



**Off-Base Drinking Water Sample Results,
Level 4 Laboratory Report, Electronic Data Deliverable,
Data Validation Report, and the Sample Location Figure,
SDG 18-0525**

*Naval Air Station Jacksonville
Jacksonville, Florida*

July 2019

N00207_004454
NAS JACKSONVILLE, FL
SSIC 5000-33c

LABORATORY DATA PACKAGE 18-0525 NAS JACKSONVILLE FL
08/27/2018
BATTELLE

Approved for public release: distribution unlimited.

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

W

Batch 18-0525

Package DP-18-0237

Submitted to:

Tetra Tech

661 Anderson Drive Foster Plaza 7

Pittsburgh, PA 15220 USA

Submitted by:

Battelle Norwell Operations

141 Longwater Drive Suite 202

Norwell, MA 02061

BATTELLE

It can be done

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NELAP Accreditation Number: E87856 (Florida Department of Health)

DoD-ELAP Accreditation Number: 91667

Submitted by:

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QC Chemist Approval:



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Date: 2018.08.28 16:03:00 -04'00'

Project Manager Approval:



Digitally signed by Jonathan Thorn
Date: 2018.08.29 07:27:16 -04'00'

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CTO-SE0375: Naval Air Station Jacksonville

Project No 100119154-SE0375

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Sample Summary

Client: Tetra Tech Inc.


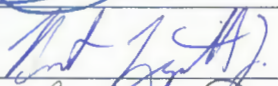




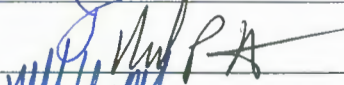

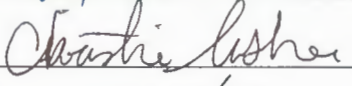
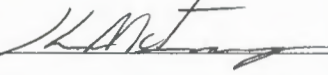
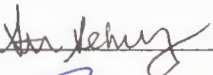

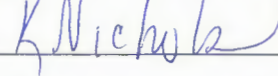


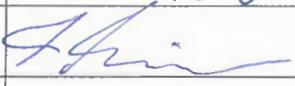
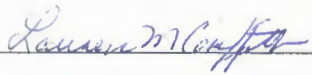
SDG: 18-0525

Project/Site: Naval Air Station (NAS) Jacksonville

CTO: SE0375

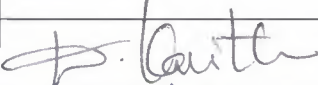



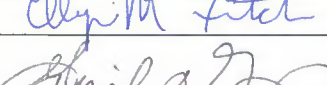
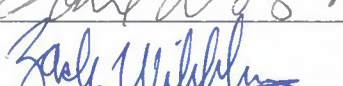
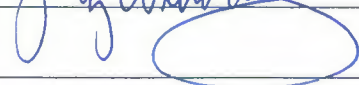
Lab Sample ID	Client Sample ID	Matrix	Collection Date	Receipt Date
CR653PB-FS	Procedural Blank	WATER	8/24/2018	8/24/2018
CR654LCS-FS	Laboratory Control Sample	WATER	8/24/2018	8/24/2018
J7585-FS	JAX-RES-08222018-1000-35	W	8/22/2018	8/23/2018
J7585MS-FS	JAX-RES-08222018-1000-35	W	8/22/2018	8/23/2018
J7585MSD-FS	JAX-RES-08222018-1000-35	W	8/22/2018	8/23/2018
J7587-FS	JAX-RES-08222018-1000-35-FD	W	8/22/2018	8/23/2018

Signature Page

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

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

Work Plan



It can be done

WORK/QUALITY ASSURANCE PROJECT PLAN

1.0 GENERAL PROJECT INFORMATION

Project Title: CTO-SE0375: Drinking Water Analysis
Project Number: 100119154-SE0375
Client: Tetra Tech
 661 Anderson Drive Foster Plaza 7
 Pittsburgh, PA 15220
 USA

Client Contact Information: Mark Peterson
 Project Manager
 (904) 636-6125(V)
 (904) 636-6165(F)
 mark.peterson@tetrattech.com

Effective Date of QAPP: 8/14/2018
Version Number: 100119154-SE0375(L)-03
Project Manager: Thorn, Jonathan
Laboratory Task Manager: Thorn, Jonathan
Deliverable Due Date: 8/21/2018

2.0 SCOPE OF WORK

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

2.1 TECHNICAL APPROACH

2.1.1 Sample Receipt, Storage, and Handling

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

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



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WORK/QUALITY ASSURANCE PROJECT PLAN

2.1.2 Sample Preparation

Samples to arrive over a period of weeks.

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

Batch quality control samples are defined in Table 1.

Target samples are presented in Attachment 1.

Table 1: Quality Control Samples

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

2.1.3 Extraction/Preparation

2.1.3.1 Extraction

SOP No.-Rev:	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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WORK/QUALITY ASSURANCE PROJECT PLAN

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

2.1.3.2 Cleanup

None.

RIS spiking levels are presented in Table 3.

Extract PIV (uL): 1000

Table 3: RIS Spiking Level

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

2.1.4 Instrumental Analysis

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

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

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

Deviations: None.

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



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WORK/QUALITY ASSURANCE PROJECT PLAN

2.2. DELIVERABLES

Deliverables Due:	8/21/2018
LIMS Reports:	No
Histograms:	No
Excel Tables:	Yes
EICs:	No
Chromatograms:	Yes
EDDs:	Yes
Comments:	<ul style="list-style-type: none"> • 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



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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: Pending
Description: NAS JAX PFAS EVAL
Range: J7403-J7414
Comment: NA

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

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

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

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

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

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

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

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

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

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

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



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

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

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

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



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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

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

Degradation Check Criteria:

None



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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 3: Method Quality Objectives

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



It can be done

WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 3: Method Quality Objectives

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



It can be done

ShpNo SHP-180823-02Battelle Project No: 154-SE0375

Sample Receipt Form

Approved: Authorized Project Number: 112G08005-SE0375Client: Tetra TechReceived by: Schumitz, MattDate/Time Received: Thursday, August 23, 2018 1:00 PMNo. of Shipping Containers: 1**SHIPMENT**Method of Delivery: Commercial CarrierTracking Number: 7824 2859 5783COC 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	7824 2859 5783	Custody Seal	Intact	Intact	Therm_1	0.9	13

SamplesSample 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 UnknownInitial pH 5-9?: Yes No NA
If no, individual sample adjustments on the Auxiliary Sample Receipt FormTotal Residual Chlorine Present?: Yes No NA
If yes, individual sample adjustments on the Auxiliary Sample Receipt FormHead Space, <1% in samples for water VOC analysis: Yes No NA
Individual sample deviations noted on sample logSamples Containers: Samples returned in PC-grade jars: Yes No Unknown /Lot No.: UnKnownStorage Location: Custody: Refrigerator - R0119 (NA) BDO IDs Assigned: J7576 - J7588Samples logged in by: Schumitz, Matt Date/Time: 08/23/2018 1:00 PM

Approved By: _____ Approved On: _____

Authorized By: _____ Authorized On: _____

Report Corrective Actions

Corrective Action No: 1 of 1
Authorized Approved:

COC Client: Tetra Tech
COC Project: NAS JAX PFAS
COC Date: 8/23/2018 1:51:

	Description of Problem:	Explanation:
Client Id	Missing samples listed on the C-O-C	Sample JAX-RES-08222018-1000-35-FRB is listed on the COC to have 2 bottles but there was only one in the cooler

Documentation of project manager notification

Sample Custodian: Schumitz, Matt Date: 8/23/2018 2:06:00 PM
Laboratory Manager: Thorn, Jonathan Date: 8/27/2018 3:25:00 PM
Project Manager: Thorn, Jonathan Date: 8/27/2018 3:25:00 PM

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

On 23-Aug-18 I contacted Peterson, Mark at Tetra Tech

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

FRB samples typically only have one container. This will have no impact on the analysis. Please login as 1 container.

Date this form was received back to the custodian: _____

Reference Number: _____



It can be done

ShpNo [SHP-180823-02](#)

Battelle Project No: [154-SE0375](#)

Sample Receipt Form Details

Approved: Authorized

Project Number: 112G08005-SE0375 Client: Tetra Tech

Received by: Schumitz, Matt Date/Time Received: Thursday, August 23, 2018 1:00 PM

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:
J7576	JAX-TCC-MWC3-08222018	08/22/18 12:47	08/23/18 13:55	4	GW	0.9	NA	NA	NA	R0119 (NA)			
J7577	JAX-TCC-MWI-2-08222018	08/22/18 13:00	08/23/18 13:55	2	GW	0.9	NA	NA	NA	R0119 (NA)			
J7578	JAX-TCC-MWI-2-08222018-FD	08/22/18 13:00	08/23/18 13:55	2	GW	0.9	NA	NA	NA	R0119 (NA)			
J7579	JAX-TCC-MWB-1-08222018	08/22/18 14:05	08/23/18 13:55	2	GW	0.9	NA	NA	NA	R0119 (NA)			
J7580	JAX-TCC-SW01-08222018	08/22/18 13:40	08/23/18 13:56	2	SW	0.9	NA	NA	NA	R0119 (NA)			
J7581	JAX-TCC-SW02-08222018	08/22/18 14:30	08/23/18 13:56	2	SW	0.9	NA	NA	NA	R0119 (NA)			
J7582	JAX-TCC-SD01-08222018	08/22/18 14:45	08/23/18 13:57	2	SD	0.9	NA	NA	NA	F0117 (NA)			
J7583	JAX-TCC-EB01-08222018	08/22/18 13:35	08/23/18 13:57	1	W	0.9	NA	NA	NA	R0119 (NA)			
J7584	JAX-TCC-FRB-08222018	08/22/18 14:00	08/23/18 13:58	1	W	0.9	NA	NA	NA	R0119 (NA)			
J7585	JAX-RES-08222018-1000-35	08/22/18 10:00	08/23/18 13:58	2	W	0.9	NA	NA	NA	R0119 (NA)			
J7586	JAX-RES-08222018-1000-35-FRB	08/22/18 10:00	08/23/18 13:59	1	W	0.9	NA	NA	NA	R0119 (NA)			
J7587	JAX-RES-08222018-1000-35-FD	08/22/18 10:00	08/23/18 13:59	2	W	0.9	NA	NA	NA	R0119 (NA)			
J7588	JAX-RES-08222018-1000-35-MS/MSD	08/22/18 10:00	08/23/18 13:59	2	W	0.9	NA	NA	NA	R0119 (NA)			

Total Samples: 13

From: Grzegorek, Mike <Mike.Grzegorek@tetrattech.com>
Sent: Friday, August 24, 2018 3:46 PM
To: Thorn, Jonathan R <thorn@battelle.org>; Peterson, Mark <Mark.Peterson@tetrattech.com>
Cc: Thomson, Amy <Amy.Thomson@tetrattech.com>; Leck, Lee <Lee.Leck@tetrattech.com>
Subject: RE: SE0375 - shipment receipt 8/23/2018

Message received from outside the Battelle network. Carefully examine it before you open any links or attachments.

Jonathon,

I need a couple corrections to the sample IDs. JAX-TCC-MW12-08222018 and JAX-TCC-MW12-08222018-FD should be JAX-TCC-MWI-2-08222018 and JAX-TCC-MWI-2-08222018-FD. Additionally, JAX-TCC-MW13-08222018 should be JAX-TCC-MWB-1-08222018.

Please let me know if you have any questions.

Thanks,
 Mike

From: Thorn, Jonathan R <thorn@battelle.org>
Sent: Thursday, August 23, 2018 3:14 PM
To: Peterson, Mark <Mark.Peterson@tetrattech.com>; Grzegorek, Mike <Mike.Grzegorek@tetrattech.com>
Cc: Thomson, Amy <Amy.Thomson@tetrattech.com>; Leck, Lee <Lee.Leck@tetrattech.com>
Subject: SE0375 - shipment receipt 8/23/2018

Hi Mark,

We received the attached shipment today, all in good condition. One minor corrective action (see page 2 regarding number of containers listed for one sample).

These will be reported in the following SDG:

SDG	Matrix	Due Date	QC
18-0525	Drinking water	8/30/2018	PB, LCS, MS/MSD
18-0526	Non-potable water	9/7/2018	PB, LCS
18-0527	Sediment	9/7/2018	PB, LCS, MS/MSD

*QC doesn't include any field dups as those are field QC not lab QC.

We will be pre-screening the sediment and non-potable waters tomorrow, if we see anything high, we will be in touch before we extract and analyze.

Best Regards,
 Jon

Jonathan Thorn

Laboratory Director
 Analytical Chemistry Services
 Office: 781.681.5565 | Mobile: 781.710.9664 | Fax: 614.458.6917
thorn@battelle.org



Chain-of-Custody

Client Contact Information Tetra Tech 8640 Phillips Hwy Suite K Jacksonville, FL 32252		Project Manager: Max Petersen Sampler Information (print name): Mike Grogan Phone: 904 876 1235 Email: Davis Siffken			Sampling Site: NAS JAX		Site Information: Timuquana Country Club			
Project Name: NAS JAX PFAS Field		Turnaround Time (TAT) Requested: 14 days			Preservation: Non Analysis: PFAS 537		COC # 006			
Project No.: 112608045-5E0375		Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/>					Page # 1 of 1			
Sample Identification		Time Zone: 210								
	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.					
J7576	JAX-TCC-MWC3-08222018	8/22 1247	G	GW	4	X			MS/MSD	
77	JAX-TCC-MW12-08222018	8/22 1300	G	GW	2	X				
78	JAX-TCC-MW12-08222018-FD	8/22 1300	G	GW	2	X				
79	JAX-TCC-MW13-08222018	8/22 1405	G	GW	2	X				
80	JAX-TCC-SW01-08222018	8/22 1345	G	SW	2	X				
81	JAX-TCC-SW02-08222018	8/22 1420	G	SW	2	X				
82	JAX-TCC-SD01-08222018	8/22 1445	G	SO	2	X				
83	JAX-TCC-EB01-08222018	8/22 1335	G	W	1	X				
J7584	JAX-TCC-FRB-08222018	8/22 1400	G	W	1	X				
Receipt Temperature: (°C)		Samples Intact: Yes - No			Samples on Ice: Yes - No			Receipt Comments:		
Relinquished by (Print/Sign): T-Tech		Company: Tetra Tech Date/Time: 8/22/2018 1600			Received by (Print/Sign): Fred Ex		Company: Battelle Date/Time: 8-23-18 1300			
Relinquished by (Print/Sign):		Company:			Received by (Print/Sign):		Company:			
Relinquished by (Print/Sign):		Company:			Received by (Print/Sign):		Company:			
Comments:										



It can be done

Chain-of-Custody

Client Contact Information Tetra Tech 8640 Phillips Hwy Suite 16 Jacksonville, FL 32256		Project Manager: <u>Merk Peterson</u> Sampler Information (print name): <u>Mike Grazier</u> Phone: <u>904 6266125</u> Email: <u>Dave Siffert</u>		Sampling Site: <u>NAS JAX</u>		Site Information: <u>Residential</u>		
Project Name: <u>JAX PFA Eval</u> Project No.: <u>112G08005-8E0375</u>		Turnaround Time (TAT) Requested: <u>7 day</u>		Preservative: <u>PFAS 537 Trioma</u>		COC # <u>005</u>		
Time Zone:		Normal <input checked="" type="checkbox"/> Priority <input type="checkbox"/> RUSH <input type="checkbox"/>		Analysis: <u>PFAS 537 Trioma</u>		Page # <u>1 of 1</u>		
Sample Identification		2018 Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.		Boiler #
J1585	JAX-RES-08222018-1000-35	8/22	1000	G	W	2	X	75 + 76
J1586	JAX-RES-08222018-1000-35-PRB	8/22	1000	G	W	2	X	80
J1587	JAX-RES-08222018-1000-35-FD	8/22	1000	G	W	2	X	57 + 58
J1588	JAX-RES-08222018-1000-35-MSD	8/22	1000	G	W	2	X	41 + 42
Receipt Temperature: (°C)		Samples Intact: Yes - No		Samples on Ice: Yes - No		Receipt Comments:		
Relinquished by (Print/Sign): <u>mi</u>		Company: <u>Tetra Tech</u>		Date/Time: <u>8/22/2018 1600</u>		Received by (Print/Sign): <u>Frd Ex</u>		Date/Time:
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign): <u>Matt Schumite M</u>		Date/Time: <u>8-23-18 1300</u>
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):		Date/Time:
Comments: <u>Probabl. water</u>								

Therm-1 8-23-18 1300

ORIGIN ID:NRBA (904) 636-6125
TETRA TECH

8640 PHILIPS HWY STE 16

JACKSONVILLE, FL 32256
UNITED STATES US

SHIP DATE: 22AUG18
ACTWGT: 57.20 LB
CAD: 006994659/SSFE1904
DIMS: 24x14x13 IN

BILL THIRD PARTY

TO **SAMPLE REC**
BATTELLE
141 LONGWATER DR
STE 202
NORWELL MA 02061

0.9°
TB ✓

(781) 681-6588

REF:

INU:
PO:

DEPT:



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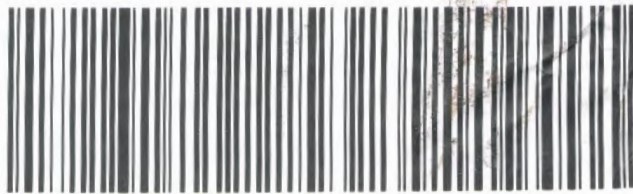
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Part # 156297-435 98008 EXP 07/11

Data Tables



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

Client ID JAX-RES-08222018-1000-35

Battelle ID	J7585-FS			
Sample Type	SA			
Collection Date	08/22/2018			
Extraction Date	08/24/2018			
Analysis Date	08/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	W			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.95 J	0.21	0.47	2.36
PFHpA	0.56 J	0.32	0.94	2.36
PFOA	2.01 J	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	1.23 J	0.20	0.47	2.36
PFHxS	3.16	0.32	0.94	2.36
PFOS	4.15	0.28	0.94	2.36

Surrogate Recoveries (%)

13C2-PFHxA	110
13C2-PFDA	80
d5-EtFOSAA	83



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

Client ID	JAX-RES-08222018-1000-35-			
	FD			
Battelle ID	J7587-FS			
Sample Type	SA			
Collection Date	08/22/2018			
Extraction Date	08/24/2018			
Analysis Date	08/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	W			
Sample Size	0.280			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	1.08 J	0.20	0.45	2.23
PFHpA	0.58 J	0.30	0.89	2.23
PFOA	1.97 J	0.34	0.89	2.23
PFNA	0.89 U	0.33	0.89	2.23
PFDA	0.89 U	0.35	0.89	2.23
PFUnA	0.89 U	0.34	0.89	2.23
PFDoA	0.89 U	0.38	0.89	2.23
PFTTrDA	0.89 U	0.38	0.89	2.23
PFTeDA	1.34 U	0.65	1.34	2.23
NMeFOSAA	0.89 U	0.38	0.89	2.23
NEtFOSAA	0.89 U	0.39	0.89	2.23
PFBS	1.27 J	0.19	0.45	2.23
PFHxS	3.09	0.30	0.89	2.23
PFOS	4.13	0.27	0.89	2.23

Surrogate Recoveries (%)

13C2-PFHxA	114
13C2-PFDA	83
d5-EtFOSAA	99



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

Client ID	KA08 IB				
Battelle ID	KA08 IB_08/27/2018				
Sample Type	IB				
Collection Date	NA				
Extraction Date	NA				
Analysis Date	08/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	NA				
Sample Size	0.250				
Size Unit-Basis	NA				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 U	0.22	0.50	2.50	
PFHpA	1.00 U	0.34	1.00	2.50	
PFOA	1.00 U	0.38	1.00	2.50	
PFNA	1.00 U	0.37	1.00	2.50	
PFDA	1.00 U	0.39	1.00	2.50	
PFUnA	1.00 U	0.38	1.00	2.50	
PFDaA	1.00 U	0.42	1.00	2.50	
PFTTrDA	1.00 U	0.42	1.00	2.50	
PFTeDA	1.50 U	0.73	1.50	2.50	
NMeFOSAA	1.00 U	0.42	1.00	2.50	
NEtFOSAA	1.00 U	0.44	1.00	2.50	
PFBS	0.50 U	0.21	0.50	2.50	
PFHxS	1.00 U	0.34	1.00	2.50	
PFOS	1.00 U	0.30	1.00	2.50	

Surrogate Recoveries (%)

13C2-PFHxA	101
13C2-PFDA	98
d5-EtFOSAA	103



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

Client ID	Procedural Blank			
Battelle ID	CR653PB-FS			
Sample Type	PB			
Collection Date	08/24/2018			
Extraction Date	08/24/2018			
Analysis Date	08/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	WATER			
Sample Size	0.250			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDaA	1.00 U	0.42	1.00	2.50
PFTTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	93
13C2-PFDA	90
d5-EtFOSAA	85



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

Client ID	Laboratory Control Sample					
Battelle ID	CR654LCS-FS					
Sample Type	LCS					
Collection Date	08/24/2018					
Extraction Date	08/24/2018					
Analysis Date	08/27/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	WATER					
Sample Size	0.250					
Size Unit-Basis	L					
Units	ng/L	Target	Recovery	Qual	Control Limits	
					Lower	Upper
PFHxA	16.39	15.00	109		70	130
PFHpA	16.74	15.00	112		70	130
PFOA	15.78	15.00	105		70	130
PFNA	15.60	15.00	104		70	130
PFDA	15.70	15.00	105		70	130
PFUnA	14.54	15.00	97		70	130
PFDoA	14.98	15.00	100		70	130
PFTTrDA	14.55	15.00	97		70	130
PFTeDA	14.85	15.00	99		70	130
NMeFOSAA	18.30	15.00	122		70	130
NEtFOSAA	18.05	15.00	120		70	130
PFBS	13.90	13.28	105		70	130
PFHxS	14.90	14.18	105		70	130
PFOS	13.53	14.33	94		70	130
Surrogate Recoveries (%)						
13C2-PFHxA	99					
13C2-PFDA	95					
d5-EtFOSAA	100					



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

Client ID	JAX-RES-08222018-1000-35	JAX-RES-08222018-1000-35					Control Limits	
Battelle ID	J7585-FS	J7585MS-FS	Target	Recovery	Qual	Lower	Upper	
Sample Type	SA	MS						
Collection Date	08/22/2018	08/22/2018						
Extraction Date	08/24/2018	08/24/2018						
Analysis Date	08/27/2018	08/27/2018						
Analytical Instrument	Sciex 5500 LC/MS/MS	Sciex 5500 LC/MS/MS						
% Moisture	NA	NA						
Matrix	W	W						
Sample Size	0.265	0.275						
Size Unit-Basis	L	L						
Units	ng/L	ng/L						
PFHxA	0.95 J	23.68	18.18	125		70	130	
PFHpA	0.56 J	20.16	18.18	108		70	130	
PFOA	2.01 J	21.32	18.18	106		70	130	
PFNA	0.94 U	18.03	18.18	99		70	130	
PFDA	0.94 U	17.96	18.18	99		70	130	
PFUnA	0.94 U	16.63	18.18	91		70	130	
PFDoA	0.94 U	17.03	18.18	94		70	130	
PFTrDA	0.94 U	15.92	18.18	88		70	130	
PFTeDA	1.42 U	16.03	18.18	88		70	130	
NMeFOSAA	0.94 U	18.03	18.18	99		70	130	
NEtFOSAA	0.94 U	17.29	18.18	95		70	130	
PFBS	1.23 J	21.44	16.09	126		70	130	
PFHxS	3.16	21.82	17.18	109		70	130	
PFOS	4.15	20.65	17.36	95		70	130	

Surrogate Recoveries (%)

13C2-PFHxA	110	111						
13C2-PFDA	80	92						
d5-EtFOSAA	83	75						



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

Client ID JAX-RES-08222018-1000-35

Battelle ID J7585MSD-FS
 Sample Type MSD
 Collection Date 08/22/2018
 Extraction Date 08/24/2018
 Analysis Date 08/27/2018
 Analytical Instrument Sciex 5500 LC/MS/MS

% Moisture NA
 Matrix W
 Sample Size 0.265

Size Unit-Basis	Units	ng/L	Target	Recovery	Qual	Control Limits		RPD	Qual	RPD Limit
						Lower	Upper			
						70	130			
PFHxA		23.36	18.87	119		70	130	4.9		≤ 30
PFHpA		20.80	18.87	107		70	130	0.9		≤ 30
PFOA		22.46	18.87	108		70	130	1.9		≤ 30
PFNA		18.16	18.87	96		70	130	3.1		≤ 30
PFDA		18.12	18.87	96		70	130	3.1		≤ 30
PFUnA		16.69	18.87	88		70	130	3.4		≤ 30
PFDoA		16.52	18.87	88		70	130	6.6		≤ 30
PFTrDA		16.37	18.87	87		70	130	1.1		≤ 30
PFTeDA		15.70	18.87	83		70	130	5.8		≤ 30
NMeFOSAA		20.27	18.87	107		70	130	7.8		≤ 30
NEtFOSAA		19.26	18.87	102		70	130	7.1		≤ 30
PFBS		22.33	16.70	126		70	130	0.0		≤ 30
PFHxS		21.60	17.83	103		70	130	5.7		≤ 30
PFOS		19.82	18.02	87		70	130	8.8		≤ 30

Surrogate Recoveries (%)

13C2-PFHxA	114
13C2-PFDA	83
d5-EtFOSAA	83



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 18-0525

Project:	CTO-SE0375: Naval Air Station (NAS) Jacksonville
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	W
Data Set:	DP-18-0237
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
08/22/2018	08/23/2018	0.9

Corrective Actions	Sample JAX-RES-08222018-1000-35-FRB is listed on the COC to have 2 bottles but there was only one in the cooler – client was notified, no impact on the analysis.
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	The FRB samples associated with these field samples are reported in SDG 18-0532.

METHOD SUMMARIES	
Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were concentrated to dryness under nitrogen with a water bath set between 60 °C and 65 °C, reconstituted with 96:4 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	None
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on the Sciex 5500. There were no ion ratio exceedances above 50% RPD for any analyte detected above the MDL or the LOQ in this SDG.

Holding Times	Extraction Date(s)	Analysis Date(s)
	8/24/2018	8/27/2018

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

QA/QC Summary
Batch 18-0525

Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
70-130% of true value	No exceedances noted. No comments.
Matrix Spike (MS) / Duplicate (MSD)	A MS/MSD were prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy. The relative percent difference was calculated to measure precision.
70-130% of true value, RPD \leq 30%	No exceedances noted. No comments.
Surrogates Standard Analytes	Labelled surrogate compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
70-130% of true value	No exceedances noted. No comments.
Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
ICAL high and low points RPD \leq 20%, 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted. No comments.
Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadratic curve fitting.
R ² >0.99 Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No exceedances noted. No comments.
Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted. No comments.

QA/QC Summary
Batch 18-0525

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



Project Client: Tetra Tech
 Project Name: CTO-SE0375: Naval Air Station Jacksonville
 Project Number: 100119154-SE0375
 Preparation Batch: 18-0525
 Data Set: DP-18-0237
 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	0	None
Matrix Spike / Matrix Spike Duplicate Precision	0	None
Extracted Internal Standard Analytes (Surrogates)	0	None
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None



It can be done

**BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM**

Project Title: CTO-SE0375: Naval Air Station Jackson **Data Set Number:** DP-18-0237
Project Number: 100119154-SE0375 **Prep Batch Number:** 18-0525
Entered By: Denise Schumitz **Entered On:** 08/27/2018
Test Code (Matrix Type): Master_371(L)

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
DMS 8/27/2018

Task Leader Approval:

Supervisor Approval:

Digitally signed by Jonathan Thorn

Date: 2018.08.27 17:37:28 -04'00'

PM Approval:



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: J7585MS-FS(0)
 Client Sample ID: JAX-RES-08222018-1000-35_MS
 Sample Size: 0.275
 Units: L
 Dilution Factor: 1.000
 PIV (L): 0.001
 Target Analyte: PFTrDA
 MRM Transition: 663.0 / 619.0
 Data file: 18-0525.wiff
 Result table: 18-0525_DW
 Area: 1,735,637.67
 IS Name: 13C2-PFOA
 IS Area: 36,421.77
 IS Amount (ng/L): 100
 y-intercept: 0.48555
 slope: 1.07711

$$\text{Concentration} = \frac{[(1735637.67/36421.77) - 0.48555]}{1.07711} * 100 * 0.001 * 1 / 0.275$$

ng/L = 15.92



Project Client: Tetra Tech
 Project Name: CTO-SE0375: Naval Air Station Jacksonville
 Project No.: 100119154-SE0375
 Preparation Batch: 18-0525
 Data Set: DP-18-0237

	CR653PB-FS (Procedural Blank)	CR654LCS-FS (Laboratory Control Sample)	J7585MS-FS (JAX-RES-08222018-1000-35)	J7585MSD-FS (JAX-RES-08222018-1000-35)	J7585-FS (JAX-RES-08222018-1000-35)	J7587-FS (JAX-RES-08222018-1000-35-FD)
PFHxA	-	L	L	L	L	L
PFHpA	-	L	L	L	L	L
PFOA	-	L	L	L	L	L
PFNA	-	L	L	L	-	-
PFDA	-	L	L	L	-	-
PFUnA	-	L	L	L	-	-
PFDoA	-	L	L	L	-	-
PFTTrDA	-	L	L	L	-	-
PFTeDA	-	L	L	L	-	-
NMeFOSAA	-	L	L	L	-	-
NEtFOSAA	-	L	L	L	-	-
PFBS	-	L	L	L	L	L
PFHxS	-	L	L	L	L	L
PFOS	-	L	L/Br	L/Br	L/Br	L/Br

"L" :Linear

"Br": branched

"L/Br": Linear/Branched

"-": Not detected

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JZ80	L3	8/27/18 11:59	13C4-PFOS	150,604.61	-
JZ81	L4	8/27/18 12:08	13C4-PFOS	148,571.24	-
JZ82	L5	8/27/18 12:17	13C4-PFOS	155,505.23	-
JZ83	L6	8/27/18 12:26	13C4-PFOS	135,399.87	-
JZ84	L7	8/27/18 12:35	13C4-PFOS	156,323.71	-
JZ85	L8	8/27/18 12:44	13C4-PFOS	133,272.94	-
JZ86	L9	8/27/18 12:53	13C4-PFOS	141,017.68	6.6

PASS

Average Lower Upper
 145,813.61 72,906.81 218,720.42

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/27/18 11:59	13C4-PFOS	150,604.61	72,906.81	218,720.42		108,853.66	217,707.32	
JZ81	L4	8/27/18 12:08	13C4-PFOS	148,571.24	72,906.81	218,720.42		108,853.66	217,707.32	
JZ82	L5	8/27/18 12:17	13C4-PFOS	155,505.23	72,906.81	218,720.42		108,853.66	217,707.32	
JZ83	L6	8/27/18 12:26	13C4-PFOS	135,399.87	72,906.81	218,720.42		108,853.66	217,707.32	
JZ84	L7	8/27/18 12:35	13C4-PFOS	156,323.71	72,906.81	218,720.42		108,853.66	217,707.32	
JZ85	L8	8/27/18 12:44	13C4-PFOS	133,272.94	72,906.81	218,720.42		108,853.66	217,707.32	
JZ86	L9	8/27/18 12:53	13C4-PFOS	141,017.68	72,906.81	218,720.42		108,853.66	217,707.32	
KA08 IB	Instrument Blank	8/27/18 13:01	13C4-PFOS	139,069.46	72,906.81	218,720.42		108,853.66	217,707.32	
JZ77 ICC	ICC	8/27/18 13:10	13C4-PFOS	157,861.98	72,906.81	218,720.42		108,853.66	217,707.32	
CR653PB-FS(0)	Procedural Blank	8/27/18 13:28	13C4-PFOS	148,610.70	72,906.81	218,720.42		108,853.66	217,707.32	
CR654LCS-FS(0)	Laboratory Control Sample	8/27/18 13:37	13C4-PFOS	156,107.16	72,906.81	218,720.42		108,853.66	217,707.32	
J7585-FS(0)	JAX-RES-08222018-1000-35	8/27/18 13:46	13C4-PFOS	137,503.72	72,906.81	218,720.42		108,853.66	217,707.32	
J7585MS-FS(0)	Matrix Spike Sample	8/27/18 13:55	13C4-PFOS	143,005.51	72,906.81	218,720.42		108,853.66	217,707.32	
J7585MSD-FS(0)	Matrix Spike Duplicate	8/27/18 14:04	13C4-PFOS	144,843.61	72,906.81	218,720.42		108,853.66	217,707.32	
J7587-FS(0)	JAX-RES-08222018-1000-35-FD	8/27/18 14:13	13C4-PFOS	156,753.75	72,906.81	218,720.42		108,853.66	217,707.32	
JZ82 CCV	CCV	8/27/18 14:22	13C4-PFOS	149,937.12	72,906.81	218,720.42		108,853.66	217,707.32	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JZ80	L3	8/27/18 11:59	13C2-PFOA	30,461.70	-
JZ81	L4	8/27/18 12:08	13C2-PFOA	32,154.45	-
JZ82	L5	8/27/18 12:17	13C2-PFOA	35,211.47	-
JZ83	L6	8/27/18 12:26	13C2-PFOA	31,789.17	-
JZ84	L7	8/27/18 12:35	13C2-PFOA	35,825.36	-
JZ85	L8	8/27/18 12:44	13C2-PFOA	31,882.98	-
JZ86	L9	8/27/18 12:53	13C2-PFOA	33,314.19	8.9

PASS

Average Lower Upper
 32,948.47 16,474.24 49,422.71

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/27/18 11:59	13C2-PFOA	30,461.70	16,474.24	49,422.71		24,648.03	49,296.06	
JZ81	L4	8/27/18 12:08	13C2-PFOA	32,154.45	16,474.24	49,422.71		24,648.03	49,296.06	
JZ82	L5	8/27/18 12:17	13C2-PFOA	35,211.47	16,474.24	49,422.71		24,648.03	49,296.06	
JZ83	L6	8/27/18 12:26	13C2-PFOA	31,789.17	16,474.24	49,422.71		24,648.03	49,296.06	
JZ84	L7	8/27/18 12:35	13C2-PFOA	35,825.36	16,474.24	49,422.71		24,648.03	49,296.06	
JZ85	L8	8/27/18 12:44	13C2-PFOA	31,882.98	16,474.24	49,422.71		24,648.03	49,296.06	
JZ86	L9	8/27/18 12:53	13C2-PFOA	33,314.19	16,474.24	49,422.71		24,648.03	49,296.06	
KA08 IB	Instrument Blank	8/27/18 13:01	13C2-PFOA	30,359.05	16,474.24	49,422.71		24,648.03	49,296.06	
JZ77 ICC	ICC	8/27/18 13:10	13C2-PFOA	36,575.66	16,474.24	49,422.71		24,648.03	49,296.06	
CR653PB-FS(0)	Procedural Blank	8/27/18 13:28	13C2-PFOA	33,523.40	16,474.24	49,422.71		24,648.03	49,296.06	
CR654LCS-FS(0)	Laboratory Control Sample	8/27/18 13:37	13C2-PFOA	38,217.34	16,474.24	49,422.71		24,648.03	49,296.06	
J7585-FS(0)	JAX-RES-08222018-1000-35	8/27/18 13:46	13C2-PFOA	33,231.27	16,474.24	49,422.71		24,648.03	49,296.06	
J7585MS-FS(0)	Matrix Spike Sample	8/27/18 13:55	13C2-PFOA	36,421.77	16,474.24	49,422.71		24,648.03	49,296.06	
J7585MSD-FS(0)	Matrix Spike Duplicate	8/27/18 14:04	13C2-PFOA	35,789.59	16,474.24	49,422.71		24,648.03	49,296.06	
J7587-FS(0)	JAX-RES-08222018-1000-35-FD	8/27/18 14:13	13C2-PFOA	36,727.53	16,474.24	49,422.71		24,648.03	49,296.06	
JZ82 CCV	CCV	8/27/18 14:22	13C2-PFOA	35,871.73	16,474.24	49,422.71		24,648.03	49,296.06	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JZ80	L3	8/27/18 11:59	d3-MeFOSAA	27,303.20	-
JZ81	L4	8/27/18 12:08	d3-MeFOSAA	29,486.65	-
JZ82	L5	8/27/18 12:17	d3-MeFOSAA	29,699.93	-
JZ83	L6	8/27/18 12:26	d3-MeFOSAA	26,014.03	-
JZ84	L7	8/27/18 12:35	d3-MeFOSAA	28,846.76	-
JZ85	L8	8/27/18 12:44	d3-MeFOSAA	26,160.42	-
JZ86	L9	8/27/18 12:53	d3-MeFOSAA	29,679.79	8.3

PASS

Average Lower Upper
 28,170.11 14,085.06 42,255.17

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/27/18 11:59	d3-MeFOSAA	27,303.20	14,085.06	42,255.17		20,789.95	41,579.90	
JZ81	L4	8/27/18 12:08	d3-MeFOSAA	29,486.65	14,085.06	42,255.17		20,789.95	41,579.90	
JZ82	L5	8/27/18 12:17	d3-MeFOSAA	29,699.93	14,085.06	42,255.17		20,789.95	41,579.90	
JZ83	L6	8/27/18 12:26	d3-MeFOSAA	26,014.03	14,085.06	42,255.17		20,789.95	41,579.90	
JZ84	L7	8/27/18 12:35	d3-MeFOSAA	28,846.76	14,085.06	42,255.17		20,789.95	41,579.90	
JZ85	L8	8/27/18 12:44	d3-MeFOSAA	26,160.42	14,085.06	42,255.17		20,789.95	41,579.90	
JZ86	L9	8/27/18 12:53	d3-MeFOSAA	29,679.79	14,085.06	42,255.17		20,789.95	41,579.90	
KA08 IB	Instrument Blank	8/27/18 13:01	d3-MeFOSAA	22,621.94	14,085.06	42,255.17		20,789.95	41,579.90	
JZ77 ICC	ICC	8/27/18 13:10	d3-MeFOSAA	29,278.56	14,085.06	42,255.17		20,789.95	41,579.90	
CR653PB-FS(0)	Procedural Blank	8/27/18 13:28	d3-MeFOSAA	28,861.19	14,085.06	42,255.17		20,789.95	41,579.90	
CR654LCS-FS(0)	Laboratory Control Sample	8/27/18 13:37	d3-MeFOSAA	31,051.91	14,085.06	42,255.17		20,789.95	41,579.90	
J7585-FS(0)	JAX-RES-08222018-1000-35	8/27/18 13:46	d3-MeFOSAA	26,369.58	14,085.06	42,255.17		20,789.95	41,579.90	
J7585MS-FS(0)	Matrix Spike Sample	8/27/18 13:55	d3-MeFOSAA	31,321.04	14,085.06	42,255.17		20,789.95	41,579.90	
J7585MSD-FS(0)	Matrix Spike Duplicate	8/27/18 14:04	d3-MeFOSAA	28,285.90	14,085.06	42,255.17		20,789.95	41,579.90	
J7587-FS(0)	JAX-RES-08222018-1000-35-FD	8/27/18 14:13	d3-MeFOSAA	26,723.30	14,085.06	42,255.17		20,789.95	41,579.90	
JZ82 CCV	CCV	8/27/18 14:22	d3-MeFOSAA	27,059.25	14,085.06	42,255.17		20,789.95	41,579.90	

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 12:35:06 PM	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.53	1.06	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.84	1.24	0.8 – 1.5

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 12:35:06 PM	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.53	63	>10
PFBS_2	298.9 / 99.0	1.53	36	>10
PFHxA_1	313.0 / 269.0	1.84	26	>10
PFHxA_2	313.0 / 119.0	1.84	29	>10
PFHpA_1	363.0 / 319.0	2.25	27	>10
PFHpA_2	363.0 / 169.0	2.25	25	>10
PFHxS_1	399.0 / 80.0	2.27	38	>10
PFHxS_2	399.0 / 99.0	2.27	47	>10
PFOA_1	413.0 / 369.0	2.66	28	>10
PFOA_2	413.0 / 169.0	2.66	25	>10
PFNA_1	463.0 / 419.0	3.06	25	>10
PFNA_2	463.0 / 219.0	3.05	26	>10
PFOS_1	499.0 / 80.0	3.05	40	>10
PFOS_2	499.0 / 99.0	3.05	29	>10
PFDA_1	513.0 / 469.0	3.41	23	>10
PFDA_2	513.0 / 219.0	3.41	24	>10
PFUnA_1	563.0 / 519.0	3.73	24	>10
PFUnA_2	563.0 / 269.0	3.73	25	>10
PFDaA_1	613.0 / 569.0	4.02	26	>10
PFDaA_2	613.0 / 319.0	4.01	28	>10
PFTrDA_1	663.0 / 619.0	4.26	34	>10
PFTrDA_2	663.0 / 169.0	4.26	45	>10
PFTeDA_1	713.0 / 669.0	4.48	53	>10
PFTeDA_2	713.0 / 169.0	4.48	44	>10
NMeFOSAA_1	570.0 / 419.0	3.56	34	>10
NMeFOSAA_2	570.0 / 512.0	3.56	34	>10
NEtFOSAA_1	584.0 / 419.0	3.72	37	>10
NEtFOSAA_2	584.0 / 483.0	3.72	21	>10
13C2-PFHxA	315.0 / 270.0	1.83	49	>10
13C2-PFDA	515.0 / 470.0	3.40	30	>10
d5-EtFOSAA	589.0 / 419.0	3.71	31	>10



Precision and Bias at the LOQ for PFAS in Drinking Water

Analyte	CAS No.	Average (ng/L)	ST DEV	3 Sigma	n
PFHxA	307-24-4	10.41	1.25	3.75	19
PFHpA	375-85-9	10.59	1.42	4.26	19
PFOA	335-67-1	10.45	1.47	4.41	19
PFNA	375-95-1	10.49	1.28	3.84	19
PFDA	335-76-2	10.39	1.57	4.71	19
PFUnA	2058-94-8	10.05	1.71	5.13	19
PFDoA	307-55-1	9.99	1.63	4.89	19
PFTTrDA	72629-94-8	10.09	1.79	5.37	19
PFTeDA	376-06-7	11.27	2.41	7.23	19
NMeFOSAA	2355-31-9	10.60	1.12	3.36	19
NEtFOSAA	2991-50-6	10.17	1.29	3.87	19
PFBS	375-73-5	8.64	1.26	3.78	19
PFHxS	355-46-4	9.73	1.49	4.47	19
PFOS	1763-23-1	9.32	1.52	4.56	19

BATTELLE DETECTION LIMITS FOR PFAS IN DRINKING WATER

Battelle SOP 5-371 (EPA Method 537 Version 1.1)

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)	MRL (ng/L)
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
PFTTrDA	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:	22-Feb-2017
Request ID:	3683
Company Name:	Battelle Memorial Institute
Instrument ID:	X60666
Instrument Model:	QTRAP 5500
Instrument Serial Number:	AU23051004

PASS **FAIL**

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

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

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

Comments: _____

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

Approved By : _____ **Date:** _____

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PRE PM PPG PERFORMANCE EVALUATION:

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

CAD Settings	Vacuum Reading (x 10 ⁻⁵ Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.5	0.4 to 1.1 x10 ⁻⁵ Torr
<input checked="" type="checkbox"/> CAD Low	1.9	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.4	Read Only
<input checked="" type="checkbox"/> CAD High	3.4	Read Only
<input checked="" type="checkbox"/> CAD 12	3.4	2.4 to 4.5 x10 ⁻⁵ Torr

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

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

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

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

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

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

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

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

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

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

Appendix ZEFPM003-2L

PREVENTIVE MAINTENANCE CHECKLIST:

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

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

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

- Pump down overnight if possible. N/A

- Perform Maintenance on Turbo V source.

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

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

Appendix ZEFPM003-2L

POST PM PPG PERFORMANCE TESTS:

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

CAD Settings	Vacuum Reading (x 10 ⁻⁵ Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.8	0.4 to 1.1 x10 ⁻⁵ Torr
<input checked="" type="checkbox"/> CAD Low	2.1	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.6	Read Only
<input checked="" type="checkbox"/> CAD High	3.7	Read Only
<input checked="" type="checkbox"/> CAD 12	3.7	2.4 to 4.5 x10 ⁻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	5.94 e6	≥1.2 ^{e6}	0.6933	0.6 to 0.8
Q1 500.380	2.25 e7	≥9.0 ^{e6}	0.7444	0.6 to 0.8
Q1 906.673	2.74 e7	≥1.4 ^{e7}	0.7347	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8 ^{e7}	0.7656	0.6 to 0.8

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

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

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

Transmission Efficiency: 16.93% (≥ 10.0%)

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

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

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

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

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

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

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

Appendix ZEFPM003-2L

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

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

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

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

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

It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: JV35

Description: PFAS - 537.1 Internal Standard Stock

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

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

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

Approved By: _____ Date: _____



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: JV35

Description: PFAS - 537.1 Internal Standard Stock

Stock Id: 180425-01

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

Approved By: _____ Date: _____

It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: **JV37**

Description: PFAS - 537.1 Surrogate Standard Stock

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

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

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

Approved By: _____ Date: _____



It can be done

Standard Solution Concentrations

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

Description: PFAS - 537.1 Surrogate Standard Stock

Stock ID: **180425-02**

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

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

Approved By: _____ Date: _____

It can be done

Standard Solution Prep Form II

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

Description: PFAS - 537.1 Low ICAL Stock

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

Solution Prepared By: Schultz, Stephanie

Date Prepared: 5/2/2018

Expiration Date: 5/2/2019

Solution Volume 40 mL X 4 Vials

Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107

Balance ID: _____

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

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



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: JV43

Description: PFAS - 537.1 Low ICAL Stock

Stock Id: 180425-03

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

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

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



It can be done

Standard Solution Prep Form II

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

Description: PFAS - 537.1 Internal Standard Solution

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

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: **JV61**

Description: PFAS - 537.1 Internal Standard Calibration Stock Solution

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

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

Balance ID: _____

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

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



It can be done

Standard Solution Concentrations

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

Description: PFAS - 537.1 Internal Standard Calibration Stock Solution

Stock Id: **JV35**

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

It can be done

Standard Solution Prep Form II

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

Description: PFAS - 537.1 Surrogate Calibration Stock Solution

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

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

Balance ID: _____

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

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

BATTELLE

It can be done

Standard Solution Concentrations

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

Description: PFAS - 537.1 Surrogate Calibration Stock Solution

Stock Id: **JV37**

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

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



It can be done

Standard Solution Prep Form II

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

Description: PFAS - 537.1 Surrogate Solution

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

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

Balance ID: _____

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

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



It can be done

Standard Solution Concentrations

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

Description: PFAS - 537.1 Surrogate Solution

Stock Id: **JV37**

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

Final Concentrations:

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV37	Pipette	C0982448K

Solution Prepared By: Schultz, Stephanie	Date Prepared: 8/21/2018	Expiration Date: 5/2/2019
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Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107
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Comment: 96/4 Methanol/Milli-q (RP-180820-2)
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Approved By: Lizotte Jr, Robert Date: 8/22/2018 9:12:00 AM



It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: KA08

Description: PFAS - 537.1 Instrument Blank

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

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

Balance ID: _____

Comment: 96/4 Methanol/Milli-q water

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



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: KA08

Description: PFAS - 537.1 Instrument Blank

Stock Id: JZ74

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

Stock Id: JZ75

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

Comment: 96/4 Methanol/Milli-q water

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



It can be done

Standard Solution Prep Form II

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

Description: PFAS - 537.1 Second Source LCS/MS Solution

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

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-butanefluorobutane	500	1.77	1	100.000	1	20	0.04425
Perfluoro-1-hexanesulfonate	500	1.89	1	100.000	1	20	0.04725
Perfluoro-1-octanesulfonate	500	1.91	1	100.000	1	20	0.04775
Perfluoro-n-decanoic Acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-dodecanoic acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-heptanoic Acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-hexanoic acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-octanoic Acid	500	2.00	1	100.000	1	20	0.05000
Perfluorononanoic Acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-tetradecanoic acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-tridecanoic acid	500	2.00	1	100.000	1	20	0.05000
Perfluoro-n-undecanoic acid	500	2.00	1	100.000	1	20	0.05000

Final Concentrations:

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
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
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Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107
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Comment: 96/4 methanol/milli-q (RP-180820-2)

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



It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: JZ75

Description: PFAS - 537.1 Surrogate Calibration Stock Solution

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

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

Balance ID: _____

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

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



It can be done

Standard Solution Concentrations Approved:

Standard Laboratory ID Number: JZ75

Description: PFAS - 537.1 Surrogate Calibration Stock Solution

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

Final Concentrations:

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

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JV37	Pipette	C0982448K

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

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

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



It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: JZ76

Description: PFAS - 537.1 High ICAL Stock

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

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

Balance ID: _____

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

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



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: JZ76

Description: PFAS - 537.1 High ICAL Stock

Stock Id: 180425-03

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

Final Concentrations:

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

Syringes/Pipettes:

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

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

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

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



It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: JZ77

Description: PFAS - 537.1 ICC

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

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

Balance ID: _____

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

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



It can be done

Standard Solution Concentrations

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

Description: PFAS - 537.1 ICC

Stock Id: JZ28

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

Stock Id: JZ74

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

Stock Id: JZ75

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

Final Concentrations:

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

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

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

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

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



It can be done

Standard Solution Concentrations Approved:

Standard Laboratory ID Number: JZ77

Description: PFAS - 537.1 ICC

N-ethylperfluoro-octanesulfonamidoacetic acid	.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00100
Perfluoro-1-butanefluorobutanoate	.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-butanefluorobutane	200	0.00	---	---	1	10	0.00009
Perfluoro-1-hexanesulfonate	200	0.00	---	---	1	10	0.00009
Perfluoro-1-octanesulfonate	200	0.00	---	---	1	10	0.00009
Perfluoro-n-decanoic Acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-dodecanoic acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-heptanoic Acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-hexanoic acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-nonanoic Acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-octanoic Acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-tetradecanoic acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-tridecanoic acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-undecanoic acid	200	0.01	---	---	1	10	0.00010

Stock Id: JZ74

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

Stock Id: JZ75

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

Final Concentrations:

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

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

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

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

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



It can be done

Standard Solution Concentrations Approved:

Standard Laboratory ID Number: JZ80

Description: PFAS - 537.1 ICAL L3

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

Syringes/Pipettes:

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

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

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



It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: JZ81

Description: PFAS - 537.1 ICAL L4

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

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

Balance ID: _____

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

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



It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: JZ81

Description: PFAS - 537.1 ICAL L4

Stock Id: JV43

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

Stock Id: JZ74

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

Stock Id: JZ75

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

Final Concentrations:

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

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

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

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

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



It can be done

Standard Solution Concentrations Approved:

Standard Laboratory ID Number: JZ81

Description: PFAS - 537.1 ICAL L4

N-ethylperfluoro-octanesulfonamidoacetic acid	.00025
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00025
Perfluoro-1-butanefluoride	.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-butanefulfonate	1000	0.00	---	---	1	10	0.00044
Perfluoro-1-hexanesulfonate	1000	0.00	---	---	1	10	0.00046
Perfluoro-1-octanesulfonate	1000	0.00	---	---	1	10	0.00046
Perfluoro-n-decanoic Acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-dodecanoic acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-heptanoic Acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-hexanoic acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-nonanoic Acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-octanoic Acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-tetradecanoic acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-tridecanoic acid	1000	0.01	---	---	1	10	0.00050
Perfluoro-n-undecanoic acid	1000	0.01	---	---	1	10	0.00050

Stock Id: JZ74

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

Stock Id: JZ75

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

Final Concentrations:

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

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

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

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

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



It can be done

Standard Solution Concentrations Approved:

Standard Laboratory ID Number: JZ82

Description: PFAS - 537.1 ICAL L5

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

Syringes/Pipettes:

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

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-butanefulfonate	.00089
Perfluoro-1-hexanesulfonate	.00091
Perfluoro-1-octanesulfonate	.00093
Perfluoro-n-decanoic Acid	.00100
Perfluoro-n-dodecanoic acid	.00100
Perfluoro-n-heptanoic Acid	.00100
Perfluoro-n-hexanoic acid	.00100
Perfluoro-n-nonanoic Acid	.00100
Perfluoro-n-octanoic Acid	.00100
Perfluoro-n-tetradecanoic acid	.00100
Perfluoro-n-tridecanoic acid	.00100
Perfluoro-n-undecanoic acid	.00100

Syringes/Pipettes:

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

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-butanefluorobutane	500	0.04	---	---	1	10	0.00221
Perfluoro-1-hexanesulfonate	500	0.05	---	---	1	10	0.00228
Perfluoro-1-octanesulfonate	500	0.05	---	---	1	10	0.00231
Perfluoro-n-decanoic Acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-dodecanoic acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-heptanoic Acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-hexanoic acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-nonanoic Acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-octanoic Acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-tetradecanoic acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-tridecanoic acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-undecanoic acid	500	0.05	---	---	1	10	0.00250

Final Concentrations:

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

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

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

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

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



It can be done

Standard Solution Concentrations Approved:

Standard Laboratory ID Number: JZ84

Description: PFAS - 537.1 ICAL L7

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

Syringes/Pipettes:

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

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

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

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



It can be done

Standard Solution Prep Form II

Approved:

Standard Laboratory ID Number: JZ85

Description: PFAS - 537.1 ICAL L8

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

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-butanefluoride	.00443
Perfluoro-1-hexanesulfonate	.00456
Perfluoro-1-octanesulfonate	.00463
Perfluoro-n-decanoic Acid	.00500
Perfluoro-n-dodecanoic acid	.00500
Perfluoro-n-heptanoic Acid	.00500
Perfluoro-n-hexanoic acid	.00500
Perfluoro-n-nonanoic Acid	.00500
Perfluoro-n-octanoic Acid	.00500
Perfluoro-n-tetradecanoic acid	.00500
Perfluoro-n-tridecanoic acid	.00500
Perfluoro-n-undecanoic acid	.00500

Syringes/Pipettes:

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

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

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

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

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



It can be done

Standard Solution Prep Form II

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

Description: PFAS - 537.1 ICAL L9

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

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-butanefluorobutane	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 doneBDO Id: 180425-01**Reagent Receipt Report**Approved: Authorized

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

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

Total Analytes: 3

Notes:

Approved by: _____ Approved on: _____
Authorized by: _____ Authorized on: _____

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

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

DESCRIPTION:

EPA-537IS is a solution/mixture of a mass-labelled (¹³C) perfluoroalkylcarboxylic acid, a mass-labelled (¹³C) 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 ≥99%. The mass-labelled perfluorooctanesulfonamidoacetic acid has a chemical purity of >98% and an isotopic purity of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

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

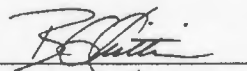


For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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

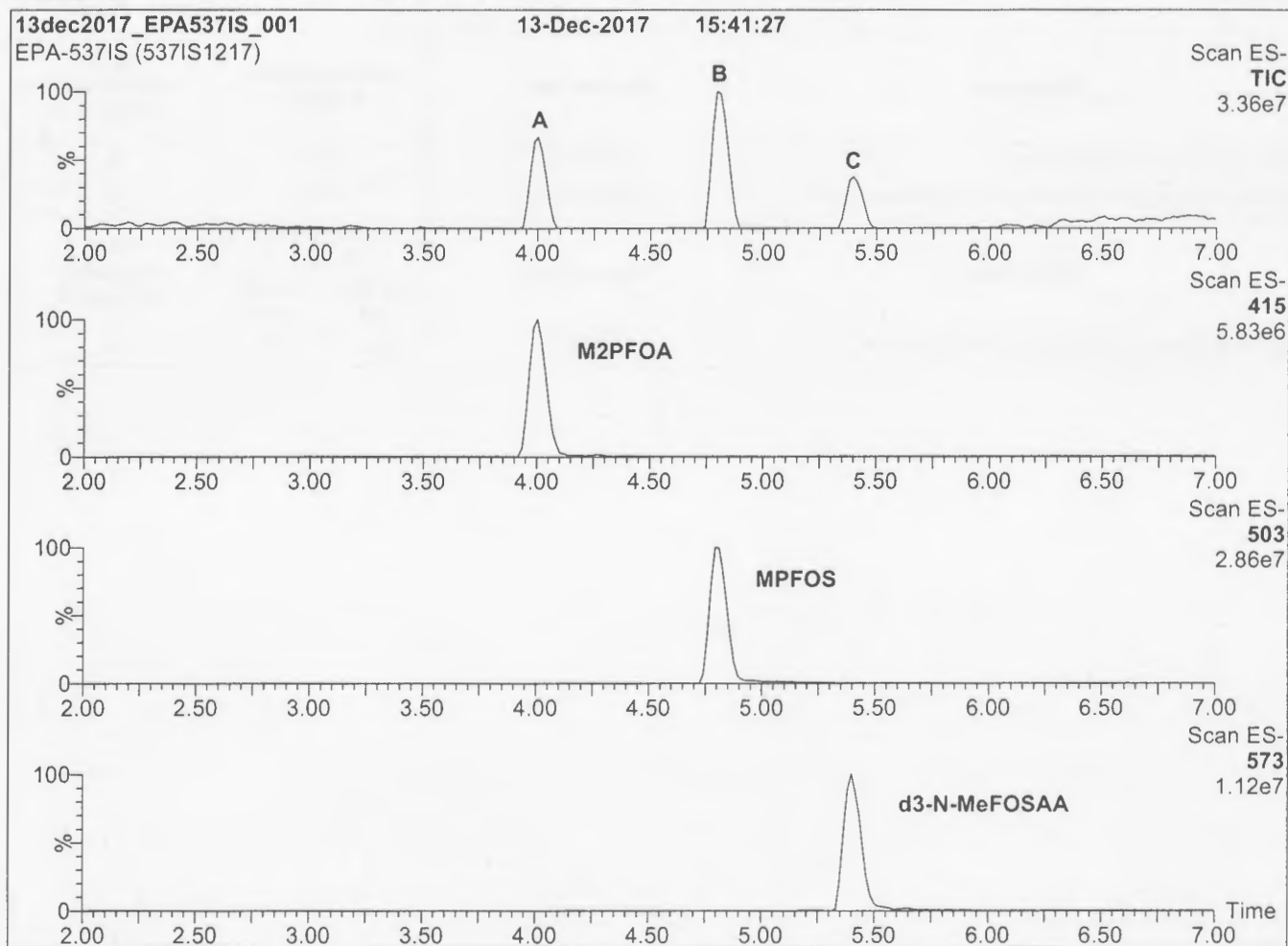
Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Perfluoro-n-[1,2- ¹³ C ₂]octanoic acid	M2PFOA	1000		A
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	4000		C
Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure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

Certified By:



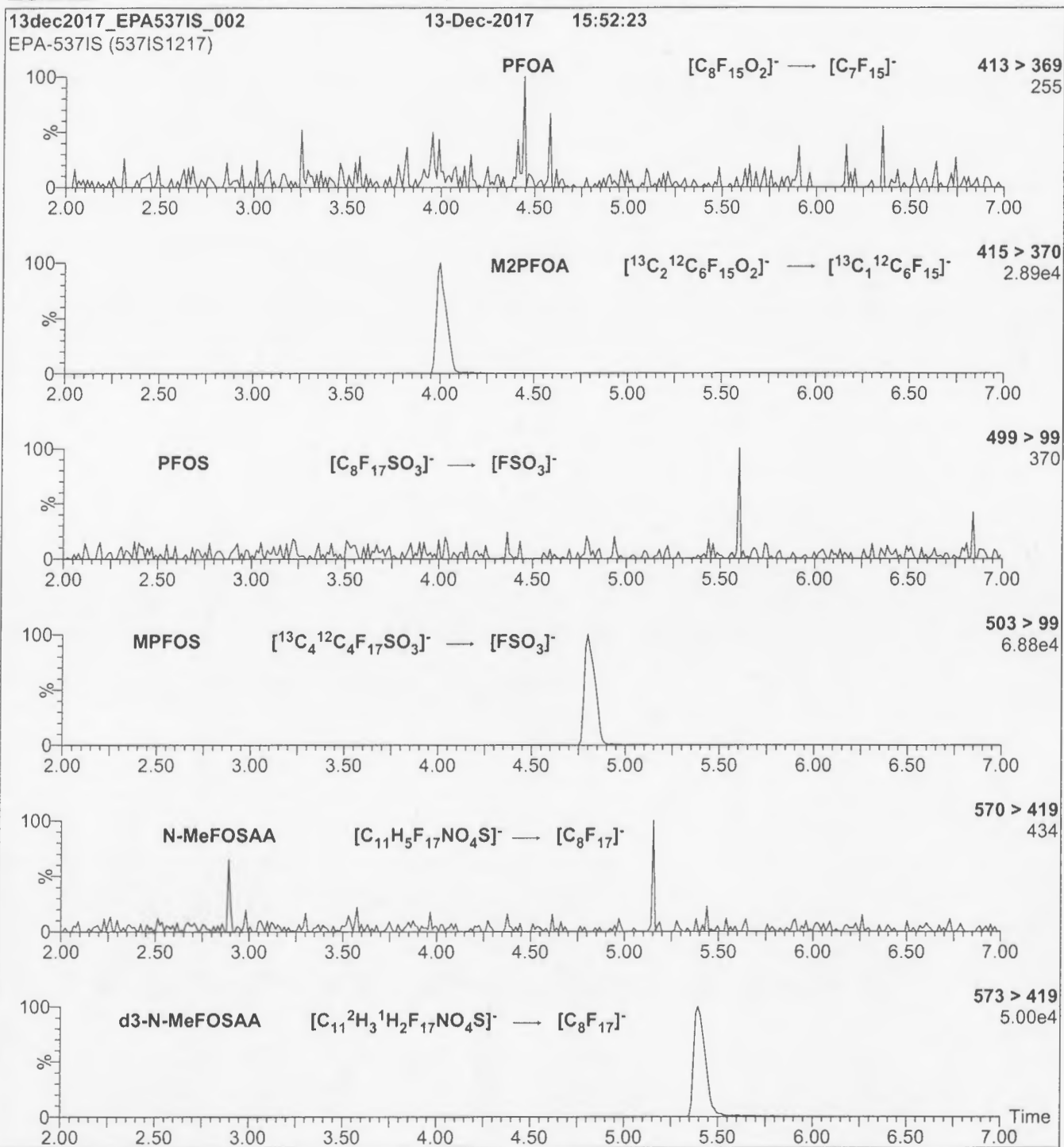
B.G. Chittim, General Manager

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 mmMobile 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 minFlow: 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:	Cert Val:	Lower Limit:	Upper Limit:
13C2-PFDA	BDO-2110	1.0000	100.00	--	--	<input type="checkbox"/>			
13C2-PFHxA	BDO-2106	1.0000	100.00	--	--	<input type="checkbox"/>			
d5-EtFOSAA	BDO-1839	4.0000	100.00	--	--	<input type="checkbox"/>			

Total Analytes: 3

Notes:

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

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

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

DESCRIPTION:

EPA-537SS is a solution/mixture of two mass-labelled (¹³C) 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 ≥99%. The mass-labelled perfluorooctanesulfonamidoacetic acid has a chemical purity of >98% and an isotopic purity of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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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.

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LIMITED WARRANTY:

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

Compound	Abbreviation	Concentration (ng/ml)	Peak Assignment in Figure 1
Perfluoro-n-[1,2- ¹³ C ₂]hexanoic acid	MPFHxA	1000	A
Perfluoro-n-[1,2- ¹³ C ₂]decanoic acid	MPFDA	1000	B
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	4000	C

Certified By:

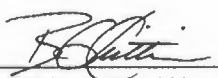
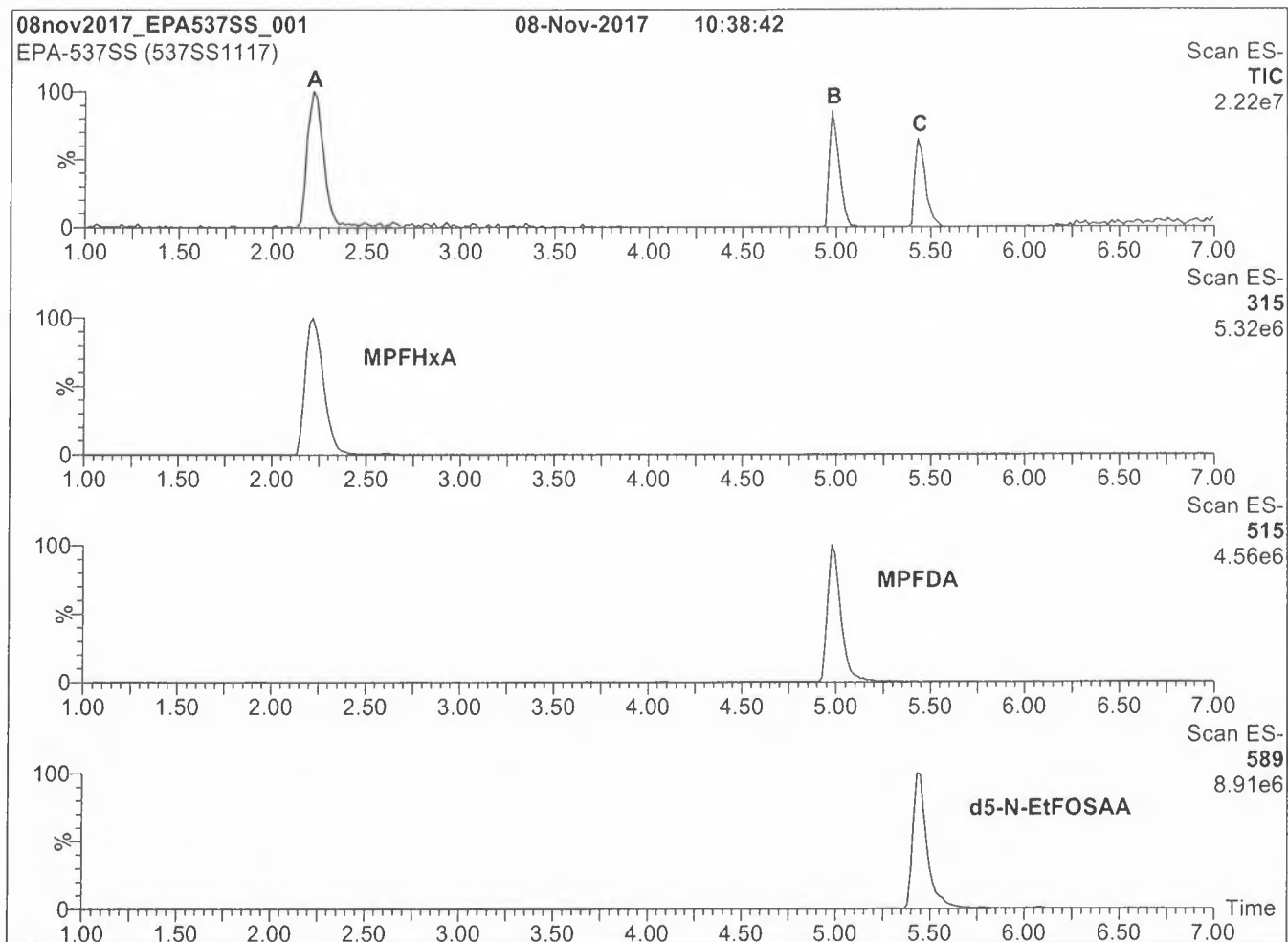

B.G. Chittim, General ManagerDate: 11/13/2017
(mm/dd/yyyy)

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)

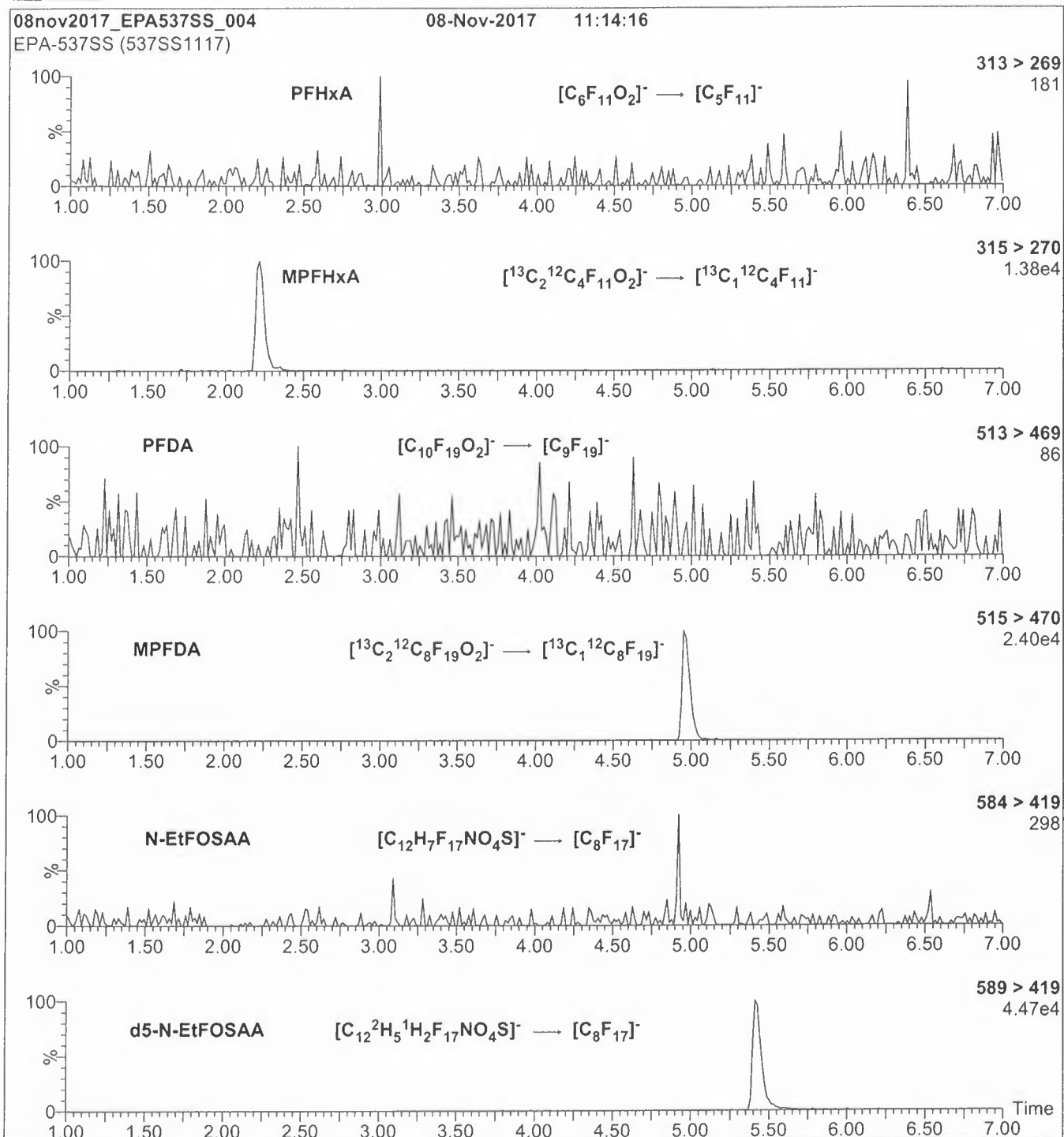
Source: Electrospray (negative)

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

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

Total Analytes: 14

Notes:

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

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

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

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

*for calibration
Jnr 5/2/2018*

DESCRIPTION:

EPA-537PDS is a solution/mixture of nine native linear perfluoroalkylcarboxylic acids (C₆-C₁₄), three native perfluoroalkylsulfonates (C₄ linear; C₆ and C₈ 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:

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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).



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

Compound	Abbreviation	Concentration * (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Perfluoro-n-hexanoic acid ✓	PFHxA	2000		B
Perfluoro-n-heptanoic acid ✓	PFHpA	2000		C
Perfluoro-n-octanoic acid ✓	PFOA	2000		F
Perfluoro-n-nonanoic acid ✓	PFNA	2000		G
Perfluoro-n-decanoic acid ✓	PFDA	2000		J
Perfluoro-n-undecanoic acid ✓	PFUdA	2000		O
Perfluoro-n-dodecanoic acid ✓	PFDoA	2000		P
Perfluoro-n-tridecanoic acid ✓	PFTrDA	2000		Q
Perfluoro-n-tetradecanoic acid ✓	PFTeDA	2000		R
N-methylperfluorooctanesulfonamidoacetic acid ^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
Potassium perfluoro-1-butanesulfonate ✓	L-PFBS ✓	2000	1770	
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 ¹⁹F-NMR)*

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

* Percent of total N-methylperfluorooctanesulfonamidoacetic acid isomers only.

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

Isomer	Name	Structure	Percent Composition by ¹⁹ F-NMR	
1	N-ethylperfluoro-1-octanesulfonamidoacetic acid	$\begin{array}{c} \text{CF}_3(\text{CF}_2)_7\text{SO}_2\text{NCH}_2\text{CO}_2\text{H} \\ \\ \text{C}_2\text{H}_5 \end{array}$	77.5	77.5
2	N-ethylperfluoro-3-methylheptanesulfonamidoacetic acid	$\begin{array}{c} \text{CF}_3(\text{CF}_2)_3\text{CF}(\text{CF}_2)_2\text{SO}_2\text{NCH}_2\text{CO}_2\text{H} \\ \qquad \qquad \\ \text{CF}_3 \qquad \qquad \text{C}_2\text{H}_5 \end{array}$	2.3	22.5
3	N-ethylperfluoro-4-methylheptanesulfonamidoacetic acid	$\begin{array}{c} \text{CF}_3(\text{CF}_2)_2\text{CF}(\text{CF}_2)_3\text{SO}_2\text{NCH}_2\text{CO}_2\text{H} \\ \qquad \qquad \\ \text{CF}_3 \qquad \qquad \text{C}_2\text{H}_5 \end{array}$	2.2	
4	N-ethylperfluoro-5-methylheptanesulfonamidoacetic acid	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}(\text{CF}_2)_4\text{SO}_2\text{NCH}_2\text{CO}_2\text{H} \\ \qquad \qquad \\ \text{CF}_3 \qquad \qquad \text{C}_2\text{H}_5 \end{array}$	5.4	
5	N-ethylperfluoro-6-methylheptanesulfonamidoacetic acid	$\begin{array}{c} \text{CF}_3\text{CF}(\text{CF}_2)_5\text{SO}_2\text{NCH}_2\text{CO}_2\text{H} \\ \qquad \qquad \\ \text{CF}_3 \qquad \qquad \text{C}_2\text{H}_5 \end{array}$	10.4	
6	N-ethylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{C}(\text{CF}_2)_4\text{SO}_2\text{NCH}_2\text{CO}_2\text{H} \\ \\ \text{CF}_3 \qquad \qquad \\ \qquad \qquad \qquad \text{C}_2\text{H}_5 \end{array}$	0.3	
7	N-ethylperfluoro-4,5-dimethylhexanesulfonamidoacetic acid	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{CF}(\text{CF}_2)_3\text{SO}_2\text{NCH}_2\text{CO}_2\text{H} \\ \qquad \qquad \\ \text{CF}_3 \qquad \qquad \text{C}_2\text{H}_5 \end{array}$	0.3	
8	N-ethylperfluoro-3,5-dimethylhexanesulfonamidoacetic acid	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{CF}(\text{CF}_2)_2\text{CF}(\text{CF}_2)_2\text{SO}_2\text{NCH}_2\text{CO}_2\text{H} \\ \qquad \qquad \\ \text{CF}_3 \qquad \qquad \text{C}_2\text{H}_5 \end{array}$	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 ¹⁹F-NMR)*

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

* Percent of total perfluorohexanesulfonate isomers only.

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

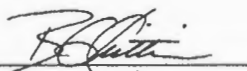
Table E: PFOSK; Isomeric Components and Percent Composition (by ¹⁹F-NMR)*

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

* Percent of total perfluorooctanesulfonate isomers only.

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

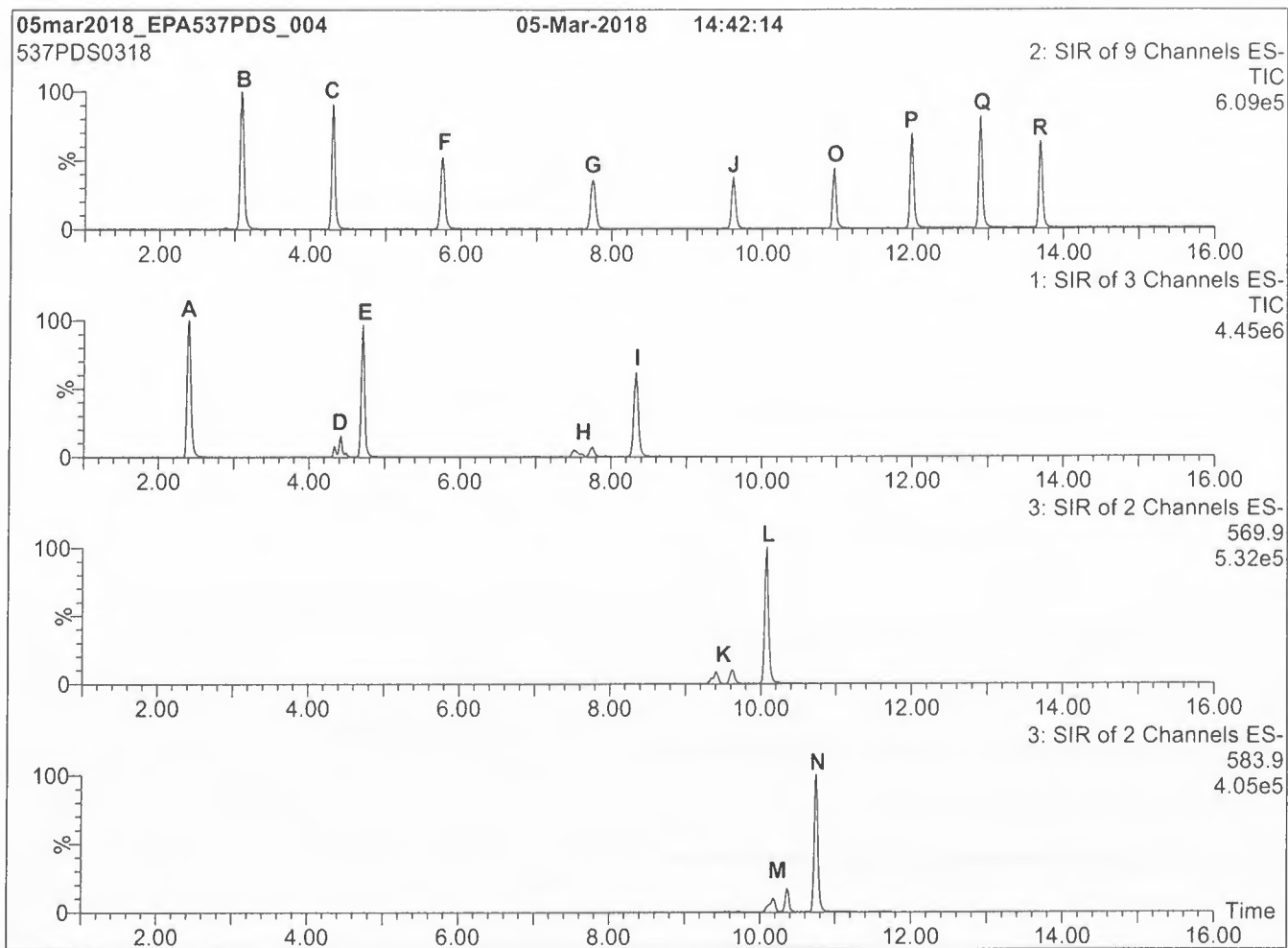
Certified By:



B.G. Chittim, General Manager

Date: 04/02/2018

(mm/dd/yyyy)

Figure 1: EPA-537PDS; LC/MS Data (SIR)**Conditions for Figure 1:****LC:** Waters Acquity Ultra Performance LC**MS:** Micromass Quattro *micro* API MS**Chromatographic Conditions**Column: Acquity UPLC BEH Shield 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

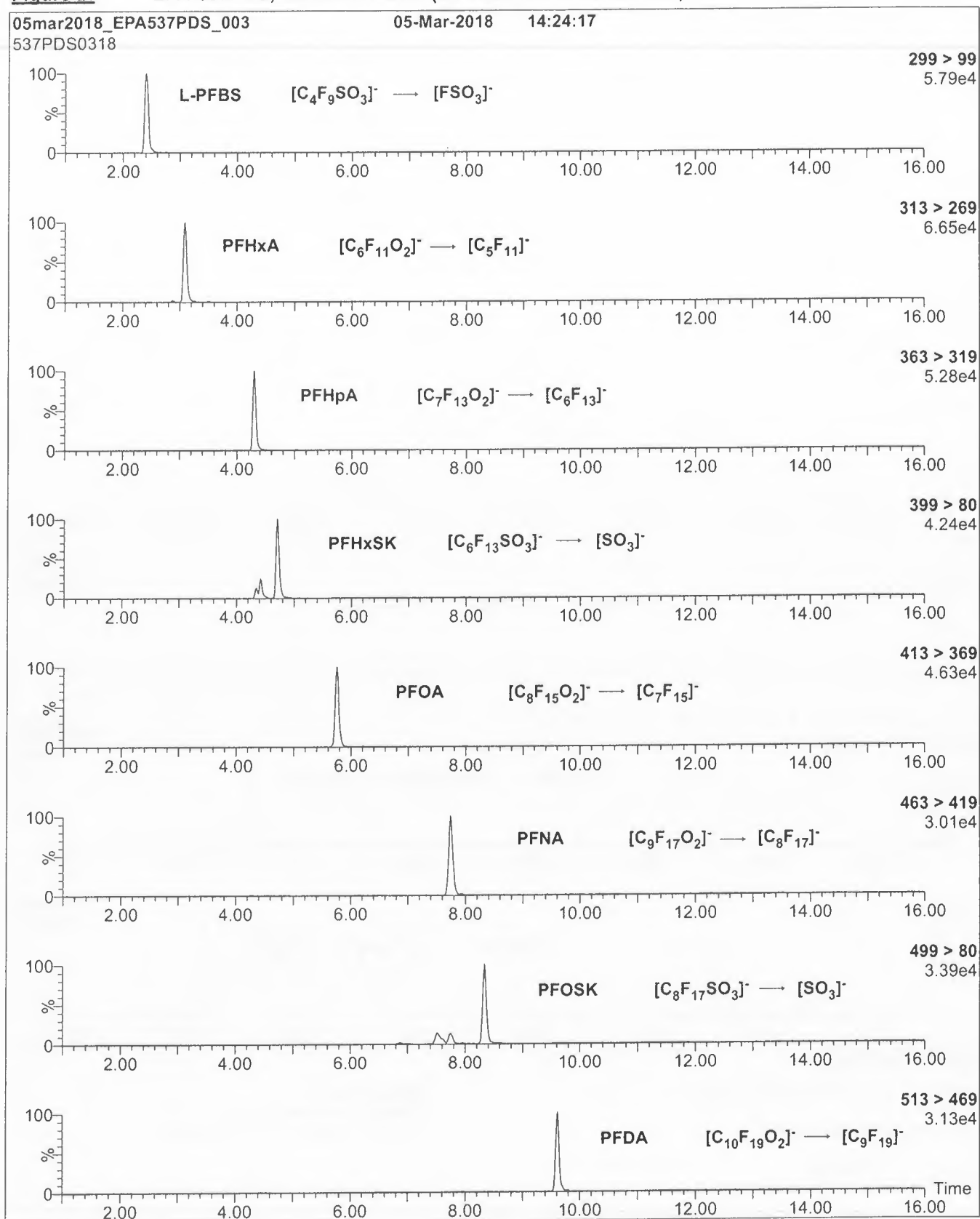
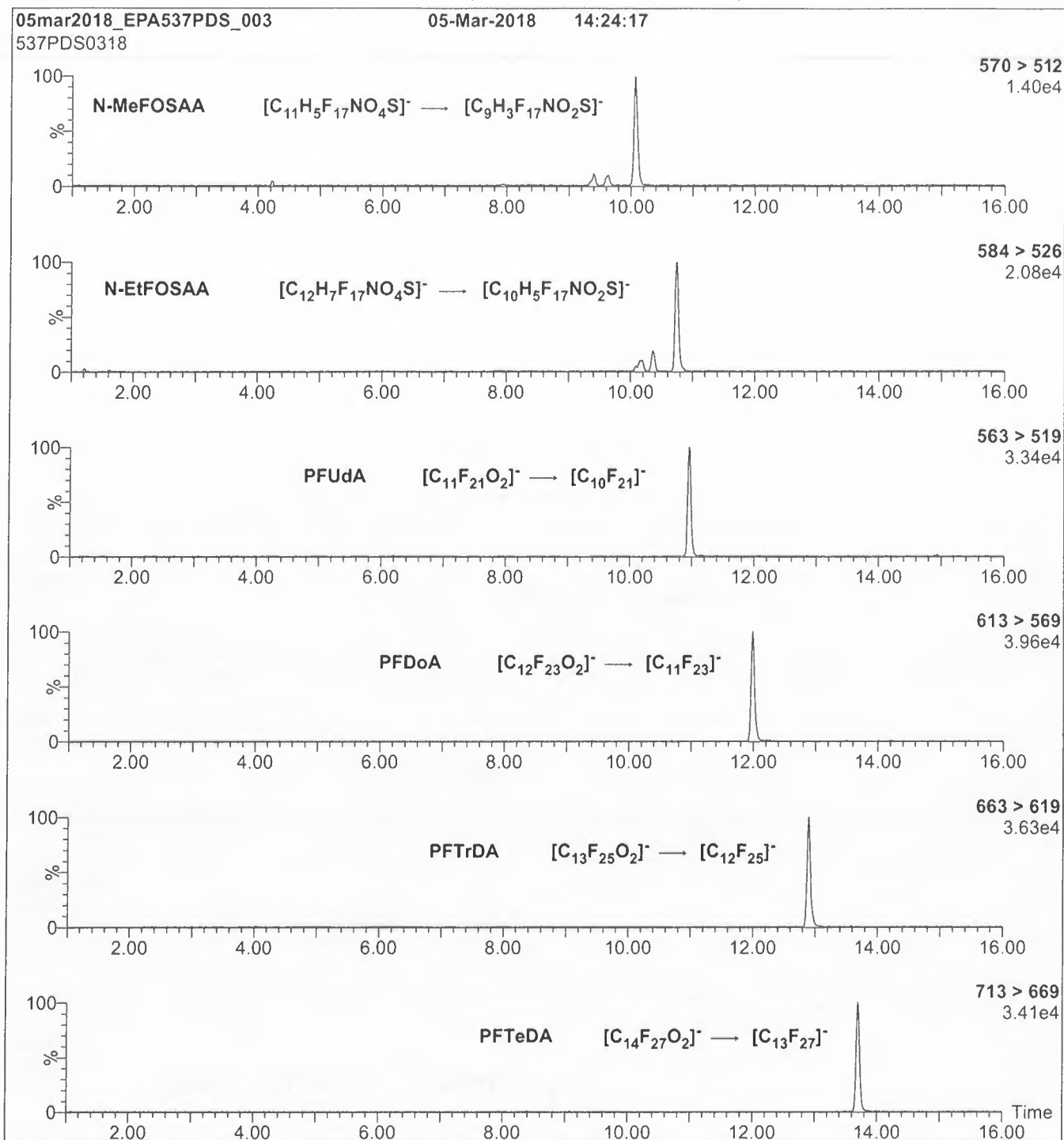
Figure 2: EPA-537PDS; LC/MS/MS Data (Selected MRM Transitions)

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 (C₆-C₁₄), native linear perfluoroalkylsulfonates (C₄, C₆, and C₈), 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

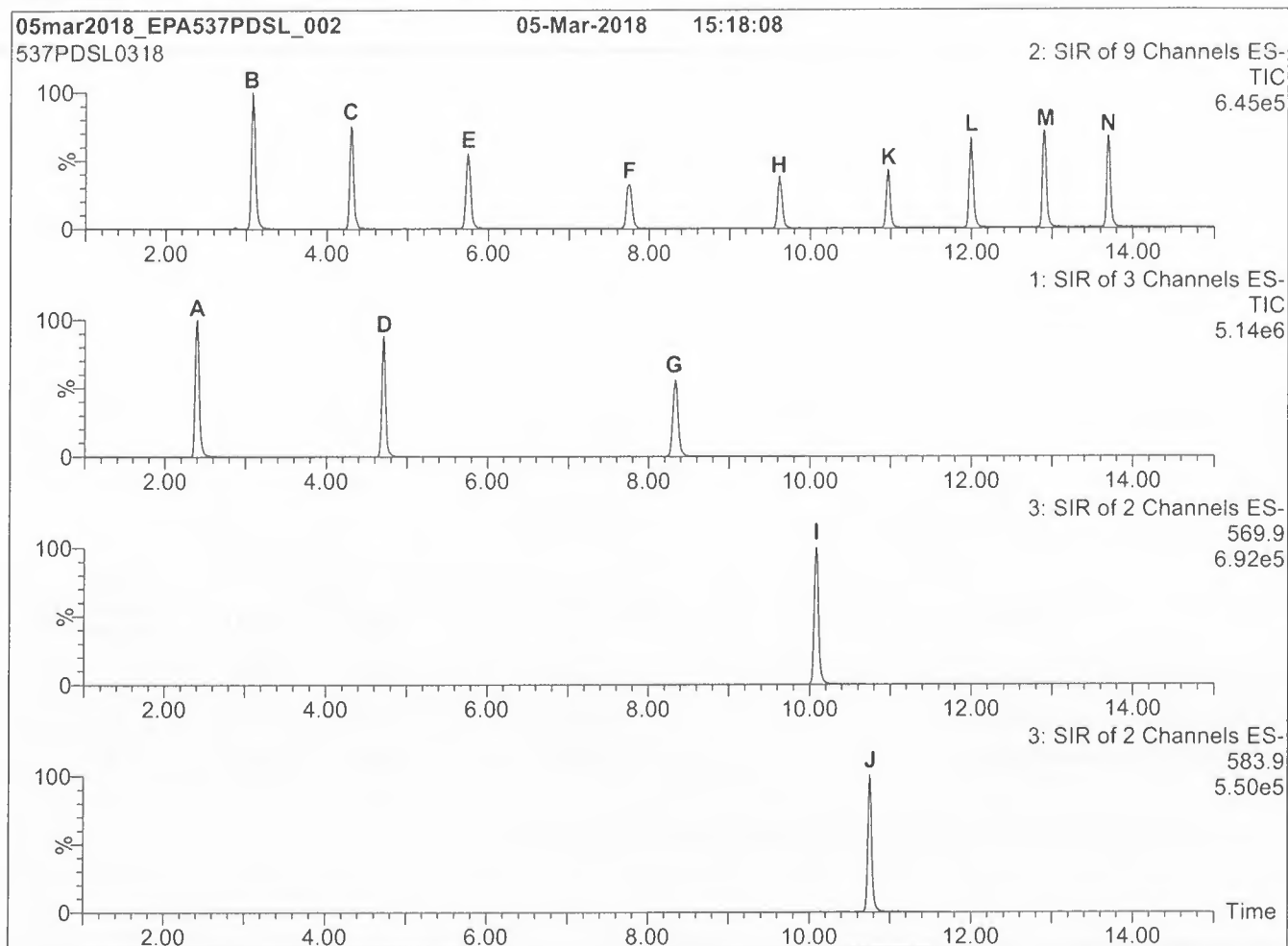
Table A: EPA-537PDS-L; Components and Concentrations (ng/ml; \pm 5% in Methanol / Water (<1%))

Compound	Abbreviation	Concentration *		Peak Assignment in Figure 1
		as the salt	as the anion	
Perfluoro-n-hexanoic acid	PFHxA	2000		B
Perfluoro-n-heptanoic acid	PFHpA	2000		C
Perfluoro-n-octanoic acid	PFOA	2000		E
Perfluoro-n-nonanoic acid	PFNA	2000		F
Perfluoro-n-decanoic acid	PFDA	2000		H
Perfluoro-n-undecanoic acid	PFUdA	2000		K
Perfluoro-n-dodecanoic acid	PFDoA	2000		L
Perfluoro-n-tridecanoic acid	PFTTrDA	2000		M
Perfluoro-n-tetradecanoic acid	PFTeDA	2000		N
N-methylperfluoro-1-octanesulfonamidoacetic acid	N-MeFOSAA	2000		I
N-ethylperfluoro-1-octanesulfonamidoacetic acid	N-EtFOSAA	2000		J
Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Potassium perfluoro-1-butanesulfonate	L-PFBS	2000	1770	A
Sodium perfluoro-1-hexanesulfonate	L-PFHxS	2000	1890	D
Sodium perfluoro-1-octanesulfonate	L-PFOS	2000	1910	G

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

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

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

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield 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

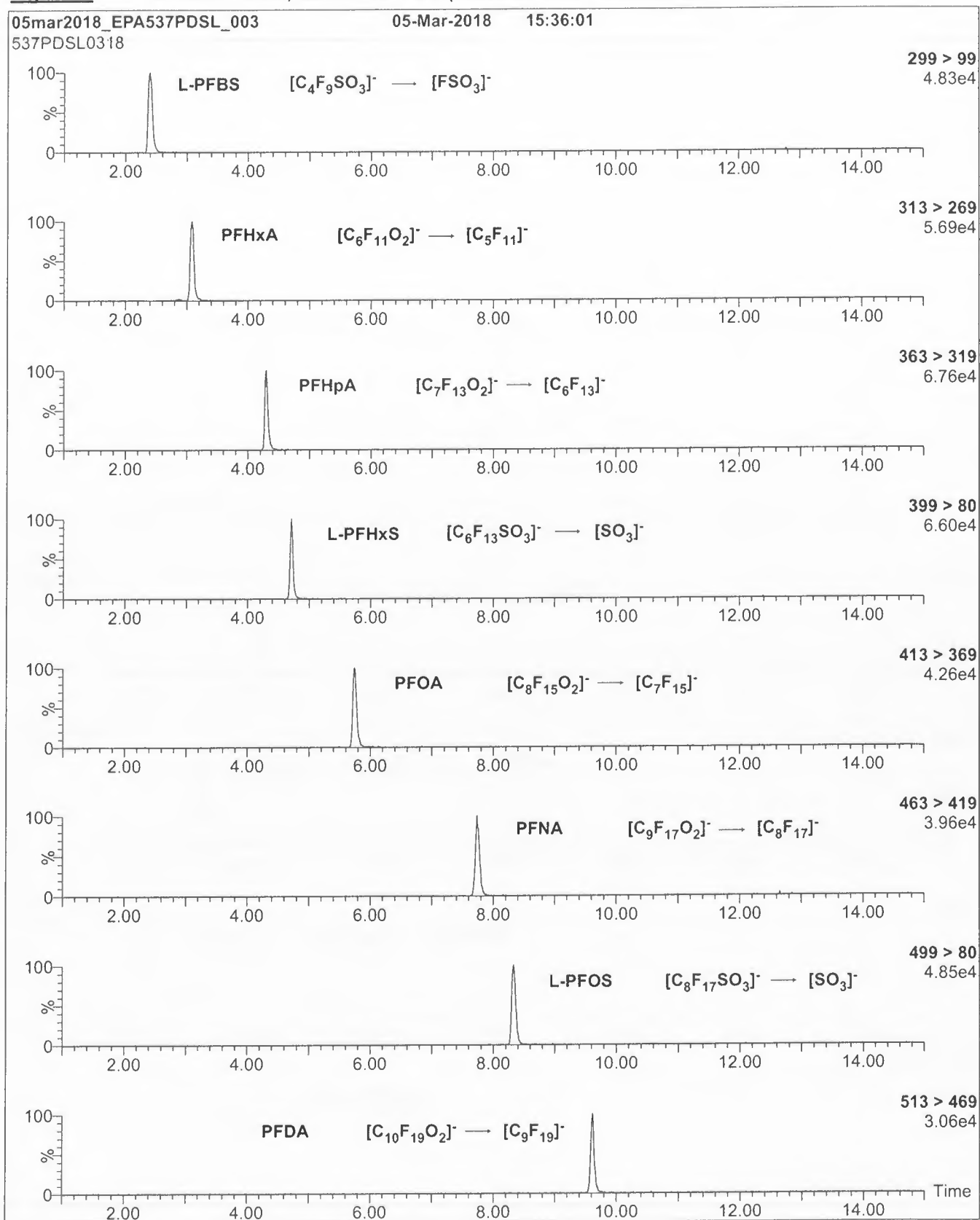
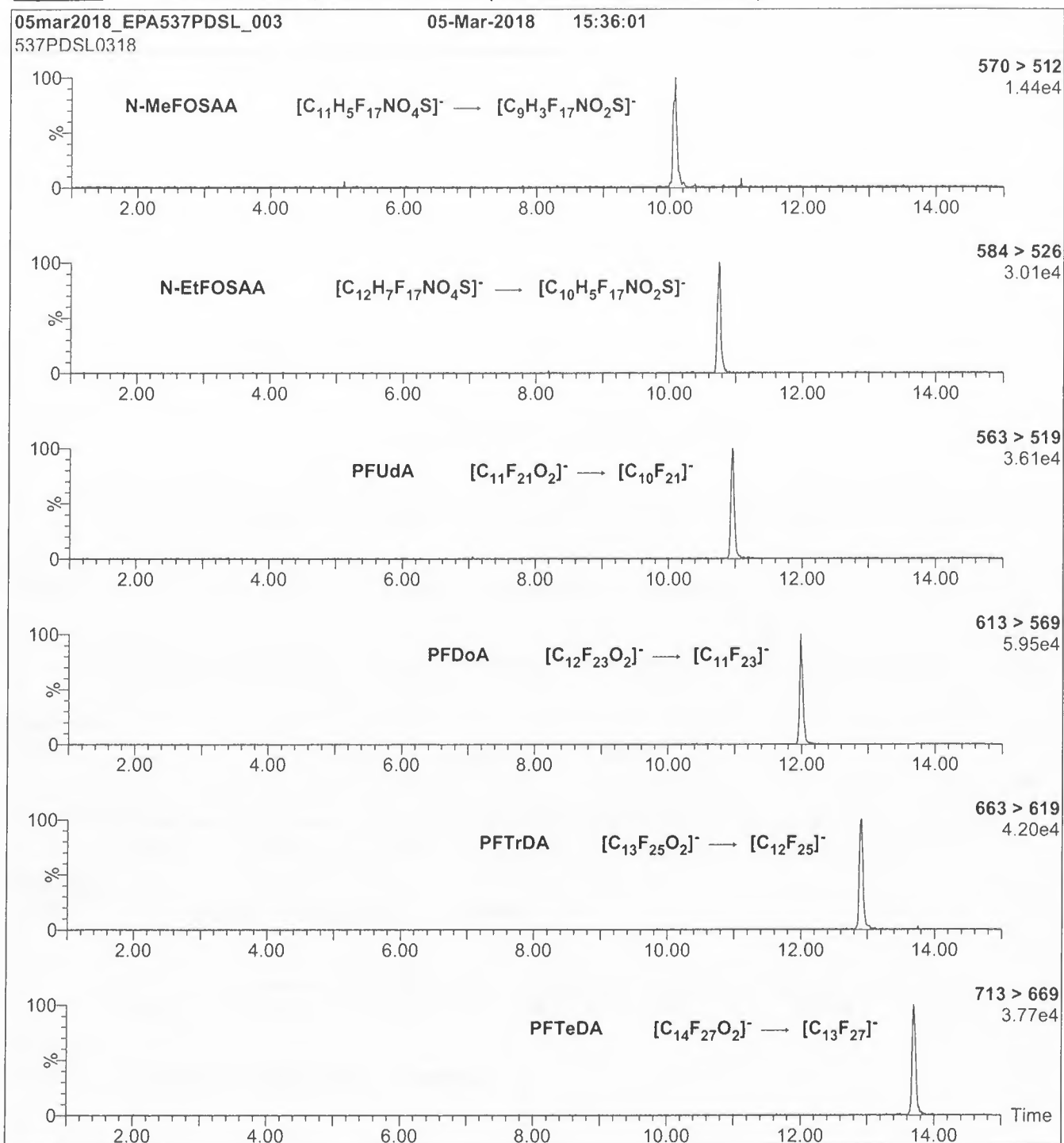
Figure 2: EPA-537PDS-L; LC/MS/MS Data (Selected MRM Transitions)

