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NAVFAC
Naval Facilities Engineering Command

Groundwater Sample Results, Combined Level 2 and Level 4 Laboratory Report, Electronic Data Deliverable, Data Validation Report, and the Sample Location Report, SDG 18-0360

Naval Air Station Willow Grove
Willow Grove, Pennsylvania

August 2019

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

N00158_000819
WILLOW_GROVE_NAS
SSIC 5000-33c

LABORATORY DATA PACKAGE, 18-0360 REVISION 01, NAWC WARMINSTER NAS WILLOW GROVE PA

06/22/2018

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Approved for public release: distribution unlimited.

Naval Air Station Joint Reserve Base Willow Grove, PA

Project No 100117920-WE04

PFAS in drinking water

DW

Batch 18-0360

Package DP-18-0148

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

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

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Naval Air Station Joint Reserve Base Willow Grove, PA

Project No 100117920-WE04

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Submitted to:
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661 Anderson Drive Foster Plaza 7
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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 2018.06.22 13:13:42 -04'00'

QC Chemist Approval: Digitally signed by devinec@battelle.org DN: cn=devinec@battelle.org Date: 2018.06.26 15:30:24 -04'00'

Project Manager Approval: Digitally signed by Jonathan Thorn Date: 2018.06.26 15:53:26 -04'00'

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Naval Air Station Joint Reserve Base Willow Grove, PA

Project No 100117920-WE04

PFAS in drinking water

DW

Batch 18-0360

Package DP-18-0148

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Signature Page

Battelle 2018 (1 of 2)
Signature Page

Name (Printed)	Signature	Initials	Date
Jonathan Thorn		JRT	4/4/2018
Robert Lizotte, Jr.		BL	4.4 2018
FRANCO PALA			4-4-2018
Carla Devine		CRD	4/4/18
Denise Schumitz		DMS	4/4/18
Candice Penn McCoy		CPM	4/4/2018
Rich Rostucci		RR	4/4/2018
Michael Mears			4/4/2018
Christie Usher		cu	4/4/18
Kevin McInerney			4/4/18
Stephanie Schultz		SAS	4/4/18
Jordan Tower		JCT	4/4/18
KRISTEN NICHOLS		KN	4/4/18
Clinton H Brown		CB	4/4/18
Matt Schumitz		MS	4-4-18
Sam Guimaraes		SG	4-4-18
Lauren Griffith		LMG	4.4.18

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Battelle 2018 (2 of 2)
Signature Page

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

Work Plan

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WORK/QUALITY ASSURANCE PROJECT PLAN

1.0 GENERAL PROJECT INFORMATION

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

2.0 SCOPE OF WORK

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

2.1 TECHNICAL APPROACH

2.1.1 Sample Receipt, Storage, and Handling

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

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

2.1.2 Sample Preparation

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

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

Batch quality control samples are defined in Table 1.

Target samples are presented in Attachment 1.

Table 1: Quality Control Samples

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

2.1.3 Extraction/Preparation

2.1.3.1 Extraction

SOP No.-Rev:	**5-371-03**
SOP Title:	*ANALYSIS OF POLY AND PERFLUOROALKYL SUBSTANCES IN DRINKING WATER SAMPLES BY LIQUID CHROMATOGRAPHY AND TANDEM MASS SPECTROMETRY (LC-MS/MS) FOLLOWING EPA METHOD 537.1*
Sample Size:	250 ml
SIS and LCS/MS Compounds:	Defined in Table 2.
Deviations:	None
Comments:	• MQO requirements per SOP 5-371 (EPA Method 537 Version 1.1). • FRB samples will only be analyzed if associated field sample has hits above the LOQ for any individual analyte.

Table 2: SIS and LCS/MS Spiking Level

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

2.1.3.2 Cleanup

None.

RIS spiking levels are presented in Table 3.

Extract PIV (uL): 1000

Table 3: RIS Spiking Level

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

2.1.4 Instrumental Analysis

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

1) SOP_No-Rev: **5-371-03**

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

Deviations: None

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

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WORK/QUALITY ASSURANCE PROJECT PLAN

2.2. DELIVERABLES

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

3.0 QUALITY

The Method Quality Objectives are defined in Attachment 3.

4.0 ORGANIZATION AND COMMUNICATION

4.1 ORGANIZATION

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

Table 4: Project Team and Roles

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

4.2 COMMUNICATION

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

5.0 SCHEDULE

The project schedule is presented in Table 5.

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WORK/QUALITY ASSURANCE PROJECT PLAN

Table 5. Schedule of Laboratory Activities

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

6.0 BUDGET

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

Table 6. Labor Budget (Laboratory Analytical Task)

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

7.0 STAFF DEVELOPMENT

None anticipated

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 1: Target Samples

Shipment: **SHP-180501-01**

Status: Approved

Description: WE04

Range: J5964-J5969

Comment: NA

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

Shipment: **SHP-180502-02**

Status: Approved

Description: WE04

Range: J5970-J5977

Comment: NA

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

Shipment: **SHP-180508-02**

Status: 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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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-060408-RW-230	06/04/2018 8:10 am	DW	R0119 (NA)			
2	J6583	NAWC-060408-FRB-230	06/04/2018 8:05 am	DW	R0119 (NA)			
3	J6584	NAWC-060408-RW-309	06/04/2018 8:40 am	DW	R0119 (NA)			
4	J6585	NAWC-060408-FRB-309	06/04/2018 8:35 am	DW	R0119 (NA)			
5	J6586	NAWC-060408-RW-293	06/04/2018 9:40 am	DW	R0119 (NA)			
6	J6587	NAWC-060408-FRB-293	06/04/2018 9:35 am	DW	R0119 (NA)			
7	J6588	NAWC-060408-RW-038	06/04/2018 9:55 am	DW	R0119 (NA)			
8	J6589	NAWC-060408-FRB-038	06/04/2018 9:50 am	DW	R0119 (NA)			
9	J6590	NAWC-060408-RW-039	06/04/2018 10:10 am	DW	R0119 (NA)			
10	J6591	NAWC-060408-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)			

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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-J6745

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	J6739	WGNA-061118-RW-0437	06/11/2018 11:40 am	DW	R0119 (NA)			
3	J6741	WGNA-061218-RW-3283	06/12/2018 9:10 am	DW	R0119 (NA)			
4	J6743	WGNA-061218-RW-3382	06/12/2018 9:40 am	DW	R0119 (NA)			
5	J6745	NAWC-061218-RW-276	06/12/2018 10:10 am	DW	R0119 (NA)			

Shipment: **SHP-180615-01**

Status: Pending

Description: WE04

Range: J6758-J6760

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	J6760	NAWC-061418-RW-056	06/14/2018 9:40 am	DW	R0119 (NA)			

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It can be done

WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

Project Test Code Name:	Master_371
SOP Reference:	5-371 - ANALYSIS OF POLY AND PERFLUOROALKYL SUBSTANCES IN DRINKING WATER SAMPLES BY LIQUID CHROMATOGRAPHY AND TANDEM MASS SPECTROMETRY (LC-MS/MS) FOLLOWING EPA METHOD 537.1
Description:	PFAS in drinking water
Matrix:	L - Liquid Samples, like water or sea water, prepared and anlyzed under the same class of detection limits.
Detection Limit Study:	5-371
Instrument:	LC-MS/MS
MQO Criteria	Universal_LC
Standard Report:	Standard Result Report

Method Specific Reporting				Holding Times (days)		Data Flags	
Result Units:	ng/L	***Unit Conversion:***	(none)	***Sample:***	14	***DL_Flag:***	U
Weight Basis:	Liquid	***Result Format:***	Fixed Digits	***Frozen:***	40	***RL_Flag:***	J
Standard Basis:	RIS	***# of Figures/Digits:***	2	***Extract:***	28	***PB_Flag:***	B
Oil Weight Basis:	No	***Oil Weight Source:***	Oil Weight			***DIL_Flag:***	D
U-Value Substition:	U-Flag=MD	***Histograms:***	No			***HT_Flag:***	T
ECD_Reporting:	No						

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

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

Project Test Code Name: Master_371

No:	Analyte:	Report Name:	Type	RIS	SIS	Hidden:	Graph:
3	d5-EtFOSAA	d5-EtFOSAA	SIS			No	No

Total Analytes: 17

Subtract Peaks:

None

Sum Peaks:

None

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

Project Test Code Name: Master_371

ICAL Acceptance Criteria:

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

Continuing Calibration Verification Criteria:

CCV Name: Standard

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

Independent Calibration Verification:

ICC Name: Standard

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

Mass Discrimination Criteria:

None

Degredation Check Criteria:

None

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 3: Method Quality Objectives

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

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 3: Method Quality Objectives

MQO Application	***Universal_LC***		
MQO:	**Acceptance Criteria**	**Qual:**	**Corrective Action:**
Analytical Triplicate Precision	Organics results less than 30% Relative Standard Deviation (RSD). Analyte concentration must be > 5x MDL.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Original is less than 5 times the MDL	n	
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.

BATTELLE
It can be done

ShpNo SHP-180601-02

Battelle Project No:

Sample Receipt Form

Approved: ☐ Authorized ☐

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

Received by: Schumitz, Matt **Date/Time Received:** Friday, June 01, 2018 10:30 AM

No. of Shipping Containers: 1

SHIPMENT

Method of Delivery: Commercial Carrier **Tracking Number:** 7723 6576 5386

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 6576 5386	Custody Seals	Intact	Intact	Therm_2	1.6	11

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): 1.6 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:** J6290 - J6300

Samples logged in by: Schumitz, Matt **Date/Time:** 06/01/2018 10:30 AM

Approved By: **Approved On:**

Authorized By: **Authorized On:**

BATTELLE

It can be done

ShpNo SHP-180601-02

Battelle Project No:

Sample Receipt Form Details

Approved: ☐ **Authorized** ☐

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

Received by: Schumitz, Matt **Date/Time Received:** Friday, June 01, 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:
J6290	NAWC-053118-RW-256	05/31/18 8:10	06/01/18 10:59	2	DW	1.6	NA	NA	NA	R0119 (NA)			
J6291	NAWC-053118-FRB-256	05/31/18 8:05	06/01/18 10:59	2	DW	1.6	NA	NA	NA	R0119 (NA)			
J6292	NAWC-053118-RW-126	05/31/18 8:40	06/01/18 10:59	2	DW	1.6	NA	NA	NA	R0119 (NA)			
J6293	NAWC-053118-FRB-126	05/31/18 8:35	06/01/18 11:00	2	DW	1.6	NA	NA	NA	R0119 (NA)			
J6294	WGNA-053118-DUP-38	05/31/18 7:00	06/01/18 11:00	2	DW	1.6	NA	NA	NA	R0119 (NA)			
J6295	WGNA-053118-RW-4850	05/31/18 9:40	06/01/18 11:00	6	DW	1.6	NA	NA	NA	R0119 (NA)			
J6296	WGNA-053118-FRB-4850	05/31/18 9:35	06/01/18 11:01	2	DW	1.6	NA	NA	NA	R0119 (NA)			
J6297	NAWC-053118-RW-311	05/31/18 12:10	06/01/18 11:01	2	DW	1.6	NA	NA	NA	R0119 (NA)			
J6298	NAWC-053118-FRB-311	05/31/18 12:05	06/01/18 11:02	2	DW	1.6	NA	NA	NA	R0119 (NA)			
J6299	NAWC-053118-RW-265	05/31/18 16:10	06/01/18 11:02	2	DW	1.6	NA	NA	NA	R0119 (NA)			
J6300	NAWC-053118-FRB-265	05/31/18 16:05	06/01/18 11:02	2	DW	1.6	NA	NA	NA	R0119 (NA)			

Total Samples: 11

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

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	PFAS EPA 537 14 analytes	
NAWC-053118-RW-256 J6290	5/31/2018	8:10	G	DW	2	X	
NAWC-053118-FRB-256 91	5/31/2018	8:05	G	DW	2	X	Field Reagent Blank
NAWC-053118-RW-126 92	5/31/2018	8:40	G	DW	2	X	
NAWC-053118-FRB-126 93	5/31/2018	8:35	G	DW	2	X	Field Reagent Blank
WGNA-053118-DUP-38 94	5/31/2018	7:00	G	DW	2	X	DUPLICATE
WGNA-053118-RW-4850 95	5/31/2018	9:40	G	DW	6	X	MS/MSD
WGNA-053118-FRB-4850 96	5/31/2018	9:35	G	DW	2	X	Field Reagent Blank
NAWC-053118-RW-311 97	5/31/2018	12:10	G	DW	2	X	
NAWC-053118-FRB-311 98	5/31/2018	12:05	G	DW	2	X	Field Reagent Blank
NAWC-053118-RW-265 99	5/31/2018	16:10	G	DW	2	X	
NAWC-053118-FRB-265 J6300	5/31/2018	16:05	G	DW	2	X	Field Reagent Blank

Receipt Temperature:(°C)	Samples Intact: (Yes) - No	Samples on Ice: (Yes) - No	Receipt Comments:
1.6			

Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
Mary Kay Bond	Tetra Tech	05/31/2018 18:00	Matt Schwartz	Battelle	6-1-18 1030
Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:

Comments: FedEx Tracking # 772365765386


FedEx
TRK# 0201 7723 6576 5386
FRI – 01 JUN 10:30A
PRIORITY OVERNIGHT
EM XPUA
02061
MA-US BOS
#464071 05/31 552J2/782B/DCA5
1030 MOS
1.6° Therm-2
RT 245
ST 3.4
1
10:30
B
5386
06.01

BATTELLE

It can be done

ShpNo SHP-180605-07

Battelle Project No:

Sample Receipt Form

Approved: ☐ **Authorized** ☐

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

Received by: Schumitz, Matt **Date/Time Received:** Tuesday, June 05, 2018 11:00 AM

No. of Shipping Containers: 1

SHIPMENT

Method of Delivery: Commercial Carrier **Tracking Number:** 7723 8412 3139

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 8412 3139	Custody Seals	Intact	Intact	Therm_2	0.9	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): 0.9 Temperature Blank used ☑ Yes ☐ No

(Note: If temperature upon receipt differs from required conditions, see sample log comment field)

Samples Acidified: ☐ Yes ☐ No ☑ Unknown

Initial pH 5-9?: ☐ Yes ☐ No ☑ NA

If no, individual sample adjustments on the Auxiliary Sample Receipt Form

Total Residual Chlorine Present?: ☐ Yes ☐ No ☑ NA

If yes, individual sample adjustments on the Auxiliary Sample Receipt Form

Head Space <1% in samples for water VOC analysis: ☐ Yes ☐ No ☑ NA

Individual sample deviations noted on sample log

Samples Containers:

Samples returned in PC-grade jars: ☐ Yes ☐ No ☑ Unknown /Lot No.: Unknown

Storage Location: Custody: Refrigerator - R0119 (NA) **BDO IDs Assigned:** J6582 - J6591

Samples logged in by: Schumitz, Matt **Date/Time:** 06/05/2018 11:00 AM

Approved By: **Approved On:**

Authorized By: **Authorized On:**

BATTELLE
It can be done

ShpNo SHP-180605-07

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:** Tuesday, June 05, 2018 11:00 AM

No. of Shipping Containers: **1**

BDO Id:	Client Sample ID:	Collection Date:	Login Date:	Ctrs:	Matrix:	Temp:	pH:	TRC:	VOC:	Stored In:	Loc:	No:	Comments:
J6582	NAWC-060418-RW-230	06/04/18 8:10	06/05/18 14:46	2	DW	0.9	NA	NA	NA	R0119 (NA)			
J6583	NAWC-060418-FRB-230	06/04/18 8:05	06/05/18 14:46	2	DW	0.9	NA	NA	NA	R0119 (NA)			
J6584	NAWC-060418-RW-309	06/04/18 8:40	06/05/18 14:47	2	DW	0.9	NA	NA	NA	R0119 (NA)			
J6585	NAWC-060418-FRB-309	06/04/18 8:35	06/05/18 14:48	2	DW	0.9	NA	NA	NA	R0119 (NA)			
J6586	NAWC-060418-RW-293	06/04/18 9:40	06/05/18 14:48	2	DW	0.9	NA	NA	NA	R0119 (NA)			
J6587	NAWC-060418-FRB-293	06/04/18 9:35	06/05/18 14:48	2	DW	0.9	NA	NA	NA	R0119 (NA)			
J6588	NAWC-060418-RW-038	06/04/18 9:55	06/05/18 14:48	2	DW	0.9	NA	NA	NA	R0119 (NA)			
J6589	NAWC-060418-FRB-038	06/04/18 9:50	06/05/18 14:49	2	DW	0.9	NA	NA	NA	R0119 (NA)			
J6590	NAWC-060418-RW-039	06/04/18 10:10	06/05/18 14:49	2	DW	0.9	NA	NA	NA	R0119 (NA)			
J6591	NAWC-060418-FRB-039	06/04/18 10:05	06/05/18 14:49	2	DW	0.9	NA	NA	NA	R0119 (NA)			

Total Samples: 10

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Client Contact Information
Andy Frebowitz
234 Mall Boulevard, Suite 260
King of Prussia, PA 19406
610-382-1170

Project Manager: Jonathan Thorn
Sampler Information (print name): Mary Kay Bond
Phone: 610-382-1169
Email: mary.bond@tetratech.com
Turnaround Time (TAT) Requested: 21 days
Normal ☑ Priority ☐ RUSH ☐
Time Zone: Eastern

Project Name: WE04
Project No.: 112G08005-WE04

Sampling Site: WE04
Site Information: NAS JRB Willow Grove/WGNA Warminster

COC #
Page# 1 of 1

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	Preservative: Trizma	Analysis: PFAS EPA 537 14 analytes	
NAWC-060418-RW-230 J6582	6/4/2018	8:10	G	DW	2		X	
NAWC-060418-FRB-230 J6583	6/4/2018	8:05	G	DW	2		X	Field Reagent Blank
NAWC-060418-RW-309 J6584	6/4/2018	8:40	G	DW	2		X	
NAWC-060418-FRB-309 J6585	6/4/2018	8:35	G	DW	2		X	Field Reagent Blank
NAWC-060418-RW-293 J6586	6/4/2018	9:40	G	DW	2		X	
NAWC-060418-FRB-293 J6587	6/4/2018	9:35	G	DW	2		X	Field Reagent Blank
NAWC-060418-RW-038 J6588	6/4/2018	9:55	G	DW	2		X	
NAWC-060418-FRB-038 J6589	6/4/2018	9:50	G	DW	2		X	Field Reagent Blank
NAWC-060418-RW-039 J6590	6/4/2018	10:10	G	DW	2		X	
NAWC-060418-FRB-039 J6591	6/4/2018	10:05	G	DW	2		X	Field Reagent Blank

Receipt Temperature:(°C) 0.9
Samples Intact: (Yes) - No
Samples on Ice: (Yes) - No
Receipt Comments:

Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
[signature]	Tetra Tech	06/04/2018 16:00	Matt Schmitz MS	Battelle	6-5-18 1100

Comments: FedEx Tracking # 7723 7412 3139



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: 04JUN18
ACTWGT: 40.00 LB
CAD: 111283035/INET3980
DIMS: 24x16x18 IN

BILL SENDER

TO JONATHAN THORN
BATTELLE
141 LONGWATER DRIVE
SUITE 202
NORWELL MA 02061
(781) 681-5565

0.9° MOS
Therm-2
11:00

552J1/48E5/DCA5

INV:
PO:
REF: 112G08005-WE04 LT.WS
DEPT:

FedEx Express

TRK# 0201 7723 8412 3139

TUE - 05 JUN 10:30A
PRIORITY OVERNIGHT

EM XPUA

02061
MA-US BOS

BATTELLE
It can be done

ShpNo SHP-180608-03

Battelle Project No:

Sample Receipt Form

Approved: ☐ Authorized ☐

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

Received by: Thorn, Jonathan **Date/Time Received:** Friday, June 08, 2018 10:36 AM

No. of Shipping Containers: 1

SHIPMENT

Method of Delivery: Commercial Carrier **Tracking Number:** 0201 7724 1753 4658

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	0201 7724 1753 4658	Custody Seals	Intact	Intact	Therm_2	2.3	7

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): 2.3 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:** J6637 - J6643

Samples logged in by: Thorn, Jonathan **Date/Time:** 06/08/2018 10:36 AM

Approved By: **Approved On:**

Authorized By: **Authorized On:**

BATTELLE
It can be done

ShpNo SHP-180608-03

Battelle Project No:

Sample Receipt Form Details

Approved: ☐ Authorized ☐

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

Received by: Thorn, Jonathan **Date/Time Received:** Friday, June 08, 2018 10:36 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:
J6637	WGNA-060718-RW-0488	06/07/18 12:40	06/08/18 11:43	2	DW	2.3	NA	NA	NA	R0119 (NA)			
J6638	WGNA-060718-FRB-0488	06/07/18 12:35	06/08/18 11:44	2	DW	2.3	NA	NA	NA	R0119 (NA)			
J6639	NAWC-060718-RW-175	06/07/18 13:10	06/08/18 11:44	2	DW	2.3	NA	NA	NA	R0119 (NA)			
J6640	NAWC-060718-FRB-175	06/07/18 13:05	06/08/18 11:50	2	DW	2.3	NA	NA	NA	R0119 (NA)			
J6641	WGNA-060718-DUP-39	06/07/18 7:00	06/08/18 11:50	2	DW	2.3	NA	NA	NA	R0119 (NA)			
J6642	WGNA-060718-RW-0626	06/07/18 14:10	06/08/18 11:51	2	DW	2.3	NA	NA	NA	R0119 (NA)			
J6643	WGNA-060718-FRB-0626	06/07/18 14:05	06/08/18 11:51	2	DW	2.3	NA	NA	NA	R0119 (NA)			

Total Samples: 7

Battelle

The Business of Innovation

Chain-of-Custody

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

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.			
WGNA-060718-RW-0488	6/7/2018	12:40	G	DW	2		X	J6637
WGNA-060718-FRB-0488	6/7/2018	12:35	G	DW	2		X	J6638 Field Reagent Blank
NAWC-060718-RW-175	6/7/2018	13:10	G	DW	2		X	J6639
NAWC-060718-FRB-175	6/7/2018	13:05	G	DW	2		X	J6640 Field Reagent Blank
WGNA-060718-DUP-39	6/7/2018	7:00	G	DW	2		X	J6641 DUPLICATE
WGNA-060718-RW-0626	6/7/2018	14:10	G	DW	2		X	J6642
WGNA-060718-FRB-0626	6/7/2018	14:05	G	DW	2		X	J6643 Field Reagent Blank

Receipt Temperature:(°C)	Samples Intact:	Samples on Ice:	Receipt Comments:
0.6°C Therm. 2 (1.)	Yes - No	Yes No	

Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
[signature]	Tetra Tech	06/07/2018 16:00	[signature] Jonathan Thorn	Battelle	6/8/2018 10:36
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 # 7724 1753 4658

(1.) ice melt = 0.6°C
temp blank = 2.3°C
JMT 6/8/2018

Custody Seals: intact

Therm_2

0.6°C = ice melt

2.3°C = temp blank

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: 07JUN18
ACTWGT: 40.00 LB
CAD: 111283035/INET3980
DIMS: 24x16x18 IN

BILL SENDER

TO JONATHAN THORN
BATTELLE
141 LONGWATER DRIVE
SUITE 202
NORWELL MA 02061
(781) 681-5565

REF 112G08005-WE04 LT WS
INV
PO:
DEPT

552J1/48E5/DCA5

FedEx Express

J1811180126011uu

FRI - 08 JUN 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7724 1753 4658

EM XPUA

02061
MA-US BOS

Data Tables

BATTELLE
It can be done

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

Client ID	NAWC-053118-FRB-256				
Battelle ID	J6291-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	0.48	U	0.21	0.48	2.40
PFHpA	0.96	U	0.33	0.96	2.40
PFOA	0.96	U	0.37	0.96	2.40
PFNA	0.96	U	0.36	0.96	2.40
PFDA	0.96	U	0.38	0.96	2.40
PFUnA	0.96	U	0.37	0.96	2.40
PFDoA	0.96	U	0.40	0.96	2.40
PFTrDA	0.96	U	0.40	0.96	2.40
PFTeDA	1.44	U	0.70	1.44	2.40
NMeFOSAA	0.96	U	0.40	0.96	2.40
NEtFOSAA	0.96	U	0.42	0.96	2.40
PFBS	0.48	U	0.20	0.48	2.40
PFHxS	0.96	U	0.33	0.96	2.40
PFOS	1.78	J	0.29	0.96	2.40
Surrogate Recoveries (%)					
13C2-PFHxA	113				
13C2-PFDA	107				
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-053118-FRB-126			
Battelle ID	J6293-FS			
Sample Type	SA			
Collection Date	05/31/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.47 U	0.21	0.47	2.36
PFHpA	0.94 U	0.32	0.94	2.36
PFOA	0.94 U	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	0.47 U	0.20	0.47	2.36
PFHxS	0.94 U	0.32	0.94	2.36
PFOS	0.94 U	0.28	0.94	2.36
Surrogate Recoveries (%)				
13C2-PFHxA	106			
13C2-PFDA	101			
d5-EtFOSAA	97			

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

Client ID	WGNA-053118-FRB-4850				
Battelle ID	J6296-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	0.47	U	0.21	0.47	2.36
PFHpA	0.94	U	0.32	0.94	2.36
PFOA	0.94	U	0.36	0.94	2.36
PFNA	0.94	U	0.35	0.94	2.36
PFDA	0.94	U	0.37	0.94	2.36
PFUnA	0.94	U	0.36	0.94	2.36
PFDoA	0.94	U	0.40	0.94	2.36
PFTrDA	0.94	U	0.40	0.94	2.36
PFTeDA	1.42	U	0.69	1.42	2.36
NMeFOSAA	0.94	U	0.40	0.94	2.36
NEtFOSAA	0.94	U	0.42	0.94	2.36
PFBS	0.47	U	0.20	0.47	2.36
PFHxS	0.94	U	0.32	0.94	2.36
PFOS	1.81	J	0.28	0.94	2.36
Surrogate Recoveries (%)					
13C2-PFHxA	103				
13C2-PFDA	91				
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-053118-FRB-311				
Battelle ID	J6298-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	0.47	U	0.21	0.47	2.36
PFHpA	0.94	U	0.32	0.94	2.36
PFOA	0.94	U	0.36	0.94	2.36
PFNA	0.94	U	0.35	0.94	2.36
PFDA	0.94	U	0.37	0.94	2.36
PFUnA	0.94	U	0.36	0.94	2.36
PFDoA	0.94	U	0.40	0.94	2.36
PFTrDA	0.94	U	0.40	0.94	2.36
PFTeDA	1.42	U	0.69	1.42	2.36
NMeFOSAA	0.94	U	0.40	0.94	2.36
NEtFOSAA	0.94	U	0.42	0.94	2.36
PFBS	0.47	U	0.20	0.47	2.36
PFHxS	0.94	U	0.32	0.94	2.36
PFOS	0.31	J	0.28	0.94	2.36
Surrogate Recoveries (%)					
13C2-PFHxA	104				
13C2-PFDA	99				
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-053118-FRB-265			
Battelle ID	J6300-FS			
Sample Type	SA			
Collection Date	05/31/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.47 U	0.21	0.47	2.36
PFHpA	0.94 U	0.32	0.94	2.36
PFOA	0.94 U	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	0.47 U	0.20	0.47	2.36
PFHxS	0.94 U	0.32	0.94	2.36
PFOS	0.94 U	0.28	0.94	2.36
Surrogate Recoveries (%)				
13C2-PFHxA	107			
13C2-PFDA	102			
d5-EtFOSAA	92			

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

Client ID	NAWC-060418-FRB-230				
Battelle ID	J6583-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	0.48	U	0.21	0.48	2.40
PFHpA	0.96	U	0.33	0.96	2.40
PFOA	0.96	U	0.37	0.96	2.40
PFNA	0.96	U	0.36	0.96	2.40
PFDA	0.96	U	0.38	0.96	2.40
PFUnA	0.96	U	0.37	0.96	2.40
PFDoA	0.96	U	0.40	0.96	2.40
PFTrDA	0.96	U	0.40	0.96	2.40
PFTeDA	1.44	U	0.70	1.44	2.40
NMeFOSAA	0.96	U	0.40	0.96	2.40
NEtFOSAA	0.96	U	0.42	0.96	2.40
PFBS	0.48	U	0.20	0.48	2.40
PFHxS	0.33	J	0.33	0.96	2.40
PFOS	2.30	J	0.29	0.96	2.40
Surrogate Recoveries (%)					
13C2-PFHxA	105				
13C2-PFDA	97				
d5-EtFOSAA	99				

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

Client ID	NAWC-060418-FRB-309				
Battelle ID	J6585-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	U	0.22	0.50	2.50
PFHpA	1.00	U	0.34	1.00	2.50
PFOA	1.00	U	0.38	1.00	2.50
PFNA	1.00	U	0.37	1.00	2.50
PFDA	1.00	U	0.39	1.00	2.50
PFUnA	1.00	U	0.38	1.00	2.50
PFDoA	1.00	U	0.42	1.00	2.50
PFTrDA	1.00	U	0.42	1.00	2.50
PFTeDA	1.50	U	0.73	1.50	2.50
NMeFOSAA	1.00	U	0.42	1.00	2.50
NEtFOSAA	1.00	U	0.44	1.00	2.50
PFBS	0.50	U	0.21	0.50	2.50
PFHxS	1.00	U	0.34	1.00	2.50
PFOS	1.00	U	0.30	1.00	2.50
Surrogate Recoveries (%)					
13C2-PFHxA	104				
13C2-PFDA	99				
d5-EtFOSAA	111				

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

Client ID	NAWC-060418-FRB-293				
Battelle ID	J6587-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	1.29	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
PFDoA	1.00	U	0.42	1.00	2.50
PFTrDA	1.00	U	0.42	1.00	2.50
PFTeDA	1.50	U	0.73	1.50	2.50
NMeFOSAA	1.00	U	0.42	1.00	2.50
NEtFOSAA	1.00	U	0.44	1.00	2.50
PFBS	0.50	U	0.21	0.50	2.50
PFHxS	1.00	U	0.34	1.00	2.50
PFOS	1.00	U	0.30	1.00	2.50
Surrogate Recoveries (%)					
13C2-PFHxA	98				
13C2-PFDA	102				
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-060418-FRB-038			
Battelle ID	J6589-FS			
Sample Type	SA			
Collection Date	06/04/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.47 U	0.21	0.47	2.36
PFHpA	0.94 U	0.32	0.94	2.36
PFOA	0.94 U	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	0.47 U	0.20	0.47	2.36
PFHxS	0.94 U	0.32	0.94	2.36
PFOS	1.64 J	0.28	0.94	2.36
Surrogate Recoveries (%)				
13C2-PFHxA	107			
13C2-PFDA	101			
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-060418-FRB-039				
Battelle ID	J6591-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	0.47	U	0.21	0.47	2.36
PFHpA	0.94	U	0.32	0.94	2.36
PFOA	0.94	U	0.36	0.94	2.36
PFNA	0.94	U	0.35	0.94	2.36
PFDA	0.94	U	0.37	0.94	2.36
PFUnA	0.94	U	0.36	0.94	2.36
PFDoA	0.94	U	0.40	0.94	2.36
PFTrDA	0.94	U	0.40	0.94	2.36
PFTeDA	1.42	U	0.69	1.42	2.36
NMeFOSAA	0.94	U	0.40	0.94	2.36
NEtFOSAA	0.94	U	0.42	0.94	2.36
PFBS	0.47	U	0.20	0.47	2.36
PFHxS	0.94	U	0.32	0.94	2.36
PFOS	1.37	J	0.28	0.94	2.36
Surrogate Recoveries (%)					
13C2-PFHxA	105				
13C2-PFDA	93				
d5-EtFOSAA	119				

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

Client ID	WGNA-060718-FRB-0488				
Battelle ID	J6638-FS				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	0.49	U	0.22	0.49	2.45
PFHpA	0.98	U	0.33	0.98	2.45
PFOA	0.98	U	0.37	0.98	2.45
PFNA	0.98	U	0.36	0.98	2.45
PFDA	0.98	U	0.38	0.98	2.45
PFUnA	0.98	U	0.37	0.98	2.45
PFDoA	0.98	U	0.41	0.98	2.45
PFTrDA	0.98	U	0.41	0.98	2.45
PFTeDA	1.47	U	0.72	1.47	2.45
NMeFOSAA	0.98	U	0.41	0.98	2.45
NEtFOSAA	0.98	U	0.43	0.98	2.45
PFBS	0.49	U	0.21	0.49	2.45
PFHxS	0.98	U	0.33	0.98	2.45
PFOS	2.39	J	0.29	0.98	2.45
Surrogate Recoveries (%)					
13C2-PFHxA	103				
13C2-PFDA	94				
d5-EtFOSAA	99				

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

Client ID	NAWC-060718-FRB-175				
Battelle ID	J6640-FS				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	0.49	U	0.22	0.49	2.45
PFHpA	0.98	U	0.33	0.98	2.45
PFOA	0.98	U	0.37	0.98	2.45
PFNA	0.98	U	0.36	0.98	2.45
PFDA	0.98	U	0.38	0.98	2.45
PFUnA	0.98	U	0.37	0.98	2.45
PFDoA	0.98	U	0.41	0.98	2.45
PFTrDA	0.98	U	0.41	0.98	2.45
PFTeDA	1.47	U	0.72	1.47	2.45
NMeFOSAA	0.98	U	0.41	0.98	2.45
NEtFOSAA	0.98	U	0.43	0.98	2.45
PFBS	0.49	U	0.21	0.49	2.45
PFHxS	0.98	U	0.33	0.98	2.45
PFOS	1.56	J	0.29	0.98	2.45
Surrogate Recoveries (%)					
13C2-PFHxA	102				
13C2-PFDA	92				
d5-EtFOSAA	107				

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

Client ID	WGNA-060718-FRB-0626				
Battelle ID	J6643-FS				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	0.49	U	0.22	0.49	2.45
PFHpA	0.98	U	0.33	0.98	2.45
PFOA	0.98	U	0.37	0.98	2.45
PFNA	0.98	U	0.36	0.98	2.45
PFDA	0.98	U	0.38	0.98	2.45
PFUnA	0.98	U	0.37	0.98	2.45
PFDoA	0.98	U	0.41	0.98	2.45
PFTrDA	0.98	U	0.41	0.98	2.45
PFTeDA	1.47	U	0.72	1.47	2.45
NMeFOSAA	0.98	U	0.41	0.98	2.45
NEtFOSAA	0.98	U	0.43	0.98	2.45
PFBS	0.49	U	0.21	0.49	2.45
PFHxS	0.35	J	0.33	0.98	2.45
PFOS	2.48	B	0.29	0.98	2.45
Surrogate Recoveries (%)					
13C2-PFHxA	112				
13C2-PFDA	101				
d5-EtFOSAA	94				

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	CQ924PB-FS				
Sample Type	PB				
Collection Date	06/14/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	WATER				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	0.50	U	0.22	0.50	2.50
PFHpA	1.00	U	0.34	1.00	2.50
PFOA	1.00	U	0.38	1.00	2.50
PFNA	1.00	U	0.37	1.00	2.50
PFDA	1.00	U	0.39	1.00	2.50
PFUnA	1.00	U	0.38	1.00	2.50
PFDoA	1.00	U	0.42	1.00	2.50
PFTrDA	1.00	U	0.42	1.00	2.50
PFTeDA	1.50	U	0.73	1.50	2.50
NMeFOSAA	1.00	U	0.42	1.00	2.50
NEtFOSAA	1.00	U	0.44	1.00	2.50
PFBS	0.50	U	0.21	0.50	2.50
PFHxS	1.00	U	0.34	1.00	2.50
PFOS	0.46	J	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	112
13C2-PFDA	104
d5-EtFOSAA	102

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	CQ925LCS-FS					
Sample Type	LCS					
Collection Date	06/14/2018					
Extraction Date	06/14/2018					
Analysis Date	06/15/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	WATER					
Sample Size	0.250					
Size Unit-Basis	L				Control Limits	
Units	ng/L	Target	Recovery	Qual	Lower	Upper
PFHxA	10.23	10.00	102		70	130
PFHpA	9.73	10.00	97		70	130
PFOA	9.91	10.00	99		70	130
PFNA	9.88	10.00	99		70	130
PFDA	9.75	10.00	98		70	130
PFUnA	10.29	10.00	103		70	130
PFDoA	9.61	10.00	96		70	130
PFTrDA	9.24	10.00	92		70	130
PFTeDA	12.63	10.00	126		70	130
NMeFOSAA	10.39	10.00	104		70	130
NEtFOSAA	11.44	10.00	114		70	130
PFBS	7.96	8.85	90		70	130
PFHxS	8.79	9.45	93		70	130
PFOS	9.89	9.55	104		70	130

Surrogate Recoveries (%)

13C2-PFHxA	111
13C2-PFDA	106
d5-EtFOSAA	95

Glossary of Data Qualifiers

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

Miscellaneous Documentation

Norwell Operations
141 Longwater Drive, Suite 202
Norwell, Massachusetts 02061
Telephone: 781-681-5400

July 13th, 2018

This data package has been revised to include the following updates to the reporting format:

- Use of LOD values for non-detected values (in place of the MDL value that was used in the original report).
- Use of sample specific MDL, LOD, and LOQ values (adjusted for dilution and sample size variations as compared to the MDL, LOD, and LOQ studies)

In addition to non-detect ("U" qualified) data changing to use the sample specific LOD value (not included in the table below), the information in the following table changed from the original report to the new report. The reason for these changes is the variation in sample size for individual samples when using sample specific values. This table includes information on all SDG updated and resubmitted on 7/13/2018.

SDG	Lab Sample ID	Client ID	Analyte	New Result	New Qual	Old Result	Old Qual
18-0299	J5972-FS	WGNA-050118-RW-3178	PFHpA	2.25		2.25	J
18-0313	J6148-FS	NAWC-050718-RW-316	PFNA	2.26		2.26	J
18-0313	J6150-FS	NAWC-050718-RW-180	PFDA	0.37	J	0.39	U
18-0323	J6209-FS	NAWC-051018-FRB-177	PFOA	0.38	J	0.38	U
18-0343	J6264-FS	WGNA-052918-RW-3978	PFNA	2.34		2.34	J
18-0343	J6273-FS	NAWC-053018-RW-231	PFHxS	37.20	JD	37.20	D
18-0343	J6275-FS	WGNA-053018-RW-3933	PFNA	2.35		2.35	J
18-0343	J6285-FS	NAWC-053018-RW-196	PFHxS	2.31		2.31	J
18-0360	J6583-FS	NAWC-060418-FRB-230	PFHxS	0.33	J	1.00	U
18-0360	J6643-FS	WGNA-060718-FRB-0626	PFOS	2.48	B	2.48	J

The original data tables have been moved to the unused data section of this complete data package. For SDG 18-0313, the original MQO report and case narrative were moved to the unused data section of the full data package.

QA/QC Summary
Batch 18-0360

Project:	CTO-WE04 Naval Air Station Joint Reserve Base Willow Grove
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	DW
Data Set:	DP-18-0148
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
5/31/2018	6/1/2018	1.6
6/4/2018	6/5/2018	0.9
6/7/2018	6/8/2018	2.3

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 18-0393.

	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. There are no ion ratio exceedences above 50% RPD for any analyte detected above the MDL or the LOQ in this SDG.

Holding Times	Extraction Date(s)	Analysis Date(s)
	6/14/2018	6/14, 15, and 21/2018

QA/QC Summary
Batch 18-0360

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

Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
70-130% of true value	No exceedances noted.
	No comments.

Matrix Spike (MS) / Duplicate (MSD)	A MS/MSD were prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy. The relative percent difference was calculated to measure precision.
70-130% of true value, RPD ≤ 30%	No exceedances noted.
	MS/MSD samples were not processed with this batch of field reagent blank samples.
Surrogates Standard Analytes	Labelled surrogate compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
70-130% of true value	No exceedances noted.
	No comments.

Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
ICal high and low points RPD ≤20%, 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted.
	No comments.

Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadradic curve fitting.
R^2 >0.99 Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No exceedances noted.
	No comments.

QA/QC Summary
Batch 18-0360

Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted.
	No comments.

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

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
Project Number: 100117920-WE04
Preparation Batch: 18-0360
Data Set: DP-18-0148
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

BATTELLE
It can be done

BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title:	Naval Air Station Joint Reserve Base Wi	**Data Set Number:**	DP-18-0148
Project Number:	100117920-WE04	**Prep Batch Number:**	18-0360
Entered By:	Denise Schumitz	**Entered On:**	06/22/2018
Test Code (Matrix Type):	Master_371(L)		

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
DMS 6/22/2018

JV72 is not being used in methods 18-0360_DW for13C2-PFHxA, PFHpA, PFOA, PFHxA, PFNA, PFDA, PFUnA, PFDoA, PFTrDA and PFTeDA. There is no impact on the data once this point is removed from the calibration.
DMS 6/22/2018

Sample J6638 is N qualified on the IS are report because it does not meet the IS area range for the second criteria only.
DMS 6/22/2018

The confirmation ion ratio was above 50% RPD for the selected samples in 18-0360_DW, however, the detected concentrations were below the LOQ or below the detection limits with the following exceptions: JV64 (PFHpA)
DMS 6/22/2018

J6300 did not meet the passing criteria for 13C2-PFHxA. The sample was re-aliquoted and run with a new calibration yielding passing results that are being reported.
DMS 6/26/2018

J6643 was re-aliquoted and run as confirmation for the concentration found in the sample for PFOS. The rerun of the sample is being reported.
DMS 6/26/2018

Task Leader Approval:

SupervisorApproval:

PM Approval:

Digitally signed by Jonathan Thorn
Date: 2018.06.26 15:52:09 -04'00'

Example Calculation for PFAS

Calculation of final concentration from area:

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

Where:

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

Sample ID:	CQ925LCS-FS(0)
Client Sample ID:	Laboratory Control Sample
Sample Size:	0.25
Units:	L
Dilution Factor:	1.000
PIV (L):	0.001
Target Analyte:	PFDA
MRM Transition:	513.0 / 469.0
Data file:	06142018.wiff
Result table:	18-0360_DW
Area:	1,082,683.47
IS Name:	3C2-PFOA
IS Area:	43,174.48
IS Amount (ng/L):	100
y-intercept:	0.09578
slope:	1.02458

$$\text{Concentration} = \frac{[(1082683.47/43174.48) - 0.09578]}{1.02458} * 100 * 0.001 * 1 / 0.25$$

ng/L = 9.75

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
Project No.: 100117920-WE04
Preparation Batch: 18-0360
Data Set: DP-18-0148

	CQ924PB-FS (Procedural Blank)	CQ925LCS-FS (Laboratory Control Sample)	J6291-FS (NAWC-053118-FRB-256)	J6293-FS (NAWC-053118-FRB-126)	J6296-FS (WGNA-053118-FRB-4850)	J6298-FS (NAWC-053118-FRB-311)	J6300-FS (NAWC-053118-FRB-265)
PFHxA	-	L	-	-	-	-	-
PFHpA	-	L	-	-	-	-	-
PFOA	-	L	-	-	-	-	-
PFNA	-	L	-	-	-	-	-
PFDA	-	L	-	-	-	-	-
PFUnA	-	L	-	-	-	-	-
PFDoA	-	L	-	-	-	-	-
PFTrDA	-	L	-	-	-	-	-
PFTeDA	-	L	-	-	-	-	-
NMeFOSAA	-	L	-	-	-	-	-
NEtFOSAA	-	L	-	-	-	-	-
PFBS	-	L	-	-	-	-	-
PFHxS	-	L/Br	-	-	-	-	-
PFOS	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: 18-0360
Data Set: DP-18-0

	J6583-FS (NAWC-060418-FRB-230)	J6585-FS (NAWC-060418-FRB-309)	J6587-FS (NAWC-060418-FRB-293)	J6589-FS (NAWC-060418-FRB-038)	J6591-FS (NAWC-060418-FRB-039)	J6638-FS (WGNA-060718-FRB-0488)	J6640-FS (NAWC-060718-FRB-175)	J6643-FS (WGNA-060718-FRB-0626)
PFHxA	-	-	-	-	-	-	-	-
PFHpA	-	-	-	-	-	-	-	-
PFOA	-	-	-	-	-	-	-	-
PFNA	-	-	-	-	-	-	-	-
PFDA	-	-	-	-	-	-	-	-
PFUnA	-	-	-	-	-	-	-	-
PFDoA	-	-	-	-	-	-	-	-
PFTrDA	-	-	-	-	-	-	-	-
PFTeDA	-	-	-	-	-	-	-	-
NMeFOSAA	-	-	-	-	-	-	-	-
NEtFOSAA	-	-	-	-	-	-	-	-
PFBS	-	-	-	-	-	-	-	-
PFHxS	-	-	-	-	-	-	-	-
PFOS	-	-	-	-	-	-	-	-

"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

BATTELLE
It can be done

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JV64	L1	6/14/18 16:59	13C4-PFOS	178,124.80	-	
JV65	L2	6/14/18 17:08	13C4-PFOS	174,455.63	-	
JV66	L3	6/14/18 17:17	13C4-PFOS	175,183.49	-	
JV67	L4	6/14/18 17:26	13C4-PFOS	188,900.92	-	
JV68	L5	6/14/18 17:35	13C4-PFOS	189,484.28	-	
JV69	L6	6/14/18 17:44	13C4-PFOS	195,004.08	-	
JV70	L7	6/14/18 17:53	13C4-PFOS	162,112.37	-	
JV71	L8	6/14/18 18:02	13C4-PFOS	177,778.90	-	
JV72	L9	6/14/18 18:11	13C4-PFOS	190,664.46	6.8	PASS

Average	Lower	Upper
181,300.99	90,650.50	271,951.49

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	178,124.80	90,650.50	271,951.49		113,478.66	226,957.32	
JV65	L2	6/14/18 17:08	13C4-PFOS	174,455.63	90,650.50	271,951.49		113,478.66	226,957.32	
JV66	L3	6/14/18 17:17	13C4-PFOS	175,183.49	90,650.50	271,951.49		113,478.66	226,957.32	
JV67	L4	6/14/18 17:26	13C4-PFOS	188,900.92	90,650.50	271,951.49		113,478.66	226,957.32	
JV68	L5	6/14/18 17:35	13C4-PFOS	189,484.28	90,650.50	271,951.49		113,478.66	226,957.32	
JV69	L6	6/14/18 17:44	13C4-PFOS	195,004.08	90,650.50	271,951.49		113,478.66	226,957.32	
JV70	L7	6/14/18 17:53	13C4-PFOS	162,112.37	90,650.50	271,951.49		113,478.66	226,957.32	
JV71	L8	6/14/18 18:02	13C4-PFOS	177,778.90	90,650.50	271,951.49		113,478.66	226,957.32	
JV72	L9	6/14/18 18:11	13C4-PFOS	190,664.46	90,650.50	271,951.49		113,478.66	226,957.32	
JV63 ICC	ICC	6/14/18 18:20	13C4-PFOS	185,743.83	90,650.50	271,951.49		113,478.66	226,957.32	
JV69 CCV	L6 CCV	6/15/18 18:07	13C4-PFOS	160,791.11	90,650.50	271,951.49		113,478.66	226,957.32	
CQ924PB-FS(2)	Procedural Blank	6/15/18 18:25	13C4-PFOS	153,276.44	90,650.50	271,951.49		113,478.66	226,957.32	
CQ925LCS-FS(2)	Laboratory Control Sample	6/15/18 18:34	13C4-PFOS	137,187.84	90,650.50	271,951.49		113,478.66	226,957.32	
J6291-FS(2)	NAWC-053118-FRB-256	6/15/18 18:43	13C4-PFOS	137,603.16	90,650.50	271,951.49		113,478.66	226,957.32	
J6293-FS(2)	NAWC-053118-FRB-126	6/15/18 18:52	13C4-PFOS	158,147.22	90,650.50	271,951.49		113,478.66	226,957.32	
J6296-FS(2)	WGNA-053118-FRB-4850	6/15/18 19:00	13C4-PFOS	166,537.97	90,650.50	271,951.49		113,478.66	226,957.32	
J6298-FS(2)	NAWC-053118-FRB-311	6/15/18 19:09	13C4-PFOS	164,251.54	90,650.50	271,951.49		113,478.66	226,957.32	
J6300-FS(2)	NAWC-053118-FRB-265	6/15/18 19:18	13C4-PFOS	147,104.92	90,650.50	271,951.49		113,478.66	226,957.32	
J6583-FS(2)	NAWC-060408-FRB-230	6/15/18 19:27	13C4-PFOS	130,126.84	90,650.50	271,951.49		113,478.66	226,957.32	
JV70 CCV	L7 CCV	6/15/18 19:36	13C4-PFOS	154,051.72	90,650.50	271,951.49		113,478.66	226,957.32	
J6585-FS(2)	NAWC-060408-FRB-309	6/15/18 19:54	13C4-PFOS	167,211.94	90,650.50	271,951.49		107,836.20	215,672.41	
J6587-FS(2)	NAWC-060408-FRB-293	6/15/18 20:03	13C4-PFOS	148,352.40	90,650.50	271,951.49		107,836.20	215,672.41	
J6589-FS(2)	NAWC-060408-FRB-038	6/15/18 20:12	13C4-PFOS	140,222.24	90,650.50	271,951.49		107,836.20	215,672.41	
J6591-FS(2)	NAWC-060408-FRB-039	6/15/18 20:21	13C4-PFOS	155,020.40	90,650.50	271,951.49		107,836.20	215,672.41	
J6638-FS(2)	WGNA-060718-FRB-0488	6/15/18 20:30	13C4-PFOS	119,165.05	90,650.50	271,951.49		107,836.20	215,672.41	
J6640-FS(2)	NAWC-060718-FRB-175	6/15/18 20:39	13C4-PFOS	153,768.49	90,650.50	271,951.49		107,836.20	215,672.41	
J6643-FS(2)	WGNA-060718-FRB-0626	6/15/18 20:48	13C4-PFOS	139,575.43	90,650.50	271,951.49		107,836.20	215,672.41	
JV69 CCV	L6 CCV	6/15/18 20:57	13C4-PFOS	172,319.61	90,650.50	271,951.49		107,836.20	215,672.41	

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

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It can be done

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JV64	L1	6/14/18 16:59	13C2-PFOA	59,540.47	-	
JV65	L2	6/14/18 17:08	13C2-PFOA	56,704.74	-	
JV66	L3	6/14/18 17:17	13C2-PFOA	58,565.02	-	
JV67	L4	6/14/18 17:26	13C2-PFOA	65,673.27	-	
JV68	L5	6/14/18 17:35	13C2-PFOA	65,593.19	-	
JV69	L6	6/14/18 17:44	13C2-PFOA	63,757.89	-	
JV70	L7	6/14/18 17:53	13C2-PFOA	59,126.70	-	
JV71	L8	6/14/18 18:02	13C2-PFOA	64,124.72	7.4	PASS

Average	Lower	Upper
61,635.75	30,817.88	92,453.63

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	6/14/18 16:59	13C2-PFOA	59,540.47	30,817.88	92,453.63		41,388.69	82,777.38	
JV65	L2	6/14/18 17:08	13C2-PFOA	56,704.74	30,817.88	92,453.63		41,388.69	82,777.38	
JV66	L3	6/14/18 17:17	13C2-PFOA	58,565.02	30,817.88	92,453.63		41,388.69	82,777.38	
JV67	L4	6/14/18 17:26	13C2-PFOA	65,673.27	30,817.88	92,453.63		41,388.69	82,777.38	
JV68	L5	6/14/18 17:35	13C2-PFOA	65,593.19	30,817.88	92,453.63		41,388.69	82,777.38	
JV69	L6	6/14/18 17:44	13C2-PFOA	63,757.89	30,817.88	92,453.63		41,388.69	82,777.38	
JV70	L7	6/14/18 17:53	13C2-PFOA	59,126.70	30,817.88	92,453.63		41,388.69	82,777.38	
JV71	L8	6/14/18 18:02	13C2-PFOA	64,124.72	30,817.88	92,453.63		41,388.69	82,777.38	
JV63 ICC	ICC	6/14/18 18:20	13C2-PFOA	60,459.81	30,817.88	92,453.63		41,388.69	82,777.38	
JV69 CCV	L6 CCV	6/15/18 18:07	13C2-PFOA	53,318.22	30,817.88	92,453.63		41,388.69	82,777.38	
CQ924PB-FS(2)	Procedural Blank	6/15/18 18:25	13C2-PFOA	49,887.99	30,817.88	92,453.63		41,388.69	82,777.38	
CQ925LCS-FS(2)	Laboratory Control Sample	6/15/18 18:34	13C2-PFOA	43,174.48	30,817.88	92,453.63		41,388.69	82,777.38	
J6291-FS(2)	NAWC-053118-FRB-256	6/15/18 18:43	13C2-PFOA	44,324.28	30,817.88	92,453.63		41,388.69	82,777.38	
J6293-FS(2)	NAWC-053118-FRB-126	6/15/18 18:52	13C2-PFOA	54,209.58	30,817.88	92,453.63		41,388.69	82,777.38	
J6296-FS(2)	WGNA-053118-FRB-4850	6/15/18 19:00	13C2-PFOA	57,359.73	30,817.88	92,453.63		41,388.69	82,777.38	
J6298-FS(2)	NAWC-053118-FRB-311	6/15/18 19:09	13C2-PFOA	54,245.57	30,817.88	92,453.63		41,388.69	82,777.38	
J6300-FS(2)	NAWC-053118-FRB-265	6/15/18 19:18	13C2-PFOA	48,215.90	30,817.88	92,453.63		41,388.69	82,777.38	
J6583-FS(2)	NAWC-060408-FRB-230	6/15/18 19:27	13C2-PFOA	42,702.48	30,817.88	92,453.63		41,388.69	82,777.38	
JV70 CCV	L7 CCV	6/15/18 19:36	13C2-PFOA	51,004.28	30,817.88	92,453.63		41,388.69	82,777.38	
J6585-FS(2)	NAWC-060408-FRB-309	6/15/18 19:54	13C2-PFOA	54,720.69	30,817.88	92,453.63		35,703.00	71,405.99	
J6587-FS(2)	NAWC-060408-FRB-293	6/15/18 20:03	13C2-PFOA	52,352.48	30,817.88	92,453.63		35,703.00	71,405.99	
J6589-FS(2)	NAWC-060408-FRB-038	6/15/18 20:12	13C2-PFOA	46,725.20	30,817.88	92,453.63		35,703.00	71,405.99	
J6591-FS(2)	NAWC-060408-FRB-039	6/15/18 20:21	13C2-PFOA	53,563.52	30,817.88	92,453.63		35,703.00	71,405.99	
J6638-FS(2)	WGNA-060718-FRB-0488	6/15/18 20:30	13C2-PFOA	42,284.90	30,817.88	92,453.63		35,703.00	71,405.99	
J6640-FS(2)	NAWC-060718-FRB-175	6/15/18 20:39	13C2-PFOA	54,874.94	30,817.88	92,453.63		35,703.00	71,405.99	
J6643-FS(2)	WGNA-060718-FRB-0626	6/15/18 20:48	13C2-PFOA	44,551.69	30,817.88	92,453.63		35,703.00	71,405.99	
JV69 CCV	L6 CCV	6/15/18 20:57	13C2-PFOA	59,194.17	30,817.88	92,453.63		35,703.00	71,405.99	

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

BATTELLE
It can be done

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JV64	L1	6/14/18 16:59	d3-MeFOSAA	28,199.07	-	
JV65	L2	6/14/18 17:08	d3-MeFOSAA	27,617.84	-	
JV66	L3	6/14/18 17:17	d3-MeFOSAA	27,497.23	-	
JV67	L4	6/14/18 17:26	d3-MeFOSAA	27,927.14	-	
JV68	L5	6/14/18 17:35	d3-MeFOSAA	29,948.30	-	
JV69	L6	6/14/18 17:44	d3-MeFOSAA	31,393.70	-	
JV70	L7	6/14/18 17:53	d3-MeFOSAA	28,365.86	-	
JV71	L8	6/14/18 18:02	d3-MeFOSAA	29,149.34	-	
JV72	L9	6/14/18 18:11	d3-MeFOSAA	34,369.99	19.7	PASS

Average	Lower	Upper
29,385.39	14,692.70	44,078.09

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	28,199.07	14,692.70	44,078.09		19,856.10	39,712.20	
JV65	L2	6/14/18 17:08	d3-MeFOSAA	27,617.84	14,692.70	44,078.09		19,856.10	39,712.20	
JV66	L3	6/14/18 17:17	d3-MeFOSAA	27,497.23	14,692.70	44,078.09		19,856.10	39,712.20	
JV67	L4	6/14/18 17:26	d3-MeFOSAA	27,927.14	14,692.70	44,078.09		19,856.10	39,712.20	
JV68	L5	6/14/18 17:35	d3-MeFOSAA	29,948.30	14,692.70	44,078.09		19,856.10	39,712.20	
JV69	L6	6/14/18 17:44	d3-MeFOSAA	31,393.70	14,692.70	44,078.09		19,856.10	39,712.20	
JV70	L7	6/14/18 17:53	d3-MeFOSAA	28,365.86	14,692.70	44,078.09		19,856.10	39,712.20	
JV71	L8	6/14/18 18:02	d3-MeFOSAA	29,149.34	14,692.70	44,078.09		19,856.10	39,712.20	
JV72	L9	6/14/18 18:11	d3-MeFOSAA	34,369.99	14,692.70	44,078.09		19,856.10	39,712.20	
JV63 ICC	ICC	6/14/18 18:20	d3-MeFOSAA	29,722.33	14,692.70	44,078.09		19,856.10	39,712.20	
JV69 CCV	L6 CCV	6/15/18 18:07	d3-MeFOSAA	31,457.94	14,692.70	44,078.09		19,856.10	39,712.20	
CQ924PB-FS(2)	Procedural Blank	6/15/18 18:25	d3-MeFOSAA	27,679.61	14,692.70	44,078.09		19,856.10	39,712.20	
CQ925LCS-FS(2)	Laboratory Control Sample	6/15/18 18:34	d3-MeFOSAA	23,558.27	14,692.70	44,078.09		19,856.10	39,712.20	
J6291-FS(2)	NAWC-053118-FRB-256	6/15/18 18:43	d3-MeFOSAA	25,723.79	14,692.70	44,078.09		19,856.10	39,712.20	
J6293-FS(2)	NAWC-053118-FRB-126	6/15/18 18:52	d3-MeFOSAA	31,260.08	14,692.70	44,078.09		19,856.10	39,712.20	
J6296-FS(2)	WGNA-053118-FRB-4850	6/15/18 19:00	d3-MeFOSAA	28,907.64	14,692.70	44,078.09		19,856.10	39,712.20	
J6298-FS(2)	NAWC-053118-FRB-311	6/15/18 19:09	d3-MeFOSAA	30,737.26	14,692.70	44,078.09		19,856.10	39,712.20	
J6300-FS(2)	NAWC-053118-FRB-265	6/15/18 19:18	d3-MeFOSAA	23,515.20	14,692.70	44,078.09		19,856.10	39,712.20	
J6583-FS(2)	NAWC-060408-FRB-230	6/15/18 19:27	d3-MeFOSAA	22,163.18	14,692.70	44,078.09		19,856.10	39,712.20	
JV70 CCV	L7 CCV	6/15/18 19:36	d3-MeFOSAA	32,544.08	14,692.70	44,078.09		19,856.10	39,712.20	
J6585-FS(2)	NAWC-060408-FRB-309	6/15/18 19:54	d3-MeFOSAA	25,531.62	14,692.70	44,078.09		22,780.86	45,561.71	
J6587-FS(2)	NAWC-060408-FRB-293	6/15/18 20:03	d3-MeFOSAA	26,484.83	14,692.70	44,078.09		22,780.86	45,561.71	
J6589-FS(2)	NAWC-060408-FRB-038	6/15/18 20:12	d3-MeFOSAA	22,915.14	14,692.70	44,078.09		22,780.86	45,561.71	
J6591-FS(2)	NAWC-060408-FRB-039	6/15/18 20:21	d3-MeFOSAA	24,928.25	14,692.70	44,078.09		22,780.86	45,561.71	
J6638-FS(2)	WGNA-060718-FRB-0488	6/15/18 20:30	d3-MeFOSAA	21,240.41	14,692.70	44,078.09		22,780.86	45,561.71	N
J6640-FS(2)	NAWC-060718-FRB-175	6/15/18 20:39	d3-MeFOSAA	28,180.65	14,692.70	44,078.09		22,780.86	45,561.71	
J6643-FS(2)	WGNA-060718-FRB-0626	6/15/18 20:48	d3-MeFOSAA	25,337.67	14,692.70	44,078.09		22,780.86	45,561.71	
JV69 CCV	L6 CCV	6/15/18 20:57	d3-MeFOSAA	33,029.07	14,692.70	44,078.09		22,780.86	45,561.71	

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Summary Asymmetry Report

Created with Analyst Reporter
Printed: 22/06/2018 11:09:35 AM

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**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.51	1.02	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.81	1.19	0.8 – 1.5

BATTELLE

Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 22/06/2018 11:10:23 AM

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**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.51	31	>10
PFBS_2	298.9 / 99.0	1.51	30	>10
PFHxA_1	313.0 / 269.0	1.81	26	>10
PFHxA_2	313.0 / 119.0	1.80	22	>10
PFHpA_1	363.0 / 319.0	2.18	33	>10
PFHpA_2	363.0 / 169.0	2.18	28	>10
PFHxS_1	399.0 / 80.0	2.19	29	>10
PFHxS_2	399.0 / 99.0	2.19	31	>10
PFOA_1	413.0 / 369.0	2.56	31	>10
PFOA_2	413.0 / 169.0	2.56	32	>10
PFNA_1	463.0 / 419.0	2.94	28	>10
PFNA_2	463.0 / 219.0	2.94	33	>10
PFOS_1	499.0 / 80.0	2.93	31	>10
PFOS_2	499.0 / 99.0	2.93	27	>10
PFDA_1	513.0 / 469.0	3.29	33	>10
PFDA_2	513.0 / 219.0	3.29	41	>10
PFUnA_1	563.0 / 519.0	3.61	27	>10
PFUnA_2	563.0 / 269.0	3.61	33	>10
PFDoA_1	613.0 / 569.0	3.89	35	>10
PFDoA_2	613.0 / 319.0	3.89	31	>10
PFTrDA_1	663.0 / 619.0	4.15	32	>10
PFTrDA_2	663.0 / 169.0	4.14	35	>10
PFTeDA_1	713.0 / 669.0	4.37	61	>10
PFTeDA_2	713.0 / 169.0	4.36	50	>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
13C2-PFHxA	315.0 / 270.0	1.80	37	>10
13C2-PFDA	515.0 / 470.0	3.28	24	>10
d5-EtFOSAA	589.0 / 419.0	3.59	33	>10

BATTELLE

Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 22/06/2018 11:10:23 AM

Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	6/21/2018 9:17:46 PM	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFOS_1	499.0 / 80.0	2.93	31	>10
PFOS_2	499.0 / 99.0	2.93	27	>10

BATTELLE
It can be done

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

Analytes on NELAP and ELAP QSM 5.1 Scope of accreditation

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ID 626 04/18

Analytical Transitions for PFAS in drinking water

SOP 5-371 (EPA 537 Version 1.1)

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
PFHxA	307-24-4	Target	313.0 / 269.0	313.0 / 119.0
PFHpA	375-85-9	Target	363.0 / 319.0	363.0 / 169.0
PFOA	335-67-1	Target	413.0 / 369.0	413.0 / 169.0
PFNA	375-95-1	Target	463.0 / 419.0	463.0 / 219.0
PFDA	335-76-2	Target	513.0 / 469.0	513.0 / 219.0
PFUnA	2058-94-8	Target	563.0 / 519.0	563.0 / 269.0
PFDoA	307-55-1	Target	613.0 / 569.0	613.0 / 319.0
PFTrDA	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
PFTeDA	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
NMeFOSAA	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
NEtFOSAA	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
PFBS	375-73-5	Target	298.9.0 / 80.0	298.9.0 / 99.0
PFHxS	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
PFOS	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
13C2-PFHxA	NA	SIS	315.0 / 270.0	NA
13C2-PFDA	NA	SIS	515.0 / 470.0	NA
d5-EtFOSAA	NA	SIS	589.0 / 419.0	NA
$^{13}C_2$-PFOA	NA	IS	415.0 / 270.0	NA
$^{13}C_4$-PFOS	NA	IS	503.0 / 80.0	NA
d3-MeFOSAA	NA	IS	573.0 / 419.0	NA

Drinking Water Calibration to Sample Equivalents

ICAL (ng/L)	PIV (mL)	DF[1]	Sample Size (L)	Sample Equivalent (ng/L)[2]
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

[1] - base level dilution as part of the extraction procedure

[2] - calculated equivalent of a sample based on the ICAL concentration

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

QTRAP 5500
Preventive Maintenance Checklist

Preventive Maintenance Date:	22-Feb-2017

Request ID:	3683
Company Name:	Battelle Memorial Institute
Instrument ID:	X60666
Instrument Model:	QTRAP 5500
Instrument Serial Number:	AU23051004

☑ **PASS** ☐ **FAIL**

Any failure will lead to an automatic Service Call being open to investigate fault.

Preventive Maintenance is performed twice every year unless specified in the Service Contract. It is designed to help maintain optimum system performance and to help diagnose any system deficiencies.

Engineer is required the assigned Request ID for this PM otherwise making this job invalid.

Comments:_____
_____
_____
_____

Performed By: Kaustubh Dhayagude **Date:** 22-Feb-2017

Approved By :_____ **Date:** _____

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PRE PM PPG PERFORMANCE EVALUATION:

☑ Consult Customer concerning the unit overall performance.
☑ Check Logbook for Services recently performed.
☑ Check Vacuum Pressure:

CAD Settings	Vacuum Reading (x 10^{-5} Torr)	Acceptance Criteria
☑ CAD 0	0.5	0.4 to 1.1 x10^{-5} Torr
☑ CAD Low	1.9	Read Only
☑ CAD Medium	2.4	Read Only
☑ CAD High	3.4	Read Only
☑ CAD 12	3.4	2.4 to 4.5 x10^{-5} Torr

☑ Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification

☑ No degradation or Sensitivity drop

☑ Check for Q3 contamination symptoms. Run Q3 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification

☑ No degradation or Sensitivity drop

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

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

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

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

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

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

☑ Perform MSMS POS in Product Ion scan with 609.3 parent and record daughter 195.1 using Reserpine 0.167 pmol/ul at the scan rate of 10 Da/s for 10 MCA. Calculate transmission efficiency comparing Q1POS 609 intensity. Transmission Efficiency: :__19.51%__ (Read Only)

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

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

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

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

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

☑ Perform Product Ion scan using NEG PPG 3e-5M. Record10mca.

Mass	Scan Rate	MCA	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.35 e6	Read Only	0.6495	Read Only

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PREVENTIVE MAINTENANCE CHECKLIST:

☑ Check Cooling Fans for Turbo Pumps while MS is ON.
☑ Check QJet and QPS tuning voltage for reference.
☐ Record AC input Voltage while MS is OFF: _____(200-240VAC).
If Out-of-Range, notify customer.

☑ Clean Interface
- ☑ Curtain Plate
- ☑ Orifice Plate
- ☑ QJet
- ☑ Q0 Rods.

☑ Replace Roughing Pump Oil.
☑ Inspect Oil Exhaust Filter, if Applicable. ☐ N/A
☑ Clean and inspect built-in divert valve if used. ☐ N/A
☑ Check Multiplier Voltage, optimize if necessary.
☑ Replace four Air Filters at the bottom of the mass spectrometer.

☑Pump down overnight if possible. ☐ N/A

☑Perform Maintenance on Turbo V source.

☑Replace Electrode, if necessary. ☐ N/A
☑Check Turbo heaters resistances.
☑Check if Temperature is reached at 500C with TIS Probe installed.
☐Check if Temperature is reached at 500C with APCI Probe installed. ☑ N/A

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QTRAP 5500

LC/MS/MS Detector System
Appendix ZEFPM003-2L

POST PM PPG PERFORMANCE TESTS:

☑ Set-up Sample for Infusion.
☑ Check spray and adjust sprayer's position of the TIS source.
☑ Check Vacuum Pressure:

CAD Settings	Vacuum Reading (x 10^{-5} Torr)	Acceptance Criteria
☑ CAD 0	0.8	0.4 to 1.1 x10^{-5} Torr
☑ CAD Low	2.1	Read Only
☑ CAD Medium	2.6	Read Only
☑ CAD High	3.7	Read Only
☑ CAD 12	3.7	2.4 to 4.5 x10^{-5} Torr

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

Mass	Q1 Intensity		Q1 Width	Width Specs
	Value	Spec	Value	
Scan Rate 10 Da/s Record 10 mca				
Q1 175.133	5.94 e6	≥1.2^{e}6	0.6933	0.6 to 0.8
Q1 500.380	2.25 e7	≥9.0^{e}6	0.7444	0.6 to 0.8
Q1 906.673	2.74 e7	≥1.4^{e}7	0.7347	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8^{e}7	0.7656	0.6 to 0.8

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

Mass	Q3 Intensity		Q3 Width	Width Specs
	Value	Spec	Value	
Scan Rate 10 Da/s Record 10 mca				
Q3 175.133	4.54 e6	≥1.2^{e}6	0.6390	0.6 to 0.8
Q3 500.380	2.13 e7	≥9.0^{e}6	0.7008	0.6 to 0.8
Q3 906.673	3.04 e7	≥1.4^{e}7	0.7683	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q3 906.673	1.51 e8	≥6.8^{e}7	0.7118	0.6 to 0.8

☑ Perform "Product of 609.3" POS and record product ion 195.1 using Reserpine 0.167pmol/uL. Record 10 mca. Calculate Transmission efficiency comparing Q1POS 609 intensity.
Transmission Efficiency: 16.93% (≥ 10.0%)

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

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

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

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

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

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

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

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

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

Mass	Scan Rate (Da/s)	Fragamentation OFF		Fragmentation ON	
		Intensity	Spec	Intensity	Spec
MS3 397.2	1000	3.2 e7	Contains only 397.2	N/A	N/A
☐ 236 OR ☑ 365	1000	1.19 e8	Fragment Intensity	> 4.4 e6	≥1.6x 10e6

REVIEW:

☑ Attach all spectrums printouts to this procedure.
☑ If any parameter setting access modes were changed during the PM, ensure they are returned to their normal access mode and that their offsets are adjusted to match optimized values from the post-PM acquisition files.
☐ Empty tuning cache folder, if necessary. ☑ N/A
☑ Update Service Work Order status
☑ Fill and replace PM Label.

END OF PREVENTIVE MAINTENANCE CHECKLIST

Document history:

06 OCT 2016: Appendix ZEFPM003-2L: Removed requirements to fit Manufacturer's testing criteria.

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BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JV35

Description: PFAS - 537.1 Internal Standard Stock

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
180425-01	EPA-537IS	Neat	~2.666666	12/13/22	---	---	1000 uL	1	10	~0.3000

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

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

Balance ID: _____

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

Approved By: _____ **Date:** _____

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV35

Description: PFAS - 537.1 Internal Standard Stock

Stock Id: 180425-01

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

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

Approved By: _____ **Date:** _____

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JV37

Description: PFAS - 537.1 Surrogate Standard Stock

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
180425-02	EPA-537SS	Neat	~2.000000	11/08/22	---	---	1000 uL	1	10	~0.2000

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

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

Balance ID: _____

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

Approved By: _____ **Date:** _____

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV37

Description: PFAS - 537.1 Surrogate Standard Stock

Stock Id: 180425-02

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

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

Approved By: _____ **Date:** _____

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV41

Description: PFAS - 537.1 Second Source LCS/MS Solution

Assigned Lab ID (from receipt log)	Chemical Name:.	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
180425-04	EPA-537PDS-L (second source)	Neat	~2.000000	03/05/23	---	---	500 uL	1	20	~0.0500

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

Balance ID:

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV41

Description: PFAS - 537.1 Second Source LCS/MS Solution

Stock Id: 180425-04

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	500	2.00	1	100.000	1	20	0.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-1-butanesulfonate	500	1.77	1	100.000	1	20	0.04425
Perfluoro-1-hexanesulfonate	500	1.89	1	100.000	1	20	0.04725
Perfluoro-1-octanesulfonate	500	1.91	1	100.000	1	20	0.04775
Perfluoro-n-decanoic Acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-dodecanoic acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-heptanoic Acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-hexanoic acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-octanoic Acid	500	2.00	1	100.000	1	20	0.05000
Perfluorononanoic Acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-tetradecanoic acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-tridecanoic acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-undecanoic acid	500	2.00	1	100.000	1	20	0.05000

Final Concentrations:

Analyte:	Conc (ug/mL):
N-ethylperfluoro-octanesulfonamidoacetic acid	.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.05000
Perfluoro-1-butanesulfonate	.04425
Perfluoro-1-hexanesulfonate	.04725
Perfluoro-1-octanesulfonate	.04775
Perfluoro-n-decanoic Acid	.05000
Perfluoro-n-dodecanoic acid	.05000
Perfluoro-n-heptanoic Acid	.05000
Perfluoro-n-hexanoic acid	.05000
Perfluoro-n-octanoic Acid	.05000
Perfluorononanoic Acid	.05000
Perfluoro-n-tetradecanoic acid	.05000
Perfluoro-n-tridecanoic acid	.05000
Perfluoro-n-undecanoic acid	.05000

Syringes/Pipettes:

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

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV42

Description: PFAS - 537.1 High ICAL Stock

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
180425-03	EPA-537PDS (calibration)	Neat	~2.000000	03/05/23	---	---	250 uL	1	10	~0.0500

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

Balance ID:

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV42

Description: PFAS - 537.1 High ICAL Stock

Stock Id: 180425-03

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV43

Description: PFAS - 537.1 Low ICAL Stock

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
180425-03	EPA-537PDS (calibration)	Neat	~2.000000	03/05/23	---	---	250 uL	1	100	~0.0050

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

Balance ID: _____

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV43

Description: PFAS - 537.1 Low ICAL Stock

Stock Id: 180425-03

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV59

Description: PFAS - 537.1 Internal Standard Solution

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

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

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

Balance ID:

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV59

Description: PFAS - 537.1 Internal Standard Solution

Stock Id: JV35

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

Final Concentrations:

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV35	Pipette	I0400533B

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV60

Description: PFAS - 537.1 Surrogate Solution

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

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

Balance ID: _____

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV60

Description: PFAS - 537.1 Surrogate Solution

Stock Id: JV37

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

Final Concentrations:

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV37	Pipette	I0400533B

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV61

Description: PFAS - 537.1 Internal Standard Calibration Stock Solution

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

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

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

Balance ID:

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV61

Description: PFAS - 537.1 Internal Standard Calibration Stock Solution

Stock Id: JV35

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV62

Description: PFAS - 537.1 Surrogate Calibration Stock Solution

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

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

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

Balance ID:

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV62

Description: PFAS - 537.1 Surrogate Calibration Stock Solution

Stock Id: JV37

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV63

Description: PFAS - 537.1 ICC

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

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

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

Balance ID:

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV63

Description: PFAS - 537.1 ICC

Stock Id: JV41

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	200	0.05	---	---	1	10	0.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-1-butanesulfonate	200	0.04	---	---	1	10	0.00089
Perfluoro-1-hexanesulfonate	200	0.05	---	---	1	10	0.00095
Perfluoro-1-octanesulfonate	200	0.05	---	---	1	10	0.00095
Perfluoro-n-decanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-dodecanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-heptanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-hexanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-octanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluorononanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-tetradecanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-tridecanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-undecanoic acid	200	0.05	---	---	1	10	0.00100

Stock Id: JV59

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	50	0.00	---	---	1	10	0.00001
13C4-PFOS	50	0.01	---	---	1	10	0.00003
d3-MeFOSAA	50	0.01	---	---	1	10	0.00004

Stock Id: JV60

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	50	0.00	---	---	1	10	0.00001
13C2-PFHxA	50	0.00	---	---	1	10	0.00001
d5-EtFOSAA	50	0.01	---	---	1	10	0.00004

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.00001
13C2-PFHxA	.00001
13C2-PFOA	.00001
13C4-PFOS	.00003
d3-MeFOSAA	.00004
d5-EtFOSAA	.00004

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

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

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV63

Description: PFAS - 537.1 ICC

N-ethylperfluoro-octanesulfonamidoacetic acid	.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00100
Perfluoro-1-butanesulfonate	.00089
Perfluoro-1-hexanesulfonate	.00095
Perfluoro-1-octanesulfonate	.00095
Perfluoro-n-decanoic Acid	.00100
Perfluoro-n-dodecanoic acid	.00100
Perfluoro-n-heptanoic Acid	.00100
Perfluoro-n-hexanoic acid	.00100
Perfluoro-n-octanoic Acid	.00100
Perfluorononanoic Acid	.00100
Perfluoro-n-tetradecanoic acid	.00100
Perfluoro-n-tridecanoic acid	.00100
Perfluoro-n-undecanoic acid	.00100

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV41	Pipette	G0792979B
JV59	Pipette	I0793912B
JV60	Pipette	I0793912B

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV64

Description: PFAS - 537.1 ICAL L1

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

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

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

Balance ID: _____

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV64

Description: PFAS - 537.1 ICAL L1

Stock Id: JV43

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

Stock Id: JV61

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

Stock Id: JV62

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

Final Concentrations:

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

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

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

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV64

Description: PFAS - 537.1 ICAL L1

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

Syringes/Pipettes:

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

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV65

Description: PFAS - 537.1 ICAL L2

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

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

Balance ID: _____

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV65

Description: PFAS - 537.1 ICAL L2

Stock Id: JV43

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

Stock Id: JV61

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

Stock Id: JV62

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

Final Concentrations:

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

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

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

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV65

Description: PFAS - 537.1 ICAL L2

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

Syringes/Pipettes:

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

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV66

Description: PFAS - 537.1 ICAL L3

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

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

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

Balance ID:

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

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

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV66

Description: PFAS - 537.1 ICAL L3

Stock Id: JV43

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

Stock Id: JV61

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

Stock Id: JV62

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

Final Concentrations:

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

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

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

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV66

Description: PFAS - 537.1 ICAL L3

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

Syringes/Pipettes:

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

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV67

Description: PFAS - 537.1 ICAL L4

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

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

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

Balance ID:

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV67

Description: PFAS - 537.1 ICAL L4

Stock Id: JV43

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	500	0.01	---	---	1	10	0.00025
N-methylperfluoro-1-octanesulfonamidoacetic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-1-butanesulfonate	500	0.00	---	---	1	10	0.00022
Perfluoro-1-hexanesulfonate	500	0.00	---	---	1	10	0.00023
Perfluoro-1-octanesulfonate	500	0.00	---	---	1	10	0.00023
Perfluoro-n-decanoic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-dodecanoic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-heptanoic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-hexanoic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-nonanoic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-octanoic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-tetradecanoic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-tridecanoic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-undecanoic acid	500	0.01	---	---	1	10	0.00025

Stock Id: JV61

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

Stock Id: JV62

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

Final Concentrations:

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

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

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

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV67

Description: PFAS - 537.1 ICAL L4

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV43	Pipette	I0400533B
JV61	Pipette	D1075429B
JV62	Pipette	I0793912B

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV68

Description: PFAS - 537.1 ICAL L5

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

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

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

Balance ID: _____

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV68

Description: PFAS - 537.1 ICAL L5

Stock Id: JV43

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

Stock Id: JV61

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

Stock Id: JV62

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

Final Concentrations:

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

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

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

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV68

Description: PFAS - 537.1 ICAL L5

N-ethylperfluoro-octanesulfonamidoacetic acid	.00050
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00050
Perfluoro-1-butanesulfonate	.00044
Perfluoro-1-hexanesulfonate	.00046
Perfluoro-1-octanesulfonate	.00046
Perfluoro-n-decanoic Acid	.00050
Perfluoro-n-dodecanoic acid	.00050
Perfluoro-n-heptanoic Acid	.00050
Perfluoro-n-hexanoic acid	.00050
Perfluoro-n-nonanoic Acid	.00050
Perfluoro-n-octanoic Acid	.00050
Perfluoro-n-tetradecanoic acid	.00050
Perfluoro-n-tridecanoic acid	.00050
Perfluoro-n-undecanoic acid	.00050

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV43	Pipette	I0400533B
JV61	Pipette	I0793912B
JV62	Pipette	I0793912B

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV69

Description: PFAS - 537.1 ICAL L6

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

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

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

Balance ID:

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV69

Description: PFAS - 537.1 ICAL L6

Stock Id: JV42

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-octanesulfonamidoacetic acid	200	0.05	---	---	1	10	0.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-1-butanesulfonate	200	0.04	---	---	1	10	0.00089
Perfluoro-1-hexanesulfonate	200	0.05	---	---	1	10	0.00091
Perfluoro-1-octanesulfonate	200	0.05	---	---	1	10	0.00093
Perfluoro-n-decanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-dodecanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-heptanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-hexanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-nonanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-octanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-tetradecanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-tridecanoic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-undecanoic acid	200	0.05	---	---	1	10	0.00100

Stock Id: JV61

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

Stock Id: JV62

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

Final Concentrations:

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

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

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

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV69

Description: PFAS - 537.1 ICAL L6

N-ethylperfluoro-octanesulfonamidoacetic acid	.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00100
Perfluoro-1-butanesulfonate	.00089
Perfluoro-1-hexanesulfonate	.00091
Perfluoro-1-octanesulfonate	.00093
Perfluoro-n-decanoic Acid	.00100
Perfluoro-n-dodecanoic acid	.00100
Perfluoro-n-heptanoic Acid	.00100
Perfluoro-n-hexanoic acid	.00100
Perfluoro-n-nonanoic Acid	.00100
Perfluoro-n-octanoic Acid	.00100
Perfluoro-n-tetradecanoic acid	.00100
Perfluoro-n-tridecanoic acid	.00100
Perfluoro-n-undecanoic acid	.00100

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV42	Pipette	G0792979B
JV61	Pipette	I0793912B
JV62	Pipette	I0793912B

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV70

Description: PFAS - 537.1 ICAL L7

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

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

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

Balance ID: _____

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV70

Description: PFAS - 537.1 ICAL L7

Stock Id: JV42

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

Stock Id: JV61

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

Stock Id: JV62

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

Final Concentrations:

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

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

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

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV70

Description: PFAS - 537.1 ICAL L7

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV42	Pipette	I0400533B
JV61	Pipette	I0793912B
JV62	Pipette	I0793912B

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV71

Description: PFAS - 537.1 ICAL L8

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

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

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

Balance ID: _____

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV71

Description: PFAS - 537.1 ICAL L8

Stock Id: JV42

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

Stock Id: JV61

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

Stock Id: JV62

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

Final Concentrations:

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

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

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

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV71

Description: PFAS - 537.1 ICAL L8

N-ethylperfluoro-octanesulfonamidoacetic acid	.00500
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00500
Perfluoro-1-butanesulfonate	.00443
Perfluoro-1-hexanesulfonate	.00456
Perfluoro-1-octanesulfonate	.00463
Perfluoro-n-decanoic Acid	.00500
Perfluoro-n-dodecanoic acid	.00500
Perfluoro-n-heptanoic Acid	.00500
Perfluoro-n-hexanoic acid	.00500
Perfluoro-n-nonanoic Acid	.00500
Perfluoro-n-octanoic Acid	.00500
Perfluoro-n-tetradecanoic acid	.00500
Perfluoro-n-tridecanoic acid	.00500
Perfluoro-n-undecanoic acid	.00500

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV42	Pipette	I0400533B
JV61	Pipette	I0793912B
JV62	Pipette	I0793912B

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

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

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

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

BATTELLE

It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: JV72

Description: PFAS - 537.1 ICAL L9

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

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

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

Balance ID: _____

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV72

Description: PFAS - 537.1 ICAL L9

Stock Id: JV42

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

Stock Id: JV61

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	25	0.02	---	---	1	5	0.00010
13C4-PFOS	25	0.06	---	---	1	5	0.00029
d3-MeFOSAA	25	0.08	---	---	1	5	0.00040

Stock Id: JV62

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	25	0.02	---	---	1	5	0.00010
13C2-PFHxA	25	0.02	---	---	1	5	0.00010
d5-EtFOSAA	25	0.08	---	---	1	5	0.00040

Final Concentrations:

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

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

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

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

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

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: JV72

Description: PFAS - 537.1 ICAL L9

N-ethylperfluoro-octanesulfonamidoacetic acid	.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.01000
Perfluoro-1-butanesulfonate	.00885
Perfluoro-1-hexanesulfonate	.00912
Perfluoro-1-octanesulfonate	.00925
Perfluoro-n-decanoic Acid	.01000
Perfluoro-n-dodecanoic acid	.01000
Perfluoro-n-heptanoic Acid	.01000
Perfluoro-n-hexanoic acid	.01000
Perfluoro-n-nonanoic Acid	.01000
Perfluoro-n-octanoic Acid	.01000
Perfluoro-n-tetradecanoic acid	.01000
Perfluoro-n-tridecanoic acid	.01000
Perfluoro-n-undecanoic acid	.01000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV42	Pipette	I0400533B
JV61	Pipette	I0793912B
JV62	Pipette	I0793912B

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

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

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

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

BATTELLE
It can be done

BDO Id: 180425-01

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

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

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

Total Analytes: 3

Notes:

Approved by: _____ **Approved on:** _____

Authorized by: _____ **Authorized on:** _____

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-537IS

Internal Standard
Primary Dilution Standard

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

DESCRIPTION:

EPA-537IS is a solution/mixture of a mass-labelled (^{13}C) perfluoroalkylcarboxylic acid, a mass-labelled (^{13}C) perfluoroalkylsulfonate, and a mass-labelled (^{2}H) perfluorooctanesulfonamidoacetic acid. The components and their concentrations are given in Table A.

The mass-labelled perfluoroalkylcarboxylic acid and the mass-labelled perfluoroalkylsulfonate both have chemical purities of >98% and isotopic purities of ≥99%. The mass-labelled perfluorooctanesulfonamidoacetic acid has a chemical purity of >98% and an isotopic purity of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

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

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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

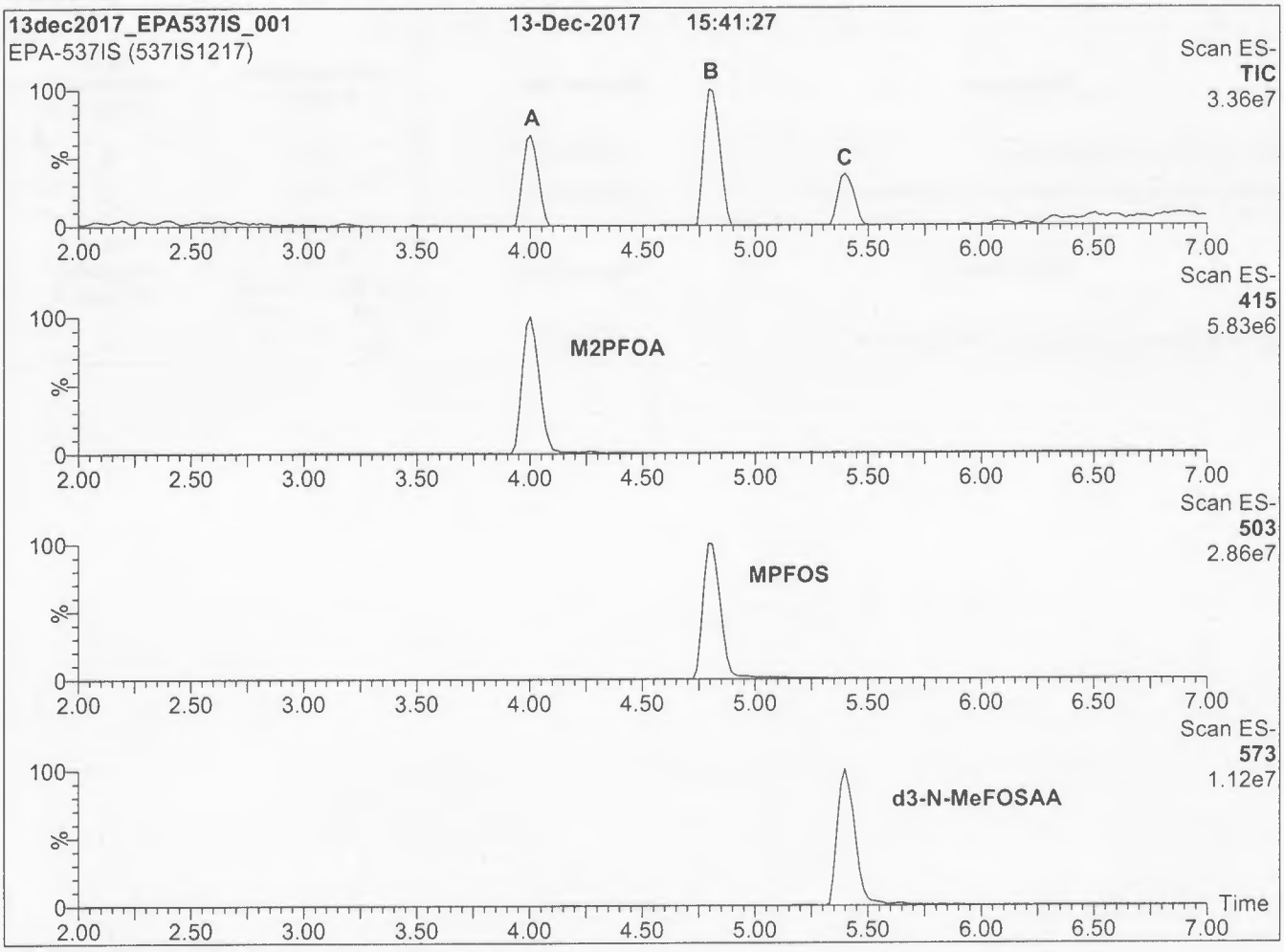
Table A: **EPA-537IS; Components and Concentrations (ng/ml; ± 5% in Methanol / Water (<1%))**

Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
Perfluoro-n-[1,2-$^{13}C_2$]octanoic acid	M2PFOA	1000		A
N-methyl-d_3-perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	4000		C
Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate	MPFOS	3000	2870	B

Certified By: _____ **Date:** 12/22/2017
(mm/dd/yyyy)

B.G. Chittim, General Manager

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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min
and hold for 2 min before returning
to initial conditions in 0.5 min.
Time: 10 min

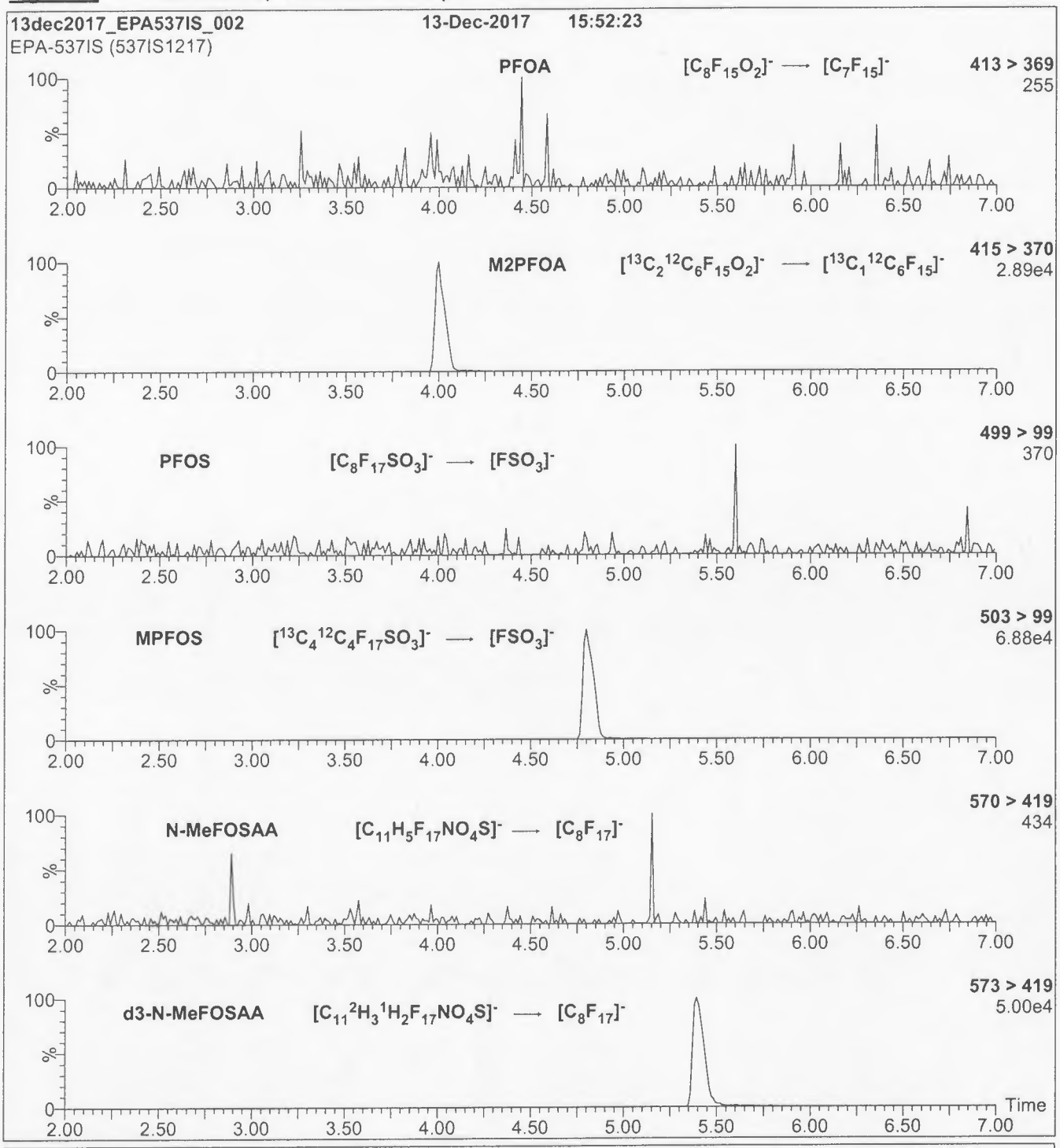
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

Injection: On-column (EPA-537IS)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3

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

BATTELLE
It can be done

BDO Id: 180425-02

Reagent Receipt Report

Approved: ☑ **Authorized** ☐

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

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

Total Analytes: 3

Notes:

Approved by: Thorn, Jonathan **Approved on:** 5/2/2018 10:00:00 AM

Authorized by: **Authorized on:**

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-537SS

Surrogate Primary Dilution Standard

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

DESCRIPTION:

EPA-537SS is a solution/mixture of two mass-labelled (^{13}C) perfluoroalkylcarboxylic acids and a mass-labelled (^{2}H) perfluorooctanesulfonamidoacetic acid. The components and their concentrations are given in Table A.

The mass-labelled perfluoroalkylcarboxylic acids both have chemical purities of >98% and isotopic purities of ≥99%. The mass-labelled perfluorooctanesulfonamidoacetic acid has a chemical purity of >98% and an isotopic purity of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

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

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

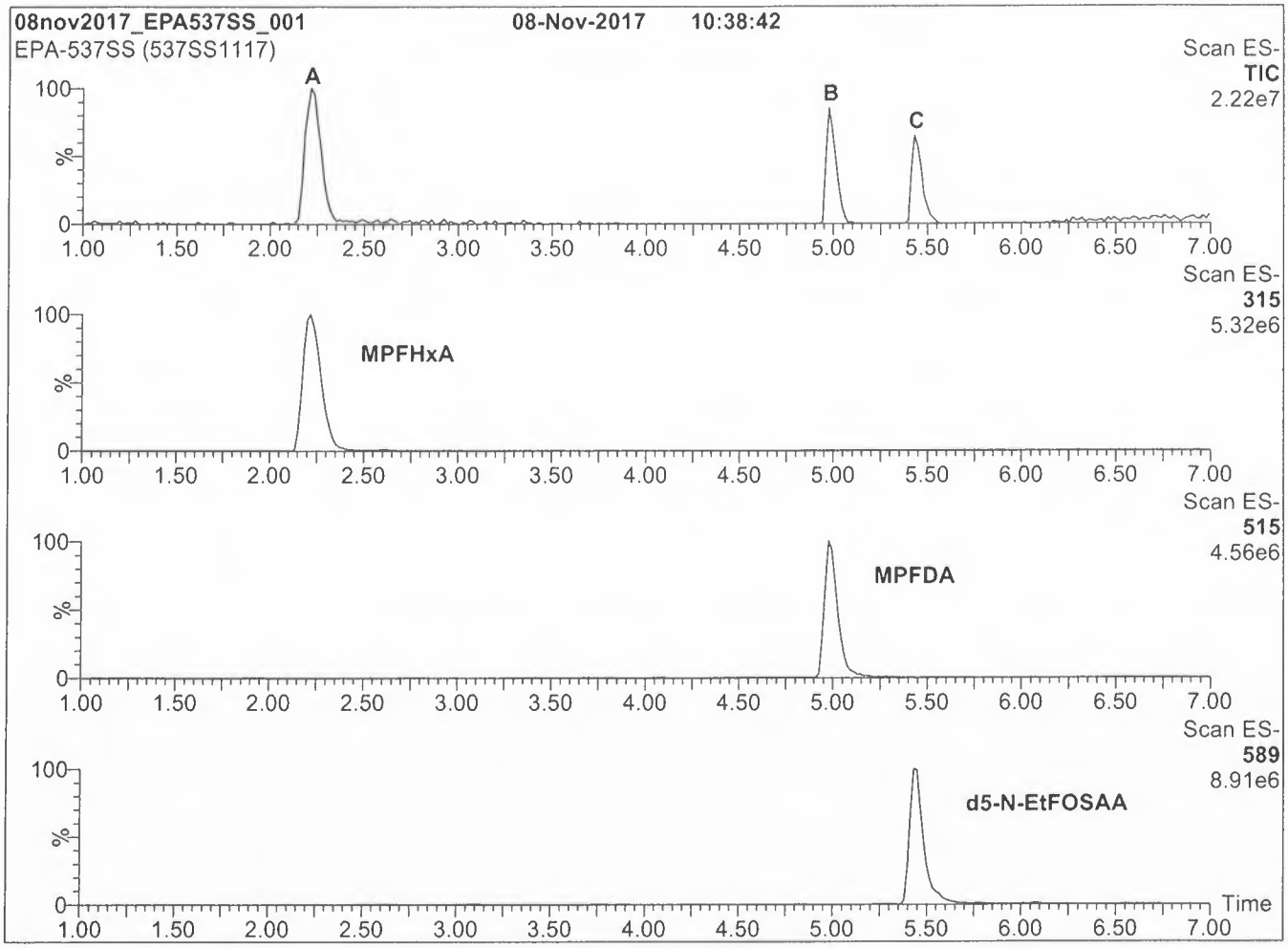
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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

Compound	Abbreviation	Concentration (ng/ml)	Peak Assignment in Figure 1
Perfluoro-n-[1,2-$^{13}C_2$]hexanoic acid	MPFHxA	1000	A
Perfluoro-n-[1,2-$^{13}C_2$]decanoic acid	MPFDA	1000	B
N-ethyl-d_5-perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	4000	C

Certified By: _____ **Date:** 11/13/2017
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: EPA-537SS; LC/MS Data (Total Ion Current Chromatogram)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% (80:20 MeOH:ACN) / 55% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min
and hold for 2 min before returning
to initial conditions in 0.5 min.
Time: 10 min

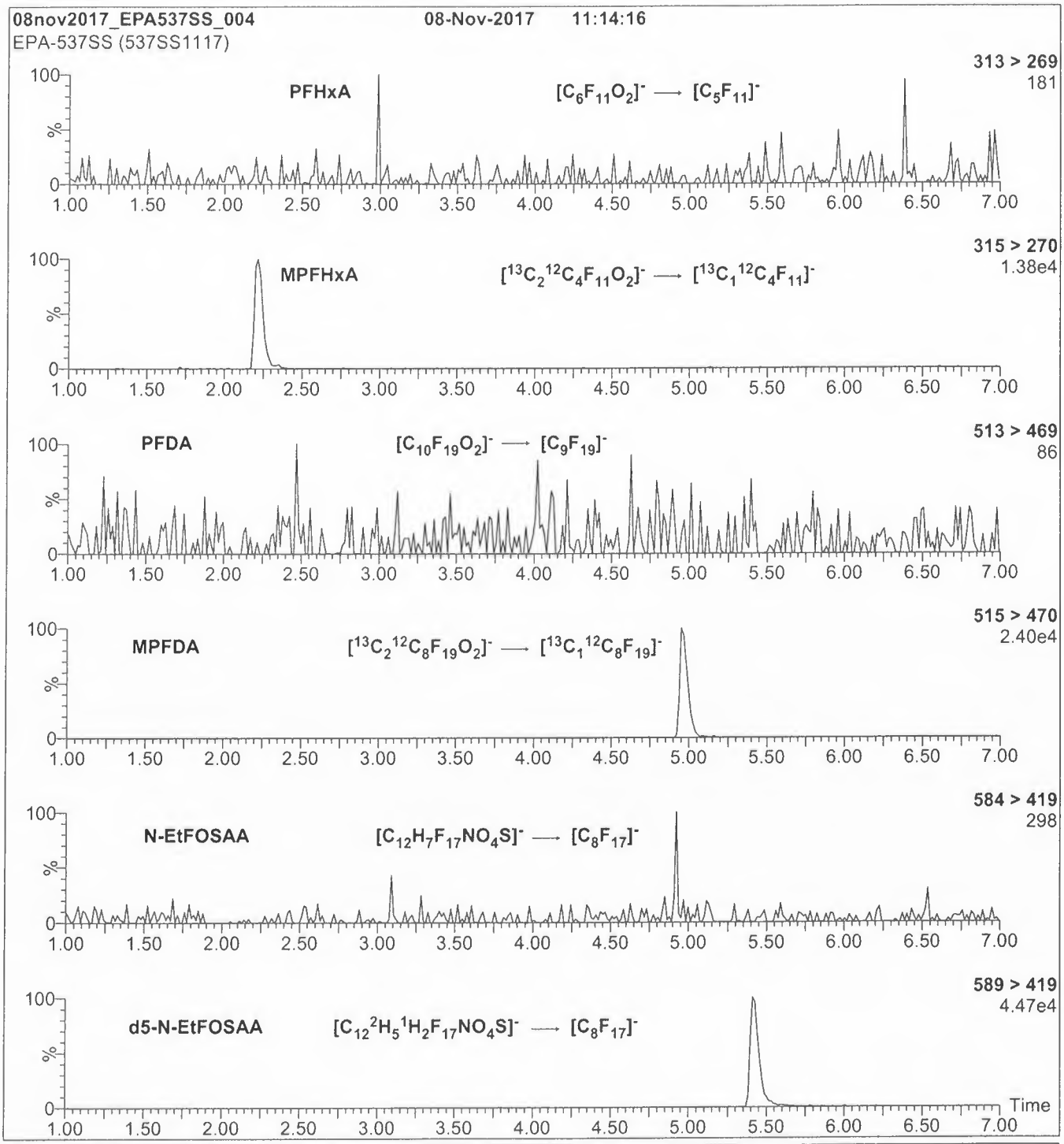
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

Injection: On-column (EPA-537SS)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.50e-3

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

BATTELLE
It can be done

BDO Id: 180425-03

Reagent Receipt Report

Approved: ☑ **Authorized** ☐

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

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

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

Total Analytes: 14

Notes:

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

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

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-537PDS

Native PFAS Primary Dilution Standard Solution/Mixture

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

for calibration
JNT 5/2/2018

DESCRIPTION:

EPA-537PDS is a solution/mixture of nine native linear perfluoroalkylcarboxylic acids (C_6-C_{14}), three native perfluoroalkylsulfonates (C_4 linear; C_6 and C_8 linear and branched), and two native perfluorooctanesulfonamidoacetic acids (linear and branched). The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

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

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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

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

Compound	Abbreviation	Concentration * (ng/ml)		Peak Assignment in Figure 1
Perfluoro-n-hexanoic acid	PFHxA	2000		B
Perfluoro-n-heptanoic acid	PFHpA	2000		C
Perfluoro-n-octanoic acid	PFOA	2000		F
Perfluoro-n-nonanoic acid	PFNA	2000		G
Perfluoro-n-decanoic acid	PFDA	2000		J
Perfluoro-n-undecanoic acid	PFUdA	2000		O
Perfluoro-n-dodecanoic acid	PFDoA	2000		P
Perfluoro-n-tridecanoic acid	PFTrDA	2000		Q
Perfluoro-n-tetradecanoic acid	PFTeDA	2000		R
N-methylperfluorooctanesulfonamidoacetic acid [a]	N-MeFOSAA: linear isomer	1520		L
	N-MeFOSAA: ∑ branched isomers	480		K
N-ethylperfluorooctanesulfonamidoacetic acid [b]	N-EtFOSAA: linear isomer	1550		N
	N-EtFOSAA: ∑ branched isomers	450		M
Compound	**Abbreviation**	**Concentration * (ng/ml)**		**Peak Assignment in Figure 1**
		as the salt	**as the anion**	
Potassium perfluoro-1-butanesulfonate	L-PFBS	2000	1770	A
Potassium perfluorohexanesulfonate [c]	PFHxSK: linear isomer	1620	1480	E
	PFHxSK: ∑ branched isomers	378	344	D
Potassium perfluorooctanesulfonate [d]	PFOSK: linear isomer	1580	1460	I
	PFOSK: ∑ branched isomers	422	391	H

[a] See Table B for percent composition of linear and branched N-MeFOSAA isomers.
[b] See Table C for percent composition of linear and branched N-EtFOSAA isomers.
[c] See Table D for percent composition of linear and branched PFHxSK isomers.
[d] See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Table B: **N-MeFOSAA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Name	Structure	Percent Composition by ^{19}F-NMR	
1	N-methylperfluoro-1-octanesulfonamidoacetic acid	$CF_3(CF_2)_7SO_2N(CH_3)CH_2CO_2H$	76.0	76.0
2	N-methylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(CH_3)CH_2CO_2H$	0.7	24.0
3	N-methylperfluoro-4-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2N(CH_3)CH_2CO_2H$	2.0	
4	N-methylperfluoro-5-methylheptanesulfonamidoacetic acid	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2N(CH_3)CH_2CO_2H$	6.0	
5	N-methylperfluoro-6-methylheptanesulfonamidoacetic acid	$CF_3CF(CF_3)(CF_2)_5SO_2N(CH_3)CH_2CO_2H$	14.0	
6	N-methylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$CF_3C(CF_3)_2(CF_2)_4SO_2N(CH_3)CH_2CO_2H$	0.2	
7	Other Unidentified Isomers		1.1	

* Percent of total N-methylperfluorooctanesulfonamidoacetic acid isomers only.

Table C: **N-EtFOSAA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Name	Structure	Percent Composition by ^{19}F-NMR	
1	N-ethylperfluoro-1-octanesulfonamidoacetic acid	$CF_3(CF_2)_7SO_2N(C_2H_5)CH_2CO_2H$	77.5	77.5
2	N-ethylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(C_2H_5)CH_2CO_2H$	2.3	22.5
3	N-ethylperfluoro-4-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2N(C_2H_5)CH_2CO_2H$	2.2	
4	N-ethylperfluoro-5-methylheptanesulfonamidoacetic acid	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2N(C_2H_5)CH_2CO_2H$	5.4	
5	N-ethylperfluoro-6-methylheptanesulfonamidoacetic acid	$CF_3CF(CF_3)(CF_2)_5SO_2N(C_2H_5)CH_2CO_2H$	10.4	
6	N-ethylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$CF_3C(CF_3)_2(CF_2)_4SO_2N(C_2H_5)CH_2CO_2H$	0.3	
7	N-ethylperfluoro-4,5-dimethylhexanesulfonamidoacetic acid	$CF_3CF(CF_3)CF(CF_2)_3SO_2N(C_2H_5)CH_2CO_2H$	0.3	
8	N-ethylperfluoro-3,5-dimethylhexanesulfonamidoacetic acid	$CF_3CF(CF_3)CF_2CF(CF_2)_2SO_2N(C_2H_5)CH_2CO_2H$	0.3	
9	Other Unidentified Isomers		1.3	

* Percent of total N-ethylperfluorooctanesulfonamidoacetic acid isomers only.

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

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

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

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

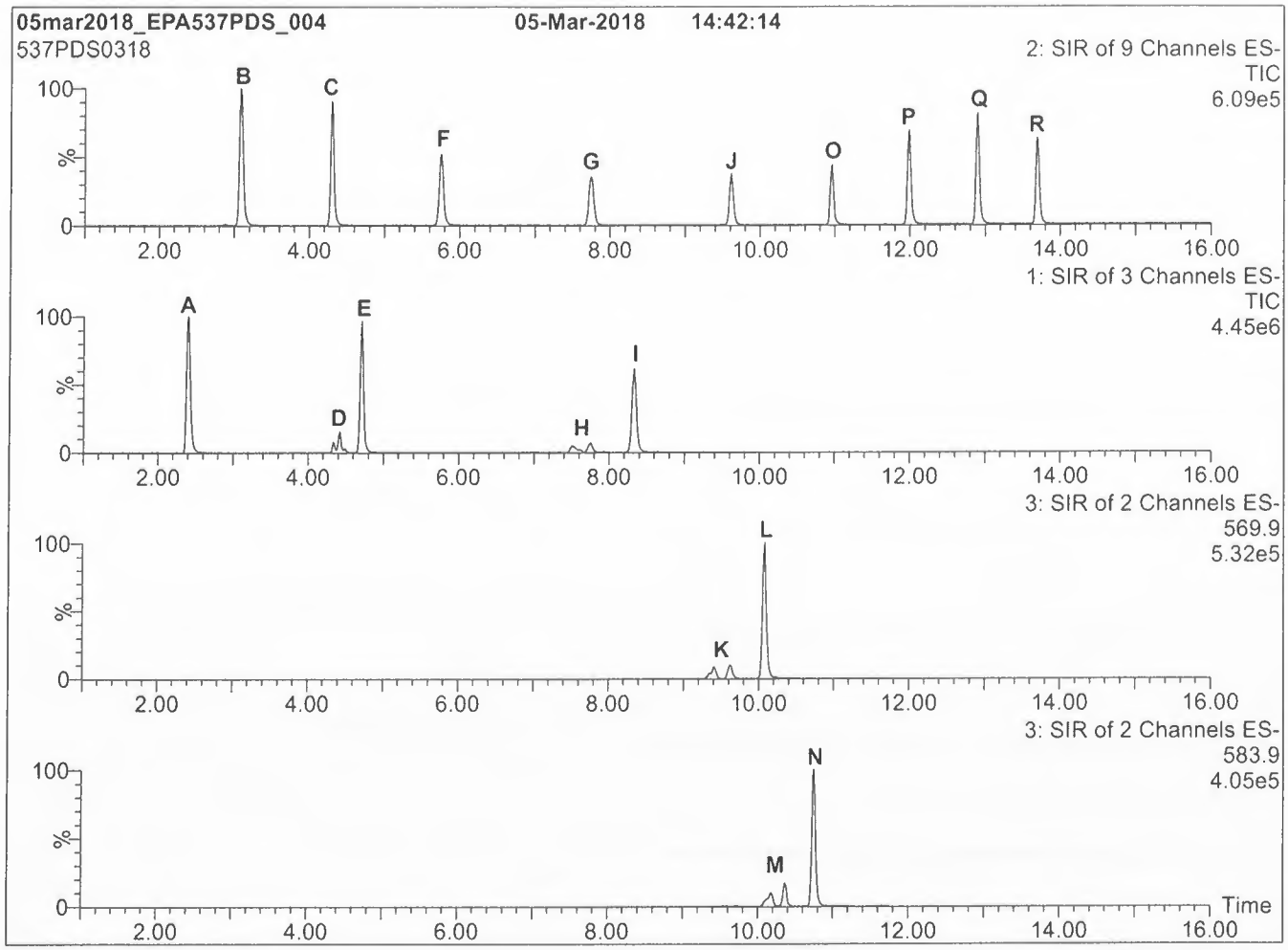
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR	
1	Potassium perfluoro-1-octanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	78.8	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2	21.1
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate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

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

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

B.G. Chittim, General Manager

Figure 1: EPA-537PDS; LC/MS Data (SIR)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 55% organic over 3.5 min.
Ramp to 70% organic over 6.5 min.
Ramp to 85% organic over 5 min and hold for
1 min before returning to initial conditions in 0.5 min.
Time: 17 min

Flow: 300 µl/min

MS Parameters

Experiment: SIR

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

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

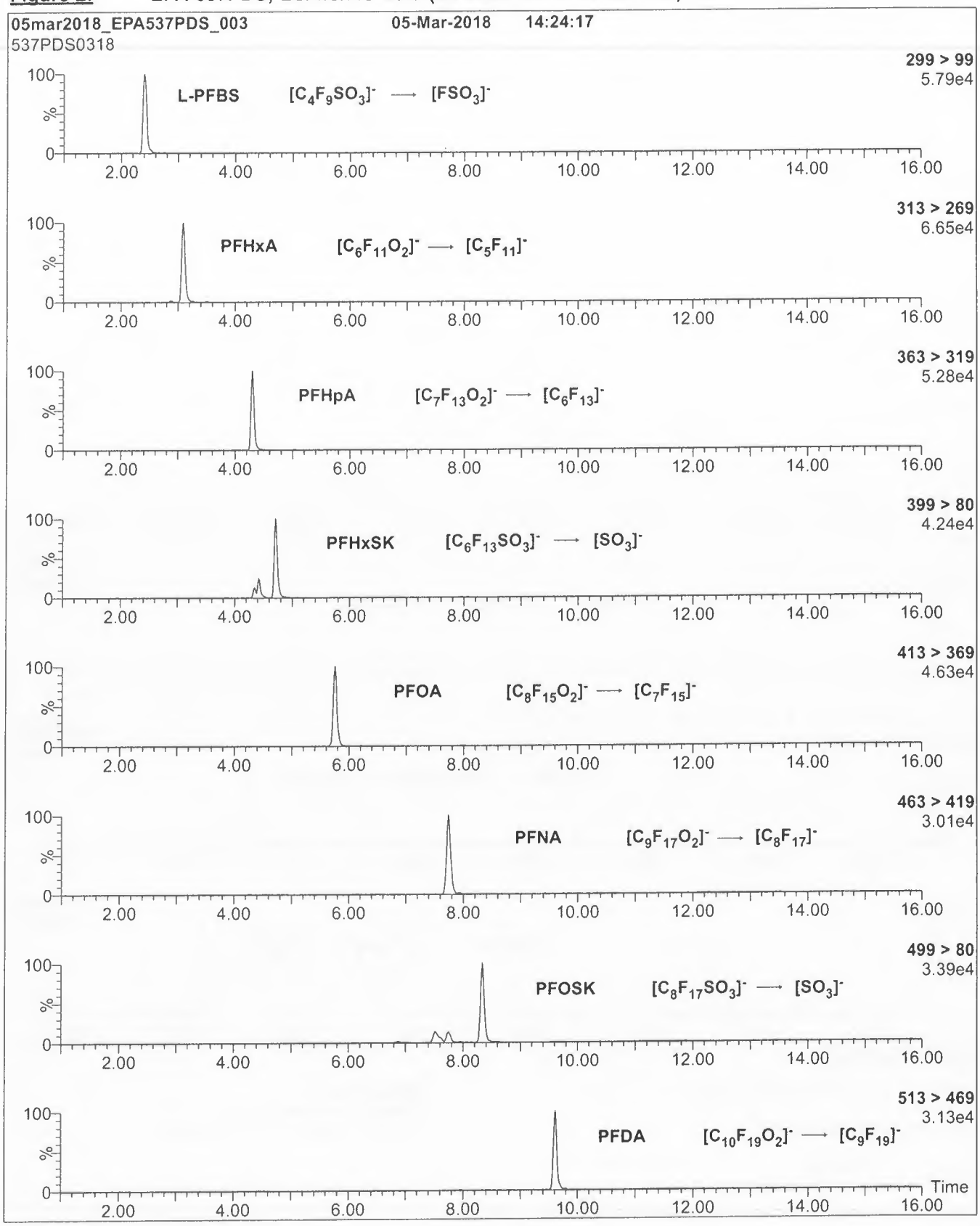
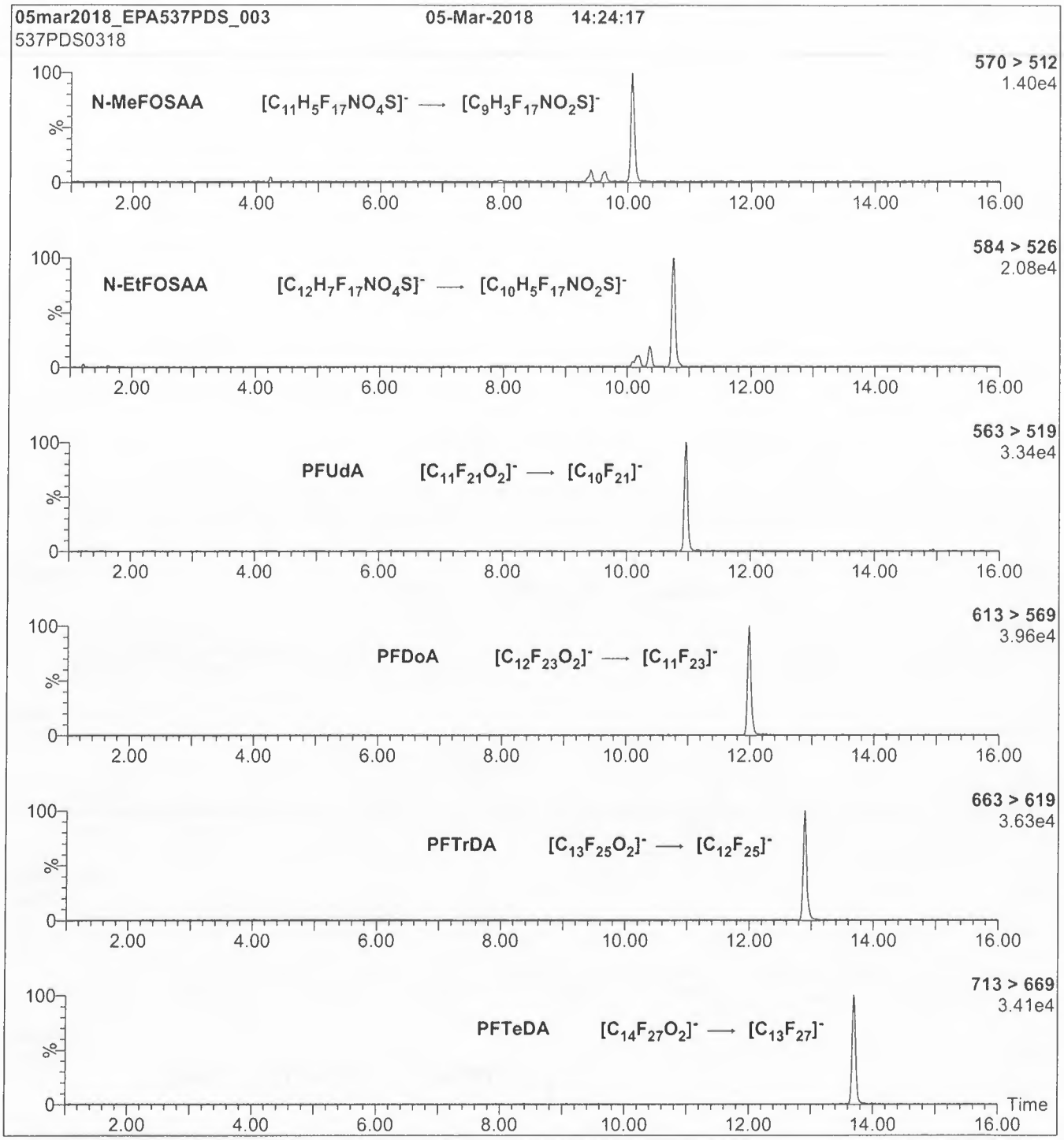


Figure 2: EPA-537PDS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (EPA-537PDS)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.10e-3

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

BATTELLE
It can be done

BDO Id: 180425-04

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

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

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

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

Total Analytes: 14

Notes:

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

Approved by: _____ **Approved on:** _____

Authorized by: _____ **Authorized on:** _____

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-537PDS-L

Native PFAS Linear Primary Dilution Standard Solution/Mixture

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

DESCRIPTION:

EPA-537PDS-L is a solution/mixture of native linear perfluoroalkylcarboxylic acids (C_6-C_{14}), native linear perfluoroalkylsulfonates (C_4, C_6, and C_8), and native linear perfluorooctanesulfonamidoacetic acids. The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

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

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER

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

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

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

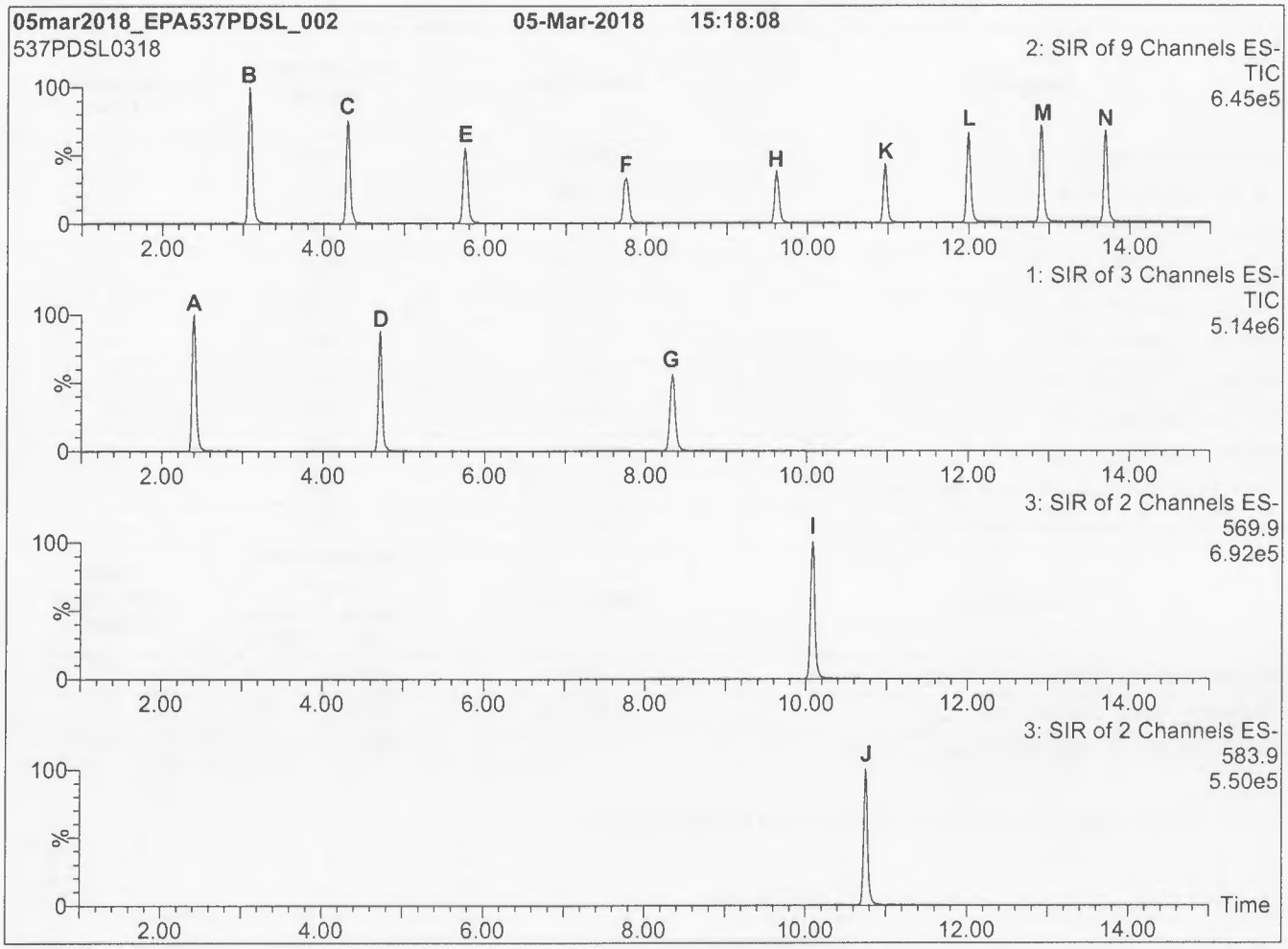
Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Potassium perfluoro-1-butanesulfonate ✓	L-PFBS	2000	1770	A
Sodium perfluoro-1-hexanesulfonate ✓	L-PFHxS	2000	1890	D
Sodium perfluoro-1-octanesulfonate ✓	L-PFOS	2000	1910	G

* Concentrations have been rounded to three significant figures.

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

B.G. Chittim, General Manager

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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 55% organic over 3.5 min.
Ramp to 70% organic over 6.5 min.
Ramp to 85% organic over 5 min and hold for
1 min before returning to initial conditions in 0.5 min.
Time: 17 min

Flow: 300 µl/min

MS Parameters

Experiment: SIR

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

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

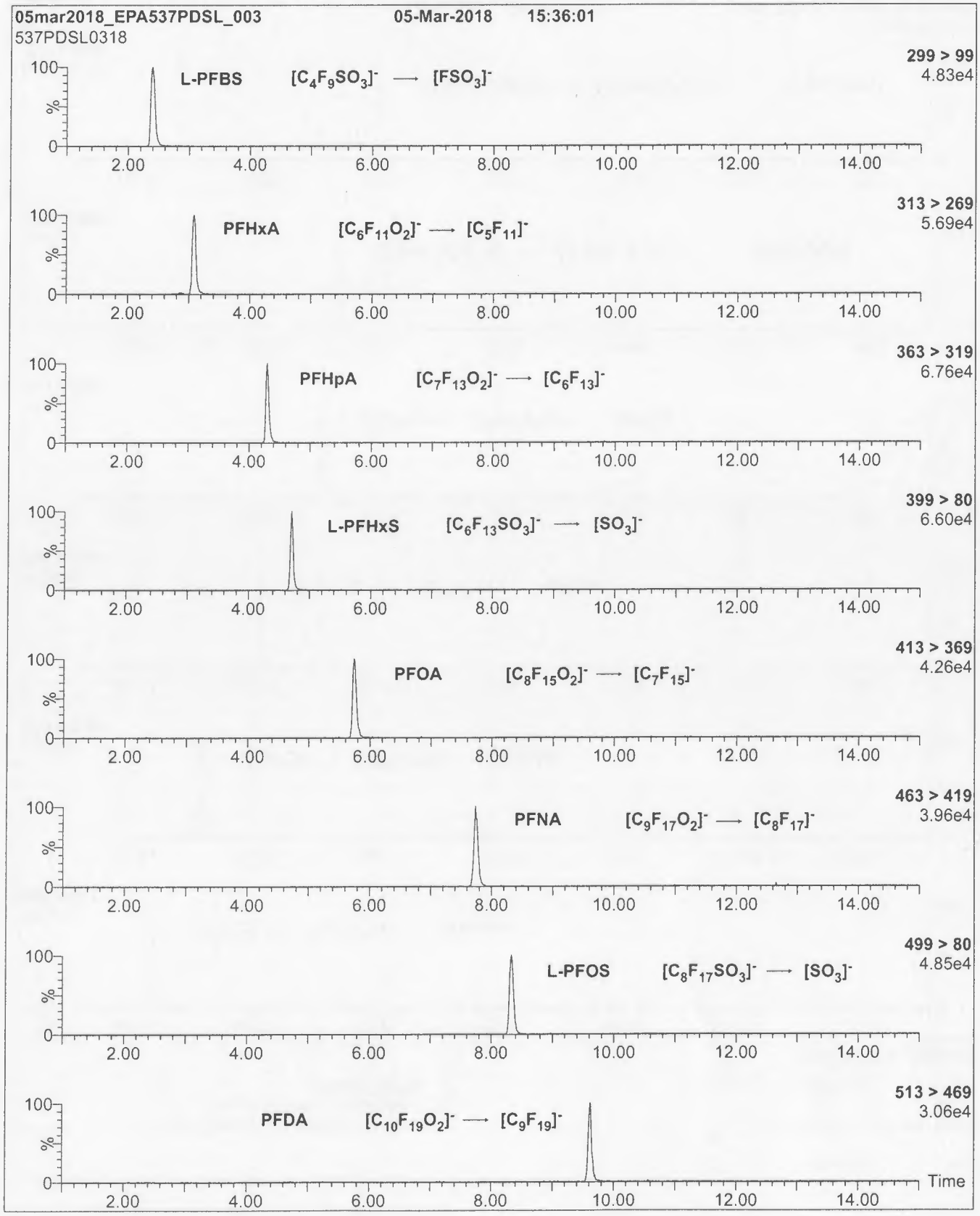
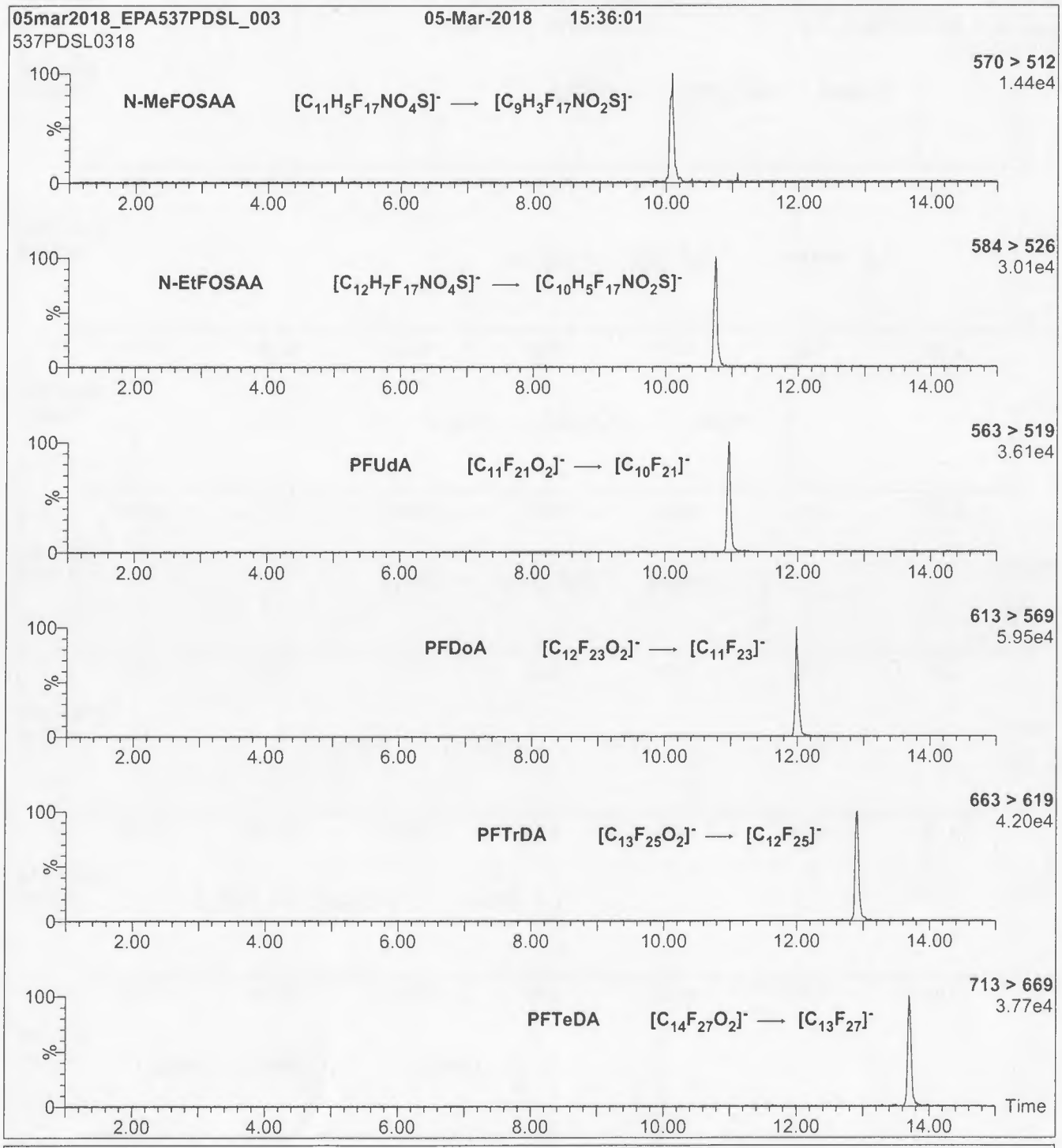


Figure 2: EPA-537PDS-L; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

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

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.17e-3

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

Sample Preparation

BATTELLE
It can be done

BATTELLE - NORWELL OPERATIONS
SAMPLE PREPARATION RECORDS

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

18-0360

WE04 PFAS Analysis

DW

SOP Numbers (see workplan for modifications)

VOASOP No. 5-371

This Batch Contains The Following Samples:		
CQ924PB-FS	J6300-FS	J6638-FS
CQ925LCS-FS	J6583-FS	J6640-FS
J6291-FS	J6585-FS	J6643-FS
J6293-FS	J6587-FS	
J6296-FS	J6589-FS	
J6298-FS	J6591-FS	

Laboratory Preparation Records
COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

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

BATTELLE
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BATTELLE - NORWELL OPERATIONS
SAMPLE IDENTIFICATION PAGE

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

18-0360

WE04 PFAS Analysis

DW

Sample ID	Description
CQ924PB-FS	Procedural Blank
CQ925LCS-FS	Laboratory Control Sample
J6291-FS	NAWC-053118-FRB-256
J6293-FS	NAWC-053118-FRB-126
J6296-FS	WGNA-053118-FRB-4850
J6298-FS	NAWC-053118-FRB-311
J6300-FS	NAWC-053118-FRB-265
J6583-FS	NAWC-060418-FRB-230
J6585-FS	NAWC-060418-FRB-309
J6587-FS	NAWC-060418-FRB-293
J6589-FS	NAWC-060418-FRB-038
J6591-FS	NAWC-060418-FRB-039
J6638-FS	WGNA-060718-FRB-0488
J6640-FS	NAWC-060718-FRB-175
J6643-FS	WGNA-060718-FRB-0626

Samples Assigned By: Jonathan Thorn Date : June 11, 2018

Comments:

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BATTELLE - NORWELL OPERATIONS
SAMPLE CUSTODY LOG

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

Project No.(s)
100117920-WE04

18-0360
WE04 PFAS Analysis
DW

Requested On/By:	06/14/2018 SAS	**Purpose:**	Sample Preparation
Relinquished On/By:	06/14/2018 SAS	**Last Activity:**	Transfer

Accepted On/By:	06/14/2018 SAS	**Returned On/To:**	
Stored In Facility:	Sample Preparation	**Returned To Facility:**	
Stored Until	06/14/2018		
Stored Comment:	NA	**Returned Comment:**	NA

No.	BDO-ID:	Ctrs	*	Condition:	Custody Comment:
1	J6291	1	C	Consumed	NA
2	J6293	1	C	Consumed	NA
3	J6296	1	C	Consumed	NA
4	J6298	1	C	Consumed	NA
5	J6300	1	C	Consumed	NA
6	J6583	1	C	Consumed	NA
7	J6585	1	C	Consumed	NA
8	J6587	1	C	Consumed	NA
9	J6589	1	C	Consumed	NA
10	J6591	1	C	Consumed	NA
11	J6638	1	C	Consumed	NA
12	J6640	1	C	Consumed	NA
13	J6643	1	C	Consumed	NA

Total Samples 13 * "C" = Consumed Container

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BATTELLE - NORWELL OPERATIONS
LIQUID SAMPLE ID FORM

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

Project No.(s)
100117920-WE04

18-0360

WE04 PFAS Analysis

DW

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CQ924PB-FS	Procedural Blank	250.0	NA	--	06/14/18 SAS
CQ925LCS-FS	Laboratory Control Sample	250.0	NA	--	06/14/18 SAS
J6291-FS	NAWC-053118-FRB-256	260.0	1	C	06/14/18 SAS
J6293-FS	NAWC-053118-FRB-126	265.0	1	C	06/14/18 SAS
J6296-FS	WGNA-053118-FRB-4850	265.0	1	C	06/14/18 SAS
J6298-FS	NAWC-053118-FRB-311	265.0	1	C	06/14/18 SAS
J6300-FS	NAWC-053118-FRB-265	265.0	1	C	06/14/18 SAS
J6583-FS	NAWC-060418-FRB-230	260.0	1	C	06/14/18 SAS
J6585-FS	NAWC-060418-FRB-309	250.0	1	C	06/14/18 SAS
J6587-FS	NAWC-060418-FRB-293	250.0	1	C	06/14/18 SAS
J6589-FS	NAWC-060418-FRB-038	265.0	1	C	06/14/18 SAS
J6591-FS	NAWC-060418-FRB-039	265.0	1	C	06/14/18 SAS
J6638-FS	WGNA-060718-FRB-0488	255.0	1	C	06/14/18 SAS
J6640-FS	NAWC-060718-FRB-175	255.0	1	C	06/14/18 SAS
J6643-FS	WGNA-060718-FRB-0626	255.0	1	C	06/14/18 SAS

Comments:

Sample ID:	Comments:
CQ924PB-FS	1.27g Trizma(180502-01) weighed on BAL-009
CQ925LCS-FS	1.27g Trizma(180502-01) weighed on BAL-009

Samples Assigned By Jonathan Thorn Date : June 11, 2018

* - "C" = Sample is Consumed

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It can be done

BATTELLE - NORWELL OPERATIONS
SURROGATE SPIKE FORM

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

Project No.(s)
100117920-WE04

18-0360
WE04 PFAS Analysis
DW

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CQ924PB-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
CQ925LCS-FS	JV41	LCS/MS	1	50	06/14/18 SAS	JCT	NA
CQ925LCS-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6291-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6293-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6296-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6298-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6300-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6583-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6585-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6587-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6589-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6591-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6638-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6640-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6643-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV41	Pipette	I0793912B
JV60	Pipette	I0793912B

BATTELLE
It can be done

BATTELLE - NORWELL OPERATIONS
SAMPLE EXTRACTION FORM

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

Project No.(s)
100117920-WE04

18-0360

WE04 PFAS Analysis

DW

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CQ924PB-FS	06/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
CQ925LCS-FS	06/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6291-FS	06/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6293-FS	06/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6296-FS	06/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6298-FS	06/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6300-FS	06/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6583-FS	06/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6585-FS	06/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6587-FS	06/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6589-FS	06/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6591-FS	06/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6638-FS	06/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6640-FS	06/14/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6643-FS	06/14/18 SAS	NA	NA	NA	NA	NA	NA	NA

Solvents/Reagent Preparations:

Name	ID	Expires	Lot No	Procedure	Comments
Pre-packed SPE Column	RP-180614-8	06/15/18	S214-0071/S18-002403	Pre-packed SPE Column	

Solvents/Reagents:

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

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BATTELLE - NORWELL OPERATIONS
INTERNAL STANDARD SPIKING FORM

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

Project No.(s)
100117920-WE04

18-0360

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
CQ924PB-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
CQ925LCS-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6291-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6293-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6296-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6298-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6300-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6300-FS-D(3)	952	48	JV59	50.5	1	1000	20.000	06/21/18 LMG	NA
J6583-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6585-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6587-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6589-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6591-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6638-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6640-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6643-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6643-FS-D(3)	952	48	JV59	50.5	1	1000	20.000	06/21/18 LMG	NA

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

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

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INTERNAL STANDARD SPIKING FORM

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

Project No.(s)
100117920-WE04

18-0360

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

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV59	Pipette	D1075429B
JV59	Pipette	I0793912B

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

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

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PREPARATION EXTRACT SPLIT FORM

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

Project No.(s)
100117920-WE04

18-0360

WE04 PFAS Analysis

DW

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CQ924PB-FS	0	--	6/14/2018 2:19:00 PM	NA		NA	NA	1.000	1.000	06/14/18 SAS
CQ925LCS-FS	0	--	6/14/2018 2:19:00 PM	NA		NA	NA	1.000	1.000	06/14/18 SAS
J6291-FS	0	--	6/14/2018 2:19:00 PM	NA		NA	NA	1.000	1.000	06/14/18 SAS
J6293-FS	0	--	6/14/2018 2:19:00 PM	NA		NA	NA	1.000	1.000	06/14/18 SAS
J6296-FS	0	--	6/14/2018 2:19:00 PM	NA		NA	NA	1.000	1.000	06/14/18 SAS
J6298-FS	0	--	6/14/2018 2:19:00 PM	NA		NA	NA	1.000	1.000	06/14/18 SAS
J6300-FS	0	C	6/14/2018 2:19:00 PM	NA		NA	NA	1.000	1.000	06/14/18 SAS
J6300-FS	2	--	6/21/2018 9:15:00 AM	J6300-FS	0	1000	950	1.053	1.053	06/21/18 LMG
J6300-FS-D	3	--	6/21/2018 9:15:00 AM	J6300-FS	0	1000	50	20.000	20.000	06/21/18 LMG
J6583-FS	0	--	6/14/2018 2:19:00 PM	NA		NA	NA	1.000	1.000	06/14/18 SAS
J6585-FS	0	--	6/14/2018 2:19:00 PM	NA		NA	NA	1.000	1.000	06/14/18 SAS
J6587-FS	0	--	6/14/2018 2:19:00 PM	NA		NA	NA	1.000	1.000	06/14/18 SAS
J6589-FS	0	--	6/14/2018 3:52:00 PM	NA		NA	NA	1.000	1.000	06/14/18 SAS
J6591-FS	0	--	6/14/2018 3:52:00 PM	NA		NA	NA	1.000	1.000	06/14/18 SAS

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

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PREPARATION EXTRACT SPLIT FORM

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

Project No.(s)
100117920-WE04

18-0360

WE04 PFAS Analysis

DW

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
J6638-FS	0	--	6/14/2018 3:52:00 PM	NA		NA	NA	1.000	1.000	06/14/18 SAS
J6640-FS	0	--	6/14/2018 3:52:00 PM	NA		NA	NA	1.000	1.000	06/14/18 SAS
J6643-FS	0	C	6/14/2018 3:52:00 PM	NA		NA	NA	1.000	1.000	06/14/18 SAS
J6643-FS	2	--	6/21/2018 9:15:00 AM	J6643-FS	0	1000	950	1.053	1.053	06/21/18 LMG
J6643-FS-D	3	--	6/21/2018 9:15:00 AM	J6643-FS	0	1000	50	20.000	20.000	06/21/18 LMG

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

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EXTRACT - INSTRUMENT FACILITY CUSTODY PAGE

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

Project No.(s)
100117920-WE04

18-0360
WE04 PFAS Analysis
DW

Purpose:	LC-MS/MS TRANSFER	**Last Activity:**	Prep->Inst
Relinquished On/By:	Jun 15 2018 5:18PM SAS	**Received On/By:**	Jun 15 2018 6:18PM DMS
Relinquished From:	Sample Preparation: NA	**Received Location:**	LC Laboratory: NA
Relinquish Comment:	NA	**Received Comment:**	NA

No.	BDO-ID:	PIV:	DF:	Condition:	Custody Comment:
1	CQ924PB-FS(0)	1000	1	Intact	NA
2	CQ925LCS-FS(0)	1000	1	Intact	NA
3	J6291-FS(0)	1000	1	Intact	NA
4	J6293-FS(0)	1000	1	Intact	NA
5	J6296-FS(0)	1000	1	Intact	NA
6	J6298-FS(0)	1000	1	Intact	NA
7	J6300-FS(0)	1000	1	Intact	NA
8	J6583-FS(0)	1000	1	Intact	NA
9	J6585-FS(0)	1000	1	Intact	NA
10	J6587-FS(0)	1000	1	Intact	NA
11	J6589-FS(0)	1000	1	Intact	NA
12	J6591-FS(0)	1000	1	Intact	NA
13	J6638-FS(0)	1000	1	Intact	NA
14	J6640-FS(0)	1000	1	Intact	NA
15	J6643-FS(0)	1000	1	Intact	NA

Total Extracts: 15

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MISCELLANEOUS DOCUMENTATION FORM

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

18-0360

WE04 PFAS Analysis

DW

Entered By:	**On:**

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

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SAMPLE SPECIFIC COMMENTS

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

Project No.(s)
100117920-WE04

18-0360

WE04 PFAS Analysis

DW

Sample ID:	Comment:	Date/Initials:
CQ924PB-FS	Sample extraction for CQ924PB-FS through J6587-FS began at 2:19pm	06/14/18 SAS
CQ924PB-FS	Sample extraction ended at 2:51pm	06/14/18 SAS
CQ925LCS-FS	Sample extraction ended at 2:48pm	06/14/18 SAS
J6291-FS	Sample extraction ended at 2:50pm	06/14/18 SAS
J6293-FS	Sample extraction ended at 2:52pm	06/14/18 SAS
J6296-FS	Sample extraction ended at 2:56pm	06/14/18 SAS
J6298-FS	Sample extraction ended at 2:54pm	06/14/18 SAS
J6300-FS	Sample extraction ended at 2:53pm	06/14/18 SAS
J6583-FS	Sample extraction ended at 2:52pm	06/14/18 SAS
J6585-FS	Sample extraction ended at 2:54pm	06/14/18 SAS
J6587-FS	Sample extraction ended at 2:53pm	06/14/18 SAS
J6589-FS	Sample extraction for J6589-FS through J6643-FS began at 3:52pm	06/14/18 SAS
J6589-FS	Sample extraction ended at 4:22pm	06/14/18 SAS
J6591-FS	Sample extraction ended at 4:21pm	06/14/18 SAS
J6638-FS	Sample extraction ended at 4:18pm	06/14/18 SAS
J6640-FS	Sample extraction ended at 4:21pm	06/14/18 SAS
J6643-FS	Sample extraction ended at 4:21pm	06/14/18 SAS

Analytical Calibrations

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Sequence Report

Created with Analyst Reporter
Printed: 22/06/2018 11:11:19 AM

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
23	JV69 CCV	L6 CCV	6/15/2018 6:07:22 PM	5-0371.dam	06142018.wiff
1	MeOH	Solvent	6/15/2018 6:16:16 PM	5-0371.dam	06142018.wiff
24	CQ924PB-FS(0)	Procedural Blank	6/15/2018 6:25:12 PM	5-0371.dam	06142018.wiff
25	CQ925LCS-FS(0)	Laboratory Control Sample	6/15/2018 6:34:09 PM	5-0371.dam	06142018.wiff
26	J6291-FS(0)	NAWC-053118-FRB-256	6/15/2018 6:43:04 PM	5-0371.dam	06142018.wiff
27	J6293-FS(0)	NAWC-053118-FRB-126	6/15/2018 6:52:00 PM	5-0371.dam	06142018.wiff
28	J6296-FS(0)	WGNA-053118-FRB-4850	6/15/2018 7:00:56 PM	5-0371.dam	06142018.wiff
29	J6298-FS(0)	NAWC-053118-FRB-311	6/15/2018 7:09:53 PM	5-0371.dam	06142018.wiff
30	J6300-FS(0)	NAWC-053118-FRB-265	6/15/2018 7:18:48 PM	5-0371.dam	06142018.wiff
31	J6583-FS(0)	NAWC-060408-FRB-230	6/15/2018 7:27:44 PM	5-0371.dam	06142018.wiff
32	JV70 CCV	L7 CCV	6/15/2018 7:36:43 PM	5-0371.dam	06142018.wiff
1	MeOH	Solvent	6/15/2018 7:45:41 PM	5-0371.dam	06142018.wiff
33	J6585-FS(0)	NAWC-060408-FRB-309	6/15/2018 7:54:39 PM	5-0371.dam	06142018.wiff
34	J6587-FS(0)	NAWC-060408-FRB-293	6/15/2018 8:03:34 PM	5-0371.dam	06142018.wiff
35	J6589-FS(0)	NAWC-060408-FRB-038	6/15/2018 8:12:30 PM	5-0371.dam	06142018.wiff
36	J6591-FS(0)	NAWC-060408-FRB-	6/15/2018 8:21:24	5-0371.dam	06142018.wiff

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Sequence Report

Created with Analyst Reporter
Printed: 22/06/2018 11:11:19 AM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
		039	PM		
37	J6638-FS(0)	WGNA-060718-FRB-0488	6/15/2018 8:30:19 PM	5-0371.dam	06142018.wiff
38	J6640-FS(0)	NAWC-060718-FRB-175	6/15/2018 8:39:15 PM	5-0371.dam	06142018.wiff
39	J6643-FS(0)	WGNA-060718-FRB-0626	6/15/2018 8:48:11 PM	5-0371.dam	06142018.wiff
40	JV69 CCV	L6 CCV	6/15/2018 8:57:07 PM	5-0371.dam	06142018.wiff

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Sequence Report

Created with Analyst Reporter
Printed: 22/06/2018 11:44:17 AM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MEOH		6/21/2018 8:15:15 AM	5-0371.dam	06212018.wiff
2	JV64		6/21/2018 8:24:11 AM	5-0371.dam	06212018.wiff
3	JV65		6/21/2018 8:33:07 AM	5-0371.dam	06212018.wiff
4	JV66		6/21/2018 8:42:03 AM	5-0371.dam	06212018.wiff
5	JV67		6/21/2018 8:50:59 AM	5-0371.dam	06212018.wiff
6	JV68		6/21/2018 8:59:55 AM	5-0371.dam	06212018.wiff
7	JV69		6/21/2018 9:08:50 AM	5-0371.dam	06212018.wiff
8	JV70		6/21/2018 9:17:46 AM	5-0371.dam	06212018.wiff
9	JV71		6/21/2018 9:26:43 AM	5-0371.dam	06212018.wiff
10	JV72		6/21/2018 9:35:40 AM	5-0371.dam	06212018.wiff
11	JV63 ICC		6/21/2018 9:44:36 AM	5-0371.dam	06212018.wiff
1	MEOH		6/21/2018 9:53:32 AM	5-0371.dam	06212018.wiff
22	J6300-FS(0)		6/21/2018 10:02:27 AM	5-0371.dam	06212018.wiff
23	J6643-FS(0)		6/21/2018 10:11:23 AM	5-0371.dam	06212018.wiff
7	JV69		6/21/2018 10:20:17 AM	5-0371.dam	06212018.wiff

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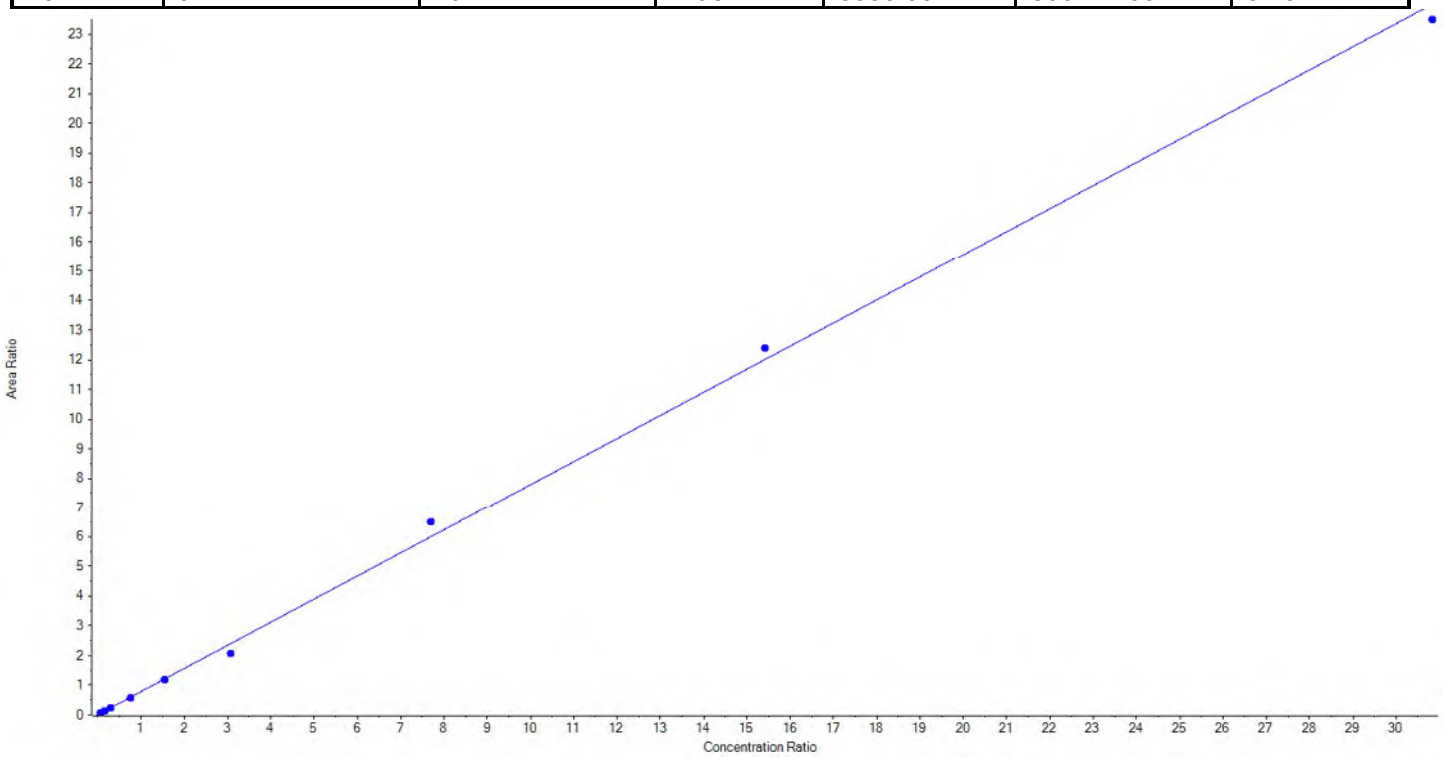
Calibration Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 11:12:33 AM

Analyte Name	PFBS_1	**Data File**	06142018.wiff
MRM Transition	298.9 / 80.0	**Result Table**	18-0360_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.77839 x + 0.00401 (r = 0.99869) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.15	24.666173	111.4
3	JV65	L2	True	44.30	44.259714	99.9
4	JV66	L3	True	88.60	89.494205	101.0
5	JV67	L4	True	221.50	209.706842	94.7
6	JV68	L5	True	443.00	431.309708	97.4
7	JV69	L6	True	885.00	762.049217	86.1
8	JV70	L7	True	2212.50	2398.828571	108.4
9	JV71	L8	True	4425.00	4570.588925	103.3
10	JV72	L9	True	8850.00	8661.146644	97.9



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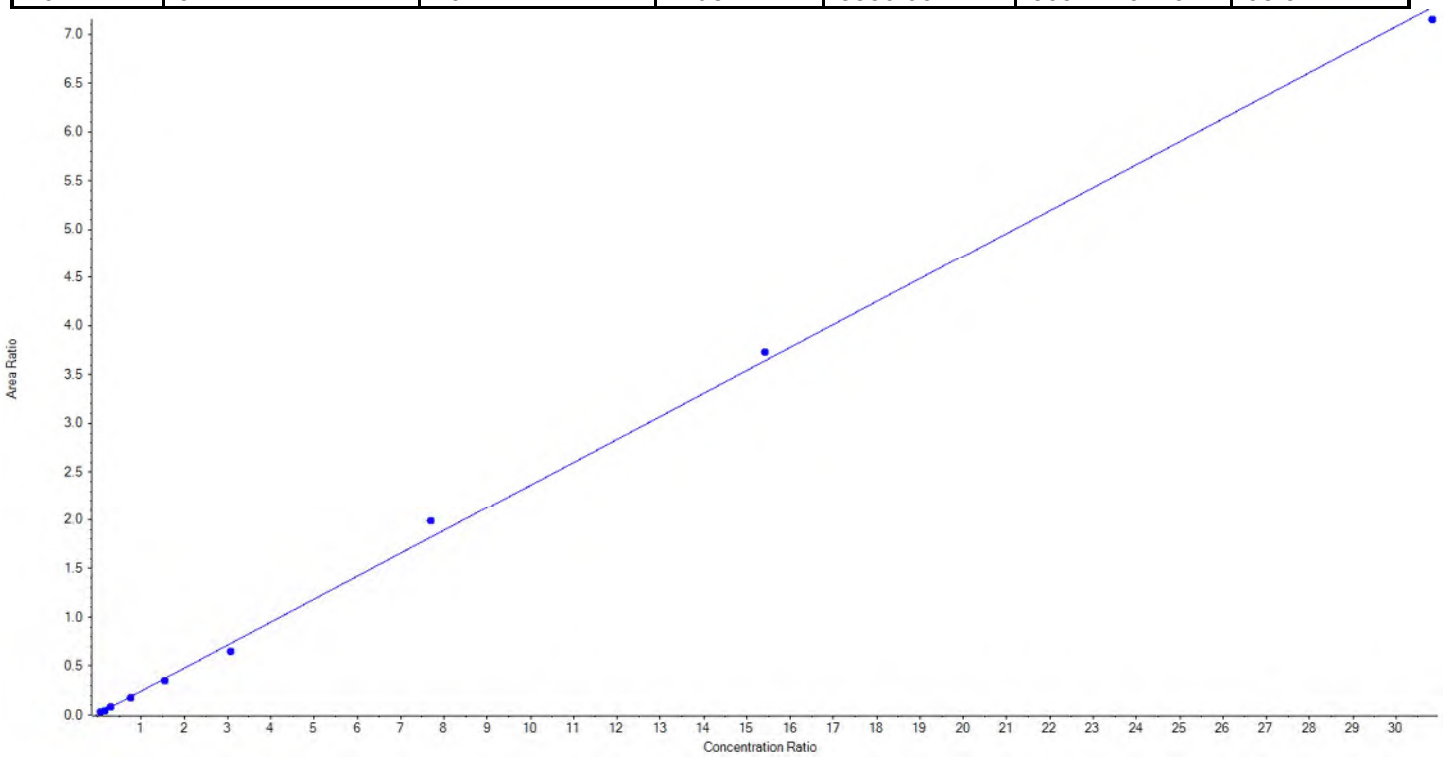
Calibration Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 11:12:33 AM

Analyte Name	PFBS_2	**Data File**	06142018.wiff
MRM Transition	298.9 / 99.0	**Result Table**	18-0360_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.23574 x + 0.00605 (r = 0.99879) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.15	27.536713	124.3
3	JV65	L2	True	44.30	41.731203	94.2
4	JV66	L3	True	88.60	87.509544	98.8
5	JV67	L4	True	221.50	201.132833	90.8
6	JV68	L5	True	443.00	417.410406	94.2
7	JV69	L6	True	885.00	780.428998	88.2
8	JV70	L7	True	2212.50	2407.544452	108.8
9	JV71	L8	True	4425.00	4531.606434	102.4
10	JV72	L9	True	8850.00	8697.149416	98.3



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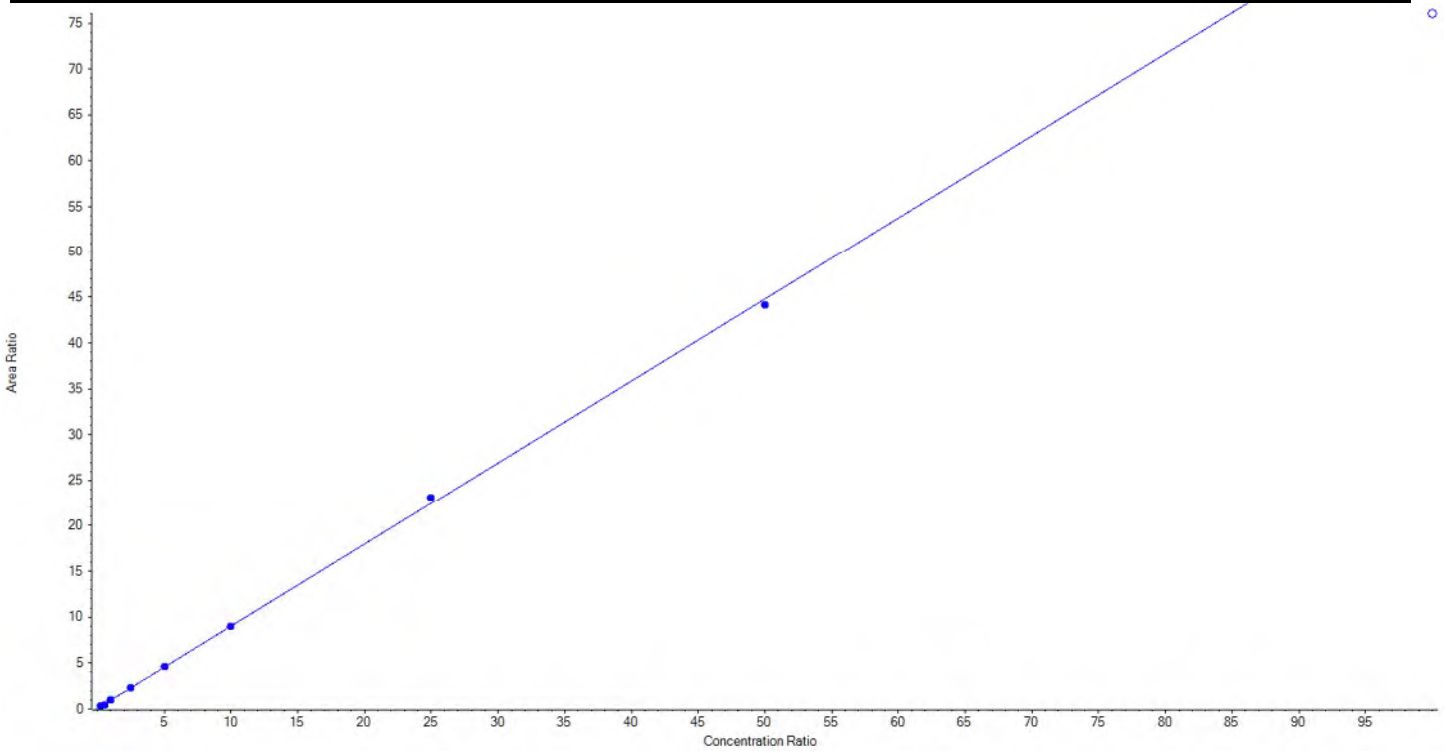
Calibration Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 11:12:33 AM

Analyte Name	PFHxA_1	**Data File**	06142018.wiff
MRM Transition	313.0 / 269.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.89489 x + 0.07012 (r = 0.99974) (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	27.758747	111.0
3	JV65	L2	True	50.00	43.372821	86.8
4	JV66	L3	True	100.00	100.860463	100.9
5	JV67	L4	True	250.00	246.776329	98.7
6	JV68	L5	True	500.00	507.810763	101.6
7	JV69	L6	True	1000.00	995.836146	99.6
8	JV70	L7	True	2500.00	2572.545694	102.9
9	JV71	L8	True	5000.00	4930.039038	98.6
10	JV72	L9	False	10000.00	8489.472182	84.9



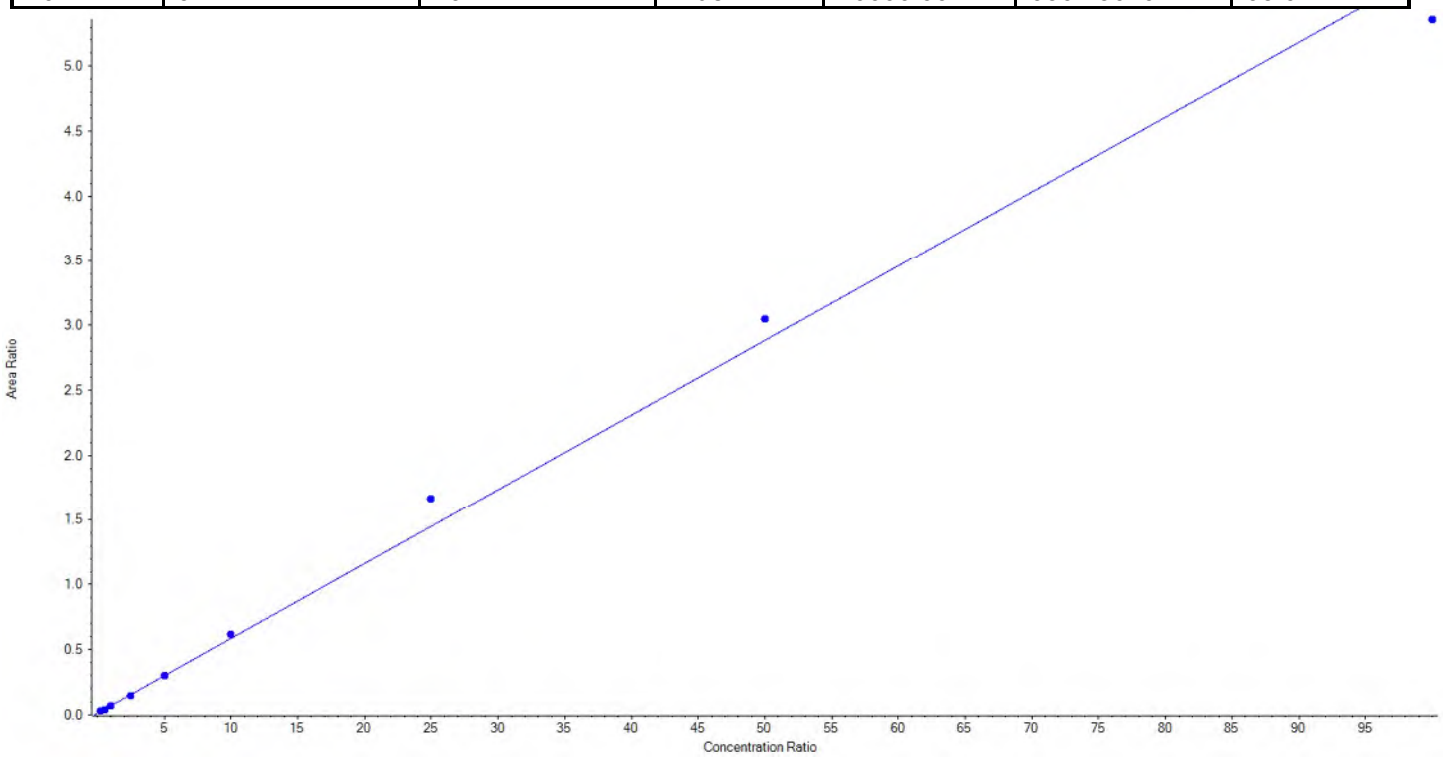
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Calibration Summary Report

Analyte Name	PFHxA_2	**Data File**	06142018.wiff
MRM Transition	313.0 / 119.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05745 x + 0.01250 (r = 0.99653) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	26.082375	104.3
3	JV65	L2	True	50.00	42.916072	85.8
4	JV66	L3	True	100.00	97.178176	97.2
5	JV67	L4	True	250.00	233.831403	93.5
6	JV68	L5	True	500.00	500.848102	100.2
7	JV69	L6	True	1000.00	1048.145230	104.8
8	JV70	L7	True	2500.00	2883.357143	115.3
9	JV71	L8	True	5000.00	5288.277488	105.8
10	JV72	L9	True	10000.00	9304.364012	93.0



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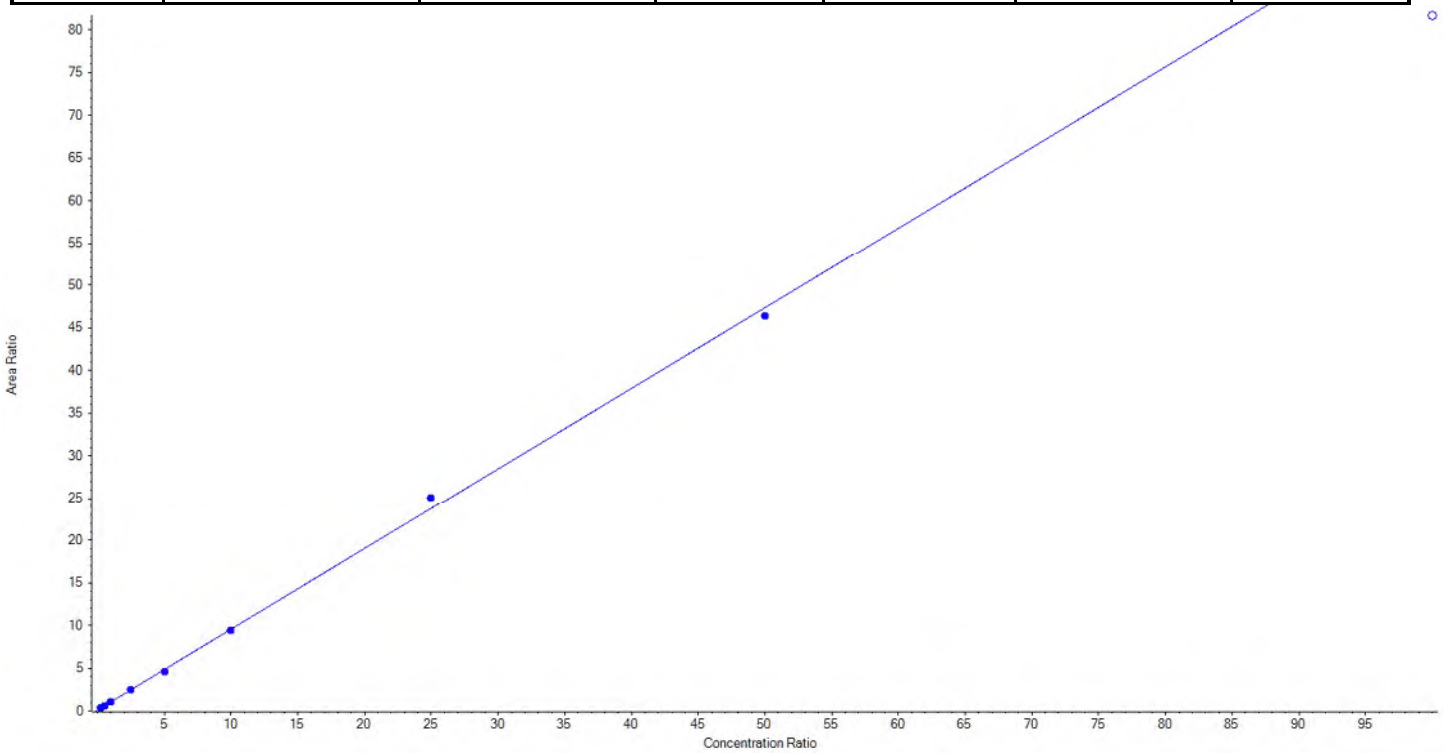
Calibration Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 11:12:33 AM

Analyte Name	PFHpA_1	**Data File**	06142018.wiff
MRM Transition	363.0 / 319.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.94432 x + 0.11531 (r = 0.99932) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	25.759139	103.0
3	JV65	L2	True	50.00	51.556182	103.1
4	JV66	L3	True	100.00	97.624196	97.6
5	JV67	L4	True	250.00	246.212850	98.5
6	JV68	L5	True	500.00	478.933727	95.8
7	JV69	L6	True	1000.00	982.303729	98.2
8	JV70	L7	True	2500.00	2643.621233	105.7
9	JV71	L8	True	5000.00	4898.988945	98.0
10	JV72	L9	False	10000.00	8636.023065	86.4



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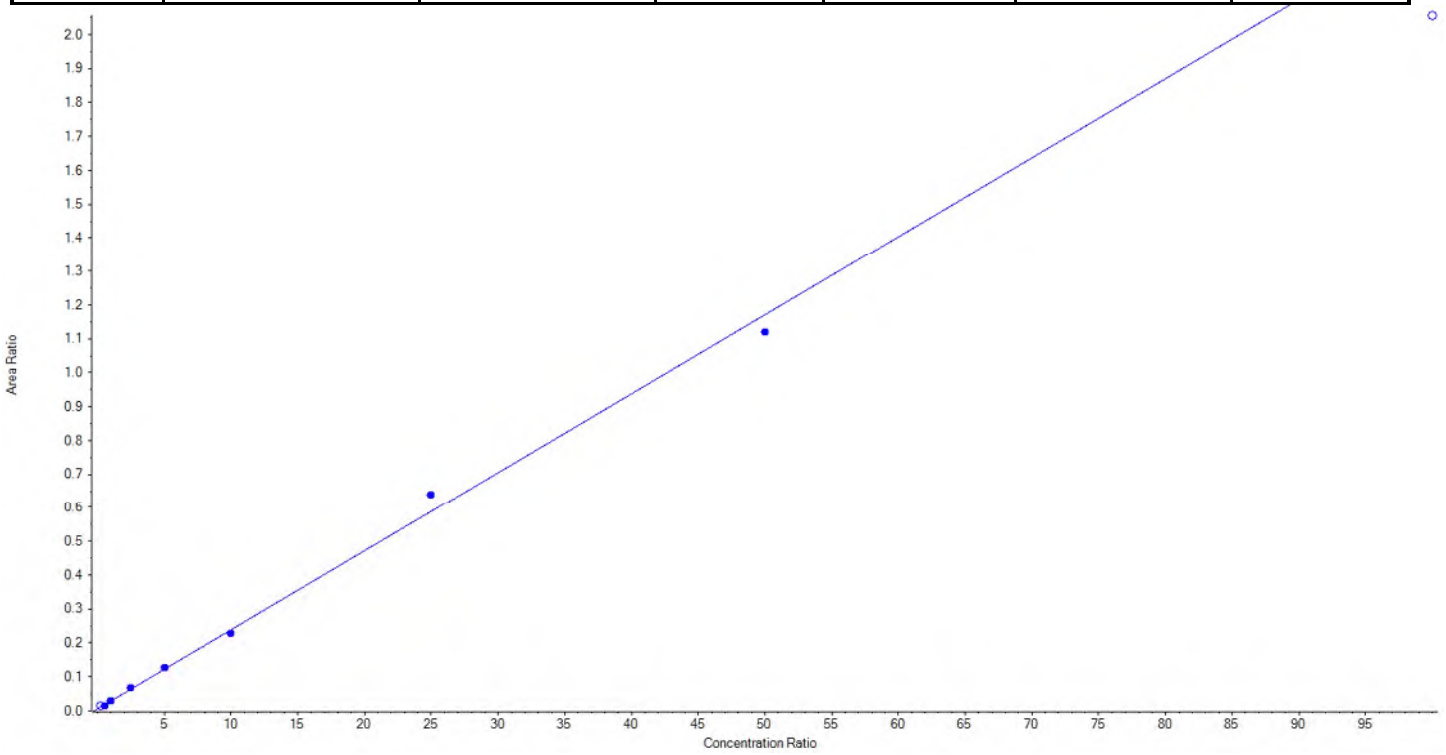
Calibration Summary Report

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Printed: 22/06/2018 11:12:33 AM

Analyte Name	PFHpA_2	**Data File**	06142018.wiff
MRM Transition	363.0 / 169.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.02330 x + 0.00588 (r = 0.99792) (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	39.243799	157.0
3	JV65	L2	True	50.00	43.480197	87.0
4	JV66	L3	True	100.00	103.234444	103.2
5	JV67	L4	True	250.00	261.112839	104.5
6	JV68	L5	True	500.00	524.272465	104.9
7	JV69	L6	True	1000.00	958.231420	95.8
8	JV70	L7	True	2500.00	2724.450945	109.0
9	JV71	L8	True	5000.00	4785.217689	95.7
10	JV72	L9	False	10000.00	8798.438815	88.0



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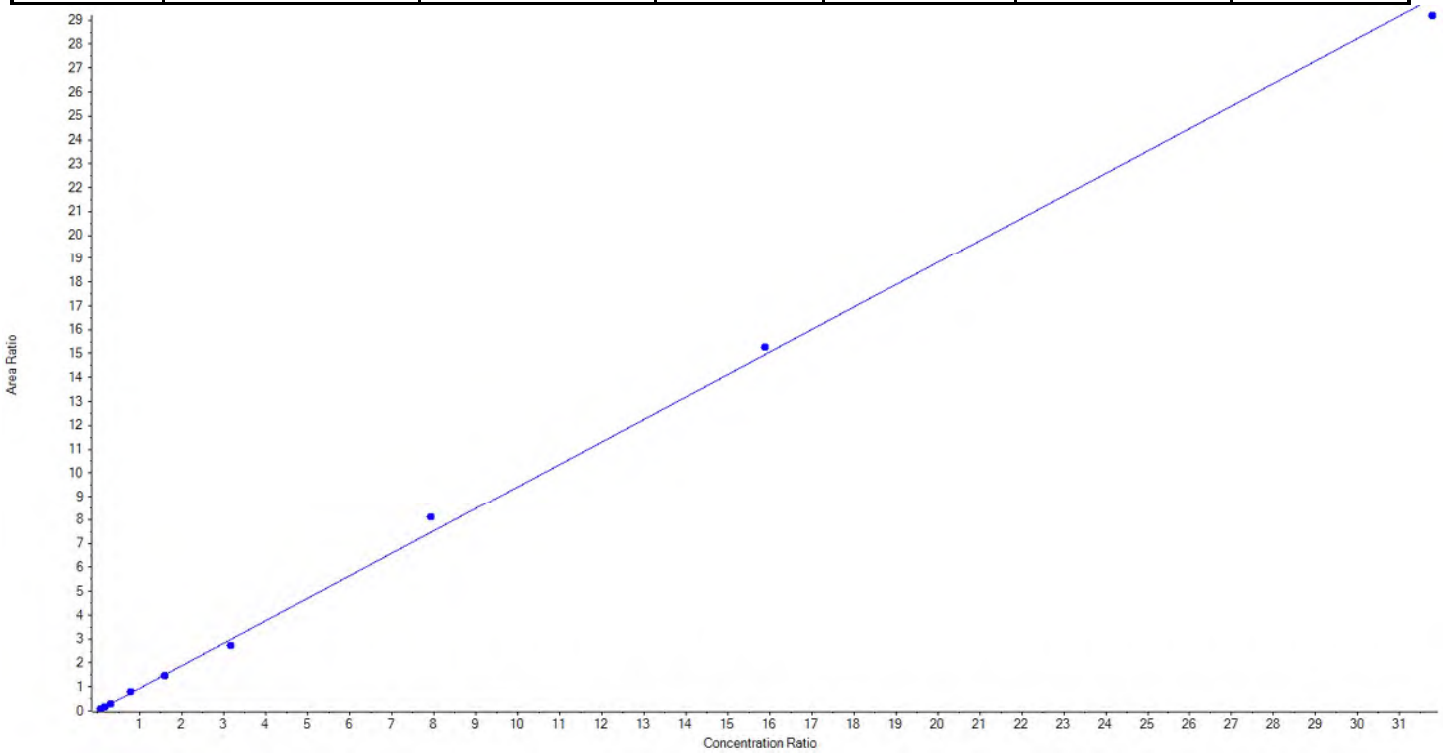
Calibration Summary Report

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Printed: 22/06/2018 11:12:33 AM

Analyte Name	PFHxS_1	**Data File**	06142018.wiff
MRM Transition	399.0 / 80.0	**Result Table**	18-0360_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.94141 x + 0.00116 (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	22.80	22.944645	100.6
3	JV65	L2	True	45.60	45.210339	99.2
4	JV66	L3	True	91.20	87.679621	96.1
5	JV67	L4	True	228.00	240.222187	105.4
6	JV68	L5	True	456.00	450.225539	98.7
7	JV69	L6	True	912.00	835.126278	91.6
8	JV70	L7	True	2280.00	2480.199044	108.8
9	JV71	L8	True	4560.00	4652.662654	102.0
10	JV72	L9	True	9120.00	8901.329694	97.6



