



**Off-Base Drinking Water Sample Results,
Level 4 Laboratory Report, Electronic Data Deliverable,
Data Validation Report, and the Sample Location Figure,
SDG 18-0614**

*Naval Air Station Jacksonville
Jacksonville, Florida*

July 2019

N00207_004471
JACKSONVILLE_NAS
SSIC 5000-33c

LABORATORY DATA PACKAGE 18-0614 NAS JACKSONVILLE FL
10/18/2018
BATTELLE

Approved for public release: distribution unlimited.

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

W

Batch 18-0614

Package DP-18-0310

Submitted to:

Tetra Tech

661 Anderson Drive Foster Plaza 7

Pittsburgh, PA 15220 USA

Submitted by:

Battelle Norwell Operations

141 Longwater Drive Suite 202

Norwell, MA 02061

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NELAP Accreditation Number: E87856 (Florida Department of Health)

DoD-ELAP Accreditation Number: 91667

Submitted by:

Battelle Norwell Operations

141 Longwater Drive Suite 202

Norwell, MA 02061

Analyst Approval:



schumitzd@battelle.org

2018.10.17 15:55:16 -04'00'

QC Chemist Approval:



Digitally signed by devinec@battelle.org
DN: cn=devinec@battelle.org
Date: 2018.10.17 15:59:37 -04'00'

Project Manager Approval:



Digitally signed by Jonathan Thorn
Date: 2018.10.18 16:19:55 -04'00'

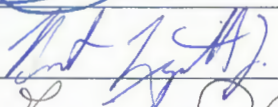
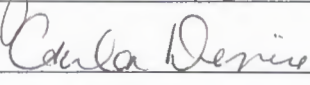
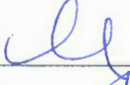
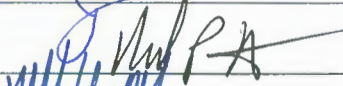
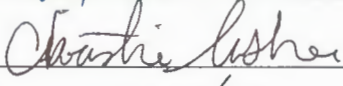
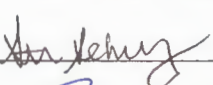
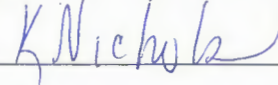
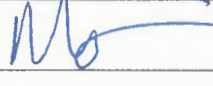
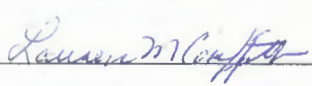
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CTO-SE0375: Naval Air Station Jacksonville
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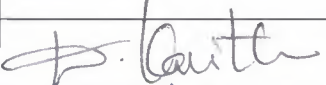
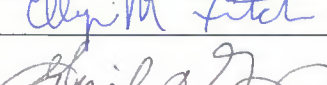
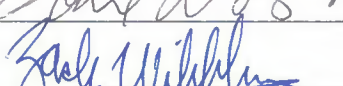
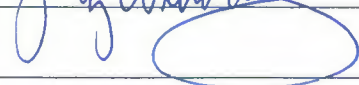
1	<i>Work Plan</i> Laboratory Work Plan, Addendums To Work Plan, Memos From Project Manager, Special Instructions, Chain-of-Custody Reports.	1
2	<i>Tables</i> Analytical Data Tables, Qualifier Definitions.	20
3	<i>Miscellaneous Documentation</i> Case Narrative, Miscellaneous Documentation Form, Quality Control Summary, Example Calculations, Internal Standard Recovery Report, Retention Time Window Report.	27
4	<i>Sample Preparation Records</i> Sample Preparation Records, Dilution Worksheets, Standard Preparation Records, Certificates Of Analysis, GPC Check Report.	126
5	<i>Analytical Calibrations</i> Analytical Sequence, Analytical Method, Tune Report, Initial Calibration, Pesticide Degradation Report, RF Summary, Calibration Verifications, Independent Calibration Verification Check.	138
6	<i>Analytical Data</i> Raw Data Quantification Reports.	201
7	<i>Chromatograms</i> Sample And Standard Chromatograms.	217
8	<i>Unused Data</i>	NA

Signature Page

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

Signature Page

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 Stender		Trs	04/04/18
Ellyn M Fitch		EF	12-April-2018
Gail DeRuzzo		GD	4/18/18
Zachary Willenberg		Z/W	4/20/18

Sample Summary

Client: Tetra Tech, Inc.

SDG: 18-0614

Project/Site: Naval Air Station Jacksonville

CTO: SE0375

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Receipt Date
CR996PB-FS	Procedural Blank	WATER	10/11/2018	10/11/2018
CR997LCS-FS	Laboratory Control Sample	WATER	10/11/2018	10/11/2018
J8739-FS	JAX-RES-101018-1000-5	W	10/10/2018	10/11/2018
J8741-FS	JAX-RES-101018-1050-3	W	10/10/2018	10/11/2018

Work Plan



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WORK/QUALITY ASSURANCE PROJECT PLAN

1.0 GENERAL PROJECT INFORMATION

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

2.0 SCOPE OF WORK

Overview: Analysis of drinking water samples for PFAS.
Matrix: Water

2.1 TECHNICAL APPROACH

2.1.1 Sample Receipt, Storage, and Handling

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

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



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WORK/QUALITY ASSURANCE PROJECT PLAN

2.1.2 Sample Preparation

Samples to arrive over a period of weeks.

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

Batch quality control samples are defined in Table 1.

Target samples are presented in Attachment 1.

Table 1: Quality Control Samples

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

2.1.3 Extraction/Preparation

2.1.3.1 Extraction

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

Table 2: SIS and LCS/MS Spiking Level

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



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

2.1.3.2 Cleanup

None.

RIS spiking levels are presented in Table 3.

Extract PIV (uL): 1000

Table 3: RIS Spiking Level

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

2.1.4 Instrumental Analysis

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

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



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WORK/QUALITY ASSURANCE PROJECT PLAN

2.2. DELIVERABLES

Deliverables Due:	8/21/2018
LIMS Reports:	No
Histograms:	No
Excel Tables:	Yes
EICs:	No
Chromatograms:	Yes
EDDs:	Yes
Comments:	• Excel data tables due in 7 days, full data package in 14 days • Data package compliant with QSM 5.1 Table B-15 • Preliminary data tables will use ND and not the LOD value, tables in full data package will follow QSM reporting criteria • 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
Lauren M. Griffith	LC-MS/MS Analysis	NA
Matt D. Schumitz	Sample Custody	NA
Carla R. Devine	Quality Control Officer	NA
Zachary J. Willenberg	Quality Assurance Officer	NA

4.2 COMMUNICATION

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

5.0 SCHEDULE

WORK/QUALITY ASSURANCE PROJECT PLAN

The project schedule is presented in Table 5.

Table 5. Schedule of Laboratory Activities

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

6.0 BUDGET

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

Table 6. Labor Budget (Laboratory Analytical Task)

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

7.0 STAFF DEVELOPMENT

None anticipated.



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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 1: Target Samples

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

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

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

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

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

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

Shipment: SHP-180816-02

Status: Approved

Description: NAS JAX PFAS

Range: J7445-J7452

Comment: NA

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

Shipment: SHP-180821-01

Status: Approved

Description: NAS JAX PFAS

Range: J7558-J7563

Comment: NA

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

Shipment: SHP-180822-02

Status: Approved

Description: PFAS EVAL

Range: J7566-J7570

Comment: NA

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



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Shipment: SHP-180822-02

Status: Approved

Description: PFAS EVAL

Range: J7566-J7570

Comment: NA

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

Shipment: SHP-180823-02

Status: Approved

Description: NAS JAX PFAS

Range: J7585-J7587

Comment: NA

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

Shipment: SHP-181011-03

Status: Pending

Description: NAS JAX

Range: J8739-J8741

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J8739	JAX-RES-101018-1000-5	10/10/2018 10:00 am	W	R0119 (NA)			
2	J8741	JAX-RES-101018-1050-3	10/10/2018 10:50 am	W	R0119 (NA)			



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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

Project Test Code Name:	Master_371
SOP Reference:	5-371 - ANALYSIS OF POLY AND PERFLUOROALKYL SUBSTANCES IN DRINKING WATER SAMPLES BY LIQUID CHROMATOGRAPHY AND TANDEM MASS SPECTROMETRY (LC-MS/MS) FOLLOWING EPA METHOD 537.1
Description:	PFAS in drinking water
Matrix:	L - Liquid Samples, like water or sea water, prepared and analyzed 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: 14 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 Substitution:	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	PFTTrDA	T	13C2-PFOA		No	No
9	Perfluoro-n-tetradecanoic acid	PFTeDA	T	13C2-PFOA		No	No
10	N-methylperfluoro-1-octanesulfonamidoacetic acid	NMeFOSAA	T	d3-MeFOSAA		No	No
11	N-ethylperfluoro-octanesulfonamidoacetic acid	NEtFOSAA	T	d3-MeFOSAA		No	No
12	Perfluoro-1-butanefulfonate	PFBS	T	13C4-PFOS		No	No
13	Perfluoro-1-octanesulfonate	PFOS	T	13C4-PFOS		No	No
14	Perfluoro-1-hexanesulfonate	PFHxS	T	13C4-PFOS		No	No
1	13C2-PFHxA	13C2-PFHxA	SIS			No	No
2	13C2-PFDA	13C2-PFDA	SIS			No	No



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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

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 Verification Criteria

Independent Calibration Verification:

ICC Name: Standard

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

Mass Discrimination Criteria:

None

Degredation Check Criteria:

None



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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	



It can be done

WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 3: Method Quality Objectives

MQO Application	Universal_LC		
MQO:	Acceptance Criteria	Qual:	Corrective Action:
Analytical Triplicate Precision	Organics results less than 30% Relative Standard Deviation (RSD). Analyte concentration must be > 5x MDL. Organics Results in the Original is less than 5 times the MDL	N n	Review with Project Manager; re-analyze or justify reporting results in the project records.
Surrogate Compound Recovery	Recovery results between 50% and 150%.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
Control Oil	RPD < 30% for at least 90% of analytes	N	Results examined by project manager, task leader, or subcontractor lab manager. Reextraction, reanalysis, or justification documented.
Instrument Calibration	5-371-3: R-squared greater than or equal to 0.995 Mean RSD less than or equal to 15%, Individual RSD less than or equal to 25%	N	Results examined by project manager, task leader, or subcontractor lab manager. Reextraction, reanalysis, or justification documented.
Independent Calibration Check Solution	5-371-3: Individual PD less than or equal to 20%. Mean Percent Difference less than or equal to 15%.	N	Review with Project Manager; re-analyze or justify in project records.
Continuing Calibration Verification	5-371-3: Individual PD less than or equal to 25%. Mean Percent Difference less than or equal to 20%.	N	Review with Project Manager; re-analyze or justify in project records.

ShpNo SHP-181011-03

It can be done

Battelle Project No: _____

Sample Receipt Form

Approved: ☐ Authorized: ☐Project Number: 112G08005-SE0375Client: Tetra TechReceived by: Schumitz, MattDate/Time Received: Thursday, October 11, 2018 10:00 AMNo. of Shipping Containers: 1**SHIPMENT**Method of Delivery: Commercial CarrierTracking Number: Fed ExCOC Forms: ☒ Shipped with samples ☐ No Forms**Cooler(s)/Box(es)**

Cntr	Type	Tracking No.	Seal	Seal	Container	Therm.	Temp C	Smps
1 of 1	Cooler	7891 8867 1543	Custody Seals	Intact	Intact	Therm_1	0.9	4

Samples

Sample Labels:

- ☒ Sample labels agree with COC forms
☐ Discrepancies (see Sample Custody Corrective Action Form)

Container Seals:

- ☐ Tape ☐ Custody Seals ☐ Other Seals (See sample Log)
☒ Seals intact for each shipping container
☐ Seals broken (See sample log for impacted samples)

Condition of Samples:

- ☒ Sample containers intact
☐ Sample containers broken/leaking (See Custody Corrective Action Form)

Temperature upon receipt (°C): 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.: UnKnownStorage Location: Custody: Refrigerator - R0119 (NA)BDO IDs Assigned: J8739 - J8742Samples logged in by: Schumitz, MattDate/Time: 10/11/2018 10:00 AM

Approved By: _____

Approved On: _____

Authorized By: _____

Authorized On: _____



It can be done

ShpNo: **SHP-181011-03**

Battelle Project No: 154-SE0375

Report Corrective Actions

Corrective Action No: 1 of 1

Authorized ☐ Approved: ☐

COC Client: Tetra Tech
COC Project: NAS JAX
COC Date: 10/11/2018 10:0

Description of Problem:		Explanation:
Client Id	Missing samples listed on the C-O-C	Both "FRB" samples are listed on the COC to have 2 bottles each but there was only 1 of each present in the cooler.

Documentation of project manager notification

Sample Custodian Schumitz, Matt **Date:** 10/11/2018 10:19:00 A
Laboratory Manager: Thorn, Jonathan **Date:** 10/11/2018 11:40:00 A
Project Manager: Thorn, Jonathan **Date:** 10/11/2018 11:40:00 A

Documentation of client notification (should be completed by project manager within 24 hrs):

On 11-Oct-18 **I contacted** Peterson, Mark **at** Tetra Tech

Results of communication with client (Describe any corrective action directed by the client):

Notified client, they have confirmed that the COC was incorrect and only 1 bottle for each FRB was collected.

Date this form was received back to the custodian: _____

Reference Number: _____



It can be done

ShpNo SHP-181011-03

Battelle Project No: _____

Sample Receipt Form Details

Approved: ☐ Authorized: ☐

Project Number: 112G08005-SE0375

Client: Tetra Tech

Received by: Schumitz, Matt

Date/Time Received: Thursday, October 11, 2018 10:00 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:
J8739	JAX-RES-101018-1000-5	10/10/18 10:00	10/11/18 10:12	2	W	0.9	NA	NA	NA	R0119 (NA)			
J8740	JAX-RES-101018-1000-5-FRB	10/10/18 10:00	10/11/18 10:12	1	W	0.9	NA	NA	NA	R0119 (NA)			
J8741	JAX-RES-101018-1050-3	10/10/18 10:50	10/11/18 10:13	2	W	0.9	NA	NA	NA	R0119 (NA)			
J8742	JAX-RES-101018-1050-3-FRB	10/10/18 10:50	10/11/18 10:14	1	W	0.9	NA	NA	NA	R0119 (NA)			

Total Samples: 4



PROJECT NO: 1126 06005-SE0375		FACILITY: NAJ JAX		PROJECT MANAGER Mark Pitterson		PHONE NUMBER 904 6366125		LABORATORY NAME AND CONTACT: Jon Thoma / Battell	
SAMPLERS (SIGNATURE) 		POTABLE PFAS		FIELD OPERATIONS LEADER		PHONE NUMBER		ADDRESS 141 Longwater Dr. Suite 202	
				CARRIER/WAYBILL NUMBER				CITY, STATE Norwell, MA 02061	
STANDARD TAT ☒ 5 days						CONTAINER TYPE PLASTIC (P) or GLASS (G)		PP	
RUSH TAT ☐						PRESERVATIVE USED		None	
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day									
DATE YEAR	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS PFAS 537
10/10	1000	JAX-RES-101018-1000-5				W	G	2	2
10/10	1000	JAX-RES-101018-1000-5-FRB				W	G	2	2
10/10	1050	JAX-RES-101018-1050-3				W	G	2	2
10/10	1050	JAX-RES-101018-1050-3-FRB				W	G	2	2
								TYPE OF ANALYSIS PFAS 537	
								PP	
								PRESERVATIVE USED	
								None	
								TYPE OF ANALYSIS PFAS 537	
								PP	
								PRESERVATIVE USED	
								None	
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								PP	

ORIGIN ID:NRBA (904) 636-6125
MIKE GRZEGOREK

8640 PHILIPS HWY STE 16

JACKSONVILLE, FL 32256
UNITED STATES US

SHIP DATE: 10OCT18
ACTWGT: 12.60 LB
CAD: 6991972/SSF01922
DIMS: 14x11x9 IN

BILL THIRD PARTY

Part # 156297235/4444 EXP 08/19

TO **BATTELLE SAMPLE RECEIVING**
REF # 112G08005-SE0375
141 LONGWATER DR
STE 202
NORWELL MA 02061

0.9
Therm-1
MDS 10-11-18
10:00

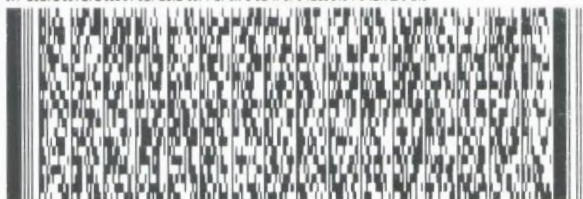
(781) 681-5588

REF:

INV:

PO:

DEPT:



FedEx
Express



TRK# **7831 8867 1543**
0201

THU - 11 OCT 10:30A
PRIORITY OVERNIGHT

XE XPUA

AHS
02061
MA-US BOS



Data Tables



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

Client ID JAX-RES-101018-1000-5

Battelle ID J8739-FS

Sample Type SA

Collection Date 10/10/2018

Extraction Date 10/11/2018

Analysis Date 10/11/2018

Analytical Instrument Sciex 5500 LC/MS/MS

% Moisture NA

Matrix W

Sample Size 0.275

Size Unit-Basis L

Units ng/L

MDL

LOD

LOQ

PFHxA	307-24-4	0.45 U	0.20	0.45	2.27
PFHpA	375-85-9	0.91 U	0.31	0.91	2.27
PFOA	335-67-1	0.91 U	0.35	0.91	2.27
PFNA	375-95-1	0.91 U	0.34	0.91	2.27
PFDA	335-76-2	0.91 U	0.35	0.91	2.27
PFUnA	2058-94-8	0.91 U	0.35	0.91	2.27
PFDoA	307-55-1	0.91 U	0.38	0.91	2.27
PFTTrDA	72629-94-8	0.91 U	0.38	0.91	2.27
PFTeDA	376-06-7	1.36 U	0.66	1.36	2.27
NMeFOSAA	2355-31-9	0.91 U	0.38	0.91	2.27
NEtFOSAA	2991-50-6	0.91 U	0.40	0.91	2.27
PFBS	375-73-5	0.45 U	0.19	0.45	2.27
PFHxS	355-46-4	0.91 U	0.31	0.91	2.27
PFOS	1763-23-1	0.91 U	0.27	0.91	2.27

Surrogate Recoveries (%)

13C2-PFHxA 127

13C2-PFDA 93

d5-EtFOSAA 93



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

Client ID JAX-RES-101018-1050-3

Battelle ID J8741-FS
 Sample Type SA
 Collection Date 10/10/2018
 Extraction Date 10/11/2018
 Analysis Date 10/11/2018
 Analytical Instrument Sciex 5500 LC/MS/MS
 % Moisture NA
 Matrix W
 Sample Size 0.285
 Size Unit-Basis L
 Units ng/L

		MDL	LOD	LOQ
PFHxA	307-24-4	0.32 J	0.19	0.44
PFHpA	375-85-9	0.35 J	0.30	0.88
PFOA	335-67-1	3.02	0.33	0.88
PFNA	375-95-1	0.88 U	0.32	0.88
PFDA	335-76-2	0.88 U	0.34	0.88
PFUnA	2058-94-8	0.88 U	0.33	0.88
PFDoA	307-55-1	0.88 U	0.37	0.88
PFTTrDA	72629-94-8	0.88 U	0.37	0.88
PFTeDA	376-06-7	1.32 U	0.64	1.32
NMeFOSAA	2355-31-9	0.88 U	0.37	0.88
NEtFOSAA	2991-50-6	0.88 U	0.39	0.88
PFBS	375-73-5	0.44 U	0.18	0.44
PFHxS	355-46-4	0.88 U	0.30	0.88
PFOS	1763-23-1	0.73 J	0.26	0.88

Surrogate Recoveries (%)

13C2-PFHxA 129
 13C2-PFDA 91
 d5-EtFOSAA 80



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

Client ID	KA08 IB				
Battelle ID	KA08 IB_10/11/2018				
Sample Type	IB				
Collection Date	NA				
Extraction Date	NA				
Analysis Date	10/11/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	NA				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L MDL LOD LOQ				
PFHxA	307-24-4	0.50 U	0.22	0.50	2.50
PFHpA	375-85-9	1.00 U	0.34	1.00	2.50
PFOA	335-67-1	1.00 U	0.38	1.00	2.50
PFNA	375-95-1	1.00 U	0.37	1.00	2.50
PFDA	335-76-2	1.00 U	0.39	1.00	2.50
PFUnA	2058-94-8	1.00 U	0.38	1.00	2.50
PFDoA	307-55-1	1.00 U	0.42	1.00	2.50
PFTTrDA	72629-94-8	1.00 U	0.42	1.00	2.50
PFTeDA	376-06-7	1.50 U	0.73	1.50	2.50
NMeFOSAA	2355-31-9	1.00 U	0.42	1.00	2.50
NEtFOSAA	2991-50-6	1.00 U	0.44	1.00	2.50
PFBS	375-73-5	0.50 U	0.21	0.50	2.50
PFHxS	355-46-4	1.00 U	0.34	1.00	2.50
PFOS	1763-23-1	1.00 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	97
13C2-PFDA	95
d5-EtFOSAA	95



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

Client ID		Procedural Blank			
Battelle ID		CR996PB-FS			
Sample Type		PB			
Collection Date		10/11/2018			
Extraction Date		10/11/2018			
Analysis Date		10/11/2018			
Analytical Instrument		Sciex 5500 LC/MS/MS			
% Moisture		NA			
Matrix		WATER			
Sample Size		0.250			
Size Unit-Basis		L			
Units		ng/L	MDL	LOD	LOQ
PFHxA	307-24-4	0.50 U	0.22	0.50	2.50
PFHpA	375-85-9	1.00 U	0.34	1.00	2.50
PFOA	335-67-1	1.00 U	0.38	1.00	2.50
PFNA	375-95-1	1.00 U	0.37	1.00	2.50
PFDA	335-76-2	1.00 U	0.39	1.00	2.50
PFUnA	2058-94-8	1.00 U	0.38	1.00	2.50
PFDoA	307-55-1	1.00 U	0.42	1.00	2.50
PFTTrDA	72629-94-8	1.00 U	0.42	1.00	2.50
PFTeDA	376-06-7	1.50 U	0.73	1.50	2.50
NMeFOSAA	2355-31-9	1.00 U	0.42	1.00	2.50
NEtFOSAA	2991-50-6	1.00 U	0.44	1.00	2.50
PFBS	375-73-5	0.50 U	0.21	0.50	2.50
PFHxS	355-46-4	1.00 U	0.34	1.00	2.50
PFOS	1763-23-1	1.00 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	102
13C2-PFDA	99
d5-EtFOSAA	110



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

Client ID		Laboratory Control Sample					
Battelle ID		CR997LCS-FS					
Sample Type		LCS					
Collection Date		10/11/2018					
Extraction Date		10/11/2018					
Analysis Date		10/11/2018					
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	307-24-4	18.45	15.00	123		70	130
PFHpA	375-85-9	17.66	15.00	118		70	130
PFOA	335-67-1	17.89	15.00	119		70	130
PFNA	375-95-1	17.78	15.00	119		70	130
PFDA	335-76-2	18.02	15.00	120		70	130
PFUnA	2058-94-8	17.60	15.00	117		70	130
PFDoA	307-55-1	16.80	15.00	112		70	130
PFTTrDA	72629-94-8	17.15	15.00	114		70	130
PFTeDA	376-06-7	16.26	15.00	108		70	130
NMeFOSAA	2355-31-9	18.71	15.00	125		70	130
NEtFOSAA	2991-50-6	18.27	15.00	122		70	130
PFBS	375-73-5	15.64	13.28	118		70	130
PFHxS	355-46-4	16.52	14.18	117		70	130
PFOS	1763-23-1	15.54	14.33	108		70	130
Surrogate Recoveries (%)							
13C2-PFHxA		110					
13C2-PFDA		106					
d5-EtFOSAA		87					



Glossary of Data Qualifiers

Flag: Application:

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

Miscellaneous Documentation

QA/QC Summary
Batch 18-0614

Project:	CTO-SE0375: Naval Air Station Jacksonville
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	W
Data Set:	DP-18-0310
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
10/10/2018	10/11/2018	0.9
Corrective Actions	The FRB samples were listed on the COC as having 2 containers per sample, however, only one sample arrived. It was verified with the client that only 1 bottle from each was collected.	
Sample Storage	The water samples were stored refrigerated until extraction.	
Related samples	The related FRB sample is reported in SDG 18-0624.	

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 in methanol. Extracts were split and concentrated to dryness under nitrogen with a water bath set between 60 °C and 65 °C, reconstituted with 96:4 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	Sample JAX-RES-101018-1050-3 (J8741-FS) had a strong sulfur odor.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on Sciex 5500 LC-MS/MS. PFOS in sample J8741-FS (JAX-RES-101018-1050-3) is a combination of linear and branched isomers.

Holding Times	Extraction Date(s)	Analysis Date(s)
	10/11/2018	10/11/2018

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

QA/QC Summary
Batch 18-0614

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 and Matrix Spike Duplicate (MS/MSD)	A MS/MSD was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
70-130% of true value, RPD $\leq$ 30%	Not applicable.
	A MS/MSD was not prepared with this data set.
Surrogates Standard Analytes	Labelled analog compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
70-130% of true value	No exceedances noted.
	No comments.
Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
ICal high and low points RPD $\leq$ 20%, 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted.
	No comments.
Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadratic curve fitting.
R ² > 0.99	No exceedances noted.
Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No comments.
Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted.
	No comments.

QA/QC Summary
Batch 18-0614

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



Project Client: Tetra Tech
 Project Name: CTO-SE0375: Naval Air Station Jacksonville
 Project Number: 100119154-SE0375
 Preparation Batch: 18-0614
 Data Set: DP-18-0310
 Test Code: Master_371

QC Parameter:	Exceed:	Justification:
Procedural Blank	0	None
PB Measurement Quality Objective	0	None
Laboratory Control Sample	0	None
Matrix Spike / Matrix Spike Duplicate Recovery	NA	NA
Matrix Spike / Matrix Spike Duplicate Precision	NA	NA
Extracted Internal Standard Analytes (Surrogates)	0	None
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None



BATTELLE - NORWELL OPERATIONS MISCELLANEOUS DOCUMENTATION FORM

Project Title: CTO-SE0375: Naval Air Station Jackson **Data Set Number:** DP-18-0310
Project Number: 100119154-SE0375 **Prep Batch Number:** 18-0614
Entered By: Robert Lizotte Jr **Entered On:** 10/16/2018
Test Code (Matrix Type): Master_371(L)

Samples that were manually integrated are noted on the quant reports with the comment (TRUE). Integrations by D. Schumitz and package preparation by R. Lizotte
-BL 10/16/2018

JZ80 is not being used in this method for NMeFOSAA and NEtFOSSA. There is no impact on the data once this point is removed from the calibration.
-BL 10/16/2018

Task Leader Approval:

Supervisor Approval:

PM Approval:

Digitally signed by Jonathan Thorn
Date: 2018.10.16 18:20:50 -04'00'



Example Calculation for PFAS

Calculation of final concentration from area:

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

Where:

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

Sample ID: J8741-FS(0)
 Client Sample ID: JAX-RES-101018-1000-3
 Sample Size: 0.285
 Units: L
 Dilution Factor: 1.000
 PIV (L): 0.001
 Target Analyte: PFOA
 MRM Transition: 413.0 / 369.0
 Data file: 18-0614_18-0594.wiff
 Result table: 18-0614_18-0594_DW
 Area: 253,858.87
 IS Name: 13C2-PFOA
 IS Area: 31,235.89
 IS Amount (ng/L): 100
 y-intercept: 0.44105
 slope: 0.89272

$$\text{Concentration} = \frac{[(253858.87/31235.89) - 0.44105]}{0.89272} * 100 * 0.001 * 1 / 0.285$$

$$\text{ng/L} = 3.02$$

*Final concentration may vary based on rounding.



Project Client: Tetra Tech
 Project Name: CTO-SE0375: Naval Air Station Jacksonville
 Project No.: 100119154-SE0375
 Preparation Batch: 18-0614
 Data Set: DP-18-0310

	CR996PB-FS (Procedural Blank)	CR997LCS-FS (Laboratory Control Sample)	J8739-FS (JAX-RES-101018-1000-5)	J8741-FS (JAX-RES-101018-1050-3)
PFHxA (307-24-4)	-	L	-	L
PFHpA (375-85-9)	-	L	-	L
PFOA (335-67-1)	-	L	-	L
PFNA (375-95-1)	-	L	-	-
PFDA (335-76-2)	-	L	-	-
PFUnA (2058-94-8)	-	L	-	-
PFDoA (307-55-1)	-	L	-	-
PFTTrDA (72629-94-8)	-	L	-	-
PFTeDA (376-06-7)	-	L	-	-
NMeFOSAA (2355-31-9)	-	L	-	-
NEtFOSAA (2991-50-6)	-	L	-	-
PFBS (375-73-5)	-	L	-	-
PFHxS (355-46-4)	-	L	-	-
PFOS (1763-23-1)	-	L	-	L/Br

"L" :Linear

"Br": branched

"L/Br": Linear/Branched

"-": Not detected

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JZ80	L3	10/11/18 17:43	13C4-PFOS	153,924.38	-
JZ81	L4	10/11/18 17:52	13C4-PFOS	149,851.63	-
JZ82	L5	10/11/18 18:01	13C4-PFOS	149,114.69	-
JZ83	L6	10/11/18 18:10	13C4-PFOS	157,104.14	-
JZ84	L7	10/11/18 18:19	13C4-PFOS	151,806.14	-
JZ85	L8	10/11/18 18:28	13C4-PFOS	149,739.31	-
JZ86	L9	10/11/18 18:37	13C4-PFOS	159,739.55	3.7

PASS

Average Lower Upper
 153,039.98 76,519.99 229,559.97

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	10/11/18 17:43	13C4-PFOS	153,924.38	76,519.99	229,559.97		104,380.28	208,760.57	
JZ81	L4	10/11/18 17:52	13C4-PFOS	149,851.63	76,519.99	229,559.97		104,380.28	208,760.57	
JZ82	L5	10/11/18 18:01	13C4-PFOS	149,114.69	76,519.99	229,559.97		104,380.28	208,760.57	
JZ83	L6	10/11/18 18:10	13C4-PFOS	157,104.14	76,519.99	229,559.97		104,380.28	208,760.57	
JZ84	L7	10/11/18 18:19	13C4-PFOS	151,806.14	76,519.99	229,559.97		104,380.28	208,760.57	
JZ85	L8	10/11/18 18:28	13C4-PFOS	149,739.31	76,519.99	229,559.97		104,380.28	208,760.57	
JZ86	L9	10/11/18 18:37	13C4-PFOS	159,739.55	76,519.99	229,559.97		104,380.28	208,760.57	
KA08 IB	Instrument Blank	10/11/18 18:46	13C4-PFOS	152,151.14	76,519.99	229,559.97		104,380.28	208,760.57	
JZ77 ICC	ICC	10/11/18 18:55	13C4-PFOS	143,645.98	76,519.99	229,559.97		104,380.28	208,760.57	
CR996PB-FS(0)	Procedural Blank	10/11/18 19:12	13C4-PFOS	127,329.70	76,519.99	229,559.97		104,380.28	208,760.57	
CR997LCS-FS(0)	Laboratory Control Sample	10/11/18 19:21	13C4-PFOS	123,036.04	76,519.99	229,559.97		104,380.28	208,760.57	
J8739-FS(0)	JAX-RES-101018-1000-5	10/11/18 19:30	13C4-PFOS	124,265.29	76,519.99	229,559.97		104,380.28	208,760.57	
J8741-FS(0)	JAX-RES-101018-1000-3	10/11/18 19:39	13C4-PFOS	137,541.37	76,519.99	229,559.97		104,380.28	208,760.57	
JZ82 CCV	CCV	10/11/18 19:48	13C4-PFOS	156,240.96	76,519.99	229,559.97		104,380.28	208,760.57	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JZ80	L3	10/11/18 17:43	13C2-PFOA	34,525.53	-
JZ81	L4	10/11/18 17:52	13C2-PFOA	33,522.03	-
JZ82	L5	10/11/18 18:01	13C2-PFOA	32,851.37	-
JZ83	L6	10/11/18 18:10	13C2-PFOA	34,545.62	-
JZ84	L7	10/11/18 18:19	13C2-PFOA	35,667.45	-
JZ85	L8	10/11/18 18:28	13C2-PFOA	34,363.46	-
JZ86	L9	10/11/18 18:37	13C2-PFOA	40,628.11	16.2

PASS

Average Lower Upper
 35,157.65 17,578.83 52,736.48

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	10/11/18 17:43	13C2-PFOA	34,525.53	17,578.83	52,736.48		22,995.96	45,991.92	
JZ81	L4	10/11/18 17:52	13C2-PFOA	33,522.03	17,578.83	52,736.48		22,995.96	45,991.92	
JZ82	L5	10/11/18 18:01	13C2-PFOA	32,851.37	17,578.83	52,736.48		22,995.96	45,991.92	
JZ83	L6	10/11/18 18:10	13C2-PFOA	34,545.62	17,578.83	52,736.48		22,995.96	45,991.92	
JZ84	L7	10/11/18 18:19	13C2-PFOA	35,667.45	17,578.83	52,736.48		22,995.96	45,991.92	
JZ85	L8	10/11/18 18:28	13C2-PFOA	34,363.46	17,578.83	52,736.48		22,995.96	45,991.92	
JZ86	L9	10/11/18 18:37	13C2-PFOA	40,628.11	17,578.83	52,736.48		22,995.96	45,991.92	
KA08 IB	Instrument Blank	10/11/18 18:46	13C2-PFOA	34,679.97	17,578.83	52,736.48		22,995.96	45,991.92	
JZ77 ICC	ICC	10/11/18 18:55	13C2-PFOA	31,809.50	17,578.83	52,736.48		22,995.96	45,991.92	
CR996PB-FS(0)	Procedural Blank	10/11/18 19:12	13C2-PFOA	28,327.44	17,578.83	52,736.48		22,995.96	45,991.92	
CR997LCS-FS(0)	Laboratory Control Sample	10/11/18 19:21	13C2-PFOA	30,551.45	17,578.83	52,736.48		22,995.96	45,991.92	
J8739-FS(0)	JAX-RES-101018-1000-5	10/11/18 19:30	13C2-PFOA	29,885.14	17,578.83	52,736.48		22,995.96	45,991.92	
J8741-FS(0)	JAX-RES-101018-1000-3	10/11/18 19:39	13C2-PFOA	31,235.89	17,578.83	52,736.48		22,995.96	45,991.92	
JZ82 CCV	CCV	10/11/18 19:48	13C2-PFOA	35,929.45	17,578.83	52,736.48		22,995.96	45,991.92	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JZ80	L3	10/11/18 17:43	d3-MeFOSAA	20,425.67	-
JZ81	L4	10/11/18 17:52	d3-MeFOSAA	17,377.19	-
JZ82	L5	10/11/18 18:01	d3-MeFOSAA	18,768.93	-
JZ83	L6	10/11/18 18:10	d3-MeFOSAA	21,378.34	-
JZ84	L7	10/11/18 18:19	d3-MeFOSAA	20,243.73	-
JZ85	L8	10/11/18 18:28	d3-MeFOSAA	21,558.77	-
JZ86	L9	10/11/18 18:37	d3-MeFOSAA	24,753.84	19.2

PASS

Average Lower Upper
 20,643.78 10,321.89 30,965.67

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	10/11/18 17:43	d3-MeFOSAA	20,425.67	10,321.89	30,965.67		13,138.25	26,276.50	
JZ81	L4	10/11/18 17:52	d3-MeFOSAA	17,377.19	10,321.89	30,965.67		13,138.25	26,276.50	
JZ82	L5	10/11/18 18:01	d3-MeFOSAA	18,768.93	10,321.89	30,965.67		13,138.25	26,276.50	
JZ83	L6	10/11/18 18:10	d3-MeFOSAA	21,378.34	10,321.89	30,965.67		13,138.25	26,276.50	
JZ84	L7	10/11/18 18:19	d3-MeFOSAA	20,243.73	10,321.89	30,965.67		13,138.25	26,276.50	
JZ85	L8	10/11/18 18:28	d3-MeFOSAA	21,558.77	10,321.89	30,965.67		13,138.25	26,276.50	
JZ86	L9	10/11/18 18:37	d3-MeFOSAA	24,753.84	10,321.89	30,965.67		13,138.25	26,276.50	
KA08 IB	Instrument Blank	10/11/18 18:46	d3-MeFOSAA	21,989.24	10,321.89	30,965.67		13,138.25	26,276.50	
JZ77 ICC	ICC	10/11/18 18:55	d3-MeFOSAA	20,917.50	10,321.89	30,965.67		13,138.25	26,276.50	
CR996PB-FS(0)	Procedural Blank	10/11/18 19:12	d3-MeFOSAA	15,750.86	10,321.89	30,965.67		13,138.25	26,276.50	
CR997LCS-FS(0)	Laboratory Control Sample	10/11/18 19:21	d3-MeFOSAA	19,535.94	10,321.89	30,965.67		13,138.25	26,276.50	
J8739-FS(0)	JAX-RES-101018-1000-5	10/11/18 19:30	d3-MeFOSAA	17,725.02	10,321.89	30,965.67		13,138.25	26,276.50	
J8741-FS(0)	JAX-RES-101018-1000-3	10/11/18 19:39	d3-MeFOSAA	19,086.16	10,321.89	30,965.67		13,138.25	26,276.50	
JZ82 CCV	CCV	10/11/18 19:48	d3-MeFOSAA	20,338.21	10,321.89	30,965.67		13,138.25	26,276.50	

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 6:19:15 PM	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.52	1.27	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.84	1.17	0.8 – 1.5



Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 6:19:15 PM	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS 1	298.9 / 80.0	1.52	27	>10
PFBS 2	298.9 / 99.0	1.52	29	>10
PFHxA 1	313.0 / 269.0	1.84	25	>10
PFHxA 2	313.0 / 119.0	1.84	23	>10
PFHpA 1	363.0 / 319.0	2.25	31	>10
PFHpA 2	363.0 / 169.0	2.25	25	>10
PFHxS 1	399.0 / 80.0	2.28	40	>10
PFHxS 2	399.0 / 99.0	2.28	45	>10
PFOA 1	413.0 / 369.0	2.67	30	>10
PFOA 2	413.0 / 169.0	2.67	38	>10
PFNA 1	463.0 / 419.0	3.07	29	>10
PFNA 2	463.0 / 219.0	3.07	29	>10
PFOS 1	499.0 / 80.0	3.06	35	>10
PFOS 2	499.0 / 99.0	3.06	23	>10
PFDA 1	513.0 / 469.0	3.43	34	>10
PFDA 2	513.0 / 219.0	3.43	40	>10
PFUnA 1	563.0 / 519.0	3.76	29	>10
PFUnA 2	563.0 / 269.0	3.75	27	>10
PFDoA 1	613.0 / 569.0	4.04	40	>10
PFDoA 2	613.0 / 319.0	4.04	28	>10
PFTTrDA 1	663.0 / 619.0	4.29	59	>10
PFTTrDA 2	663.0 / 169.0	4.29	40	>10
PFTeDA 1	713.0 / 669.0	4.51	65	>10
PFTeDA 2	713.0 / 169.0	4.51	47	>10
NMeFOSAA 1	570.0 / 419.0	3.58	40	>10
NMeFOSAA 2	570.0 / 512.0	3.58	34	>10
NEtFOSAA 1	584.0 / 419.0	3.74	41	>10
NEtFOSAA 2	584.0 / 483.0	3.74	17	>10
13C2-PFHxA	315.0 / 270.0	1.83	28	>10
13C2-PFDA	515.0 / 470.0	3.42	30	>10
d5-EtFOSAA	589.0 / 419.0	3.73	24	>10



Precision and Bias at the LOQ for PFAS in Drinking Water

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

BATTELLE DETECTION LIMITS FOR PFAS IN DRINKING WATER

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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

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
PFTTrDA	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	299.0 / 80.0	299.0 / 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
¹³C₂-PFOA	NA	IS	415.0 / 270.0	NA
¹³C₄-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:	12-June-2018
Request ID:	9749
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: Suspected issue with pulse gas manifold. TRAP testing in POSITIVE mode couldn't be finished because of pulse gas issue. The same issue will be taken care in separate service call.

Performed By: Kaustubh Dhayagude

Date: 12-June-2018

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	0.6	0.4 to 1.1 x10 ⁻⁵ Torr
☒ CAD Low	1.3	Read Only
☒ CAD Medium	2.7	Read Only
☒ CAD High	3.7	Read Only
☒ CAD 12	3.7	2.4 to 4.5 x10 ⁻⁵ Torr

- ☒ Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7 for 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-7 for 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	4.01 e6	Read Only	0.6998	Read Only
Q1 500.380	2.81 e7	Read Only	0.7038	Read Only
Q1 906.673	4.21 e7	Read Only	0.7071	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	5.45 e6	Read Only	0.6873	Read Only
Q3 500.380	2.69 e7	Read Only	0.7591	Read Only
Q3 906.673	4.50 e7	Read Only	0.7843	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: : 28.87% (Read Only)

Mass	MSMS Intensity		MSMS Width Value	Width Specs
	Value	Spec		
Q1 609.3	4.26 e7	Read Only	0.7011	Read Only
MS/MS 195.1	1.23 e7	Read Only	0.7069	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	1.42 e7	Read Only	0.7686	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	2.24 e7	Read Only	0.7243	Read Only

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

Mass	Scan Rate	MCA	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.31 e6	Read Only	0.6746	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	0.7	0.4 to 1.1 x10 ⁻⁵ Torr
☒ CAD Low	1.3	Read Only
☒ CAD Medium	2.7	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 Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q1 175.133	5.04 e6	≥1.2 ^{e6}	0.6737	0.6 to 0.8
Q1 500.380	1.60 e7	≥9.0 ^{e6}	0.6961	0.6 to 0.8
Q1 906.673	2.84 e7	≥1.4 ^{e7}	0.7179	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8 ^{e7}	0.7465	0.6 to 0.8

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

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q3 175.133	5.02 e6	≥1.2 ^{e6}	0.6719	0.6 to 0.8
Q3 500.380	1.72 e7	≥9.0 ^{e6}	0.7443	0.6 to 0.8
Q3 906.673	3.00 e7	≥1.4 ^{e7}	0.7504	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q3 906.673	1.46 e8	≥6.8 ^{e7}	0.7202	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: 21.10% (≥ 10.0%)

Mass	MSMS Intensity		Width Value	Width Specs
	Value	Spec		
Q1 609.3	5.78 e7	N/A	0.6888	Read Only
MS/MS 195.1	1.22 e7	N/A	0.7003	Read Only

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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	1.35 e7	$\geq 1.0^e7$	0.7486	0.6 to 0.8
Q1 933.636	1000	50	7.52 e7	$\geq 4.0^e7$	0.7206	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	2.15 e7	$\geq 8.0^e6$	0.7492	0.6 to 0.8
Q3 933.636	1000	50	8.33 e7	$\geq 4.0^e7$	0.7299	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	8.54 e6	≥7.2 e6	0.1473	<0.35
ER 922.010	0.05	4.96 e7	≥2.8 e6	0.2434	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05		≥2.4 e7		<0.65
ER 922.010	0.05		≥6.8 e7		<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	1.81 e8	≥4.4 ^{e7}	0.1862	<0.35
ER 601.978	0.05	1.70 e8	≥5.6 ^{e7}	0.1809	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 431.982	0.05	5.72 e8	≥1.2 ^{e8}	0.5102	<0.65
ER 601.978	0.05	4.52 e8	≥1.6 ^{e8}	0.6187	<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	> 3.0 e6	≥2.0 e6	> 7.0 e6	≥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	Yes	Contains only 397.2	N/A	N/A
☐ 236 OR ☒ 365	1000	Yes	Fragment Intensity	> 2.0 e6	≥1.6x 10 ^{e6}

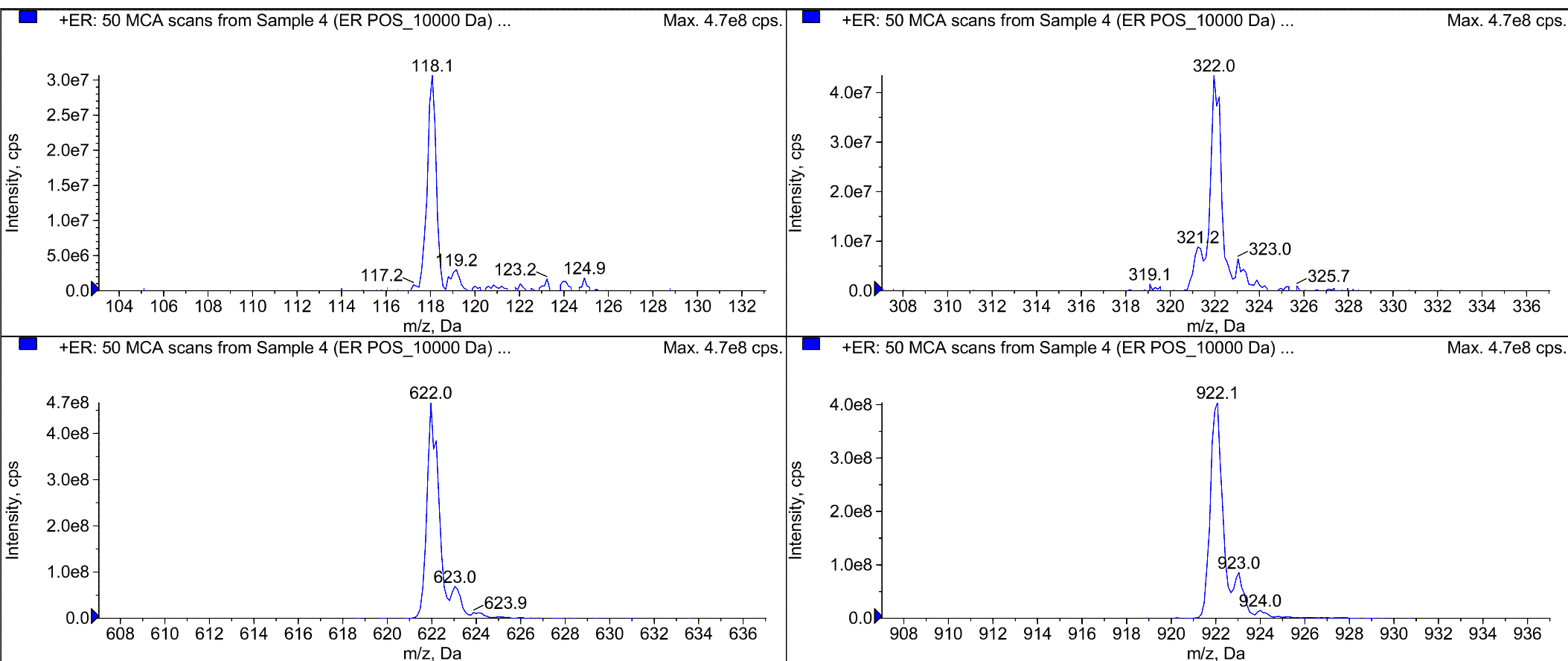
REVIEW:

- ☒ 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.



Peak List for "+ER: 50 MCA scans from Sample 4 (ER POS_10000 Da) of TRAP ER with NEW Pulse Manifold.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	118.0870	118.0702	3.0667e7	0.4146	0.0168
2	322.0490	322.0509	4.3500e7	0.4945	-1.9159e-3
3	622.0290	622.0370	4.6717e8	0.5757	-8.0044e-3
4	922.0100	922.0101	4.0400e8	0.5732	-1.4148e-4

Battelle Standard ID	Description	Intermediate Solutions		Battelle Reagent ID (purchased solutions)
JX76	PFAS - 537.1 Surrogate Solution	JV37	-	180425-02
JZ28	PFAS - 537.1 Second Source LCS/MS Solution	-	-	180705-01
JZ77	PFAS - 537.1 ICC	JZ75	JV37	180425-02
JZ77	PFAS - 537.1 ICC	JZ28	-	180705-01
JZ77	PFAS - 537.1 ICC	JZ74	JV35	180425-01
JZ80	PFAS - 537.1 ICAL L3	JZ74	JV35	180425-01
JZ80	PFAS - 537.1 ICAL L3	JV43	-	180425-03
JZ80	PFAS - 537.1 ICAL L3	JZ75	JV37	180425-02
JZ81	PFAS - 537.1 ICAL L4	JZ75	JV37	180425-02
JZ81	PFAS - 537.1 ICAL L4	JV43	-	180425-03
JZ81	PFAS - 537.1 ICAL L4	JZ74	JV35	180425-01
JZ82	PFAS - 537.1 ICAL L5	JZ74	JV35	180425-01
JZ82	PFAS - 537.1 ICAL L5	JV43	-	180425-03
JZ82	PFAS - 537.1 ICAL L5	JZ75	JV37	180425-02
JZ83	PFAS - 537.1 ICAL L6	JZ76	-	180425-03
JZ83	PFAS - 537.1 ICAL L6	JZ74	JV35	180425-01
JZ83	PFAS - 537.1 ICAL L6	JZ75	JV37	180425-02
JZ84	PFAS - 537.1 ICAL L7	JZ75	JV37	180425-02
JZ84	PFAS - 537.1 ICAL L7	JZ74	JV35	180425-01
JZ84	PFAS - 537.1 ICAL L7	JZ76	-	180425-03
JZ85	PFAS - 537.1 ICAL L8	JZ76	-	180425-03
JZ85	PFAS - 537.1 ICAL L8	JZ74	JV35	180425-01
JZ85	PFAS - 537.1 ICAL L8	JZ75	JV37	180425-02
JZ86	PFAS - 537.1 ICAL L9	JZ75	JV37	180425-02
JZ86	PFAS - 537.1 ICAL L9	JZ74	JV35	180425-01
JZ86	PFAS - 537.1 ICAL L9	JZ76	-	180425-03
JZ87	PFAS - 537.1 Internal Standard Solution	JV35	-	180425-01
KA08	PFAS - 537.1 Instrument Blank	JZ74	JV35	180425-01
KA08	PFAS - 537.1 Instrument Blank	JZ75	JV37	180425-02



It can be done

Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JV35

Description: PFAS - 537.1 Internal Standard Stock

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

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

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

Approved By: _____ Date: _____



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV35

Description: PFAS - 537.1 Internal Standard Stock

Stock ID: 180425-01

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

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

Approved By: _____ Date: _____

It can be done

Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JV37

Description: PFAS - 537.1 Surrogate Standard Stock

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

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

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

Approved By: _____ Date: _____



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV37

Description: PFAS - 537.1 Surrogate Standard Stock

Stock ID: 180425-02

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

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

Approved By: _____ Date: _____

It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JV43

Description: PFAS - 537.1 Low ICAL Stock

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

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 4 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

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

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



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JV43

Description: PFAS - 537.1 Low ICAL Stock

Stock Id: 180425-03

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

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

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



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JX76

Description: PFAS - 537.1 Surrogate Solution

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

Solution Prepared By: Schultz, Stephanie	Date Prepared: 6/28/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 96/4 Methanol/milli-q water (RP-180628-1)

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

It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JX76

Description: PFAS - 537.1 Surrogate Solution

Stock Id: JV37

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

Final Concentrations:

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV37	Pipette	B820865811

Solution Prepared By: Schultz, Stephanie Date Prepared: 6/28/2018 Expiration Date: 5/2/2019

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

Comment: 96/4 Methanol/milli-q water (RP-180628-1)

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



Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JZ28
Description: PFAS - 537.1 Second Source LCS/MS Solution

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
180705-01	EPA-537PDS-L	Neat	~2.00000 0	03/05/23	---	---	500 uL	1	20	~0.0500

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

Balance ID: _____
Comment: 96/4 Methanol/Milli-q water

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

It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ28

Description: PFAS - 537.1 Second Source LCS/MS Solution

Stock Id: 180705-01

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

Final Concentrations:

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
180705-01	Pipette	B820865811

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

Comment: 96/4 Methanol/Milli-q water

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



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JZ74

Description: PFAS - 537.1 Internal Standard Calibration Stock Solution

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

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

Balance ID: _____

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

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



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ74

Description: PFAS - 537.1 Internal Standard Calibration Stock Solution

Stock ID: JV35

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

Final Concentrations:

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV35	Pipette	C0982448K

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

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



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JZ75

Description: PFAS - 537.1 Surrogate Calibration Stock Solution

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

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

Balance ID: _____

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

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

It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: **JZ75**

Description: PFAS - 537.1 Surrogate Calibration Stock Solution

Stock Id: **JV37**

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

Final Concentrations:

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV37	Pipette	C0982448K

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

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

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

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



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JZ76

Description: PFAS - 537.1 High ICAL Stock

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

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

Balance ID: _____

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

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

It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ76

Description: PFAS - 537.1 High ICAL Stock

Stock Id: 180425-03

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

Final Concentrations:

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
180425-03	Pipette	B814657482

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

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

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

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



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JZ77

Description: PFAS - 537.1 ICC

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JZ28	PFAS - 537.1 Second Source LCS/MS Solution	Solution	~0	07/25/19	---	---	200 uL	1	10	~0.0000
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

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

Balance ID: _____

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

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

It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ77

Description: PFAS - 537.1 ICC

Stock Id: JZ28

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

Stock Id: JZ74

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

Stock Id: JZ75

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

Final Concentrations:

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

Solution Prepared By: Schultz, Stephanie

Date Prepared:

8/20/2018

Expiration Date:

5/2/2019

Solution Volume

40 mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

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

Approved By: Schumitz, Denise

Date: 8/20/2018 2:19:00 PM



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ77

Description: PFAS - 537.1 ICC

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JZ28	Pipette	B814657482
JZ74	Pipette	B814659662
JZ75	Pipette	B814659662

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

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

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

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



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JZ80

Description: PFAS - 537.1 ICAL L3

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV43	PFAS - 537.1 Low ICAL Stock	Solution	~0	05/02/19	---	---	200 uL	1	10	~0.0000
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

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

Balance ID: _____

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

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

It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: **JZ80**

Description: PFAS - 537.1 ICAL L3

Stock Id: **JV43**

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

Stock Id: **JZ74**

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

Stock Id: **JZ75**

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

Final Concentrations:

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

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

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

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

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



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ80

Description: PFAS - 537.1 ICAL L3

N-ethylperfluoro-octanesulfonamidoacetic acid	.00010
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00010
Perfluoro-1-butanedisulfonate	.00009
Perfluoro-1-hexanedisulfonate	.00009
Perfluoro-1-octanedisulfonate	.00009
Perfluoro-n-decanoic Acid	.00010
Perfluoro-n-dodecanoic acid	.00010
Perfluoro-n-heptanoic Acid	.00010
Perfluoro-n-hexanoic acid	.00010
Perfluoro-n-nonanoic Acid	.00010
Perfluoro-n-octanoic Acid	.00010
Perfluoro-n-tetradecanoic acid	.00010
Perfluoro-n-tridecanoic acid	.00010
Perfluoro-n-undecanoic acid	.00010

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV43	Pipette	B814657482
JZ74	Pipette	B814659662
JZ75	Pipette	B814659662

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

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

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

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



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JZ81

Description: PFAS - 537.1 ICAL L4

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV43	PFAS - 537.1 Low ICAL Stock	Solution	~0	05/02/19	---	---	500 uL	1	10	~0.0000
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

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

Balance ID: _____

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

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

It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ81

Description: PFAS - 537.1 ICAL L4

Stock Id: JV43

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

Stock Id: JZ74

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

Stock Id: JZ75

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

Final Concentrations:

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

Solution Prepared By: Schultz, Stephanie

Date Prepared:

8/20/2018

Expiration Date:

5/2/2019

Solution Volume

40 mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

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

Approved By: Schumitz, Denise

Date: 8/20/2018 2:20:00 PM



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ81

Description: PFAS - 537.1 ICAL L4

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

Syringes/Pipettes:

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

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

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

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

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



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JZ82

Description: PFAS - 537.1 ICAL L5

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JV43	PFAS - 537.1 Low ICAL Stock	Solution	~0	05/02/19	---	---	1000 uL	1	10	~0.0000
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

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

Balance ID: _____

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

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

It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ82

Description: PFAS - 537.1 ICAL L5

Stock Id: JV43

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

Stock Id: JZ74

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

Stock Id: JZ75

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

Final Concentrations:

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

Solution Prepared By: Schultz, Stephanie

Date Prepared:

8/20/2018

Expiration Date:

5/2/2019

Solution Volume

40 mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

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

Approved By: Schumitz, Denise

Date: 8/20/2018 2:20:00 PM



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ82

Description: PFAS - 537.1 ICAL L5

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

Syringes/Pipettes:

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

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

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

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

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



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JZ83

Description: PFAS - 537.1 ICAL L6

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JZ76	PFAS - 537.1 High ICAL Stock	Solution	~0	08/20/19	---	---	200 uL	1	10	~0.0000
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

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

Balance ID: _____

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

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



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ83

Description: PFAS - 537.1 ICAL L6

Stock Id: JZ74

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

Stock Id: JZ75

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

Stock Id: JZ76

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

Final Concentrations:

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

Solution Prepared By: Schultz, Stephanie

Date Prepared:

8/20/2018

Expiration Date:

5/2/2019

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

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

Approved By: Schumitz, Denise

Date: 8/20/2018 2:20:00 PM



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ83

Description: PFAS - 537.1 ICAL L6

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JZ74	Pipette	B814659662
JZ75	Pipette	B814659662
JZ76	Pipette	B814657482

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

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

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

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



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JZ84

Description: PFAS - 537.1 ICAL L7

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JZ76	PFAS - 537.1 High ICAL Stock	Solution	~0	08/20/19	---	---	500 uL	1	10	~0.0000
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

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

Balance ID: _____

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

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



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ84

Description: PFAS - 537.1 ICAL L7

Stock Id: JZ74

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

Stock Id: JZ75

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

Stock Id: JZ76

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

Final Concentrations:

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

Solution Prepared By: Schultz, Stephanie

Date Prepared: 8/20/2018

Expiration Date:

5/2/2019

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

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

Approved By: Schumitz, Denise

Date: 8/20/2018 2:20:00 PM



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ84

Description: PFAS - 537.1 ICAL L7

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

Syringes/Pipettes:

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

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

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

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

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



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JZ85

Description: PFAS - 537.1 ICAL L8

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JZ76	PFAS - 537.1 High ICAL Stock	Solution	~0	08/20/19	---	---	1000 uL	1	10	~0.0000
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

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

Balance ID: _____

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

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



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ85

Description: PFAS - 537.1 ICAL L8

Stock Id: JZ74

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

Stock Id: JZ75

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

Stock Id: JZ76

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

Final Concentrations:

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

Solution Prepared By: Schultz, Stephanie

Date Prepared:

8/20/2018

Expiration Date:

5/2/2019

Solution Volume

40 mL X 1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

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

Approved By: Schumitz, Denise

Date: 8/20/2018 2:20:00 PM

It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ85

Description: PFAS - 537.1 ICAL L8

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

Syringes/Pipettes:

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

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

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

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

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



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JZ86

Description: PFAS - 537.1 ICAL L9

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JZ76	PFAS - 537.1 High ICAL Stock	Solution	~0	08/20/19	---	---	1000 uL	1	5	~0.0000
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	25 uL	1	5	~0.0000
JZ75	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	25 uL	1	5	~0.0000

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

Balance ID: _____

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

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



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ86

Description: PFAS - 537.1 ICAL L9

Stock Id: JZ74

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

Stock Id: JZ75

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

Stock Id: JZ76

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

Final Concentrations:

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

Solution Prepared By: Schultz, Stephanie

Date Prepared: 8/20/2018

Expiration Date:

5/2/2019

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

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

Approved By: Schumitz, Denise

Date: 8/20/2018 2:20:00 PM



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JZ86

Description: PFAS - 537.1 ICAL L9

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

Syringes/Pipettes:

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

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

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

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

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



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JZ87

Description: PFAS - 537.1 Internal Standard Solution

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

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

Balance ID: _____

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

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

It can be done

Standard Solution Concentrations

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

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

Final Concentrations:

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV35	Pipette	C0982448K

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

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

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

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



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: KA08

Description: PFAS - 537.1 Instrument Blank

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JZ74	PFAS - 537.1 Internal Standard Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000
JZ75	PFAS - 537.1 Surrogate Calibration Stock Solution	Solution	~0	05/02/19	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Schultz, Stephanie	Date Prepared: 8/22/2018	Expiration Date: 5/2/2019
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 96/4 Methanol/Milli-q water

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

It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: KA08

Description: PFAS - 537.1 Instrument Blank

Stock Id: JZ74

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

Stock Id: JZ75

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

Final Concentrations:

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

Syringes/Pipettes:

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

Solution Prepared By: Schultz, Stephanie Date Prepared: 8/22/2018 Expiration Date: 5/2/2019

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

Comment: 96/4 Methanol/Milli-q water

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



It can be done

BDO Id: 180425-01

Reagent Receipt Report

Approved: ☐ Authorized ☐

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

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert 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 (^2H) 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 $\geq 99\%$. The mass-labelled perfluorooctanesulfonamidoacetic acid has a chemical purity of >98% and an isotopic purity of $\geq 98\%$.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

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



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

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

Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
Perfluoro-n-[1,2- $^{13}\text{C}_2$]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- $^{13}\text{C}_4$]octanesulfonate	MPFOS	3000	2870	B

Certified By: _____

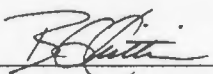
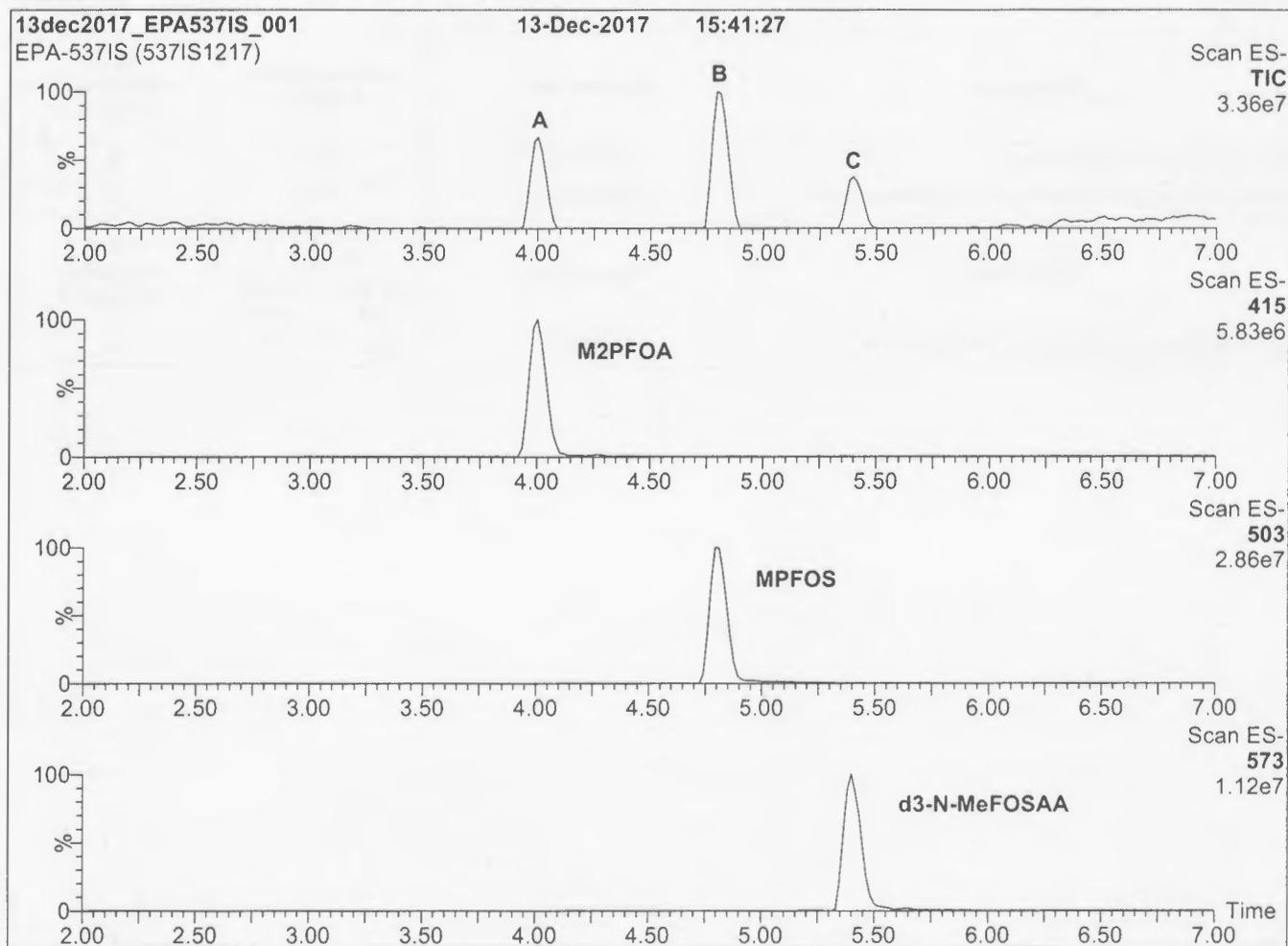

 B.G. Chittim, General Manager
Date: 12/22/2017
(mm/dd/yyyy)

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

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
 1.7 μ m, 2.1 x 100 mm

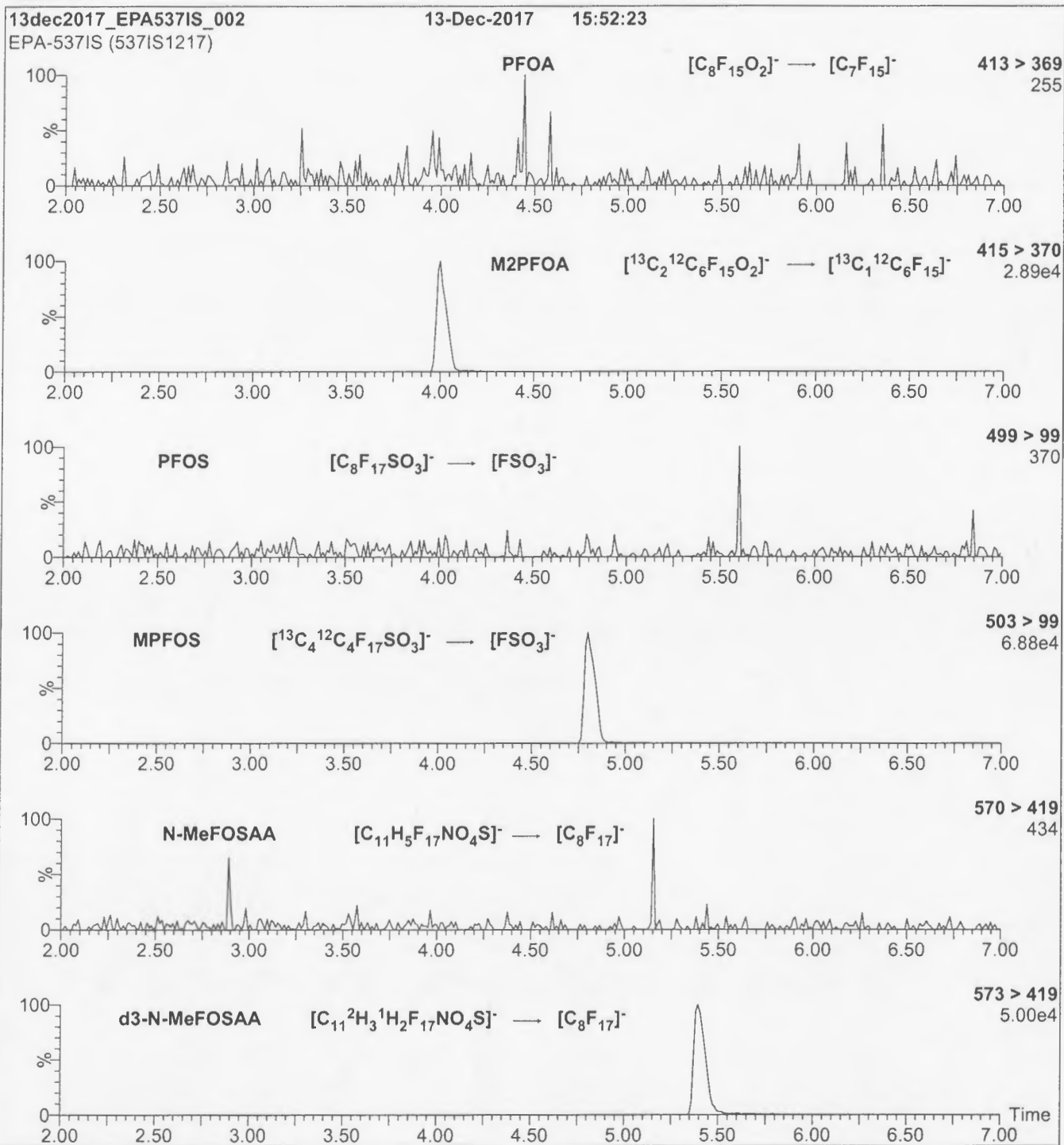
Mobile phase: Gradient
 Start: 40% (80:20 MeOH:ACN) / 60% H₂O
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7 min
 and hold for 2 min before returning
 to initial conditions in 0.5 min.
 Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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

Injection: On-column (EPA-537IS)

Mobile phase: Same as Figure 1

Flow: 300 μ l/min**MS Parameters**

Collision Gas (mbar) = 3.28e-3

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



It can be done

BDO Id: 180425-02

Reagent Receipt Report

Approved: ☒ Authorized ☐

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

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert Val:	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 (^2H) 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 $\geq 99\%$. The mass-labelled perfluorooctanesulfonamidoacetic acid has a chemical purity of >98% and an isotopic purity of $\geq 98\%$.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

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



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

Table A: EPA-537SS; Components and Concentrations (ng/ml; $\pm$ 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:

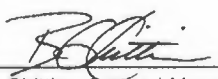
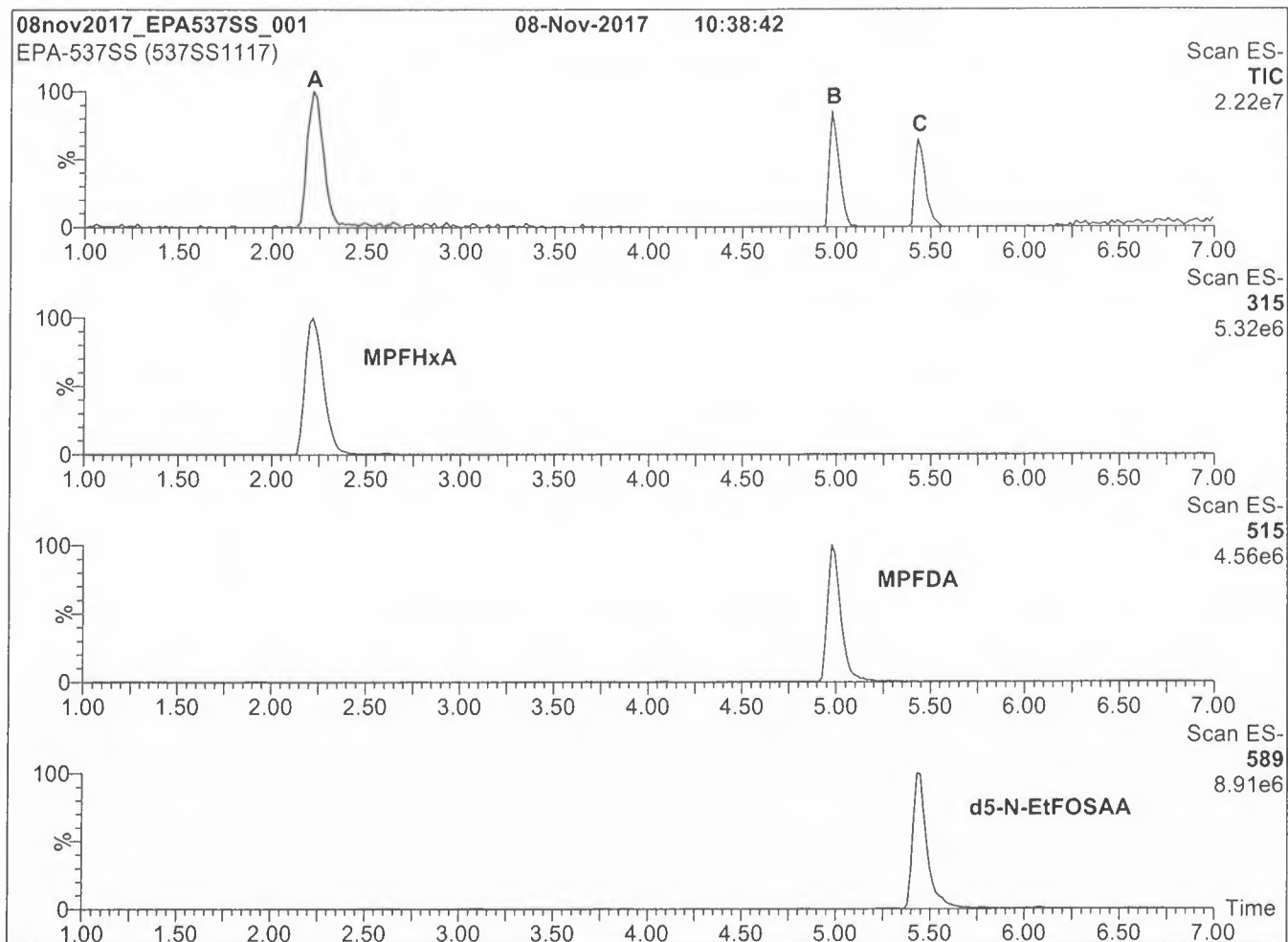

B.G. Chittim, General ManagerDate: 11/13/2017
(mm/dd/yyyy)

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

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
 1.7 μ m, 2.1 x 100 mm

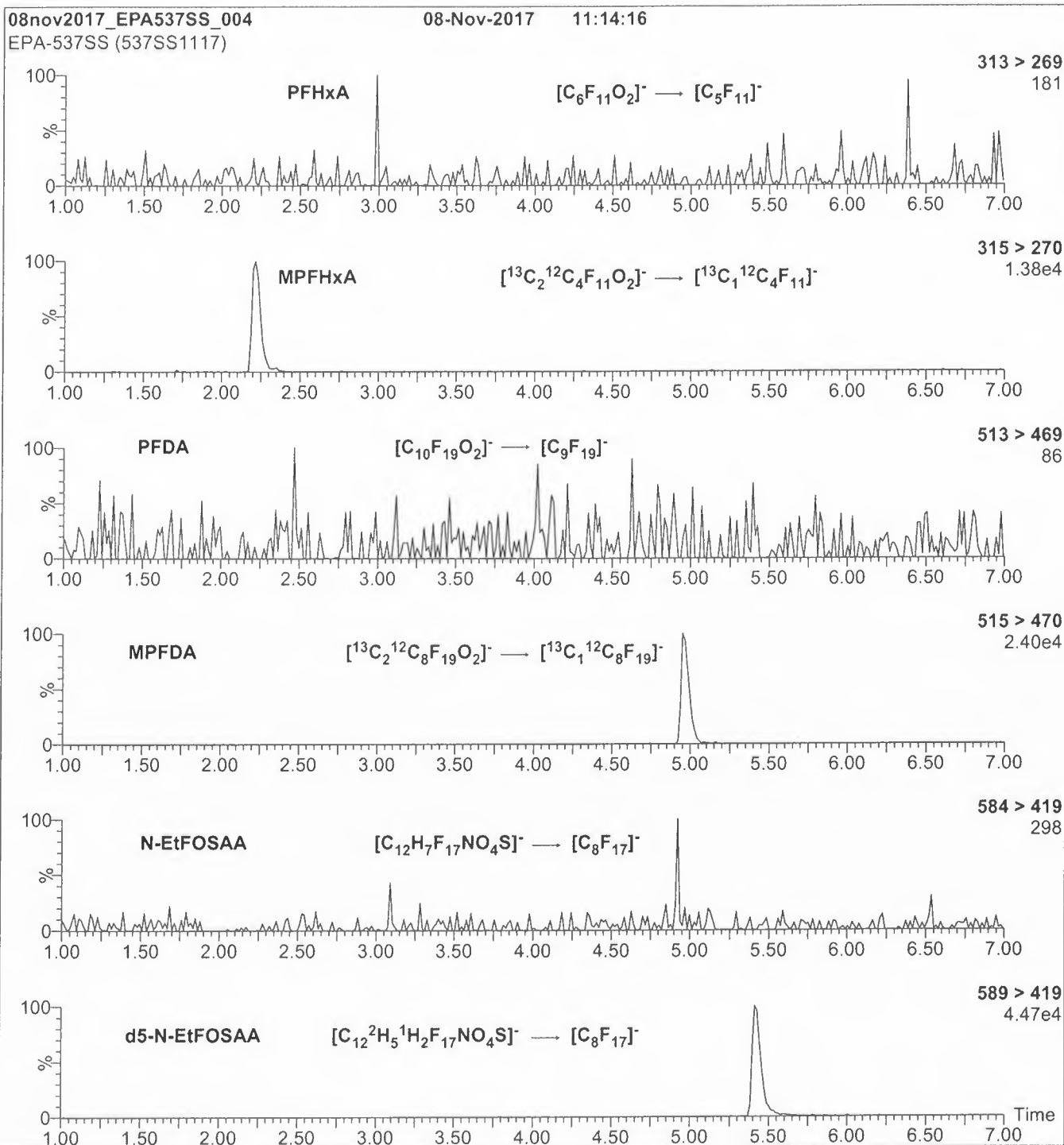
Mobile phase: Gradient
 Start: 45% (80:20 MeOH:ACN) / 55% H₂O
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7 min
 and hold for 2 min before returning
 to initial conditions in 0.5 min.
 Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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

Injection: On-column (EPA-537SS)

Mobile phase: Same as Figure 1

Flow: 300 μ l/min**MS Parameters**

Collision Gas (mbar) = 3.50e-3

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



It can be done

BDO Id: 180425-03

Reagent Receipt Report

Approved: ☒ Authorized ☐

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

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-butanefulfonate	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-butanefulfonate	2000 ng/ml as the salt, 1770 ng/ml as the anion
4 Perfluoro-1-hexanesulfonate	1998 ng/ml as the salt, 1824 ng/ml as the anion. sum of branched and linear isomers.
5 Perfluoro-1-octanesulfonate	2002 ng/ml as the salt, 1851 ng/ml as the anion. sum of branched and linear isomers.

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

**WELLINGTON**
LABORATORIES**CERTIFICATE OF ANALYSIS**
DOCUMENTATION**EPA-537PDS**

Native PFAS Primary Dilution
Standard Solution/Mixture

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

for calibration
Jnr 5/2/2018

DESCRIPTION:

EPA-537PDS is a solution/mixture of nine native linear perfluoroalkylcarboxylic acids (C_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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

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



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

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

Compound	Abbreviation	Concentration * (ng/ml)		Peak Assignment in Figure 1
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: Σ branched isomers	480		K
N-ethylperfluorooctanesulfonamidoacetic acid ^b ✓	N-EtFOSAA: linear isomer ✓	1550		N
	N-EtFOSAA: Σ 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: Σ branched isomers	378	344	D
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	1580	1460	I
	PFOSK: Σ 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	$\text{CF}_3(\text{CF}_2)_7\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$	76.0	76.0
2	N-methylperfluoro-3-methylheptanesulfonamidoacetic acid	$\text{CF}_3(\text{CF}_2)_3\underset{\text{CF}_3}{\text{CF}}(\text{CF}_2)_2\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$	0.7	24.0
3	N-methylperfluoro-4-methylheptanesulfonamidoacetic acid	$\text{CF}_3(\text{CF}_2)_2\underset{\text{CF}_3}{\text{CF}}(\text{CF}_2)_3\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$	2.0	
4	N-methylperfluoro-5-methylheptanesulfonamidoacetic acid	$\text{CF}_3\text{CF}_2\underset{\text{CF}_3}{\text{CF}}(\text{CF}_2)_4\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$	6.0	
5	N-methylperfluoro-6-methylheptanesulfonamidoacetic acid	$\text{CF}_3\underset{\text{CF}_3}{\text{CF}}(\text{CF}_2)_5\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$	14.0	
6	N-methylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{C}(\text{CF}_2)_4\text{SO}_2\text{NCH}_2\text{CO}_2\text{H} \\ \\ \text{CF}_3 \end{array}$	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	$\text{CF}_3(\text{CF}_2)_7\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ C_2H_5	77.5	77.5
2	N-ethylperfluoro-3-methylheptanesulfonamidoacetic acid	$\text{CF}_3(\text{CF}_2)_3\text{CF}(\text{CF}_3)_2\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF_3 C_2H_5	2.3	22.5
3	N-ethylperfluoro-4-methylheptanesulfonamidoacetic acid	$\text{CF}_3(\text{CF}_2)_2\text{CF}(\text{CF}_2)_3\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF_3 C_2H_5	2.2	
4	N-ethylperfluoro-5-methylheptanesulfonamidoacetic acid	$\text{CF}_3\text{CF}_2\text{CF}(\text{CF}_2)_4\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF_3 C_2H_5	5.4	
5	N-ethylperfluoro-6-methylheptanesulfonamidoacetic acid	$\text{CF}_3\text{CF}(\text{CF}_2)_5\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF_3 C_2H_5	10.4	
6	N-ethylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	CF_3 $\text{CF}_3\text{C}(\text{CF}_3)_4\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF_3 C_2H_5	0.3	
7	N-ethylperfluoro-4,5-dimethylhexanesulfonamidoacetic acid	CF_3 $\text{CF}_3\text{CF}(\text{CF}_3)\text{CF}(\text{CF}_2)_3\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF_3 C_2H_5	0.3	
8	N-ethylperfluoro-3,5-dimethylhexanesulfonamidoacetic acid	CF_3 $\text{CF}_3\text{CF}(\text{CF}_3)\text{CF}_2\text{CF}(\text{CF}_2)_2\text{SO}_2\text{NCH}_2\text{CO}_2\text{H}$ CF_3 C_2H_5	0.3	
9	Other Unidentified Isomers		1.3	

* Percent of total N-ethylperfluorooctanesulfonamidoacetic acid isomers only.

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

Isomer	Name	Structure	Percent Composition by ^{19}F -NMR	
1	Potassium perfluoro-1-hexanesulfonate	$\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+$	81.1	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{C}(\text{CF}_3)\text{SO}_3^-\text{K}^+$	2.9	18.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$\text{CF}_3\text{CF}_2\text{CF}_2\text{C}(\text{CF}_3)\text{CF}_2\text{SO}_3^-\text{K}^+$	1.4	
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$\text{CF}_3\text{CF}_2\text{C}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+$	5.0	
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$\text{CF}_3\text{C}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+$	8.9	
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$\text{CF}_3\text{C}(\text{CF}_3)_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+$	0.2	
7	Other Unidentified Isomers		0.5	

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

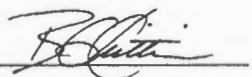
Table E: PFOSK; Isomeric Components and Percent Composition (by ^{19}F -NMR)*

Isomer	Name	Structure	Percent Composition by ^{19}F -NMR	
1	Potassium perfluoro-1-octanesulfonate	$\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+$	78.8	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{C}(\text{CF}_3)\text{SO}_3^-\text{K}^+$	1.2	21.1
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{C}(\text{CF}_3)\text{CF}_2\text{SO}_3^-\text{K}^+$	0.6	
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{C}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+$	1.9	
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$\text{CF}_3\text{CF}_2\text{CF}_2\text{C}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+$	2.2	
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$\text{CF}_3\text{CF}_2\text{C}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+$	4.5	
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$\text{CF}_3\text{C}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+$	10.0	
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$\text{CF}_3\text{C}(\text{CF}_3)_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+$	0.2	
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$\text{CF}_3\text{CF}_2\text{C}(\text{CF}_3)_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+$	0.03	
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$\text{CF}_3\text{C}(\text{CF}_3)\text{CF}_2\text{C}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+$	0.4	
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$\text{CF}_3\text{C}(\text{CF}_3)\text{CF}_2\text{C}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+$	0.07	

* Percent of total perfluorooctanesulfonate isomers only.

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

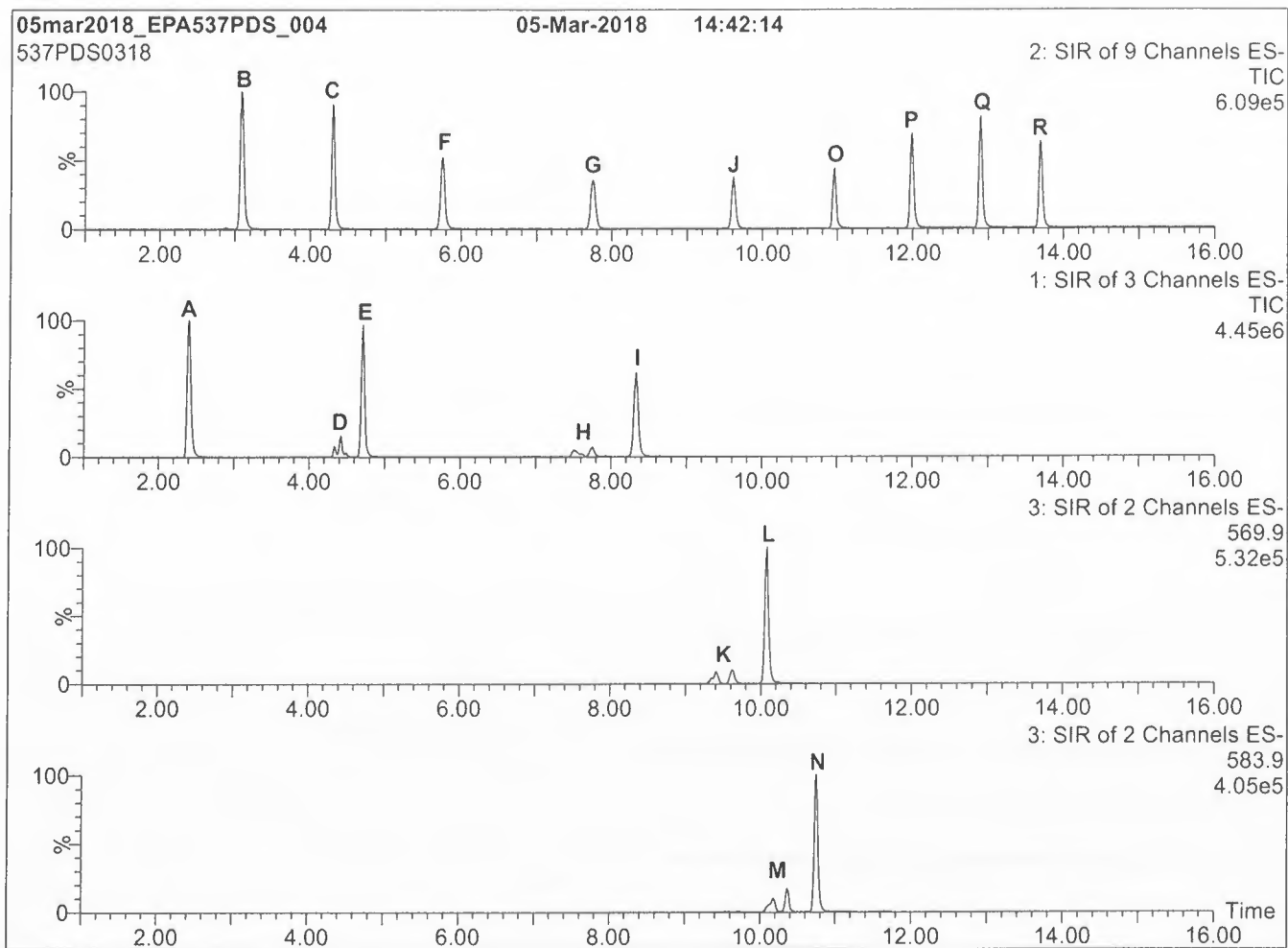
Certified By:



B.G. Chittim, General Manager

Date: 04/02/2018

(mm/dd/yyyy)

Figure 1: EPA537PDS; 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 RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 40% (80:20 MeOH:ACN) / 60% H₂O
(both with 10 mM NH₄OAc 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 μ l/min**MS Parameters**

Experiment: SIR

Source: Electrospray (negative)

Capillary Voltage (kV) = 3.00

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

Cone Gas Flow (l/hr) = 100

Desolvation Gas Flow (l/hr) = 750

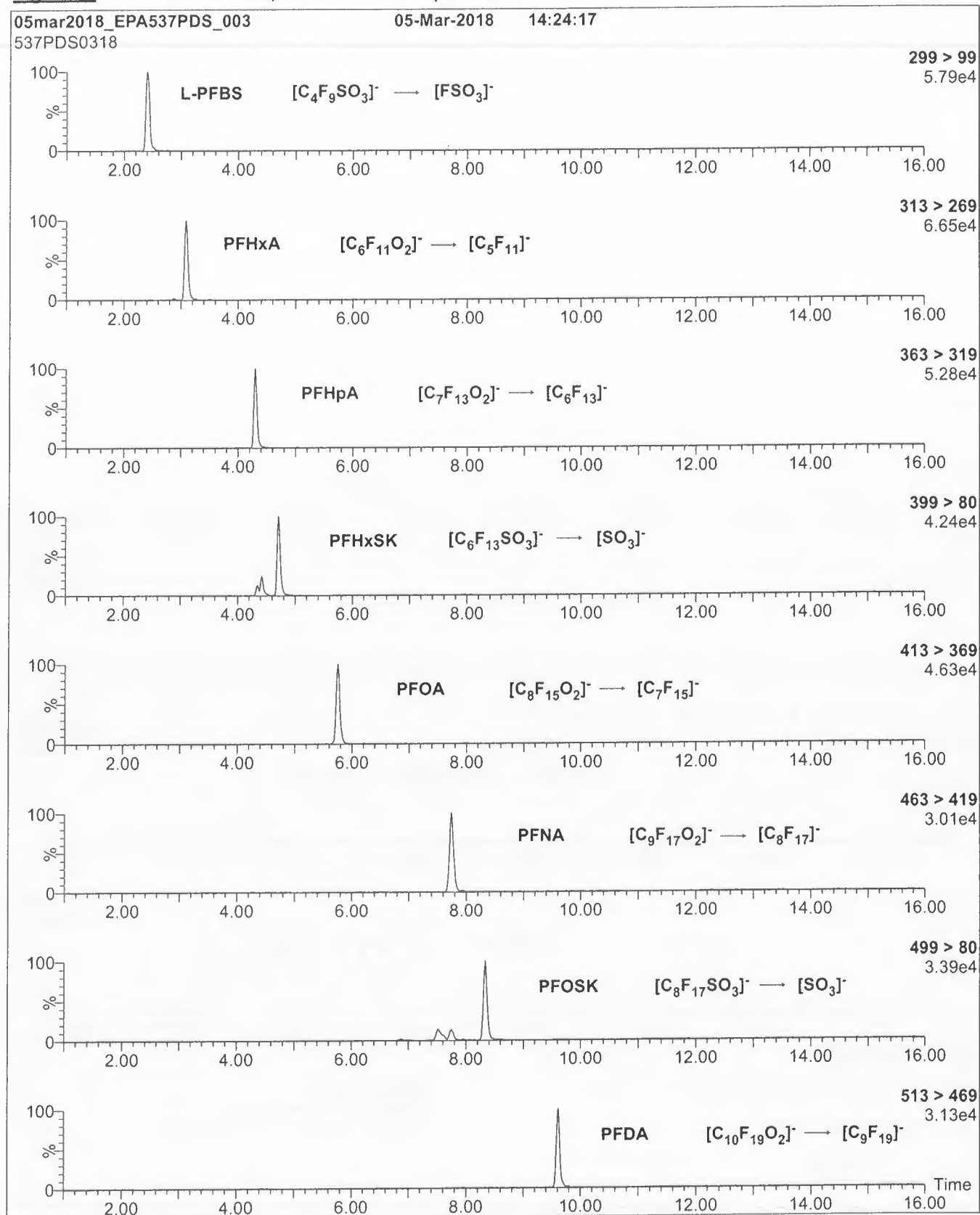
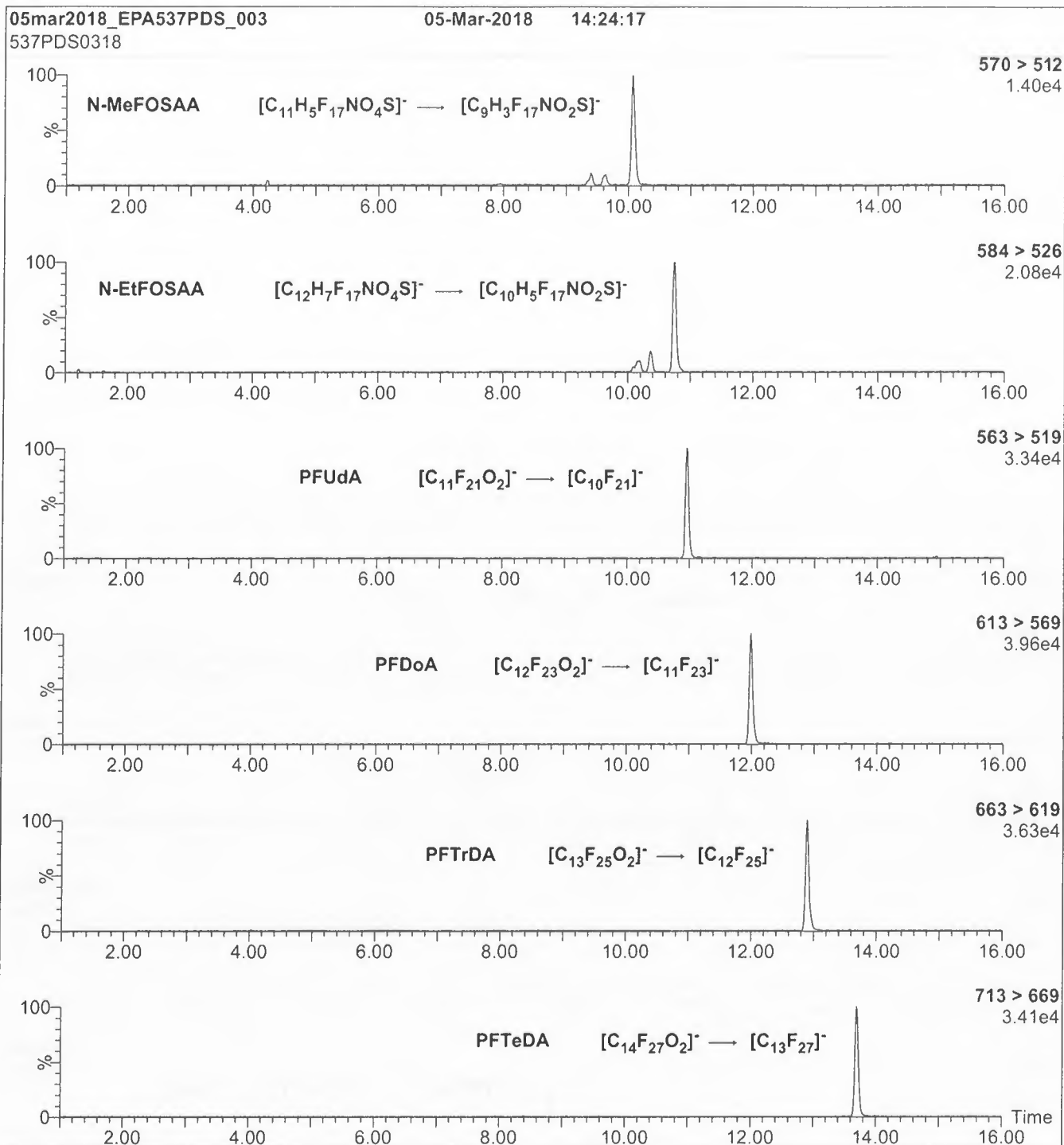
Figure 2: EPA-537PDS; LC/MS/MS Data (Selected MRM Transitions)

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

Injection: On-column (EPA-537PDS)

Mobile phase: Same as Figure 1

Flow: 300 μ l/min**MS Parameters**

Collision Gas (mbar) = 3.10e-3

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

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

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

DESCRIPTION:

EPA-537PDS-L is a solution/mixture of native linear perfluoroalkylcarboxylic acids (C_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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

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



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

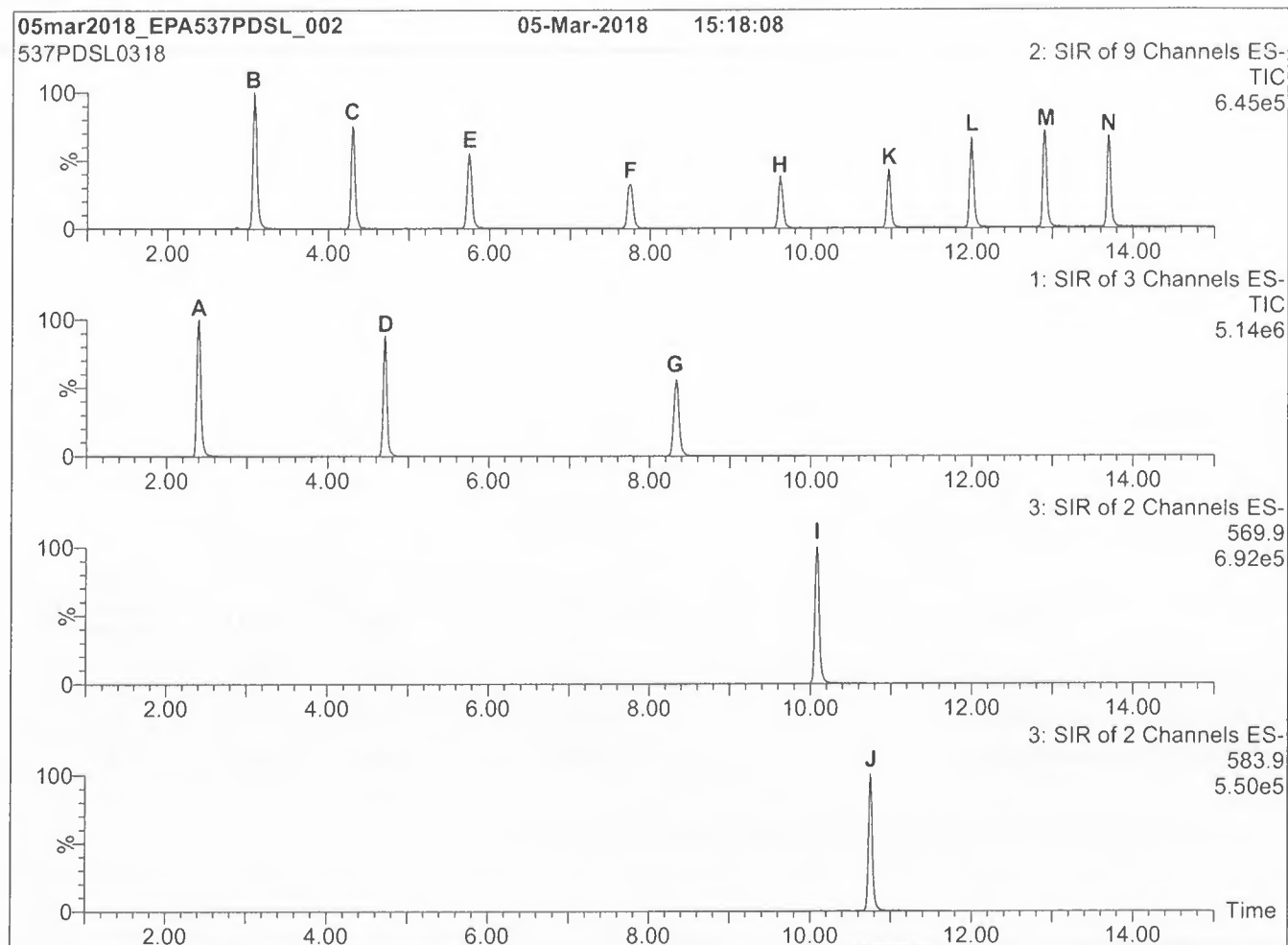
Table A: EPA-537PDS-L; Components and Concentrations (ng/ml; $\pm$ 5% in Methanol / Water (<1%))

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	PFTTrDA	2000		M
Perfluoro-n-tetradecanoic acid	PFTeDA	2000		N
N-methylperfluoro-1-octanesulfonamidoacetic acid	N-MeFOSAA	2000		I
N-ethylperfluoro-1-octanesulfonamidoacetic acid	N-EtFOSAA	2000		J
Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Potassium perfluoro-1-butanefulfonate	L-PFBS	2000	1770	A
Sodium perfluoro-1-hexanesulfonate	L-PFHxS	2000	1890	D
Sodium perfluoro-1-octanesulfonate	L-PFOS	2000	1910	G

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

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

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

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
 1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
 Start: 40% (80:20 MeOH:ACN) / 60% H₂O
 (both with 10 mM NH₄OAc 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 μ l/min

MS Parameters

Experiment: SIR

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

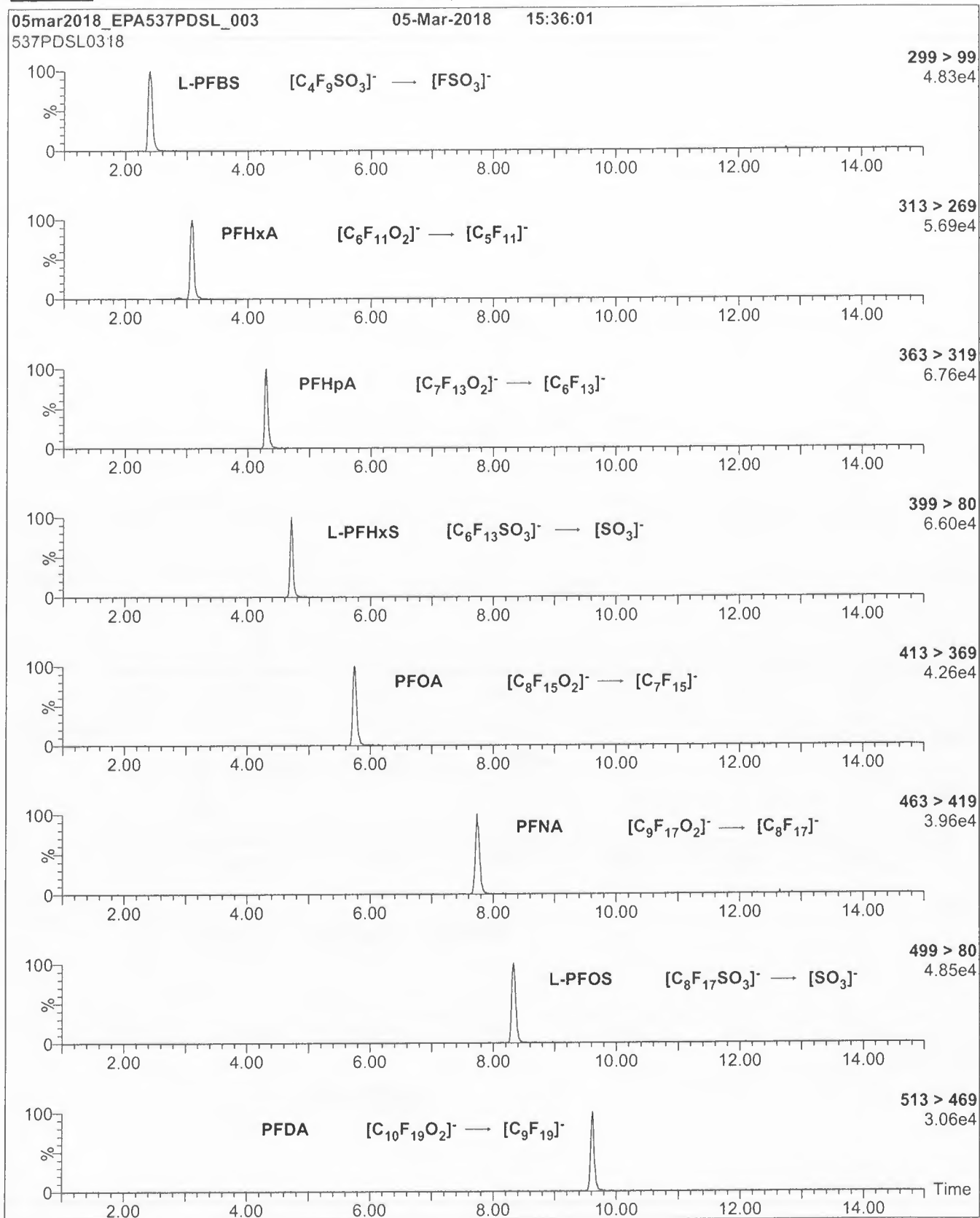
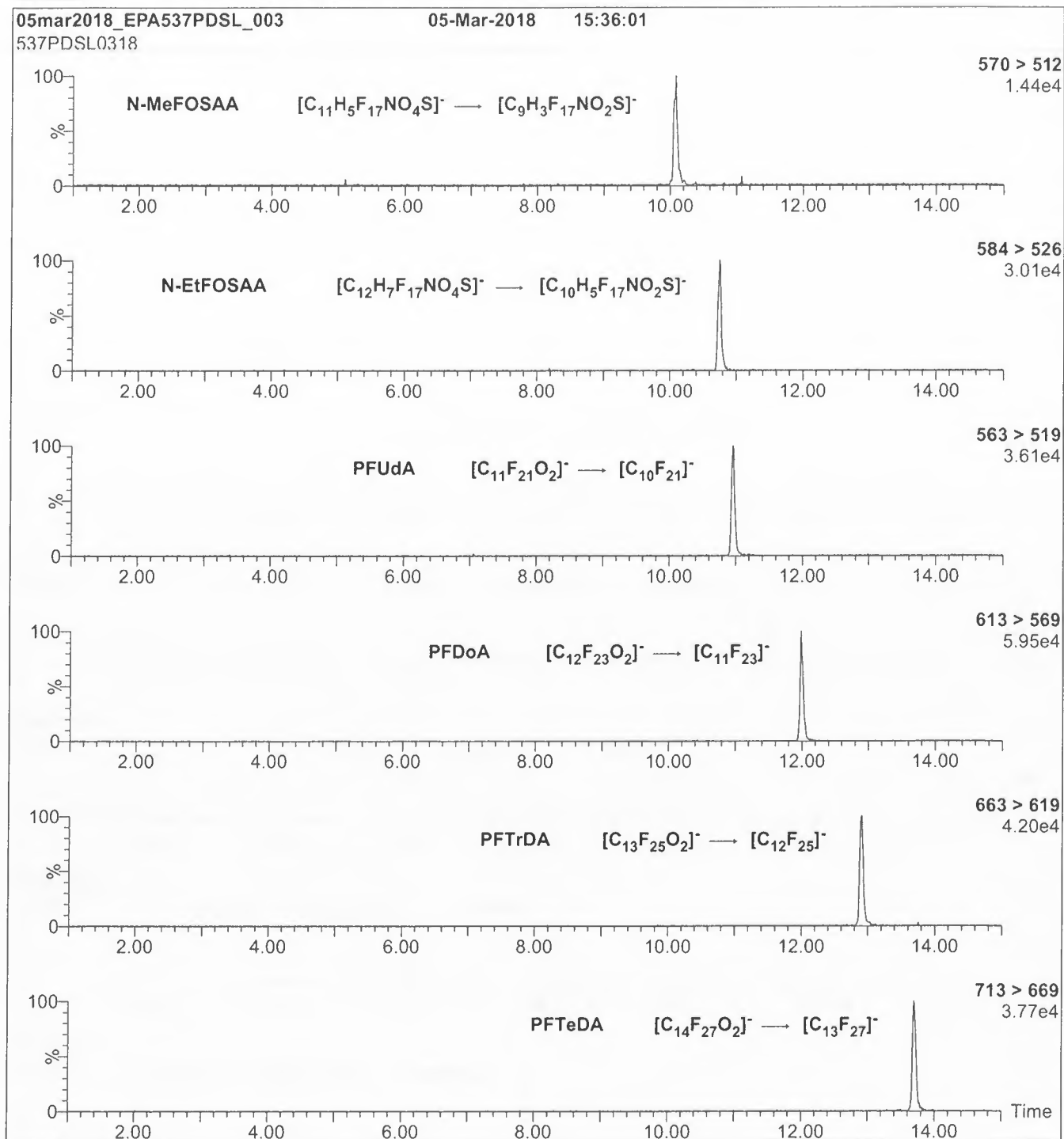
Figure 2: EPA-537PDSL-L; LC/MS/MS Data (Selected MRM Transitions)

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 μ l/min**MS Parameters**

Collision Gas (mbar) = 3.17e-3

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

Sample Preparation

It can be done**BATTELLE - NORWELL OPERATIONS
SAMPLE PREPARATION RECORDS****Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0614****CTO-SE0375: Drinking Water Analysis****W**

SOP Numbers (see workplan for modifications)

VOASOP No.