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**

<u>Project Title(s)</u>	<u>Project No.(s)</u>
CTO-SE0375: Naval Air Station Jacksonville	100119154- SE0375
18-0525	
CTO-SE0375: Drinking Water Analysis	
W	
SOP Numbers (see workplan for modifications)	
VOASOP No.	5-371

This Batch Contains The Following Samples:
CR653PB-FS CR654LCS-FS J7585-FS J7585MS-FS J7585MSD-FS J7587-FS

Laboratory Preparation Records
COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Denise Schumitz	08/28/2018	DMS



It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE IDENTIFICATION PAGE

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0525****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	Description
CR653PB-FS	Procedural Blank
CR654LCS-FS	Laboratory Control Sample
J7585-FS	JAX-RES-08222018-1000-35
J7585MS-FS	Matrix Spike of JAX-RES-08222018-1000-35
J7585MSD-FS	Matrix Spike Duplicate of JAX-RES-08222018-1000-35
J7587-FS	JAX-RES-08222018-1000-35-FD

Samples Assigned By:

Jonathan Thorn

Date : August 23, 2018

Comments:



**BATTELLE - NORWELL OPERATIONS
SAMPLE CUSTODY LOG**

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)

100119154-
SE0375

18-0525

CTO-SE0375: Drinking Water Analysis

W

Requested On/By: 08/24/2018 SAS	Purpose: Sample Preparation
Relinquished On/By: 08/24/2018 MDS	Last Activity: Transfer

Accepted On/By: 08/24/2018 SAS Stored In Facility: Sample Preparation Stored Until: 08/24/2018 Stored Comment: NA	Returned On/To: Returned To Facility: Returned Comment: NA
--	---

No.	BDO-ID:	Ctrs	*	Condition:	Custody Comment:
1	J7585	1	C	Consumed	NA
2	J7587	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

18-0525

CTO-SE0375: Drinking Water Analysis

W

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CR653PB-FS	Procedural Blank	250.0	NA	--	08/24/18 SAS
CR654LCS-FS	Laboratory Control Sample	250.0	NA	--	08/24/18 SAS
J7585-FS	JAX-RES-08222018-1000-35	265.0	1	C	08/24/18 SAS
J7585MS-FS	Matrix Spike	275.0	1	C	08/24/18 SAS
J7585MSD-FS	Matrix Spike Duplicate	265.0	2	C	08/24/18 SAS
J7587-FS	JAX-RES-08222018-1000-35-FD	280.0	1	C	08/24/18 SAS

Comments:

Sample ID:	Comments:
CR653PB-FS	1.23g Trizma(180502-01) weighed on BAL-009
CR654LCS-FS	1.27g Trizma(180502-01) weighed on BAL-009

Samples Assigned By

Jonathan Thorn

Date : August 23, 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**18-0525****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CR653PB-FS	JZ90	SIS	1	50	08/24/18 SAS	JCT	NA
CR654LCS-FS	JZ28	LCS/MS	1	75	08/24/18 SAS	JCT	NA
CR654LCS-FS	JZ90	SIS	1	50	08/24/18 SAS	JCT	NA
J7585-FS	JZ90	SIS	1	50	08/24/18 SAS	JCT	NA
J7585MS-FS	JZ28	LCS/MS	1	100	08/24/18 SAS	JCT	NA
J7585MS-FS	JZ90	SIS	1	50	08/24/18 SAS	JCT	NA
J7585MSD-FS	JZ28	LCS/MS	1	100	08/24/18 SAS	JCT	NA
J7585MSD-FS	JZ90	SIS	1	50	08/24/18 SAS	JCT	NA
J7587-FS	JZ90	SIS	1	50	08/24/18 SAS	JCT	NA

Syringes/Pipettes Used:

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



It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE EXTRACTION FORM

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0525****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CR653PB-FS	08/24/18 SAS	NA	NA	NA	NA	NA	NA	NA
CR654LCS-FS	08/24/18 SAS	NA	NA	NA	NA	NA	NA	NA
J7585-FS	08/24/18 SAS	NA	NA	NA	NA	NA	NA	NA
J7585MS-FS	08/24/18 SAS	NA	NA	NA	NA	NA	NA	NA
J7585MSD-FS	08/24/18 SAS	NA	NA	NA	NA	NA	NA	NA
J7587-FS	08/24/18 SAS	NA	NA	NA	NA	NA	NA	NA

Solvents/Reagent Preparations:

Name	ID	Expires	Lot No	Procedure	Comments
Pre-packed SPE Column	RP-180824-2	08/24/18	S214-0075	Pre-packed SPE Column	

Solvents/Reagents:

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



It can be done

BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0525****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
CR653PB-FS(0)	950	50	JZ87	50	1	1000	1.000	08/27/18 SAS	JCT
CR654LCS-FS(0)	950	50	JZ87	50	1	1000	1.000	08/27/18 SAS	JCT
J7585-FS(0)	950	50	JZ87	50	1	1000	1.000	08/27/18 SAS	JCT
J7585MS-FS(0)	950	50	JZ87	50	1	1000	1.000	08/27/18 SAS	JCT
J7585MSD-FS(0)	950	50	JZ87	50	1	1000	1.000	08/27/18 SAS	JCT
J7587-FS(0)	950	50	JZ87	50	1	1000	1.000	08/27/18 SAS	JCT

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**18-0525****CTO-SE0375: Drinking Water Analysis****W**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CR653PB-FS	0	--	8/24/2018 11:02:00 AM	NA		NA	NA	1.000	1.000	08/24/18 SAS
CR654LCS-FS	0	--	8/24/2018 11:02:00 AM	NA		NA	NA	1.000	1.000	08/24/18 SAS
J7585-FS	0	--	8/24/2018 11:02:00 AM	NA		NA	NA	1.000	1.000	08/24/18 SAS
J7585MS-FS	0	--	8/24/2018 11:02:00 AM	NA		NA	NA	1.000	1.000	08/24/18 SAS
J7585MSD-FS	0	--	8/24/2018 11:02:00 AM	NA		NA	NA	1.000	1.000	08/24/18 SAS
J7587-FS	0	--	8/24/2018 11:02:00 AM	NA		NA	NA	1.000	1.000	08/24/18 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**18-0525****CTO-SE0375: Drinking Water Analysis****W**

Purpose: LC-MS/MS TRANSFER		Last Activity: Prep->Inst	
Relinquished On/By: Aug 27 2018 10:09AM SAS		Received On/By: Aug 27 2018 10:09AM 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	CR653PB-FS(0)	1000	1	Intact	NA
2	CR654LCS-FS(0)	1000	1	Intact	NA
3	J7585-FS(0)	1000	1	Intact	NA
4	J7585MS-FS(0)	1000	1	Intact	NA
5	J7585MSD-FS(0)	1000	1	Intact	NA
6	J7587-FS(0)	1000	1	Intact	NA

Total Extracts:	6
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It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE SPECIFIC COMMENTS

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0525****CTO-SE0375: Drinking Water Analysis****W**

Sample ID:	Comment:	Date/Initials:
CR653PB-FS	Extraction for all samples began at 11:02am	08/24/18 SAS
CR653PB-FS	Sample extraction ended at 11:29am	08/24/18 SAS
CR654LCS-FS	Sample extraction ended at 11:25am	08/24/18 SAS
J7585-FS	Sample extraction ended at 11:34am	08/24/18 SAS
J7585MS-FS	Sample extraction ended at 11:34am	08/24/18 SAS
J7585MSD-FS	Sample extraction ended at 11:30am	08/24/18 SAS
J7587-FS	Sample extraction ended at 11:32am	08/24/18 SAS



It can be done

**BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM**

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)

100119154-
SE0375

18-0525

CTO-SE0375: Drinking Water Analysis

W

Entered By: _____ On: _____

Task Leader Approval:

On:

SupervisorApproval:

On:

PM Approval:

On:

Analytical Calibrations

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		8/27/2018 11:32:27 AM	5-0371.dam	18-0525.wiff
4	JZ80	L3	8/27/2018 11:59:18 AM	5-0371.dam	18-0525.wiff
5	JZ81	L4	8/27/2018 12:08:15 PM	5-0371.dam	18-0525.wiff
6	JZ82	L5	8/27/2018 12:17:13 PM	5-0371.dam	18-0525.wiff
7	JZ83	L6	8/27/2018 12:26:09 PM	5-0371.dam	18-0525.wiff
8	JZ84	L7	8/27/2018 12:35:06 PM	5-0371.dam	18-0525.wiff
9	JZ85	L8	8/27/2018 12:44:03 PM	5-0371.dam	18-0525.wiff
10	JZ86	L9	8/27/2018 12:53:00 PM	5-0371.dam	18-0525.wiff
11	KA08 IB	Instrument Blank	8/27/2018 1:01:55 PM	5-0371.dam	18-0525.wiff
12	JZ77 ICC	ICC	8/27/2018 1:10:52 PM	5-0371.dam	18-0525.wiff
1	MeOH		8/27/2018 1:19:50 PM	5-0371.dam	18-0525.wiff
13	CR653PB-FS(0)	Procedural Blank	8/27/2018 1:28:46 PM	5-0371.dam	18-0525.wiff
14	CR654LCS-FS(0)	Laboratory Control Sample	8/27/2018 1:37:44 PM	5-0371.dam	18-0525.wiff
15	J7585-FS(0)	JAX-RES-08222018-1000-35	8/27/2018 1:46:39 PM	5-0371.dam	18-0525.wiff
16	J7585MS-FS(0)	Matrix Spike Sample	8/27/2018 1:55:35 PM	5-0371.dam	18-0525.wiff
17	J7585MSD-FS(0)	Matrix Spike Duplicate	8/27/2018 2:04:32 PM	5-0371.dam	18-0525.wiff
18	J7587-FS(0)	JAX-RES-08222018-1000-35-FD	8/27/2018 2:13:27 PM	5-0371.dam	18-0525.wiff
19	JZ82 CCV	CCV	8/27/2018 2:22:24 PM	5-0371.dam	18-0525.wiff



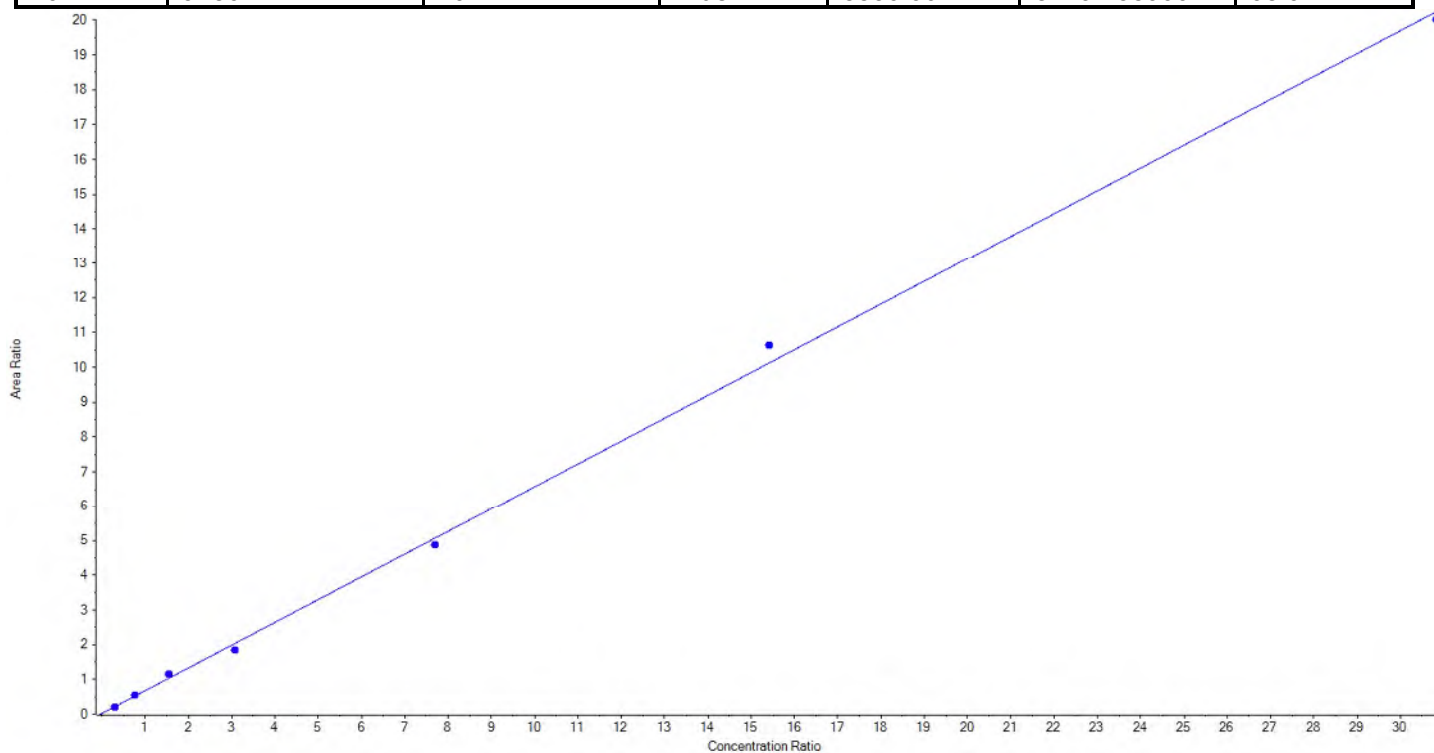
Calibration Summary Report

Created with Analyst Reporter
Printed: 28/08/2018 3:34:07 PM

Analyte Name	PFBS_1	Data File	18-0525.wiff
MRM Transition	298.9 / 80.0	Result Table	18-0525_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.65575x + 0.01601$ ($r = 0.99898$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	82.828388	93.5
5	JZ81	L4	True	221.50	232.885833	105.1
6	JZ82	L5	True	443.00	492.286464	111.1
7	JZ83	L6	True	885.00	800.487094	90.5
8	JZ84	L7	True	2212.50	2123.658661	96.0
9	JZ85	L8	True	4425.00	4644.014660	105.0
10	JZ86	L9	True	8850.00	8749.438900	98.9





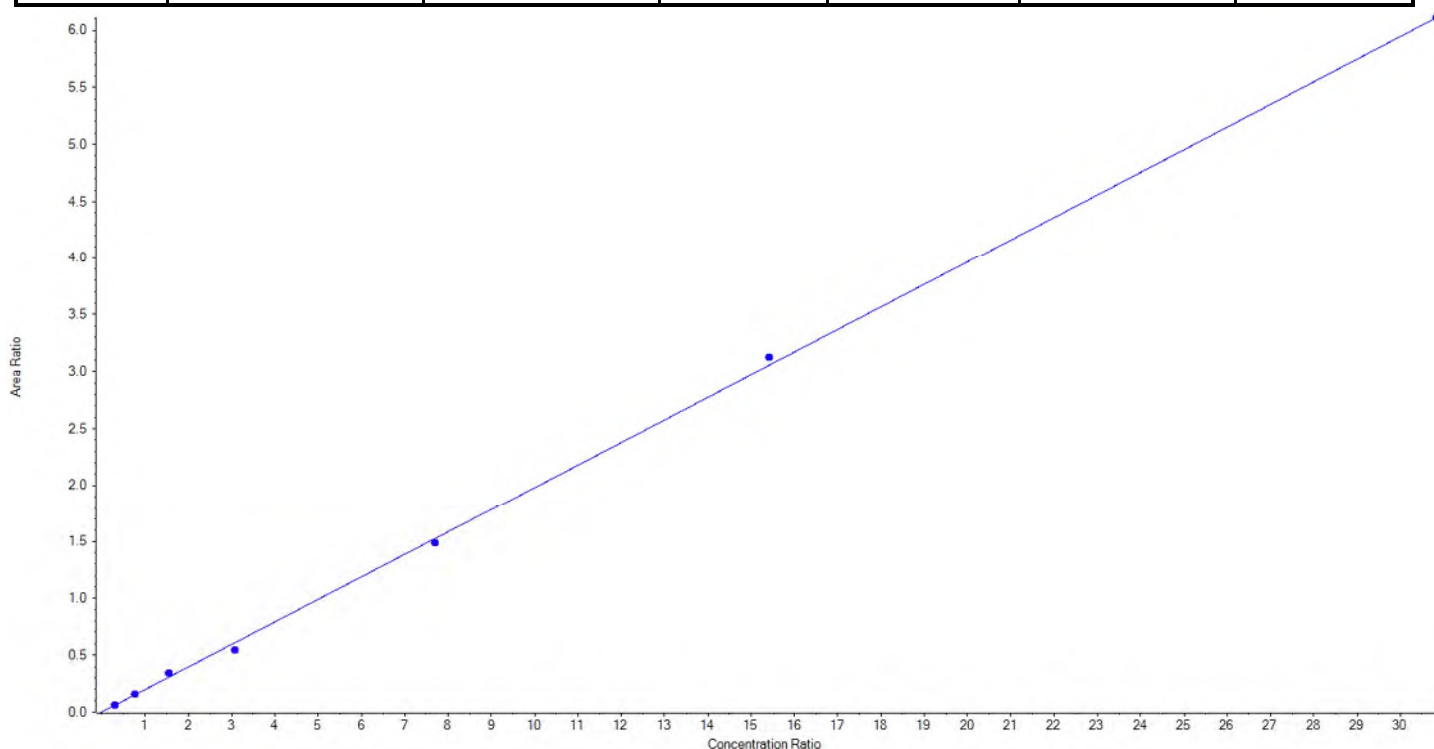
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Analyte Name	PFBS_2	Data File	18-0525.wiff
MRM Transition	298.9 / 99.0	Result Table	18-0525_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.19815x + 4.68720e-4$ ($r = 0.99926$) (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	87.647374	98.9
5	JZ81	L4	True	221.50	223.294061	100.8
6	JZ82	L5	True	443.00	495.698222	111.9
7	JZ83	L6	True	885.00	784.503300	88.6
8	JZ84	L7	True	2212.50	2153.317303	97.3
9	JZ85	L8	True	4425.00	4531.256832	102.4
10	JZ86	L9	True	8850.00	8849.882908	100.0





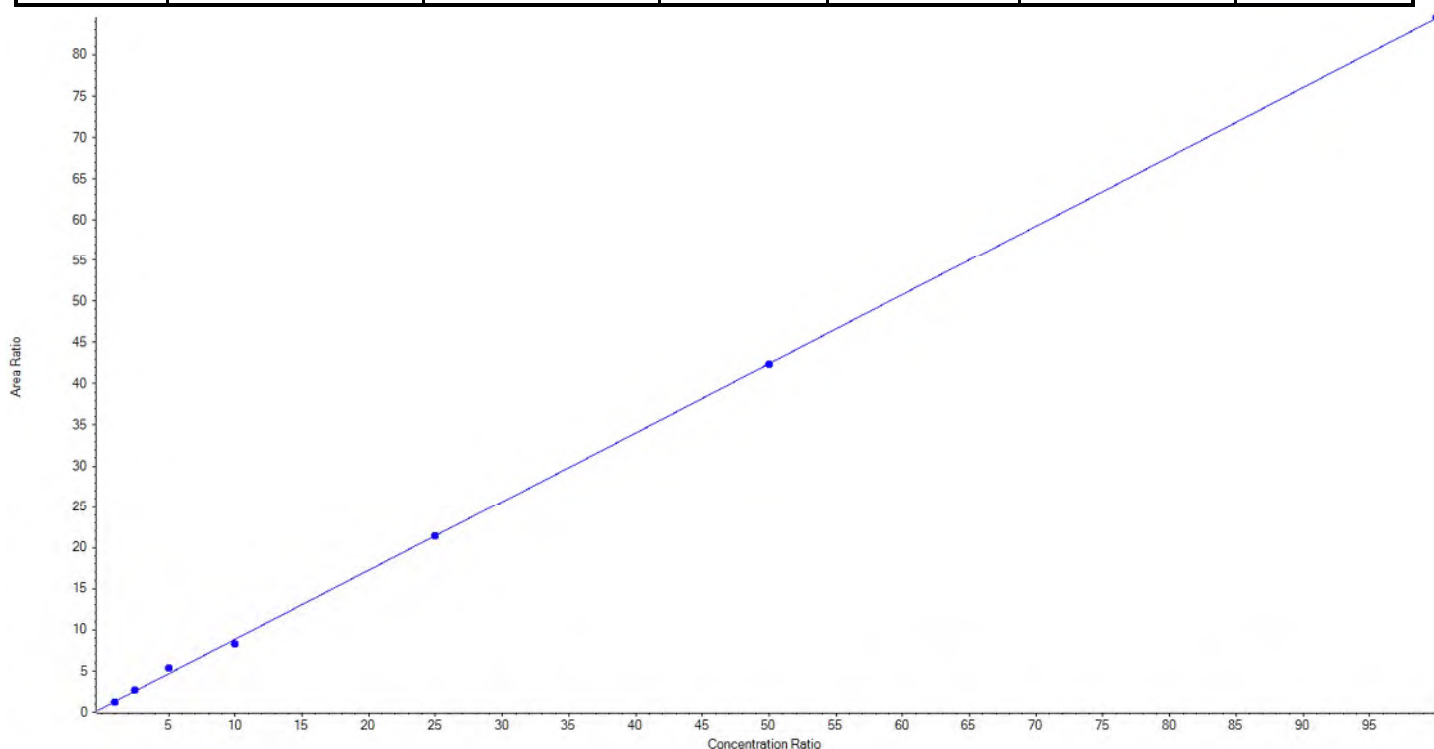
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Analyte Name	PFHxA_1	Data File	18-0525.wiff
MRM Transition	313.0 / 269.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.83960 x + 0.45993$ (r = 0.99941) (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	87.679673	87.7
5	JZ81	L4	True	250.00	261.129201	104.5
6	JZ82	L5	True	500.00	577.379232	115.5
7	JZ83	L6	True	1000.00	925.527849	92.6
8	JZ84	L7	True	2500.00	2497.536954	99.9
9	JZ85	L8	True	5000.00	4993.106580	99.9
10	JZ86	L9	True	10000.00	10007.640510	100.1





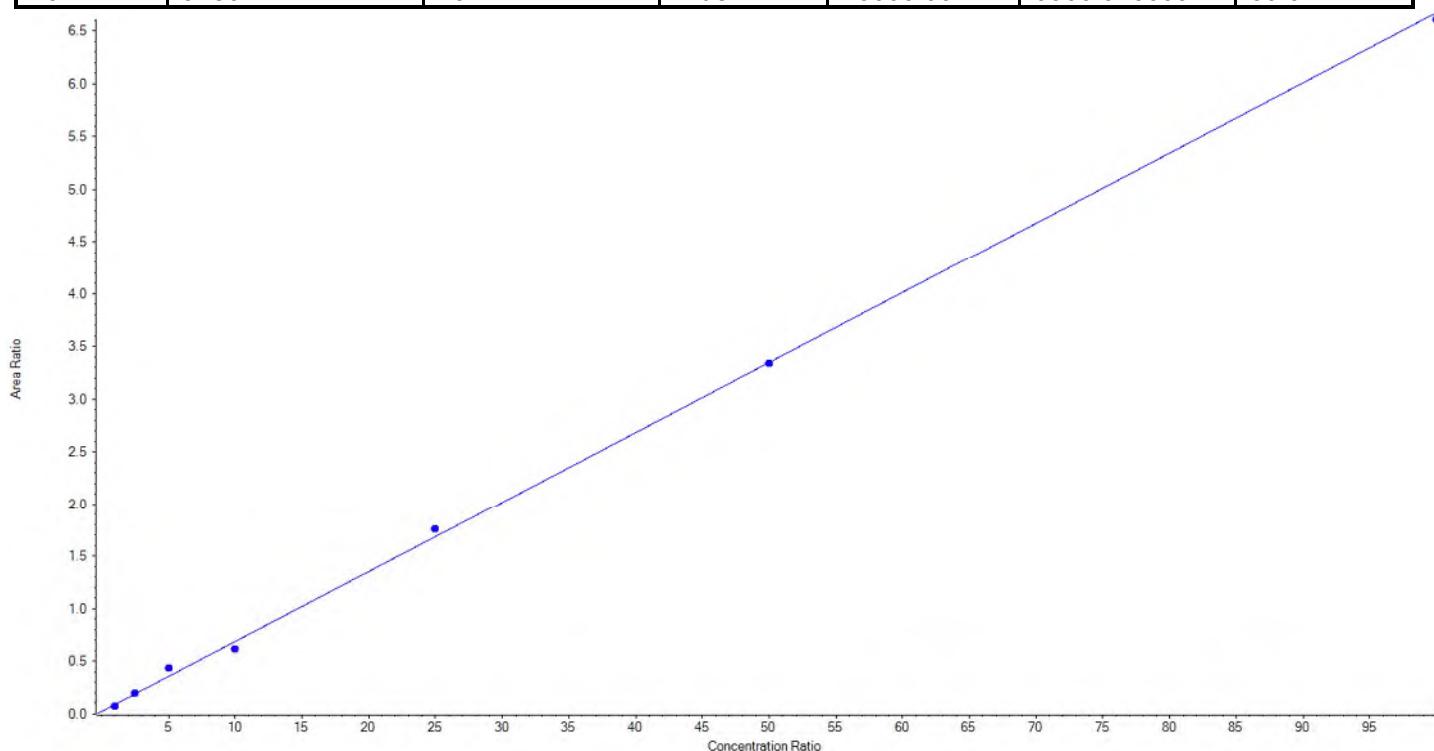
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Analyte Name	PFHxA_2	Data File	18-0525.wiff
MRM Transition	313.0 / 119.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06650 x + 0.02569$ ($r = 0.99842$) (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	79.300240	79.3
5	JZ81	L4	True	250.00	260.058016	104.0
6	JZ82	L5	True	500.00	622.184603	124.4
7	JZ83	L6	True	1000.00	890.682117	89.1
8	JZ84	L7	True	2500.00	2610.819321	104.4
9	JZ85	L8	True	5000.00	4986.909093	99.7
10	JZ86	L9	True	10000.00	9900.046609	99.0





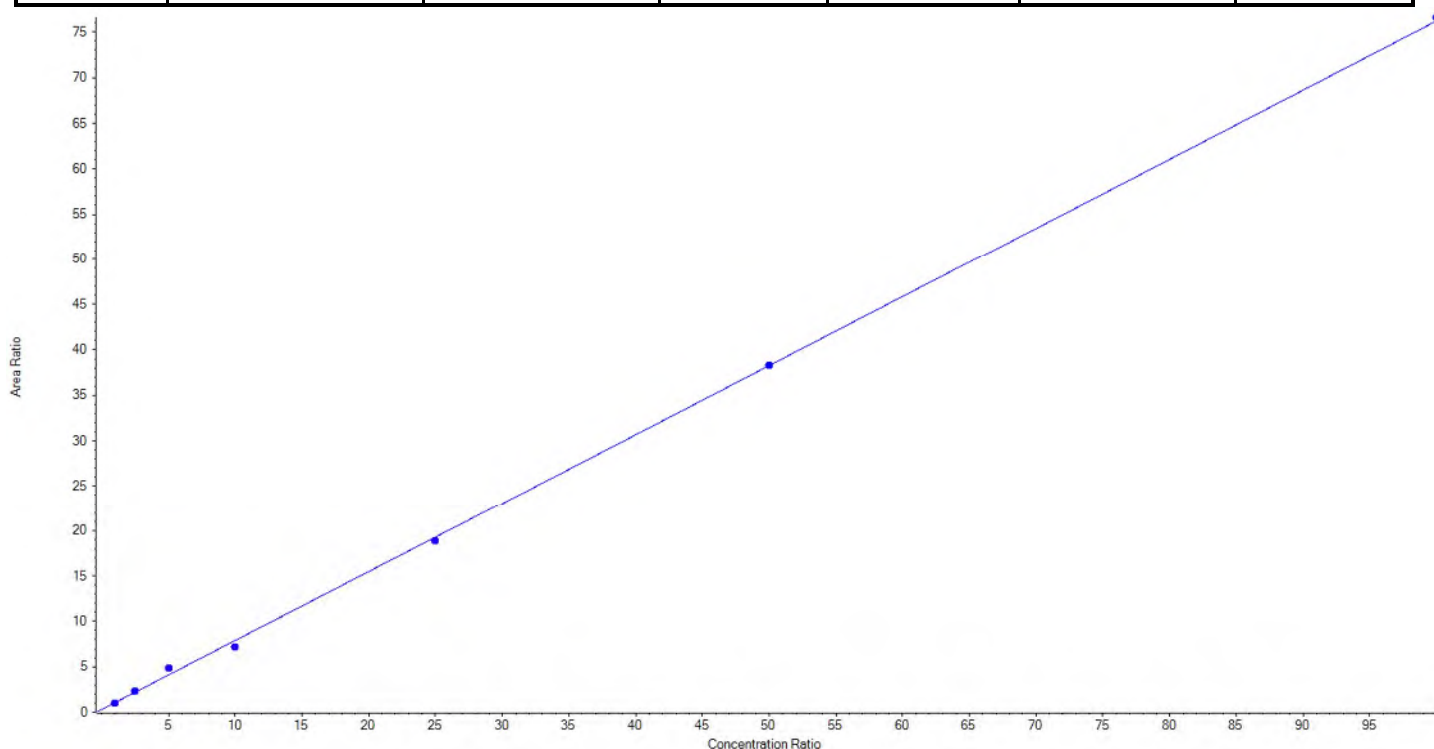
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Analyte Name	PFHpA_1	Data File	18-0525.wiff
MRM Transition	363.0 / 319.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.75912x + 0.29987$ ($r = 0.99893$) (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	85.690850	85.7
5	JZ81	L4	True	250.00	261.689486	104.7
6	JZ82	L5	True	500.00	605.059156	121.0
7	JZ83	L6	True	1000.00	904.631377	90.5
8	JZ84	L7	True	2500.00	2439.084070	97.6
9	JZ85	L8	True	5000.00	5005.657332	100.1
10	JZ86	L9	True	10000.00	10048.187730	100.5





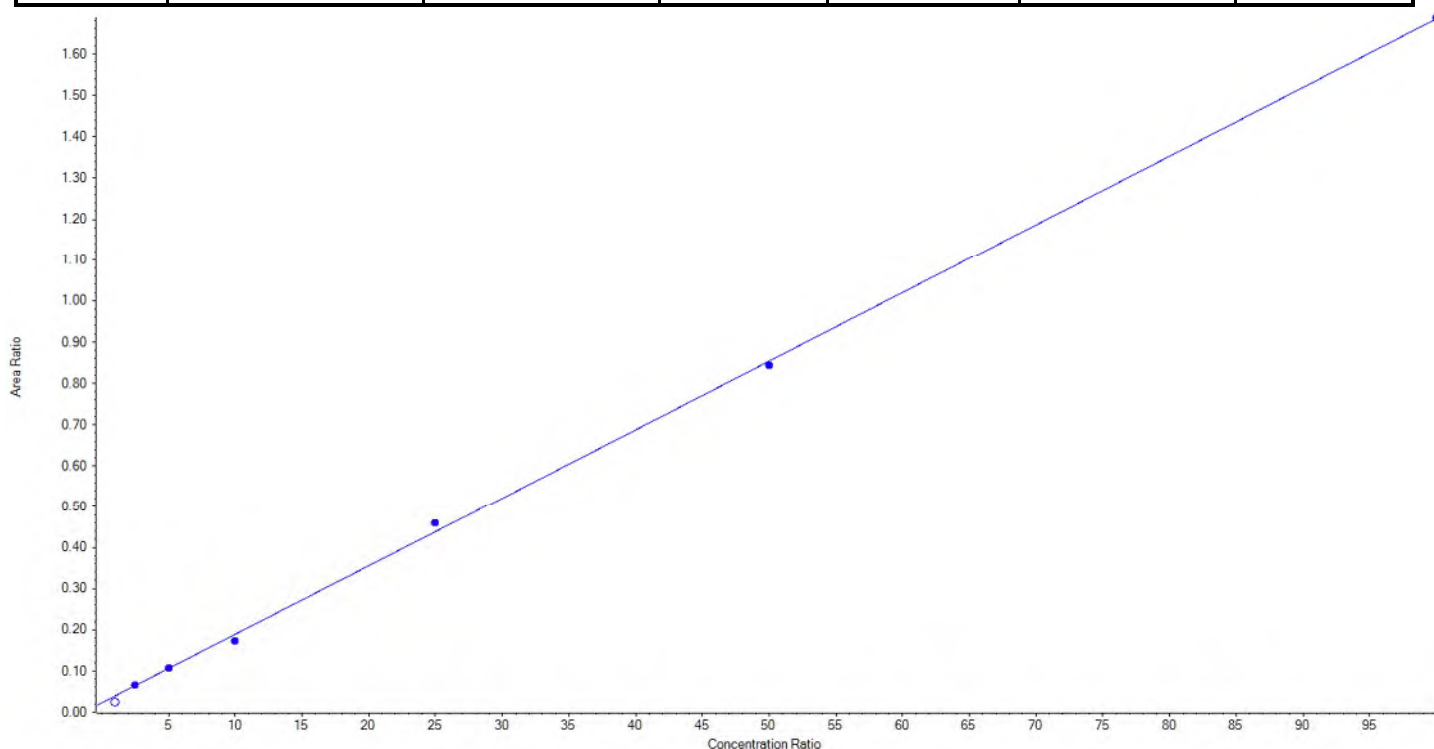
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Analyte Name	PFHpA_2	Data File	18-0525.wiff
MRM Transition	363.0 / 169.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.01663 x + 0.02272$ ($r = 0.99938$) (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	11.062321	11.1
5	JZ81	L4	True	250.00	261.567678	104.6
6	JZ82	L5	True	500.00	508.194807	101.6
7	JZ83	L6	True	1000.00	897.545755	89.8
8	JZ84	L7	True	2500.00	2623.841454	105.0
9	JZ85	L8	True	5000.00	4943.723068	98.9
10	JZ86	L9	True	10000.00	10015.127238	100.2





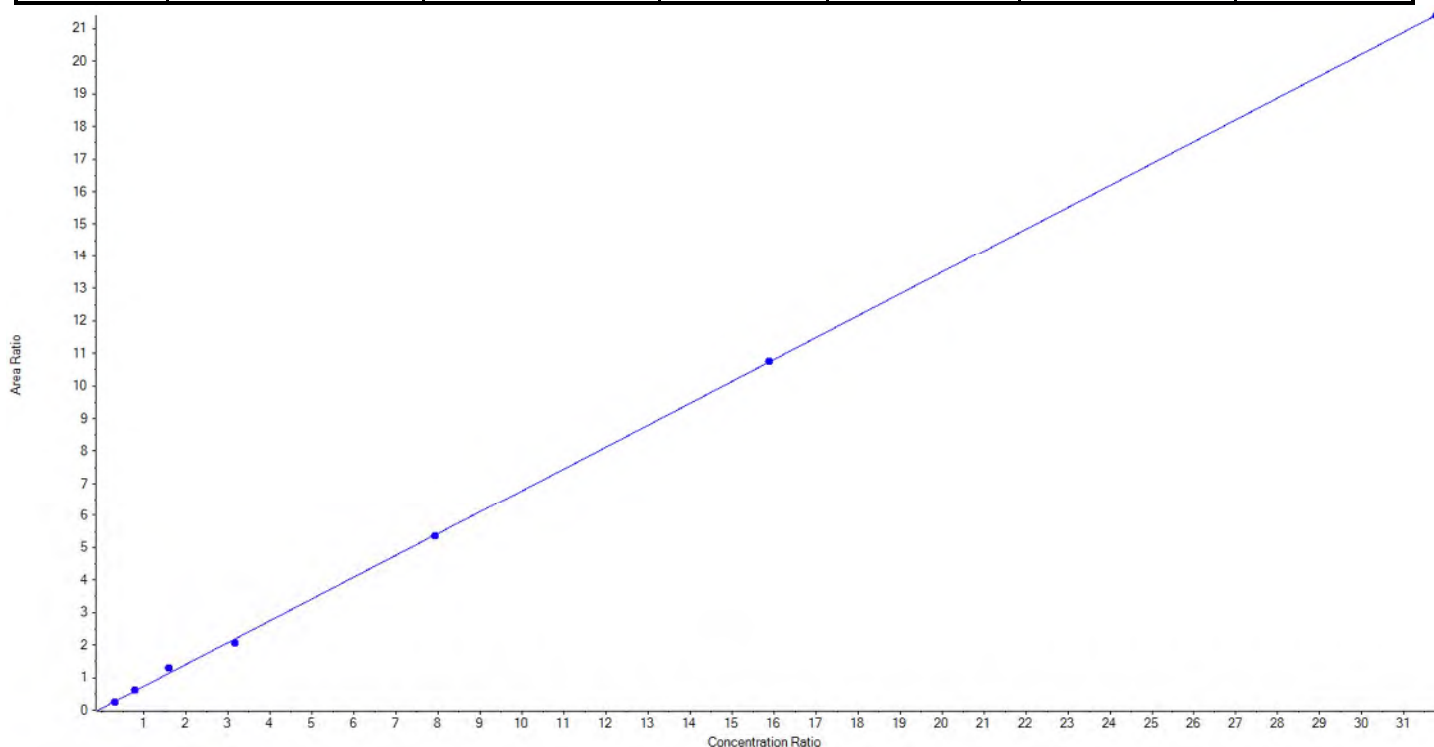
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Analyte Name	PFHxS_1	Data File	18-0525.wiff
MRM Transition	399.0 / 80.0	Result Table	18-0525_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.67203x + 0.05816$ ($r = 0.99944$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	78.439780	86.0
5	JZ81	L4	True	228.00	238.902169	104.8
6	JZ82	L5	True	456.00	527.683501	115.7
7	JZ83	L6	True	912.00	857.339814	94.0
8	JZ84	L7	True	2280.00	2267.503898	99.5
9	JZ85	L8	True	4560.00	4565.520591	100.1
10	JZ86	L9	True	9120.00	9111.810246	99.9





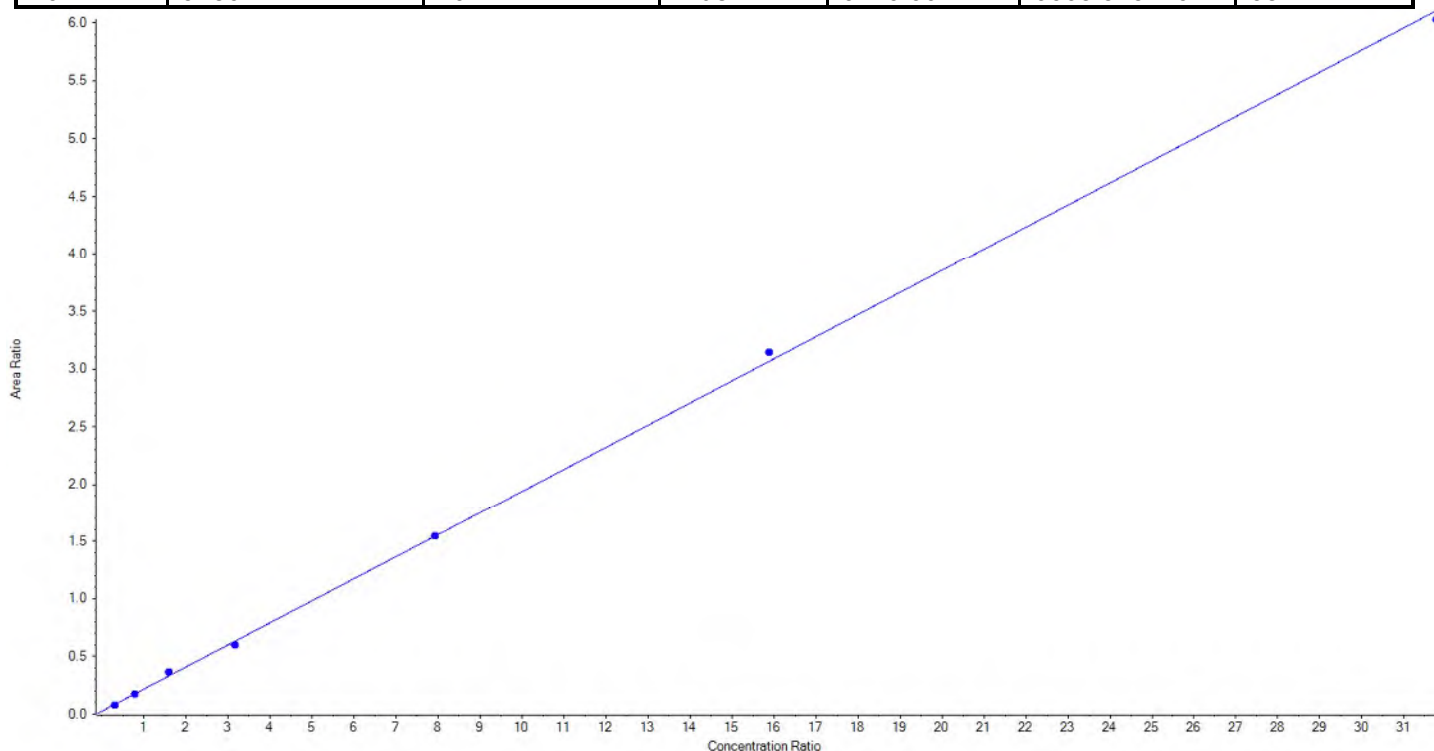
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Analyte Name	PFHxS_2	Data File	18-0525.wiff
MRM Transition	399.0 / 99.0	Result Table	18-0525_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.19135x + 0.02531$ ($r = 0.99949$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	82.859963	90.9
5	JZ81	L4	True	228.00	228.775769	100.3
6	JZ82	L5	True	456.00	515.130920	113.0
7	JZ83	L6	True	912.00	862.726057	94.6
8	JZ84	L7	True	2280.00	2280.602261	100.0
9	JZ85	L8	True	4560.00	4673.579914	102.5
10	JZ86	L9	True	9120.00	9003.525116	98.7





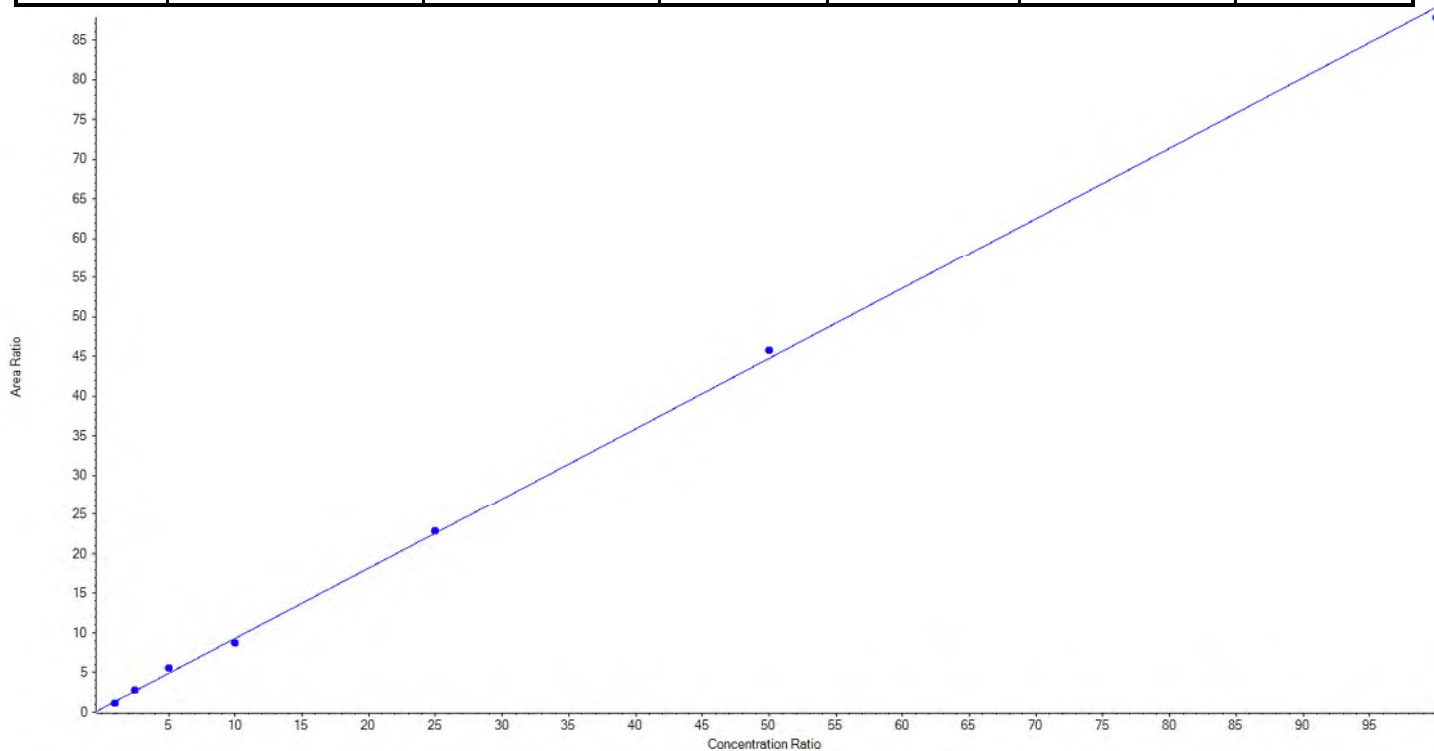
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Analyte Name	PFOA_1	Data File	18-0525.wiff
MRM Transition	413.0 / 369.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.88636 x + 0.45305$ ($r = 0.99926$) (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	83.391443	83.4
5	JZ81	L4	True	250.00	269.528598	107.8
6	JZ82	L5	True	500.00	570.131748	114.0
7	JZ83	L6	True	1000.00	927.785930	92.8
8	JZ84	L7	True	2500.00	2527.061376	101.1
9	JZ85	L8	True	5000.00	5118.871087	102.4
10	JZ86	L9	True	10000.00	9853.229818	98.5





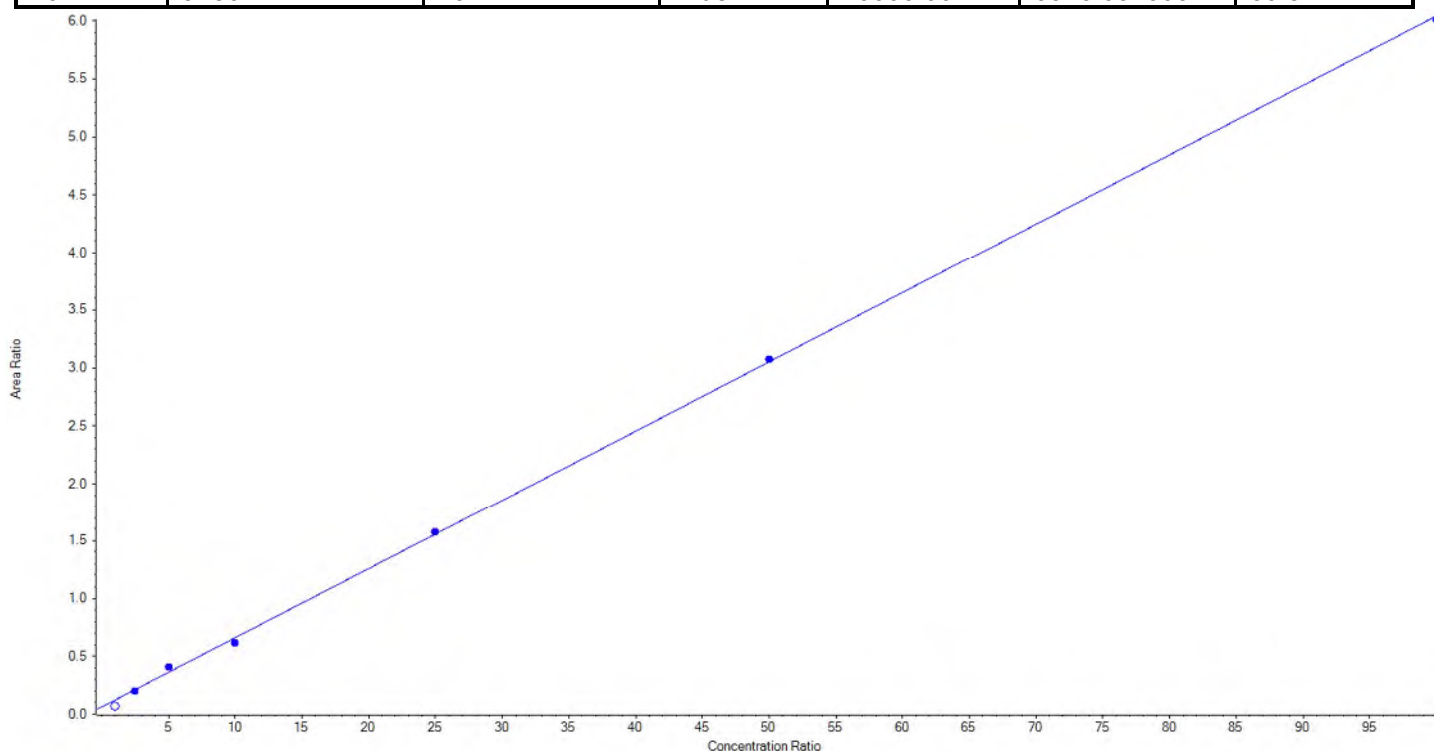
Calibration Summary Report

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Analyte Name	PFOA_2	Data File	18-0525.wiff
MRM Transition	413.0 / 169.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05978 x + 0.06259$ (r = 0.99928) (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	8.292401	8.3
5	JZ81	L4	True	250.00	224.737328	89.9
6	JZ82	L5	True	500.00	578.265381	115.7
7	JZ83	L6	True	1000.00	928.939081	92.9
8	JZ84	L7	True	2500.00	2533.161527	101.3
9	JZ85	L8	True	5000.00	5038.265684	100.8
10	JZ86	L9	True	10000.00	9946.631000	99.5





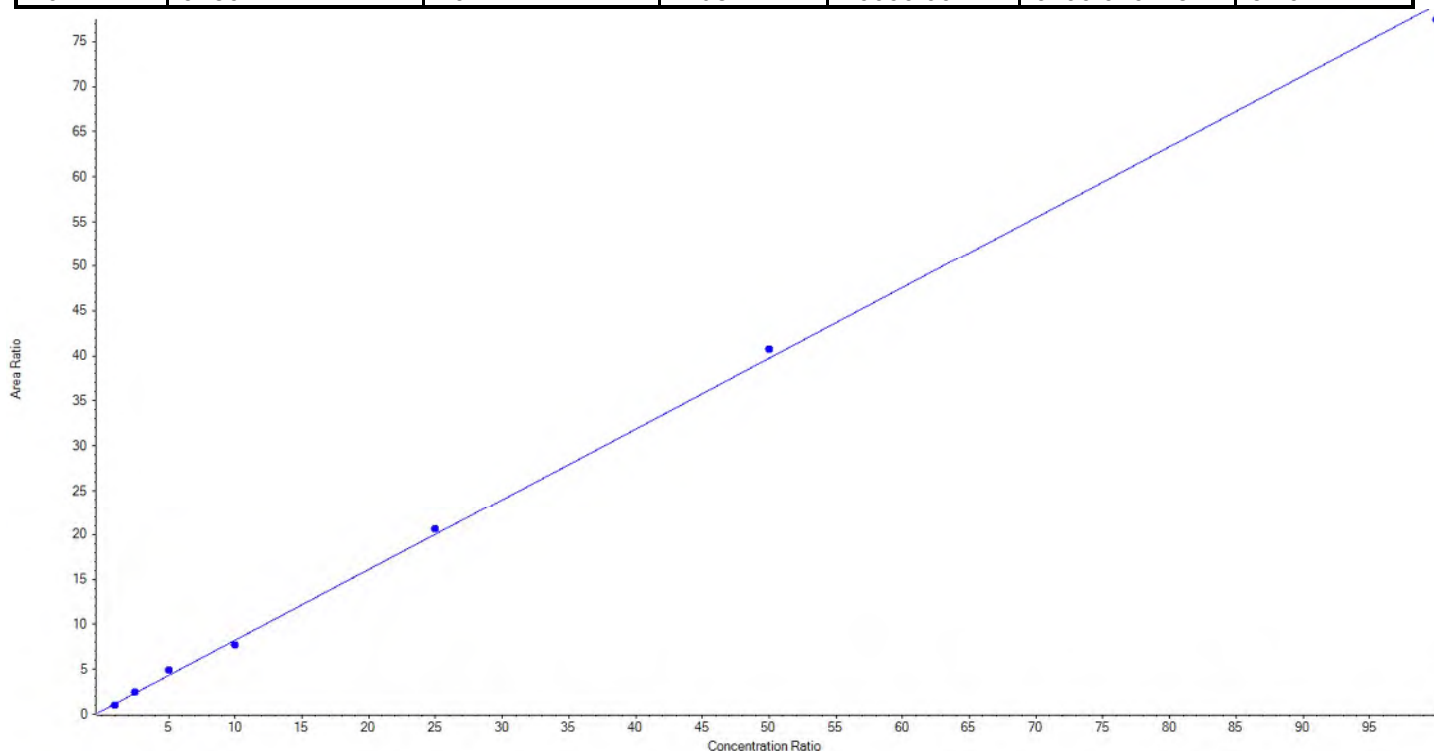
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Analyte Name	PFNA_1	Data File	18-0525.wiff
MRM Transition	463.0 / 419.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.78715x + 0.36670$ ($r = 0.99906$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	80.862562	80.9
5	JZ81	L4	True	250.00	269.307743	107.7
6	JZ82	L5	True	500.00	574.272920	114.9
7	JZ83	L6	True	1000.00	929.032340	92.9
8	JZ84	L7	True	2500.00	2581.639903	103.3
9	JZ85	L8	True	5000.00	5124.208114	102.5
10	JZ86	L9	True	10000.00	9790.676418	97.9





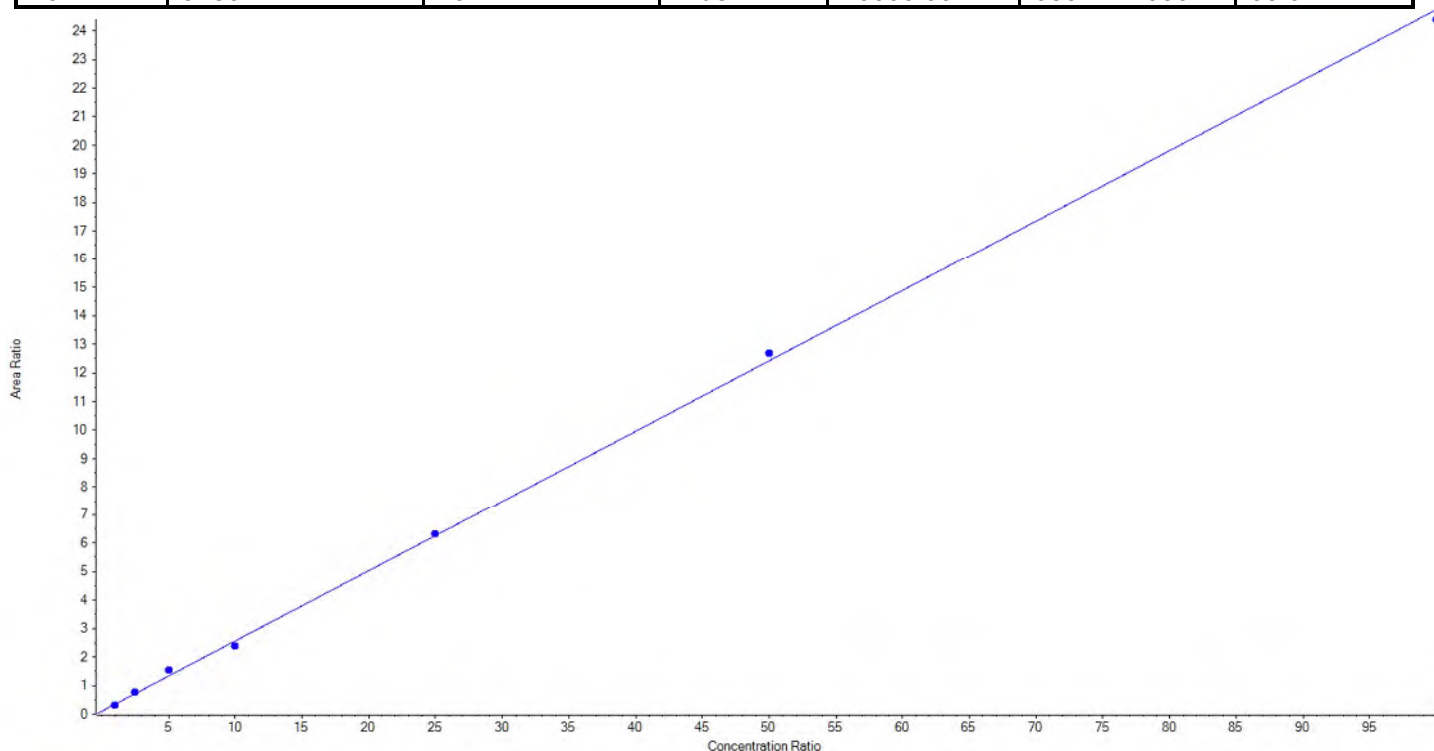
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Analyte Name	PFNA_2	Data File	18-0525.wiff
MRM Transition	463.0 / 219.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.24636 x + 0.10358$ ($r = 0.99920$) (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	82.875592	82.9
5	JZ81	L4	True	250.00	264.972843	106.0
6	JZ82	L5	True	500.00	581.375916	116.3
7	JZ83	L6	True	1000.00	929.717428	93.0
8	JZ84	L7	True	2500.00	2532.080496	101.3
9	JZ85	L8	True	5000.00	5101.534796	102.0
10	JZ86	L9	True	10000.00	9857.442930	98.6





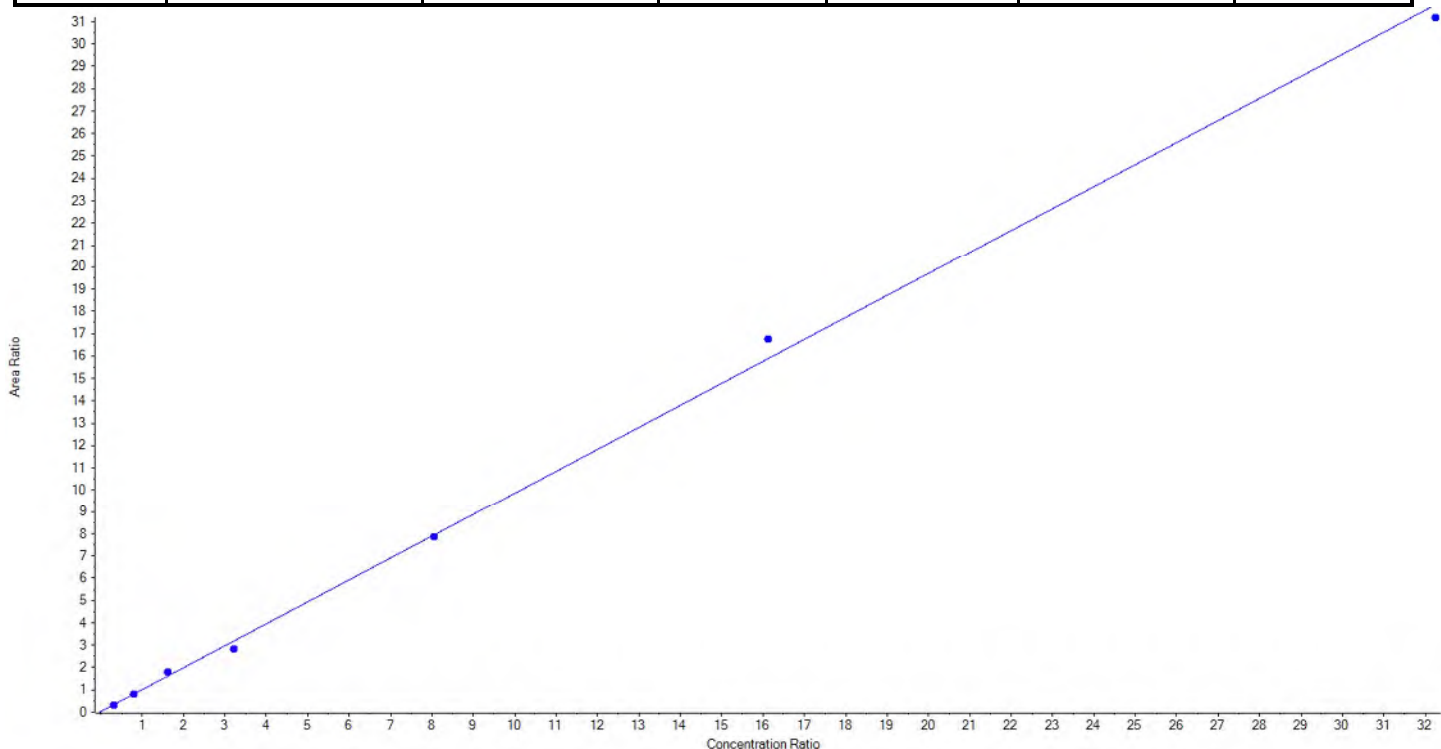
Calibration Summary Report

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Analyte Name	PFOS_1	Data File	18-0525.wiff
MRM Transition	499.0 / 80.0	Result Table	18-0525_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.98373 x + 0.02356$ (r = 0.99876) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	92.60	89.793340	97.0
5	JZ81	L4	True	231.50	231.349811	99.9
6	JZ82	L5	True	463.00	522.187214	112.8
7	JZ83	L6	True	925.60	814.226426	88.0
8	JZ84	L7	True	2314.00	2283.768131	98.7
9	JZ85	L8	True	4628.00	4880.604925	105.5
10	JZ86	L9	True	9256.00	9088.770153	98.2





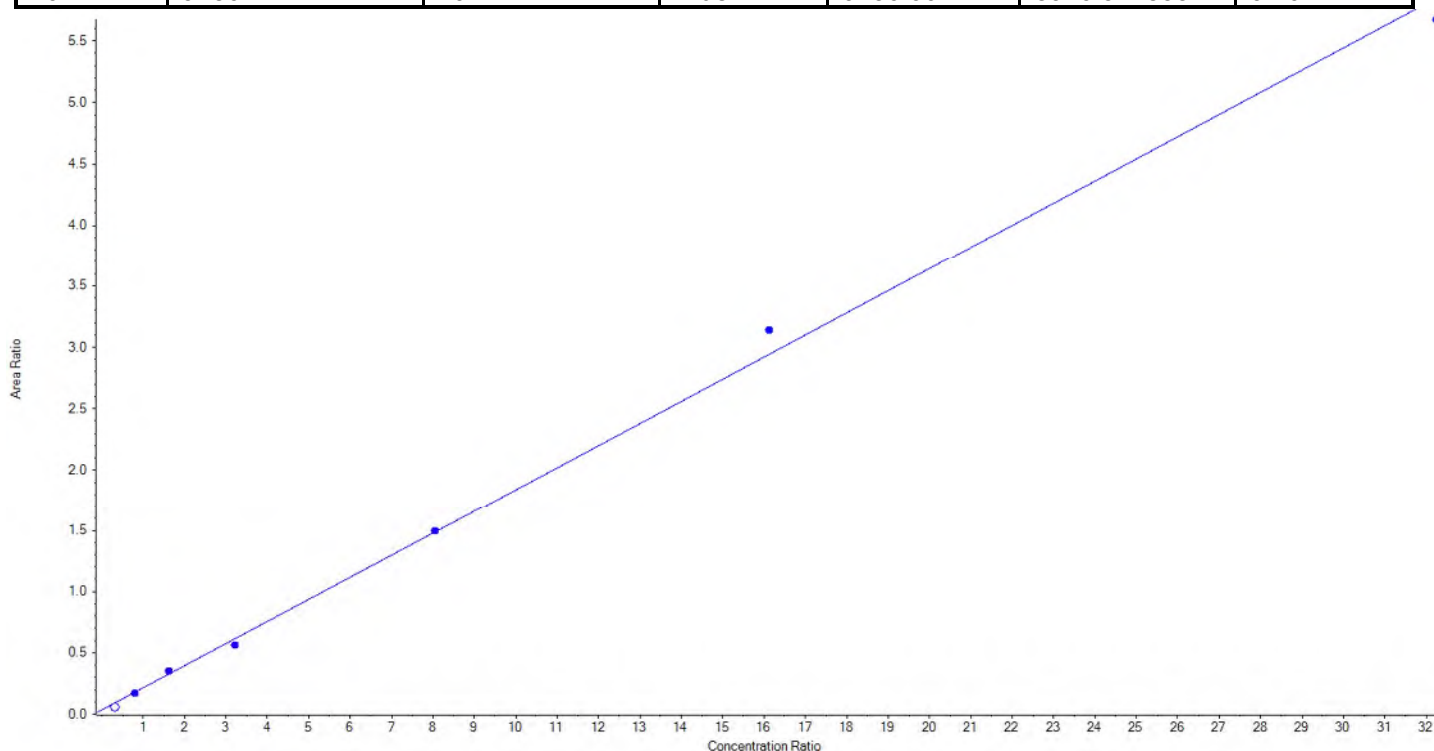
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Analyte Name	PFOS_2	Data File	18-0525.wiff
MRM Transition	499.0 / 99.0	Result Table	18-0525_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.18027 x + 0.03484$ (r = 0.99843) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	92.60	42.135225	45.5
5	JZ81	L4	True	231.50	217.973153	94.2
6	JZ82	L5	True	463.00	510.648920	110.3
7	JZ83	L6	True	925.60	844.008582	91.2
8	JZ84	L7	True	2314.00	2328.895378	100.6
9	JZ85	L8	True	4628.00	4940.032133	106.7
10	JZ86	L9	True	9256.00	8976.541835	97.0





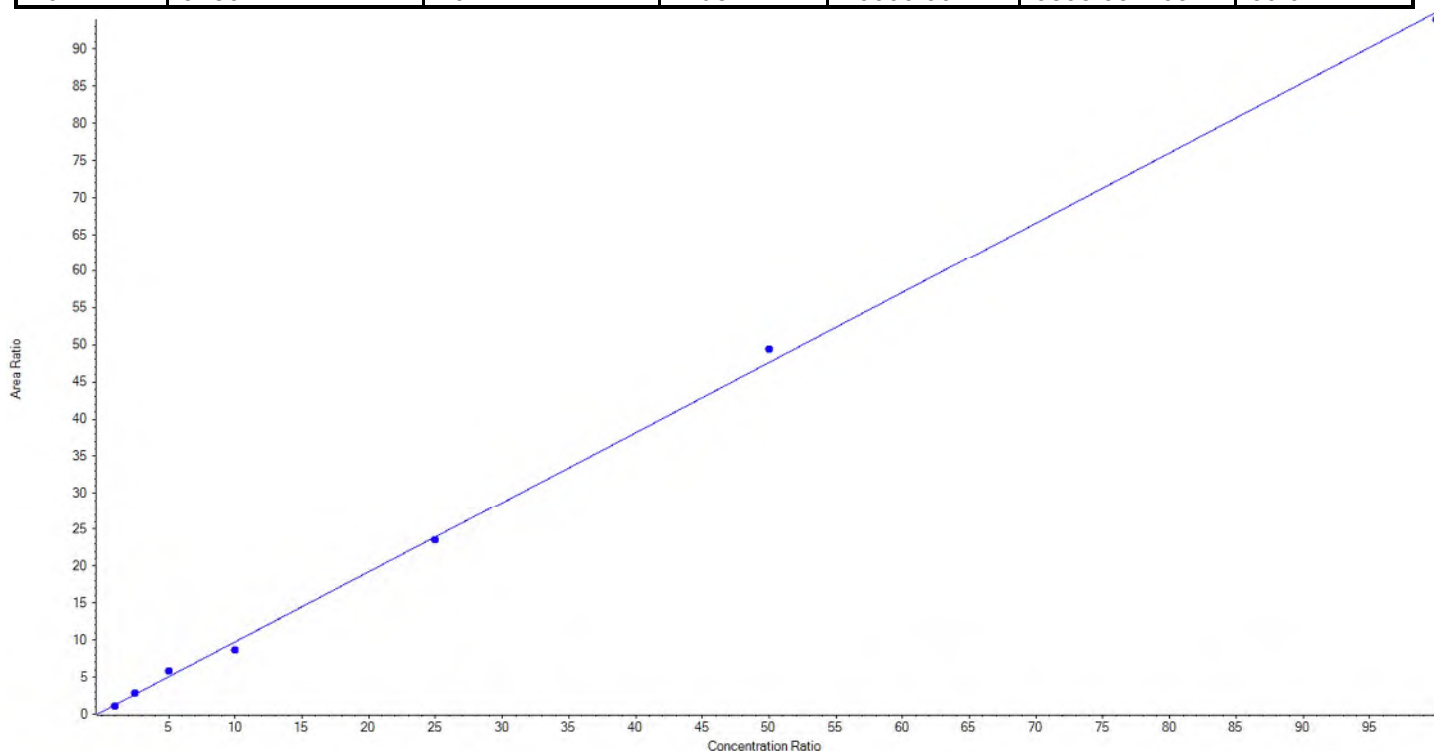
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Analyte Name	PFDA_1	Data File	18-0525.wiff
MRM Transition	513.0 / 469.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.94644 x + 0.30802$ ($r = 0.99888$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	88.021283	88.0
5	JZ81	L4	True	250.00	266.322907	106.5
6	JZ82	L5	True	500.00	580.780374	116.2
7	JZ83	L6	True	1000.00	886.839331	88.7
8	JZ84	L7	True	2500.00	2449.968353	98.0
9	JZ85	L8	True	5000.00	5183.013487	103.7
10	JZ86	L9	True	10000.00	9895.054265	99.0





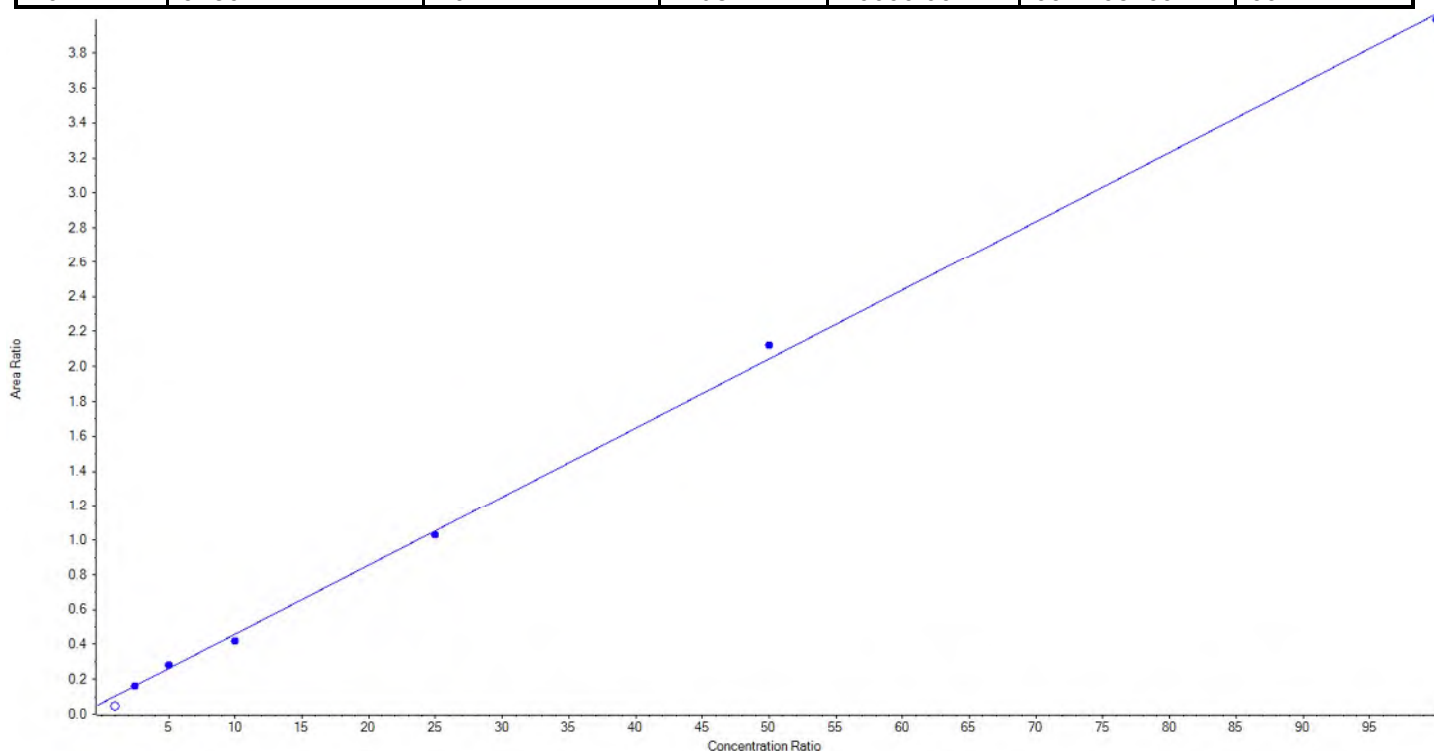
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Analyte Name	PFDA_2	Data File	18-0525.wiff
MRM Transition	513.0 / 219.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.03961 x + 0.06307$ ($r = 0.99920$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	248.257331	99.3
6	JZ82	L5	True	500.00	547.955133	109.6
7	JZ83	L6	True	1000.00	905.999456	90.6
8	JZ84	L7	True	2500.00	2436.059035	97.4
9	JZ85	L8	True	5000.00	5194.644354	103.9
10	JZ86	L9	True	10000.00	9917.084691	99.2





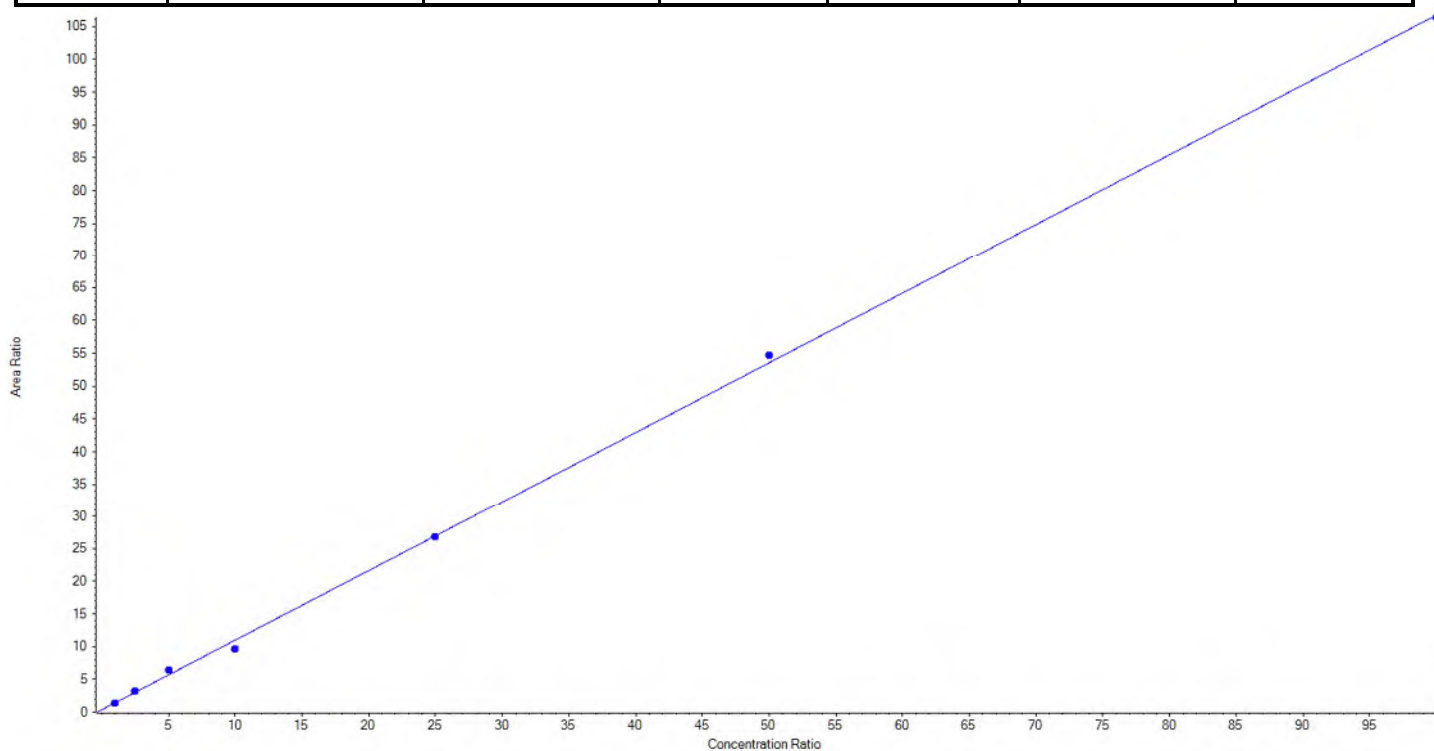
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Analyte Name	PFUnA_1	Data File	18-0525.wiff
MRM Transition	563.0 / 519.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.06368x + 0.37442$ ($r = 0.99914$) (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	91.780366	91.8
5	JZ81	L4	True	250.00	263.900379	105.6
6	JZ82	L5	True	500.00	569.994496	114.0
7	JZ83	L6	True	1000.00	877.034681	87.7
8	JZ84	L7	True	2500.00	2482.146277	99.3
9	JZ85	L8	True	5000.00	5101.982561	102.0
10	JZ86	L9	True	10000.00	9963.161239	99.6





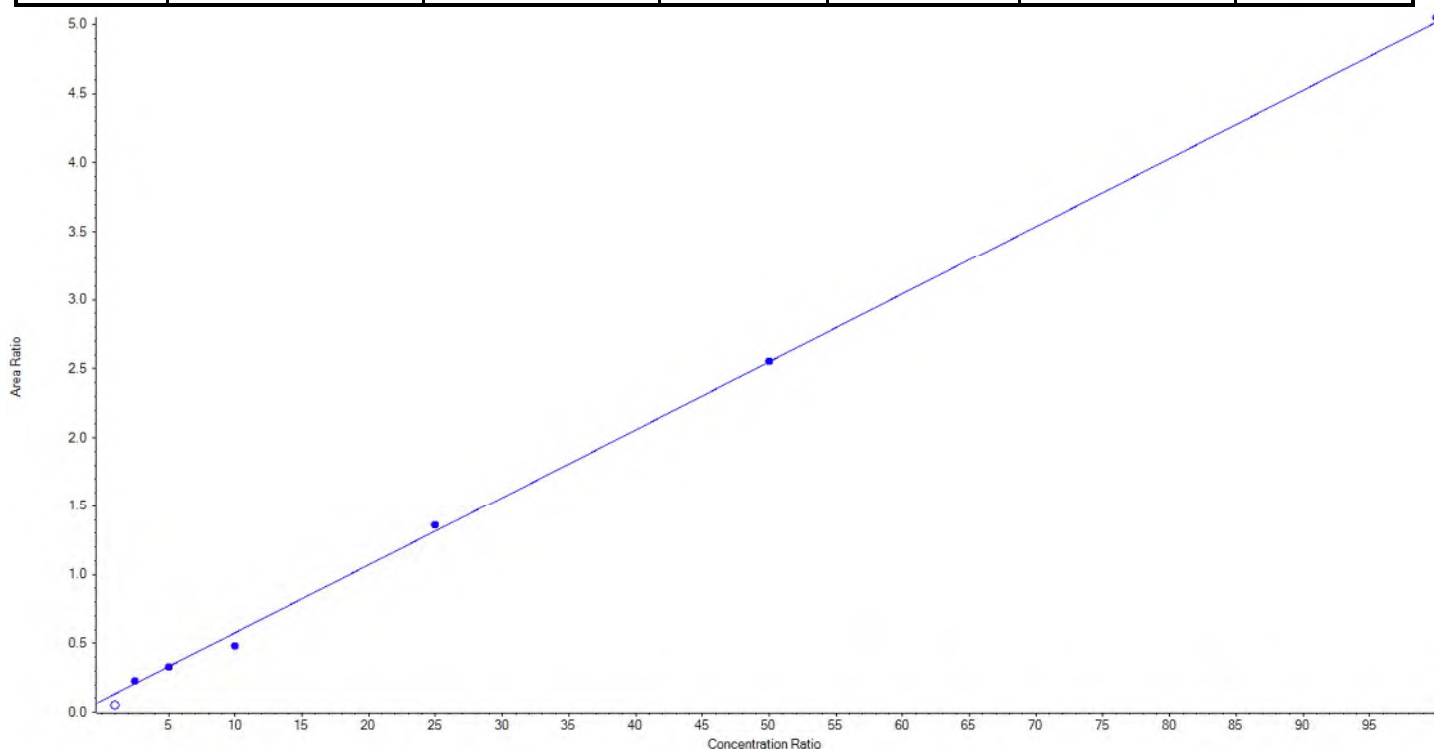
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Analyte Name	PFUnA_2	Data File	18-0525.wiff
MRM Transition	563.0 / 269.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.04935x + 0.08310$ ($r = 0.99833$) (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	289.980361	116.0
6	JZ82	L5	True	500.00	497.762359	99.6
7	JZ83	L6	True	1000.00	802.034479	80.2
8	JZ84	L7	True	2500.00	2585.145102	103.4
9	JZ85	L8	True	5000.00	5009.535501	100.2
10	JZ86	L9	True	10000.00	10065.542199	100.7





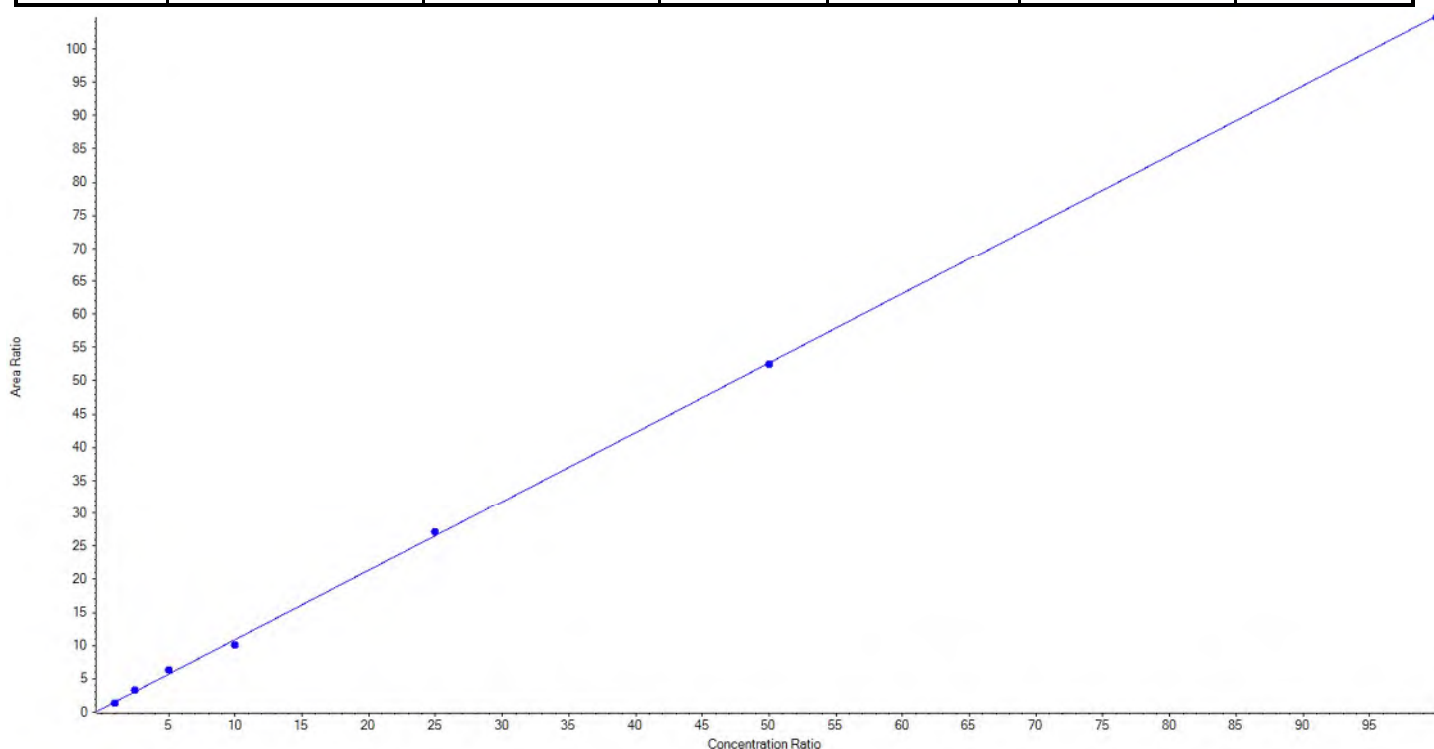
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Analyte Name	PFDoA_1	Data File	18-0525.wiff
MRM Transition	613.0 / 569.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.04425x + 0.48238$ ($r = 0.99944$) (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	85.700367	85.7
5	JZ81	L4	True	250.00	273.750287	109.5
6	JZ82	L5	True	500.00	556.988277	111.4
7	JZ83	L6	True	1000.00	918.670605	91.9
8	JZ84	L7	True	2500.00	2550.673152	102.0
9	JZ85	L8	True	5000.00	4986.570334	99.7
10	JZ86	L9	True	10000.00	9977.646978	99.8





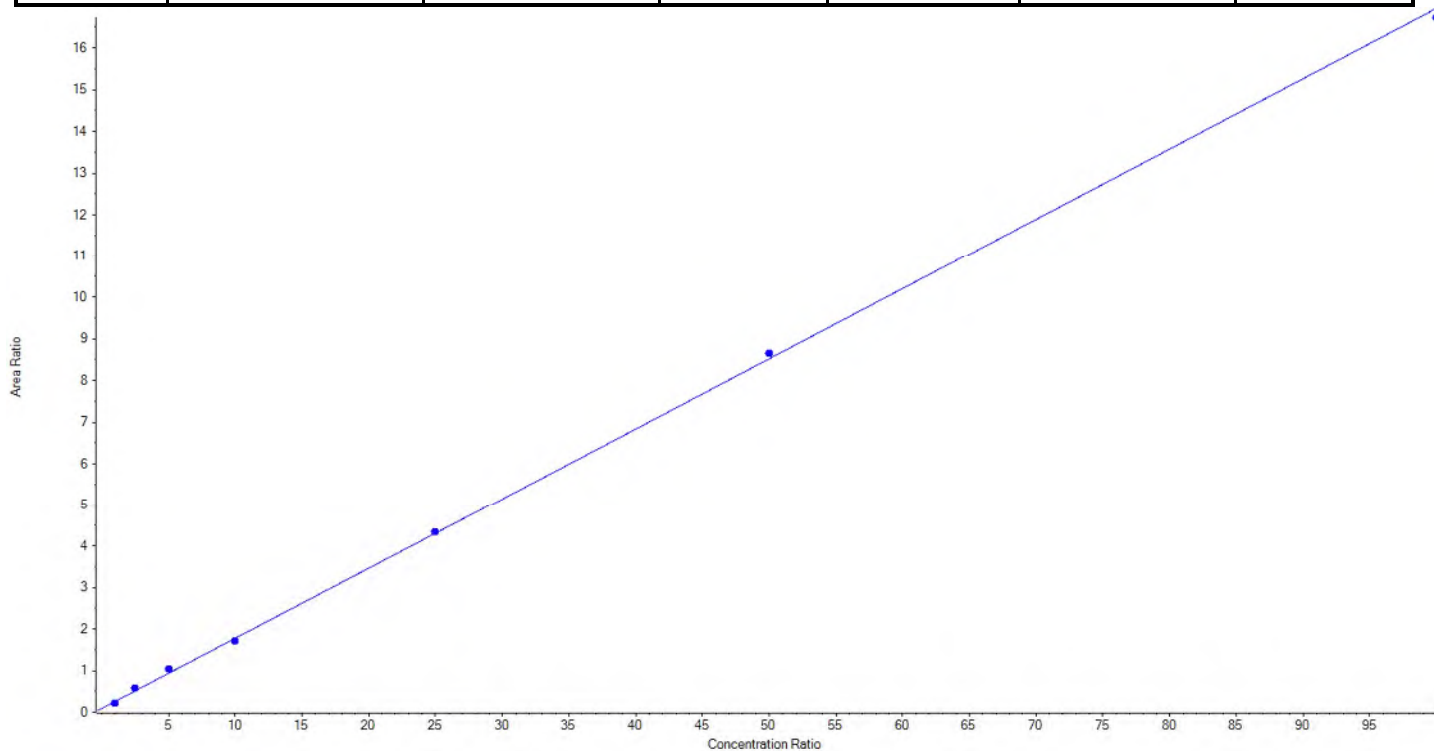
Calibration Summary Report

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Analyte Name	PFD _o A_2	Data File	18-0525.wiff
MRM Transition	613.0 / 319.0	Result Table	18-0525_DW
Internal Standard	13C ₂ -PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.16858x + 0.09034$ ($r = 0.99923$) (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	75.002298	75.0
5	JZ81	L4	True	250.00	289.854336	115.9
6	JZ82	L5	True	500.00	562.114133	112.4
7	JZ83	L6	True	1000.00	955.988781	95.6
8	JZ84	L7	True	2500.00	2518.813267	100.8
9	JZ85	L8	True	5000.00	5079.945998	101.6
10	JZ86	L9	True	10000.00	9868.281187	98.7





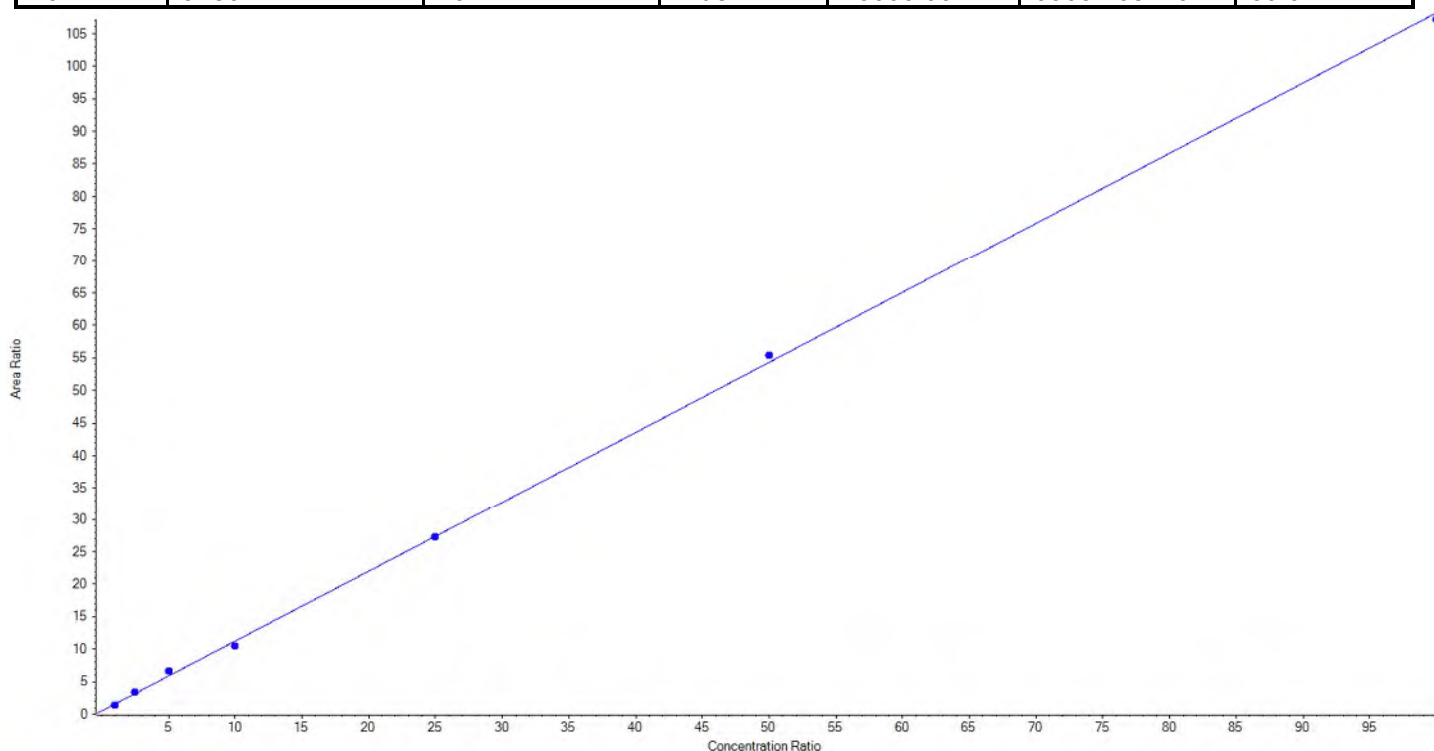
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Analyte Name	PFTrDA_1	Data File	18-0525.wiff
MRM Transition	663.0 / 619.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.07711x + 0.48555$ ($r = 0.99934$) (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	82.828350	82.8
5	JZ81	L4	True	250.00	275.011635	110.0
6	JZ82	L5	True	500.00	566.484356	113.3
7	JZ83	L6	True	1000.00	931.647845	93.2
8	JZ84	L7	True	2500.00	2492.973401	99.7
9	JZ85	L8	True	5000.00	5097.585986	102.0
10	JZ86	L9	True	10000.00	9903.468426	99.0





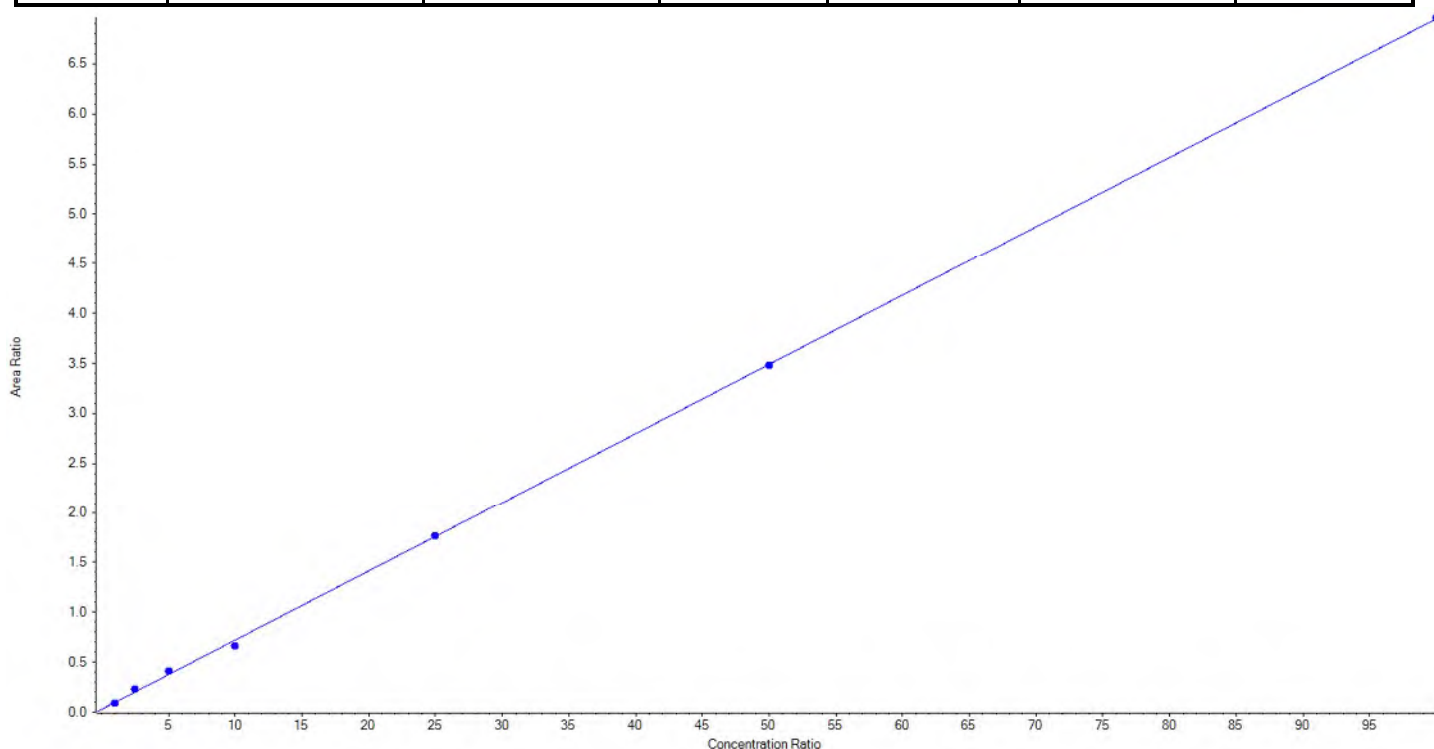
Calibration Summary Report

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Analyte Name	PFTTrDA_2	Data File	18-0525.wiff
MRM Transition	663.0 / 169.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06920 x + 0.02944$ ($r = 0.99931$) (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	81.619852	81.6
5	JZ81	L4	True	250.00	289.153142	115.7
6	JZ82	L5	True	500.00	555.469329	111.1
7	JZ83	L6	True	1000.00	915.866326	91.6
8	JZ84	L7	True	2500.00	2501.303320	100.1
9	JZ85	L8	True	5000.00	4992.037921	99.8
10	JZ86	L9	True	10000.00	10014.550109	100.2