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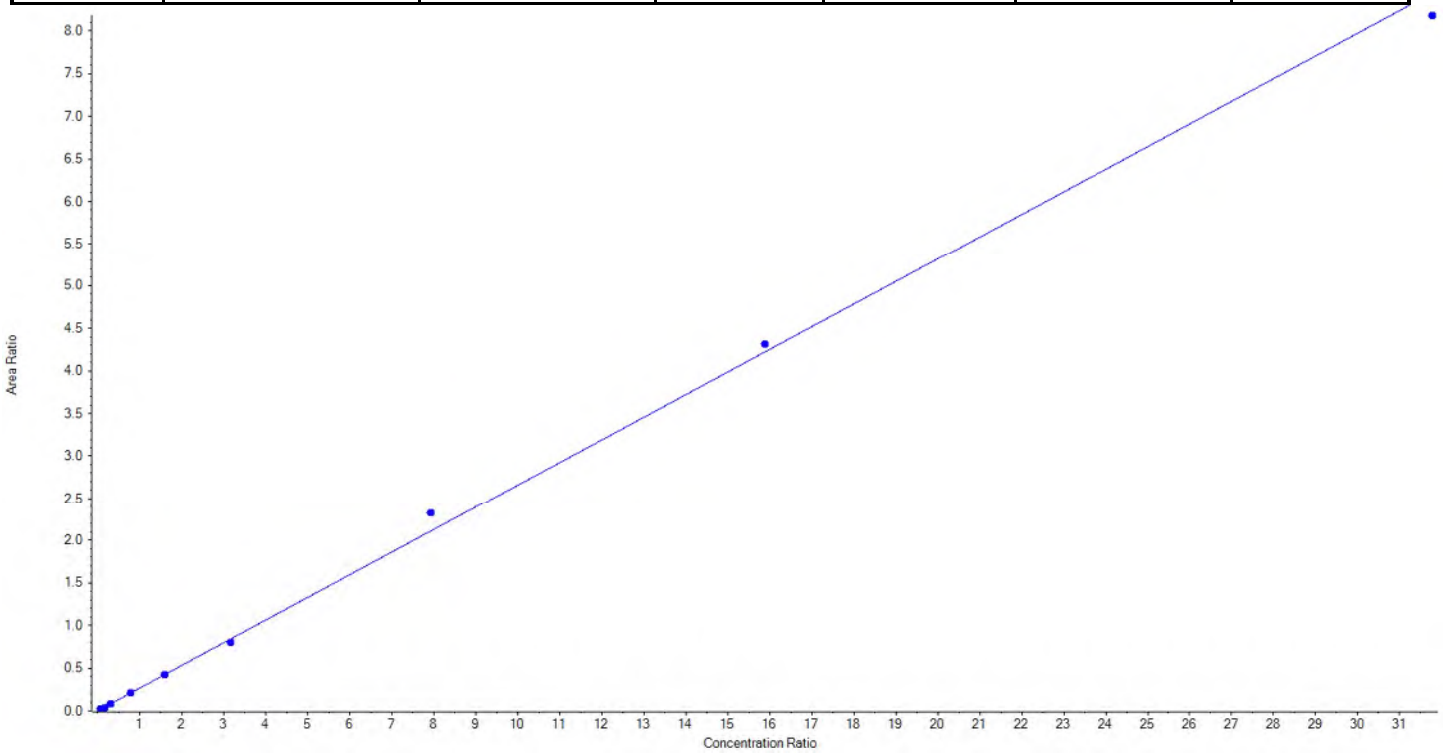
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Analyte Name	PFHxS_2	**Data File**	06142018.wiff
MRM Transition	399.0 / 99.0	**Result Table**	18-0360_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.26575 x + 3.61678e-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	22.685495	99.5
3	JV65	L2	True	45.60	42.858494	94.0
4	JV66	L3	True	91.20	91.794916	100.7
5	JV67	L4	True	228.00	231.509688	101.5
6	JV68	L5	True	456.00	459.540762	100.8
7	JV69	L6	True	912.00	860.732360	94.4
8	JV70	L7	True	2280.00	2508.455542	110.0
9	JV71	L8	True	4560.00	4664.240454	102.3
10	JV72	L9	True	9120.00	8833.782290	96.9



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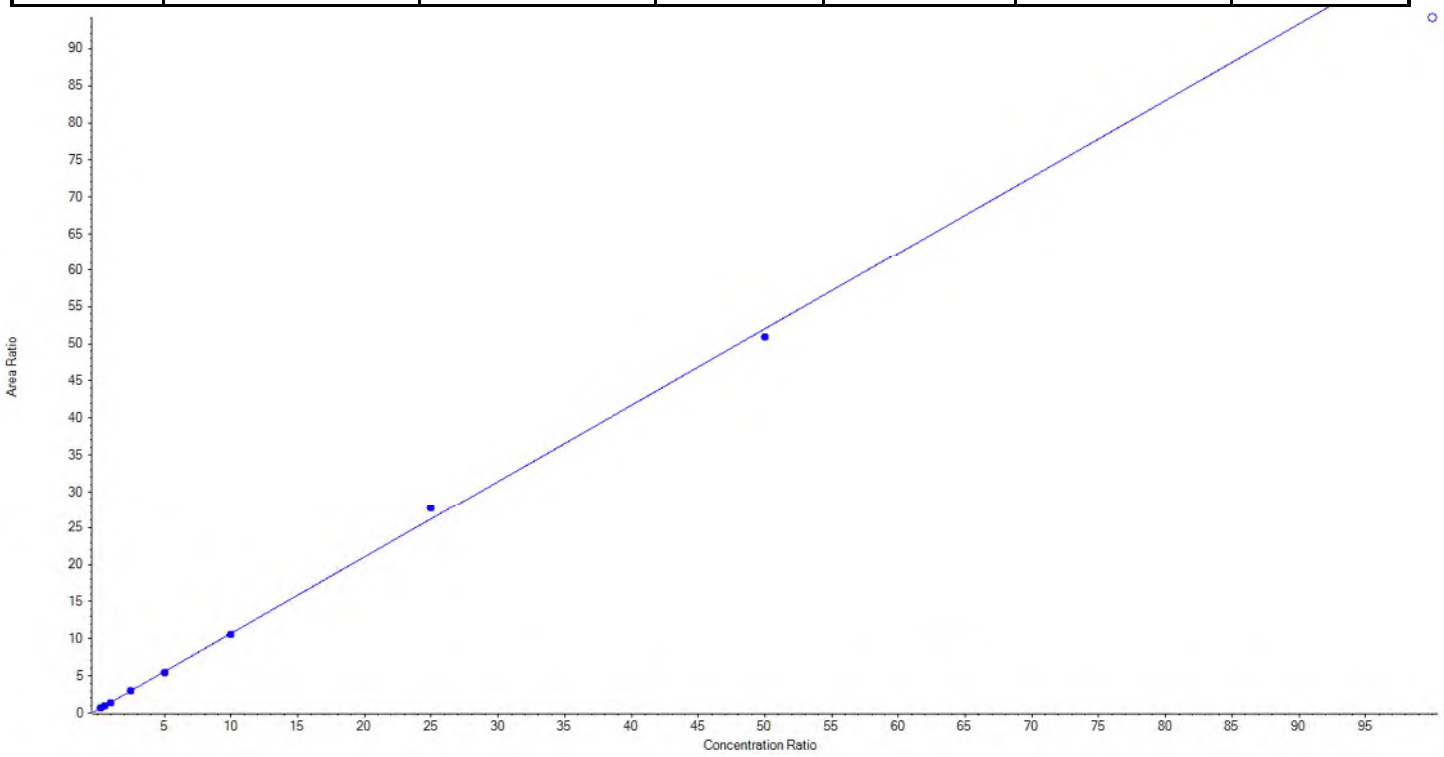
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Analyte Name	PFOA_1	**Data File**	06142018.wiff
MRM Transition	413.0 / 369.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.03224 x + 0.40144 (r = 0.99932) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	27.114030	108.5
3	JV65	L2	True	50.00	50.646537	101.3
4	JV66	L3	True	100.00	88.936107	88.9
5	JV67	L4	True	250.00	251.440480	100.6
6	JV68	L5	True	500.00	492.243257	98.5
7	JV69	L6	True	1000.00	990.584472	99.1
8	JV70	L7	True	2500.00	2637.535326	105.5
9	JV71	L8	True	5000.00	4886.499791	97.7
10	JV72	L9	False	10000.00	9085.501304	90.9



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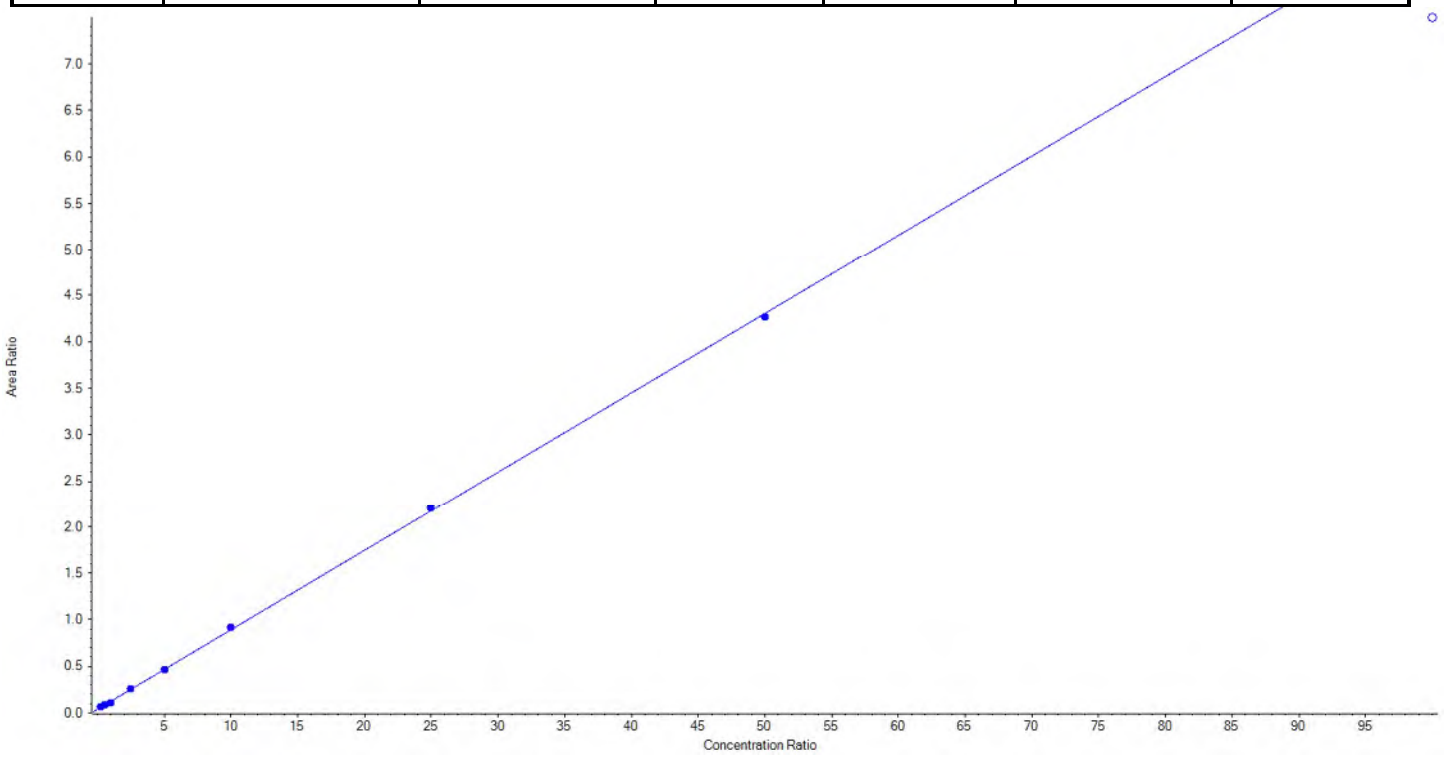
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Analyte Name	PFOA_2	**Data File**	06142018.wiff
MRM Transition	413.0 / 169.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.08529 x + 0.04040 (r = 0.99943) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	30.849054	123.4
3	JV65	L2	True	50.00	49.478583	99.0
4	JV66	L3	True	100.00	73.873247	73.9
5	JV67	L4	True	250.00	252.937559	101.2
6	JV68	L5	True	500.00	496.898603	99.4
7	JV69	L6	True	1000.00	1025.391274	102.5
8	JV70	L7	True	2500.00	2538.403299	101.5
9	JV71	L8	True	5000.00	4957.168382	99.1
10	JV72	L9	False	10000.00	8743.597229	87.4



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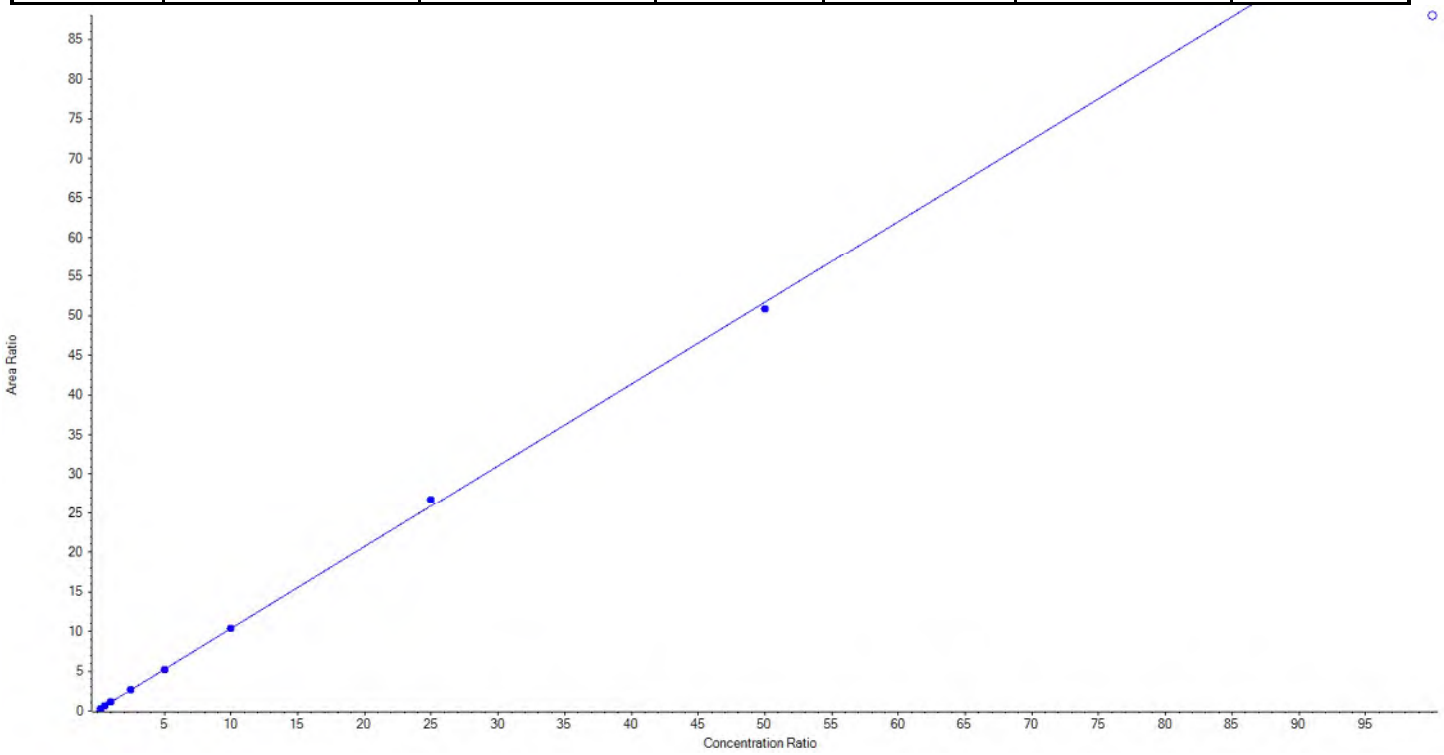
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Analyte Name	PFNA_1	**Data File**	06142018.wiff
MRM Transition	463.0 / 419.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.03297 x + 0.06553 (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	True	25.00	24.121184	96.5
3	JV65	L2	True	50.00	49.481866	99.0
4	JV66	L3	True	100.00	101.654539	101.7
5	JV67	L4	True	250.00	254.470778	101.8
6	JV68	L5	True	500.00	496.390906	99.3
7	JV69	L6	True	1000.00	1002.857473	100.3
8	JV70	L7	True	2500.00	2581.214313	103.3
9	JV71	L8	True	5000.00	4914.808940	98.3
10	JV72	L9	False	10000.00	8514.480389	85.1



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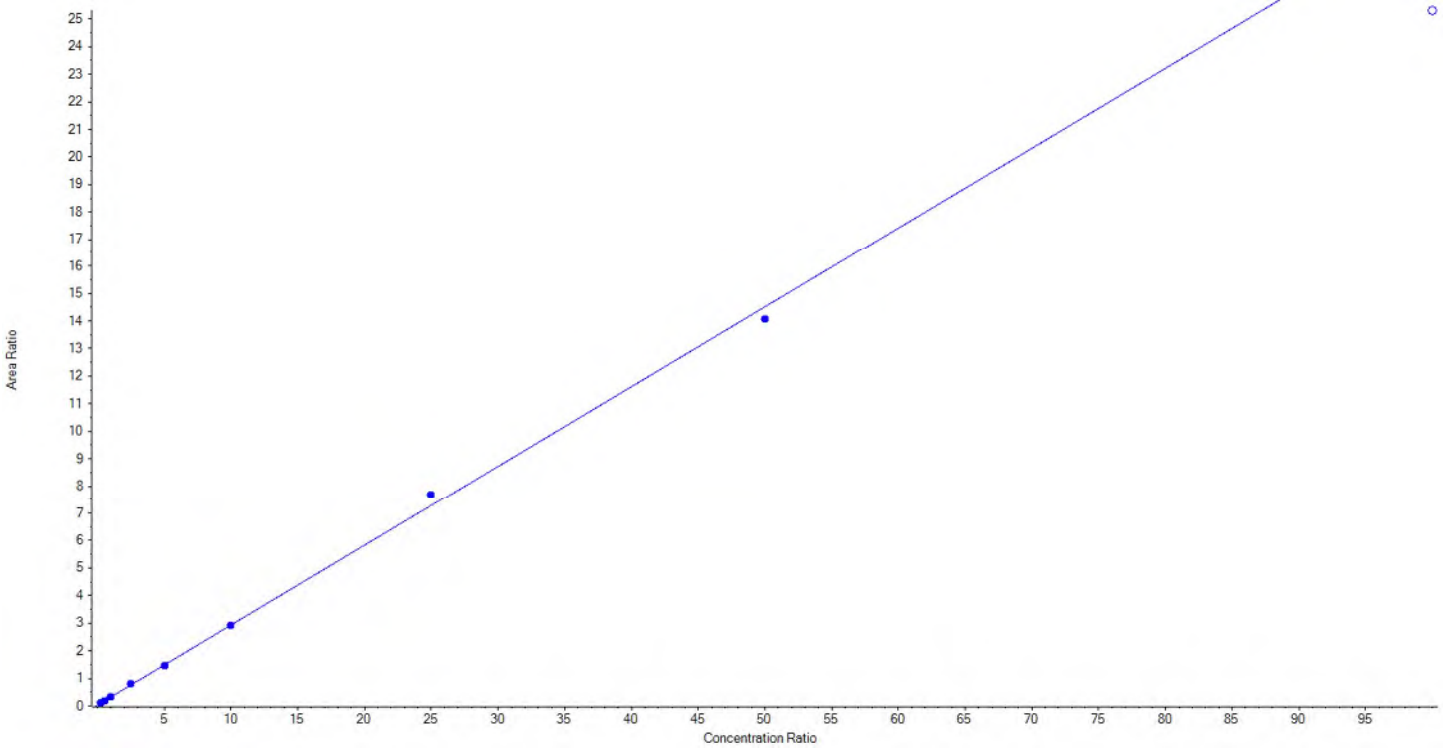
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Analyte Name	PFNA_2	**Data File**	06142018.wiff
MRM Transition	463.0 / 219.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.28966 x + 0.03407 (r = 0.99917) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	22.019956	88.1
3	JV65	L2	True	50.00	50.097820	100.2
4	JV66	L3	True	100.00	104.768332	104.8
5	JV67	L4	True	250.00	265.198012	106.1
6	JV68	L5	True	500.00	491.780543	98.4
7	JV69	L6	True	1000.00	997.937882	99.8
8	JV70	L7	True	2500.00	2643.157677	105.7
9	JV71	L8	True	5000.00	4850.039778	97.0
10	JV72	L9	False	10000.00	8723.390349	87.2



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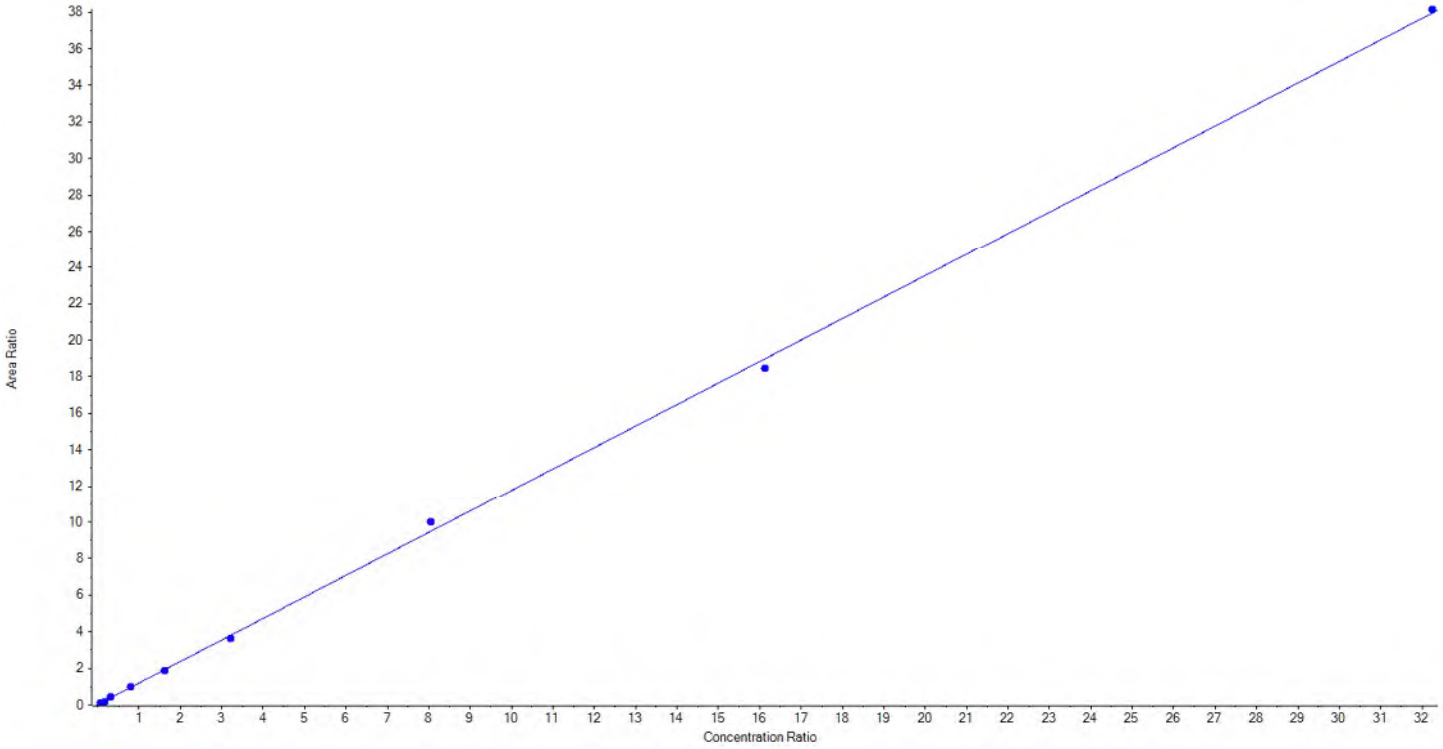
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Analyte Name	PFOS_1	**Data File**	06142018.wiff
MRM Transition	499.0 / 80.0	**Result Table**	18-0360_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.17626 x + 0.01560 (r = 0.99962) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	23.15	23.853829	103.0
3	JV65	L2	True	46.30	43.011639	92.9
4	JV66	L3	True	92.60	97.373524	105.2
5	JV67	L4	True	231.50	238.938161	103.2
6	JV68	L5	True	463.00	449.869323	97.2
7	JV69	L6	True	925.60	883.084484	95.4
8	JV70	L7	True	2314.00	2435.768229	105.3
9	JV71	L8	True	4628.00	4505.765724	97.4
10	JV72	L9	True	9256.00	9302.485087	100.5



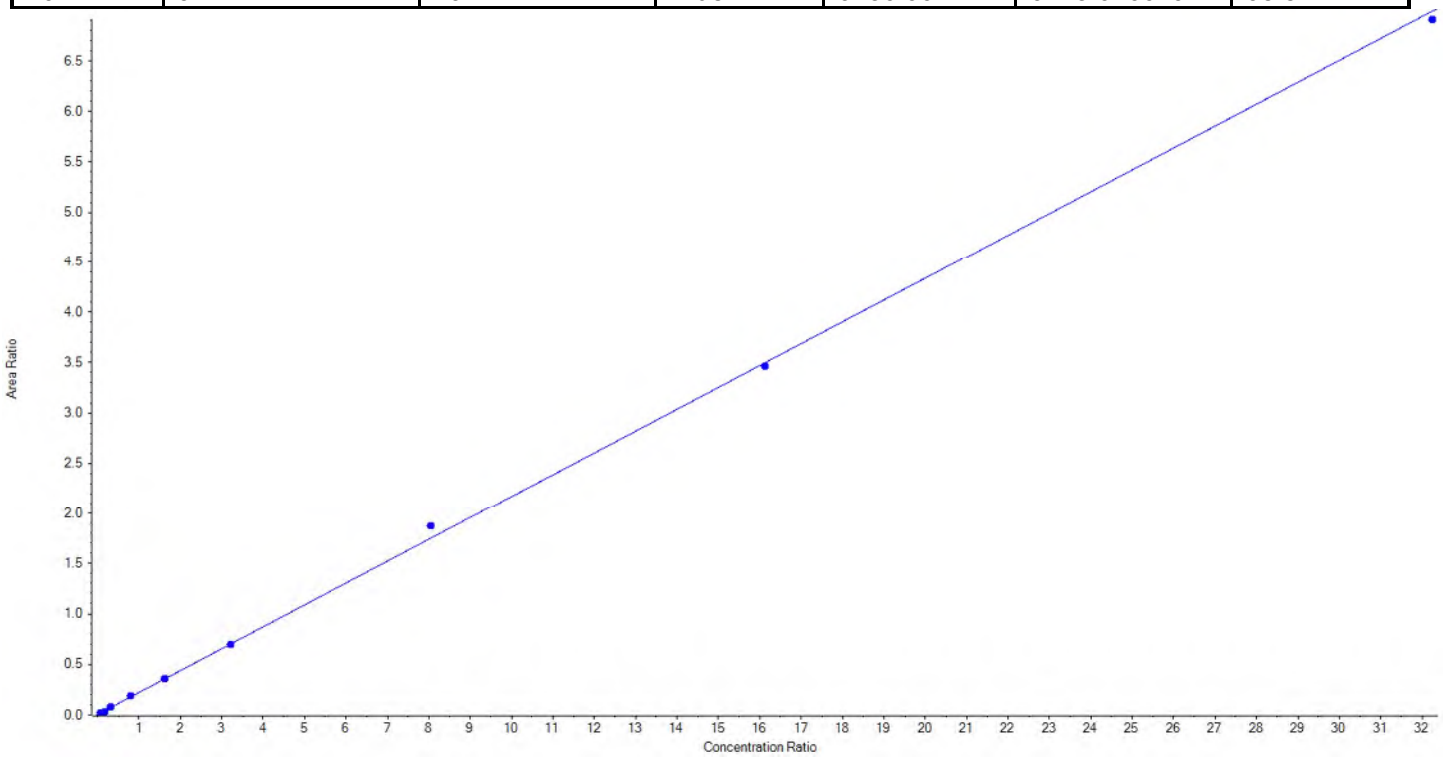
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Calibration Summary Report

Analyte Name	PFOS_2	**Data File**	06142018.wiff
MRM Transition	499.0 / 99.0	**Result Table**	18-0360_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.21661 x + 0.00461 (r = 0.99954) (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	25.672779	110.9
3	JV65	L2	True	46.30	35.639688	77.0
4	JV66	L3	True	92.60	94.092291	101.6
5	JV67	L4	True	231.50	246.825038	106.6
6	JV68	L5	True	463.00	465.321435	100.5
7	JV69	L6	True	925.60	915.675303	98.9
8	JV70	L7	True	2314.00	2466.591124	106.6
9	JV71	L8	True	4628.00	4584.705722	99.1
10	JV72	L9	True	9256.00	9145.626619	98.8



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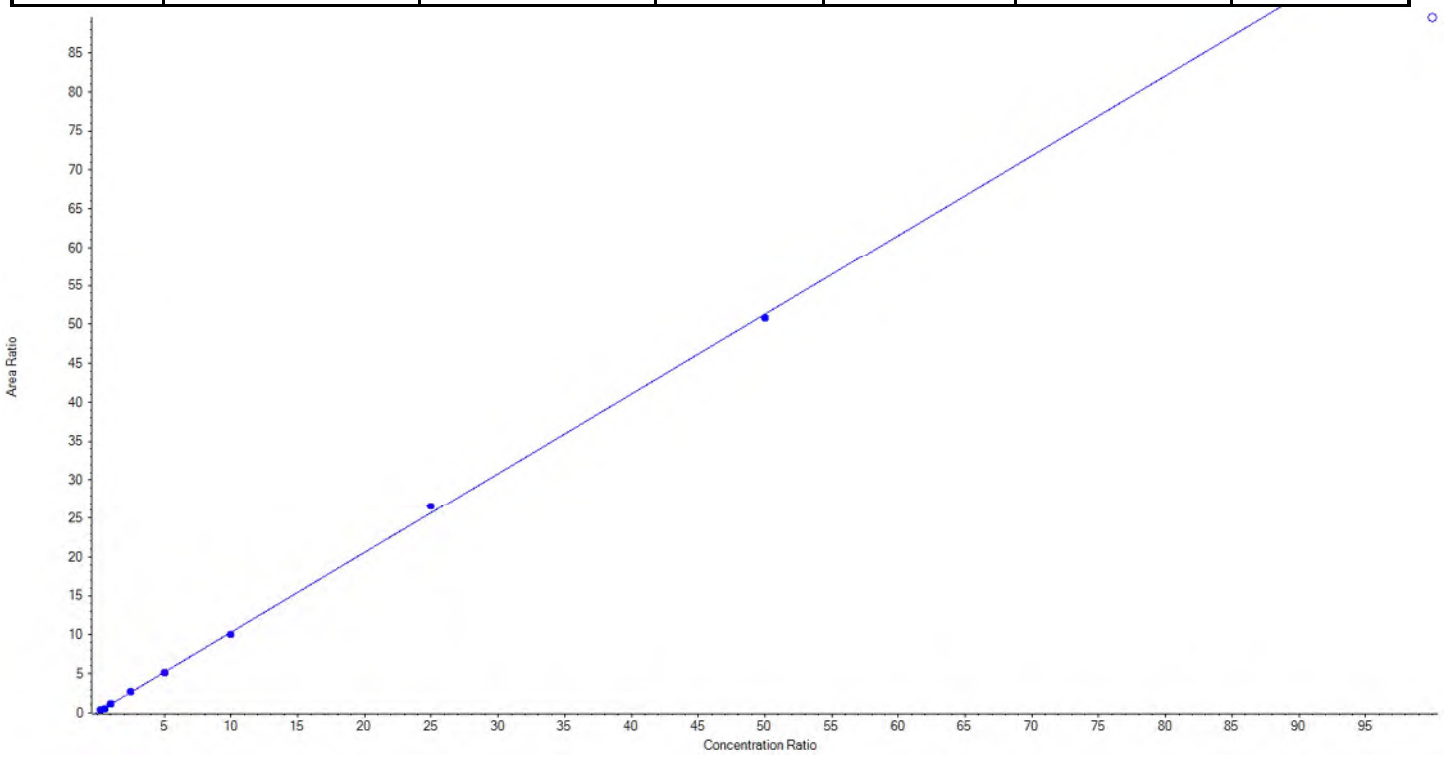
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Printed: 22/06/2018 11:12:33 AM

Analyte Name	PFDA_1	**Data File**	06142018.wiff
MRM Transition	513.0 / 469.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.02458 x + 0.09578 (r = 0.99973) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	26.219077	104.9
3	JV65	L2	True	50.00	46.181808	92.4
4	JV66	L3	True	100.00	104.367940	104.4
5	JV67	L4	True	250.00	252.874366	101.2
6	JV68	L5	True	500.00	488.129333	97.6
7	JV69	L6	True	1000.00	973.117412	97.3
8	JV70	L7	True	2500.00	2581.129067	103.3
9	JV71	L8	True	5000.00	4952.980997	99.1
10	JV72	L9	False	10000.00	8730.404917	87.3



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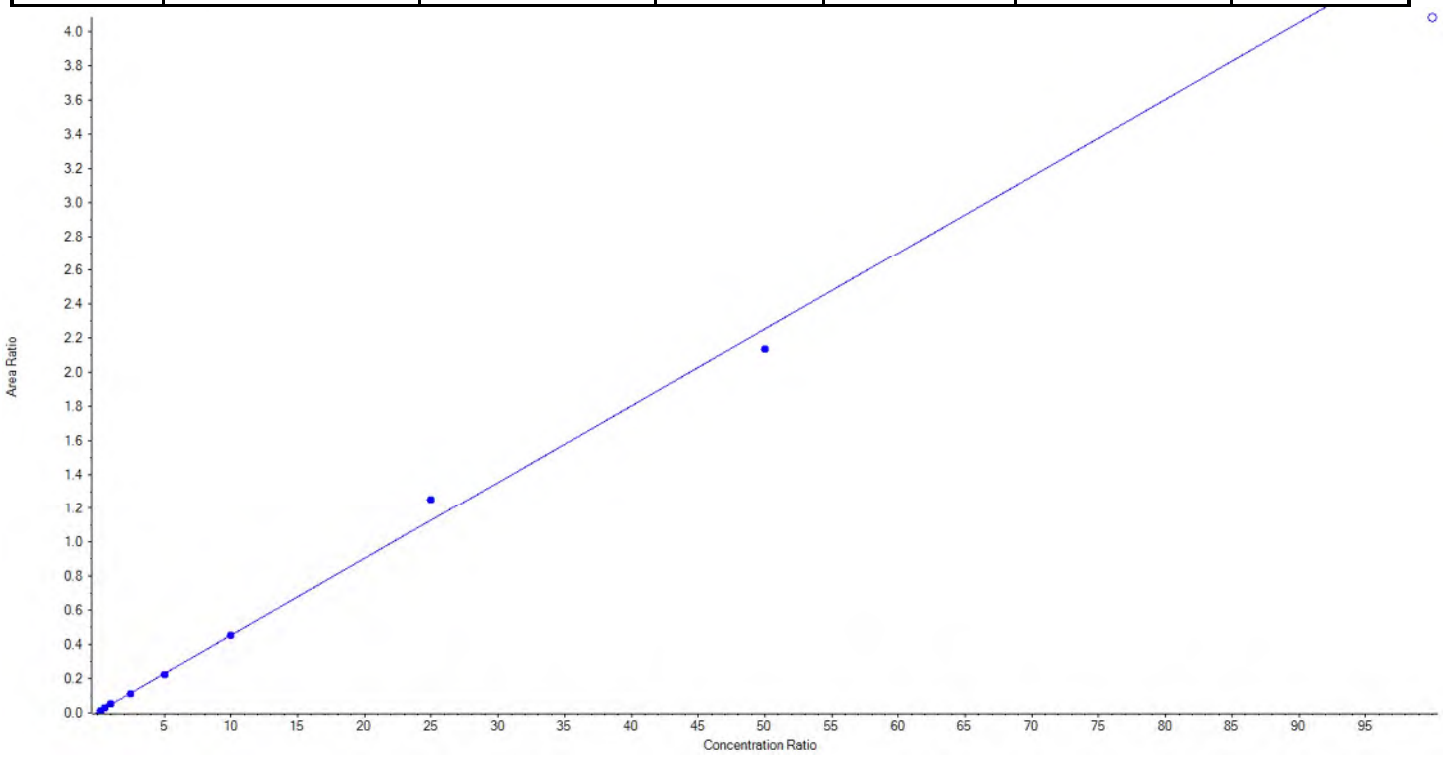
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Analyte Name	PFDA_2	**Data File**	06142018.wiff
MRM Transition	513.0 / 219.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.04499 x + 0.00416 (r = 0.99735) (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	21.216707	84.9
3	JV65	L2	True	50.00	53.933477	107.9
4	JV66	L3	True	100.00	106.151028	106.2
5	JV67	L4	True	250.00	245.183421	98.1
6	JV68	L5	True	500.00	488.334256	97.7
7	JV69	L6	True	1000.00	995.605535	99.6
8	JV70	L7	True	2500.00	2776.145192	111.1
9	JV71	L8	True	5000.00	4738.430382	94.8
10	JV72	L9	False	10000.00	9065.576243	90.7



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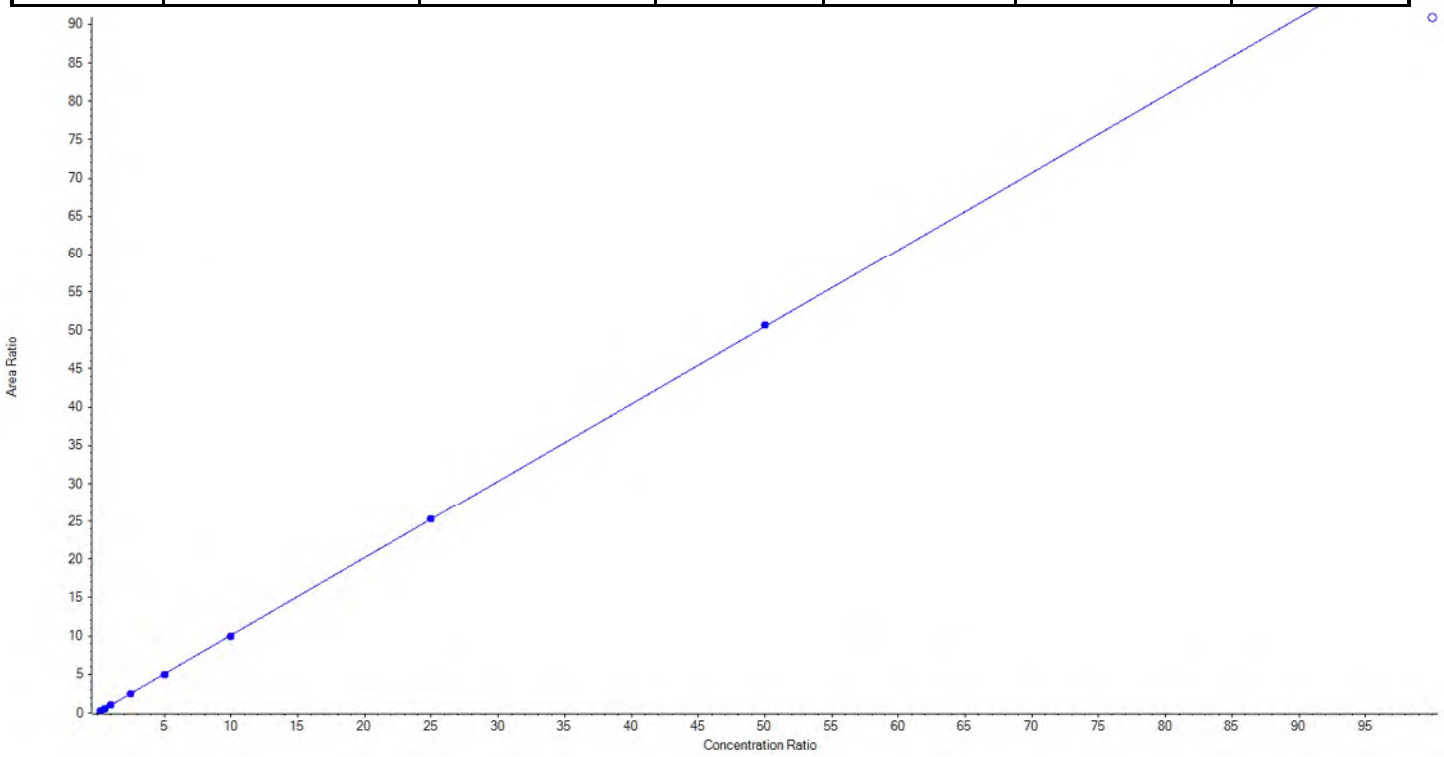
Calibration Summary Report

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Analyte Name	PFUnA_1	**Data File**	06142018.wiff
MRM Transition	563.0 / 519.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.00945 x + 0.02032 (r = 0.99998) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	24.341334	97.4
3	JV65	L2	True	50.00	51.536736	103.1
4	JV66	L3	True	100.00	101.919285	101.9
5	JV67	L4	True	250.00	248.880312	99.6
6	JV68	L5	True	500.00	494.634182	98.9
7	JV69	L6	True	1000.00	989.188378	98.9
8	JV70	L7	True	2500.00	2497.705644	99.9
9	JV71	L8	True	5000.00	5016.794129	100.3
10	JV72	L9	False	10000.00	9002.134598	90.0



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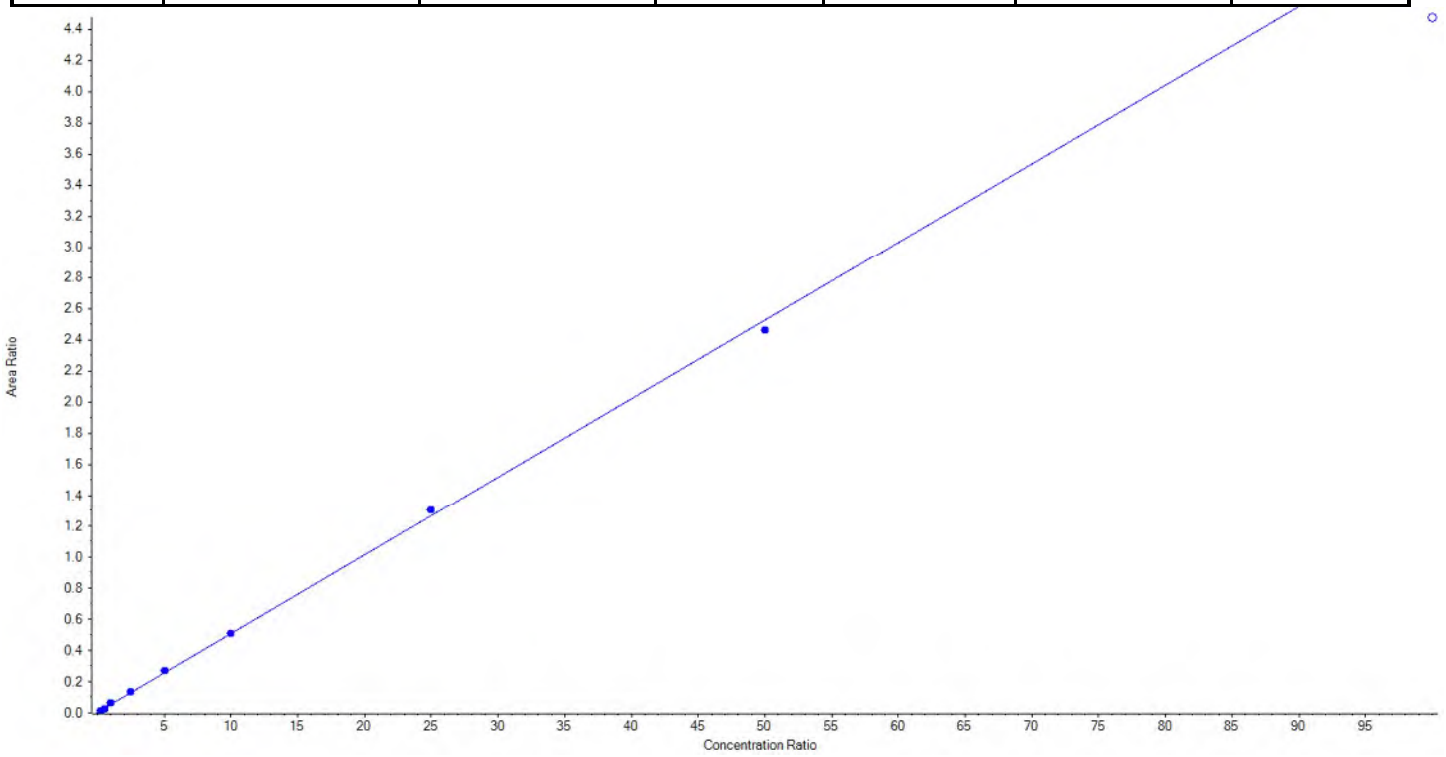
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Analyte Name	PFUnA_2	**Data File**	06142018.wiff
MRM Transition	563.0 / 269.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05046 x + 0.00416 (r = 0.99916) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	20.210812	80.8
3	JV65	L2	True	50.00	42.704447	85.4
4	JV66	L3	True	100.00	120.298427	120.3
5	JV67	L4	True	250.00	266.052668	106.4
6	JV68	L5	True	500.00	534.753221	107.0
7	JV69	L6	True	1000.00	998.995973	99.9
8	JV70	L7	True	2500.00	2566.921563	102.7
9	JV71	L8	True	5000.00	4875.062888	97.5
10	JV72	L9	False	10000.00	8860.250273	88.6



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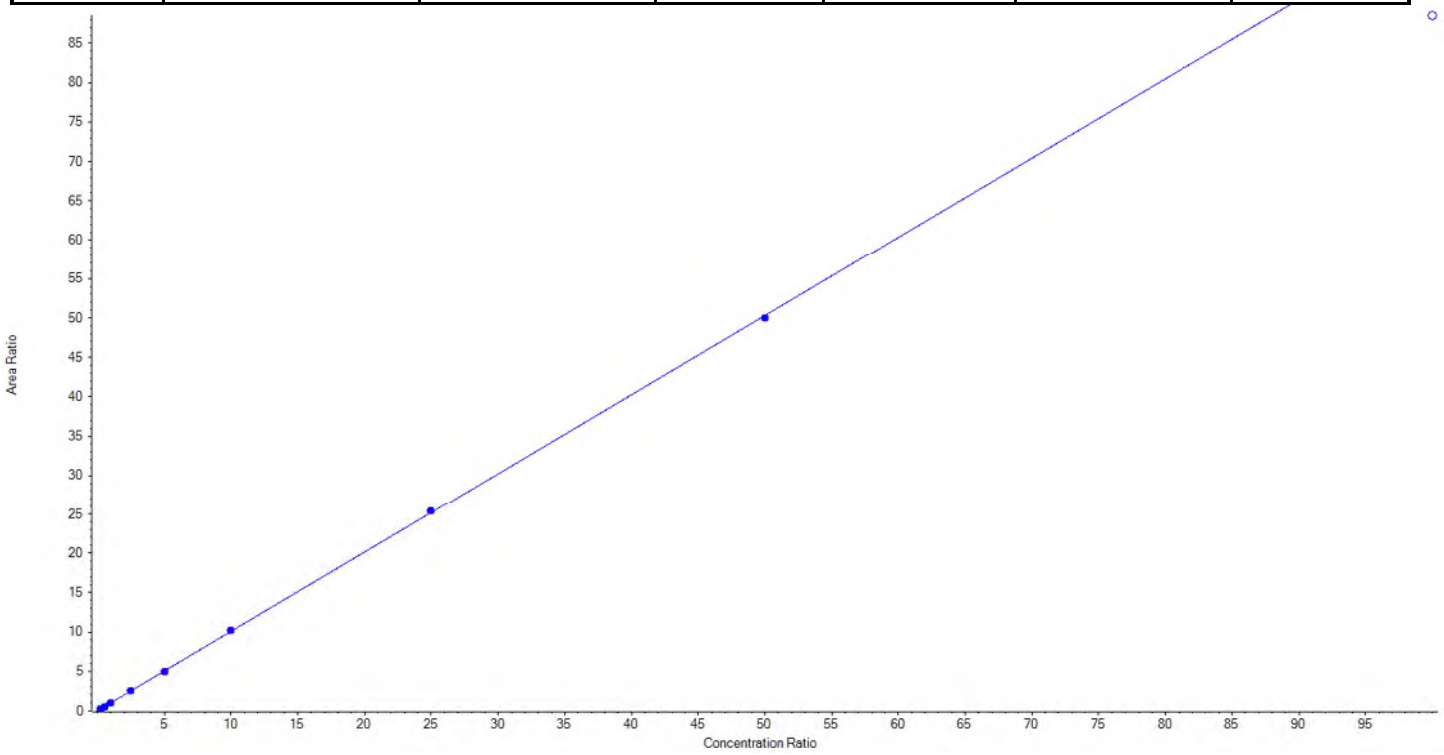
Calibration Summary Report

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Printed: 22/06/2018 11:12:33 AM

Analyte Name	PFDoA_1	**Data File**	06142018.wiff
MRM Transition	613.0 / 569.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.00557 x + 0.02863 (r = 0.99993) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	25.079471	100.3
3	JV65	L2	True	50.00	48.568786	97.1
4	JV66	L3	True	100.00	104.271191	104.3
5	JV67	L4	True	250.00	246.377663	98.6
6	JV68	L5	True	500.00	488.410023	97.7
7	JV69	L6	True	1000.00	1016.786698	101.7
8	JV70	L7	True	2500.00	2522.574479	100.9
9	JV71	L8	True	5000.00	4972.931689	99.5
10	JV72	L9	False	10000.00	8798.205595	88.0



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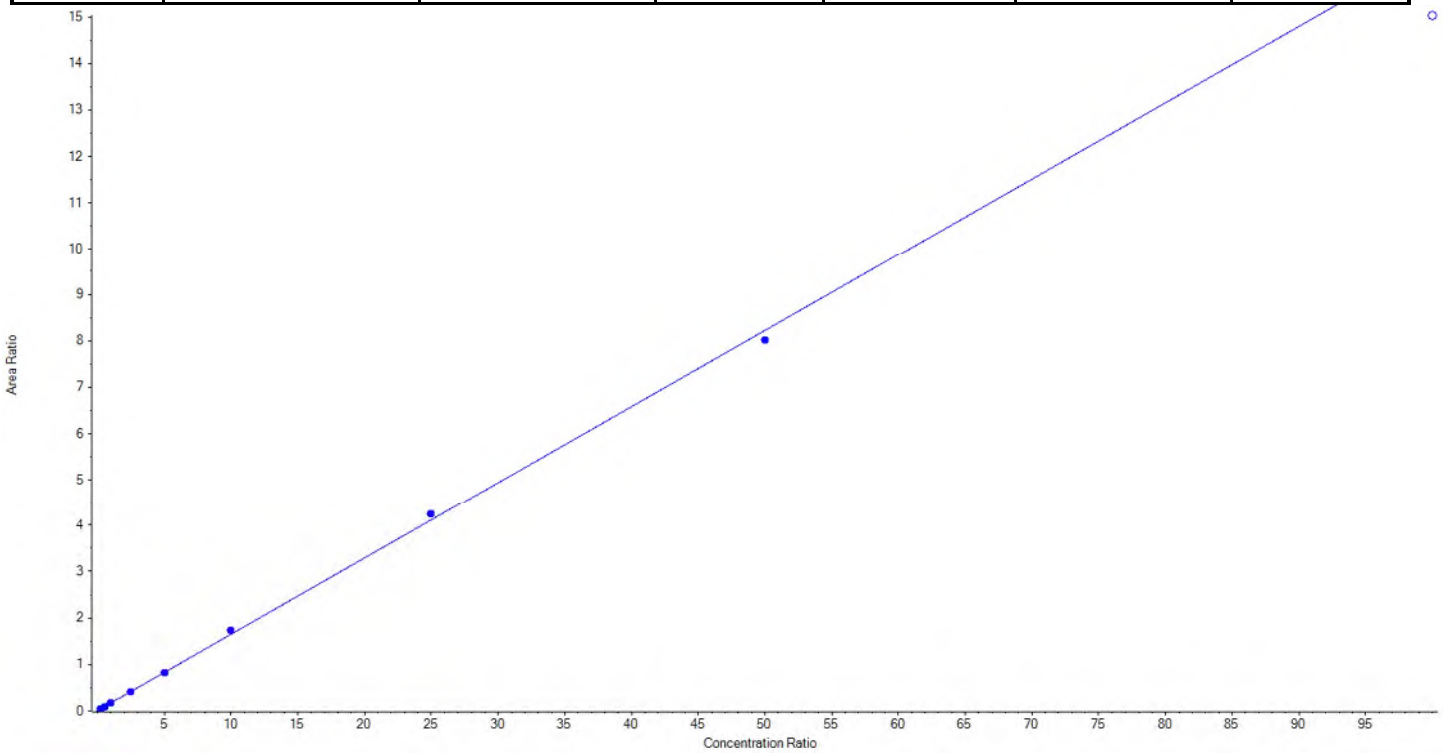
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Analyte Name	PFDoA_2	**Data File**	06142018.wiff
MRM Transition	613.0 / 319.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.16433 x + 0.00700 (r = 0.99946) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	22.376883	89.5
3	JV65	L2	True	50.00	50.486070	101.0
4	JV66	L3	True	100.00	104.568160	104.6
5	JV67	L4	True	250.00	249.302804	99.7
6	JV68	L5	True	500.00	496.928169	99.4
7	JV69	L6	True	1000.00	1052.877827	105.3
8	JV70	L7	True	2500.00	2579.421445	103.2
9	JV71	L8	True	5000.00	4869.038641	97.4
10	JV72	L9	False	10000.00	9143.499217	91.4



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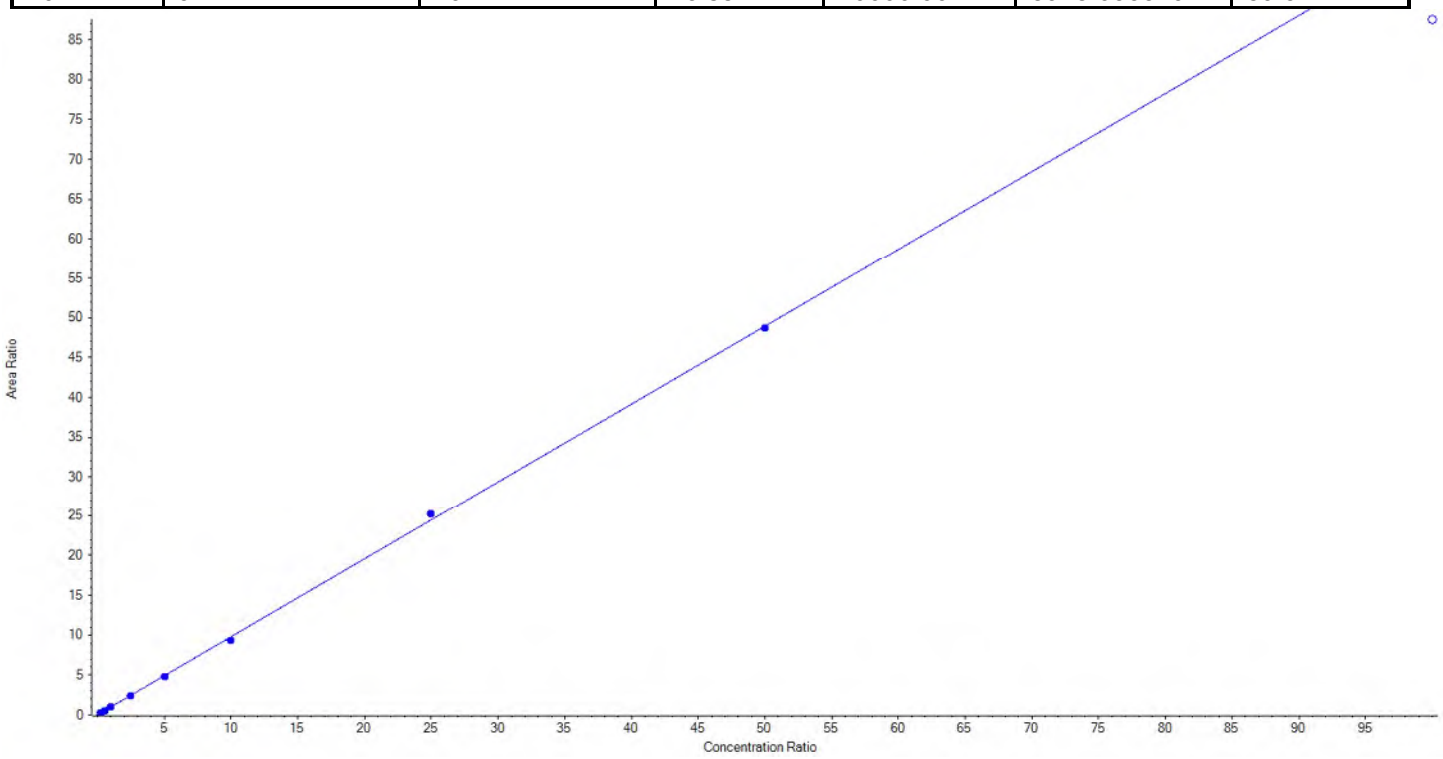
Calibration Summary Report

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Analyte Name	PFTrDA_1	**Data File**	06142018.wiff
MRM Transition	663.0 / 619.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.97814 x + 0.01951 (r = 0.99970) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	25.967378	103.9
3	JV65	L2	True	50.00	48.344640	96.7
4	JV66	L3	True	100.00	103.874292	103.9
5	JV67	L4	True	250.00	249.296761	99.7
6	JV68	L5	True	500.00	486.781731	97.4
7	JV69	L6	True	1000.00	958.304110	95.8
8	JV70	L7	True	2500.00	2580.641644	103.2
9	JV71	L8	True	5000.00	4971.789444	99.4
10	JV72	L9	False	10000.00	8948.655319	89.5



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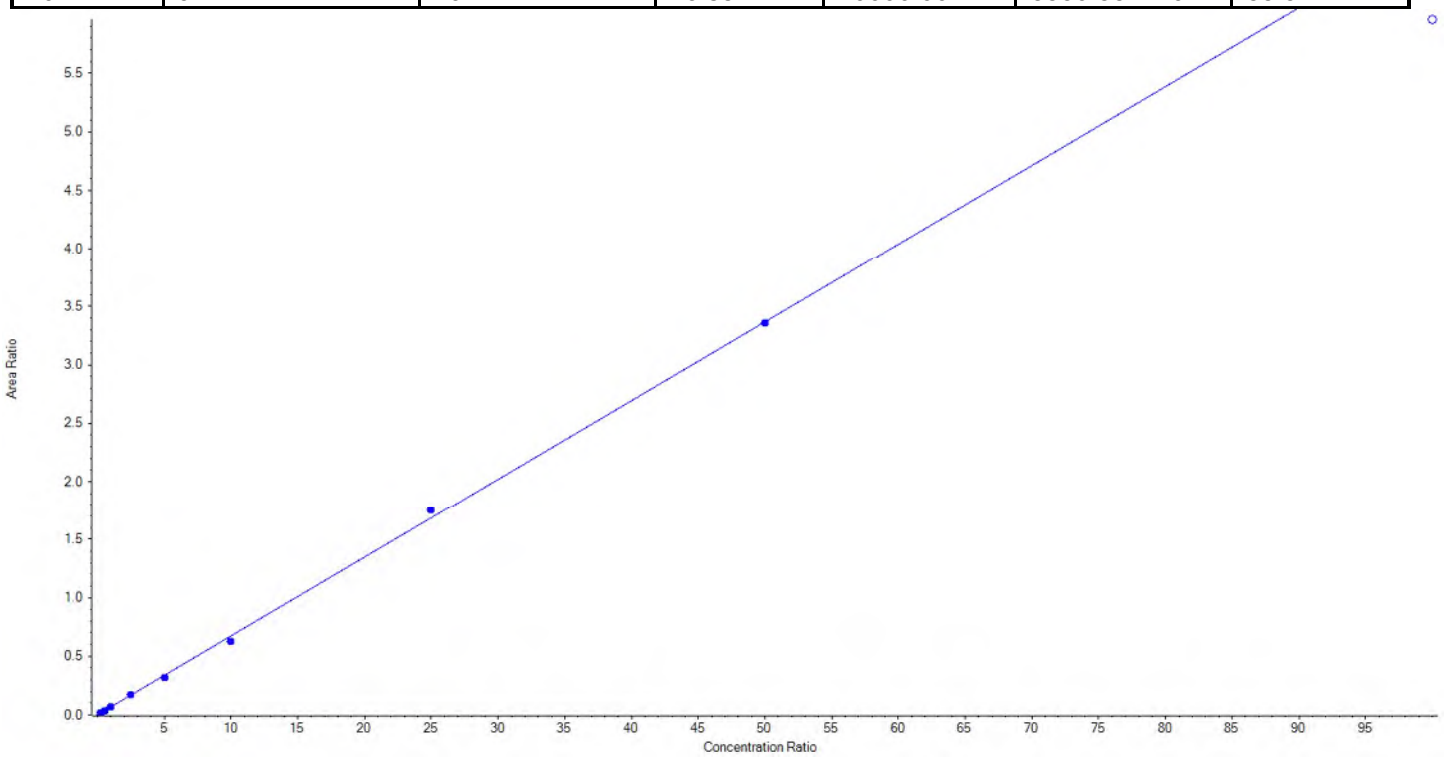
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Analyte Name	PFTrDA_2	**Data File**	06142018.wiff
MRM Transition	663.0 / 169.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.06731 x + 0.00111 (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	True	25.00	26.205576	104.8
3	JV65	L2	True	50.00	51.567868	103.1
4	JV66	L3	True	100.00	98.315437	98.3
5	JV67	L4	True	250.00	256.905806	102.8
6	JV68	L5	True	500.00	468.695737	93.7
7	JV69	L6	True	1000.00	934.572561	93.5
8	JV70	L7	True	2500.00	2599.652888	104.0
9	JV71	L8	True	5000.00	4989.084128	99.8
10	JV72	L9	False	10000.00	8850.881419	88.5



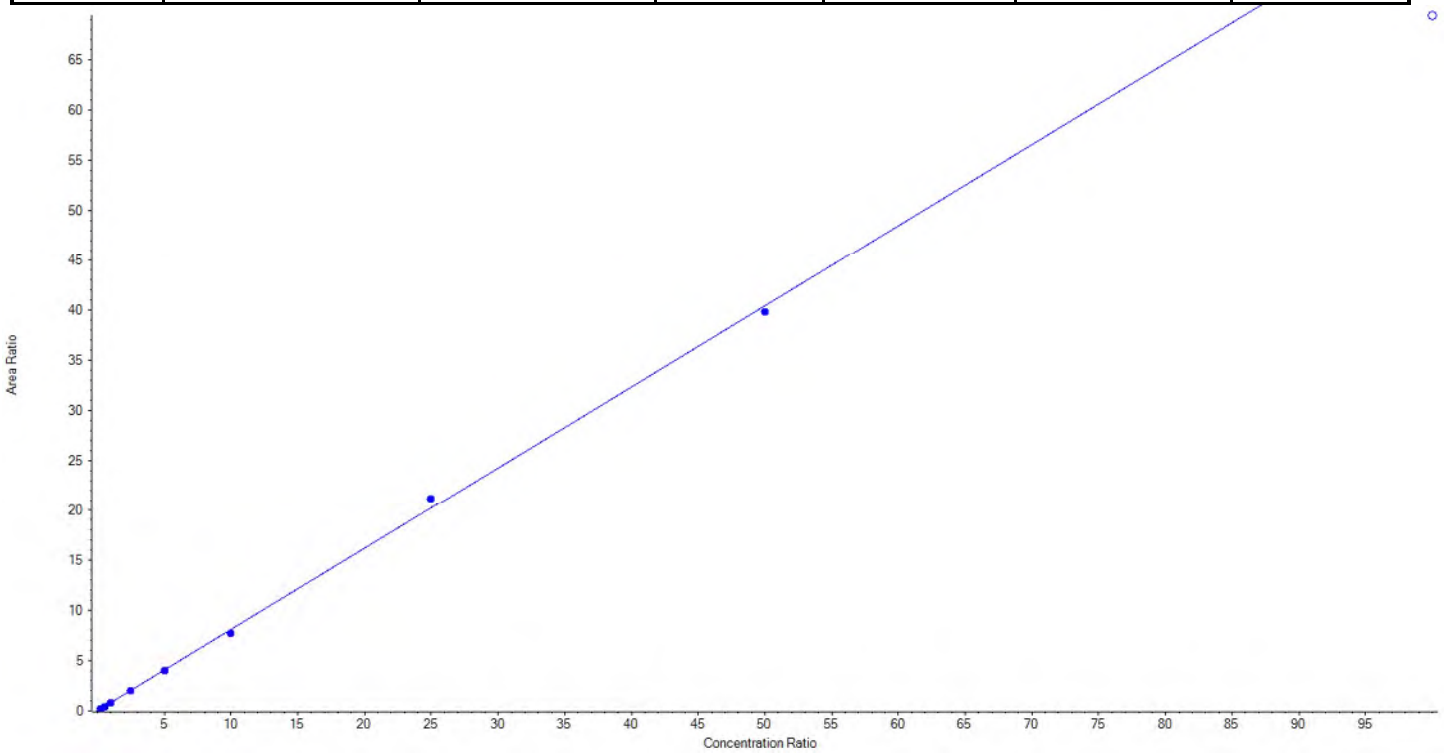
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Calibration Summary Report

Analyte Name	PFTeDA_1	**Data File**	06142018.wiff
MRM Transition	713.0 / 669.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.80810 x + 0.02533 (r = 0.99948) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	24.615906	98.5
3	JV65	L2	True	50.00	51.639881	103.3
4	JV66	L3	True	100.00	100.259522	100.3
5	JV67	L4	True	250.00	249.347489	99.7
6	JV68	L5	True	500.00	497.508333	99.5
7	JV69	L6	True	1000.00	954.141072	95.4
8	JV70	L7	True	2500.00	2619.628447	104.8
9	JV71	L8	True	5000.00	4927.859352	98.6
10	JV72	L9	False	10000.00	8588.121467	85.9



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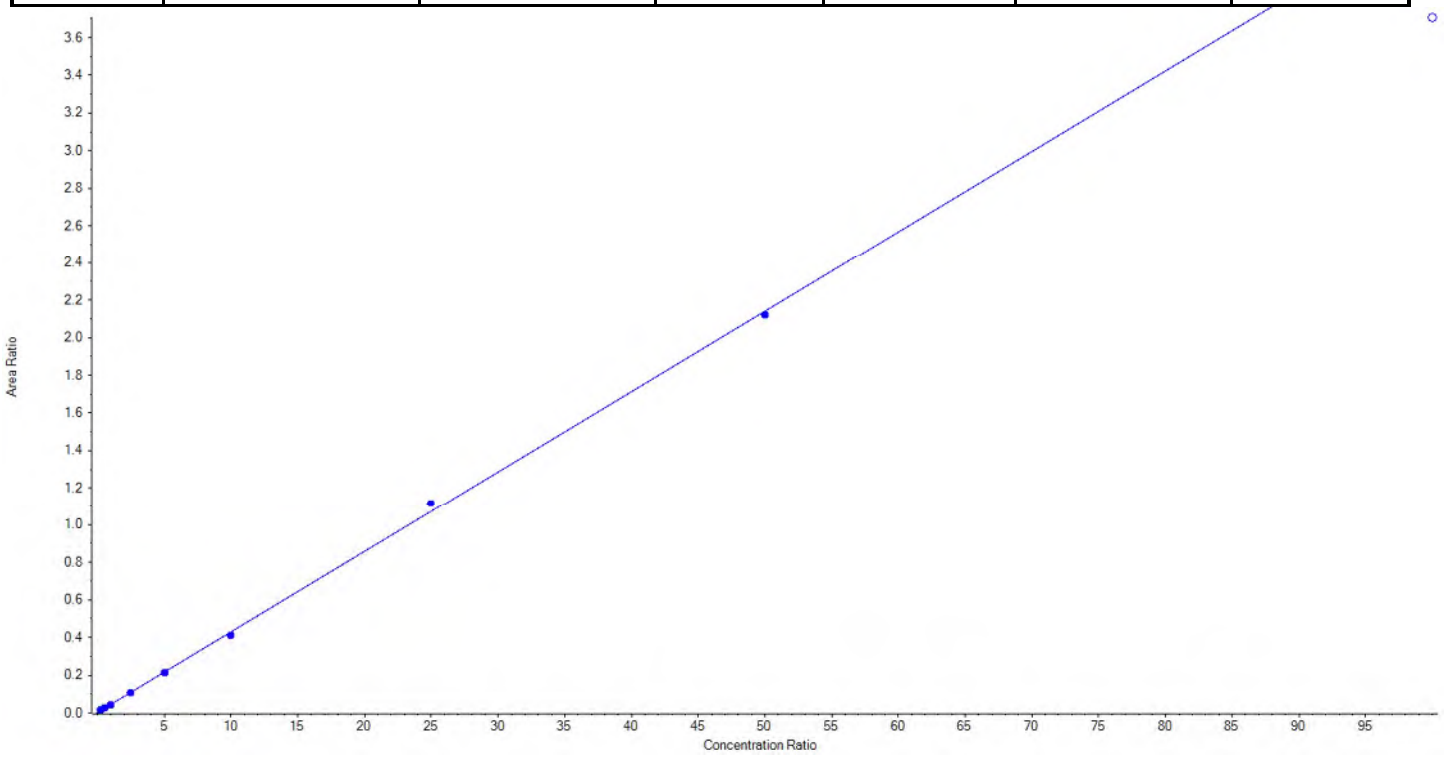
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Analyte Name	PFTeDA_2	**Data File**	06142018.wiff
MRM Transition	713.0 / 169.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.04275 x + 0.00280 (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	True	25.00	26.426099	105.7
3	JV65	L2	True	50.00	52.427881	104.9
4	JV66	L3	True	100.00	94.771548	94.8
5	JV67	L4	True	250.00	240.786869	96.3
6	JV68	L5	True	500.00	497.192408	99.4
7	JV69	L6	True	1000.00	957.997978	95.8
8	JV70	L7	True	2500.00	2600.366045	104.0
9	JV71	L8	True	5000.00	4955.031170	99.1
10	JV72	L9	False	10000.00	8663.653885	86.6



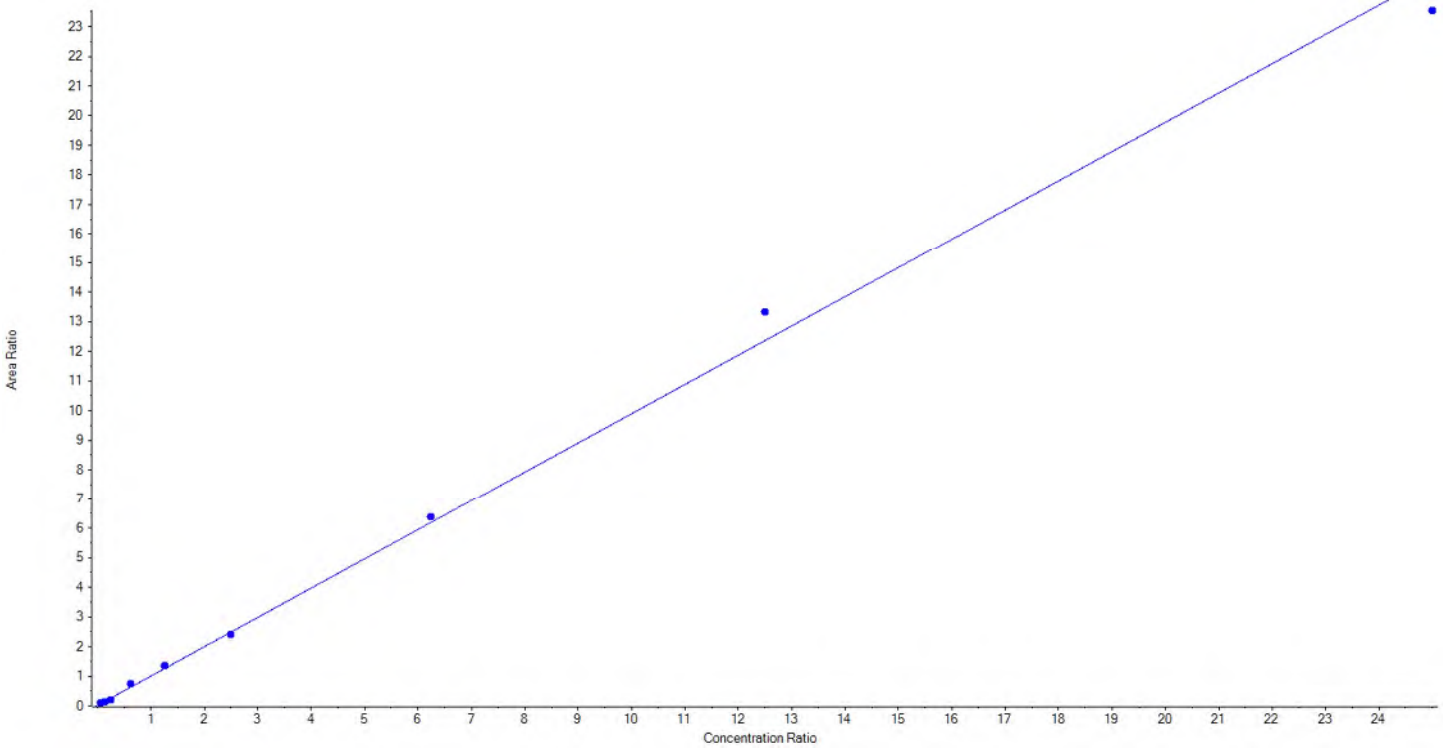
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Calibration Summary Report

Analyte Name	NMeFOSAA_1	**Data File**	06142018.wiff
MRM Transition	570.0 / 419.0	**Result Table**	18-0360_DW
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.98776 x + 0.02050 (r = 0.99809) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	26.383057	105.5
3	JV65	L2	True	50.00	46.189927	92.4
4	JV66	L3	True	100.00	76.761420	76.8
5	JV67	L4	True	250.00	288.497067	115.4
6	JV68	L5	True	500.00	537.945268	107.6
7	JV69	L6	True	1000.00	965.780202	96.6
8	JV70	L7	True	2500.00	2567.650943	102.7
9	JV71	L8	True	5000.00	5389.664132	107.8
10	JV72	L9	True	10000.00	9526.127986	95.3



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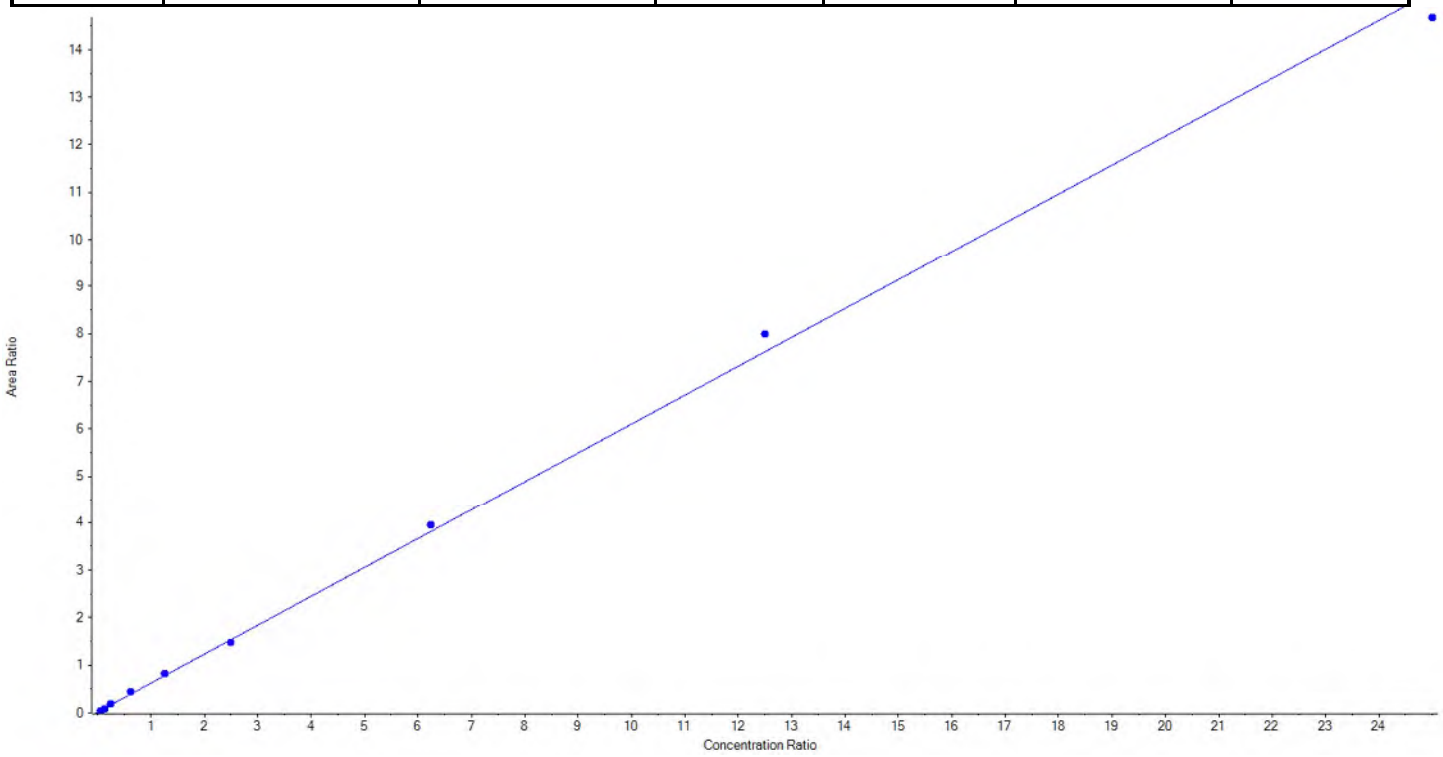
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Analyte Name	NMeFOSAA_2	**Data File**	06142018.wiff
MRM Transition	570.0 / 512.0	**Result Table**	18-0360_DW
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.60817 x + 0.01798 (r = 0.99900) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	20.838413	83.4
3	JV65	L2	True	50.00	45.532559	91.1
4	JV66	L3	True	100.00	107.415887	107.4
5	JV67	L4	True	250.00	274.640072	109.9
6	JV68	L5	True	500.00	535.696079	107.1
7	JV69	L6	True	1000.00	960.857703	96.1
8	JV70	L7	True	2500.00	2594.178444	103.8
9	JV71	L8	True	5000.00	5245.878330	104.9
10	JV72	L9	True	10000.00	9639.962514	96.4



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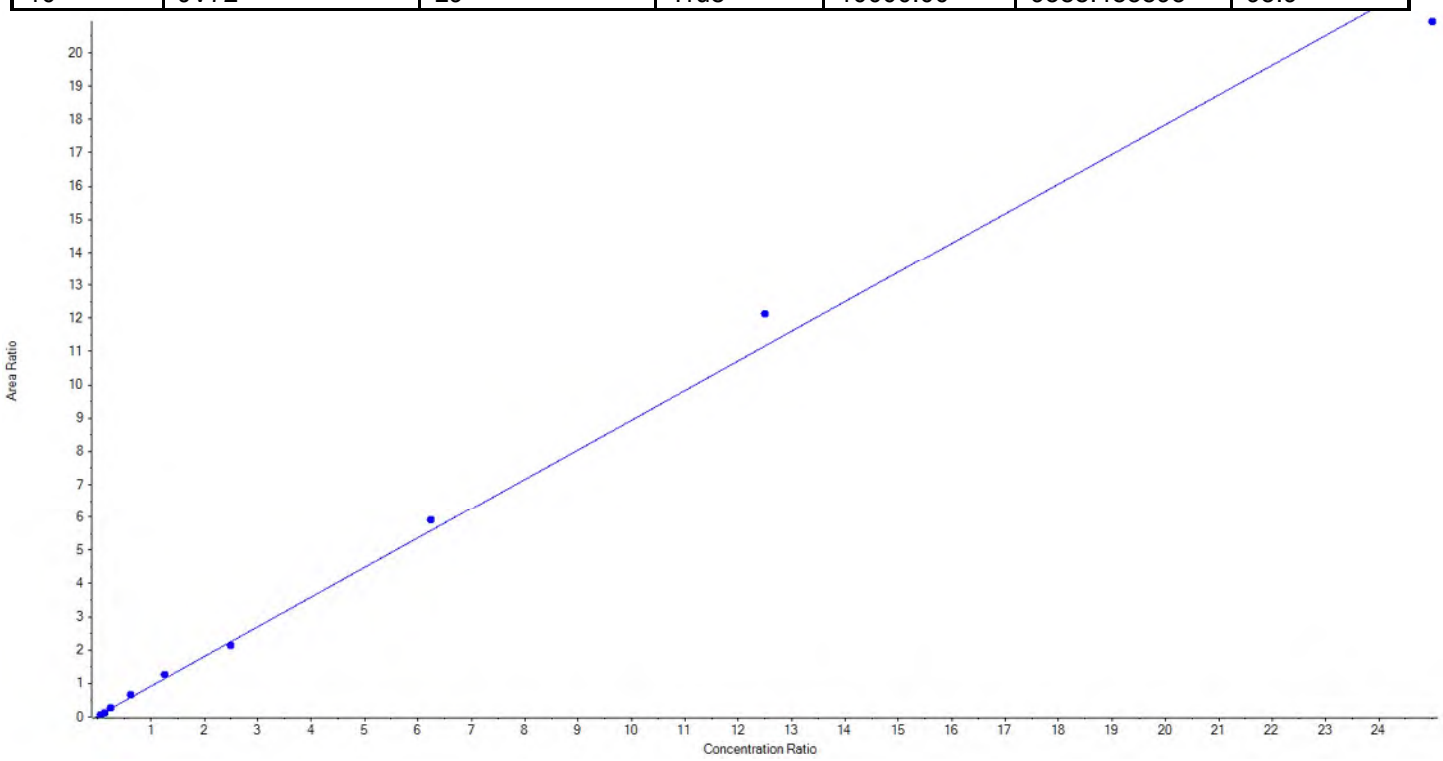
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Analyte Name	NEtFOSAA_1	**Data File**	06142018.wiff
MRM Transition	584.0 / 419.0	**Result Table**	18-0360_DW
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.89075 x + 0.02880 (r = 0.99732) (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	17.933972	71.7
3	JV65	L2	True	50.00	46.860171	93.7
4	JV66	L3	True	100.00	104.821597	104.8
5	JV67	L4	True	250.00	286.153455	114.5
6	JV68	L5	True	500.00	559.443646	111.9
7	JV69	L6	True	1000.00	954.343619	95.4
8	JV70	L7	True	2500.00	2635.684352	105.4
9	JV71	L8	True	5000.00	5431.273294	108.6
10	JV72	L9	True	10000.00	9388.485893	93.9



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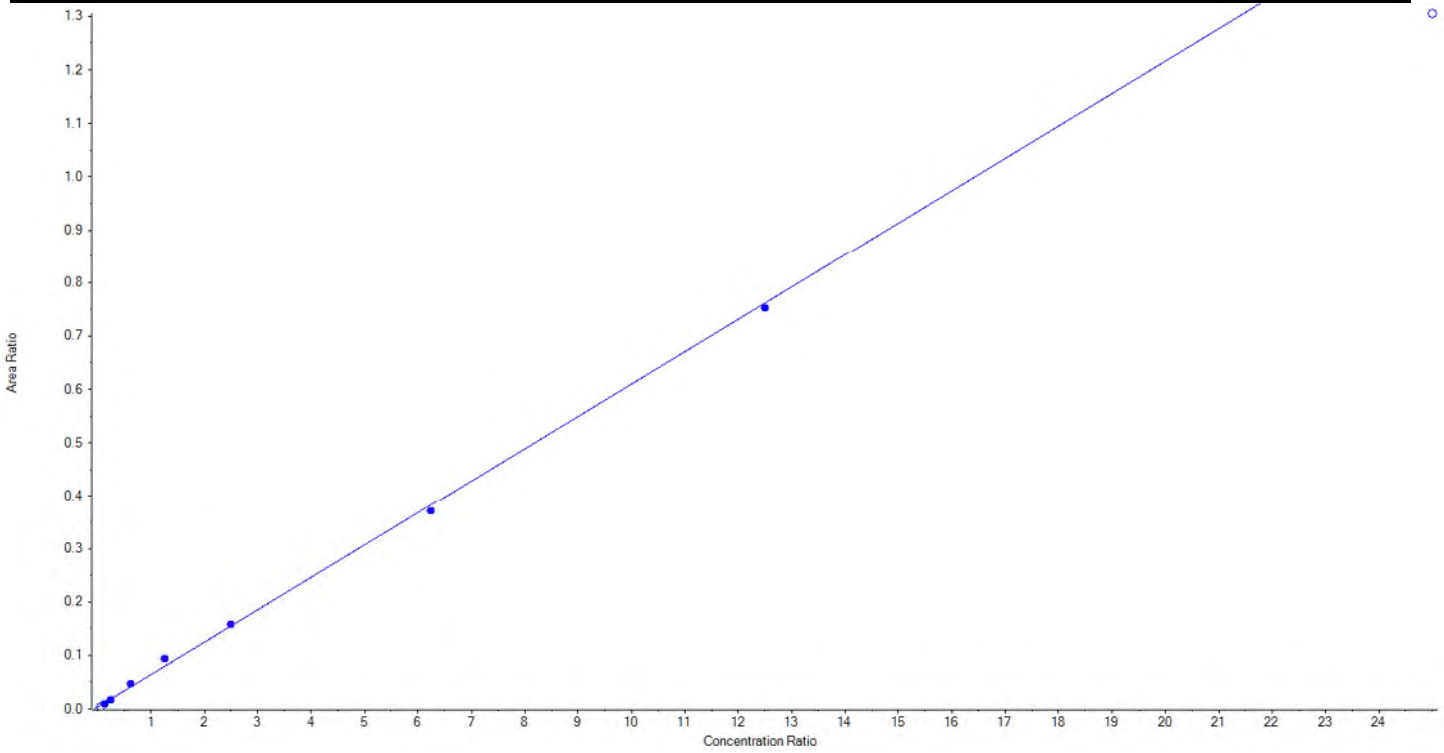
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Analyte Name	NEtFOSAA_2	**Data File**	06142018.wiff
MRM Transition	584.0 / 483.0	**Result Table**	18-0360_DW
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.06065 x + 0.00344 (r = 0.99817) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	< 0	N/A
3	JV65	L2	True	50.00	41.148035	82.3
4	JV66	L3	True	100.00	86.882544	86.9
5	JV67	L4	True	250.00	283.873236	113.6
6	JV68	L5	True	500.00	596.895502	119.4
7	JV69	L6	True	1000.00	1019.112819	101.9
8	JV70	L7	True	2500.00	2426.997616	97.1
9	JV71	L8	True	5000.00	4945.090248	98.9
10	JV72	L9	False	10000.00	8586.790395	85.9



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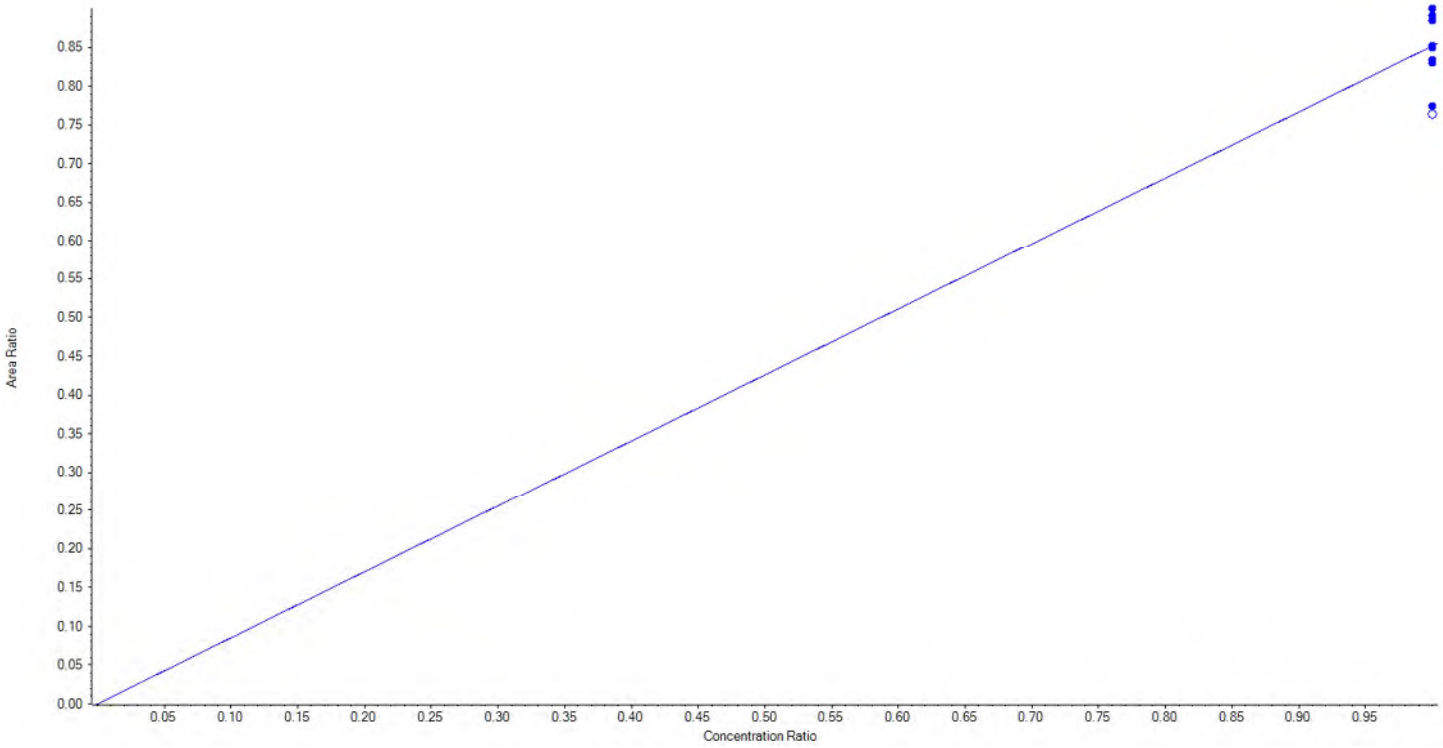
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Analyte Name	13C2-PFHxA	**Data File**	06142018.wiff
MRM Transition	315.0 / 270.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.85181 x (std. dev. = 0.04082) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	100.00	100.039156	100.0
3	JV65	L2	True	100.00	99.666125	99.7
4	JV66	L3	True	100.00	103.810567	103.8
5	JV67	L4	True	100.00	90.917552	90.9
6	JV68	L5	True	100.00	97.406921	97.4
7	JV69	L6	True	100.00	104.563356	104.6
8	JV70	L7	True	100.00	105.648475	105.7
9	JV71	L8	True	100.00	97.947847	98.0
10	JV72	L9	False	100.00	89.623369	89.6



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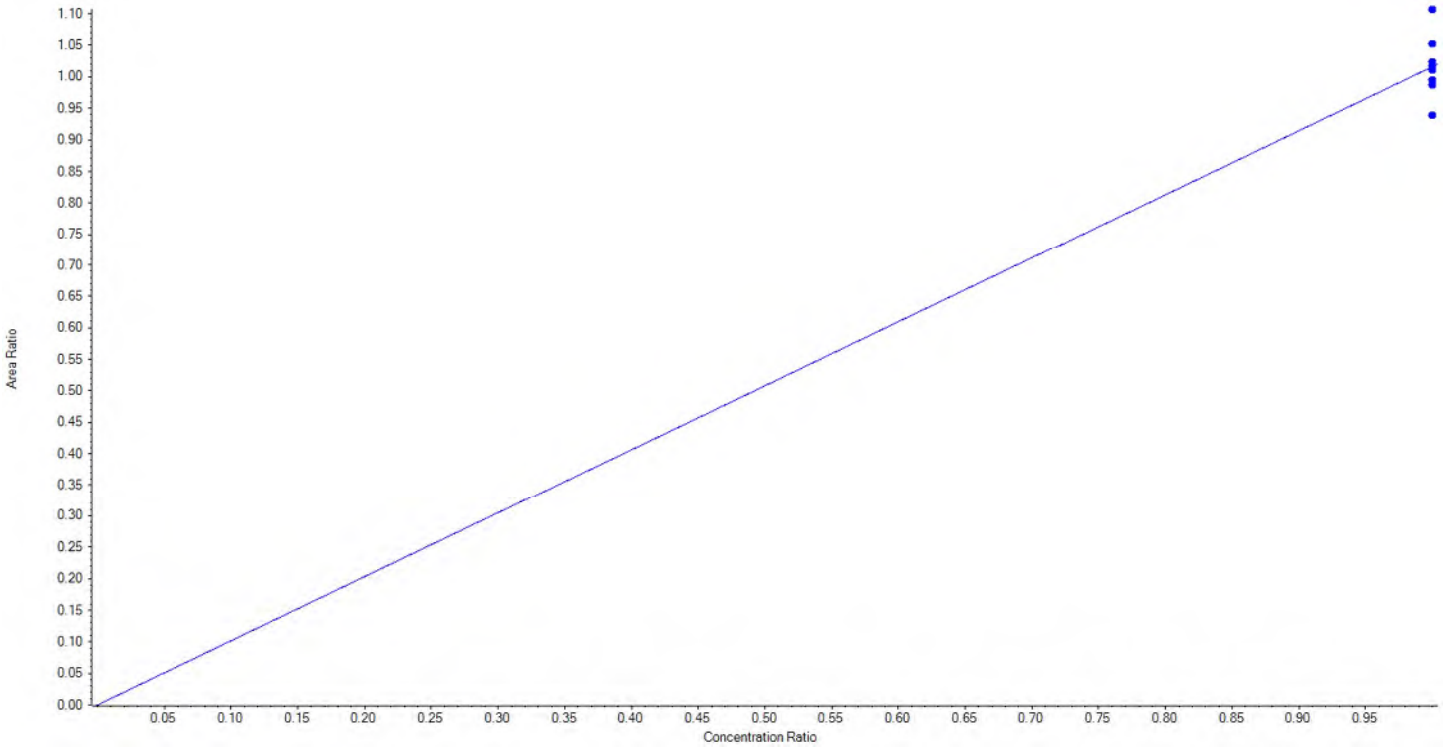
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Analyte Name	13C2-PFDA	**Data File**	06142018.wiff
MRM Transition	515.0 / 470.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.01607 x (std. dev. = 0.04578) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	100.00	100.138661	100.1
3	JV65	L2	True	100.00	97.130095	97.1
4	JV66	L3	True	100.00	99.478644	99.5
5	JV67	L4	True	100.00	97.863511	97.9
6	JV68	L5	True	100.00	99.662505	99.7
7	JV69	L6	True	100.00	108.905764	108.9
8	JV70	L7	True	100.00	103.632596	103.6
9	JV71	L8	True	100.00	100.687253	100.7
10	JV72	L9	True	100.00	92.500970	92.5



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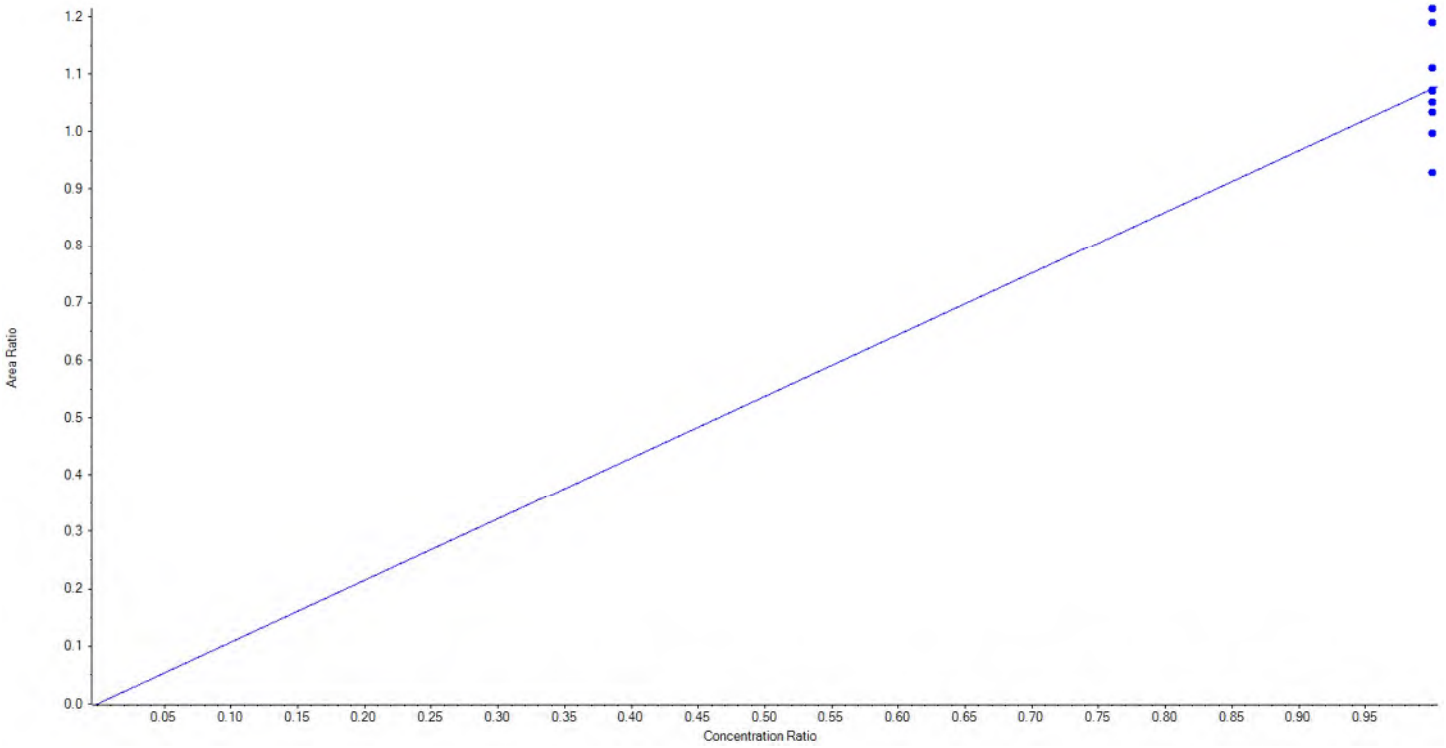
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Analyte Name	d5-EtFOSAA	**Data File**	06142018.wiff
MRM Transition	589.0 / 419.0	**Result Table**	18-0360_DW
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.07434 x (std. dev. = 0.08889) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	400.00	399.397046	99.9
3	JV65	L2	True	400.00	398.862493	99.7
4	JV66	L3	True	400.00	442.684279	110.7
5	JV67	L4	True	400.00	451.971281	113.0
6	JV68	L5	True	400.00	384.646352	96.2
7	JV69	L6	True	400.00	391.704100	97.9
8	JV70	L7	True	400.00	413.562392	103.4
9	JV71	L8	True	400.00	371.226492	92.8
10	JV72	L9	True	400.00	345.945566	86.5



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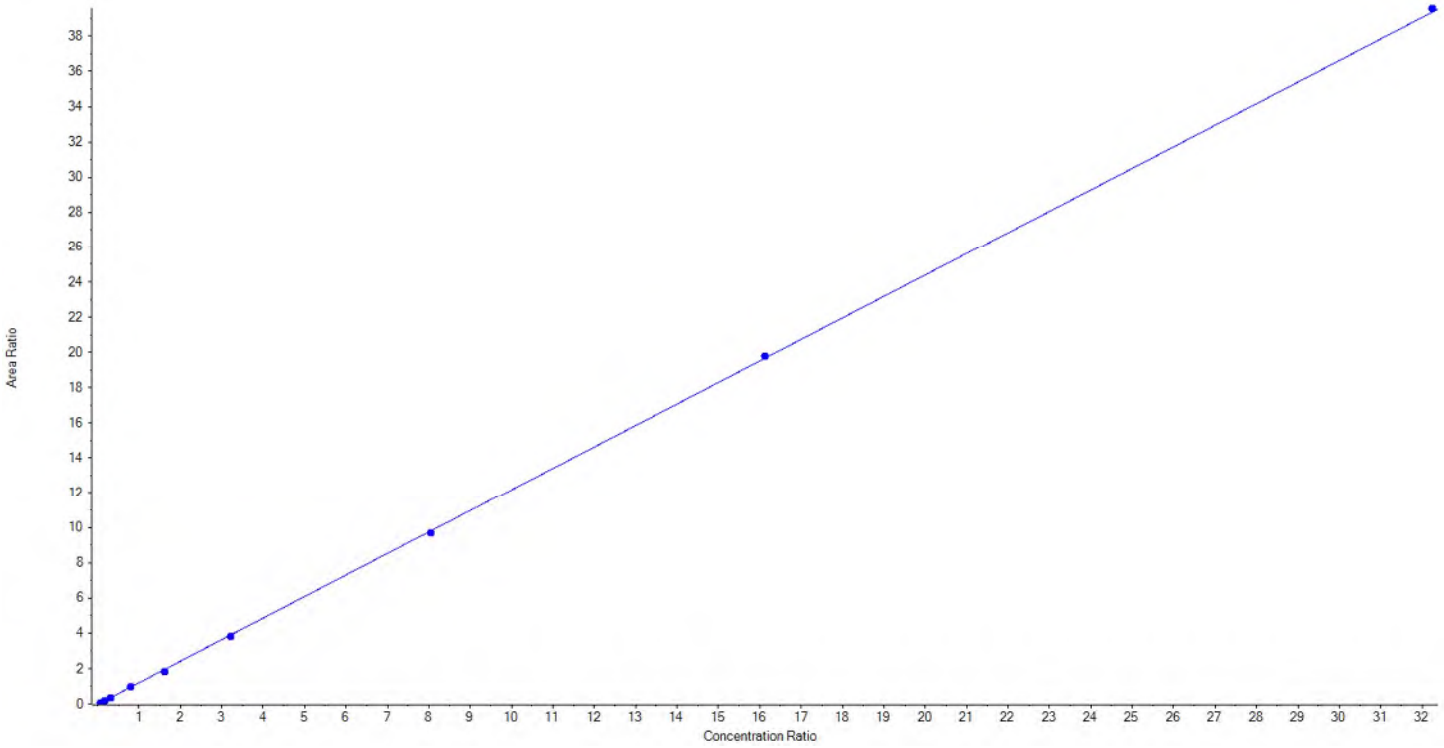
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Analyte Name	PFOS_1	**Data File**	06212018.wiff
MRM Transition	499.0 / 80.0	**Result Table**	18-0360_DW_A
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/21/2018 8:15:15 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.22115 x + -0.02500 (r = 0.99991) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64		True	23.15	24.315091	105.0
3	JV65		True	46.60	48.019660	103.1
4	JV66		True	92.60	89.117522	96.2
5	JV67		True	231.50	239.738311	103.6
6	JV68		True	463.00	441.075970	95.3
7	JV69		True	925.60	900.403561	97.3
8	JV70		True	2314.00	2278.422883	98.5
9	JV71		True	4628.00	4656.096883	100.6
10	JV72		True	9256.00	9303.260119	100.5



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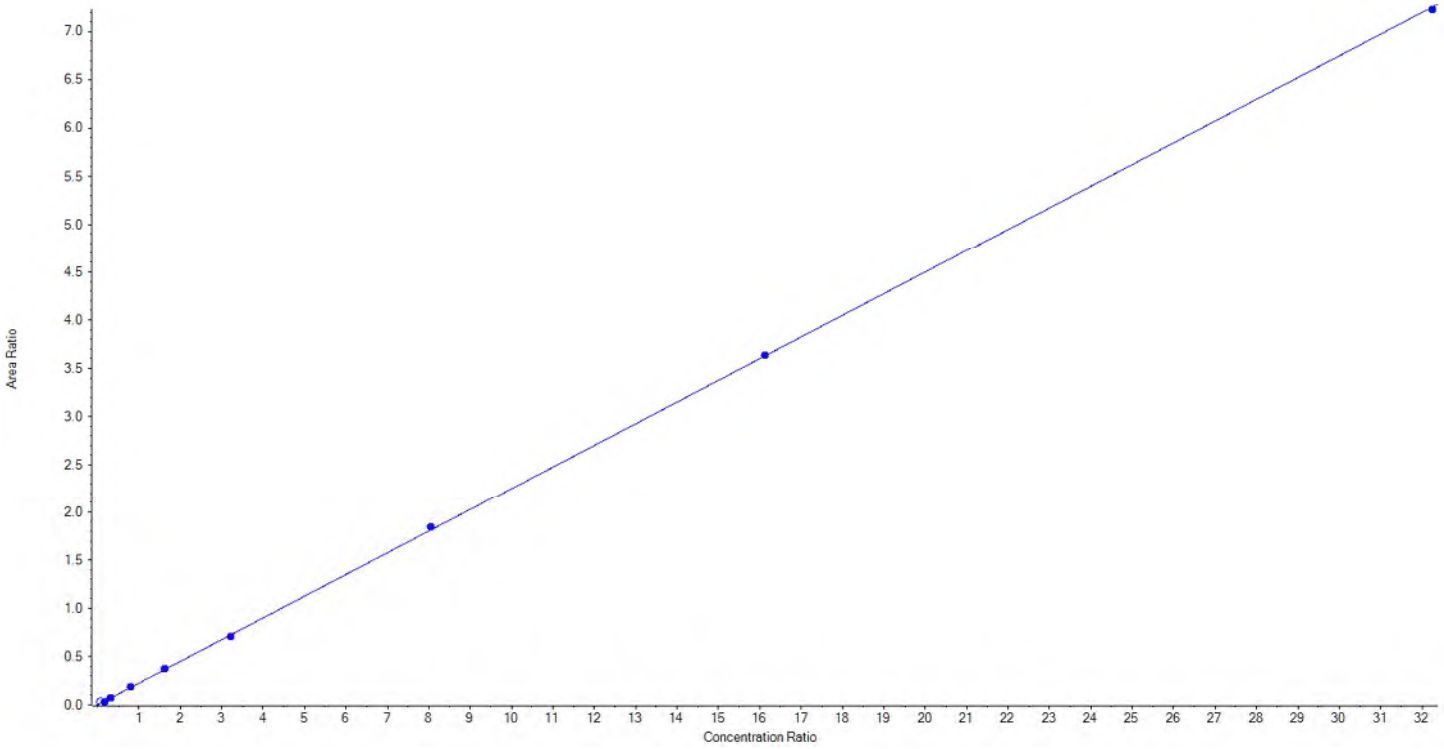
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Analyte Name	PFOS_2	**Data File**	06212018.wiff
MRM Transition	499.0 / 99.0	**Result Table**	18-0360_DW_A
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/21/2018 8:15:15 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.22492 x + 2.02760e-4 (r = 0.99995) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64		False	23.15	44.663754	192.9
3	JV65		True	46.60	45.377626	97.4
4	JV66		True	92.60	93.400454	100.9
5	JV67		True	231.50	233.096851	100.7
6	JV68		True	463.00	472.286458	102.0
7	JV69		True	925.60	903.125623	97.6
8	JV70		True	2314.00	2354.039825	101.7
9	JV71		True	4628.00	4633.901091	100.1
10	JV72		True	9256.00	9222.072071	99.6



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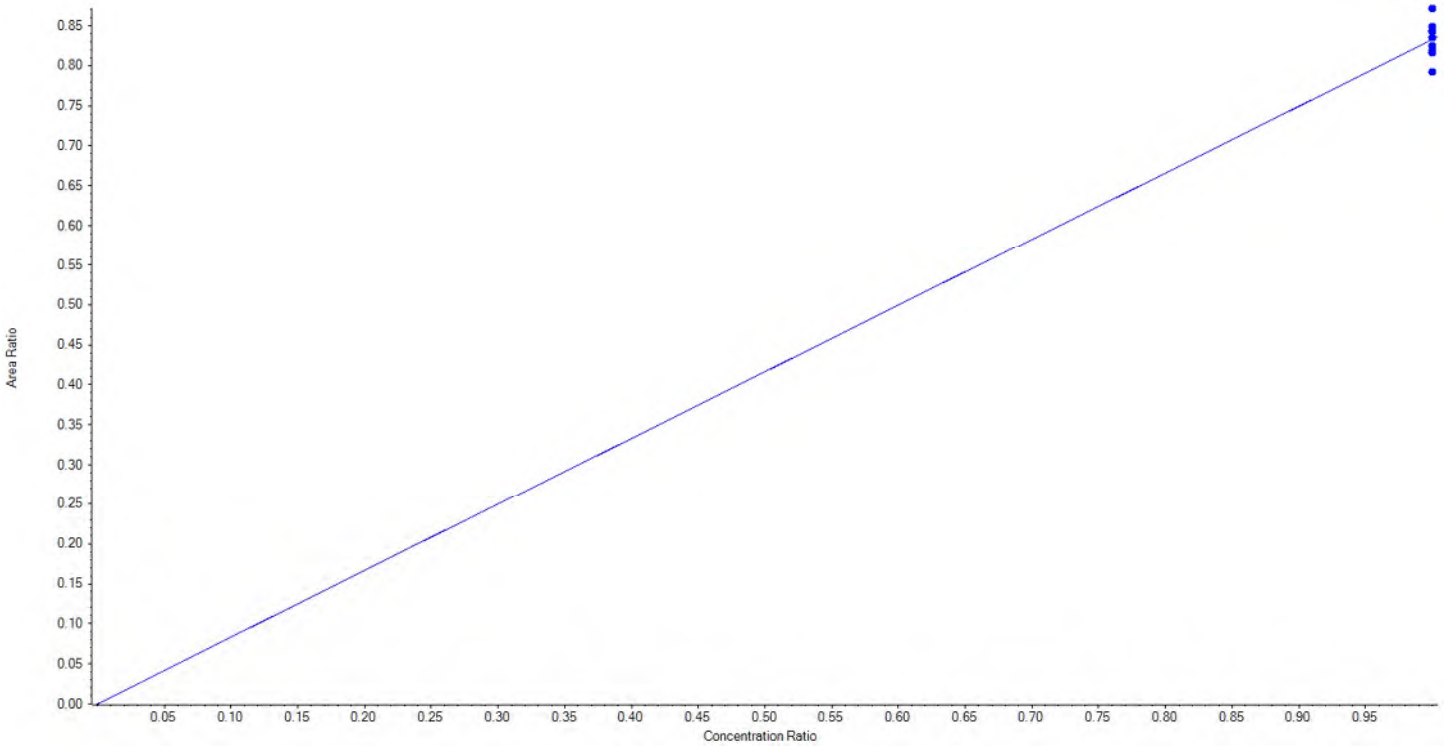
Calibration Summary Report

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Analyte Name	13C2-PFHxA	**Data File**	06212018.wiff
MRM Transition	315.0 / 270.0	**Result Table**	18-0360_DW_A
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/21/2018 8:15:15 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.83258 x (std. dev. = 0.02266) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64		True	100.00	99.063145	99.1
3	JV65		True	100.00	101.974108	102.0
4	JV66		True	100.00	95.202909	95.2
5	JV67		True	100.00	100.209483	100.2
6	JV68		True	100.00	98.015938	98.0
7	JV69		True	100.00	104.651708	104.7
8	JV70		True	100.00	101.148165	101.2
9	JV71		True	100.00	101.368607	101.4
10	JV72		True	100.00	98.365939	98.4



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

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Summary Quant Report

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Sample Name	JV64	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T16:59:48	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.52	12629.78	24.666173	180.2	false
PFBS_2	298.9 / 99.0	1.52	5106.92	27.536713	118.8	false
PFHxA_1	313.0 / 269.0	1.80	18965.78	27.758747	25.8	true
PFHxA_2	313.0 / 119.0	1.81	1636.58	26.082375	5.6	true
PFHpA_1	363.0 / 319.0	2.19	21348.94	25.759139	46.4	false
PFHpA_2	363.0 / 169.0	2.18	894.65	39.243799	31.9	true
PFHxS_1	399.0 / 80.0	2.20	13612.33	22.944645	76.6	false
PFHxS_2	399.0 / 99.0	2.20	3806.15	22.685495	63.6	false
PFOA_1	413.0 / 369.0	2.57	40566.35	27.114030	57.0	false
PFOA_2	413.0 / 169.0	2.57	3972.18	30.849054	49.7	false
PFNA_1	463.0 / 419.0	2.95	18737.42	24.121184	60.2	true
PFNA_2	463.0 / 219.0	2.95	5826.26	22.019956	48.6	true
PFOS_1	499.0 / 80.0	2.94	20193.59	23.853829	6.5	true
PFOS_2	499.0 / 99.0	2.93	4273.22	25.672779	8.6	true
PFDA_1	513.0 / 469.0	3.29	21697.72	26.219077	130.2	false
PFDA_2	513.0 / 219.0	3.29	816.24	21.216707	49.0	true
PFUnA_1	563.0 / 519.0	3.62	15839.71	24.341334	102.5	false
PFUnA_2	563.0 / 269.0	3.62	854.84	20.210812	41.9	true
PFDoA_1	613.0 / 569.0	3.90	16719.90	25.079471	130.7	false
PFDoA_2	613.0 / 319.0	3.90	2606.21	22.376883	141.6	false
PFTrDA_1	663.0 / 619.0	4.15	16284.78	25.967378	230.2	false
PFTrDA_2	663.0 / 169.0	4.15	1116.53	26.205576	74.2	false
PFTeDA_1	713.0 / 669.0	4.37	13351.76	24.615906	341.9	false
PFTeDA_2	713.0 / 169.0	4.37	839.31	26.426099	132.8	false
NMeFOSAA_1	570.0 / 419.0	3.45	2415.24	26.383057	179.3	false
NMeFOSAA_2	570.0 / 512.0	3.44	1400.47	20.838413	450.4	false
NEtFOSAA_1	584.0 / 419.0	3.60	1938.21	17.933972	99.8	false
NEtFOSAA_2	584.0 / 483.0	3.58	80.87	< 0	263.9	false
13C2-PFHxA	315.0 / 270.0	1.80	50737.25	100.039156	753.3	false
13C2-PFDA	515.0 / 470.0	3.28	60581.19	100.138661	1047.4	false
d5-EtFOSAA	589.0 / 419.0	3.60	30249.73	399.397046	353.8	false

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Summary Quant Report

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Sample Name	JV65	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:08:44	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.52	21640.34	44.259714	286.0	false
PFBS_2	298.9 / 99.0	1.52	7035.77	41.731203	164.4	false
PFHxA_1	313.0 / 269.0	1.81	25985.83	43.372821	32.4	false
PFHxA_2	313.0 / 119.0	1.81	2107.07	42.916072	8.8	true
PFHpA_1	363.0 / 319.0	2.19	34145.83	51.556182	61.5	false
PFHpA_2	363.0 / 169.0	2.17	908.02	43.480197	22.9	true
PFHxS_1	399.0 / 80.0	2.20	26073.40	45.210339	112.3	false
PFHxS_2	399.0 / 99.0	2.20	6986.52	42.858494	89.3	false
PFOA_1	413.0 / 369.0	2.57	52408.53	50.646537	67.7	false
PFOA_2	413.0 / 169.0	2.57	4683.99	49.478583	55.3	false
PFNA_1	463.0 / 419.0	2.95	32699.93	49.481866	80.8	false
PFNA_2	463.0 / 219.0	2.94	10160.64	50.097820	69.0	false
PFOS_1	499.0 / 80.0	2.94	33475.45	43.011639	11.4	true
PFOS_2	499.0 / 99.0	2.94	5497.53	35.639688	11.0	true
PFDA_1	513.0 / 469.0	3.29	32262.37	46.181808	161.5	false
PFDA_2	513.0 / 219.0	3.29	1611.96	53.933477	129.6	false
PFUnA_1	563.0 / 519.0	3.62	30652.18	51.536736	186.6	false
PFUnA_2	563.0 / 269.0	3.62	1457.75	42.704447	103.6	false
PFDoA_1	613.0 / 569.0	3.90	29317.29	48.568786	157.5	false
PFDoA_2	613.0 / 319.0	3.90	5101.40	50.486070	176.1	false
PFTrDA_1	663.0 / 619.0	4.15	27920.83	48.344640	298.4	false
PFTrDA_2	663.0 / 169.0	4.15	2031.41	51.567868	160.5	false
PFTeDA_1	713.0 / 669.0	4.37	25099.03	51.639881	550.3	false
PFTeDA_2	713.0 / 169.0	4.37	1429.68	52.427881	205.9	false
NMeFOSAA_1	570.0 / 419.0	3.45	3716.28	46.189927	259.1	false
NMeFOSAA_2	570.0 / 512.0	3.44	2408.52	45.532559	382.7	false
NEtFOSAA_1	584.0 / 419.0	3.60	3677.26	46.860171	195.8	false
NEtFOSAA_2	584.0 / 483.0	3.60	267.35	41.148035	303.4	true
13C2-PFHxA	315.0 / 270.0	1.80	48140.61	99.666125	651.9	false
13C2-PFDA	515.0 / 470.0	3.28	55962.48	97.130095	1250.4	false
d5-EtFOSAA	589.0 / 419.0	3.60	29586.58	398.862493	293.6	false

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Summary Quant Report

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Sample Name	JV66	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:17:40	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.52	43222.72	89.494205	513.9	false
PFBS_2	298.9 / 99.0	1.52	13652.46	87.509544	249.9	false
PFHxA_1	313.0 / 269.0	1.81	56967.33	100.860463	56.9	false
PFHxA_2	313.0 / 119.0	1.81	4002.02	97.178176	21.7	false
PFHpA_1	363.0 / 319.0	2.19	60743.57	97.624196	86.9	false
PFHpA_2	363.0 / 169.0	2.18	1753.25	103.234444	55.6	false
PFHxS_1	399.0 / 80.0	2.20	50586.47	87.679621	162.0	false
PFHxS_2	399.0 / 99.0	2.20	14953.91	91.794916	137.1	false
PFOA_1	413.0 / 369.0	2.57	77275.06	88.936107	92.6	false
PFOA_2	413.0 / 169.0	2.56	6056.17	73.873247	63.0	true
PFNA_1	463.0 / 419.0	2.94	65335.16	101.654539	145.6	false
PFNA_2	463.0 / 219.0	2.94	19768.36	104.768332	117.8	false
PFOS_1	499.0 / 80.0	2.94	72646.00	97.373524	19.3	true
PFOS_2	499.0 / 99.0	2.94	13248.99	94.092291	21.9	true
PFDA_1	513.0 / 469.0	3.29	68235.08	104.367940	253.3	false
PFDA_2	513.0 / 219.0	3.29	3040.59	106.151028	146.1	false
PFUnA_1	563.0 / 519.0	3.62	61443.25	101.919285	234.8	false
PFUnA_2	563.0 / 269.0	3.61	3798.66	120.298427	137.6	false
PFDoA_1	613.0 / 569.0	3.90	63082.79	104.271191	223.8	false
PFDoA_2	613.0 / 319.0	3.90	10473.64	104.568160	255.7	false
PFTrDA_1	663.0 / 619.0	4.15	60647.01	103.874292	477.6	false
PFTrDA_2	663.0 / 169.0	4.15	3940.90	98.315437	191.3	false
PFTeDA_1	713.0 / 669.0	4.37	48932.25	100.259522	618.1	false
PFTeDA_2	713.0 / 169.0	4.37	2536.77	94.771548	332.9	false
NMeFOSAA_1	570.0 / 419.0	3.44	5775.90	76.761420	443.4	false
NMeFOSAA_2	570.0 / 512.0	3.44	4985.18	107.415887	540.9	false
NEtFOSAA_1	584.0 / 419.0	3.61	7210.33	104.821597	252.8	false
NEtFOSAA_2	584.0 / 483.0	3.59	456.86	86.882544	65.3	false
13C2-PFHxA	315.0 / 270.0	1.80	51787.45	103.810567	773.7	false
13C2-PFDA	515.0 / 470.0	3.28	59195.94	99.478644	971.4	false
d5-EtFOSAA	589.0 / 419.0	3.60	32693.76	442.684279	315.9	false

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Summary Quant Report

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Sample Name	JV67	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:26:35	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.52	108195.74	209.706842	784.8	false
PFBS_2	298.9 / 99.0	1.51	32351.70	201.132833	459.9	false
PFHxA_1	313.0 / 269.0	1.81	149637.38	246.776329	80.4	false
PFHxA_2	313.0 / 119.0	1.81	9643.99	233.831403	30.1	false
PFHpA_1	363.0 / 319.0	2.18	160265.98	246.212850	123.9	false
PFHpA_2	363.0 / 169.0	2.18	4382.06	261.112839	80.8	false
PFHxS_1	399.0 / 80.0	2.20	149067.44	240.222187	236.0	false
PFHxS_2	399.0 / 99.0	2.20	40563.40	231.509688	198.1	false
PFOA_1	413.0 / 369.0	2.57	196816.65	251.440480	155.0	false
PFOA_2	413.0 / 169.0	2.56	16821.15	252.937559	117.2	false
PFNA_1	463.0 / 419.0	2.95	176933.89	254.470778	275.8	false
PFNA_2	463.0 / 219.0	2.94	52686.49	265.198012	198.1	false
PFOS_1	499.0 / 80.0	2.94	187934.17	238.938161	37.4	true
PFOS_2	499.0 / 99.0	2.94	36061.80	246.825038	51.3	true
PFDA_1	513.0 / 469.0	3.29	176443.24	252.874366	348.6	false
PFDA_2	513.0 / 219.0	3.29	7517.23	245.183421	376.4	false
PFUnA_1	563.0 / 519.0	3.62	166327.36	248.880312	347.4	false
PFUnA_2	563.0 / 269.0	3.62	9089.90	266.052668	220.9	false
PFDoA_1	613.0 / 569.0	3.90	164584.86	246.377663	352.9	false
PFDoA_2	613.0 / 319.0	3.90	27364.85	249.302804	366.3	false
PFTrDA_1	663.0 / 619.0	4.15	161424.40	249.296761	642.2	false
PFTrDA_2	663.0 / 169.0	4.15	11429.87	256.905806	303.5	false
PFTeDA_1	713.0 / 669.0	4.37	133992.83	249.347489	783.5	false
PFTeDA_2	713.0 / 169.0	4.37	6944.27	240.786869	535.3	false
NMeFOSAA_1	570.0 / 419.0	3.44	20468.20	288.497067	631.7	false
NMeFOSAA_2	570.0 / 512.0	3.44	12163.61	274.640072	783.1	false
NEtFOSAA_1	584.0 / 419.0	3.60	18600.08	286.153455	731.2	false
NEtFOSAA_2	584.0 / 483.0	3.60	1298.15	283.873236	381.3	false
13C2-PFHxA	315.0 / 270.0	1.80	50860.55	90.917552	988.8	false
13C2-PFDA	515.0 / 470.0	3.28	65303.01	97.863511	466148.2	false
d5-EtFOSAA	589.0 / 419.0	3.60	33901.52	451.971281	355.3	false

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Summary Quant Report

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Sample Name	JV68	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:35:30	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.52	222414.28	431.309708	1300.7	false
PFBS_2	298.9 / 99.0	1.51	66113.68	417.410406	585.7	false
PFHxA_1	313.0 / 269.0	1.81	302679.50	507.810763	100.3	false
PFHxA_2	313.0 / 119.0	1.81	19695.09	500.848102	38.9	false
PFHpA_1	363.0 / 319.0	2.18	304220.30	478.933727	154.1	false
PFHpA_2	363.0 / 169.0	2.18	8398.92	524.272465	111.0	false
PFHxS_1	399.0 / 80.0	2.20	280053.92	450.225539	296.7	false
PFHxS_2	399.0 / 99.0	2.20	80698.44	459.540762	267.7	false
PFOA_1	413.0 / 369.0	2.56	359618.86	492.243257	189.7	false
PFOA_2	413.0 / 169.0	2.56	30448.95	496.898603	147.8	false
PFNA_1	463.0 / 419.0	2.94	340633.80	496.390906	386.7	false
PFNA_2	463.0 / 219.0	2.94	95672.81	491.780543	306.8	false
PFOS_1	499.0 / 80.0	2.94	352322.37	449.869323	61.1	true
PFOS_2	499.0 / 99.0	2.94	67420.77	465.321435	75.4	true
PFDA_1	513.0 / 469.0	3.29	334332.16	488.129333	519.5	false
PFDA_2	513.0 / 219.0	3.29	14682.99	488.334256	464.9	false
PFUnA_1	563.0 / 519.0	3.61	328846.23	494.634182	486.1	false
PFUnA_2	563.0 / 269.0	3.61	17972.49	534.753221	261.1	false
PFDoA_1	613.0 / 569.0	3.90	324024.63	488.410023	458.1	false
PFDoA_2	613.0 / 319.0	3.90	54023.01	496.928169	506.6	false
PFTrDA_1	663.0 / 619.0	4.15	313597.05	486.781731	670.4	false
PFTrDA_2	663.0 / 169.0	4.15	20766.90	468.695737	454.3	false
PFTeDA_1	713.0 / 669.0	4.37	265368.65	497.508333	1048.0	false
PFTeDA_2	713.0 / 169.0	4.36	14126.02	497.192408	652.3	false
NMeFOSAA_1	570.0 / 419.0	3.44	40397.32	537.945268	941.8	false
NMeFOSAA_2	570.0 / 512.0	3.44	24930.81	535.696079	613.1	false
NEtFOSAA_1	584.0 / 419.0	3.60	38172.16	559.443646	507.7	false
NEtFOSAA_2	584.0 / 483.0	3.59	2813.51	596.895502	233.1	false
13C2-PFHxA	315.0 / 270.0	1.80	54424.35	97.406921	847.3	false
13C2-PFDA	515.0 / 470.0	3.28	66422.36	99.662505	1328.7	false
d5-EtFOSAA	589.0 / 419.0	3.59	30939.67	384.646352	324.4	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:13:22 AM

Sample Name	JV69	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:44:26	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.52	403815.78	762.049217	1801.9	false
PFBS_2	298.9 / 99.0	1.52	126186.80	780.428998	722.9	false
PFHxA_1	313.0 / 269.0	1.81	572661.19	995.836146	112.3	false
PFHxA_2	313.0 / 119.0	1.81	39192.48	1048.145230	73.8	false
PFHpA_1	363.0 / 319.0	2.18	598776.91	982.303729	250.3	false
PFHpA_2	363.0 / 169.0	2.18	14611.10	958.231420	152.8	false
PFHxS_1	399.0 / 80.0	2.20	534413.46	835.126278	379.7	false
PFHxS_2	399.0 / 99.0	2.20	155491.92	860.732360	327.1	false
PFOA_1	413.0 / 369.0	2.56	677531.57	990.584472	283.4	false
PFOA_2	413.0 / 169.0	2.56	58336.06	1025.391274	234.5	false
PFNA_1	463.0 / 419.0	2.94	664663.22	1002.857473	526.1	false
PFNA_2	463.0 / 219.0	2.94	186474.69	997.937882	386.6	false
PFOS_1	499.0 / 80.0	2.94	708818.43	883.084484	83.9	true
PFOS_2	499.0 / 99.0	2.94	135666.98	915.675303	128.1	true
PFDA_1	513.0 / 469.0	3.29	641796.05	973.117412	645.9	false
PFDA_2	513.0 / 219.0	3.29	28821.98	995.605535	660.7	false
PFUnA_1	563.0 / 519.0	3.61	637943.30	989.188378	673.2	false
PFUnA_2	563.0 / 269.0	3.61	32405.57	998.995973	478.6	false
PFDoA_1	613.0 / 569.0	3.89	653715.51	1016.786698	620.3	false
PFDoA_2	613.0 / 319.0	3.89	110760.50	1052.877827	702.3	false
PFTrDA_1	663.0 / 619.0	4.14	598884.92	958.304110	762.1	false
PFTrDA_2	663.0 / 169.0	4.14	40179.76	934.572561	592.5	false
PFTeDA_1	713.0 / 669.0	4.37	493212.36	954.141072	1178.7	false
PFTeDA_2	713.0 / 169.0	4.36	26291.27	957.997978	992.0	false
NMeFOSAA_1	570.0 / 419.0	3.44	75514.36	965.780202	1232.4	false
NMeFOSAA_2	570.0 / 512.0	3.44	46427.65	960.857703	974.9	false
NEtFOSAA_1	584.0 / 419.0	3.60	67621.74	954.343619	648.8	false
NEtFOSAA_2	584.0 / 483.0	3.60	4959.08	1019.112819	287.3	false
13C2-PFHxA	315.0 / 270.0	1.80	56788.20	104.563356	917.6	false
13C2-PFDA	515.0 / 470.0	3.28	70551.88	108.905764	46013.1	false
d5-EtFOSAA	589.0 / 419.0	3.59	33028.02	391.704100	391.0	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:13:24 AM

Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:53:22	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	1055354.58	2398.828571	2881.1	false
PFBS_2	298.9 / 99.0	1.51	321568.59	2407.544452	1121.8	false
PFHxA_1	313.0 / 269.0	1.81	1365335.78	2572.545694	156.2	false
PFHxA_2	313.0 / 119.0	1.80	98689.52	2883.357143	126.9	false
PFHpA_1	363.0 / 319.0	2.18	1482873.37	2643.621233	294.5	false
PFHpA_2	363.0 / 169.0	2.18	37883.88	2724.450945	226.8	false
PFHxS_1	399.0 / 80.0	2.19	1319053.94	2480.199044	468.8	false
PFHxS_2	399.0 / 99.0	2.19	376607.66	2508.455542	445.3	false
PFOA_1	413.0 / 369.0	2.56	1633498.00	2637.535326	305.2	false
PFOA_2	413.0 / 169.0	2.56	130398.90	2538.403299	269.7	false
PFNA_1	463.0 / 419.0	2.94	1580387.17	2581.214313	855.2	false
PFNA_2	463.0 / 219.0	2.94	454703.88	2643.157677	620.3	false
PFOS_1	499.0 / 80.0	2.93	1620881.02	2435.768229	120.7	true
PFOS_2	499.0 / 99.0	2.93	302543.36	2466.591124	157.0	true
PFDA_1	513.0 / 469.0	3.29	1569310.91	2581.129067	855.9	false
PFDA_2	513.0 / 219.0	3.29	74089.16	2776.145192	774.6	false
PFUnA_1	563.0 / 519.0	3.61	1491973.20	2497.705644	776.4	false
PFUnA_2	563.0 / 269.0	3.61	76832.01	2566.921563	574.8	false
PFDoA_1	613.0 / 569.0	3.89	1501509.99	2522.574479	767.4	false
PFDoA_2	613.0 / 319.0	3.89	251039.47	2579.421445	745.6	false
PFTrDA_1	663.0 / 619.0	4.15	1493653.83	2580.641644	997.4	false
PFTrDA_2	663.0 / 169.0	4.14	103530.38	2599.652888	810.1	false
PFTeDA_1	713.0 / 669.0	4.37	1253157.86	2619.628447	1419.4	false
PFTeDA_2	713.0 / 169.0	4.36	65896.96	2600.366045	1207.1	false
NMeFOSAA_1	570.0 / 419.0	3.44	180436.95	2567.650943	1022.3	false
NMeFOSAA_2	570.0 / 512.0	3.44	112391.55	2594.178444	1381.2	false
NEtFOSAA_1	584.0 / 419.0	3.60	167304.94	2635.684352	685.7	false
NEtFOSAA_2	584.0 / 483.0	3.59	10536.07	2426.997616	745.0	false
13C2-PFHxA	315.0 / 270.0	1.80	53209.78	105.648475	810.5	false
13C2-PFDA	515.0 / 470.0	3.28	62259.23	103.632596	1176.9	false
d5-EtFOSAA	589.0 / 419.0	3.59	31507.86	413.562392	447.6	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:13:26 AM

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**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	2204491.46	4570.588925	3413.2	false
PFBS_2	298.9 / 99.0	1.51	662817.65	4531.606434	2043.3	false
PFHxA_1	313.0 / 269.0	1.80	2833593.10	4930.039038	184.3	false
PFHxA_2	313.0 / 119.0	1.80	195635.17	5288.277488	184.1	false
PFHpA_1	363.0 / 319.0	2.18	2973944.81	4898.988945	420.6	false
PFHpA_2	363.0 / 169.0	2.18	71878.46	4785.217689	330.2	false
PFHxS_1	399.0 / 80.0	2.19	2713393.58	4652.662654	658.5	false
PFHxS_2	399.0 / 99.0	2.19	767885.53	4664.240454	502.4	false
PFOA_1	413.0 / 369.0	2.56	3260212.59	4886.499791	405.8	false
PFOA_2	413.0 / 169.0	2.56	273709.15	4957.168382	367.8	false
PFNA_1	463.0 / 419.0	2.94	3259733.28	4914.808940	1220.5	false
PFNA_2	463.0 / 219.0	2.94	903059.59	4850.039778	909.5	false
PFOS_1	499.0 / 80.0	2.93	3285763.93	4505.765724	173.7	false
PFOS_2	499.0 / 99.0	2.93	615984.35	4584.705722	222.2	false
PFDA_1	513.0 / 469.0	3.29	3260292.91	4952.980997	859.4	false
PFDA_2	513.0 / 219.0	3.29	136959.06	4738.430382	1173.5	false
PFUnA_1	563.0 / 519.0	3.61	3248720.09	5016.794129	958.6	false
PFUnA_2	563.0 / 269.0	3.61	158013.11	4875.062888	959.2	false
PFDoA_1	613.0 / 569.0	3.89	3208465.08	4972.931689	849.7	false
PFDoA_2	613.0 / 319.0	3.89	513532.54	4869.038641	910.3	false
PFTrDA_1	663.0 / 619.0	4.14	3119719.33	4971.789444	1250.2	false
PFTrDA_2	663.0 / 169.0	4.14	215418.47	4989.084128	1023.2	false
PFTeDA_1	713.0 / 669.0	4.36	2555189.49	4927.859352	1732.2	false
PFTeDA_2	713.0 / 169.0	4.36	136019.32	4955.031170	1985.4	false
NMeFOSAA_1	570.0 / 419.0	3.44	388553.18	5389.664132	812.9	false
NMeFOSAA_2	570.0 / 512.0	3.43	233016.86	5245.878330	1077.9	false
NEtFOSAA_1	584.0 / 419.0	3.60	353392.18	5431.273294	757.6	false
NEtFOSAA_2	584.0 / 483.0	3.59	21956.47	4945.090248	800.7	false
13C2-PFHxA	315.0 / 270.0	1.80	53501.39	97.947847	829.2	false
13C2-PFDA	515.0 / 470.0	3.28	65603.00	100.687253	2152.8	false
d5-EtFOSAA	589.0 / 419.0	3.59	29063.61	371.226492	300.0	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:13:28 AM

Sample Name	JV72	**Injection Vial**	10
Sample ID	L9	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T18:11:15	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.52	4479555.39	8661.146644	4793.2	false
PFBS_2	298.9 / 99.0	1.51	1363234.50	8697.149416	2703.8	false
PFHxA_1	313.0 / 269.0	1.81	5547030.34	8489.472182	267.0	false
PFHxA_2	313.0 / 119.0	1.80	390870.02	9304.364012	213.9	false
PFHpA_1	363.0 / 319.0	2.18	5957369.00	8636.023065	591.0	false
PFHpA_2	363.0 / 169.0	2.18	149983.61	8798.438815	437.0	false
PFHxS_1	399.0 / 80.0	2.19	5567239.61	8901.329694	818.7	false
PFHxS_2	399.0 / 99.0	2.19	1559676.75	8833.782290	685.1	false
PFOA_1	413.0 / 369.0	2.56	6870541.68	9085.501304	581.8	false
PFOA_2	413.0 / 169.0	2.56	546945.07	8743.597229	455.3	false
PFNA_1	463.0 / 419.0	2.94	6420644.02	8514.480389	1915.2	false
PFNA_2	463.0 / 219.0	2.94	1845743.85	8723.390349	1182.4	false
PFOS_1	499.0 / 80.0	2.93	7272222.39	9302.485087	209.3	false
PFOS_2	499.0 / 99.0	2.93	1316960.40	9145.626619	276.3	false
PFDA_1	513.0 / 469.0	3.29	6532087.25	8730.404917	1022.8	false
PFDA_2	513.0 / 219.0	3.29	297803.01	9065.576243	1070.3	false
PFUnA_1	563.0 / 519.0	3.61	6630345.87	9002.134598	862.5	false
PFUnA_2	563.0 / 269.0	3.61	326445.64	8860.250273	950.1	false
PFDoA_1	613.0 / 569.0	3.90	6455838.73	8798.205595	1144.6	false
PFDoA_2	613.0 / 319.0	3.89	1096582.89	9143.499217	1223.2	false
PFTrDA_1	663.0 / 619.0	4.14	6386529.99	8948.655319	1643.1	false
PFTrDA_2	663.0 / 169.0	4.14	434677.98	8850.881419	1305.7	false
PFTeDA_1	713.0 / 669.0	4.36	5064389.59	8588.121467	2172.7	false
PFTeDA_2	713.0 / 169.0	4.36	270390.68	8663.653885	2121.8	false
NMeFOSAA_1	570.0 / 419.0	3.44	809218.47	9526.127986	1166.2	false
NMeFOSAA_2	570.0 / 512.0	3.44	504370.54	9639.962514	1063.6	false
NEtFOSAA_1	584.0 / 419.0	3.60	719559.21	9388.485893	836.2	false
NEtFOSAA_2	584.0 / 483.0	3.59	44867.05	8586.790395	1035.6	false
13C2-PFHxA	315.0 / 270.0	1.80	55689.48	89.623369	922.4	false
13C2-PFDA	515.0 / 470.0	3.27	68561.03	92.500970	1904.3	false
d5-EtFOSAA	589.0 / 419.0	3.59	31935.16	345.945566	381.2	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:47:52 AM

Sample Name	JV64	**Injection Vial**	2
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:24:11	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.93	11950.42	24.315091	5.5	true
PFOS_2	499.0 / 99.0	2.90	5362.11	44.663754	11.3	true
13C2-PFHxA	315.0 / 270.0	1.79	37335.57	99.063145	741.4	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:47:54 AM

Sample Name	JV65	**Injection Vial**	3
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:33:07	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.92	29910.84	48.019660	10.4	true
PFOS_2	499.0 / 99.0	2.92	5965.61	45.377626	13.0	true
13C2-PFHxA	315.0 / 270.0	1.79	40950.71	101.974108	902.8	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:47:56 AM

Sample Name	JV66	**Injection Vial**	4
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:42:03	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.92	44870.32	89.117522	14.2	true
PFOS_2	499.0 / 99.0	2.92	9298.74	93.400454	17.5	true
13C2-PFHxA	315.0 / 270.0	1.80	31091.44	95.202909	694.2	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:47:58 AM

Sample Name	JV67	**Injection Vial**	5
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:50:59	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.92	145468.91	239.738311	22.1	true
PFOS_2	499.0 / 99.0	2.92	26735.44	233.096851	35.7	true
13C2-PFHxA	315.0 / 270.0	1.79	36972.61	100.209483	653.4	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:48:00 AM

Sample Name	JV68	**Injection Vial**	6
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:59:55	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.92	282689.75	441.075970	33.1	true
PFOS_2	499.0 / 99.0	2.92	56535.98	472.286458	67.2	true
13C2-PFHxA	315.0 / 270.0	1.79	37474.09	98.015938	733.6	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:48:02 AM

Sample Name	JV69	**Injection Vial**	7
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:08:50	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.91	567979.28	900.403561	51.8	true
PFOS_2	499.0 / 99.0	2.91	105650.71	903.125623	98.9	true
13C2-PFHxA	315.0 / 270.0	1.79	39178.09	104.651708	751.2	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:48:03 AM

Sample Name	JV70	**Injection Vial**	8
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:17:46	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.91	1098549.63	2278.422883	73.8	true
PFOS_2	499.0 / 99.0	2.91	209618.62	2354.039825	132.9	true
13C2-PFHxA	315.0 / 270.0	1.80	30132.56	101.148165	825.7	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:48:05 AM

Sample Name	JV71	**Injection Vial**	9
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:26:43	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.91	2983649.32	4656.096883	114.8	true
PFOS_2	499.0 / 99.0	2.91	547654.72	4633.901091	177.0	true
13C2-PFHxA	315.0 / 270.0	1.79	43317.75	101.368607	746.6	false

BATTELLE

Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:48:07 AM

Sample Name	JV72	**Injection Vial**	10
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:35:40	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.91	5304966.62	9303.260119	158.9	true
PFOS_2	499.0 / 99.0	2.91	969224.25	9222.072071	215.4	false
13C2-PFHxA	315.0 / 270.0	1.79	35943.88	98.365939	747.9	false

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Summary Ion Ratio Report

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Sample Name	JV64	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T16:59:48	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.404	0.318	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.086	0.072	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.042	0.026	
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.280	0.283	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.098	0.086	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.311	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.212	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.038	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.054	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.156	0.166	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	0.063	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.580	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.58	NEtFOSAA	0.042	0.068	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

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Summary Ion Ratio Report

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Sample Name	JV65	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:08:44	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.325	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.081	0.072	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.17	PFHpA	0.027	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.268	0.283	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.089	0.086	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.311	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.164	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.050	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.048	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.174	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.073	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.057	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.648	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.073	0.068	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

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Summary Ion Ratio Report

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Sample Name	JV66	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:17:40	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.316	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.070	0.072	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.029	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.296	0.283	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.078	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.303	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.182	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.045	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.062	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.166	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.052	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.863	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.063	0.068	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

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Summary Ion Ratio Report

Sample Name	JV67	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:26:35	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.299	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.064	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.027	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.272	0.283	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.086	0.086	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.298	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.192	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.043	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.055	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.166	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.071	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.052	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.594	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.070	0.068	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

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Summary Ion Ratio Report

Sample Name	JV68	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:35:30	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.297	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.065	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.028	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.288	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.085	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.281	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.191	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.044	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.055	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.167	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.066	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.617	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.074	0.068	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	3.59		N/A	N/A	ü

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Summary Ion Ratio Report

Sample Name	JV69	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:44:26	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.313	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.068	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.291	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.086	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.281	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.191	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.045	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.051	0.053	ü
PFDoA_1	613.0 / 569.0	3.89	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.169	0.166	ü
PFTrDA_1	663.0 / 619.0	4.14	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.615	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.073	0.068	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	3.59		N/A	N/A	ü

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Summary Ion Ratio Report

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Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:53:22	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.305	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.072	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.026	0.026	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.286	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.080	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.288	0.294	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.187	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.047	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.052	0.053	ü
PFDoA_1	613.0 / 569.0	3.89	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.167	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.069	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.623	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.063	0.068	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	3.59		N/A	N/A	ü

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Summary Ion Ratio Report

Sample Name	JV71	**Injection Vial**	9
Sample ID	L8	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T18:02:19	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.301	0.318	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.069	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.283	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.084	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.277	0.294	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.188	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.042	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.049	0.053	ü
PFDoA_1	613.0 / 569.0	3.89	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.160	0.166	ü
PFTrDA_1	663.0 / 619.0	4.14	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.069	0.069	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.43	NMeFOSAA	0.600	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.062	0.068	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	3.59		N/A	N/A	ü

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 22/06/2018 11:16:45 AM

Sample Name	JV72	**Injection Vial**	10
Sample ID	L9	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T18:11:15	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.304	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.025	0.026	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.280	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.080	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.288	0.294	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.181	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.046	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.049	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.170	0.166	ü
PFTrDA_1	663.0 / 619.0	4.14	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.068	0.069	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.623	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.062	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.27		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.59		N/A	N/A	ü

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 22/06/2018 11:48:55 AM

Sample Name	JV64	**Injection Vial**	2
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:24:11	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
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	2.90	PFOS	0.449	0.192	
13C2-PFHxA	315.0 / 270.0	1.79				

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Summary Ion Ratio Report

Sample Name	JV65	**Injection Vial**	3
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:33:07	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.199	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 22/06/2018 11:48:59 AM

Sample Name	JV66	**Injection Vial**	4
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:42:03	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.207	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.80				

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Summary Ion Ratio Report

Sample Name	JV67	**Injection Vial**	5
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:50:59	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.184	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

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Summary Ion Ratio Report

Sample Name	JV68	**Injection Vial**	6
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:59:55	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.200	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 22/06/2018 11:49:04 AM

Sample Name	JV69	**Injection Vial**	7
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:08:50	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.186	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 22/06/2018 11:49:06 AM

Sample Name	JV70	**Injection Vial**	8
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:17:46	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.191	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.80				

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Summary Ion Ratio Report

Sample Name	JV71	**Injection Vial**	9
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:26:43	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.184	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 22/06/2018 11:49:10 AM

Sample Name	JV72	**Injection Vial**	10
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:35:40	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.183	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

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Summary Internal Standard Report

Created with Analyst Reporter
Printed: 22/06/2018 11:57:02 AM

Sample Name	JV64	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T16:59:48	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.52	13C4-PFOS	503.0 / 80.0	178124.80	287.00
PFBS_2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	178124.80	287.00
PFHxA_1	313.0 / 269.0	1.80	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFHpA_1	363.0 / 319.0	2.19	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFHpA_2	363.0 / 169.0	2.18	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	178124.80	287.00
PFHxS_2	399.0 / 99.0	2.20	13C4-PFOS	503.0 / 80.0	178124.80	287.00
PFOA_1	413.0 / 369.0	2.57	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFOA_2	413.0 / 169.0	2.57	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFNA_1	463.0 / 419.0	2.95	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFNA_2	463.0 / 219.0	2.95	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFOS_1	499.0 / 80.0	2.94	13C4-PFOS	503.0 / 80.0	178124.80	287.00
PFOS_2	499.0 / 99.0	2.93	13C4-PFOS	503.0 / 80.0	178124.80	287.00
PFDA_1	513.0 / 469.0	3.29	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFDA_2	513.0 / 219.0	3.29	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFUnA_1	563.0 / 519.0	3.62	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFUnA_2	563.0 / 269.0	3.62	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFDoA_1	613.0 / 569.0	3.90	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFDoA_2	613.0 / 319.0	3.90	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFTrDA_1	663.0 / 619.0	4.15	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFTrDA_2	663.0 / 169.0	4.15	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFTeDA_1	713.0 / 669.0	4.37	13C2-PFOA	415.0 / 370.0	59540.47	100.00
PFTeDA_2	713.0 / 169.0	4.37	13C2-PFOA	415.0 / 370.0	59540.47	100.00
NMeFOSAA_1	570.0 / 419.0	3.45	d3-MeFOSAA	573.0 / 419.0	28199.07	400.00
NMeFOSAA_2	570.0 / 512.0	3.44	d3-MeFOSAA	573.0 / 419.0	28199.07	400.00
NEtFOSAA_1	584.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	28199.07	400.00
NEtFOSAA_2	584.0 / 483.0	3.58	d3-MeFOSAA	573.0 / 419.0	28199.07	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	59540.47	100.00
13C2-PFDA	515.0 / 470.0	3.28	13C2-PFOA	415.0 / 370.0	59540.47	100.00
d5-EtFOSAA	589.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	28199.07	400.00

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Summary Internal Standard Report

Created with Analyst Reporter
Printed: 22/06/2018 11:57:04 AM

Sample Name	JV65	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:08:44	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.52	13C4-PFOS	503.0 / 80.0	174455.63	287.00
PFBS_2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	174455.63	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFHpA_1	363.0 / 319.0	2.19	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFHpA_2	363.0 / 169.0	2.17	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	174455.63	287.00
PFHxS_2	399.0 / 99.0	2.20	13C4-PFOS	503.0 / 80.0	174455.63	287.00
PFOA_1	413.0 / 369.0	2.57	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFOA_2	413.0 / 169.0	2.57	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFNA_1	463.0 / 419.0	2.95	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFNA_2	463.0 / 219.0	2.94	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFOS_1	499.0 / 80.0	2.94	13C4-PFOS	503.0 / 80.0	174455.63	287.00
PFOS_2	499.0 / 99.0	2.94	13C4-PFOS	503.0 / 80.0	174455.63	287.00
PFDA_1	513.0 / 469.0	3.29	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFDA_2	513.0 / 219.0	3.29	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFUnA_1	563.0 / 519.0	3.62	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFUnA_2	563.0 / 269.0	3.62	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFDoA_1	613.0 / 569.0	3.90	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFDoA_2	613.0 / 319.0	3.90	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFTrDA_1	663.0 / 619.0	4.15	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFTrDA_2	663.0 / 169.0	4.15	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFTeDA_1	713.0 / 669.0	4.37	13C2-PFOA	415.0 / 370.0	56704.74	100.00
PFTeDA_2	713.0 / 169.0	4.37	13C2-PFOA	415.0 / 370.0	56704.74	100.00
NMeFOSAA_1	570.0 / 419.0	3.45	d3-MeFOSAA	573.0 / 419.0	27617.84	400.00
NMeFOSAA_2	570.0 / 512.0	3.44	d3-MeFOSAA	573.0 / 419.0	27617.84	400.00
NEtFOSAA_1	584.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	27617.84	400.00
NEtFOSAA_2	584.0 / 483.0	3.60	d3-MeFOSAA	573.0 / 419.0	27617.84	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	56704.74	100.00
13C2-PFDA	515.0 / 470.0	3.28	13C2-PFOA	415.0 / 370.0	56704.74	100.00
d5-EtFOSAA	589.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	27617.84	400.00

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Summary Internal Standard Report

Created with Analyst Reporter
Printed: 22/06/2018 11:57:06 AM

Sample Name	JV66	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:17:40	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.52	13C4-PFOS	503.0 / 80.0	175183.49	287.00
PFBS_2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	175183.49	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFHpA_1	363.0 / 319.0	2.19	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFHpA_2	363.0 / 169.0	2.18	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	175183.49	287.00
PFHxS_2	399.0 / 99.0	2.20	13C4-PFOS	503.0 / 80.0	175183.49	287.00
PFOA_1	413.0 / 369.0	2.57	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFOA_2	413.0 / 169.0	2.56	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFNA_1	463.0 / 419.0	2.94	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFNA_2	463.0 / 219.0	2.94	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFOS_1	499.0 / 80.0	2.94	13C4-PFOS	503.0 / 80.0	175183.49	287.00
PFOS_2	499.0 / 99.0	2.94	13C4-PFOS	503.0 / 80.0	175183.49	287.00
PFDA_1	513.0 / 469.0	3.29	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFDA_2	513.0 / 219.0	3.29	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFUnA_1	563.0 / 519.0	3.62	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFUnA_2	563.0 / 269.0	3.61	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFDoA_1	613.0 / 569.0	3.90	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFDoA_2	613.0 / 319.0	3.90	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFTrDA_1	663.0 / 619.0	4.15	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFTrDA_2	663.0 / 169.0	4.15	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFTeDA_1	713.0 / 669.0	4.37	13C2-PFOA	415.0 / 370.0	58565.02	100.00
PFTeDA_2	713.0 / 169.0	4.37	13C2-PFOA	415.0 / 370.0	58565.02	100.00
NMeFOSAA_1	570.0 / 419.0	3.44	d3-MeFOSAA	573.0 / 419.0	27497.23	400.00
NMeFOSAA_2	570.0 / 512.0	3.44	d3-MeFOSAA	573.0 / 419.0	27497.23	400.00
NEtFOSAA_1	584.0 / 419.0	3.61	d3-MeFOSAA	573.0 / 419.0	27497.23	400.00
NEtFOSAA_2	584.0 / 483.0	3.59	d3-MeFOSAA	573.0 / 419.0	27497.23	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	58565.02	100.00
13C2-PFDA	515.0 / 470.0	3.28	13C2-PFOA	415.0 / 370.0	58565.02	100.00
d5-EtFOSAA	589.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	27497.23	400.00

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Sample Name	JV67	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:26:35	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.52	13C4-PFOS	503.0 / 80.0	188900.92	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	188900.92	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFHpA_1	363.0 / 319.0	2.18	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFHpA_2	363.0 / 169.0	2.18	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	188900.92	287.00
PFHxS_2	399.0 / 99.0	2.20	13C4-PFOS	503.0 / 80.0	188900.92	287.00
PFOA_1	413.0 / 369.0	2.57	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFOA_2	413.0 / 169.0	2.56	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFNA_1	463.0 / 419.0	2.95	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFNA_2	463.0 / 219.0	2.94	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFOS_1	499.0 / 80.0	2.94	13C4-PFOS	503.0 / 80.0	188900.92	287.00
PFOS_2	499.0 / 99.0	2.94	13C4-PFOS	503.0 / 80.0	188900.92	287.00
PFDA_1	513.0 / 469.0	3.29	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFDA_2	513.0 / 219.0	3.29	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFUnA_1	563.0 / 519.0	3.62	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFUnA_2	563.0 / 269.0	3.62	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFDoA_1	613.0 / 569.0	3.90	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFDoA_2	613.0 / 319.0	3.90	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFTrDA_1	663.0 / 619.0	4.15	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFTrDA_2	663.0 / 169.0	4.15	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFTeDA_1	713.0 / 669.0	4.37	13C2-PFOA	415.0 / 370.0	65673.27	100.00
PFTeDA_2	713.0 / 169.0	4.37	13C2-PFOA	415.0 / 370.0	65673.27	100.00
NMeFOSAA_1	570.0 / 419.0	3.44	d3-MeFOSAA	573.0 / 419.0	27927.14	400.00
NMeFOSAA_2	570.0 / 512.0	3.44	d3-MeFOSAA	573.0 / 419.0	27927.14	400.00
NEtFOSAA_1	584.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	27927.14	400.00
NEtFOSAA_2	584.0 / 483.0	3.60	d3-MeFOSAA	573.0 / 419.0	27927.14	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	65673.27	100.00
13C2-PFDA	515.0 / 470.0	3.28	13C2-PFOA	415.0 / 370.0	65673.27	100.00
d5-EtFOSAA	589.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	27927.14	400.00

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Sample Name	JV68	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:35:30	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.52	13C4-PFOS	503.0 / 80.0	189484.28	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	189484.28	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFHpA_1	363.0 / 319.0	2.18	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFHpA_2	363.0 / 169.0	2.18	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	189484.28	287.00
PFHxS_2	399.0 / 99.0	2.20	13C4-PFOS	503.0 / 80.0	189484.28	287.00
PFOA_1	413.0 / 369.0	2.56	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFOA_2	413.0 / 169.0	2.56	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFNA_1	463.0 / 419.0	2.94	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFNA_2	463.0 / 219.0	2.94	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFOS_1	499.0 / 80.0	2.94	13C4-PFOS	503.0 / 80.0	189484.28	287.00
PFOS_2	499.0 / 99.0	2.94	13C4-PFOS	503.0 / 80.0	189484.28	287.00
PFDA_1	513.0 / 469.0	3.29	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFDA_2	513.0 / 219.0	3.29	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFUnA_1	563.0 / 519.0	3.61	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFUnA_2	563.0 / 269.0	3.61	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFDoA_1	613.0 / 569.0	3.90	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFDoA_2	613.0 / 319.0	3.90	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFTrDA_1	663.0 / 619.0	4.15	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFTrDA_2	663.0 / 169.0	4.15	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFTeDA_1	713.0 / 669.0	4.37	13C2-PFOA	415.0 / 370.0	65593.19	100.00
PFTeDA_2	713.0 / 169.0	4.36	13C2-PFOA	415.0 / 370.0	65593.19	100.00
NMeFOSAA_1	570.0 / 419.0	3.44	d3-MeFOSAA	573.0 / 419.0	29948.30	400.00
NMeFOSAA_2	570.0 / 512.0	3.44	d3-MeFOSAA	573.0 / 419.0	29948.30	400.00
NEtFOSAA_1	584.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	29948.30	400.00
NEtFOSAA_2	584.0 / 483.0	3.59	d3-MeFOSAA	573.0 / 419.0	29948.30	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	65593.19	100.00
13C2-PFDA	515.0 / 470.0	3.28	13C2-PFOA	415.0 / 370.0	65593.19	100.00
d5-EtFOSAA	589.0 / 419.0	3.59	d3-MeFOSAA	573.0 / 419.0	29948.30	400.00

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Summary Internal Standard Report

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Sample Name	JV69	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:44:26	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.52	13C4-PFOS	503.0 / 80.0	195004.08	287.00
PFBS_2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	195004.08	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFHpA_1	363.0 / 319.0	2.18	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFHpA_2	363.0 / 169.0	2.18	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	195004.08	287.00
PFHxS_2	399.0 / 99.0	2.20	13C4-PFOS	503.0 / 80.0	195004.08	287.00
PFOA_1	413.0 / 369.0	2.56	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFOA_2	413.0 / 169.0	2.56	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFNA_1	463.0 / 419.0	2.94	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFNA_2	463.0 / 219.0	2.94	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFOS_1	499.0 / 80.0	2.94	13C4-PFOS	503.0 / 80.0	195004.08	287.00
PFOS_2	499.0 / 99.0	2.94	13C4-PFOS	503.0 / 80.0	195004.08	287.00
PFDA_1	513.0 / 469.0	3.29	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFDA_2	513.0 / 219.0	3.29	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFUnA_1	563.0 / 519.0	3.61	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFUnA_2	563.0 / 269.0	3.61	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFDoA_1	613.0 / 569.0	3.89	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFDoA_2	613.0 / 319.0	3.89	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFTrDA_1	663.0 / 619.0	4.14	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFTrDA_2	663.0 / 169.0	4.14	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFTeDA_1	713.0 / 669.0	4.37	13C2-PFOA	415.0 / 370.0	63757.89	100.00
PFTeDA_2	713.0 / 169.0	4.36	13C2-PFOA	415.0 / 370.0	63757.89	100.00
NMeFOSAA_1	570.0 / 419.0	3.44	d3-MeFOSAA	573.0 / 419.0	31393.70	400.00
NMeFOSAA_2	570.0 / 512.0	3.44	d3-MeFOSAA	573.0 / 419.0	31393.70	400.00
NEtFOSAA_1	584.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	31393.70	400.00
NEtFOSAA_2	584.0 / 483.0	3.60	d3-MeFOSAA	573.0 / 419.0	31393.70	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	63757.89	100.00
13C2-PFDA	515.0 / 470.0	3.28	13C2-PFOA	415.0 / 370.0	63757.89	100.00
d5-EtFOSAA	589.0 / 419.0	3.59	d3-MeFOSAA	573.0 / 419.0	31393.70	400.00

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Summary Internal Standard Report

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Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:53:22	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	162112.37	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	162112.37	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFHxA_2	313.0 / 119.0	1.80	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFHpA_1	363.0 / 319.0	2.18	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFHpA_2	363.0 / 169.0	2.18	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFHxS_1	399.0 / 80.0	2.19	13C4-PFOS	503.0 / 80.0	162112.37	287.00
PFHxS_2	399.0 / 99.0	2.19	13C4-PFOS	503.0 / 80.0	162112.37	287.00
PFOA_1	413.0 / 369.0	2.56	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFOA_2	413.0 / 169.0	2.56	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFNA_1	463.0 / 419.0	2.94	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFNA_2	463.0 / 219.0	2.94	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFOS_1	499.0 / 80.0	2.93	13C4-PFOS	503.0 / 80.0	162112.37	287.00
PFOS_2	499.0 / 99.0	2.93	13C4-PFOS	503.0 / 80.0	162112.37	287.00
PFDA_1	513.0 / 469.0	3.29	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFDA_2	513.0 / 219.0	3.29	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFUnA_1	563.0 / 519.0	3.61	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFUnA_2	563.0 / 269.0	3.61	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFDoA_1	613.0 / 569.0	3.89	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFDoA_2	613.0 / 319.0	3.89	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFTrDA_1	663.0 / 619.0	4.15	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFTrDA_2	663.0 / 169.0	4.14	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFTeDA_1	713.0 / 669.0	4.37	13C2-PFOA	415.0 / 370.0	59126.70	100.00
PFTeDA_2	713.0 / 169.0	4.36	13C2-PFOA	415.0 / 370.0	59126.70	100.00
NMeFOSAA_1	570.0 / 419.0	3.44	d3-MeFOSAA	573.0 / 419.0	28365.86	400.00
NMeFOSAA_2	570.0 / 512.0	3.44	d3-MeFOSAA	573.0 / 419.0	28365.86	400.00
NEtFOSAA_1	584.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	28365.86	400.00
NEtFOSAA_2	584.0 / 483.0	3.59	d3-MeFOSAA	573.0 / 419.0	28365.86	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	59126.70	100.00
13C2-PFDA	515.0 / 470.0	3.28	13C2-PFOA	415.0 / 370.0	59126.70	100.00
d5-EtFOSAA	589.0 / 419.0	3.59	d3-MeFOSAA	573.0 / 419.0	28365.86	400.00

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Summary Internal Standard Report

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Sample Name	JV71	**Injection Vial**	9
Sample ID	L8	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T18:02:19	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	177778.90	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	177778.90	287.00
PFHxA_1	313.0 / 269.0	1.80	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFHxA_2	313.0 / 119.0	1.80	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFHpA_1	363.0 / 319.0	2.18	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFHpA_2	363.0 / 169.0	2.18	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFHxS_1	399.0 / 80.0	2.19	13C4-PFOS	503.0 / 80.0	177778.90	287.00
PFHxS_2	399.0 / 99.0	2.19	13C4-PFOS	503.0 / 80.0	177778.90	287.00
PFOA_1	413.0 / 369.0	2.56	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFOA_2	413.0 / 169.0	2.56	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFNA_1	463.0 / 419.0	2.94	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFNA_2	463.0 / 219.0	2.94	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFOS_1	499.0 / 80.0	2.93	13C4-PFOS	503.0 / 80.0	177778.90	287.00
PFOS_2	499.0 / 99.0	2.93	13C4-PFOS	503.0 / 80.0	177778.90	287.00
PFDA_1	513.0 / 469.0	3.29	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFDA_2	513.0 / 219.0	3.29	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFUnA_1	563.0 / 519.0	3.61	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFUnA_2	563.0 / 269.0	3.61	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFDoA_1	613.0 / 569.0	3.89	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFDoA_2	613.0 / 319.0	3.89	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFTrDA_1	663.0 / 619.0	4.14	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFTrDA_2	663.0 / 169.0	4.14	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFTeDA_1	713.0 / 669.0	4.36	13C2-PFOA	415.0 / 370.0	64124.72	100.00
PFTeDA_2	713.0 / 169.0	4.36	13C2-PFOA	415.0 / 370.0	64124.72	100.00
NMeFOSAA_1	570.0 / 419.0	3.44	d3-MeFOSAA	573.0 / 419.0	29149.34	400.00
NMeFOSAA_2	570.0 / 512.0	3.43	d3-MeFOSAA	573.0 / 419.0	29149.34	400.00
NEtFOSAA_1	584.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	29149.34	400.00
NEtFOSAA_2	584.0 / 483.0	3.59	d3-MeFOSAA	573.0 / 419.0	29149.34	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	64124.72	100.00
13C2-PFDA	515.0 / 470.0	3.28	13C2-PFOA	415.0 / 370.0	64124.72	100.00
d5-EtFOSAA	589.0 / 419.0	3.59	d3-MeFOSAA	573.0 / 419.0	29149.34	400.00

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Summary Internal Standard Report

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Sample Name	JV72	**Injection Vial**	10
Sample ID	L9	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T18:11:15	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.52	13C4-PFOS	503.0 / 80.0	190664.46	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	190664.46	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFHxA_2	313.0 / 119.0	1.80	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFHpA_1	363.0 / 319.0	2.18	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFHpA_2	363.0 / 169.0	2.18	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFHxS_1	399.0 / 80.0	2.19	13C4-PFOS	503.0 / 80.0	190664.46	287.00
PFHxS_2	399.0 / 99.0	2.19	13C4-PFOS	503.0 / 80.0	190664.46	287.00
PFOA_1	413.0 / 369.0	2.56	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFOA_2	413.0 / 169.0	2.56	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFNA_1	463.0 / 419.0	2.94	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFNA_2	463.0 / 219.0	2.94	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFOS_1	499.0 / 80.0	2.93	13C4-PFOS	503.0 / 80.0	190664.46	287.00
PFOS_2	499.0 / 99.0	2.93	13C4-PFOS	503.0 / 80.0	190664.46	287.00
PFDA_1	513.0 / 469.0	3.29	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFDA_2	513.0 / 219.0	3.29	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFUnA_1	563.0 / 519.0	3.61	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFUnA_2	563.0 / 269.0	3.61	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFDoA_1	613.0 / 569.0	3.90	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFDoA_2	613.0 / 319.0	3.89	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFTrDA_1	663.0 / 619.0	4.14	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFTrDA_2	663.0 / 169.0	4.14	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFTeDA_1	713.0 / 669.0	4.36	13C2-PFOA	415.0 / 370.0	72946.97	100.00
PFTeDA_2	713.0 / 169.0	4.36	13C2-PFOA	415.0 / 370.0	72946.97	100.00
NMeFOSAA_1	570.0 / 419.0	3.44	d3-MeFOSAA	573.0 / 419.0	34369.99	400.00
NMeFOSAA_2	570.0 / 512.0	3.44	d3-MeFOSAA	573.0 / 419.0	34369.99	400.00
NEtFOSAA_1	584.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	34369.99	400.00
NEtFOSAA_2	584.0 / 483.0	3.59	d3-MeFOSAA	573.0 / 419.0	34369.99	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	72946.97	100.00
13C2-PFDA	515.0 / 470.0	3.27	13C2-PFOA	415.0 / 370.0	72946.97	100.00
d5-EtFOSAA	589.0 / 419.0	3.59	d3-MeFOSAA	573.0 / 419.0	34369.99	400.00

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Summary Internal Standard Report

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Sample Name	JV64	**Injection Vial**	2
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:24:11	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFOS_1	499.0 / 80.0	2.93	13C4-PFOS	503.0 / 80.0	152307.67	287.00
PFOS_2	499.0 / 99.0	2.90	13C4-PFOS	503.0 / 80.0	152307.67	287.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	45267.52	100.00

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Summary Internal Standard Report

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Sample Name	JV65	**Injection Vial**	3
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:33:07	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
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	166798.84	287.00
PFOS_2	499.0 / 99.0	2.92	13C4-PFOS	503.0 / 80.0	166798.84	287.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	48233.36	100.00

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Summary Internal Standard Report

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Printed: 22/06/2018 11:54:27 AM

Sample Name	JV66	**Injection Vial**	4
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:42:03	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
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	126684.34	287.00
PFOS_2	499.0 / 99.0	2.92	13C4-PFOS	503.0 / 80.0	126684.34	287.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	39225.33	100.00

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Summary Internal Standard Report

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Sample Name	JV67	**Injection Vial**	5
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:50:59	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
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	146190.27	287.00
PFOS_2	499.0 / 99.0	2.92	13C4-PFOS	503.0 / 80.0	146190.27	287.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	44314.64	100.00

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Summary Internal Standard Report

Created with Analyst Reporter
Printed: 22/06/2018 11:54:32 AM

Sample Name	JV68	**Injection Vial**	6
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:59:55	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
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	152661.99	287.00
PFOS_2	499.0 / 99.0	2.92	13C4-PFOS	503.0 / 80.0	152661.99	287.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	45920.90	100.00

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Summary Internal Standard Report

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Sample Name	JV69	**Injection Vial**	7
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:08:50	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	149227.62	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	149227.62	287.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	44964.83	100.00

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Summary Internal Standard Report

Created with Analyst Reporter
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Sample Name	JV70	**Injection Vial**	8
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:17:46	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	113610.30	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	113610.30	287.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	35781.13	100.00

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Summary Internal Standard Report

Created with Analyst Reporter
Printed: 22/06/2018 11:54:39 AM

Sample Name	JV71	**Injection Vial**	9
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:26:43	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	150794.39	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	150794.39	287.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	51326.12	100.00

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Summary Internal Standard Report

Created with Analyst Reporter
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Sample Name	JV72	**Injection Vial**	10
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:35:40	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	134101.29	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	134101.29	287.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	43889.05	100.00

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QC Summary Report

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Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T18:20:10	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.52	749.808948	885.00	84.72
PFBS_2	298.9 / 99.0	1.51	739.611141	885.00	83.57
PFHxA_1	313.0 / 269.0	1.81	958.781173	1000.00	95.88
PFHxA_2	313.0 / 119.0	1.81	1030.910160	1000.00	103.09
PFHpA_1	363.0 / 319.0	2.18	971.090051	1000.00	97.11
PFHpA_2	363.0 / 169.0	2.18	997.298852	1000.00	99.73
PFHxS_1	399.0 / 80.0	2.20	834.436811	912.00	91.50
PFHxS_2	399.0 / 99.0	2.20	828.902733	912.00	90.89
PFOA_1	413.0 / 369.0	2.56	1016.567804	1000.00	101.66
PFOA_2	413.0 / 169.0	2.56	934.239108	1000.00	93.42
PFNA_1	463.0 / 419.0	2.94	996.784531	1000.00	99.68
PFNA_2	463.0 / 219.0	2.94	1005.268985	1000.00	100.53
PFOS_1	499.0 / 80.0	2.94	795.240090	925.60	85.92
PFOS_2	499.0 / 99.0	2.94	941.318881	925.60	101.70
PFDA_1	513.0 / 469.0	3.29	962.561060	1000.00	96.26
PFDA_2	513.0 / 219.0	3.29	985.545810	1000.00	98.55
PFUnA_1	563.0 / 519.0	3.61	963.973897	1000.00	96.40
PFUnA_2	563.0 / 269.0	3.61	934.136995	1000.00	93.41
PFDoA_1	613.0 / 569.0	3.90	970.912417	1000.00	97.09
PFDoA_2	613.0 / 319.0	3.89	949.343697	1000.00	94.93
PFTrDA_1	663.0 / 619.0	4.14	969.615921	1000.00	96.96
PFTrDA_2	663.0 / 169.0	4.14	958.270323	1000.00	95.83
PFTeDA_1	713.0 / 669.0	4.36	904.295824	1000.00	90.43
PFTeDA_2	713.0 / 169.0	4.36	951.292410	1000.00	95.13
NMeFOSAA_1	570.0 / 419.0	3.44	1102.408078	1000.00	110.24
NMeFOSAA_2	570.0 / 512.0	3.44	997.000489	1000.00	99.70
NEtFOSAA_1	584.0 / 419.0	3.60	1078.816663	1000.00	107.88
NEtFOSAA_2	584.0 / 483.0	3.60	973.971432	1000.00	97.40
13C2-PFHxA	315.0 / 270.0	1.80	94.595177	100.00	94.60
13C2-PFDA	515.0 / 470.0	3.28	95.591692	100.00	95.59
d5-EtFOSAA	589.0 / 419.0	3.59	348.591981	400.00	87.15

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QC Summary Report

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Sample Name	JV69 CCV	**Injection Vial**	23
Sample ID	L6 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:07:22	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	854.314121	885.00	96.53
PFBS_2	298.9 / 99.0	1.51	854.548997	885.00	96.56
PFHxA_1	313.0 / 269.0	1.80	1030.112868	1000.00	103.01
PFHxA_2	313.0 / 119.0	1.80	1075.016943	1000.00	107.50
PFHpA_1	363.0 / 319.0	2.17	948.451562	1000.00	94.85
PFHpA_2	363.0 / 169.0	2.17	828.878298	1000.00	82.89
PFHxS_1	399.0 / 80.0	2.18	904.468957	945.00	95.71
PFHxS_2	399.0 / 99.0	2.18	907.299960	945.00	96.01
PFOA_1	413.0 / 369.0	2.55	1016.162426	1000.00	101.62
PFOA_2	413.0 / 169.0	2.54	931.588677	1000.00	93.16
PFNA_1	463.0 / 419.0	2.92	1025.545253	1000.00	102.55
PFNA_2	463.0 / 219.0	2.92	1011.598940	1000.00	101.16
PFOS_1	499.0 / 80.0	2.92	902.090028	955.00	94.46
PFOS_2	499.0 / 99.0	2.92	926.514394	955.00	97.02
PFDA_1	513.0 / 469.0	3.27	1054.267089	1000.00	105.43
PFDA_2	513.0 / 219.0	3.27	1064.686071	1000.00	106.47
PFUnA_1	563.0 / 519.0	3.59	1129.701410	1000.00	112.97
PFUnA_2	563.0 / 269.0	3.58	1053.261789	1000.00	105.33
PFDoA_1	613.0 / 569.0	3.87	1074.262463	1000.00	107.43
PFDoA_2	613.0 / 319.0	3.87	1075.476587	1000.00	107.55
PFTrDA_1	663.0 / 619.0	4.12	1058.412613	1000.00	105.84
PFTrDA_2	663.0 / 169.0	4.12	995.159667	1000.00	99.52
PFTeDA_1	713.0 / 669.0	4.34	1046.509862	1000.00	104.65
PFTeDA_2	713.0 / 169.0	4.33	1084.971567	1000.00	108.50
NMeFOSAA_1	570.0 / 419.0	3.42	934.438545	1000.00	93.44
NMeFOSAA_2	570.0 / 512.0	3.41	917.794628	1000.00	91.78
NEtFOSAA_1	584.0 / 419.0	3.57	1022.338296	1000.00	102.23
NEtFOSAA_2	584.0 / 483.0	3.58	895.695725	1000.00	89.57
13C2-PFHxA	315.0 / 270.0	1.79	103.715593	100.00	103.72
13C2-PFDA	515.0 / 470.0	3.26	102.287389	100.00	102.29
d5-EtFOSAA	589.0 / 419.0	3.57	452.090763	400.00	113.02

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QC Summary Report

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Sample Name	JV70 CCV	**Injection Vial**	32
Sample ID	L7 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:36:43	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	2249.986522	2212.50	101.69
PFBS_2	298.9 / 99.0	1.51	2276.859782	2212.50	102.91
PFHxA_1	313.0 / 269.0	1.79	2607.642795	2500.00	104.31
PFHxA_2	313.0 / 119.0	1.79	2824.485962	2500.00	112.98
PFHpA_1	363.0 / 319.0	2.16	2551.068524	2500.00	102.04
PFHpA_2	363.0 / 169.0	2.16	2550.804577	2500.00	102.03
PFHxS_1	399.0 / 80.0	2.18	2289.847244	2280.00	100.43
PFHxS_2	399.0 / 99.0	2.18	2364.672327	2280.00	103.71
PFOA_1	413.0 / 369.0	2.54	2729.926236	2500.00	109.20
PFOA_2	413.0 / 169.0	2.54	2495.415946	2500.00	99.82
PFNA_1	463.0 / 419.0	2.92	2630.885082	2500.00	105.24
PFNA_2	463.0 / 219.0	2.92	2684.540843	2500.00	107.38
PFOS_1	499.0 / 80.0	2.91	2409.937106	2314.00	104.15
PFOS_2	499.0 / 99.0	2.91	2418.225162	2314.00	104.50
PFDA_1	513.0 / 469.0	3.27	2798.295589	2500.00	111.93
PFDA_2	513.0 / 219.0	3.26	2638.546752	2500.00	105.54
PFUnA_1	563.0 / 519.0	3.58	3037.817918	2500.00	121.51
PFUnA_2	563.0 / 269.0	3.58	3068.382360	2500.00	122.74
PFDoA_1	613.0 / 569.0	3.87	2831.488803	2500.00	113.26
PFDoA_2	613.0 / 319.0	3.86	2832.526286	2500.00	113.30
PFTrDA_1	663.0 / 619.0	4.11	2700.977172	2500.00	108.04
PFTrDA_2	663.0 / 169.0	4.11	2658.429098	2500.00	106.34
PFTeDA_1	713.0 / 669.0	4.33	2743.552145	2500.00	109.74
PFTeDA_2	713.0 / 169.0	4.33	2754.285388	2500.00	110.17
NMeFOSAA_1	570.0 / 419.0	3.41	2323.161185	2500.00	92.93
NMeFOSAA_2	570.0 / 512.0	3.41	2344.261587	2500.00	93.77
NEtFOSAA_1	584.0 / 419.0	3.57	2527.874701	2500.00	101.11
NEtFOSAA_2	584.0 / 483.0	3.57	2637.354256	2500.00	105.49
13C2-PFHxA	315.0 / 270.0	1.78	107.841936	100.00	107.84
13C2-PFDA	515.0 / 470.0	3.25	113.860541	100.00	113.86
d5-EtFOSAA	589.0 / 419.0	3.57	395.315016	400.00	98.83

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QC Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 11:18:49 AM

Sample Name	JV69 CCV	**Injection Vial**	40
Sample ID	L6 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:57:07	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	873.684178	885.00	98.72
PFBS_2	298.9 / 99.0	1.50	867.143292	885.00	97.98
PFHxA_1	313.0 / 269.0	1.79	968.368087	1000.00	96.84
PFHxA_2	313.0 / 119.0	1.79	1059.101252	1000.00	105.91
PFHpA_1	363.0 / 319.0	2.16	948.144702	1000.00	94.81
PFHpA_2	363.0 / 169.0	2.16	990.495435	1000.00	99.05
PFHxS_1	399.0 / 80.0	2.17	881.343985	912.00	96.64
PFHxS_2	399.0 / 99.0	2.17	910.295507	912.00	99.81
PFOA_1	413.0 / 369.0	2.54	1008.693557	1000.00	100.87
PFOA_2	413.0 / 169.0	2.53	941.809592	1000.00	94.18
PFNA_1	463.0 / 419.0	2.91	960.527945	1000.00	96.05
PFNA_2	463.0 / 219.0	2.91	980.875510	1000.00	98.09
PFOS_1	499.0 / 80.0	2.91	919.875918	925.60	99.38
PFOS_2	499.0 / 99.0	2.91	899.324971	925.60	97.16
PFDA_1	513.0 / 469.0	3.26	1003.355018	1000.00	100.34
PFDA_2	513.0 / 219.0	3.26	1077.917303	1000.00	107.79
PFUnA_1	563.0 / 519.0	3.57	1133.574410	1000.00	113.36
PFUnA_2	563.0 / 269.0	3.57	1085.263255	1000.00	108.53
PFDoA_1	613.0 / 569.0	3.86	998.474894	1000.00	99.85
PFDoA_2	613.0 / 319.0	3.86	1008.014514	1000.00	100.80
PFTrDA_1	663.0 / 619.0	4.11	954.070516	1000.00	95.41
PFTrDA_2	663.0 / 169.0	4.11	936.218288	1000.00	93.62
PFTeDA_1	713.0 / 669.0	4.33	996.489009	1000.00	99.65
PFTeDA_2	713.0 / 169.0	4.32	963.546047	1000.00	96.35
NMeFOSAA_1	570.0 / 419.0	3.41	976.286261	1000.00	97.63
NMeFOSAA_2	570.0 / 512.0	3.40	1050.636869	1000.00	105.06
NEtFOSAA_1	584.0 / 419.0	3.57	1156.604472	1000.00	115.66
NEtFOSAA_2	584.0 / 483.0	3.56	1057.230449	1000.00	105.72
13C2-PFHxA	315.0 / 270.0	1.78	102.055338	100.00	102.06
13C2-PFDA	515.0 / 470.0	3.25	109.247085	100.00	109.25
d5-EtFOSAA	589.0 / 419.0	3.56	465.603898	400.00	116.40