5-371

This Batch Contains The Following Samples:CR996PB-FS
CR997LCS-FS
J8739-FS
J8741-FSLaboratory Preparation Records
COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Denise Schumitz	10/17/2018	DMS

**BATTELLE - NORWELL OPERATIONS
SAMPLE IDENTIFICATION PAGE****Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0614****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	Description
CR996PB-FS	Procedural Blank
CR997LCS-FS	Laboratory Control Sample
J8739-FS	JAX-RES-101018-1000-5
J8741-FS	JAX-RES-101018-1050-3

Samples Assigned By:

Jonathan Thorn

Date : October 11, 2018

Comments:



BATTELLE - NORWELL OPERATIONS SAMPLE CUSTODY LOG

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0614****CTO-SE0375: Drinking Water Analysis****W**

Requested On/By: 10/11/2018 SAS		Purpose: Sample Preparation	
Relinquished On/By: 10/11/2018 MDS		Last Activity:	Transfer
Accepted On/By: 10/11/2018 SAS Stored In Facility: Sample Preparation Stored Until: 10/11/2018 Stored Comment: NA		Returned On/To: Returned To Facility: Returned Comment: NA	

No.	BDO-ID:	Ctrs	*	Condition:	Custody Comment:
1	J8739	1	C	Consumed	NA
2	J8741	1	C	Consumed	NA
Total Samples		2	* "C" = Consumed Container		



It can be done

BATTELLE - NORWELL OPERATIONS LIQUID SAMPLE ID FORM

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)

100119154-
SE0375

18-0614

CTO-SE0375: Drinking Water Analysis

W

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CR996PB-FS	Procedural Blank	250.0	NA	--	10/11/18 SAS
CR997LCS-FS	Laboratory Control Sample	250.0	NA	--	10/11/18 SAS
J8739-FS	JAX-RES-101018-1000-5	275.0	1	C	10/11/18 SAS
J8741-FS	JAX-RES-101018-1050-3	285.0	1	C	10/11/18 SAS

Comments:

Sample ID:	Comments:
CR996PB-FS	1.25g Trizma(180502-01) weighed on BAL-009
CR997LCS-FS	1.24g Trizma(180502-01) weighed on BAL-009

Samples Assigned By

Jonathan Thorn

Date : October 11, 2018

* - "C" = Sample is Consumed



It can be done

BATTELLE - NORWELL OPERATIONS SURROGATE SPIKE FORM

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)

100119154-
SE0375

18-0614

CTO-SE0375: Drinking Water Analysis

W

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CR996PB-FS	JX76	SIS	1	50	10/11/18 SAS	RDL	NA
CR997LCS-FS	JX76	SIS	1	50	10/11/18 SAS	RDL	NA
CR997LCS-FS	JZ28	LCS/MS	1	75	10/11/18 SAS	RDL	NA
J8739-FS	JX76	SIS	1	50	10/11/18 SAS	RDL	NA
J8741-FS	JX76	SIS	1	50	10/11/18 SAS	RDL	NA

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JX76	Pipette	B814659662
JZ28	Pipette	B814659662



BATTELLE - NORWELL OPERATIONS SAMPLE EXTRACTION FORM

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0614****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CR996PB-FS	10/11/18 SAS	NA	NA	NA	NA	NA	NA	NA
CR997LCS-FS	10/11/18 SAS	NA	NA	NA	NA	NA	NA	NA
J8739-FS	10/11/18 SAS	NA	NA	NA	NA	NA	NA	NA
J8741-FS	10/11/18 SAS	NA	NA	NA	NA	NA	NA	NA

Solvents/Reagent Preparations:

Name	ID	Expires	Lot No	Procedure	Comments
Pre-packed SPE Column	RP-181011-1	10/11/18	S214- 0079/S18004 390	Pre-packed SPE Column	

Solvents/Reagents:

Name	Lot No	Comments
Methanol (HPLC) (180926-01)	183857	



It can be done

BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0614****CTO-SE0375: Drinking Water Analysis****W****(N/A Fraction)**

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm . (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution *	Date Spiked/ Spiked By	Witn'd By
CR996PB-FS(0)	950	50	JZ87	50	1	1000	1.000	10/11/18 SAS	DMS
CR997LCS-FS(0)	950	50	JZ87	50	1	1000	1.000	10/11/18 SAS	DMS
J8739-FS(0)	950	50	JZ87	50	1	1000	1.000	10/11/18 SAS	DMS
J8741-FS(0)	950	50	JZ87	50	1	1000	1.000	10/11/18 SAS	DMS

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JZ87	Pipette	B814659662

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

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



It can be done

BATTELLE - NORWELL OPERATIONS PREPARATION EXTRACT SPLIT FORM

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)

100119154-
SE0375

18-0614

CTO-SE0375: Drinking Water Analysis

W

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CR996PB-FS	0	--	10/11/2018 11:35:00 AM	NA		NA	NA	1.000	1.000	10/11/18 SAS
CR997LCS-FS	0	--	10/11/2018 11:35:00 AM	NA		NA	NA	1.000	1.000	10/11/18 SAS
J8739-FS	0	--	10/11/2018 11:35:00 AM	NA		NA	NA	1.000	1.000	10/11/18 SAS
J8741-FS	0	--	10/11/2018 11:35:00 AM	NA		NA	NA	1.000	1.000	10/11/18 SAS

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

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

* - "C" = Extract is Consumed



It can be done

BATTELLE - NORWELL OPERATIONS EXTRACT - INSTRUMENT FACILITY CUSTODY PAGE

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)

100119154-
SE0375

18-0614

CTO-SE0375: Drinking Water Analysis

W

Purpose: LC-MS/MS TRANSFER		Last Activity: Prep->Inst	
Relinquished On/By: Oct 11 2018 4:19PM SAS		Received On/By: Oct 11 2018 4:48PM 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	CR996PB-FS(0)	1000	1	Intact	NA
2	CR997LCS-FS(0)	1000	1	Intact	NA
3	J8739-FS(0)	1000	1	Intact	NA
4	J8741-FS(0)	1000	1	Intact	NA

Total Extracts: 4



BATTELLE - NORWELL OPERATIONS SAMPLE SPECIFIC COMMENTS

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0614****CTO-SE0375: Drinking Water Analysis****W**

Sample ID:	Comment:	Date/Initials:
CR996PB-FS	Extraction started 11:35am, DW Only extraction block, ended at 12:04pm	10/11/18 SAS
CR996PB-FS	All samples reconstituted in 96:4% MeOH/Millipore water	10/17/18 SAS
CR997LCS-FS	Extraction started 11:35am, DW Only extraction block, ended at 12:05pm	10/11/18 SAS
J8739-FS	Extraction started 11:35am, DW Only extraction block, ended at 12:06pm	10/11/18 SAS
J8741-FS	Sample had a strong sulfur odor.	10/11/18 SAS
J8741-FS	Extraction started 11:35am, DW Only extraction block, ended at 12:08pm	10/11/18 SAS

**BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM****Project Title(s)**

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0614****CTO-SE0375: Drinking Water Analysis****W**

Entered By:**On:**

Task Leader Approval:**On:****Supervisor Approval:****On:****PM Approval:****On:**

Analytical Calibrations

Sequence Report

Created with Analyst Reporter
Printed: 16/10/2018 12:09:32 PM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
4	JZ80	L3	10/11/2018 5:43:28 PM	5-0371.dam	18-0614_18-0594.wiff
5	JZ81	L4	10/11/2018 5:52:26 PM	5-0371.dam	18-0614_18-0594.wiff
6	JZ82	L5	10/11/2018 6:01:22 PM	5-0371.dam	18-0614_18-0594.wiff
7	JZ83	L6	10/11/2018 6:10:18 PM	5-0371.dam	18-0614_18-0594.wiff
8	JZ84	L7	10/11/2018 6:19:15 PM	5-0371.dam	18-0614_18-0594.wiff
9	JZ85	L8	10/11/2018 6:28:10 PM	5-0371.dam	18-0614_18-0594.wiff
10	JZ86	L9	10/11/2018 6:37:07 PM	5-0371.dam	18-0614_18-0594.wiff
11	KA08 IB	Instrument Blank	10/11/2018 6:46:04 PM	5-0371.dam	18-0614_18-0594.wiff
12	JZ77 ICC	ICC	10/11/2018 6:55:01 PM	5-0371.dam	18-0614_18-0594.wiff
13	MeOH		10/11/2018 7:03:57 PM	5-0371.dam	18-0614_18-0594.wiff
14	CR996PB-FS(0)	Procedural Blank	10/11/2018 7:12:53 PM	5-0371.dam	18-0614_18-0594.wiff
15	CR997LCS-FS(0)	Laboratory Control Sample	10/11/2018 7:21:49 PM	5-0371.dam	18-0614_18-0594.wiff
16	J8739-FS(0)	JAX-RES-101018-1000-5	10/11/2018 7:30:46 PM	5-0371.dam	18-0614_18-0594.wiff
17	J8741-FS(0)	JAX-RES-101018-1000-3	10/11/2018 7:39:42 PM	5-0371.dam	18-0614_18-0594.wiff
18	JZ82 CCV	CCV	10/11/2018 7:48:38 PM	5-0371.dam	18-0614_18-0594.wiff



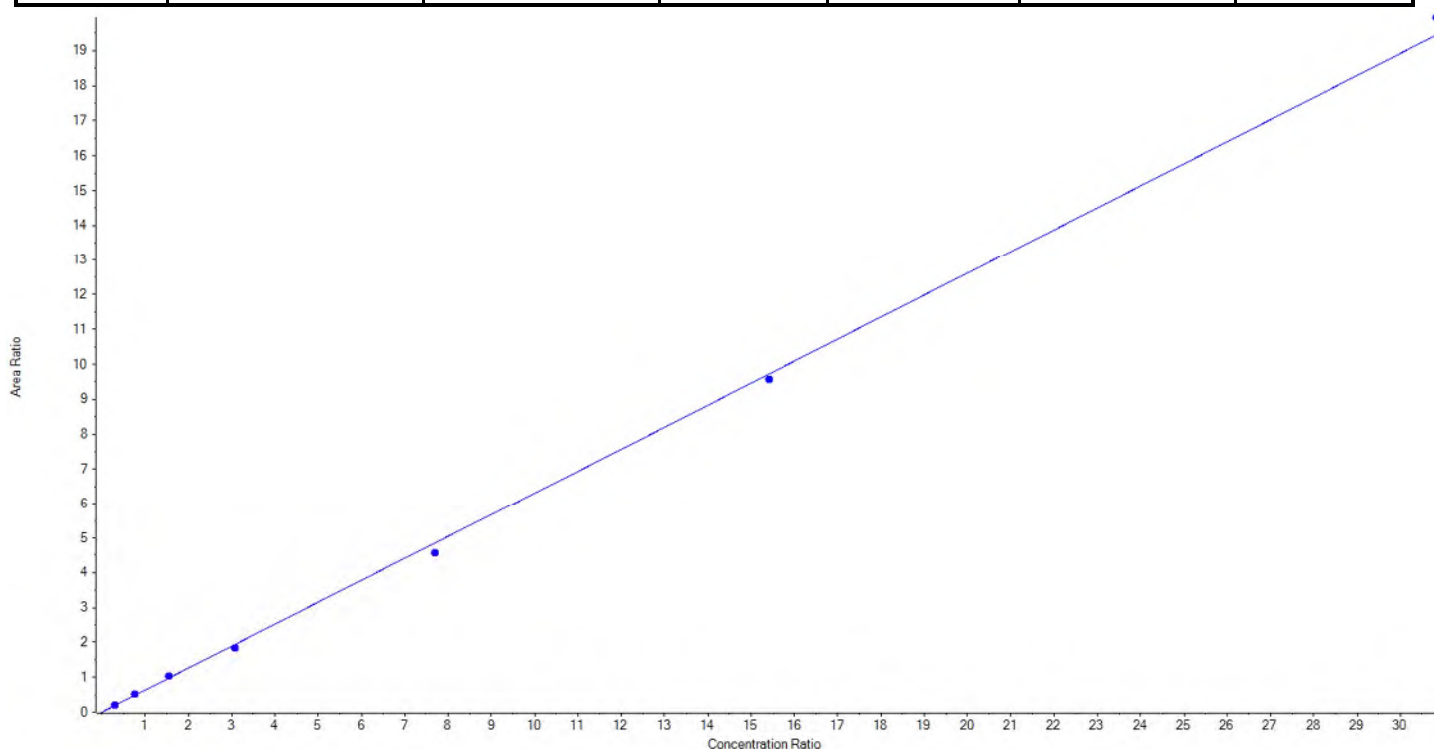
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFBS_1	Data File	18-0614_18-0594.wiff
MRM Transition	298.9 / 80.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.63065x + -3.96708e-4$ ($r = 0.99932$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	89.981519	101.6
5	JZ81	L4	True	221.50	232.207432	104.8
6	JZ82	L5	True	443.00	464.511899	104.9
7	JZ83	L6	True	885.00	831.040193	93.9
8	JZ84	L7	True	2212.50	2076.759010	93.9
9	JZ85	L8	True	4425.00	4355.899852	98.4
10	JZ86	L9	True	8850.00	9075.200096	102.5





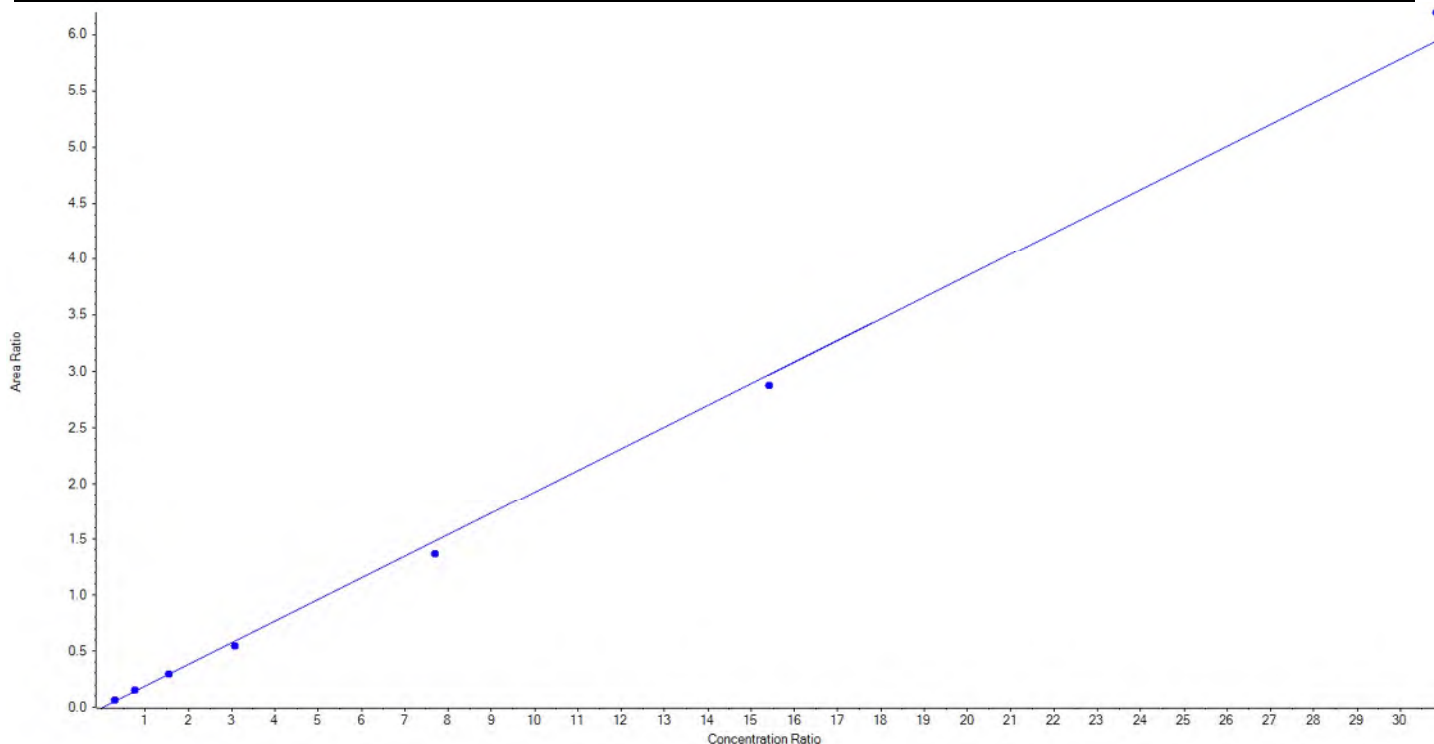
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFBS_2	Data File	18-0614_18-0594.wiff
MRM Transition	298.9 / 99.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.19283x + -0.00484$ ($r = 0.99857$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	99.365580	112.2
5	JZ81	L4	True	221.50	229.872799	103.8
6	JZ82	L5	True	443.00	439.618709	99.2
7	JZ83	L6	True	885.00	811.626527	91.7
8	JZ84	L7	True	2212.50	2038.811384	92.2
9	JZ85	L8	True	4425.00	4279.856755	96.7
10	JZ86	L9	True	8850.00	9226.448245	104.3





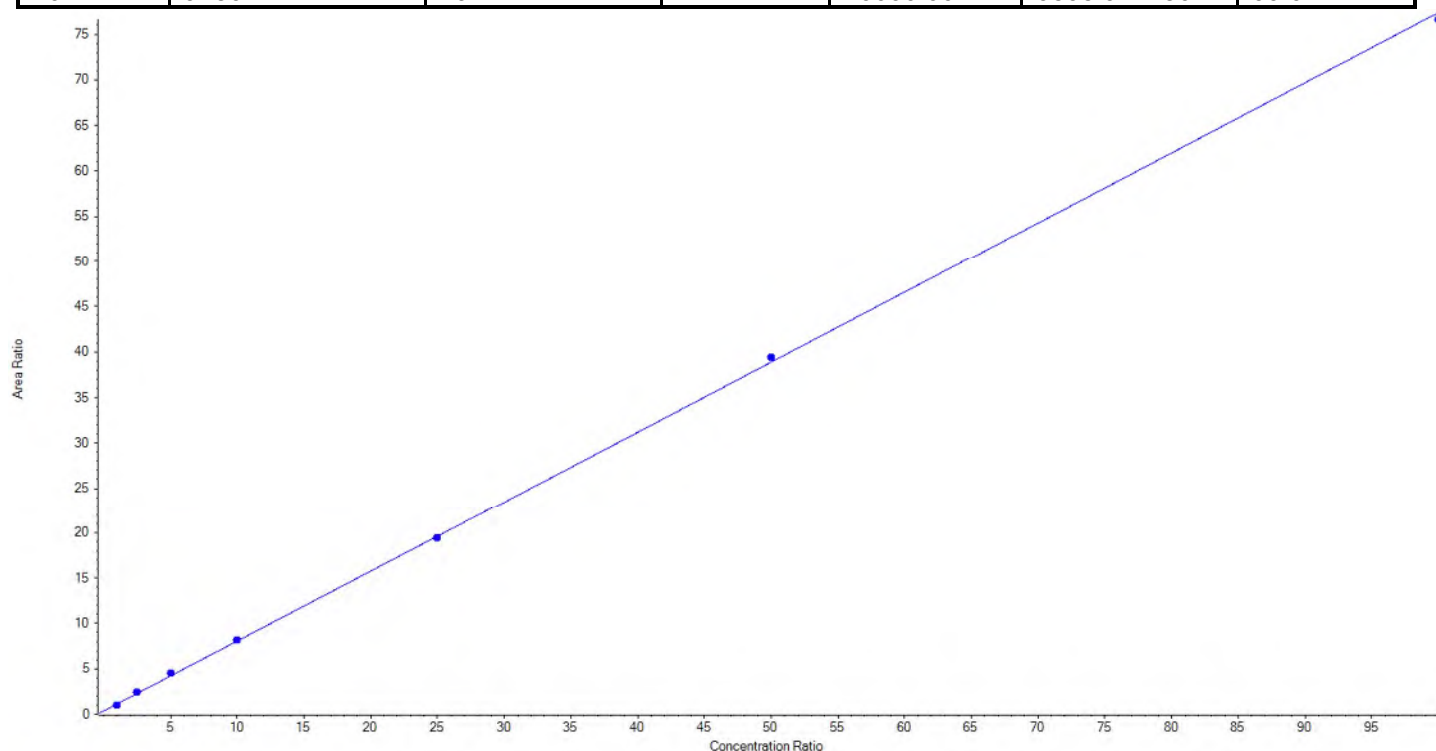
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFHxA_1	Data File	18-0614_18-0594.wiff
MRM Transition	313.0 / 269.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.77033x + 0.35213$ ($r = 0.99969$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	83.321872	83.3
5	JZ81	L4	True	250.00	267.222078	106.9
6	JZ82	L5	True	500.00	543.969912	108.8
7	JZ83	L6	True	1000.00	1017.643318	101.8
8	JZ84	L7	True	2500.00	2473.179928	98.9
9	JZ85	L8	True	5000.00	5065.715606	101.3
10	JZ86	L9	True	10000.00	9898.947286	99.0





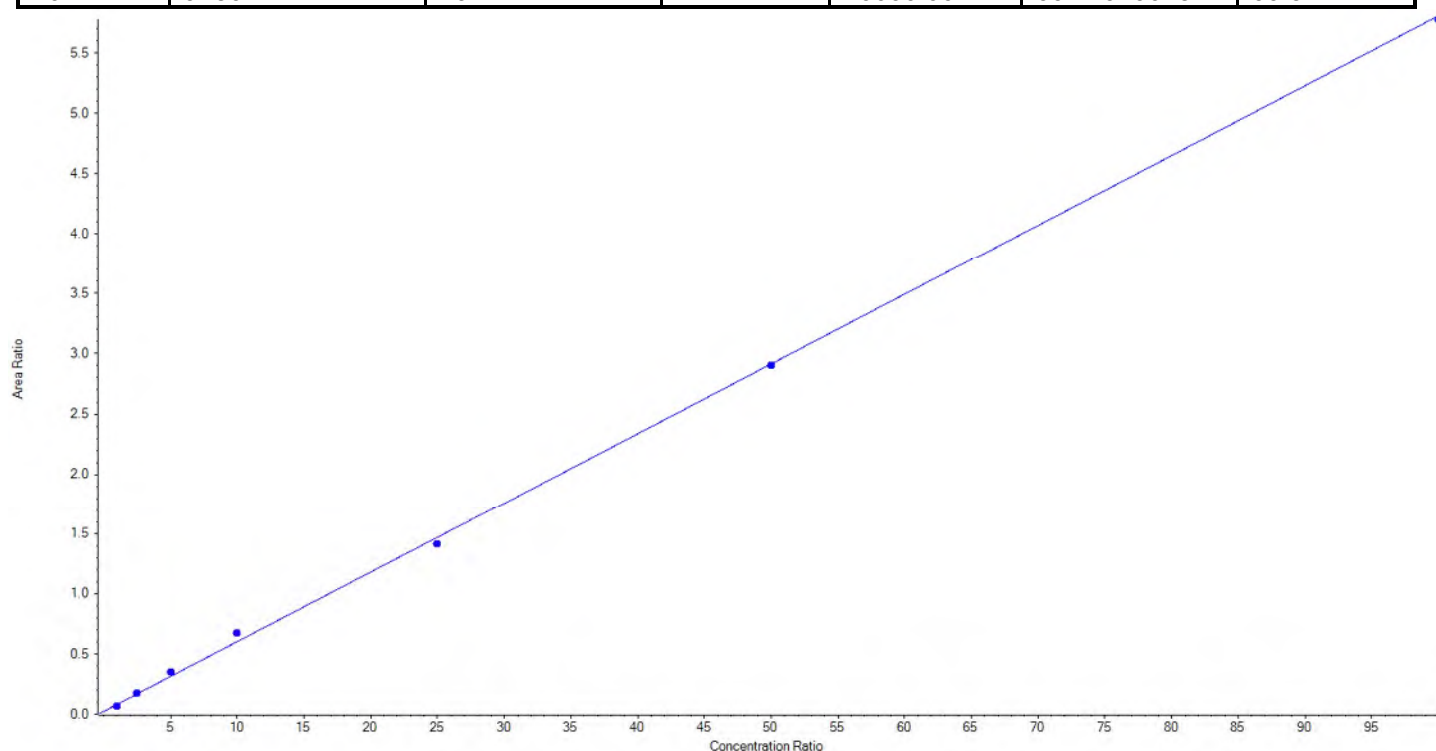
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFHxA_2	Data File	18-0614_18-0594.wiff
MRM Transition	313.0 / 119.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05783x + 0.02377$ ($r = 0.99898$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	74.239514	74.2
5	JZ81	L4	True	250.00	267.415465	107.0
6	JZ82	L5	True	500.00	557.219181	111.4
7	JZ83	L6	True	1000.00	1122.690013	112.3
8	JZ84	L7	True	2500.00	2398.101836	95.9
9	JZ85	L8	True	5000.00	4985.404914	99.7
10	JZ86	L9	True	10000.00	9944.929078	99.5





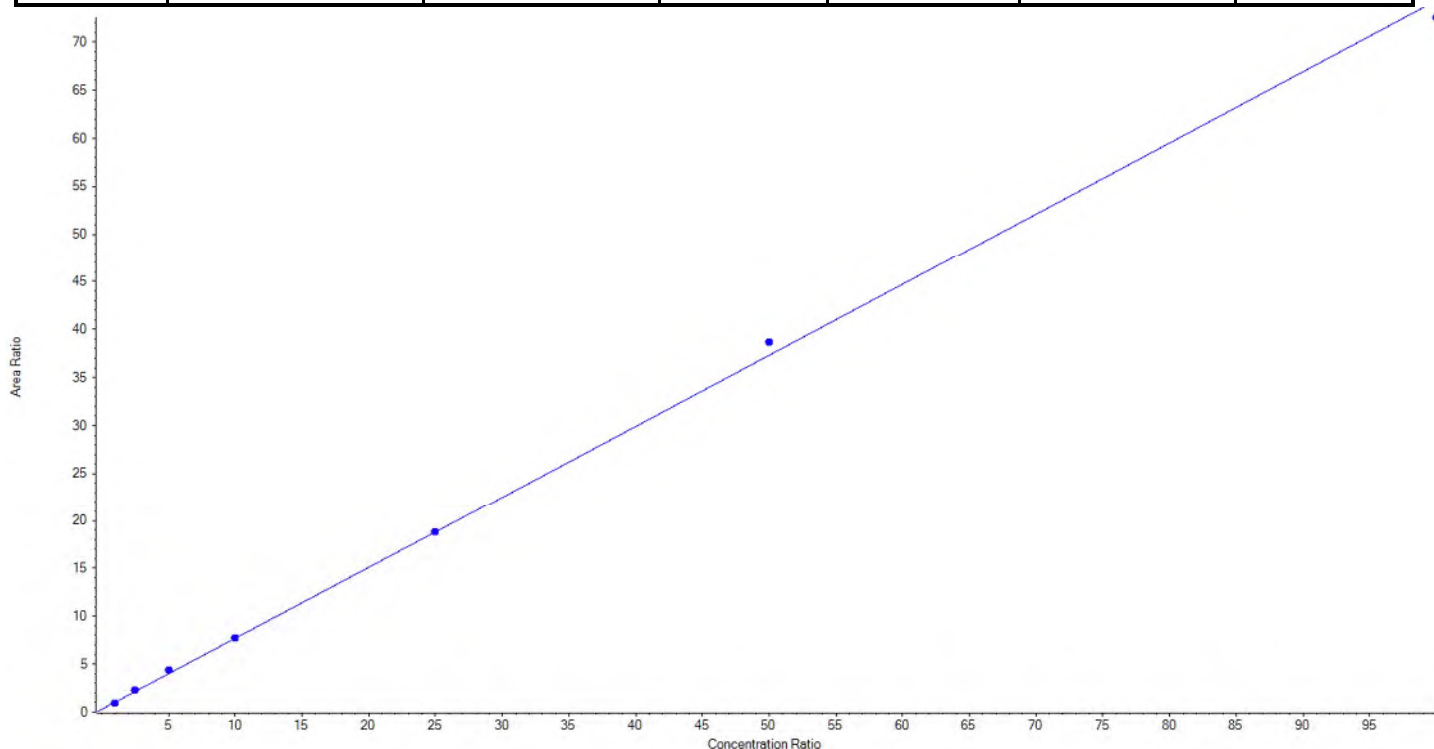
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFHpA_1	Data File	18-0614_18-0594.wiff
MRM Transition	363.0 / 319.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.74011x + 0.29942$ ($r = 0.99934$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	81.730420	81.7
5	JZ81	L4	True	250.00	265.466901	106.2
6	JZ82	L5	True	500.00	548.930875	109.8
7	JZ83	L6	True	1000.00	1011.257384	101.1
8	JZ84	L7	True	2500.00	2495.760998	99.8
9	JZ85	L8	True	5000.00	5187.193189	103.7
10	JZ86	L9	True	10000.00	9759.660233	97.6





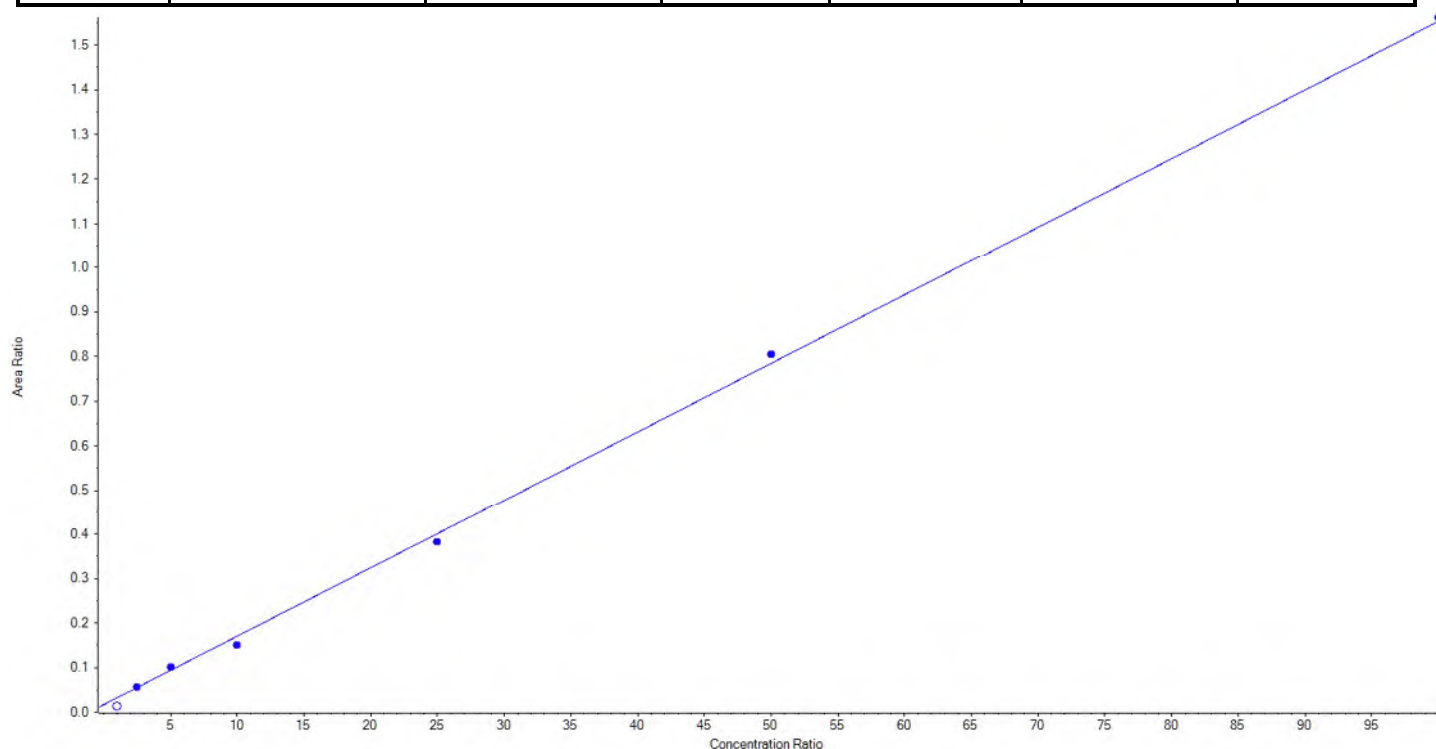
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFHpA_2	Data File	18-0614_18-0594.wiff
MRM Transition	363.0 / 169.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.01536 x + 0.01693$ ($r = 0.99885$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	260.629508	104.3
6	JZ82	L5	True	500.00	553.407676	110.7
7	JZ83	L6	True	1000.00	864.811042	86.5
8	JZ84	L7	True	2500.00	2384.905181	95.4
9	JZ85	L8	True	5000.00	5132.688440	102.7
10	JZ86	L9	True	10000.00	10053.558153	100.5





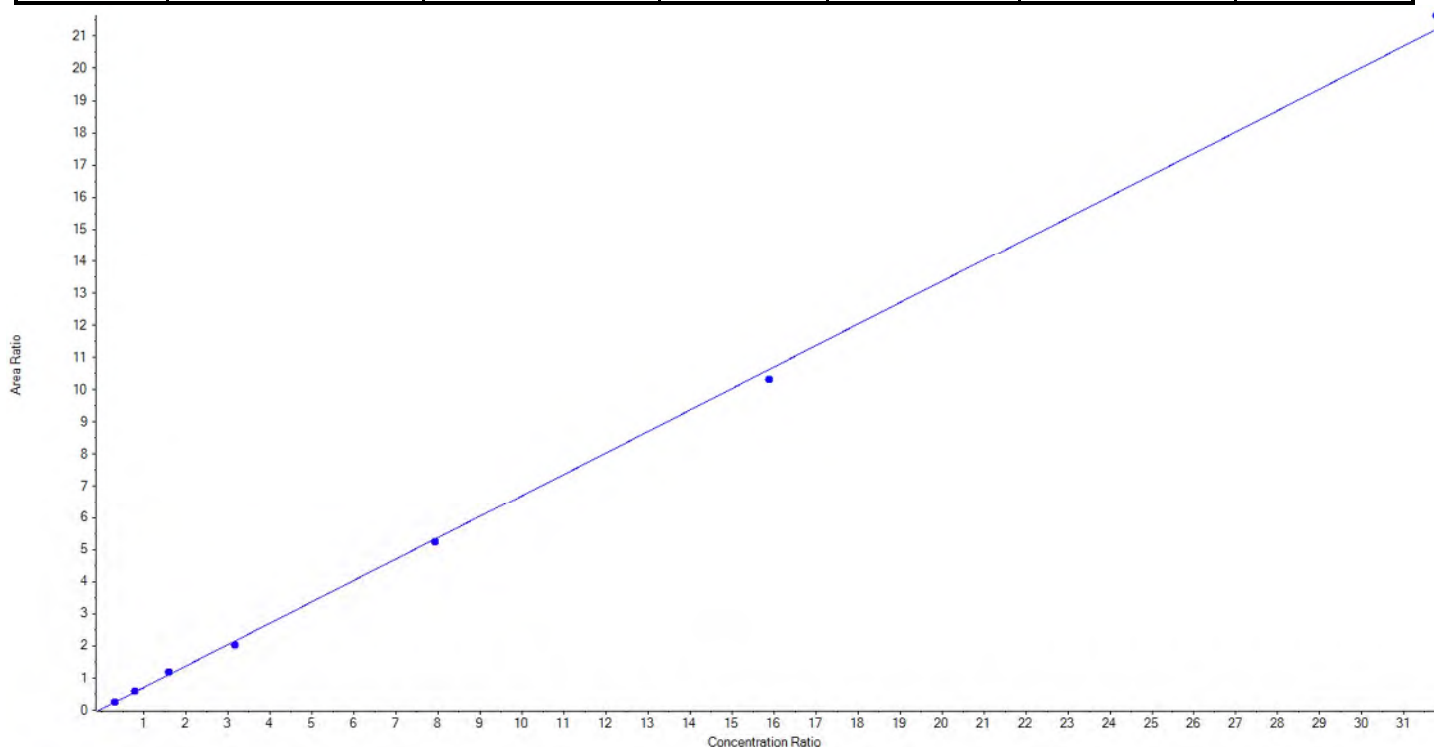
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFHxS_1	Data File	18-0614_18-0594.wiff
MRM Transition	399.0 / 80.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.66648x + 0.03609$ ($r = 0.99951$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	86.774621	95.2
5	JZ81	L4	True	228.00	239.474581	105.0
6	JZ82	L5	True	456.00	492.249598	108.0
7	JZ83	L6	True	912.00	862.037403	94.5
8	JZ84	L7	True	2280.00	2243.168666	98.4
9	JZ85	L8	True	4560.00	4422.018886	97.0
10	JZ86	L9	True	9120.00	9301.476246	102.0





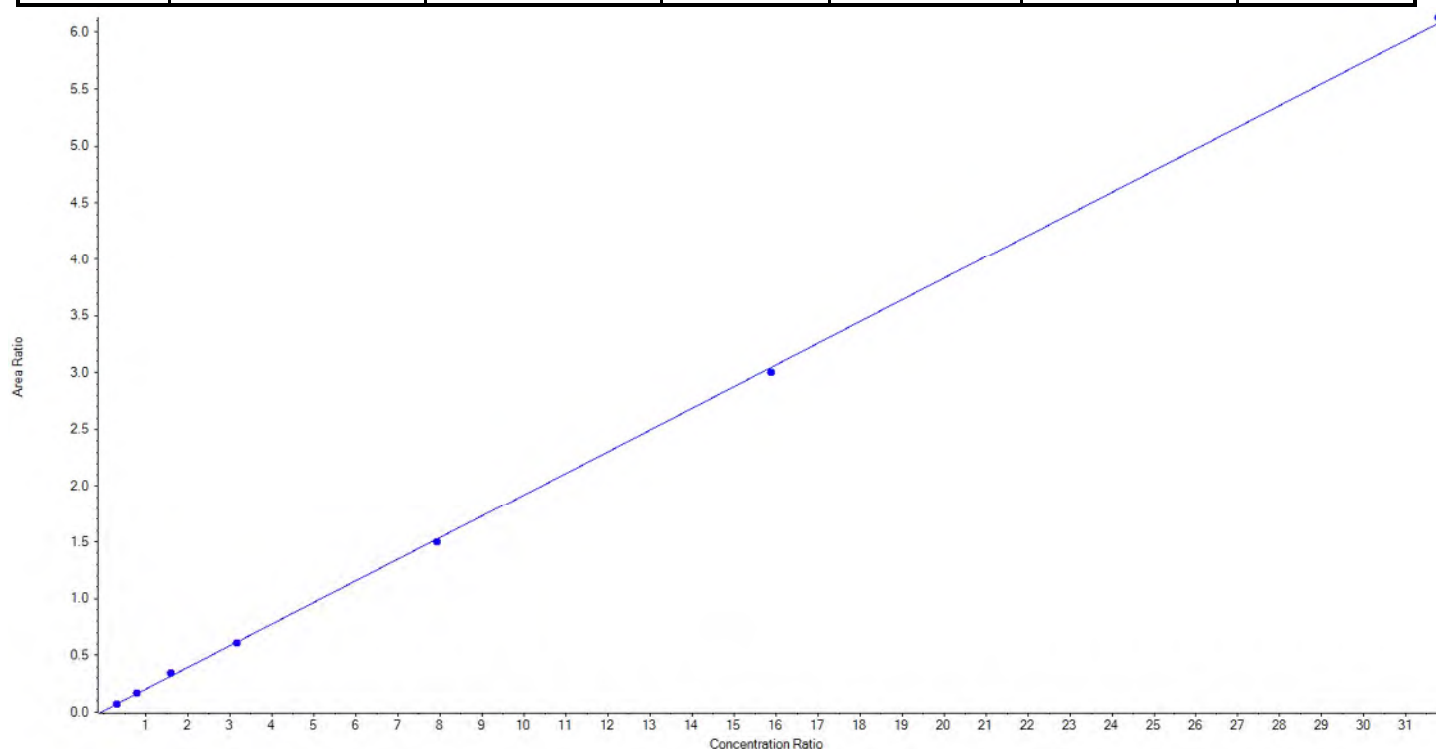
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Analyte Name	PFHxS_2	Data File	18-0614_18-0594.wiff
MRM Transition	399.0 / 99.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.19090x + 0.01205$ ($r = 0.99975$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	81.745934	89.6
5	JZ81	L4	True	228.00	240.154708	105.3
6	JZ82	L5	True	456.00	495.670447	108.7
7	JZ83	L6	True	912.00	899.934756	98.7
8	JZ84	L7	True	2280.00	2240.668093	98.3
9	JZ85	L8	True	4560.00	4494.763367	98.6
10	JZ86	L9	True	9120.00	9194.262695	100.8





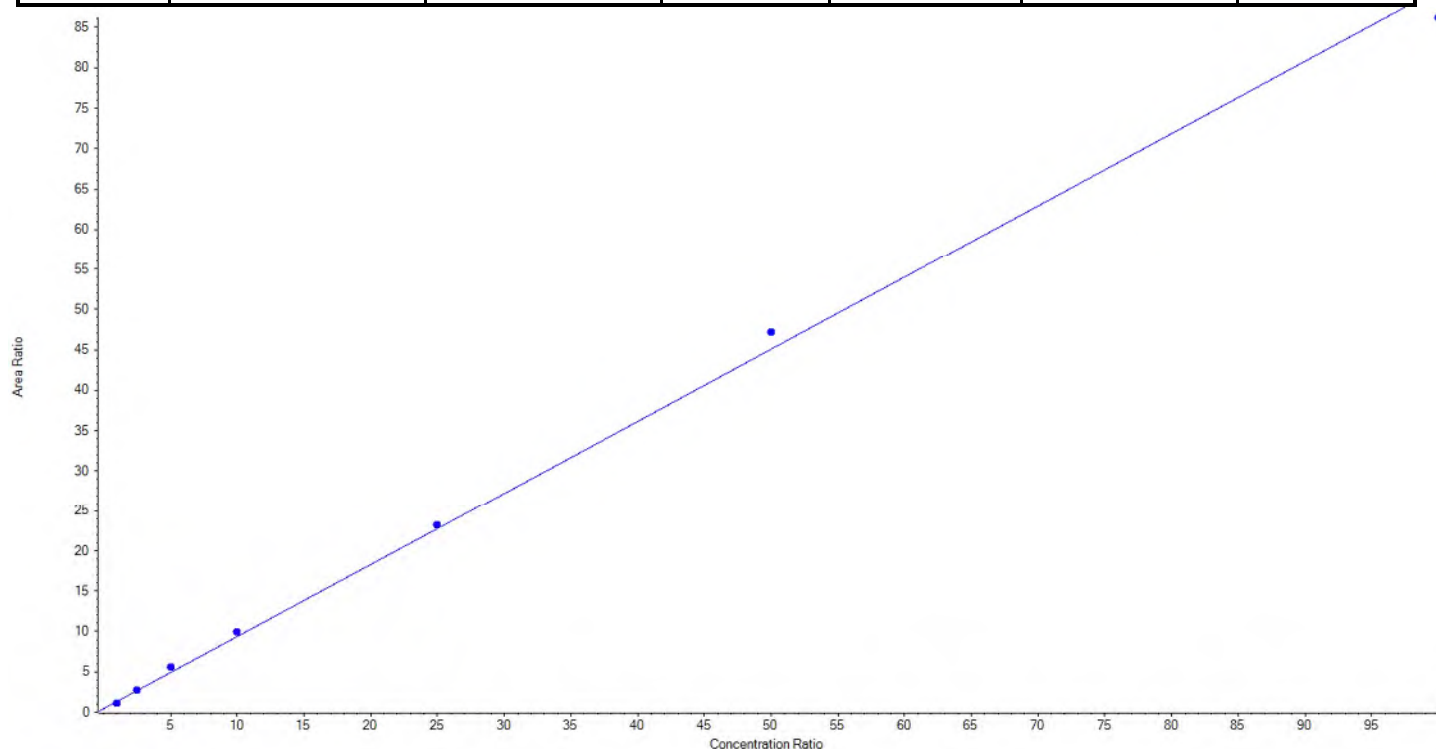
Calibration Summary Report

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Analyte Name	PFOA_1	Data File	18-0614_18-0594.wiff
MRM Transition	413.0 / 369.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.89272x + 0.44105$ ($r = 0.99855$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	73.472466	73.5
5	JZ81	L4	True	250.00	259.902047	104.0
6	JZ82	L5	True	500.00	570.585366	114.1
7	JZ83	L6	True	1000.00	1056.549163	105.7
8	JZ84	L7	True	2500.00	2552.011126	102.1
9	JZ85	L8	True	5000.00	5233.948273	104.7
10	JZ86	L9	True	10000.00	9603.531559	96.0





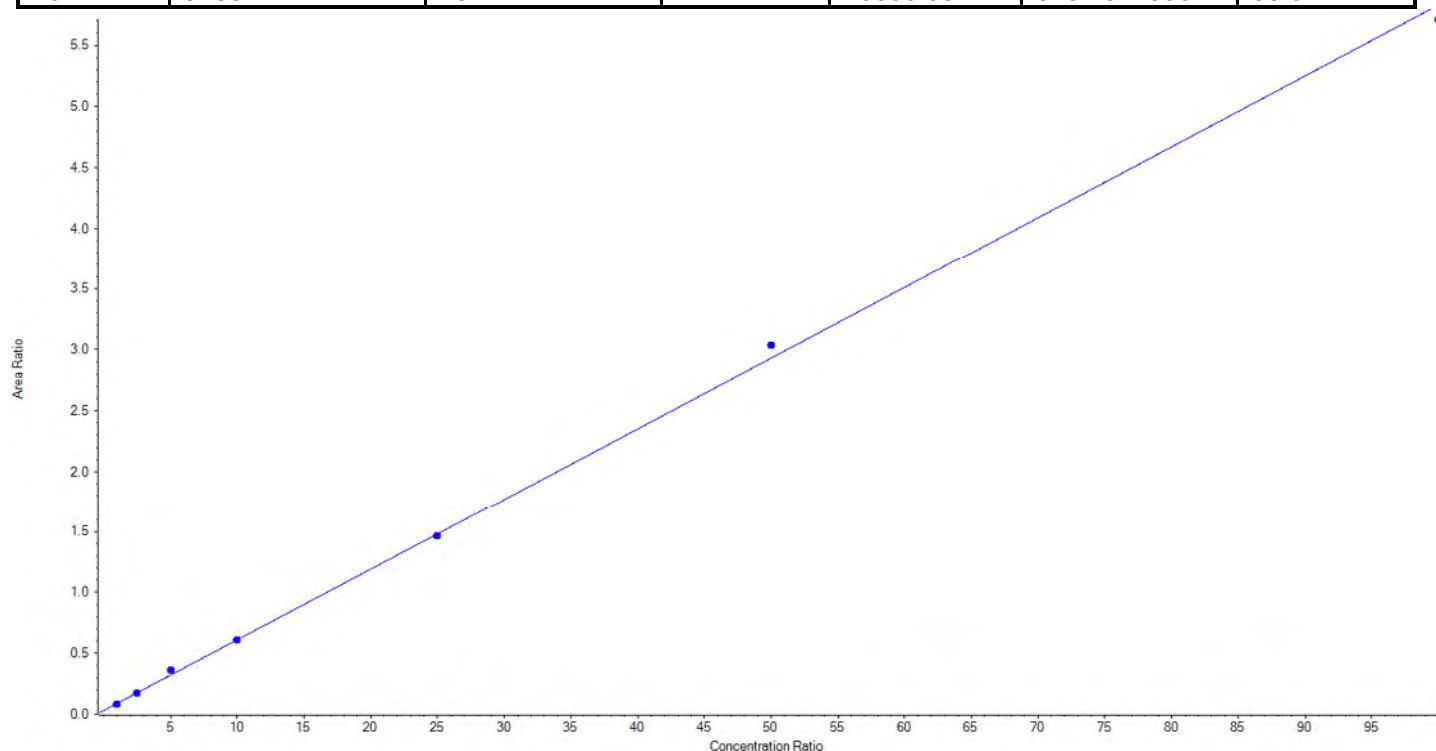
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Analyte Name	PFOA_2	Data File	18-0614_18-0594.wiff
MRM Transition	413.0 / 169.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05799x + 0.03080$ ($r = 0.99931$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	87.086039	87.1
5	JZ81	L4	True	250.00	246.394710	98.6
6	JZ82	L5	True	500.00	571.221268	114.2
7	JZ83	L6	True	1000.00	995.472985	99.6
8	JZ84	L7	True	2500.00	2475.657036	99.0
9	JZ85	L8	True	5000.00	5179.656428	103.6
10	JZ86	L9	True	10000.00	9794.511536	98.0





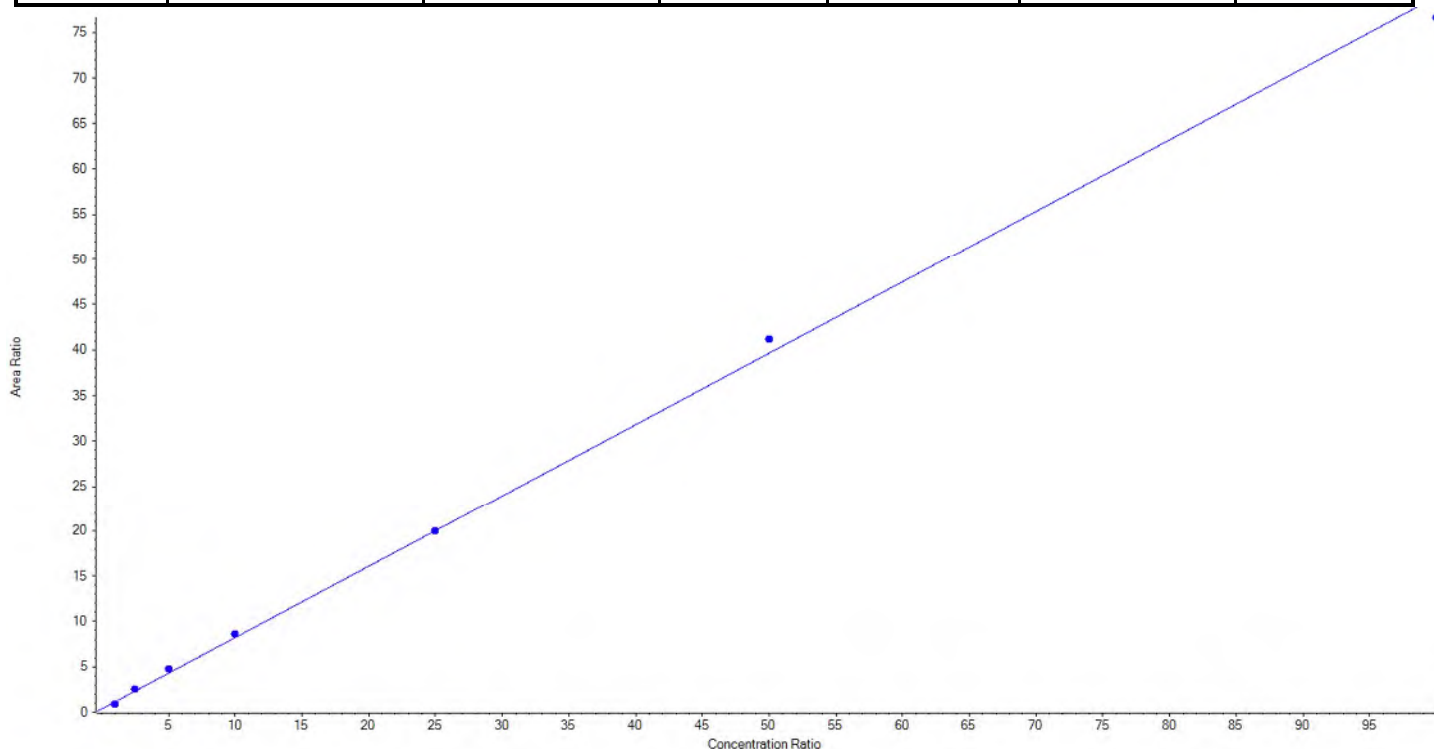
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Analyte Name	PFNA_1	Data File	18-0614_18-0594.wiff
MRM Transition	463.0 / 419.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.78549x + 0.36264$ ($r = 0.99892$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	72.508406	72.5
5	JZ81	L4	True	250.00	273.223025	109.3
6	JZ82	L5	True	500.00	560.369162	112.1
7	JZ83	L6	True	1000.00	1056.203637	105.6
8	JZ84	L7	True	2500.00	2491.268174	99.7
9	JZ85	L8	True	5000.00	5189.318542	103.8
10	JZ86	L9	True	10000.00	9707.109054	97.1





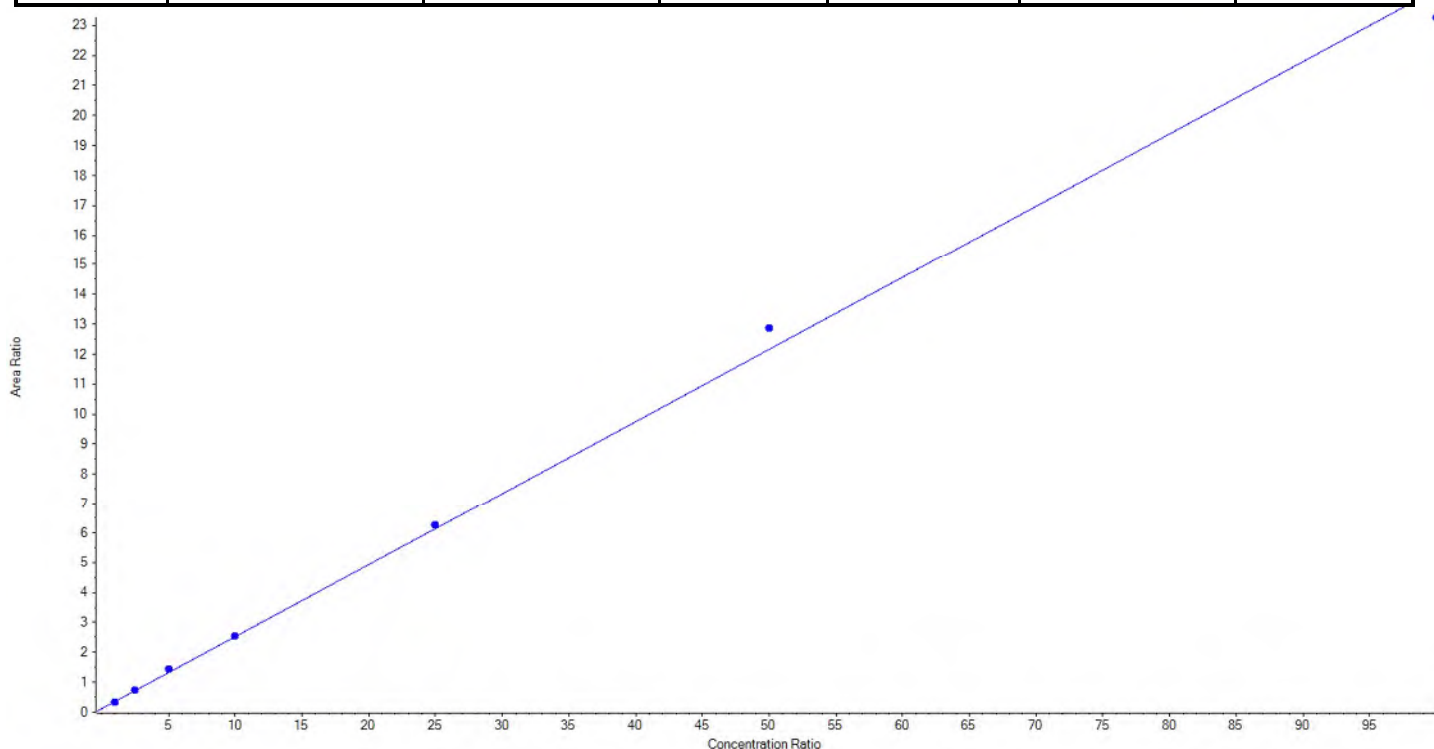
Calibration Summary Report

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Analyte Name	PFNA_2	Data File	18-0614_18-0594.wiff
MRM Transition	463.0 / 219.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.24085x + 0.11789$ ($r = 0.99877$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	84.053540	84.1
5	JZ81	L4	True	250.00	253.808270	101.5
6	JZ82	L5	True	500.00	546.728993	109.4
7	JZ83	L6	True	1000.00	1011.372186	101.1
8	JZ84	L7	True	2500.00	2547.506863	101.9
9	JZ85	L8	True	5000.00	5297.455827	106.0
10	JZ86	L9	True	10000.00	9609.074321	96.1





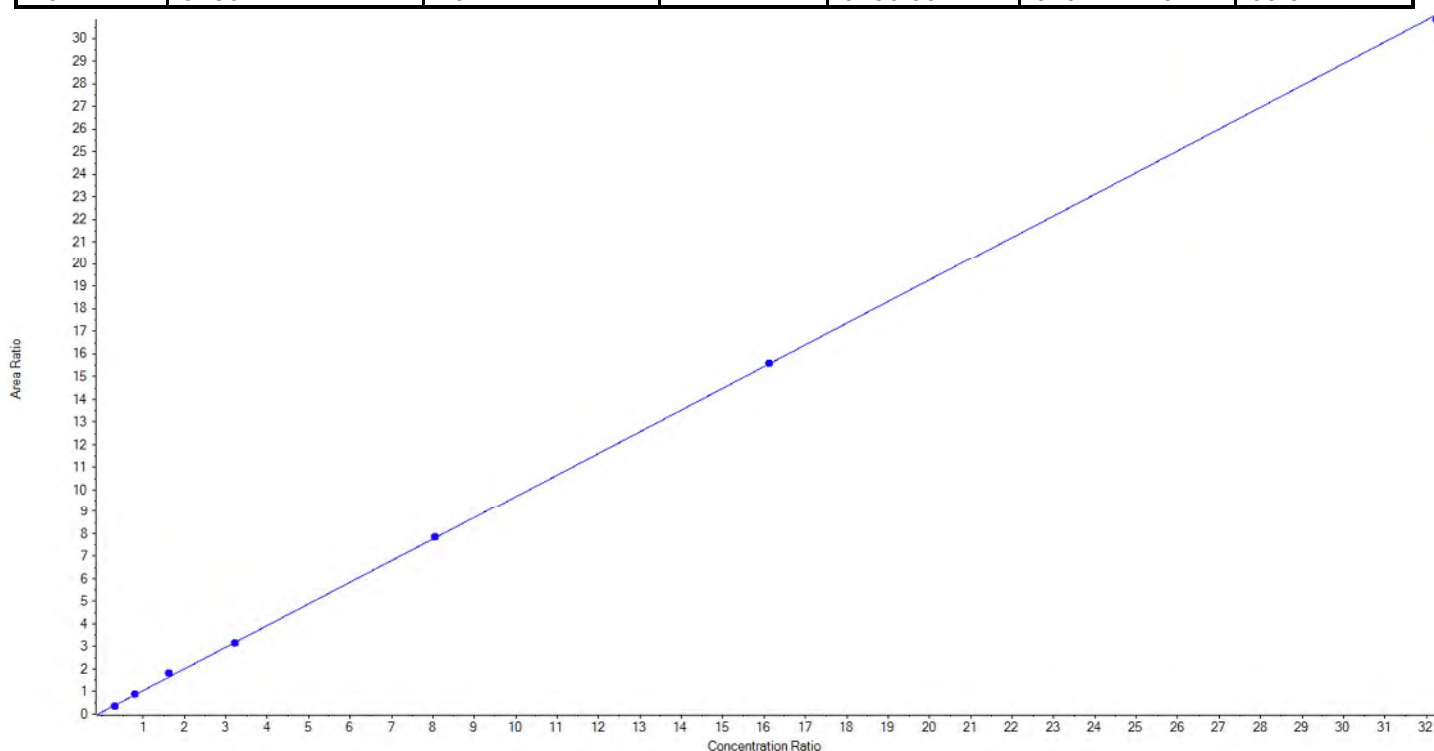
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Analyte Name	PFOS_1	Data File	18-0614_18-0594.wiff
MRM Transition	499.0 / 80.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.95988x + 0.08788$ ($r = 0.99967$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	92.60	78.711796	85.0
5	JZ81	L4	True	231.50	239.934953	103.6
6	JZ82	L5	True	463.00	520.190435	112.4
7	JZ83	L6	True	925.60	916.111981	99.0
8	JZ84	L7	True	2314.00	2325.879849	100.5
9	JZ85	L8	True	4628.00	4637.143285	100.2
10	JZ86	L9	True	9256.00	9192.727701	99.3





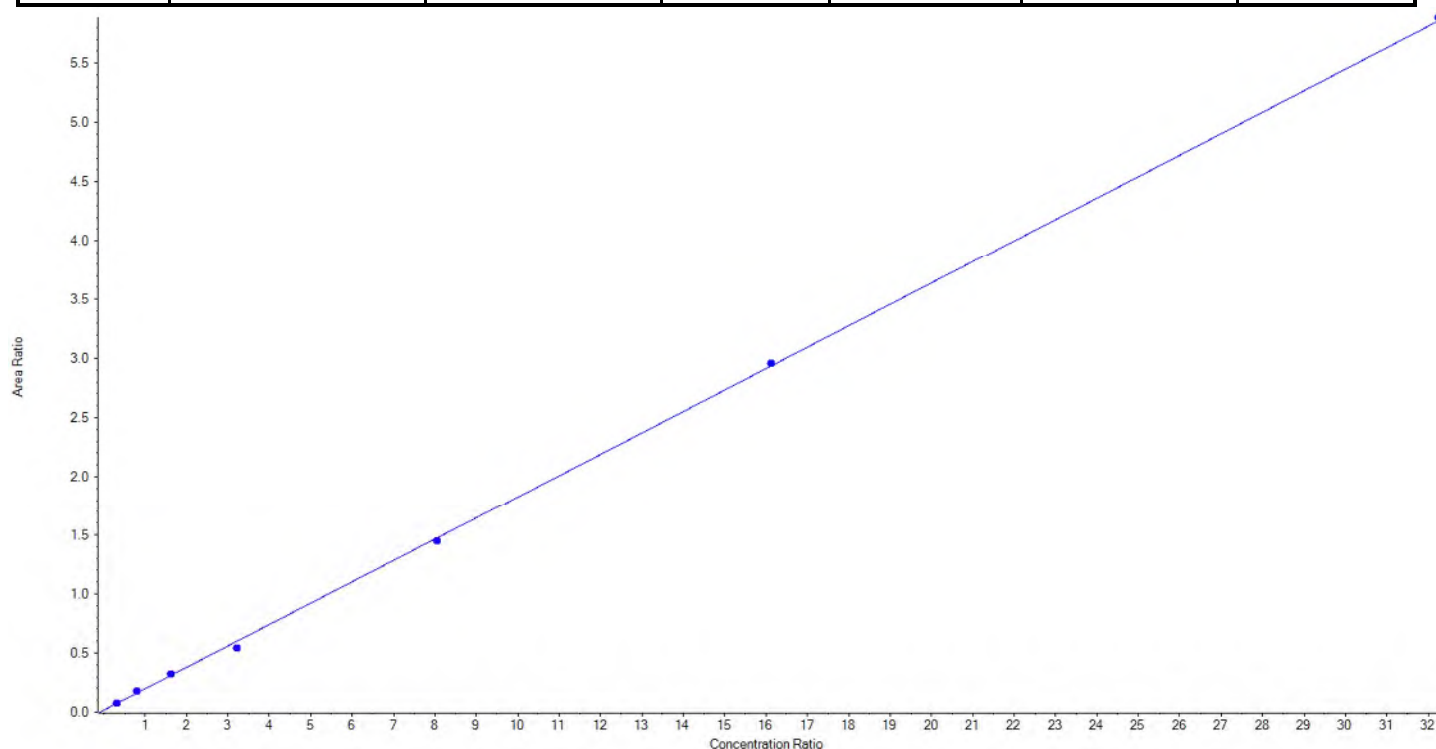
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Analyte Name	PFOS_2	Data File	18-0614_18-0594.wiff
MRM Transition	499.0 / 99.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.18105x + 0.01658$ ($r = 0.99959$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	92.60	88.839206	95.9
5	JZ81	L4	True	231.50	252.186872	108.9
6	JZ82	L5	True	463.00	485.427014	104.8
7	JZ83	L6	True	925.60	837.570923	90.5
8	JZ84	L7	True	2314.00	2277.533940	98.4
9	JZ85	L8	True	4628.00	4669.465955	100.9
10	JZ86	L9	True	9256.00	9299.676090	100.5





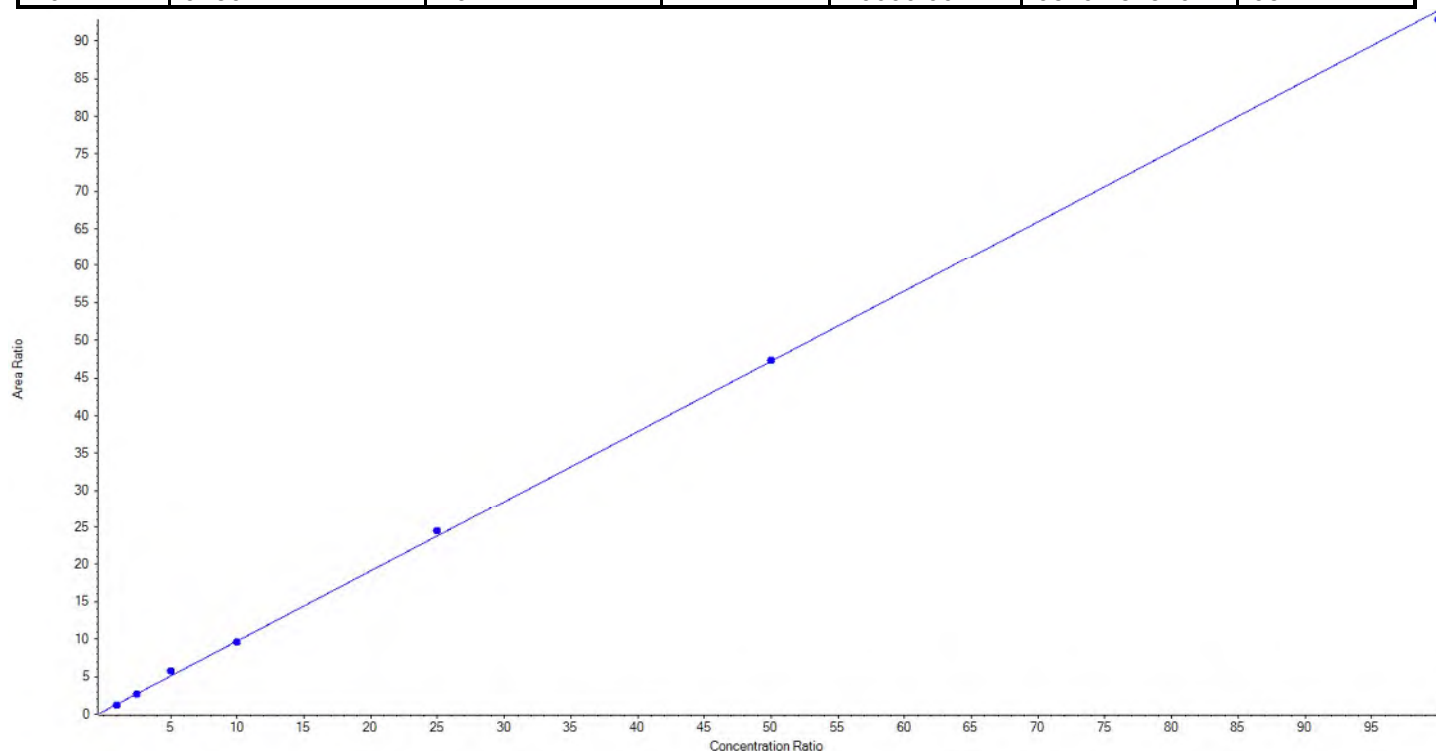
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Analyte Name	PFDA_1	Data File	18-0614_18-0594.wiff
MRM Transition	513.0 / 469.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.93652x + 0.39506$ ($r = 0.99949$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	85.318729	85.3
5	JZ81	L4	True	250.00	248.328632	99.3
6	JZ82	L5	True	500.00	573.921932	114.8
7	JZ83	L6	True	1000.00	987.367803	98.7
8	JZ84	L7	True	2500.00	2571.460585	102.9
9	JZ85	L8	True	5000.00	5013.420472	100.3
10	JZ86	L9	True	10000.00	9870.181846	98.7





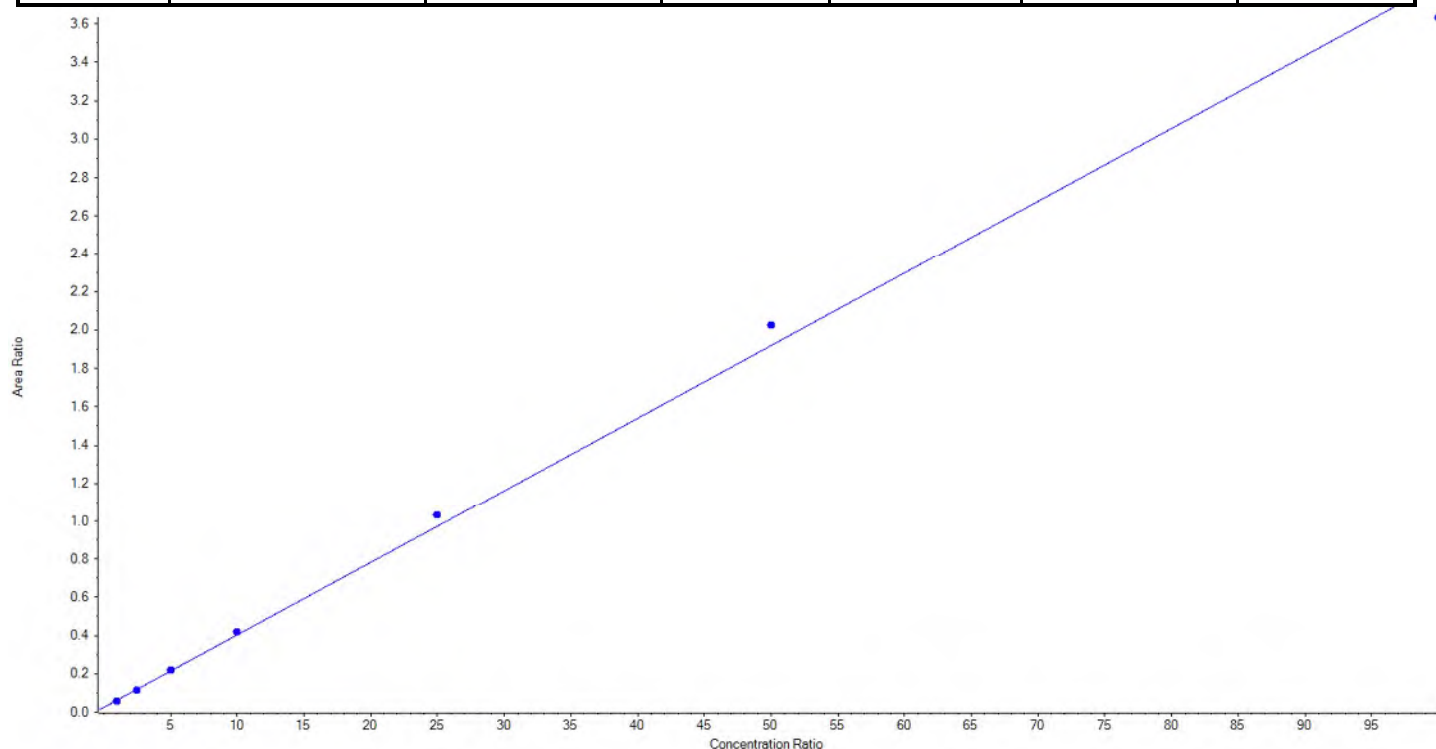
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Analyte Name	PFDA_2	Data File	18-0614_18-0594.wiff
MRM Transition	513.0 / 219.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.03789x + 0.02476$ ($r = 0.99840$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	92.668688	92.7
5	JZ81	L4	True	250.00	234.167993	93.7
6	JZ82	L5	True	500.00	510.032586	102.0
7	JZ83	L6	True	1000.00	1042.613693	104.3
8	JZ84	L7	True	2500.00	2660.407495	106.4
9	JZ85	L8	True	5000.00	5287.883322	105.8
10	JZ86	L9	True	10000.00	9522.226223	95.2





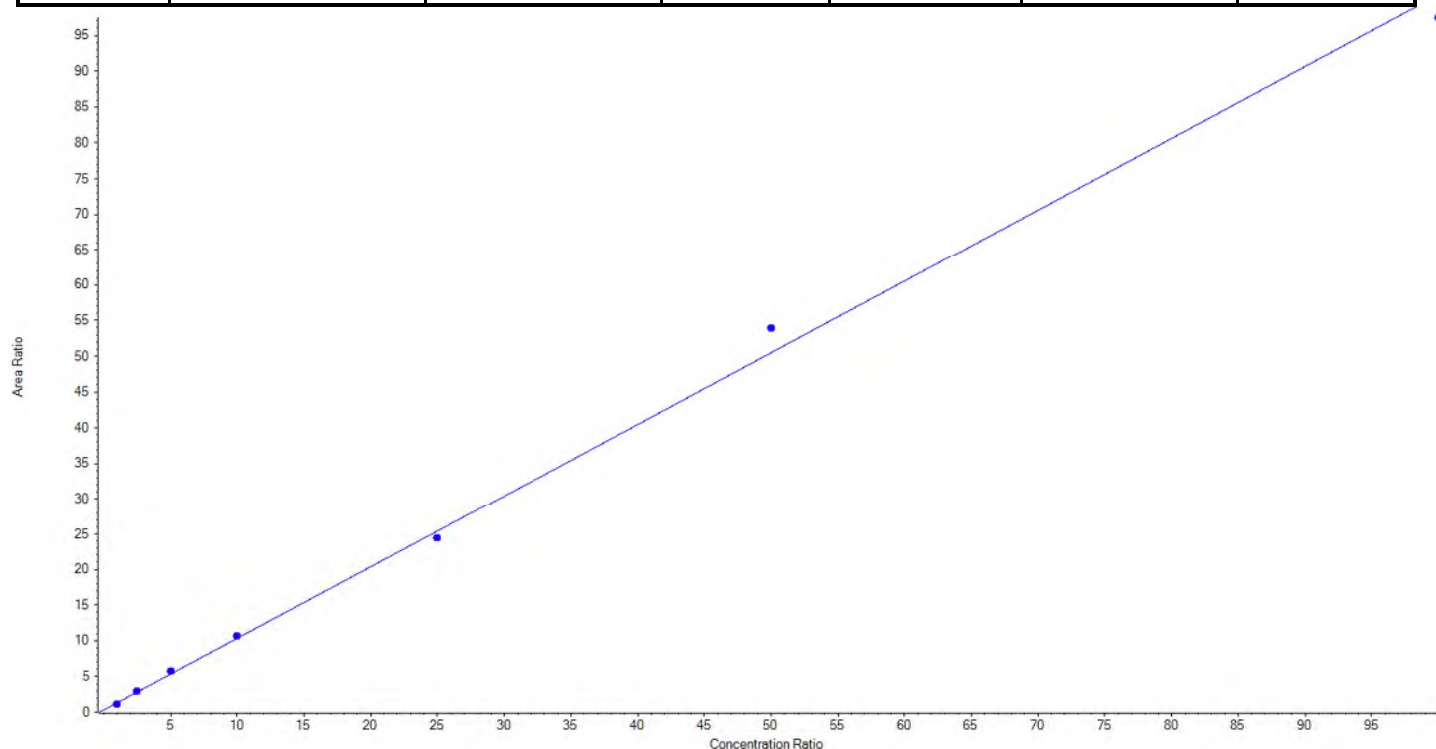
Calibration Summary Report

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Analyte Name	PFUnA_1	Data File	18-0614_18-0594.wiff
MRM Transition	563.0 / 519.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.00366x + 0.30783$ ($r = 0.99859$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	82.863403	82.9
5	JZ81	L4	True	250.00	260.832938	104.3
6	JZ82	L5	True	500.00	546.647377	109.3
7	JZ83	L6	True	1000.00	1038.580598	103.9
8	JZ84	L7	True	2500.00	2399.618674	96.0
9	JZ85	L8	True	5000.00	5341.656904	106.8
10	JZ86	L9	True	10000.00	9679.800105	96.8





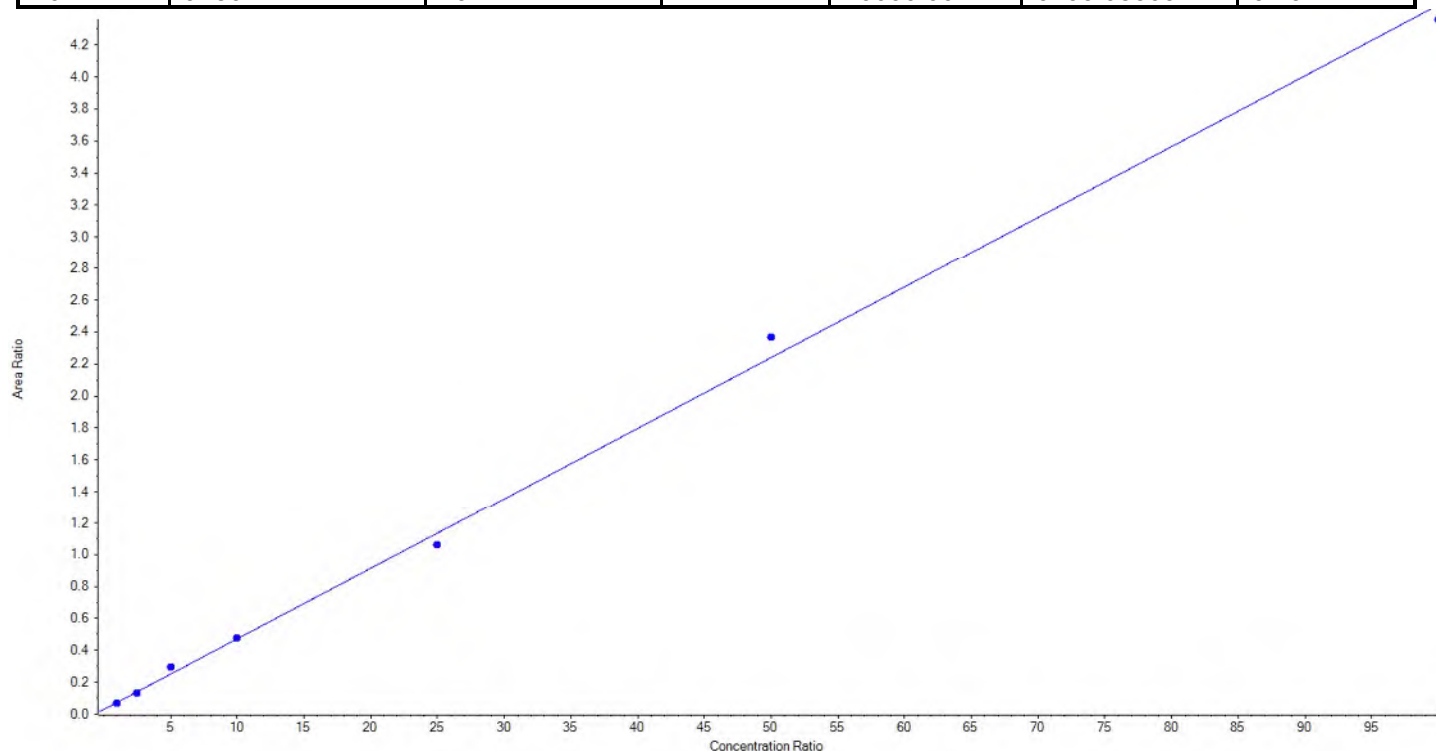
Calibration Summary Report

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Analyte Name	PFUnA_2	Data File	18-0614_18-0594.wiff
MRM Transition	563.0 / 269.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.04420x + 0.02989$ ($r = 0.99834$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	87.316243	87.3
5	JZ81	L4	True	250.00	237.672972	95.1
6	JZ82	L5	True	500.00	599.674150	119.9
7	JZ83	L6	True	1000.00	1006.038171	100.6
8	JZ84	L7	True	2500.00	2331.040105	93.2
9	JZ85	L8	True	5000.00	5295.173327	105.9
10	JZ86	L9	True	10000.00	9793.085032	97.9





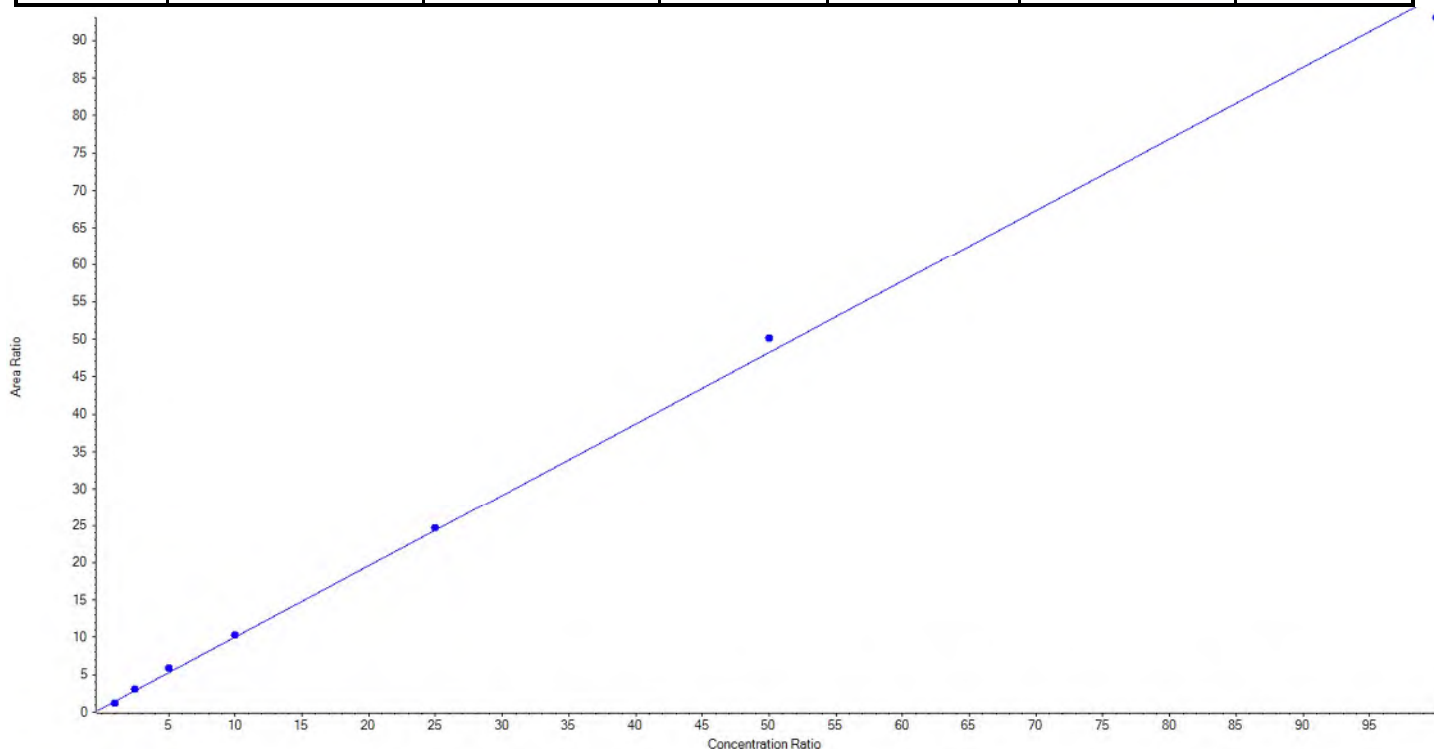
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFD _o A_1	Data File	18-0614_18-0594.wiff
MRM Transition	613.0 / 569.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.95477x + 0.49910$ ($r = 0.99902$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	75.680468	75.7
5	JZ81	L4	True	250.00	270.173879	108.1
6	JZ82	L5	True	500.00	558.687793	111.7
7	JZ83	L6	True	1000.00	1024.396355	102.4
8	JZ84	L7	True	2500.00	2529.786580	101.2
9	JZ85	L8	True	5000.00	5196.857441	103.9
10	JZ86	L9	True	10000.00	9694.417485	96.9





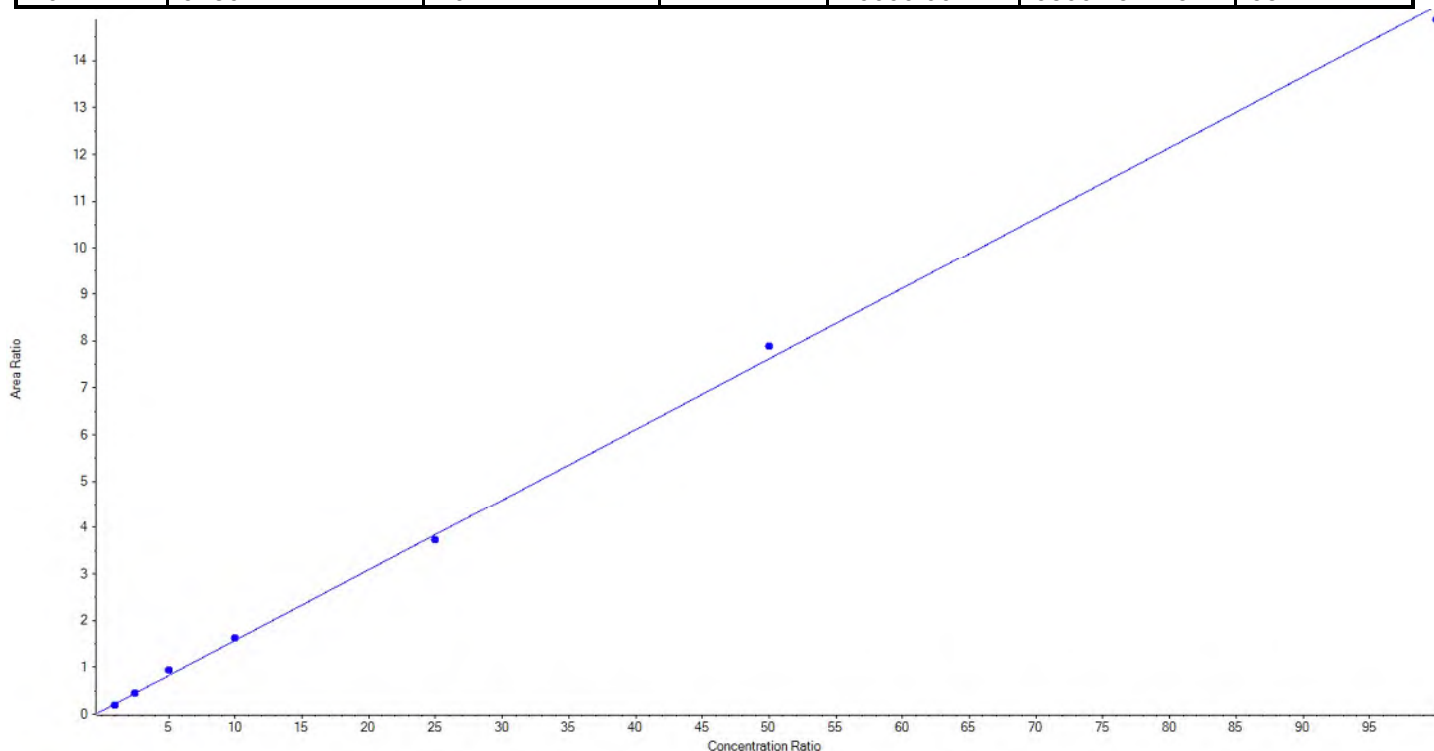
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFDaA_2	Data File	18-0614_18-0594.wiff
MRM Transition	613.0 / 319.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.15096 x + 0.06895$ ($r = 0.99908$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	81.706493	81.7
5	JZ81	L4	True	250.00	251.067196	100.4
6	JZ82	L5	True	500.00	581.689342	116.3
7	JZ83	L6	True	1000.00	1031.364808	103.1
8	JZ84	L7	True	2500.00	2418.508871	96.7
9	JZ85	L8	True	5000.00	5179.529166	103.6
10	JZ86	L9	True	10000.00	9806.134123	98.1





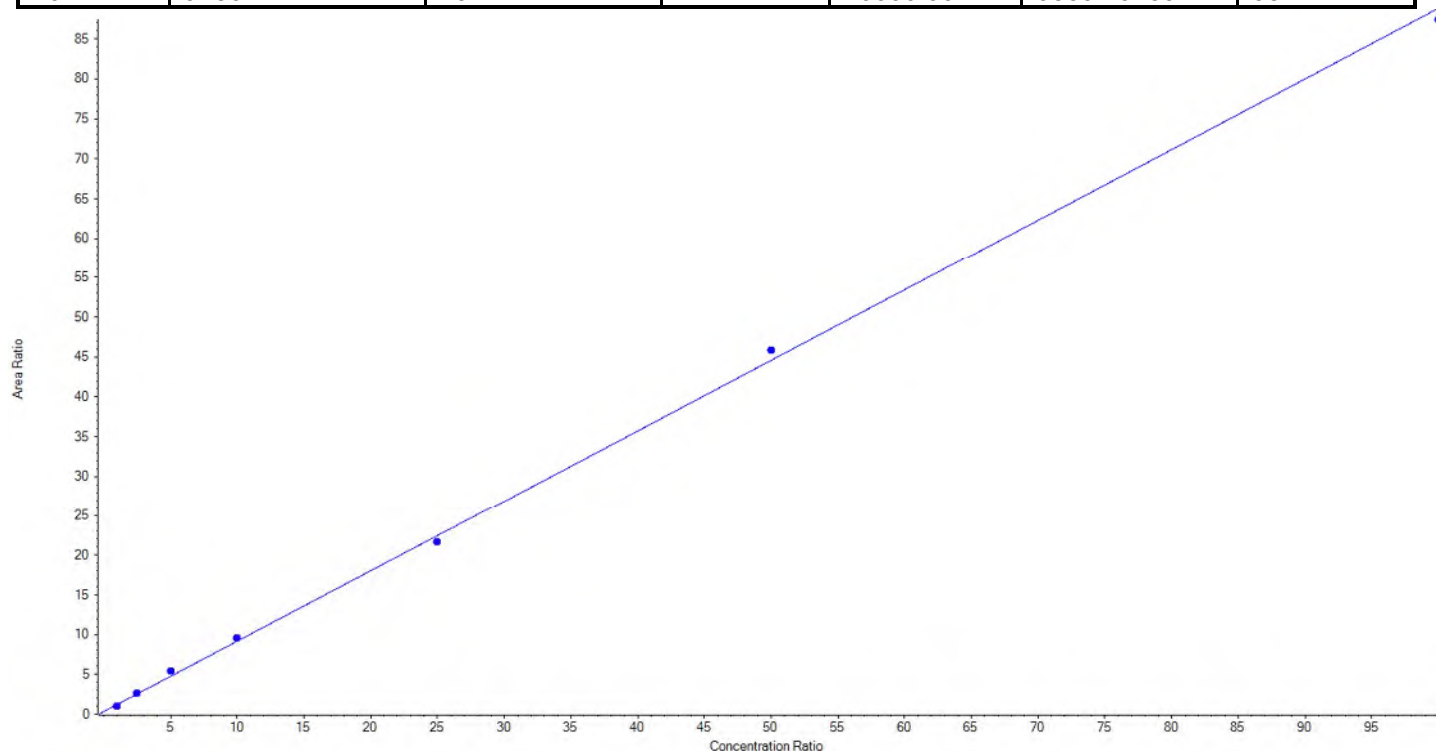
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFTTrDA_1	Data File	18-0614_18-0594.wiff
MRM Transition	663.0 / 619.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.88513x + 0.32278$ ($r = 0.99911$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	77.034986	77.0
5	JZ81	L4	True	250.00	265.962253	106.4
6	JZ82	L5	True	500.00	575.370453	115.1
7	JZ83	L6	True	1000.00	1039.355529	103.9
8	JZ84	L7	True	2500.00	2405.895484	96.2
9	JZ85	L8	True	5000.00	5147.083704	102.9
10	JZ86	L9	True	10000.00	9839.297592	98.4





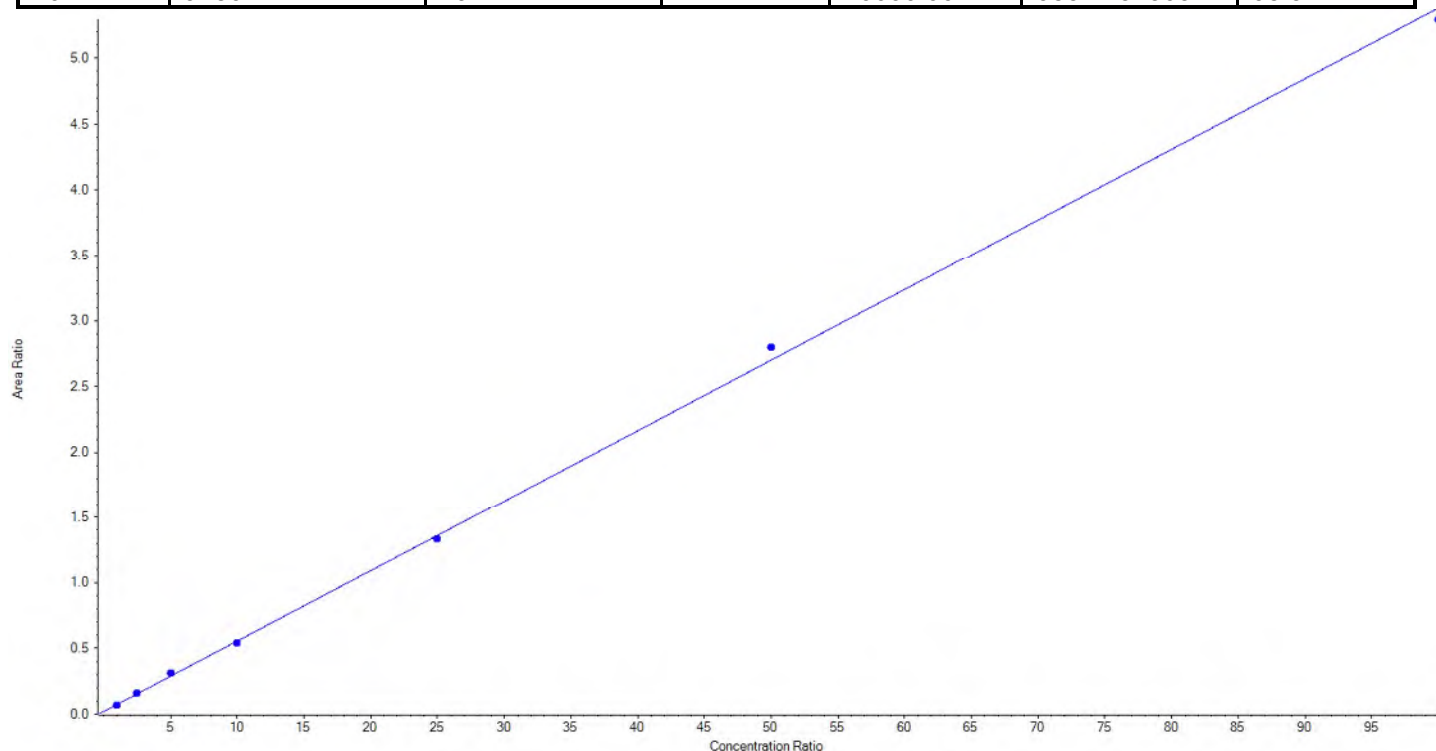
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFTTrDA_2	Data File	18-0614_18-0594.wiff
MRM Transition	663.0 / 169.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05361 x + 0.02032$ ($r = 0.99944$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	86.761592	86.8
5	JZ81	L4	True	250.00	263.641575	105.5
6	JZ82	L5	True	500.00	550.217986	110.0
7	JZ83	L6	True	1000.00	974.980521	97.5
8	JZ84	L7	True	2500.00	2454.826803	98.2
9	JZ85	L8	True	5000.00	5185.134160	103.7
10	JZ86	L9	True	10000.00	9834.437363	98.3





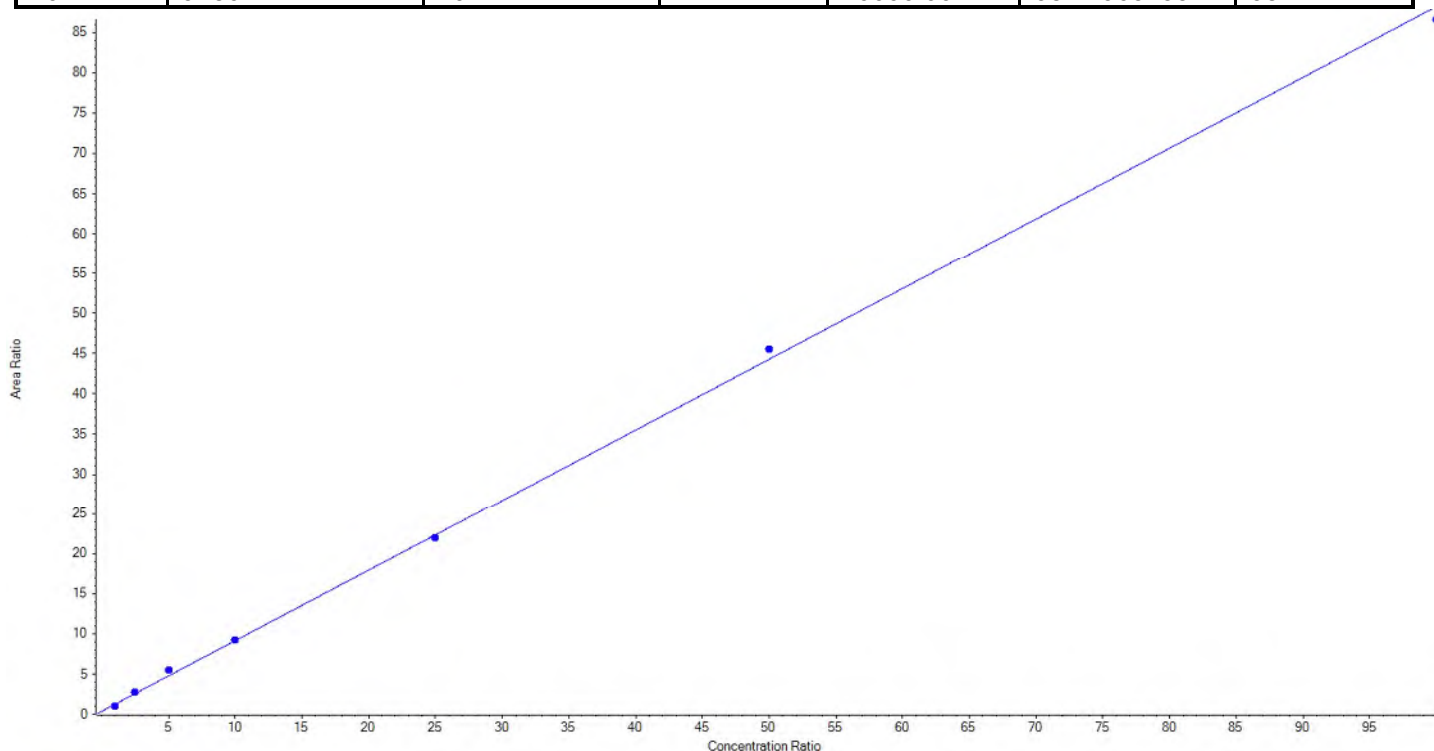
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFTeDA_1	Data File	18-0614_18-0594.wiff
MRM Transition	713.0 / 669.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.87832x + 0.36916$ ($r = 0.99920$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	77.446950	77.5
5	JZ81	L4	True	250.00	264.775690	105.9
6	JZ82	L5	True	500.00	578.769438	115.8
7	JZ83	L6	True	1000.00	1015.487775	101.6
8	JZ84	L7	True	2500.00	2460.968172	98.4
9	JZ85	L8	True	5000.00	5137.586242	102.8
10	JZ86	L9	True	10000.00	9814.965733	98.2