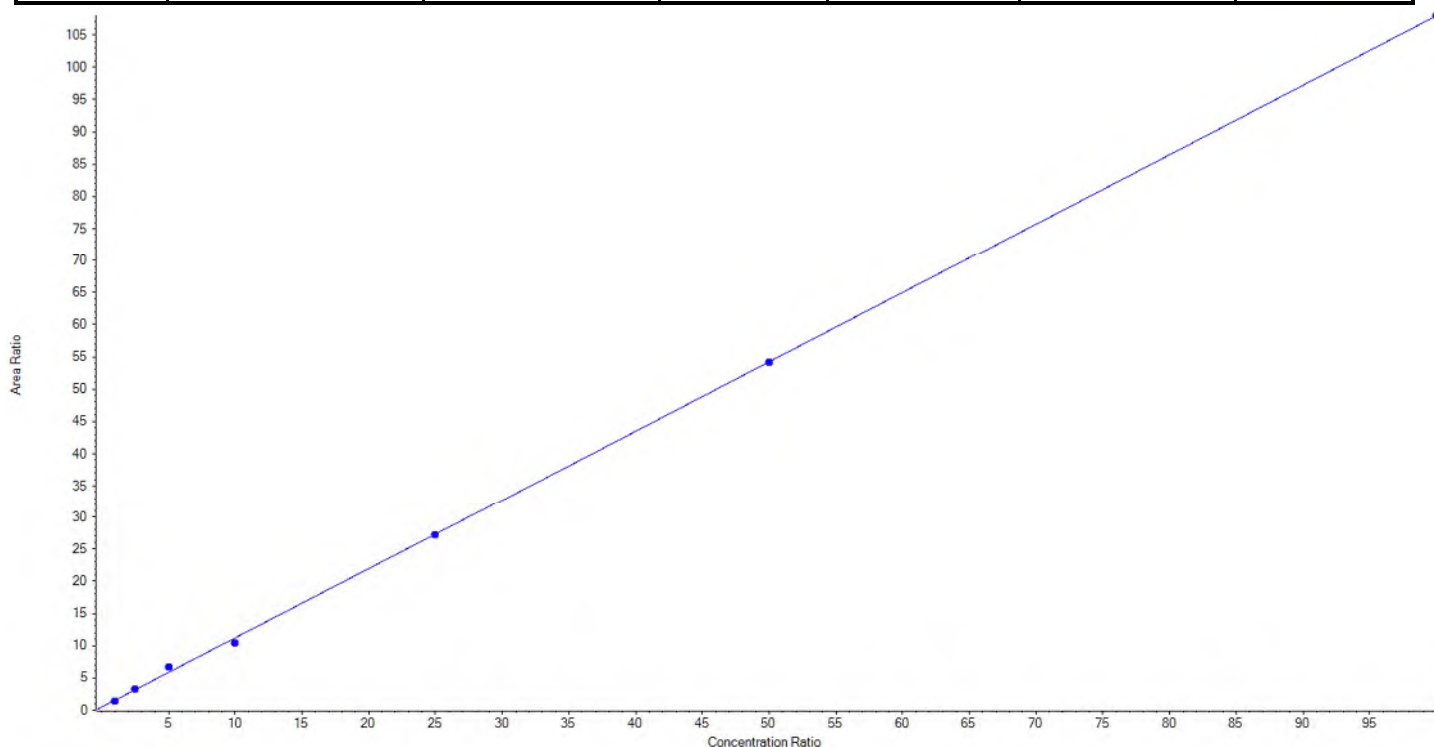
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Analyte Name	PFTeDA_1	Data File	18-0525.wiff
MRM Transition	713.0 / 669.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.07479x + 0.48149$ ($r = 0.99933$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	84.809981	84.8
5	JZ81	L4	True	250.00	264.834264	105.9
6	JZ82	L5	True	500.00	584.181859	116.8
7	JZ83	L6	True	1000.00	929.479411	93.0
8	JZ84	L7	True	2500.00	2487.761655	99.5
9	JZ85	L8	True	5000.00	4997.220553	99.9
10	JZ86	L9	True	10000.00	10001.712276	100.0





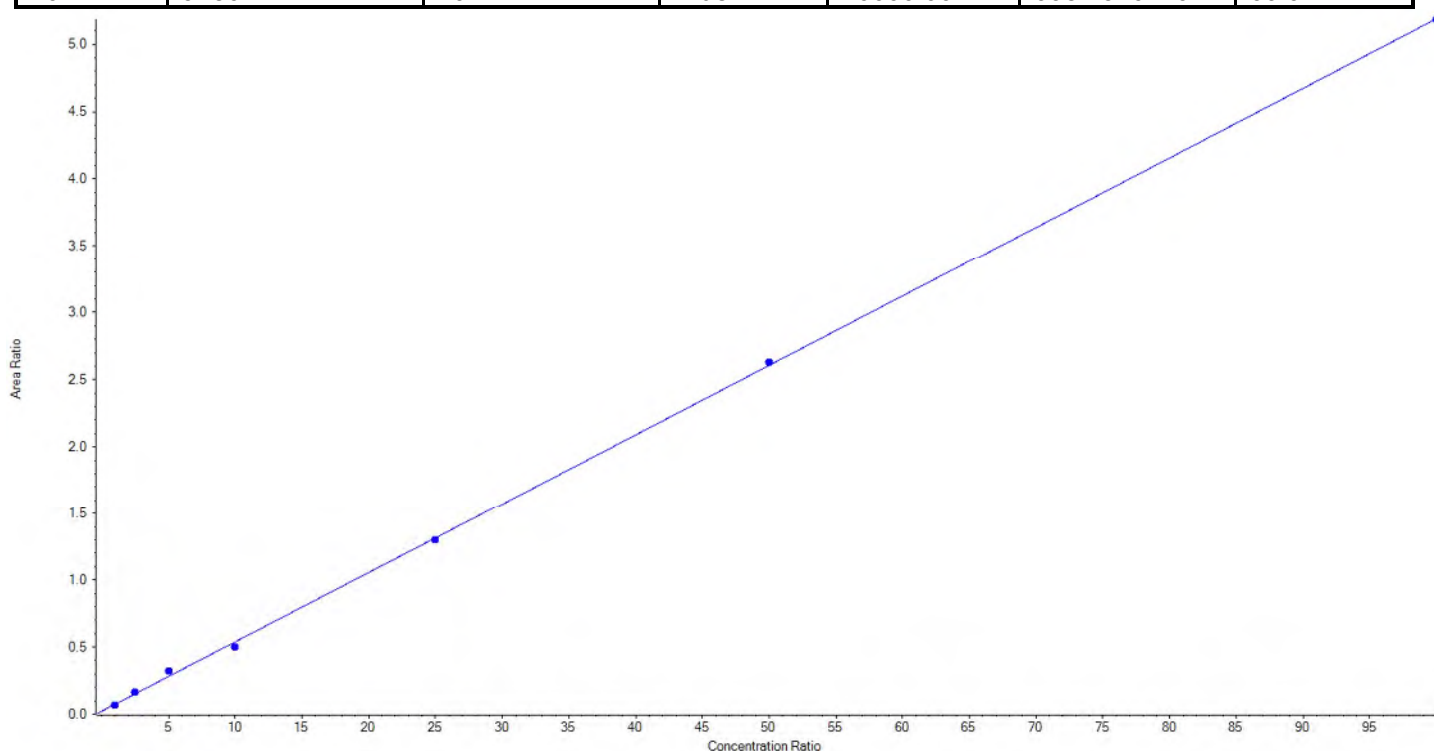
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Analyte Name	PFTeDA_2	Data File	18-0525.wiff
MRM Transition	713.0 / 169.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05168x + 0.02228$ ($r = 0.99925$) (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	84.085549	84.1
5	JZ81	L4	True	250.00	270.499863	108.2
6	JZ82	L5	True	500.00	582.182680	116.4
7	JZ83	L6	True	1000.00	918.897268	91.9
8	JZ84	L7	True	2500.00	2468.847584	98.8
9	JZ85	L8	True	5000.00	5037.946916	100.8
10	JZ86	L9	True	10000.00	9987.540140	99.9





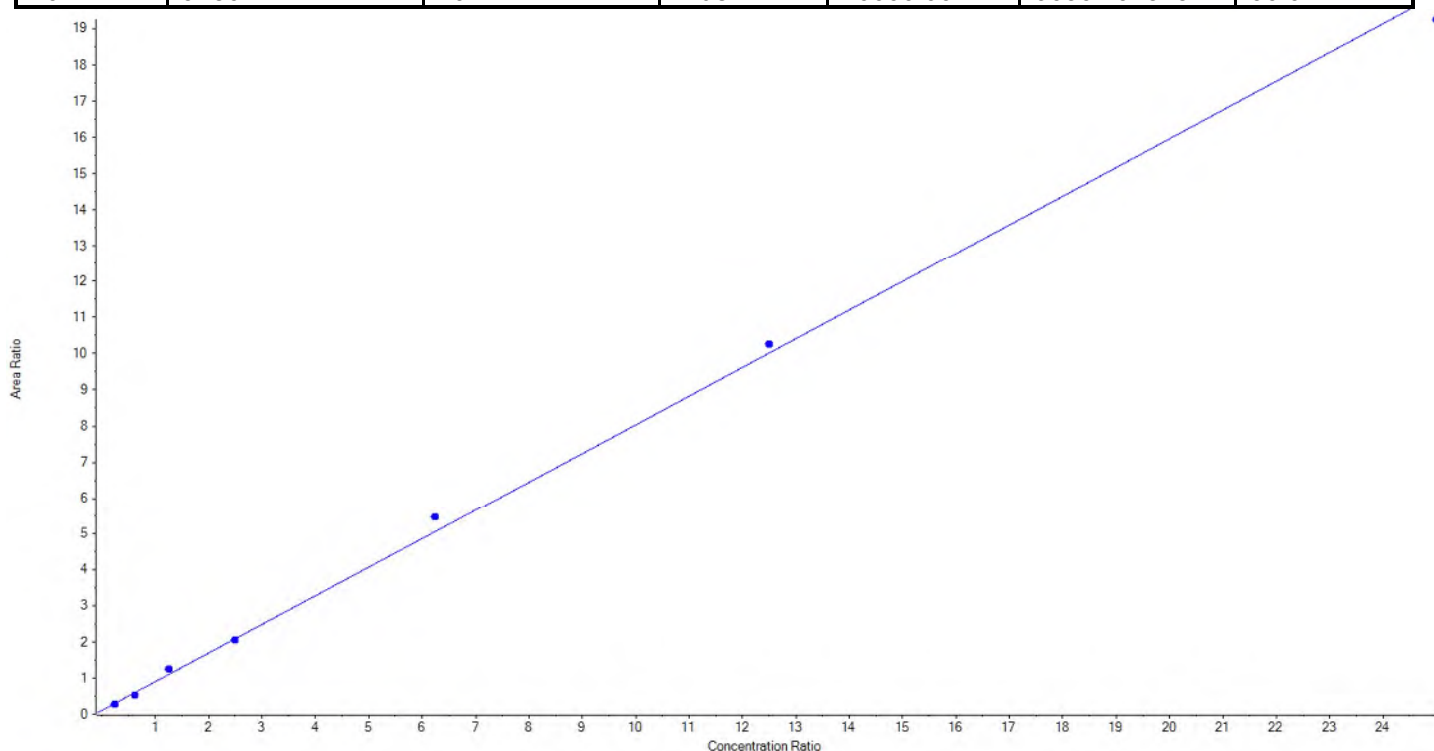
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Analyte Name	NMeFOSAA_1	Data File	18-0525.wiff
MRM Transition	570.0 / 419.0	Result Table	18-0525_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.79293x + 0.10357$ ($r = 0.99858$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	93.428964	93.4
5	JZ81	L4	True	250.00	217.014269	86.8
6	JZ82	L5	True	500.00	570.340399	114.1
7	JZ83	L6	True	1000.00	983.348216	98.3
8	JZ84	L7	True	2500.00	2710.400454	108.4
9	JZ85	L8	True	5000.00	5119.173184	102.4
10	JZ86	L9	True	10000.00	9656.294513	96.6





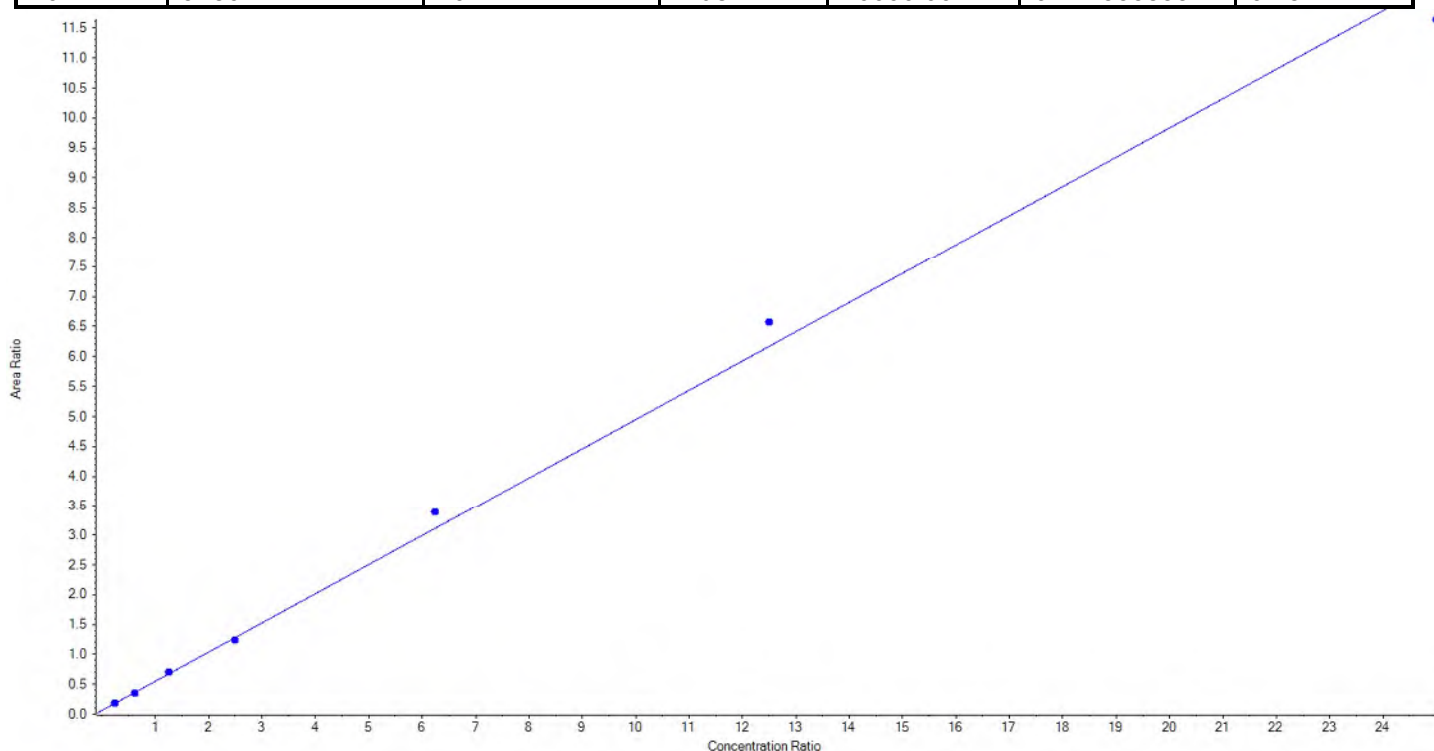
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Analyte Name	NMeFOSAA_2	Data File	18-0525.wiff
MRM Transition	570.0 / 512.0	Result Table	18-0525_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.48875x + 0.06022$ ($r = 0.99778$) (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	95.588385	95.6
5	JZ81	L4	True	250.00	233.164855	93.3
6	JZ82	L5	True	500.00	522.105000	104.4
7	JZ83	L6	True	1000.00	962.182521	96.2
8	JZ84	L7	True	2500.00	2727.128729	109.1
9	JZ85	L8	True	5000.00	5332.296656	106.7
10	JZ86	L9	True	10000.00	9477.533855	94.8





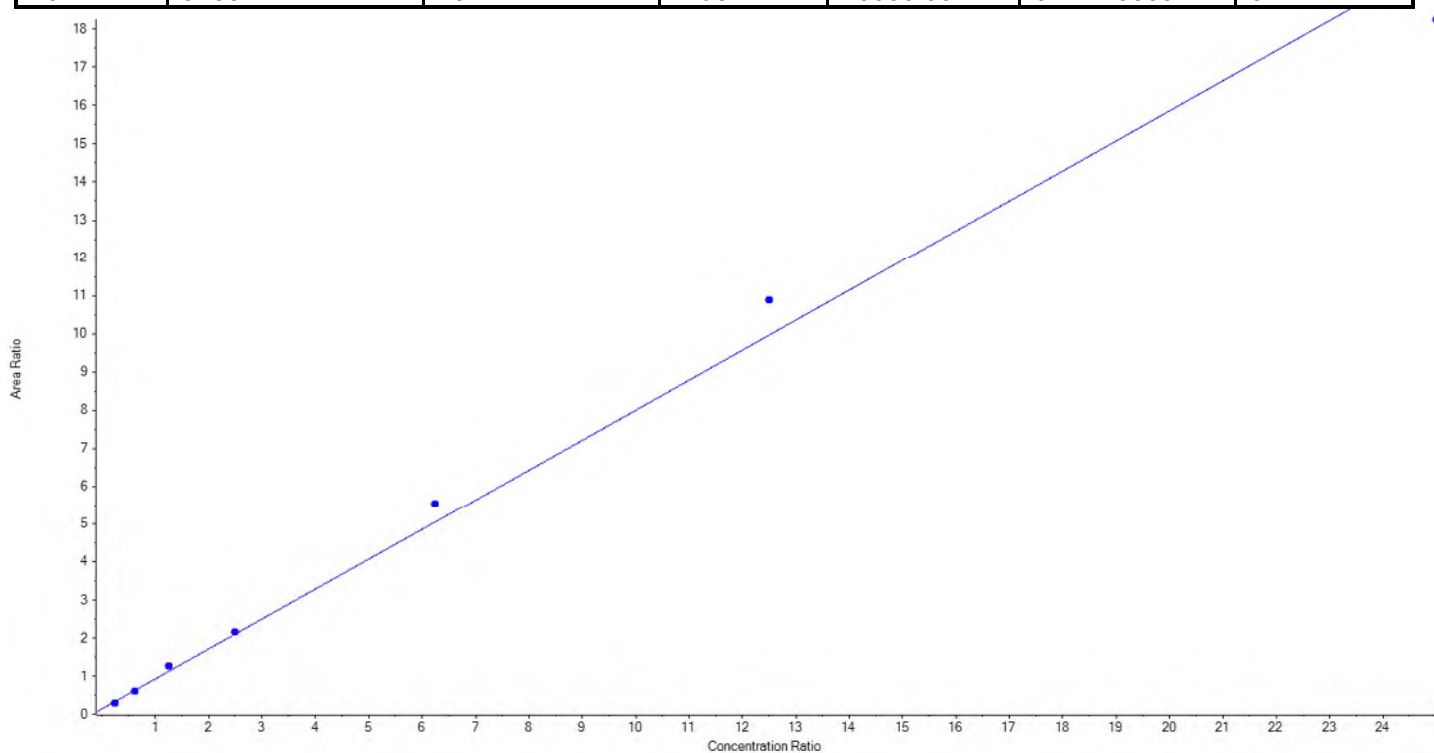
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Analyte Name	NEtFOSAA_1	Data File	18-0525.wiff
MRM Transition	584.0 / 419.0	Result Table	18-0525_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.78632x + 0.13558$ ($r = 0.99547$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	76.194651	76.2
5	JZ81	L4	True	250.00	233.442717	93.4
6	JZ82	L5	True	500.00	578.705719	115.7
7	JZ83	L6	True	1000.00	1030.707724	103.1
8	JZ84	L7	True	2500.00	2755.967788	110.2
9	JZ85	L8	True	5000.00	5462.782009	109.3
10	JZ86	L9	True	10000.00	9212.199392	92.1





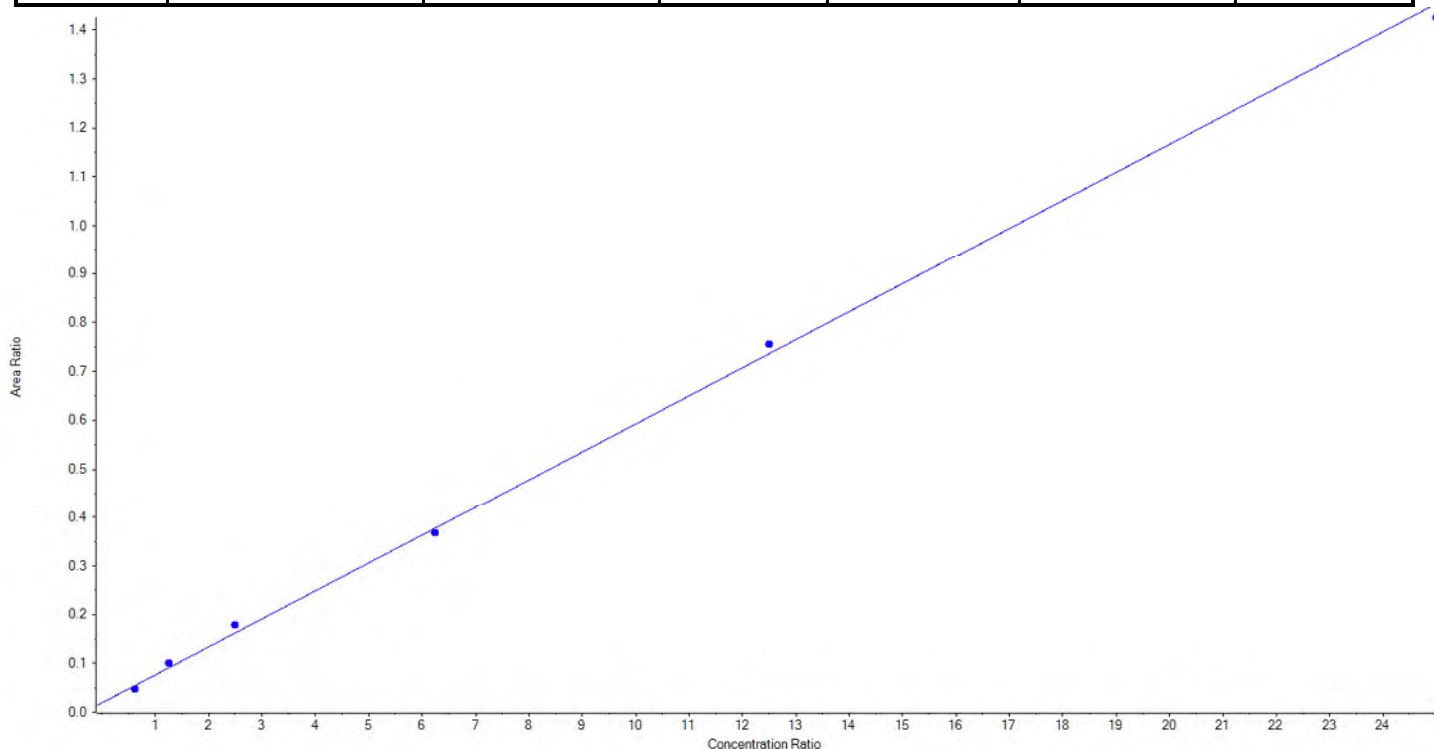
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Analyte Name	NEtFOSAA_2	Data File	18-0525.wiff
MRM Transition	584.0 / 483.0	Result Table	18-0525_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05740 x + 0.01882$ (r = 0.99843) (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	N/A	N/A
5	JZ81	L4	True	250.00	191.488013	76.6
6	JZ82	L5	True	500.00	570.602206	114.1
7	JZ83	L6	True	1000.00	1111.178076	111.1
8	JZ84	L7	True	2500.00	2432.352970	97.3
9	JZ85	L8	True	5000.00	5142.863979	102.9
10	JZ86	L9	True	10000.00	9801.514755	98.0





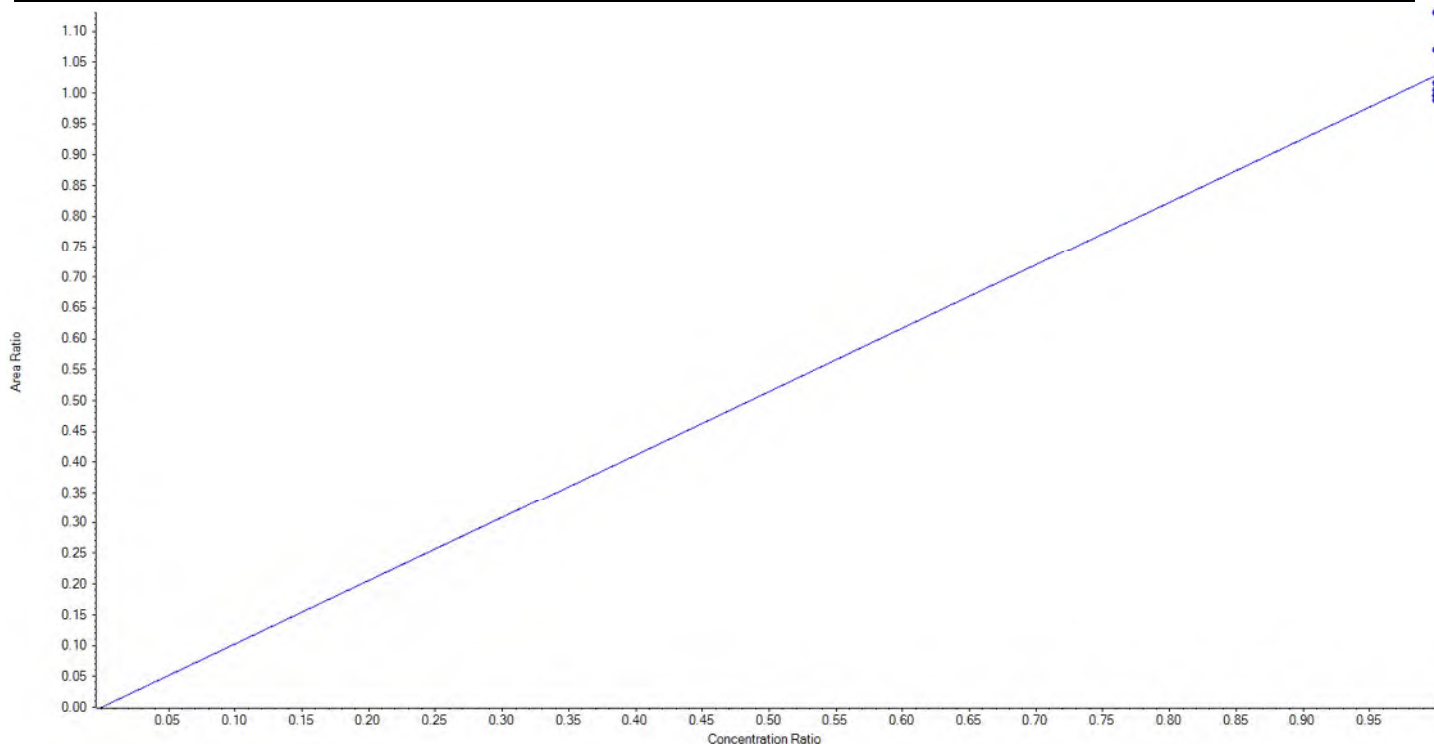
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Analyte Name	13C2-PFHxA	Data File	18-0525.wiff
MRM Transition	315.0 / 270.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.02891 x$ (std. dev. = 0.05241) (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	109.843763	109.8
5	JZ81	L4	True	100.00	98.833210	98.8
6	JZ82	L5	True	100.00	96.813893	96.8
7	JZ83	L6	True	100.00	96.776282	96.8
8	JZ84	L7	True	100.00	97.607371	97.6
9	JZ85	L8	True	100.00	104.010330	104.0
10	JZ86	L9	True	100.00	96.115153	96.1





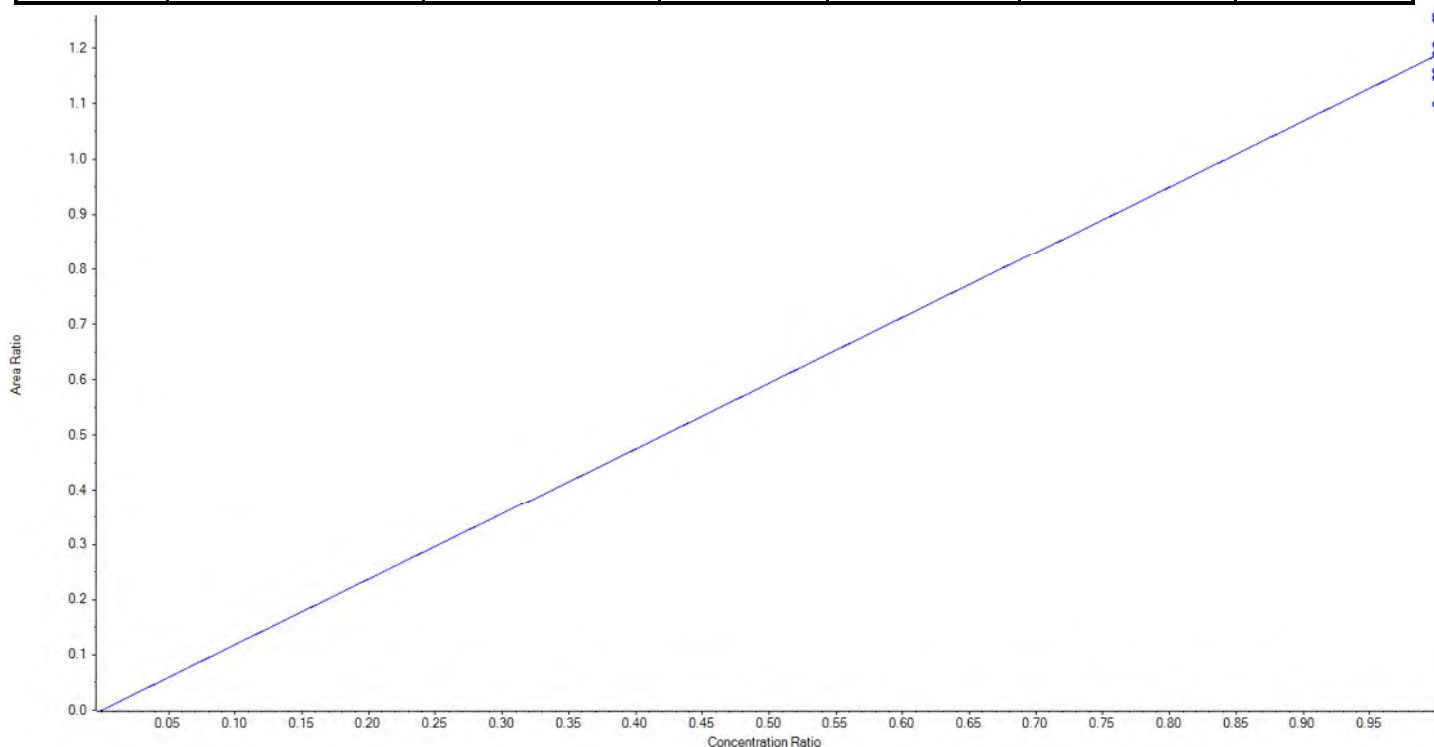
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Analyte Name	13C2-PFDA	Data File	18-0525.wiff
MRM Transition	515.0 / 470.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.18705 x$ (std. dev. = 0.05764) (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	105.468475	105.5
5	JZ81	L4	True	100.00	106.034358	106.0
6	JZ82	L5	True	100.00	101.528416	101.5
7	JZ83	L6	True	100.00	96.619980	96.6
8	JZ84	L7	True	100.00	92.518672	92.5
9	JZ85	L8	True	100.00	100.154022	100.2
10	JZ86	L9	True	100.00	97.676077	97.7





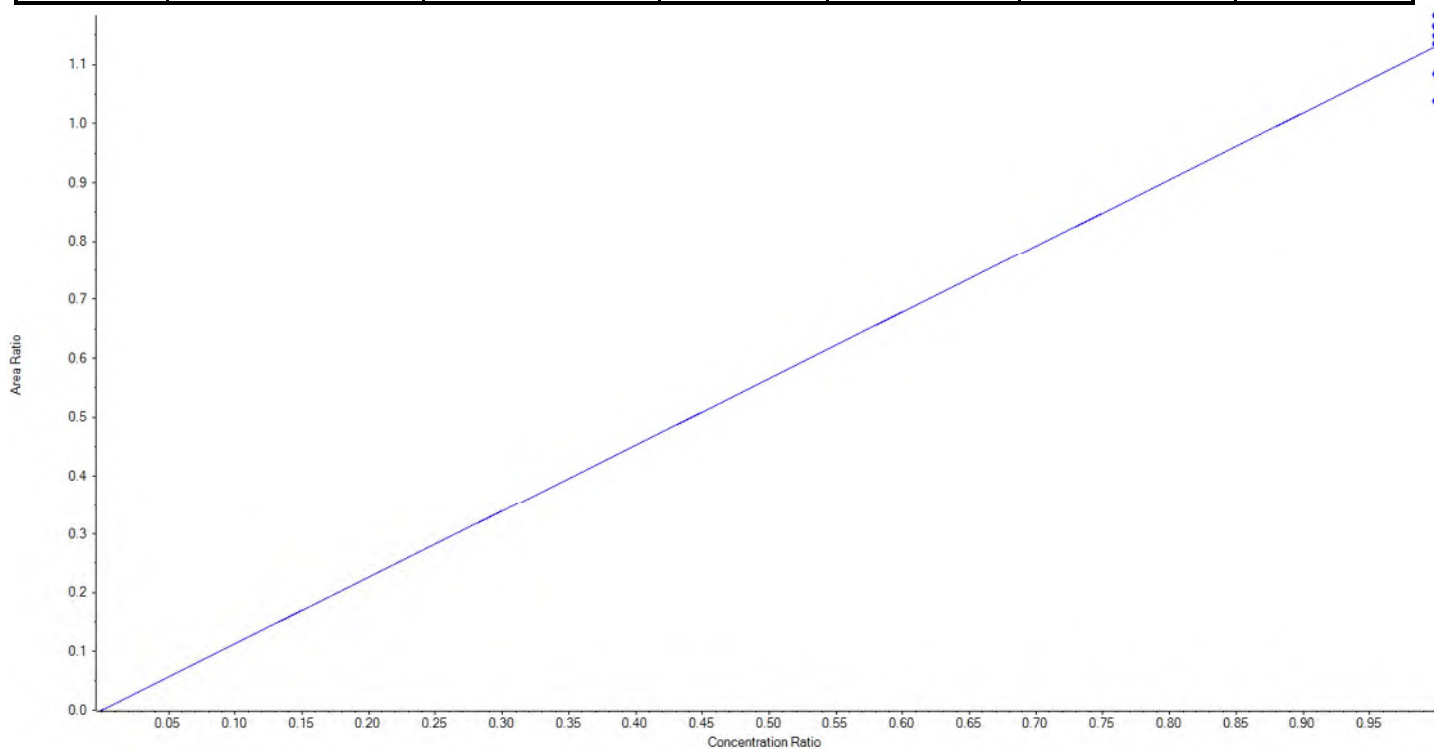
Calibration Summary Report

Created with Analyst Reporter
Printed: 28/08/2018 3:34:07 PM

Analyte Name	d5-EtFOSAA	Data File	18-0525.wiff
MRM Transition	589.0 / 419.0	Result Table	18-0525_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.13104 x$ (std. dev. = 0.05178) (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	406.232904	101.6
5	JZ81	L4	True	400.00	383.056909	95.8
6	JZ82	L5	True	400.00	412.102046	103.0
7	JZ83	L6	True	400.00	418.287250	104.6
8	JZ84	L7	True	400.00	411.599502	102.9
9	JZ85	L8	True	400.00	401.409624	100.4
10	JZ86	L9	True	400.00	367.311766	91.8



Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T11:59:18	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	30913.23	82.828388	213.8	false
PFBS_2	298.9 / 99.0	1.53	9184.17	87.647374	166.8	false
PFHxA_1	313.0 / 269.0	1.85	36434.89	87.679673	11.5	true
PFHxA_2	313.0 / 119.0	1.86	2388.96	79.300240	8.9	true
PFHpA_1	363.0 / 319.0	2.27	28949.78	85.690850	23.9	false
PFHpA_2	363.0 / 169.0	2.25	748.22	11.062321	22.1	false
PFHxS_1	399.0 / 80.0	2.28	36420.80	78.439780	65.4	false
PFHxS_2	399.0 / 99.0	2.28	12131.94	82.859963	69.0	false
PFOA_1	413.0 / 369.0	2.67	36316.34	83.391443	48.5	false
PFOA_2	413.0 / 169.0	2.67	2057.68	8.292401	38.2	false
PFNA_1	463.0 / 419.0	3.07	30559.43	80.862562	63.2	false
PFNA_2	463.0 / 219.0	3.07	9374.71	82.875592	70.1	false
PFOS_1	499.0 / 80.0	3.06	49901.61	89.793340	84.5	false
PFOS_2	499.0 / 99.0	3.06	9232.44	42.135225	102.0	false
PFDA_1	513.0 / 469.0	3.43	34759.48	88.021283	79.0	false
PFDA_2	513.0 / 219.0	3.43	1455.96	< 0	57.9	false
PFUnA_1	563.0 / 519.0	3.75	41143.85	91.780366	95.0	false
PFUnA_2	563.0 / 269.0	3.75	1496.21	< 0	25.6	true
PFDoA_1	613.0 / 569.0	4.03	41955.08	85.700367	169.9	false
PFDoA_2	613.0 / 319.0	4.04	6603.28	75.002298	102.0	false
PFTrDA_1	663.0 / 619.0	4.28	41967.12	82.828350	247.3	false
PFTrDA_2	663.0 / 169.0	4.28	2617.20	81.619852	101.6	false
PFTeDA_1	713.0 / 669.0	4.50	42433.76	84.809981	396.9	false
PFTeDA_2	713.0 / 169.0	4.50	2002.29	84.085549	153.4	false
NMeFOSAA_1	570.0 / 419.0	3.57	7884.68	93.428964	230.1	false
NMeFOSAA_2	570.0 / 512.0	3.57	4833.22	95.588385	79.3	false
NEtFOSAA_1	584.0 / 419.0	3.74	7791.19	76.194651	201.4	false
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.84	34427.71	109.843763	779.1	false
13C2-PFDA	515.0 / 470.0	3.41	38136.83	105.468475	1179.2	false
d5-EtFOSAA	589.0 / 419.0	3.73	31362.09	406.232904	377.0	false

Sample Name	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:08:15	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	81434.43	232.885833	394.2	false
PFBS_2	298.9 / 99.0	1.54	22974.29	223.294061	242.2	false
PFHxA_1	313.0 / 269.0	1.85	85285.54	261.129201	26.5	true
PFHxA_2	313.0 / 119.0	1.86	6386.75	260.058016	20.4	true
PFHpA_1	363.0 / 319.0	2.26	73518.35	261.689486	50.5	false
PFHpA_2	363.0 / 169.0	2.26	2128.95	261.567678	39.6	true
PFHxS_1	399.0 / 80.0	2.28	91752.15	238.902169	131.9	false
PFHxS_2	399.0 / 99.0	2.28	26422.11	228.775769	152.6	false
PFOA_1	413.0 / 369.0	2.67	91384.08	269.528598	89.5	false
PFOA_2	413.0 / 169.0	2.67	6332.61	224.737328	63.8	false
PFNA_1	463.0 / 419.0	3.06	79953.98	269.307743	116.1	false
PFNA_2	463.0 / 219.0	3.06	24320.79	264.972843	120.9	false
PFOS_1	499.0 / 80.0	3.06	121315.22	231.349811	119.9	false
PFOS_2	499.0 / 99.0	3.06	25517.04	217.973153	196.3	false
PFDA_1	513.0 / 469.0	3.42	90952.35	266.322907	195.0	false
PFDA_2	513.0 / 219.0	3.43	5189.79	248.257331	101.7	false
PFUnA_1	563.0 / 519.0	3.75	102299.06	263.900379	196.7	false
PFUnA_2	563.0 / 269.0	3.74	7272.95	289.980361	82.8	true
PFDoA_1	613.0 / 569.0	4.03	107428.85	273.750287	267.6	false
PFDoA_2	613.0 / 319.0	4.03	18616.32	289.854336	181.4	false
PFTrDA_1	663.0 / 619.0	4.28	110859.53	275.011635	314.6	false
PFTrDA_2	663.0 / 169.0	4.28	7380.10	289.153142	194.4	false
PFTeDA_1	713.0 / 669.0	4.50	107006.73	264.834264	421.7	false
PFTeDA_2	713.0 / 169.0	4.49	5211.13	270.499863	312.7	false
NMeFOSAA_1	570.0 / 419.0	3.57	15739.08	217.014269	330.6	false
NMeFOSAA_2	570.0 / 512.0	3.57	10176.50	233.164855	193.3	false
NEtFOSAA_1	584.0 / 419.0	3.74	17529.09	233.442717	332.5	false
NEtFOSAA_2	584.0 / 483.0	3.73	1365.13	191.488013	42.1	true
13C2-PFHxA	315.0 / 270.0	1.84	32698.11	98.833210	638.9	false
13C2-PFDA	515.0 / 470.0	3.41	40472.09	106.034358	757.4	false
d5-EtFOSAA	589.0 / 419.0	3.73	31937.80	383.056909	230.5	false

Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:17:13	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	177401.03	492.286464	714.8	false
PFBS_2	298.9 / 99.0	1.54	53292.81	495.698222	374.8	false
PFHxA_1	313.0 / 269.0	1.85	186888.66	577.379232	56.7	true
PFHxA_2	313.0 / 119.0	1.85	15473.27	622.184603	54.7	true
PFHpA_1	363.0 / 319.0	2.26	172290.11	605.059156	121.8	false
PFHpA_2	363.0 / 169.0	2.26	3775.12	508.194807	99.7	false
PFHxS_1	399.0 / 80.0	2.28	201186.91	527.683501	186.4	true
PFHxS_2	399.0 / 99.0	2.28	57344.56	515.130920	270.8	false
PFOA_1	413.0 / 369.0	2.67	193890.17	570.131748	180.6	false
PFOA_2	413.0 / 169.0	2.67	14376.40	578.265381	184.1	false
PFNA_1	463.0 / 419.0	3.06	172082.06	574.272920	230.1	false
PFNA_2	463.0 / 219.0	3.06	54080.37	581.375916	248.7	false
PFOS_1	499.0 / 80.0	3.06	281997.90	522.187214	170.0	false
PFOS_2	499.0 / 99.0	3.06	55295.26	510.648920	314.1	false
PFDA_1	513.0 / 469.0	3.42	204394.26	580.780374	282.8	false
PFDA_2	513.0 / 219.0	3.42	9863.16	547.955133	166.4	false
PFUnA_1	563.0 / 519.0	3.74	226669.15	569.994496	352.9	false
PFUnA_2	563.0 / 269.0	3.74	11574.65	497.762359	93.0	false
PFDaA_1	613.0 / 569.0	4.02	221788.28	556.988277	387.8	false
PFDaA_2	613.0 / 319.0	4.02	36547.18	562.114133	232.6	false
PFTrDA_1	663.0 / 619.0	4.27	231944.66	566.484356	346.8	false
PFTrDA_2	663.0 / 169.0	4.27	14570.43	555.469329	248.1	false
PFTeDA_1	713.0 / 669.0	4.49	238036.73	584.181859	652.2	false
PFTeDA_2	713.0 / 169.0	4.49	11378.06	582.182680	427.7	false
NMeFOSAA_1	570.0 / 419.0	3.57	36655.07	570.340399	441.1	false
NMeFOSAA_2	570.0 / 512.0	3.57	20735.70	522.105000	326.8	false
NEtFOSAA_1	584.0 / 419.0	3.73	37813.70	578.705719	598.4	false
NEtFOSAA_2	584.0 / 483.0	3.73	2990.68	570.602206	69.9	true
13C2-PFHxA	315.0 / 270.0	1.84	35075.23	96.813893	764.7	false
13C2-PFDA	515.0 / 470.0	3.41	42436.51	101.528416	1118.7	false
d5-EtFOSAA	589.0 / 419.0	3.72	34608.00	412.102046	223.4	false

Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:26:09	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	249811.58	800.487094	771.2	false
PFBS_2	298.9 / 99.0	1.54	73400.76	784.503300	570.3	false
PFHxA_1	313.0 / 269.0	1.85	261645.95	925.527849	48.5	true
PFHxA_2	313.0 / 119.0	1.85	19645.29	890.682117	45.1	true
PFHpA_1	363.0 / 319.0	2.26	227837.17	904.631377	97.8	false
PFHpA_2	363.0 / 169.0	2.26	5465.96	897.545755	78.3	false
PFHxS_1	399.0 / 80.0	2.28	279691.98	857.339814	232.6	false
PFHxS_2	399.0 / 99.0	2.28	81309.66	862.726057	318.9	false
PFOA_1	413.0 / 369.0	2.67	275819.92	927.785930	202.7	false
PFOA_2	413.0 / 169.0	2.67	19643.31	928.939081	182.1	false
PFNA_1	463.0 / 419.0	3.06	244128.13	929.032340	287.9	false
PFNA_2	463.0 / 219.0	3.06	76105.09	929.717428	340.5	false
PFOS_1	499.0 / 80.0	3.05	381074.02	814.226426	180.5	false
PFOS_2	499.0 / 99.0	3.05	76497.40	844.008582	328.8	false
PFDA_1	513.0 / 469.0	3.42	276611.26	886.839331	327.5	false
PFDA_2	513.0 / 219.0	3.41	13412.92	905.999456	214.1	false
PFUnA_1	563.0 / 519.0	3.74	308460.04	877.034681	344.5	false
PFUnA_2	563.0 / 269.0	3.74	15222.61	802.034479	103.8	true
PFDaA_1	613.0 / 569.0	4.02	320296.02	918.670605	454.0	false
PFDaA_2	613.0 / 319.0	4.02	54102.55	955.988781	368.8	false
PFTrDA_1	663.0 / 619.0	4.26	334434.40	931.647845	460.8	false
PFTrDA_2	663.0 / 169.0	4.26	21081.77	915.866326	310.3	false
PFTeDA_1	713.0 / 669.0	4.48	332877.63	929.479411	688.9	false
PFTeDA_2	713.0 / 169.0	4.48	15803.68	918.897268	416.3	false
NMeFOSAA_1	570.0 / 419.0	3.56	53404.20	983.348216	582.5	false
NMeFOSAA_2	570.0 / 512.0	3.56	32150.64	962.182521	329.7	false
NEtFOSAA_1	584.0 / 419.0	3.73	56235.41	1030.707724	594.9	false
NEtFOSAA_2	584.0 / 483.0	3.72	4637.39	1111.178076	256.2	true
13C2-PFHxA	315.0 / 270.0	1.84	31653.86	96.776282	718.2	false
13C2-PFDA	515.0 / 470.0	3.40	36459.77	96.619980	828.1	false
d5-EtFOSAA	589.0 / 419.0	3.71	30767.95	418.287250	338.5	false

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:35:06	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	761017.83	2123.658661	1572.8	false
PFBS_2	298.9 / 99.0	1.53	232477.88	2153.317303	1131.9	false
PFHxA_1	313.0 / 269.0	1.84	767710.88	2497.536954	123.1	false
PFHxA_2	313.0 / 119.0	1.84	63119.41	2610.819321	106.7	false
PFHpA_1	363.0 / 319.0	2.25	674072.68	2439.084070	250.7	false
PFHpA_2	363.0 / 169.0	2.25	16441.98	2623.841454	232.2	false
PFHxS_1	399.0 / 80.0	2.27	839092.80	2267.503898	443.9	false
PFHxS_2	399.0 / 99.0	2.27	241653.90	2280.602261	653.8	false
PFOA_1	413.0 / 369.0	2.66	818674.46	2527.061376	400.6	false
PFOA_2	413.0 / 169.0	2.66	56494.82	2533.161527	340.7	false
PFNA_1	463.0 / 419.0	3.06	741160.44	2581.639903	539.5	false
PFNA_2	463.0 / 219.0	3.05	227193.14	2532.080496	575.1	false
PFOS_1	499.0 / 80.0	3.05	1227373.56	2283.768131	258.1	false
PFOS_2	499.0 / 99.0	3.05	234119.57	2328.895378	655.6	false
PFDA_1	513.0 / 469.0	3.41	841735.87	2449.968353	632.0	false
PFDA_2	513.0 / 219.0	3.41	36828.16	2436.059035	329.8	false
PFUnA_1	563.0 / 519.0	3.73	959282.74	2482.146277	658.9	false
PFUnA_2	563.0 / 269.0	3.73	48677.33	2585.145102	187.0	false
PFDaA_1	613.0 / 569.0	4.02	971508.32	2550.673152	767.6	false
PFDaA_2	613.0 / 319.0	4.01	155356.23	2518.813267	536.6	false
PFTrDA_1	663.0 / 619.0	4.26	979376.70	2492.973401	519.9	false
PFTrDA_2	663.0 / 169.0	4.26	63060.44	2501.303320	402.6	false
PFTeDA_1	713.0 / 669.0	4.48	975153.18	2487.761655	1012.9	false
PFTeDA_2	713.0 / 169.0	4.48	46505.42	2468.847584	697.3	false
NMeFOSAA_1	570.0 / 419.0	3.56	157979.14	2710.400454	991.2	false
NMeFOSAA_2	570.0 / 512.0	3.56	97861.25	2727.128729	770.0	false
NEtFOSAA_1	584.0 / 419.0	3.72	160192.94	2755.967788	783.0	false
NEtFOSAA_2	584.0 / 483.0	3.72	10611.10	2432.352970	289.6	true
13C2-PFHxA	315.0 / 270.0	1.83	35979.23	97.607371	1019.2	false
13C2-PFDA	515.0 / 470.0	3.40	39344.84	92.518672	738.5	false
d5-EtFOSAA	589.0 / 419.0	3.71	33572.84	411.599502	308.5	false

Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:44:03	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	1416266.28	4644.014660	2019.8	false
PFBS_2	298.9 / 99.0	1.53	417001.46	4531.256832	1793.3	false
PFHxA_1	313.0 / 269.0	1.85	1351266.31	4993.106580	203.5	false
PFHxA_2	313.0 / 119.0	1.85	106551.09	4986.909093	169.9	false
PFHpA_1	363.0 / 319.0	2.26	1221084.90	5005.657332	422.1	false
PFHpA_2	363.0 / 169.0	2.25	26929.57	4943.723068	338.7	false
PFHxS_1	399.0 / 80.0	2.28	1432499.15	4565.520591	603.3	false
PFHxS_2	399.0 / 99.0	2.28	418653.73	4673.579914	804.4	false
PFOA_1	413.0 / 369.0	2.66	1461020.52	5118.871087	581.6	false
PFOA_2	413.0 / 169.0	2.66	98025.32	5038.265684	460.6	false
PFNA_1	463.0 / 419.0	3.05	1297702.35	5124.208114	794.7	false
PFNA_2	463.0 / 219.0	3.05	404016.74	5101.534796	832.1	false
PFOS_1	499.0 / 80.0	3.05	2232654.39	4880.604925	320.5	false
PFOS_2	499.0 / 99.0	3.05	418178.75	4940.032133	977.8	true
PFDA_1	513.0 / 469.0	3.41	1573813.67	5183.013487	793.8	false
PFDA_2	513.0 / 219.0	3.41	67613.22	5194.644354	424.7	false
PFUnA_1	563.0 / 519.0	3.73	1742195.46	5101.982561	785.4	false
PFUnA_2	563.0 / 269.0	3.73	81462.82	5009.535501	253.4	false
PFDoA_1	613.0 / 569.0	4.01	1675605.12	4986.570334	799.7	false
PFDoA_2	613.0 / 319.0	4.01	275914.60	5079.945998	618.1	false
PFTTrDA_1	663.0 / 619.0	4.26	1766060.71	5097.585986	561.5	false
PFTTrDA_2	663.0 / 169.0	4.26	111070.14	4992.037921	432.8	false
PFTeDA_1	713.0 / 669.0	4.47	1727769.31	4997.220553	1210.7	false
PFTeDA_2	713.0 / 169.0	4.47	83716.97	5037.946916	748.1	false
NMeFOSAA_1	570.0 / 419.0	3.56	268183.26	5119.173184	1016.8	false
NMeFOSAA_2	570.0 / 512.0	3.55	172022.05	5332.296656	595.9	false
NEtFOSAA_1	584.0 / 419.0	3.72	284475.66	5462.782009	931.5	false
NEtFOSAA_2	584.0 / 483.0	3.72	19797.72	5142.863979	415.2	false
13C2-PFHxA	315.0 / 270.0	1.84	34120.39	104.010330	956.3	false
13C2-PFDA	515.0 / 470.0	3.40	37904.88	100.154022	983.8	false
d5-EtFOSAA	589.0 / 419.0	3.71	29692.64	401.409624	253.5	false

Sample Name	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:53:00	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	2821343.61	8749.438900	2961.0	false
PFBS_2	298.9 / 99.0	1.53	861700.35	8849.882908	2254.5	false
PFHxA_1	313.0 / 269.0	1.85	2814519.35	10007.640510	344.8	false
PFHxA_2	313.0 / 119.0	1.85	220178.07	9900.046609	246.4	false
PFHpA_1	363.0 / 319.0	2.26	2551132.96	10048.187730	599.7	false
PFHpA_2	363.0 / 169.0	2.25	56227.02	10015.127238	425.5	false
PFHxS_1	399.0 / 80.0	2.27	3016937.27	9111.810246	806.3	false
PFHxS_2	399.0 / 99.0	2.28	850087.08	9003.525116	965.9	false
PFOA_1	413.0 / 369.0	2.66	2924577.48	9853.229818	774.7	false
PFOA_2	413.0 / 169.0	2.66	200179.00	9946.631000	621.7	false
PFNA_1	463.0 / 419.0	3.05	2579660.38	9790.676418	1090.2	false
PFNA_2	463.0 / 219.0	3.05	812488.21	9857.442930	1109.2	false
PFOS_1	499.0 / 80.0	3.05	4396444.99	9088.770153	406.7	false
PFOS_2	499.0 / 99.0	3.05	800017.03	8976.541835	1147.9	true
PFDA_1	513.0 / 469.0	3.41	3130164.30	9895.054265	1065.0	false
PFDA_2	513.0 / 219.0	3.41	132964.58	9917.084691	516.7	false
PFUnA_1	563.0 / 519.0	3.73	3542999.44	9963.161239	1132.8	false
PFUnA_2	563.0 / 269.0	3.73	168234.95	10065.542199	420.0	false
PFDaA_1	613.0 / 569.0	4.01	3487142.36	9977.646978	864.8	false
PFDaA_2	613.0 / 319.0	4.01	557214.17	9868.281187	758.8	false
PFTrDA_1	663.0 / 619.0	4.26	3569829.34	9903.468426	736.3	false
PFTrDA_2	663.0 / 169.0	4.25	231833.75	10014.550109	556.2	false
PFTeDA_1	713.0 / 669.0	4.47	3597219.22	10001.712276	1857.4	false
PFTeDA_2	713.0 / 169.0	4.47	172686.71	9987.540140	1241.6	false
NMeFOSAA_1	570.0 / 419.0	3.56	571204.89	9656.294513	1390.5	false
NMeFOSAA_2	570.0 / 512.0	3.56	345492.16	9477.533855	1236.0	false
NEtFOSAA_1	584.0 / 419.0	3.72	541503.61	9212.199392	927.9	false
NEtFOSAA_2	584.0 / 483.0	3.72	42301.51	9801.514755	560.9	false
13C2-PFHxA	315.0 / 270.0	1.84	32945.78	96.115153	1063.1	false
13C2-PFDA	515.0 / 470.0	3.40	38626.49	97.676077	846.5	false
d5-EtFOSAA	589.0 / 419.0	3.71	30825.63	367.311766	309.6	false

Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T11:59:18	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.297	0.297	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.86	PFHxA	0.066	0.077	ü
PFHpA_1	363.0 / 319.0	2.27	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.026	0.024	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.333	0.303	ü
PFOA_1	413.0 / 369.0	2.67	PFOA			
PFOA_2	413.0 / 169.0	2.67	PFOA	0.057	0.070	ü
PFNA_1	463.0 / 419.0	3.07	PFNA			
PFNA_2	463.0 / 219.0	3.07	PFNA	0.307	0.310	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.185	0.195	ü
PFDA_1	513.0 / 469.0	3.43	PFDA			
PFDA_2	513.0 / 219.0	3.43	PFDA	0.042	0.047	ü
PFAUnA_1	563.0 / 519.0	3.75	PFAUnA			
PFAUnA_2	563.0 / 269.0	3.75	PFAUnA	0.036	0.053	ü
PFADoA_1	613.0 / 569.0	4.03	PFADoA			
PFADoA_2	613.0 / 319.0	4.04	PFADoA	0.157	0.164	ü
PFATrDA_1	663.0 / 619.0	4.28	PFATrDA			
PFATrDA_2	663.0 / 169.0	4.28	PFATrDA	0.062	0.064	ü
PFATeDA_1	713.0 / 669.0	4.50	PFATeDA			
PFATeDA_2	713.0 / 169.0	4.50	PFATeDA	0.047	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.57	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.57	NMeFOSAA	0.613	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.74	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.076	
13C2-PFHxA	315.0 / 270.0	1.84				
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	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:08:15	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.54	PFBS	0.282	0.297	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.86	PFHxA	0.075	0.077	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.26	PFHpA	0.029	0.024	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.288	0.303	ü
PFOA_1	413.0 / 369.0	2.67	PFOA			
PFOA_2	413.0 / 169.0	2.67	PFOA	0.069	0.070	ü
PFNA_1	463.0 / 419.0	3.06	PFNA			
PFNA_2	463.0 / 219.0	3.06	PFNA	0.304	0.310	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.210	0.195	ü
PFDA_1	513.0 / 469.0	3.42	PFDA			
PFDA_2	513.0 / 219.0	3.43	PFDA	0.057	0.047	ü
PFUnA_1	563.0 / 519.0	3.75	PFUnA			
PFUnA_2	563.0 / 269.0	3.74	PFUnA	0.071	0.053	ü
PFDaA_1	613.0 / 569.0	4.03	PFDaA			
PFDaA_2	613.0 / 319.0	4.03	PFDaA	0.173	0.164	ü
PFTrDA_1	663.0 / 619.0	4.28	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.28	PFTrDA	0.067	0.064	ü
PFTeDA_1	713.0 / 669.0	4.50	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.49	PFTeDA	0.049	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.57	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.57	NMeFOSAA	0.647	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.74	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.73	NEtFOSAA	0.078	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.84				
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	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:17:13	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.54	PFBS	0.300	0.297	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.083	0.077	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.26	PFHpA	0.022	0.024	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.345	0.303	ü
PFOA_1	413.0 / 369.0	2.67	PFOA			
PFOA_2	413.0 / 169.0	2.67	PFOA	0.074	0.070	ü
PFNA_1	463.0 / 419.0	3.06	PFNA			
PFNA_2	463.0 / 219.0	3.06	PFNA	0.314	0.310	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.196	0.195	ü
PFDA_1	513.0 / 469.0	3.42	PFDA			
PFDA_2	513.0 / 219.0	3.42	PFDA	0.048	0.047	ü
PFUnA_1	563.0 / 519.0	3.74	PFUnA			
PFUnA_2	563.0 / 269.0	3.74	PFUnA	0.051	0.053	ü
PFDaA_1	613.0 / 569.0	4.02	PFDaA			
PFDaA_2	613.0 / 319.0	4.02	PFDaA	0.165	0.164	ü
PFTTrDA_1	663.0 / 619.0	4.27	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.27	PFTTrDA	0.063	0.064	ü
PFTeDA_1	713.0 / 669.0	4.49	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.49	PFTeDA	0.048	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.57	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.57	NMeFOSAA	0.566	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.73	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.73	NEtFOSAA	0.079	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.41		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.72		N/A	N/A	ü

Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:26:09	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.54	PFBS	0.294	0.297	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.075	0.077	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.26	PFHpA	0.024	0.024	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.291	0.303	ü
PFOA_1	413.0 / 369.0	2.67	PFOA			
PFOA_2	413.0 / 169.0	2.67	PFOA	0.071	0.070	ü
PFNA_1	463.0 / 419.0	3.06	PFNA			
PFNA_2	463.0 / 219.0	3.06	PFNA	0.312	0.310	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.05	PFOS	0.201	0.195	ü
PFDA_1	513.0 / 469.0	3.42	PFDA			
PFDA_2	513.0 / 219.0	3.41	PFDA	0.049	0.047	ü
PFUnA_1	563.0 / 519.0	3.74	PFUnA			
PFUnA_2	563.0 / 269.0	3.74	PFUnA	0.049	0.053	ü
PFDaA_1	613.0 / 569.0	4.02	PFDaA			
PFDaA_2	613.0 / 319.0	4.02	PFDaA	0.169	0.164	ü
PFTrDA_1	663.0 / 619.0	4.26	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.26	PFTrDA	0.063	0.064	ü
PFTeDA_1	713.0 / 669.0	4.48	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.48	PFTeDA	0.048	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.56	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.56	NMeFOSAA	0.602	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.73	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.72	NEtFOSAA	0.083	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.84				
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	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:35:06	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.306	0.297	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.082	0.077	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.024	0.024	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.288	0.303	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.069	0.070	ü
PFNA_1	463.0 / 419.0	3.06	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.307	0.310	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.05	PFOS	0.191	0.195	ü
PFDA_1	513.0 / 469.0	3.41	PFDA			
PFDA_2	513.0 / 219.0	3.41	PFDA	0.044	0.047	ü
PFUnA_1	563.0 / 519.0	3.73	PFUnA			
PFUnA_2	563.0 / 269.0	3.73	PFUnA	0.051	0.053	ü
PFDaA_1	613.0 / 569.0	4.02	PFDaA			
PFDaA_2	613.0 / 319.0	4.01	PFDaA	0.160	0.164	ü
PFTrDA_1	663.0 / 619.0	4.26	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.26	PFTrDA	0.064	0.064	ü
PFTeDA_1	713.0 / 669.0	4.48	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.48	PFTeDA	0.048	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.56	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.56	NMeFOSAA	0.620	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.72	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.72	NEtFOSAA	0.066	0.076	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	3.71		N/A	N/A	ü

Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:44:03	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.294	0.297	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.079	0.077	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.022	0.024	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.292	0.303	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.067	0.070	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.311	0.310	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.05	PFOS	0.187	0.195	ü
PFDA_1	513.0 / 469.0	3.41	PFDA			
PFDA_2	513.0 / 219.0	3.41	PFDA	0.043	0.047	ü
PFUnA_1	563.0 / 519.0	3.73	PFUnA			
PFUnA_2	563.0 / 269.0	3.73	PFUnA	0.047	0.053	ü
PFDaA_1	613.0 / 569.0	4.01	PFDaA			
PFDaA_2	613.0 / 319.0	4.01	PFDaA	0.165	0.164	ü
PFTrDA_1	663.0 / 619.0	4.26	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.26	PFTrDA	0.063	0.064	ü
PFTeDA_1	713.0 / 669.0	4.47	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.47	PFTeDA	0.049	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.56	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.55	NMeFOSAA	0.641	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.72	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.72	NEtFOSAA	0.070	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.84				
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	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:53:00	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.305	0.297	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.078	0.077	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.022	0.024	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.282	0.303	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.068	0.070	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.315	0.310	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.05	PFOS	0.182	0.195	ü
PFDA_1	513.0 / 469.0	3.41	PFDA			
PFDA_2	513.0 / 219.0	3.41	PFDA	0.043	0.047	ü
PFUnA_1	563.0 / 519.0	3.73	PFUnA			
PFUnA_2	563.0 / 269.0	3.73	PFUnA	0.048	0.053	ü
PFDaA_1	613.0 / 569.0	4.01	PFDaA			
PFDaA_2	613.0 / 319.0	4.01	PFDaA	0.160	0.164	ü
PFTrDA_1	663.0 / 619.0	4.26	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.25	PFTrDA	0.065	0.064	ü
PFTeDA_1	713.0 / 669.0	4.47	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.47	PFTeDA	0.048	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.56	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.56	NMeFOSAA	0.605	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.72	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.72	NEtFOSAA	0.078	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.84				
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	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T11:59:18	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	13C4-PFOS	503.0 / 80.0	150604.61	287.00
PFBS_2	298.9 / 99.0	1.53	13C4-PFOS	503.0 / 80.0	150604.61	287.00
PFHxA_1	313.0 / 269.0	1.85	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFHxA_2	313.0 / 119.0	1.86	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFHpA_1	363.0 / 319.0	2.27	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFHpA_2	363.0 / 169.0	2.25	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFHxS_1	399.0 / 80.0	2.28	13C4-PFOS	503.0 / 80.0	150604.61	287.00
PFHxS_2	399.0 / 99.0	2.28	13C4-PFOS	503.0 / 80.0	150604.61	287.00
PFOA_1	413.0 / 369.0	2.67	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFOA_2	413.0 / 169.0	2.67	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFNA_1	463.0 / 419.0	3.07	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFNA_2	463.0 / 219.0	3.07	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFOS_1	499.0 / 80.0	3.06	13C4-PFOS	503.0 / 80.0	150604.61	287.00
PFOS_2	499.0 / 99.0	3.06	13C4-PFOS	503.0 / 80.0	150604.61	287.00
PFDA_1	513.0 / 469.0	3.43	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFDA_2	513.0 / 219.0	3.43	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFUnA_1	563.0 / 519.0	3.75	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFUnA_2	563.0 / 269.0	3.75	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFDaA_1	613.0 / 569.0	4.03	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFDaA_2	613.0 / 319.0	4.04	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFTTrDA_1	663.0 / 619.0	4.28	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFTTrDA_2	663.0 / 169.0	4.28	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFTeDA_1	713.0 / 669.0	4.50	13C2-PFOA	415.0 / 370.0	30461.70	100.00
PFTeDA_2	713.0 / 169.0	4.50	13C2-PFOA	415.0 / 370.0	30461.70	100.00
NMeFOSAA_1	570.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	27303.20	400.00
NMeFOSAA_2	570.0 / 512.0	3.57	d3-MeFOSAA	573.0 / 419.0	27303.20	400.00
NEtFOSAA_1	584.0 / 419.0	3.74	d3-MeFOSAA	573.0 / 419.0	27303.20	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	27303.20	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	30461.70	100.00
13C2-PFDA	515.0 / 470.0	3.41	13C2-PFOA	415.0 / 370.0	30461.70	100.00
d5-EtFOSAA	589.0 / 419.0	3.73	d3-MeFOSAA	573.0 / 419.0	27303.20	400.00

Sample Name	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:08:15	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	13C4-PFOS	503.0 / 80.0	148571.24	287.00
PFBS_2	298.9 / 99.0	1.54	13C4-PFOS	503.0 / 80.0	148571.24	287.00
PFHxA_1	313.0 / 269.0	1.85	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFHxA_2	313.0 / 119.0	1.86	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFHpA_1	363.0 / 319.0	2.26	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFHpA_2	363.0 / 169.0	2.26	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFHxS_1	399.0 / 80.0	2.28	13C4-PFOS	503.0 / 80.0	148571.24	287.00
PFHxS_2	399.0 / 99.0	2.28	13C4-PFOS	503.0 / 80.0	148571.24	287.00
PFOA_1	413.0 / 369.0	2.67	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFOA_2	413.0 / 169.0	2.67	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFNA_1	463.0 / 419.0	3.06	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFNA_2	463.0 / 219.0	3.06	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFOS_1	499.0 / 80.0	3.06	13C4-PFOS	503.0 / 80.0	148571.24	287.00
PFOS_2	499.0 / 99.0	3.06	13C4-PFOS	503.0 / 80.0	148571.24	287.00
PFDA_1	513.0 / 469.0	3.42	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFDA_2	513.0 / 219.0	3.43	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFUnA_1	563.0 / 519.0	3.75	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFUnA_2	563.0 / 269.0	3.74	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFDaA_1	613.0 / 569.0	4.03	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFDaA_2	613.0 / 319.0	4.03	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFTTrDA_1	663.0 / 619.0	4.28	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFTTrDA_2	663.0 / 169.0	4.28	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFTeDA_1	713.0 / 669.0	4.50	13C2-PFOA	415.0 / 370.0	32154.45	100.00
PFTeDA_2	713.0 / 169.0	4.49	13C2-PFOA	415.0 / 370.0	32154.45	100.00
NMeFOSAA_1	570.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	29486.65	400.00
NMeFOSAA_2	570.0 / 512.0	3.57	d3-MeFOSAA	573.0 / 419.0	29486.65	400.00
NEtFOSAA_1	584.0 / 419.0	3.74	d3-MeFOSAA	573.0 / 419.0	29486.65	400.00
NEtFOSAA_2	584.0 / 483.0	3.73	d3-MeFOSAA	573.0 / 419.0	29486.65	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	32154.45	100.00
13C2-PFDA	515.0 / 470.0	3.41	13C2-PFOA	415.0 / 370.0	32154.45	100.00
d5-EtFOSAA	589.0 / 419.0	3.73	d3-MeFOSAA	573.0 / 419.0	29486.65	400.00

Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:17:13	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	13C4-PFOS	503.0 / 80.0	155505.23	287.00
PFBS_2	298.9 / 99.0	1.54	13C4-PFOS	503.0 / 80.0	155505.23	287.00
PFHxA_1	313.0 / 269.0	1.85	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFHxA_2	313.0 / 119.0	1.85	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFHpA_1	363.0 / 319.0	2.26	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFHpA_2	363.0 / 169.0	2.26	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFHxS_1	399.0 / 80.0	2.28	13C4-PFOS	503.0 / 80.0	155505.23	287.00
PFHxS_2	399.0 / 99.0	2.28	13C4-PFOS	503.0 / 80.0	155505.23	287.00
PFOA_1	413.0 / 369.0	2.67	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFOA_2	413.0 / 169.0	2.67	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFNA_1	463.0 / 419.0	3.06	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFNA_2	463.0 / 219.0	3.06	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFOS_1	499.0 / 80.0	3.06	13C4-PFOS	503.0 / 80.0	155505.23	287.00
PFOS_2	499.0 / 99.0	3.06	13C4-PFOS	503.0 / 80.0	155505.23	287.00
PFDA_1	513.0 / 469.0	3.42	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFDA_2	513.0 / 219.0	3.42	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFUnA_1	563.0 / 519.0	3.74	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFUnA_2	563.0 / 269.0	3.74	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFDaA_1	613.0 / 569.0	4.02	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFDaA_2	613.0 / 319.0	4.02	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFTTrDA_1	663.0 / 619.0	4.27	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFTTrDA_2	663.0 / 169.0	4.27	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFTeDA_1	713.0 / 669.0	4.49	13C2-PFOA	415.0 / 370.0	35211.47	100.00
PFTeDA_2	713.0 / 169.0	4.49	13C2-PFOA	415.0 / 370.0	35211.47	100.00
NMeFOSAA_1	570.0 / 419.0	3.57	d3-MeFOSAA	573.0 / 419.0	29699.93	400.00
NMeFOSAA_2	570.0 / 512.0	3.57	d3-MeFOSAA	573.0 / 419.0	29699.93	400.00
NEtFOSAA_1	584.0 / 419.0	3.73	d3-MeFOSAA	573.0 / 419.0	29699.93	400.00
NEtFOSAA_2	584.0 / 483.0	3.73	d3-MeFOSAA	573.0 / 419.0	29699.93	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	35211.47	100.00
13C2-PFDA	515.0 / 470.0	3.41	13C2-PFOA	415.0 / 370.0	35211.47	100.00
d5-EtFOSAA	589.0 / 419.0	3.72	d3-MeFOSAA	573.0 / 419.0	29699.93	400.00

Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:26:09	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	13C4-PFOS	503.0 / 80.0	135399.87	287.00
PFBS_2	298.9 / 99.0	1.54	13C4-PFOS	503.0 / 80.0	135399.87	287.00
PFHxA_1	313.0 / 269.0	1.85	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFHxA_2	313.0 / 119.0	1.85	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFHpA_1	363.0 / 319.0	2.26	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFHpA_2	363.0 / 169.0	2.26	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFHxS_1	399.0 / 80.0	2.28	13C4-PFOS	503.0 / 80.0	135399.87	287.00
PFHxS_2	399.0 / 99.0	2.28	13C4-PFOS	503.0 / 80.0	135399.87	287.00
PFOA_1	413.0 / 369.0	2.67	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFOA_2	413.0 / 169.0	2.67	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFNA_1	463.0 / 419.0	3.06	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFNA_2	463.0 / 219.0	3.06	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFOS_1	499.0 / 80.0	3.05	13C4-PFOS	503.0 / 80.0	135399.87	287.00
PFOS_2	499.0 / 99.0	3.05	13C4-PFOS	503.0 / 80.0	135399.87	287.00
PFDA_1	513.0 / 469.0	3.42	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFDA_2	513.0 / 219.0	3.41	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFUnA_1	563.0 / 519.0	3.74	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFUnA_2	563.0 / 269.0	3.74	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFDaA_1	613.0 / 569.0	4.02	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFDaA_2	613.0 / 319.0	4.02	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFTTrDA_1	663.0 / 619.0	4.26	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFTTrDA_2	663.0 / 169.0	4.26	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFTTeDA_1	713.0 / 669.0	4.48	13C2-PFOA	415.0 / 370.0	31789.17	100.00
PFTTeDA_2	713.0 / 169.0	4.48	13C2-PFOA	415.0 / 370.0	31789.17	100.00
NMeFOSAA_1	570.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	26014.03	400.00
NMeFOSAA_2	570.0 / 512.0	3.56	d3-MeFOSAA	573.0 / 419.0	26014.03	400.00
NEtFOSAA_1	584.0 / 419.0	3.73	d3-MeFOSAA	573.0 / 419.0	26014.03	400.00
NEtFOSAA_2	584.0 / 483.0	3.72	d3-MeFOSAA	573.0 / 419.0	26014.03	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	31789.17	100.00
13C2-PFDA	515.0 / 470.0	3.40	13C2-PFOA	415.0 / 370.0	31789.17	100.00
d5-EtFOSAA	589.0 / 419.0	3.71	d3-MeFOSAA	573.0 / 419.0	26014.03	400.00

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:35:06	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	156323.71	287.00
PFBS_2	298.9 / 99.0	1.53	13C4-PFOS	503.0 / 80.0	156323.71	287.00
PFHxA_1	313.0 / 269.0	1.84	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFHxA_2	313.0 / 119.0	1.84	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFHpA_1	363.0 / 319.0	2.25	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFHpA_2	363.0 / 169.0	2.25	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFHxS_1	399.0 / 80.0	2.27	13C4-PFOS	503.0 / 80.0	156323.71	287.00
PFHxS_2	399.0 / 99.0	2.27	13C4-PFOS	503.0 / 80.0	156323.71	287.00
PFOA_1	413.0 / 369.0	2.66	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFOA_2	413.0 / 169.0	2.66	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFNA_1	463.0 / 419.0	3.06	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFNA_2	463.0 / 219.0	3.05	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFOS_1	499.0 / 80.0	3.05	13C4-PFOS	503.0 / 80.0	156323.71	287.00
PFOS_2	499.0 / 99.0	3.05	13C4-PFOS	503.0 / 80.0	156323.71	287.00
PFDA_1	513.0 / 469.0	3.41	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFDA_2	513.0 / 219.0	3.41	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFUnA_1	563.0 / 519.0	3.73	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFUnA_2	563.0 / 269.0	3.73	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFDaA_1	613.0 / 569.0	4.02	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFDaA_2	613.0 / 319.0	4.01	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFTTrDA_1	663.0 / 619.0	4.26	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFTTrDA_2	663.0 / 169.0	4.26	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFTTeDA_1	713.0 / 669.0	4.48	13C2-PFOA	415.0 / 370.0	35825.36	100.00
PFTTeDA_2	713.0 / 169.0	4.48	13C2-PFOA	415.0 / 370.0	35825.36	100.00
NMeFOSAA_1	570.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	28846.76	400.00
NMeFOSAA_2	570.0 / 512.0	3.56	d3-MeFOSAA	573.0 / 419.0	28846.76	400.00
NEtFOSAA_1	584.0 / 419.0	3.72	d3-MeFOSAA	573.0 / 419.0	28846.76	400.00
NEtFOSAA_2	584.0 / 483.0	3.72	d3-MeFOSAA	573.0 / 419.0	28846.76	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	35825.36	100.00
13C2-PFDA	515.0 / 470.0	3.40	13C2-PFOA	415.0 / 370.0	35825.36	100.00
d5-EtFOSAA	589.0 / 419.0	3.71	d3-MeFOSAA	573.0 / 419.0	28846.76	400.00

Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:44:03	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	13C4-PFOS	503.0 / 80.0	133272.94	287.00
PFBS_2	298.9 / 99.0	1.53	13C4-PFOS	503.0 / 80.0	133272.94	287.00
PFHxA_1	313.0 / 269.0	1.85	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFHxA_2	313.0 / 119.0	1.85	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFHpA_1	363.0 / 319.0	2.26	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFHpA_2	363.0 / 169.0	2.25	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFHxS_1	399.0 / 80.0	2.28	13C4-PFOS	503.0 / 80.0	133272.94	287.00
PFHxS_2	399.0 / 99.0	2.28	13C4-PFOS	503.0 / 80.0	133272.94	287.00
PFOA_1	413.0 / 369.0	2.66	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFOA_2	413.0 / 169.0	2.66	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFNA_1	463.0 / 419.0	3.05	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFNA_2	463.0 / 219.0	3.05	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFOS_1	499.0 / 80.0	3.05	13C4-PFOS	503.0 / 80.0	133272.94	287.00
PFOS_2	499.0 / 99.0	3.05	13C4-PFOS	503.0 / 80.0	133272.94	287.00
PFDA_1	513.0 / 469.0	3.41	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFDA_2	513.0 / 219.0	3.41	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFUnA_1	563.0 / 519.0	3.73	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFUnA_2	563.0 / 269.0	3.73	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFDaA_1	613.0 / 569.0	4.01	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFDaA_2	613.0 / 319.0	4.01	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFTTrDA_1	663.0 / 619.0	4.26	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFTTrDA_2	663.0 / 169.0	4.26	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFTeDA_1	713.0 / 669.0	4.47	13C2-PFOA	415.0 / 370.0	31882.98	100.00
PFTeDA_2	713.0 / 169.0	4.47	13C2-PFOA	415.0 / 370.0	31882.98	100.00
NMeFOSAA_1	570.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	26160.42	400.00
NMeFOSAA_2	570.0 / 512.0	3.55	d3-MeFOSAA	573.0 / 419.0	26160.42	400.00
NEtFOSAA_1	584.0 / 419.0	3.72	d3-MeFOSAA	573.0 / 419.0	26160.42	400.00
NEtFOSAA_2	584.0 / 483.0	3.72	d3-MeFOSAA	573.0 / 419.0	26160.42	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	31882.98	100.00
13C2-PFDA	515.0 / 470.0	3.40	13C2-PFOA	415.0 / 370.0	31882.98	100.00
d5-EtFOSAA	589.0 / 419.0	3.71	d3-MeFOSAA	573.0 / 419.0	26160.42	400.00

Sample Name	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:53:00	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	13C4-PFOS	503.0 / 80.0	141017.68	287.00
PFBS_2	298.9 / 99.0	1.53	13C4-PFOS	503.0 / 80.0	141017.68	287.00
PFHxA_1	313.0 / 269.0	1.85	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFHxA_2	313.0 / 119.0	1.85	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFHpA_1	363.0 / 319.0	2.26	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFHpA_2	363.0 / 169.0	2.25	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFHxS_1	399.0 / 80.0	2.27	13C4-PFOS	503.0 / 80.0	141017.68	287.00
PFHxS_2	399.0 / 99.0	2.28	13C4-PFOS	503.0 / 80.0	141017.68	287.00
PFOA_1	413.0 / 369.0	2.66	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFOA_2	413.0 / 169.0	2.66	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFNA_1	463.0 / 419.0	3.05	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFNA_2	463.0 / 219.0	3.05	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFOS_1	499.0 / 80.0	3.05	13C4-PFOS	503.0 / 80.0	141017.68	287.00
PFOS_2	499.0 / 99.0	3.05	13C4-PFOS	503.0 / 80.0	141017.68	287.00
PFDA_1	513.0 / 469.0	3.41	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFDA_2	513.0 / 219.0	3.41	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFUnA_1	563.0 / 519.0	3.73	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFUnA_2	563.0 / 269.0	3.73	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFDaA_1	613.0 / 569.0	4.01	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFDaA_2	613.0 / 319.0	4.01	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFTrDA_1	663.0 / 619.0	4.26	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFTrDA_2	663.0 / 169.0	4.25	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFTeDA_1	713.0 / 669.0	4.47	13C2-PFOA	415.0 / 370.0	33314.19	100.00
PFTeDA_2	713.0 / 169.0	4.47	13C2-PFOA	415.0 / 370.0	33314.19	100.00
NMeFOSAA_1	570.0 / 419.0	3.56	d3-MeFOSAA	573.0 / 419.0	29679.79	400.00
NMeFOSAA_2	570.0 / 512.0	3.56	d3-MeFOSAA	573.0 / 419.0	29679.79	400.00
NEtFOSAA_1	584.0 / 419.0	3.72	d3-MeFOSAA	573.0 / 419.0	29679.79	400.00
NEtFOSAA_2	584.0 / 483.0	3.72	d3-MeFOSAA	573.0 / 419.0	29679.79	400.00
13C2-PFHxA	315.0 / 270.0	1.84	13C2-PFOA	415.0 / 370.0	33314.19	100.00
13C2-PFDA	515.0 / 470.0	3.40	13C2-PFOA	415.0 / 370.0	33314.19	100.00
d5-EtFOSAA	589.0 / 419.0	3.71	d3-MeFOSAA	573.0 / 419.0	29679.79	400.00

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:10:52	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.53	855.441246	885.00	96.66
PFBS_2	298.9 / 99.0	1.53	847.870423	885.00	95.80
PFHxA_1	313.0 / 269.0	1.84	1002.683711	1000.00	100.27
PFHxA_2	313.0 / 119.0	1.84	975.786791	1000.00	97.58
PFHpA_1	363.0 / 319.0	2.25	1028.415089	1000.00	102.84
PFHpA_2	363.0 / 169.0	2.25	1068.282748	1000.00	106.83
PFHxS_1	399.0 / 80.0	2.27	928.530888	912.00	101.81
PFHxS_2	399.0 / 99.0	2.27	874.158313	912.00	95.85
PFOA_1	413.0 / 369.0	2.65	987.845992	1000.00	98.78
PFOA_2	413.0 / 169.0	2.65	966.508294	1000.00	96.65
PFNA_1	463.0 / 419.0	3.05	1012.891157	1000.00	101.29
PFNA_2	463.0 / 219.0	3.05	989.084834	1000.00	98.91
PFOS_1	499.0 / 80.0	3.04	861.967885	925.60	93.13
PFOS_2	499.0 / 99.0	3.04	992.887034	925.60	107.27
PFDA_1	513.0 / 469.0	3.40	1006.258962	1000.00	100.63
PFDA_2	513.0 / 219.0	3.40	917.137355	1000.00	91.71
PFUnA_1	563.0 / 519.0	3.72	1015.040460	1000.00	101.50
PFUnA_2	563.0 / 269.0	3.72	945.929212	1000.00	94.59
PFDoA_1	613.0 / 569.0	4.00	1001.168371	1000.00	100.12
PFDoA_2	613.0 / 319.0	4.00	1046.771187	1000.00	104.68
PFTTrDA_1	663.0 / 619.0	4.25	963.320784	1000.00	96.33
PFTTrDA_2	663.0 / 169.0	4.25	925.038026	1000.00	92.50
PFTeDA_1	713.0 / 669.0	4.46	956.128791	1000.00	95.61
PFTeDA_2	713.0 / 169.0	4.46	997.982293	1000.00	99.80
NMeFOSAA_1	570.0 / 419.0	3.55	1182.960133	1000.00	118.30
NMeFOSAA_2	570.0 / 512.0	3.55	1114.561991	1000.00	111.46
NEtFOSAA_1	584.0 / 419.0	3.71	1237.225964	1000.00	123.72
NEtFOSAA_2	584.0 / 483.0	3.71	904.052180	1000.00	90.41
13C2-PFHxA	315.0 / 270.0	1.83	95.812636	100.00	95.81
13C2-PFDA	515.0 / 470.0	3.39	96.345072	100.00	96.35
d5-EtFOSAA	589.0 / 419.0	3.70	418.876147	400.00	104.72

Sample Name	JZ82 CCV	Injection Vial	19
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:22:24	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	469.601684	443.00	106.00
PFBS_2	298.9 / 99.0	1.52	466.594802	443.00	105.33
PFHxA_1	313.0 / 269.0	1.83	536.345429	500.00	107.27
PFHxA_2	313.0 / 119.0	1.83	516.897559	500.00	103.38
PFHpA_1	363.0 / 319.0	2.24	554.855493	500.00	110.97
PFHpA_2	363.0 / 169.0	2.24	426.102231	500.00	85.22
PFHxS_1	399.0 / 80.0	2.26	490.810454	456.00	107.63
PFHxS_2	399.0 / 99.0	2.26	490.627157	456.00	107.59
PFOA_1	413.0 / 369.0	2.64	526.134391	500.00	105.23
PFOA_2	413.0 / 169.0	2.64	475.028081	500.00	95.01
PFNA_1	463.0 / 419.0	3.04	543.434024	500.00	108.69
PFNA_2	463.0 / 219.0	3.03	505.400757	500.00	101.08
PFOS_1	499.0 / 80.0	3.03	497.687786	463.00	107.49
PFOS_2	499.0 / 99.0	3.03	503.077853	463.00	108.66
PFDA_1	513.0 / 469.0	3.39	523.053447	500.00	104.61
PFDA_2	513.0 / 219.0	3.39	557.173068	500.00	111.43
PFUnA_1	563.0 / 519.0	3.71	527.372253	500.00	105.47
PFUnA_2	563.0 / 269.0	3.71	372.975414	500.00	74.60
PFDoA_1	613.0 / 569.0	3.99	514.687807	500.00	102.94
PFDoA_2	613.0 / 319.0	3.99	520.128641	500.00	104.03
PFTTrDA_1	663.0 / 619.0	4.23	539.546955	500.00	107.91
PFTTrDA_2	663.0 / 169.0	4.23	495.618433	500.00	99.12
PFTeDA_1	713.0 / 669.0	4.45	525.627798	500.00	105.13
PFTeDA_2	713.0 / 169.0	4.45	543.709830	500.00	108.74
NMeFOSAA_1	570.0 / 419.0	3.54	577.010118	500.00	115.40
NMeFOSAA_2	570.0 / 512.0	3.54	588.662985	500.00	117.73
NEtFOSAA_1	584.0 / 419.0	3.70	547.640632	500.00	109.53
NEtFOSAA_2	584.0 / 483.0	3.70	566.992460	500.00	113.40
13C2-PFHxA	315.0 / 270.0	1.82	91.334519	100.00	91.33
13C2-PFDA	515.0 / 470.0	3.38	96.517735	100.00	96.52
d5-EtFOSAA	589.0 / 419.0	3.69	420.151404	400.00	105.04

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:10:52	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	311075.28	855.441246	1087.9	false
PFBS_2	298.9 / 99.0	1.53	92483.97	847.870423	736.7	false
PFHxA_1	313.0 / 269.0	1.84	324735.64	1002.683711	70.8	false
PFHxA_2	313.0 / 119.0	1.84	24673.24	975.786791	61.1	false
PFHpA_1	363.0 / 319.0	2.25	296511.62	1028.415089	143.1	false
PFHpA_2	363.0 / 169.0	2.25	7327.19	1068.282748	116.5	false
PFHxS_1	399.0 / 80.0	2.27	352406.70	928.530888	356.5	false
PFHxS_2	399.0 / 99.0	2.27	96001.75	874.158313	383.9	false
PFOA_1	413.0 / 369.0	2.65	336820.95	987.845992	302.6	false
PFOA_2	413.0 / 169.0	2.65	23422.47	966.508294	221.6	false
PFNA_1	463.0 / 419.0	3.05	305029.91	1012.891157	303.4	false
PFNA_2	463.0 / 219.0	3.05	92913.74	989.084834	382.5	false
PFOS_1	499.0 / 80.0	3.04	470124.72	861.967885	293.9	false
PFOS_2	499.0 / 99.0	3.04	103950.10	992.887034	447.0	false
PFDA_1	513.0 / 469.0	3.40	359599.69	1006.258962	371.6	false
PFDA_2	513.0 / 219.0	3.40	15593.87	917.137355	194.0	false
PFUnA_1	563.0 / 519.0	3.72	408595.89	1015.040460	392.6	false
PFUnA_2	563.0 / 269.0	3.72	20111.73	945.929212	147.8	false
PFDaA_1	613.0 / 569.0	4.00	400032.33	1001.168371	506.6	false
PFDaA_2	613.0 / 319.0	4.00	67846.24	1046.771187	319.3	false
PFTrDA_1	663.0 / 619.0	4.25	397267.92	963.320784	445.6	false
PFTrDA_2	663.0 / 169.0	4.25	24488.17	925.038026	335.0	false
PFTeDA_1	713.0 / 669.0	4.46	393475.07	956.128791	625.8	false
PFTeDA_2	713.0 / 169.0	4.46	19678.05	997.982293	451.5	false
NMeFOSAA_1	570.0 / 419.0	3.55	71691.41	1182.960133	765.9	false
NMeFOSAA_2	570.0 / 512.0	3.55	41636.62	1114.561991	599.9	false
NEtFOSAA_1	584.0 / 419.0	3.71	75178.73	1237.225964	786.4	false
NEtFOSAA_2	584.0 / 483.0	3.71	4349.15	904.052180	174.5	false
13C2-PFHxA	315.0 / 270.0	1.83	36057.33	95.812636	1008.3	false
13C2-PFDA	515.0 / 470.0	3.39	41830.15	96.345072	845.7	false
d5-EtFOSAA	589.0 / 419.0	3.70	34677.80	418.876147	236.9	false

Sample Name	JZ82 CCV	Injection Vial	19
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:22:24	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	163277.52	469.601684	650.9	false
PFBS_2	298.9 / 99.0	1.52	48371.81	466.594802	461.2	false
PFHxA_1	313.0 / 269.0	1.83	178034.52	536.345429	38.4	true
PFHxA_2	313.0 / 119.0	1.83	13251.86	516.897559	31.1	true
PFHpA_1	363.0 / 319.0	2.24	161849.77	554.855493	81.1	true
PFHpA_2	363.0 / 169.0	2.24	3356.33	426.102231	58.2	true
PFHxS_1	399.0 / 80.0	2.26	181037.44	490.810454	201.0	false
PFHxS_2	399.0 / 99.0	2.26	52841.67	490.627157	217.6	false
PFOA_1	413.0 / 369.0	2.64	183536.82	526.134391	156.0	false
PFOA_2	413.0 / 169.0	2.64	12432.09	475.028081	122.5	false
PFNA_1	463.0 / 419.0	3.04	166600.97	543.434024	219.0	false
PFNA_2	463.0 / 219.0	3.03	48380.16	505.400757	244.1	false
PFOS_1	499.0 / 80.0	3.03	259309.53	497.687786	152.3	false
PFOS_2	499.0 / 99.0	3.03	52602.30	503.077853	334.5	true
PFDA_1	513.0 / 469.0	3.39	188628.32	523.053447	244.4	false
PFDA_2	513.0 / 219.0	3.39	10179.09	557.173068	154.2	false
PFUnA_1	563.0 / 519.0	3.71	214656.43	527.372253	258.6	false
PFUnA_2	563.0 / 269.0	3.71	9582.84	372.975414	85.4	true
PFDaA_1	613.0 / 569.0	3.99	210101.65	514.687807	297.5	false
PFDaA_2	613.0 / 319.0	3.99	34693.55	520.128641	232.2	false
PFTrDA_1	663.0 / 619.0	4.23	225885.92	539.546955	390.2	false
PFTrDA_2	663.0 / 169.0	4.23	13358.06	495.618433	261.7	false
PFTeDA_1	713.0 / 669.0	4.45	219925.00	525.627798	612.4	false
PFTeDA_2	713.0 / 169.0	4.45	10878.22	543.709830	335.9	false
NMeFOSAA_1	570.0 / 419.0	3.54	33753.76	577.010118	352.4	false
NMeFOSAA_2	570.0 / 512.0	3.54	21092.66	588.662985	402.6	false
NEtFOSAA_1	584.0 / 419.0	3.70	32799.15	547.640632	495.7	false
NEtFOSAA_2	584.0 / 483.0	3.70	2710.75	566.992460	99.3	false
13C2-PFHxA	315.0 / 270.0	1.82	33710.55	91.334519	795.9	false
13C2-PFDA	515.0 / 470.0	3.38	41098.62	96.517735	780.0	false
d5-EtFOSAA	589.0 / 419.0	3.69	32146.80	420.151404	311.0	false

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:10:52	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.297	0.297	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.076	0.077	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.025	0.024	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.272	0.303	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.070	0.070	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.305	0.310	ü
PFOS_1	499.0 / 80.0	3.04	PFOS			
PFOS_2	499.0 / 99.0	3.04	PFOS	0.221	0.195	ü
PFDA_1	513.0 / 469.0	3.40	PFDA			
PFDA_2	513.0 / 219.0	3.40	PFDA	0.043	0.047	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.049	0.053	ü
PFDaA_1	613.0 / 569.0	4.00	PFDaA			
PFDaA_2	613.0 / 319.0	4.00	PFDaA	0.170	0.164	ü
PFTrDA_1	663.0 / 619.0	4.25	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.25	PFTrDA	0.062	0.064	ü
PFTeDA_1	713.0 / 669.0	4.46	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.46	PFTeDA	0.050	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.55	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.55	NMeFOSAA	0.581	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.71	NEtFOSAA	0.058	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.83				
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 CCV	Injection Vial	19
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:22:24	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.296	0.297	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.074	0.077	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.24	PFHpA	0.021	0.024	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.292	0.303	ü
PFOA_1	413.0 / 369.0	2.64	PFOA			
PFOA_2	413.0 / 169.0	2.64	PFOA	0.068	0.070	ü
PFNA_1	463.0 / 419.0	3.04	PFNA			
PFNA_2	463.0 / 219.0	3.03	PFNA	0.290	0.310	ü
PFOS_1	499.0 / 80.0	3.03	PFOS			
PFOS_2	499.0 / 99.0	3.03	PFOS	0.203	0.195	ü
PFDA_1	513.0 / 469.0	3.39	PFDA			
PFDA_2	513.0 / 219.0	3.39	PFDA	0.054	0.047	ü
PFUnA_1	563.0 / 519.0	3.71	PFUnA			
PFUnA_2	563.0 / 269.0	3.71	PFUnA	0.045	0.053	ü
PFDaA_1	613.0 / 569.0	3.99	PFDaA			
PFDaA_2	613.0 / 319.0	3.99	PFDaA	0.165	0.164	ü
PFTrDA_1	663.0 / 619.0	4.23	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.23	PFTrDA	0.059	0.064	ü
PFTeDA_1	713.0 / 669.0	4.45	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.45	PFTeDA	0.050	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.54	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.54	NMeFOSAA	0.625	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.70	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.70	NEtFOSAA	0.083	0.076	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	3.69		N/A	N/A	ü

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:10:52	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	157861.98	287.00
PFBS_2	298.9 / 99.0	1.53	13C4-PFOS	503.0 / 80.0	157861.98	287.00
PFHxA_1	313.0 / 269.0	1.84	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFHxA_2	313.0 / 119.0	1.84	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFHpA_1	363.0 / 319.0	2.25	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFHpA_2	363.0 / 169.0	2.25	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFHxS_1	399.0 / 80.0	2.27	13C4-PFOS	503.0 / 80.0	157861.98	287.00
PFHxS_2	399.0 / 99.0	2.27	13C4-PFOS	503.0 / 80.0	157861.98	287.00
PFOA_1	413.0 / 369.0	2.65	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFOA_2	413.0 / 169.0	2.65	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFNA_1	463.0 / 419.0	3.05	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFNA_2	463.0 / 219.0	3.05	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFOS_1	499.0 / 80.0	3.04	13C4-PFOS	503.0 / 80.0	157861.98	287.00
PFOS_2	499.0 / 99.0	3.04	13C4-PFOS	503.0 / 80.0	157861.98	287.00
PFDA_1	513.0 / 469.0	3.40	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFDA_2	513.0 / 219.0	3.40	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFUnA_1	563.0 / 519.0	3.72	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFUnA_2	563.0 / 269.0	3.72	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFDaA_1	613.0 / 569.0	4.00	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFDaA_2	613.0 / 319.0	4.00	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFTTrDA_1	663.0 / 619.0	4.25	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFTTrDA_2	663.0 / 169.0	4.25	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFTTeDA_1	713.0 / 669.0	4.46	13C2-PFOA	415.0 / 370.0	36575.66	100.00
PFTTeDA_2	713.0 / 169.0	4.46	13C2-PFOA	415.0 / 370.0	36575.66	100.00
NMeFOSAA_1	570.0 / 419.0	3.55	d3-MeFOSAA	573.0 / 419.0	29278.56	400.00
NMeFOSAA_2	570.0 / 512.0	3.55	d3-MeFOSAA	573.0 / 419.0	29278.56	400.00
NEtFOSAA_1	584.0 / 419.0	3.71	d3-MeFOSAA	573.0 / 419.0	29278.56	400.00
NEtFOSAA_2	584.0 / 483.0	3.71	d3-MeFOSAA	573.0 / 419.0	29278.56	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	36575.66	100.00
13C2-PFDA	515.0 / 470.0	3.39	13C2-PFOA	415.0 / 370.0	36575.66	100.00
d5-EtFOSAA	589.0 / 419.0	3.70	d3-MeFOSAA	573.0 / 419.0	29278.56	400.00

Sample Name	JZ82 CCV	Injection Vial	19
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:22:24	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	149937.12	287.00
PFBS_2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	149937.12	287.00
PFHxA_1	313.0 / 269.0	1.83	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFHxA_2	313.0 / 119.0	1.83	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFHpA_1	363.0 / 319.0	2.24	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFHpA_2	363.0 / 169.0	2.24	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFHxS_1	399.0 / 80.0	2.26	13C4-PFOS	503.0 / 80.0	149937.12	287.00
PFHxS_2	399.0 / 99.0	2.26	13C4-PFOS	503.0 / 80.0	149937.12	287.00
PFOA_1	413.0 / 369.0	2.64	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFOA_2	413.0 / 169.0	2.64	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFNA_1	463.0 / 419.0	3.04	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFNA_2	463.0 / 219.0	3.03	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFOS_1	499.0 / 80.0	3.03	13C4-PFOS	503.0 / 80.0	149937.12	287.00
PFOS_2	499.0 / 99.0	3.03	13C4-PFOS	503.0 / 80.0	149937.12	287.00
PFDA_1	513.0 / 469.0	3.39	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFDA_2	513.0 / 219.0	3.39	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFUnA_1	563.0 / 519.0	3.71	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFUnA_2	563.0 / 269.0	3.71	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFDaA_1	613.0 / 569.0	3.99	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFDaA_2	613.0 / 319.0	3.99	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFTTrDA_1	663.0 / 619.0	4.23	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFTTrDA_2	663.0 / 169.0	4.23	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFTTeDA_1	713.0 / 669.0	4.45	13C2-PFOA	415.0 / 370.0	35871.73	100.00
PFTTeDA_2	713.0 / 169.0	4.45	13C2-PFOA	415.0 / 370.0	35871.73	100.00
NMeFOSAA_1	570.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	27059.25	400.00
NMeFOSAA_2	570.0 / 512.0	3.54	d3-MeFOSAA	573.0 / 419.0	27059.25	400.00
NEtFOSAA_1	584.0 / 419.0	3.70	d3-MeFOSAA	573.0 / 419.0	27059.25	400.00
NEtFOSAA_2	584.0 / 483.0	3.70	d3-MeFOSAA	573.0 / 419.0	27059.25	400.00
13C2-PFHxA	315.0 / 270.0	1.82	13C2-PFOA	415.0 / 370.0	35871.73	100.00
13C2-PFDA	515.0 / 470.0	3.38	13C2-PFOA	415.0 / 370.0	35871.73	100.00
d5-EtFOSAA	589.0 / 419.0	3.69	d3-MeFOSAA	573.0 / 419.0	27059.25	400.00

