	3.42	d3-MeFOSAA	573.0 / 419.0	29545.42	400.00
NEtFOSAA_1	584.0 / 419.0	3.59	d3-MeFOSAA	573.0 / 419.0	29545.42	400.00
NEtFOSAA_2	584.0 / 483.0	3.57	d3-MeFOSAA	573.0 / 419.0	29545.42	400.00
d5-EtFOSAA	589.0 / 419.0	3.58	d3-MeFOSAA	573.0 / 419.0	29545.42	400.00
PFHxS_1	399.0 / 80.0	2.19	13C4-PFOS	503.0 / 80.0	185911.85	287.00
PFHxS_2	399.0 / 99.0	2.19	13C4-PFOS	503.0 / 80.0	185911.85	287.00

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## Chain-of-Custody

<b>Client Contact Information</b> Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170		Project Manager: Jonathan Thorn Sampler Information (print name): Mary Kay Bond Phone: 610-382-1169 Email: mary.bond@tetrattech.com Turnaround Time (TAT) Requested: 21 days		Sampling Site: WE04 Site Information: NAS JRB Willow Grove/WGNA Warmminster					
Project Name: WE04 Project No.: 112G08005-WE04		Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/> Time Zone: Eastern		Preservative: <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">Trizma</span> Analysis: PFAS EPA 537 14 analytes					
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.			COC #
WGNA-052918-RW-3124 J6258		5/29/2018	9:40	G	DW	2	X		
WGNA-052918-FRB-3124 J6259		5/29/2018	9:35	G	DW	2	X		Field Reagent Blank
WGNA-052918-RW-3493 J6260		5/29/2018	10:10	G	DW	2	X		
WGNA-052918-FRB-3493 J6261		5/29/2018	10:05	G	DW	2	X		Field Reagent Blank
WGNA-052918-RW-3882 J6262		5/29/2018	10:25	G	DW	2	X		
WGNA-052918-FRB-3882 J6263		5/29/2018	10:20	G	DW	2	X		Field Reagent Blank
WGNA-052918-RW-3978 J6264		5/29/2018	10:40	G	DW	2	X		
WGNA-052918-FRB-3978 J6265		5/29/2018	10:35	G	DW	2	X		Field Reagent Blank
NAWC-052918-RW-161 J6266		5/29/2018	11:40	G	DW	2	X		
NAWC-052918-FRB-161 J6267		5/29/2018	11:35	G	DW	2	X		Field Reagent Blank
Receipt Temperature: (°C) <span style="font-size: 2em;">1.7°</span>		Samples Intact: <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">Yes</span> - No		Samples on Ice: <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">Yes</span> - No		Receipt Comments:			
Relinquished by (Print/Sign):		Company: Tetra Tech		Date/Time: 05/29/2018 16:00		Received by (Print/Sign):		Company: Battelle	
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):		Date/Time: 5-30-18 10:30	
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):		Date/Time:	
Comments: FedEx Tracking # 7723 3007 0381									

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## Chain-of-Custody

<b>Client Contact Information</b> Andy Frebowitz 234 Mall Boulevard, Suite 260 King of Prussia, PA 19406 610-382-1170		<b>Project Manager: Jonathan Thorn</b> Sampler Information (print name): Mary Kay Bond Phone: 610-382-1169 Email: mary.bond@tetrattech.com		Sampling Site: WE04		Site Information: NAS JRB Willow Grove/WGNA Warminster											
Project Name: WE04 Project No.: 112G08005-WE04		Turnaround Time (TAT) Requested: 21 days Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/>		Analysis: PFAS EPA 537 14 analytes		COC #  Page# 1 of 1											
Time Zone: Eastern		Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.									
WGNA-053018-RW-3876		J6270	5/30/2018	8:10	G	DW		2	X								
WGNA-053018-FRB-3876		71	5/30/2018	8:05	G	DW		2	X								Field Reagent Blank
WGNA-053018-DUP-37		72	5/30/2018	7:00	G	DW		2	X								DUPLICATE
NAWC-053018-RW-231		73	5/30/2018	8:40	G	DW		2	X								
NAWC-053018-FRB-231		74	5/30/2018	8:35	G	DW		2	X								Field Reagent Blank
WGNA-053018-RW-3933		75	5/30/2018	11:10	G	DW		2	X								
WGNA-053018-FRB-3933		76	5/30/2018	11:05	G	DW		2	X								Field Reagent Blank
NAWC-053018-RW-164		77	5/30/2018	14:10	G	DW		2	X								
NAWC-053018-FRB-164		78	5/30/2018	14:05	G	DW		2	X								Field Reagent Blank
NAWC-053018-RW-292		79	5/30/2018	14:40	G	DW		2	X								
NAWC-053018-FRB-292		80	5/30/2018	14:35	G	DW		2	X								Field Reagent Blank
NAWC-053018-RW-271		81	5/30/2018	15:10	G	DW		2	X								
NAWC-053018-FRB-271		82	5/30/2018	15:05	G	DW		2	X								Field Reagent Blank
NAWC-053018-RW-270		83	5/30/2018	15:20	G	DW		2	X								
NAWC-053018-FRB-270		84	5/30/2018	15:15	G	DW		2	X								Field Reagent Blank
NAWC-053018-RW-196		85	5/30/2018	15:40	G	DW		2	X								
NAWC-053018-FRB-196		86	5/30/2018	15:35	G	DW		2	X								Field Reagent Blank
NAWC-053018-RW-172		87	5/30/2018	16:10	G	DW		2	X								
NAWC-053018-FRB-172		J6288	5/30/2018	16:05	G	DW		2	X								Field Reagent Blank
Receipt Temperature: (°C) 1.3		Samples Intact: (Yes) No		Samples on Ice: (Yes) No		Receipt Comments:											
Relinquished by (Print/Sign): Mary Kay Bond		Company: Tetra Tech Date/Time: 05/30/2018 18:00		Received by (Print/Sign): Matt Schumitz		Company: Battelle Date/Time: 5-31-18 10 30											
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):											
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):											
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):											
Comments: FedEx Tracking # 7723 4831 5079																	

**QA/QC Summary**  
**Batch 18-0391**

Project:	CTO-WE04 Naval Air Station Joint Reserve Base Willow Grove
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	DW
Data Set:	DP-18-0157
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
5/29/2018	5/30/2018	1.7
5/30/2018	5/31/2018	1.3

Corrective Actions	None
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	The associated FRB samples are reported in SDG 18-0343.

METHOD SUMMARIES	
Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a weak ion exchange solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were concentrated to dryness under nitrogen with a water bath set between 60 °C and 65 °C, reconstituted with 96:4 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	None.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	<p>Samples analyzed on the Sciex 5500.</p> <p>All field samples were re-extracted (original Battelle SDG 18-0359). These samples were re-extracted due to suspected cross-contamination from other, unrelated PFAS samples in the lab concurrently. New results do not show the levels of PFHxS and PFOS found in the original SDG extraction. The re-extracted samples are "T" qualified as they were extracted outside of the 14 day holding time.</p> <p>PFTeDA in the LCS was above the calibration level and is "E" qualified.</p> <p>There are no ion ratio exceedences above 50% RPD for any analyte detected above the MDL or the LOQ in this SDG.</p>



**QA/QC Summary**  
**Batch 18-0391**

Holding Times	Extraction Date(s)	Analysis Date(s)
	6/21/2018	6/27/2018
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.	
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	One exceedance noted.	
	PFTeDA is over-recovered. Where this target is over-recovered and not detected in any of the associated samples, no further corrective action was taken.	
Matrix Spike (MS) / Duplicate (MSD)	A MS/MSD were prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy. The relative percent difference was calculated to measure precision.	
70-130% of true value, RPD ≤ 30%	No exceedances noted.	
	MS/MSD samples were not processed with this batch of field reagent blank samples.	
Surrogates Standard Analytes	Labelled surrogate compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.	
70-130% of true value	No exceedances noted.	
	No comments.	
Internal Standard Analytes	Labelled analog compounds were added prior to analysis.	
ICAL high and low points RPD ≤20%, 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted.	
	No comments.	

**QA/QC Summary**  
**Batch 18-0391**

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



It can be done

## BATTELLE - NORWELL OPERATIONS SAMPLE IDENTIFICATION PAGE

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0391****WE04 PFAS Analysis****DW**

Sample ID	Description
CR038PB-FS	Procedural Blank
CR039LCS-FS	Laboratory Control Sample
J6259-FS1	WGNA-052918-FRB-3124
J6261-FS1	WGNA-052918-FRB-3493
J6263-FS1	WGNA-052918-FRB-3882
J6265-FS1	WGNA-052918-FRB-3978
J6267-FS1	NAWC-052918-FRB-161
J6271-FS1	WGNA-053018-FRB-3876
J6274-FS1	NAWC-053018-FRB-231
J6276-FS1	WGNA-053018-FRB-3933
J6278-FS1	NAWC-053018-FRB-164
J6280-FS1	NAWC-053018-FRB-292
J6282-FS1	NAWC-053018-FRB-271
J6284-FS1	NAWC-053018-FRB-270
J6286-FS1	NAWC-053018-FRB-196
J6288-FS1	NAWC-053018-FRB-172

Samples Assigned By:

Stephanie Schultz

Date :

June 21, 2018

Comments:



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

Client ID	Procedural Blank				
Battelle ID	CR038PB-FS				
Sample Type	PB				
Collection Date	06/21/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
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	0.44 J	0.22	0.50	2.50	
PFHpA	1.00 U	0.34	1.00	2.50	
PFOA	1.00 U	0.38	1.00	2.50	
PFNA	1.00 U	0.37	1.00	2.50	
PFDA	1.00 U	0.39	1.00	2.50	
PFUnA	1.00 U	0.38	1.00	2.50	
PFDaA	1.00 U	0.42	1.00	2.50	
PFTTrDA	1.00 U	0.42	1.00	2.50	
PFTeDA	1.50 U	0.73	1.50	2.50	
NMeFOSAA	1.00 U	0.42	1.00	2.50	
NEtFOSAA	1.00 U	0.44	1.00	2.50	
PFBS	0.50 U	0.21	0.50	2.50	
PFHxS	1.00 U	0.34	1.00	2.50	
PFOS	1.00 U	0.30	1.00	2.50	

**Surrogate Recoveries (%)**

13C2-PFHxA	106
13C2-PFDA	95
d5-EtFOSAA	104



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

Client ID	Laboratory Control Sample					
Battelle ID	CR039LCS-FS					
Sample Type	LCS					
Collection Date	06/21/2018					
Extraction Date	06/21/2018					
Analysis Date	06/27/2018					
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	37.78	30.00	126		70	130
PFHpA	37.37	30.00	125		70	130
PFOA	35.66	30.00	119		70	130
PFNA	33.66	30.00	112		70	130
PFDA	35.15	30.00	117		70	130
PFUnA	34.43	30.00	115		70	130
PFDaA	34.48	30.00	115		70	130
PFTTrDA	34.47	30.00	115		70	130
PFTeDA	52.57 E	30.00	175	N	70	130
NMeFOSAA	33.79	30.00	113		70	130
NEtFOSAA	37.37	30.00	125		70	130
PFBS	31.67	26.55	119		70	130
PFHxS	32.92	28.35	116		70	130
PFOS	29.27	28.65	102		70	130

**Surrogate Recoveries (%)**

13C2-PFHxA	105
13C2-PFDA	100
d5-EtFOSAA	83



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project Number: 100117920-WE04  
 Preparation Batch: 18-0391  
 Data Set: DP-18-0157  
 Test Code: Master\_371

QC Parameter:	Exceed:	Justification:
Procedural Blank	0	None
PB Measurement Quality Objective	0	None
Laboratory Control Sample	1	PFTeDA is above passing criteria however it was non detect in the PB and samples.
Matrix Spike / Matrix Spike Duplicate Recovery	NA	NA
Matrix Spike / Matrix Spike Duplicate Precision	NA	NA
Extracted Internal Standard Analytes (Surrogates)	0	None
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None



It can be done

**BATTELLE - NORWELL OPERATIONS  
MISCELLANEOUS DOCUMENTATION FORM**

<b>Project Title:</b>	Naval Air Station Joint Reserve Base Wi	<b>Data Set Number:</b>	DP-18-0157
<b>Project Number:</b>	100117920-WE04	<b>Prep Batch Number:</b>	18-0391
<b>Entered By:</b>	Denise Schumitz	<b>Entered On:</b>	06/28/2018
<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 6/28/2018

JX67 is not being used for PFOA, PFNA, PFOS and PFDA, there is no impact on the data once this point of the calibration is removed.  
DMS 6/28/2018

JX75 is not being used for PFNA and NMeFOSAA, there is no impact on the data once this point of the calibration is removed.  
JRT 6/29/2018

JX74 and JX75 are not being used for PFTeDA, there is no impact on the data once these points in the calibration are removed.  
DMS 6/28/2018

PFTeDA is over recovered in the LCS however PFTeDA is not found in the Procedural Blank or any of the Field Reagent Blanks. PFTeDA is also above the calibration curve values and is E qualified. DMS 6/28/2018

**Task Leader Approval:**

**Supervisor Approval:**

Digitally signed by Jonathan  
Thorn

**PM Approval:**

Date: 2018.06.29 10:02:56 -04'00'



Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04  
 Preparation Batch: 18-0391  
 Data Set: DP-18-0157

	CR038PB-FS (Procedural Blank)	CR039LCS-FS (Laboratory Control Sample)	J6259-FS1 (WGNA-052918-FRB-3124)	J6261-FS1 (WGNA-052918-FRB-3493)	J6263-FS1 (WGNA-052918-FRB-3882)	J6265-FS1 (WGNA-052918-FRB-3978)	J6267-FS1 (NAWC-052918-FRB-161)
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	L/Br	L/Br	-	L/Br	-

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





Project Client: Tetra Tech  
 Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA  
 Project No.: 100117920-WE04  
 Preparation Batch: 18-0391  
 Data Set: DP-18-0157

	J6271-FS1 (WGNA-053018-FRB-3876)	J6274-FS1 (NAWC-053018-FRB-231)	J6276-FS1 (WGNA-053018-FRB-3933)	J6278-FS1 (NAWC-053018-FRB-164)	J6280-FS1 (NAWC-053018-FRB-292)	J6282-FS1 (NAWC-053018-FRB-271)	J6284-FS1 (NAWC-053018-FRB-270)	J6286-FS1 (NAWC-053018-FRB-196)	J6288-FS1 (NAWC-053018-FRB-172)
PFHxA	-	-	-	-	-	-	-	-	-
PFHpA	-	-	-	-	-	-	-	-	-
PFOA	-	-	-	-	-	-	-	-	-
PFNA	-	-	-	-	-	-	-	-	-
PFDA	-	-	-	-	-	-	-	-	-
PFUnA	-	-	-	-	-	-	-	-	-
PFDoA	-	-	-	-	-	-	-	-	-
PFTTrDA	-	-	-	-	-	-	-	-	-
PFTeDA	-	-	-	-	-	-	-	-	-
NMeFOSAA	-	-	-	-	-	-	-	-	-
NEtFOSAA	-	-	-	-	-	-	-	-	-
PFBS	-	-	-	-	-	-	-	-	-
PFHxS	-	-	-	-	-	-	-	-	-
PFOS	-	-	L/Br	-	L/Br	L/Br	L/Br	L/Br	L/Br

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

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	13C4-PFOS	195,712.77	-
JX68	L2	6/27/18 9:14	13C4-PFOS	208,133.24	-
JX69	L3	6/27/18 9:23	13C4-PFOS	196,602.67	-
JX70	L4	6/27/18 9:32	13C4-PFOS	221,233.77	-
JX71	L5	6/27/18 9:41	13C4-PFOS	207,482.97	-
JX72	L6	6/27/18 9:50	13C4-PFOS	205,389.92	-
JX73	L7	6/27/18 9:59	13C4-PFOS	210,418.05	-
JX74	L8	6/27/18 10:08	13C4-PFOS	173,679.17	-
JX75	L9	6/27/18 10:17	13C4-PFOS	184,387.98	6

PASS

Average 200,337.84 Lower 100,168.92 Upper 300,506.76

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	6/27/18 9:05	13C4-PFOS	195,712.77	100,168.92	300,506.76		145,238.08	290,476.16	
JX68	L2	6/27/18 9:14	13C4-PFOS	208,133.24	100,168.92	300,506.76		145,238.08	290,476.16	
JX69	L3	6/27/18 9:23	13C4-PFOS	196,602.67	100,168.92	300,506.76		145,238.08	290,476.16	
JX70	L4	6/27/18 9:32	13C4-PFOS	221,233.77	100,168.92	300,506.76		145,238.08	290,476.16	
JX71	L5	6/27/18 9:41	13C4-PFOS	207,482.97	100,168.92	300,506.76		145,238.08	290,476.16	
JX72	L6	6/27/18 9:50	13C4-PFOS	205,389.92	100,168.92	300,506.76		145,238.08	290,476.16	
JX73	L7	6/27/18 9:59	13C4-PFOS	210,418.05	100,168.92	300,506.76		145,238.08	290,476.16	
JX74	L8	6/27/18 10:08	13C4-PFOS	173,679.17	100,168.92	300,506.76		145,238.08	290,476.16	
JX75	L9	6/27/18 10:17	13C4-PFOS	184,387.98	100,168.92	300,506.76		145,238.08	290,476.16	
JV66 ICC	ICC	6/27/18 10:26	13C4-PFOS	198,955.94	100,168.92	300,506.76		145,238.08	290,476.16	
CR038PB-FS(0)	Procedural Blank	6/27/18 10:43	13C4-PFOS	225,022.84	100,168.92	300,506.76		145,238.08	290,476.16	
CR039LCS-FS(0)	Laboratory Control Sample	6/27/18 10:52	13C4-PFOS	152,210.75	100,168.92	300,506.76		145,238.08	290,476.16	
J6259-FS1(0)	WGNA-052918-FRB-3124	6/27/18 11:01	13C4-PFOS	180,195.54	100,168.92	300,506.76		145,238.08	290,476.16	
J6261-FS1(0)	WGNA-052918-FRB-3493	6/27/18 11:10	13C4-PFOS	205,385.70	100,168.92	300,506.76		145,238.08	290,476.16	
J6263-FS1(0)	WGNA-052918-FRB-3882	6/27/18 11:19	13C4-PFOS	188,519.90	100,168.92	300,506.76		145,238.08	290,476.16	
J6265-FS1(0)	WGNA-052918-FRB-3978	6/27/18 11:28	13C4-PFOS	164,186.92	100,168.92	300,506.76		145,238.08	290,476.16	
J6267-FS1(0)	NAWC-052918-FRB-161	6/27/18 11:37	13C4-PFOS	145,398.75	100,168.92	300,506.76		145,238.08	290,476.16	
J6271-FS1(0)	WGNA-053018-FRB-3876	6/27/18 11:46	13C4-PFOS	195,694.27	100,168.92	300,506.76		145,238.08	290,476.16	
JX71 CCV	CCV	6/27/18 11:55	13C4-PFOS	219,627.88	100,168.92	300,506.76		145,238.08	290,476.16	
J6274-FS1(0)	NAWC-053018-FRB-231	6/27/18 12:13	13C4-PFOS	200,366.83	100,168.92	300,506.76		153,739.52	307,479.03	
J6276-FS1(0)	WGNA-053018-FRB-3933	6/27/18 12:22	13C4-PFOS	186,902.87	100,168.92	300,506.76		153,739.52	307,479.03	
J6278-FS1(0)	NAWC-053018-FRB-164	6/27/18 12:31	13C4-PFOS	194,513.22	100,168.92	300,506.76		153,739.52	307,479.03	
J6280-FS1(0)	NAWC-053018-FRB-292	6/27/18 12:40	13C4-PFOS	189,125.92	100,168.92	300,506.76		153,739.52	307,479.03	
J6282-FS1(0)	NAWC-053018-FRB-271	6/27/18 12:48	13C4-PFOS	173,540.17	100,168.92	300,506.76		153,739.52	307,479.03	
J6284-FS1(0)	NAWC-053018-FRB-270	6/27/18 12:57	13C4-PFOS	181,494.76	100,168.92	300,506.76		153,739.52	307,479.03	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	13C4-PFOS	195,712.77	-
JX68	L2	6/27/18 9:14	13C4-PFOS	208,133.24	-
JX69	L3	6/27/18 9:23	13C4-PFOS	196,602.67	-
JX70	L4	6/27/18 9:32	13C4-PFOS	221,233.77	-
JX71	L5	6/27/18 9:41	13C4-PFOS	207,482.97	-
JX72	L6	6/27/18 9:50	13C4-PFOS	205,389.92	-
JX73	L7	6/27/18 9:59	13C4-PFOS	210,418.05	-
JX74	L8	6/27/18 10:08	13C4-PFOS	173,679.17	-
JX75	L9	6/27/18 10:17	13C4-PFOS	184,387.98	6

PASS

Average      Lower      Upper  
 200,337.84    100,168.92    300,506.76

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
J6286-FS1(0)	NAWC-053018-FRB-196	6/27/18 13:06	13C4-PFOS	192,046.27	100,168.92	300,506.76		153,739.52	307,479.03	
J6288-FS1(0)	NAWC-053018-FRB-172	6/27/18 13:15	13C4-PFOS	193,563.16	100,168.92	300,506.76		153,739.52	307,479.03	
JX72 CCV	CCV	6/27/18 13:24	13C4-PFOS	212,681.05	100,168.92	300,506.76		153,739.52	307,479.03	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	13C2-PFOA	62,699.72	-
JX68	L2	6/27/18 9:14	13C2-PFOA	68,551.10	-
JX69	L3	6/27/18 9:23	13C2-PFOA	68,688.50	-
JX70	L4	6/27/18 9:32	13C2-PFOA	68,613.81	-
JX71	L5	6/27/18 9:41	13C2-PFOA	68,780.04	-
JX72	L6	6/27/18 9:50	13C2-PFOA	70,145.13	-
JX73	L7	6/27/18 9:59	13C2-PFOA	68,944.70	-
JX74	L8	6/27/18 10:08	13C2-PFOA	60,796.66	-
JX75	L9	6/27/18 10:17	13C2-PFOA	68,647.41	9.1