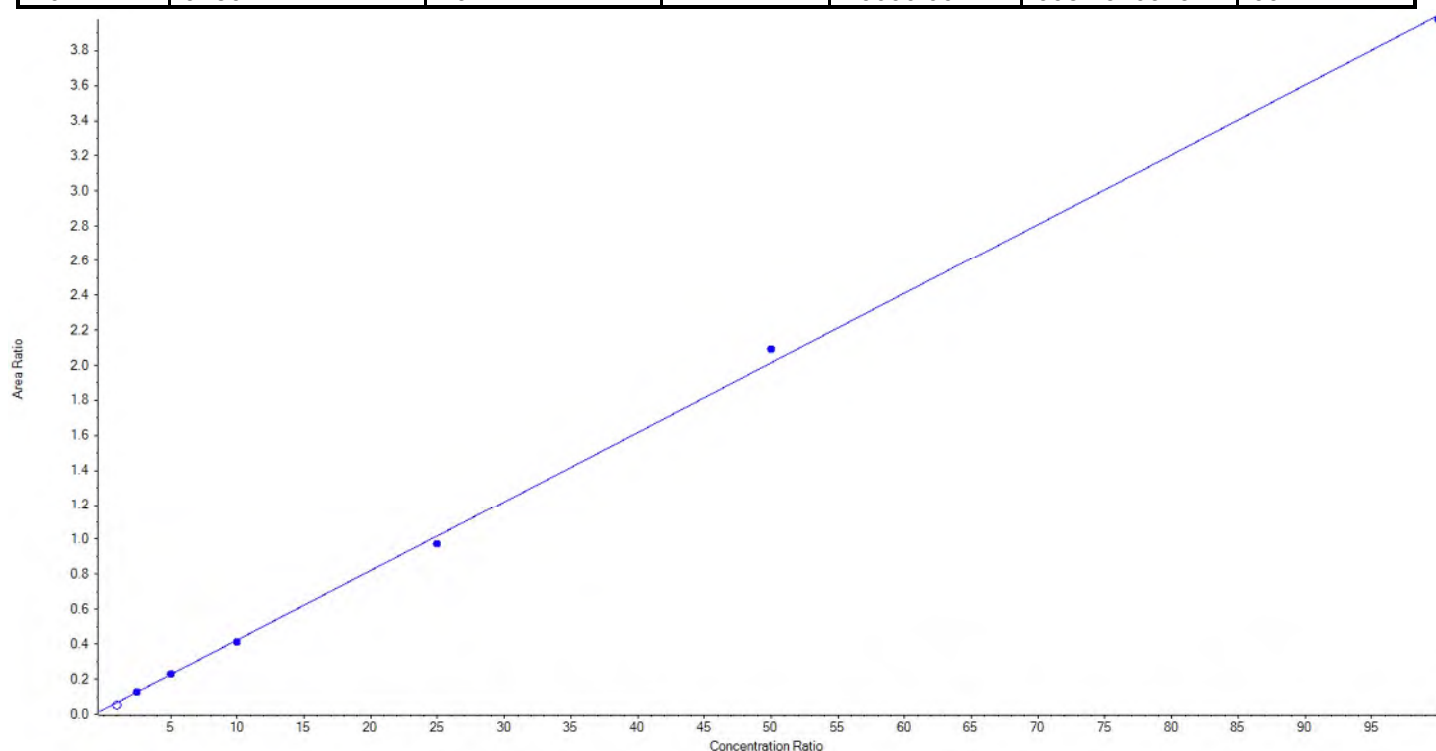
Calibration Summary Report

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Analyte Name	PFTeDA_2	Data File	18-0614_18-0594.wiff
MRM Transition	713.0 / 169.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.03974 x + 0.02651$ ($r = 0.99950$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	60.099494	60.1
5	JZ81	L4	True	250.00	255.153595	102.1
6	JZ82	L5	True	500.00	510.355609	102.1
7	JZ83	L6	True	1000.00	974.597866	97.5
8	JZ84	L7	True	2500.00	2379.159916	95.2
9	JZ85	L8	True	5000.00	5193.392691	103.9
10	JZ86	L9	True	10000.00	9937.340323	99.4





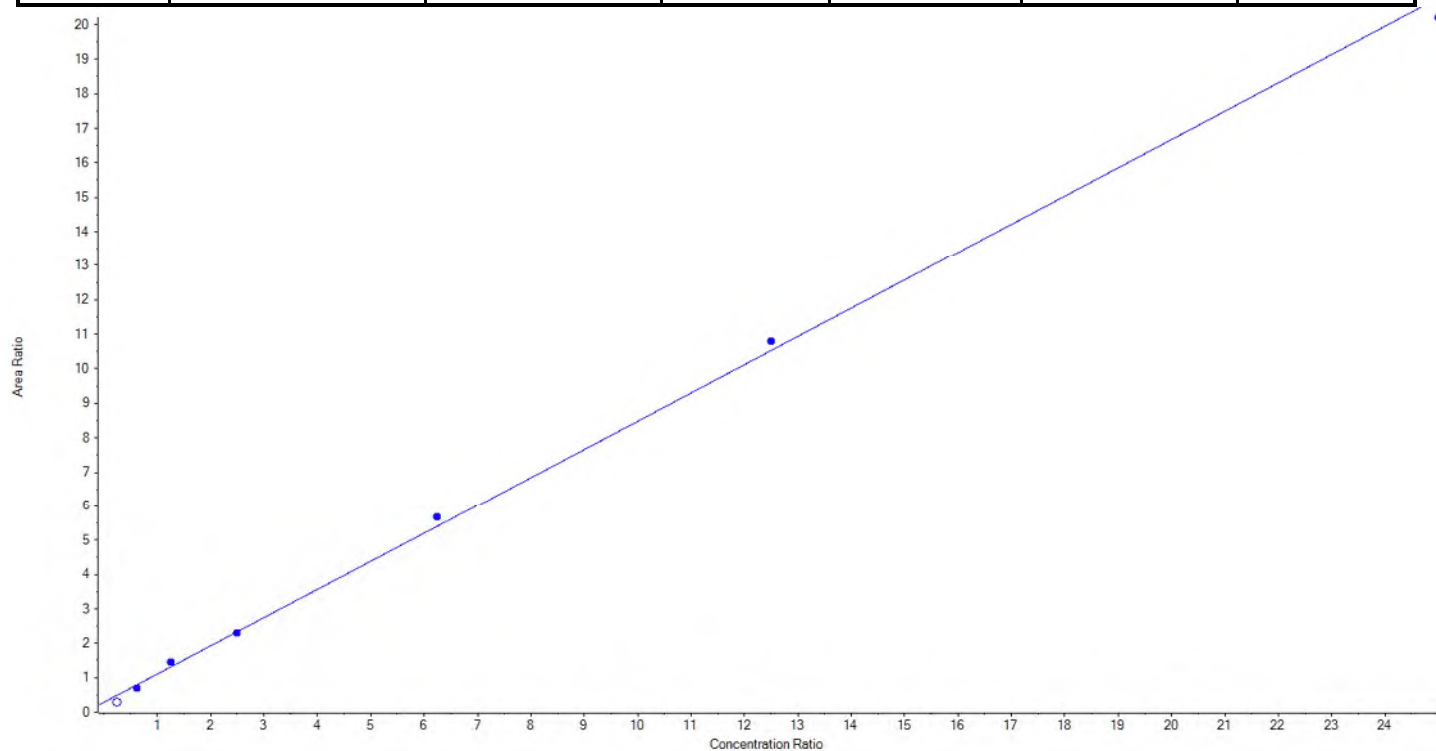
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	NMeFOSAA_1	Data File	18-0614_18-0594.wiff
MRM Transition	570.0 / 419.0	Result Table	18-0614_18-0594_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.81942x + 0.28568$ ($r = 0.99871$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	204.048864	81.6
6	JZ82	L5	True	500.00	573.692053	114.7
7	JZ83	L6	True	1000.00	985.879681	98.6
8	JZ84	L7	True	2500.00	2626.953642	105.1
9	JZ85	L8	True	5000.00	5138.167229	102.8
10	JZ86	L9	True	10000.00	9721.258531	97.2





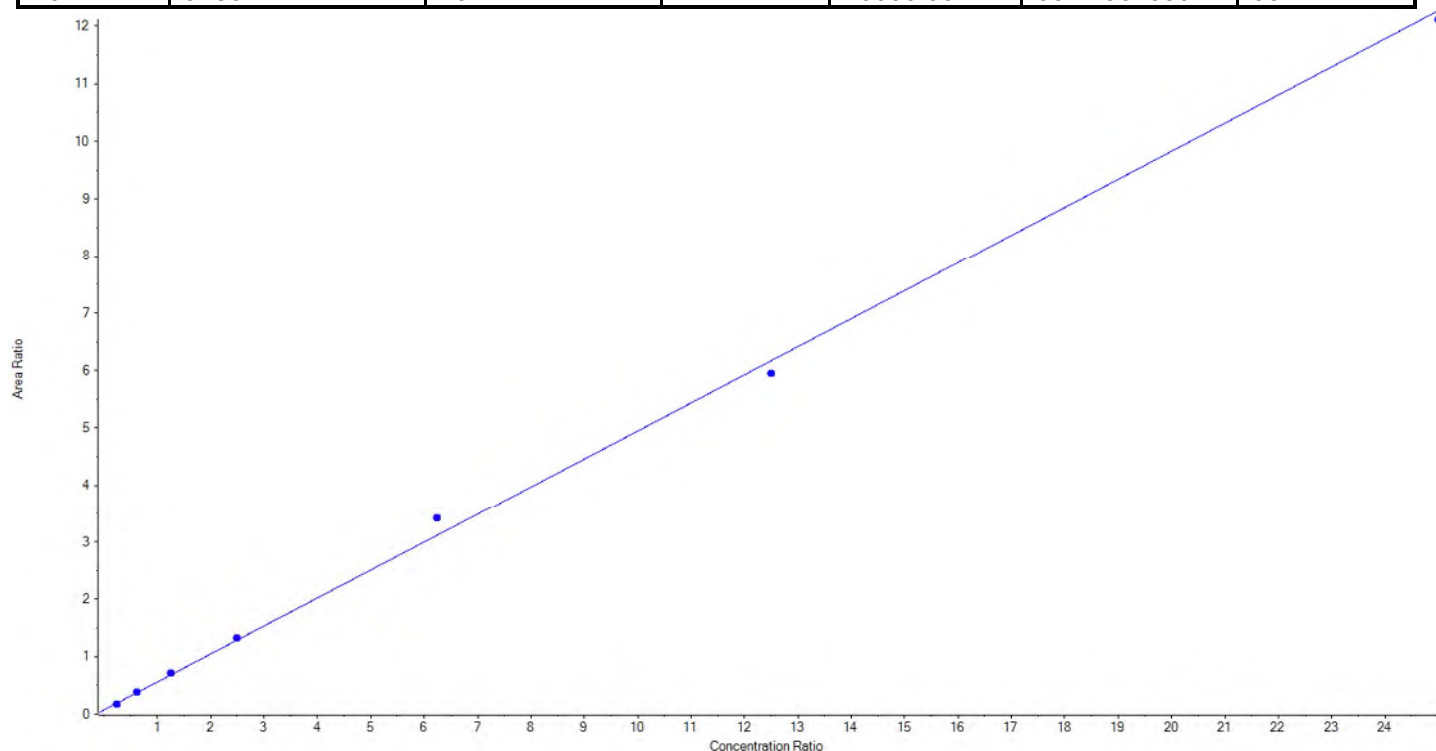
Calibration Summary Report

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Analyte Name	NMeFOSAA_2	Data File	18-0614_18-0594.wiff
MRM Transition	570.0 / 512.0	Result Table	18-0614_18-0594_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.48789x + 0.07084$ ($r = 0.99878$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	82.397990	82.4
5	JZ81	L4	True	250.00	255.029920	102.0
6	JZ82	L5	True	500.00	535.297330	107.1
7	JZ83	L6	True	1000.00	1033.051434	103.3
8	JZ84	L7	True	2500.00	2752.828820	110.1
9	JZ85	L8	True	5000.00	4819.833446	96.4
10	JZ86	L9	True	10000.00	9871.561059	98.7





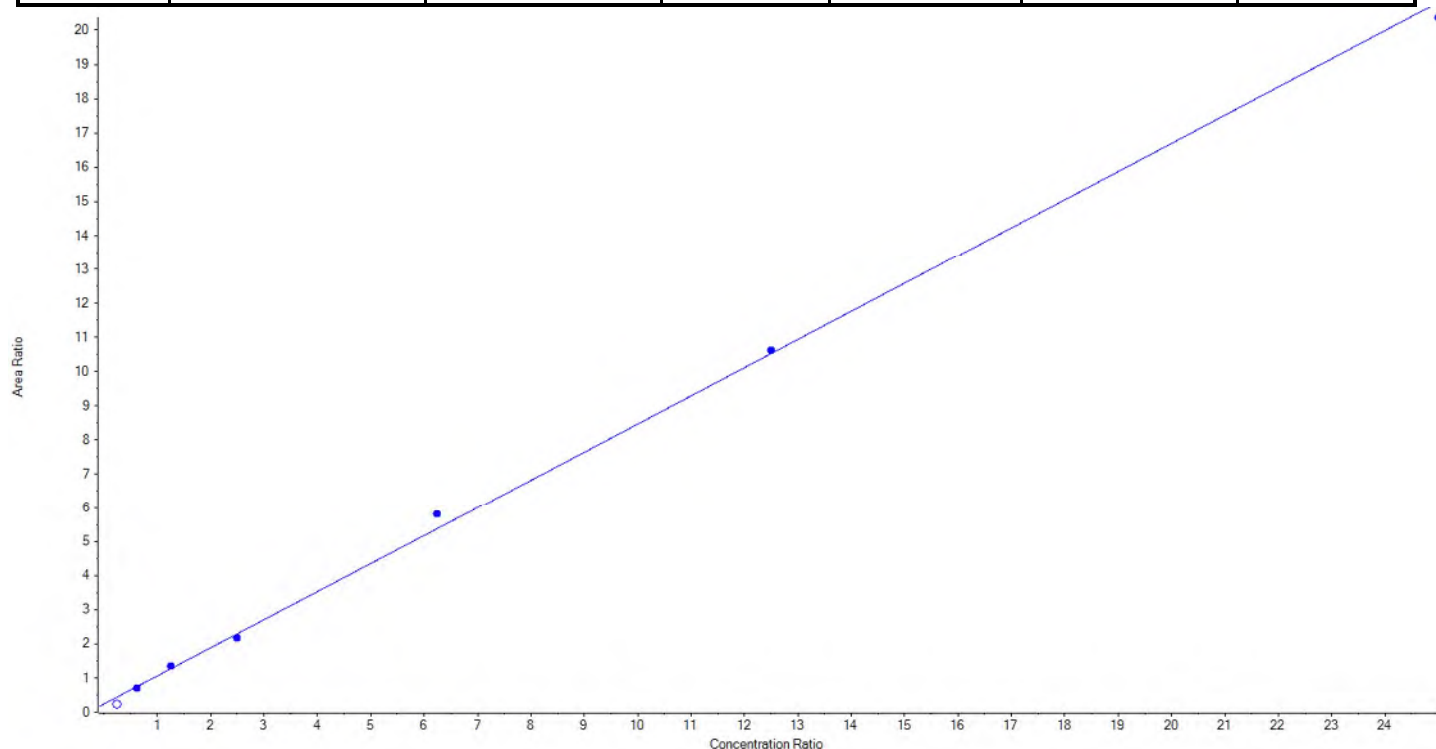
Calibration Summary Report

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Analyte Name	NEtFOSAA_1	Data File	18-0614_18-0594.wiff
MRM Transition	584.0 / 419.0	Result Table	18-0614_18-0594_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.82308x + 0.23648$ ($r = 0.99888$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	223.068567	89.2
6	JZ82	L5	True	500.00	544.973650	109.0
7	JZ83	L6	True	1000.00	946.819315	94.7
8	JZ84	L7	True	2500.00	2710.834165	108.4
9	JZ85	L8	True	5000.00	5041.950206	100.8
10	JZ86	L9	True	10000.00	9782.354097	97.8





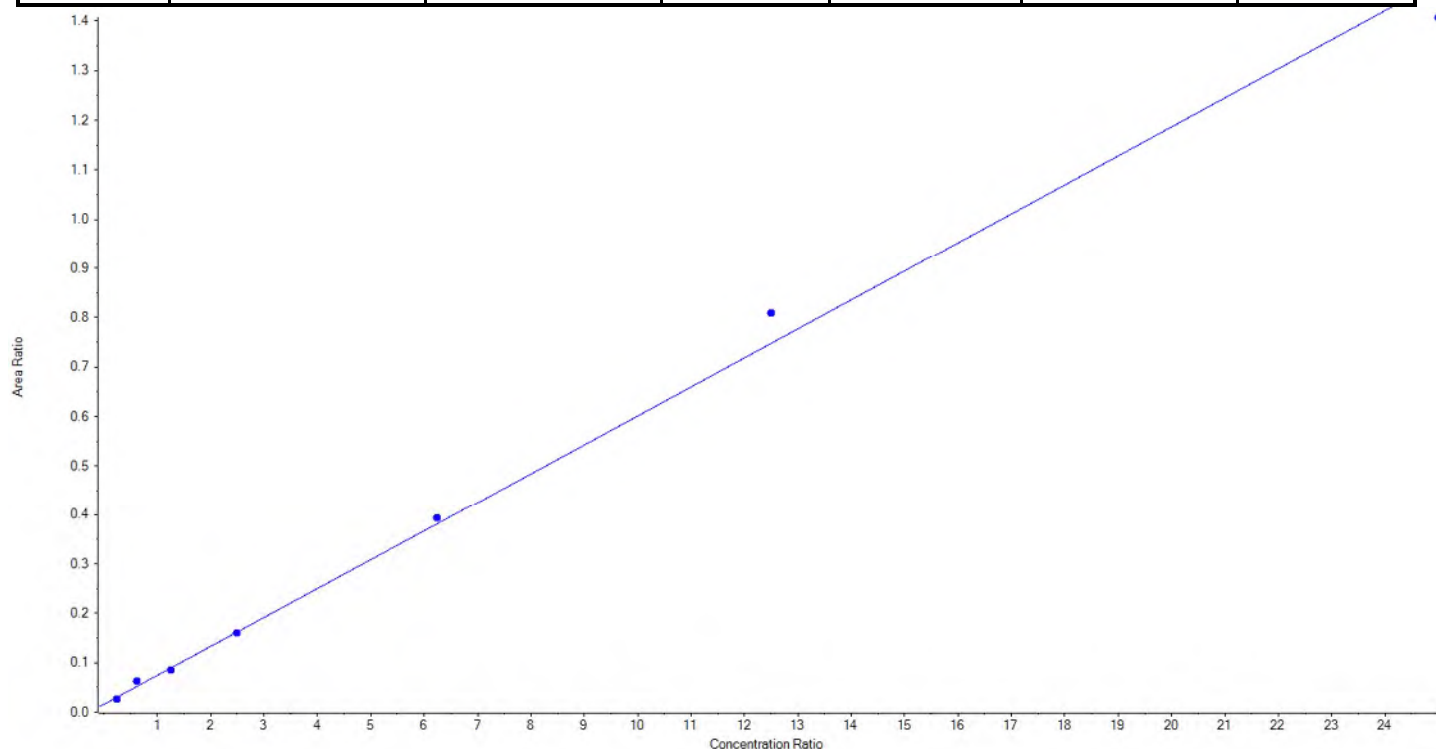
Calibration Summary Report

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Analyte Name	NEtFOSAA_2	Data File	18-0614_18-0594.wiff
MRM Transition	584.0 / 483.0	Result Table	18-0614_18-0594_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05855x + 0.01572$ ($r = 0.99721$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	72.813805	72.8
5	JZ81	L4	True	250.00	321.466798	128.6
6	JZ82	L5	True	500.00	469.125237	93.8
7	JZ83	L6	True	1000.00	980.534592	98.1
8	JZ84	L7	True	2500.00	2581.845190	103.3
9	JZ85	L8	True	5000.00	5420.501771	108.4
10	JZ86	L9	True	10000.00	9503.712607	95.0





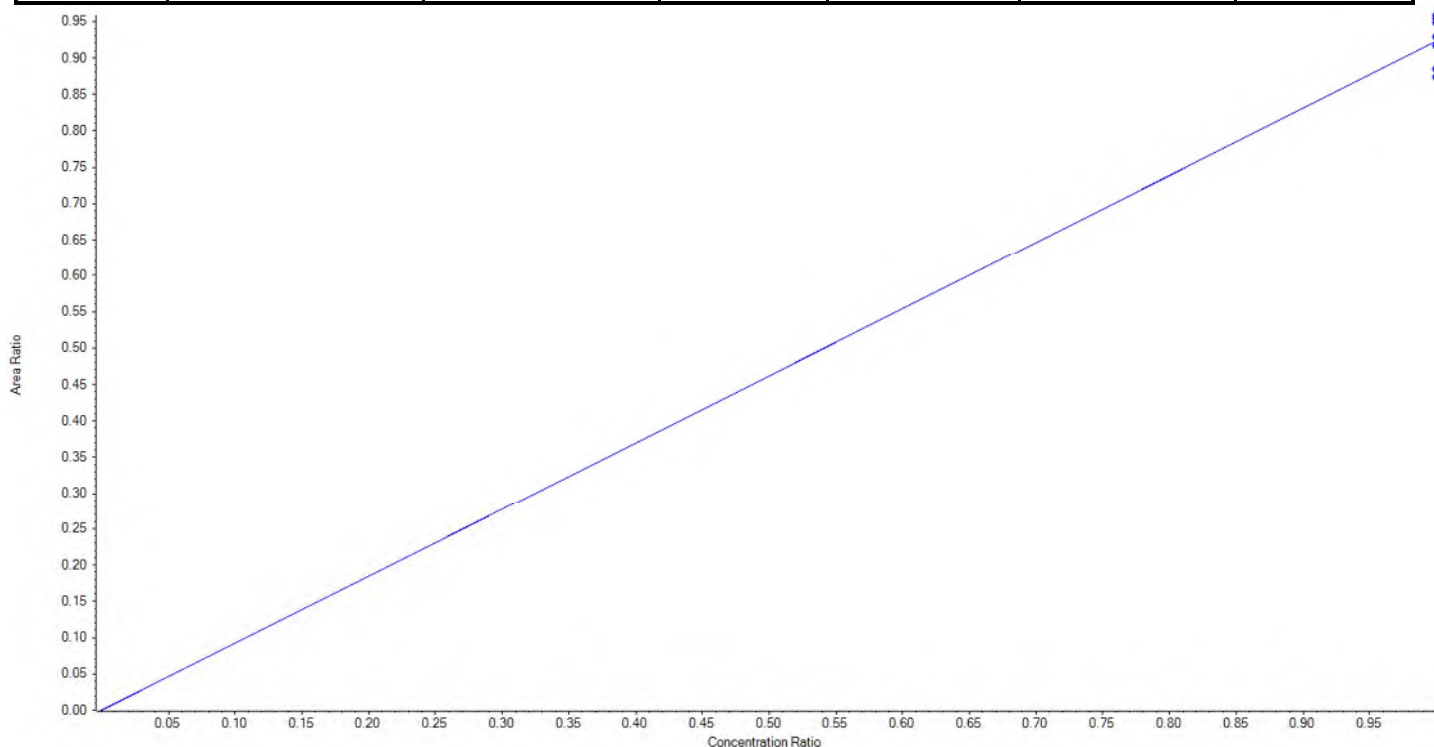
Calibration Summary Report

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Analyte Name	13C2-PFHxA	Data File	18-0614_18-0594.wiff
MRM Transition	315.0 / 270.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.92331 x$ (std. dev. = 0.03375) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	99.239911	99.2
5	JZ81	L4	True	100.00	102.748003	102.8
6	JZ82	L5	True	100.00	100.677235	100.7
7	JZ83	L6	True	100.00	103.225832	103.2
8	JZ84	L7	True	100.00	94.604957	94.6
9	JZ85	L8	True	100.00	103.748494	103.8
10	JZ86	L9	True	100.00	95.755568	95.8





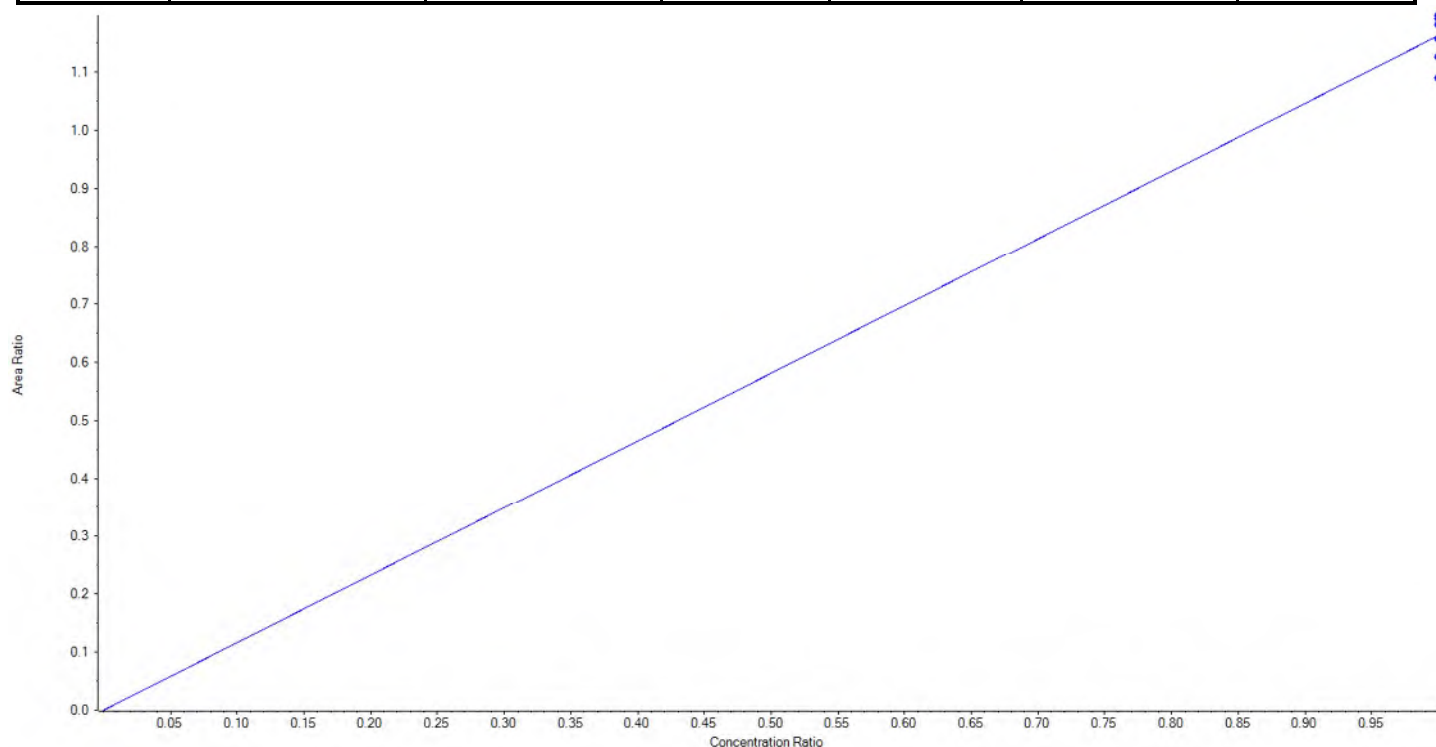
Calibration Summary Report

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Analyte Name	13C2-PFDA	Data File	18-0614_18-0594.wiff
MRM Transition	515.0 / 470.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.16319 x$ (std. dev. = 0.04133) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	93.729062	93.7
5	JZ81	L4	True	100.00	102.486352	102.5
6	JZ82	L5	True	100.00	101.670985	101.7
7	JZ83	L6	True	100.00	102.876593	102.9
8	JZ84	L7	True	100.00	99.500547	99.5
9	JZ85	L8	True	100.00	102.941856	102.9
10	JZ86	L9	True	100.00	96.794606	96.8





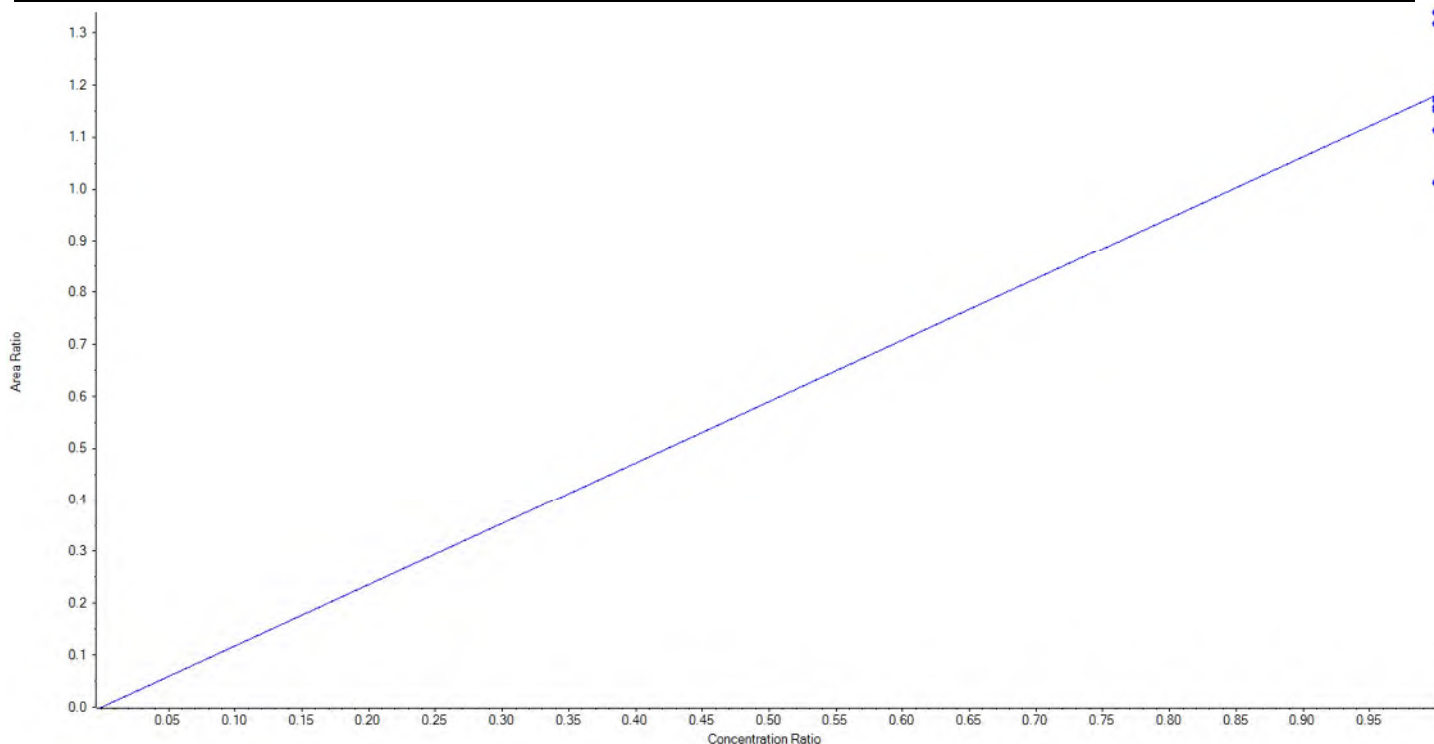
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	d5-EtFOSAA	Data File	18-0614_18-0594.wiff
MRM Transition	589.0 / 419.0	Result Table	18-0614_18-0594_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.18048 x$ (std. dev. = 0.11369) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	400.00	397.002487	99.3
5	JZ81	L4	True	400.00	446.216327	111.6
6	JZ82	L5	True	400.00	453.675180	113.4
7	JZ83	L6	True	400.00	390.494717	97.6
8	JZ84	L7	True	400.00	392.070020	98.0
9	JZ85	L8	True	400.00	377.133836	94.3
10	JZ86	L9	True	400.00	343.407434	85.9



Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T17:43:28	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.53	30373.68	89.981519	368.4	false
PFBS_2	298.9 / 99.0	1.52	9531.67	99.365580	143.3	false
PFHxA_1	313.0 / 269.0	1.85	34317.90	83.321872	35.9	false
PFHxA_2	313.0 / 119.0	1.85	2302.73	74.239514	17.3	false
PFHpA_1	363.0 / 319.0	2.26	31221.86	81.730420	82.8	false
PFHpA_2	363.0 / 169.0	2.27	460.25	< 0	34.5	false
PFHxS_1	399.0 / 80.0	2.29	36572.82	86.774621	197.7	false
PFHxS_2	399.0 / 99.0	2.29	10224.71	81.745934	179.6	false
PFOA_1	413.0 / 369.0	2.68	37873.05	73.472466	105.1	false
PFOA_2	413.0 / 169.0	2.68	2807.04	87.086039	88.9	true
PFNA_1	463.0 / 419.0	3.08	32184.36	72.508406	104.1	false
PFNA_2	463.0 / 219.0	3.08	11059.67	84.053540	117.5	false
PFOS_1	499.0 / 80.0	3.08	54048.01	78.711796	77.3	true
PFOS_2	499.0 / 99.0	3.08	11178.13	88.839206	149.7	false
PFDA_1	513.0 / 469.0	3.44	41226.59	85.318729	223.5	false
PFDA_2	513.0 / 219.0	3.44	2067.09	92.668688	102.2	false
PFUnA_1	563.0 / 519.0	3.77	39341.80	82.863403	207.3	false
PFUnA_2	563.0 / 269.0	3.77	2364.22	87.316243	87.7	false
PFDaA_1	613.0 / 569.0	4.06	42178.87	75.680468	233.5	false
PFDaA_2	613.0 / 319.0	4.06	6639.03	81.706493	210.2	false
PFTTrDA_1	663.0 / 619.0	4.31	34685.62	77.034986	323.6	false
PFTTrDA_2	663.0 / 169.0	4.30	2307.53	86.761592	130.5	false
PFTeDA_1	713.0 / 669.0	4.53	36230.64	77.446950	590.1	false
PFTeDA_2	713.0 / 169.0	4.53	1739.81	60.099494	182.4	false
NMeFOSAA_1	570.0 / 419.0	3.60	5735.17	< 0	216.7	false
NMeFOSAA_2	570.0 / 512.0	3.59	3499.88	82.397990	91.4	false
NEtFOSAA_1	584.0 / 419.0	3.76	4748.58	< 0	177.6	false
NEtFOSAA_2	584.0 / 483.0	3.76	538.78	72.813805	79.5	true
13C2-PFHxA	315.0 / 270.0	1.84	31635.30	99.239911	904.2	false
13C2-PFDA	515.0 / 470.0	3.43	37641.22	93.729062	824.6	false
d5-EtFOSAA	589.0 / 419.0	3.75	23931.30	397.002487	444.0	false

Sample Name	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T17:52:26	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.53	76402.69	232.207432	683.5	false
PFBS_2	298.9 / 99.0	1.53	22419.55	229.872799	268.5	false
PFHxA_1	313.0 / 269.0	1.85	80808.98	267.222078	54.2	false
PFHxA_2	313.0 / 119.0	1.85	5980.35	267.415465	36.6	false
PFHpA_1	363.0 / 319.0	2.26	75899.23	265.466901	165.5	false
PFHpA_2	363.0 / 169.0	2.26	1909.11	260.629508	136.4	true
PFHxS_1	399.0 / 80.0	2.29	88743.22	239.474581	295.8	false
PFHxS_2	399.0 / 99.0	2.29	25743.80	240.154708	323.3	false
PFOA_1	413.0 / 369.0	2.68	92562.96	259.902047	169.9	false
PFOA_2	413.0 / 169.0	2.68	5822.47	246.394710	129.3	false
PFNA_1	463.0 / 419.0	3.08	84099.60	273.223025	246.7	false
PFNA_2	463.0 / 219.0	3.08	24443.93	253.808270	239.8	false
PFOS_1	499.0 / 80.0	3.07	133420.56	239.934953	140.6	false
PFOS_2	499.0 / 99.0	3.07	26323.94	252.186872	179.4	false
PFDA_1	513.0 / 469.0	3.44	91203.79	248.328632	304.0	false
PFDA_2	513.0 / 219.0	3.44	3804.07	234.167993	140.1	false
PFUnA_1	563.0 / 519.0	3.77	98075.96	260.832938	286.7	false
PFUnA_2	563.0 / 269.0	3.77	4523.09	237.672972	143.1	false
PFDaA_1	613.0 / 569.0	4.06	103202.07	270.173879	344.9	false
PFDaA_2	613.0 / 319.0	4.06	15016.38	251.067196	290.3	false
PFTTrDA_1	663.0 / 619.0	4.31	89734.49	265.962253	495.2	false
PFTTrDA_2	663.0 / 169.0	4.30	5419.23	263.641575	198.8	false
PFTeDA_1	713.0 / 669.0	4.53	90332.81	264.775690	783.3	false
PFTeDA_2	713.0 / 169.0	4.53	4287.98	255.153595	330.0	false
NMeFOSAA_1	570.0 / 419.0	3.59	12228.12	204.048864	290.9	false
NMeFOSAA_2	570.0 / 512.0	3.59	6636.52	255.029920	179.2	false
NEtFOSAA_1	584.0 / 419.0	3.76	12085.70	223.068567	281.7	false
NEtFOSAA_2	584.0 / 483.0	3.75	1090.86	321.466798	59.2	true
13C2-PFHxA	315.0 / 270.0	1.84	31801.61	102.748003	1284.1	false
13C2-PFDA	515.0 / 470.0	3.43	39961.84	102.486352	612.7	false
d5-EtFOSAA	589.0 / 419.0	3.75	22883.47	446.216327	316.0	false

Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:01:22	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.53	152144.88	464.511899	824.5	false
PFBS_2	298.9 / 99.0	1.53	43323.63	439.618709	371.7	false
PFHxA_1	313.0 / 269.0	1.85	149227.08	543.969912	94.3	false
PFHxA_2	313.0 / 119.0	1.85	11365.92	557.219181	63.5	false
PFHpA_1	363.0 / 319.0	2.26	143300.90	548.930875	217.7	false
PFHpA_2	363.0 / 169.0	2.27	3347.94	553.407676	184.9	false
PFHxS_1	399.0 / 80.0	2.29	175837.45	492.249598	416.0	false
PFHxS_2	399.0 / 99.0	2.29	50960.86	495.670447	511.0	false
PFOA_1	413.0 / 369.0	2.68	181825.74	570.585366	250.6	false
PFOA_2	413.0 / 169.0	2.68	11894.40	571.221268	211.7	false
PFNA_1	463.0 / 419.0	3.08	156513.58	560.369162	357.8	false
PFNA_2	463.0 / 219.0	3.08	47131.68	546.728993	295.7	false
PFOS_1	499.0 / 80.0	3.07	272533.52	520.190435	185.6	true
PFOS_2	499.0 / 99.0	3.07	48134.70	485.427014	270.7	false
PFDA_1	513.0 / 469.0	3.44	189551.16	573.921932	378.9	false
PFDA_2	513.0 / 219.0	3.44	7161.38	510.032586	212.5	false
PFUnA_1	563.0 / 519.0	3.76	190351.88	546.647377	415.0	false
PFUnA_2	563.0 / 269.0	3.76	9688.48	599.674150	230.0	false
PFDaA_1	613.0 / 569.0	4.05	191631.07	558.687793	543.0	false
PFDaA_2	613.0 / 319.0	4.05	31112.00	581.689342	469.4	false
PFTTrDA_1	663.0 / 619.0	4.30	177907.67	575.370453	531.8	false
PFTTrDA_2	663.0 / 169.0	4.30	10357.93	550.217986	302.4	false
PFTeDA_1	713.0 / 669.0	4.52	179125.19	578.769438	905.9	false
PFTeDA_2	713.0 / 169.0	4.52	7534.26	510.355609	542.6	false
NMeFOSAA_1	570.0 / 419.0	3.59	27419.99	573.692053	532.7	false
NMeFOSAA_2	570.0 / 512.0	3.59	13584.17	535.297330	256.4	false
NEtFOSAA_1	584.0 / 419.0	3.75	25485.89	544.973650	452.5	false
NEtFOSAA_2	584.0 / 483.0	3.75	1583.90	469.125237	71.4	true
13C2-PFHxA	315.0 / 270.0	1.84	30537.27	100.677235	875.6	false
13C2-PFDA	515.0 / 470.0	3.43	38850.77	101.670985	949.4	false
d5-EtFOSAA	589.0 / 419.0	3.75	25129.36	453.675180	290.9	false

Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:10:18	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	286829.74	831.040193	1231.9	false
PFBS_2	298.9 / 99.0	1.52	84913.13	811.626527	480.0	false
PFHxA_1	313.0 / 269.0	1.84	282974.74	1017.643318	131.8	false
PFHxA_2	313.0 / 119.0	1.84	23247.98	1122.690013	110.3	false
PFHpA_1	363.0 / 319.0	2.26	268896.57	1011.257384	274.0	false
PFHpA_2	363.0 / 169.0	2.26	5172.61	864.811042	229.8	false
PFHxS_1	399.0 / 80.0	2.28	320169.19	862.037403	330.2	false
PFHxS_2	399.0 / 99.0	2.28	95937.17	899.934756	317.5	false
PFOA_1	413.0 / 369.0	2.67	341072.70	1056.549163	390.5	false
PFOA_2	413.0 / 169.0	2.67	21007.29	995.472985	304.4	false
PFNA_1	463.0 / 419.0	3.07	299131.55	1056.203637	467.7	false
PFNA_2	463.0 / 219.0	3.07	88222.43	1011.372186	422.7	false
PFOS_1	499.0 / 80.0	3.07	495169.19	916.111981	255.9	true
PFOS_2	499.0 / 99.0	3.07	85613.68	837.570923	603.1	true
PFDA_1	513.0 / 469.0	3.43	333087.82	987.367803	761.1	false
PFDA_2	513.0 / 219.0	3.43	14501.09	1042.613693	345.2	false
PFUnA_1	563.0 / 519.0	3.76	370733.12	1038.580598	620.5	false
PFUnA_2	563.0 / 269.0	3.76	16392.41	1006.038171	222.8	false
PFDaA_1	613.0 / 569.0	4.05	355119.10	1024.396355	582.4	false
PFDaA_2	613.0 / 319.0	4.04	56166.71	1031.364808	520.4	false
PFTTrDA_1	663.0 / 619.0	4.30	328956.66	1039.355529	667.8	false
PFTTrDA_2	663.0 / 169.0	4.29	18758.76	974.980521	313.6	false
PFTeDA_1	713.0 / 669.0	4.52	320872.54	1015.487775	1126.8	false
PFTeDA_2	713.0 / 169.0	4.51	14296.85	974.597866	566.7	false
NMeFOSAA_1	570.0 / 419.0	3.58	49283.82	985.879681	761.0	false
NMeFOSAA_2	570.0 / 512.0	3.58	28451.99	1033.051434	409.3	false
NEtFOSAA_1	584.0 / 419.0	3.75	46706.41	946.819315	776.8	false
NEtFOSAA_2	584.0 / 483.0	3.75	3404.47	980.534592	343.4	false
13C2-PFHxA	315.0 / 270.0	1.83	32925.08	103.225832	1244.5	false
13C2-PFDA	515.0 / 470.0	3.42	41338.88	102.876593	929.3	false
d5-EtFOSAA	589.0 / 419.0	3.74	24636.89	390.494717	383.5	false

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:19:15	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	692702.18	2076.759010	2138.4	false
PFBS_2	298.9 / 99.0	1.52	207219.90	2038.811384	701.9	false
PFHxA_1	313.0 / 269.0	1.84	692082.40	2473.179928	222.3	false
PFHxA_2	313.0 / 119.0	1.84	50307.99	2398.101836	176.5	false
PFHpA_1	363.0 / 319.0	2.25	669504.14	2495.760998	436.8	false
PFHpA_2	363.0 / 169.0	2.25	13666.59	2384.905181	357.5	false
PFHxS_1	399.0 / 80.0	2.28	796261.04	2243.168666	475.3	false
PFHxS_2	399.0 / 99.0	2.28	228084.53	2240.668093	510.4	false
PFOA_1	413.0 / 369.0	2.67	828320.93	2552.011126	700.7	false
PFOA_2	413.0 / 169.0	2.67	52306.45	2475.657036	478.5	false
PFNA_1	463.0 / 419.0	3.07	710899.86	2491.268174	721.7	false
PFNA_2	463.0 / 219.0	3.07	223049.95	2547.506863	631.0	false
PFOS_1	499.0 / 80.0	3.06	1194240.74	2325.879849	311.3	false
PFOS_2	499.0 / 99.0	3.06	220624.49	2277.533940	605.9	true
PFDA_1	513.0 / 469.0	3.43	873043.96	2571.460585	946.5	false
PFDA_2	513.0 / 219.0	3.43	36833.13	2660.407495	427.9	false
PFUnA_1	563.0 / 519.0	3.76	869998.90	2399.618674	819.0	false
PFUnA_2	563.0 / 269.0	3.75	37811.46	2331.040105	547.6	false
PFDaA_1	613.0 / 569.0	4.04	879299.18	2529.786580	860.1	false
PFDaA_2	613.0 / 319.0	4.04	132678.07	2418.508871	617.1	false
PFTTrDA_1	663.0 / 619.0	4.29	771058.21	2405.895484	820.4	false
PFTTrDA_2	663.0 / 169.0	4.29	47664.80	2454.826803	489.2	false
PFTeDA_1	713.0 / 669.0	4.51	784123.49	2460.968172	1413.8	false
PFTeDA_2	713.0 / 169.0	4.51	34671.95	2379.159916	862.0	false
NMeFOSAA_1	570.0 / 419.0	3.58	114724.37	2626.953642	908.9	false
NMeFOSAA_2	570.0 / 512.0	3.58	69406.20	2752.828820	499.8	false
NEtFOSAA_1	584.0 / 419.0	3.74	117708.51	2710.834165	747.4	false
NEtFOSAA_2	584.0 / 483.0	3.74	7968.87	2581.845190	251.1	true
13C2-PFHxA	315.0 / 270.0	1.83	31155.26	94.604957	1006.1	false
13C2-PFDA	515.0 / 470.0	3.42	41280.66	99.500547	680.0	false
d5-EtFOSAA	589.0 / 419.0	3.73	23423.45	392.070020	311.9	false

Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:28:10	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	1433192.72	4355.899852	2474.3	false
PFBS_2	298.9 / 99.0	1.52	429868.41	4279.856755	1070.7	false
PFHxA_1	313.0 / 269.0	1.84	1353054.37	5065.715606	337.2	false
PFHxA_2	313.0 / 119.0	1.84	99880.33	4985.404914	213.7	false
PFHpA_1	363.0 / 319.0	2.25	1329529.73	5187.193189	516.0	false
PFHpA_2	363.0 / 169.0	2.25	27667.13	5132.688440	398.8	false
PFHxS_1	399.0 / 80.0	2.27	1543070.27	4422.018886	538.5	false
PFHxS_2	399.0 / 99.0	2.27	449491.06	4494.763367	700.2	false
PFOA_1	413.0 / 369.0	2.66	1620776.80	5233.948273	808.2	false
PFOA_2	413.0 / 169.0	2.66	104280.38	5179.656428	628.8	false
PFNA_1	463.0 / 419.0	3.07	1413172.42	5189.318542	988.8	false
PFNA_2	463.0 / 219.0	3.06	442494.62	5297.455827	890.4	false
PFOS_1	499.0 / 80.0	3.06	2335483.60	4637.143285	417.4	false
PFOS_2	499.0 / 99.0	3.06	443565.23	4669.465955	959.9	true
PFDA_1	513.0 / 469.0	3.43	1626999.62	5013.420472	1148.6	false
PFDA_2	513.0 / 219.0	3.43	69693.36	5287.883322	642.6	false
PFUnA_1	563.0 / 519.0	3.75	1852883.07	5341.656904	1187.4	false
PFUnA_2	563.0 / 269.0	3.75	81446.06	5295.173327	894.0	false
PFDaA_1	613.0 / 569.0	4.04	1722195.47	5196.857441	969.3	false
PFDaA_2	613.0 / 319.0	4.04	271052.83	5179.529166	1181.8	false
PFTTrDA_1	663.0 / 619.0	4.29	1576627.71	5147.083704	1057.9	false
PFTTrDA_2	663.0 / 169.0	4.29	96221.04	5185.134160	581.5	false
PFTeDA_1	713.0 / 669.0	4.51	1563314.31	5137.586242	1235.7	false
PFTeDA_2	713.0 / 169.0	4.51	71839.90	5193.392691	1139.2	false
NMeFOSAA_1	570.0 / 419.0	3.58	233083.35	5138.167229	1128.8	false
NMeFOSAA_2	570.0 / 512.0	3.58	128268.21	4819.833446	823.7	false
NEtFOSAA_1	584.0 / 419.0	3.74	228766.70	5041.950206	950.8	false
NEtFOSAA_2	584.0 / 483.0	3.74	17444.61	5420.501771	370.1	true
13C2-PFHxA	315.0 / 270.0	1.83	32917.29	103.748494	1013.5	false
13C2-PFDA	515.0 / 470.0	3.41	41146.98	102.941856	5738.2	false
d5-EtFOSAA	589.0 / 419.0	3.73	23994.76	377.133836	340.7	false

Sample Name	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:37:07	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	3185436.21	9075.200096	4020.6	false
PFBS_2	298.9 / 99.0	1.52	989486.28	9226.448245	1356.1	false
PFHxA_1	313.0 / 269.0	1.84	3112380.63	9898.947286	565.8	false
PFHxA_2	313.0 / 119.0	1.84	234604.53	9944.929078	400.1	false
PFHpA_1	363.0 / 319.0	2.25	2946813.17	9759.660233	764.9	false
PFHpA_2	363.0 / 169.0	2.25	63412.74	10053.558153	613.8	false
PFHxS_1	399.0 / 80.0	2.27	3456168.99	9301.476246	831.4	false
PFHxS_2	399.0 / 99.0	2.27	978848.79	9194.262695	1095.0	false
PFOA_1	413.0 / 369.0	2.66	3501085.93	9603.531559	873.1	false
PFOA_2	413.0 / 169.0	2.66	232023.72	9794.511536	814.8	false
PFNA_1	463.0 / 419.0	3.06	3112565.11	9707.109054	1642.1	false
PFNA_2	463.0 / 219.0	3.06	945070.62	9609.074321	1409.4	false
PFOS_1	499.0 / 80.0	3.06	4925303.73	9192.727701	365.8	true
PFOS_2	499.0 / 99.0	3.06	939772.96	9299.676090	764.5	false
PFDA_1	513.0 / 469.0	3.42	3771563.73	9870.181846	1496.9	false
PFDA_2	513.0 / 219.0	3.42	147575.21	9522.226223	905.9	false
PFUnA_1	563.0 / 519.0	3.75	3959638.98	9679.800105	1274.5	false
PFUnA_2	563.0 / 269.0	3.75	177058.42	9793.085032	830.5	false
PFDaA_1	613.0 / 569.0	4.03	3780784.90	9694.417485	1456.7	false
PFDaA_2	613.0 / 319.0	4.03	604221.80	9806.134123	1642.7	false
PFTTrDA_1	663.0 / 619.0	4.28	3551422.10	9839.297592	1102.1	false
PFTTrDA_2	663.0 / 169.0	4.28	215028.81	9834.437363	867.9	false
PFTeDA_1	713.0 / 669.0	4.50	3517410.51	9814.965733	1425.6	false
PFTeDA_2	713.0 / 169.0	4.50	161539.17	9937.340323	1243.4	false
NMeFOSAA_1	570.0 / 419.0	3.57	500034.34	9721.258531	1727.6	false
NMeFOSAA_2	570.0 / 512.0	3.57	299803.65	9871.561059	1160.0	false
NEtFOSAA_1	584.0 / 419.0	3.74	504127.60	9782.354097	753.5	false
NEtFOSAA_2	584.0 / 483.0	3.73	34825.20	9503.712607	559.1	true
13C2-PFHxA	315.0 / 270.0	1.83	35919.97	95.755568	1215.6	false
13C2-PFDA	515.0 / 470.0	3.41	45743.24	96.794606	1221.1	false
d5-EtFOSAA	589.0 / 419.0	3.73	25087.02	343.407434	354.3	false

Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T17:43:28	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	1.53	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.310	0.300	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.070	0.075	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.27	PFHpA	0.010	0.022	ü
PFHxS_1	399.0 / 80.0	2.29	PFHxS			
PFHxS_2	399.0 / 99.0	2.29	PFHxS	0.280	0.289	ü
PFOA_1	413.0 / 369.0	2.68	PFOA			
PFOA_2	413.0 / 169.0	2.68	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	3.08	PFNA			
PFNA_2	463.0 / 219.0	3.08	PFNA	0.340	0.309	ü
PFOS_1	499.0 / 80.0	3.08	PFOS			
PFOS_2	499.0 / 99.0	3.08	PFOS	0.210	0.180	ü
PFDA_1	513.0 / 469.0	3.44	PFDA			
PFDA_2	513.0 / 219.0	3.44	PFDA	0.050	0.043	ü
PFUnA_1	563.0 / 519.0	3.77	PFUnA			
PFUnA_2	563.0 / 269.0	3.77	PFUnA	0.060	0.048	ü
PFDaA_1	613.0 / 569.0	4.06	PFDaA			
PFDaA_2	613.0 / 319.0	4.06	PFDaA	0.160	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.31	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.30	PFTTrDA	0.070	0.061	ü
PFTeDA_1	713.0 / 669.0	4.53	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.53	PFTeDA	0.050	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.60	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.59	NMeFOSAA	0.610	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.76	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.76	NEtFOSAA	0.110	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.43		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.75		N/A	N/A	ü

Sample Name	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T17:52:26	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	1.53	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.290	0.300	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.070	0.075	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.26	PFHpA	0.030	0.022	ü
PFHxS_1	399.0 / 80.0	2.29	PFHxS			
PFHxS_2	399.0 / 99.0	2.29	PFHxS	0.290	0.289	ü
PFOA_1	413.0 / 369.0	2.68	PFOA			
PFOA_2	413.0 / 169.0	2.68	PFOA	0.060	0.065	ü
PFNA_1	463.0 / 419.0	3.08	PFNA			
PFNA_2	463.0 / 219.0	3.08	PFNA	0.290	0.309	ü
PFOS_1	499.0 / 80.0	3.07	PFOS			
PFOS_2	499.0 / 99.0	3.07	PFOS	0.200	0.180	ü
PFDA_1	513.0 / 469.0	3.44	PFDA			
PFDA_2	513.0 / 219.0	3.44	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.77	PFUnA			
PFUnA_2	563.0 / 269.0	3.77	PFUnA	0.050	0.048	ü
PFDoA_1	613.0 / 569.0	4.06	PFDoA			
PFDoA_2	613.0 / 319.0	4.06	PFDoA	0.150	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.31	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.30	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.53	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.53	PFTeDA	0.050	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.59	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.59	NMeFOSAA	0.540	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.76	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.75	NEtFOSAA	0.090	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.43		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.75		N/A	N/A	ü

Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:01:22	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	1.53	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.280	0.300	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.080	0.075	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.27	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.29	PFHxS			
PFHxS_2	399.0 / 99.0	2.29	PFHxS	0.290	0.289	ü
PFOA_1	413.0 / 369.0	2.68	PFOA			
PFOA_2	413.0 / 169.0	2.68	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	3.08	PFNA			
PFNA_2	463.0 / 219.0	3.08	PFNA	0.300	0.309	ü
PFOS_1	499.0 / 80.0	3.07	PFOS			
PFOS_2	499.0 / 99.0	3.07	PFOS	0.180	0.180	ü
PFDA_1	513.0 / 469.0	3.44	PFDA			
PFDA_2	513.0 / 219.0	3.44	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.76	PFUnA			
PFUnA_2	563.0 / 269.0	3.76	PFUnA	0.050	0.048	ü
PFDaA_1	613.0 / 569.0	4.05	PFDaA			
PFDaA_2	613.0 / 319.0	4.05	PFDaA	0.160	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.30	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.30	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.52	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.52	PFTeDA	0.040	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.59	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.59	NMeFOSAA	0.500	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.75	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.75	NEtFOSAA	0.060	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.43		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.75		N/A	N/A	ü

Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:10:18	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	0.300	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.080	0.075	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.26	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.300	0.289	ü
PFOA_1	413.0 / 369.0	2.67	PFOA			
PFOA_2	413.0 / 169.0	2.67	PFOA	0.060	0.065	ü
PFNA_1	463.0 / 419.0	3.07	PFNA			
PFNA_2	463.0 / 219.0	3.07	PFNA	0.290	0.309	ü
PFOS_1	499.0 / 80.0	3.07	PFOS			
PFOS_2	499.0 / 99.0	3.07	PFOS	0.160	0.180	ü
PFDA_1	513.0 / 469.0	3.43	PFDA			
PFDA_2	513.0 / 219.0	3.43	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.76	PFUnA			
PFUnA_2	563.0 / 269.0	3.76	PFUnA	0.040	0.048	ü
PFDaA_1	613.0 / 569.0	4.05	PFDaA			
PFDaA_2	613.0 / 319.0	4.04	PFDaA	0.160	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.30	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.29	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.52	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.51	PFTeDA	0.040	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.58	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.58	NMeFOSAA	0.580	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.75	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.75	NEtFOSAA	0.070	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.42		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.74		N/A	N/A	ü

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:19:15	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	0.300	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.070	0.075	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.290	0.289	ü
PFOA_1	413.0 / 369.0	2.67	PFOA			
PFOA_2	413.0 / 169.0	2.67	PFOA	0.060	0.065	ü
PFNA_1	463.0 / 419.0	3.07	PFNA			
PFNA_2	463.0 / 219.0	3.07	PFNA	0.310	0.309	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.160	0.180	ü
PFDA_1	513.0 / 469.0	3.43	PFDA			
PFDA_2	513.0 / 219.0	3.43	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.76	PFUnA			
PFUnA_2	563.0 / 269.0	3.75	PFUnA	0.040	0.048	ü
PFDaA_1	613.0 / 569.0	4.04	PFDaA			
PFDaA_2	613.0 / 319.0	4.04	PFDaA	0.150	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.29	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.29	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.51	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.51	PFTeDA	0.040	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.58	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.58	NMeFOSAA	0.600	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.74	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.74	NEtFOSAA	0.070	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.42		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.73		N/A	N/A	ü

Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:28:10	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	0.300	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.070	0.075	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.290	0.289	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.060	0.065	ü
PFNA_1	463.0 / 419.0	3.07	PFNA			
PFNA_2	463.0 / 219.0	3.06	PFNA	0.310	0.309	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.170	0.180	ü
PFDA_1	513.0 / 469.0	3.43	PFDA			
PFDA_2	513.0 / 219.0	3.43	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.75	PFUnA			
PFUnA_2	563.0 / 269.0	3.75	PFUnA	0.040	0.048	ü
PFDaA_1	613.0 / 569.0	4.04	PFDaA			
PFDaA_2	613.0 / 319.0	4.04	PFDaA	0.160	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.29	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.29	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.51	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.51	PFTeDA	0.050	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.58	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.58	NMeFOSAA	0.550	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.74	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.74	NEtFOSAA	0.080	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.41		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.73		N/A	N/A	ü

Sample Name	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:37:07	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	0.310	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.080	0.075	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.280	0.289	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	3.06	PFNA			
PFNA_2	463.0 / 219.0	3.06	PFNA	0.300	0.309	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.190	0.180	ü
PFDA_1	513.0 / 469.0	3.42	PFDA			
PFDA_2	513.0 / 219.0	3.42	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.75	PFUnA			
PFUnA_2	563.0 / 269.0	3.75	PFUnA	0.040	0.048	ü
PFDaA_1	613.0 / 569.0	4.03	PFDaA			
PFDaA_2	613.0 / 319.0	4.03	PFDaA	0.160	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.28	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.28	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.50	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.50	PFTeDA	0.050	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.57	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.57	NMeFOSAA	0.600	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.74	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.73	NEtFOSAA	0.070	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.41		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.73		N/A	N/A	ü

Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T17:43:28	Data File	18-0614 18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614 18-0594_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	1.53	13C4-PFOS	503.0 / 80.0	153924.38	287.00
PFBS 2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	153924.38	287.00
PFHxA 1	313.0 / 269.0	1.85	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFHxA 2	313.0 / 119.0	1.85	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFHpA 1	363.0 / 319.0	2.26	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFHpA 2	363.0 / 169.0	2.27	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFHxS 1	399.0 / 80.0	2.29	13C4-PFOS	503.0 / 80.0	153924.38	287.00
PFHxS 2	399.0 / 99.0	2.29	13C4-PFOS	503.0 / 80.0	153924.38	287.00
PFOA 1	413.0 / 369.0	2.68	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFOA 2	413.0 / 169.0	2.68	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFNA 1	463.0 / 419.0	3.08	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFNA 2	463.0 / 219.0	3.08	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFOS 1	499.0 / 80.0	3.08	13C4-PFOS	503.0 / 80.0	153924.38	287.00
PFOS 2	499.0 / 99.0	3.08	13C4-PFOS	503.0 / 80.0	153924.38	287.00
PFDA 1	513.0 / 469.0	3.44	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFDA 2	513.0 / 219.0	3.44	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFUnA 1	563.0 / 519.0	3.77	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFUnA 2	563.0 / 269.0	3.77	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFDoA 1	613.0 / 569.0	4.06	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFDoA 2	613.0 / 319.0	4.06	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFTTrDA 1	663.0 / 619.0	4.31	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFTTrDA 2	663.0 / 169.0	4.30	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFTeDA 1	713.0 / 669.0	4.53	13C2-PFOA	415.0 / 370.0	34525.53	100.00
PFTeDA 2	713.0 / 169.0	4.53	13C2-PFOA	415.0 / 370.0	34525.53	100.00
NMeFOSAA 1	570.0 / 419.0	3.60	d3-MeFOSAA	573.0 / 419.0	20425.67	400.00
NMeFOSAA 2	570.0 / 512.0	3.59	d3-MeFOSAA	573.0 / 419.0	20425.67	400.00
NEtFOSAA 1	584.0 / 419.0	3.76	d3-MeFOSAA	573.0 / 419.0	20425.67	400.00
NEtFOSAA 2	584.0 / 483.0	3.76	d3-MeFOSAA	573.0 / 419.0	20425.67	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	34525.53	100.00
13C2-PFDA	515.0 / 470.0	3.43	13C2-PFOA	415.0 / 370.0	34525.53	100.00
d5-EtFOSAA	589.0 / 419.0	3.75	d3-MeFOSAA	573.0 / 419.0	20425.67	400.00

Sample Name	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T17:52:26	Data File	18-0614 18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614 18-0594_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	1.53	13C4-PFOS	503.0 / 80.0	149851.63	287.00
PFBS 2	298.9 / 99.0	1.53	13C4-PFOS	503.0 / 80.0	149851.63	287.00
PFHxA 1	313.0 / 269.0	1.85	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFHxA 2	313.0 / 119.0	1.85	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFHpA 1	363.0 / 319.0	2.26	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFHpA 2	363.0 / 169.0	2.26	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFHxS 1	399.0 / 80.0	2.29	13C4-PFOS	503.0 / 80.0	149851.63	287.00
PFHxS 2	399.0 / 99.0	2.29	13C4-PFOS	503.0 / 80.0	149851.63	287.00
PFOA 1	413.0 / 369.0	2.68	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFOA 2	413.0 / 169.0	2.68	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFNA 1	463.0 / 419.0	3.08	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFNA 2	463.0 / 219.0	3.08	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFOS 1	499.0 / 80.0	3.07	13C4-PFOS	503.0 / 80.0	149851.63	287.00
PFOS 2	499.0 / 99.0	3.07	13C4-PFOS	503.0 / 80.0	149851.63	287.00
PFDA 1	513.0 / 469.0	3.44	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFDA 2	513.0 / 219.0	3.44	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFUnA 1	563.0 / 519.0	3.77	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFUnA 2	563.0 / 269.0	3.77	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFDoA 1	613.0 / 569.0	4.06	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFDoA 2	613.0 / 319.0	4.06	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFTrDA 1	663.0 / 619.0	4.31	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFTrDA 2	663.0 / 169.0	4.30	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFTeDA 1	713.0 / 669.0	4.53	13C2-PFOA	415.0 / 370.0	33522.03	100.00
PFTeDA 2	713.0 / 169.0	4.53	13C2-PFOA	415.0 / 370.0	33522.03	100.00
NMeFOSAA 1	570.0 / 419.0	3.59	d3-MeFOSAA	573.0 / 419.0	17377.19	400.00
NMeFOSAA 2	570.0 / 512.0	3.59	d3-MeFOSAA	573.0 / 419.0	17377.19	400.00
NEtFOSAA 1	584.0 / 419.0	3.76	d3-MeFOSAA	573.0 / 419.0	17377.19	400.00
NEtFOSAA 2	584.0 / 483.0	3.75	d3-MeFOSAA	573.0 / 419.0	17377.19	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	33522.03	100.00
13C2-PFDA	515.0 / 470.0	3.43	13C2-PFOA	415.0 / 370.0	33522.03	100.00
d5-EtFOSAA	589.0 / 419.0	3.75	d3-MeFOSAA	573.0 / 419.0	17377.19	400.00

Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:01:22	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	1.53	13C4-PFOS	503.0 / 80.0	149114.69	287.00
PFBS_2	298.9 / 99.0	1.53	13C4-PFOS	503.0 / 80.0	149114.69	287.00
PFHxA_1	313.0 / 269.0	1.85	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFHxA_2	313.0 / 119.0	1.85	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFHpA_1	363.0 / 319.0	2.26	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFHpA_2	363.0 / 169.0	2.27	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFHxS_1	399.0 / 80.0	2.29	13C4-PFOS	503.0 / 80.0	149114.69	287.00
PFHxS_2	399.0 / 99.0	2.29	13C4-PFOS	503.0 / 80.0	149114.69	287.00
PFOA_1	413.0 / 369.0	2.68	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFOA_2	413.0 / 169.0	2.68	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFNA_1	463.0 / 419.0	3.08	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFNA_2	463.0 / 219.0	3.08	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFOS_1	499.0 / 80.0	3.07	13C4-PFOS	503.0 / 80.0	149114.69	287.00
PFOS_2	499.0 / 99.0	3.07	13C4-PFOS	503.0 / 80.0	149114.69	287.00
PFDA_1	513.0 / 469.0	3.44	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFDA_2	513.0 / 219.0	3.44	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFUnA_1	563.0 / 519.0	3.76	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFUnA_2	563.0 / 269.0	3.76	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFDoA_1	613.0 / 569.0	4.05	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFDoA_2	613.0 / 319.0	4.05	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFTTrDA_1	663.0 / 619.0	4.30	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFTTrDA_2	663.0 / 169.0	4.30	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFTeDA_1	713.0 / 669.0	4.52	13C2-PFOA	415.0 / 370.0	32851.37	100.00
PFTeDA_2	713.0 / 169.0	4.52	13C2-PFOA	415.0 / 370.0	32851.37	100.00
NMeFOSAA_1	570.0 / 419.0	3.59	d3-MeFOSAA	573.0 / 419.0	18768.93	400.00
NMeFOSAA_2	570.0 / 512.0	3.59	d3-MeFOSAA	573.0 / 419.0	18768.93	400.00
NEtFOSAA_1	584.0 / 419.0	3.75	d3-MeFOSAA	573.0 / 419.0	18768.93	400.00
NEtFOSAA_2	584.0 / 483.0	3.75	d3-MeFOSAA	573.0 / 419.0	18768.93	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	32851.37	100.00
13C2-PFDA	515.0 / 470.0	3.43	13C2-PFOA	415.0 / 370.0	32851.37	100.00
d5-EtFOSAA	589.0 / 419.0	3.75	d3-MeFOSAA	573.0 / 419.0	18768.93	400.00

Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:10:18	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	157104.14	287.00
PFBS 2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	157104.14	287.00
PFHxA 1	313.0 / 269.0	1.84	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFHxA 2	313.0 / 119.0	1.84	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFHpA 1	363.0 / 319.0	2.26	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFHpA 2	363.0 / 169.0	2.26	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFHxS 1	399.0 / 80.0	2.28	13C4-PFOS	503.0 / 80.0	157104.14	287.00
PFHxS 2	399.0 / 99.0	2.28	13C4-PFOS	503.0 / 80.0	157104.14	287.00
PFOA 1	413.0 / 369.0	2.67	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFOA 2	413.0 / 169.0	2.67	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFNA 1	463.0 / 419.0	3.07	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFNA 2	463.0 / 219.0	3.07	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFOS 1	499.0 / 80.0	3.07	13C4-PFOS	503.0 / 80.0	157104.14	287.00
PFOS 2	499.0 / 99.0	3.07	13C4-PFOS	503.0 / 80.0	157104.14	287.00
PFDA 1	513.0 / 469.0	3.43	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFDA 2	513.0 / 219.0	3.43	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFUnA 1	563.0 / 519.0	3.76	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFUnA 2	563.0 / 269.0	3.76	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFDoA 1	613.0 / 569.0	4.05	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFDoA 2	613.0 / 319.0	4.04	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFTTrDA 1	663.0 / 619.0	4.30	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFTTrDA 2	663.0 / 169.0	4.29	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFTeDA 1	713.0 / 669.0	4.52	13C2-PFOA	415.0 / 370.0	34545.62	100.00
PFTeDA 2	713.0 / 169.0	4.51	13C2-PFOA	415.0 / 370.0	34545.62	100.00
NMeFOSAA 1	570.0 / 419.0	3.58	d3-MeFOSAA	573.0 / 419.0	21378.34	400.00
NMeFOSAA 2	570.0 / 512.0	3.58	d3-MeFOSAA	573.0 / 419.0	21378.34	400.00
NEtFOSAA 1	584.0 / 419.0	3.75	d3-MeFOSAA	573.0 / 419.0	21378.34	400.00
NEtFOSAA 2	584.0 / 483.0	3.75	d3-MeFOSAA	573.0 / 419.0	21378.34	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	34545.62	100.00
13C2-PFDA	515.0 / 470.0	3.42	13C2-PFOA	415.0 / 370.0	34545.62	100.00
d5-EtFOSAA	589.0 / 419.0	3.74	d3-MeFOSAA	573.0 / 419.0	21378.34	400.00

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:19:15	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	151806.14	287.00
PFBS 2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	151806.14	287.00
PFHxA 1	313.0 / 269.0	1.84	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFHxA 2	313.0 / 119.0	1.84	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFHpA 1	363.0 / 319.0	2.25	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFHpA 2	363.0 / 169.0	2.25	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFHxS 1	399.0 / 80.0	2.28	13C4-PFOS	503.0 / 80.0	151806.14	287.00
PFHxS 2	399.0 / 99.0	2.28	13C4-PFOS	503.0 / 80.0	151806.14	287.00
PFOA 1	413.0 / 369.0	2.67	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFOA 2	413.0 / 169.0	2.67	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFNA 1	463.0 / 419.0	3.07	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFNA 2	463.0 / 219.0	3.07	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFOS 1	499.0 / 80.0	3.06	13C4-PFOS	503.0 / 80.0	151806.14	287.00
PFOS 2	499.0 / 99.0	3.06	13C4-PFOS	503.0 / 80.0	151806.14	287.00
PFDA 1	513.0 / 469.0	3.43	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFDA 2	513.0 / 219.0	3.43	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFUnA 1	563.0 / 519.0	3.76	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFUnA 2	563.0 / 269.0	3.75	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFDoA 1	613.0 / 569.0	4.04	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFDoA 2	613.0 / 319.0	4.04	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFTTrDA 1	663.0 / 619.0	4.29	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFTTrDA 2	663.0 / 169.0	4.29	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFTeDA 1	713.0 / 669.0	4.51	13C2-PFOA	415.0 / 370.0	35667.45	100.00
PFTeDA 2	713.0 / 169.0	4.51	13C2-PFOA	415.0 / 370.0	35667.45	100.00
NMeFOSAA 1	570.0 / 419.0	3.58	d3-MeFOSAA	573.0 / 419.0	20243.73	400.00
NMeFOSAA 2	570.0 / 512.0	3.58	d3-MeFOSAA	573.0 / 419.0	20243.73	400.00
NEtFOSAA 1	584.0 / 419.0	3.74	d3-MeFOSAA	573.0 / 419.0	20243.73	400.00
NEtFOSAA 2	584.0 / 483.0	3.74	d3-MeFOSAA	573.0 / 419.0	20243.73	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	35667.45	100.00
13C2-PFDA	515.0 / 470.0	3.42	13C2-PFOA	415.0 / 370.0	35667.45	100.00
d5-EtFOSAA	589.0 / 419.0	3.73	d3-MeFOSAA	573.0 / 419.0	20243.73	400.00

Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:28:10	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	149739.31	287.00
PFBS 2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	149739.31	287.00
PFHxA 1	313.0 / 269.0	1.84	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFHxA 2	313.0 / 119.0	1.84	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFHpA 1	363.0 / 319.0	2.25	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFHpA 2	363.0 / 169.0	2.25	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFHxS 1	399.0 / 80.0	2.27	13C4-PFOS	503.0 / 80.0	149739.31	287.00
PFHxS 2	399.0 / 99.0	2.27	13C4-PFOS	503.0 / 80.0	149739.31	287.00
PFOA 1	413.0 / 369.0	2.66	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFOA 2	413.0 / 169.0	2.66	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFNA 1	463.0 / 419.0	3.07	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFNA 2	463.0 / 219.0	3.06	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFOS 1	499.0 / 80.0	3.06	13C4-PFOS	503.0 / 80.0	149739.31	287.00
PFOS 2	499.0 / 99.0	3.06	13C4-PFOS	503.0 / 80.0	149739.31	287.00
PFDA 1	513.0 / 469.0	3.43	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFDA 2	513.0 / 219.0	3.43	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFUnA 1	563.0 / 519.0	3.75	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFUnA 2	563.0 / 269.0	3.75	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFDoA 1	613.0 / 569.0	4.04	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFDoA 2	613.0 / 319.0	4.04	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFTTrDA 1	663.0 / 619.0	4.29	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFTTrDA 2	663.0 / 169.0	4.29	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFTeDA 1	713.0 / 669.0	4.51	13C2-PFOA	415.0 / 370.0	34363.46	100.00
PFTeDA 2	713.0 / 169.0	4.51	13C2-PFOA	415.0 / 370.0	34363.46	100.00
NMeFOSAA 1	570.0 / 419.0	3.58	d3-MeFOSAA	573.0 / 419.0	21558.77	400.00
NMeFOSAA 2	570.0 / 512.0	3.58	d3-MeFOSAA	573.0 / 419.0	21558.77	400.00
NEtFOSAA 1	584.0 / 419.0	3.74	d3-MeFOSAA	573.0 / 419.0	21558.77	400.00
NEtFOSAA 2	584.0 / 483.0	3.74	d3-MeFOSAA	573.0 / 419.0	21558.77	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	34363.46	100.00
13C2-PFDA	515.0 / 470.0	3.41	13C2-PFOA	415.0 / 370.0	34363.46	100.00
d5-EtFOSAA	589.0 / 419.0	3.73	d3-MeFOSAA	573.0 / 419.0	21558.77	400.00

Sample Name	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:37:07	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	159739.55	287.00
PFBS 2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	159739.55	287.00
PFHxA 1	313.0 / 269.0	1.84	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFHxA 2	313.0 / 119.0	1.84	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFHpA 1	363.0 / 319.0	2.25	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFHpA 2	363.0 / 169.0	2.25	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFHxS 1	399.0 / 80.0	2.27	13C4-PFOS	503.0 / 80.0	159739.55	287.00
PFHxS 2	399.0 / 99.0	2.27	13C4-PFOS	503.0 / 80.0	159739.55	287.00
PFOA 1	413.0 / 369.0	2.66	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFOA 2	413.0 / 169.0	2.66	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFNA 1	463.0 / 419.0	3.06	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFNA 2	463.0 / 219.0	3.06	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFOS 1	499.0 / 80.0	3.06	13C4-PFOS	503.0 / 80.0	159739.55	287.00
PFOS 2	499.0 / 99.0	3.06	13C4-PFOS	503.0 / 80.0	159739.55	287.00
PFDA 1	513.0 / 469.0	3.42	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFDA 2	513.0 / 219.0	3.42	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFUnA 1	563.0 / 519.0	3.75	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFUnA 2	563.0 / 269.0	3.75	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFDoA 1	613.0 / 569.0	4.03	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFDoA 2	613.0 / 319.0	4.03	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFTTrDA 1	663.0 / 619.0	4.28	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFTTrDA 2	663.0 / 169.0	4.28	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFTeDA 1	713.0 / 669.0	4.50	13C2-PFOA	415.0 / 370.0	40628.11	100.00
PFTeDA 2	713.0 / 169.0	4.50	13C2-PFOA	415.0 / 370.0	40628.11	100.00
NMeFOSAA 1	570.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	24753.84	400.00
NMeFOSAA 2	570.0 / 512.0	3.57	d3-MeFOSAA	573.0 / 419.0	24753.84	400.00
NEtFOSAA 1	584.0 / 419.0	3.74	d3-MeFOSAA	573.0 / 419.0	24753.84	400.00
NEtFOSAA 2	584.0 / 483.0	3.73	d3-MeFOSAA	573.0 / 419.0	24753.84	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	40628.11	100.00
13C2-PFDA	515.0 / 470.0	3.41	13C2-PFOA	415.0 / 370.0	40628.11	100.00
d5-EtFOSAA	589.0 / 419.0	3.73	d3-MeFOSAA	573.0 / 419.0	24753.84	400.00

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:55:01	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	823.832681	885.00	93.09
PFBS_2	298.9 / 99.0	1.51	814.423190	885.00	92.03
PFHxA_1	313.0 / 269.0	1.84	1023.573852	1000.00	102.36
PFHxA_2	313.0 / 119.0	1.83	1050.057150	1000.00	105.01
PFHpA_1	363.0 / 319.0	2.25	1057.234159	1000.00	105.72
PFHpA_2	363.0 / 169.0	2.25	1021.187597	1000.00	102.12
PFHxS_1	399.0 / 80.0	2.27	893.732139	912.00	98.00
PFHxS_2	399.0 / 99.0	2.27	919.519305	912.00	100.82
PFOA_1	413.0 / 369.0	2.66	1053.065466	1000.00	105.31
PFOA_2	413.0 / 169.0	2.66	996.179325	1000.00	99.62
PFNA_1	463.0 / 419.0	3.06	1057.136761	1000.00	105.71
PFNA_2	463.0 / 219.0	3.06	1072.740412	1000.00	107.27
PFOS_1	499.0 / 80.0	3.06	866.593939	925.60	93.63
PFOS_2	499.0 / 99.0	3.06	1020.598949	925.60	110.26
PFDA_1	513.0 / 469.0	3.42	1082.013165	1000.00	108.20
PFDA_2	513.0 / 219.0	3.42	1083.593617	1000.00	108.36
PFUnA_1	563.0 / 519.0	3.74	1061.973613	1000.00	106.20
PFUnA_2	563.0 / 269.0	3.74	1053.172918	1000.00	105.32
PFDoA_1	613.0 / 569.0	4.03	1004.697702	1000.00	100.47
PFDoA_2	613.0 / 319.0	4.03	998.941201	1000.00	99.89
PFTTrDA_1	663.0 / 619.0	4.28	1040.107310	1000.00	104.01
PFTTrDA_2	663.0 / 169.0	4.27	1014.899616	1000.00	101.49
PFTeDA_1	713.0 / 669.0	4.49	978.558247	1000.00	97.86
PFTeDA_2	713.0 / 169.0	4.49	982.823478	1000.00	98.28
NMeFOSAA_1	570.0 / 419.0	3.57	1017.056202	1000.00	101.71
NMeFOSAA_2	570.0 / 512.0	3.57	1007.772329	1000.00	100.78
NEtFOSAA_1	584.0 / 419.0	3.73	1059.567576	1000.00	105.96
NEtFOSAA_2	584.0 / 483.0	3.73	906.735819	1000.00	90.67
13C2-PFHxA	315.0 / 270.0	1.83	106.008843	100.00	106.01
13C2-PFDA	515.0 / 470.0	3.40	103.787164	100.00	103.79
d5-EtFOSAA	589.0 / 419.0	3.73	384.142237	400.00	96.04

Sample Name	JZ82 CCV	Injection Vial	18
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:48:38	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	457.874875	443.00	103.36
PFBS 2	298.9 / 99.0	1.51	438.832006	443.00	99.06
PFHxA 1	313.0 / 269.0	1.83	534.583929	500.00	106.92
PFHxA 2	313.0 / 119.0	1.83	558.467480	500.00	111.69
PFHpA 1	363.0 / 319.0	2.24	553.102080	500.00	110.62
PFHpA 2	363.0 / 169.0	2.24	431.167486	500.00	86.23
PFHxS 1	399.0 / 80.0	2.27	482.601872	456.00	105.83
PFHxS 2	399.0 / 99.0	2.27	499.206204	456.00	109.48
PFOA 1	413.0 / 369.0	2.65	555.235986	500.00	111.05
PFOA 2	413.0 / 169.0	2.65	574.522010	500.00	114.90
PFNA 1	463.0 / 419.0	3.05	561.456074	500.00	112.29
PFNA 2	463.0 / 219.0	3.05	560.718016	500.00	112.14
PFOS 1	499.0 / 80.0	3.05	499.459049	463.00	107.87
PFOS 2	499.0 / 99.0	3.05	523.515148	463.00	113.07
PFDA 1	513.0 / 469.0	3.41	555.914099	500.00	111.18
PFDA 2	513.0 / 219.0	3.41	610.038553	500.00	122.01
PFUnA 1	563.0 / 519.0	3.74	569.445882	500.00	113.89
PFUnA 2	563.0 / 269.0	3.74	535.568337	500.00	107.11
PFDoA 1	613.0 / 569.0	4.02	519.576391	500.00	103.92
PFDoA 2	613.0 / 319.0	4.02	563.347928	500.00	112.67
PFTTrDA 1	663.0 / 619.0	4.27	570.737168	500.00	114.15
PFTTrDA 2	663.0 / 169.0	4.27	543.510674	500.00	108.70
PFTeDA 1	713.0 / 669.0	4.48	528.908048	500.00	105.78
PFTeDA 2	713.0 / 169.0	4.48	488.470448	500.00	97.69
NMeFOSAA 1	570.0 / 419.0	3.56	491.601831	500.00	98.32
NMeFOSAA 2	570.0 / 512.0	3.56	635.679270	500.00	127.14
NEtFOSAA 1	584.0 / 419.0	3.72	558.171567	500.00	111.63
NEtFOSAA 2	584.0 / 483.0	3.73	621.103897	500.00	124.22
13C2-PFHxA	315.0 / 270.0	1.82	98.082825	100.00	98.08
13C2-PFDA	515.0 / 470.0	3.40	99.019272	100.00	99.02
d5-EtFOSAA	589.0 / 419.0	3.71	409.623335	400.00	102.41

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:55:01	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	259983.74	823.832681	1229.6	false
PFBS 2	298.9 / 99.0	1.51	77909.06	814.423190	493.1	false
PFHxA 1	313.0 / 269.0	1.84	262015.43	1023.573852	140.0	false
PFHxA 2	313.0 / 119.0	1.83	20070.66	1050.057150	101.9	false
PFHpA 1	363.0 / 319.0	2.25	258423.15	1057.234159	240.9	false
PFHpA 2	363.0 / 169.0	2.25	5526.79	1021.187597	189.3	false
PFHxS 1	399.0 / 80.0	2.27	303314.95	893.732139	708.7	false
PFHxS 2	399.0 / 99.0	2.27	89590.09	919.519305	813.7	false
PFOA 1	413.0 / 369.0	2.66	313069.36	1053.065466	315.4	false
PFOA 2	413.0 / 169.0	2.66	19356.47	996.179325	267.0	false
PFNA 1	463.0 / 419.0	3.06	275672.51	1057.136761	525.4	false
PFNA 2	463.0 / 219.0	3.06	85936.57	1072.740412	493.4	false
PFOS 1	499.0 / 80.0	3.06	428961.11	866.593939	256.2	false
PFOS 2	499.0 / 99.0	3.06	90171.66	1020.598949	476.4	false
PFDA 1	513.0 / 469.0	3.42	334901.28	1082.013165	587.2	false
PFDA 2	513.0 / 219.0	3.42	13846.42	1083.593617	279.5	false
PFUnA 1	563.0 / 519.0	3.74	348838.32	1061.973613	594.3	false
PFUnA 2	563.0 / 269.0	3.74	15756.72	1053.172918	234.4	false
PFDaA 1	613.0 / 569.0	4.03	321009.89	1004.697702	571.7	false
PFDaA 2	613.0 / 319.0	4.03	50161.19	998.941201	582.4	false
PFTTrDA 1	663.0 / 619.0	4.28	303113.89	1040.107310	707.9	false
PFTTrDA 2	663.0 / 169.0	4.27	17953.75	1014.899616	365.7	false
PFTeDA 1	713.0 / 669.0	4.49	285140.70	978.558247	1086.0	false
PFTeDA 2	713.0 / 169.0	4.49	13268.49	982.823478	618.7	false
NMeFOSAA 1	570.0 / 419.0	3.57	49557.40	1017.056202	642.2	false
NMeFOSAA 2	570.0 / 512.0	3.57	27193.72	1007.772329	601.7	false
NEtFOSAA 1	584.0 / 419.0	3.73	50552.51	1059.567576	841.5	false
NEtFOSAA 2	584.0 / 483.0	3.73	3105.12	906.735819	176.9	false
13C2-PFHxA	315.0 / 270.0	1.83	31134.67	106.008843	959.8	false
13C2-PFDA	515.0 / 470.0	3.40	38401.62	103.787164	827.2	false
d5-EtFOSAA	589.0 / 419.0	3.73	23713.67	384.142237	282.5	false

Sample Name	JZ82 CCV	Injection Vial	18
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:48:38	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	157137.31	457.874875	866.4	false
PFBS 2	298.9 / 99.0	1.51	45311.51	438.832006	412.3	false
PFHxA 1	313.0 / 269.0	1.83	160611.39	534.583929	93.3	false
PFHxA 2	313.0 / 119.0	1.83	12456.81	558.467480	69.5	false
PFHpA 1	363.0 / 319.0	2.24	157836.94	553.102080	231.3	false
PFHpA 2	363.0 / 169.0	2.24	2987.17	431.167486	139.2	false
PFHxS 1	399.0 / 80.0	2.27	180740.35	482.601872	348.6	false
PFHxS 2	399.0 / 99.0	2.27	53763.76	499.206204	401.2	false
PFOA 1	413.0 / 369.0	2.65	193938.93	555.235986	299.5	false
PFOA 2	413.0 / 169.0	2.65	13077.65	574.522010	202.7	false
PFNA 1	463.0 / 419.0	3.05	171485.17	561.456074	372.9	false
PFNA 2	463.0 / 219.0	3.05	52758.33	560.718016	319.0	false
PFOS 1	499.0 / 80.0	3.05	274724.76	499.459049	177.8	false
PFOS 2	499.0 / 99.0	3.05	51656.39	523.515148	328.3	true
PFDA 1	513.0 / 469.0	3.41	201252.13	555.914099	425.9	false
PFDA 2	513.0 / 219.0	3.41	9193.68	610.038553	265.2	false
PFUnA 1	563.0 / 519.0	3.74	216408.66	569.445882	417.5	false
PFUnA 2	563.0 / 269.0	3.74	9578.30	535.568337	200.5	false
PFDaA 1	613.0 / 569.0	4.02	196169.42	519.576391	424.3	false
PFDaA 2	613.0 / 319.0	4.02	33032.30	563.347928	382.9	false
PFTriDA 1	663.0 / 619.0	4.27	193103.60	570.737168	561.3	false
PFTriDA 2	663.0 / 169.0	4.27	11199.24	543.510674	309.6	false
PFTeDA 1	713.0 / 669.0	4.48	180173.67	528.908048	995.9	false
PFTeDA 2	713.0 / 169.0	4.48	7927.68	488.470448	416.5	false
NMeFOSAA 1	570.0 / 419.0	3.56	26292.38	491.601831	685.5	false
NMeFOSAA 2	570.0 / 512.0	3.56	17210.11	635.679270	385.3	false
NEtFOSAA 1	584.0 / 419.0	3.72	28169.10	558.171567	345.8	false
NEtFOSAA 2	584.0 / 483.0	3.73	2168.78	621.103897	73.4	true
13C2-PFHxA	315.0 / 270.0	1.82	32537.85	98.082825	917.8	false
13C2-PFDA	515.0 / 470.0	3.40	41382.75	99.019272	919.6	false
d5-EtFOSAA	589.0 / 419.0	3.71	24586.36	409.623335	281.6	false

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:55:01	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	0.300	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.080	0.075	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.300	0.289	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.060	0.065	ü
PFNA_1	463.0 / 419.0	3.06	PFNA			
PFNA_2	463.0 / 219.0	3.06	PFNA	0.310	0.309	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.210	0.180	ü
PFDA_1	513.0 / 469.0	3.42	PFDA			
PFDA_2	513.0 / 219.0	3.42	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.74	PFUnA			
PFUnA_2	563.0 / 269.0	3.74	PFUnA	0.050	0.048	ü
PFDaA_1	613.0 / 569.0	4.03	PFDaA			
PFDaA_2	613.0 / 319.0	4.03	PFDaA	0.160	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.28	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.27	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.49	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.49	PFTeDA	0.050	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.57	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.57	NMeFOSAA	0.550	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.73	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.73	NEtFOSAA	0.060	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.40		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.73		N/A	N/A	ü

Sample Name	JZ82 CCV	Injection Vial	18
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:48:38	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	0.290	0.300	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.080	0.075	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.24	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.300	0.289	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.310	0.309	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.05	PFOS	0.190	0.180	ü
PFDA_1	513.0 / 469.0	3.41	PFDA			
PFDA_2	513.0 / 219.0	3.41	PFDA	0.050	0.043	ü
PFUnA_1	563.0 / 519.0	3.74	PFUnA			
PFUnA_2	563.0 / 269.0	3.74	PFUnA	0.040	0.048	ü
PFDaA_1	613.0 / 569.0	4.02	PFDaA			
PFDaA_2	613.0 / 319.0	4.02	PFDaA	0.170	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.27	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.27	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.48	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.48	PFTeDA	0.040	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.56	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.56	NMeFOSAA	0.650	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.72	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.73	NEtFOSAA	0.080	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.40		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.71		N/A	N/A	ü

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:55:01	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	143645.98	287.00
PFBS_2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	143645.98	287.00
PFHxA_1	313.0 / 269.0	1.84	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFHxA_2	313.0 / 119.0	1.83	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFHpA_1	363.0 / 319.0	2.25	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFHpA_2	363.0 / 169.0	2.25	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFHxS_1	399.0 / 80.0	2.27	13C4-PFOS	503.0 / 80.0	143645.98	287.00
PFHxS_2	399.0 / 99.0	2.27	13C4-PFOS	503.0 / 80.0	143645.98	287.00
PFOA_1	413.0 / 369.0	2.66	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFOA_2	413.0 / 169.0	2.66	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFNA_1	463.0 / 419.0	3.06	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFNA_2	463.0 / 219.0	3.06	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFOS_1	499.0 / 80.0	3.06	13C4-PFOS	503.0 / 80.0	143645.98	287.00
PFOS_2	499.0 / 99.0	3.06	13C4-PFOS	503.0 / 80.0	143645.98	287.00
PFDA_1	513.0 / 469.0	3.42	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFDA_2	513.0 / 219.0	3.42	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFUnA_1	563.0 / 519.0	3.74	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFUnA_2	563.0 / 269.0	3.74	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFDoA_1	613.0 / 569.0	4.03	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFDoA_2	613.0 / 319.0	4.03	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFTrDA_1	663.0 / 619.0	4.28	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFTrDA_2	663.0 / 169.0	4.27	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFTeDA_1	713.0 / 669.0	4.49	13C2-PFOA	415.0 / 370.0	31809.50	100.00
PFTeDA_2	713.0 / 169.0	4.49	13C2-PFOA	415.0 / 370.0	31809.50	100.00
NMeFOSAA_1	570.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	20917.50	400.00
NMeFOSAA_2	570.0 / 512.0	3.57	d3-MeFOSAA	573.0 / 419.0	20917.50	400.00
NEtFOSAA_1	584.0 / 419.0	3.73	d3-MeFOSAA	573.0 / 419.0	20917.50	400.00
NEtFOSAA_2	584.0 / 483.0	3.73	d3-MeFOSAA	573.0 / 419.0	20917.50	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	31809.50	100.00
13C2-PFDA	515.0 / 470.0	3.40	13C2-PFOA	415.0 / 370.0	31809.50	100.00
d5-EtFOSAA	589.0 / 419.0	3.73	d3-MeFOSAA	573.0 / 419.0	20917.50	400.00

Sample Name	JZ82 CCV	Injection Vial	18
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:48:38	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	156240.96	287.00
PFBS 2	298.9 / 99.0	1.51	13C4-PFOS	503.0 / 80.0	156240.96	287.00
PFHxA 1	313.0 / 269.0	1.83	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFHxA 2	313.0 / 119.0	1.83	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFHpA 1	363.0 / 319.0	2.24	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFHpA 2	363.0 / 169.0	2.24	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFHxS 1	399.0 / 80.0	2.27	13C4-PFOS	503.0 / 80.0	156240.96	287.00
PFHxS 2	399.0 / 99.0	2.27	13C4-PFOS	503.0 / 80.0	156240.96	287.00
PFOA 1	413.0 / 369.0	2.65	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFOA 2	413.0 / 169.0	2.65	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFNA 1	463.0 / 419.0	3.05	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFNA 2	463.0 / 219.0	3.05	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFOS 1	499.0 / 80.0	3.05	13C4-PFOS	503.0 / 80.0	156240.96	287.00
PFOS 2	499.0 / 99.0	3.05	13C4-PFOS	503.0 / 80.0	156240.96	287.00
PFDA 1	513.0 / 469.0	3.41	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFDA 2	513.0 / 219.0	3.41	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFUnA 1	563.0 / 519.0	3.74	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFUnA 2	563.0 / 269.0	3.74	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFDoA 1	613.0 / 569.0	4.02	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFDoA 2	613.0 / 319.0	4.02	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFTTrDA 1	663.0 / 619.0	4.27	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFTTrDA 2	663.0 / 169.0	4.27	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFTeDA 1	713.0 / 669.0	4.48	13C2-PFOA	415.0 / 370.0	35929.45	100.00
PFTeDA 2	713.0 / 169.0	4.48	13C2-PFOA	415.0 / 370.0	35929.45	100.00
NMeFOSAA 1	570.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	20338.21	400.00
NMeFOSAA 2	570.0 / 512.0	3.56	d3-MeFOSAA	573.0 / 419.0	20338.21	400.00
NEtFOSAA 1	584.0 / 419.0	3.72	d3-MeFOSAA	573.0 / 419.0	20338.21	400.00
NEtFOSAA 2	584.0 / 483.0	3.73	d3-MeFOSAA	573.0 / 419.0	20338.21	400.00
13C2-PFHxA	315.0 / 270.0	1.82	13C2-PFOA	415.0 / 370.0	35929.45	100.00
13C2-PFDA	515.0 / 470.0	3.40	13C2-PFOA	415.0 / 370.0	35929.45	100.00
d5-EtFOSAA	589.0 / 419.0	3.71	d3-MeFOSAA	573.0 / 419.0	20338.21	400.00

Raw Analytical Data

Sample Name	KA08 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:46:04	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	true
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.28	1989.68	< 0	11.6	false
PFHxS_2	399.0 / 99.0	2.27	554.66	< 0	11.3	false
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	true
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	4.03	1808.35	< 0	32.0	false
PFDoA_2	613.0 / 319.0	4.05	416.64	< 0	26.1	false
PFTTrDA_1	663.0 / 619.0	4.28	1253.45	< 0	59.1	false
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.50	1162.78	< 0	100.1	false
PFTeDA_2	713.0 / 169.0	4.49	148.73	< 0	26.0	false
NMeFOSAA_1	570.0 / 419.0	3.58	503.90	< 0	19.3	false
NMeFOSAA_2	570.0 / 512.0	3.54	296.34	< 0	15.1	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	1.83	30905.28	96.518048	1017.3	false
13C2-PFDA	515.0 / 470.0	3.41	38133.37	94.531677	1041.5	false
d5-EtFOSAA	589.0 / 419.0	3.73	24768.48	381.673782	323.7	false

Sample Name	CR996PB-FS(0)	Injection Vial	14
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:12:53	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	true
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	true
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	true
PFOA_1	413.0 / 369.0	2.65	4964.13	< 0	25.9	false
PFOA_2	413.0 / 169.0	2.65	165.89	< 0	7.7	true
PFNA_1	463.0 / 419.0	3.05	3526.25	< 0	31.3	false
PFNA_2	463.0 / 219.0	3.05	1237.05	< 0	24.2	false
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	true
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	4.02	3593.89	< 0	91.9	false
PFDoA_2	613.0 / 319.0	4.02	739.91	< 0	43.8	false
PFTTrDA_1	663.0 / 619.0	4.27	2419.77	< 0	110.0	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.48	2769.70	< 0	60.7	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.83	26585.25	101.645468	1214.0	false
13C2-PFDA	515.0 / 470.0	3.40	32772.30	99.460468	695.6	false
d5-EtFOSAA	589.0 / 419.0	3.72	20477.57	440.531776	305.2	false

Sample Name	CR997LCS-FS(0)	Injection Vial	15
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:21:49	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	1057212.88	3910.581063	2288.9	false
PFBS 2	298.9 / 99.0	1.52	325300.19	3942.250443	993.0	false
PFHxA 1	313.0 / 269.0	1.84	1096054.41	4611.480277	275.1	false
PFHxA 2	313.0 / 119.0	1.84	84728.12	4754.895779	247.4	false
PFHpA 1	363.0 / 319.0	2.25	1007312.62	4414.441804	463.8	false
PFHpA 2	363.0 / 169.0	2.25	20628.81	4286.685868	282.0	false
PFHxS 1	399.0 / 80.0	2.27	1184552.08	4130.333761	1170.0	false
PFHxS 2	399.0 / 99.0	2.27	342165.63	4162.810562	1235.5	false
PFOA 1	413.0 / 369.0	2.66	1233587.49	4473.541797	566.7	false
PFOA 2	413.0 / 169.0	2.66	80758.16	4504.952691	535.1	false
PFNA 1	463.0 / 419.0	3.06	1077507.03	4443.839840	942.7	false
PFNA 2	463.0 / 219.0	3.06	342291.31	4602.784518	815.2	false
PFOS 1	499.0 / 80.0	3.06	1609878.82	3885.953698	447.9	false
PFOS 2	499.0 / 99.0	3.06	347585.32	4696.811343	617.0	false
PFDA 1	513.0 / 469.0	3.42	1300954.41	4504.688815	1070.4	false
PFDA 2	513.0 / 219.0	3.42	54132.51	4611.440139	639.6	false
PFUnA 1	563.0 / 519.0	3.74	1358844.40	4400.814466	852.5	false
PFUnA 2	563.0 / 269.0	3.74	58540.97	4267.946950	314.8	false
PFDoA 1	613.0 / 569.0	4.03	1240310.41	4199.796686	1012.4	false
PFDoA 2	613.0 / 319.0	4.03	200295.62	4297.285048	815.2	false
PFTTrDA 1	663.0 / 619.0	4.27	1169506.19	4288.330779	885.3	false
PFTTrDA 2	663.0 / 169.0	4.27	70912.02	4291.598745	557.3	false
PFTeDA 1	713.0 / 669.0	4.49	1102367.19	4066.085550	1502.8	false
PFTeDA 2	713.0 / 169.0	4.49	49776.03	4032.633820	985.5	false
NMeFOSAA 1	570.0 / 419.0	3.57	192730.45	4676.329356	1178.3	false
NMeFOSAA 2	570.0 / 512.0	3.57	103123.10	4269.654700	1023.1	false
NEtFOSAA 1	584.0 / 419.0	3.73	188246.30	4567.921227	991.4	false
NEtFOSAA 2	584.0 / 483.0	3.73	11997.32	4087.997410	983.3	false
13C2-PFHxA	315.0 / 270.0	1.83	30904.00	109.556365	921.2	false
13C2-PFDA	515.0 / 470.0	3.40	37576.16	105.738116	866.3	false
d5-EtFOSAA	589.0 / 419.0	3.72	20065.83	348.037424	235.3	false

Sample Name	J8739-FS(0)	Injection Vial	16
Sample ID	JAX-RES-101018-1000-5	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:30:46	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	true
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	true
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	true
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	true
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	4.27	976.87	< 0	45.6	false
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.83	34934.97	126.607607	585.0	true
13C2-PFDA	515.0 / 470.0	3.40	32314.62	92.959678	717.6	false
d5-EtFOSAA	589.0 / 419.0	3.72	19405.18	370.965946	238.5	false