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QC Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 11:59:13 AM

Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID		**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:44:36	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFOS_1	499.0 / 80.0	2.91	816.229297	925.60	88.18
PFOS_2	499.0 / 99.0	2.91	874.230448	925.60	94.45
13C2-PFHxA	315.0 / 270.0	1.79	98.214979	100.00	98.21

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QC Summary Report

Created with Analyst Reporter
Printed: 26/06/2018 8:21:55 AM

Sample Name	JV69	**Injection Vial**	7
Sample ID		**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T10:20:17	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFOS_1	499.0 / 80.0	2.90	774.001594	925.60	83.62
PFOS_2	499.0 / 99.0	2.91	864.225562	925.60	93.37
13C2-PFHxA	315.0 / 270.0	1.78	97.782124	100.00	97.78

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Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:26:00 AM

Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T18:20:10	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.52	378473.35	749.808948	1578.0	false
PFBS_2	298.9 / 99.0	1.51	113966.91	739.611141	792.7	false
PFHxA_1	313.0 / 269.0	1.81	522989.83	958.781173	97.2	false
PFHxA_2	313.0 / 119.0	1.81	36566.43	1030.910160	59.7	false
PFHpA_1	363.0 / 319.0	2.18	561401.00	971.090051	218.4	false
PFHpA_2	363.0 / 169.0	2.18	14405.68	997.298852	182.3	false
PFHxS_1	399.0 / 80.0	2.20	508615.46	834.436811	498.4	false
PFHxS_2	399.0 / 99.0	2.20	142633.50	828.902733	438.8	false
PFOA_1	413.0 / 369.0	2.56	658700.02	1016.567804	215.0	false
PFOA_2	413.0 / 169.0	2.56	50618.06	934.239108	191.7	false
PFNA_1	463.0 / 419.0	2.94	626488.65	996.784531	548.2	false
PFNA_2	463.0 / 219.0	2.94	178112.60	1005.268985	418.9	false
PFOS_1	499.0 / 80.0	2.94	608285.71	795.240090	166.3	true
PFOS_2	499.0 / 99.0	2.94	132819.45	941.318881	169.0	true
PFDA_1	513.0 / 469.0	3.29	602057.90	962.561060	608.8	false
PFDA_2	513.0 / 219.0	3.29	27057.46	985.545810	440.6	false
PFUnA_1	563.0 / 519.0	3.61	589554.92	963.973897	728.9	false
PFUnA_2	563.0 / 269.0	3.61	28750.54	934.136995	410.0	false
PFDoA_1	613.0 / 569.0	3.90	592010.12	970.912417	500.8	false
PFDoA_2	613.0 / 319.0	3.89	94744.51	949.343697	576.2	false
PFTrDA_1	663.0 / 619.0	4.14	574595.33	969.615921	756.2	false
PFTrDA_2	663.0 / 169.0	4.14	39065.76	958.270323	658.8	false
PFTeDA_1	713.0 / 669.0	4.36	443346.32	904.295824	1171.3	false
PFTeDA_2	713.0 / 169.0	4.36	24757.95	951.292410	872.0	false
NMeFOSAA_1	570.0 / 419.0	3.44	81522.04	1102.408078	1008.7	false
NMeFOSAA_2	570.0 / 512.0	3.44	45589.20	997.000489	888.7	false
NEtFOSAA_1	584.0 / 419.0	3.60	72260.20	1078.816663	777.2	false
NEtFOSAA_2	584.0 / 483.0	3.60	4491.63	973.971432	318.3	false
13C2-PFHxA	315.0 / 270.0	1.80	48716.99	94.595177	771.0	false
13C2-PFDA	515.0 / 470.0	3.28	58723.33	95.591692	1533.3	false
d5-EtFOSAA	589.0 / 419.0	3.59	27828.01	348.591981	310.7	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:26:02 AM

Sample Name	JV69 CCV	**Injection Vial**	23
Sample ID	L6 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:07:22	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	373203.30	854.314121	1600.6	false
PFBS_2	298.9 / 99.0	1.51	113837.00	854.548997	765.5	false
PFHxA_1	313.0 / 269.0	1.80	495248.90	1030.112868	137.7	false
PFHxA_2	313.0 / 119.0	1.80	33598.31	1075.016943	71.1	false
PFHpA_1	363.0 / 319.0	2.17	483689.18	948.451562	241.1	false
PFHpA_2	363.0 / 169.0	2.17	10611.60	828.878298	170.0	false
PFHxS_1	399.0 / 80.0	2.18	477225.01	904.468957	419.1	false
PFHxS_2	399.0 / 99.0	2.18	135144.64	907.299960	345.0	false
PFOA_1	413.0 / 369.0	2.55	580670.37	1016.162426	215.2	false
PFOA_2	413.0 / 169.0	2.54	44518.45	931.588677	162.3	false
PFNA_1	463.0 / 419.0	2.92	568327.32	1025.545253	499.4	false
PFNA_2	463.0 / 219.0	2.92	158051.32	1011.598940	383.1	false
PFOS_1	499.0 / 80.0	2.92	596982.64	902.090028	149.8	false
PFOS_2	499.0 / 99.0	2.92	113179.95	926.514394	200.3	false
PFDA_1	513.0 / 469.0	3.27	581039.85	1054.267089	581.1	false
PFDA_2	513.0 / 219.0	3.27	25759.65	1064.686071	695.3	false
PFUnA_1	563.0 / 519.0	3.59	609114.19	1129.701410	592.6	false
PFUnA_2	563.0 / 269.0	3.58	28559.51	1053.261789	426.8	false
PFDoA_1	613.0 / 569.0	3.87	577492.22	1074.262463	573.2	false
PFDoA_2	613.0 / 319.0	3.87	94604.72	1075.476587	687.4	false
PFTrDA_1	663.0 / 619.0	4.12	553033.44	1058.412613	725.8	false
PFTrDA_2	663.0 / 169.0	4.12	35775.20	995.159667	526.6	false
PFTeDA_1	713.0 / 669.0	4.34	452252.36	1046.509862	1334.0	false
PFTeDA_2	713.0 / 169.0	4.33	24880.66	1084.971567	953.9	false
NMeFOSAA_1	570.0 / 419.0	3.42	73234.20	934.438545	908.4	false
NMeFOSAA_2	570.0 / 512.0	3.41	44462.99	917.794628	1021.7	false
NEtFOSAA_1	584.0 / 419.0	3.57	72523.32	1022.338296	562.5	false
NEtFOSAA_2	584.0 / 483.0	3.58	4380.56	895.695725	1364.4	false
13C2-PFHxA	315.0 / 270.0	1.79	47104.71	103.715593	782.7	false
13C2-PFDA	515.0 / 470.0	3.26	55414.25	102.287389	1581.9	false
d5-EtFOSAA	589.0 / 419.0	3.57	38197.76	452.090763	346.6	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:26:05 AM

Sample Name	JV70 CCV	**Injection Vial**	32
Sample ID	L7 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:36:43	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	940691.37	2249.986522	3377.4	false
PFBS_2	298.9 / 99.0	1.51	289042.71	2276.859782	1096.9	false
PFHxA_1	313.0 / 269.0	1.79	1193794.84	2607.642795	165.8	false
PFHxA_2	313.0 / 119.0	1.79	83407.06	2824.485962	140.9	false
PFHpA_1	363.0 / 319.0	2.16	1234588.91	2551.068524	370.1	false
PFHpA_2	363.0 / 169.0	2.16	30615.89	2550.804577	249.1	false
PFHxS_1	399.0 / 80.0	2.18	1157278.94	2289.847244	572.2	false
PFHxS_2	399.0 / 99.0	2.18	337371.36	2364.672327	542.3	false
PFOA_1	413.0 / 369.0	2.54	1457741.72	2729.926236	297.9	false
PFOA_2	413.0 / 169.0	2.54	110615.57	2495.415946	251.2	false
PFNA_1	463.0 / 419.0	2.92	1389454.03	2630.885082	706.7	false
PFNA_2	463.0 / 219.0	2.92	398353.76	2684.540843	605.7	false
PFOS_1	499.0 / 80.0	2.91	1523977.41	2409.937106	197.9	false
PFOS_2	499.0 / 99.0	2.91	281876.62	2418.225162	297.1	true
PFDA_1	513.0 / 469.0	3.27	1467216.44	2798.295589	822.7	false
PFDA_2	513.0 / 219.0	3.26	60754.09	2638.546752	747.1	false
PFUnA_1	563.0 / 519.0	3.58	1565100.76	3037.817918	734.9	false
PFUnA_2	563.0 / 269.0	3.58	79183.52	3068.382360	767.6	false
PFDoA_1	613.0 / 569.0	3.87	1453679.41	2831.488803	813.2	false
PFDoA_2	613.0 / 319.0	3.86	237767.58	2832.526286	911.6	false
PFTrDA_1	663.0 / 619.0	4.11	1348500.78	2700.977172	1158.2	false
PFTrDA_2	663.0 / 169.0	4.11	91325.99	2658.429098	781.2	false
PFTeDA_1	713.0 / 669.0	4.33	1132084.48	2743.552145	1624.6	false
PFTeDA_2	713.0 / 169.0	4.33	60200.75	2754.285388	1455.3	false
NMeFOSAA_1	570.0 / 419.0	3.41	187366.58	2323.161185	1422.0	false
NMeFOSAA_2	570.0 / 512.0	3.41	116580.51	2344.261587	1149.0	false
NEtFOSAA_1	584.0 / 419.0	3.57	184135.43	2527.874701	749.2	false
NEtFOSAA_2	584.0 / 483.0	3.57	13126.01	2637.354256	933.7	false
13C2-PFHxA	315.0 / 270.0	1.78	46853.16	107.841936	838.7	false
13C2-PFDA	515.0 / 470.0	3.25	59007.01	113.860541	1366.7	false
d5-EtFOSAA	589.0 / 419.0	3.57	34553.91	395.315016	432.5	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 11:26:07 AM

Sample Name	JV69 CCV	**Injection Vial**	40
Sample ID	L6 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:57:07	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	409014.21	873.684178	2079.8	false
PFBS_2	298.9 / 99.0	1.50	123781.59	867.143292	757.7	false
PFHxA_1	313.0 / 269.0	1.79	517120.18	968.368087	112.4	false
PFHxA_2	313.0 / 119.0	1.79	36759.73	1059.101252	70.5	false
PFHpA_1	363.0 / 319.0	2.16	536822.77	948.144702	205.2	false
PFHpA_2	363.0 / 169.0	2.16	14010.27	990.495435	202.1	false
PFHxS_1	399.0 / 80.0	2.17	498370.20	881.343985	429.4	false
PFHxS_2	399.0 / 99.0	2.17	145312.30	910.295507	395.2	false
PFOA_1	413.0 / 369.0	2.54	640099.67	1008.693557	246.1	false
PFOA_2	413.0 / 169.0	2.53	49940.65	941.809592	248.2	false
PFNA_1	463.0 / 419.0	2.91	591204.48	960.527945	455.2	true
PFNA_2	463.0 / 219.0	2.91	170201.45	980.875510	363.5	false
PFOS_1	499.0 / 80.0	2.91	652346.64	919.875918	164.1	false
PFOS_2	499.0 / 99.0	2.91	117758.61	899.324971	211.6	false
PFDA_1	513.0 / 469.0	3.26	614195.81	1003.355018	564.2	false
PFDA_2	513.0 / 219.0	3.26	28950.85	1077.917303	584.6	false
PFUnA_1	563.0 / 519.0	3.57	678556.08	1133.574410	514.8	false
PFUnA_2	563.0 / 269.0	3.57	32662.80	1085.263255	524.9	false
PFDoA_1	613.0 / 569.0	3.86	596023.39	998.474894	612.0	false
PFDoA_2	613.0 / 319.0	3.86	98468.33	1008.014514	584.9	false
PFTrDA_1	663.0 / 619.0	4.11	553566.10	954.070516	759.3	false
PFTrDA_2	663.0 / 169.0	4.11	37369.31	936.218288	579.6	false
PFTeDA_1	713.0 / 669.0	4.33	478165.70	996.489009	1366.8	false
PFTeDA_2	713.0 / 169.0	4.32	24549.77	963.546047	860.1	false
NMeFOSAA_1	570.0 / 419.0	3.41	80304.97	976.286261	1118.8	false
NMeFOSAA_2	570.0 / 512.0	3.40	53354.70	1050.636869	1037.2	false
NEtFOSAA_1	584.0 / 419.0	3.57	86020.86	1156.604472	605.5	false
NEtFOSAA_2	584.0 / 483.0	3.56	5408.31	1057.230449	377.0	false
13C2-PFHxA	315.0 / 270.0	1.78	51458.76	102.055338	896.5	false
13C2-PFDA	515.0 / 470.0	3.25	65707.14	109.247085	1407.7	false
d5-EtFOSAA	589.0 / 419.0	3.56	41304.26	465.603898	396.2	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 22/06/2018 12:01:54 PM

Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID		**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:44:36	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.91	550264.69	816.229297	176.5	true
PFOS_2	499.0 / 99.0	2.91	109373.65	874.230448	206.6	true
13C2-PFHxA	315.0 / 270.0	1.79	39702.03	98.214979	729.5	false

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Summary Quant Report

Created with Analyst Reporter
Printed: 26/06/2018 8:20:17 AM

Sample Name	JV69	**Injection Vial**	7
Sample ID		**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T10:20:17	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.90	574167.47	774.001594	49.6	true
PFOS_2	499.0 / 99.0	2.91	119021.22	864.225562	90.6	true
13C2-PFHxA	315.0 / 270.0	1.78	46050.18	97.782124	939.8	false

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 22/06/2018 11:30:13 AM

Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T18:20:10	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.301	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.070	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.026	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.280	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.077	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.284	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.218	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.045	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.049	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.160	0.166	ü
PFTrDA_1	663.0 / 619.0	4.14	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.068	0.069	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.056	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.559	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.062	0.068	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	3.59		N/A	N/A	ü

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Summary Ion Ratio Report

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Printed: 22/06/2018 11:30:15 AM

Sample Name	JV69 CCV	**Injection Vial**	23
Sample ID	L6 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:07:22	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.305	0.318	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.068	0.072	ü
PFHpA_1	363.0 / 319.0	2.17	PFHpA			
PFHpA_2	363.0 / 169.0	2.17	PFHpA	0.022	0.026	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.283	0.283	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.077	0.086	ü
PFNA_1	463.0 / 419.0	2.92	PFNA			
PFNA_2	463.0 / 219.0	2.92	PFNA	0.278	0.294	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.190	0.188	ü
PFDA_1	513.0 / 469.0	3.27	PFDA			
PFDA_2	513.0 / 219.0	3.27	PFDA	0.044	0.044	ü
PFUnA_1	563.0 / 519.0	3.59	PFUnA			
PFUnA_2	563.0 / 269.0	3.58	PFUnA	0.047	0.053	ü
PFDoA_1	613.0 / 569.0	3.87	PFDoA			
PFDoA_2	613.0 / 319.0	3.87	PFDoA	0.164	0.166	ü
PFTrDA_1	663.0 / 619.0	4.12	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.12	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.34	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.33	PFTeDA	0.055	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.42	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.41	NMeFOSAA	0.607	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.57	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.58	NEtFOSAA	0.060	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.79				
13C2-PFDA	515.0 / 470.0	3.26		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		N/A	N/A	ü

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Summary Ion Ratio Report

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Printed: 22/06/2018 11:30:18 AM

Sample Name	JV70 CCV	**Injection Vial**	32
Sample ID	L7 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:36:43	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.307	0.318	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.070	0.072	ü
PFHpA_1	363.0 / 319.0	2.16	PFHpA			
PFHpA_2	363.0 / 169.0	2.16	PFHpA	0.025	0.026	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.292	0.283	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.076	0.086	ü
PFNA_1	463.0 / 419.0	2.92	PFNA			
PFNA_2	463.0 / 219.0	2.92	PFNA	0.287	0.294	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.185	0.188	ü
PFDA_1	513.0 / 469.0	3.27	PFDA			
PFDA_2	513.0 / 219.0	3.26	PFDA	0.041	0.044	ü
PFUnA_1	563.0 / 519.0	3.58	PFUnA			
PFUnA_2	563.0 / 269.0	3.58	PFUnA	0.051	0.053	ü
PFDoA_1	613.0 / 569.0	3.87	PFDoA			
PFDoA_2	613.0 / 319.0	3.86	PFDoA	0.164	0.166	ü
PFTrDA_1	663.0 / 619.0	4.11	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.11	PFTrDA	0.068	0.069	ü
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.33	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.41	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.41	NMeFOSAA	0.622	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.57	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.57	NEtFOSAA	0.071	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		N/A	N/A	ü

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Summary Ion Ratio Report

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Printed: 22/06/2018 11:30:21 AM

Sample Name	JV69 CCV	**Injection Vial**	40
Sample ID	L6 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:57:07	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.303	0.318	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.16	PFHpA			
PFHpA_2	363.0 / 169.0	2.16	PFHpA	0.026	0.026	ü
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.17	PFHxS	0.292	0.283	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.53	PFOA	0.078	0.086	ü
PFNA_1	463.0 / 419.0	2.91	PFNA			
PFNA_2	463.0 / 219.0	2.91	PFNA	0.288	0.294	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.181	0.188	ü
PFDA_1	513.0 / 469.0	3.26	PFDA			
PFDA_2	513.0 / 219.0	3.26	PFDA	0.047	0.044	ü
PFUnA_1	563.0 / 519.0	3.57	PFUnA			
PFUnA_2	563.0 / 269.0	3.57	PFUnA	0.048	0.053	ü
PFDoA_1	613.0 / 569.0	3.86	PFDoA			
PFDoA_2	613.0 / 319.0	3.86	PFDoA	0.165	0.166	ü
PFTrDA_1	663.0 / 619.0	4.11	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.11	PFTrDA	0.068	0.069	ü
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.051	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.41	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.40	NMeFOSAA	0.664	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.57	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.56	NEtFOSAA	0.063	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.56		N/A	N/A	ü

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Summary Ion Ratio Report

Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID		**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:44:36	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.199	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

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Summary Ion Ratio Report

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Sample Name	JV69	**Injection Vial**	7
Sample ID		**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T10:20:17	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.207	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.78				

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Summary Internal Standard Report

Created with Analyst Reporter
Printed: 22/06/2018 11:31:40 AM

Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T18:20:10	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.52	13C4-PFOS	503.0 / 80.0	185743.83	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	185743.83	287.00
PFHxA_1	313.0 / 269.0	1.81	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFHxA_2	313.0 / 119.0	1.81	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFHpA_1	363.0 / 319.0	2.18	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFHpA_2	363.0 / 169.0	2.18	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFHxS_1	399.0 / 80.0	2.20	13C4-PFOS	503.0 / 80.0	185743.83	287.00
PFHxS_2	399.0 / 99.0	2.20	13C4-PFOS	503.0 / 80.0	185743.83	287.00
PFOA_1	413.0 / 369.0	2.56	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFOA_2	413.0 / 169.0	2.56	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFNA_1	463.0 / 419.0	2.94	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFNA_2	463.0 / 219.0	2.94	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFOS_1	499.0 / 80.0	2.94	13C4-PFOS	503.0 / 80.0	185743.83	287.00
PFOS_2	499.0 / 99.0	2.94	13C4-PFOS	503.0 / 80.0	185743.83	287.00
PFDA_1	513.0 / 469.0	3.29	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFDA_2	513.0 / 219.0	3.29	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFUnA_1	563.0 / 519.0	3.61	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFUnA_2	563.0 / 269.0	3.61	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFDoA_1	613.0 / 569.0	3.90	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFDoA_2	613.0 / 319.0	3.89	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFTrDA_1	663.0 / 619.0	4.14	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFTrDA_2	663.0 / 169.0	4.14	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFTeDA_1	713.0 / 669.0	4.36	13C2-PFOA	415.0 / 370.0	60459.81	100.00
PFTeDA_2	713.0 / 169.0	4.36	13C2-PFOA	415.0 / 370.0	60459.81	100.00
NMeFOSAA_1	570.0 / 419.0	3.44	d3-MeFOSAA	573.0 / 419.0	29722.33	400.00
NMeFOSAA_2	570.0 / 512.0	3.44	d3-MeFOSAA	573.0 / 419.0	29722.33	400.00
NEtFOSAA_1	584.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	29722.33	400.00
NEtFOSAA_2	584.0 / 483.0	3.60	d3-MeFOSAA	573.0 / 419.0	29722.33	400.00
13C2-PFHxA	315.0 / 270.0	1.80	13C2-PFOA	415.0 / 370.0	60459.81	100.00
13C2-PFDA	515.0 / 470.0	3.28	13C2-PFOA	415.0 / 370.0	60459.81	100.00
d5-EtFOSAA	589.0 / 419.0	3.59	d3-MeFOSAA	573.0 / 419.0	29722.33	400.00

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Summary Internal Standard Report

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Sample Name	JV69 CCV	**Injection Vial**	23
Sample ID	L6 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:07:22	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	160791.11	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	160791.11	287.00
PFHxA_1	313.0 / 269.0	1.80	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFHxA_2	313.0 / 119.0	1.80	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFHpA_1	363.0 / 319.0	2.17	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFHpA_2	363.0 / 169.0	2.17	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFHxS_1	399.0 / 80.0	2.18	13C4-PFOS	503.0 / 80.0	160791.11	287.00
PFHxS_2	399.0 / 99.0	2.18	13C4-PFOS	503.0 / 80.0	160791.11	287.00
PFOA_1	413.0 / 369.0	2.55	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFOA_2	413.0 / 169.0	2.54	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFNA_1	463.0 / 419.0	2.92	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFNA_2	463.0 / 219.0	2.92	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFOS_1	499.0 / 80.0	2.92	13C4-PFOS	503.0 / 80.0	160791.11	287.00
PFOS_2	499.0 / 99.0	2.92	13C4-PFOS	503.0 / 80.0	160791.11	287.00
PFDA_1	513.0 / 469.0	3.27	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFDA_2	513.0 / 219.0	3.27	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFUnA_1	563.0 / 519.0	3.59	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFUnA_2	563.0 / 269.0	3.58	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFDoA_1	613.0 / 569.0	3.87	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFDoA_2	613.0 / 319.0	3.87	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFTrDA_1	663.0 / 619.0	4.12	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFTrDA_2	663.0 / 169.0	4.12	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFTeDA_1	713.0 / 669.0	4.34	13C2-PFOA	415.0 / 370.0	53318.22	100.00
PFTeDA_2	713.0 / 169.0	4.33	13C2-PFOA	415.0 / 370.0	53318.22	100.00
NMeFOSAA_1	570.0 / 419.0	3.42	d3-MeFOSAA	573.0 / 419.0	31457.94	400.00
NMeFOSAA_2	570.0 / 512.0	3.41	d3-MeFOSAA	573.0 / 419.0	31457.94	400.00
NEtFOSAA_1	584.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	31457.94	400.00
NEtFOSAA_2	584.0 / 483.0	3.58	d3-MeFOSAA	573.0 / 419.0	31457.94	400.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	53318.22	100.00
13C2-PFDA	515.0 / 470.0	3.26	13C2-PFOA	415.0 / 370.0	53318.22	100.00
d5-EtFOSAA	589.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	31457.94	400.00

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Summary Internal Standard Report

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Sample Name	JV70 CCV	**Injection Vial**	32
Sample ID	L7 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:36:43	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	154051.72	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	154051.72	287.00
PFHxA_1	313.0 / 269.0	1.79	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFHxA_2	313.0 / 119.0	1.79	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFHpA_1	363.0 / 319.0	2.16	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFHpA_2	363.0 / 169.0	2.16	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFHxS_1	399.0 / 80.0	2.18	13C4-PFOS	503.0 / 80.0	154051.72	287.00
PFHxS_2	399.0 / 99.0	2.18	13C4-PFOS	503.0 / 80.0	154051.72	287.00
PFOA_1	413.0 / 369.0	2.54	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFOA_2	413.0 / 169.0	2.54	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFNA_1	463.0 / 419.0	2.92	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFNA_2	463.0 / 219.0	2.92	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	154051.72	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	154051.72	287.00
PFDA_1	513.0 / 469.0	3.27	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFDA_2	513.0 / 219.0	3.26	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFUnA_1	563.0 / 519.0	3.58	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFUnA_2	563.0 / 269.0	3.58	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFDoA_1	613.0 / 569.0	3.87	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFDoA_2	613.0 / 319.0	3.86	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFTrDA_1	663.0 / 619.0	4.11	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFTrDA_2	663.0 / 169.0	4.11	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFTeDA_1	713.0 / 669.0	4.33	13C2-PFOA	415.0 / 370.0	51004.28	100.00
PFTeDA_2	713.0 / 169.0	4.33	13C2-PFOA	415.0 / 370.0	51004.28	100.00
NMeFOSAA_1	570.0 / 419.0	3.41	d3-MeFOSAA	573.0 / 419.0	32544.08	400.00
NMeFOSAA_2	570.0 / 512.0	3.41	d3-MeFOSAA	573.0 / 419.0	32544.08	400.00
NEtFOSAA_1	584.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	32544.08	400.00
NEtFOSAA_2	584.0 / 483.0	3.57	d3-MeFOSAA	573.0 / 419.0	32544.08	400.00
13C2-PFHxA	315.0 / 270.0	1.78	13C2-PFOA	415.0 / 370.0	51004.28	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	51004.28	100.00
d5-EtFOSAA	589.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	32544.08	400.00

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Summary Internal Standard Report

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Sample Name	JV69 CCV	**Injection Vial**	40
Sample ID	L6 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:57:07	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	172319.61	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	172319.61	287.00
PFHxA_1	313.0 / 269.0	1.79	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFHxA_2	313.0 / 119.0	1.79	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFHpA_1	363.0 / 319.0	2.16	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFHpA_2	363.0 / 169.0	2.16	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFHxS_1	399.0 / 80.0	2.17	13C4-PFOS	503.0 / 80.0	172319.61	287.00
PFHxS_2	399.0 / 99.0	2.17	13C4-PFOS	503.0 / 80.0	172319.61	287.00
PFOA_1	413.0 / 369.0	2.54	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFOA_2	413.0 / 169.0	2.53	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFNA_1	463.0 / 419.0	2.91	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFNA_2	463.0 / 219.0	2.91	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	172319.61	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	172319.61	287.00
PFDA_1	513.0 / 469.0	3.26	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFDA_2	513.0 / 219.0	3.26	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFUnA_1	563.0 / 519.0	3.57	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFUnA_2	563.0 / 269.0	3.57	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFDoA_1	613.0 / 569.0	3.86	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFDoA_2	613.0 / 319.0	3.86	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFTrDA_1	663.0 / 619.0	4.11	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFTrDA_2	663.0 / 169.0	4.11	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFTeDA_1	713.0 / 669.0	4.33	13C2-PFOA	415.0 / 370.0	59194.17	100.00
PFTeDA_2	713.0 / 169.0	4.32	13C2-PFOA	415.0 / 370.0	59194.17	100.00
NMeFOSAA_1	570.0 / 419.0	3.41	d3-MeFOSAA	573.0 / 419.0	33029.07	400.00
NMeFOSAA_2	570.0 / 512.0	3.40	d3-MeFOSAA	573.0 / 419.0	33029.07	400.00
NEtFOSAA_1	584.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	33029.07	400.00
NEtFOSAA_2	584.0 / 483.0	3.56	d3-MeFOSAA	573.0 / 419.0	33029.07	400.00
13C2-PFHxA	315.0 / 270.0	1.78	13C2-PFOA	415.0 / 370.0	59194.17	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	59194.17	100.00
d5-EtFOSAA	589.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	33029.07	400.00

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Summary Internal Standard Report

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Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID		**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:44:36	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	159590.71	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	159590.71	287.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	48552.44	100.00

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Summary Internal Standard Report

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Sample Name	JV69	**Injection Vial**	7
Sample ID		**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T10:20:17	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFOS_1	499.0 / 80.0	2.90	13C4-PFOS	503.0 / 80.0	175677.72	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	175677.72	287.00
13C2-PFHxA	315.0 / 270.0	1.78	13C2-PFOA	415.0 / 370.0	56565.01	100.00

Raw Analytical Data

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Summary Quant Report

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Sample Name	CQ924PB-FS(0)	**Injection Vial**	24
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:25:12	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	1369.24	1.816891	39.6	true
PFBS_2	298.9 / 99.0	1.51	1336.03	3.244105	29.1	true
PFHxA_1	313.0 / 269.0	1.79	11794.88	18.583505	19.3	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	2.17	4268.87	< 0	18.3	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.18	6441.62	12.459253	63.4	true
PFHxS_2	399.0 / 99.0	2.18	1178.55	7.913140	25.1	true
PFOA_1	413.0 / 369.0	2.54	2693.63	< 0	13.1	true
PFOA_2	413.0 / 169.0	2.53	504.14	< 0	10.2	true
PFNA_1	463.0 / 419.0	2.92	1722.76	< 0	13.3	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	2.91	74305.84	114.477005	46.7	true
PFOS_2	499.0 / 99.0	2.92	12453.34	101.536371	59.9	true
PFDA_1	513.0 / 469.0	3.27	647.51	< 0	12.6	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	3.58	333.56	< 0	8.3	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.87	481.83	< 0	13.6	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTrDA_1	663.0 / 619.0	4.11	551.66	< 0	26.6	true
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.33	620.00	< 0	20.8	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	1.79	47528.13	111.843320	653.1	false
13C2-PFDA	515.0 / 470.0	3.26	52778.50	104.120752	2992.7	false
d5-EtFOSAA	589.0 / 419.0	3.57	30290.65	407.442887	326.1	false

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Summary Quant Report

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Sample Name	CQ925LCS-FS(0)	**Injection Vial**	25
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:34:09	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.52	740579.63	1988.923329	2326.3	false
PFBS_2	298.9 / 99.0	1.51	223019.79	1971.750096	910.5	true
PFHxA_1	313.0 / 269.0	1.80	991206.42	2557.623043	156.4	false
PFHxA_2	313.0 / 119.0	1.80	68699.34	2747.742005	158.0	false
PFHpA_1	363.0 / 319.0	2.17	996518.09	2431.997531	318.7	false
PFHpA_2	363.0 / 169.0	2.17	23684.79	2329.025841	235.1	false
PFHxS_1	399.0 / 80.0	2.19	988486.43	2196.277621	834.6	false
PFHxS_2	399.0 / 99.0	2.19	276823.30	2178.764027	714.4	true
PFOA_1	413.0 / 369.0	2.55	1121324.63	2477.189619	350.6	false
PFOA_2	413.0 / 169.0	2.55	87262.33	2322.365170	261.0	false
PFNA_1	463.0 / 419.0	2.92	1104943.61	2471.210760	668.0	false
PFNA_2	463.0 / 219.0	2.92	315828.92	2513.643489	560.3	false
PFOS_1	499.0 / 80.0	2.92	1392563.55	2472.922817	280.5	false
PFOS_2	499.0 / 99.0	2.92	289533.92	2790.191835	358.3	false
PFDA_1	513.0 / 469.0	3.27	1082683.47	2438.186131	695.5	false
PFDA_2	513.0 / 219.0	3.27	47265.05	2424.234488	603.9	false
PFUnA_1	563.0 / 519.0	3.59	1121524.01	2571.315219	763.6	false
PFUnA_2	563.0 / 269.0	3.59	57918.93	2650.276475	413.4	false
PFDoA_1	613.0 / 569.0	3.87	1044270.86	2402.486529	763.0	false
PFDoA_2	613.0 / 319.0	3.87	169424.94	2383.720704	756.1	false
PFTrDA_1	663.0 / 619.0	4.12	975904.05	2308.882799	902.9	false
PFTrDA_2	663.0 / 169.0	4.12	70298.44	2417.290713	719.8	false
PFTeDA_1	713.0 / 669.0	4.33	1103108.72	3158.619393	1758.7	true
PFTeDA_2	713.0 / 169.0	4.33	58241.06	3148.798501	1086.2	false
NMeFOSAA_1	570.0 / 419.0	3.42	151538.61	2596.582158	1203.3	false
NMeFOSAA_2	570.0 / 512.0	3.42	86608.51	2406.165115	1149.5	false
NEtFOSAA_1	584.0 / 419.0	3.58	150711.12	2859.886888	640.8	false
NEtFOSAA_2	584.0 / 483.0	3.57	8210.73	2275.925314	446.4	false
13C2-PFHxA	315.0 / 270.0	1.79	40676.72	110.604843	733.1	false
13C2-PFDA	515.0 / 470.0	3.26	46440.15	105.862646	684.0	false
d5-EtFOSAA	589.0 / 419.0	3.57	24004.46	379.373215	274.3	false

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Summary Quant Report

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Sample Name	J6291-FS(0)	**Injection Vial**	26
Sample ID	NAWC-053118-FRB-256	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:43:04	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	2779.65	5.971263	59.1	true
PFBS_2	298.9 / 99.0	1.52	1741.94	8.044038	36.1	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	2.17	3962.71	< 0	18.0	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.18	18013.28	39.555686	96.5	false
PFHxS_2	399.0 / 99.0	2.18	6059.45	47.165461	109.3	false
PFOA_1	413.0 / 369.0	2.54	6398.21	< 0	17.7	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	2.93	2462.43	< 0	14.8	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	2.91	262451.76	461.564905	89.6	true
PFOS_2	499.0 / 99.0	2.91	48960.75	465.320516	134.7	true
PFDA_1	513.0 / 469.0	3.27	1603.99	< 0	23.4	true
PFDA_2	513.0 / 219.0	3.25	117.67	< 0	16.7	true
PFUnA_1	563.0 / 519.0	3.58	1588.55	1.537580	20.9	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.86	1612.70	0.771622	26.5	false
PFDoA_2	613.0 / 319.0	3.86	234.19	< 0	20.6	true
PFTrDA_1	663.0 / 619.0	4.11	1272.05	0.939480	44.9	true
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.33	850.79	< 0	30.7	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	3.42	341.92	< 0	54.2	false
NMeFOSAA_2	570.0 / 512.0	3.43	228.30	< 0	22.8	false
NEtFOSAA_1	584.0 / 419.0	3.58	206.88	< 0	13.4	false
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.79	42605.02	112.842949	688.8	false
13C2-PFDA	515.0 / 470.0	3.25	48213.79	107.054716	768.0	false
d5-EtFOSAA	589.0 / 419.0	3.57	27186.63	393.494399	329.6	false

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Summary Quant Report

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Sample Name	J6293-FS(0)	**Injection Vial**	27
Sample ID	NAWC-053118-FRB-126	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:52:00	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	1512.53	2.049516	41.1	true
PFBS_2	298.9 / 99.0	1.51	1656.84	5.386888	34.4	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	2.17	2951.56	< 0	10.1	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.17	4868.11	9.031391	55.1	true
PFHxS_2	399.0 / 99.0	2.15	2107.95	14.003995	35.1	false
PFOA_1	413.0 / 369.0	2.54	4874.94	< 0	15.1	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	2.92	4711.46	2.069475	20.4	true
PFNA_2	463.0 / 219.0	2.94	1164.78	< 0	20.1	true
PFOS_1	499.0 / 80.0	2.91	45247.24	66.001538	32.1	true
PFOS_2	499.0 / 99.0	2.92	8152.41	62.187823	40.6	true
PFDA_1	513.0 / 469.0	3.26	2155.68	< 0	27.2	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	3.57	2194.71	1.997859	28.9	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.84	876.07	< 0	16.9	false
PFDoA_2	613.0 / 319.0	3.88	174.52	< 0	12.3	true
PFTrDA_1	663.0 / 619.0	4.11	936.87	< 0	36.2	false
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.33	634.60	< 0	34.4	false
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	3.38	72.46	< 0	40.7	false
NEtFOSAA_1	584.0 / 419.0	3.56	126.93	< 0	10.6	true
NEtFOSAA_2	584.0 / 483.0	3.54	51.81	< 0	18.7	false
13C2-PFHxA	315.0 / 270.0	1.79	48862.86	105.817661	777.8	false
13C2-PFDA	515.0 / 470.0	3.25	55698.17	101.120945	1344.6	false
d5-EtFOSAA	589.0 / 419.0	3.56	32521.10	387.340840	362.0	false

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Summary Quant Report

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Sample Name	J6296-FS(0)	**Injection Vial**	28
Sample ID	WGNA-053118-FRB-4850	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:00:56	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.50	5873.56	11.527024	91.1	true
PFBS_2	298.9 / 99.0	1.50	2818.92	13.239355	51.1	false
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	2.17	4001.42	< 0	14.6	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.17	33054.36	60.155750	155.4	false
PFHxS_2	399.0 / 99.0	2.18	11947.18	77.082926	131.1	false
PFOA_1	413.0 / 369.0	2.54	5465.68	< 0	16.7	true
PFOA_2	413.0 / 169.0	2.53	793.42	< 0	15.9	true
PFNA_1	463.0 / 419.0	2.91	2808.03	< 0	18.3	true
PFNA_2	463.0 / 219.0	2.92	1731.56	< 0	19.0	true
PFOS_1	499.0 / 80.0	2.90	330142.26	479.882810	93.5	true
PFOS_2	499.0 / 99.0	2.91	61617.42	484.107013	137.8	true
PFDA_1	513.0 / 469.0	3.27	881.98	< 0	15.5	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	3.58	541.72	< 0	10.3	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.86	491.00	< 0	12.9	true
PFDoA_2	613.0 / 319.0	3.88	90.94	< 0	12.0	true
PFTrDA_1	663.0 / 619.0	4.10	707.68	< 0	28.8	true
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.33	440.63	< 0	21.9	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	3.58	88.78	< 0	10.2	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.78	50253.91	102.853262	843.0	false
13C2-PFDA	515.0 / 470.0	3.25	53246.49	91.360851	984.6	false
d5-EtFOSAA	589.0 / 419.0	3.56	31145.28	401.141540	369.7	false

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Summary Quant Report

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Sample Name	J6298-FS(0)	**Injection Vial**	29
Sample ID	NAWC-053118-FRB-311	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:09:53	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	1102.62	0.998295	24.7	true
PFBS_2	298.9 / 99.0	1.51	596.29	< 0	14.5	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	2.18	4882.95	8.710166	58.1	true
PFHxS_2	399.0 / 99.0	2.15	1962.03	12.509609	32.8	true
PFOA_1	413.0 / 369.0	2.54	2783.58	< 0	14.0	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	2.92	3190.10	< 0	20.0	true
PFNA_2	463.0 / 219.0	2.91	865.01	< 0	15.1	true
PFOS_1	499.0 / 80.0	2.91	57750.94	81.981246	43.0	true
PFOS_2	499.0 / 99.0	2.91	11433.44	86.116234	56.9	true
PFDA_1	513.0 / 469.0	3.27	1746.66	< 0	27.5	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	3.58	2034.32	1.702282	26.6	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.86	1073.37	< 0	25.1	true
PFDoA_2	613.0 / 319.0	3.87	150.15	< 0	10.2	true
PFTrDA_1	663.0 / 619.0	4.12	840.91	< 0	34.6	false
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.33	498.70	< 0	21.8	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	3.41	38.76	< 0	7.7	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	1.79	48230.98	104.379982	642.5	false
13C2-PFDA	515.0 / 470.0	3.26	54706.84	99.255286	1186.8	false
d5-EtFOSAA	589.0 / 419.0	3.57	30014.87	363.571174	311.3	false

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Summary Quant Report

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Sample Name	J6300-FS(0)	**Injection Vial**	30
Sample ID	NAWC-053118-FRB-265	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:18:48	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.52	2172.48	3.968352	48.0	true
PFBS_2	298.9 / 99.0	1.52	1358.79	3.877643	26.6	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	2.19	5406.80	< 0	17.6	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.18	7127.33	14.417818	70.2	true
PFHxS_2	399.0 / 99.0	2.17	2928.73	21.110135	62.5	false
PFOA_1	413.0 / 369.0	2.53	2879.17	< 0	11.8	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	2.92	2904.86	< 0	17.8	true
PFNA_2	463.0 / 219.0	2.93	961.94	< 0	13.3	true
PFOS_1	499.0 / 80.0	2.91	44580.66	70.136051	31.2	true
PFOS_2	499.0 / 99.0	2.91	9431.59	78.836172	44.5	true
PFDA_1	513.0 / 469.0	3.26	2025.18	< 0	25.4	true
PFDA_2	513.0 / 219.0	3.25	116.33	< 0	13.3	true
PFUnA_1	563.0 / 519.0	3.57	1757.47	1.598077	20.2	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.86	1096.57	< 0	21.1	true
PFDoA_2	613.0 / 319.0	3.86	98.49	< 0	10.6	true
PFTrDA_1	663.0 / 619.0	4.11	617.00	< 0	35.4	false
PFTrDA_2	663.0 / 169.0	4.13	81.89	0.869791	10.7	false
PFTeDA_1	713.0 / 669.0	4.33	471.00	< 0	23.3	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	3.41	86.48	< 0	709.7	false
NMeFOSAA_2	570.0 / 512.0	3.43	24.42	< 0	8.4	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	3.48	95.45	4.072891	144.7	false
13C2-PFHxA	315.0 / 270.0	1.79	60595.61	147.538808	828.6	true
13C2-PFDA	515.0 / 470.0	3.25	49752.90	101.555720	1142.1	false
d5-EtFOSAA	589.0 / 419.0	3.56	23168.88	366.838139	321.0	false

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Summary Quant Report

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Sample Name	J6583-FS(0)	**Injection Vial**	31
Sample ID	NAWC-060408-FRB-230	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:27:44	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.52	6083.13	15.759477	118.8	true
PFBS_2	298.9 / 99.0	1.51	2671.33	17.624610	62.3	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	2.18	4044.12	< 0	15.2	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.18	37232.70	86.875854	177.3	false
PFHxS_2	399.0 / 99.0	2.18	10728.59	88.647668	140.1	false
PFOA_1	413.0 / 369.0	2.54	6520.73	< 0	26.3	true
PFOA_2	413.0 / 169.0	2.56	996.38	< 0	19.8	true
PFNA_1	463.0 / 419.0	2.93	2704.02	< 0	16.4	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	2.91	321631.10	599.266560	99.9	true
PFOS_2	499.0 / 99.0	2.91	56596.77	570.156368	144.9	true
PFDA_1	513.0 / 469.0	3.27	1041.73	< 0	14.8	true
PFDA_2	513.0 / 219.0	3.26	110.32	< 0	13.1	true
PFUnA_1	563.0 / 519.0	3.59	637.82	< 0	12.5	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.85	555.19	< 0	11.1	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTrDA_1	663.0 / 619.0	4.10	437.25	< 0	19.4	true
PFTrDA_2	663.0 / 169.0	4.11	97.75	1.747483	12.1	true
PFTeDA_1	713.0 / 669.0	4.33	346.36	< 0	13.8	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	3.41	36.21	< 0	9.0	true
NMeFOSAA_2	570.0 / 512.0	3.37	145.40	< 0	35.0	false
NEtFOSAA_1	584.0 / 419.0	3.56	118.16	< 0	11.0	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.79	38332.41	105.382490	635.5	false
13C2-PFDA	515.0 / 470.0	3.25	42180.96	97.216436	1408.8	false
d5-EtFOSAA	589.0 / 419.0	3.56	23572.58	395.998146	315.5	false

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Summary Quant Report

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Sample Name	J6585-FS(0)	**Injection Vial**	33
Sample ID	NAWC-060408-FRB-309	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:54:39	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	1859.01	2.622364	48.3	true
PFBS_2	298.9 / 99.0	1.51	984.96	< 0	26.7	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	2.18	3844.56	6.656508	42.4	true
PFHxS_2	399.0 / 99.0	2.18	1543.65	9.579097	36.8	true
PFOA_1	413.0 / 369.0	2.54	3378.10	< 0	10.8	true
PFOA_2	413.0 / 169.0	2.50	653.43	< 0	12.5	true
PFNA_1	463.0 / 419.0	2.91	3240.71	< 0	19.1	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	2.91	37653.54	51.136474	29.5	true
PFOS_2	499.0 / 99.0	2.91	7111.07	50.233778	37.9	true
PFDA_1	513.0 / 469.0	3.26	2061.76	< 0	28.4	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	3.59	1669.76	1.010052	21.1	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.86	1220.99	< 0	24.8	true
PFDoA_2	613.0 / 319.0	3.88	198.35	< 0	16.2	true
PFTrDA_1	663.0 / 619.0	4.10	930.76	< 0	34.1	true
PFTrDA_2	663.0 / 169.0	4.09	74.79	0.377165	10.7	true
PFTeDA_1	713.0 / 669.0	4.33	1061.20	< 0	29.8	true
PFTeDA_2	713.0 / 169.0	4.33	96.99	< 0	12.6	true
NMeFOSAA_1	570.0 / 419.0	3.40	147.44	< 0	26.7	false
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	3.59	107.73	< 0	8.0	true
NEtFOSAA_2	584.0 / 483.0	3.55	98.95	2.864589	25.2	false
13C2-PFHxA	315.0 / 270.0	1.78	48563.21	104.186419	941.4	false
13C2-PFDA	515.0 / 470.0	3.25	55311.37	99.480748	1048.6	false
d5-EtFOSAA	589.0 / 419.0	3.56	30487.92	444.598007	326.6	false

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Summary Quant Report

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Sample Name	J6587-FS(0)	**Injection Vial**	34
Sample ID	NAWC-060408-FRB-293	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:03:34	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	1110.12	1.282215	34.4	true
PFBS_2	298.9 / 99.0	1.52	732.50	< 0	17.8	true
PFHxA_1	313.0 / 269.0	1.79	154423.40	321.776631	77.1	false
PFHxA_2	313.0 / 119.0	1.79	9444.90	292.245744	51.9	false
PFHpA_1	363.0 / 319.0	2.17	11102.98	10.247401	32.4	false
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.18	4815.05	9.541940	49.0	true
PFHxS_2	399.0 / 99.0	2.18	1909.10	13.506836	38.5	true
PFOA_1	413.0 / 369.0	2.54	9637.90	< 0	25.5	true
PFOA_2	413.0 / 169.0	2.53	1929.03	< 0	27.1	true
PFNA_1	463.0 / 419.0	2.92	7165.24	6.905349	34.3	true
PFNA_2	463.0 / 219.0	2.92	1871.82	0.581454	25.1	true
PFOS_1	499.0 / 80.0	2.91	45386.65	70.839875	35.8	true
PFOS_2	499.0 / 99.0	2.91	9145.48	75.566490	50.5	true
PFDA_1	513.0 / 469.0	3.25	1463.28	< 0	23.9	true
PFDA_2	513.0 / 219.0	3.23	224.85	0.289972	24.9	true
PFUnA_1	563.0 / 519.0	3.58	3258.24	4.152583	32.7	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.84	1010.07	< 0	17.0	true
PFDoA_2	613.0 / 319.0	3.87	380.68	0.165255	29.0	false
PFTrDA_1	663.0 / 619.0	4.10	915.45	< 0	30.0	true
PFTrDA_2	663.0 / 169.0	4.12	195.89	3.905567	18.9	false
PFTeDA_1	713.0 / 669.0	4.33	592.44	< 0	22.5	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	3.40	100.23	< 0	17.4	true
NMeFOSAA_2	570.0 / 512.0	3.46	40.66	< 0	7.8	true
NEtFOSAA_1	584.0 / 419.0	3.61	231.53	< 0	18.2	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.78	43854.71	98.340918	729.8	false
13C2-PFDA	515.0 / 470.0	3.25	54510.28	102.474875	976.9	false
d5-EtFOSAA	589.0 / 419.0	3.56	30925.44	434.747126	371.1	false

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Summary Quant Report

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Sample Name	J6589-FS(0)	**Injection Vial**	35
Sample ID	NAWC-060408-FRB-038	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:12:30	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	3546.72	7.849132	67.0	true
PFBS_2	298.9 / 99.0	1.51	1749.37	7.820724	34.0	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	2.17	2859.25	< 0	12.7	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.18	20841.74	44.959713	141.9	false
PFHxS_2	399.0 / 99.0	2.18	6622.82	50.616059	81.3	false
PFOA_1	413.0 / 369.0	2.53	4839.05	< 0	17.5	true
PFOA_2	413.0 / 169.0	2.49	2115.08	5.702428	20.2	false
PFNA_1	463.0 / 419.0	2.91	4002.40	1.948096	21.2	true
PFNA_2	463.0 / 219.0	2.91	687.39	< 0	10.5	true
PFOS_1	499.0 / 80.0	2.91	252620.19	435.765208	87.6	true
PFOS_2	499.0 / 99.0	2.91	47661.43	444.237859	136.9	true
PFDA_1	513.0 / 469.0	3.27	1589.38	< 0	26.0	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	3.57	1463.03	1.089016	19.0	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.84	906.80	< 0	16.8	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTrDA_1	663.0 / 619.0	4.11	697.65	< 0	26.3	true
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.33	696.40	< 0	27.2	true
PFTeDA_2	713.0 / 169.0	4.33	40.83	< 0	9.4	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	3.48	77.44	< 0	35.0	false
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	1.79	42678.95	107.230411	626.1	false
13C2-PFDA	515.0 / 470.0	3.25	47776.60	100.632985	1074.7	false
d5-EtFOSAA	589.0 / 419.0	3.56	27180.10	441.617790	346.1	false

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Summary Quant Report

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Sample Name	J6591-FS(0)	**Injection Vial**	36
Sample ID	NAWC-060408-FRB-039	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:21:24	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	3312.70	6.402285	78.9	true
PFBS_2	298.9 / 99.0	1.51	1626.40	5.405147	33.7	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	2.16	1953.45	< 0	8.5	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.17	18664.90	36.353244	123.8	false
PFHxS_2	399.0 / 99.0	2.18	5469.93	37.715474	73.6	false
PFOA_1	413.0 / 369.0	2.54	4016.91	< 0	14.8	true
PFOA_2	413.0 / 169.0	2.55	640.37	< 0	13.2	true
PFNA_1	463.0 / 419.0	2.92	2805.98	< 0	17.4	true
PFNA_2	463.0 / 219.0	2.92	1819.04	< 0	20.1	true
PFOS_1	499.0 / 80.0	2.91	232290.75	361.806386	83.4	true
PFOS_2	499.0 / 99.0	2.91	41873.81	351.781021	134.4	true
PFDA_1	513.0 / 469.0	3.27	1369.04	< 0	21.3	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	3.57	1479.95	0.724304	21.7	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.86	984.12	< 0	21.5	true
PFDoA_2	613.0 / 319.0	3.82	179.02	< 0	18.6	false
PFTrDA_1	663.0 / 619.0	4.10	885.43	< 0	33.6	true
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.32	591.01	< 0	24.6	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	3.49	155.36	< 0	32.5	false
NEtFOSAA_1	584.0 / 419.0	3.54	116.64	< 0	14.0	true
NEtFOSAA_2	584.0 / 483.0	3.56	28.28	< 0	1272.4	true
13C2-PFHxA	315.0 / 270.0	1.78	47710.08	104.567430	853.8	false
13C2-PFDA	515.0 / 470.0	3.25	50484.90	92.761689	908.6	false
d5-EtFOSAA	589.0 / 419.0	3.56	31819.68	475.250072	303.1	false

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Summary Quant Report

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Sample Name	J6638-FS(0)	**Injection Vial**	37
Sample ID	WGNA-060718-FRB-0488	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:30:19	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	5389.21	15.197952	112.9	true
PFBS_2	298.9 / 99.0	1.51	2438.94	17.549390	60.7	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	2.17	7132.42	5.650888	18.8	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.18	24441.14	62.175100	142.2	false
PFHxS_2	399.0 / 99.0	2.18	8017.41	72.267841	109.7	false
PFOA_1	413.0 / 369.0	2.54	4843.85	< 0	17.5	true
PFOA_2	413.0 / 169.0	2.55	1141.83	< 0	17.4	true
PFNA_1	463.0 / 419.0	2.91	1527.37	< 0	10.9	true
PFNA_2	463.0 / 219.0	2.93	869.41	< 0	13.1	true
PFOS_1	499.0 / 80.0	2.91	299211.95	608.838371	100.6	true
PFOS_2	499.0 / 99.0	2.91	53039.24	583.611432	161.5	true
PFDA_1	513.0 / 469.0	3.25	717.33	< 0	9.2	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	3.58	962.76	0.242732	14.1	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.84	957.19	< 0	15.7	true
PFDoA_2	613.0 / 319.0	3.85	116.51	< 0	10.1	true
PFTrDA_1	663.0 / 619.0	4.10	508.96	< 0	21.9	true
PFTrDA_2	663.0 / 169.0	4.12	175.73	4.520544	14.3	false
PFTeDA_1	713.0 / 669.0	4.33	423.83	< 0	19.1	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	3.38	49.22	< 0	106.6	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	3.49	45.78	< 0	20.8	false
13C2-PFHxA	315.0 / 270.0	1.79	37072.14	102.924243	787.7	false
13C2-PFDA	515.0 / 470.0	3.25	40308.16	93.817495	991.2	false
d5-EtFOSAA	589.0 / 419.0	3.56	22548.57	395.252123	371.6	false

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Summary Quant Report

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Sample Name	J6640-FS(0)	**Injection Vial**	38
Sample ID	NAWC-060718-FRB-175	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:39:15	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	3073.39	5.892591	67.4	true
PFBS_2	298.9 / 99.0	1.50	1514.94	4.626678	33.4	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	2.16	3311.78	< 0	12.7	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.17	16172.74	31.711145	121.6	false
PFHxS_2	399.0 / 99.0	2.17	4795.35	33.288015	78.1	false
PFOA_1	413.0 / 369.0	2.53	4956.37	< 0	21.6	true
PFOA_2	413.0 / 169.0	2.55	1405.63	< 0	23.0	true
PFNA_1	463.0 / 419.0	2.91	5271.06	2.954665	31.5	true
PFNA_2	463.0 / 219.0	2.92	1479.27	< 0	20.5	true
PFOS_1	499.0 / 80.0	2.91	253172.20	397.916938	91.3	true
PFOS_2	499.0 / 99.0	2.91	45551.19	386.381095	134.9	true
PFDA_1	513.0 / 469.0	3.27	1985.18	< 0	23.9	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	3.57	2461.95	2.431671	28.8	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.86	1425.05	< 0	23.9	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTrDA_1	663.0 / 619.0	4.10	934.76	< 0	36.7	true
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.32	506.53	< 0	18.4	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	3.40	41.90	< 0	14.6	true
NEtFOSAA_1	584.0 / 419.0	3.59	81.43	< 0	7.0	false
NEtFOSAA_2	584.0 / 483.0	3.49	24.57	< 0	45.0	true
13C2-PFHxA	315.0 / 270.0	1.78	47607.88	101.849788	760.2	false
13C2-PFDA	515.0 / 470.0	3.25	51303.16	92.012399	1143.8	false
d5-EtFOSAA	589.0 / 419.0	3.56	32323.86	427.061362	296.8	false

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Summary Quant Report

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Sample Name	J6643-FS(0)	**Injection Vial**	39
Sample ID	WGNA-060718-FRB-0626	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:48:11	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	6839.15	16.589802	117.4	true
PFBS_2	298.9 / 99.0	1.51	2759.72	16.703710	71.7	false
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	2.16	7501.78	5.620013	24.0	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.18	40452.69	88.003982	179.7	false
PFHxS_2	399.0 / 99.0	2.18	11281.99	86.902094	126.8	false
PFOA_1	413.0 / 369.0	2.54	8828.41	< 0	29.1	true
PFOA_2	413.0 / 169.0	2.53	640.16	< 0	11.5	true
PFNA_1	463.0 / 419.0	2.92	3354.63	0.945091	18.9	true
PFNA_2	463.0 / 219.0	2.94	715.57	< 0	11.0	true
PFOS_1	499.0 / 80.0	2.91	446421.03	776.588643	108.8	true
PFOS_2	499.0 / 99.0	2.91	79749.42	750.927861	173.5	true
PFDA_1	513.0 / 469.0	3.24	2016.28	< 0	15.8	true
PFDA_2	513.0 / 219.0	3.20	151.68	< 0	36.0	true
PFUnA_1	563.0 / 519.0	3.57	2103.54	2.664553	24.4	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.86	513.42	< 0	13.0	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTrDA_1	663.0 / 619.0	4.11	510.36	< 0	25.2	true
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.32	428.77	< 0	19.6	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	3.57	45.35	< 0	6.5	true
NEtFOSAA_2	584.0 / 483.0	3.56	78.55	< 0	18.3	true
13C2-PFHxA	315.0 / 270.0	1.79	42656.71	112.403169	665.9	false
13C2-PFDA	515.0 / 470.0	3.25	45760.26	101.088219	7774.0	false
d5-EtFOSAA	589.0 / 419.0	3.56	25614.37	376.387385	362.4	false

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Summary Quant Report

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Sample Name	J6643-FS(0)	**Injection Vial**	23
Sample ID		**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T10:11:23	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFOS_1	499.0 / 80.0	2.91	389829.89	631.351293	31.9	true
PFOS_2	499.0 / 99.0	2.91	85205.46	741.976713	82.7	true
13C2-PFHxA	315.0 / 270.0	N/A	N/A	N/A	N/A	true

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Summary Ion Ratio Report

Sample Name	CQ924PB-FS(0)	**Injection Vial**	24
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:25:12	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.976	0.318	
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.072	
PFHpA_1	363.0 / 319.0	2.17	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.183	0.283	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.53	PFOA	0.187	0.086	
PFNA_1	463.0 / 419.0	2.92	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.294	
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.168	0.188	ü
PFDA_1	513.0 / 469.0	3.27	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.044	
PFUnA_1	563.0 / 519.0	3.58	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	3.87	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.166	
PFTrDA_1	663.0 / 619.0	4.11	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.069	
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.055	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.640	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.79				
13C2-PFDA	515.0 / 470.0	3.26		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		N/A	N/A	ü

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Summary Ion Ratio Report

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Sample Name	CQ925LCS-FS(0)	**Injection Vial**	25
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:34:09	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.301	0.318	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.069	0.072	ü
PFHpA_1	363.0 / 319.0	2.17	PFHpA			
PFHpA_2	363.0 / 169.0	2.17	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.280	0.283	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.078	0.086	ü
PFNA_1	463.0 / 419.0	2.92	PFNA			
PFNA_2	463.0 / 219.0	2.92	PFNA	0.286	0.294	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.208	0.188	ü
PFDA_1	513.0 / 469.0	3.27	PFDA			
PFDA_2	513.0 / 219.0	3.27	PFDA	0.044	0.044	ü
PFUnA_1	563.0 / 519.0	3.59	PFUnA			
PFUnA_2	563.0 / 269.0	3.59	PFUnA	0.052	0.053	ü
PFDoA_1	613.0 / 569.0	3.87	PFDoA			
PFDoA_2	613.0 / 319.0	3.87	PFDoA	0.162	0.166	ü
PFTrDA_1	663.0 / 619.0	4.12	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.12	PFTrDA	0.072	0.069	ü
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.33	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.42	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.42	NMeFOSAA	0.572	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.58	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.57	NEtFOSAA	0.055	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.79				
13C2-PFDA	515.0 / 470.0	3.26		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		N/A	N/A	ü

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Summary Ion Ratio Report

Sample Name	J6291-FS(0)	**Injection Vial**	26
Sample ID	NAWC-053118-FRB-256	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:43:04	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.627	0.318	
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	2.17	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.336	0.283	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.086	
PFNA_1	463.0 / 419.0	2.93	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.294	
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.187	0.188	ü
PFDA_1	513.0 / 469.0	3.27	PFDA			
PFDA_2	513.0 / 219.0	3.25	PFDA	0.073	0.044	
PFUnA_1	563.0 / 519.0	3.58	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	3.86	PFDoA			
PFDoA_2	613.0 / 319.0	3.86	PFDoA	0.145	0.166	ü
PFTrDA_1	663.0 / 619.0	4.11	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.069	
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.055	
NMeFOSAA_1	570.0 / 419.0	3.42	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.43	NMeFOSAA	0.668	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.58	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.068	
13C2-PFHxA	315.0 / 270.0	1.79				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		N/A	N/A	ü

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Summary Ion Ratio Report

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Sample Name	J6293-FS(0)	**Injection Vial**	27
Sample ID	NAWC-053118-FRB-126	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:52:00	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	1.095	0.318	
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	2.17	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.433	0.283	
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.086	
PFNA_1	463.0 / 419.0	2.92	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.247	0.294	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.180	0.188	ü
PFDA_1	513.0 / 469.0	3.26	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.044	
PFUnA_1	563.0 / 519.0	3.57	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	3.88	PFDoA	0.199	0.166	ü
PFTrDA_1	663.0 / 619.0	4.11	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.069	
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.055	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.38	NMeFOSAA	N/A	0.640	
NEtFOSAA_1	584.0 / 419.0	3.56	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.54	NEtFOSAA	0.408	0.068	
13C2-PFHxA	315.0 / 270.0	1.79				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.56		N/A	N/A	ü

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Summary Ion Ratio Report

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Sample Name	J6296-FS(0)	**Injection Vial**	28
Sample ID	WGNA-053118-FRB-4850	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:00:56	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.480	0.318	
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	2.17	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.361	0.283	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.53	PFOA	0.145	0.086	
PFNA_1	463.0 / 419.0	2.91	PFNA			
PFNA_2	463.0 / 219.0	2.92	PFNA	0.617	0.294	
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.187	0.188	ü
PFDA_1	513.0 / 469.0	3.27	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.044	
PFUnA_1	563.0 / 519.0	3.58	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	3.86	PFDoA			
PFDoA_2	613.0 / 319.0	3.88	PFDoA	0.185	0.166	ü
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.069	
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.055	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.58	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.068	
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.56		N/A	N/A	ü

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Summary Ion Ratio Report

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Sample Name	J6298-FS(0)	**Injection Vial**	29
Sample ID	NAWC-053118-FRB-311	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:09:53	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.541	0.318	
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	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.15	PFHxS	0.402	0.283	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.086	
PFNA_1	463.0 / 419.0	2.92	PFNA			
PFNA_2	463.0 / 219.0	2.91	PFNA	0.271	0.294	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.198	0.188	ü
PFDA_1	513.0 / 469.0	3.27	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.044	
PFUnA_1	563.0 / 519.0	3.58	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	3.86	PFDoA			
PFDoA_2	613.0 / 319.0	3.87	PFDoA	0.140	0.166	ü
PFTrDA_1	663.0 / 619.0	4.12	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.069	
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.055	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.41	NMeFOSAA	N/A	0.640	
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.79				
13C2-PFDA	515.0 / 470.0	3.26		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.57		N/A	N/A	ü

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Summary Ion Ratio Report

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Sample Name	J6300-FS(0)	**Injection Vial**	30
Sample ID	NAWC-053118-FRB-265	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:18:48	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.626	0.318	
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	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.17	PFHxS	0.411	0.283	ü
PFOA_1	413.0 / 369.0	2.53	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.086	
PFNA_1	463.0 / 419.0	2.92	PFNA			
PFNA_2	463.0 / 219.0	2.93	PFNA	0.331	0.294	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.212	0.188	ü
PFDA_1	513.0 / 469.0	3.26	PFDA			
PFDA_2	513.0 / 219.0	3.25	PFDA	0.057	0.044	ü
PFUnA_1	563.0 / 519.0	3.57	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	3.86	PFDoA			
PFDoA_2	613.0 / 319.0	3.86	PFDoA	0.090	0.166	ü
PFTrDA_1	663.0 / 619.0	4.11	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.13	PFTrDA	0.133	0.069	
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.055	
NMeFOSAA_1	570.0 / 419.0	3.41	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.43	NMeFOSAA	0.282	0.640	
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.48	NEtFOSAA	N/A	0.068	
13C2-PFHxA	315.0 / 270.0	1.79				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.56		N/A	N/A	ü

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Summary Ion Ratio Report

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Sample Name	J6583-FS(0)	**Injection Vial**	31
Sample ID	NAWC-060408-FRB-230	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:27:44	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.439	0.318	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	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.288	0.283	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.153	0.086	
PFNA_1	463.0 / 419.0	2.93	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.294	
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.176	0.188	ü
PFDA_1	513.0 / 469.0	3.27	PFDA			
PFDA_2	513.0 / 219.0	3.26	PFDA	0.106	0.044	
PFUnA_1	563.0 / 519.0	3.59	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	3.85	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.166	
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.11	PFTrDA	0.224	0.069	
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.055	
NMeFOSAA_1	570.0 / 419.0	3.41	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.37	NMeFOSAA	4.016	0.640	
NEtFOSAA_1	584.0 / 419.0	3.56	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.068	
13C2-PFHxA	315.0 / 270.0	1.79				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.56		N/A	N/A	ü

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Summary Ion Ratio Report

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Sample Name	J6585-FS(0)	**Injection Vial**	33
Sample ID	NAWC-060408-FRB-309	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:54:39	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.530	0.318	
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	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.402	0.283	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.50	PFOA	0.193	0.086	
PFNA_1	463.0 / 419.0	2.91	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.294	
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.189	0.188	ü
PFDA_1	513.0 / 469.0	3.26	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.044	
PFUnA_1	563.0 / 519.0	3.59	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	3.86	PFDoA			
PFDoA_2	613.0 / 319.0	3.88	PFDoA	0.163	0.166	ü
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.09	PFTrDA	0.080	0.069	ü
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.33	PFTeDA	0.091	0.055	
NMeFOSAA_1	570.0 / 419.0	3.40	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.640	
NEtFOSAA_1	584.0 / 419.0	3.59	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.55	NEtFOSAA	0.919	0.068	
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.56		N/A	N/A	ü

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Summary Ion Ratio Report

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Sample Name	J6587-FS(0)	**Injection Vial**	34
Sample ID	NAWC-060408-FRB-293	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:03:34	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.660	0.318	
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.061	0.072	ü
PFHpA_1	363.0 / 319.0	2.17	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.397	0.283	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.53	PFOA	0.200	0.086	
PFNA_1	463.0 / 419.0	2.92	PFNA			
PFNA_2	463.0 / 219.0	2.92	PFNA	0.261	0.294	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.202	0.188	ü
PFDA_1	513.0 / 469.0	3.25	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.154	0.044	
PFUnA_1	563.0 / 519.0	3.58	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	3.87	PFDoA	0.377	0.166	
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.12	PFTrDA	0.214	0.069	
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.055	
NMeFOSAA_1	570.0 / 419.0	3.40	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.46	NMeFOSAA	0.406	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.068	
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.56		N/A	N/A	ü

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Summary Ion Ratio Report

Sample Name	J6589-FS(0)	**Injection Vial**	35
Sample ID	NAWC-060408-FRB-038	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:12:30	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.493	0.318	
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	2.17	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.318	0.283	ü
PFOA_1	413.0 / 369.0	2.53	PFOA			
PFOA_2	413.0 / 169.0	2.49	PFOA	0.437	0.086	
PFNA_1	463.0 / 419.0	2.91	PFNA			
PFNA_2	463.0 / 219.0	2.91	PFNA	0.172	0.294	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.189	0.188	ü
PFDA_1	513.0 / 469.0	3.27	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.044	
PFUnA_1	563.0 / 519.0	3.57	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.166	
PFTrDA_1	663.0 / 619.0	4.11	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.069	
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.33	PFTeDA	0.059	0.055	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.48	NMeFOSAA	N/A	0.640	
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.79				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.56		N/A	N/A	ü

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Summary Ion Ratio Report

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Sample Name	J6591-FS(0)	**Injection Vial**	36
Sample ID	NAWC-060408-FRB-039	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:21:24	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.491	0.318	
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	2.16	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.293	0.283	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.159	0.086	
PFNA_1	463.0 / 419.0	2.92	PFNA			
PFNA_2	463.0 / 219.0	2.92	PFNA	0.648	0.294	
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.180	0.188	ü
PFDA_1	513.0 / 469.0	3.27	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.044	
PFUnA_1	563.0 / 519.0	3.57	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	3.86	PFDoA			
PFDoA_2	613.0 / 319.0	3.82	PFDoA	0.182	0.166	ü
PFTrDA_1	663.0 / 619.0	4.10	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	0.055	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.49	NMeFOSAA	N/A	0.640	
NEtFOSAA_1	584.0 / 419.0	3.54	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.56	NEtFOSAA	0.242	0.068	
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.56		N/A	N/A	ü

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Summary Ion Ratio Report

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Sample Name	J6638-FS(0)	**Injection Vial**	37
Sample ID	WGNA-060718-FRB-0488	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:30:19	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.453	0.318	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	2.17	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.328	0.283	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.236	0.086	
PFNA_1	463.0 / 419.0	2.91	PFNA			
PFNA_2	463.0 / 219.0	2.93	PFNA	0.569	0.294	
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.177	0.188	ü
PFDA_1	513.0 / 469.0	3.25	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.044	
PFUnA_1	563.0 / 519.0	3.58	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	3.84	PFDoA			
PFDoA_2	613.0 / 319.0	3.85	PFDoA	0.122	0.166	ü
PFTrDA_1	663.0 / 619.0	4.10	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.12	PFTrDA	0.345	0.069	
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.055	
NMeFOSAA_1	570.0 / 419.0	3.38	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.640	
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.49	NEtFOSAA	N/A	0.068	
13C2-PFHxA	315.0 / 270.0	1.79				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.56		N/A	N/A	ü

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Summary Ion Ratio Report

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Sample Name	J6640-FS(0)	**Injection Vial**	38
Sample ID	NAWC-060718-FRB-175	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:39:15	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.493	0.318	
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	2.16	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.17	PFHxS	0.297	0.283	ü
PFOA_1	413.0 / 369.0	2.53	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.284	0.086	
PFNA_1	463.0 / 419.0	2.91	PFNA			
PFNA_2	463.0 / 219.0	2.92	PFNA	0.281	0.294	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.180	0.188	ü
PFDA_1	513.0 / 469.0	3.27	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.044	
PFUnA_1	563.0 / 519.0	3.57	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	3.86	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.166	
PFTrDA_1	663.0 / 619.0	4.10	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	0.055	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.40	NMeFOSAA	N/A	0.640	
NEtFOSAA_1	584.0 / 419.0	3.59	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.49	NEtFOSAA	0.302	0.068	
13C2-PFHxA	315.0 / 270.0	1.78				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.56		N/A	N/A	ü

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Summary Ion Ratio Report

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Sample Name	J6643-FS(0)	**Injection Vial**	39
Sample ID	WGNA-060718-FRB-0626	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:48:11	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.404	0.318	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	2.16	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.026	
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.279	0.283	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.53	PFOA	0.073	0.086	ü
PFNA_1	463.0 / 419.0	2.92	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.213	0.294	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.179	0.188	ü
PFDA_1	513.0 / 469.0	3.24	PFDA			
PFDA_2	513.0 / 219.0	3.20	PFDA	0.075	0.044	
PFUnA_1	563.0 / 519.0	3.57	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	3.86	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.166	
PFTrDA_1	663.0 / 619.0	4.11	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	0.055	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.57	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.56	NEtFOSAA	1.732	0.068	
13C2-PFHxA	315.0 / 270.0	1.79				
13C2-PFDA	515.0 / 470.0	3.25		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.56		N/A	N/A	ü

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Summary Ion Ratio Report

Sample Name	J6643-FS(0)	**Injection Vial**	23
Sample ID		**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T10:11:23	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.219	0.192	ü
13C2-PFHxA	315.0 / 270.0	N/A				

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Summary Internal Standard Report

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Sample Name	CQ924PB-FS(0)	**Injection Vial**	24
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:25:12	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	153276.44	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	153276.44	287.00
PFHxA_1	313.0 / 269.0	1.79	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFHpA_1	363.0 / 319.0	2.17	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFHxS_1	399.0 / 80.0	2.18	13C4-PFOS	503.0 / 80.0	153276.44	287.00
PFHxS_2	399.0 / 99.0	2.18	13C4-PFOS	503.0 / 80.0	153276.44	287.00
PFOA_1	413.0 / 369.0	2.54	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFOA_2	413.0 / 169.0	2.53	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFNA_1	463.0 / 419.0	2.92	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	153276.44	287.00
PFOS_2	499.0 / 99.0	2.92	13C4-PFOS	503.0 / 80.0	153276.44	287.00
PFDA_1	513.0 / 469.0	3.27	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFUnA_1	563.0 / 519.0	3.58	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFDoA_1	613.0 / 569.0	3.87	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFTrDA_1	663.0 / 619.0	4.11	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFTeDA_1	713.0 / 669.0	4.33	13C2-PFOA	415.0 / 370.0	49887.99	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	49887.99	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	27679.61	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	27679.61	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	27679.61	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	27679.61	400.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	49887.99	100.00
13C2-PFDA	515.0 / 470.0	3.26	13C2-PFOA	415.0 / 370.0	49887.99	100.00
d5-EtFOSAA	589.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	27679.61	400.00

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Summary Internal Standard Report

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Sample Name	CQ925LCS-FS(0)	**Injection Vial**	25
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:34:09	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.52	13C4-PFOS	503.0 / 80.0	137187.84	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	137187.84	287.00
PFHxA_1	313.0 / 269.0	1.80	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFHxA_2	313.0 / 119.0	1.80	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFHpA_1	363.0 / 319.0	2.17	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFHpA_2	363.0 / 169.0	2.17	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFHxS_1	399.0 / 80.0	2.19	13C4-PFOS	503.0 / 80.0	137187.84	287.00
PFHxS_2	399.0 / 99.0	2.19	13C4-PFOS	503.0 / 80.0	137187.84	287.00
PFOA_1	413.0 / 369.0	2.55	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFOA_2	413.0 / 169.0	2.55	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFNA_1	463.0 / 419.0	2.92	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFNA_2	463.0 / 219.0	2.92	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFOS_1	499.0 / 80.0	2.92	13C4-PFOS	503.0 / 80.0	137187.84	287.00
PFOS_2	499.0 / 99.0	2.92	13C4-PFOS	503.0 / 80.0	137187.84	287.00
PFDA_1	513.0 / 469.0	3.27	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFDA_2	513.0 / 219.0	3.27	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFUnA_1	563.0 / 519.0	3.59	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFUnA_2	563.0 / 269.0	3.59	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFDoA_1	613.0 / 569.0	3.87	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFDoA_2	613.0 / 319.0	3.87	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFTrDA_1	663.0 / 619.0	4.12	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFTrDA_2	663.0 / 169.0	4.12	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFTeDA_1	713.0 / 669.0	4.33	13C2-PFOA	415.0 / 370.0	43174.48	100.00
PFTeDA_2	713.0 / 169.0	4.33	13C2-PFOA	415.0 / 370.0	43174.48	100.00
NMeFOSAA_1	570.0 / 419.0	3.42	d3-MeFOSAA	573.0 / 419.0	23558.27	400.00
NMeFOSAA_2	570.0 / 512.0	3.42	d3-MeFOSAA	573.0 / 419.0	23558.27	400.00
NEtFOSAA_1	584.0 / 419.0	3.58	d3-MeFOSAA	573.0 / 419.0	23558.27	400.00
NEtFOSAA_2	584.0 / 483.0	3.57	d3-MeFOSAA	573.0 / 419.0	23558.27	400.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	43174.48	100.00
13C2-PFDA	515.0 / 470.0	3.26	13C2-PFOA	415.0 / 370.0	43174.48	100.00
d5-EtFOSAA	589.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	23558.27	400.00

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Summary Internal Standard Report

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Sample Name	J6291-FS(0)	**Injection Vial**	26
Sample ID	NAWC-053118-FRB-256	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:43:04	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	137603.16	287.00
PFBS_2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	137603.16	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFHpA_1	363.0 / 319.0	2.17	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFHxS_1	399.0 / 80.0	2.18	13C4-PFOS	503.0 / 80.0	137603.16	287.00
PFHxS_2	399.0 / 99.0	2.18	13C4-PFOS	503.0 / 80.0	137603.16	287.00
PFOA_1	413.0 / 369.0	2.54	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFNA_1	463.0 / 419.0	2.93	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	137603.16	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	137603.16	287.00
PFDA_1	513.0 / 469.0	3.27	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFDA_2	513.0 / 219.0	3.25	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFUnA_1	563.0 / 519.0	3.58	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFDoA_1	613.0 / 569.0	3.86	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFDoA_2	613.0 / 319.0	3.86	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFTrDA_1	663.0 / 619.0	4.11	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFTeDA_1	713.0 / 669.0	4.33	13C2-PFOA	415.0 / 370.0	44324.28	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	44324.28	100.00
NMeFOSAA_1	570.0 / 419.0	3.42	d3-MeFOSAA	573.0 / 419.0	25723.79	400.00
NMeFOSAA_2	570.0 / 512.0	3.43	d3-MeFOSAA	573.0 / 419.0	25723.79	400.00
NEtFOSAA_1	584.0 / 419.0	3.58	d3-MeFOSAA	573.0 / 419.0	25723.79	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	25723.79	400.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	44324.28	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	44324.28	100.00
d5-EtFOSAA	589.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	25723.79	400.00

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Summary Internal Standard Report

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Sample Name	J6293-FS(0)	**Injection Vial**	27
Sample ID	NAWC-053118-FRB-126	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:52:00	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	158147.22	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	158147.22	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFHpA_1	363.0 / 319.0	2.17	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFHxS_1	399.0 / 80.0	2.17	13C4-PFOS	503.0 / 80.0	158147.22	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	158147.22	287.00
PFOA_1	413.0 / 369.0	2.54	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFNA_1	463.0 / 419.0	2.92	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFNA_2	463.0 / 219.0	2.94	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	158147.22	287.00
PFOS_2	499.0 / 99.0	2.92	13C4-PFOS	503.0 / 80.0	158147.22	287.00
PFDA_1	513.0 / 469.0	3.26	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFUnA_1	563.0 / 519.0	3.57	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFDoA_1	613.0 / 569.0	3.84	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFDoA_2	613.0 / 319.0	3.88	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFTrDA_1	663.0 / 619.0	4.11	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFTeDA_1	713.0 / 669.0	4.33	13C2-PFOA	415.0 / 370.0	54209.58	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	54209.58	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	31260.08	400.00
NMeFOSAA_2	570.0 / 512.0	3.38	d3-MeFOSAA	573.0 / 419.0	31260.08	400.00
NEtFOSAA_1	584.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	31260.08	400.00
NEtFOSAA_2	584.0 / 483.0	3.54	d3-MeFOSAA	573.0 / 419.0	31260.08	400.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	54209.58	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	54209.58	100.00
d5-EtFOSAA	589.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	31260.08	400.00

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Summary Internal Standard Report

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Sample Name	J6296-FS(0)	**Injection Vial**	28
Sample ID	WGNA-053118-FRB-4850	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:00:56	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.50	13C4-PFOS	503.0 / 80.0	166537.97	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	166537.97	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFHpA_1	363.0 / 319.0	2.17	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFHxS_1	399.0 / 80.0	2.17	13C4-PFOS	503.0 / 80.0	166537.97	287.00
PFHxS_2	399.0 / 99.0	2.18	13C4-PFOS	503.0 / 80.0	166537.97	287.00
PFOA_1	413.0 / 369.0	2.54	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFOA_2	413.0 / 169.0	2.53	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFNA_1	463.0 / 419.0	2.91	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFNA_2	463.0 / 219.0	2.92	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFOS_1	499.0 / 80.0	2.90	13C4-PFOS	503.0 / 80.0	166537.97	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	166537.97	287.00
PFDA_1	513.0 / 469.0	3.27	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFUnA_1	563.0 / 519.0	3.58	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFDoA_1	613.0 / 569.0	3.86	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFDoA_2	613.0 / 319.0	3.88	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFTrDA_1	663.0 / 619.0	4.10	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFTeDA_1	713.0 / 669.0	4.33	13C2-PFOA	415.0 / 370.0	57359.73	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	57359.73	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	28907.64	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	28907.64	400.00
NEtFOSAA_1	584.0 / 419.0	3.58	d3-MeFOSAA	573.0 / 419.0	28907.64	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	28907.64	400.00
13C2-PFHxA	315.0 / 270.0	1.78	13C2-PFOA	415.0 / 370.0	57359.73	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	57359.73	100.00
d5-EtFOSAA	589.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	28907.64	400.00

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Summary Internal Standard Report

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Sample Name	J6298-FS(0)	**Injection Vial**	29
Sample ID	NAWC-053118-FRB-311	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:09:53	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	164251.54	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	164251.54	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFHxS_1	399.0 / 80.0	2.18	13C4-PFOS	503.0 / 80.0	164251.54	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	164251.54	287.00
PFOA_1	413.0 / 369.0	2.54	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFNA_1	463.0 / 419.0	2.92	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFNA_2	463.0 / 219.0	2.91	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	164251.54	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	164251.54	287.00
PFDA_1	513.0 / 469.0	3.27	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFUnA_1	563.0 / 519.0	3.58	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFDoA_1	613.0 / 569.0	3.86	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFDoA_2	613.0 / 319.0	3.87	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFTrDA_1	663.0 / 619.0	4.12	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFTeDA_1	713.0 / 669.0	4.33	13C2-PFOA	415.0 / 370.0	54245.57	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	54245.57	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	30737.26	400.00
NMeFOSAA_2	570.0 / 512.0	3.41	d3-MeFOSAA	573.0 / 419.0	30737.26	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	30737.26	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	30737.26	400.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	54245.57	100.00
13C2-PFDA	515.0 / 470.0	3.26	13C2-PFOA	415.0 / 370.0	54245.57	100.00
d5-EtFOSAA	589.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	30737.26	400.00

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Summary Internal Standard Report

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Sample Name	J6300-FS(0)	**Injection Vial**	30
Sample ID	NAWC-053118-FRB-265	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:18:48	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.52	13C4-PFOS	503.0 / 80.0	147104.92	287.00
PFBS_2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	147104.92	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFHpA_1	363.0 / 319.0	2.19	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFHxS_1	399.0 / 80.0	2.18	13C4-PFOS	503.0 / 80.0	147104.92	287.00
PFHxS_2	399.0 / 99.0	2.17	13C4-PFOS	503.0 / 80.0	147104.92	287.00
PFOA_1	413.0 / 369.0	2.53	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFNA_1	463.0 / 419.0	2.92	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFNA_2	463.0 / 219.0	2.93	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	147104.92	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	147104.92	287.00
PFDA_1	513.0 / 469.0	3.26	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFDA_2	513.0 / 219.0	3.25	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFUnA_1	563.0 / 519.0	3.57	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFDoA_1	613.0 / 569.0	3.86	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFDoA_2	613.0 / 319.0	3.86	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFTrDA_1	663.0 / 619.0	4.11	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFTrDA_2	663.0 / 169.0	4.13	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFTeDA_1	713.0 / 669.0	4.33	13C2-PFOA	415.0 / 370.0	48215.90	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	48215.90	100.00
NMeFOSAA_1	570.0 / 419.0	3.41	d3-MeFOSAA	573.0 / 419.0	23515.20	400.00
NMeFOSAA_2	570.0 / 512.0	3.43	d3-MeFOSAA	573.0 / 419.0	23515.20	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	23515.20	400.00
NEtFOSAA_2	584.0 / 483.0	3.48	d3-MeFOSAA	573.0 / 419.0	23515.20	400.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	48215.90	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	48215.90	100.00
d5-EtFOSAA	589.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	23515.20	400.00

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Summary Internal Standard Report

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Sample Name	J6583-FS(0)	**Injection Vial**	31
Sample ID	NAWC-060408-FRB-230	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:27:44	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.52	13C4-PFOS	503.0 / 80.0	130126.84	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	130126.84	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFHpA_1	363.0 / 319.0	2.18	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFHxS_1	399.0 / 80.0	2.18	13C4-PFOS	503.0 / 80.0	130126.84	287.00
PFHxS_2	399.0 / 99.0	2.18	13C4-PFOS	503.0 / 80.0	130126.84	287.00
PFOA_1	413.0 / 369.0	2.54	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFOA_2	413.0 / 169.0	2.56	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFNA_1	463.0 / 419.0	2.93	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	130126.84	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	130126.84	287.00
PFDA_1	513.0 / 469.0	3.27	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFDA_2	513.0 / 219.0	3.26	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFUnA_1	563.0 / 519.0	3.59	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFDoA_1	613.0 / 569.0	3.85	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFTrDA_1	663.0 / 619.0	4.10	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFTrDA_2	663.0 / 169.0	4.11	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFTeDA_1	713.0 / 669.0	4.33	13C2-PFOA	415.0 / 370.0	42702.48	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	42702.48	100.00
NMeFOSAA_1	570.0 / 419.0	3.41	d3-MeFOSAA	573.0 / 419.0	22163.18	400.00
NMeFOSAA_2	570.0 / 512.0	3.37	d3-MeFOSAA	573.0 / 419.0	22163.18	400.00
NEtFOSAA_1	584.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	22163.18	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	22163.18	400.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	42702.48	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	42702.48	100.00
d5-EtFOSAA	589.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	22163.18	400.00

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Summary Internal Standard Report

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Sample Name	J6585-FS(0)	**Injection Vial**	33
Sample ID	NAWC-060408-FRB-309	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:54:39	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	167211.94	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	167211.94	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFHxS_1	399.0 / 80.0	2.18	13C4-PFOS	503.0 / 80.0	167211.94	287.00
PFHxS_2	399.0 / 99.0	2.18	13C4-PFOS	503.0 / 80.0	167211.94	287.00
PFOA_1	413.0 / 369.0	2.54	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFOA_2	413.0 / 169.0	2.50	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFNA_1	463.0 / 419.0	2.91	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	167211.94	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	167211.94	287.00
PFDA_1	513.0 / 469.0	3.26	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFUnA_1	563.0 / 519.0	3.59	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFDoA_1	613.0 / 569.0	3.86	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFDoA_2	613.0 / 319.0	3.88	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFTrDA_1	663.0 / 619.0	4.10	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFTrDA_2	663.0 / 169.0	4.09	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFTeDA_1	713.0 / 669.0	4.33	13C2-PFOA	415.0 / 370.0	54720.69	100.00
PFTeDA_2	713.0 / 169.0	4.33	13C2-PFOA	415.0 / 370.0	54720.69	100.00
NMeFOSAA_1	570.0 / 419.0	3.40	d3-MeFOSAA	573.0 / 419.0	25531.62	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	25531.62	400.00
NEtFOSAA_1	584.0 / 419.0	3.59	d3-MeFOSAA	573.0 / 419.0	25531.62	400.00
NEtFOSAA_2	584.0 / 483.0	3.55	d3-MeFOSAA	573.0 / 419.0	25531.62	400.00
13C2-PFHxA	315.0 / 270.0	1.78	13C2-PFOA	415.0 / 370.0	54720.69	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	54720.69	100.00
d5-EtFOSAA	589.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	25531.62	400.00

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Summary Internal Standard Report

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Sample Name	J6587-FS(0)	**Injection Vial**	34
Sample ID	NAWC-060408-FRB-293	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:03:34	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	148352.40	287.00
PFBS_2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	148352.40	287.00
PFHxA_1	313.0 / 269.0	1.79	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFHxA_2	313.0 / 119.0	1.79	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFHpA_1	363.0 / 319.0	2.17	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFHxS_1	399.0 / 80.0	2.18	13C4-PFOS	503.0 / 80.0	148352.40	287.00
PFHxS_2	399.0 / 99.0	2.18	13C4-PFOS	503.0 / 80.0	148352.40	287.00
PFOA_1	413.0 / 369.0	2.54	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFOA_2	413.0 / 169.0	2.53	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFNA_1	463.0 / 419.0	2.92	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFNA_2	463.0 / 219.0	2.92	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	148352.40	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	148352.40	287.00
PFDA_1	513.0 / 469.0	3.25	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFDA_2	513.0 / 219.0	3.23	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFUnA_1	563.0 / 519.0	3.58	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFDoA_1	613.0 / 569.0	3.84	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFDoA_2	613.0 / 319.0	3.87	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFTrDA_1	663.0 / 619.0	4.10	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFTrDA_2	663.0 / 169.0	4.12	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFTeDA_1	713.0 / 669.0	4.33	13C2-PFOA	415.0 / 370.0	52352.48	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	52352.48	100.00
NMeFOSAA_1	570.0 / 419.0	3.40	d3-MeFOSAA	573.0 / 419.0	26484.83	400.00
NMeFOSAA_2	570.0 / 512.0	3.46	d3-MeFOSAA	573.0 / 419.0	26484.83	400.00
NEtFOSAA_1	584.0 / 419.0	3.61	d3-MeFOSAA	573.0 / 419.0	26484.83	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	26484.83	400.00
13C2-PFHxA	315.0 / 270.0	1.78	13C2-PFOA	415.0 / 370.0	52352.48	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	52352.48	100.00
d5-EtFOSAA	589.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	26484.83	400.00

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Summary Internal Standard Report

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Sample Name	J6589-FS(0)	**Injection Vial**	35
Sample ID	NAWC-060408-FRB-038	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:12:30	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	140222.24	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	140222.24	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFHpA_1	363.0 / 319.0	2.17	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFHxS_1	399.0 / 80.0	2.18	13C4-PFOS	503.0 / 80.0	140222.24	287.00
PFHxS_2	399.0 / 99.0	2.18	13C4-PFOS	503.0 / 80.0	140222.24	287.00
PFOA_1	413.0 / 369.0	2.53	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFOA_2	413.0 / 169.0	2.49	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFNA_1	463.0 / 419.0	2.91	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFNA_2	463.0 / 219.0	2.91	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	140222.24	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	140222.24	287.00
PFDA_1	513.0 / 469.0	3.27	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFUnA_1	563.0 / 519.0	3.57	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFDoA_1	613.0 / 569.0	3.84	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFTrDA_1	663.0 / 619.0	4.11	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFTeDA_1	713.0 / 669.0	4.33	13C2-PFOA	415.0 / 370.0	46725.20	100.00
PFTeDA_2	713.0 / 169.0	4.33	13C2-PFOA	415.0 / 370.0	46725.20	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	22915.14	400.00
NMeFOSAA_2	570.0 / 512.0	3.48	d3-MeFOSAA	573.0 / 419.0	22915.14	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	22915.14	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	22915.14	400.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	46725.20	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	46725.20	100.00
d5-EtFOSAA	589.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	22915.14	400.00

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Summary Internal Standard Report

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Sample Name	J6591-FS(0)	**Injection Vial**	36
Sample ID	NAWC-060408-FRB-039	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:21:24	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	155020.40	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	155020.40	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFHpA_1	363.0 / 319.0	2.16	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFHxS_1	399.0 / 80.0	2.17	13C4-PFOS	503.0 / 80.0	155020.40	287.00
PFHxS_2	399.0 / 99.0	2.18	13C4-PFOS	503.0 / 80.0	155020.40	287.00
PFOA_1	413.0 / 369.0	2.54	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFOA_2	413.0 / 169.0	2.55	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFNA_1	463.0 / 419.0	2.92	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFNA_2	463.0 / 219.0	2.92	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	155020.40	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	155020.40	287.00
PFDA_1	513.0 / 469.0	3.27	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFUnA_1	563.0 / 519.0	3.57	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFDoA_1	613.0 / 569.0	3.86	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFDoA_2	613.0 / 319.0	3.82	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFTrDA_1	663.0 / 619.0	4.10	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFTeDA_1	713.0 / 669.0	4.32	13C2-PFOA	415.0 / 370.0	53563.52	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	53563.52	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	24928.25	400.00
NMeFOSAA_2	570.0 / 512.0	3.49	d3-MeFOSAA	573.0 / 419.0	24928.25	400.00
NEtFOSAA_1	584.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	24928.25	400.00
NEtFOSAA_2	584.0 / 483.0	3.56	d3-MeFOSAA	573.0 / 419.0	24928.25	400.00
13C2-PFHxA	315.0 / 270.0	1.78	13C2-PFOA	415.0 / 370.0	53563.52	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	53563.52	100.00
d5-EtFOSAA	589.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	24928.25	400.00

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Summary Internal Standard Report

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Sample Name	J6638-FS(0)	**Injection Vial**	37
Sample ID	WGNA-060718-FRB-0488	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:30:19	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	119165.05	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	119165.05	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFHpA_1	363.0 / 319.0	2.17	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFHxS_1	399.0 / 80.0	2.18	13C4-PFOS	503.0 / 80.0	119165.05	287.00
PFHxS_2	399.0 / 99.0	2.18	13C4-PFOS	503.0 / 80.0	119165.05	287.00
PFOA_1	413.0 / 369.0	2.54	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFOA_2	413.0 / 169.0	2.55	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFNA_1	463.0 / 419.0	2.91	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFNA_2	463.0 / 219.0	2.93	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	119165.05	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	119165.05	287.00
PFDA_1	513.0 / 469.0	3.25	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFUnA_1	563.0 / 519.0	3.58	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFDoA_1	613.0 / 569.0	3.84	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFDoA_2	613.0 / 319.0	3.85	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFTrDA_1	663.0 / 619.0	4.10	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFTrDA_2	663.0 / 169.0	4.12	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFTeDA_1	713.0 / 669.0	4.33	13C2-PFOA	415.0 / 370.0	42284.90	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	42284.90	100.00
NMeFOSAA_1	570.0 / 419.0	3.38	d3-MeFOSAA	573.0 / 419.0	21240.41	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	21240.41	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	21240.41	400.00
NEtFOSAA_2	584.0 / 483.0	3.49	d3-MeFOSAA	573.0 / 419.0	21240.41	400.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	42284.90	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	42284.90	100.00
d5-EtFOSAA	589.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	21240.41	400.00

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Summary Internal Standard Report

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Sample Name	J6640-FS(0)	**Injection Vial**	38
Sample ID	NAWC-060718-FRB-175	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:39:15	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	153768.49	287.00
PFBS_2	298.9 / 99.0	1.50	13C4-PFOS	503.0 / 80.0	153768.49	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFHpA_1	363.0 / 319.0	2.16	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFHxS_1	399.0 / 80.0	2.17	13C4-PFOS	503.0 / 80.0	153768.49	287.00
PFHxS_2	399.0 / 99.0	2.17	13C4-PFOS	503.0 / 80.0	153768.49	287.00
PFOA_1	413.0 / 369.0	2.53	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFOA_2	413.0 / 169.0	2.55	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFNA_1	463.0 / 419.0	2.91	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFNA_2	463.0 / 219.0	2.92	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	153768.49	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	153768.49	287.00
PFDA_1	513.0 / 469.0	3.27	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFUnA_1	563.0 / 519.0	3.57	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFDoA_1	613.0 / 569.0	3.86	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFTrDA_1	663.0 / 619.0	4.10	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFTeDA_1	713.0 / 669.0	4.32	13C2-PFOA	415.0 / 370.0	54874.94	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	54874.94	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	28180.65	400.00
NMeFOSAA_2	570.0 / 512.0	3.40	d3-MeFOSAA	573.0 / 419.0	28180.65	400.00
NEtFOSAA_1	584.0 / 419.0	3.59	d3-MeFOSAA	573.0 / 419.0	28180.65	400.00
NEtFOSAA_2	584.0 / 483.0	3.49	d3-MeFOSAA	573.0 / 419.0	28180.65	400.00
13C2-PFHxA	315.0 / 270.0	1.78	13C2-PFOA	415.0 / 370.0	54874.94	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	54874.94	100.00
d5-EtFOSAA	589.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	28180.65	400.00

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Summary Internal Standard Report

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Sample Name	J6643-FS(0)	**Injection Vial**	39
Sample ID	WGNA-060718-FRB-0626	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:48:11	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C4-PFOS	503.0 / 80.0	139575.43	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	139575.43	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFHpA_1	363.0 / 319.0	2.16	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFHxS_1	399.0 / 80.0	2.18	13C4-PFOS	503.0 / 80.0	139575.43	287.00
PFHxS_2	399.0 / 99.0	2.18	13C4-PFOS	503.0 / 80.0	139575.43	287.00
PFOA_1	413.0 / 369.0	2.54	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFOA_2	413.0 / 169.0	2.53	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFNA_1	463.0 / 419.0	2.92	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFNA_2	463.0 / 219.0	2.94	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	139575.43	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	139575.43	287.00
PFDA_1	513.0 / 469.0	3.24	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFDA_2	513.0 / 219.0	3.20	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFUnA_1	563.0 / 519.0	3.57	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFDoA_1	613.0 / 569.0	3.86	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFTrDA_1	663.0 / 619.0	4.11	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFTeDA_1	713.0 / 669.0	4.32	13C2-PFOA	415.0 / 370.0	44551.69	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	44551.69	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	25337.67	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	25337.67	400.00
NEtFOSAA_1	584.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	25337.67	400.00
NEtFOSAA_2	584.0 / 483.0	3.56	d3-MeFOSAA	573.0 / 419.0	25337.67	400.00
13C2-PFHxA	315.0 / 270.0	1.79	13C2-PFOA	415.0 / 370.0	44551.69	100.00
13C2-PFDA	515.0 / 470.0	3.25	13C2-PFOA	415.0 / 370.0	44551.69	100.00
d5-EtFOSAA	589.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	25337.67	400.00

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Summary Internal Standard Report

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Sample Name	J6643-FS(0)	**Injection Vial**	23
Sample ID		**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T10:11:23	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFOS_1	499.0 / 80.0	2.91	13C4-PFOS	503.0 / 80.0	146478.92	287.00
PFOS_2	499.0 / 99.0	2.91	13C4-PFOS	503.0 / 80.0	146478.92	287.00
13C2-PFHxA	315.0 / 270.0	N/A	13C2-PFOA	415.0 / 370.0	43700.74	100.00

Chromatograms

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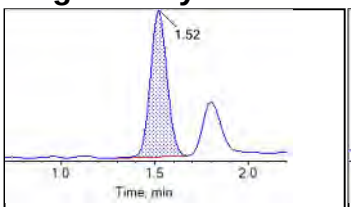
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 11:38:58 AM

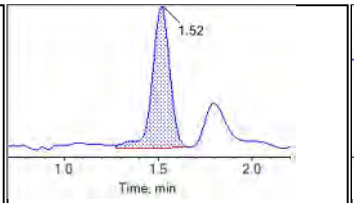
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Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T16:59:48	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

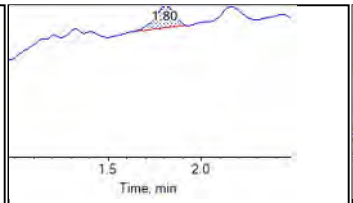
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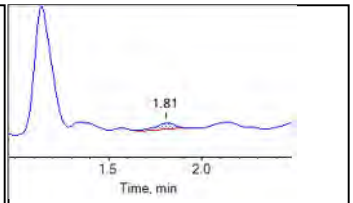
PFBS_1



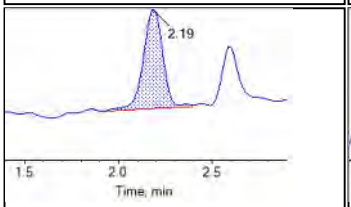
PFBS_2



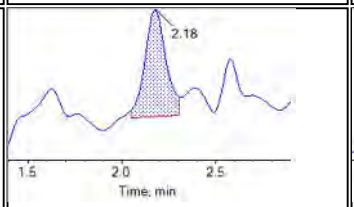
PFHxA_1



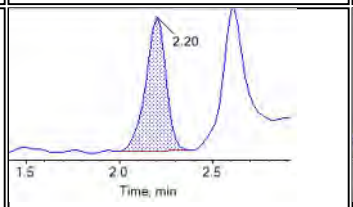
PFHxA_2



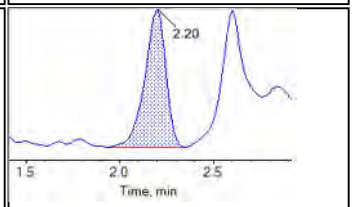
PFHpA_1



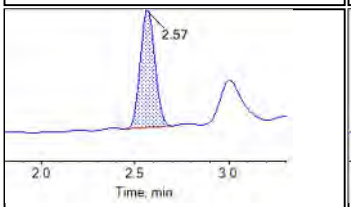
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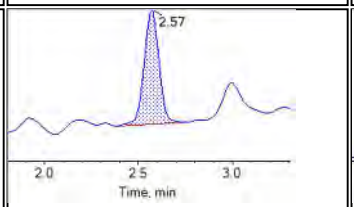
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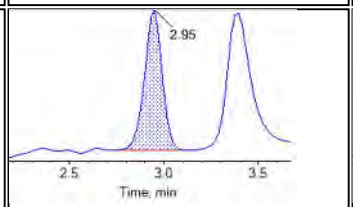
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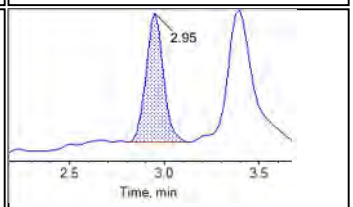
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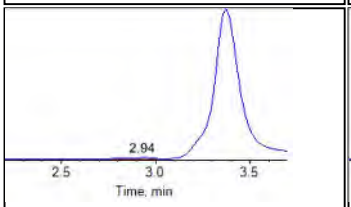
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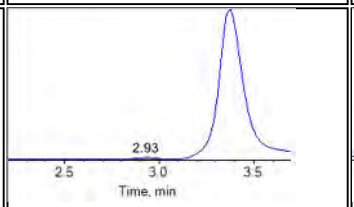
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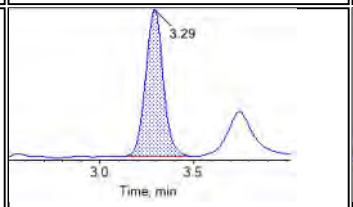
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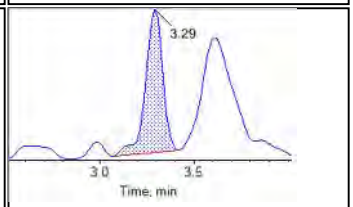
PFOS_1



PFOS_2



PFDA_1

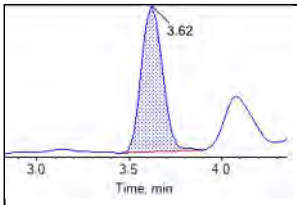


PFDA_2

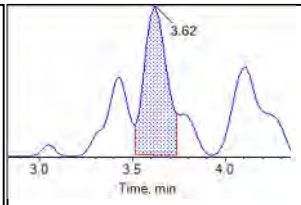
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Chromatogram Report

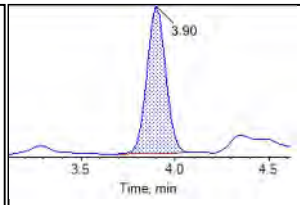
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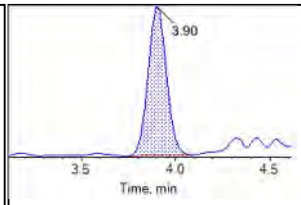
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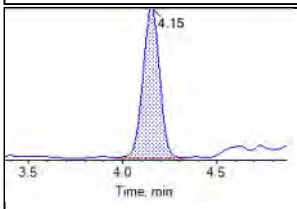
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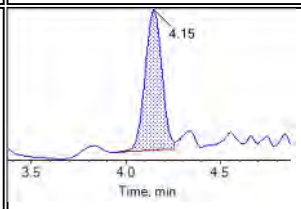
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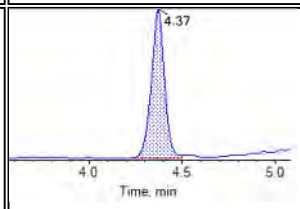
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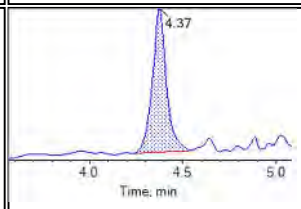
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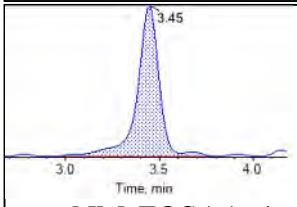
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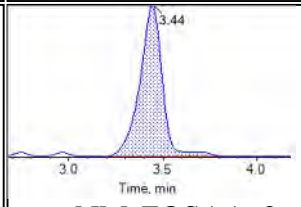
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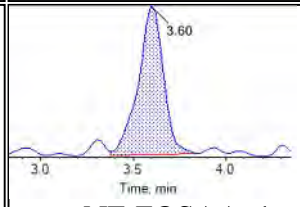
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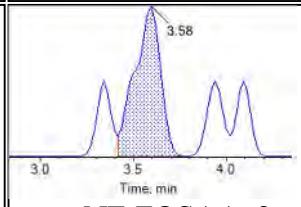
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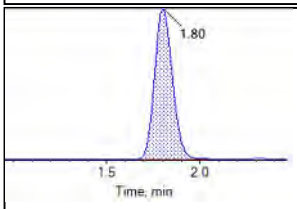
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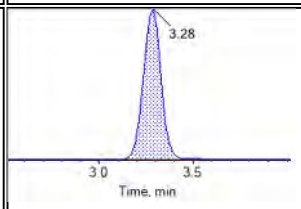
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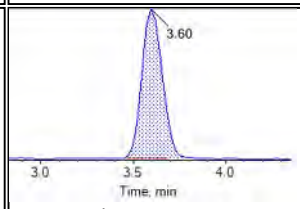
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13C2-PFHxA

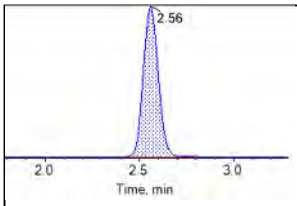


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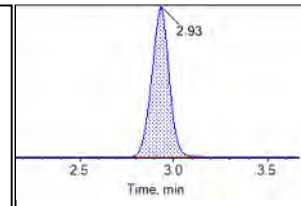


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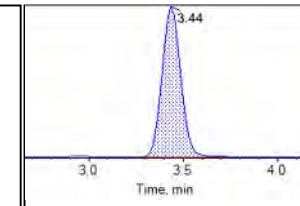
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

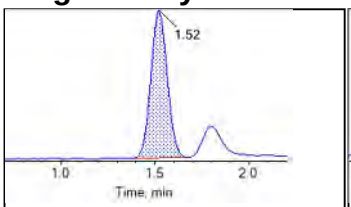
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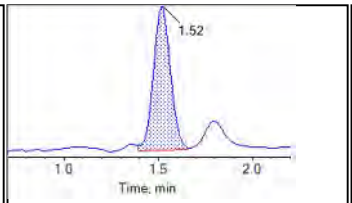
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Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:08:44	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

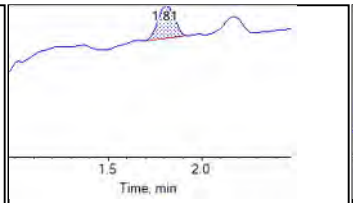
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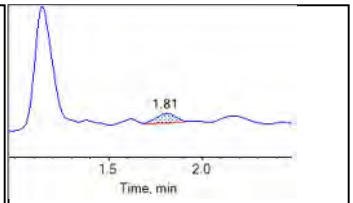
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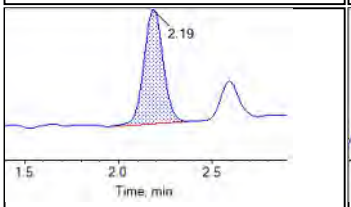
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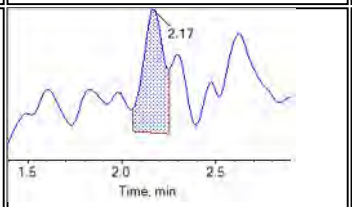
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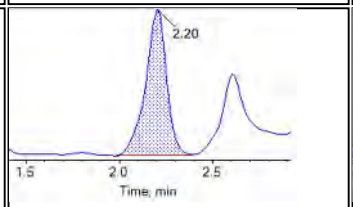
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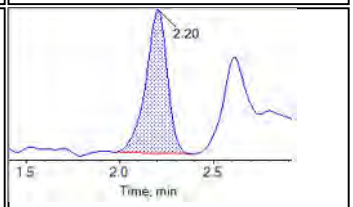
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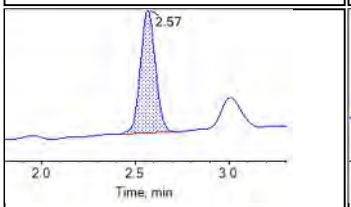
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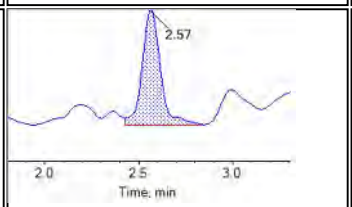
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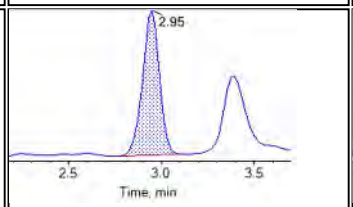
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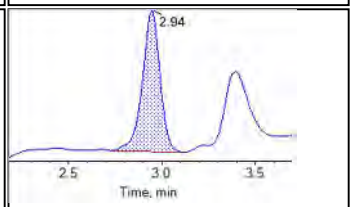
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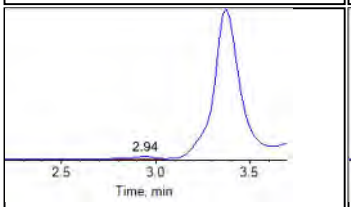
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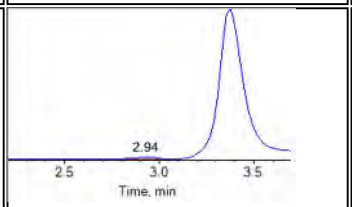
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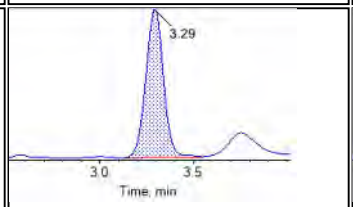
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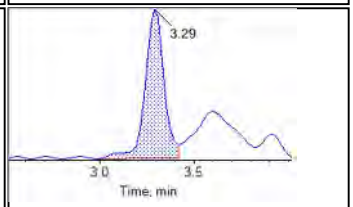
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PFOS_2



PFDA_1

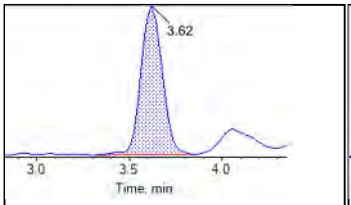


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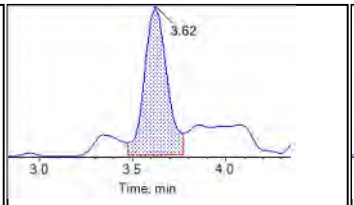
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Chromatogram Report

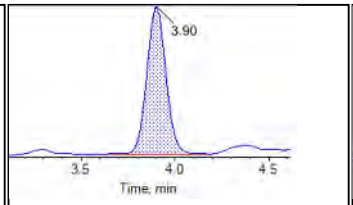
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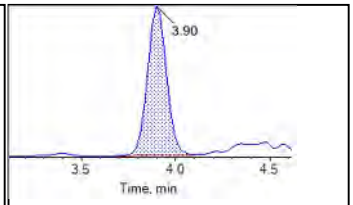
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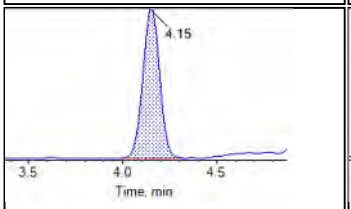
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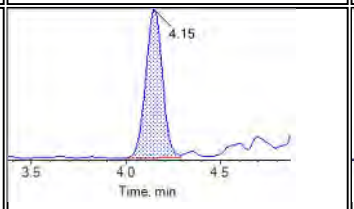
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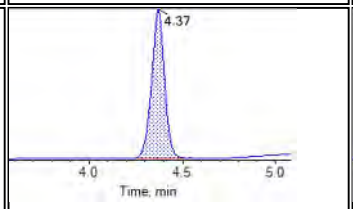
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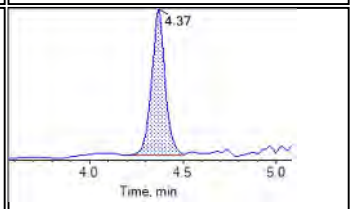
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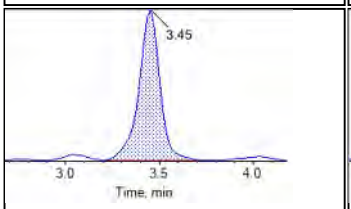
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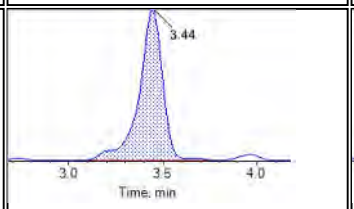
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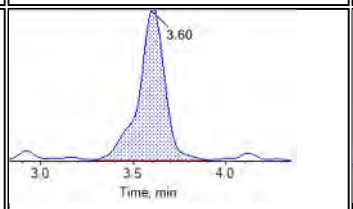
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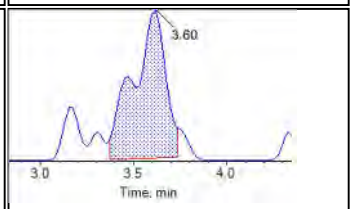
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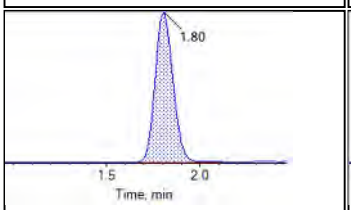
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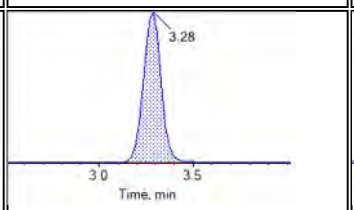
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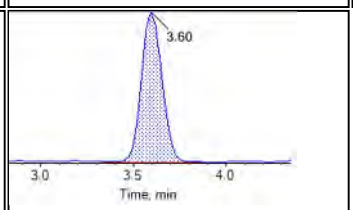
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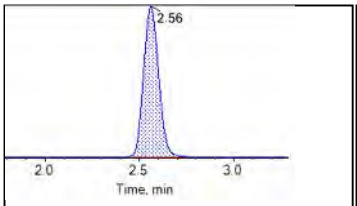


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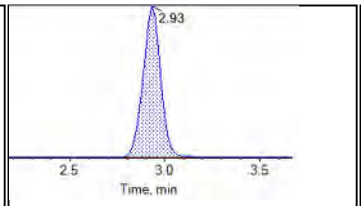


d5-EtFOSAA

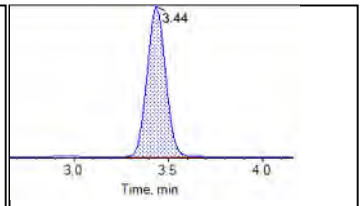
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

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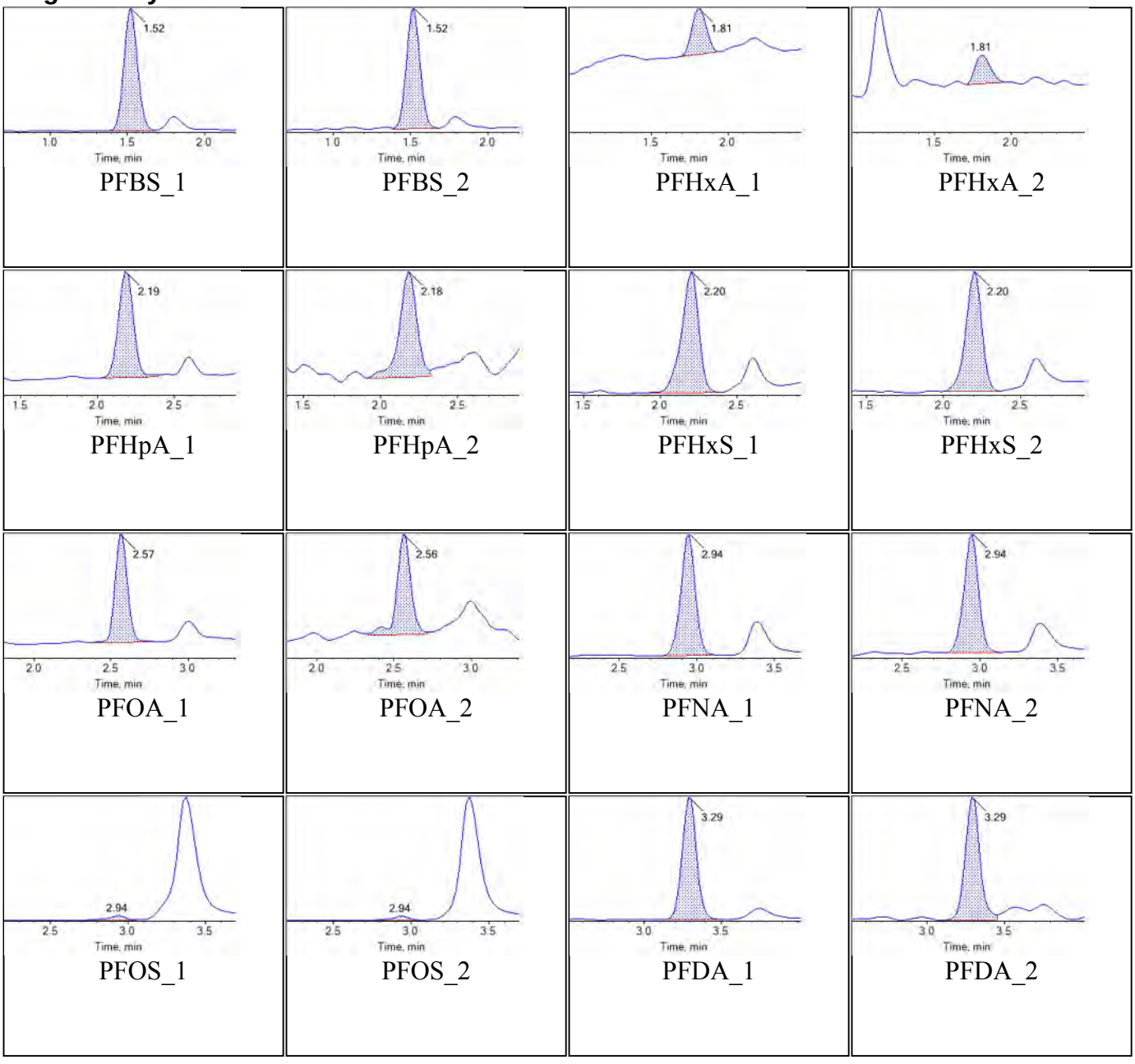
Chromatogram Report

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Printed: 22/06/2018 11:39:03 AM

Sample Name	JV66	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:17:40	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

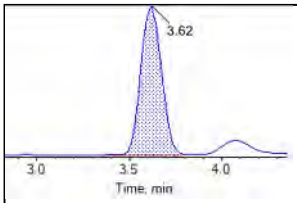
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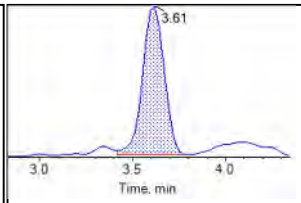
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Chromatogram Report

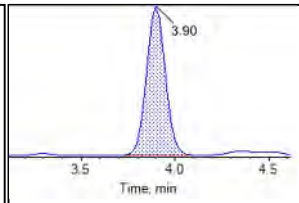
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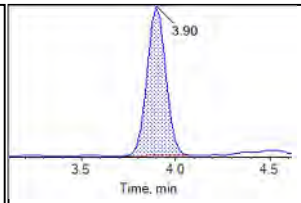
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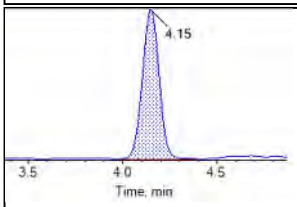
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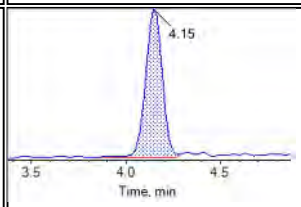
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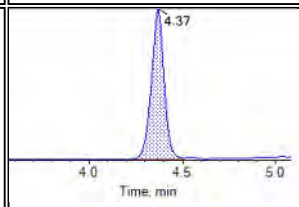
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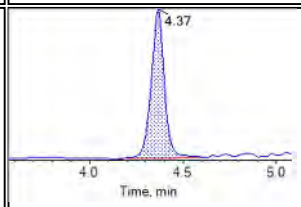
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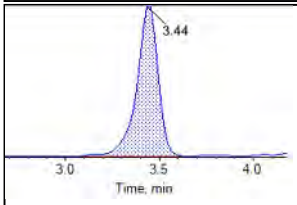
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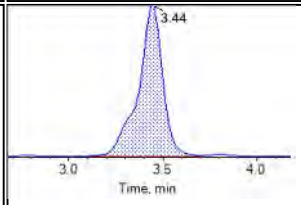
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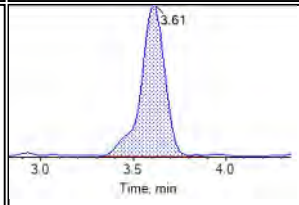
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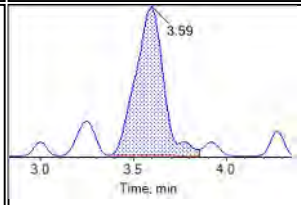
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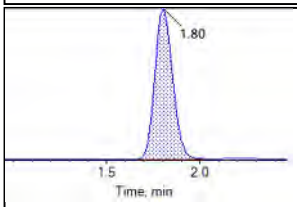
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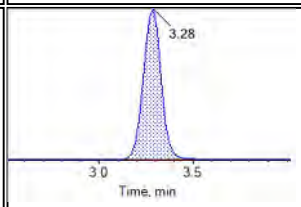
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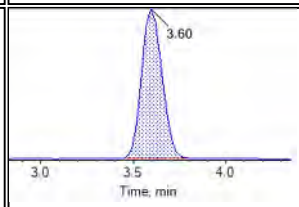
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13C2-PFHxA

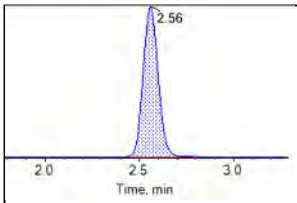


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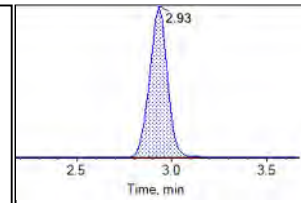


d5-EtFOSAA

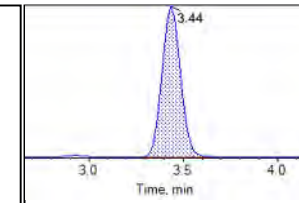
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

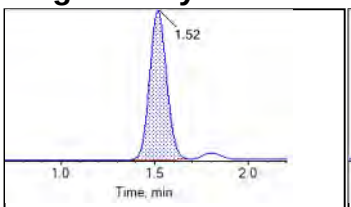
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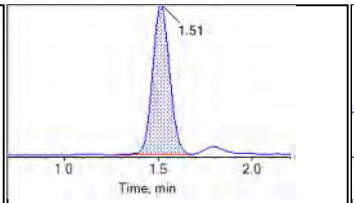
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Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:26:35	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

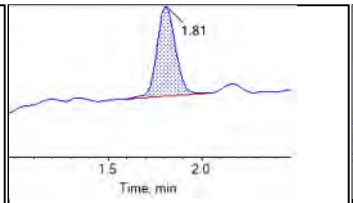
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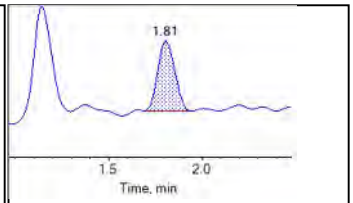
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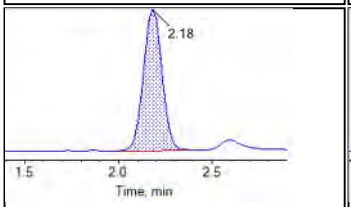
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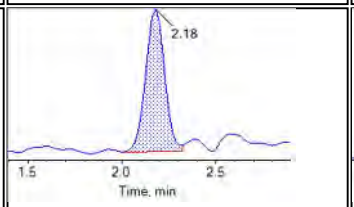
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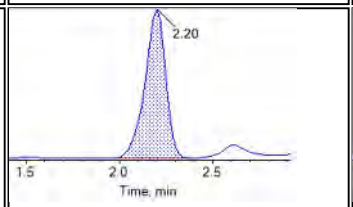
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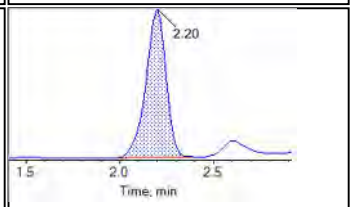
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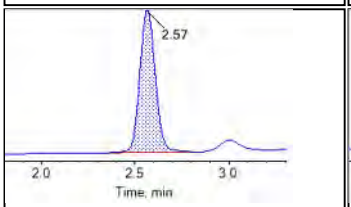
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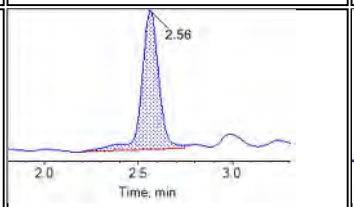
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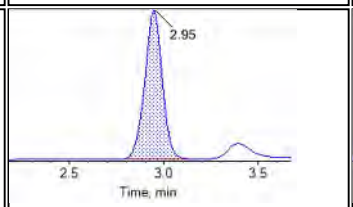
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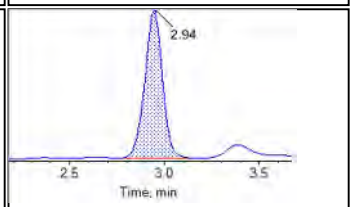
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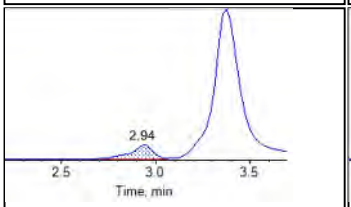
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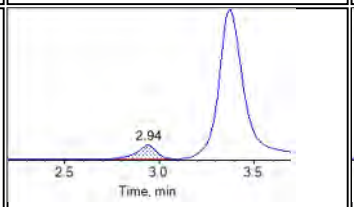
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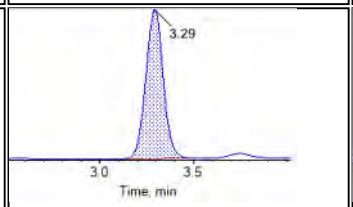
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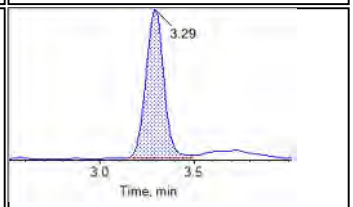
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PFOS_2



PFDA_1

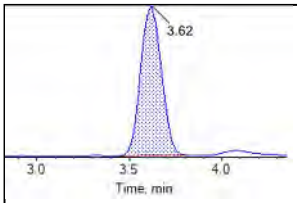


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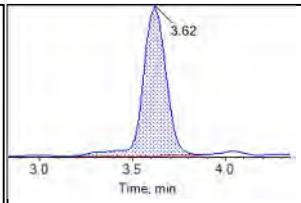
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Chromatogram Report

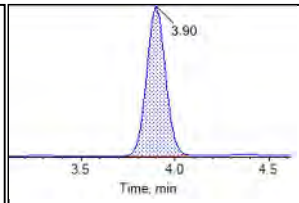
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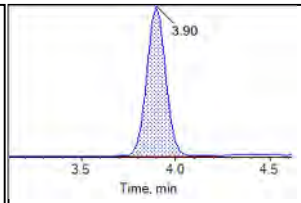
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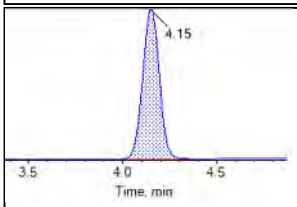
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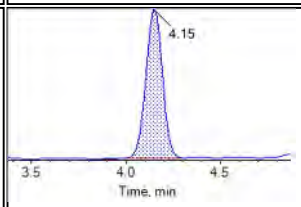
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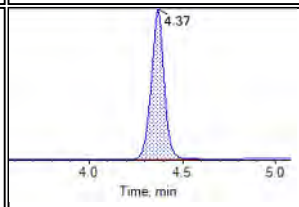
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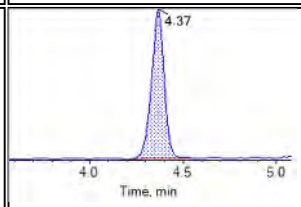
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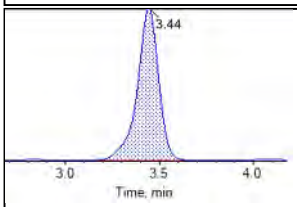
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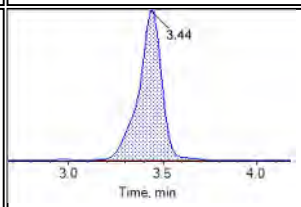
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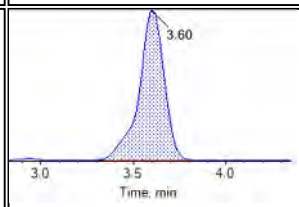
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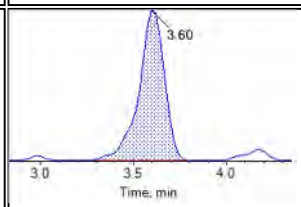
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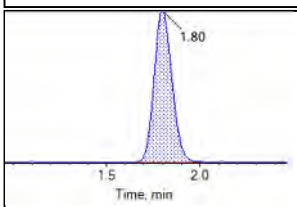
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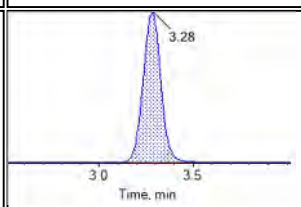
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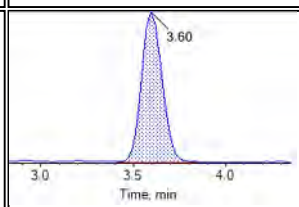
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13C2-PFHxA

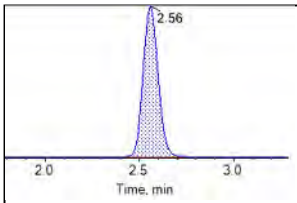


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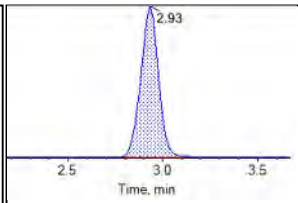


d5-EtFOSAA

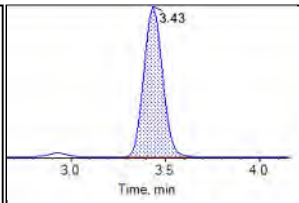
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

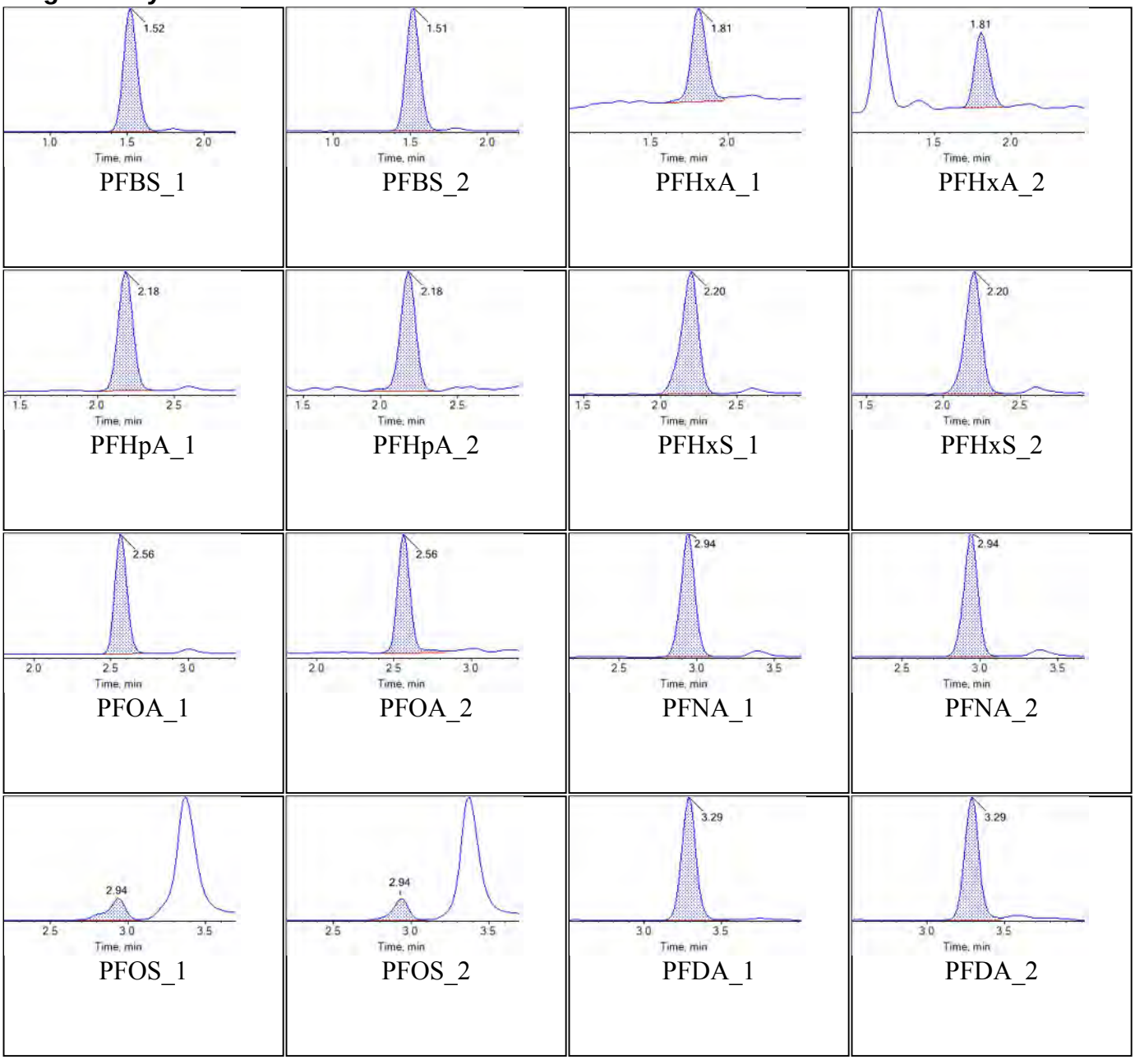
Chromatogram Report

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Printed: 22/06/2018 11:39:09 AM

Sample Name	JV68	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:35:30	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

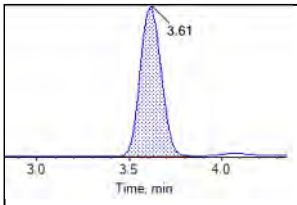
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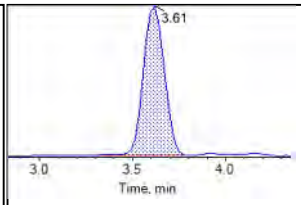
BATTELLE

Chromatogram Report

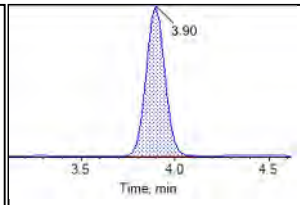
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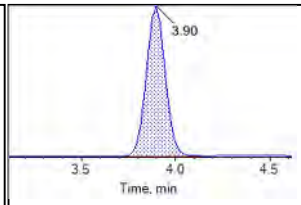
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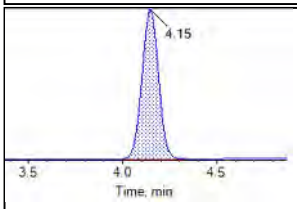
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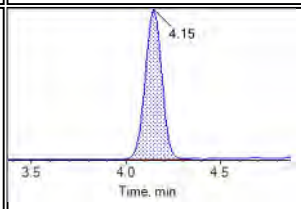
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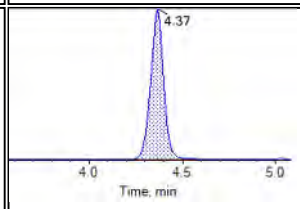
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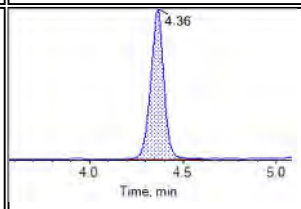
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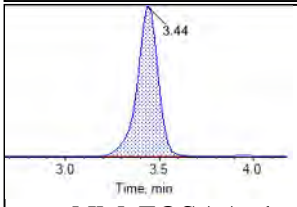
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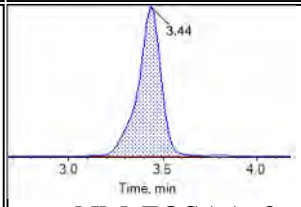
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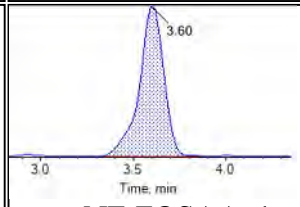
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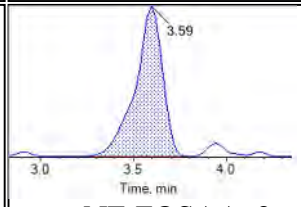
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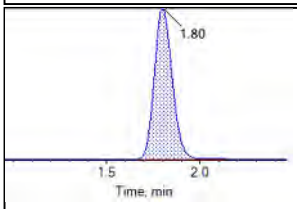
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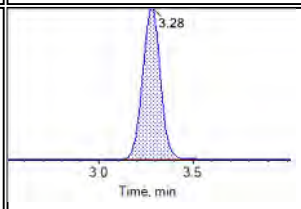
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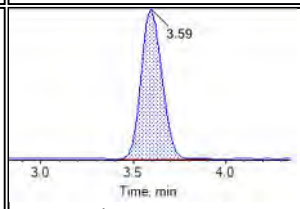
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13C2-PFHxA

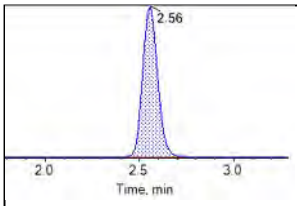


13C2-PFDA

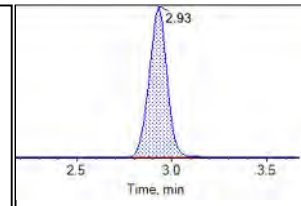


d5-EtFOSAA

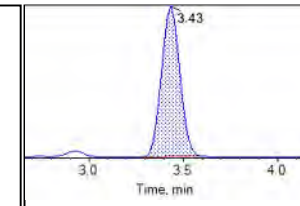
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

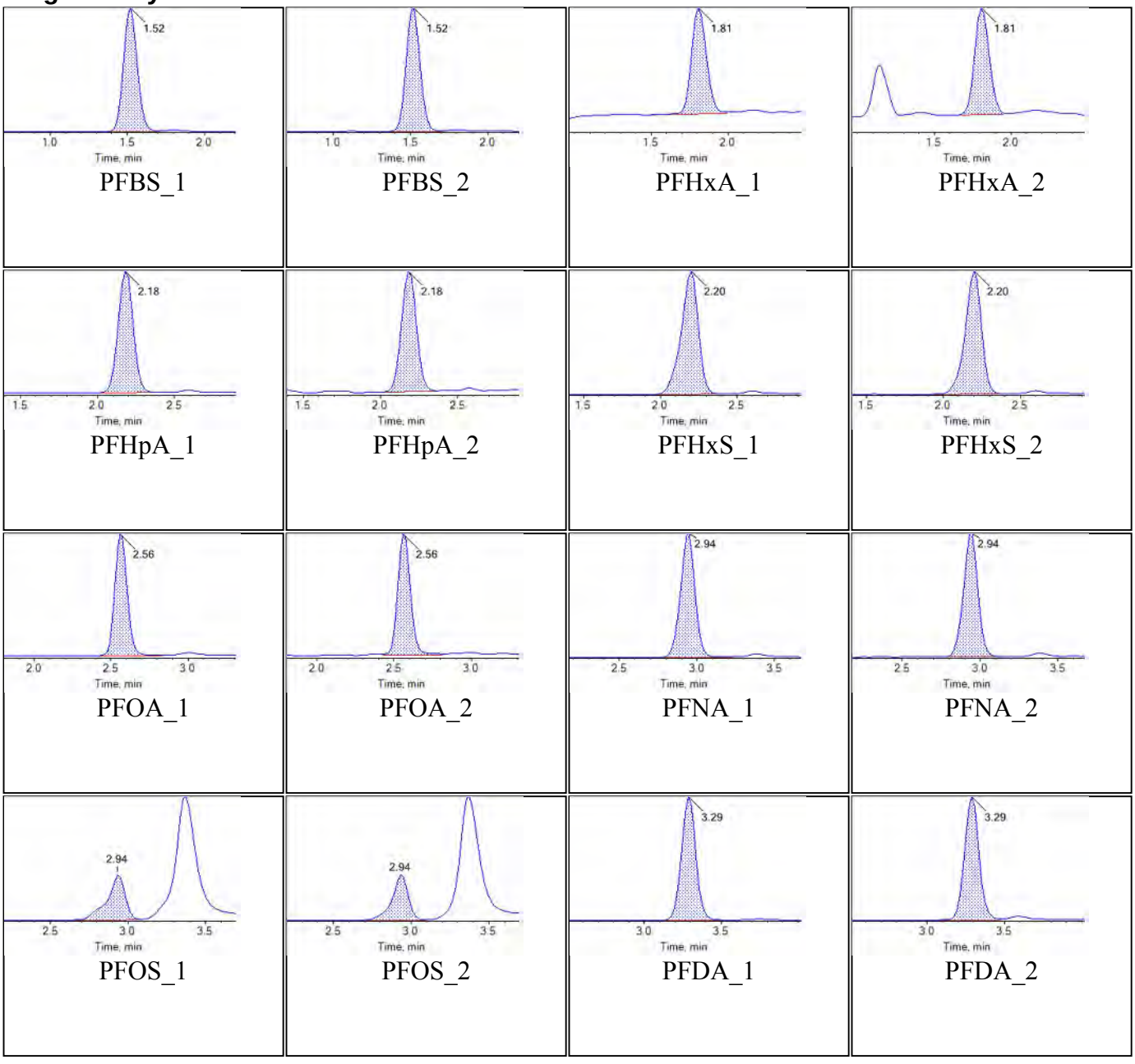
Chromatogram Report

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Printed: 22/06/2018 11:39:11 AM

Sample Name	JV69	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:44:26	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

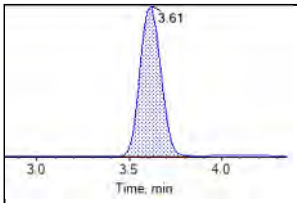
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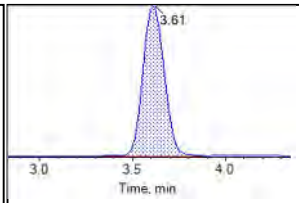
BATTELLE

Chromatogram Report

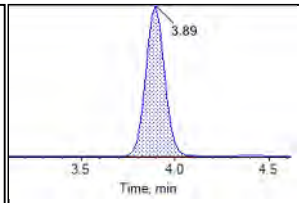
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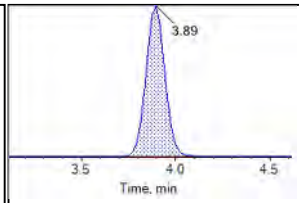
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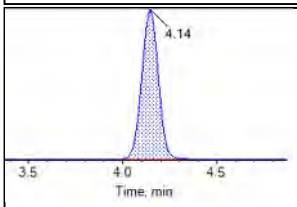
PFUnA_2



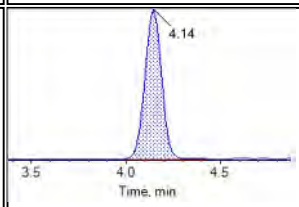
PFDoA_1



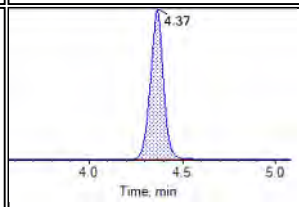
PFDoA_2



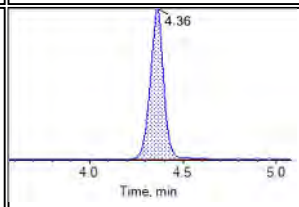
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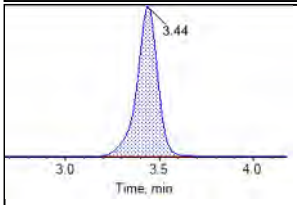
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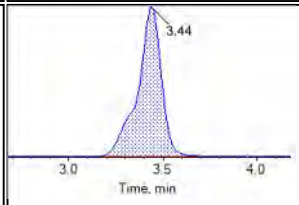
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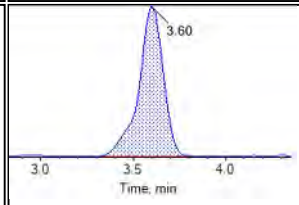
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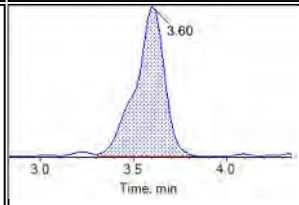
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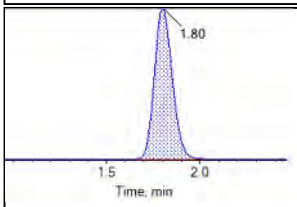
NMeFOSAA_2



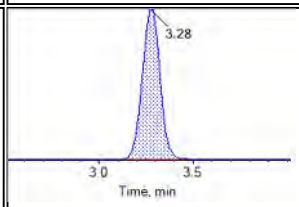
NEtFOSAA_1



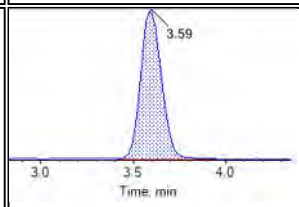
NEtFOSAA_2



13C2-PFHxA

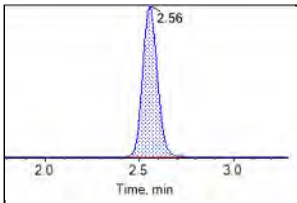


13C2-PFDA

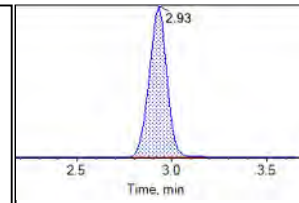


d5-EtFOSAA

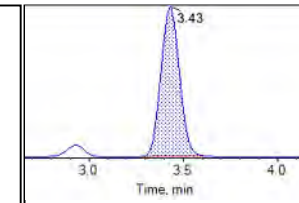
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

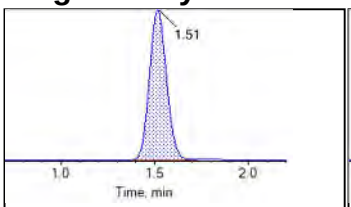
Chromatogram Report

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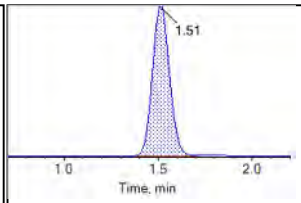
Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:53:22	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

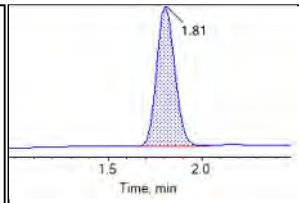
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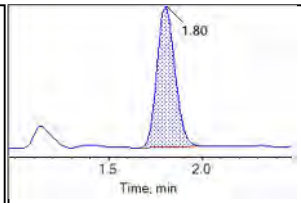
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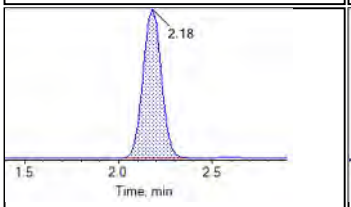
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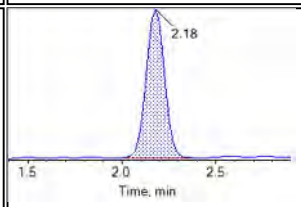
PFHxA_1



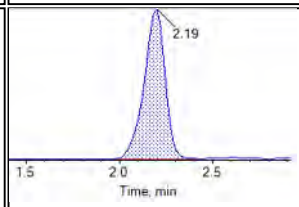
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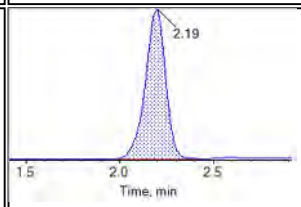
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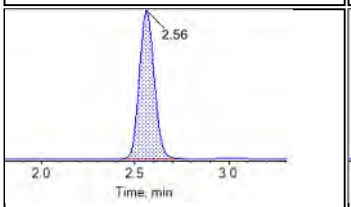
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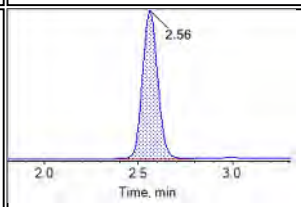
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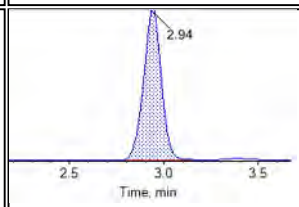
PFHxS_2



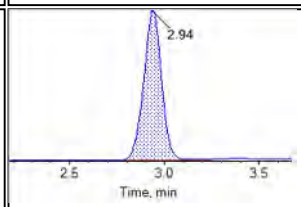
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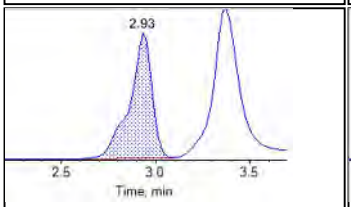
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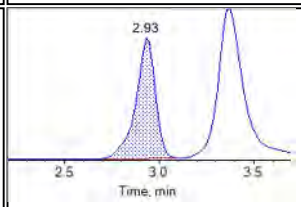
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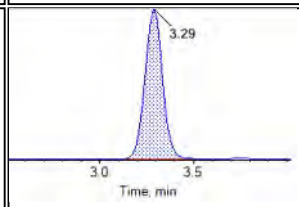
PFNA_2



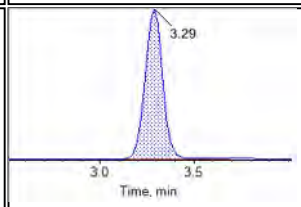
PFOS_1



PFOS_2



PFDA_1

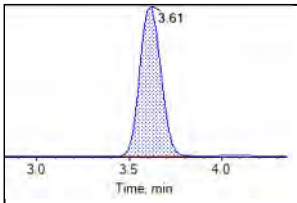


PFDA_2

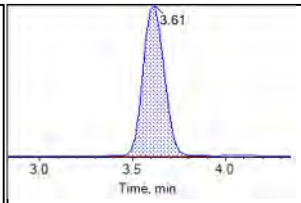
BATTELLE

Chromatogram Report

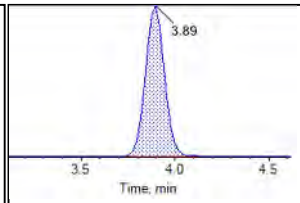
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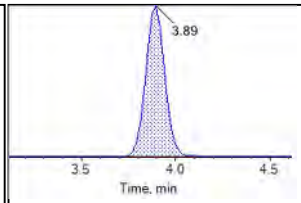
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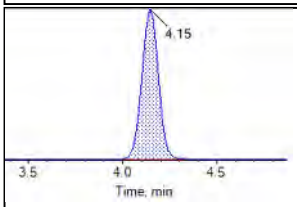
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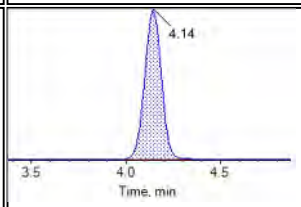
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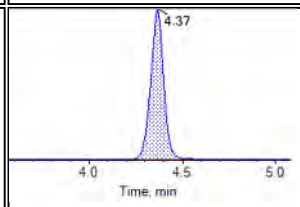
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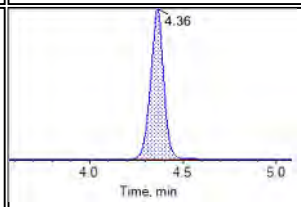
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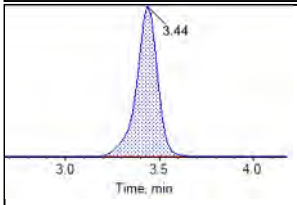
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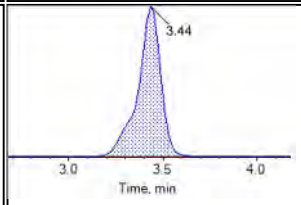
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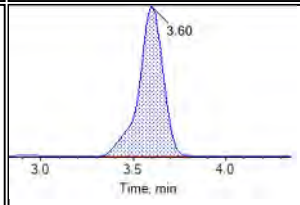
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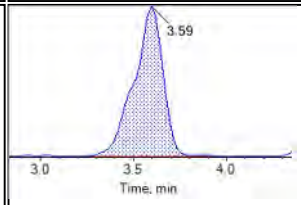
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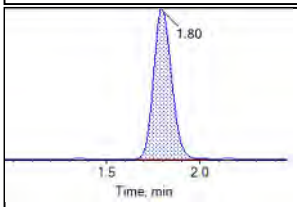
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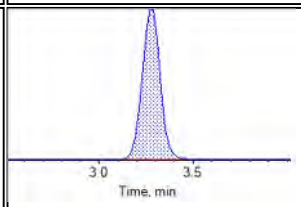
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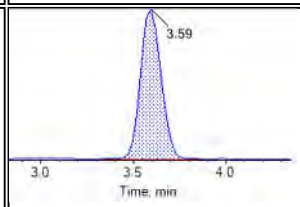
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13C2-PFHxA

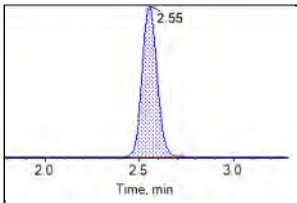


13C2-PFDA

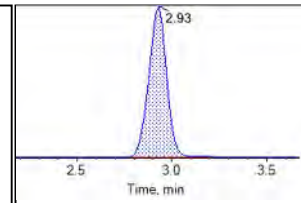


d5-EtFOSAA

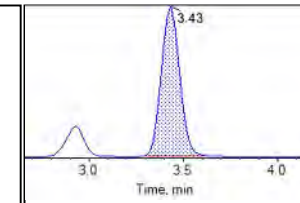
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

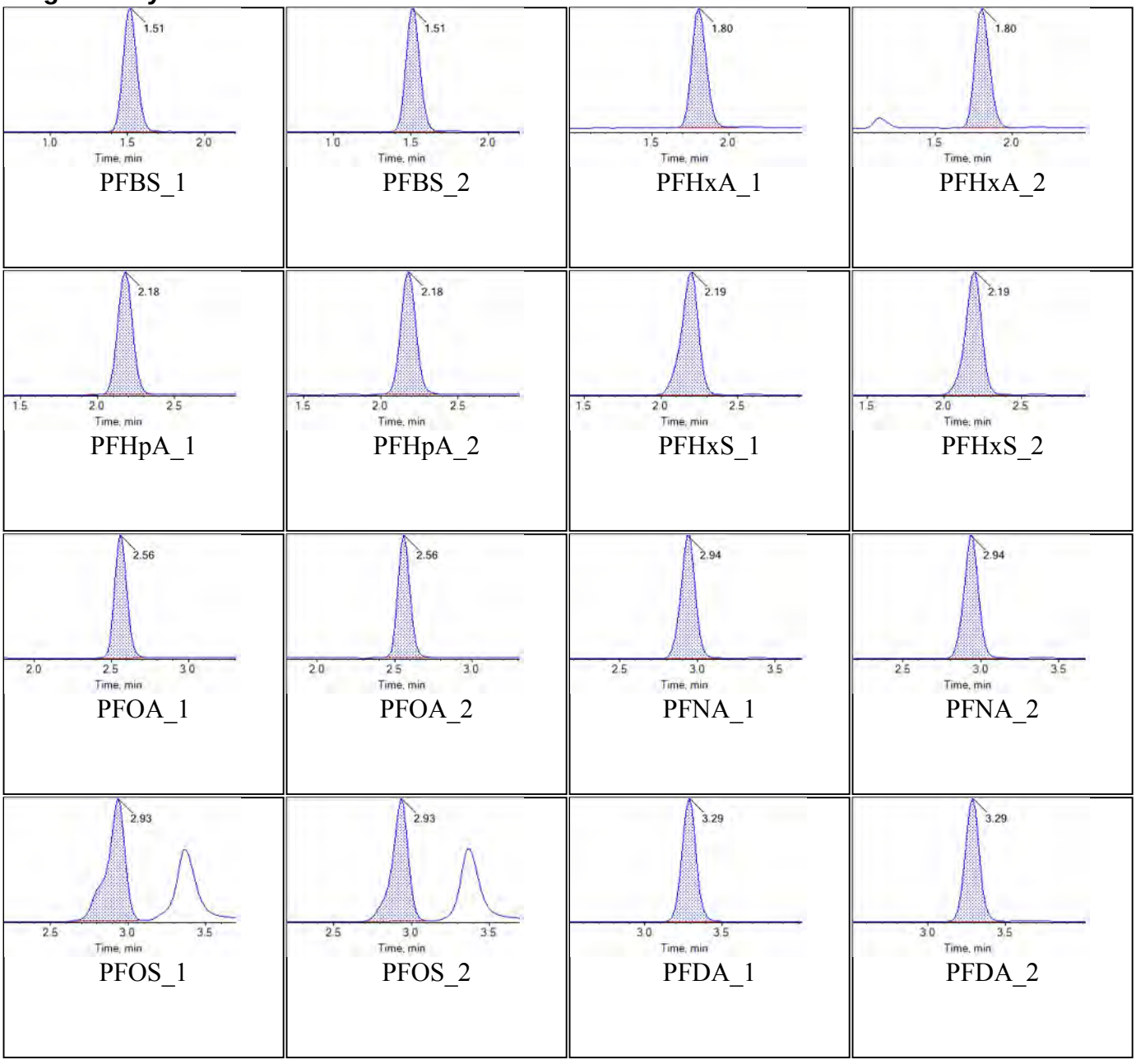
Chromatogram Report

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Sample Name	JV71	**Injection Vial**	9
Sample ID	L8	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T18:02:19	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

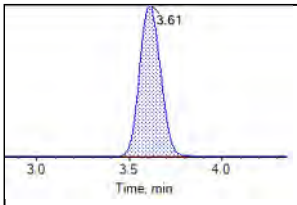
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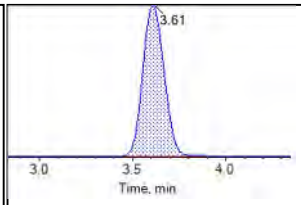
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Chromatogram Report

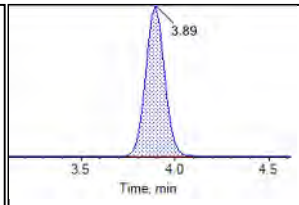
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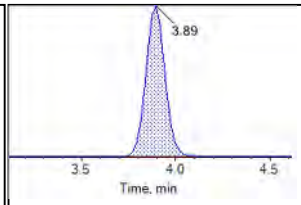
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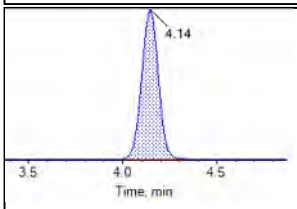
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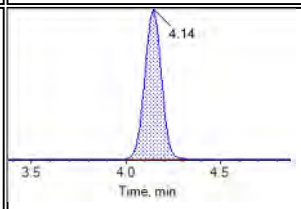
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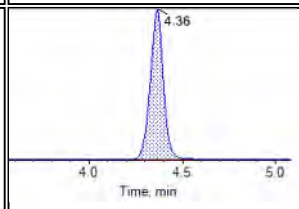
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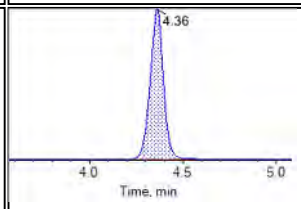
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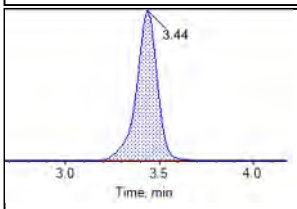
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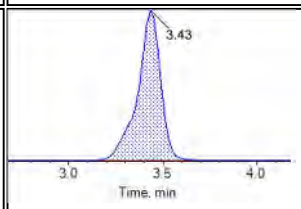
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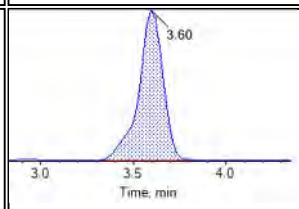
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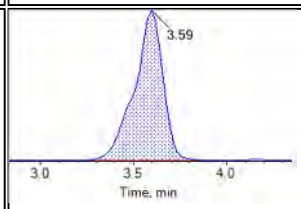
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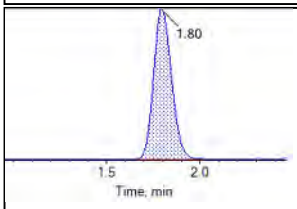
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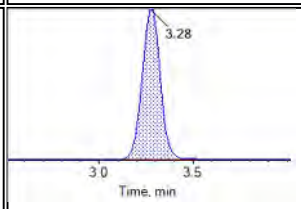
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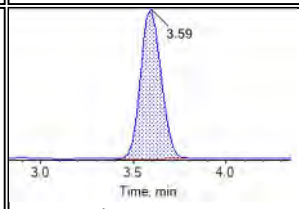
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13C2-PFHxA

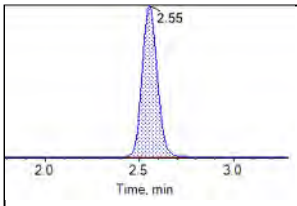


13C2-PFDA

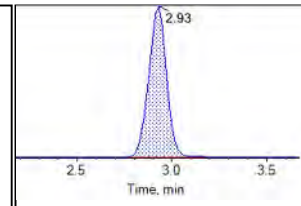


d5-EtFOSAA

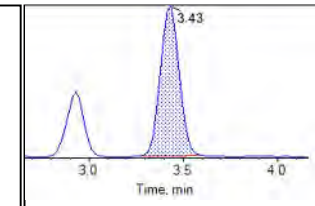
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

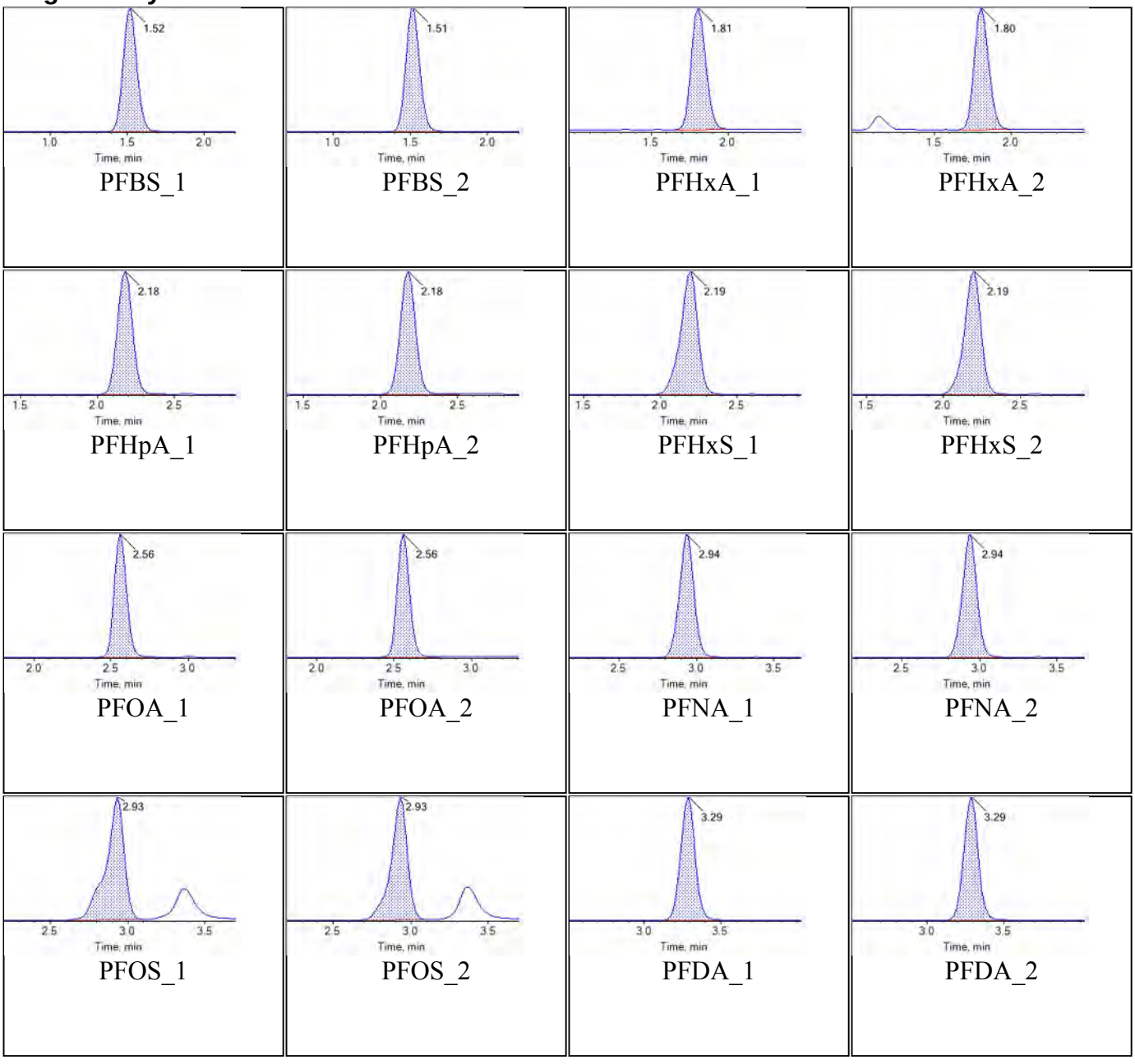
Chromatogram Report

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Printed: 22/06/2018 11:39:19 AM

Sample Name	JV72	**Injection Vial**	10
Sample ID	L9	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T18:11:15	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

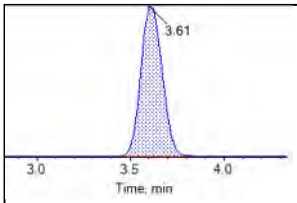
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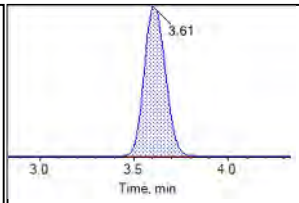
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Chromatogram Report

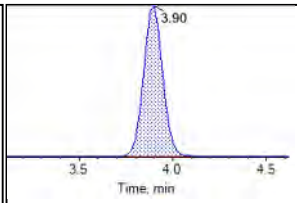
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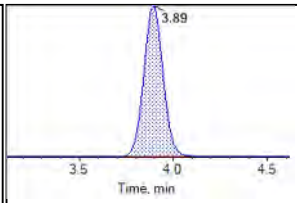
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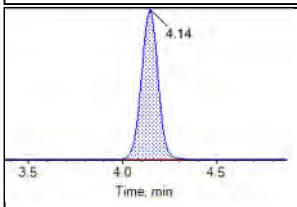
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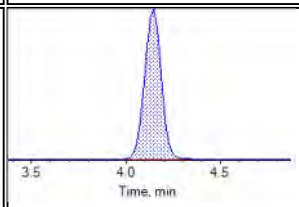
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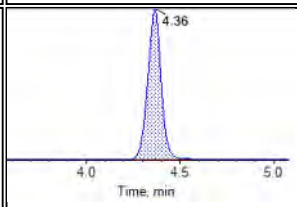
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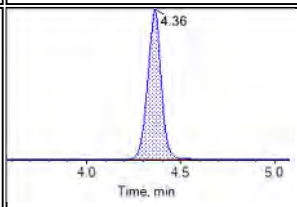
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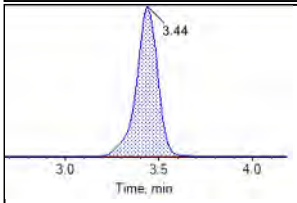
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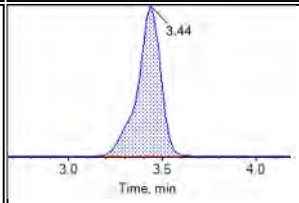
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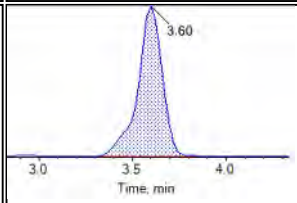
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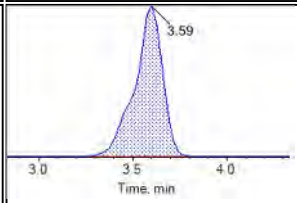
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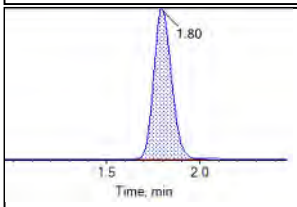
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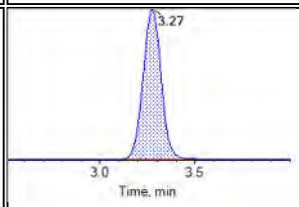
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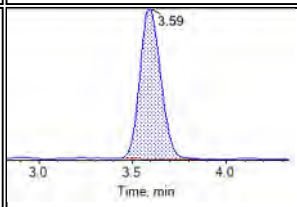
NEtFOSAA_2



13C2-PFHxA

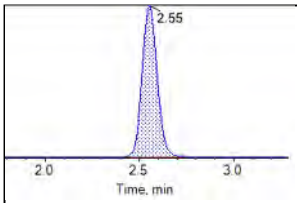


13C2-PFDA

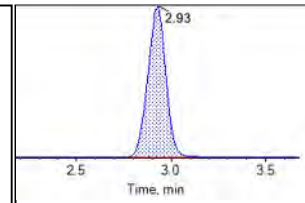


d5-EtFOSAA

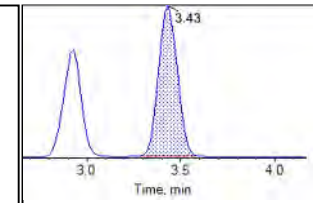
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

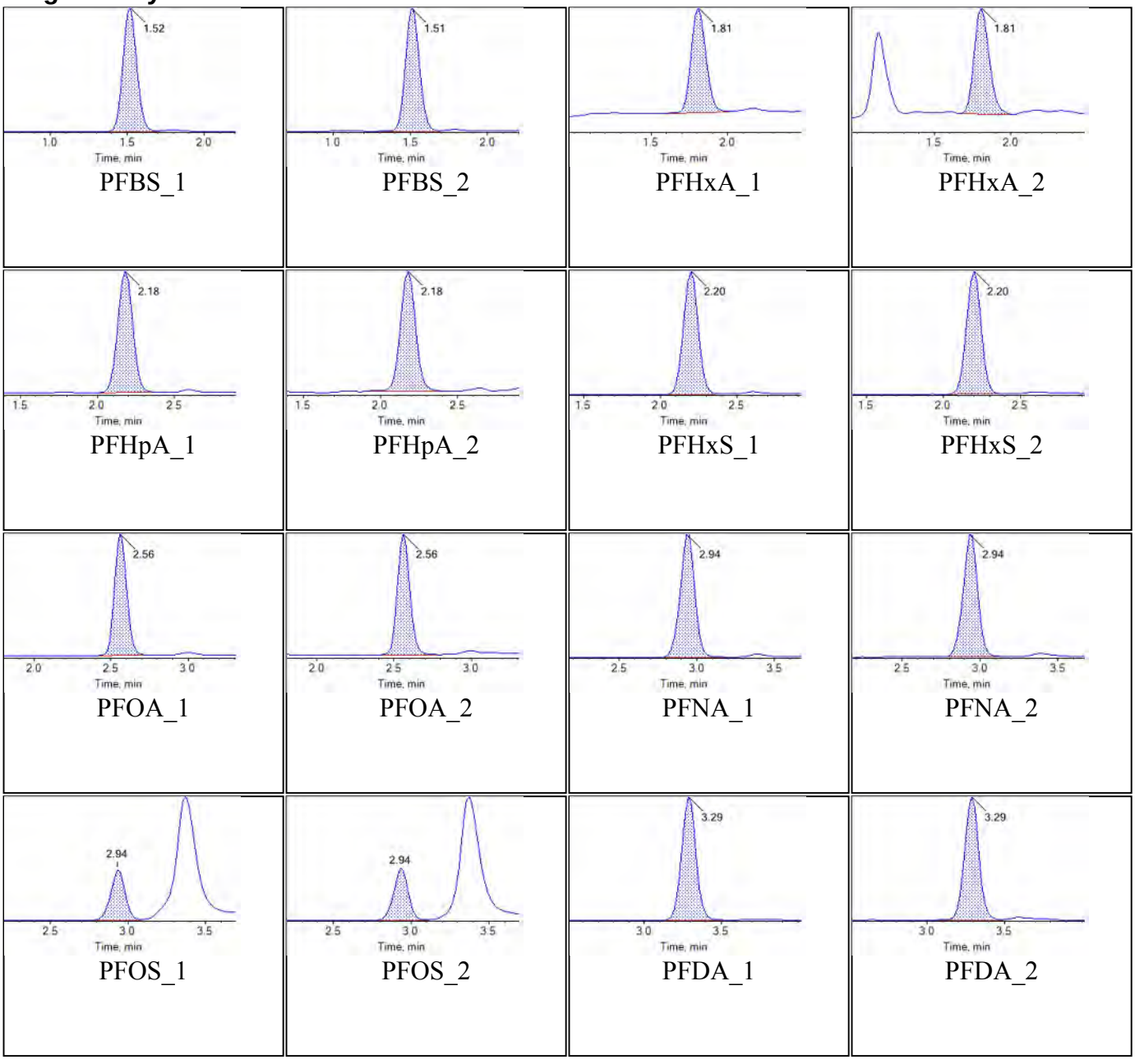
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 11:39:22 AM

Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T18:20:10	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

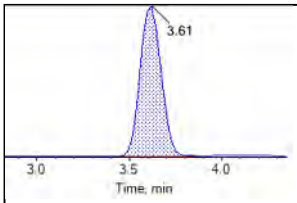
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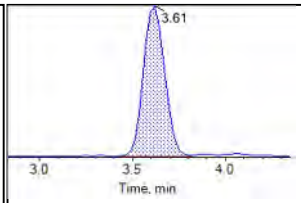
BATTELLE

Chromatogram Report

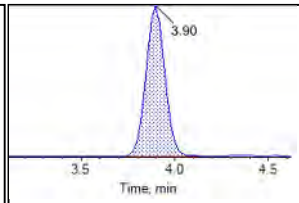
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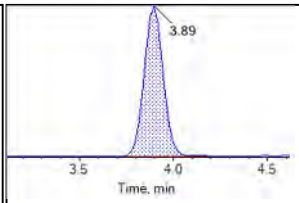
PFUnA_1



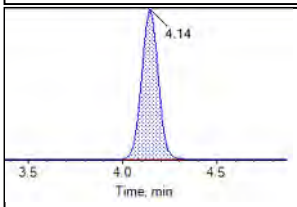
PFUnA_2



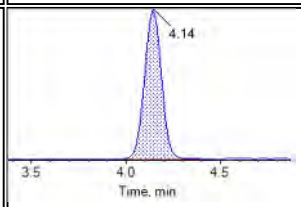
PFDoA_1



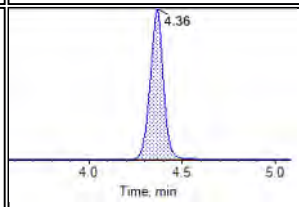
PFDoA_2



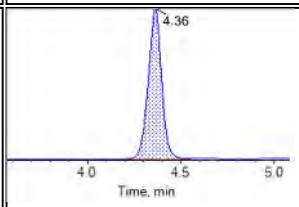
PFTrDA_1



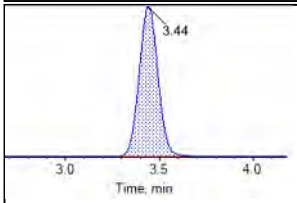
PFTrDA_2



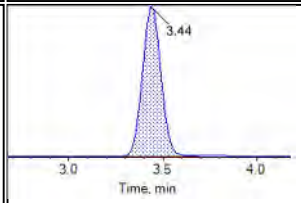
PFTeDA_1



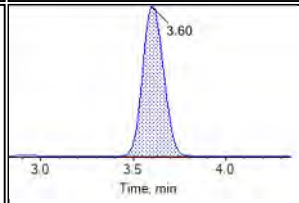
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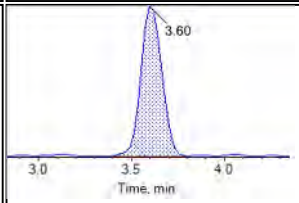
NMeFOSAA_1



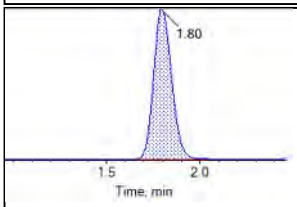
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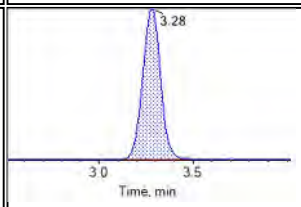
NEtFOSAA_1



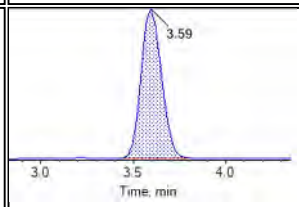
NEtFOSAA_2



13C2-PFHxA

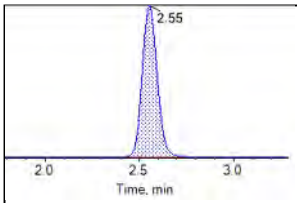


13C2-PFDA

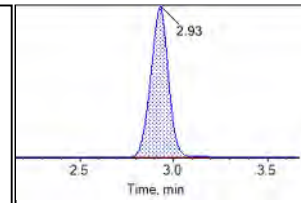


d5-EtFOSAA

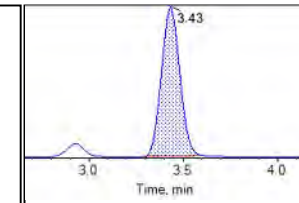
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