Raw Analytical Data

Sample Name	KA08 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:01:55	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	true
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	true
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	true
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	true
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.83	31632.80	101.267668	875.7	false
13C2-PFDA	515.0 / 470.0	3.39	35220.87	97.733654	801.6	false
d5-EtFOSAA	589.0 / 419.0	3.71	26331.33	411.648744	215.4	false

Sample Name	CR653PB-FS(0)	Injection Vial	13
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:28:46	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	true
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	true
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	true
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	true
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	true
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	true
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	true
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	true
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	true
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	true
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	true
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	true
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.83	32012.08	92.808397	776.1	false
13C2-PFDA	515.0 / 470.0	3.39	35727.22	89.780777	989.7	false
d5-EtFOSAA	589.0 / 419.0	3.70	27907.97	341.977744	213.9	false

Sample Name	CR654LCS-FS(0)	Injection Vial	14
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:37:44	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1241774.50	3474.484381	2152.2	false
PFBS_2	298.9 / 99.0	1.52	373128.73	3461.296875	833.6	false
PFHxA_1	313.0 / 269.0	1.83	1332089.48	4096.675954	172.7	false
PFHxA_2	313.0 / 119.0	1.83	99903.54	3892.378084	158.4	false
PFHpA_1	363.0 / 319.0	2.24	1225327.75	4184.067946	459.2	false
PFHpA_2	363.0 / 169.0	2.24	28510.85	4350.539295	303.9	false
PFHxS_1	399.0 / 80.0	2.26	1370912.64	3725.593124	693.3	false
PFHxS_2	399.0 / 99.0	2.26	396844.63	3774.871138	850.8	false
PFOA_1	413.0 / 369.0	2.65	1353493.33	3944.536439	513.4	false
PFOA_2	413.0 / 169.0	2.65	95555.80	4077.749948	377.8	false
PFNA_1	463.0 / 419.0	3.04	1187050.37	3899.347060	695.3	false
PFNA_2	463.0 / 219.0	3.04	363457.91	3818.233913	758.9	false
PFOS_1	499.0 / 80.0	3.04	1814073.95	3383.421352	536.5	false
PFOS_2	499.0 / 99.0	3.04	391399.39	3936.218770	992.8	false
PFDA_1	513.0 / 469.0	3.40	1431126.39	3924.070877	816.3	false
PFDA_2	513.0 / 219.0	3.40	61227.87	3885.451832	395.3	false
PFUnA_1	563.0 / 519.0	3.72	1491854.50	3634.689351	790.6	false
PFUnA_2	563.0 / 269.0	3.72	74592.63	3787.010030	220.6	false
PFDoA_1	613.0 / 569.0	4.00	1513303.95	3745.728831	614.6	false
PFDoA_2	613.0 / 319.0	4.00	251633.46	3852.199002	538.1	false
PFTTrDA_1	663.0 / 619.0	4.24	1516376.58	3638.653214	525.0	false
PFTTrDA_2	663.0 / 169.0	4.24	101189.98	3783.957659	461.6	false
PFTeDA_1	713.0 / 669.0	4.46	1543576.63	3713.102182	1397.9	false
PFTeDA_2	713.0 / 169.0	4.46	75231.96	3766.155983	855.3	false
NMeFOSAA_1	570.0 / 419.0	3.55	284815.05	4574.731855	1328.7	false
NMeFOSAA_2	570.0 / 512.0	3.55	153505.82	3996.539558	750.5	false
NEtFOSAA_1	584.0 / 419.0	3.71	279647.95	4512.298224	1503.4	false
NEtFOSAA_2	584.0 / 483.0	3.71	17443.56	3783.722606	436.5	false
13C2-PFHxA	315.0 / 270.0	1.83	38920.70	98.978660	726.0	false
13C2-PFDA	515.0 / 470.0	3.38	43301.07	95.448765	917.7	false
d5-EtFOSAA	589.0 / 419.0	3.70	35015.14	398.796507	271.9	false

Sample Name	J7585-FS(0)	Injection Vial	15
Sample ID	JAX-RES-08222018-1000-35	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:46:39	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	104762.51	326.446920	139.8	false
PFBS_2	298.9 / 99.0	1.53	23046.73	242.084416	126.8	false
PFHxA_1	313.0 / 269.0	1.84	85464.47	251.533844	18.2	true
PFHxA_2	313.0 / 119.0	1.84	7525.48	301.908636	19.8	true
PFHpA_1	363.0 / 319.0	2.25	47232.63	147.731419	18.7	false
PFHpA_2	363.0 / 169.0	2.25	1312.57	100.898011	24.2	true
PFHxS_1	399.0 / 80.0	2.27	277217.20	836.155965	156.6	false
PFHxS_2	399.0 / 99.0	2.27	79845.27	832.972061	256.5	false
PFOA_1	413.0 / 369.0	2.65	171846.77	532.312574	92.4	false
PFOA_2	413.0 / 169.0	2.61	17637.59	783.121066	75.1	true
PFNA_1	463.0 / 419.0	3.05	5307.51	< 0	16.9	false
PFNA_2	463.0 / 219.0	3.04	1900.65	< 0	16.4	false
PFOS_1	499.0 / 80.0	3.00	521204.80	1098.983616	98.7	true
PFOS_2	499.0 / 99.0	3.04	76413.62	829.276424	182.9	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.83	37764.32	110.447547	622.7	false
13C2-PFDA	515.0 / 470.0	3.39	31377.81	79.544064	649.8	false
d5-EtFOSAA	589.0 / 419.0	3.70	24661.78	330.753979	188.8	false

Sample Name	J7585MS-FS(0)	Injection Vial	16
Sample ID	Matrix Spike Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:55:35	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1928338.34	5894.676302	848.6	true
PFBS_2	298.9 / 99.0	1.52	595078.43	6026.437479	923.6	false
PFHxA_1	313.0 / 269.0	1.84	2007687.90	6510.642046	176.7	true
PFHxA_2	313.0 / 119.0	1.84	155974.92	6401.244417	193.9	false
PFHpA_1	363.0 / 319.0	2.24	1543572.62	5543.321642	232.6	false
PFHpA_2	363.0 / 169.0	2.24	35738.99	5765.450000	340.8	false
PFHxS_1	399.0 / 80.0	2.26	2017188.49	5999.202898	491.3	true
PFHxS_2	399.0 / 99.0	2.26	602871.01	6285.016004	549.1	false
PFOA_1	413.0 / 369.0	2.65	1909146.26	5862.731747	378.7	false
PFOA_2	413.0 / 169.0	2.65	135884.64	6136.147591	461.7	false
PFNA_1	463.0 / 419.0	3.04	1434661.55	4957.553797	584.6	false
PFNA_2	463.0 / 219.0	3.04	441815.29	4881.803585	786.4	false
PFOS_1	499.0 / 80.0	3.04	2786558.79	5677.999595	367.4	true
PFOS_2	499.0 / 99.0	3.04	544651.25	6008.049226	859.0	false
PFDA_1	513.0 / 469.0	3.40	1714104.01	4940.043204	732.1	false
PFDA_2	513.0 / 219.0	3.40	73459.63	4932.708266	438.3	false
PFUnA_1	563.0 / 519.0	3.72	1785302.31	4573.067721	859.1	false
PFUnA_2	563.0 / 269.0	3.72	88050.78	4730.834447	238.1	false
PFDoA_1	613.0 / 569.0	4.00	1798730.62	4683.127792	490.9	false
PFDoA_2	613.0 / 319.0	4.00	290570.20	4678.912346	446.9	false
PFTTrDA_1	663.0 / 619.0	4.24	1735637.67	4379.169238	537.1	false
PFTTrDA_2	663.0 / 169.0	4.24	113747.61	4470.880342	561.1	false
PFTeDA_1	713.0 / 669.0	4.45	1743582.30	4409.291521	1223.0	false
PFTeDA_2	713.0 / 169.0	4.45	83775.27	4407.855539	779.4	false
NMeFOSAA_1	570.0 / 419.0	3.55	311068.06	4957.803998	1164.8	false
NMeFOSAA_2	570.0 / 512.0	3.54	167612.79	4330.386153	551.8	false
NEtFOSAA_1	584.0 / 419.0	3.71	296937.23	4753.736778	855.5	false
NEtFOSAA_2	584.0 / 483.0	3.71	19464.36	4199.715966	381.7	false
13C2-PFHxA	315.0 / 270.0	1.83	41697.49	111.267980	510.7	false
13C2-PFDA	515.0 / 470.0	3.38	39906.84	92.303558	926.1	false
d5-EtFOSAA	589.0 / 419.0	3.70	26510.26	299.337826	245.6	false

Sample Name	J7585MSD-FS(0)	Injection Vial	17
Sample ID	Matrix Spike Duplicate	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:04:32	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1960245.76	5916.196217	791.7	false
PFBS_2	298.9 / 99.0	1.52	559262.76	5591.804646	661.5	false
PFHxA_1	313.0 / 269.0	1.84	1876511.04	6190.069126	138.4	false
PFHxA_2	313.0 / 119.0	1.83	146419.82	6113.519605	152.1	false
PFHpA_1	363.0 / 319.0	2.24	1508142.28	5511.527527	182.6	false
PFHpA_2	363.0 / 169.0	2.24	33425.65	5480.919321	247.4	false
PFHxS_1	399.0 / 80.0	2.26	1949496.65	5723.170098	613.3	false
PFHxS_2	399.0 / 99.0	2.26	564273.73	5805.100828	787.5	false
PFOA_1	413.0 / 369.0	2.65	1904277.06	5951.844029	432.0	false
PFOA_2	413.0 / 169.0	2.65	126121.34	5790.060310	556.7	false
PFNA_1	463.0 / 419.0	3.04	1369158.70	4813.434979	480.7	false
PFNA_2	463.0 / 219.0	3.04	409936.14	4607.222559	635.8	false
PFOS_1	499.0 / 80.0	3.04	2610732.36	5251.704966	382.9	true
PFOS_2	499.0 / 99.0	3.04	513042.89	5583.677117	667.5	false
PFDA_1	513.0 / 469.0	3.40	1637530.21	4801.815400	652.4	false
PFDA_2	513.0 / 219.0	3.39	71721.83	4900.066506	423.1	false
PFUnA_1	563.0 / 519.0	3.72	1697383.89	4423.521930	827.0	false
PFUnA_2	563.0 / 269.0	3.72	82875.50	4524.329681	271.7	false
PFDoA_1	613.0 / 569.0	3.99	1653364.30	4377.709797	679.8	false
PFDoA_2	613.0 / 319.0	3.99	282032.33	4620.994852	586.4	false
PFTTrDA_1	663.0 / 619.0	4.24	1689481.04	4337.584418	554.6	false
PFTTrDA_2	663.0 / 169.0	4.23	104591.53	4180.880402	447.7	false
PFTeDA_1	713.0 / 669.0	4.45	1617547.40	4160.317026	1276.8	false
PFTeDA_2	713.0 / 169.0	4.45	77061.68	4123.484587	801.4	false
NMeFOSAA_1	570.0 / 419.0	3.54	304055.59	5370.331298	1219.6	true
NMeFOSAA_2	570.0 / 512.0	3.54	170952.28	4896.957088	802.7	false
NEtFOSAA_1	584.0 / 419.0	3.71	287632.46	5103.883502	1068.2	false
NEtFOSAA_2	584.0 / 483.0	3.71	18471.54	4419.818640	420.1	true
13C2-PFHxA	315.0 / 270.0	1.83	41855.89	113.663556	510.9	false
13C2-PFDA	515.0 / 470.0	3.38	35397.14	83.318920	1532.6	false
d5-EtFOSAA	589.0 / 419.0	3.70	26557.76	332.051236	200.3	false

Sample Name	J7587-FS(0)	Injection Vial	18
Sample ID	JAX-RES-08222018-1000-35-FD	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:13:27	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	130258.57	356.684257	148.1	false
PFBS_2	298.9 / 99.0	1.52	26526.61	244.426011	144.2	false
PFHxA_1	313.0 / 269.0	1.83	109765.97	301.182262	20.5	true
PFHxA_2	313.0 / 119.0	1.83	7624.97	273.564547	20.3	true
PFHpA_1	363.0 / 319.0	2.24	56531.65	163.260760	22.9	true
PFHpA_2	363.0 / 169.0	2.22	1730.19	146.675116	27.3	true
PFHxS_1	399.0 / 80.0	2.26	326851.63	865.647992	168.5	false
PFHxS_2	399.0 / 99.0	2.26	91893.98	841.302767	229.7	false
PFOA_1	413.0 / 369.0	2.64	196336.58	552.002732	85.6	true
PFOA_2	413.0 / 169.0	2.59	19763.96	795.451312	67.8	true
PFNA_1	463.0 / 419.0	3.03	7874.81	< 0	22.0	false
PFNA_2	463.0 / 219.0	3.03	2882.02	< 0	23.2	false
PFOS_1	499.0 / 80.0	3.00	625614.98	1157.505259	105.5	true
PFOS_2	499.0 / 99.0	3.03	90542.12	864.121762	289.6	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
PFDaA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDaA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.82	42943.46	113.638820	443.0	false
13C2-PFDA	515.0 / 470.0	3.38	36172.05	82.968579	1215.8	false
d5-EtFOSAA	589.0 / 419.0	3.69	29775.12	394.046203	278.0	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	2018-08-27T13:01:55	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.297	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.077	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.024	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.303	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.070	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.310	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.195	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.164	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.048	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.613	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.39		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.71		N/A	N/A	ü

Sample Name	CR653PB-FS(0)	Injection Vial	13
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:28:46	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.297	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.077	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.024	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.303	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.070	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.310	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.195	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.164	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.048	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.613	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.83				
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	CR654LCS-FS(0)	Injection Vial	14
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:37:44	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.301	0.297	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.075	0.077	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.24	PFHpA	0.023	0.024	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.290	0.303	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.071	0.070	ü
PFNA_1	463.0 / 419.0	3.04	PFNA			
PFNA_2	463.0 / 219.0	3.04	PFNA	0.306	0.310	ü
PFOS_1	499.0 / 80.0	3.04	PFOS			
PFOS_2	499.0 / 99.0	3.04	PFOS	0.216	0.195	ü
PFDA_1	513.0 / 469.0	3.40	PFDA			
PFDA_2	513.0 / 219.0	3.40	PFDA	0.043	0.047	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.050	0.053	ü
PFDaA_1	613.0 / 569.0	4.00	PFDaA			
PFDaA_2	613.0 / 319.0	4.00	PFDaA	0.166	0.164	ü
PFTrDA_1	663.0 / 619.0	4.24	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.24	PFTrDA	0.067	0.064	ü
PFTeDA_1	713.0 / 669.0	4.46	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.46	PFTeDA	0.049	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.55	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.55	NMeFOSAA	0.539	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.71	NEtFOSAA	0.062	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.83				
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	J7585-FS(0)	Injection Vial	15
Sample ID	JAX-RES-08222018-1000-35	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:46:39	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.220	0.297	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.088	0.077	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.028	0.024	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.288	0.303	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.61	PFOA	0.103	0.070	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.04	PFNA	0.358	0.310	ü
PFOS_1	499.0 / 80.0	3.00	PFOS			
PFOS_2	499.0 / 99.0	3.04	PFOS	0.147	0.195	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.164	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.048	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.613	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.83				
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	J7585MS-FS(0)	Injection Vial	16
Sample ID	Matrix Spike Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:55:35	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.309	0.297	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.078	0.077	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.24	PFHpA	0.023	0.024	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.299	0.303	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.071	0.070	ü
PFNA_1	463.0 / 419.0	3.04	PFNA			
PFNA_2	463.0 / 219.0	3.04	PFNA	0.308	0.310	ü
PFOS_1	499.0 / 80.0	3.04	PFOS			
PFOS_2	499.0 / 99.0	3.04	PFOS	0.196	0.195	ü
PFDA_1	513.0 / 469.0	3.40	PFDA			
PFDA_2	513.0 / 219.0	3.40	PFDA	0.043	0.047	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.049	0.053	ü
PFDaA_1	613.0 / 569.0	4.00	PFDaA			
PFDaA_2	613.0 / 319.0	4.00	PFDaA	0.162	0.164	ü
PFTrDA_1	663.0 / 619.0	4.24	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.24	PFTrDA	0.066	0.064	ü
PFTeDA_1	713.0 / 669.0	4.45	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.45	PFTeDA	0.048	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.55	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.54	NMeFOSAA	0.539	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.71	NEtFOSAA	0.066	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.83				
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	J7585MSD-FS(0)	Injection Vial	17
Sample ID	Matrix Spike Duplicate	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:04:32	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.285	0.297	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.078	0.077	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.24	PFHpA	0.022	0.024	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.289	0.303	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.066	0.070	ü
PFNA_1	463.0 / 419.0	3.04	PFNA			
PFNA_2	463.0 / 219.0	3.04	PFNA	0.299	0.310	ü
PFOS_1	499.0 / 80.0	3.04	PFOS			
PFOS_2	499.0 / 99.0	3.04	PFOS	0.197	0.195	ü
PFDA_1	513.0 / 469.0	3.40	PFDA			
PFDA_2	513.0 / 219.0	3.39	PFDA	0.044	0.047	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.049	0.053	ü
PFDaA_1	613.0 / 569.0	3.99	PFDaA			
PFDaA_2	613.0 / 319.0	3.99	PFDaA	0.171	0.164	ü
PFTrDA_1	663.0 / 619.0	4.24	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.23	PFTrDA	0.062	0.064	ü
PFTeDA_1	713.0 / 669.0	4.45	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.45	PFTeDA	0.048	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.54	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.54	NMeFOSAA	0.562	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.71	NEtFOSAA	0.064	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.83				
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	J7587-FS(0)	Injection Vial	18
Sample ID	JAX-RES-08222018-1000-35-FD	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:13:27	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.204	0.297	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.070	0.077	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.031	0.024	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.281	0.303	ü
PFOA_1	413.0 / 369.0	2.64	PFOA			
PFOA_2	413.0 / 169.0	2.59	PFOA	0.101	0.070	ü
PFNA_1	463.0 / 419.0	3.03	PFNA			
PFNA_2	463.0 / 219.0	3.03	PFNA	0.366	0.310	ü
PFOS_1	499.0 / 80.0	3.00	PFOS			
PFOS_2	499.0 / 99.0	3.03	PFOS	0.145	0.195	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.164	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.048	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.613	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.076	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	3.69		N/A	N/A	ü

Sample Name	KA08 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:01:55	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	139069.46	287.00
PFBS_2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	139069.46	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	139069.46	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	139069.46	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	139069.46	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	139069.46	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	30359.05	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	22621.94	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	22621.94	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	22621.94	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	22621.94	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	30359.05	100.00
13C2-PFDA	515.0 / 470.0	3.39	13C2-PFOA	415.0 / 370.0	30359.05	100.00
d5-EtFOSAA	589.0 / 419.0	3.71	d3-MeFOSAA	573.0 / 419.0	22621.94	400.00

Sample Name	CR653PB-FS(0)	Injection Vial	13
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:28:46	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	148610.70	287.00
PFBS_2	298.9 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	148610.70	287.00
PFHxA_1	313.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFHxA_2	313.0 / 119.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFHpA_1	363.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFHpA_2	363.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFHxS_1	399.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	148610.70	287.00
PFHxS_2	399.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	148610.70	287.00
PFOA_1	413.0 / 369.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFOA_2	413.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFNA_1	463.0 / 419.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFNA_2	463.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFOS_1	499.0 / 80.0	N/A	13C4-PFOS	503.0 / 80.0	148610.70	287.00
PFOS_2	499.0 / 99.0	N/A	13C4-PFOS	503.0 / 80.0	148610.70	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33523.40	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	28861.19	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	28861.19	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	28861.19	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	28861.19	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	33523.40	100.00
13C2-PFDA	515.0 / 470.0	3.39	13C2-PFOA	415.0 / 370.0	33523.40	100.00
d5-EtFOSAA	589.0 / 419.0	3.70	d3-MeFOSAA	573.0 / 419.0	28861.19	400.00

Sample Name	CR654LCS-FS(0)	Injection Vial	14
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:37:44	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	156107.16	287.00
PFBS_2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	156107.16	287.00
PFHxA_1	313.0 / 269.0	1.83	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFHxA_2	313.0 / 119.0	1.83	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFHpA_1	363.0 / 319.0	2.24	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFHpA_2	363.0 / 169.0	2.24	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFHxS_1	399.0 / 80.0	2.26	13C4-PFOS	503.0 / 80.0	156107.16	287.00
PFHxS_2	399.0 / 99.0	2.26	13C4-PFOS	503.0 / 80.0	156107.16	287.00
PFOA_1	413.0 / 369.0	2.65	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFOA_2	413.0 / 169.0	2.65	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFNA_1	463.0 / 419.0	3.04	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFNA_2	463.0 / 219.0	3.04	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFOS_1	499.0 / 80.0	3.04	13C4-PFOS	503.0 / 80.0	156107.16	287.00
PFOS_2	499.0 / 99.0	3.04	13C4-PFOS	503.0 / 80.0	156107.16	287.00
PFDA_1	513.0 / 469.0	3.40	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFDA_2	513.0 / 219.0	3.40	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFUnA_1	563.0 / 519.0	3.72	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFUnA_2	563.0 / 269.0	3.72	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFDoA_1	613.0 / 569.0	4.00	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFDoA_2	613.0 / 319.0	4.00	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFTTrDA_1	663.0 / 619.0	4.24	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFTTrDA_2	663.0 / 169.0	4.24	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFTeDA_1	713.0 / 669.0	4.46	13C2-PFOA	415.0 / 370.0	38217.34	100.00
PFTeDA_2	713.0 / 169.0	4.46	13C2-PFOA	415.0 / 370.0	38217.34	100.00
NMeFOSAA_1	570.0 / 419.0	3.55	d3-MeFOSAA	573.0 / 419.0	31051.91	400.00
NMeFOSAA_2	570.0 / 512.0	3.55	d3-MeFOSAA	573.0 / 419.0	31051.91	400.00
NEtFOSAA_1	584.0 / 419.0	3.71	d3-MeFOSAA	573.0 / 419.0	31051.91	400.00
NEtFOSAA_2	584.0 / 483.0	3.71	d3-MeFOSAA	573.0 / 419.0	31051.91	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	38217.34	100.00
13C2-PFDA	515.0 / 470.0	3.38	13C2-PFOA	415.0 / 370.0	38217.34	100.00
d5-EtFOSAA	589.0 / 419.0	3.70	d3-MeFOSAA	573.0 / 419.0	31051.91	400.00

Sample Name	J7585-FS(0)	Injection Vial	15
Sample ID	JAX-RES-08222018-1000-35	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:46:39	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	137503.72	287.00
PFBS_2	298.9 / 99.0	1.53	13C4-PFOS	503.0 / 80.0	137503.72	287.00
PFHxA_1	313.0 / 269.0	1.84	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFHxA_2	313.0 / 119.0	1.84	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFHpA_1	363.0 / 319.0	2.25	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFHpA_2	363.0 / 169.0	2.25	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFHxS_1	399.0 / 80.0	2.27	13C4-PFOS	503.0 / 80.0	137503.72	287.00
PFHxS_2	399.0 / 99.0	2.27	13C4-PFOS	503.0 / 80.0	137503.72	287.00
PFOA_1	413.0 / 369.0	2.65	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFOA_2	413.0 / 169.0	2.61	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFNA_1	463.0 / 419.0	3.05	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFNA_2	463.0 / 219.0	3.04	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFOS_1	499.0 / 80.0	3.00	13C4-PFOS	503.0 / 80.0	137503.72	287.00
PFOS_2	499.0 / 99.0	3.04	13C4-PFOS	503.0 / 80.0	137503.72	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	26369.58	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	26369.58	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	26369.58	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	26369.58	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	33231.27	100.00
13C2-PFDA	515.0 / 470.0	3.39	13C2-PFOA	415.0 / 370.0	33231.27	100.00
d5-EtFOSAA	589.0 / 419.0	3.70	d3-MeFOSAA	573.0 / 419.0	26369.58	400.00

Sample Name	J7585MS-FS(0)	Injection Vial	16
Sample ID	Matrix Spike Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:55:35	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	143005.51	287.00
PFBS_2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	143005.51	287.00
PFHxA_1	313.0 / 269.0	1.84	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFHxA_2	313.0 / 119.0	1.84	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFHpA_1	363.0 / 319.0	2.24	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFHpA_2	363.0 / 169.0	2.24	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFHxS_1	399.0 / 80.0	2.26	13C4-PFOS	503.0 / 80.0	143005.51	287.00
PFHxS_2	399.0 / 99.0	2.26	13C4-PFOS	503.0 / 80.0	143005.51	287.00
PFOA_1	413.0 / 369.0	2.65	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFOA_2	413.0 / 169.0	2.65	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFNA_1	463.0 / 419.0	3.04	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFNA_2	463.0 / 219.0	3.04	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFOS_1	499.0 / 80.0	3.04	13C4-PFOS	503.0 / 80.0	143005.51	287.00
PFOS_2	499.0 / 99.0	3.04	13C4-PFOS	503.0 / 80.0	143005.51	287.00
PFDA_1	513.0 / 469.0	3.40	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFDA_2	513.0 / 219.0	3.40	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFUnA_1	563.0 / 519.0	3.72	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFUnA_2	563.0 / 269.0	3.72	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFDoA_1	613.0 / 569.0	4.00	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFDoA_2	613.0 / 319.0	4.00	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFTTrDA_1	663.0 / 619.0	4.24	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFTTrDA_2	663.0 / 169.0	4.24	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFTeDA_1	713.0 / 669.0	4.45	13C2-PFOA	415.0 / 370.0	36421.77	100.00
PFTeDA_2	713.0 / 169.0	4.45	13C2-PFOA	415.0 / 370.0	36421.77	100.00
NMeFOSAA_1	570.0 / 419.0	3.55	d3-MeFOSAA	573.0 / 419.0	31321.04	400.00
NMeFOSAA_2	570.0 / 512.0	3.54	d3-MeFOSAA	573.0 / 419.0	31321.04	400.00
NEtFOSAA_1	584.0 / 419.0	3.71	d3-MeFOSAA	573.0 / 419.0	31321.04	400.00
NEtFOSAA_2	584.0 / 483.0	3.71	d3-MeFOSAA	573.0 / 419.0	31321.04	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	36421.77	100.00
13C2-PFDA	515.0 / 470.0	3.38	13C2-PFOA	415.0 / 370.0	36421.77	100.00
d5-EtFOSAA	589.0 / 419.0	3.70	d3-MeFOSAA	573.0 / 419.0	31321.04	400.00

Sample Name	J7585MSD-FS(0)	Injection Vial	17
Sample ID	Matrix Spike Duplicate	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:04:32	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	144843.61	287.00
PFBS_2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	144843.61	287.00
PFHxA_1	313.0 / 269.0	1.84	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFHxA_2	313.0 / 119.0	1.83	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFHpA_1	363.0 / 319.0	2.24	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFHpA_2	363.0 / 169.0	2.24	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFHxS_1	399.0 / 80.0	2.26	13C4-PFOS	503.0 / 80.0	144843.61	287.00
PFHxS_2	399.0 / 99.0	2.26	13C4-PFOS	503.0 / 80.0	144843.61	287.00
PFOA_1	413.0 / 369.0	2.65	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFOA_2	413.0 / 169.0	2.65	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFNA_1	463.0 / 419.0	3.04	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFNA_2	463.0 / 219.0	3.04	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFOS_1	499.0 / 80.0	3.04	13C4-PFOS	503.0 / 80.0	144843.61	287.00
PFOS_2	499.0 / 99.0	3.04	13C4-PFOS	503.0 / 80.0	144843.61	287.00
PFDA_1	513.0 / 469.0	3.40	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFDA_2	513.0 / 219.0	3.39	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFUnA_1	563.0 / 519.0	3.72	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFUnA_2	563.0 / 269.0	3.72	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFDoA_1	613.0 / 569.0	3.99	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFDoA_2	613.0 / 319.0	3.99	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFTTrDA_1	663.0 / 619.0	4.24	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFTTrDA_2	663.0 / 169.0	4.23	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFTeDA_1	713.0 / 669.0	4.45	13C2-PFOA	415.0 / 370.0	35789.59	100.00
PFTeDA_2	713.0 / 169.0	4.45	13C2-PFOA	415.0 / 370.0	35789.59	100.00
NMeFOSAA_1	570.0 / 419.0	3.54	d3-MeFOSAA	573.0 / 419.0	28285.90	400.00
NMeFOSAA_2	570.0 / 512.0	3.54	d3-MeFOSAA	573.0 / 419.0	28285.90	400.00
NEtFOSAA_1	584.0 / 419.0	3.71	d3-MeFOSAA	573.0 / 419.0	28285.90	400.00
NEtFOSAA_2	584.0 / 483.0	3.71	d3-MeFOSAA	573.0 / 419.0	28285.90	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	35789.59	100.00
13C2-PFDA	515.0 / 470.0	3.38	13C2-PFOA	415.0 / 370.0	35789.59	100.00
d5-EtFOSAA	589.0 / 419.0	3.70	d3-MeFOSAA	573.0 / 419.0	28285.90	400.00

Sample Name	J7587-FS(0)	Injection Vial	18
Sample ID	JAX-RES-08222018-1000-35-FD	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:13:27	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Results Summary

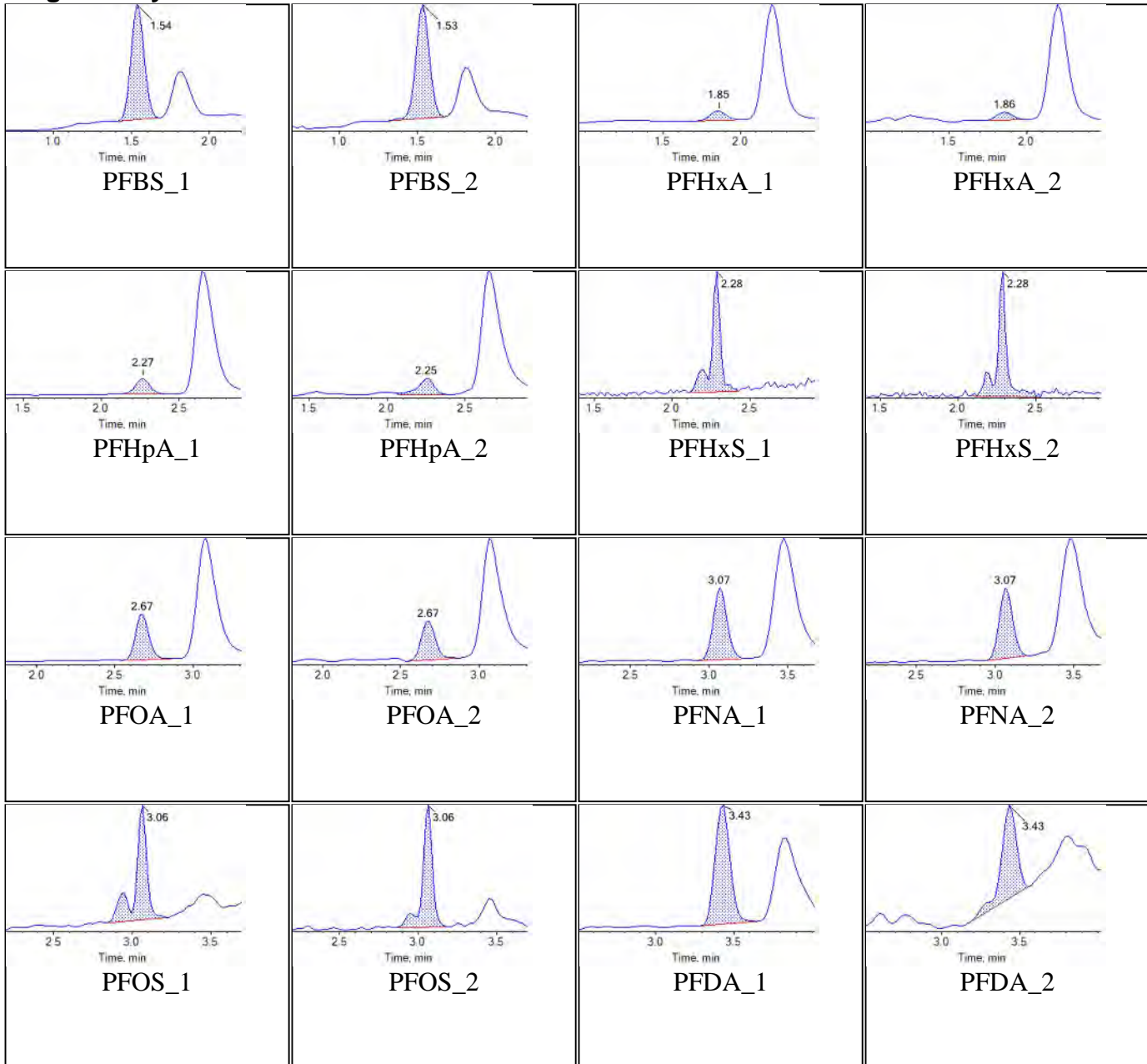
Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.52	13C4-PFOS	503.0 / 80.0	156753.75	287.00
PFBS_2	298.9 / 99.0	1.52	13C4-PFOS	503.0 / 80.0	156753.75	287.00
PFHxA_1	313.0 / 269.0	1.83	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFHxA_2	313.0 / 119.0	1.83	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFHpA_1	363.0 / 319.0	2.24	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFHpA_2	363.0 / 169.0	2.22	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFHxS_1	399.0 / 80.0	2.26	13C4-PFOS	503.0 / 80.0	156753.75	287.00
PFHxS_2	399.0 / 99.0	2.26	13C4-PFOS	503.0 / 80.0	156753.75	287.00
PFOA_1	413.0 / 369.0	2.64	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFOA_2	413.0 / 169.0	2.59	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFNA_1	463.0 / 419.0	3.03	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFNA_2	463.0 / 219.0	3.03	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFOS_1	499.0 / 80.0	3.00	13C4-PFOS	503.0 / 80.0	156753.75	287.00
PFOS_2	499.0 / 99.0	3.03	13C4-PFOS	503.0 / 80.0	156753.75	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	36727.53	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	36727.53	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	26723.30	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	26723.30	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	26723.30	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	26723.30	400.00
13C2-PFHxA	315.0 / 270.0	1.82	13C2-PFOA	415.0 / 370.0	36727.53	100.00
13C2-PFDA	515.0 / 470.0	3.38	13C2-PFOA	415.0 / 370.0	36727.53	100.00
d5-EtFOSAA	589.0 / 419.0	3.69	d3-MeFOSAA	573.0 / 419.0	26723.30	400.00

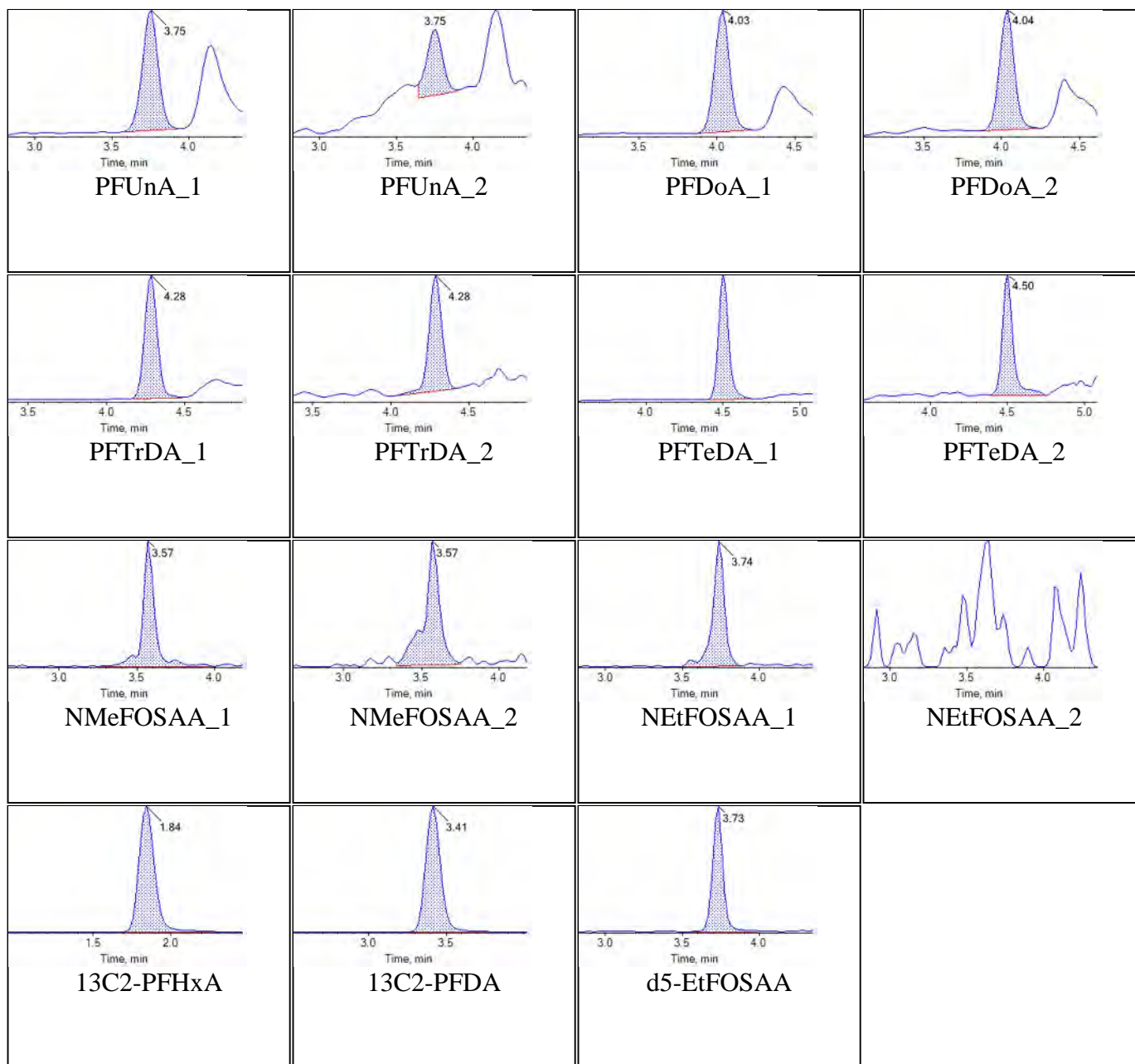
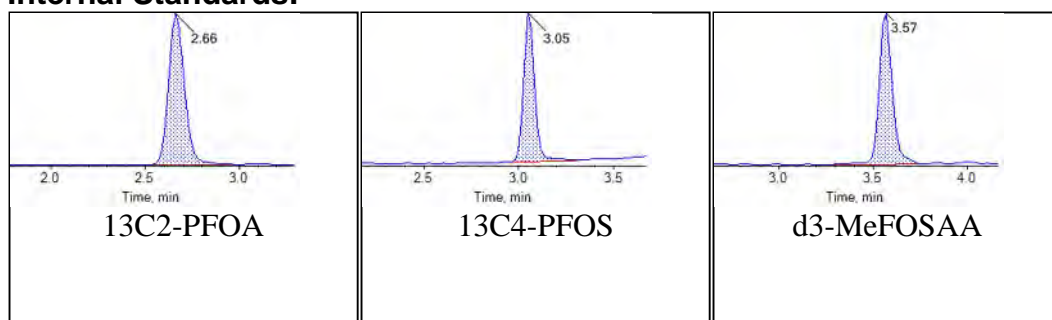
Chromatograms

Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T11:59:18	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Chromatograms

Target Analytes:

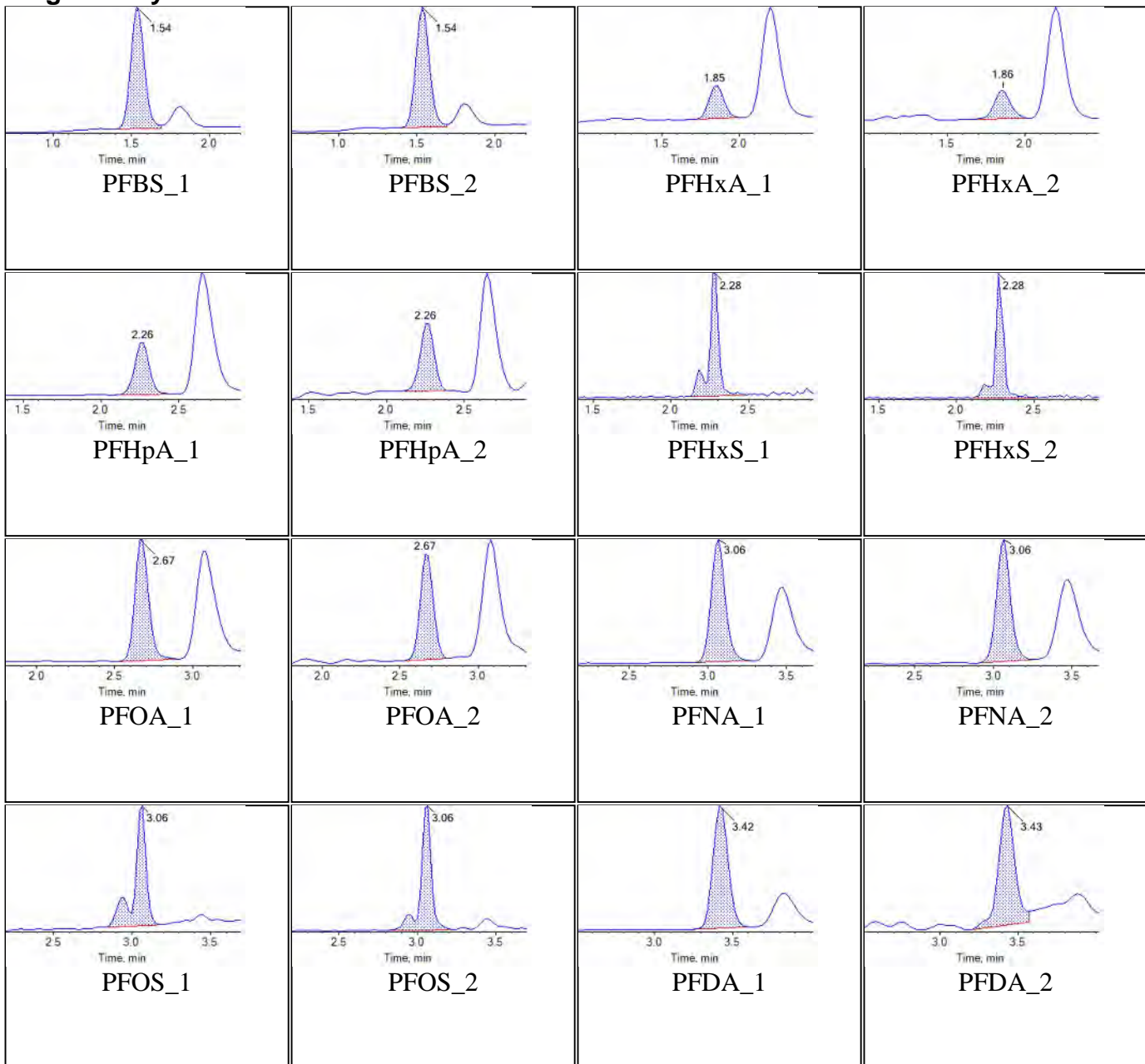


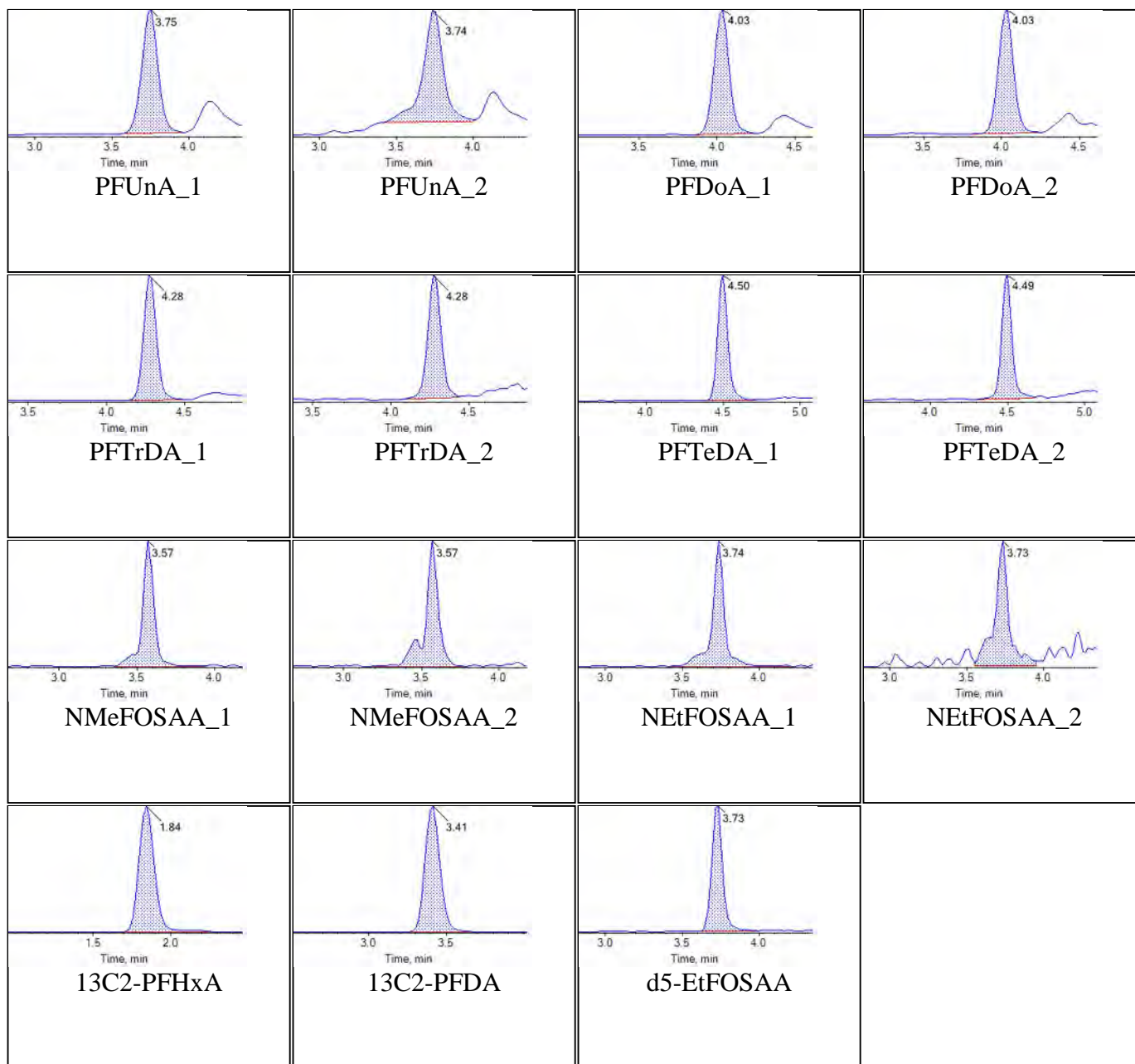
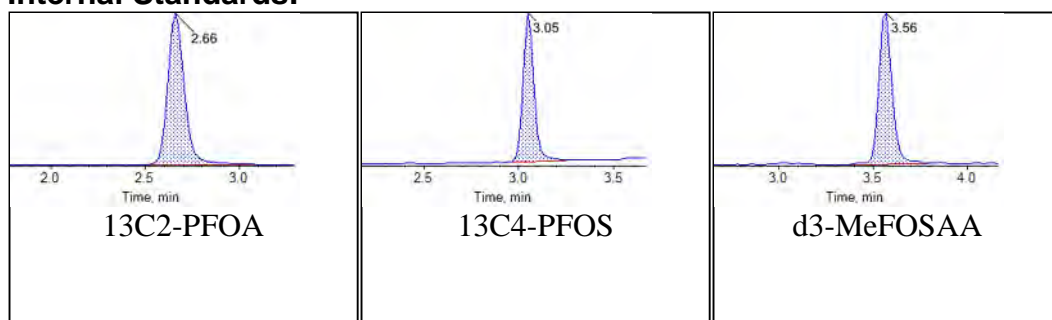
**Internal Standards:**

Sample Name	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:08:15	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Chromatograms

Target Analytes:

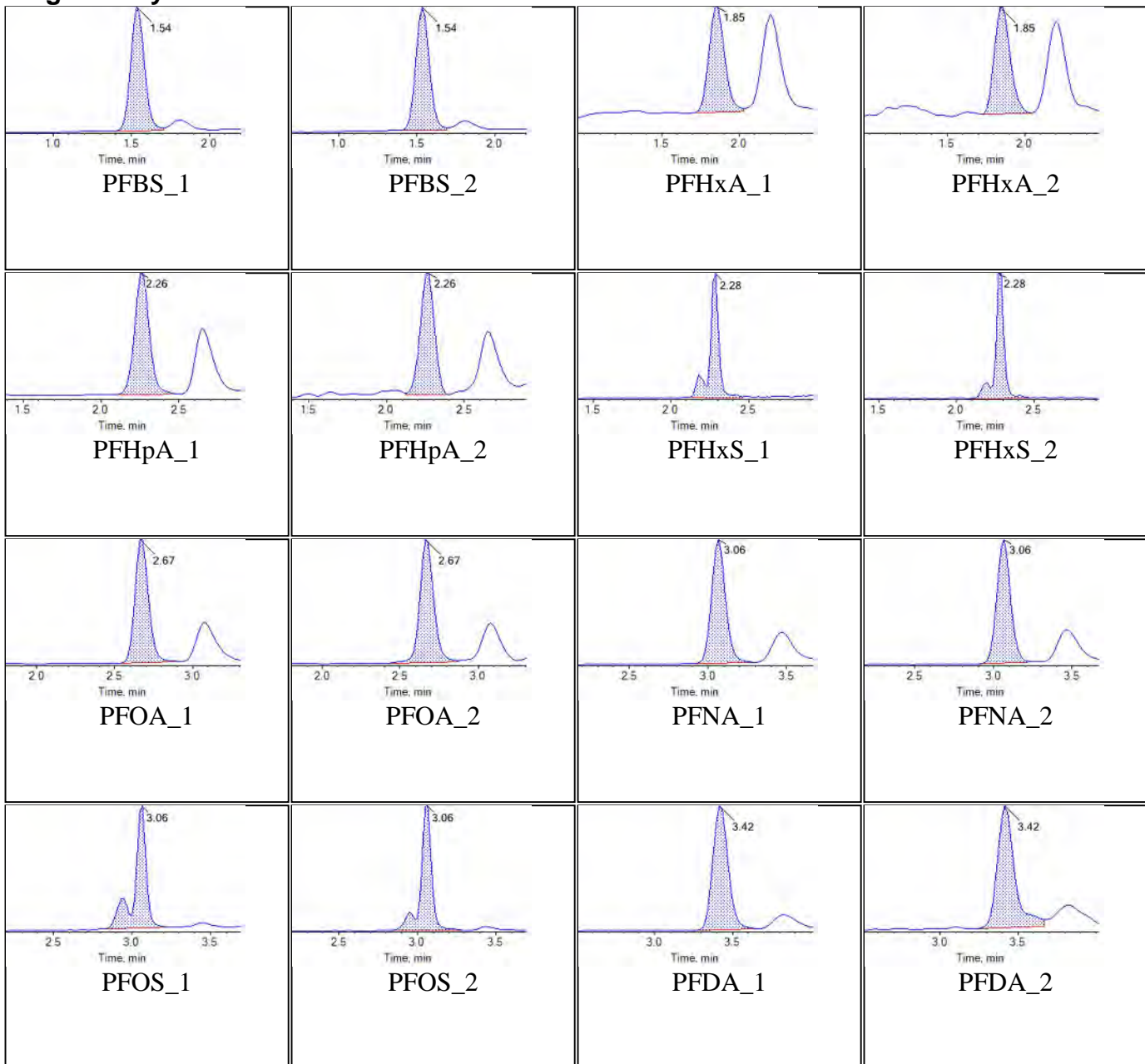


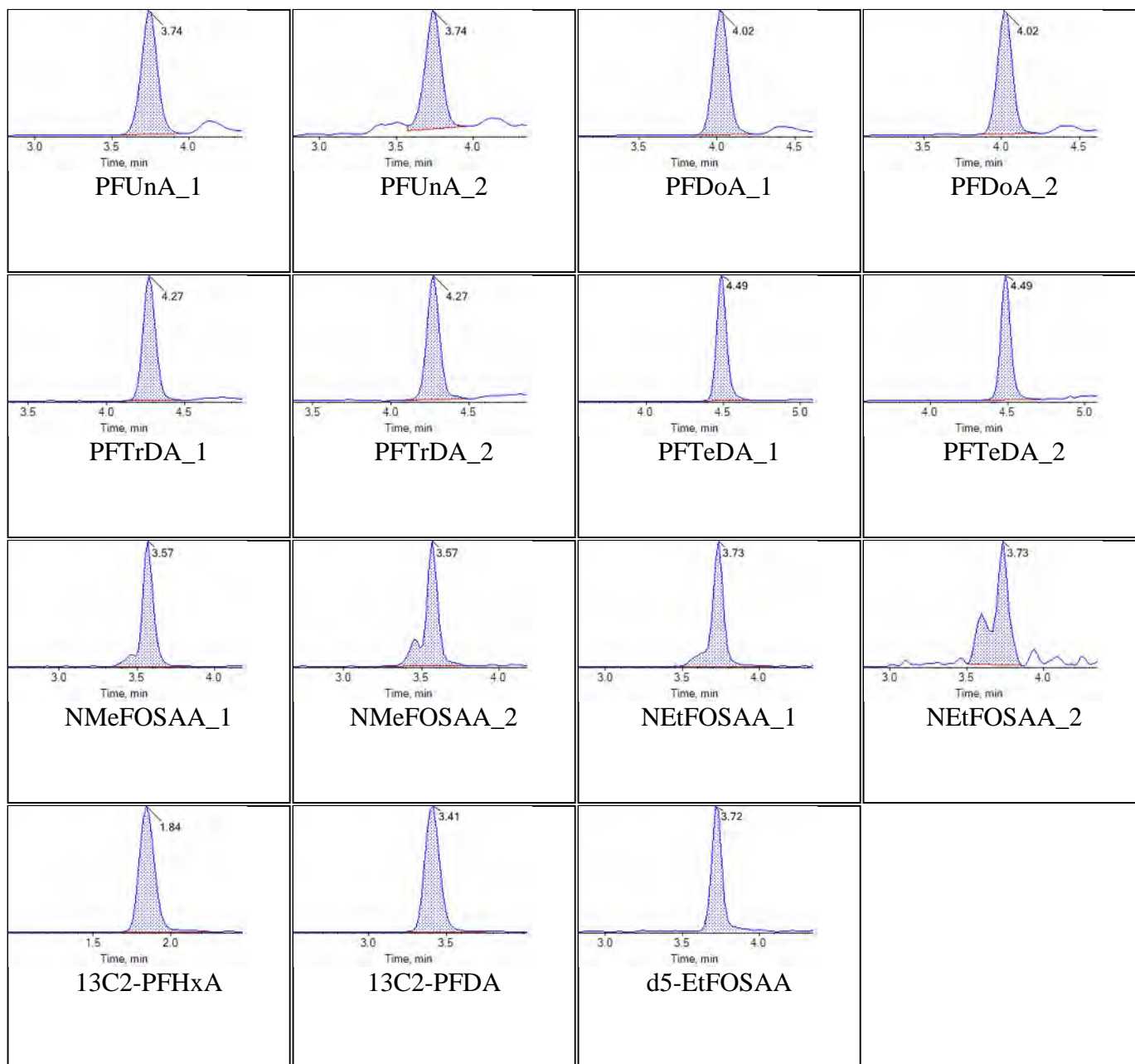
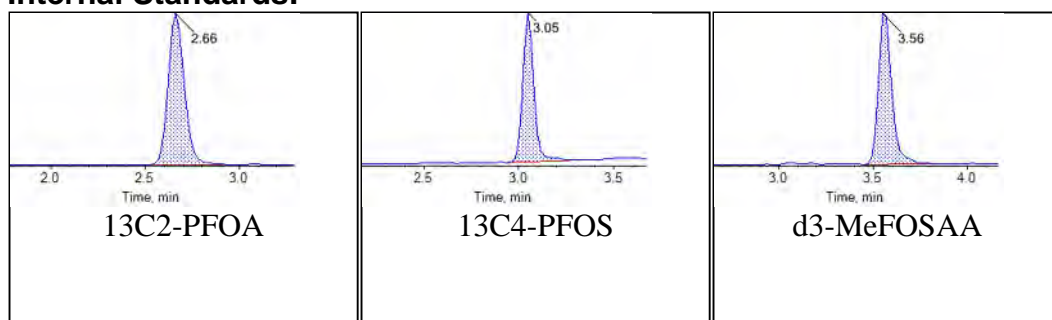
**Internal Standards:**

Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:17:13	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Chromatograms

Target Analytes:

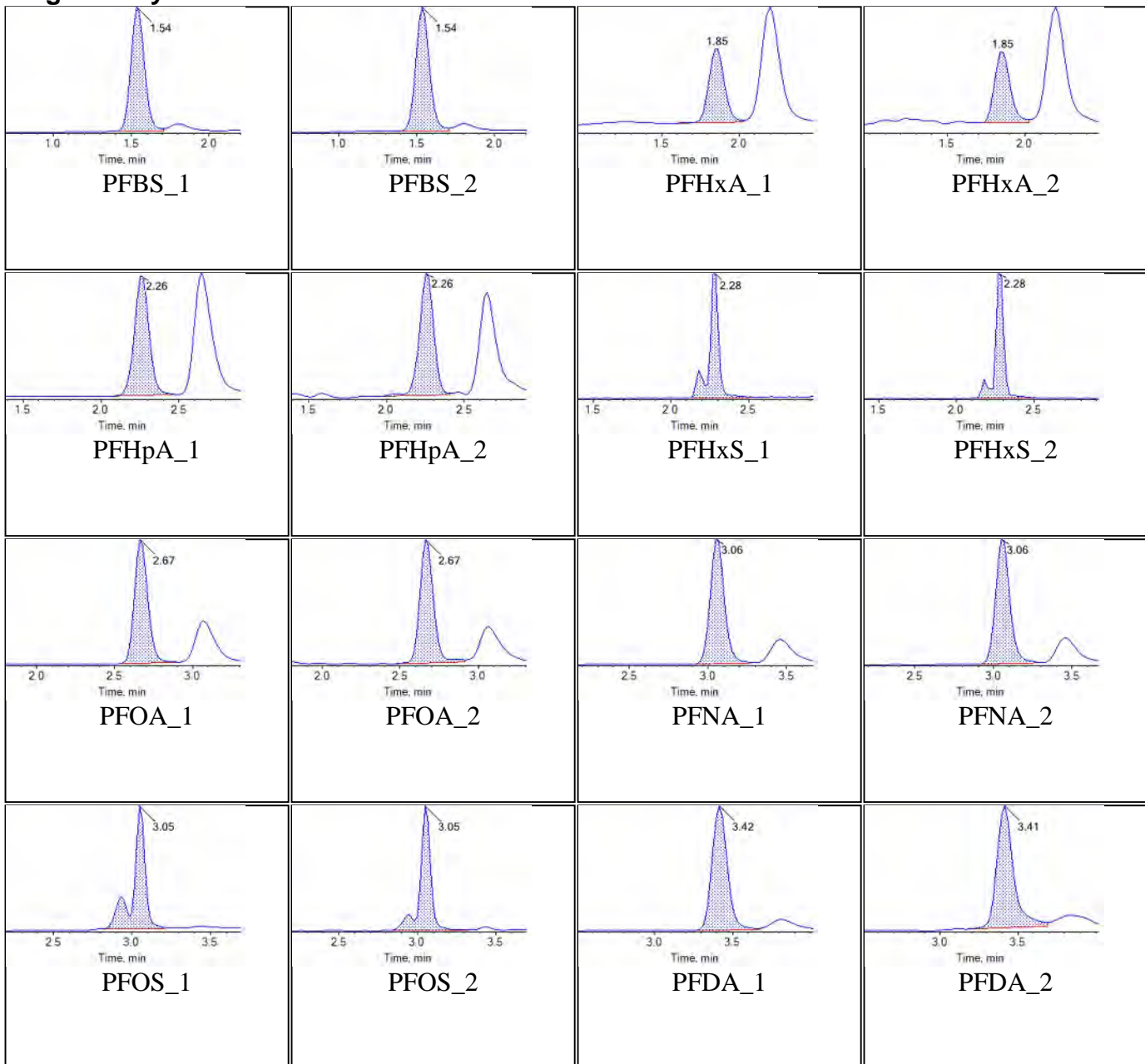


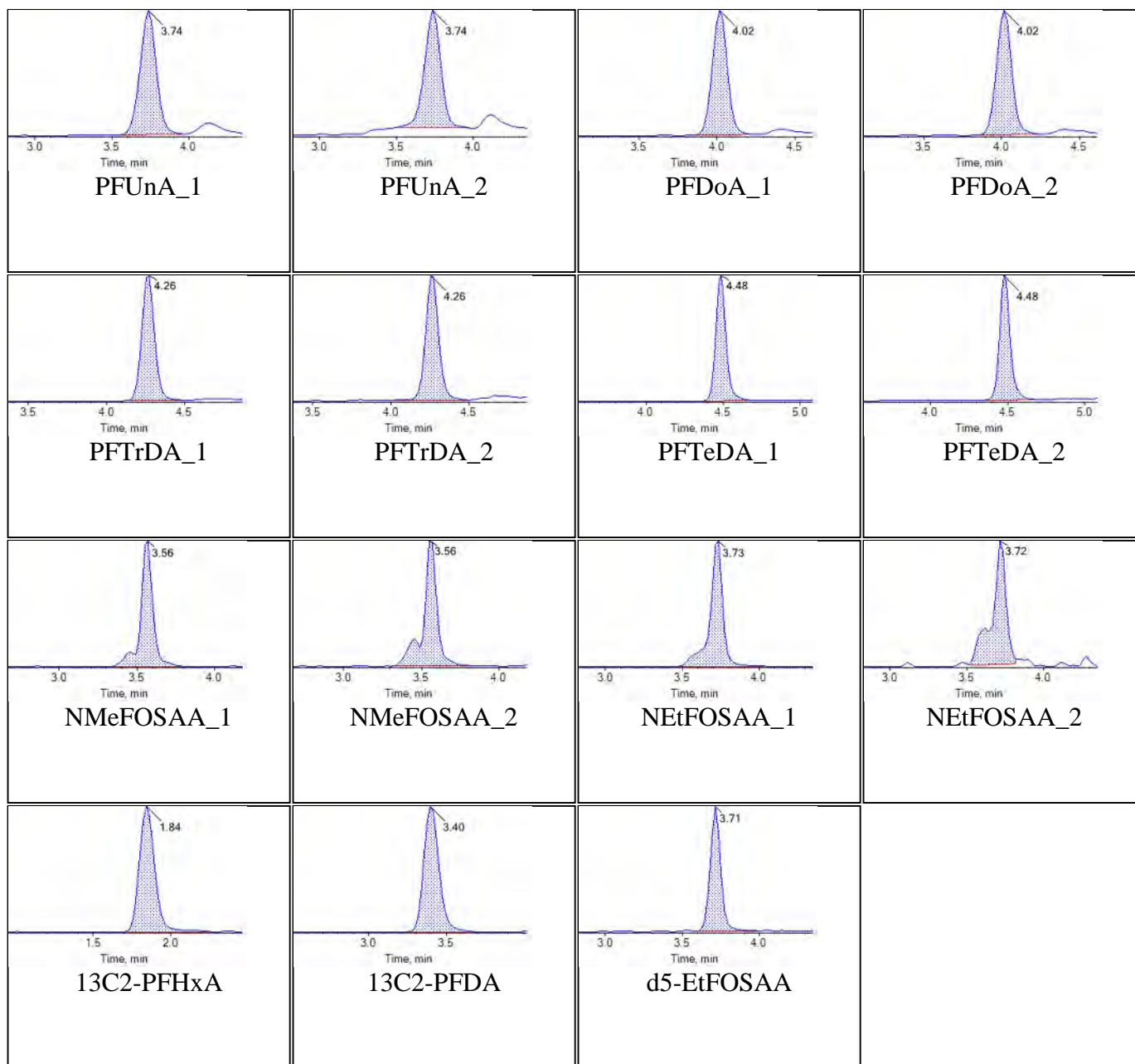
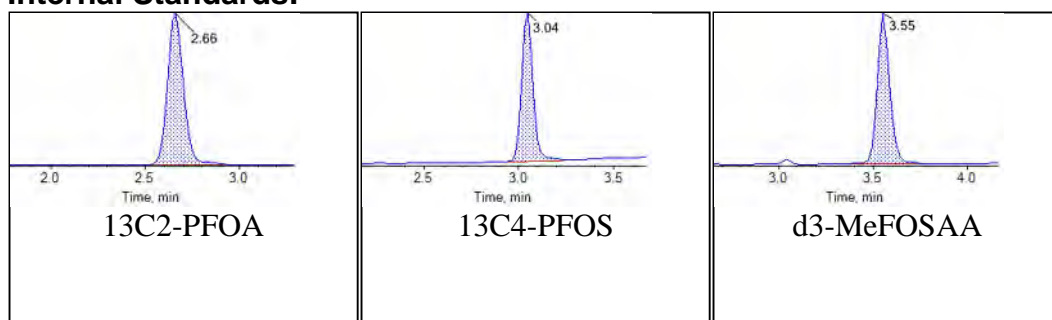
**Internal Standards:**

Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:26:09	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Chromatograms

Target Analytes:

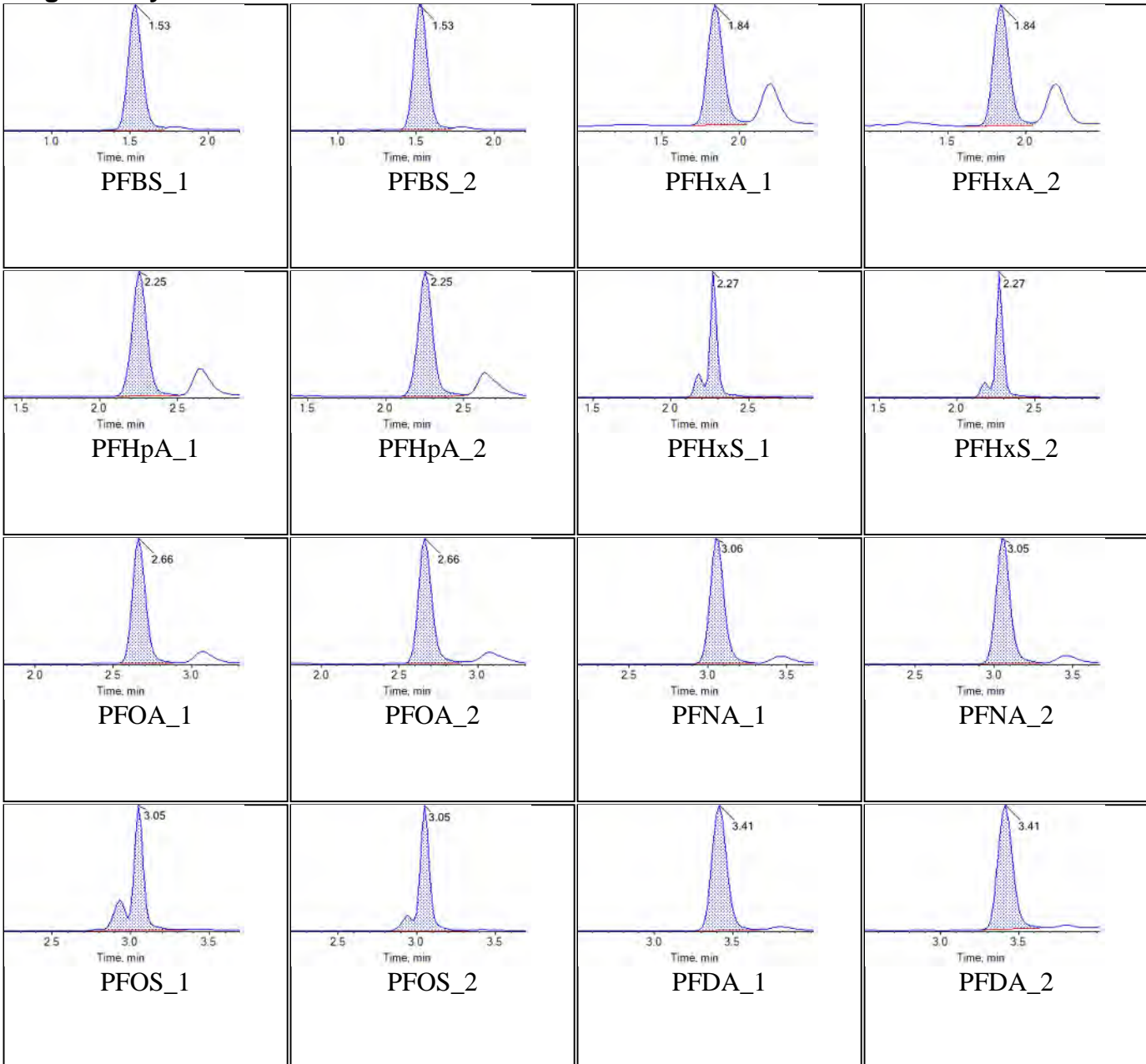


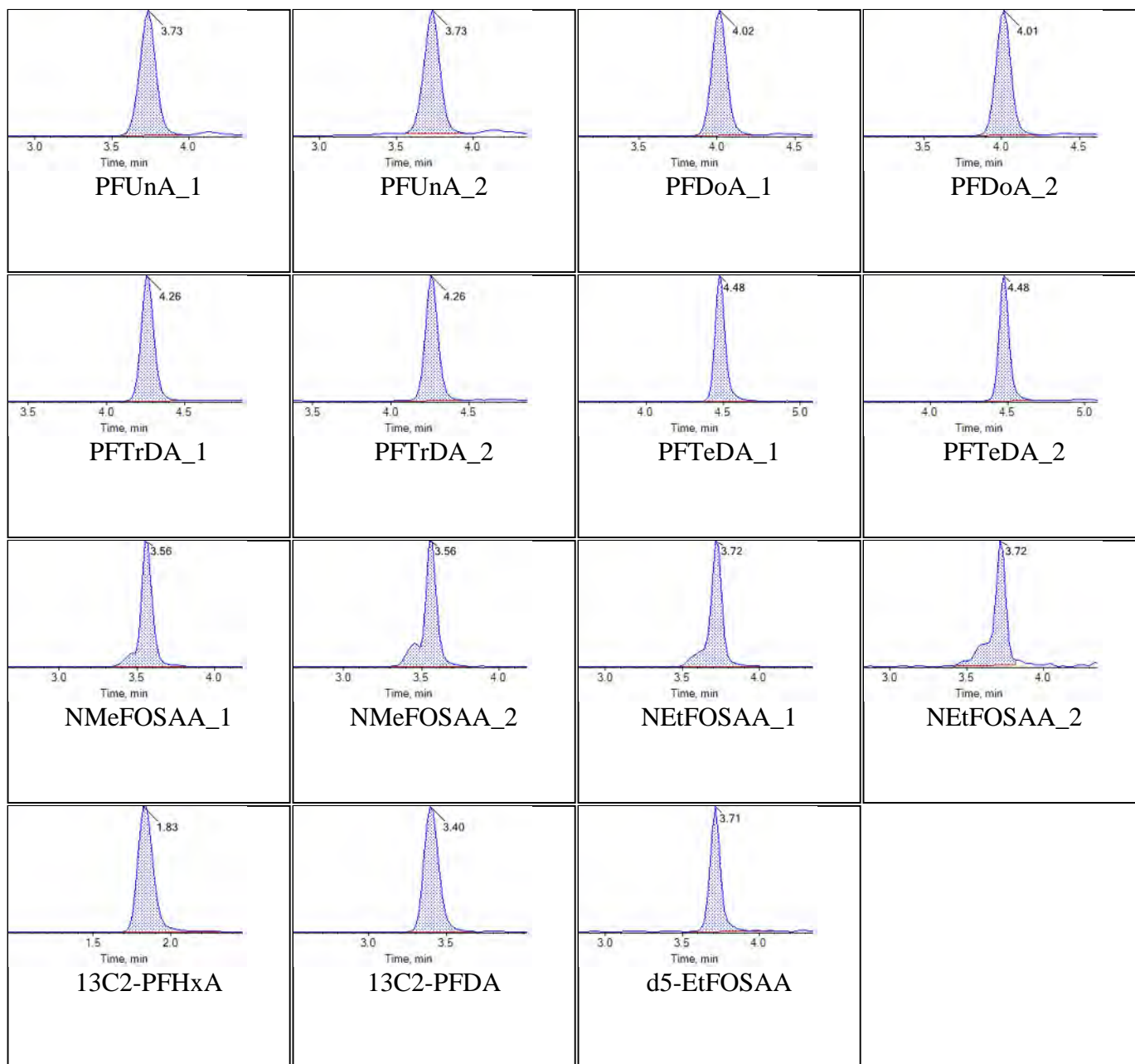
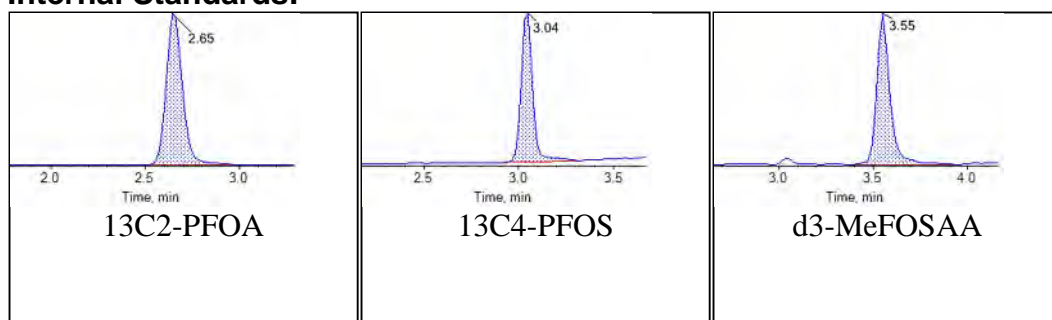
**Internal Standards:**

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:35:06	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Chromatograms

Target Analytes:

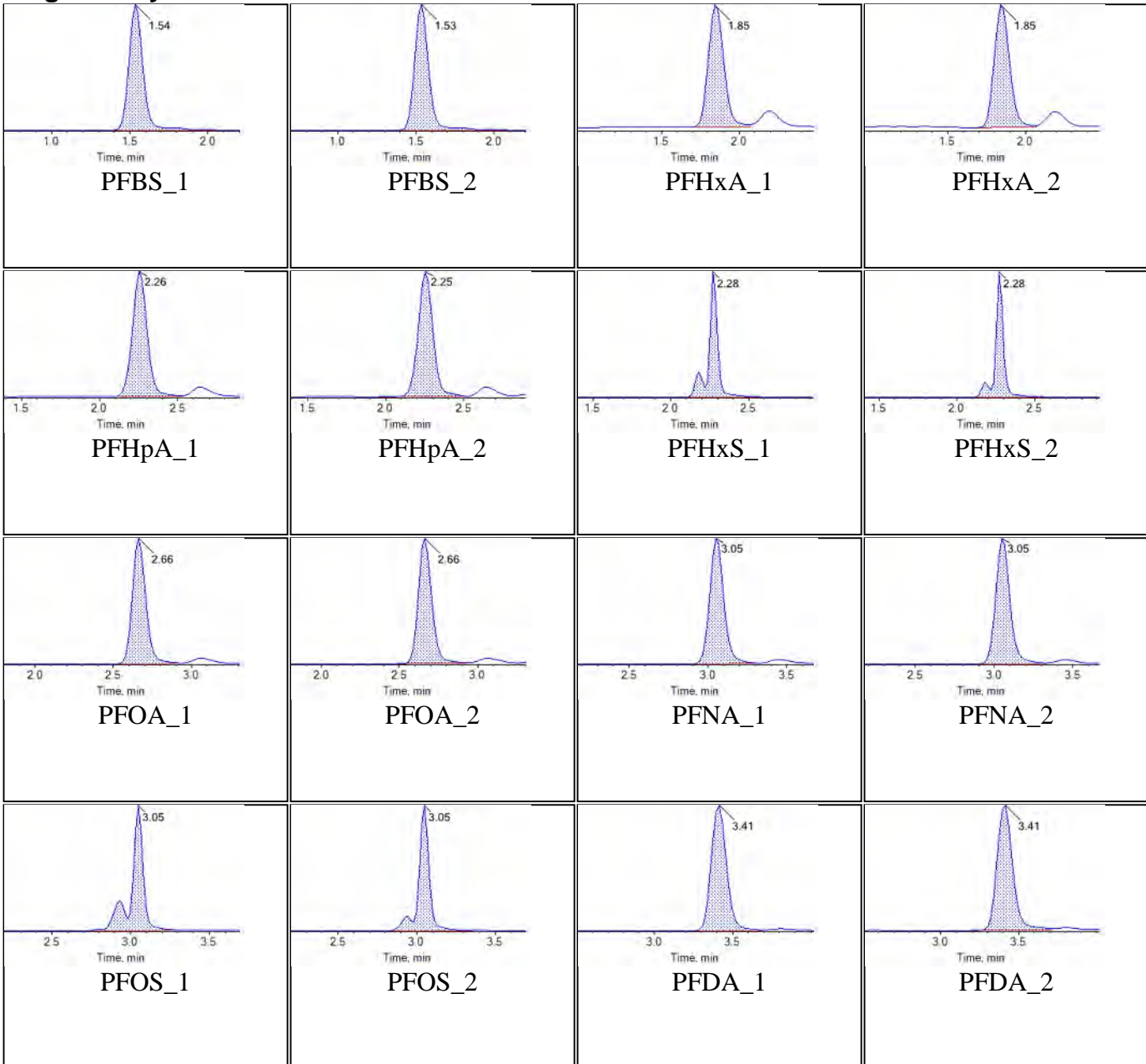


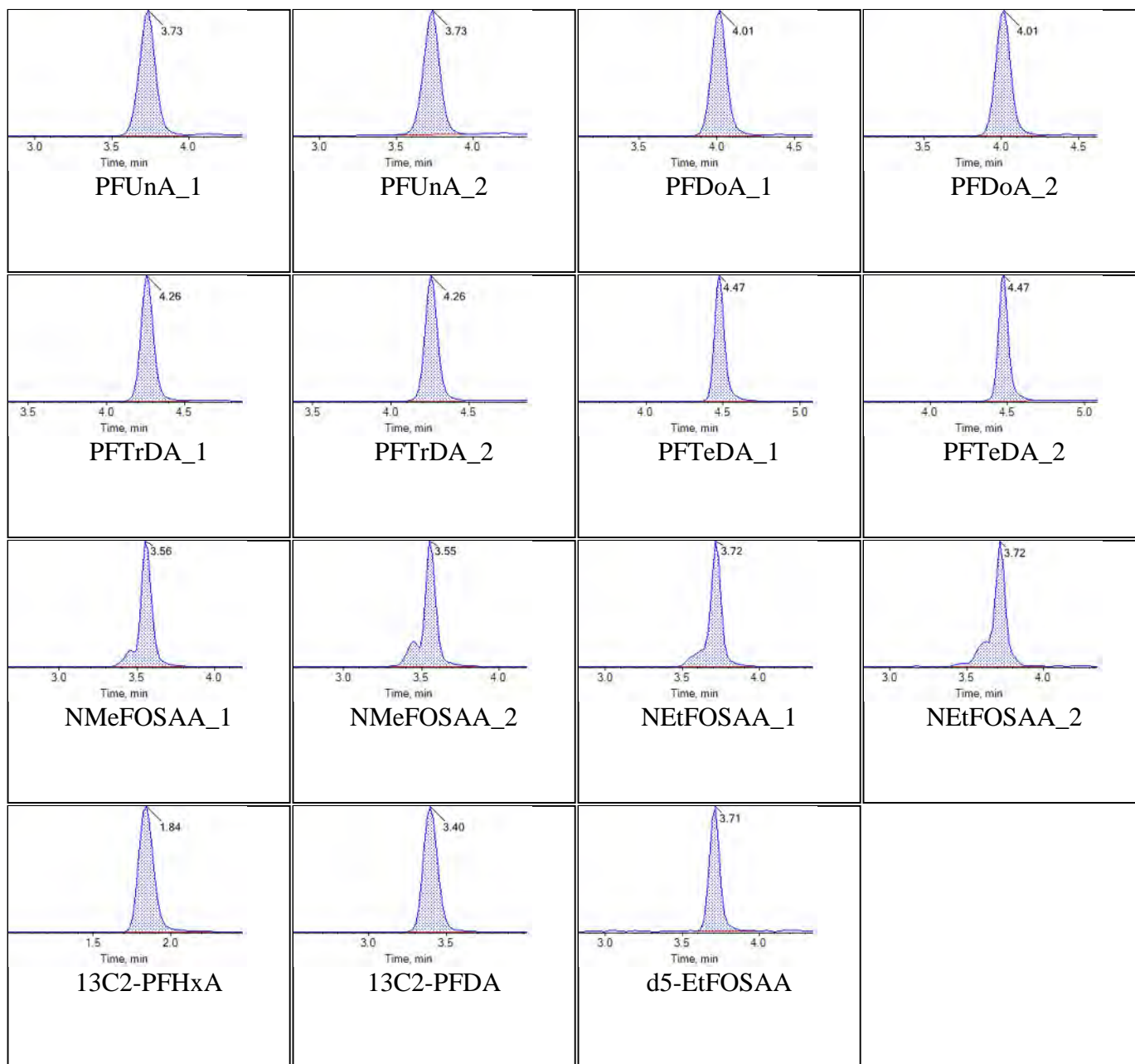
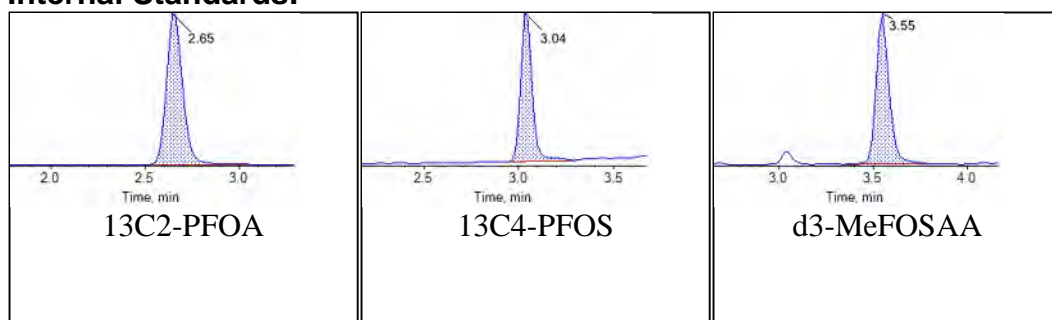
**Internal Standards:**

Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:44:03	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Chromatograms

Target Analytes:

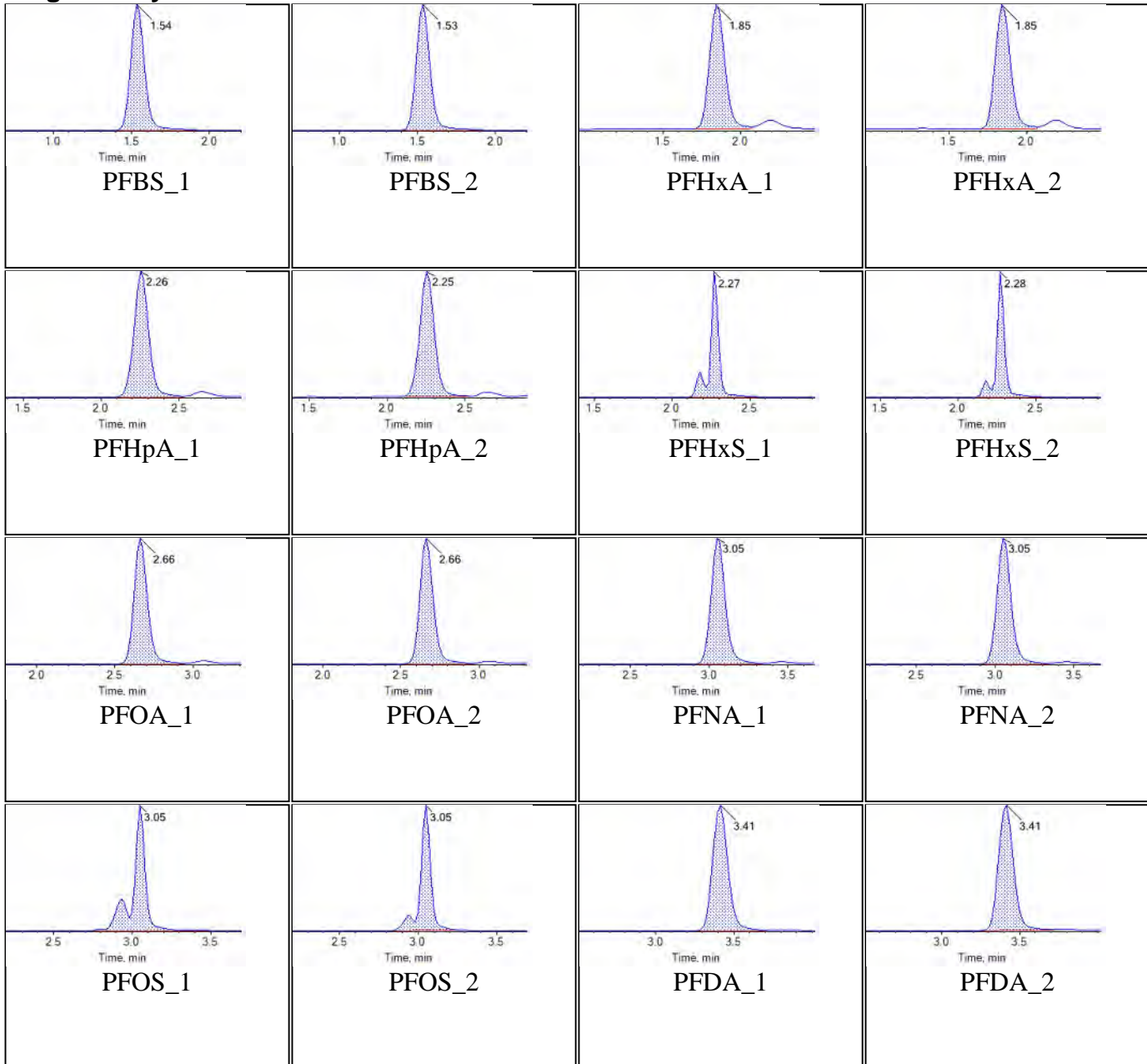


**Internal Standards:**

Sample Name	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:53:00	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Chromatograms

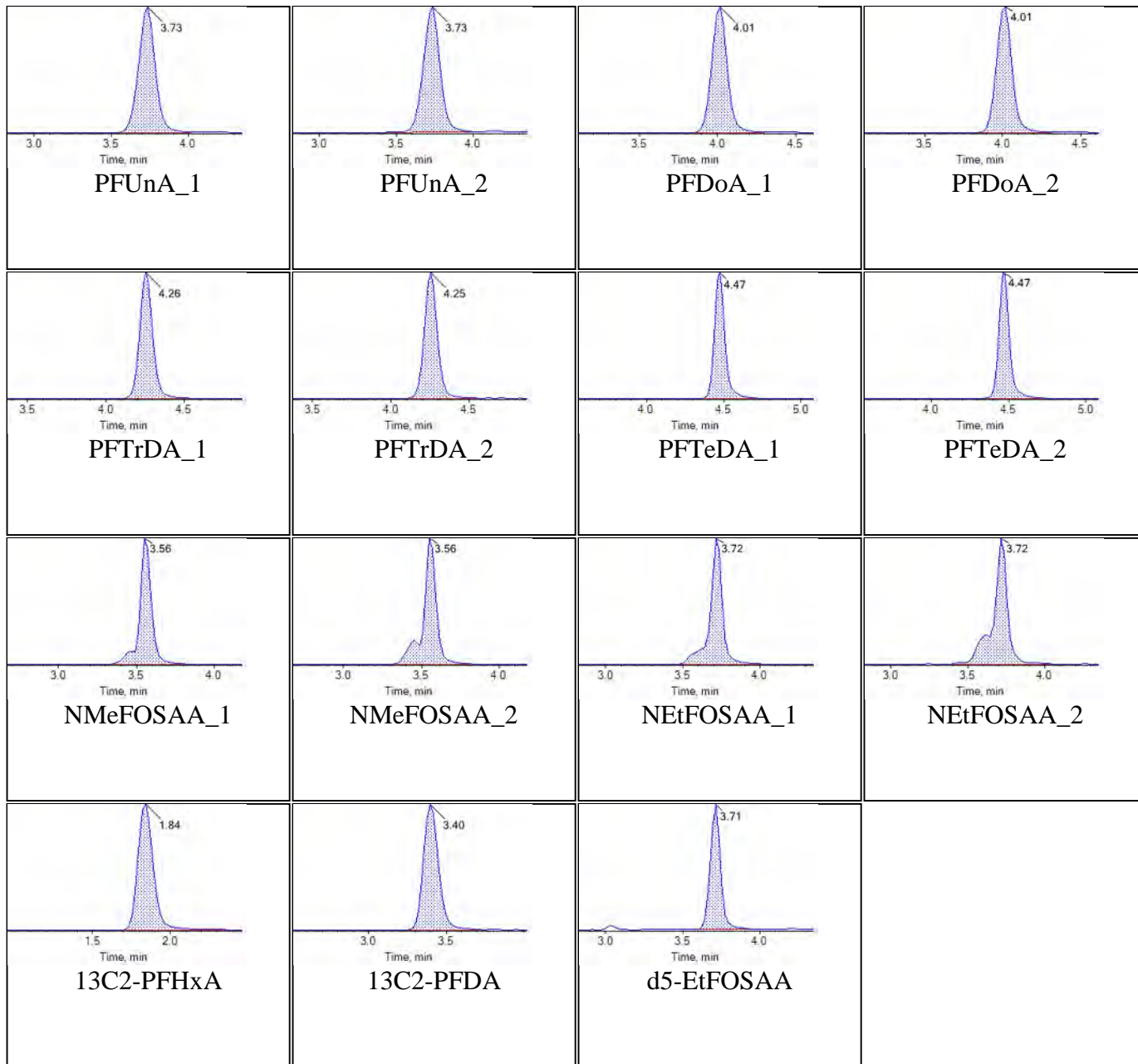
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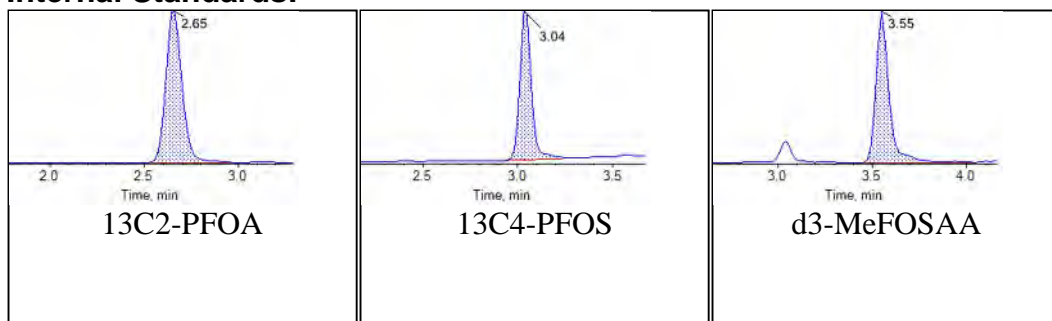


Chromatogram Report

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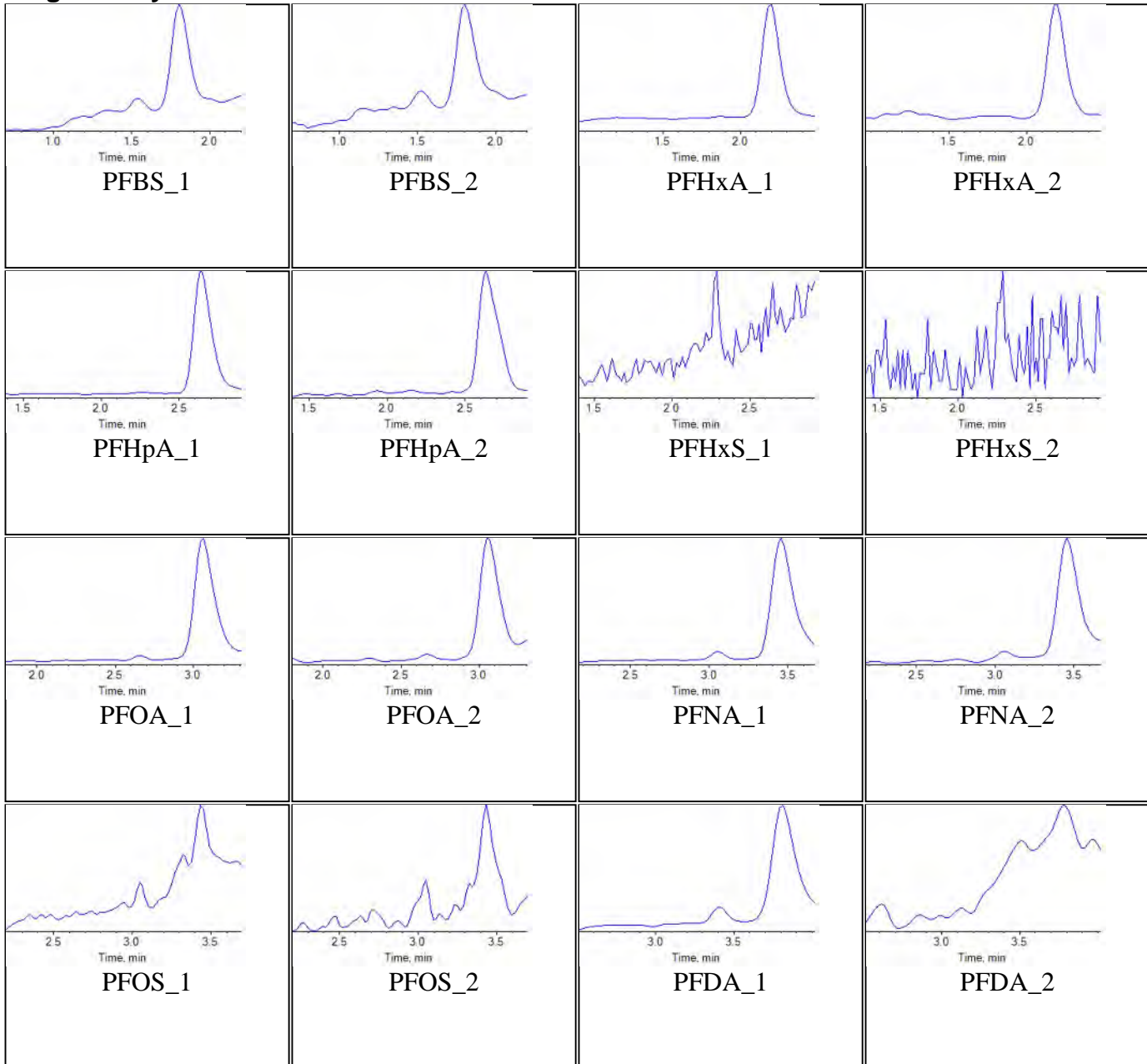
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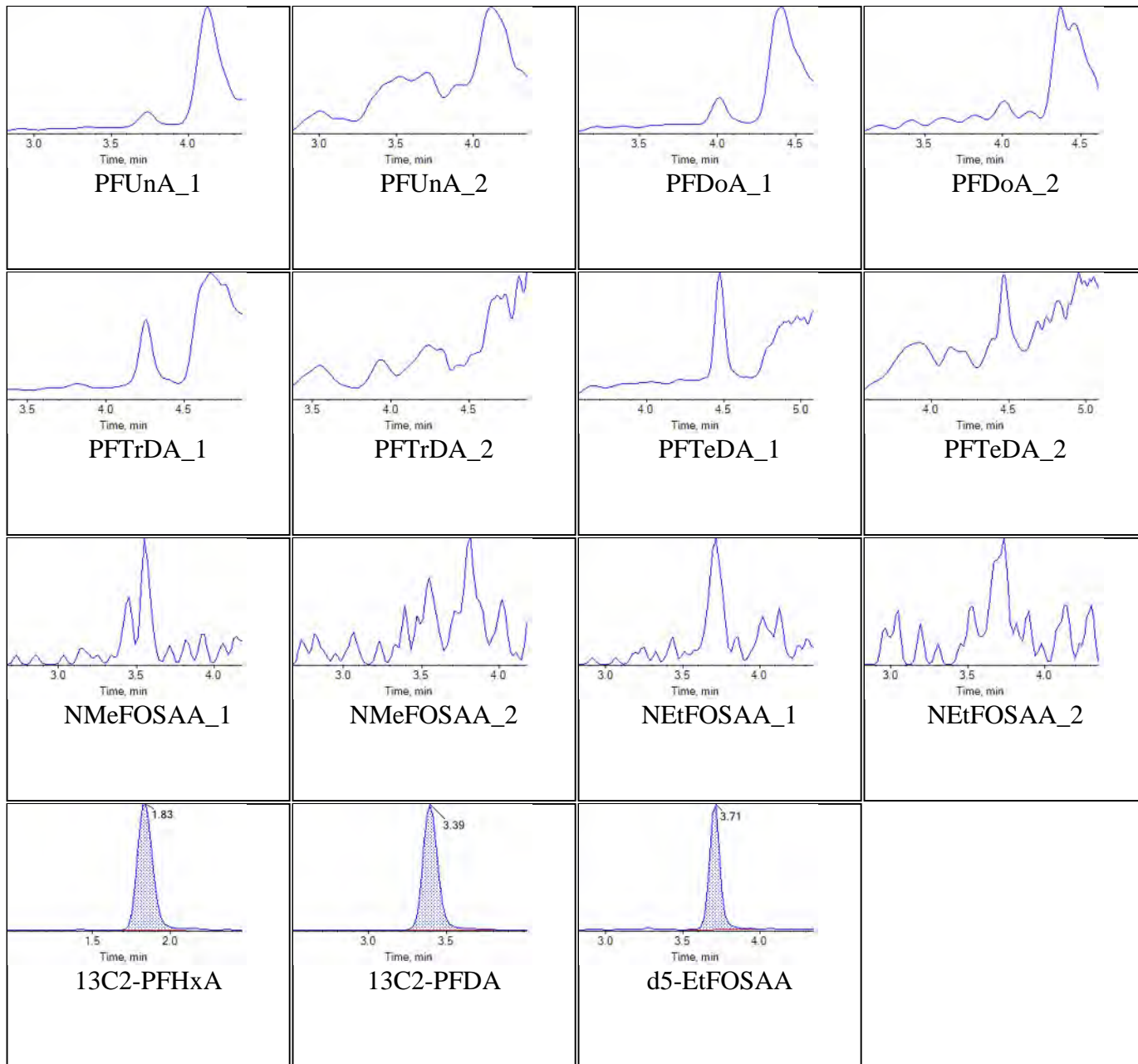