PASS

Average      Lower      Upper  
 67,318.56    33,659.28    100,977.84

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	6/27/18 9:05	13C2-PFOA	62,699.72	33,659.28	100,977.84		48,146.03	96,292.06	
JX68	L2	6/27/18 9:14	13C2-PFOA	68,551.10	33,659.28	100,977.84		48,146.03	96,292.06	
JX69	L3	6/27/18 9:23	13C2-PFOA	68,688.50	33,659.28	100,977.84		48,146.03	96,292.06	
JX70	L4	6/27/18 9:32	13C2-PFOA	68,613.81	33,659.28	100,977.84		48,146.03	96,292.06	
JX71	L5	6/27/18 9:41	13C2-PFOA	68,780.04	33,659.28	100,977.84		48,146.03	96,292.06	
JX72	L6	6/27/18 9:50	13C2-PFOA	70,145.13	33,659.28	100,977.84		48,146.03	96,292.06	
JX73	L7	6/27/18 9:59	13C2-PFOA	68,944.70	33,659.28	100,977.84		48,146.03	96,292.06	
JX74	L8	6/27/18 10:08	13C2-PFOA	60,796.66	33,659.28	100,977.84		48,146.03	96,292.06	
JX75	L9	6/27/18 10:17	13C2-PFOA	68,647.41	33,659.28	100,977.84		48,146.03	96,292.06	
JV66 ICC	ICC	6/27/18 10:26	13C2-PFOA	64,713.81	33,659.28	100,977.84		48,146.03	96,292.06	
CR038PB-FS(0)	Procedural Blank	6/27/18 10:43	13C2-PFOA	74,771.38	33,659.28	100,977.84		48,146.03	96,292.06	
CR039LCS-FS(0)	Laboratory Control Sample	6/27/18 10:52	13C2-PFOA	51,742.87	33,659.28	100,977.84		48,146.03	96,292.06	
J6259-FS1(0)	WGNA-052918-FRB-3124	6/27/18 11:01	13C2-PFOA	59,385.53	33,659.28	100,977.84		48,146.03	96,292.06	
J6261-FS1(0)	WGNA-052918-FRB-3493	6/27/18 11:10	13C2-PFOA	66,889.73	33,659.28	100,977.84		48,146.03	96,292.06	
J6263-FS1(0)	WGNA-052918-FRB-3882	6/27/18 11:19	13C2-PFOA	62,147.50	33,659.28	100,977.84		48,146.03	96,292.06	
J6265-FS1(0)	WGNA-052918-FRB-3978	6/27/18 11:28	13C2-PFOA	55,473.53	33,659.28	100,977.84		48,146.03	96,292.06	
J6267-FS1(0)	NAWC-052918-FRB-161	6/27/18 11:37	13C2-PFOA	48,894.83	33,659.28	100,977.84		48,146.03	96,292.06	
J6271-FS1(0)	WGNA-053018-FRB-3876	6/27/18 11:46	13C2-PFOA	63,825.98	33,659.28	100,977.84		48,146.03	96,292.06	
JX71 CCV	CCV	6/27/18 11:55	13C2-PFOA	74,398.92	33,659.28	100,977.84		48,146.03	96,292.06	
J6274-FS1(0)	NAWC-053018-FRB-231	6/27/18 12:13	13C2-PFOA	60,327.15	33,659.28	100,977.84		52,079.24	104,158.49	
J6276-FS1(0)	WGNA-053018-FRB-3933	6/27/18 12:22	13C2-PFOA	59,078.12	33,659.28	100,977.84		52,079.24	104,158.49	
J6278-FS1(0)	NAWC-053018-FRB-164	6/27/18 12:31	13C2-PFOA	62,085.23	33,659.28	100,977.84		52,079.24	104,158.49	
J6280-FS1(0)	NAWC-053018-FRB-292	6/27/18 12:40	13C2-PFOA	60,490.88	33,659.28	100,977.84		52,079.24	104,158.49	
J6282-FS1(0)	NAWC-053018-FRB-271	6/27/18 12:48	13C2-PFOA	56,098.07	33,659.28	100,977.84		52,079.24	104,158.49	
J6284-FS1(0)	NAWC-053018-FRB-270	6/27/18 12:57	13C2-PFOA	56,641.98	33,659.28	100,977.84		52,079.24	104,158.49	

Project Client: Tetra Tech

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

Project No.: 100117920-WE04



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	13C2-PFOA	62,699.72	-
JX68	L2	6/27/18 9:14	13C2-PFOA	68,551.10	-
JX69	L3	6/27/18 9:23	13C2-PFOA	68,688.50	-
JX70	L4	6/27/18 9:32	13C2-PFOA	68,613.81	-
JX71	L5	6/27/18 9:41	13C2-PFOA	68,780.04	-
JX72	L6	6/27/18 9:50	13C2-PFOA	70,145.13	-
JX73	L7	6/27/18 9:59	13C2-PFOA	68,944.70	-
JX74	L8	6/27/18 10:08	13C2-PFOA	60,796.66	-
JX75	L9	6/27/18 10:17	13C2-PFOA	68,647.41	9.1

PASS

Average      Lower      Upper  
67,318.56      33,659.28      100,977.84

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
J6286-FS1(0)	NAWC-053018-FRB-196	6/27/18 13:06	13C2-PFOA	64,159.00	33,659.28	100,977.84		52,079.24	104,158.49	
J6288-FS1(0)	NAWC-053018-FRB-172	6/27/18 13:15	13C2-PFOA	68,300.17	33,659.28	100,977.84		52,079.24	104,158.49	
JX72 CCV	CCV	6/27/18 13:24	13C2-PFOA	73,895.68	33,659.28	100,977.84		52,079.24	104,158.49	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	d3-MeFOSAA	19,727.67	-
JX68	L2	6/27/18 9:14	d3-MeFOSAA	21,450.12	-
JX69	L3	6/27/18 9:23	d3-MeFOSAA	19,858.14	-
JX70	L4	6/27/18 9:32	d3-MeFOSAA	23,210.57	-
JX71	L5	6/27/18 9:41	d3-MeFOSAA	21,173.96	-
JX72	L6	6/27/18 9:50	d3-MeFOSAA	23,772.73	-
JX73	L7	6/27/18 9:59	d3-MeFOSAA	21,328.18	-
JX74	L8	6/27/18 10:08	d3-MeFOSAA	18,053.74	-
JX75	L9	6/27/18 10:17	d3-MeFOSAA	21,785.07	9.9

PASS

Average 21,151.13 Lower 10,575.57 Upper 31,726.70

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	6/27/18 9:05	d3-MeFOSAA	19,727.67	10,575.57	31,726.70		14,821.77	29,643.54	
JX68	L2	6/27/18 9:14	d3-MeFOSAA	21,450.12	10,575.57	31,726.70		14,821.77	29,643.54	
JX69	L3	6/27/18 9:23	d3-MeFOSAA	19,858.14	10,575.57	31,726.70		14,821.77	29,643.54	
JX70	L4	6/27/18 9:32	d3-MeFOSAA	23,210.57	10,575.57	31,726.70		14,821.77	29,643.54	
JX71	L5	6/27/18 9:41	d3-MeFOSAA	21,173.96	10,575.57	31,726.70		14,821.77	29,643.54	
JX72	L6	6/27/18 9:50	d3-MeFOSAA	23,772.73	10,575.57	31,726.70		14,821.77	29,643.54	
JX73	L7	6/27/18 9:59	d3-MeFOSAA	21,328.18	10,575.57	31,726.70		14,821.77	29,643.54	
JX74	L8	6/27/18 10:08	d3-MeFOSAA	18,053.74	10,575.57	31,726.70		14,821.77	29,643.54	
JX75	L9	6/27/18 10:17	d3-MeFOSAA	21,785.07	10,575.57	31,726.70		14,821.77	29,643.54	
JV66 ICC	ICC	6/27/18 10:26	d3-MeFOSAA	18,742.21	10,575.57	31,726.70		14,821.77	29,643.54	
CR038PB-FS(0)	Procedural Blank	6/27/18 10:43	d3-MeFOSAA	20,767.55	10,575.57	31,726.70		14,821.77	29,643.54	
CR039LCS-FS(0)	Laboratory Control Sample	6/27/18 10:52	d3-MeFOSAA	17,020.44	10,575.57	31,726.70		14,821.77	29,643.54	
J6259-FS1(0)	WGNA-052918-FRB-3124	6/27/18 11:01	d3-MeFOSAA	16,791.71	10,575.57	31,726.70		14,821.77	29,643.54	
J6261-FS1(0)	WGNA-052918-FRB-3493	6/27/18 11:10	d3-MeFOSAA	18,014.99	10,575.57	31,726.70		14,821.77	29,643.54	
J6263-FS1(0)	WGNA-052918-FRB-3882	6/27/18 11:19	d3-MeFOSAA	17,937.64	10,575.57	31,726.70		14,821.77	29,643.54	
J6265-FS1(0)	WGNA-052918-FRB-3978	6/27/18 11:28	d3-MeFOSAA	15,356.66	10,575.57	31,726.70		14,821.77	29,643.54	
J6267-FS1(0)	NAWC-052918-FRB-161	6/27/18 11:37	d3-MeFOSAA	14,942.44	10,575.57	31,726.70		14,821.77	29,643.54	
J6271-FS1(0)	WGNA-053018-FRB-3876	6/27/18 11:46	d3-MeFOSAA	17,808.82	10,575.57	31,726.70		14,821.77	29,643.54	
JX71 CCV	CCV	6/27/18 11:55	d3-MeFOSAA	20,862.99	10,575.57	31,726.70		14,821.77	29,643.54	
J6274-FS1(0)	NAWC-053018-FRB-231	6/27/18 12:13	d3-MeFOSAA	17,198.28	10,575.57	31,726.70		14,604.09	29,208.19	
J6276-FS1(0)	WGNA-053018-FRB-3933	6/27/18 12:22	d3-MeFOSAA	15,229.19	10,575.57	31,726.70		14,604.09	29,208.19	
J6278-FS1(0)	NAWC-053018-FRB-164	6/27/18 12:31	d3-MeFOSAA	15,284.67	10,575.57	31,726.70		14,604.09	29,208.19	
J6280-FS1(0)	NAWC-053018-FRB-292	6/27/18 12:40	d3-MeFOSAA	14,886.46	10,575.57	31,726.70		14,604.09	29,208.19	
J6282-FS1(0)	NAWC-053018-FRB-271	6/27/18 12:48	d3-MeFOSAA	14,624.86	10,575.57	31,726.70		14,604.09	29,208.19	
J6284-FS1(0)	NAWC-053018-FRB-270	6/27/18 12:57	d3-MeFOSAA	15,232.48	10,575.57	31,726.70		14,604.09	29,208.19	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JX67	L1	6/27/18 9:05	d3-MeFOSAA	19,727.67	-
JX68	L2	6/27/18 9:14	d3-MeFOSAA	21,450.12	-
JX69	L3	6/27/18 9:23	d3-MeFOSAA	19,858.14	-
JX70	L4	6/27/18 9:32	d3-MeFOSAA	23,210.57	-
JX71	L5	6/27/18 9:41	d3-MeFOSAA	21,173.96	-
JX72	L6	6/27/18 9:50	d3-MeFOSAA	23,772.73	-
JX73	L7	6/27/18 9:59	d3-MeFOSAA	21,328.18	-
JX74	L8	6/27/18 10:08	d3-MeFOSAA	18,053.74	-
JX75	L9	6/27/18 10:17	d3-MeFOSAA	21,785.07	9.9

PASS

Average      Lower      Upper  
 21,151.13    10,575.57    31,726.70

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
J6286-FS1(0)	NAWC-053018-FRB-196	6/27/18 13:06	d3-MeFOSAA	14,939.62	10,575.57	31,726.70		14,604.09	29,208.19	
J6288-FS1(0)	NAWC-053018-FRB-172	6/27/18 13:15	d3-MeFOSAA	18,215.38	10,575.57	31,726.70		14,604.09	29,208.19	
JX72 CCV	CCV	6/27/18 13:24	d3-MeFOSAA	19,404.97	10,575.57	31,726.70		14,604.09	29,208.19	

Sample Name	JX73	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/27/2018 9:59:20 AM	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.50	0.96	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.78	1.40	0.8 – 1.5



Sample Name	JX73	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/27/2018 9:59:20 AM	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.50	30	>10
PFBS_2	298.9 / 99.0	1.50	35	>10
PFHxA_1	313.0 / 269.0	1.78	26	>10
PFHxA_2	313.0 / 119.0	1.78	29	>10
PFHpA_1	363.0 / 319.0	2.14	32	>10
PFHpA_2	363.0 / 169.0	2.14	31	>10
PFHxS_1	399.0 / 80.0	2.15	32	>10
PFHxS_2	399.0 / 99.0	2.15	35	>10
PFOA_1	413.0 / 369.0	2.51	35	>10
PFOA_2	413.0 / 169.0	2.51	33	>10
PFNA_1	463.0 / 419.0	2.89	32	>10
PFNA_2	463.0 / 219.0	2.89	25	>10
PFOS_1	499.0 / 80.0	2.88	36	>10
PFOS_2	499.0 / 99.0	2.88	35	>10
PFDA_1	513.0 / 469.0	3.23	27	>10
PFDA_2	513.0 / 219.0	3.23	33	>10
PFUnA_1	563.0 / 519.0	3.55	35	>10
PFUnA_2	563.0 / 269.0	3.55	27	>10
PFDaA_1	613.0 / 569.0	3.84	35	>10
PFDaA_2	613.0 / 319.0	3.84	32	>10
PFTrDA_1	663.0 / 619.0	4.09	31	>10
PFTrDA_2	663.0 / 169.0	4.09	26	>10
PFTeDA_1	713.0 / 669.0	4.31	43	>10
PFTeDA_2	713.0 / 169.0	4.31	37	>10
NMeFOSAA_1	570.0 / 419.0	3.38	35	>10
NMeFOSAA_2	570.0 / 512.0	3.38	46	>10
NEtFOSAA_1	584.0 / 419.0	3.54	31	>10
NEtFOSAA_2	584.0 / 483.0	3.54	35	>10
13C2-PFHxA	315.0 / 270.0	1.77	32	>10
13C2-PFDA	515.0 / 470.0	3.23	35	>10
d5-EtFOSAA	589.0 / 419.0	3.53	30	>10

# BATTELLE DETECTION LIMITS FOR PFAS IN DRINKING WATER

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

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

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

Analytical Transitions for PFAS in drinking water

SOP 5-371 (EPA 537 Version 1.1)

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
<b>PFHxA</b>	307-24-4	Target	313.0 / 269.0	313.0 / 119.0
<b>PFHpA</b>	375-85-9	Target	363.0 / 319.0	363.0 / 169.0
<b>PFOA</b>	335-67-1	Target	413.0 / 369.0	413.0 / 169.0
<b>PFNA</b>	375-95-1	Target	463.0 / 419.0	463.0 / 219.0
<b>PFDA</b>	335-76-2	Target	513.0 / 469.0	513.0 / 219.0
<b>PFUnA</b>	2058-94-8	Target	563.0 / 519.0	563.0 / 269.0
<b>PFDoA</b>	307-55-1	Target	613.0 / 569.0	613.0 / 319.0
<b>PFTTrDA</b>	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
<b>PFTeDA</b>	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
<b>NMeFOSAA</b>	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
<b>NEtFOSAA</b>	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
<b>PFBS</b>	375-73-5	Target	298.9.0 / 80.0	298.9.0 / 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



**Zef Scientific Inc.**

12707 High Bluff Dr.  
Suite 200  
San Diego, CA  
USA 92130

1975 Hymus Blvd.  
Suite 230  
Dorval, QC  
Canada H9P 1J8

Phone: 1.866.854.7988

# QTRAP 5500

**LC/MS/MS Detector System**

Appendix ZEFPM003-2L

Mass calibration and Tune Check

## 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:** \_\_\_\_\_

**Zef Scientific Inc.**

12707 High Bluff Dr.  
Suite 200  
San Diego, CA  
USA 92130

1975 Hymus Blvd.  
Suite 230  
Dorval, QC  
Canada H9P 1J8

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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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USA 92130

1975 Hymus Blvd.  
Suite 230  
Dorval, QC  
Canada H9P 1J8

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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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USA 92130

1975 Hymus Blvd.  
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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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USA 92130

1975 Hymus Blvd.  
Suite 230  
Dorval, QC  
Canada H9P 1J8

Phone: 1.866.854.7988

**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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USA 92130

1975 Hymus Blvd.  
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Dorval, QC  
Canada H9P 1J8

Phone: 1.866.854.7988

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

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

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

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

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

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USA 92130

1975 Hymus Blvd.  
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Canada H9P 1J8

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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

**BATTELLE - NORWELL OPERATIONS  
SAMPLE PREPARATION RECORDS**

<b><u>Project Title(s)</u></b>	<b><u>Project No.(s)</u></b>
Naval Air Station Joint Reserve Base Willow Grove, PA	100117920-WE04
<b>18-0391</b>	
<b>WE04 PFAS Analysis</b>	
<b>DW</b>	
SOP Numbers (see workplan for modifications)	
VOASOP No.	5-371

<b>This Batch Contains The Following Samples:</b>		
CR038PB-FS	J6267-FS1	J6282-FS1
CR039LCS-FS	J6271-FS1	J6284-FS1
J6259-FS1	J6274-FS1	J6286-FS1
J6261-FS1	J6276-FS1	J6288-FS1
J6263-FS1	J6278-FS1	
J6265-FS1	J6280-FS1	

Laboratory Preparation Records  
COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Denise Schumitz	06/26/2018	DMS



It can be done

## BATTELLE - NORWELL OPERATIONS LIQUID SAMPLE ID FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0391****WE04 PFAS Analysis****DW**

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CR038PB-FS	Procedural Blank	250.0	NA	--	06/21/18 SAS
CR039LCS-FS	Laboratory Control Sample	250.0	NA	--	06/21/18 SAS
J6259-FS1	WGNA-052918-FRB-3124	250.0	2	C	06/21/18 LMG
J6261-FS1	WGNA-052918-FRB-3493	260.0	2	C	06/21/18 LMG
J6263-FS1	WGNA-052918-FRB-3882	265.0	2	C	06/21/18 LMG
J6265-FS1	WGNA-052918-FRB-3978	270.0	2	C	06/21/18 LMG
J6267-FS1	NAWC-052918-FRB-161	260.0	2	C	06/21/18 LMG
J6271-FS1	WGNA-053018-FRB-3876	255.0	2	C	06/21/18 LMG
J6274-FS1	NAWC-053018-FRB-231	270.0	2	C	06/21/18 LMG
J6276-FS1	WGNA-053018-FRB-3933	250.0	2	C	06/21/18 LMG
J6278-FS1	NAWC-053018-FRB-164	270.0	2	C	06/21/18 LMG
J6280-FS1	NAWC-053018-FRB-292	255.0	2	C	06/21/18 LMG
J6282-FS1	NAWC-053018-FRB-271	270.0	2	C	06/21/18 LMG
J6284-FS1	NAWC-053018-FRB-270	260.0	2	C	06/21/18 LMG
J6286-FS1	NAWC-053018-FRB-196	245.0	2	C	06/21/18 LMG
J6288-FS1	NAWC-053018-FRB-172	240.0	2	C	06/21/18 LMG

**Comments:**

Sample ID:	Comments:
CR038PB-FS	1.23g Trizma(170526-01) weighed on BAL-009
CR039LCS-FS	1.26g Trizma(170526-01) weighed on BAL-009

Samples Assigned By

Stephanie Schultz

Date :

June 21, 2018

\* - "C" = Sample is Consumed



It can be done

## BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

**Project Title(s)**

Naval Air Station Joint Reserve Base Willow Grove, PA

**Project No.(s)**100117920-  
WE04**18-0391****WE04 PFAS Analysis****DW****(N/A Fraction)**

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm . (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution*	Date Spiked/ Spiked By	Witn'd By
CR038PB-FS(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
CR039LCS-FS(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6259-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6261-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6263-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6265-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6267-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6271-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6274-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6276-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6278-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6280-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6282-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6284-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6286-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG
J6288-FS1(0)	950	50	JV59	50	1	1000	1.000	06/22/18 LMG	SG