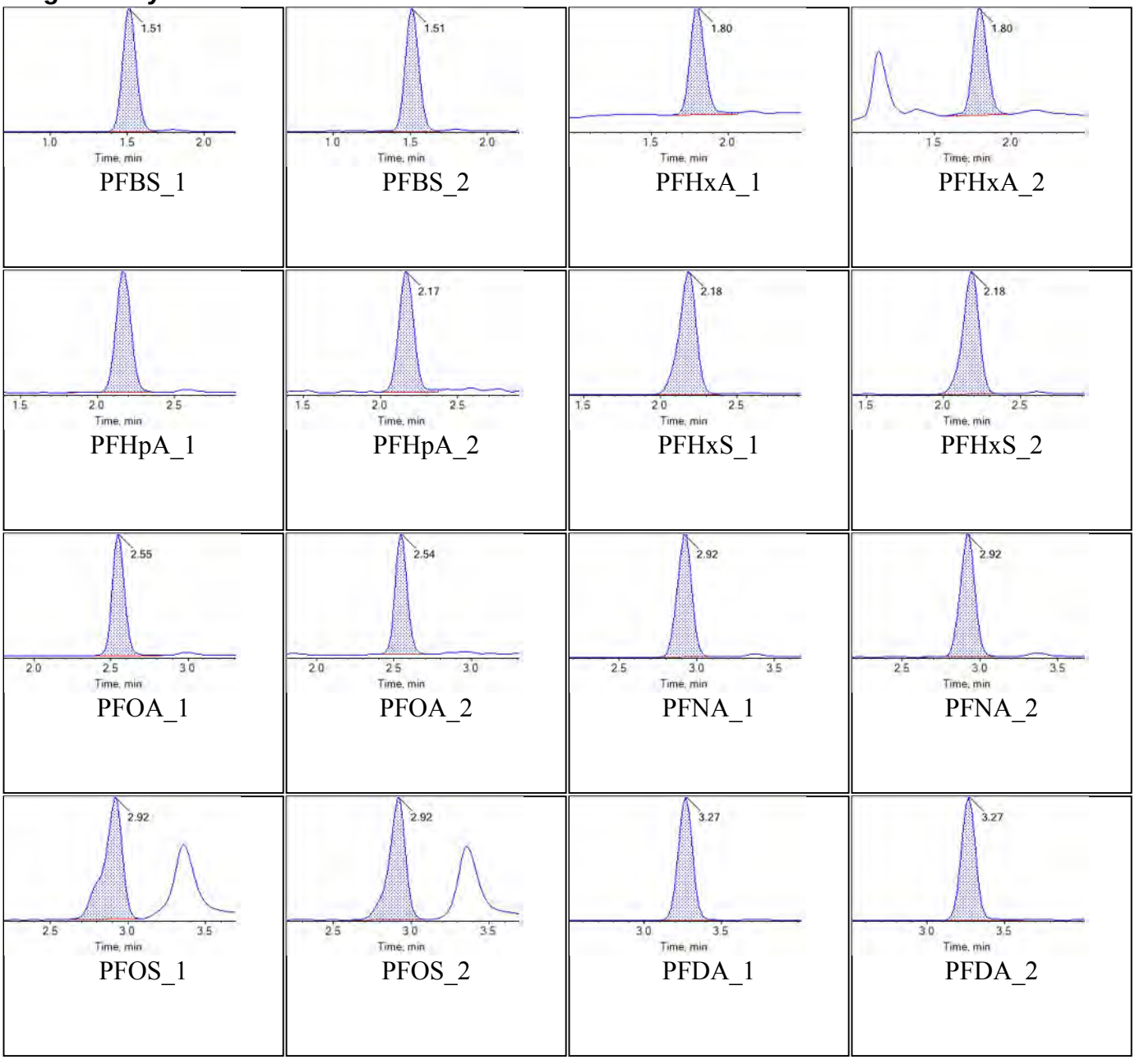
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 11:39:25 AM

Sample Name	JV69 CCV	**Injection Vial**	23
Sample ID	L6 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:07:22	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

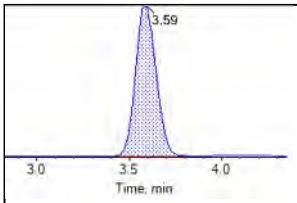
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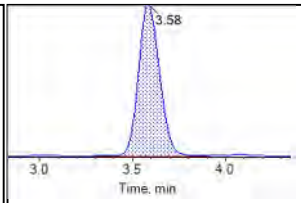
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Chromatogram Report

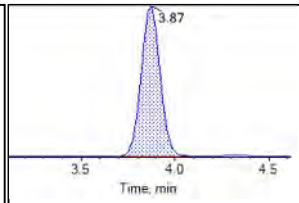
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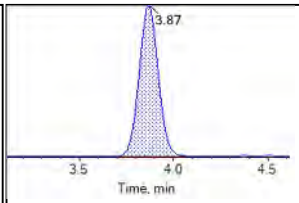
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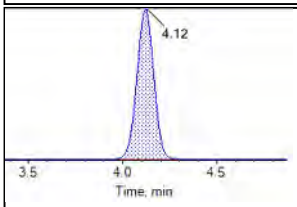
PFUnA_2



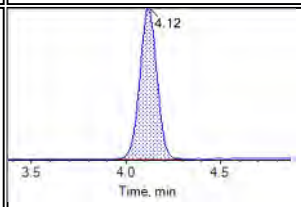
PFDoA_1



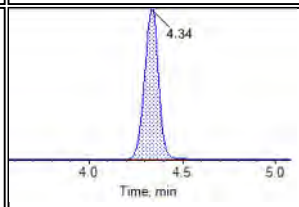
PFDoA_2



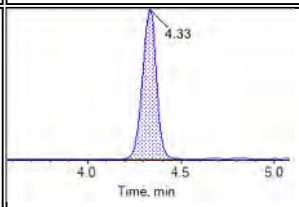
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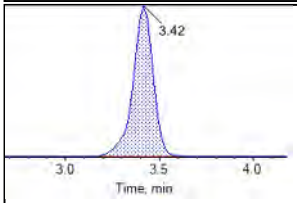
PFTrDA_2



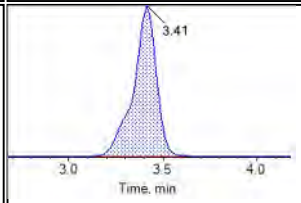
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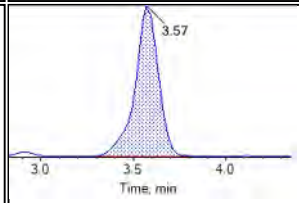
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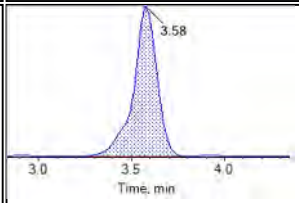
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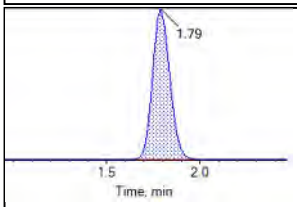
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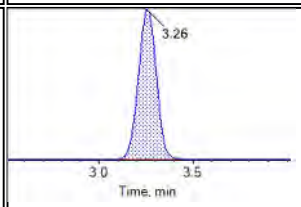
NEtFOSAA_1



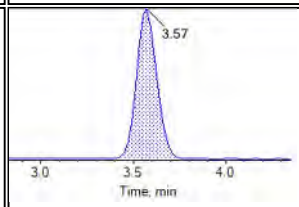
NEtFOSAA_2



13C2-PFHxA

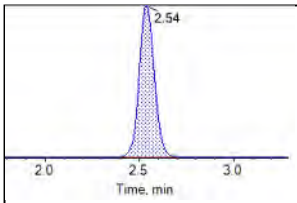


13C2-PFDA

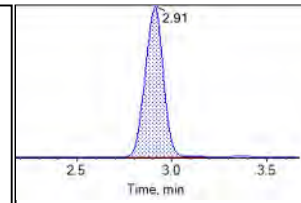


d5-EtFOSAA

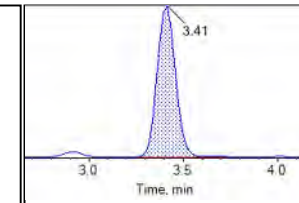
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

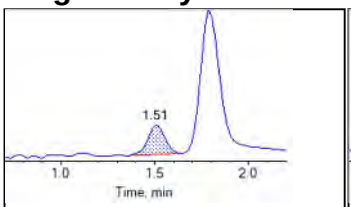
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 11:39:34 AM

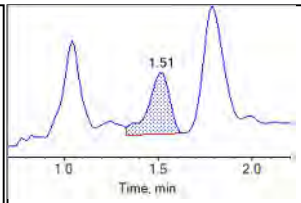
Sample Name	CQ924PB-FS(0)	**Injection Vial**	24
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:25:12	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

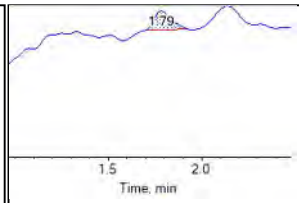
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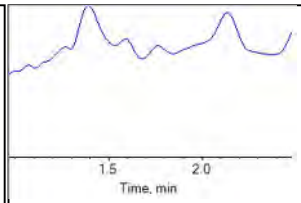
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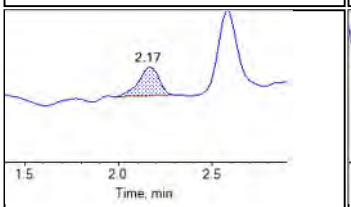
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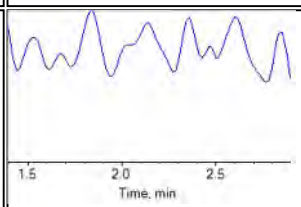
PFHxA_1



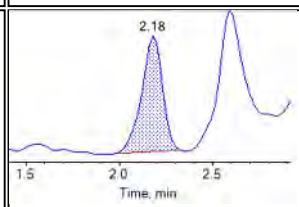
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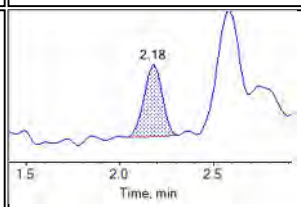
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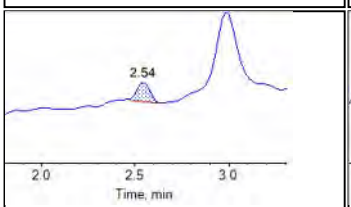
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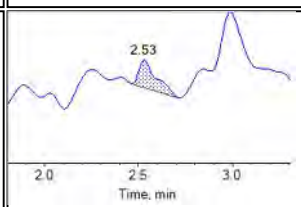
PFHxS_1



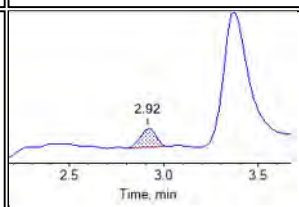
PFHxS_2



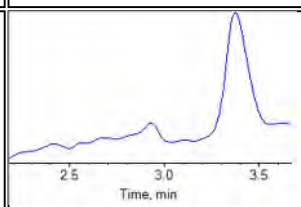
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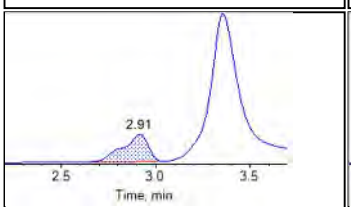
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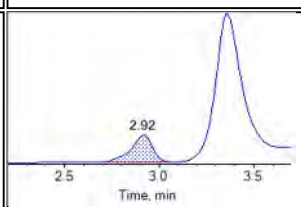
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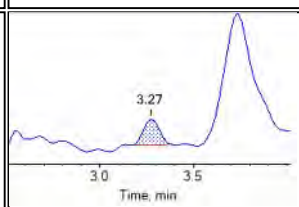
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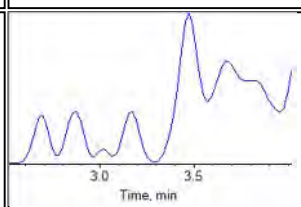
PFOS_1



PFOS_2



PFDA_1

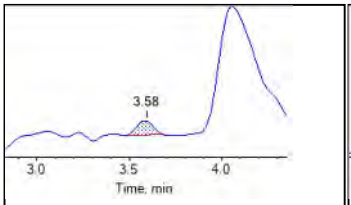


PFDA_2

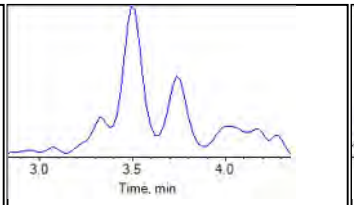
BATTELLE

Chromatogram Report

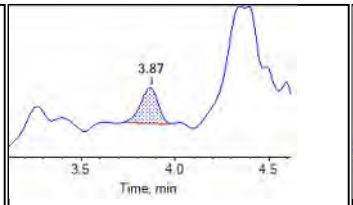
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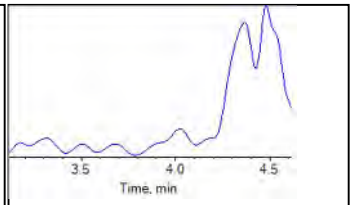
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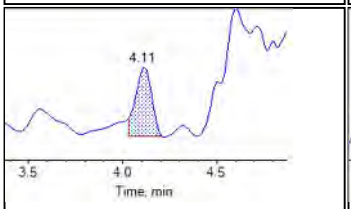
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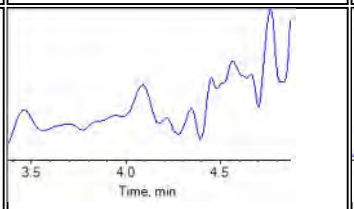
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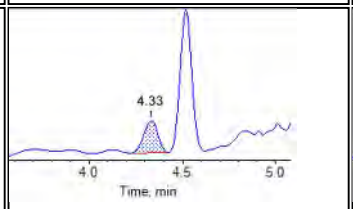
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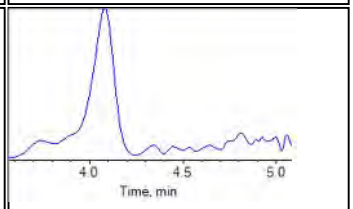
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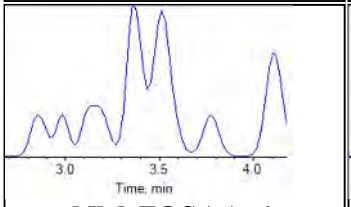
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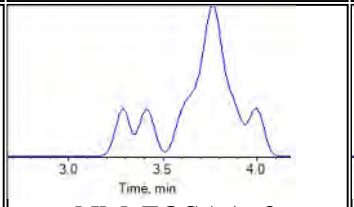
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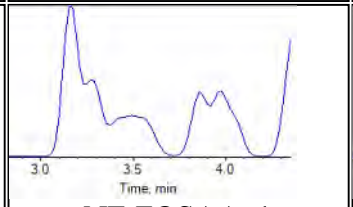
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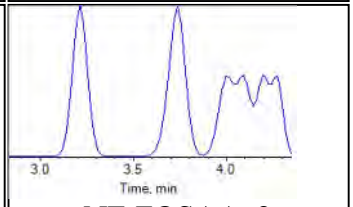
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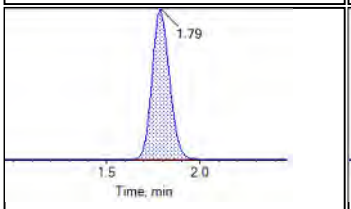
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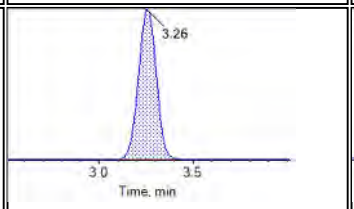
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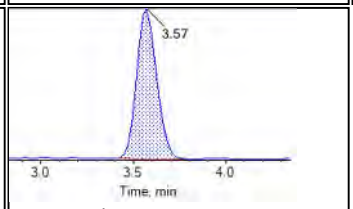
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13C2-PFHxA

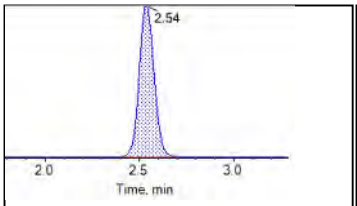


13C2-PFDA

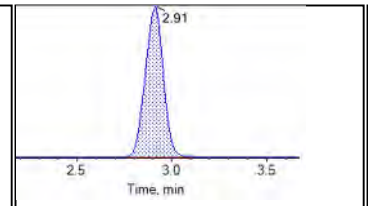


d5-EtFOSAA

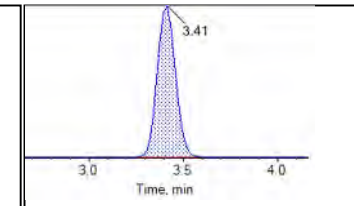
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

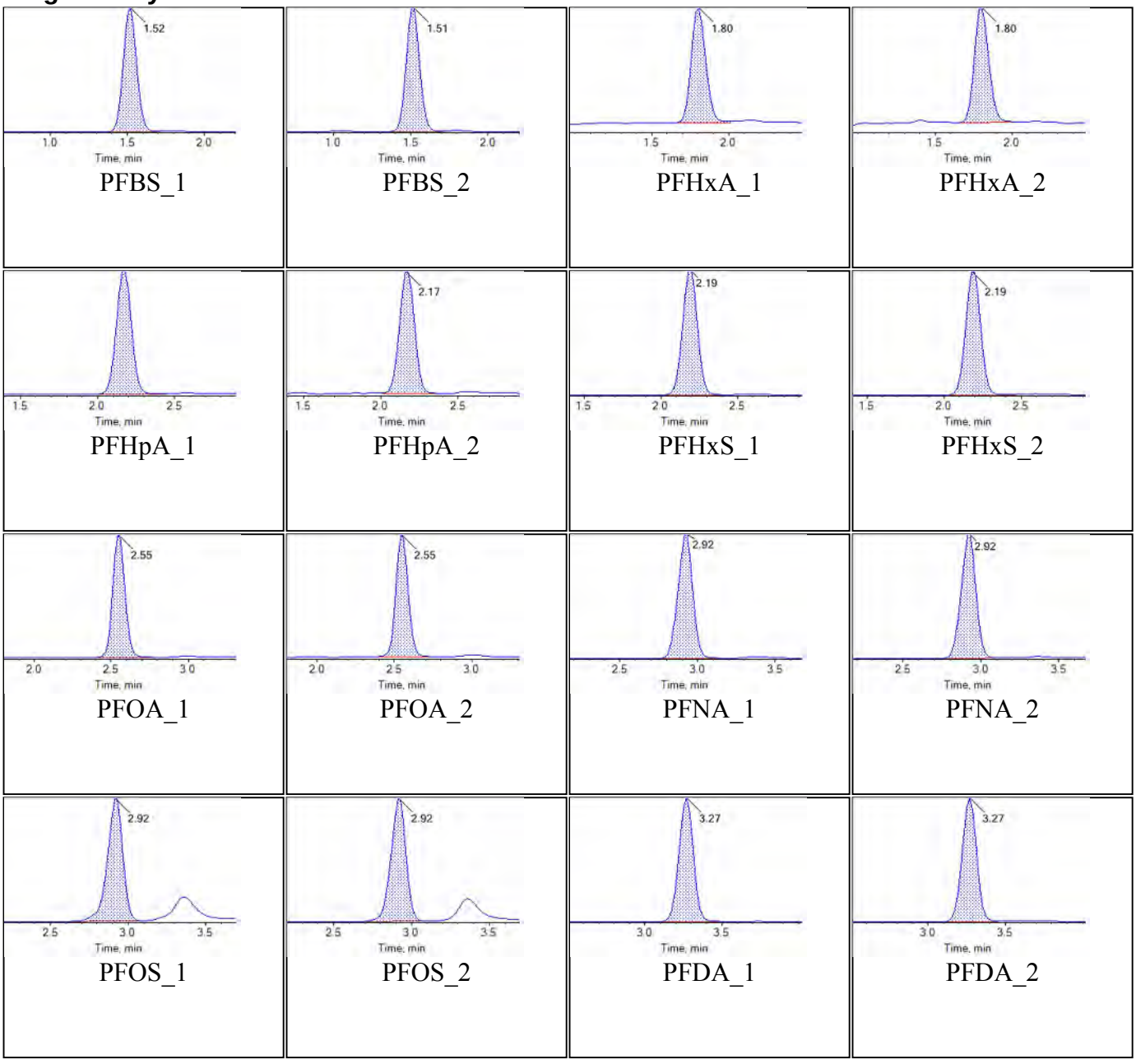
Chromatogram Report

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Printed: 22/06/2018 11:39:36 AM

Sample Name	CQ925LCS-FS(0)	**Injection Vial**	25
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:34:09	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

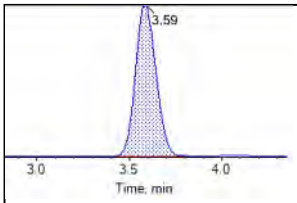
Target Analytes:



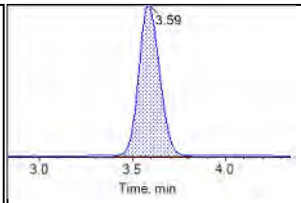
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Chromatogram Report

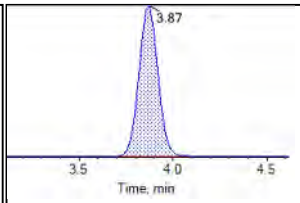
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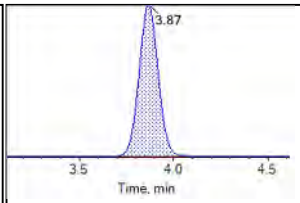
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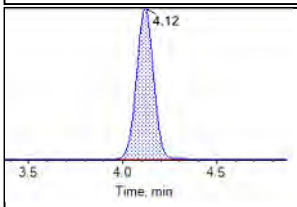
PFUnA_2



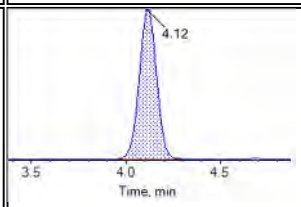
PFDoA_1



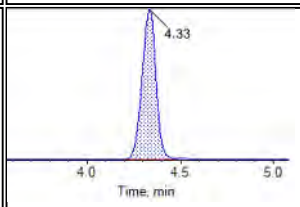
PFDoA_2



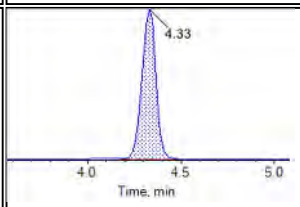
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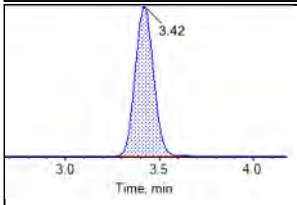
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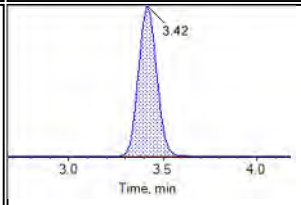
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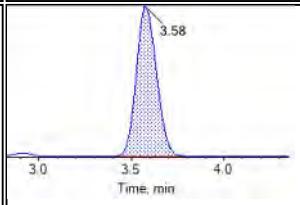
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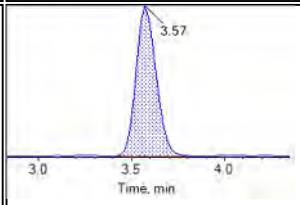
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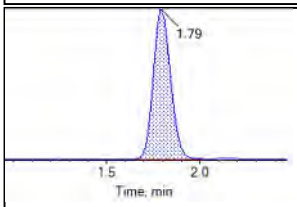
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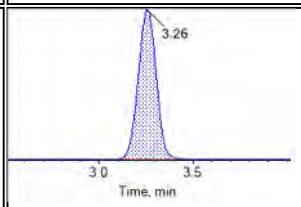
NEtFOSAA_1



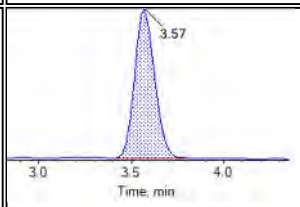
NEtFOSAA_2



13C2-PFHxA

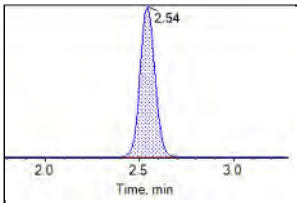


13C2-PFDA

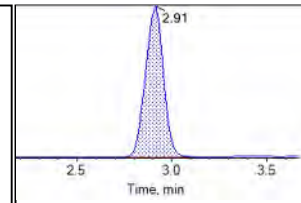


d5-EtFOSAA

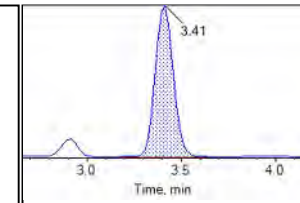
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

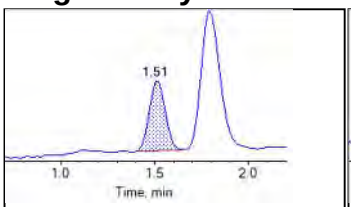
Chromatogram Report

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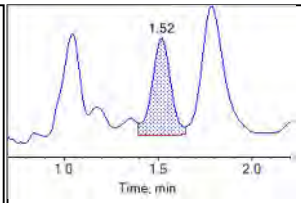
Sample Name	J6291-FS(0)	**Injection Vial**	26
Sample ID	NAWC-053118-FRB-256	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:43:04	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

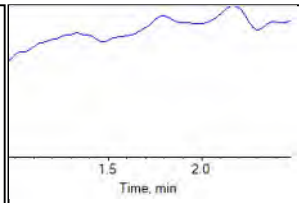
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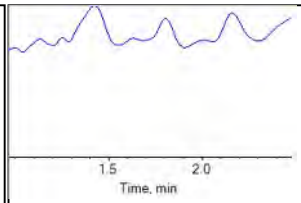
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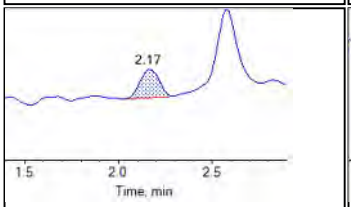
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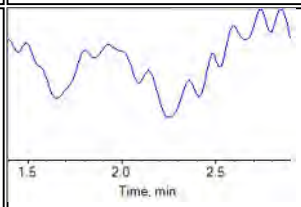
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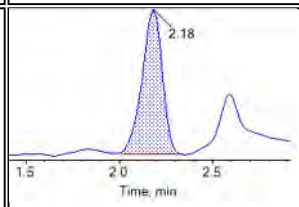
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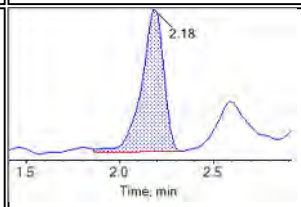
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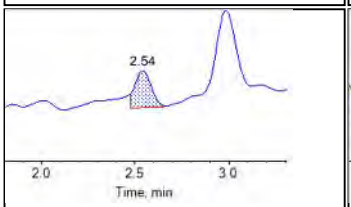
PFHpA_2



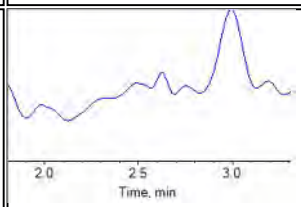
PFHxS_1



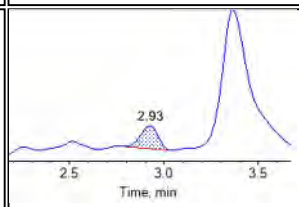
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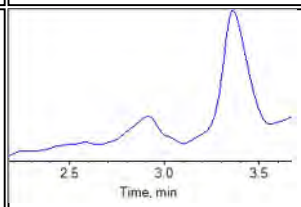
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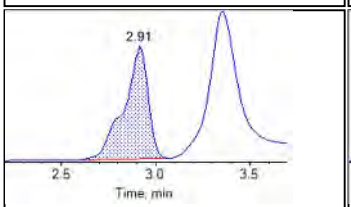
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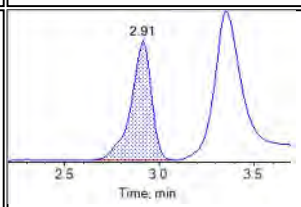
PFNA_1



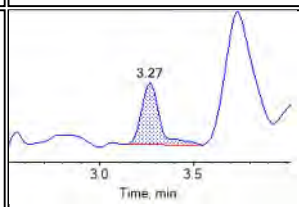
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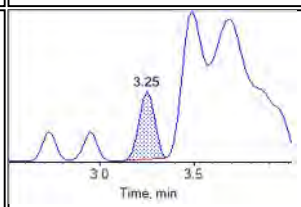
PFOS_1



PFOS_2



PFDA_1

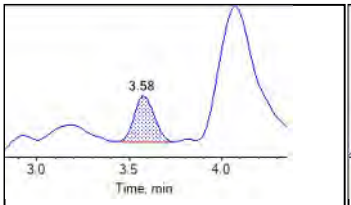


PFDA_2

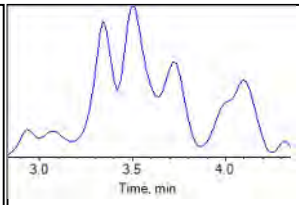
BATTELLE

Chromatogram Report

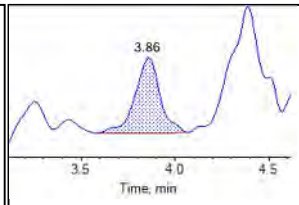
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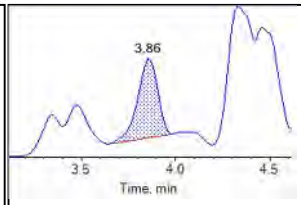
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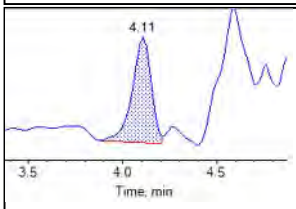
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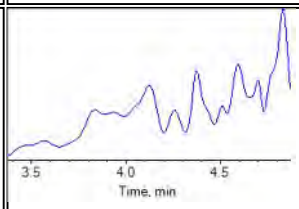
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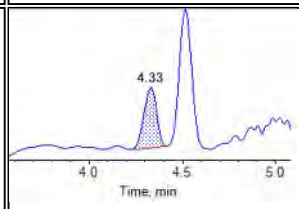
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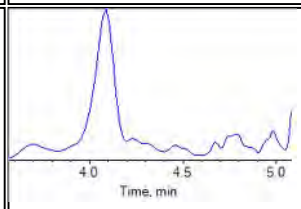
PFTrDA_1



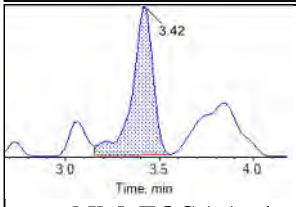
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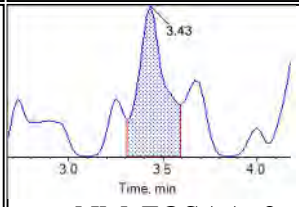
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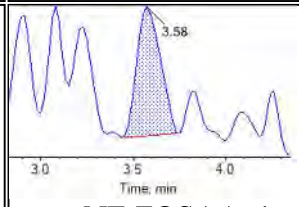
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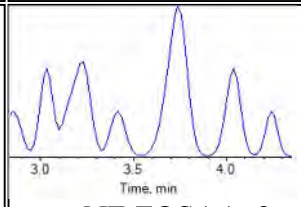
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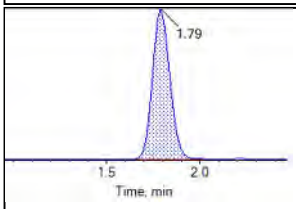
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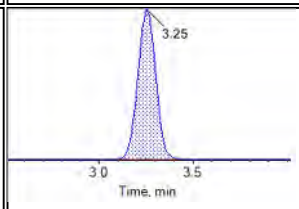
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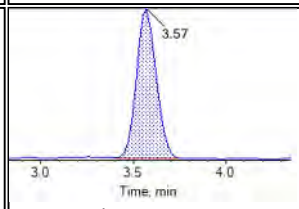
NEtFOSAA_2



13C2-PFHxA

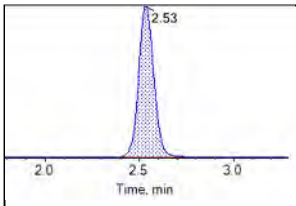


13C2-PFDA

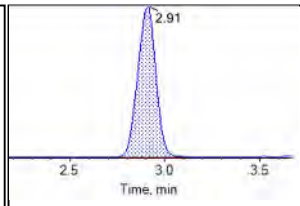


d5-EtFOSAA

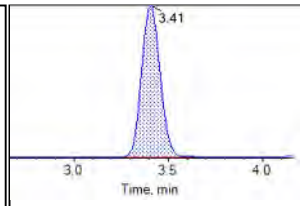
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

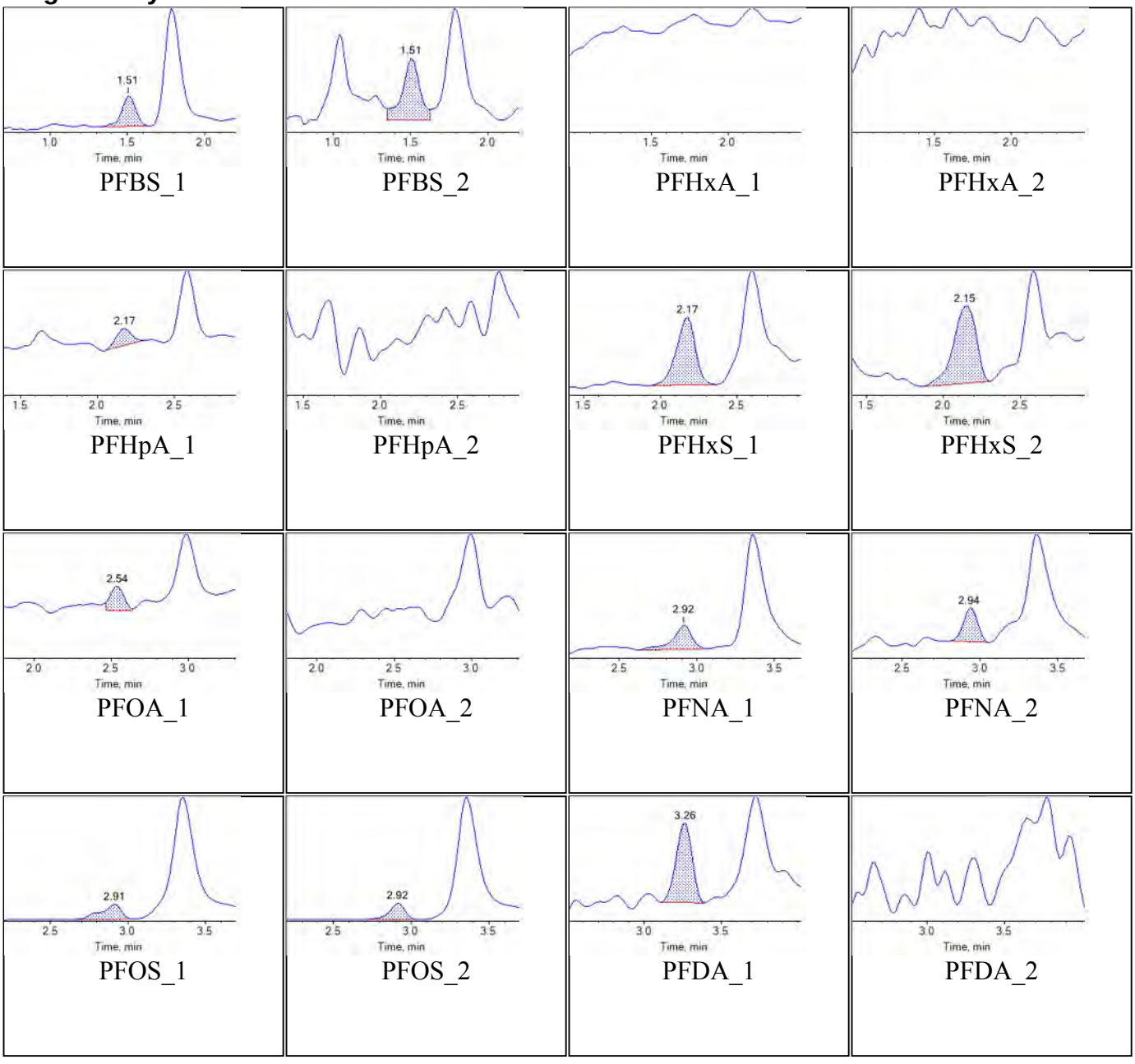
Chromatogram Report

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Printed: 22/06/2018 11:39:42 AM

Sample Name	J6293-FS(0)	**Injection Vial**	27
Sample ID	NAWC-053118-FRB-126	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:52:00	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

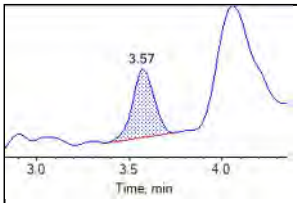
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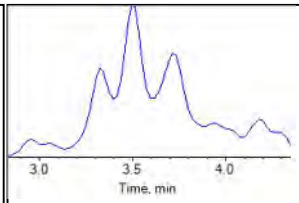
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Chromatogram Report

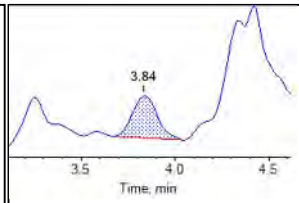
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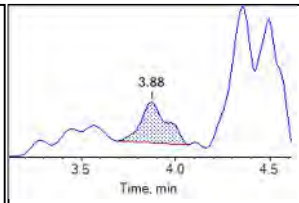
PFUnA_1



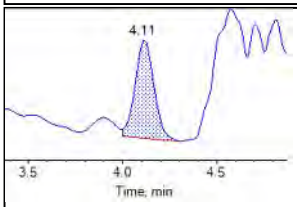
PFUnA_2



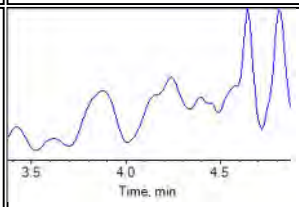
PFDoA_1



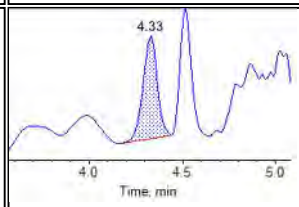
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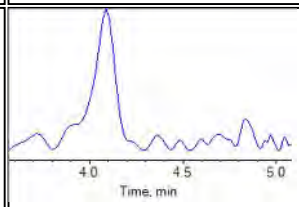
PFTrDA_1



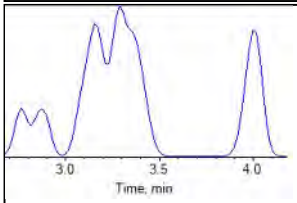
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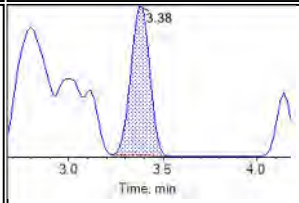
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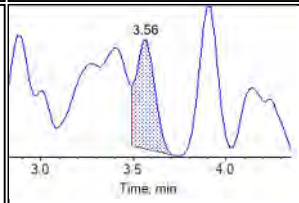
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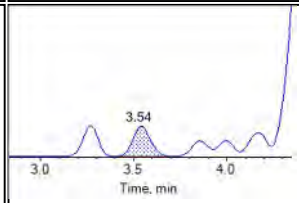
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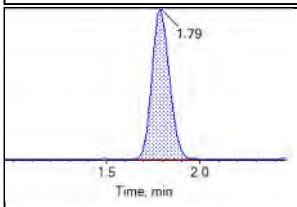
NMeFOSAA_2



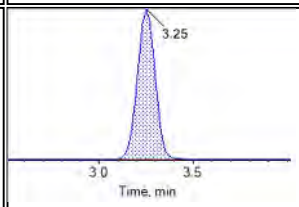
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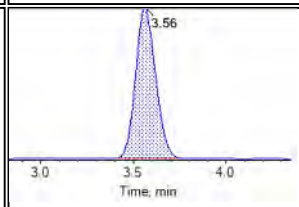
NEtFOSAA_2



13C2-PFHxA

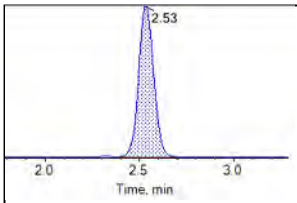


13C2-PFDA

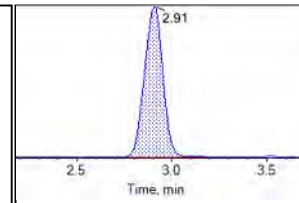


d5-EtFOSAA

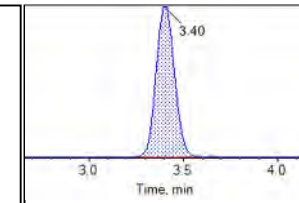
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

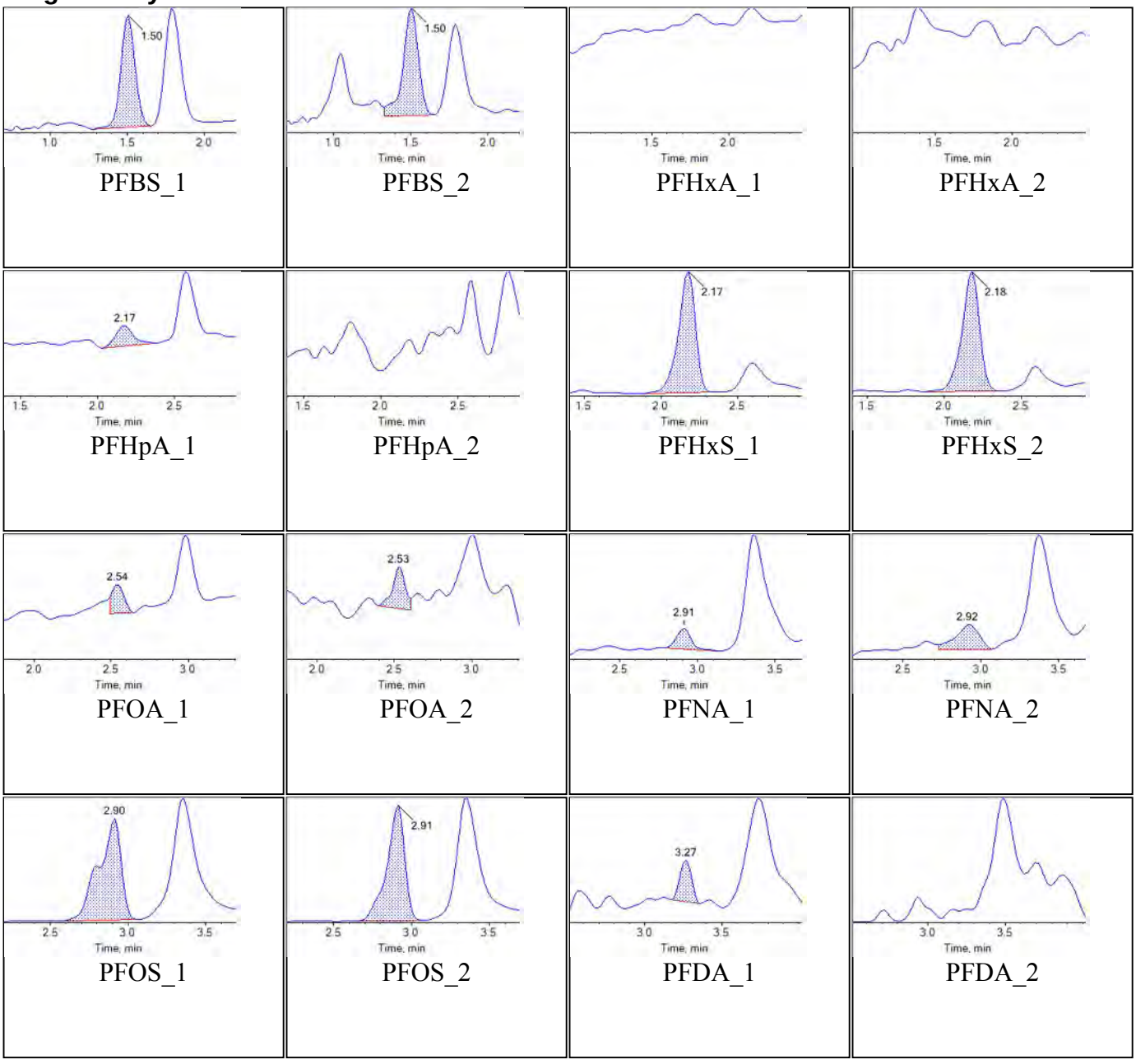
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 11:39:44 AM

Sample Name	J6296-FS(0)	**Injection Vial**	28
Sample ID	WGNA-053118-FRB-4850	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:00:56	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

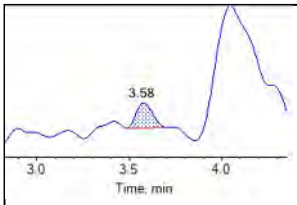
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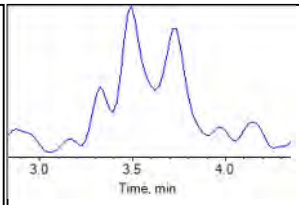
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Chromatogram Report

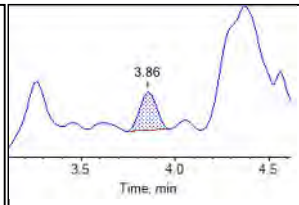
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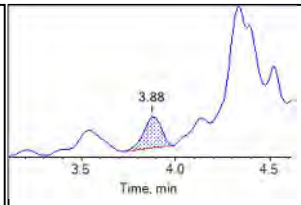
PFUnA_1



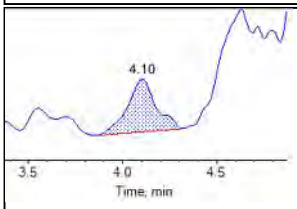
PFUnA_2



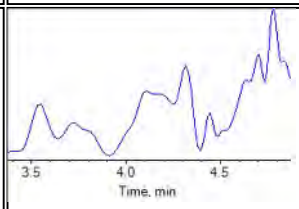
PFDoA_1



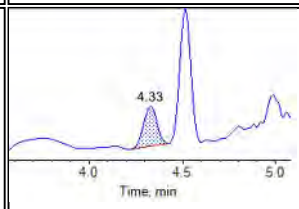
PFDoA_2



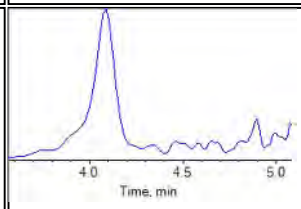
PFTrDA_1



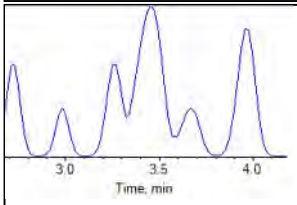
PFTrDA_2



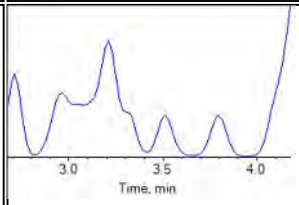
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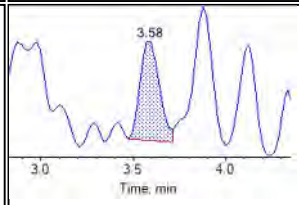
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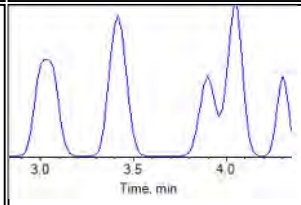
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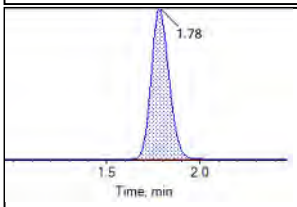
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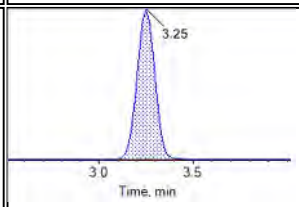
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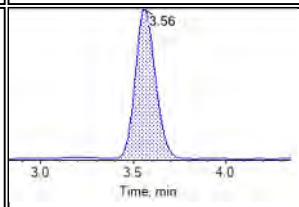
NEtFOSAA_2



13C2-PFHxA

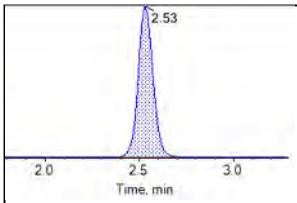


13C2-PFDA

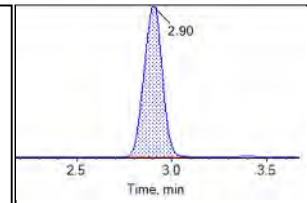


d5-EtFOSAA

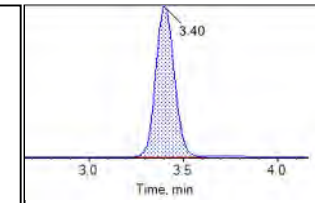
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

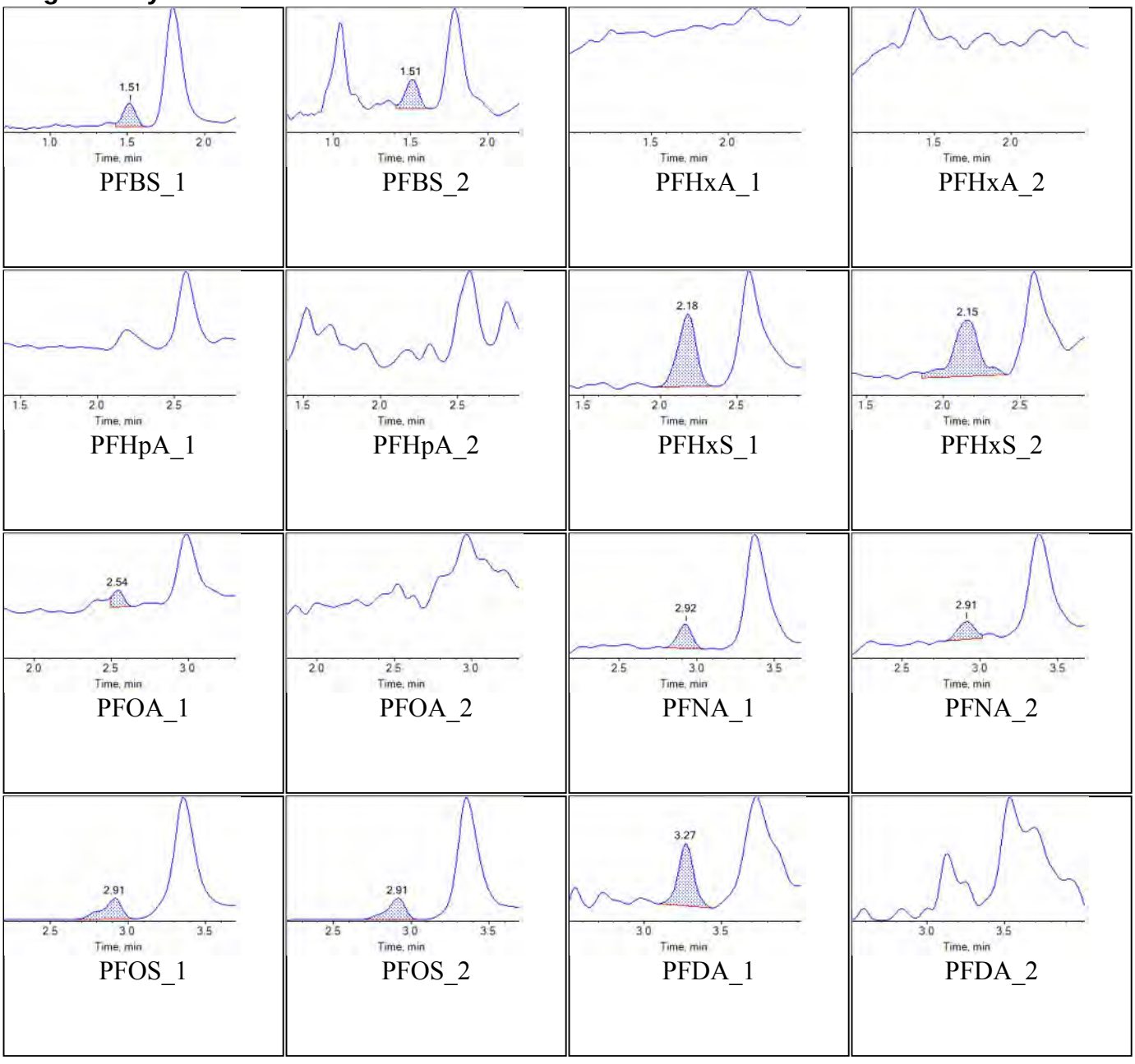
Chromatogram Report

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Printed: 22/06/2018 11:39:47 AM

Sample Name	J6298-FS(0)	**Injection Vial**	29
Sample ID	NAWC-053118-FRB-311	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:09:53	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

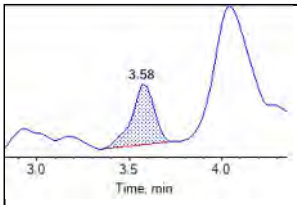
Target Analytes:



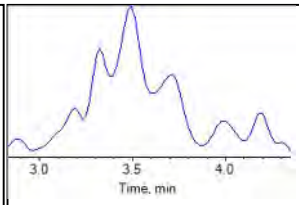
BATTELLE

Chromatogram Report

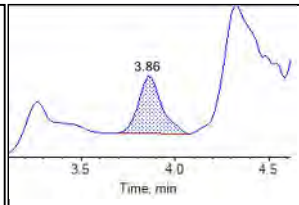
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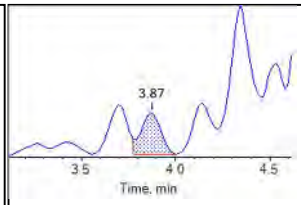
PFUnA_1



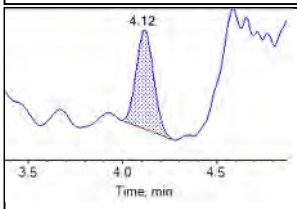
PFUnA_2



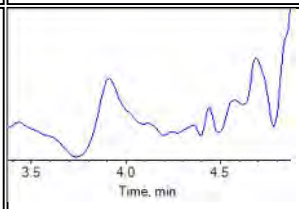
PFDoA_1



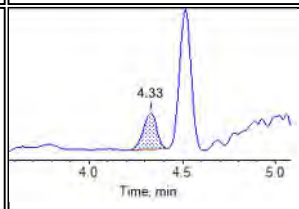
PFDoA_2



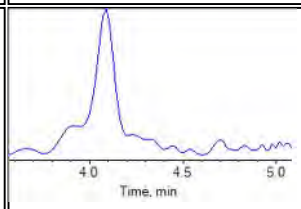
PFTrDA_1



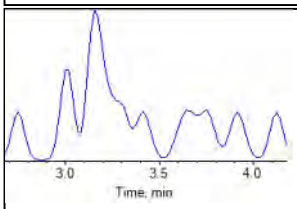
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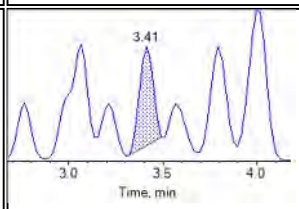
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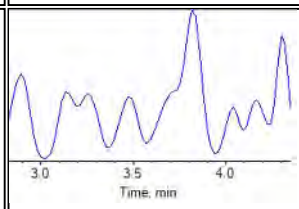
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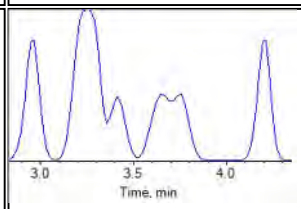
NMeFOSAA_1



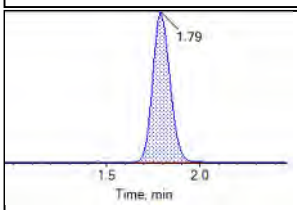
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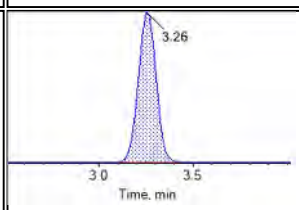
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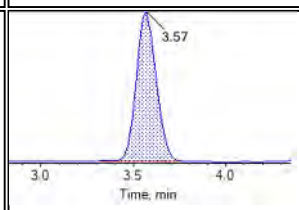
NEtFOSAA_2



13C2-PFHxA

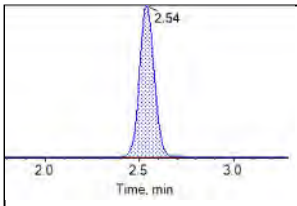


13C2-PFDA

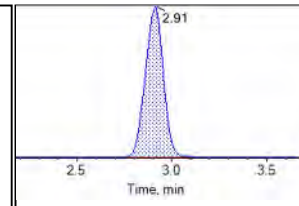


d5-EtFOSAA

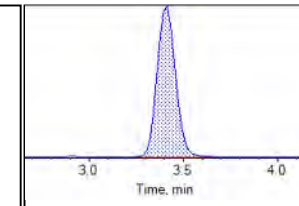
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

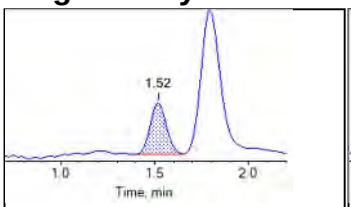
Chromatogram Report

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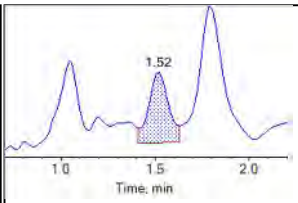
Sample Name	J6300-FS(0)	**Injection Vial**	30
Sample ID	NAWC-053118-FRB-265	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:18:48	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

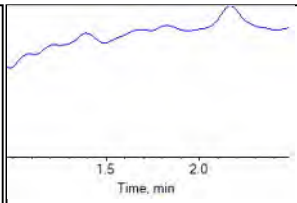
Target Analytes:



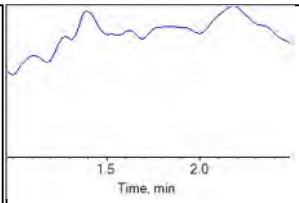
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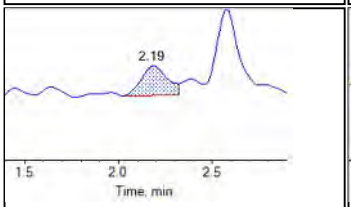
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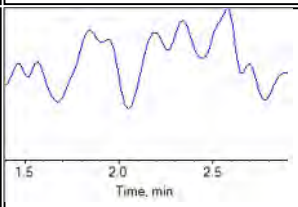
PFHxA_1



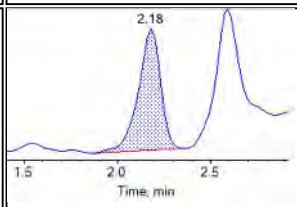
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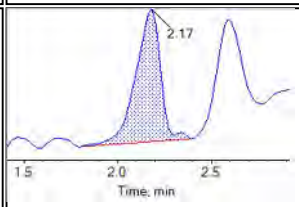
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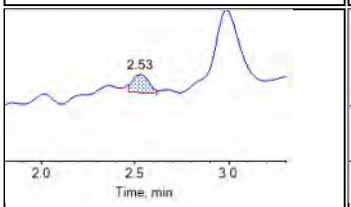
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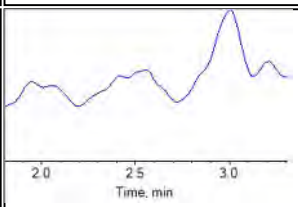
PFHxS_1



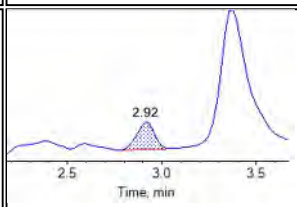
PFHxS_2



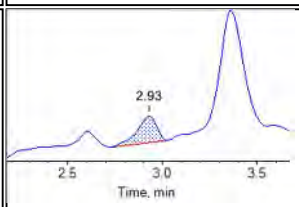
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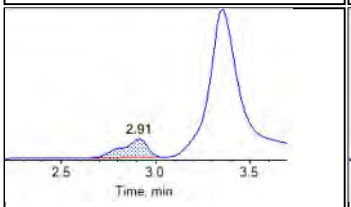
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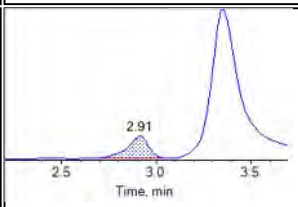
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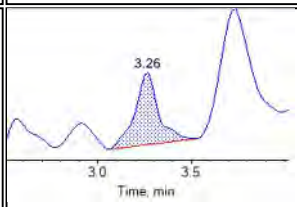
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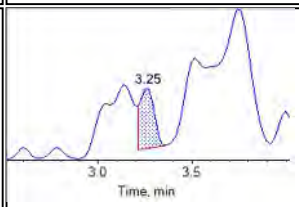
PFOS_1



PFOS_2



PFDA_1

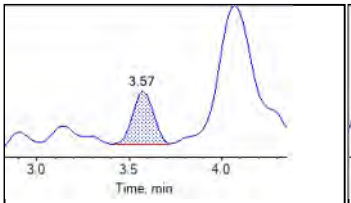


PFDA_2

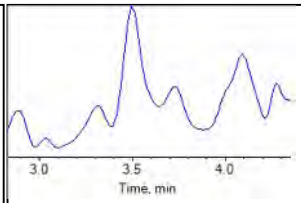
BATTELLE

Chromatogram Report

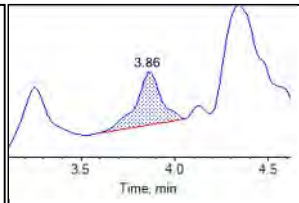
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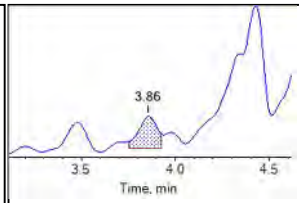
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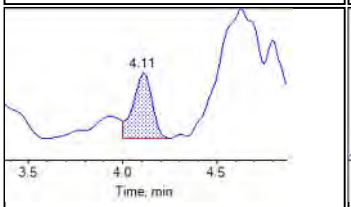
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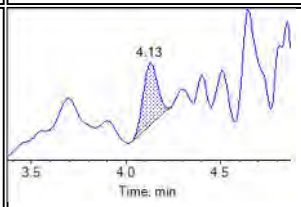
PFDoA_1



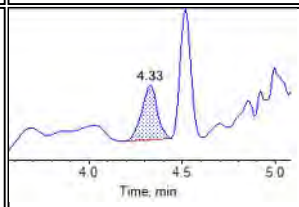
PFDoA_2



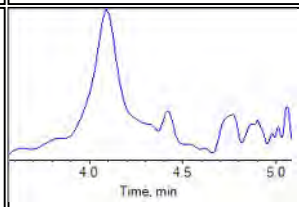
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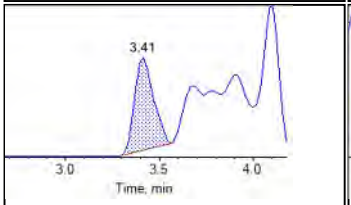
PFTrDA_2



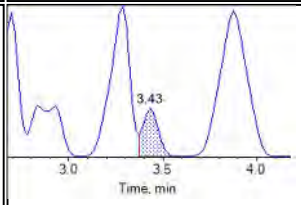
PFTeDA_1



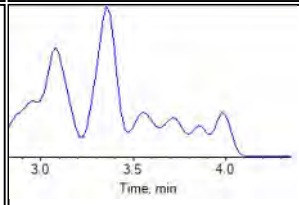
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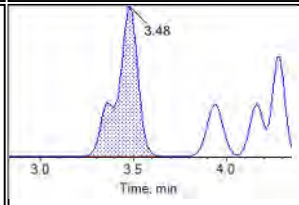
NMeFOSAA_1



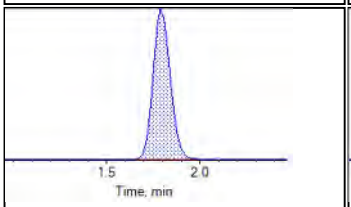
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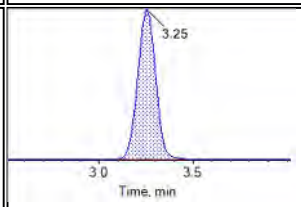
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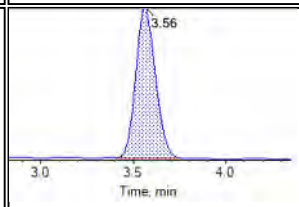
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13C2-PFHxA

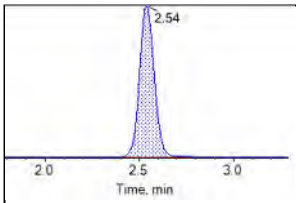


13C2-PFDA

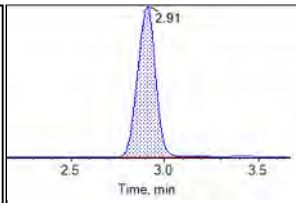


d5-EtFOSAA

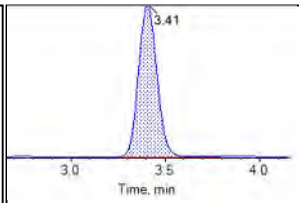
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

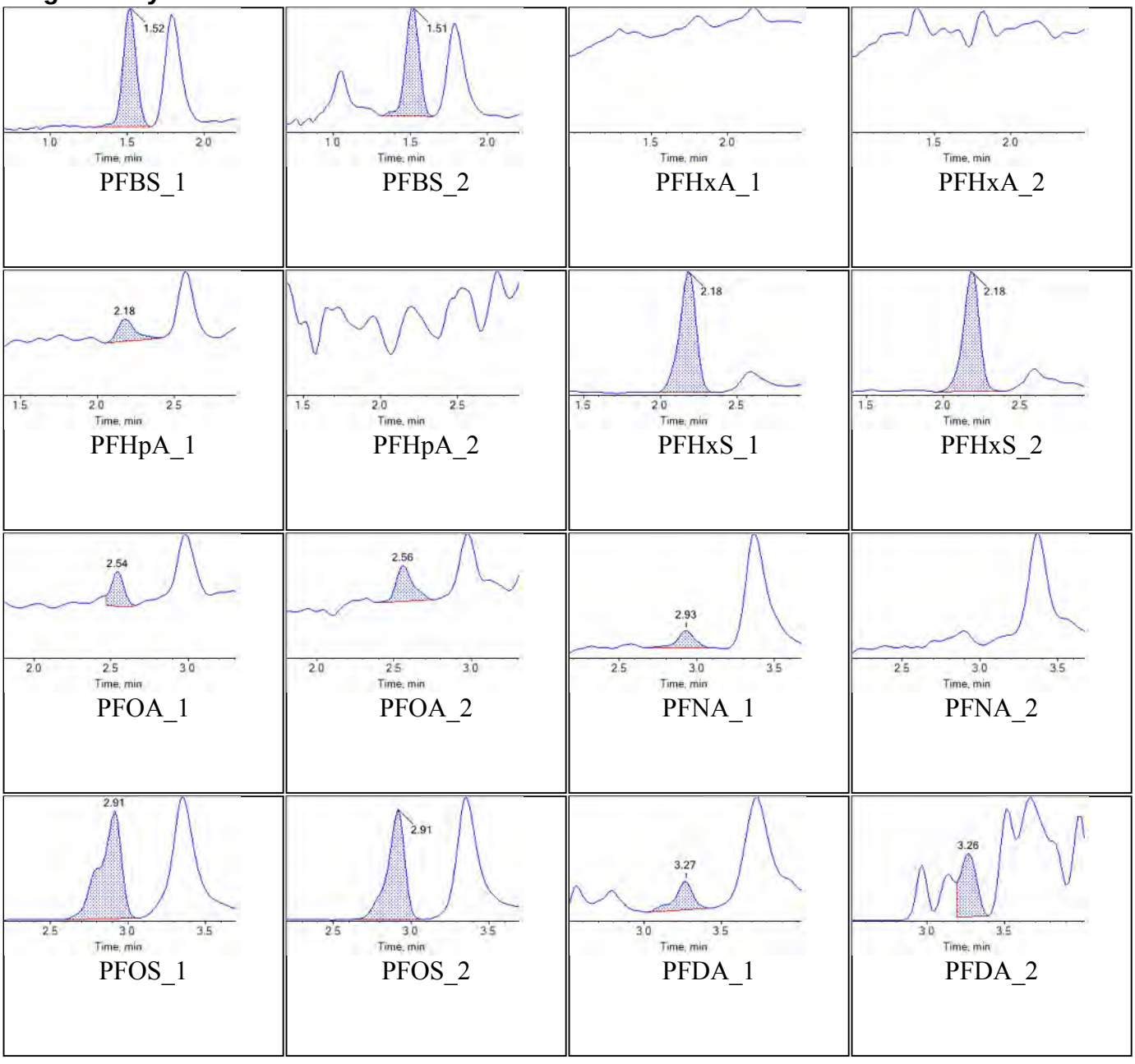
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 11:39:52 AM

Sample Name	J6583-FS(0)	**Injection Vial**	31
Sample ID	NAWC-060408-FRB-230	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:27:44	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

Target Analytes:



PFBS_1 | PFBS_2 | PFHxA_1 | PFHxA_2

PFHpA_1 | PFHpA_2 | PFHxS_1 | PFHxS_2

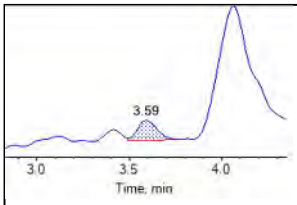
PFOA_1 | PFOA_2 | PFNA_1 | PFNA_2

PFOS_1 | PFOS_2 | PFDA_1 | PFDA_2

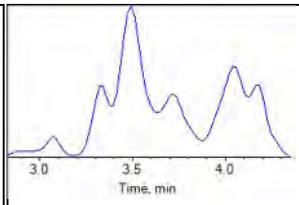
BATTELLE

Chromatogram Report

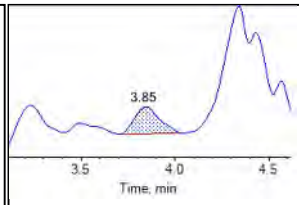
Created with Analyst Reporter
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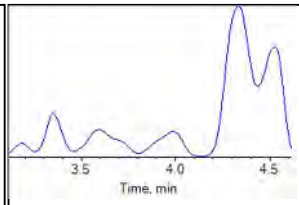
PFUnA_1



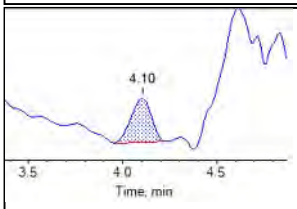
PFUnA_2



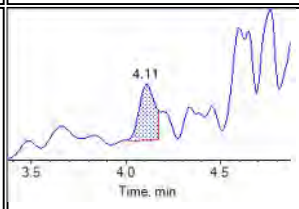
PFDoA_1



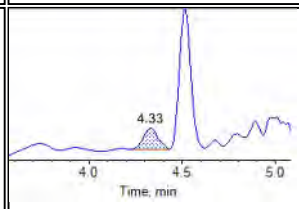
PFDoA_2



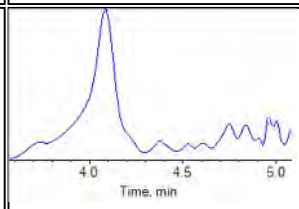
PFTrDA_1



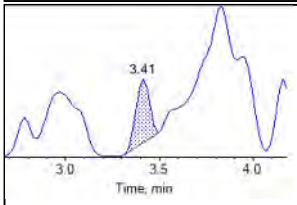
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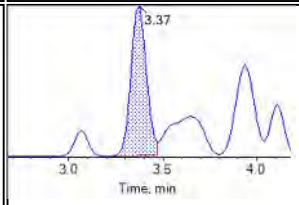
PFTeDA_1



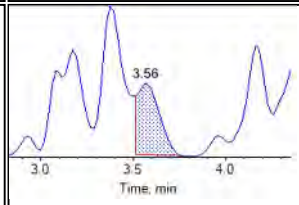
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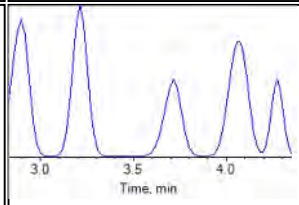
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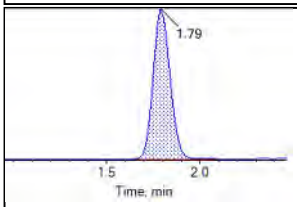
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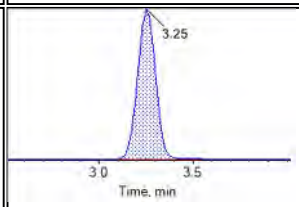
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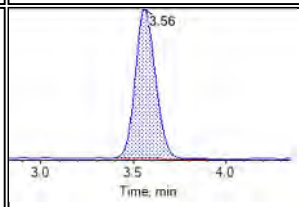
NEtFOSAA_2



13C2-PFHxA

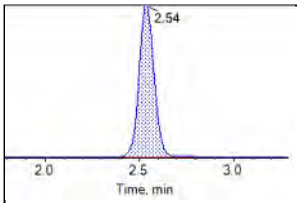


13C2-PFDA

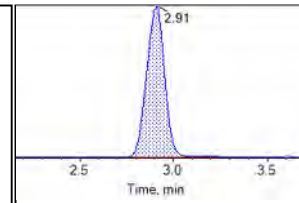


d5-EtFOSAA

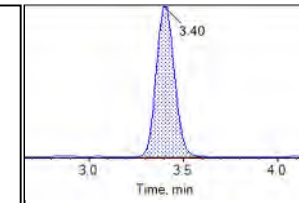
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

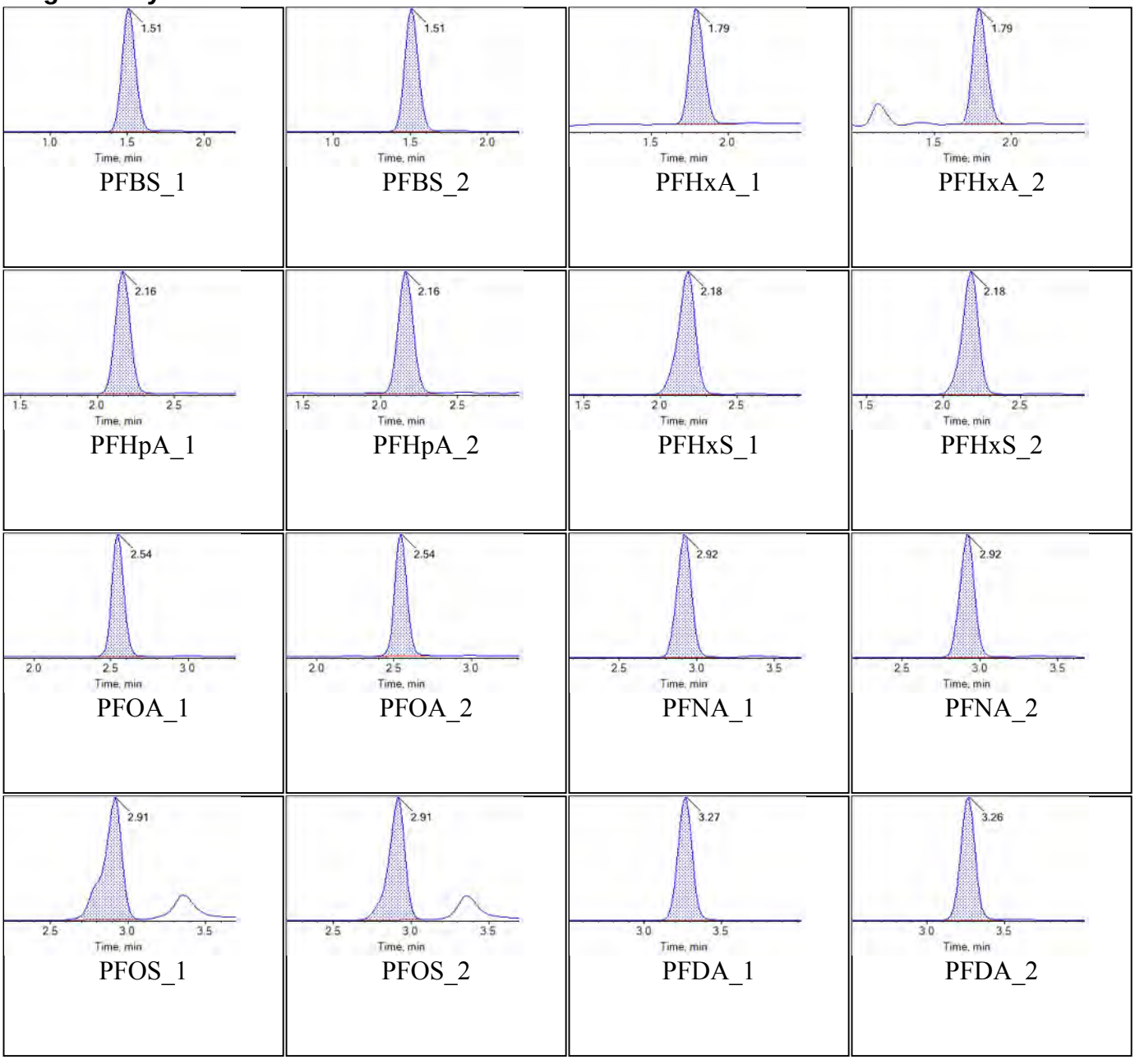
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 11:39:55 AM

Sample Name	JV70 CCV	**Injection Vial**	32
Sample ID	L7 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:36:43	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

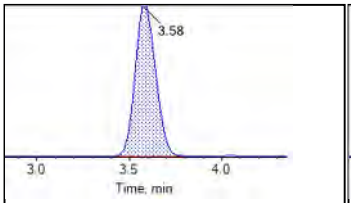
Target Analytes:



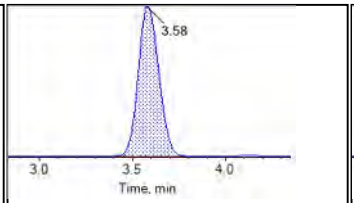
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Chromatogram Report

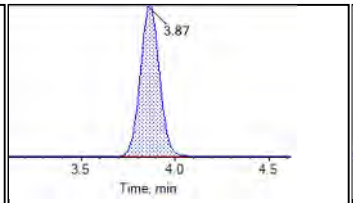
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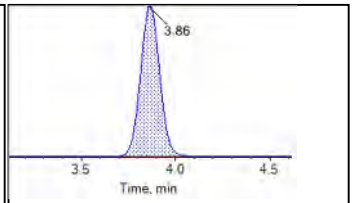
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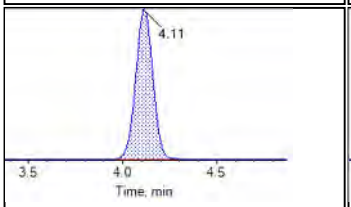
PFUnA_2



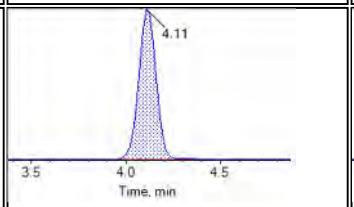
PFDoA_1



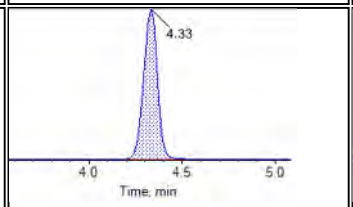
PFDoA_2



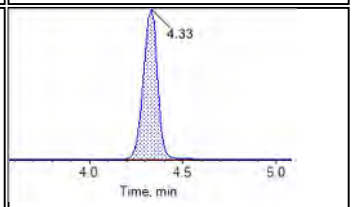
PFTrDA_1



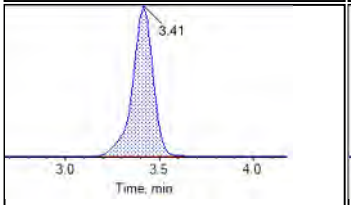
PFTrDA_2



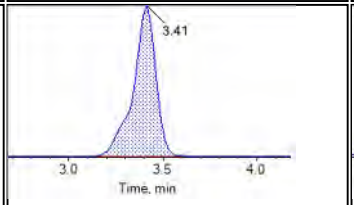
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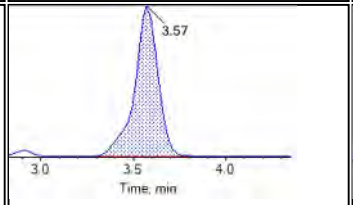
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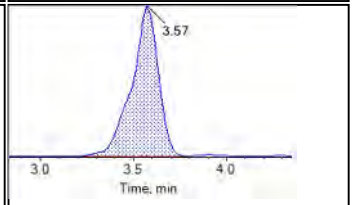
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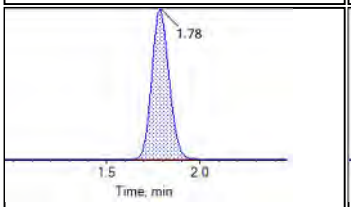
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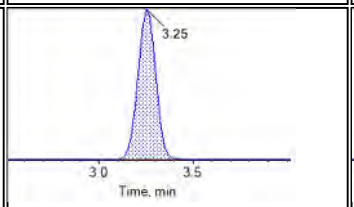
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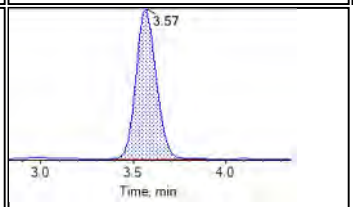
NEtFOSAA_2



13C2-PFHxA

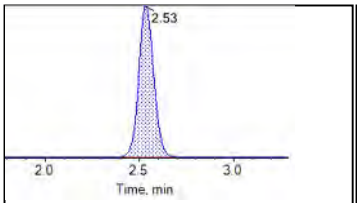


13C2-PFDA

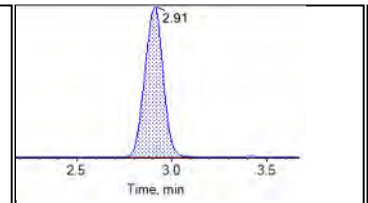


d5-EtFOSAA

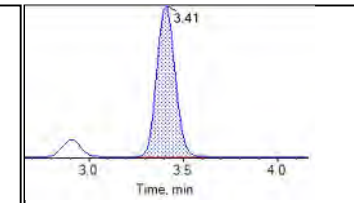
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

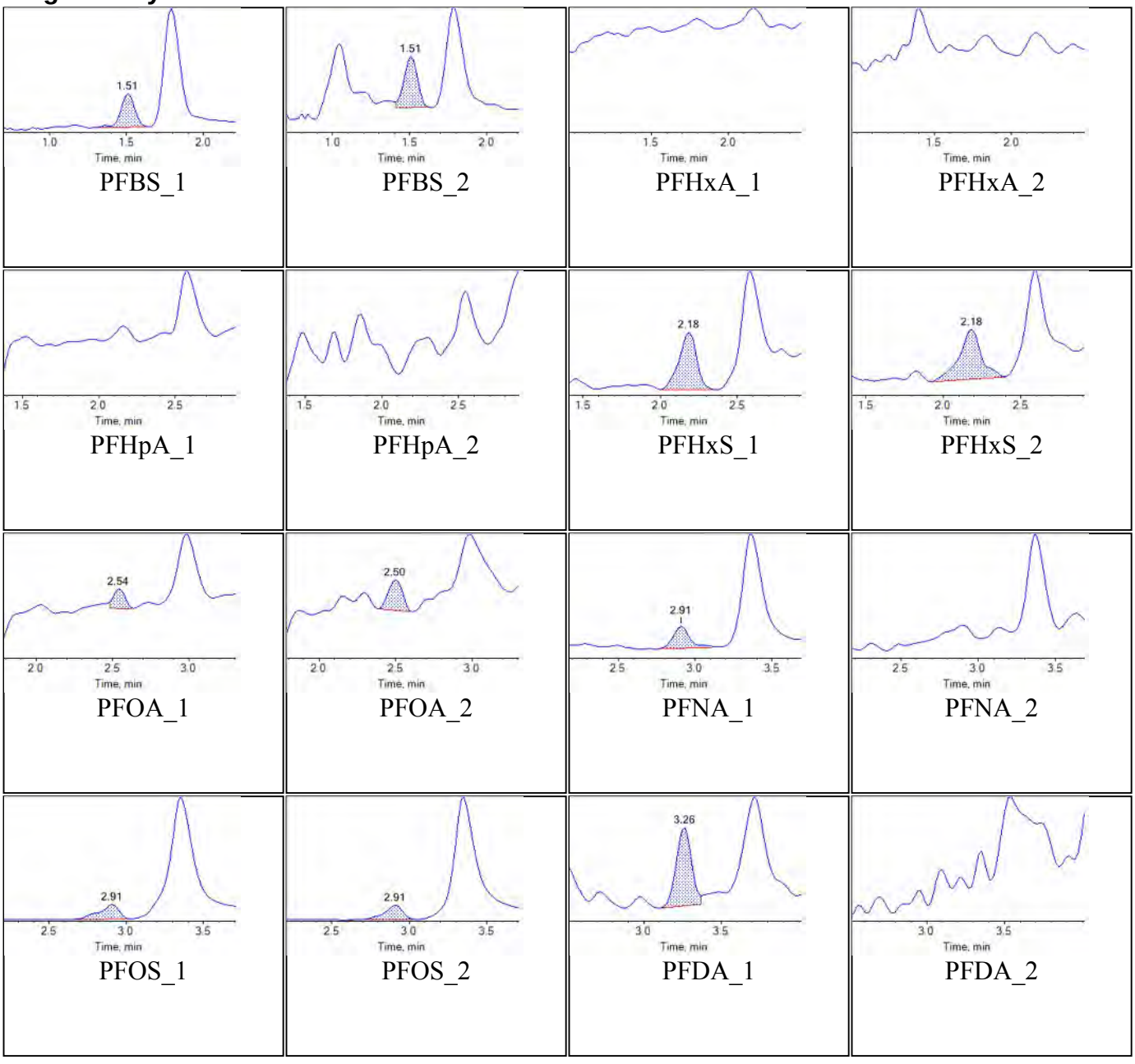
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 11:40:01 AM

Sample Name	J6585-FS(0)	**Injection Vial**	33
Sample ID	NAWC-060408-FRB-309	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:54:39	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

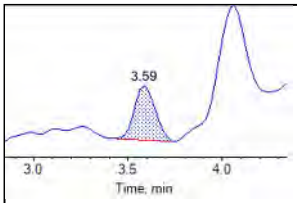
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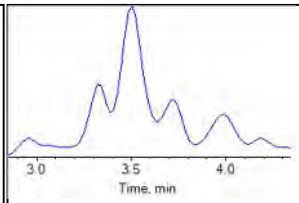
BATTELLE

Chromatogram Report

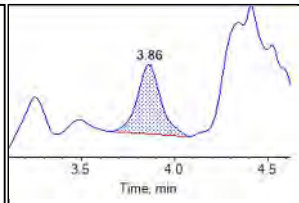
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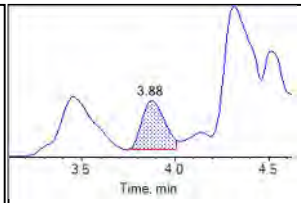
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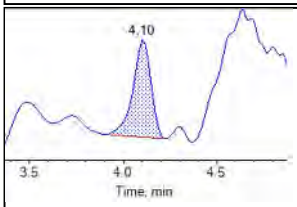
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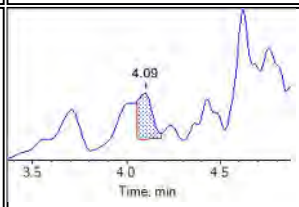
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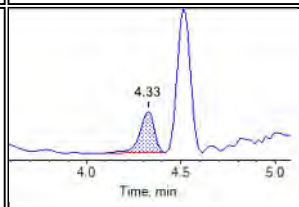
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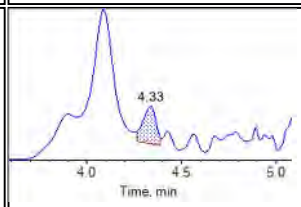
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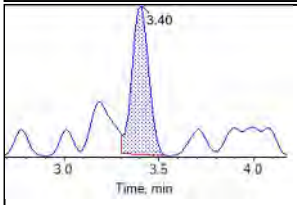
PFTrDA_2



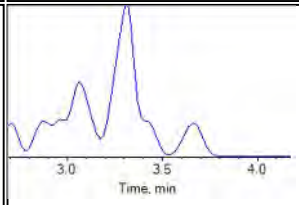
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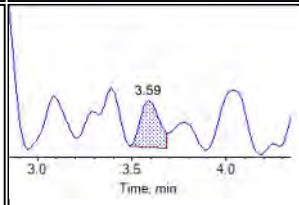
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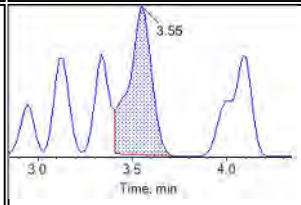
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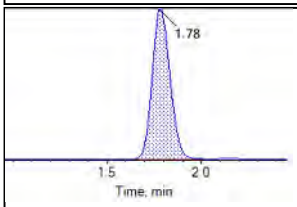
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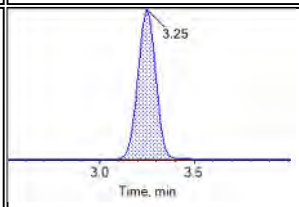
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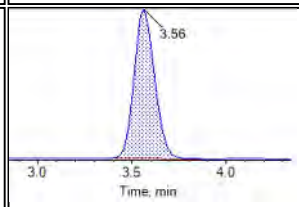
NEtFOSAA_2



13C2-PFHxA

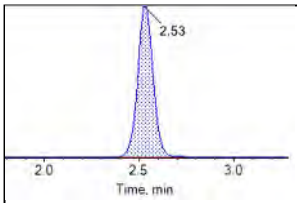


13C2-PFDA

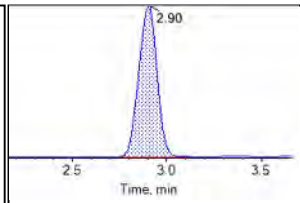


d5-EtFOSAA

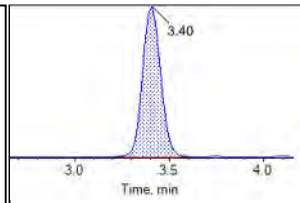
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

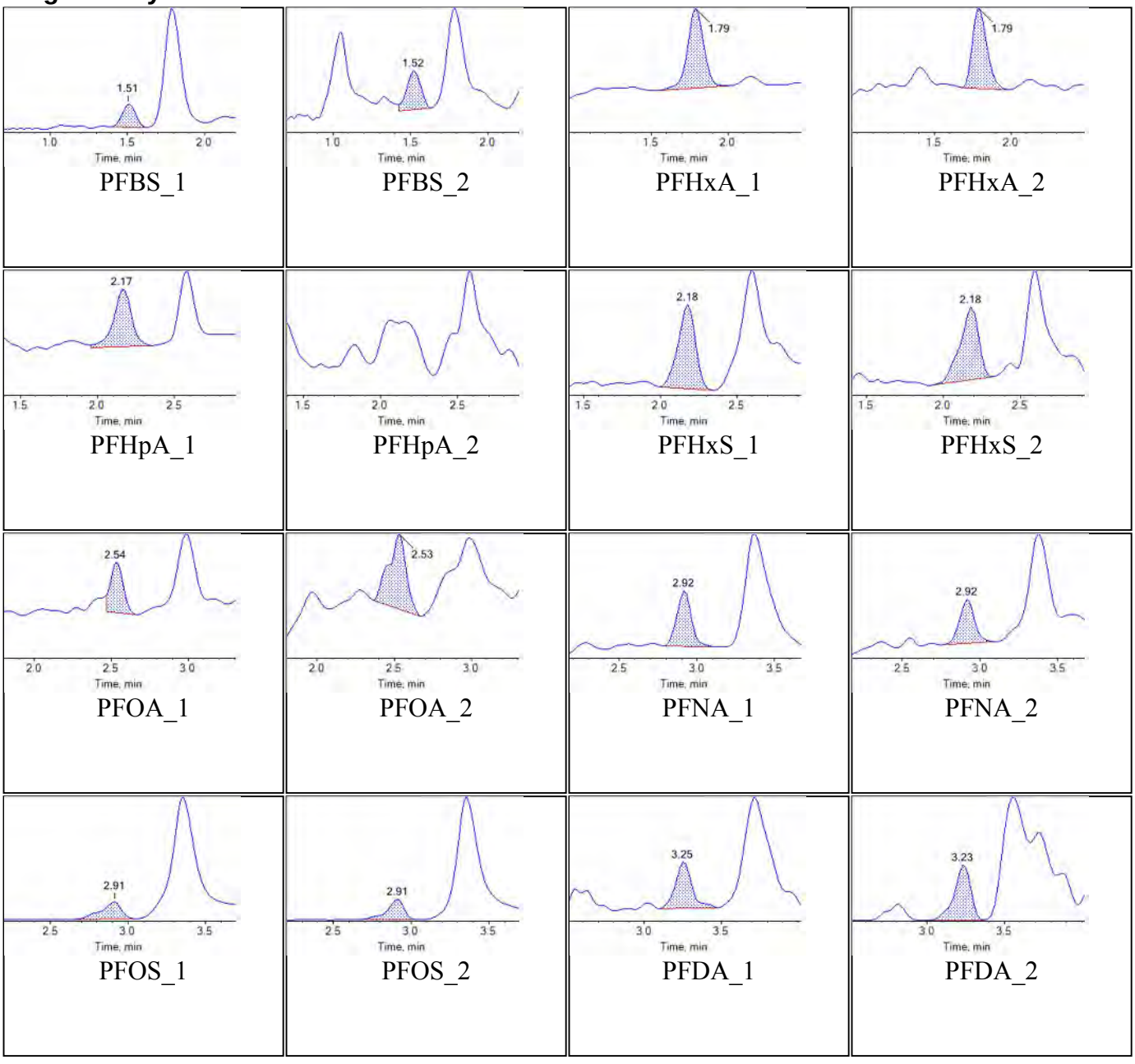
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 11:40:03 AM

Sample Name	J6587-FS(0)	**Injection Vial**	34
Sample ID	NAWC-060408-FRB-293	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:03:34	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

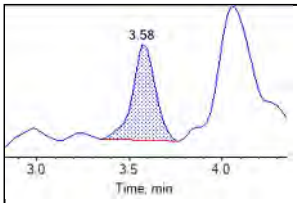
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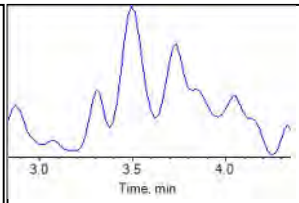
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Chromatogram Report

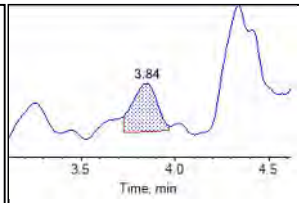
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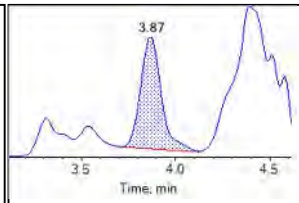
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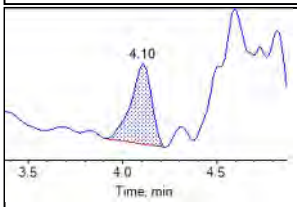
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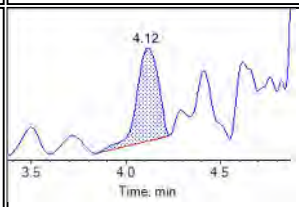
PFDoA_1



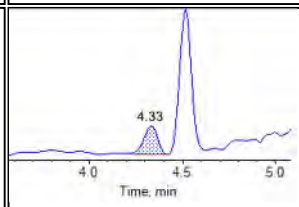
PFDoA_2



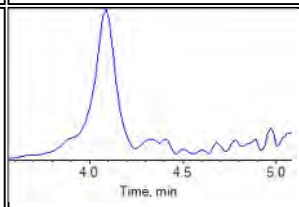
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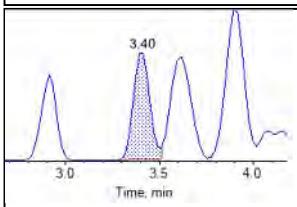
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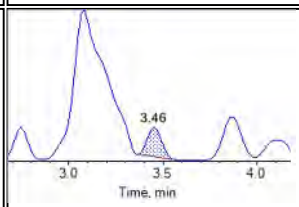
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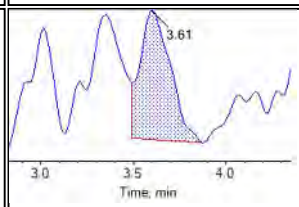
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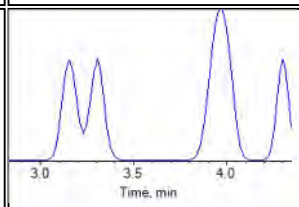
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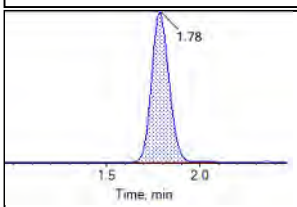
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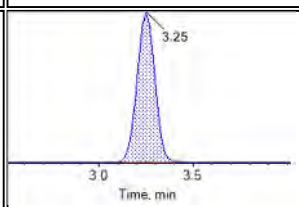
NEtFOSAA_1



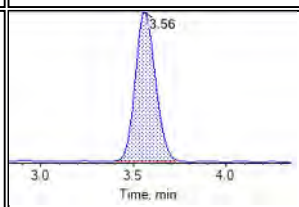
NEtFOSAA_2



13C2-PFHxA

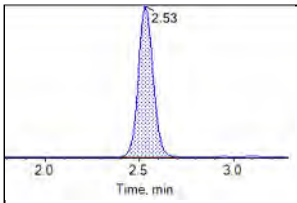


13C2-PFDA

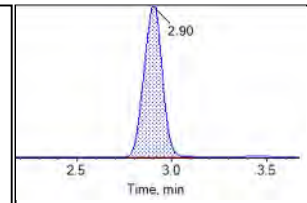


d5-EtFOSAA

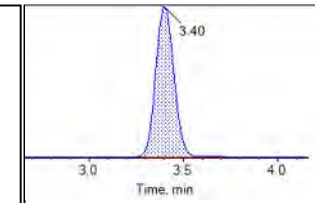
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

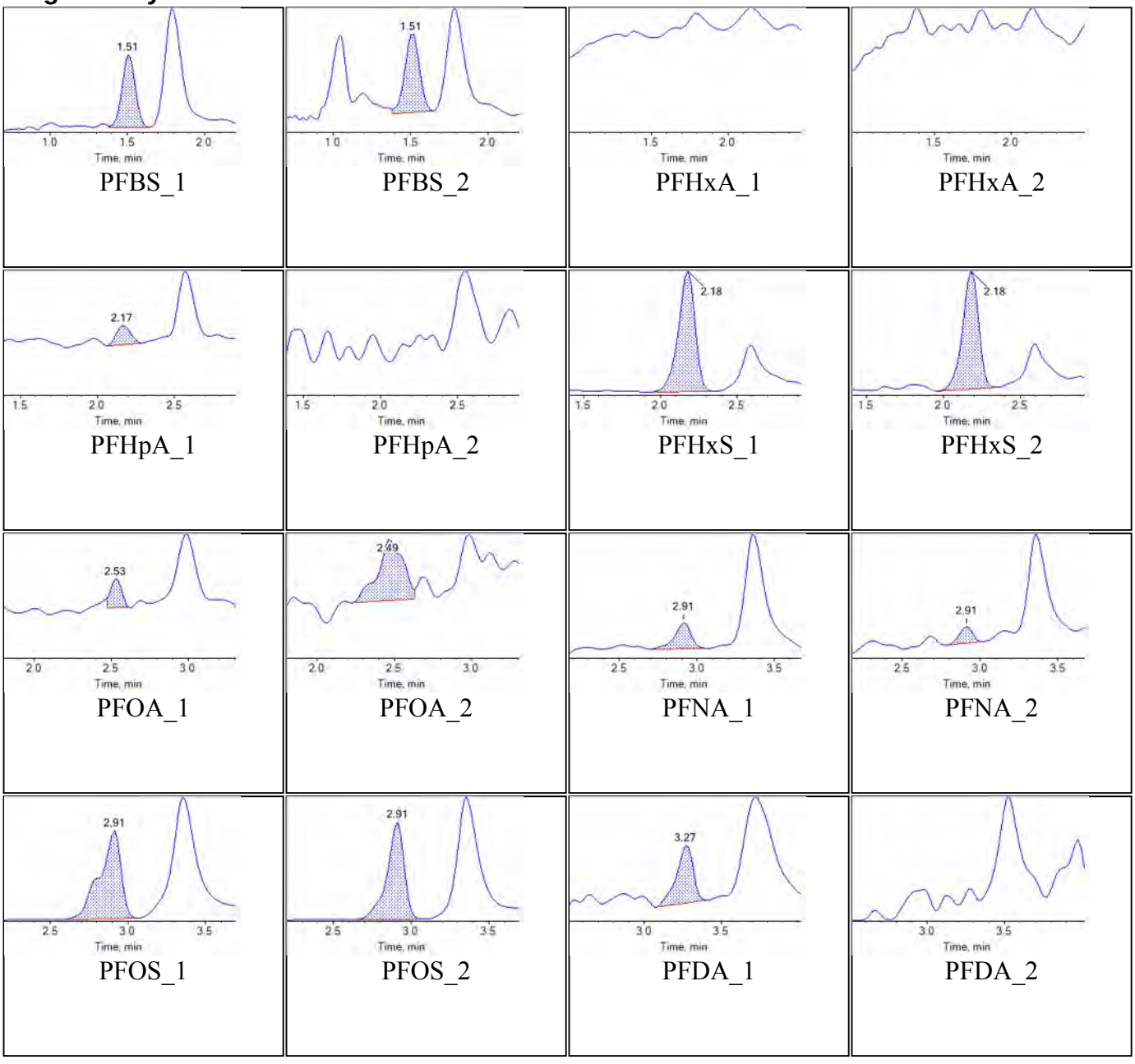
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 11:40:06 AM

Sample Name	J6589-FS(0)	**Injection Vial**	35
Sample ID	NAWC-060408-FRB-038	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:12:30	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

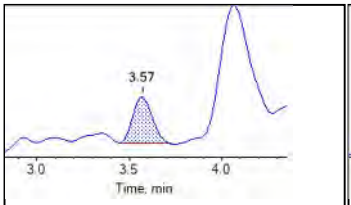
Target Analytes:



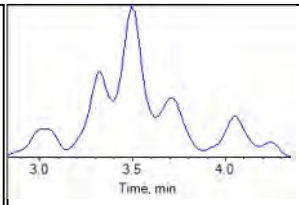
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Chromatogram Report

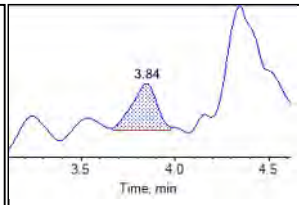
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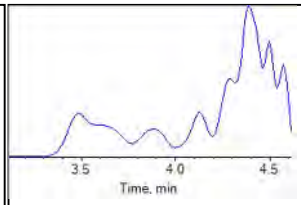
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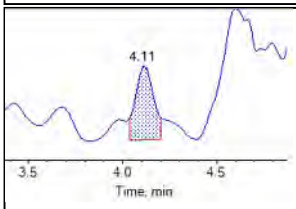
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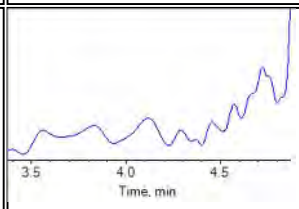
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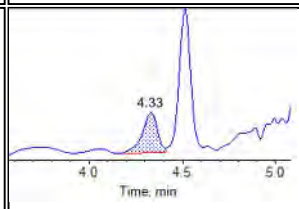
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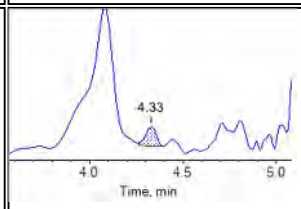
PFTrDA_1



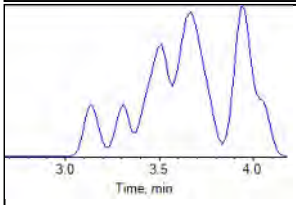
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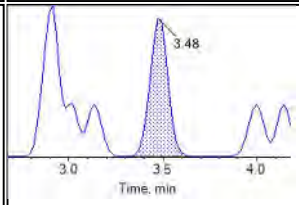
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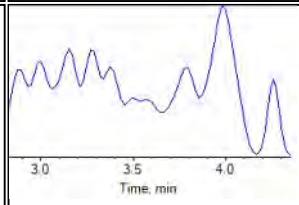
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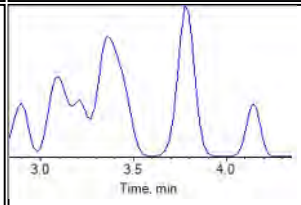
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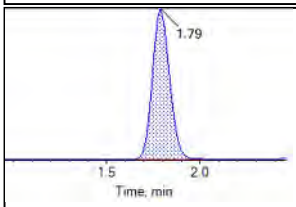
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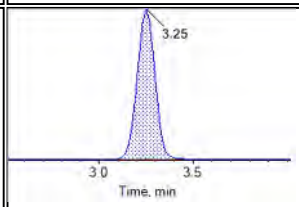
NEtFOSAA_1



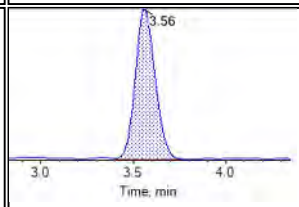
NEtFOSAA_2



13C2-PFHxA

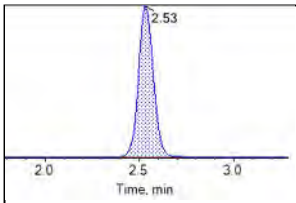


13C2-PFDA

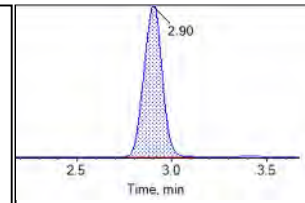


d5-EtFOSAA

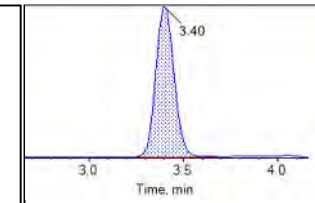
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

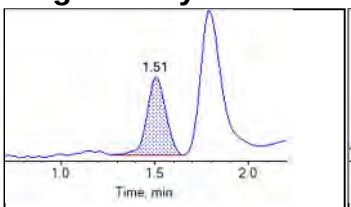
Chromatogram Report

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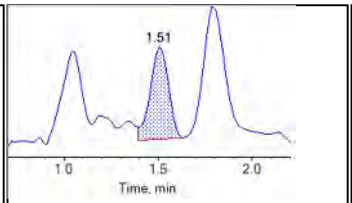
Sample Name	J6591-FS(0)	**Injection Vial**	36
Sample ID	NAWC-060408-FRB-039	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:21:24	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

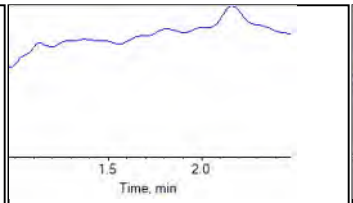
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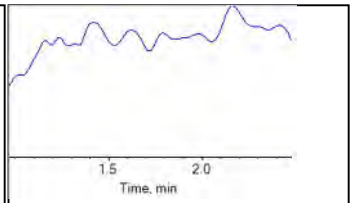
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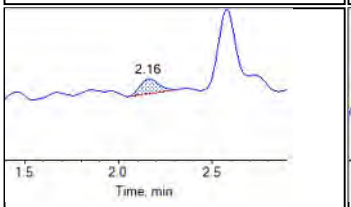
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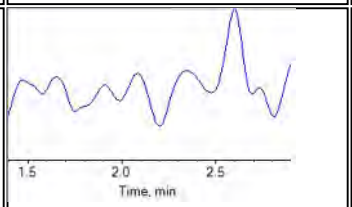
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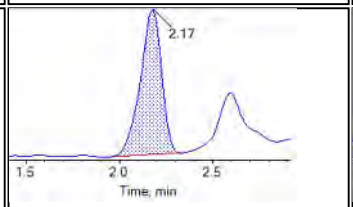
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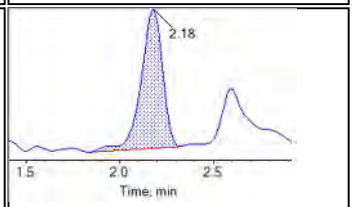
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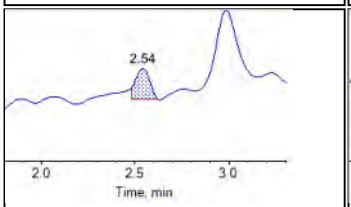
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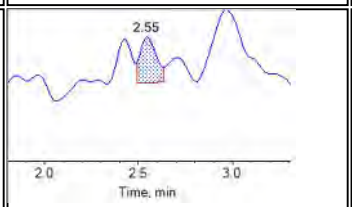
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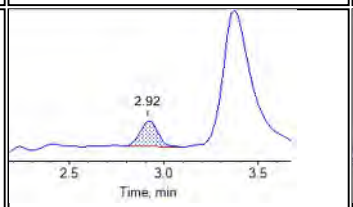
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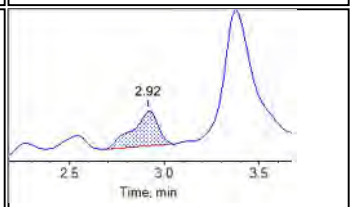
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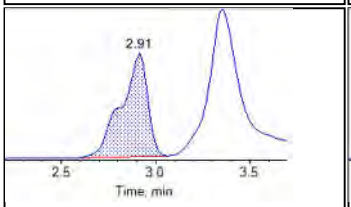
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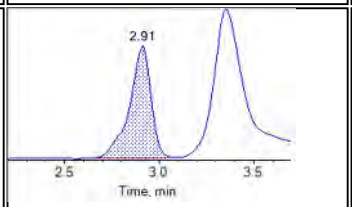
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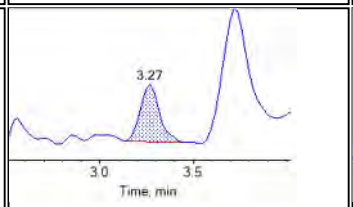
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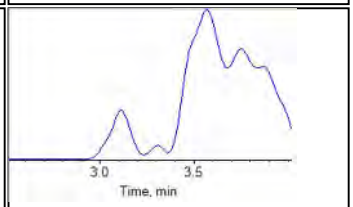
PFOS_1



PFOS_2



PFDA_1

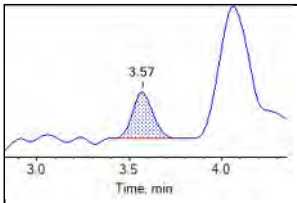


PFDA_2

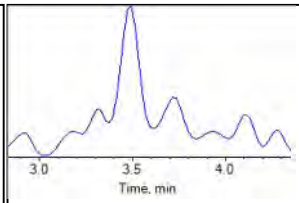
BATTELLE

Chromatogram Report

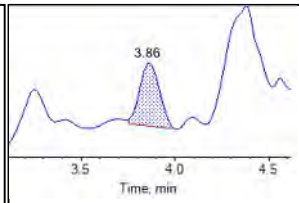
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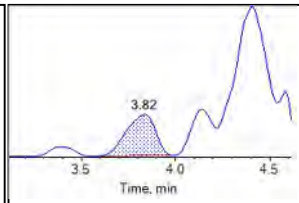
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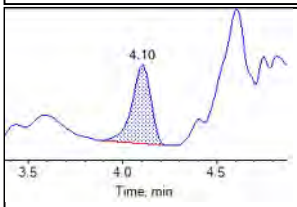
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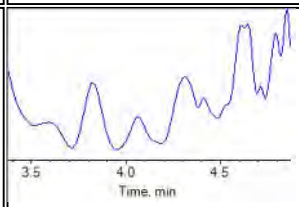
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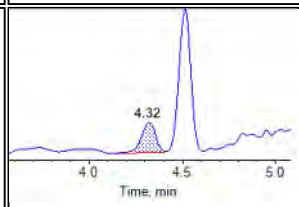
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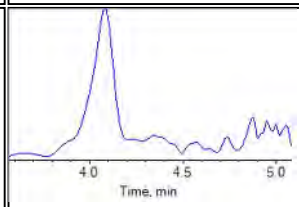
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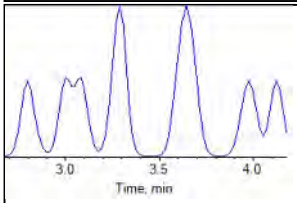
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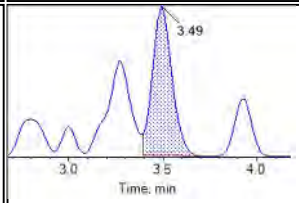
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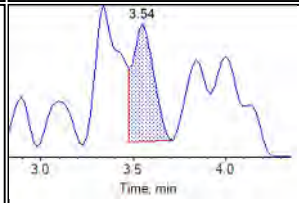
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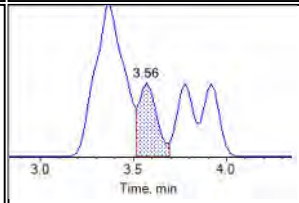
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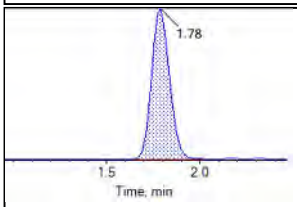
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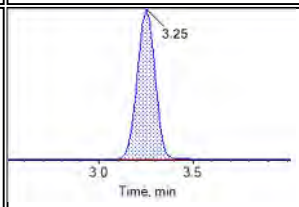
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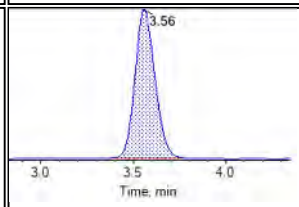
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13C2-PFHxA

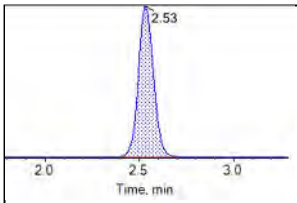


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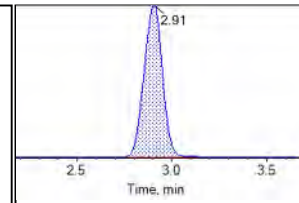


d5-EtFOSAA

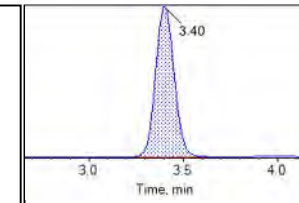
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

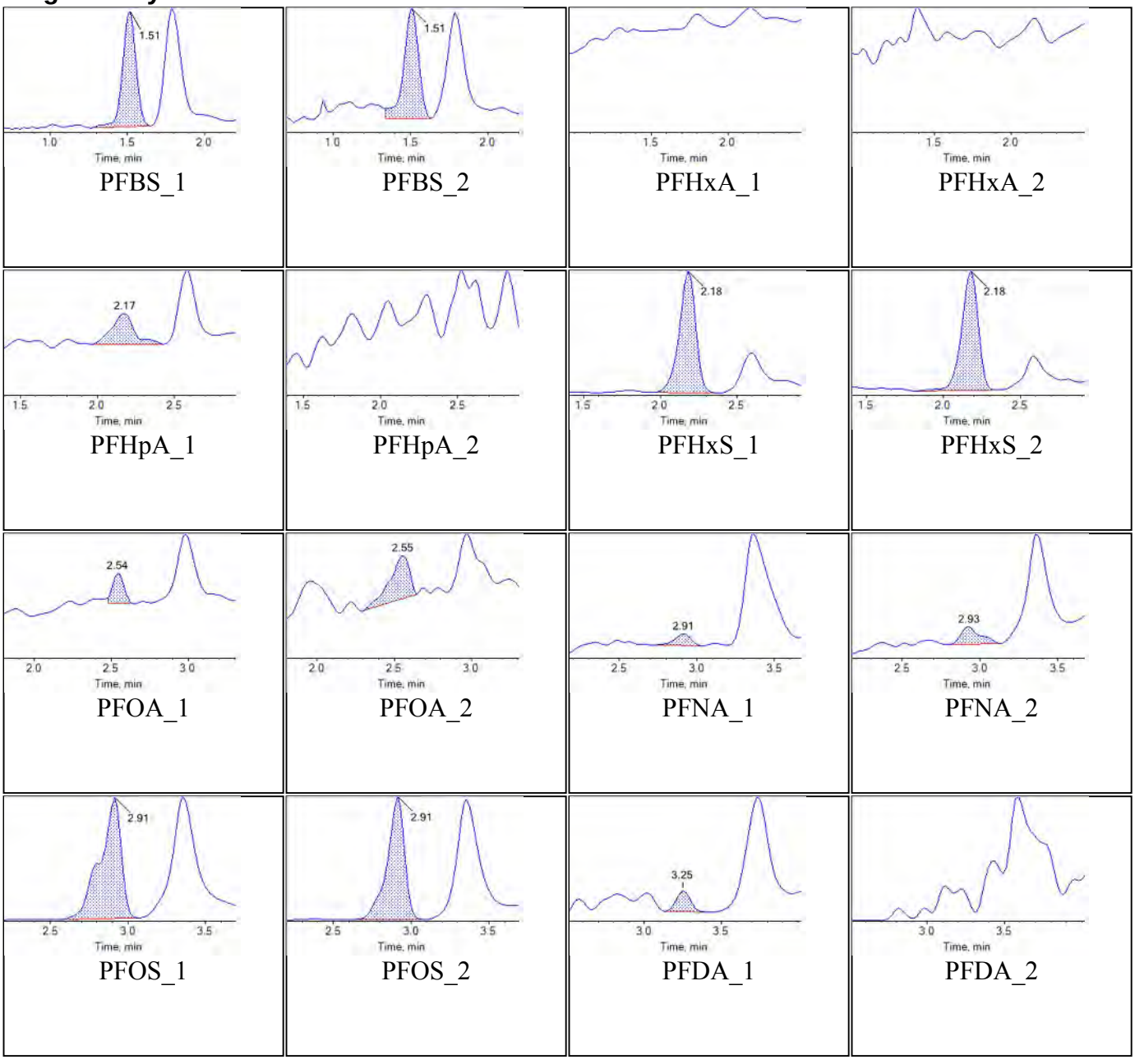
Chromatogram Report

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Sample Name	J6638-FS(0)	**Injection Vial**	37
Sample ID	WGNA-060718-FRB-0488	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:30:19	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

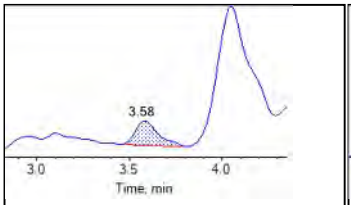
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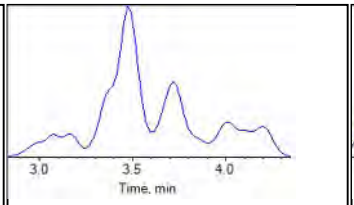
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Chromatogram Report

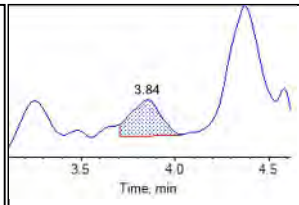
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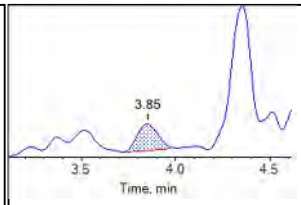
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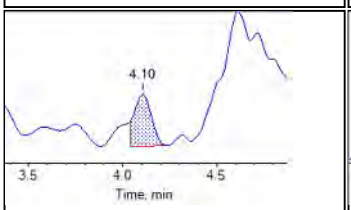
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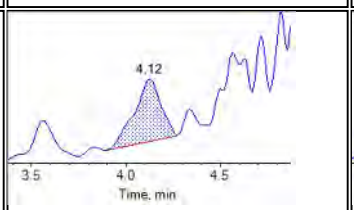
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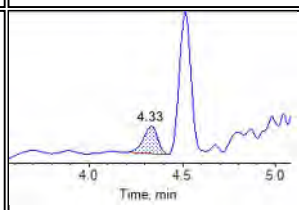
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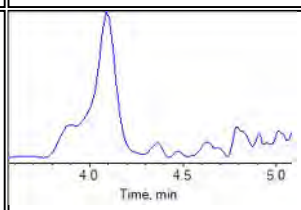
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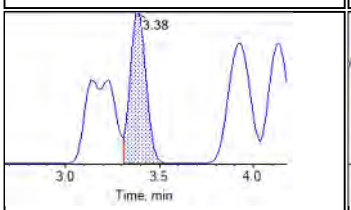
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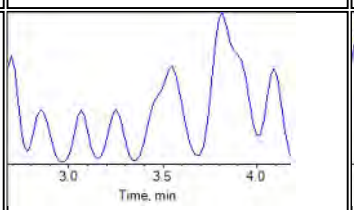
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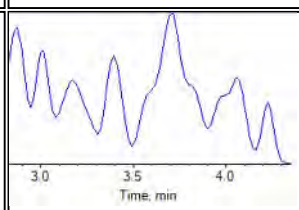
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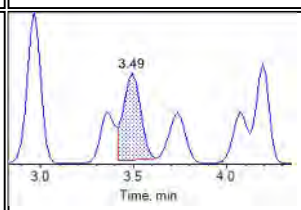
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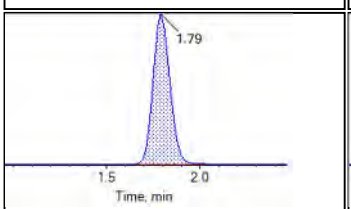
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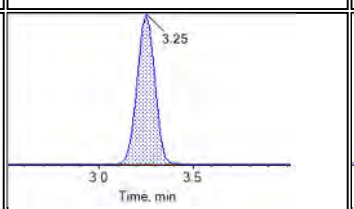
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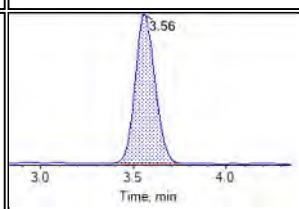
NEtFOSAA_2



13C2-PFHxA

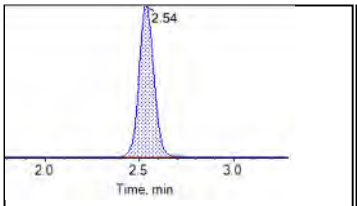


13C2-PFDA

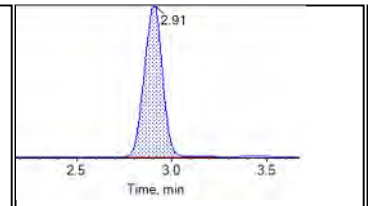


d5-EtFOSAA

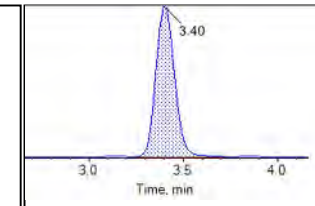
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

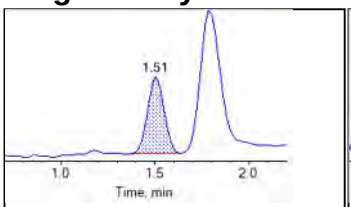
Chromatogram Report

Created with Analyst Reporter
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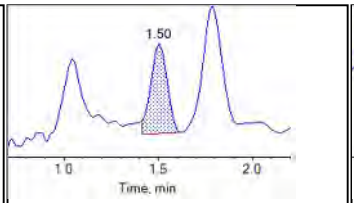
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Sample ID	NAWC-060718-FRB-175	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:39:15	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

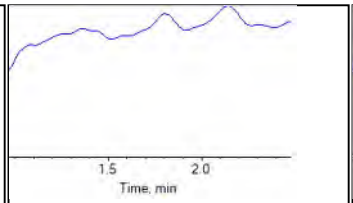
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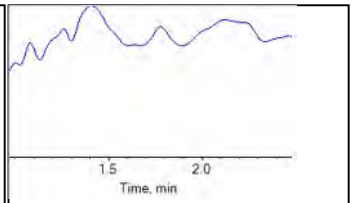
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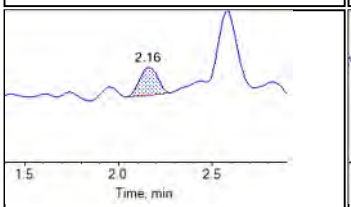
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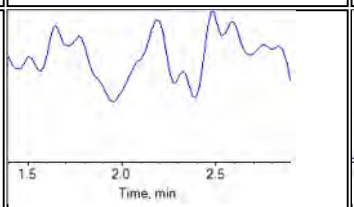
PFHxA_1



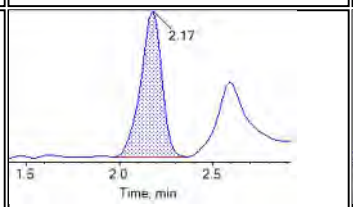
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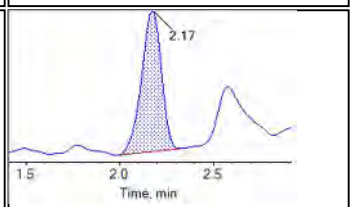
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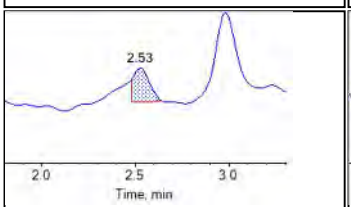
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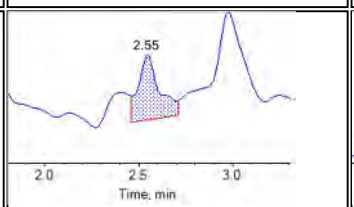
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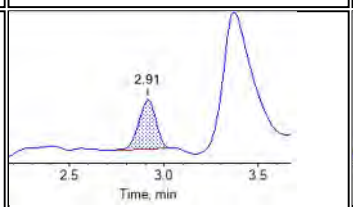
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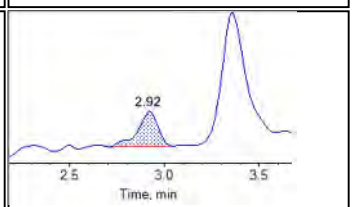
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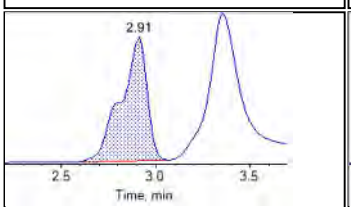
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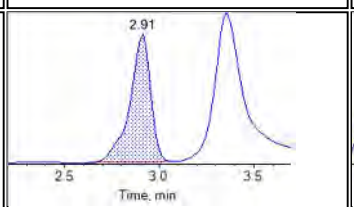
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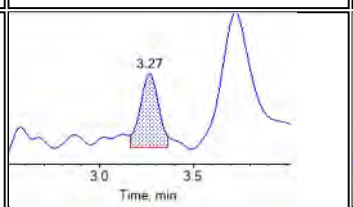
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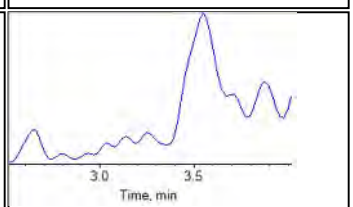
PFOS_1



PFOS_2



PFDA_1

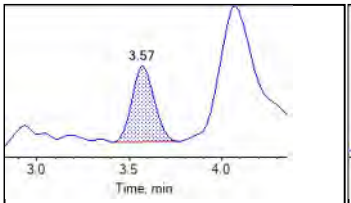


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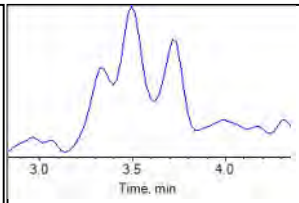
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Chromatogram Report

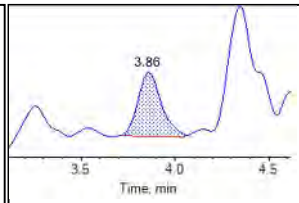
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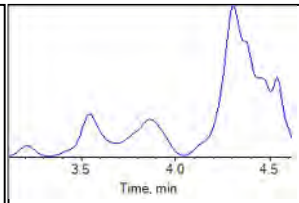
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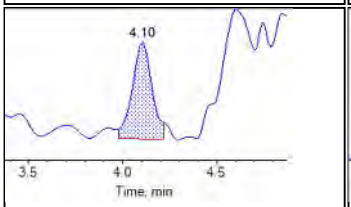
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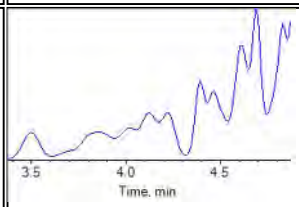
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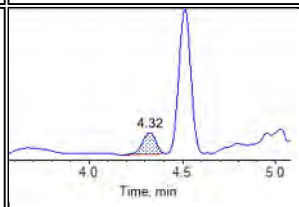
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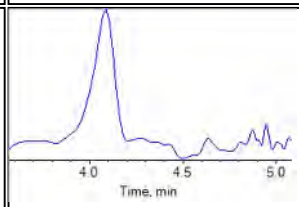
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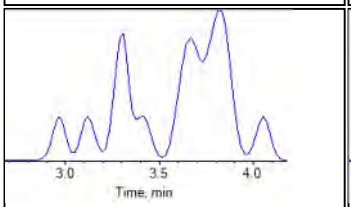
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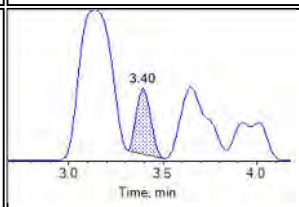
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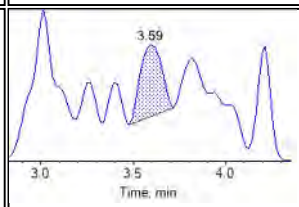
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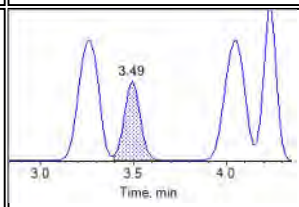
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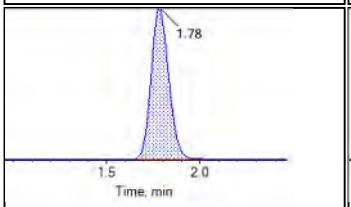
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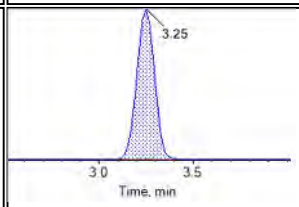
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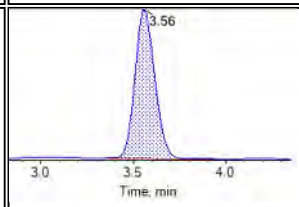
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13C2-PFHxA

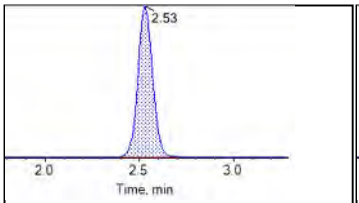


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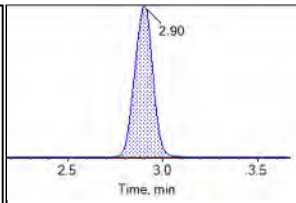


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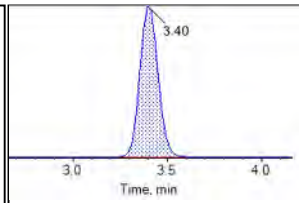
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

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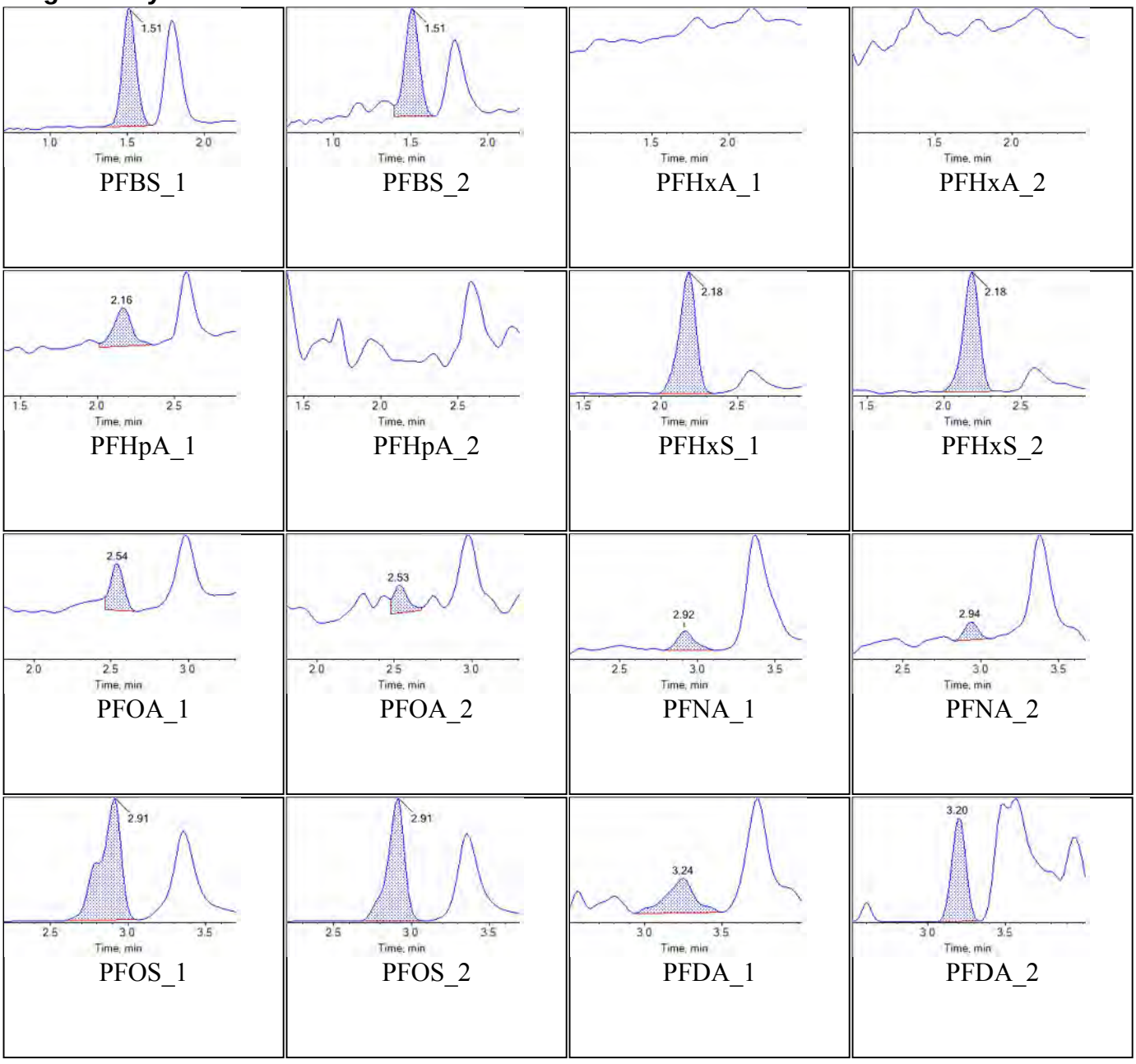
Chromatogram Report

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Sample Name	J6643-FS(0)	**Injection Vial**	39
Sample ID	WGNA-060718-FRB-0626	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:48:11	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

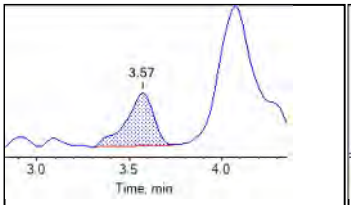
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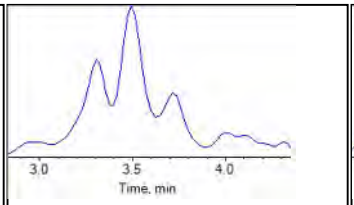
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Chromatogram Report

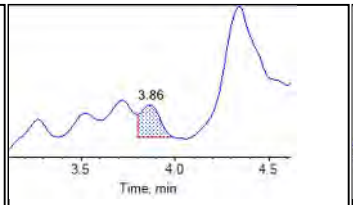
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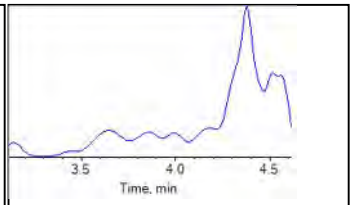
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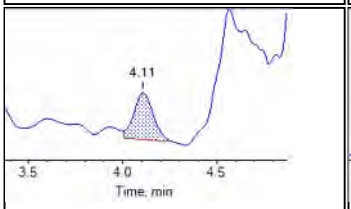
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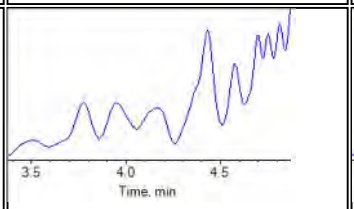
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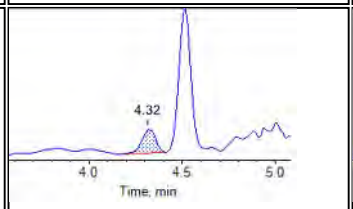
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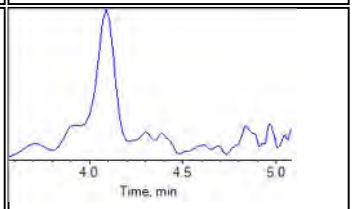
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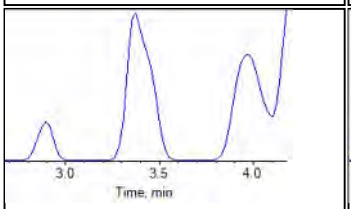
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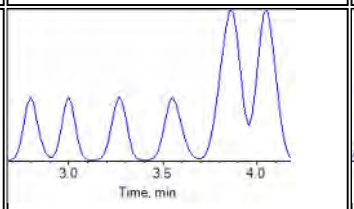
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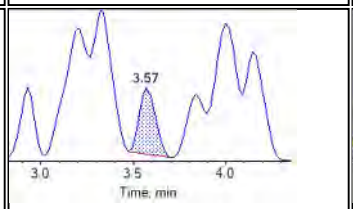
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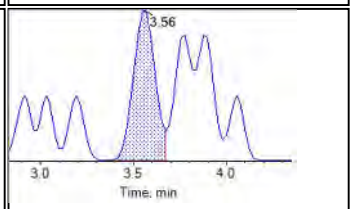
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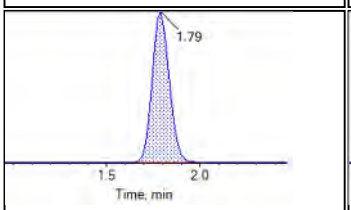
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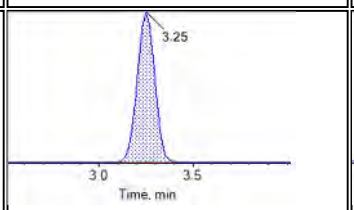
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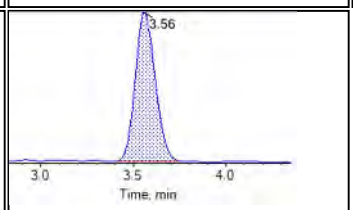
NEtFOSAA_2



13C2-PFHxA

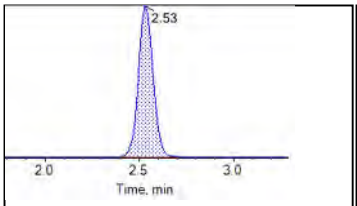


13C2-PFDA

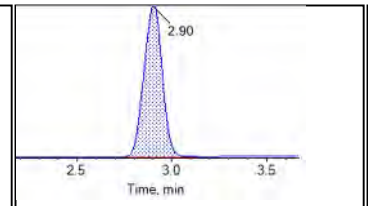


d5-EtFOSAA

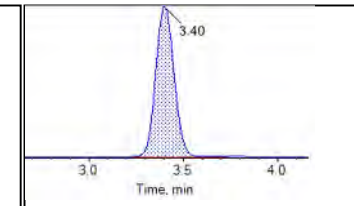
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

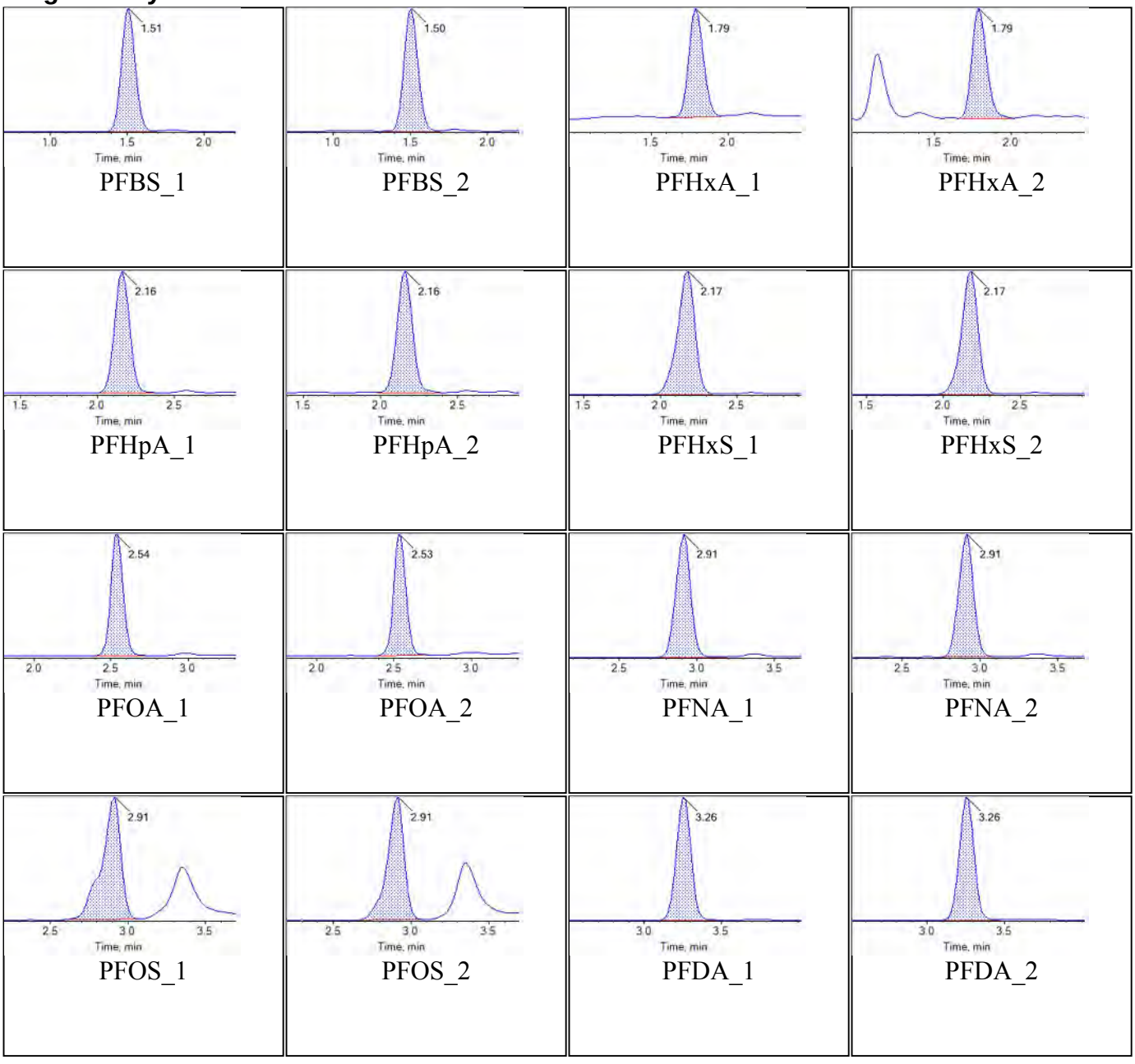
Chromatogram Report

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Sample Name	JV69 CCV	**Injection Vial**	40
Sample ID	L6 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:57:07	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Chromatograms

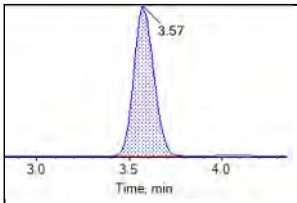
Target Analytes:



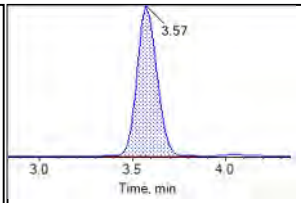
BATTELLE

Chromatogram Report

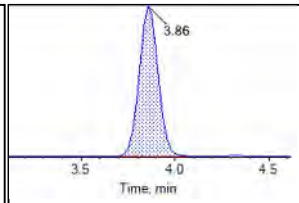
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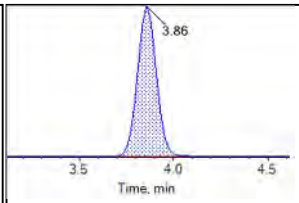
PFUnA_1



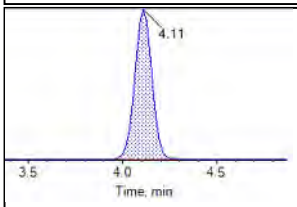
PFUnA_2



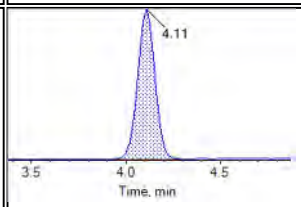
PFDoA_1



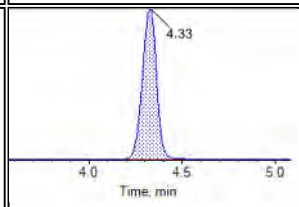
PFDoA_2



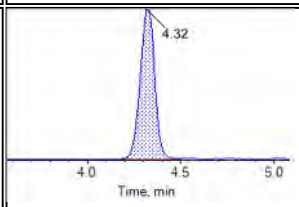
PFTrDA_1



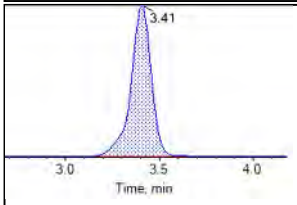
PFTrDA_2



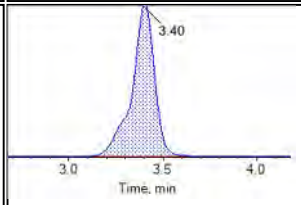
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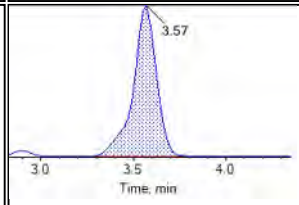
PFTeDA_2



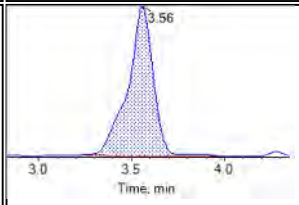
NMeFOSAA_1



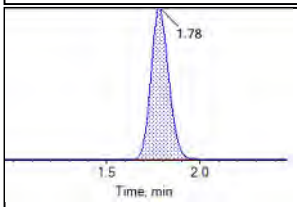
NMeFOSAA_2



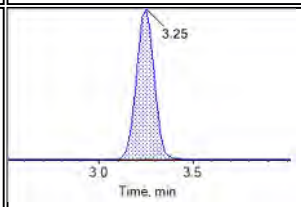
NEtFOSAA_1



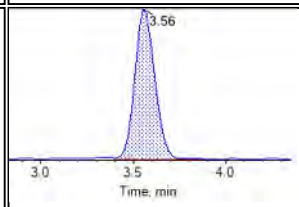
NEtFOSAA_2



13C2-PFHxA

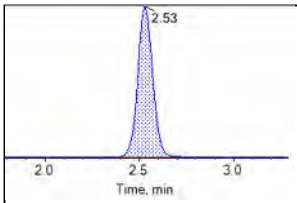


13C2-PFDA

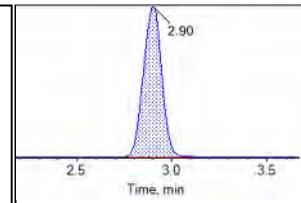


d5-EtFOSAA

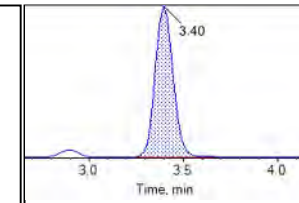
Internal Standards:



13C2-PFOA



13C4-PFOS



d3-MeFOSAA

BATTELLE

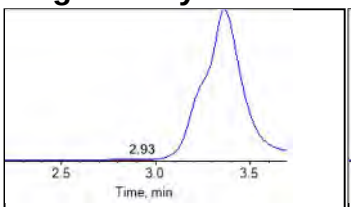
Chromatogram Report

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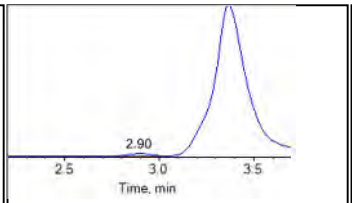
Sample Name	JV64	**Injection Vial**	2
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:24:11	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Chromatograms

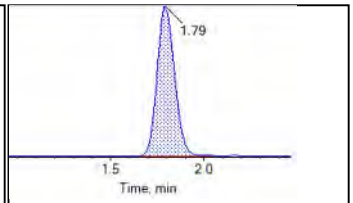
Target Analytes:



PFOS_1

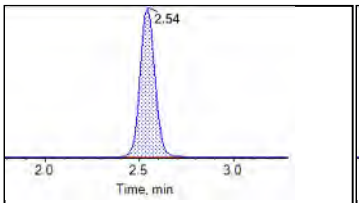


PFOS_2

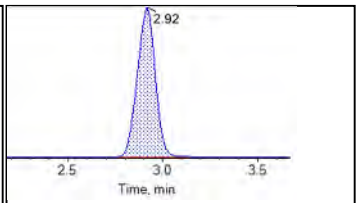


13C2-PFHxA

Internal Standards:



13C2-PFOA



13C4-PFOS

BATTELLE

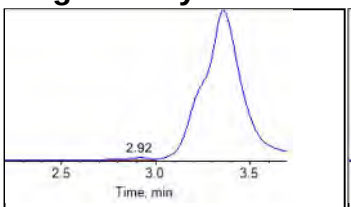
Chromatogram Report

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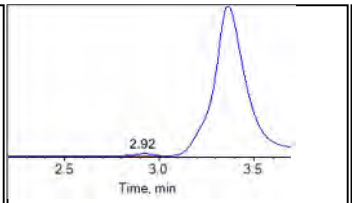
Sample Name	JV65	**Injection Vial**	3
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:33:07	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Chromatograms

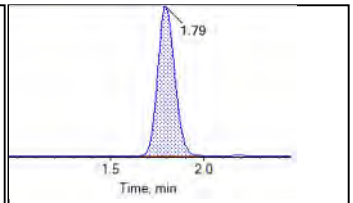
Target Analytes:



PFOS_1

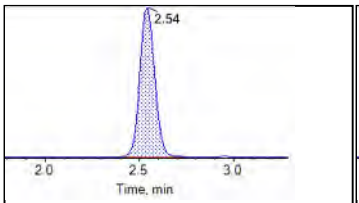


PFOS_2

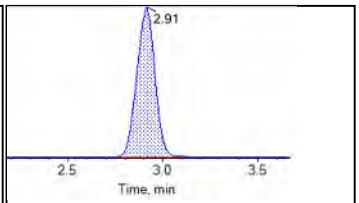


13C2-PFHxA

Internal Standards:



13C2-PFOA



13C4-PFOS

BATTELLE

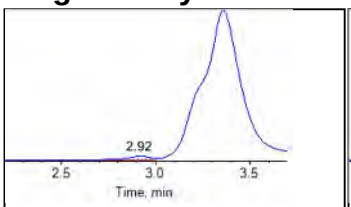
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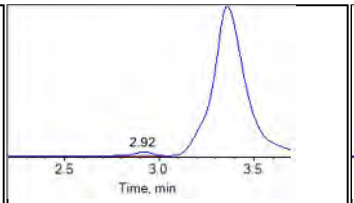
Sample Name	JV66	**Injection Vial**	4
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:42:03	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Chromatograms

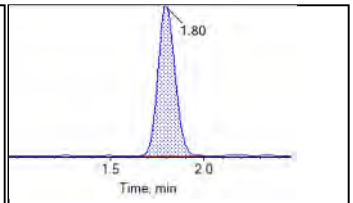
Target Analytes:



PFOS_1

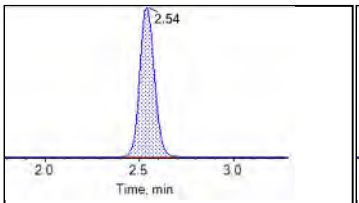


PFOS_2

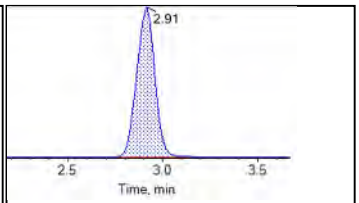


13C2-PFHxA

Internal Standards:



13C2-PFOA



13C4-PFOS

BATTELLE

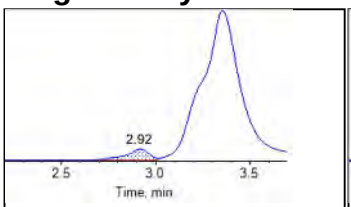
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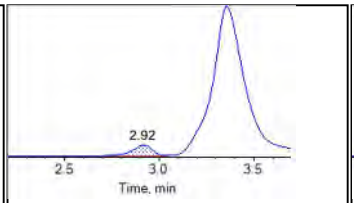
Sample Name	JV67	**Injection Vial**	5
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:50:59	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Chromatograms

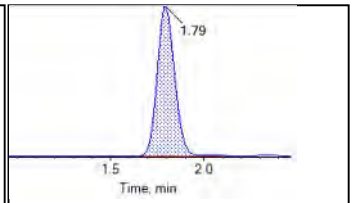
Target Analytes:



PFOS_1

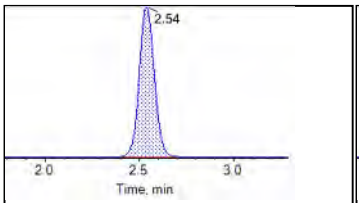


PFOS_2

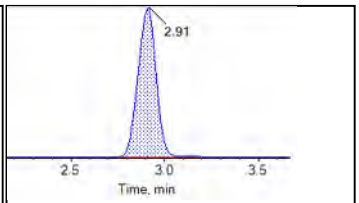


13C2-PFHxA

Internal Standards:



13C2-PFOA



13C4-PFOS

BATTELLE

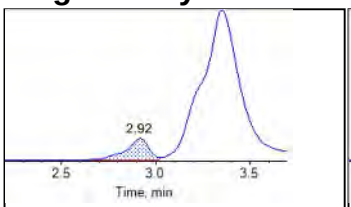
Chromatogram Report

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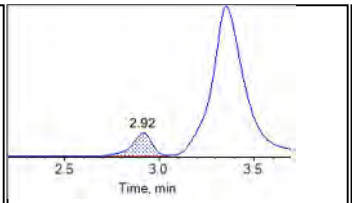
Sample Name	JV68	**Injection Vial**	6
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:59:55	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Chromatograms

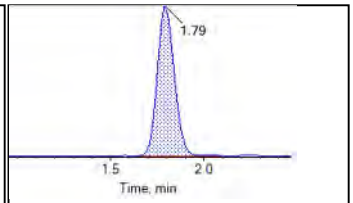
Target Analytes:



PFOS_1

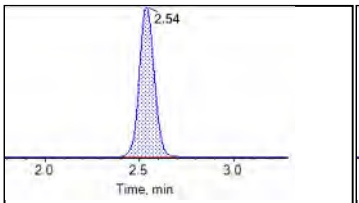


PFOS_2

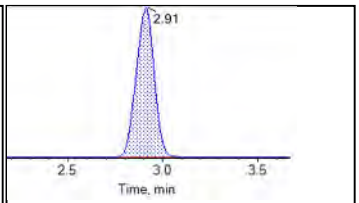


13C2-PFHxA

Internal Standards:



13C2-PFOA



13C4-PFOS

BATTELLE

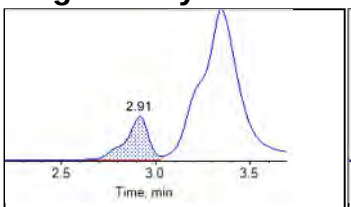
Chromatogram Report

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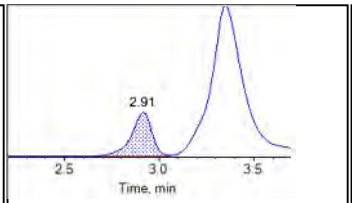
Sample Name	JV69	**Injection Vial**	7
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:08:50	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Chromatograms

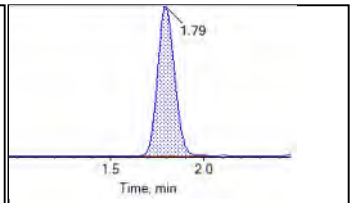
Target Analytes:



PFOS_1

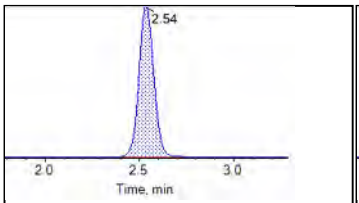


PFOS_2

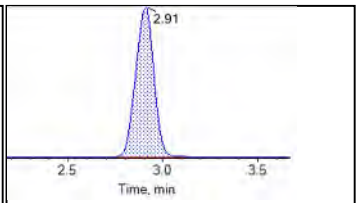


13C2-PFHxA

Internal Standards:



13C2-PFOA



13C4-PFOS

BATTELLE

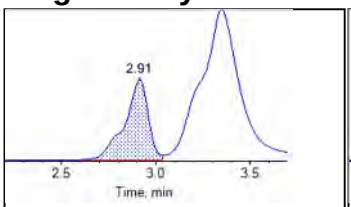
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 12:10:55 PM

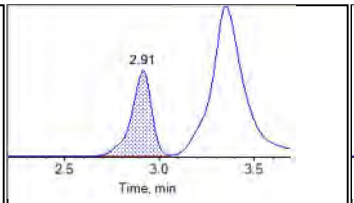
Sample Name	JV70	**Injection Vial**	8
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:17:46	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Chromatograms

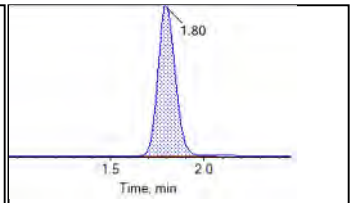
Target Analytes:



PFOS_1

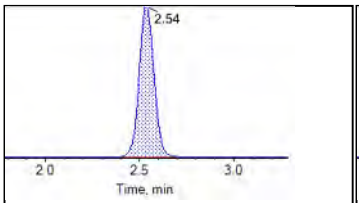


PFOS_2

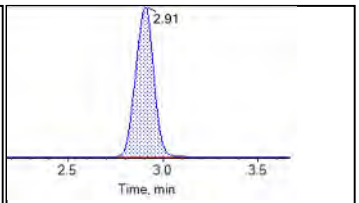


13C2-PFHxA

Internal Standards:



13C2-PFOA



13C4-PFOS

BATTELLE

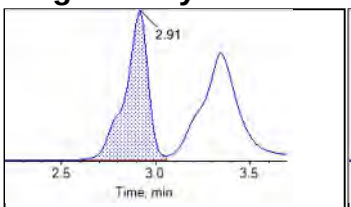
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 12:10:57 PM

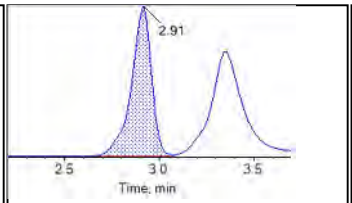
Sample Name	JV71	**Injection Vial**	9
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:26:43	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Chromatograms

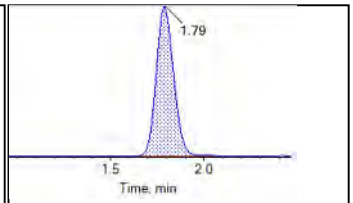
Target Analytes:



PFOS_1

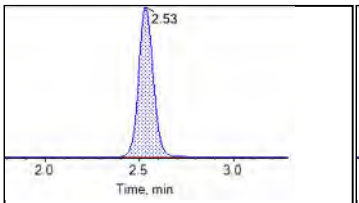


PFOS_2

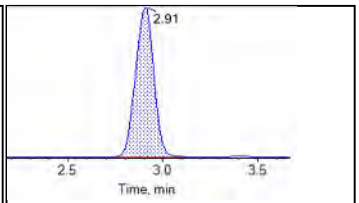


13C2-PFHxA

Internal Standards:



13C2-PFOA



13C4-PFOS

BATTELLE

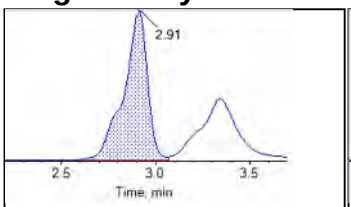
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 12:11:00 PM

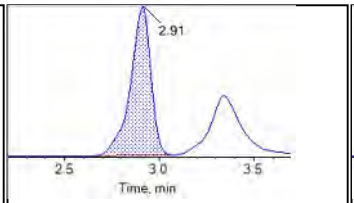
Sample Name	JV72	**Injection Vial**	10
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:35:40	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Chromatograms

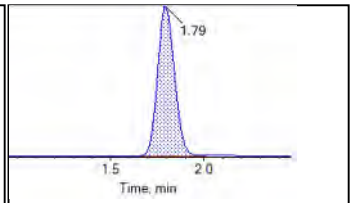
Target Analytes:



PFOS_1

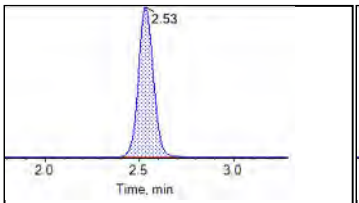


PFOS_2

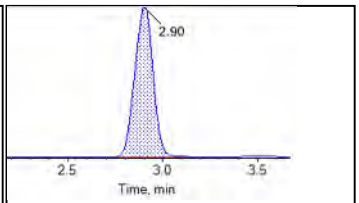


13C2-PFHxA

Internal Standards:



13C2-PFOA



13C4-PFOS

BATTELLE

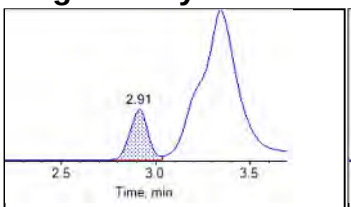
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 12:11:03 PM

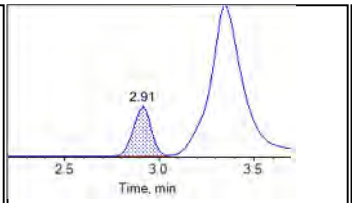
Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID		**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:44:36	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Chromatograms

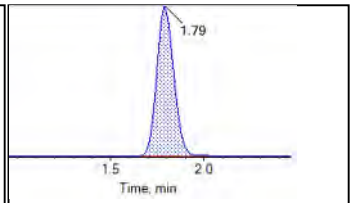
Target Analytes:



PFOS_1

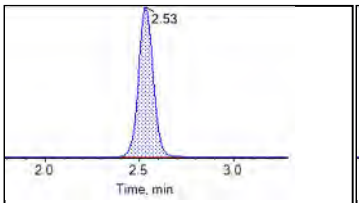


PFOS_2

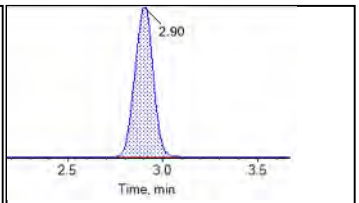


13C2-PFHxA

Internal Standards:



13C2-PFOA



13C4-PFOS

BATTELLE

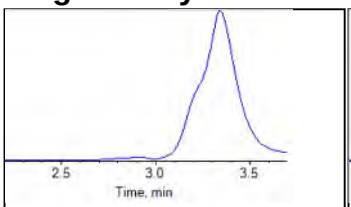
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 12:11:08 PM

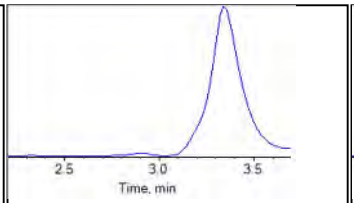
Sample Name	J6300-FS(0)	**Injection Vial**	22
Sample ID		**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T10:02:27	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Chromatograms

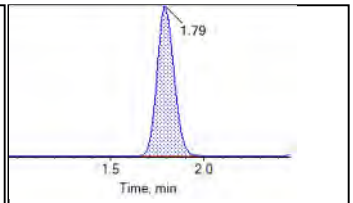
Target Analytes:



PFOS_1

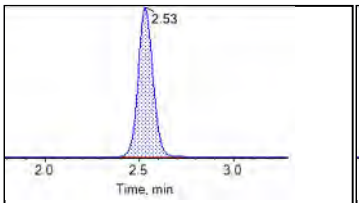


PFOS_2

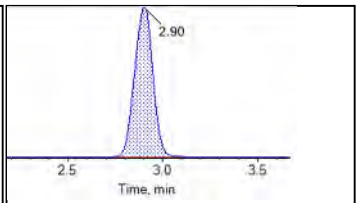


13C2-PFHxA

Internal Standards:



13C2-PFOA



13C4-PFOS

BATTELLE

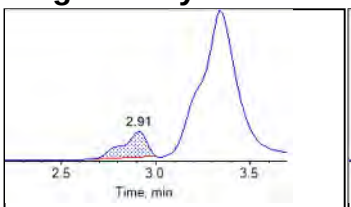
Chromatogram Report

Created with Analyst Reporter
Printed: 22/06/2018 12:11:11 PM

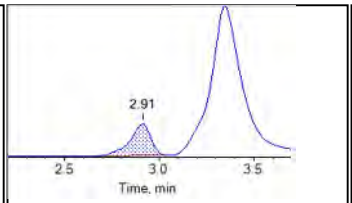
Sample Name	J6643-FS(0)	**Injection Vial**	23
Sample ID		**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T10:11:23	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Chromatograms

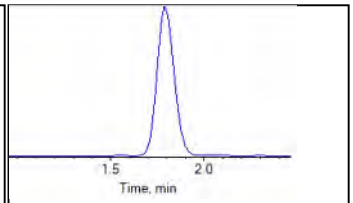
Target Analytes:



PFOS_1

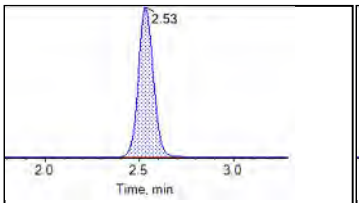


PFOS_2

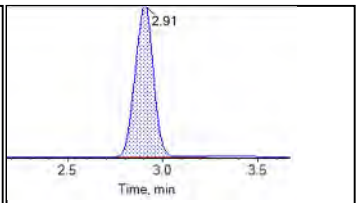


13C2-PFHxA

Internal Standards:



13C2-PFOA



13C4-PFOS

BATTELLE

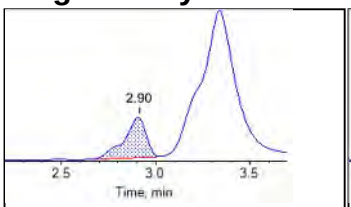
Chromatogram Report

Created with Analyst Reporter
Printed: 26/06/2018 8:24:19 AM

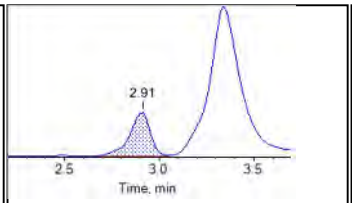
Sample Name	JV69	**Injection Vial**	7
Sample ID		**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T10:20:17	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Chromatograms

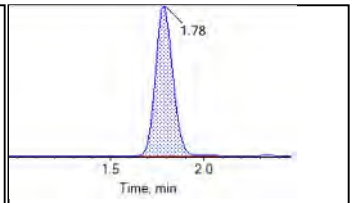
Target Analytes:



PFOS_1

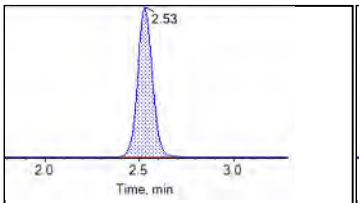


PFOS_2

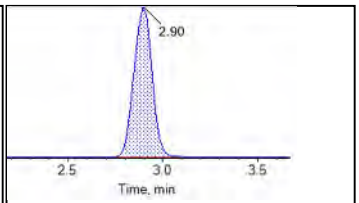


13C2-PFHxA

Internal Standards:



13C2-PFOA



13C4-PFOS

Unused Data

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

Client ID	NAWC-053118-FRB-256				
Battelle ID	J6291-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	U	0.22	0.50	2.50
PFHpA	1.00	U	0.34	1.00	2.50
PFOA	1.00	U	0.38	1.00	2.50
PFNA	1.00	U	0.37	1.00	2.50
PFDA	1.00	U	0.39	1.00	2.50
PFUnA	1.00	U	0.38	1.00	2.50
PFDoA	1.00	U	0.42	1.00	2.50
PFTrDA	1.00	U	0.42	1.00	2.50
PFTeDA	1.50	U	0.73	1.50	2.50
NMeFOSAA	1.00	U	0.42	1.00	2.50
NEtFOSAA	1.00	U	0.44	1.00	2.50
PFBS	0.50	U	0.21	0.50	2.50
PFHxS	1.00	U	0.34	1.00	2.50
PFOS	1.78	J	0.30	1.00	2.50
Surrogate Recoveries (%)					
13C2-PFHxA	113				
13C2-PFDA	107				
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-053118-FRB-126			
Battelle ID	J6293-FS			
Sample Type	SA			
Collection Date	05/31/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDoA	1.00 U	0.42	1.00	2.50
PFTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	106			
13C2-PFDA	101			
d5-EtFOSAA	97			

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

Client ID	WGNA-053118-FRB-4850				
Battelle ID	J6296-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	0.50	U	0.22	0.50	2.50
PFHpA	1.00	U	0.34	1.00	2.50
PFOA	1.00	U	0.38	1.00	2.50
PFNA	1.00	U	0.37	1.00	2.50
PFDA	1.00	U	0.39	1.00	2.50
PFUnA	1.00	U	0.38	1.00	2.50
PFDoA	1.00	U	0.42	1.00	2.50
PFTrDA	1.00	U	0.42	1.00	2.50
PFTeDA	1.50	U	0.73	1.50	2.50
NMeFOSAA	1.00	U	0.42	1.00	2.50
NEtFOSAA	1.00	U	0.44	1.00	2.50
PFBS	0.50	U	0.21	0.50	2.50
PFHxS	1.00	U	0.34	1.00	2.50
PFOS	1.81	J	0.30	1.00	2.50
Surrogate Recoveries (%)					
13C2-PFHxA	103				
13C2-PFDA	91				
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-053118-FRB-311			
Battelle ID	J6298-FS			
Sample Type	SA			
Collection Date	05/31/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDoA	1.00 U	0.42	1.00	2.50
PFTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	0.31 J	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	104			
13C2-PFDA	99			
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-053118-FRB-265			
Battelle ID	J6300-FS			
Sample Type	SA			
Collection Date	05/31/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDoA	1.00 U	0.42	1.00	2.50
PFTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	107			
13C2-PFDA	102			
d5-EtFOSAA	92			

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

Client ID	NAWC-060418-FRB-230				
Battelle ID	J6583-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	U	0.22	0.50	2.50
PFHpA	1.00	U	0.34	1.00	2.50
PFOA	1.00	U	0.38	1.00	2.50
PFNA	1.00	U	0.37	1.00	2.50
PFDA	1.00	U	0.39	1.00	2.50
PFUnA	1.00	U	0.38	1.00	2.50
PFDoA	1.00	U	0.42	1.00	2.50
PFTrDA	1.00	U	0.42	1.00	2.50
PFTeDA	1.50	U	0.73	1.50	2.50
NMeFOSAA	1.00	U	0.42	1.00	2.50
NEtFOSAA	1.00	U	0.44	1.00	2.50
PFBS	0.50	U	0.21	0.50	2.50
PFHxS	1.00	U	0.34	1.00	2.50
PFOS	2.30	J	0.30	1.00	2.50
Surrogate Recoveries (%)					
13C2-PFHxA	105				
13C2-PFDA	97				
d5-EtFOSAA	99				

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

Client ID	NAWC-060418-FRB-309			
Battelle ID	J6585-FS			
Sample Type	SA			
Collection Date	06/04/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
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 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDoA	1.00 U	0.42	1.00	2.50
PFTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	104			
13C2-PFDA	99			
d5-EtFOSAA	111			

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

Client ID	NAWC-060418-FRB-293				
Battelle ID	J6587-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	1.29	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
PFDoA	1.00	U	0.42	1.00	2.50
PFTrDA	1.00	U	0.42	1.00	2.50
PFTeDA	1.50	U	0.73	1.50	2.50
NMeFOSAA	1.00	U	0.42	1.00	2.50
NEtFOSAA	1.00	U	0.44	1.00	2.50
PFBS	0.50	U	0.21	0.50	2.50
PFHxS	1.00	U	0.34	1.00	2.50
PFOS	1.00	U	0.30	1.00	2.50
Surrogate Recoveries (%)					
13C2-PFHxA	98				
13C2-PFDA	102				
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-060418-FRB-038			
Battelle ID	J6589-FS			
Sample Type	SA			
Collection Date	06/04/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDoA	1.00 U	0.42	1.00	2.50
PFTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.64 J	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	107			
13C2-PFDA	101			
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-060418-FRB-039				
Battelle ID	J6591-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	0.50	U	0.22	0.50	2.50
PFHpA	1.00	U	0.34	1.00	2.50
PFOA	1.00	U	0.38	1.00	2.50
PFNA	1.00	U	0.37	1.00	2.50
PFDA	1.00	U	0.39	1.00	2.50
PFUnA	1.00	U	0.38	1.00	2.50
PFDoA	1.00	U	0.42	1.00	2.50
PFTrDA	1.00	U	0.42	1.00	2.50
PFTeDA	1.50	U	0.73	1.50	2.50
NMeFOSAA	1.00	U	0.42	1.00	2.50
NEtFOSAA	1.00	U	0.44	1.00	2.50
PFBS	0.50	U	0.21	0.50	2.50
PFHxS	1.00	U	0.34	1.00	2.50
PFOS	1.37	J	0.30	1.00	2.50
Surrogate Recoveries (%)					
13C2-PFHxA	105				
13C2-PFDA	93				
d5-EtFOSAA	119				

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

Client ID	WGNA-060718-FRB-0488			
Battelle ID	J6638-FS			
Sample Type	SA			
Collection Date	06/07/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
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 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDoA	1.00 U	0.42	1.00	2.50
PFTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	2.39 J	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	103			
13C2-PFDA	94			
d5-EtFOSAA	99			

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

Client ID	NAWC-060718-FRB-175				
Battelle ID	J6640-FS				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	U	0.22	0.50	2.50
PFHpA	1.00	U	0.34	1.00	2.50
PFOA	1.00	U	0.38	1.00	2.50
PFNA	1.00	U	0.37	1.00	2.50
PFDA	1.00	U	0.39	1.00	2.50
PFUnA	1.00	U	0.38	1.00	2.50
PFDoA	1.00	U	0.42	1.00	2.50
PFTrDA	1.00	U	0.42	1.00	2.50
PFTeDA	1.50	U	0.73	1.50	2.50
NMeFOSAA	1.00	U	0.42	1.00	2.50
NEtFOSAA	1.00	U	0.44	1.00	2.50
PFBS	0.50	U	0.21	0.50	2.50
PFHxS	1.00	U	0.34	1.00	2.50
PFOS	1.56	J	0.30	1.00	2.50
Surrogate Recoveries (%)					
13C2-PFHxA	102				
13C2-PFDA	92				
d5-EtFOSAA	107				

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

Client ID	WGNA-060718-FRB-0626			
Battelle ID	J6643-FS			
Sample Type	SA			
Collection Date	06/07/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
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 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDoA	1.00 U	0.42	1.00	2.50
PFTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	0.35 J	0.34	1.00	2.50
PFOS	2.48 J	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	112			
13C2-PFDA	101			
d5-EtFOSAA	94			

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	CQ924PB-FS				
Sample Type	PB				
Collection Date	06/14/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	WATER				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	0.50	U	0.22	0.50	2.50
PFHpA	1.00	U	0.34	1.00	2.50
PFOA	1.00	U	0.38	1.00	2.50
PFNA	1.00	U	0.37	1.00	2.50
PFDA	1.00	U	0.39	1.00	2.50
PFUnA	1.00	U	0.38	1.00	2.50
PFDoA	1.00	U	0.42	1.00	2.50
PFTrDA	1.00	U	0.42	1.00	2.50
PFTeDA	1.50	U	0.73	1.50	2.50
NMeFOSAA	1.00	U	0.42	1.00	2.50
NEtFOSAA	1.00	U	0.44	1.00	2.50
PFBS	0.50	U	0.21	0.50	2.50
PFHxS	1.00	U	0.34	1.00	2.50
PFOS	0.46	J	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	112
13C2-PFDA	104
d5-EtFOSAA	102

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	CQ925LCS-FS					
Sample Type	LCS					
Collection Date	06/14/2018					
Extraction Date	06/14/2018					
Analysis Date	06/15/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	WATER					
Sample Size	0.250					
Size Unit-Basis	L				Control Limits	
Units	ng/L	Target	Recovery	Qual	Lower	Upper
PFHxA	10.23	10.00	102		70	130
PFHpA	9.73	10.00	97		70	130
PFOA	9.91	10.00	99		70	130
PFNA	9.88	10.00	99		70	130
PFDA	9.75	10.00	98		70	130
PFUnA	10.29	10.00	103		70	130
PFDoA	9.61	10.00	96		70	130
PFTrDA	9.24	10.00	92		70	130
PFTeDA	12.63	10.00	126		70	130
NMeFOSAA	10.39	10.00	104		70	130
NEtFOSAA	11.44	10.00	114		70	130
PFBS	7.96	8.85	90		70	130
PFHxS	8.79	9.45	93		70	130
PFOS	9.89	9.55	104		70	130

Surrogate Recoveries (%)

13C2-PFHxA	111
13C2-PFDA	106
d5-EtFOSAA	95

BATTELLE
It can be done

Glossary of Data Qualifiers

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

"CQ924PB-FS" "SOP 5-369" "Initial" "CQ924PB-FS" "BNO" "307-24-4" "PFHxA" ".500000"
"ng/L" "U" ".220000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" ".500000" ""
"CQ924PB-FS" "SOP 5-369" "Initial" "CQ924PB-FS" "BNO" "375-85-9" "PFHpA" "1.000000"
"ng/L" "U" ".340000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" "1.000000" ""
"CQ924PB-FS" "SOP 5-369" "Initial" "CQ924PB-FS" "BNO" "335-67-1" "PFOA" "1.000000"
"ng/L" "U" ".380000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" "1.000000" ""
"CQ924PB-FS" "SOP 5-369" "Initial" "CQ924PB-FS" "BNO" "375-95-1" "PFNA" "1.000000"
"ng/L" "U" ".370000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" "1.000000" ""
"CQ924PB-FS" "SOP 5-369" "Initial" "CQ924PB-FS" "BNO" "335-76-2" "PFDA" "1.000000"
"ng/L" "U" ".390000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" "1.000000" ""
"CQ924PB-FS" "SOP 5-369" "Initial" "CQ924PB-FS" "BNO" "2058-94-8" "PFUnA" "1.000000"
"ng/L" "U" ".380000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" "1.000000" ""
"CQ924PB-FS" "SOP 5-369" "Initial" "CQ924PB-FS" "BNO" "307-55-1" "PFDoA" "1.000000"
"ng/L" "U" ".420000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" "1.000000" ""
"CQ924PB-FS" "SOP 5-369" "Initial" "CQ924PB-FS" "BNO" "72629-94-8" "PFTrDA" "1.000000"
"ng/L" "U" ".420000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" "1.000000" ""
"CQ924PB-FS" "SOP 5-369" "Initial" "CQ924PB-FS" "BNO" "376-06-7" "PFTeDA" "1.500000"
"ng/L" "U" ".730000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES" "-99.000000" ""
".250000" ".000500" "1.500000" ""
"CQ924PB-FS" "SOP 5-369" "Initial" "CQ924PB-FS" "BNO" "2355-31-9" "NMeFOSAA"
"1.000000" "ng/L" "U" ".420000" "MDL" "" "T" "" "" "2.500000" "LOQ" "YES"
"-99.000000" "" ".250000" ".000500" "1.000000" ""
"CQ924PB-FS" "SOP 5-369" "Initial" "CQ924PB-FS" "BNO" "2991-50-6" "NEtFOSAA" "1.000000"
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TETRA TECH

INTERNAL CORRESPONDENCE

TO: **A. FREBOWITZ** **DATE:** **AUGUST 6, 2018**

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

SUBJECT: **ORGANIC DATA VALIDATION –POLYFLUOROALKYL SUBSTANCES (PFAS)**
NAS JRB WILLOW GROVE
SAMPLE DELIVERY GROUPS (SDGs) 18-0393, 18-0360

SAMPLES:

SDG 18-0393
15/Drinking Water

NAWC-053118-RW-126	NAWC-053118-RW-256
NAWC-053118-RW-265	NAWC-053118-RW-311
NAWC-060418-RW-038	NAWC-060418-RW-039
NAWC-060418-RW-230	NAWC-060418-RW-293
NAWC-060418-RW-309	NAWC-060718-RW-175
WGNA-053118-DUP-38	WGNA-053118-RW-4850
WGNA-060718-DUP-39	WGNA-060718-RW-0488
WGNA-060718-RW-0626	

SDG 18-0360
13/Field Reagent Blank (FRB)

NAWC-053118-FRB-126	NAWC-053118-FRB-256
NAWC-053118-FRB-265	NAWC-053118-FRB-311
NAWC-060418-FRB-038	NAWC-060418-FRB-039
NAWC-060418-FRB-230	NAWC-060418-FRB-293
NAWC-060418-FRB-309	NAWC-060718-FRB-175
WGNA-053118-FRB-4850	WGNA-060718-FRB-0488
WGNA-060718-FRB-0626	

Overview

The sample sets for NAS JRB Willow Grove, SDGs 18-0393 and 18-0360, consisted of fifteen (15) drinking water samples and thirteen (13) 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). Two field duplicate pairs, NAWC-053118-RW-126 / WGNA-053118-DUP-38 and NAWC-060718-RW-175 / WGNA-060718-DUP-39 were included in this SDG.