Sample Name	KA08 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:01:55	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

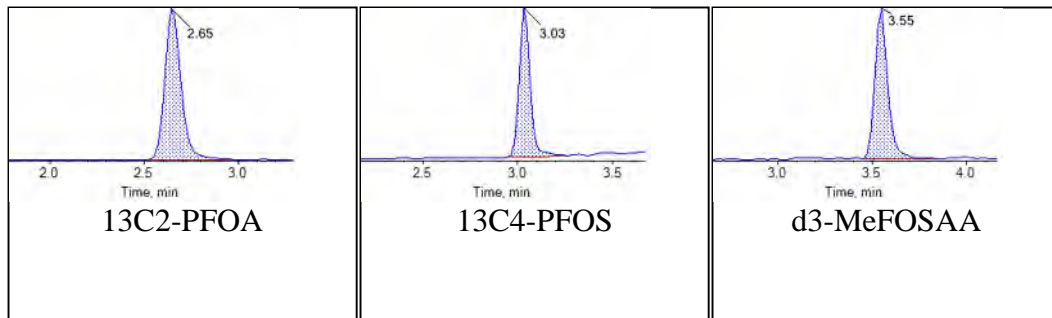
Chromatograms

Target Analytes:





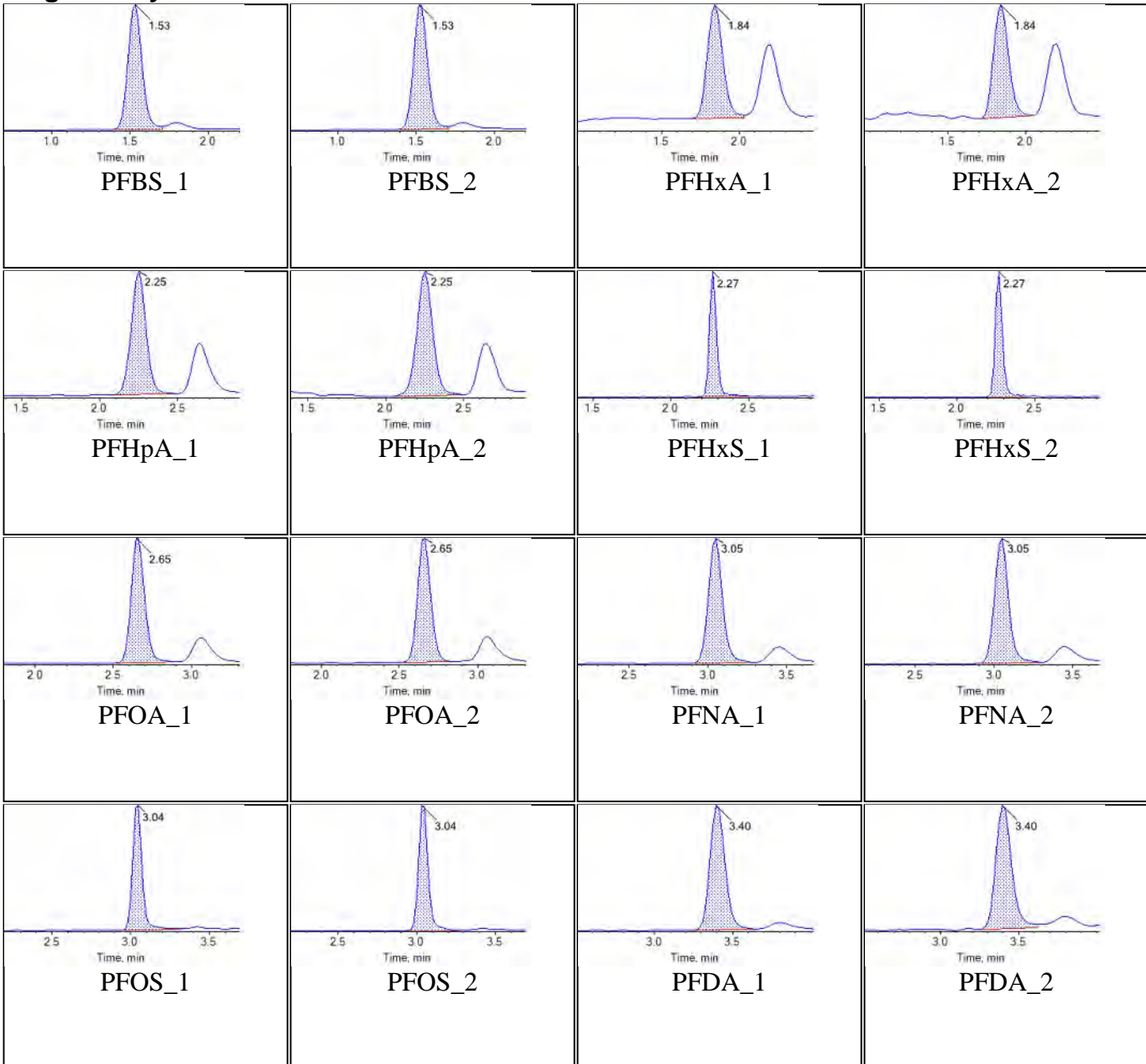
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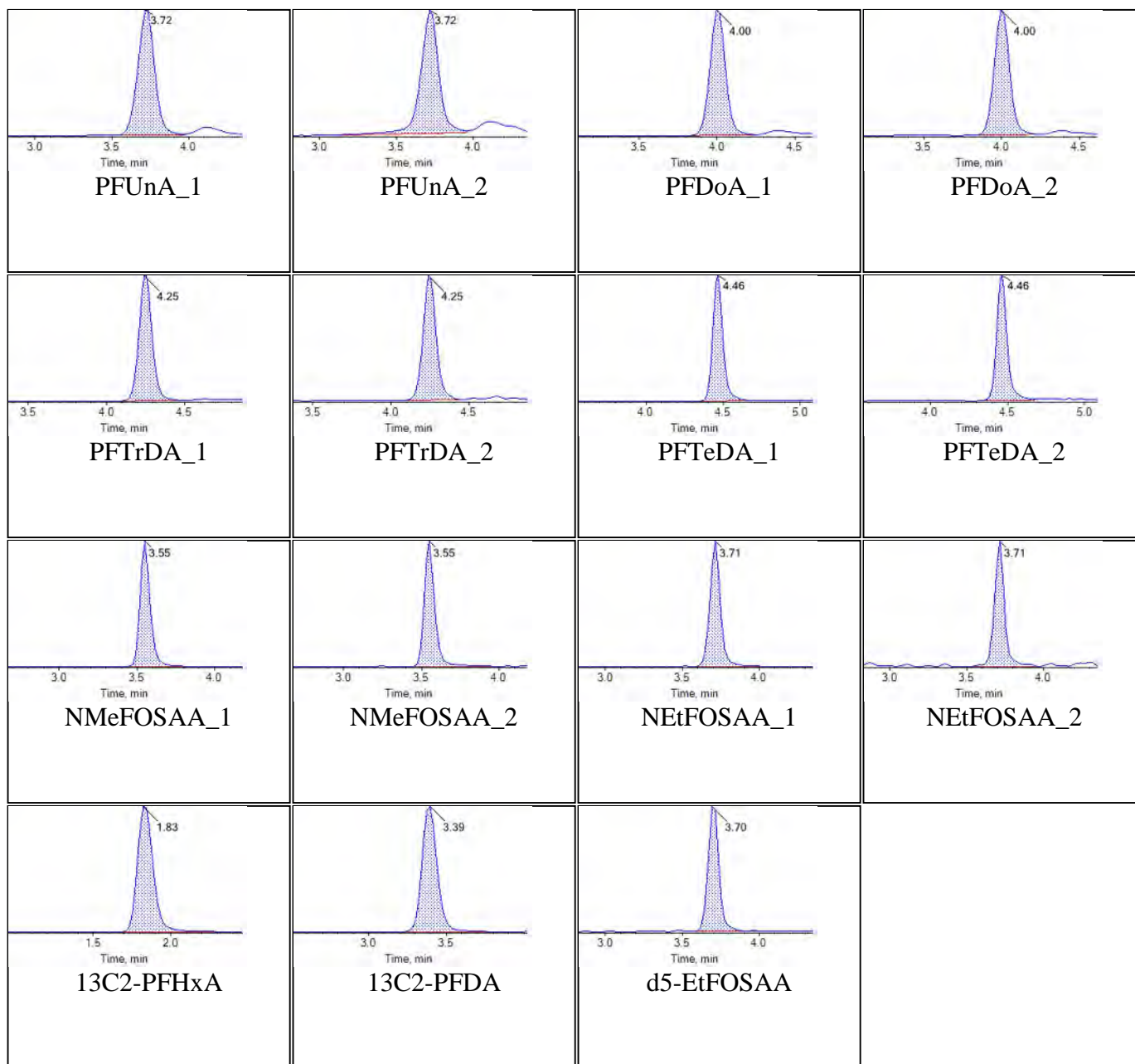
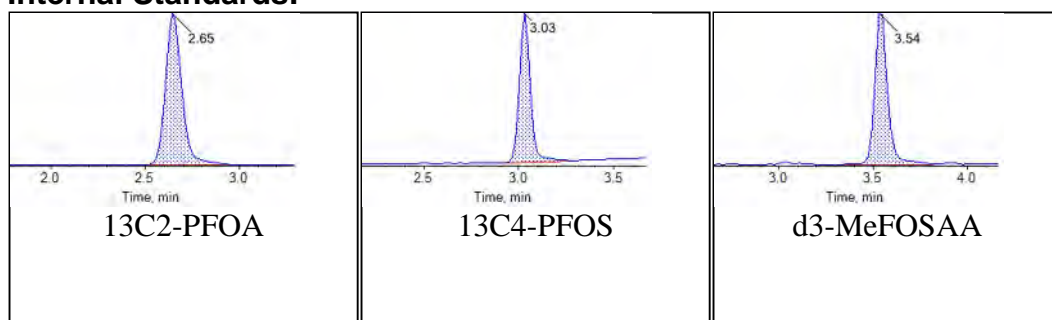


Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:10:52	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Chromatograms

Target Analytes:

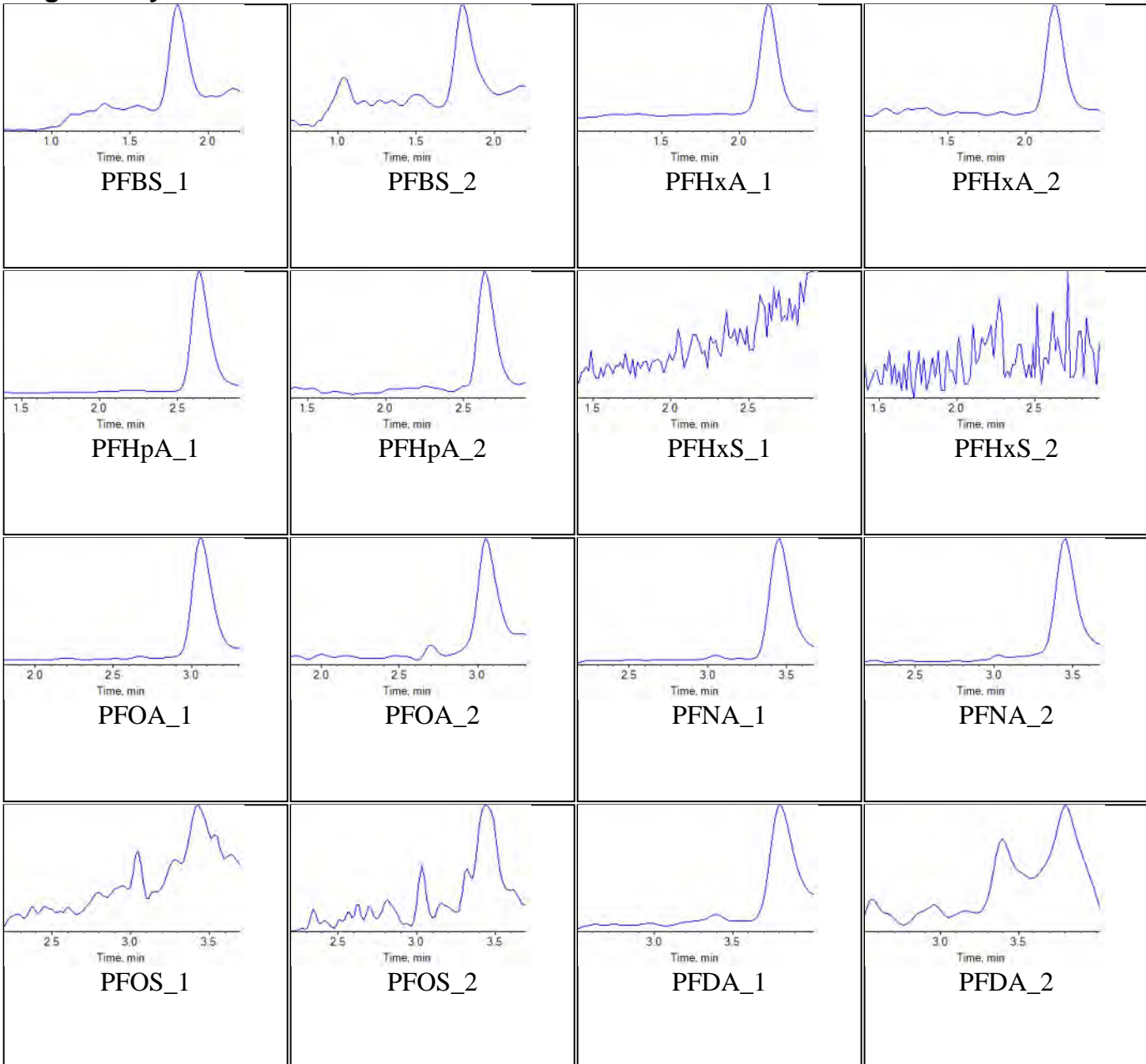


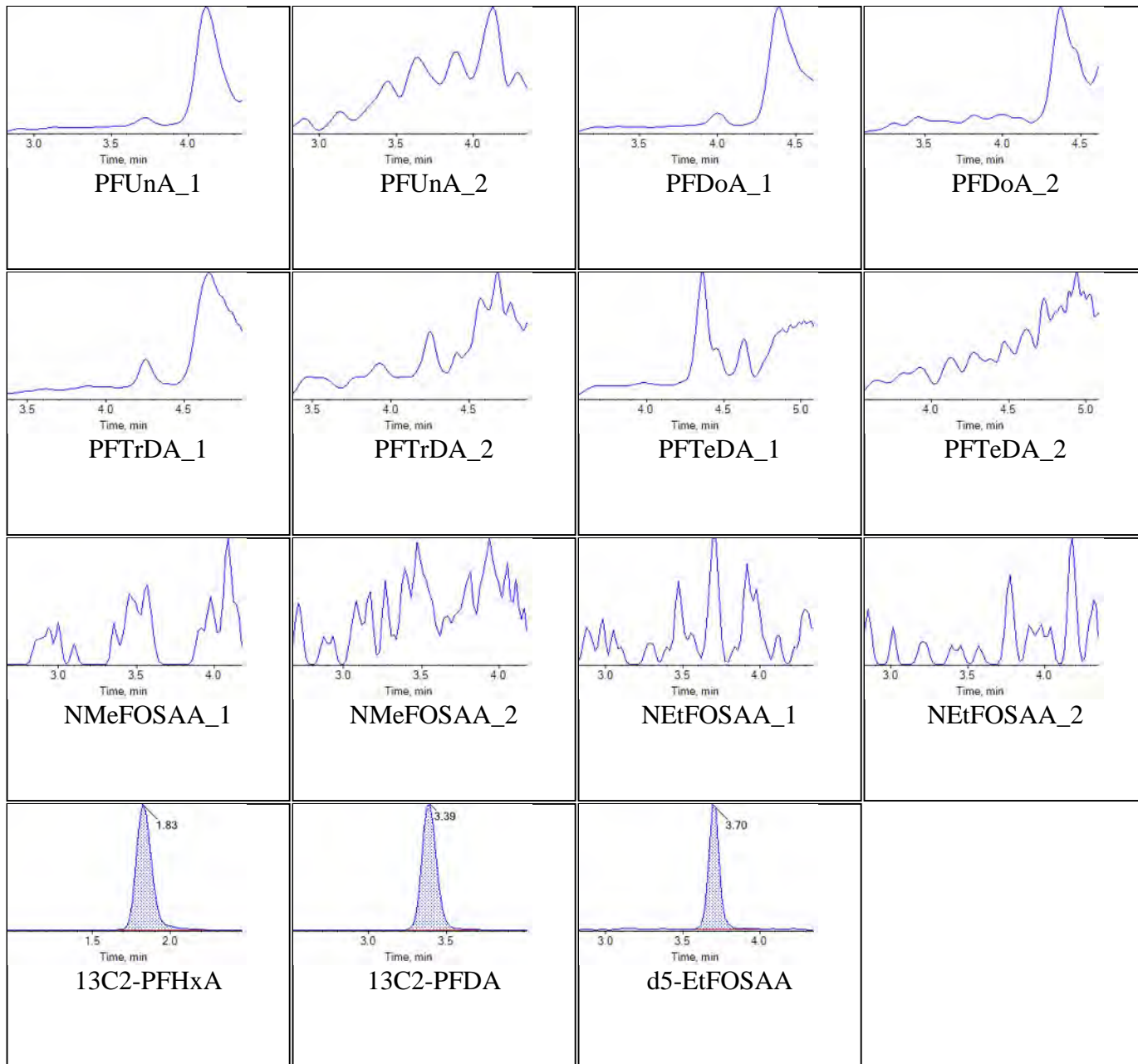
**Internal Standards:**

Sample Name	CR653PB-FS(0)	Injection Vial	13
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:28:46	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

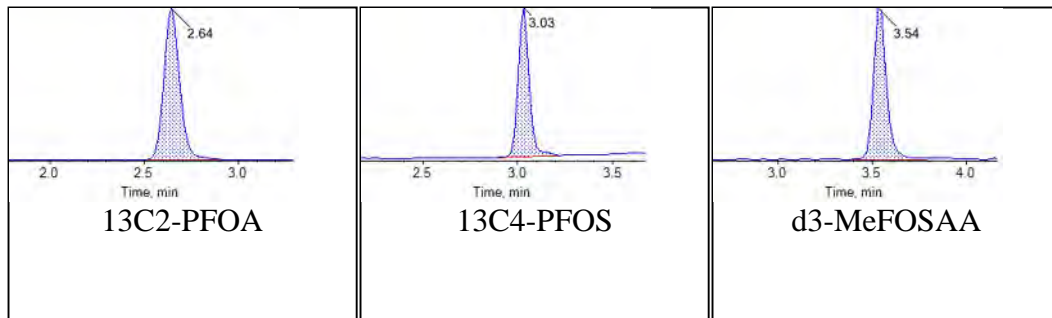
Chromatograms

Target Analytes:





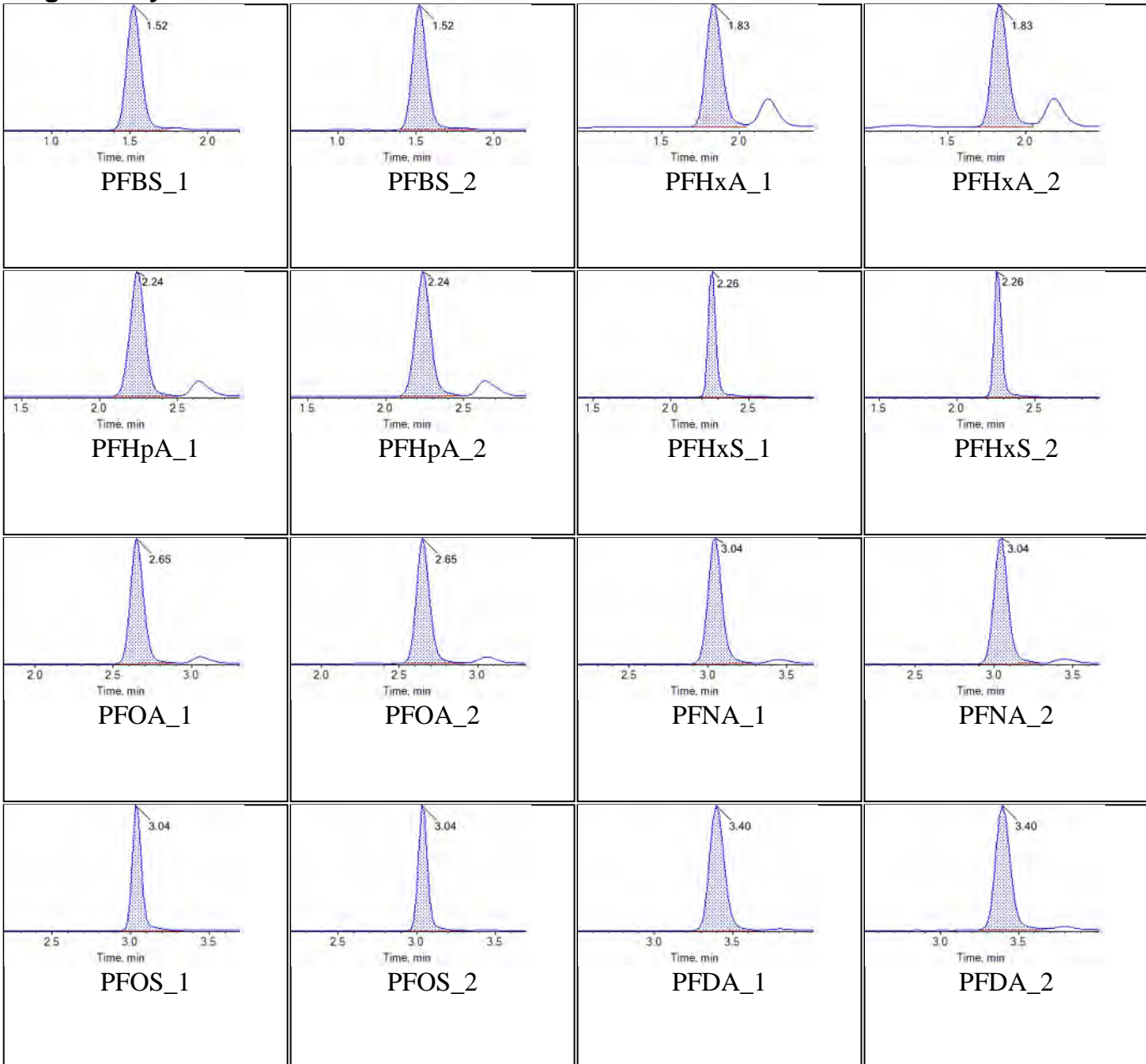
Internal Standards:

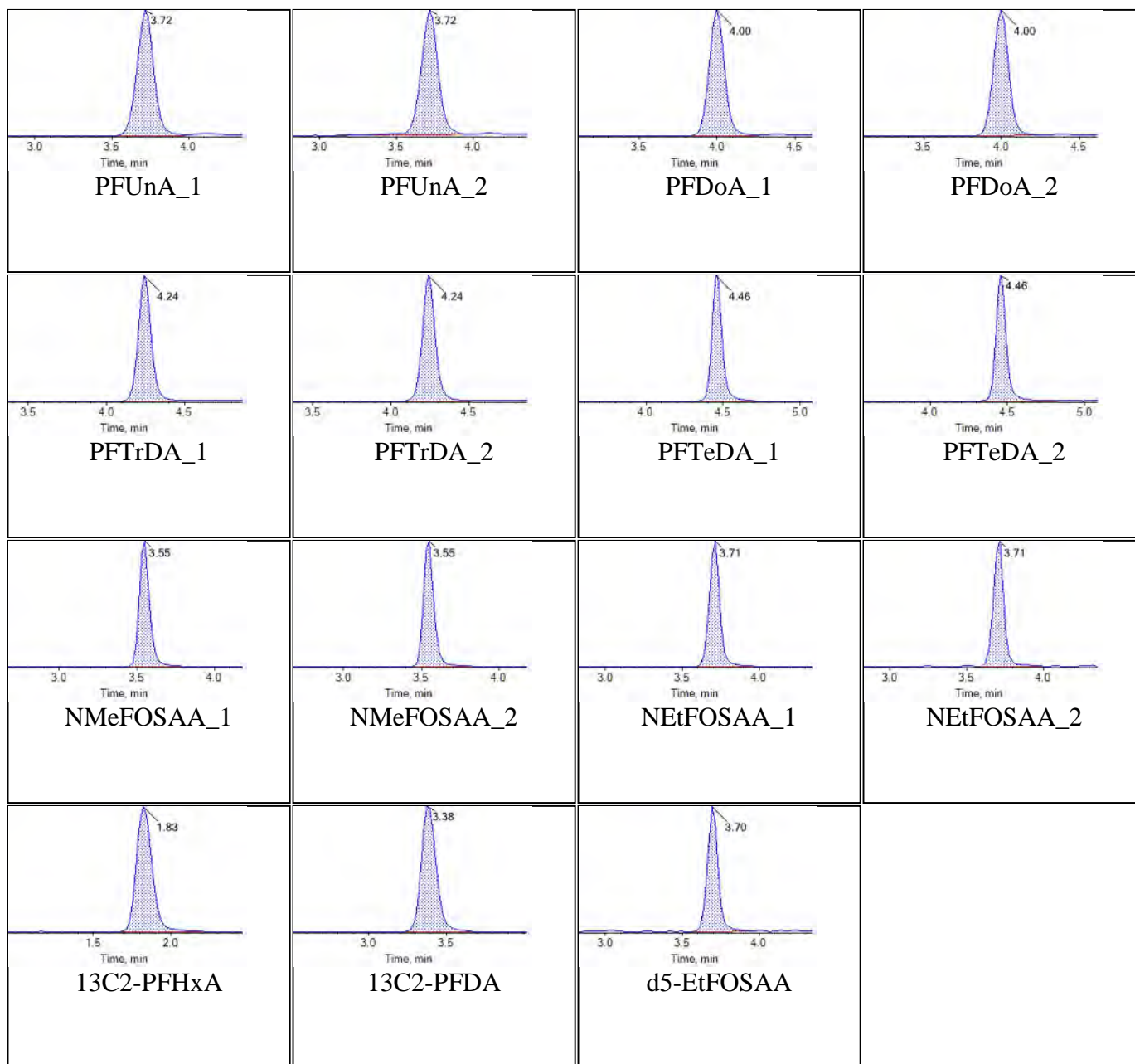
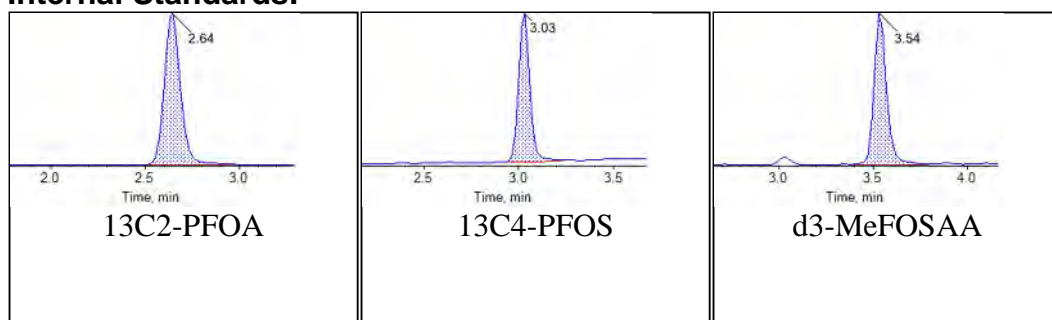


Sample Name	CR654LCS-FS(0)	Injection Vial	14
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:37:44	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Chromatograms

Target Analytes:

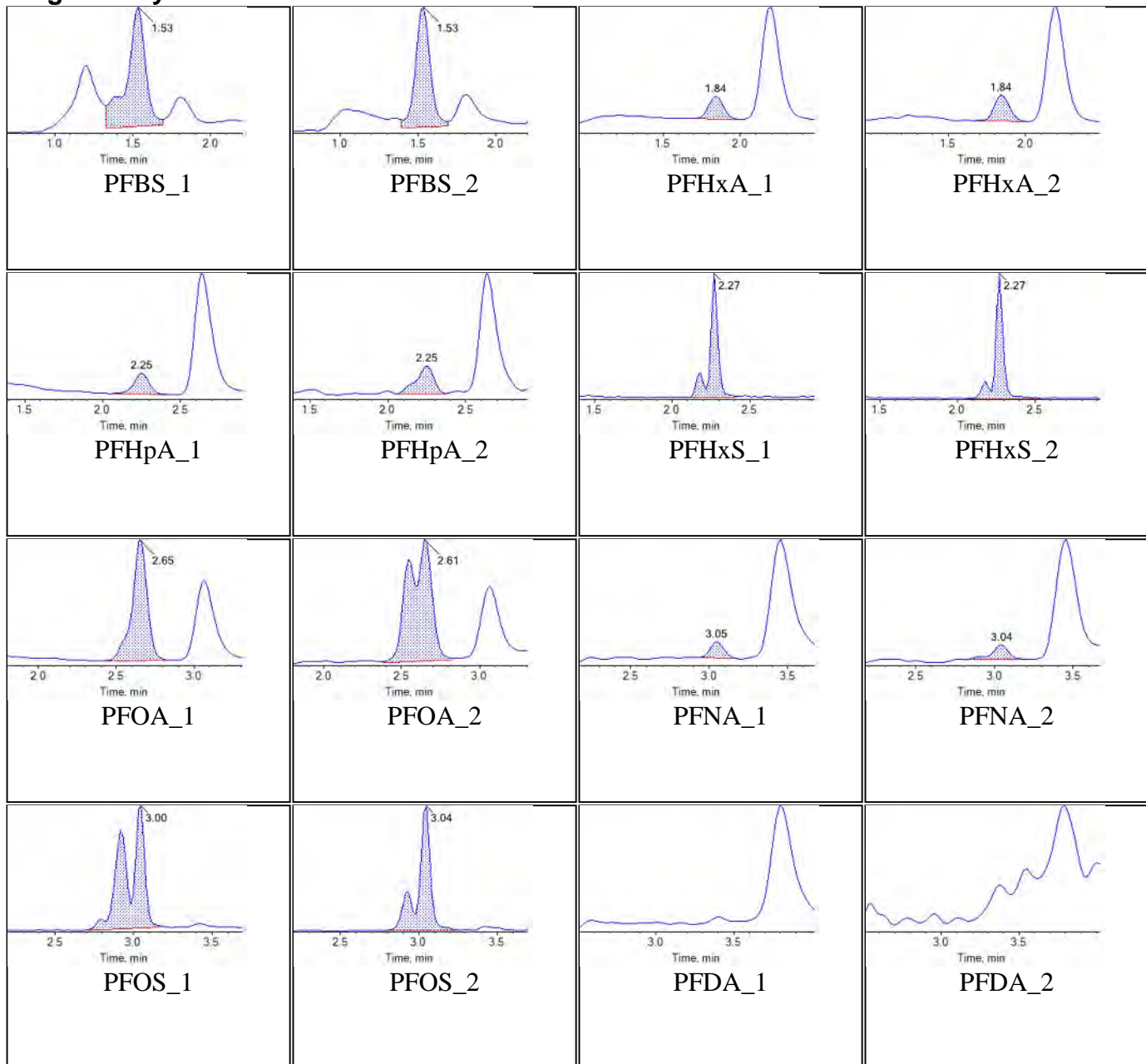


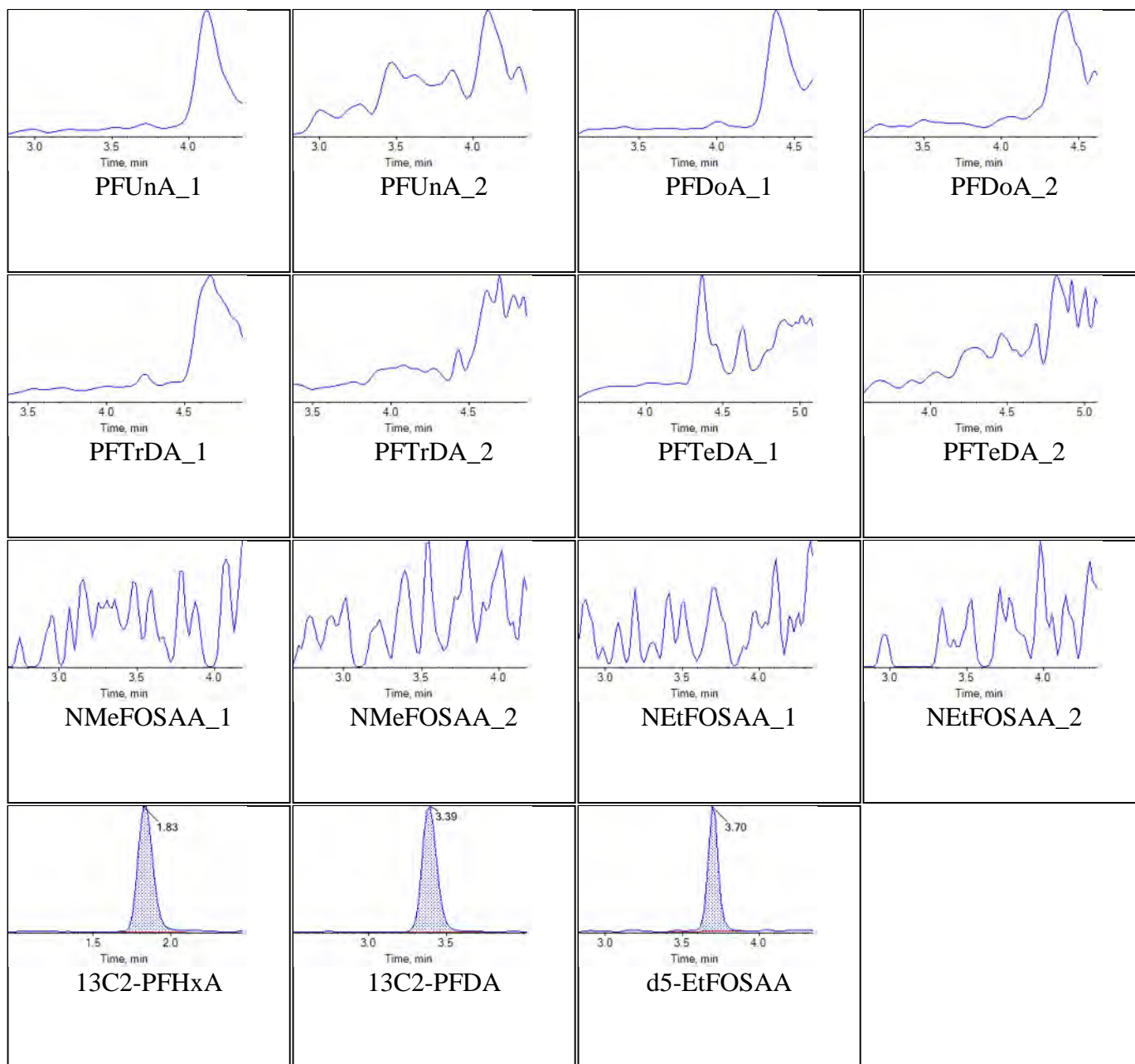
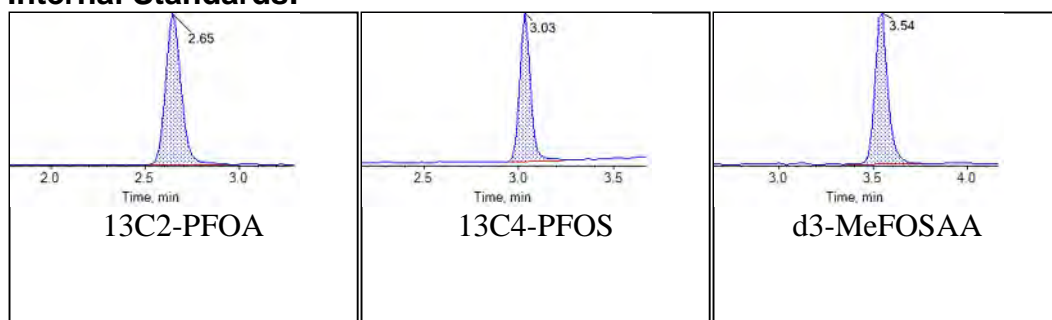
**Internal Standards:**

Sample Name	J7585-FS(0)	Injection Vial	15
Sample ID	JAX-RES-08222018-1000-35	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:46:39	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Chromatograms

Target Analytes:

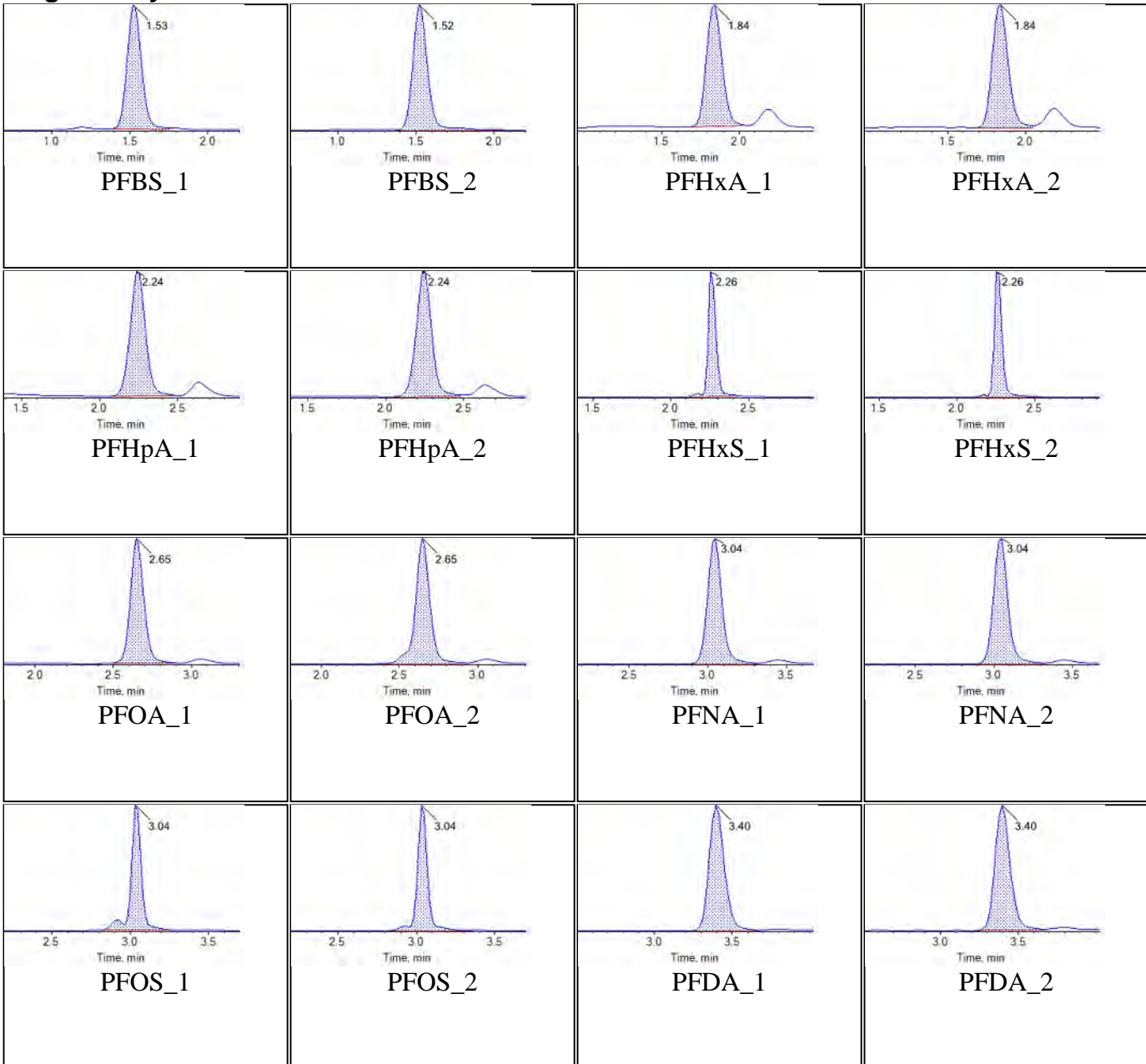


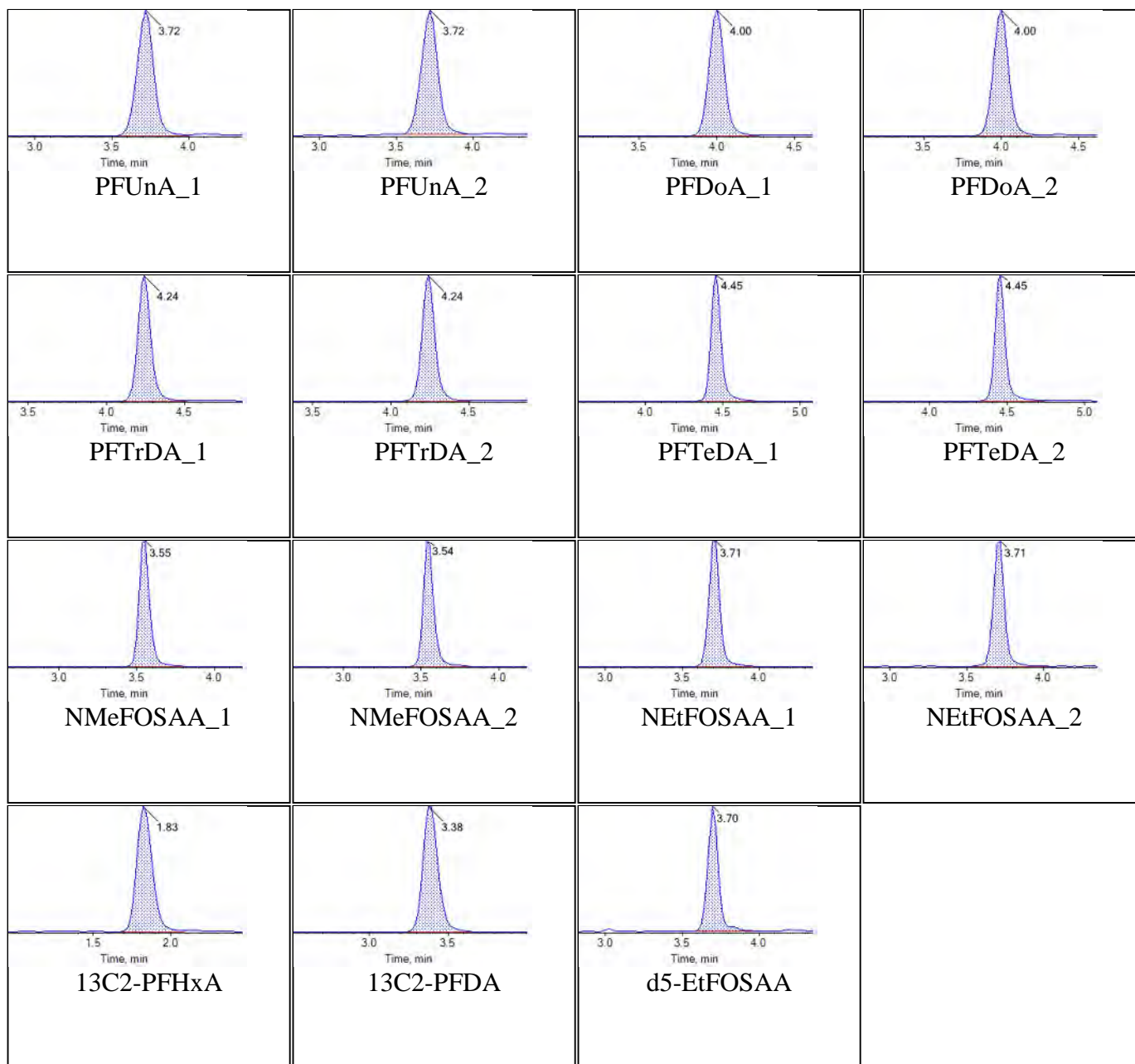
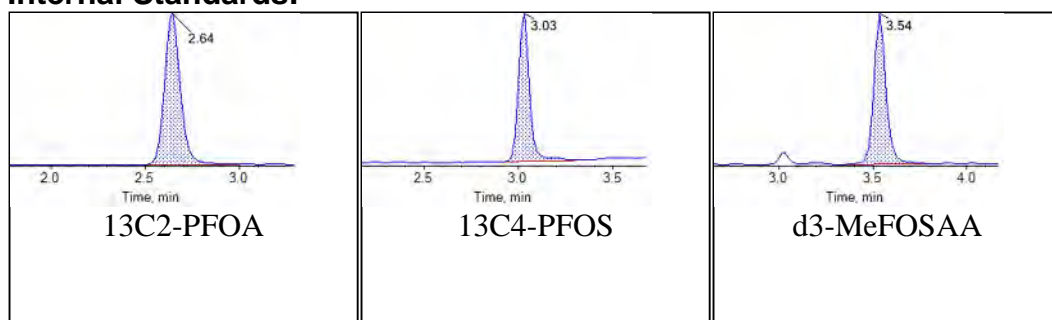
**Internal Standards:**

Sample Name	J7585MS-FS(0)	Injection Vial	16
Sample ID	Matrix Spike Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:55:35	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Chromatograms

Target Analytes:

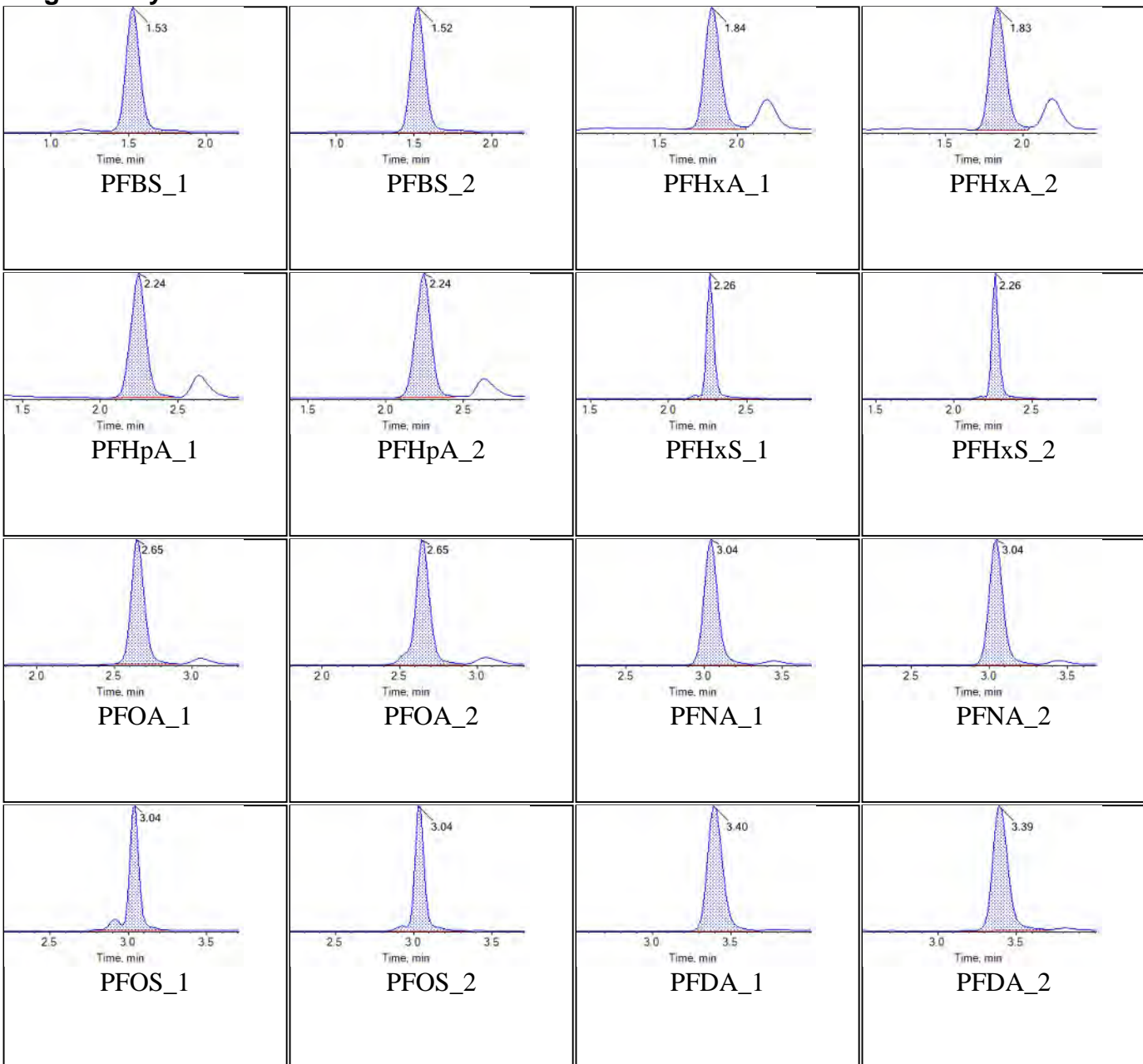


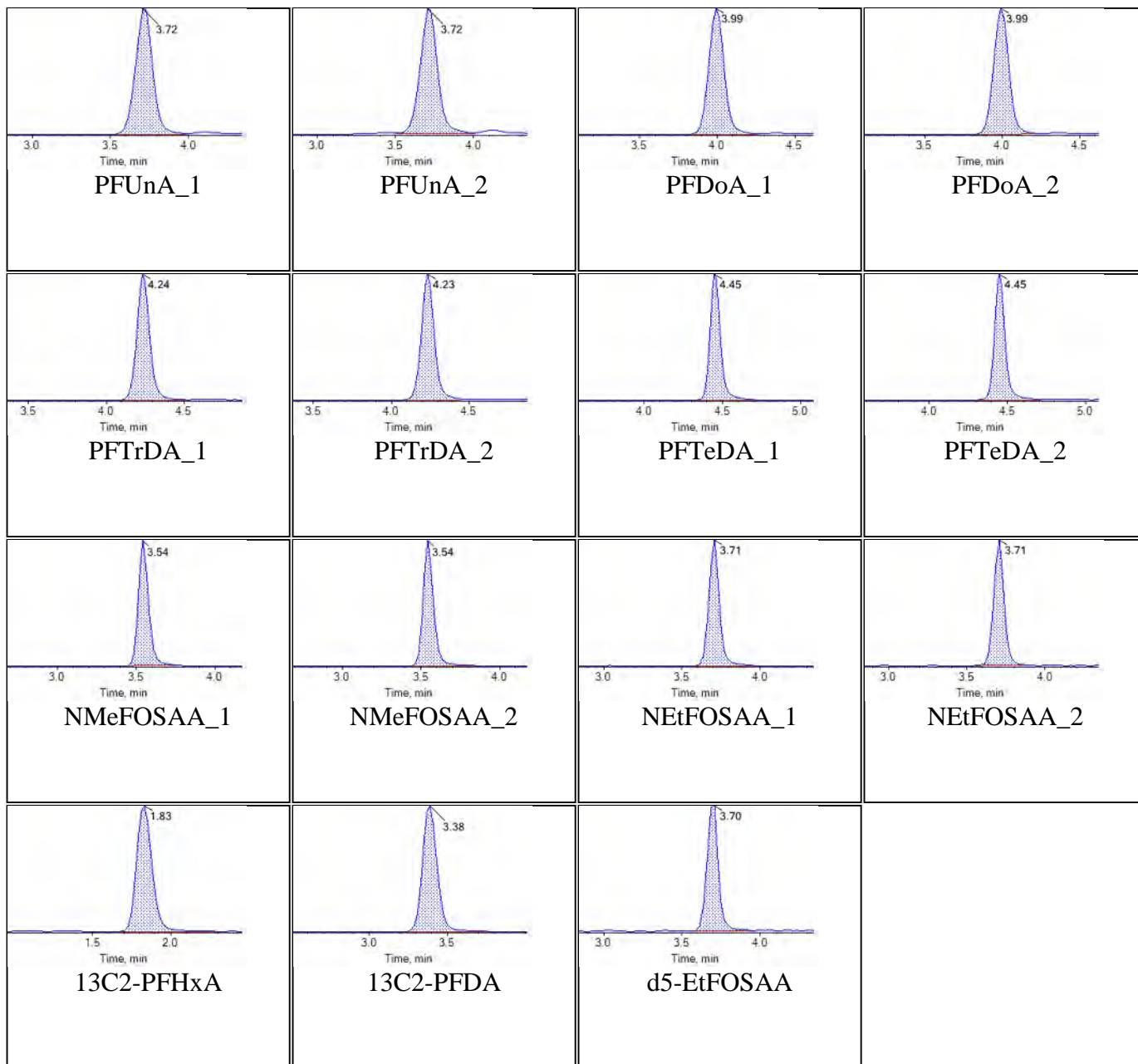
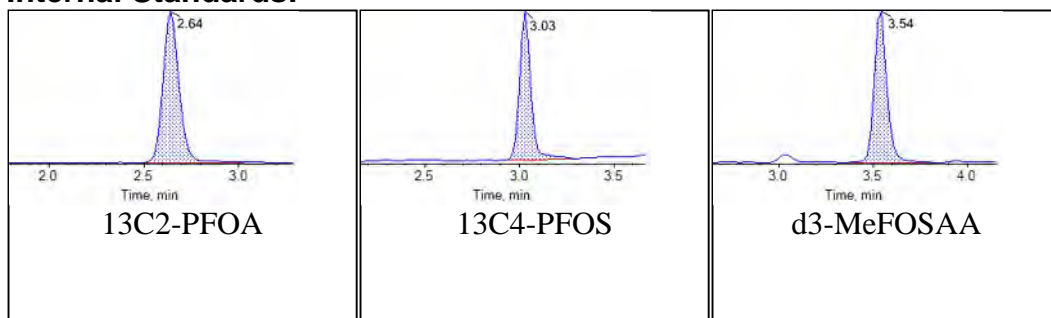
**Internal Standards:**

Sample Name	J7585MSD-FS(0)	Injection Vial	17
Sample ID	Matrix Spike Duplicate	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:04:32	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Chromatograms

Target Analytes:

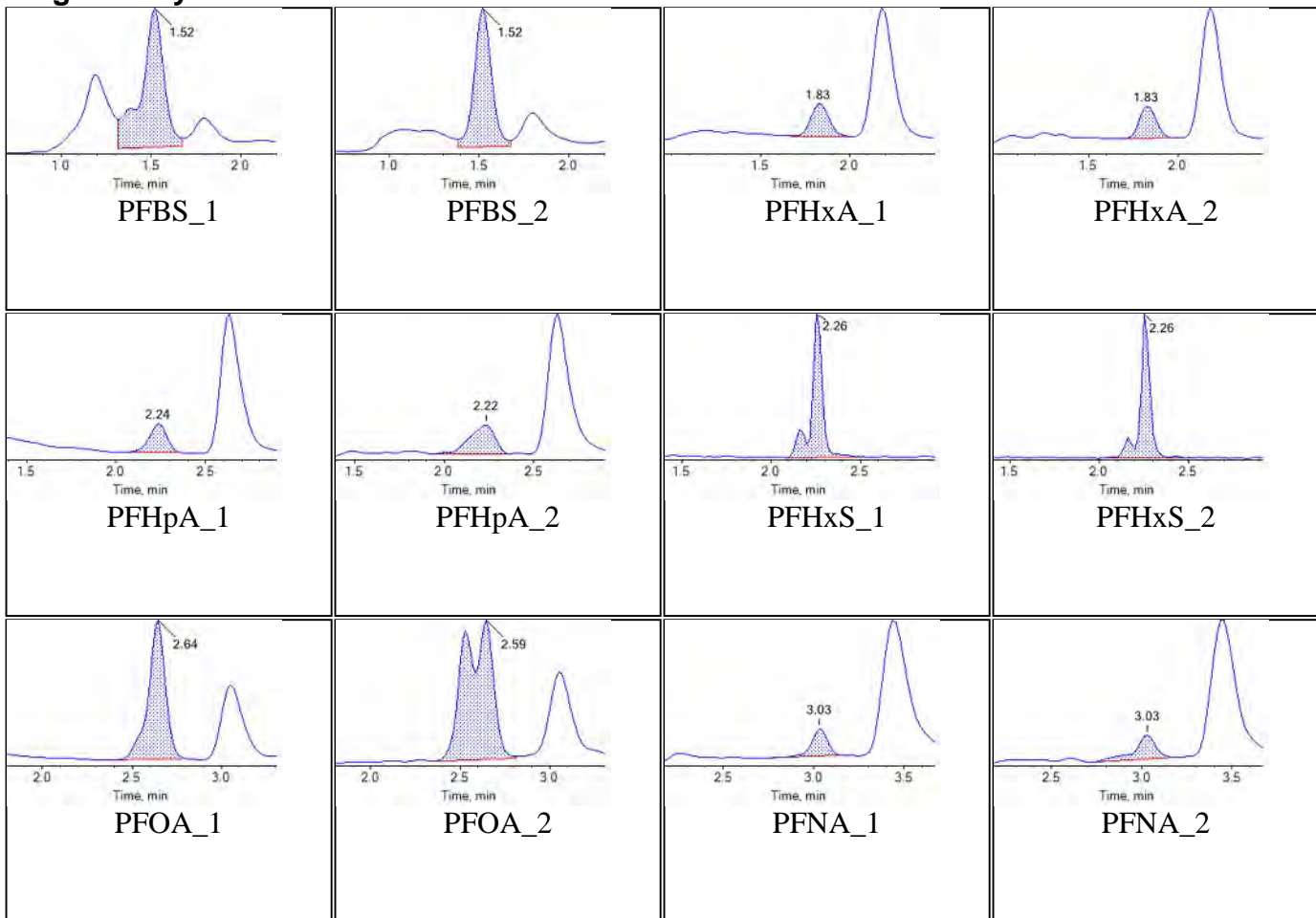


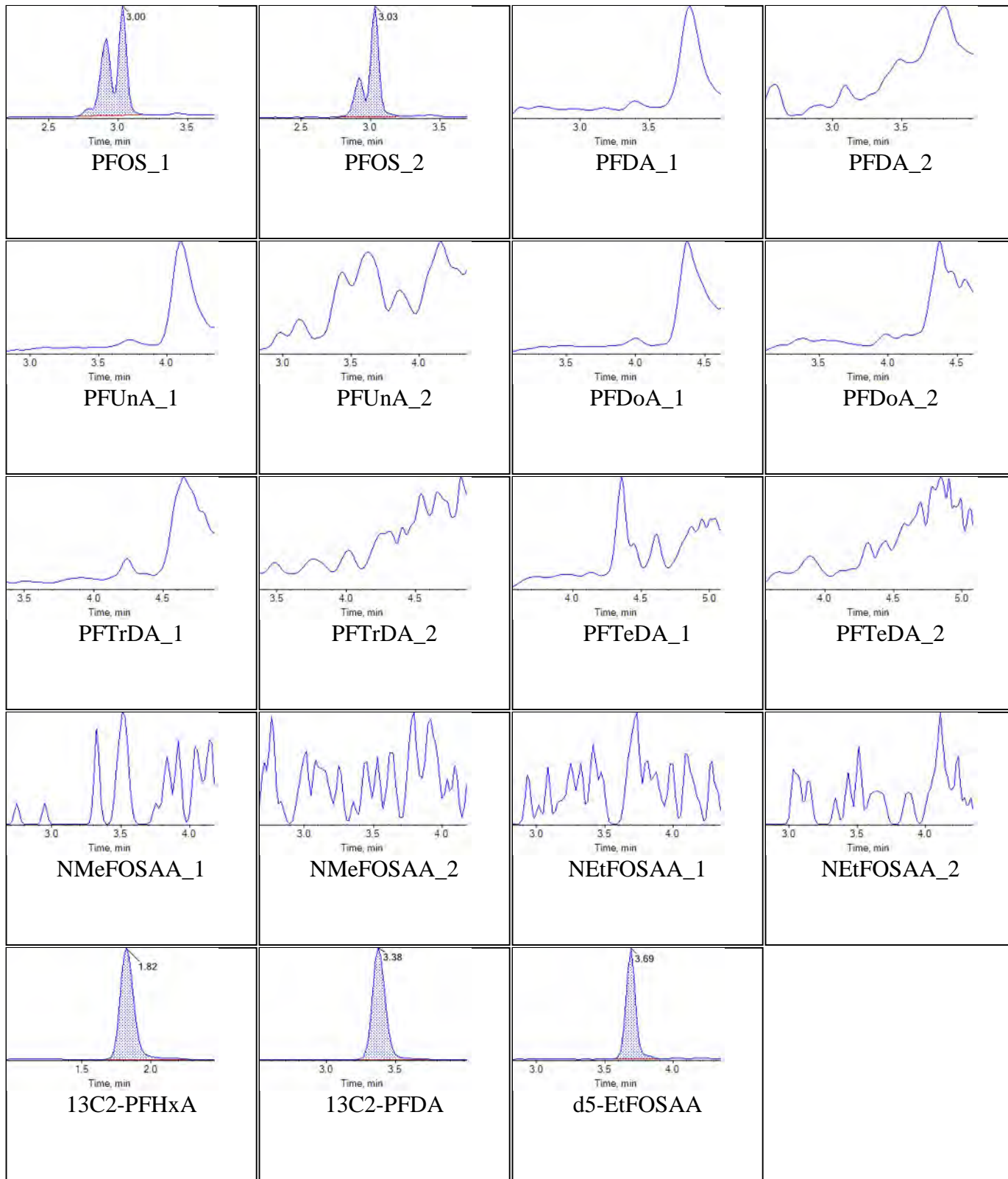
**Internal Standards:**

Sample Name	J7587-FS(0)	Injection Vial	18
Sample ID	JAX-RES-08222018-1000-35-FD	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:13:27	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Chromatograms

Target Analytes:

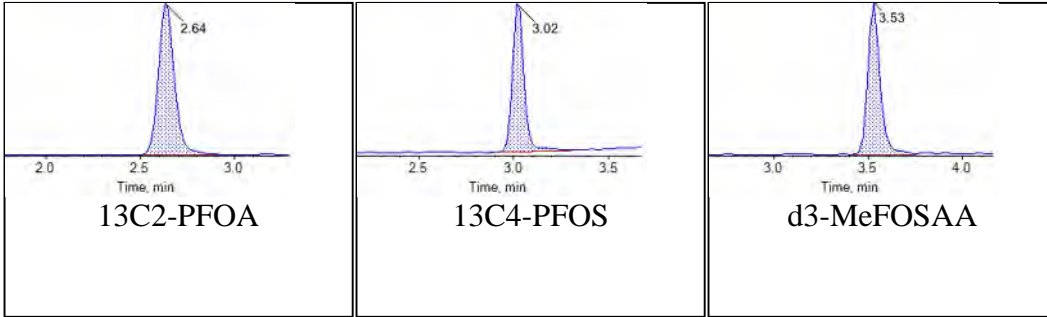




Internal Standards:

Chromatogram Report

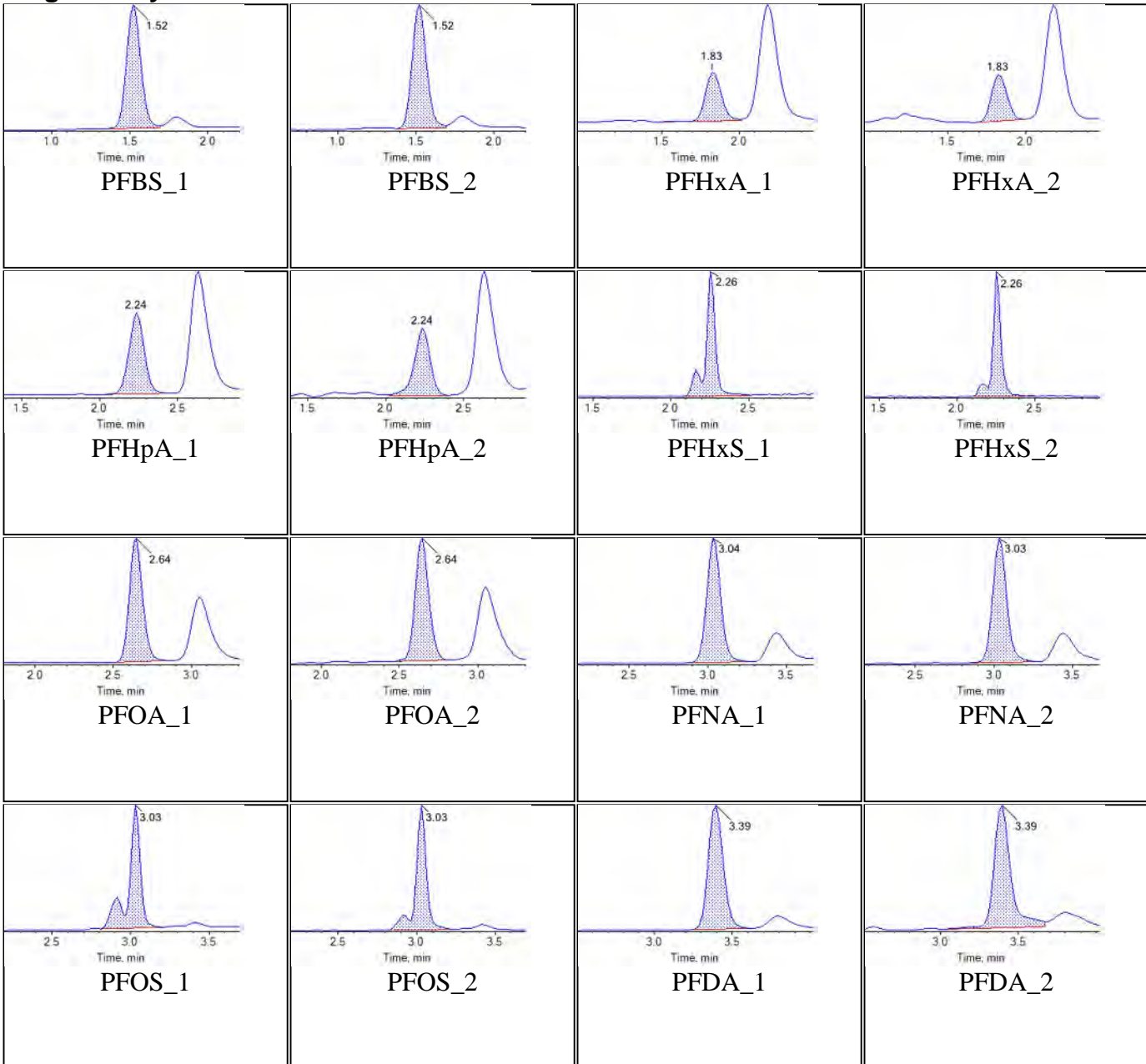
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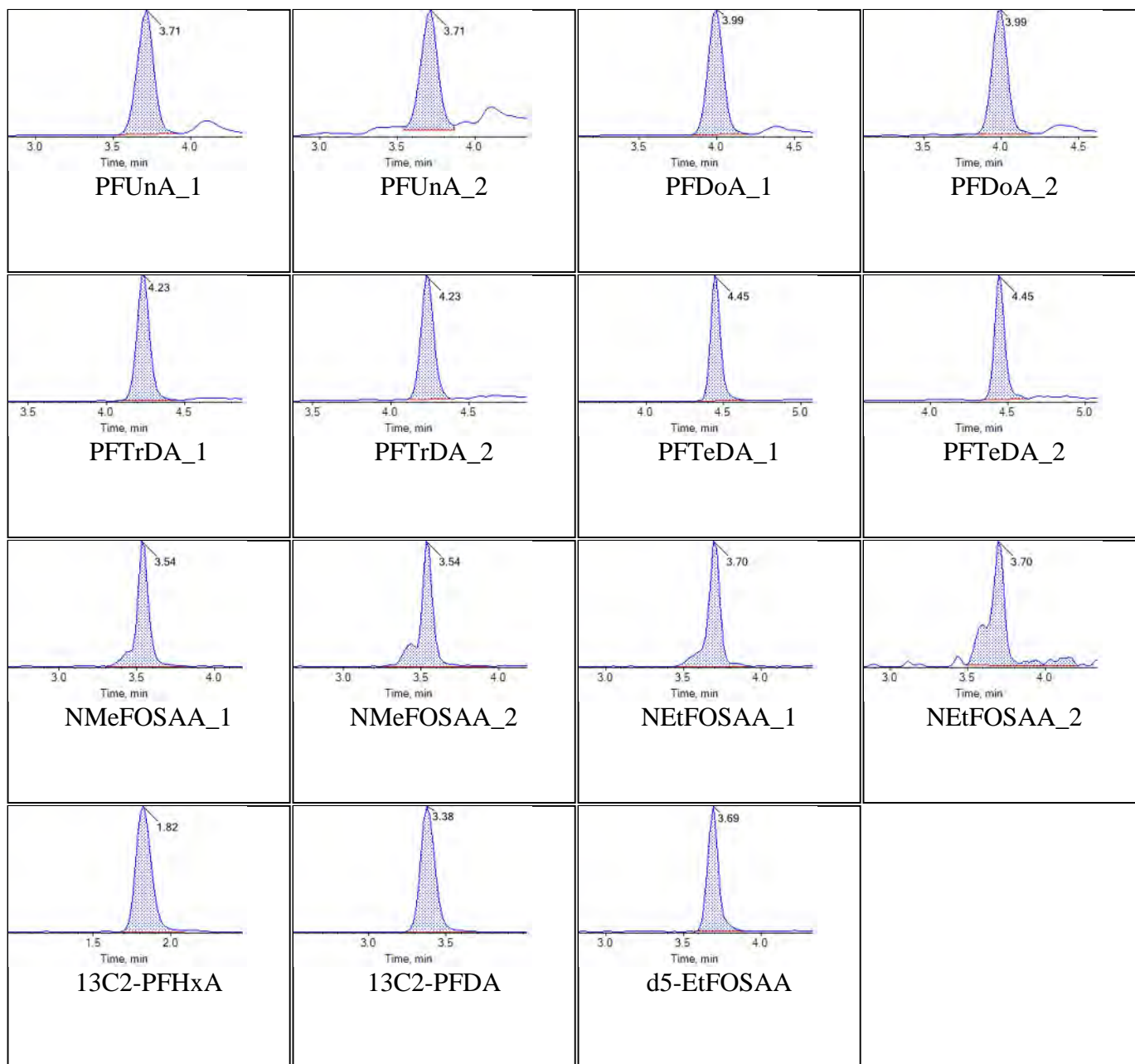
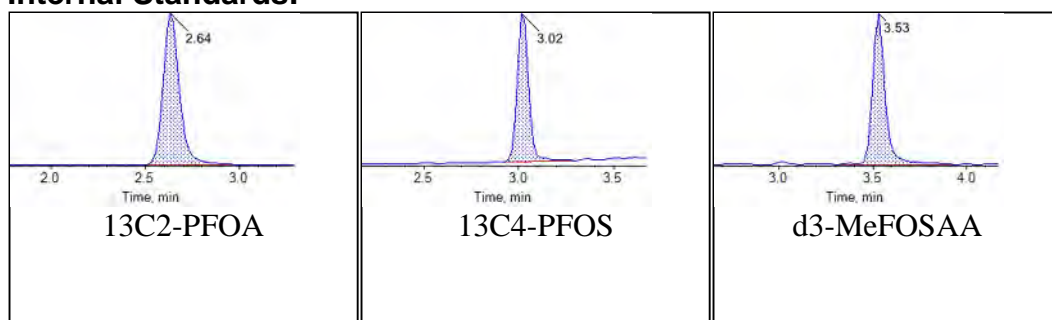


Sample Name	JZ82 CCV	Injection Vial	19
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:22:24	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Chromatograms

Target Analytes:



**Internal Standards:**

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"JAX-RES-08222018-1000-35-", "SOP 5-369", "Initial", "J7587-FS", "BNO", "355-46-4", "PFHxA", "3.090000", "ng/L", "", ".30", "MDL", "", "T", "", "", "2.23", "LOQ", "YES", "-99.000000", "", ".280000", ".000500", ".89", ""
"JAX-RES-08222018-1000-35-", "SOP 5-369", "Initial", "J7587-FS", "BNO", "BDO-2106", "13C2-PFHxA", ".410000", "ng/L", "", "-99.00", "NA", "", "SIS", "114.00", "", "-99.00", "NA", "YES", ".360000", "", ".280000", ".000500", ".50", ""
"JAX-RES-08222018-1000-35-", "SOP 5-369", "Initial", "J7587-FS", "BNO", "BDO-2110", "13C2-PFDA", ".300000", "ng/L", "", "-99.00", "NA", "", "SIS", "83.00", "", "-99.00", "NA", "YES", ".360000", "", ".280000", ".000500", ".50", ""
"JAX-RES-08222018-1000-35-", "SOP 5-369", "Initial", "J7587-FS", "BNO", "BDO-1839", "d5-EtFOSAA", "1.410000", "ng/L", "", "-99.00", "NA", "", "SIS", "99.00", "", "-99.00", "NA", "YES", "1.430000", "", ".280000", ".000500", ".50", ""
"112G08005-SE0375", "SE0375 ? NAS Jacksonville", "CR653PB-FS", "", "WATER", "CR653PB-FS", "MB", "", "-99.000000", "SOP 5-369", "Gen Prep", "Initial", "08/24/2018 11:02", "08/27/2018 13:28", "BNO", "COA", "NA", "T", "1.000", "NA", "NA", "", "100.000000", "18-0525", "18-0525", "DP-18-0237", "DP-18-0237", "18-0525", "08/24/2018 11:02", "08/29/2018 08:17", ""
"112G08005-SE0375", "SE0375 ? NAS Jacksonville", "CR654LCS-FS", "", "WATER", "CR654LCS-FS", "LCS", "", "-99.000000", "SOP 5-369", "Gen Prep", "Initial", "08/24/2018 11:02", "08/27/2018 13:37", "BNO", "COA", "NA", "T", "1.000", "NA", "NA", "", "100.000000", "18-0525", "18-0525", "DP-18-0237", "DP-18-0237", "18-0525", "08/24/2018 11:02", "08/29/2018 08:17", ""
"112G08005-SE0375", "SE0375 ? NAS Jacksonville", "JAX-RES-08222018-1000-35", "08/22/2018 10:00", "W", "J7585-FS", "NM", "SHP-180823-02", ".900000", "SOP 5-369", "Gen Prep", "Initial", "08/24/2018 11:02", "08/27/2018 13:46", "BNO", "COA", "NA", "T", "1.000", "NA", "NA", "", "100.000000", "18-0525", "18-0525", "DP-18-0237", "DP-18-0237", "18-0525", "08/23/2018 13:00", "08/29/2018 08:17", ""
"112G08005-SE0375", "SE0375 ? NAS Jacksonville", "JAX-RES-08222018-1000-35MS", "", "W", "J7585MS-FS", "MS", "", "-99.000000", "SOP 5-369", "Gen Prep", "Initial", "08/24/2018 11:02", "08/27/2018 13:55", "BNO", "COA", "NA", "T", "1.000", "NA", "NA", "", "100.000000", "18-0525", "18-0525", "DP-18-0237", "DP-18-0237", "18-0525", "08/24/2018 11:02", "08/29/2018 08:17", ""
"112G08005-SE0375", "SE0375 ? NAS Jacksonville", "JAX-RES-08222018-1000-35MSD", "", "W", "J7585MSD-

FS", "MSD", "", "-99.000000", "SOP 5-369", "Gen Prep", "Initial", "08/24/2018 11:02", "08/27/2018
14:04", "BNO", "COA", "NA", "T", "1.000", "NA", "NA", "", "100.000000", "18-0525", "18-0525", "DP-18-0237", "DP-18-
0237", "18-0525", "08/24/2018 11:02", "08/29/2018 08:17", ""
"112G08005-SE0375", "SE0375 ? NAS Jacksonville", "JAX-RES-08222018-1000-35-FD", "08/22/2018
10:00", "W", "J7587-FS", "NM", "SHP-180823-02", ".900000", "SOP 5-369", "Gen Prep", "Initial", "08/24/2018
11:02", "08/27/2018 14:13", "BNO", "COA", "NA", "T", "1.000", "NA", "NA", "", "100.000000", "18-0525", "18-0525", "DP-
18-0237", "DP-18-0237", "18-0525", "08/23/2018 13:00", "08/29/2018 08:17", ""



TETRA TECH

INTERNAL CORRESPONDENCE

TO: M. PETERSON **DATE:** AUGUST 31, 2018
FROM: MICHELLE L. WOEBER **COPIES:** DV FILE
SUBJECT: ORGANIC DATA VALIDATION – POLYFLUOROALKYL SUBSTANCES (PFAS)
NAVAL AIR STATION (NAS), JACKSONVILLE
JACKSONVILLE, FLORIDA
SAMPLE DELIVERY GROUPS (SDGs) 18-0525 & 18-0532

SAMPLES: SDG 18-0525
2/Drinking Water/PFAS
JAX-RES-08222018-1000-35 JAX-RES-08222018-1000-35-FD
SDG 18-0532
1/Field Reagent Blank (FRB)/PFAS
JAX-RES-08222018-1000-35-FRB

Overview

The sample set for NAS Jacksonville, SDGs 18-0525 & 18-0532 consisted of two (2) drinking water samples and one (1) FRB. All three (3) samples were analyzed for PFAS. One field duplicate sample pair was included in this SDG: JAX-RES-08222018-1000-35/JAX-RES-08222018-1000-35-FD.

The samples were collected by Tetra Tech, Inc. on August 22, 2018 and analyzed by Battelle Norwell Operations. All analyses were conducted in accordance with EPA Method 537 version 1.1 analytical and reporting protocols. The data contained in this SDG was validated at EPA Stage 4 with regard to the following parameters:

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

* • Detection Limits

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

PFAS

No issues were identified.

Additional Comments

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

The Field Reagent Blank (FRB) were analyzed because the associated drinking water samples contained detections greater than the Limit of Quantitation (LOQ).

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

Detected results reported below the LOQ but above the Method Detection Limit (MDL) were qualified as estimated, (J). Non-detected results were reported to the MDL in the database.

Executive Summary

Laboratory Performance Issues: None.

Other Factors Affecting Data Quality: None.

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

Michelle L. Woeber

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

Joseph A. Samchuck

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

Attachments:

- Appendix A - Qualified Analytical Results
- Appendix B – Results as Reported by the Laboratory
- Appendix C – Support Documentation

Data Qualifier Definitions

The following definitions provide brief explanations of the validation qualifiers assigned to results in the data review process.

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 ($< 2 \times$ IDL for inorganics and $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues; i.e. chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors $>40\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $<30\%$
- Z = Uncertainty at 2 standard deviations is greater than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed
- Z3 = Tentatively Identified Compound aldol condensate
- Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
- Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

PROJ_NO: 08005-SE03 SDG: 18-0525 FRACTION: PFAS MEDIA: WATER	NSAMPLE	JAX-RES-08222018-1000-35			JAX-RES-08222018-1000-35-FD		
	LAB_ID	J7585-FS			J7587-FS		
	SAMP_DATE	8/22/2018			8/22/2018		
	QC_TYPE	NM			NM		
	UNITS	NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF				JAX-RES-08222018-1000-35		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)	0.42	U		0.39	U		
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)	0.4	U		0.38	U		
PENTADECAFLUOROOCTANOIC ACID (PFOA)	2.01	J	P	1.97	J	P	
PERFLUOROBUTANESULFONIC ACID (PFBS)	1.23	J	P	1.27	J	P	
PERFLUORODECANOIC ACID (PFDA)	0.37	U		0.35	U		
PERFLUORODODECANOIC ACID (PFDOA)	0.4	U		0.38	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	0.56	J	P	0.58	J	P	
PERFLUOROHEXANESULFONIC ACID (PFHXS)	3.16			3.09			
PERFLUOROHEXANOIC ACID (PFHXA)	0.95	J	P	1.08	J	P	
PERFLUORONONANOIC ACID (PFNA)	0.35	U		0.33	U		
PERFLUOROOCTANESULFONIC ACID (PFOS)	4.15			4.13			
PERFLUOROTETRADECANOIC ACID (PFTEA)	0.69	U		0.65	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)	0.4	U		0.38	U		
PERFLUOROUNDECANOIC ACID (PFUNA)	0.36	U		0.34	U		

PROJ_NO: 08005-SE03 SDG: 18-0532 FRACTION: PFAS MEDIA: WATER	NSAMPLE	JAX-RES-08222018-1000-35-FRB		
	LAB_ID	J7586-FS		
	SAMP_DATE	8/22/2018		
	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER	RESULT	VQL	QLCD	
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)	0.43	U		
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)	0.41	U		
PENTADEC AFLUOROOCTANOIC ACID (PFOA)	0.37	U		
PERFLUOROBUTANESULFONIC ACID (PFBS)	0.21	U		
PERFLUORODECANOIC ACID (PFDA)	0.38	U		
PERFLUORODODECANOIC ACID (PFDOA)	0.41	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	0.33	U		
PERFLUOROHEXANESULFONIC ACID (PFHXS)	0.33	U		
PERFLUOROHEXANOIC ACID (PFHXA)	0.22	U		
PERFLUORONONANOIC ACID (PFNA)	0.36	U		
PERFLUOROOCTANESULFONIC ACID (PFOS)	0.29	U		
PERFLUOROTETRADECANOIC ACID (PFTEA)	0.72	U		
PERFLUOROTRIDECANOIC ACID (PFTRIA)	0.41	U		
PERFLUOROUNDECANOIC ACID (PFUNA)	0.37	U		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY



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

Client ID JAX-RES-08222018-1000-35

Battelle ID	J7585-FS			
Sample Type	SA			
Collection Date	08/22/2018			
Extraction Date	08/24/2018			
Analysis Date	08/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	W			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.95 J	0.21	0.47	2.36
PFHpA	0.56 J	0.32	0.94	2.36
PFOA	2.01 J	0.36	0.94	2.36
PFNA	0.94 U	0.35	0.94	2.36
PFDA	0.94 U	0.37	0.94	2.36
PFUnA	0.94 U	0.36	0.94	2.36
PFDoA	0.94 U	0.40	0.94	2.36
PFTTrDA	0.94 U	0.40	0.94	2.36
PFTeDA	1.42 U	0.69	1.42	2.36
NMeFOSAA	0.94 U	0.40	0.94	2.36
NEtFOSAA	0.94 U	0.42	0.94	2.36
PFBS	1.23 J	0.20	0.47	2.36
PFHxS	3.16	0.32	0.94	2.36
PFOS	4.15	0.28	0.94	2.36

Surrogate Recoveries (%)

13C2-PFHxA	110
13C2-PFDA	80
d5-EtFOSAA	83



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

Client ID	JAX-RES-08222018-1000-35-				
		FD			
Battelle ID	J7587-FS				
Sample Type	SA				
Collection Date	08/22/2018				
Extraction Date	08/24/2018				
Analysis Date	08/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	W				
Sample Size	0.280				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	1.08 J	0.20	0.45	2.23	
PFHpA	0.58 J	0.30	0.89	2.23	
PFOA	1.97 J	0.34	0.89	2.23	
PFNA	0.89 U	0.33	0.89	2.23	
PFDA	0.89 U	0.35	0.89	2.23	
PFUnA	0.89 U	0.34	0.89	2.23	
PFDoA	0.89 U	0.38	0.89	2.23	
PFTTrDA	0.89 U	0.38	0.89	2.23	
PFTeDA	1.34 U	0.65	1.34	2.23	
NMeFOSAA	0.89 U	0.38	0.89	2.23	
NEtFOSAA	0.89 U	0.39	0.89	2.23	
PFBS	1.27 J	0.19	0.45	2.23	
PFHxS	3.09	0.30	0.89	2.23	
PFOS	4.13	0.27	0.89	2.23	

Surrogate Recoveries (%)

13C2-PFHxA	114
13C2-PFDA	83
d5-EtFOSAA	99



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

Client ID		JAX-RES-08222018-1000-35-			
Battelle ID		FRB			
Sample Type		J7586-FS			
Collection Date		SA			
Extraction Date		08/22/2018			
Analysis Date		08/28/2018			
Analytical Instrument		Sciex 5500 LC/MS/MS			
% Moisture		NA			
Matrix		W			
Sample Size		0.255			
Size Unit-Basis		L			
Units		ng/L	MDL	LOD	LOQ
PFHxA	307-24-4	0.49 U	0.22	0.49	2.45
PFHpA	375-85-9	0.98 U	0.33	0.98	2.45
PFOA	335-67-1	0.98 U	0.37	0.98	2.45
PFNA	375-95-1	0.98 U	0.36	0.98	2.45
PFDA	335-76-2	0.98 U	0.38	0.98	2.45
PFUnA	2058-94-8	0.98 U	0.37	0.98	2.45
PFDoA	307-55-1	0.98 U	0.41	0.98	2.45
PFTTrDA	72629-94-8	0.98 U	0.41	0.98	2.45
PFTeDA	376-06-7	1.47 U	0.72	1.47	2.45
NMeFOSAA	2355-31-9	0.98 U	0.41	0.98	2.45
NEtFOSAA	2991-50-6	0.98 U	0.43	0.98	2.45
PFBS	375-73-5	0.49 U	0.21	0.49	2.45
PFHxS	355-46-4	0.98 U	0.33	0.98	2.45
PFOS	1763-23-1	0.98 U	0.29	0.98	2.45

Surrogate Recoveries (%)

13C2-PFHxA	111
13C2-PFDA	90
d5-EtFOSAA	91

APPENDIX C

SUPPORT DOCUMENTATION

NAS JACKSONVILLE
SDG 18-0525

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

Where:

PA	Area of target analyte/ area of internal standard
b	y Intercept from calibration curve
C _{IS}	Concentration of internal standard (ng/L)
m	Slope of calibration
DF	Dilution factor
S	Sample Size
PIV	Pre-injection volume (L)

Target Analyte	PFOS
Sample ID	JAX-RES-08222018-1000-35
Laboratory Sample ID	J7585-FS
Sample Size (L)	0.265
Dilution Factor	1
PIV (L)	0.001
PFOS Area	521204.8
IS Area	137503.72
IS Amount (ng/L)	287
Calibration Curve	y = 0.98373 x + 0.02356
Concentration (ng/L)	4.15

$$(((521204.8/137503.72)-0.02356)/0.98373)*287*0.001*1/0.265$$

ANALYTE	ORIGINAL	DUPLICATE	RL	RPD	RPD >30%
PENTADEC AFLUORO OCTANOIC ACID (PFOA)	2.01	1.97	2.36	2.01	FALSE
PERFLUOROBUTANESULFONIC ACID (PFBS)	1.23	1.27	2.36	3.20	FALSE
PERFLUOROHEPTANOIC ACID (PFHPA)	0.56	0.58	2.36	3.51	FALSE
PERFLUOROHXANESULFONIC ACID (PFHXS)	3.16	3.09	2.36	2.24	FALSE
PERFLUOROHXANOIC ACID (PFHXA)	0.95	1.08	2.36	12.81	FALSE
PERFLUORO OCTANESULFONIC ACID (PFOS)	4.15	4.13	2.36	0.48	FALSE

ORIGINAL SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >2xRL
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE

SDG 18-0525

JAX-RES-08222018-1000-35/JAX-RES-08222018-1000-35-FD

Sample Name	J7585-FS(0)	Injection Vial	15
Sample ID	JAX-RES-08222018-1000-35	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:46:39	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	104762.51	326.446920	139.8	false
PFBS_2	298.9 / 99.0	1.53	23046.73	242.084416	126.8	false
PFHxA_1	313.0 / 269.0	1.84	85464.47	251.533844	18.2	true
PFHxA_2	313.0 / 119.0	1.84	7525.48	301.908636	19.8	true
PFHpA_1	363.0 / 319.0	2.25	47232.63	147.731419	18.7	false
PFHpA_2	363.0 / 169.0	2.25	1312.57	100.898011	24.2	true
PFHxS_1	399.0 / 80.0	2.27	277217.20	836.155965	156.6	false
PFHxS_2	399.0 / 99.0	2.27	79845.27	832.972061	256.5	false
PFOA_1	413.0 / 369.0	2.65	171846.77	532.312574	92.4	false
PFOA_2	413.0 / 169.0	2.61	17637.59	783.121066	75.1	true
PFNA_1	463.0 / 419.0	3.05	5307.51	< 0	16.9	false
PFNA_2	463.0 / 219.0	3.04	1900.65	< 0	16.4	false
PFOS_1	499.0 / 80.0	3.00	521204.80	1098.983616	98.7	true
PFOS_2	499.0 / 99.0	3.04	76413.62	829.276424	182.9	true
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	true
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	true
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	true
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	true
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	true
PFTTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	true
PFTTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	true
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	true
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	true
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true
13C2-PFHxA	315.0 / 270.0	1.83	37764.32	110.447547	622.7	false
13C2-PFDA	515.0 / 470.0	3.39	31377.81	79.544064	649.8	false
d5-EtFOSAA	589.0 / 419.0	3.70	24661.78	330.753979	188.8	false

Sample Name	J7585-FS(0)	Injection Vial	15
Sample ID	JAX-RES-08222018-1000-35	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:46:39	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	137503.72	287.00
PFBS_2	298.9 / 99.0	1.53	13C4-PFOS	503.0 / 80.0	137503.72	287.00
PFHxA_1	313.0 / 269.0	1.84	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFHxA_2	313.0 / 119.0	1.84	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFHpA_1	363.0 / 319.0	2.25	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFHpA_2	363.0 / 169.0	2.25	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFHxS_1	399.0 / 80.0	2.27	13C4-PFOS	503.0 / 80.0	137503.72	287.00
PFHxS_2	399.0 / 99.0	2.27	13C4-PFOS	503.0 / 80.0	137503.72	287.00
PFOA_1	413.0 / 369.0	2.65	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFOA_2	413.0 / 169.0	2.61	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFNA_1	463.0 / 419.0	3.05	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFNA_2	463.0 / 219.0	3.04	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFOS_1	499.0 / 80.0	3.00	13C4-PFOS	503.0 / 80.0	137503.72	287.00
PFOS_2	499.0 / 99.0	3.04	13C4-PFOS	503.0 / 80.0	137503.72	287.00
PFDA_1	513.0 / 469.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFDA_2	513.0 / 219.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFUnA_1	563.0 / 519.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFUnA_2	563.0 / 269.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFDoA_1	613.0 / 569.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFDoA_2	613.0 / 319.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFTTrDA_1	663.0 / 619.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFTTrDA_2	663.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFOA	415.0 / 370.0	33231.27	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	26369.58	400.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	26369.58	400.00
NEtFOSAA_1	584.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	26369.58	400.00
NEtFOSAA_2	584.0 / 483.0	N/A	d3-MeFOSAA	573.0 / 419.0	26369.58	400.00
13C2-PFHxA	315.0 / 270.0	1.83	13C2-PFOA	415.0 / 370.0	33231.27	100.00
13C2-PFDA	515.0 / 470.0	3.39	13C2-PFOA	415.0 / 370.0	33231.27	100.00
d5-EtFOSAA	589.0 / 419.0	3.70	d3-MeFOSAA	573.0 / 419.0	26369.58	400.00

NAS JACKSONVILLE
SDG 18-0525

LABORATORY CONTROL SAMPLE

	Result	Target	Calculation	Recovery	Reported Recovery
PFHxA	16.39 ng/L	15.0 ng/L	$16.39/15*100$	109.3	109

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

	Result	Target	Calculation	Recovery	Reported Recovery	RPD	Reported RPD	QC Limits	RPD Limit
PFHxA JAX-RES-08222018-1000-35	0.95 ng/L								
MS	23.68 ng/L	18.18 ng/L	$(23.68-0.95)/18.18*100$	125	125			70-130	
MSD	23.36 ng/L	18.87 ng/L	$(23.36-0.95)/18.87*100$	119	119	5.1	4.9	70-130	30



It can be done

Chain-of-Custody

Client Contact Information Tetra Tech 8640 Philips Hwy Suite 16 Jacksonville, FL 32256		Project Manager: <u>Mark Peterson</u> Sampler Information (print name): <u>Mike Goffis</u> Phone: <u>904 6266125</u> Email:		Sampling Site: <u>NAS JAX</u>		Site Information: <u>Residential</u>	
Project Name: <u>JAX PFA Eval</u> Project No.: <u>112G08005-SE037</u>		Turnaround Time (TAT) Requested: <u>7 day</u>		Preservative: <u>Tetra</u>		COC # <u>005</u>	
Sample Identification		Time Zone:		Analysis: <u>PFA 537</u>		Page# <u>1 of 1</u>	
2018		Sample Date		Sample Time		Sample Type	
Matrix		Total # of Cont.		Preservative		Analysis	
J1585	JAX-RES-08222018-1000-35	8/22	1000	G	W	2	X
J1586	JAX-RES-08222018-1000-35-FRB	8/22	1000	G	W	2	X
J1587	JAX-RES-08222018-1000-35-FD	8/22	1000	G	W	2	X
J1588	JAX-RES-08222018-1000-35-MSD	8/22	1000	G	W	2	X
Receipt Temperature: (°C)		Samples Intact: Yes - No		Samples on Ice: Yes - No		Receipt Comments:	
Relinquished by (Print/Sign): <u>[Signature]</u>		Company: <u>Tetra Tech</u>		Date/Time: <u>8/22/2018 1600</u>		Received by (Print/Sign): <u>Frd Ex</u>	
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign): <u>Matt Schumite</u>	
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign): <u>Battelle</u>	
Comments:		<u>Potabl. water</u>					



It can be done

ShpNo [SHP-180823-02](#)

Battelle Project No: [154-SE0375](#)

Sample Receipt Form Details

Approved: Authorized

Project Number: 112G08005-SE0375 Client: Tetra Tech

Received by: Schumitz, Matt Date/Time Received: Thursday, August 23, 2018 1:00 PM

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:
J7576	JAX-TCC-MWC3-08222018	08/22/18 12:47	08/23/18 13:55	4	GW	0.9	NA	NA	NA	R0119 (NA)			
J7577	JAX-TCC-MWI-2-08222018	08/22/18 13:00	08/23/18 13:55	2	GW	0.9	NA	NA	NA	R0119 (NA)			
J7578	JAX-TCC-MWI-2-08222018-FD	08/22/18 13:00	08/23/18 13:55	2	GW	0.9	NA	NA	NA	R0119 (NA)			
J7579	JAX-TCC-MWB-1-08222018	08/22/18 14:05	08/23/18 13:55	2	GW	0.9	NA	NA	NA	R0119 (NA)			
J7580	JAX-TCC-SW01-08222018	08/22/18 13:40	08/23/18 13:56	2	SW	0.9	NA	NA	NA	R0119 (NA)			
J7581	JAX-TCC-SW02-08222018	08/22/18 14:30	08/23/18 13:56	2	SW	0.9	NA	NA	NA	R0119 (NA)			
J7582	JAX-TCC-SD01-08222018	08/22/18 14:45	08/23/18 13:57	2	SD	0.9	NA	NA	NA	F0117 (NA)			
J7583	JAX-TCC-EB01-08222018	08/22/18 13:35	08/23/18 13:57	1	W	0.9	NA	NA	NA	R0119 (NA)			
J7584	JAX-TCC-FRB-08222018	08/22/18 14:00	08/23/18 13:58	1	W	0.9	NA	NA	NA	R0119 (NA)			
J7585	JAX-RES-08222018-1000-35	08/22/18 10:00	08/23/18 13:58	2	W	0.9	NA	NA	NA	R0119 (NA)			
J7586	JAX-RES-08222018-1000-35-FRB	08/22/18 10:00	08/23/18 13:59	1	W	0.9	NA	NA	NA	R0119 (NA)			
J7587	JAX-RES-08222018-1000-35-FD	08/22/18 10:00	08/23/18 13:59	2	W	0.9	NA	NA	NA	R0119 (NA)			
J7588	JAX-RES-08222018-1000-35-MS/MSD	08/22/18 10:00	08/23/18 13:59	2	W	0.9	NA	NA	NA	R0119 (NA)			

Total Samples: 13

QA/QC Summary
Batch 18-0525

Project:	CTO-SE0375: Naval Air Station (NAS) Jacksonville
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	W
Data Set:	DP-18-0237
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
08/22/2018	08/23/2018	0.9

Corrective Actions	Sample JAX-RES-08222018-1000-35-FRB is listed on the COC to have 2 bottles but there was only one in the cooler – client was notified, no impact on the analysis.
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	The FRB samples associated with these field samples are reported in SDG 18-0532.

METHOD SUMMARIES	
Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were concentrated to dryness under nitrogen with a water bath set between 60 °C and 65 °C, reconstituted with 96:4 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	None
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on the Sciex 5500. There were no ion ratio exceedances above 50% RPD for any analyte detected above the MDL or the LOQ in this SDG.

Holding Times	Extraction Date(s)	Analysis Date(s)
	8/24/2018	8/27/2018

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

QA/QC Summary
Batch 18-0525

Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
70-130% of true value	No exceedances noted. No comments.
Matrix Spike (MS) / Duplicate (MSD)	A MS/MSD were prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy. The relative percent difference was calculated to measure precision.
70-130% of true value, RPD \leq 30%	No exceedances noted. No comments.
Surrogates Standard Analytes	Labelled surrogate compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
70-130% of true value	No exceedances noted. No comments.
Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
ICAL high and low points RPD \leq 20%, 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted. No comments.
Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadratic curve fitting.
R ² >0.99 Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No exceedances noted. No comments.
Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
Target and SIS compounds +/- 30% of true value	No exceedances noted. No comments.