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

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

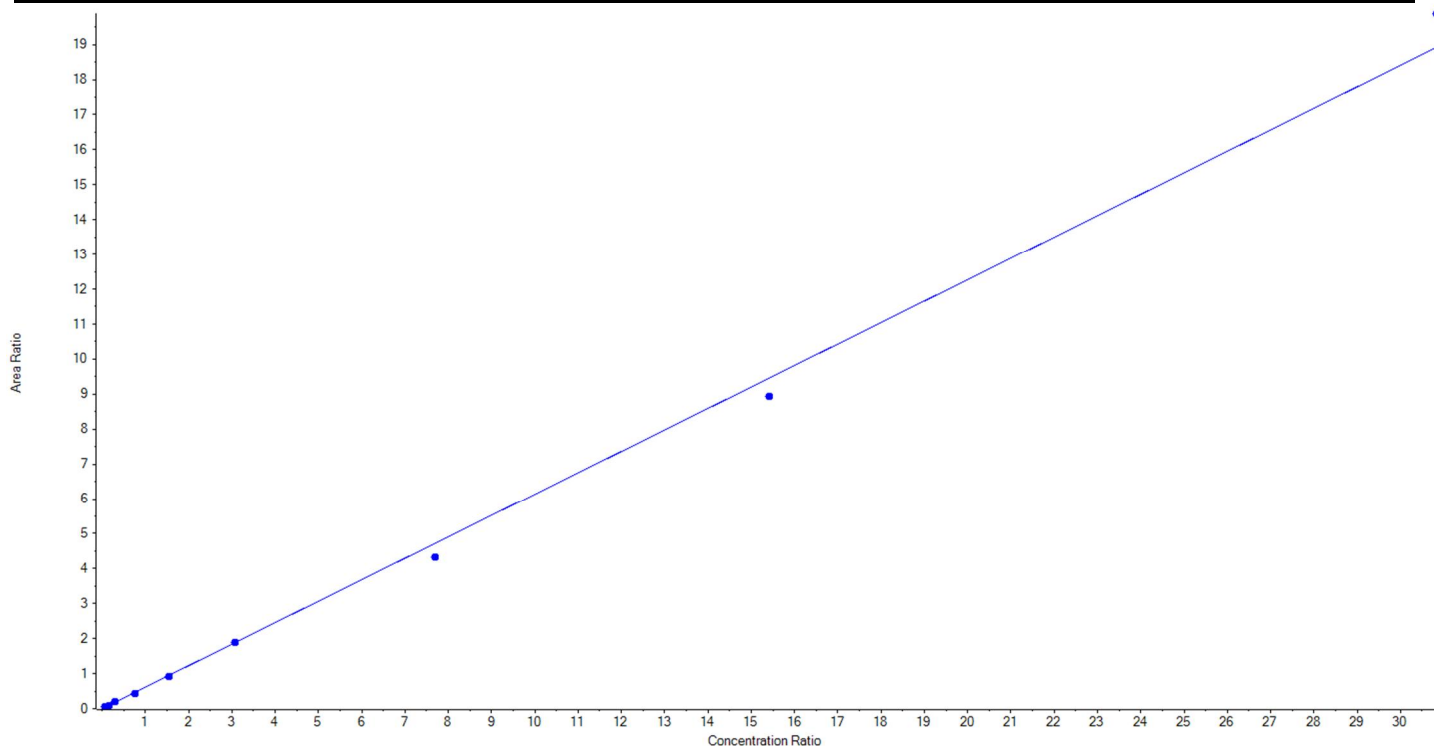
Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		6/27/2018 8:56:44 AM	5-0371.dam	06252018_5-371.wiff
2	JX67	L1	6/27/2018 9:05:43 AM	5-0371.dam	06252018_5-371.wiff
3	JX68	L2	6/27/2018 9:14:41 AM	5-0371.dam	06252018_5-371.wiff
4	JX69	L3	6/27/2018 9:23:38 AM	5-0371.dam	06252018_5-371.wiff
5	JX70	L4	6/27/2018 9:32:34 AM	5-0371.dam	06252018_5-371.wiff
6	JX71	L5	6/27/2018 9:41:29 AM	5-0371.dam	06252018_5-371.wiff
7	JX72	L6	6/27/2018 9:50:24 AM	5-0371.dam	06252018_5-371.wiff
8	JX73	L7	6/27/2018 9:59:20 AM	5-0371.dam	06252018_5-371.wiff
9	JX74	L8	6/27/2018 10:08:14 AM	5-0371.dam	06252018_5-371.wiff
10	JX75	L9	6/27/2018 10:17:08 AM	5-0371.dam	06252018_5-371.wiff
11	JV66 ICC	ICC	6/27/2018 10:26:04 AM	5-0371.dam	06252018_5-371.wiff
12	MeOH		6/27/2018 10:34:59 AM	5-0371.dam	06252018_5-371.wiff
13	CR038PB-FS(0)	Procedural Blank	6/27/2018 10:43:54 AM	5-0371.dam	06252018_5-371.wiff
14	CR039LCS-FS(0)	Laboratory Control Sample	6/27/2018 10:52:49 AM	5-0371.dam	06252018_5-371.wiff
15	J6259-FS1(0)	WGNA-052918-FRB-3124	6/27/2018 11:01:45 AM	5-0371.dam	06252018_5-371.wiff
16	J6261-FS1(0)	WGNA-052918-FRB-3493	6/27/2018 11:10:41 AM	5-0371.dam	06252018_5-371.wiff
17	J6263-FS1(0)	WGNA-052918-FRB-3882	6/27/2018 11:19:39 AM	5-0371.dam	06252018_5-371.wiff
18	J6265-FS1(0)	WGNA-052918-FRB-3978	6/27/2018 11:28:34 AM	5-0371.dam	06252018_5-371.wiff
19	J6267-FS1(0)	NAWC-052918-FRB-161	6/27/2018 11:37:30 AM	5-0371.dam	06252018_5-371.wiff
20	J6271-FS1(0)	WGNA-053018-FRB-3876	6/27/2018 11:46:27 AM	5-0371.dam	06252018_5-371.wiff
21	JX71 CCV	CCV	6/27/2018 11:55:23 AM	5-0371.dam	06252018_5-371.wiff
12	MeOH		6/27/2018 12:04:19 PM	5-0371.dam	06252018_5-371.wiff
22	J6274-FS1(0)	NAWC-053018-FRB-231	6/27/2018 12:13:16 PM	5-0371.dam	06252018_5-371.wiff
23	J6276-FS1(0)	WGNA-053018-FRB-3933	6/27/2018 12:22:12 PM	5-0371.dam	06252018_5-371.wiff
24	J6278-FS1(0)	NAWC-053018-FRB-164	6/27/2018 12:31:07 PM	5-0371.dam	06252018_5-371.wiff
25	J6280-FS1(0)	NAWC-053018-FRB-292	6/27/2018 12:40:02 PM	5-0371.dam	06252018_5-371.wiff
26	J6282-FS1(0)	NAWC-053018-FRB-	6/27/2018 12:48:57	5-0371.dam	06252018_5-371.wiff

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
		271	PM		
27	J6284-FS1(0)	NAWC-053018-FRB-270	6/27/2018 12:57:53 PM	5-0371.dam	06252018_5-371.wiff
28	J6286-FS1(0)	NAWC-053018-FRB-196	6/27/2018 1:06:48 PM	5-0371.dam	06252018_5-371.wiff
29	J6288-FS1(0)	NAWC-053018-FRB-172	6/27/2018 1:15:44 PM	5-0371.dam	06252018_5-371.wiff
30	JX72 CCV	CCV	6/27/2018 1:24:40 PM	5-0371.dam	06252018_5-371.wiff

<b>Analyte Name</b>	PFBS_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	298.9 / 80.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.61363x + -0.00126$  ( $r = 0.99834$ ) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.15	23.830433	107.6
3	JX68	L2	True	44.30	46.278541	104.5
4	JX69	L3	True	88.60	93.683891	105.7
5	JX70	L4	True	221.50	206.327632	93.2
6	JX71	L5	True	443.00	432.516100	97.6
7	JX72	L6	True	885.00	888.747710	100.4
8	JX73	L7	True	2212.50	2024.674722	91.5
9	JX74	L8	True	4425.00	4178.992960	94.4
10	JX75	L9	True	8850.00	9296.998012	105.1

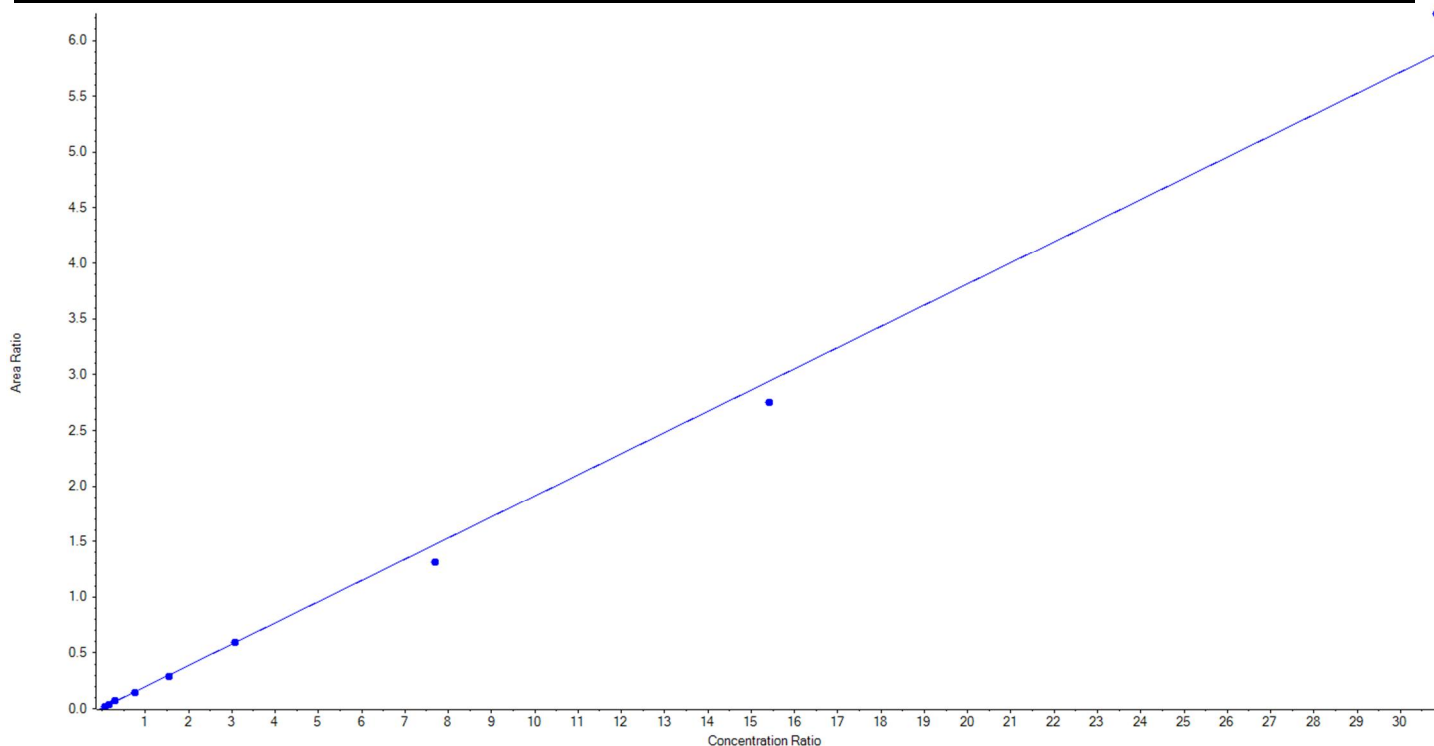




<b>Analyte Name</b>	PFBS_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	298.9 / 99.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19036 x + 0.00658$  (r = 0.99747) (weighting: 1 / x)

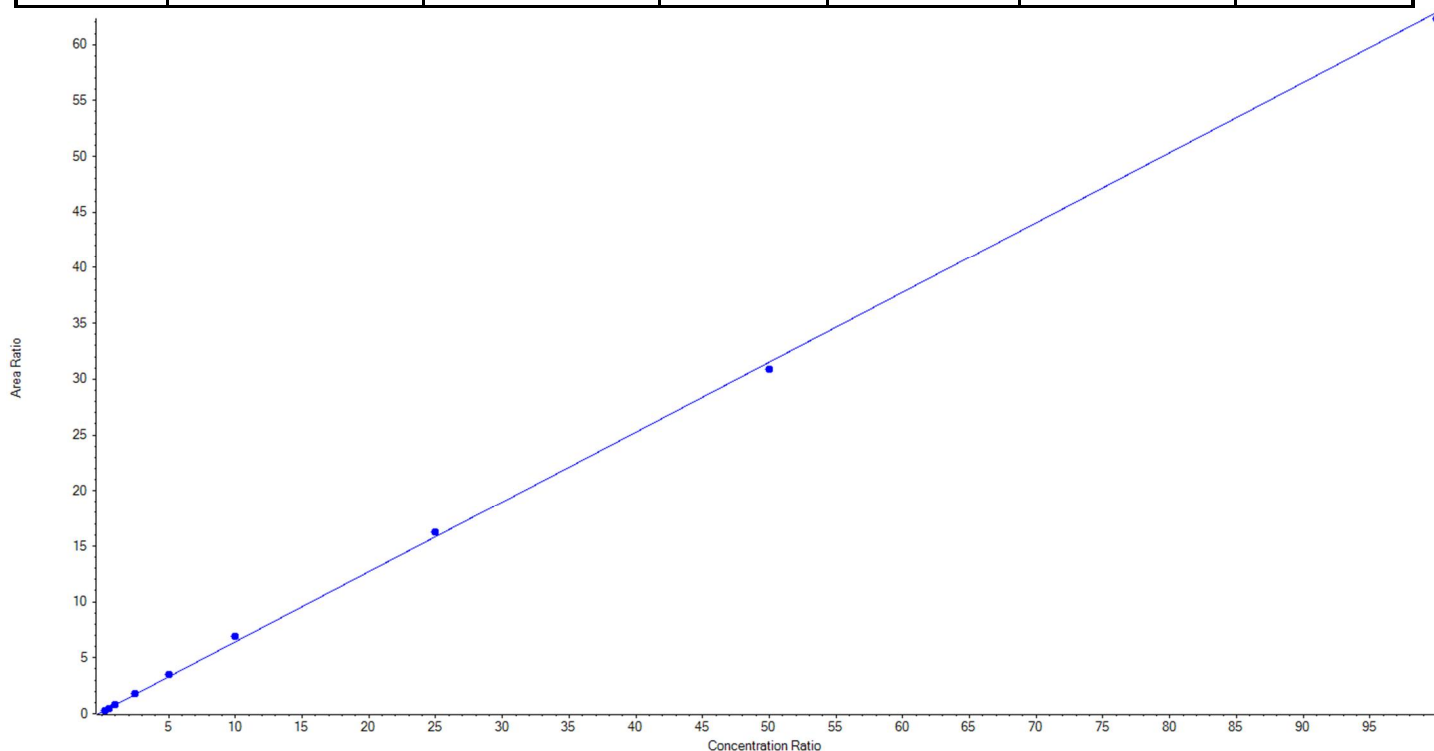
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.15	22.983577	103.8
3	JX68	L2	True	44.30	49.356949	111.4
4	JX69	L3	True	88.60	93.887974	106.0
5	JX70	L4	True	221.50	205.818634	92.9
6	JX71	L5	True	443.00	429.643049	97.0
7	JX72	L6	True	885.00	889.170002	100.5
8	JX73	L7	True	2212.50	1962.210653	88.7
9	JX74	L8	True	4425.00	4142.359203	93.6
10	JX75	L9	True	8850.00	9396.619960	106.2



<b>Analyte Name</b>	PFHxA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	313.0 / 269.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.62713x + 0.16053$  (r = 0.99957) (weighting: 1 / x)

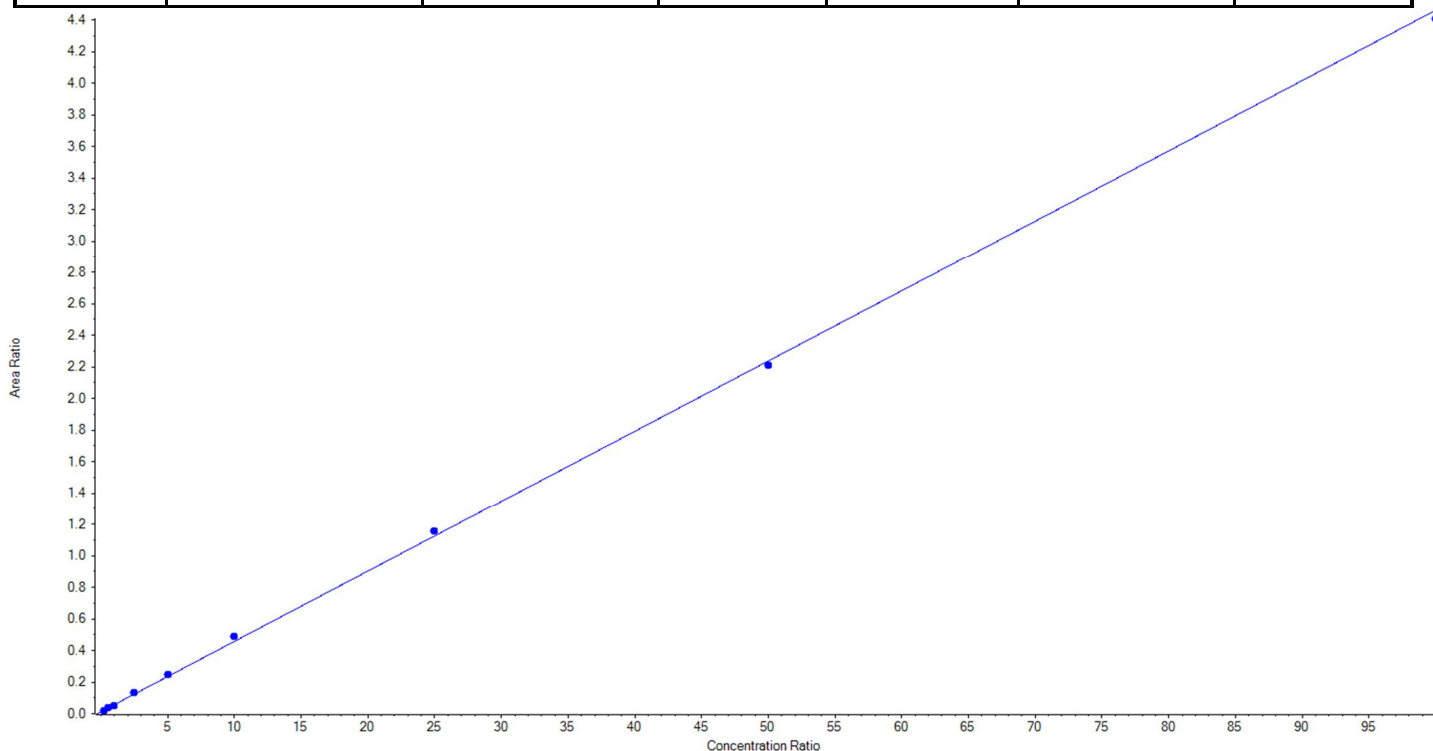
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.791994	75.2
3	JX68	L2	True	50.00	51.402415	102.8
4	JX69	L3	True	100.00	104.015969	104.0
5	JX70	L4	True	250.00	256.894451	102.8
6	JX71	L5	True	500.00	536.593763	107.3
7	JX72	L6	True	1000.00	1083.560155	108.4
8	JX73	L7	True	2500.00	2559.637674	102.4
9	JX74	L8	True	5000.00	4905.213315	98.1
10	JX75	L9	True	10000.00	9908.890264	99.1



<b>Analyte Name</b>	PFHxA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	313.0 / 119.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.04450 x + 0.01264$  (r = 0.99956) (weighting: 1 / x)

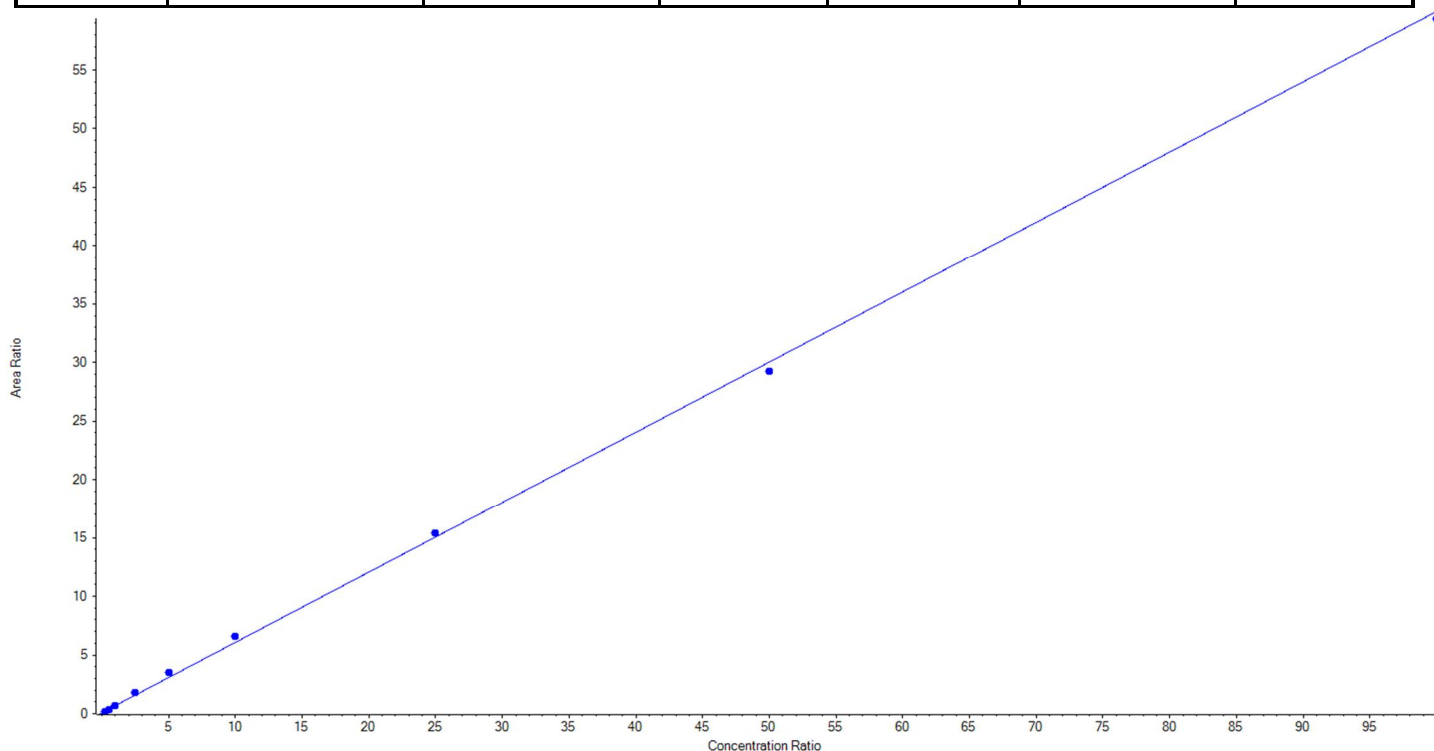
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	20.296701	81.2
3	JX68	L2	True	50.00	53.760551	107.5
4	JX69	L3	True	100.00	88.961255	89.0
5	JX70	L4	True	250.00	271.044383	108.4
6	JX71	L5	True	500.00	529.040331	105.8
7	JX72	L6	True	1000.00	1077.865222	107.8
8	JX73	L7	True	2500.00	2570.917958	102.8
9	JX74	L8	True	5000.00	4935.064490	98.7
10	JX75	L9	True	10000.00	9878.049109	98.8



<b>Analyte Name</b>	PFHpA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	363.0 / 319.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.59900x + 0.08720$  (r = 0.99924) (weighting: 1 / x)