The samples were collected by Tetra Tech on May 31, June 4 and 7, 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 blanks/FRBs, surrogate spike recoveries (extracted internal standard recoveries), laboratory control sample results, matrix spike / matrix spike duplicate recoveries, injected internal standard areas and recoveries, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

The following compound was detected in method blank CR042PB affecting SDG 18-0393 at a concentration greater than the limit of quantitation (LOQ).

Compound	Concentration	LOQ
PFOS	4.56 ng/L	2.50 ng/L

The detected results for PFOS in the drinking water samples were qualified (X) because of laboratory preparation blank contamination.

The following compound was detected in a FRB sample at concentration > 1/3 the (LOQ).

Sample	Compound	Concentration
NAWC-060416-FRB-293	PFHxA	1.29 ng/L

The detected result for PFHxA in the associated drinking water sample was qualified (X) because of laboratory preparation blank contamination.

Minor

Eleven samples were re-extracted 3-7 days past the hold time due to possible instrument contamination. The original sample results were not included in this SDG. The samples affected were NAWC-053118-RW-256, NAWC-053118-RW-126, WGNA-053118-DUP-38, WGNA-053118-RW-4850, NAWC-053118-RW-311, NAWC-053118-RW-265, NAWC-060418-RW-230, NAWC-060418-RW-309, NAWC-060418-RW-293, NAWC-060418-RW-038 and NAWC-060418-RW-039. The detected and nondetected results reported in the affected samples were qualified as estimated (J) and (UJ) respectively, unless qualified (X) as a result of blank contamination.

The following compound was detected in method blank CR042PB affecting SDG 18-0393 at a concentration below the LOQ.

Compound	Concentration	LOQ
PFHxS	0.38 ng/L	2.50 ng/L

The detected result for PFHxS for sample WGNA-060718-RW-0626 was qualified as nondetected (U).

The surrogate recoveries for perfluoro-n-(1,2-$^{13}C_2$)hexanoic acid (^{13}C-PFHxA) were above the quality control limit for samples WGNA-053118-DUP-38, NAWC-060418-RW-230, WGNA-060718-RW-488 and WGNA-060718-DUP-39. The detected results reported for the affected sample were qualified as biased high (J+) or estimated (J), as a result of conflicting noncompliances, unless qualified (X) as a result of blank contamination.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries were above the quality control limit for PFOS and the MSD percent recovery was below the quality control limit for sample WGNA-053118-4850. The detected results reported in the affected sample were qualified as estimated (J), as a result of conflicting noncompliances unless qualified (X) as a result of blank contamination.

The results for PFOA in the field duplicate pair, NAWC-053118-RW-126/WGNA-053118-DUP-38 were greater than 30% relative percent difference. Detected results in the pair for PFOA were qualified as estimated, (J).

The internal standard recoveries, perfluoro-(1,2-$^{13}C_2$) octanoic acid (^{13}C2-PFOA), sodium perfluoro-1-(1,2,3,4-$^{13}C_4$) octanesulfonate (^{13}C4-PFOS) and/or N-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (d3-NMeFOSAA) were below the continuing calibration lower limit in the following samples.

Sample	Internal Standard	Associated Qualification
NAWC-053118-RW-256	^{13}C4-PFOS ^{13}C2-PFOA d3-NMeFOSAA	detected (J); nondetected (UJ); (X) as a result of blank contamination
NAWC-053118-RW-126	^{13}C4-PFOS d3-NMeFOSAA	detected (J); nondetected (UJ) except PFHxS and PFOS
WGNA-053118-DUP-38	^{13}C4-PFOS ^{13}C2-PFOA d3-NMeFOSAA	detected (J); nondetected (UJ); (X) as a result of blank contamination
WGNA-053118-RW-4850	^{13}C4-PFOS d3-NMeFOSAA	detected (J); nondetected (UJ); (X) as a result of blank contamination
NAWC-053118-RW-265	^{13}C4-PFOS ^{13}C2-PFOA d3-NMeFOSAA	detected (J); nondetected (UJ); (X) as a result of blank contamination
NAWC-060718-RW-175	^{13}C4-PFOS ^{13}C2-PFOA	detected (J); nondetected (UJ); (X) as a result of blank contamination
WGNA-060719-DUP-39	^{13}C4-PFOS ^{13}C2-PFOA	detected (J or J+); nondetected (UJ); (X) as a result of blank contamination
NAWC-053118-RW-311	^{13}C2-PFOA d3-NMeFOSAA	detected (J); nondetected (UJ)
NAWC-060418-RW-293	^{13}C2-PFOA	detected (J); nondetected (UJ)
NAWC-060418-RW-038	d3-NMeFOSAA	nondetected (UJ)
WGNA-060718-FRB-0488	d3-NMeFOSAA	nondetected (UJ)

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.

The following samples were analyzed at dilutions.

Sample	Compound	Dilution
NAWC-053118-RW-126	PFHxS	20X
	PFOS	20X
WGNA-053118-DUP-38	PFHxS	20X
	PFOS	20X
WGNA-053118-RW-4850	PFHxS	20X
	PFOS	20X
NAWC-060418-RW-4850	PFHxS	20X
	PFOS	20X
NAWC-060718-RW-175	PFOS	20X
NAWC-060718-DUP-39	PFOS	20X

The laboratory control sample for SDG 18-0393 had a percent recovery for PFTeDA that was above the quality control limit. No validation actions were required as all sample results were nondetects.

Samples NAWC-053118-FRB-256, NAWC-053118-FRB-311, NAWC-060418-FRB-038, NAWC-060418-FRB-039, NAWC-060418-FRB-230, NAWC-060718-FRB-175, WGNA-053118-FRB-4850, WGNA-060718-FRB-0488 had detected results below the LOQ for PFOS. All concentrations of PFOS except NAWC-053118-FRB-311were greater than 1/3 of the LOQ. Samples NAWC-060418-FRB-230 and WGNA-060718-FRB-0626 had detected results below the LOQ for PFHxS. No validation actions were required as

the method blank associated with the drinking water samples had lab preparation blank contamination at a higher level.

Sample WGNA-060718-FRB-0626 had a detected result above the LOQ for PFOS. No validation actions were required as the method blank associated with the drinking water sample had contamination at a higher level.

The following compound was detected in method blank CQ924PB affecting SDG 18-0360 at a concentration below the LOQ.

Compound	Concentration	LOQ
PFOS	0.46 ng/L	2.50 ng/L

No validation actions were required as FRB samples are not qualified for laboratory blank contamination.

Samples with detections and their associated FRBs are summarized below.

Sample	**Associated FRB**
NAWC-053118-RW-126	NAWC-053118-FRB-126
NAWC-053118-RW-256	NAWC-053118-FRB-256
NAWC-053118-RW-265	NAWC-053118-FRB-265
NAWC-053118-RW-311	NAWC-053118-FRB-311
NAWC-060418-RW-038	NAWC-060418-FRB-038
NAWC-060418-RW-039	NAWC-060418-FRB-039
NAWC-060418-RW-230	NAWC-060418-FRB-230
NAWC-060418-RW-293	NAWC-060418-FRB-293
NAWC-060418-RW-309	NAWC-060418-FRB-309
NAWC-060718-RW-175	NAWC-060718-FRB-175
WGNA-053118-DUP-38	NAWC-053118-FRB-126
WGNA-053118-RW-4850	WGNA-053118-FRB-4850
WGNA-060718-DUP-39	NAWC-060718-FRB-175
WGNA-060718-RW-0488	WGNA-060718-FRB-0488
WGNA-060718-RW-0626	WGNA-060718-FRB-0626

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 several samples. Blank contamination was present affecting several samples. Several surrogate, matrix spike / matrix spike duplicate and internal standard recoveries were outside the quality control limits

Other Factors Affecting Data Quality: Results below the RL were estimated. PFOA in the duplicate pair NAWC-053118-RW-126/WGNA-053118-DUP-38 was qualified for field duplicate imprecision > 30% RPD.

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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Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Data Qualifier Definitions

The following definitions provide brief explanations of the validation qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted detection limit.
J	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).
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
NJ	The analyte has been “tentatively identified” or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.
R	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
UR	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
X	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 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient r < 0.995
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate
Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-053118-RW-126			NAWC-053118-RW-256			NAWC-053118-RW-265			NAWC-053118-RW-311		
SDG: 18-0393	LAB_ID	J6292-FS1			J6290-FS1			J6299-FS1			J6297-FS1		
FRACTION: PFAS	SAMP_DATE	5/31/2018			5/31/2018			5/31/2018			5/31/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		0.93	UJ	HN	0.93	UJ	HN	0.89	UJ	HN	0.86	UJ	HN
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		0.93	UJ	HN	0.93	UJ	HN	0.89	UJ	HN	0.86	UJ	HN
PENTADECAFLUOROOCTANOIC ACID (PFOA)		14.91	J	HG	29.53	J	HN	20.61	J	HN	23.17	J	HN
PERFLUOROBUTANESULFONIC ACID (PFBS)		7.76	J	HN	9.9	J	HN	6	J	HN	11.88	J	H
PERFLUORODECANOIC ACID (PFDA)		0.93	UJ	H	0.86	J	HNP	0.89	UJ	HN	0.46	J	HNP
PERFLUORODODECANOIC ACID (PFDOA)		0.93	UJ	H	0.93	UJ	HN	0.89	UJ	HN	0.86	UJ	HN
PERFLUOROHEPTANOIC ACID (PFHPA)		7.38	J	H	10.04	J	HN	12.08	J	HN	7.93	J	HN
PERFLUOROHEXANESULFONIC ACID (PFHXS)		54.57	J	H	6.15	J	HN	15.03	J	HN	4.92	J	H
PERFLUOROHEXANOIC ACID (PFHXA)		13.79	J	H	15.92	J	HN	17.51	J	HN	9.86	J	HN
PERFLUORONONANOIC ACID (PFNA)		2.34	J	H	3.48	J	HN	3.29	J	HN	2.66	J	HN
PERFLUOROOCTANESULFONIC ACID (PFOS)		90.74	X	AH	31.41	X	AHN	29.13	X	AHN	22.61	X	AH
PERFLUOROTETRADECANOIC ACID (PFTEA)		1.39	UJ	H	1.39	UJ	HN	1.34	UJ	HN	1.29	UJ	HN
PERFLUOROTRIDECANOIC ACID (PFTRIA)		0.93	UJ	H	0.93	UJ	HN	0.89	UJ	HN	0.86	UJ	HN
PERFLUOROUNDECANOIC ACID (PFUNA)		0.93	UJ	H	0.93	UJ	HN	0.89	UJ	HN	0.86	UJ	HN

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-060418-RW-038			NAWC-060418-RW-039			NAWC-060418-RW-230			NAWC-060418-RW-293		
SDG: 18-0393	LAB_ID	J6588-FS1			J6590-FS1			J6582-FS1			J6586-FS1		
FRACTION: PFAS	SAMP_DATE	6/4/2018			6/4/2018			6/4/2018			6/4/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		0.88	UJ	HN	0.88	UJ	H	0.85	UJ	H	0.85	UJ	H
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		0.88	UJ	HN	0.88	UJ	H	0.85	UJ	H	0.85	UJ	H
PENTADECAFLUOROOCTANOIC ACID (PFOA)		20.14	J	H	11.72	J	H	13.2	J	HR	24.5	J	HN
PERFLUOROBUTANESULFONIC ACID (PFBS)		12.89	J	H	6.22	J	H	8.8	J	HR	10.94	J	H
PERFLUORODECANOIC ACID (PFDA)		0.71	J	HP	0.88	UJ	H	0.48	J	HPR	3.2	J	HN
PERFLUORODODECANOIC ACID (PFDOA)		0.88	UJ	H	0.88	UJ	H	0.85	UJ	H	0.85	UJ	HN
PERFLUOROHEPTANOIC ACID (PFHPA)		6.44	J	H	4.12	J	H	5.7	J	HR	10.07	J	HN
PERFLUOROHEXANESULFONIC ACID (PFHXS)		7.56	J	H	2.88	J	H	54.82	J	HR	12.29	J	H
PERFLUOROHEXANOIC ACID (PFHXA)		9.51	J	H	6.78	J	H	13.68	J	HR	12.53	X	BHN
PERFLUORONONANOIC ACID (PFNA)		4.14	J	H	2.48	J	H	2.13	J	HR	7.68	J	HN
PERFLUOROOCTANESULFONIC ACID (PFOS)		25.88	X	AH	15.34	X	AH	91.3	X	AHR	23.45	X	AH
PERFLUOROTETRADECANOIC ACID (PFTEA)		1.32	UJ	H	1.32	UJ	H	1.27	UJ	H	1.27	UJ	HN
PERFLUOROTRIDECANOIC ACID (PFTRIA)		0.88	UJ	H	0.88	UJ	H	0.85	UJ	H	0.85	UJ	HN
PERFLUOROUNDECANOIC ACID (PFUNA)		0.88	UJ	H	0.88	UJ	H	0.85	UJ	H	0.85	UJ	HN

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-060418-RW-309			NAWC-060718-RW-175			WGNA-053118-DUP-38			WGNA-053118-RW-4850		
SDG: 18-0393	LAB_ID	J6584-FS1			J6639-FS1			J6294-FS1			J6295-FS1		
FRACTION: PFAS	SAMP_DATE	6/4/2018			6/7/2018			5/31/2018			5/31/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF							NAWC-053118-RW-126					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		0.86	UJ	H	0.91	U		0.91	UJ	HN	0.91	UJ	HN
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		0.86	UJ	H	0.91	U		0.91	UJ	HN	0.91	UJ	HN
PENTADECAFLUOROOCTANOIC ACID (PFOA)		8.92	J	H	12.62	J	N	23.15	J	HNR G	24.06	J	H
PERFLUOROBUTANESULFONIC ACID (PFBS)		4.96	J	H	6.85	J	N	8.14	J	HNR	34.01	J	DHN
PERFLUORODECANOIC ACID (PFDA)		0.86	UJ	H	0.91	UJ	N	0.78	J	HNPR	0.91	UJ	H
PERFLUORODODECANOIC ACID (PFDOA)		0.86	UJ	H	0.91	UJ	N	0.91	UJ	HN	0.91	UJ	H
PERFLUOROHEPTANOIC ACID (PFHPA)		2.92	J	H	5.68	J	N	9.55	J	HNR	13.59	J	H
PERFLUOROHEXANESULFONIC ACID (PFHXS)		12.38	J	H	42	J	N	64.47	J	HNR	105.27	J	HN
PERFLUOROHEXANOIC ACID (PFHXA)		4.87	J	H	11.62	J	N	15.32	J	HNR	35.51	J	H
PERFLUORONONANOIC ACID (PFNA)		0.98	J	HP	2.01	J	NP	4.78	J	HNR	2.9	J	H
PERFLUOROOCTANESULFONIC ACID (PFOS)		9.55	X	AH	56.41	X	AN	151.05	X	AHNR	168.17	X	ADHN
PERFLUOROTETRADECANOIC ACID (PFTEA)		1.29	UJ	H	1.36	UJ	N	1.36	UJ	HN	1.36	UJ	H
PERFLUOROTRIDECANOIC ACID (PFTRIA)		0.86	UJ	H	0.91	UJ	N	0.91	UJ	HN	0.91	UJ	H
PERFLUOROUNDECANOIC ACID (PFUNA)		0.86	UJ	H	0.91	UJ	N	0.91	UJ	HN	0.91	UJ	H

PROJ_NO: 08005-WE04	NSAMPLE	WGNA-060718-DUP-39			WGNA-060718-RW-0488			WGNA-060718-RW-0626		
SDG: 18-0393	LAB_ID	J6641-FS1			J6637-FS1			J6642-FS1		
FRACTION: PFAS	SAMP_DATE	6/7/2018			6/7/2018			6/7/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF	NAWC-060718-RW-175								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		0.88	U		0.89	U		0.93	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		0.88	U		0.89	U		0.93	U	
PENTADECAFLUOROOCTANOIC ACID (PFOA)		14.1	J	NR	34.2	J+	R	2.36		
PERFLUOROBUTANESULFONIC ACID (PFBS)		8.52	J	NR	14.62	J+	R	1.13	J	P
PERFLUORODECANOIC ACID (PFDA)		0.88	UJ	N	0.89	U		0.93	U	
PERFLUORODODECANOIC ACID (PFDOA)		0.88	UJ	N	0.89	U		0.93	U	
PERFLUOROHEPTANOIC ACID (PFHPA)		6.2	J	NR	14.22	J+	R	0.71	J	P
PERFLUOROHEXANESULFONIC ACID (PFHXS)		47.89	J	NR	24.41	J+	R	1.04	U	A
PERFLUOROHEXANOIC ACID (PFHXA)		13.43	J	NR	24.22	J+	R	1.09	J	P
PERFLUORONONANOIC ACID (PFNA)		2.14	J	NPR	1.92	J	PR	0.93	U	
PERFLUOROOCTANESULFONIC ACID (PFOS)		57.72	X	ANR	18.99	X	AR	3.14	X	A
PERFLUOROTETRADECANOIC ACID (PFTEA)		1.32	UJ	N	1.34	U		1.39	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		0.88	UJ	N	0.89	U		0.93	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		0.88	UJ	N	0.89	U		0.93	U	

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-053118-FRB-126			NAWC-053118-FRB-256			NAWC-053118-FRB-265			NAWC-053118-FRB-311		
SDG: 18-0360	LAB_ID	J6293-FS			J6291-FS			J6300-FS			J6298-FS		
FRACTION: PFAS	SAMP_DATE	5/31/2018			5/31/2018			5/31/2018			5/31/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		0.94	U		0.96	U		0.94	U		0.94	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		0.94	U		0.96	U		0.94	U		0.94	U	
PENTADECAFLUOROOCTANOIC ACID (PFOA)		0.94	U		0.96	U		0.94	U		0.94	U	
PERFLUOROBUTANESULFONIC ACID (PFBS)		0.47	U		0.48	U		0.47	U		0.47	U	
PERFLUORODECANOIC ACID (PFDA)		0.94	U		0.96	U		0.94	U		0.94	U	
PERFLUORODODECANOIC ACID (PFDOA)		0.94	U		0.96	U		0.94	U		0.94	U	
PERFLUOROHEPTANOIC ACID (PFHPA)		0.94	U		0.96	U		0.94	U		0.94	U	
PERFLUOROHEXANESULFONIC ACID (PFHXS)		0.94	U		0.96	U		0.94	U		0.94	U	
PERFLUOROHEXANOIC ACID (PFHXA)		0.47	U		0.48	U		0.47	U		0.47	U	
PERFLUORONONANOIC ACID (PFNA)		0.94	U		0.96	U		0.94	U		0.94	U	
PERFLUOROOCTANESULFONIC ACID (PFOS)		0.94	U		1.78	J	P	0.94	U		0.31	J	P
PERFLUOROTETRADECANOIC ACID (PFTEA)		1.42	U		1.44	U		1.42	U		1.42	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		0.94	U		0.96	U		0.94	U		0.94	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		0.94	U		0.96	U		0.94	U		0.94	U	

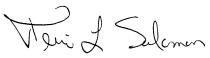
PROJ_NO: 08005-WE04	NSAMPLE	NAWC-060418-FRB-038			NAWC-060418-FRB-039			NAWC-060418-FRB-230			NAWC-060418-FRB-293		
SDG: 18-0360	LAB_ID	J6589-FS			J6591-FS			J6583-FS			J6587-FS		
FRACTION: PFAS	SAMP_DATE	6/4/2018			6/4/2018			6/4/2018			6/4/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		0.94	U		0.94	U		0.96	U		1	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		0.94	U		0.94	U		0.96	U		1	U	
PENTADECAFLUOROOCTANOIC ACID (PFOA)		0.94	U		0.94	U		0.96	U		1	U	
PERFLUOROBUTANESULFONIC ACID (PFBS)		0.47	U		0.47	U		0.48	U		0.5	U	
PERFLUORODECANOIC ACID (PFDA)		0.94	U		0.94	U		0.96	U		1	U	
PERFLUORODODECANOIC ACID (PFDOA)		0.94	U		0.94	U		0.96	U		1	U	
PERFLUOROHEPTANOIC ACID (PFHPA)		0.94	U		0.94	U		0.96	U		1	U	
PERFLUOROHEXANESULFONIC ACID (PFHXS)		0.94	U		0.94	U		0.33	J	P	1	U	
PERFLUOROHEXANOIC ACID (PFHXA)		0.47	U		0.47	U		0.48	U		1.29	J	P
PERFLUORONONANOIC ACID (PFNA)		0.94	U		0.94	U		0.96	U		1	U	
PERFLUOROOCTANESULFONIC ACID (PFOS)		1.64	J	P	1.37	J	P	2.3	J	P	1	U	
PERFLUOROTETRADECANOIC ACID (PFTEA)		1.42	U		1.42	U		1.44	U		1.5	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		0.94	U		0.94	U		0.96	U		1	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		0.94	U		0.94	U		0.96	U		1	U	

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-060418-FRB-309			NAWC-060718-FRB-175			WGNA-053118-FRB-4850			WGNA-060718-FRB-0488		
SDG: 18-0360	LAB_ID	J6585-FS			J6640-FS			J6296-FS			J6638-FS		
FRACTION: PFAS	SAMP_DATE	6/4/2018			6/7/2018			5/31/2018			6/7/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		1	U		0.98	U		0.94	U		0.98	UJ	N
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		1	U		0.98	U		0.94	U		0.98	UJ	N
PENTADECAFLUOROOCTANOIC ACID (PFOA)		1	U		0.98	U		0.94	U		0.98	U	
PERFLUOROBUTANESULFONIC ACID (PFBS)		0.5	U		0.49	U		0.47	U		0.49	U	
PERFLUORODECANOIC ACID (PFDA)		1	U		0.98	U		0.94	U		0.98	U	
PERFLUORODODECANOIC ACID (PFDOA)		1	U		0.98	U		0.94	U		0.98	U	
PERFLUOROHEPTANOIC ACID (PFHPA)		1	U		0.98	U		0.94	U		0.98	U	
PERFLUOROHEXANESULFONIC ACID (PFHXS)		1	U		0.98	U		0.94	U		0.98	U	
PERFLUOROHEXANOIC ACID (PFHXA)		0.5	U		0.49	U		0.47	U		0.49	U	
PERFLUORONONANOIC ACID (PFNA)		1	U		0.98	U		0.94	U		0.98	U	
PERFLUOROOCTANESULFONIC ACID (PFOS)		1	U		1.56	J	P	1.81	J	P	2.39	J	P
PERFLUOROTETRADECANOIC ACID (PFTEA)		1.5	U		1.47	U		1.42	U		1.47	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		1	U		0.98	U		0.94	U		0.98	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		1	U		0.98	U		0.94	U		0.98	U	

PROJ_NO: 08005-WE04	NSAMPLE	WGNA-060718-FRB-0626		
SDG: 18-0360	LAB_ID	J6643-FS		
FRACTION: PFAS	SAMP_DATE	6/7/2018		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		0.98	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		0.98	U	
PENTADECAFLUOROOCTANOIC ACID (PFOA)		0.98	U	
PERFLUOROBUTANESULFONIC ACID (PFBS)		0.49	U	
PERFLUORODECANOIC ACID (PFDA)		0.98	U	
PERFLUORODODECANOIC ACID (PFDOA)		0.98	U	
PERFLUOROHEPTANOIC ACID (PFHPA)		0.98	U	
PERFLUOROHEXANESULFONIC ACID (PFHXS)		0.35	J	P
PERFLUOROHEXANOIC ACID (PFHXA)		0.49	U	
PERFLUORONONANOIC ACID (PFNA)		0.98	U	
PERFLUOROOCTANESULFONIC ACID (PFOS)		2.48		
PERFLUOROTETRADECANOIC ACID (PFTEA)		1.47	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		0.98	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		0.98	U	

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

Client ID	NAWC-053118-RW-256				
Battelle ID	J6290-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
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	15.92 ~~T~~	J	0.20	0.46	2.31
PFHpA	10.04 ~~T~~	J	0.31	0.93	2.31
PFOA	29.53 ~~T~~	J	0.35	0.93	2.31
PFNA	3.48 ~~T~~	J	0.34	0.93	2.31
PFDA	0.86 ~~JT~~	J	0.36	0.93	2.31
PFUnA	0.93 ~~UT~~	UJ	0.35	0.93	2.31
PFDoA	0.93 ~~UT~~	UJ	0.39	0.93	2.31
PFTrDA	0.93 ~~UT~~	UJ	0.39	0.93	2.31
PFTeDA	1.39 ~~UT~~	UJ	0.68	1.39	2.31
NMeFOSAA	0.93 ~~UT~~	UJ	0.39	0.93	2.31
NEtFOSAA	0.93 ~~UT~~	UJ	0.41	0.93	2.31
PFBS	9.90 ~~T~~	J	0.19	0.46	2.31
PFHxS	6.15 ~~T~~	J	0.31	0.93	2.31
PFOS	31.41 ~~BT~~	X	0.28	0.93	2.31
Surrogate Recoveries (%)					
13C2-PFHxA	121				
13C2-PFDA	110				
d5-EtFOSAA	108				



07/31/2018

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

Client ID	NAWC-053118-RW-126				
Battelle ID	J6292-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
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	13.79 ~~T~~	J	0.20	0.46	2.31
PFHpA	7.38 ~~T~~	J	0.31	0.93	2.31
PFOA	14.91 ~~T~~	J	0.35	0.93	2.31
PFNA	2.34 ~~T~~	J	0.34	0.93	2.31
PFDA	0.93 ~~UT~~	UJ	0.36	0.93	2.31
PFUnA	0.93 ~~UT~~	UJ	0.35	0.93	2.31
PFDoA	0.93 ~~UT~~	UJ	0.39	0.93	2.31
PFTrDA	0.93 ~~UT~~	UJ	0.39	0.93	2.31
PFTeDA	1.39 ~~UT~~	UJ	0.68	1.39	2.31
NMeFOSAA	0.93 ~~UT~~	UJ	0.39	0.93	2.31
NEtFOSAA	0.93 ~~UT~~	UJ	0.41	0.93	2.31
PFBS	7.76 ~~T~~	J	0.19	0.46	2.31
PFHxS	54.57 ~~TD~~	J	6.30	18.52	46.30
PFOS	90.74 ~~TD~~	X	5.56	18.52	46.30

Surrogate Recoveries (%)

13C2-PFHxA	129
13C2-PFDA	112
d5-EtFOSAA	102

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BATTELLE
It can be done

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

Client ID	WGNA-053118-DUP-38				
Battelle ID	J6294-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.275				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	15.32 ~~T~~	J	0.20	0.45	2.27
PFHpA	9.55 ~~T~~	J	0.31	0.91	2.27
PFOA	23.15 ~~T~~	J	0.35	0.91	2.27
PFNA	4.78 ~~T~~	J	0.34	0.91	2.27
PFDA	0.78 ~~JT~~	J	0.35	0.91	2.27
PFUnA	0.91 ~~UT~~	UJ	0.35	0.91	2.27
PFDoA	0.91 ~~UT~~	UJ	0.38	0.91	2.27
PFTrDA	0.91 ~~UT~~	UJ	0.38	0.91	2.27
PFTeDA	1.36 ~~UT~~	UJ	0.66	1.36	2.27
NMeFOSAA	0.91 ~~UT~~	UJ	0.38	0.91	2.27
NEtFOSAA	0.91 ~~UT~~	UJ	0.40	0.91	2.27
PFBS	8.14 ~~T~~	J	0.19	0.45	2.27
PFHxS	64.47 ~~TD~~	J	6.18	18.18	45.45
PFOS	151.05 ~~TD~~	X	5.45	18.18	45.45
Surrogate Recoveries (%)					
13C2-PFHxA	132	N			
13C2-PFDA	108				
d5-EtFOSAA	114				

07/31/2018

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

Client ID	WGNA-053118-RW-4850				
Battelle ID	J6295-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.275				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	35.51	~~T~~ J	0.20	0.45	2.27
PFHpA	13.59	~~T~~ J	0.31	0.91	2.27
PFOA	24.06	~~T~~ J	0.35	0.91	2.27
PFNA	2.90	~~T~~ J	0.34	0.91	2.27
PFDA	0.91	~~UT~~ UJ	0.35	0.91	2.27
PFUnA	0.91	~~UT~~ UJ	0.35	0.91	2.27
PFDoA	0.91	~~UT~~ UJ	0.38	0.91	2.27
PFTrDA	0.91	~~UT~~ UJ	0.38	0.91	2.27
PFTeDA	1.36	~~UT~~ UJ	0.66	1.36	2.27
NMeFOSAA	0.91	~~UT~~ UJ	0.38	0.91	2.27
NEtFOSAA	0.91	~~UT~~ UJ	0.40	0.91	2.27
PFBS	34.01	~~T~~ J	0.19	0.45	2.27
PFHxS	105.27	~~TD~~ J	6.18	18.18	45.45
PFOS	168.17	~~TD~~ X	5.45	18.18	45.45
Surrogate Recoveries (%)					
13C2-PFHxA	130				
13C2-PFDA	116				
d5-EtFOSAA	100				

07/31/2018

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

Client ID	NAWC-053118-RW-311				
Battelle ID	J6297-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.290				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	9.86 ~~T~~	J	0.19	0.43	2.16
PFHpA	7.93 ~~T~~	J	0.29	0.86	2.16
PFOA	23.17 ~~T~~	J	0.33	0.86	2.16
PFNA	2.66 ~~T~~	J	0.32	0.86	2.16
PFDA	0.46 ~~JT~~	J	0.34	0.86	2.16
PFUnA	0.86 ~~UT~~	UJ	0.33	0.86	2.16
PFDoA	0.86 ~~UT~~	UJ	0.36	0.86	2.16
PFTrDA	0.86 ~~UT~~	UJ	0.36	0.86	2.16
PFTeDA	1.29 ~~UT~~	UJ	0.63	1.29	2.16
NMeFOSAA	0.86 ~~UT~~	UJ	0.36	0.86	2.16
NEtFOSAA	0.86 ~~UT~~	UJ	0.38	0.86	2.16
PFBS	11.88 ~~T~~	J	0.18	0.43	2.16
PFHxS	4.92 ~~T~~	J	0.29	0.86	2.16
PFOS	22.61 ~~BT~~	X	0.26	0.86	2.16
Surrogate Recoveries (%)					
13C2-PFHxA	130				
13C2-PFDA	118				
d5-EtFOSAA	99				

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

Client ID	NAWC-053118-RW-265			
Battelle ID	J6299-FS1			
Sample Type	SA			
Collection Date	05/31/2018			
Extraction Date	06/21/2018			
Analysis Date	06/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.280			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	17.51 ~~T~~ J	0.20	0.45	2.23
PFHpA	12.08 ~~T~~ J	0.30	0.89	2.23
PFOA	20.61 ~~T~~ J	0.34	0.89	2.23
PFNA	3.29 ~~T~~ J	0.33	0.89	2.23
PFDA	0.89 ~~UT~~ UJ	0.35	0.89	2.23
PFUnA	0.89 ~~UT~~ UJ	0.34	0.89	2.23
PFDoA	0.89 ~~UT~~ UJ	0.38	0.89	2.23
PFTrDA	0.89 ~~UT~~ UJ	0.38	0.89	2.23
PFTeDA	1.34 ~~UT~~ UJ	0.65	1.34	2.23
NMeFOSAA	0.89 ~~UT~~ UJ	0.38	0.89	2.23
NEtFOSAA	0.89 ~~UT~~ UJ	0.39	0.89	2.23
PFBS	6.00 ~~T~~ J	0.19	0.45	2.23
PFHxS	15.03 ~~T~~ J	0.30	0.89	2.23
PFOS	29.13 ~~BT~~ X	0.27	0.89	2.23
Surrogate Recoveries (%)				
13C2-PFHxA	130			
13C2-PFDA	116			
d5-EtFOSAA	104			

Toni L Salerno

07/31/2018

BATTELLE
It can be done

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

Client ID	NAWC-060418-RW-230				
Battelle ID	J6582-FS1				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.295				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	13.68 ~~T~~	J	0.19	0.42	2.12
PFHpA	5.70 ~~T~~	J	0.29	0.85	2.12
PFOA	13.20 ~~T~~	J	0.32	0.85	2.12
PFNA	2.13 ~~T~~	J	0.31	0.85	2.12
PFDA	0.48 ~~JT~~	J	0.33	0.85	2.12
PFUnA	0.85 ~~UT~~	UJ	0.32	0.85	2.12
PFDoA	0.85 ~~UT~~	UJ	0.36	0.85	2.12
PFTrDA	0.85 ~~UT~~	UJ	0.36	0.85	2.12
PFTeDA	1.27 ~~UT~~	UJ	0.62	1.27	2.12
NMeFOSAA	0.85 ~~UT~~	UJ	0.36	0.85	2.12
NEtFOSAA	0.85 ~~UT~~	UJ	0.37	0.85	2.12
PFBS	8.80 ~~T~~	J	0.18	0.42	2.12
PFHxS	54.82 ~~TD~~	J	5.76	16.95	42.37
PFOS	91.30 ~~TD~~	X	5.08	16.95	42.37
Surrogate Recoveries (%)					
13C2-PFHxA	133	N			
13C2-PFDA	110				
d5-EtFOSAA	108				

Teri L Solomon
07/31/2018

BATTELLE
It can be done

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

Client ID	NAWC-060418-RW-309				
Battelle ID	J6584-FS1				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.290				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	4.87 ~~T~~	J	0.19	0.43	2.16
PFHpA	2.92 ~~T~~	J	0.29	0.86	2.16
PFOA	8.92 ~~T~~	J	0.33	0.86	2.16
PFNA	0.98 ~~JT~~	J	0.32	0.86	2.16
PFDA	0.86 ~~UT~~	UJ	0.34	0.86	2.16
PFUnA	0.86 ~~UT~~	UJ	0.33	0.86	2.16
PFDoA	0.86 ~~UT~~	UJ	0.36	0.86	2.16
PFTrDA	0.86 ~~UT~~	UJ	0.36	0.86	2.16
PFTeDA	1.29 ~~UT~~	UJ	0.63	1.29	2.16
NMeFOSAA	0.86 ~~UT~~	UJ	0.36	0.86	2.16
NEtFOSAA	0.86 ~~UT~~	UJ	0.38	0.86	2.16
PFBS	4.96 ~~T~~	J	0.18	0.43	2.16
PFHxS	12.38 ~~T~~	J	0.29	0.86	2.16
PFOS	9.55 ~~BT~~	X	0.26	0.86	2.16
Surrogate Recoveries (%)					
13C2-PFHxA	126				
13C2-PFDA	112				
d5-EtFOSAA	84				

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

Client ID	NAWC-060418-RW-293				
Battelle ID	J6586-FS1				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.295				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	12.53 ~~T~~	X	0.19	0.42	2.12
PFHpA	10.07 ~~T~~	J	0.29	0.85	2.12
PFOA	24.50 ~~T~~	J	0.32	0.85	2.12
PFNA	7.68 ~~T~~	J	0.31	0.85	2.12
PFDA	3.20 ~~T~~	J	0.33	0.85	2.12
PFUnA	0.85 ~~UT~~	UJ	0.32	0.85	2.12
PFDoA	0.85 ~~UT~~	UJ	0.36	0.85	2.12
PFTrDA	0.85 ~~UT~~	UJ	0.36	0.85	2.12
PFTeDA	1.27 ~~UT~~	UJ	0.62	1.27	2.12
NMeFOSAA	0.85 ~~UT~~	UJ	0.36	0.85	2.12
NEtFOSAA	0.85 ~~UT~~	UJ	0.37	0.85	2.12
PFBS	10.94 ~~T~~	J	0.18	0.42	2.12
PFHxS	12.29 ~~T~~	J	0.29	0.85	2.12
PFOS	23.45 ~~BT~~	X	0.25	0.85	2.12
Surrogate Recoveries (%)					
13C2-PFHxA	104				
13C2-PFDA	102				
d5-EtFOSAA	83				

07/31/2018

BATTELLE
It can be done

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

Client ID	NAWC-060418-RW-038			
Battelle ID	J6588-FS1			
Sample Type	SA			
Collection Date	06/04/2018			
Extraction Date	06/21/2018			
Analysis Date	06/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.285			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	9.51 ~~T~~ J	0.19	0.44	2.19
PFHpA	6.44 ~~T~~ J	0.30	0.88	2.19
PFOA	20.14 ~~T~~ J	0.33	0.88	2.19
PFNA	4.14 ~~T~~ J	0.32	0.88	2.19
PFDA	0.71 ~~JT~~ J	0.34	0.88	2.19
PFUnA	0.88 ~~UT~~ UJ	0.33	0.88	2.19
PFDoA	0.88 ~~UT~~ UJ	0.37	0.88	2.19
PFTrDA	0.88 ~~UT~~ UJ	0.37	0.88	2.19
PFTeDA	1.32 ~~UT~~ UJ	0.64	1.32	2.19
NMeFOSAA	0.88 ~~UT~~ UJ	0.37	0.88	2.19
NEtFOSAA	0.88 ~~UT~~ UJ	0.39	0.88	2.19
PFBS	12.89 ~~T~~ J	0.18	0.44	2.19
PFHxS	7.56 ~~T~~ J	0.30	0.88	2.19
PFOS	25.88 ~~BT~~ X	0.26	0.88	2.19
Surrogate Recoveries (%)				
13C2-PFHxA	124			
13C2-PFDA	104			
d5-EtFOSAA	117			

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

Client ID	NAWC-060418-RW-039				
Battelle ID	J6590-FS1				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.285				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	6.78 ~~T~~	J	0.19	0.44	2.19
PFHpA	4.12 ~~T~~	J	0.30	0.88	2.19
PFOA	11.72 ~~T~~	J	0.33	0.88	2.19
PFNA	2.48 ~~T~~	J	0.32	0.88	2.19
PFDA	0.88 ~~UT~~	UJ	0.34	0.88	2.19
PFUnA	0.88 ~~UT~~	UJ	0.33	0.88	2.19
PFDoA	0.88 ~~UT~~	UJ	0.37	0.88	2.19
PFTrDA	0.88 ~~UT~~	UJ	0.37	0.88	2.19
PFTeDA	1.32 ~~UT~~	UJ	0.64	1.32	2.19
NMeFOSAA	0.88 ~~UT~~	UJ	0.37	0.88	2.19
NEtFOSAA	0.88 ~~UT~~	UJ	0.39	0.88	2.19
PFBS	6.22 ~~T~~	J	0.18	0.44	2.19
PFHxS	2.88 ~~BT~~	J	0.30	0.88	2.19
PFOS	15.34 ~~BT~~	X	0.26	0.88	2.19
Surrogate Recoveries (%)					
13C2-PFHxA	129				
13C2-PFDA	115				
d5-EtFOSAA	99				



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

Client ID	WGNA-060718-RW-0488				
Battelle ID	J6637-FS1				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.280				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	24.22	J+	0.20	0.45	2.23
PFHpA	14.22	J+	0.30	0.89	2.23
PFOA	34.20	J+	0.34	0.89	2.23
PFNA	1.92	J	0.33	0.89	2.23
PFDA	0.89	U	0.35	0.89	2.23
PFUnA	0.89	U	0.34	0.89	2.23
PFDoA	0.89	U	0.38	0.89	2.23
PFTrDA	0.89	U	0.38	0.89	2.23
PFTeDA	1.34	U	0.65	1.34	2.23
NMeFOSAA	0.89	U	0.38	0.89	2.23
NEtFOSAA	0.89	U	0.39	0.89	2.23
PFBS	14.62	J+	0.19	0.45	2.23
PFHxS	24.41	J+	0.30	0.89	2.23
PFOS	18.99	~~B~~ X	0.27	0.89	2.23
Surrogate Recoveries (%)					
13C2-PFHxA	133	N			
13C2-PFDA	106				
d5-EtFOSAA	103				



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

Client ID	NAWC-060718-RW-175				
Battelle ID	J6639-FS1				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.275				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	11.62	J	0.20	0.45	2.27
PFHpA	5.68	J	0.31	0.91	2.27
PFOA	12.62	J	0.35	0.91	2.27
PFNA	2.01 J		0.34	0.91	2.27
PFDA	0.91 ~~U~~	UJ	0.35	0.91	2.27
PFUnA	0.91 ~~U~~	UJ	0.35	0.91	2.27
PFDoA	0.91 ~~U~~	UJ	0.38	0.91	2.27
PFTrDA	0.91 ~~U~~	UJ	0.38	0.91	2.27
PFTeDA	1.36 ~~U~~	UJ	0.66	1.36	2.27
NMeFOSAA	0.91 U		0.38	0.91	2.27
NEtFOSAA	0.91 U		0.40	0.91	2.27
PFBS	6.85	J	0.19	0.45	2.27
PFHxS	42.00	J	0.31	0.91	2.27
PFOS	56.41 ~~D~~	X	5.45	18.18	45.45
Surrogate Recoveries (%)					
13C2-PFHxA	126				
13C2-PFDA	117				
d5-EtFOSAA	99				

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

Client ID	WGNA-060718-DUP-39				
Battelle ID	J6641-FS1				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.285				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	13.43	J	0.19	0.44	2.19
PFHpA	6.20	J	0.30	0.88	2.19
PFOA	14.10	J	0.33	0.88	2.19
PFNA	2.14	J	0.32	0.88	2.19
PFDA	0.88 ~~U~~	UJ	0.34	0.88	2.19
PFUnA	0.88 ~~U~~	UJ	0.33	0.88	2.19
PFDoA	0.88 ~~U~~	UJ	0.37	0.88	2.19
PFTrDA	0.88 ~~U~~	UJ	0.37	0.88	2.19
PFTeDA	1.32 ~~U~~	UJ	0.64	1.32	2.19
NMeFOSAA	0.88	U	0.37	0.88	2.19
NEtFOSAA	0.88	U	0.39	0.88	2.19
PFBS	8.52	J	0.18	0.44	2.19
PFHxS	47.89	J	0.30	0.88	2.19
PFOS	57.72 ~~D~~	X	5.26	17.54	43.86
Surrogate Recoveries (%)					
13C2-PFHxA	145	N			
13C2-PFDA	124				
d5-EtFOSAA	92				

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

Client ID	WGNA-060718-RW-0626			
Battelle ID	J6642-FS1			
Sample Type	SA			
Collection Date	06/07/2018			
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	1.09 J	0.20	0.46	2.31
PFHpA	0.71 J	0.31	0.93	2.31
PFOA	2.36	0.35	0.93	2.31
PFNA	0.93 U	0.34	0.93	2.31
PFDA	0.93 U	0.36	0.93	2.31
PFUnA	0.93 U	0.35	0.93	2.31
PFDoA	0.93 U	0.39	0.93	2.31
PFTrDA	0.93 U	0.39	0.93	2.31
PFTeDA	1.39 U	0.68	1.39	2.31
NMeFOSAA	0.93 U	0.39	0.93	2.31
NEtFOSAA	0.93 U	0.41	0.93	2.31
PFBS	1.13 J	0.19	0.46	2.31
PFHxS	1.04 ~~J~~ U	0.31	0.93	2.31
PFOS	3.14 ~~B~~ X	0.28	0.93	2.31
Surrogate Recoveries (%)				
13C2-PFHxA	128			
13C2-PFDA	124			
d5-EtFOSAA	117			

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

Client ID	NAWC-053118-FRB-256				
Battelle ID	J6291-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	0.48	U	0.21	0.48	2.40
PFHpA	0.96	U	0.33	0.96	2.40
PFOA	0.96	U	0.37	0.96	2.40
PFNA	0.96	U	0.36	0.96	2.40
PFDA	0.96	U	0.38	0.96	2.40
PFUnA	0.96	U	0.37	0.96	2.40
PFDoA	0.96	U	0.40	0.96	2.40
PFTrDA	0.96	U	0.40	0.96	2.40
PFTeDA	1.44	U	0.70	1.44	2.40
NMeFOSAA	0.96	U	0.40	0.96	2.40
NEtFOSAA	0.96	U	0.42	0.96	2.40
PFBS	0.48	U	0.20	0.48	2.40
PFHxS	0.96	U	0.33	0.96	2.40
PFOS	1.78	J	0.29	0.96	2.40
Surrogate Recoveries (%)					
13C2-PFHxA	113				
13C2-PFDA	107				
d5-EtFOSAA	98				

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

Client ID	NAWC-053118-FRB-126			
Battelle ID	J6293-FS			
Sample Type	SA			
Collection Date	05/31/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.47 U	0.21	0.47	2.36
PFHpA	0.94 U	0.32	0.94	2.36
PFOA	0.94 U	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	0.47 U	0.20	0.47	2.36
PFHxS	0.94 U	0.32	0.94	2.36
PFOS	0.94 U	0.28	0.94	2.36
Surrogate Recoveries (%)				
13C2-PFHxA	106			
13C2-PFDA	101			
d5-EtFOSAA	97			

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

Client ID	WGNA-053118-FRB-4850			
Battelle ID	J6296-FS			
Sample Type	SA			
Collection Date	05/31/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.47 U	0.21	0.47	2.36
PFHpA	0.94 U	0.32	0.94	2.36
PFOA	0.94 U	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	0.47 U	0.20	0.47	2.36
PFHxS	0.94 U	0.32	0.94	2.36
PFOS	1.81 J	0.28	0.94	2.36
Surrogate Recoveries (%)				
13C2-PFHxA	103			
13C2-PFDA	91			
d5-EtFOSAA	100			

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

Client ID	NAWC-053118-FRB-311			
Battelle ID	J6298-FS			
Sample Type	SA			
Collection Date	05/31/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.47 U	0.21	0.47	2.36
PFHpA	0.94 U	0.32	0.94	2.36
PFOA	0.94 U	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	0.47 U	0.20	0.47	2.36
PFHxS	0.94 U	0.32	0.94	2.36
PFOS	0.31 J	0.28	0.94	2.36
Surrogate Recoveries (%)				
13C2-PFHxA	104			
13C2-PFDA	99			
d5-EtFOSAA	91			



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

Client ID	NAWC-053118-FRB-265			
Battelle ID	J6300-FS			
Sample Type	SA			
Collection Date	05/31/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.47 U	0.21	0.47	2.36
PFHpA	0.94 U	0.32	0.94	2.36
PFOA	0.94 U	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	0.47 U	0.20	0.47	2.36
PFHxS	0.94 U	0.32	0.94	2.36
PFOS	0.94 U	0.28	0.94	2.36
Surrogate Recoveries (%)				
13C2-PFHxA	107			
13C2-PFDA	102			
d5-EtFOSAA	92			



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

Client ID	NAWC-060418-FRB-230			
Battelle ID	J6583-FS			
Sample Type	SA			
Collection Date	06/04/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
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	0.48 U	0.21	0.48	2.40
PFHpA	0.96 U	0.33	0.96	2.40
PFOA	0.96 U	0.37	0.96	2.40
PFNA	0.96 U	0.36	0.96	2.40
PFDA	0.96 U	0.38	0.96	2.40
PFUnA	0.96 U	0.37	0.96	2.40
PFDoA	0.96 U	0.40	0.96	2.40
PFTrDA	0.96 U	0.40	0.96	2.40
PFTeDA	1.44 U	0.70	1.44	2.40
NMeFOSAA	0.96 U	0.40	0.96	2.40
NEtFOSAA	0.96 U	0.42	0.96	2.40
PFBS	0.48 U	0.20	0.48	2.40
PFHxS	0.33 J	0.33	0.96	2.40
PFOS	2.30 J	0.29	0.96	2.40
Surrogate Recoveries (%)				
13C2-PFHxA	105			
13C2-PFDA	97			
d5-EtFOSAA	99			

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

Client ID	NAWC-060418-FRB-309			
Battelle ID	J6585-FS			
Sample Type	SA			
Collection Date	06/04/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
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 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDoA	1.00 U	0.42	1.00	2.50
PFTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	104			
13C2-PFDA	99			
d5-EtFOSAA	111			

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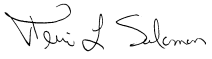
Project Client: Tetra Tech
Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
Project No.: 100117920-WE04

Client ID	NAWC-060418-FRB-293			
Battelle ID	J6587-FS			
Sample Type	SA			
Collection Date	06/04/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
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	1.29 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
PFDoA	1.00 U	0.42	1.00	2.50
PFTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50
Surrogate Recoveries (%)				
13C2-PFHxA	98			
13C2-PFDA	102			
d5-EtFOSAA	109			

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

Client ID	NAWC-060418-FRB-038			
Battelle ID	J6589-FS			
Sample Type	SA			
Collection Date	06/04/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.47 U	0.21	0.47	2.36
PFHpA	0.94 U	0.32	0.94	2.36
PFOA	0.94 U	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	0.47 U	0.20	0.47	2.36
PFHxS	0.94 U	0.32	0.94	2.36
PFOS	1.64 J	0.28	0.94	2.36
Surrogate Recoveries (%)				
13C2-PFHxA	107			
13C2-PFDA	101			
d5-EtFOSAA	110			



07/31/2018

BATTELLE
It can be done

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

Client ID	NAWC-060418-FRB-039			
Battelle ID	J6591-FS			
Sample Type	SA			
Collection Date	06/04/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.47 U	0.21	0.47	2.36
PFHpA	0.94 U	0.32	0.94	2.36
PFOA	0.94 U	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	0.47 U	0.20	0.47	2.36
PFHxS	0.94 U	0.32	0.94	2.36
PFOS	1.37 J	0.28	0.94	2.36
Surrogate Recoveries (%)				
13C2-PFHxA	105			
13C2-PFDA	93			
d5-EtFOSAA	119			



07/31/2018

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

Client ID	WGNA-060718-FRB-0488				
Battelle ID	J6638-FS				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	0.49	U	0.22	0.49	2.45
PFHpA	0.98	U	0.33	0.98	2.45
PFOA	0.98	U	0.37	0.98	2.45
PFNA	0.98	U	0.36	0.98	2.45
PFDA	0.98	U	0.38	0.98	2.45
PFUnA	0.98	U	0.37	0.98	2.45
PFDoA	0.98	U	0.41	0.98	2.45
PFTrDA	0.98	U	0.41	0.98	2.45
PFTeDA	1.47	U	0.72	1.47	2.45
NMeFOSAA	0.98 ~~U~~	UJ	0.41	0.98	2.45
NEtFOSAA	0.98 ~~U~~	UJ	0.43	0.98	2.45
PFBS	0.49	U	0.21	0.49	2.45
PFHxS	0.98	U	0.33	0.98	2.45
PFOS	2.39	J	0.29	0.98	2.45
Surrogate Recoveries (%)					
13C2-PFHxA	103				
13C2-PFDA	94				
d5-EtFOSAA	99				

07/31/2018

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

Client ID	NAWC-060718-FRB-175			
Battelle ID	J6640-FS			
Sample Type	SA			
Collection Date	06/07/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
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	0.49 U	0.22	0.49	2.45
PFHpA	0.98 U	0.33	0.98	2.45
PFOA	0.98 U	0.37	0.98	2.45
PFNA	0.98 U	0.36	0.98	2.45
PFDA	0.98 U	0.38	0.98	2.45
PFUnA	0.98 U	0.37	0.98	2.45
PFDoA	0.98 U	0.41	0.98	2.45
PFTrDA	0.98 U	0.41	0.98	2.45
PFTeDA	1.47 U	0.72	1.47	2.45
NMeFOSAA	0.98 U	0.41	0.98	2.45
NEtFOSAA	0.98 U	0.43	0.98	2.45
PFBS	0.49 U	0.21	0.49	2.45
PFHxS	0.98 U	0.33	0.98	2.45
PFOS	1.56 J	0.29	0.98	2.45
Surrogate Recoveries (%)				
13C2-PFHxA	102			
13C2-PFDA	92			
d5-EtFOSAA	107			

07/31/2018

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

Client ID	WGNA-060718-FRB-0626				
Battelle ID	J6643-FS				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	0.49	U	0.22	0.49	2.45
PFHpA	0.98	U	0.33	0.98	2.45
PFOA	0.98	U	0.37	0.98	2.45
PFNA	0.98	U	0.36	0.98	2.45
PFDA	0.98	U	0.38	0.98	2.45
PFUnA	0.98	U	0.37	0.98	2.45
PFDoA	0.98	U	0.41	0.98	2.45
PFTrDA	0.98	U	0.41	0.98	2.45
PFTeDA	1.47	U	0.72	1.47	2.45
NMeFOSAA	0.98	U	0.41	0.98	2.45
NEtFOSAA	0.98	U	0.43	0.98	2.45
PFBS	0.49	U	0.21	0.49	2.45
PFHxS	0.35	J	0.33	0.98	2.45
PFOS	2.48	B	0.29	0.98	2.45
Surrogate Recoveries (%)					
13C2-PFHxA	112				
13C2-PFDA	101				
d5-EtFOSAA	94				



07/31/2018

Appendix B

Results as Reported by the Laboratory

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

Client ID	NAWC-053118-RW-256				
Battelle ID	J6290-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
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	15.92	T	0.20	0.46	2.31
PFHpA	10.04	T	0.31	0.93	2.31
PFOA	29.53	T	0.35	0.93	2.31
PFNA	3.48	T	0.34	0.93	2.31
PFDA	0.86	JT	0.36	0.93	2.31
PFUnA	0.93	UT	0.35	0.93	2.31
PFDoA	0.93	UT	0.39	0.93	2.31
PFTrDA	0.93	UT	0.39	0.93	2.31
PFTeDA	1.39	UT	0.68	1.39	2.31
NMeFOSAA	0.93	UT	0.39	0.93	2.31
NEtFOSAA	0.93	UT	0.41	0.93	2.31
PFBS	9.90	T	0.19	0.46	2.31
PFHxS	6.15	T	0.31	0.93	2.31
PFOS	31.41	BT	0.28	0.93	2.31
Surrogate Recoveries (%)					
13C2-PFHxA	121				
13C2-PFDA	110				
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-053118-RW-126				
Battelle ID	J6292-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
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	13.79	T	0.20	0.46	2.31
PFHpA	7.38	T	0.31	0.93	2.31
PFOA	14.91	T	0.35	0.93	2.31
PFNA	2.34	T	0.34	0.93	2.31
PFDA	0.93	UT	0.36	0.93	2.31
PFUnA	0.93	UT	0.35	0.93	2.31
PFDoA	0.93	UT	0.39	0.93	2.31
PFTrDA	0.93	UT	0.39	0.93	2.31
PFTeDA	1.39	UT	0.68	1.39	2.31
NMeFOSAA	0.93	UT	0.39	0.93	2.31
NEtFOSAA	0.93	UT	0.41	0.93	2.31
PFBS	7.76	T	0.19	0.46	2.31
PFHxS	54.57	TD	6.30	18.52	46.30
PFOS	90.74	TD	5.56	18.52	46.30
Surrogate Recoveries (%)					
13C2-PFHxA	129				
13C2-PFDA	112				
d5-EtFOSAA	102				

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

Client ID	WGNA-053118-DUP-38				
Battelle ID	J6294-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.275				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	15.32	T	0.20	0.45	2.27
PFHpA	9.55	T	0.31	0.91	2.27
PFOA	23.15	T	0.35	0.91	2.27
PFNA	4.78	T	0.34	0.91	2.27
PFDA	0.78	JT	0.35	0.91	2.27
PFUnA	0.91	UT	0.35	0.91	2.27
PFDoA	0.91	UT	0.38	0.91	2.27
PFTrDA	0.91	UT	0.38	0.91	2.27
PFTeDA	1.36	UT	0.66	1.36	2.27
NMeFOSAA	0.91	UT	0.38	0.91	2.27
NEtFOSAA	0.91	UT	0.40	0.91	2.27
PFBS	8.14	T	0.19	0.45	2.27
PFHxS	64.47	TD	6.18	18.18	45.45
PFOS	151.05	TD	5.45	18.18	45.45
Surrogate Recoveries (%)					
13C2-PFHxA	132	N			
13C2-PFDA	108				
d5-EtFOSAA	114				

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

Client ID	WGNA-053118-RW-4850				
Battelle ID	J6295-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.275				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	35.51	T	0.20	0.45	2.27
PFHpA	13.59	T	0.31	0.91	2.27
PFOA	24.06	T	0.35	0.91	2.27
PFNA	2.90	T	0.34	0.91	2.27
PFDA	0.91	UT	0.35	0.91	2.27
PFUnA	0.91	UT	0.35	0.91	2.27
PFDoA	0.91	UT	0.38	0.91	2.27
PFTrDA	0.91	UT	0.38	0.91	2.27
PFTeDA	1.36	UT	0.66	1.36	2.27
NMeFOSAA	0.91	UT	0.38	0.91	2.27
NEtFOSAA	0.91	UT	0.40	0.91	2.27
PFBS	34.01	T	0.19	0.45	2.27
PFHxS	105.27	TD	6.18	18.18	45.45
PFOS	168.17	TD	5.45	18.18	45.45
Surrogate Recoveries (%)					
13C2-PFHxA	130				
13C2-PFDA	116				
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-053118-RW-311			
Battelle ID	J6297-FS1			
Sample Type	SA			
Collection Date	05/31/2018			
Extraction Date	06/21/2018			
Analysis Date	06/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.290			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	9.86 T	0.19	0.43	2.16
PFHpA	7.93 T	0.29	0.86	2.16
PFOA	23.17 T	0.33	0.86	2.16
PFNA	2.66 T	0.32	0.86	2.16
PFDA	0.46 JT	0.34	0.86	2.16
PFUnA	0.86 UT	0.33	0.86	2.16
PFDoA	0.86 UT	0.36	0.86	2.16
PFTrDA	0.86 UT	0.36	0.86	2.16
PFTeDA	1.29 UT	0.63	1.29	2.16
NMeFOSAA	0.86 UT	0.36	0.86	2.16
NEtFOSAA	0.86 UT	0.38	0.86	2.16
PFBS	11.88 T	0.18	0.43	2.16
PFHxS	4.92 T	0.29	0.86	2.16
PFOS	22.61 BT	0.26	0.86	2.16
Surrogate Recoveries (%)				
13C2-PFHxA	130			
13C2-PFDA	118			
d5-EtFOSAA	99			

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

Client ID	NAWC-053118-RW-265				
Battelle ID	J6299-FS1				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.280				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	17.51	T	0.20	0.45	2.23
PFHpA	12.08	T	0.30	0.89	2.23
PFOA	20.61	T	0.34	0.89	2.23
PFNA	3.29	T	0.33	0.89	2.23
PFDA	0.89	UT	0.35	0.89	2.23
PFUnA	0.89	UT	0.34	0.89	2.23
PFDoA	0.89	UT	0.38	0.89	2.23
PFTrDA	0.89	UT	0.38	0.89	2.23
PFTeDA	1.34	UT	0.65	1.34	2.23
NMeFOSAA	0.89	UT	0.38	0.89	2.23
NEtFOSAA	0.89	UT	0.39	0.89	2.23
PFBS	6.00	T	0.19	0.45	2.23
PFHxS	15.03	T	0.30	0.89	2.23
PFOS	29.13	BT	0.27	0.89	2.23
Surrogate Recoveries (%)					
13C2-PFHxA	130				
13C2-PFDA	116				
d5-EtFOSAA	104				

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

Client ID	NAWC-060418-RW-230				
Battelle ID	J6582-FS1				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.295				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	13.68	T	0.19	0.42	2.12
PFHpA	5.70	T	0.29	0.85	2.12
PFOA	13.20	T	0.32	0.85	2.12
PFNA	2.13	T	0.31	0.85	2.12
PFDA	0.48	JT	0.33	0.85	2.12
PFUnA	0.85	UT	0.32	0.85	2.12
PFDoA	0.85	UT	0.36	0.85	2.12
PFTrDA	0.85	UT	0.36	0.85	2.12
PFTeDA	1.27	UT	0.62	1.27	2.12
NMeFOSAA	0.85	UT	0.36	0.85	2.12
NEtFOSAA	0.85	UT	0.37	0.85	2.12
PFBS	8.80	T	0.18	0.42	2.12
PFHxS	54.82	TD	5.76	16.95	42.37
PFOS	91.30	TD	5.08	16.95	42.37
Surrogate Recoveries (%)					
13C2-PFHxA	133	N			
13C2-PFDA	110				
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-060418-RW-309				
Battelle ID	J6584-FS1				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.290				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	4.87	T	0.19	0.43	2.16
PFHpA	2.92	T	0.29	0.86	2.16
PFOA	8.92	T	0.33	0.86	2.16
PFNA	0.98	JT	0.32	0.86	2.16
PFDA	0.86	UT	0.34	0.86	2.16
PFUnA	0.86	UT	0.33	0.86	2.16
PFDoA	0.86	UT	0.36	0.86	2.16
PFTrDA	0.86	UT	0.36	0.86	2.16
PFTeDA	1.29	UT	0.63	1.29	2.16
NMeFOSAA	0.86	UT	0.36	0.86	2.16
NEtFOSAA	0.86	UT	0.38	0.86	2.16
PFBS	4.96	T	0.18	0.43	2.16
PFHxS	12.38	T	0.29	0.86	2.16
PFOS	9.55	BT	0.26	0.86	2.16
Surrogate Recoveries (%)					
13C2-PFHxA	126				
13C2-PFDA	112				
d5-EtFOSAA	84				

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

Client ID	NAWC-060418-RW-293				
Battelle ID	J6586-FS1				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.295				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	12.53	T	0.19	0.42	2.12
PFHpA	10.07	T	0.29	0.85	2.12
PFOA	24.50	T	0.32	0.85	2.12
PFNA	7.68	T	0.31	0.85	2.12
PFDA	3.20	T	0.33	0.85	2.12
PFUnA	0.85	UT	0.32	0.85	2.12
PFDoA	0.85	UT	0.36	0.85	2.12
PFTrDA	0.85	UT	0.36	0.85	2.12
PFTeDA	1.27	UT	0.62	1.27	2.12
NMeFOSAA	0.85	UT	0.36	0.85	2.12
NEtFOSAA	0.85	UT	0.37	0.85	2.12
PFBS	10.94	T	0.18	0.42	2.12
PFHxS	12.29	T	0.29	0.85	2.12
PFOS	23.45	BT	0.25	0.85	2.12
Surrogate Recoveries (%)					
13C2-PFHxA	104				
13C2-PFDA	102				
d5-EtFOSAA	83				

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

Client ID	NAWC-060418-RW-038				
Battelle ID	J6588-FS1				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.285				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	9.51	T	0.19	0.44	2.19
PFHpA	6.44	T	0.30	0.88	2.19
PFOA	20.14	T	0.33	0.88	2.19
PFNA	4.14	T	0.32	0.88	2.19
PFDA	0.71	JT	0.34	0.88	2.19
PFUnA	0.88	UT	0.33	0.88	2.19
PFDoA	0.88	UT	0.37	0.88	2.19
PFTrDA	0.88	UT	0.37	0.88	2.19
PFTeDA	1.32	UT	0.64	1.32	2.19
NMeFOSAA	0.88	UT	0.37	0.88	2.19
NEtFOSAA	0.88	UT	0.39	0.88	2.19
PFBS	12.89	T	0.18	0.44	2.19
PFHxS	7.56	T	0.30	0.88	2.19
PFOS	25.88	BT	0.26	0.88	2.19
Surrogate Recoveries (%)					
13C2-PFHxA	124				
13C2-PFDA	104				
d5-EtFOSAA	117				

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

Client ID	NAWC-060418-RW-039				
Battelle ID	J6590-FS1				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.285				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	6.78	T	0.19	0.44	2.19
PFHpA	4.12	T	0.30	0.88	2.19
PFOA	11.72	T	0.33	0.88	2.19
PFNA	2.48	T	0.32	0.88	2.19
PFDA	0.88	UT	0.34	0.88	2.19
PFUnA	0.88	UT	0.33	0.88	2.19
PFDoA	0.88	UT	0.37	0.88	2.19
PFTrDA	0.88	UT	0.37	0.88	2.19
PFTeDA	1.32	UT	0.64	1.32	2.19
NMeFOSAA	0.88	UT	0.37	0.88	2.19
NEtFOSAA	0.88	UT	0.39	0.88	2.19
PFBS	6.22	T	0.18	0.44	2.19
PFHxS	2.88	BT	0.30	0.88	2.19
PFOS	15.34	BT	0.26	0.88	2.19
Surrogate Recoveries (%)					
13C2-PFHxA	129				
13C2-PFDA	115				
d5-EtFOSAA	99				

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

Client ID	WGNA-060718-RW-0488				
Battelle ID	J6637-FS1				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.280				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	24.22		0.20	0.45	2.23
PFHpA	14.22		0.30	0.89	2.23
PFOA	34.20		0.34	0.89	2.23
PFNA	1.92	J	0.33	0.89	2.23
PFDA	0.89	U	0.35	0.89	2.23
PFUnA	0.89	U	0.34	0.89	2.23
PFDoA	0.89	U	0.38	0.89	2.23
PFTrDA	0.89	U	0.38	0.89	2.23
PFTeDA	1.34	U	0.65	1.34	2.23
NMeFOSAA	0.89	U	0.38	0.89	2.23
NEtFOSAA	0.89	U	0.39	0.89	2.23
PFBS	14.62		0.19	0.45	2.23
PFHxS	24.41		0.30	0.89	2.23
PFOS	18.99	B	0.27	0.89	2.23
Surrogate Recoveries (%)					
13C2-PFHxA	133	N			
13C2-PFDA	106				
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-060718-RW-175			
Battelle ID	J6639-FS1			
Sample Type	SA			
Collection Date	06/07/2018			
Extraction Date	06/21/2018			
Analysis Date	06/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.275			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	11.62	0.20	0.45	2.27
PFHpA	5.68	0.31	0.91	2.27
PFOA	12.62	0.35	0.91	2.27
PFNA	2.01 J	0.34	0.91	2.27
PFDA	0.91 U	0.35	0.91	2.27
PFUnA	0.91 U	0.35	0.91	2.27
PFDoA	0.91 U	0.38	0.91	2.27
PFTrDA	0.91 U	0.38	0.91	2.27
PFTeDA	1.36 U	0.66	1.36	2.27
NMeFOSAA	0.91 U	0.38	0.91	2.27
NEtFOSAA	0.91 U	0.40	0.91	2.27
PFBS	6.85	0.19	0.45	2.27
PFHxS	42.00	0.31	0.91	2.27
PFOS	56.41 D	5.45	18.18	45.45
Surrogate Recoveries (%)				
13C2-PFHxA	126			
13C2-PFDA	117			
d5-EtFOSAA	99			

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

Client ID	WGNA-060718-DUP-39				
Battelle ID	J6641-FS1				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/21/2018				
Analysis Date	06/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.285				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	13.43		0.19	0.44	2.19
PFHpA	6.20		0.30	0.88	2.19
PFOA	14.10		0.33	0.88	2.19
PFNA	2.14	J	0.32	0.88	2.19
PFDA	0.88	U	0.34	0.88	2.19
PFUnA	0.88	U	0.33	0.88	2.19
PFDoA	0.88	U	0.37	0.88	2.19
PFTrDA	0.88	U	0.37	0.88	2.19
PFTeDA	1.32	U	0.64	1.32	2.19
NMeFOSAA	0.88	U	0.37	0.88	2.19
NEtFOSAA	0.88	U	0.39	0.88	2.19
PFBS	8.52		0.18	0.44	2.19
PFHxS	47.89		0.30	0.88	2.19
PFOS	57.72	D	5.26	17.54	43.86
Surrogate Recoveries (%)					
13C2-PFHxA	145	N			
13C2-PFDA	124				
d5-EtFOSAA	92				

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

Client ID	WGNA-060718-RW-0626			
Battelle ID	J6642-FS1			
Sample Type	SA			
Collection Date	06/07/2018			
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	1.09 J	0.20	0.46	2.31
PFHpA	0.71 J	0.31	0.93	2.31
PFOA	2.36	0.35	0.93	2.31
PFNA	0.93 U	0.34	0.93	2.31
PFDA	0.93 U	0.36	0.93	2.31
PFUnA	0.93 U	0.35	0.93	2.31
PFDoA	0.93 U	0.39	0.93	2.31
PFTrDA	0.93 U	0.39	0.93	2.31
PFTeDA	1.39 U	0.68	1.39	2.31
NMeFOSAA	0.93 U	0.39	0.93	2.31
NEtFOSAA	0.93 U	0.41	0.93	2.31
PFBS	1.13 J	0.19	0.46	2.31
PFHxS	1.04 J	0.31	0.93	2.31
PFOS	3.14 B	0.28	0.93	2.31
Surrogate Recoveries (%)				
13C2-PFHxA	128			
13C2-PFDA	124			
d5-EtFOSAA	117			

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

Client ID	NAWC-053118-FRB-256				
Battelle ID	J6291-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	0.48	U	0.21	0.48	2.40
PFHpA	0.96	U	0.33	0.96	2.40
PFOA	0.96	U	0.37	0.96	2.40
PFNA	0.96	U	0.36	0.96	2.40
PFDA	0.96	U	0.38	0.96	2.40
PFUnA	0.96	U	0.37	0.96	2.40
PFDoA	0.96	U	0.40	0.96	2.40
PFTrDA	0.96	U	0.40	0.96	2.40
PFTeDA	1.44	U	0.70	1.44	2.40
NMeFOSAA	0.96	U	0.40	0.96	2.40
NEtFOSAA	0.96	U	0.42	0.96	2.40
PFBS	0.48	U	0.20	0.48	2.40
PFHxS	0.96	U	0.33	0.96	2.40
PFOS	1.78	J	0.29	0.96	2.40
Surrogate Recoveries (%)					
13C2-PFHxA	113				
13C2-PFDA	107				
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-053118-FRB-126			
Battelle ID	J6293-FS			
Sample Type	SA			
Collection Date	05/31/2018			
Extraction Date	06/14/2018			
Analysis Date	06/15/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	DW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.47 U	0.21	0.47	2.36
PFHpA	0.94 U	0.32	0.94	2.36
PFOA	0.94 U	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	0.47 U	0.20	0.47	2.36
PFHxS	0.94 U	0.32	0.94	2.36
PFOS	0.94 U	0.28	0.94	2.36
Surrogate Recoveries (%)				
13C2-PFHxA	106			
13C2-PFDA	101			
d5-EtFOSAA	97			

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

Client ID	WGNA-053118-FRB-4850				
Battelle ID	J6296-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	0.47	U	0.21	0.47	2.36
PFHpA	0.94	U	0.32	0.94	2.36
PFOA	0.94	U	0.36	0.94	2.36
PFNA	0.94	U	0.35	0.94	2.36
PFDA	0.94	U	0.37	0.94	2.36
PFUnA	0.94	U	0.36	0.94	2.36
PFDoA	0.94	U	0.40	0.94	2.36
PFTrDA	0.94	U	0.40	0.94	2.36
PFTeDA	1.42	U	0.69	1.42	2.36
NMeFOSAA	0.94	U	0.40	0.94	2.36
NEtFOSAA	0.94	U	0.42	0.94	2.36
PFBS	0.47	U	0.20	0.47	2.36
PFHxS	0.94	U	0.32	0.94	2.36
PFOS	1.81	J	0.28	0.94	2.36
Surrogate Recoveries (%)					
13C2-PFHxA	103				
13C2-PFDA	91				
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-053118-FRB-311				
Battelle ID	J6298-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	0.47	U	0.21	0.47	2.36
PFHpA	0.94	U	0.32	0.94	2.36
PFOA	0.94	U	0.36	0.94	2.36
PFNA	0.94	U	0.35	0.94	2.36
PFDA	0.94	U	0.37	0.94	2.36
PFUnA	0.94	U	0.36	0.94	2.36
PFDoA	0.94	U	0.40	0.94	2.36
PFTrDA	0.94	U	0.40	0.94	2.36
PFTeDA	1.42	U	0.69	1.42	2.36
NMeFOSAA	0.94	U	0.40	0.94	2.36
NEtFOSAA	0.94	U	0.42	0.94	2.36
PFBS	0.47	U	0.20	0.47	2.36
PFHxS	0.94	U	0.32	0.94	2.36
PFOS	0.31	J	0.28	0.94	2.36
Surrogate Recoveries (%)					
13C2-PFHxA	104				
13C2-PFDA	99				
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-053118-FRB-265				
Battelle ID	J6300-FS				
Sample Type	SA				
Collection Date	05/31/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	0.47	U	0.21	0.47	2.36
PFHpA	0.94	U	0.32	0.94	2.36
PFOA	0.94	U	0.36	0.94	2.36
PFNA	0.94	U	0.35	0.94	2.36
PFDA	0.94	U	0.37	0.94	2.36
PFUnA	0.94	U	0.36	0.94	2.36
PFDoA	0.94	U	0.40	0.94	2.36
PFTrDA	0.94	U	0.40	0.94	2.36
PFTeDA	1.42	U	0.69	1.42	2.36
NMeFOSAA	0.94	U	0.40	0.94	2.36
NEtFOSAA	0.94	U	0.42	0.94	2.36
PFBS	0.47	U	0.20	0.47	2.36
PFHxS	0.94	U	0.32	0.94	2.36
PFOS	0.94	U	0.28	0.94	2.36
Surrogate Recoveries (%)					
13C2-PFHxA	107				
13C2-PFDA	102				
d5-EtFOSAA	92				

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

Client ID	NAWC-060418-FRB-230				
Battelle ID	J6583-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	0.48	U	0.21	0.48	2.40
PFHpA	0.96	U	0.33	0.96	2.40
PFOA	0.96	U	0.37	0.96	2.40
PFNA	0.96	U	0.36	0.96	2.40
PFDA	0.96	U	0.38	0.96	2.40
PFUnA	0.96	U	0.37	0.96	2.40
PFDoA	0.96	U	0.40	0.96	2.40
PFTrDA	0.96	U	0.40	0.96	2.40
PFTeDA	1.44	U	0.70	1.44	2.40
NMeFOSAA	0.96	U	0.40	0.96	2.40
NEtFOSAA	0.96	U	0.42	0.96	2.40
PFBS	0.48	U	0.20	0.48	2.40
PFHxS	0.33	J	0.33	0.96	2.40
PFOS	2.30	J	0.29	0.96	2.40
Surrogate Recoveries (%)					
13C2-PFHxA	105				
13C2-PFDA	97				
d5-EtFOSAA	99				

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

Client ID	NAWC-060418-FRB-309				
Battelle ID	J6585-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	U	0.22	0.50	2.50
PFHpA	1.00	U	0.34	1.00	2.50
PFOA	1.00	U	0.38	1.00	2.50
PFNA	1.00	U	0.37	1.00	2.50
PFDA	1.00	U	0.39	1.00	2.50
PFUnA	1.00	U	0.38	1.00	2.50
PFDoA	1.00	U	0.42	1.00	2.50
PFTrDA	1.00	U	0.42	1.00	2.50
PFTeDA	1.50	U	0.73	1.50	2.50
NMeFOSAA	1.00	U	0.42	1.00	2.50
NEtFOSAA	1.00	U	0.44	1.00	2.50
PFBS	0.50	U	0.21	0.50	2.50
PFHxS	1.00	U	0.34	1.00	2.50
PFOS	1.00	U	0.30	1.00	2.50
Surrogate Recoveries (%)					
13C2-PFHxA	104				
13C2-PFDA	99				
d5-EtFOSAA	111				

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

Client ID	NAWC-060418-FRB-293				
Battelle ID	J6587-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	1.29	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
PFDoA	1.00	U	0.42	1.00	2.50
PFTrDA	1.00	U	0.42	1.00	2.50
PFTeDA	1.50	U	0.73	1.50	2.50
NMeFOSAA	1.00	U	0.42	1.00	2.50
NEtFOSAA	1.00	U	0.44	1.00	2.50
PFBS	0.50	U	0.21	0.50	2.50
PFHxS	1.00	U	0.34	1.00	2.50
PFOS	1.00	U	0.30	1.00	2.50
Surrogate Recoveries (%)					
13C2-PFHxA	98				
13C2-PFDA	102				
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-060418-FRB-038				
Battelle ID	J6589-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	0.47	U	0.21	0.47	2.36
PFHpA	0.94	U	0.32	0.94	2.36
PFOA	0.94	U	0.36	0.94	2.36
PFNA	0.94	U	0.35	0.94	2.36
PFDA	0.94	U	0.37	0.94	2.36
PFUnA	0.94	U	0.36	0.94	2.36
PFDoA	0.94	U	0.40	0.94	2.36
PFTrDA	0.94	U	0.40	0.94	2.36
PFTeDA	1.42	U	0.69	1.42	2.36
NMeFOSAA	0.94	U	0.40	0.94	2.36
NEtFOSAA	0.94	U	0.42	0.94	2.36
PFBS	0.47	U	0.20	0.47	2.36
PFHxS	0.94	U	0.32	0.94	2.36
PFOS	1.64	J	0.28	0.94	2.36
Surrogate Recoveries (%)					
13C2-PFHxA	107				
13C2-PFDA	101				
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-060418-FRB-039				
Battelle ID	J6591-FS				
Sample Type	SA				
Collection Date	06/04/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	DW				
Sample Size	0.265				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	0.47	U	0.21	0.47	2.36
PFHpA	0.94	U	0.32	0.94	2.36
PFOA	0.94	U	0.36	0.94	2.36
PFNA	0.94	U	0.35	0.94	2.36
PFDA	0.94	U	0.37	0.94	2.36
PFUnA	0.94	U	0.36	0.94	2.36
PFDoA	0.94	U	0.40	0.94	2.36
PFTrDA	0.94	U	0.40	0.94	2.36
PFTeDA	1.42	U	0.69	1.42	2.36
NMeFOSAA	0.94	U	0.40	0.94	2.36
NEtFOSAA	0.94	U	0.42	0.94	2.36
PFBS	0.47	U	0.20	0.47	2.36
PFHxS	0.94	U	0.32	0.94	2.36
PFOS	1.37	J	0.28	0.94	2.36
Surrogate Recoveries (%)					
13C2-PFHxA	105				
13C2-PFDA	93				
d5-EtFOSAA	119				

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

Client ID	WGNA-060718-FRB-0488				
Battelle ID	J6638-FS				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	0.49	U	0.22	0.49	2.45
PFHpA	0.98	U	0.33	0.98	2.45
PFOA	0.98	U	0.37	0.98	2.45
PFNA	0.98	U	0.36	0.98	2.45
PFDA	0.98	U	0.38	0.98	2.45
PFUnA	0.98	U	0.37	0.98	2.45
PFDoA	0.98	U	0.41	0.98	2.45
PFTrDA	0.98	U	0.41	0.98	2.45
PFTeDA	1.47	U	0.72	1.47	2.45
NMeFOSAA	0.98	U	0.41	0.98	2.45
NEtFOSAA	0.98	U	0.43	0.98	2.45
PFBS	0.49	U	0.21	0.49	2.45
PFHxS	0.98	U	0.33	0.98	2.45
PFOS	2.39	J	0.29	0.98	2.45
Surrogate Recoveries (%)					
13C2-PFHxA	103				
13C2-PFDA	94				
d5-EtFOSAA	99				

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

Client ID	NAWC-060718-FRB-175				
Battelle ID	J6640-FS				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	0.49	U	0.22	0.49	2.45
PFHpA	0.98	U	0.33	0.98	2.45
PFOA	0.98	U	0.37	0.98	2.45
PFNA	0.98	U	0.36	0.98	2.45
PFDA	0.98	U	0.38	0.98	2.45
PFUnA	0.98	U	0.37	0.98	2.45
PFDoA	0.98	U	0.41	0.98	2.45
PFTrDA	0.98	U	0.41	0.98	2.45
PFTeDA	1.47	U	0.72	1.47	2.45
NMeFOSAA	0.98	U	0.41	0.98	2.45
NEtFOSAA	0.98	U	0.43	0.98	2.45
PFBS	0.49	U	0.21	0.49	2.45
PFHxS	0.98	U	0.33	0.98	2.45
PFOS	1.56	J	0.29	0.98	2.45
Surrogate Recoveries (%)					
13C2-PFHxA	102				
13C2-PFDA	92				
d5-EtFOSAA	107				

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

Client ID	WGNA-060718-FRB-0626				
Battelle ID	J6643-FS				
Sample Type	SA				
Collection Date	06/07/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
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	0.49	U	0.22	0.49	2.45
PFHpA	0.98	U	0.33	0.98	2.45
PFOA	0.98	U	0.37	0.98	2.45
PFNA	0.98	U	0.36	0.98	2.45
PFDA	0.98	U	0.38	0.98	2.45
PFUnA	0.98	U	0.37	0.98	2.45
PFDoA	0.98	U	0.41	0.98	2.45
PFTrDA	0.98	U	0.41	0.98	2.45
PFTeDA	1.47	U	0.72	1.47	2.45
NMeFOSAA	0.98	U	0.41	0.98	2.45
NEtFOSAA	0.98	U	0.43	0.98	2.45
PFBS	0.49	U	0.21	0.49	2.45
PFHxS	0.35	J	0.33	0.98	2.45
PFOS	2.48	B	0.29	0.98	2.45
Surrogate Recoveries (%)					
13C2-PFHxA	112				
13C2-PFDA	101				
d5-EtFOSAA	94				

Appendix C

Support Documentation

ANALYTE	ORIGINAL 060718-RW-175	DUPLICATE 060718-DUP-39	RL	RPD	RPD > 30%	ORIGINAL SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >2XRL
PENTADECAFLUOROOCTANOIC ACID (PFOA)	12.62	14.1	2.27	11.078	FALSE	TRUE	TRUE	FALSE
PERFLUOROBUTANESULFONIC ACID (PFBS)	6.85	8.52	2.27	21.731	FALSE	TRUE	TRUE	FALSE
PERFLUOROHEPTANOIC ACID (PFHPA)	5.68	6.2	2.27	8.754	FALSE	TRUE	TRUE	FALSE
PERFLUOROHEXANESULFONIC ACID (PFHXS)	42	47.89	2.27	13.105	FALSE	TRUE	TRUE	TRUE
PERFLUOROHEXANOIC ACID (PFHXA)	11.62	13.43	2.27	14.451	FALSE	TRUE	TRUE	FALSE
PERFLUORONONANOIC ACID (PFNA)	2.01	2.14	2.27	6.265	FALSE	FALSE	FALSE	FALSE
PERFLUOROOCTANESULFONIC ACID (PFOS)	56.41	57.72	45.45	2.296	FALSE	FALSE	FALSE	FALSE

ANALYTE	ORIGINAL 053118-RW-126	DUPLICATE 053118-DUP-38	RL	RPD	RPD > 30%	ORIGINAL SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >2XRL
PENTADECAFLUOROOCTANOIC ACID (PFOA)	14.91	23.15	2.31	43.300	TRUE	TRUE	TRUE	TRUE
PERFLUOROBUTANESULFONIC ACID (PFBS)	7.76	8.14	2.31	4.780	FALSE	TRUE	TRUE	FALSE
PERFLUOROHEPTANOIC ACID (PFHPA)	7.38	9.55	2.31	25.635	FALSE	TRUE	TRUE	FALSE
PERFLUOROHEXANESULFONIC ACID (PFHXS)	54.57	64.47	46.3	16.633	FALSE	FALSE	FALSE	FALSE
PERFLUOROHEXANOIC ACID (PFHXA)	13.79	15.32	2.31	10.512	FALSE	TRUE	TRUE	FALSE
PERFLUORONONANOIC ACID (PFNA)	2.34	4.78	2.31	68.539	TRUE	FALSE	TRUE	FALSE
PERFLUOROOCTANESULFONIC ACID (PFOS)	90.74	151.05	46.3	49.886	FALSE	FALSE	TRUE	FALSE
PERFLUORODECANOIC ACID (PFDA)	0.93	0.78	2.31	17.544	FALSE	FALSE	FALSE	FALSE

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Client Contact Information
Andy Frebowitz
234 Mall Boulevard, Suite 260
King of Prussia, PA 19406
610-382-1170

Project Manager: Jonathan Thorn
Sampler Information (print name): Mary Kay Bond
Phone: 610-382-1169
Email: mary.bond@tetratech.com
Turnaround Time (TAT) Requested: 21 days

Project Name: WE04
Project No.: 112G08005-WE04

Normal ☑
Priority ☐
RUSH ☐

Time Zone: Eastern

Sampling Site: WE04

Site Information: NAS JRB Willow Grove/WGNA Warminster

COC #

Page# 1 of 1

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	Preservativ: Trizma	Analysis: PFAS EPA 537 14 analytes	
NAWC-053118-RW-256 J6290	5/31/2018	8:10	G	DW	2		X	
NAWC-053118-FRB-256 91	5/31/2018	8:05	G	DW	2		X	Field Reagent Blank
NAWC-053118-RW-126 92	5/31/2018	8:40	G	DW	2		X	
NAWC-053118-FRB-126 93	5/31/2018	8:35	G	DW	2		X	Field Reagent Blank
WGNA-053118-DUP-38 94	5/31/2018	7:00	G	DW	2		X	DUPLICATE
WGNA-053118-RW-4850 95	5/31/2018	9:40	G	DW	6		X	MS/MSD
WGNA-053118-FRB-4850 96	5/31/2018	9:35	G	DW	2		X	Field Reagent Blank
NAWC-053118-RW-311 97	5/31/2018	12:10	G	DW	2		X	
NAWC-053118-FRB-311 98	5/31/2018	12:05	G	DW	2		X	Field Reagent Blank
NAWC-053118-RW-265 99	5/31/2018	16:10	G	DW	2		X	
NAWC-053118-FRB-265 J6300	5/31/2018	16:05	G	DW	2		X	Field Reagent Blank

Receipt Temperature:(°C) 1.6

Samples Intact: (Yes) - No

Samples on Ice: (Yes) - No

Receipt Comments:

Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
Mary Kay Bond	Tetra Tech	05/31/2018 18:00	Matt Schwintz	Battelle	6-1-18 1030

Comments: FedEx Tracking # 772365765386

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Client Contact Information

Andy Frebowitz
234 Mall Boulevard, Suite 260
King of Prussia, PA 19406
610-382-1170

Project Manager: Jonathan Thorn

Sampler Information (print name): Mary Kay Bond
Phone: 610-382-1169
Email: mary.bond@tetratech.com

Turnaround Time (TAT) Requested: 21 days

Normal ☑
Priority ☐
RUSH ☐

Project Name: WE04

Project No.: 112G08005-WE04

Time Zone: Eastern

Sampling Site: WE04

Site Information: NAS JRB Willow Grove/WGNA Warminster

COC #

Page# 1 of 1

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	Preservative: Trizma	Analysis: PFAS EPA 537 14 analytes	
NAWC-060418-RW-230 J6582	6/4/2018	8:10	G	DW	2		X	
NAWC-060418-FRB-230 J6583	6/4/2018	8:05	G	DW	2		X	Field Reagent Blank
NAWC-060418-RW-309 J6584	6/4/2018	8:40	G	DW	2		X	
NAWC-060418-FRB-309 J6585	6/4/2018	8:35	G	DW	2		X	Field Reagent Blank
NAWC-060418-RW-293 J6586	6/4/2018	9:40	G	DW	2		X	
NAWC-060418-FRB-293 J6587	6/4/2018	9:35	G	DW	2		X	Field Reagent Blank
NAWC-060418-RW-038 J6588	6/4/2018	9:55	G	DW	2		X	
NAWC-060418-FRB-038 J6589	6/4/2018	9:50	G	DW	2		X	Field Reagent Blank
NAWC-060418-RW-039 J6590	6/4/2018	10:10	G	DW	2		X	
NAWC-060418-FRB-039 J6591	6/4/2018	10:05	G	DW	2		X	Field Reagent Blank

Receipt Temperature:(°C) 0.9

Samples Intact: (Yes) - No

Samples on Ice: (Yes) - No

Receipt Comments:

Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
[signature]	Tetra Tech	06/04/2018 16:00	Matt Schmitz MS	Battelle	6-5-18 1100
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 7412 3139

Battelle

The Business of Innovation

Chain-of-Custody

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

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	PFAS EPA 537 14 analytes	
WGNA-060718-RW-0488	6/7/2018	12:40	G	DW	2	X	JT6637
WGNA-060718-FRB-0488	6/7/2018	12:35	G	DW	2	X	JT6638 Field Reagent Blank
NAWC-060718-RW-175	6/7/2018	13:10	G	DW	2	X	JT6639
NAWC-060718-FRB-175	6/7/2018	13:05	G	DW	2	X	JT6640 Field Reagent Blank
WGNA-060718-DUP-39	6/7/2018	7:00	G	DW	2	X	JT6641 DUPLICATE
WGNA-060718-RW-0626	6/7/2018	14:10	G	DW	2	X	JT6642
WGNA-060718-FRB-0626	6/7/2018	14:05	G	DW	2	X	JT6643 Field Reagent Blank

Receipt Temperature:(°C)	Samples Intact:	Samples on Ice:	Receipt Comments:
0.6°C Therm. 2 (1.)	Yes - No	Yes No	

Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
[signature]	Tetra Tech	06/07/2018 16:00	[signature] Jonathan Thorn	Battelle	6/8/2018 10:36
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 # 7724 1753 4658

(1.) Ice melt = 0.6°C
temp blank = 2.3°C
JMT 6/8/2018

Project:	CTO-WE04 Naval Air Station Joint Reserve Base Willow Grove
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	DW
Data Set:	DP-18-0159
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
5/31/2018	6/1/2018	1.6
6/4/2018	6/5/2018	0.9
6/7/2018	6/8/2018	2.3

Corrective Actions	None
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	Related FRB samples are in SDG 18-0360, this SDG is a re-extraction of SDG 18-0348.

	METHOD SUMMARIES
Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were concentrated to dryness under nitrogen with a water bath set between 60 °C and 65 °C, reconstituted with 96:4 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	None.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on the Sciex 5500. All ion ratios pass the criteria of $\leq$ 50% RPD for analytes detected above the LOQ with the exception of: NAWC-060418-RW-309 (J6584-FS1) – PFOA NAWC-060418-RW-293 (J6586-FS1) – PFOA and PFHpA WGNA-060718-RW-0488 (J6637-FS1) – PFOA and PFHpA WGNA-060718-RW-0626 (J6642-FS1) - PFOA The results for PFHxS and PFOS may have been impacted by water samples extracted prior to these samples on the same manifold. The manifold, including

	all valves, were cleaned between batches, however, the water samples extracted prior to these appear to be heavily impacted by AFFF (samples required 1:1,000,000-fold dilutions). The samples in question were not part of the WE04 project. This SDG is a re-extract of SDG 18-0348, several samples are "T" qualified as they were extracted beyond the 14-day holding time.

Holding Times	Extraction Date(s)	Analysis Date(s)
	6/21/2018	6/27-28 and 7/18/2018

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	One exceedance noted.
	PFOS was detected in the blank at 4.56 ng/L.

Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.
Sample results > 10x the concentration of the PB	Eleven exceedances noted.
	PFOS was detected in 10 samples and PFHxS in one sample at a value less than 10 times the amount detected in the PB, results are "B" qualified.

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 recovered at 180%. Sample was re-run to verify the recovery. As this analyte is over-recovered and not detected in any field samples, no additional 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%	Three exceedences noted for recoveries.
	PFOS and PFBS were detected in the background for the MS and MSD at levels above the target fortification level leading to over-recoveries.

Surrogates Standard Analytes	Labelled surrogate compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
70-130% of true value	Four exceedances noted.
	Four samples have 13C2-PFHxA recovered above MQO criteria. These extracts were re-run and the results were verified.

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	Thirty-five secondary criteria exceedances noted.
	The following analyte/method exceedances were noted for the area as compared to the most recent CCV. All passed versus the average of the calibration. Any samples not reported from a given method versus a given internal standard, are crossed off on the IS area reports. 13C4-PFOS / Method 18-0393_DW = 9 13C2-PFOA / Method 18-0393_DW = 8 D3-MeFOSAA / Method 18-0393_DW = 10 13C4-PFOS / Method 18-0393_R = 3 13C2-PFOA / Method 18-0393_R = 1 13C4-PFOS / Method 18-0393_B = 2 13C4-PFOS / Method 18-0393_MSD = 1 13C2-PFOA / Method 18-0393_MSD = 1

Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadradic curve fitting.
R^2 >0.99 Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No exceedances noted.
	No comments.

Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted.
	No comments.

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

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
Project Number: 100117920-WE04
Preparation Batch: 18-0393
Data Set: DP-18-0159
Test Code: Master_371

QC Parameter:	Exceed:	Justification:
Procedural Blank	1	PFOS was detected in the PB above the LOQ and in "N" qualified. The extract was re-run and the results were verified.
PB Measurement Quality Objective	11	Ten samples are "B" qualified for PFOS and one sample for PHxS as a result of the PB detections. The results for the PB were verified and no further action will be taken.
Laboratory Control Sample	1	PFTeDA over recovered. Sample was re-run to verify the recovery. As this was over recovered, and not detected in any field sample, no additional corrective action was taken.
Matrix Spike / Matrix Spike Duplicate Recovery	3	PFOS in the MS/MSD and PFBS in the MSD are all outside of MQO criteria. The background sample had elevated amounts of each of these analytes that necessitated a dilution. As the LCS passes for these analytes, no further
Matrix Spike / Matrix Spike Duplicate Precision	0	None
Extracted Internal Standard Analytes (Surrogates)	4	Four samples have 13C2-PFHxA recovered above MQO criteria. These extracts were re-run and the results were verified. No further action will be taken.
Instrument Calibration	NA	NA
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None

BATTELLE
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BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title:	Naval Air Station Joint Reserve Base Wi	**Data Set Number:**	DP-18-0159
Project Number:	100117920-WE04	**Prep Batch Number:**	18-0393
Entered By:	Robert Lizotte Jr	**Entered On:**	07/18/2018

Test Code (Matrix Type): Master_371(L)

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
-BL 7/18/18

PFOS was detected and "N" qualified in the PB. PFHxS was detected and "J" qualified in the PB. The extract was re-run and the results were verified. This also led to some authentic samples and the LCS being "B" qualified for PFOS and one sample for PFHxS. No further action will be taken.
-BL 7/18/18

PFTeDA exhibited a high recovery in the LCS. Prep records and integrations were verified. Recoveries were acceptable in the ICC and CCV. It was not detected in any of the authentic samples.
-BL 7/18/18

PFOS in the MS/MSD and PFBS in the MSD are all ouside of MQO criteria. The background sample had elevated amounts of each of these analytes that necessitated a dilution. As the LCS passes for these analytes, no further action is necessary.
-BL 7/19/18

Four samples have 13C2-PFHxA recovered above MQO criteria. These extracts were re-run and the results were verified. No further action will be taken.
-BL 7/18/18

JX67 is not being used for PFOA, PFNA, PFOS and PFDA in 18-0393_DW and 18-0393_R. There is no impact on the data once these points are removed from the calibration.
-BL 7/18/18

JX73 is not being used for PFTeDA in 18-0393_DW. There is no impact on the data once these points are removed from the calibration.
-BL 7/18/18

JX74 is not being used for PFTeDA in 18-0393_DW and 18-0393_R. There is no impact on the data once these points are removed from the calibration.
-BL 7/18/18

JX75 is not being used for PFNA, PFTeDA and NMeFOSAA in 18-0393_DW and 18-0393_R. There is no impact on the data once these points are removed from the calibration.
-BL 7/18/18

JX67 is not being used for PFTeDA in 18-0393_B. There is no impact on the data once these points are removed from the calibration.
-BL 7/18/18

JX74 is not being used for PFBS in 18-0393_B. There is no impact on the data once these points are removed from the calibration.
-BL 7/18/18

JX75 is not being used for PFBS in 18-0393_B. There is no impact on the data once these points are removed from the calibration.
-BL 7/18/18

JX74 is not being used for NEtFOSAA in 18-0393_R. There is no impact on the data once these points are removed from the calibration.
-BL 7/18/18

Task Leader Approval:

SupervisorApproval: Signature on page 2

PM Approval:

BATTELLE
It can be done

BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title:	Naval Air Station Joint Reserve Base Wi	**Data Set Number:**	DP-18-0159
Project Number:	100117920-WE04	**Prep Batch Number:**	18-0393
Entered By:	Robert Lizotte Jr	**Entered On:**	07/18/2018

Test Code (Matrix Type): Master_371(L)

JX75 is not being used for NEtFOSAA in 18-0393_R. There is no impact on the data once these points are removed from the calibration.
-BL 7/18/18

JX67 is not being used for PFBS, PFHxA, and PFOA in 18-0393_MSD. There is no impact on the data once these points are removed from the calibration.
-BL 7/19/18

JX68 is not being used for PFBS and PFOA in 18-0393_MSD. There is no impact on the data once these points are removed from the calibration.
-BL 7/19/18

JX75 is not being used for PFBS in 18-0393_MSD. There is no impact on the data once these points are removed from the calibration.
-BL 7/19/18

Some samples are "T" qualified as these samples were re-extracted outside of holding time because of QC issues with batch 18-0348.
-BL 7/18/18

Samples CR042PB, J6290, J9292, J6294, J6295, J6295MS, J6295MSD, J6297, J6299 and J6588 do not meet the secondary criteria for the internal standard d3-MeFOSAA and as a result have an N qualifier on the IS area report associated with the method 18-0393_DW. DMS 7/18/18

Samples J6290, J6294, J6295MSD, J6297, J6299, J6586, J6639 and J6641 do not meet the secondary criteria for the internal standard 13C2-PFOA and as a result have an N qualifier on the IS area report associated with the method 18-0393_DW. DMS 7/18/18

Samples J6290, J6292, J6294, J6295, J6295MS, J6295MSD, J6299, J6639, and J6641 do not meet the secondary criteria for the internal standard 13C4-PFOS and as a result have an N qualifier on the IS area report associated with the method 18-0393_DW. DMS 7/18/18

Sample extracts J6294-D(3), J6295-D(3), and J6295MS-D(3) do not meet the secondary criteria for the internal standard 13C4-PFOS and as a result have an N qualifier on the IS area report associated with the method 18-0393_R.
DMS 7/18/18

Sample extract J6295MS-D(3) does not meet the secondary criteria for the internal standard 13C2-PFOA and as a result has an N qualifier on the IS area report associated with the method 18-0393_R.
DMS 7/18/18

Sample extracts J6639-D(3) and J6641-D(3) do not meet secondary criteria for the internal standard 13C4-PFOS and are N qualified on the IS area report associated with method 18-0393_B. BL 7/19/2018

Sample extract J6295MSD-D(5) does not meet the secondary criteria for the internal standard 13C4-PFOS or 13C2-PFOA and as a result has an N qualifier on the IS area report associated with the method 18-0393_MSD.
-BL 7/19/18

Ion Ratio criteria of 50% RPD met for all analytes detected above the LOQ with the following exceptions:
J6584 - PFOA , J6586 - PFOA, PFHpA, J6637 - PFOA, PFHpA, and J6642 - PFOA
-BL 7/19/2018

Task Leader Approval:

SupervisorApproval:

PM Approval:

Digitally signed by Jonathan Thorn
Date: 2018.07.19 13:50:27 -04'00'

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
Project No.: 100117920-WE04
Preparation Batch: 18-0393
Data Set: DP-18-0159

	CR042PB-FS (Procedural Blank)	CR043LCS-FS (Laboratory Control Sample)	J6295MS-FS1 (WGNA-053118-RW-4850)	J6295MSD-FS1 (WGNA-053118-RW-4850)	J6290-FS1 (NAWC-053118-RW-256)	J6292-FS1 (NAWC-053118-RW-126)	J6294-FS1 (WGNA-053118-DUP-38)	J6295-FS1 (WGNA-053118-RW-4850)
PFHxA	-	L	L	L	L	L	L	L
PFHpA	-	L	L	L	L	L	L	L
PFOA	-	L	L	L	L	L	L	L
PFNA	-	L	L	L	L	L	L	L
PFDA	-	L	L	L	L	-	L	-
PFUnA	-	L	L	L	-	-	-	-
PFDoA	-	L	L	L	-	-	-	-
PFTrDA	-	L	L	L	-	-	-	-
PFTeDA	-	L	L	L	-	-	-	-
NMeFOSAA	-	L	L	L	-	-	-	-
NEtFOSAA	-	L	L	L	-	-	-	-
PFBS	-	L	L	L	L	L	L	L
PFHxS	L/Br	L	L	L	L/Br	L/Br	L/Br	L/Br
PFOS	L/Br	L	L	L	L/Br	L/Br	L/Br	L/Br

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

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
Project No.: 100117920-WE04
Preparation Batch: 18-0393
Data Set: DP-18-0159

	J6297-FS1 (NAWC-053118-RW-311)	J6299-FS1 (NAWC-053118-RW-265)	J6582-FS1 (NAWC-060418-RW-230)	J6584-FS1 (NAWC-060418-RW-309)	J6586-FS1 (NAWC-060418-RW-293)	J6588-FS1 (NAWC-060418-RW-038)	J6590-FS1 (NAWC-060418-RW-039)	J6637-FS1 (WGNA-060718-RW-0488)
PFHxA	L	L	L	L	L	L	L	L
PFHpA	L	L	L	L	L	L	L	L
PFOA	L	L	L	L	L	L	L	L
PFNA	L	L	L	L	L	L	L	L
PFDA	L	-	L	-	L	L	-	-
PFUnA	-	-	-	-	-	-	-	-
PFDoA	-	-	-	-	-	-	-	-
PFTrDA	-	-	-	-	-	-	-	-
PFTeDA	-	-	-	-	-	-	-	-
NMeFOSAA	-	-	-	-	-	-	-	-
NEtFOSAA	-	-	-	-	-	-	-	-
PFBS	L	L	L	L	L	L	L	L
PFHxS	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br
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

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
Project No.: 100117920-WE04
Preparation Batch: 18-0393
Data Set: DP-18-0159

	J6639-FS1 (NAWC-060718-RW-175)	J6641-FS1 (WGNA-060718-DUP-39)	J6642-FS1 (WGNA-060718-RW-0626)
PFHxA	L	L	L
PFHpA	L	L	L
PFOA	L	L	L
PFNA	L	L	-
PFDA	-	-	-
PFUnA	-	-	-
PFDoA	-	-	-
PFTrDA	-	-	-
PFTeDA	-	-	-
NMeFOSAA	-	-	-
NEtFOSAA	-	-	-
PFBS	L	L	L
PFHxS	L/Br	L/Br	L/Br
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

Client ID	Procedural Blank				
Battelle ID	CR042PB-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	0.50	U	0.22	0.50	2.50
PFHpA	1.00	U	0.34	1.00	2.50
PFOA	1.00	U	0.38	1.00	2.50
PFNA	1.00	U	0.37	1.00	2.50
PFDA	1.00	U	0.39	1.00	2.50
PFUnA	1.00	U	0.38	1.00	2.50
PFDoA	1.00	U	0.42	1.00	2.50
PFTrDA	1.00	U	0.42	1.00	2.50
PFTeDA	1.50	U	0.73	1.50	2.50
NMeFOSAA	1.00	U	0.42	1.00	2.50
NEtFOSAA	1.00	U	0.44	1.00	2.50
PFBS	0.50	U	0.21	0.50	2.50
PFHxS	0.38	J	0.34	1.00	2.50
PFOS	4.56	N	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	111
13C2-PFDA	110
d5-EtFOSAA	110

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	CR043LCS-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				Control Limits	
Units	ng/L	Target	Recovery	Qual	Lower	Upper
PFHxA	12.79	10.00	128		70	130
PFHpA	12.37	10.00	124		70	130
PFOA	11.59	10.00	116		70	130
PFNA	11.43	10.00	114		70	130
PFDA	11.89	10.00	119		70	130
PFUnA	10.99	10.00	110		70	130
PFDoA	10.78	10.00	108		70	130
PFTrDA	12.23	10.00	122		70	130
PFTeDA	17.99	10.00	180	N	70	130
NMeFOSAA	12.09	10.00	121		70	130
NEtFOSAA	12.99	10.00	130		70	130
PFBS	10.49	8.85	119		70	130
PFHxS	10.95	9.45	116		70	130
PFOS	12.05 B	9.55	126		70	130

Surrogate Recoveries (%)

13C2-PFHxA	113
13C2-PFDA	102
d5-EtFOSAA	99

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

Client ID	WGNA-053118-RW-4850		WGNA-053118-RW-4850					
Battelle ID	J6295-FS1		J6295MS-FS1					
Sample Type	SA		MS					
Collection Date	05/31/2018		05/31/2018					
Extraction Date	06/21/2018		06/21/2018					
Analysis Date	06/27/2018		06/27/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS		Sciex 5500 LC/MS/MS					
% Moisture	NA		NA					
Matrix	DW		DW					
Sample Size	0.275		0.260					
Size Unit-Basis	L		L					
							Control Limits	
Units	ng/L		ng/L		Target	Recovery	Qual	Lower	Upper
PFHxA	35.51	T	62.75	TD	28.85	94		70	130
PFHpA	13.59	T	47.33	T	28.85	117		70	130
PFOA	24.06	T	55.78	TD	28.85	110		70	130
PFNA	2.90	T	29.92	T	28.85	94		70	130
PFDA	0.91	UT	34.15	T	28.85	115		70	130
PFUnA	0.91	UT	31.05	T	28.85	104		70	130
PFDoA	0.91	UT	31.88	T	28.85	107		70	130
PFTrDA	0.91	UT	33.75	T	28.85	114		70	130
PFTeDA	1.36	UT	30.71	JTD	28.85	102		70	130
NMeFOSAA	0.91	UT	36.43	T	28.85	123		70	130
NEtFOSAA	0.91	UT	37.23	T	28.85	126		70	130
PFBS	34.01	T	54.55	TD	25.53	80		70	130
PFHxS	105.27	TD	138.79	TD	27.26	123		70	130
PFOS	168.17	TD	211.14	TD	27.55	156	N	70	130
Surrogate Recoveries (%)									
13C2-PFHxA	130		125						
13C2-PFDA	116		106						
d5-EtFOSAA	100		101						

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

Client ID	WGNA-053118-RW-4850
Battelle ID	J6295MSD-FS1
Sample Type	MSD
Collection Date	05/31/2018
Extraction Date	06/21/2018
Analysis Date	06/27/2018
Analytical Instrument	Sciex 5500 LC/MS/MS
% Moisture	NA
Matrix	DW
Sample Size	0.275
Size Unit-Basis	L

					Control Limits				RPD
Units	ng/L		Target	Recovery	Qual	Lower	Upper	RPD	Qual	Limit
PFHxA	63.53	TD	27.27	103		70	130	9.1		≤ 30
PFHpA	49.04	T	27.27	130		70	130	10.5		≤ 30
PFOA	55.35	TD	27.27	115		70	130	4.4		≤ 30
PFNA	30.41	T	27.27	101		70	130	7.2		≤ 30
PFDA	34.39	T	27.27	123		70	130	6.7		≤ 30
PFUnA	33.88	T	27.27	121		70	130	15.1		≤ 30
PFDoA	33.81	T	27.27	121		70	130	12.3		≤ 30
PFTrDA	35.28	T	27.27	126		70	130	10.0		≤ 30
PFTeDA	29.96	JTD	27.27	105		70	130	2.9		≤ 30
NMeFOSAA	34.95	T	27.27	125		70	130	1.6		≤ 30
NEtFOSAA	36.03	T	27.27	129		70	130	2.4		≤ 30
PFBS	49.80	TD	24.14	65	N	70	130	20.7		≤ 30
PFHxS	135.13	TD	25.77	116		70	130	5.9		≤ 30
PFOS	204.66	TD	26.05	140	N	70	130	10.8		≤ 30

Surrogate Recoveries (%)

13C2-PFHxA	122
13C2-PFDA	113
d5-EtFOSAA	94

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

BATTELLE
It can be done

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	6.0	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		143,772.94	287,545.89	
JX68	L2	6/27/18 9:14	13C4-PFOS	208,133.24	100,168.92	300,506.76		143,772.94	287,545.89	
JX69	L3	6/27/18 9:23	13C4-PFOS	196,602.67	100,168.92	300,506.76		143,772.94	287,545.89	
JX70	L4	6/27/18 9:32	13C4-PFOS	221,233.77	100,168.92	300,506.76		143,772.94	287,545.89	
JX71	L5	6/27/18 9:41	13C4-PFOS	207,482.97	100,168.92	300,506.76		143,772.94	287,545.89	
JX72	L6	6/27/18 9:50	13C4-PFOS	205,389.92	100,168.92	300,506.76		143,772.94	287,545.89	
JX73	L7	6/27/18 9:59	13C4-PFOS	210,418.05	100,168.92	300,506.76		143,772.94	287,545.89	
JX74	L8	6/27/18 10:08	13C4-PFOS	173,679.17	100,168.92	300,506.76		143,772.94	287,545.89	
JX75	L9	6/27/18 10:17	13C4-PFOS	184,387.98	100,168.92	300,506.76		143,772.94	287,545.89	
JV66 ICC	ICC	6/27/18 10:26	13C4-PFOS	198,955.94	100,168.92	300,506.76		143,772.94	287,545.89	
JX72 CCV	CCV	6/27/18 17:25	13C4-PFOS	214,888.55	100,168.92	300,506.76		143,772.94	287,545.89	
CR042PB-FS(0)	Procedural Blank	6/27/18 17:43	13C4-PFOS	168,451.57	100,168.92	300,506.76		143,772.94	287,545.89	
CR043LCS-FS(0)	Laboratory Control Sample	6/27/18 17:52	13C4-PFOS	163,651.91	100,168.92	300,506.76		143,772.94	287,545.89	
J6290-FS1(0)	NAWC-053118-RW-256	6/27/18 18:01	13C4-PFOS	136,011.07	100,168.92	300,506.76		143,772.94	287,545.89	N
J6292-FS1(0)	NAWC-053118-RW-126	6/27/18 18:10	13C4-PFOS	142,669.67	100,168.92	300,506.76		143,772.94	287,545.89	N
J6294-FS1(0)	WGNA-053118-DUP-38	6/27/18 18:19	13C4-PFOS	127,945.09	100,168.92	300,506.76		143,772.94	287,545.89	N
J6295-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:28	13C4-PFOS	137,677.46	100,168.92	300,506.76		143,772.94	287,545.89	N
J6295MS-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:37	13C4-PFOS	124,539.06	100,168.92	300,506.76		143,772.94	287,545.89	N
J6295MSD-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:46	13C4-PFOS	124,224.64	100,168.92	300,506.76		143,772.94	287,545.89	N
J6297-FS1(0)	NAWC-053118-RW-311	6/27/18 18:55	13C4-PFOS	149,287.72	100,168.92	300,506.76		143,772.94	287,545.89	
J6299-FS1(0)	NAWC-053118-RW-265	6/27/18 19:04	13C4-PFOS	138,195.62	100,168.92	300,506.76		143,772.94	287,545.89	N
JX71 CCV	CCV	6/27/18 19:13	13C4-PFOS	190,337.10	100,168.92	300,506.76		143,772.94	287,545.89	
J6582-FS1(0)	NAWC-060418-RW-230	6/27/18 19:30	13C4-PFOS	138,781.19	100,168.92	300,506.76		133,235.97	266,471.94	
J6584-FS1(0)	NAWC-060418-RW-309	6/27/18 19:39	13C4-PFOS	150,004.32	100,168.92	300,506.76		133,235.97	266,471.94	
J6586-FS1(0)	NAWC-060418-RW-293	6/27/18 19:48	13C4-PFOS	135,035.63	100,168.92	300,506.76		133,235.97	266,471.94	
J6588-FS1(0)	NAWC-060418-RW-038	6/27/18 19:57	13C4-PFOS	138,807.47	100,168.92	300,506.76		133,235.97	266,471.94	
J6590-FS1(0)	NAWC-060418-RW-039	6/27/18 20:06	13C4-PFOS	145,607.19	100,168.92	300,506.76		133,235.97	266,471.94	
J6637-FS1(0)	WGNA-060718-RW-0488	6/27/18 20:15	13C4-PFOS	150,364.15	100,168.92	300,506.76		133,235.97	266,471.94	
J6639-FS1(0)	NAWC-060718-RW-175	6/27/18 20:24	13C4-PFOS	133,062.41	100,168.92	300,506.76		133,235.97	266,471.94	N
J6641-FS1(0)	WGNA-060718-DUP-39	6/27/18 20:33	13C4-PFOS	122,286.82	100,168.92	300,506.76		133,235.97	266,471.94	N
J6642-FS1(0)	WGNA-060718-RW-0626	6/27/18 20:42	13C4-PFOS	139,191.84	100,168.92	300,506.76		133,235.97	266,471.94	
JX72 CCV	CCV	6/27/18 20:51	13C4-PFOS	201,048.50	100,168.92	300,506.76		133,235.97	266,471.94	

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

BATTELLE
It can be done

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	
JX72 CCV	CCV	6/27/18 17:25	13C2-PFOA	70,508.79	33,659.28	100,977.84		48,146.03	96,292.06	
CR042PB-FS(0)	Procedural Blank	6/27/18 17:43	13C2-PFOA	56,669.88	33,659.28	100,977.84		48,146.03	96,292.06	
CR043LCS-FS(0)	Laboratory Control Sample	6/27/18 17:52	13C2-PFOA	56,758.23	33,659.28	100,977.84		48,146.03	96,292.06	
J6290-FS1(0)	NAWC-053118-RW-256	6/27/18 18:01	13C2-PFOA	43,847.75	33,659.28	100,977.84		48,146.03	96,292.06	N
J6292-FS1(0)	NAWC-053118-RW-126	6/27/18 18:10	13C2-PFOA	48,611.82	33,659.28	100,977.84		48,146.03	96,292.06	
J6294-FS1(0)	WGNA-053118-DUP-38	6/27/18 18:19	13C2-PFOA	42,236.16	33,659.28	100,977.84		48,146.03	96,292.06	N
J6295-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:28	13C2-PFOA	48,600.75	33,659.28	100,977.84		48,146.03	96,292.06	
J6295MS-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:37	13C2-PFOA	50,792.79	33,659.28	100,977.84		48,146.03	96,292.06	
J6295MSD-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:46	13C2-PFOA	47,281.19	33,659.28	100,977.84		48,146.03	96,292.06	N
J6297-FS1(0)	NAWC-053118-RW-311	6/27/18 18:55	13C2-PFOA	46,905.95	33,659.28	100,977.84		48,146.03	96,292.06	N
J6299-FS1(0)	NAWC-053118-RW-265	6/27/18 19:04	13C2-PFOA	44,479.76	33,659.28	100,977.84		48,146.03	96,292.06	N
JX71 CCV	CCV	6/27/18 19:13	13C2-PFOA	66,623.51	33,659.28	100,977.84		48,146.03	96,292.06	
J6582-FS1(0)	NAWC-060418-RW-230	6/27/18 19:30	13C2-PFOA	48,006.14	33,659.28	100,977.84		46,636.46	93,272.91	
J6584-FS1(0)	NAWC-060418-RW-309	6/27/18 19:39	13C2-PFOA	47,779.98	33,659.28	100,977.84		46,636.46	93,272.91	
J6586-FS1(0)	NAWC-060418-RW-293	6/27/18 19:48	13C2-PFOA	43,594.25	33,659.28	100,977.84		46,636.46	93,272.91	N
J6588-FS1(0)	NAWC-060418-RW-038	6/27/18 19:57	13C2-PFOA	46,820.27	33,659.28	100,977.84		46,636.46	93,272.91	
J6590-FS1(0)	NAWC-060418-RW-039	6/27/18 20:06	13C2-PFOA	47,987.79	33,659.28	100,977.84		46,636.46	93,272.91	
J6637-FS1(0)	WGNA-060718-RW-0488	6/27/18 20:15	13C2-PFOA	52,381.00	33,659.28	100,977.84		46,636.46	93,272.91	
J6639-FS1(0)	NAWC-060718-RW-175	6/27/18 20:24	13C2-PFOA	43,641.07	33,659.28	100,977.84		46,636.46	93,272.91	N
J6641-FS1(0)	WGNA-060718-DUP-39	6/27/18 20:33	13C2-PFOA	43,341.02	33,659.28	100,977.84		46,636.46	93,272.91	N
J6642-FS1(0)	WGNA-060718-RW-0626	6/27/18 20:42	13C2-PFOA	47,014.72	33,659.28	100,977.84		46,636.46	93,272.91	
JX72 CCV	CCV	6/27/18 20:51	13C2-PFOA	65,665.05	33,659.28	100,977.84		46,636.46	93,272.91	

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

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It can be done

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
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	
JX72 CCV	CCV	6/27/18 17:25	d3-MeFOSAA	20,926.54	10,575.57	31,726.70		14,821.77	29,643.54	
CR042PB-FS(0)	Procedural Blank	6/27/18 17:43	d3-MeFOSAA	14,638.07	10,575.57	31,726.70		14,821.77	29,643.54	N
CR043LCS-FS(0)	Laboratory Control Sample	6/27/18 17:52	d3-MeFOSAA	15,219.88	10,575.57	31,726.70		14,821.77	29,643.54	
J6290-FS1(0)	NAWC-053118-RW-256	6/27/18 18:01	d3-MeFOSAA	12,497.12	10,575.57	31,726.70		14,821.77	29,643.54	N
J6292-FS1(0)	NAWC-053118-RW-126	6/27/18 18:10	d3-MeFOSAA	14,485.85	10,575.57	31,726.70		14,821.77	29,643.54	N
J6294-FS1(0)	WGNA-053118-DUP-38	6/27/18 18:19	d3-MeFOSAA	11,947.45	10,575.57	31,726.70		14,821.77	29,643.54	N
J6295-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:28	d3-MeFOSAA	14,718.39	10,575.57	31,726.70		14,821.77	29,643.54	N
J6295MS-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:37	d3-MeFOSAA	13,192.52	10,575.57	31,726.70		14,821.77	29,643.54	N
J6295MSD-FS1(0)	WGNA-053118-RW-4850	6/27/18 18:46	d3-MeFOSAA	13,531.64	10,575.57	31,726.70		14,821.77	29,643.54	N
J6297-FS1(0)	NAWC-053118-RW-311	6/27/18 18:55	d3-MeFOSAA	13,887.26	10,575.57	31,726.70		14,821.77	29,643.54	N
J6299-FS1(0)	NAWC-053118-RW-265	6/27/18 19:04	d3-MeFOSAA	13,348.81	10,575.57	31,726.70		14,821.77	29,643.54	N
JX71 CCV	CCV	6/27/18 19:13	d3-MeFOSAA	17,642.91	10,575.57	31,726.70		14,821.77	29,643.54	
J6582-FS1(0)	NAWC-060418-RW-230	6/27/18 19:30	d3-MeFOSAA	12,788.96	10,575.57	31,726.70		12,350.04	24,700.07	
J6584-FS1(0)	NAWC-060418-RW-309	6/27/18 19:39	d3-MeFOSAA	15,503.24	10,575.57	31,726.70		12,350.04	24,700.07	
J6586-FS1(0)	NAWC-060418-RW-293	6/27/18 19:48	d3-MeFOSAA	13,153.56	10,575.57	31,726.70		12,350.04	24,700.07	
J6588-FS1(0)	NAWC-060418-RW-038	6/27/18 19:57	d3-MeFOSAA	12,137.89	10,575.57	31,726.70		12,350.04	24,700.07	N
J6590-FS1(0)	NAWC-060418-RW-039	6/27/18 20:06	d3-MeFOSAA	14,068.96	10,575.57	31,726.70		12,350.04	24,700.07	
J6637-FS1(0)	WGNA-060718-RW-0488	6/27/18 20:15	d3-MeFOSAA	14,094.62	10,575.57	31,726.70		12,350.04	24,700.07	
J6639-FS1(0)	NAWC-060718-RW-175	6/27/18 20:24	d3-MeFOSAA	13,207.48	10,575.57	31,726.70		12,350.04	24,700.07	
J6641-FS1(0)	WGNA-060718-DUP-39	6/27/18 20:33	d3-MeFOSAA	13,373.82	10,575.57	31,726.70		12,350.04	24,700.07	
J6642-FS1(0)	WGNA-060718-RW-0626	6/27/18 20:42	d3-MeFOSAA	13,447.96	10,575.57	31,726.70		12,350.04	24,700.07	
JX72 CCV	CCV	6/27/18 20:51	d3-MeFOSAA	18,270.99	10,575.57	31,726.70		12,350.04	24,700.07	

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

BATTELLE
It can be done

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	
JX71 CCV	CCV	6/28/18 14:28	13C4-PFOS	196,378.01	100,168.92	300,506.76		145,238.08	290,476.16	
J6292-FS1-D(3)	NAWC-053118-RW-126	6/28/18 14:46	13C4-PFOS	161,568.59	100,168.92	300,506.76		137,464.61	274,929.21	
J6294-FS1-D(3)	WGNA-053118-DUP-38	6/28/18 14:55	13C4-PFOS	129,976.44	100,168.92	300,506.76		137,464.61	274,929.21	N
J6295-FS1-D(3)	WGNA-053118-RW-4850	6/28/18 15:04	13C4-PFOS	122,746.22	100,168.92	300,506.76		137,464.61	274,929.21	N
J6295MS-FS1-D(3)	WGNA-053118-RW-4850	6/28/18 15:13	13C4-PFOS	129,713.86	100,168.92	300,506.76		137,464.61	274,929.21	N
J6582-FS1-D(3)	WGNA-053118-RW-4850	6/28/18 15:22	13C4-PFOS	142,907.77	100,168.92	300,506.76		137,464.61	274,929.21	
JX73 CCV	CCV	6/28/18 15:40	13C4-PFOS	193,894.34	100,168.92	300,506.76		137,464.61	274,929.21	

DILUTIONS

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

BATTELLE
It can be done

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	
JX71 CCV	CCV	6/28/18 14:28	13C2-PFOA	64,982.84	33,659.28	100,977.84		48,146.03	96,292.06	
~~J6292-FS1-D(3)~~	~~NAWC-053118-RW-126~~	~~6/28/18 14:46~~	~~13C2-PFOA~~	~~53,976.33~~	~~33,659.28~~	~~100,977.84~~		~~45,487.99~~	~~90,975.98~~	
~~J6294-FS1-D(3)~~	~~WGNA-053118-DUP-38~~	~~6/28/18 14:55~~	~~13C2-PFOA~~	~~43,675.58~~	~~33,659.28~~	~~100,977.84~~		~~45,487.99~~	~~90,975.98~~	~~N~~
~~J6295-FS1-D(3)~~	~~WGNA-053118-RW-4850~~	~~6/28/18 15:04~~	~~13C2-PFOA~~	~~40,130.81~~	~~33,659.28~~	~~100,977.84~~		~~45,487.99~~	~~90,975.98~~	~~N~~
J6295MS-FS1-D(3)	WGNA-053118-RW-4850	6/28/18 15:13	13C2-PFOA	43,375.06	33,659.28	100,977.84		45,487.99	90,975.98	N
~~J6582-FS1-D(3)~~	~~WGNA-053118-RW-4850~~	~~6/28/18 15:22~~	~~13C2-PFOA~~	~~47,578.22~~	~~33,659.28~~	~~100,977.84~~		~~45,487.99~~	~~90,975.98~~	
JX73 CCV	CCV	6/28/18 15:40	13C2-PFOA	66,751.01	33,659.28	100,977.84		45,487.99	90,975.98	

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

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It can be done

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JX67	L1	6/29/18 8:28	13C4-PFOS	201,122.78	-	
JX68	L2	6/29/18 8:37	13C4-PFOS	196,122.87	-	
JX69	L3	6/29/18 8:46	13C4-PFOS	205,723.20	-	
JX70	L4	6/29/18 8:55	13C4-PFOS	200,379.40	-	
JX71	L5	6/29/18 9:04	13C4-PFOS	207,015.16	-	
JX72	L6	6/29/18 9:12	13C4-PFOS	197,254.03	-	
JX73	L7	6/29/18 9:21	13C4-PFOS	193,742.68	-	
JX74	L8	6/29/18 9:30	13C4-PFOS	195,684.38	-	
JX75	L9	6/29/18 9:39	13C4-PFOS	172,414.04	15.4	PASS

Average	Lower	Upper
196,606.50	98,303.25	294,909.75

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	6/29/18 8:28	13C4-PFOS	201,122.78	98,303.25	294,909.75		144,910.61	289,821.22	
JX68	L2	6/29/18 8:37	13C4-PFOS	196,122.87	98,303.25	294,909.75		144,910.61	289,821.22	
JX69	L3	6/29/18 8:46	13C4-PFOS	205,723.20	98,303.25	294,909.75		144,910.61	289,821.22	
JX70	L4	6/29/18 8:55	13C4-PFOS	200,379.40	98,303.25	294,909.75		144,910.61	289,821.22	
JX71	L5	6/29/18 9:04	13C4-PFOS	207,015.16	98,303.25	294,909.75		144,910.61	289,821.22	
JX72	L6	6/29/18 9:12	13C4-PFOS	197,254.03	98,303.25	294,909.75		144,910.61	289,821.22	
JX73	L7	6/29/18 9:21	13C4-PFOS	193,742.68	98,303.25	294,909.75		144,910.61	289,821.22	
JX74	L8	6/29/18 9:30	13C4-PFOS	195,684.38	98,303.25	294,909.75		144,910.61	289,821.22	
JX75	L9	6/29/18 9:39	13C4-PFOS	172,414.04	98,303.25	294,909.75		144,910.61	289,821.22	
JX66 ICC	ICC	6/29/18 9:48	13C4-PFOS	172,285.75	98,303.25	294,909.75		144,910.61	289,821.22	
~~J6295MSD-FS1-D(3)~~	~~WGNA-053118-RW-4850~~	~~6/29/18 10:51~~	~~13C4-PFOS~~	~~71,125.49~~	~~98,303.25~~	~~294,909.75~~	~~N~~	~~144,910.61~~	~~289,821.22~~	~~N~~
J6639-FS1-D(3)	NAWC-060718-RW-175	6/29/18 11:00	13C4-PFOS	113,133.67	98,303.25	294,909.75		144,910.61	289,821.22	N
J6641-FS1-D(3)	WGNA-060718-DUP-39	6/29/18 11:09	13C4-PFOS	141,761.47	98,303.25	294,909.75		144,910.61	289,821.22	N
JX72	L6	6/29/18 11:18	13C4-PFOS	202,599.43	98,303.25	294,909.75		144,910.61	289,821.22	

DILUTIONS

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

BATTELLE
It can be done

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JX67	L1	7/18/18 22:20	13C4-PFOS	205,525.81	-	
JX68	L2	7/18/18 22:29	13C4-PFOS	205,126.96	-	
JX69	L3	7/18/18 22:38	13C4-PFOS	198,356.65	-	
JX70	L4	7/18/18 22:47	13C4-PFOS	160,453.20	-	
JX71	L5	7/18/18 22:55	13C4-PFOS	211,007.26	-	
JX72	L6	7/18/18 23:04	13C4-PFOS	186,143.71	-	
JX73	L7	7/18/18 23:13	13C4-PFOS	172,932.23	-	
JX74	L8	7/18/18 23:22	13C4-PFOS	187,745.70	-	
JX75	L9	7/18/18 23:31	13C4-PFOS	191,982.13	6.8	PASS

Average	Lower	Upper
191,030.41	95,515.21	286,545.62

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	7/18/18 22:20	13C4-PFOS	205,525.81	95,515.21	286,545.62		147,705.08	295,410.16	
JX68	L2	7/18/18 22:29	13C4-PFOS	205,126.96	95,515.21	286,545.62		147,705.08	295,410.16	
JX69	L3	7/18/18 22:38	13C4-PFOS	198,356.65	95,515.21	286,545.62		147,705.08	295,410.16	
JX70	L4	7/18/18 22:47	13C4-PFOS	160,453.20	95,515.21	286,545.62		147,705.08	295,410.16	
JX71	L5	7/18/18 22:55	13C4-PFOS	211,007.26	95,515.21	286,545.62		147,705.08	295,410.16	
JX72	L6	7/18/18 23:04	13C4-PFOS	186,143.71	95,515.21	286,545.62		147,705.08	295,410.16	
JX73	L7	7/18/18 23:13	13C4-PFOS	172,932.23	95,515.21	286,545.62		147,705.08	295,410.16	
JX74	L8	7/18/18 23:22	13C4-PFOS	187,745.70	95,515.21	286,545.62		147,705.08	295,410.16	
JX75	L9	7/18/18 23:31	13C4-PFOS	191,982.13	95,515.21	286,545.62		147,705.08	295,410.16	
JX66 ICC	ICC	7/18/18 23:40	13C4-PFOS	183,658.67	95,515.21	286,545.62		147,705.08	295,410.16	
J6295MSD-FS1-D(5)	WGNA-053118-RW-4850	7/18/18 23:58	13C4-PFOS	135,434.54	95,515.21	286,545.62		147,705.08	295,410.16	N
JX72	L6	7/19/18 0:07	13C4-PFOS	205,213.94	95,515.21	286,545.62		147,705.08	295,410.16	

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

BATTELLE
It can be done

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JX67	L1	7/18/18 22:20	13C2-PFOA	55,220.63	-	
JX68	L2	7/18/18 22:29	13C2-PFOA	54,593.58	-	
JX69	L3	7/18/18 22:38	13C2-PFOA	55,877.16	-	
JX70	L4	7/18/18 22:47	13C2-PFOA	42,185.64	-	
JX71	L5	7/18/18 22:55	13C2-PFOA	59,529.17	-	
JX72	L6	7/18/18 23:04	13C2-PFOA	52,320.10	-	
JX73	L7	7/18/18 23:13	13C2-PFOA	50,493.82	-	
JX74	L8	7/18/18 23:22	13C2-PFOA	57,138.71	-	
JX75	L9	7/18/18 23:31	13C2-PFOA	65,104.44	16.4	PASS

Average	Lower	Upper
54,718.14	27,359.07	82,077.21

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JX67	L1	7/18/18 22:20	13C2-PFOA	55,220.63	27,359.07	82,077.21		41,670.42	83,340.84	
JX68	L2	7/18/18 22:29	13C2-PFOA	54,593.58	27,359.07	82,077.21		41,670.42	83,340.84	
JX69	L3	7/18/18 22:38	13C2-PFOA	55,877.16	27,359.07	82,077.21		41,670.42	83,340.84	
JX70	L4	7/18/18 22:47	13C2-PFOA	42,185.64	27,359.07	82,077.21		41,670.42	83,340.84	
JX71	L5	7/18/18 22:55	13C2-PFOA	59,529.17	27,359.07	82,077.21		41,670.42	83,340.84	
JX72	L6	7/18/18 23:04	13C2-PFOA	52,320.10	27,359.07	82,077.21		41,670.42	83,340.84	
JX73	L7	7/18/18 23:13	13C2-PFOA	50,493.82	27,359.07	82,077.21		41,670.42	83,340.84	
JX74	L8	7/18/18 23:22	13C2-PFOA	57,138.71	27,359.07	82,077.21		41,670.42	83,340.84	
JX75	L9	7/18/18 23:31	13C2-PFOA	65,104.44	27,359.07	82,077.21		41,670.42	83,340.84	
JX66 ICC	ICC	7/18/18 23:40	13C2-PFOA	52,223.56	27,359.07	82,077.21		41,670.42	83,340.84	
J6295MSD-FS1-D(5)	WGNA-053118-RW-4850	7/18/18 23:58	13C2-PFOA	38,188.92	27,359.07	82,077.21		41,670.42	83,340.84	N
JX72	L6	7/19/18 0:07	13C2-PFOA	60,406.66	27,359.07	82,077.21		41,670.42	83,340.84	

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Summary Internal Standard Report

Created with Analyst Reporter
Printed: 18/07/2018 9:43:32 AM

IS ASSOCIATION

Sample Name	CR042PB-FS(0)	**Injection Vial**	11
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-27T17:43:39	**Data File**	06252018_5-371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.49	13C4-PFOS	503.0 / 80.0	168451.57	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	168451.57	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	168451.57	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	168451.57	287.00
PFOA_1	413.0 / 369.0	2.51	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFOA_2	413.0 / 169.0	2.51	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFNA_1	463.0 / 419.0	2.88	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFNA_2	463.0 / 219.0	2.89	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFOS_1	499.0 / 80.0	2.88	13C4-PFOS	503.0 / 80.0	168451.57	287.00
PFOS_2	499.0 / 99.0	2.88	13C4-PFOS	503.0 / 80.0	168451.57	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	56669.88	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14638.07	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	14638.07	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14638.07	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	14638.07	400.00
13C2-PFHxA	315.0 / 270.0	1.77	13C2-PFOA	415.0 / 370.0	56669.88	100.00
13C2-PFDA	515.0 / 470.0	3.22	13C2-PFOA	415.0 / 370.0	56669.88	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	14638.07	400.00

BATTELLE

Summary Asymmetry Report

Created with Analyst Reporter
Printed: 18/07/2018 9:03:47 AM

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**	18-0393_DW
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

BATTELLE

Summary Asymmetry Report

Created with Analyst Reporter
Printed: 18/07/2018 9:05:54 AM

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**	18-0393_R
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

BATTELLE

Summary Asymmetry Report

Created with Analyst Reporter
Printed: 18/07/2018 9:15:42 AM

Sample Name	JX73	**Injection Vial**	9
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	6/29/2018 9:21:55 AM	**Data File**	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_B
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.50	1.04	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.78	1.12	0.8 – 1.5

BATTELLE

Summary Asymmetry Report

Created with Analyst Reporter
Printed: 19/07/2018 9:41:14 AM

Sample Name	JX73	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	7/18/2018 11:13:52 PM	**Data File**	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_MSD
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.52	1.10	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.80	1.12	0.8 – 1.5

BATTELLE

Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 18/07/2018 9:07:10 AM

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**	18-0393_DW
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
PFDoA_1	613.0 / 569.0	3.84	35	>10
PFDoA_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

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Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 18/07/2018 9:07:48 AM

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**	18-0393_R
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
PFDoA_1	613.0 / 569.0	3.84	35	>10
PFDoA_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

Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 18/07/2018 9:16:27 AM

Sample Name	JX73	**Injection Vial**	9
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	6/29/2018 9:21:55 AM	**Data File**	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_B
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.50	27	>10
PFBS_2	298.9 / 99.0	1.50	31	>10
PFHxA_1	313.0 / 269.0	1.78	24	>10
PFHxA_2	313.0 / 119.0	1.78	26	>10
PFHxS_1	399.0 / 80.0	2.16	39	>10
PFHxS_2	399.0 / 99.0	2.16	39	>10
PFOA_1	413.0 / 369.0	2.52	40	>10
PFOA_2	413.0 / 169.0	2.52	27	>10
PFOS_1	499.0 / 80.0	2.90	38	>10
PFOS_2	499.0 / 99.0	2.90	36	>10
PFTeDA_1	713.0 / 669.0	4.32	43	>10
PFTeDA_2	713.0 / 169.0	4.32	43	>10

BATTELLE

Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 19/07/2018 9:42:14 AM

Sample Name	JX73	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	7/18/2018 11:13:52 PM	**Data File**	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_MSD
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.52	26	>10
PFBS_2	298.9 / 99.0	1.52	28	>10
PFHxA_1	313.0 / 269.0	1.80	25	>10
PFHxA_2	313.0 / 119.0	1.80	26	>10
PFHxS_1	399.0 / 80.0	2.18	40	>10
PFHxS_2	399.0 / 99.0	2.18	34	>10
PFOA_1	413.0 / 369.0	2.54	36	>10
PFOA_2	413.0 / 169.0	2.54	34	>10
PFOS_1	499.0 / 80.0	2.92	42	>10
PFOS_2	499.0 / 99.0	2.92	36	>10
PFTeDA_1	713.0 / 669.0	4.35	63	>10
PFTeDA_2	713.0 / 169.0	4.35	53	>10

BATTELLE DETECTION LIMITS FOR PFAS IN DRINKING WATER

Battelle SOP 5-371 (EPA Method 537 Version 1.1)

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)	MRL (ng/L)
PFHxA	307-24-4	0.22	0.5	2.5	2.5
PFHpA	375-85-9	0.34	1.0	2.5	2.5
PFOA	335-67-1	0.38	1.0	2.5	2.5
PFNA	375-95-1	0.37	1.0	2.5	2.5
PFDA	335-76-2	0.39	1.0	2.5	2.5
PFUnA	2058-94-8	0.38	1.0	2.5	2.5
PFDoA	307-55-1	0.42	1.0	2.5	2.5
PFTrDA	72629-94-8	0.42	1.0	2.5	2.5
PFTeDA	376-06-7	0.73	1.5	2.5	2.5
NMeFOSAA	2355-31-9	0.42	1.0	2.5	2.5
NEtFOSAA	2991-50-6	0.44	1.0	2.5	2.5
PFBS	375-73-5	0.21	0.5	2.5	2.5
PFHxS	3871-99-6	0.34	1.0	2.5	2.5
PFOS	1763-23-1	0.30	1.0	2.5	2.5

Analytes on NELAP and ELAP QSM 5.1 Scope of accreditation

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ID 626 04/18

Analytical Transitions for PFAS in drinking water

SOP 5-371 (EPA 537 Version 1.1)

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
PFHxA	307-24-4	Target	313.0 / 269.0	313.0 / 119.0
PFHpA	375-85-9	Target	363.0 / 319.0	363.0 / 169.0
PFOA	335-67-1	Target	413.0 / 369.0	413.0 / 169.0
PFNA	375-95-1	Target	463.0 / 419.0	463.0 / 219.0
PFDA	335-76-2	Target	513.0 / 469.0	513.0 / 219.0
PFUnA	2058-94-8	Target	563.0 / 519.0	563.0 / 269.0
PFDoA	307-55-1	Target	613.0 / 569.0	613.0 / 319.0
PFTrDA	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
PFTeDA	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
NMeFOSAA	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
NEtFOSAA	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
PFBS	375-73-5	Target	298.9.0 / 80.0	298.9.0 / 99.0
PFHxS	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
PFOS	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
13C2-PFHxA	NA	SIS	315.0 / 270.0	NA
13C2-PFDA	NA	SIS	515.0 / 470.0	NA
d5-EtFOSAA	NA	SIS	589.0 / 419.0	NA
$^{13}C_2$-PFOA	NA	IS	415.0 / 270.0	NA
$^{13}C_4$-PFOS	NA	IS	503.0 / 80.0	NA
d3-MeFOSAA	NA	IS	573.0 / 419.0	NA

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Drinking Water Calibration to Sample Equivalents

ICAL (ng/L)	PIV (mL)	DF[1]	Sample Size (L)	Sample Equivalent (ng/L)[2]
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

[1] - base level dilution as part of the extraction procedure

[2] - calculated equivalent of a sample based on the ICAL concentration

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

Mass calibration and tune check

QTRAP 5500
Preventive Maintenance Checklist

Preventive Maintenance Date:	22-Feb-2017

Request ID:	3683
Company Name:	Battelle Memorial Institute
Instrument ID:	X60666
Instrument Model:	QTRAP 5500
Instrument Serial Number:	AU23051004

☑ **PASS** ☐ **FAIL**

Any failure will lead to an automatic Service Call being open to investigate fault.

Preventive Maintenance is performed twice every year unless specified in the Service Contract. It is designed to help maintain optimum system performance and to help diagnose any system deficiencies.

Engineer is required the assigned Request ID for this PM otherwise making this job invalid.

Comments:_____

_____

_____

_____

Performed By: Kaustubh Dhayagude **Date:** 22-Feb-2017

Approved By :_____ **Date:** _____

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PRE PM PPG PERFORMANCE EVALUATION:

☑ Consult Customer concerning the unit overall performance.
☑ Check Logbook for Services recently performed.
☑ Check Vacuum Pressure:

CAD Settings	Vacuum Reading (x 10^{-5} Torr)	Acceptance Criteria
☑ CAD 0	0.5	0.4 to 1.1 x10^{-5} Torr
☑ CAD Low	1.9	Read Only
☑ CAD Medium	2.4	Read Only
☑ CAD High	3.4	Read Only
☑ CAD 12	3.4	2.4 to 4.5 x10^{-5} Torr

☑ Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification

☑ No degradation or Sensitivity drop

☑ Check for Q3 contamination symptoms. Run Q3 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification

☑ No degradation or Sensitivity drop

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

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

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

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

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

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

☑ Perform MSMS POS in Product Ion scan with 609.3 parent and record daughter 195.1 using Reserpine 0.167 pmol/ul at the scan rate of 10 Da/s for 10 MCA. Calculate transmission efficiency comparing Q1POS 609 intensity. Transmission Efficiency: :__19.51%__ (Read Only)

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

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

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

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

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

☑ Perform Product Ion scan using NEG PPG 3e-5M. Record10mca.

Mass	Scan Rate	MCA	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.35 e6	Read Only	0.6495	Read Only

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PREVENTIVE MAINTENANCE CHECKLIST:

☑ Check Cooling Fans for Turbo Pumps while MS is ON.
☑ Check QJet and QPS tuning voltage for reference.
☐ Record AC input Voltage while MS is OFF: _____(200-240VAC).
If Out-of-Range, notify customer.

☑ Clean Interface
- ☑ Curtain Plate
- ☑ Orifice Plate
- ☑ QJet
- ☑ Q0 Rods.

☑ Replace Roughing Pump Oil.
☑ Inspect Oil Exhaust Filter, if Applicable. ☐ N/A
☑ Clean and inspect built-in divert valve if used. ☐ N/A
☑ Check Multiplier Voltage, optimize if necessary.
☑ Replace four Air Filters at the bottom of the mass spectrometer.

☑Pump down overnight if possible. ☐ N/A

☑Perform Maintenance on Turbo V source.

☑Replace Electrode, if necessary. ☐ N/A
☑Check Turbo heaters resistances.
☑Check if Temperature is reached at 500C with TIS Probe installed.
☐Check if Temperature is reached at 500C with APCI Probe installed. ☑ N/A

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

POST PM PPG PERFORMANCE TESTS:

☑ Set-up Sample for Infusion.
☑ Check spray and adjust sprayer's position of the TIS source.
☑ Check Vacuum Pressure:

CAD Settings	Vacuum Reading (x 10^{-5} Torr)	Acceptance Criteria
☑ CAD 0	0.8	0.4 to 1.1 x10^{-5} Torr
☑ CAD Low	2.1	Read Only
☑ CAD Medium	2.6	Read Only
☑ CAD High	3.7	Read Only
☑ CAD 12	3.7	2.4 to 4.5 x10^{-5} Torr

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

Mass	Q1 Intensity		Q1 Width	Width Specs
	Value	Spec	Value	
Scan Rate 10 Da/s Record 10 mca				
Q1 175.133	5.94 e6	≥1.2^{e}6	0.6933	0.6 to 0.8
Q1 500.380	2.25 e7	≥9.0^{e}6	0.7444	0.6 to 0.8
Q1 906.673	2.74 e7	≥1.4^{e}7	0.7347	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8^{e}7	0.7656	0.6 to 0.8

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

Mass	Q3 Intensity		Q3 Width	Width Specs
	Value	Spec	Value	
Scan Rate 10 Da/s Record 10 mca				
Q3 175.133	4.54 e6	≥1.2^{e}6	0.6390	0.6 to 0.8
Q3 500.380	2.13 e7	≥9.0^{e}6	0.7008	0.6 to 0.8
Q3 906.673	3.04 e7	≥1.4^{e}7	0.7683	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q3 906.673	1.51 e8	≥6.8^{e}7	0.7118	0.6 to 0.8

☑ Perform "Product of 609.3" POS and record product ion 195.1 using Reserpine 0.167pmol/uL. Record 10 mca. Calculate Transmission efficiency comparing Q1POS 609 intensity.
Transmission Efficiency: 16.93% (≥ 10.0%)

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

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

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

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

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

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

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

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

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

Mass	Scan Rate (Da/s)	Fragamentation OFF		Fragmentation ON	
		Intensity	Spec	Intensity	Spec
MS3 397.2	1000	3.2 e7	Contains only 397.2	N/A	N/A
☐ 236 OR ☑ 365	1000	1.19 e8	Fragment Intensity	> 4.4 e6	≥1.6x 10e6

REVIEW:

☑ Attach all spectrums printouts to this procedure.
☑ If any parameter setting access modes were changed during the PM, ensure they are returned to their normal access mode and that their offsets are adjusted to match optimized values from the post-PM acquisition files.
☐ Empty tuning cache folder, if necessary. ☑ N/A
☑ Update Service Work Order status
☑ Fill and replace PM Label.

END OF PREVENTIVE MAINTENANCE CHECKLIST

Document history:

06 OCT 2016: Appendix ZEFPM003-2L: Removed requirements to fit Manufacturer's testing criteria.

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BATTELLE - NORWELL OPERATIONS
SAMPLE IDENTIFICATION PAGE

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

18-0393

WE04 PFAS Analysis

DW

Sample ID	Description
CR042PB-FS	Procedural Blank
CR043LCS-FS	Laboratory Control Sample
J6290-FS1	NAWC-053118-RW-256
J6292-FS1	NAWC-053118-RW-126
J6294-FS1	WGNA-053118-DUP-38
J6295-FS1	WGNA-053118-RW-4850
J6295MS-FS1	Matrix Spike of WGNA-053118-RW-4850
J6295MSD-FS1	Matrix Spike Duplicate of WGNA-053118-RW-4850
J6297-FS1	NAWC-053118-RW-311
J6299-FS1	NAWC-053118-RW-265
J6582-FS1	NAWC-060418-RW-230
J6584-FS1	NAWC-060418-RW-309
J6586-FS1	NAWC-060418-RW-293
J6588-FS1	NAWC-060418-RW-038
J6590-FS1	NAWC-060418-RW-039
J6637-FS1	WGNA-060718-RW-0488
J6639-FS1	NAWC-060718-RW-175
J6641-FS1	WGNA-060718-DUP-39
J6642-FS1	WGNA-060718-RW-0626

Samples Assigned By: Stephanie Schultz Date : June 21, 2018

Comments:

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LIQUID SAMPLE ID FORM

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

Project No.(s)
100117920-WE04

18-0393

WE04 PFAS Analysis

DW

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CR042PB-FS	Procedural Blank	250.0	NA	--	06/21/18 SAS
CR043LCS-FS	Laboratory Control Sample	250.0	NA	--	06/21/18 SAS
J6290-FS1	NAWC-053118-RW-256	270.0	2	C	06/21/18 LMG
J6292-FS1	NAWC-053118-RW-126	270.0	2	C	06/21/18 LMG
J6294-FS1	WGNA-053118-DUP-38	275.0	2	C	06/21/18 LMG
J6295-FS1	WGNA-053118-RW-4850	275.0	2	C	06/21/18 LMG
J6295MS-FS1	Matrix Spike	260.0	4	C	06/21/18 LMG
J6295MSD-FS1	Matrix Spike Duplicate	275.0	6	C	06/21/18 LMG
J6297-FS1	NAWC-053118-RW-311	290.0	2	C	06/21/18 LMG
J6299-FS1	NAWC-053118-RW-265	280.0	2	C	06/21/18 LMG
J6582-FS1	NAWC-060418-RW-230	295.0	2	C	06/21/18 LMG
J6584-FS1	NAWC-060418-RW-309	290.0	2	C	06/21/18 LMG
J6586-FS1	NAWC-060418-RW-293	295.0	2	C	06/21/18 LMG
J6588-FS1	NAWC-060418-RW-038	285.0	2	C	06/21/18 LMG
J6590-FS1	NAWC-060418-RW-039	285.0	2	C	06/21/18 LMG
J6637-FS1	WGNA-060718-RW-0488	280.0	2	C	06/21/18 LMG
J6639-FS1	NAWC-060718-RW-175	275.0	2	C	06/21/18 LMG
J6641-FS1	WGNA-060718-DUP-39	285.0	2	C	06/21/18 LMG
J6642-FS1	WGNA-060718-RW-0626	270.0	2	C	06/21/18 LMG

Comments:

Sample ID:	Comments:
CR042PB-FS	1.23g Trizma(170526-01) weighed on BAL-009
CR043LCS-FS	1.24g Trizma(170526-01) weighed on BAL-009

Samples Assigned By Stephanie Schultz Date : June 21, 2018

* - "C" = Sample is Consumed

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BATTELLE - NORWELL OPERATIONS
SURROGATE SPIKE FORM

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

Project No.(s)
100117920-WE04

18-0393
WE04 PFAS Analysis
DW

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CR042PB-FS	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
CR043LCS-FS	JV41	LCS/MS	1	50	06/21/18 SAS	LMG	NA
CR043LCS-FS	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6290-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6292-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6294-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6295-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6295MS-FS1	JV41	LCS/MS	1	150	06/21/18 SAS	LMG	NA
J6295MS-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6295MSD-FS1	JV41	LCS/MS	1	150	06/21/18 SAS	LMG	NA
J6295MSD-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6297-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6299-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6582-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6584-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6586-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6588-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6590-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6637-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6639-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6641-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA
J6642-FS1	JV60	SIS	1	50	06/21/18 SAS	LMG	NA

BATTELLE
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BATTELLE - NORWELL OPERATIONS
INTERNAL STANDARD SPIKING FORM

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

Project No.(s)
100117920-WE04

18-0393
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
CR042PB-FS(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
CR043LCS-FS(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6290-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6292-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6292-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/28/18 SAS	JCT
J6294-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6294-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/28/18 SAS	JCT
J6295-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6295-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/28/18 SAS	JCT
J6295MS-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6295MS-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/28/18 SAS	JCT
J6295MSD-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6295MSD-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/29/18 SAS	JCT
J6295MSD-FS1-D(5)	952	48	JV59	50.375	1	1000	21.053	07/18/18 DMS	MDS
J6297-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6299-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6582-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6582-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/28/18 SAS	JCT
J6584-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG

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

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

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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

18-0393

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
J6586-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6588-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6590-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6637-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6639-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6639-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/29/18 SAS	JCT
J6641-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG
J6641-FS1-D(3)	952	48	JV59	50.5	1	1000	20.000	06/29/18 SAS	JCT
J6642-FS1(0)	950	50	JV59	50	1	1000	1.000	06/25/18 LMG	SG

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV59	Pipette	B814659662
JV59	Pipette	I0793912B

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

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

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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

18-0393

WE04 PFAS Analysis

DW

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CR042PB-FS	0	--	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
CR043LCS-FS	0	--	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6290-FS1	0	--	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6292-FS1	0	C	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6292-FS1	2	--	6/28/2018 9:08:00 AM	J6292-FS1	0	1000	950	1.053	1.053	06/28/18 SAS
J6292-FS1-D	3	--	6/28/2018 9:08:00 AM	J6292-FS1	0	1000	50	20.000	20.000	06/28/18 SAS
J6294-FS1	0	C	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6294-FS1	2	--	6/28/2018 9:08:00 AM	J6294-FS1	0	1000	950	1.053	1.053	06/28/18 SAS
J6294-FS1-D	3	--	6/28/2018 9:08:00 AM	J6294-FS1	0	1000	50	20.000	20.000	06/28/18 SAS
J6295-FS1	0	C	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6295-FS1	2	--	6/28/2018 9:08:00 AM	J6295-FS1	0	1000	950	1.053	1.053	06/28/18 SAS
J6295-FS1-D	3	--	6/28/2018 9:08:00 AM	J6295-FS1	0	1000	50	20.000	20.000	06/28/18 SAS
J6295MS-FS1	0	C	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6295MS-FS1	2	--	6/28/2018 9:08:00 AM	J6295MS-FS1	0	1000	950	1.053	1.053	06/28/18 SAS

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

BATTELLE
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

18-0393

WE04 PFAS Analysis

DW

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
J6295MS-FS1-D	3	--	6/28/2018 9:08:00 AM	J6295MS-FS1	0	1000	50	20.000	20.000	06/28/18 SAS
J6295MSD-FS1	0	C	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6295MSD-FS1	2	C	6/29/2018 9:24:00 AM	J6295MSD-FS1	0	1000	950	1.053	1.053	06/29/18 SAS
J6295MSD-FS1-D	3	--	6/29/2018 9:24:00 AM	J6295MSD-FS1	0	1000	50	20.000	20.000	06/29/18 SAS
J6295MSD-FS1	4	--	7/18/2018 3:12:00 PM	J6295MSD-FS1	2	1000	950	1.053	1.108	07/18/18 DMS
J6295MSD-FS1-D	5	--	7/18/2018 3:12:00 PM	J6295MSD-FS1	2	1000	50	20.000	21.053	07/18/18 DMS
J6297-FS1	0	--	6/21/2018 1:47:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6299-FS1	0	--	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6582-FS1	0	C	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6582-FS1	2	--	6/28/2018 9:08:00 AM	J6582-FS1	0	1000	950	1.053	1.053	06/28/18 SAS
J6582-FS1-D	3	--	6/28/2018 9:08:00 AM	J6582-FS1	0	1000	50	20.000	20.000	06/28/18 SAS
J6584-FS1	0	--	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6586-FS1	0	--	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6588-FS1	0	--	6/21/2018 2:56:00 PM	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) / Aliqot Volume (uL))] * Prior Dilution Factor
* - "C" = Extract is Consumed

BATTELLE
It can be done

BATTELLE - NORWELL OPERATIONS
PREPARATION EXTRACT SPLIT FORM

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

Project No.(s)
100117920-WE04

18-0393

WE04 PFAS Analysis

DW

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
J6590-FS1	0	--	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6637-FS1	0	--	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6639-FS1	0	C	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6639-FS1	2	--	6/29/2018 9:24:00 AM	J6639-FS1	0	1000	950	1.053	1.053	06/29/18 SAS
J6639-FS1-D	3	--	6/29/2018 9:24:00 AM	J6639-FS1	0	1000	50	20.000	20.000	06/29/18 SAS
J6641-FS1	0	C	6/21/2018 2:56:00 PM	NA		NA	NA	1.000	1.000	06/21/18 SAS
J6641-FS1	2	--	6/29/2018 9:24:00 AM	J6641-FS1	0	1000	950	1.053	1.053	06/29/18 SAS
J6641-FS1-D	3	--	6/29/2018 9:24:00 AM	J6641-FS1	0	1000	50	20.000	20.000	06/29/18 SAS
J6642-FS1	0	--	6/21/2018 2:56:00 PM	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) / Aliqot Volume (uL))] * Prior Dilution Factor
* - "C" = Extract is Consumed

BATTELLE

Sequence Report

Created with Analyst Reporter
Printed: 18/07/2018 9:17:21 AM

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
1	MeOH		6/27/2018 1:33:35 PM	5-0371.dam	06252018_5-371.wiff
54	JX72 CCV	CCV	6/27/2018 5:25:48 PM	5-0371.dam	06252018_5-371.wiff
10	MeOH	Solvent	6/27/2018 5:34:42 PM	5-0371.dam	06252018_5-371.wiff
11	CR042PB-FS(0)	Procedural Blank	6/27/2018 5:43:39 PM	5-0371.dam	06252018_5-371.wiff
12	CR043LCS-FS(0)	Laboratory Control Sample	6/27/2018 5:52:35 PM	5-0371.dam	06252018_5-371.wiff
13	J6290-FS1(0)	NAWC-053118-RW-256	6/27/2018 6:01:33 PM	5-0371.dam	06252018_5-371.wiff
14	J6292-FS1(0)	NAWC-053118-RW-126	6/27/2018 6:10:29 PM	5-0371.dam	06252018_5-371.wiff
15	J6294-FS1(0)	WGNA-053118-DUP-38	6/27/2018 6:19:26 PM	5-0371.dam	06252018_5-371.wiff
16	J6295-FS1(0)	WGNA-053118-RW-4850	6/27/2018 6:28:22 PM	5-0371.dam	06252018_5-371.wiff
17	J6295MS-FS1(0)	WGNA-053118-RW-4850	6/27/2018 6:37:18 PM	5-0371.dam	06252018_5-371.wiff
18	J6295MSD-FS1(0)	WGNA-053118-RW-4850	6/27/2018 6:46:14 PM	5-0371.dam	06252018_5-371.wiff
19	J6297-FS1(0)	NAWC-053118-RW-311	6/27/2018 6:55:10 PM	5-0371.dam	06252018_5-371.wiff
20	J6299-FS1(0)	NAWC-053118-RW-265	6/27/2018 7:04:07 PM	5-0371.dam	06252018_5-371.wiff
21	JX71 CCV	CCV	6/27/2018 7:13:03 PM	5-0371.dam	06252018_5-371.wiff
54	MeOH	Solvent	6/27/2018 7:21:58 PM	5-0371.dam	06252018_5-371.wiff
22	J6582-FS1(0)	NAWC-060418-RW-	6/27/2018 7:30:53	5-0371.dam	06252018_5-371.wiff

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Sequence Report

Created with Analyst Reporter
Printed: 18/07/2018 9:17:21 AM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
		230	PM		
23	J6584-FS1(0)	NAWC-060418-RW-309	6/27/2018 7:39:50 PM	5-0371.dam	06252018_5-371.wiff
24	J6586-FS1(0)	NAWC-060418-RW-293	6/27/2018 7:48:46 PM	5-0371.dam	06252018_5-371.wiff
25	J6588-FS1(0)	NAWC-060418-RW-038	6/27/2018 7:57:42 PM	5-0371.dam	06252018_5-371.wiff
26	J6590-FS1(0)	NAWC-060418-RW-039	6/27/2018 8:06:41 PM	5-0371.dam	06252018_5-371.wiff
27	J6637-FS1(0)	WGNA-060718-RW-0488	6/27/2018 8:15:38 PM	5-0371.dam	06252018_5-371.wiff
28	J6639-FS1(0)	NAWC-060718-RW-175	6/27/2018 8:24:34 PM	5-0371.dam	06252018_5-371.wiff
29	J6641-FS1(0)	WGNA-060718-DUP-39	6/27/2018 8:33:30 PM	5-0371.dam	06252018_5-371.wiff
30	J6642-FS1(0)	WGNA-060718-RW-0626	6/27/2018 8:42:27 PM	5-0371.dam	06252018_5-371.wiff
31	JX72 CCV	CCV	6/27/2018 8:51:24 PM	5-0371.dam	06252018_5-371.wiff

BATTELLE

Sequence Report

Created with Analyst Reporter
Printed: 18/07/2018 9:17:55 AM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH	Solvent	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
2	JX73 CCV	CCV	6/28/2018 12:23:52 PM	5-0371.dam	06282018_05-0371.wiff
1	MeOH	Solvent	6/28/2018 12:50:39 PM	5-0371.dam	06282018_05-0371.wiff
5	CR042PB-FS(0)	Procedural Blank	6/28/2018 12:59:35 PM	5-0371.dam	06282018_05-0371.wiff
6	J6294-FS1(2)	WGNA-053118-DUP-38	6/28/2018 1:08:29 PM	5-0371.dam	06282018_05-0371.wiff
7	J6582-FS1(2)	NAWC-060418-RW-230	6/28/2018 1:17:26 PM	5-0371.dam	06282018_05-0371.wiff
8	J6637-FS1(0)	WGNA-060718-RW-0488	6/28/2018 1:26:21 PM	5-0371.dam	06282018_05-0371.wiff
9	J6641-FS1(0)	WGNA-060718-DUP-39	6/28/2018 1:35:18 PM	5-0371.dam	06282018_05-0371.wiff
10	JX72 CCV	CCV	6/28/2018 1:44:13 PM	5-0371.dam	06282018_05-0371.wiff
14	JX71 CCV	CCV	6/28/2018 2:28:49 PM	5-0371.dam	06282018_05-0371.wiff
15	MeOH	Solvent	6/28/2018 2:37:45 PM	5-0371.dam	06282018_05-0371.wiff
16	J6292-FS1-D(3)	NAWC-053118-RW-126	6/28/2018 2:46:40 PM	5-0371.dam	06282018_05-0371.wiff
17	J6294-FS1-D(3)	WGNA-053118-DUP-38	6/28/2018 2:55:35 PM	5-0371.dam	06282018_05-0371.wiff
18	J6295-FS1-D(3)	WGNA-053118-RW-4850	6/28/2018 3:04:30 PM	5-0371.dam	06282018_05-0371.wiff
19	J6295MS-FS1-D(3)	WGNA-053118-RW-4850	6/28/2018 3:13:24 PM	5-0371.dam	06282018_05-0371.wiff
20	J6582-FS1-D(3)	WGNA-053118-RW-4850	6/28/2018 3:22:20 PM	5-0371.dam	06282018_05-0371.wiff
22	JX73 CCV	CCV	6/28/2018 3:40:09	5-0371.dam	06282018_05-0371.wiff

1

1 - Data not used, these were only run to confirm the original data. BL 7/19/2018

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Sequence Report

Created with Analyst Reporter
Printed: 18/07/2018 9:17:55 AM

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

BATTELLE

Sequence Report

Created with Analyst Reporter
Printed: 18/07/2018 9:17:41 AM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MEOH	Solvent	6/29/2018 8:19:25 AM	5-0371.dam	5500-06292018_371.wiff
3	JX67	L1	6/29/2018 8:28:19 AM	5-0371.dam	5500-06292018_371.wiff
4	JX68	L2	6/29/2018 8:37:15 AM	5-0371.dam	5500-06292018_371.wiff
5	JX69	L3	6/29/2018 8:46:11 AM	5-0371.dam	5500-06292018_371.wiff
6	JX70	L4	6/29/2018 8:55:07 AM	5-0371.dam	5500-06292018_371.wiff
7	JX71	L5	6/29/2018 9:04:02 AM	5-0371.dam	5500-06292018_371.wiff
8	JX72	L6	6/29/2018 9:12:59 AM	5-0371.dam	5500-06292018_371.wiff
9	JX73	L7	6/29/2018 9:21:55 AM	5-0371.dam	5500-06292018_371.wiff
10	JX74	L8	6/29/2018 9:30:50 AM	5-0371.dam	5500-06292018_371.wiff
11	JX75	L9	6/29/2018 9:39:45 AM	5-0371.dam	5500-06292018_371.wiff
12	JX66 ICC	ICC	6/29/2018 9:48:41 AM	5-0371.dam	5500-06292018_371.wiff
1	MEOH	Solvent	6/29/2018 9:57:37 AM	5-0371.dam	5500-06292018_371.wiff
~~15~~	~~J6295MSD-FS1-D(3)~~	WGNA-053118-RW-4850	6/29/2018 10:51:59 AM	~~5-0371.dam~~	~~5500-06292018_371.wiff~~ 1
16	J6639-FS1-D(3)	NAWC-060718-RW-175	6/29/2018 11:00:55 AM	5-0371.dam	5500-06292018_371.wiff
17	J6641-FS1-D(3)	WGNA-060718-DUP-39	6/29/2018 11:09:51 AM	5-0371.dam	5500-06292018_371.wiff
8	JX72	CCV	6/29/2018 11:18:47 AM	5-0371.dam	5500-06292018_371.wiff

1 - New dilution needed as this extract did not pass IS MQO. BL 7/19/2018

BATTELLE

Sequence Report

Created with Analyst Reporter
Printed: 19/07/2018 9:43:02 AM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		7/18/2018 10:11:16 PM	5-0371.dam	07182019_5-0371.wiff
2	JX67	L1	7/18/2018 10:20:13 PM	5-0371.dam	07182019_5-0371.wiff
3	JX68	L2	7/18/2018 10:29:10 PM	5-0371.dam	07182019_5-0371.wiff
4	JX69	L3	7/18/2018 10:38:06 PM	5-0371.dam	07182019_5-0371.wiff
5	JX70	L4	7/18/2018 10:47:03 PM	5-0371.dam	07182019_5-0371.wiff
6	JX71	L5	7/18/2018 10:55:59 PM	5-0371.dam	07182019_5-0371.wiff
7	JX72	L6	7/18/2018 11:04:55 PM	5-0371.dam	07182019_5-0371.wiff
8	JX73	L7	7/18/2018 11:13:52 PM	5-0371.dam	07182019_5-0371.wiff
9	JX74	L8	7/18/2018 11:22:48 PM	5-0371.dam	07182019_5-0371.wiff
10	JX75	L9	7/18/2018 11:31:46 PM	5-0371.dam	07182019_5-0371.wiff
11	JX66 ICC	ICC	7/18/2018 11:40:44 PM	5-0371.dam	07182019_5-0371.wiff
12	MeOH	Solvent	7/18/2018 11:49:41 PM	5-0371.dam	07182019_5-0371.wiff
13	J6295MSD-FS1-D(5)	WGNA-053118-RW-4850	7/18/2018 11:58:39 PM	5-0371.dam	07182019_5-0371.wiff
14	JX72 CCV	CCV	7/19/2018 12:07:35 AM	5-0371.dam	07182019_5-0371.wiff

BATTELLE

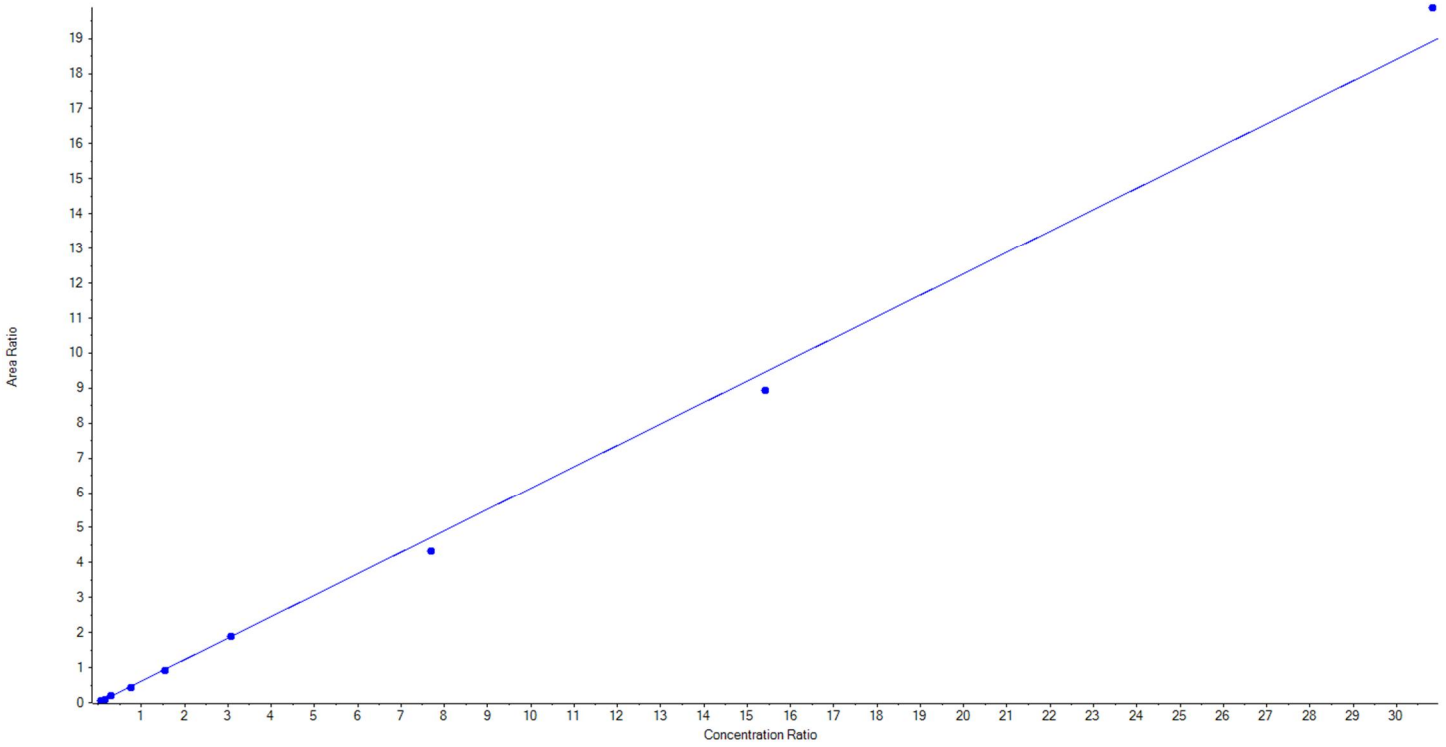
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/07/2018 9:18:59 AM

Analyte Name	PFBS_1	**Data File**	06252018_5-371.wiff
MRM Transition	298.9 / 80.0	**Result Table**	18-0393_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.61363 x + -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



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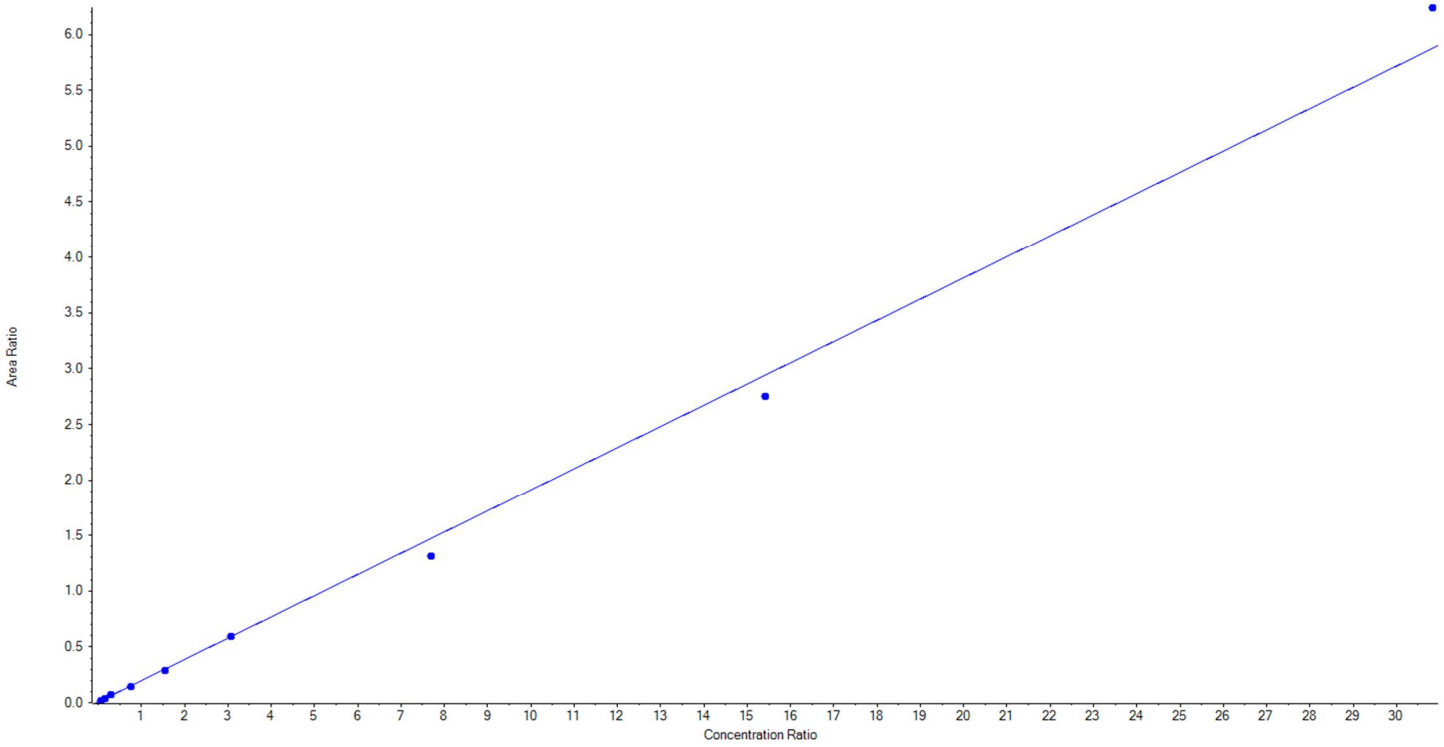
Calibration Summary Report

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Printed: 18/07/2018 9:18:59 AM

Analyte Name	PFBS_2	**Data File**	06252018_5-371.wiff
MRM Transition	298.9 / 99.0	**Result Table**	18-0393_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	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



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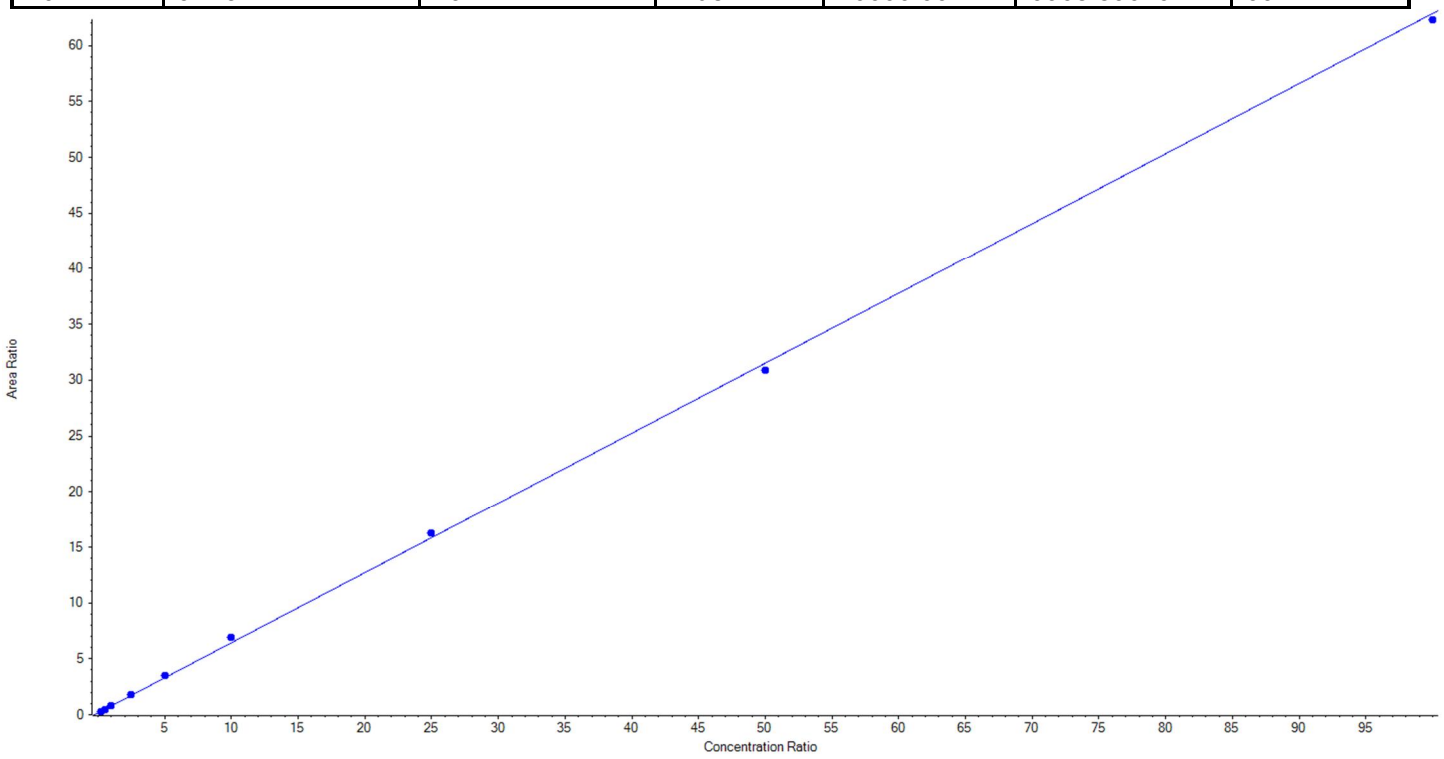
Calibration Summary Report

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Printed: 18/07/2018 9:18:59 AM

Analyte Name	PFHxA_1	**Data File**	06252018_5-371.wiff
MRM Transition	313.0 / 269.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.62713 x + 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