QA/QC Summary
Batch 18-0525

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



Project Client: Tetra Tech
 Project Name: CTO-SE0375: Naval Air Station Jacksonville
 Project Number: 100119154-SE0375
 Preparation Batch: 18-0525
 Data Set: DP-18-0237
 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	0	None
Matrix Spike / Matrix Spike Duplicate Precision	0	None
Extracted Internal Standard Analytes (Surrogates)	0	None
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None



It can be done

**BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM**

Project Title: CTO-SE0375: Naval Air Station Jackson **Data Set Number:** DP-18-0237
Project Number: 100119154-SE0375 **Prep Batch Number:** 18-0525
Entered By: Denise Schumitz **Entered On:** 08/27/2018
Test Code (Matrix Type): Master_371(L)

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
DMS 8/27/2018

Task Leader Approval:

Supervisor Approval:

Digitally signed by Jonathan Thorn

PM Approval:

Date: 2018.08.27 17:37:28 -04'00'



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



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: J7585MS-FS(0)
 Client Sample ID: JAX-RES-08222018-1000-35_MS
 Sample Size: 0.275
 Units: L
 Dilution Factor: 1.000
 PIV (L): 0.001
 Target Analyte: PFTrDA
 MRM Transition: 663.0 / 619.0
 Data file: 18-0525.wiff
 Result table: 18-0525_DW
 Area: 1,735,637.67
 IS Name: 13C2-PFOA
 IS Area: 36,421.77
 IS Amount (ng/L): 100
 y-intercept: 0.48555
 slope: 1.07711

$$\text{Concentration} = \frac{[(1735637.67/36421.77) - 0.48555]}{1.07711} * 100 * 0.001 * 1 / 0.275$$

ng/L = 15.92



Project Client: Tetra Tech
 Project Name: CTO-SE0375: Naval Air Station Jacksonville
 Project No.: 100119154-SE0375
 Preparation Batch: 18-0525
 Data Set: DP-18-0237

	CR653PB-FS (Procedural Blank)	CR654LCS-FS (Laboratory Control Sample)	J7585MS-FS (JAX-RES-08222018-1000-35)	J7585MSD-FS (JAX-RES-08222018-1000-35)	J7585-FS (JAX-RES-08222018-1000-35)	J7587-FS (JAX-RES-08222018-1000-35-FD)
PFHxA	-	L	L	L	L	L
PFHpA	-	L	L	L	L	L
PFOA	-	L	L	L	L	L
PFNA	-	L	L	L	-	-
PFDA	-	L	L	L	-	-
PFUnA	-	L	L	L	-	-
PFDaA	-	L	L	L	-	-
PFTrDA	-	L	L	L	-	-
PFTeDA	-	L	L	L	-	-
NMeFOSAA	-	L	L	L	-	-
NEtFOSAA	-	L	L	L	-	-
PFBS	-	L	L	L	L	L
PFHxS	-	L	L	L	L	L
PFOS	-	L	L/Br	L/Br	L/Br	L/Br

"L": Linear

"Br": branched

"L/Br": Linear/Branched

"-": Not detected

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JZ80	L3	8/27/18 11:59	13C4-PFOS	150,604.61	-
JZ81	L4	8/27/18 12:08	13C4-PFOS	148,571.24	-
JZ82	L5	8/27/18 12:17	13C4-PFOS	155,505.23	-
JZ83	L6	8/27/18 12:26	13C4-PFOS	135,399.87	-
JZ84	L7	8/27/18 12:35	13C4-PFOS	156,323.71	-
JZ85	L8	8/27/18 12:44	13C4-PFOS	133,272.94	-
JZ86	L9	8/27/18 12:53	13C4-PFOS	141,017.68	6.6

PASS

Average Lower Upper
 145,813.61 72,906.81 218,720.42

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/27/18 11:59	13C4-PFOS	150,604.61	72,906.81	218,720.42		108,853.66	217,707.32	
JZ81	L4	8/27/18 12:08	13C4-PFOS	148,571.24	72,906.81	218,720.42		108,853.66	217,707.32	
JZ82	L5	8/27/18 12:17	13C4-PFOS	155,505.23	72,906.81	218,720.42		108,853.66	217,707.32	
JZ83	L6	8/27/18 12:26	13C4-PFOS	135,399.87	72,906.81	218,720.42		108,853.66	217,707.32	
JZ84	L7	8/27/18 12:35	13C4-PFOS	156,323.71	72,906.81	218,720.42		108,853.66	217,707.32	
JZ85	L8	8/27/18 12:44	13C4-PFOS	133,272.94	72,906.81	218,720.42		108,853.66	217,707.32	
JZ86	L9	8/27/18 12:53	13C4-PFOS	141,017.68	72,906.81	218,720.42		108,853.66	217,707.32	
KA08 IB	Instrument Blank	8/27/18 13:01	13C4-PFOS	139,069.46	72,906.81	218,720.42		108,853.66	217,707.32	
JZ77 ICC	ICC	8/27/18 13:10	13C4-PFOS	157,861.98	72,906.81	218,720.42		108,853.66	217,707.32	
CR653PB-FS(0)	Procedural Blank	8/27/18 13:28	13C4-PFOS	148,610.70	72,906.81	218,720.42		108,853.66	217,707.32	
CR654LCS-FS(0)	Laboratory Control Sample	8/27/18 13:37	13C4-PFOS	156,107.16	72,906.81	218,720.42		108,853.66	217,707.32	
J7585-FS(0)	JAX-RES-08222018-1000-35	8/27/18 13:46	13C4-PFOS	137,503.72	72,906.81	218,720.42		108,853.66	217,707.32	
J7585MS-FS(0)	Matrix Spike Sample	8/27/18 13:55	13C4-PFOS	143,005.51	72,906.81	218,720.42		108,853.66	217,707.32	
J7585MSD-FS(0)	Matrix Spike Duplicate	8/27/18 14:04	13C4-PFOS	144,843.61	72,906.81	218,720.42		108,853.66	217,707.32	
J7587-FS(0)	JAX-RES-08222018-1000-35-FD	8/27/18 14:13	13C4-PFOS	156,753.75	72,906.81	218,720.42		108,853.66	217,707.32	
JZ82 CCV	CCV	8/27/18 14:22	13C4-PFOS	149,937.12	72,906.81	218,720.42		108,853.66	217,707.32	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JZ80	L3	8/27/18 11:59	13C2-PFOA	30,461.70	-
JZ81	L4	8/27/18 12:08	13C2-PFOA	32,154.45	-
JZ82	L5	8/27/18 12:17	13C2-PFOA	35,211.47	-
JZ83	L6	8/27/18 12:26	13C2-PFOA	31,789.17	-
JZ84	L7	8/27/18 12:35	13C2-PFOA	35,825.36	-
JZ85	L8	8/27/18 12:44	13C2-PFOA	31,882.98	-
JZ86	L9	8/27/18 12:53	13C2-PFOA	33,314.19	8.9

PASS

Average Lower Upper
 32,948.47 16,474.24 49,422.71

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/27/18 11:59	13C2-PFOA	30,461.70	16,474.24	49,422.71		24,648.03	49,296.06	
JZ81	L4	8/27/18 12:08	13C2-PFOA	32,154.45	16,474.24	49,422.71		24,648.03	49,296.06	
JZ82	L5	8/27/18 12:17	13C2-PFOA	35,211.47	16,474.24	49,422.71		24,648.03	49,296.06	
JZ83	L6	8/27/18 12:26	13C2-PFOA	31,789.17	16,474.24	49,422.71		24,648.03	49,296.06	
JZ84	L7	8/27/18 12:35	13C2-PFOA	35,825.36	16,474.24	49,422.71		24,648.03	49,296.06	
JZ85	L8	8/27/18 12:44	13C2-PFOA	31,882.98	16,474.24	49,422.71		24,648.03	49,296.06	
JZ86	L9	8/27/18 12:53	13C2-PFOA	33,314.19	16,474.24	49,422.71		24,648.03	49,296.06	
KA08 IB	Instrument Blank	8/27/18 13:01	13C2-PFOA	30,359.05	16,474.24	49,422.71		24,648.03	49,296.06	
JZ77 ICC	ICC	8/27/18 13:10	13C2-PFOA	36,575.66	16,474.24	49,422.71		24,648.03	49,296.06	
CR653PB-FS(0)	Procedural Blank	8/27/18 13:28	13C2-PFOA	33,523.40	16,474.24	49,422.71		24,648.03	49,296.06	
CR654LCS-FS(0)	Laboratory Control Sample	8/27/18 13:37	13C2-PFOA	38,217.34	16,474.24	49,422.71		24,648.03	49,296.06	
J7585-FS(0)	JAX-RES-08222018-1000-35	8/27/18 13:46	13C2-PFOA	33,231.27	16,474.24	49,422.71		24,648.03	49,296.06	
J7585MS-FS(0)	Matrix Spike Sample	8/27/18 13:55	13C2-PFOA	36,421.77	16,474.24	49,422.71		24,648.03	49,296.06	
J7585MSD-FS(0)	Matrix Spike Duplicate	8/27/18 14:04	13C2-PFOA	35,789.59	16,474.24	49,422.71		24,648.03	49,296.06	
J7587-FS(0)	JAX-RES-08222018-1000-35-FD	8/27/18 14:13	13C2-PFOA	36,727.53	16,474.24	49,422.71		24,648.03	49,296.06	
JZ82 CCV	CCV	8/27/18 14:22	13C2-PFOA	35,871.73	16,474.24	49,422.71		24,648.03	49,296.06	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L1/L9)
JZ80	L3	8/27/18 11:59	d3-MeFOSAA	27,303.20	-
JZ81	L4	8/27/18 12:08	d3-MeFOSAA	29,486.65	-
JZ82	L5	8/27/18 12:17	d3-MeFOSAA	29,699.93	-
JZ83	L6	8/27/18 12:26	d3-MeFOSAA	26,014.03	-
JZ84	L7	8/27/18 12:35	d3-MeFOSAA	28,846.76	-
JZ85	L8	8/27/18 12:44	d3-MeFOSAA	26,160.42	-
JZ86	L9	8/27/18 12:53	d3-MeFOSAA	29,679.79	8.3

PASS

Average Lower Upper
 28,170.11 14,085.06 42,255.17

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/27/18 11:59	d3-MeFOSAA	27,303.20	14,085.06	42,255.17		20,789.95	41,579.90	
JZ81	L4	8/27/18 12:08	d3-MeFOSAA	29,486.65	14,085.06	42,255.17		20,789.95	41,579.90	
JZ82	L5	8/27/18 12:17	d3-MeFOSAA	29,699.93	14,085.06	42,255.17		20,789.95	41,579.90	
JZ83	L6	8/27/18 12:26	d3-MeFOSAA	26,014.03	14,085.06	42,255.17		20,789.95	41,579.90	
JZ84	L7	8/27/18 12:35	d3-MeFOSAA	28,846.76	14,085.06	42,255.17		20,789.95	41,579.90	
JZ85	L8	8/27/18 12:44	d3-MeFOSAA	26,160.42	14,085.06	42,255.17		20,789.95	41,579.90	
JZ86	L9	8/27/18 12:53	d3-MeFOSAA	29,679.79	14,085.06	42,255.17		20,789.95	41,579.90	
KA08 IB	Instrument Blank	8/27/18 13:01	d3-MeFOSAA	22,621.94	14,085.06	42,255.17		20,789.95	41,579.90	
JZ77 ICC	ICC	8/27/18 13:10	d3-MeFOSAA	29,278.56	14,085.06	42,255.17		20,789.95	41,579.90	
CR653PB-FS(0)	Procedural Blank	8/27/18 13:28	d3-MeFOSAA	28,861.19	14,085.06	42,255.17		20,789.95	41,579.90	
CR654LCS-FS(0)	Laboratory Control Sample	8/27/18 13:37	d3-MeFOSAA	31,051.91	14,085.06	42,255.17		20,789.95	41,579.90	
J7585-FS(0)	JAX-RES-08222018-1000-35	8/27/18 13:46	d3-MeFOSAA	26,369.58	14,085.06	42,255.17		20,789.95	41,579.90	
J7585MS-FS(0)	Matrix Spike Sample	8/27/18 13:55	d3-MeFOSAA	31,321.04	14,085.06	42,255.17		20,789.95	41,579.90	
J7585MSD-FS(0)	Matrix Spike Duplicate	8/27/18 14:04	d3-MeFOSAA	28,285.90	14,085.06	42,255.17		20,789.95	41,579.90	
J7587-FS(0)	JAX-RES-08222018-1000-35-FD	8/27/18 14:13	d3-MeFOSAA	26,723.30	14,085.06	42,255.17		20,789.95	41,579.90	
JZ82 CCV	CCV	8/27/18 14:22	d3-MeFOSAA	27,059.25	14,085.06	42,255.17		20,789.95	41,579.90	

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 12:35:06 PM	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.53	1.06	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.84	1.24	0.8 – 1.5

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 12:35:06 PM	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.53	63	>10
PFBS_2	298.9 / 99.0	1.53	36	>10
PFHxA_1	313.0 / 269.0	1.84	26	>10
PFHxA_2	313.0 / 119.0	1.84	29	>10
PFHpA_1	363.0 / 319.0	2.25	27	>10
PFHpA_2	363.0 / 169.0	2.25	25	>10
PFHxS_1	399.0 / 80.0	2.27	38	>10
PFHxS_2	399.0 / 99.0	2.27	47	>10
PFOA_1	413.0 / 369.0	2.66	28	>10
PFOA_2	413.0 / 169.0	2.66	25	>10
PFNA_1	463.0 / 419.0	3.06	25	>10
PFNA_2	463.0 / 219.0	3.05	26	>10
PFOS_1	499.0 / 80.0	3.05	40	>10
PFOS_2	499.0 / 99.0	3.05	29	>10
PFDA_1	513.0 / 469.0	3.41	23	>10
PFDA_2	513.0 / 219.0	3.41	24	>10
PFUnA_1	563.0 / 519.0	3.73	24	>10
PFUnA_2	563.0 / 269.0	3.73	25	>10
PFDaA_1	613.0 / 569.0	4.02	26	>10
PFDaA_2	613.0 / 319.0	4.01	28	>10
PFTrDA_1	663.0 / 619.0	4.26	34	>10
PFTrDA_2	663.0 / 169.0	4.26	45	>10
PFTeDA_1	713.0 / 669.0	4.48	53	>10
PFTeDA_2	713.0 / 169.0	4.48	44	>10
NMeFOSAA_1	570.0 / 419.0	3.56	34	>10
NMeFOSAA_2	570.0 / 512.0	3.56	34	>10
NEtFOSAA_1	584.0 / 419.0	3.72	37	>10
NEtFOSAA_2	584.0 / 483.0	3.72	21	>10
13C2-PFHxA	315.0 / 270.0	1.83	49	>10
13C2-PFDA	515.0 / 470.0	3.40	30	>10
d5-EtFOSAA	589.0 / 419.0	3.71	31	>10



Precision and Bias at the LOQ for PFAS in Drinking Water

Analyte	CAS No.	Average (ng/L)	ST DEV	3 Sigma	n
PFHxA	307-24-4	10.41	1.25	3.75	19
PFHpA	375-85-9	10.59	1.42	4.26	19
PFOA	335-67-1	10.45	1.47	4.41	19
PFNA	375-95-1	10.49	1.28	3.84	19
PFDA	335-76-2	10.39	1.57	4.71	19
PFUnA	2058-94-8	10.05	1.71	5.13	19
PFDoA	307-55-1	9.99	1.63	4.89	19
PFTTrDA	72629-94-8	10.09	1.79	5.37	19
PFTeDA	376-06-7	11.27	2.41	7.23	19
NMeFOSAA	2355-31-9	10.60	1.12	3.36	19
NEtFOSAA	2991-50-6	10.17	1.29	3.87	19
PFBS	375-73-5	8.64	1.26	3.78	19
PFHxS	355-46-4	9.73	1.49	4.47	19
PFOS	1763-23-1	9.32	1.52	4.56	19

BATTELLE DETECTION LIMITS FOR PFAS IN DRINKING WATER

Battelle SOP 5-371 (EPA Method 537 Version 1.1)

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)	MRL (ng/L)
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
PFTTrDA	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:	22-Feb-2017
Request ID:	3683
Company Name:	Battelle Memorial Institute
Instrument ID:	X60666
Instrument Model:	QTRAP 5500
Instrument Serial Number:	AU23051004

PASS **FAIL**

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

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

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

Comments: _____

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

Approved By : _____ **Date:** _____

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PRE PM PPG PERFORMANCE EVALUATION:

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

CAD Settings	Vacuum Reading (x 10 ⁻⁵ Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.5	0.4 to 1.1 x10 ⁻⁵ Torr
<input checked="" type="checkbox"/> CAD Low	1.9	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.4	Read Only
<input checked="" type="checkbox"/> CAD High	3.4	Read Only
<input checked="" type="checkbox"/> CAD 12	3.4	2.4 to 4.5 x10 ⁻⁵ Torr

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

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

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

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

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

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

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

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

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

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

Appendix ZEFPM003-2L

PREVENTIVE MAINTENANCE CHECKLIST:

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

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

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

- Pump down overnight if possible. N/A

- Perform Maintenance on Turbo V source.

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

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

Appendix ZEFPM003-2L

POST PM PPG PERFORMANCE TESTS:

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

CAD Settings	Vacuum Reading (x 10 ⁻⁵ Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.8	0.4 to 1.1 x10 ⁻⁵ Torr
<input checked="" type="checkbox"/> CAD Low	2.1	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.6	Read Only
<input checked="" type="checkbox"/> CAD High	3.7	Read Only
<input checked="" type="checkbox"/> CAD 12	3.7	2.4 to 4.5 x10 ⁻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	5.94 e6	≥1.2 ^{e6}	0.6933	0.6 to 0.8
Q1 500.380	2.25 e7	≥9.0 ^{e6}	0.7444	0.6 to 0.8
Q1 906.673	2.74 e7	≥1.4 ^{e7}	0.7347	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8 ^{e7}	0.7656	0.6 to 0.8

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

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

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

Transmission Efficiency: 16.93% (≥ 10.0%)

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

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

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

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

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

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

**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

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

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

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

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



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

Client ID	KA08 IB				
Battelle ID	KA08 IB_08/27/2018				
Sample Type	IB				
Collection Date	NA				
Extraction Date	NA				
Analysis Date	08/27/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	NA				
Sample Size	0.250				
Size Unit-Basis	NA				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.50 U	0.22	0.50	2.50	
PFHpA	1.00 U	0.34	1.00	2.50	
PFOA	1.00 U	0.38	1.00	2.50	
PFNA	1.00 U	0.37	1.00	2.50	
PFDA	1.00 U	0.39	1.00	2.50	
PFUnA	1.00 U	0.38	1.00	2.50	
PFDaA	1.00 U	0.42	1.00	2.50	
PFTTrDA	1.00 U	0.42	1.00	2.50	
PFTeDA	1.50 U	0.73	1.50	2.50	
NMeFOSAA	1.00 U	0.42	1.00	2.50	
NEtFOSAA	1.00 U	0.44	1.00	2.50	
PFBS	0.50 U	0.21	0.50	2.50	
PFHxS	1.00 U	0.34	1.00	2.50	
PFOS	1.00 U	0.30	1.00	2.50	
Surrogate Recoveries (%)					
13C2-PFHxA	101				
13C2-PFDA	98				
d5-EtFOSAA	103				



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

Client ID	Procedural Blank			
Battelle ID	CR653PB-FS			
Sample Type	PB			
Collection Date	08/24/2018			
Extraction Date	08/24/2018			
Analysis Date	08/27/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	WATER			
Sample Size	0.250			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.22	0.50	2.50
PFHpA	1.00 U	0.34	1.00	2.50
PFOA	1.00 U	0.38	1.00	2.50
PFNA	1.00 U	0.37	1.00	2.50
PFDA	1.00 U	0.39	1.00	2.50
PFUnA	1.00 U	0.38	1.00	2.50
PFDaA	1.00 U	0.42	1.00	2.50
PFTTrDA	1.00 U	0.42	1.00	2.50
PFTeDA	1.50 U	0.73	1.50	2.50
NMeFOSAA	1.00 U	0.42	1.00	2.50
NEtFOSAA	1.00 U	0.44	1.00	2.50
PFBS	0.50 U	0.21	0.50	2.50
PFHxS	1.00 U	0.34	1.00	2.50
PFOS	1.00 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	93
13C2-PFDA	90
d5-EtFOSAA	85



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

Client ID	Laboratory Control Sample					
Battelle ID	CR654LCS-FS					
Sample Type	LCS					
Collection Date	08/24/2018					
Extraction Date	08/24/2018					
Analysis Date	08/27/2018					
Analytical Instrument	Sciex 5500 LC/MS/MS					
% Moisture	NA					
Matrix	WATER					
Sample Size	0.250					
Size Unit-Basis	L					
Units	ng/L	Target	Recovery	Qual	Control Limits	
					Lower	Upper
PFHxA	16.39	15.00	109		70	130
PFHpA	16.74	15.00	112		70	130
PFOA	15.78	15.00	105		70	130
PFNA	15.60	15.00	104		70	130
PFDA	15.70	15.00	105		70	130
PFUnA	14.54	15.00	97		70	130
PFDoA	14.98	15.00	100		70	130
PFTTrDA	14.55	15.00	97		70	130
PFTeDA	14.85	15.00	99		70	130
NMeFOSAA	18.30	15.00	122		70	130
NEtFOSAA	18.05	15.00	120		70	130
PFBS	13.90	13.28	105		70	130
PFHxS	14.90	14.18	105		70	130
PFOS	13.53	14.33	94		70	130
Surrogate Recoveries (%)						
13C2-PFHxA	99					
13C2-PFDA	95					
d5-EtFOSAA	100					



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

Client ID	JAX-RES-08222018-1000-35	JAX-RES-08222018-1000-35					Control Limits	
Battelle ID	J7585-FS	J7585MS-FS	Target	Recovery	Qual	Lower	Upper	
Sample Type	SA	MS						
Collection Date	08/22/2018	08/22/2018						
Extraction Date	08/24/2018	08/24/2018						
Analysis Date	08/27/2018	08/27/2018						
Analytical Instrument	Sciex 5500 LC/MS/MS	Sciex 5500 LC/MS/MS						
% Moisture	NA	NA						
Matrix	W	W						
Sample Size	0.265	0.275						
Size Unit-Basis	L	L						
Units	ng/L	ng/L						
PFHxA	0.95 J	23.68	18.18	125		70	130	
PFHpA	0.56 J	20.16	18.18	108		70	130	
PFOA	2.01 J	21.32	18.18	106		70	130	
PFNA	0.94 U	18.03	18.18	99		70	130	
PFDA	0.94 U	17.96	18.18	99		70	130	
PFUnA	0.94 U	16.63	18.18	91		70	130	
PFDoA	0.94 U	17.03	18.18	94		70	130	
PFTrDA	0.94 U	15.92	18.18	88		70	130	
PFTeDA	1.42 U	16.03	18.18	88		70	130	
NMeFOSAA	0.94 U	18.03	18.18	99		70	130	
NEtFOSAA	0.94 U	17.29	18.18	95		70	130	
PFBS	1.23 J	21.44	16.09	126		70	130	
PFHxS	3.16	21.82	17.18	109		70	130	
PFOS	4.15	20.65	17.36	95		70	130	

Surrogate Recoveries (%)

13C2-PFHxA	110	111
13C2-PFDA	80	92
d5-EtFOSAA	83	75



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

Client ID JAX-RES-08222018-1000-35

Battelle ID J7585MSD-FS
 Sample Type MSD
 Collection Date 08/22/2018
 Extraction Date 08/24/2018
 Analysis Date 08/27/2018
 Analytical Instrument Sciex 5500 LC/MS/MS

% Moisture NA
 Matrix W
 Sample Size 0.265

Units	ng/L	Target	Recovery	Qual	Control Limits		RPD	Qual	RPD Limit
					Lower	Upper			
PFHxA	23.36	18.87	119		70	130	4.9		≤ 30
PFHpA	20.80	18.87	107		70	130	0.9		≤ 30
PFOA	22.46	18.87	108		70	130	1.9		≤ 30
PFNA	18.16	18.87	96		70	130	3.1		≤ 30
PFDA	18.12	18.87	96		70	130	3.1		≤ 30
PFUnA	16.69	18.87	88		70	130	3.4		≤ 30
PFDoA	16.52	18.87	88		70	130	6.6		≤ 30
PFTrDA	16.37	18.87	87		70	130	1.1		≤ 30
PFTeDA	15.70	18.87	83		70	130	5.8		≤ 30
NMeFOSAA	20.27	18.87	107		70	130	7.8		≤ 30
NEtFOSAA	19.26	18.87	102		70	130	7.1		≤ 30
PFBS	22.33	16.70	126		70	130	0.0		≤ 30
PFHxS	21.60	17.83	103		70	130	5.7		≤ 30
PFOS	19.82	18.02	87		70	130	8.8		≤ 30

Surrogate Recoveries (%)

13C2-PFHxA	114
13C2-PFDA	83
d5-EtFOSAA	83



It can be done

**BATTELLE - NORWELL OPERATIONS
SAMPLE PREPARATION RECORDS**

<u>Project Title(s)</u>	<u>Project No.(s)</u>
CTO-SE0375: Naval Air Station Jacksonville	100119154- SE0375
18-0525	
CTO-SE0375: Drinking Water Analysis	
W	
SOP Numbers (see workplan for modifications)	
VOASOP No.	5-371

This Batch Contains The Following Samples:
CR653PB-FS CR654LCS-FS J7585-FS J7585MS-FS J7585MSD-FS J7587-FS

Laboratory Preparation Records
COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Denise Schumitz	08/28/2018	DMS



It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE IDENTIFICATION PAGE

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0525****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	Description
CR653PB-FS	Procedural Blank
CR654LCS-FS	Laboratory Control Sample
J7585-FS	JAX-RES-08222018-1000-35
J7585MS-FS	Matrix Spike of JAX-RES-08222018-1000-35
J7585MSD-FS	Matrix Spike Duplicate of JAX-RES-08222018-1000-35
J7587-FS	JAX-RES-08222018-1000-35-FD

Samples Assigned By:

Jonathan Thorn

Date : August 23, 2018

Comments:



It can be done

BATTELLE - NORWELL OPERATIONS
LIQUID SAMPLE ID FORM

Project Title(s)
CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)
100119154-
SE0375

18-0525

CTO-SE0375: Drinking Water Analysis

W

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CR653PB-FS	Procedural Blank	250.0	NA	--	08/24/18 SAS
CR654LCS-FS	Laboratory Control Sample	250.0	NA	--	08/24/18 SAS
J7585-FS	JAX-RES-08222018-1000-35	265.0	1	C	08/24/18 SAS
J7585MS-FS	Matrix Spike	275.0	1	C	08/24/18 SAS
J7585MSD-FS	Matrix Spike Duplicate	265.0	2	C	08/24/18 SAS
J7587-FS	JAX-RES-08222018-1000-35-FD	280.0	1	C	08/24/18 SAS

Comments:

Sample ID:	Comments:
CR653PB-FS	1.23g Trizma(180502-01) weighed on BAL-009
CR654LCS-FS	1.27g Trizma(180502-01) weighed on BAL-009

Samples Assigned By

Jonathan Thorn

Date : August 23, 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**18-0525****CTO-SE0375: Drinking Water Analysis****W**

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CR653PB-FS	JZ90	SIS	1	50	08/24/18 SAS	JCT	NA
CR654LCS-FS	JZ28	LCS/MS	1	75	08/24/18 SAS	JCT	NA
CR654LCS-FS	JZ90	SIS	1	50	08/24/18 SAS	JCT	NA
J7585-FS	JZ90	SIS	1	50	08/24/18 SAS	JCT	NA
J7585MS-FS	JZ28	LCS/MS	1	100	08/24/18 SAS	JCT	NA
J7585MS-FS	JZ90	SIS	1	50	08/24/18 SAS	JCT	NA
J7585MSD-FS	JZ28	LCS/MS	1	100	08/24/18 SAS	JCT	NA
J7585MSD-FS	JZ90	SIS	1	50	08/24/18 SAS	JCT	NA
J7587-FS	JZ90	SIS	1	50	08/24/18 SAS	JCT	NA

Syringes/Pipettes Used:

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



It can be done

BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0525****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
CR653PB-FS(0)	950	50	JZ87	50	1	1000	1.000	08/27/18 SAS	JCT
CR654LCS-FS(0)	950	50	JZ87	50	1	1000	1.000	08/27/18 SAS	JCT
J7585-FS(0)	950	50	JZ87	50	1	1000	1.000	08/27/18 SAS	JCT
J7585MS-FS(0)	950	50	JZ87	50	1	1000	1.000	08/27/18 SAS	JCT
J7585MSD-FS(0)	950	50	JZ87	50	1	1000	1.000	08/27/18 SAS	JCT
J7587-FS(0)	950	50	JZ87	50	1	1000	1.000	08/27/18 SAS	JCT

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**18-0525****CTO-SE0375: Drinking Water Analysis****W**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CR653PB-FS	0	--	8/24/2018 11:02:00 AM	NA		NA	NA	1.000	1.000	08/24/18 SAS
CR654LCS-FS	0	--	8/24/2018 11:02:00 AM	NA		NA	NA	1.000	1.000	08/24/18 SAS
J7585-FS	0	--	8/24/2018 11:02:00 AM	NA		NA	NA	1.000	1.000	08/24/18 SAS
J7585MS-FS	0	--	8/24/2018 11:02:00 AM	NA		NA	NA	1.000	1.000	08/24/18 SAS
J7585MSD-FS	0	--	8/24/2018 11:02:00 AM	NA		NA	NA	1.000	1.000	08/24/18 SAS
J7587-FS	0	--	8/24/2018 11:02:00 AM	NA		NA	NA	1.000	1.000	08/24/18 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**18-0525****CTO-SE0375: Drinking Water Analysis****W**

Purpose:	LC-MS/MS TRANSFER	Last Activity:	Prep->Inst
Relinquished On/By:	Aug 27 2018 10:09AM SAS	Received On/By:	Aug 27 2018 10:09AM 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	CR653PB-FS(0)	1000	1	Intact	NA
2	CR654LCS-FS(0)	1000	1	Intact	NA
3	J7585-FS(0)	1000	1	Intact	NA
4	J7585MS-FS(0)	1000	1	Intact	NA
5	J7585MSD-FS(0)	1000	1	Intact	NA
6	J7587-FS(0)	1000	1	Intact	NA

Total Extracts: 6



It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE SPECIFIC COMMENTS

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0525****CTO-SE0375: Drinking Water Analysis****W**

Sample ID:	Comment:	Date/Initials:
CR653PB-FS	Extraction for all samples began at 11:02am	08/24/18 SAS
CR653PB-FS	Sample extraction ended at 11:29am	08/24/18 SAS
CR654LCS-FS	Sample extraction ended at 11:25am	08/24/18 SAS
J7585-FS	Sample extraction ended at 11:34am	08/24/18 SAS
J7585MS-FS	Sample extraction ended at 11:34am	08/24/18 SAS
J7585MSD-FS	Sample extraction ended at 11:30am	08/24/18 SAS
J7587-FS	Sample extraction ended at 11:32am	08/24/18 SAS

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		8/27/2018 11:32:27 AM	5-0371.dam	18-0525.wiff
4	JZ80	L3	8/27/2018 11:59:18 AM	5-0371.dam	18-0525.wiff
5	JZ81	L4	8/27/2018 12:08:15 PM	5-0371.dam	18-0525.wiff
6	JZ82	L5	8/27/2018 12:17:13 PM	5-0371.dam	18-0525.wiff
7	JZ83	L6	8/27/2018 12:26:09 PM	5-0371.dam	18-0525.wiff
8	JZ84	L7	8/27/2018 12:35:06 PM	5-0371.dam	18-0525.wiff
9	JZ85	L8	8/27/2018 12:44:03 PM	5-0371.dam	18-0525.wiff
10	JZ86	L9	8/27/2018 12:53:00 PM	5-0371.dam	18-0525.wiff
11	KA08 IB	Instrument Blank	8/27/2018 1:01:55 PM	5-0371.dam	18-0525.wiff
12	JZ77 ICC	ICC	8/27/2018 1:10:52 PM	5-0371.dam	18-0525.wiff
1	MeOH		8/27/2018 1:19:50 PM	5-0371.dam	18-0525.wiff
13	CR653PB-FS(0)	Procedural Blank	8/27/2018 1:28:46 PM	5-0371.dam	18-0525.wiff
14	CR654LCS-FS(0)	Laboratory Control Sample	8/27/2018 1:37:44 PM	5-0371.dam	18-0525.wiff
15	J7585-FS(0)	JAX-RES-08222018-1000-35	8/27/2018 1:46:39 PM	5-0371.dam	18-0525.wiff
16	J7585MS-FS(0)	Matrix Spike Sample	8/27/2018 1:55:35 PM	5-0371.dam	18-0525.wiff
17	J7585MSD-FS(0)	Matrix Spike Duplicate	8/27/2018 2:04:32 PM	5-0371.dam	18-0525.wiff
18	J7587-FS(0)	JAX-RES-08222018-1000-35-FD	8/27/2018 2:13:27 PM	5-0371.dam	18-0525.wiff
19	JZ82 CCV	CCV	8/27/2018 2:22:24 PM	5-0371.dam	18-0525.wiff



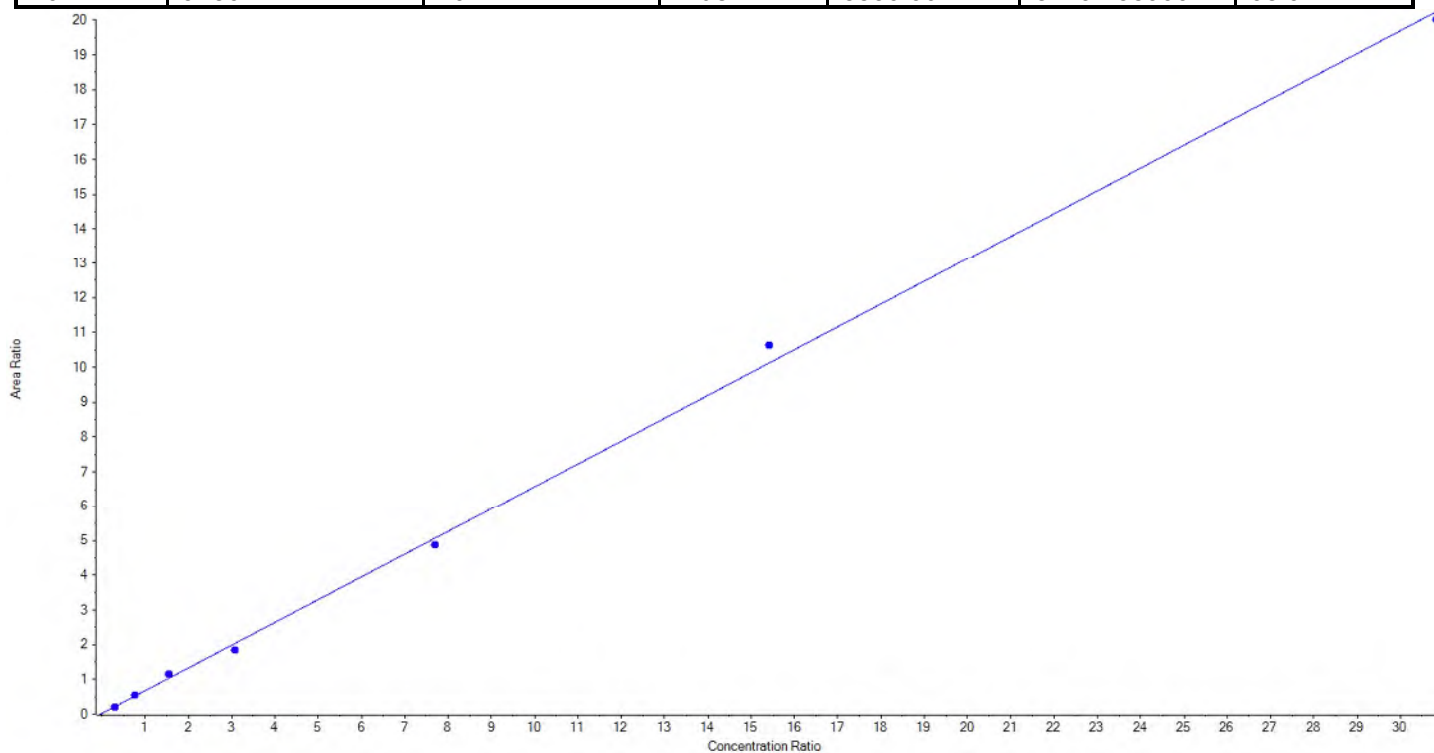
Calibration Summary Report

Created with Analyst Reporter
Printed: 28/08/2018 3:34:07 PM

Analyte Name	PFBS_1	Data File	18-0525.wiff
MRM Transition	298.9 / 80.0	Result Table	18-0525_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.65575x + 0.01601$ ($r = 0.99898$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	82.828388	93.5
5	JZ81	L4	True	221.50	232.885833	105.1
6	JZ82	L5	True	443.00	492.286464	111.1
7	JZ83	L6	True	885.00	800.487094	90.5
8	JZ84	L7	True	2212.50	2123.658661	96.0
9	JZ85	L8	True	4425.00	4644.014660	105.0
10	JZ86	L9	True	8850.00	8749.438900	98.9





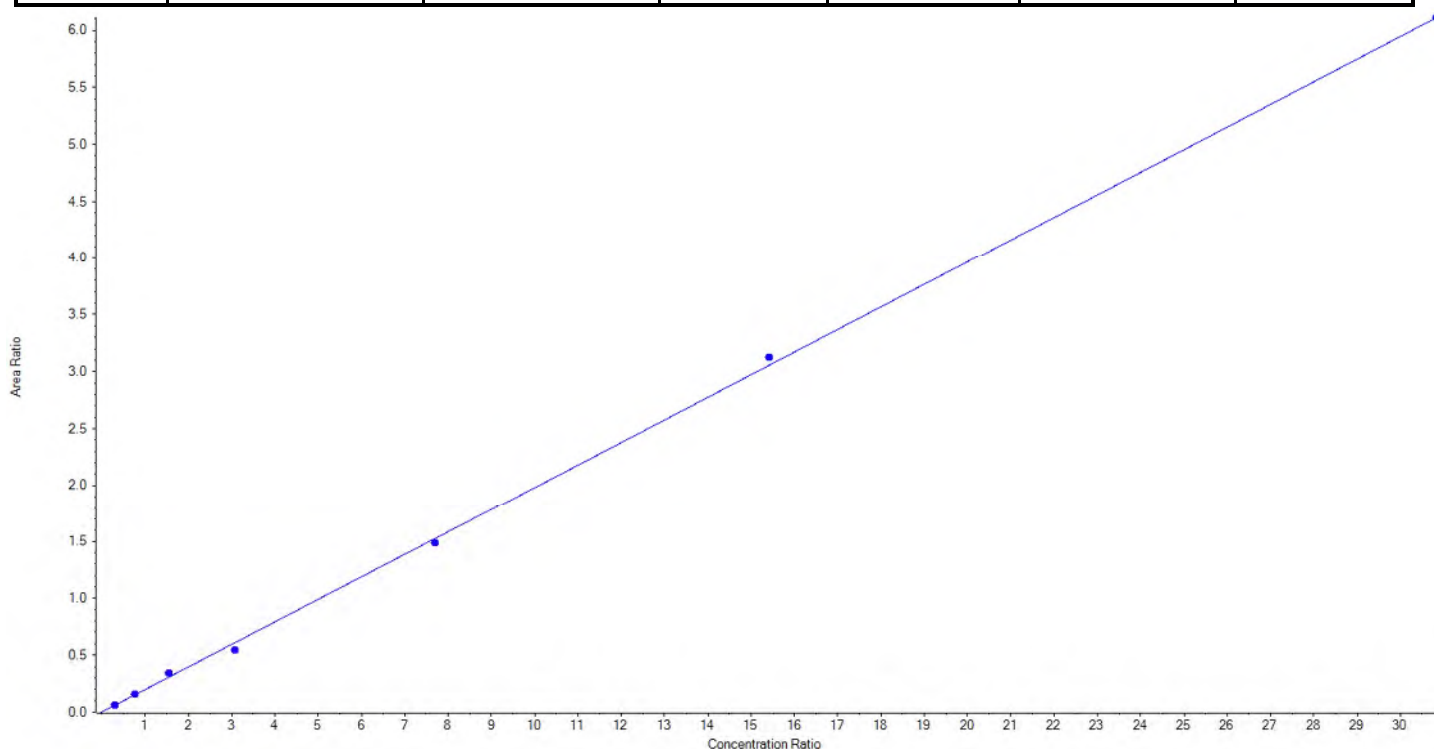
Calibration Summary Report

Created with Analyst Reporter
Printed: 28/08/2018 3:34:07 PM

Analyte Name	PFBS_2	Data File	18-0525.wiff
MRM Transition	298.9 / 99.0	Result Table	18-0525_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.19815x + 4.68720e-4$ ($r = 0.99926$) (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	87.647374	98.9
5	JZ81	L4	True	221.50	223.294061	100.8
6	JZ82	L5	True	443.00	495.698222	111.9
7	JZ83	L6	True	885.00	784.503300	88.6
8	JZ84	L7	True	2212.50	2153.317303	97.3
9	JZ85	L8	True	4425.00	4531.256832	102.4
10	JZ86	L9	True	8850.00	8849.882908	100.0





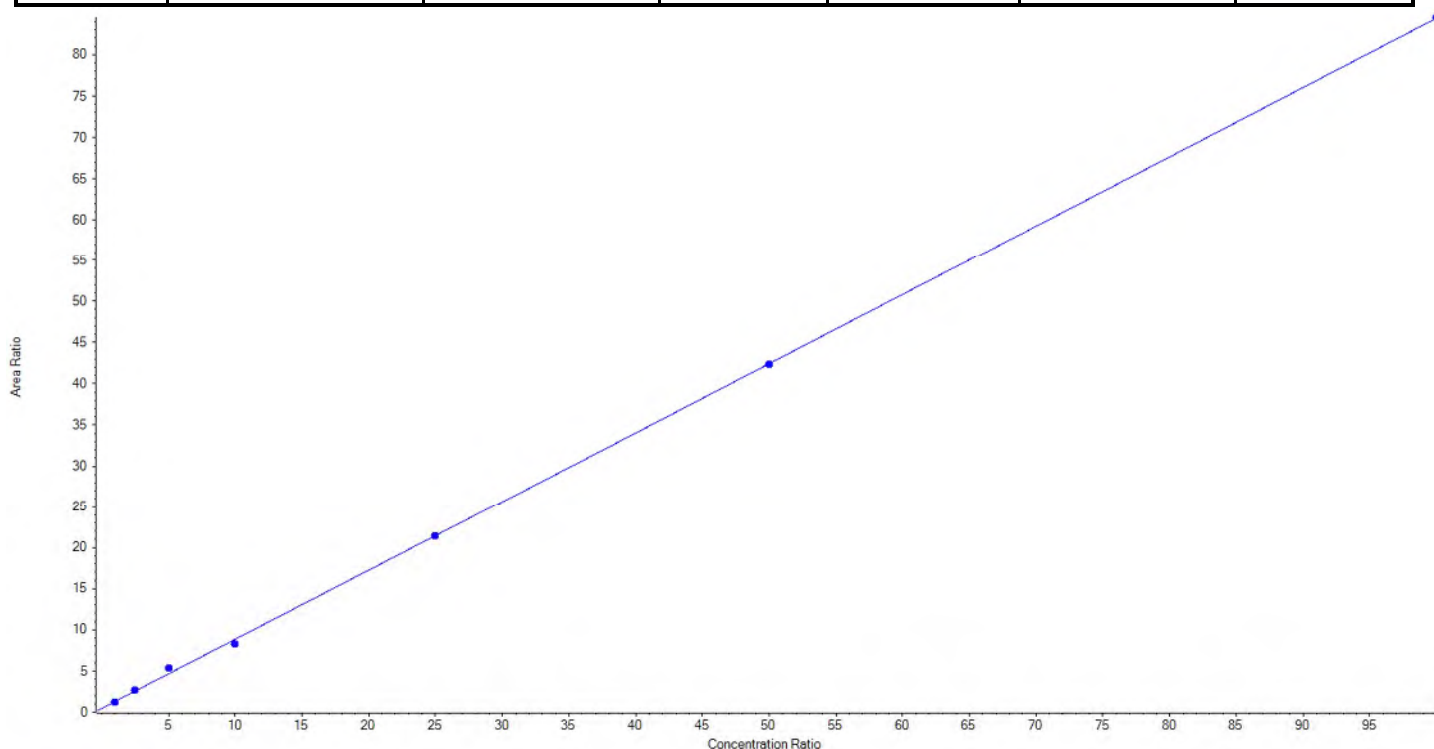
Calibration Summary Report

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Analyte Name	PFHxA_1	Data File	18-0525.wiff
MRM Transition	313.0 / 269.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.83960 x + 0.45993$ (r = 0.99941) (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	87.679673	87.7
5	JZ81	L4	True	250.00	261.129201	104.5
6	JZ82	L5	True	500.00	577.379232	115.5
7	JZ83	L6	True	1000.00	925.527849	92.6
8	JZ84	L7	True	2500.00	2497.536954	99.9
9	JZ85	L8	True	5000.00	4993.106580	99.9
10	JZ86	L9	True	10000.00	10007.640510	100.1





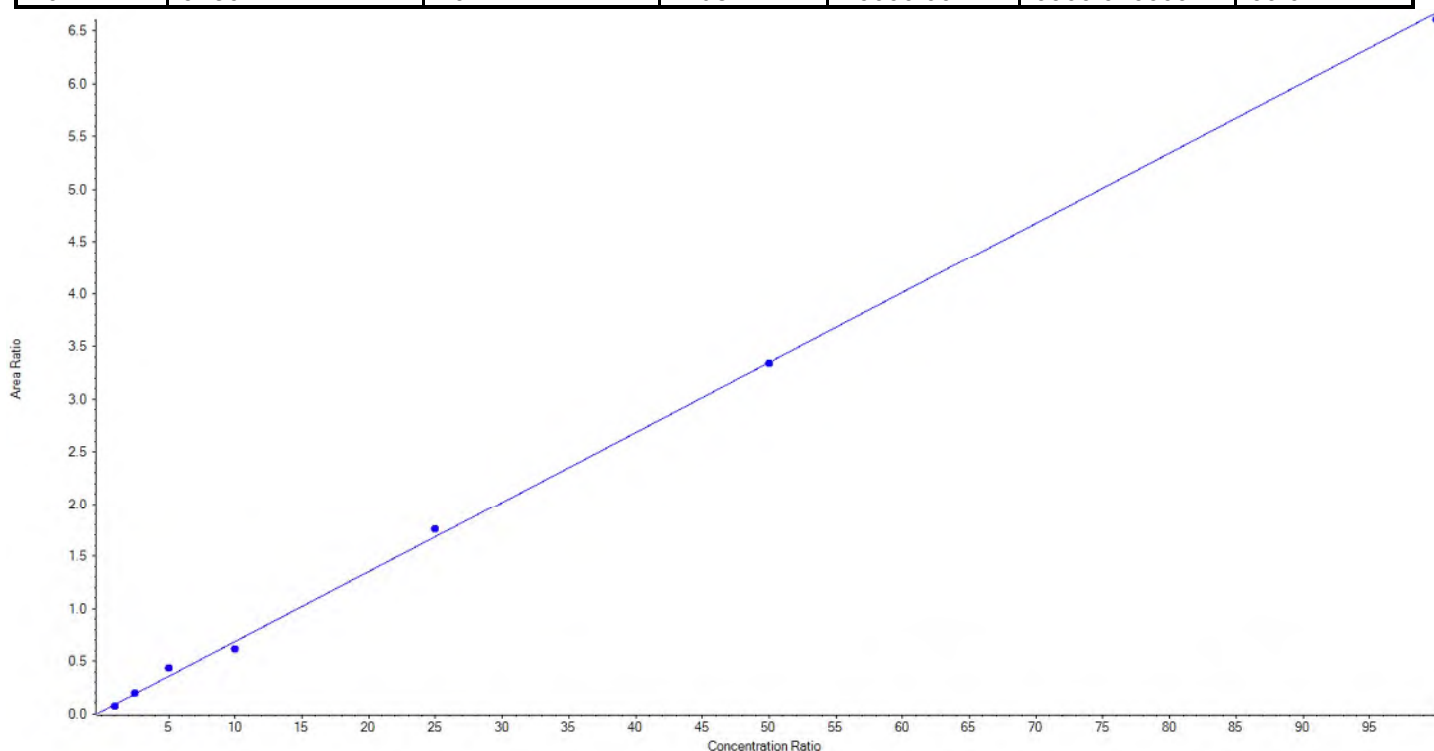
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Analyte Name	PFHxA_2	Data File	18-0525.wiff
MRM Transition	313.0 / 119.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06650 x + 0.02569$ ($r = 0.99842$) (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	79.300240	79.3
5	JZ81	L4	True	250.00	260.058016	104.0
6	JZ82	L5	True	500.00	622.184603	124.4
7	JZ83	L6	True	1000.00	890.682117	89.1
8	JZ84	L7	True	2500.00	2610.819321	104.4
9	JZ85	L8	True	5000.00	4986.909093	99.7
10	JZ86	L9	True	10000.00	9900.046609	99.0





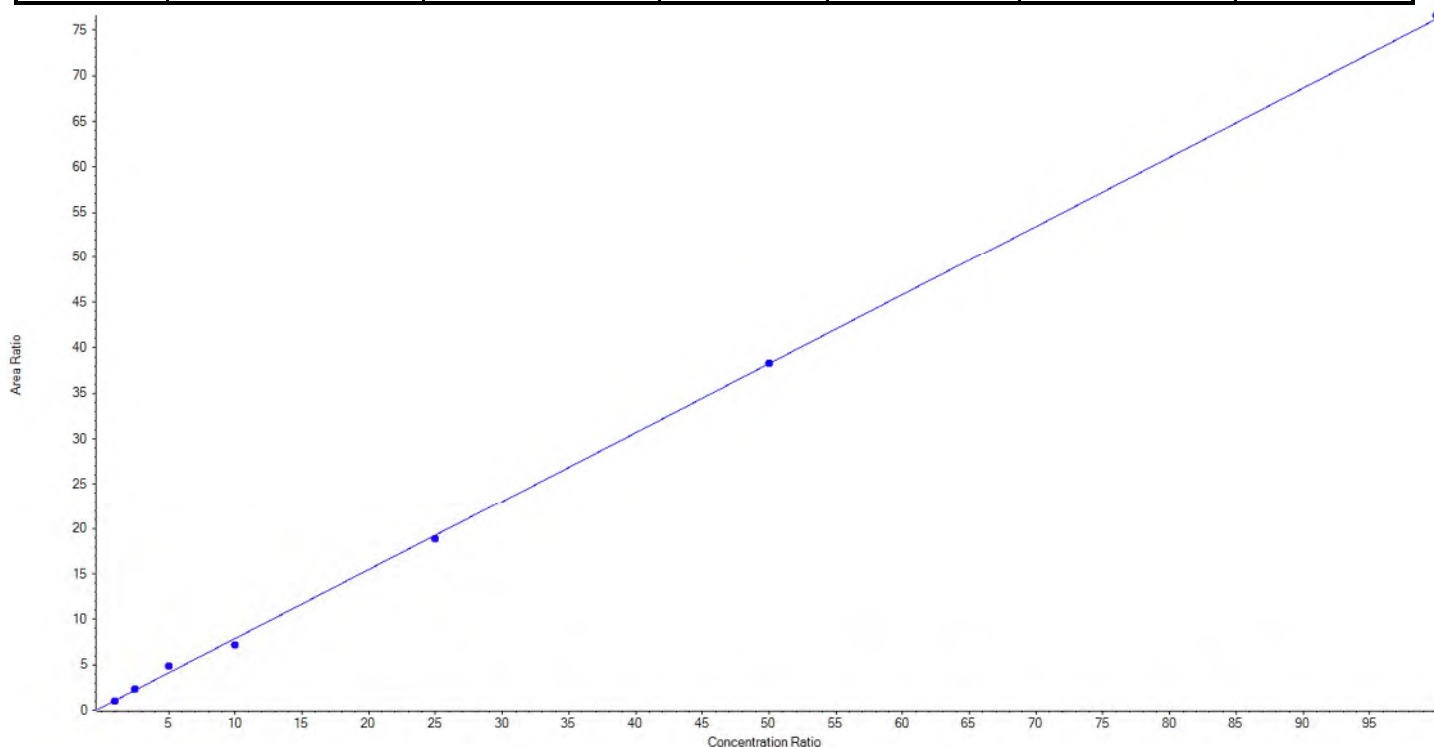
Calibration Summary Report

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Analyte Name	PFHpA_1	Data File	18-0525.wiff
MRM Transition	363.0 / 319.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.75912x + 0.29987$ ($r = 0.99893$) (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	85.690850	85.7
5	JZ81	L4	True	250.00	261.689486	104.7
6	JZ82	L5	True	500.00	605.059156	121.0
7	JZ83	L6	True	1000.00	904.631377	90.5
8	JZ84	L7	True	2500.00	2439.084070	97.6
9	JZ85	L8	True	5000.00	5005.657332	100.1
10	JZ86	L9	True	10000.00	10048.187730	100.5





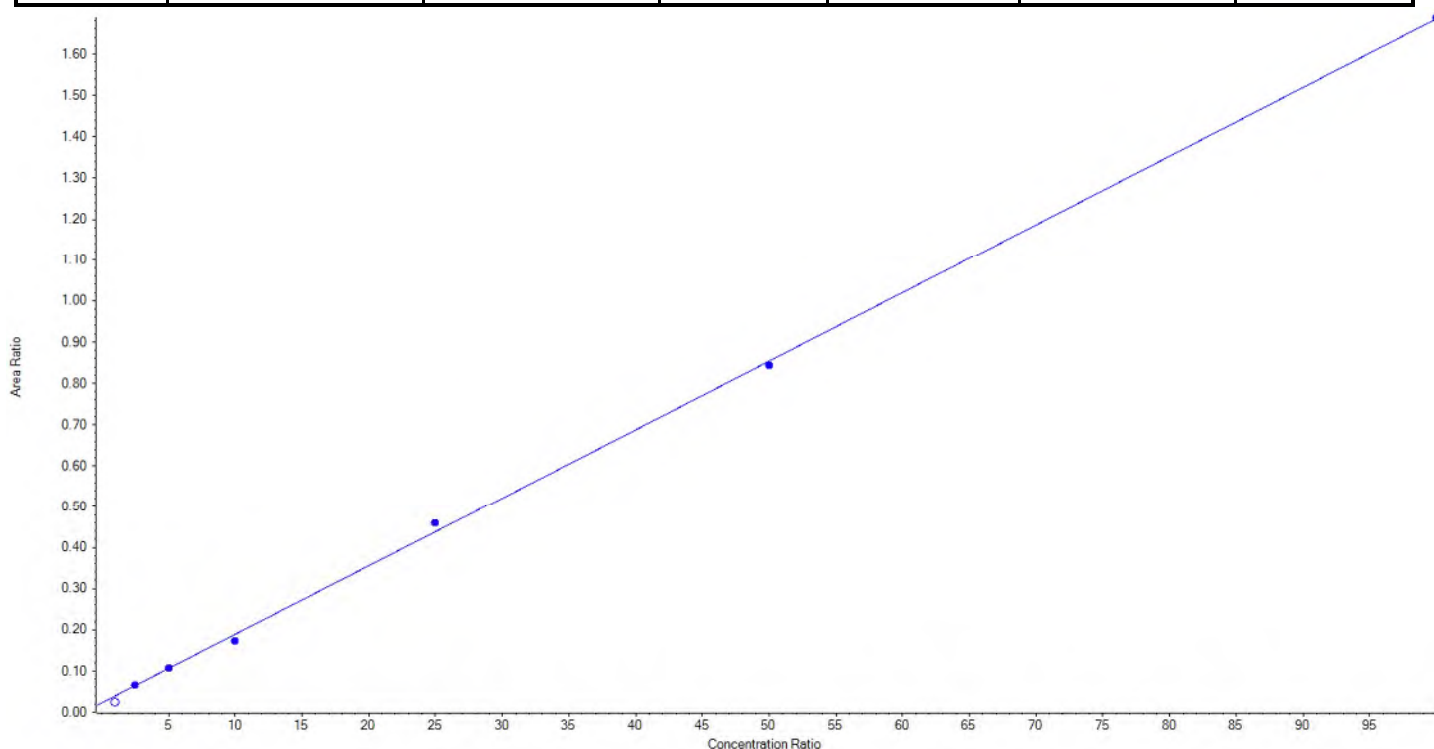
Calibration Summary Report

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Analyte Name	PFHpA_2	Data File	18-0525.wiff
MRM Transition	363.0 / 169.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.01663 x + 0.02272$ ($r = 0.99938$) (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	11.062321	11.1
5	JZ81	L4	True	250.00	261.567678	104.6
6	JZ82	L5	True	500.00	508.194807	101.6
7	JZ83	L6	True	1000.00	897.545755	89.8
8	JZ84	L7	True	2500.00	2623.841454	105.0
9	JZ85	L8	True	5000.00	4943.723068	98.9
10	JZ86	L9	True	10000.00	10015.127238	100.2





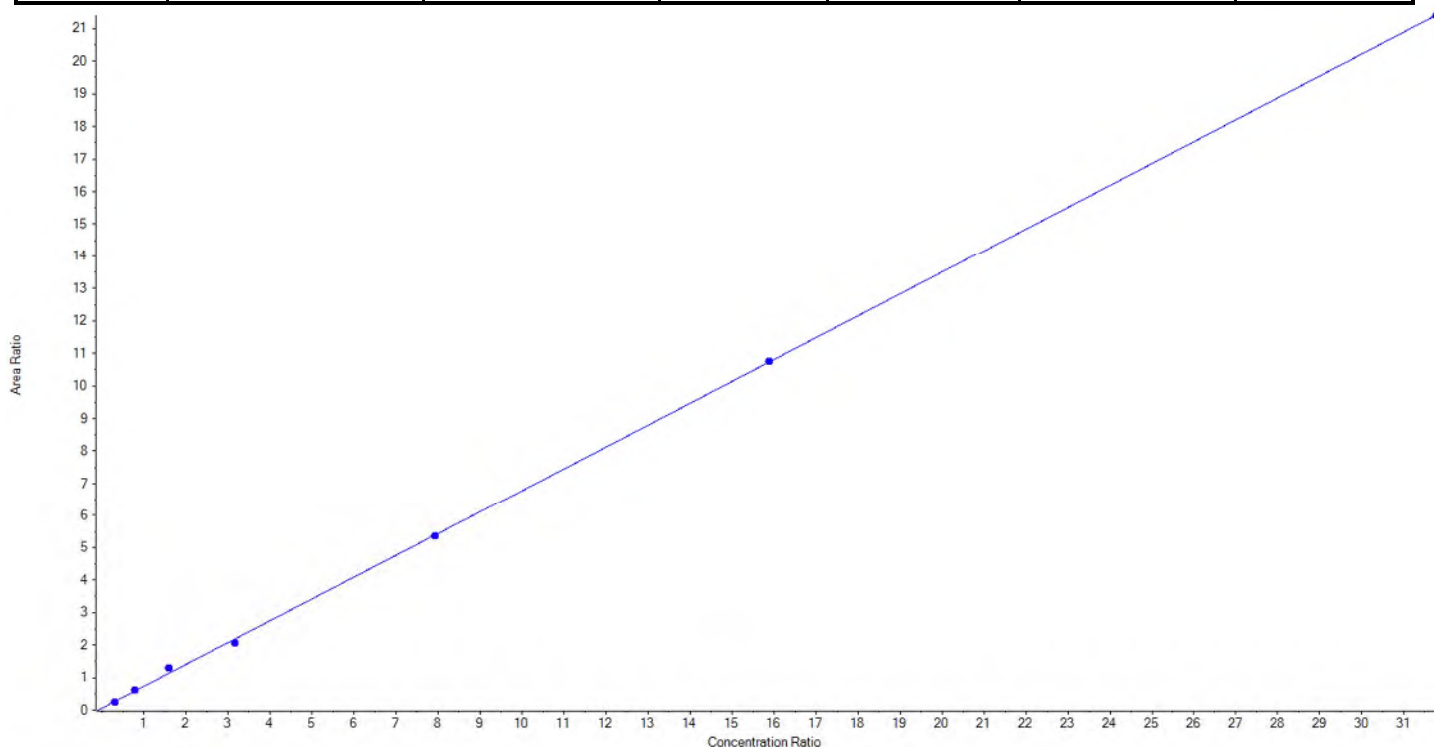
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Analyte Name	PFHxS_1	Data File	18-0525.wiff
MRM Transition	399.0 / 80.0	Result Table	18-0525_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.67203x + 0.05816$ ($r = 0.99944$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	78.439780	86.0
5	JZ81	L4	True	228.00	238.902169	104.8
6	JZ82	L5	True	456.00	527.683501	115.7
7	JZ83	L6	True	912.00	857.339814	94.0
8	JZ84	L7	True	2280.00	2267.503898	99.5
9	JZ85	L8	True	4560.00	4565.520591	100.1
10	JZ86	L9	True	9120.00	9111.810246	99.9





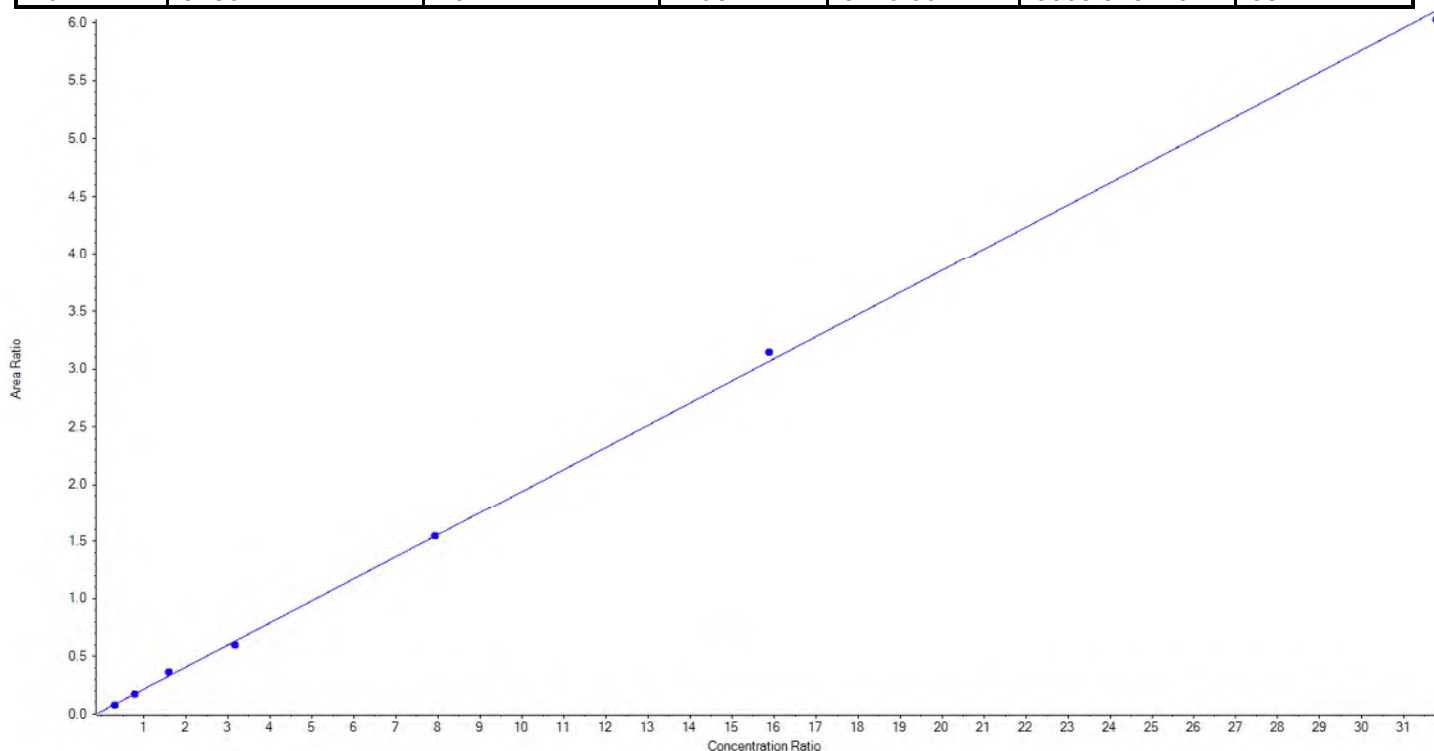
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Analyte Name	PFHxS_2	Data File	18-0525.wiff
MRM Transition	399.0 / 99.0	Result Table	18-0525_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.19135x + 0.02531$ ($r = 0.99949$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	82.859963	90.9
5	JZ81	L4	True	228.00	228.775769	100.3
6	JZ82	L5	True	456.00	515.130920	113.0
7	JZ83	L6	True	912.00	862.726057	94.6
8	JZ84	L7	True	2280.00	2280.602261	100.0
9	JZ85	L8	True	4560.00	4673.579914	102.5
10	JZ86	L9	True	9120.00	9003.525116	98.7





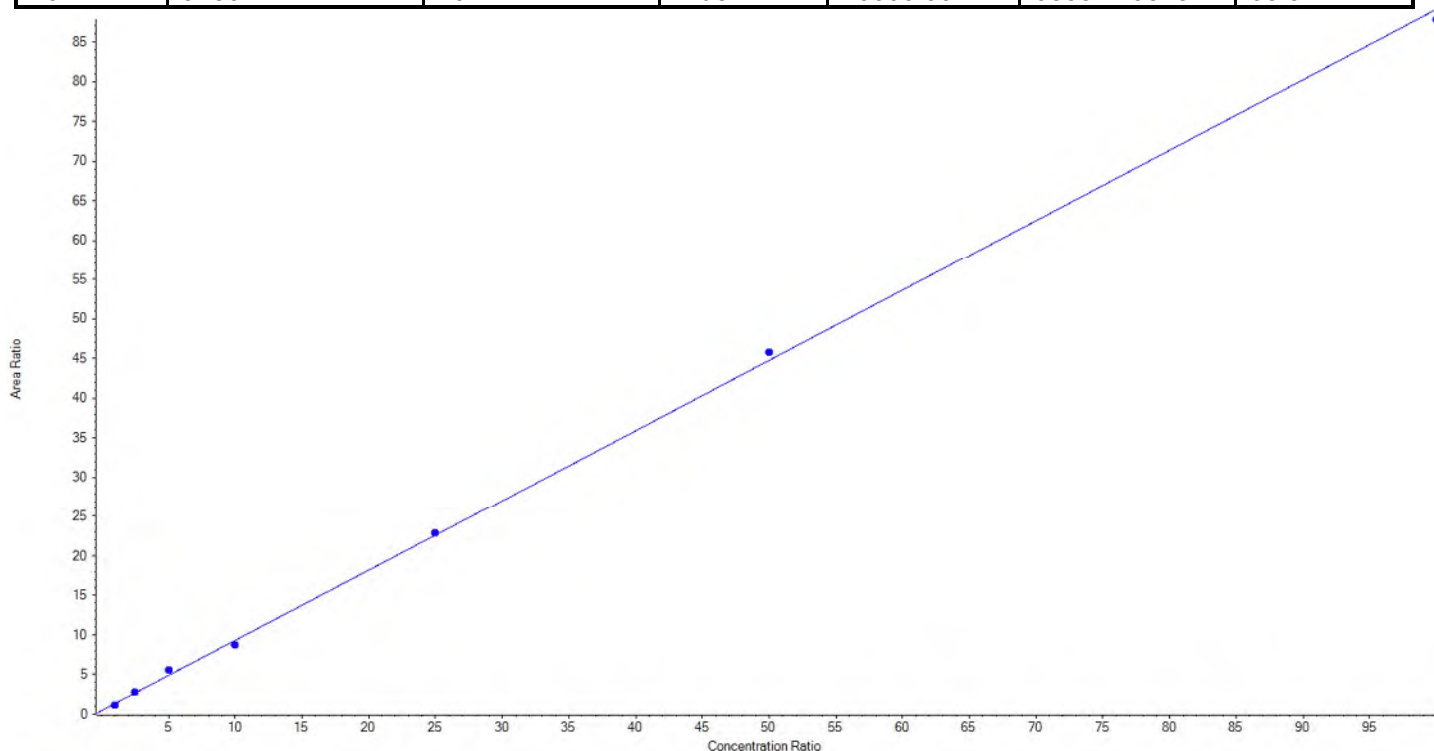
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Analyte Name	PFOA_1	Data File	18-0525.wiff
MRM Transition	413.0 / 369.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.88636 x + 0.45305$ ($r = 0.99926$) (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	83.391443	83.4
5	JZ81	L4	True	250.00	269.528598	107.8
6	JZ82	L5	True	500.00	570.131748	114.0
7	JZ83	L6	True	1000.00	927.785930	92.8
8	JZ84	L7	True	2500.00	2527.061376	101.1
9	JZ85	L8	True	5000.00	5118.871087	102.4
10	JZ86	L9	True	10000.00	9853.229818	98.5





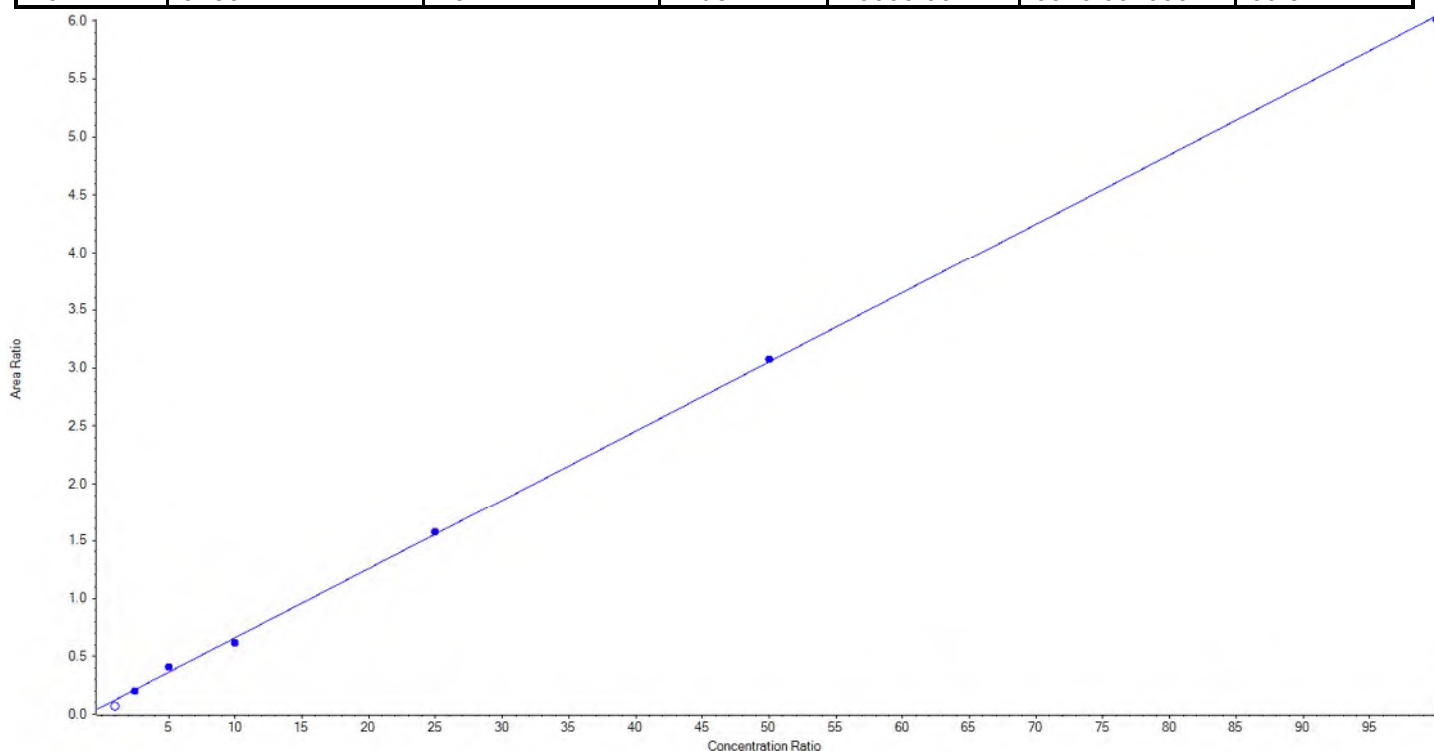
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Analyte Name	PFOA_2	Data File	18-0525.wiff
MRM Transition	413.0 / 169.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05978 x + 0.06259$ (r = 0.99928) (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	8.292401	8.3
5	JZ81	L4	True	250.00	224.737328	89.9
6	JZ82	L5	True	500.00	578.265381	115.7
7	JZ83	L6	True	1000.00	928.939081	92.9
8	JZ84	L7	True	2500.00	2533.161527	101.3
9	JZ85	L8	True	5000.00	5038.265684	100.8
10	JZ86	L9	True	10000.00	9946.631000	99.5





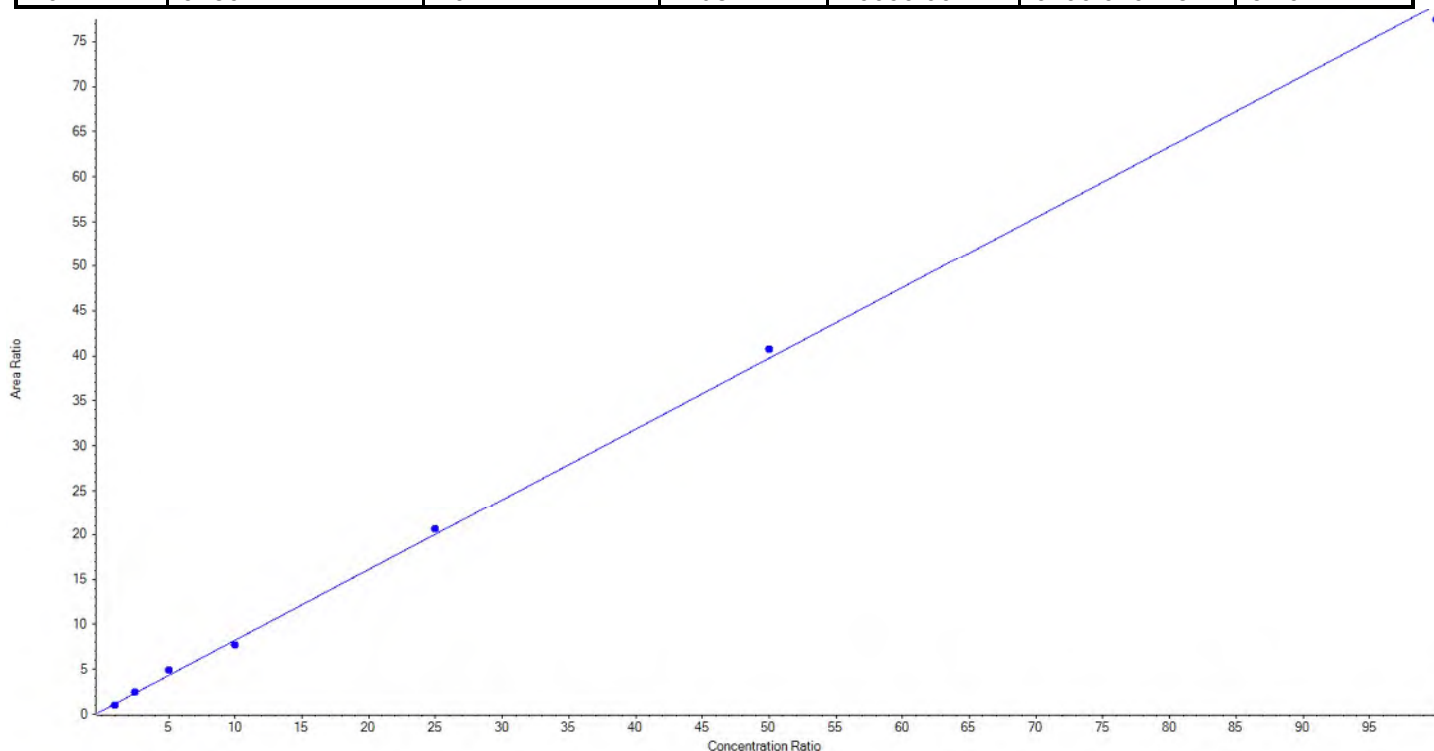
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Analyte Name	PFNA_1	Data File	18-0525.wiff
MRM Transition	463.0 / 419.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.78715x + 0.36670$ ($r = 0.99906$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	80.862562	80.9
5	JZ81	L4	True	250.00	269.307743	107.7
6	JZ82	L5	True	500.00	574.272920	114.9
7	JZ83	L6	True	1000.00	929.032340	92.9
8	JZ84	L7	True	2500.00	2581.639903	103.3
9	JZ85	L8	True	5000.00	5124.208114	102.5
10	JZ86	L9	True	10000.00	9790.676418	97.9





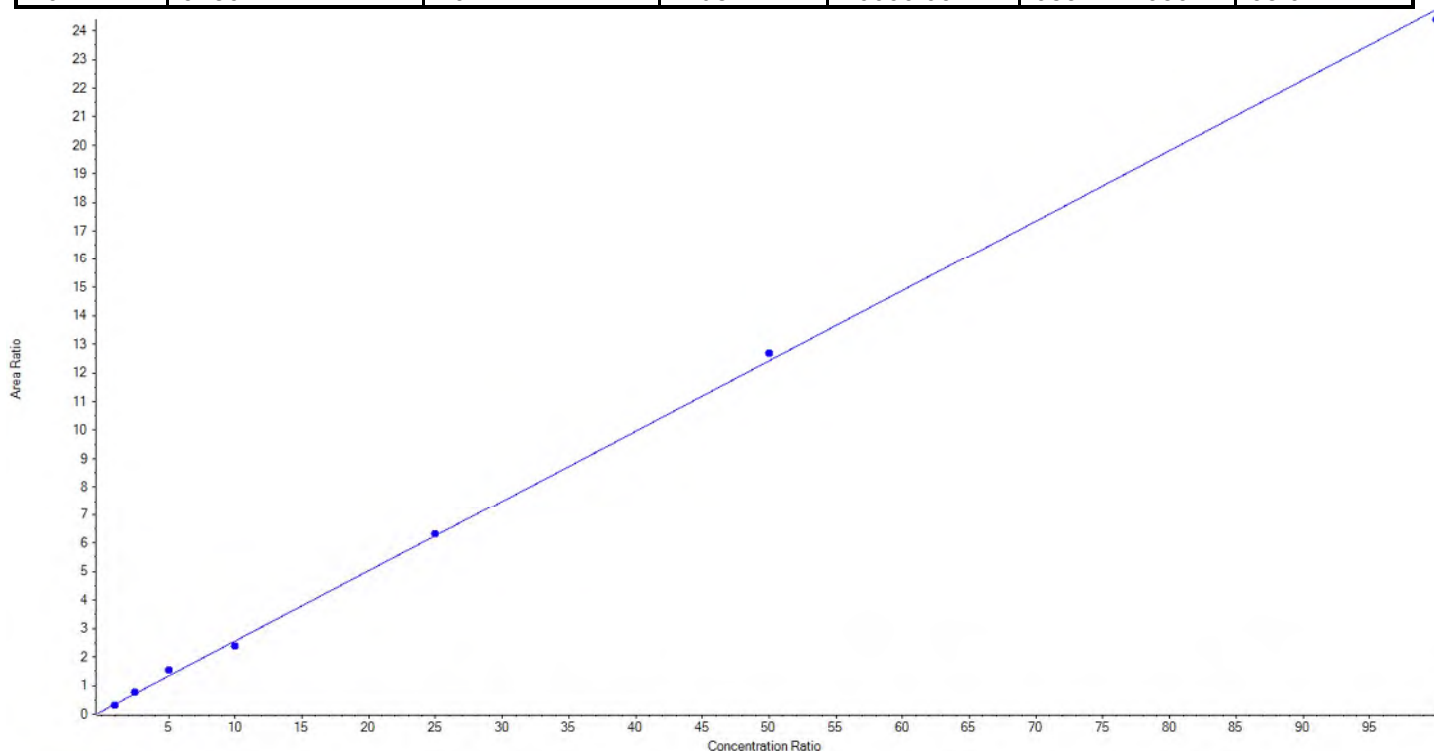
Calibration Summary Report

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Analyte Name	PFNA_2	Data File	18-0525.wiff
MRM Transition	463.0 / 219.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.24636 x + 0.10358$ ($r = 0.99920$) (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	82.875592	82.9
5	JZ81	L4	True	250.00	264.972843	106.0
6	JZ82	L5	True	500.00	581.375916	116.3
7	JZ83	L6	True	1000.00	929.717428	93.0
8	JZ84	L7	True	2500.00	2532.080496	101.3
9	JZ85	L8	True	5000.00	5101.534796	102.0
10	JZ86	L9	True	10000.00	9857.442930	98.6





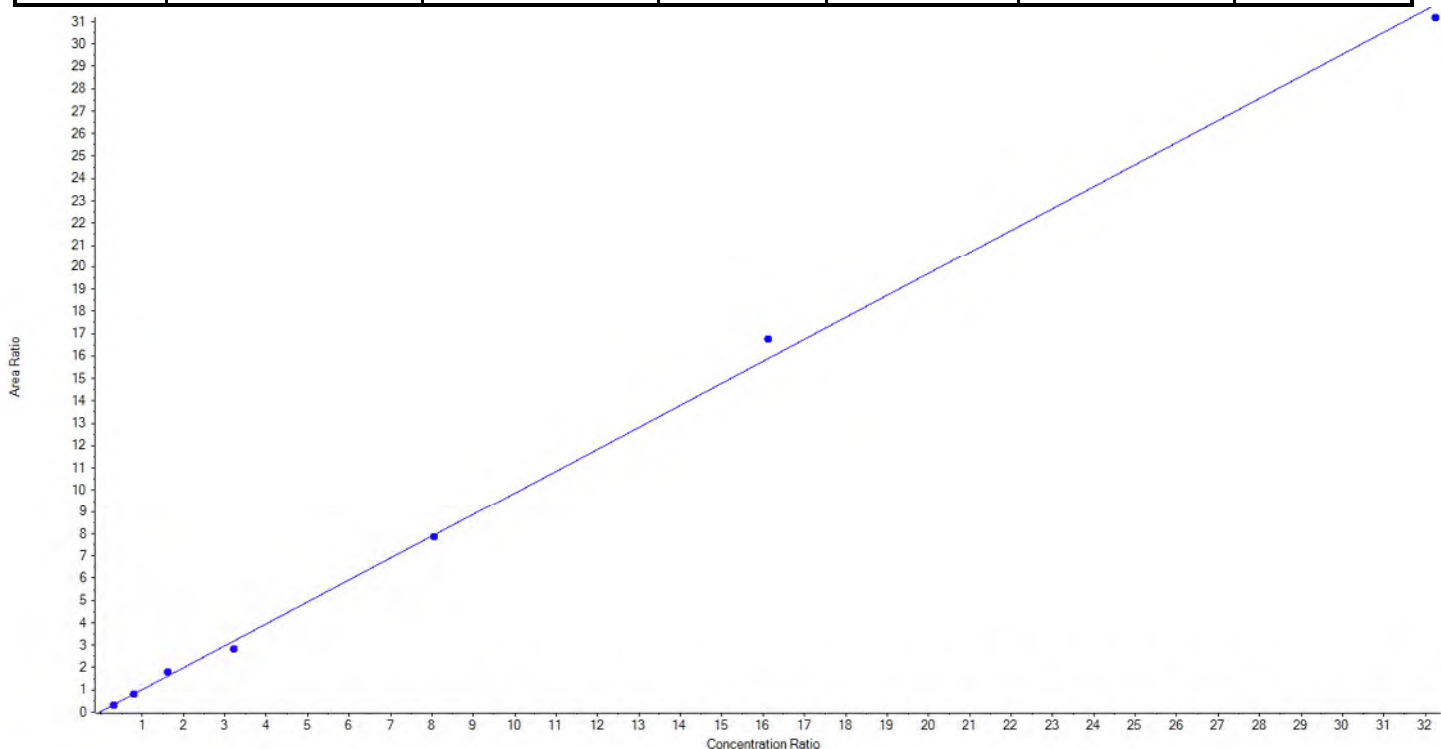
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Analyte Name	PFOS_1	Data File	18-0525.wiff
MRM Transition	499.0 / 80.0	Result Table	18-0525_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.98373 x + 0.02356$ (r = 0.99876) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	92.60	89.793340	97.0
5	JZ81	L4	True	231.50	231.349811	99.9
6	JZ82	L5	True	463.00	522.187214	112.8
7	JZ83	L6	True	925.60	814.226426	88.0
8	JZ84	L7	True	2314.00	2283.768131	98.7
9	JZ85	L8	True	4628.00	4880.604925	105.5
10	JZ86	L9	True	9256.00	9088.770153	98.2





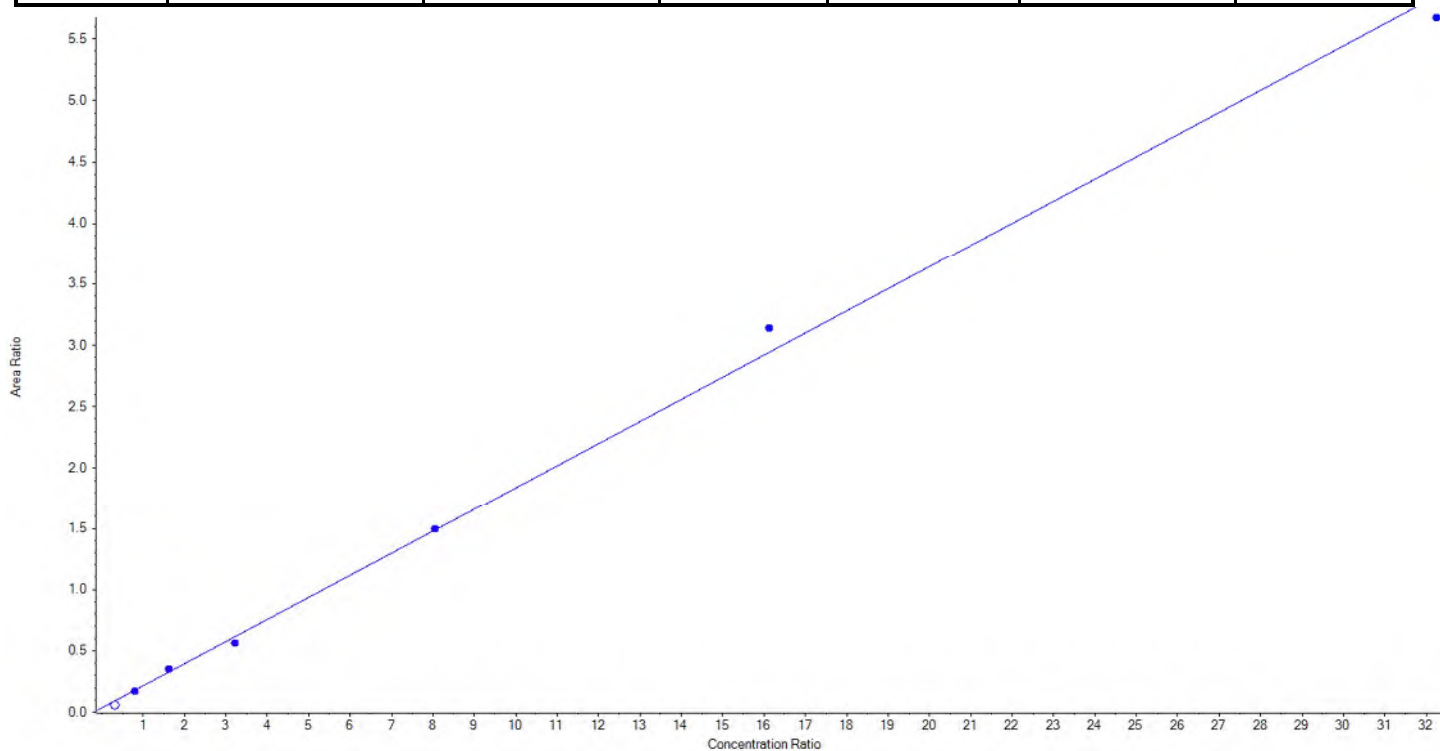
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Analyte Name	PFOS_2	Data File	18-0525.wiff
MRM Transition	499.0 / 99.0	Result Table	18-0525_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.18027 x + 0.03484$ ($r = 0.99843$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	92.60	42.135225	45.5
5	JZ81	L4	True	231.50	217.973153	94.2
6	JZ82	L5	True	463.00	510.648920	110.3
7	JZ83	L6	True	925.60	844.008582	91.2
8	JZ84	L7	True	2314.00	2328.895378	100.6
9	JZ85	L8	True	4628.00	4940.032133	106.7
10	JZ86	L9	True	9256.00	8976.541835	97.0





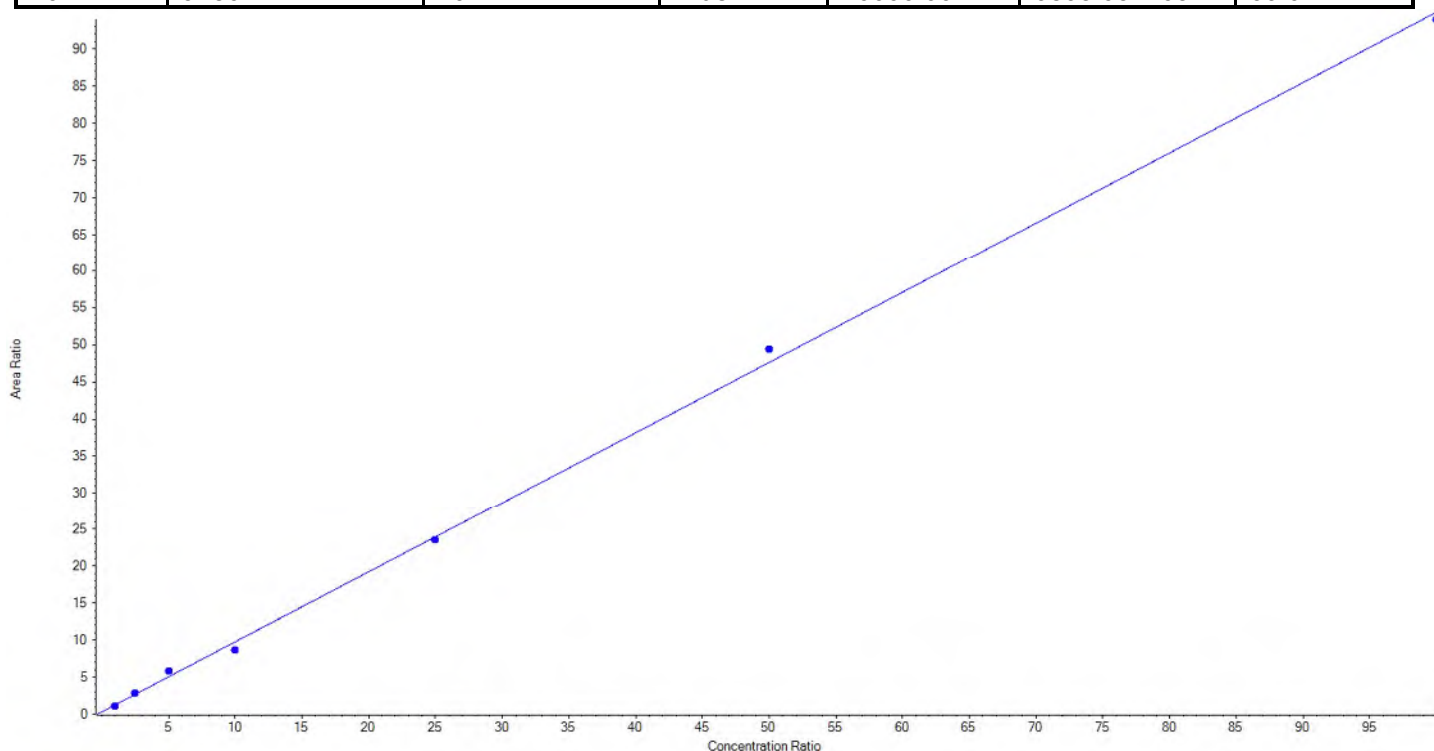
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Analyte Name	PFDA_1	Data File	18-0525.wiff
MRM Transition	513.0 / 469.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.94644 x + 0.30802$ ($r = 0.99888$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	88.021283	88.0
5	JZ81	L4	True	250.00	266.322907	106.5
6	JZ82	L5	True	500.00	580.780374	116.2
7	JZ83	L6	True	1000.00	886.839331	88.7
8	JZ84	L7	True	2500.00	2449.968353	98.0
9	JZ85	L8	True	5000.00	5183.013487	103.7
10	JZ86	L9	True	10000.00	9895.054265	99.0





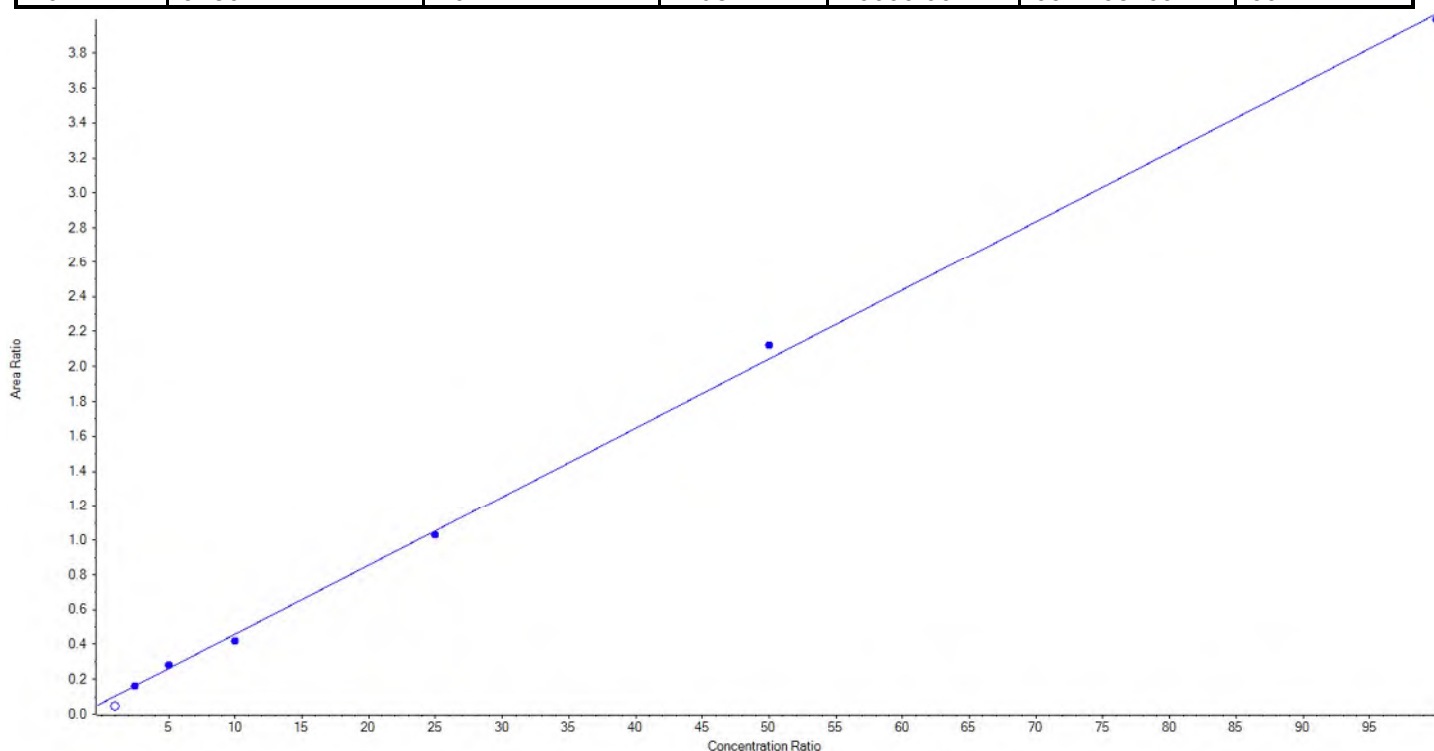
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Analyte Name	PFDA_2	Data File	18-0525.wiff
MRM Transition	513.0 / 219.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.03961 x + 0.06307$ ($r = 0.99920$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	248.257331	99.3
6	JZ82	L5	True	500.00	547.955133	109.6
7	JZ83	L6	True	1000.00	905.999456	90.6
8	JZ84	L7	True	2500.00	2436.059035	97.4
9	JZ85	L8	True	5000.00	5194.644354	103.9
10	JZ86	L9	True	10000.00	9917.084691	99.2





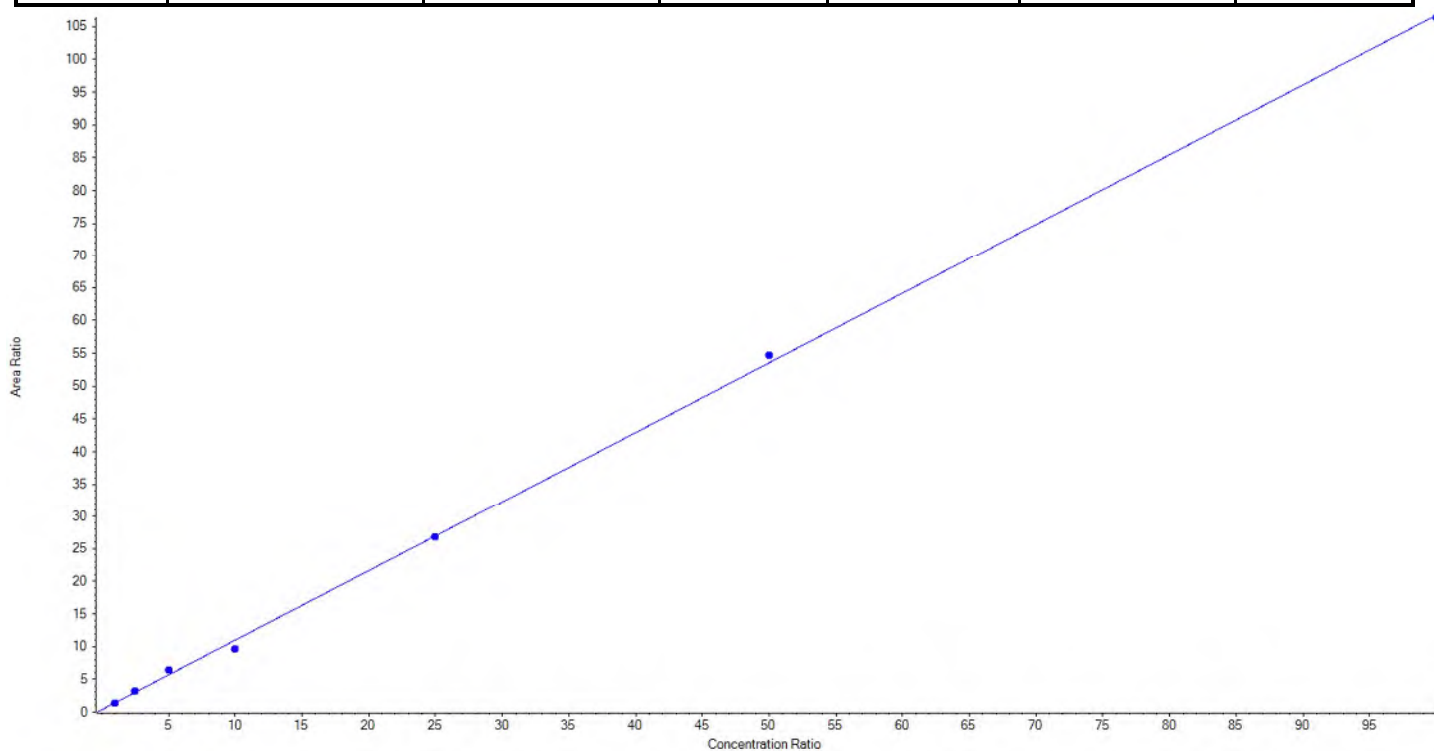
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Analyte Name	PFUnA_1	Data File	18-0525.wiff
MRM Transition	563.0 / 519.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.06368x + 0.37442$ ($r = 0.99914$) (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	91.780366	91.8
5	JZ81	L4	True	250.00	263.900379	105.6
6	JZ82	L5	True	500.00	569.994496	114.0
7	JZ83	L6	True	1000.00	877.034681	87.7
8	JZ84	L7	True	2500.00	2482.146277	99.3
9	JZ85	L8	True	5000.00	5101.982561	102.0
10	JZ86	L9	True	10000.00	9963.161239	99.6