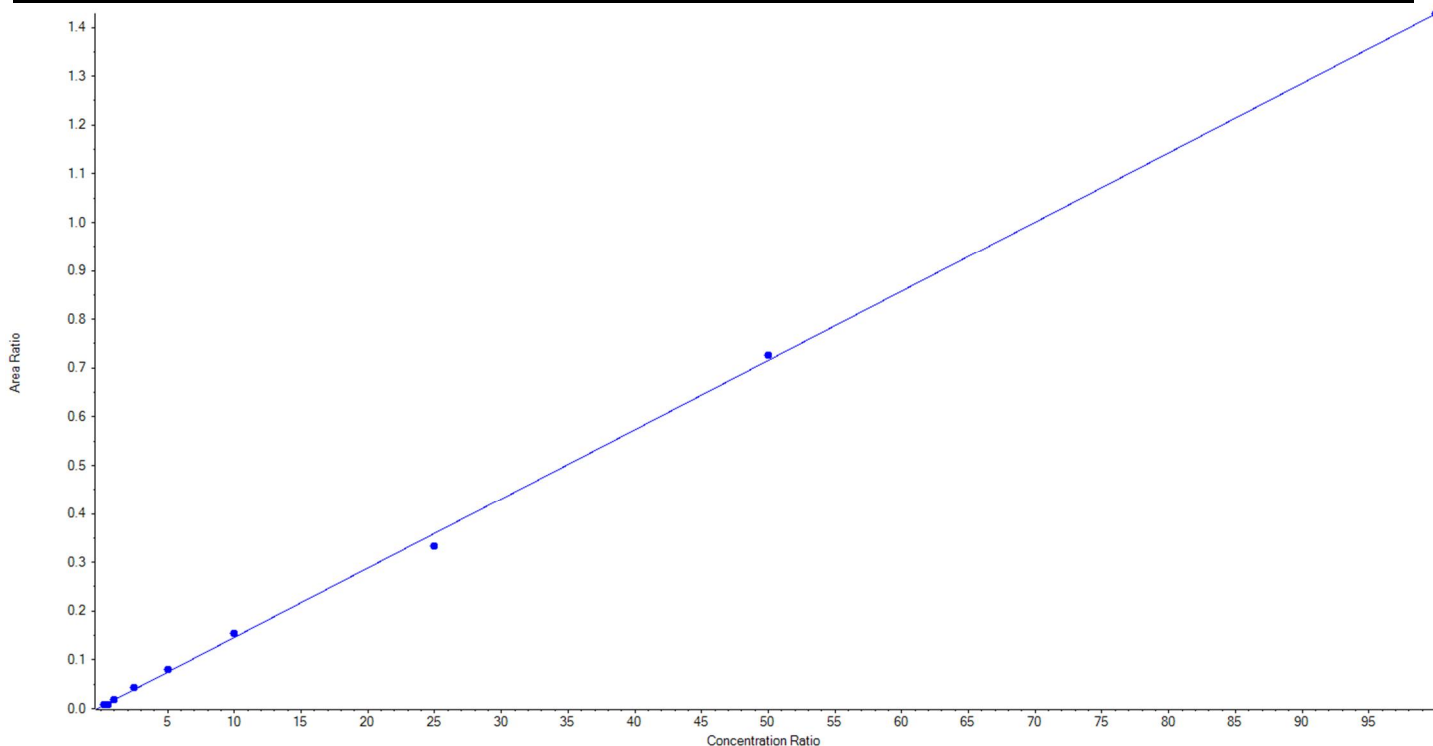
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.302340	73.2
3	JX68	L2	True	50.00	44.691384	89.4
4	JX69	L3	True	100.00	104.066690	104.1
5	JX70	L4	True	250.00	283.179151	113.3
6	JX71	L5	True	500.00	564.092719	112.8
7	JX72	L6	True	1000.00	1085.640666	108.6
8	JX73	L7	True	2500.00	2557.091682	102.3
9	JX74	L8	True	5000.00	4872.389047	97.5
10	JX75	L9	True	10000.00	9895.546320	99.0



<b>Analyte Name</b>	PFHpA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	363.0 / 169.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.01424 x + 0.00368$  (r = 0.99920) (weighting: 1 / x)

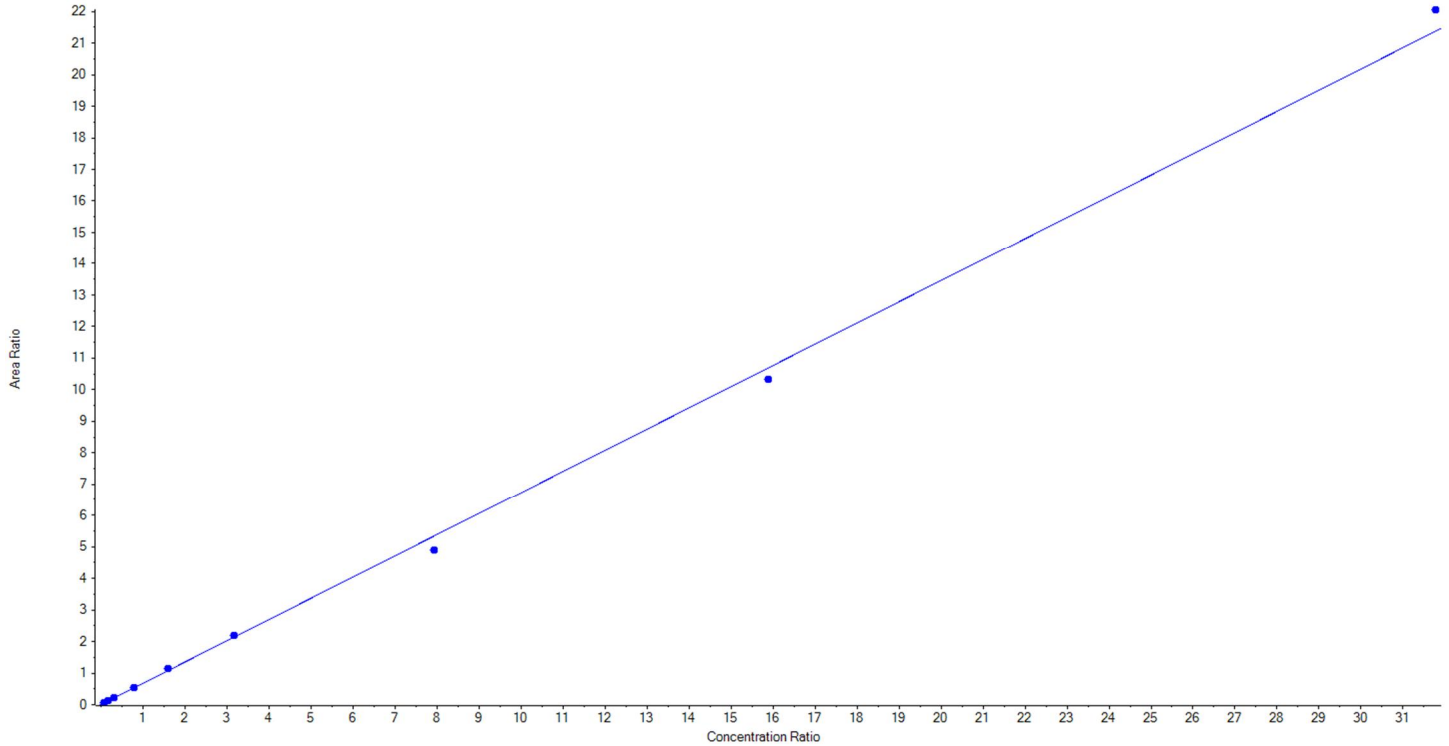
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	25.182337	100.7
3	JX68	L2	True	50.00	37.004714	74.0
4	JX69	L3	True	100.00	106.084205	106.1
5	JX70	L4	True	250.00	279.413504	111.8
6	JX71	L5	True	500.00	537.484438	107.5
7	JX72	L6	True	1000.00	1062.086999	106.2
8	JX73	L7	True	2500.00	2307.985347	92.3
9	JX74	L8	True	5000.00	5068.903345	101.4
10	JX75	L9	True	10000.00	10000.855110	100.0



<b>Analyte Name</b>	PFHxS_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	399.0 / 80.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.67255x + 0.00557$  (r = 0.99899) (weighting: 1 / x)

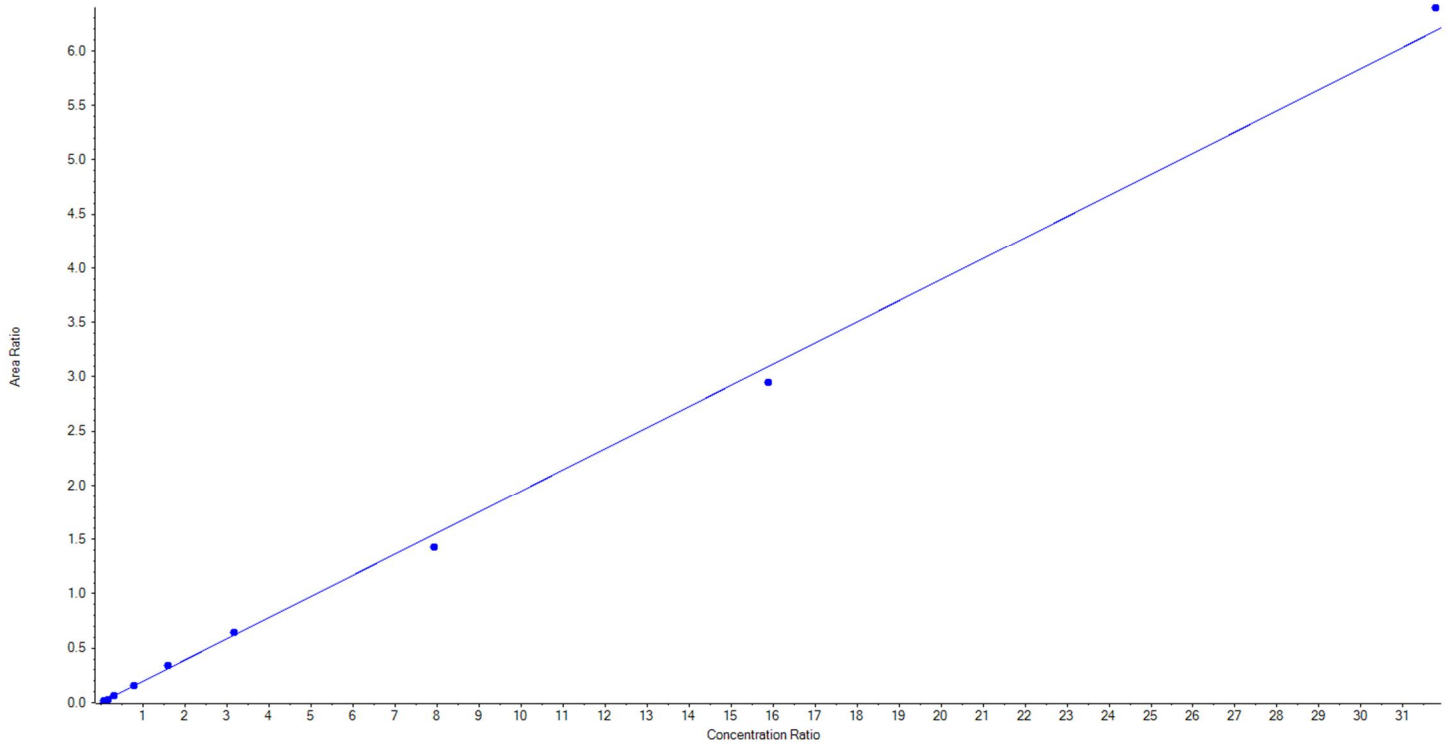
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.80	21.540088	94.5
3	JX68	L2	True	45.60	45.354398	99.5
4	JX69	L3	True	91.20	94.429375	103.5
5	JX70	L4	True	228.00	231.961115	101.7
6	JX71	L5	True	456.00	490.677670	107.6
7	JX72	L6	True	912.00	928.885400	101.9
8	JX73	L7	True	2280.00	2086.096882	91.5
9	JX74	L8	True	4560.00	4408.253001	96.7
10	JX75	L9	True	9120.00	9408.402070	103.2



<b>Analyte Name</b>	PFHxS_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	399.0 / 99.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19454 x + 0.00249$  (r = 0.99879) (weighting: 1 / x)

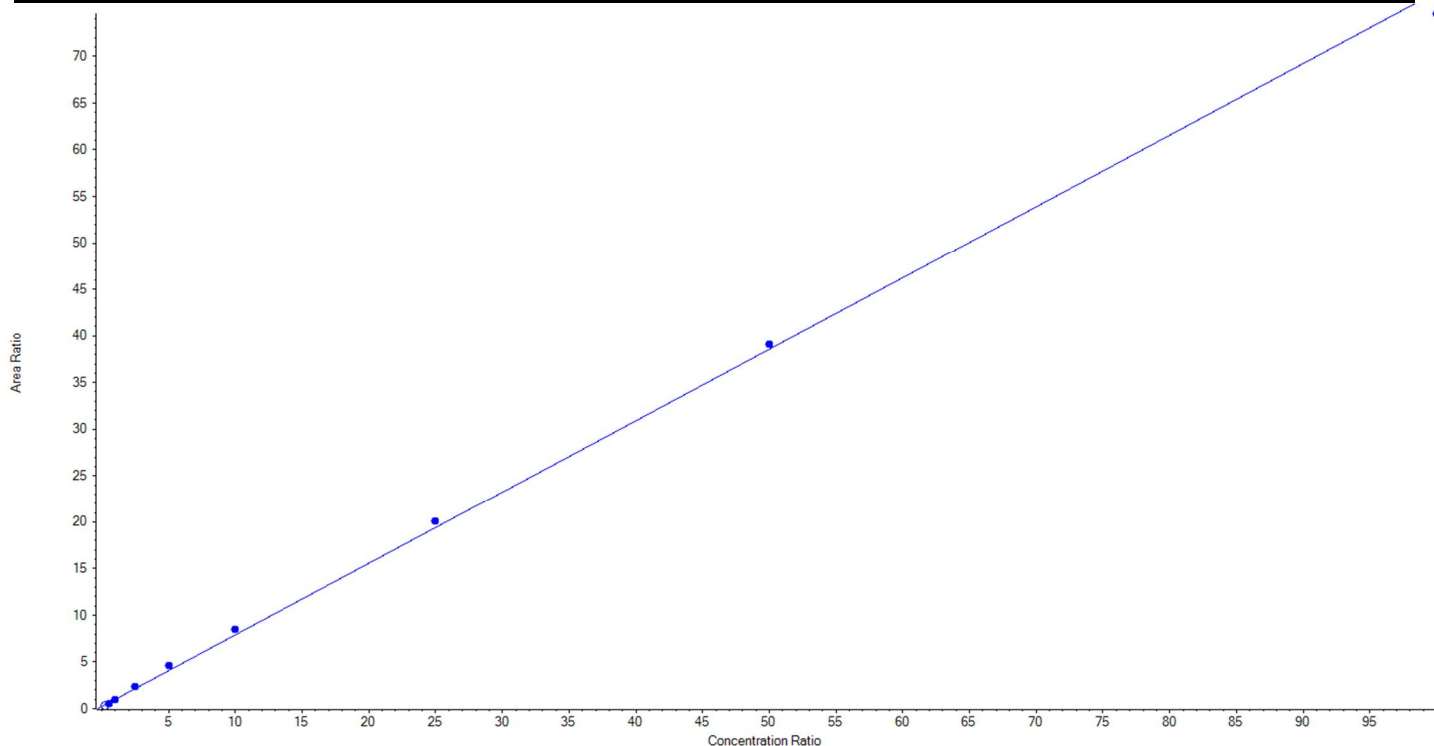
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	22.80	21.831569	95.8
3	JX68	L2	True	45.60	43.862949	96.2
4	JX69	L3	True	91.20	95.814283	105.1
5	JX70	L4	True	228.00	224.050348	98.3
6	JX71	L5	True	456.00	499.804218	109.6
7	JX72	L6	True	912.00	950.335119	104.2
8	JX73	L7	True	2280.00	2101.773991	92.2
9	JX74	L8	True	4560.00	4346.681282	95.3
10	JX75	L9	True	9120.00	9431.446241	103.4



<b>Analyte Name</b>	PFOA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	413.0 / 369.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.76657 x + 0.23682$  (r = 0.99897) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	5.415311	21.7
3	JX68	L2	True	50.00	36.683792	73.4
4	JX69	L3	True	100.00	92.235736	92.2
5	JX70	L4	True	250.00	275.902665	110.4
6	JX71	L5	True	500.00	572.330827	114.5
7	JX72	L6	True	1000.00	1079.143229	107.9
8	JX73	L7	True	2500.00	2586.190651	103.5
9	JX74	L8	True	5000.00	5063.236772	101.3
10	JX75	L9	True	10000.00	9694.276329	96.9

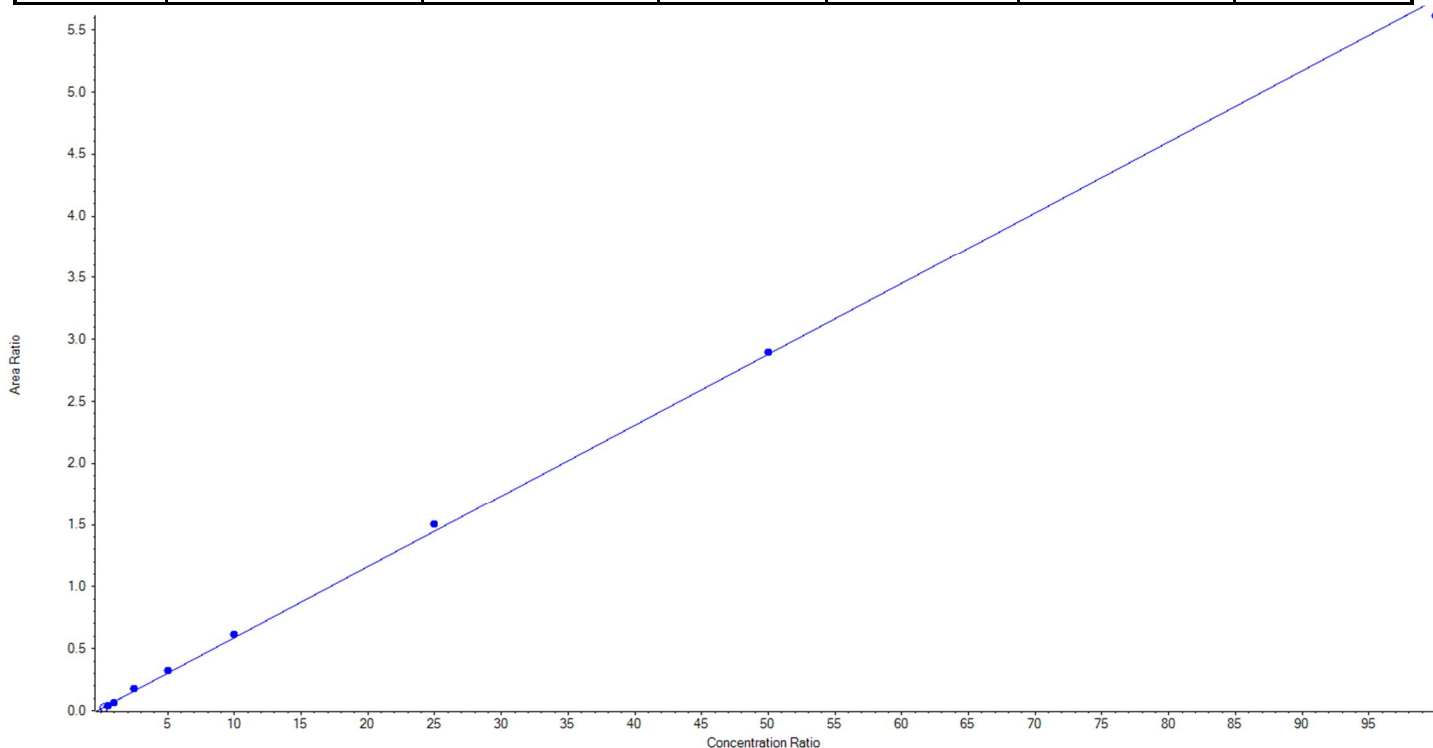




<b>Analyte Name</b>	PFOA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	413.0 / 169.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05729x + 0.01572$  (r = 0.99941) (weighting: 1 / x)

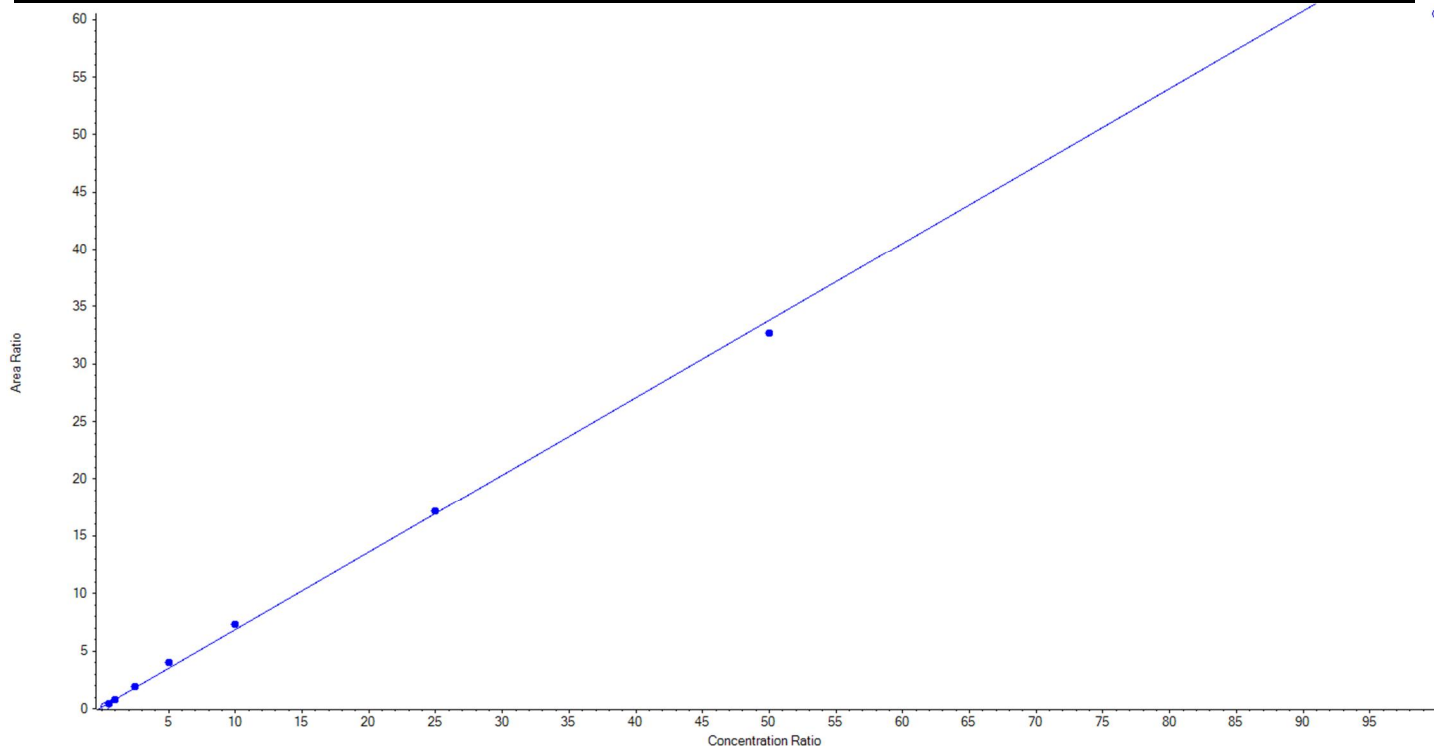
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	12.318640	49.3
3	JX68	L2	True	50.00	43.335566	86.7
4	JX69	L3	True	100.00	86.590381	86.6
5	JX70	L4	True	250.00	279.024584	111.6
6	JX71	L5	True	500.00	542.178268	108.4
7	JX72	L6	True	1000.00	1042.123910	104.2
8	JX73	L7	True	2500.00	2604.616479	104.2
9	JX74	L8	True	5000.00	5027.464128	100.6
10	JX75	L9	True	10000.00	9774.666684	97.8



<b>Analyte Name</b>	PFNA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	463.0 / 419.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.67314 x + 0.14207$  (r = 0.99841) (weighting: 1 / x)