Sample Name	J8741-FS(0)	Injection Vial	17
Sample ID	JAX-RES-101018-1000-3	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:39:42	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	true
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	true
PFHxA_1	313.0 / 269.0	1.84	33196.58	92.251013	25.8	false
PFHxA_2	313.0 / 119.0	1.84	1875.23	62.718580	19.0	false
PFHpA_1	363.0 / 319.0	2.24	32514.69	100.190920	49.7	false
PFHpA_2	363.0 / 169.0	2.21	1154.79	130.516656	46.4	true
PFHxS_1	399.0 / 80.0	2.26	3619.20	< 0	15.1	false
PFHxS_2	399.0 / 99.0	2.27	1066.20	< 0	13.1	true
PFOA_1	413.0 / 369.0	2.65	253858.87	860.972675	192.5	false
PFOA_2	413.0 / 169.0	2.62	23866.16	1264.401752	152.1	true
PFNA_1	463.0 / 419.0	3.05	27021.13	63.962961	86.1	false
PFNA_2	463.0 / 219.0	3.05	9561.86	78.151374	125.6	false
PFOS_1	499.0 / 80.0	3.05	108022.70	208.550146	85.4	false
PFOS_2	499.0 / 99.0	3.05	15292.76	156.395827	101.1	true
PFDA_1	513.0 / 469.0	3.41	30623.37	62.500287	91.2	false
PFDA_2	513.0 / 219.0	3.41	1712.72	79.367021	69.3	false
PFUnA_1	563.0 / 519.0	3.74	19278.81	30.824297	84.0	false
PFUnA_2	563.0 / 269.0	3.73	1209.26	19.971611	34.3	true
PFDoA_1	613.0 / 569.0	4.02	18666.65	10.317039	150.6	false
PFDoA_2	613.0 / 319.0	4.02	2801.86	13.744537	105.4	false
PFTTrDA_1	663.0 / 619.0	4.27	3923.53	< 0	111.3	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.48	4681.25	< 0	57.6	true
PFTeDA_2	713.0 / 169.0	4.49	200.12	< 0	32.5	false
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.83	37174.00	128.896187	535.2	true
13C2-PFDA	515.0 / 470.0	3.40	33008.85	90.850502	681.4	false
d5-EtFOSAA	589.0 / 419.0	3.72	18084.21	321.058461	186.0	false

Sample Name	KA08 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:46:04	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	N/A	PFBS			
PFBS_2	298.9 / 99.0	N/A	PFBS	N/A	0.300	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.075	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.022	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.280	0.289	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.065	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.309	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.180	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.043	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	ü
PFDaA_1	613.0 / 569.0	4.03	PFDaA			
PFDaA_2	613.0 / 319.0	4.05	PFDaA	0.230	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.28	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.061	
PFTeDA_1	713.0 / 669.0	4.50	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.49	PFTeDA	0.130	0.045	
NMeFOSAA_1	570.0 / 419.0	3.58	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.54	NMeFOSAA	0.590	0.569	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.41		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.73		N/A	N/A	ü

Sample Name	CR996PB-FS(0)	Injection Vial	14
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:12:53	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	N/A	PFBS			
PFBS_2	298.9 / 99.0	N/A	PFBS	N/A	0.300	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.075	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.022	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.289	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.030	0.065	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.350	0.309	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.180	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.043	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	ü
PFDaA_1	613.0 / 569.0	4.02	PFDaA			
PFDaA_2	613.0 / 319.0	4.02	PFDaA	0.210	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.27	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.061	
PFTeDA_1	713.0 / 669.0	4.48	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.045	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.569	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.40		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.72		N/A	N/A	ü

Sample Name	CR997LCS-FS(0)	Injection Vial	15
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:21:49	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	0.310	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.080	0.075	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.290	0.289	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	3.06	PFNA			
PFNA_2	463.0 / 219.0	3.06	PFNA	0.320	0.309	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.220	0.180	ü
PFDA_1	513.0 / 469.0	3.42	PFDA			
PFDA_2	513.0 / 219.0	3.42	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.74	PFUnA			
PFUnA_2	563.0 / 269.0	3.74	PFUnA	0.040	0.048	ü
PFDaA_1	613.0 / 569.0	4.03	PFDaA			
PFDaA_2	613.0 / 319.0	4.03	PFDaA	0.160	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.27	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.27	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.49	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.49	PFTeDA	0.050	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.57	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.57	NMeFOSAA	0.540	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.73	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.73	NEtFOSAA	0.060	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.40		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.72		N/A	N/A	ü

Sample Name	J8739-FS(0)	Injection Vial	16
Sample ID	JAX-RES-101018-1000-5	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:30:46	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	N/A	PFBS			
PFBS_2	298.9 / 99.0	N/A	PFBS	N/A	0.300	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.075	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.022	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.289	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.065	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.309	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.180	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.043	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.27	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.061	
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.045	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.569	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.40		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.72		N/A	N/A	ü

Sample Name	J8741-FS(0)	Injection Vial	17
Sample ID	JAX-RES-101018-1000-3	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:39:42	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	N/A	PFBS			
PFBS_2	298.9 / 99.0	N/A	PFBS	N/A	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.060	0.075	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.21	PFHpA	0.040	0.022	
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.290	0.289	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.62	PFOA	0.090	0.065	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.350	0.309	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.05	PFOS	0.140	0.180	ü
PFDA_1	513.0 / 469.0	3.41	PFDA			
PFDA_2	513.0 / 219.0	3.41	PFDA	0.060	0.043	ü
PFUnA_1	563.0 / 519.0	3.74	PFUnA			
PFUnA_2	563.0 / 269.0	3.73	PFUnA	0.060	0.048	ü
PFDaA_1	613.0 / 569.0	4.02	PFDaA			
PFDaA_2	613.0 / 319.0	4.02	PFDaA	0.150	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.27	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.061	
PFTeDA_1	713.0 / 669.0	4.48	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.49	PFTeDA	0.040	0.045	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.569	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.40		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.72		N/A	N/A	ü



Sample Name	KA08 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:46:04	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	152151.14	287.00
PFBS_2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	152151.14	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFHxS_1	399.0 / 80.0	2.28	13C4-PFOS	503.0 / 80.0	152151.14	287.00
PFHxS_2	399.0 / 99.0	2.27	13C4-PFOS	503.0 / 80.0	152151.14	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	152151.14	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	152151.14	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFDoA_1	613.0 / 569.0	4.03	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFDoA_2	613.0 / 319.0	4.05	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFTDA_1	663.0 / 619.0	4.28	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFTDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFTeDA_1	713.0 / 669.0	4.50	13C2-PFOA	415.0 / 370.0	34679.97	100.00
PFTeDA_2	713.0 / 169.0	4.49	13C2-PFOA	415.0 / 370.0	34679.97	100.00
NMeFOSAA_1	570.0 / 419.0	3.58	d3-MeFOSAA	573.0 / 419.0	21989.24	400.00
NMeFOSAA_2	570.0 / 512.0	3.54	d3-MeFOSAA	573.0 / 419.0	21989.24	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	21989.24	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	21989.24	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	34679.97	100.00
13C2-PFDA	515.0 / 470.0	3.41	13C2-PFOA	415.0 / 370.0	34679.97	100.00
d5-EtFOSAA	589.0 / 419.0	3.73	d3-MeFOSAA	573.0 / 419.0	21989.24	400.00

Sample Name	CR996PB-FS(0)	Injection Vial	14
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:12:53	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS 1	298.9 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	127329.70	287.00
PFBS 2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	127329.70	287.00
PFHxA 1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFHxA 2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFHpA 1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFHpA 2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFHxS 1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	127329.70	287.00
PFHxS 2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	127329.70	287.00
PFOA 1	413.0 / 369.0	2.65	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFOA 2	413.0 / 169.0	2.65	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFNA 1	463.0 / 419.0	3.05	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFNA 2	463.0 / 219.0	3.05	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFOS 1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	127329.70	287.00
PFOS 2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	127329.70	287.00
PFDA 1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFDA 2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFUnA 1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFUnA 2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFDoA 1	613.0 / 569.0	4.02	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFDoA 2	613.0 / 319.0	4.02	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFTTrDA 1	663.0 / 619.0	4.27	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFTTrDA 2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFTeDA 1	713.0 / 669.0	4.48	13C2-PFOA	415.0 / 370.0	28327.44	100.00
PFTeDA 2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	28327.44	100.00
NMeFOSAA 1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	15750.86	400.00
NMeFOSAA 2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	15750.86	400.00
NEtFOSAA 1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	15750.86	400.00
NEtFOSAA 2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	15750.86	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	28327.44	100.00
13C2-PFDA	515.0 / 470.0	3.40	13C2-PFOA	415.0 / 370.0	28327.44	100.00
d5-EtFOSAA	589.0 / 419.0	3.72	d3-MeFOSAA	573.0 / 419.0	15750.86	400.00

Sample Name	CR997LCS-FS(0)	Injection Vial	15
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:21:49	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	123036.04	287.00
PFBS 2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	123036.04	287.00
PFHxA 1	313.0 / 269.0	1.84	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFHxA 2	313.0 / 119.0	1.84	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFHpA 1	363.0 / 319.0	2.25	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFHpA 2	363.0 / 169.0	2.25	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFHxS 1	399.0 / 80.0	2.27	13C4-PFOS	503.0 / 80.0	123036.04	287.00
PFHxS 2	399.0 / 99.0	2.27	13C4-PFOS	503.0 / 80.0	123036.04	287.00
PFOA 1	413.0 / 369.0	2.66	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFOA 2	413.0 / 169.0	2.66	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFNA 1	463.0 / 419.0	3.06	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFNA 2	463.0 / 219.0	3.06	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFOS 1	499.0 / 80.0	3.06	13C4-PFOS	503.0 / 80.0	123036.04	287.00
PFOS 2	499.0 / 99.0	3.06	13C4-PFOS	503.0 / 80.0	123036.04	287.00
PFDA 1	513.0 / 469.0	3.42	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFDA 2	513.0 / 219.0	3.42	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFUnA 1	563.0 / 519.0	3.74	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFUnA 2	563.0 / 269.0	3.74	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFDoA 1	613.0 / 569.0	4.03	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFDoA 2	613.0 / 319.0	4.03	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFTTrDA 1	663.0 / 619.0	4.27	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFTTrDA 2	663.0 / 169.0	4.27	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFTeDA 1	713.0 / 669.0	4.49	13C2-PFOA	415.0 / 370.0	30551.45	100.00
PFTeDA 2	713.0 / 169.0	4.49	13C2-PFOA	415.0 / 370.0	30551.45	100.00
NMeFOSAA 1	570.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	19535.94	400.00
NMeFOSAA 2	570.0 / 512.0	3.57	d3-MeFOSAA	573.0 / 419.0	19535.94	400.00
NEtFOSAA 1	584.0 / 419.0	3.73	d3-MeFOSAA	573.0 / 419.0	19535.94	400.00
NEtFOSAA 2	584.0 / 483.0	3.73	d3-MeFOSAA	573.0 / 419.0	19535.94	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	30551.45	100.00
13C2-PFDA	515.0 / 470.0	3.40	13C2-PFOA	415.0 / 370.0	30551.45	100.00
d5-EtFOSAA	589.0 / 419.0	3.72	d3-MeFOSAA	573.0 / 419.0	19535.94	400.00

Sample Name	J8739-FS(0)	Injection Vial	16
Sample ID	JAX-RES-101018-1000-5	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:30:46	Data File	18-0614 18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614 18-0594 DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS 1	298.9 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	124265.29	287.00
PFBS 2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	124265.29	287.00
PFHxA 1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFHxA 2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFHpA 1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFHpA 2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFHxS 1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	124265.29	287.00
PFHxS 2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	124265.29	287.00
PFOA 1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFOA 2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFNA 1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFNA 2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFOS 1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	124265.29	287.00
PFOS 2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	124265.29	287.00
PFDA 1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFDA 2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFUnA 1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFUnA 2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFDoA 1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFDoA 2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFTTrDA 1	663.0 / 619.0	4.27	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFTTrDA 2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFTeDA 1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
PFTeDA 2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	29885.14	100.00
NMeFOSAA 1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	17725.02	400.00
NMeFOSAA 2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	17725.02	400.00
NEtFOSAA 1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	17725.02	400.00
NEtFOSAA 2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	17725.02	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	29885.14	100.00
13C2-PFDA	515.0 / 470.0	3.40	13C2-PFOA	415.0 / 370.0	29885.14	100.00
d5-EtFOSAA	589.0 / 419.0	3.72	d3-MeFOSAA	573.0 / 419.0	17725.02	400.00



Sample Name	J8741-FS(0)	Injection Vial	17
Sample ID	JAX-RES-101018-1000-3	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:39:42	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

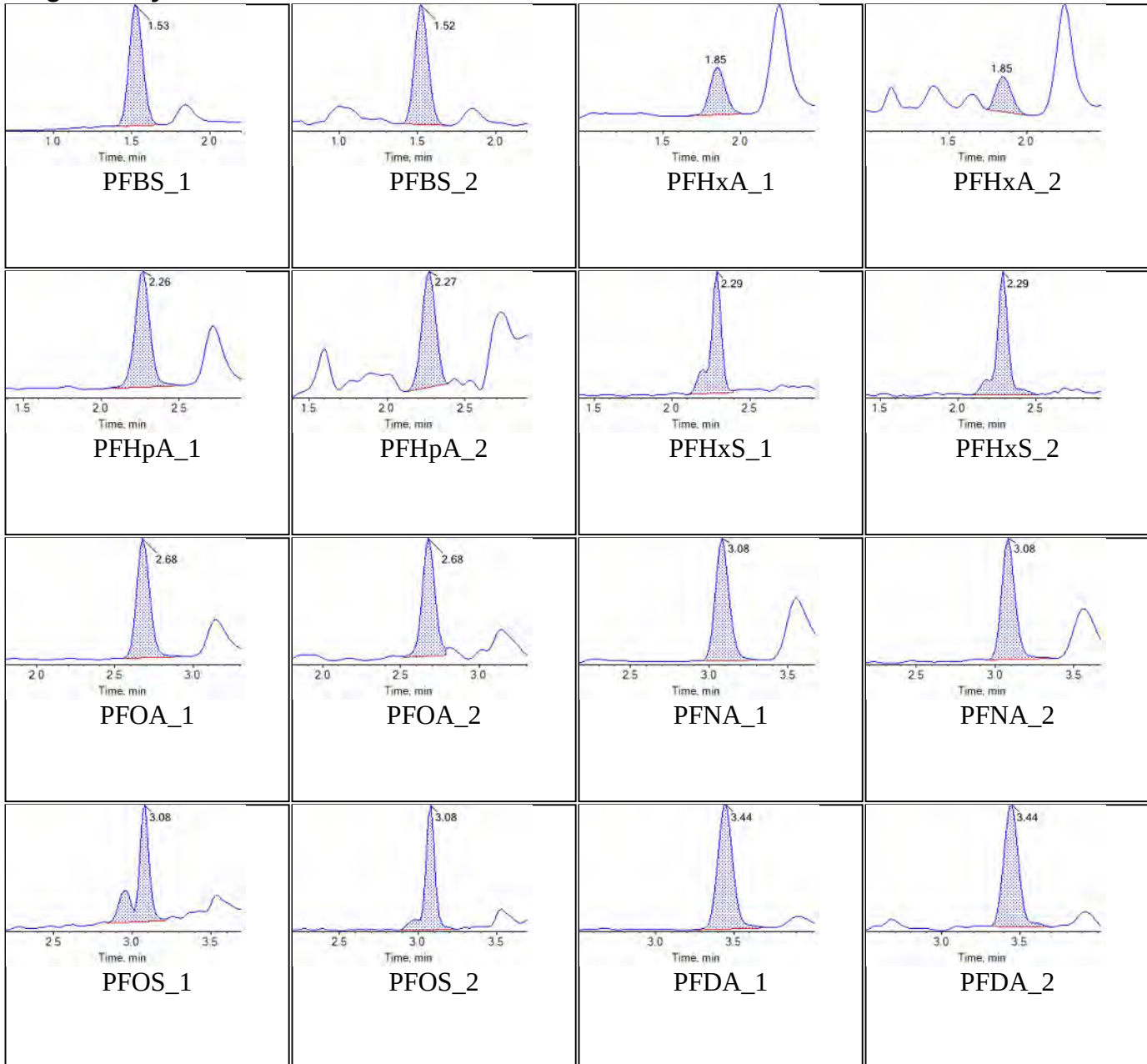
Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	137541.37	287.00
PFBS_2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	137541.37	287.00
PFHxA_1	313.0 / 269.0	1.84	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFHxA_2	313.0 / 119.0	1.84	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFHpA_1	363.0 / 319.0	2.24	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFHpA_2	363.0 / 169.0	2.21	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFHxS_1	399.0 / 80.0	2.26	13C4-PFOS	503.0 / 80.0	137541.37	287.00
PFHxS_2	399.0 / 99.0	2.27	13C4-PFOS	503.0 / 80.0	137541.37	287.00
PFOA_1	413.0 / 369.0	2.65	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFOA_2	413.0 / 169.0	2.62	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFNA_1	463.0 / 419.0	3.05	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFNA_2	463.0 / 219.0	3.05	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFOS_1	499.0 / 80.0	3.05	13C4-PFOS	503.0 / 80.0	137541.37	287.00
PFOS_2	499.0 / 99.0	3.05	13C4-PFOS	503.0 / 80.0	137541.37	287.00
PFDA_1	513.0 / 469.0	3.41	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFDA_2	513.0 / 219.0	3.41	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFUnA_1	563.0 / 519.0	3.74	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFUnA_2	563.0 / 269.0	3.73	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFDoA_1	613.0 / 569.0	4.02	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFDoA_2	613.0 / 319.0	4.02	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFTTrDA_1	663.0 / 619.0	4.27	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFTeDA_1	713.0 / 669.0	4.48	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFTeDA_2	713.0 / 169.0	4.49	13C2-PFOA	415.0 / 370.0	31235.89	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	19086.16	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	19086.16	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	19086.16	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	19086.16	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	31235.89	100.00
13C2-PFDA	515.0 / 470.0	3.40	13C2-PFOA	415.0 / 370.0	31235.89	100.00
d5-EtFOSAA	589.0 / 419.0	3.72	d3-MeFOSAA	573.0 / 419.0	19086.16	400.00

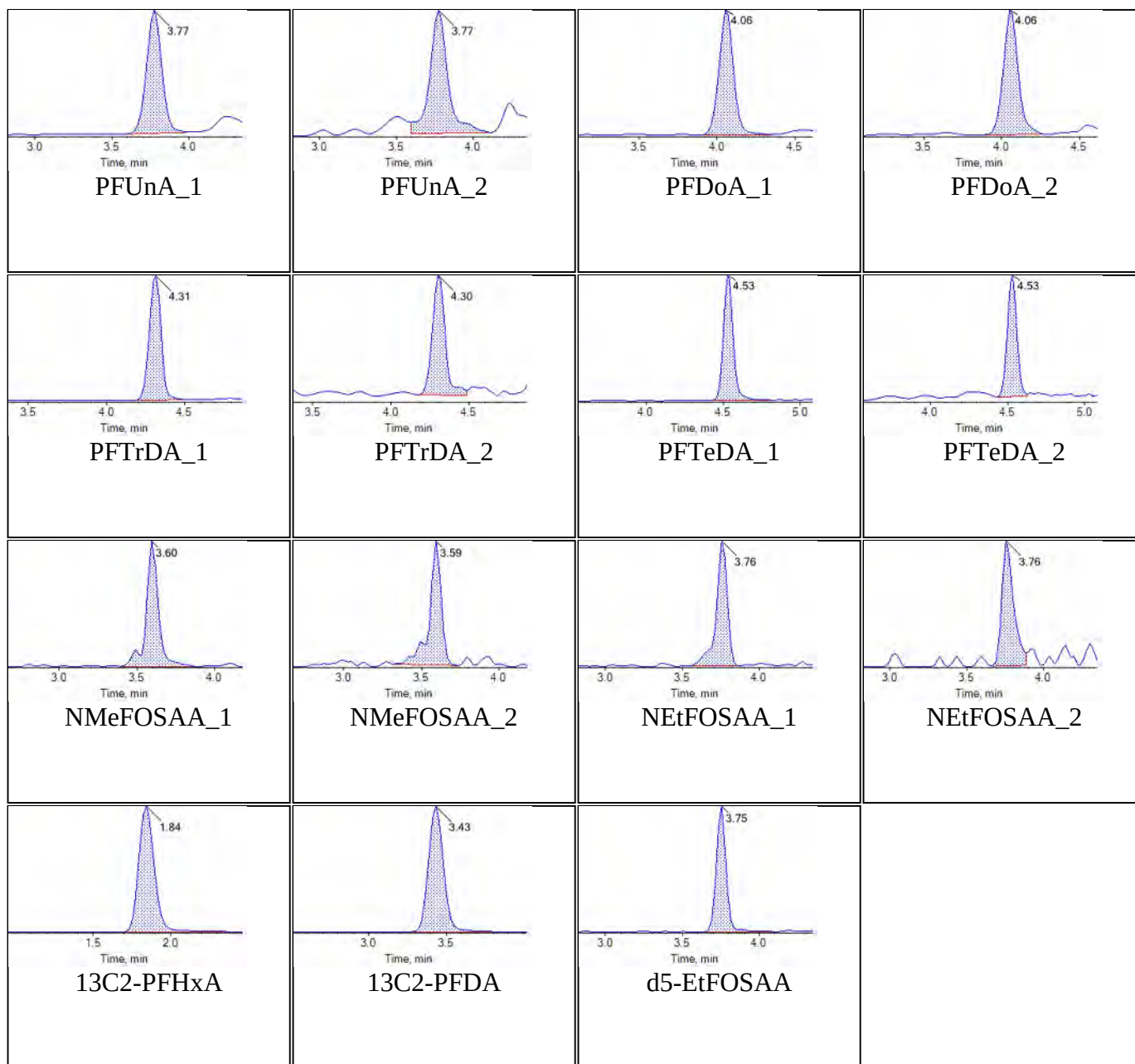
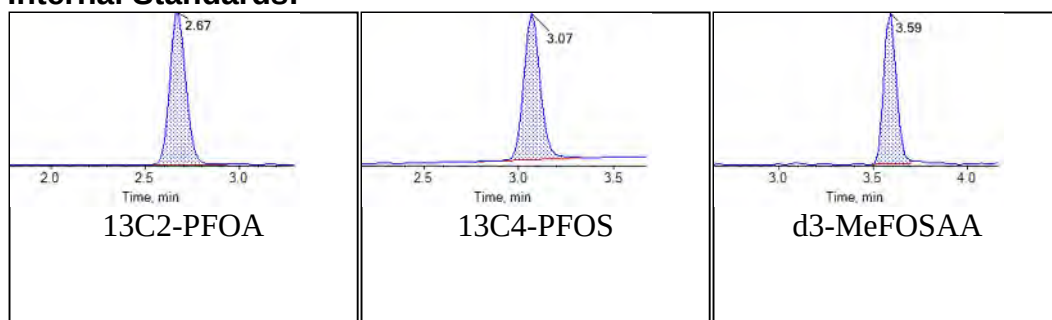
Chromatograms

Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T17:43:28	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Chromatograms

Target Analytes:

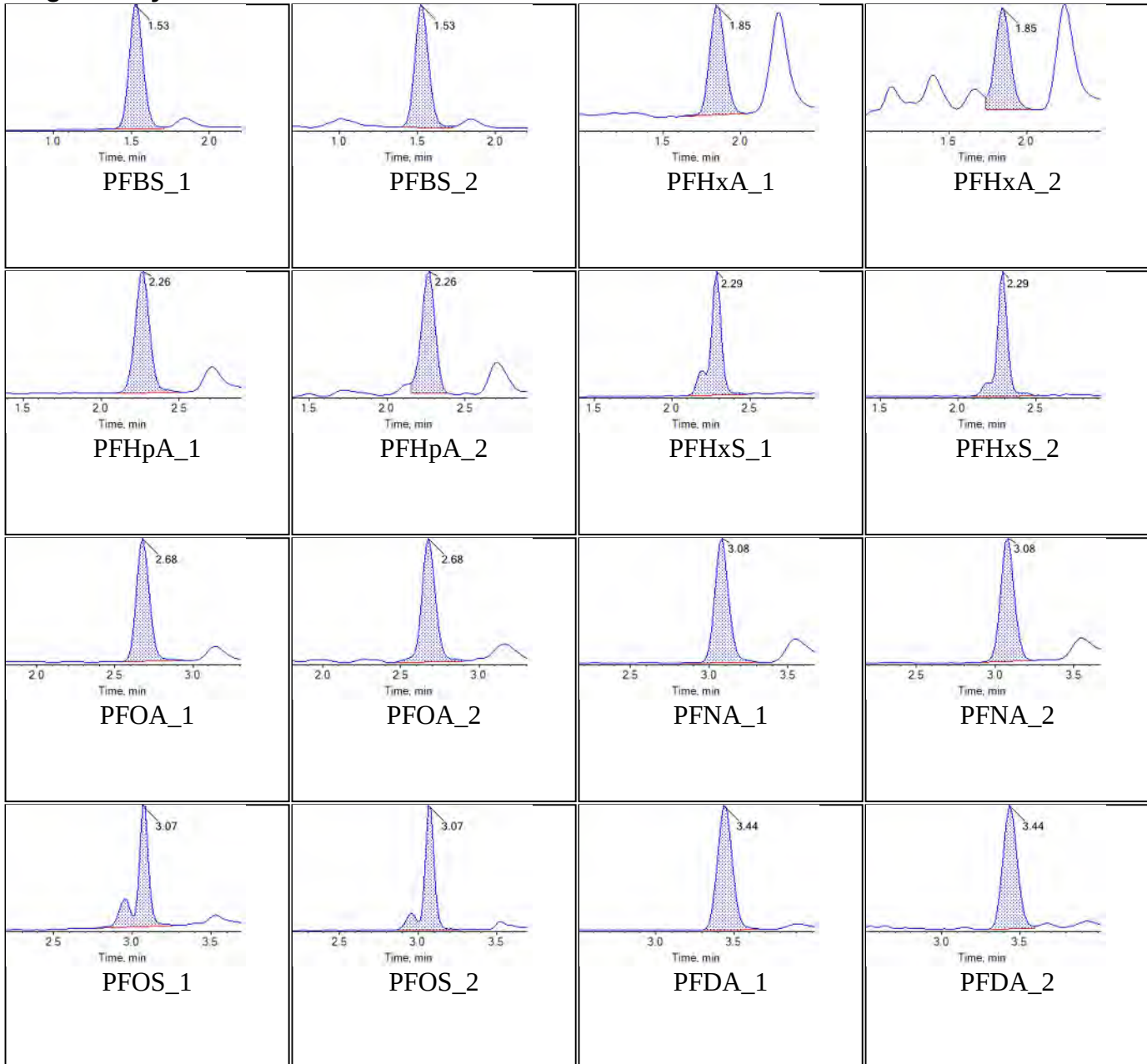


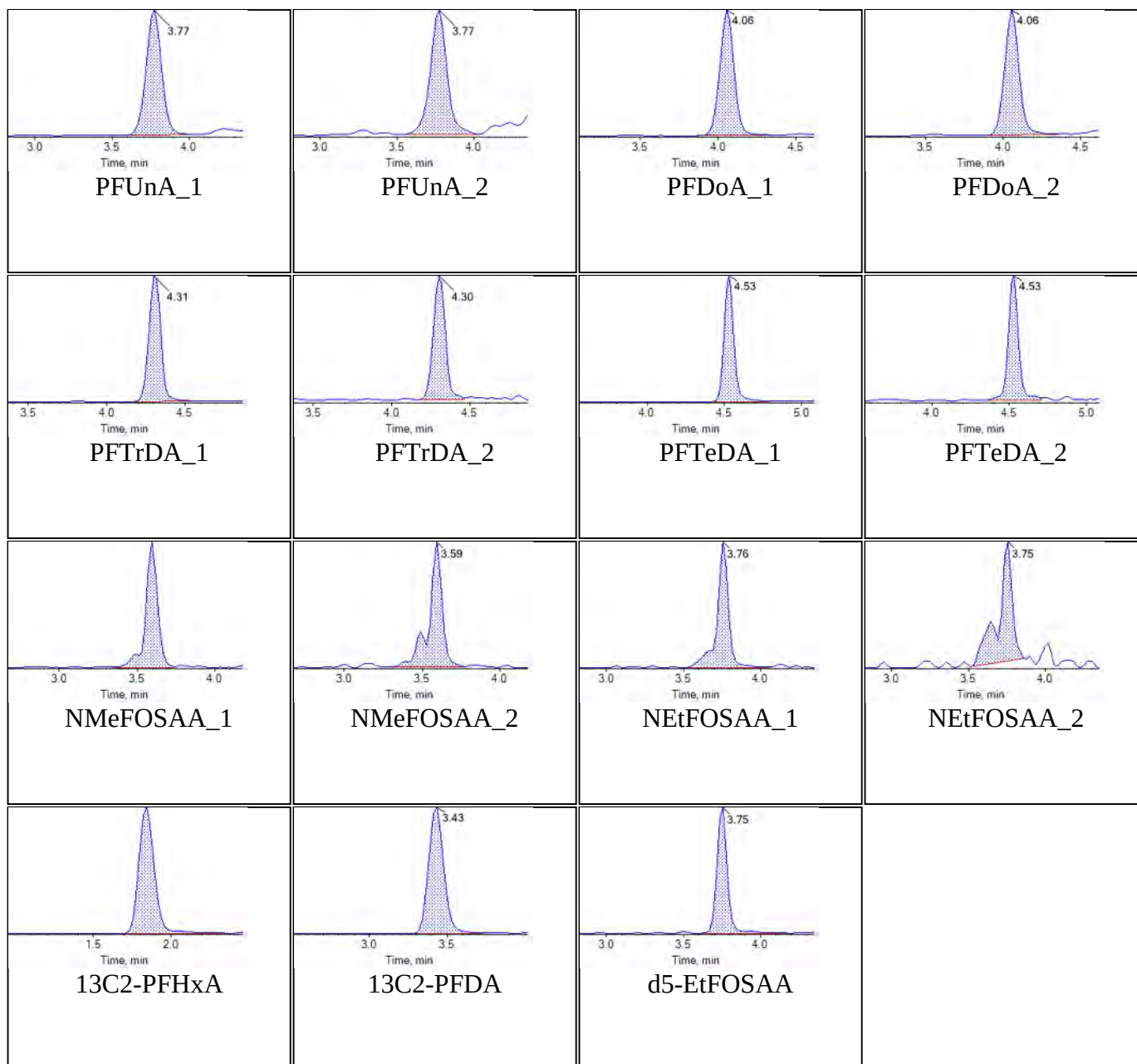
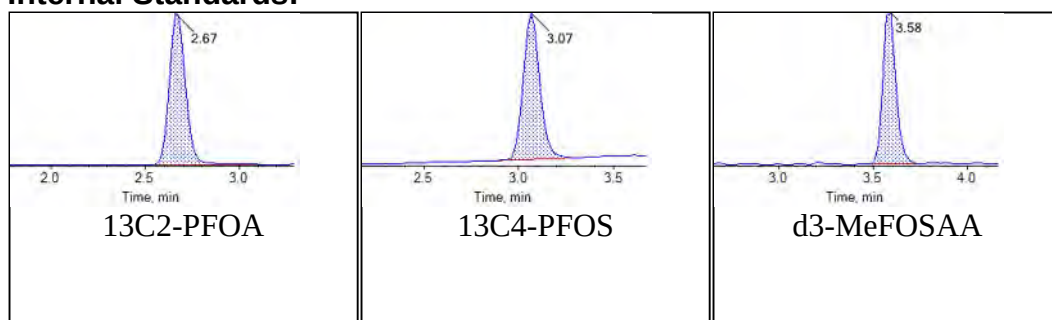
**Internal Standards:**

Sample Name	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T17:52:26	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Chromatograms

Target Analytes:

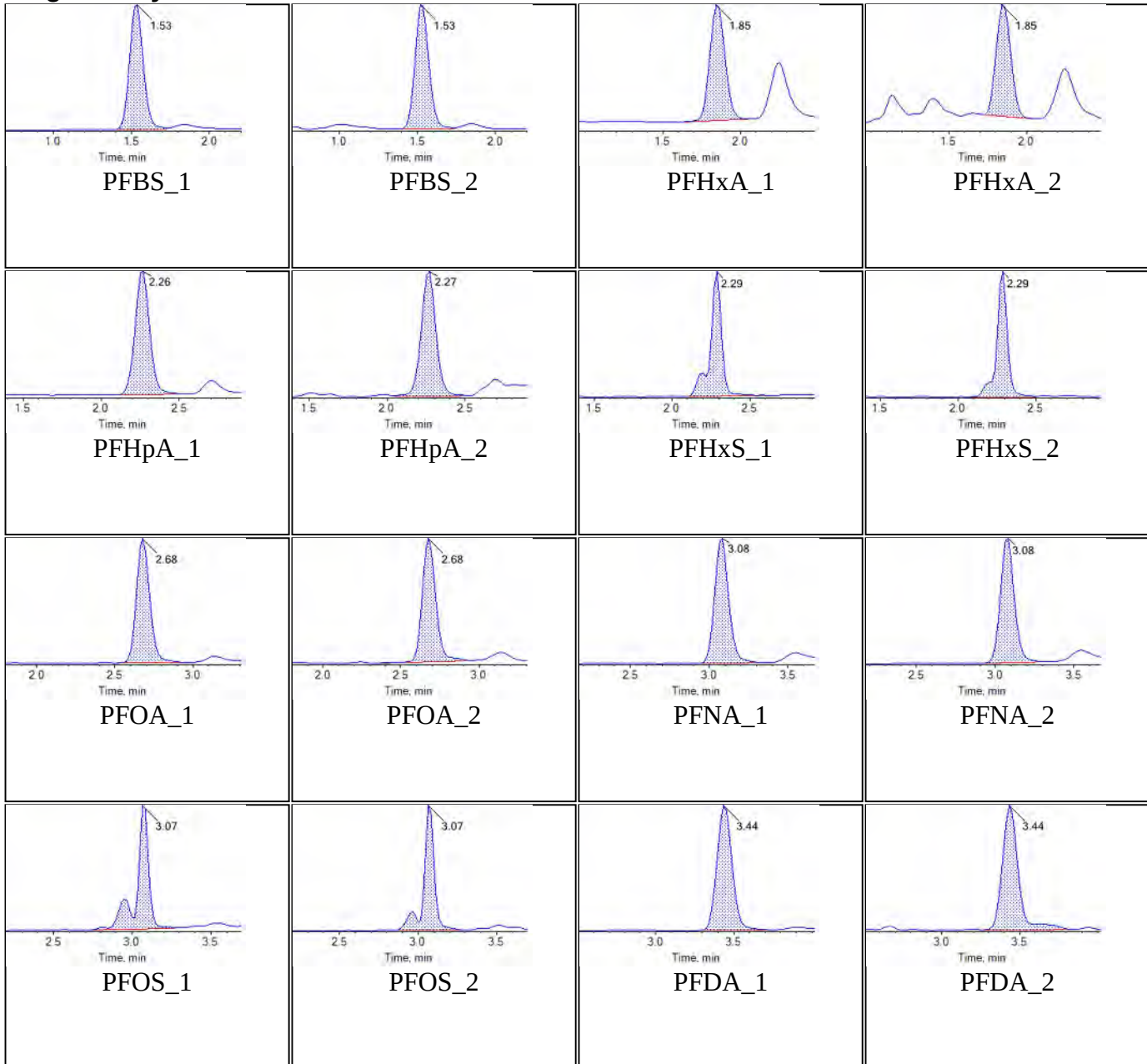


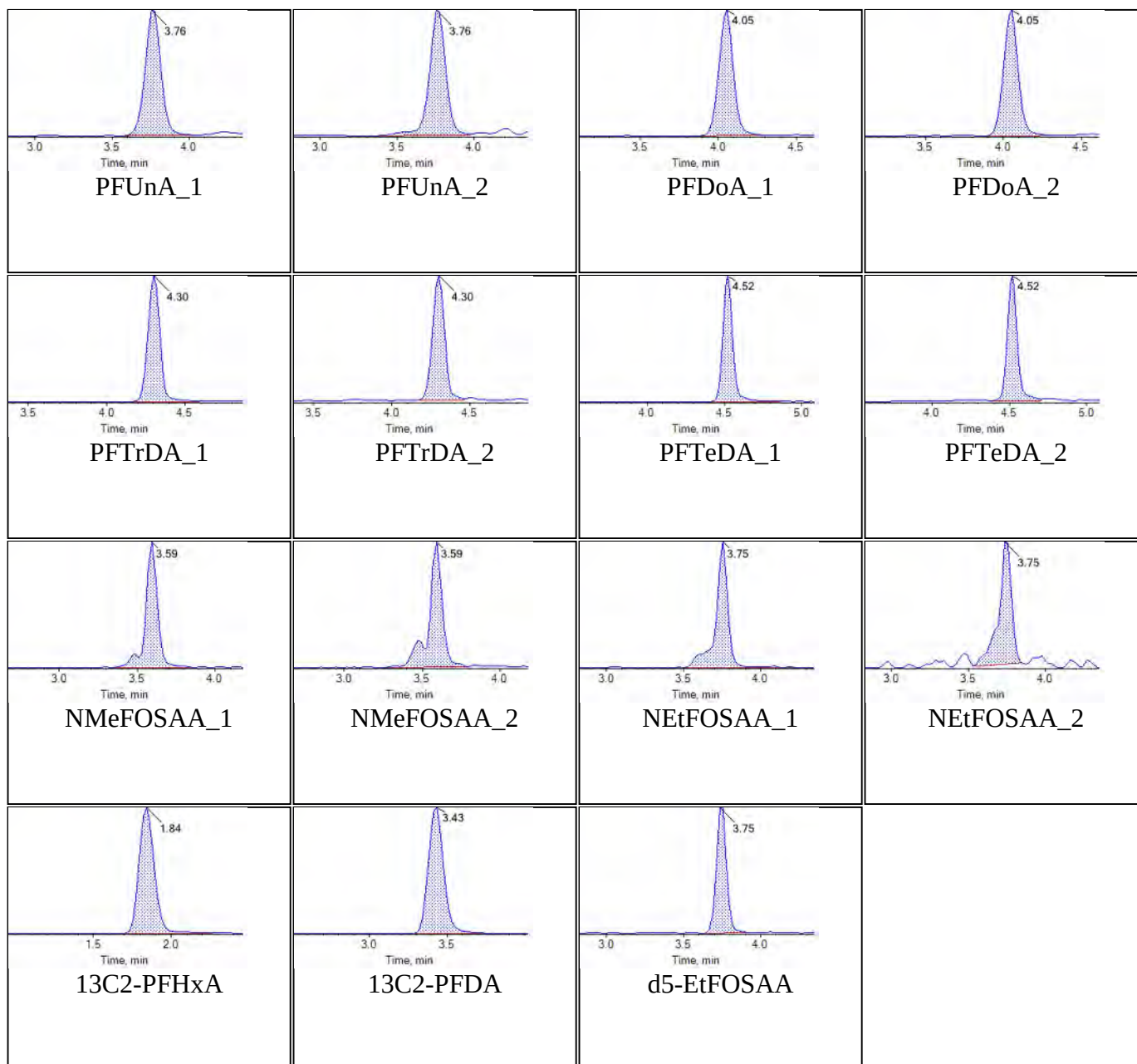
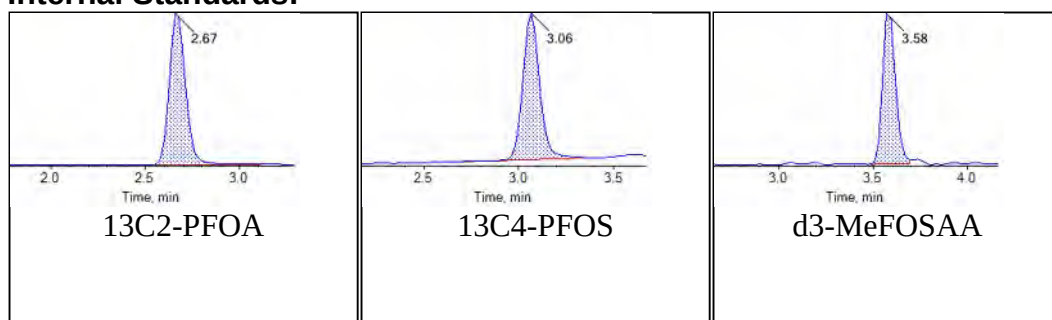
**Internal Standards:**

Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:01:22	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Chromatograms

Target Analytes:

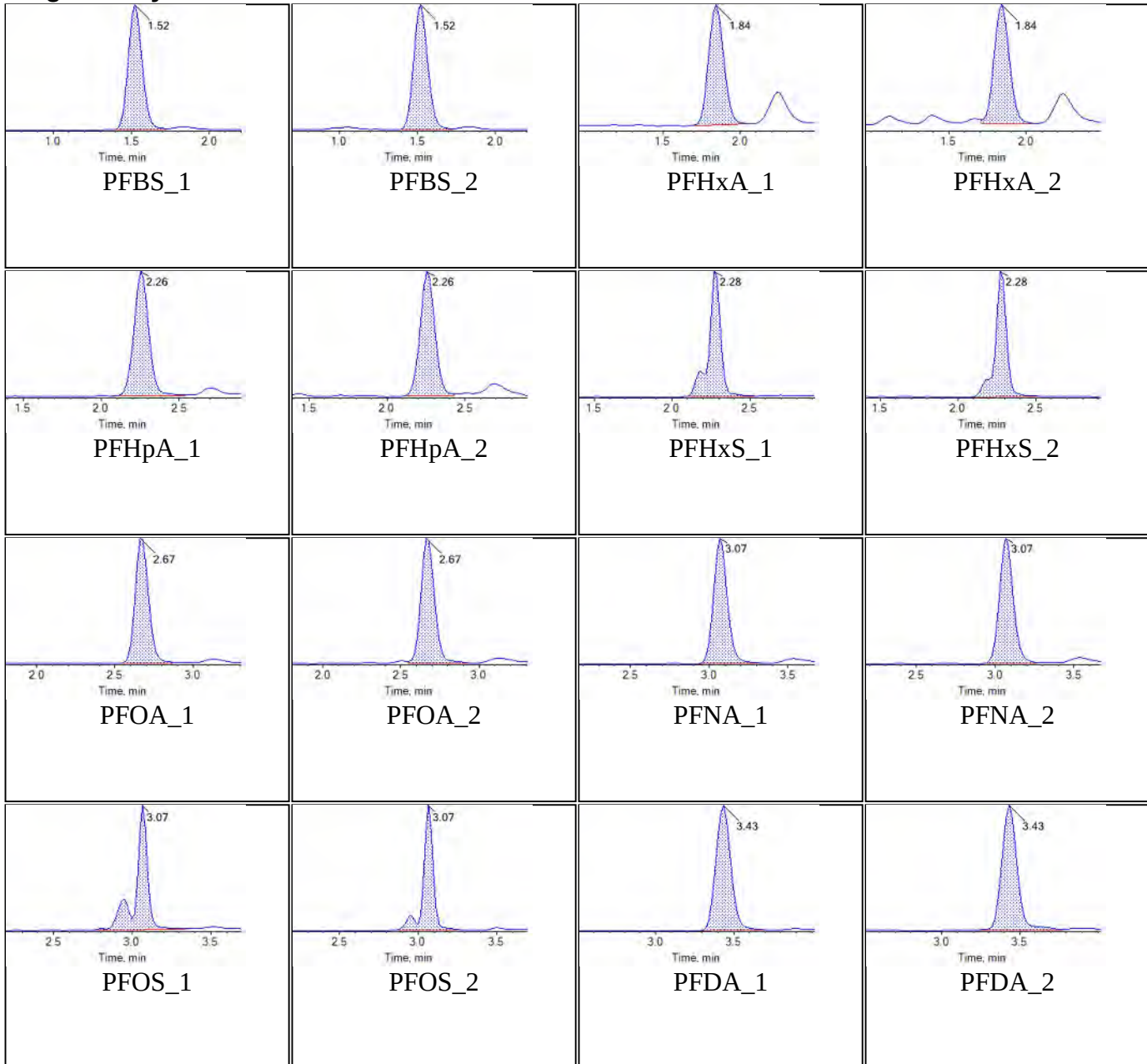


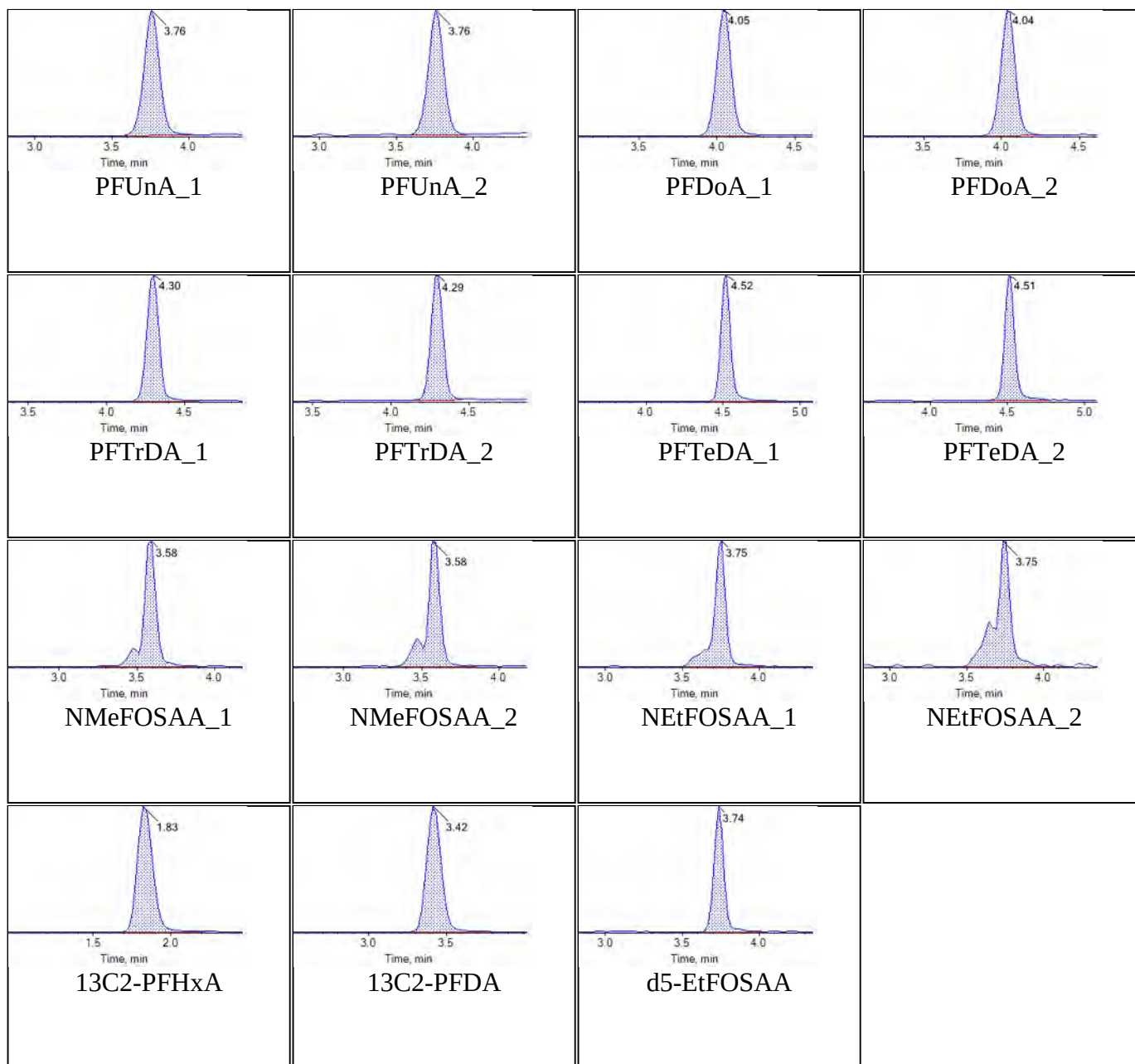
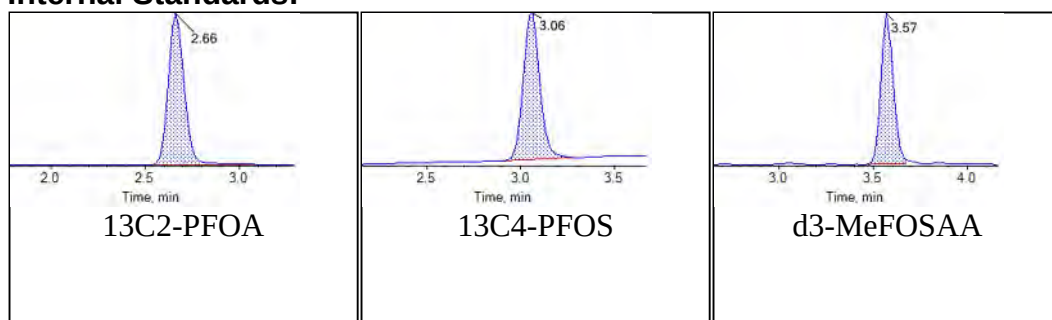
**Internal Standards:**

Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:10:18	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Chromatograms

Target Analytes:

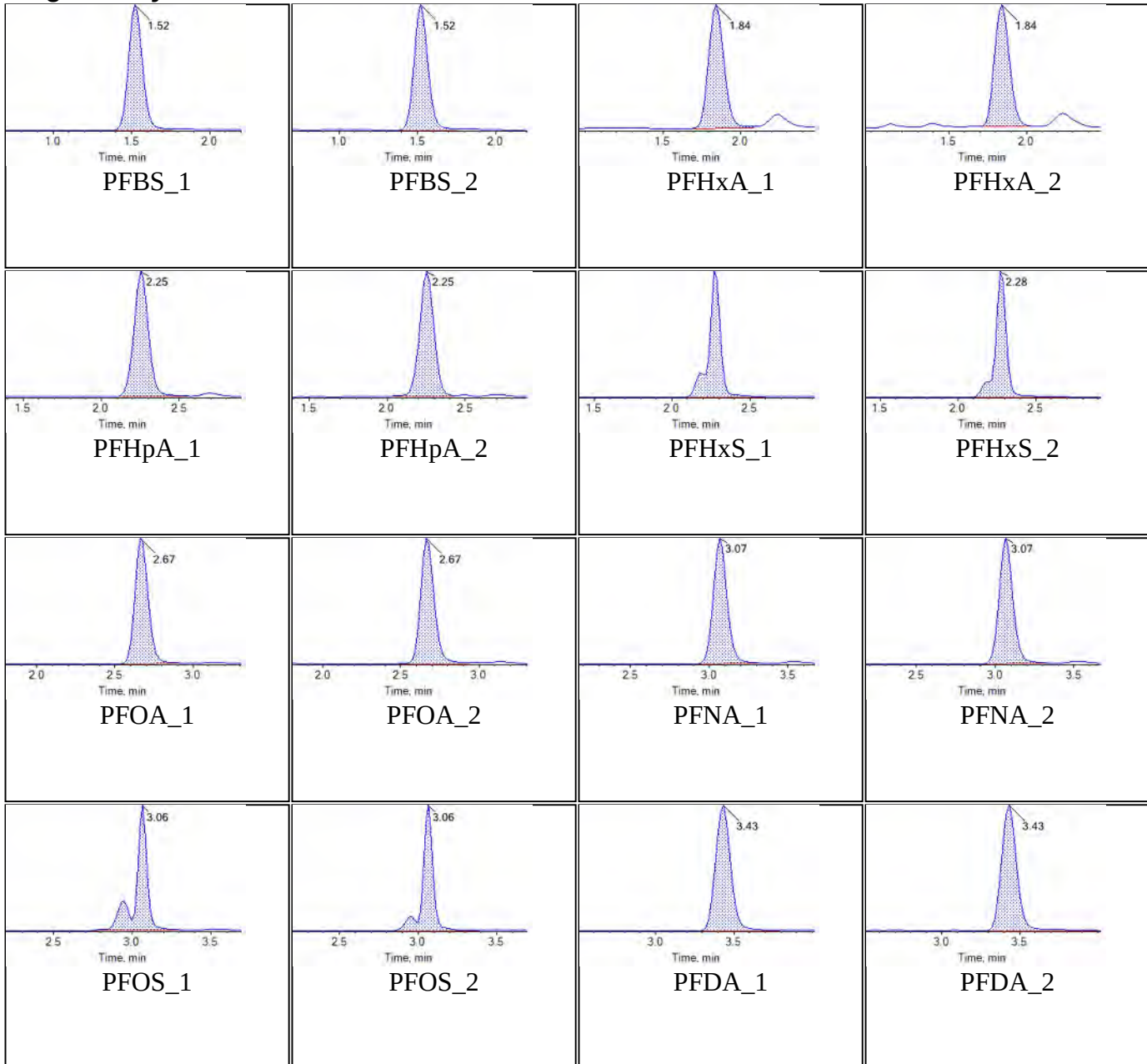


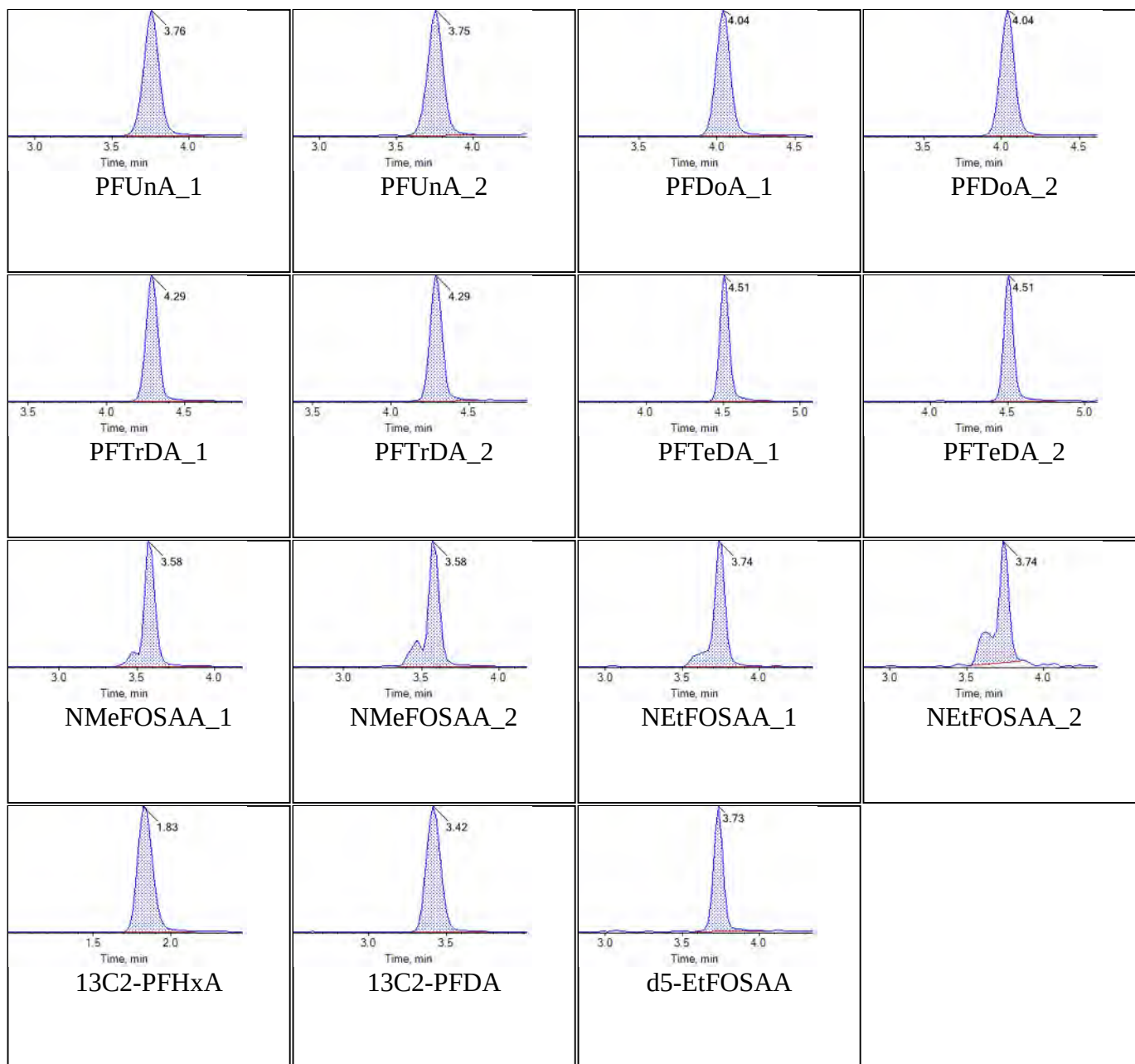
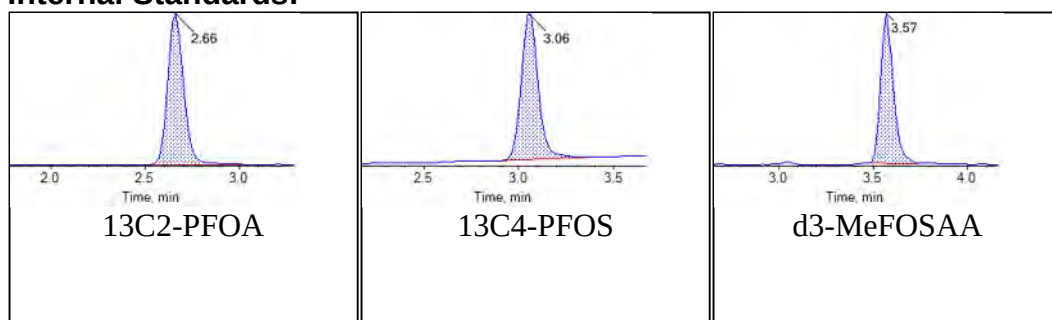
**Internal Standards:**

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:19:15	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Chromatograms

Target Analytes:

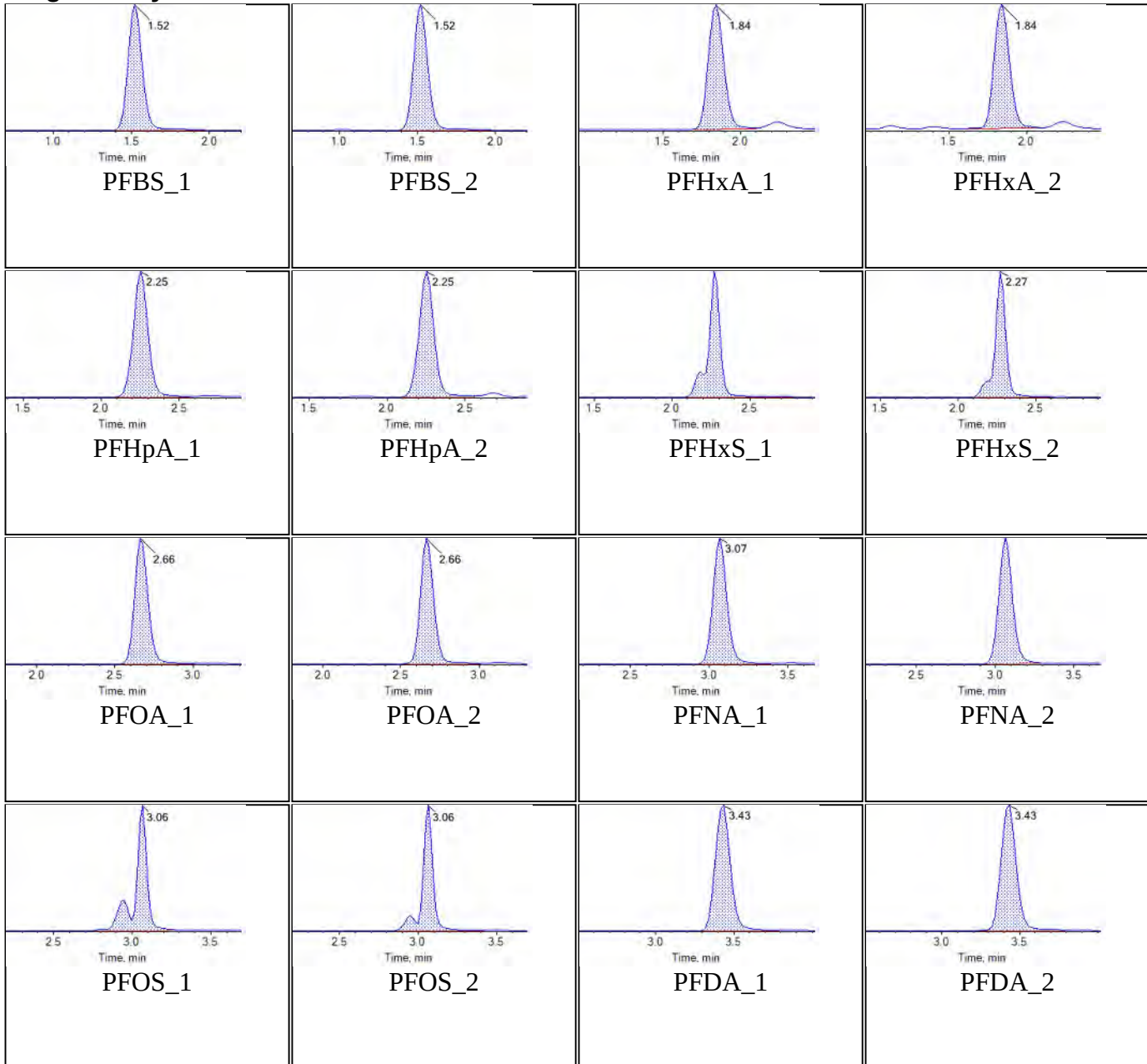


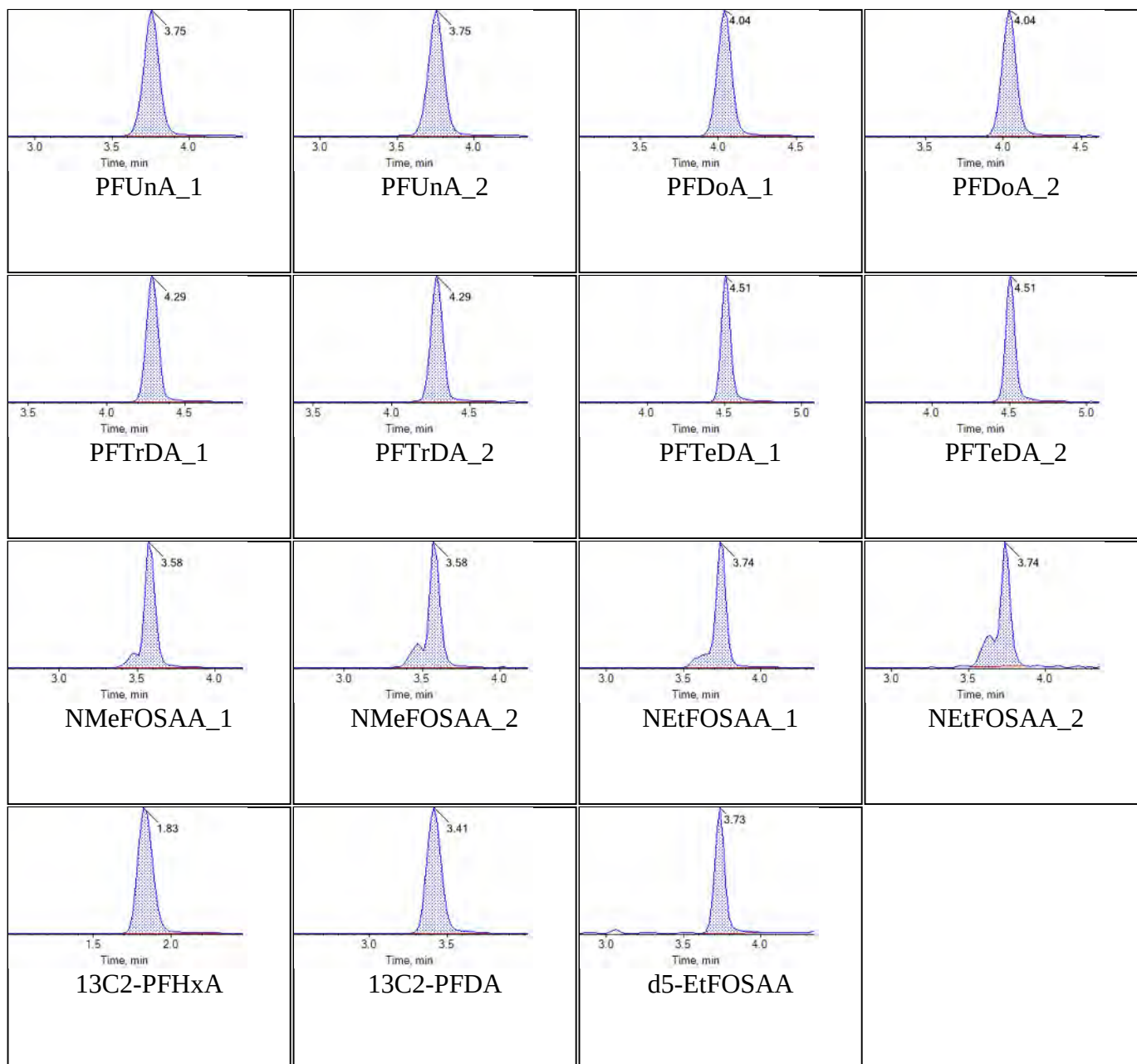
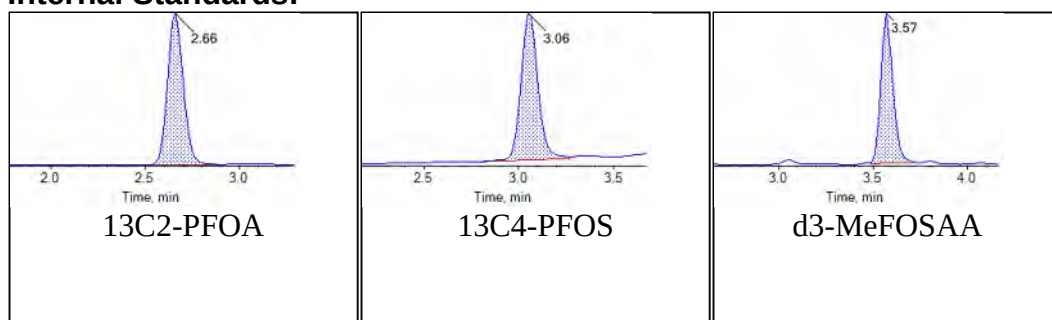
**Internal Standards:**

Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:28:10	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Chromatograms

Target Analytes:

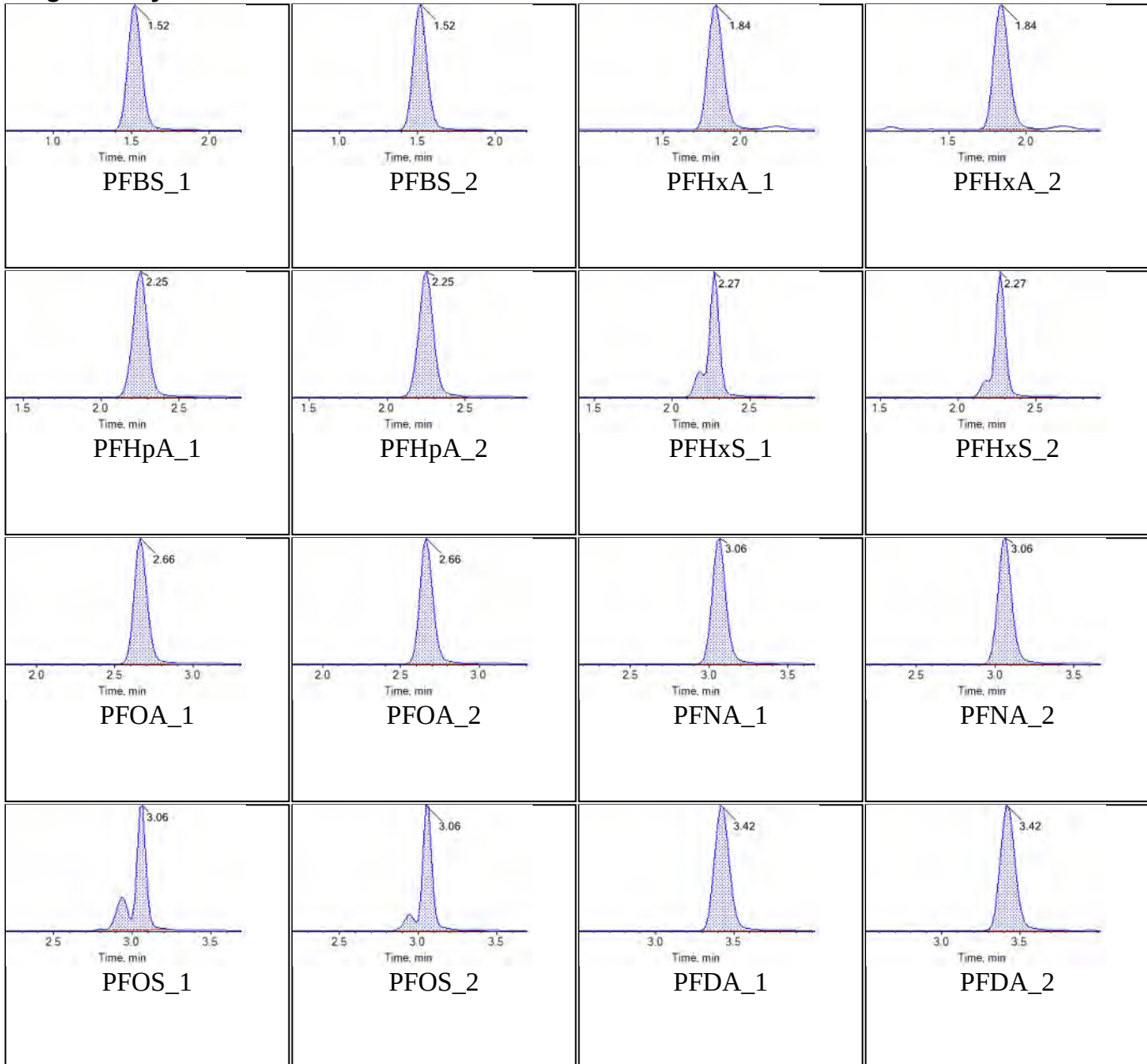


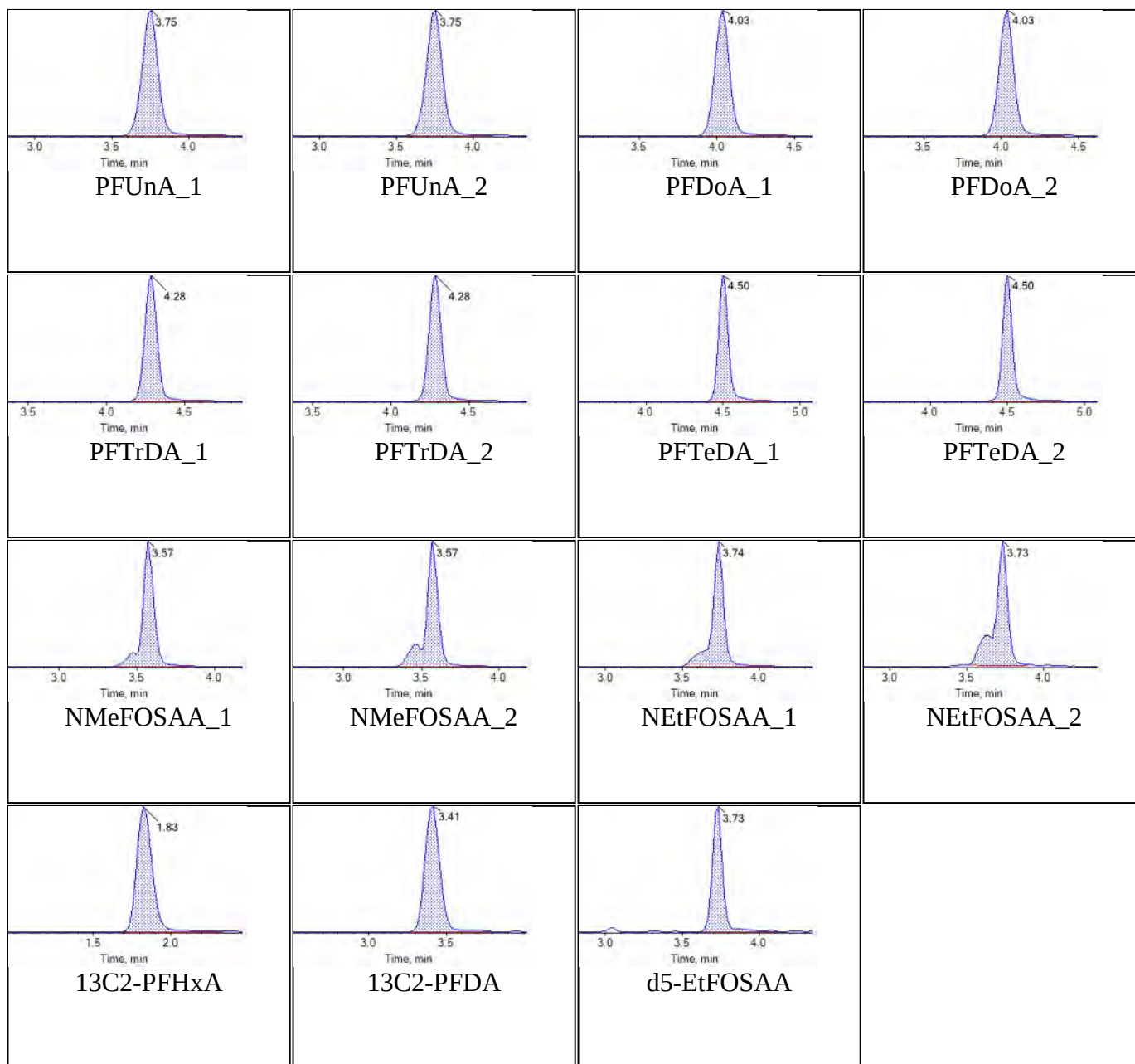
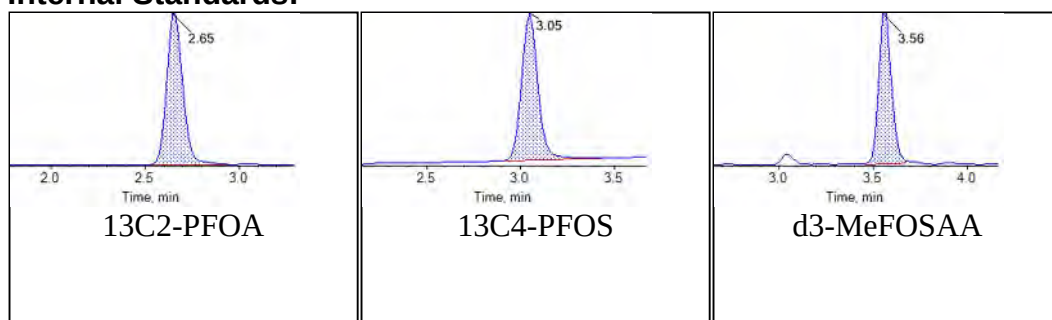
**Internal Standards:**

Sample Name	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:37:07	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Chromatograms

Target Analytes:

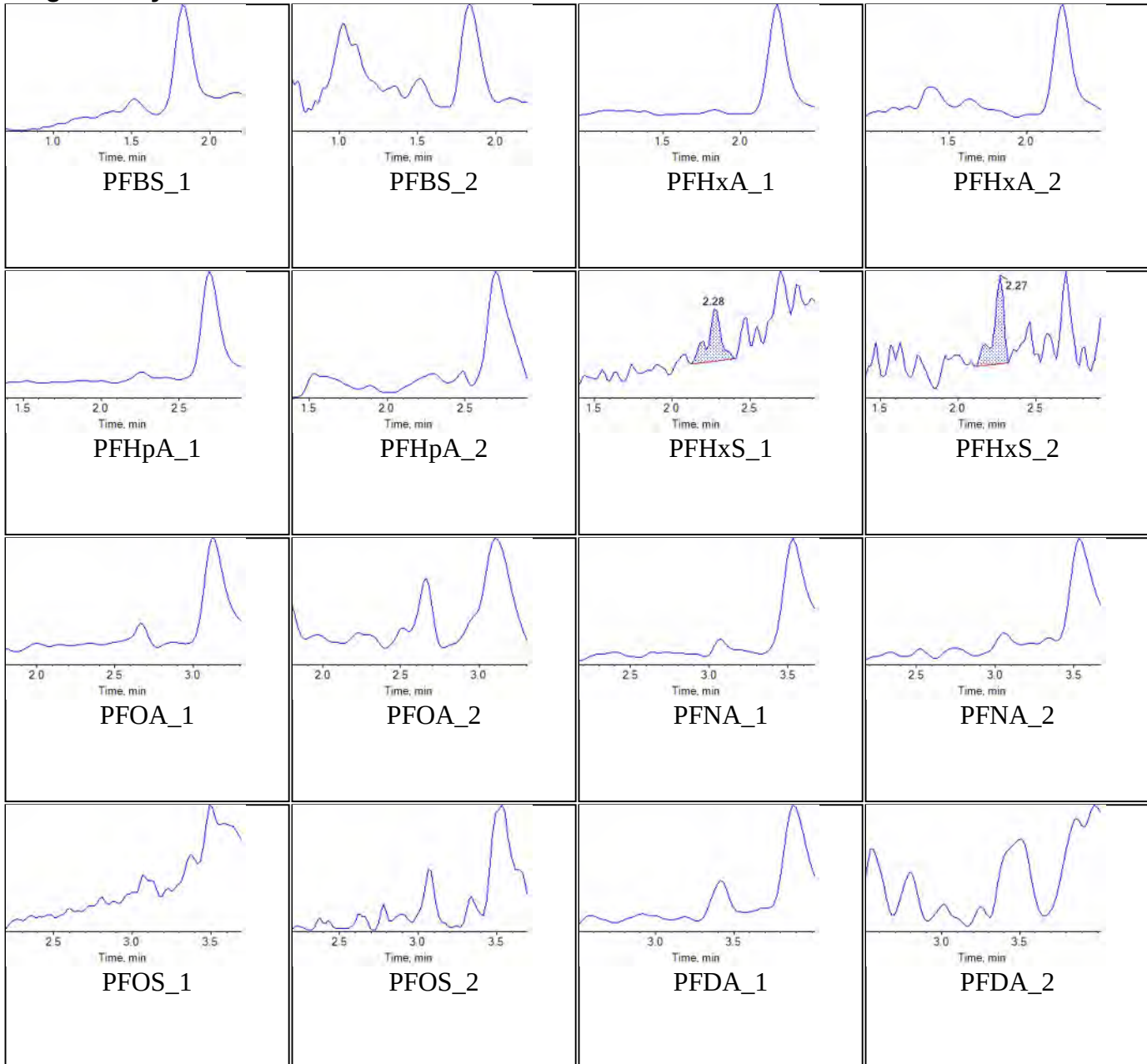


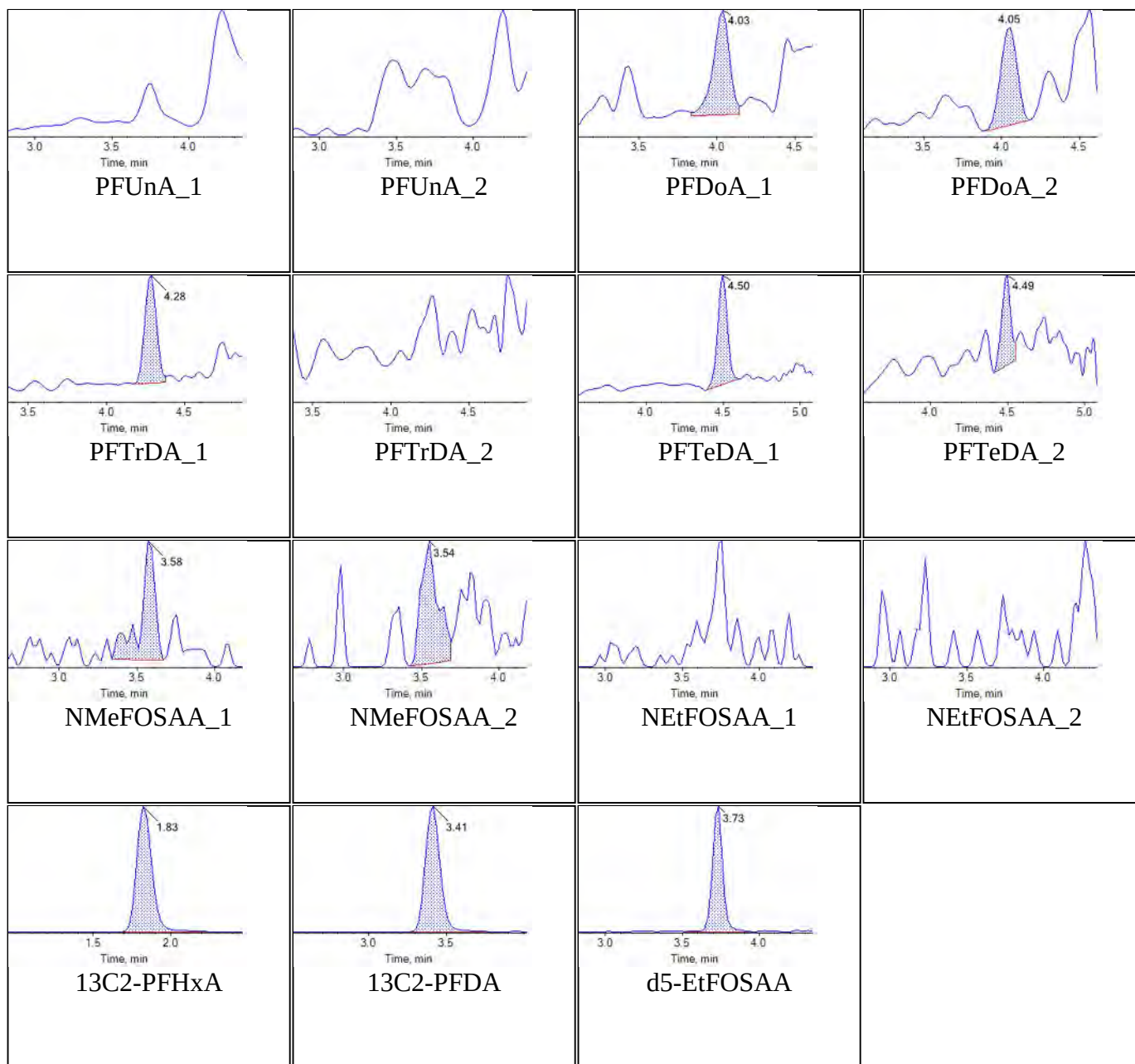
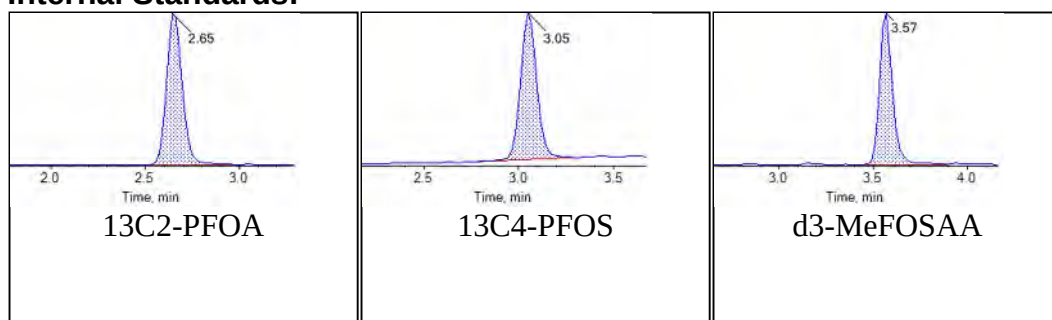
**Internal Standards:**

Sample Name	KA08 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:46:04	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Chromatograms

Target Analytes:

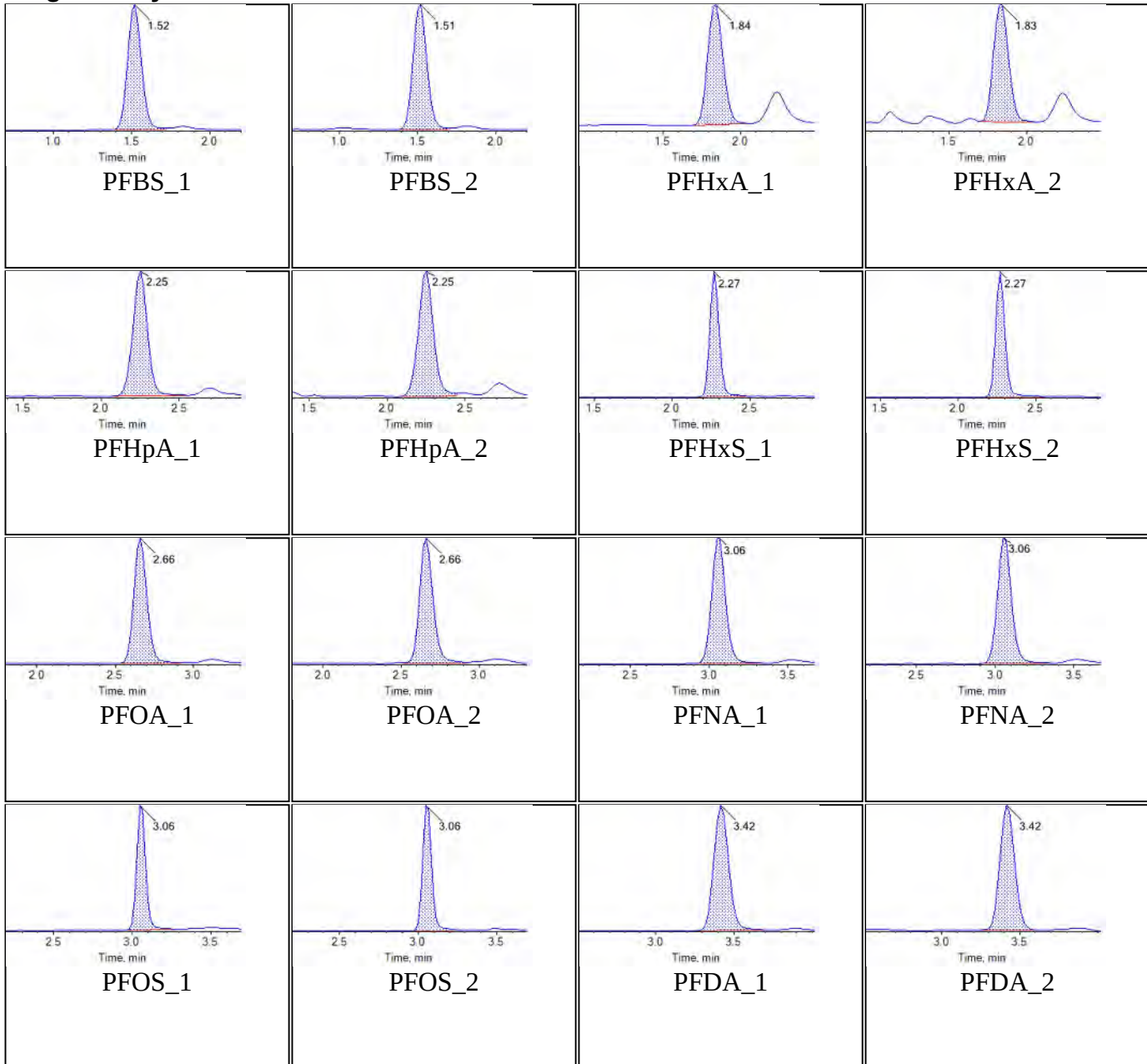


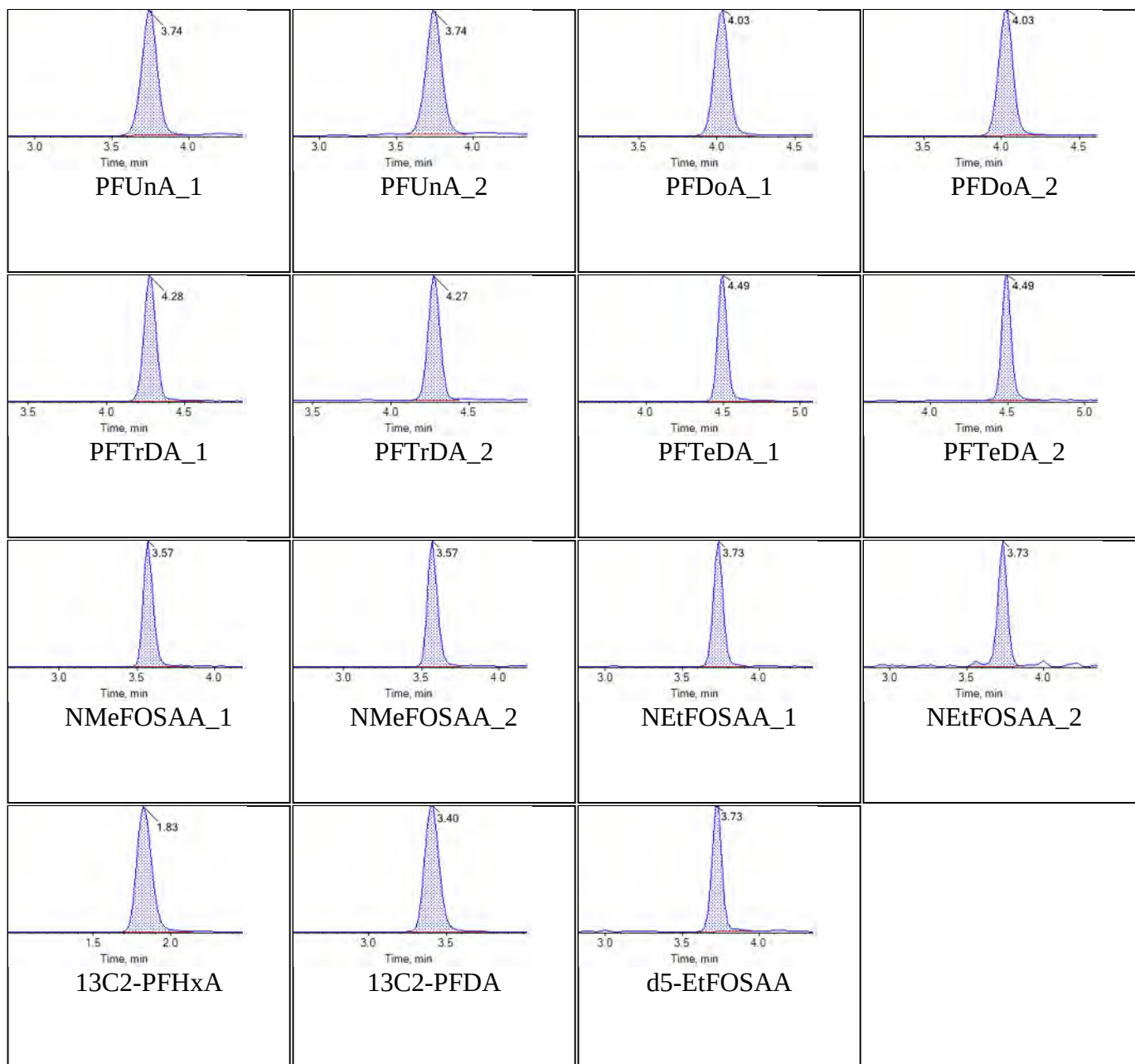
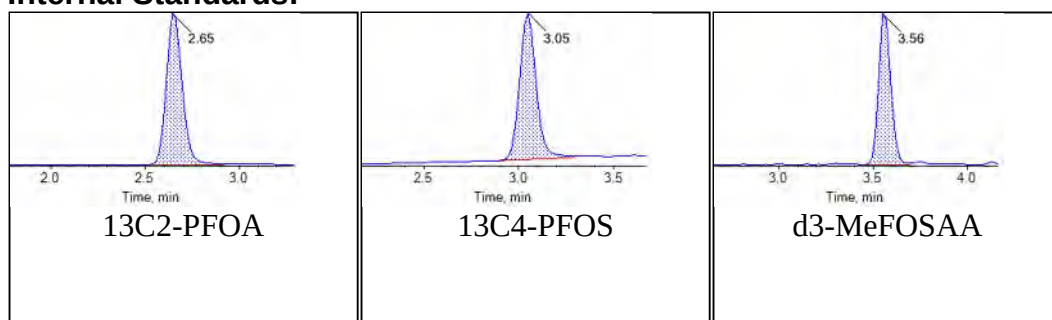
**Internal Standards:**

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:55:01	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Chromatograms

Target Analytes:

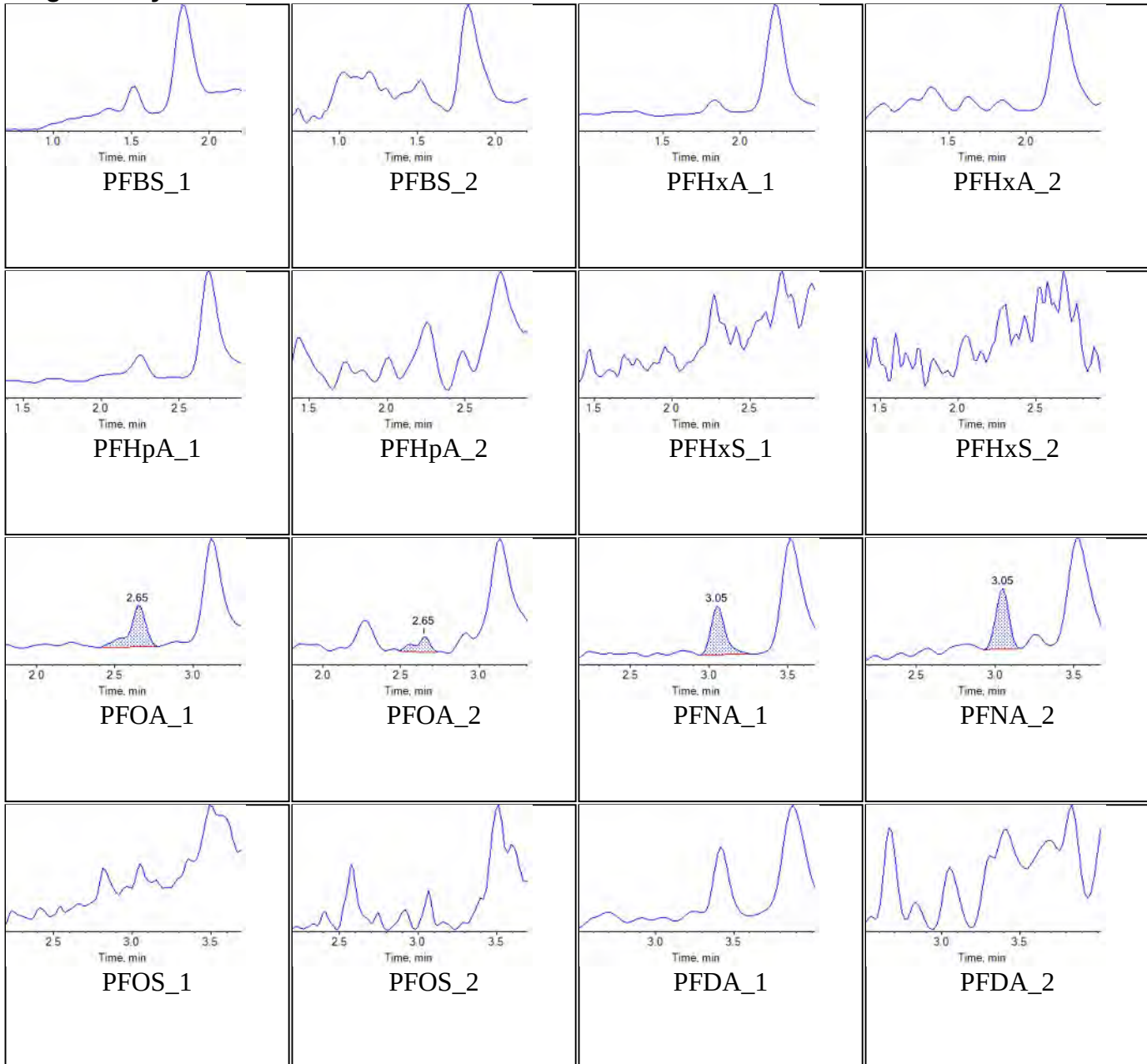


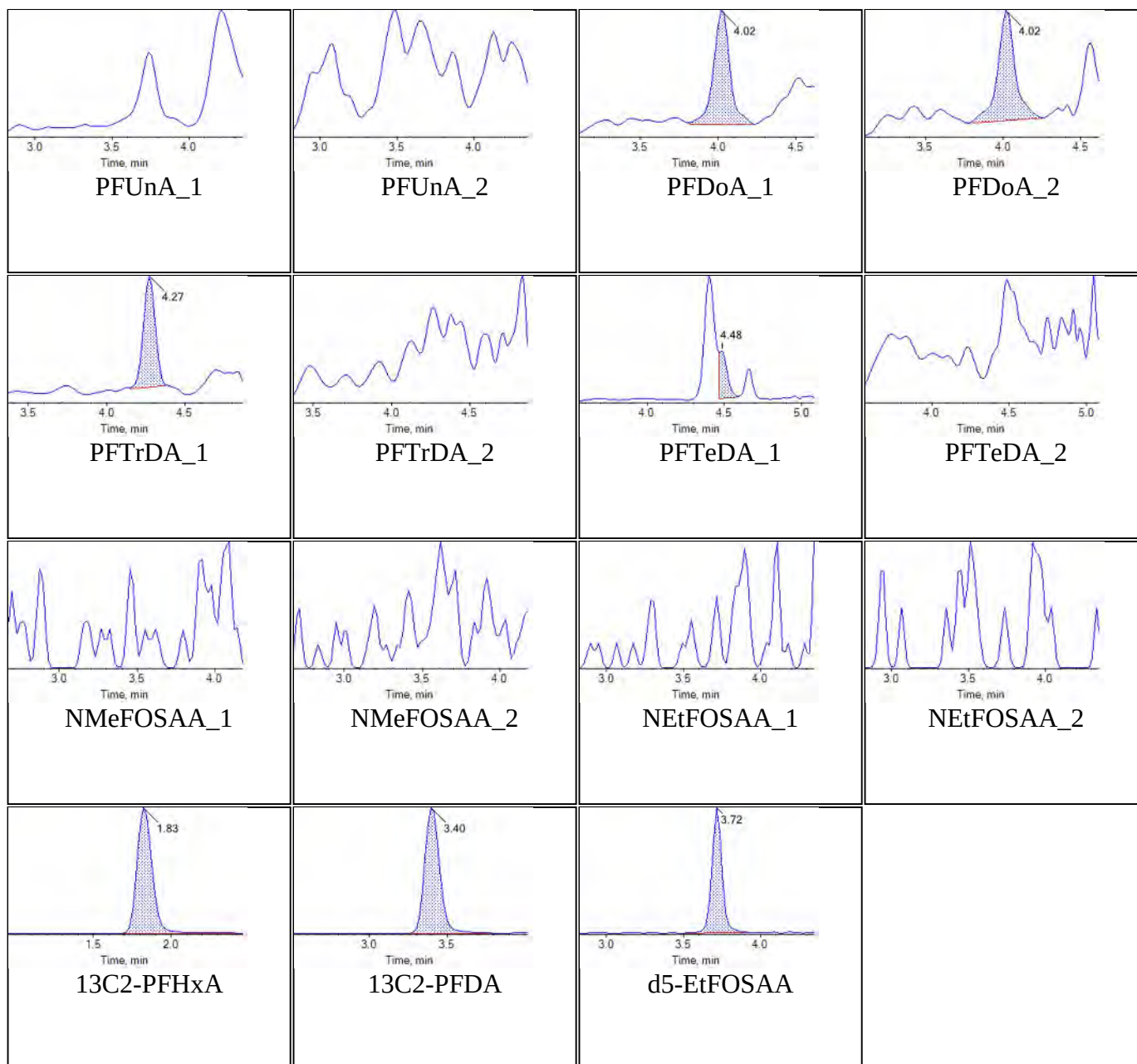
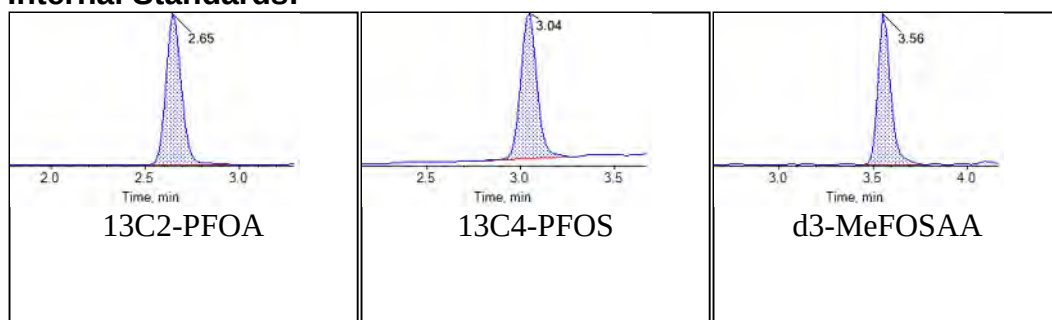
**Internal Standards:**

Sample Name	CR996PB-FS(0)	Injection Vial	14
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:12:53	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Chromatograms

Target Analytes:

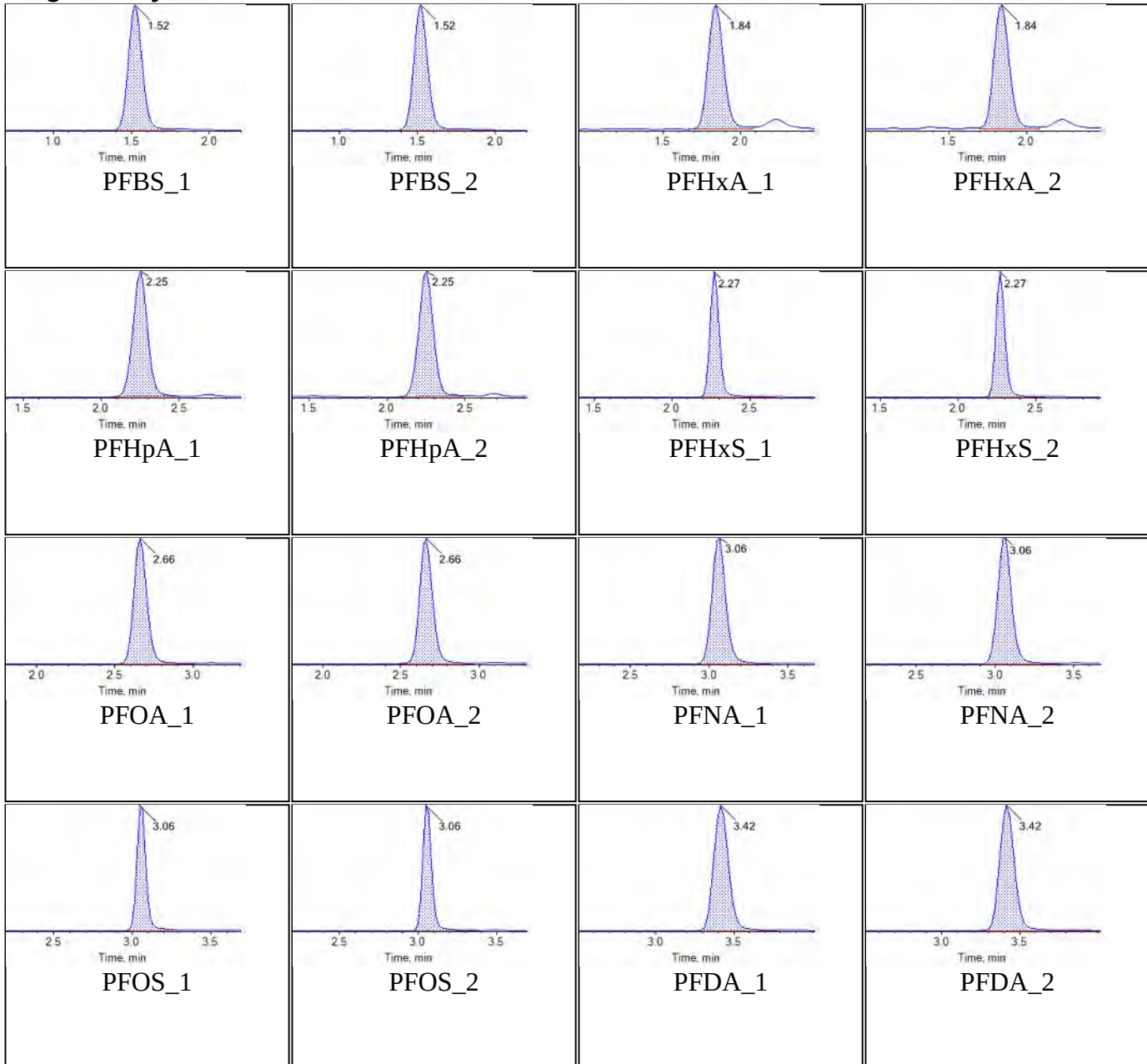


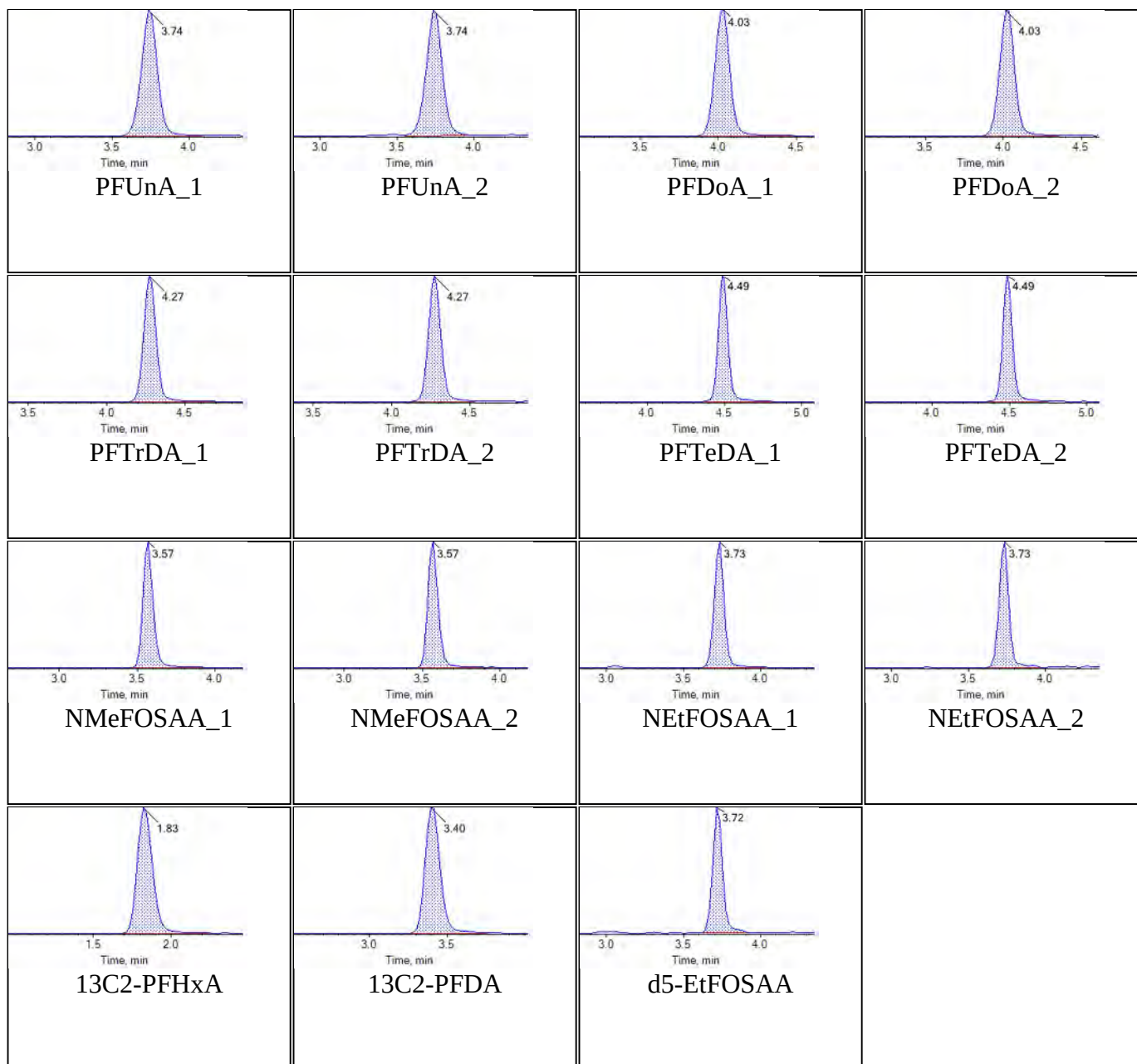
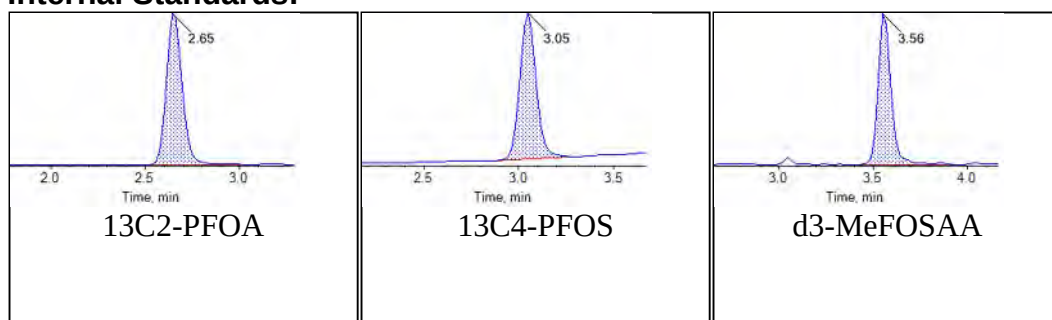
**Internal Standards:**

Sample Name	CR997LCS-FS(0)	Injection Vial	15
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:21:49	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Chromatograms

Target Analytes:

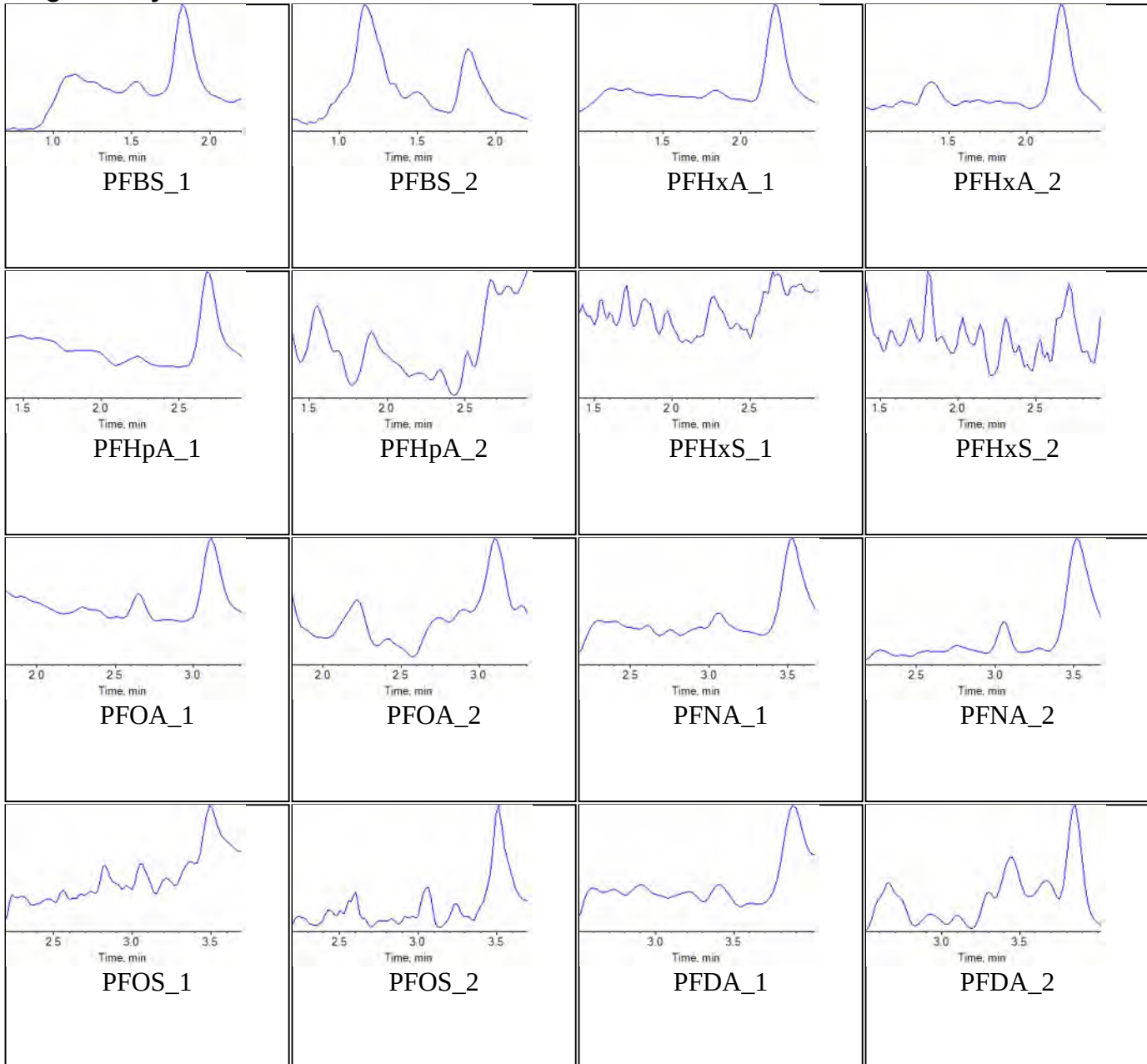


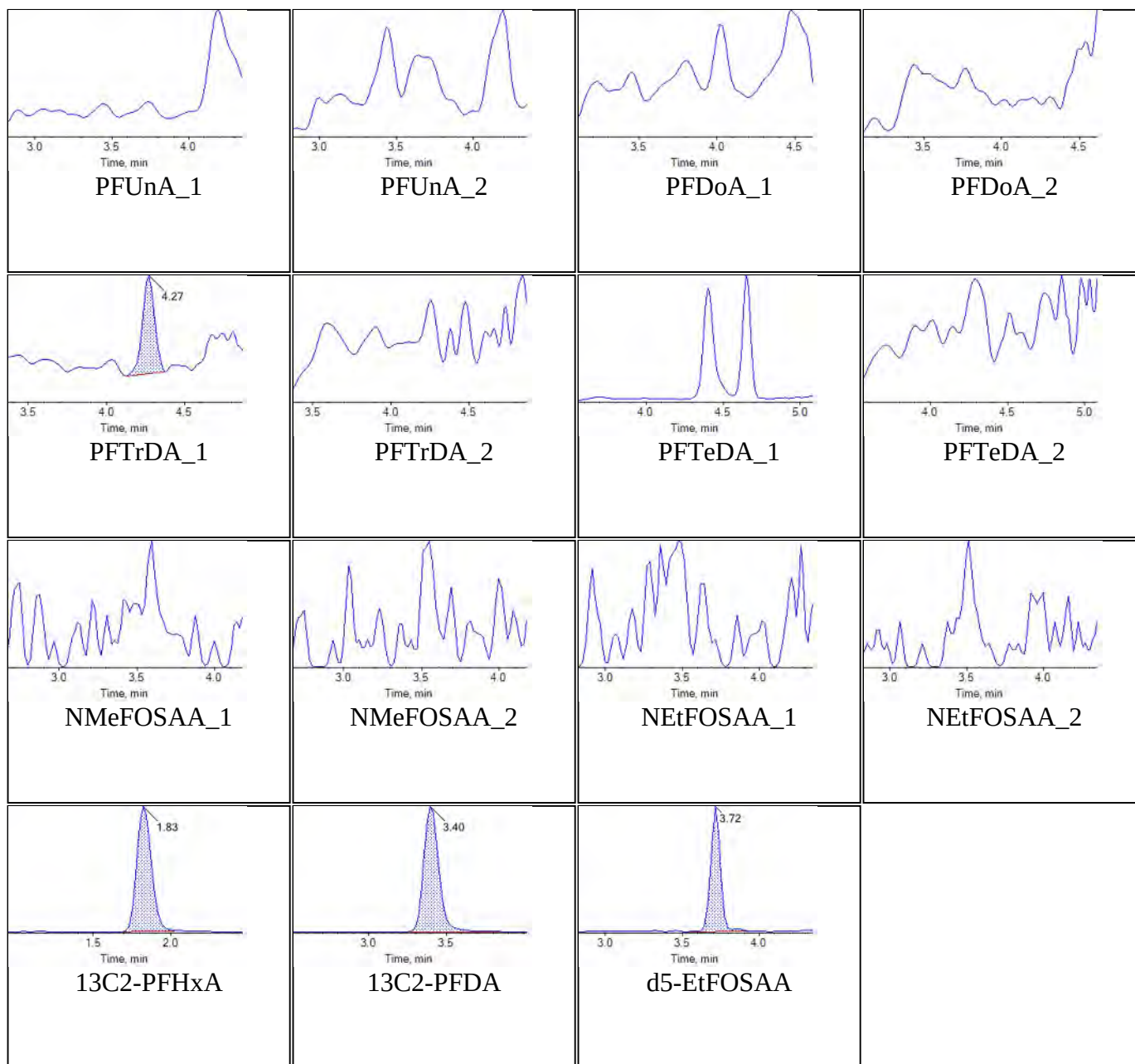
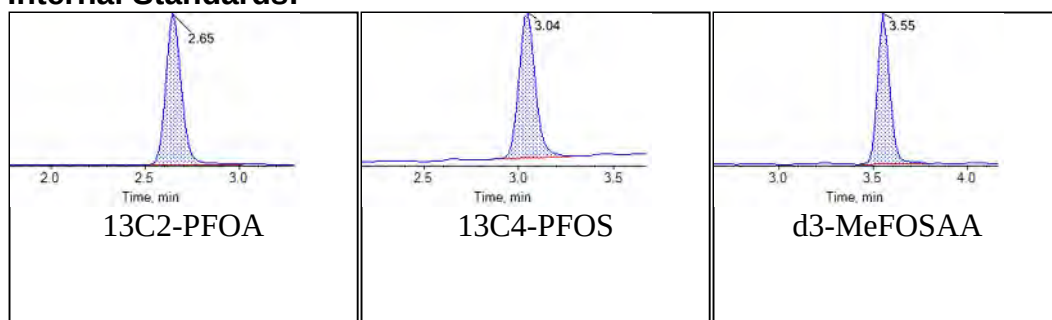
**Internal Standards:**

Sample Name	J8739-FS(0)	Injection Vial	16
Sample ID	JAX-RES-101018-1000-5	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:30:46	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Chromatograms

Target Analytes:

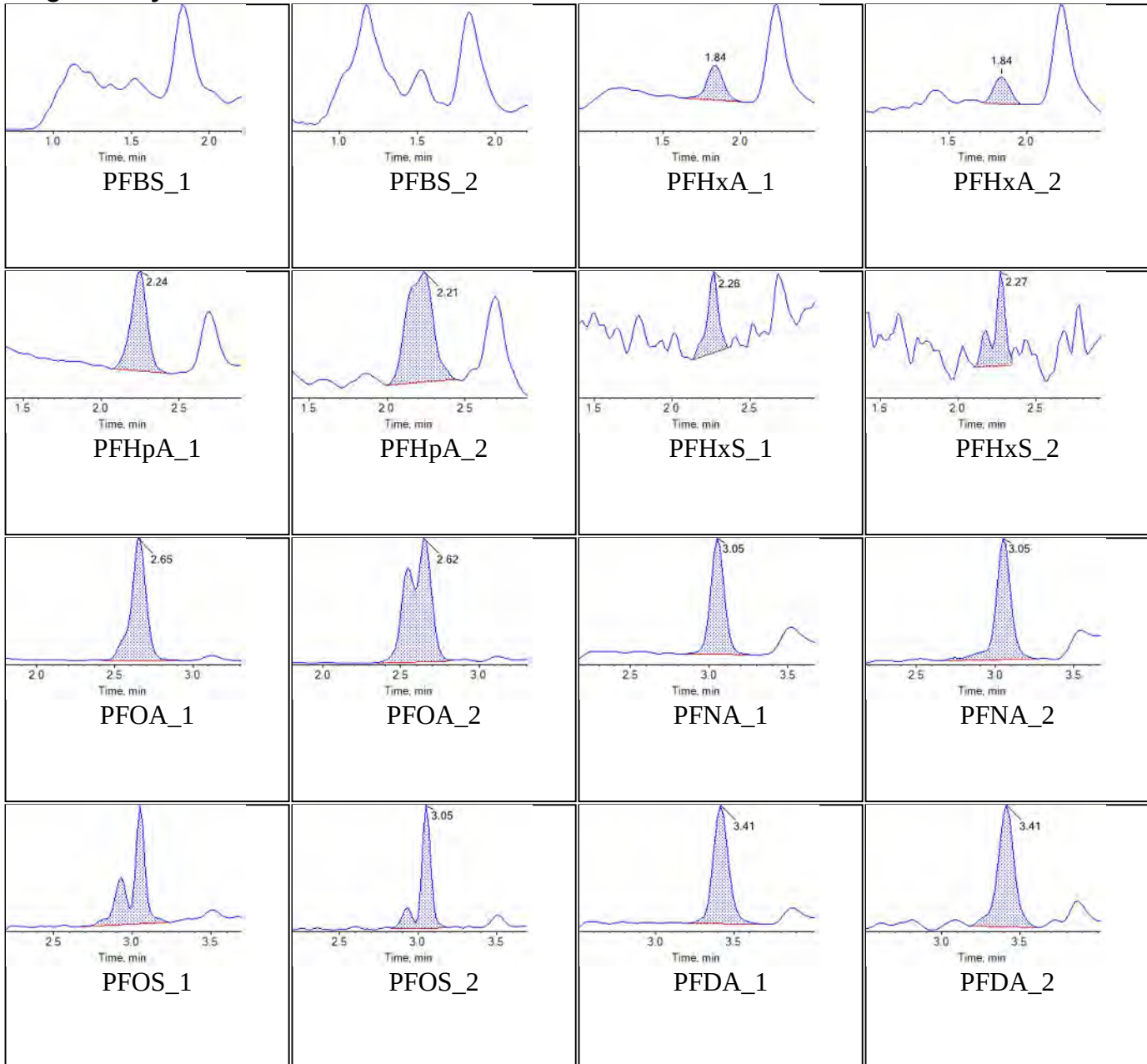


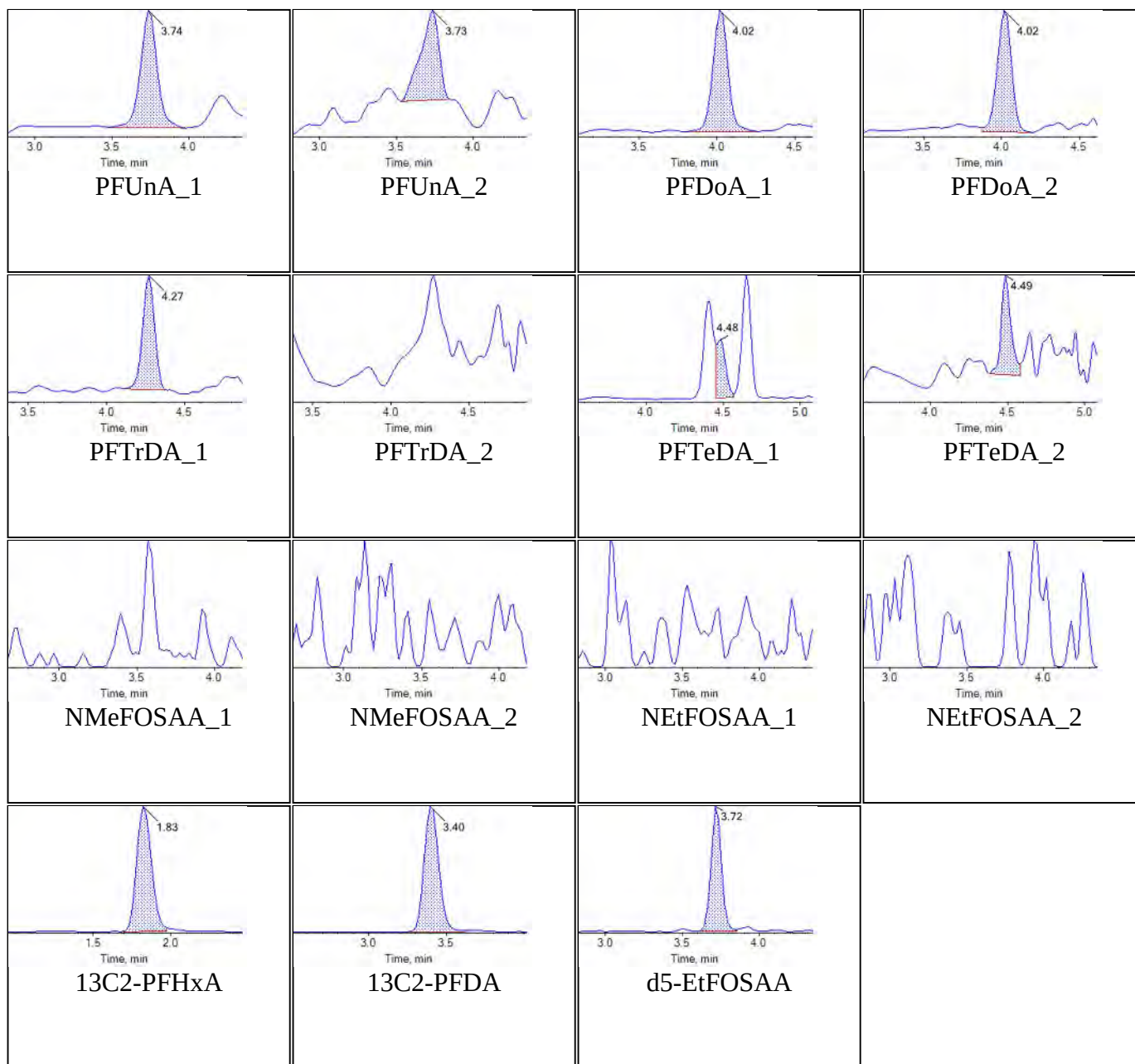
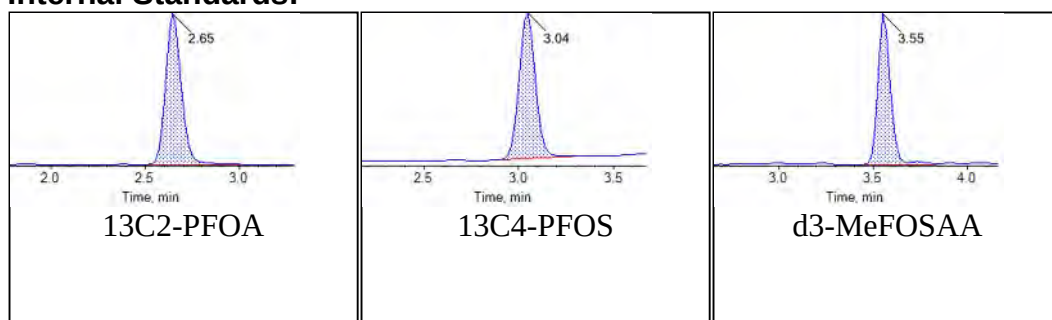
**Internal Standards:**

Sample Name	J8741-FS(0)	Injection Vial	17
Sample ID	JAX-RES-101018-1000-3	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:39:42	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Chromatograms

Target Analytes:

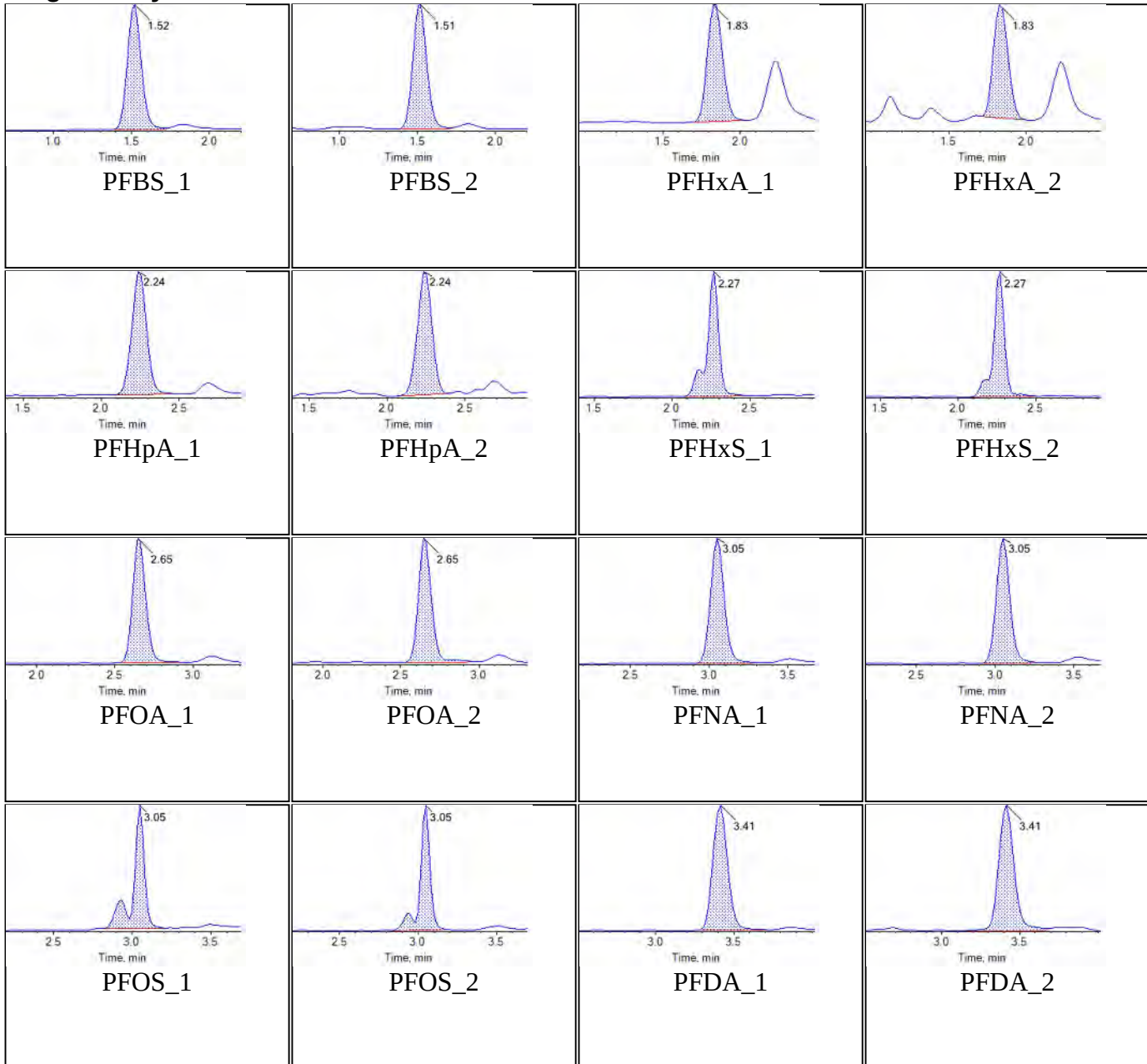


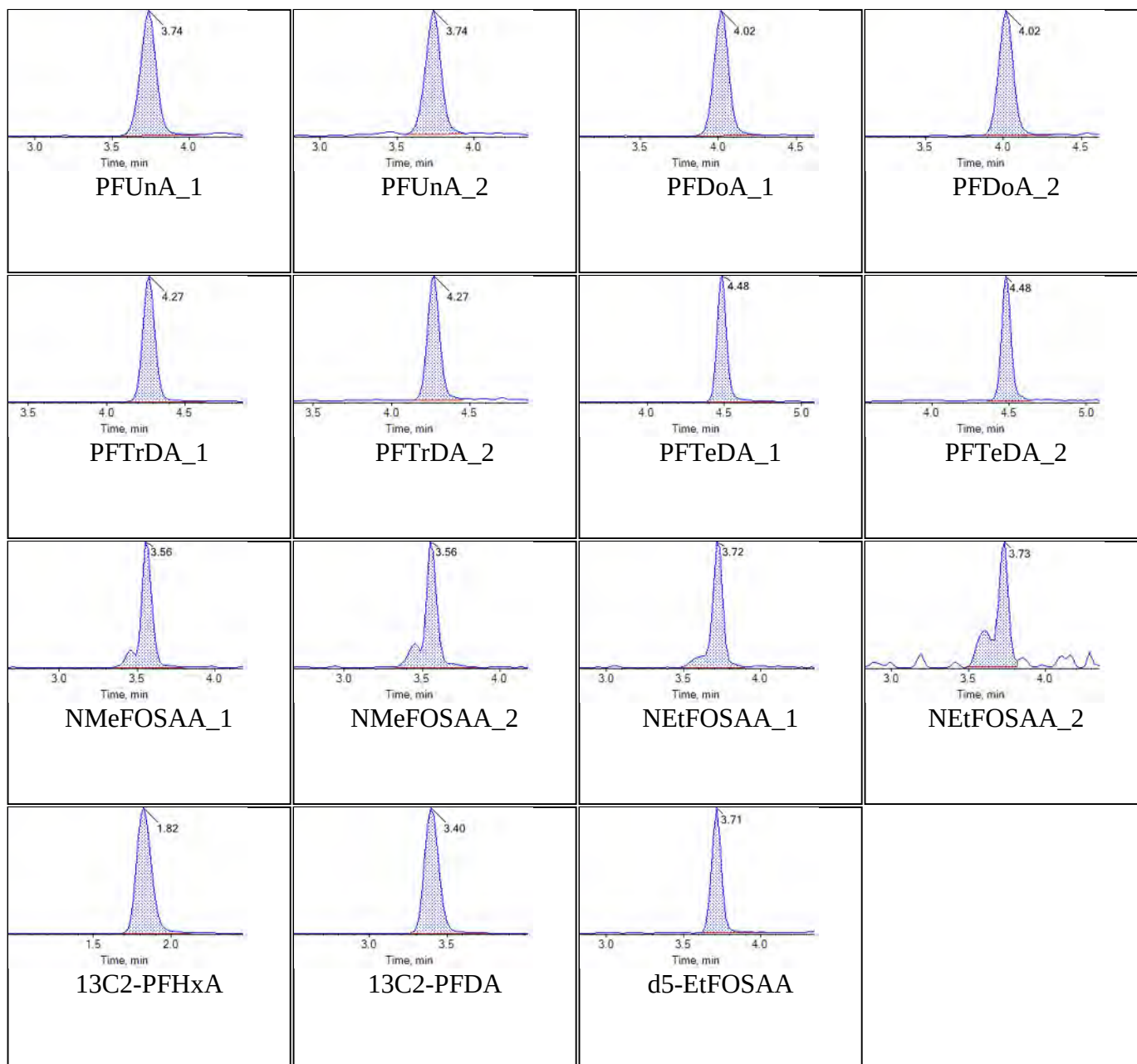
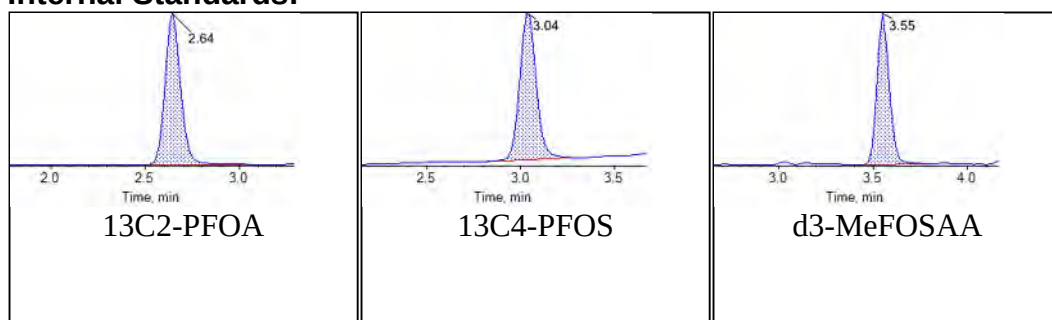
**Internal Standards:**

Sample Name	JZ82 CCV	Injection Vial	18
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:48:38	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Chromatograms

Target Analytes:



**Internal Standards:**

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","307-24-4","PFHxA",".500000","ng/L","U",".22","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500",".50",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","375-85-9","PFHpA","1.000000","ng/L","U",".34","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","335-67-1","PFOA","1.000000","ng/L","U",".38","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","375-95-1","PFNA","1.000000","ng/L","U",".37","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","335-76-2","PFDA","1.000000","ng/L","U",".39","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","2058-94-8","PFUnA","1.000000","ng/L","U",".38","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","307-55-1","PFDaA","1.000000","ng/L","U",".42","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","72629-94-8","PFTTrDA","1.000000","ng/L","U",".42","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","376-06-7","PFTeDA","1.500000","ng/L","U",".73","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.50",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","2355-31-9","NMeFOSAA","1.000000","ng/L","U",".42","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","2991-50-6","NEtFOSAA","1.000000","ng/L","U",".44","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","375-73-5","PFBS",".500000","ng/L","U",".21","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500",".50",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","1763-23-1","PFOS","1.000000","ng/L","U",".30","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","355-46-4","PFHxS","1.000000","ng/L","U",".34","MDL","","T","","","2.50","LOQ","YES",-99.000000","",".250000",".000500","1.00",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","BDO-2106","13C2-PFHxA",".410000","ng/L","","-99.00","NA","","SIS","102.00","","-99.00","NA","YES",".400000","",".250000",".000500",".50",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","BDO-2110","13C2-PFDA",".400000","ng/L","","-99.00","NA","","SIS","99.00","","-99.00","NA","YES",".400000","",".250000",".000500",".50",""

"CR996PB-FS","SOP 5-369","Initial","CR996PB-FS","BNO","BDO-1839","d5-EtFOSAA","1.760000","ng/L","","-99.00","NA","","SIS","110.00","","-99.00","NA","YES","1.600000","",".250000",".000500",".50",""

"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","307-24-4","PFHxA","18.450000","ng/L","",".22","MDL","","T","123.00","","2.50","LOQ","YES","15.000000","",".250000",".

000500",".50",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","375-85-
9","PFHpA","17.660000","ng/L","",".34","MDL","","T","118.00","","2.50","LOQ","YES","15.000000","",".250000",".000500","1.00",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","335-67-
1","PFOA","17.890000","ng/L","",".38","MDL","","T","119.00","","2.50","LOQ","YES","15.000000","",".250000",".000500","1.00",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","375-95-
1","PFNA","17.780000","ng/L","",".37","MDL","","T","119.00","","2.50","LOQ","YES","15.000000","",".250000",".000500","1.00",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","335-76-
2","PFDA","18.020000","ng/L","",".39","MDL","","T","120.00","","2.50","LOQ","YES","15.000000","",".250000",".000500","1.00",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","2058-94-
8","PFUnA","17.600000","ng/L","",".38","MDL","","T","117.00","","2.50","LOQ","YES","15.000000","",".250000",".000500","1.00",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","307-55-
1","PFDoA","16.800000","ng/L","",".42","MDL","","T","112.00","","2.50","LOQ","YES","15.000000","",".250000",".000500","1.00",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","72629-94-
8","PFTTrDA","17.150000","ng/L","",".42","MDL","","T","114.00","","2.50","LOQ","YES","15.000000","",".250000",".000500","1.00",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","376-06-
7","PFTeDA","16.260000","ng/L","",".73","MDL","","T","108.00","","2.50","LOQ","YES","15.000000","",".250000",".000500","1.50",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","2355-31-
9","NMeFOSAA","18.710000","ng/L","",".42","MDL","","T","125.00","","2.50","LOQ","YES","15.000000","",".250000",".000500","1.00",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","2991-50-
6","NEtFOSAA","18.270000","ng/L","",".44","MDL","","T","122.00","","2.50","LOQ","YES","15.000000","",".250000",".000500","1.00",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","375-73-
5","PFBS","15.640000","ng/L","",".21","MDL","","T","118.00","","2.50","LOQ","YES","13.280000","",".250000",".000500",".50",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","1763-23-
1","PFOS","15.540000","ng/L","",".30","MDL","","T","108.00","","2.50","LOQ","YES","14.320000","",".250000",".000500","1.00",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","355-46-
4","PFHxA","16.520000","ng/L","",".34","MDL","","T","117.00","","2.50","LOQ","YES","14.180000","",".250000",".000500","1.00",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","BDO-2106","13C2-
PFHxA",".440000","ng/L","","-99.00","NA","","SIS","110.00","","-99.00","NA","YES",".400000","",".250000",".000500",".50",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","BDO-2110","13C2-
PFDA",".420000","ng/L","","-99.00","NA","","SIS","106.00","","-99.00","NA","YES",".400000","",".250000",".000500",".50",""
"CR997LCS-FS","SOP 5-369","Initial","CR997LCS-FS","BNO","BDO-1839","d5-
EtFOSAA","1.390000","ng/L","","-99.00","NA","","SIS","87.00","","-99.00","NA","YES","1.600000","",".250000",".000500",".50",""
"JAX-RES-101018-1000-5","SOP 5-369","Initial","J8739-FS","BNO","307-24-
4","PFHxA",".450000","ng/L","U",".20","MDL","","T","","","2.27","LOQ","YES","-99.000000","",".275000",".000500",".45",""
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9","PFHpA",".910000","ng/L","U",".31","MDL","","T","","","2.27","LOQ","YES","-99.000000","",".275000",".000500"

0",".91","""
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"JAX-RES-101018-1000-5","SOP 5-369","Initial","J8739-FS","BNO","355-46-4","PFHxS",".910000","ng/L","U",".31","MDL","","T","","","2.27","LOQ","YES","-99.000000","",".275000",".000500",".91","""
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"JAX-RES-101018-1000-5","SOP 5-369","Initial","J8739-FS","BNO","BDO-1839","d5-EtFOSAA","1.350000","ng/L","","-99.00","NA","","SIS","93.00","","-99.00","NA","YES","1.460000","",".275000",".000500",".50","""
"JAX-RES-101018-1050-3","SOP 5-369","Initial","J8741-FS","BNO","307-24-4","PFHxA",".320000","ng/L","J",".19","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".44","""
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"JAX-RES-101018-1050-3","SOP 5-369","Initial","J8741-FS","BNO","335-76-2","PFDA",".880000","ng/L","U",".34","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88", ""
"JAX-RES-101018-1050-3","SOP 5-369","Initial","J8741-FS","BNO","2058-94-8","PFUnA",".880000","ng/L","U",".33","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88", ""
"JAX-RES-101018-1050-3","SOP 5-369","Initial","J8741-FS","BNO","307-55-1","PFDaA",".880000","ng/L","U",".37","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88", ""
"JAX-RES-101018-1050-3","SOP 5-369","Initial","J8741-FS","BNO","72629-94-8","PFTTrDA",".880000","ng/L","U",".37","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88", ""
"JAX-RES-101018-1050-3","SOP 5-369","Initial","J8741-FS","BNO","376-06-7","PFTeDA","1.320000","ng/L","U",".64","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500","1.32", ""
"JAX-RES-101018-1050-3","SOP 5-369","Initial","J8741-FS","BNO","2355-31-9","NMeFOSAA",".880000","ng/L","U",".37","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88", ""
"JAX-RES-101018-1050-3","SOP 5-369","Initial","J8741-FS","BNO","2991-50-6","NEtFOSAA",".880000","ng/L","U",".39","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88", ""
"JAX-RES-101018-1050-3","SOP 5-369","Initial","J8741-FS","BNO","375-73-5","PFBS",".440000","ng/L","U",".18","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".44", ""
"JAX-RES-101018-1050-3","SOP 5-369","Initial","J8741-FS","BNO","1763-23-1","PFOS",".730000","ng/L","J",".26","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88", ""
"JAX-RES-101018-1050-3","SOP 5-369","Initial","J8741-FS","BNO","355-46-4","PFHxS",".880000","ng/L","U",".30","MDL","","T","","","2.19","LOQ","YES","-99.000000","",".285000",".000500",".88", ""
"JAX-RES-101018-1050-3","SOP 5-369","Initial","J8741-FS","BNO","BDO-2106","13C2-PFHxA",".450000","ng/L","","-99.00","NA","","SIS","129.00","","-99.00","NA","YES",".350000","",".285000",".000500",".50", ""
"JAX-RES-101018-1050-3","SOP 5-369","Initial","J8741-FS","BNO","BDO-2110","13C2-PFDA",".320000","ng/L","","-99.00","NA","","SIS","91.00","","-99.00","NA","YES",".350000","",".285000",".000500",".50", ""
"JAX-RES-101018-1050-3","SOP 5-369","Initial","J8741-FS","BNO","BDO-1839","d5-EtFOSAA","1.130000","ng/L","","-99.00","NA","","SIS","80.00","","-99.00","NA","YES","1.400000","",".285000",".000500",".50", ""
"112G08005-SE0375","SE0375 ? NAS Jacksonville","CR996PB-FS","","WATER","CR996PB-FS","MB","","-99.000000","SOP 5-369","Gen Prep","Initial","10/11/2018 11:35","10/11/2018 19:12","BNO","COA","NA","T","1.000","NA","NA","","100.000000","18-0614","18-0614","DP-18-0310","DP-18-0310","18-0614","10/11/2018 11:35","10/18/2018 16:26", ""
"112G08005-SE0375","SE0375 ? NAS Jacksonville","CR997LCS-FS","","WATER","CR997LCS-FS","LCS","","-99.000000","SOP 5-369","Gen Prep","Initial","10/11/2018 11:35","10/11/2018 19:21","BNO","COA","NA","T","1.000","NA","NA","","100.000000","18-0614","18-0614","DP-18-0310","DP-18-0310","18-0614","10/11/2018 11:35","10/18/2018 16:26", ""
"112G08005-SE0375","SE0375 ? NAS Jacksonville","JAX-RES-101018-1000-5","10/10/2018 10:00","W","J8739-FS","NM","SHP-181011-03",".900000","SOP 5-369","Gen Prep","Initial","10/11/2018 11:35","10/11/2018 19:30","BNO","COA","NA","T","1.000","NA","NA","","100.000000","18-0614","18-0614","DP-18-0310","DP-18-

0310","18-0614","10/11/2018 10:00","10/18/2018 16:26",""
"112G08005-SE0375","SE0375 ? NAS Jacksonville","JAX-RES-101018-1050-3","10/10/2018 10:50","W","J8741-
FS","NM","SHP-181011-03",".900000","SOP 5-369","Gen Prep","Initial","10/11/2018 11:35","10/11/2018
19:39","BNO","COA","NA","T","1.000","NA","NA","","100.000000","18-0614","18-0614","DP-18-0310","DP-18-
0310","18-0614","10/11/2018 10:00","10/18/2018 16:26",""



TO: M. PETERSON **DATE:** OCTOBER 25, 2018

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

SUBJECT: ORGANIC DATA VALIDATION –POLYFLUOROALKYL SUBSTANCES (PFAS)
NAVAL AIR STATION (NAS), JACKSONVILLE
JACKSONVILLE, FLORIDA
SAMPLE DELIVERY GROUPS (SDGs) 18-0614, 18-0624

SAMPLES: SDG 18-0614
2/Drinking Water
JAX-RES-101018-1000-5 JAX-RES-101018-1050-3

SDG 18-0624
1/Field Reagent Blank (FRB)
JAX-RES-101018-1050-3-FRB

Overview

The sample sets for NAS JRB Willow Grove, SDGs 18-0614 and 18-0624, consisted of two (2) drinking water samples and one (1) FRB sample. All samples were analyzed for 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 (PFTTrDA) and perfluoroundecanoic acid (PFUnA). No field duplicate pairs were included in this SDG.

The samples were collected by Tetra Tech on October 10, 2018 and analyzed by Battelle Norwell Operations. All sample analyses were conducted in accordance with EPA Method 537 version 1.1 analytical and reporting protocols. The data contained in these SDGs were validated at EPA Stage 4 with regard to the following parameters:

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

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results

TO: M. PETERSON
SDGS: 18-0614; 18-0624

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are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, and documentation supporting these findings is presented in Appendix C.

PFAS

Detected results reported below the Limit of Quantitation (LOQ) but above the method detection limit (MDL) were qualified as estimated (J). Non-detected results were reported to the MDL in the database.

Additional Comments

The laboratory uses a primary transition for the quantitation of a compound and a secondary transition for confirmation.

The FRB associated with sample JAX-RES-101018-1050-3 was analyzed because the sample contained detections greater than the LOQ.

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

Executive Summary

Laboratory Performance: No issues.

Other Factors Affecting Data Quality: Results below the LOQ were estimated.

The data for these analyses were reviewed with reference to the Environmental Protection Agency document EPA/600/R-08/092, Method 537, "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)", (September 2009), US EPA National Functional Guidelines for Organic Data Review (January 2017), and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories version 5.1" (2017) as applicable. The text of this report has been formulated to address only those areas affecting data quality.



Tetra Tech, Inc.
Terri L. Solomon
Chemist/Data Validator



Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

TO: M. PETERSON
SDGS: 18-0614; 18-0624

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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 ($< 2 \times \text{IDL}$ for inorganics and $< \text{CRQL}$ 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-SE03 SDG: 18-0614 FRACTION: PFAS MEDIA: WATER	NSAMPLE	JAX-RES-101018-1000-5			JAX-RES-101018-1050-3		
	LAB_ID	J8739-FS			J8741-FS		
	SAMP_DATE	10/10/2018			10/10/2018		
	QC_TYPE	NM			NM		
	UNITS	NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		0.4	U		0.39	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		0.38	U		0.37	U	
PENTADEC AFLUOROOCTANOIC ACID (PFOA)		0.35	U		3.02		
PERFLUOROBUTANESULFONIC ACID (PFBS)		0.19	U		0.18	U	
PERFLUORODECANOIC ACID (PFDA)		0.35	U		0.34	U	
PERFLUORODODECANOIC ACID (PFDOA)		0.38	U		0.37	U	
PERFLUOROHEPTANOIC ACID (PFHPA)		0.31	U		0.35	J	P
PERFLUOROHEXANESULFONIC ACID (PFHXS)		0.31	U		0.3	U	
PERFLUOROHEXANOIC ACID (PFHXA)		0.2	U		0.32	J	P
PERFLUORONONANOIC ACID (PFNA)		0.34	U		0.32	U	
PERFLUOROOCTANESULFONIC ACID (PFOS)		0.27	U		0.73	J	P
PERFLUOROTETRADECANOIC ACID (PFTEA)		0.66	U		0.64	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		0.38	U		0.37	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		0.35	U		0.33	U	

PROJ_NO: 08005-SE03 SDG: 18-0624 FRACTION: PFAS MEDIA: WATER	NSAMPLE	JAX-RES-101018-1050-3-FRB		
	LAB_ID	J8742-FS		
	SAMP_DATE	10/10/2018		
	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		0.42	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		0.4	U	
PENTADECAFLUOROOCTANOIC ACID (PFOA)		0.37	U	
PERFLUOROBUTANESULFONIC ACID (PFBS)		0.2	U	
PERFLUORODECANOIC ACID (PFDA)		0.38	U	
PERFLUORODODECANOIC ACID (PFDOA)		0.4	U	
PERFLUOROHEPTANOIC ACID (PFHPA)		0.33	U	
PERFLUOROHEXANESULFONIC ACID (PFHXS)		0.33	U	
PERFLUOROHEXANOIC ACID (PFHXA)		0.21	U	
PERFLUORONONANOIC ACID (PFNA)		0.36	U	
PERFLUOROOCTANESULFONIC ACID (PFOS)		0.29	U	
PERFLUOROTETRADECANOIC ACID (PFTEA)		0.7	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		0.4	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		0.37	U	



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

Client ID JAX-RES-101018-1000-5

Battelle ID J8739-FS
 Sample Type SA
 Collection Date 10/10/2018
 Extraction Date 10/11/2018
 Analysis Date 10/11/2018
 Analytical Instrument Sciex 5500 LC/MS/MS
 % Moisture NA
 Matrix W
 Sample Size 0.275
 Size Unit-Basis L
 Units ng/L

			MDL	LOD	LOQ
PFHxA	307-24-4	0.45 U	0.20	0.45	2.27
PFHpA	375-85-9	0.91 U	0.31	0.91	2.27
PFOA	335-67-1	0.91 U	0.35	0.91	2.27
PFNA	375-95-1	0.91 U	0.34	0.91	2.27
PFDA	335-76-2	0.91 U	0.35	0.91	2.27
PFUnA	2058-94-8	0.91 U	0.35	0.91	2.27
PFDaA	307-55-1	0.91 U	0.38	0.91	2.27
PFTTrDA	72629-94-8	0.91 U	0.38	0.91	2.27
PFTeDA	376-06-7	1.36 U	0.66	1.36	2.27
NMeFOSAA	2355-31-9	0.91 U	0.38	0.91	2.27
NEtFOSAA	2991-50-6	0.91 U	0.40	0.91	2.27
PFBS	375-73-5	0.45 U	0.19	0.45	2.27
PFHxS	355-46-4	0.91 U	0.31	0.91	2.27
PFOS	1763-23-1	0.91 U	0.27	0.91	2.27

Surrogate Recoveries (%)

13C2-PFHxA 127
 13C2-PFDA 93
 d5-EtFOSAA 93

Denise L. Schumitz
 10/26/2018



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

Client ID JAX-RES-101018-1050-3

Battelle ID J8741-FS
 Sample Type SA
 Collection Date 10/10/2018
 Extraction Date 10/11/2018
 Analysis Date 10/11/2018
 Analytical Instrument Sciex 5500 LC/MS/MS
 % Moisture NA
 Matrix W
 Sample Size 0.285
 Size Unit-Basis L
 Units ng/L

			MDL	LOD	LOQ
PFHxA	307-24-4	0.32 J	0.19	0.44	2.19
PFHpA	375-85-9	0.35 J	0.30	0.88	2.19
PFOA	335-67-1	3.02	0.33	0.88	2.19
PFNA	375-95-1	0.88 U	0.32	0.88	2.19
PFDA	335-76-2	0.88 U	0.34	0.88	2.19
PFUnA	2058-94-8	0.88 U	0.33	0.88	2.19
PFDoA	307-55-1	0.88 U	0.37	0.88	2.19
PFTTrDA	72629-94-8	0.88 U	0.37	0.88	2.19
PFTeDA	376-06-7	1.32 U	0.64	1.32	2.19
NMeFOSAA	2355-31-9	0.88 U	0.37	0.88	2.19
NEtFOSAA	2991-50-6	0.88 U	0.39	0.88	2.19
PFBS	375-73-5	0.44 U	0.18	0.44	2.19
PFHxS	355-46-4	0.88 U	0.30	0.88	2.19
PFOS	1763-23-1	0.73 J	0.26	0.88	2.19

Surrogate Recoveries (%)

13C2-PFHxA 129
 13C2-PFDA 91
 d5-EtFOSAA 80

Denise L. Schumitz
 10/26/2018



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

Client ID JAX-RES-101018-1050-3-FRB

Battelle ID J8742-FS
 Sample Type SA
 Collection Date 10/10/2018
 Extraction Date 10/15/2018
 Analysis Date 10/17/2018
 Analytical Instrument Sciex 5500 LC/MS/MS
 % Moisture NA
 Matrix W
 Sample Size 0.260
 Size Unit-Basis L
 Units ng/L MDL LOD LOQ

PFHxA	307-24-4	0.48 U	0.21	0.48	2.40
PFHpA	375-85-9	0.96 U	0.33	0.96	2.40
PFOA	335-67-1	0.96 U	0.37	0.96	2.40
PFNA	375-95-1	0.96 U	0.36	0.96	2.40
PFDA	335-76-2	0.96 U	0.38	0.96	2.40
PFUnA	2058-94-8	0.96 U	0.37	0.96	2.40
PFDoA	307-55-1	0.96 U	0.40	0.96	2.40
PFTTrDA	72629-94-8	0.96 U	0.40	0.96	2.40
PFTeDA	376-06-7	1.44 U	0.70	1.44	2.40
NMeFOSAA	2355-31-9	0.96 U	0.40	0.96	2.40
NEtFOSAA	2991-50-6	0.96 U	0.42	0.96	2.40
PFBS	375-73-5	0.48 U	0.20	0.48	2.40
PFHxS	355-46-4	0.96 U	0.33	0.96	2.40
PFOS	1763-23-1	0.96 U	0.29	0.96	2.40

Surrogate Recoveries (%)

13C2-PFHxA	128
13C2-PFDA	102
d5-EtFOSAA	100

Denise L. Schumitz
 10/26/2018

Appendix B

Results as Reported by the Laboratory



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

Client ID JAX-RES-101018-1000-5

Battelle ID J8739-FS
 Sample Type SA
 Collection Date 10/10/2018
 Extraction Date 10/11/2018
 Analysis Date 10/11/2018
 Analytical Instrument Sciex 5500 LC/MS/MS
 % Moisture NA
 Matrix W
 Sample Size 0.275
 Size Unit-Basis L
 Units ng/L

			MDL	LOD	LOQ
PFHxA	307-24-4	0.45 U	0.20	0.45	2.27
PFHpA	375-85-9	0.91 U	0.31	0.91	2.27
PFOA	335-67-1	0.91 U	0.35	0.91	2.27
PFNA	375-95-1	0.91 U	0.34	0.91	2.27
PFDA	335-76-2	0.91 U	0.35	0.91	2.27
PFUnA	2058-94-8	0.91 U	0.35	0.91	2.27
PFDoA	307-55-1	0.91 U	0.38	0.91	2.27
PFTTrDA	72629-94-8	0.91 U	0.38	0.91	2.27
PFTeDA	376-06-7	1.36 U	0.66	1.36	2.27
NMeFOSAA	2355-31-9	0.91 U	0.38	0.91	2.27
NEtFOSAA	2991-50-6	0.91 U	0.40	0.91	2.27
PFBS	375-73-5	0.45 U	0.19	0.45	2.27
PFHxS	355-46-4	0.91 U	0.31	0.91	2.27
PFOS	1763-23-1	0.91 U	0.27	0.91	2.27

Surrogate Recoveries (%)

13C2-PFHxA 127
 13C2-PFDA 93
 d5-EtFOSAA 93



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

Client ID JAX-RES-101018-1050-3

Battelle ID J8741-FS
 Sample Type SA
 Collection Date 10/10/2018
 Extraction Date 10/11/2018
 Analysis Date 10/11/2018
 Analytical Instrument Sciex 5500 LC/MS/MS
 % Moisture NA
 Matrix W
 Sample Size 0.285
 Size Unit-Basis L
 Units ng/L

Units		ng/L	MDL	LOD	LOQ
PFHxA	307-24-4	0.32 J	0.19	0.44	2.19
PFHpA	375-85-9	0.35 J	0.30	0.88	2.19
PFOA	335-67-1	3.02	0.33	0.88	2.19
PFNA	375-95-1	0.88 U	0.32	0.88	2.19
PFDA	335-76-2	0.88 U	0.34	0.88	2.19
PFUnA	2058-94-8	0.88 U	0.33	0.88	2.19
PFDoA	307-55-1	0.88 U	0.37	0.88	2.19
PFTTrDA	72629-94-8	0.88 U	0.37	0.88	2.19
PFTeDA	376-06-7	1.32 U	0.64	1.32	2.19
NMeFOSAA	2355-31-9	0.88 U	0.37	0.88	2.19
NEtFOSAA	2991-50-6	0.88 U	0.39	0.88	2.19
PFBS	375-73-5	0.44 U	0.18	0.44	2.19
PFHxS	355-46-4	0.88 U	0.30	0.88	2.19
PFOS	1763-23-1	0.73 J	0.26	0.88	2.19

Surrogate Recoveries (%)

13C2-PFHxA 129
 13C2-PFDA 91
 d5-EtFOSAA 80



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

Client ID JAX-RES-101018-1050-3-FRB

Battelle ID J8742-FS
 Sample Type SA
 Collection Date 10/10/2018
 Extraction Date 10/15/2018
 Analysis Date 10/17/2018
 Analytical Instrument Sciex 5500 LC/MS/MS
 % Moisture NA
 Matrix W
 Sample Size 0.260
 Size Unit-Basis L
 Units ng/L MDL LOD LOQ

PFHxA	307-24-4	0.48 U	0.21	0.48	2.40
PFHpA	375-85-9	0.96 U	0.33	0.96	2.40
PFOA	335-67-1	0.96 U	0.37	0.96	2.40
PFNA	375-95-1	0.96 U	0.36	0.96	2.40
PFDA	335-76-2	0.96 U	0.38	0.96	2.40
PFUnA	2058-94-8	0.96 U	0.37	0.96	2.40
PFDoA	307-55-1	0.96 U	0.40	0.96	2.40
PFTTrDA	72629-94-8	0.96 U	0.40	0.96	2.40
PFTeDA	376-06-7	1.44 U	0.70	1.44	2.40
NMeFOSAA	2355-31-9	0.96 U	0.40	0.96	2.40
NEtFOSAA	2991-50-6	0.96 U	0.42	0.96	2.40
PFBS	375-73-5	0.48 U	0.20	0.48	2.40
PFHxS	355-46-4	0.96 U	0.33	0.96	2.40
PFOS	1763-23-1	0.96 U	0.29	0.96	2.40

Surrogate Recoveries (%)

13C2-PFHxA	128
13C2-PFDA	102
d5-EtFOSAA	100

Appendix C

Support Documentation



CHAIN OF CUSTODY

NUMBER No. 3426

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE)

YELLOW (FIELD COPY)

PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

Sample Summary

Client: Tetra Tech, Inc.

SDG: 18-0614

Project/Site: Naval Air Station Jacksonville

CTO: SE0375

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Receipt Date
CR996PB-FS	Procedural Blank	WATER	10/11/2018	10/11/2018
CR997LCS-FS	Laboratory Control Sample	WATER	10/11/2018	10/11/2018
J8739-FS	JAX-RES-101018-1000-5	W	10/10/2018	10/11/2018
J8741-FS	JAX-RES-101018-1050-3	W	10/10/2018	10/11/2018

QA/QC Summary Batch 18-0614

Project:	CTO-SE0375: Naval Air Station Jacksonville
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	W
Data Set:	DP-18-0310
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
10/10/2018	10/11/2018	0.9
Corrective Actions	The FRB samples were listed on the COC as having 2 containers per sample, however, only one sample arrived. It was verified with the client that only 1 bottle from each was collected.	
Sample Storage	The water samples were stored refrigerated until extraction.	
Related samples	The related FRB sample is reported in SDG 18-0624.	

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 in methanol. Extracts were split and concentrated to dryness under nitrogen with a water bath set between 60 °C and 65 °C, reconstituted with 96:4 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	Sample JAX-RES-101018-1050-3 (J8741-FS) had a strong sulfur odor.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on Sciex 5500 LC-MS/MS. PFOS in sample J8741-FS (JAX-RES-101018-1050-3) is a combination of linear and branched isomers.

Holding Times	Extraction Date(s)	Analysis Date(s)
	10/11/2018	10/11/2018

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

QA/QC Summary
Batch 18-0614

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 and Matrix Spike Duplicate (MS/MSD)	A MS/MSD was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
70-130% of true value, RPD $\leq$ 30%	Not applicable.
	A MS/MSD was not prepared with this data set.
Surrogates Standard Analytes	Labelled analog compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
70-130% of true value	No exceedances noted.
	No comments.
Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
ICal high and low points RPD $\leq$ 20%, 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted.
	No comments.
Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadratic curve fitting.
R ² > 0.99	No exceedances noted.
Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No comments.
Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted.
	No comments.

QA/QC Summary
Batch 18-0614

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 - NORWELL OPERATIONS MISCELLANEOUS DOCUMENTATION FORM

Project Title: CTO-SE0375: Naval Air Station Jackson **Data Set Number:** DP-18-0310
Project Number: 100119154-SE0375 **Prep Batch Number:** 18-0614
Entered By: Robert Lizotte Jr **Entered On:** 10/16/2018
Test Code (Matrix Type): Master_371(L)

Samples that were manually integrated are noted on the quant reports with the comment (TRUE). Integrations by D. Schumitz and package preparation by R. Lizotte
-BL 10/16/2018

JZ80 is not being used in this method for NMeFOSAA and NEtFOSSA. There is no impact on the data once this point is removed from the calibration.
-BL 10/16/2018

Task Leader Approval:

Supervisor Approval:

PM Approval:

Digitally signed by Jonathan Thorn
Date: 2018.10.16 18:20:50 -04'00'



Project Client: Tetra Tech
 Project Name: CTO-SE0375: Naval Air Station Jacksonville
 Project No.: 100119154-SE0375
 Preparation Batch: 18-0614
 Data Set: DP-18-0310

	CR996PB-FS (Procedural Blank)	CR997LCS-FS (Laboratory Control Sample)	J8739-FS (JAX-RES-101018-1000-5)	J8741-FS (JAX-RES-101018-1050-3)
PFHxA (307-24-4)	-	L	-	L
PFHpA (375-85-9)	-	L	-	L
PFOA (335-67-1)	-	L	-	L
PFNA (375-95-1)	-	L	-	-
PFDA (335-76-2)	-	L	-	-
PFUnA (2058-94-8)	-	L	-	-
PFDoA (307-55-1)	-	L	-	-
PFTTrDA (72629-94-8)	-	L	-	-
PFTeDA (376-06-7)	-	L	-	-
NMeFOSAA (2355-31-9)	-	L	-	-
NEtFOSAA (2991-50-6)	-	L	-	-
PFBS (375-73-5)	-	L	-	-
PFHxS (355-46-4)	-	L	-	-
PFOS (1763-23-1)	-	L	-	L/Br

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



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

Client ID	KA08 IB				
Battelle ID	KA08 IB_10/11/2018				
Sample Type	IB				
Collection Date	NA				
Extraction Date	NA				
Analysis Date	10/11/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	NA				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L MDL LOD LOQ				
PFHxA	307-24-4	0.50 U	0.22	0.50	2.50
PFHpA	375-85-9	1.00 U	0.34	1.00	2.50
PFOA	335-67-1	1.00 U	0.38	1.00	2.50
PFNA	375-95-1	1.00 U	0.37	1.00	2.50
PFDA	335-76-2	1.00 U	0.39	1.00	2.50
PFUnA	2058-94-8	1.00 U	0.38	1.00	2.50
PFDaA	307-55-1	1.00 U	0.42	1.00	2.50
PFTTrDA	72629-94-8	1.00 U	0.42	1.00	2.50
PFTeDA	376-06-7	1.50 U	0.73	1.50	2.50
NMeFOSAA	2355-31-9	1.00 U	0.42	1.00	2.50
NEtFOSAA	2991-50-6	1.00 U	0.44	1.00	2.50
PFBS	375-73-5	0.50 U	0.21	0.50	2.50
PFHxS	355-46-4	1.00 U	0.34	1.00	2.50
PFOS	1763-23-1	1.00 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	97
13C2-PFDA	95
d5-EtFOSAA	95



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

Client ID		Procedural Blank			
Battelle ID		CR996PB-FS			
Sample Type		PB			
Collection Date		10/11/2018			
Extraction Date		10/11/2018			
Analysis Date		10/11/2018			
Analytical Instrument		Sciex 5500 LC/MS/MS			
% Moisture		NA			
Matrix		WATER			
Sample Size		0.250			
Size Unit-Basis		L			
Units		ng/L	MDL	LOD	LOQ
PFHxA	307-24-4	0.50 U	0.22	0.50	2.50
PFHpA	375-85-9	1.00 U	0.34	1.00	2.50
PFOA	335-67-1	1.00 U	0.38	1.00	2.50
PFNA	375-95-1	1.00 U	0.37	1.00	2.50
PFDA	335-76-2	1.00 U	0.39	1.00	2.50
PFUnA	2058-94-8	1.00 U	0.38	1.00	2.50
PFDoA	307-55-1	1.00 U	0.42	1.00	2.50
PFTTrDA	72629-94-8	1.00 U	0.42	1.00	2.50
PFTeDA	376-06-7	1.50 U	0.73	1.50	2.50
NMeFOSAA	2355-31-9	1.00 U	0.42	1.00	2.50
NEtFOSAA	2991-50-6	1.00 U	0.44	1.00	2.50
PFBS	375-73-5	0.50 U	0.21	0.50	2.50
PFHxS	355-46-4	1.00 U	0.34	1.00	2.50
PFOS	1763-23-1	1.00 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	102
13C2-PFDA	99
d5-EtFOSAA	110



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

Client ID		Laboratory Control Sample					
Battelle ID		CR997LCS-FS					
Sample Type		LCS					
Collection Date		10/11/2018					
Extraction Date		10/11/2018					
Analysis Date		10/11/2018					
Analytical Instrument		Sciex 5500 LC/MS/MS					
% Moisture		NA					
Matrix		WATER					
Sample Size		0.250					
Size Unit-Basis		L					
Units		ng/L	Target	Recovery	Qual	Control Limits	
						Lower	Upper
PFHxA	307-24-4	18.45	15.00	123		70	130
PFHpA	375-85-9	17.66	15.00	118		70	130
PFOA	335-67-1	17.89	15.00	119		70	130
PFNA	375-95-1	17.78	15.00	119		70	130
PFDA	335-76-2	18.02	15.00	120		70	130
PFUnA	2058-94-8	17.60	15.00	117		70	130
PFDoA	307-55-1	16.80	15.00	112		70	130
PFTTrDA	72629-94-8	17.15	15.00	114		70	130
PFTeDA	376-06-7	16.26	15.00	108		70	130
NMeFOSAA	2355-31-9	18.71	15.00	125		70	130
NEtFOSAA	2991-50-6	18.27	15.00	122		70	130
PFBS	375-73-5	15.64	13.28	118		70	130
PFHxS	355-46-4	16.52	14.18	117		70	130
PFOS	1763-23-1	15.54	14.33	108		70	130
Surrogate Recoveries (%)							
13C2-PFHxA		110					
13C2-PFDA		106					
d5-EtFOSAA		87					

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JZ80	L3	10/11/18 17:43	13C4-PFOS	153,924.38	-
JZ81	L4	10/11/18 17:52	13C4-PFOS	149,851.63	-
JZ82	L5	10/11/18 18:01	13C4-PFOS	149,114.69	-
JZ83	L6	10/11/18 18:10	13C4-PFOS	157,104.14	-
JZ84	L7	10/11/18 18:19	13C4-PFOS	151,806.14	-
JZ85	L8	10/11/18 18:28	13C4-PFOS	149,739.31	-
JZ86	L9	10/11/18 18:37	13C4-PFOS	159,739.55	3.7

PASS

Average Lower Upper
 153,039.98 76,519.99 229,559.97

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	10/11/18 17:43	13C4-PFOS	153,924.38	76,519.99	229,559.97		104,380.28	208,760.57	
JZ81	L4	10/11/18 17:52	13C4-PFOS	149,851.63	76,519.99	229,559.97		104,380.28	208,760.57	
JZ82	L5	10/11/18 18:01	13C4-PFOS	149,114.69	76,519.99	229,559.97		104,380.28	208,760.57	
JZ83	L6	10/11/18 18:10	13C4-PFOS	157,104.14	76,519.99	229,559.97		104,380.28	208,760.57	
JZ84	L7	10/11/18 18:19	13C4-PFOS	151,806.14	76,519.99	229,559.97		104,380.28	208,760.57	
JZ85	L8	10/11/18 18:28	13C4-PFOS	149,739.31	76,519.99	229,559.97		104,380.28	208,760.57	
JZ86	L9	10/11/18 18:37	13C4-PFOS	159,739.55	76,519.99	229,559.97		104,380.28	208,760.57	
KA08 IB	Instrument Blank	10/11/18 18:46	13C4-PFOS	152,151.14	76,519.99	229,559.97		104,380.28	208,760.57	
JZ77 ICC	ICC	10/11/18 18:55	13C4-PFOS	143,645.98	76,519.99	229,559.97		104,380.28	208,760.57	
CR996PB-FS(0)	Procedural Blank	10/11/18 19:12	13C4-PFOS	127,329.70	76,519.99	229,559.97		104,380.28	208,760.57	
CR997LCS-FS(0)	Laboratory Control Sample	10/11/18 19:21	13C4-PFOS	123,036.04	76,519.99	229,559.97		104,380.28	208,760.57	
J8739-FS(0)	JAX-RES-101018-1000-5	10/11/18 19:30	13C4-PFOS	124,265.29	76,519.99	229,559.97		104,380.28	208,760.57	
J8741-FS(0)	JAX-RES-101018-1000-3	10/11/18 19:39	13C4-PFOS	137,541.37	76,519.99	229,559.97		104,380.28	208,760.57	
JZ82 CCV	CCV	10/11/18 19:48	13C4-PFOS	156,240.96	76,519.99	229,559.97		104,380.28	208,760.57	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JZ80	L3	10/11/18 17:43	13C2-PFOA	34,525.53	-
JZ81	L4	10/11/18 17:52	13C2-PFOA	33,522.03	-
JZ82	L5	10/11/18 18:01	13C2-PFOA	32,851.37	-
JZ83	L6	10/11/18 18:10	13C2-PFOA	34,545.62	-
JZ84	L7	10/11/18 18:19	13C2-PFOA	35,667.45	-
JZ85	L8	10/11/18 18:28	13C2-PFOA	34,363.46	-
JZ86	L9	10/11/18 18:37	13C2-PFOA	40,628.11	16.2

PASS

Average Lower Upper
 35,157.65 17,578.83 52,736.48

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	10/11/18 17:43	13C2-PFOA	34,525.53	17,578.83	52,736.48		22,995.96	45,991.92	
JZ81	L4	10/11/18 17:52	13C2-PFOA	33,522.03	17,578.83	52,736.48		22,995.96	45,991.92	
JZ82	L5	10/11/18 18:01	13C2-PFOA	32,851.37	17,578.83	52,736.48		22,995.96	45,991.92	
JZ83	L6	10/11/18 18:10	13C2-PFOA	34,545.62	17,578.83	52,736.48		22,995.96	45,991.92	
JZ84	L7	10/11/18 18:19	13C2-PFOA	35,667.45	17,578.83	52,736.48		22,995.96	45,991.92	
JZ85	L8	10/11/18 18:28	13C2-PFOA	34,363.46	17,578.83	52,736.48		22,995.96	45,991.92	
JZ86	L9	10/11/18 18:37	13C2-PFOA	40,628.11	17,578.83	52,736.48		22,995.96	45,991.92	
KA08 IB	Instrument Blank	10/11/18 18:46	13C2-PFOA	34,679.97	17,578.83	52,736.48		22,995.96	45,991.92	
JZ77 ICC	ICC	10/11/18 18:55	13C2-PFOA	31,809.50	17,578.83	52,736.48		22,995.96	45,991.92	
CR996PB-FS(0)	Procedural Blank	10/11/18 19:12	13C2-PFOA	28,327.44	17,578.83	52,736.48		22,995.96	45,991.92	
CR997LCS-FS(0)	Laboratory Control Sample	10/11/18 19:21	13C2-PFOA	30,551.45	17,578.83	52,736.48		22,995.96	45,991.92	
J8739-FS(0)	JAX-RES-101018-1000-5	10/11/18 19:30	13C2-PFOA	29,885.14	17,578.83	52,736.48		22,995.96	45,991.92	
J8741-FS(0)	JAX-RES-101018-1000-3	10/11/18 19:39	13C2-PFOA	31,235.89	17,578.83	52,736.48		22,995.96	45,991.92	
JZ82 CCV	CCV	10/11/18 19:48	13C2-PFOA	35,929.45	17,578.83	52,736.48		22,995.96	45,991.92	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JZ80	L3	10/11/18 17:43	d3-MeFOSAA	20,425.67	-
JZ81	L4	10/11/18 17:52	d3-MeFOSAA	17,377.19	-
JZ82	L5	10/11/18 18:01	d3-MeFOSAA	18,768.93	-
JZ83	L6	10/11/18 18:10	d3-MeFOSAA	21,378.34	-
JZ84	L7	10/11/18 18:19	d3-MeFOSAA	20,243.73	-
JZ85	L8	10/11/18 18:28	d3-MeFOSAA	21,558.77	-
JZ86	L9	10/11/18 18:37	d3-MeFOSAA	24,753.84	19.2

PASS

Average Lower Upper
 20,643.78 10,321.89 30,965.67

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	10/11/18 17:43	d3-MeFOSAA	20,425.67	10,321.89	30,965.67		13,138.25	26,276.50	
JZ81	L4	10/11/18 17:52	d3-MeFOSAA	17,377.19	10,321.89	30,965.67		13,138.25	26,276.50	
JZ82	L5	10/11/18 18:01	d3-MeFOSAA	18,768.93	10,321.89	30,965.67		13,138.25	26,276.50	
JZ83	L6	10/11/18 18:10	d3-MeFOSAA	21,378.34	10,321.89	30,965.67		13,138.25	26,276.50	
JZ84	L7	10/11/18 18:19	d3-MeFOSAA	20,243.73	10,321.89	30,965.67		13,138.25	26,276.50	
JZ85	L8	10/11/18 18:28	d3-MeFOSAA	21,558.77	10,321.89	30,965.67		13,138.25	26,276.50	
JZ86	L9	10/11/18 18:37	d3-MeFOSAA	24,753.84	10,321.89	30,965.67		13,138.25	26,276.50	
KA08 IB	Instrument Blank	10/11/18 18:46	d3-MeFOSAA	21,989.24	10,321.89	30,965.67		13,138.25	26,276.50	
JZ77 ICC	ICC	10/11/18 18:55	d3-MeFOSAA	20,917.50	10,321.89	30,965.67		13,138.25	26,276.50	
CR996PB-FS(0)	Procedural Blank	10/11/18 19:12	d3-MeFOSAA	15,750.86	10,321.89	30,965.67		13,138.25	26,276.50	
CR997LCS-FS(0)	Laboratory Control Sample	10/11/18 19:21	d3-MeFOSAA	19,535.94	10,321.89	30,965.67		13,138.25	26,276.50	
J8739-FS(0)	JAX-RES-101018-1000-5	10/11/18 19:30	d3-MeFOSAA	17,725.02	10,321.89	30,965.67		13,138.25	26,276.50	
J8741-FS(0)	JAX-RES-101018-1000-3	10/11/18 19:39	d3-MeFOSAA	19,086.16	10,321.89	30,965.67		13,138.25	26,276.50	
JZ82 CCV	CCV	10/11/18 19:48	d3-MeFOSAA	20,338.21	10,321.89	30,965.67		13,138.25	26,276.50	

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 6:19:15 PM	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.52	1.27	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.84	1.17	0.8 – 1.5

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 6:19:15 PM	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS 1	298.9 / 80.0	1.52	27	>10
PFBS 2	298.9 / 99.0	1.52	29	>10
PFHxA 1	313.0 / 269.0	1.84	25	>10
PFHxA 2	313.0 / 119.0	1.84	23	>10
PFHpA 1	363.0 / 319.0	2.25	31	>10
PFHpA 2	363.0 / 169.0	2.25	25	>10
PFHxS 1	399.0 / 80.0	2.28	40	>10
PFHxS 2	399.0 / 99.0	2.28	45	>10
PFOA 1	413.0 / 369.0	2.67	30	>10
PFOA 2	413.0 / 169.0	2.67	38	>10
PFNA 1	463.0 / 419.0	3.07	29	>10
PFNA 2	463.0 / 219.0	3.07	29	>10
PFOS 1	499.0 / 80.0	3.06	35	>10
PFOS 2	499.0 / 99.0	3.06	23	>10
PFDA 1	513.0 / 469.0	3.43	34	>10
PFDA 2	513.0 / 219.0	3.43	40	>10
PFUnA 1	563.0 / 519.0	3.76	29	>10
PFUnA 2	563.0 / 269.0	3.75	27	>10
PFDoA 1	613.0 / 569.0	4.04	40	>10
PFDoA 2	613.0 / 319.0	4.04	28	>10
PFTTrDA 1	663.0 / 619.0	4.29	59	>10
PFTTrDA 2	663.0 / 169.0	4.29	40	>10
PFTeDA 1	713.0 / 669.0	4.51	65	>10
PFTeDA 2	713.0 / 169.0	4.51	47	>10
NMeFOSAA 1	570.0 / 419.0	3.58	40	>10
NMeFOSAA 2	570.0 / 512.0	3.58	34	>10
NEtFOSAA 1	584.0 / 419.0	3.74	41	>10
NEtFOSAA 2	584.0 / 483.0	3.74	17	>10
13C2-PFHxA	315.0 / 270.0	1.83	28	>10
13C2-PFDA	515.0 / 470.0	3.42	30	>10
d5-EtFOSAA	589.0 / 419.0	3.73	24	>10

BATTELLE DETECTION LIMITS FOR PFAS IN DRINKING WATER

Page 41 of 245

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

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
PFTTrDA	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	299.0 / 80.0	299.0 / 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
¹³C₂-PFOA	NA	IS	415.0 / 270.0	NA
¹³C₄-PFOS	NA	IS	503.0 / 80.0	NA
d3-MeFOSAA	NA	IS	573.0 / 419.0	NA

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

Mass Calibration and Tune Check

QTRAP 5500 Preventive Maintenance Checklist

Preventive Maintenance Date:	12-June-2018
Request ID:	9749
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: Suspected issue with pulse gas manifold. TRAP testing in POSITIVE mode couldn't be finished because of pulse gas issue. The same issue will be taken care in separate service call.

Performed By: Kaustubh Dhayagude

Date: 12-June-2018

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	0.6	0.4 to 1.1 x10 ⁻⁵ Torr
☒ CAD Low	1.3	Read Only
☒ CAD Medium	2.7	Read Only
☒ CAD High	3.7	Read Only
☒ CAD 12	3.7	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	4.01 e6	Read Only	0.6998	Read Only
Q1 500.380	2.81 e7	Read Only	0.7038	Read Only
Q1 906.673	4.21 e7	Read Only	0.7071	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	5.45 e6	Read Only	0.6873	Read Only
Q3 500.380	2.69 e7	Read Only	0.7591	Read Only
Q3 906.673	4.50 e7	Read Only	0.7843	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: : 28.87% (Read Only)

Mass	MSMS Intensity		MSMS Width Value	Width Specs
	Value	Spec		
Q1 609.3	4.26 e7	Read Only	0.7011	Read Only
MS/MS 195.1	1.23 e7	Read Only	0.7069	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	1.42 e7	Read Only	0.7686	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	2.24 e7	Read Only	0.7243	Read Only

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

Mass	Scan Rate	MCA	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.31 e6	Read Only	0.6746	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	0.7	0.4 to 1.1 x10 ⁻⁵ Torr
☒ CAD Low	1.3	Read Only
☒ CAD Medium	2.7	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 Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q1 175.133	5.04 e6	≥1.2 ^{e6}	0.6737	0.6 to 0.8
Q1 500.380	1.60 e7	≥9.0 ^{e6}	0.6961	0.6 to 0.8
Q1 906.673	2.84 e7	≥1.4 ^{e7}	0.7179	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8 ^{e7}	0.7465	0.6 to 0.8

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

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q3 175.133	5.02 e6	≥1.2 ^{e6}	0.6719	0.6 to 0.8
Q3 500.380	1.72 e7	≥9.0 ^{e6}	0.7443	0.6 to 0.8
Q3 906.673	3.00 e7	≥1.4 ^{e7}	0.7504	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q3 906.673	1.46 e8	≥6.8 ^{e7}	0.7202	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: 21.10% (≥ 10.0%)

Mass	MSMS Intensity		Width Value	Width Specs
	Value	Spec		
Q1 609.3	5.78 e7	N/A	0.6888	Read Only
MS/MS 195.1	1.22 e7	N/A	0.7003	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	1.35 e7	$\geq 1.0^e7$	0.7486	0.6 to 0.8
Q1 933.636	1000	50	7.52 e7	$\geq 4.0^e7$	0.7206	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	2.15 e7	$\geq 8.0^e6$	0.7492	0.6 to 0.8
Q3 933.636	1000	50	8.33 e7	$\geq 4.0^e7$	0.7299	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	8.54 e6	≥7.2 e6	0.1473	<0.35
ER 922.010	0.05	4.96 e7	≥2.8 e6	0.2434	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05		≥2.4 e7		<0.65
ER 922.010	0.05		≥6.8 e7		<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	1.81 e8	≥4.4 ^{e7}	0.1862	<0.35
ER 601.978	0.05	1.70 e8	≥5.6 ^{e7}	0.1809	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 431.982	0.05	5.72 e8	≥1.2 ^{e8}	0.5102	<0.65
ER 601.978	0.05	4.52 e8	≥1.6 ^{e8}	0.6187	<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	> 3.0 e6	≥2.0 e6	> 7.0 e6	≥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	Yes	Contains only 397.2	N/A	N/A
☐ 236 OR ☒ 365	1000	Yes	Fragment Intensity	> 2.0 e6	≥1.6x 10 ^{e6}

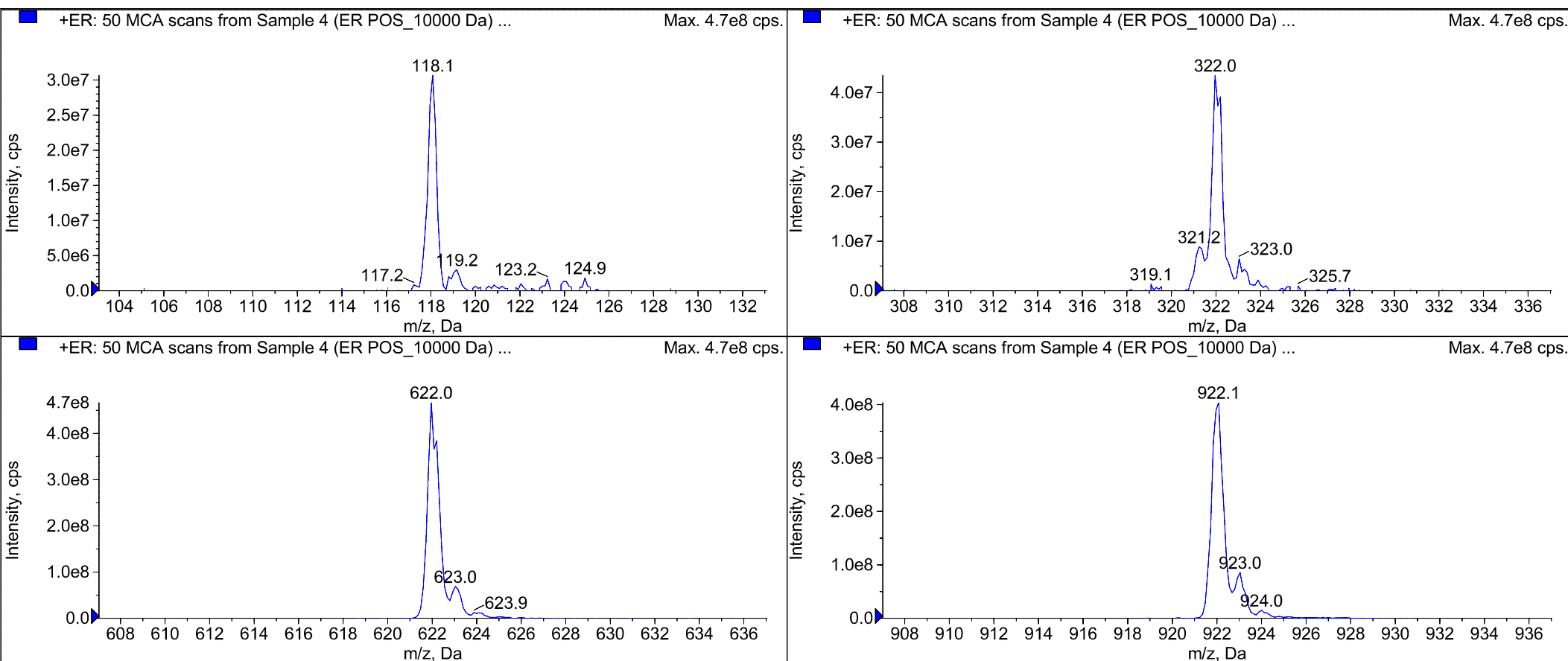
REVIEW:

- ☒ 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.



Peak List for "+ER: 50 MCA scans from Sample 4 (ER POS_10000 Da) of TRAP ER with NEW Pulse Manifold.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	118.0870	118.0702	3.0667e7	0.4146	0.0168
2	322.0490	322.0509	4.3500e7	0.4945	-1.9159e-3
3	622.0290	622.0370	4.6717e8	0.5757	-8.0044e-3
4	922.0100	922.0101	4.0400e8	0.5732	-1.4148e-4



It can be done

BATTELLE - NORWELL OPERATIONS LIQUID SAMPLE ID FORM

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)

100119154-
SE0375

18-0614

CTO-SE0375: Drinking Water Analysis

W

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CR996PB-FS	Procedural Blank	250.0	NA	--	10/11/18 SAS
CR997LCS-FS	Laboratory Control Sample	250.0	NA	--	10/11/18 SAS
J8739-FS	JAX-RES-101018-1000-5	275.0	1	C	10/11/18 SAS
J8741-FS	JAX-RES-101018-1050-3	285.0	1	C	10/11/18 SAS

Comments:

Sample ID:	Comments:
CR996PB-FS	1.25g Trizma(180502-01) weighed on BAL-009
CR997LCS-FS	1.24g Trizma(180502-01) weighed on BAL-009

Samples Assigned By

Jonathan Thorn

Date : October 11, 2018

* - "C" = Sample is Consumed

Sequence Report

Created with Analyst Reporter
Printed: 16/10/2018 12:09:32 PM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
4	JZ80	L3	10/11/2018 5:43:28 PM	5-0371.dam	18-0614_18-0594.wiff
5	JZ81	L4	10/11/2018 5:52:26 PM	5-0371.dam	18-0614_18-0594.wiff
6	JZ82	L5	10/11/2018 6:01:22 PM	5-0371.dam	18-0614_18-0594.wiff
7	JZ83	L6	10/11/2018 6:10:18 PM	5-0371.dam	18-0614_18-0594.wiff
8	JZ84	L7	10/11/2018 6:19:15 PM	5-0371.dam	18-0614_18-0594.wiff
9	JZ85	L8	10/11/2018 6:28:10 PM	5-0371.dam	18-0614_18-0594.wiff
10	JZ86	L9	10/11/2018 6:37:07 PM	5-0371.dam	18-0614_18-0594.wiff
11	KA08 IB	Instrument Blank	10/11/2018 6:46:04 PM	5-0371.dam	18-0614_18-0594.wiff
12	JZ77 ICC	ICC	10/11/2018 6:55:01 PM	5-0371.dam	18-0614_18-0594.wiff
13	MeOH		10/11/2018 7:03:57 PM	5-0371.dam	18-0614_18-0594.wiff
14	CR996PB-FS(0)	Procedural Blank	10/11/2018 7:12:53 PM	5-0371.dam	18-0614_18-0594.wiff
15	CR997LCS-FS(0)	Laboratory Control Sample	10/11/2018 7:21:49 PM	5-0371.dam	18-0614_18-0594.wiff
16	J8739-FS(0)	JAX-RES-101018-1000-5	10/11/2018 7:30:46 PM	5-0371.dam	18-0614_18-0594.wiff
17	J8741-FS(0)	JAX-RES-101018-1000-3	10/11/2018 7:39:42 PM	5-0371.dam	18-0614_18-0594.wiff
18	JZ82 CCV	CCV	10/11/2018 7:48:38 PM	5-0371.dam	18-0614_18-0594.wiff



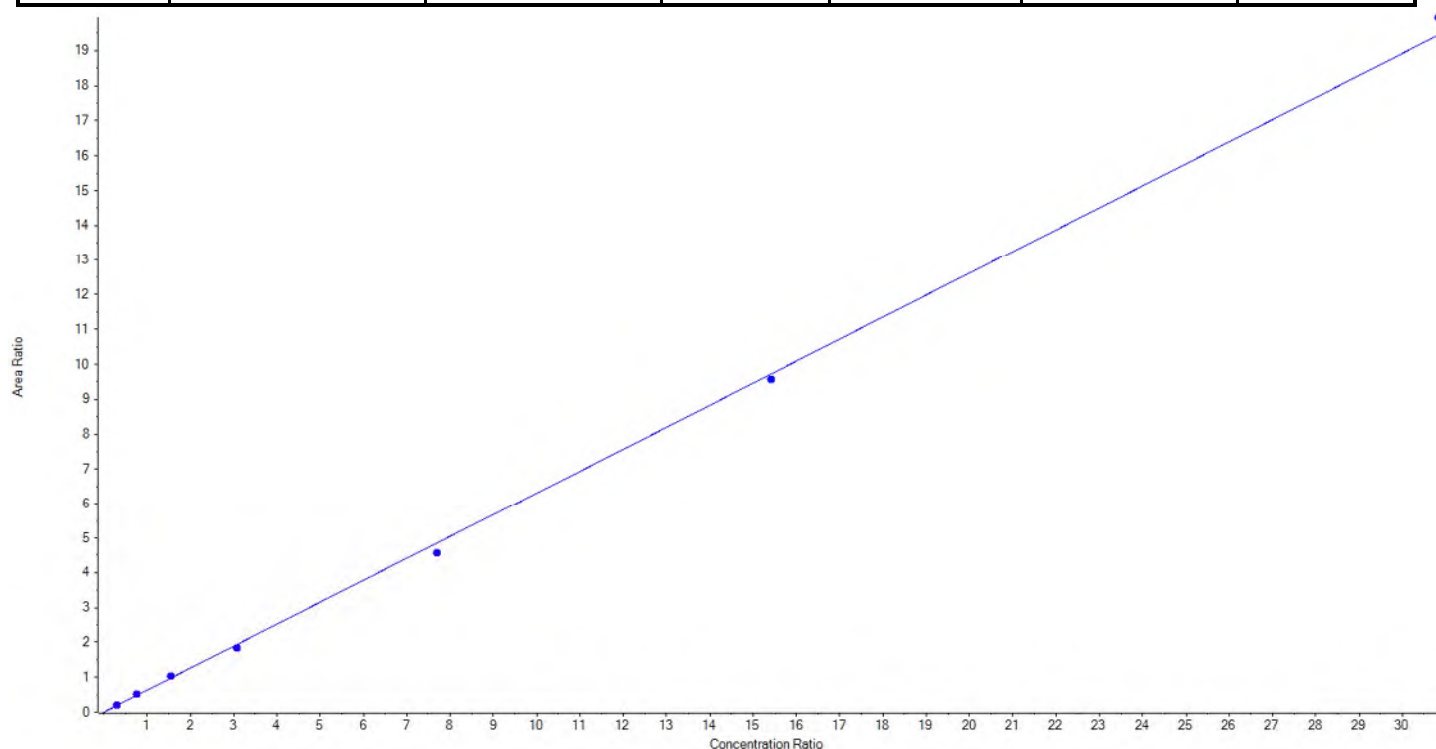
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFBS_1	Data File	18-0614_18-0594.wiff
MRM Transition	298.9 / 80.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.63065x + -3.96708e-4$ ($r = 0.99932$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	89.981519	101.6
5	JZ81	L4	True	221.50	232.207432	104.8
6	JZ82	L5	True	443.00	464.511899	104.9
7	JZ83	L6	True	885.00	831.040193	93.9
8	JZ84	L7	True	2212.50	2076.759010	93.9
9	JZ85	L8	True	4425.00	4355.899852	98.4
10	JZ86	L9	True	8850.00	9075.200096	102.5





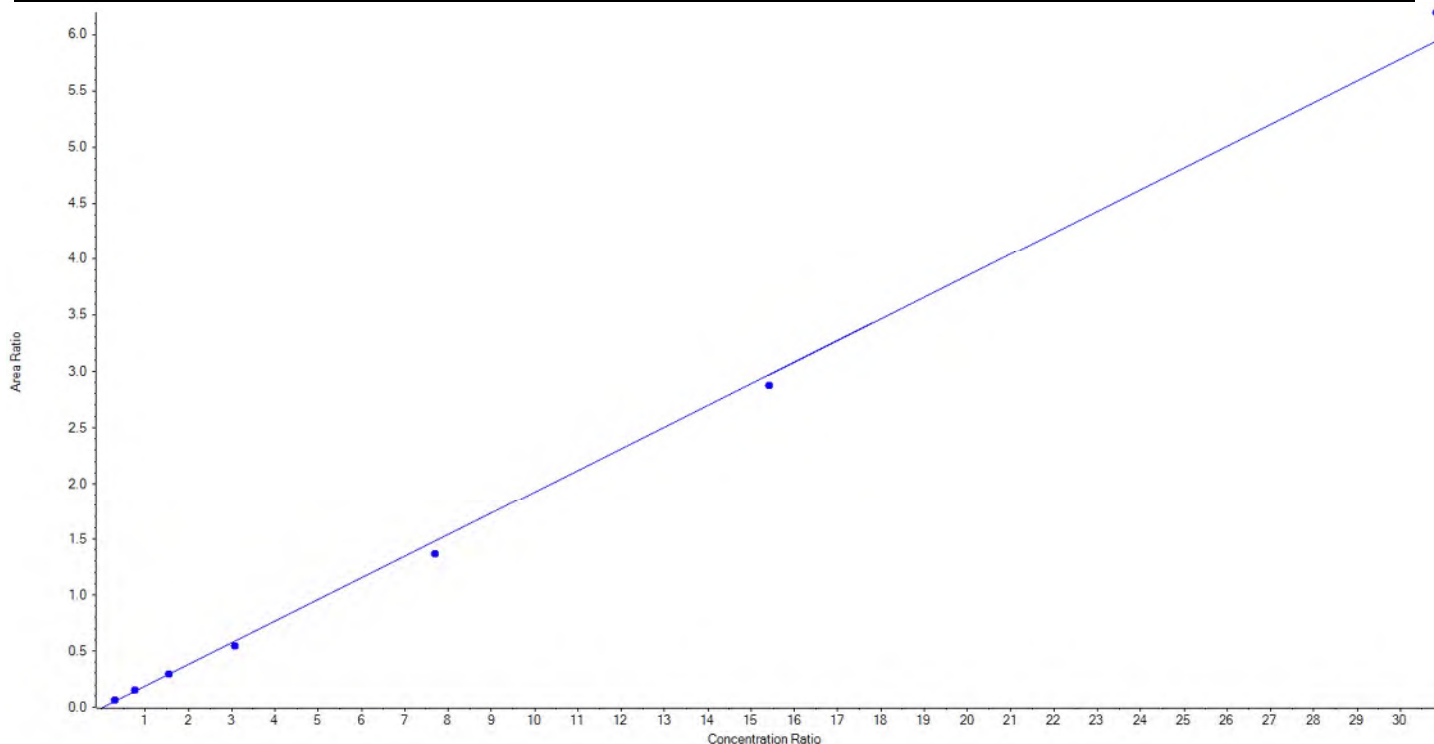
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFBS_2	Data File	18-0614_18-0594.wiff
MRM Transition	298.9 / 99.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.19283x + -0.00484$ ($r = 0.99857$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	99.365580	112.2
5	JZ81	L4	True	221.50	229.872799	103.8
6	JZ82	L5	True	443.00	439.618709	99.2
7	JZ83	L6	True	885.00	811.626527	91.7
8	JZ84	L7	True	2212.50	2038.811384	92.2
9	JZ85	L8	True	4425.00	4279.856755	96.7
10	JZ86	L9	True	8850.00	9226.448245	104.3





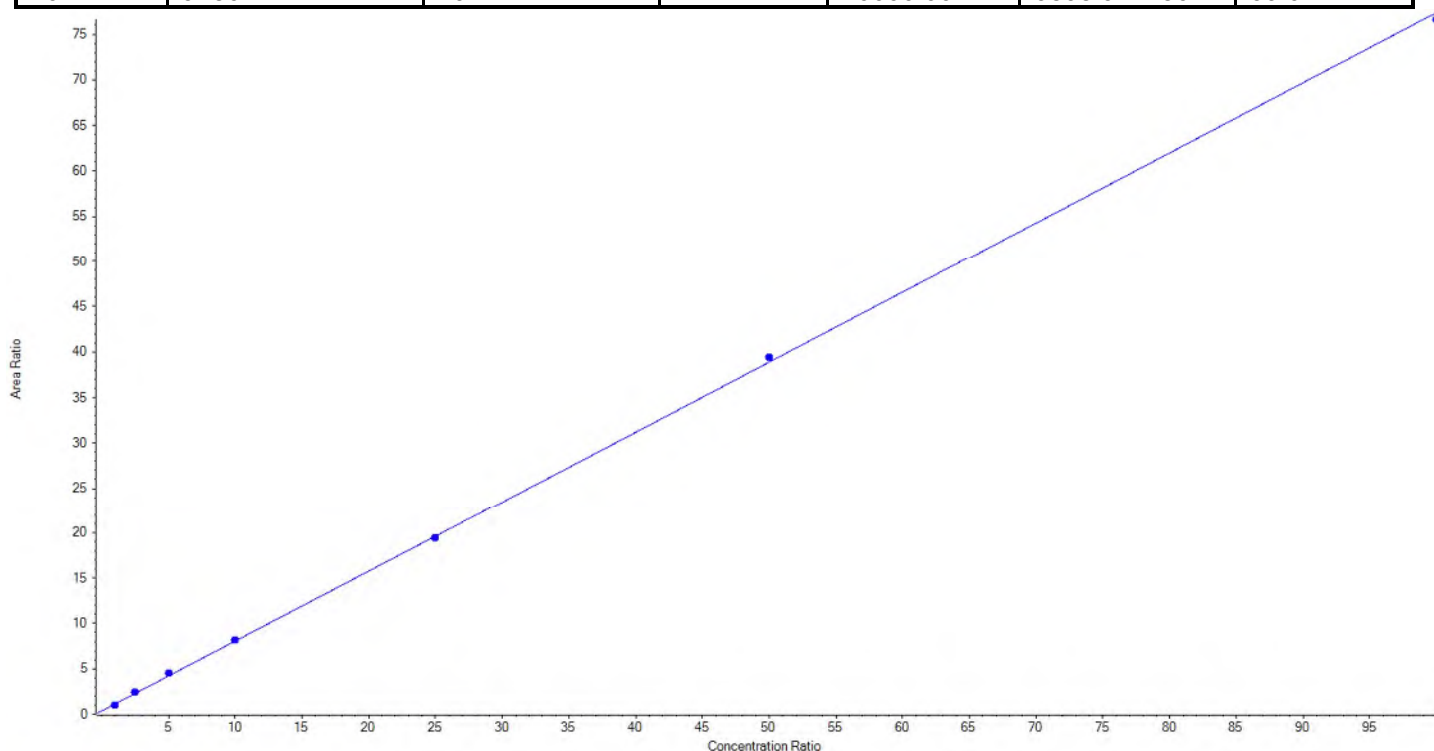
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFHxA_1	Data File	18-0614_18-0594.wiff
MRM Transition	313.0 / 269.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.77033x + 0.35213$ ($r = 0.99969$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	83.321872	83.3
5	JZ81	L4	True	250.00	267.222078	106.9
6	JZ82	L5	True	500.00	543.969912	108.8
7	JZ83	L6	True	1000.00	1017.643318	101.8
8	JZ84	L7	True	2500.00	2473.179928	98.9
9	JZ85	L8	True	5000.00	5065.715606	101.3
10	JZ86	L9	True	10000.00	9898.947286	99.0





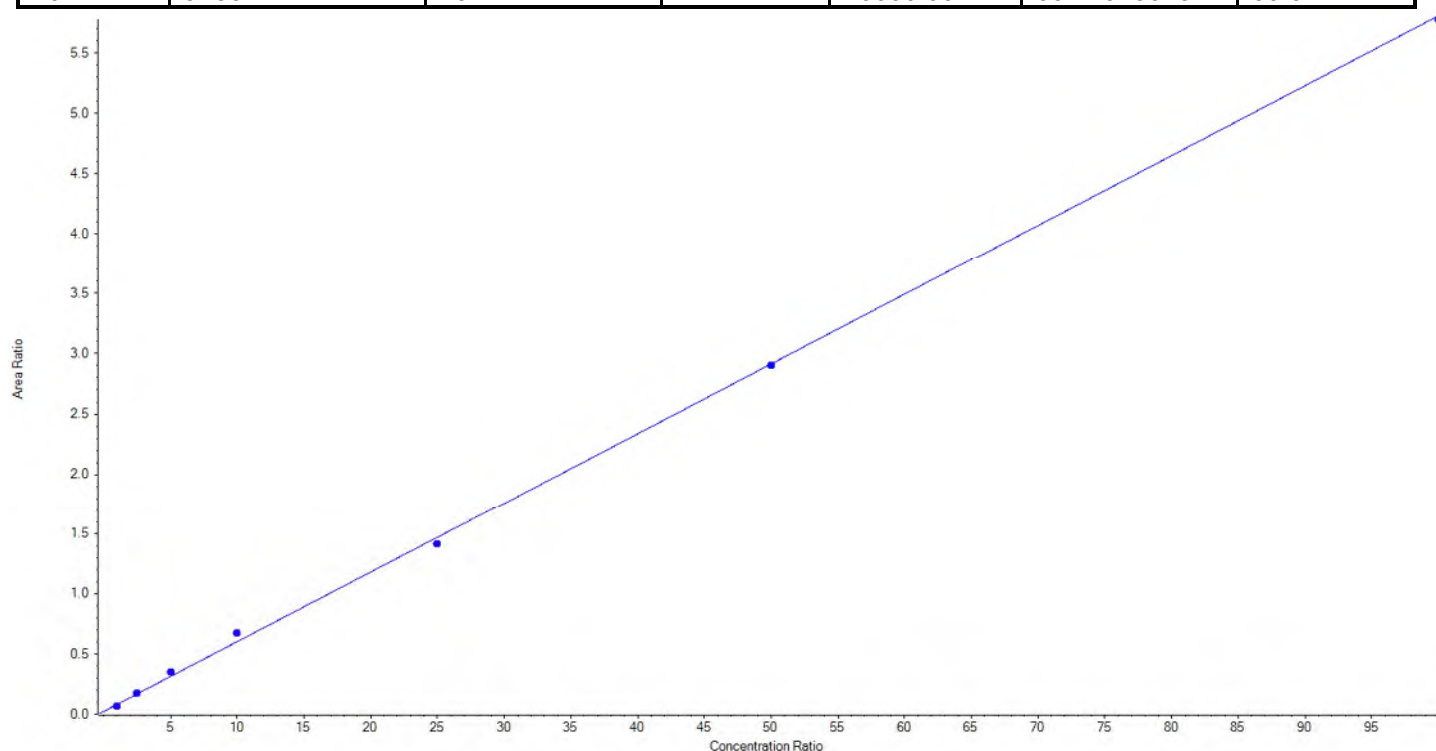
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFHxA_2	Data File	18-0614_18-0594.wiff
MRM Transition	313.0 / 119.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05783x + 0.02377$ ($r = 0.99898$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	74.239514	74.2
5	JZ81	L4	True	250.00	267.415465	107.0
6	JZ82	L5	True	500.00	557.219181	111.4
7	JZ83	L6	True	1000.00	1122.690013	112.3
8	JZ84	L7	True	2500.00	2398.101836	95.9
9	JZ85	L8	True	5000.00	4985.404914	99.7
10	JZ86	L9	True	10000.00	9944.929078	99.5