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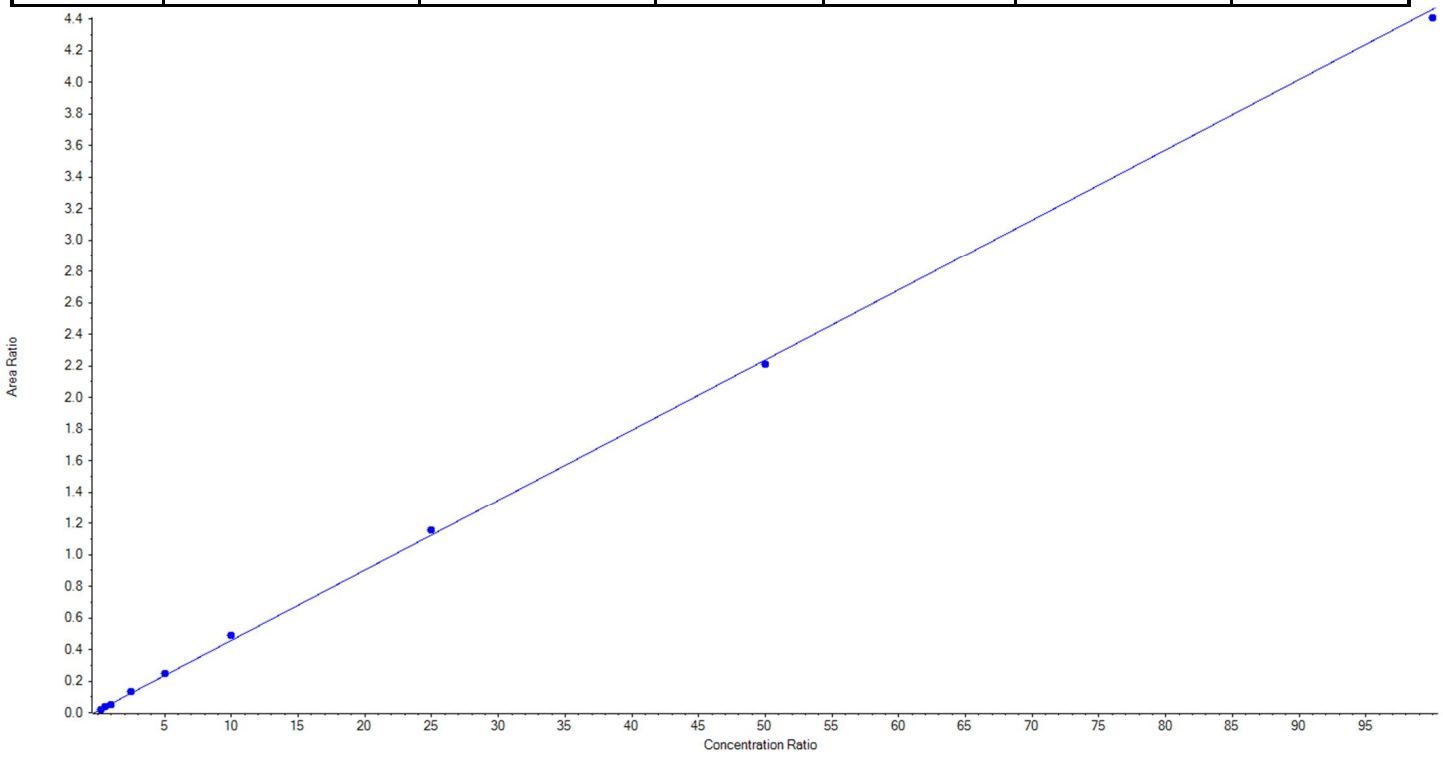
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Analyte Name	PFHxA_2	**Data File**	06252018_5-371.wiff
MRM Transition	313.0 / 119.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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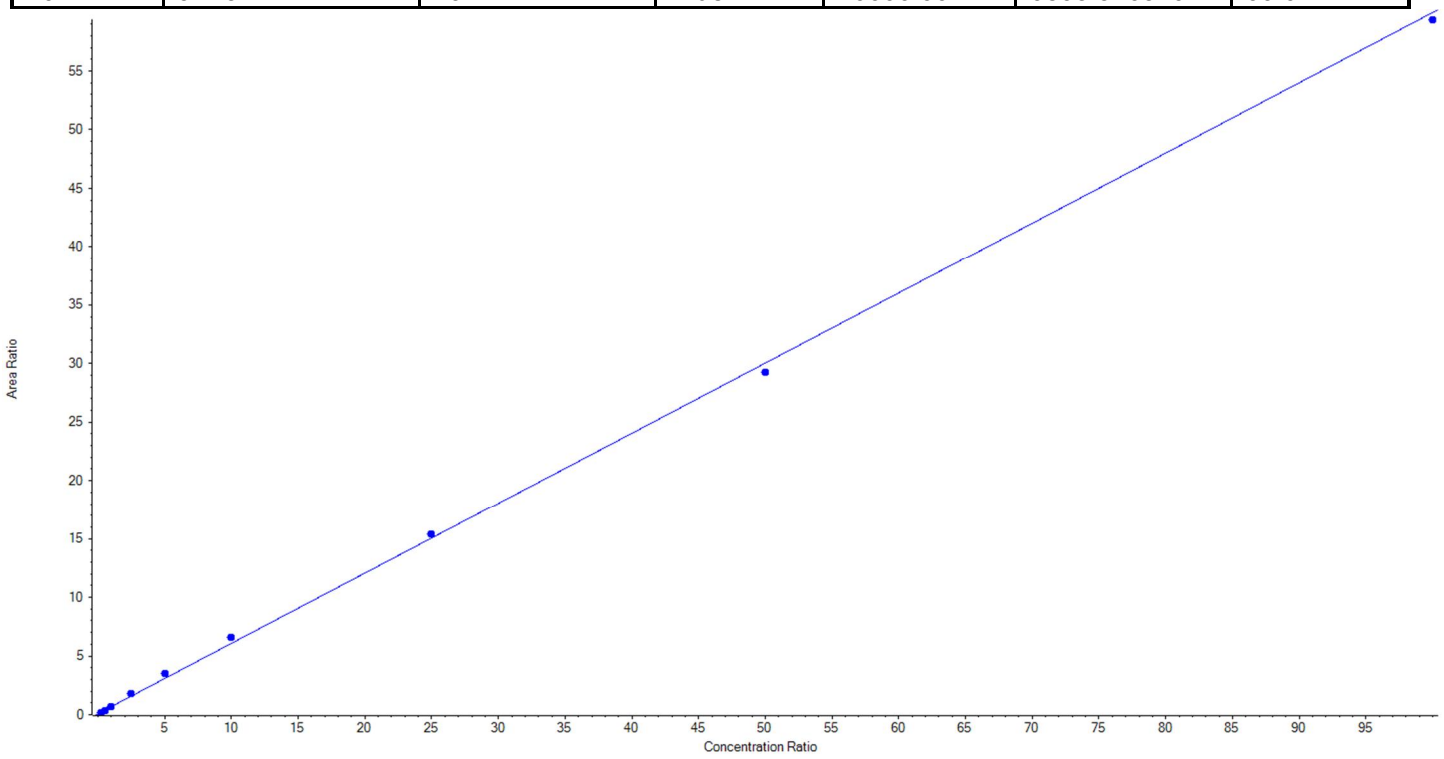
Calibration Summary Report

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Analyte Name	PFHpA_1	**Data File**	06252018_5-371.wiff
MRM Transition	363.0 / 319.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.59900 x + 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



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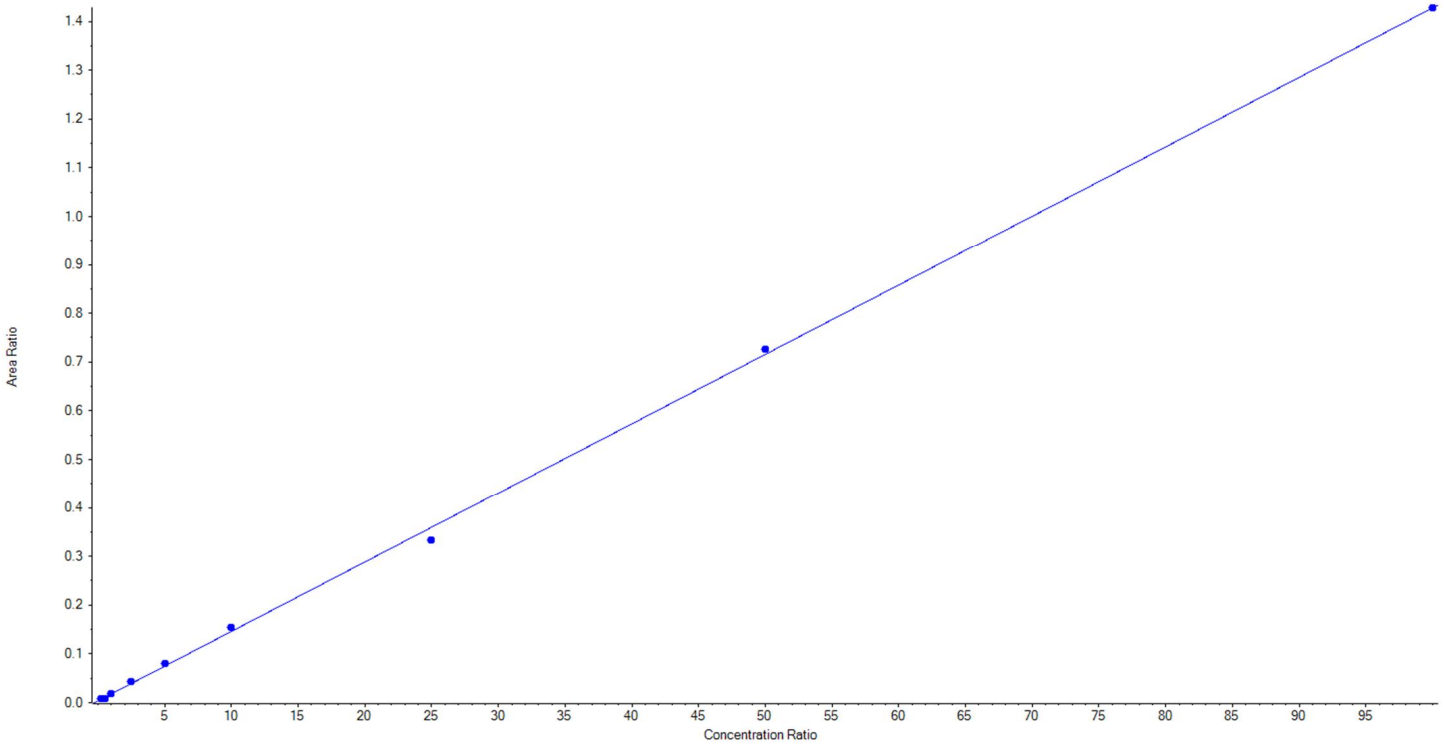
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Analyte Name	PFHpA_2	**Data File**	06252018_5-371.wiff
MRM Transition	363.0 / 169.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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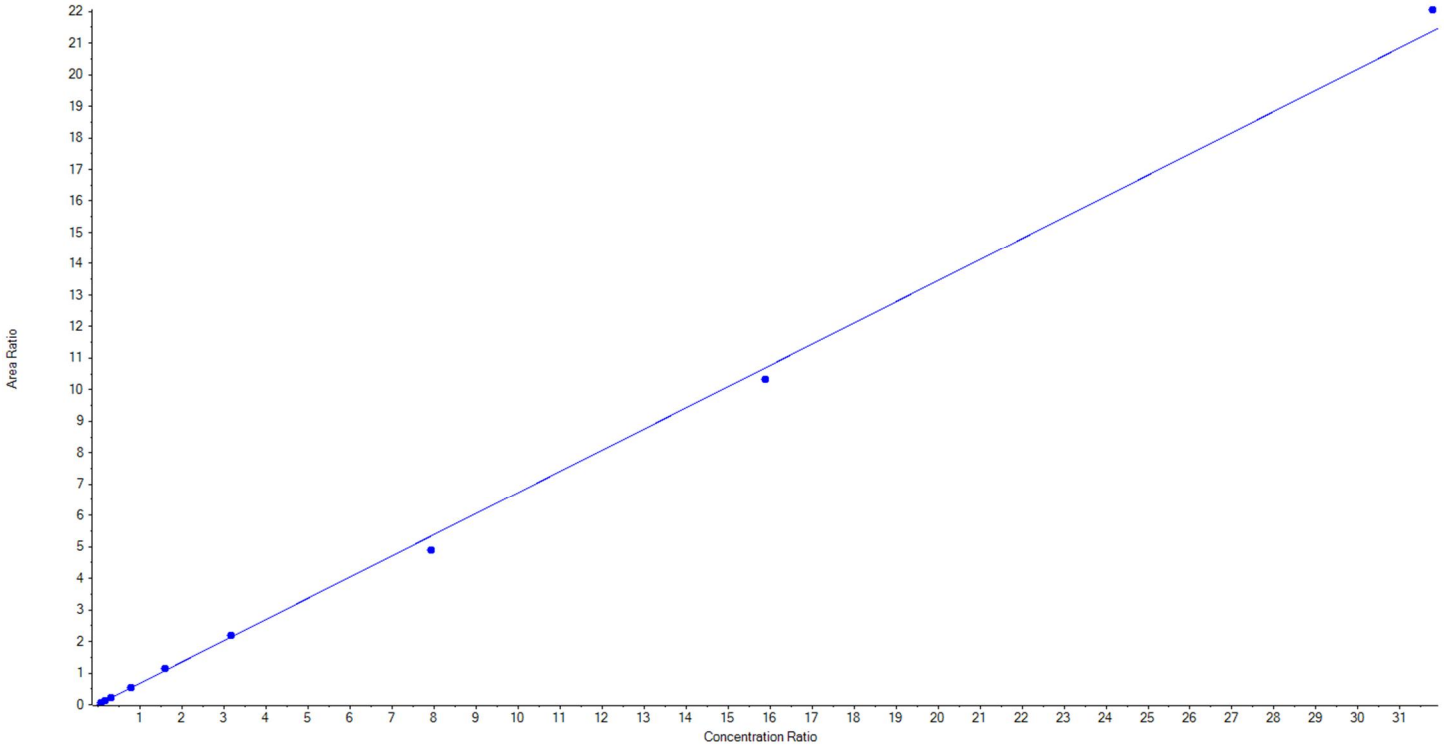
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Analyte Name	PFHxS_1	**Data File**	06252018_5-371.wiff
MRM Transition	399.0 / 80.0	**Result Table**	18-0393_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.67255 x + 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



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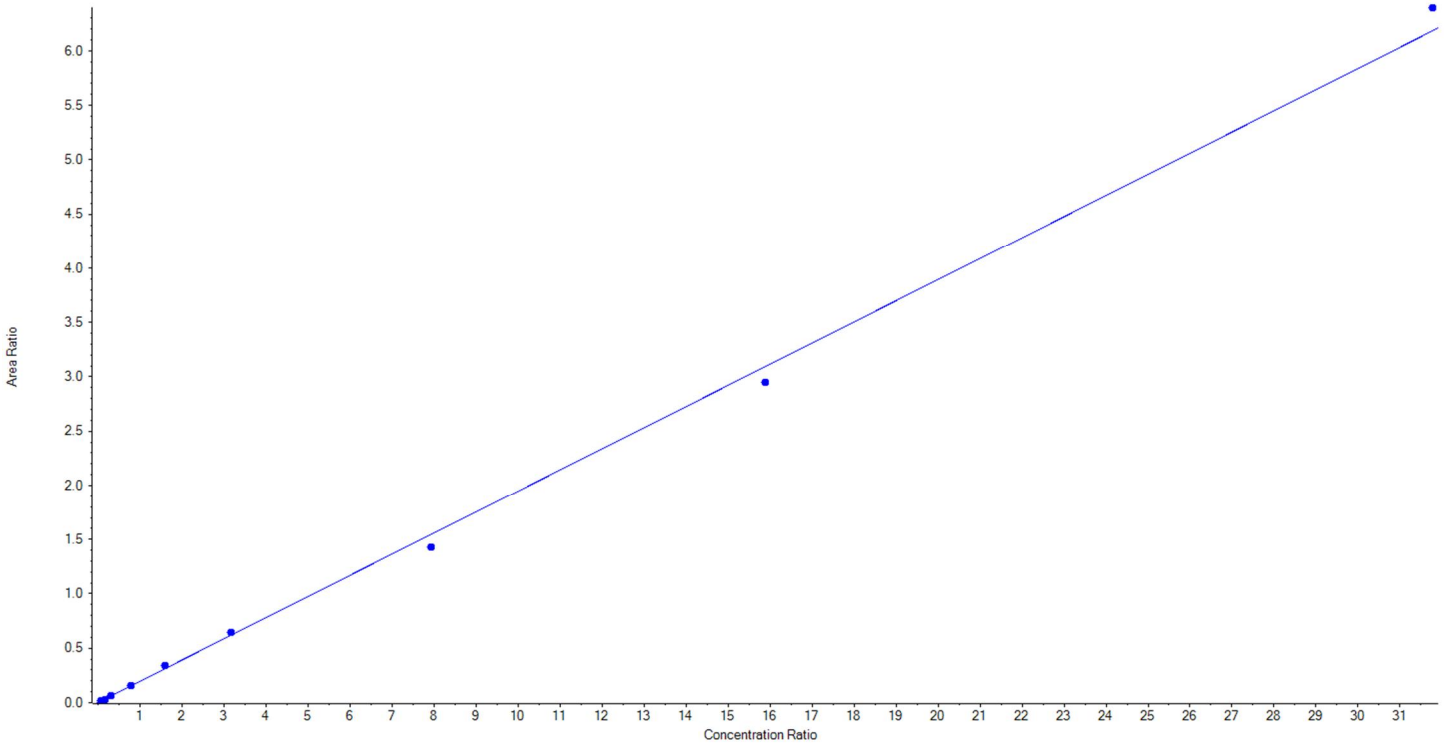
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Analyte Name	PFHxS_2	**Data File**	06252018_5-371.wiff
MRM Transition	399.0 / 99.0	**Result Table**	18-0393_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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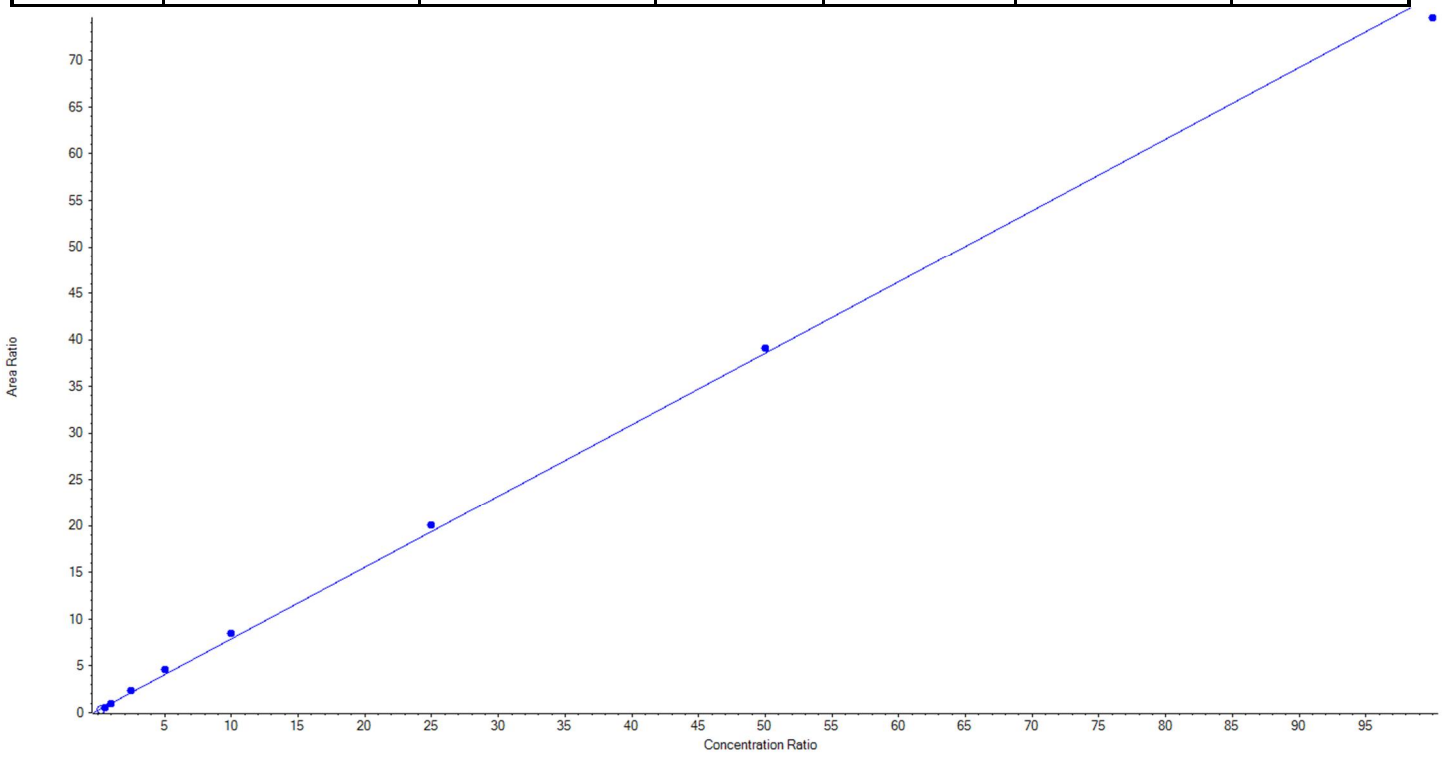
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Analyte Name	PFOA_1	**Data File**	06252018_5-371.wiff
MRM Transition	413.0 / 369.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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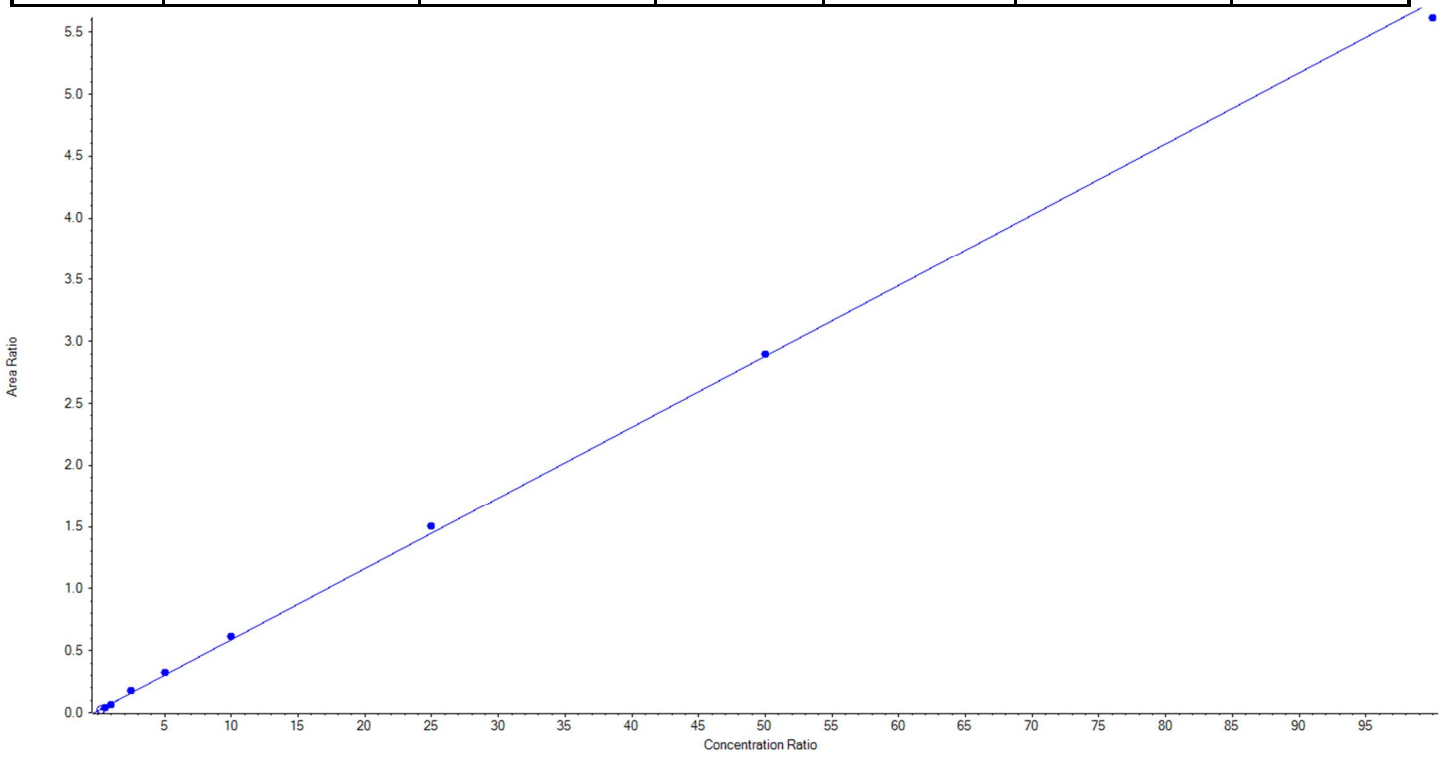
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Analyte Name	PFOA_2	**Data File**	06252018_5-371.wiff
MRM Transition	413.0 / 169.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05729 x + 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



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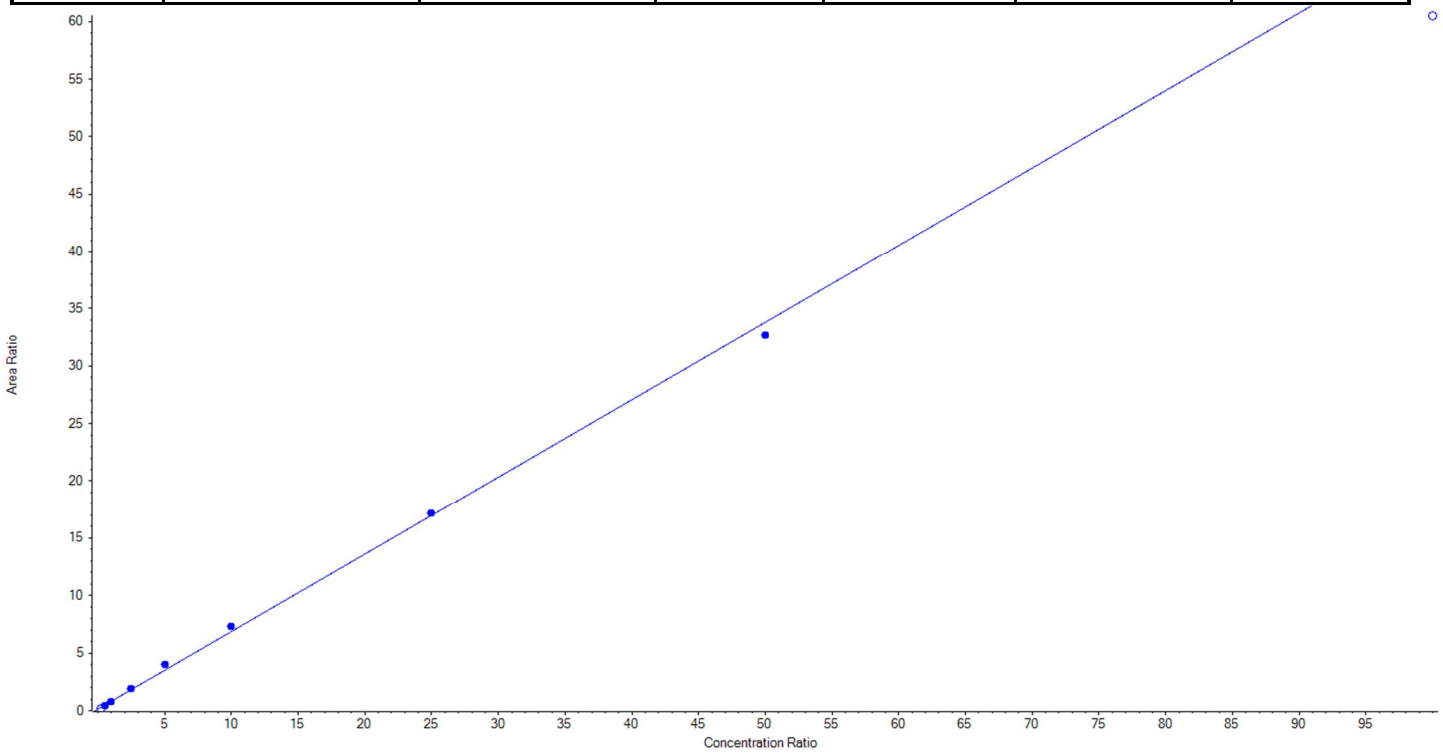
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Analyte Name	PFNA_1	**Data File**	06252018_5-371.wiff
MRM Transition	463.0 / 419.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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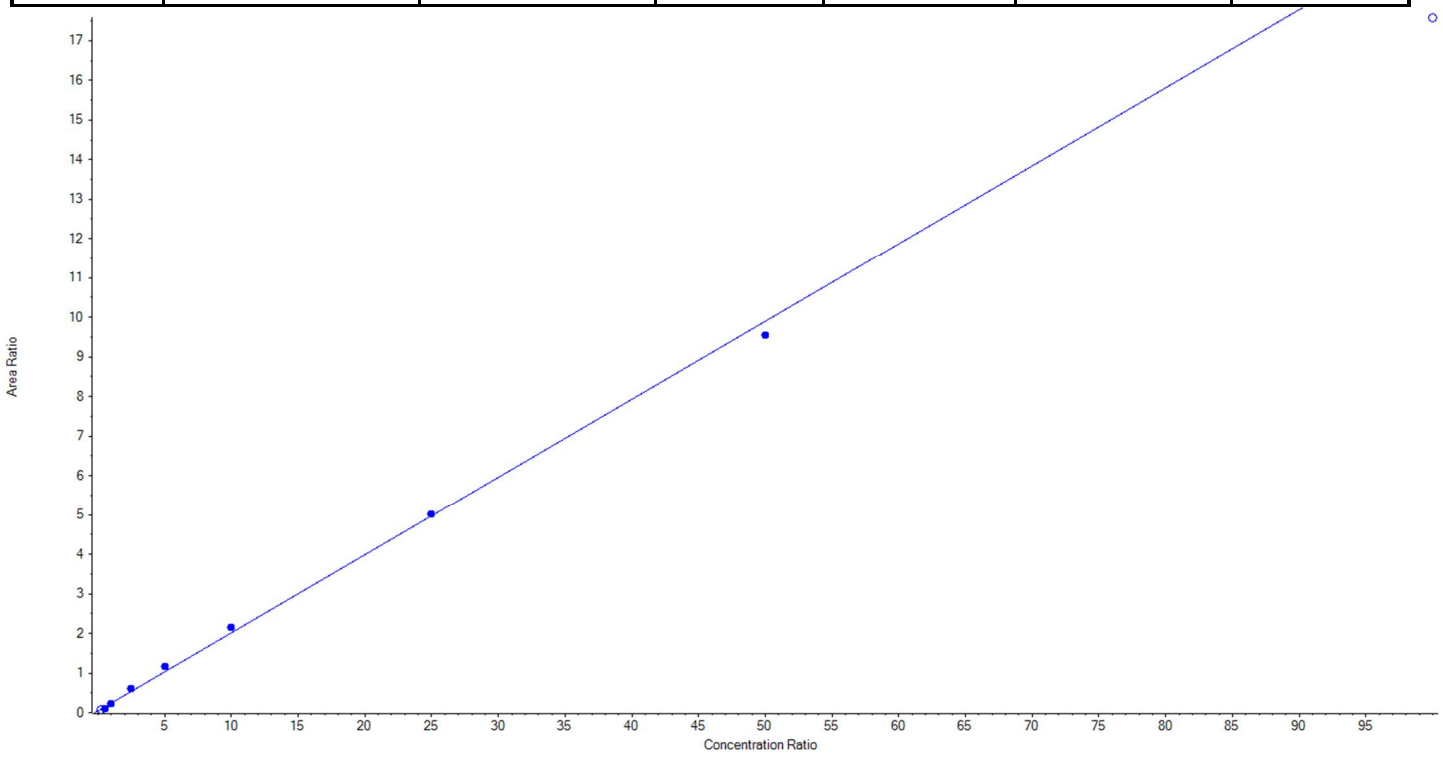
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Analyte Name	PFNA_2	**Data File**	06252018_5-371.wiff
MRM Transition	463.0 / 219.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.19709 x + 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



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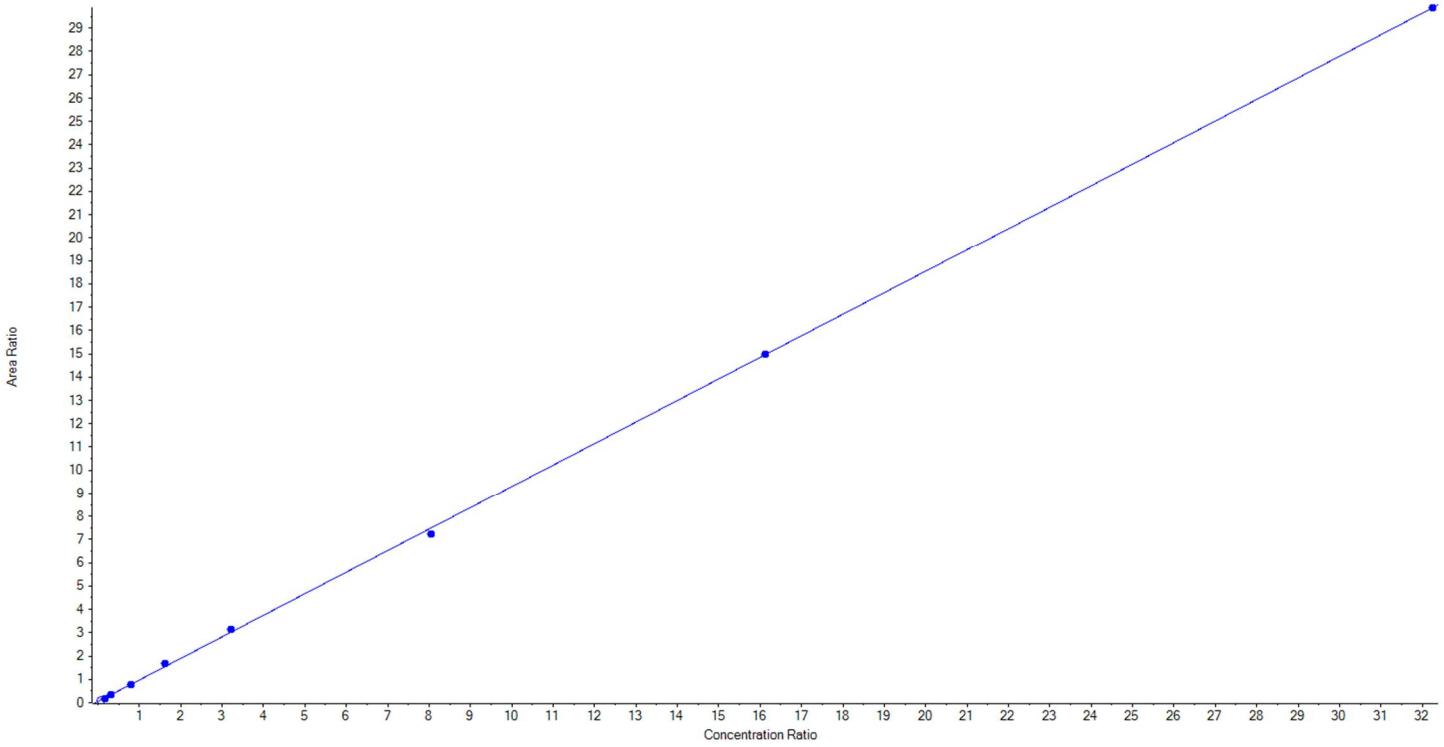
Calibration Summary Report

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Analyte Name	PFOS_1	**Data File**	06252018_5-371.wiff
MRM Transition	499.0 / 80.0	**Result Table**	18-0393_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.92479 x + 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



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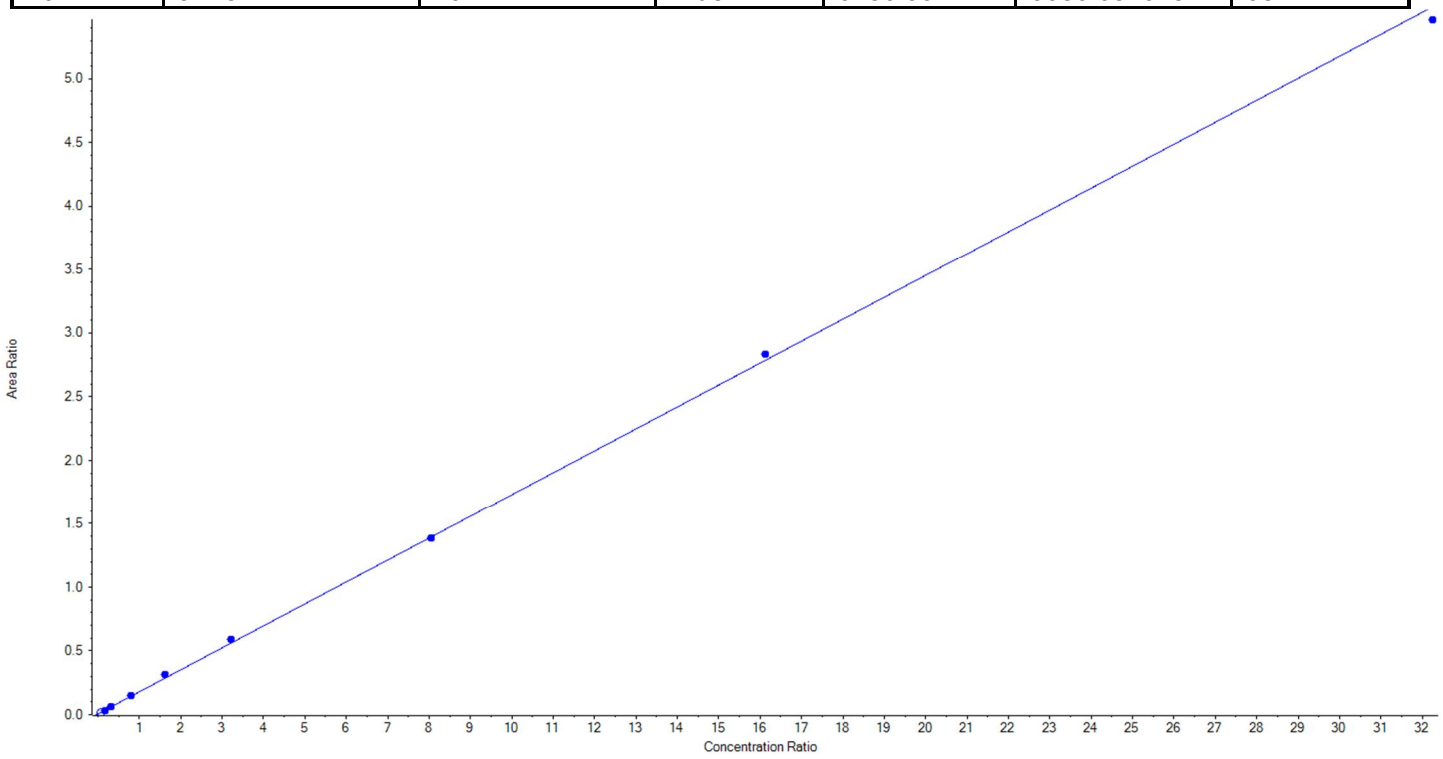
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Printed: 18/07/2018 9:18:59 AM

Analyte Name	PFOS_2	**Data File**	06252018_5-371.wiff
MRM Transition	499.0 / 99.0	**Result Table**	18-0393_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	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



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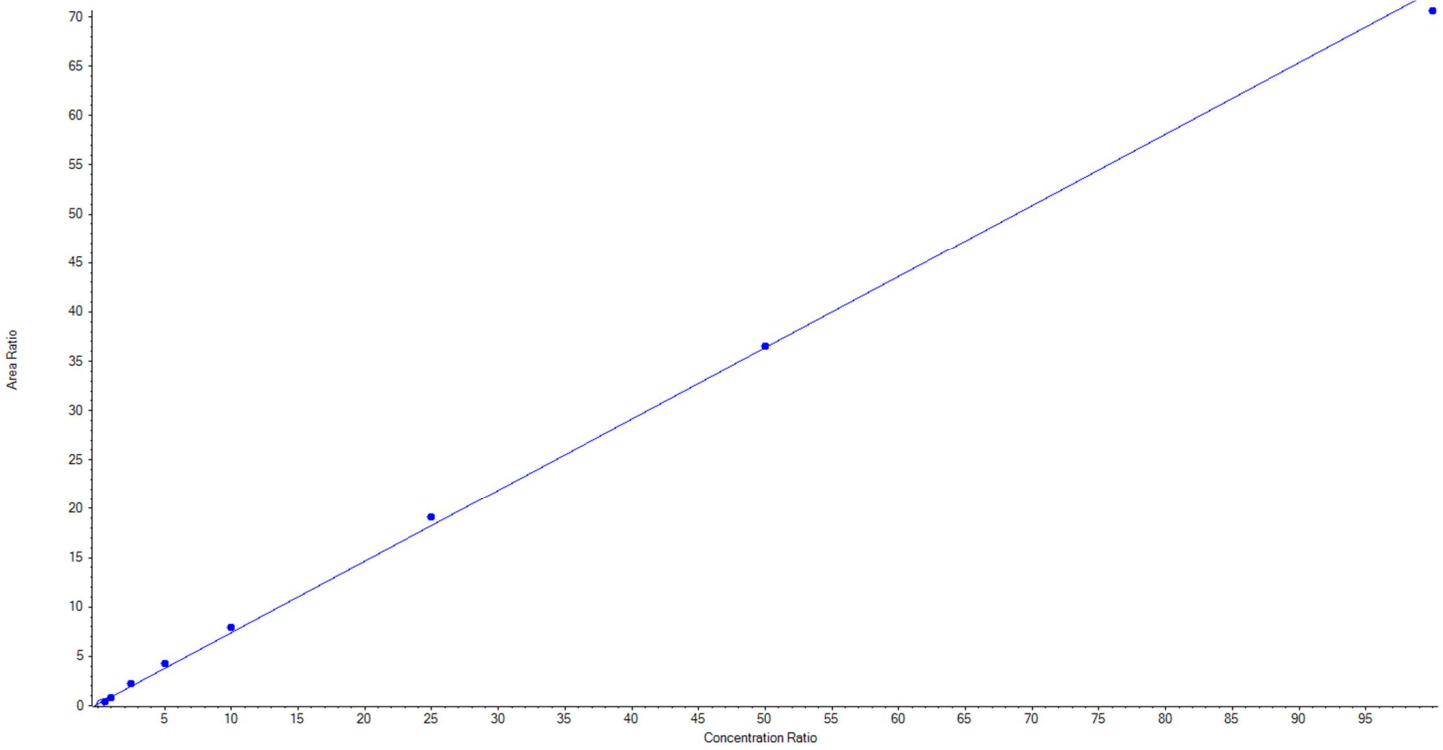
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/07/2018 9:18:59 AM

Analyte Name	PFDA_1	**Data File**	06252018_5-371.wiff
MRM Transition	513.0 / 469.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	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



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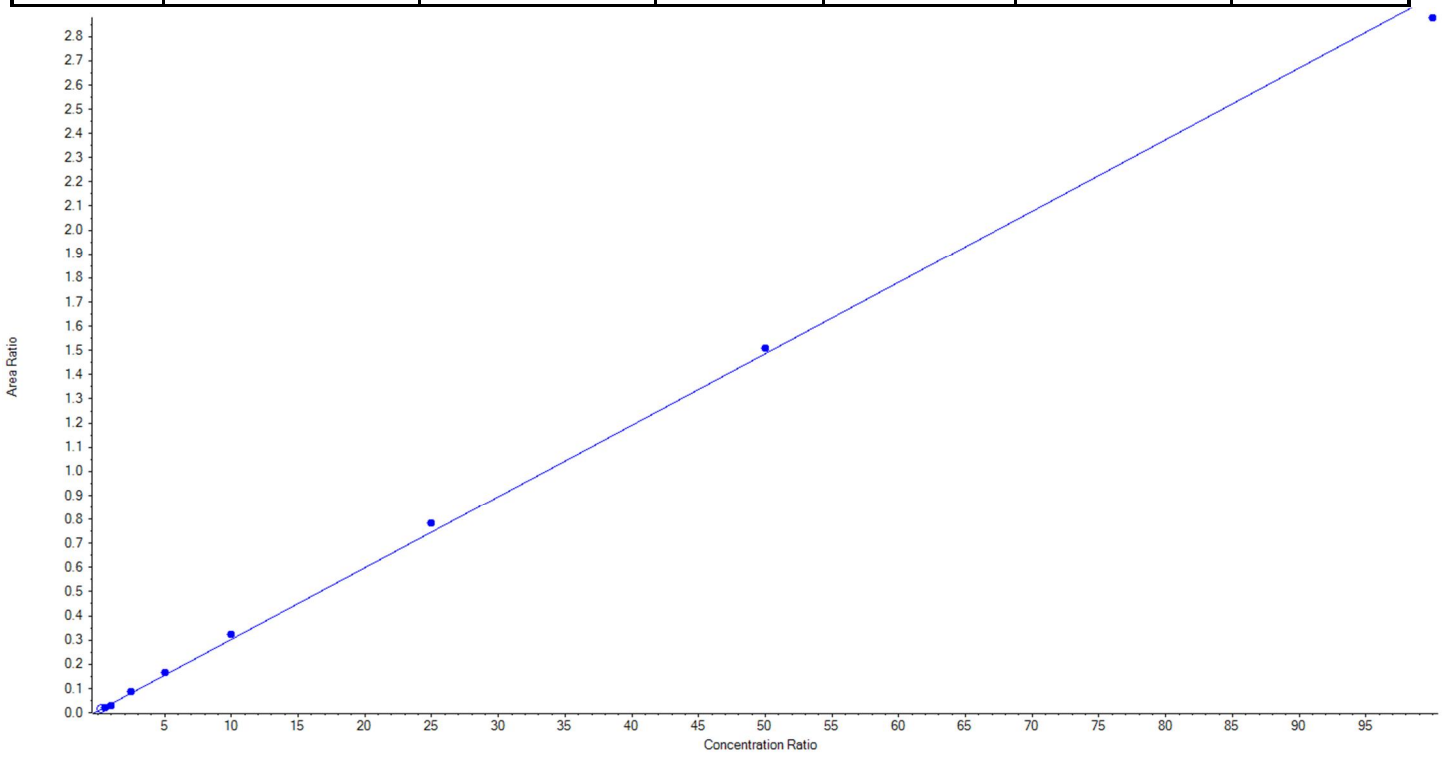
Calibration Summary Report

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Analyte Name	PFDA_2	**Data File**	06252018_5-371.wiff
MRM Transition	513.0 / 219.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.02959 x + 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



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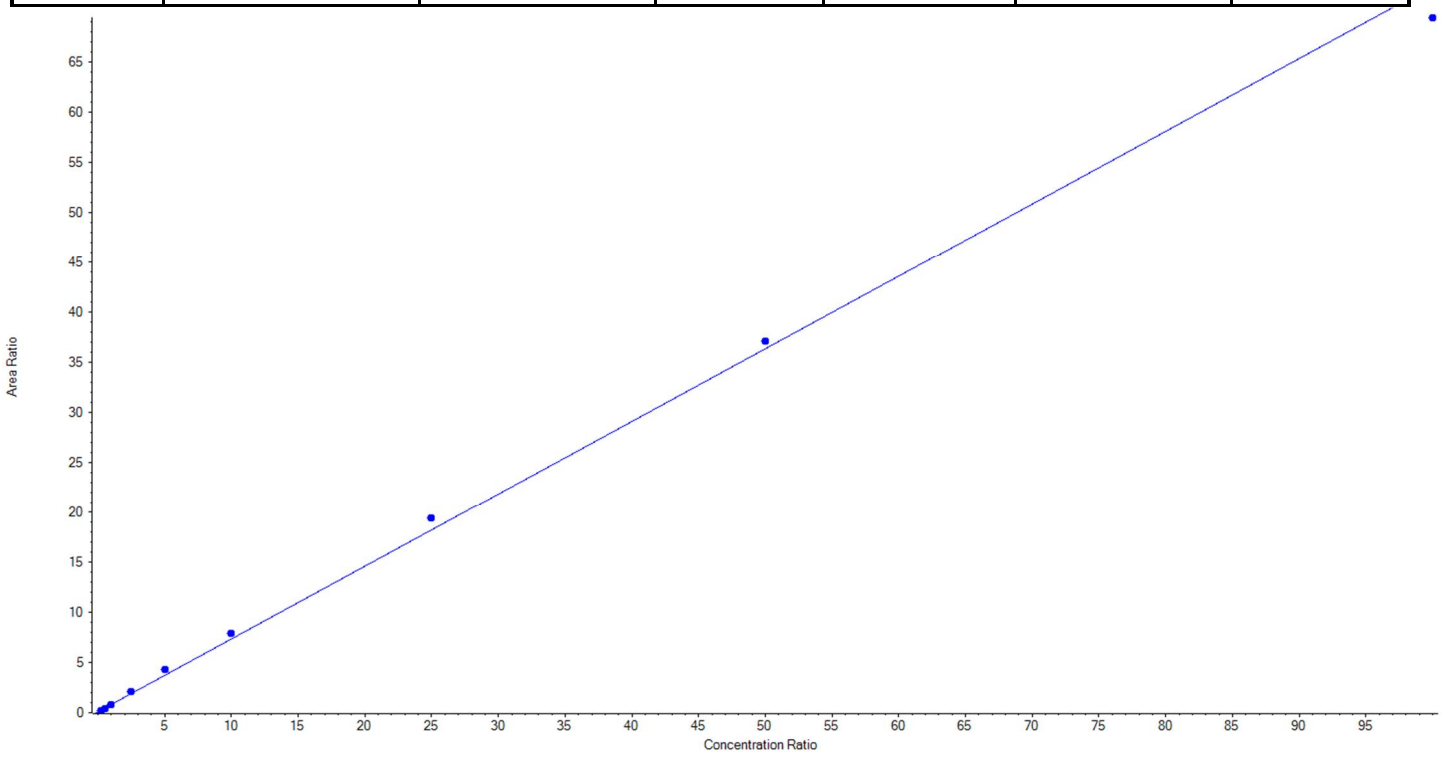
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFUnA_1	**Data File**	06252018_5-371.wiff
MRM Transition	563.0 / 519.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	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



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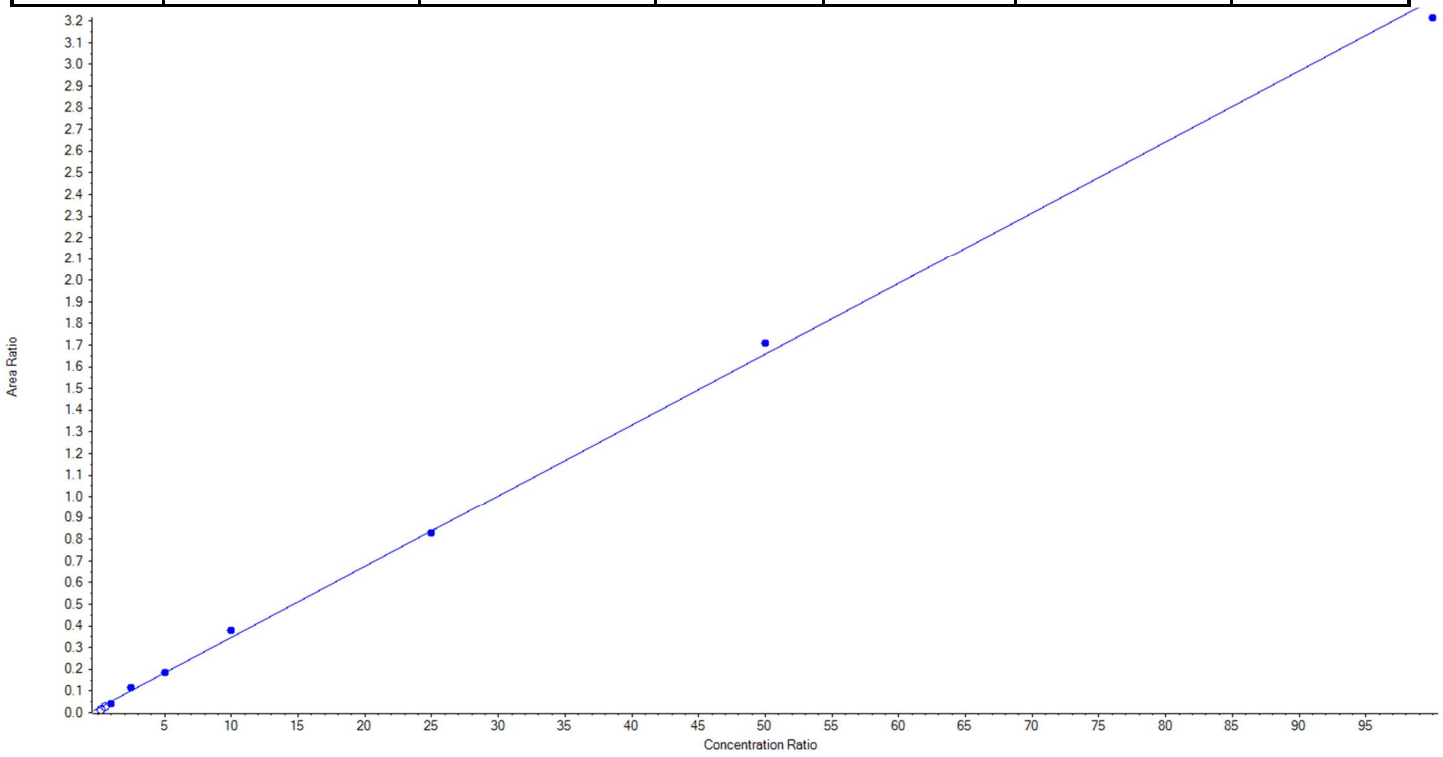
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Analyte Name	PFUnA_2	**Data File**	06252018_5-371.wiff
MRM Transition	563.0 / 269.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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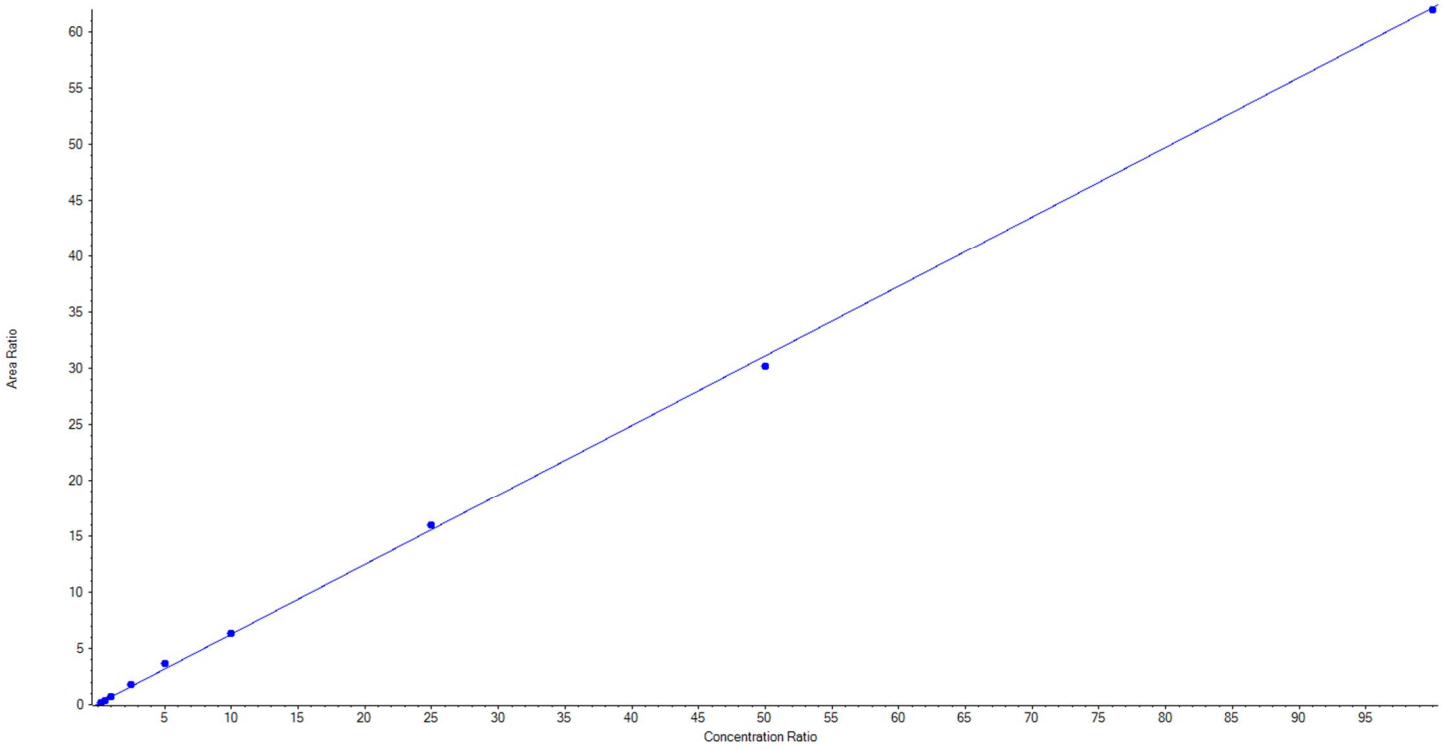
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Analyte Name	PFDoA_1	**Data File**	06252018_5-371.wiff
MRM Transition	613.0 / 569.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.62092 x + 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



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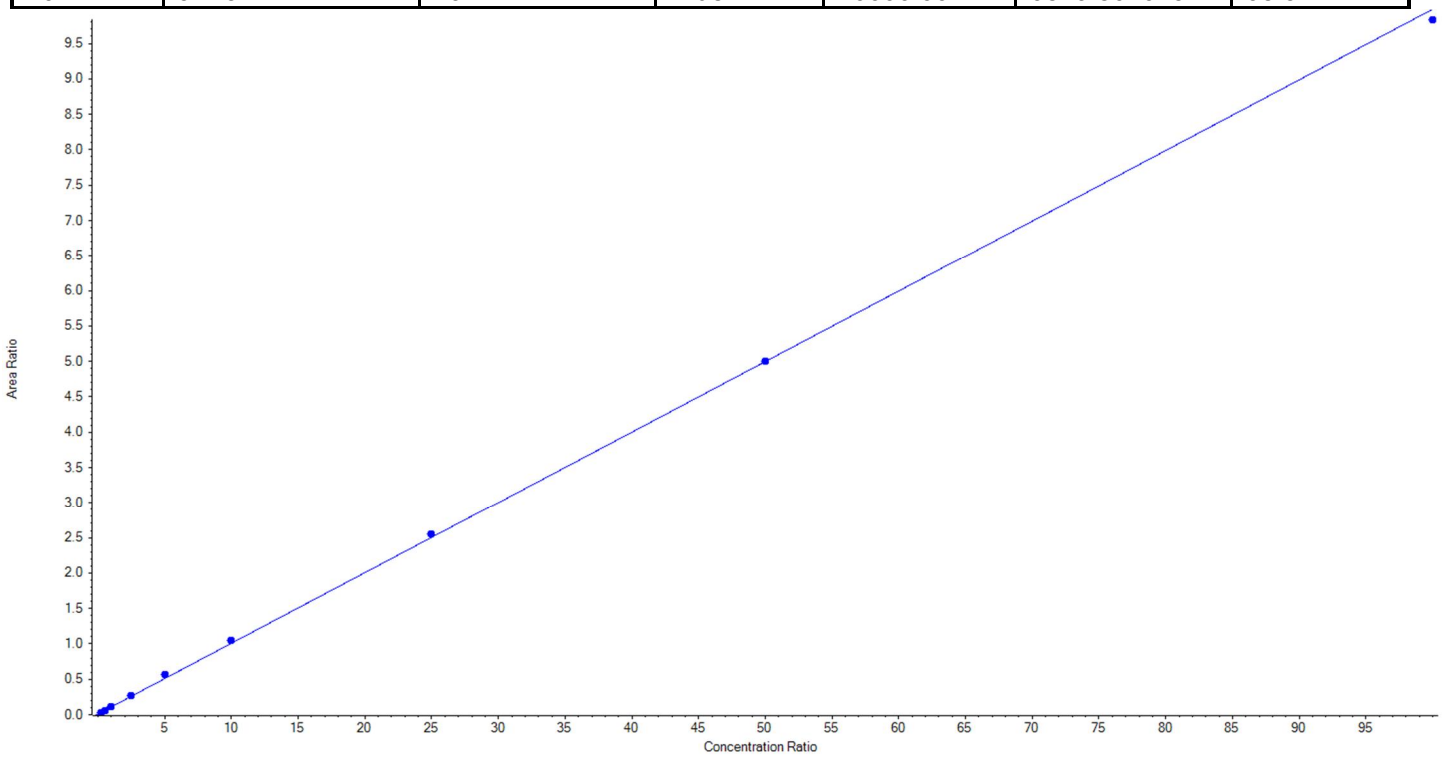
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Analyte Name	PFDoA_2	**Data File**	06252018_5-371.wiff
MRM Transition	613.0 / 319.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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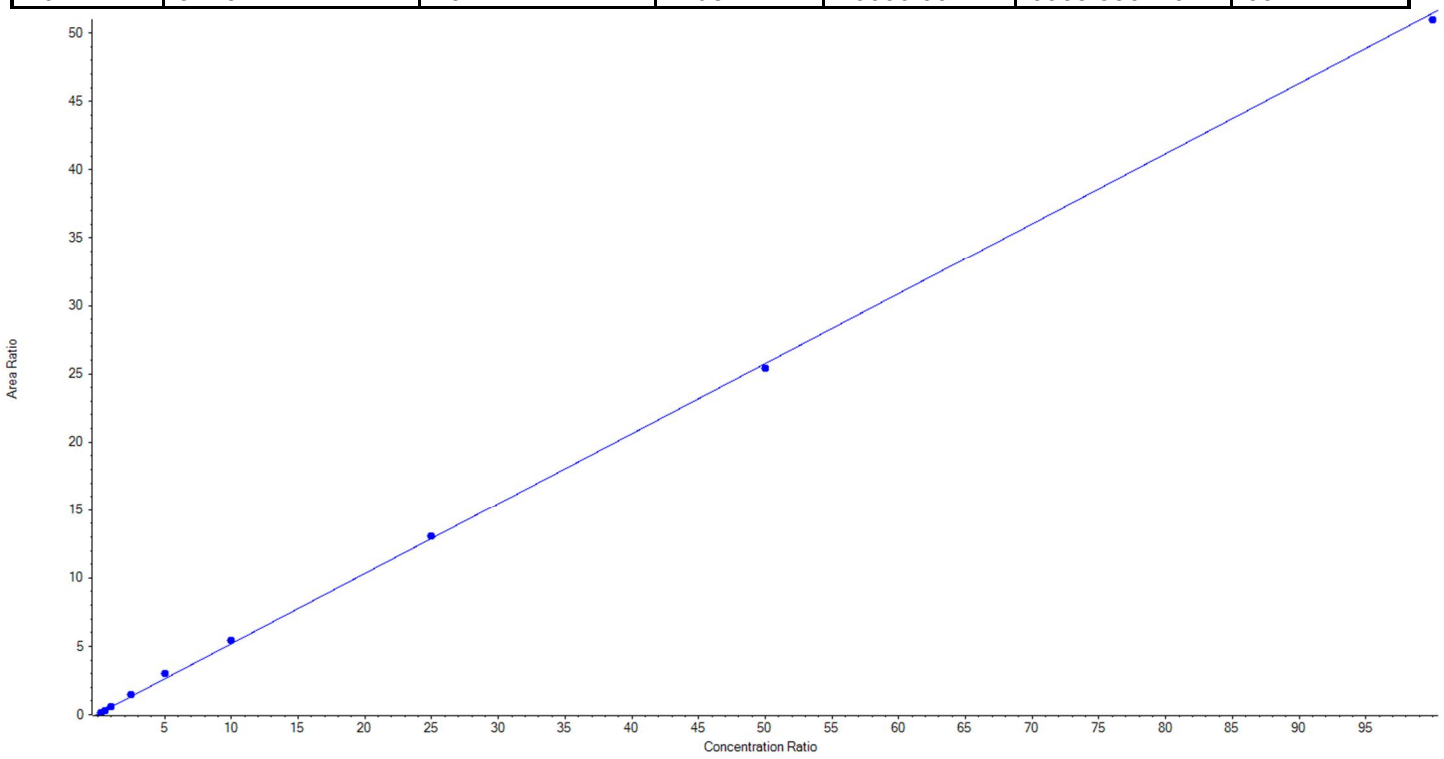
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Analyte Name	PFTrDA_1	**Data File**	06252018_5-371.wiff
MRM Transition	663.0 / 619.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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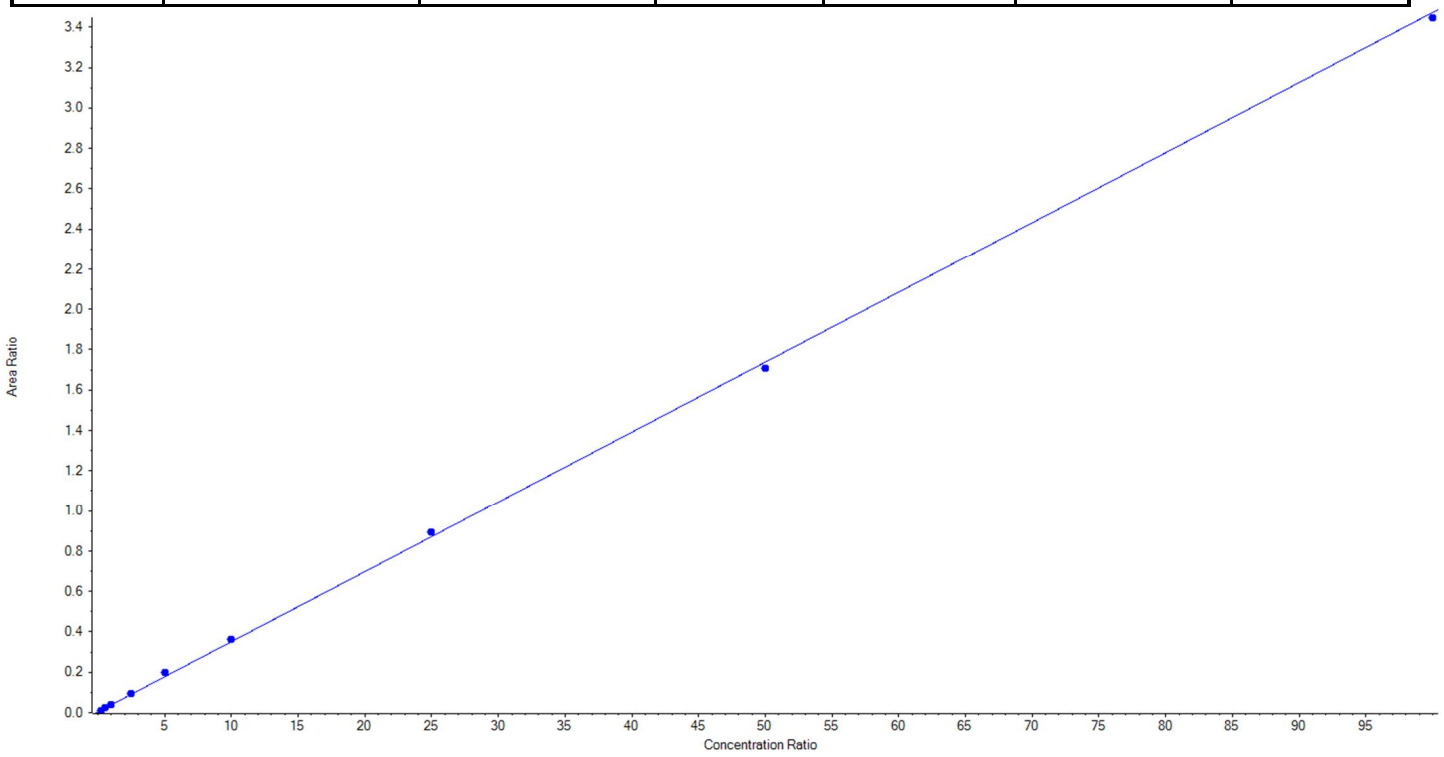
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Analyte Name	PFTrDA_2	**Data File**	06252018_5-371.wiff
MRM Transition	663.0 / 169.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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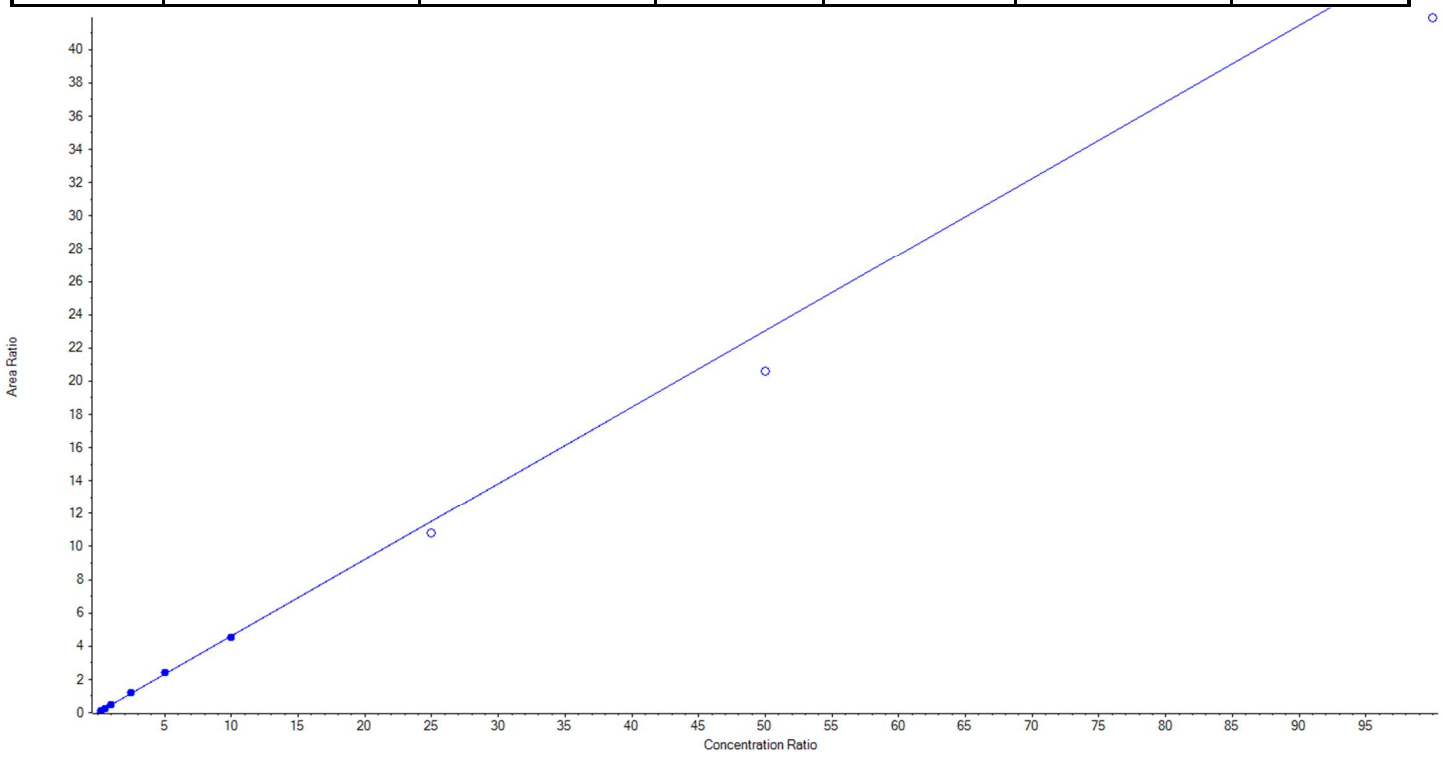
Calibration Summary Report

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Analyte Name	PFTeDA_1	**Data File**	06252018_5-371.wiff
MRM Transition	713.0 / 669.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.46048 x + 0.01329 (r = 0.99949) (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	24.299437	97.2
3	JX68	L2	True	50.00	50.917249	101.8
4	JX69	L3	True	100.00	96.855598	96.9
5	JX70	L4	True	250.00	256.519550	102.6
6	JX71	L5	True	500.00	518.635209	103.7
7	JX72	L6	True	1000.00	977.772958	97.8
8	JX73	L7	False	2500.00	2351.031942	94.0
9	JX74	L8	False	5000.00	4471.708574	89.4
10	JX75	L9	False	10000.00	9099.628917	91.0



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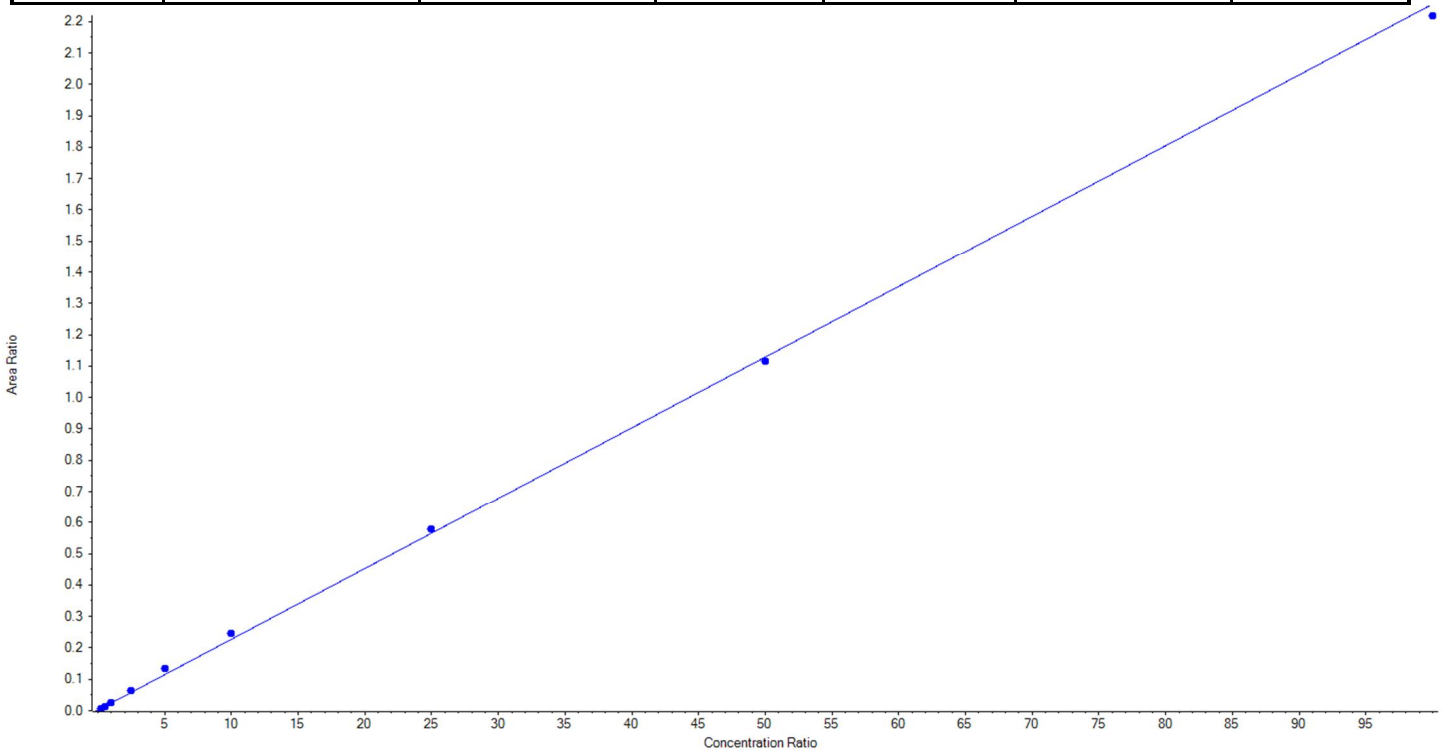
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Analyte Name	PFTeDA_2	**Data File**	06252018_5-371.wiff
MRM Transition	713.0 / 169.0	**Result Table**	18-0393_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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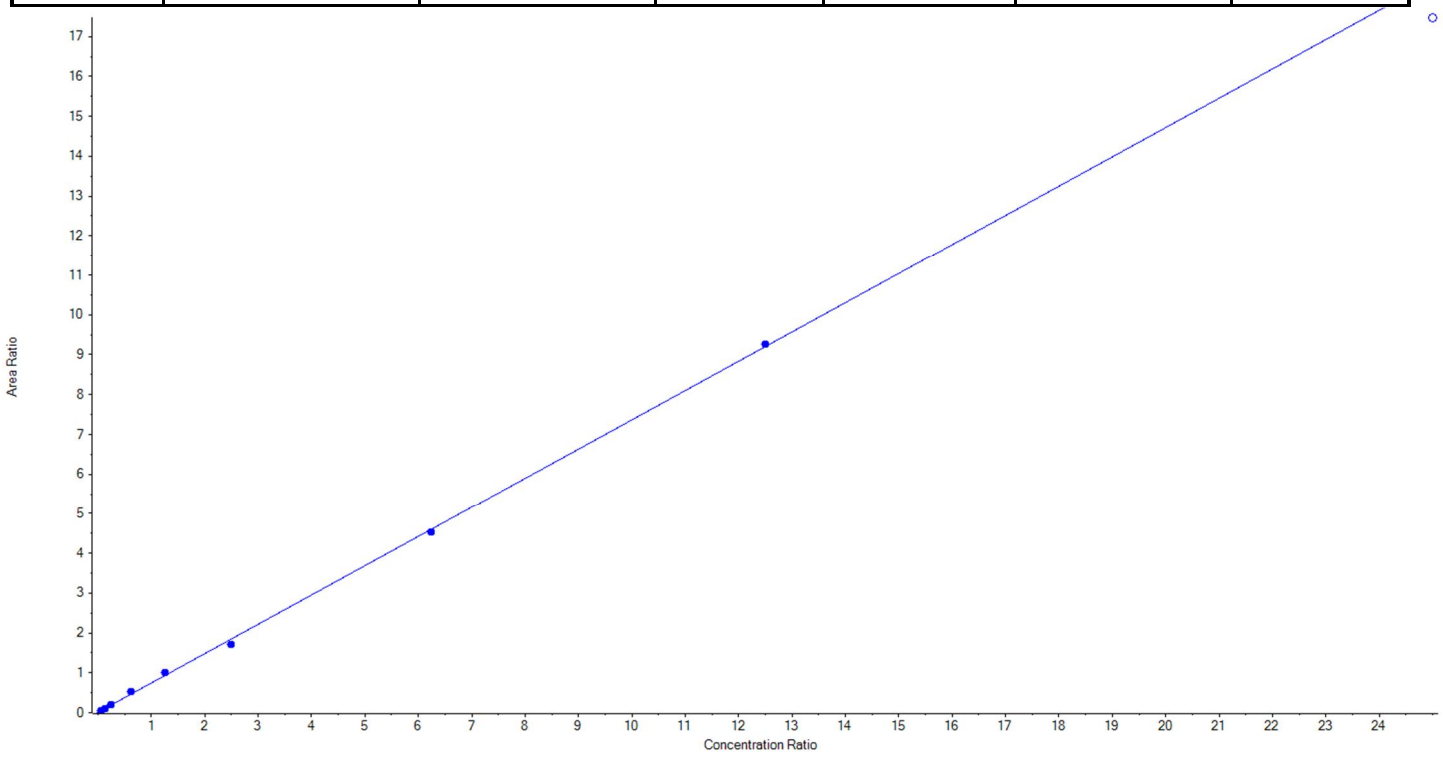
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Analyte Name	NMeFOSAA_1	**Data File**	06252018_5-371.wiff
MRM Transition	570.0 / 419.0	**Result Table**	18-0393_DW
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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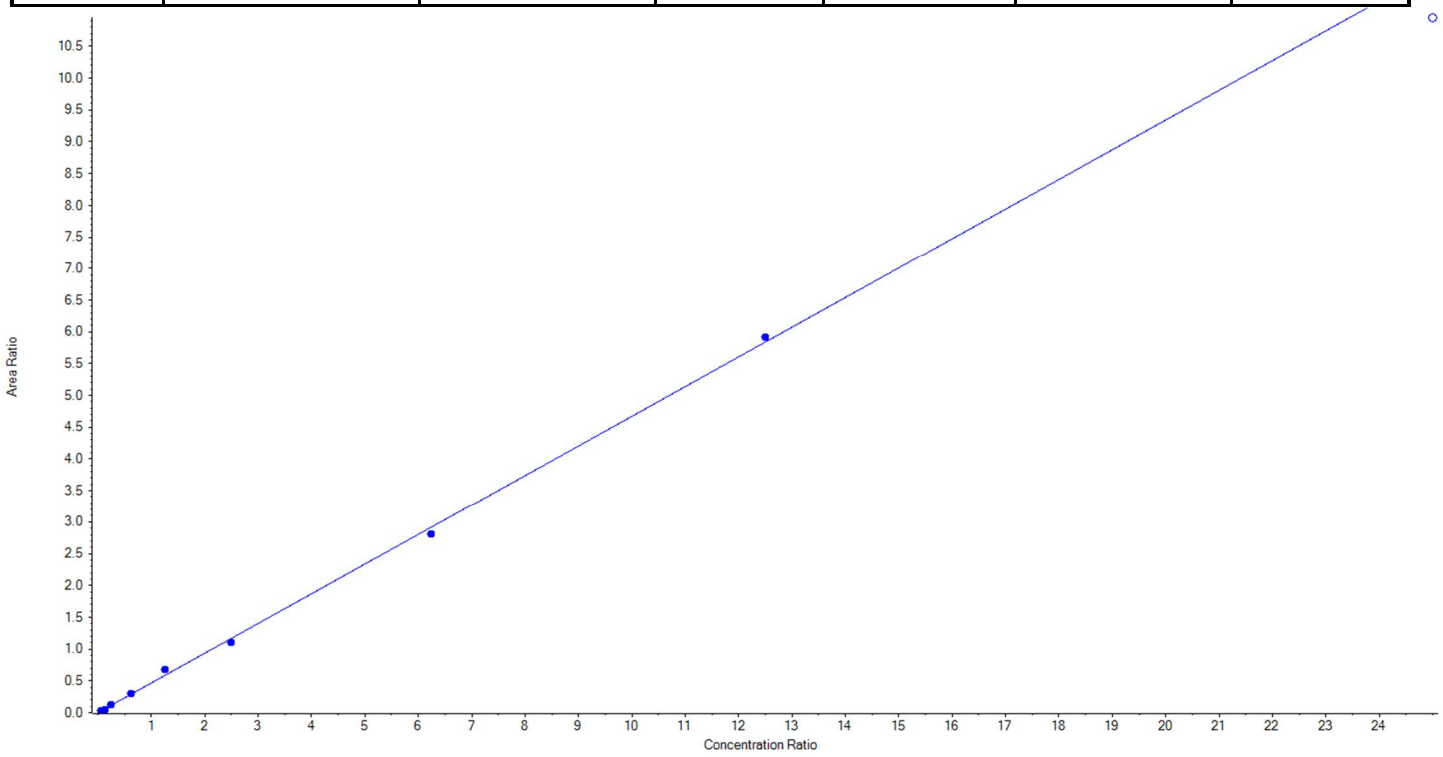
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Analyte Name	NMeFOSAA_2	**Data File**	06252018_5-371.wiff
MRM Transition	570.0 / 512.0	**Result Table**	18-0393_DW
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.46708 x + 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



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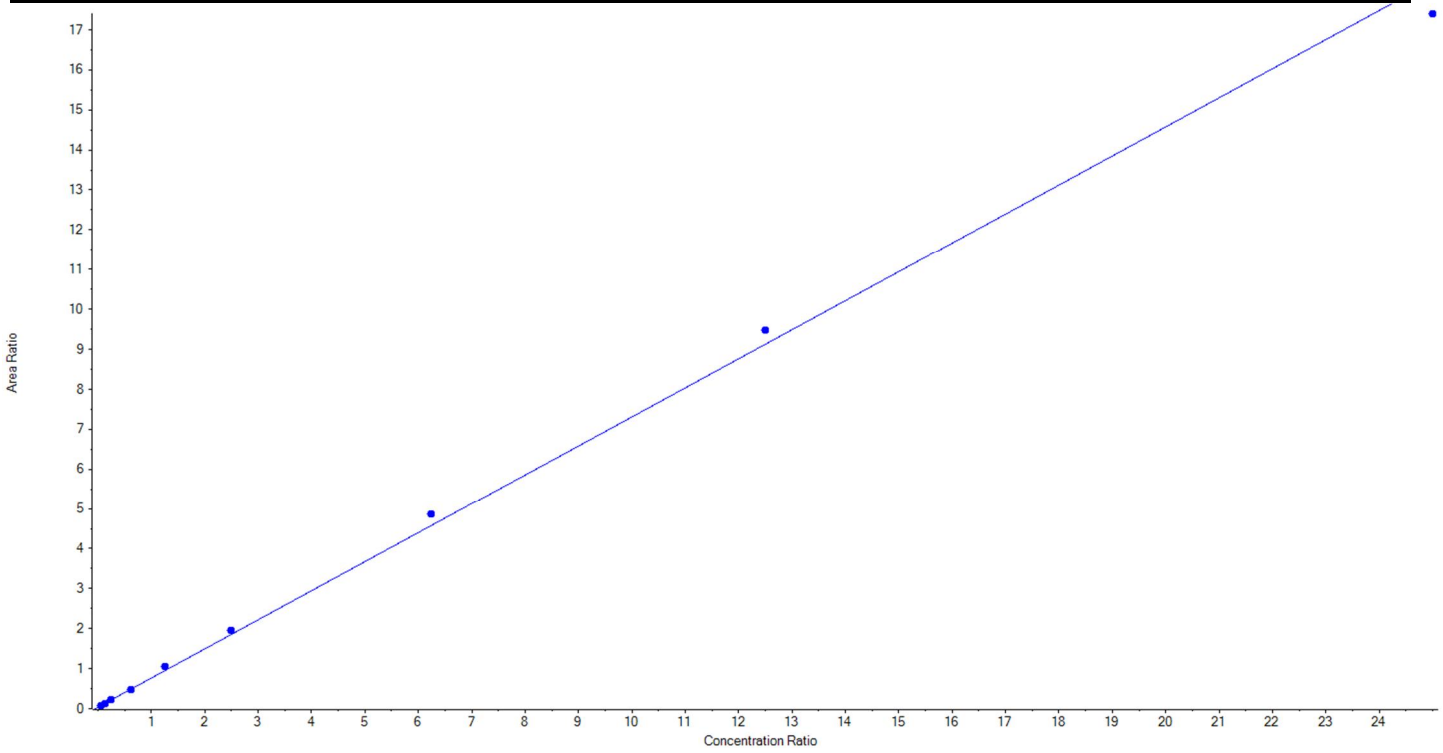
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Analyte Name	NEtFOSAA_1	**Data File**	06252018_5-371.wiff
MRM Transition	584.0 / 419.0	**Result Table**	18-0393_DW
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.72682 x + 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



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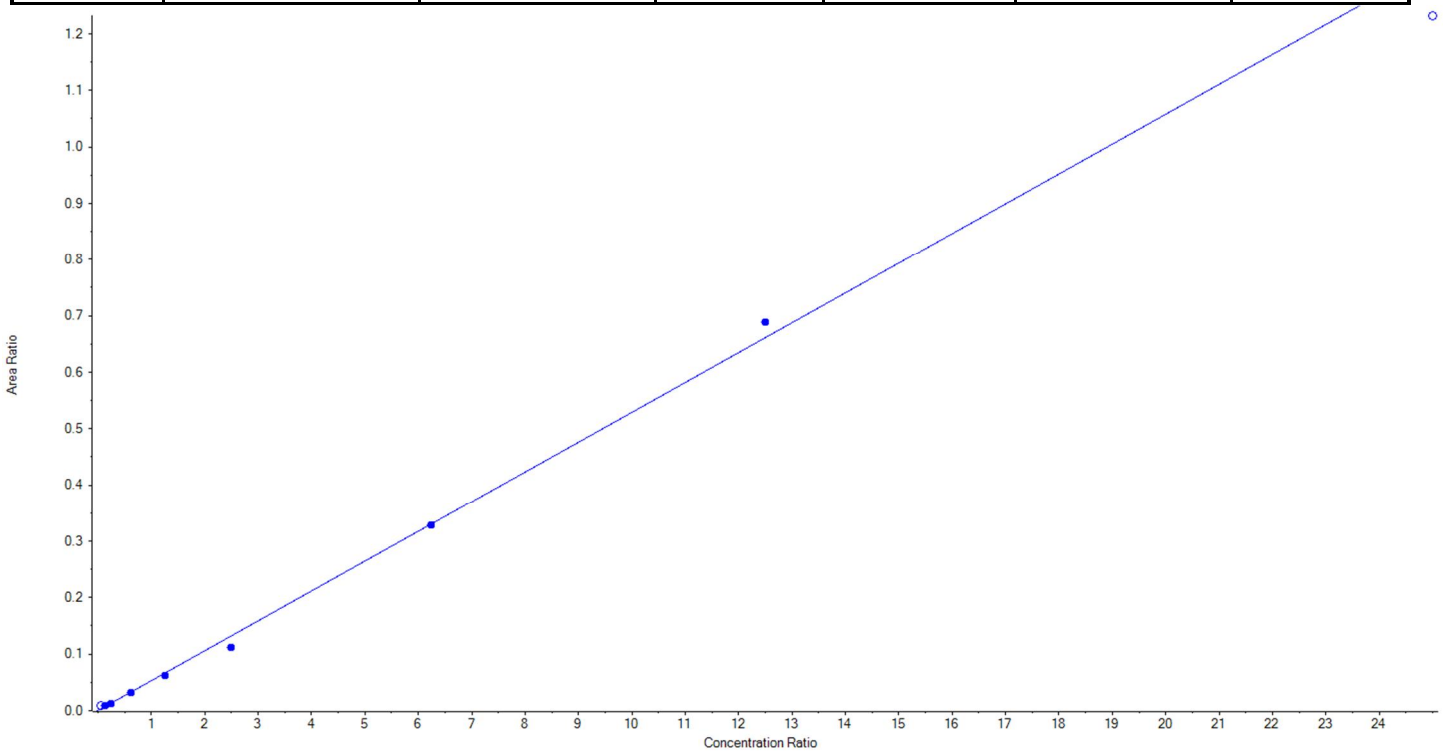
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Analyte Name	NEtFOSAA_2	**Data File**	06252018_5-371.wiff
MRM Transition	584.0 / 483.0	**Result Table**	18-0393_DW
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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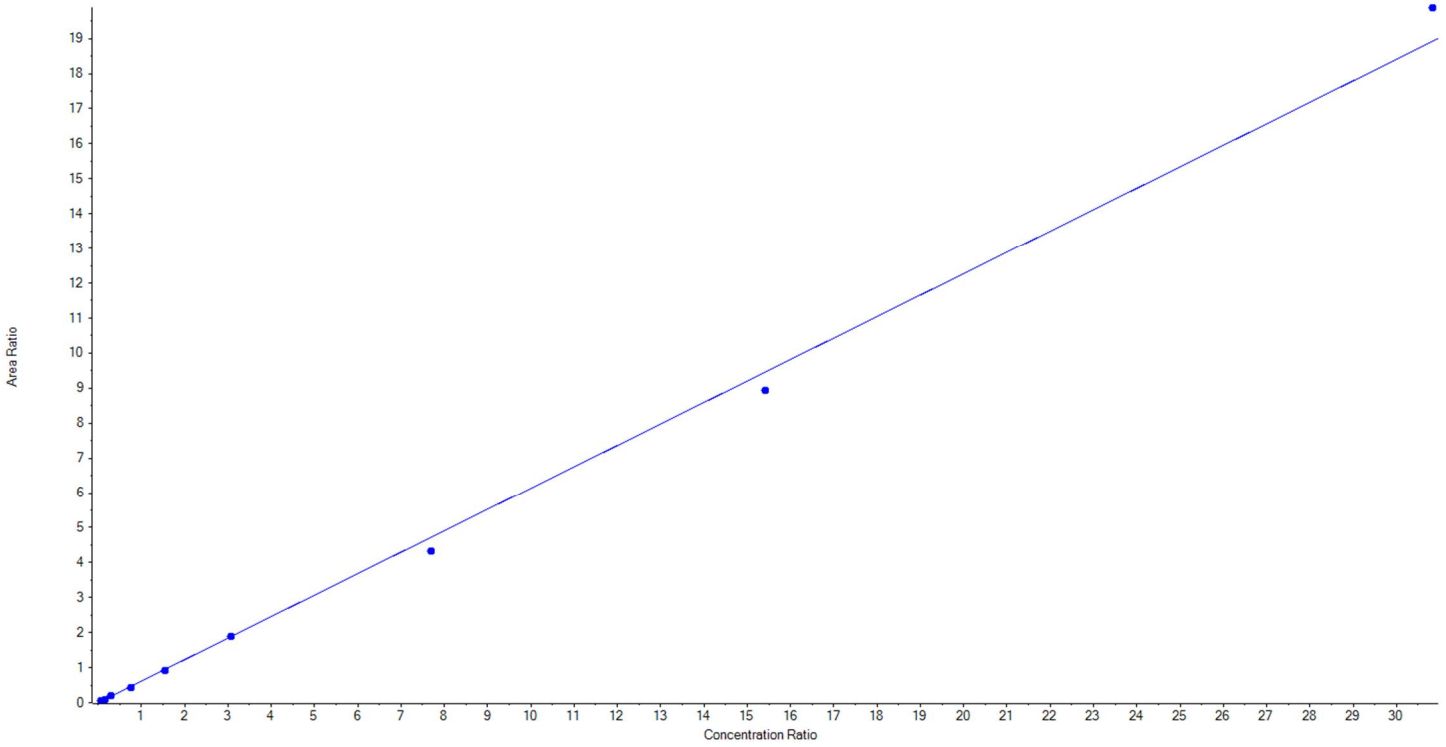
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/07/2018 9:19:40 AM

Analyte Name	PFBS_1	**Data File**	06252018_5-371.wiff
MRM Transition	298.9 / 80.0	**Result Table**	18-0393_R
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.61363 x + -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



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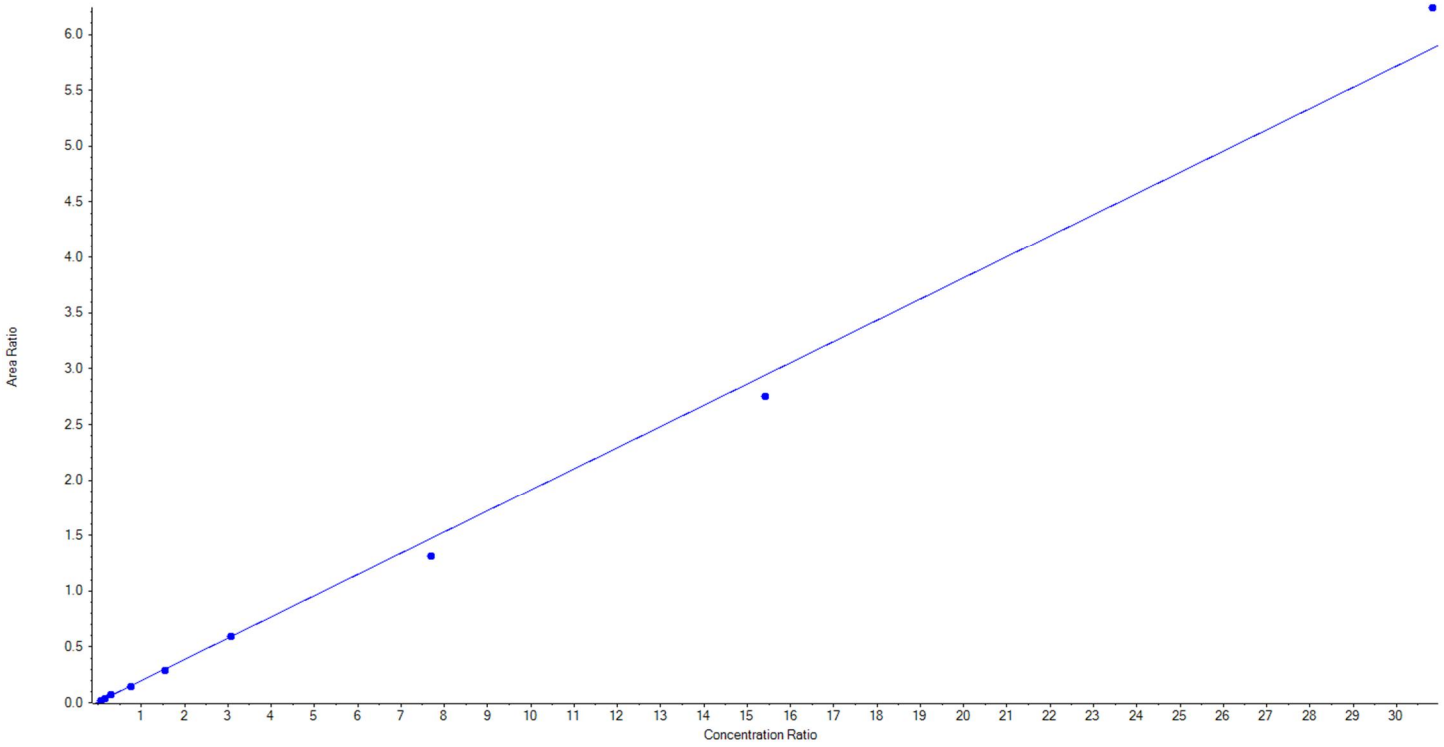
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFBS_2	**Data File**	06252018_5-371.wiff
MRM Transition	298.9 / 99.0	**Result Table**	18-0393_R
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	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



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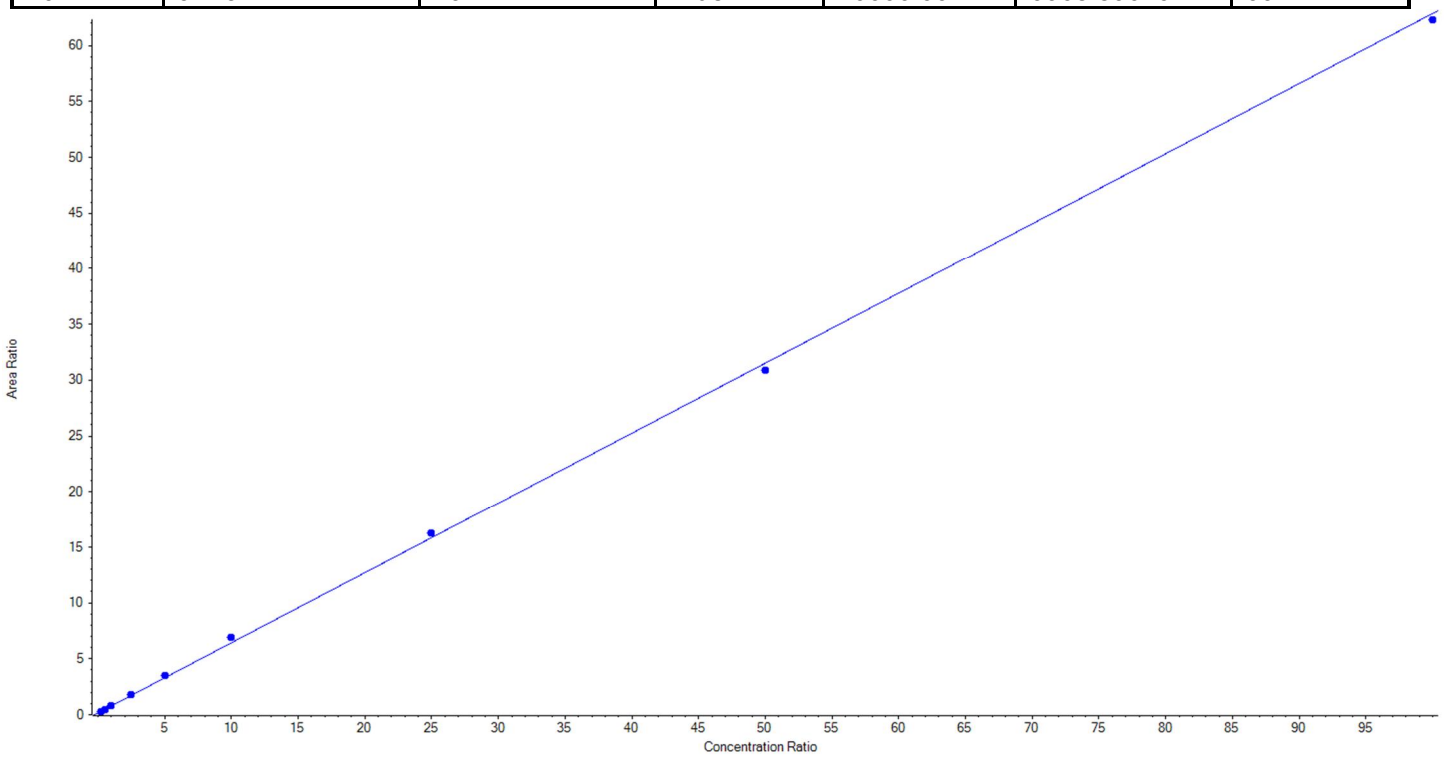
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Created with Analyst Reporter
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Analyte Name	PFHxA_1	**Data File**	06252018_5-371.wiff
MRM Transition	313.0 / 269.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.62713 x + 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



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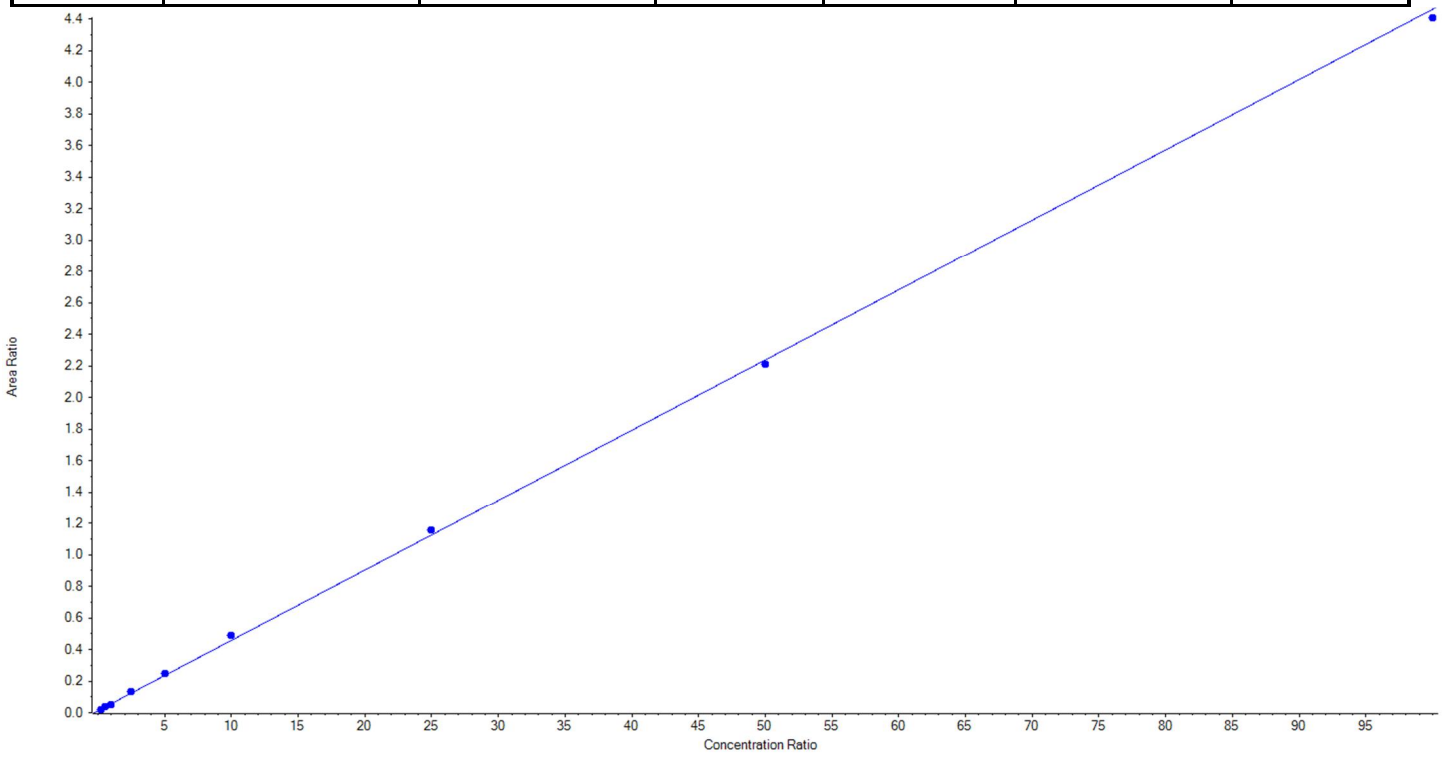
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Analyte Name	PFHxA_2	**Data File**	06252018_5-371.wiff
MRM Transition	313.0 / 119.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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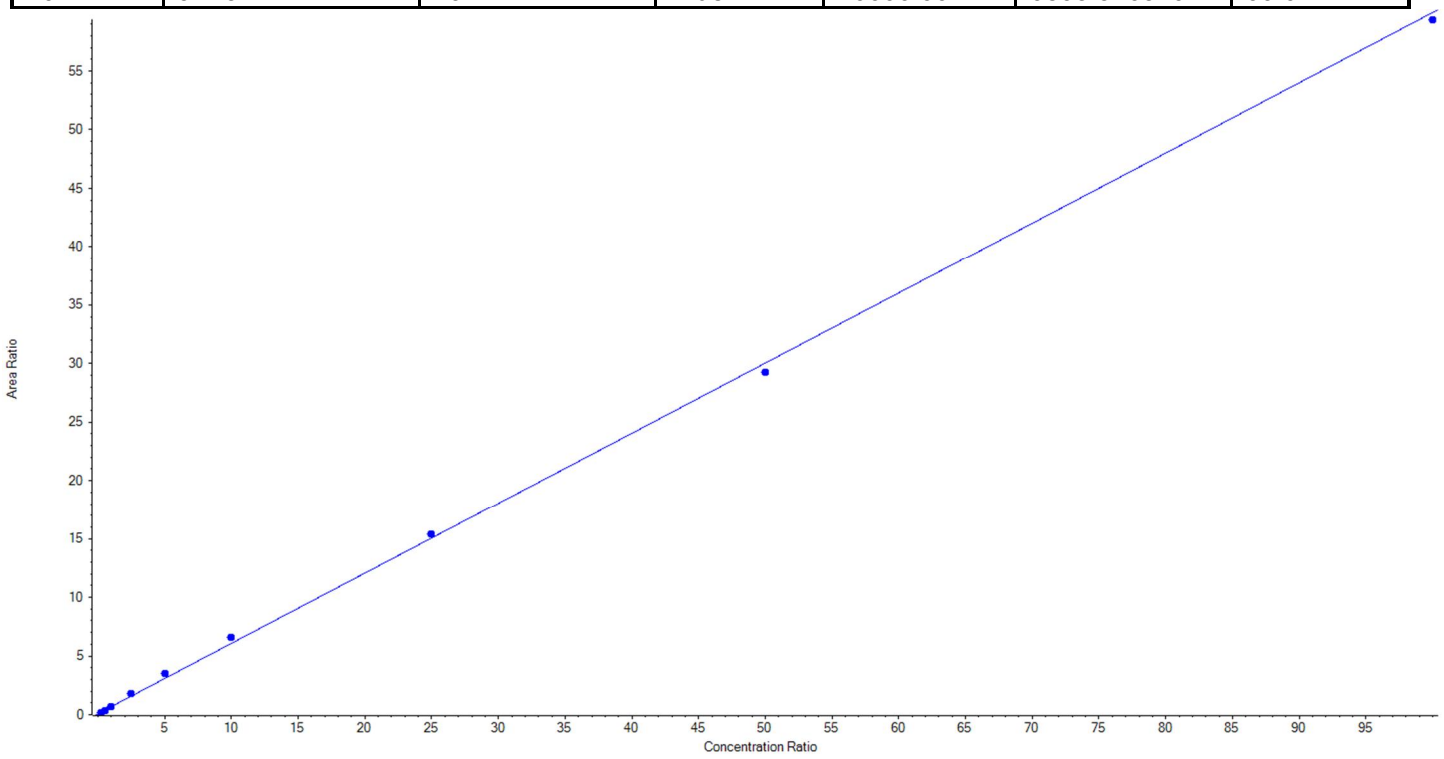
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Analyte Name	PFHpA_1	**Data File**	06252018_5-371.wiff
MRM Transition	363.0 / 319.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.59900 x + 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



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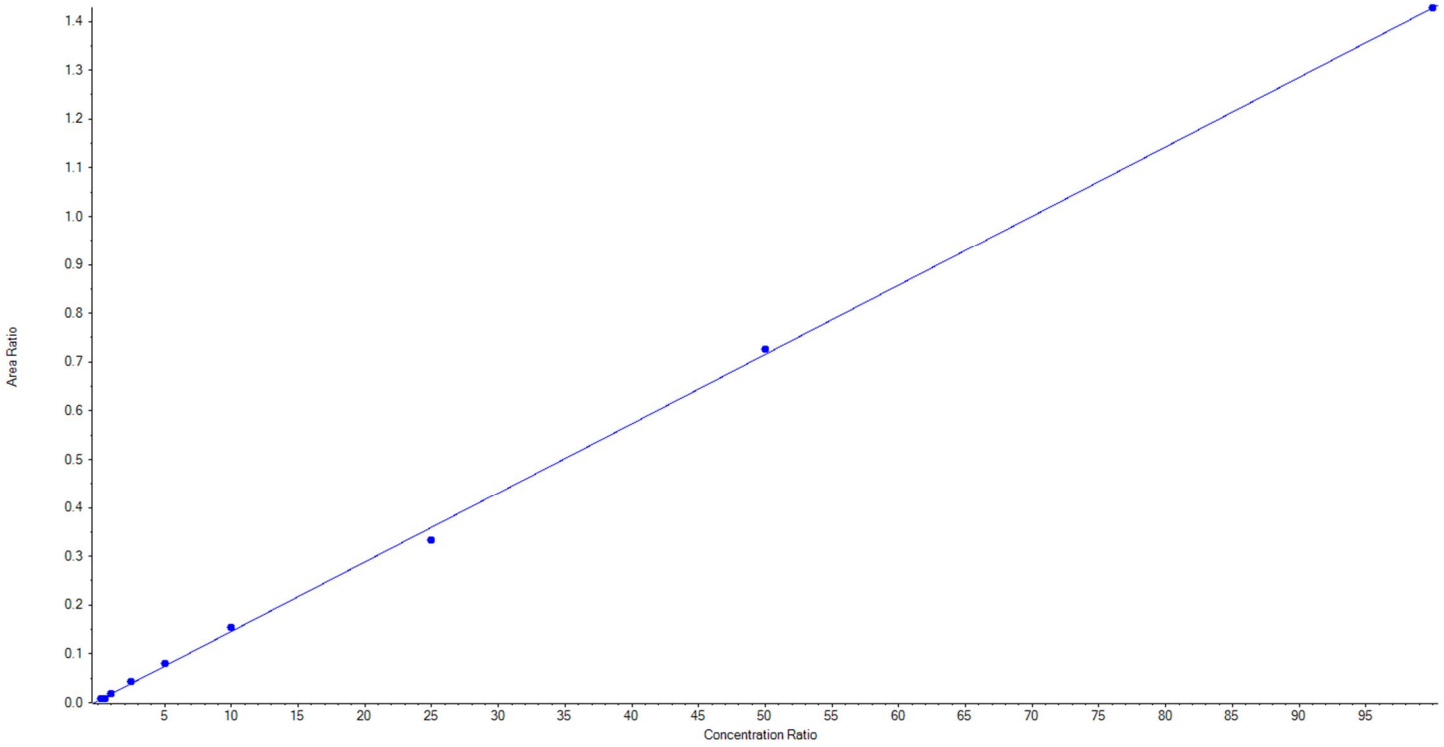
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Analyte Name	PFHpA_2	**Data File**	06252018_5-371.wiff
MRM Transition	363.0 / 169.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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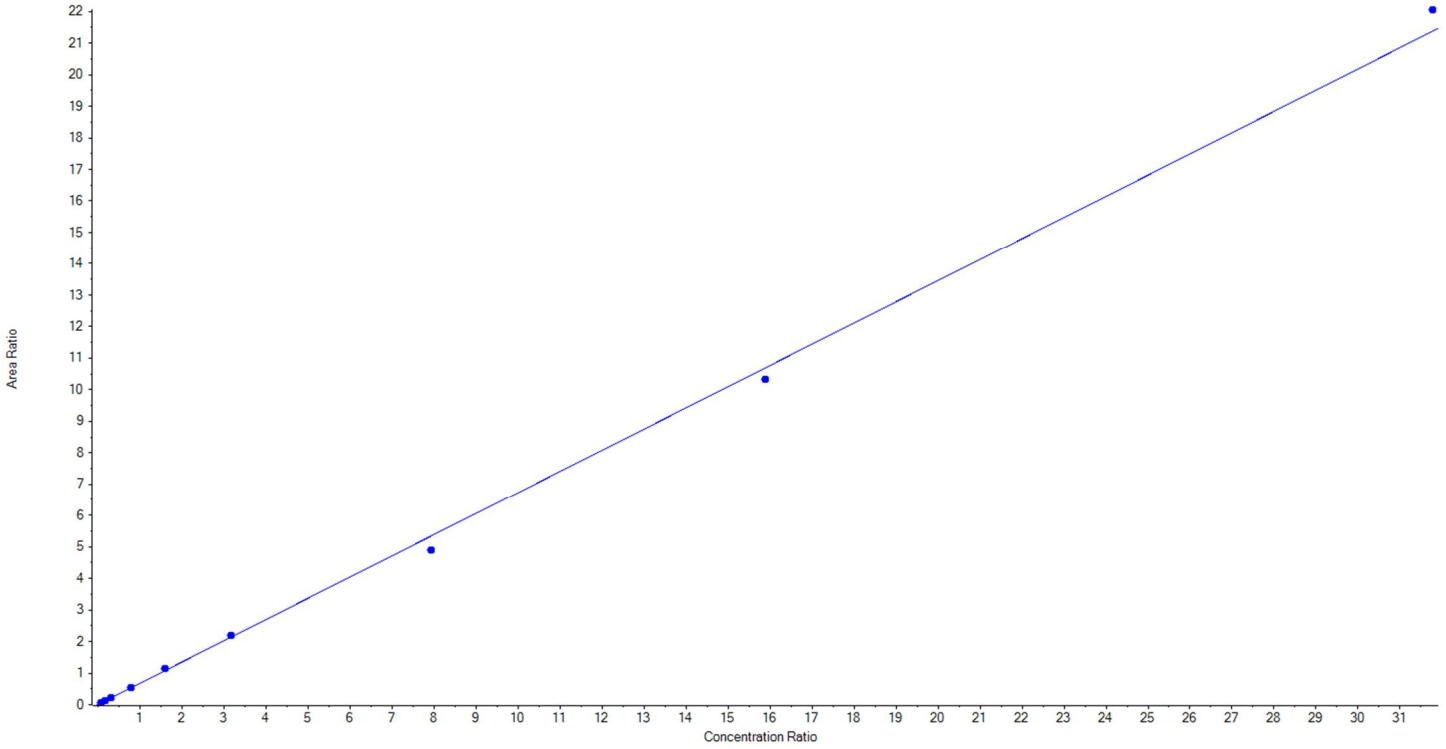
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Analyte Name	PFHxS_1	**Data File**	06252018_5-371.wiff
MRM Transition	399.0 / 80.0	**Result Table**	18-0393_R
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.67255 x + 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



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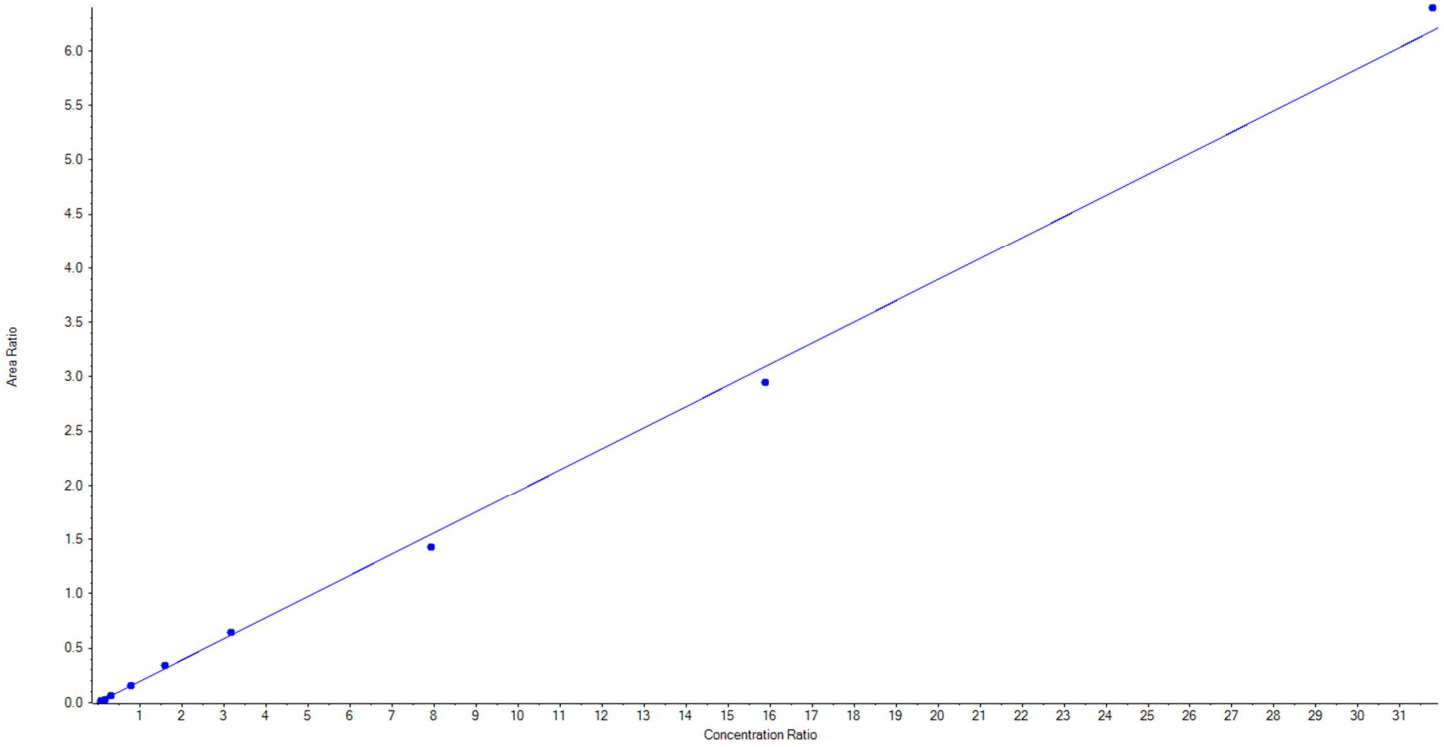
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Analyte Name	PFHxS_2	**Data File**	06252018_5-371.wiff
MRM Transition	399.0 / 99.0	**Result Table**	18-0393_R
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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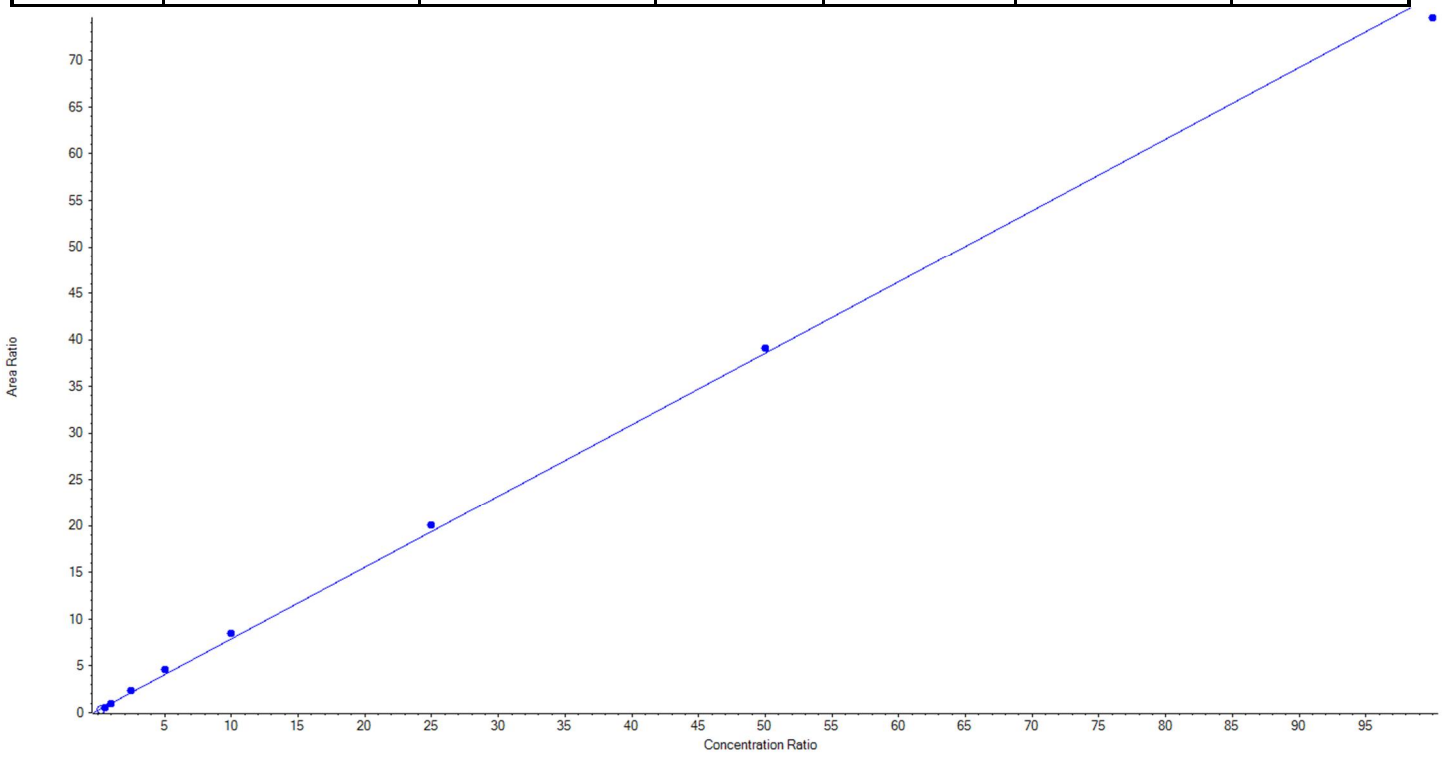
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Analyte Name	PFOA_1	**Data File**	06252018_5-371.wiff
MRM Transition	413.0 / 369.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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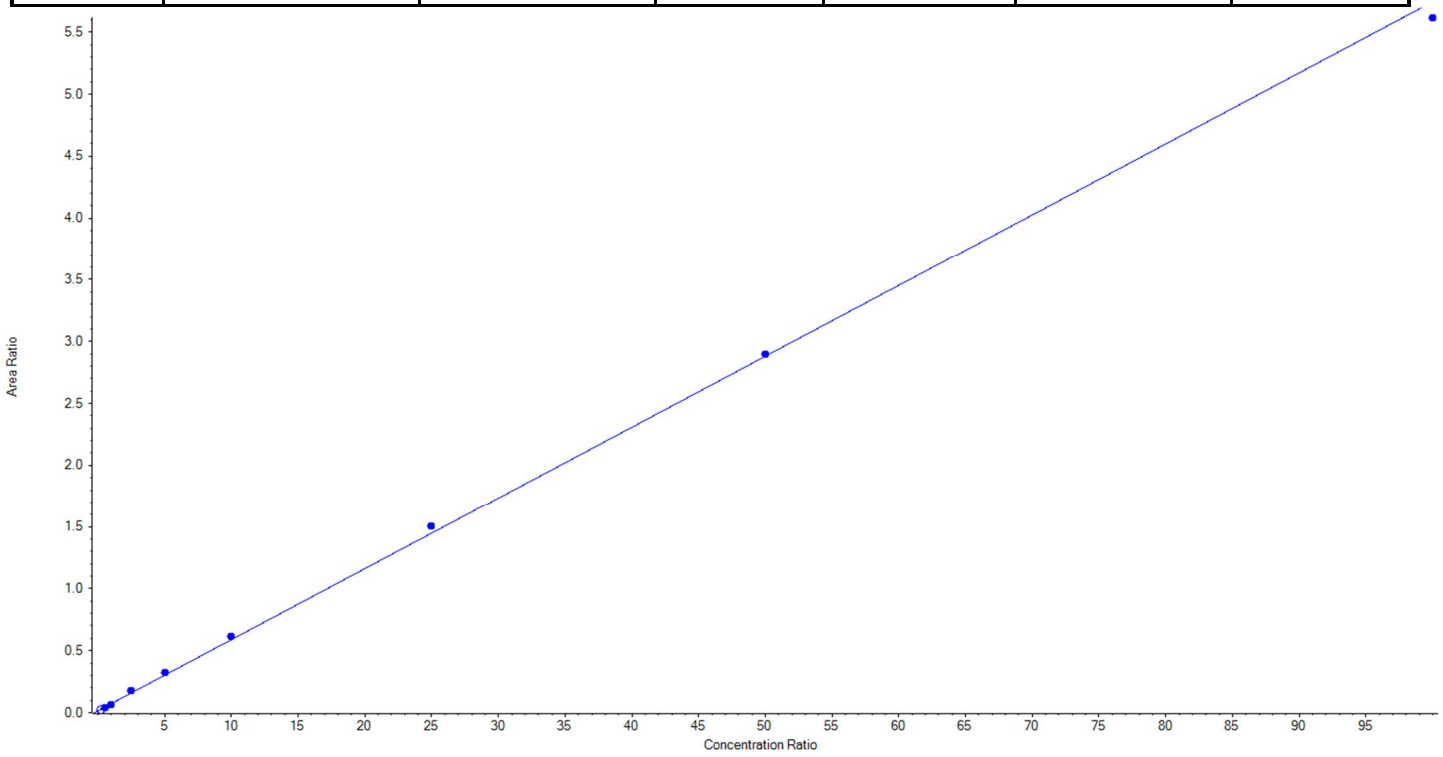
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Analyte Name	PFOA_2	**Data File**	06252018_5-371.wiff
MRM Transition	413.0 / 169.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05729 x + 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



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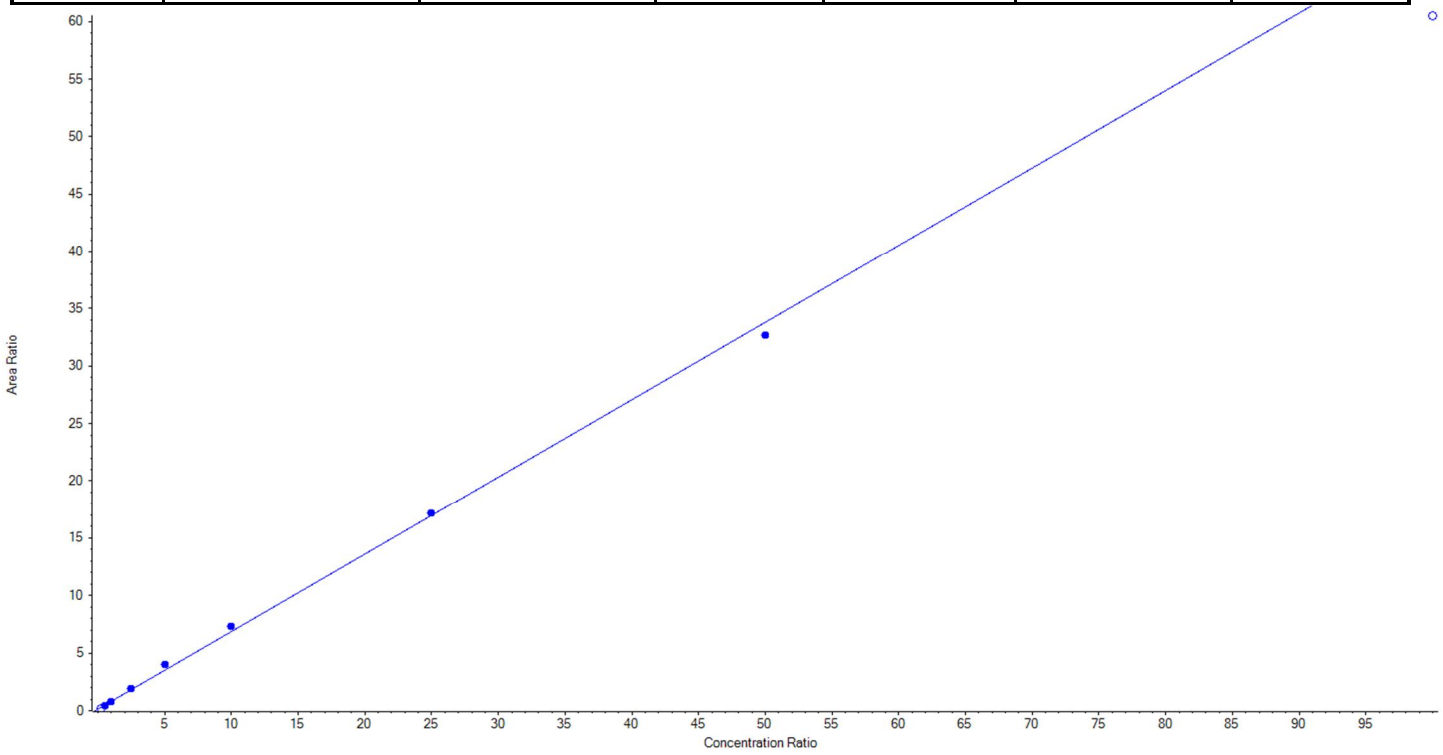
Calibration Summary Report

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Analyte Name	PFNA_1	**Data File**	06252018_5-371.wiff
MRM Transition	463.0 / 419.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	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



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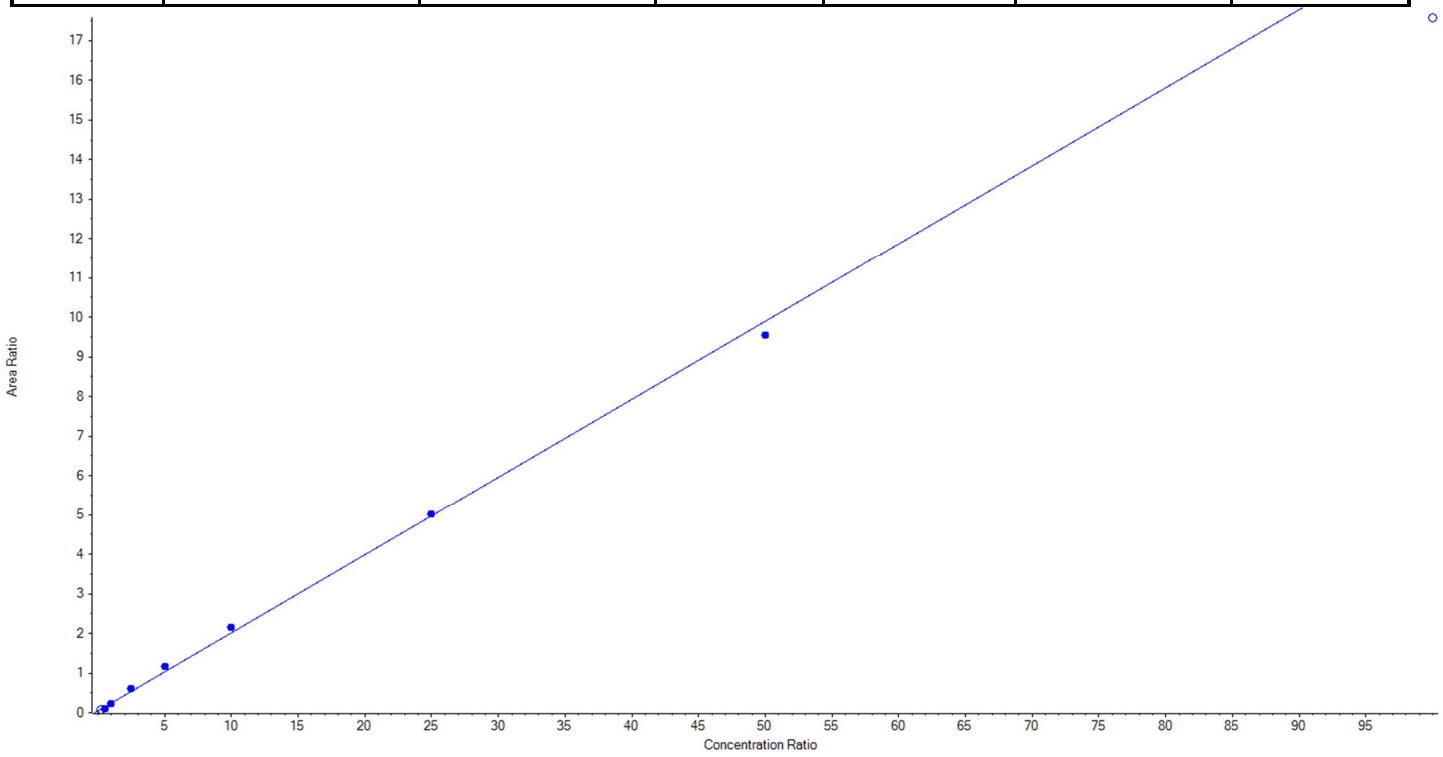
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Analyte Name	PFNA_2	**Data File**	06252018_5-371.wiff
MRM Transition	463.0 / 219.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.19709 x + 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



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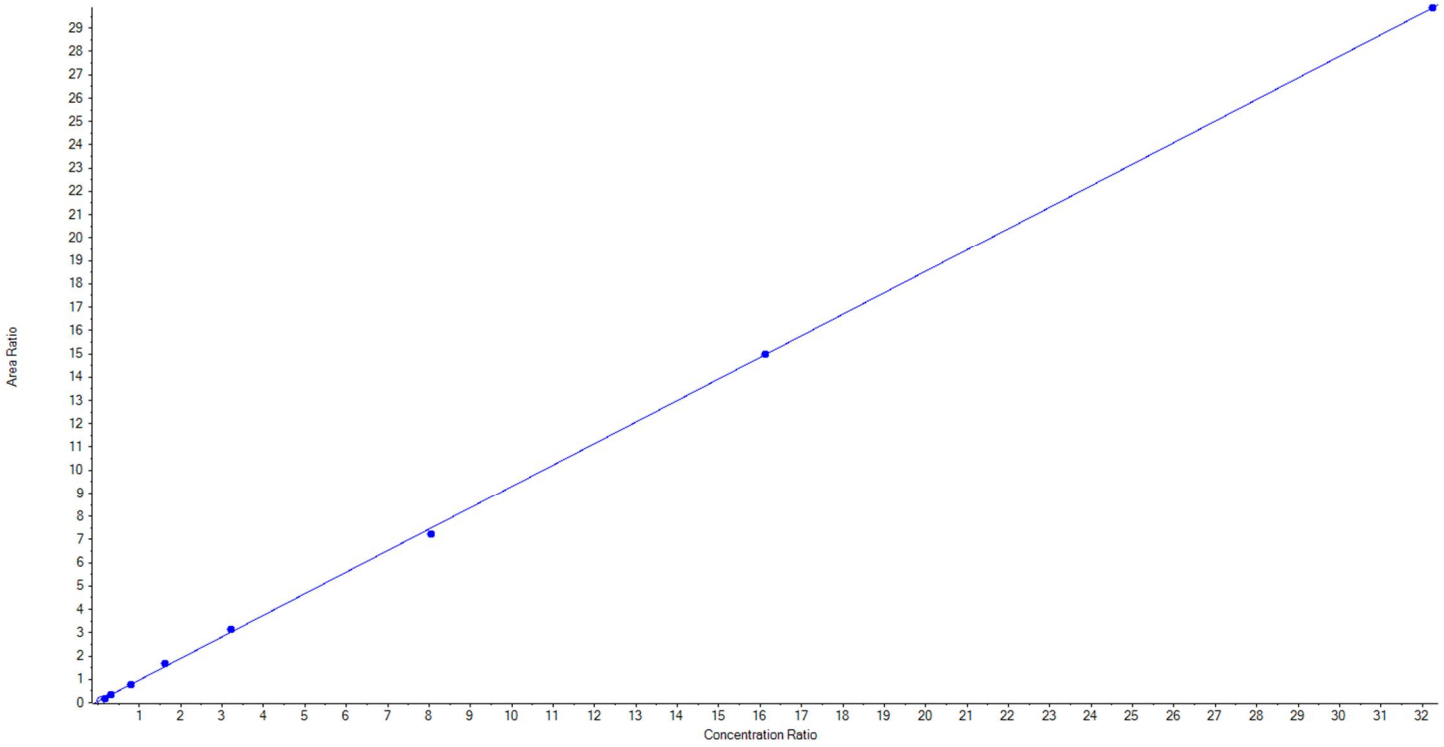
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Analyte Name	PFOS_1	**Data File**	06252018_5-371.wiff
MRM Transition	499.0 / 80.0	**Result Table**	18-0393_R
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.92479 x + 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



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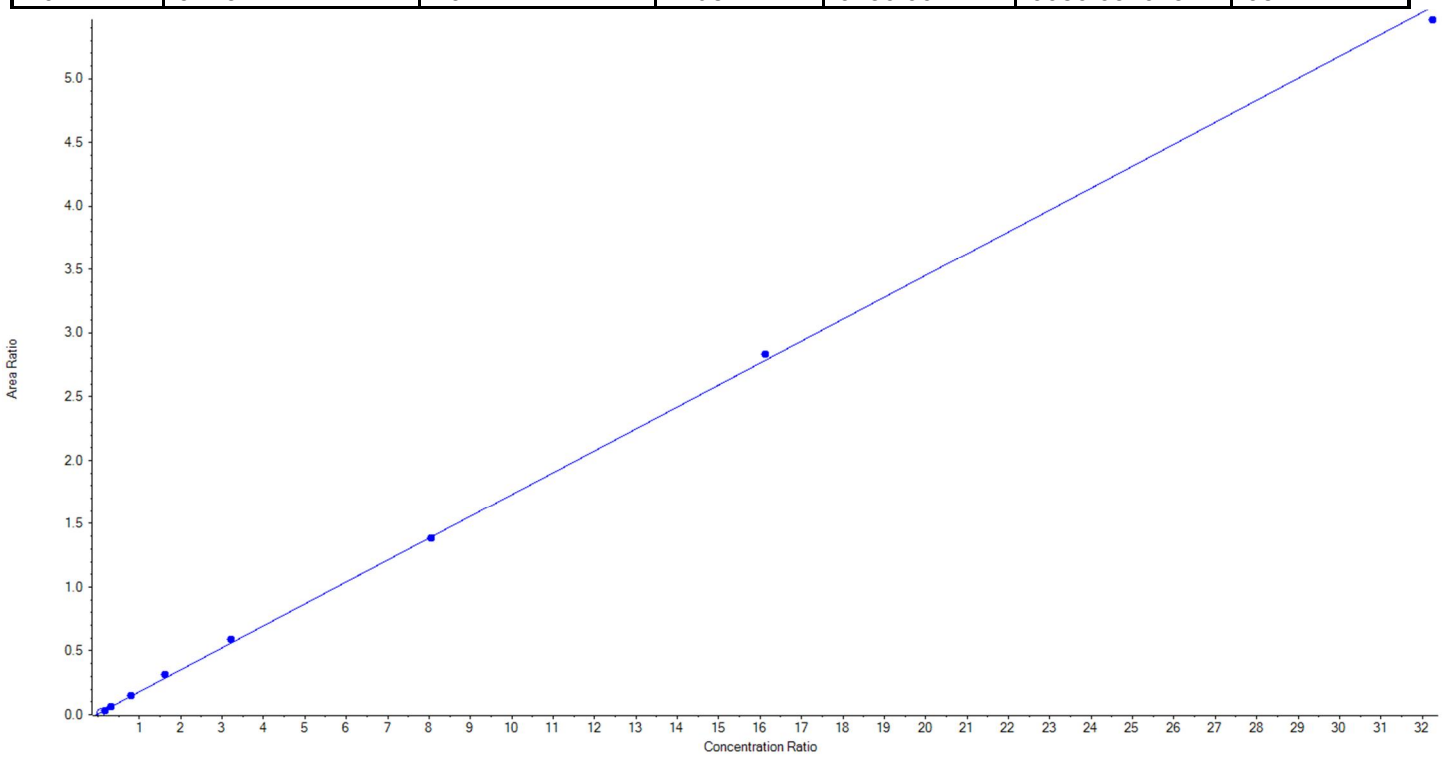
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Analyte Name	PFOS_2	**Data File**	06252018_5-371.wiff
MRM Transition	499.0 / 99.0	**Result Table**	18-0393_R
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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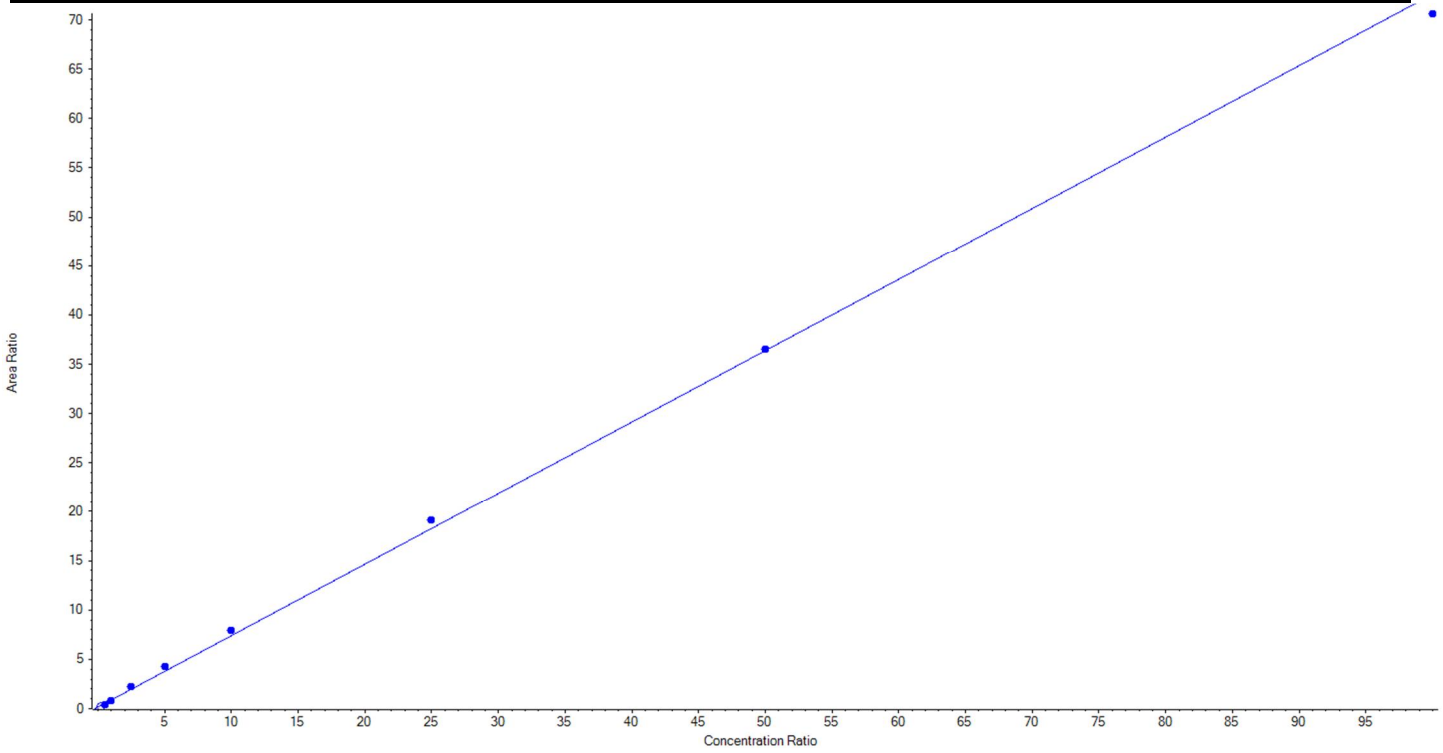
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/07/2018 9:19:40 AM

Analyte Name	PFDA_1	**Data File**	06252018_5-371.wiff
MRM Transition	513.0 / 469.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	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



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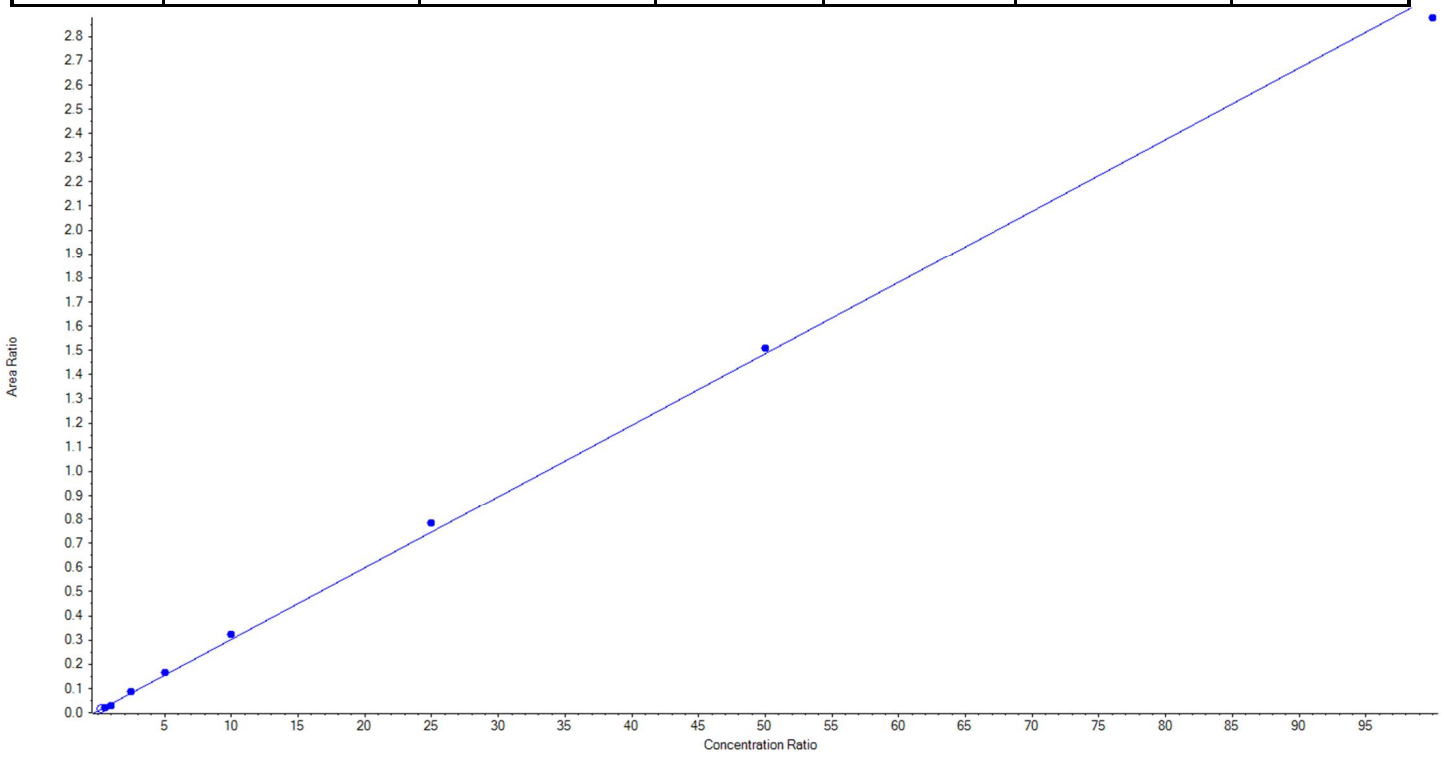
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFDA_2	**Data File**	06252018_5-371.wiff
MRM Transition	513.0 / 219.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.02959 x + 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



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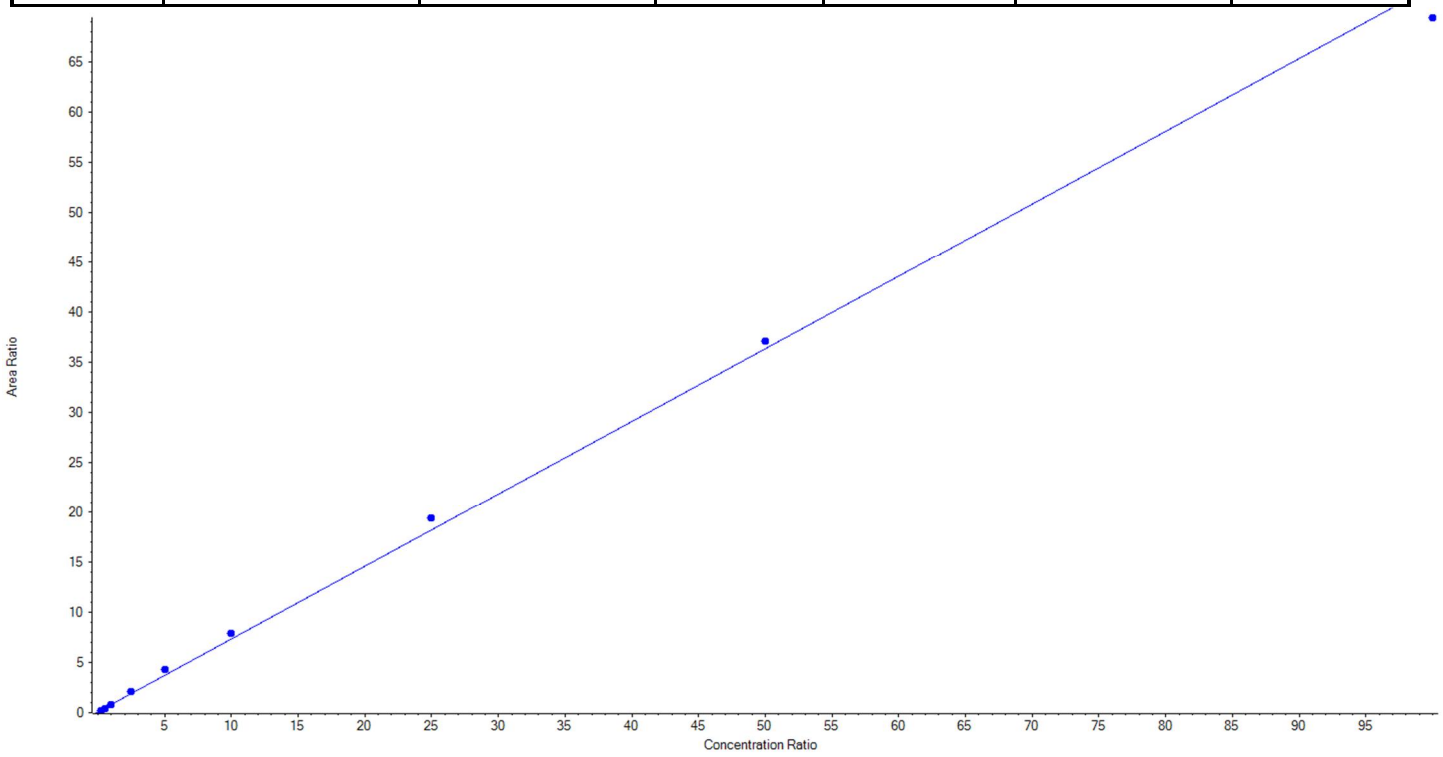
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFUnA_1	**Data File**	06252018_5-371.wiff
MRM Transition	563.0 / 519.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	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



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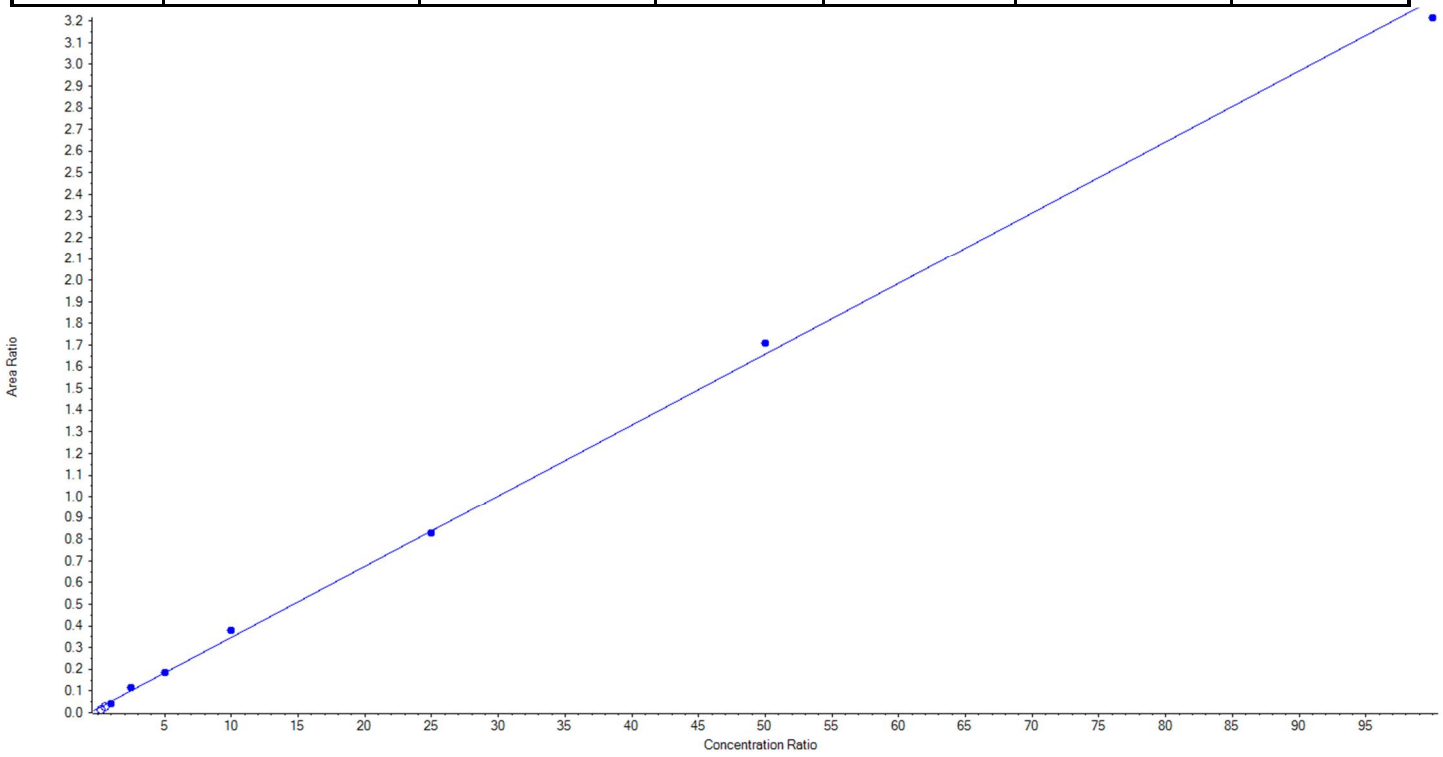
Calibration Summary Report

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Analyte Name	PFUnA_2	**Data File**	06252018_5-371.wiff
MRM Transition	563.0 / 269.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	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



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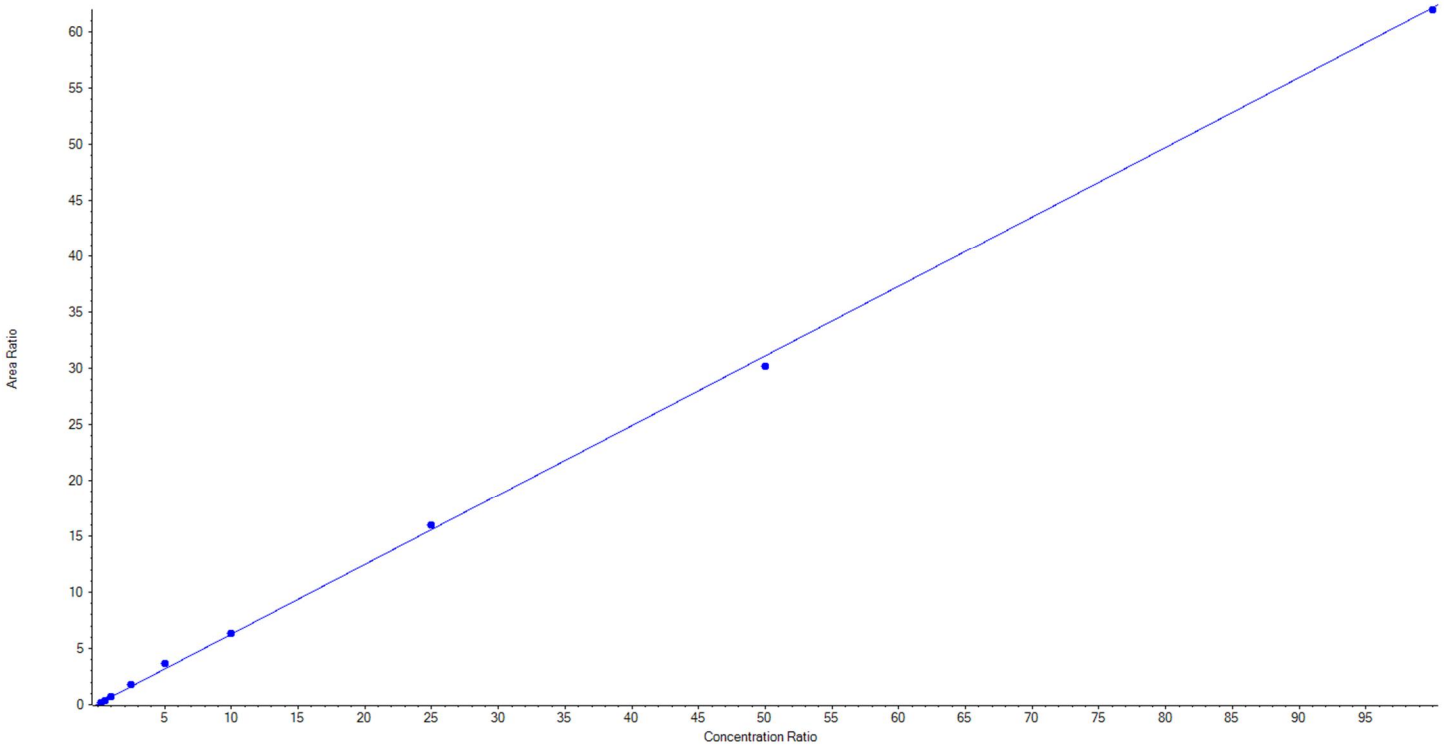
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Created with Analyst Reporter
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Analyte Name	PFDoA_1	**Data File**	06252018_5-371.wiff
MRM Transition	613.0 / 569.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.62092 x + 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



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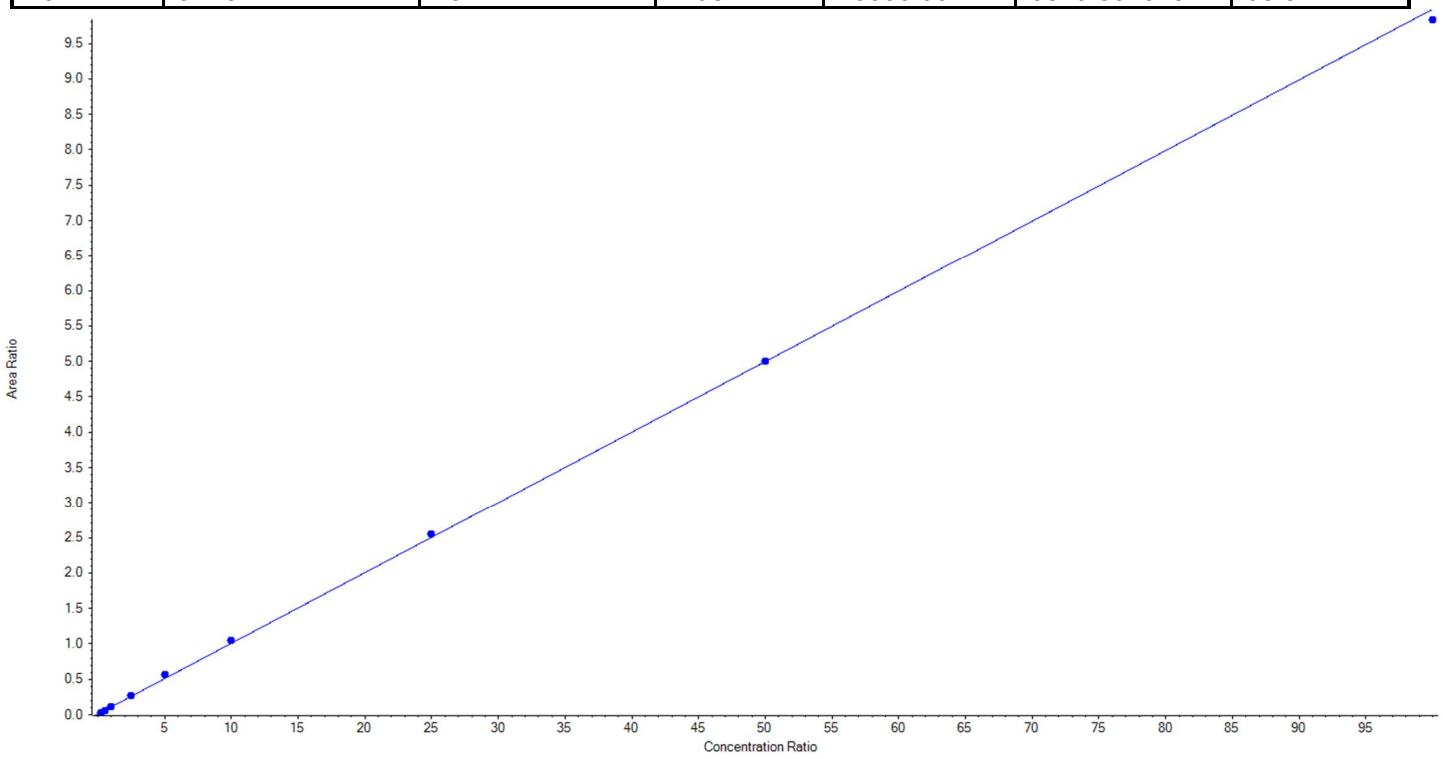
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Analyte Name	PFDoA_2	**Data File**	06252018_5-371.wiff
MRM Transition	613.0 / 319.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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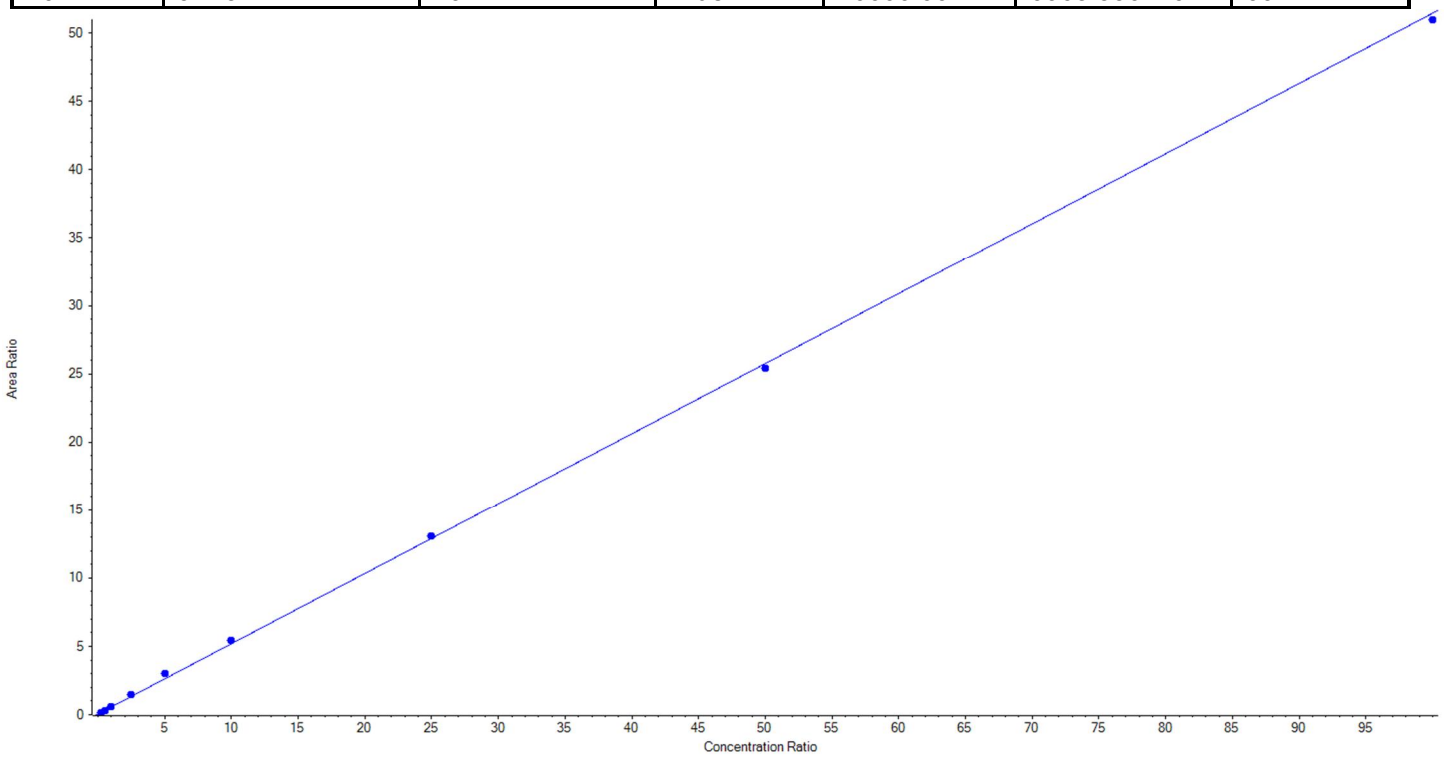
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Analyte Name	PFTrDA_1	**Data File**	06252018_5-371.wiff
MRM Transition	663.0 / 619.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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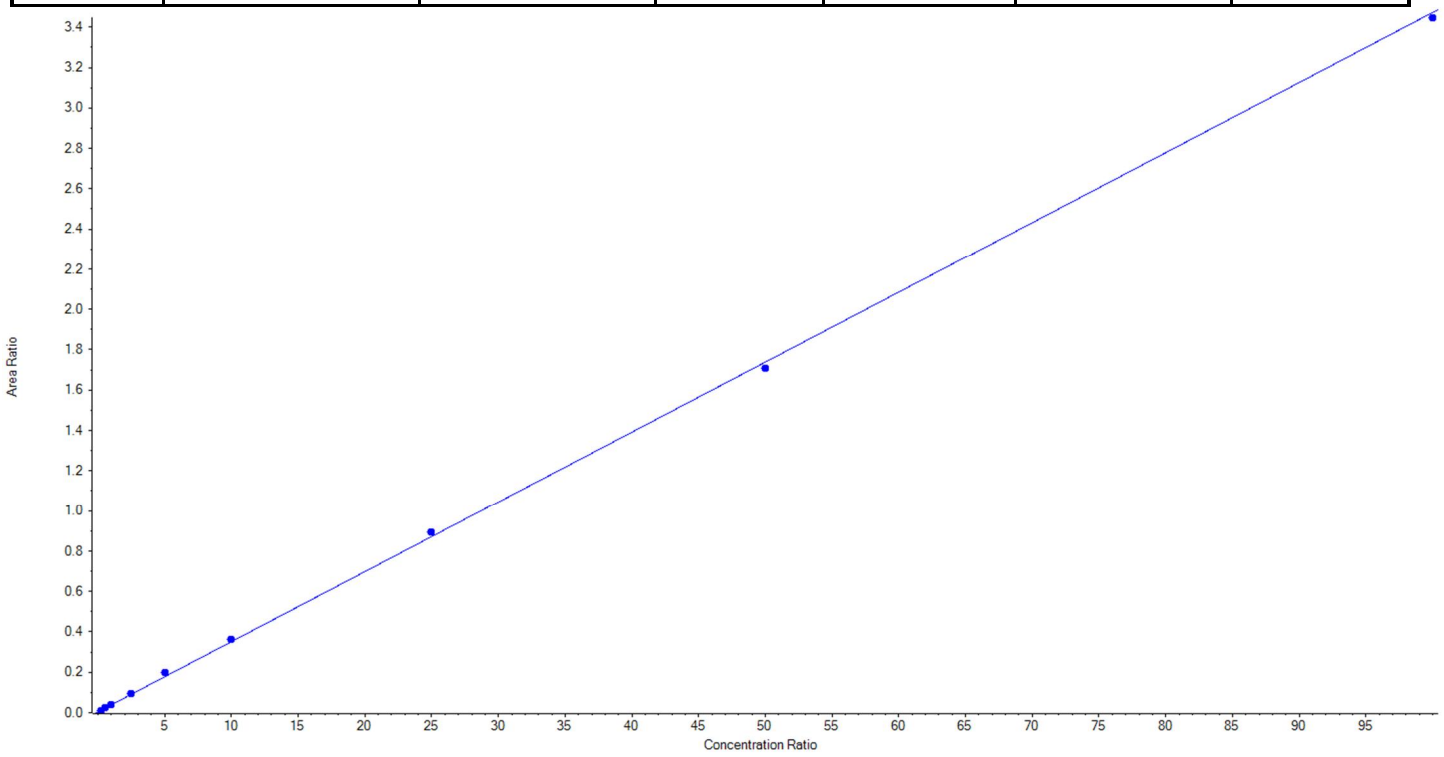
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Analyte Name	PFTrDA_2	**Data File**	06252018_5-371.wiff
MRM Transition	663.0 / 169.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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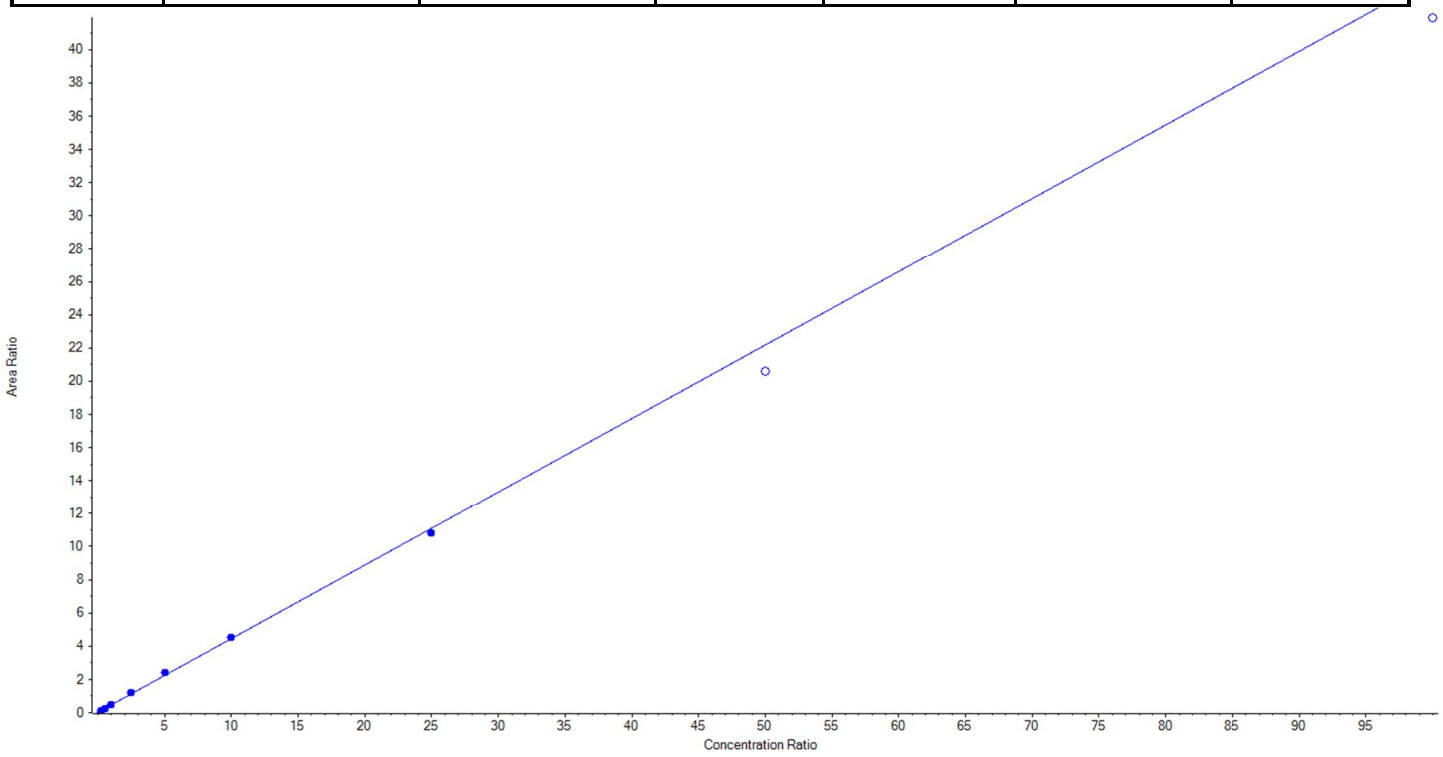
Calibration Summary Report

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Analyte Name	PFTeDA_1	**Data File**	06252018_5-371.wiff
MRM Transition	713.0 / 669.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	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