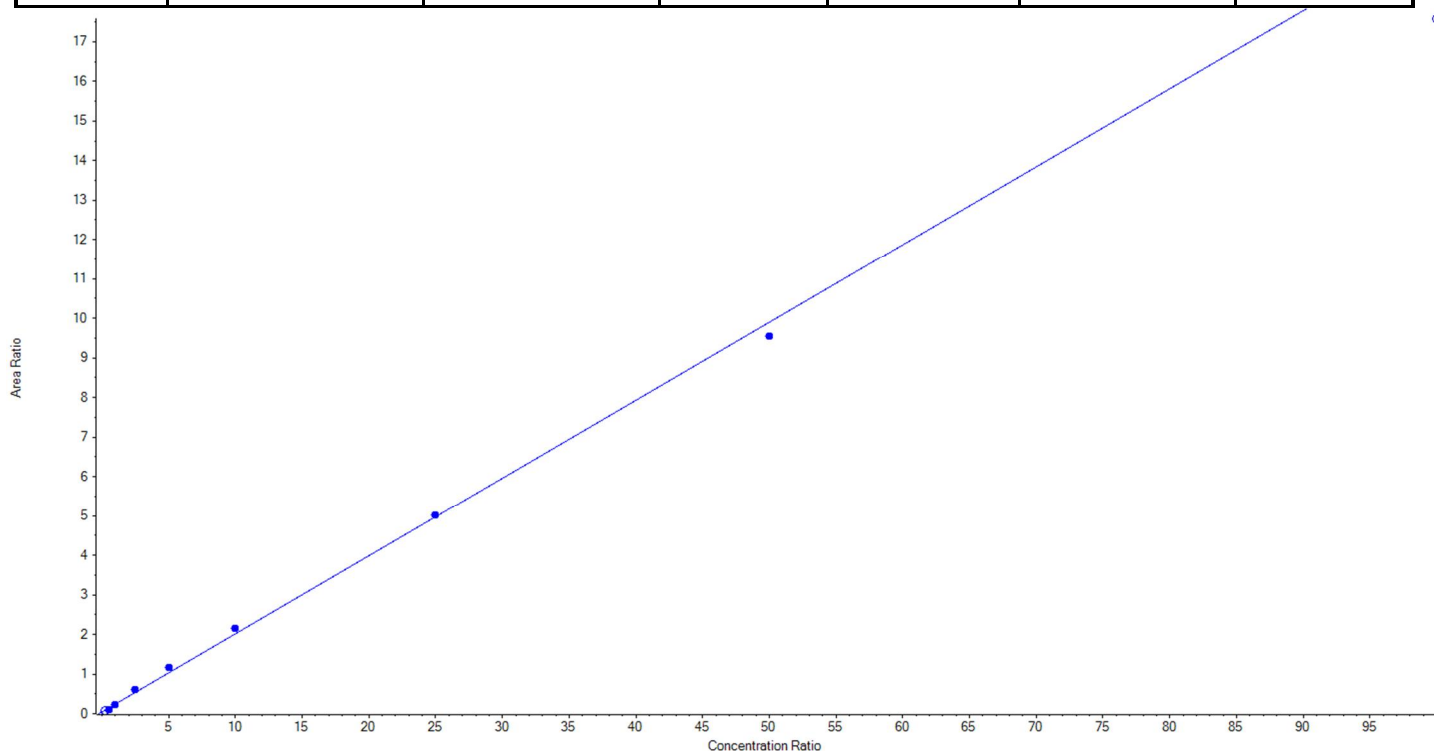
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	7.876482	31.5
3	JX68	L2	True	50.00	38.471445	76.9
4	JX69	L3	True	100.00	96.355173	96.4
5	JX70	L4	True	250.00	268.580288	107.4
6	JX71	L5	True	500.00	575.970800	115.2
7	JX72	L6	True	1000.00	1064.317609	106.4
8	JX73	L7	True	2500.00	2525.890341	101.0
9	JX74	L8	True	5000.00	4830.414344	96.6
10	JX75	L9	False	10000.00	8963.600323	89.6



<b>Analyte Name</b>	PFNA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	463.0 / 219.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.19709x + 0.04473$  (r = 0.99821) (weighting: 1 / x)

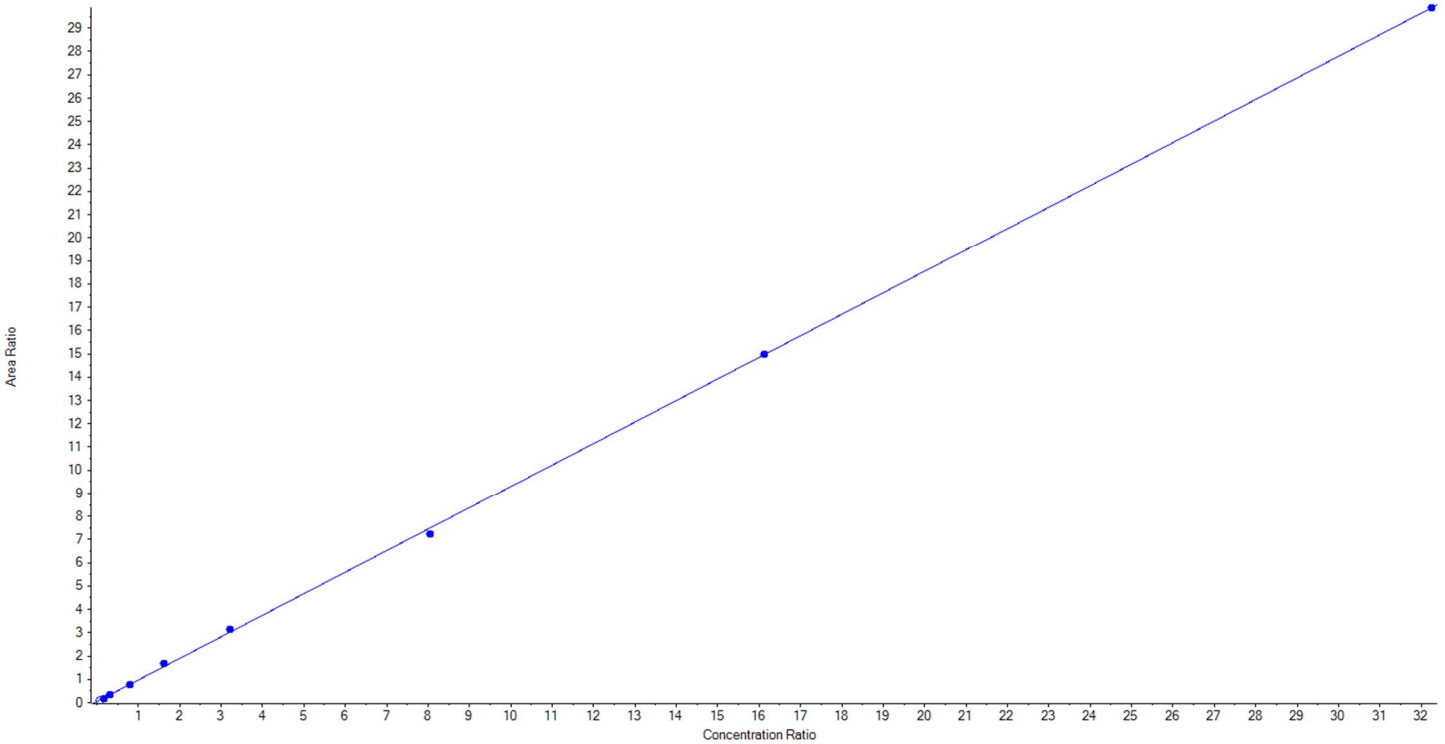
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	17.483575	69.9
3	JX68	L2	True	50.00	35.058175	70.1
4	JX69	L3	True	100.00	99.127432	99.1
5	JX70	L4	True	250.00	282.168603	112.9
6	JX71	L5	True	500.00	566.768331	113.4
7	JX72	L6	True	1000.00	1073.450506	107.4
8	JX73	L7	True	2500.00	2516.076067	100.6
9	JX74	L8	True	5000.00	4827.350887	96.6
10	JX75	L9	False	10000.00	8895.837853	89.0



<b>Analyte Name</b>	PFOS_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	499.0 / 80.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.92479x + 0.04857$  (r = 0.99974) (weighting: 1 / x)

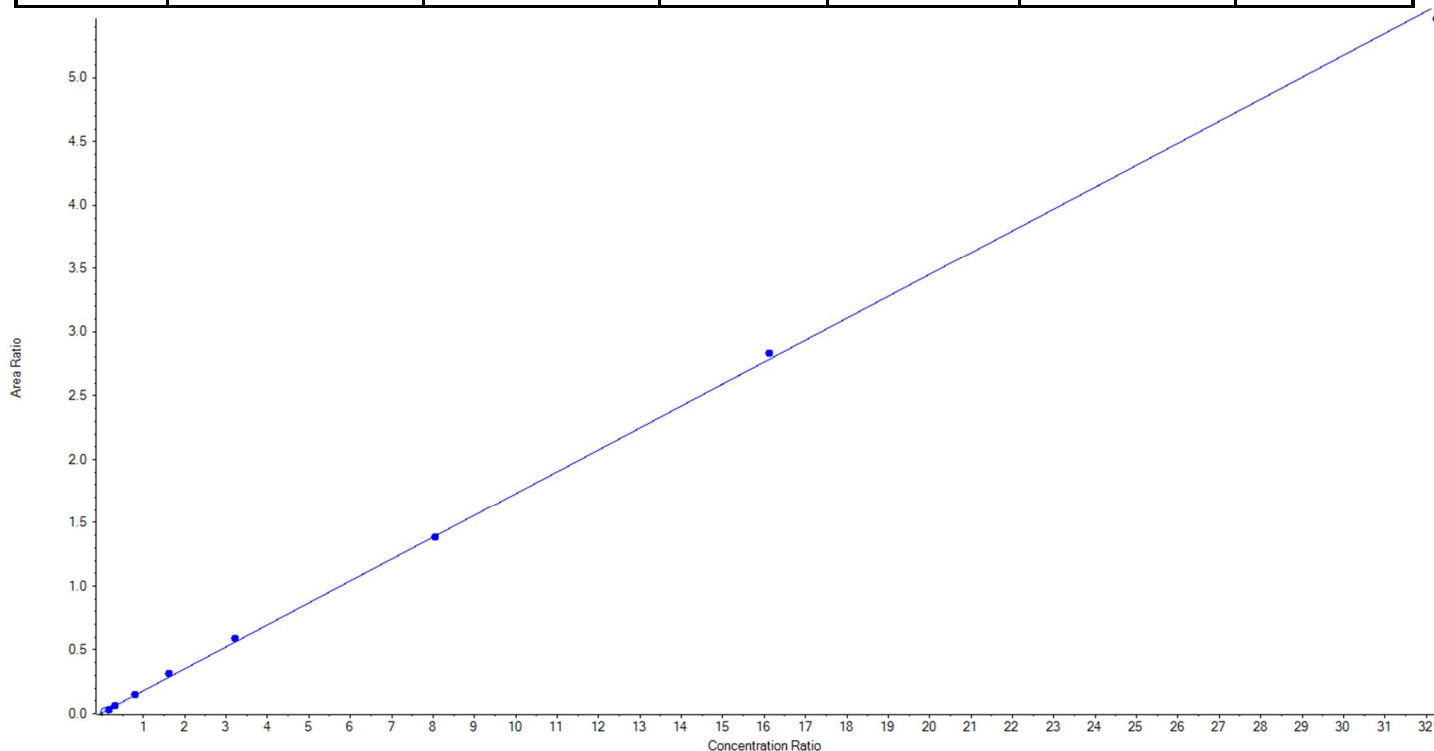
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	23.15	14.967381	64.7
3	JX68	L2	True	46.30	41.416707	89.5
4	JX69	L3	True	92.60	94.155588	101.7
5	JX70	L4	True	231.50	229.522123	99.2
6	JX71	L5	True	463.00	504.911983	109.1
7	JX72	L6	True	925.60	962.388374	104.0
8	JX73	L7	True	2314.00	2234.023744	96.5
9	JX74	L8	True	4628.00	4635.388250	100.2
10	JX75	L9	True	9256.00	9255.193233	100.0



<b>Analyte Name</b>	PFOS_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	499.0 / 99.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C4-PFOS	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.17232 x + 0.00703$  (r = 0.99957) (weighting: 1 / x)

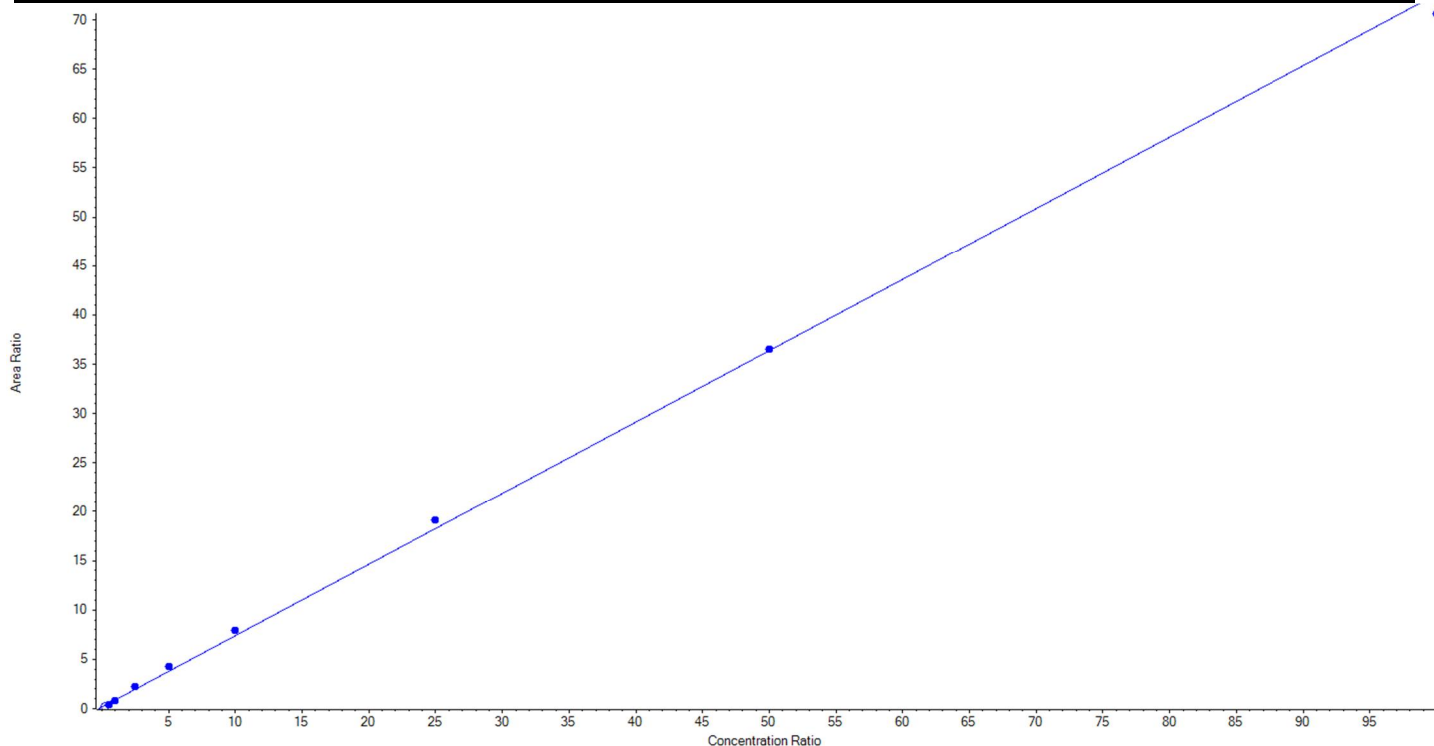
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	23.15	17.551763	75.8
3	JX68	L2	True	46.30	36.618609	79.1
4	JX69	L3	True	92.60	94.778219	102.4
5	JX70	L4	True	231.50	241.187429	104.2
6	JX71	L5	True	463.00	506.365979	109.4
7	JX72	L6	True	925.60	976.906219	105.5
8	JX73	L7	True	2314.00	2301.363562	99.5
9	JX74	L8	True	4628.00	4713.142959	101.8
10	JX75	L9	True	9256.00	9086.637025	98.2



<b>Analyte Name</b>	PFDA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	513.0 / 469.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.72444 x + 0.16011$  (r = 0.99902) (weighting: 1 / x)

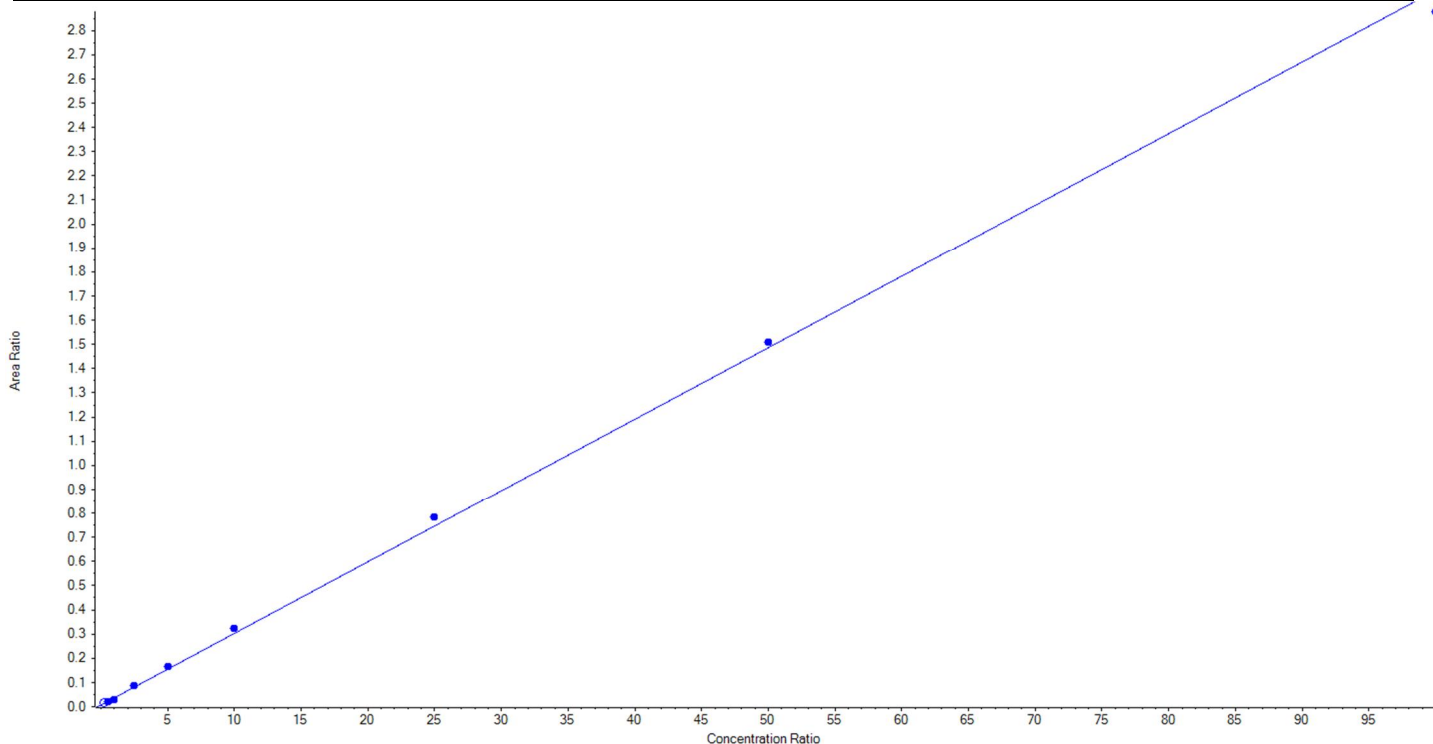
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	4.293986	17.2
3	JX68	L2	True	50.00	38.400405	76.8
4	JX69	L3	True	100.00	87.838796	87.8
5	JX70	L4	True	250.00	283.367571	113.4
6	JX71	L5	True	500.00	562.746141	112.6
7	JX72	L6	True	1000.00	1073.347869	107.3
8	JX73	L7	True	2500.00	2614.798969	104.6
9	JX74	L8	True	5000.00	5014.238853	100.3
10	JX75	L9	True	10000.00	9725.261395	97.3



<b>Analyte Name</b>	PFDA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	513.0 / 219.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.02959x + 0.00688$  (r = 0.99915) (weighting: 1 / x)

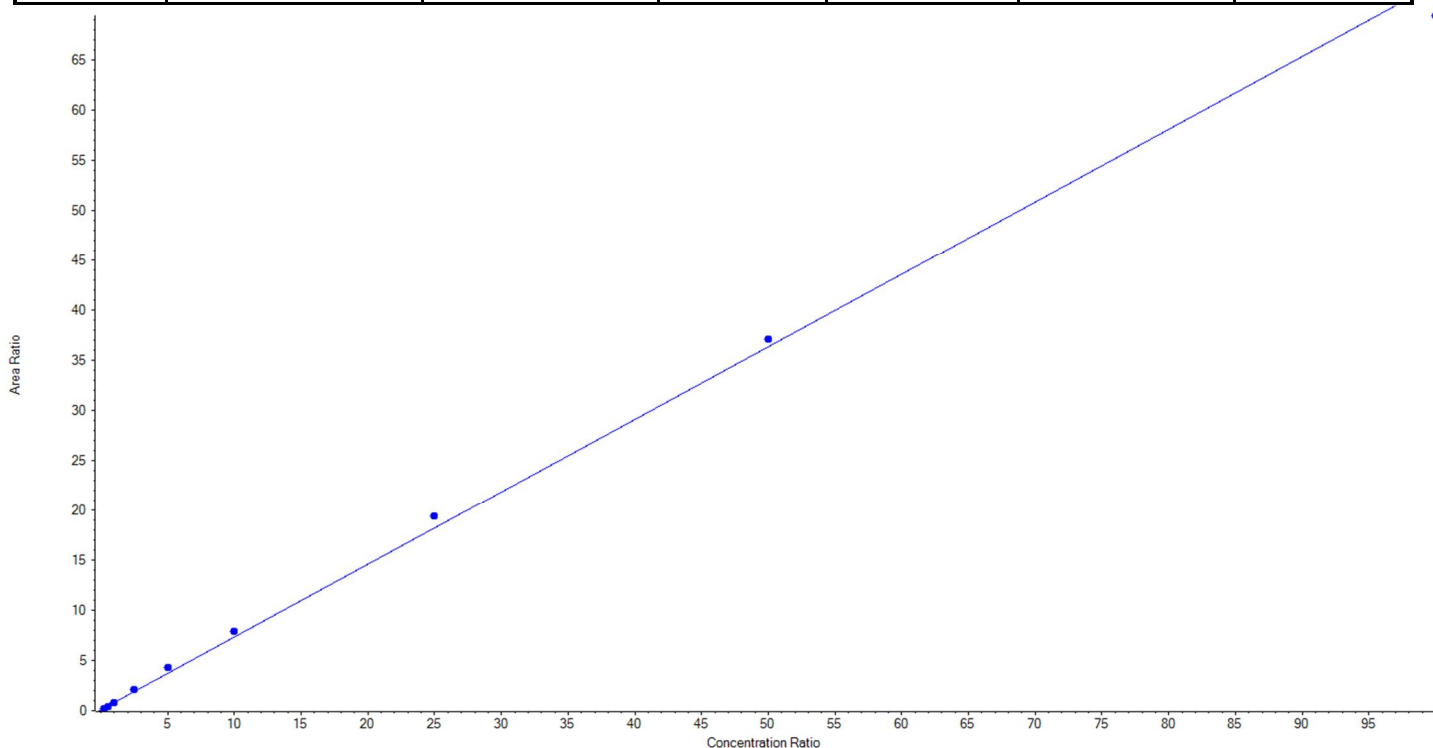
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	27.987541	112.0
3	JX68	L2	True	50.00	48.305605	96.6
4	JX69	L3	True	100.00	78.774590	78.8
5	JX70	L4	True	250.00	266.338265	106.5
6	JX71	L5	True	500.00	536.324707	107.3
7	JX72	L6	True	1000.00	1073.774687	107.4
8	JX73	L7	True	2500.00	2625.689392	105.0
9	JX74	L8	True	5000.00	5070.098049	101.4
10	JX75	L9	True	10000.00	9700.694705	97.0