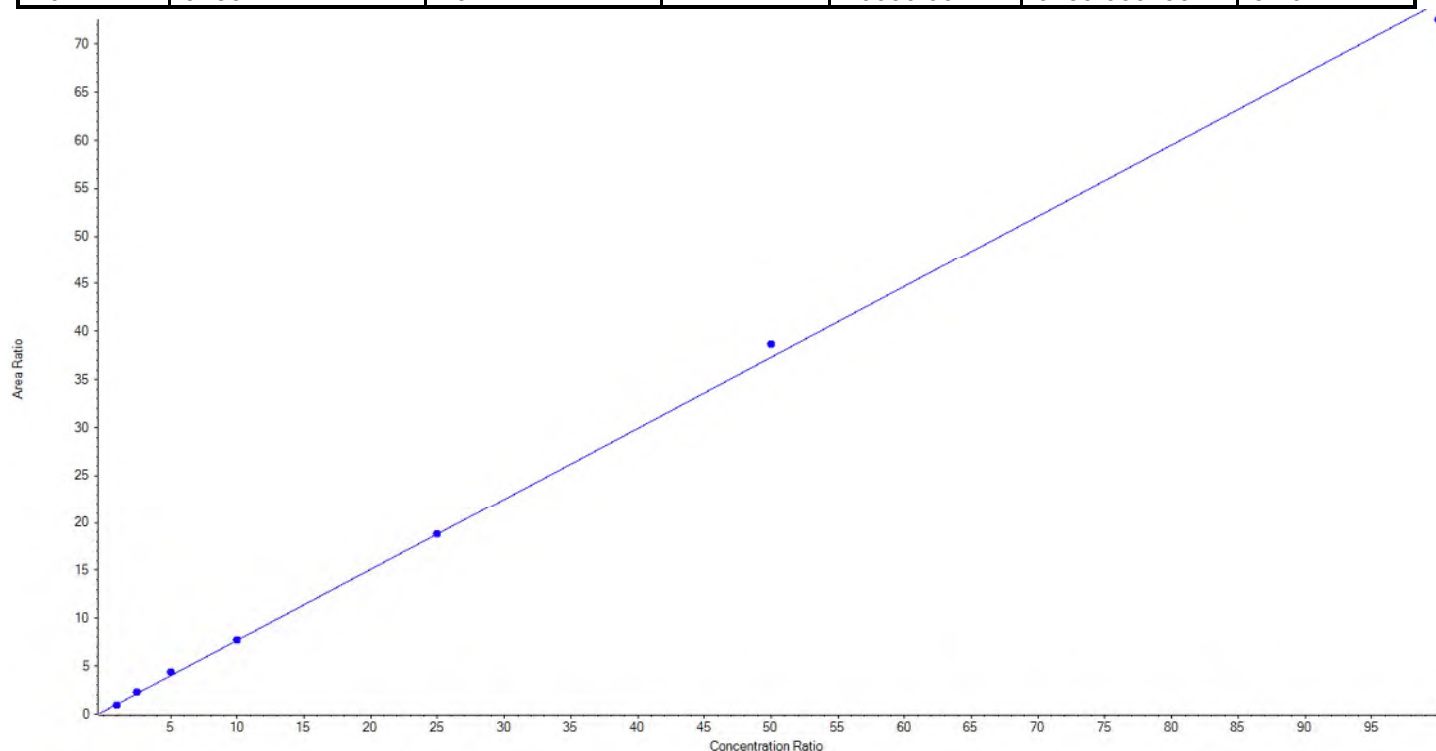
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFHpA_1	Data File	18-0614_18-0594.wiff
MRM Transition	363.0 / 319.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.74011x + 0.29942$ ($r = 0.99934$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	81.730420	81.7
5	JZ81	L4	True	250.00	265.466901	106.2
6	JZ82	L5	True	500.00	548.930875	109.8
7	JZ83	L6	True	1000.00	1011.257384	101.1
8	JZ84	L7	True	2500.00	2495.760998	99.8
9	JZ85	L8	True	5000.00	5187.193189	103.7
10	JZ86	L9	True	10000.00	9759.660233	97.6





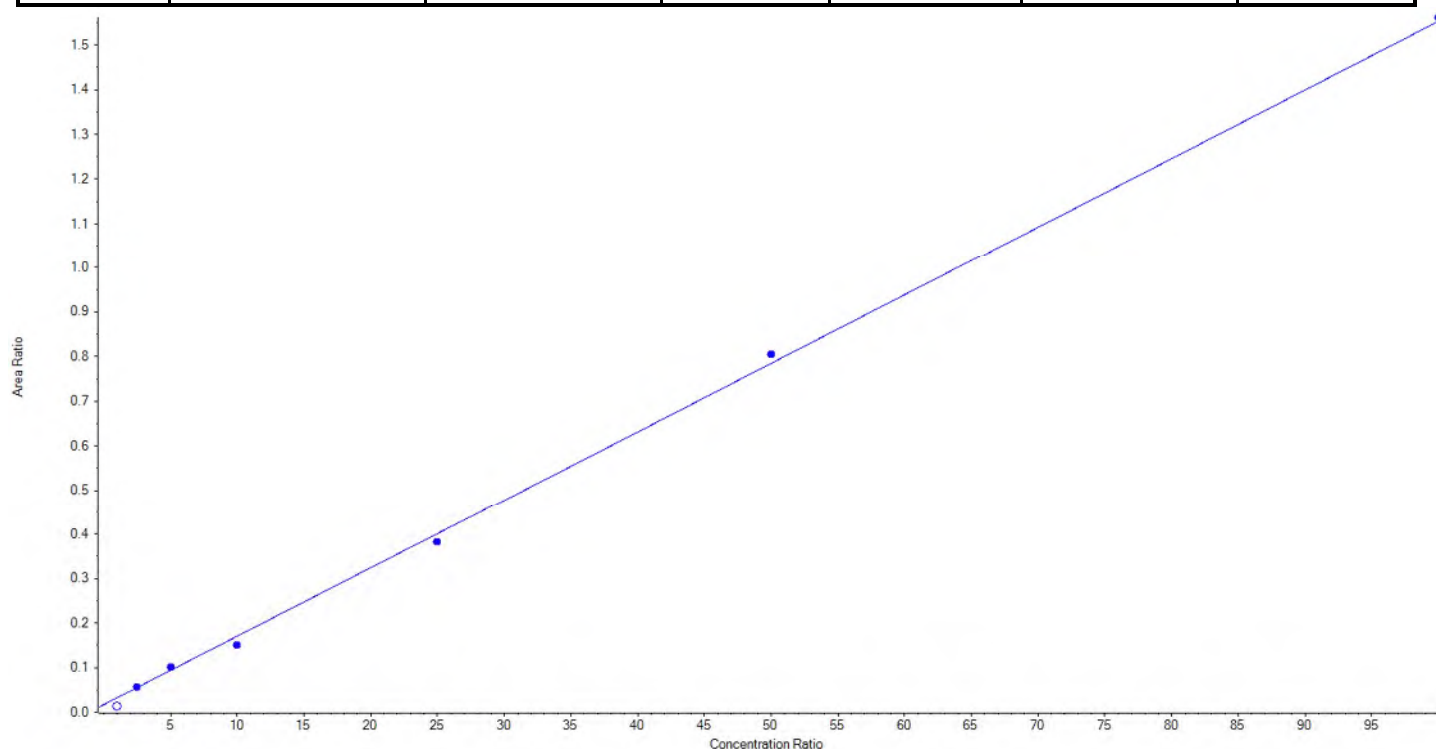
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFHpA_2	Data File	18-0614_18-0594.wiff
MRM Transition	363.0 / 169.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.01536x + 0.01693$ ($r = 0.99885$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	260.629508	104.3
6	JZ82	L5	True	500.00	553.407676	110.7
7	JZ83	L6	True	1000.00	864.811042	86.5
8	JZ84	L7	True	2500.00	2384.905181	95.4
9	JZ85	L8	True	5000.00	5132.688440	102.7
10	JZ86	L9	True	10000.00	10053.558153	100.5





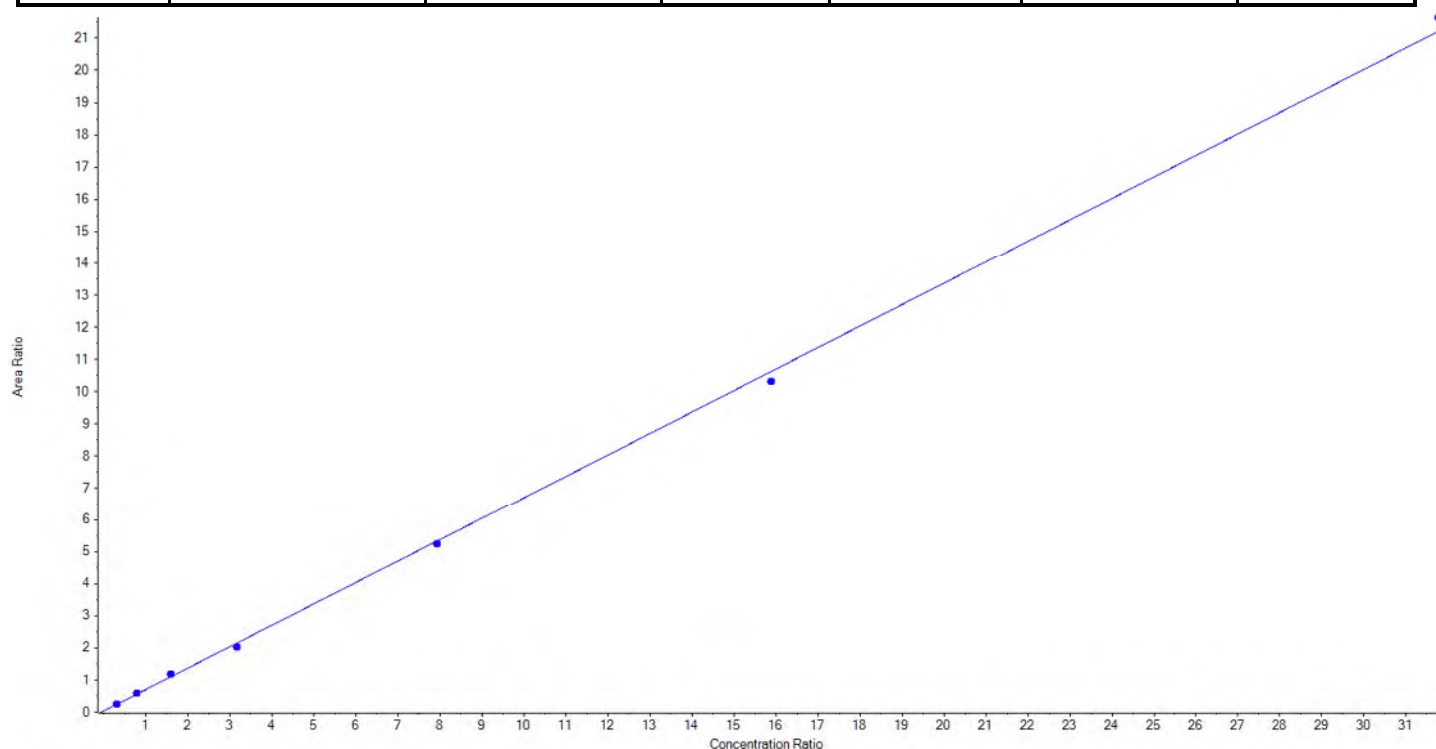
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFHxS_1	Data File	18-0614_18-0594.wiff
MRM Transition	399.0 / 80.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.66648x + 0.03609$ ($r = 0.99951$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	86.774621	95.2
5	JZ81	L4	True	228.00	239.474581	105.0
6	JZ82	L5	True	456.00	492.249598	108.0
7	JZ83	L6	True	912.00	862.037403	94.5
8	JZ84	L7	True	2280.00	2243.168666	98.4
9	JZ85	L8	True	4560.00	4422.018886	97.0
10	JZ86	L9	True	9120.00	9301.476246	102.0





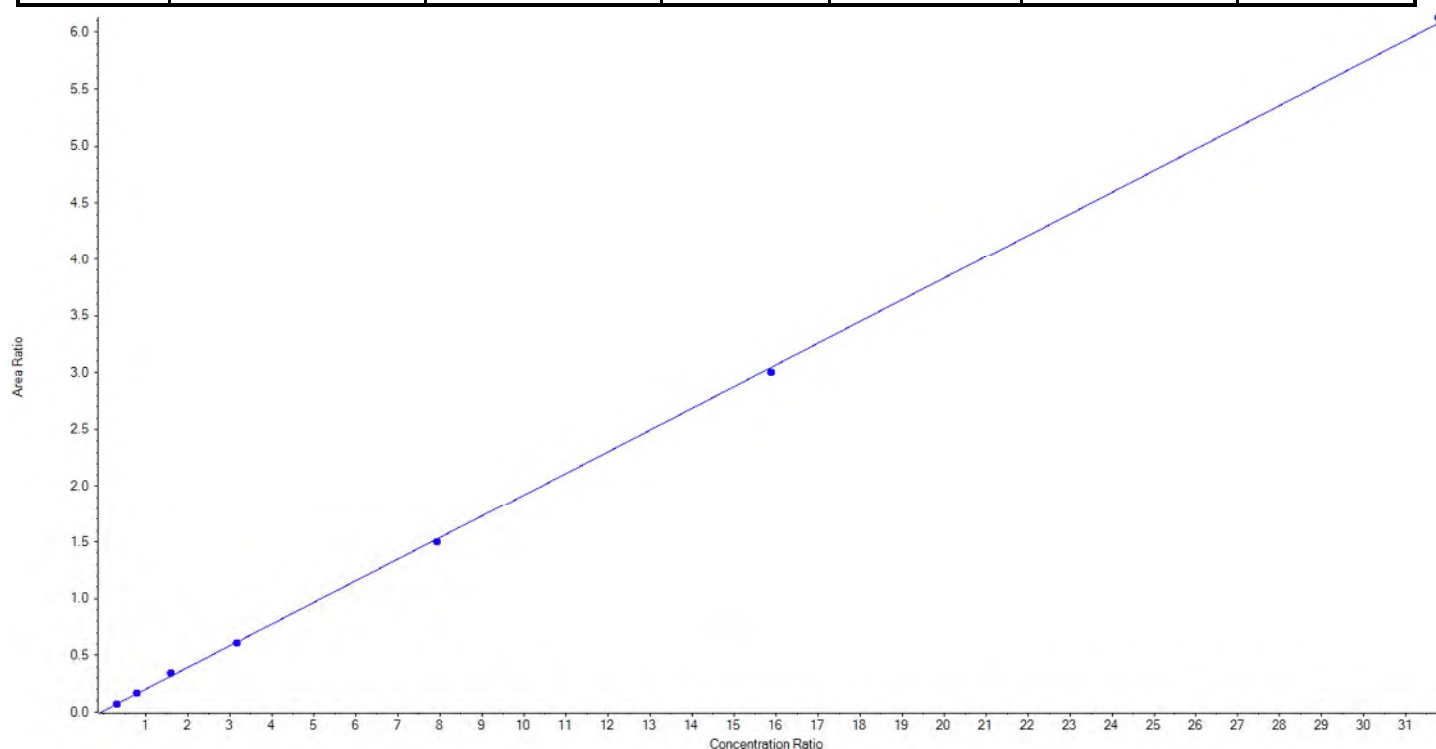
Calibration Summary Report

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Analyte Name	PFHxS_2	Data File	18-0614_18-0594.wiff
MRM Transition	399.0 / 99.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.19090x + 0.01205$ ($r = 0.99975$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	81.745934	89.6
5	JZ81	L4	True	228.00	240.154708	105.3
6	JZ82	L5	True	456.00	495.670447	108.7
7	JZ83	L6	True	912.00	899.934756	98.7
8	JZ84	L7	True	2280.00	2240.668093	98.3
9	JZ85	L8	True	4560.00	4494.763367	98.6
10	JZ86	L9	True	9120.00	9194.262695	100.8





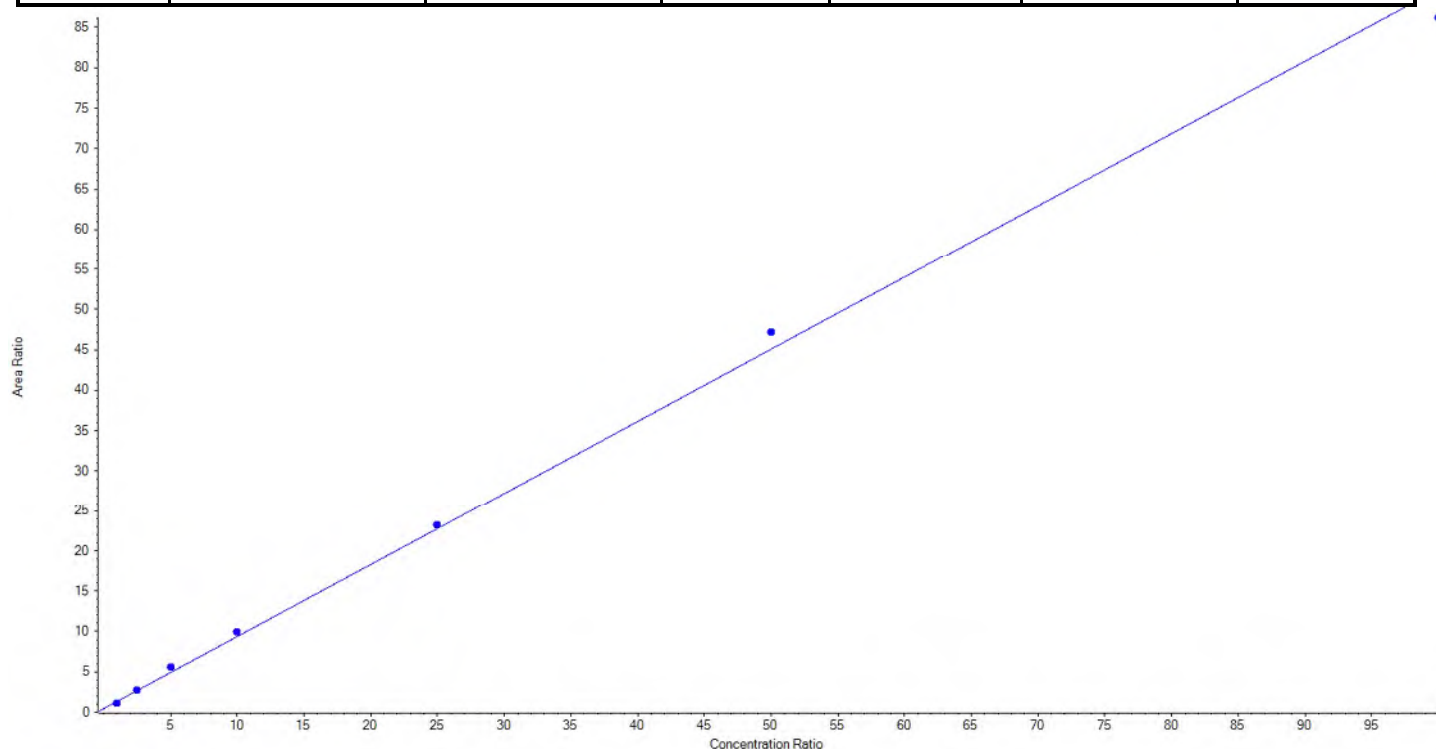
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFOA_1	Data File	18-0614_18-0594.wiff
MRM Transition	413.0 / 369.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.89272x + 0.44105$ ($r = 0.99855$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	73.472466	73.5
5	JZ81	L4	True	250.00	259.902047	104.0
6	JZ82	L5	True	500.00	570.585366	114.1
7	JZ83	L6	True	1000.00	1056.549163	105.7
8	JZ84	L7	True	2500.00	2552.011126	102.1
9	JZ85	L8	True	5000.00	5233.948273	104.7
10	JZ86	L9	True	10000.00	9603.531559	96.0





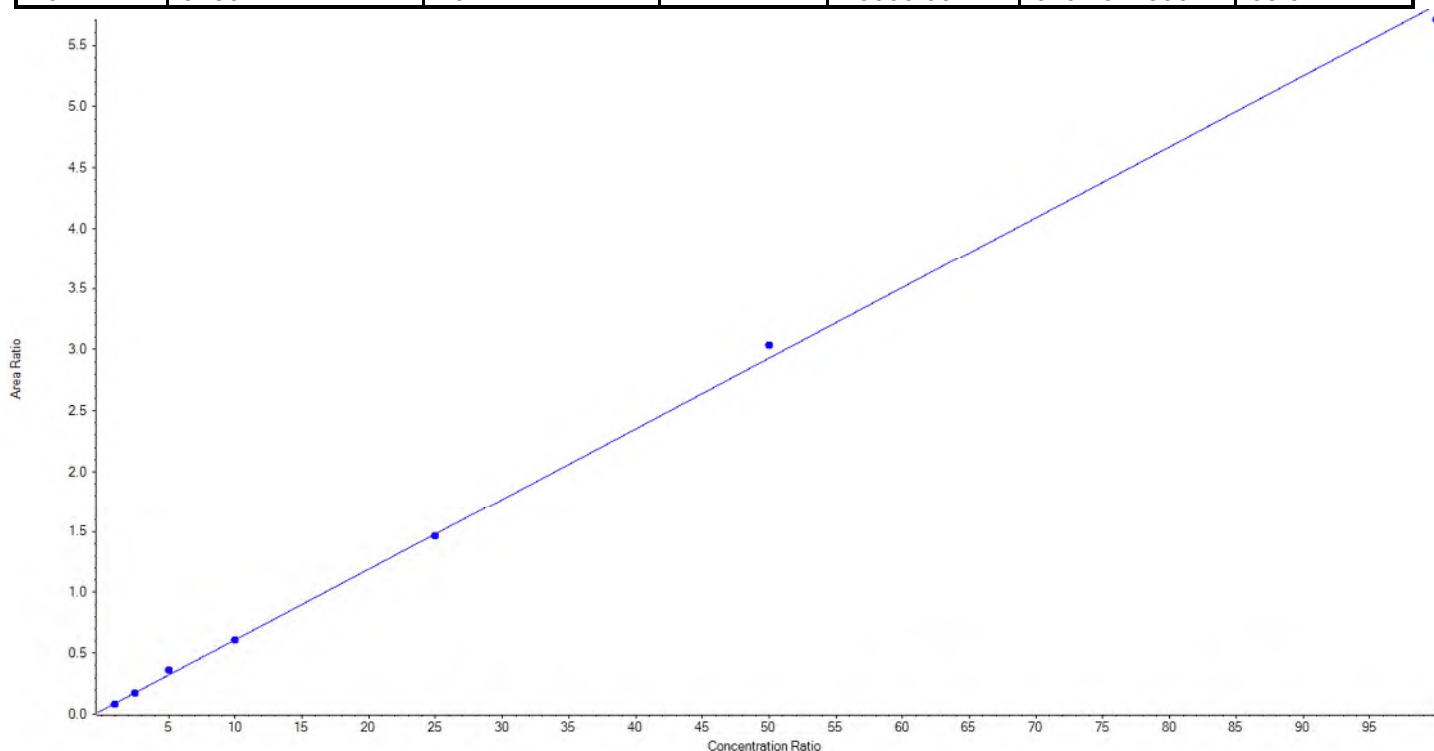
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFOA_2	Data File	18-0614_18-0594.wiff
MRM Transition	413.0 / 169.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05799x + 0.03080$ ($r = 0.99931$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	87.086039	87.1
5	JZ81	L4	True	250.00	246.394710	98.6
6	JZ82	L5	True	500.00	571.221268	114.2
7	JZ83	L6	True	1000.00	995.472985	99.6
8	JZ84	L7	True	2500.00	2475.657036	99.0
9	JZ85	L8	True	5000.00	5179.656428	103.6
10	JZ86	L9	True	10000.00	9794.511536	98.0





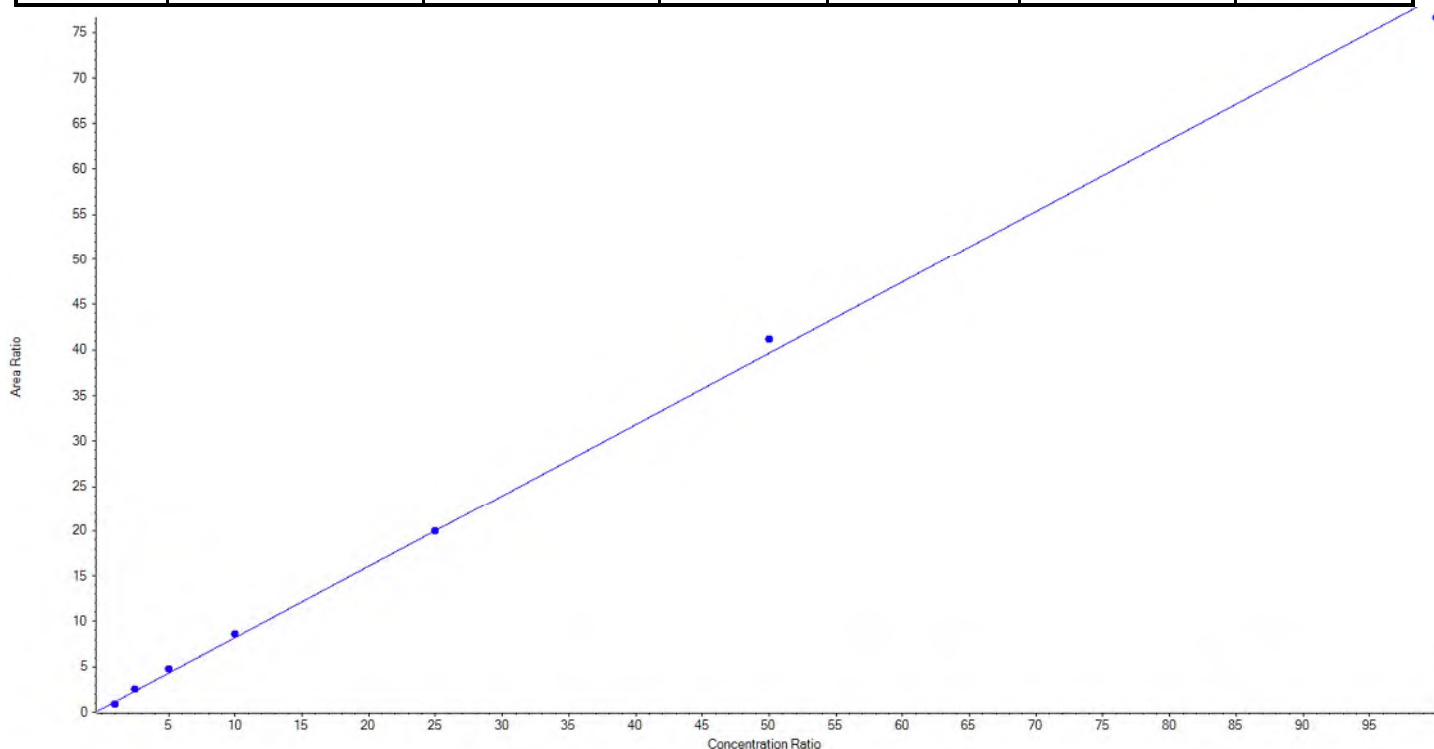
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFNA_1	Data File	18-0614_18-0594.wiff
MRM Transition	463.0 / 419.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.78549x + 0.36264$ ($r = 0.99892$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	72.508406	72.5
5	JZ81	L4	True	250.00	273.223025	109.3
6	JZ82	L5	True	500.00	560.369162	112.1
7	JZ83	L6	True	1000.00	1056.203637	105.6
8	JZ84	L7	True	2500.00	2491.268174	99.7
9	JZ85	L8	True	5000.00	5189.318542	103.8
10	JZ86	L9	True	10000.00	9707.109054	97.1





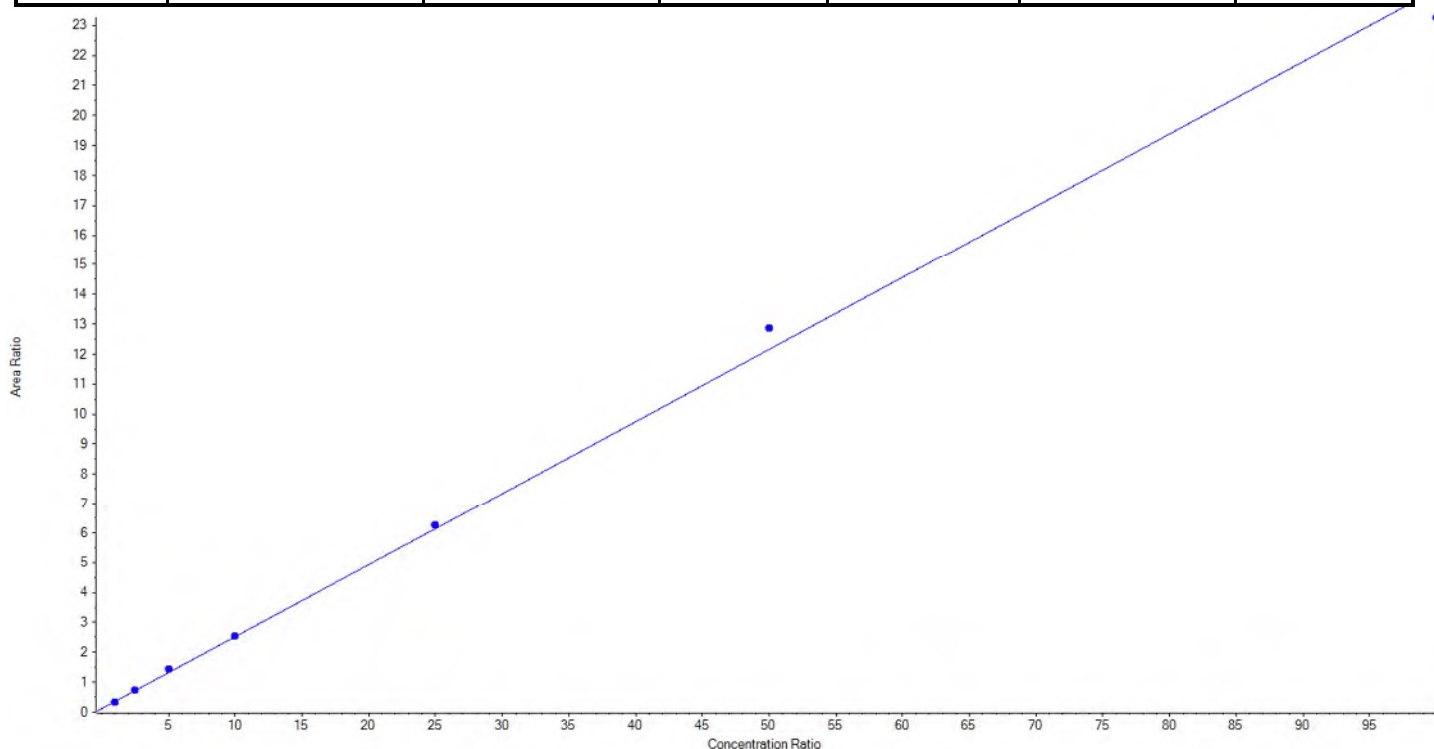
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFNA_2	Data File	18-0614_18-0594.wiff
MRM Transition	463.0 / 219.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.24085x + 0.11789$ ($r = 0.99877$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	84.053540	84.1
5	JZ81	L4	True	250.00	253.808270	101.5
6	JZ82	L5	True	500.00	546.728993	109.4
7	JZ83	L6	True	1000.00	1011.372186	101.1
8	JZ84	L7	True	2500.00	2547.506863	101.9
9	JZ85	L8	True	5000.00	5297.455827	106.0
10	JZ86	L9	True	10000.00	9609.074321	96.1





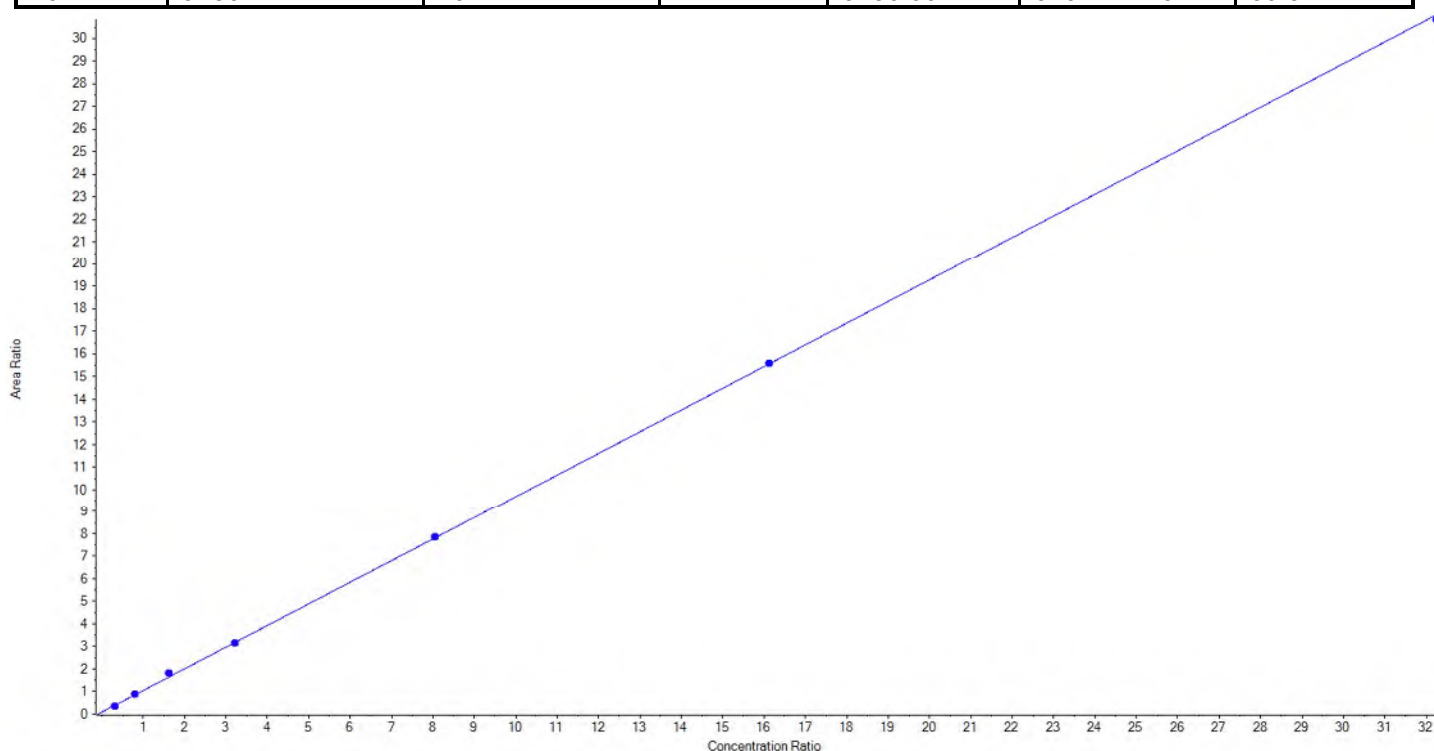
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFOS_1	Data File	18-0614_18-0594.wiff
MRM Transition	499.0 / 80.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.95988x + 0.08788$ ($r = 0.99967$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	92.60	78.711796	85.0
5	JZ81	L4	True	231.50	239.934953	103.6
6	JZ82	L5	True	463.00	520.190435	112.4
7	JZ83	L6	True	925.60	916.111981	99.0
8	JZ84	L7	True	2314.00	2325.879849	100.5
9	JZ85	L8	True	4628.00	4637.143285	100.2
10	JZ86	L9	True	9256.00	9192.727701	99.3





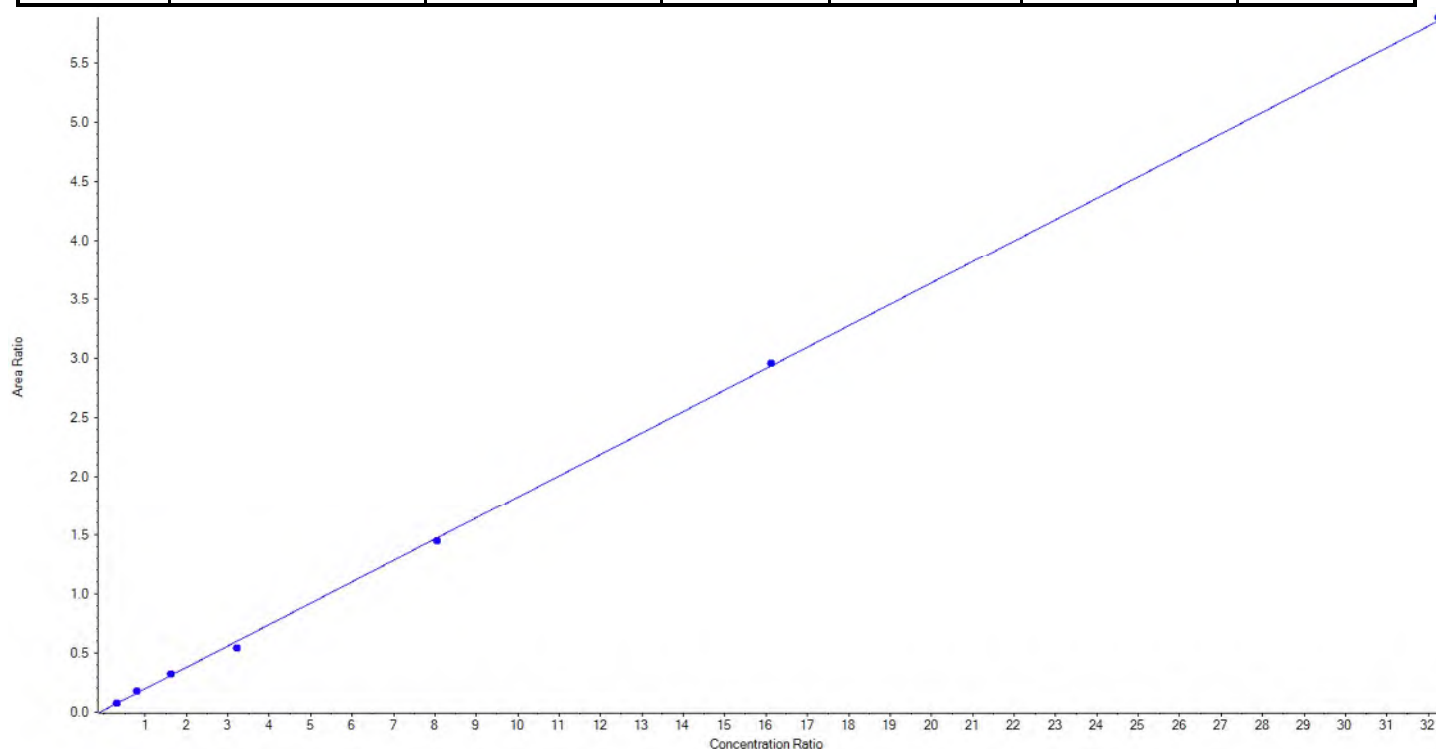
Calibration Summary Report

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Analyte Name	PFOS_2	Data File	18-0614_18-0594.wiff
MRM Transition	499.0 / 99.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.18105x + 0.01658$ ($r = 0.99959$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	92.60	88.839206	95.9
5	JZ81	L4	True	231.50	252.186872	108.9
6	JZ82	L5	True	463.00	485.427014	104.8
7	JZ83	L6	True	925.60	837.570923	90.5
8	JZ84	L7	True	2314.00	2277.533940	98.4
9	JZ85	L8	True	4628.00	4669.465955	100.9
10	JZ86	L9	True	9256.00	9299.676090	100.5





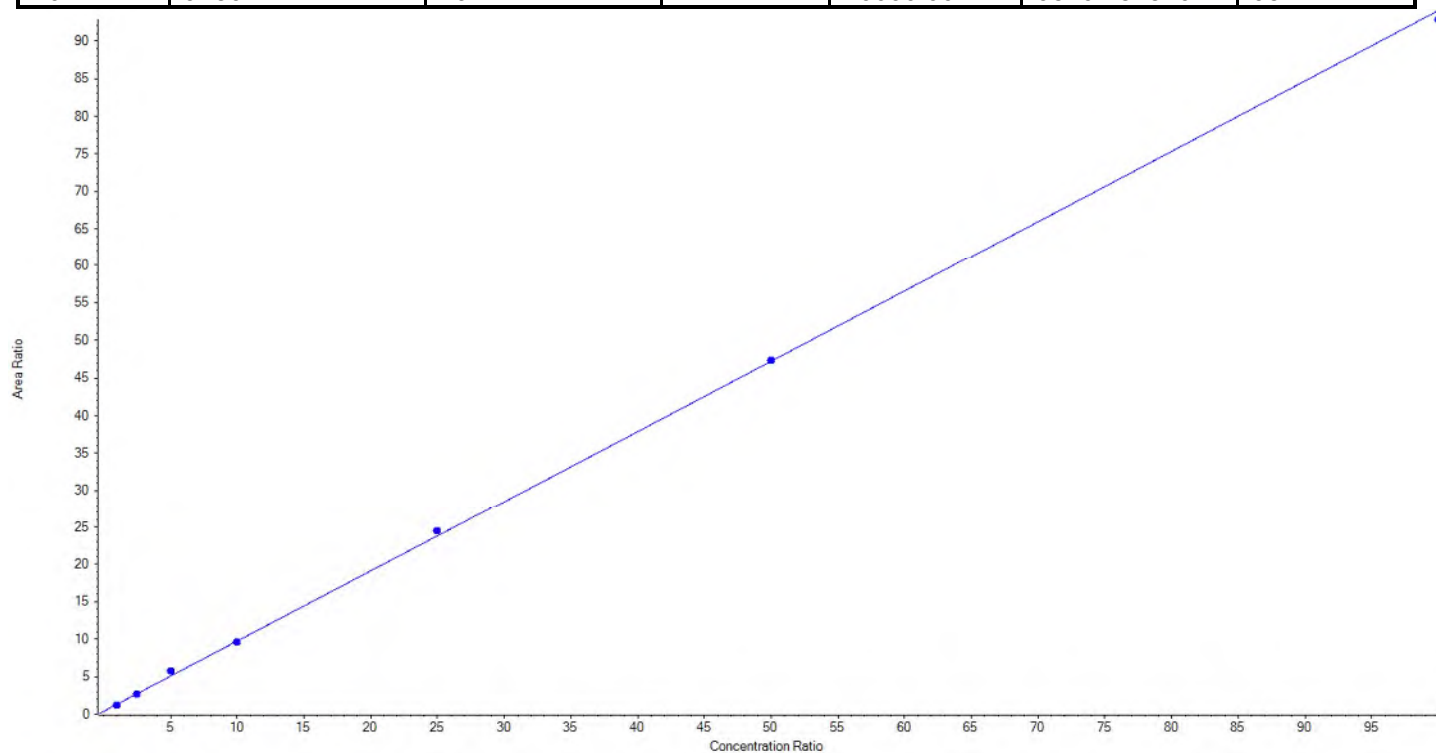
Calibration Summary Report

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Analyte Name	PFDA_1	Data File	18-0614_18-0594.wiff
MRM Transition	513.0 / 469.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.93652x + 0.39506$ ($r = 0.99949$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	85.318729	85.3
5	JZ81	L4	True	250.00	248.328632	99.3
6	JZ82	L5	True	500.00	573.921932	114.8
7	JZ83	L6	True	1000.00	987.367803	98.7
8	JZ84	L7	True	2500.00	2571.460585	102.9
9	JZ85	L8	True	5000.00	5013.420472	100.3
10	JZ86	L9	True	10000.00	9870.181846	98.7





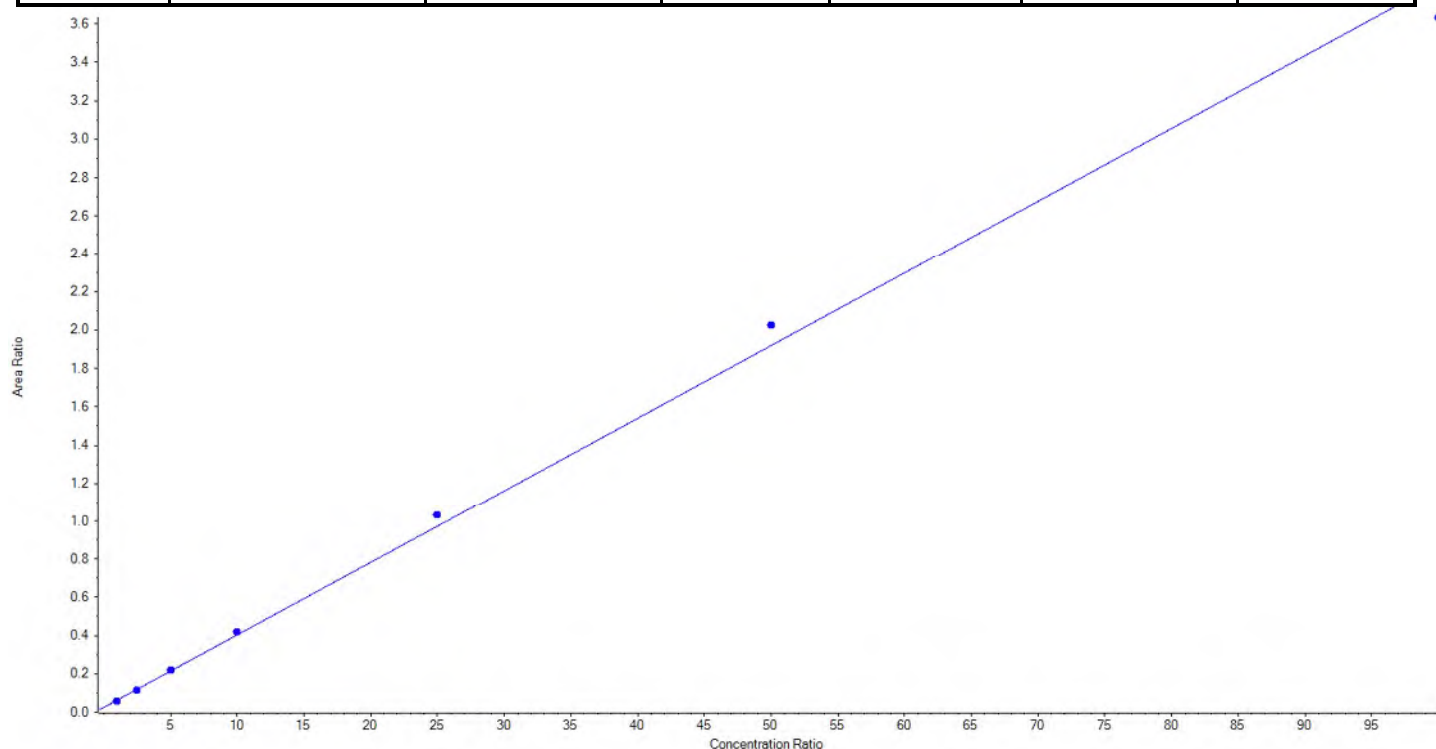
Calibration Summary Report

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Analyte Name	PFDA_2	Data File	18-0614_18-0594.wiff
MRM Transition	513.0 / 219.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.03789x + 0.02476$ ($r = 0.99840$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	92.668688	92.7
5	JZ81	L4	True	250.00	234.167993	93.7
6	JZ82	L5	True	500.00	510.032586	102.0
7	JZ83	L6	True	1000.00	1042.613693	104.3
8	JZ84	L7	True	2500.00	2660.407495	106.4
9	JZ85	L8	True	5000.00	5287.883322	105.8
10	JZ86	L9	True	10000.00	9522.226223	95.2





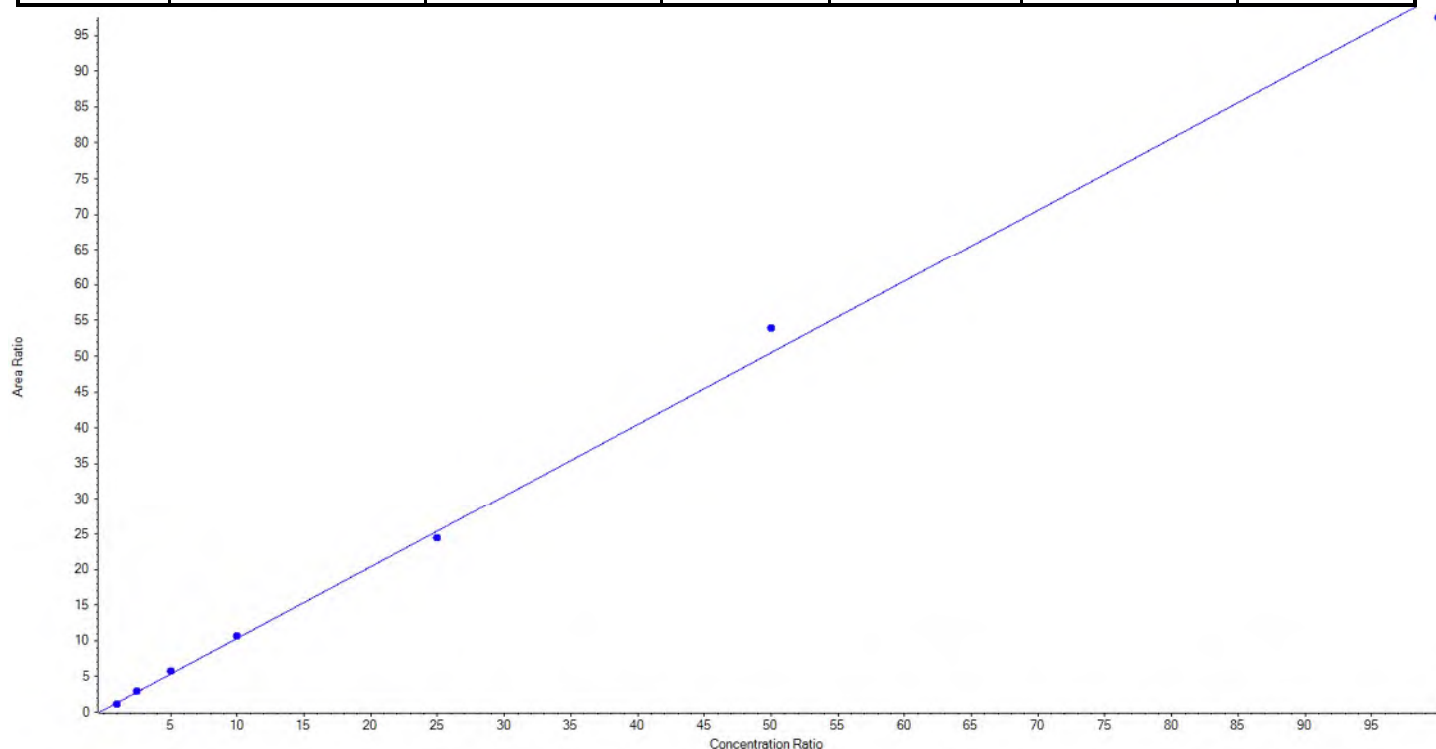
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFUnA_1	Data File	18-0614_18-0594.wiff
MRM Transition	563.0 / 519.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.00366x + 0.30783$ ($r = 0.99859$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	82.863403	82.9
5	JZ81	L4	True	250.00	260.832938	104.3
6	JZ82	L5	True	500.00	546.647377	109.3
7	JZ83	L6	True	1000.00	1038.580598	103.9
8	JZ84	L7	True	2500.00	2399.618674	96.0
9	JZ85	L8	True	5000.00	5341.656904	106.8
10	JZ86	L9	True	10000.00	9679.800105	96.8





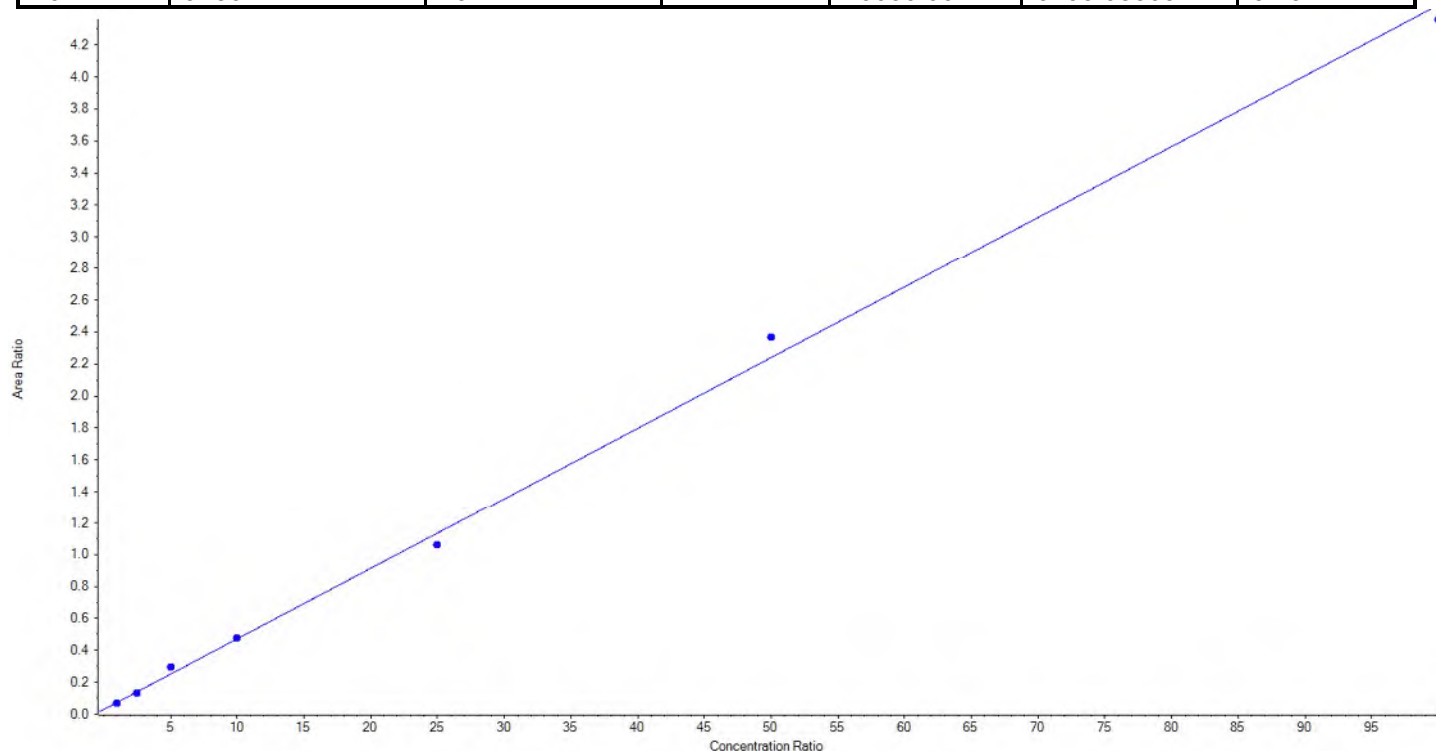
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFUnA_2	Data File	18-0614_18-0594.wiff
MRM Transition	563.0 / 269.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.04420 x + 0.02989$ ($r = 0.99834$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	87.316243	87.3
5	JZ81	L4	True	250.00	237.672972	95.1
6	JZ82	L5	True	500.00	599.674150	119.9
7	JZ83	L6	True	1000.00	1006.038171	100.6
8	JZ84	L7	True	2500.00	2331.040105	93.2
9	JZ85	L8	True	5000.00	5295.173327	105.9
10	JZ86	L9	True	10000.00	9793.085032	97.9





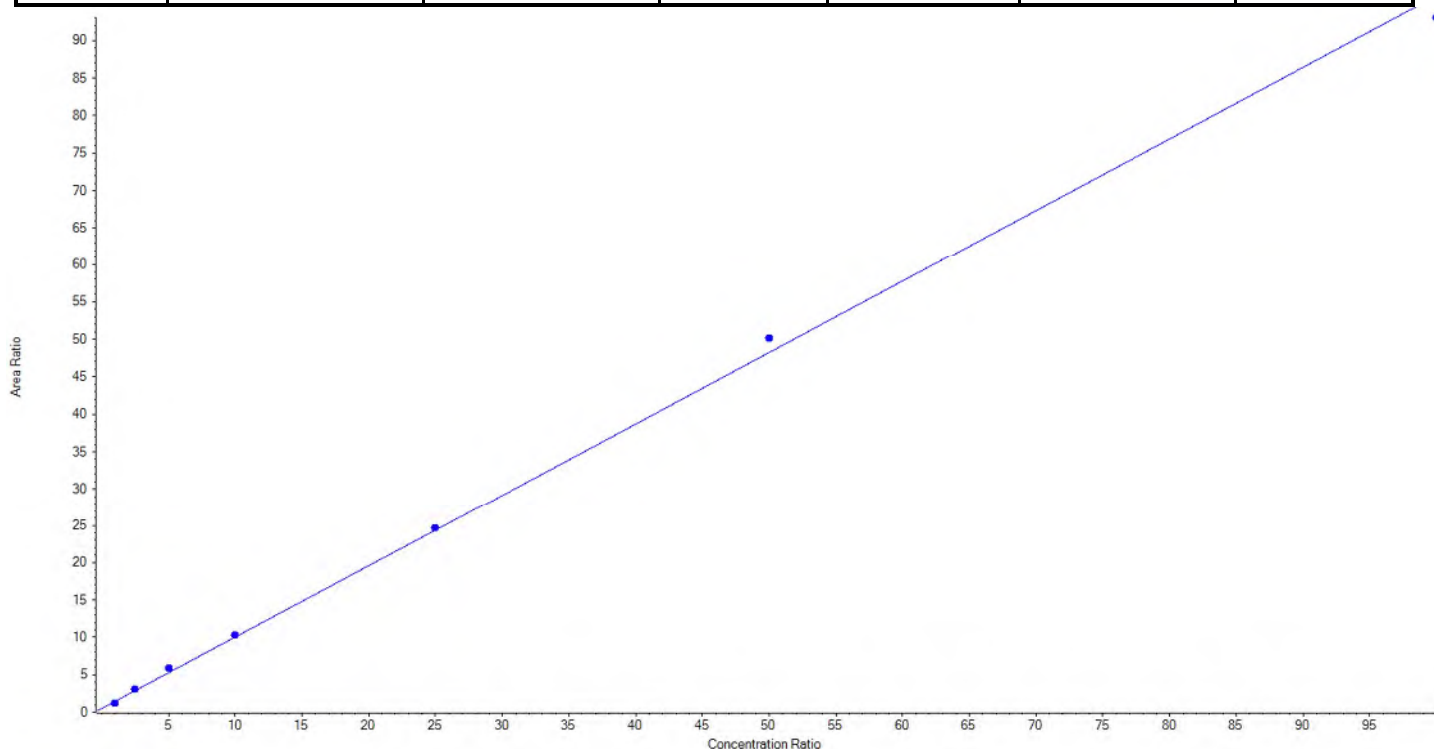
Calibration Summary Report

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Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFD _o A_1	Data File	18-0614_18-0594.wiff
MRM Transition	613.0 / 569.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.95477x + 0.49910$ ($r = 0.99902$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	75.680468	75.7
5	JZ81	L4	True	250.00	270.173879	108.1
6	JZ82	L5	True	500.00	558.687793	111.7
7	JZ83	L6	True	1000.00	1024.396355	102.4
8	JZ84	L7	True	2500.00	2529.786580	101.2
9	JZ85	L8	True	5000.00	5196.857441	103.9
10	JZ86	L9	True	10000.00	9694.417485	96.9





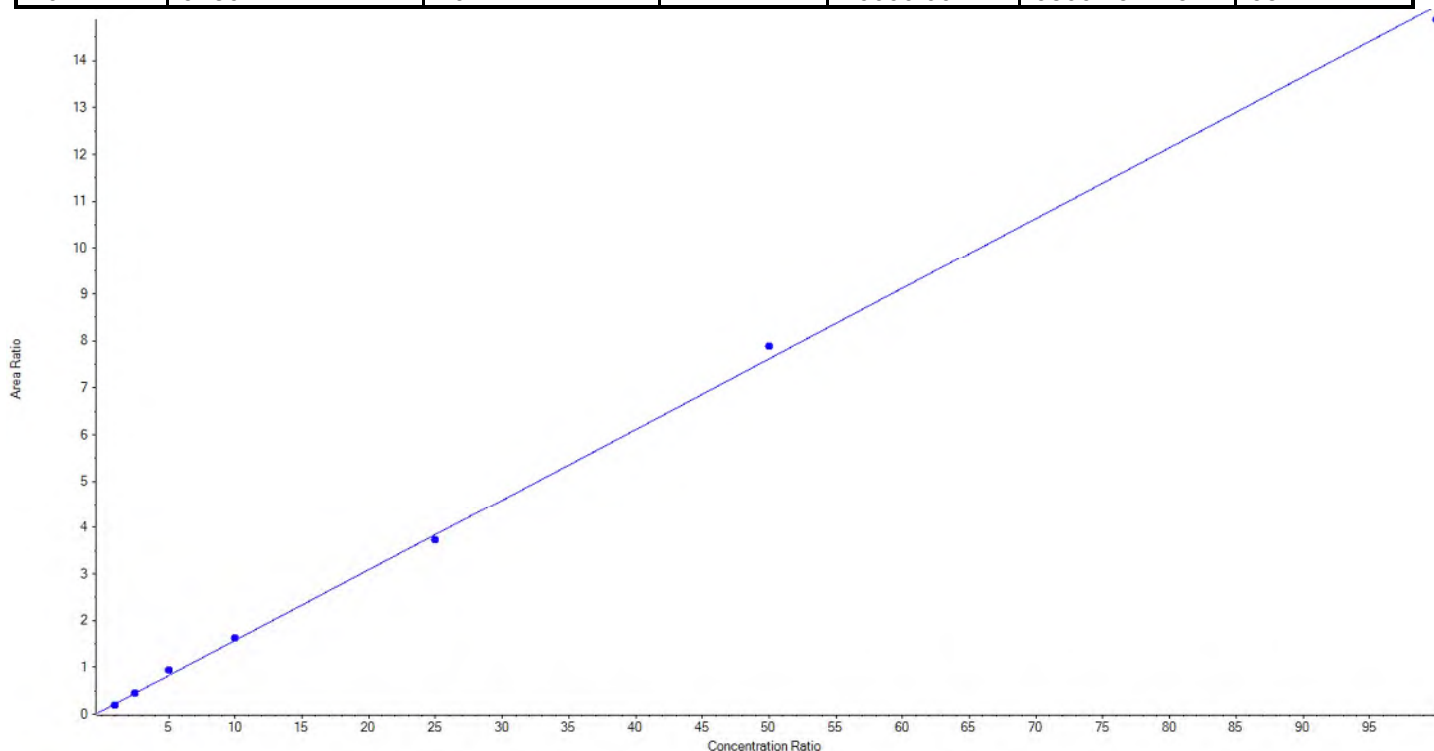
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFDaA_2	Data File	18-0614_18-0594.wiff
MRM Transition	613.0 / 319.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.15096x + 0.06895$ ($r = 0.99908$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	81.706493	81.7
5	JZ81	L4	True	250.00	251.067196	100.4
6	JZ82	L5	True	500.00	581.689342	116.3
7	JZ83	L6	True	1000.00	1031.364808	103.1
8	JZ84	L7	True	2500.00	2418.508871	96.7
9	JZ85	L8	True	5000.00	5179.529166	103.6
10	JZ86	L9	True	10000.00	9806.134123	98.1





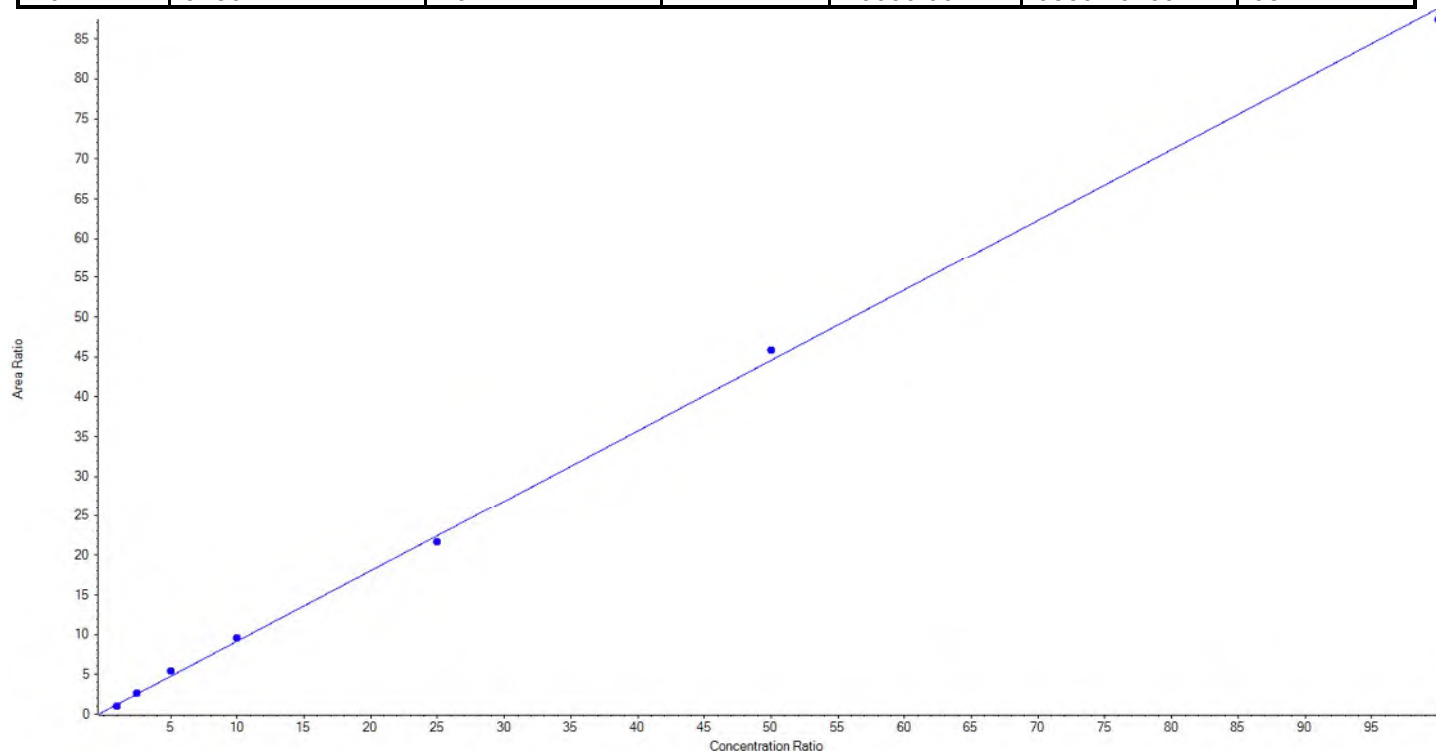
Calibration Summary Report

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Analyte Name	PFTTrDA_1	Data File	18-0614_18-0594.wiff
MRM Transition	663.0 / 619.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.88513x + 0.32278$ ($r = 0.99911$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	77.034986	77.0
5	JZ81	L4	True	250.00	265.962253	106.4
6	JZ82	L5	True	500.00	575.370453	115.1
7	JZ83	L6	True	1000.00	1039.355529	103.9
8	JZ84	L7	True	2500.00	2405.895484	96.2
9	JZ85	L8	True	5000.00	5147.083704	102.9
10	JZ86	L9	True	10000.00	9839.297592	98.4





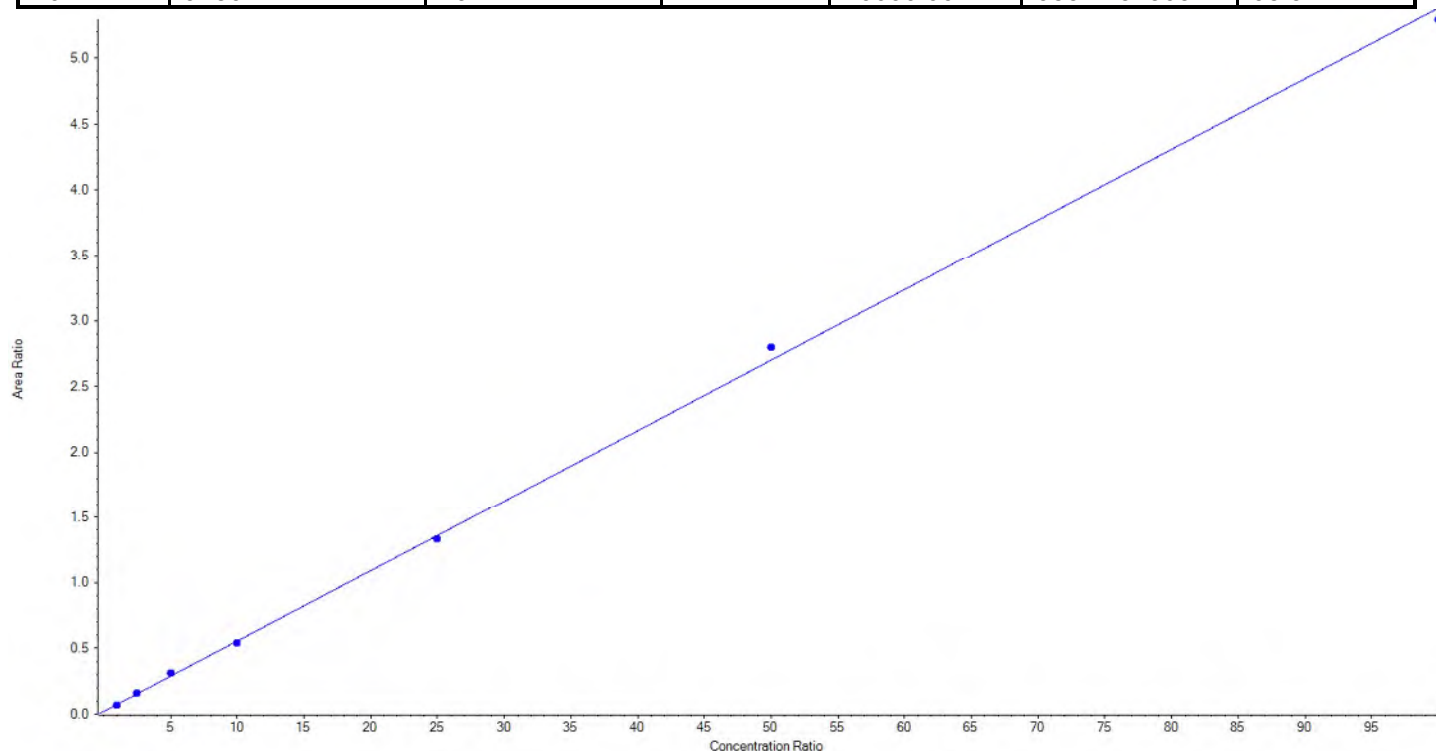
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFTTrDA_2	Data File	18-0614_18-0594.wiff
MRM Transition	663.0 / 169.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05361x + 0.02032$ ($r = 0.99944$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	86.761592	86.8
5	JZ81	L4	True	250.00	263.641575	105.5
6	JZ82	L5	True	500.00	550.217986	110.0
7	JZ83	L6	True	1000.00	974.980521	97.5
8	JZ84	L7	True	2500.00	2454.826803	98.2
9	JZ85	L8	True	5000.00	5185.134160	103.7
10	JZ86	L9	True	10000.00	9834.437363	98.3





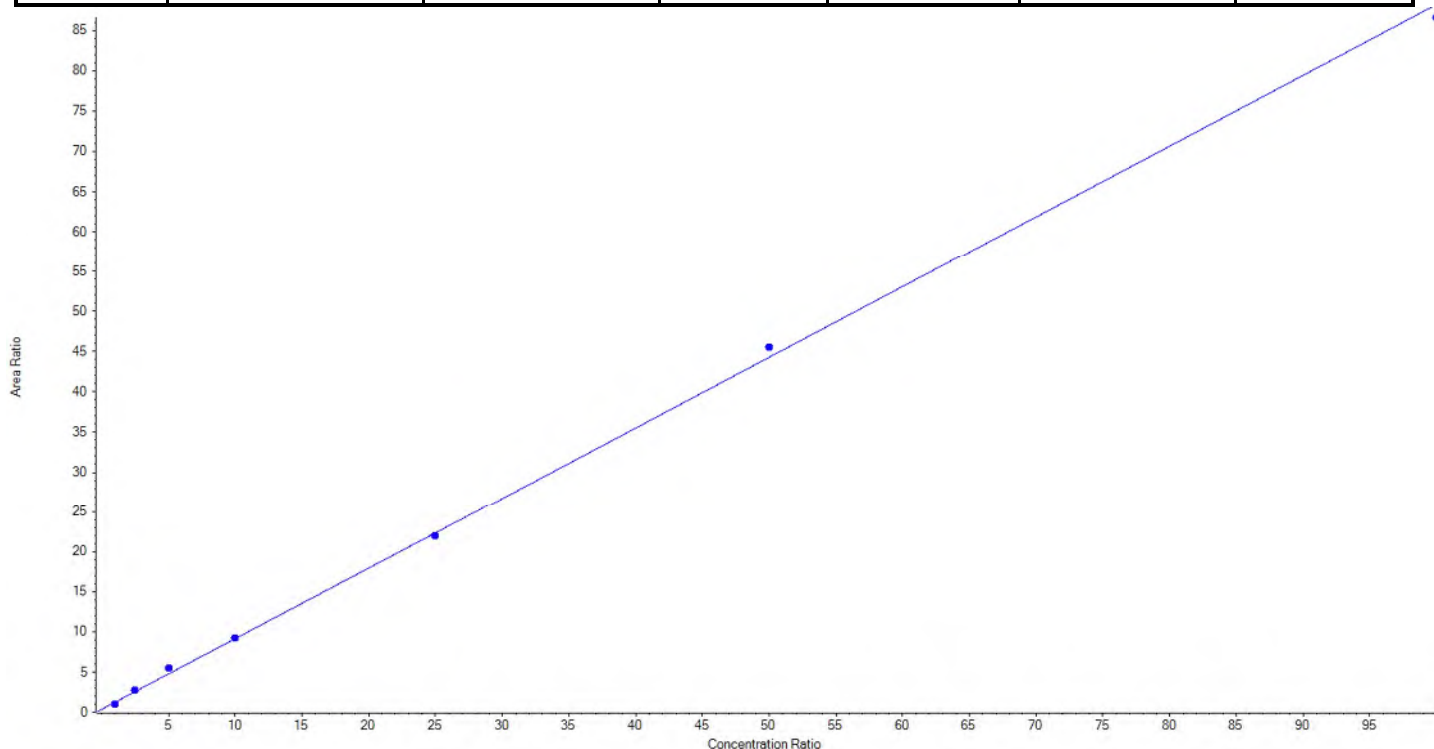
Calibration Summary Report

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Printed: 17/10/2018 3:32:50 PM

Analyte Name	PFTeDA_1	Data File	18-0614_18-0594.wiff
MRM Transition	713.0 / 669.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.87832x + 0.36916$ ($r = 0.99920$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	77.446950	77.5
5	JZ81	L4	True	250.00	264.775690	105.9
6	JZ82	L5	True	500.00	578.769438	115.8
7	JZ83	L6	True	1000.00	1015.487775	101.6
8	JZ84	L7	True	2500.00	2460.968172	98.4
9	JZ85	L8	True	5000.00	5137.586242	102.8
10	JZ86	L9	True	10000.00	9814.965733	98.2





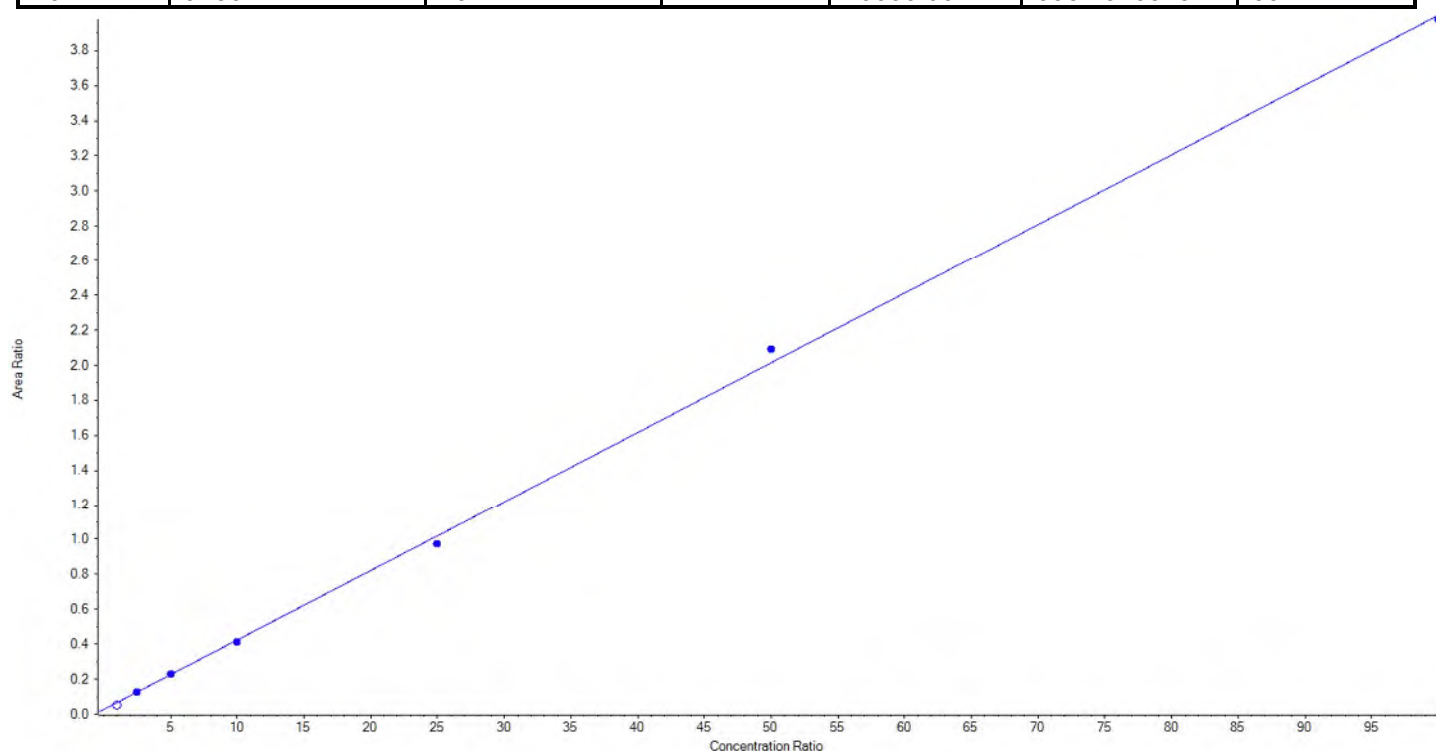
Calibration Summary Report

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Analyte Name	PFTeDA_2	Data File	18-0614_18-0594.wiff
MRM Transition	713.0 / 169.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.03974 x + 0.02651$ ($r = 0.99950$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	60.099494	60.1
5	JZ81	L4	True	250.00	255.153595	102.1
6	JZ82	L5	True	500.00	510.355609	102.1
7	JZ83	L6	True	1000.00	974.597866	97.5
8	JZ84	L7	True	2500.00	2379.159916	95.2
9	JZ85	L8	True	5000.00	5193.392691	103.9
10	JZ86	L9	True	10000.00	9937.340323	99.4





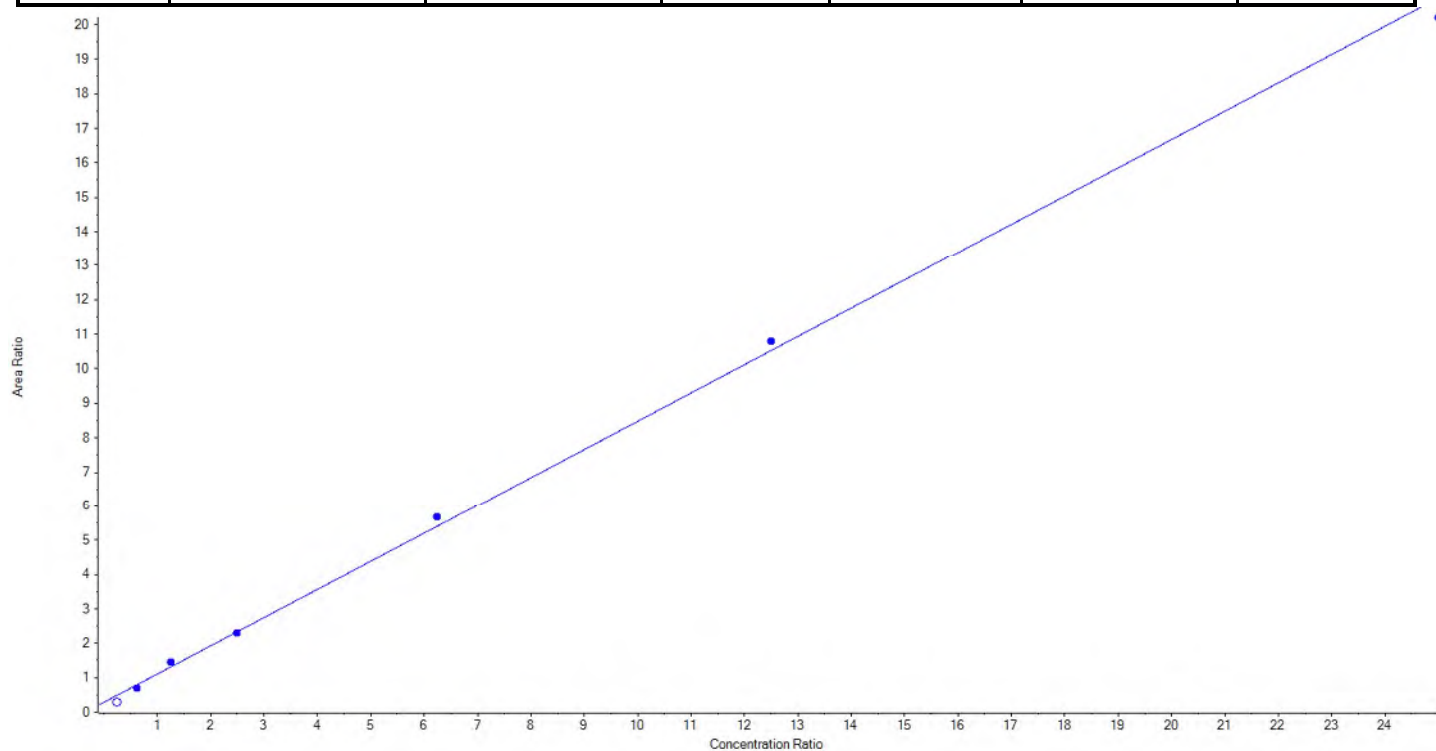
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:32:50 PM

Analyte Name	NMeFOSAA_1	Data File	18-0614_18-0594.wiff
MRM Transition	570.0 / 419.0	Result Table	18-0614_18-0594_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.81942x + 0.28568$ ($r = 0.99871$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	204.048864	81.6
6	JZ82	L5	True	500.00	573.692053	114.7
7	JZ83	L6	True	1000.00	985.879681	98.6
8	JZ84	L7	True	2500.00	2626.953642	105.1
9	JZ85	L8	True	5000.00	5138.167229	102.8
10	JZ86	L9	True	10000.00	9721.258531	97.2





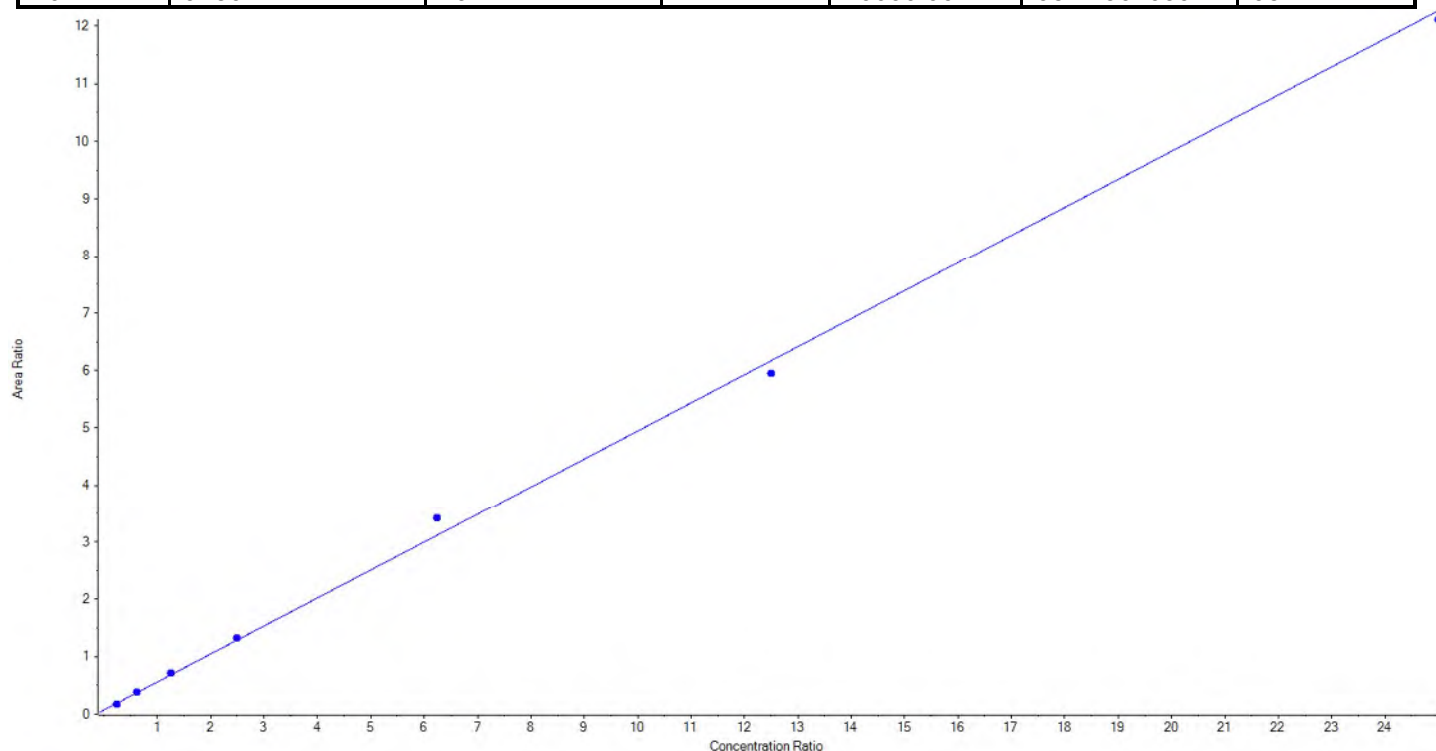
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	NMeFOSAA_2	Data File	18-0614_18-0594.wiff
MRM Transition	570.0 / 512.0	Result Table	18-0614_18-0594_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.48789x + 0.07084$ ($r = 0.99878$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	82.397990	82.4
5	JZ81	L4	True	250.00	255.029920	102.0
6	JZ82	L5	True	500.00	535.297330	107.1
7	JZ83	L6	True	1000.00	1033.051434	103.3
8	JZ84	L7	True	2500.00	2752.828820	110.1
9	JZ85	L8	True	5000.00	4819.833446	96.4
10	JZ86	L9	True	10000.00	9871.561059	98.7





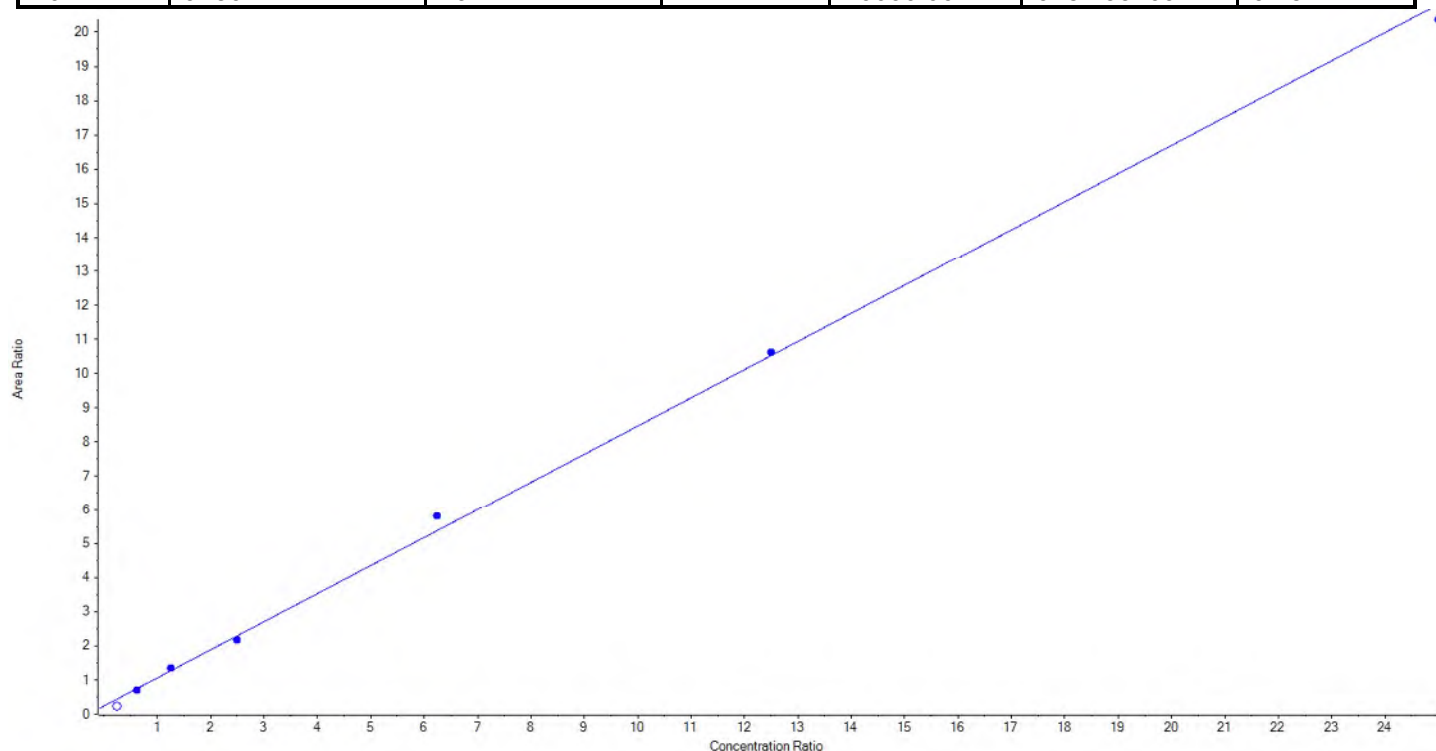
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	NEtFOSAA_1	Data File	18-0614_18-0594.wiff
MRM Transition	584.0 / 419.0	Result Table	18-0614_18-0594_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.82308x + 0.23648$ ($r = 0.99888$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	223.068567	89.2
6	JZ82	L5	True	500.00	544.973650	109.0
7	JZ83	L6	True	1000.00	946.819315	94.7
8	JZ84	L7	True	2500.00	2710.834165	108.4
9	JZ85	L8	True	5000.00	5041.950206	100.8
10	JZ86	L9	True	10000.00	9782.354097	97.8





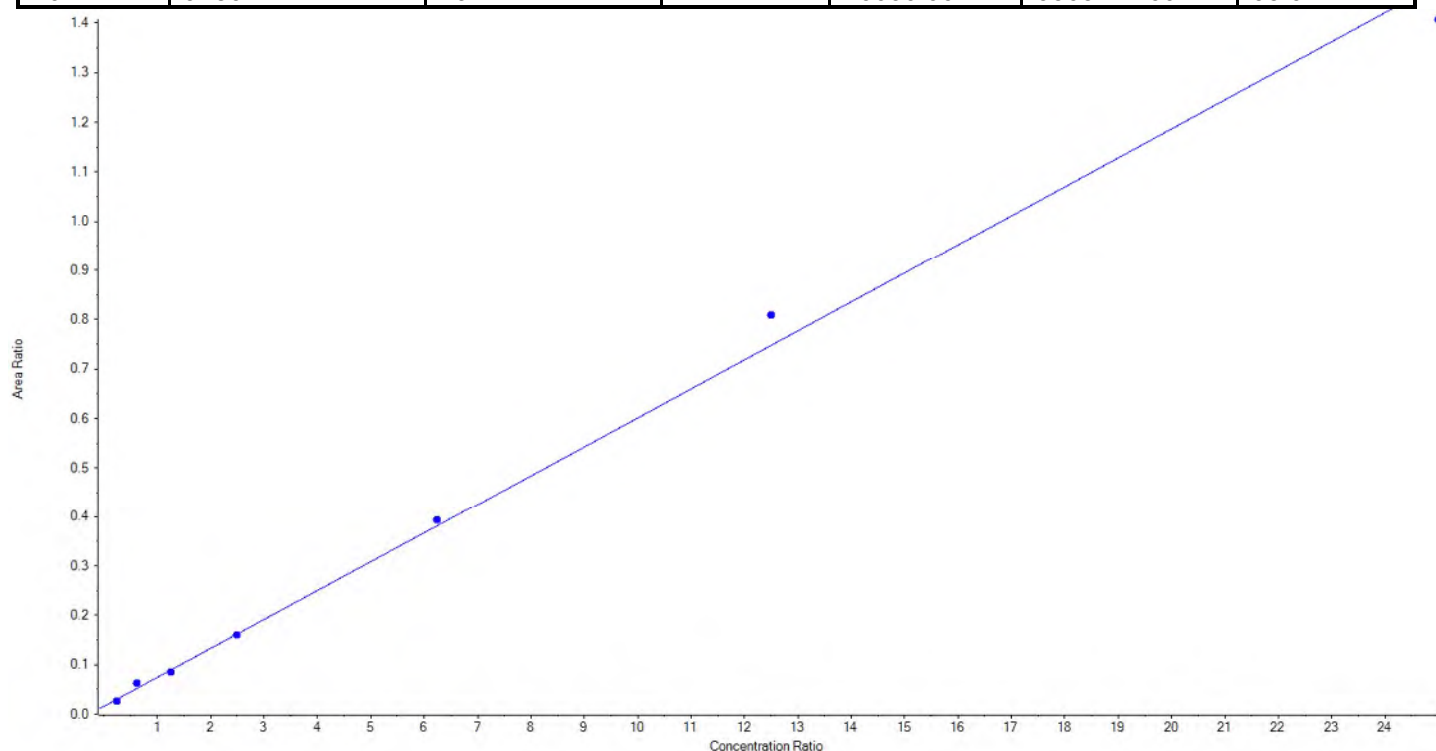
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	NEtFOSAA_2	Data File	18-0614_18-0594.wiff
MRM Transition	584.0 / 483.0	Result Table	18-0614_18-0594_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05855x + 0.01572$ ($r = 0.99721$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	72.813805	72.8
5	JZ81	L4	True	250.00	321.466798	128.6
6	JZ82	L5	True	500.00	469.125237	93.8
7	JZ83	L6	True	1000.00	980.534592	98.1
8	JZ84	L7	True	2500.00	2581.845190	103.3
9	JZ85	L8	True	5000.00	5420.501771	108.4
10	JZ86	L9	True	10000.00	9503.712607	95.0





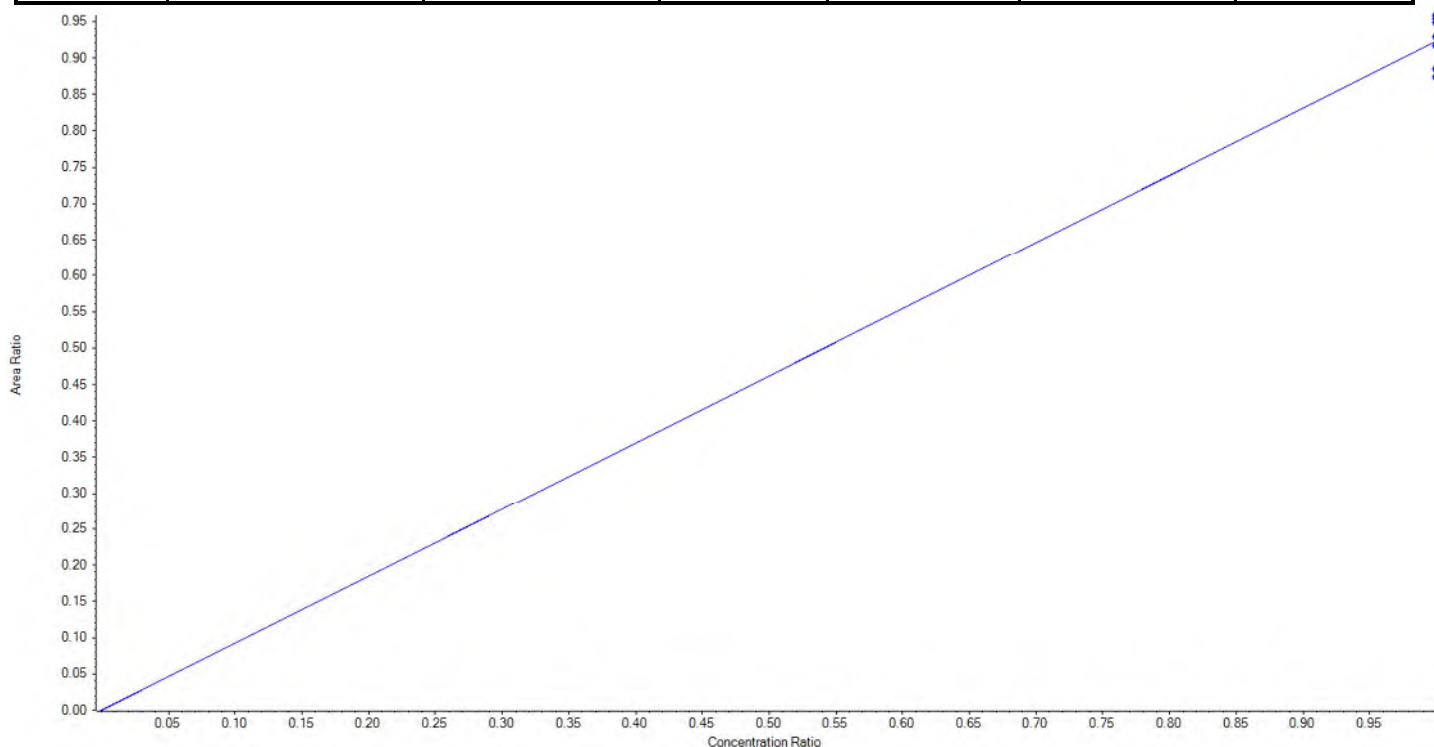
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	13C2-PFHxA	Data File	18-0614_18-0594.wiff
MRM Transition	315.0 / 270.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.92331 x$ (std. dev. = 0.03375) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	99.239911	99.2
5	JZ81	L4	True	100.00	102.748003	102.8
6	JZ82	L5	True	100.00	100.677235	100.7
7	JZ83	L6	True	100.00	103.225832	103.2
8	JZ84	L7	True	100.00	94.604957	94.6
9	JZ85	L8	True	100.00	103.748494	103.8
10	JZ86	L9	True	100.00	95.755568	95.8





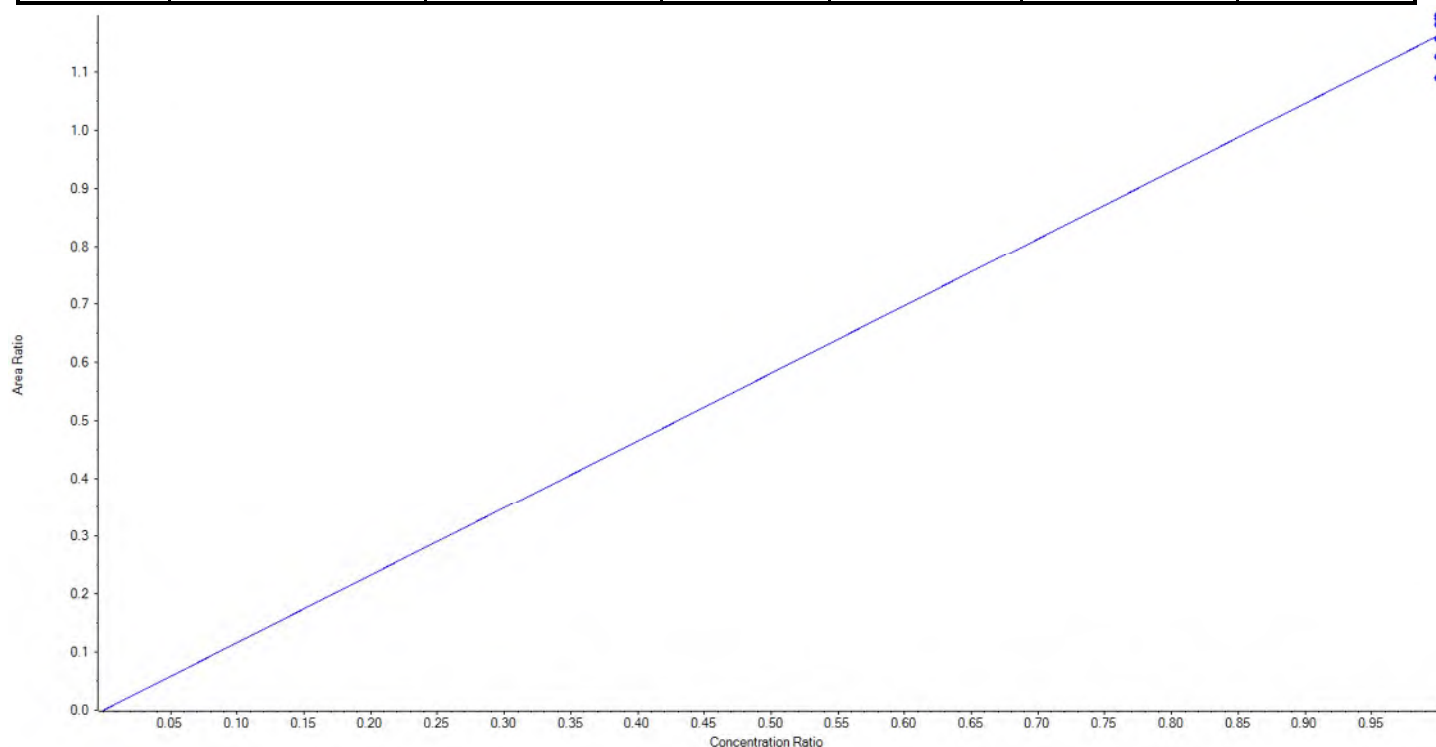
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	13C2-PFDA	Data File	18-0614_18-0594.wiff
MRM Transition	515.0 / 470.0	Result Table	18-0614_18-0594_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.16319 x$ (std. dev. = 0.04133) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	93.729062	93.7
5	JZ81	L4	True	100.00	102.486352	102.5
6	JZ82	L5	True	100.00	101.670985	101.7
7	JZ83	L6	True	100.00	102.876593	102.9
8	JZ84	L7	True	100.00	99.500547	99.5
9	JZ85	L8	True	100.00	102.941856	102.9
10	JZ86	L9	True	100.00	96.794606	96.8