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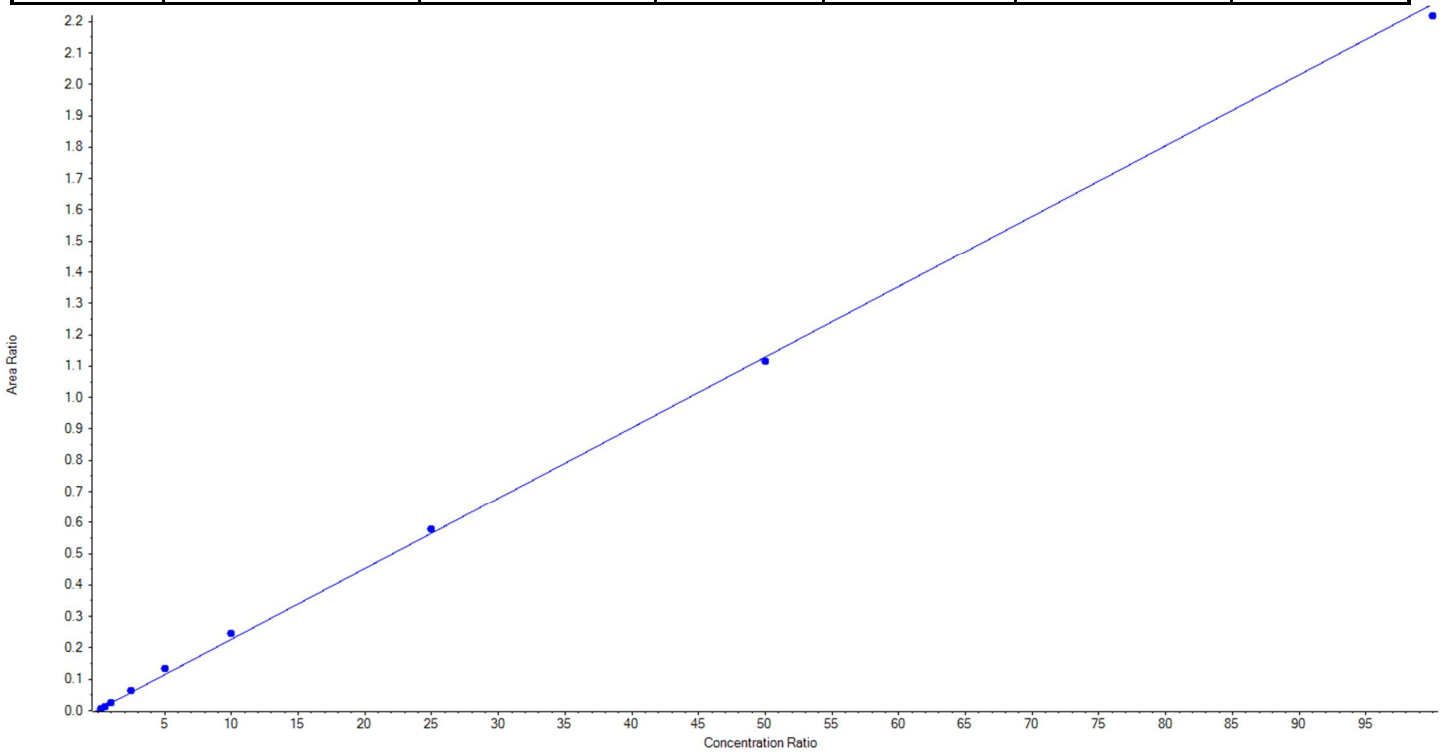
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Analyte Name	PFTeDA_2	**Data File**	06252018_5-371.wiff
MRM Transition	713.0 / 169.0	**Result Table**	18-0393_R
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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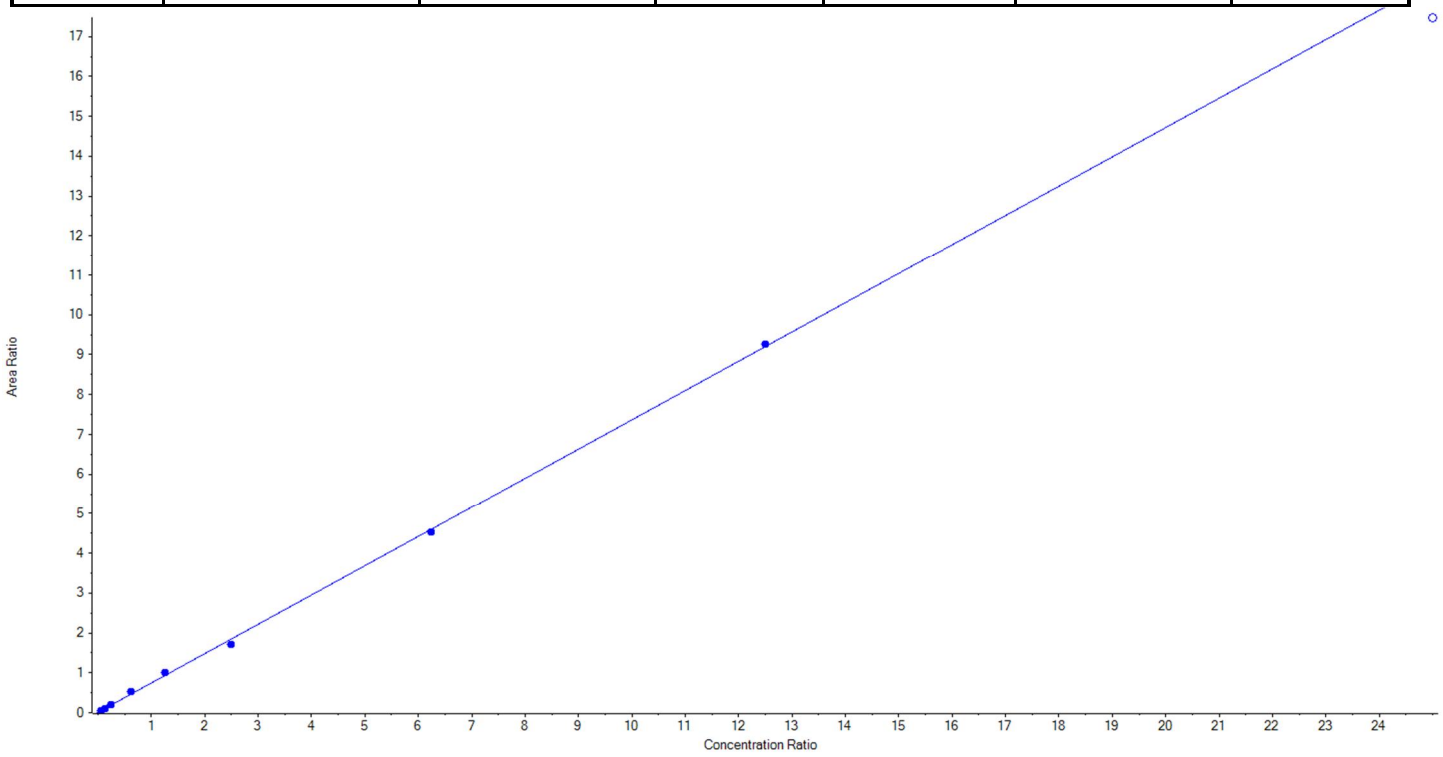
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Analyte Name	NMeFOSAA_1	**Data File**	06252018_5-371.wiff
MRM Transition	570.0 / 419.0	**Result Table**	18-0393_R
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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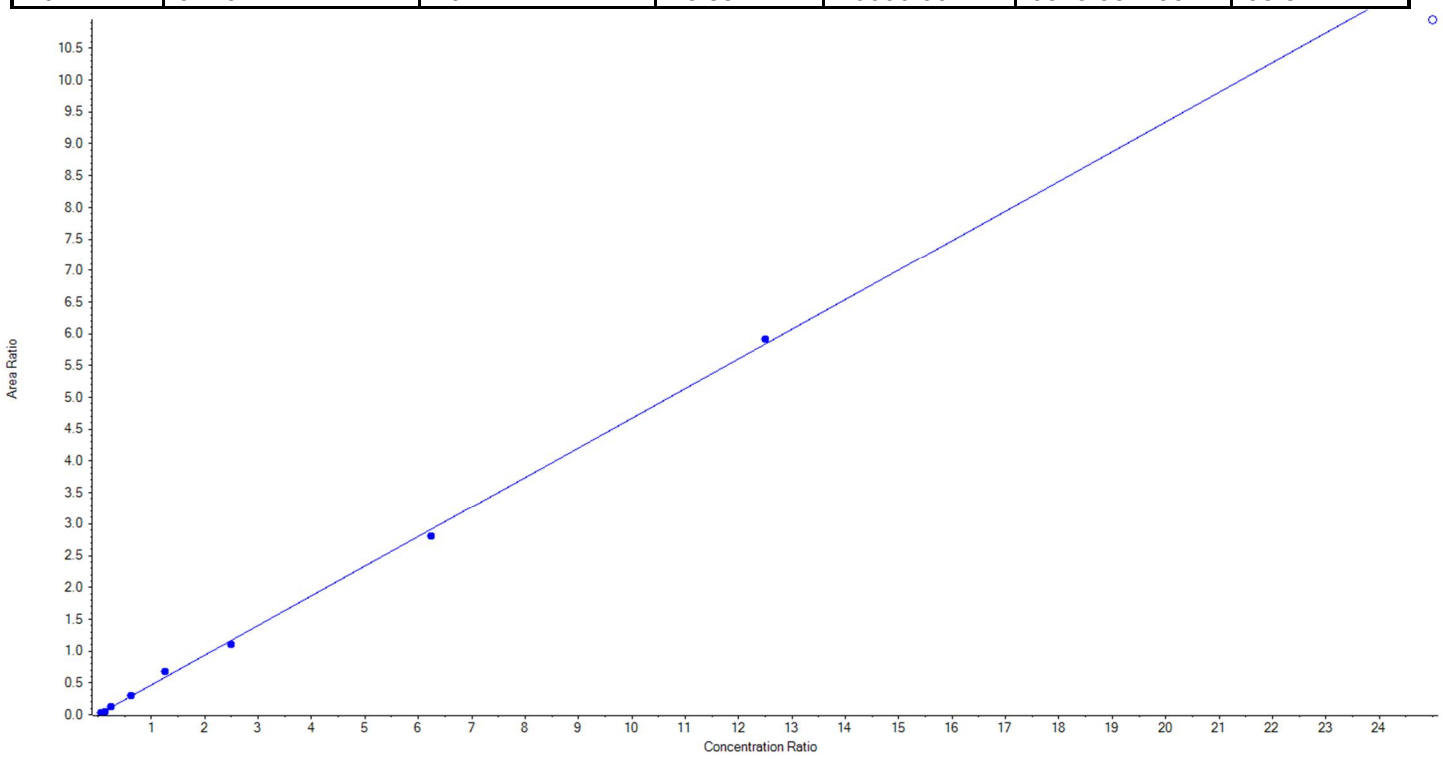
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Analyte Name	NMeFOSAA_2	**Data File**	06252018_5-371.wiff
MRM Transition	570.0 / 512.0	**Result Table**	18-0393_R
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.46708 x + 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



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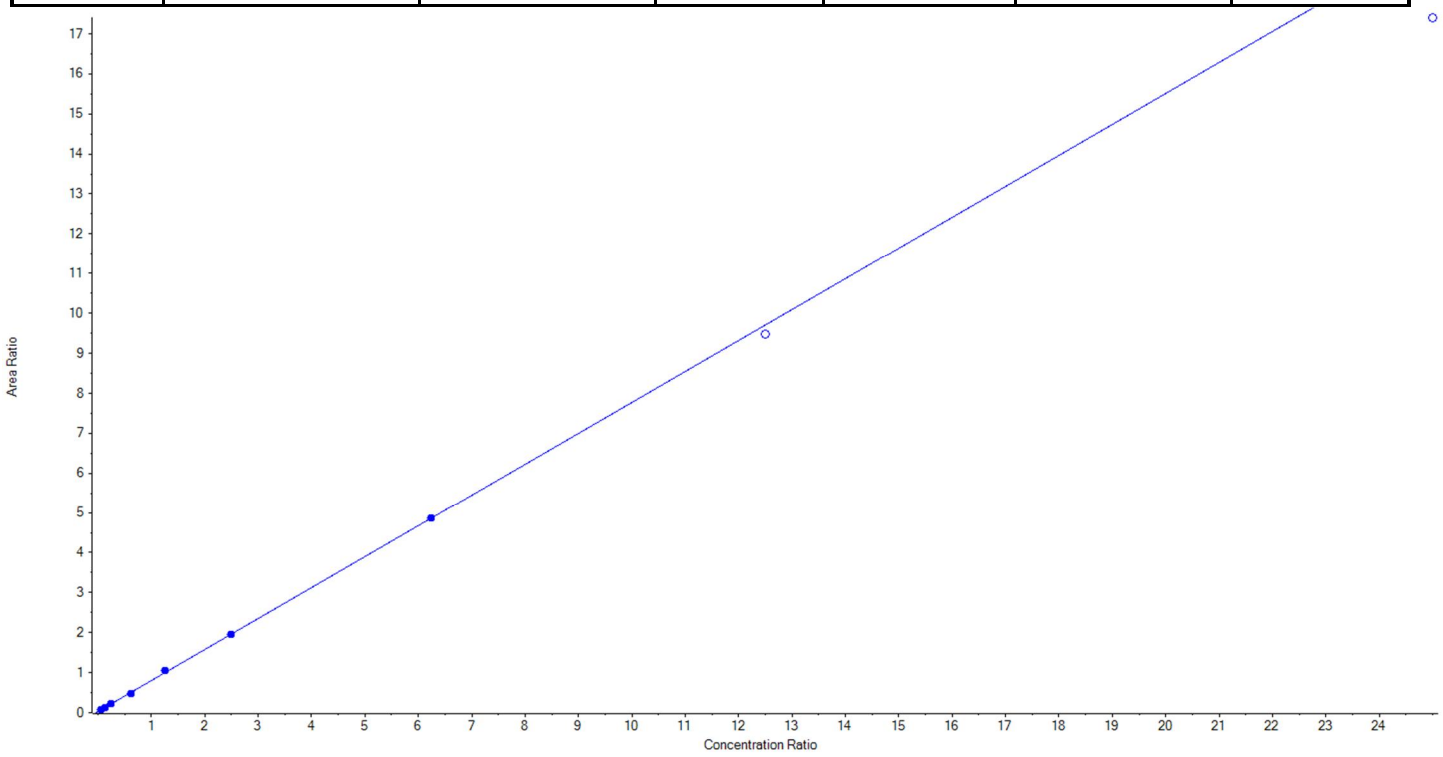
Calibration Summary Report

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Analyte Name	NEtFOSAA_1	**Data File**	06252018_5-371.wiff
MRM Transition	584.0 / 419.0	**Result Table**	18-0393_R
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.77411 x + 0.02839 (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	26.974422	107.9
3	JX68	L2	True	50.00	44.415511	88.8
4	JX69	L3	True	100.00	104.862778	104.9
5	JX70	L4	True	250.00	235.290708	94.1
6	JX71	L5	True	500.00	526.418399	105.3
7	JX72	L6	True	1000.00	992.116995	99.2
8	JX73	L7	True	2500.00	2494.921186	99.8
9	JX74	L8	False	5000.00	4886.453739	97.7
10	JX75	L9	False	10000.00	8976.031693	89.8



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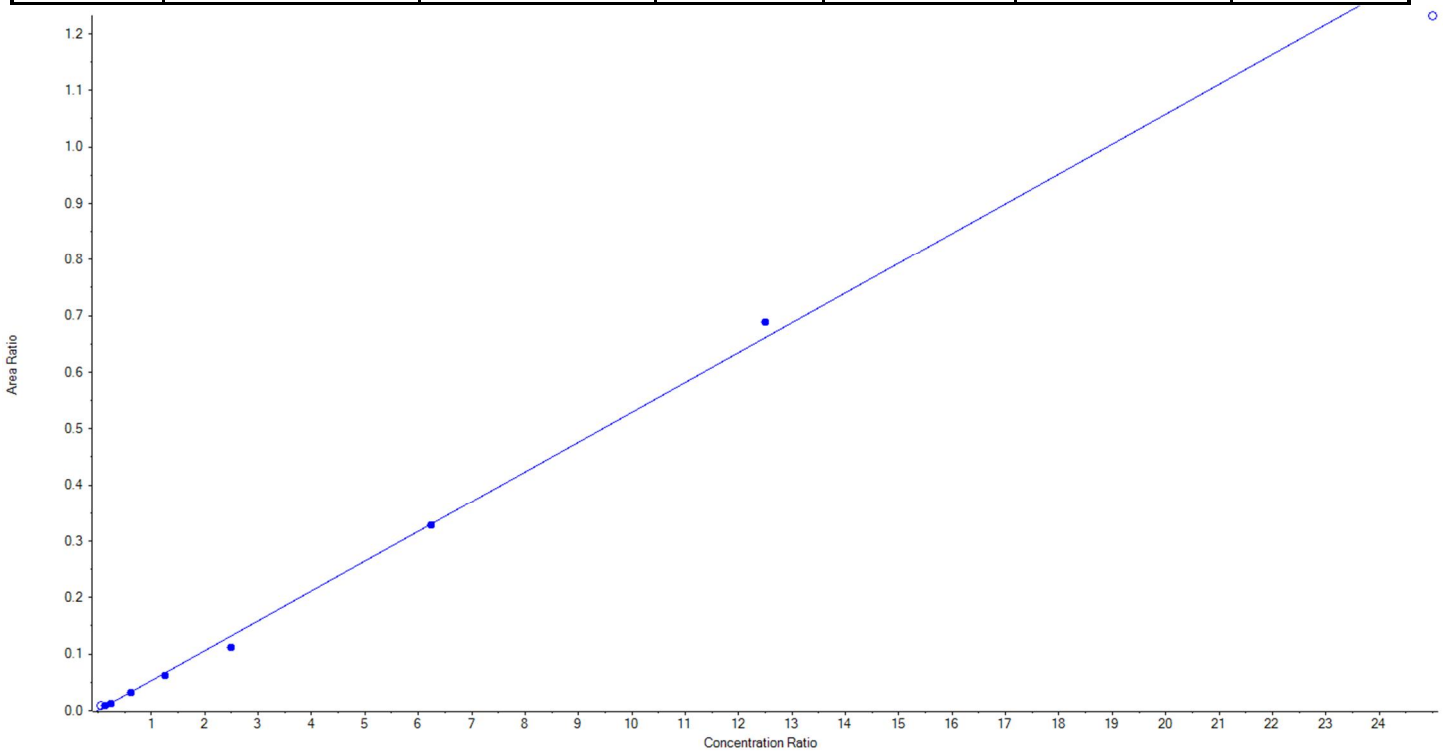
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Analyte Name	NEtFOSAA_2	**Data File**	06252018_5-371.wiff
MRM Transition	584.0 / 483.0	**Result Table**	18-0393_R
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/27/2018 8:56:44 AM	**Acquisition Method**	5-0371.dam

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



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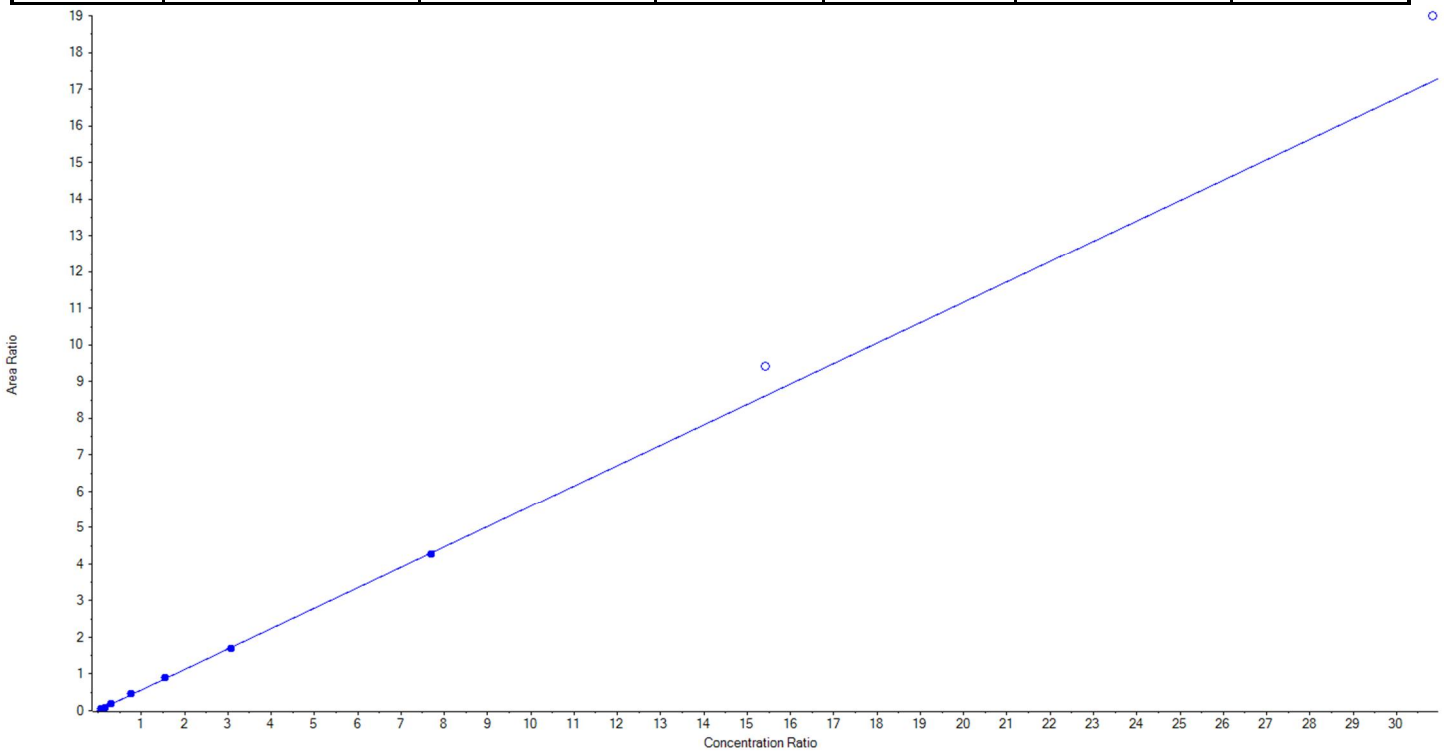
Calibration Summary Report

Created with Analyst Reporter
Printed: 18/07/2018 9:19:21 AM

Analyte Name	PFBS_1	**Data File**	5500-06292018_371.wiff
MRM Transition	298.9 / 80.0	**Result Table**	18-0393_B
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/29/2018 8:19:25 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.55821 x + 0.00515 (r = 0.99957) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	22.15	18.775246	84.8
4	JX68	L2	True	44.30	45.117487	101.9
5	JX69	L3	True	88.60	93.667819	105.7
6	JX70	L4	True	221.50	237.801266	107.4
7	JX71	L5	True	443.00	456.195177	103.0
8	JX72	L6	True	885.00	866.993779	98.0
9	JX73	L7	True	2212.50	2198.499226	99.4
10	JX74	L8	False	4425.00	4847.071438	109.5
11	JX75	L9	False	8850.00	9767.907580	110.4



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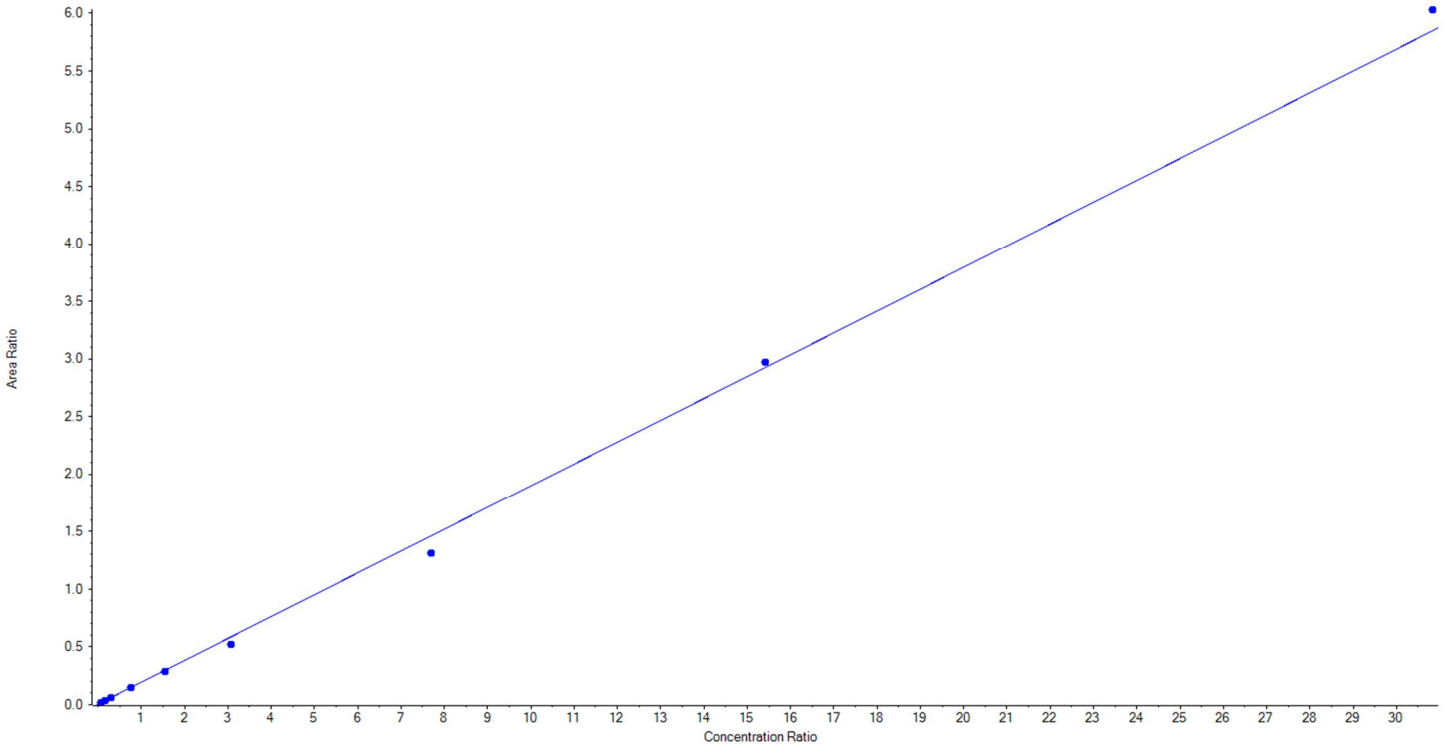
Calibration Summary Report

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Analyte Name	PFBS_2	**Data File**	5500-06292018_371.wiff
MRM Transition	298.9 / 99.0	**Result Table**	18-0393_B
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/29/2018 8:19:25 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.18953 x + 0.00405 (r = 0.99852) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	22.15	24.757178	111.8
4	JX68	L2	True	44.30	50.080799	113.1
5	JX69	L3	True	88.60	86.580741	97.7
6	JX70	L4	True	221.50	216.692907	97.8
7	JX71	L5	True	443.00	431.404582	97.4
8	JX72	L6	True	885.00	777.945074	87.9
9	JX73	L7	True	2212.50	1982.380924	89.6
10	JX74	L8	True	4425.00	4497.679922	101.6
11	JX75	L9	True	8850.00	9124.527872	103.1



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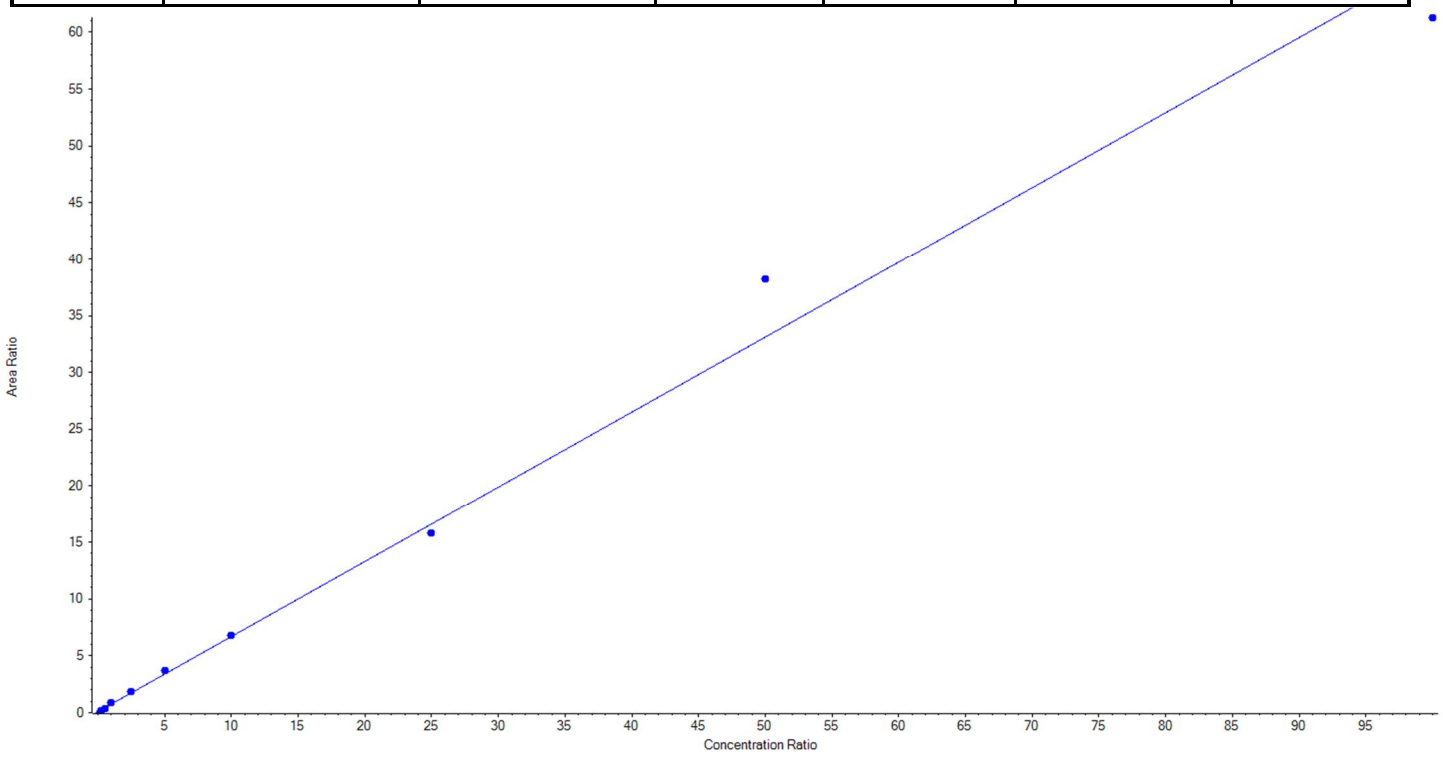
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Analyte Name	PFHxA_1	**Data File**	5500-06292018_371.wiff
MRM Transition	313.0 / 269.0	**Result Table**	18-0393_B
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/29/2018 8:19:25 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.66048 x + 0.09379 (r = 0.99484) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	25.00	18.109551	72.4
4	JX68	L2	True	50.00	45.803066	91.6
5	JX69	L3	True	100.00	113.620585	113.6
6	JX70	L4	True	250.00	272.469682	109.0
7	JX71	L5	True	500.00	540.796777	108.2
8	JX72	L6	True	1000.00	1020.767488	102.1
9	JX73	L7	True	2500.00	2373.760968	95.0
10	JX74	L8	True	5000.00	5776.394702	115.5
11	JX75	L9	True	10000.00	9263.277182	92.6



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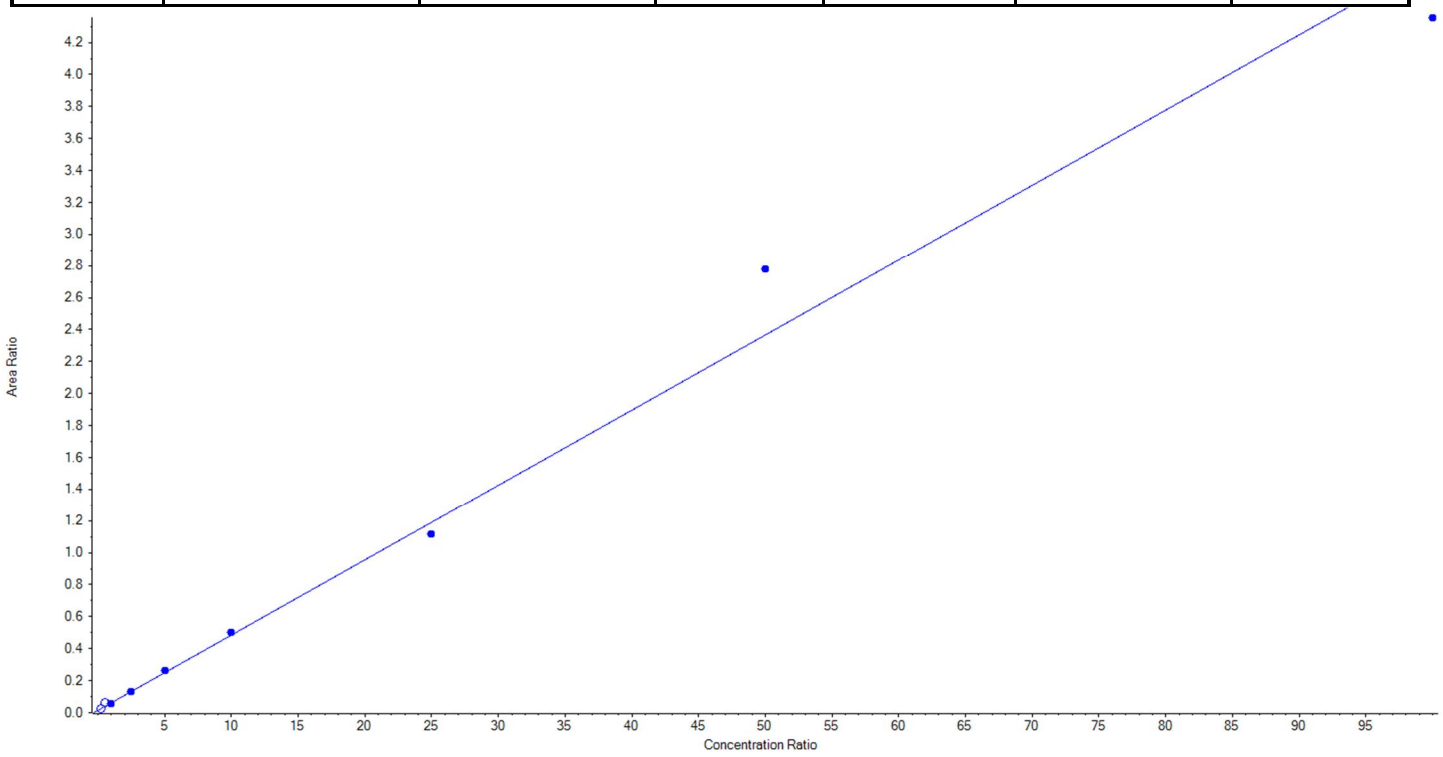
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Analyte Name	PFHxA_2	**Data File**	5500-06292018_371.wiff
MRM Transition	313.0 / 119.0	**Result Table**	18-0393_B
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/29/2018 8:19:25 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.04703 x + 0.01483 (r = 0.99318) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	False	25.00	27.541377	110.2
4	JX68	L2	False	50.00	95.375354	190.8
5	JX69	L3	True	100.00	84.704087	84.7
6	JX70	L4	True	250.00	254.534174	101.8
7	JX71	L5	True	500.00	534.417017	106.9
8	JX72	L6	True	1000.00	1030.738956	103.1
9	JX73	L7	True	2500.00	2343.889800	93.8
10	JX74	L8	True	5000.00	5875.219259	117.5
11	JX75	L9	True	10000.00	9226.496706	92.3



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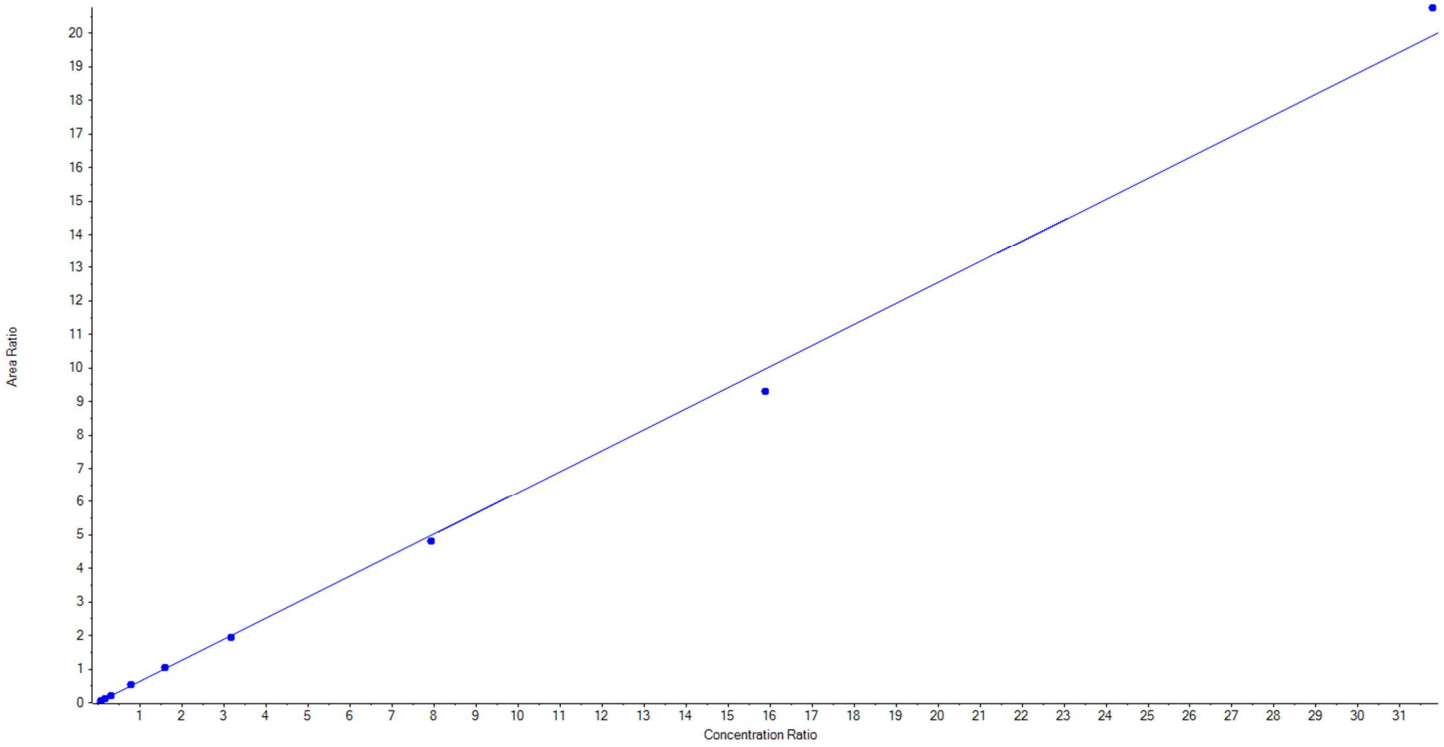
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Analyte Name	PFHxS_1	**Data File**	5500-06292018_371.wiff
MRM Transition	399.0 / 80.0	**Result Table**	18-0393_B
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/29/2018 8:19:25 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.62678 x + 0.01086 (r = 0.99874) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	22.80	22.209045	97.4
4	JX68	L2	True	45.60	44.296964	97.1
5	JX69	L3	True	91.20	94.256356	103.4
6	JX70	L4	True	228.00	247.477968	108.5
7	JX71	L5	True	456.00	468.077676	102.7
8	JX72	L6	True	912.00	884.313381	97.0
9	JX73	L7	True	2280.00	2199.388874	96.5
10	JX74	L8	True	4560.00	4254.412235	93.3
11	JX75	L9	True	9120.00	9501.167502	104.2



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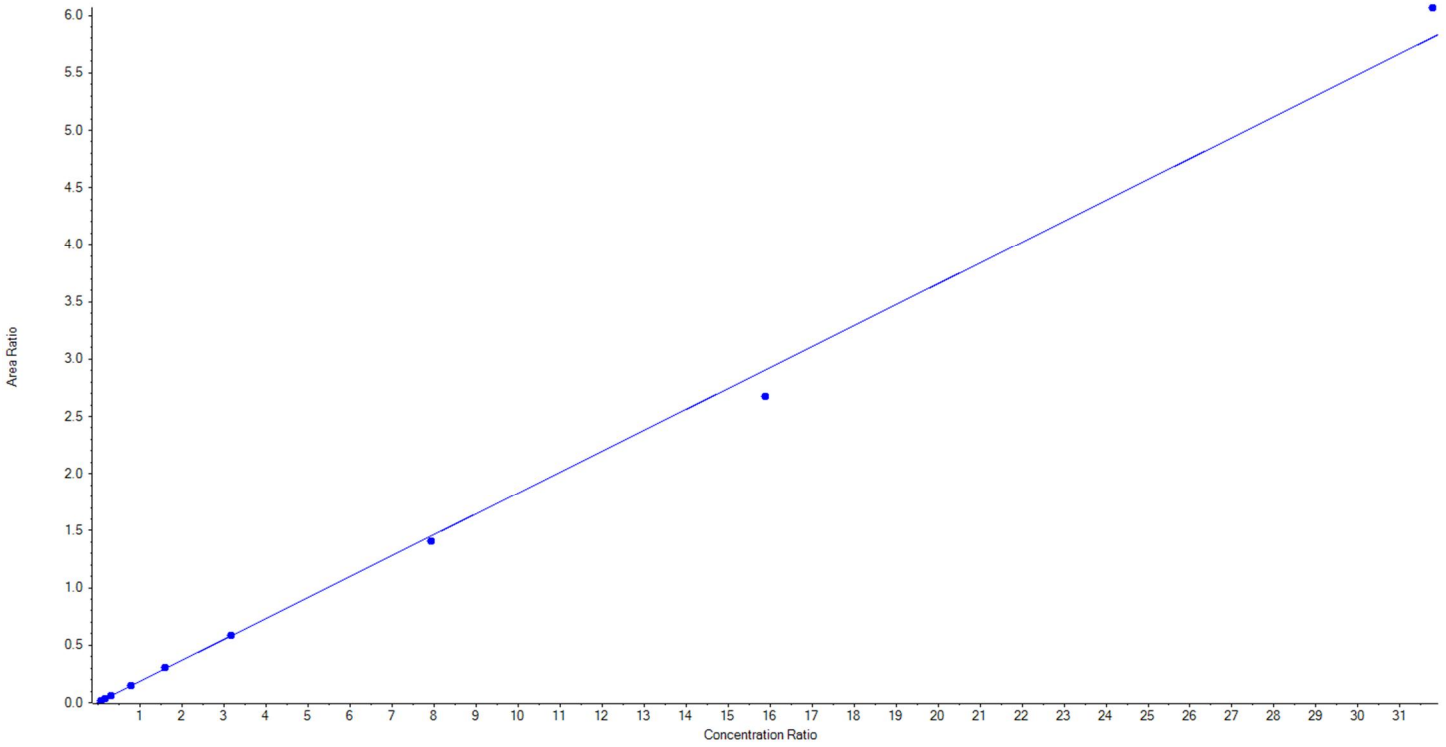
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Analyte Name	PFHxS_2	**Data File**	5500-06292018_371.wiff
MRM Transition	399.0 / 99.0	**Result Table**	18-0393_B
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/29/2018 8:19:25 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.18272 x + 0.00231 (r = 0.99843) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	22.80	19.309631	84.7
4	JX68	L2	True	45.60	48.133880	105.6
5	JX69	L3	True	91.20	99.239467	108.8
6	JX70	L4	True	228.00	234.269557	102.8
7	JX71	L5	True	456.00	477.113445	104.6
8	JX72	L6	True	912.00	916.247668	100.5
9	JX73	L7	True	2280.00	2205.955913	96.8
10	JX74	L8	True	4560.00	4190.742747	91.9
11	JX75	L9	True	9120.00	9524.587691	104.4



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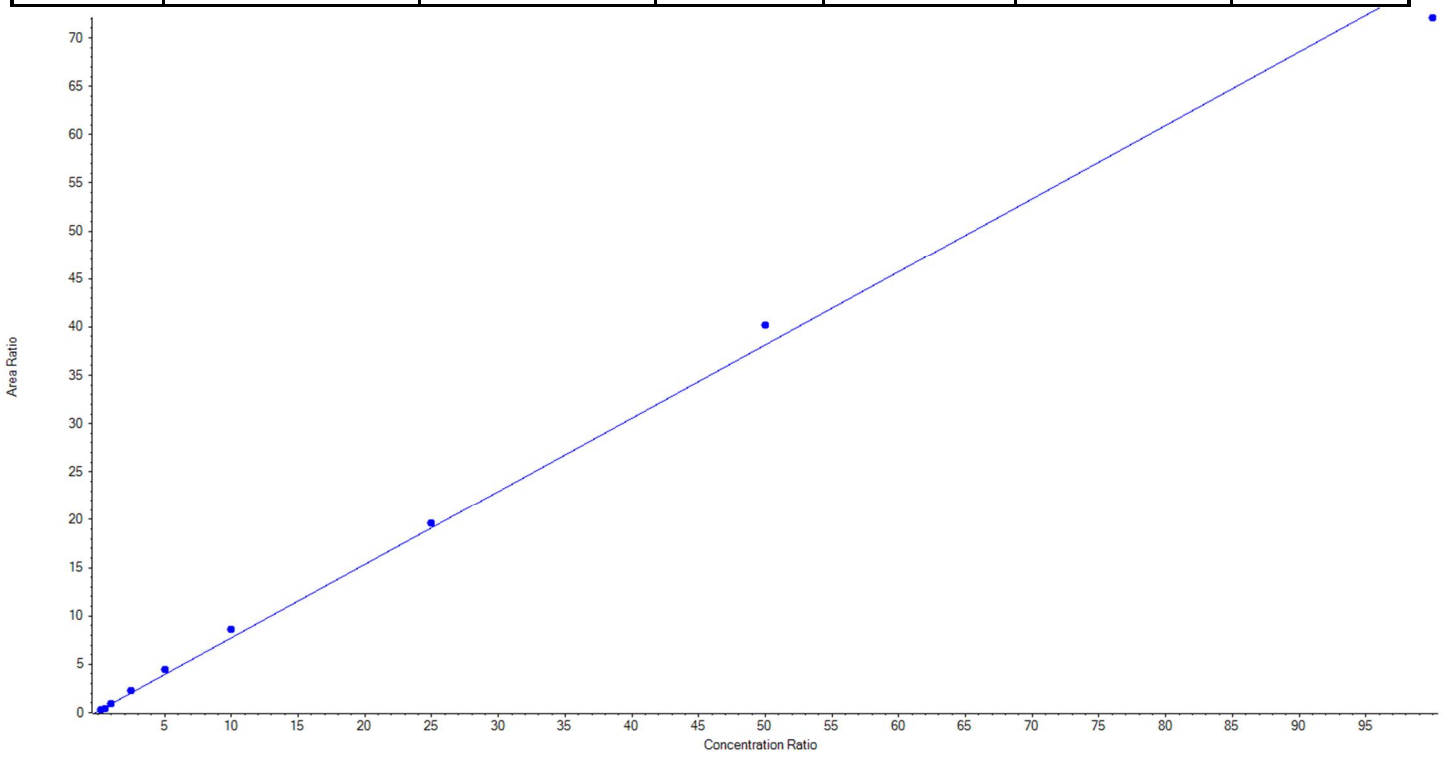
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Analyte Name	PFOA_1	**Data File**	5500-06292018_371.wiff
MRM Transition	413.0 / 369.0	**Result Table**	18-0393_B
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/29/2018 8:19:25 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.75995 x + 0.14949 (r = 0.99795) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	25.00	17.669279	70.7
4	JX68	L2	True	50.00	41.032440	82.1
5	JX69	L3	True	100.00	107.482412	107.5
6	JX70	L4	True	250.00	281.031826	112.4
7	JX71	L5	True	500.00	564.661564	112.9
8	JX72	L6	True	1000.00	1121.031598	112.1
9	JX73	L7	True	2500.00	2556.682499	102.3
10	JX74	L8	True	5000.00	5270.600346	105.4
11	JX75	L9	True	10000.00	9464.808035	94.7



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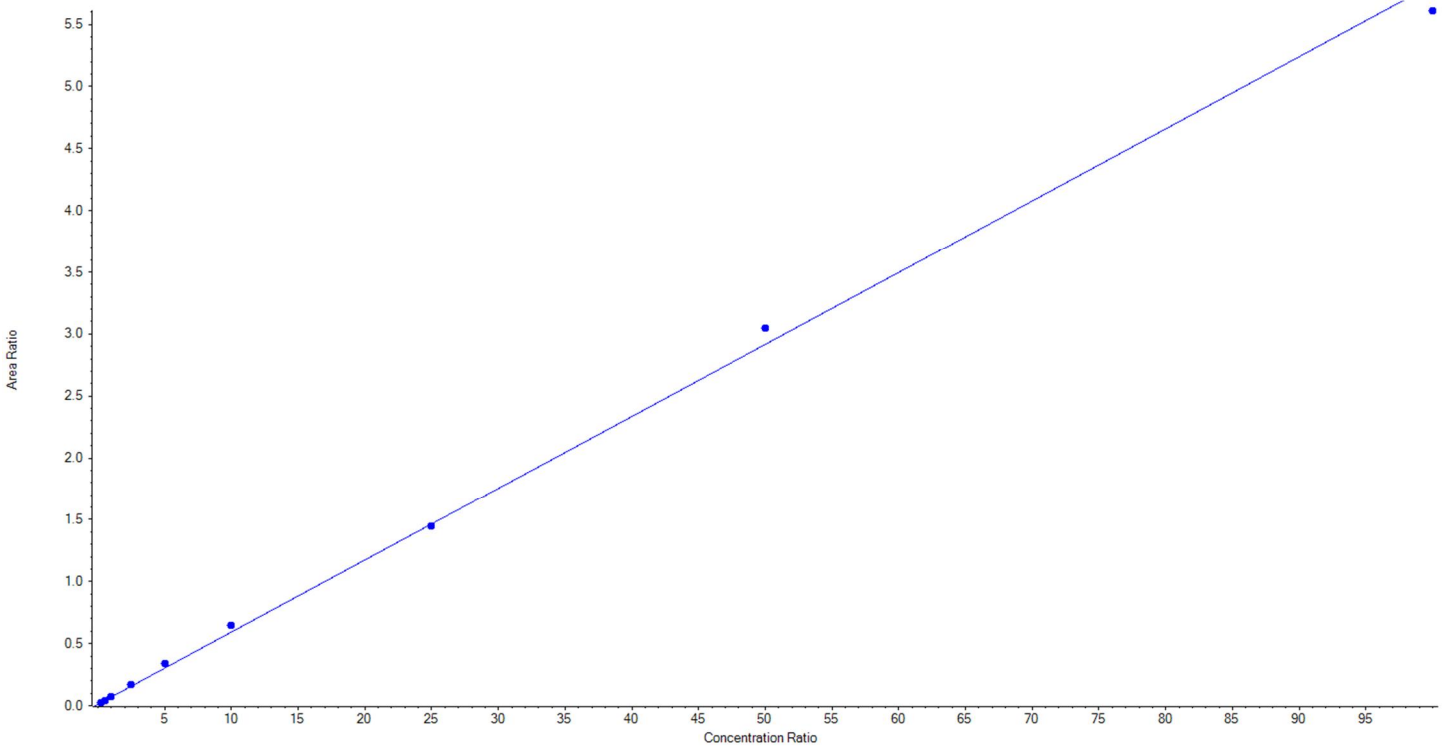
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Analyte Name	PFOA_2	**Data File**	5500-06292018_371.wiff
MRM Transition	413.0 / 169.0	**Result Table**	18-0393_B
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/29/2018 8:19:25 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05809 x + 0.01186 (r = 0.99877) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	25.00	18.554357	74.2
4	JX68	L2	True	50.00	47.464618	94.9
5	JX69	L3	True	100.00	101.033304	101.0
6	JX70	L4	True	250.00	266.994994	106.8
7	JX71	L5	True	500.00	568.944404	113.8
8	JX72	L6	True	1000.00	1097.500827	109.8
9	JX73	L7	True	2500.00	2467.718004	98.7
10	JX74	L8	True	5000.00	5220.645372	104.4
11	JX75	L9	True	10000.00	9636.144119	96.4



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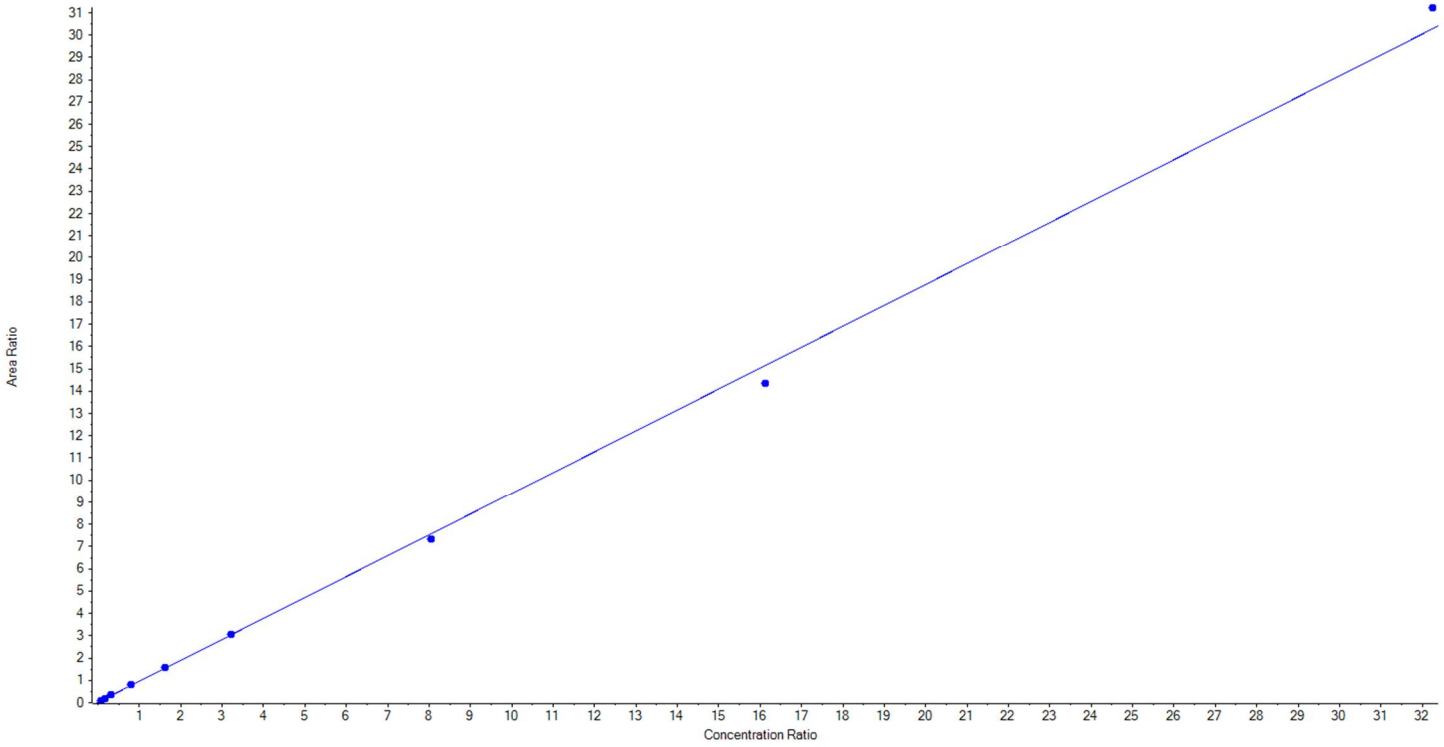
Calibration Summary Report

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Analyte Name	PFOS_1	**Data File**	5500-06292018_371.wiff
MRM Transition	499.0 / 80.0	**Result Table**	18-0393_B
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/29/2018 8:19:25 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.93826 x + 0.02025 (r = 0.99922) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	23.15	19.936401	86.1
4	JX68	L2	True	46.30	48.404389	104.6
5	JX69	L3	True	92.60	98.869110	106.8
6	JX70	L4	True	231.50	240.859519	104.0
7	JX71	L5	True	463.00	481.144427	103.9
8	JX72	L6	True	925.60	927.624030	100.2
9	JX73	L7	True	2314.00	2232.690618	96.5
10	JX74	L8	True	4628.00	4386.973132	94.8
11	JX75	L9	True	9256.00	9543.648375	103.1



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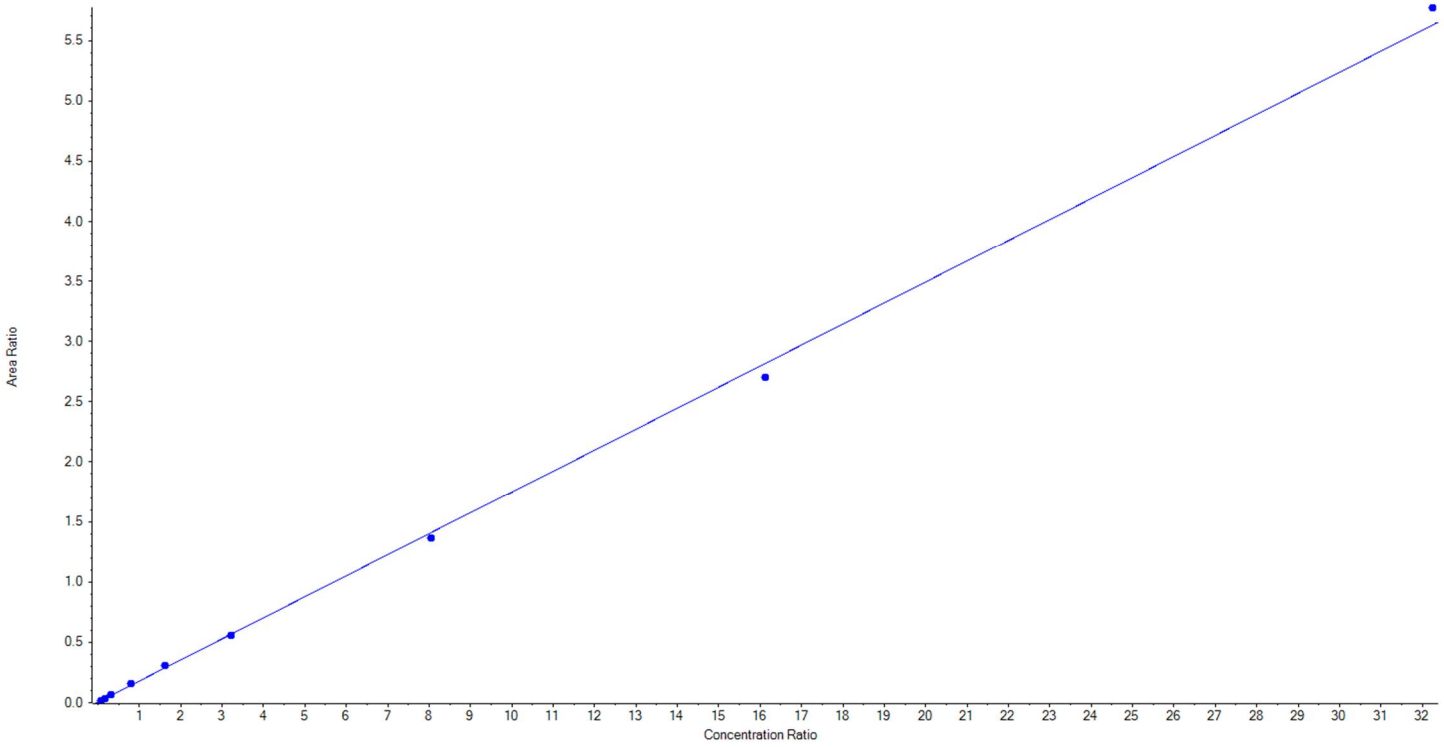
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Analyte Name	PFOS_2	**Data File**	5500-06292018_371.wiff
MRM Transition	499.0 / 99.0	**Result Table**	18-0393_B
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/29/2018 8:19:25 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.17436 x + 0.00551 (r = 0.99927) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	23.15	17.208008	74.3
4	JX68	L2	True	46.30	48.957488	105.7
5	JX69	L3	True	92.60	101.163796	109.3
6	JX70	L4	True	231.50	257.585608	111.3
7	JX71	L5	True	463.00	494.392130	106.8
8	JX72	L6	True	925.60	905.697913	97.9
9	JX73	L7	True	2314.00	2231.752731	96.5
10	JX74	L8	True	4628.00	4434.564919	95.8
11	JX75	L9	True	9256.00	9488.827407	102.5



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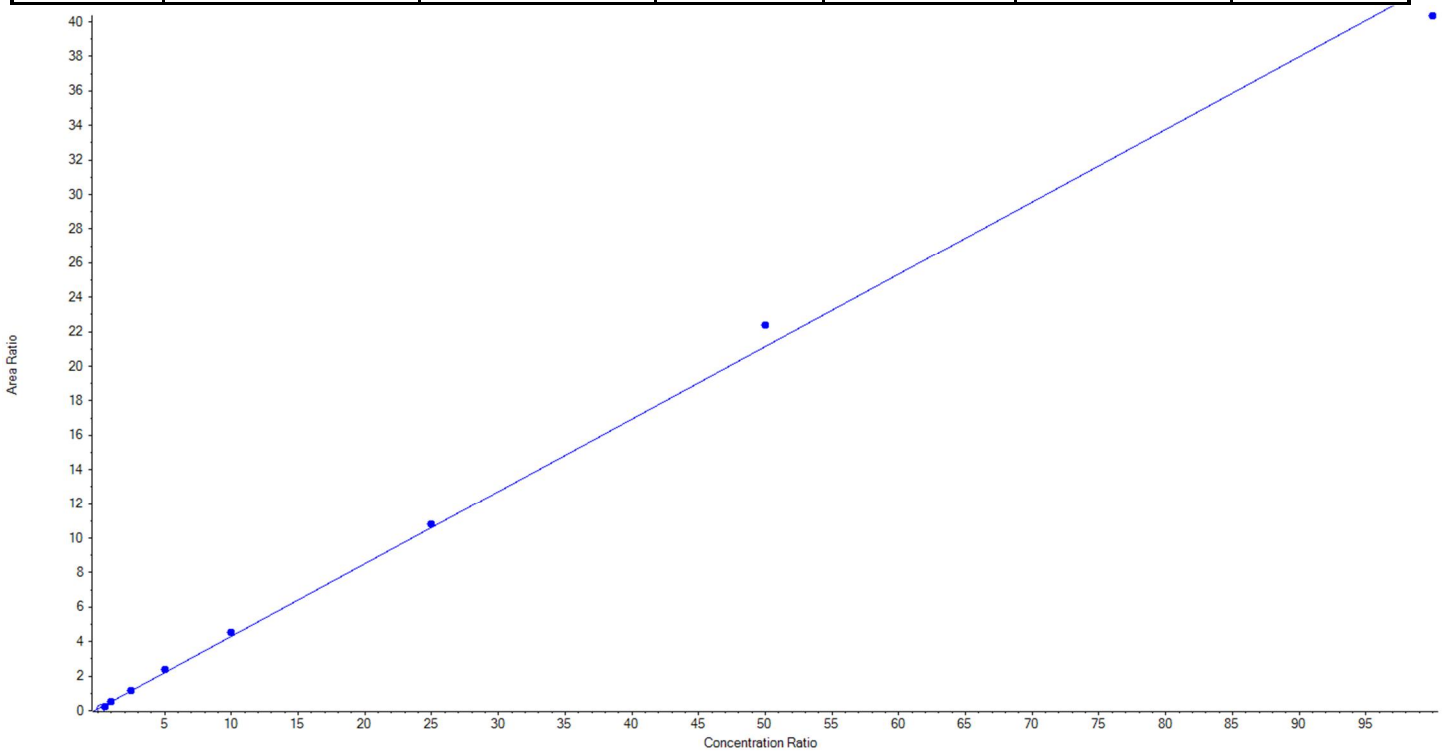
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Analyte Name	PFTeDA_1	**Data File**	5500-06292018_371.wiff
MRM Transition	713.0 / 669.0	**Result Table**	18-0393_B
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/29/2018 8:19:25 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.42082 x + 0.09839 (r = 0.99866) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	False	25.00	6.788515	27.2
4	JX68	L2	True	50.00	37.788680	75.6
5	JX69	L3	True	100.00	103.269113	103.3
6	JX70	L4	True	250.00	257.574769	103.0
7	JX71	L5	True	500.00	548.691836	109.7
8	JX72	L6	True	1000.00	1050.936442	105.1
9	JX73	L7	True	2500.00	2544.822346	101.8
10	JX74	L8	True	5000.00	5292.954606	105.9
11	JX75	L9	True	10000.00	9563.962208	95.6



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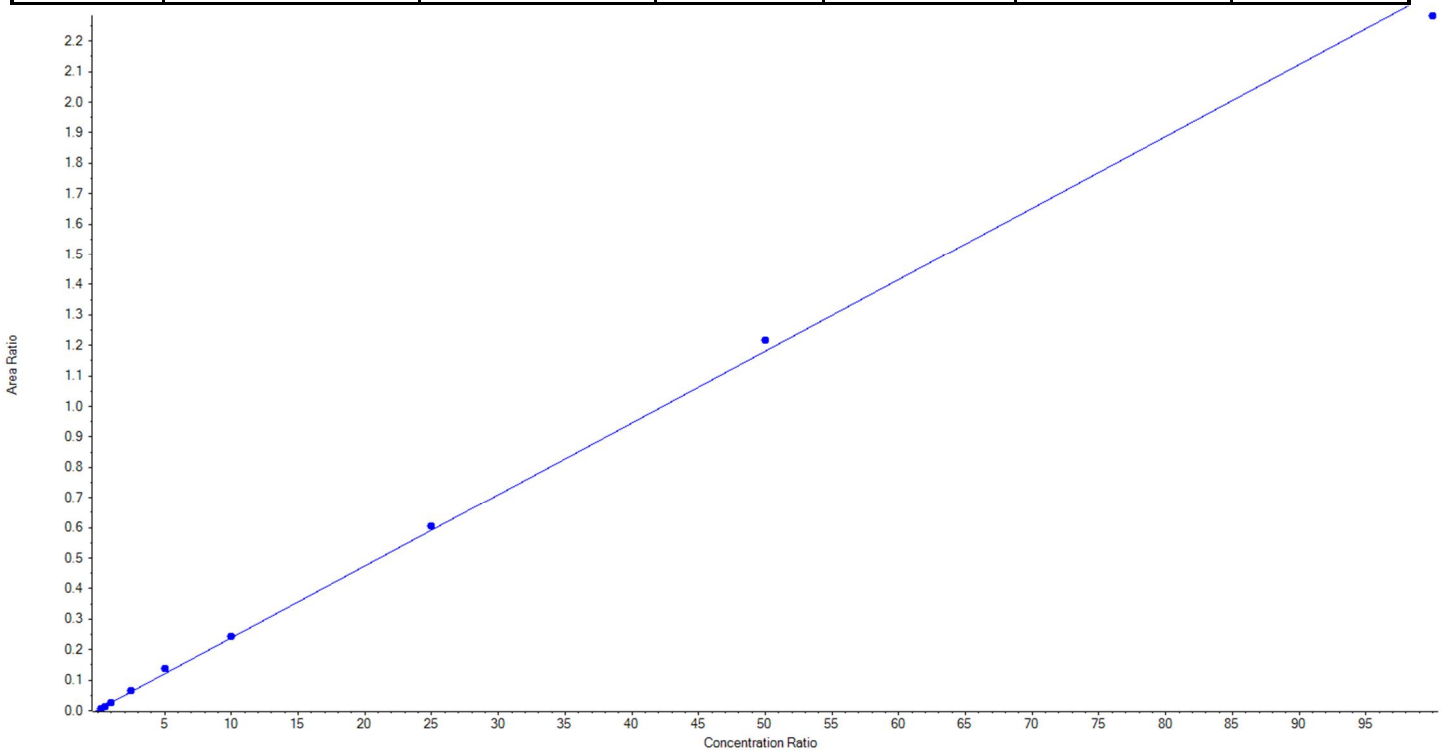
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Analyte Name	PFTeDA_2	**Data File**	5500-06292018_371.wiff
MRM Transition	713.0 / 169.0	**Result Table**	18-0393_B
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/29/2018 8:19:25 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.02356 x + 0.00317 (r = 0.99916) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
3	JX67	L1	True	25.00	20.087157	80.4
4	JX68	L2	True	50.00	44.851549	89.7
5	JX69	L3	True	100.00	103.346649	103.4
6	JX70	L4	True	250.00	267.788332	107.1
7	JX71	L5	True	500.00	574.304713	114.9
8	JX72	L6	True	1000.00	1023.690575	102.4
9	JX73	L7	True	2500.00	2561.175383	102.5
10	JX74	L8	True	5000.00	5151.172051	103.0
11	JX75	L9	True	10000.00	9678.583591	96.8



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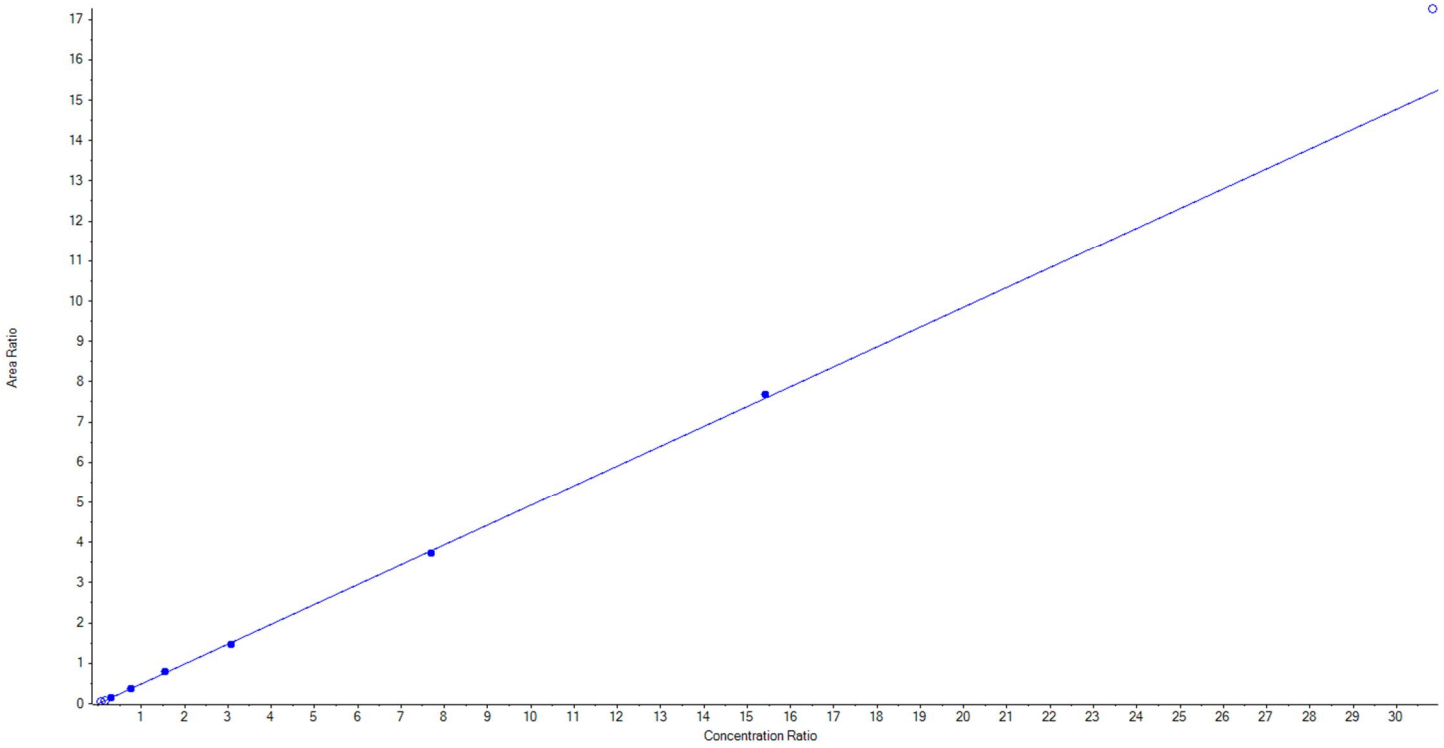
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Analyte Name	PFBS_1	**Data File**	07182019_5-0371.wiff
MRM Transition	298.9 / 80.0	**Result Table**	18-0393_MSD
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	7/18/2018 10:11:16 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.49263 x + -0.00443 (r = 0.99971) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	False	22.15	24.558397	110.9
3	JX68	L2	False	44.30	51.526051	116.3
4	JX69	L3	True	88.60	88.154630	99.5
5	JX70	L4	True	221.50	219.625243	99.2
6	JX71	L5	True	443.00	467.491955	105.5
7	JX72	L6	True	885.00	855.053094	96.6
8	JX73	L7	True	2212.50	2169.512533	98.1
9	JX74	L8	True	4425.00	4475.762545	101.2
10	JX75	L9	False	8850.00	10060.180740	113.7



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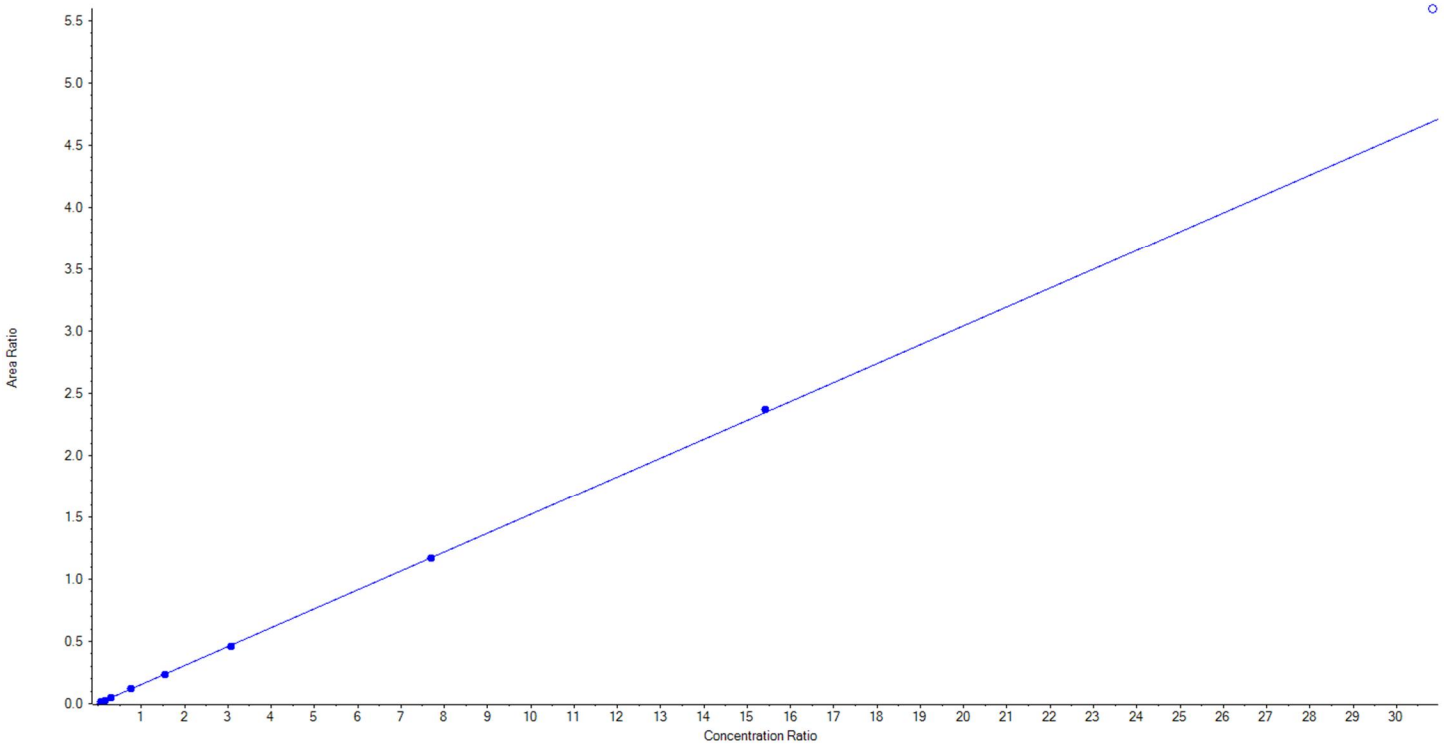
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Printed: 19/07/2018 9:44:30 AM

Analyte Name	PFBS_2	**Data File**	07182019_5-0371.wiff
MRM Transition	298.9 / 99.0	**Result Table**	18-0393_MSD
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	7/18/2018 10:11:16 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.15205 x + 0.00189 (r = 0.99993) (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	22.078177	99.7
3	JX68	L2	True	44.30	45.097944	101.8
4	JX69	L3	True	88.60	89.735364	101.3
5	JX70	L4	True	221.50	224.425951	101.3
6	JX71	L5	True	443.00	432.953986	97.7
7	JX72	L6	True	885.00	867.684649	98.0
8	JX73	L7	True	2212.50	2196.336569	99.3
9	JX74	L8	True	4425.00	4463.737360	100.9
10	JX75	L9	False	8850.00	10559.371971	119.3



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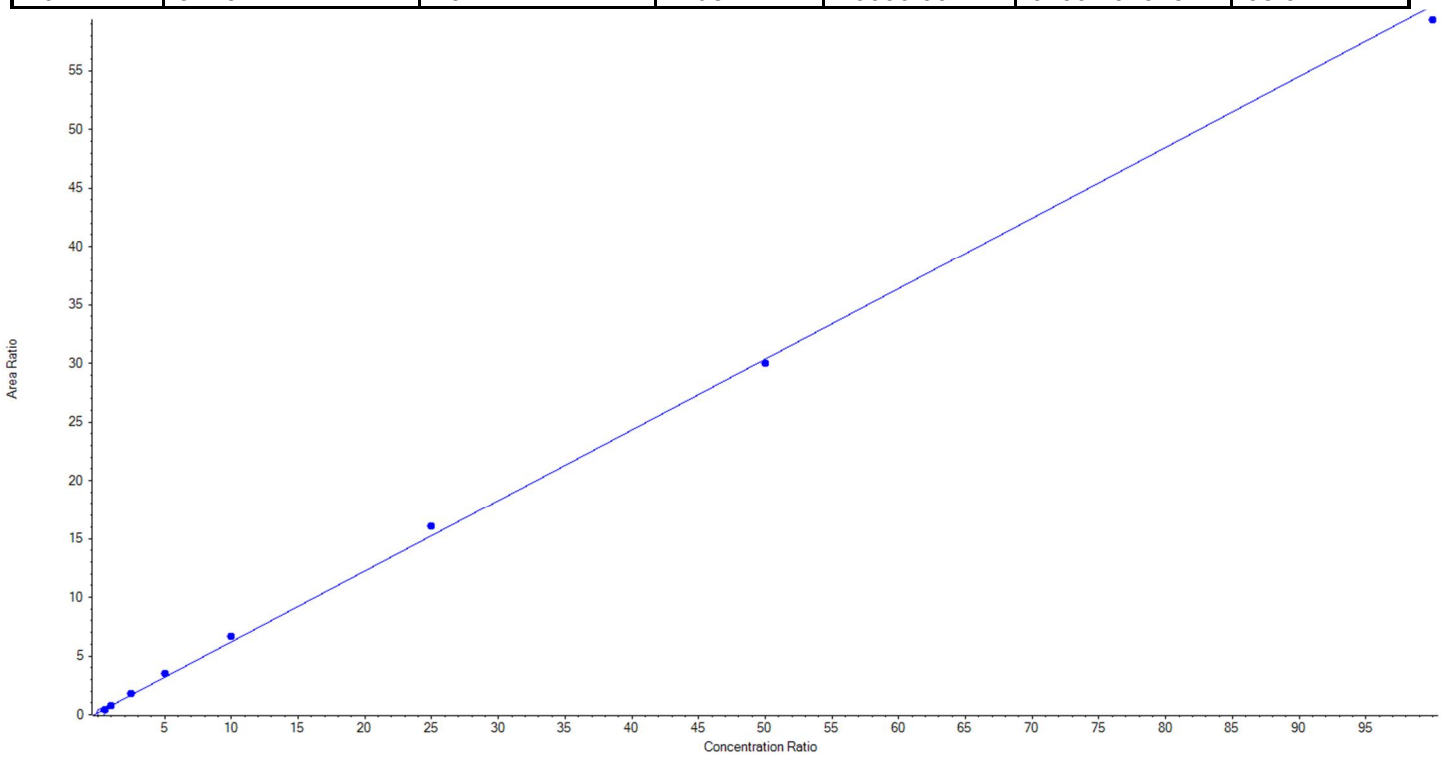
Calibration Summary Report

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Analyte Name	PFHxA_1	**Data File**	07182019_5-0371.wiff
MRM Transition	313.0 / 269.0	**Result Table**	18-0393_MSD
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	7/18/2018 10:11:16 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.60376 x + 0.16754 (r = 0.99921) (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	6.221040	24.9
3	JX68	L2	True	50.00	36.555521	73.1
4	JX69	L3	True	100.00	97.884313	97.9
5	JX70	L4	True	250.00	274.136604	109.7
6	JX71	L5	True	500.00	550.107849	110.0
7	JX72	L6	True	1000.00	1073.400403	107.3
8	JX73	L7	True	2500.00	2631.250307	105.3
9	JX74	L8	True	5000.00	4937.173057	98.7
10	JX75	L9	True	10000.00	9799.491945	98.0



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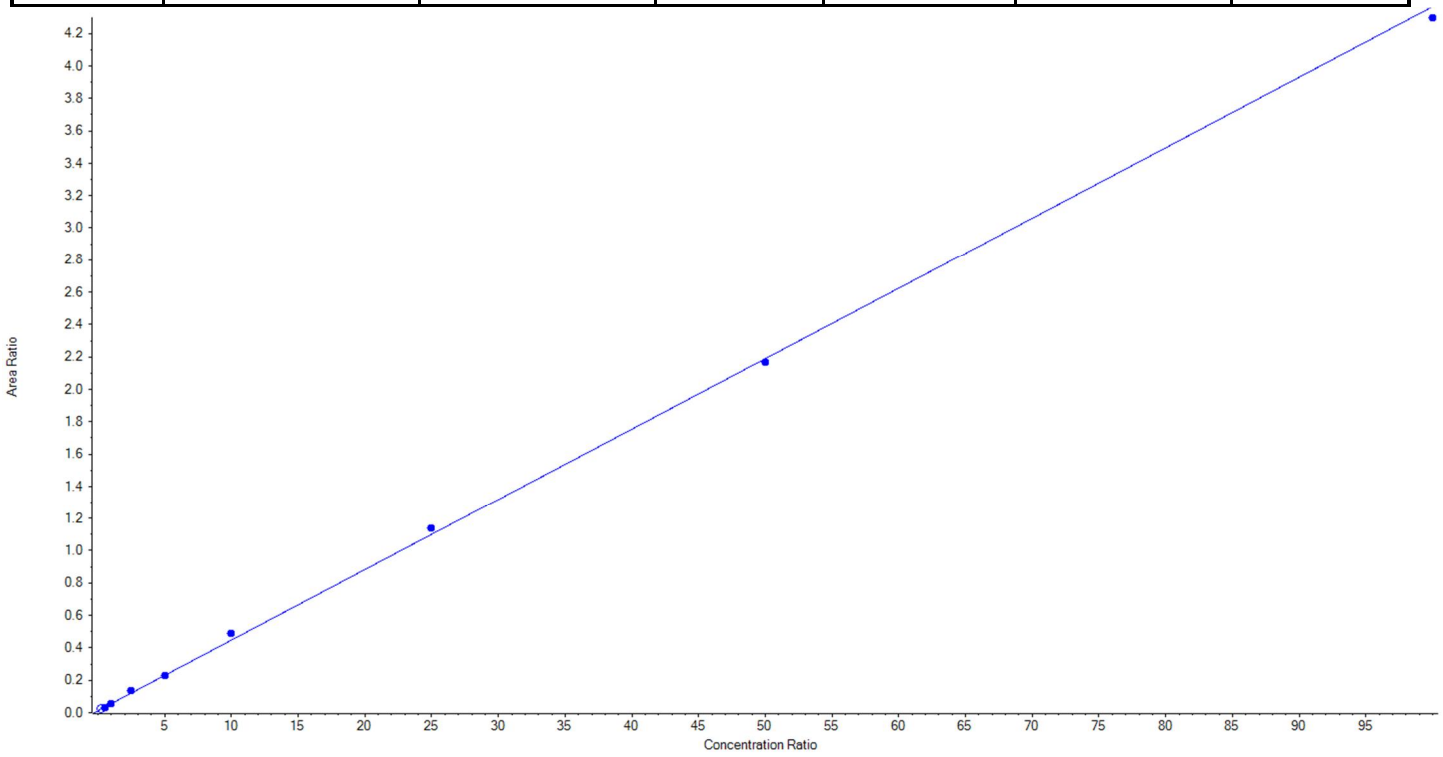
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFHxA_2	**Data File**	07182019_5-0371.wiff
MRM Transition	313.0 / 119.0	**Result Table**	18-0393_MSD
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	7/18/2018 10:11:16 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.04354 x + 0.01225 (r = 0.99939) (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	27.610473	110.4
3	JX68	L2	True	50.00	40.800110	81.6
4	JX69	L3	True	100.00	93.689645	93.7
5	JX70	L4	True	250.00	283.876316	113.6
6	JX71	L5	True	500.00	503.764398	100.8
7	JX72	L6	True	1000.00	1093.458444	109.4
8	JX73	L7	True	2500.00	2589.162890	103.6
9	JX74	L8	True	5000.00	4954.188694	99.1
10	JX75	L9	True	10000.00	9841.059504	98.4



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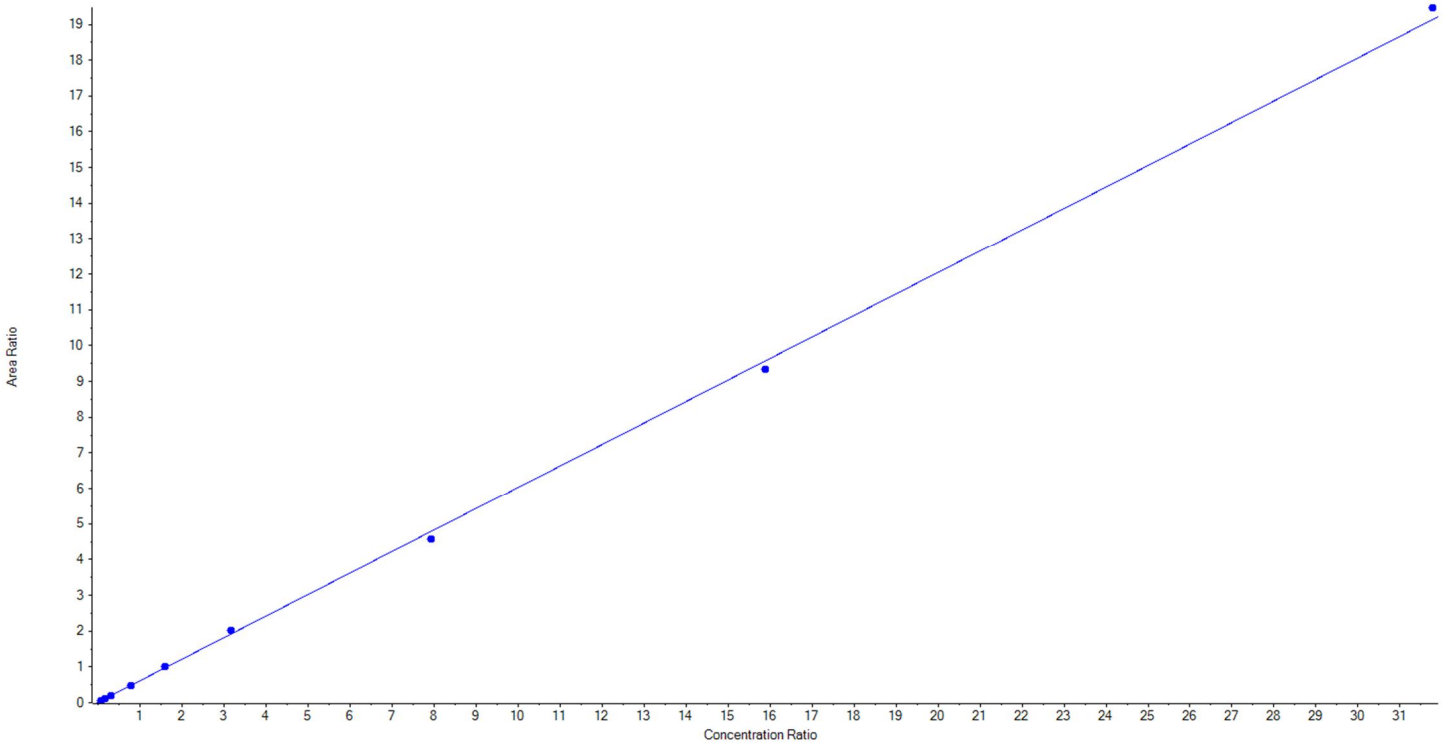
Calibration Summary Report

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Printed: 19/07/2018 9:44:30 AM

Analyte Name	PFHxS_1	**Data File**	07182019_5-0371.wiff
MRM Transition	399.0 / 80.0	**Result Table**	18-0393_MSD
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	7/18/2018 10:11:16 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.60178 x + 0.01237 (r = 0.99958) (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	21.965206	96.3
3	JX68	L2	True	45.60	45.865987	100.6
4	JX69	L3	True	91.20	92.862788	101.8
5	JX70	L4	True	228.00	223.458459	98.0
6	JX71	L5	True	456.00	470.479402	103.2
7	JX72	L6	True	912.00	962.944566	105.6
8	JX73	L7	True	2280.00	2168.776435	95.1
9	JX74	L8	True	4560.00	4452.716571	97.7
10	JX75	L9	True	9120.00	9276.530586	101.7



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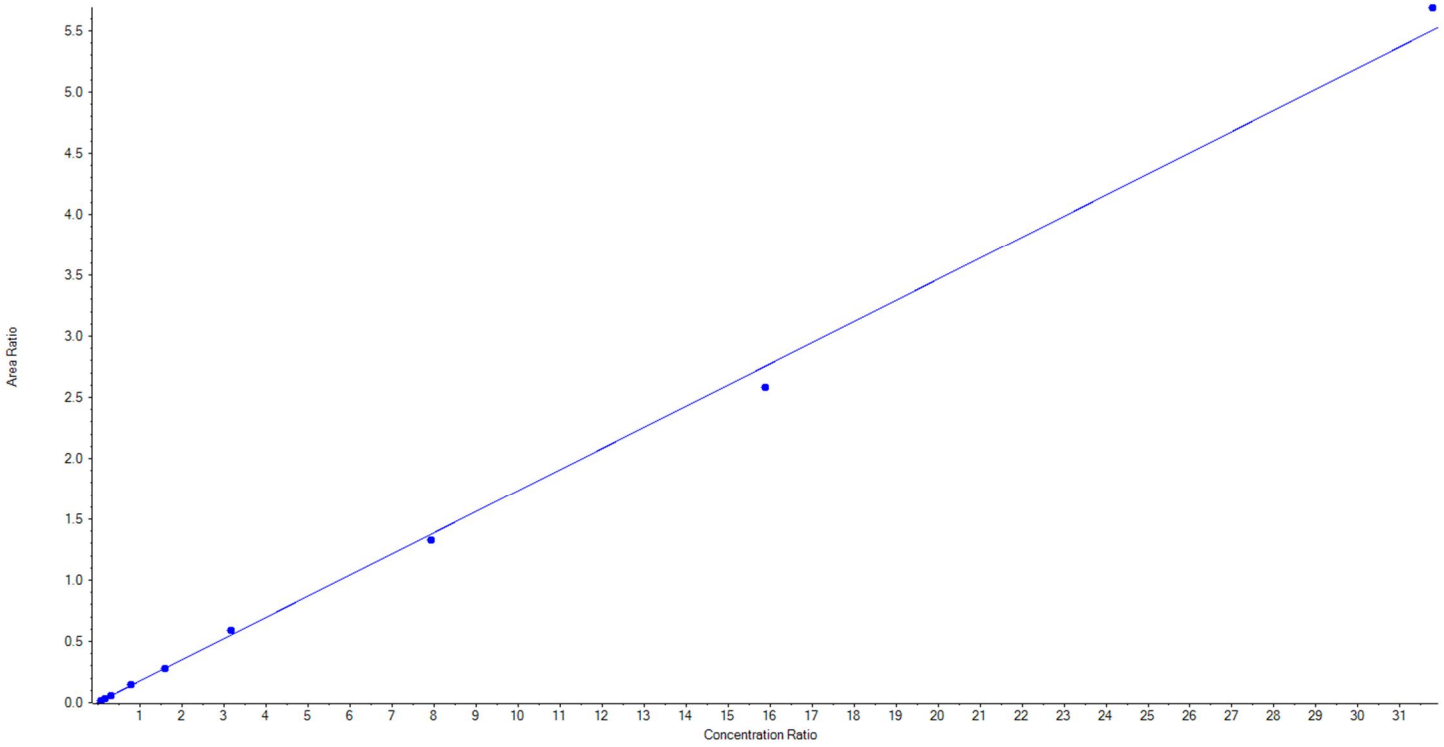
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFHxS_2	**Data File**	07182019_5-0371.wiff
MRM Transition	399.0 / 99.0	**Result Table**	18-0393_MSD
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	7/18/2018 10:11:16 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.17315 x + 0.00357 (r = 0.99895) (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	21.778684	95.5
3	JX68	L2	True	45.60	44.140835	96.8
4	JX69	L3	True	91.20	95.765669	105.0
5	JX70	L4	True	228.00	233.509455	102.4
6	JX71	L5	True	456.00	459.657462	100.8
7	JX72	L6	True	912.00	968.083293	106.2
8	JX73	L7	True	2280.00	2194.051869	96.2
9	JX74	L8	True	4560.00	4274.612021	93.7
10	JX75	L9	True	9120.00	9424.000712	103.3



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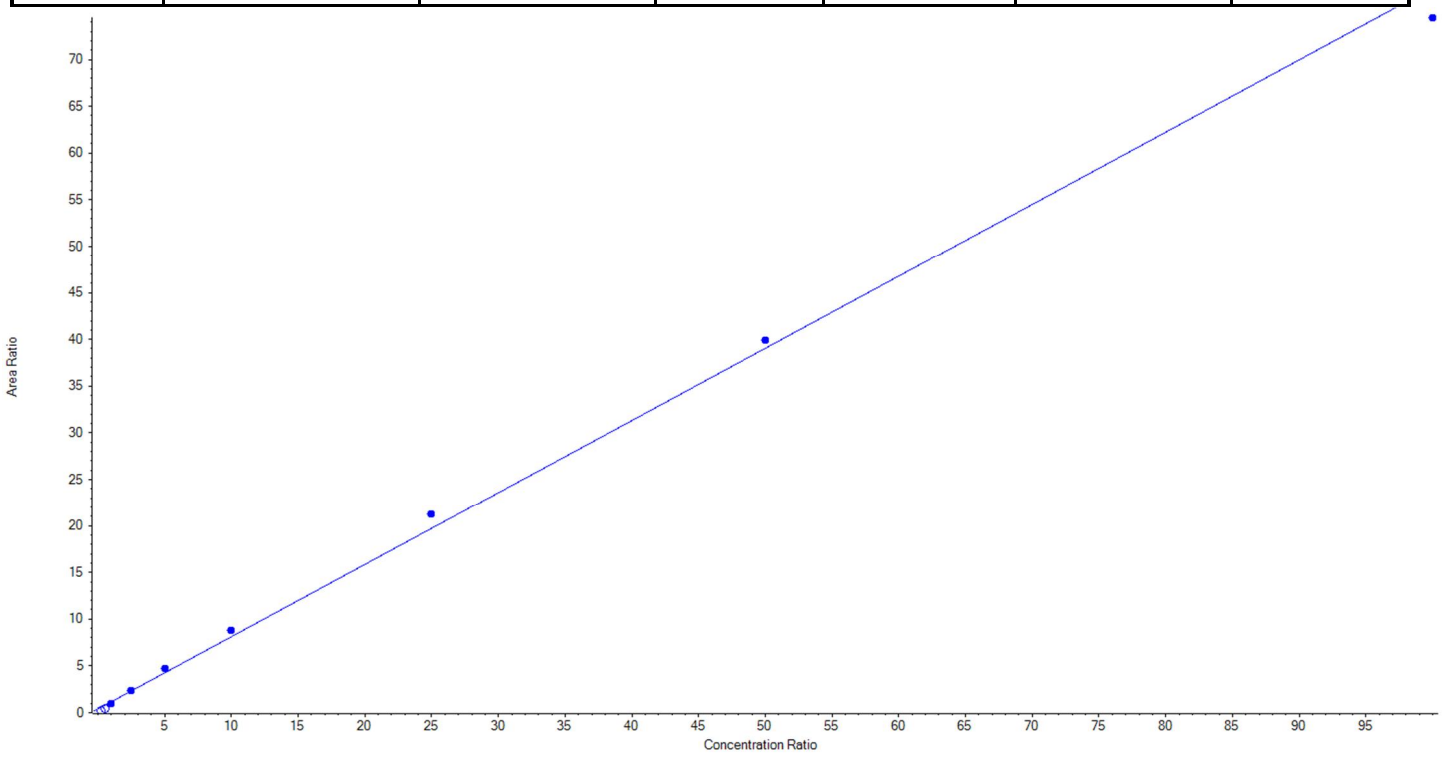
Calibration Summary Report

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Printed: 19/07/2018 9:44:30 AM

Analyte Name	PFOA_1	**Data File**	07182019_5-0371.wiff
MRM Transition	413.0 / 369.0	**Result Table**	18-0393_MSD
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	7/18/2018 10:11:16 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.77302 x + 0.39276 (r = 0.99837) (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	9.762813	19.5
4	JX69	L3	True	100.00	74.716660	74.7
5	JX70	L4	True	250.00	251.569752	100.6
6	JX71	L5	True	500.00	552.950333	110.6
7	JX72	L6	True	1000.00	1081.102492	108.1
8	JX73	L7	True	2500.00	2698.731567	108.0
9	JX74	L8	True	5000.00	5109.656883	102.2
10	JX75	L9	True	10000.00	9581.272313	95.8



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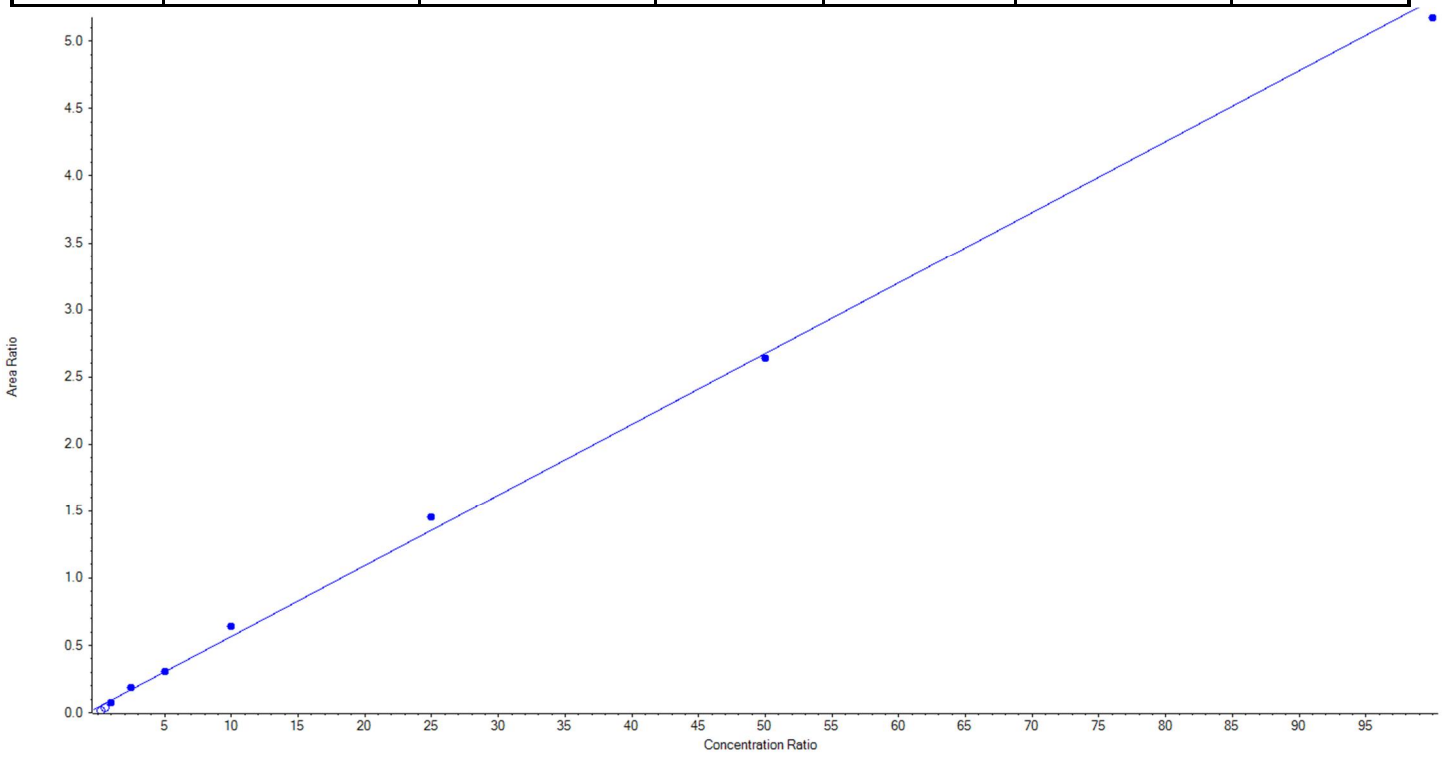
Calibration Summary Report

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Analyte Name	PFOA_2	**Data File**	07182019_5-0371.wiff
MRM Transition	413.0 / 169.0	**Result Table**	18-0393_MSD
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	7/18/2018 10:11:16 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05268 x + 0.03964 (r = 0.99845) (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	< 0	N/A
4	JX69	L3	True	100.00	70.351988	70.4
5	JX70	L4	True	250.00	275.348901	110.1
6	JX71	L5	True	500.00	511.875631	102.4
7	JX72	L6	True	1000.00	1139.423420	113.9
8	JX73	L7	True	2500.00	2679.379966	107.2
9	JX74	L8	True	5000.00	4927.958365	98.6
10	JX75	L9	True	10000.00	9745.661728	97.5



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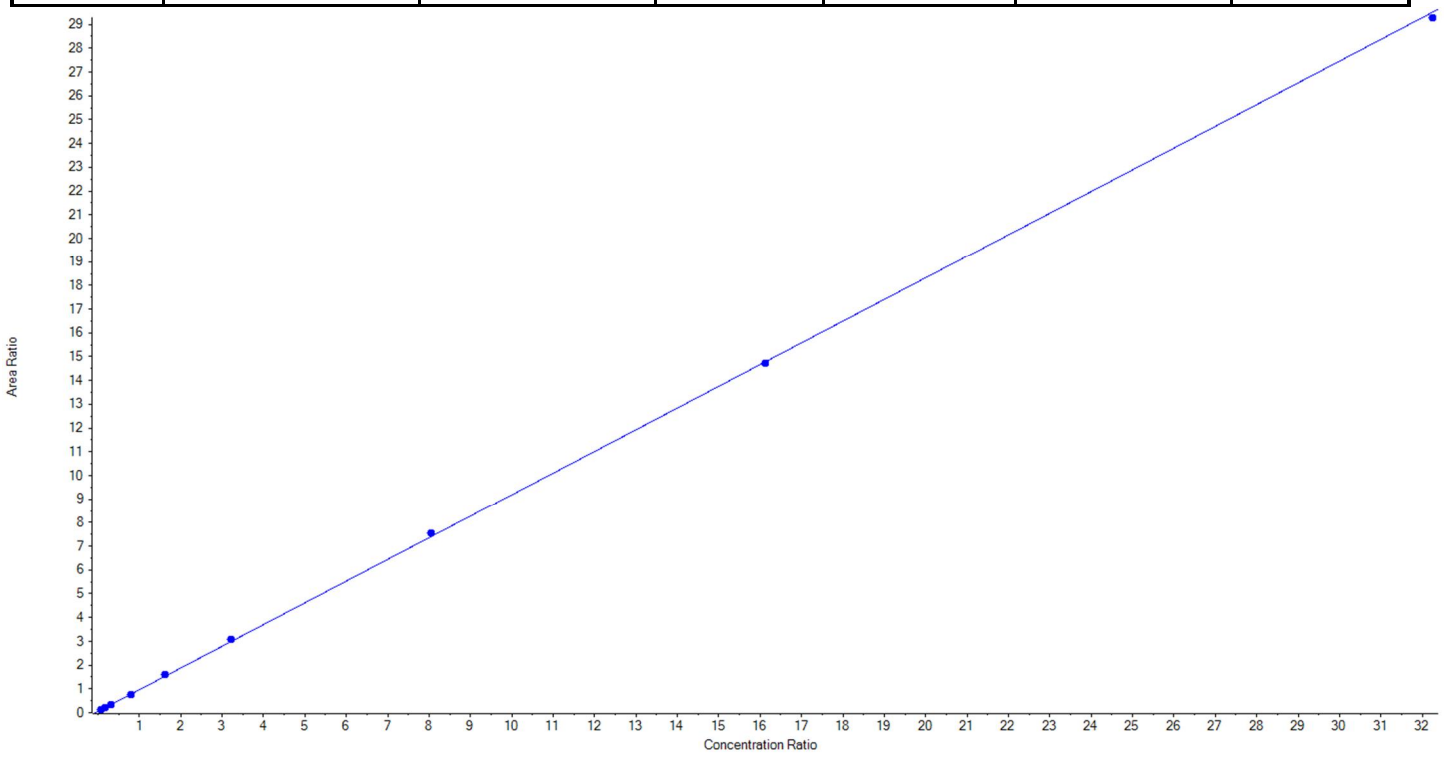
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Analyte Name	PFOS_1	**Data File**	07182019_5-0371.wiff
MRM Transition	499.0 / 80.0	**Result Table**	18-0393_MSD
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	7/18/2018 10:11:16 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.91372 x + 0.04855 (r = 0.99989) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	23.15	22.234208	96.0
3	JX68	L2	True	46.30	44.391423	95.9
4	JX69	L3	True	92.60	93.799624	101.3
5	JX70	L4	True	231.50	227.481160	98.3
6	JX71	L5	True	463.00	485.941424	105.0
7	JX72	L6	True	925.60	949.980384	102.6
8	JX73	L7	True	2314.00	2361.511883	102.1
9	JX74	L8	True	4628.00	4613.191157	99.7
10	JX75	L9	True	9256.00	9181.618737	99.2



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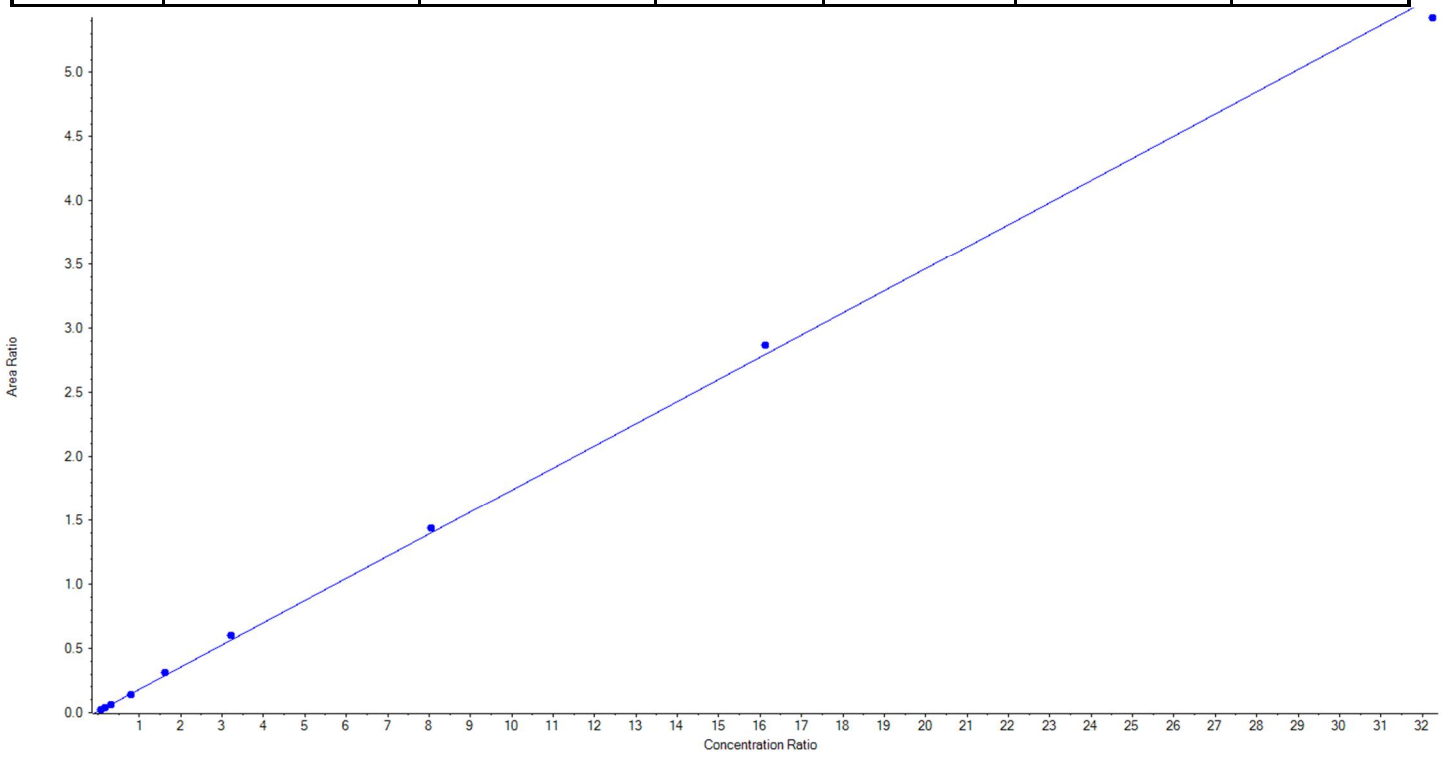
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFOS_2	**Data File**	07182019_5-0371.wiff
MRM Transition	499.0 / 99.0	**Result Table**	18-0393_MSD
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	7/18/2018 10:11:16 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.17289 x + 0.00905 (r = 0.99937) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JX67	L1	True	23.15	21.012726	90.8
3	JX68	L2	True	46.30	45.328768	97.9
4	JX69	L3	True	92.60	91.066590	98.3
5	JX70	L4	True	231.50	218.922020	94.6
6	JX71	L5	True	463.00	506.774492	109.5
7	JX72	L6	True	925.60	988.962568	106.9
8	JX73	L7	True	2314.00	2370.036975	102.4
9	JX74	L8	True	4628.00	4745.948308	102.6
10	JX75	L9	True	9256.00	8992.097554	97.2



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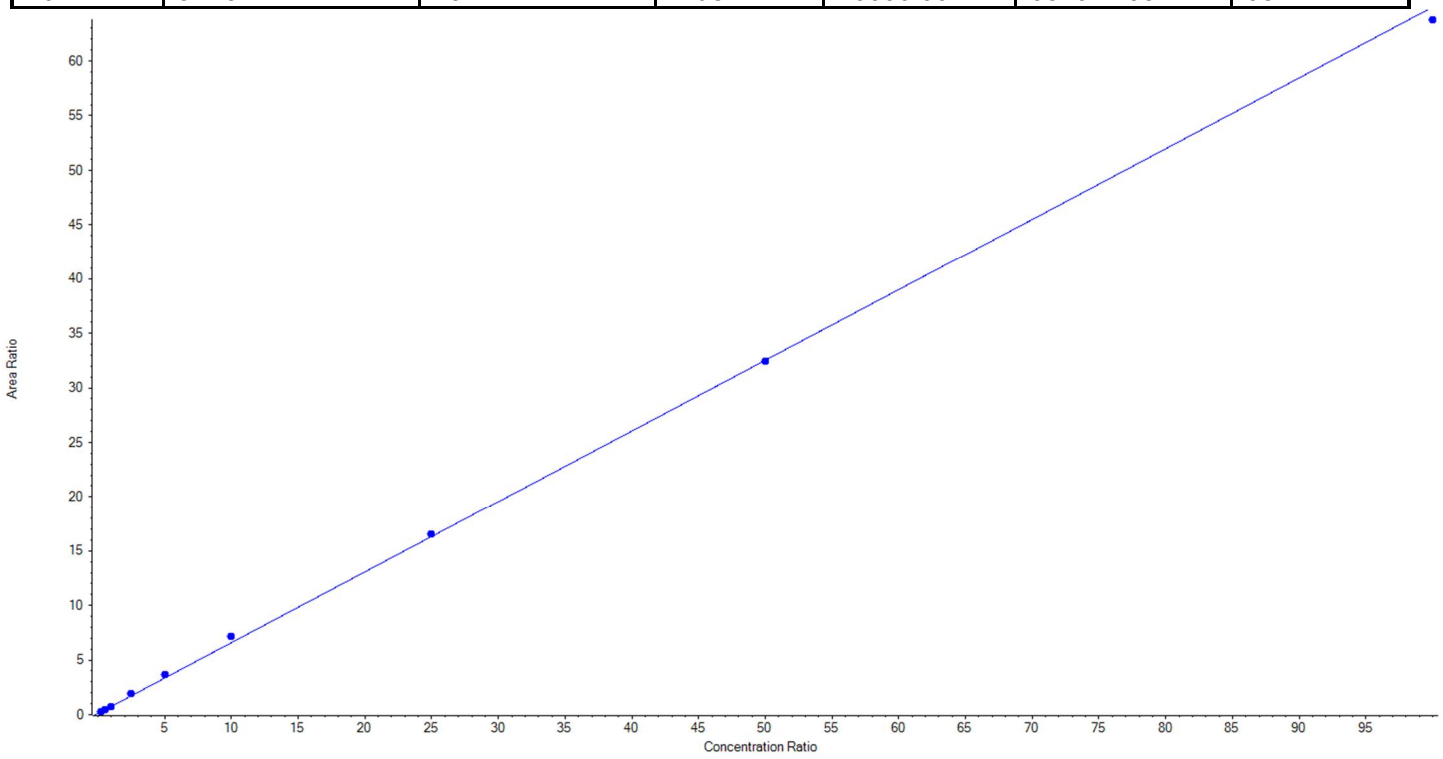
Calibration Summary Report

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Printed: 19/07/2018 9:44:30 AM

Analyte Name	PFTeDA_1	**Data File**	07182019_5-0371.wiff
MRM Transition	713.0 / 669.0	**Result Table**	18-0393_MSD
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	7/18/2018 10:11:16 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.64829 x + 0.11119 (r = 0.99943) (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	19.143347	76.6
3	JX68	L2	True	50.00	47.422750	94.9
4	JX69	L3	True	100.00	99.633558	99.6
5	JX70	L4	True	250.00	277.979701	111.2
6	JX71	L5	True	500.00	546.098198	109.2
7	JX72	L6	True	1000.00	1091.044997	109.1
8	JX73	L7	True	2500.00	2538.038889	101.5
9	JX74	L8	True	5000.00	4985.359246	99.7
10	JX75	L9	True	10000.00	9820.279314	98.2



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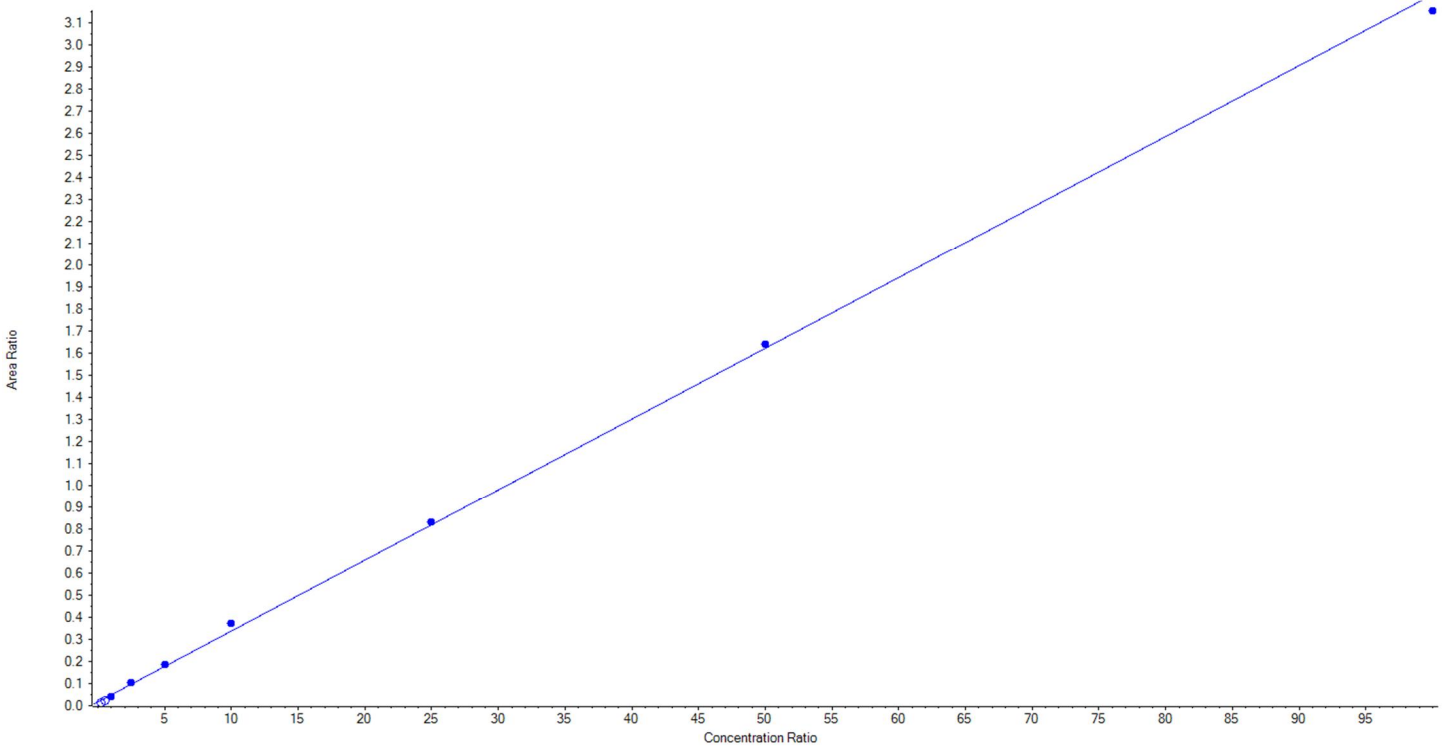
Calibration Summary Report

Created with Analyst Reporter
Printed: 19/07/2018 9:44:30 AM

Analyte Name	PFTeDA_2	**Data File**	07182019_5-0371.wiff
MRM Transition	713.0 / 169.0	**Result Table**	18-0393_MSD
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	7/18/2018 10:11:16 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.03211 x + 0.01714 (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	False	25.00	< 0	N/A
3	JX68	L2	False	50.00	11.749020	23.5
4	JX69	L3	True	100.00	75.561743	75.6
5	JX70	L4	True	250.00	267.669392	107.1
6	JX71	L5	True	500.00	532.999990	106.6
7	JX72	L6	True	1000.00	1103.307666	110.3
8	JX73	L7	True	2500.00	2537.675913	101.5
9	JX74	L8	True	5000.00	5060.484598	101.2
10	JX75	L9	True	10000.00	9772.300698	97.7



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Summary Ion Ratio Report

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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**	18-0393_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	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

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 18/07/2018 9:23:49 AM

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**	18-0393_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	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

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Summary Ion Ratio Report

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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**	18-0393_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	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

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Summary Ion Ratio Report

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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**	18-0393_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	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

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Summary Ion Ratio Report

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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**	18-0393_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	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

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Summary Ion Ratio Report

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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**	18-0393_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	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

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Summary Ion Ratio Report

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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**	18-0393_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	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

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Summary Ion Ratio Report

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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**	18-0393_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	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

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Summary Ion Ratio Report

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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**	18-0393_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	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

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Summary Ion Ratio Report

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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**	18-0393_R
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

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Summary Ion Ratio Report

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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**	18-0393_R
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

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Summary Ion Ratio Report

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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**	18-0393_R
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

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Summary Ion Ratio Report

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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**	18-0393_R
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

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Summary Ion Ratio Report

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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**	18-0393_R
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

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Summary Ion Ratio Report

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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**	18-0393_R
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

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Summary Ion Ratio Report

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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**	18-0393_R
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

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Summary Ion Ratio Report

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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**	18-0393_R
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

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Summary Ion Ratio Report

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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**	18-0393_R
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

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Summary Ion Ratio Report

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Sample Name	JX67	**Injection Vial**	3
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-29T08:28:19	**Data File**	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_B
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	0.490	0.345	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.130	0.071	
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.17	PFHxS	0.246	0.289	ü
PFOA_1	413.0 / 369.0	2.53	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.080	0.077	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.187	0.190	ü
PFTeDA_1	713.0 / 669.0	4.35	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.34	PFTeDA	0.062	0.056	ü

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Summary Ion Ratio Report

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Printed: 18/07/2018 9:24:24 AM

Sample Name	JX68	**Injection Vial**	4
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-29T08:37:15	**Data File**	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_B
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	0.400	0.345	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.151	0.071	
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.17	PFHxS	0.306	0.289	ü
PFOA_1	413.0 / 369.0	2.53	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.086	0.077	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.198	0.190	ü
PFTeDA_1	713.0 / 669.0	4.34	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.34	PFTeDA	0.053	0.056	ü

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Summary Ion Ratio Report

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Sample Name	JX69	**Injection Vial**	5
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-29T08:46:11	**Data File**	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_B
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	0.327	0.345	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.065	0.071	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.302	0.289	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.073	0.077	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.195	0.190	ü
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.33	PFTeDA	0.052	0.056	ü

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 18/07/2018 9:24:28 AM

Sample Name	JX70	**Injection Vial**	6
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-29T08:55:07	**Data File**	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_B
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	0.315	0.345	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.071	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.275	0.289	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.073	0.077	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.201	0.190	ü
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.33	PFTeDA	0.056	0.056	ü

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 18/07/2018 9:24:30 AM

Sample Name	JX71	**Injection Vial**	7
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-29T09:04:02	**Data File**	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_B
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	0.324	0.345	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.073	0.071	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.296	0.289	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.077	0.077	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.192	0.190	ü
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.058	0.056	ü

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Summary Ion Ratio Report

Created with Analyst Reporter
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Sample Name	JX72	**Injection Vial**	8
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-29T09:12:59	**Data File**	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_B
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.306	0.345	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.073	0.071	ü
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.17	PFHxS	0.302	0.289	ü
PFOA_1	413.0 / 369.0	2.53	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.075	0.077	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.182	0.190	ü
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.054	0.056	ü

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 18/07/2018 9:24:36 AM

Sample Name	JX73	**Injection Vial**	9
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-29T09:21:55	**Data File**	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_B
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	0.307	0.345	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.071	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.292	0.289	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.074	0.077	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.186	0.190	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.056	0.056	ü

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 18/07/2018 9:24:38 AM

Sample Name	JX74	**Injection Vial**	10
Sample ID	L8	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-29T09:30:50	**Data File**	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_B
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	0.315	0.345	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.073	0.071	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.287	0.289	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.076	0.077	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.188	0.190	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.054	0.056	ü

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 18/07/2018 9:24:40 AM

Sample Name	JX75	**Injection Vial**	11
Sample ID	L9	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-29T09:39:45	**Data File**	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_B
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.317	0.345	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.071	0.071	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.16	PFHxS	0.292	0.289	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.078	0.077	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.89	PFOS	0.185	0.190	ü
PFTeDA_1	713.0 / 669.0	4.32	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.32	PFTeDA	0.057	0.056	ü

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 19/07/2018 9:47:13 AM

Sample Name	JX67	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-07-18T22:20:13	**Data File**	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_MSD
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	0.360	0.319	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.118	0.072	
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.286	0.288	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.062	0.072	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.182	0.189	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.049	0.052	ü

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 19/07/2018 9:47:15 AM

Sample Name	JX68	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-07-18T22:29:10	**Data File**	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_MSD
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	1.51	PFBS	0.307	0.319	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.077	0.072	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.278	0.288	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.072	0.072	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.192	0.189	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.050	0.052	ü

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 19/07/2018 9:47:17 AM

Sample Name	JX69	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-07-18T22:38:06	**Data File**	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_MSD
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	1.51	PFBS	0.337	0.319	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.070	0.072	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.296	0.288	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.079	0.072	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.184	0.189	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.055	0.052	ü

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 19/07/2018 9:47:22 AM

Sample Name	JX70	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-07-18T22:47:03	**Data File**	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_MSD
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	0.324	0.319	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.075	0.072	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.300	0.288	ü
PFOA_1	413.0 / 369.0	2.55	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.079	0.072	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.182	0.189	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.054	0.052	ü

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 19/07/2018 9:47:24 AM

Sample Name	JX71	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-07-18T22:55:59	**Data File**	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_MSD
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.290	0.319	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.066	0.072	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.281	0.288	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.066	0.072	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.197	0.189	ü
PFTeDA_1	713.0 / 669.0	4.35	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.052	0.052	ü

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Summary Ion Ratio Report

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Sample Name	JX72	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-07-18T23:04:55	**Data File**	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_MSD
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.315	0.319	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.074	0.072	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.289	0.288	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.073	0.072	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.197	0.189	ü
PFTeDA_1	713.0 / 669.0	4.35	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.052	0.052	ü

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Summary Ion Ratio Report

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Sample Name	JX73	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-07-18T23:13:52	**Data File**	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_MSD
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	0.313	0.319	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.071	0.072	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.291	0.288	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.068	0.072	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.190	0.189	ü
PFTeDA_1	713.0 / 669.0	4.35	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.050	0.052	ü

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Summary Ion Ratio Report

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Sample Name	JX74	**Injection Vial**	9
Sample ID	L8	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-07-18T23:22:48	**Data File**	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_MSD
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	1.51	PFBS	0.308	0.319	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.072	0.072	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.276	0.288	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.066	0.072	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.195	0.189	ü
PFTeDA_1	713.0 / 669.0	4.35	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.051	0.052	ü

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Summary Ion Ratio Report

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Sample Name	JX75	**Injection Vial**	10
Sample ID	L9	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-07-18T23:31:46	**Data File**	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_MSD
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.324	0.319	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.072	0.072	ü
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.292	0.288	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.070	0.072	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.185	0.189	ü
PFTeDA_1	713.0 / 669.0	4.35	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.35	PFTeDA	0.050	0.052	ü

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QC Summary Report

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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**	18-0393_DW
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	924.958865	1000.00	92.50
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

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QC Summary Report

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Sample Name	JX72 CCV	**Injection Vial**	54
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-27T17:25:48	**Data File**	06252018_5-371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	820.942991	885.00	92.76
PFBS_2	298.9 / 99.0	1.49	844.116263	885.00	95.38
PFHxA_1	313.0 / 269.0	1.77	1069.238822	1000.00	106.92
PFHxA_2	313.0 / 119.0	1.77	1069.284888	1000.00	106.93
PFHpA_1	363.0 / 319.0	2.13	1046.899084	1000.00	104.69
PFHpA_2	363.0 / 169.0	2.13	1103.337812	1000.00	110.33
PFHxS_1	399.0 / 80.0	2.14	838.327615	912.00	91.92
PFHxS_2	399.0 / 99.0	2.14	859.064516	912.00	94.20
PFOA_1	413.0 / 369.0	2.50	1110.273806	1000.00	111.03
PFOA_2	413.0 / 169.0	2.50	1139.265420	1000.00	113.93
PFNA_1	463.0 / 419.0	2.88	1100.236718	1000.00	110.02
PFNA_2	463.0 / 219.0	2.88	1159.004111	1000.00	115.90
PFOS_1	499.0 / 80.0	2.87	919.033188	925.60	99.29
PFOS_2	499.0 / 99.0	2.87	946.475499	925.60	102.26
PFDA_1	513.0 / 469.0	3.22	1144.349205	1000.00	114.43
PFDA_2	513.0 / 219.0	3.22	1125.018056	1000.00	112.50
PFUnA_1	563.0 / 519.0	3.54	1129.333357	1000.00	112.93
PFUnA_2	563.0 / 269.0	3.54	1140.415022	1000.00	114.04
PFDoA_1	613.0 / 569.0	3.82	1103.098852	1000.00	110.31
PFDoA_2	613.0 / 319.0	3.82	1063.338251	1000.00	106.33
PFTrDA_1	663.0 / 619.0	4.07	1086.512358	1000.00	108.65
PFTrDA_2	663.0 / 169.0	4.07	1058.935473	1000.00	105.89
PFTeDA_1	713.0 / 669.0	4.29	1010.395915	1000.00	101.04
PFTeDA_2	713.0 / 169.0	4.29	1146.550779	1000.00	114.66
NMeFOSAA_1	570.0 / 419.0	3.37	993.277862	1000.00	99.33
NMeFOSAA_2	570.0 / 512.0	3.37	994.015107	1000.00	99.40
NEtFOSAA_1	584.0 / 419.0	3.53	1155.871877	1000.00	115.59
NEtFOSAA_2	584.0 / 483.0	3.53	1008.044021	1000.00	100.80
13C2-PFHxA	315.0 / 270.0	1.76	99.722851	100.00	99.72
13C2-PFDA	515.0 / 470.0	3.21	105.062624	100.00	105.06
d5-EtFOSAA	589.0 / 419.0	3.53	385.558852	400.00	96.39

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QC Summary Report

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Sample Name	JX71 CCV	**Injection Vial**	21
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-27T19:13:03	**Data File**	06252018_5-371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	452.832376	443.00	102.22
PFBS_2	298.9 / 99.0	1.49	448.032477	443.00	101.14
PFHxA_1	313.0 / 269.0	1.77	530.169468	500.00	106.03
PFHxA_2	313.0 / 119.0	1.77	535.512464	500.00	107.10
PFHpA_1	363.0 / 319.0	2.13	524.785034	500.00	104.96
PFHpA_2	363.0 / 169.0	2.13	566.595517	500.00	113.32
PFHxS_1	399.0 / 80.0	2.15	473.009041	456.00	103.73
PFHxS_2	399.0 / 99.0	2.15	467.866806	456.00	102.60
PFOA_1	413.0 / 369.0	2.50	560.301760	500.00	112.06
PFOA_2	413.0 / 169.0	2.50	596.096814	500.00	119.22
PFNA_1	463.0 / 419.0	2.88	556.765697	500.00	111.35
PFNA_2	463.0 / 219.0	2.88	546.251417	500.00	109.25
PFOS_1	499.0 / 80.0	2.87	499.642439	463.00	107.91
PFOS_2	499.0 / 99.0	2.87	509.564584	463.00	110.06
PFDA_1	513.0 / 469.0	3.22	574.853507	500.00	114.97
PFDA_2	513.0 / 219.0	3.22	595.655493	500.00	119.13
PFUnA_1	563.0 / 519.0	3.54	574.231573	500.00	114.85
PFUnA_2	563.0 / 269.0	3.54	514.997665	500.00	103.00
PFDoA_1	613.0 / 569.0	3.82	562.050167	500.00	112.41
PFDoA_2	613.0 / 319.0	3.82	548.635081	500.00	109.73
PFTrDA_1	663.0 / 619.0	4.07	528.703788	500.00	105.74
PFTrDA_2	663.0 / 169.0	4.07	540.487982	500.00	108.10
PFTeDA_1	713.0 / 669.0	4.29	503.119002	500.00	100.62
PFTeDA_2	713.0 / 169.0	4.29	562.245574	500.00	112.45
NMeFOSAA_1	570.0 / 419.0	3.37	595.040714	500.00	119.01
NMeFOSAA_2	570.0 / 512.0	3.37	605.613669	500.00	121.12
NEtFOSAA_1	584.0 / 419.0	3.53	582.820588	500.00	116.56
NEtFOSAA_2	584.0 / 483.0	3.52	582.092178	500.00	116.42
13C2-PFHxA	315.0 / 270.0	1.76	100.675754	100.00	100.68
13C2-PFDA	515.0 / 470.0	3.21	105.729513	100.00	105.73
d5-EtFOSAA	589.0 / 419.0	3.52	433.950529	400.00	108.49

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QC Summary Report

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Sample Name	JX72 CCV	**Injection Vial**	31
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-27T20:51:24	**Data File**	06252018_5-371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	866.166863	885.00	97.87
PFBS_2	298.9 / 99.0	1.49	845.929656	885.00	95.59
PFHxA_1	313.0 / 269.0	1.77	1110.146700	1000.00	111.01
PFHxA_2	313.0 / 119.0	1.77	1114.367468	1000.00	111.44
PFHpA_1	363.0 / 319.0	2.13	1084.675205	1000.00	108.47
PFHpA_2	363.0 / 169.0	2.13	1081.069510	1000.00	108.11
PFHxS_1	399.0 / 80.0	2.14	872.196855	912.00	95.64
PFHxS_2	399.0 / 99.0	2.14	857.850805	912.00	94.06
PFOA_1	413.0 / 369.0	2.50	1121.579020	1000.00	112.16
PFOA_2	413.0 / 169.0	2.50	1136.830502	1000.00	113.68
PFNA_1	463.0 / 419.0	2.88	1114.289558	1000.00	111.43
PFNA_2	463.0 / 219.0	2.88	1056.803545	1000.00	105.68
PFOS_1	499.0 / 80.0	2.87	909.033349	925.60	98.21
PFOS_2	499.0 / 99.0	2.87	913.466112	925.60	98.69
PFDA_1	513.0 / 469.0	3.22	1177.384628	1000.00	117.74
PFDA_2	513.0 / 219.0	3.22	1216.292183	1000.00	121.63
PFUnA_1	563.0 / 519.0	3.54	1158.866697	1000.00	115.89
PFUnA_2	563.0 / 269.0	3.53	1038.065993	1000.00	103.81
PFDoA_1	613.0 / 569.0	3.82	1145.412871	1000.00	114.54
PFDoA_2	613.0 / 319.0	3.82	1080.836127	1000.00	108.08
PFTrDA_1	663.0 / 619.0	4.07	1124.100491	1000.00	112.41
PFTrDA_2	663.0 / 169.0	4.07	1090.798917	1000.00	109.08
PFTeDA_1	713.0 / 669.0	4.29	1026.506111	1000.00	102.65
PFTeDA_2	713.0 / 169.0	4.28	1179.494860	1000.00	117.95
NMeFOSAA_1	570.0 / 419.0	3.37	1148.665622	1000.00	114.87
NMeFOSAA_2	570.0 / 512.0	3.37	1108.011542	1000.00	110.80
NEtFOSAA_1	584.0 / 419.0	3.53	1114.531757	1000.00	111.45
NEtFOSAA_2	584.0 / 483.0	3.53	1240.575776	1000.00	124.06
13C2-PFHxA	315.0 / 270.0	1.76	102.897180	100.00	102.90
13C2-PFDA	515.0 / 470.0	3.21	110.292007	100.00	110.29
d5-EtFOSAA	589.0 / 419.0	3.52	399.641378	400.00	99.91

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QC Summary Report

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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**	18-0393_R
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	1170.910760	1000.00	117.09
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

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QC Summary Report

Created with Analyst Reporter
Printed: 18/07/2018 9:33:32 AM

Sample Name	JX71 CCV	**Injection Vial**	14
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-28T14:28:49	**Data File**	06282018_05-0371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_R
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)	
PFBS_1	298.9 / 80.0	1.49	433.351850	443.00	97.82	
PFBS_2	298.9 / 99.0	1.49	417.893795	443.00	94.33	
PFHxA_1	313.0 / 269.0	1.77	555.617023	500.00	111.12	
PFHxA_2	313.0 / 119.0	1.77	526.023129	500.00	105.20	
PFHpA_1	363.0 / 319.0	2.14	537.352952	500.00	107.47	
PFHpA_2	363.0 / 169.0	2.13	598.834968	500.00	119.77	
PFHxS_1	399.0 / 80.0	2.15	467.750364	456.00	102.58	
PFHxS_2	399.0 / 99.0	2.15	464.332695	456.00	101.83	
PFOA_1	413.0 / 369.0	2.51	552.859799	500.00	110.57	
PFOA_2	413.0 / 169.0	2.51	578.090082	500.00	115.62	
PFNA_1	463.0 / 419.0	2.88	573.018197	500.00	114.60	
PFNA_2	463.0 / 219.0	2.88	577.658820	500.00	115.53	
PFOS_1	499.0 / 80.0	2.88	479.839819	463.00	103.64	
PFOS_2	499.0 / 99.0	2.88	485.560903	463.00	104.87	
PFDA_1	513.0 / 469.0	3.23	575.672785	500.00	115.13	
PFDA_2	513.0 / 219.0	3.23	619.293466	500.00	123.86	
PFUnA_1	563.0 / 519.0	3.54	596.407032	500.00	119.28	
PFUnA_2	563.0 / 269.0	3.54	558.486019	500.00	111.70	
PFDoA_1	613.0 / 569.0	3.83	607.126162	500.00	121.43	
PFDoA_2	613.0 / 319.0	3.83	590.945496	500.00	118.19	
PFTrDA_1	663.0 / 619.0	4.07	570.645793	500.00	114.13	
PFTrDA_2	663.0 / 169.0	4.07	578.647779	500.00	115.73	
PFTeDA_1	713.0 / 669.0	4.29	558.799524	500.00	111.76	
PFTeDA_2	713.0 / 169.0	4.29	593.120207	500.00	118.62	
NMeFOSAA_1	570.0 / 419.0	3.37	577.267534	500.00	115.45	
NMeFOSAA_2	570.0 / 512.0	3.38	526.535835	500.00	105.31	
NEtFOSAA_1	584.0 / 419.0	3.53	544.605522	500.00	108.92	
NEtFOSAA_2	584.0 / 483.0	3.52	722.621022	500.00	144.52	Confirmation column
13C2-PFHxA	315.0 / 270.0	1.76	97.291270	100.00	97.29	
13C2-PFDA	515.0 / 470.0	3.22	106.652543	100.00	106.65	
d5-EtFOSAA	589.0 / 419.0	3.53	414.574420	400.00	103.64	

BATTELLE

QC Summary Report

Created with Analyst Reporter
Printed: 18/07/2018 9:33:35 AM

Sample Name	JX73 CCV	**Injection Vial**	22
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-28T15:40:09	**Data File**	06282018_05-0371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_R
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.49	1995.102832	2212.50	90.17
PFBS_2	298.9 / 99.0	1.49	2027.640702	2212.50	91.64
PFHxA_1	313.0 / 269.0	1.77	2396.977737	2500.00	95.88
PFHxA_2	313.0 / 119.0	1.77	2381.858294	2500.00	95.27
PFHpA_1	363.0 / 319.0	2.13	2455.109754	2500.00	98.20
PFHpA_2	363.0 / 169.0	2.13	2594.635110	2500.00	103.79
PFHxS_1	399.0 / 80.0	2.15	2045.925351	2280.00	89.73
PFHxS_2	399.0 / 99.0	2.15	2091.682564	2280.00	91.74
PFOA_1	413.0 / 369.0	2.51	2483.846209	2500.00	99.35
PFOA_2	413.0 / 169.0	2.51	2540.168706	2500.00	101.61
PFNA_1	463.0 / 419.0	2.88	2520.200144	2500.00	100.81
PFNA_2	463.0 / 219.0	2.88	2426.506875	2500.00	97.06
PFOS_1	499.0 / 80.0	2.88	2221.437136	2314.00	96.00
PFOS_2	499.0 / 99.0	2.88	2181.399719	2314.00	94.27
PFDA_1	513.0 / 469.0	3.23	2706.841983	2500.00	108.27
PFDA_2	513.0 / 219.0	3.23	2497.551298	2500.00	99.90
PFUnA_1	563.0 / 519.0	3.54	2620.874110	2500.00	104.83
PFUnA_2	563.0 / 269.0	3.54	2479.854358	2500.00	99.19
PFDoA_1	613.0 / 569.0	3.83	2579.611502	2500.00	103.18
PFDoA_2	613.0 / 319.0	3.82	2540.177613	2500.00	101.61
PFTrDA_1	663.0 / 619.0	4.07	2464.557370	2500.00	98.58
PFTrDA_2	663.0 / 169.0	4.07	2563.203514	2500.00	102.53
PFTeDA_1	713.0 / 669.0	4.29	2422.618971	2500.00	96.90
PFTeDA_2	713.0 / 169.0	4.28	2648.785600	2500.00	105.95
NMeFOSAA_1	570.0 / 419.0	3.37	2626.074017	2500.00	105.04
NMeFOSAA_2	570.0 / 512.0	3.37	2777.822474	2500.00	111.11
NEtFOSAA_1	584.0 / 419.0	3.53	2621.410401	2500.00	104.86
NEtFOSAA_2	584.0 / 483.0	3.53	2387.296538	2500.00	95.49
13C2-PFHxA	315.0 / 270.0	1.76	100.646228	100.00	100.65
13C2-PFDA	515.0 / 470.0	3.21	111.890432	100.00	111.89
d5-EtFOSAA	589.0 / 419.0	3.53	476.934570	400.00	119.23

BATTELLE

QC Summary Report

Created with Analyst Reporter
Printed: 18/07/2018 9:33:08 AM

Sample Name	JX66 ICC	**Injection Vial**	12
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-29T09:48:41	**Data File**	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_B
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.50	863.465774	885.00	97.57
PFBS_2	298.9 / 99.0	1.50	816.684769	885.00	92.28
PFHxA_1	313.0 / 269.0	1.78	955.325047	1000.00	95.53
PFHxA_2	313.0 / 119.0	1.78	916.334104	1000.00	91.63
PFHxS_1	399.0 / 80.0	2.16	916.180415	912.00	100.46
PFHxS_2	399.0 / 99.0	2.16	917.534867	912.00	100.61
PFOA_1	413.0 / 369.0	2.52	1063.175961	1000.00	106.32
PFOA_2	413.0 / 169.0	2.52	1063.929802	1000.00	106.39
PFOS_1	499.0 / 80.0	2.89	833.470925	925.60	90.05
PFOS_2	499.0 / 99.0	2.89	937.856173	925.60	101.32
PFTeDA_1	713.0 / 669.0	4.32	984.674503	1000.00	98.47
PFTeDA_2	713.0 / 169.0	4.31	965.547241	1000.00	96.55

BATTELLE

QC Summary Report

Created with Analyst Reporter
Printed: 18/07/2018 9:33:10 AM

Sample Name	JX72	**Injection Vial**	8
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-29T11:18:47	**Data File**	5500-06292018_371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_B
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.50	835.526325	885.00	94.41
PFBS_2	298.9 / 99.0	1.49	767.566406	885.00	86.73
PFHxA_1	313.0 / 269.0	1.78	1021.931002	1000.00	102.19
PFHxA_2	313.0 / 119.0	1.78	961.295561	1000.00	96.13
PFHxS_1	399.0 / 80.0	2.16	870.852119	912.00	95.49
PFHxS_2	399.0 / 99.0	2.16	886.292458	912.00	97.18
PFOA_1	413.0 / 369.0	2.52	1115.926274	1000.00	111.59
PFOA_2	413.0 / 169.0	2.52	1103.750471	1000.00	110.38
PFOS_1	499.0 / 80.0	2.89	885.853743	925.60	95.71
PFOS_2	499.0 / 99.0	2.89	902.576193	925.60	97.51
PFTeDA_1	713.0 / 669.0	4.31	1025.053299	1000.00	102.51
PFTeDA_2	713.0 / 169.0	4.31	1087.811703	1000.00	108.78

BATTELLE

QC Summary Report

Created with Analyst Reporter
Printed: 19/07/2018 9:49:00 AM

Sample Name	JX66 ICC	**Injection Vial**	11
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-07-18T23:40:44	**Data File**	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_MSD
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	812.824453	885.00	91.84
PFBS_2	298.9 / 99.0	1.51	803.090653	885.00	90.74
PFHxA_1	313.0 / 269.0	1.80	986.593702	1000.00	98.66
PFHxA_2	313.0 / 119.0	1.79	965.551775	1000.00	96.56
PFHxS_1	399.0 / 80.0	2.18	838.582328	912.00	91.95
PFHxS_2	399.0 / 99.0	2.18	792.812251	912.00	86.93
PFOA_1	413.0 / 369.0	2.54	1050.863577	1000.00	105.09
PFOA_2	413.0 / 169.0	2.54	1043.386988	1000.00	104.34
PFOS_1	499.0 / 80.0	2.91	826.831468	925.60	89.33
PFOS_2	499.0 / 99.0	2.91	906.585719	925.60	97.95
PFTeDA_1	713.0 / 669.0	4.35	1005.717484	1000.00	100.57
PFTeDA_2	713.0 / 169.0	4.35	964.339104	1000.00	96.43

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QC Summary Report

Created with Analyst Reporter
Printed: 19/07/2018 9:49:02 AM

Sample Name	JX72 CCV	**Injection Vial**	14
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-07-19T00:07:35	**Data File**	07182019_5-0371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_MSD
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	848.984177	885.00	95.93
PFBS_2	298.9 / 99.0	1.51	824.842950	885.00	93.20
PFHxA_1	313.0 / 269.0	1.80	1013.705912	1000.00	101.37
PFHxA_2	313.0 / 119.0	1.79	1035.236757	1000.00	103.52
PFHxS_1	399.0 / 80.0	2.18	848.202728	912.00	93.00
PFHxS_2	399.0 / 99.0	2.18	844.419416	912.00	92.59
PFOA_1	413.0 / 369.0	2.54	1031.970985	1000.00	103.20
PFOA_2	413.0 / 169.0	2.54	978.950189	1000.00	97.90
PFOS_1	499.0 / 80.0	2.91	935.250344	925.60	101.04
PFOS_2	499.0 / 99.0	2.91	921.826656	925.60	99.59
PFTeDA_1	713.0 / 669.0	4.34	995.154269	1000.00	99.52
PFTeDA_2	713.0 / 169.0	4.34	1009.939691	1000.00	100.99

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The Business of Innovation

Chain-of-Custody

Client Contact Information
Andy Frebowitz
234 Mall Boulevard, Suite 260
King of Prussia, PA 19406
610-382-1170

Project Manager: Jonathan Thorn
Sampler Information (print name): Mary Kay Bond
Phone: 610-382-1169
Email: mary.bond@tetratech.com
Turnaround Time (TAT) Requested: 21 days

Sampling Site: WE04
Site Information: NAS JRB Willow Grove/WGNA Warminster

Project Name: WE04
Project No.: 112G08005-WE04

Normal ☑
Priority ☐
RUSH ☐
Time Zone: Eastern

COC #
Page# 1 of 1

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	Preservativ: Trizma	Analysis: PFAS EPA 537 14 analytes	
NAWC-053118-RW-256 J6290	5/31/2018	8:10	G	DW	2		X	
NAWC-053118-FRB-256 91	5/31/2018	8:05	G	DW	2		X	Field Reagent Blank
NAWC-053118-RW-126 92	5/31/2018	8:40	G	DW	2		X	
NAWC-053118-FRB-126 93	5/31/2018	8:35	G	DW	2		X	Field Reagent Blank
WGNA-053118-DUP-38 94	5/31/2018	7:00	G	DW	2		X	DUPLICATE
WGNA-053118-RW-4850 95	5/31/2018	9:40	G	DW	6		X	MS/MSD
WGNA-053118-FRB-4850 96	5/31/2018	9:35	G	DW	2		X	Field Reagent Blank
NAWC-053118-RW-311 97	5/31/2018	12:10	G	DW	2		X	
NAWC-053118-FRB-311 98	5/31/2018	12:05	G	DW	2		X	Field Reagent Blank
NAWC-053118-RW-265 99	5/31/2018	16:10	G	DW	2		X	
NAWC-053118-FRB-265 J6300	5/31/2018	16:05	G	DW	2		X	Field Reagent Blank

Receipt Temperature:(°C) 1.6
Samples Intact: (Yes) No
Samples on Ice: (Yes) No
Receipt Comments:

Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
Mary Kay Bond	Tetra Tech	05/31/2018 18:00	Matt Schwintz	Battelle	6-1-18 1030

Comments: FedEx Tracking # 772365765386

Battelle

The Business of Innovation

Chain-of-Custody

Client Contact Information
Andy Frebowitz
234 Mall Boulevard, Suite 260
King of Prussia, PA 19406
610-382-1170

Project Manager: Jonathan Thorn
Sampler Information (print name): Mary Kay Bond
Phone: 610-382-1169
Email: mary.bond@tetratech.com
Turnaround Time (TAT) Requested: 21 days
Normal ☑ Priority ☐ RUSH ☐
Time Zone: Eastern

Project Name: WE04
Project No.: 112G08005-WE04

Sampling Site: WE04
Site Information: NAS JRB Willow Grove/WGNA Warminster

COC #
Page# 1 of 1

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	Preservative: Trizma	Analysis: PFAS EPA 537 14 analytes	
NAWC-060418-RW-230 J6582	6/4/2018	8:10	G	DW	2		X	
NAWC-060418-FRB-230 J6583	6/4/2018	8:05	G	DW	2		X	Field Reagent Blank
NAWC-060418-RW-309 J6584	6/4/2018	8:40	G	DW	2		X	
NAWC-060418-FRB-309 J6585	6/4/2018	8:35	G	DW	2		X	Field Reagent Blank
NAWC-060418-RW-293 J6586	6/4/2018	9:40	G	DW	2		X	
NAWC-060418-FRB-293 J6587	6/4/2018	9:35	G	DW	2		X	Field Reagent Blank
NAWC-060418-RW-038 J6588	6/4/2018	9:55	G	DW	2		X	
NAWC-060418-FRB-038 J6589	6/4/2018	9:50	G	DW	2		X	Field Reagent Blank
NAWC-060418-RW-039 J6590	6/4/2018	10:10	G	DW	2		X	
NAWC-060418-FRB-039 J6591	6/4/2018	10:05	G	DW	2		X	Field Reagent Blank

Receipt Temperature:(°C) 0.9
Samples Intact: (Yes) - No
Samples on Ice: (Yes) - No
Receipt Comments:

Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
[signature]	Tetra Tech	06/04/2018 16:00	Matt Schmitz MS	Battelle	6-5-18 1100

Comments: FedEx Tracking # 7723 7412 3139

Battelle

The Business of Innovation

Chain-of-Custody

Client Contact Information
Andy Frebowitz
234 Mall Boulevard, Suite 260
King of Prussia, PA 19406
610-382-1170

Project Manager: Jonathan Thorn
Sampler Information (print name): Mary Kay Bond
Phone: 610-382-1169
Email: mary.bond@tetratech.com
Turnaround Time (TAT) Requested: 21 days

Project Name: WE04
Project No.: 112G08005-WE04

Normal ☑
Priority ☐
RUSH ☐

Time Zone: Eastern

Sampling Site: WE04

Site Information: NAS JRB Willow Grove/WGNA Warminster

COC #

Page# 1 of 1

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.	Preservativ: Trizma	Analysis: PFAS EPA 537 14 analytes	
WGNA-060718-RW-0488	6/7/2018	12:40	G	DW	2		X	J6637
WGNA-060718-FRB-0488	6/7/2018	12:35	G	DW	2		X	J6638 Field Reagent Blank
NAWC-060718-RW-175	6/7/2018	13:10	G	DW	2		X	J6639
NAWC-060718-FRB-175	6/7/2018	13:05	G	DW	2		X	J6640 Field Reagent Blank
WGNA-060718-DUP-39	6/7/2018	7:00	G	DW	2		X	J6641 DUPLICATE
WGNA-060718-RW-0626	6/7/2018	14:10	G	DW	2		X	J6642
WGNA-060718-FRB-0626	6/7/2018	14:05	G	DW	2		X	J6643 Field Reagent Blank

Receipt Temperature:(°C) 0.6°C Therm. 2 (1.)

Samples Intact: (Yes) No

Samples on Ice: (Yes) No

Receipt Comments:

Relinquished by (Print/Sign):	Company:	Date/Time:	Received by (Print/Sign):	Company:	Date/Time:
[signature]	Tetra Tech	06/07/2018 16:00	[signature] Jonathan Thorn	Battelle	6/8/2018 10:36
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 # 7724 1753 4658

(1.) Ice melt = 0.6°C
temp blank = 2.3°C
JMT 6/8/2018

QA/QC Summary
Batch 18-0360

Project:	CTO-WE04 Naval Air Station Joint Reserve Base Willow Grove
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	DW
Data Set:	DP-18-0148
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
5/31/2018	6/1/2018	1.6
6/4/2018	6/5/2018	0.9
6/7/2018	6/8/2018	2.3

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 18-0393.

	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. There are no ion ratio exceedences above 50% RPD for any analyte detected above the MDL or the LOQ in this SDG.

Holding Times	Extraction Date(s)	Analysis Date(s)
	6/14/2018	6/14, 15, and 21/2018

QA/QC Summary
Batch 18-0360

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

Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
70-130% of true value	No exceedances noted.
	No comments.

Matrix Spike (MS) / Duplicate (MSD)	A MS/MSD were prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy. The relative percent difference was calculated to measure precision.
70-130% of true value, RPD ≤ 30%	No exceedances noted.
	MS/MSD samples were not processed with this batch of field reagent blank samples.
Surrogates Standard Analytes	Labelled surrogate compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
70-130% of true value	No exceedances noted.
	No comments.

Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
ICal high and low points RPD ≤20%, 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted.
	No comments.

Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadradic curve fitting.
R^2 >0.99 Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No exceedances noted.
	No comments.

QA/QC Summary
Batch 18-0360

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.

Norwell Operations
141 Longwater Drive, Suite 202
Norwell, Massachusetts 02061
Telephone: 781-681-5400

July 13th, 2018

This data package has been revised to include the following updates to the reporting format:

- Use of LOD values for non-detected values (in place of the MDL value that was used in the original report).
- Use of sample specific MDL, LOD, and LOQ values (adjusted for dilution and sample size variations as compared to the MDL, LOD, and LOQ studies)

In addition to non-detect ("U" qualified) data changing to use the sample specific LOD value (not included in the table below), the information in the following table changed from the original report to the new report. The reason for these changes is the variation in sample size for individual samples when using sample specific values. This table includes information on all SDG updated and resubmitted on 7/13/2018.

SDG	Lab Sample ID	Client ID	Analyte	New Result	New Qual	Old Result	Old Qual
18-0299	J5972-FS	WGNA-050118-RW-3178	PFHpA	2.25		2.25	J
18-0313	J6148-FS	NAWC-050718-RW-316	PFNA	2.26		2.26	J
18-0313	J6150-FS	NAWC-050718-RW-180	PFDA	0.37	J	0.39	U
18-0323	J6209-FS	NAWC-051018-FRB-177	PFOA	0.38	J	0.38	U
18-0343	J6264-FS	WGNA-052918-RW-3978	PFNA	2.34		2.34	J
18-0343	J6273-FS	NAWC-053018-RW-231	PFHxS	37.20	JD	37.20	D
18-0343	J6275-FS	WGNA-053018-RW-3933	PFNA	2.35		2.35	J
18-0343	J6285-FS	NAWC-053018-RW-196	PFHxS	2.31		2.31	J
18-0360	J6583-FS	NAWC-060418-FRB-230	PFHxS	0.33	J	1.00	U
18-0360	J6643-FS	WGNA-060718-FRB-0626	PFOS	2.48	B	2.48	J

The original data tables have been moved to the unused data section of this complete data package. For SDG 18-0313, the original MQO report and case narrative were moved to the unused data section of the full data package.

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
Project Number: 100117920-WE04
Preparation Batch: 18-0360
Data Set: DP-18-0148
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

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BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title:	Naval Air Station Joint Reserve Base Wi	**Data Set Number:**	DP-18-0148
Project Number:	100117920-WE04	**Prep Batch Number:**	18-0360
Entered By:	Denise Schumitz	**Entered On:**	06/22/2018
Test Code (Matrix Type):	Master_371(L)		

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
DMS 6/22/2018

JV72 is not being used in methods 18-0360_DW for13C2-PFHxA, PFHpA, PFOA, PFHxA, PFNA, PFDA, PFUnA, PFDoA, PFTrDA and PFTeDA. There is no impact on the data once this point is removed from the calibration.
DMS 6/22/2018

Sample J6638 is N qualified on the IS are report because it does not meet the IS area range for the second criteria only.
DMS 6/22/2018

The confirmation ion ratio was above 50% RPD for the selected samples in 18-0360_DW, however, the detected concentrations were below the LOQ or below the detection limits with the following exceptions: JV64 (PFHpA)
DMS 6/22/2018

J6300 did not meet the passing criteria for 13C2-PFHxA. The sample was re-aliquoted and run with a new calibration yielding passing results that are being reported.
DMS 6/26/2018

J6643 was re-aliquoted and run as confirmation for the concentration found in the sample for PFOS. The rerun of the sample is being reported.
DMS 6/26/2018

Task Leader Approval:

SupervisorApproval:

PM Approval:

Digitally signed by Jonathan Thorn
Date: 2018.06.26 15:52:09 -04'00'

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: Naval Air Station Joint Reserve Base Willow Grove, PA
Project No.: 100117920-WE04
Preparation Batch: 18-0360
Data Set: DP-18-0148

	CQ924PB-FS (Procedural Blank)	CQ925LCS-FS (Laboratory Control Sample)	J6291-FS (NAWC-053118-FRB-256)	J6293-FS (NAWC-053118-FRB-126)	J6296-FS (WGNA-053118-FRB-4850)	J6298-FS (NAWC-053118-FRB-311)	J6300-FS (NAWC-053118-FRB-265)
PFHxA	-	L	-	-	-	-	-
PFHpA	-	L	-	-	-	-	-
PFOA	-	L	-	-	-	-	-
PFNA	-	L	-	-	-	-	-
PFDA	-	L	-	-	-	-	-
PFUnA	-	L	-	-	-	-	-
PFDoA	-	L	-	-	-	-	-
PFTrDA	-	L	-	-	-	-	-
PFTeDA	-	L	-	-	-	-	-
NMeFOSAA	-	L	-	-	-	-	-
NEtFOSAA	-	L	-	-	-	-	-
PFBS	-	L	-	-	-	-	-
PFHxS	-	L/Br	-	-	-	-	-
PFOS	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: 18-0360
Data Set: DP-18-0

	J6583-FS (NAWC-060418-FRB-230)	J6585-FS (NAWC-060418-FRB-309)	J6587-FS (NAWC-060418-FRB-293)	J6589-FS (NAWC-060418-FRB-038)	J6591-FS (NAWC-060418-FRB-039)	J6638-FS (WGNA-060718-FRB-0488)	J6640-FS (NAWC-060718-FRB-175)	J6643-FS (WGNA-060718-FRB-0626)
PFHxA	-	-	-	-	-	-	-	-
PFHpA	-	-	-	-	-	-	-	-
PFOA	-	-	-	-	-	-	-	-
PFNA	-	-	-	-	-	-	-	-
PFDA	-	-	-	-	-	-	-	-
PFUnA	-	-	-	-	-	-	-	-
PFDoA	-	-	-	-	-	-	-	-
PFTrDA	-	-	-	-	-	-	-	-
PFTeDA	-	-	-	-	-	-	-	-
NMeFOSAA	-	-	-	-	-	-	-	-
NEtFOSAA	-	-	-	-	-	-	-	-
PFBS	-	-	-	-	-	-	-	-
PFHxS	-	-	-	-	-	-	-	-
PFOS	-	-	-	-	-	-	-	-

"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

Client ID	Procedural Blank				
Battelle ID	CQ924PB-FS				
Sample Type	PB				
Collection Date	06/14/2018				
Extraction Date	06/14/2018				
Analysis Date	06/15/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	WATER				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L		MDL	LOD	LOQ
PFHxA	0.50	U	0.22	0.50	2.50
PFHpA	1.00	U	0.34	1.00	2.50
PFOA	1.00	U	0.38	1.00	2.50
PFNA	1.00	U	0.37	1.00	2.50
PFDA	1.00	U	0.39	1.00	2.50
PFUnA	1.00	U	0.38	1.00	2.50
PFDoA	1.00	U	0.42	1.00	2.50
PFTrDA	1.00	U	0.42	1.00	2.50
PFTeDA	1.50	U	0.73	1.50	2.50
NMeFOSAA	1.00	U	0.42	1.00	2.50
NEtFOSAA	1.00	U	0.44	1.00	2.50
PFBS	0.50	U	0.21	0.50	2.50
PFHxS	1.00	U	0.34	1.00	2.50
PFOS	0.46	J	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	112
13C2-PFDA	104
d5-EtFOSAA	102

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	CQ925LCS-FS					
Sample Type	LCS					
Collection Date	06/14/2018					
Extraction Date	06/14/2018					
Analysis Date	06/15/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	WATER					
Sample Size	0.250					
Size Unit-Basis	L				Control Limits	
Units	ng/L	Target	Recovery	Qual	Lower	Upper
PFHxA	10.23	10.00	102		70	130
PFHpA	9.73	10.00	97		70	130
PFOA	9.91	10.00	99		70	130
PFNA	9.88	10.00	99		70	130
PFDA	9.75	10.00	98		70	130
PFUnA	10.29	10.00	103		70	130
PFDoA	9.61	10.00	96		70	130
PFTrDA	9.24	10.00	92		70	130
PFTeDA	12.63	10.00	126		70	130
NMeFOSAA	10.39	10.00	104		70	130
NEtFOSAA	11.44	10.00	114		70	130
PFBS	7.96	8.85	90		70	130
PFHxS	8.79	9.45	93		70	130
PFOS	9.89	9.55	104		70	130

Surrogate Recoveries (%)

13C2-PFHxA	111
13C2-PFDA	106
d5-EtFOSAA	95

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

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Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JV64	L1	6/14/18 16:59	13C4-PFOS	178,124.80	-	
JV65	L2	6/14/18 17:08	13C4-PFOS	174,455.63	-	
JV66	L3	6/14/18 17:17	13C4-PFOS	175,183.49	-	
JV67	L4	6/14/18 17:26	13C4-PFOS	188,900.92	-	
JV68	L5	6/14/18 17:35	13C4-PFOS	189,484.28	-	
JV69	L6	6/14/18 17:44	13C4-PFOS	195,004.08	-	
JV70	L7	6/14/18 17:53	13C4-PFOS	162,112.37	-	
JV71	L8	6/14/18 18:02	13C4-PFOS	177,778.90	-	
JV72	L9	6/14/18 18:11	13C4-PFOS	190,664.46	6.8	PASS

Average	Lower	Upper
181,300.99	90,650.50	271,951.49

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	178,124.80	90,650.50	271,951.49		113,478.66	226,957.32	
JV65	L2	6/14/18 17:08	13C4-PFOS	174,455.63	90,650.50	271,951.49		113,478.66	226,957.32	
JV66	L3	6/14/18 17:17	13C4-PFOS	175,183.49	90,650.50	271,951.49		113,478.66	226,957.32	
JV67	L4	6/14/18 17:26	13C4-PFOS	188,900.92	90,650.50	271,951.49		113,478.66	226,957.32	
JV68	L5	6/14/18 17:35	13C4-PFOS	189,484.28	90,650.50	271,951.49		113,478.66	226,957.32	
JV69	L6	6/14/18 17:44	13C4-PFOS	195,004.08	90,650.50	271,951.49		113,478.66	226,957.32	
JV70	L7	6/14/18 17:53	13C4-PFOS	162,112.37	90,650.50	271,951.49		113,478.66	226,957.32	
JV71	L8	6/14/18 18:02	13C4-PFOS	177,778.90	90,650.50	271,951.49		113,478.66	226,957.32	
JV72	L9	6/14/18 18:11	13C4-PFOS	190,664.46	90,650.50	271,951.49		113,478.66	226,957.32	
JV63 ICC	ICC	6/14/18 18:20	13C4-PFOS	185,743.83	90,650.50	271,951.49		113,478.66	226,957.32	
JV69 CCV	L6 CCV	6/15/18 18:07	13C4-PFOS	160,791.11	90,650.50	271,951.49		113,478.66	226,957.32	
CQ924PB-FS(2)	Procedural Blank	6/15/18 18:25	13C4-PFOS	153,276.44	90,650.50	271,951.49		113,478.66	226,957.32	
CQ925LCS-FS(2)	Laboratory Control Sample	6/15/18 18:34	13C4-PFOS	137,187.84	90,650.50	271,951.49		113,478.66	226,957.32	
J6291-FS(2)	NAWC-053118-FRB-256	6/15/18 18:43	13C4-PFOS	137,603.16	90,650.50	271,951.49		113,478.66	226,957.32	
J6293-FS(2)	NAWC-053118-FRB-126	6/15/18 18:52	13C4-PFOS	158,147.22	90,650.50	271,951.49		113,478.66	226,957.32	
J6296-FS(2)	WGNA-053118-FRB-4850	6/15/18 19:00	13C4-PFOS	166,537.97	90,650.50	271,951.49		113,478.66	226,957.32	
J6298-FS(2)	NAWC-053118-FRB-311	6/15/18 19:09	13C4-PFOS	164,251.54	90,650.50	271,951.49		113,478.66	226,957.32	
J6300-FS(2)	NAWC-053118-FRB-265	6/15/18 19:18	13C4-PFOS	147,104.92	90,650.50	271,951.49		113,478.66	226,957.32	
J6583-FS(2)	NAWC-060408-FRB-230	6/15/18 19:27	13C4-PFOS	130,126.84	90,650.50	271,951.49		113,478.66	226,957.32	
JV70 CCV	L7 CCV	6/15/18 19:36	13C4-PFOS	154,051.72	90,650.50	271,951.49		113,478.66	226,957.32	
J6585-FS(2)	NAWC-060408-FRB-309	6/15/18 19:54	13C4-PFOS	167,211.94	90,650.50	271,951.49		107,836.20	215,672.41	
J6587-FS(2)	NAWC-060408-FRB-293	6/15/18 20:03	13C4-PFOS	148,352.40	90,650.50	271,951.49		107,836.20	215,672.41	
J6589-FS(2)	NAWC-060408-FRB-038	6/15/18 20:12	13C4-PFOS	140,222.24	90,650.50	271,951.49		107,836.20	215,672.41	
J6591-FS(2)	NAWC-060408-FRB-039	6/15/18 20:21	13C4-PFOS	155,020.40	90,650.50	271,951.49		107,836.20	215,672.41	
J6638-FS(2)	WGNA-060718-FRB-0488	6/15/18 20:30	13C4-PFOS	119,165.05	90,650.50	271,951.49		107,836.20	215,672.41	
J6640-FS(2)	NAWC-060718-FRB-175	6/15/18 20:39	13C4-PFOS	153,768.49	90,650.50	271,951.49		107,836.20	215,672.41	
J6643-FS(2)	WGNA-060718-FRB-0626	6/15/18 20:48	13C4-PFOS	139,575.43	90,650.50	271,951.49		107,836.20	215,672.41	
JV69 CCV	L6 CCV	6/15/18 20:57	13C4-PFOS	172,319.61	90,650.50	271,951.49		107,836.20	215,672.41	

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

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It can be done

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JV64	L1	6/14/18 16:59	13C2-PFOA	59,540.47	-	
JV65	L2	6/14/18 17:08	13C2-PFOA	56,704.74	-	
JV66	L3	6/14/18 17:17	13C2-PFOA	58,565.02	-	
JV67	L4	6/14/18 17:26	13C2-PFOA	65,673.27	-	
JV68	L5	6/14/18 17:35	13C2-PFOA	65,593.19	-	
JV69	L6	6/14/18 17:44	13C2-PFOA	63,757.89	-	
JV70	L7	6/14/18 17:53	13C2-PFOA	59,126.70	-	
JV71	L8	6/14/18 18:02	13C2-PFOA	64,124.72	7.4	PASS

Average	Lower	Upper
61,635.75	30,817.88	92,453.63

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JV64	L1	6/14/18 16:59	13C2-PFOA	59,540.47	30,817.88	92,453.63		41,388.69	82,777.38	
JV65	L2	6/14/18 17:08	13C2-PFOA	56,704.74	30,817.88	92,453.63		41,388.69	82,777.38	
JV66	L3	6/14/18 17:17	13C2-PFOA	58,565.02	30,817.88	92,453.63		41,388.69	82,777.38	
JV67	L4	6/14/18 17:26	13C2-PFOA	65,673.27	30,817.88	92,453.63		41,388.69	82,777.38	
JV68	L5	6/14/18 17:35	13C2-PFOA	65,593.19	30,817.88	92,453.63		41,388.69	82,777.38	
JV69	L6	6/14/18 17:44	13C2-PFOA	63,757.89	30,817.88	92,453.63		41,388.69	82,777.38	
JV70	L7	6/14/18 17:53	13C2-PFOA	59,126.70	30,817.88	92,453.63		41,388.69	82,777.38	
JV71	L8	6/14/18 18:02	13C2-PFOA	64,124.72	30,817.88	92,453.63		41,388.69	82,777.38	
JV63 ICC	ICC	6/14/18 18:20	13C2-PFOA	60,459.81	30,817.88	92,453.63		41,388.69	82,777.38	
JV69 CCV	L6 CCV	6/15/18 18:07	13C2-PFOA	53,318.22	30,817.88	92,453.63		41,388.69	82,777.38	
CQ924PB-FS(2)	Procedural Blank	6/15/18 18:25	13C2-PFOA	49,887.99	30,817.88	92,453.63		41,388.69	82,777.38	
CQ925LCS-FS(2)	Laboratory Control Sample	6/15/18 18:34	13C2-PFOA	43,174.48	30,817.88	92,453.63		41,388.69	82,777.38	
J6291-FS(2)	NAWC-053118-FRB-256	6/15/18 18:43	13C2-PFOA	44,324.28	30,817.88	92,453.63		41,388.69	82,777.38	
J6293-FS(2)	NAWC-053118-FRB-126	6/15/18 18:52	13C2-PFOA	54,209.58	30,817.88	92,453.63		41,388.69	82,777.38	
J6296-FS(2)	WGNA-053118-FRB-4850	6/15/18 19:00	13C2-PFOA	57,359.73	30,817.88	92,453.63		41,388.69	82,777.38	
J6298-FS(2)	NAWC-053118-FRB-311	6/15/18 19:09	13C2-PFOA	54,245.57	30,817.88	92,453.63		41,388.69	82,777.38	
J6300-FS(2)	NAWC-053118-FRB-265	6/15/18 19:18	13C2-PFOA	48,215.90	30,817.88	92,453.63		41,388.69	82,777.38	
J6583-FS(2)	NAWC-060408-FRB-230	6/15/18 19:27	13C2-PFOA	42,702.48	30,817.88	92,453.63		41,388.69	82,777.38	
JV70 CCV	L7 CCV	6/15/18 19:36	13C2-PFOA	51,004.28	30,817.88	92,453.63		41,388.69	82,777.38	
J6585-FS(2)	NAWC-060408-FRB-309	6/15/18 19:54	13C2-PFOA	54,720.69	30,817.88	92,453.63		35,703.00	71,405.99	
J6587-FS(2)	NAWC-060408-FRB-293	6/15/18 20:03	13C2-PFOA	52,352.48	30,817.88	92,453.63		35,703.00	71,405.99	
J6589-FS(2)	NAWC-060408-FRB-038	6/15/18 20:12	13C2-PFOA	46,725.20	30,817.88	92,453.63		35,703.00	71,405.99	
J6591-FS(2)	NAWC-060408-FRB-039	6/15/18 20:21	13C2-PFOA	53,563.52	30,817.88	92,453.63		35,703.00	71,405.99	
J6638-FS(2)	WGNA-060718-FRB-0488	6/15/18 20:30	13C2-PFOA	42,284.90	30,817.88	92,453.63		35,703.00	71,405.99	
J6640-FS(2)	NAWC-060718-FRB-175	6/15/18 20:39	13C2-PFOA	54,874.94	30,817.88	92,453.63		35,703.00	71,405.99	
J6643-FS(2)	WGNA-060718-FRB-0626	6/15/18 20:48	13C2-PFOA	44,551.69	30,817.88	92,453.63		35,703.00	71,405.99	
JV69 CCV	L6 CCV	6/15/18 20:57	13C2-PFOA	59,194.17	30,817.88	92,453.63		35,703.00	71,405.99	

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

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It can be done

Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)	
JV64	L1	6/14/18 16:59	d3-MeFOSAA	28,199.07	-	
JV65	L2	6/14/18 17:08	d3-MeFOSAA	27,617.84	-	
JV66	L3	6/14/18 17:17	d3-MeFOSAA	27,497.23	-	
JV67	L4	6/14/18 17:26	d3-MeFOSAA	27,927.14	-	
JV68	L5	6/14/18 17:35	d3-MeFOSAA	29,948.30	-	
JV69	L6	6/14/18 17:44	d3-MeFOSAA	31,393.70	-	
JV70	L7	6/14/18 17:53	d3-MeFOSAA	28,365.86	-	
JV71	L8	6/14/18 18:02	d3-MeFOSAA	29,149.34	-	
JV72	L9	6/14/18 18:11	d3-MeFOSAA	34,369.99	19.7	PASS

Average	Lower	Upper
29,385.39	14,692.70	44,078.09

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	28,199.07	14,692.70	44,078.09		19,856.10	39,712.20	
JV65	L2	6/14/18 17:08	d3-MeFOSAA	27,617.84	14,692.70	44,078.09		19,856.10	39,712.20	
JV66	L3	6/14/18 17:17	d3-MeFOSAA	27,497.23	14,692.70	44,078.09		19,856.10	39,712.20	
JV67	L4	6/14/18 17:26	d3-MeFOSAA	27,927.14	14,692.70	44,078.09		19,856.10	39,712.20	
JV68	L5	6/14/18 17:35	d3-MeFOSAA	29,948.30	14,692.70	44,078.09		19,856.10	39,712.20	
JV69	L6	6/14/18 17:44	d3-MeFOSAA	31,393.70	14,692.70	44,078.09		19,856.10	39,712.20	
JV70	L7	6/14/18 17:53	d3-MeFOSAA	28,365.86	14,692.70	44,078.09		19,856.10	39,712.20	
JV71	L8	6/14/18 18:02	d3-MeFOSAA	29,149.34	14,692.70	44,078.09		19,856.10	39,712.20	
JV72	L9	6/14/18 18:11	d3-MeFOSAA	34,369.99	14,692.70	44,078.09		19,856.10	39,712.20	
JV63 ICC	ICC	6/14/18 18:20	d3-MeFOSAA	29,722.33	14,692.70	44,078.09		19,856.10	39,712.20	
JV69 CCV	L6 CCV	6/15/18 18:07	d3-MeFOSAA	31,457.94	14,692.70	44,078.09		19,856.10	39,712.20	
CQ924PB-FS(2)	Procedural Blank	6/15/18 18:25	d3-MeFOSAA	27,679.61	14,692.70	44,078.09		19,856.10	39,712.20	
CQ925LCS-FS(2)	Laboratory Control Sample	6/15/18 18:34	d3-MeFOSAA	23,558.27	14,692.70	44,078.09		19,856.10	39,712.20	
J6291-FS(2)	NAWC-053118-FRB-256	6/15/18 18:43	d3-MeFOSAA	25,723.79	14,692.70	44,078.09		19,856.10	39,712.20	
J6293-FS(2)	NAWC-053118-FRB-126	6/15/18 18:52	d3-MeFOSAA	31,260.08	14,692.70	44,078.09		19,856.10	39,712.20	
J6296-FS(2)	WGNA-053118-FRB-4850	6/15/18 19:00	d3-MeFOSAA	28,907.64	14,692.70	44,078.09		19,856.10	39,712.20	
J6298-FS(2)	NAWC-053118-FRB-311	6/15/18 19:09	d3-MeFOSAA	30,737.26	14,692.70	44,078.09		19,856.10	39,712.20	
J6300-FS(2)	NAWC-053118-FRB-265	6/15/18 19:18	d3-MeFOSAA	23,515.20	14,692.70	44,078.09		19,856.10	39,712.20	
J6583-FS(2)	NAWC-060408-FRB-230	6/15/18 19:27	d3-MeFOSAA	22,163.18	14,692.70	44,078.09		19,856.10	39,712.20	
JV70 CCV	L7 CCV	6/15/18 19:36	d3-MeFOSAA	32,544.08	14,692.70	44,078.09		19,856.10	39,712.20	
J6585-FS(2)	NAWC-060408-FRB-309	6/15/18 19:54	d3-MeFOSAA	25,531.62	14,692.70	44,078.09		22,780.86	45,561.71	
J6587-FS(2)	NAWC-060408-FRB-293	6/15/18 20:03	d3-MeFOSAA	26,484.83	14,692.70	44,078.09		22,780.86	45,561.71	
J6589-FS(2)	NAWC-060408-FRB-038	6/15/18 20:12	d3-MeFOSAA	22,915.14	14,692.70	44,078.09		22,780.86	45,561.71	
J6591-FS(2)	NAWC-060408-FRB-039	6/15/18 20:21	d3-MeFOSAA	24,928.25	14,692.70	44,078.09		22,780.86	45,561.71	
J6638-FS(2)	WGNA-060718-FRB-0488	6/15/18 20:30	d3-MeFOSAA	21,240.41	14,692.70	44,078.09		22,780.86	45,561.71	N
J6640-FS(2)	NAWC-060718-FRB-175	6/15/18 20:39	d3-MeFOSAA	28,180.65	14,692.70	44,078.09		22,780.86	45,561.71	
J6643-FS(2)	WGNA-060718-FRB-0626	6/15/18 20:48	d3-MeFOSAA	25,337.67	14,692.70	44,078.09		22,780.86	45,561.71	
JV69 CCV	L6 CCV	6/15/18 20:57	d3-MeFOSAA	33,029.07	14,692.70	44,078.09		22,780.86	45,561.71	

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Summary Asymmetry Report

Created with Analyst Reporter
Printed: 22/06/2018 11:09:35 AM

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**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.51	1.02	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.81	1.19	0.8 – 1.5

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Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 22/06/2018 11:10:23 AM

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**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.51	31	>10
PFBS_2	298.9 / 99.0	1.51	30	>10
PFHxA_1	313.0 / 269.0	1.81	26	>10
PFHxA_2	313.0 / 119.0	1.80	22	>10
PFHpA_1	363.0 / 319.0	2.18	33	>10
PFHpA_2	363.0 / 169.0	2.18	28	>10
PFHxS_1	399.0 / 80.0	2.19	29	>10
PFHxS_2	399.0 / 99.0	2.19	31	>10
PFOA_1	413.0 / 369.0	2.56	31	>10
PFOA_2	413.0 / 169.0	2.56	32	>10
PFNA_1	463.0 / 419.0	2.94	28	>10
PFNA_2	463.0 / 219.0	2.94	33	>10
PFOS_1	499.0 / 80.0	2.93	31	>10
PFOS_2	499.0 / 99.0	2.93	27	>10
PFDA_1	513.0 / 469.0	3.29	33	>10
PFDA_2	513.0 / 219.0	3.29	41	>10
PFUnA_1	563.0 / 519.0	3.61	27	>10
PFUnA_2	563.0 / 269.0	3.61	33	>10
PFDoA_1	613.0 / 569.0	3.89	35	>10
PFDoA_2	613.0 / 319.0	3.89	31	>10
PFTrDA_1	663.0 / 619.0	4.15	32	>10
PFTrDA_2	663.0 / 169.0	4.14	35	>10
PFTeDA_1	713.0 / 669.0	4.37	61	>10
PFTeDA_2	713.0 / 169.0	4.36	50	>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
13C2-PFHxA	315.0 / 270.0	1.80	37	>10
13C2-PFDA	515.0 / 470.0	3.28	24	>10
d5-EtFOSAA	589.0 / 419.0	3.59	33	>10

BATTELLE

Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 22/06/2018 11:10:23 AM

Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	6/21/2018 9:17:46 PM	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFOS_1	499.0 / 80.0	2.93	31	>10
PFOS_2	499.0 / 99.0	2.93	27	>10

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Precision and Bias at the LOQ for PFAS in Drinking Water

Analyte	CAS No.	Average (ng/L)	ST DEV	3 Sigma	n
PFHxA	307-24-4	10.80	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
PFTrDA	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)
PFHxA	307-24-4	0.22	0.5	2.5	2.5
PFHpA	375-85-9	0.34	1.0	2.5	2.5
PFOA	335-67-1	0.38	1.0	2.5	2.5
PFNA	375-95-1	0.37	1.0	2.5	2.5
PFDA	335-76-2	0.39	1.0	2.5	2.5
PFUnA	2058-94-8	0.38	1.0	2.5	2.5
PFDoA	307-55-1	0.42	1.0	2.5	2.5
PFTrDA	72629-94-8	0.42	1.0	2.5	2.5
PFTeDA	376-06-7	0.73	1.5	2.5	2.5
NMeFOSAA	2355-31-9	0.42	1.0	2.5	2.5
NEtFOSAA	2991-50-6	0.44	1.0	2.5	2.5
PFBS	375-73-5	0.21	0.5	2.5	2.5
PFHxS	3871-99-6	0.34	1.0	2.5	2.5
PFOS	1763-23-1	0.30	1.0	2.5	2.5

Analytes on NELAP and ELAP QSM 5.1 Scope of accreditation

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ID 626 04/18

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Analytical Transitions for PFAS in drinking water

SOP 5-371 (EPA 537 Version 1.1)

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
PFHxA	307-24-4	Target	313.0 / 269.0	313.0 / 119.0
PFHpA	375-85-9	Target	363.0 / 319.0	363.0 / 169.0
PFOA	335-67-1	Target	413.0 / 369.0	413.0 / 169.0
PFNA	375-95-1	Target	463.0 / 419.0	463.0 / 219.0
PFDA	335-76-2	Target	513.0 / 469.0	513.0 / 219.0
PFUnA	2058-94-8	Target	563.0 / 519.0	563.0 / 269.0
PFDoA	307-55-1	Target	613.0 / 569.0	613.0 / 319.0
PFTrDA	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
PFTeDA	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
NMeFOSAA	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
NEtFOSAA	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
PFBS	375-73-5	Target	298.9.0 / 80.0	298.9.0 / 99.0
PFHxS	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
PFOS	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
13C2-PFHxA	NA	SIS	315.0 / 270.0	NA
13C2-PFDA	NA	SIS	515.0 / 470.0	NA
d5-EtFOSAA	NA	SIS	589.0 / 419.0	NA
$^{13}C_2$-PFOA	NA	IS	415.0 / 270.0	NA
$^{13}C_4$-PFOS	NA	IS	503.0 / 80.0	NA
d3-MeFOSAA	NA	IS	573.0 / 419.0	NA

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Drinking Water Calibration to Sample Equivalents

ICAL (ng/L)	PIV (mL)	DF[1]	Sample Size (L)	Sample Equivalent (ng/L)[2]
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

[1] - base level dilution as part of the extraction procedure

[2] - calculated equivalent of a sample based on the ICAL concentration

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

Mass calibration and tune check

QTRAP 5500
Preventive Maintenance Checklist

Preventive Maintenance Date:	22-Feb-2017

Request ID:	3683
Company Name:	Battelle Memorial Institute
Instrument ID:	X60666
Instrument Model:	QTRAP 5500
Instrument Serial Number:	AU23051004

☑ **PASS** ☐ **FAIL**

Any failure will lead to an automatic Service Call being open to investigate fault.

Preventive Maintenance is performed twice every year unless specified in the Service Contract. It is designed to help maintain optimum system performance and to help diagnose any system deficiencies.

Engineer is required the assigned Request ID for this PM otherwise making this job invalid.