<b>Analyte Name</b>	PFUnA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	563.0 / 519.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.72537 x + 0.09471$  (r = 0.99844) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	20.073088	80.3
3	JX68	L2	True	50.00	42.388703	84.8
4	JX69	L3	True	100.00	95.029236	95.0
5	JX70	L4	True	250.00	279.090767	111.6
6	JX71	L5	True	500.00	579.829398	116.0
7	JX72	L6	True	1000.00	1079.142455	107.9
8	JX73	L7	True	2500.00	2669.633957	106.8
9	JX74	L8	True	5000.00	5100.109139	102.0
10	JX75	L9	True	10000.00	9559.703256	95.6

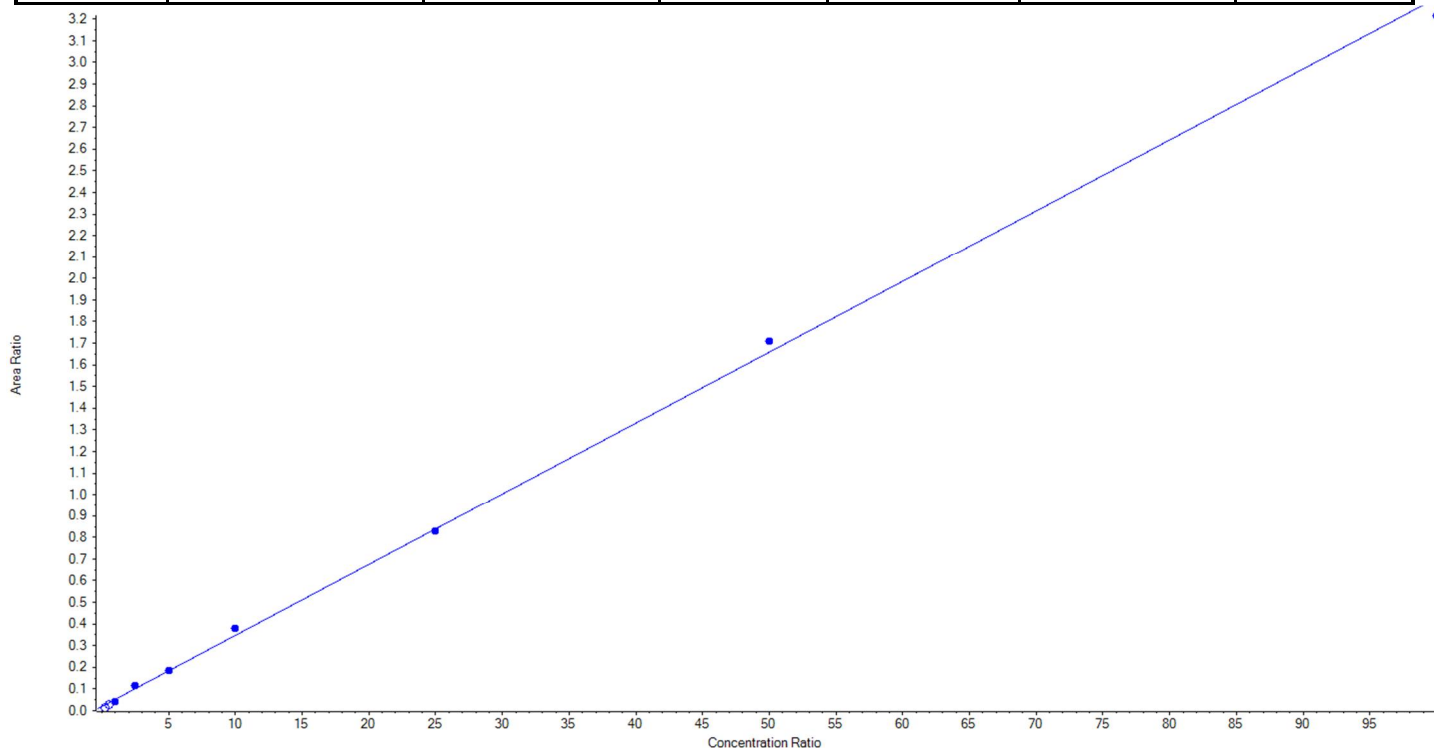




<b>Analyte Name</b>	PFUnA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	563.0 / 269.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.03278 x + 0.01985$  (r = 0.99876) (weighting: 1 / x)

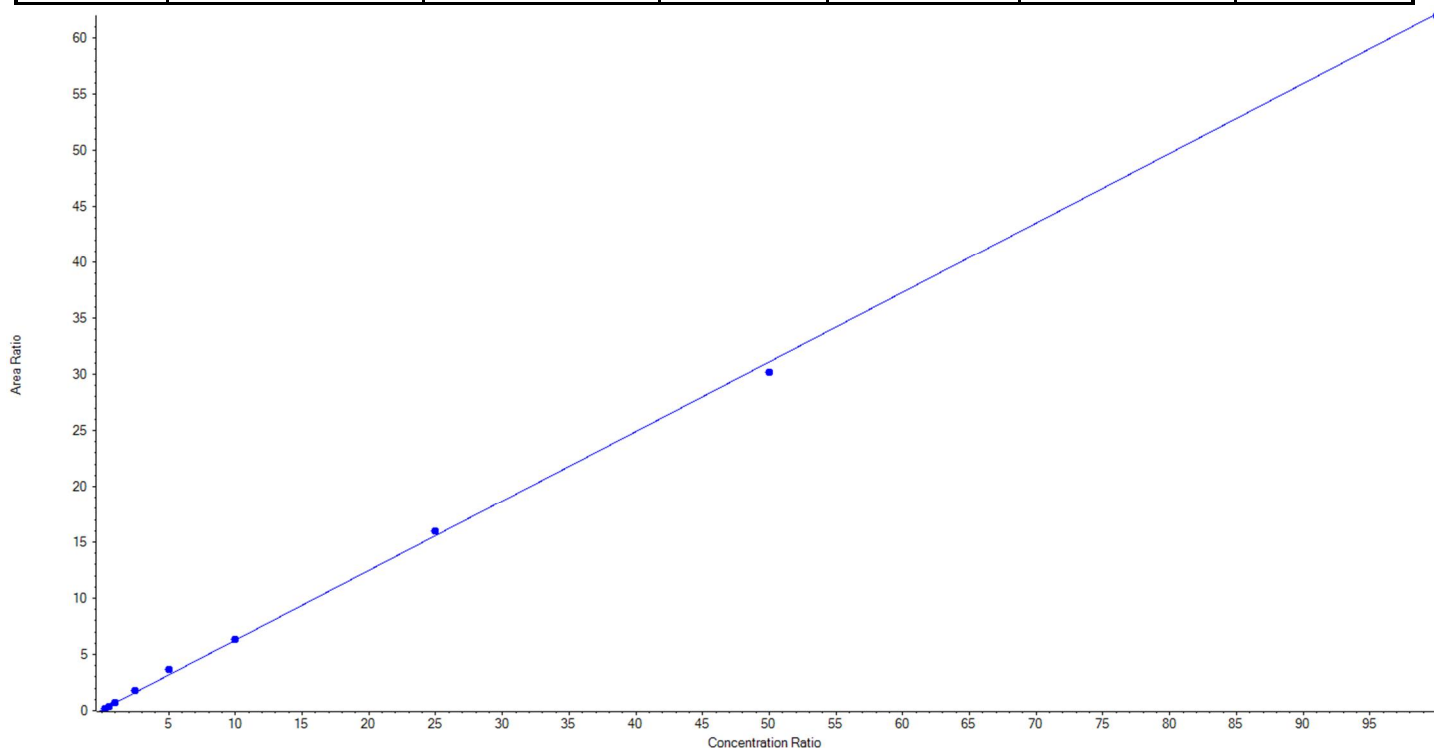
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	< 0	N/A
3	JX68	L2	False	50.00	25.569843	51.1
4	JX69	L3	True	100.00	70.257455	70.3
5	JX70	L4	True	250.00	299.570771	119.8
6	JX71	L5	True	500.00	500.697313	100.1
7	JX72	L6	True	1000.00	1103.433343	110.3
8	JX73	L7	True	2500.00	2469.487594	98.8
9	JX74	L8	True	5000.00	5158.640024	103.2
10	JX75	L9	True	10000.00	9747.913499	97.5



<b>Analyte Name</b>	PFD <sub>o</sub> A_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	613.0 / 569.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.62092x + 0.06665$  (r = 0.99942) (weighting: 1 / x)

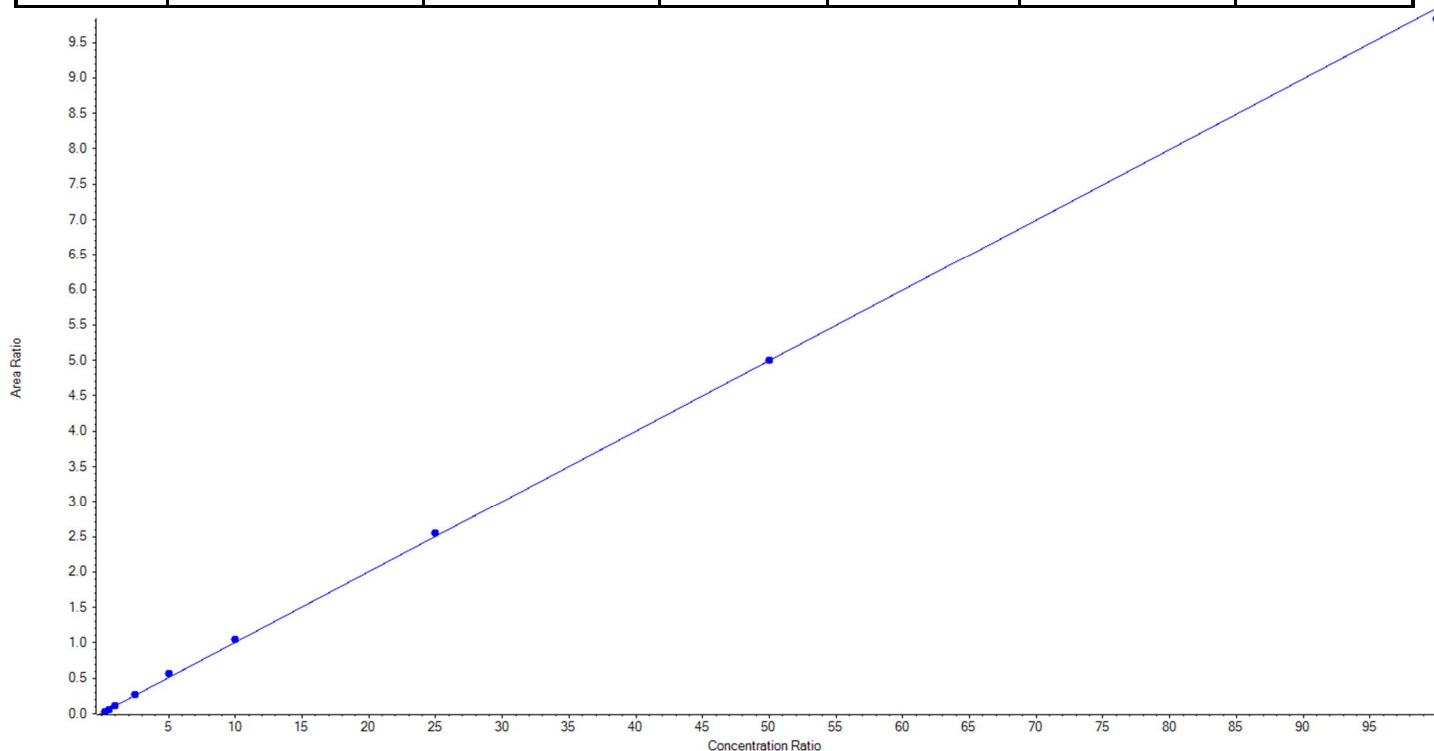
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.731070	74.9
3	JX68	L2	True	50.00	47.819194	95.6
4	JX69	L3	True	100.00	102.981838	103.0
5	JX70	L4	True	250.00	277.158464	110.9
6	JX71	L5	True	500.00	573.374778	114.7
7	JX72	L6	True	1000.00	1016.155480	101.6
8	JX73	L7	True	2500.00	2561.606452	102.5
9	JX74	L8	True	5000.00	4856.561924	97.1
10	JX75	L9	True	10000.00	9970.610800	99.7



<b>Analyte Name</b>	PFD <sub>o</sub> A_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	613.0 / 319.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.09973 x + 0.01082$  (r = 0.99967) (weighting: 1 / x)

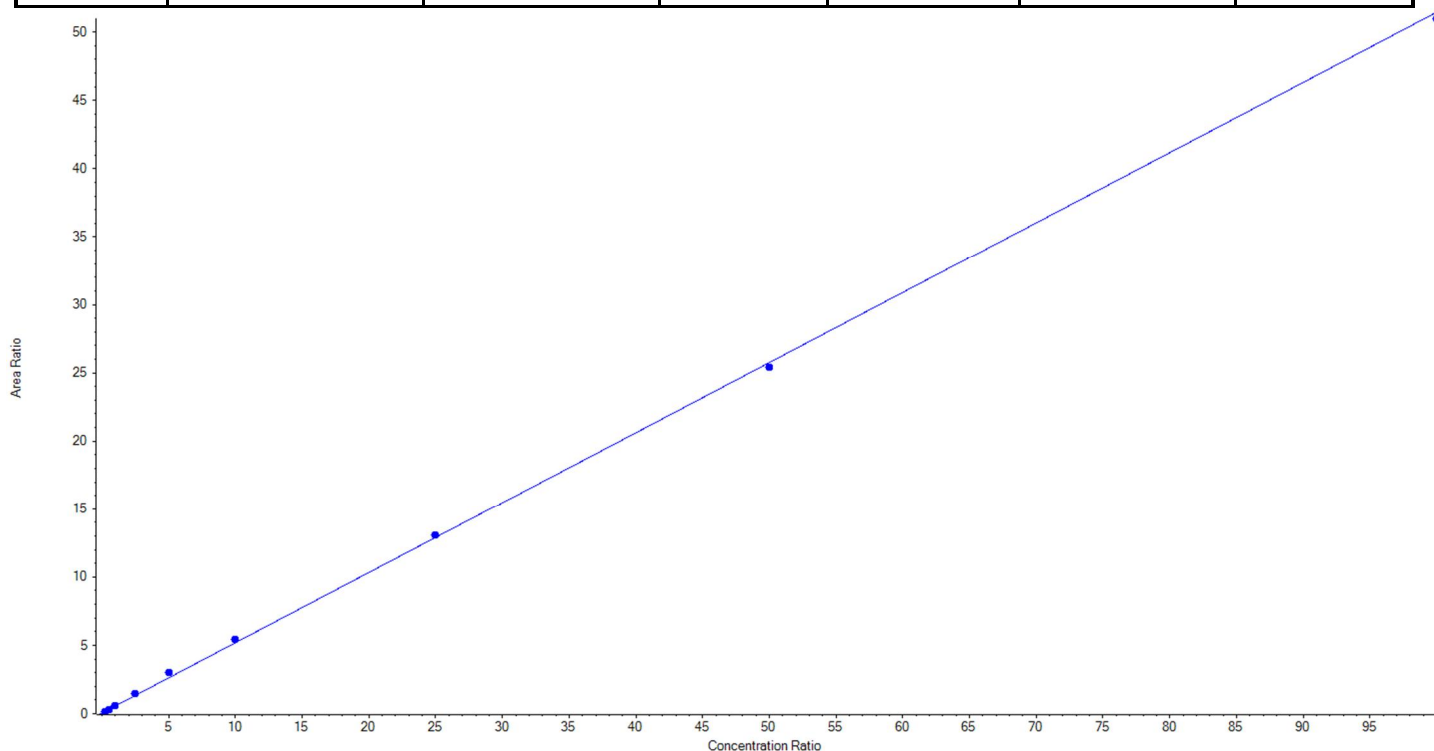
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	20.603828	82.4
3	JX68	L2	True	50.00	49.166918	98.3
4	JX69	L3	True	100.00	98.860597	98.9
5	JX70	L4	True	250.00	262.630095	105.1
6	JX71	L5	True	500.00	555.711859	111.1
7	JX72	L6	True	1000.00	1035.902153	103.6
8	JX73	L7	True	2500.00	2553.060598	102.1
9	JX74	L8	True	5000.00	4999.256910	100.0
10	JX75	L9	True	10000.00	9849.807043	98.5



<b>Analyte Name</b>	PFTrDA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	663.0 / 619.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.51402 x + 0.05199$  (r = 0.99946) (weighting: 1 / x)

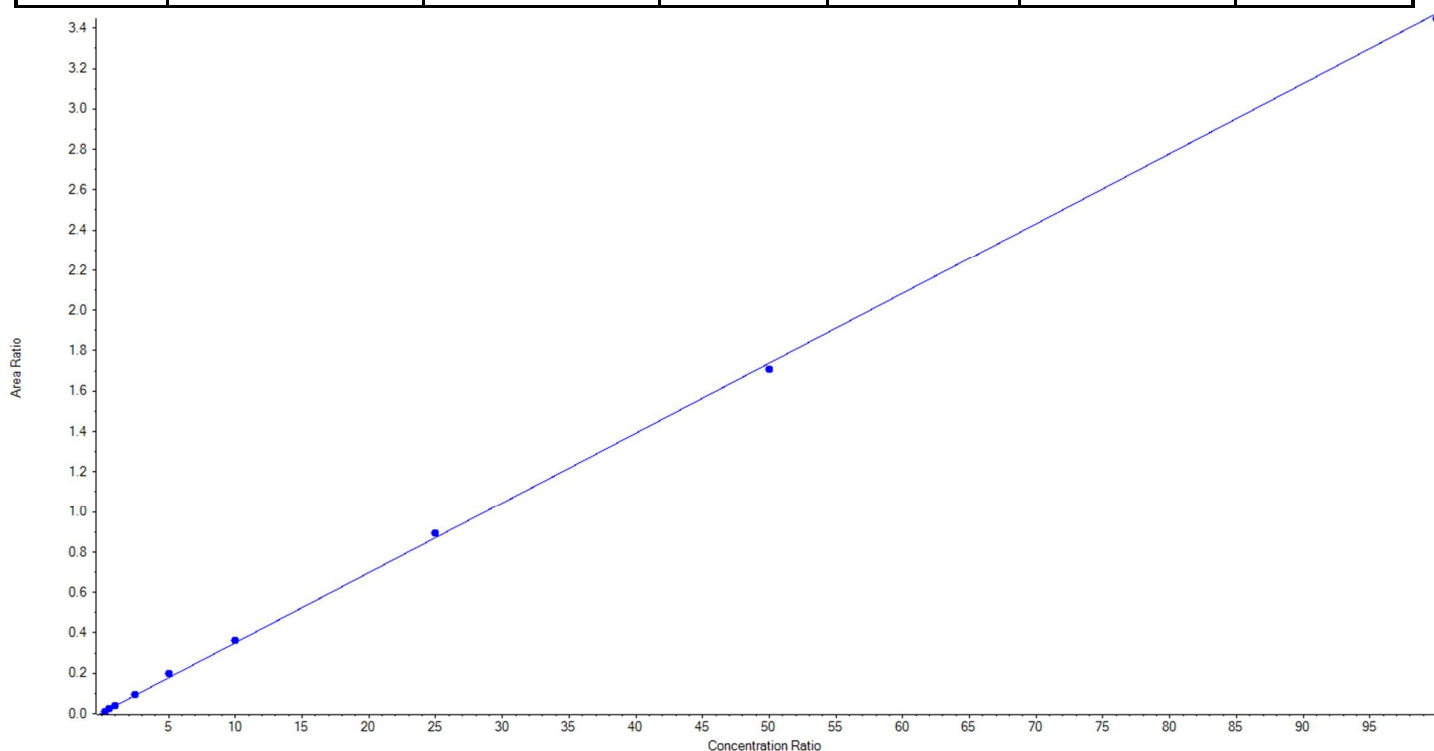
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	21.244818	85.0
3	JX68	L2	True	50.00	43.984299	88.0
4	JX69	L3	True	100.00	100.101285	100.1
5	JX70	L4	True	250.00	268.672318	107.5
6	JX71	L5	True	500.00	581.148596	116.2
7	JX72	L6	True	1000.00	1043.469036	104.4
8	JX73	L7	True	2500.00	2531.653493	101.3
9	JX74	L8	True	5000.00	4929.189379	98.6
10	JX75	L9	True	10000.00	9905.536776	99.1



<b>Analyte Name</b>	PFTrDA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	663.0 / 169.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.03468 x + 0.00436$  (r = 0.99956) (weighting: 1 / x)