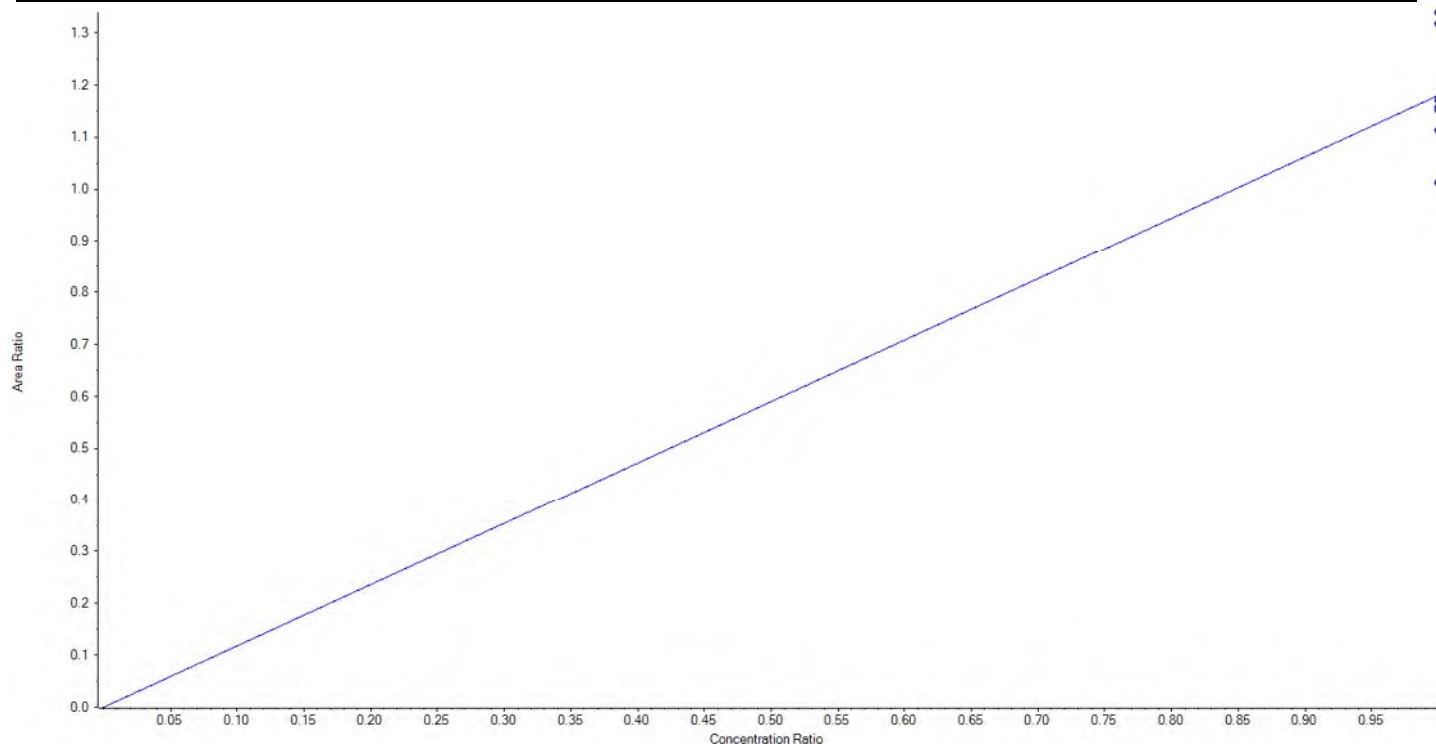
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	d5-EtFOSAA	Data File	18-0614_18-0594.wiff
MRM Transition	589.0 / 419.0	Result Table	18-0614_18-0594_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	10/11/2018 5:43:28 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.18048 x$ (std. dev. = 0.11369) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	400.00	397.002487	99.3
5	JZ81	L4	True	400.00	446.216327	111.6
6	JZ82	L5	True	400.00	453.675180	113.4
7	JZ83	L6	True	400.00	390.494717	97.6
8	JZ84	L7	True	400.00	392.070020	98.0
9	JZ85	L8	True	400.00	377.133836	94.3
10	JZ86	L9	True	400.00	343.407434	85.9



Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T17:43:28	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	1.53	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.310	0.300	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.070	0.075	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.27	PFHpA	0.010	0.022	ü
PFHxS_1	399.0 / 80.0	2.29	PFHxS			
PFHxS_2	399.0 / 99.0	2.29	PFHxS	0.280	0.289	ü
PFOA_1	413.0 / 369.0	2.68	PFOA			
PFOA_2	413.0 / 169.0	2.68	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	3.08	PFNA			
PFNA_2	463.0 / 219.0	3.08	PFNA	0.340	0.309	ü
PFOS_1	499.0 / 80.0	3.08	PFOS			
PFOS_2	499.0 / 99.0	3.08	PFOS	0.210	0.180	ü
PFDA_1	513.0 / 469.0	3.44	PFDA			
PFDA_2	513.0 / 219.0	3.44	PFDA	0.050	0.043	ü
PFUnA_1	563.0 / 519.0	3.77	PFUnA			
PFUnA_2	563.0 / 269.0	3.77	PFUnA	0.060	0.048	ü
PFDaA_1	613.0 / 569.0	4.06	PFDaA			
PFDaA_2	613.0 / 319.0	4.06	PFDaA	0.160	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.31	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.30	PFTTrDA	0.070	0.061	ü
PFTeDA_1	713.0 / 669.0	4.53	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.53	PFTeDA	0.050	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.60	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.59	NMeFOSAA	0.610	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.76	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.76	NEtFOSAA	0.110	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.43		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.75		N/A	N/A	ü



Sample Name	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T17:52:26	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	1.53	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.290	0.300	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.070	0.075	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.26	PFHpA	0.030	0.022	ü
PFHxS_1	399.0 / 80.0	2.29	PFHxS			
PFHxS_2	399.0 / 99.0	2.29	PFHxS	0.290	0.289	ü
PFOA_1	413.0 / 369.0	2.68	PFOA			
PFOA_2	413.0 / 169.0	2.68	PFOA	0.060	0.065	ü
PFNA_1	463.0 / 419.0	3.08	PFNA			
PFNA_2	463.0 / 219.0	3.08	PFNA	0.290	0.309	ü
PFOS_1	499.0 / 80.0	3.07	PFOS			
PFOS_2	499.0 / 99.0	3.07	PFOS	0.200	0.180	ü
PFDA_1	513.0 / 469.0	3.44	PFDA			
PFDA_2	513.0 / 219.0	3.44	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.77	PFUnA			
PFUnA_2	563.0 / 269.0	3.77	PFUnA	0.050	0.048	ü
PFDaA_1	613.0 / 569.0	4.06	PFDaA			
PFDaA_2	613.0 / 319.0	4.06	PFDaA	0.150	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.31	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.30	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.53	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.53	PFTeDA	0.050	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.59	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.59	NMeFOSAA	0.540	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.76	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.75	NEtFOSAA	0.090	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.43		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.75		N/A	N/A	ü

Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:01:22	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	1.53	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.280	0.300	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.080	0.075	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.27	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.29	PFHxS			
PFHxS_2	399.0 / 99.0	2.29	PFHxS	0.290	0.289	ü
PFOA_1	413.0 / 369.0	2.68	PFOA			
PFOA_2	413.0 / 169.0	2.68	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	3.08	PFNA			
PFNA_2	463.0 / 219.0	3.08	PFNA	0.300	0.309	ü
PFOS_1	499.0 / 80.0	3.07	PFOS			
PFOS_2	499.0 / 99.0	3.07	PFOS	0.180	0.180	ü
PFDA_1	513.0 / 469.0	3.44	PFDA			
PFDA_2	513.0 / 219.0	3.44	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.76	PFUnA			
PFUnA_2	563.0 / 269.0	3.76	PFUnA	0.050	0.048	ü
PFDaA_1	613.0 / 569.0	4.05	PFDaA			
PFDaA_2	613.0 / 319.0	4.05	PFDaA	0.160	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.30	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.30	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.52	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.52	PFTeDA	0.040	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.59	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.59	NMeFOSAA	0.500	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.75	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.75	NEtFOSAA	0.060	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.43		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.75		N/A	N/A	ü

Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:10:18	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	0.300	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.080	0.075	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.26	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.300	0.289	ü
PFOA_1	413.0 / 369.0	2.67	PFOA			
PFOA_2	413.0 / 169.0	2.67	PFOA	0.060	0.065	ü
PFNA_1	463.0 / 419.0	3.07	PFNA			
PFNA_2	463.0 / 219.0	3.07	PFNA	0.290	0.309	ü
PFOS_1	499.0 / 80.0	3.07	PFOS			
PFOS_2	499.0 / 99.0	3.07	PFOS	0.160	0.180	ü
PFDA_1	513.0 / 469.0	3.43	PFDA			
PFDA_2	513.0 / 219.0	3.43	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.76	PFUnA			
PFUnA_2	563.0 / 269.0	3.76	PFUnA	0.040	0.048	ü
PFDaA_1	613.0 / 569.0	4.05	PFDaA			
PFDaA_2	613.0 / 319.0	4.04	PFDaA	0.160	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.30	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.29	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.52	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.51	PFTeDA	0.040	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.58	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.58	NMeFOSAA	0.580	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.75	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.75	NEtFOSAA	0.070	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.42		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.74		N/A	N/A	ü

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:19:15	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	0.300	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.070	0.075	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.290	0.289	ü
PFOA_1	413.0 / 369.0	2.67	PFOA			
PFOA_2	413.0 / 169.0	2.67	PFOA	0.060	0.065	ü
PFNA_1	463.0 / 419.0	3.07	PFNA			
PFNA_2	463.0 / 219.0	3.07	PFNA	0.310	0.309	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.160	0.180	ü
PFDA_1	513.0 / 469.0	3.43	PFDA			
PFDA_2	513.0 / 219.0	3.43	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.76	PFUnA			
PFUnA_2	563.0 / 269.0	3.75	PFUnA	0.040	0.048	ü
PFDaA_1	613.0 / 569.0	4.04	PFDaA			
PFDaA_2	613.0 / 319.0	4.04	PFDaA	0.150	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.29	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.29	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.51	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.51	PFTeDA	0.040	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.58	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.58	NMeFOSAA	0.600	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.74	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.74	NEtFOSAA	0.070	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.42		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.73		N/A	N/A	ü

Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:28:10	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	0.300	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.070	0.075	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.290	0.289	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.060	0.065	ü
PFNA_1	463.0 / 419.0	3.07	PFNA			
PFNA_2	463.0 / 219.0	3.06	PFNA	0.310	0.309	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.170	0.180	ü
PFDA_1	513.0 / 469.0	3.43	PFDA			
PFDA_2	513.0 / 219.0	3.43	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.75	PFUnA			
PFUnA_2	563.0 / 269.0	3.75	PFUnA	0.040	0.048	ü
PFDoA_1	613.0 / 569.0	4.04	PFDoA			
PFDoA_2	613.0 / 319.0	4.04	PFDoA	0.160	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.29	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.29	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.51	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.51	PFTeDA	0.050	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.58	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.58	NMeFOSAA	0.550	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.74	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.74	NEtFOSAA	0.080	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.41		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.73		N/A	N/A	ü

Sample Name	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:37:07	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	0.310	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.080	0.075	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.280	0.289	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	3.06	PFNA			
PFNA_2	463.0 / 219.0	3.06	PFNA	0.300	0.309	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.190	0.180	ü
PFDA_1	513.0 / 469.0	3.42	PFDA			
PFDA_2	513.0 / 219.0	3.42	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.75	PFUnA			
PFUnA_2	563.0 / 269.0	3.75	PFUnA	0.040	0.048	ü
PFDaA_1	613.0 / 569.0	4.03	PFDaA			
PFDaA_2	613.0 / 319.0	4.03	PFDaA	0.160	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.28	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.28	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.50	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.50	PFTeDA	0.050	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.57	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.57	NMeFOSAA	0.600	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.74	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.73	NEtFOSAA	0.070	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.41		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.73		N/A	N/A	ü

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:55:01	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	823.832681	885.00	93.09
PFBS 2	298.9 / 99.0	1.51	814.423190	885.00	92.03
PFHxA 1	313.0 / 269.0	1.84	1023.573852	1000.00	102.36
PFHxA 2	313.0 / 119.0	1.83	1050.057150	1000.00	105.01
PFHpA 1	363.0 / 319.0	2.25	1057.234159	1000.00	105.72
PFHpA 2	363.0 / 169.0	2.25	1021.187597	1000.00	102.12
PFHxS 1	399.0 / 80.0	2.27	893.732139	912.00	98.00
PFHxS 2	399.0 / 99.0	2.27	919.519305	912.00	100.82
PFOA 1	413.0 / 369.0	2.66	1053.065466	1000.00	105.31
PFOA 2	413.0 / 169.0	2.66	996.179325	1000.00	99.62
PFNA 1	463.0 / 419.0	3.06	1057.136761	1000.00	105.71
PFNA 2	463.0 / 219.0	3.06	1072.740412	1000.00	107.27
PFOS 1	499.0 / 80.0	3.06	866.593939	925.60	93.63
PFOS 2	499.0 / 99.0	3.06	1020.598949	925.60	110.26
PFDA 1	513.0 / 469.0	3.42	1082.013165	1000.00	108.20
PFDA 2	513.0 / 219.0	3.42	1083.593617	1000.00	108.36
PFUnA 1	563.0 / 519.0	3.74	1061.973613	1000.00	106.20
PFUnA 2	563.0 / 269.0	3.74	1053.172918	1000.00	105.32
PFDoA 1	613.0 / 569.0	4.03	1004.697702	1000.00	100.47
PFDoA 2	613.0 / 319.0	4.03	998.941201	1000.00	99.89
PFTTrDA 1	663.0 / 619.0	4.28	1040.107310	1000.00	104.01
PFTTrDA 2	663.0 / 169.0	4.27	1014.899616	1000.00	101.49
PFTeDA 1	713.0 / 669.0	4.49	978.558247	1000.00	97.86
PFTeDA 2	713.0 / 169.0	4.49	982.823478	1000.00	98.28
NMeFOSAA 1	570.0 / 419.0	3.57	1017.056202	1000.00	101.71
NMeFOSAA 2	570.0 / 512.0	3.57	1007.772329	1000.00	100.78
NEtFOSAA 1	584.0 / 419.0	3.73	1059.567576	1000.00	105.96
NEtFOSAA 2	584.0 / 483.0	3.73	906.735819	1000.00	90.67
13C2-PFHxA	315.0 / 270.0	1.83	106.008843	100.00	106.01
13C2-PFDA	515.0 / 470.0	3.40	103.787164	100.00	103.79
d5-EtFOSAA	589.0 / 419.0	3.73	384.142237	400.00	96.04

Sample Name	JZ82 CCV	Injection Vial	18
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:48:38	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	457.874875	443.00	103.36
PFBS 2	298.9 / 99.0	1.51	438.832006	443.00	99.06
PFHxA 1	313.0 / 269.0	1.83	534.583929	500.00	106.92
PFHxA 2	313.0 / 119.0	1.83	558.467480	500.00	111.69
PFHpA 1	363.0 / 319.0	2.24	553.102080	500.00	110.62
PFHpA 2	363.0 / 169.0	2.24	431.167486	500.00	86.23
PFHxS 1	399.0 / 80.0	2.27	482.601872	456.00	105.83
PFHxS 2	399.0 / 99.0	2.27	499.206204	456.00	109.48
PFOA 1	413.0 / 369.0	2.65	555.235986	500.00	111.05
PFOA 2	413.0 / 169.0	2.65	574.522010	500.00	114.90
PFNA 1	463.0 / 419.0	3.05	561.456074	500.00	112.29
PFNA 2	463.0 / 219.0	3.05	560.718016	500.00	112.14
PFOS 1	499.0 / 80.0	3.05	499.459049	463.00	107.87
PFOS 2	499.0 / 99.0	3.05	523.515148	463.00	113.07
PFDA 1	513.0 / 469.0	3.41	555.914099	500.00	111.18
PFDA 2	513.0 / 219.0	3.41	610.038553	500.00	122.01
PFUnA 1	563.0 / 519.0	3.74	569.445882	500.00	113.89
PFUnA 2	563.0 / 269.0	3.74	535.568337	500.00	107.11
PFDoA 1	613.0 / 569.0	4.02	519.576391	500.00	103.92
PFDoA 2	613.0 / 319.0	4.02	563.347928	500.00	112.67
PFTTrDA 1	663.0 / 619.0	4.27	570.737168	500.00	114.15
PFTTrDA 2	663.0 / 169.0	4.27	543.510674	500.00	108.70
PFTeDA 1	713.0 / 669.0	4.48	528.908048	500.00	105.78
PFTeDA 2	713.0 / 169.0	4.48	488.470448	500.00	97.69
NMeFOSAA 1	570.0 / 419.0	3.56	491.601831	500.00	98.32
NMeFOSAA 2	570.0 / 512.0	3.56	635.679270	500.00	127.14
NEtFOSAA 1	584.0 / 419.0	3.72	558.171567	500.00	111.63
NEtFOSAA 2	584.0 / 483.0	3.73	621.103897	500.00	124.22
13C2-PFHxA	315.0 / 270.0	1.82	98.082825	100.00	98.08
13C2-PFDA	515.0 / 470.0	3.40	99.019272	100.00	99.02
d5-EtFOSAA	589.0 / 419.0	3.71	409.623335	400.00	102.41



Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:55:01	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	0.300	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.080	0.075	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.300	0.289	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.060	0.065	ü
PFNA_1	463.0 / 419.0	3.06	PFNA			
PFNA_2	463.0 / 219.0	3.06	PFNA	0.310	0.309	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.210	0.180	ü
PFDA_1	513.0 / 469.0	3.42	PFDA			
PFDA_2	513.0 / 219.0	3.42	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.74	PFUnA			
PFUnA_2	563.0 / 269.0	3.74	PFUnA	0.050	0.048	ü
PFDaA_1	613.0 / 569.0	4.03	PFDaA			
PFDaA_2	613.0 / 319.0	4.03	PFDaA	0.160	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.28	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.27	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.49	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.49	PFTeDA	0.050	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.57	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.57	NMeFOSAA	0.550	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.73	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.73	NEtFOSAA	0.060	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.40		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.73		N/A	N/A	ü



Sample Name	JZ82 CCV	Injection Vial	18
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:48:38	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	0.290	0.300	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.080	0.075	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.24	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.300	0.289	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.310	0.309	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.05	PFOS	0.190	0.180	ü
PFDA_1	513.0 / 469.0	3.41	PFDA			
PFDA_2	513.0 / 219.0	3.41	PFDA	0.050	0.043	ü
PFUnA_1	563.0 / 519.0	3.74	PFUnA			
PFUnA_2	563.0 / 269.0	3.74	PFUnA	0.040	0.048	ü
PFDaA_1	613.0 / 569.0	4.02	PFDaA			
PFDaA_2	613.0 / 319.0	4.02	PFDaA	0.170	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.27	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.27	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.48	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.48	PFTeDA	0.040	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.56	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.56	NMeFOSAA	0.650	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.72	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.73	NEtFOSAA	0.080	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.40		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.71		N/A	N/A	ü

Sample Name	KA08 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T18:46:04	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	N/A	PFBS			
PFBS_2	298.9 / 99.0	N/A	PFBS	N/A	0.300	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.075	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.022	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.280	0.289	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.065	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.309	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.180	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.043	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	ü
PFDaA_1	613.0 / 569.0	4.03	PFDaA			
PFDaA_2	613.0 / 319.0	4.05	PFDaA	0.230	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.28	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.061	
PFTeDA_1	713.0 / 669.0	4.50	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.49	PFTeDA	0.130	0.045	
NMeFOSAA_1	570.0 / 419.0	3.58	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.54	NMeFOSAA	0.590	0.569	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.41		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.73		N/A	N/A	ü

Sample Name	CR996PB-FS(0)	Injection Vial	14
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:12:53	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	N/A	PFBS			
PFBS_2	298.9 / 99.0	N/A	PFBS	N/A	0.300	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.075	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.022	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.289	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.030	0.065	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.350	0.309	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.180	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.043	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	ü
PFDaA_1	613.0 / 569.0	4.02	PFDaA			
PFDaA_2	613.0 / 319.0	4.02	PFDaA	0.210	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.27	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.061	
PFTeDA_1	713.0 / 669.0	4.48	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.045	
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.569	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.40		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.72		N/A	N/A	ü

Sample Name	CR997LCS-FS(0)	Injection Vial	15
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:21:49	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	0.310	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.080	0.075	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.020	0.022	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.290	0.289	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	3.06	PFNA			
PFNA_2	463.0 / 219.0	3.06	PFNA	0.320	0.309	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.220	0.180	ü
PFDA_1	513.0 / 469.0	3.42	PFDA			
PFDA_2	513.0 / 219.0	3.42	PFDA	0.040	0.043	ü
PFUnA_1	563.0 / 519.0	3.74	PFUnA			
PFUnA_2	563.0 / 269.0	3.74	PFUnA	0.040	0.048	ü
PFDaA_1	613.0 / 569.0	4.03	PFDaA			
PFDaA_2	613.0 / 319.0	4.03	PFDaA	0.160	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.27	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.27	PFTTrDA	0.060	0.061	ü
PFTeDA_1	713.0 / 669.0	4.49	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.49	PFTeDA	0.050	0.045	ü
NMeFOSAA_1	570.0 / 419.0	3.57	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.57	NMeFOSAA	0.540	0.569	ü
NEtFOSAA_1	584.0 / 419.0	3.73	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.73	NEtFOSAA	0.060	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.40		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.72		N/A	N/A	ü

Sample Name	J8739-FS(0)	Injection Vial	16
Sample ID	JAX-RES-101018-1000-5	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:30:46	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	N/A	PFBS			
PFBS_2	298.9 / 99.0	N/A	PFBS	N/A	0.300	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.075	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.022	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.289	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.065	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.309	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.180	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.043	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.048	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.27	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.061	
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.045	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.569	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.40		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.72		N/A	N/A	ü

Sample Name	J8741-FS(0)	Injection Vial	17
Sample ID	JAX-RES-101018-1000-3	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:39:42	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_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	N/A	PFBS			
PFBS_2	298.9 / 99.0	N/A	PFBS	N/A	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.060	0.075	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.21	PFHpA	0.040	0.022	
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.290	0.289	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.62	PFOA	0.090	0.065	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.350	0.309	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.05	PFOS	0.140	0.180	ü
PFDA_1	513.0 / 469.0	3.41	PFDA			
PFDA_2	513.0 / 219.0	3.41	PFDA	0.060	0.043	ü
PFUnA_1	563.0 / 519.0	3.74	PFUnA			
PFUnA_2	563.0 / 269.0	3.73	PFUnA	0.060	0.048	ü
PFDaA_1	613.0 / 569.0	4.02	PFDaA			
PFDaA_2	613.0 / 319.0	4.02	PFDaA	0.150	0.156	ü
PFTTrDA_1	663.0 / 619.0	4.27	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.061	
PFTeDA_1	713.0 / 669.0	4.48	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.49	PFTeDA	0.040	0.045	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.569	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.40		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.72		N/A	N/A	ü

Sample Summary

Client: Tetra Tech, Inc.

SDG: 18-0624

Project/Site: Naval Air Station Jacksonville

CTO: SE0375

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Receipt Date
CS017PB-FS	Procedural Blank	WATER	10/15/2018	10/15/2018
CS018LCS-FS	Laboratory Control Sample	WATER	10/15/2018	10/15/2018
J8742-FS	JAX-RES-101018-1050-3-FRB	W	10/10/2018	10/11/2018

QA/QC Summary
Batch 18-0624

Project:	CTO-SE0375: Naval Air Station Jacksonville
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	W
Data Set:	DP-18-0322
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
10/10/2018	10/11/2018	0.9
Corrective Actions	The FRB samples were listed on the COC as having 2 containers per sample, however, only one sample arrived. It was verified with the client that only 1 bottle from each was collected.	
Sample Storage	The water samples were stored refrigerated until extraction.	
Related samples	The related field sample is reported in SDG 18-0614.	

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 in methanol. Extracts were split and concentrated to dryness under nitrogen with a water bath set between 60 °C and 65 °C, reconstituted with 96:4 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	None.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on Sciex 5500 LC-MS/MS.

Holding Times	Extraction Date(s)	Analysis Date(s)
	10/15/2018	10/17/2018

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

QA/QC Summary
Batch 18-0624

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 and Matrix Spike Duplicate (MS/MSD)	A MS/MSD was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
70-130% of true value, RPD $\leq$ 30%	Not applicable.
	A MS/MSD was not prepared with this data set.
Surrogates Standard Analytes	Labelled analog compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
70-130% of true value	No exceedances noted.
	No comments.
Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
ICal high and low points RPD $\leq$ 20%, 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted.
	No comments.
Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadratic curve fitting.
R ² > 0.99	No exceedances noted.
Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No comments.
Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted.
	No comments.

QA/QC Summary
Batch 18-0624

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



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

Client ID	KA08 IB				
Battelle ID	KA08 IB_10/17/2018				
Sample Type	IB				
Collection Date	NA				
Extraction Date	NA				
Analysis Date	10/17/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	NA				
Sample Size	0.250				
Size Unit-Basis	L				
Units	ng/L MDL LOD LOQ				
PFHxA	307-24-4	0.50 U	0.22	0.50	2.50
PFHpA	375-85-9	1.00 U	0.34	1.00	2.50
PFOA	335-67-1	1.00 U	0.38	1.00	2.50
PFNA	375-95-1	1.00 U	0.37	1.00	2.50
PFDA	335-76-2	1.00 U	0.39	1.00	2.50
PFUnA	2058-94-8	1.00 U	0.38	1.00	2.50
PFDoA	307-55-1	1.00 U	0.42	1.00	2.50
PFTTrDA	72629-94-8	1.00 U	0.42	1.00	2.50
PFTeDA	376-06-7	1.50 U	0.73	1.50	2.50
NMeFOSAA	2355-31-9	1.00 U	0.42	1.00	2.50
NEtFOSAA	2991-50-6	1.00 U	0.44	1.00	2.50
PFBS	375-73-5	0.50 U	0.21	0.50	2.50
PFHxS	355-46-4	1.00 U	0.34	1.00	2.50
PFOS	1763-23-1	1.00 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	94
13C2-PFDA	100
d5-EtFOSAA	100



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

Client ID		Procedural Blank				
Battelle ID		CS017PB-FS				
Sample Type		PB				
Collection Date		10/15/2018				
Extraction Date		10/15/2018				
Analysis Date		10/17/2018				
Analytical Instrument		Sciex 5500 LC/MS/MS				
% Moisture		NA				
Matrix		WATER				
Sample Size		0.250				
Size Unit-Basis		L				
Units		ng/L	MDL	LOD	LOQ	
PFHxA	307-24-4	0.50 U	0.22	0.50	2.50	
PFHpA	375-85-9	1.00 U	0.34	1.00	2.50	
PFOA	335-67-1	1.00 U	0.38	1.00	2.50	
PFNA	375-95-1	1.00 U	0.37	1.00	2.50	
PFDA	335-76-2	1.00 U	0.39	1.00	2.50	
PFUnA	2058-94-8	1.00 U	0.38	1.00	2.50	
PFDoA	307-55-1	1.00 U	0.42	1.00	2.50	
PFTTrDA	72629-94-8	1.00 U	0.42	1.00	2.50	
PFTeDA	376-06-7	1.50 U	0.73	1.50	2.50	
NMeFOSAA	2355-31-9	1.00 U	0.42	1.00	2.50	
NEtFOSAA	2991-50-6	1.00 U	0.44	1.00	2.50	
PFBS	375-73-5	0.50 U	0.21	0.50	2.50	
PFHxS	355-46-4	1.00 U	0.34	1.00	2.50	
PFOS	1763-23-1	1.00 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C2-PFHxA	107
13C2-PFDA	106
d5-EtFOSAA	95



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

Client ID		Laboratory Control Sample					
Battelle ID		CS018LCS-FS					
Sample Type		LCS					
Collection Date		10/15/2018					
Extraction Date		10/15/2018					
Analysis Date		10/17/2018					
Analytical Instrument		Sciex 5500 LC/MS/MS					
% Moisture		NA					
Matrix		WATER					
Sample Size		0.250					
Size Unit-Basis		L					
Units		ng/L	Target	Recovery	Qual	Control Limits	
						Lower	Upper
PFHxA	307-24-4	19.01	15.00	127		70	130
PFHpA	375-85-9	18.82	15.00	125		70	130
PFOA	335-67-1	17.75	15.00	118		70	130
PFNA	375-95-1	17.60	15.00	117		70	130
PFDA	335-76-2	17.05	15.00	114		70	130
PFUnA	2058-94-8	18.15	15.00	121		70	130
PFDoA	307-55-1	18.70	15.00	125		70	130
PFTTrDA	72629-94-8	18.11	15.00	121		70	130
PFTeDA	376-06-7	19.08	15.00	127		70	130
NMeFOSAA	2355-31-9	18.57	15.00	124		70	130
NEtFOSAA	2991-50-6	19.53	15.00	130		70	130
PFBS	375-73-5	13.77	13.28	104		70	130
PFHxS	355-46-4	15.50	14.18	109		70	130
PFOS	1763-23-1	14.05	14.33	98		70	130
Surrogate Recoveries (%)							
13C2-PFHxA		115					
13C2-PFDA		114					
d5-EtFOSAA		109					



Project Client: Tetra Tech
 Project Name: CTO-SE0375: Naval Air Station Jacksonville
 Project No.: 100119154-SE0375
 Preparation Batch: 18-0624
 Data Set: DP-18-0322

	CS017PB-FS (Procedural Blank)	CS018LCS-FS (Laboratory Control Sample)	J8742-FS (JAX-RES-101018-1050-3-FRB)
PFHxA (307-24-4)	-	L	-
PFHpA (375-85-9)	-	L	-
PFOA (335-67-1)	-	L	-
PFNA (375-95-1)	-	L	-
PFDA (335-76-2)	-	L	-
PFUnA (2058-94-8)	-	L	-
PFDoA (307-55-1)	-	L	-
PFTTrDA (72629-94-8)	-	L	-
PFTeDA (376-06-7)	-	L	-
NMeFOSAA (2355-31-9)	-	L	-
NEtFOSAA (2991-50-6)	-	L	-
PFBS (375-73-5)	-	L	-
PFHxS (355-46-4)	-	L	-
PFOS (1763-23-1)	-	L	-

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

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JZ80	L3	10/17/18 1:59	13C4-PFOS	164,835.02	-
JZ81	L4	10/17/18 2:08	13C4-PFOS	158,321.53	-
JZ82	L5	10/17/18 2:17	13C4-PFOS	154,419.93	-
JZ83	L6	10/17/18 2:26	13C4-PFOS	159,704.13	-
JZ84	L7	10/17/18 2:35	13C4-PFOS	167,069.45	-
JZ85	L8	10/17/18 2:44	13C4-PFOS	160,501.02	-
JZ86	L9	10/17/18 2:52	13C4-PFOS	171,281.30	3.8

PASS

Average Lower Upper
 162,304.63 81,152.32 243,456.95

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	10/17/18 1:59	13C4-PFOS	164,835.02	81,152.32	243,456.95		108,093.95	216,187.90	
JZ81	L4	10/17/18 2:08	13C4-PFOS	158,321.53	81,152.32	243,456.95		108,093.95	216,187.90	
JZ82	L5	10/17/18 2:17	13C4-PFOS	154,419.93	81,152.32	243,456.95		108,093.95	216,187.90	
JZ83	L6	10/17/18 2:26	13C4-PFOS	159,704.13	81,152.32	243,456.95		108,093.95	216,187.90	
JZ84	L7	10/17/18 2:35	13C4-PFOS	167,069.45	81,152.32	243,456.95		108,093.95	216,187.90	
JZ85	L8	10/17/18 2:44	13C4-PFOS	160,501.02	81,152.32	243,456.95		108,093.95	216,187.90	
JZ86	L9	10/17/18 2:52	13C4-PFOS	171,281.30	81,152.32	243,456.95		108,093.95	216,187.90	
KA08 IB	Instrument Blank	10/17/18 3:01	13C4-PFOS	168,406.24	81,152.32	243,456.95		108,093.95	216,187.90	
JZ77 ICC	ICC	10/17/18 3:10	13C4-PFOS	161,639.66	81,152.32	243,456.95		108,093.95	216,187.90	
CS017PB-FS(0)	Procedural Blank	10/17/18 3:28	13C4-PFOS	148,491.99	81,152.32	243,456.95		108,093.95	216,187.90	
CS018LCS-FS(0)	Laboratory Control Sample	10/17/18 3:37	13C4-PFOS	123,952.50	81,152.32	243,456.95		108,093.95	216,187.90	
J8742-FS(0)	JAX-RES-101018-1050-3-FRB	10/17/18 3:46	13C4-PFOS	139,311.01	81,152.32	243,456.95		108,093.95	216,187.90	
JZ83 CCV	CCV	10/17/18 3:55	13C4-PFOS	175,868.15	81,152.32	243,456.95		108,093.95	216,187.90	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JZ80	L3	10/17/18 1:59	13C2-PFOA	33,381.53	-
JZ81	L4	10/17/18 2:08	13C2-PFOA	37,247.67	-
JZ82	L5	10/17/18 2:17	13C2-PFOA	36,287.66	-
JZ83	L6	10/17/18 2:26	13C2-PFOA	37,986.39	-
JZ84	L7	10/17/18 2:35	13C2-PFOA	37,658.14	-
JZ85	L8	10/17/18 2:44	13C2-PFOA	36,896.14	10

PASS

Average Lower Upper
 36,576.26 18,288.13 54,864.39

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	10/17/18 1:59	13C2-PFOA	33,381.53	18,288.13	54,864.39		25,401.36	50,802.72	
JZ81	L4	10/17/18 2:08	13C2-PFOA	37,247.67	18,288.13	54,864.39		25,401.36	50,802.72	
JZ82	L5	10/17/18 2:17	13C2-PFOA	36,287.66	18,288.13	54,864.39		25,401.36	50,802.72	
JZ83	L6	10/17/18 2:26	13C2-PFOA	37,986.39	18,288.13	54,864.39		25,401.36	50,802.72	
JZ84	L7	10/17/18 2:35	13C2-PFOA	37,658.14	18,288.13	54,864.39		25,401.36	50,802.72	
JZ85	L8	10/17/18 2:44	13C2-PFOA	36,896.14	18,288.13	54,864.39		25,401.36	50,802.72	
KA08 IB	Instrument Blank	10/17/18 3:01	13C2-PFOA	36,484.69	18,288.13	54,864.39		25,401.36	50,802.72	
JZ77 ICC	ICC	10/17/18 3:10	13C2-PFOA	36,320.27	18,288.13	54,864.39		25,401.36	50,802.72	
CS017PB-FS(0)	Procedural Blank	10/17/18 3:28	13C2-PFOA	30,010.81	18,288.13	54,864.39		25,401.36	50,802.72	
CS018LCS-FS(0)	Laboratory Control Sample	10/17/18 3:37	13C2-PFOA	26,948.16	18,288.13	54,864.39		25,401.36	50,802.72	
J8742-FS(0)	JAX-RES-101018-1050-3-FRB	10/17/18 3:46	13C2-PFOA	31,689.79	18,288.13	54,864.39		25,401.36	50,802.72	
JZ83 CCV	CCV	10/17/18 3:55	13C2-PFOA	40,129.82	18,288.13	54,864.39		25,401.36	50,802.72	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JZ80	L3	10/17/18 1:59	d3-MeFOSAA	23,831.44	-
JZ81	L4	10/17/18 2:08	d3-MeFOSAA	27,032.30	-
JZ82	L5	10/17/18 2:17	d3-MeFOSAA	20,942.42	-
JZ83	L6	10/17/18 2:26	d3-MeFOSAA	24,678.57	-
JZ84	L7	10/17/18 2:35	d3-MeFOSAA	25,545.08	-
JZ85	L8	10/17/18 2:44	d3-MeFOSAA	25,427.57	-
JZ86	L9	10/17/18 2:52	d3-MeFOSAA	29,100.88	19.9

PASS

Average Lower Upper
 25,222.61 12,611.31 37,833.92

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	10/17/18 1:59	d3-MeFOSAA	23,831.44	12,611.31	37,833.92		14,659.69	29,319.39	
JZ81	L4	10/17/18 2:08	d3-MeFOSAA	27,032.30	12,611.31	37,833.92		14,659.69	29,319.39	
JZ82	L5	10/17/18 2:17	d3-MeFOSAA	20,942.42	12,611.31	37,833.92		14,659.69	29,319.39	
JZ83	L6	10/17/18 2:26	d3-MeFOSAA	24,678.57	12,611.31	37,833.92		14,659.69	29,319.39	
JZ84	L7	10/17/18 2:35	d3-MeFOSAA	25,545.08	12,611.31	37,833.92		14,659.69	29,319.39	
JZ85	L8	10/17/18 2:44	d3-MeFOSAA	25,427.57	12,611.31	37,833.92		14,659.69	29,319.39	
JZ86	L9	10/17/18 2:52	d3-MeFOSAA	29,100.88	12,611.31	37,833.92		14,659.69	29,319.39	
KA08 IB	Instrument Blank	10/17/18 3:01	d3-MeFOSAA	24,092.33	12,611.31	37,833.92		14,659.69	29,319.39	
JZ77 ICC	ICC	10/17/18 3:10	d3-MeFOSAA	26,325.77	12,611.31	37,833.92		14,659.69	29,319.39	
CS017PB-FS(0)	Procedural Blank	10/17/18 3:28	d3-MeFOSAA	23,752.72	12,611.31	37,833.92		14,659.69	29,319.39	
CS018LCS-FS(0)	Laboratory Control Sample	10/17/18 3:37	d3-MeFOSAA	18,817.14	12,611.31	37,833.92		14,659.69	29,319.39	
J8742-FS(0)	JAX-RES-101018-1050-3-FRB	10/17/18 3:46	d3-MeFOSAA	21,572.49	12,611.31	37,833.92		14,659.69	29,319.39	
JZ83 CCV	CCV	10/17/18 3:55	d3-MeFOSAA	26,298.72	12,611.31	37,833.92		14,659.69	29,319.39	

Sample Name	JZ84	Injection Vial	46
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 2:35:05 AM	Data File	18-0624.wiff
Acquisition Method	5-0371.dam	Result Table	18-0624_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.51	1.35	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.82	1.25	0.8 – 1.5

Sample Name	JZ84	Injection Vial	46
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 2:35:05 AM	Data File	18-0624.wiff
Acquisition Method	5-0371.dam	Result Table	18-0624_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.51	28	>10
PFBS_2	298.9 / 99.0	1.51	25	>10
PFHxA_1	313.0 / 269.0	1.82	20	>10
PFHxA_2	313.0 / 119.0	1.82	20	>10
PFHpA_1	363.0 / 319.0	2.23	28	>10
PFHpA_2	363.0 / 169.0	2.23	27	>10
PFHxS_1	399.0 / 80.0	2.26	31	>10
PFHxS_2	399.0 / 99.0	2.26	34	>10
PFOA_1	413.0 / 369.0	2.64	38	>10
PFOA_2	413.0 / 169.0	2.64	30	>10
PFNA_1	463.0 / 419.0	3.04	30	>10
PFNA_2	463.0 / 219.0	3.04	32	>10
PFOS_1	499.0 / 80.0	3.03	41	>10
PFOS_2	499.0 / 99.0	3.03	33	>10
PFDA_1	513.0 / 469.0	3.39	29	>10
PFDA_2	513.0 / 219.0	3.39	38	>10
PFUnA_1	563.0 / 519.0	3.72	32	>10
PFUnA_2	563.0 / 269.0	3.72	36	>10
PFDaA_1	613.0 / 569.0	4.00	52	>10
PFDaA_2	613.0 / 319.0	4.00	37	>10
PFTTrDA_1	663.0 / 619.0	4.25	71	>10
PFTTrDA_2	663.0 / 169.0	4.24	48	>10
PFTeDA_1	713.0 / 669.0	4.46	65	>10
PFTeDA_2	713.0 / 169.0	4.46	49	>10
NMeFOSAA_1	570.0 / 419.0	3.55	43	>10
NMeFOSAA_2	570.0 / 512.0	3.54	44	>10
NEtFOSAA_1	584.0 / 419.0	3.71	34	>10
NEtFOSAA_2	584.0 / 483.0	3.71	33	>10
13C2-PFHxA	315.0 / 270.0	1.82	26	>10
13C2-PFDA	515.0 / 470.0	3.38	35	>10
d5-EtFOSAA	589.0 / 419.0	3.70	29	>10

BATTELLE DETECTION LIMITS FOR PFAS IN DRINKING WATER

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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

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
PFTTrDA	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	299.0 / 80.0	299.0 / 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
¹³C₂-PFOA	NA	IS	415.0 / 270.0	NA
¹³C₄-PFOS	NA	IS	503.0 / 80.0	NA
d₃-MeFOSAA	NA	IS	573.0 / 419.0	NA

**Zef Scientific Inc.**

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

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

Phone: 1.866.854.7988

QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

Mass Calibration and Tune Check

QTRAP 5500 Preventive Maintenance Checklist

Preventive Maintenance Date:	12-June-2018
Request ID:	9749
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: Suspected issue with pulse gas manifold. TRAP testing in POSITIVE mode couldn't be finished because of pulse gas issue. The same issue will be taken care in separate service call.

Performed By: Kaustubh Dhayagude

Date: 12-June-2018

Approved By : _____

Date: _____

**Zef Scientific Inc.**

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

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

Phone: 1.866.854.7988

QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PRE PM PPG PERFORMANCE EVALUATION:

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

CAD Settings	Vacuum Reading (x 10 ⁻⁵ Torr)	Acceptance Criteria
☒ CAD 0	0.6	0.4 to 1.1 x10 ⁻⁵ Torr
☒ CAD Low	1.3	Read Only
☒ CAD Medium	2.7	Read Only
☒ CAD High	3.7	Read Only
☒ CAD 12	3.7	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	4.01 e6	Read Only	0.6998	Read Only
Q1 500.380	2.81 e7	Read Only	0.7038	Read Only
Q1 906.673	4.21 e7	Read Only	0.7071	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	5.45 e6	Read Only	0.6873	Read Only
Q3 500.380	2.69 e7	Read Only	0.7591	Read Only
Q3 906.673	4.50 e7	Read Only	0.7843	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: : 28.87% (Read Only)

Mass	MSMS Intensity		MSMS Width Value	Width Specs
	Value	Spec		
Q1 609.3	4.26 e7	Read Only	0.7011	Read Only
MS/MS 195.1	1.23 e7	Read Only	0.7069	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	1.42 e7	Read Only	0.7686	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	2.24 e7	Read Only	0.7243	Read Only

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

Mass	Scan Rate	MCA	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	3.31 e6	Read Only	0.6746	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	0.7	0.4 to 1.1 x10 ⁻⁵ Torr
☒ CAD Low	1.3	Read Only
☒ CAD Medium	2.7	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 Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q1 175.133	5.04 e6	≥1.2 ^{e6}	0.6737	0.6 to 0.8
Q1 500.380	1.60 e7	≥9.0 ^{e6}	0.6961	0.6 to 0.8
Q1 906.673	2.84 e7	≥1.4 ^{e7}	0.7179	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8 ^{e7}	0.7465	0.6 to 0.8

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

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Scan Rate 10 Da/s Record 10 mca				
Q3 175.133	5.02 e6	≥1.2 ^{e6}	0.6719	0.6 to 0.8
Q3 500.380	1.72 e7	≥9.0 ^{e6}	0.7443	0.6 to 0.8
Q3 906.673	3.00 e7	≥1.4 ^{e7}	0.7504	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q3 906.673	1.46 e8	≥6.8 ^{e7}	0.7202	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: 21.10% (≥ 10.0%)

Mass	MSMS Intensity		Width Value	Width Specs
	Value	Spec		
Q1 609.3	5.78 e7	N/A	0.6888	Read Only
MS/MS 195.1	1.22 e7	N/A	0.7003	Read Only

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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	1.35 e7	$\geq 1.0^e7$	0.7486	0.6 to 0.8
Q1 933.636	1000	50	7.52 e7	$\geq 4.0^e7$	0.7206	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	2.15 e7	$\geq 8.0^e6$	0.7492	0.6 to 0.8
Q3 933.636	1000	50	8.33 e7	$\geq 4.0^e7$	0.7299	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	8.54 e6	≥7.2 e6	0.1473	<0.35
ER 922.010	0.05	4.96 e7	≥2.8 e6	0.2434	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05		≥2.4 e7		<0.65
ER 922.010	0.05		≥6.8 e7		<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	1.81 e8	≥4.4 ^{e7}	0.1862	<0.35
ER 601.978	0.05	1.70 e8	≥5.6 ^{e7}	0.1809	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 431.982	0.05	5.72 e8	≥1.2 ^{e8}	0.5102	<0.65
ER 601.978	0.05	4.52 e8	≥1.6 ^{e8}	0.6187	<0.65

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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	> 3.0 e6	≥2.0 e6	> 7.0 e6	≥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	Yes	Contains only 397.2	N/A	N/A
☐ 236 OR ☒ 365	1000	Yes	Fragment Intensity	> 2.0 e6	≥1.6x 10 ^{e6}

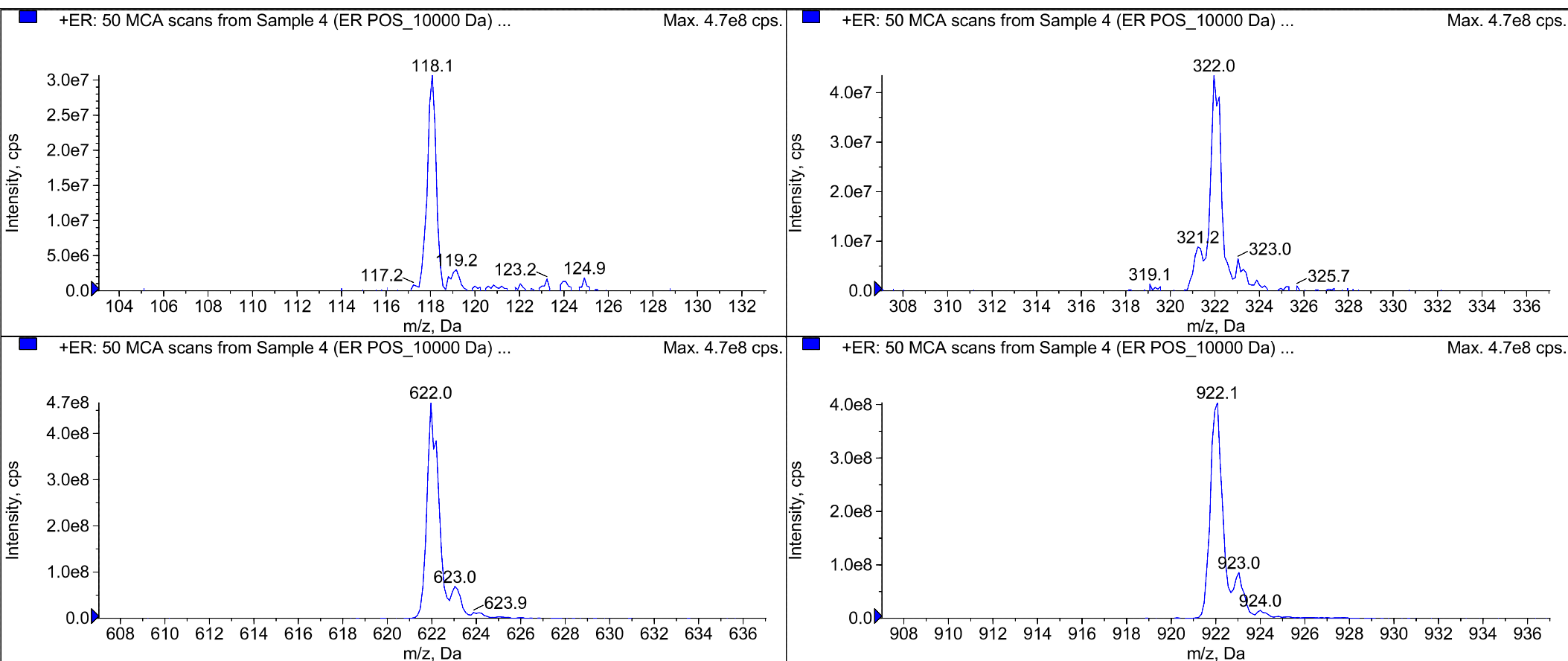
REVIEW:

- ☒ 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.



Peak List for "+ER: 50 MCA scans from Sample 4 (ER POS_10000 Da) of TRAP ER with NEW Pulse Manifold.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	118.0870	118.0702	3.0667e7	0.4146	0.0168
2	322.0490	322.0509	4.3500e7	0.4945	-1.9159e-3
3	622.0290	622.0370	4.6717e8	0.5757	-8.0044e-3
4	922.0100	922.0101	4.0400e8	0.5732	-1.4148e-4



It can be done

BATTELLE - NORWELL OPERATIONS LIQUID SAMPLE ID FORM

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0624****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CS017PB-FS	Procedural Blank	250.0	NA	--	10/15/18 SAS
CS018LCS-FS	Laboratory Control Sample	250.0	NA	--	10/15/18 SAS
J8742-FS	JAX-RES-101018-1050-3-FRB	260.0	1	C	10/16/18 KB

Comments:

Sample ID:	Comments:
CS017PB-FS	1.23g Trizma(180502-01) weighed on BAL-009
CS018LCS-FS	1.25g Trizma(180502-01) weighed on BAL-009

Samples Assigned By

Jonathan Thorn

Date : October 13, 2018

* - "C" = Sample is Consumed



Sequence Report

Created with Analyst Reporter
Printed: 17/10/2018 3:08:00 PM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
41	MeOH		10/17/2018 1:50:26 AM	5-0371.dam	18-0624.wiff
42	JZ80	L3	10/17/2018 1:59:23 AM	5-0371.dam	18-0624.wiff
43	JZ81	L4	10/17/2018 2:08:19 AM	5-0371.dam	18-0624.wiff
44	JZ82	L5	10/17/2018 2:17:14 AM	5-0371.dam	18-0624.wiff
45	JZ83	L6	10/17/2018 2:26:10 AM	5-0371.dam	18-0624.wiff
46	JZ84	L7	10/17/2018 2:35:05 AM	5-0371.dam	18-0624.wiff
47	JZ85	L8	10/17/2018 2:44:02 AM	5-0371.dam	18-0624.wiff
48	JZ86	L9	10/17/2018 2:52:57 AM	5-0371.dam	18-0624.wiff
49	KA08 IB	Instrument Blank	10/17/2018 3:01:54 AM	5-0371.dam	18-0624.wiff
50	JZ77 ICC	ICC	10/17/2018 3:10:49 AM	5-0371.dam	18-0624.wiff
41	MeOH		10/17/2018 3:19:45 AM	5-0371.dam	18-0624.wiff
51	CS017PB-FS(0)	Procedural Blank	10/17/2018 3:28:42 AM	5-0371.dam	18-0624.wiff
52	CS018LCS-FS(0)	Laboratory Control Sample	10/17/2018 3:37:38 AM	5-0371.dam	18-0624.wiff
53	J8742-FS(0)	JAX-RES-101018-1050-3-FRB	10/17/2018 3:46:36 AM	5-0371.dam	18-0624.wiff
54	JZ83 CCV	CCV	10/17/2018 3:55:34 AM	5-0371.dam	18-0624.wiff



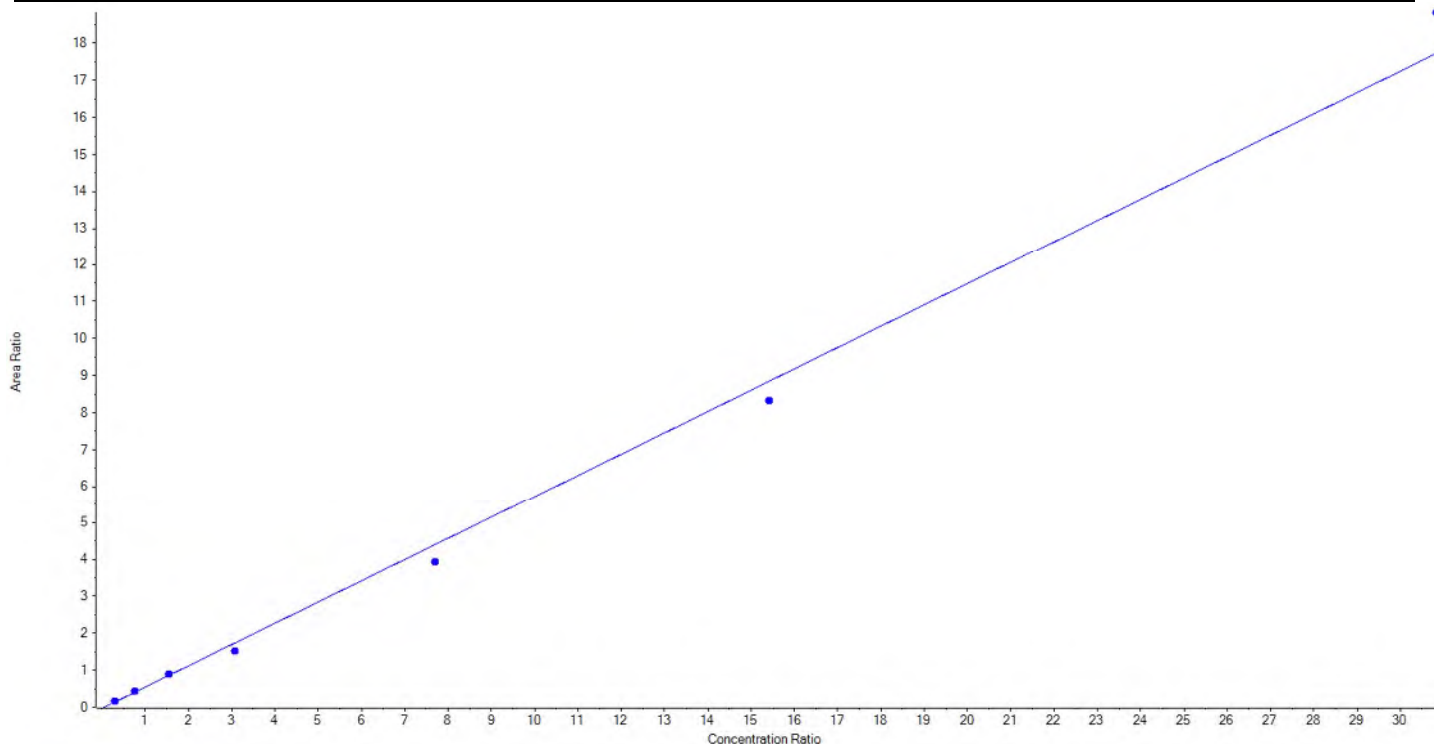
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:09:54 PM

Analyte Name	PFBS_1	Data File	18-0624.wiff
MRM Transition	298.9 / 80.0	Result Table	18-0624_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.57602x + -0.03479$ ($r = 0.99699$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	88.60	97.570815	110.1
43	JZ81	L4	True	221.50	235.987442	106.5
44	JZ82	L5	True	443.00	466.459940	105.3
45	JZ83	L6	True	885.00	780.657939	88.2
46	JZ84	L7	True	2212.50	1978.323867	89.4
47	JZ85	L8	True	4425.00	4169.943304	94.2
48	JZ86	L9	True	8850.00	9396.656694	106.2





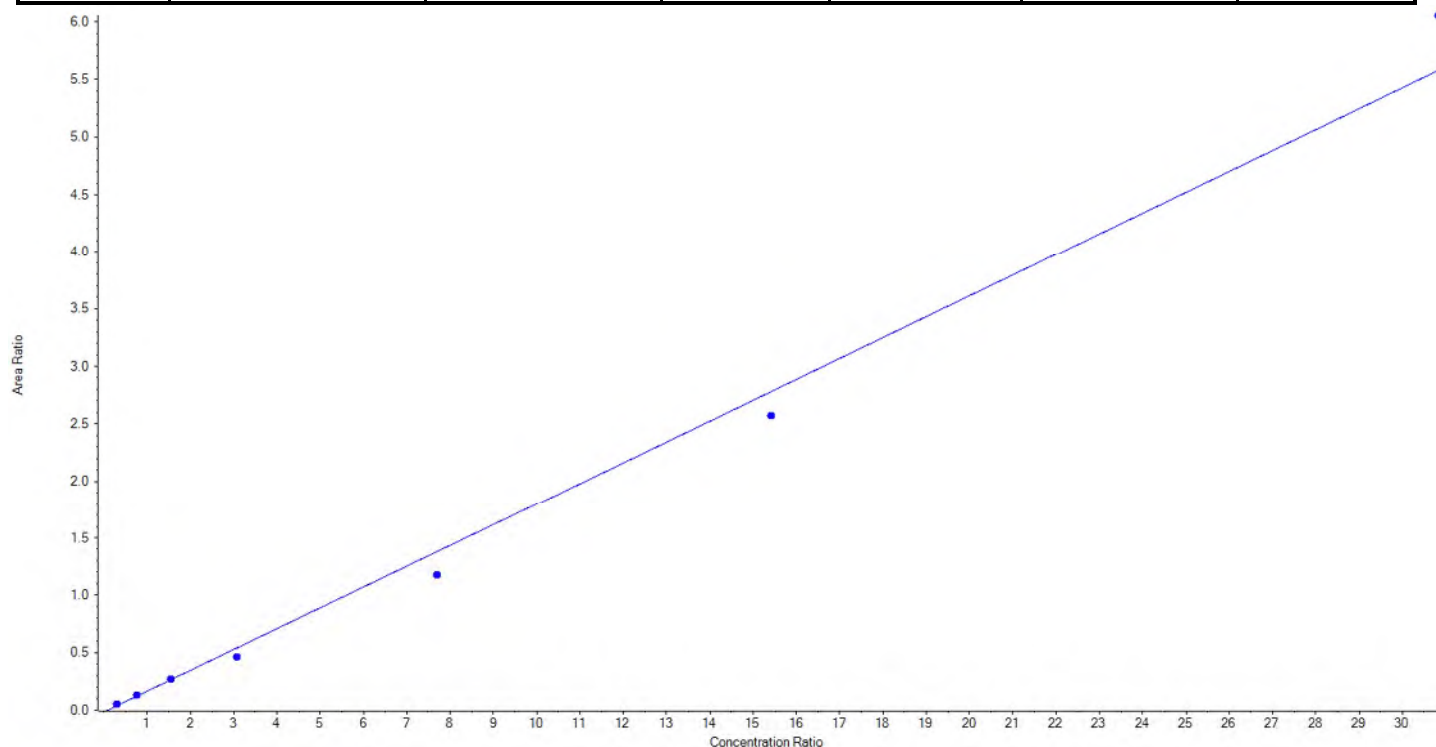
Calibration Summary Report

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Analyte Name	PFBS_2	Data File	18-0624.wiff
MRM Transition	298.9 / 99.0	Result Table	18-0624_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.18147 x + -0.01697$ ($r = 0.99456$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	88.60	106.125792	119.8
43	JZ81	L4	True	221.50	234.103763	105.7
44	JZ82	L5	True	443.00	456.359392	103.0
45	JZ83	L6	True	885.00	756.400943	85.5
46	JZ84	L7	True	2212.50	1884.408461	85.2
47	JZ85	L8	True	4425.00	4089.086183	92.4
48	JZ86	L9	True	8850.00	9599.115467	108.5





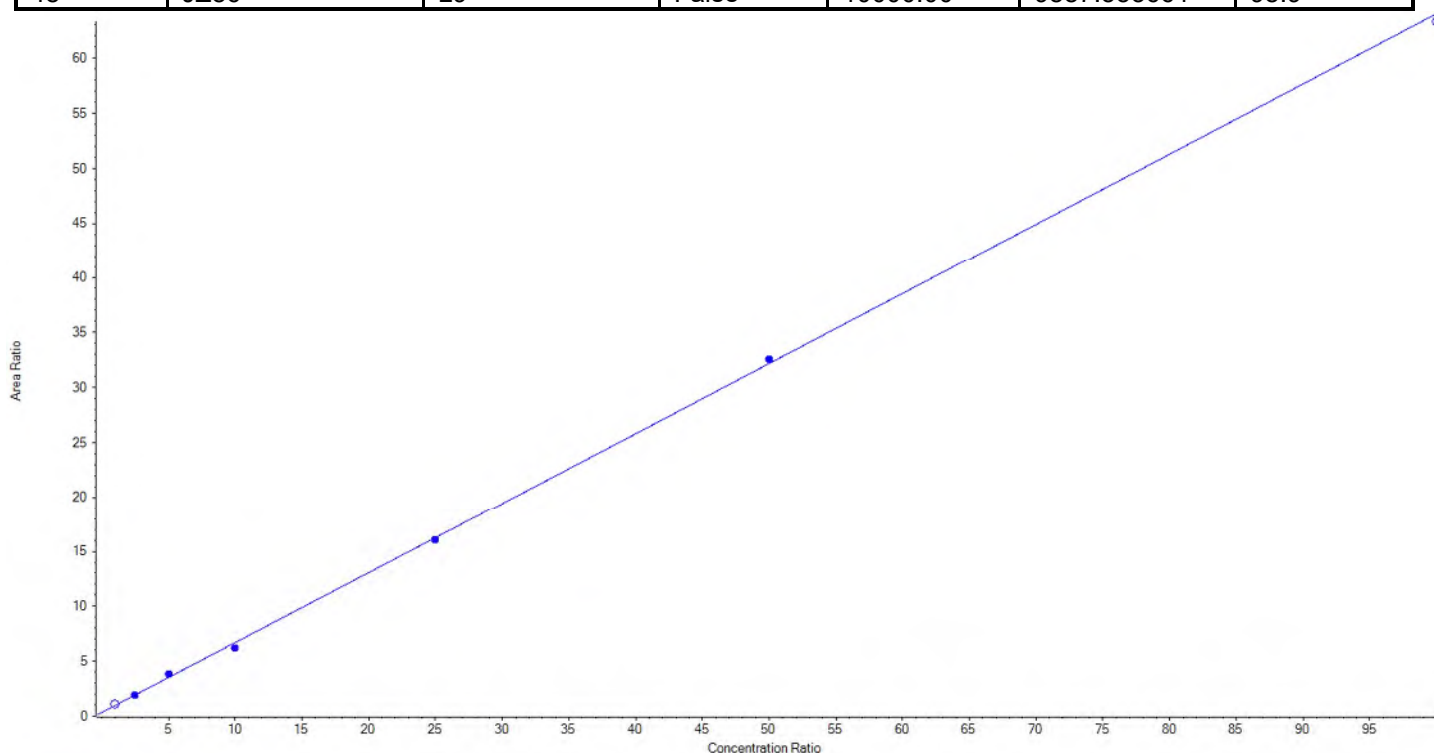
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Analyte Name	PFHxA_1	Data File	18-0624.wiff
MRM Transition	313.0 / 269.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.63697x + 0.33137$ ($r = 0.99913$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	False	100.00	114.381192	114.4
43	JZ81	L4	True	250.00	246.973641	98.8
44	JZ82	L5	True	500.00	542.673621	108.5
45	JZ83	L6	True	1000.00	925.597172	92.6
46	JZ84	L7	True	2500.00	2471.049553	98.8
47	JZ85	L8	True	5000.00	5063.706013	101.3
48	JZ86	L9	False	10000.00	9887.553661	98.9





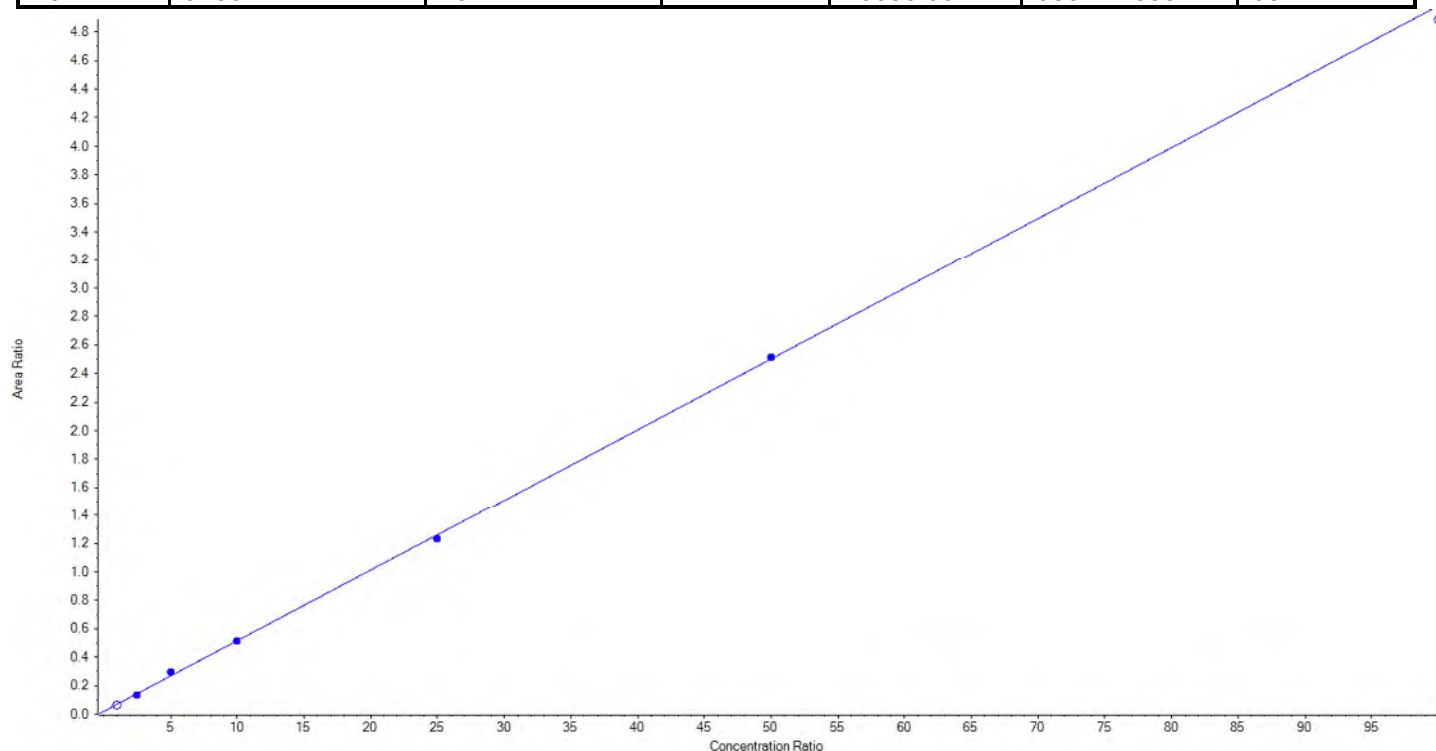
Calibration Summary Report

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Printed: 17/10/2018 3:09:54 PM

Analyte Name	PFHxA_2	Data File	18-0624.wiff
MRM Transition	313.0 / 119.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.04963x + 0.01988$ ($r = 0.99930$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	False	100.00	87.261088	87.3
43	JZ81	L4	True	250.00	229.792878	91.9
44	JZ82	L5	True	500.00	550.909125	110.2
45	JZ83	L6	True	1000.00	995.815722	99.6
46	JZ84	L7	True	2500.00	2442.490303	97.7
47	JZ85	L8	True	5000.00	5030.991972	100.6
48	JZ86	L9	False	10000.00	9804.718581	98.1





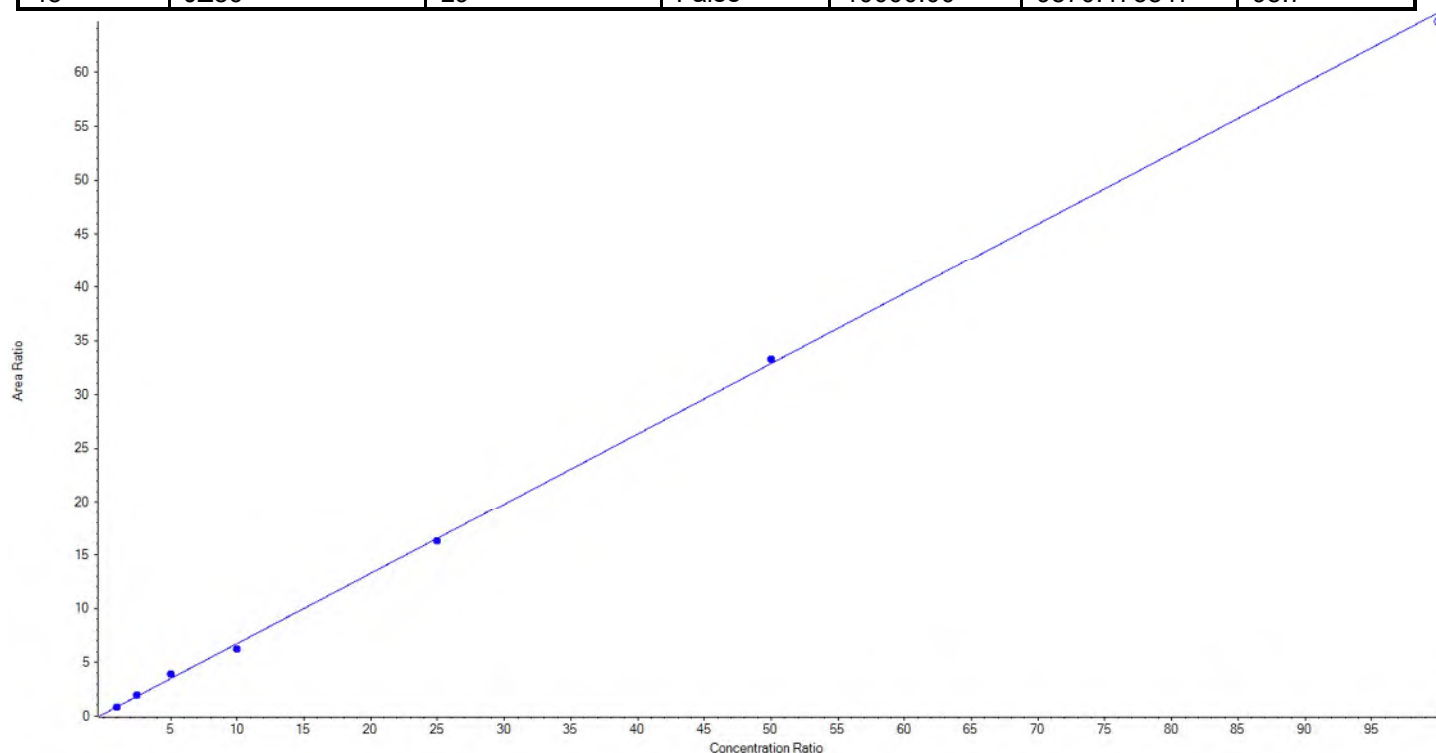
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Printed: 17/10/2018 3:09:54 PM

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MRM Transition	363.0 / 319.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.65323x + 0.22144$ ($r = 0.99886$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	92.340216	92.3
43	JZ81	L4	True	250.00	260.775869	104.3
44	JZ82	L5	True	500.00	560.439211	112.1
45	JZ83	L6	True	1000.00	916.780393	91.7
46	JZ84	L7	True	2500.00	2459.513436	98.4
47	JZ85	L8	True	5000.00	5060.150875	101.2
48	JZ86	L9	False	10000.00	9870.475847	98.7





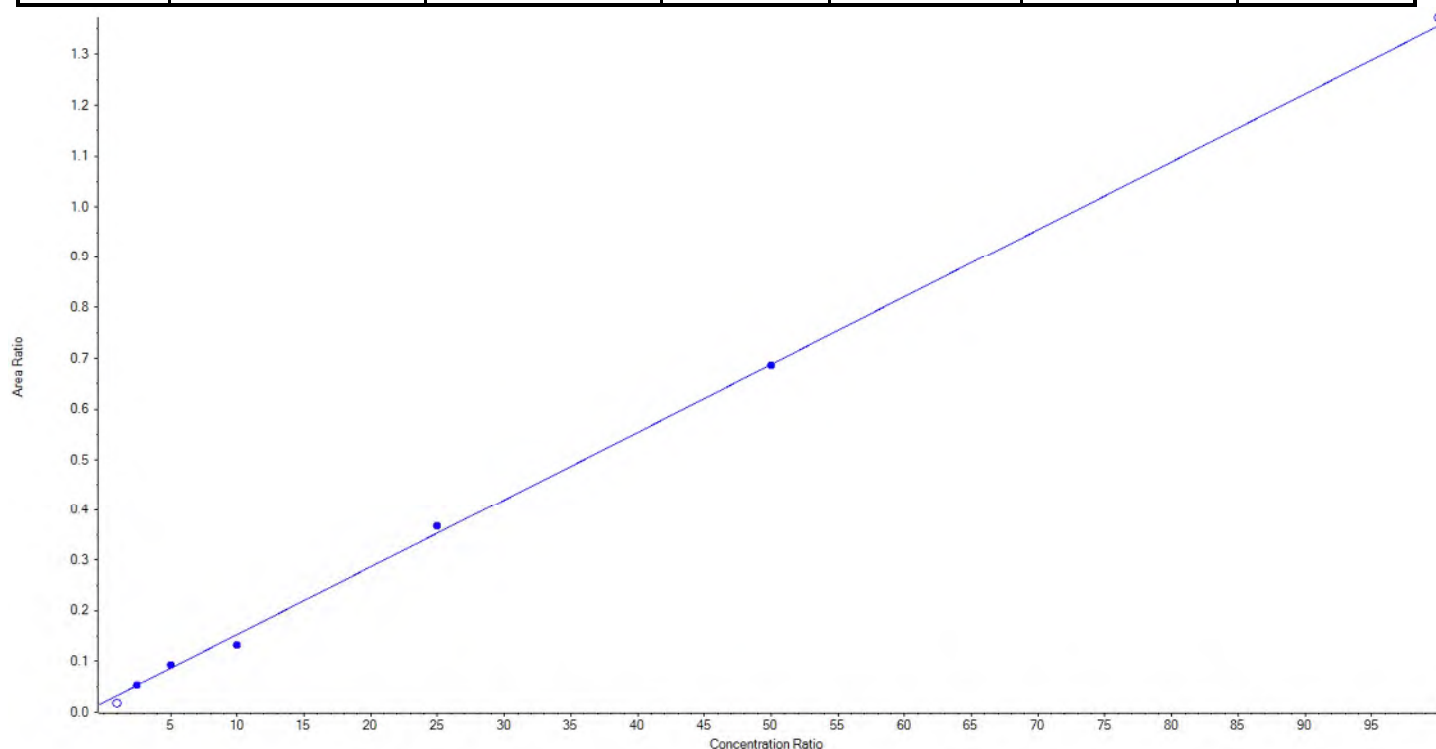
Calibration Summary Report

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MRM Transition	363.0 / 169.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.01336 x + 0.01944$ ($r = 0.99723$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	False	100.00	< 0	N/A
43	JZ81	L4	True	250.00	248.929068	99.6
44	JZ82	L5	True	500.00	556.411150	111.3
45	JZ83	L6	True	1000.00	851.239898	85.1
46	JZ84	L7	True	2500.00	2607.687774	104.3
47	JZ85	L8	True	5000.00	4985.732111	99.7
48	JZ86	L9	False	10000.00	10121.673657	101.2





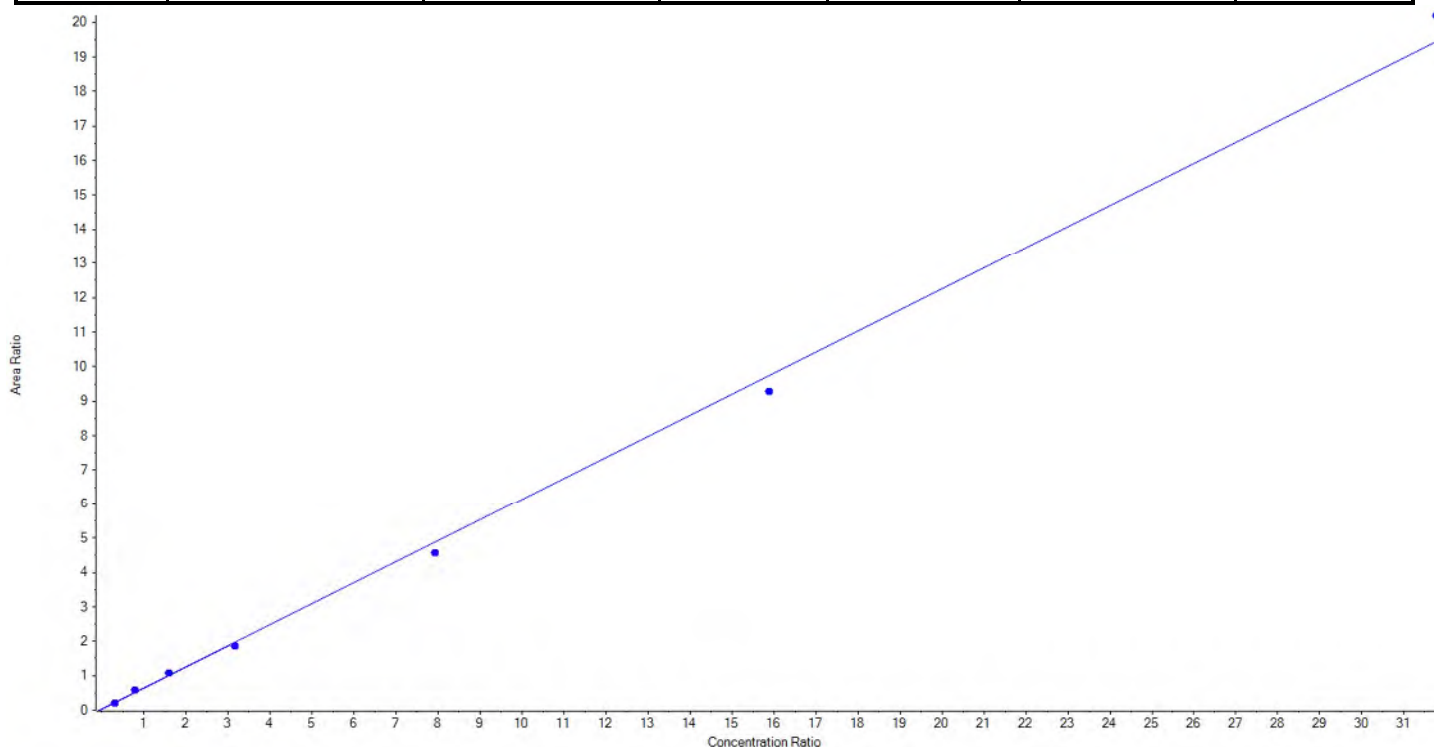
Calibration Summary Report

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MRM Transition	399.0 / 80.0	Result Table	18-0624_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.61102x + 0.03002$ ($r = 0.99859$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	91.20	84.671796	92.8
43	JZ81	L4	True	228.00	254.771041	111.7
44	JZ82	L5	True	456.00	495.200106	108.6
45	JZ83	L6	True	912.00	856.158847	93.9
46	JZ84	L7	True	2280.00	2137.304152	93.7
47	JZ85	L8	True	4560.00	4348.077519	95.4
48	JZ86	L9	True	9120.00	9471.016540	103.9





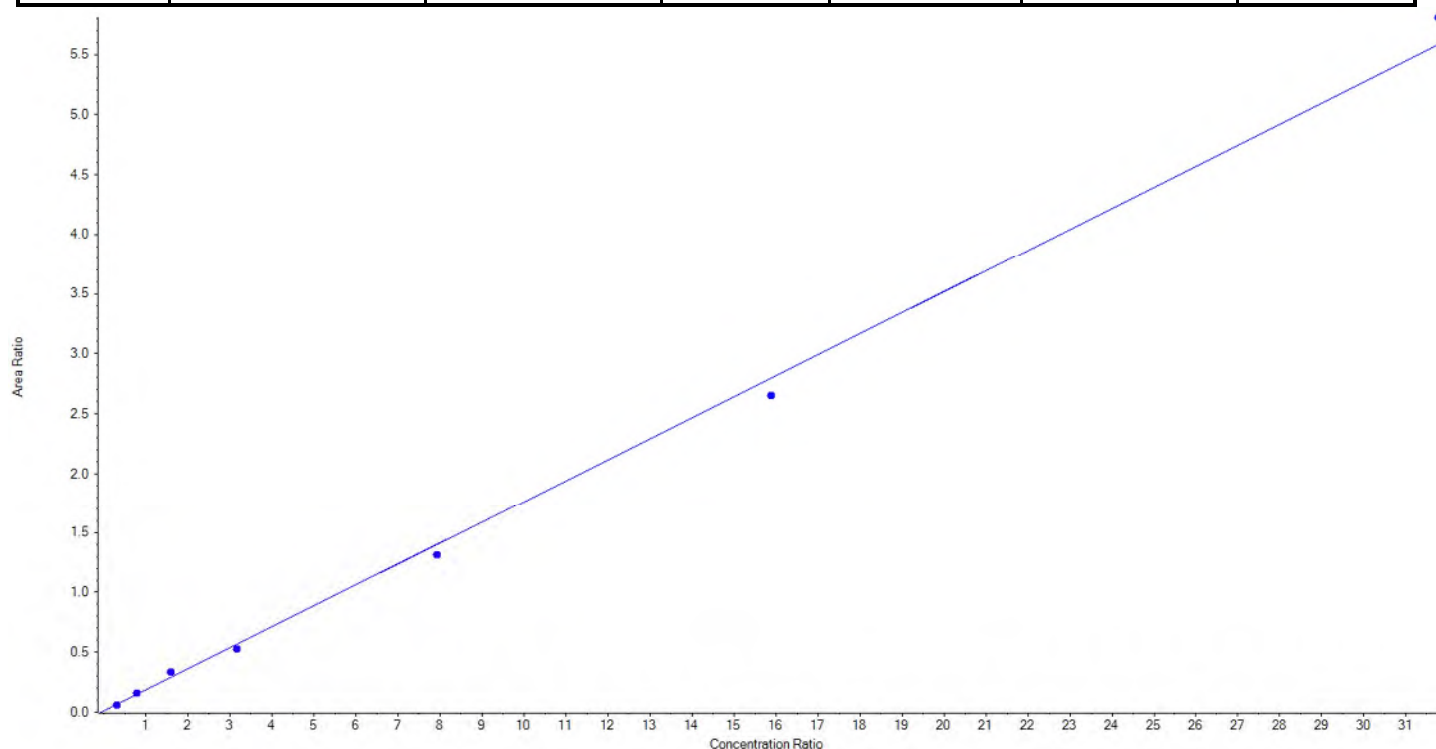
Calibration Summary Report

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Analyte Name	PFHxS_2	Data File	18-0624.wiff
MRM Transition	399.0 / 99.0	Result Table	18-0624_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.17527 x + 0.01103$ ($r = 0.99815$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	91.20	83.294287	91.3
43	JZ81	L4	True	228.00	246.737808	108.2
44	JZ82	L5	True	456.00	528.885686	116.0
45	JZ83	L6	True	912.00	839.325117	92.0
46	JZ84	L7	True	2280.00	2130.578971	93.5
47	JZ85	L8	True	4560.00	4329.400026	94.9
48	JZ86	L9	True	9120.00	9488.978104	104.1





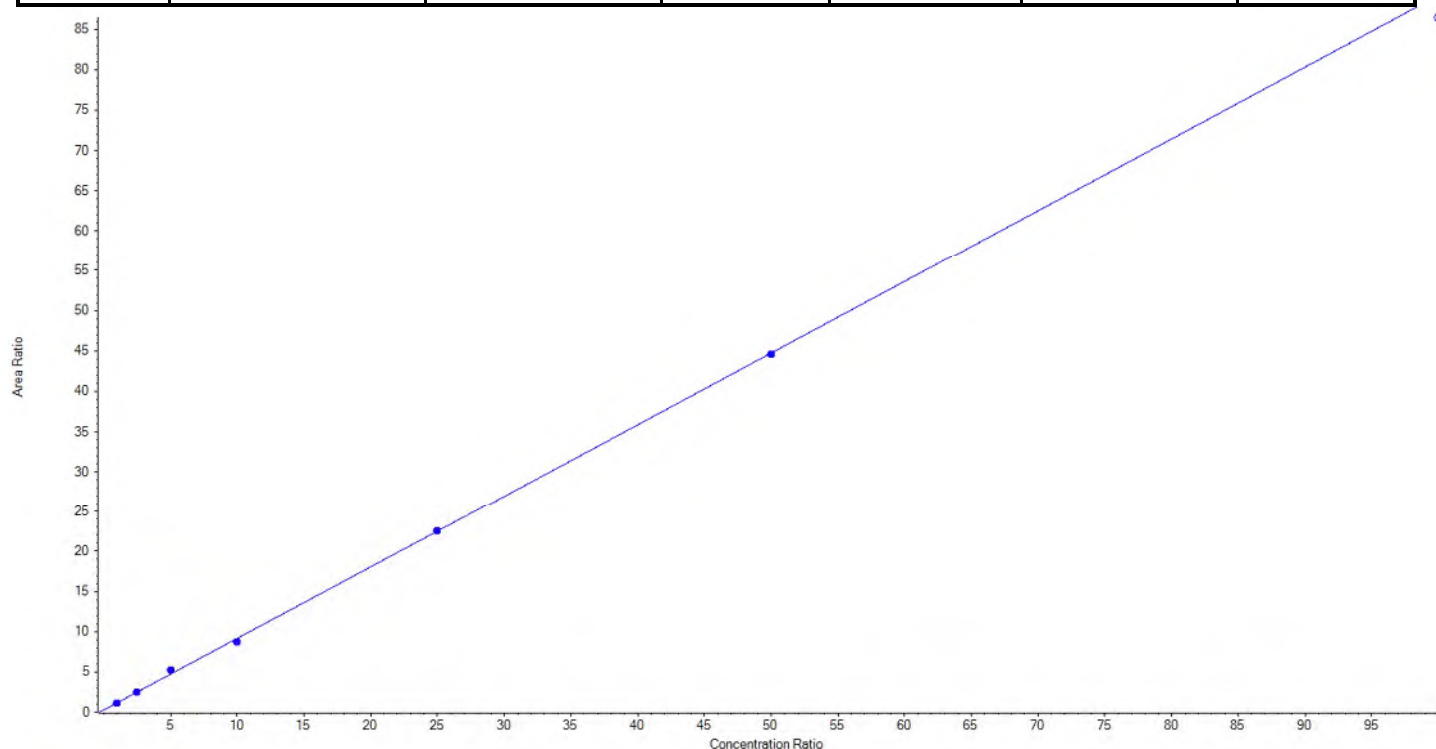
Calibration Summary Report

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Analyte Name	PFOA_1	Data File	18-0624.wiff
MRM Transition	413.0 / 369.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.88927x + 0.27615$ ($r = 0.99921$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	90.839774	90.8
43	JZ81	L4	True	250.00	254.168695	101.7
44	JZ82	L5	True	500.00	562.801326	112.6
45	JZ83	L6	True	1000.00	948.610112	94.9
46	JZ84	L7	True	2500.00	2509.993470	100.4
47	JZ85	L8	True	5000.00	4983.586623	99.7
48	JZ86	L9	False	10000.00	9689.459935	96.9





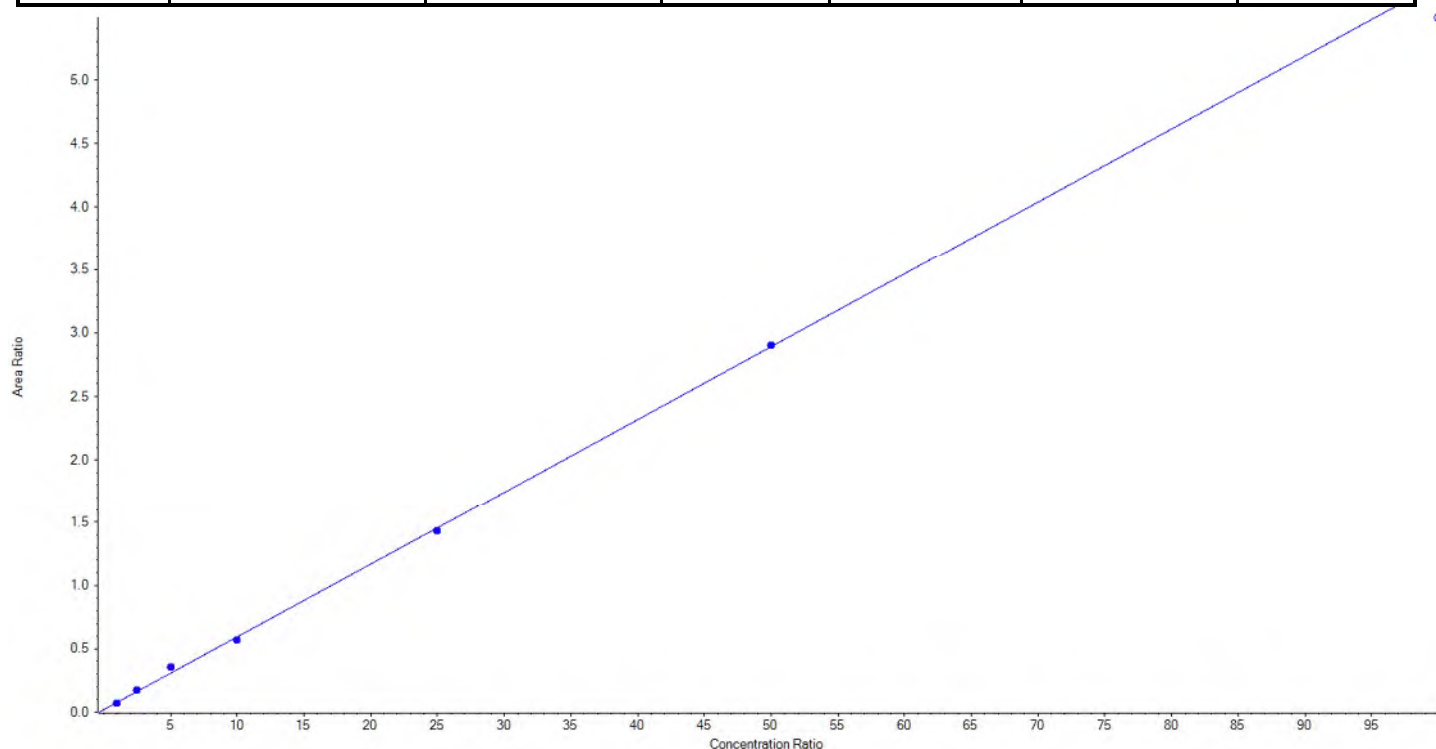
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFOA_2	Data File	18-0624.wiff
MRM Transition	413.0 / 169.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05743x + 0.02016$ ($r = 0.99870$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	85.411281	85.4
43	JZ81	L4	True	250.00	262.260290	104.9
44	JZ82	L5	True	500.00	580.513401	116.1
45	JZ83	L6	True	1000.00	951.452111	95.2
46	JZ84	L7	True	2500.00	2451.472637	98.1
47	JZ85	L8	True	5000.00	5018.890279	100.4
48	JZ86	L9	False	10000.00	9524.883803	95.3





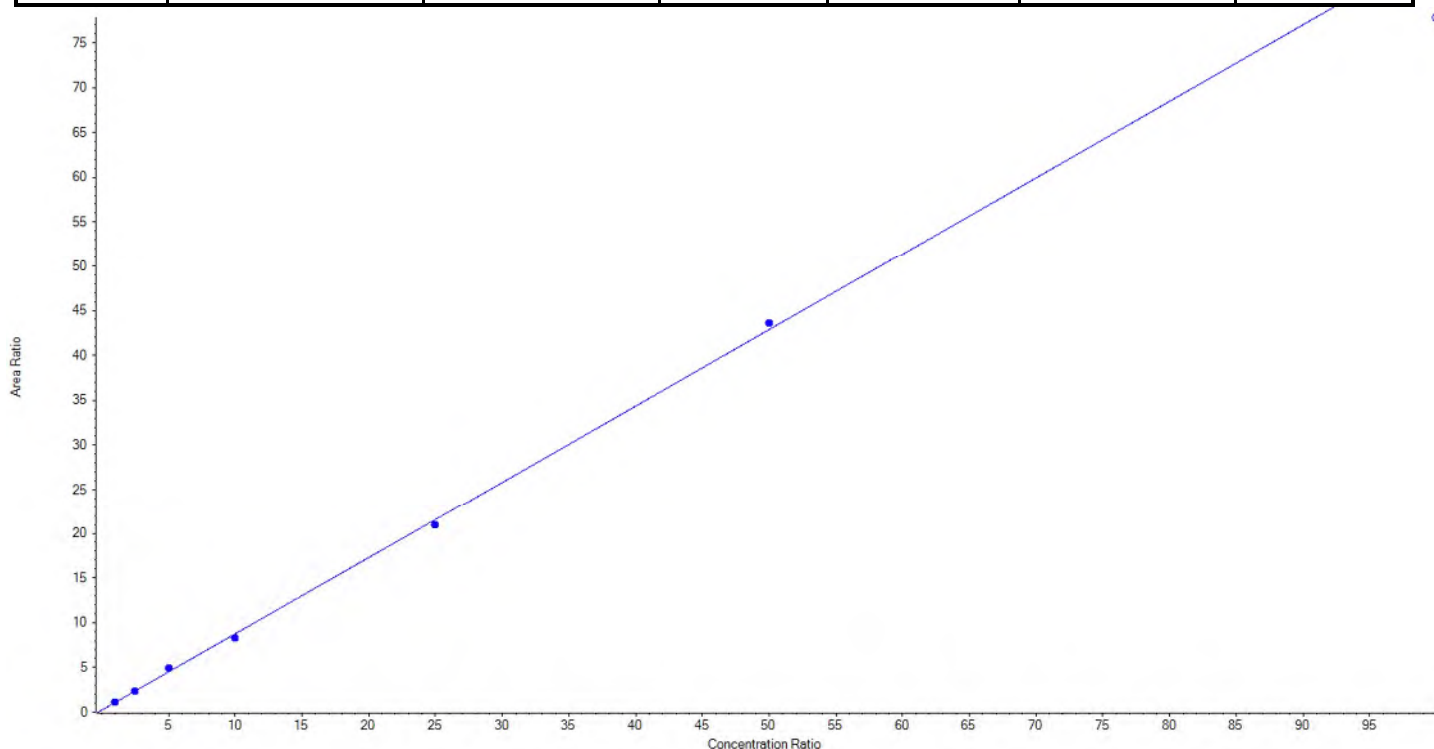
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFNA_1	Data File	18-0624.wiff
MRM Transition	463.0 / 419.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.85289x + 0.23327$ ($r = 0.99930$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	99.297076	99.3
43	JZ81	L4	True	250.00	245.130974	98.1
44	JZ82	L5	True	500.00	545.049070	109.0
45	JZ83	L6	True	1000.00	947.759863	94.8
46	JZ84	L7	True	2500.00	2430.473688	97.2
47	JZ85	L8	True	5000.00	5082.289328	101.7
48	JZ86	L9	False	10000.00	9093.793274	90.9





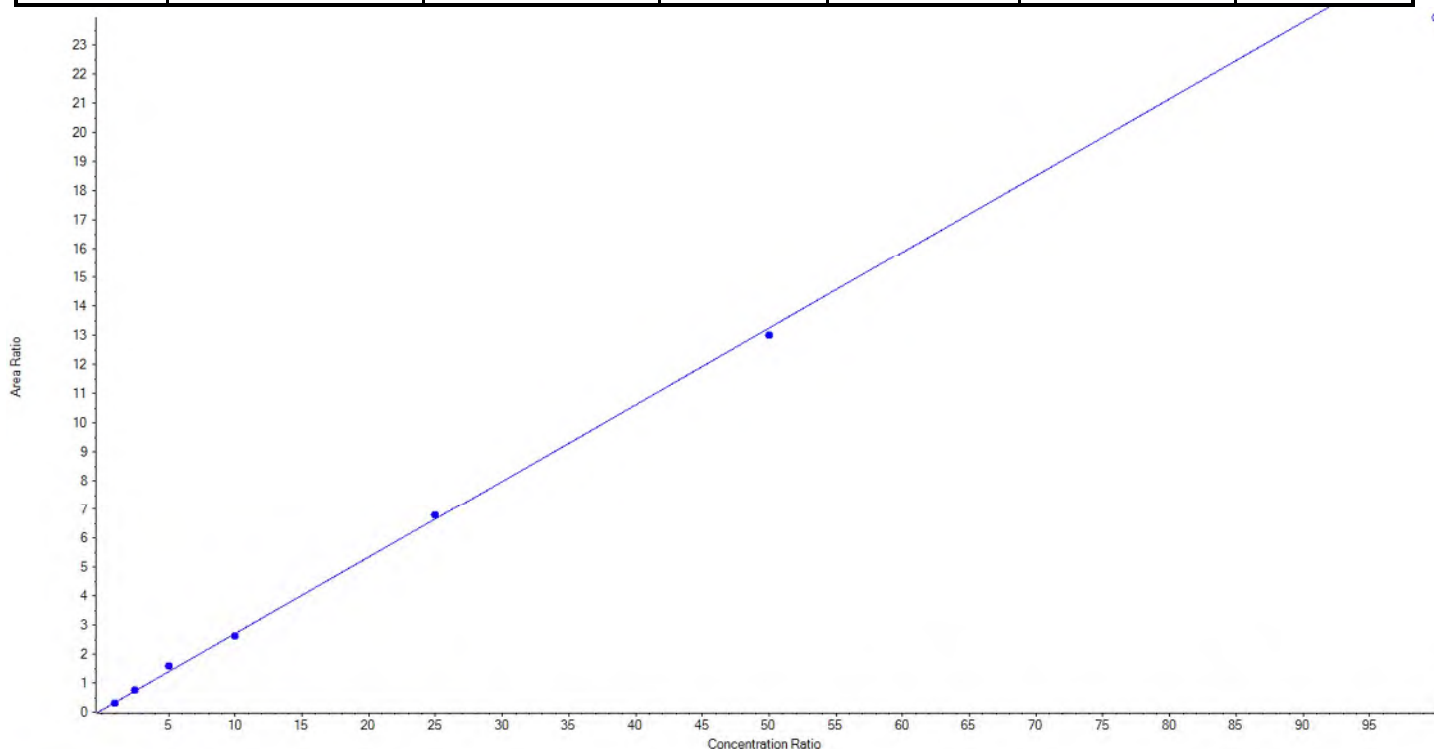
Calibration Summary Report

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Analyte Name	PFNA_2	Data File	18-0624.wiff
MRM Transition	463.0 / 219.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.26363x + 0.07139$ ($r = 0.99872$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	84.720390	84.7
43	JZ81	L4	True	250.00	257.224587	102.9
44	JZ82	L5	True	500.00	577.216847	115.4
45	JZ83	L6	True	1000.00	964.674220	96.5
46	JZ84	L7	True	2500.00	2557.785210	102.3
47	JZ85	L8	True	5000.00	4908.378746	98.2
48	JZ86	L9	False	10000.00	9057.006740	90.6





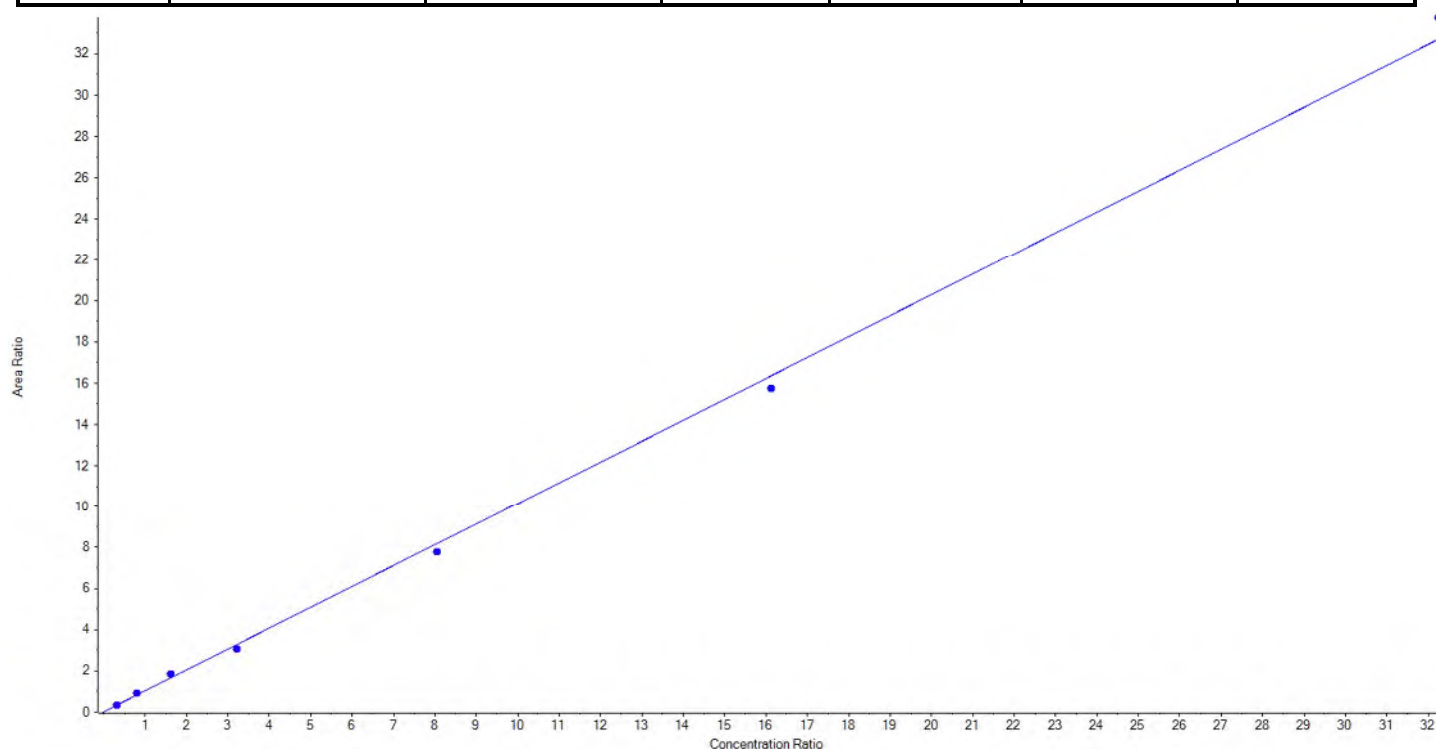
Calibration Summary Report

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Analyte Name	PFOS_1	Data File	18-0624.wiff
MRM Transition	499.0 / 80.0	Result Table	18-0624_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.01327 x + 0.02206$ ($r = 0.99887$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	92.60	85.979797	92.9
43	JZ81	L4	True	231.50	253.946393	109.7
44	JZ82	L5	True	463.00	511.728574	110.5
45	JZ83	L6	True	925.60	856.767406	92.6
46	JZ84	L7	True	2314.00	2196.491157	94.9
47	JZ85	L8	True	4628.00	4454.690567	96.3
48	JZ86	L9	True	9256.00	9551.096106	103.2