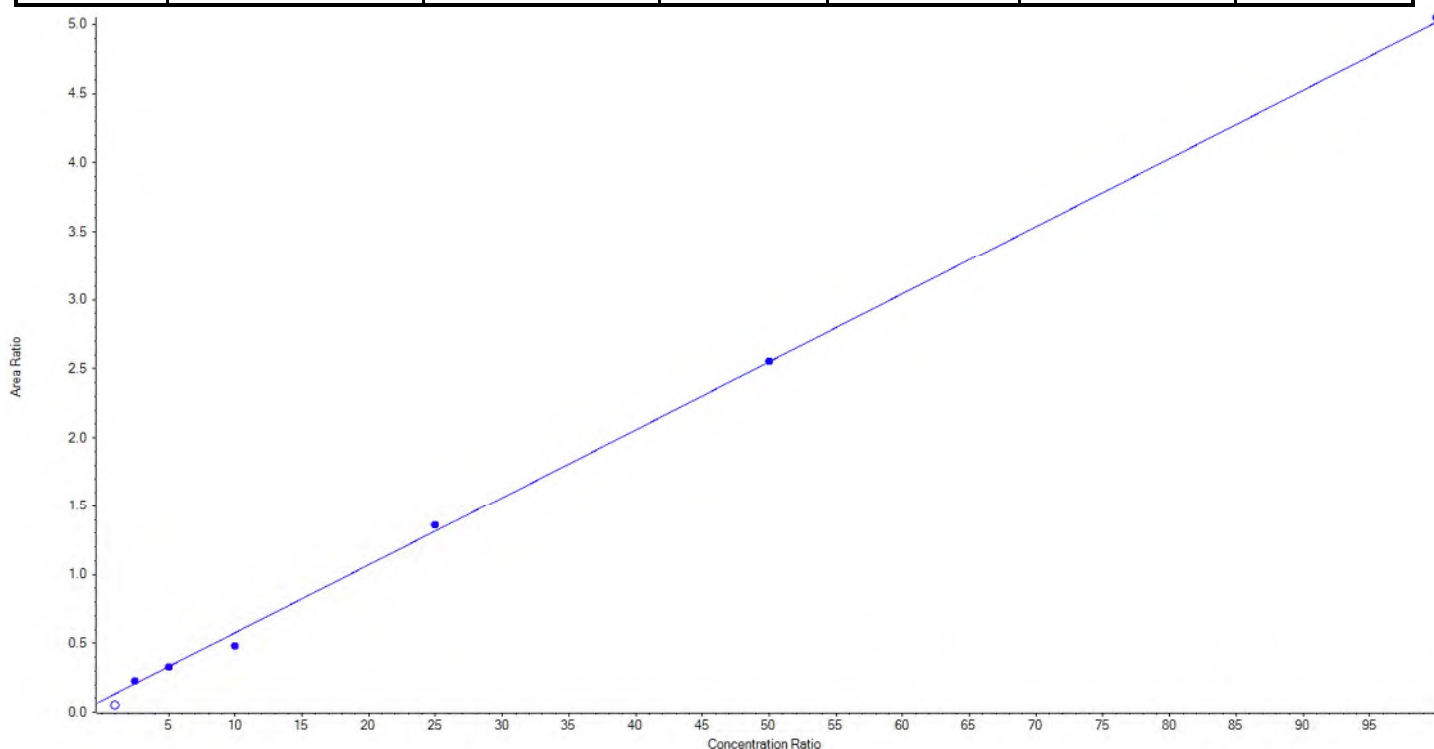
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Analyte Name	PFUnA_2	Data File	18-0525.wiff
MRM Transition	563.0 / 269.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.04935x + 0.08310$ ($r = 0.99833$) (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	289.980361	116.0
6	JZ82	L5	True	500.00	497.762359	99.6
7	JZ83	L6	True	1000.00	802.034479	80.2
8	JZ84	L7	True	2500.00	2585.145102	103.4
9	JZ85	L8	True	5000.00	5009.535501	100.2
10	JZ86	L9	True	10000.00	10065.542199	100.7





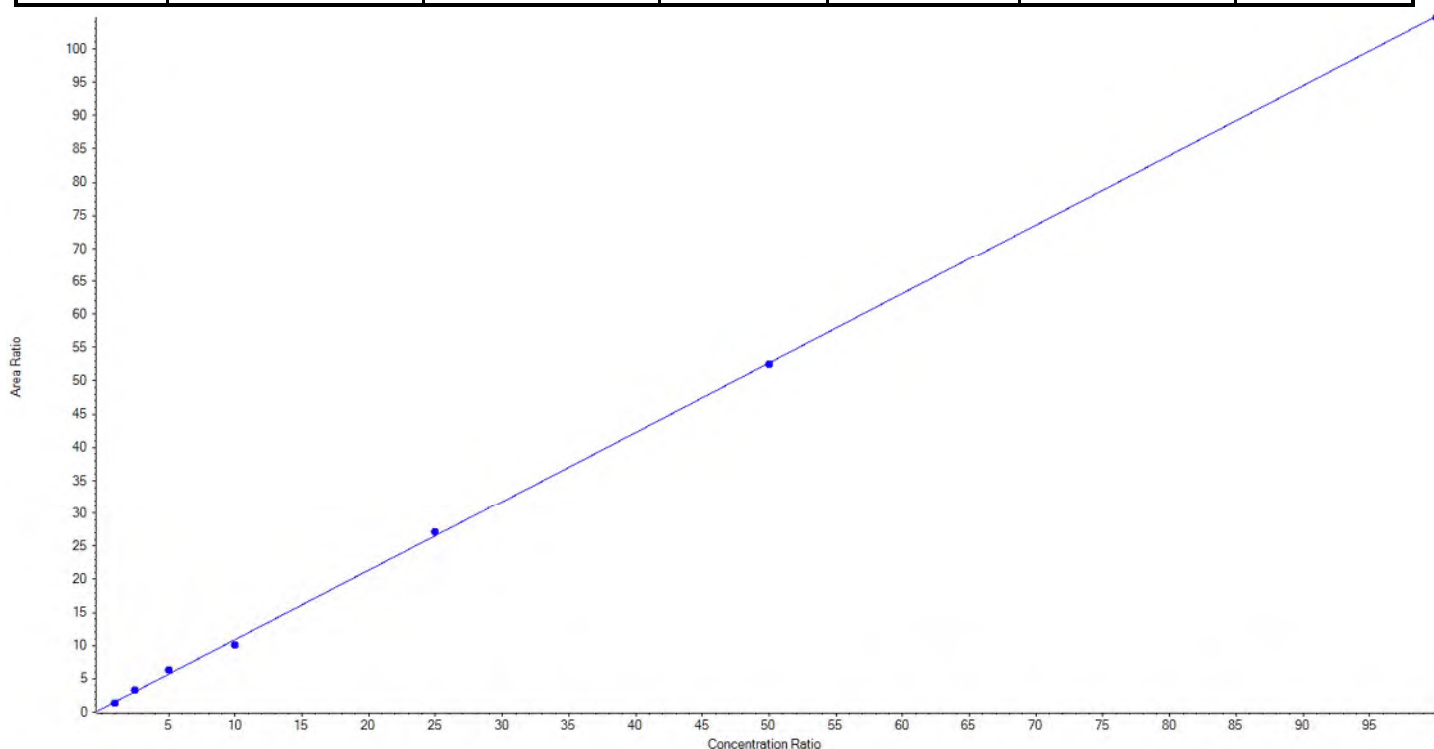
Calibration Summary Report

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Analyte Name	PFD _o A_1	Data File	18-0525.wiff
MRM Transition	613.0 / 569.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.04425x + 0.48238$ ($r = 0.99944$) (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	85.700367	85.7
5	JZ81	L4	True	250.00	273.750287	109.5
6	JZ82	L5	True	500.00	556.988277	111.4
7	JZ83	L6	True	1000.00	918.670605	91.9
8	JZ84	L7	True	2500.00	2550.673152	102.0
9	JZ85	L8	True	5000.00	4986.570334	99.7
10	JZ86	L9	True	10000.00	9977.646978	99.8





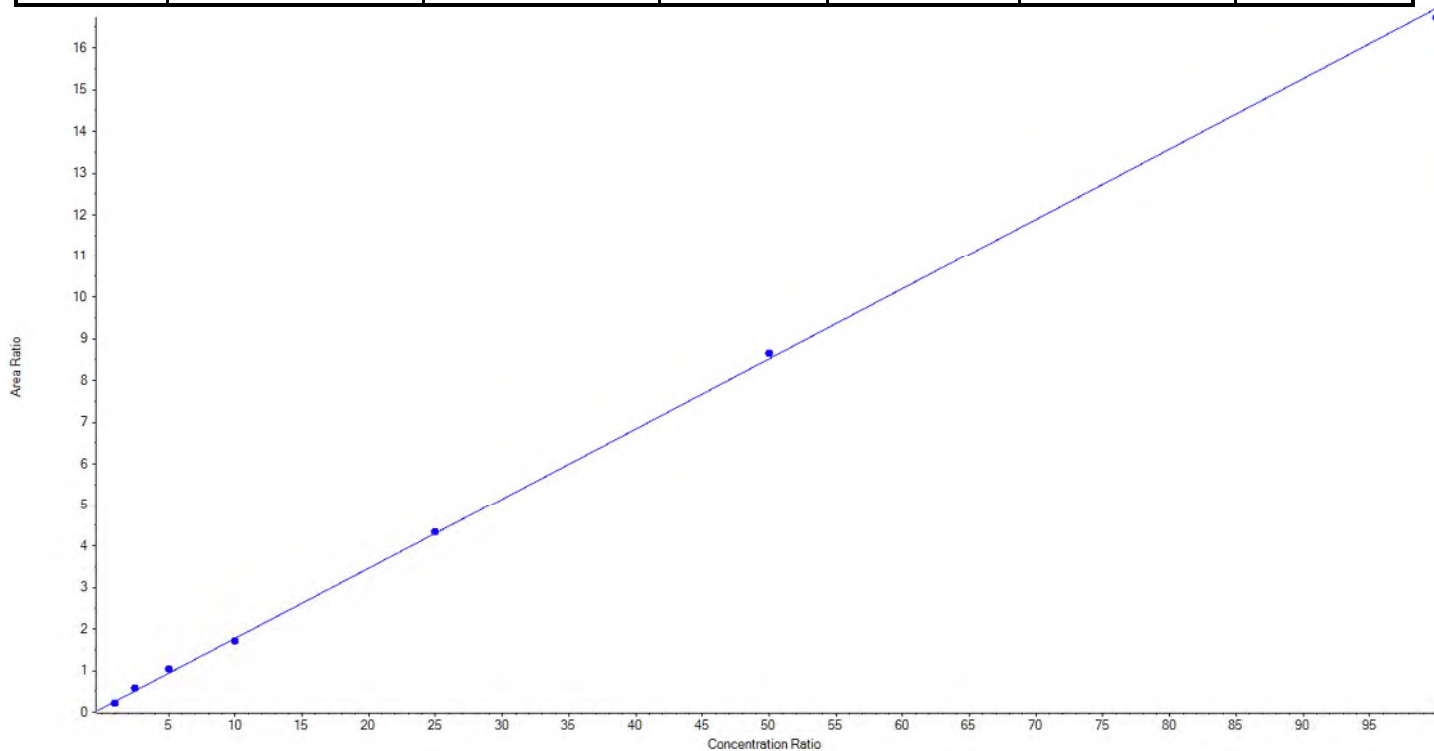
Calibration Summary Report

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Analyte Name	PFD _o A_2	Data File	18-0525.wiff
MRM Transition	613.0 / 319.0	Result Table	18-0525_DW
Internal Standard	13C ₂ -PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.16858x + 0.09034$ ($r = 0.99923$) (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	75.002298	75.0
5	JZ81	L4	True	250.00	289.854336	115.9
6	JZ82	L5	True	500.00	562.114133	112.4
7	JZ83	L6	True	1000.00	955.988781	95.6
8	JZ84	L7	True	2500.00	2518.813267	100.8
9	JZ85	L8	True	5000.00	5079.945998	101.6
10	JZ86	L9	True	10000.00	9868.281187	98.7





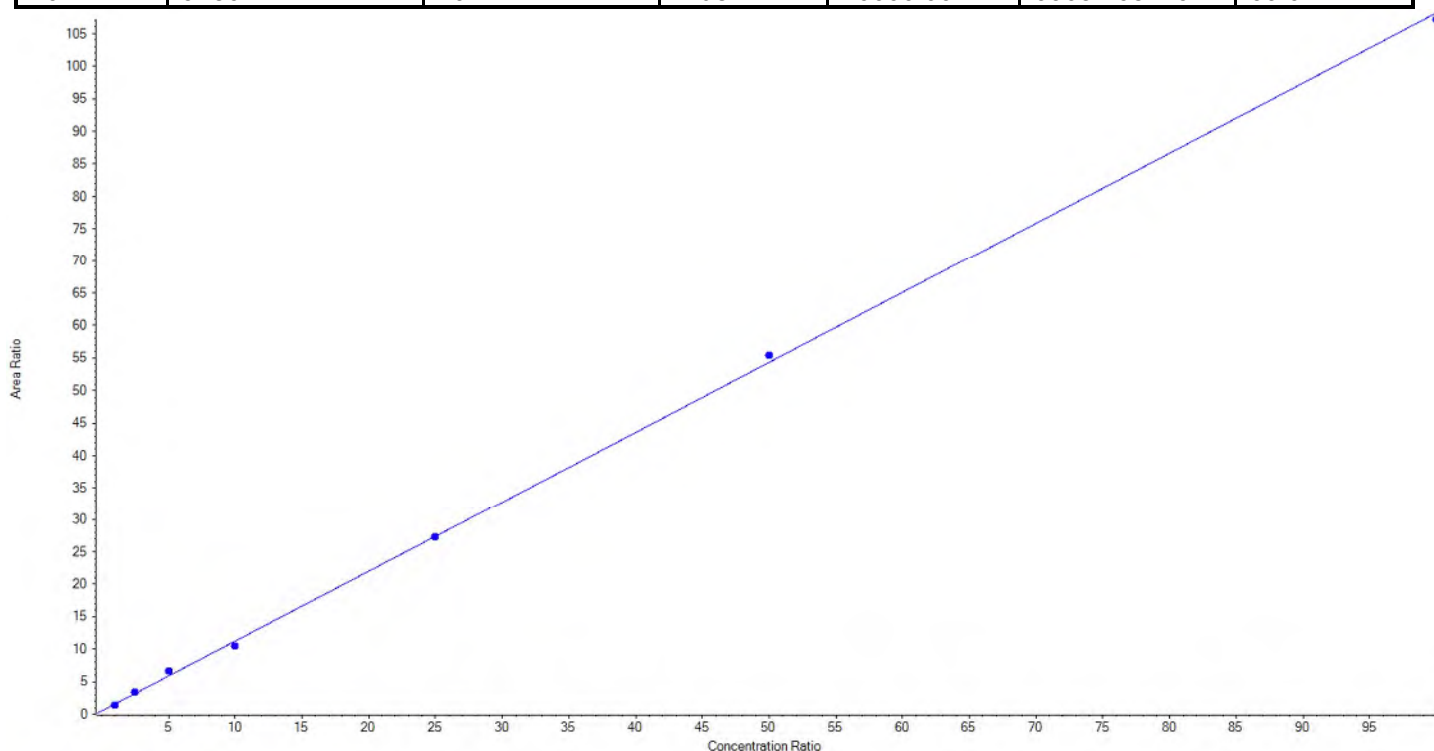
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFTrDA_1	Data File	18-0525.wiff
MRM Transition	663.0 / 619.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.07711 x + 0.48555$ ($r = 0.99934$) (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	82.828350	82.8
5	JZ81	L4	True	250.00	275.011635	110.0
6	JZ82	L5	True	500.00	566.484356	113.3
7	JZ83	L6	True	1000.00	931.647845	93.2
8	JZ84	L7	True	2500.00	2492.973401	99.7
9	JZ85	L8	True	5000.00	5097.585986	102.0
10	JZ86	L9	True	10000.00	9903.468426	99.0





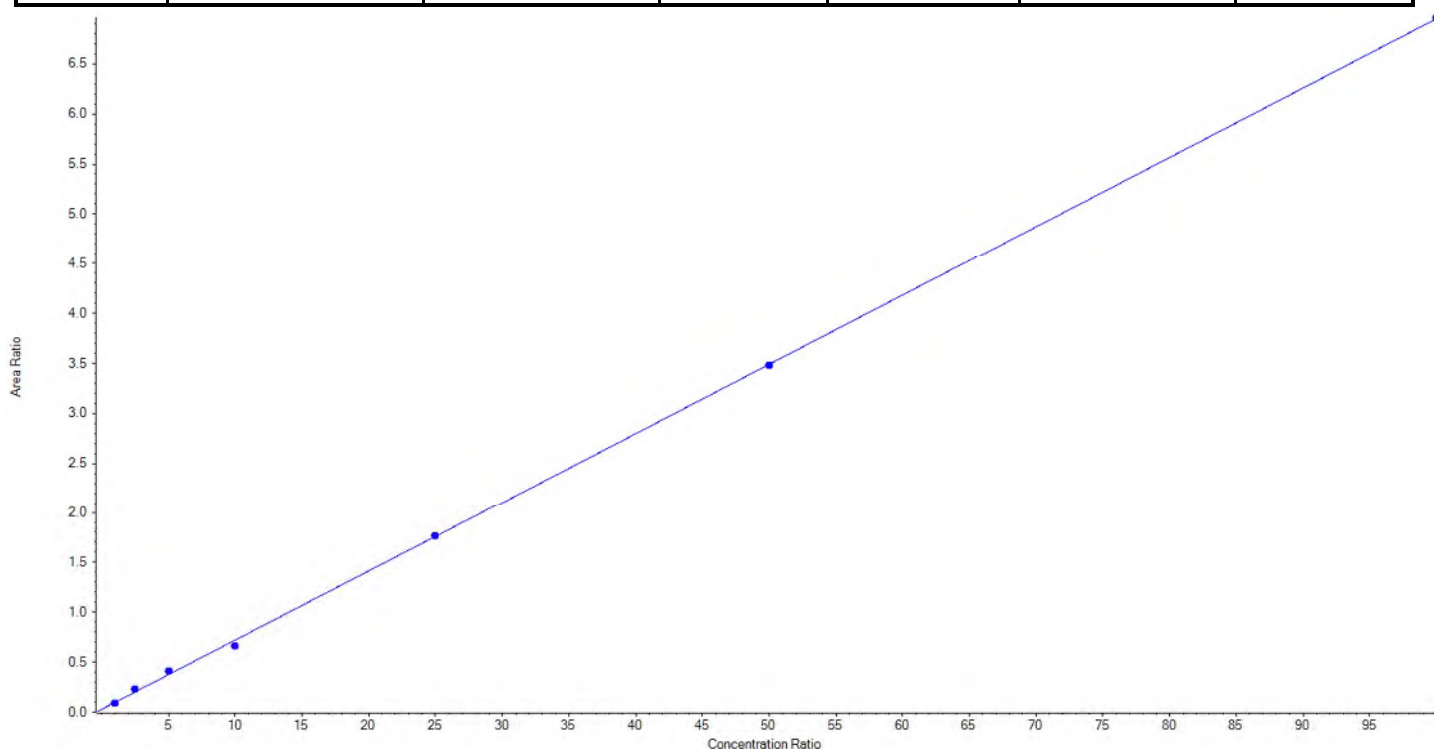
Calibration Summary Report

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Analyte Name	PFTTrDA_2	Data File	18-0525.wiff
MRM Transition	663.0 / 169.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06920 x + 0.02944$ ($r = 0.99931$) (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	81.619852	81.6
5	JZ81	L4	True	250.00	289.153142	115.7
6	JZ82	L5	True	500.00	555.469329	111.1
7	JZ83	L6	True	1000.00	915.866326	91.6
8	JZ84	L7	True	2500.00	2501.303320	100.1
9	JZ85	L8	True	5000.00	4992.037921	99.8
10	JZ86	L9	True	10000.00	10014.550109	100.2





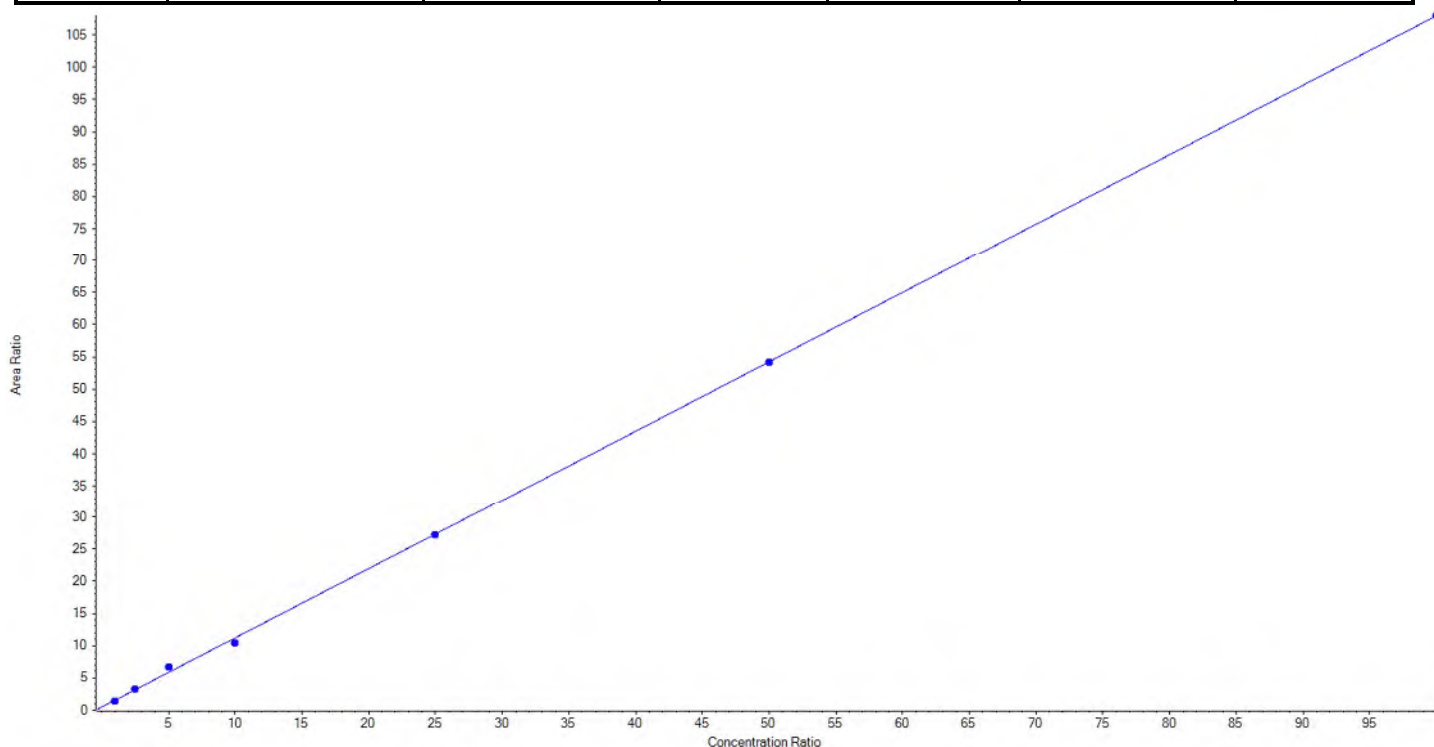
Calibration Summary Report

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Analyte Name	PFTeDA_1	Data File	18-0525.wiff
MRM Transition	713.0 / 669.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.07479x + 0.48149$ ($r = 0.99933$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	84.809981	84.8
5	JZ81	L4	True	250.00	264.834264	105.9
6	JZ82	L5	True	500.00	584.181859	116.8
7	JZ83	L6	True	1000.00	929.479411	93.0
8	JZ84	L7	True	2500.00	2487.761655	99.5
9	JZ85	L8	True	5000.00	4997.220553	99.9
10	JZ86	L9	True	10000.00	10001.712276	100.0





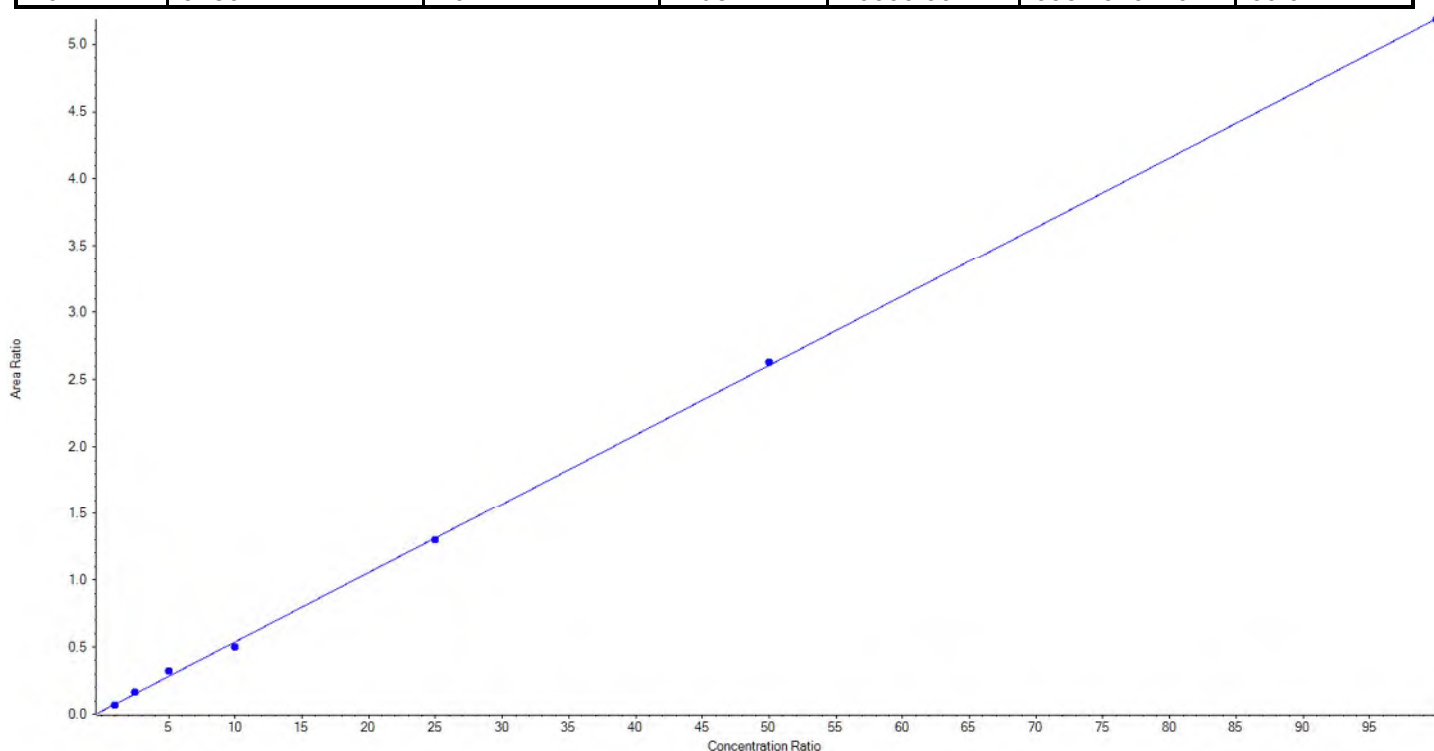
Calibration Summary Report

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Analyte Name	PFTeDA_2	Data File	18-0525.wiff
MRM Transition	713.0 / 169.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05168 x + 0.02228$ ($r = 0.99925$) (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	84.085549	84.1
5	JZ81	L4	True	250.00	270.499863	108.2
6	JZ82	L5	True	500.00	582.182680	116.4
7	JZ83	L6	True	1000.00	918.897268	91.9
8	JZ84	L7	True	2500.00	2468.847584	98.8
9	JZ85	L8	True	5000.00	5037.946916	100.8
10	JZ86	L9	True	10000.00	9987.540140	99.9





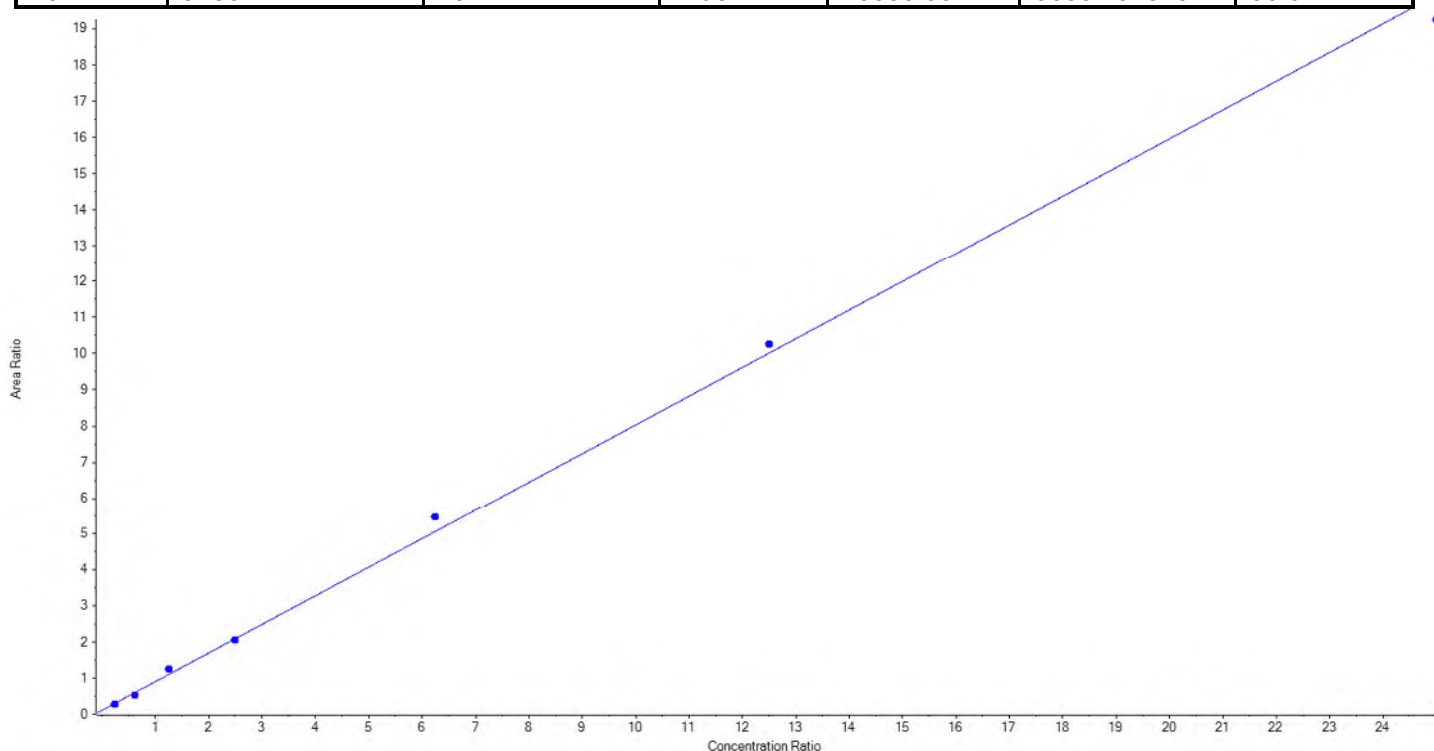
Calibration Summary Report

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Analyte Name	NMeFOSAA_1	Data File	18-0525.wiff
MRM Transition	570.0 / 419.0	Result Table	18-0525_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.79293x + 0.10357$ ($r = 0.99858$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	93.428964	93.4
5	JZ81	L4	True	250.00	217.014269	86.8
6	JZ82	L5	True	500.00	570.340399	114.1
7	JZ83	L6	True	1000.00	983.348216	98.3
8	JZ84	L7	True	2500.00	2710.400454	108.4
9	JZ85	L8	True	5000.00	5119.173184	102.4
10	JZ86	L9	True	10000.00	9656.294513	96.6





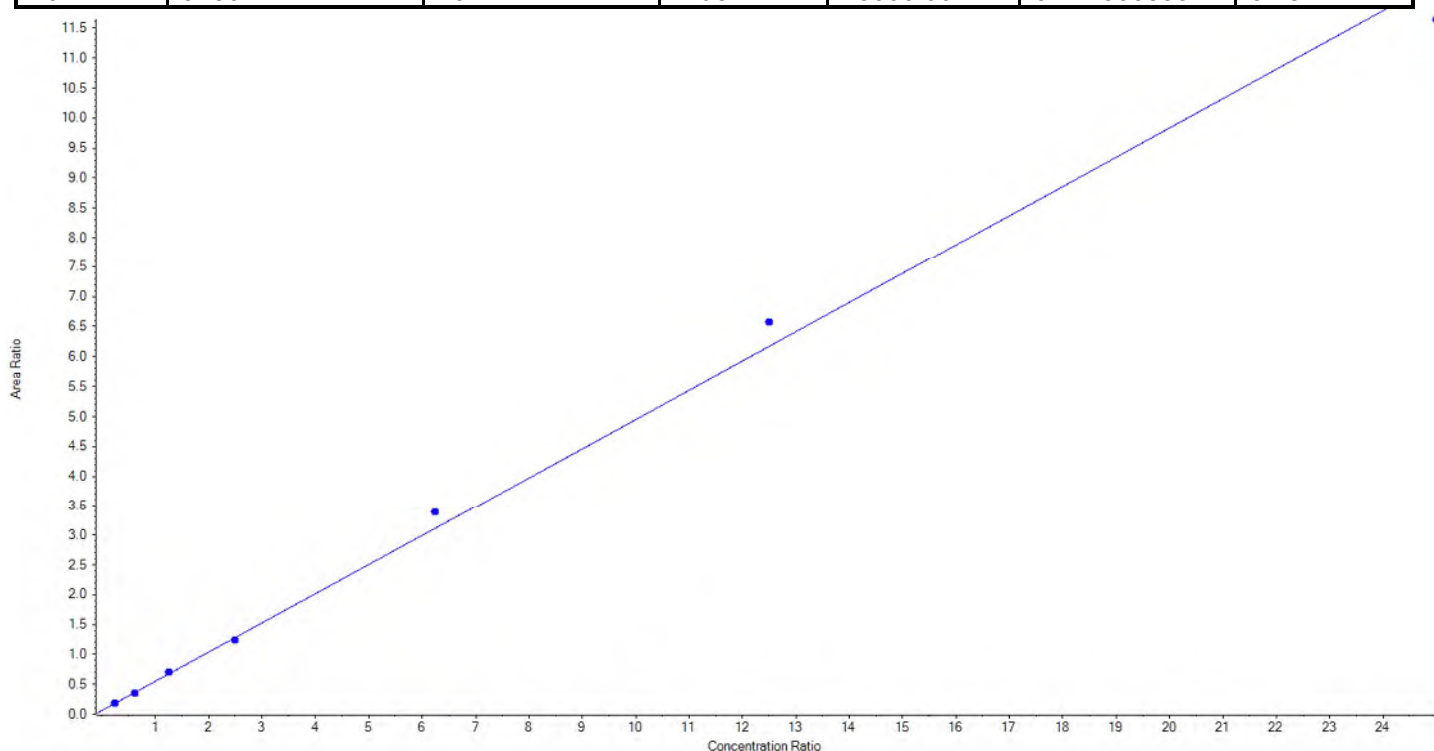
Calibration Summary Report

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Analyte Name	NMeFOSAA_2	Data File	18-0525.wiff
MRM Transition	570.0 / 512.0	Result Table	18-0525_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.48875x + 0.06022$ ($r = 0.99778$) (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	95.588385	95.6
5	JZ81	L4	True	250.00	233.164855	93.3
6	JZ82	L5	True	500.00	522.105000	104.4
7	JZ83	L6	True	1000.00	962.182521	96.2
8	JZ84	L7	True	2500.00	2727.128729	109.1
9	JZ85	L8	True	5000.00	5332.296656	106.7
10	JZ86	L9	True	10000.00	9477.533855	94.8





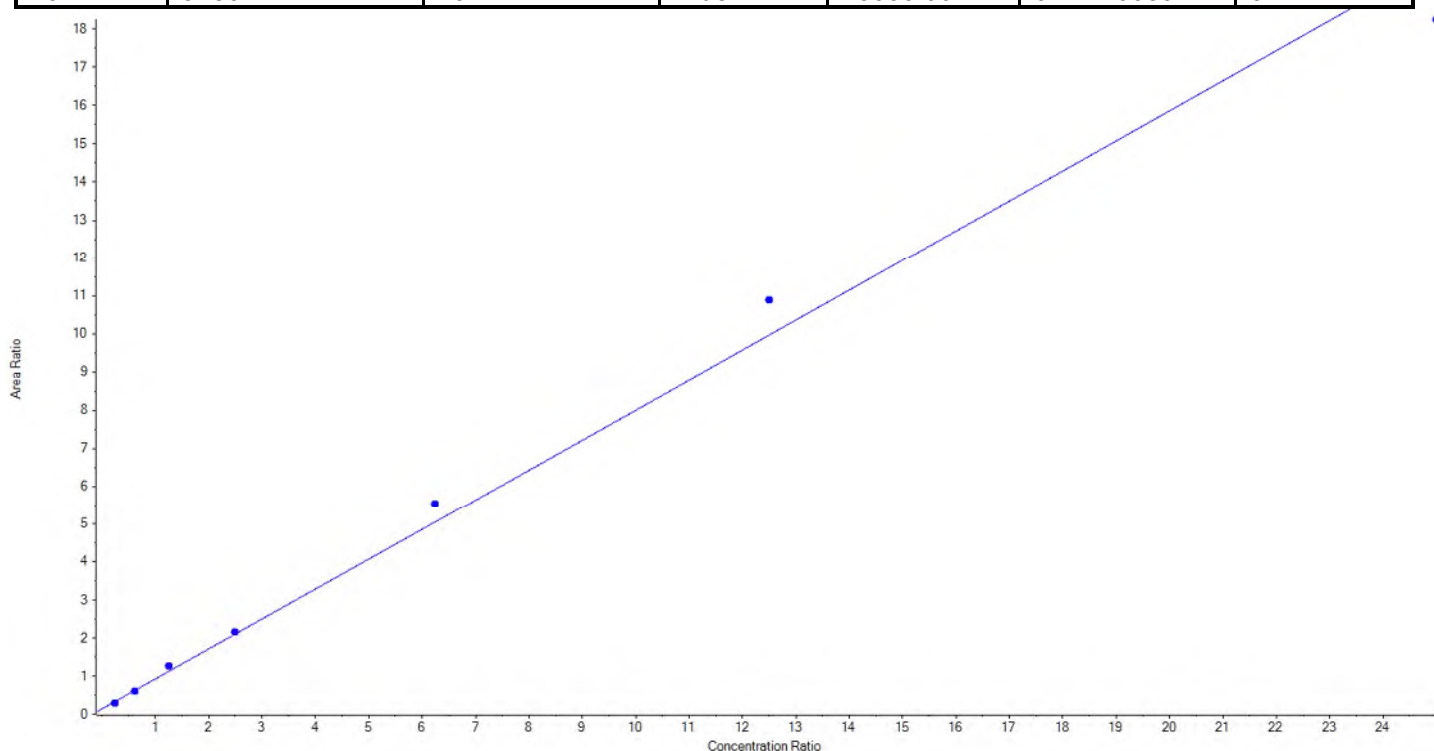
Calibration Summary Report

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Analyte Name	NEtFOSAA_1	Data File	18-0525.wiff
MRM Transition	584.0 / 419.0	Result Table	18-0525_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.78632x + 0.13558$ ($r = 0.99547$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	100.00	76.194651	76.2
5	JZ81	L4	True	250.00	233.442717	93.4
6	JZ82	L5	True	500.00	578.705719	115.7
7	JZ83	L6	True	1000.00	1030.707724	103.1
8	JZ84	L7	True	2500.00	2755.967788	110.2
9	JZ85	L8	True	5000.00	5462.782009	109.3
10	JZ86	L9	True	10000.00	9212.199392	92.1





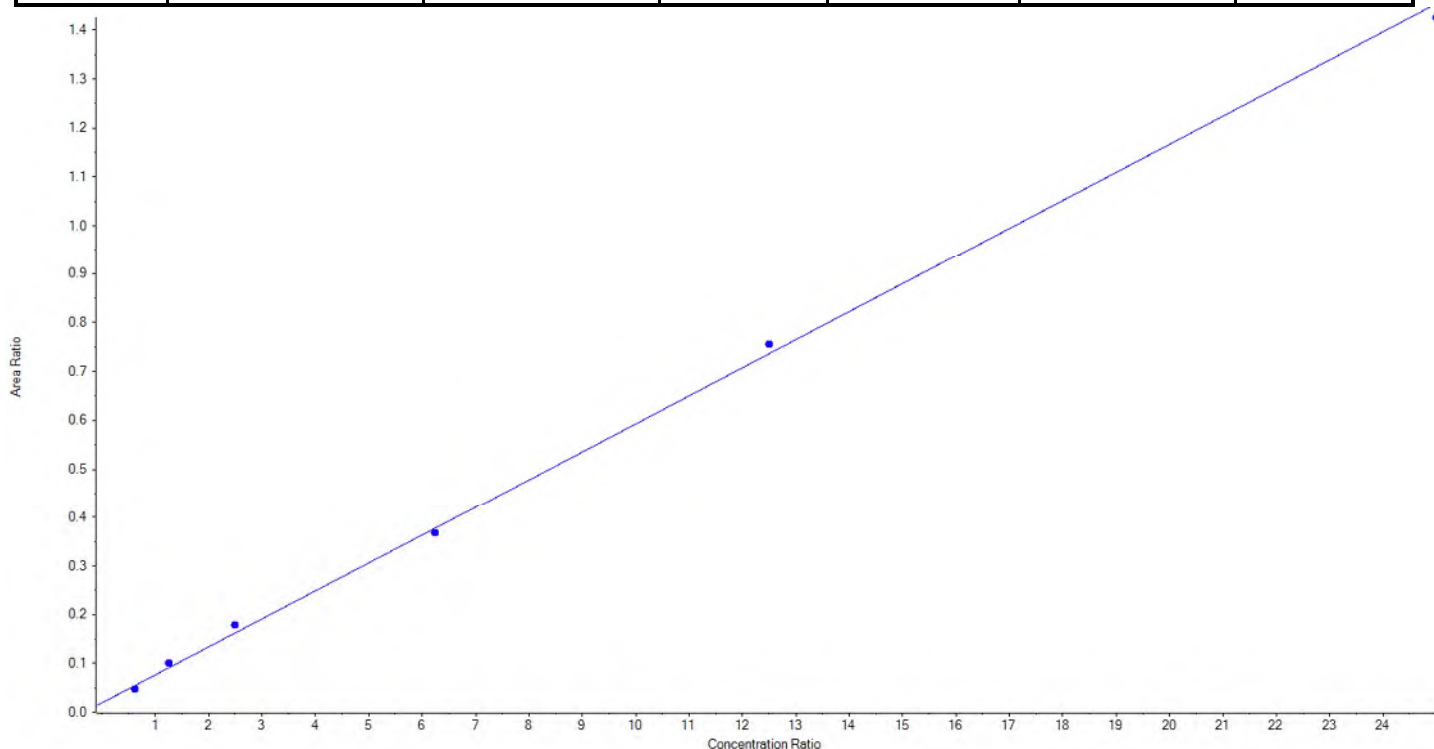
Calibration Summary Report

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Analyte Name	NEtFOSAA_2	Data File	18-0525.wiff
MRM Transition	584.0 / 483.0	Result Table	18-0525_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05740 x + 0.01882$ (r = 0.99843) (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	N/A	N/A
5	JZ81	L4	True	250.00	191.488013	76.6
6	JZ82	L5	True	500.00	570.602206	114.1
7	JZ83	L6	True	1000.00	1111.178076	111.1
8	JZ84	L7	True	2500.00	2432.352970	97.3
9	JZ85	L8	True	5000.00	5142.863979	102.9
10	JZ86	L9	True	10000.00	9801.514755	98.0





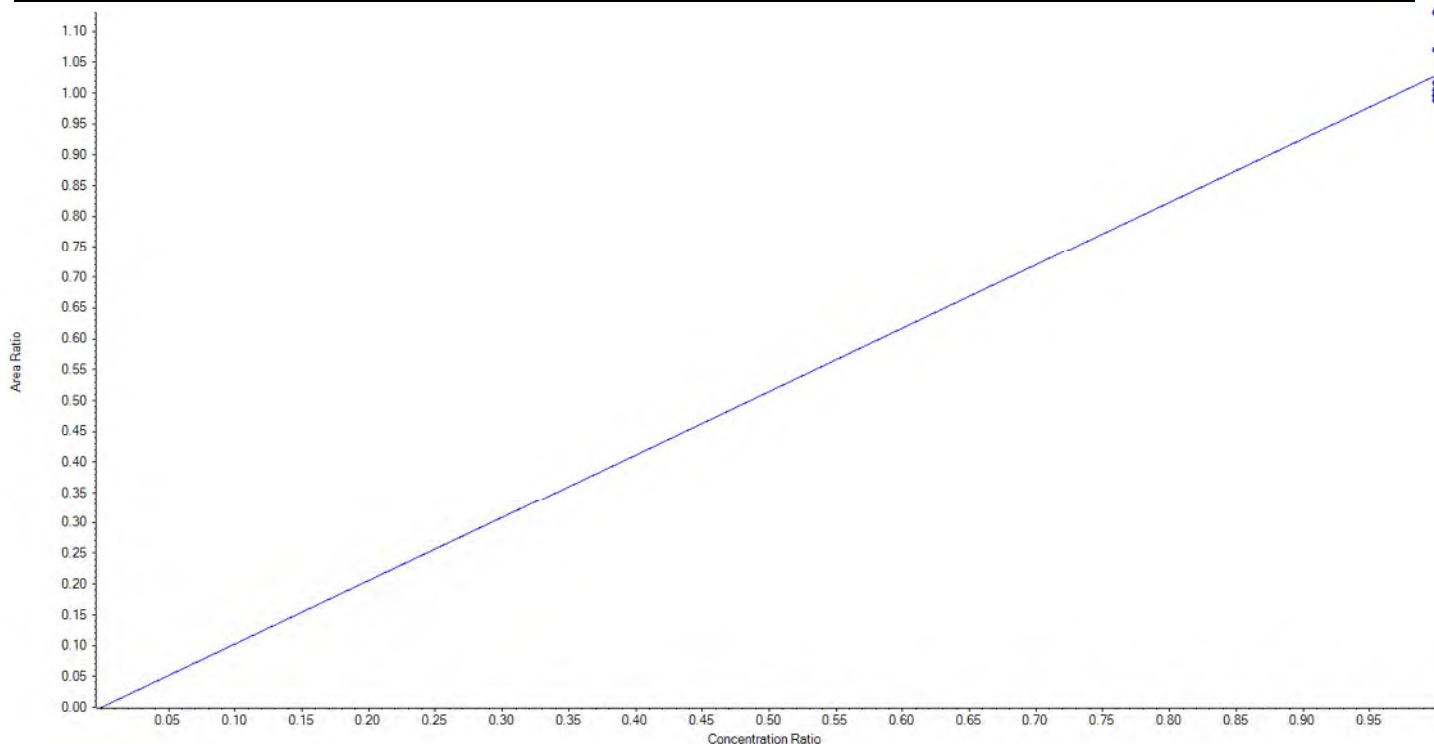
Calibration Summary Report

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Analyte Name	13C2-PFHxA	Data File	18-0525.wiff
MRM Transition	315.0 / 270.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.02891 x$ (std. dev. = 0.05241) (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	109.843763	109.8
5	JZ81	L4	True	100.00	98.833210	98.8
6	JZ82	L5	True	100.00	96.813893	96.8
7	JZ83	L6	True	100.00	96.776282	96.8
8	JZ84	L7	True	100.00	97.607371	97.6
9	JZ85	L8	True	100.00	104.010330	104.0
10	JZ86	L9	True	100.00	96.115153	96.1





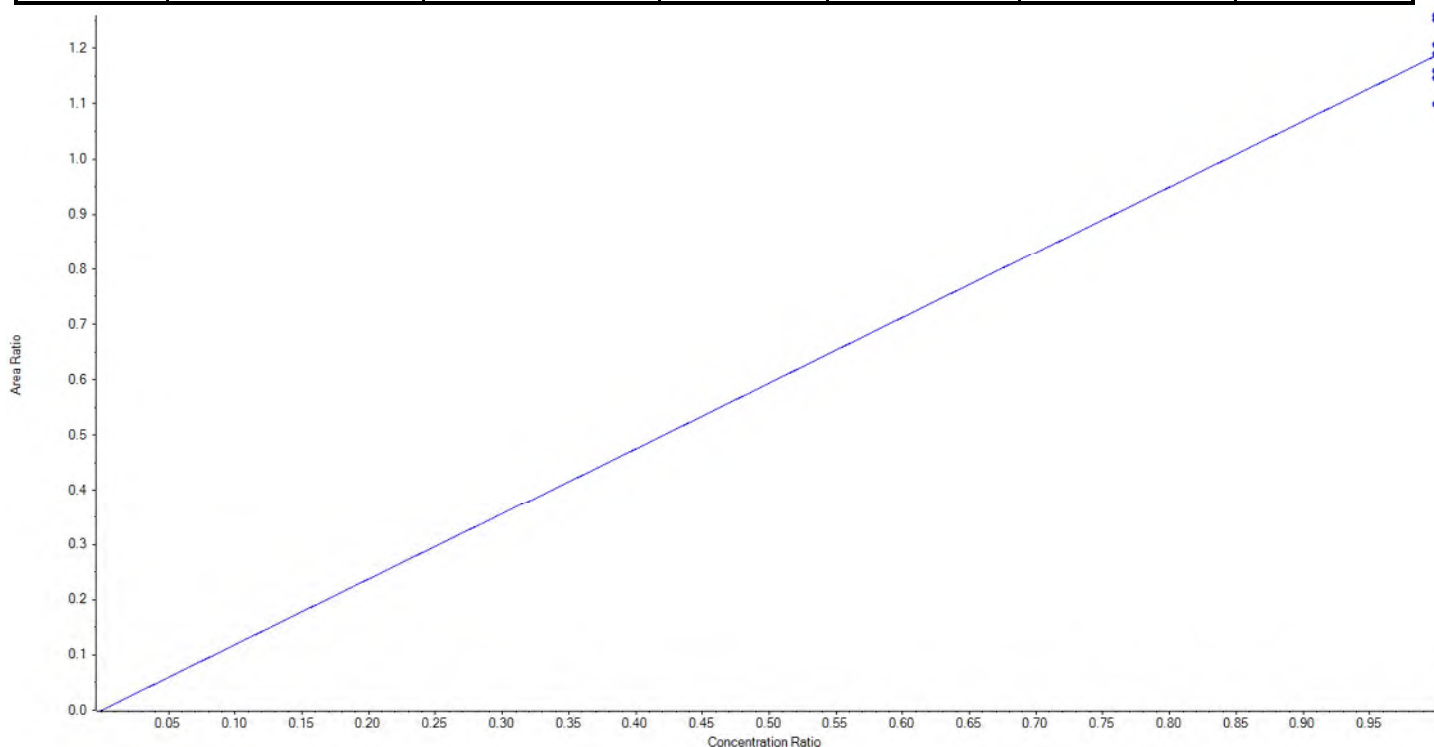
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Analyte Name	13C2-PFDA	Data File	18-0525.wiff
MRM Transition	515.0 / 470.0	Result Table	18-0525_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.18705 x$ (std. dev. = 0.05764) (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	105.468475	105.5
5	JZ81	L4	True	100.00	106.034358	106.0
6	JZ82	L5	True	100.00	101.528416	101.5
7	JZ83	L6	True	100.00	96.619980	96.6
8	JZ84	L7	True	100.00	92.518672	92.5
9	JZ85	L8	True	100.00	100.154022	100.2
10	JZ86	L9	True	100.00	97.676077	97.7





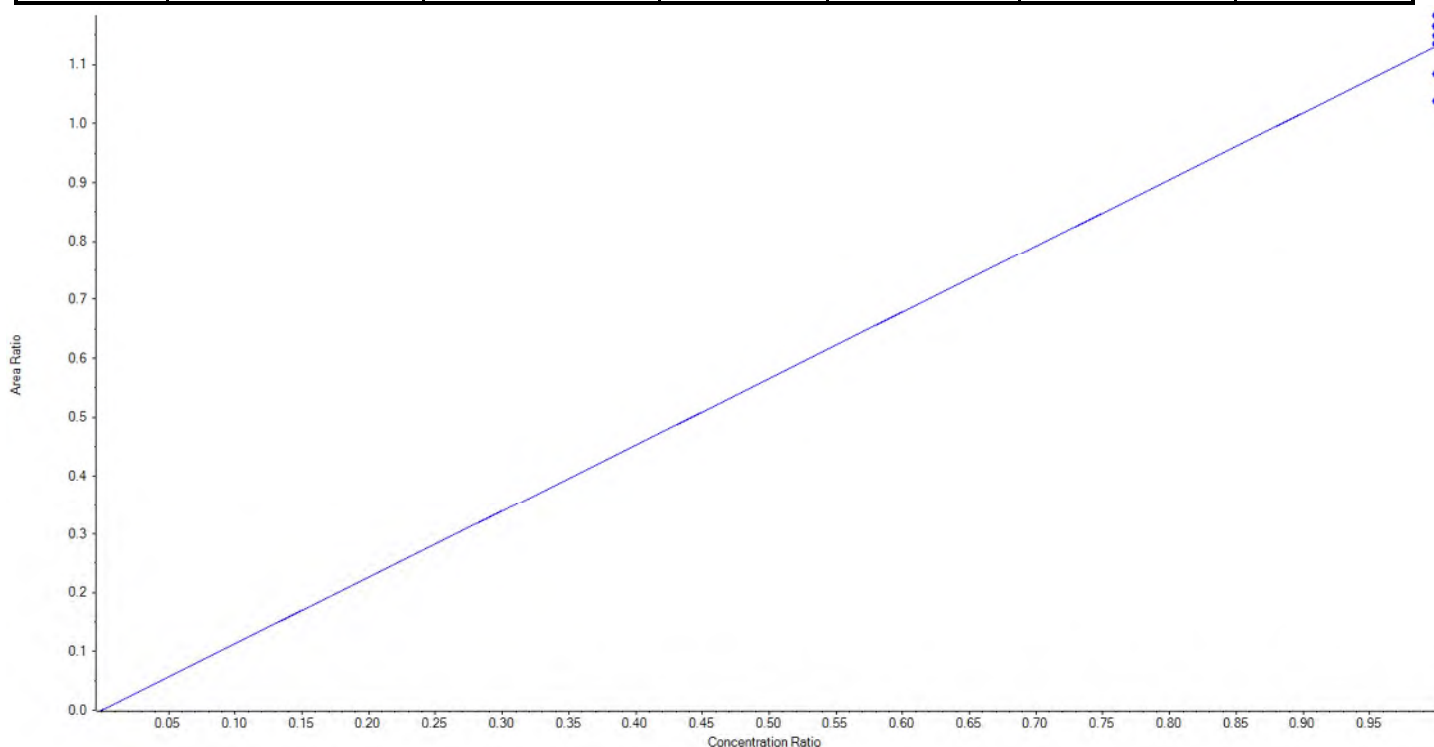
Calibration Summary Report

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Analyte Name	d5-EtFOSAA	Data File	18-0525.wiff
MRM Transition	589.0 / 419.0	Result Table	18-0525_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	8/27/2018 11:32:27 AM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.13104 x$ (std. dev. = 0.05178) (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	406.232904	101.6
5	JZ81	L4	True	400.00	383.056909	95.8
6	JZ82	L5	True	400.00	412.102046	103.0
7	JZ83	L6	True	400.00	418.287250	104.6
8	JZ84	L7	True	400.00	411.599502	102.9
9	JZ85	L8	True	400.00	401.409624	100.4
10	JZ86	L9	True	400.00	367.311766	91.8



Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T11:59:18	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.297	0.297	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.86	PFHxA	0.066	0.077	ü
PFHpA_1	363.0 / 319.0	2.27	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.026	0.024	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.333	0.303	ü
PFOA_1	413.0 / 369.0	2.67	PFOA			
PFOA_2	413.0 / 169.0	2.67	PFOA	0.057	0.070	ü
PFNA_1	463.0 / 419.0	3.07	PFNA			
PFNA_2	463.0 / 219.0	3.07	PFNA	0.307	0.310	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.185	0.195	ü
PFDA_1	513.0 / 469.0	3.43	PFDA			
PFDA_2	513.0 / 219.0	3.43	PFDA	0.042	0.047	ü
PFUnA_1	563.0 / 519.0	3.75	PFUnA			
PFUnA_2	563.0 / 269.0	3.75	PFUnA	0.036	0.053	ü
PFDaA_1	613.0 / 569.0	4.03	PFDaA			
PFDaA_2	613.0 / 319.0	4.04	PFDaA	0.157	0.164	ü
PFTrDA_1	663.0 / 619.0	4.28	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.28	PFTrDA	0.062	0.064	ü
PFTeDA_1	713.0 / 669.0	4.50	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.50	PFTeDA	0.047	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.57	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.57	NMeFOSAA	0.613	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.74	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.076	
13C2-PFHxA	315.0 / 270.0	1.84				
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	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:08:15	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.54	PFBS	0.282	0.297	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.86	PFHxA	0.075	0.077	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.26	PFHpA	0.029	0.024	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.288	0.303	ü
PFOA_1	413.0 / 369.0	2.67	PFOA			
PFOA_2	413.0 / 169.0	2.67	PFOA	0.069	0.070	ü
PFNA_1	463.0 / 419.0	3.06	PFNA			
PFNA_2	463.0 / 219.0	3.06	PFNA	0.304	0.310	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.210	0.195	ü
PFDA_1	513.0 / 469.0	3.42	PFDA			
PFDA_2	513.0 / 219.0	3.43	PFDA	0.057	0.047	ü
PFUnA_1	563.0 / 519.0	3.75	PFUnA			
PFUnA_2	563.0 / 269.0	3.74	PFUnA	0.071	0.053	ü
PFDaA_1	613.0 / 569.0	4.03	PFDaA			
PFDaA_2	613.0 / 319.0	4.03	PFDaA	0.173	0.164	ü
PFTrDA_1	663.0 / 619.0	4.28	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.28	PFTrDA	0.067	0.064	ü
PFTeDA_1	713.0 / 669.0	4.50	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.49	PFTeDA	0.049	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.57	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.57	NMeFOSAA	0.647	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.74	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.73	NEtFOSAA	0.078	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.84				
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	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:17:13	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.54	PFBS	0.300	0.297	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.083	0.077	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.26	PFHpA	0.022	0.024	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.345	0.303	ü
PFOA_1	413.0 / 369.0	2.67	PFOA			
PFOA_2	413.0 / 169.0	2.67	PFOA	0.074	0.070	ü
PFNA_1	463.0 / 419.0	3.06	PFNA			
PFNA_2	463.0 / 219.0	3.06	PFNA	0.314	0.310	ü
PFOS_1	499.0 / 80.0	3.06	PFOS			
PFOS_2	499.0 / 99.0	3.06	PFOS	0.196	0.195	ü
PFDA_1	513.0 / 469.0	3.42	PFDA			
PFDA_2	513.0 / 219.0	3.42	PFDA	0.048	0.047	ü
PFUnA_1	563.0 / 519.0	3.74	PFUnA			
PFUnA_2	563.0 / 269.0	3.74	PFUnA	0.051	0.053	ü
PFDaA_1	613.0 / 569.0	4.02	PFDaA			
PFDaA_2	613.0 / 319.0	4.02	PFDaA	0.165	0.164	ü
PFTrDA_1	663.0 / 619.0	4.27	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.27	PFTrDA	0.063	0.064	ü
PFTeDA_1	713.0 / 669.0	4.49	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.49	PFTeDA	0.048	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.57	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.57	NMeFOSAA	0.566	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.73	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.73	NEtFOSAA	0.079	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.84				
13C2-PFDA	515.0 / 470.0	3.41		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.72		N/A	N/A	ü

Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:26:09	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.54	PFBS	0.294	0.297	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.075	0.077	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.26	PFHpA	0.024	0.024	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.291	0.303	ü
PFOA_1	413.0 / 369.0	2.67	PFOA			
PFOA_2	413.0 / 169.0	2.67	PFOA	0.071	0.070	ü
PFNA_1	463.0 / 419.0	3.06	PFNA			
PFNA_2	463.0 / 219.0	3.06	PFNA	0.312	0.310	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.05	PFOS	0.201	0.195	ü
PFDA_1	513.0 / 469.0	3.42	PFDA			
PFDA_2	513.0 / 219.0	3.41	PFDA	0.049	0.047	ü
PFUnA_1	563.0 / 519.0	3.74	PFUnA			
PFUnA_2	563.0 / 269.0	3.74	PFUnA	0.049	0.053	ü
PFDaA_1	613.0 / 569.0	4.02	PFDaA			
PFDaA_2	613.0 / 319.0	4.02	PFDaA	0.169	0.164	ü
PFTrDA_1	663.0 / 619.0	4.26	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.26	PFTrDA	0.063	0.064	ü
PFTeDA_1	713.0 / 669.0	4.48	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.48	PFTeDA	0.048	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.56	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.56	NMeFOSAA	0.602	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.73	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.72	NEtFOSAA	0.083	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.84				
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	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:35:06	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.306	0.297	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.082	0.077	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.024	0.024	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.288	0.303	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.069	0.070	ü
PFNA_1	463.0 / 419.0	3.06	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.307	0.310	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.05	PFOS	0.191	0.195	ü
PFDA_1	513.0 / 469.0	3.41	PFDA			
PFDA_2	513.0 / 219.0	3.41	PFDA	0.044	0.047	ü
PFUnA_1	563.0 / 519.0	3.73	PFUnA			
PFUnA_2	563.0 / 269.0	3.73	PFUnA	0.051	0.053	ü
PFDaA_1	613.0 / 569.0	4.02	PFDaA			
PFDaA_2	613.0 / 319.0	4.01	PFDaA	0.160	0.164	ü
PFTrDA_1	663.0 / 619.0	4.26	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.26	PFTrDA	0.064	0.064	ü
PFTeDA_1	713.0 / 669.0	4.48	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.48	PFTeDA	0.048	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.56	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.56	NMeFOSAA	0.620	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.72	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.72	NEtFOSAA	0.066	0.076	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	3.71		N/A	N/A	ü

Sample Name	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:44:03	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.294	0.297	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.079	0.077	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.022	0.024	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.292	0.303	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.067	0.070	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.311	0.310	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.05	PFOS	0.187	0.195	ü
PFDA_1	513.0 / 469.0	3.41	PFDA			
PFDA_2	513.0 / 219.0	3.41	PFDA	0.043	0.047	ü
PFUnA_1	563.0 / 519.0	3.73	PFUnA			
PFUnA_2	563.0 / 269.0	3.73	PFUnA	0.047	0.053	ü
PFDaA_1	613.0 / 569.0	4.01	PFDaA			
PFDaA_2	613.0 / 319.0	4.01	PFDaA	0.165	0.164	ü
PFTrDA_1	663.0 / 619.0	4.26	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.26	PFTrDA	0.063	0.064	ü
PFTeDA_1	713.0 / 669.0	4.47	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.47	PFTeDA	0.049	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.56	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.55	NMeFOSAA	0.641	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.72	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.72	NEtFOSAA	0.070	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.84				
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	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T12:53:00	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	1.54	PFBS			
PFBS_2	298.9 / 99.0	1.53	PFBS	0.305	0.297	ü
PFHxA_1	313.0 / 269.0	1.85	PFHxA			
PFHxA_2	313.0 / 119.0	1.85	PFHxA	0.078	0.077	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.022	0.024	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.282	0.303	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.068	0.070	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.315	0.310	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.05	PFOS	0.182	0.195	ü
PFDA_1	513.0 / 469.0	3.41	PFDA			
PFDA_2	513.0 / 219.0	3.41	PFDA	0.043	0.047	ü
PFUnA_1	563.0 / 519.0	3.73	PFUnA			
PFUnA_2	563.0 / 269.0	3.73	PFUnA	0.048	0.053	ü
PFDaA_1	613.0 / 569.0	4.01	PFDaA			
PFDaA_2	613.0 / 319.0	4.01	PFDaA	0.160	0.164	ü
PFTrDA_1	663.0 / 619.0	4.26	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.25	PFTrDA	0.065	0.064	ü
PFTeDA_1	713.0 / 669.0	4.47	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.47	PFTeDA	0.048	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.56	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.56	NMeFOSAA	0.605	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.72	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.72	NEtFOSAA	0.078	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.84				
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	2018-08-27T13:10:52	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.53	855.441246	885.00	96.66
PFBS_2	298.9 / 99.0	1.53	847.870423	885.00	95.80
PFHxA_1	313.0 / 269.0	1.84	1002.683711	1000.00	100.27
PFHxA_2	313.0 / 119.0	1.84	975.786791	1000.00	97.58
PFHpA_1	363.0 / 319.0	2.25	1028.415089	1000.00	102.84
PFHpA_2	363.0 / 169.0	2.25	1068.282748	1000.00	106.83
PFHxS_1	399.0 / 80.0	2.27	928.530888	912.00	101.81
PFHxS_2	399.0 / 99.0	2.27	874.158313	912.00	95.85
PFOA_1	413.0 / 369.0	2.65	987.845992	1000.00	98.78
PFOA_2	413.0 / 169.0	2.65	966.508294	1000.00	96.65
PFNA_1	463.0 / 419.0	3.05	1012.891157	1000.00	101.29
PFNA_2	463.0 / 219.0	3.05	989.084834	1000.00	98.91
PFOS_1	499.0 / 80.0	3.04	861.967885	925.60	93.13
PFOS_2	499.0 / 99.0	3.04	992.887034	925.60	107.27
PFDA_1	513.0 / 469.0	3.40	1006.258962	1000.00	100.63
PFDA_2	513.0 / 219.0	3.40	917.137355	1000.00	91.71
PFUnA_1	563.0 / 519.0	3.72	1015.040460	1000.00	101.50
PFUnA_2	563.0 / 269.0	3.72	945.929212	1000.00	94.59
PFDoA_1	613.0 / 569.0	4.00	1001.168371	1000.00	100.12
PFDoA_2	613.0 / 319.0	4.00	1046.771187	1000.00	104.68
PFTTrDA_1	663.0 / 619.0	4.25	963.320784	1000.00	96.33
PFTTrDA_2	663.0 / 169.0	4.25	925.038026	1000.00	92.50
PFTeDA_1	713.0 / 669.0	4.46	956.128791	1000.00	95.61
PFTeDA_2	713.0 / 169.0	4.46	997.982293	1000.00	99.80
NMeFOSAA_1	570.0 / 419.0	3.55	1182.960133	1000.00	118.30
NMeFOSAA_2	570.0 / 512.0	3.55	1114.561991	1000.00	111.46
NEtFOSAA_1	584.0 / 419.0	3.71	1237.225964	1000.00	123.72
NEtFOSAA_2	584.0 / 483.0	3.71	904.052180	1000.00	90.41
13C2-PFHxA	315.0 / 270.0	1.83	95.812636	100.00	95.81
13C2-PFDA	515.0 / 470.0	3.39	96.345072	100.00	96.35
d5-EtFOSAA	589.0 / 419.0	3.70	418.876147	400.00	104.72

Sample Name	JZ82 CCV	Injection Vial	19
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:22:24	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	469.601684	443.00	106.00
PFBS_2	298.9 / 99.0	1.52	466.594802	443.00	105.33
PFHxA_1	313.0 / 269.0	1.83	536.345429	500.00	107.27
PFHxA_2	313.0 / 119.0	1.83	516.897559	500.00	103.38
PFHpA_1	363.0 / 319.0	2.24	554.855493	500.00	110.97
PFHpA_2	363.0 / 169.0	2.24	426.102231	500.00	85.22
PFHxS_1	399.0 / 80.0	2.26	490.810454	456.00	107.63
PFHxS_2	399.0 / 99.0	2.26	490.627157	456.00	107.59
PFOA_1	413.0 / 369.0	2.64	526.134391	500.00	105.23
PFOA_2	413.0 / 169.0	2.64	475.028081	500.00	95.01
PFNA_1	463.0 / 419.0	3.04	543.434024	500.00	108.69
PFNA_2	463.0 / 219.0	3.03	505.400757	500.00	101.08
PFOS_1	499.0 / 80.0	3.03	497.687786	463.00	107.49
PFOS_2	499.0 / 99.0	3.03	503.077853	463.00	108.66
PFDA_1	513.0 / 469.0	3.39	523.053447	500.00	104.61
PFDA_2	513.0 / 219.0	3.39	557.173068	500.00	111.43
PFUnA_1	563.0 / 519.0	3.71	527.372253	500.00	105.47
PFUnA_2	563.0 / 269.0	3.71	372.975414	500.00	74.60
PFDoA_1	613.0 / 569.0	3.99	514.687807	500.00	102.94
PFDoA_2	613.0 / 319.0	3.99	520.128641	500.00	104.03
PFTTrDA_1	663.0 / 619.0	4.23	539.546955	500.00	107.91
PFTTrDA_2	663.0 / 169.0	4.23	495.618433	500.00	99.12
PFTeDA_1	713.0 / 669.0	4.45	525.627798	500.00	105.13
PFTeDA_2	713.0 / 169.0	4.45	543.709830	500.00	108.74
NMeFOSAA_1	570.0 / 419.0	3.54	577.010118	500.00	115.40
NMeFOSAA_2	570.0 / 512.0	3.54	588.662985	500.00	117.73
NEtFOSAA_1	584.0 / 419.0	3.70	547.640632	500.00	109.53
NEtFOSAA_2	584.0 / 483.0	3.70	566.992460	500.00	113.40
13C2-PFHxA	315.0 / 270.0	1.82	91.334519	100.00	91.33
13C2-PFDA	515.0 / 470.0	3.38	96.517735	100.00	96.52
d5-EtFOSAA	589.0 / 419.0	3.69	420.151404	400.00	105.04

Sample Name	KA08 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:01:55	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.297	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.077	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.024	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.303	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.070	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.310	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.195	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.164	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.048	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.613	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.39		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.71		N/A	N/A	ü

Sample Name	CR653PB-FS(0)	Injection Vial	13
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:28:46	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.297	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.077	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.024	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.303	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.070	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.310	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.195	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.164	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.048	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.613	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.83				
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	CR654LCS-FS(0)	Injection Vial	14
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:37:44	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.301	0.297	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.075	0.077	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.24	PFHpA	0.023	0.024	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.290	0.303	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.071	0.070	ü
PFNA_1	463.0 / 419.0	3.04	PFNA			
PFNA_2	463.0 / 219.0	3.04	PFNA	0.306	0.310	ü
PFOS_1	499.0 / 80.0	3.04	PFOS			
PFOS_2	499.0 / 99.0	3.04	PFOS	0.216	0.195	ü
PFDA_1	513.0 / 469.0	3.40	PFDA			
PFDA_2	513.0 / 219.0	3.40	PFDA	0.043	0.047	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.050	0.053	ü
PFDaA_1	613.0 / 569.0	4.00	PFDaA			
PFDaA_2	613.0 / 319.0	4.00	PFDaA	0.166	0.164	ü
PFTrDA_1	663.0 / 619.0	4.24	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.24	PFTrDA	0.067	0.064	ü
PFTeDA_1	713.0 / 669.0	4.46	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.46	PFTeDA	0.049	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.55	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.55	NMeFOSAA	0.539	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.71	NEtFOSAA	0.062	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.83				
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	J7585-FS(0)	Injection Vial	15
Sample ID	JAX-RES-08222018-1000-35	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:46:39	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.220	0.297	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.088	0.077	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.028	0.024	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.288	0.303	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.61	PFOA	0.103	0.070	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.04	PFNA	0.358	0.310	ü
PFOS_1	499.0 / 80.0	3.00	PFOS			
PFOS_2	499.0 / 99.0	3.04	PFOS	0.147	0.195	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.164	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.048	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.613	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.83				
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	J7585MS-FS(0)	Injection Vial	16
Sample ID	Matrix Spike Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T13:55:35	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.309	0.297	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.078	0.077	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.24	PFHpA	0.023	0.024	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.299	0.303	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.071	0.070	ü
PFNA_1	463.0 / 419.0	3.04	PFNA			
PFNA_2	463.0 / 219.0	3.04	PFNA	0.308	0.310	ü
PFOS_1	499.0 / 80.0	3.04	PFOS			
PFOS_2	499.0 / 99.0	3.04	PFOS	0.196	0.195	ü
PFDA_1	513.0 / 469.0	3.40	PFDA			
PFDA_2	513.0 / 219.0	3.40	PFDA	0.043	0.047	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.049	0.053	ü
PFDaA_1	613.0 / 569.0	4.00	PFDaA			
PFDaA_2	613.0 / 319.0	4.00	PFDaA	0.162	0.164	ü
PFTrDA_1	663.0 / 619.0	4.24	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.24	PFTrDA	0.066	0.064	ü
PFTeDA_1	713.0 / 669.0	4.45	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.45	PFTeDA	0.048	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.55	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.54	NMeFOSAA	0.539	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.71	NEtFOSAA	0.066	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.83				
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	J7585MSD-FS(0)	Injection Vial	17
Sample ID	Matrix Spike Duplicate	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:04:32	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.285	0.297	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.078	0.077	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.24	PFHpA	0.022	0.024	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.289	0.303	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.066	0.070	ü
PFNA_1	463.0 / 419.0	3.04	PFNA			
PFNA_2	463.0 / 219.0	3.04	PFNA	0.299	0.310	ü
PFOS_1	499.0 / 80.0	3.04	PFOS			
PFOS_2	499.0 / 99.0	3.04	PFOS	0.197	0.195	ü
PFDA_1	513.0 / 469.0	3.40	PFDA			
PFDA_2	513.0 / 219.0	3.39	PFDA	0.044	0.047	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.049	0.053	ü
PFDaA_1	613.0 / 569.0	3.99	PFDaA			
PFDaA_2	613.0 / 319.0	3.99	PFDaA	0.171	0.164	ü
PFTrDA_1	663.0 / 619.0	4.24	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.23	PFTrDA	0.062	0.064	ü
PFTeDA_1	713.0 / 669.0	4.45	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.45	PFTeDA	0.048	0.048	ü
NMeFOSAA_1	570.0 / 419.0	3.54	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.54	NMeFOSAA	0.562	0.613	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.71	NEtFOSAA	0.064	0.076	ü
13C2-PFHxA	315.0 / 270.0	1.83				
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	J7587-FS(0)	Injection Vial	18
Sample ID	JAX-RES-08222018-1000-35-FD	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-27T14:13:27	Data File	18-0525.wiff
Acquisition Method	5-0371.dam	Result Table	18-0525_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	0.204	0.297	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.070	0.077	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.22	PFHpA	0.031	0.024	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.281	0.303	ü
PFOA_1	413.0 / 369.0	2.64	PFOA			
PFOA_2	413.0 / 169.0	2.59	PFOA	0.101	0.070	ü
PFNA_1	463.0 / 419.0	3.03	PFNA			
PFNA_2	463.0 / 219.0	3.03	PFNA	0.366	0.310	ü
PFOS_1	499.0 / 80.0	3.00	PFOS			
PFOS_2	499.0 / 99.0	3.03	PFOS	0.145	0.195	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.047	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.164	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.064	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.048	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.613	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.076	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	3.69		N/A	N/A	ü



It can be done

Chain-of-Custody

Client Contact Information Tetra Tech 8640 Philips Hwy Suite 16 Jacksonville, FL 32256		Project Manager: <u>Mark Peterson</u> Sampler Information (print name): <u>Mike Goffard</u> Phone: <u>904 6266125</u> Email:		Sampling Site: <u>NAS JAX</u>		Site Information: <u>Residential</u>	
Project Name: <u>JAX PFA Eval</u> Project No.: <u>112G08005-SE037</u>		Turnaround Time (TAT) Requested: <u>7 day</u>		Preservative: <u>Tetra</u>		COC # <u>005</u>	
Sample Identification		Time Zone:		Analysis: <u>PFA 537</u>		Page# <u>1 of 1</u>	
2018		Sample Date		Sample Time		Sample Type	
Matrix		Total # of Cont.		Preservative		Analysis	
J7585	JAX-RES-08222018-1000-35	8/22	1000	G	W	2	X
J7586	JAX-RES-08222018-1000-35-FRB	8/22	1000	G	W	2	X
J7587	JAX-RES-08222018-1000-35-FD	8/22	1000	G	W	2	X
J7588	JAX-RES-08222018-1000-35-MS	8/22	1000	G	W	2	X
Receipt Temperature: (°C)		Samples Intact: Yes - No		Samples on Ice: Yes - No		Receipt Comments:	
Relinquished by (Print/Sign): <u>[Signature]</u>		Company: <u>Tetra Tech</u>		Date/Time: <u>8/22/2018 1600</u>		Received by (Print/Sign): <u>Frd Ex</u>	
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign): <u>Matt Schumite M</u>	
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign): <u>Battelle</u>	
Relinquished by (Print/Sign):		Company:		Date/Time:		Received by (Print/Sign):	
Comments: <u>Potabl. water</u>							

Sample Receipt Form Details

Approved: Authorized

Project Number: 112G08005-SE0375 Client: Tetra Tech

Received by: Schumitz, Matt Date/Time Received: Thursday, August 23, 2018 1:00 PM

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:
J7576	JAX-TCC-MWC3-08222018	08/22/18 12:47	08/23/18 13:55	4	GW	0.9	NA	NA	NA	R0119 (NA)			
J7577	JAX-TCC-MWI-2-08222018	08/22/18 13:00	08/23/18 13:55	2	GW	0.9	NA	NA	NA	R0119 (NA)			
J7578	JAX-TCC-MWI-2-08222018-FD	08/22/18 13:00	08/23/18 13:55	2	GW	0.9	NA	NA	NA	R0119 (NA)			
J7579	JAX-TCC-MWB-1-08222018	08/22/18 14:05	08/23/18 13:55	2	GW	0.9	NA	NA	NA	R0119 (NA)			
J7580	JAX-TCC-SW01-08222018	08/22/18 13:40	08/23/18 13:56	2	SW	0.9	NA	NA	NA	R0119 (NA)			
J7581	JAX-TCC-SW02-08222018	08/22/18 14:30	08/23/18 13:56	2	SW	0.9	NA	NA	NA	R0119 (NA)			
J7582	JAX-TCC-SD01-08222018	08/22/18 14:45	08/23/18 13:57	2	SD	0.9	NA	NA	NA	F0117 (NA)			
J7583	JAX-TCC-EB01-08222018	08/22/18 13:35	08/23/18 13:57	1	W	0.9	NA	NA	NA	R0119 (NA)			
J7584	JAX-TCC-FRB-08222018	08/22/18 14:00	08/23/18 13:58	1	W	0.9	NA	NA	NA	R0119 (NA)			
J7585	JAX-RES-08222018-1000-35	08/22/18 10:00	08/23/18 13:58	2	W	0.9	NA	NA	NA	R0119 (NA)			
J7586	JAX-RES-08222018-1000-35-FRB	08/22/18 10:00	08/23/18 13:59	1	W	0.9	NA	NA	NA	R0119 (NA)			
J7587	JAX-RES-08222018-1000-35-FD	08/22/18 10:00	08/23/18 13:59	2	W	0.9	NA	NA	NA	R0119 (NA)			
J7588	JAX-RES-08222018-1000-35-MS/MSD	08/22/18 10:00	08/23/18 13:59	2	W	0.9	NA	NA	NA	R0119 (NA)			

Total Samples: 13

QA/QC Summary
Batch 18-0532

Project:	CTO-SE0375: Naval Air Station (NAS) Jacksonville
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	W
Data Set:	DP-18-0244
Analytical SOP:	5-371
Method Reference:	USEPA 537 rev. 1.1, QSM 5.1

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
08/22/2018	08/23/2018	0.9

Corrective Actions	Sample JAX-RES-08222018-1000-35-FRB is listed on the COC to have 2 bottles but there was only one in the cooler – client was notified, no impact on the analysis.
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	The field samples associated with these FRB samples are reported in SDG 18-0525.

METHOD SUMMARIES	
Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were concentrated to dryness under nitrogen with a water bath set between 60 °C and 65 °C, reconstituted with 96:4 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	None
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	<p>Samples analyzed on the Sciex 5500.</p> <p>There were no ion ratio exceedances above 50% RPD for any analyte detected above the MDL or the LOQ in this SDG.</p> <p>The low point of the calibration (JZ80) is not being used for the internal standard 13C2-PFOA and any analytes quantified vs. this internal standard. There is no impact on the data as the low standard used is still below the LOQ.</p>

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

QA/QC Summary
Batch 18-0532

Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.
$\leq 1/3$ the MRL	No exceedances noted. No comments.
Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
70-130% of true value	No exceedances noted. No comments.
Matrix Spike (MS) / Duplicate (MSD)	A MS/MSD were prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy. The relative percent difference was calculated to measure precision.
70-130% of true value, RPD $\leq 30\%$	No MS/MSD was prepared with this batch. No comments.
Surrogates Standard Analytes	Labelled surrogate compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
70-130% of true value	No exceedances noted. No comments.
Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
ICAL high and low points RPD $\leq 20\%$, 50-150% of average area of the ICAL and 70-140% of most recent CCV	No exceedances noted. No comments.
Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadratic curve fitting.
R ² >0.99	No exceedances noted.
Target and SIS compounds +/- 30% of true value, Low point 50-150% of true value	No comments.

QA/QC Summary
Batch 18-0532

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



Project Client: Tetra Tech
 Project Name: CTO-SE0375: Naval Air Station Jacksonville
 Project Number: 100119154-SE0375
 Preparation Batch: 18-0532
 Data Set: DP-18-0244
 Test Code: Master_371

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



It can be done

**BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM**

Project Title: CTO-SE0375: Naval Air Station Jackson **Data Set Number:** DP-18-0244
Project Number: 100119154-SE0375 **Prep Batch Number:** 18-0532
Entered By: Denise Schumitz **Entered On:** 08/29/2018
Test Code (Matrix Type): Master_371(L)

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
DMS 8/29/2018

JZ80 is not being used in this method for PFHxA, PFHpA, PFOA, PFNA, PFDA, PFUnA, PFDoA, PFTrDA, PFTeDA, 13C2-PFHxA and 13C2-PFDA. There is no impact on the data once this point of the calibration is removed.
DMS 8/29/2018

13C2-PFOA in JZ80 did not pass the acceptable IS area criteria and therefore is not being used. All analytes that use 13C2-PFOA as the IS to be quanted are also not being used in this method. There is no impact on the data once this point of the calibration is removed.
DMS 8/29/2018

Task Leader Approval:

Supervisor Approval:

PM Approval:

Digitally signed by Jonathan

Thorn

Date: 2018.08.29 12:07:26 -04'00'



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



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: CR673LCS-FS(0)
 Client Sample ID: Laboratory Control Sample
 Sample Size: 0.25
 Units: L
 Dilution Factor: 1.000
 PIV (L): 0.001
 Target Analyte: PFDoA
 MRM Transition: 613.0 / 569.0
 Data file: 18-0532.wiff
 Result table: 18-0532_DW
 Area: 1,271,853.50
 IS Name: 13C2-PFOA
 IS Area: 32,009.50
 IS Amount (ng/L): 100
 y-intercept: 0.74252
 slope: 0.98787

$$\text{Concentration} = \frac{[(1271853.5/32009.5) - 0.74252]}{0.98787} * 100 * 0.001 * 1 / 0.25$$

ng/L = 15.79



Project Client: Tetra Tech
 Project Name: CTO-SE0375: Naval Air Station Jacksonville
 Project No.: 100119154-SE0375
 Preparation Batch: 18-0532
 Data Set: DP-18-0244

	CR672PB-FS (Procedural Blank)	CR673LCS-FS (Laboratory Control Sample)	J7586-FS (JAX-RES-08222018-1000-35-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 (L3/L9)
JZ80	L3	8/28/18 17:48	13C4-PFOS	122,763.05	-
JZ81	L4	8/28/18 17:57	13C4-PFOS	170,809.94	-
JZ82	L5	8/28/18 18:06	13C4-PFOS	131,586.66	-
JZ83	L6	8/28/18 18:15	13C4-PFOS	167,967.88	-
JZ84	L7	8/28/18 18:24	13C4-PFOS	139,462.82	-
JZ85	L8	8/28/18 18:33	13C4-PFOS	115,478.91	-
JZ86	L9	8/28/18 18:42	13C4-PFOS	142,066.87	14.6

PASS

Average Lower Upper
 141,448.02 70,724.01 212,172.03

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/28/18 17:48	13C4-PFOS	122,763.05	70,724.01	212,172.03		92,110.66	184,221.32	
JZ81	L4	8/28/18 17:57	13C4-PFOS	170,809.94	70,724.01	212,172.03		92,110.66	184,221.32	
JZ82	L5	8/28/18 18:06	13C4-PFOS	131,586.66	70,724.01	212,172.03		92,110.66	184,221.32	
JZ83	L6	8/28/18 18:15	13C4-PFOS	167,967.88	70,724.01	212,172.03		92,110.66	184,221.32	
JZ84	L7	8/28/18 18:24	13C4-PFOS	139,462.82	70,724.01	212,172.03		92,110.66	184,221.32	
JZ85	L8	8/28/18 18:33	13C4-PFOS	115,478.91	70,724.01	212,172.03		92,110.66	184,221.32	
JZ86	L9	8/28/18 18:42	13C4-PFOS	142,066.87	70,724.01	212,172.03		92,110.66	184,221.32	
KA08 IB	Instruemtn Blank	8/28/18 18:51	13C4-PFOS	140,122.67	70,724.01	212,172.03		92,110.66	184,221.32	
JZ77 ICC	ICC	8/28/18 19:00	13C4-PFOS	147,816.85	70,724.01	212,172.03		92,110.66	184,221.32	
CR672PB-FS(0)	Procedural Blank	8/28/18 19:18	13C4-PFOS	143,173.36	70,724.01	212,172.03		92,110.66	184,221.32	
CR673LCS-FS(0)	Laboratory Control Sample	8/28/18 19:27	13C4-PFOS	135,090.36	70,724.01	212,172.03		92,110.66	184,221.32	
J7586-FS(0)	JAX-RES-08222018-1000-32-FRB	8/28/18 19:36	13C4-PFOS	152,473.17	70,724.01	212,172.03		92,110.66	184,221.32	
JZ82 CCV	CCV	8/28/18 19:45	13C4-PFOS	153,814.84	70,724.01	212,172.03		92,110.66	184,221.32	

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 (L4/L9)
JZ81	L4	8/28/18 17:57	13C2-PFOA	40,170.34	-
JZ82	L5	8/28/18 18:06	13C2-PFOA	29,973.21	-
JZ83	L6	8/28/18 18:15	13C2-PFOA	38,724.50	-
JZ84	L7	8/28/18 18:24	13C2-PFOA	32,242.22	-
JZ85	L8	8/28/18 18:33	13C2-PFOA	28,147.16	-
JZ86	L9	8/28/18 18:42	13C2-PFOA	37,149.65	7.8

PASS

Average Lower Upper
 34,401.18 17,200.59 51,601.77

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ81	L4	8/28/18 17:57	13C2-PFOA	40,170.34	17,200.59	51,601.77		20,981.25	41,962.49	
JZ82	L5	8/28/18 18:06	13C2-PFOA	29,973.21	17,200.59	51,601.77		20,981.25	41,962.49	
JZ83	L6	8/28/18 18:15	13C2-PFOA	38,724.50	17,200.59	51,601.77		20,981.25	41,962.49	
JZ84	L7	8/28/18 18:24	13C2-PFOA	32,242.22	17,200.59	51,601.77		20,981.25	41,962.49	
JZ85	L8	8/28/18 18:33	13C2-PFOA	28,147.16	17,200.59	51,601.77		20,981.25	41,962.49	
JZ86	L9	8/28/18 18:42	13C2-PFOA	37,149.65	17,200.59	51,601.77		20,981.25	41,962.49	
KA08 IB	Instruemtn Blank	8/28/18 18:51	13C2-PFOA	30,509.07	17,200.59	51,601.77		20,981.25	41,962.49	
JZ77 ICC	ICC	8/28/18 19:00	13C2-PFOA	33,473.37	17,200.59	51,601.77		20,981.25	41,962.49	
CR672PB-FS(0)	Procedural Blank	8/28/18 19:18	13C2-PFOA	33,701.96	17,200.59	51,601.77		20,981.25	41,962.49	
CR673LCS-FS(0)	Laboratory Control Sample	8/28/18 19:27	13C2-PFOA	32,009.50	17,200.59	51,601.77		20,981.25	41,962.49	
J7586-FS(0)	JAX-RES-08222018-1000-32-FRB	8/28/18 19:36	13C2-PFOA	34,368.16	17,200.59	51,601.77		20,981.25	41,962.49	
JZ82 CCV	CCV	8/28/18 19:45	13C2-PFOA	34,594.30	17,200.59	51,601.77		20,981.25	41,962.49	

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



Sample Name	Sample ID	Analysis Date	Analyte	Area	RPD (L3/L9)
JZ80	L3	8/28/18 17:48	d3-MeFOSAA	22,168.81	-
JZ81	L4	8/28/18 17:57	d3-MeFOSAA	29,982.71	-
JZ82	L5	8/28/18 18:06	d3-MeFOSAA	22,605.50	-
JZ83	L6	8/28/18 18:15	d3-MeFOSAA	25,893.02	-
JZ84	L7	8/28/18 18:24	d3-MeFOSAA	21,579.90	-
JZ85	L8	8/28/18 18:33	d3-MeFOSAA	18,194.92	-
JZ86	L9	8/28/18 18:42	d3-MeFOSAA	25,059.51	12.2

PASS

Average 23,640.62 Lower 11,820.31 Upper 35,460.93

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier	CCV Lower	CCV Upper	Qualifier
JZ80	L3	8/28/18 17:48	d3-MeFOSAA	22,168.81	11,820.31	35,460.93		15,823.85	31,647.70	
JZ81	L4	8/28/18 17:57	d3-MeFOSAA	29,982.71	11,820.31	35,460.93		15,823.85	31,647.70	
JZ82	L5	8/28/18 18:06	d3-MeFOSAA	22,605.50	11,820.31	35,460.93		15,823.85	31,647.70	
JZ83	L6	8/28/18 18:15	d3-MeFOSAA	25,893.02	11,820.31	35,460.93		15,823.85	31,647.70	
JZ84	L7	8/28/18 18:24	d3-MeFOSAA	21,579.90	11,820.31	35,460.93		15,823.85	31,647.70	
JZ85	L8	8/28/18 18:33	d3-MeFOSAA	18,194.92	11,820.31	35,460.93		15,823.85	31,647.70	
JZ86	L9	8/28/18 18:42	d3-MeFOSAA	25,059.51	11,820.31	35,460.93		15,823.85	31,647.70	
KA08 IB	Instruemtn Blank	8/28/18 18:51	d3-MeFOSAA	22,039.74	11,820.31	35,460.93		15,823.85	31,647.70	
JZ77 ICC	ICC	8/28/18 19:00	d3-MeFOSAA	23,316.12	11,820.31	35,460.93		15,823.85	31,647.70	
CR672PB-FS(0)	Procedural Blank	8/28/18 19:18	d3-MeFOSAA	26,048.71	11,820.31	35,460.93		15,823.85	31,647.70	
CR673LCS-FS(0)	Laboratory Control Sample	8/28/18 19:27	d3-MeFOSAA	21,304.73	11,820.31	35,460.93		15,823.85	31,647.70	
J7586-FS(0)	JAX-RES-08222018-1000-32-FRB	8/28/18 19:36	d3-MeFOSAA	23,111.60	11,820.31	35,460.93		15,823.85	31,647.70	
JZ82 CCV	CCV	8/28/18 19:45	d3-MeFOSAA	24,581.62	11,820.31	35,460.93		15,823.85	31,647.70	

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 6:24:36 PM	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.53	1.00	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.84	1.21	0.8 – 1.5

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 6:24:36 PM	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_DW
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.53	40	>10
PFBS_2	298.9 / 99.0	1.53	31	>10
PFHxA_1	313.0 / 269.0	1.84	30	>10
PFHxA_2	313.0 / 119.0	1.84	20	>10
PFHpA_1	363.0 / 319.0	2.25	26	>10
PFHpA_2	363.0 / 169.0	2.25	25	>10
PFHxS_1	399.0 / 80.0	2.27	28	>10
PFHxS_2	399.0 / 99.0	2.27	42	>10
PFOA_1	413.0 / 369.0	2.66	26	>10
PFOA_2	413.0 / 169.0	2.66	27	>10
PFNA_1	463.0 / 419.0	3.05	25	>10
PFNA_2	463.0 / 219.0	3.05	25	>10
PFOS_1	499.0 / 80.0	3.05	38	>10
PFOS_2	499.0 / 99.0	3.04	37	>10
PFDA_1	513.0 / 469.0	3.41	28	>10
PFDA_2	513.0 / 219.0	3.40	29	>10
PFUnA_1	563.0 / 519.0	3.73	23	>10
PFUnA_2	563.0 / 269.0	3.72	40	>10
PFDaA_1	613.0 / 569.0	4.00	26	>10
PFDaA_2	613.0 / 319.0	4.00	25	>10
PFTrDA_1	663.0 / 619.0	4.25	33	>10
PFTrDA_2	663.0 / 169.0	4.24	42	>10
PFTeDA_1	713.0 / 669.0	4.46	46	>10
PFTeDA_2	713.0 / 169.0	4.46	39	>10
NMeFOSAA_1	570.0 / 419.0	3.55	29	>10
NMeFOSAA_2	570.0 / 512.0	3.55	36	>10
NEtFOSAA_1	584.0 / 419.0	3.71	43	>10
NEtFOSAA_2	584.0 / 483.0	3.71	41	>10
13C2-PFHxA	315.0 / 270.0	1.83	38	>10
13C2-PFDA	515.0 / 470.0	3.39	29	>10
d5-EtFOSAA	589.0 / 419.0	3.70	25	>10



Precision and Bias at the LOQ for PFAS in Drinking Water

Analyte	CAS No.	Average (ng/L)	ST DEV	3 Sigma	n
PFHxA	307-24-4	10.41	1.25	3.75	19
PFHpA	375-85-9	10.59	1.42	4.26	19
PFOA	335-67-1	10.45	1.47	4.41	19
PFNA	375-95-1	10.49	1.28	3.84	19
PFDA	335-76-2	10.39	1.57	4.71	19
PFUnA	2058-94-8	10.05	1.71	5.13	19
PFDoA	307-55-1	9.99	1.63	4.89	19
PFTTrDA	72629-94-8	10.09	1.79	5.37	19
PFTeDA	376-06-7	11.27	2.41	7.23	19
NMeFOSAA	2355-31-9	10.60	1.12	3.36	19
NEtFOSAA	2991-50-6	10.17	1.29	3.87	19
PFBS	375-73-5	8.64	1.26	3.78	19
PFHxS	355-46-4	9.73	1.49	4.47	19
PFOS	1763-23-1	9.32	1.52	4.56	19

BATTELLE DETECTION LIMITS FOR PFAS IN DRINKING WATER

Battelle SOP 5-371 (EPA Method 537 Version 1.1)

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)	MRL (ng/L)
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
PFTTrDA	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:	22-Feb-2017
Request ID:	3683
Company Name:	Battelle Memorial Institute
Instrument ID:	X60666
Instrument Model:	QTRAP 5500
Instrument Serial Number:	AU23051004

PASS **FAIL**

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

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

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

Comments: _____

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

Approved By : _____ **Date:** _____

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PRE PM PPG PERFORMANCE EVALUATION:

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

CAD Settings	Vacuum Reading (x 10 ⁻⁵ Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.5	0.4 to 1.1 x10 ⁻⁵ Torr
<input checked="" type="checkbox"/> CAD Low	1.9	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.4	Read Only
<input checked="" type="checkbox"/> CAD High	3.4	Read Only
<input checked="" type="checkbox"/> CAD 12	3.4	2.4 to 4.5 x10 ⁻⁵ Torr

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

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

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

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

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

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

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

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

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

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

Appendix ZEFPM003-2L

PREVENTIVE MAINTENANCE CHECKLIST:

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

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

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

- Pump down overnight if possible. N/A

- Perform Maintenance on Turbo V source.