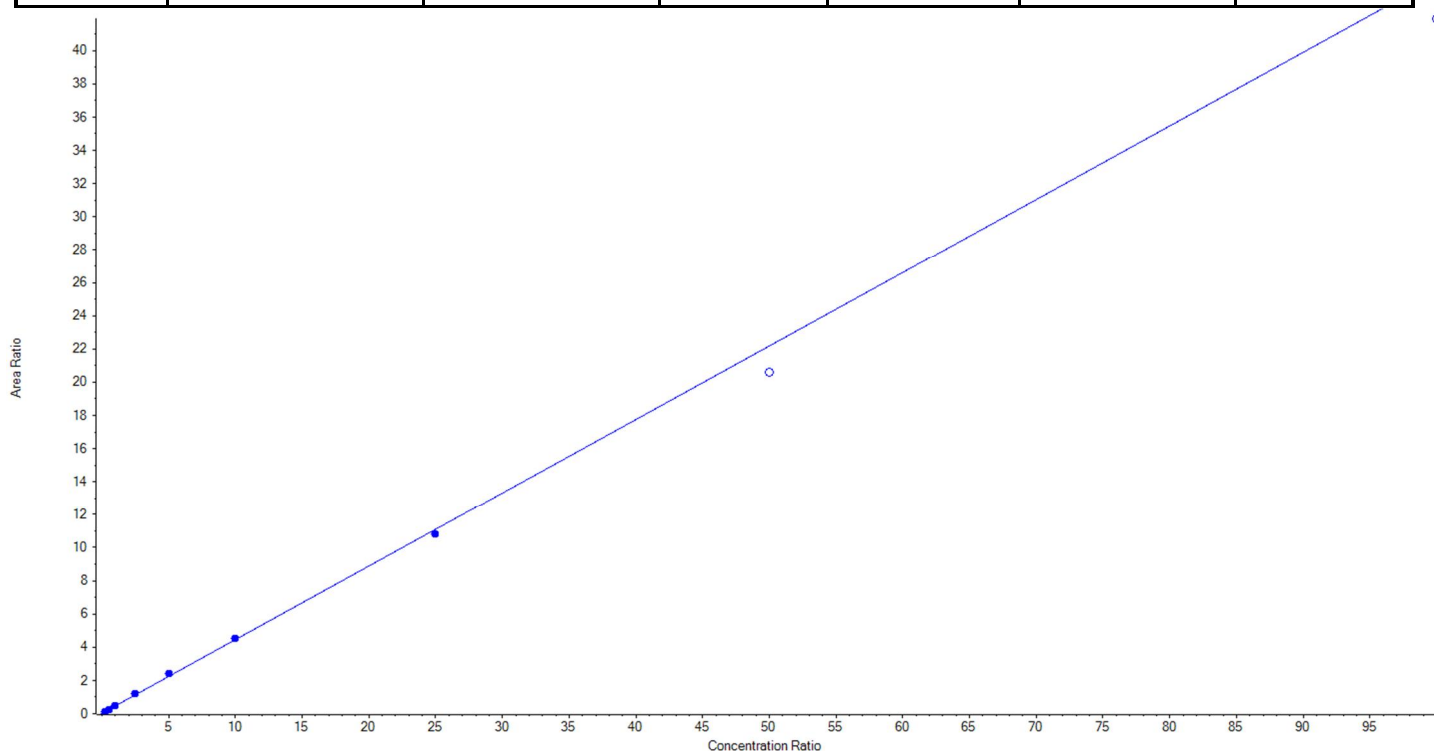
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	17.673504	70.7
3	JX68	L2	True	50.00	57.354613	114.7
4	JX69	L3	True	100.00	96.213165	96.2
5	JX70	L4	True	250.00	256.853828	102.7
6	JX71	L5	True	500.00	557.870213	111.6
7	JX72	L6	True	1000.00	1038.781670	103.9
8	JX73	L7	True	2500.00	2570.884235	102.8
9	JX74	L8	True	5000.00	4906.079605	98.1
10	JX75	L9	True	10000.00	9923.289167	99.2



<b>Analyte Name</b>	PFTeDA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	713.0 / 669.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.44304 x + 0.02551$  (r = 0.99930) (weighting: 1 / x)

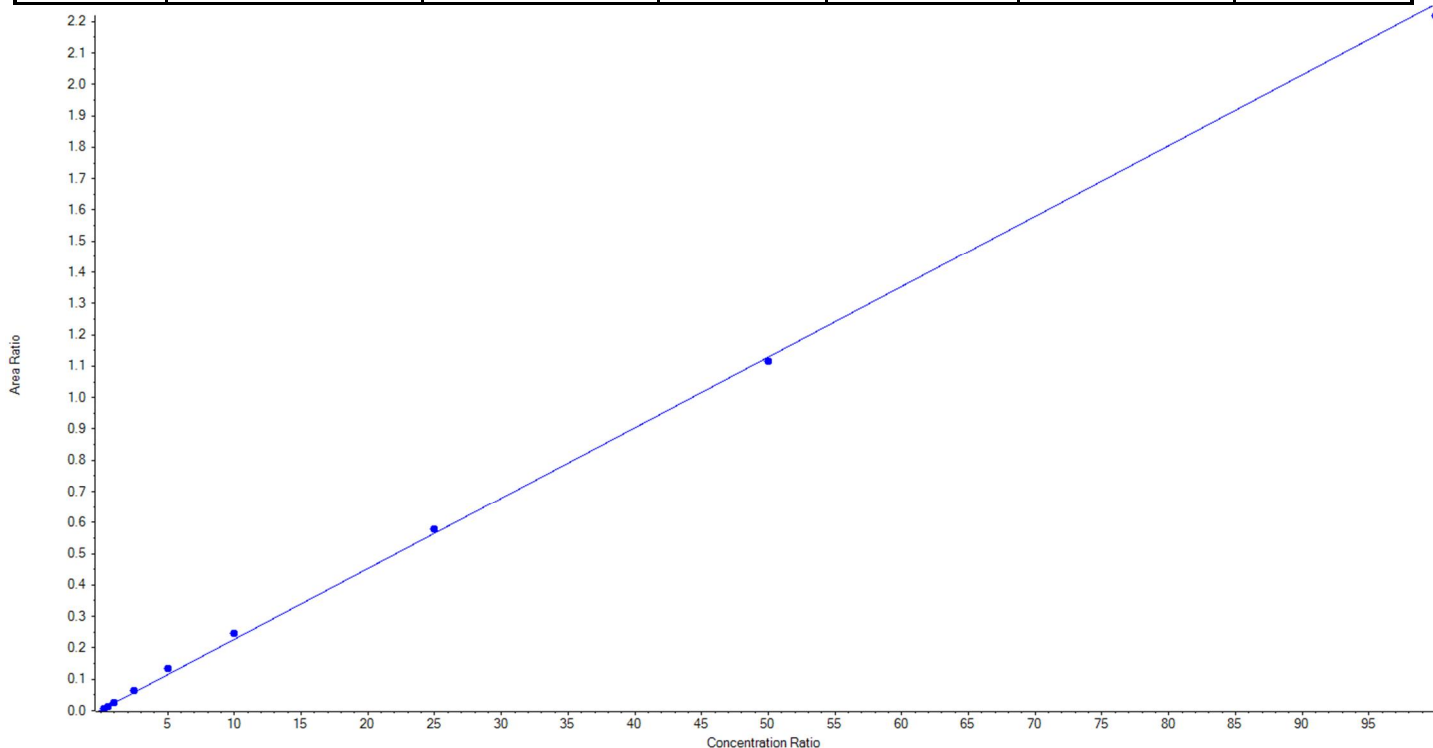
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	22.496691	90.0
3	JX68	L2	True	50.00	50.162035	100.3
4	JX69	L3	True	100.00	97.908267	97.9
5	JX70	L4	True	250.00	263.855723	105.5
6	JX71	L5	True	500.00	536.286828	107.3
7	JX72	L6	True	1000.00	1013.493738	101.4
8	JX73	L7	True	2500.00	2440.796718	97.6
9	JX74	L8	False	5000.00	4644.931633	92.9
10	JX75	L9	False	10000.00	9454.981719	94.6



<b>Analyte Name</b>	PFTeDA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	713.0 / 169.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	13C2-PFOA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.02254 x + 0.00202$  (r = 0.99919) (weighting: 1 / x)

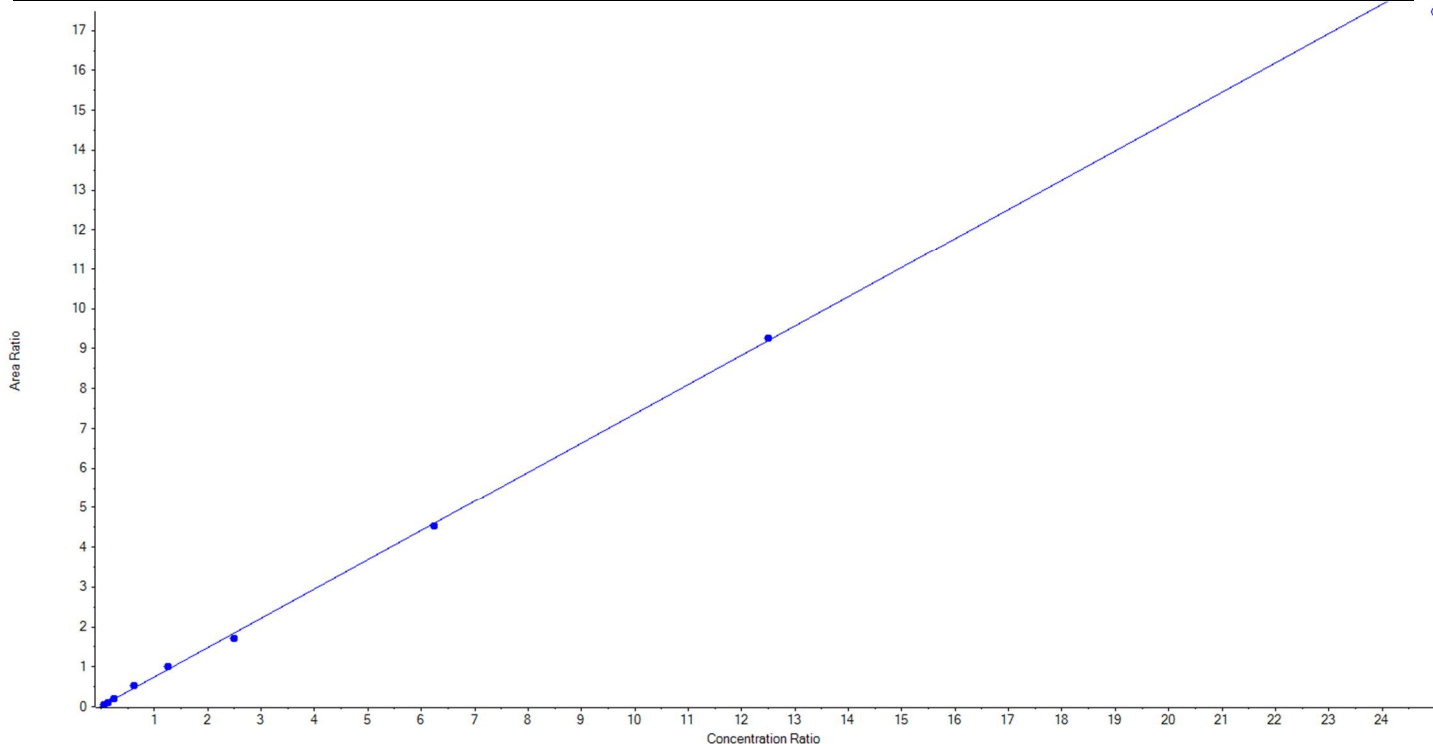
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	17.926807	71.7
3	JX68	L2	True	50.00	48.266278	96.5
4	JX69	L3	True	100.00	99.954762	100.0
5	JX70	L4	True	250.00	267.694654	107.1
6	JX71	L5	True	500.00	588.228040	117.7
7	JX72	L6	True	1000.00	1078.884415	107.9
8	JX73	L7	True	2500.00	2552.861984	102.1
9	JX74	L8	True	5000.00	4936.723449	98.7
10	JX75	L9	True	10000.00	9834.459611	98.3



<b>Analyte Name</b>	NMeFOSAA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	570.0 / 419.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.73537 x + 0.01025$  (r = 0.99898) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	18.491095	74.0
3	JX68	L2	True	50.00	51.518002	103.0
4	JX69	L3	True	100.00	108.232072	108.2
5	JX70	L4	True	250.00	284.801456	113.9
6	JX71	L5	True	500.00	545.527150	109.1
7	JX72	L6	True	1000.00	929.237418	92.9
8	JX73	L7	True	2500.00	2453.696787	98.2
9	JX74	L8	True	5000.00	5033.496021	100.7
10	JX75	L9	False	10000.00	9496.783651	95.0

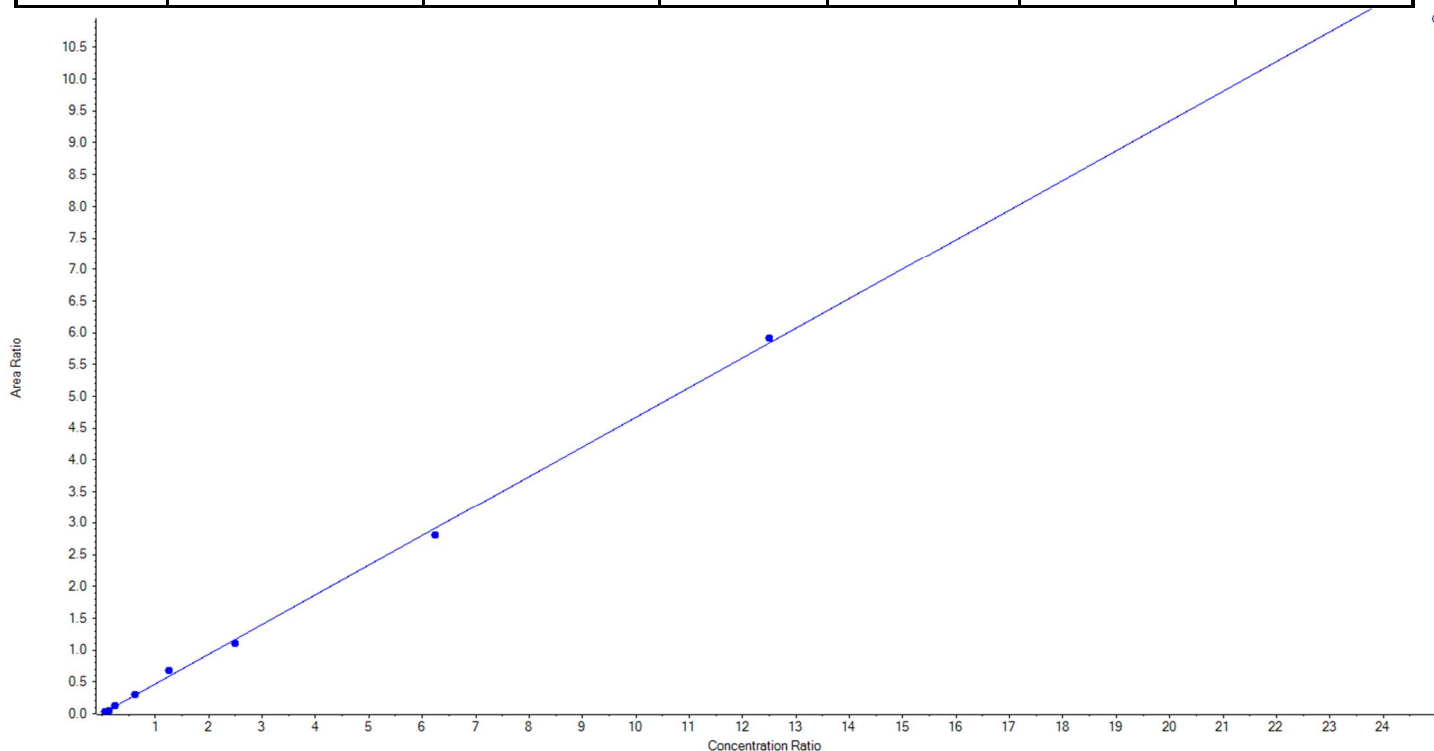




<b>Analyte Name</b>	NMeFOSAA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	570.0 / 512.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.46708x + 2.81156e-4$  ( $r = 0.99871$ ) (weighting:  $1/x$ )

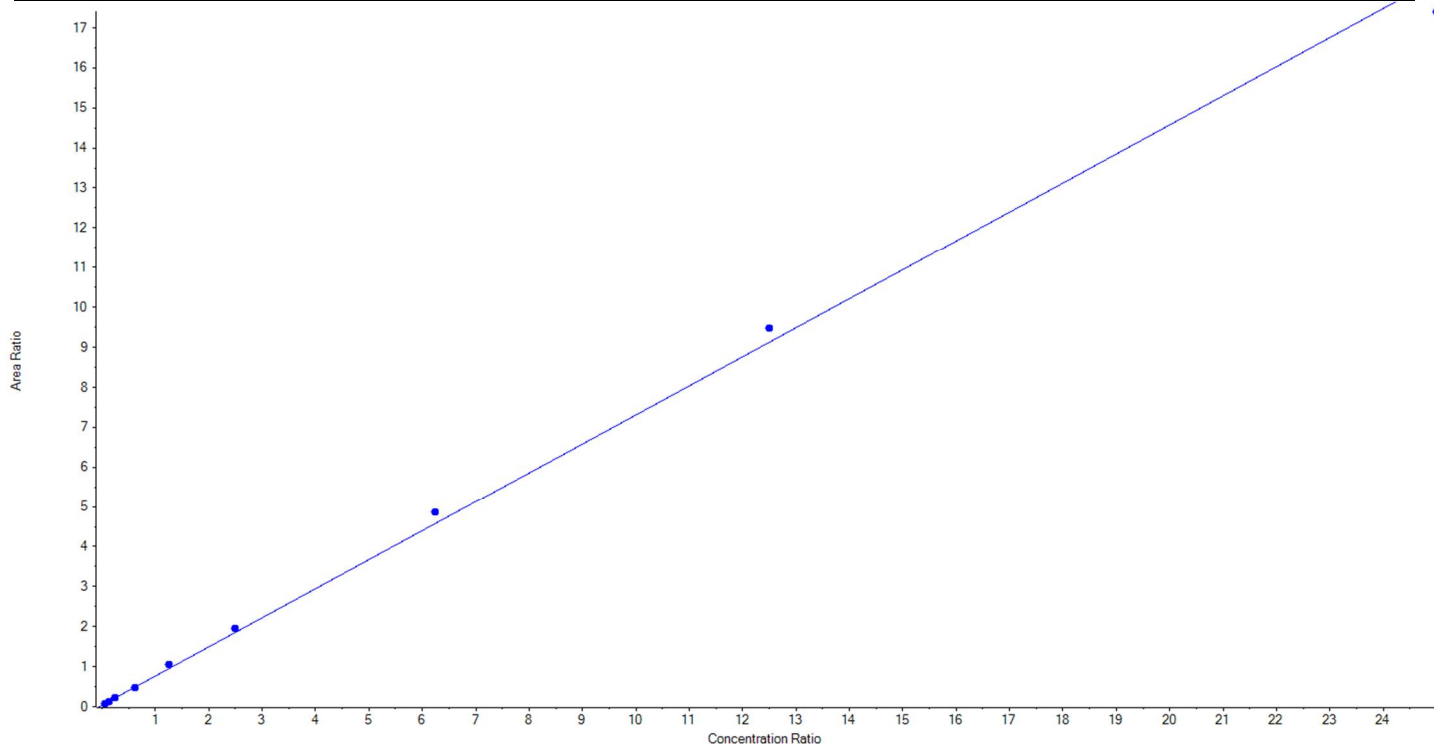
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	23.276176	93.1
3	JX68	L2	True	50.00	43.005903	86.0
4	JX69	L3	True	100.00	109.574657	109.6
5	JX70	L4	True	250.00	261.966030	104.8
6	JX71	L5	True	500.00	574.602501	114.9
7	JX72	L6	True	1000.00	942.155059	94.2
8	JX73	L7	True	2500.00	2398.901036	96.0
9	JX74	L8	True	5000.00	5071.518638	101.4
10	JX75	L9	False	10000.00	9375.584195	93.8



<b>Analyte Name</b>	NEtFOSAA_1	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	584.0 / 419.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.72682x + 0.03896$  (r = 0.99871) (weighting: 1 / x)

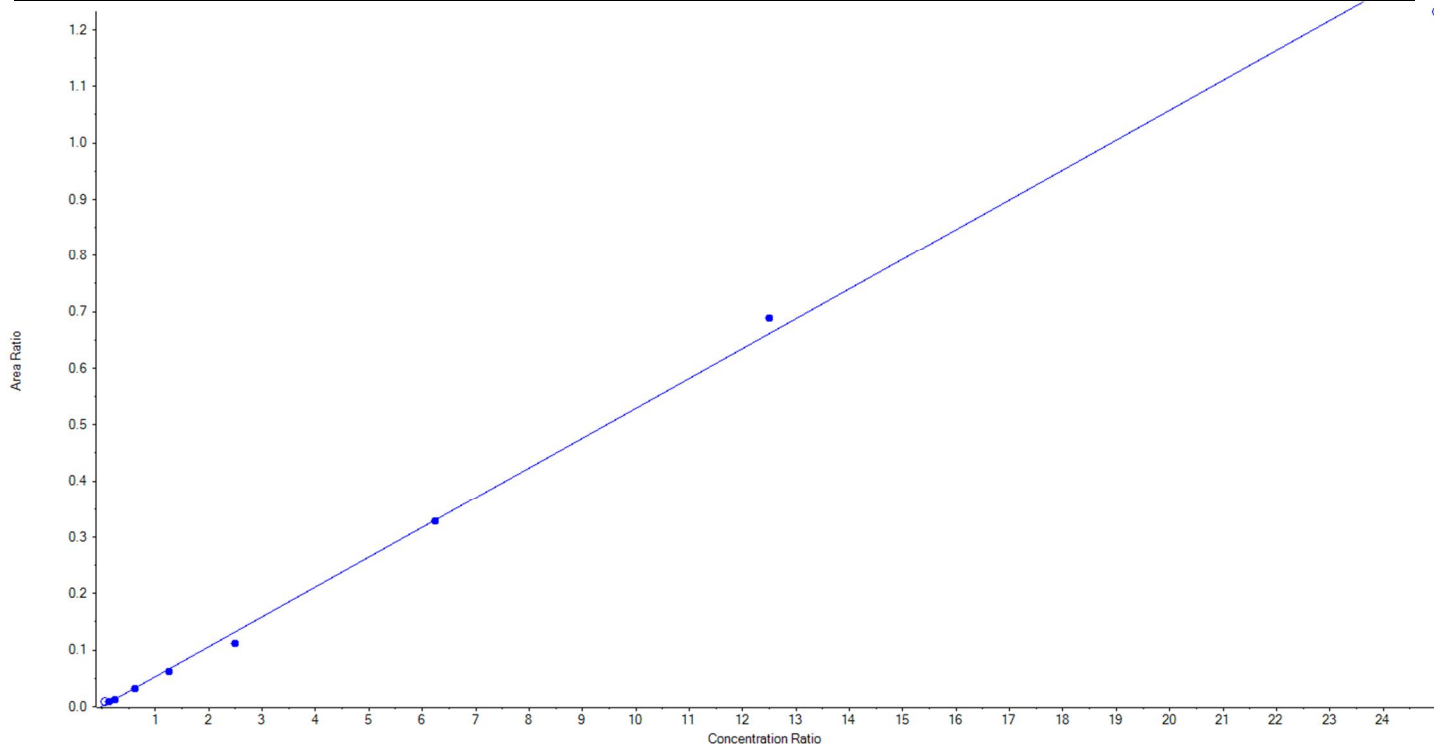
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	25.00	22.907735	91.6
3	JX68	L2	True	50.00	41.483663	83.0
4	JX69	L3	True	100.00	105.864049	105.9
5	JX70	L4	True	250.00	244.778528	97.9
6	JX71	L5	True	500.00	554.849012	111.0
7	JX72	L6	True	1000.00	1050.849199	105.1
8	JX73	L7	True	2500.00	2651.436287	106.1
9	JX74	L8	True	5000.00	5198.578588	104.0
10	JX75	L9	True	10000.00	9554.252939	95.5