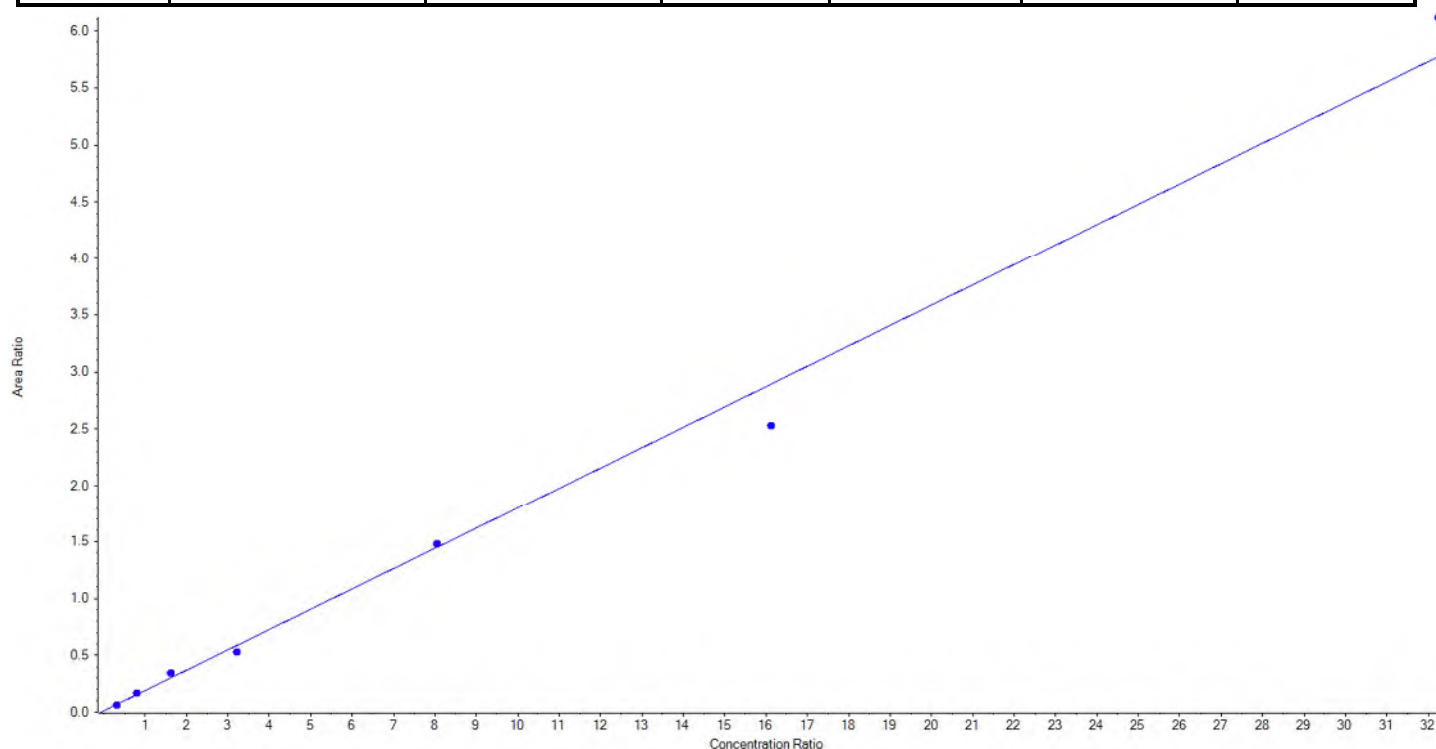
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Analyte Name	PFOS_2	Data File	18-0624.wiff
MRM Transition	499.0 / 99.0	Result Table	18-0624_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.17872x + 0.01141$ ($r = 0.99572$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	92.60	82.936201	89.6
43	JZ81	L4	True	231.50	253.697146	109.6
44	JZ82	L5	True	463.00	534.672155	115.5
45	JZ83	L6	True	925.60	832.721124	90.0
46	JZ84	L7	True	2314.00	2365.782358	102.2
47	JZ85	L8	True	4628.00	4038.404550	87.3
48	JZ86	L9	True	9256.00	9802.486466	105.9





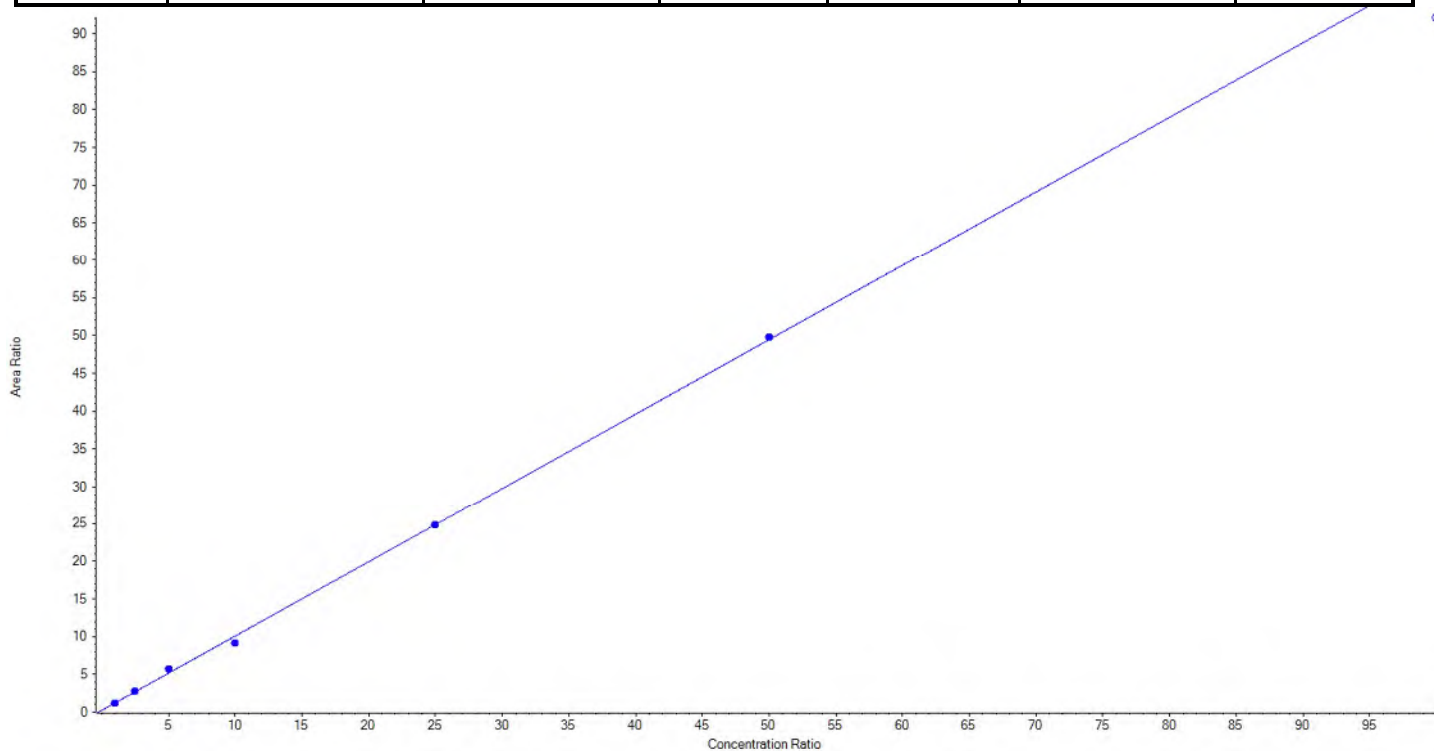
Calibration Summary Report

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Analyte Name	PFDA_1	Data File	18-0624.wiff
MRM Transition	513.0 / 469.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.98389x + 0.24847$ ($r = 0.99901$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	95.926966	95.9
43	JZ81	L4	True	250.00	254.037286	101.6
44	JZ82	L5	True	500.00	554.036817	110.8
45	JZ83	L6	True	1000.00	910.225038	91.0
46	JZ84	L7	True	2500.00	2495.638743	99.8
47	JZ85	L8	True	5000.00	5040.135150	100.8
48	JZ86	L9	False	10000.00	9336.813683	93.4





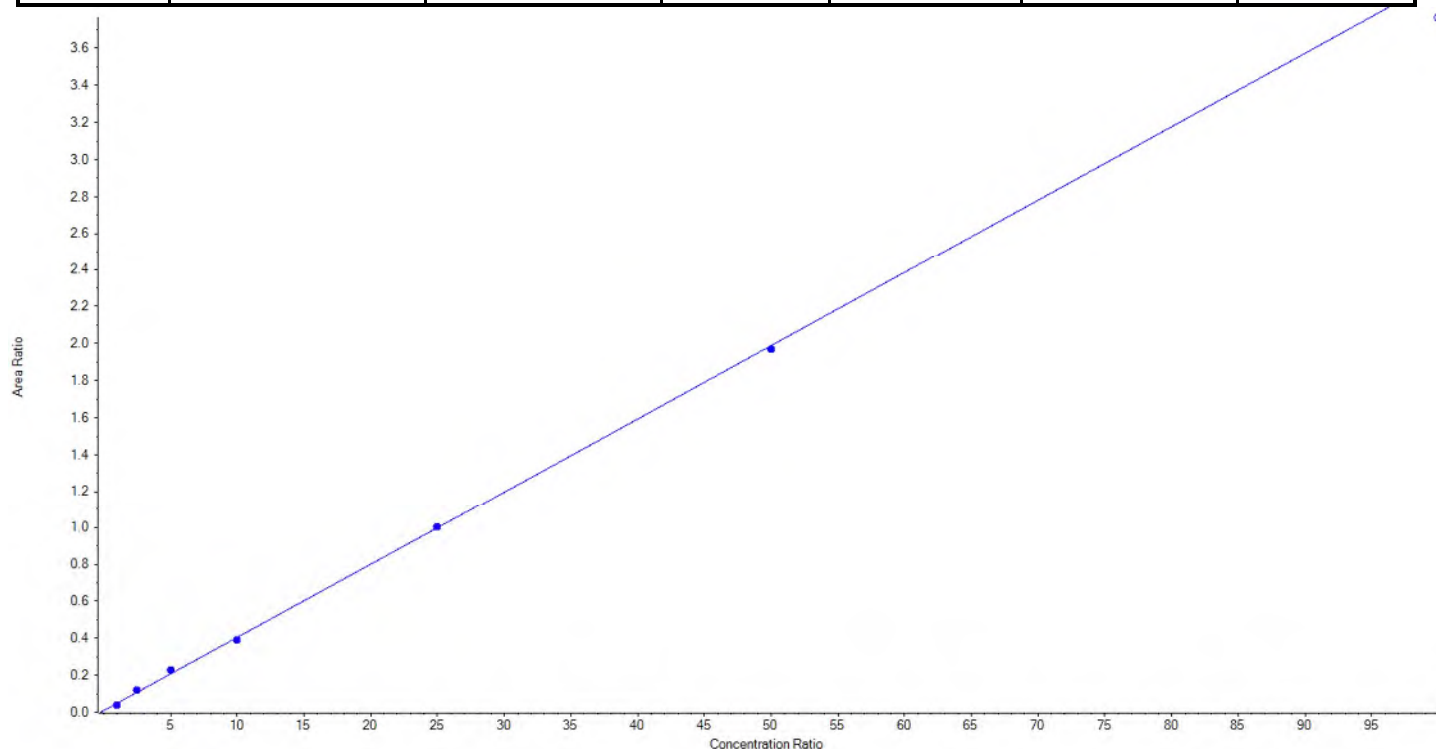
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Analyte Name	PFDA_2	Data File	18-0624.wiff
MRM Transition	513.0 / 219.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.03960x + 0.00890$ ($r = 0.99892$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	79.944730	79.9
43	JZ81	L4	True	250.00	280.689705	112.3
44	JZ82	L5	True	500.00	556.619412	111.3
45	JZ83	L6	True	1000.00	968.712976	96.9
46	JZ84	L7	True	2500.00	2515.177196	100.6
47	JZ85	L8	True	5000.00	4948.855980	99.0
48	JZ86	L9	False	10000.00	9485.786850	94.9





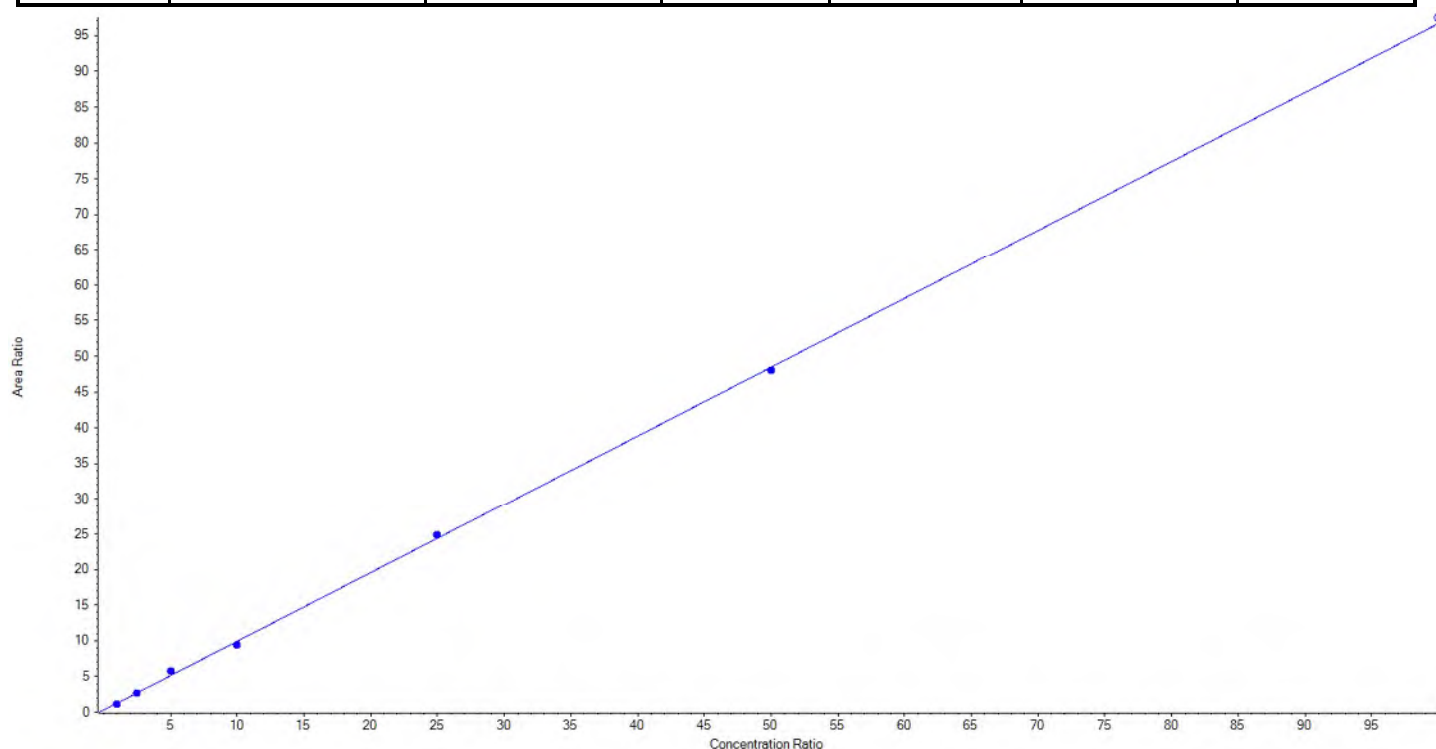
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFUnA_1	Data File	18-0624.wiff
MRM Transition	563.0 / 519.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.96369x + 0.29778$ ($r = 0.99911$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	92.778466	92.8
43	JZ81	L4	True	250.00	246.044119	98.4
44	JZ82	L5	True	500.00	565.279194	113.1
45	JZ83	L6	True	1000.00	949.066478	94.9
46	JZ84	L7	True	2500.00	2545.238278	101.8
47	JZ85	L8	True	5000.00	4951.593466	99.0
48	JZ86	L9	False	10000.00	10085.579422	100.9





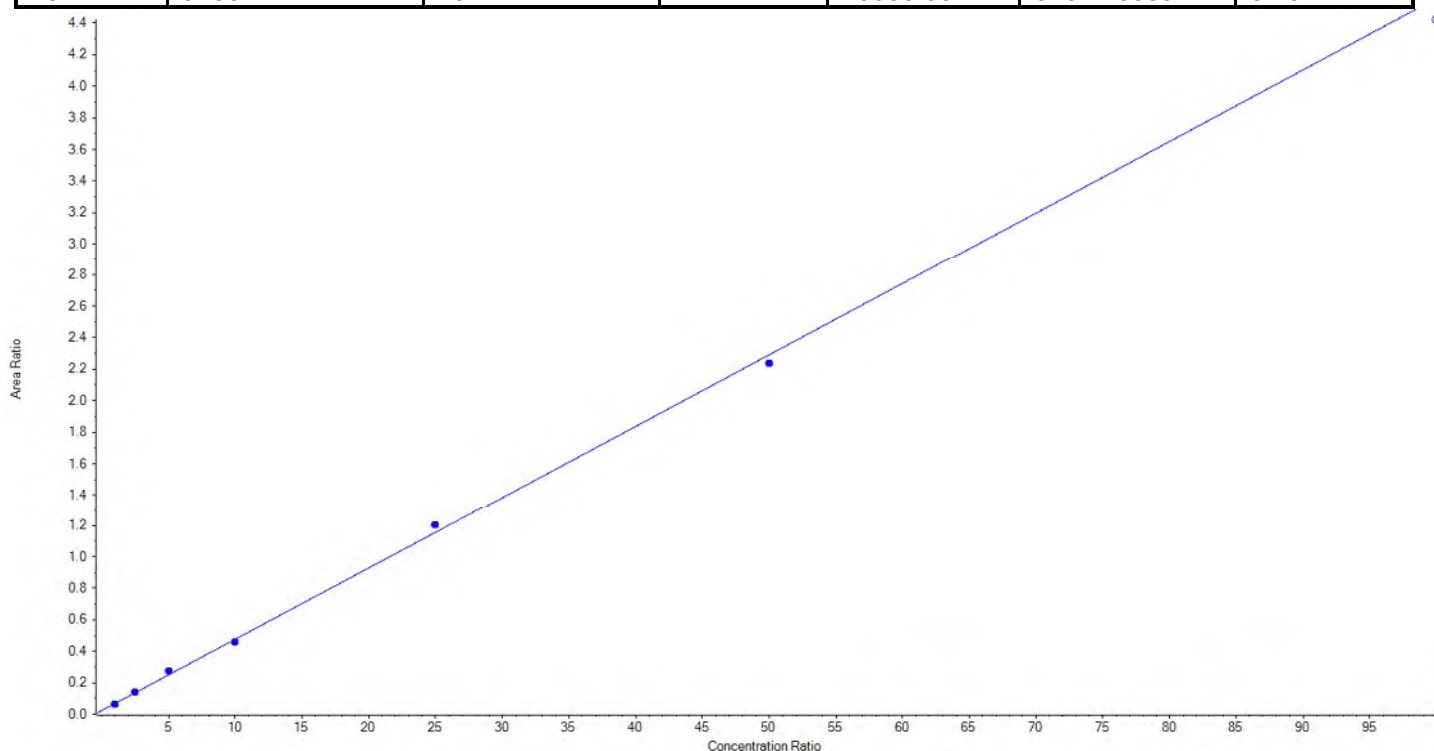
Calibration Summary Report

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Analyte Name	PFUnA_2	Data File	18-0624.wiff
MRM Transition	563.0 / 269.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.04535x + 0.02277$ ($r = 0.99883$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	88.817191	88.8
43	JZ81	L4	True	250.00	252.794070	101.1
44	JZ82	L5	True	500.00	560.571910	112.1
45	JZ83	L6	True	1000.00	961.643585	96.2
46	JZ84	L7	True	2500.00	2603.148762	104.1
47	JZ85	L8	True	5000.00	4883.024482	97.7
48	JZ86	L9	False	10000.00	9701.463594	97.0





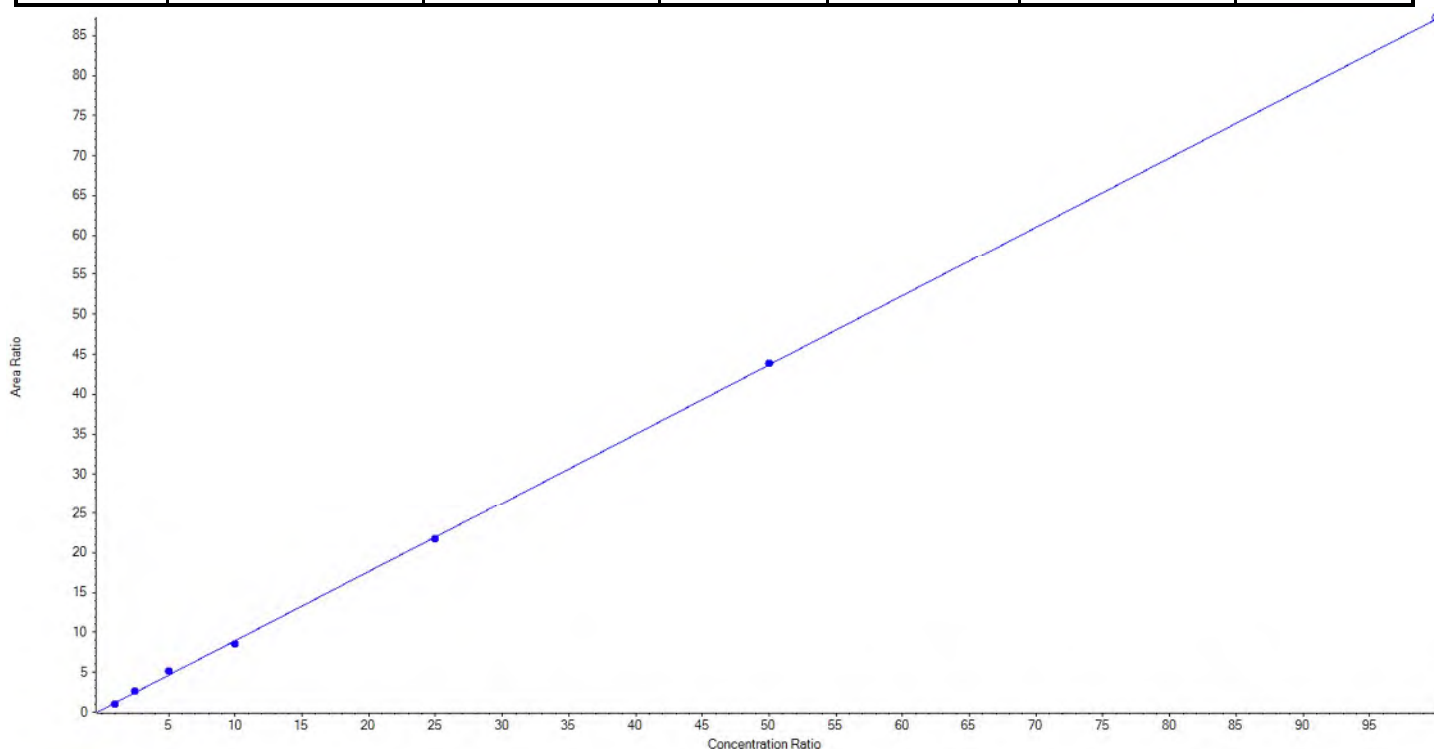
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Analyte Name	PFD _o A_1	Data File	18-0624.wiff
MRM Transition	613.0 / 569.0	Result Table	18-0624_DW
Internal Standard	13C ₂ -PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.86765x + 0.28921$ ($r = 0.99905$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	86.581131	86.6
43	JZ81	L4	True	250.00	268.839732	107.5
44	JZ82	L5	True	500.00	560.673586	112.1
45	JZ83	L6	True	1000.00	945.097915	94.5
46	JZ84	L7	True	2500.00	2473.115718	98.9
47	JZ85	L8	True	5000.00	5015.691917	100.3
48	JZ86	L9	False	10000.00	10020.035691	100.2





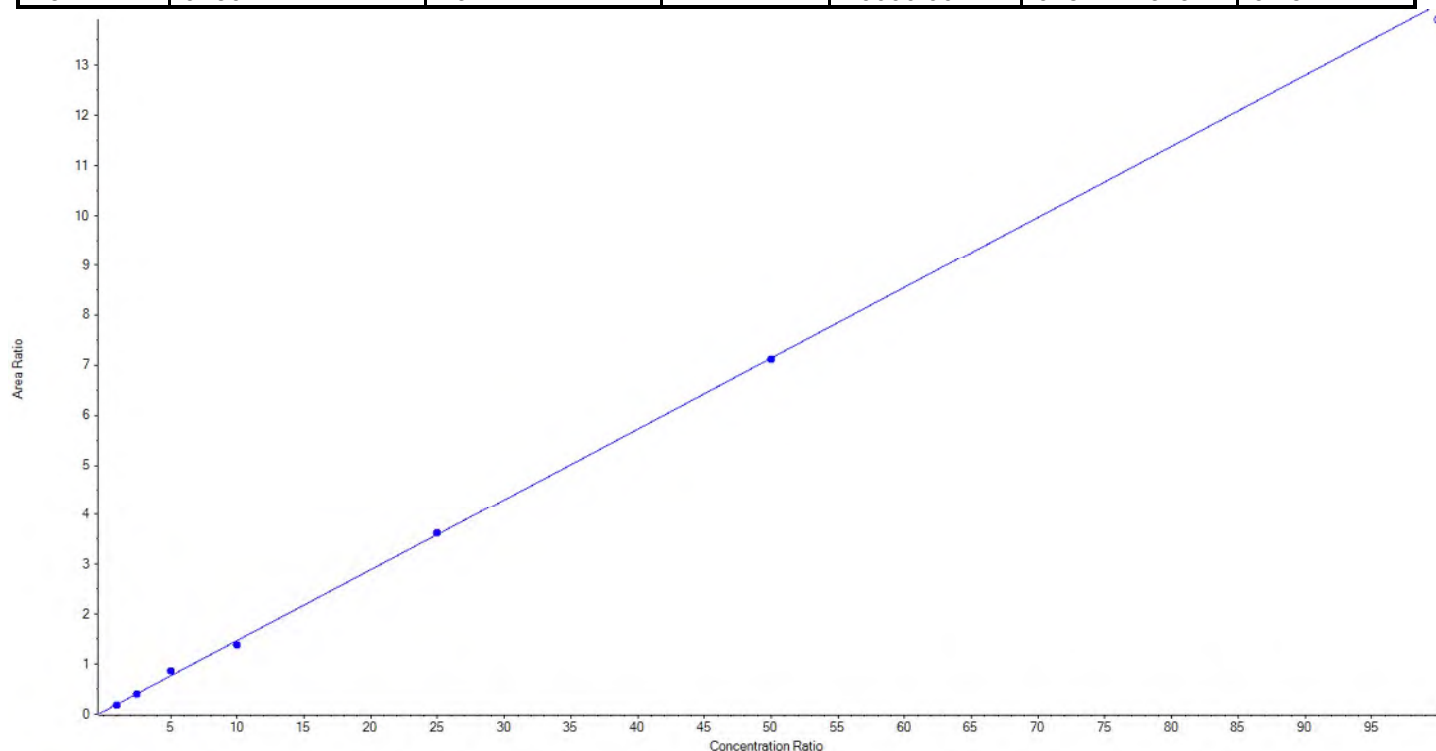
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFD _o A_2	Data File	18-0624.wiff
MRM Transition	613.0 / 319.0	Result Table	18-0624_DW
Internal Standard	13C ₂ -PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.14160x + 0.05671$ ($r = 0.99892$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	94.078448	94.1
43	JZ81	L4	True	250.00	244.995530	98.0
44	JZ82	L5	True	500.00	571.164599	114.2
45	JZ83	L6	True	1000.00	929.721778	93.0
46	JZ84	L7	True	2500.00	2525.872468	101.0
47	JZ85	L8	True	5000.00	4984.167177	99.7
48	JZ86	L9	False	10000.00	9782.472525	97.8





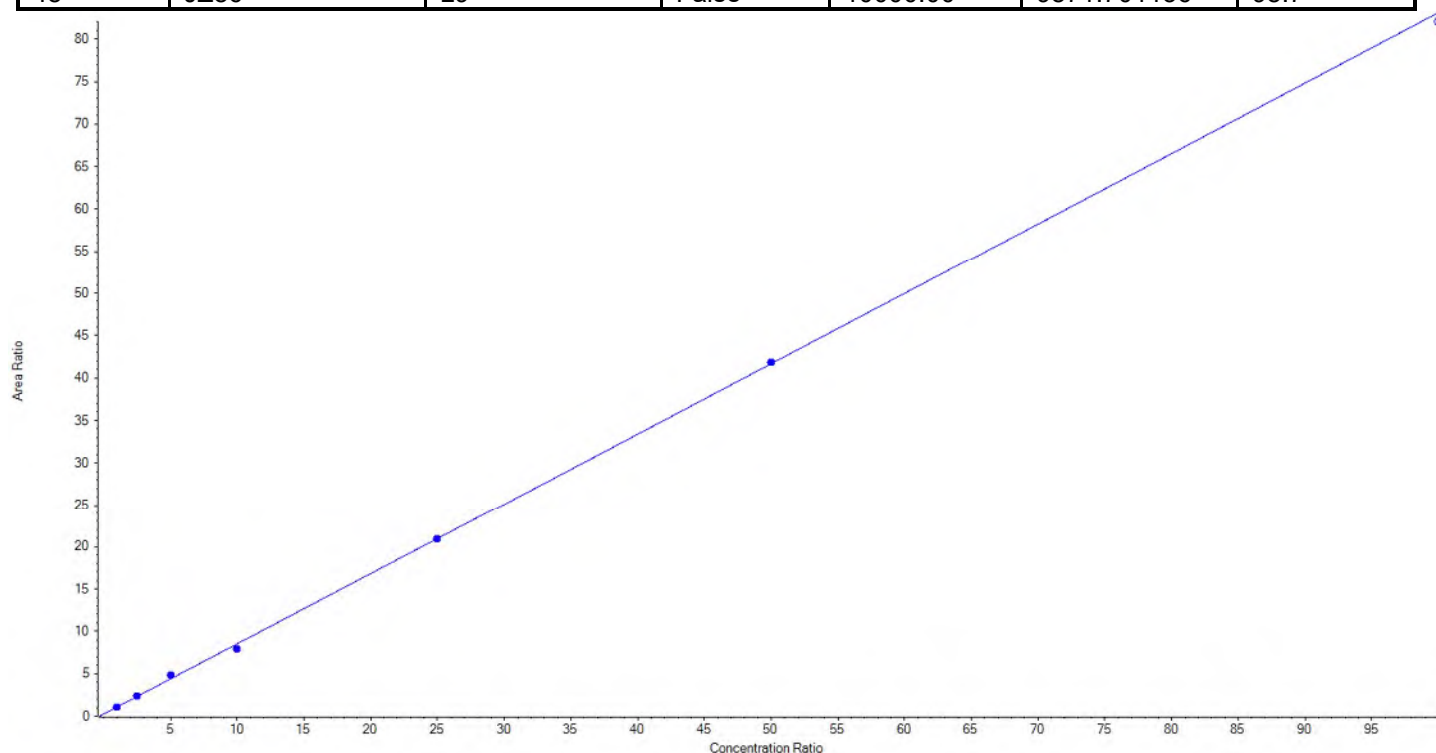
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Created with Analyst Reporter
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Analyte Name	PFTTrDA_1	Data File	18-0624.wiff
MRM Transition	663.0 / 619.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.82853x + 0.24915$ ($r = 0.99911$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	93.733896	93.7
43	JZ81	L4	True	250.00	255.143948	102.1
44	JZ82	L5	True	500.00	557.757095	111.6
45	JZ83	L6	True	1000.00	924.256953	92.4
46	JZ84	L7	True	2500.00	2492.462451	99.7
47	JZ85	L8	True	5000.00	5026.645658	100.5
48	JZ86	L9	False	10000.00	9871.701136	98.7





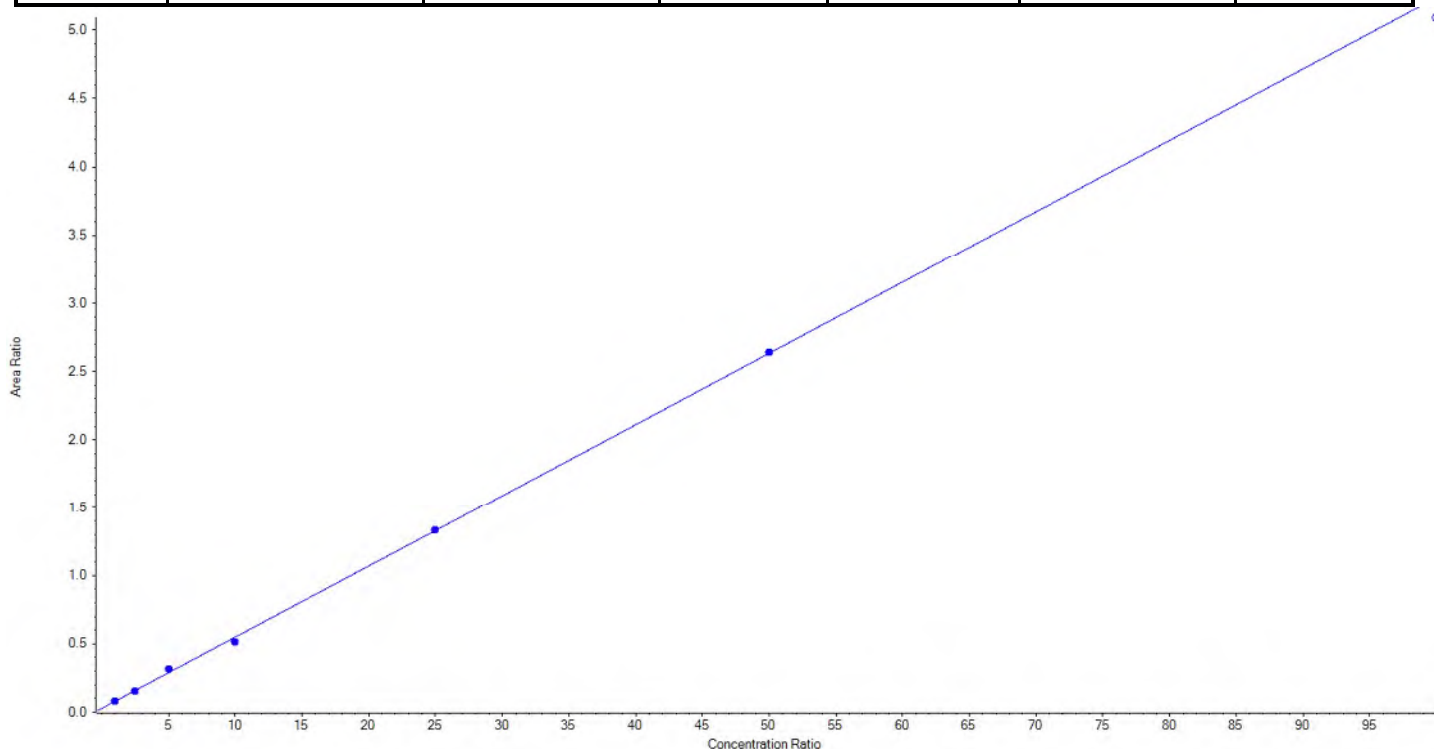
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Analyte Name	PFTTrDA_2	Data File	18-0624.wiff
MRM Transition	663.0 / 169.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05208x + 0.02810$ ($r = 0.99941$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	99.006699	99.0
43	JZ81	L4	True	250.00	244.627688	97.9
44	JZ82	L5	True	500.00	544.753933	109.0
45	JZ83	L6	True	1000.00	933.738401	93.4
46	JZ84	L7	True	2500.00	2513.006693	100.5
47	JZ85	L8	True	5000.00	5014.866586	100.3
48	JZ86	L9	False	10000.00	9718.599070	97.2





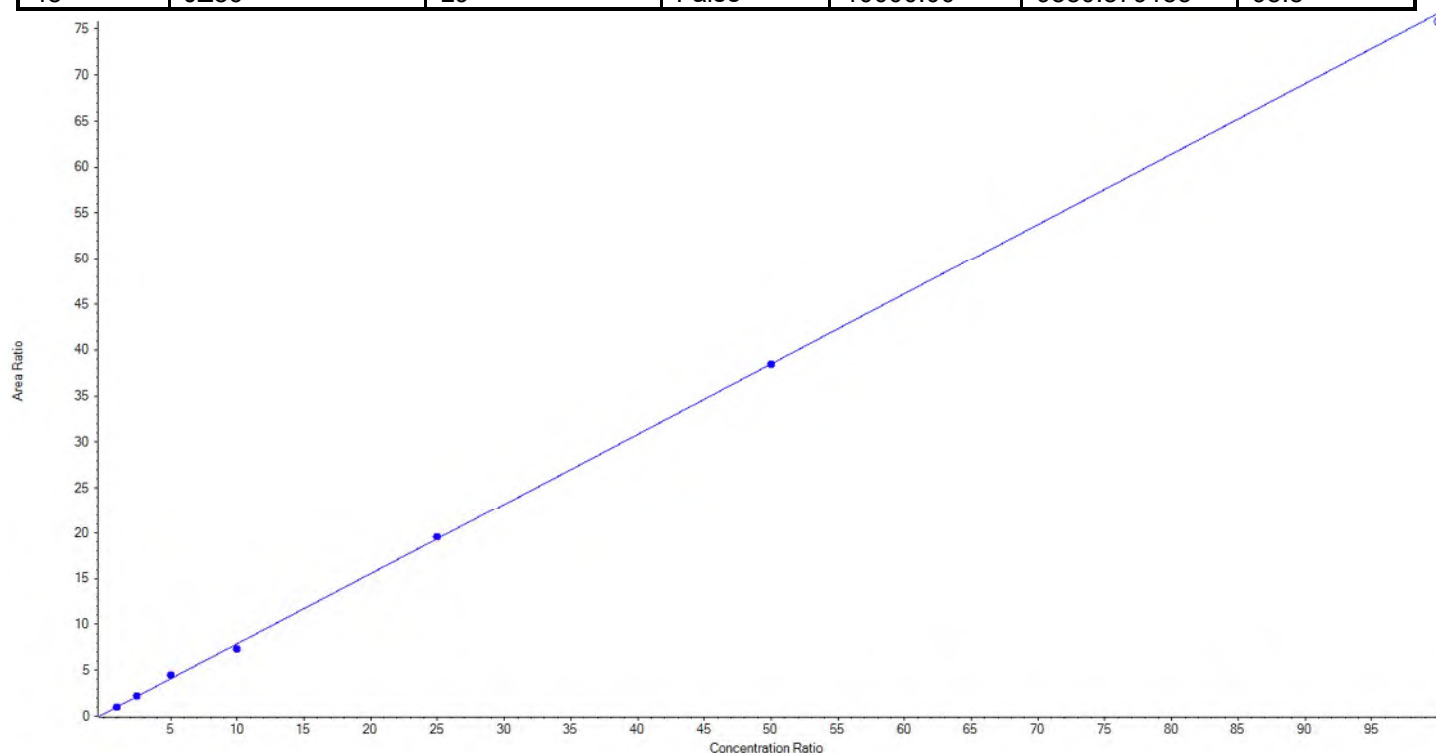
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Analyte Name	PFTeDA_1	Data File	18-0624.wiff
MRM Transition	713.0 / 669.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.76473x + 0.24357$ ($r = 0.99917$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	93.526346	93.5
43	JZ81	L4	True	250.00	255.531877	102.2
44	JZ82	L5	True	500.00	554.505121	110.9
45	JZ83	L6	True	1000.00	925.375851	92.5
46	JZ84	L7	True	2500.00	2520.053903	100.8
47	JZ85	L8	True	5000.00	5001.006902	100.0
48	JZ86	L9	False	10000.00	9880.879185	98.8





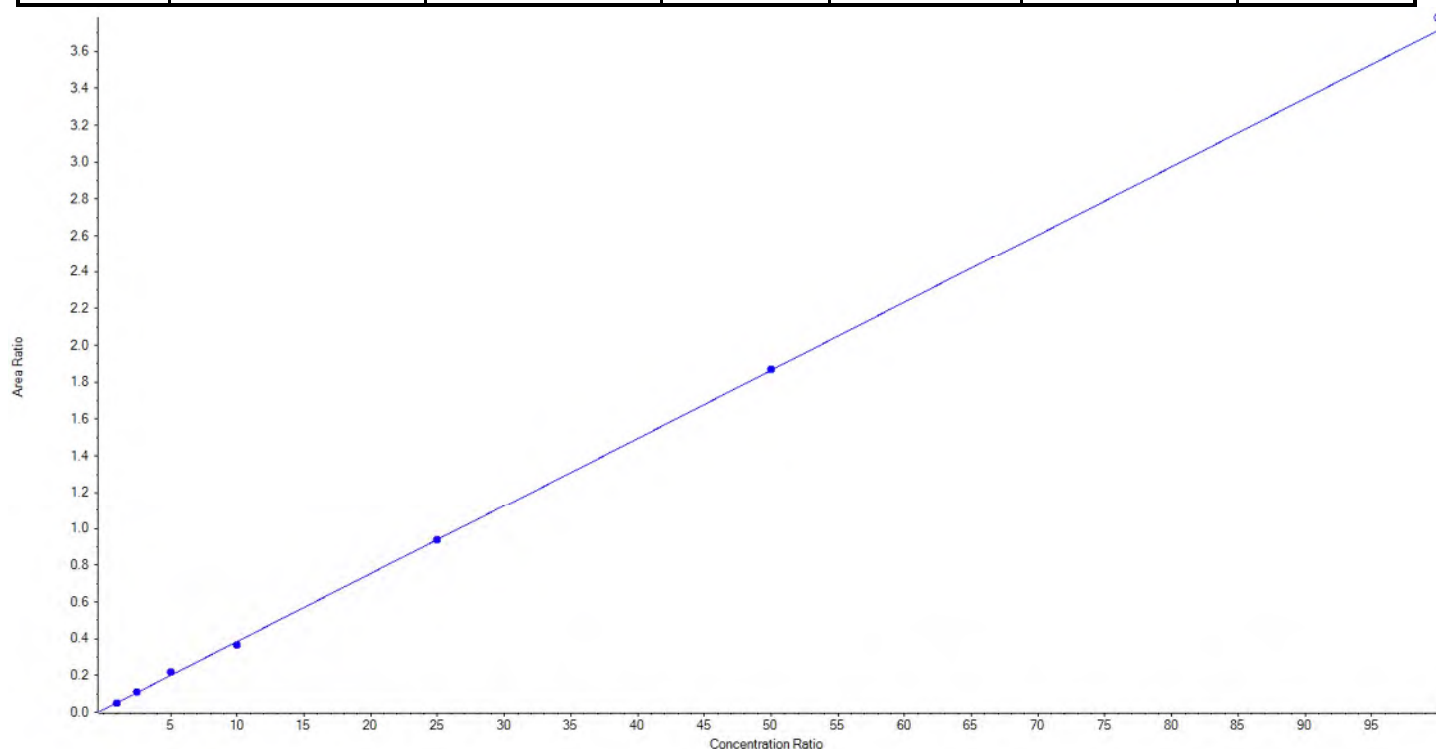
Calibration Summary Report

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Analyte Name	PFTeDA_2	Data File	18-0624.wiff
MRM Transition	713.0 / 169.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.03701 x + 0.01410$ ($r = 0.99943$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	94.111120	94.1
43	JZ81	L4	True	250.00	253.937134	101.6
44	JZ82	L5	True	500.00	549.132121	109.8
45	JZ83	L6	True	1000.00	945.065099	94.5
46	JZ84	L7	True	2500.00	2491.300073	99.7
47	JZ85	L8	True	5000.00	5016.454452	100.3
48	JZ86	L9	False	10000.00	10184.123576	101.8





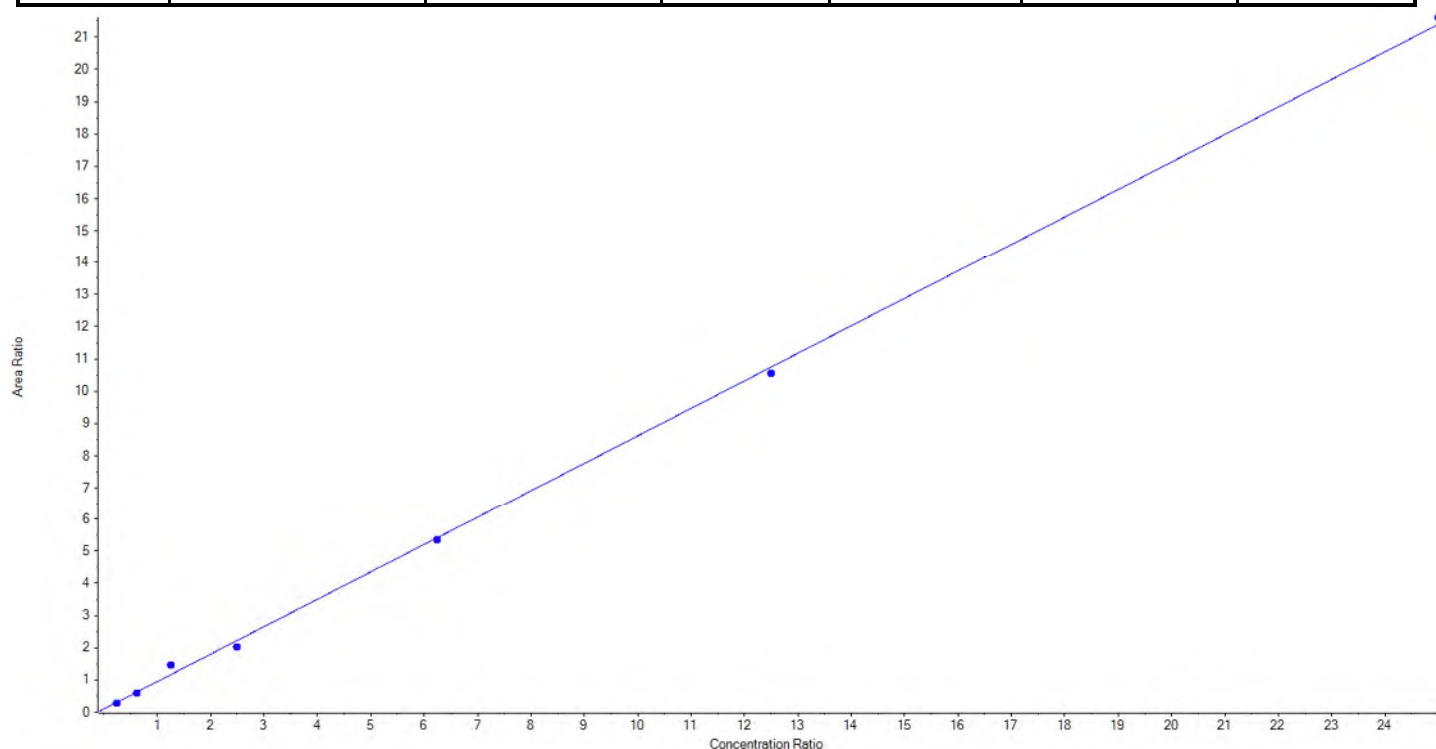
Calibration Summary Report

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Analyte Name	NMeFOSAA_1	Data File	18-0624.wiff
MRM Transition	570.0 / 419.0	Result Table	18-0624_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.85193x + 0.09631$ ($r = 0.99841$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	88.531551	88.5
43	JZ81	L4	True	250.00	236.165635	94.5
44	JZ82	L5	True	500.00	640.702122	128.1
45	JZ83	L6	True	1000.00	909.694036	91.0
46	JZ84	L7	True	2500.00	2468.024610	98.7
47	JZ85	L8	True	5000.00	4910.256173	98.2
48	JZ86	L9	True	10000.00	10096.625872	101.0





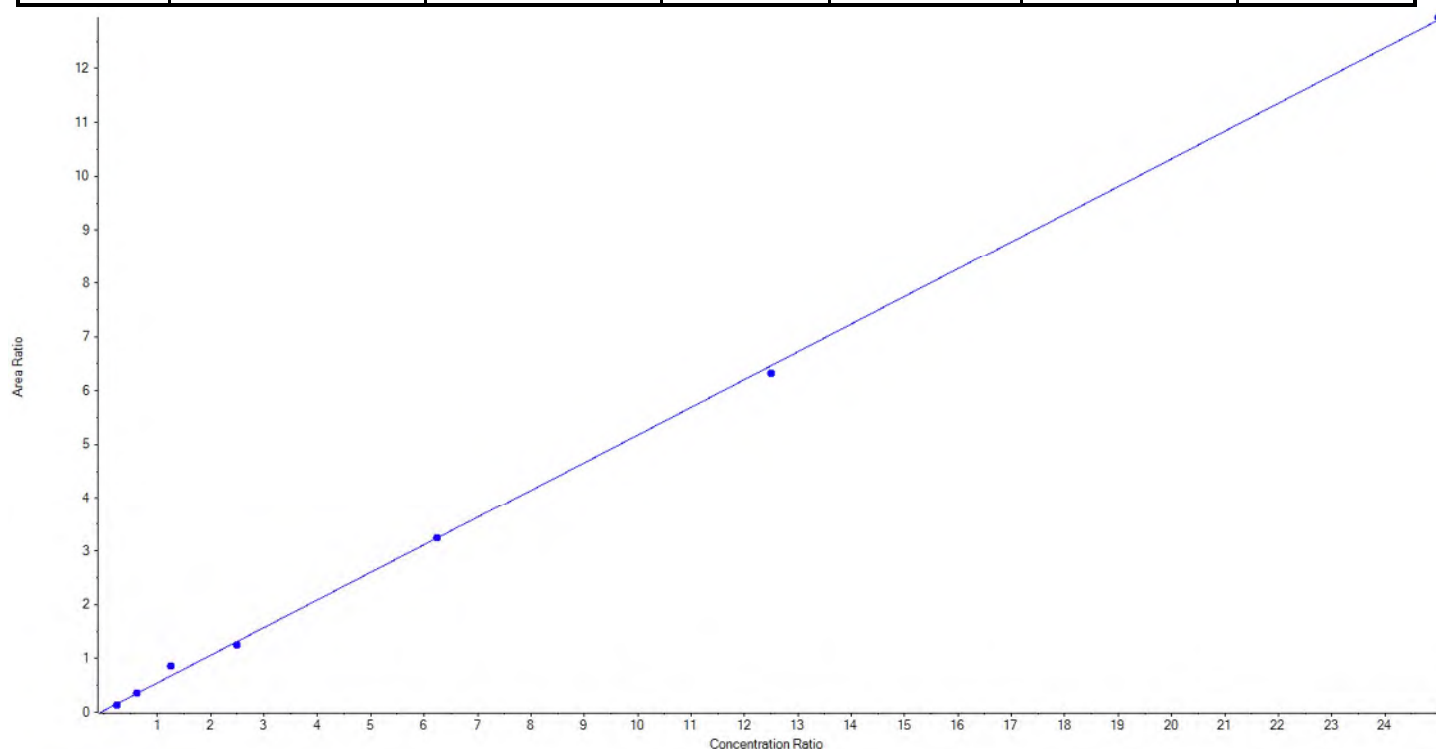
Calibration Summary Report

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Printed: 17/10/2018 3:09:54 PM

Analyte Name	NMeFOSAA_2	Data File	18-0624.wiff
MRM Transition	570.0 / 512.0	Result Table	18-0624_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.51477 x + 0.02798$ ($r = 0.99839$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	75.692122	75.7
43	JZ81	L4	True	250.00	255.543356	102.2
44	JZ82	L5	True	500.00	645.882153	129.2
45	JZ83	L6	True	1000.00	948.227934	94.8
46	JZ84	L7	True	2500.00	2496.645555	99.9
47	JZ85	L8	True	5000.00	4894.540081	97.9
48	JZ86	L9	True	10000.00	10033.468799	100.3





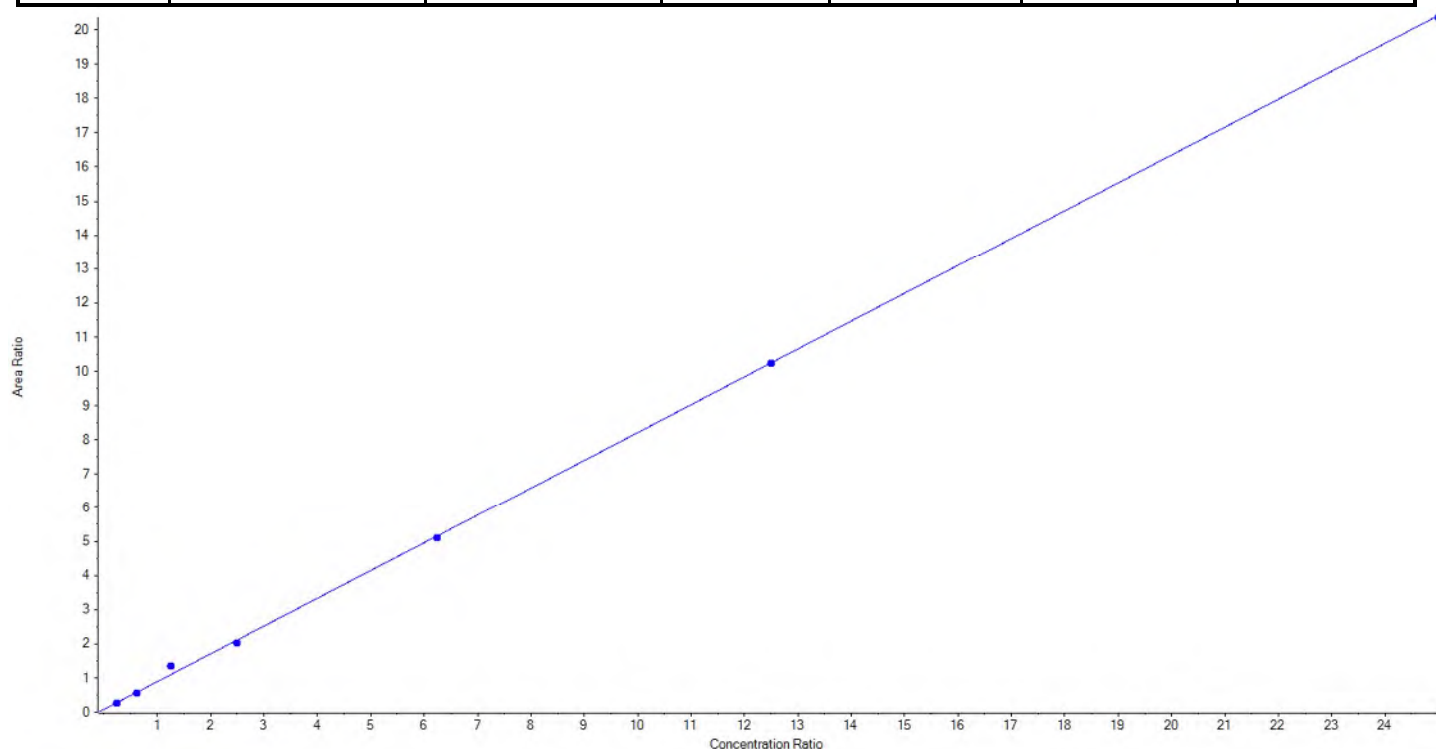
Calibration Summary Report

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Printed: 17/10/2018 3:09:54 PM

Analyte Name	NEtFOSAA_1	Data File	18-0624.wiff
MRM Transition	584.0 / 419.0	Result Table	18-0624_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.81356 x + 0.07798$ ($r = 0.99887$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	84.329582	84.3
43	JZ81	L4	True	250.00	238.255467	95.3
44	JZ82	L5	True	500.00	628.154379	125.6
45	JZ83	L6	True	1000.00	962.330869	96.2
46	JZ84	L7	True	2500.00	2472.663008	98.9
47	JZ85	L8	True	5000.00	4995.508132	99.9
48	JZ86	L9	True	10000.00	9968.758564	99.7





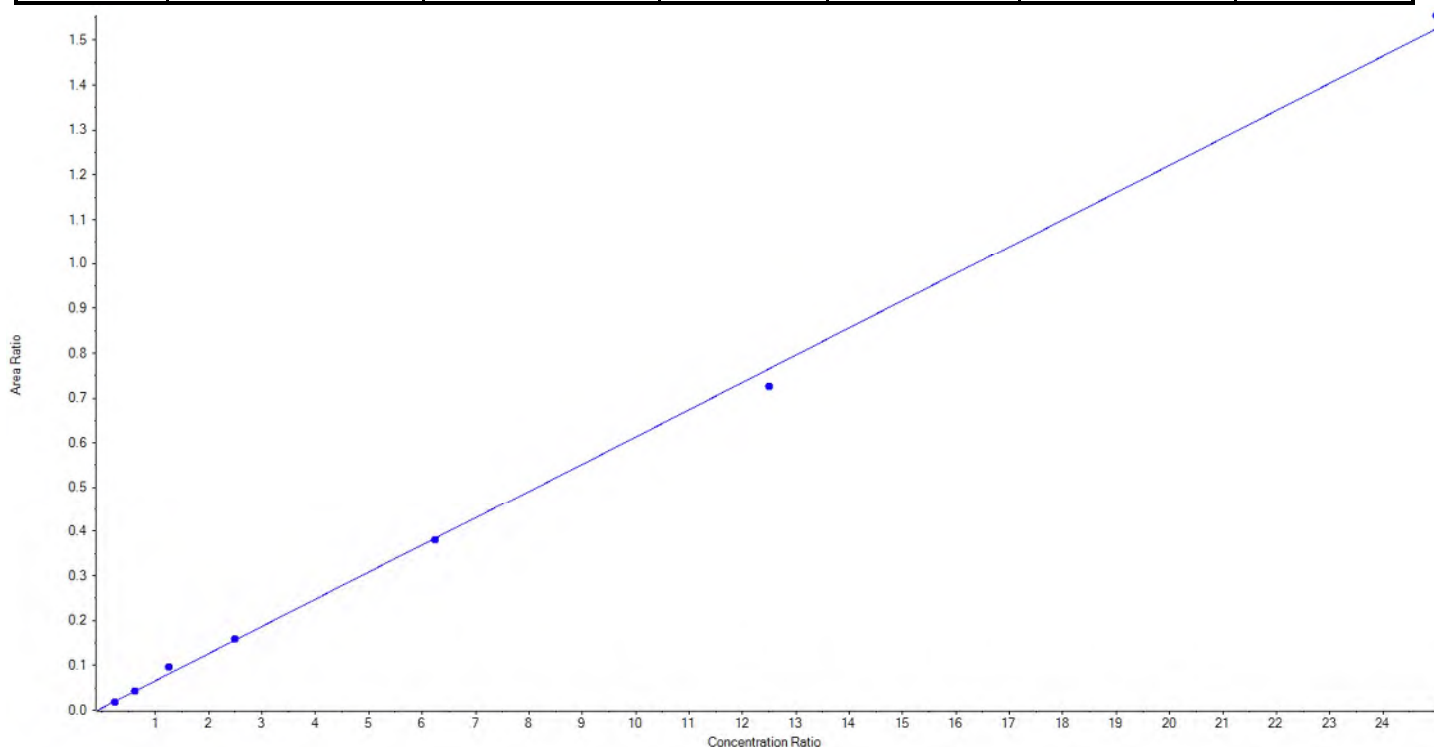
Calibration Summary Report

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Analyte Name	NEtFOSAA_2	Data File	18-0624.wiff
MRM Transition	584.0 / 483.0	Result Table	18-0624_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06084 x + 0.00452$ ($r = 0.99873$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	81.284872	81.3
43	JZ81	L4	True	250.00	254.109641	101.6
44	JZ82	L5	True	500.00	602.426380	120.5
45	JZ83	L6	True	1000.00	1010.901031	101.1
46	JZ84	L7	True	2500.00	2468.942733	98.8
47	JZ85	L8	True	5000.00	4741.483020	94.8
48	JZ86	L9	True	10000.00	10190.852324	101.9





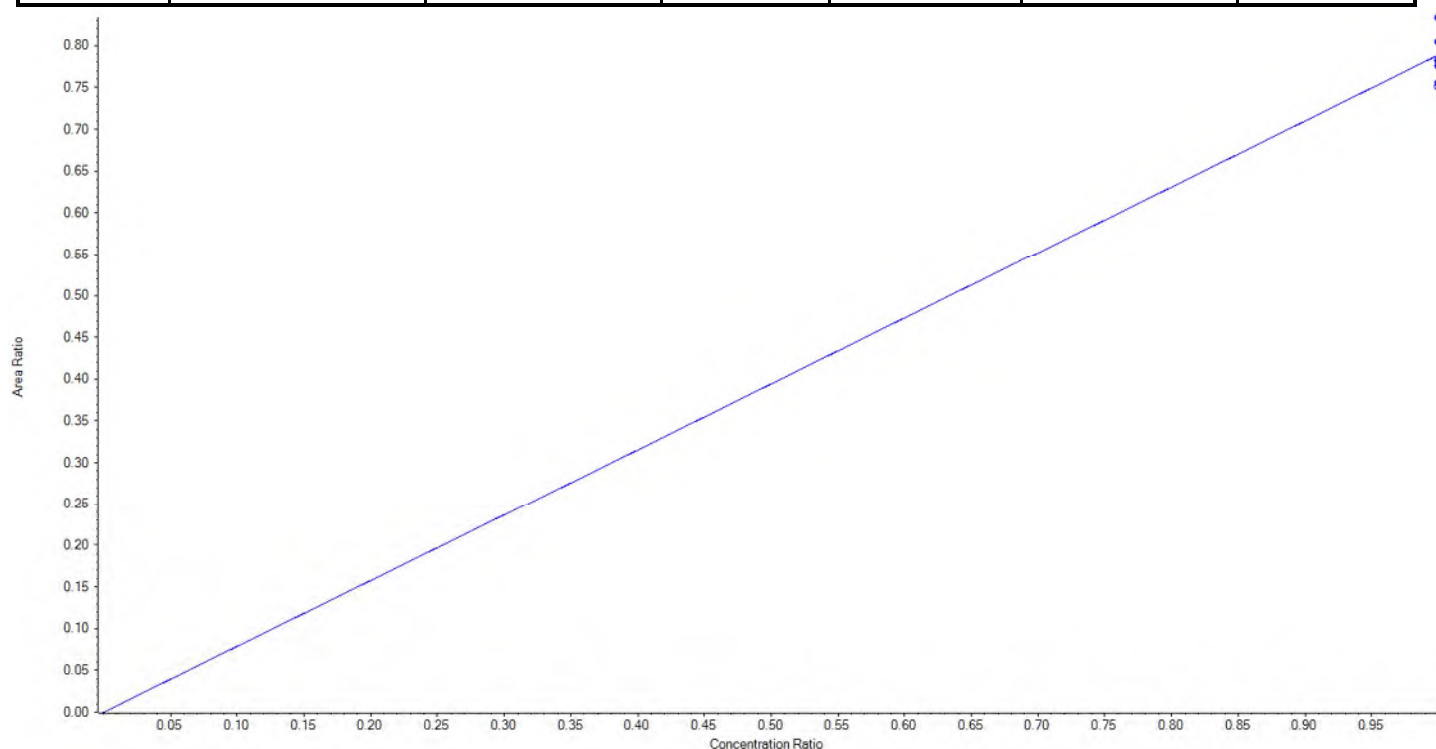
Calibration Summary Report

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Analyte Name	13C2-PFHxA	Data File	18-0624.wiff
MRM Transition	315.0 / 270.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.78878 x$ (std. dev. = 0.02679) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	101.998376	102.0
43	JZ81	L4	True	100.00	99.068297	99.1
44	JZ82	L5	True	100.00	95.815458	95.8
45	JZ83	L6	True	100.00	98.312554	98.3
46	JZ84	L7	True	100.00	99.169730	99.2
47	JZ85	L8	True	100.00	105.635586	105.6
48	JZ86	L9	False	100.00	95.250584	95.3





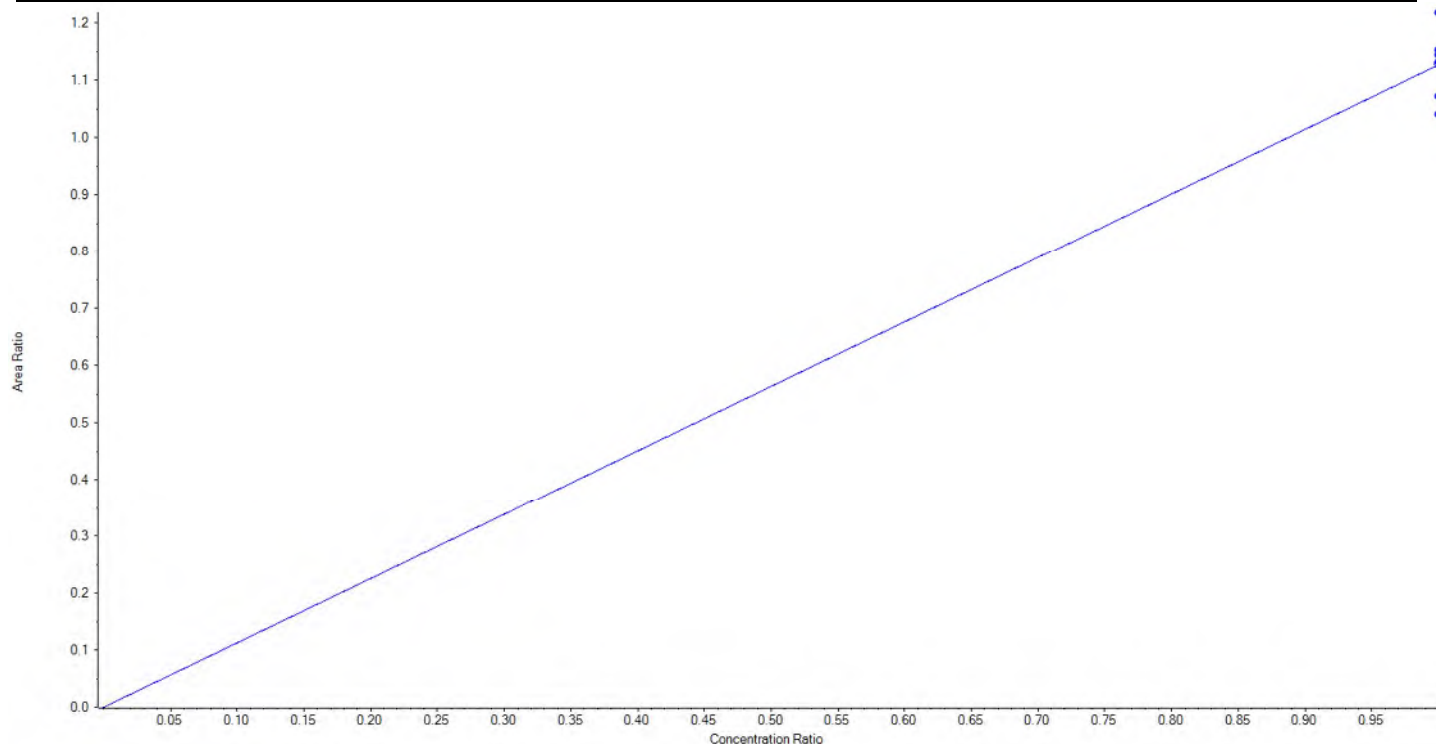
Calibration Summary Report

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Printed: 17/10/2018 3:09:54 PM

Analyte Name	13C2-PFDA	Data File	18-0624.wiff
MRM Transition	515.0 / 470.0	Result Table	18-0624_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.12703 x$ (std. dev. = 0.06265) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	100.00	101.592267	101.6
43	JZ81	L4	True	100.00	102.330531	102.3
44	JZ82	L5	True	100.00	95.218338	95.2
45	JZ83	L6	True	100.00	92.362476	92.4
46	JZ84	L7	True	100.00	100.423489	100.4
47	JZ85	L8	True	100.00	108.072898	108.1
48	JZ86	L9	False	100.00	100.105270	100.1





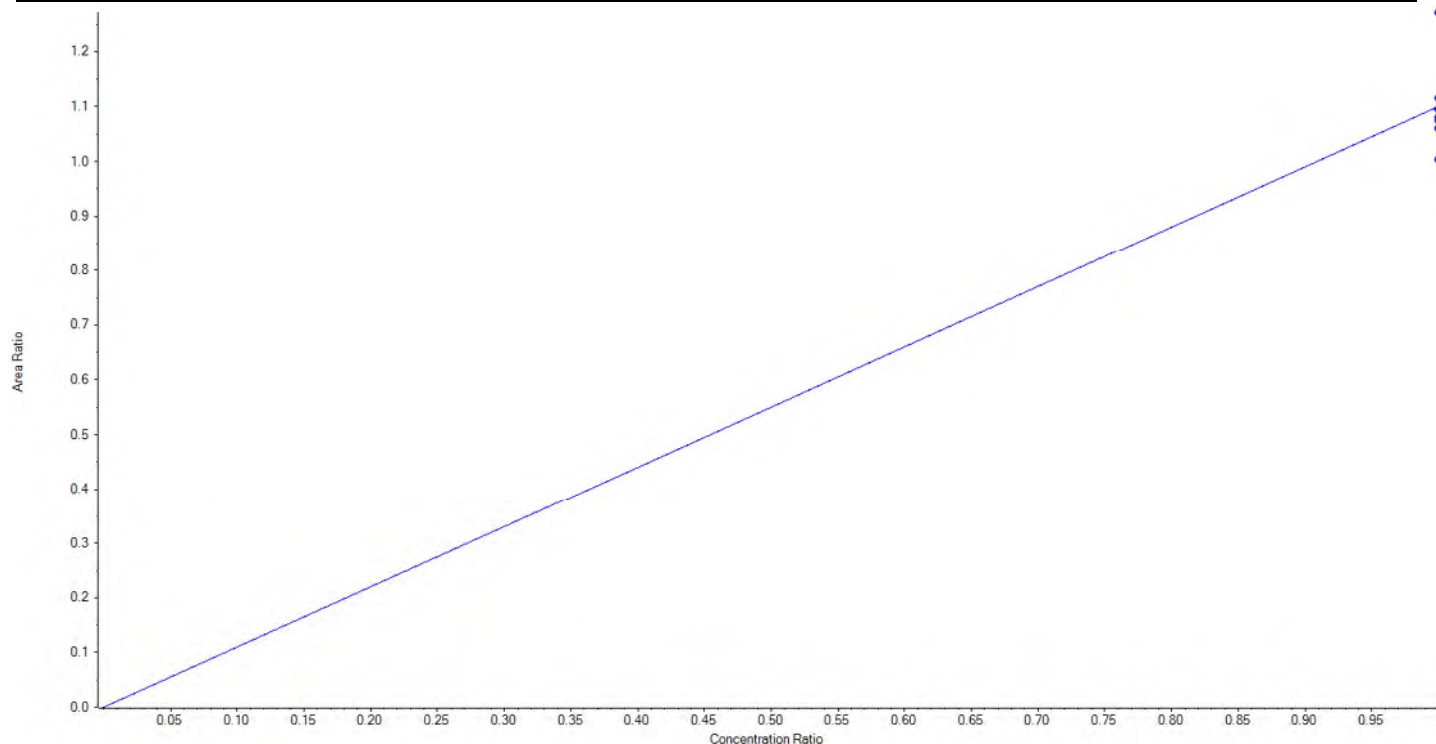
Calibration Summary Report

Created with Analyst Reporter
Printed: 17/10/2018 3:09:54 PM

Analyte Name	d5-EtFOSAA	Data File	18-0624.wiff
MRM Transition	589.0 / 419.0	Result Table	18-0624_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	10/17/2018 1:50:26 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.10036 x$ (std. dev. = 0.08285) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
42	JZ80	L3	True	400.00	385.824340	96.5
43	JZ81	L4	True	400.00	365.087105	91.3
44	JZ82	L5	True	400.00	462.065466	115.5
45	JZ83	L6	True	400.00	405.373392	101.3
46	JZ84	L7	True	400.00	392.960552	98.2
47	JZ85	L8	True	400.00	398.046341	99.5
48	JZ86	L9	True	400.00	390.642804	97.7



Sample Name	JZ80	Injection Vial	42
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-17T01:59:23	Data File	18-0624.wiff
Acquisition Method	5-0371.dam	Result Table	18-0624_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	0.310	0.306	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.060	0.077	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.23	PFHpA	0.020	0.023	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.290	0.290	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.060	0.065	ü
PFNA_1	463.0 / 419.0	3.04	PFNA			
PFNA_2	463.0 / 219.0	3.04	PFNA	0.270	0.310	ü
PFOS_1	499.0 / 80.0	3.04	PFOS			
PFOS_2	499.0 / 99.0	3.04	PFOS	0.190	0.187	ü
PFDA_1	513.0 / 469.0	3.40	PFDA			
PFDA_2	513.0 / 219.0	3.40	PFDA	0.030	0.040	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.73	PFUnA	0.050	0.049	ü
PFDaA_1	613.0 / 569.0	4.01	PFDaA			
PFDaA_2	613.0 / 319.0	4.00	PFDaA	0.180	0.166	ü
PFTTrDA_1	663.0 / 619.0	4.25	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.25	PFTTrDA	0.080	0.067	ü
PFTeDA_1	713.0 / 669.0	4.47	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.47	PFTeDA	0.050	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.55	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.55	NMeFOSAA	0.440	0.577	ü
NEtFOSAA_1	584.0 / 419.0	3.72	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.71	NEtFOSAA	0.070	0.074	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.39		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.70		N/A	N/A	ü

Sample Name	JZ81	Injection Vial	43
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-17T02:08:19	Data File	18-0624.wiff
Acquisition Method	5-0371.dam	Result Table	18-0624_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	0.300	0.306	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.070	0.077	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.23	PFHpA	0.030	0.023	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.280	0.290	ü
PFOA_1	413.0 / 369.0	2.64	PFOA			
PFOA_2	413.0 / 169.0	2.64	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	3.04	PFNA			
PFNA_2	463.0 / 219.0	3.04	PFNA	0.320	0.310	ü
PFOS_1	499.0 / 80.0	3.04	PFOS			
PFOS_2	499.0 / 99.0	3.04	PFOS	0.180	0.187	ü
PFDA_1	513.0 / 469.0	3.40	PFDA			
PFDA_2	513.0 / 219.0	3.40	PFDA	0.040	0.040	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.050	0.049	ü
PFDaA_1	613.0 / 569.0	4.00	PFDaA			
PFDaA_2	613.0 / 319.0	4.00	PFDaA	0.150	0.166	ü
PFTTrDA_1	663.0 / 619.0	4.25	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.25	PFTTrDA	0.070	0.067	ü
PFTeDA_1	713.0 / 669.0	4.46	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.46	PFTeDA	0.050	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.55	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.55	NMeFOSAA	0.600	0.577	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.71	NEtFOSAA	0.080	0.074	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.39		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.70		N/A	N/A	ü

Sample Name	JZ82	Injection Vial	44
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-17T02:17:14	Data File	18-0624.wiff
Acquisition Method	5-0371.dam	Result Table	18-0624_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	0.300	0.306	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.080	0.077	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.23	PFHpA	0.020	0.023	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.310	0.290	ü
PFOA_1	413.0 / 369.0	2.64	PFOA			
PFOA_2	413.0 / 169.0	2.64	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	3.04	PFNA			
PFNA_2	463.0 / 219.0	3.04	PFNA	0.330	0.310	ü
PFOS_1	499.0 / 80.0	3.04	PFOS			
PFOS_2	499.0 / 99.0	3.03	PFOS	0.190	0.187	ü
PFDA_1	513.0 / 469.0	3.40	PFDA			
PFDA_2	513.0 / 219.0	3.39	PFDA	0.040	0.040	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.050	0.049	ü
PFDaA_1	613.0 / 569.0	4.00	PFDaA			
PFDaA_2	613.0 / 319.0	4.00	PFDaA	0.170	0.166	ü
PFTTrDA_1	663.0 / 619.0	4.25	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.25	PFTTrDA	0.060	0.067	ü
PFTeDA_1	713.0 / 669.0	4.47	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.46	PFTeDA	0.050	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.55	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.55	NMeFOSAA	0.590	0.577	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.70	NEtFOSAA	0.070	0.074	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.38		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.70		N/A	N/A	ü

Sample Name	JZ83	Injection Vial	45
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-17T02:26:10	Data File	18-0624.wiff
Acquisition Method	5-0371.dam	Result Table	18-0624_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	0.300	0.306	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.080	0.077	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.23	PFHpA	0.020	0.023	ü
PFHxS_1	399.0 / 80.0	2.25	PFHxS			
PFHxS_2	399.0 / 99.0	2.25	PFHxS	0.280	0.290	ü
PFOA_1	413.0 / 369.0	2.64	PFOA			
PFOA_2	413.0 / 169.0	2.64	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	3.03	PFNA			
PFNA_2	463.0 / 219.0	3.03	PFNA	0.310	0.310	ü
PFOS_1	499.0 / 80.0	3.03	PFOS			
PFOS_2	499.0 / 99.0	3.03	PFOS	0.190	0.187	ü
PFDA_1	513.0 / 469.0	3.39	PFDA			
PFDA_2	513.0 / 219.0	3.39	PFDA	0.040	0.040	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.050	0.049	ü
PFDaA_1	613.0 / 569.0	4.00	PFDaA			
PFDaA_2	613.0 / 319.0	4.00	PFDaA	0.160	0.166	ü
PFTTrDA_1	663.0 / 619.0	4.25	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.25	PFTTrDA	0.070	0.067	ü
PFTeDA_1	713.0 / 669.0	4.46	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.46	PFTeDA	0.050	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.54	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.55	NMeFOSAA	0.610	0.577	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.70	NEtFOSAA	0.080	0.074	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.38		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.70		N/A	N/A	ü

Sample Name	JZ84	Injection Vial	46
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-17T02:35:05	Data File	18-0624.wiff
Acquisition Method	5-0371.dam	Result Table	18-0624_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	0.300	0.306	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.080	0.077	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.23	PFHpA	0.020	0.023	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.290	0.290	ü
PFOA_1	413.0 / 369.0	2.64	PFOA			
PFOA_2	413.0 / 169.0	2.64	PFOA	0.060	0.065	ü
PFNA_1	463.0 / 419.0	3.04	PFNA			
PFNA_2	463.0 / 219.0	3.04	PFNA	0.330	0.310	ü
PFOS_1	499.0 / 80.0	3.03	PFOS			
PFOS_2	499.0 / 99.0	3.03	PFOS	0.190	0.187	ü
PFDA_1	513.0 / 469.0	3.39	PFDA			
PFDA_2	513.0 / 219.0	3.39	PFDA	0.040	0.040	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.050	0.049	ü
PFDaA_1	613.0 / 569.0	4.00	PFDaA			
PFDaA_2	613.0 / 319.0	4.00	PFDaA	0.170	0.166	ü
PFTTrDA_1	663.0 / 619.0	4.25	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.24	PFTTrDA	0.060	0.067	ü
PFTeDA_1	713.0 / 669.0	4.46	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.46	PFTeDA	0.050	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.55	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.54	NMeFOSAA	0.610	0.577	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.71	NEtFOSAA	0.070	0.074	ü
13C2-PFHxA	315.0 / 270.0	1.82				
13C2-PFDA	515.0 / 470.0	3.38		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.70		N/A	N/A	ü

Sample Name	JZ85	Injection Vial	47
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-17T02:44:02	Data File	18-0624.wiff
Acquisition Method	5-0371.dam	Result Table	18-0624_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	0.310	0.306	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.080	0.077	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.23	PFHpA	0.020	0.023	ü
PFHxS_1	399.0 / 80.0	2.25	PFHxS			
PFHxS_2	399.0 / 99.0	2.25	PFHxS	0.290	0.290	ü
PFOA_1	413.0 / 369.0	2.64	PFOA			
PFOA_2	413.0 / 169.0	2.64	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	3.03	PFNA			
PFNA_2	463.0 / 219.0	3.03	PFNA	0.300	0.310	ü
PFOS_1	499.0 / 80.0	3.03	PFOS			
PFOS_2	499.0 / 99.0	3.03	PFOS	0.180	0.187	ü
PFDA_1	513.0 / 469.0	3.39	PFDA			
PFDA_2	513.0 / 219.0	3.39	PFDA	0.040	0.040	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.71	PFUnA	0.050	0.049	ü
PFDaA_1	613.0 / 569.0	4.00	PFDaA			
PFDaA_2	613.0 / 319.0	4.00	PFDaA	0.160	0.166	ü
PFTTrDA_1	663.0 / 619.0	4.24	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.24	PFTTrDA	0.060	0.067	ü
PFTeDA_1	713.0 / 669.0	4.46	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.46	PFTeDA	0.050	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.54	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.54	NMeFOSAA	0.600	0.577	ü
NEtFOSAA_1	584.0 / 419.0	3.70	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.70	NEtFOSAA	0.070	0.074	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.38		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.70		N/A	N/A	ü

Sample Name	JZ86	Injection Vial	48
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-17T02:52:57	Data File	18-0624.wiff
Acquisition Method	5-0371.dam	Result Table	18-0624_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	0.320	0.306	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.080	0.077	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.23	PFHpA	0.020	0.023	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.290	0.290	ü
PFOA_1	413.0 / 369.0	2.64	PFOA			
PFOA_2	413.0 / 169.0	2.64	PFOA	0.060	0.065	ü
PFNA_1	463.0 / 419.0	3.04	PFNA			
PFNA_2	463.0 / 219.0	3.04	PFNA	0.310	0.310	ü
PFOS_1	499.0 / 80.0	3.04	PFOS			
PFOS_2	499.0 / 99.0	3.03	PFOS	0.180	0.187	ü
PFDA_1	513.0 / 469.0	3.40	PFDA			
PFDA_2	513.0 / 219.0	3.40	PFDA	0.040	0.040	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.050	0.049	ü
PFDaA_1	613.0 / 569.0	4.00	PFDaA			
PFDaA_2	613.0 / 319.0	4.00	PFDaA	0.160	0.166	ü
PFTTrDA_1	663.0 / 619.0	4.25	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.25	PFTTrDA	0.060	0.067	ü
PFTeDA_1	713.0 / 669.0	4.46	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.46	PFTeDA	0.050	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.55	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.55	NMeFOSAA	0.600	0.577	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.71	NEtFOSAA	0.080	0.074	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.38		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.70		N/A	N/A	ü

Sample Name	JZ77 ICC	Injection Vial	50
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-17T03:10:49	Data File	18-0624.wiff
Acquisition Method	5-0371.dam	Result Table	18-0624_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	789.980729	885.00	89.26
PFBS_2	298.9 / 99.0	1.51	746.859791	885.00	84.39
PFHxA_1	313.0 / 269.0	1.82	967.967976	1000.00	96.80
PFHxA_2	313.0 / 119.0	1.82	1010.622836	1000.00	101.06
PFHpA_1	363.0 / 319.0	2.23	983.687032	1000.00	98.37
PFHpA_2	363.0 / 169.0	2.23	1020.529582	1000.00	102.05
PFHxS_1	399.0 / 80.0	2.25	912.737083	912.00	100.08
PFHxS_2	399.0 / 99.0	2.25	901.959403	912.00	98.90
PFOA_1	413.0 / 369.0	2.64	983.060120	1000.00	98.31
PFOA_2	413.0 / 169.0	2.64	947.724922	1000.00	94.77
PFNA_1	463.0 / 419.0	3.03	996.848281	1000.00	99.68
PFNA_2	463.0 / 219.0	3.03	984.615129	1000.00	98.46
PFOS_1	499.0 / 80.0	3.03	826.613440	925.60	89.31
PFOS_2	499.0 / 99.0	3.03	971.243317	925.60	104.93
PFDA_1	513.0 / 469.0	3.39	976.567194	1000.00	97.66
PFDA_2	513.0 / 219.0	3.39	1012.308757	1000.00	101.23
PFUnA_1	563.0 / 519.0	3.71	995.392555	1000.00	99.54
PFUnA_2	563.0 / 269.0	3.71	952.055918	1000.00	95.21
PFDaA_1	613.0 / 569.0	4.00	1036.572999	1000.00	103.66
PFDaA_2	613.0 / 319.0	3.99	947.559521	1000.00	94.76
PFTTrDA_1	663.0 / 619.0	4.24	964.253872	1000.00	96.43
PFTTrDA_2	663.0 / 169.0	4.24	973.273832	1000.00	97.33
PFTeDA_1	713.0 / 669.0	4.46	969.290519	1000.00	96.93
PFTeDA_2	713.0 / 169.0	4.45	985.806787	1000.00	98.58
NMeFOSAA_1	570.0 / 419.0	3.54	1033.060489	1000.00	103.31
NMeFOSAA_2	570.0 / 512.0	3.54	966.655967	1000.00	96.67
NEtFOSAA_1	584.0 / 419.0	3.70	1047.326920	1000.00	104.73
NEtFOSAA_2	584.0 / 483.0	3.70	730.286542	1000.00	73.03
13C2-PFHxA	315.0 / 270.0	1.81	94.219918	100.00	94.22
13C2-PFDA	515.0 / 470.0	3.38	98.565435	100.00	98.57
d5-EtFOSAA	589.0 / 419.0	3.69	366.603119	400.00	91.65

Sample Name	JZ83 CCV	Injection Vial	54
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-17T03:55:34	Data File	18-0624.wiff
Acquisition Method	5-0371.dam	Result Table	18-0624_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	747.462532	885.00	84.46
PFBS_2	298.9 / 99.0	1.50	719.511316	885.00	81.30
PFHxA_1	313.0 / 269.0	1.82	933.771393	1000.00	93.38
PFHxA_2	313.0 / 119.0	1.81	939.518826	1000.00	93.95
PFHpA_1	363.0 / 319.0	2.23	930.915880	1000.00	93.09
PFHpA_2	363.0 / 169.0	2.22	845.665657	1000.00	84.57
PFHxS_1	399.0 / 80.0	2.25	853.686987	912.00	93.61
PFHxS_2	399.0 / 99.0	2.25	847.677607	912.00	92.95
PFOA_1	413.0 / 369.0	2.63	934.242873	1000.00	93.42
PFOA_2	413.0 / 169.0	2.63	1000.248446	1000.00	100.02
PFNA_1	463.0 / 419.0	3.03	950.525842	1000.00	95.05
PFNA_2	463.0 / 219.0	3.03	918.868532	1000.00	91.89
PFOS_1	499.0 / 80.0	3.03	846.014813	925.60	91.40
PFOS_2	499.0 / 99.0	3.03	783.662723	925.60	84.67
PFDA_1	513.0 / 469.0	3.39	940.885192	1000.00	94.09
PFDA_2	513.0 / 219.0	3.39	926.215835	1000.00	92.62
PFUnA_1	563.0 / 519.0	3.71	895.728863	1000.00	89.57
PFUnA_2	563.0 / 269.0	3.71	832.798991	1000.00	83.28
PFDaA_1	613.0 / 569.0	3.99	946.376989	1000.00	94.64
PFDaA_2	613.0 / 319.0	3.99	936.565807	1000.00	93.66
PFTTrDA_1	663.0 / 619.0	4.24	934.805739	1000.00	93.48
PFTTrDA_2	663.0 / 169.0	4.24	914.883936	1000.00	91.49
PFTeDA_1	713.0 / 669.0	4.45	933.686027	1000.00	93.37
PFTeDA_2	713.0 / 169.0	4.45	966.956337	1000.00	96.70
NMeFOSAA_1	570.0 / 419.0	3.54	970.923242	1000.00	97.09
NMeFOSAA_2	570.0 / 512.0	3.54	937.142479	1000.00	93.71
NEtFOSAA_1	584.0 / 419.0	3.70	949.597013	1000.00	94.96
NEtFOSAA_2	584.0 / 483.0	3.70	1083.413904	1000.00	108.34
13C2-PFHxA	315.0 / 270.0	1.81	89.076298	100.00	89.08
13C2-PFDA	515.0 / 470.0	3.38	99.185058	100.00	99.19
d5-EtFOSAA	589.0 / 419.0	3.69	400.889821	400.00	100.22

Sample Name	JZ77 ICC	Injection Vial	50
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-17T03:10:49	Data File	18-0624.wiff
Acquisition Method	5-0371.dam	Result Table	18-0624_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	0.290	0.306	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.080	0.077	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.23	PFHpA	0.020	0.023	ü
PFHxS_1	399.0 / 80.0	2.25	PFHxS			
PFHxS_2	399.0 / 99.0	2.25	PFHxS	0.280	0.290	ü
PFOA_1	413.0 / 369.0	2.64	PFOA			
PFOA_2	413.0 / 169.0	2.64	PFOA	0.060	0.065	ü
PFNA_1	463.0 / 419.0	3.03	PFNA			
PFNA_2	463.0 / 219.0	3.03	PFNA	0.310	0.310	ü
PFOS_1	499.0 / 80.0	3.03	PFOS			
PFOS_2	499.0 / 99.0	3.03	PFOS	0.210	0.187	ü
PFDA_1	513.0 / 469.0	3.39	PFDA			
PFDA_2	513.0 / 219.0	3.39	PFDA	0.040	0.040	ü
PFUnA_1	563.0 / 519.0	3.71	PFUnA			
PFUnA_2	563.0 / 269.0	3.71	PFUnA	0.050	0.049	ü
PFDaA_1	613.0 / 569.0	4.00	PFDaA			
PFDaA_2	613.0 / 319.0	3.99	PFDaA	0.150	0.166	ü
PFTTrDA_1	663.0 / 619.0	4.24	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.24	PFTTrDA	0.060	0.067	ü
PFTeDA_1	713.0 / 669.0	4.46	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.45	PFTeDA	0.050	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.54	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.54	NMeFOSAA	0.550	0.577	ü
NEtFOSAA_1	584.0 / 419.0	3.70	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.70	NEtFOSAA	0.050	0.074	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.38		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.69		N/A	N/A	ü

Sample Name	JZ83 CCV	Injection Vial	54
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-17T03:55:34	Data File	18-0624.wiff
Acquisition Method	5-0371.dam	Result Table	18-0624_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	0.300	0.306	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.080	0.077	ü
PFHpA_1	363.0 / 319.0	2.23	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.020	0.023	ü
PFHxS_1	399.0 / 80.0	2.25	PFHxS			
PFHxS_2	399.0 / 99.0	2.25	PFHxS	0.290	0.290	ü
PFOA_1	413.0 / 369.0	2.63	PFOA			
PFOA_2	413.0 / 169.0	2.63	PFOA	0.070	0.065	ü
PFNA_1	463.0 / 419.0	3.03	PFNA			
PFNA_2	463.0 / 219.0	3.03	PFNA	0.300	0.310	ü
PFOS_1	499.0 / 80.0	3.03	PFOS			
PFOS_2	499.0 / 99.0	3.03	PFOS	0.190	0.187	ü
PFDA_1	513.0 / 469.0	3.39	PFDA			
PFDA_2	513.0 / 219.0	3.39	PFDA	0.040	0.040	ü
PFUnA_1	563.0 / 519.0	3.71	PFUnA			
PFUnA_2	563.0 / 269.0	3.71	PFUnA	0.040	0.049	ü
PFDaA_1	613.0 / 569.0	3.99	PFDaA			
PFDaA_2	613.0 / 319.0	3.99	PFDaA	0.160	0.166	ü
PFTTrDA_1	663.0 / 619.0	4.24	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.24	PFTTrDA	0.060	0.067	ü
PFTeDA_1	713.0 / 669.0	4.45	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.45	PFTeDA	0.050	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.54	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.54	NMeFOSAA	0.570	0.577	ü
NEtFOSAA_1	584.0 / 419.0	3.70	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.70	NEtFOSAA	0.080	0.074	ü
13C2-PFHxA	315.0 / 270.0	1.81				
13C2-PFDA	515.0 / 470.0	3.38		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.69		N/A	N/A	ü

Sample Name	J8741-FS(0)	Injection Vial	17
Sample ID	JAX-RES-101018-1000-3	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:39:42	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	true
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	true
PFHxA_1	313.0 / 269.0	1.84	33196.58	92.251013	25.8	false
PFHxA_2	313.0 / 119.0	1.84	1875.23	62.718580	19.0	false
PFHpA_1	363.0 / 319.0	2.24	32514.69	100.190920	49.7	false
PFHpA_2	363.0 / 169.0	2.21	1154.79	130.516656	46.4	true
PFHxS_1	399.0 / 80.0	2.26	3619.20	< 0	15.1	false
PFHxS_2	399.0 / 99.0	2.27	1066.20	< 0	13.1	true
PFOA_1	413.0 / 369.0	2.65	253858.87	860.972675	192.5	false
PFOA_2	413.0 / 169.0	2.62	23866.16	1264.401752	152.1	true
PFNA_1	463.0 / 419.0	3.05	27021.13	63.962961	86.1	false
PFNA_2	463.0 / 219.0	3.05	9561.86	78.151374	125.6	false
PFOS_1	499.0 / 80.0	3.05	108022.70	208.550146	85.4	false
PFOS_2	499.0 / 99.0	3.05	15292.76	156.395827	101.1	true
PFDA_1	513.0 / 469.0	3.41	30623.37	62.500287	91.2	false
PFDA_2	513.0 / 219.0	3.41	1712.72	79.367021	69.3	false
PFUnA_1	563.0 / 519.0	3.74	19278.81	30.824297	84.0	false
PFUnA_2	563.0 / 269.0	3.73	1209.26	19.971611	34.3	true
PFDoA_1	613.0 / 569.0	4.02	18666.65	10.317039	150.6	false
PFDoA_2	613.0 / 319.0	4.02	2801.86	13.744537	105.4	false
PFTTrDA_1	663.0 / 619.0	4.27	3923.53	< 0	111.3	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	4.48	4681.25	< 0	57.6	true
PFTeDA_2	713.0 / 169.0	4.49	200.12	< 0	32.5	false
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.83	37174.00	128.896187	535.2	true
13C2-PFDA	515.0 / 470.0	3.40	33008.85	90.850502	681.4	false
d5-EtFOSAA	589.0 / 419.0	3.72	18084.21	321.058461	186.0	false

Sample Calculation

PFOA 3.02 ng/L

$$y = 0.89272x + 0.44105$$

$$((253858.87 / 31235.89) - 0.44105 / 0.89272) * 100 * 0.001 / 0.285 = 3.02 \text{ ng/L}$$

LCS PFOA 119% 17.89 / 15 * 100 = 119%

Sample Name	J8741-FS(0)	Injection Vial	17
Sample ID	JAX-RES-101018-1000-3	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-10-11T19:39:42	Data File	18-0614_18-0594.wiff
Acquisition Method	5-0371.dam	Result Table	18-0614_18-0594_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS 1	298.9 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	137541.37	287.00
PFBS 2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	137541.37	287.00
PFHxA 1	313.0 / 269.0	1.84	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFHxA 2	313.0 / 119.0	1.84	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFHpA 1	363.0 / 319.0	2.24	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFHpA 2	363.0 / 169.0	2.21	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFHxS 1	399.0 / 80.0	2.26	13C4-PFOS	503.0 / 80.0	137541.37	287.00
PFHxS 2	399.0 / 99.0	2.27	13C4-PFOS	503.0 / 80.0	137541.37	287.00
PFOA 1	413.0 / 369.0	2.65	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFOA 2	413.0 / 169.0	2.62	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFNA 1	463.0 / 419.0	3.05	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFNA 2	463.0 / 219.0	3.05	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFOS 1	499.0 / 80.0	3.05	13C4-PFOS	503.0 / 80.0	137541.37	287.00
PFOS 2	499.0 / 99.0	3.05	13C4-PFOS	503.0 / 80.0	137541.37	287.00
PFDA 1	513.0 / 469.0	3.41	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFDA 2	513.0 / 219.0	3.41	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFUnA 1	563.0 / 519.0	3.74	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFUnA 2	563.0 / 269.0	3.73	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFDoA 1	613.0 / 569.0	4.02	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFDoA 2	613.0 / 319.0	4.02	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFTTrDA 1	663.0 / 619.0	4.27	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFTTrDA 2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFTeDA 1	713.0 / 669.0	4.48	13C2-PFOA	415.0 / 370.0	31235.89	100.00
PFTeDA 2	713.0 / 169.0	4.49	13C2-PFOA	415.0 / 370.0	31235.89	100.00
NMeFOSAA 1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	19086.16	400.00
NMeFOSAA 2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	19086.16	400.00
NEtFOSAA 1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	19086.16	400.00
NEtFOSAA 2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	19086.16	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	31235.89	100.00
13C2-PFDA	515.0 / 470.0	3.40	13C2-PFOA	415.0 / 370.0	31235.89	100.00
d5-EtFOSAA	589.0 / 419.0	3.72	d3-MeFOSAA	573.0 / 419.0	19086.16	400.00



Example Calculation for PFAS

Calculation of final concentration from area:

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

Where:

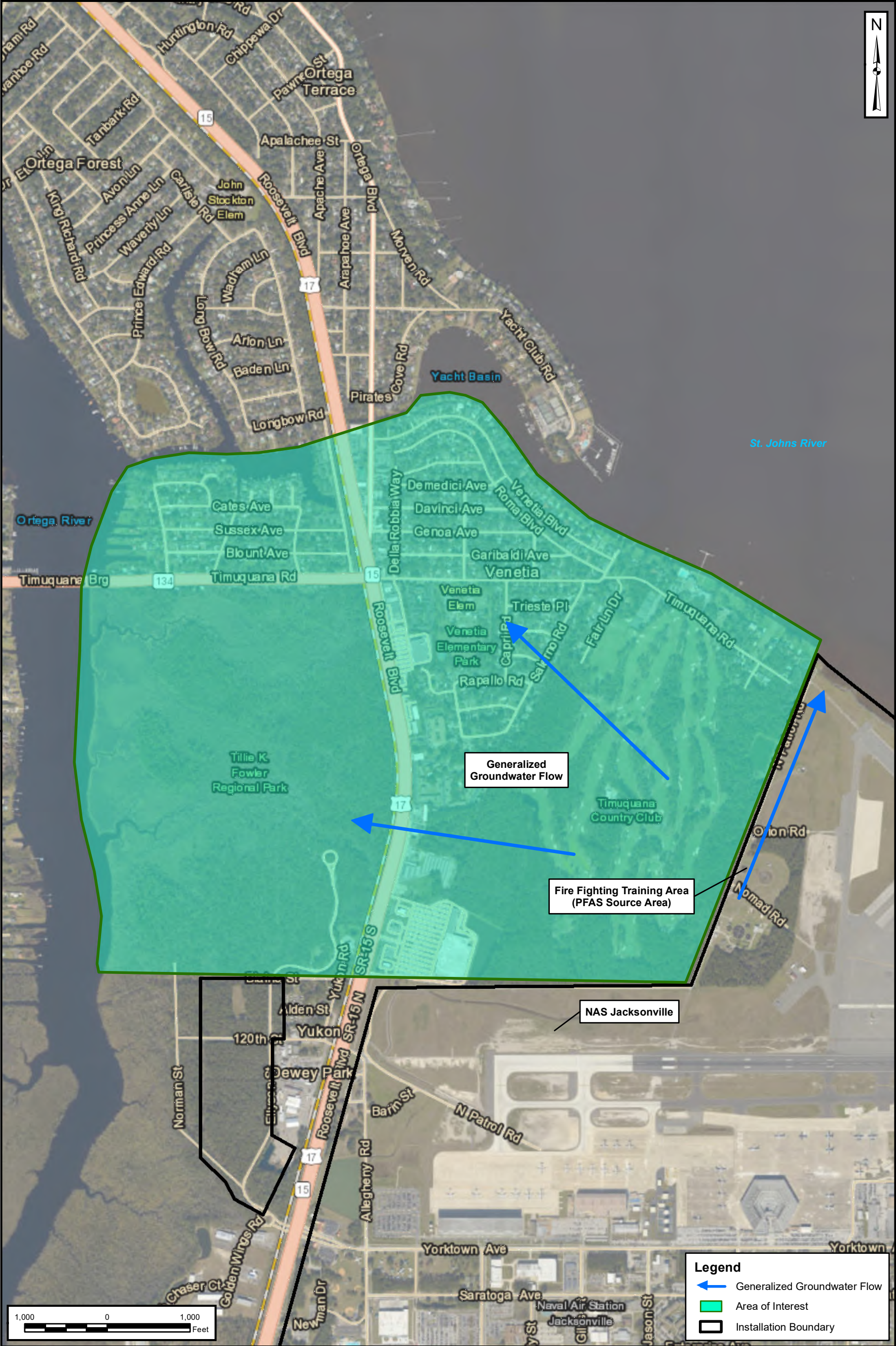
PA = Area of target / area of internal standard
 b = y intercept from calibration curve
 CIS = concentration of internal standard (ng/L)
 m = slope of calibration
 DF = dilution factor
 S = Sample Size
 PIV = Pre-injection volume (L)

Sample ID: J8741-FS(0)
 Client Sample ID: JAX-RES-101018-1000-3
 Sample Size: 0.285
 Units: L
 Dilution Factor: 1.000
 PIV (L): 0.001
 Target Analyte: PFOA
 MRM Transition: 413.0 / 369.0
 Data file: 18-0614_18-0594.wiff
 Result table: 18-0614_18-0594_DW
 Area: 253,858.87
 IS Name: 13C2-PFOA
 IS Area: 31,235.89
 IS Amount (ng/L): 100
 y-intercept: 0.44105
 slope: 0.89272

$$\text{Concentration} = \frac{[(253858.87/31235.89) - 0.44105]}{0.89272} * 100 * 0.001 * 1 / 0.285$$

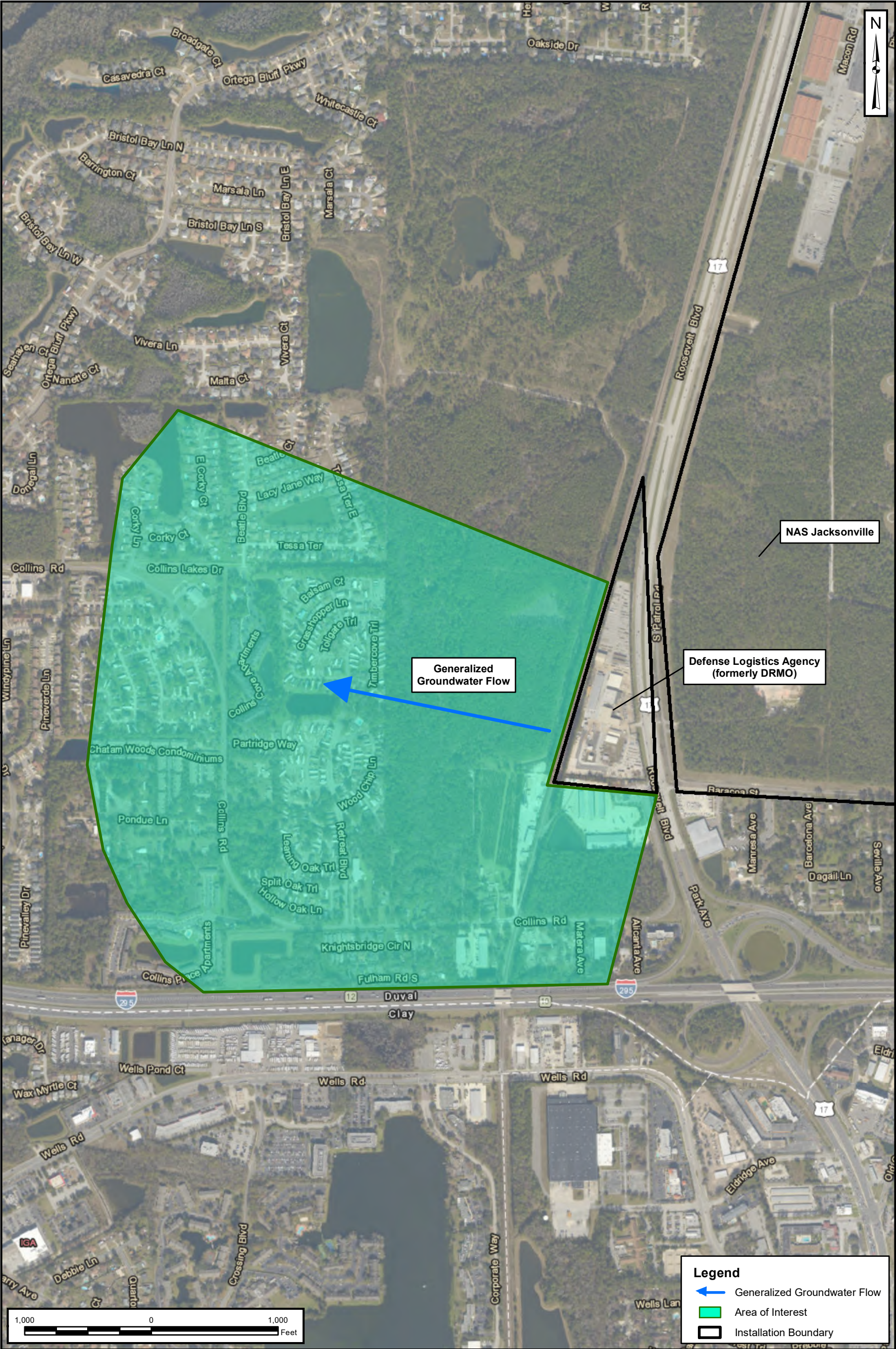
$$\text{ng/L} = 3.02$$

*Final concentration may vary based on rounding.



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

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



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

CTO	
DRAWN BY	DATE
J.MADDEN	01/16/19
CHECKED BY	DATE
M.GRZEGOREK	01/16/19
FIGURE NUMBER	
1-5	