Comments:_____

_____

_____

_____

Performed By: Kaustubh Dhayagude **Date:** 22-Feb-2017

Approved By :_____ **Date:** _____

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PRE PM PPG PERFORMANCE EVALUATION:

☑ Consult Customer concerning the unit overall performance.
☑ Check Logbook for Services recently performed.
☑ Check Vacuum Pressure:

CAD Settings	Vacuum Reading (x 10^{-5} Torr)	Acceptance Criteria
☑ CAD 0	0.5	0.4 to 1.1 x10^{-5} Torr
☑ CAD Low	1.9	Read Only
☑ CAD Medium	2.4	Read Only
☑ CAD High	3.4	Read Only
☑ CAD 12	3.4	2.4 to 4.5 x10^{-5} Torr

☑ Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification

☑ No degradation or Sensitivity drop

☑ Check for Q3 contamination symptoms. Run Q3 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification

☑ No degradation or Sensitivity drop

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

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

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

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

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

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

☑ Perform MSMS POS in Product Ion scan with 609.3 parent and record daughter 195.1 using Reserpine 0.167 pmol/ul at the scan rate of 10 Da/s for 10 MCA. Calculate transmission efficiency comparing Q1POS 609 intensity. Transmission Efficiency: :__19.51%__ (Read Only)

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

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

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

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

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

☑ Perform Product Ion scan using NEG PPG 3e-5M. Record10mca.

Mass	Scan Rate	MCA	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.35 e6	Read Only	0.6495	Read Only

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PREVENTIVE MAINTENANCE CHECKLIST:

☑ Check Cooling Fans for Turbo Pumps while MS is ON.
☑ Check QJet and QPS tuning voltage for reference.
☐ Record AC input Voltage while MS is OFF: _____(200-240VAC).
If Out-of-Range, notify customer.

☑ Clean Interface
- ☑ Curtain Plate
- ☑ Orifice Plate
- ☑ QJet
- ☑ Q0 Rods.

☑ Replace Roughing Pump Oil.
☑ Inspect Oil Exhaust Filter, if Applicable. ☐ N/A
☑ Clean and inspect built-in divert valve if used. ☐ N/A
☑ Check Multiplier Voltage, optimize if necessary.
☑ Replace four Air Filters at the bottom of the mass spectrometer.

☑Pump down overnight if possible. ☐ N/A

☑Perform Maintenance on Turbo V source.

☑Replace Electrode, if necessary. ☐ N/A
☑Check Turbo heaters resistances.
☑Check if Temperature is reached at 500C with TIS Probe installed.
☐Check if Temperature is reached at 500C with APCI Probe installed. ☑ N/A

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

POST PM PPG PERFORMANCE TESTS:

☑ Set-up Sample for Infusion.
☑ Check spray and adjust sprayer's position of the TIS source.
☑ Check Vacuum Pressure:

CAD Settings	Vacuum Reading (x 10^{-5} Torr)	Acceptance Criteria
☑ CAD 0	0.8	0.4 to 1.1 x10^{-5} Torr
☑ CAD Low	2.1	Read Only
☑ CAD Medium	2.6	Read Only
☑ CAD High	3.7	Read Only
☑ CAD 12	3.7	2.4 to 4.5 x10^{-5} Torr

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

Mass	Q1 Intensity		Q1 Width	Width Specs
	Value	Spec	Value	
Scan Rate 10 Da/s Record 10 mca				
Q1 175.133	5.94 e6	≥1.2^{e}6	0.6933	0.6 to 0.8
Q1 500.380	2.25 e7	≥9.0^{e}6	0.7444	0.6 to 0.8
Q1 906.673	2.74 e7	≥1.4^{e}7	0.7347	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8^{e}7	0.7656	0.6 to 0.8

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

Mass	Q3 Intensity		Q3 Width	Width Specs
	Value	Spec	Value	
Scan Rate 10 Da/s Record 10 mca				
Q3 175.133	4.54 e6	≥1.2^{e}6	0.6390	0.6 to 0.8
Q3 500.380	2.13 e7	≥9.0^{e}6	0.7008	0.6 to 0.8
Q3 906.673	3.04 e7	≥1.4^{e}7	0.7683	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q3 906.673	1.51 e8	≥6.8^{e}7	0.7118	0.6 to 0.8

☑ Perform "Product of 609.3" POS and record product ion 195.1 using Reserpine 0.167pmol/uL. Record 10 mca. Calculate Transmission efficiency comparing Q1POS 609 intensity.
Transmission Efficiency: 16.93% (≥ 10.0%)

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

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

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

Mass	Scan Rate	Mca	Q1 Intensity		Q1 Width Value	Width Specs
			Value	Spec		
Q1 933.636	10	10	1.31 e7	≥1.0^{e}7	0.6895	0.6 to 0.8
Q1 933.636	1000	50	6.32 e7	≥4.0^{e}7	0.6740	0.6 to 0.8

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

Mass	Scan Rate	Mca	Q3 Intensity		Q3 Width Value	Width Specs
			Value	Spec		
Q3 933.636	10	10	1.70 e7	≥8.0^{e}6	0.7665	0.6 to 0.8
Q3 933.636	1000	50	7.41 e7	≥4.0^{e}7	0.7292	0.6 to 0.8

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

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

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

Mass	Fill Time (ms)	ER Intensity		ER Width Value	Width Specs
		Value	Spec		
ScanRate : 1000 Da/s ; 50 Mca					
ER 118.087	0.05	8.08 e6	≥7.2 ^{e}6	0.1302	<0.35
ER 922.010	0.05	3.89 e7	≥2.8 ^{e}6	0.2603	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05	2.55 e7	≥2.4 ^{e}7	0.3740	<0.65
ER 922.010	0.05	2.37 e8	≥6.8 ^{e}7	0.5407	<0.65

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

Mass	Fill Time (ms)	ER Intensity		ER Width Value	Width Specs
		Value	Spec		
ScanRate : 1000 Da/s ; 50 Mca					
ER 431.982	0.05	1.05 e8	≥4.4 ^{e}7	0.1840	<0.35
ER 601.978	0.05	7.74 e7	≥5.6 ^{e}7	0.1849	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 431.982	0.05	3.43 e8	≥1.2 ^{e}8	0.4382	<0.65
ER 601.978	0.05	2.55 e8	≥1.6 ^{e}8	0.6205	<0.65

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

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

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

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

Mass	Scan Rate (Da/s)	Fragamentation OFF		Fragmentation ON	
		Intensity	Spec	Intensity	Spec
MS3 397.2	1000	3.2 e7	Contains only 397.2	N/A	N/A
☐ 236 OR ☑ 365	1000	1.19 e8	Fragment Intensity	> 4.4 e6	≥1.6x 10e6

REVIEW:

☑ Attach all spectrums printouts to this procedure.
☑ If any parameter setting access modes were changed during the PM, ensure they are returned to their normal access mode and that their offsets are adjusted to match optimized values from the post-PM acquisition files.
☐ Empty tuning cache folder, if necessary. ☑ N/A
☑ Update Service Work Order status
☑ Fill and replace PM Label.

END OF PREVENTIVE MAINTENANCE CHECKLIST

Document history:

06 OCT 2016: Appendix ZEFPM003-2L: Removed requirements to fit Manufacturer's testing criteria.

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BATTELLE - NORWELL OPERATIONS
SAMPLE IDENTIFICATION PAGE

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

18-0360

WE04 PFAS Analysis

DW

Sample ID	Description
CQ924PB-FS	Procedural Blank
CQ925LCS-FS	Laboratory Control Sample
J6291-FS	NAWC-053118-FRB-256
J6293-FS	NAWC-053118-FRB-126
J6296-FS	WGNA-053118-FRB-4850
J6298-FS	NAWC-053118-FRB-311
J6300-FS	NAWC-053118-FRB-265
J6583-FS	NAWC-060418-FRB-230
J6585-FS	NAWC-060418-FRB-309
J6587-FS	NAWC-060418-FRB-293
J6589-FS	NAWC-060418-FRB-038
J6591-FS	NAWC-060418-FRB-039
J6638-FS	WGNA-060718-FRB-0488
J6640-FS	NAWC-060718-FRB-175
J6643-FS	WGNA-060718-FRB-0626

Samples Assigned By: Jonathan Thorn Date : June 11, 2018

Comments:

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BATTELLE - NORWELL OPERATIONS
LIQUID SAMPLE ID FORM

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

Project No.(s)
100117920-WE04

18-0360

WE04 PFAS Analysis

DW

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CQ924PB-FS	Procedural Blank	250.0	NA	--	06/14/18 SAS
CQ925LCS-FS	Laboratory Control Sample	250.0	NA	--	06/14/18 SAS
J6291-FS	NAWC-053118-FRB-256	260.0	1	C	06/14/18 SAS
J6293-FS	NAWC-053118-FRB-126	265.0	1	C	06/14/18 SAS
J6296-FS	WGNA-053118-FRB-4850	265.0	1	C	06/14/18 SAS
J6298-FS	NAWC-053118-FRB-311	265.0	1	C	06/14/18 SAS
J6300-FS	NAWC-053118-FRB-265	265.0	1	C	06/14/18 SAS
J6583-FS	NAWC-060418-FRB-230	260.0	1	C	06/14/18 SAS
J6585-FS	NAWC-060418-FRB-309	250.0	1	C	06/14/18 SAS
J6587-FS	NAWC-060418-FRB-293	250.0	1	C	06/14/18 SAS
J6589-FS	NAWC-060418-FRB-038	265.0	1	C	06/14/18 SAS
J6591-FS	NAWC-060418-FRB-039	265.0	1	C	06/14/18 SAS
J6638-FS	WGNA-060718-FRB-0488	255.0	1	C	06/14/18 SAS
J6640-FS	NAWC-060718-FRB-175	255.0	1	C	06/14/18 SAS
J6643-FS	WGNA-060718-FRB-0626	255.0	1	C	06/14/18 SAS

Comments:

Sample ID:	Comments:
CQ924PB-FS	1.27g Trizma(180502-01) weighed on BAL-009
CQ925LCS-FS	1.27g Trizma(180502-01) weighed on BAL-009

Samples Assigned By Jonathan Thorn Date : June 11, 2018

* - "C" = Sample is Consumed

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SURROGATE SPIKE FORM

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

Project No.(s)
100117920-WE04

18-0360
WE04 PFAS Analysis
DW

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CQ924PB-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
CQ925LCS-FS	JV41	LCS/MS	1	50	06/14/18 SAS	JCT	NA
CQ925LCS-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6291-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6293-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6296-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6298-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6300-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6583-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6585-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6587-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6589-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6591-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6638-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6640-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA
J6643-FS	JV60	SIS	1	50	06/14/18 SAS	JCT	NA

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV41	Pipette	I0793912B
JV60	Pipette	I0793912B

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INTERNAL STANDARD SPIKING FORM

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

Project No.(s)
100117920-WE04

18-0360

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
CQ924PB-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
CQ925LCS-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6291-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6293-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6296-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6298-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6300-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6300-FS-D(3)	952	48	JV59	50.5	1	1000	20.000	06/21/18 LMG	NA
J6583-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6585-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6587-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6589-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6591-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6638-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6640-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6643-FS(0)	950	50	JV59	50	1	1000	1.000	06/15/18 LMG	SAS
J6643-FS-D(3)	952	48	JV59	50.5	1	1000	20.000	06/21/18 LMG	NA

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

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

BATTELLE

Sequence Report

Created with Analyst Reporter
Printed: 22/06/2018 11:11:19 AM

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
23	JV69 CCV	L6 CCV	6/15/2018 6:07:22 PM	5-0371.dam	06142018.wiff
1	MeOH	Solvent	6/15/2018 6:16:16 PM	5-0371.dam	06142018.wiff
24	CQ924PB-FS(0)	Procedural Blank	6/15/2018 6:25:12 PM	5-0371.dam	06142018.wiff
25	CQ925LCS-FS(0)	Laboratory Control Sample	6/15/2018 6:34:09 PM	5-0371.dam	06142018.wiff
26	J6291-FS(0)	NAWC-053118-FRB-256	6/15/2018 6:43:04 PM	5-0371.dam	06142018.wiff
27	J6293-FS(0)	NAWC-053118-FRB-126	6/15/2018 6:52:00 PM	5-0371.dam	06142018.wiff
28	J6296-FS(0)	WGNA-053118-FRB-4850	6/15/2018 7:00:56 PM	5-0371.dam	06142018.wiff
29	J6298-FS(0)	NAWC-053118-FRB-311	6/15/2018 7:09:53 PM	5-0371.dam	06142018.wiff
30	J6300-FS(0)	NAWC-053118-FRB-265	6/15/2018 7:18:48 PM	5-0371.dam	06142018.wiff
31	J6583-FS(0)	NAWC-060408-FRB-230	6/15/2018 7:27:44 PM	5-0371.dam	06142018.wiff
32	JV70 CCV	L7 CCV	6/15/2018 7:36:43 PM	5-0371.dam	06142018.wiff
1	MeOH	Solvent	6/15/2018 7:45:41 PM	5-0371.dam	06142018.wiff
33	J6585-FS(0)	NAWC-060408-FRB-309	6/15/2018 7:54:39 PM	5-0371.dam	06142018.wiff
34	J6587-FS(0)	NAWC-060408-FRB-293	6/15/2018 8:03:34 PM	5-0371.dam	06142018.wiff
35	J6589-FS(0)	NAWC-060408-FRB-038	6/15/2018 8:12:30 PM	5-0371.dam	06142018.wiff
36	J6591-FS(0)	NAWC-060408-FRB-	6/15/2018 8:21:24	5-0371.dam	06142018.wiff

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Sequence Report

Created with Analyst Reporter
Printed: 22/06/2018 11:11:19 AM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
		039	PM		
37	J6638-FS(0)	WGNA-060718-FRB-0488	6/15/2018 8:30:19 PM	5-0371.dam	06142018.wiff
38	J6640-FS(0)	NAWC-060718-FRB-175	6/15/2018 8:39:15 PM	5-0371.dam	06142018.wiff
39	J6643-FS(0)	WGNA-060718-FRB-0626	6/15/2018 8:48:11 PM	5-0371.dam	06142018.wiff
40	JV69 CCV	L6 CCV	6/15/2018 8:57:07 PM	5-0371.dam	06142018.wiff

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Sequence Report

Created with Analyst Reporter
Printed: 22/06/2018 11:44:17 AM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MEOH		6/21/2018 8:15:15 AM	5-0371.dam	06212018.wiff
2	JV64		6/21/2018 8:24:11 AM	5-0371.dam	06212018.wiff
3	JV65		6/21/2018 8:33:07 AM	5-0371.dam	06212018.wiff
4	JV66		6/21/2018 8:42:03 AM	5-0371.dam	06212018.wiff
5	JV67		6/21/2018 8:50:59 AM	5-0371.dam	06212018.wiff
6	JV68		6/21/2018 8:59:55 AM	5-0371.dam	06212018.wiff
7	JV69		6/21/2018 9:08:50 AM	5-0371.dam	06212018.wiff
8	JV70		6/21/2018 9:17:46 AM	5-0371.dam	06212018.wiff
9	JV71		6/21/2018 9:26:43 AM	5-0371.dam	06212018.wiff
10	JV72		6/21/2018 9:35:40 AM	5-0371.dam	06212018.wiff
11	JV63 ICC		6/21/2018 9:44:36 AM	5-0371.dam	06212018.wiff
1	MEOH		6/21/2018 9:53:32 AM	5-0371.dam	06212018.wiff
22	J6300-FS(0)		6/21/2018 10:02:27 AM	5-0371.dam	06212018.wiff
23	J6643-FS(0)		6/21/2018 10:11:23 AM	5-0371.dam	06212018.wiff
7	JV69		6/21/2018 10:20:17 AM	5-0371.dam	06212018.wiff

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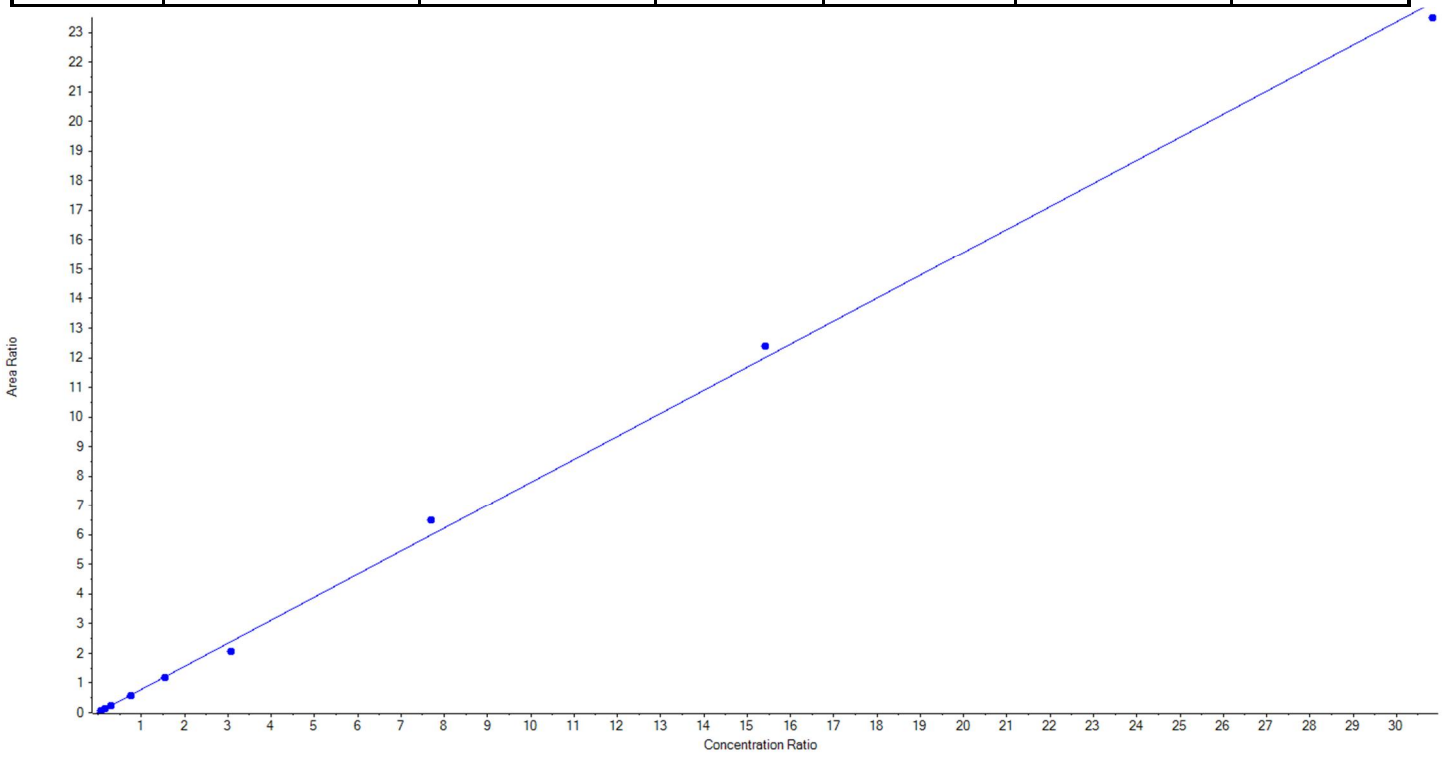
Calibration Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 11:12:33 AM

Analyte Name	PFBS_1	**Data File**	06142018.wiff
MRM Transition	298.9 / 80.0	**Result Table**	18-0360_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.77839 x + 0.00401 (r = 0.99869) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.15	24.666173	111.4
3	JV65	L2	True	44.30	44.259714	99.9
4	JV66	L3	True	88.60	89.494205	101.0
5	JV67	L4	True	221.50	209.706842	94.7
6	JV68	L5	True	443.00	431.309708	97.4
7	JV69	L6	True	885.00	762.049217	86.1
8	JV70	L7	True	2212.50	2398.828571	108.4
9	JV71	L8	True	4425.00	4570.588925	103.3
10	JV72	L9	True	8850.00	8661.146644	97.9



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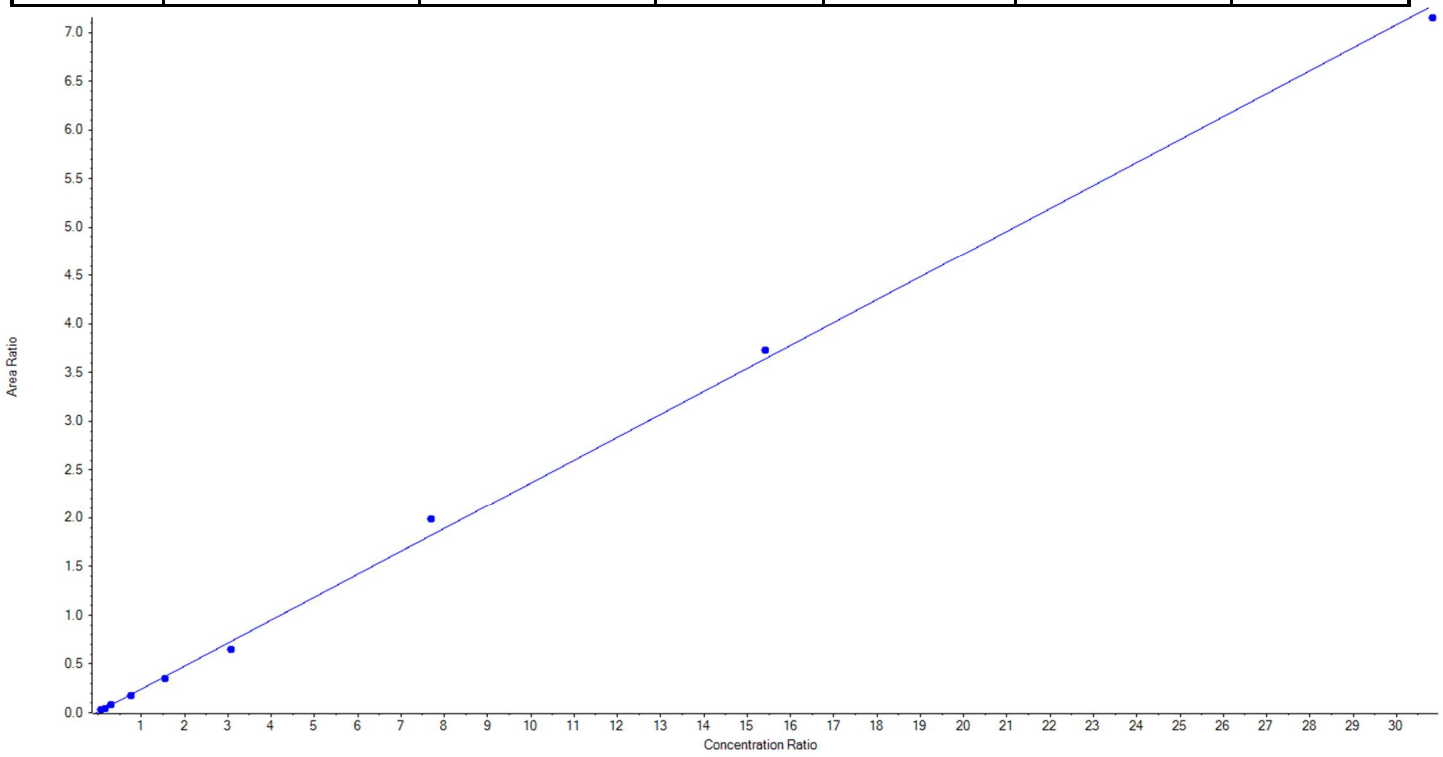
Calibration Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 11:12:33 AM

Analyte Name	PFBS_2	**Data File**	06142018.wiff
MRM Transition	298.9 / 99.0	**Result Table**	18-0360_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.23574 x + 0.00605 (r = 0.99879) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	22.15	27.536713	124.3
3	JV65	L2	True	44.30	41.731203	94.2
4	JV66	L3	True	88.60	87.509544	98.8
5	JV67	L4	True	221.50	201.132833	90.8
6	JV68	L5	True	443.00	417.410406	94.2
7	JV69	L6	True	885.00	780.428998	88.2
8	JV70	L7	True	2212.50	2407.544452	108.8
9	JV71	L8	True	4425.00	4531.606434	102.4
10	JV72	L9	True	8850.00	8697.149416	98.3



BATTELLE

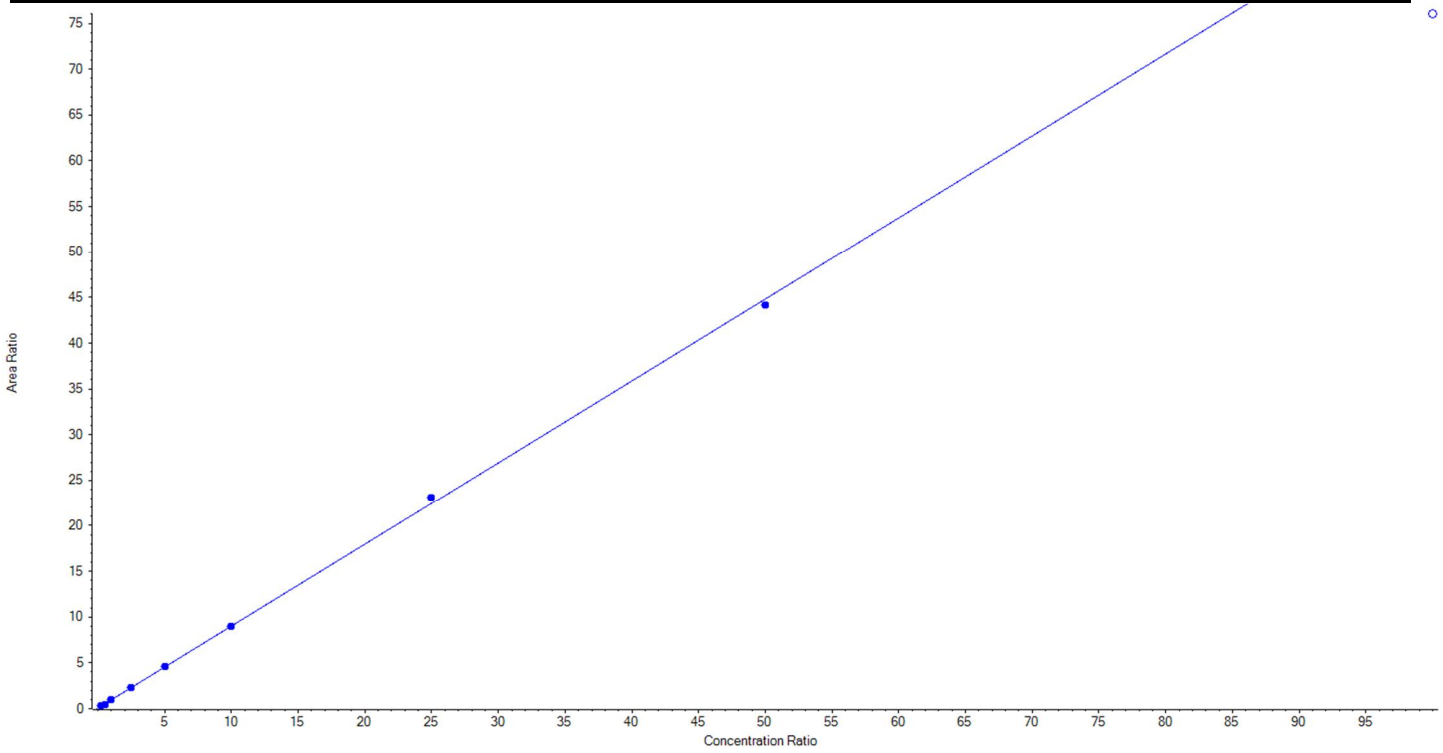
Calibration Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 11:12:33 AM

Analyte Name	PFHxA_1	**Data File**	06142018.wiff
MRM Transition	313.0 / 269.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.89489 x + 0.07012 (r = 0.99974) (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	27.758747	111.0
3	JV65	L2	True	50.00	43.372821	86.8
4	JV66	L3	True	100.00	100.860463	100.9
5	JV67	L4	True	250.00	246.776329	98.7
6	JV68	L5	True	500.00	507.810763	101.6
7	JV69	L6	True	1000.00	995.836146	99.6
8	JV70	L7	True	2500.00	2572.545694	102.9
9	JV71	L8	True	5000.00	4930.039038	98.6
10	JV72	L9	False	10000.00	8489.472182	84.9



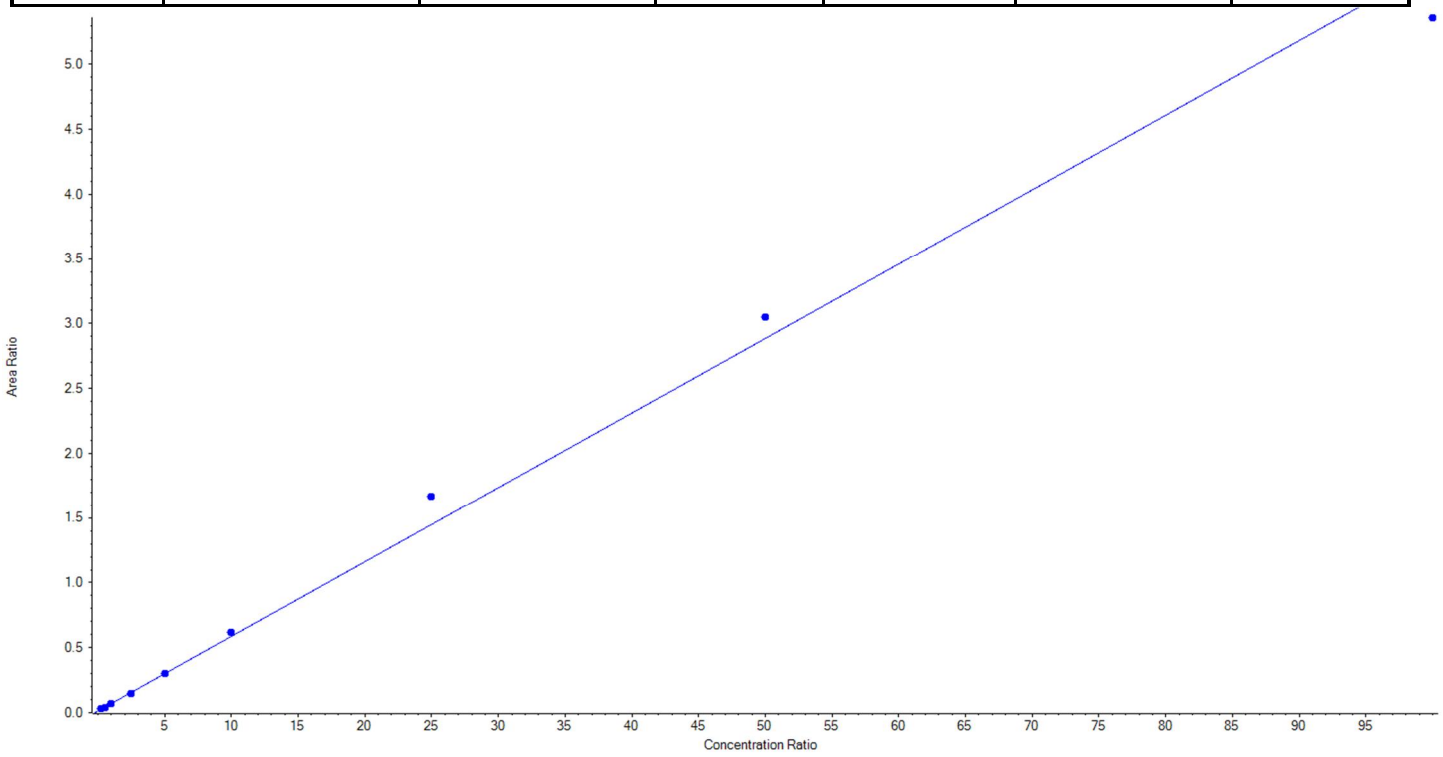
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Calibration Summary Report

Analyte Name	PFHxA_2	**Data File**	06142018.wiff
MRM Transition	313.0 / 119.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05745 x + 0.01250 (r = 0.99653) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	26.082375	104.3
3	JV65	L2	True	50.00	42.916072	85.8
4	JV66	L3	True	100.00	97.178176	97.2
5	JV67	L4	True	250.00	233.831403	93.5
6	JV68	L5	True	500.00	500.848102	100.2
7	JV69	L6	True	1000.00	1048.145230	104.8
8	JV70	L7	True	2500.00	2883.357143	115.3
9	JV71	L8	True	5000.00	5288.277488	105.8
10	JV72	L9	True	10000.00	9304.364012	93.0



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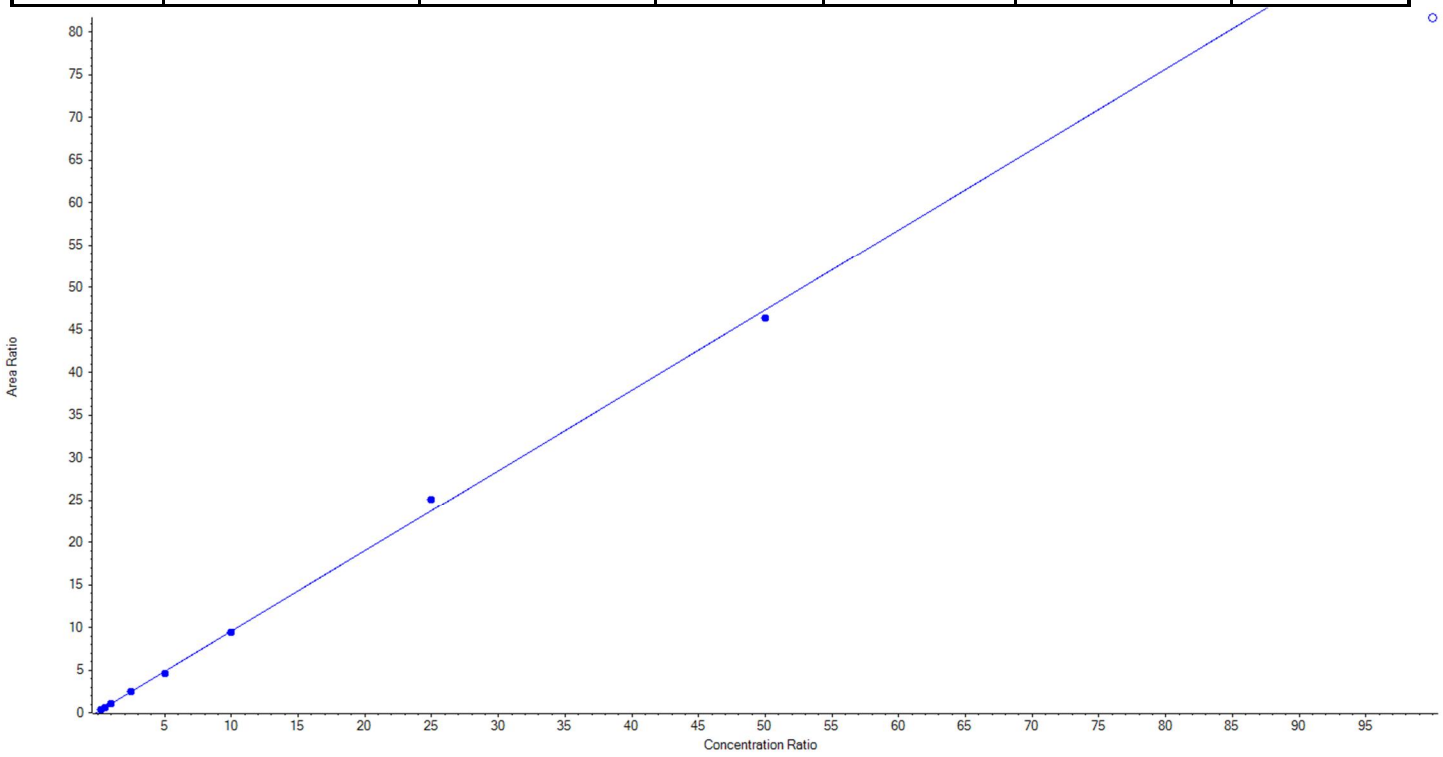
Calibration Summary Report

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Analyte Name	PFHpA_1	**Data File**	06142018.wiff
MRM Transition	363.0 / 319.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.94432 x + 0.11531 (r = 0.99932) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	25.759139	103.0
3	JV65	L2	True	50.00	51.556182	103.1
4	JV66	L3	True	100.00	97.624196	97.6
5	JV67	L4	True	250.00	246.212850	98.5
6	JV68	L5	True	500.00	478.933727	95.8
7	JV69	L6	True	1000.00	982.303729	98.2
8	JV70	L7	True	2500.00	2643.621233	105.7
9	JV71	L8	True	5000.00	4898.988945	98.0
10	JV72	L9	False	10000.00	8636.023065	86.4



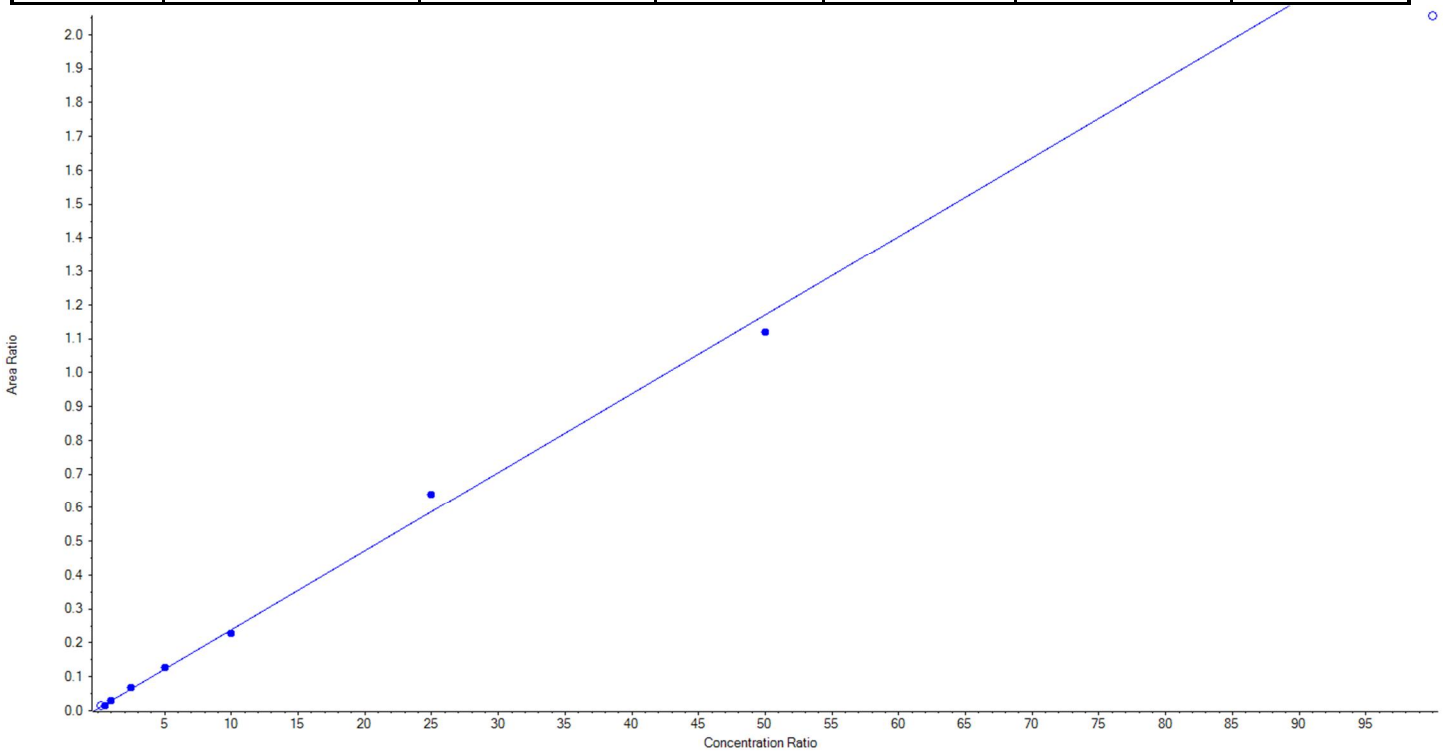
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Calibration Summary Report

Analyte Name	PFHpA_2	**Data File**	06142018.wiff
MRM Transition	363.0 / 169.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.02330 x + 0.00588 (r = 0.99792) (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	39.243799	157.0
3	JV65	L2	True	50.00	43.480197	87.0
4	JV66	L3	True	100.00	103.234444	103.2
5	JV67	L4	True	250.00	261.112839	104.5
6	JV68	L5	True	500.00	524.272465	104.9
7	JV69	L6	True	1000.00	958.231420	95.8
8	JV70	L7	True	2500.00	2724.450945	109.0
9	JV71	L8	True	5000.00	4785.217689	95.7
10	JV72	L9	False	10000.00	8798.438815	88.0



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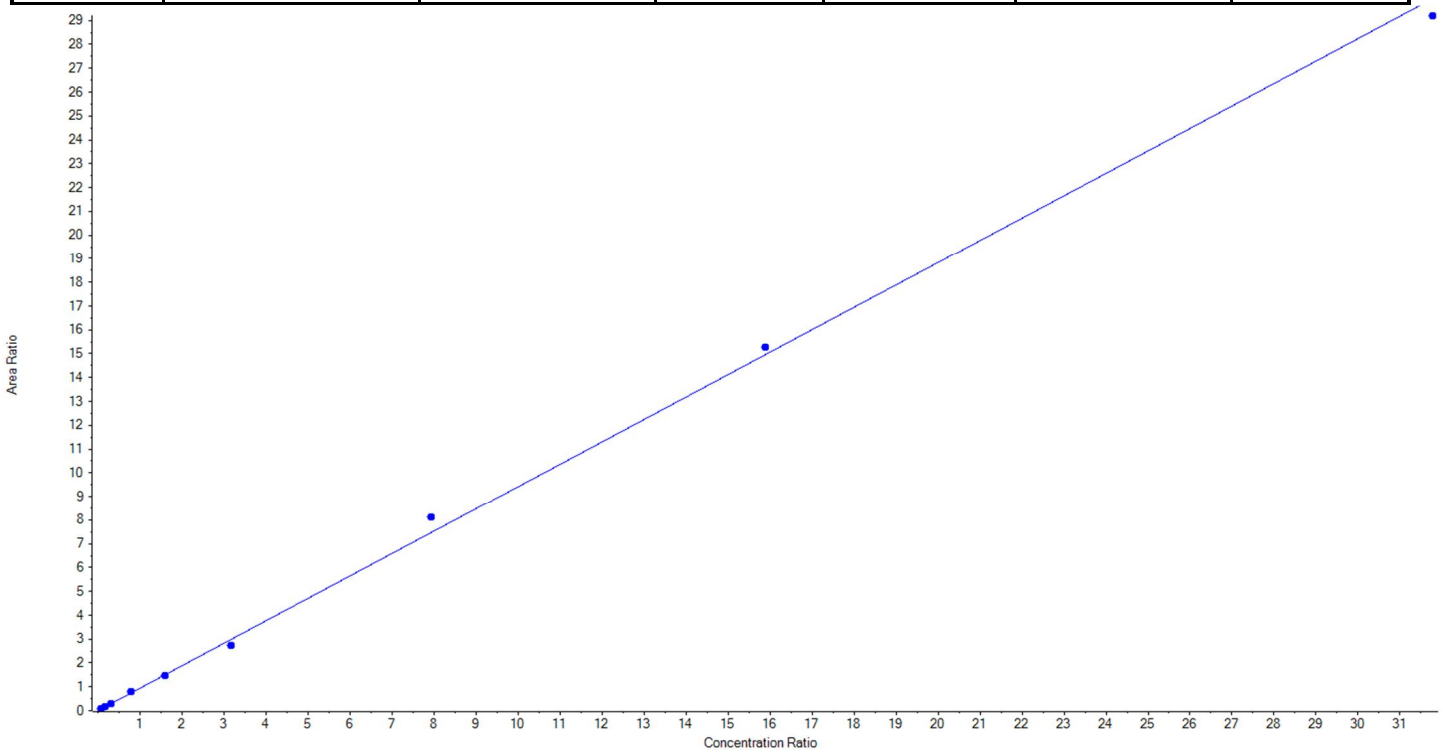
Calibration Summary Report

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Printed: 22/06/2018 11:12:33 AM

Analyte Name	PFHxS_1	**Data File**	06142018.wiff
MRM Transition	399.0 / 80.0	**Result Table**	18-0360_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.94141 x + 0.00116 (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	22.80	22.944645	100.6
3	JV65	L2	True	45.60	45.210339	99.2
4	JV66	L3	True	91.20	87.679621	96.1
5	JV67	L4	True	228.00	240.222187	105.4
6	JV68	L5	True	456.00	450.225539	98.7
7	JV69	L6	True	912.00	835.126278	91.6
8	JV70	L7	True	2280.00	2480.199044	108.8
9	JV71	L8	True	4560.00	4652.662654	102.0
10	JV72	L9	True	9120.00	8901.329694	97.6



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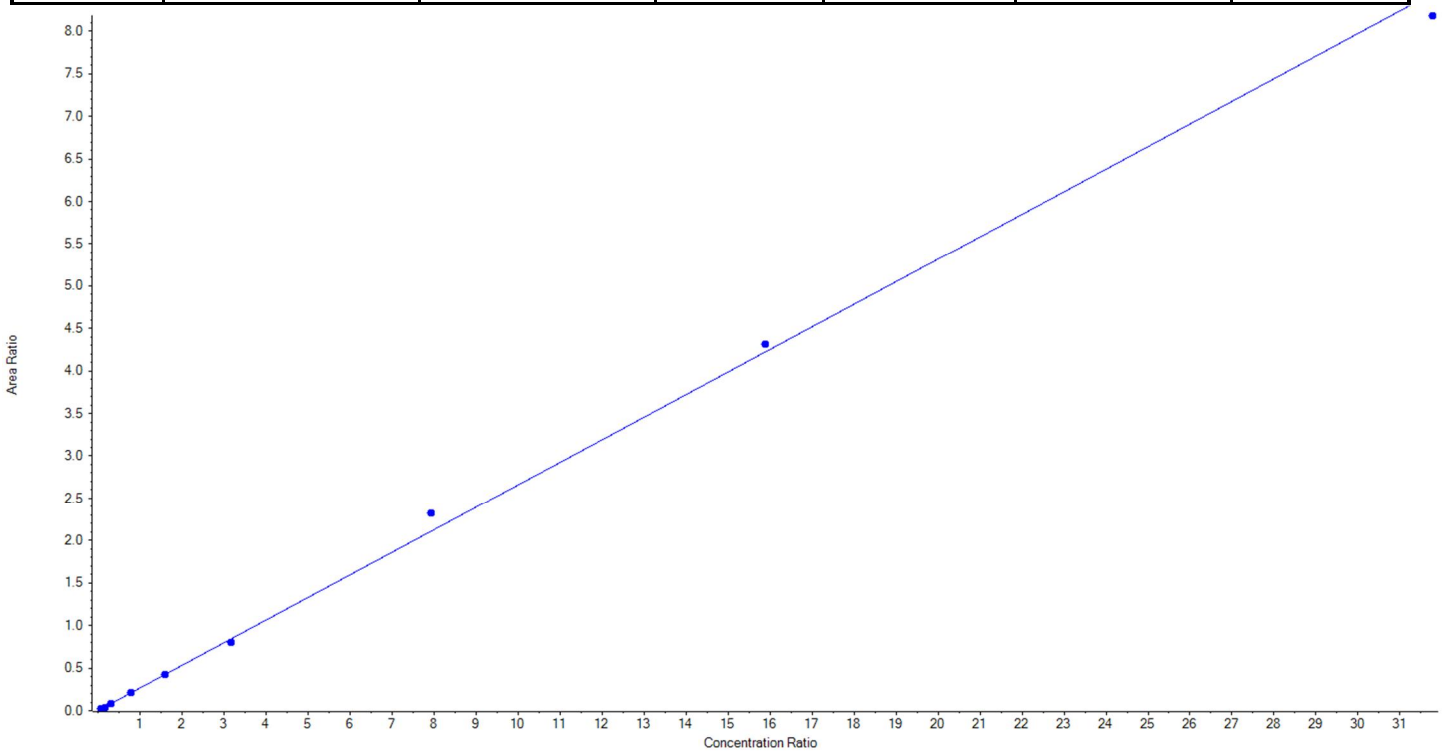
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Analyte Name	PFHxS_2	**Data File**	06142018.wiff
MRM Transition	399.0 / 99.0	**Result Table**	18-0360_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.26575 x + 3.61678e-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	22.685495	99.5
3	JV65	L2	True	45.60	42.858494	94.0
4	JV66	L3	True	91.20	91.794916	100.7
5	JV67	L4	True	228.00	231.509688	101.5
6	JV68	L5	True	456.00	459.540762	100.8
7	JV69	L6	True	912.00	860.732360	94.4
8	JV70	L7	True	2280.00	2508.455542	110.0
9	JV71	L8	True	4560.00	4664.240454	102.3
10	JV72	L9	True	9120.00	8833.782290	96.9



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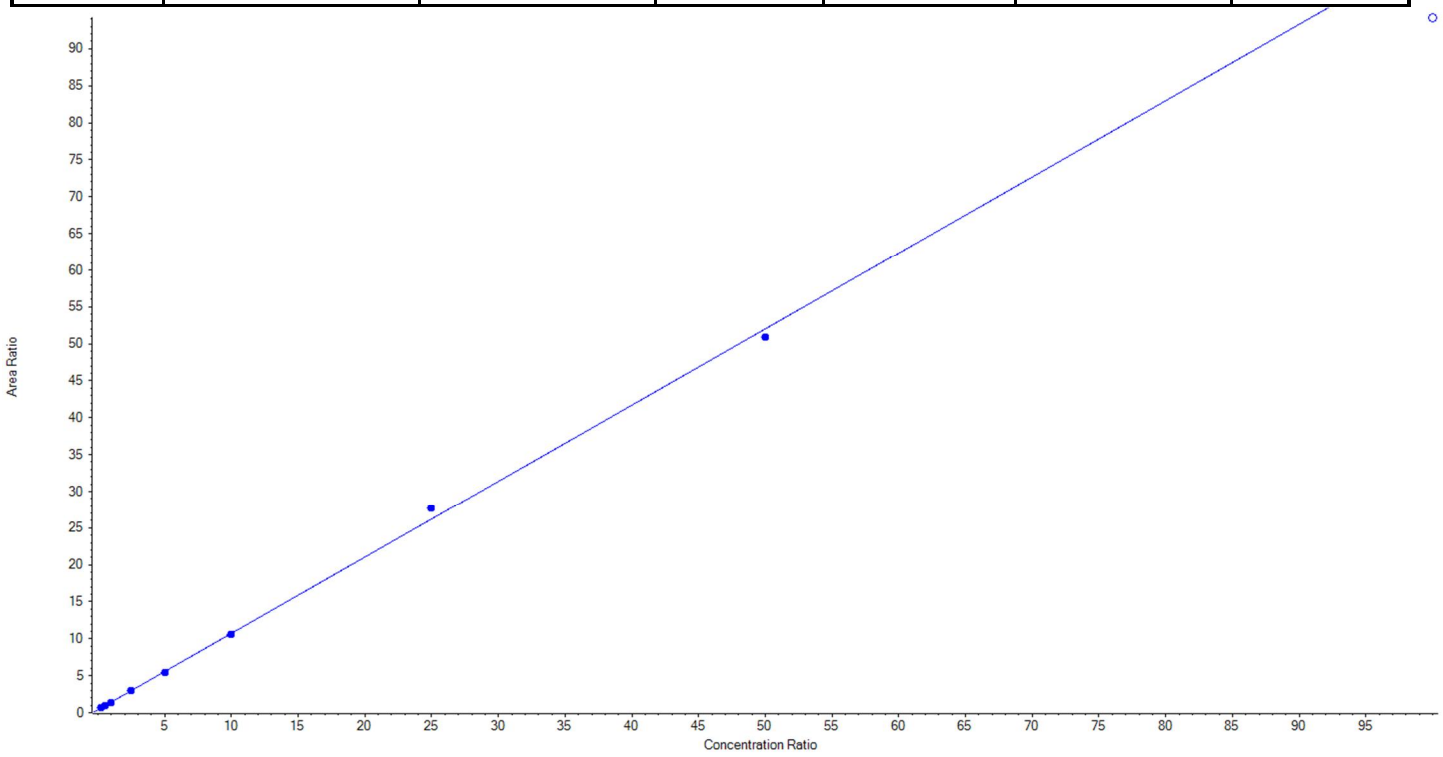
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Analyte Name	PFOA_1	**Data File**	06142018.wiff
MRM Transition	413.0 / 369.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.03224 x + 0.40144 (r = 0.99932) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	27.114030	108.5
3	JV65	L2	True	50.00	50.646537	101.3
4	JV66	L3	True	100.00	88.936107	88.9
5	JV67	L4	True	250.00	251.440480	100.6
6	JV68	L5	True	500.00	492.243257	98.5
7	JV69	L6	True	1000.00	990.584472	99.1
8	JV70	L7	True	2500.00	2637.535326	105.5
9	JV71	L8	True	5000.00	4886.499791	97.7
10	JV72	L9	False	10000.00	9085.501304	90.9



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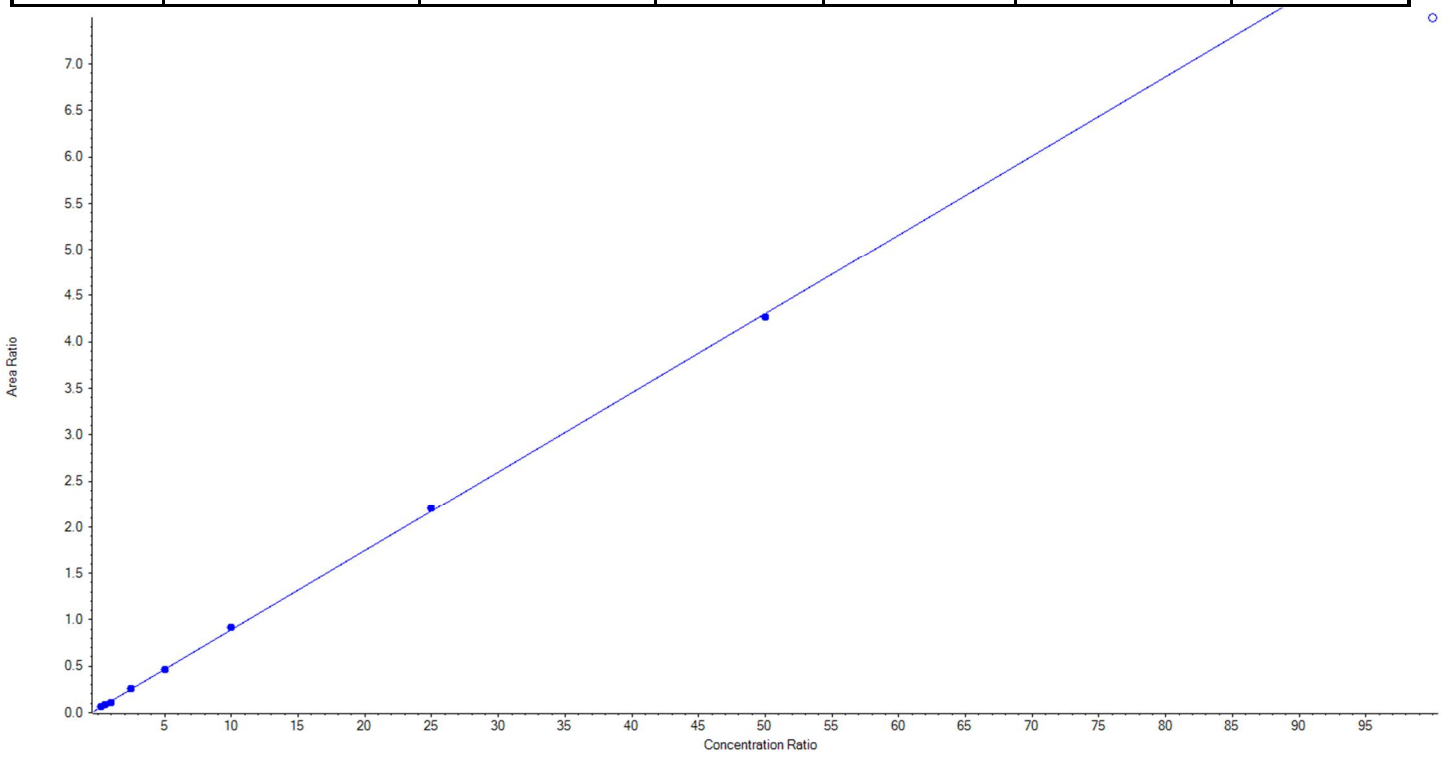
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Analyte Name	PFOA_2	**Data File**	06142018.wiff
MRM Transition	413.0 / 169.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.08529 x + 0.04040 (r = 0.99943) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	30.849054	123.4
3	JV65	L2	True	50.00	49.478583	99.0
4	JV66	L3	True	100.00	73.873247	73.9
5	JV67	L4	True	250.00	252.937559	101.2
6	JV68	L5	True	500.00	496.898603	99.4
7	JV69	L6	True	1000.00	1025.391274	102.5
8	JV70	L7	True	2500.00	2538.403299	101.5
9	JV71	L8	True	5000.00	4957.168382	99.1
10	JV72	L9	False	10000.00	8743.597229	87.4



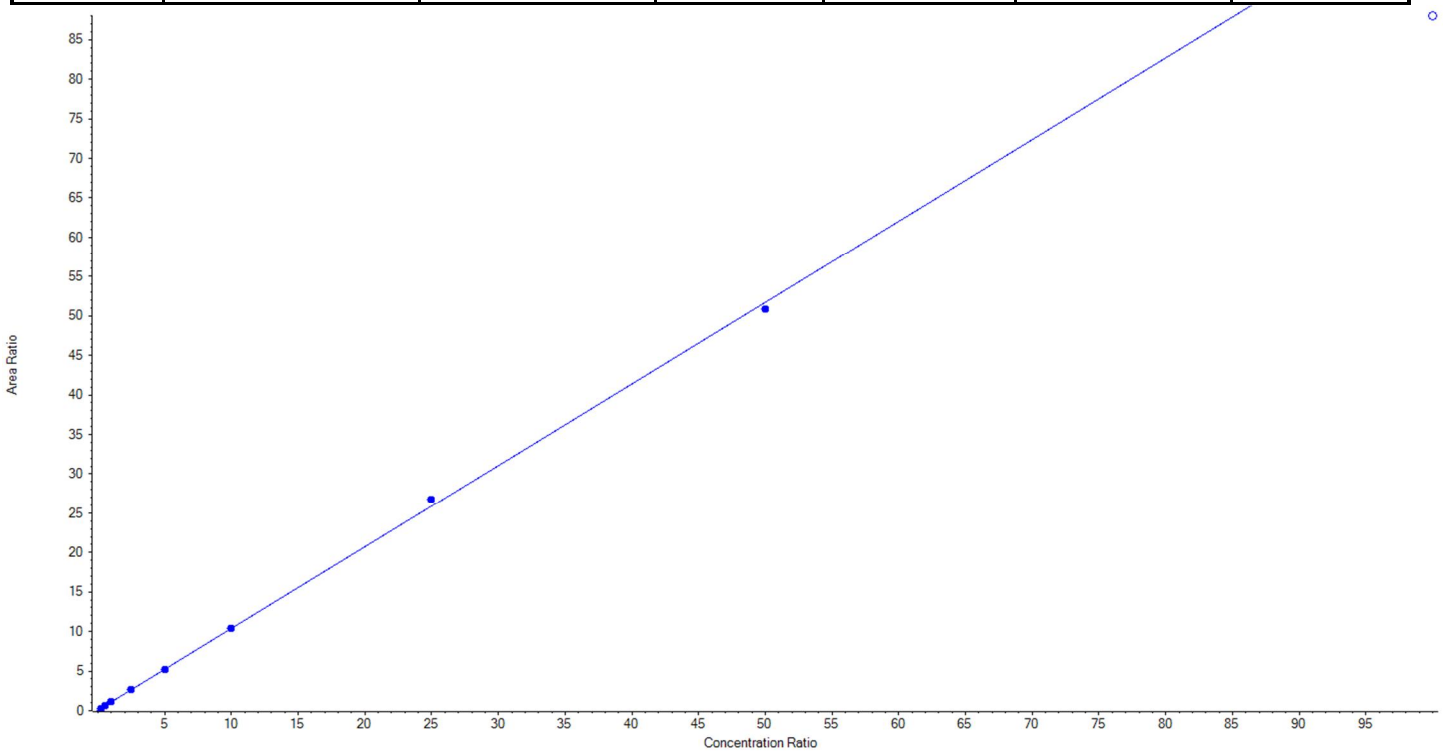
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Calibration Summary Report

Analyte Name	PFNA_1	**Data File**	06142018.wiff
MRM Transition	463.0 / 419.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.03297 x + 0.06553 (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	True	25.00	24.121184	96.5
3	JV65	L2	True	50.00	49.481866	99.0
4	JV66	L3	True	100.00	101.654539	101.7
5	JV67	L4	True	250.00	254.470778	101.8
6	JV68	L5	True	500.00	496.390906	99.3
7	JV69	L6	True	1000.00	1002.857473	100.3
8	JV70	L7	True	2500.00	2581.214313	103.3
9	JV71	L8	True	5000.00	4914.808940	98.3
10	JV72	L9	False	10000.00	8514.480389	85.1



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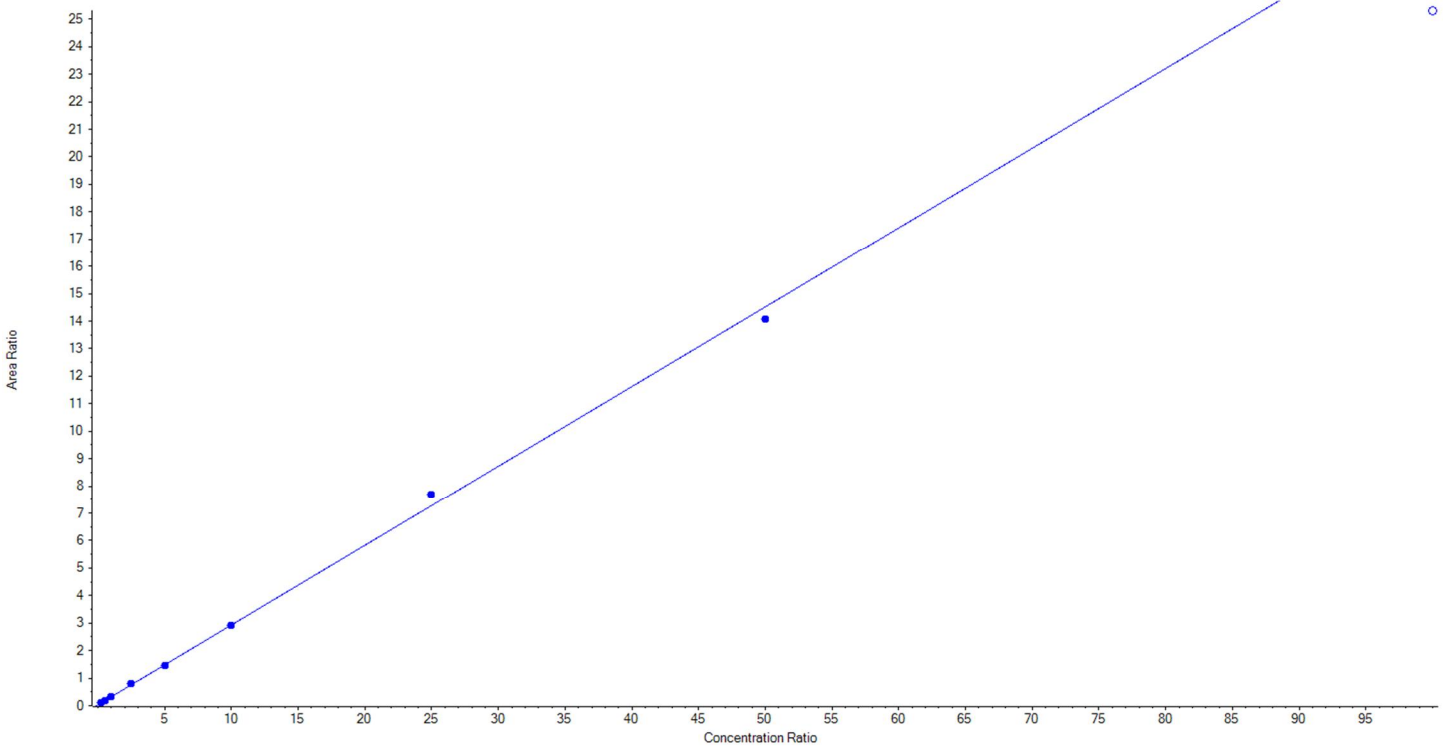
Calibration Summary Report

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Analyte Name	PFNA_2	**Data File**	06142018.wiff
MRM Transition	463.0 / 219.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.28966 x + 0.03407 (r = 0.99917) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	22.019956	88.1
3	JV65	L2	True	50.00	50.097820	100.2
4	JV66	L3	True	100.00	104.768332	104.8
5	JV67	L4	True	250.00	265.198012	106.1
6	JV68	L5	True	500.00	491.780543	98.4
7	JV69	L6	True	1000.00	997.937882	99.8
8	JV70	L7	True	2500.00	2643.157677	105.7
9	JV71	L8	True	5000.00	4850.039778	97.0
10	JV72	L9	False	10000.00	8723.390349	87.2



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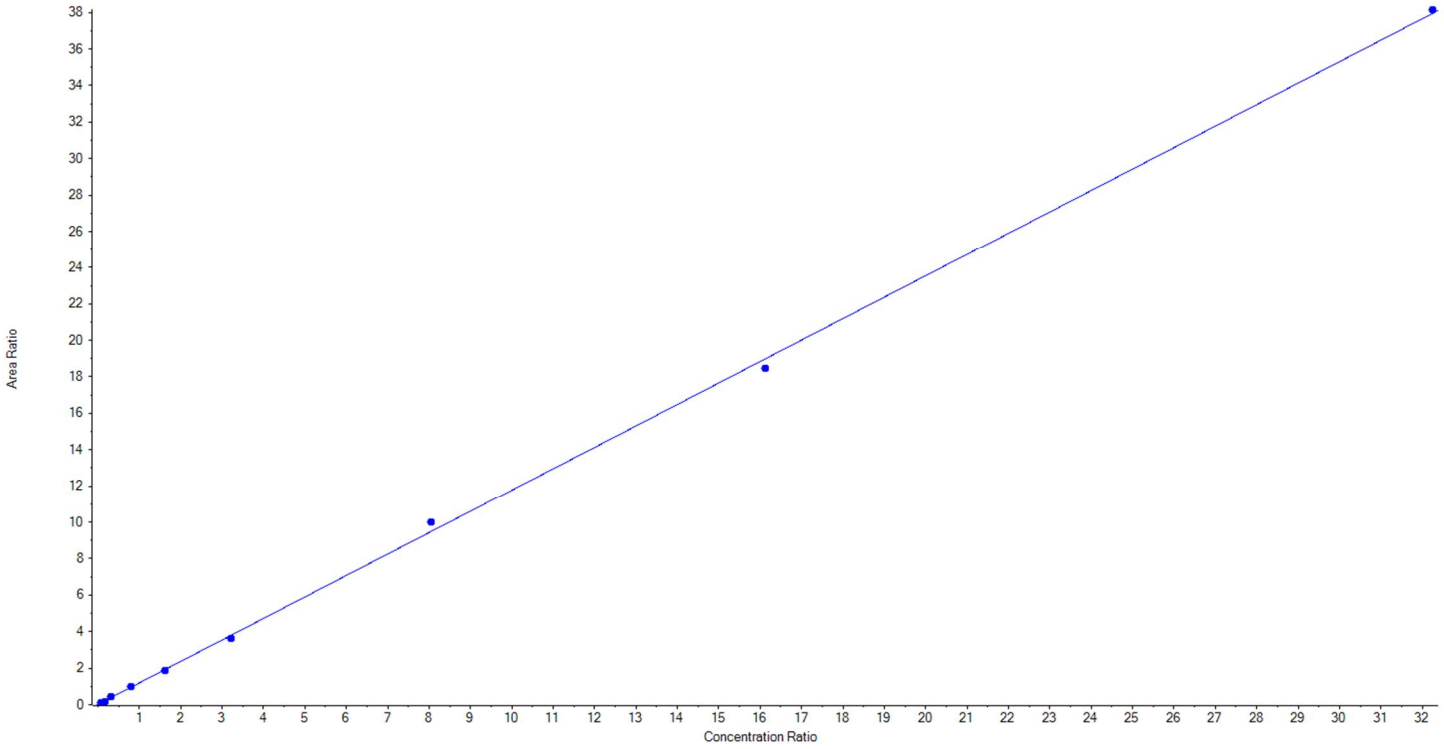
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Analyte Name	PFOS_1	**Data File**	06142018.wiff
MRM Transition	499.0 / 80.0	**Result Table**	18-0360_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.17626 x + 0.01560 (r = 0.99962) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	23.15	23.853829	103.0
3	JV65	L2	True	46.30	43.011639	92.9
4	JV66	L3	True	92.60	97.373524	105.2
5	JV67	L4	True	231.50	238.938161	103.2
6	JV68	L5	True	463.00	449.869323	97.2
7	JV69	L6	True	925.60	883.084484	95.4
8	JV70	L7	True	2314.00	2435.768229	105.3
9	JV71	L8	True	4628.00	4505.765724	97.4
10	JV72	L9	True	9256.00	9302.485087	100.5



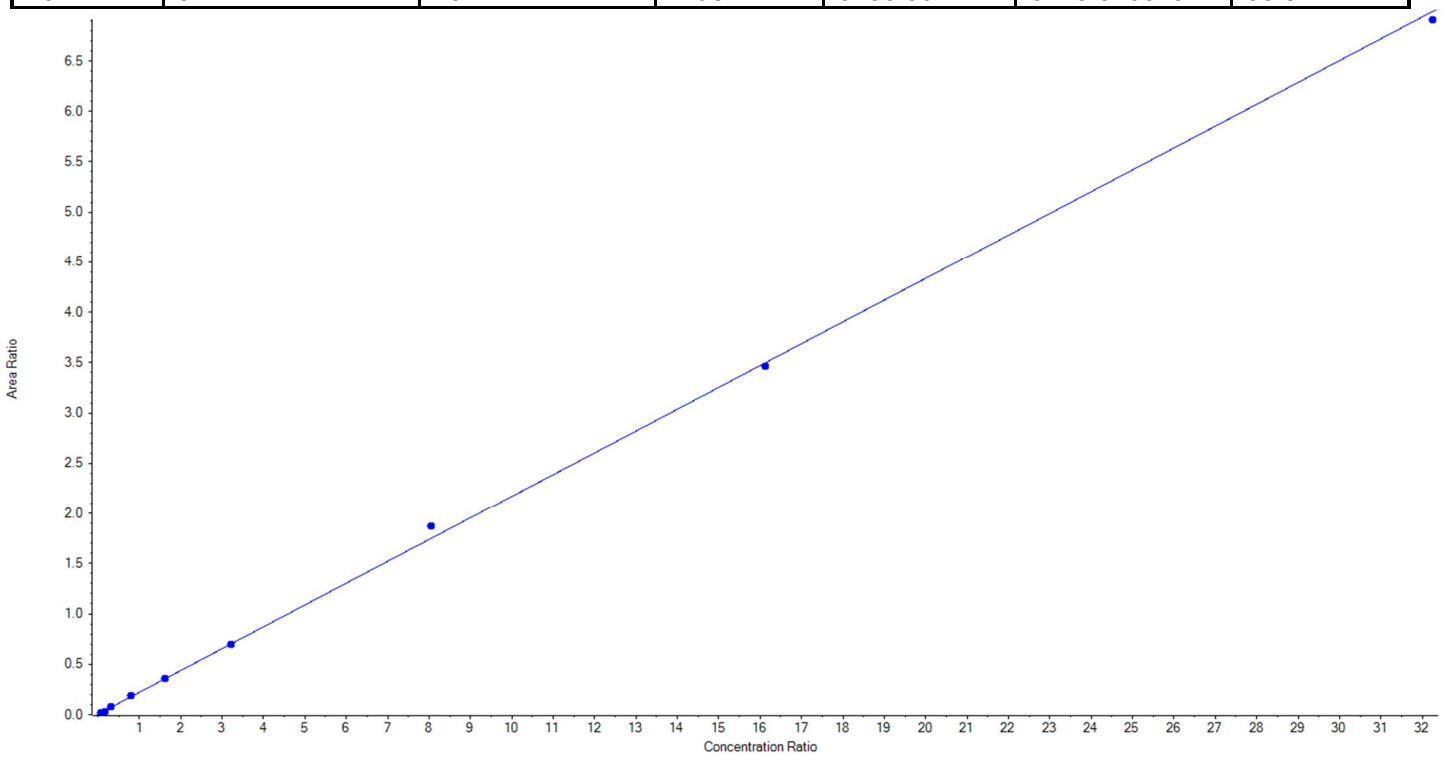
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Calibration Summary Report

Analyte Name	PFOS_2	**Data File**	06142018.wiff
MRM Transition	499.0 / 99.0	**Result Table**	18-0360_DW
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.21661 x + 0.00461 (r = 0.99954) (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	25.672779	110.9
3	JV65	L2	True	46.30	35.639688	77.0
4	JV66	L3	True	92.60	94.092291	101.6
5	JV67	L4	True	231.50	246.825038	106.6
6	JV68	L5	True	463.00	465.321435	100.5
7	JV69	L6	True	925.60	915.675303	98.9
8	JV70	L7	True	2314.00	2466.591124	106.6
9	JV71	L8	True	4628.00	4584.705722	99.1
10	JV72	L9	True	9256.00	9145.626619	98.8



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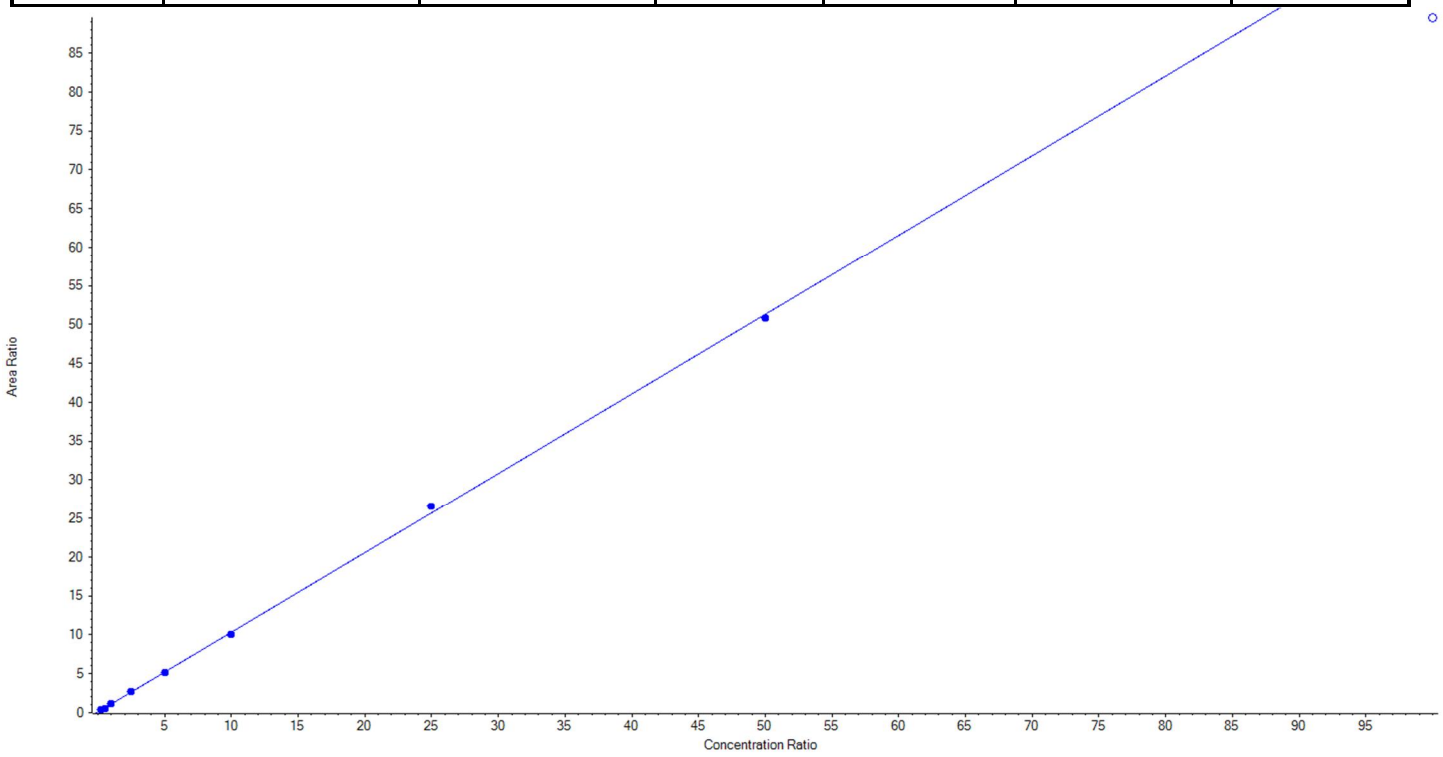
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Analyte Name	PFDA_1	**Data File**	06142018.wiff
MRM Transition	513.0 / 469.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.02458 x + 0.09578 (r = 0.99973) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	26.219077	104.9
3	JV65	L2	True	50.00	46.181808	92.4
4	JV66	L3	True	100.00	104.367940	104.4
5	JV67	L4	True	250.00	252.874366	101.2
6	JV68	L5	True	500.00	488.129333	97.6
7	JV69	L6	True	1000.00	973.117412	97.3
8	JV70	L7	True	2500.00	2581.129067	103.3
9	JV71	L8	True	5000.00	4952.980997	99.1
10	JV72	L9	False	10000.00	8730.404917	87.3



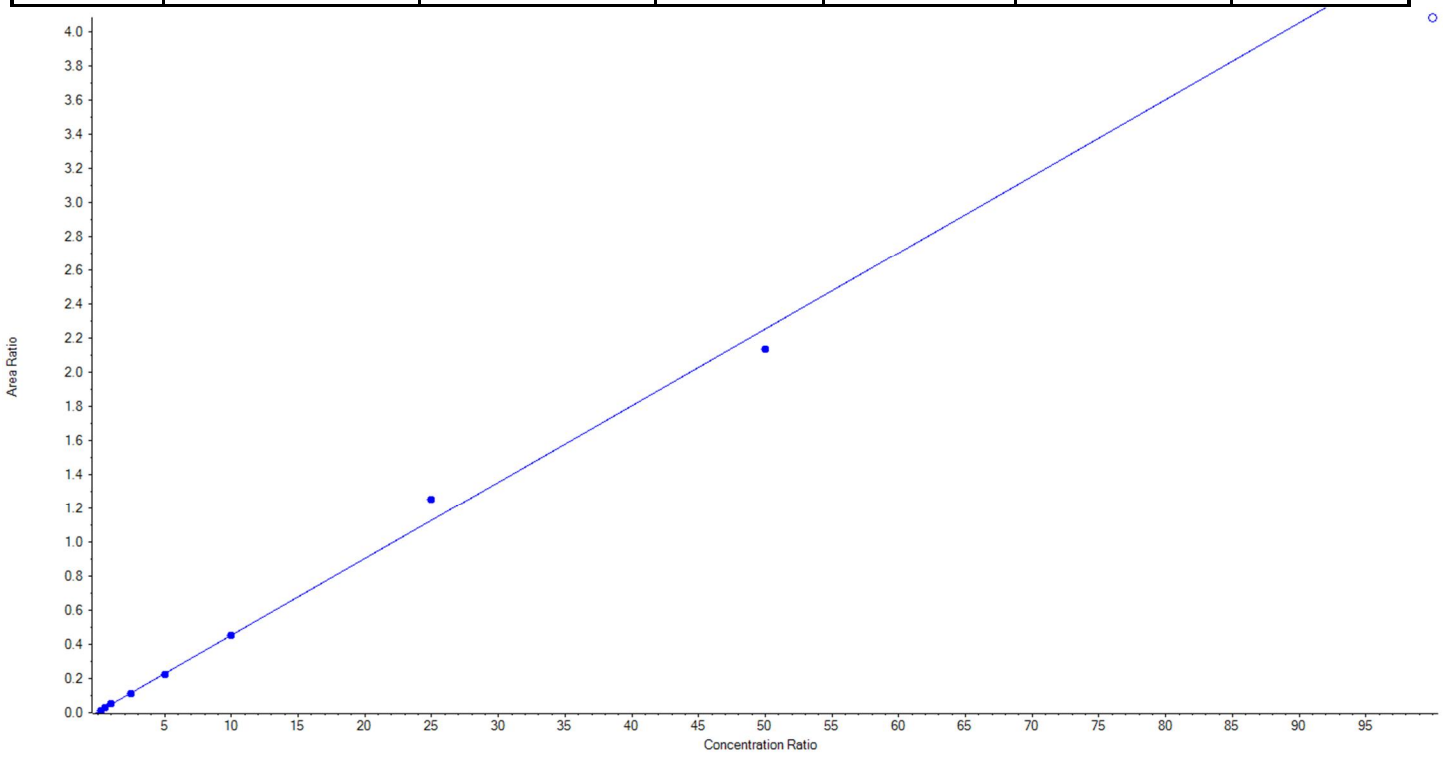
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Calibration Summary Report

Analyte Name	PFDA_2	**Data File**	06142018.wiff
MRM Transition	513.0 / 219.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.04499 x + 0.00416 (r = 0.99735) (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	21.216707	84.9
3	JV65	L2	True	50.00	53.933477	107.9
4	JV66	L3	True	100.00	106.151028	106.2
5	JV67	L4	True	250.00	245.183421	98.1
6	JV68	L5	True	500.00	488.334256	97.7
7	JV69	L6	True	1000.00	995.605535	99.6
8	JV70	L7	True	2500.00	2776.145192	111.1
9	JV71	L8	True	5000.00	4738.430382	94.8
10	JV72	L9	False	10000.00	9065.576243	90.7



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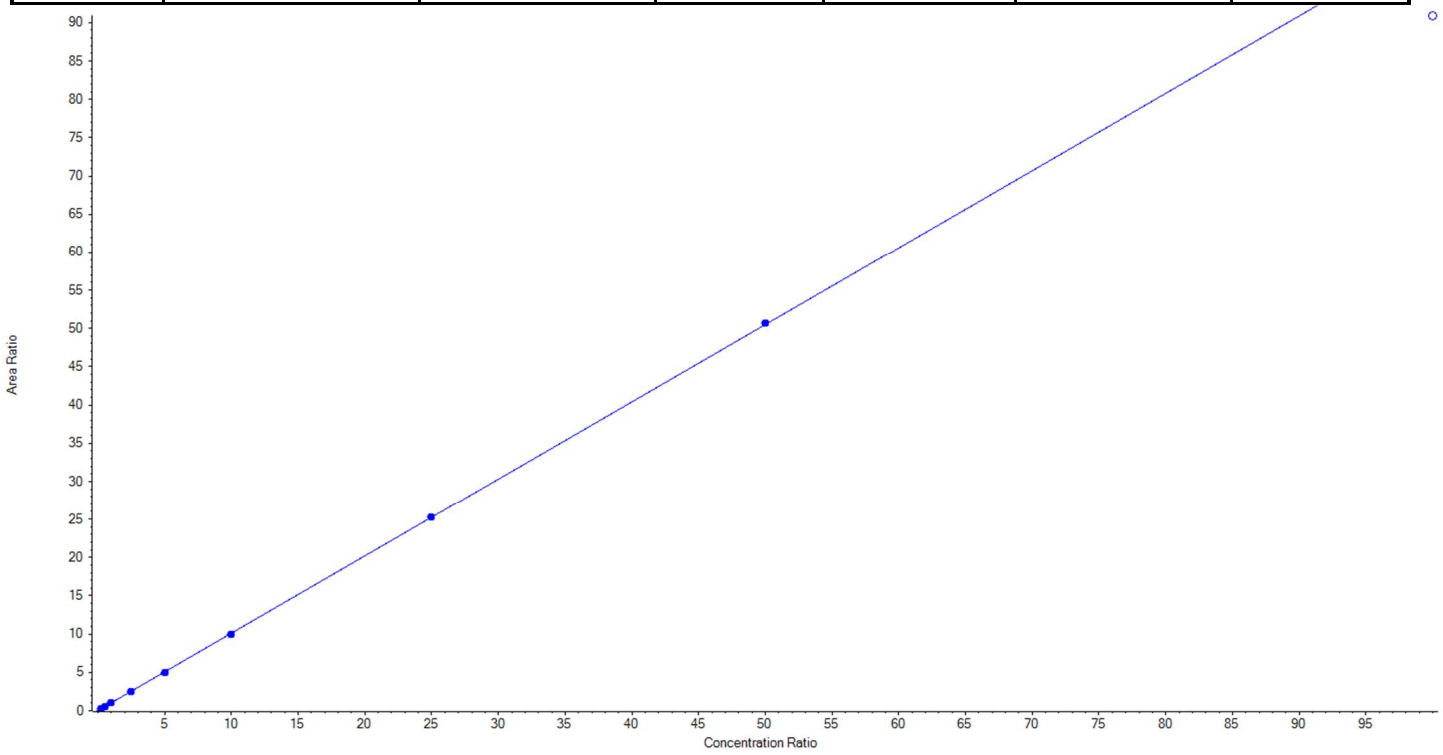
Calibration Summary Report

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Analyte Name	PFUnA_1	**Data File**	06142018.wiff
MRM Transition	563.0 / 519.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.00945 x + 0.02032 (r = 0.99998) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	24.341334	97.4
3	JV65	L2	True	50.00	51.536736	103.1
4	JV66	L3	True	100.00	101.919285	101.9
5	JV67	L4	True	250.00	248.880312	99.6
6	JV68	L5	True	500.00	494.634182	98.9
7	JV69	L6	True	1000.00	989.188378	98.9
8	JV70	L7	True	2500.00	2497.705644	99.9
9	JV71	L8	True	5000.00	5016.794129	100.3
10	JV72	L9	False	10000.00	9002.134598	90.0



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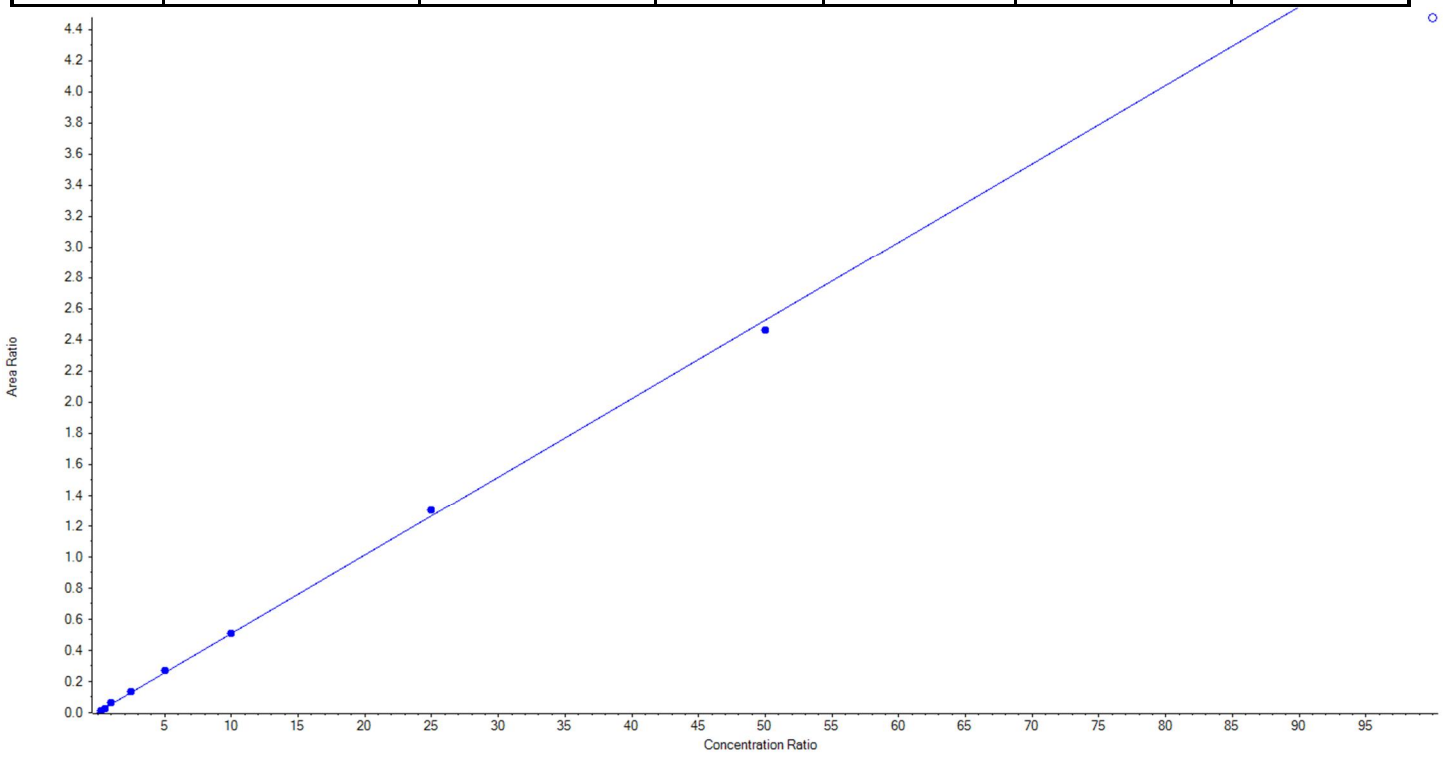
Calibration Summary Report

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Analyte Name	PFUnA_2	**Data File**	06142018.wiff
MRM Transition	563.0 / 269.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.05046 x + 0.00416 (r = 0.99916) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	20.210812	80.8
3	JV65	L2	True	50.00	42.704447	85.4
4	JV66	L3	True	100.00	120.298427	120.3
5	JV67	L4	True	250.00	266.052668	106.4
6	JV68	L5	True	500.00	534.753221	107.0
7	JV69	L6	True	1000.00	998.995973	99.9
8	JV70	L7	True	2500.00	2566.921563	102.7
9	JV71	L8	True	5000.00	4875.062888	97.5
10	JV72	L9	False	10000.00	8860.250273	88.6



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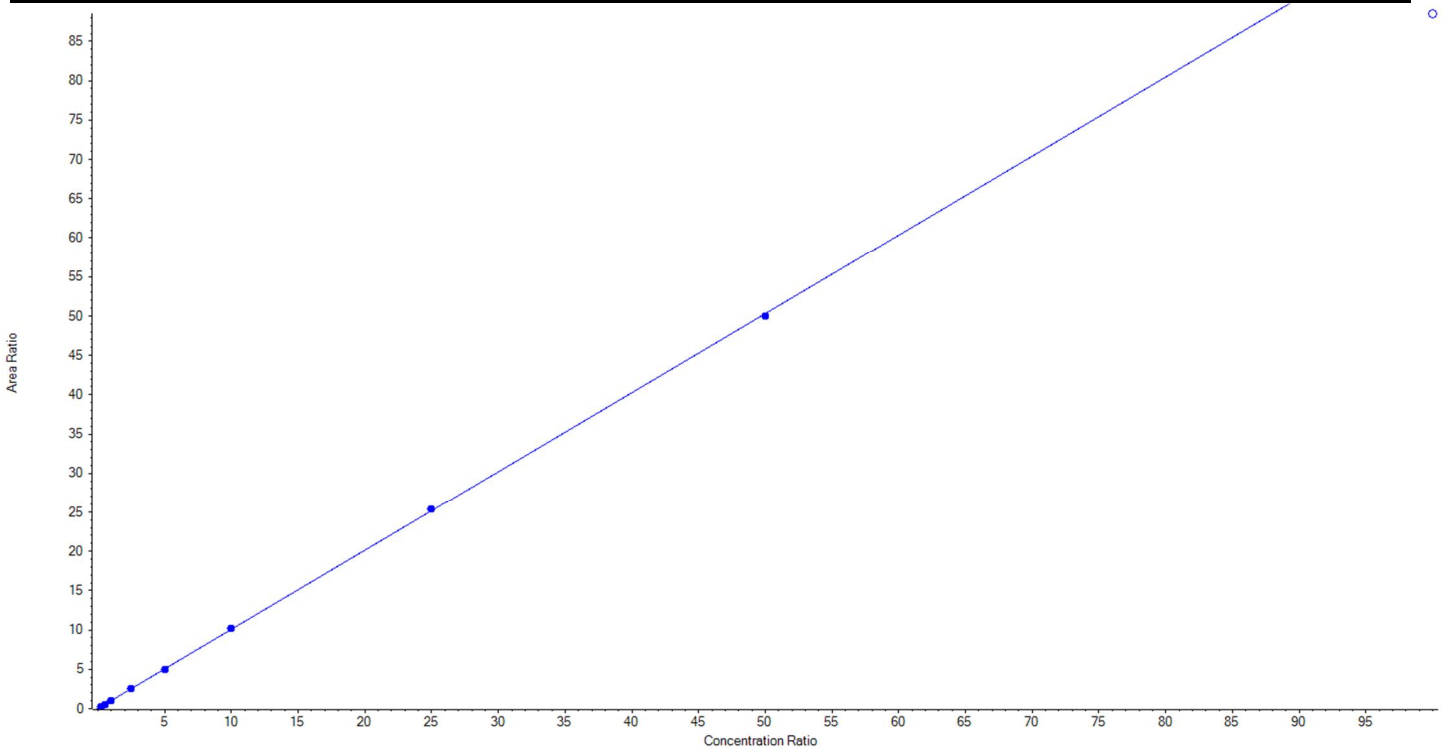
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Analyte Name	PFDoA_1	**Data File**	06142018.wiff
MRM Transition	613.0 / 569.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.00557 x + 0.02863 (r = 0.99993) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	25.079471	100.3
3	JV65	L2	True	50.00	48.568786	97.1
4	JV66	L3	True	100.00	104.271191	104.3
5	JV67	L4	True	250.00	246.377663	98.6
6	JV68	L5	True	500.00	488.410023	97.7
7	JV69	L6	True	1000.00	1016.786698	101.7
8	JV70	L7	True	2500.00	2522.574479	100.9
9	JV71	L8	True	5000.00	4972.931689	99.5
10	JV72	L9	False	10000.00	8798.205595	88.0



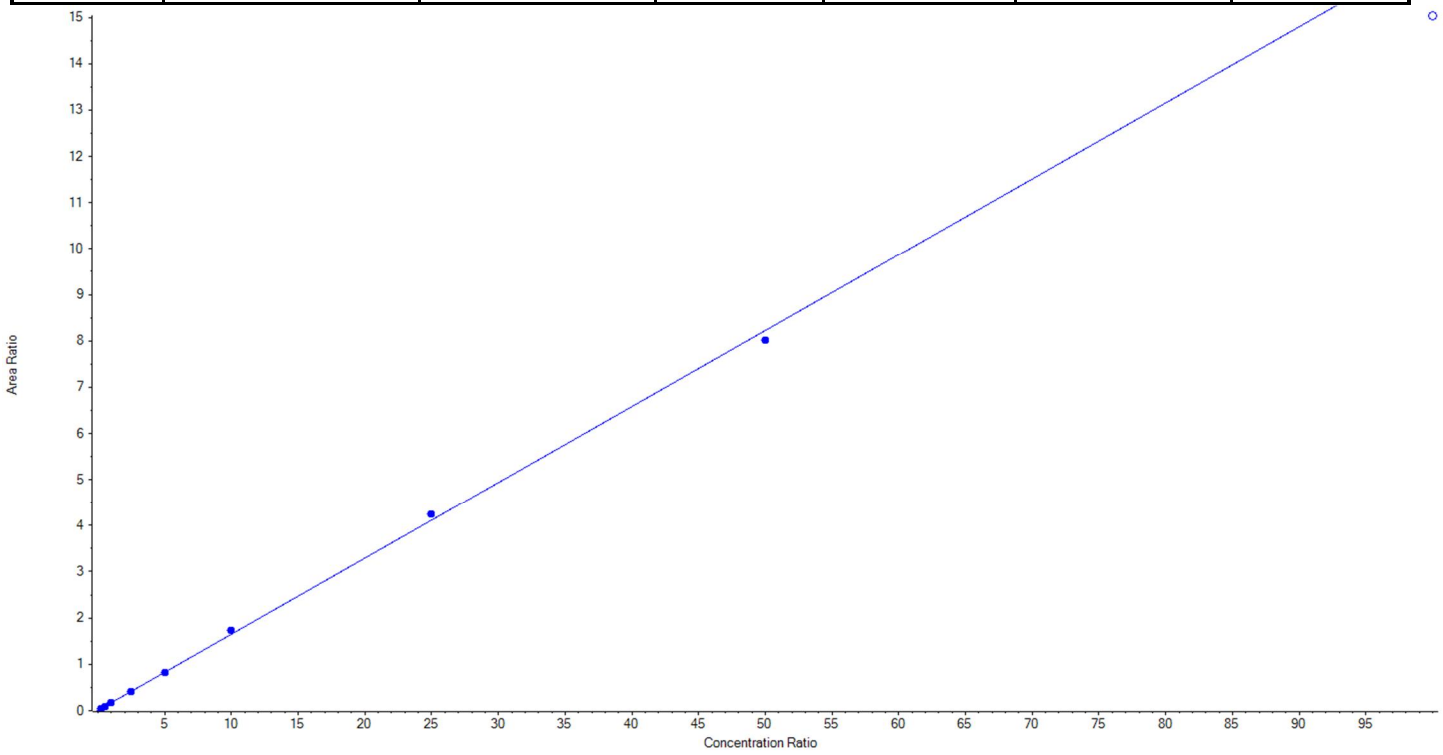
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Calibration Summary Report

Analyte Name	PFDoA_2	**Data File**	06142018.wiff
MRM Transition	613.0 / 319.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.16433 x + 0.00700 (r = 0.99946) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	22.376883	89.5
3	JV65	L2	True	50.00	50.486070	101.0
4	JV66	L3	True	100.00	104.568160	104.6
5	JV67	L4	True	250.00	249.302804	99.7
6	JV68	L5	True	500.00	496.928169	99.4
7	JV69	L6	True	1000.00	1052.877827	105.3
8	JV70	L7	True	2500.00	2579.421445	103.2
9	JV71	L8	True	5000.00	4869.038641	97.4
10	JV72	L9	False	10000.00	9143.499217	91.4



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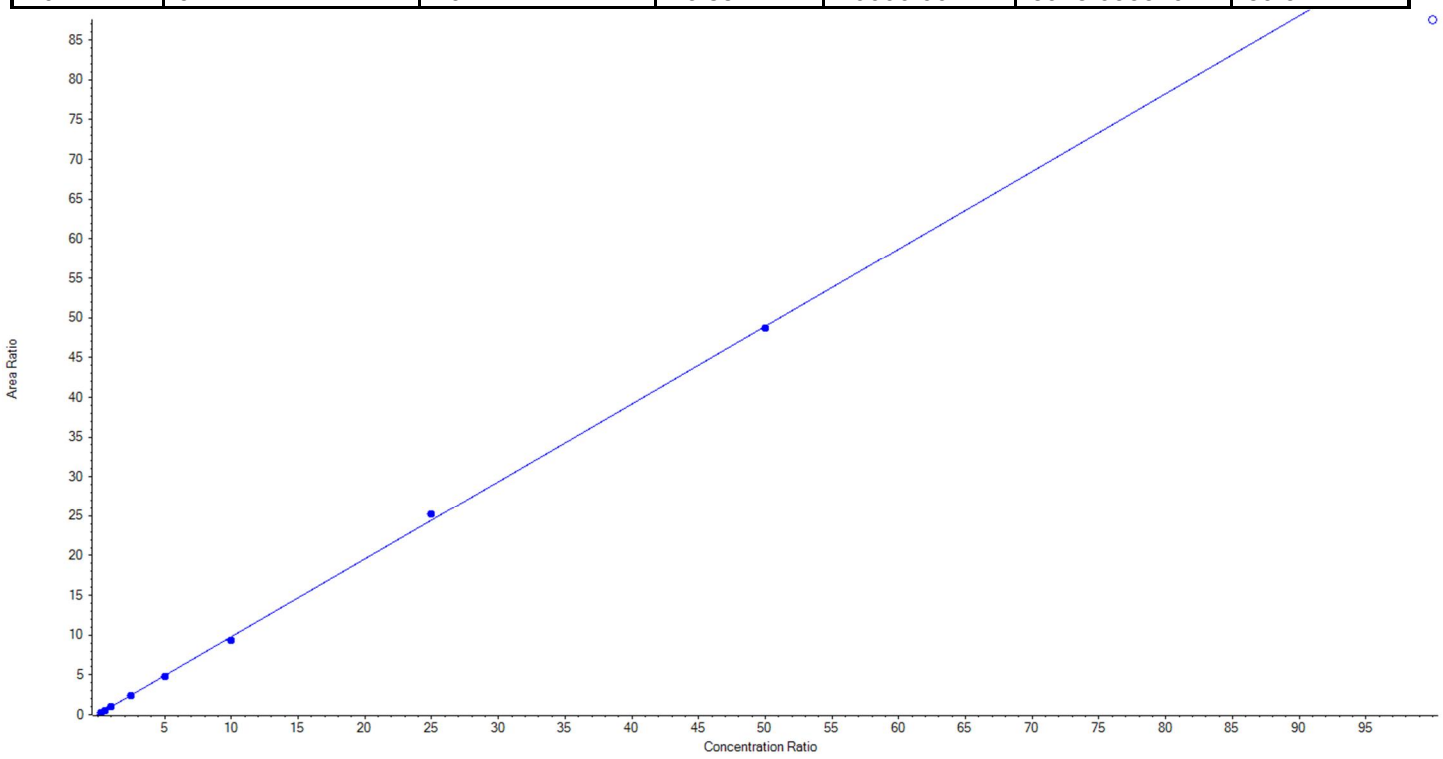
Calibration Summary Report

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Analyte Name	PFTrDA_1	**Data File**	06142018.wiff
MRM Transition	663.0 / 619.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.97814 x + 0.01951 (r = 0.99970) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	25.967378	103.9
3	JV65	L2	True	50.00	48.344640	96.7
4	JV66	L3	True	100.00	103.874292	103.9
5	JV67	L4	True	250.00	249.296761	99.7
6	JV68	L5	True	500.00	486.781731	97.4
7	JV69	L6	True	1000.00	958.304110	95.8
8	JV70	L7	True	2500.00	2580.641644	103.2
9	JV71	L8	True	5000.00	4971.789444	99.4
10	JV72	L9	False	10000.00	8948.655319	89.5



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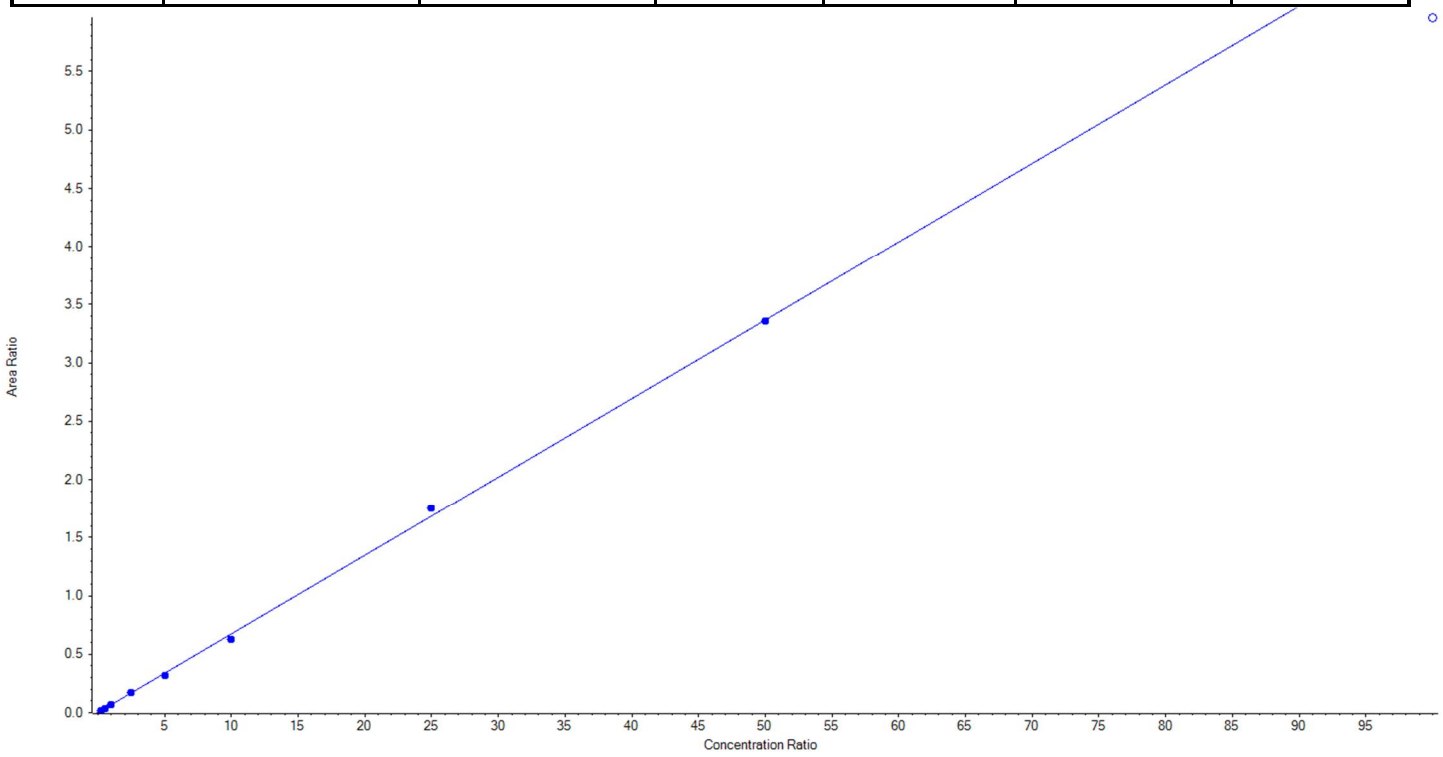
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Analyte Name	PFTrDA_2	**Data File**	06142018.wiff
MRM Transition	663.0 / 169.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.06731 x + 0.00111 (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	True	25.00	26.205576	104.8
3	JV65	L2	True	50.00	51.567868	103.1
4	JV66	L3	True	100.00	98.315437	98.3
5	JV67	L4	True	250.00	256.905806	102.8
6	JV68	L5	True	500.00	468.695737	93.7
7	JV69	L6	True	1000.00	934.572561	93.5
8	JV70	L7	True	2500.00	2599.652888	104.0
9	JV71	L8	True	5000.00	4989.084128	99.8
10	JV72	L9	False	10000.00	8850.881419	88.5



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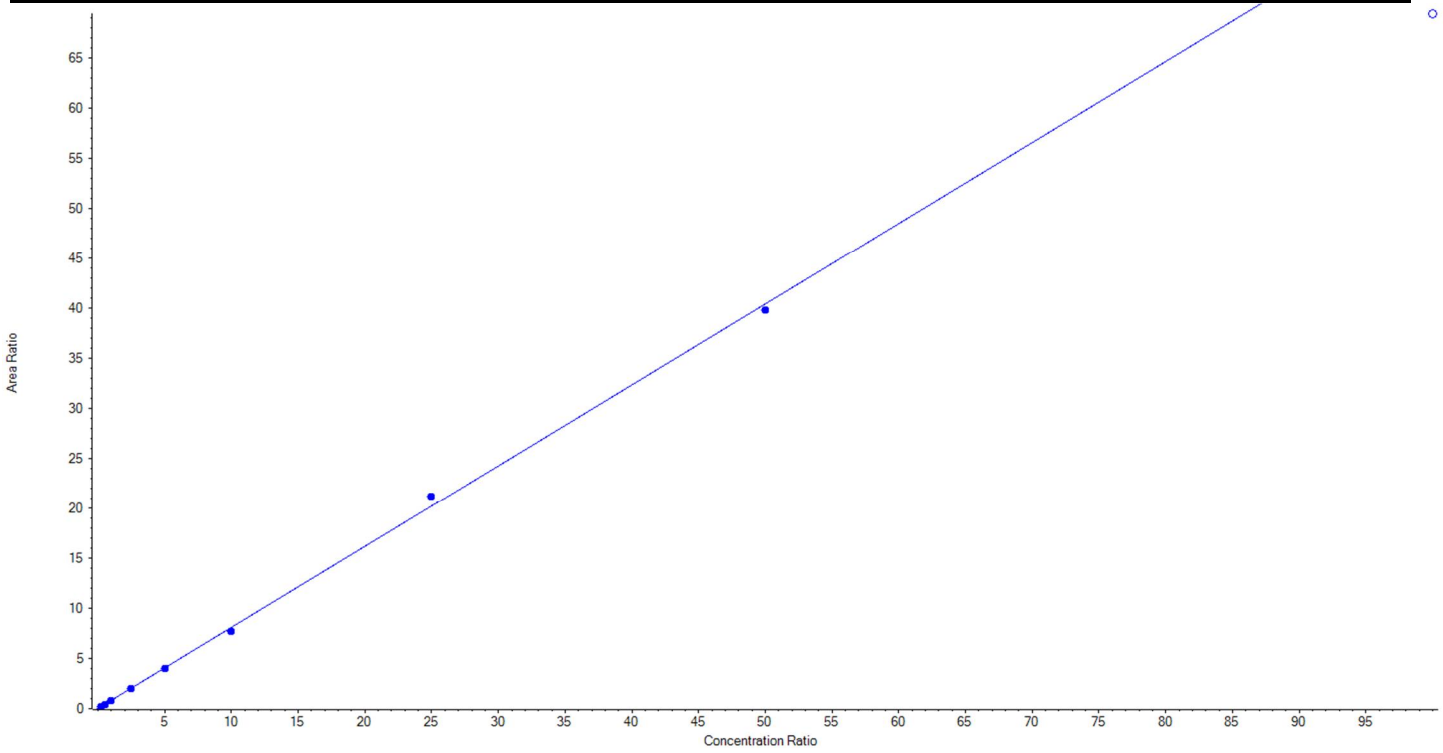
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Analyte Name	PFTeDA_1	**Data File**	06142018.wiff
MRM Transition	713.0 / 669.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.80810 x + 0.02533 (r = 0.99948) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	24.615906	98.5
3	JV65	L2	True	50.00	51.639881	103.3
4	JV66	L3	True	100.00	100.259522	100.3
5	JV67	L4	True	250.00	249.347489	99.7
6	JV68	L5	True	500.00	497.508333	99.5
7	JV69	L6	True	1000.00	954.141072	95.4
8	JV70	L7	True	2500.00	2619.628447	104.8
9	JV71	L8	True	5000.00	4927.859352	98.6
10	JV72	L9	False	10000.00	8588.121467	85.9



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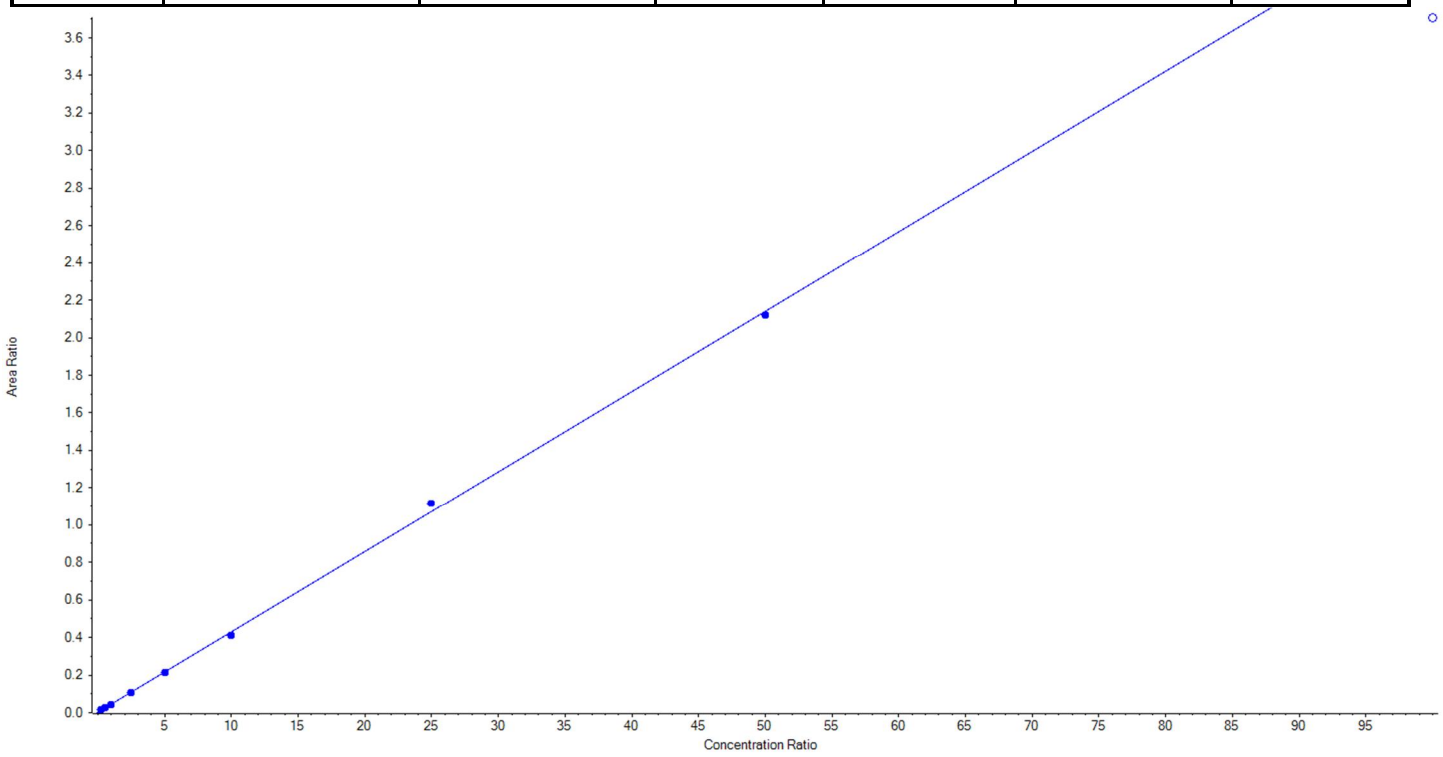
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Analyte Name	PFTeDA_2	**Data File**	06142018.wiff
MRM Transition	713.0 / 169.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.04275 x + 0.00280 (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	True	25.00	26.426099	105.7
3	JV65	L2	True	50.00	52.427881	104.9
4	JV66	L3	True	100.00	94.771548	94.8
5	JV67	L4	True	250.00	240.786869	96.3
6	JV68	L5	True	500.00	497.192408	99.4
7	JV69	L6	True	1000.00	957.997978	95.8
8	JV70	L7	True	2500.00	2600.366045	104.0
9	JV71	L8	True	5000.00	4955.031170	99.1
10	JV72	L9	False	10000.00	8663.653885	86.6



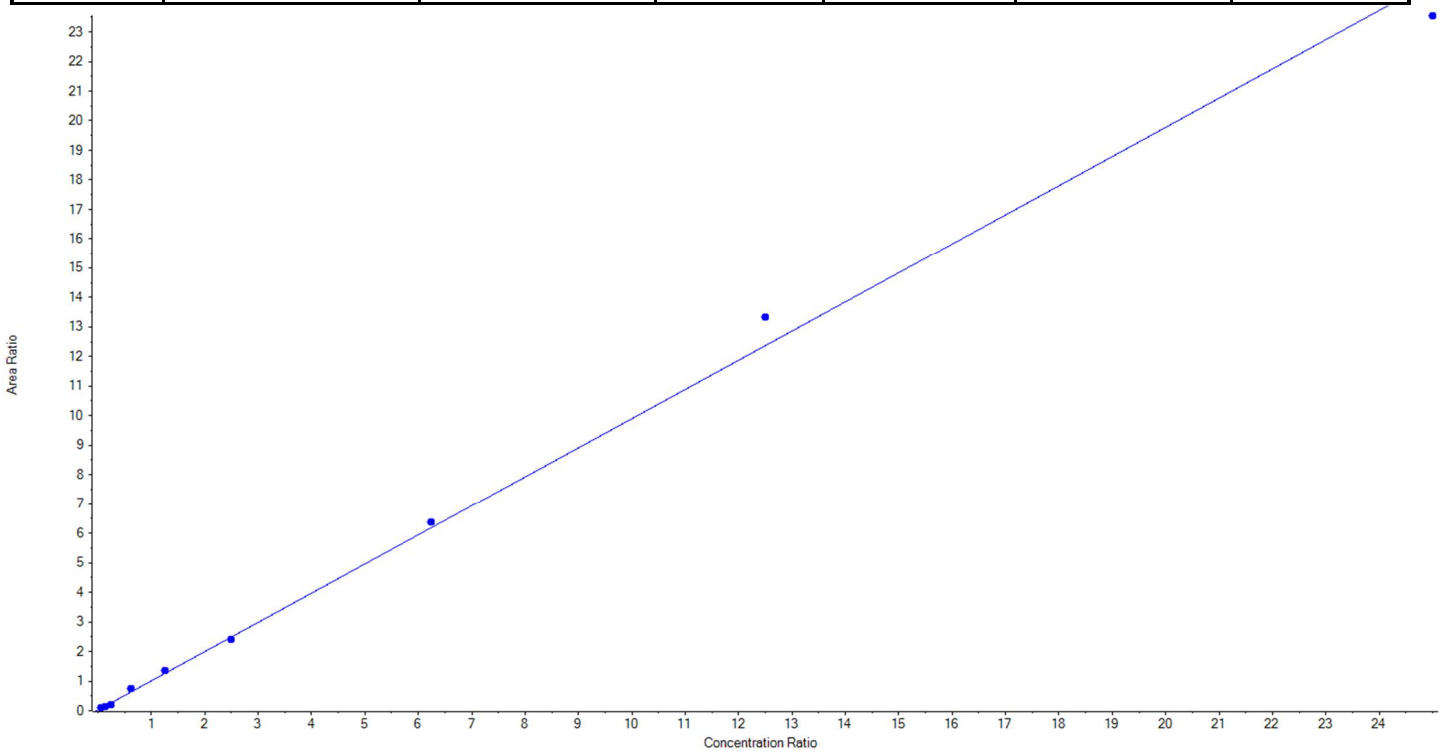
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Calibration Summary Report

Analyte Name	NMeFOSAA_1	**Data File**	06142018.wiff
MRM Transition	570.0 / 419.0	**Result Table**	18-0360_DW
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.98776 x + 0.02050 (r = 0.99809) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	26.383057	105.5
3	JV65	L2	True	50.00	46.189927	92.4
4	JV66	L3	True	100.00	76.761420	76.8
5	JV67	L4	True	250.00	288.497067	115.4
6	JV68	L5	True	500.00	537.945268	107.6
7	JV69	L6	True	1000.00	965.780202	96.6
8	JV70	L7	True	2500.00	2567.650943	102.7
9	JV71	L8	True	5000.00	5389.664132	107.8
10	JV72	L9	True	10000.00	9526.127986	95.3



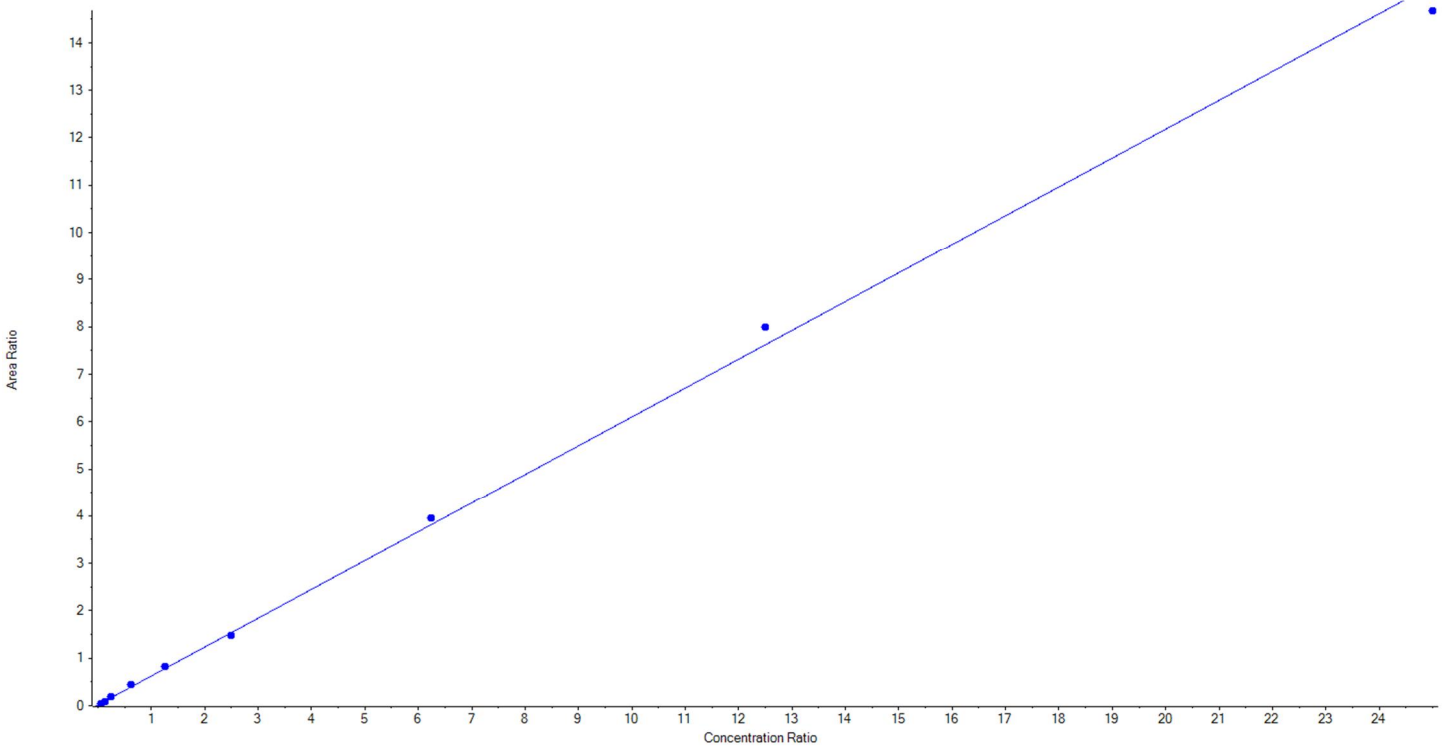
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Calibration Summary Report

Analyte Name	NMeFOSAA_2	**Data File**	06142018.wiff
MRM Transition	570.0 / 512.0	**Result Table**	18-0360_DW
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.60817 x + 0.01798 (r = 0.99900) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	25.00	20.838413	83.4
3	JV65	L2	True	50.00	45.532559	91.1
4	JV66	L3	True	100.00	107.415887	107.4
5	JV67	L4	True	250.00	274.640072	109.9
6	JV68	L5	True	500.00	535.696079	107.1
7	JV69	L6	True	1000.00	960.857703	96.1
8	JV70	L7	True	2500.00	2594.178444	103.8
9	JV71	L8	True	5000.00	5245.878330	104.9
10	JV72	L9	True	10000.00	9639.962514	96.4



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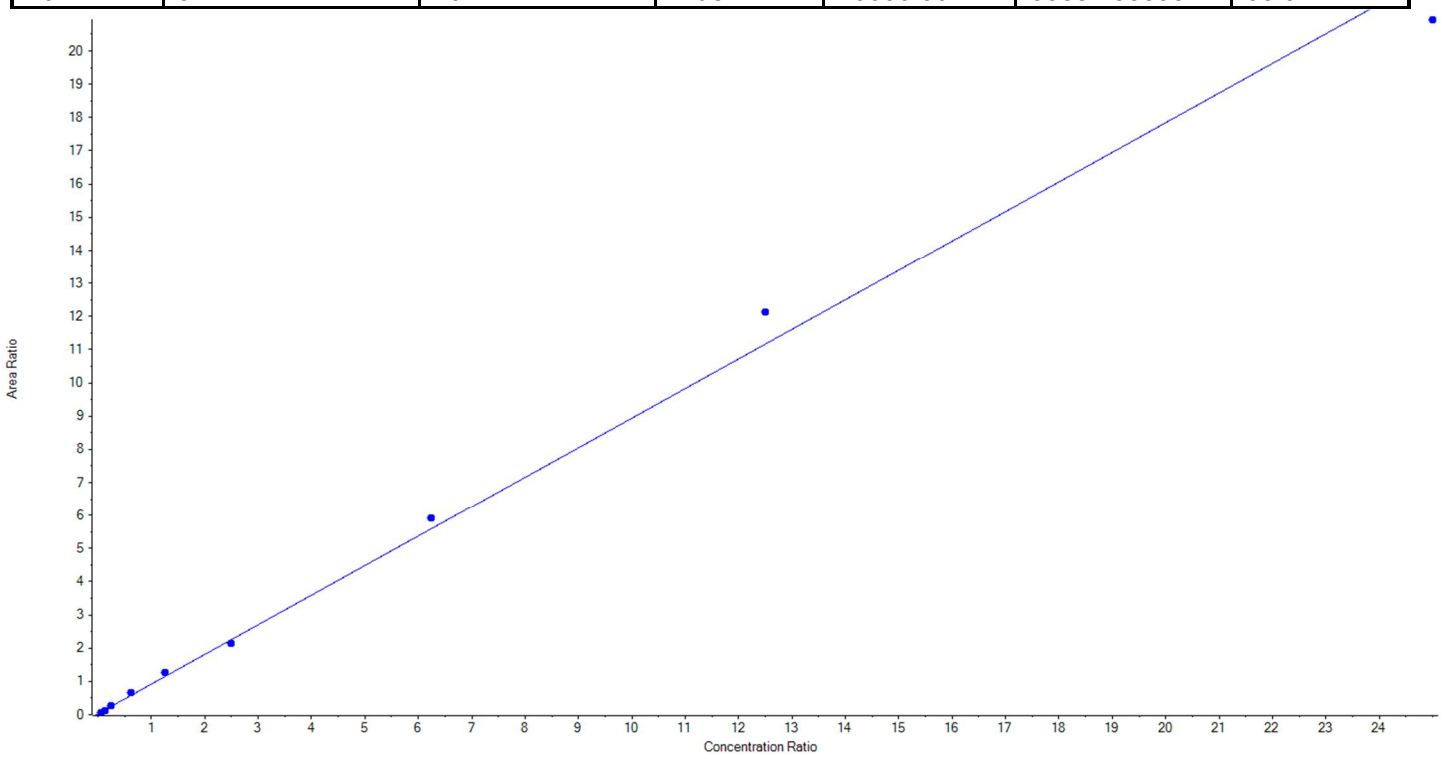
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Analyte Name	NEtFOSAA_1	**Data File**	06142018.wiff
MRM Transition	584.0 / 419.0	**Result Table**	18-0360_DW
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.89075 x + 0.02880 (r = 0.99732) (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	17.933972	71.7
3	JV65	L2	True	50.00	46.860171	93.7
4	JV66	L3	True	100.00	104.821597	104.8
5	JV67	L4	True	250.00	286.153455	114.5
6	JV68	L5	True	500.00	559.443646	111.9
7	JV69	L6	True	1000.00	954.343619	95.4
8	JV70	L7	True	2500.00	2635.684352	105.4
9	JV71	L8	True	5000.00	5431.273294	108.6
10	JV72	L9	True	10000.00	9388.485893	93.9



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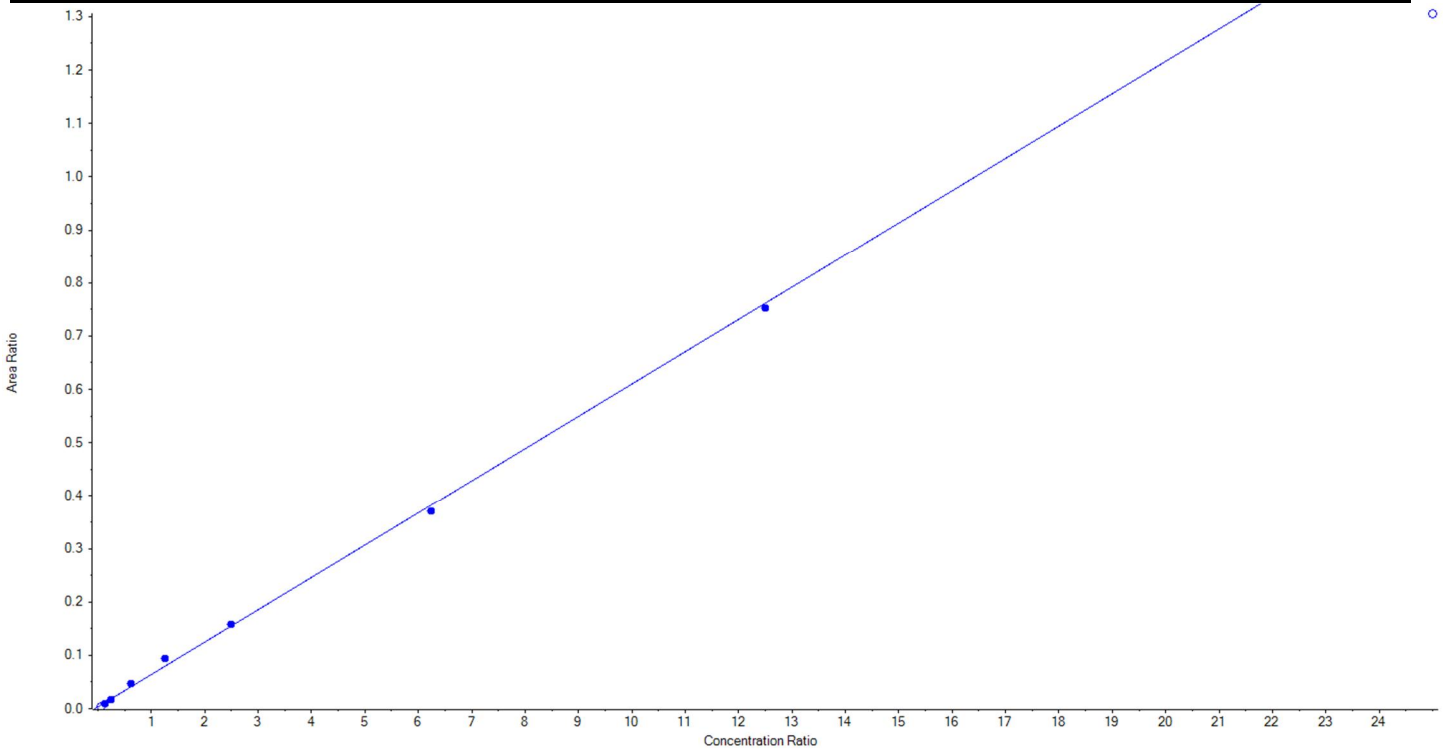
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Analyte Name	NEtFOSAA_2	**Data File**	06142018.wiff
MRM Transition	584.0 / 483.0	**Result Table**	18-0360_DW
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.06065 x + 0.00344 (r = 0.99817) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	False	25.00	< 0	N/A
3	JV65	L2	True	50.00	41.148035	82.3
4	JV66	L3	True	100.00	86.882544	86.9
5	JV67	L4	True	250.00	283.873236	113.6
6	JV68	L5	True	500.00	596.895502	119.4
7	JV69	L6	True	1000.00	1019.112819	101.9
8	JV70	L7	True	2500.00	2426.997616	97.1
9	JV71	L8	True	5000.00	4945.090248	98.9
10	JV72	L9	False	10000.00	8586.790395	85.9



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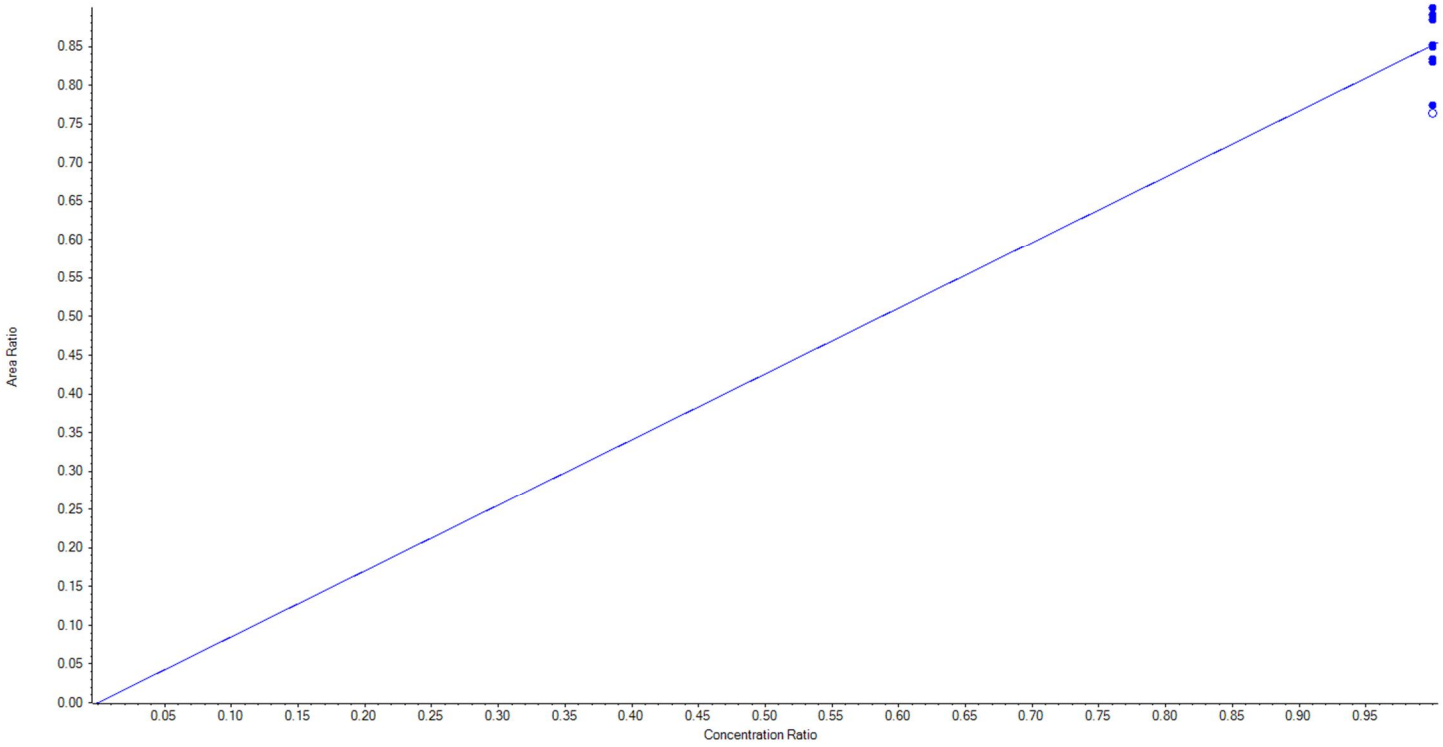
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Analyte Name	13C2-PFHxA	**Data File**	06142018.wiff
MRM Transition	315.0 / 270.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.85181 x (std. dev. = 0.04082) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	100.00	100.039156	100.0
3	JV65	L2	True	100.00	99.666125	99.7
4	JV66	L3	True	100.00	103.810567	103.8
5	JV67	L4	True	100.00	90.917552	90.9
6	JV68	L5	True	100.00	97.406921	97.4
7	JV69	L6	True	100.00	104.563356	104.6
8	JV70	L7	True	100.00	105.648475	105.7
9	JV71	L8	True	100.00	97.947847	98.0
10	JV72	L9	False	100.00	89.623369	89.6



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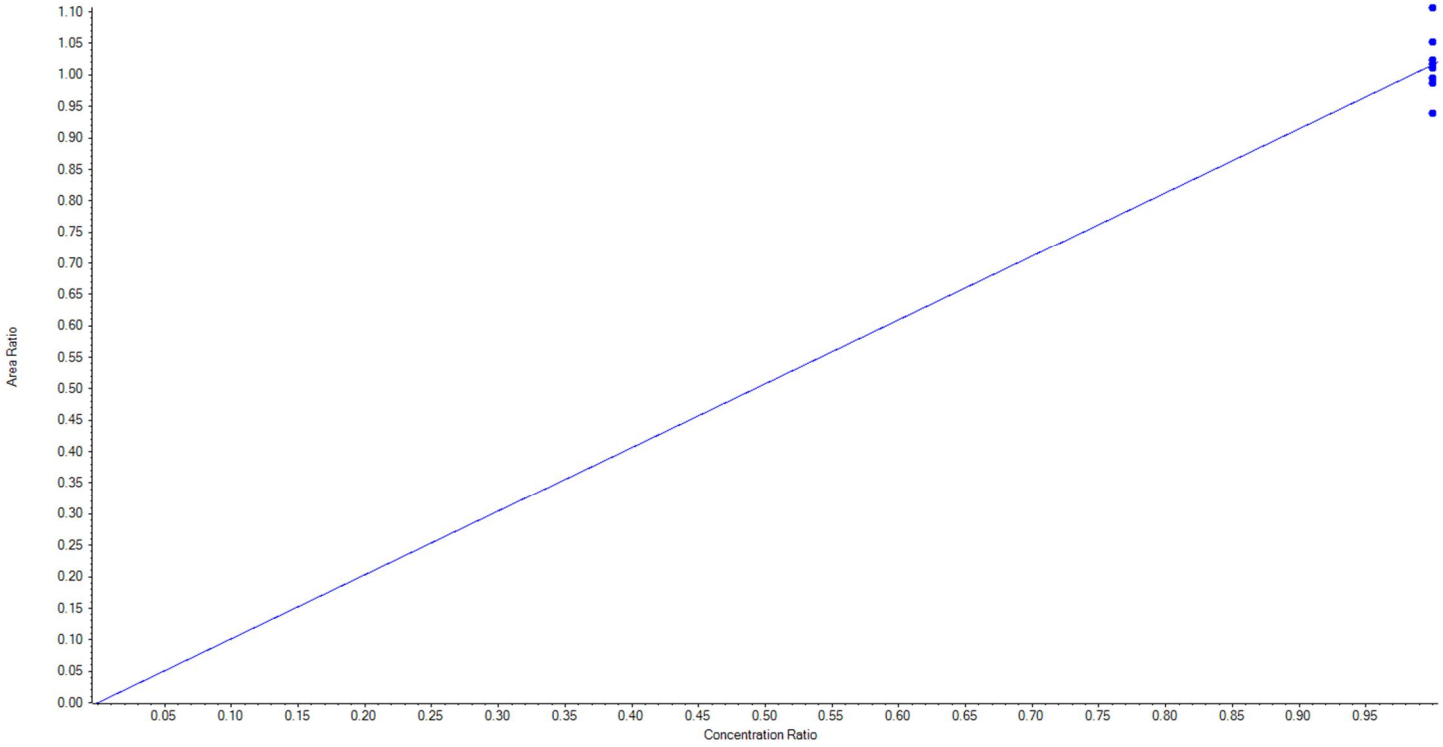
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Analyte Name	13C2-PFDA	**Data File**	06142018.wiff
MRM Transition	515.0 / 470.0	**Result Table**	18-0360_DW
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.01607 x (std. dev. = 0.04578) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	100.00	100.138661	100.1
3	JV65	L2	True	100.00	97.130095	97.1
4	JV66	L3	True	100.00	99.478644	99.5
5	JV67	L4	True	100.00	97.863511	97.9
6	JV68	L5	True	100.00	99.662505	99.7
7	JV69	L6	True	100.00	108.905764	108.9
8	JV70	L7	True	100.00	103.632596	103.6
9	JV71	L8	True	100.00	100.687253	100.7
10	JV72	L9	True	100.00	92.500970	92.5



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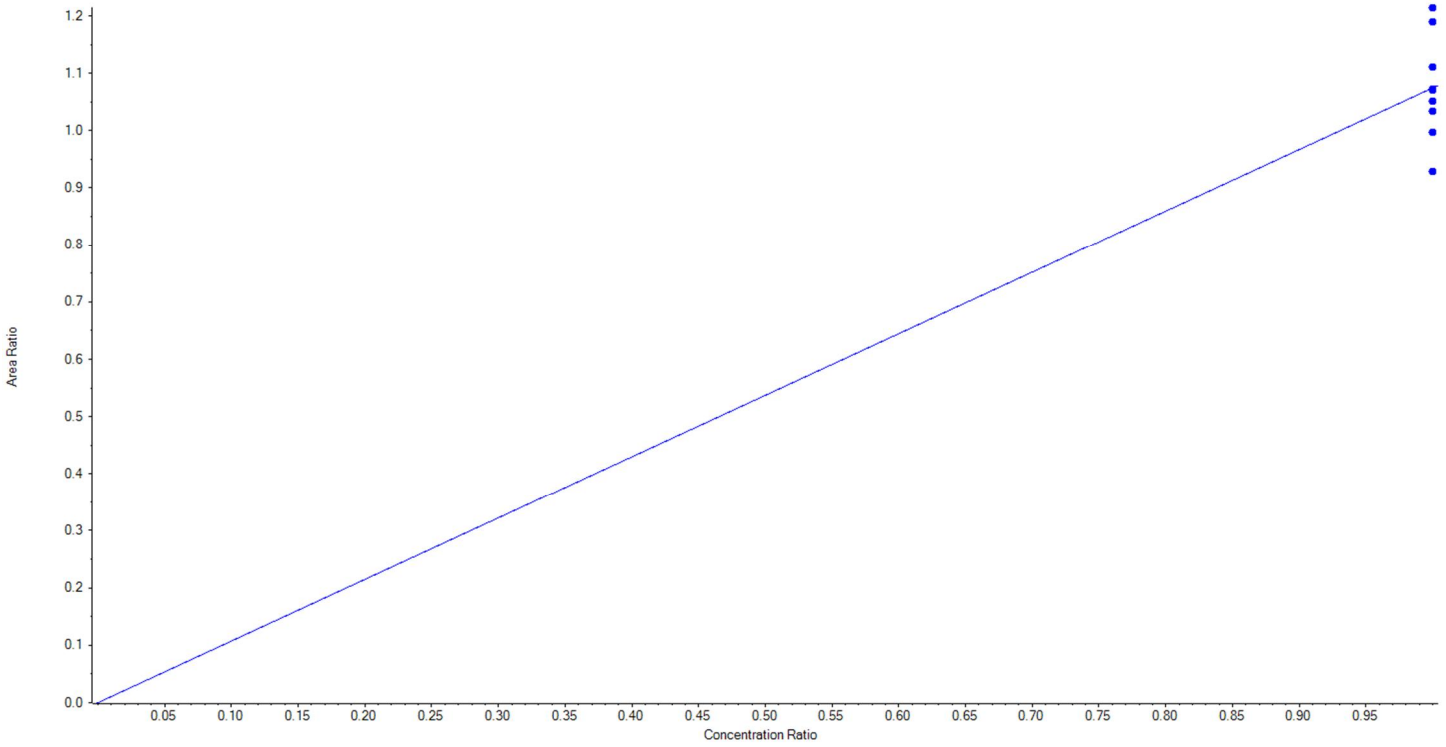
Calibration Summary Report

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Analyte Name	d5-EtFOSAA	**Data File**	06142018.wiff
MRM Transition	589.0 / 419.0	**Result Table**	18-0360_DW
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/14/2018 4:50:52 PM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.07434 x (std. dev. = 0.08889) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64	L1	True	400.00	399.397046	99.9
3	JV65	L2	True	400.00	398.862493	99.7
4	JV66	L3	True	400.00	442.684279	110.7
5	JV67	L4	True	400.00	451.971281	113.0
6	JV68	L5	True	400.00	384.646352	96.2
7	JV69	L6	True	400.00	391.704100	97.9
8	JV70	L7	True	400.00	413.562392	103.4
9	JV71	L8	True	400.00	371.226492	92.8
10	JV72	L9	True	400.00	345.945566	86.5



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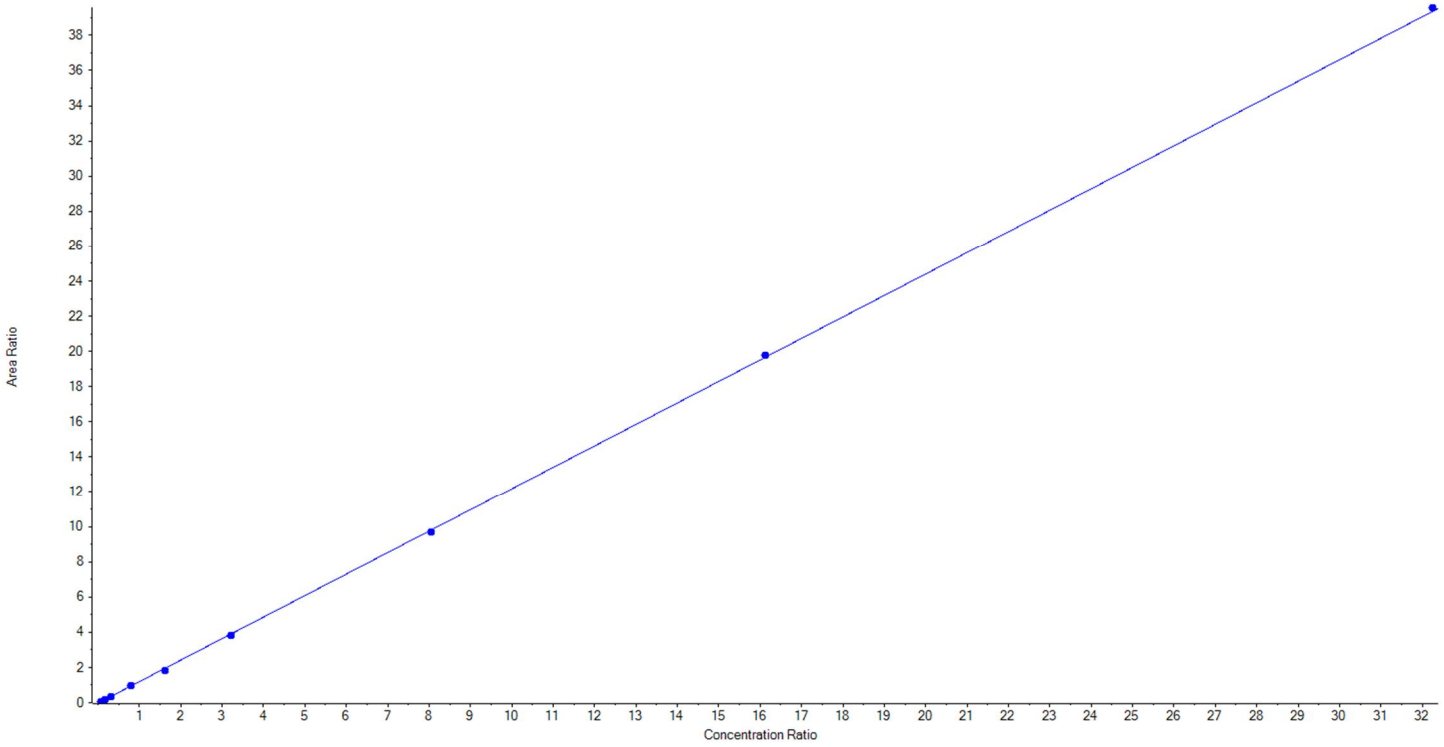
Calibration Summary Report

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Printed: 22/06/2018 1:19:54 PM

Analyte Name	PFOS_1	**Data File**	06212018.wiff
MRM Transition	499.0 / 80.0	**Result Table**	18-0360_DW_A
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/21/2018 8:15:15 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 1.22115 x + -0.02500 (r = 0.99991) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64		True	23.15	24.315091	105.0
3	JV65		True	46.60	48.019660	103.1
4	JV66		True	92.60	89.117522	96.2
5	JV67		True	231.50	239.738311	103.6
6	JV68		True	463.00	441.075970	95.3
7	JV69		True	925.60	900.403561	97.3
8	JV70		True	2314.00	2278.422883	98.5
9	JV71		True	4628.00	4656.096883	100.6
10	JV72		True	9256.00	9303.260119	100.5



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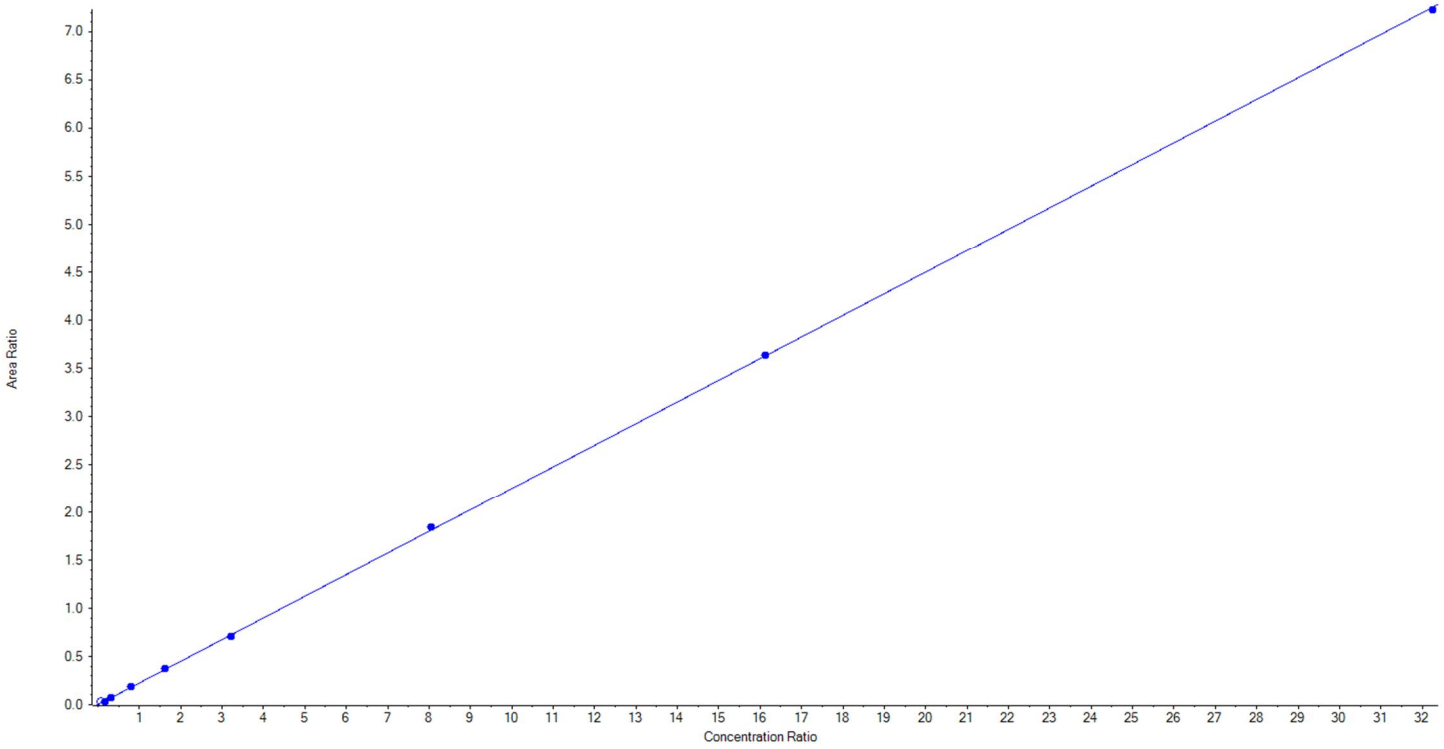
Calibration Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 1:19:54 PM

Analyte Name	PFOS_2	**Data File**	06212018.wiff
MRM Transition	499.0 / 99.0	**Result Table**	18-0360_DW_A
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	6/21/2018 8:15:15 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.22492 x + 2.02760e-4 (r = 0.99995) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64		False	23.15	44.663754	192.9
3	JV65		True	46.60	45.377626	97.4
4	JV66		True	92.60	93.400454	100.9
5	JV67		True	231.50	233.096851	100.7
6	JV68		True	463.00	472.286458	102.0
7	JV69		True	925.60	903.125623	97.6
8	JV70		True	2314.00	2354.039825	101.7
9	JV71		True	4628.00	4633.901091	100.1
10	JV72		True	9256.00	9222.072071	99.6



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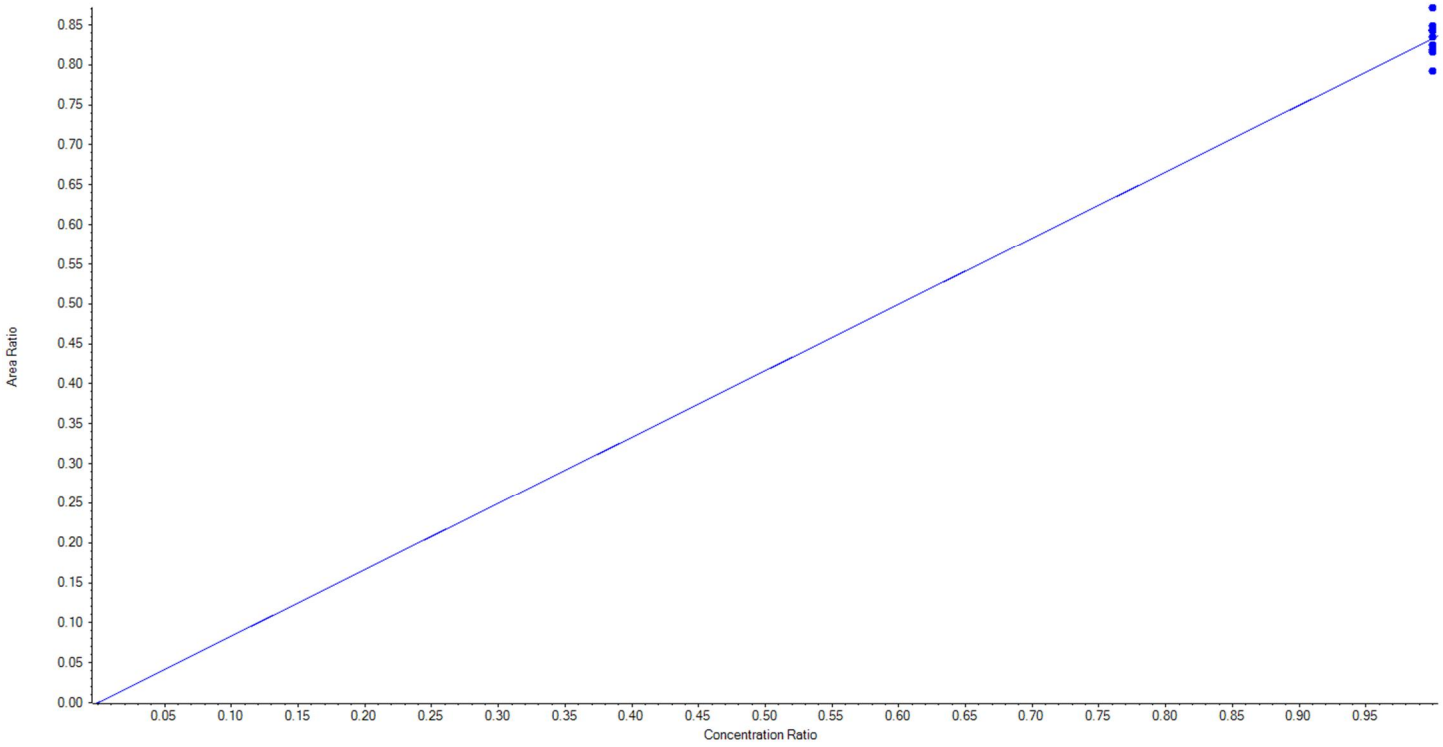
Calibration Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 1:19:54 PM

Analyte Name	13C2-PFHxA	**Data File**	06212018.wiff
MRM Transition	315.0 / 270.0	**Result Table**	18-0360_DW_A
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	6/21/2018 8:15:15 AM	**Acquisition Method**	5-0371.dam

Regression Equation: y = 0.83258 x (std. dev. = 0.02266) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV64		True	100.00	99.063145	99.1
3	JV65		True	100.00	101.974108	102.0
4	JV66		True	100.00	95.202909	95.2
5	JV67		True	100.00	100.209483	100.2
6	JV68		True	100.00	98.015938	98.0
7	JV69		True	100.00	104.651708	104.7
8	JV70		True	100.00	101.148165	101.2
9	JV71		True	100.00	101.368607	101.4
10	JV72		True	100.00	98.365939	98.4



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

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Summary Ion Ratio Report

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Sample Name	JV64	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T16:59:48	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.404	0.318	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.086	0.072	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.042	0.026	
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.280	0.283	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.098	0.086	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.311	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.212	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.038	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.054	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.156	0.166	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	0.063	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.580	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.58	NEtFOSAA	0.042	0.068	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

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Summary Ion Ratio Report

Sample Name	JV65	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:08:44	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.325	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.081	0.072	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.17	PFHpA	0.027	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.268	0.283	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.089	0.086	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.311	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.164	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.050	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.048	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.174	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.073	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.057	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.648	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.073	0.068	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

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Summary Ion Ratio Report

Sample Name	JV66	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:17:40	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.316	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.070	0.072	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.029	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.296	0.283	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.078	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.303	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.182	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.045	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.062	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.166	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.065	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.052	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.863	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.063	0.068	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

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Summary Ion Ratio Report

Sample Name	JV67	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:26:35	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.299	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.064	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.027	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.272	0.283	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.086	0.086	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.298	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.192	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.043	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.055	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.166	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.071	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.052	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.594	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.070	0.068	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

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Summary Ion Ratio Report

Sample Name	JV68	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:35:30	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.297	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.065	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.028	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.288	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.085	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.281	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.191	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.044	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.055	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.90	PFDoA	0.167	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.15	PFTrDA	0.066	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.617	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.074	0.068	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	3.59		N/A	N/A	ü

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Summary Ion Ratio Report

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Sample Name	JV69	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:44:26	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.313	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.068	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.20	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.291	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.086	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.281	0.294	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.191	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.045	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.051	0.053	ü
PFDoA_1	613.0 / 569.0	3.89	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.169	0.166	ü
PFTrDA_1	663.0 / 619.0	4.14	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.067	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.615	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.073	0.068	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	3.59		N/A	N/A	ü

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Summary Ion Ratio Report

Sample Name	JV70	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T17:53:22	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.305	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.072	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.026	0.026	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.286	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.080	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.288	0.294	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.187	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.047	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.052	0.053	ü
PFDoA_1	613.0 / 569.0	3.89	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.167	0.166	ü
PFTrDA_1	663.0 / 619.0	4.15	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.069	0.069	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.623	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.063	0.068	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	3.59		N/A	N/A	ü

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Summary Ion Ratio Report

Sample Name	JV71	**Injection Vial**	9
Sample ID	L8	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T18:02:19	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.301	0.318	ü
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.069	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.024	0.026	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.283	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.084	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.277	0.294	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.188	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.042	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.049	0.053	ü
PFDoA_1	613.0 / 569.0	3.89	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.160	0.166	ü
PFTrDA_1	663.0 / 619.0	4.14	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.069	0.069	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.43	NMeFOSAA	0.600	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.062	0.068	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	3.59		N/A	N/A	ü

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Summary Ion Ratio Report

Sample Name	JV72	**Injection Vial**	10
Sample ID	L9	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T18:11:15	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.304	0.318	ü
PFHxA_1	313.0 / 269.0	1.81	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.071	0.072	ü
PFHpA_1	363.0 / 319.0	2.18	PFHpA			
PFHpA_2	363.0 / 169.0	2.18	PFHpA	0.025	0.026	ü
PFHxS_1	399.0 / 80.0	2.19	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.280	0.283	ü
PFOA_1	413.0 / 369.0	2.56	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.080	0.086	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.288	0.294	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.181	0.188	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.046	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.049	0.053	ü
PFDoA_1	613.0 / 569.0	3.90	PFDoA			
PFDoA_2	613.0 / 319.0	3.89	PFDoA	0.170	0.166	ü
PFTrDA_1	663.0 / 619.0	4.14	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.14	PFTrDA	0.068	0.069	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.053	0.055	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.623	0.640	ü
NEtFOSAA_1	584.0 / 419.0	3.60	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.59	NEtFOSAA	0.062	0.068	ü
13C2-PFHxA	315.0 / 270.0	1.80				
13C2-PFDA	515.0 / 470.0	3.27		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.59		N/A	N/A	ü

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Summary Ion Ratio Report

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Sample Name	JV64	**Injection Vial**	2
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:24:11	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
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	2.90	PFOS	0.449	0.192	
13C2-PFHxA	315.0 / 270.0	1.79				

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Summary Ion Ratio Report

Sample Name	JV65	**Injection Vial**	3
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:33:07	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.199	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 22/06/2018 11:48:59 AM

Sample Name	JV66	**Injection Vial**	4
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:42:03	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.207	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.80				

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 22/06/2018 11:49:01 AM

Sample Name	JV67	**Injection Vial**	5
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:50:59	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.184	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

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Summary Ion Ratio Report

Sample Name	JV68	**Injection Vial**	6
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T08:59:55	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	2.92	PFOS	0.200	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

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Summary Ion Ratio Report

Sample Name	JV69	**Injection Vial**	7
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:08:50	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.186	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

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Summary Ion Ratio Report

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Printed: 22/06/2018 11:49:06 AM

Sample Name	JV70	**Injection Vial**	8
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:17:46	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.191	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.80				

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 22/06/2018 11:49:08 AM

Sample Name	JV71	**Injection Vial**	9
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:26:43	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.184	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

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Summary Ion Ratio Report

Created with Analyst Reporter
Printed: 22/06/2018 11:49:10 AM

Sample Name	JV72	**Injection Vial**	10
Sample ID		**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:35:40	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.183	0.192	ü
13C2-PFHxA	315.0 / 270.0	1.79				

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QC Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 11:18:42 AM

Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-14T18:20:10	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.52	749.808948	885.00	84.72
PFBS_2	298.9 / 99.0	1.51	739.611141	885.00	83.57
PFHxA_1	313.0 / 269.0	1.81	958.781173	1000.00	95.88
PFHxA_2	313.0 / 119.0	1.81	1030.910160	1000.00	103.09
PFHpA_1	363.0 / 319.0	2.18	971.090051	1000.00	97.11
PFHpA_2	363.0 / 169.0	2.18	997.298852	1000.00	99.73
PFHxS_1	399.0 / 80.0	2.20	834.436811	912.00	91.50
PFHxS_2	399.0 / 99.0	2.20	828.902733	912.00	90.89
PFOA_1	413.0 / 369.0	2.56	1016.567804	1000.00	101.66
PFOA_2	413.0 / 169.0	2.56	934.239108	1000.00	93.42
PFNA_1	463.0 / 419.0	2.94	996.784531	1000.00	99.68
PFNA_2	463.0 / 219.0	2.94	1005.268985	1000.00	100.53
PFOS_1	499.0 / 80.0	2.94	795.240090	925.60	85.92
PFOS_2	499.0 / 99.0	2.94	941.318881	925.60	101.70
PFDA_1	513.0 / 469.0	3.29	962.561060	1000.00	96.26
PFDA_2	513.0 / 219.0	3.29	985.545810	1000.00	98.55
PFUnA_1	563.0 / 519.0	3.61	963.973897	1000.00	96.40
PFUnA_2	563.0 / 269.0	3.61	934.136995	1000.00	93.41
PFDoA_1	613.0 / 569.0	3.90	970.912417	1000.00	97.09
PFDoA_2	613.0 / 319.0	3.89	949.343697	1000.00	94.93
PFTrDA_1	663.0 / 619.0	4.14	969.615921	1000.00	96.96
PFTrDA_2	663.0 / 169.0	4.14	958.270323	1000.00	95.83
PFTeDA_1	713.0 / 669.0	4.36	904.295824	1000.00	90.43
PFTeDA_2	713.0 / 169.0	4.36	951.292410	1000.00	95.13
NMeFOSAA_1	570.0 / 419.0	3.44	1102.408078	1000.00	110.24
NMeFOSAA_2	570.0 / 512.0	3.44	997.000489	1000.00	99.70
NEtFOSAA_1	584.0 / 419.0	3.60	1078.816663	1000.00	107.88
NEtFOSAA_2	584.0 / 483.0	3.60	973.971432	1000.00	97.40
13C2-PFHxA	315.0 / 270.0	1.80	94.595177	100.00	94.60
13C2-PFDA	515.0 / 470.0	3.28	95.591692	100.00	95.59
d5-EtFOSAA	589.0 / 419.0	3.59	348.591981	400.00	87.15

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QC Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 11:18:44 AM

Sample Name	JV69 CCV	**Injection Vial**	23
Sample ID	L6 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T18:07:22	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	854.314121	885.00	96.53
PFBS_2	298.9 / 99.0	1.51	854.548997	885.00	96.56
PFHxA_1	313.0 / 269.0	1.80	1030.112868	1000.00	103.01
PFHxA_2	313.0 / 119.0	1.80	1075.016943	1000.00	107.50
PFHpA_1	363.0 / 319.0	2.17	948.451562	1000.00	94.85
PFHpA_2	363.0 / 169.0	2.17	828.878298	1000.00	82.89
PFHxS_1	399.0 / 80.0	2.18	904.468957	945.00	95.71
PFHxS_2	399.0 / 99.0	2.18	907.299960	945.00	96.01
PFOA_1	413.0 / 369.0	2.55	1016.162426	1000.00	101.62
PFOA_2	413.0 / 169.0	2.54	931.588677	1000.00	93.16
PFNA_1	463.0 / 419.0	2.92	1025.545253	1000.00	102.55
PFNA_2	463.0 / 219.0	2.92	1011.598940	1000.00	101.16
PFOS_1	499.0 / 80.0	2.92	902.090028	955.00	94.46
PFOS_2	499.0 / 99.0	2.92	926.514394	955.00	97.02
PFDA_1	513.0 / 469.0	3.27	1054.267089	1000.00	105.43
PFDA_2	513.0 / 219.0	3.27	1064.686071	1000.00	106.47
PFUnA_1	563.0 / 519.0	3.59	1129.701410	1000.00	112.97
PFUnA_2	563.0 / 269.0	3.58	1053.261789	1000.00	105.33
PFDoA_1	613.0 / 569.0	3.87	1074.262463	1000.00	107.43
PFDoA_2	613.0 / 319.0	3.87	1075.476587	1000.00	107.55
PFTrDA_1	663.0 / 619.0	4.12	1058.412613	1000.00	105.84
PFTrDA_2	663.0 / 169.0	4.12	995.159667	1000.00	99.52
PFTeDA_1	713.0 / 669.0	4.34	1046.509862	1000.00	104.65
PFTeDA_2	713.0 / 169.0	4.33	1084.971567	1000.00	108.50
NMeFOSAA_1	570.0 / 419.0	3.42	934.438545	1000.00	93.44
NMeFOSAA_2	570.0 / 512.0	3.41	917.794628	1000.00	91.78
NEtFOSAA_1	584.0 / 419.0	3.57	1022.338296	1000.00	102.23
NEtFOSAA_2	584.0 / 483.0	3.58	895.695725	1000.00	89.57
13C2-PFHxA	315.0 / 270.0	1.79	103.715593	100.00	103.72
13C2-PFDA	515.0 / 470.0	3.26	102.287389	100.00	102.29
d5-EtFOSAA	589.0 / 419.0	3.57	452.090763	400.00	113.02

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QC Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 11:18:46 AM

Sample Name	JV70 CCV	**Injection Vial**	32
Sample ID	L7 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T19:36:43	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	2249.986522	2212.50	101.69
PFBS_2	298.9 / 99.0	1.51	2276.859782	2212.50	102.91
PFHxA_1	313.0 / 269.0	1.79	2607.642795	2500.00	104.31
PFHxA_2	313.0 / 119.0	1.79	2824.485962	2500.00	112.98
PFHpA_1	363.0 / 319.0	2.16	2551.068524	2500.00	102.04
PFHpA_2	363.0 / 169.0	2.16	2550.804577	2500.00	102.03
PFHxS_1	399.0 / 80.0	2.18	2289.847244	2280.00	100.43
PFHxS_2	399.0 / 99.0	2.18	2364.672327	2280.00	103.71
PFOA_1	413.0 / 369.0	2.54	2729.926236	2500.00	109.20
PFOA_2	413.0 / 169.0	2.54	2495.415946	2500.00	99.82
PFNA_1	463.0 / 419.0	2.92	2630.885082	2500.00	105.24
PFNA_2	463.0 / 219.0	2.92	2684.540843	2500.00	107.38
PFOS_1	499.0 / 80.0	2.91	2409.937106	2314.00	104.15
PFOS_2	499.0 / 99.0	2.91	2418.225162	2314.00	104.50
PFDA_1	513.0 / 469.0	3.27	2798.295589	2500.00	111.93
PFDA_2	513.0 / 219.0	3.26	2638.546752	2500.00	105.54
PFUnA_1	563.0 / 519.0	3.58	3037.817918	2500.00	121.51
PFUnA_2	563.0 / 269.0	3.58	3068.382360	2500.00	122.74
PFDoA_1	613.0 / 569.0	3.87	2831.488803	2500.00	113.26
PFDoA_2	613.0 / 319.0	3.86	2832.526286	2500.00	113.30
PFTrDA_1	663.0 / 619.0	4.11	2700.977172	2500.00	108.04
PFTrDA_2	663.0 / 169.0	4.11	2658.429098	2500.00	106.34
PFTeDA_1	713.0 / 669.0	4.33	2743.552145	2500.00	109.74
PFTeDA_2	713.0 / 169.0	4.33	2754.285388	2500.00	110.17
NMeFOSAA_1	570.0 / 419.0	3.41	2323.161185	2500.00	92.93
NMeFOSAA_2	570.0 / 512.0	3.41	2344.261587	2500.00	93.77
NEtFOSAA_1	584.0 / 419.0	3.57	2527.874701	2500.00	101.11
NEtFOSAA_2	584.0 / 483.0	3.57	2637.354256	2500.00	105.49
13C2-PFHxA	315.0 / 270.0	1.78	107.841936	100.00	107.84
13C2-PFDA	515.0 / 470.0	3.25	113.860541	100.00	113.86
d5-EtFOSAA	589.0 / 419.0	3.57	395.315016	400.00	98.83

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QC Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 11:18:49 AM

Sample Name	JV69 CCV	**Injection Vial**	40
Sample ID	L6 CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-15T20:57:07	**Data File**	06142018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	873.684178	885.00	98.72
PFBS_2	298.9 / 99.0	1.50	867.143292	885.00	97.98
PFHxA_1	313.0 / 269.0	1.79	968.368087	1000.00	96.84
PFHxA_2	313.0 / 119.0	1.79	1059.101252	1000.00	105.91
PFHpA_1	363.0 / 319.0	2.16	948.144702	1000.00	94.81
PFHpA_2	363.0 / 169.0	2.16	990.495435	1000.00	99.05
PFHxS_1	399.0 / 80.0	2.17	881.343985	912.00	96.64
PFHxS_2	399.0 / 99.0	2.17	910.295507	912.00	99.81
PFOA_1	413.0 / 369.0	2.54	1008.693557	1000.00	100.87
PFOA_2	413.0 / 169.0	2.53	941.809592	1000.00	94.18
PFNA_1	463.0 / 419.0	2.91	960.527945	1000.00	96.05
PFNA_2	463.0 / 219.0	2.91	980.875510	1000.00	98.09
PFOS_1	499.0 / 80.0	2.91	919.875918	925.60	99.38
PFOS_2	499.0 / 99.0	2.91	899.324971	925.60	97.16
PFDA_1	513.0 / 469.0	3.26	1003.355018	1000.00	100.34
PFDA_2	513.0 / 219.0	3.26	1077.917303	1000.00	107.79
PFUnA_1	563.0 / 519.0	3.57	1133.574410	1000.00	113.36
PFUnA_2	563.0 / 269.0	3.57	1085.263255	1000.00	108.53
PFDoA_1	613.0 / 569.0	3.86	998.474894	1000.00	99.85
PFDoA_2	613.0 / 319.0	3.86	1008.014514	1000.00	100.80
PFTrDA_1	663.0 / 619.0	4.11	954.070516	1000.00	95.41
PFTrDA_2	663.0 / 169.0	4.11	936.218288	1000.00	93.62
PFTeDA_1	713.0 / 669.0	4.33	996.489009	1000.00	99.65
PFTeDA_2	713.0 / 169.0	4.32	963.546047	1000.00	96.35
NMeFOSAA_1	570.0 / 419.0	3.41	976.286261	1000.00	97.63
NMeFOSAA_2	570.0 / 512.0	3.40	1050.636869	1000.00	105.06
NEtFOSAA_1	584.0 / 419.0	3.57	1156.604472	1000.00	115.66
NEtFOSAA_2	584.0 / 483.0	3.56	1057.230449	1000.00	105.72
13C2-PFHxA	315.0 / 270.0	1.78	102.055338	100.00	102.06
13C2-PFDA	515.0 / 470.0	3.25	109.247085	100.00	109.25
d5-EtFOSAA	589.0 / 419.0	3.56	465.603898	400.00	116.40

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QC Summary Report

Created with Analyst Reporter
Printed: 22/06/2018 11:59:13 AM

Sample Name	JV63 ICC	**Injection Vial**	11
Sample ID		**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T09:44:36	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFOS_1	499.0 / 80.0	2.91	816.229297	925.60	88.18
PFOS_2	499.0 / 99.0	2.91	874.230448	925.60	94.45
13C2-PFHxA	315.0 / 270.0	1.79	98.214979	100.00	98.21

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QC Summary Report

Created with Analyst Reporter
Printed: 26/06/2018 8:21:55 AM

Sample Name	JV69	**Injection Vial**	7
Sample ID		**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-21T10:20:17	**Data File**	06212018.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0360_DW_A
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFOS_1	499.0 / 80.0	2.90	774.001594	925.60	83.62
PFOS_2	499.0 / 99.0	2.91	864.225562	925.60	93.37
13C2-PFHxA	315.0 / 270.0	1.78	97.782124	100.00	97.78

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Summary Quant Report

Created with Analyst Reporter
Printed: 18/07/2018 9:39:07 AM

Sample Calc

Sample Name	J6295-FS1(0)	**Injection Vial**	16
Sample ID	WGNA-053118-RW-4850	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-27T18:28:22	**Data File**	06252018_5-371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.49	2753340.56	9354.091238	950.5	false
PFBS_2	298.9 / 99.0	1.49	843202.93	9223.984666	929.5	false
PFHxA_1	313.0 / 269.0	1.77	2984311.53	9765.741763	228.8	false
PFHxA_2	313.0 / 119.0	1.77	187814.96	8656.451161	204.8	false
PFHpA_1	363.0 / 319.0	2.13	1092609.44	3738.572621	218.9	false
PFHpA_2	363.0 / 169.0	2.11	31553.55	4532.892575	265.9	false
PFHxS_1	399.0 / 80.0	2.15	12625151.81	39129.520570	861.5	false
PFHxS_2	399.0 / 99.0	2.15	3563022.54	38176.336408	1173.2	false
PFOA_1	413.0 / 369.0	2.50	2476349.44	6615.964056	460.0	false
PFOA_2	413.0 / 169.0	2.49	271831.41	9735.886245	398.7	false
PFNA_1	463.0 / 419.0	2.88	267910.94	797.813763	259.6	false
PFNA_2	463.0 / 219.0	2.88	79908.34	811.524529	253.6	false
PFOS_1	499.0 / 80.0	2.84	23598621.94	53179.075798	565.6	false
PFOS_2	499.0 / 99.0	2.87	3851668.21	46583.714479	873.1	false
PFDA_1	513.0 / 469.0	3.22	31850.79	68.362125	142.8	false
PFDA_2	513.0 / 219.0	3.22	1951.78	112.473280	83.2	false
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	3.37	556.33	14.984659	112.7	false
NMeFOSAA_2	570.0 / 512.0	3.41	204.34	11.648806	30.3	false
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	48626.50	129.606300	774.1	true
13C2-PFDA	515.0 / 470.0	3.21	52886.14	116.407629	1212.8	false
d5-EtFOSAA	589.0 / 419.0	3.53	15564.85	398.977021	349.7	false

PFOA 24.06 ng/L
y=0.76657 x + 0.23682

((2476349.44 / 48600.75)-0.23682 / 0.76657)*100*0.001/ 0.275 = 24.058 ng/L

LCS PFOA 116% 11.59/10 * 100 = 115.9%

MS PFOA 110% 55.78-24.06/28.85*100 = 109.9%
MSD PFOA 115% 55.35-24.06/27.27*100 = 114.7
RPD 4.4 (114.7-109.9)/(114.7+109.9/2)*100 = 4.3

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Summary Internal Standard Report

Created with Analyst Reporter
Printed: 18/07/2018 9:43:43 AM

Sample Name	J6295-FS1(0)	**Injection Vial**	16
Sample ID	WGNA-053118-RW-4850	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	2018-06-27T18:28:22	**Data File**	06252018_5-371.wiff
Acquisition Method	5-0371.dam	**Result Table**	18-0393_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.49	13C4-PFOS	503.0 / 80.0	137677.46	287.00
PFBS_2	298.9 / 99.0	1.49	13C4-PFOS	503.0 / 80.0	137677.46	287.00
PFHxA_1	313.0 / 269.0	1.77	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFHxA_2	313.0 / 119.0	1.77	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFHpA_1	363.0 / 319.0	2.13	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFHpA_2	363.0 / 169.0	2.11	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFHxS_1	399.0 / 80.0	2.15	13C4-PFOS	503.0 / 80.0	137677.46	287.00
PFHxS_2	399.0 / 99.0	2.15	13C4-PFOS	503.0 / 80.0	137677.46	287.00
PFOA_1	413.0 / 369.0	2.50	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFOA_2	413.0 / 169.0	2.49	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFNA_1	463.0 / 419.0	2.88	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFNA_2	463.0 / 219.0	2.88	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFOS_1	499.0 / 80.0	2.84	13C4-PFOS	503.0 / 80.0	137677.46	287.00
PFOS_2	499.0 / 99.0	2.87	13C4-PFOS	503.0 / 80.0	137677.46	287.00
PFDA_1	513.0 / 469.0	3.22	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFDA_2	513.0 / 219.0	3.22	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	48600.75	100.00
NMeFOSAA_1	570.0 / 419.0	3.37	d3-MeFOSAA	573.0 / 419.0	14718.39	400.00
NMeFOSAA_2	570.0 / 512.0	3.41	d3-MeFOSAA	573.0 / 419.0	14718.39	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	14718.39	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	14718.39	400.00
13C2-PFHxA	315.0 / 270.0	1.76	13C2-PFOA	415.0 / 370.0	48600.75	100.00
13C2-PFDA	515.0 / 470.0	3.21	13C2-PFOA	415.0 / 370.0	48600.75	100.00
d5-EtFOSAA	589.0 / 419.0	3.53	d3-MeFOSAA	573.0 / 419.0	14718.39	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	18-0360							N6247016D9008	WE04	TETRA TECH, INC.	WGNA-060718-FRB-0488	Water for QC samples	Field Reagent Blank	7-Jun-18	PFAS_QSM5.1	Perfluoroalkyl Compounds
MID_ATLANTIC	WILLOW_GROVE_NAS	18-0360							N6247016D9008	WE04	TETRA TECH, INC.	WGNA-053118-FRB-4850	Water for QC samples	Field Reagent Blank	31-May-18	PFAS_QSM5.1	Perfluoroalkyl Compounds
MID_ATLANTIC	WILLOW_GROVE_NAS	18-0360							N6247016D9008	WE04	TETRA TECH, INC.	WGNA-060718-FRB-0626	Water for QC samples	Field Reagent Blank	7-Jun-18	PFAS_QSM5.1	Perfluoroalkyl Compounds