<b>Analyte Name</b>	NEtFOSAA_2	<b>Data File</b>	06252018_5-371.wiff
<b>MRM Transition</b>	584.0 / 483.0	<b>Result Table</b>	18-0391
<b>Internal Standard</b>	d3-MeFOSAA	<b>Instrument Name</b>	QTRAP 5500
<b>Acquisition Date</b>	6/27/2018 8:56:44 AM	<b>Acquisition Method</b>	5-0371.dam

Regression Equation:  $y = 0.05288 x + 1.72730e-4$  (r = 0.99760) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	25.00	61.454013	245.8
3	JX68	L2	True	50.00	62.258168	124.5
4	JX69	L3	True	100.00	96.211192	96.2
5	JX70	L4	True	250.00	246.407835	98.6
6	JX71	L5	True	500.00	465.379465	93.1
7	JX72	L6	True	1000.00	843.713651	84.4
8	JX73	L7	True	2500.00	2477.074244	99.1
9	JX74	L8	True	5000.00	5208.955444	104.2
10	JX75	L9	False	10000.00	9316.361301	93.2





Sample Name	JX67	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:05:43	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.439	0.341	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.078	0.072	ü
PFHpA_1	363.0 / 319.0	2.15	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.037	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.309	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.082	0.074	ü
PFNA_1	463.0 / 419.0	2.90	PFNA			
PFNA_2	463.0 / 219.0	2.90	PFNA	0.406	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.181	0.184	ü
PFDA_1	513.0 / 469.0	3.25	PFDA			
PFDA_2	513.0 / 219.0	3.25	PFDA	0.079	0.041	
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.56	PFUnA	0.059	0.048	ü
PFDoA_1	613.0 / 569.0	3.85	PFDoA			
PFDoA_2	613.0 / 319.0	3.85	PFDoA	0.171	0.161	ü
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.10	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.048	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.621	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.56	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.57	NEtFOSAA	0.103	0.065	
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.55		N/A	N/A	ü

Sample Name	JX68	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:14:41	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.403	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.77	PFHxA	0.076	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.025	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.288	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.078	0.074	ü
PFNA_1	463.0 / 419.0	2.90	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.284	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.159	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.048	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.070	0.048	ü
PFDoA_1	613.0 / 569.0	3.85	PFDoA			
PFDoA_2	613.0 / 319.0	3.84	PFDoA	0.165	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.10	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.10	PFTTrDA	0.087	0.069	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.052	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.481	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.56	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.55	NEtFOSAA	0.074	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	JX69	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:23:38	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.346	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.064	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.026	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.297	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.069	0.074	ü
PFNA_1	463.0 / 419.0	2.90	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.304	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.182	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.25	PFDA	0.038	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.055	0.048	ü
PFDoA_1	613.0 / 569.0	3.85	PFDoA			
PFDoA_2	613.0 / 319.0	3.85	PFDoA	0.155	0.161	ü
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.10	PFTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.39	NMeFOSAA	0.613	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.056	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	JX70	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:32:34	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.325	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.075	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.15	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.281	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.075	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.308	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.193	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.039	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.056	0.048	ü
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	3.84	PFDoA	0.153	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.31	PFTeDA	0.052	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.39	NMeFOSAA	0.574	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.53	NEtFOSAA	0.068	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü



Sample Name	JX71	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:41:29	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.316	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.070	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.023	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.295	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.071	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.289	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.186	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.039	0.041	ü
PFUnA_1	563.0 / 519.0	3.56	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.043	0.048	ü
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	3.84	PFDoA	0.156	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.31	PFTeDA	0.056	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.39	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.663	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.53	NEtFOSAA	0.059	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	JX72	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:50:24	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.314	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.296	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.072	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.296	0.295	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.189	0.184	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.24	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.048	0.048	ü
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	3.84	PFDoA	0.164	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.31	PFTeDA	0.054	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.640	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.55	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.55	NEtFOSAA	0.057	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	JX73	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T09:59:20	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.302	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.022	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.292	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.075	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.292	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.192	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.043	0.048	ü
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	3.84	PFDoA	0.160	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.069	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.31	PFTeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.620	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.068	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	JX74	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:08:14	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.308	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.025	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.285	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.074	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.293	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.189	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.046	0.048	ü
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	3.84	PFDoA	0.165	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.31	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.30	PFTeDA	0.054	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.639	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.073	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.23		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.54		N/A	N/A	ü

Sample Name	JX75	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:17:08	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.49	PFBS	0.314	0.341	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.77	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.14	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.15	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.290	0.293	ü
PFOA_1	413.0 / 369.0	2.51	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.075	0.074	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.89	PFNA	0.291	0.295	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.88	PFOS	0.183	0.184	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.041	0.041	ü
PFUnA_1	563.0 / 519.0	3.55	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.046	0.048	ü
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	3.83	PFDoA	0.159	0.161	ü
PFTrDA_1	663.0 / 619.0	4.09	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.08	PFTrDA	0.068	0.069	ü
PFTeDA_1	713.0 / 669.0	4.30	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.30	PFTeDA	0.053	0.053	ü
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	0.627	0.606	ü
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.071	0.065	ü
13C2-PFHxA	315.0 / 270.0	1.77				
13C2-PFDA	515.0 / 470.0	3.22		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.53		N/A	N/A	ü

Sample Name	JV66 ICC	Injection Vial	11
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T10:26:04	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	805.276200	885.00	90.99
PFBS_2	298.9 / 99.0	1.49	795.986368	885.00	89.94
PFHxA_1	313.0 / 269.0	1.77	996.404291	1000.00	99.64
PFHxA_2	313.0 / 119.0	1.77	997.489769	1000.00	99.75
PFHpA_1	363.0 / 319.0	2.14	1031.124835	1000.00	103.11
PFHpA_2	363.0 / 169.0	2.14	1161.534315	1000.00	116.15
PFHxS_1	399.0 / 80.0	2.15	920.448980	912.00	100.93
PFHxS_2	399.0 / 99.0	2.15	870.009843	912.00	95.40
PFOA_1	413.0 / 369.0	2.51	1050.976678	1000.00	105.10
PFOA_2	413.0 / 169.0	2.51	1048.582291	1000.00	104.86
PFNA_1	463.0 / 419.0	2.88	1000.643194	1000.00	100.06
PFNA_2	463.0 / 219.0	2.88	1035.420136	1000.00	103.54
PFOS_1	499.0 / 80.0	2.88	809.974713	925.60	87.51
PFOS_2	499.0 / 99.0	2.88	951.613036	925.60	102.81
PFDA_1	513.0 / 469.0	3.23	1068.328726	1000.00	106.83
PFDA_2	513.0 / 219.0	3.23	1022.246333	1000.00	102.22
PFUnA_1	563.0 / 519.0	3.55	1036.138808	1000.00	103.61
PFUnA_2	563.0 / 269.0	3.55	1023.503647	1000.00	102.35
PFDoA_1	613.0 / 569.0	3.83	1033.267977	1000.00	103.33
PFDoA_2	613.0 / 319.0	3.83	1036.887732	1000.00	103.69
PFTrDA_1	663.0 / 619.0	4.08	1007.914002	1000.00	100.79
PFTrDA_2	663.0 / 169.0	4.08	1068.145164	1000.00	106.81
PFTeDA_1	713.0 / 669.0	4.30	958.601170	1000.00	95.86
PFTeDA_2	713.0 / 169.0	4.30	990.767060	1000.00	99.08
NMeFOSAA_1	570.0 / 419.0	3.38	1288.934423	1000.00	128.89
NMeFOSAA_2	570.0 / 512.0	3.38	1103.628737	1000.00	110.36
NEtFOSAA_1	584.0 / 419.0	3.54	1241.276530	1000.00	124.13
NEtFOSAA_2	584.0 / 483.0	3.54	1261.461923	1000.00	126.15
13C2-PFHxA	315.0 / 270.0	1.76	102.268470	100.00	102.27
13C2-PFDA	515.0 / 470.0	3.22	104.026718	100.00	104.03
d5-EtFOSAA	589.0 / 419.0	3.53	467.050507	400.00	116.76

Sample Name	JX71 CCV	Injection Vial	21
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T11:55:23	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	431.881933	443.00	97.49
PFBS_2	298.9 / 99.0	1.49	432.842409	443.00	97.71
PFHxA_1	313.0 / 269.0	1.77	499.346827	500.00	99.87
PFHxA_2	313.0 / 119.0	1.77	601.194956	500.00	120.24
PFHpA_1	363.0 / 319.0	2.14	541.137827	500.00	108.23
PFHpA_2	363.0 / 169.0	2.13	549.226276	500.00	109.85
PFHxS_1	399.0 / 80.0	2.15	473.730771	456.00	103.89
PFHxS_2	399.0 / 99.0	2.15	464.108904	456.00	101.78
PFOA_1	413.0 / 369.0	2.51	534.461015	500.00	106.89
PFOA_2	413.0 / 169.0	2.51	540.865692	500.00	108.17
PFNA_1	463.0 / 419.0	2.89	515.537411	500.00	103.11
PFNA_2	463.0 / 219.0	2.89	527.595925	500.00	105.52
PFOS_1	499.0 / 80.0	2.88	472.903639	463.00	102.14
PFOS_2	499.0 / 99.0	2.88	475.600795	463.00	102.72
PFDA_1	513.0 / 469.0	3.23	537.193840	500.00	107.44
PFDA_2	513.0 / 219.0	3.23	557.879409	500.00	111.58
PFUnA_1	563.0 / 519.0	3.55	538.580498	500.00	107.72
PFUnA_2	563.0 / 269.0	3.55	490.036421	500.00	98.01
PFDoA_1	613.0 / 569.0	3.83	550.806616	500.00	110.16
PFDoA_2	613.0 / 319.0	3.83	541.209516	500.00	108.24
PFTTrDA_1	663.0 / 619.0	4.08	525.581751	500.00	105.12
PFTTrDA_2	663.0 / 169.0	4.08	523.897503	500.00	104.78
PFTeDA_1	713.0 / 669.0	4.30	504.237460	500.00	100.85
PFTeDA_2	713.0 / 169.0	4.29	519.757693	500.00	103.95
NMeFOSAA_1	570.0 / 419.0	3.38	561.321770	500.00	112.26
NMeFOSAA_2	570.0 / 512.0	3.38	610.613795	500.00	122.12
NEtFOSAA_1	584.0 / 419.0	3.54	536.007711	500.00	107.20
NEtFOSAA_2	584.0 / 483.0	3.55	415.396690	500.00	83.08
13C2-PFHxA	315.0 / 270.0	1.77	99.025613	100.00	99.03
13C2-PFDA	515.0 / 470.0	3.22	100.563413	100.00	100.56
d5-EtFOSAA	589.0 / 419.0	3.53	404.160124	400.00	101.04

Sample Name	JX72 CCV	Injection Vial	30
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-27T13:24:40	Data File	06252018_5-371.wiff
Acquisition Method	5-0371.dam	Result Table	18-0391
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	873.898884	885.00	98.75
PFBS_2	298.9 / 99.0	1.49	850.361283	885.00	96.09
PFHxA_1	313.0 / 269.0	1.77	1011.323638	1000.00	101.13
PFHxA_2	313.0 / 119.0	1.77	1023.827578	1000.00	102.38
PFHpA_1	363.0 / 319.0	2.14	1008.604509	1000.00	100.86
PFHpA_2	363.0 / 169.0	2.13	1038.882110	1000.00	103.89
PFHxS_1	399.0 / 80.0	2.15	919.893376	912.00	100.87
PFHxS_2	399.0 / 99.0	2.15	895.456758	912.00	98.19
PFOA_1	413.0 / 369.0	2.51	1061.720067	1000.00	106.17
PFOA_2	413.0 / 169.0	2.51	1104.882265	1000.00	110.49
PFNA_1	463.0 / 419.0	2.88	1070.564835	1000.00	107.06
PFNA_2	463.0 / 219.0	2.88	1046.084937	1000.00	104.61
PFOS_1	499.0 / 80.0	2.88	940.951689	925.60	101.66
PFOS_2	499.0 / 99.0	2.88	969.972216	925.60	104.79
PFDA_1	513.0 / 469.0	3.23	1071.568690	1000.00	107.16
PFDA_2	513.0 / 219.0	3.23	1064.413417	1000.00	106.44
PFUnA_1	563.0 / 519.0	3.54	1062.504413	1000.00	106.25
PFUnA_2	563.0 / 269.0	3.54	1013.193735	1000.00	101.32
PFDoA_1	613.0 / 569.0	3.83	1046.611117	1000.00	104.66
PFDoA_2	613.0 / 319.0	3.83	990.540295	1000.00	99.05
PFTTrDA_1	663.0 / 619.0	4.08	1008.167322	1000.00	100.82
PFTTrDA_2	663.0 / 169.0	4.08	1046.383088	1000.00	104.64
PFTeDA_1	713.0 / 669.0	4.30	987.704415	1000.00	98.77
PFTeDA_2	713.0 / 169.0	4.30	1075.545077	1000.00	107.55
NMeFOSAA_1	570.0 / 419.0	3.38	1036.794321	1000.00	103.68
NMeFOSAA_2	570.0 / 512.0	3.37	1016.394788	1000.00	101.64
NEtFOSAA_1	584.0 / 419.0	3.53	1130.780071	1000.00	113.08
NEtFOSAA_2	584.0 / 483.0	3.53	1106.039654	1000.00	110.60
13C2-PFHxA	315.0 / 270.0	1.76	95.635483	100.00	95.64
13C2-PFDA	515.0 / 470.0	3.22	99.367146	100.00	99.37
d5-EtFOSAA	589.0 / 419.0	3.53	420.922541	400.00	105.23



Sample Name	J6258-FS(0)	Injection Vial	14
Sample ID	WGNA-052918-RW-3124	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T17:34:27	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.53	396268.33	863.744923	432.7	true
PFBS_2	298.9 / 99.0	1.53	121321.85	858.000227	600.1	false
PFHxA_1	313.0 / 269.0	1.83	689875.35	1453.171540	106.9	false
PFHxA_2	313.0 / 119.0	1.83	48471.36	1418.179698	115.4	false
PFHpA_1	363.0 / 319.0	2.20	431574.37	813.433588	115.2	false
PFHpA_2	363.0 / 169.0	2.19	14383.26	1121.645143	158.2	false
PFHxS_1	399.0 / 80.0	2.21	835262.98	1480.903680	244.1	false
PFHxS_2	399.0 / 99.0	2.21	233359.57	1440.123681	273.1	false
PFOA_1	413.0 / 369.0	2.58	1678590.29	2999.124575	285.6	false
PFOA_2	413.0 / 169.0	2.57	180375.15	4132.332054	194.0	false
PFNA_1	463.0 / 419.0	2.96	195371.65	368.637180	133.5	false
PFNA_2	463.0 / 219.0	2.96	55937.07	371.735176	126.5	false
PFOS_1	499.0 / 80.0	2.93	1673954.32	2615.794678	48.1	true
PFOS_2	499.0 / 99.0	2.95	274456.81	2302.436568	105.3	true
PFDA_1	513.0 / 469.0	3.31	40344.15	60.871719	112.8	false
PFDA_2	513.0 / 219.0	3.31	1506.05	37.606548	46.6	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	3.91	3891.79	0.505017	52.8	false
PFDoA_2	613.0 / 319.0	3.92	333.60	< 0	20.9	false
PFTrDA_1	663.0 / 619.0	4.17	4162.00	1.669999	97.2	false
PFTrDA_2	663.0 / 169.0	4.16	325.12	3.055930	21.8	true
PFTeDA_1	713.0 / 669.0	4.39	3915.92	0.404690	52.6	true
PFTeDA_2	713.0 / 169.0	4.39	295.62	0.133396	31.4	true
NMeFOSAA_1	570.0 / 419.0	3.46	602.21	0.617093	58.6	false
NMeFOSAA_2	570.0 / 512.0	3.47	215.90	< 0	21.7	true
NEtFOSAA_1	584.0 / 419.0	3.62	567.93	< 0	27.5	false
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.82	49917.64	107.140280	576.4	false
13C2-PFDA	515.0 / 470.0	3.30	52318.13	97.204668	1029.2	false
d5-EtFOSAA	589.0 / 419.0	3.61	26128.46	414.429239	204.2	false

Sample Calculation

PFOA 11.54 ng/L

$$y=1.01411x+0.42321$$

$$((1678590.29 / 54433.08) - 0.42321 / 1.01411) * 100 * 0.001 / 0.260 = 11.535 \text{ ng/L}$$

LCS PFOA 93%    27.75 / 30.0 \*100= 92.5%

Sample Name	J6258-FS(0)	Injection Vial	14
Sample ID	WGNA-052918-RW-3124	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-12T17:34:27	Data File	5500_06122018.wiff
Acquisition Method	5-0371.dam	Result Table	18-0343
Sample Comment			

## Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.53	13C4-PFOS	503.0 / 80.0	157775.26	287.00
PFBS_2	298.9 / 99.0	1.53	13C4-PFOS	503.0 / 80.0	157775.26	287.00
PFHxA_1	313.0 / 269.0	1.83	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFHxA_2	313.0 / 119.0	1.83	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFHpA_1	363.0 / 319.0	2.20	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFHpA_2	363.0 / 169.0	2.19	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFHxS_1	399.0 / 80.0	2.21	13C4-PFOS	503.0 / 80.0	157775.26	287.00
PFHxS_2	399.0 / 99.0	2.21	13C4-PFOS	503.0 / 80.0	157775.26	287.00
PFOA_1	413.0 / 369.0	2.58	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFOA_2	413.0 / 169.0	2.57	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFNA_1	463.0 / 419.0	2.96	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFNA_2	463.0 / 219.0	2.96	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFOS_1	499.0 / 80.0	2.93	13C4-PFOS	503.0 / 80.0	157775.26	287.00
PFOS_2	499.0 / 99.0	2.95	13C4-PFOS	503.0 / 80.0	157775.26	287.00
PFDA_1	513.0 / 469.0	3.31	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFDA_2	513.0 / 219.0	3.31	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFDoA_1	613.0 / 569.0	3.91	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFDoA_2	613.0 / 319.0	3.92	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFTrDA_1	663.0 / 619.0	4.17	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFTrDA_2	663.0 / 169.0	4.16	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFTeDA_1	713.0 / 669.0	4.39	13C2-PFOA	415.0 / 370.0	54433.08	100.00
PFTeDA_2	713.0 / 169.0	4.39	13C2-PFOA	415.0 / 370.0	54433.08	100.00
NMeFOSAA_1	570.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	24921.35	400.00
NMeFOSAA_2	570.0 / 512.0	3.47	d3-MeFOSAA	573.0 / 419.0	24921.35	400.00
NEtFOSAA_1	584.0 / 419.0	3.62	d3-MeFOSAA	573.0 / 419.0	24921.35	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	24921.35	400.00
13C2-PFHxA	315.0 / 270.0	1.82	13C2-PFOA	415.0 / 370.0	54433.08	100.00
13C2-PFDA	515.0 / 470.0	3.30	13C2-PFOA	415.0 / 370.0	54433.08	100.00
d5-EtFOSAA	589.0 / 419.0	3.61	d3-MeFOSAA	573.0 / 419.0	24921.35	400.00

DODCMD_ID	INSTALLATION_ID	SDG	SITE_NAME	NORM_SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	CONTRACT_ID	DO_CTO_NUMBER	CONTR_NAME	SAMPLE_NAME	SAMPLE_MATRIX_DESC	SAMPLE_TYPE_DESC	COLLECT_DATE	ANALYTICAL_METHOD	ANALYTICAL_METHOD_GRP_DESC
MID_ATLANTIC	WILLOW_GROVE_NAS	18-0391							N6247016D9008	WE04	TETRA TECH, INC.	WGNA-053018-FRB-3876	Water for QC samples	Field Reagent Blank	30-May-18	PFAS_QSM5.1	Perfluoroalkyl Compounds
MID_ATLANTIC	WILLOW_GROVE_NAS	18-0391							N6247016D9008	WE04	TETRA TECH, INC.	WGNA-052918-FRB-3124	Water for QC samples	Field Reagent Blank	29-May-18	PFAS_QSM5.1	Perfluoroalkyl Compounds
MID_ATLANTIC	WILLOW_GROVE_NAS	18-0391							N6247016D9008	WE04	TETRA TECH, INC.	WGNA-052918-FRB-3978	Water for QC samples	Field Reagent Blank	29-May-18	PFAS_QSM5.1	Perfluoroalkyl Compounds
MID_ATLANTIC	WILLOW_GROVE_NAS	18-0391							N6247016D9008	WE04	TETRA TECH, INC.	WGNA-052918-FRB-3493	Water for QC samples	Field Reagent Blank	29-May-18	PFAS_QSM5.1	Perfluoroalkyl Compounds
MID_ATLANTIC	WILLOW_GROVE_NAS	18-0391							N6247016D9008	WE04	TETRA TECH, INC.	WGNA-052918-FRB-3882	Water for QC samples	Field Reagent Blank	29-May-18	PFAS_QSM5.1	Perfluoroalkyl Compounds
MID_ATLANTIC	WILLOW_GROVE_NAS	18-0391							N6247016D9008	WE04	TETRA TECH, INC.	WGNA-053018-FRB-3933	Water for QC samples	Field Reagent Blank	30-May-18	PFAS_QSM5.1	Perfluoroalkyl Compounds