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

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

Appendix ZEFPM003-2L

POST PM PPG PERFORMANCE TESTS:

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

CAD Settings	Vacuum Reading (x 10 ⁻⁵ Torr)	Acceptance Criteria
<input checked="" type="checkbox"/> CAD 0	0.8	0.4 to 1.1 x10 ⁻⁵ Torr
<input checked="" type="checkbox"/> CAD Low	2.1	Read Only
<input checked="" type="checkbox"/> CAD Medium	2.6	Read Only
<input checked="" type="checkbox"/> CAD High	3.7	Read Only
<input checked="" type="checkbox"/> CAD 12	3.7	2.4 to 4.5 x10 ⁻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	5.94 e6	≥1.2 ^{e6}	0.6933	0.6 to 0.8
Q1 500.380	2.25 e7	≥9.0 ^{e6}	0.7444	0.6 to 0.8
Q1 906.673	2.74 e7	≥1.4 ^{e7}	0.7347	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	1.33 e8	≥6.8 ^{e7}	0.7656	0.6 to 0.8

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

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

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

Transmission Efficiency: 16.93% (≥ 10.0%)

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

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

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

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

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

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

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

Appendix ZEFPM003-2L

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

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

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

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



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

Client ID		KA08 IB			
Battelle ID		KA08 IB_08/28/2018			
Sample Type		IB			
Collection Date		NA			
Extraction Date		NA			
Analysis Date		08/28/2018			
Analytical Instrument		Sciex 5500 LC/MS/MS			
% Moisture		NA			
Matrix		NA			
Sample Size		0.250			
Size Unit-Basis		NA			
Units		ng/L	MDL	LOD	LOQ
<hr/>					
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	98
13C2-PFDA	107
d5-EtFOSAA	97



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

Client ID		Procedural Blank			
Battelle ID		CR672PB-FS			
Sample Type		PB			
Collection Date		08/28/2018			
Extraction Date		08/28/2018			
Analysis Date		08/28/2018			
Analytical Instrument		Sciex 5500 LC/MS/MS			
% Moisture		NA			
Matrix		WATER			
Sample Size		0.250			
Size Unit-Basis		L			
Units		ng/L	MDL	LOD	LOQ
PFHxA	307-24-4	0.50 U	0.22	0.50	2.50
PFHpA	375-85-9	1.00 U	0.34	1.00	2.50
PFOA	335-67-1	1.00 U	0.38	1.00	2.50
PFNA	375-95-1	1.00 U	0.37	1.00	2.50
PFDA	335-76-2	1.00 U	0.39	1.00	2.50
PFUnA	2058-94-8	1.00 U	0.38	1.00	2.50
PFDaA	307-55-1	1.00 U	0.42	1.00	2.50
PFTTrDA	72629-94-8	1.00 U	0.42	1.00	2.50
PFTeDA	376-06-7	1.50 U	0.73	1.50	2.50
NMeFOSAA	2355-31-9	1.00 U	0.42	1.00	2.50
NEtFOSAA	2991-50-6	1.00 U	0.44	1.00	2.50
PFBS	375-73-5	0.50 U	0.21	0.50	2.50
PFHxS	355-46-4	1.00 U	0.34	1.00	2.50
PFOS	1763-23-1	1.00 U	0.30	1.00	2.50

Surrogate Recoveries (%)

13C2-PFHxA	94
13C2-PFDA	105
d5-EtFOSAA	88



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

Client ID		Laboratory Control Sample					Control Limits	
Battelle ID		CR673LCS-FS					Lower	Upper
Sample Type		LCS						
Collection Date		08/28/2018						
Extraction Date		08/28/2018						
Analysis Date		08/28/2018						
Analytical Instrument		Sciex 5500 LC/MS/MS						
% Moisture		NA						
Matrix		WATER						
Sample Size		0.250						
Size Unit-Basis		L						
Units		ng/L	Target	Recovery	Qual	Lower	Upper	
PFHxA	307-24-4	16.53	15.00	110		70	130	
PFHpA	375-85-9	16.25	15.00	108		70	130	
PFOA	335-67-1	16.23	15.00	108		70	130	
PFNA	375-95-1	15.97	15.00	106		70	130	
PFDA	335-76-2	16.53	15.00	110		70	130	
PFUnA	2058-94-8	15.12	15.00	101		70	130	
PFDoA	307-55-1	15.79	15.00	105		70	130	
PFTTrDA	72629-94-8	15.66	15.00	104		70	130	
PFTeDA	376-06-7	14.92	15.00	99		70	130	
NMeFOSAA	2355-31-9	17.57	15.00	117		70	130	
NEtFOSAA	2991-50-6	17.31	15.00	115		70	130	
PFBS	375-73-5	13.27	13.28	100		70	130	
PFHxS	355-46-4	13.84	14.18	98		70	130	
PFOS	1763-23-1	12.82	14.33	89		70	130	

Surrogate Recoveries (%)

13C2-PFHxA	97
13C2-PFDA	92
d5-EtFOSAA	101



It can be done

**BATTELLE - NORWELL OPERATIONS
SAMPLE PREPARATION RECORDS**

<u>Project Title(s)</u>	<u>Project No.(s)</u>
CTO-SE0375: Naval Air Station Jacksonville	100119154- SE0375
18-0532	
CTO-SE0375: Drinking Water Analysis	
W	
SOP Numbers (see workplan for modifications)	
VOASOP No.	5-371

This Batch Contains The Following Samples:

CR672PB-FS
CR673LCS-FS
J7586-FS

Laboratory Preparation Records
COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Denise Schumitz	08/29/2018	DMS



It can be done

**BATTELLE - NORWELL OPERATIONS
SAMPLE IDENTIFICATION PAGE**

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)

100119154-
SE0375

18-0532

CTO-SE0375: Drinking Water Analysis

W

Sample ID	Description
CR672PB-FS	Procedural Blank
CR673LCS-FS	Laboratory Control Sample
J7586-FS	JAX-RES-08222018-1000-35-FRB

Samples Assigned By:

Jonathan Thorn

Date : August 27, 2018

Comments:



It can be done

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

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)

100119154-
SE0375

18-0532

CTO-SE0375: Drinking Water Analysis

W

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CR672PB-FS	Procedural Blank	250.0	NA	--	08/28/18 SAS
CR673LCS-FS	Laboratory Control Sample	250.0	NA	--	08/28/18 SAS
J7586-FS	JAX-RES-08222018-1000-35-FRB	255.0	1	C	08/29/18 SAS

Comments:

Sample ID:	Comments:
CR672PB-FS	1.26g Trizma(180502-01) weighed on BAL-009
CR673LCS-FS	1.25g Trizma(180502-01) weighed on BAL-009

Samples Assigned By

Jonathan Thorn

Date : August 27, 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

18-0532

CTO-SE0375: Drinking Water Analysis

W

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CR672PB-FS	JZ90	SIS	1	50	08/28/18 SAS	SG	NA
CR673LCS-FS	JZ28	LCS/MS	1	75	08/28/18 SAS	SG	NA
CR673LCS-FS	JZ90	SIS	1	50	08/28/18 SAS	SG	NA
J7586-FS	JZ90	SIS	1	50	08/28/18 SAS	SG	NA

Syringes/Pipettes Used:

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



It can be done

BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0532****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
CR672PB-FS(0)	950	50	JZ87	50	1	1000	1.000	08/28/18 SAS	SG
CR673LCS-FS(0)	950	50	JZ87	50	1	1000	1.000	08/28/18 SAS	SG
J7586-FS(0)	950	50	JZ87	50	1	1000	1.000	08/28/18 SAS	SG

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
EXTRACT - INSTRUMENT FACILITY CUSTODY PAGE**

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)

100119154-
SE0375

18-0532

CTO-SE0375: Drinking Water Analysis

W

Purpose: LC-MS/MS TRANSFER		Last Activity: Prep->Inst			
Relinquished On/By: Aug 28 2018 5:02PM SAS		Received On/By: Aug 28 2018 5:27PM 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	CR672PB-FS(0)	1000	1	Intact	NA
2	CR673LCS-FS(0)	1000	1	Intact	NA
3	J7586-FS(0)	1000	1	Intact	NA
Total Extracts:		3			



It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE SPECIFIC COMMENTS

Project Title(s)

CTO-SE0375: Naval Air Station Jacksonville

Project No.(s)100119154-
SE0375**18-0532****CTO-SE0375: Drinking Water Analysis****W**

Sample ID:	Comment:	Date/Initials:
CR672PB-FS	Extraction for all samples began at 9:33am	08/28/18 SAS
CR672PB-FS	Sample extraction ended at 9:55am	08/28/18 SAS
CR673LCS-FS	Sample extraction ended at 9:56am	08/28/18 SAS
J7586-FS	Sample extraction ended at 9:56am	08/28/18 SAS



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**18-0532****CTO-SE0375: Drinking Water Analysis****W**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CR672PB-FS	0	--	8/28/2018 9:33:00 AM	NA		NA	NA	1.000	1.000	08/28/18 SAS
CR673LCS-FS	0	--	8/28/2018 9:33:00 AM	NA		NA	NA	1.000	1.000	08/28/18 SAS
J7586-FS	0	--	8/28/2018 9:33:00 AM	NA		NA	NA	1.000	1.000	08/28/18 SAS

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

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

* - "C" = Extract is Consumed

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		8/28/2018 5:21:57 PM	5-0371.dam	18-0532.wiff
4	JZ80	L3	8/28/2018 5:48:49 PM	5-0371.dam	18-0532.wiff
5	JZ81	L4	8/28/2018 5:57:46 PM	5-0371.dam	18-0532.wiff
6	JZ82	L5	8/28/2018 6:06:42 PM	5-0371.dam	18-0532.wiff
7	JZ83	L6	8/28/2018 6:15:40 PM	5-0371.dam	18-0532.wiff
8	JZ84	L7	8/28/2018 6:24:36 PM	5-0371.dam	18-0532.wiff
9	JZ85	L8	8/28/2018 6:33:32 PM	5-0371.dam	18-0532.wiff
10	JZ86	L9	8/28/2018 6:42:27 PM	5-0371.dam	18-0532.wiff
11	KA08 IB	Instrument Blank	8/28/2018 6:51:23 PM	5-0371.dam	18-0532.wiff
12	JZ77 ICC	ICC	8/28/2018 7:00:19 PM	5-0371.dam	18-0532.wiff
1	MeOH		8/28/2018 7:09:15 PM	5-0371.dam	18-0532.wiff
13	CR672PB-FS(0)	Procedural Blank	8/28/2018 7:18:12 PM	5-0371.dam	18-0532.wiff
14	CR673LCS-FS(0)	Laboratory Control Sample	8/28/2018 7:27:08 PM	5-0371.dam	18-0532.wiff
15	J7586-FS(0)	JAX-RES-08222018-1000-32-FRB	8/28/2018 7:36:04 PM	5-0371.dam	18-0532.wiff
6	JZ82 CCV	CCV	8/28/2018 7:45:01 PM	5-0371.dam	18-0532.wiff



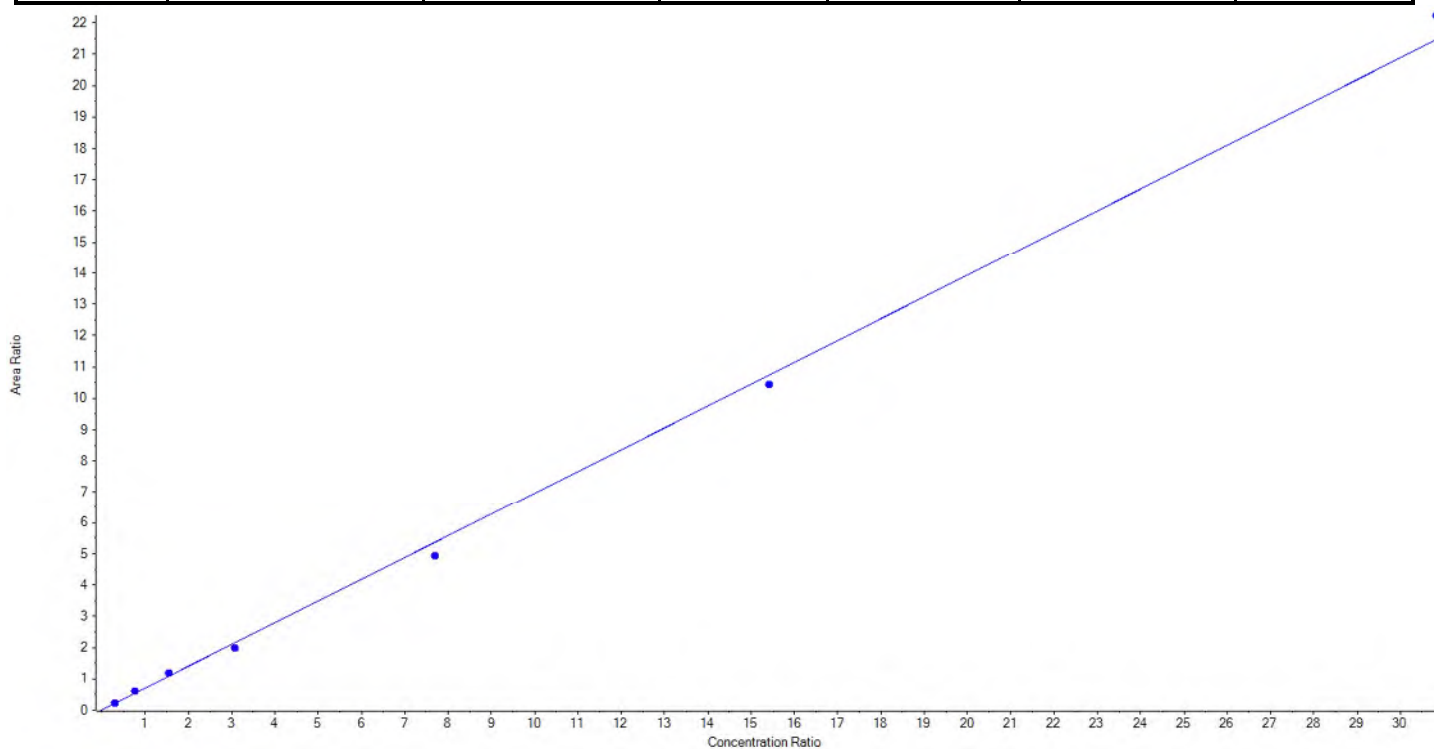
Calibration Summary Report

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Analyte Name	PFBS_1	Data File	18-0532.wiff
MRM Transition	298.9 / 80.0	Result Table	18-0532_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.69583x + 0.01047$ ($r = 0.99858$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	85.247085	96.2
5	JZ81	L4	True	221.50	240.625447	108.6
6	JZ82	L5	True	443.00	490.373349	110.7
7	JZ83	L6	True	885.00	812.407611	91.8
8	JZ84	L7	True	2212.50	2035.434106	92.0
9	JZ85	L8	True	4425.00	4297.036113	97.1
10	JZ86	L9	True	8850.00	9164.476289	103.6





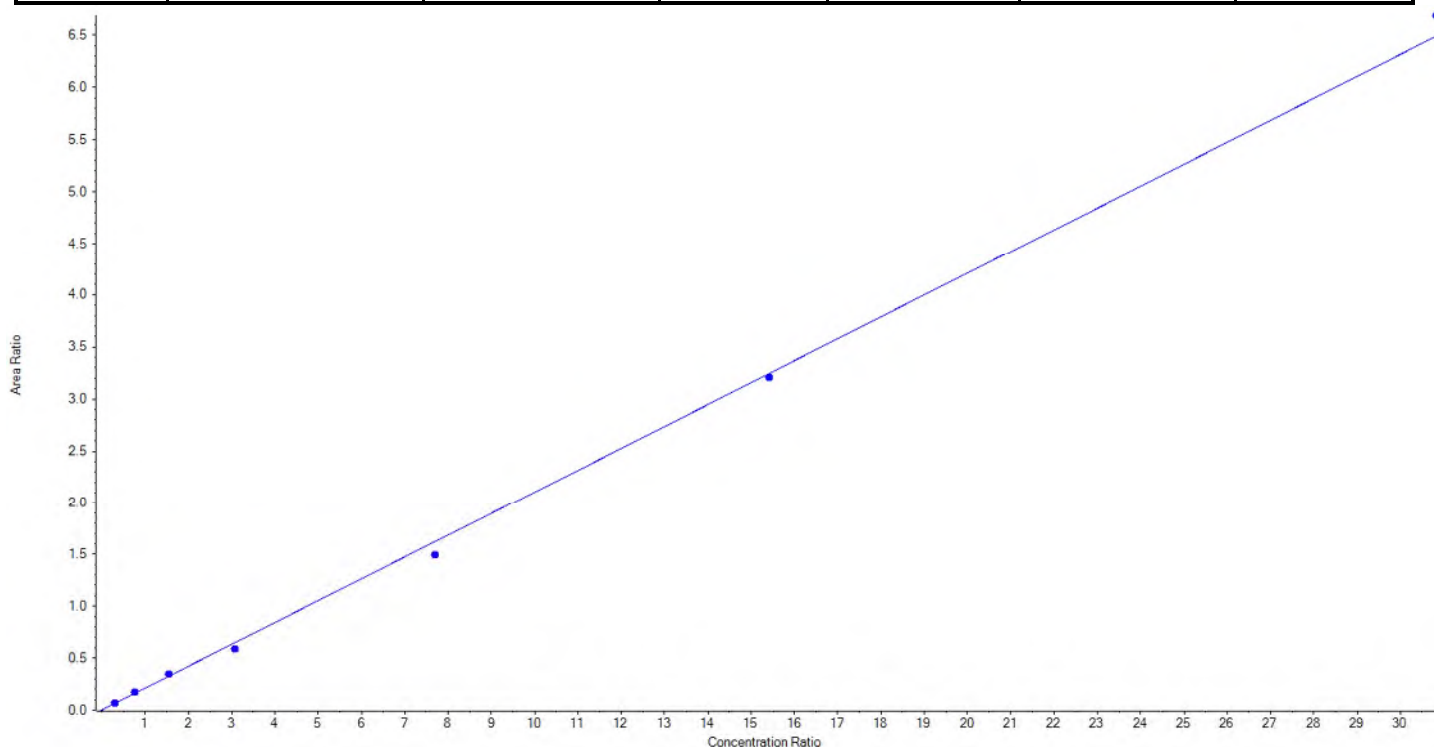
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Analyte Name	PFBS_2	Data File	18-0532.wiff
MRM Transition	298.9 / 99.0	Result Table	18-0532_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.21047 x + 5.11189e-4$ ($r = 0.99884$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	88.60	91.736183	103.5
5	JZ81	L4	True	221.50	232.808367	105.1
6	JZ82	L5	True	443.00	474.911867	107.2
7	JZ83	L6	True	885.00	798.648664	90.2
8	JZ84	L7	True	2212.50	2036.278625	92.0
9	JZ85	L8	True	4425.00	4374.577094	98.9
10	JZ86	L9	True	8850.00	9116.639199	103.0





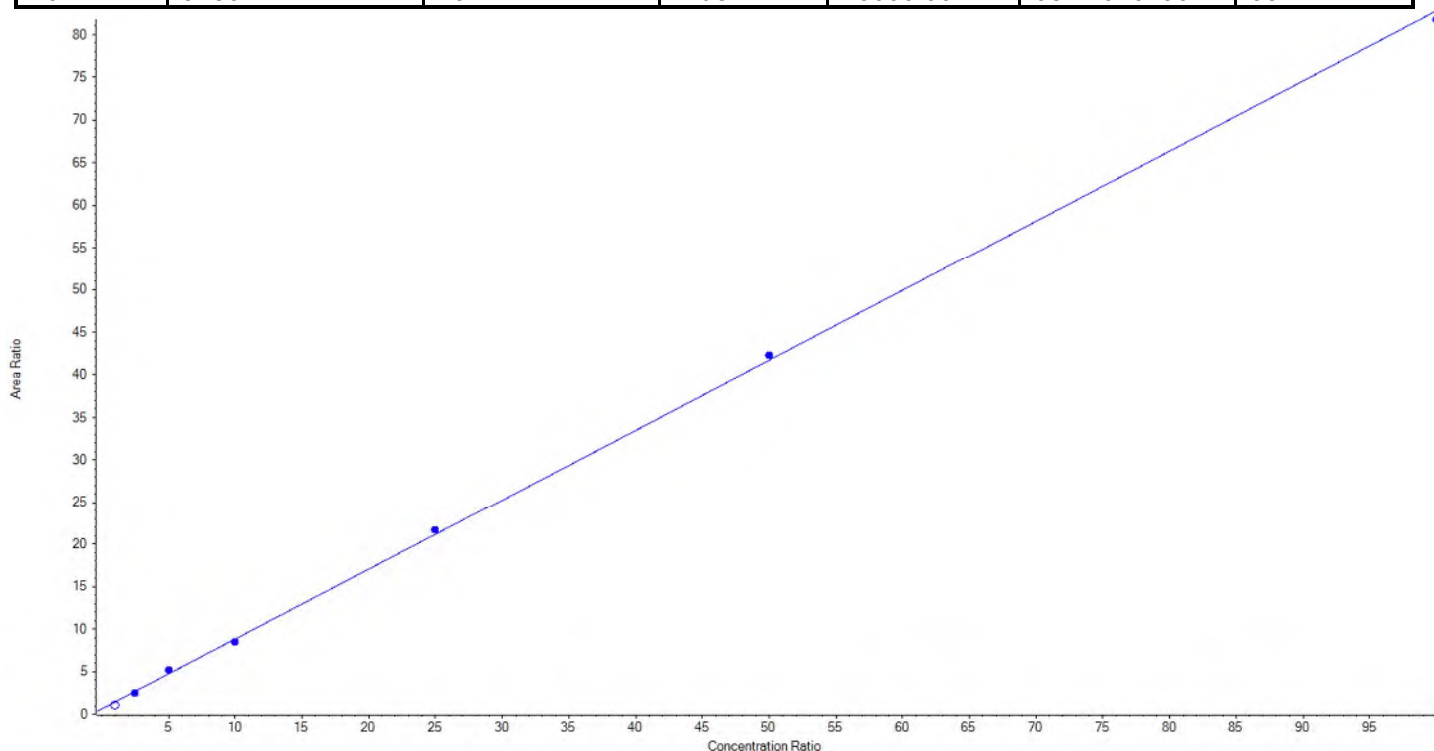
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Analyte Name	PFHxA_1	Data File	18-0532.wiff
MRM Transition	313.0 / 269.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.82176 x + 0.61691$ ($r = 0.99948$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	48.660321	48.7
5	JZ81	L4	True	250.00	224.091435	89.6
6	JZ82	L5	True	500.00	558.604848	111.7
7	JZ83	L6	True	1000.00	960.348087	96.0
8	JZ84	L7	True	2500.00	2560.434970	102.4
9	JZ85	L8	True	5000.00	5072.504223	101.5
10	JZ86	L9	True	10000.00	9874.016436	98.7





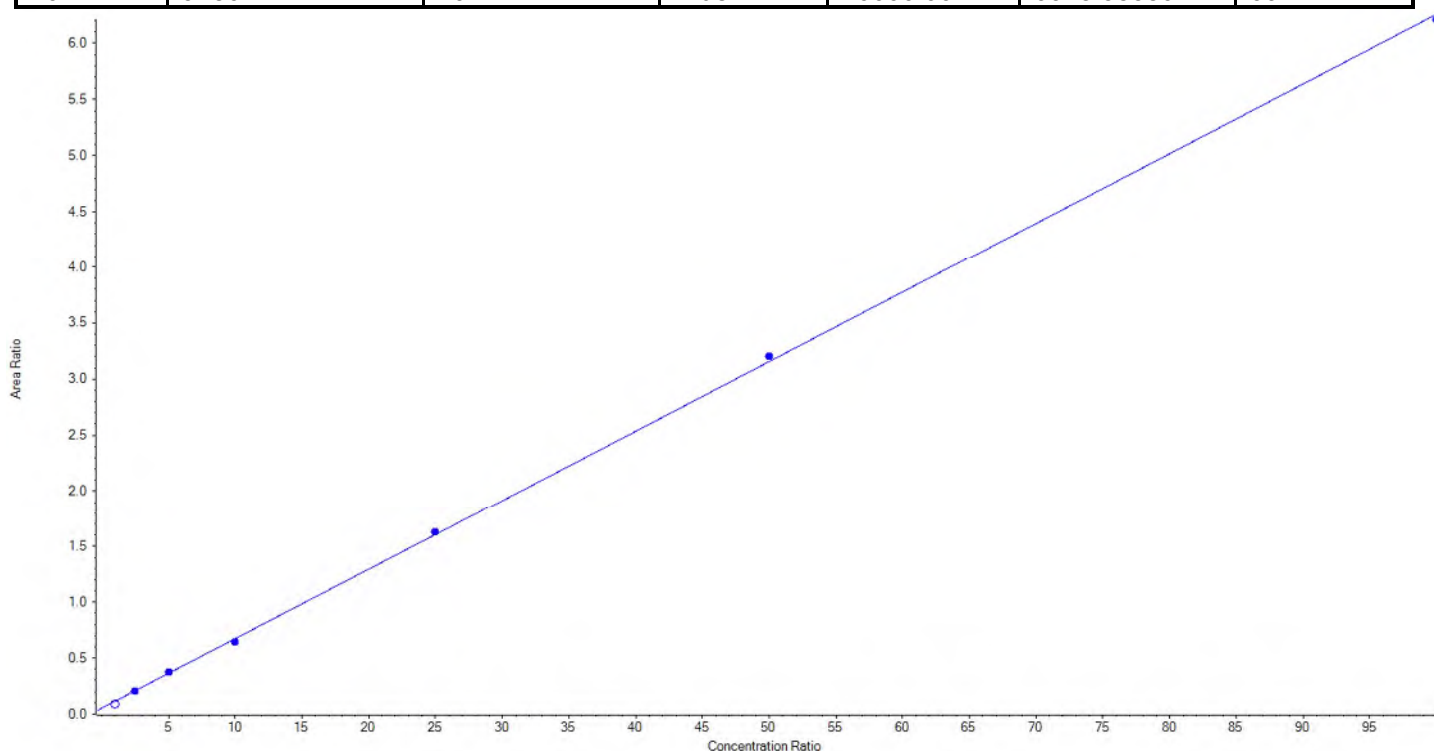
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Analyte Name	PFHxA_2	Data File	18-0532.wiff
MRM Transition	313.0 / 119.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06204 x + 0.05407$ (r = 0.99982) (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	62.914493	62.9
5	JZ81	L4	True	250.00	249.711269	99.9
6	JZ82	L5	True	500.00	515.132145	103.0
7	JZ83	L6	True	1000.00	948.958773	94.9
8	JZ84	L7	True	2500.00	2535.154386	101.4
9	JZ85	L8	True	5000.00	5077.657623	101.6
10	JZ86	L9	True	10000.00	9923.385804	99.2





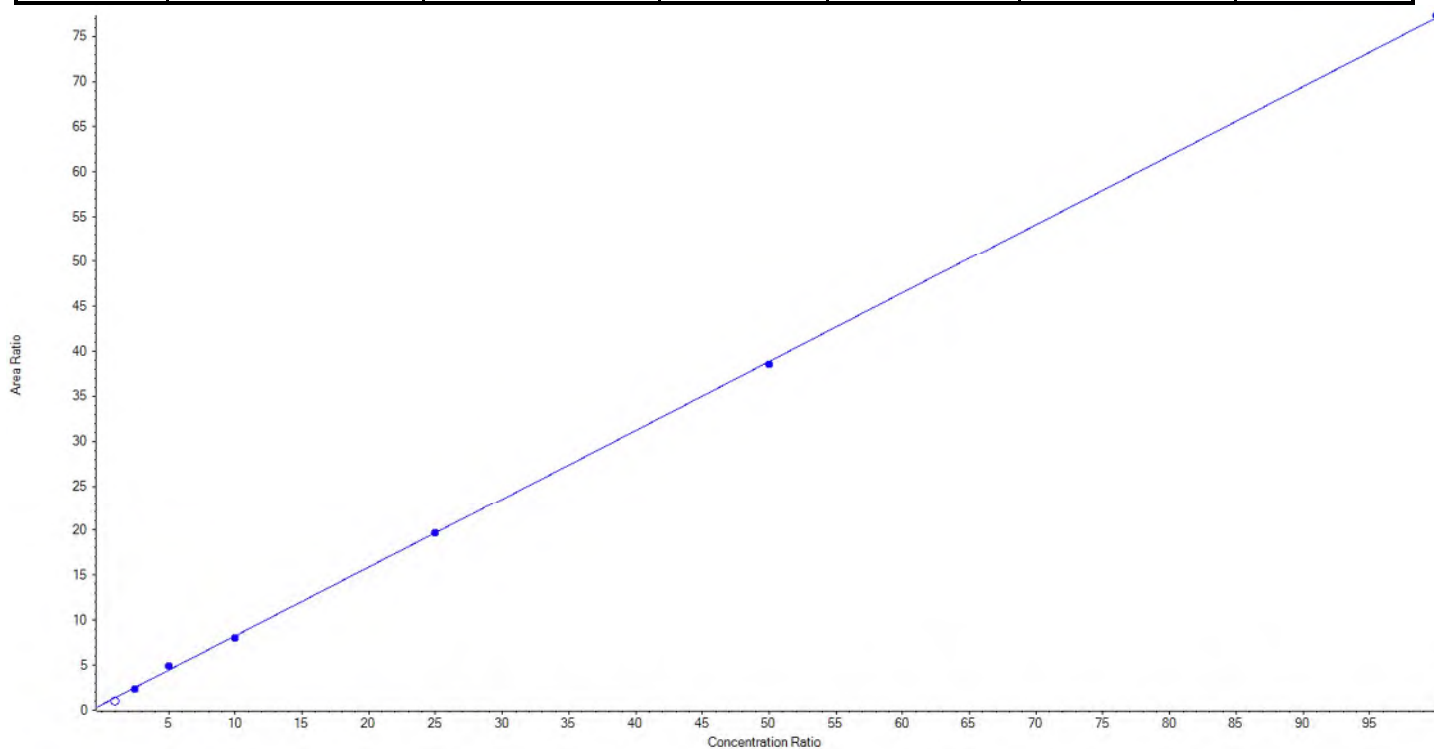
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Analyte Name	PFHpA_1	Data File	18-0532.wiff
MRM Transition	363.0 / 319.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.76478x + 0.60931$ ($r = 0.99968$) (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	50.284539	50.3
5	JZ81	L4	True	250.00	231.502338	92.6
6	JZ82	L5	True	500.00	556.165330	111.2
7	JZ83	L6	True	1000.00	964.442630	96.4
8	JZ84	L7	True	2500.00	2502.579125	100.1
9	JZ85	L8	True	5000.00	4966.546507	99.3
10	JZ86	L9	True	10000.00	10028.764071	100.3





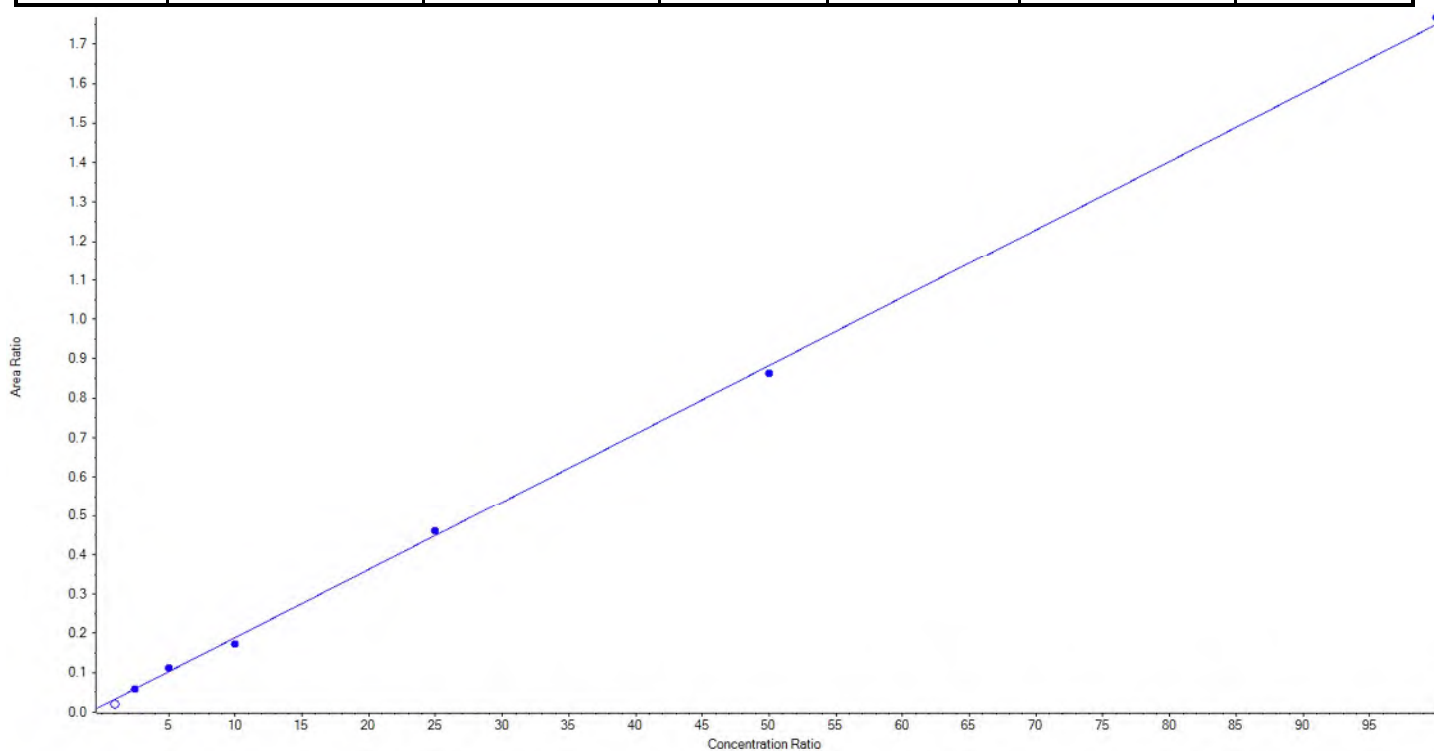
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Analyte Name	PFHpA_2	Data File	18-0532.wiff
MRM Transition	363.0 / 169.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.01734 x + 0.01590$ ($r = 0.99933$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	27.495758	27.5
5	JZ81	L4	True	250.00	246.302024	98.5
6	JZ82	L5	True	500.00	548.187609	109.6
7	JZ83	L6	True	1000.00	904.478495	90.5
8	JZ84	L7	True	2500.00	2568.542721	102.7
9	JZ85	L8	True	5000.00	4882.721868	97.7
10	JZ86	L9	True	10000.00	10099.767283	101.0





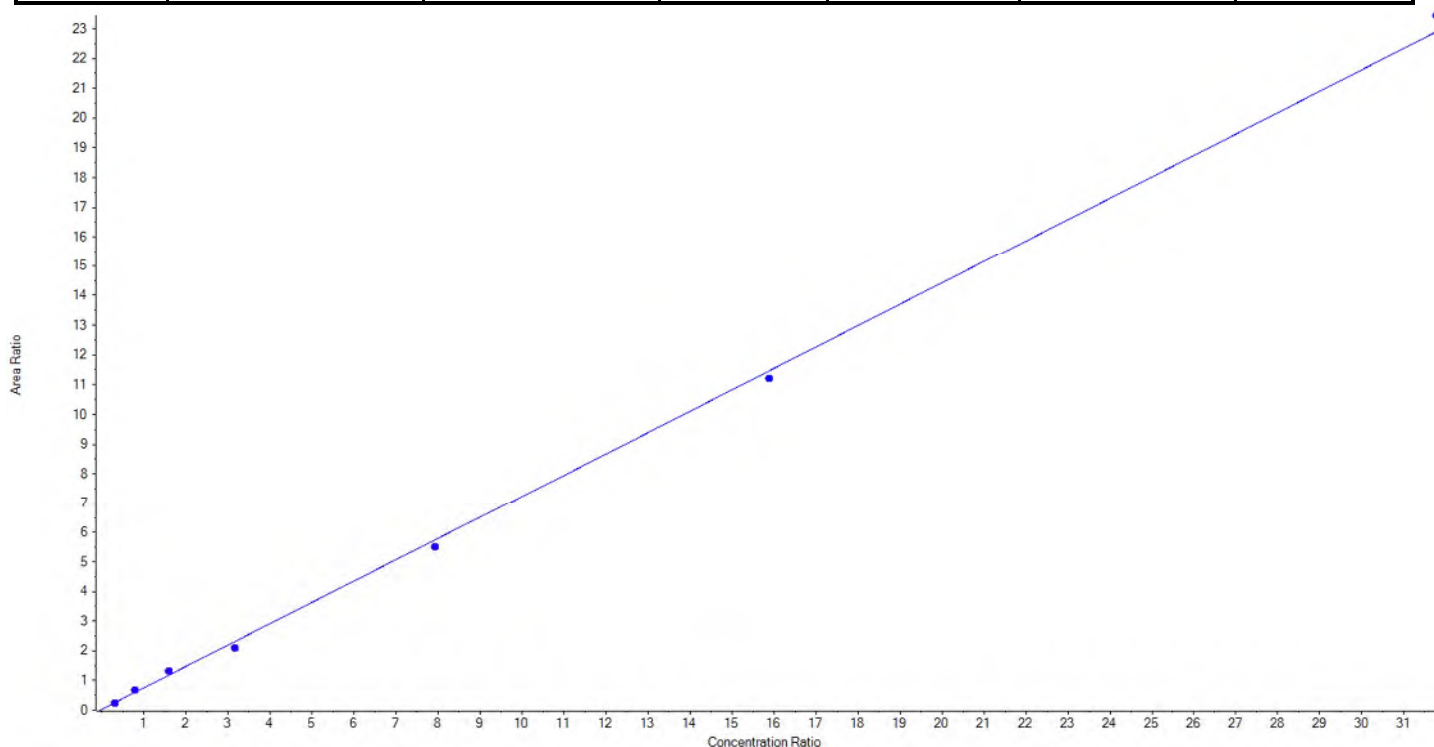
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Analyte Name	PFHxS_1	Data File	18-0532.wiff
MRM Transition	399.0 / 80.0	Result Table	18-0532_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.71970 x + 0.03074$ (r = 0.99899) (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	82.449137	90.4
5	JZ81	L4	True	228.00	251.650106	110.4
6	JZ82	L5	True	456.00	514.632406	112.9
7	JZ83	L6	True	912.00	826.666034	90.6
8	JZ84	L7	True	2280.00	2180.411094	95.6
9	JZ85	L8	True	4560.00	4456.737954	97.7
10	JZ86	L9	True	9120.00	9334.653268	102.4





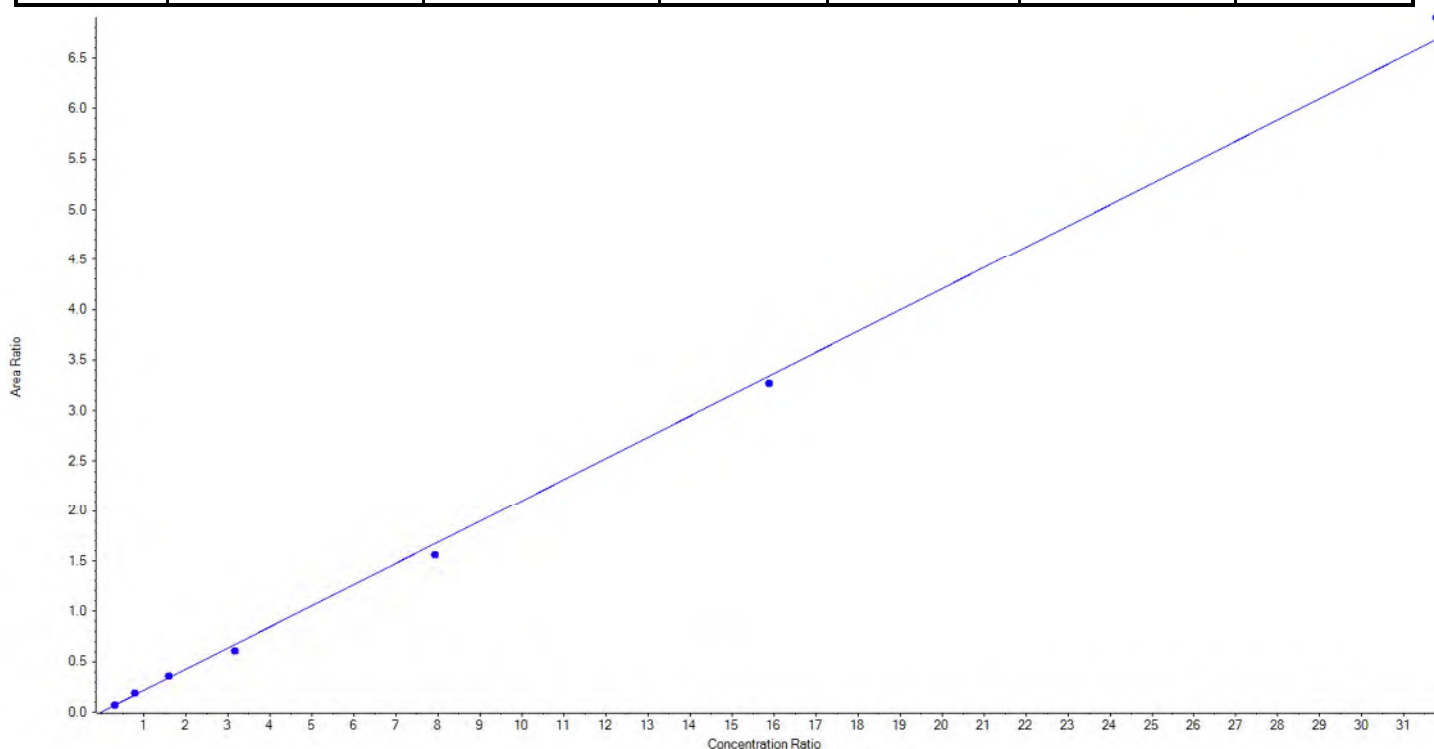
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Analyte Name	PFHxS_2	Data File	18-0532.wiff
MRM Transition	399.0 / 99.0	Result Table	18-0532_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.21014 x + 0.00431$ (r = 0.99883) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	91.20	89.757871	98.4
5	JZ81	L4	True	228.00	253.558407	111.2
6	JZ82	L5	True	456.00	482.668266	105.9
7	JZ83	L6	True	912.00	824.108747	90.4
8	JZ84	L7	True	2280.00	2124.357170	93.2
9	JZ85	L8	True	4560.00	4457.245603	97.8
10	JZ86	L9	True	9120.00	9415.503936	103.2





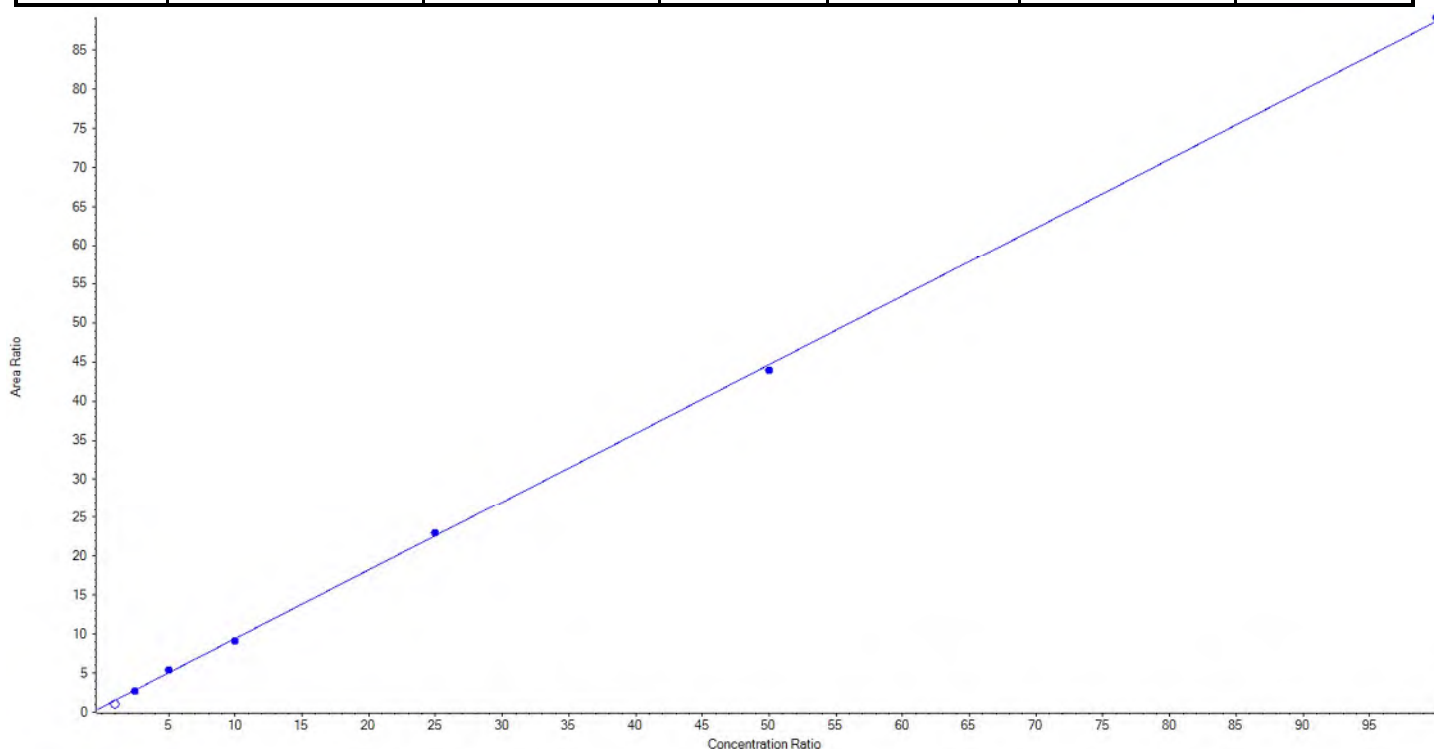
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Analyte Name	PFOA_1	Data File	18-0532.wiff
MRM Transition	413.0 / 369.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.88043x + 0.62980$ ($r = 0.99971$) (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	45.693537	45.7
5	JZ81	L4	True	250.00	237.569100	95.0
6	JZ82	L5	True	500.00	544.272163	108.9
7	JZ83	L6	True	1000.00	957.133262	95.7
8	JZ84	L7	True	2500.00	2535.699983	101.4
9	JZ85	L8	True	5000.00	4922.334691	98.5
10	JZ86	L9	True	10000.00	10052.990801	100.5





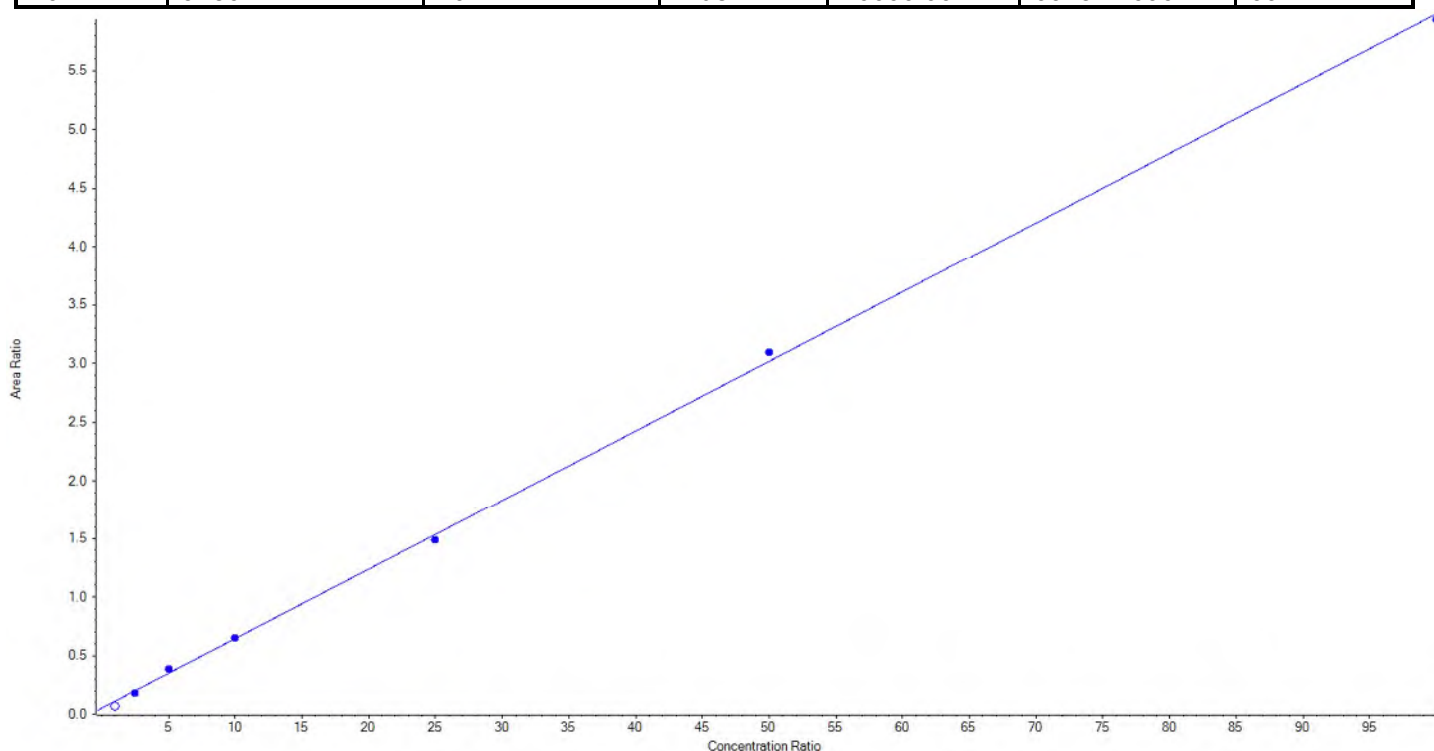
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Analyte Name	PFOA_2	Data File	18-0532.wiff
MRM Transition	413.0 / 169.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05932 x + 0.05178$ ($r = 0.99936$) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	28.851475	28.9
5	JZ81	L4	True	250.00	219.856810	87.9
6	JZ82	L5	True	500.00	565.265842	113.1
7	JZ83	L6	True	1000.00	1006.446461	100.6
8	JZ84	L7	True	2500.00	2417.427672	96.7
9	JZ85	L8	True	5000.00	5125.232254	102.5
10	JZ86	L9	True	10000.00	9915.770961	99.2





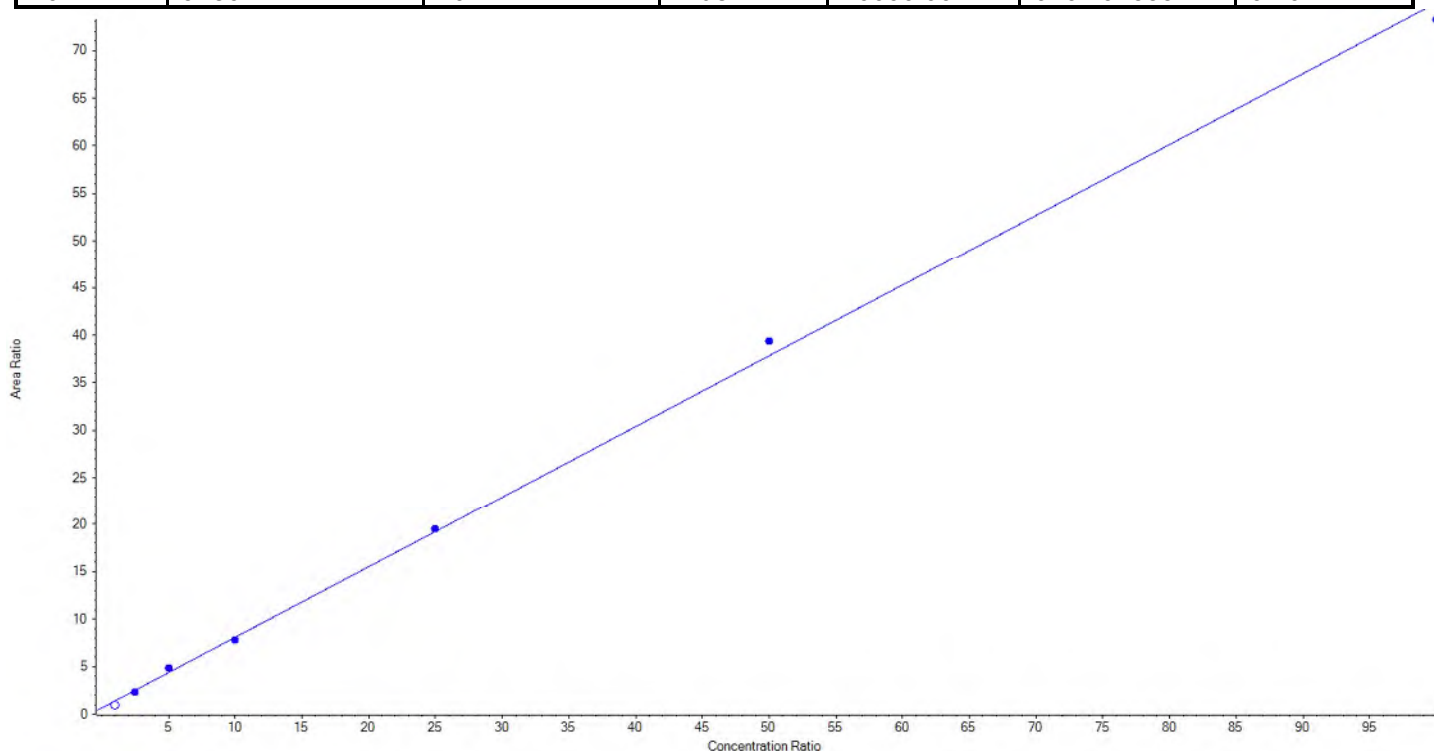
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Analyte Name	PFNA_1	Data File	18-0532.wiff
MRM Transition	463.0 / 419.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.74344 x + 0.65648$ ($r = 0.99897$) (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	35.033757	35.0
5	JZ81	L4	True	250.00	217.651478	87.1
6	JZ82	L5	True	500.00	569.341479	113.9
7	JZ83	L6	True	1000.00	957.997835	95.8
8	JZ84	L7	True	2500.00	2539.520037	101.6
9	JZ85	L8	True	5000.00	5203.563633	104.1
10	JZ86	L9	True	10000.00	9761.925537	97.6





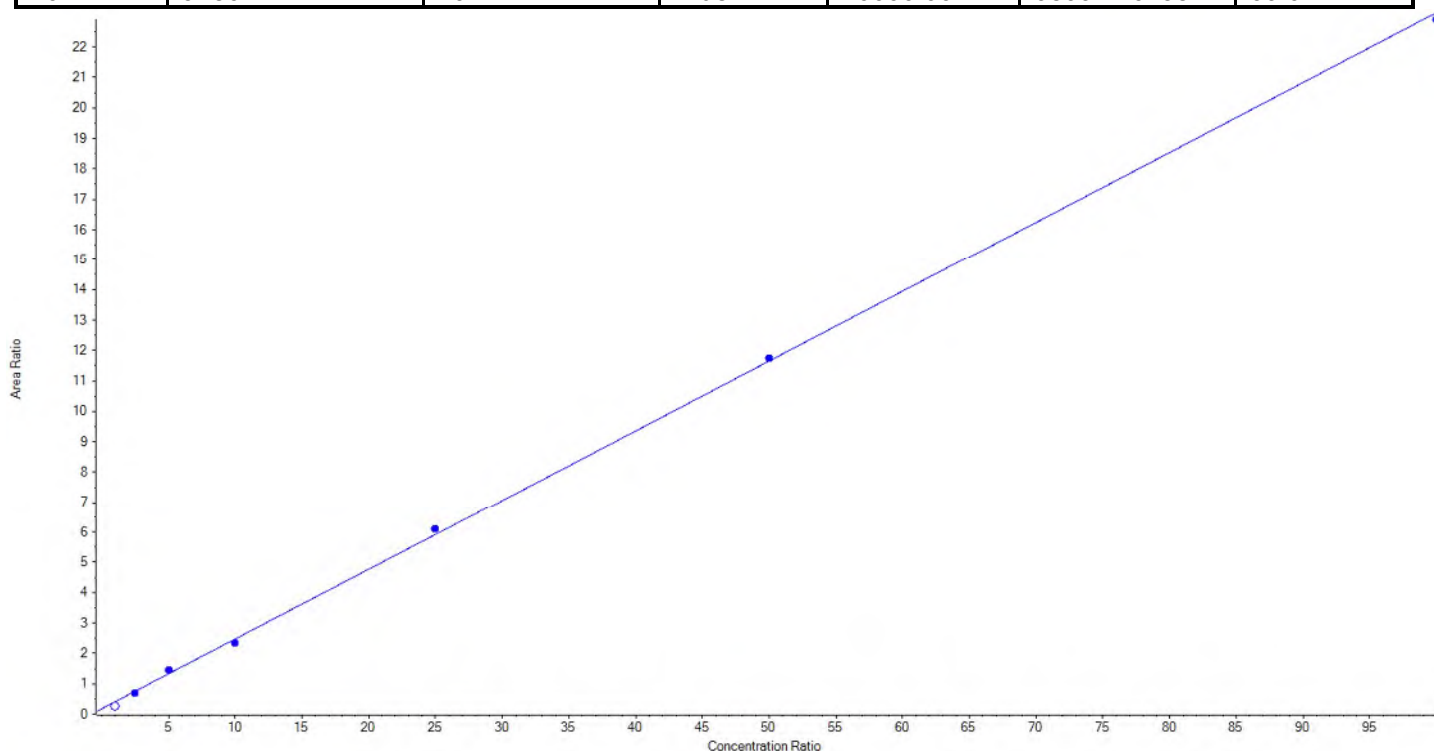
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Analyte Name	PFNA_2	Data File	18-0532.wiff
MRM Transition	463.0 / 219.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.22943x + 0.18120$ ($r = 0.99942$) (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	38.018513	38.0
5	JZ81	L4	True	250.00	227.664285	91.1
6	JZ82	L5	True	500.00	560.343510	112.1
7	JZ83	L6	True	1000.00	938.257924	93.8
8	JZ84	L7	True	2500.00	2577.878689	103.1
9	JZ85	L8	True	5000.00	5046.608835	100.9
10	JZ86	L9	True	10000.00	9899.246758	99.0





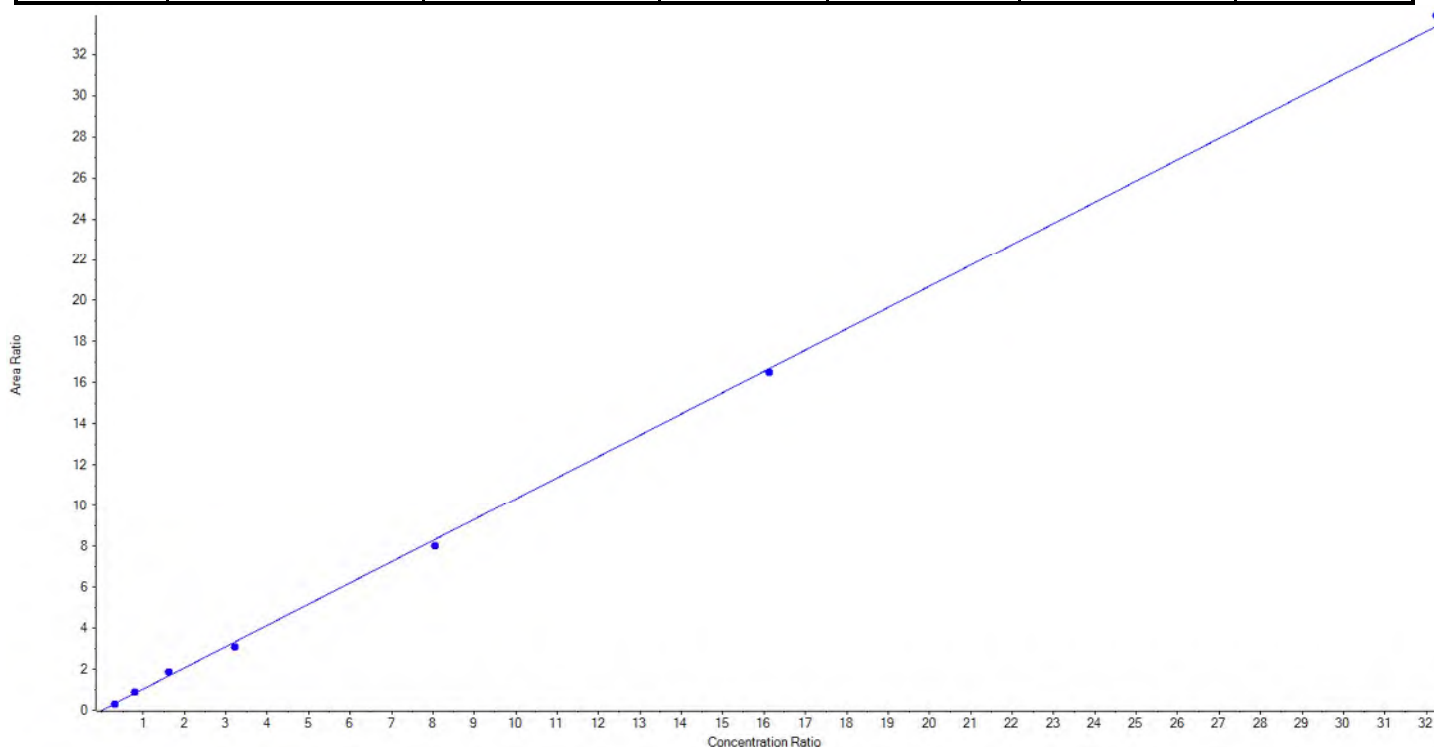
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Analyte Name	PFOS_1	Data File	18-0532.wiff
MRM Transition	499.0 / 80.0	Result Table	18-0532_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.03500x + -0.00702$ ($r = 0.99931$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	True	92.60	85.417380	92.2
5	JZ81	L4	True	231.50	245.620880	106.1
6	JZ82	L5	True	463.00	522.876144	112.9
7	JZ83	L6	True	925.60	852.664333	92.1
8	JZ84	L7	True	2314.00	2222.870305	96.1
9	JZ85	L8	True	4628.00	4580.979397	99.0
10	JZ86	L9	True	9256.00	9400.271561	101.6





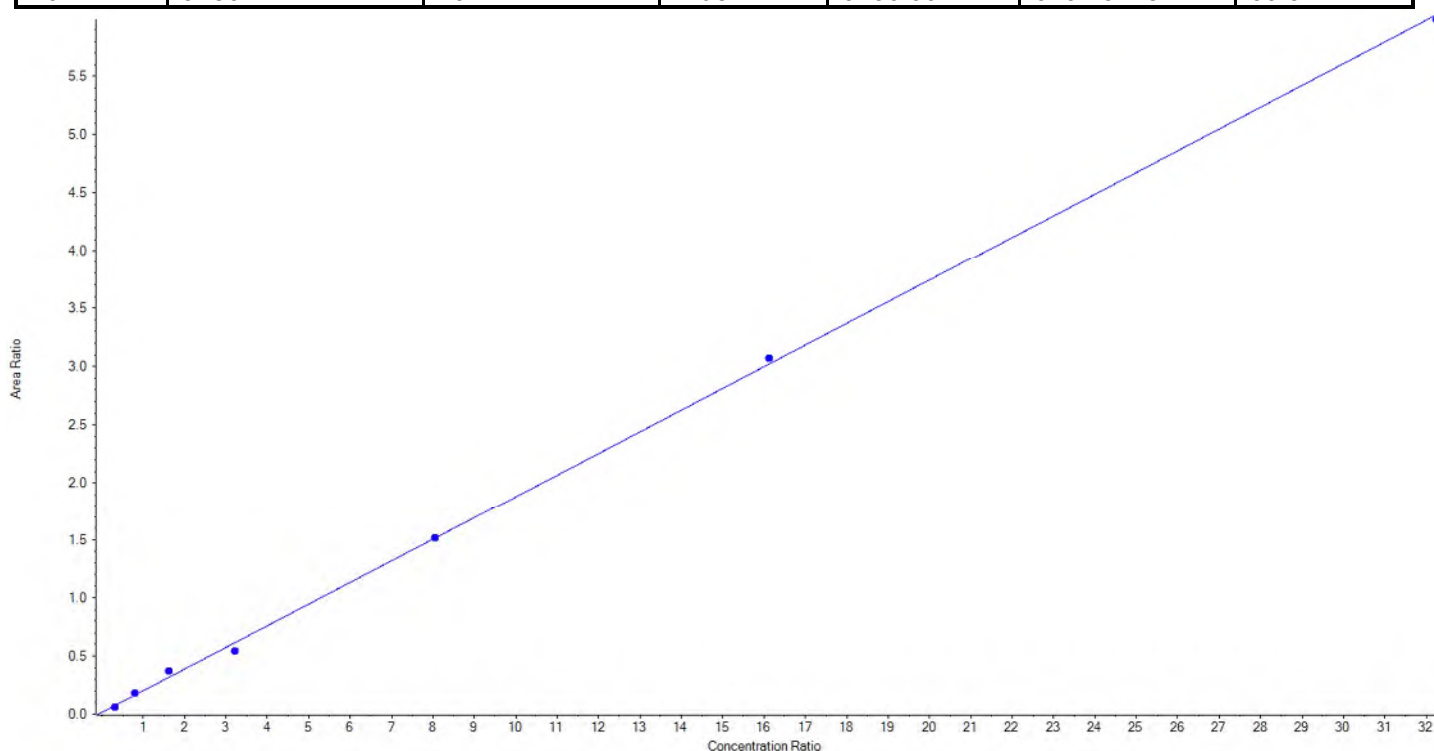
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Analyte Name	PFOS_2	Data File	18-0532.wiff
MRM Transition	499.0 / 99.0	Result Table	18-0532_DW
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.18642x + 0.01475$ ($r = 0.99881$) (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	74.981905	81.0
5	JZ81	L4	True	231.50	257.450055	111.2
6	JZ82	L5	True	463.00	548.650623	118.5
7	JZ83	L6	True	925.60	817.528499	88.3
8	JZ84	L7	True	2314.00	2314.050915	100.0
9	JZ85	L8	True	4628.00	4705.695492	101.7
10	JZ86	L9	True	9256.00	9192.342511	99.3





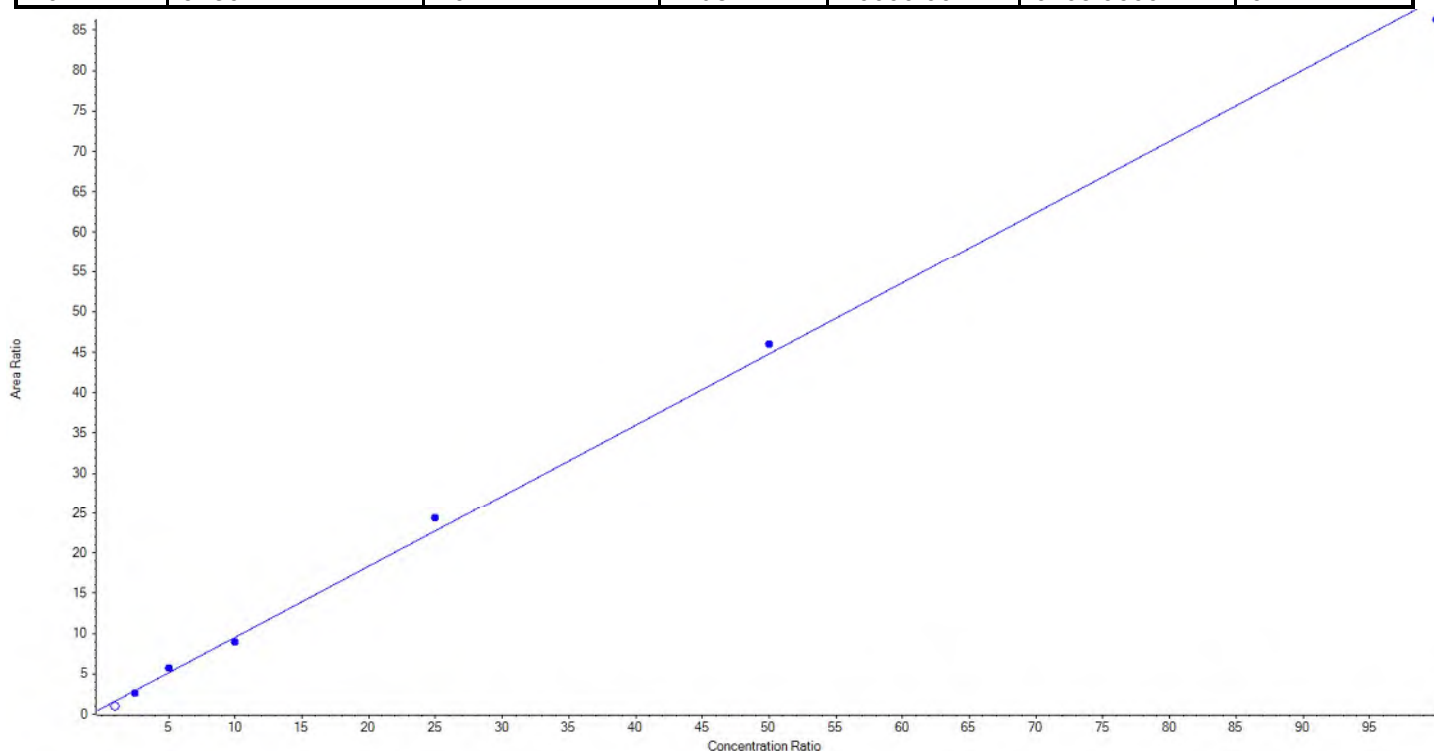
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Analyte Name	PFDA_1	Data File	18-0532.wiff
MRM Transition	513.0 / 469.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.88159x + 0.71887$ ($r = 0.99853$) (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	30.306542	30.3
5	JZ81	L4	True	250.00	216.378997	86.6
6	JZ82	L5	True	500.00	561.963309	112.4
7	JZ83	L6	True	1000.00	936.409249	93.6
8	JZ84	L7	True	2500.00	2688.472301	107.5
9	JZ85	L8	True	5000.00	5140.816123	102.8
10	JZ86	L9	True	10000.00	9705.960021	97.1





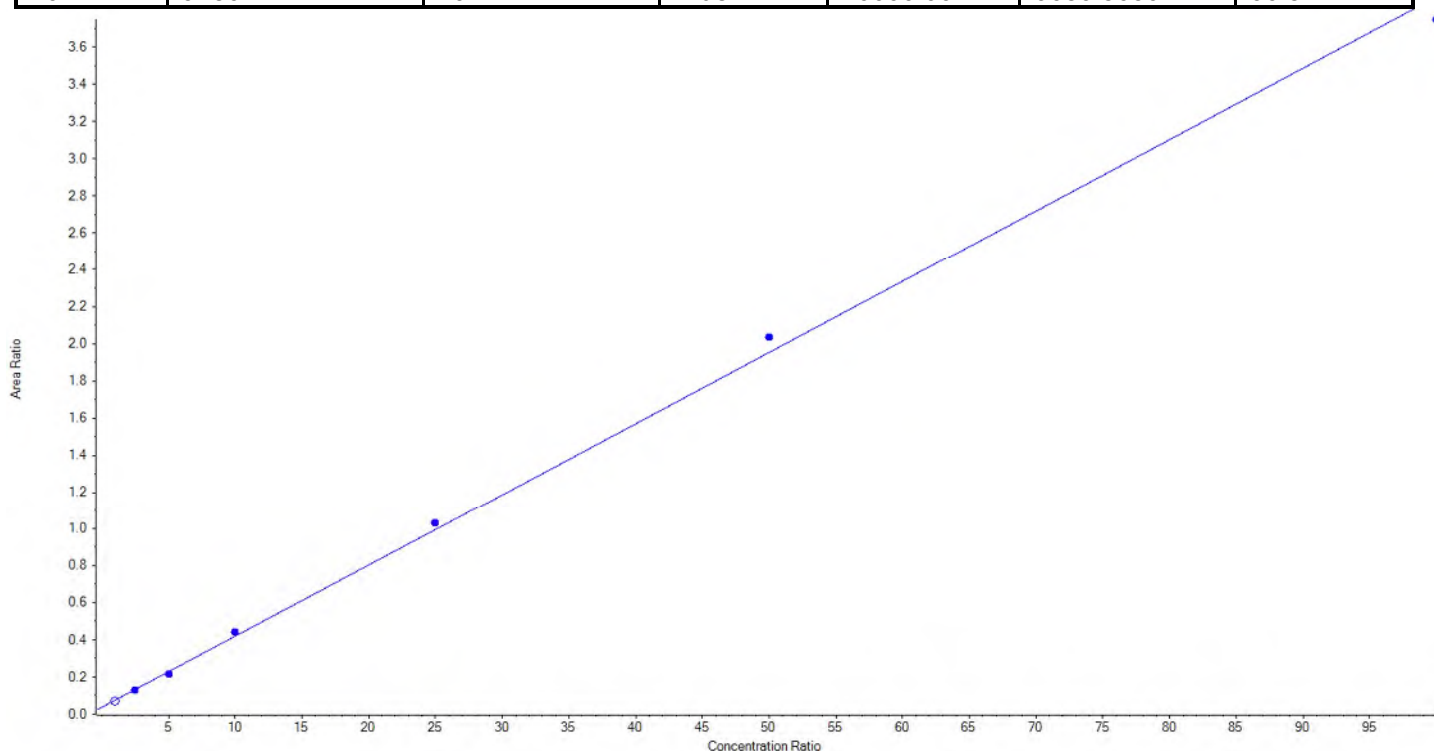
Calibration Summary Report

Created with Analyst Reporter
Printed: 29/08/2018 3:16:12 PM

Analyte Name	PFDA_2	Data File	18-0532.wiff
MRM Transition	513.0 / 219.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.03832 x + 0.03707$ ($r = 0.99902$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	80.955729	81.0
5	JZ81	L4	True	250.00	238.587278	95.4
6	JZ82	L5	True	500.00	468.111248	93.6
7	JZ83	L6	True	1000.00	1063.526295	106.4
8	JZ84	L7	True	2500.00	2590.167845	103.6
9	JZ85	L8	True	5000.00	5208.742257	104.2
10	JZ86	L9	True	10000.00	9680.865077	96.8





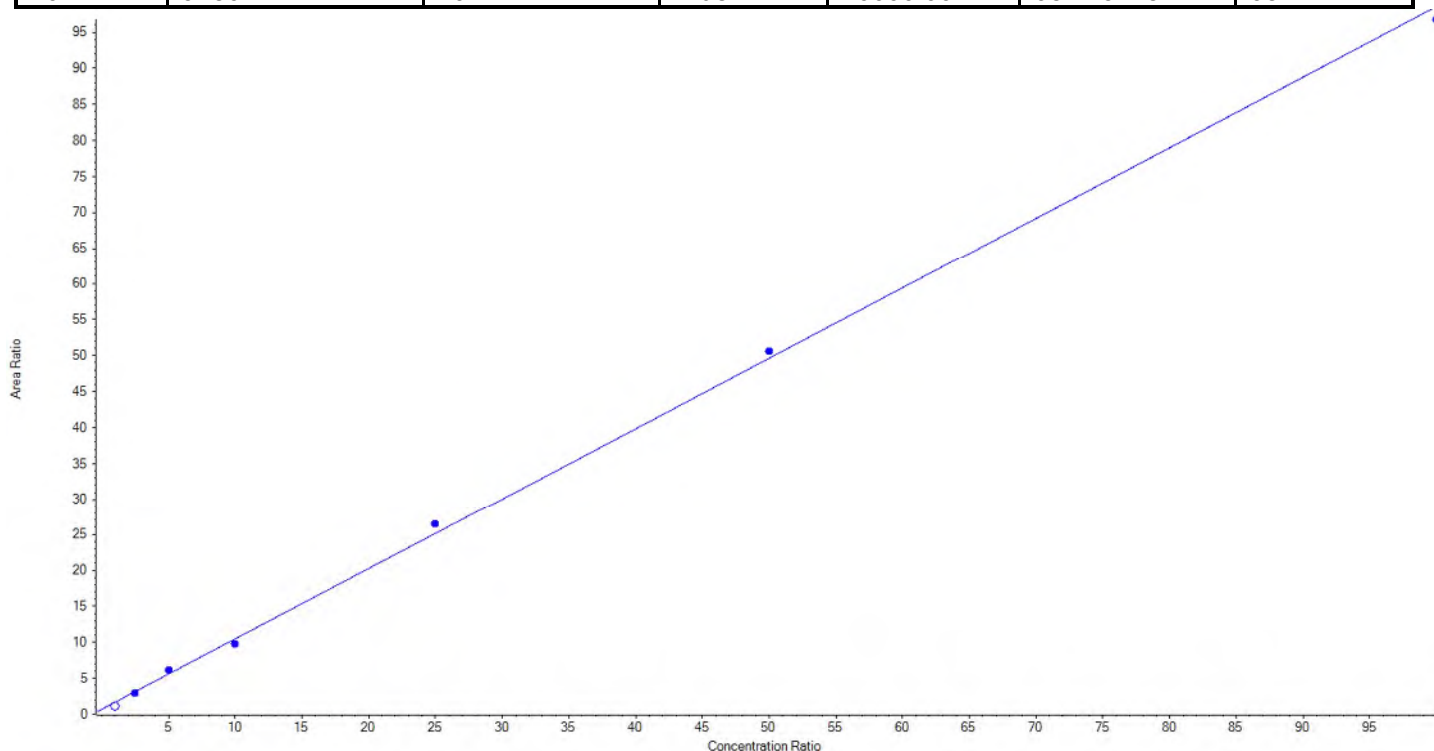
Calibration Summary Report

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Analyte Name	PFUnA_1	Data File	18-0532.wiff
MRM Transition	563.0 / 519.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.97870 x + 0.69133$ ($r = 0.99916$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	45.795265	45.8
5	JZ81	L4	True	250.00	231.372655	92.6
6	JZ82	L5	True	500.00	549.226249	109.9
7	JZ83	L6	True	1000.00	922.051584	92.2
8	JZ84	L7	True	2500.00	2629.932879	105.2
9	JZ85	L8	True	5000.00	5102.904808	102.1
10	JZ86	L9	True	10000.00	9814.511824	98.2





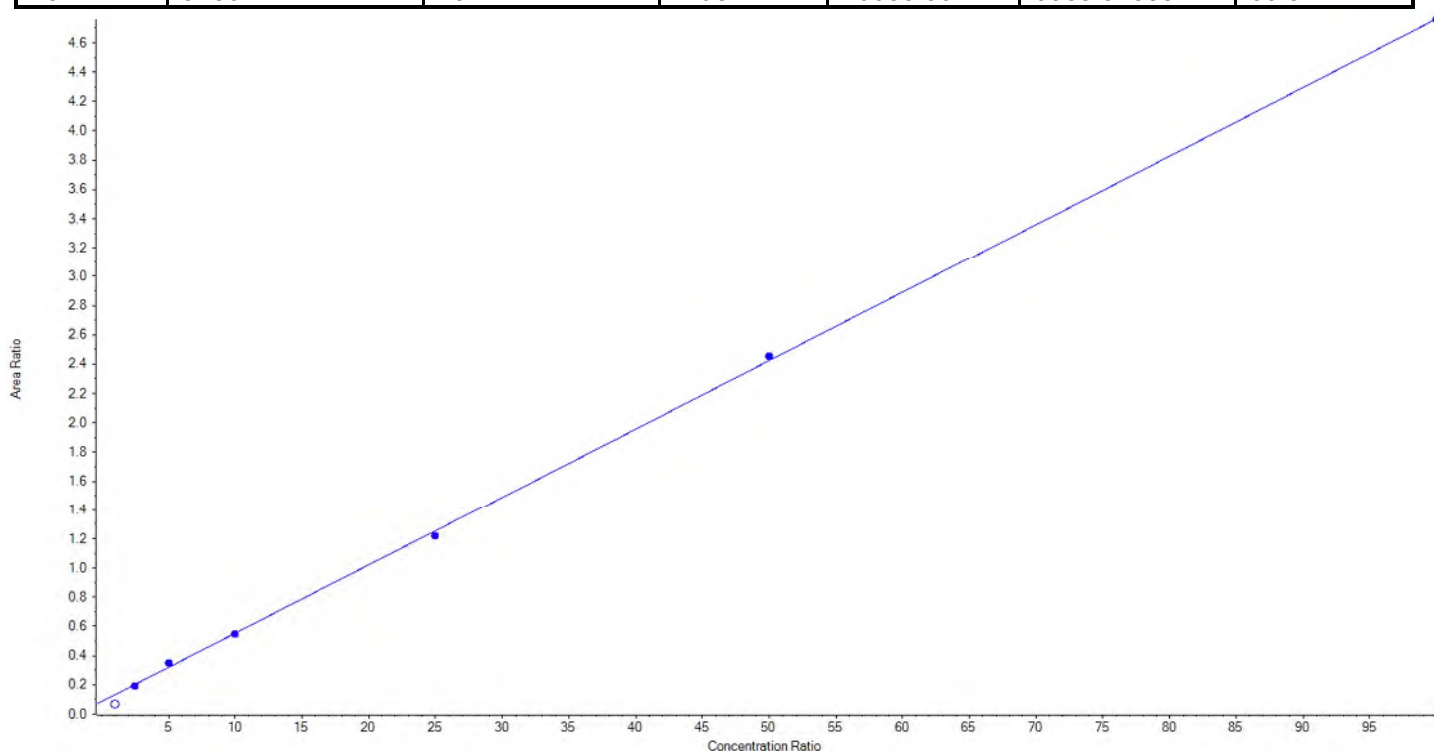
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Created with Analyst Reporter
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Analyte Name	PFUnA_2	Data File	18-0532.wiff
MRM Transition	563.0 / 269.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.04675x + 0.08642$ ($r = 0.99961$) (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	229.897440	92.0
6	JZ82	L5	True	500.00	556.502371	111.3
7	JZ83	L6	True	1000.00	986.575551	98.7
8	JZ84	L7	True	2500.00	2422.095537	96.9
9	JZ85	L8	True	5000.00	5064.988217	101.3
10	JZ86	L9	True	10000.00	9989.940884	99.9





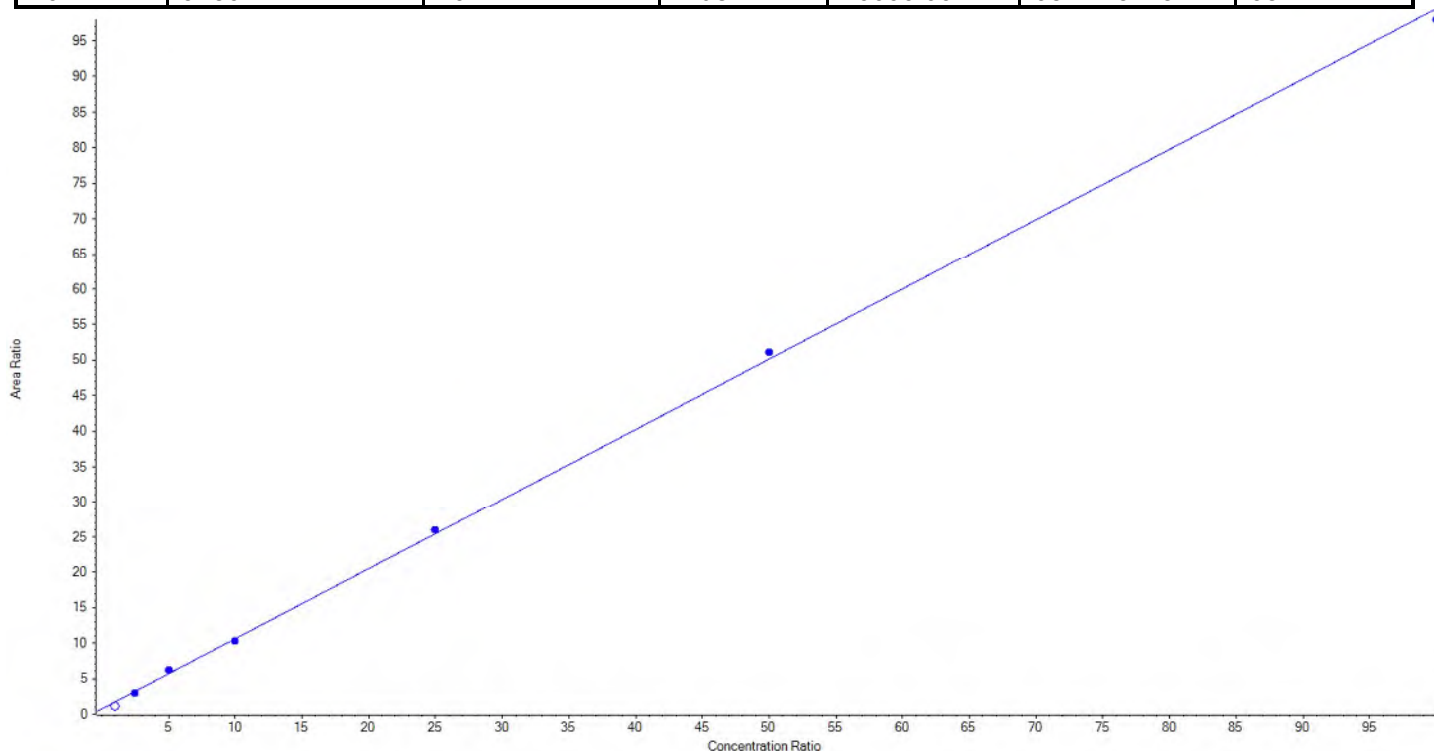
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Analyte Name	PFD _o A_1	Data File	18-0532.wiff
MRM Transition	613.0 / 569.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.98787 x + 0.74252$ ($r = 0.99954$) (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	36.933019	36.9
5	JZ81	L4	True	250.00	226.120439	90.5
6	JZ82	L5	True	500.00	546.782260	109.4
7	JZ83	L6	True	1000.00	973.127688	97.3
8	JZ84	L7	True	2500.00	2561.237645	102.5
9	JZ85	L8	True	5000.00	5100.577817	102.0
10	JZ86	L9	True	10000.00	9842.154151	98.4





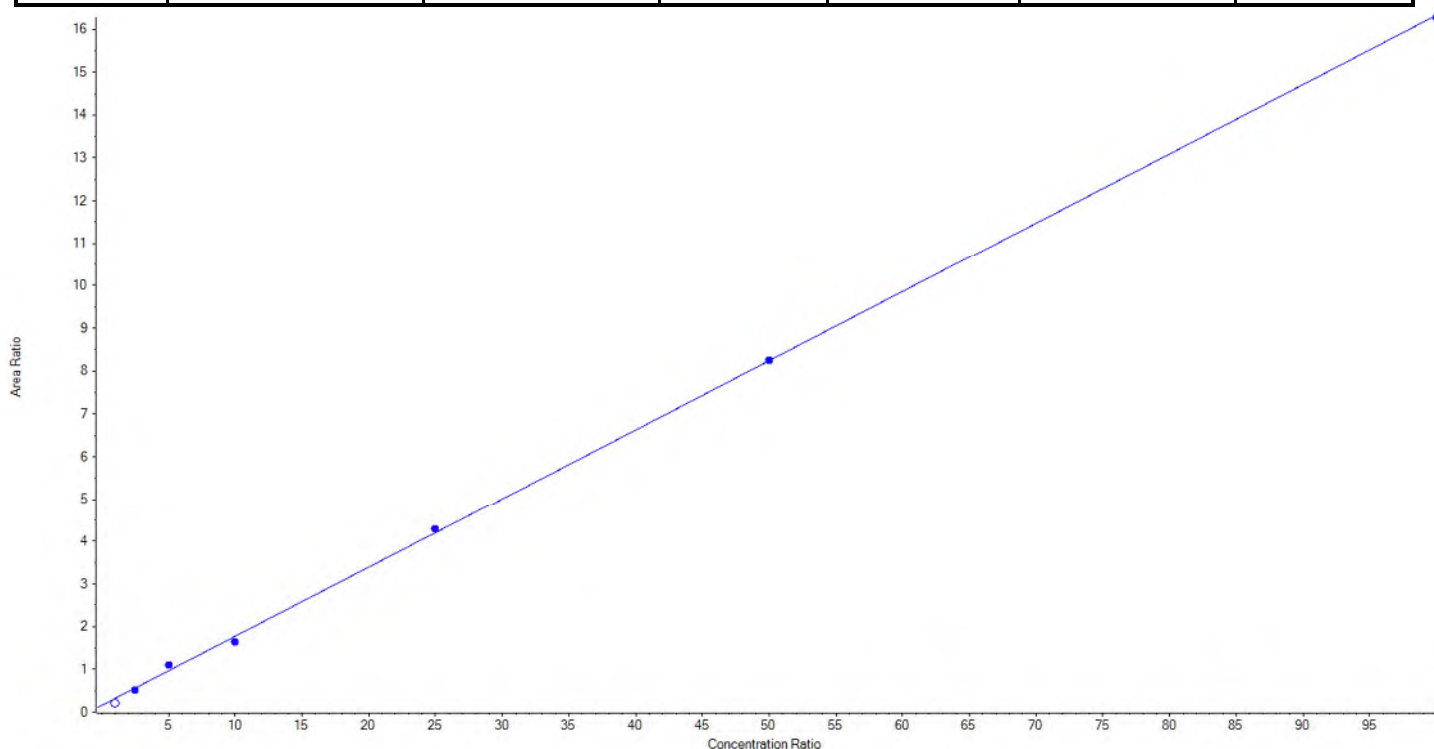
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Analyte Name	PFD _o A_2	Data File	18-0532.wiff
MRM Transition	613.0 / 319.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.16168x + 0.15914$ ($r = 0.99912$) (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	31.643583	31.6
5	JZ81	L4	True	250.00	223.551945	89.4
6	JZ82	L5	True	500.00	584.674675	116.9
7	JZ83	L6	True	1000.00	916.455063	91.7
8	JZ84	L7	True	2500.00	2557.136922	102.3
9	JZ85	L8	True	5000.00	5003.148994	100.1
10	JZ86	L9	True	10000.00	9965.032401	99.7





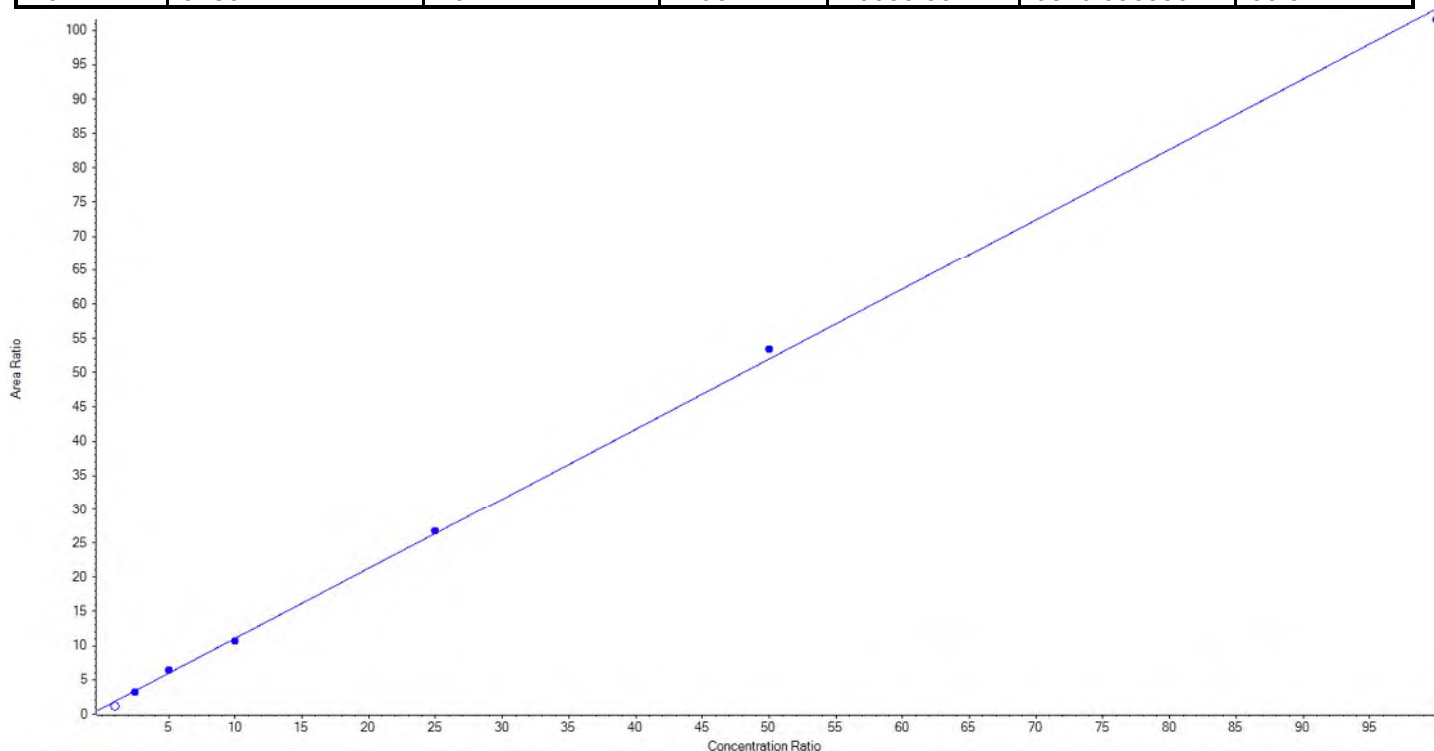
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFTrDA_1	Data File	18-0532.wiff
MRM Transition	663.0 / 619.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.02266 x + 0.84373$ ($r = 0.99956$) (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	29.997121	30.0
5	JZ81	L4	True	250.00	233.857625	93.5
6	JZ82	L5	True	500.00	540.780794	108.2
7	JZ83	L6	True	1000.00	956.401056	95.6
8	JZ84	L7	True	2500.00	2537.421933	101.5
9	JZ85	L8	True	5000.00	5134.842263	102.7
10	JZ86	L9	True	10000.00	9846.696330	98.5





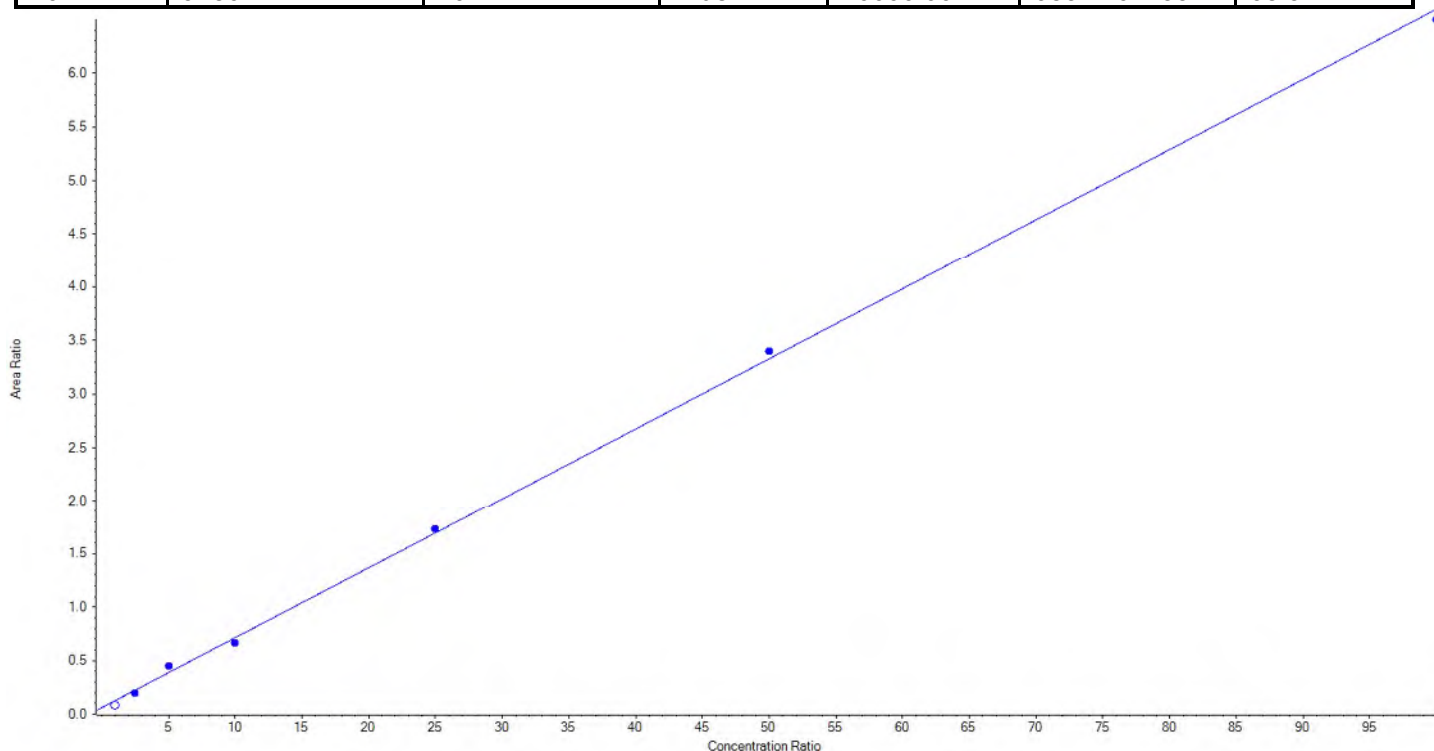
Calibration Summary Report

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Analyte Name	PFTrDA_2	Data File	18-0532.wiff
MRM Transition	663.0 / 169.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06535x + 0.06096$ ($r = 0.99874$) (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	33.538178	33.5
5	JZ81	L4	True	250.00	210.494137	84.2
6	JZ82	L5	True	500.00	600.042823	120.0
7	JZ83	L6	True	1000.00	930.050463	93.0
8	JZ84	L7	True	2500.00	2555.724721	102.2
9	JZ85	L8	True	5000.00	5102.286704	102.1
10	JZ86	L9	True	10000.00	9851.401153	98.5





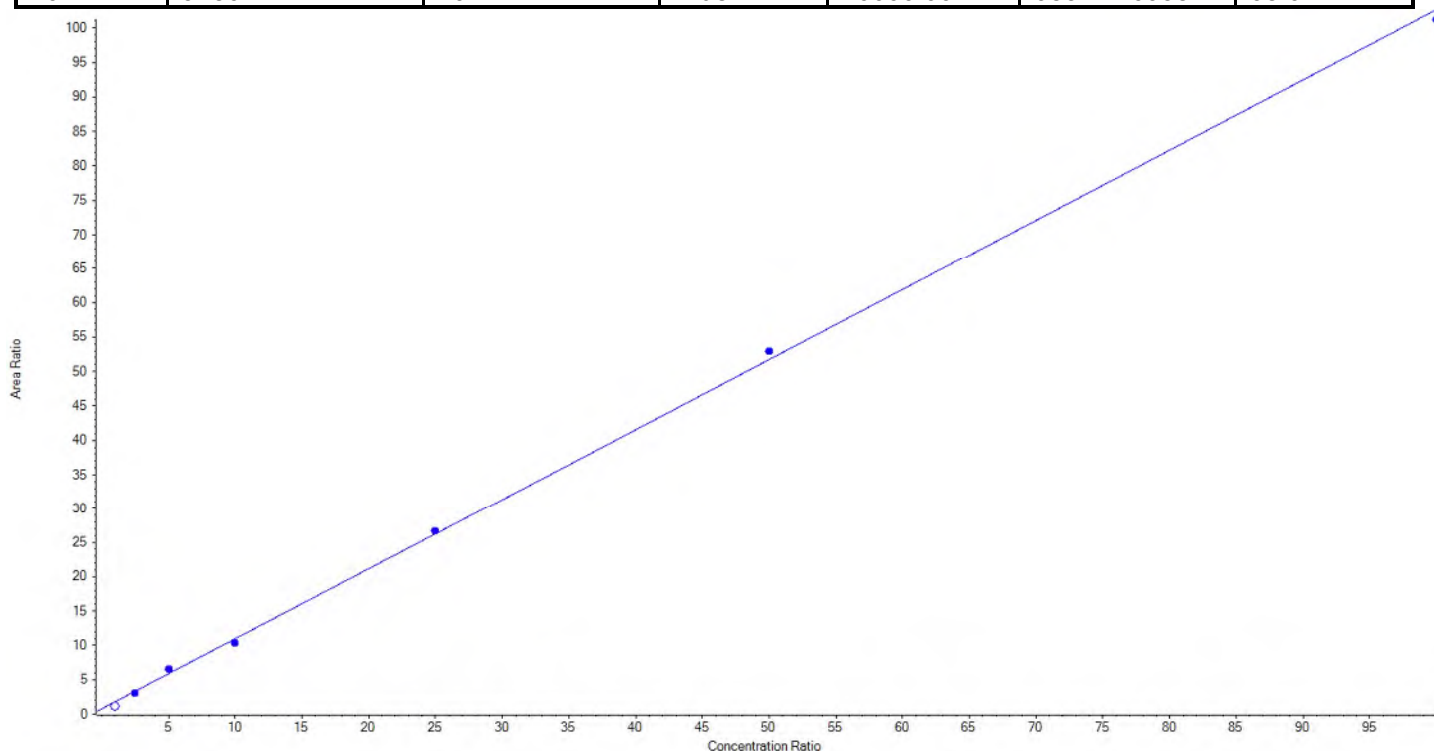
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	PFTeDA_1	Data File	18-0532.wiff
MRM Transition	713.0 / 669.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.01872 x + 0.79165$ (r = 0.99937) (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	40.179214	40.2
5	JZ81	L4	True	250.00	227.230117	90.9
6	JZ82	L5	True	500.00	561.146447	112.2
7	JZ83	L6	True	1000.00	942.312580	94.2
8	JZ84	L7	True	2500.00	2541.794906	101.7
9	JZ85	L8	True	5000.00	5120.045012	102.4
10	JZ86	L9	True	10000.00	9857.470938	98.6





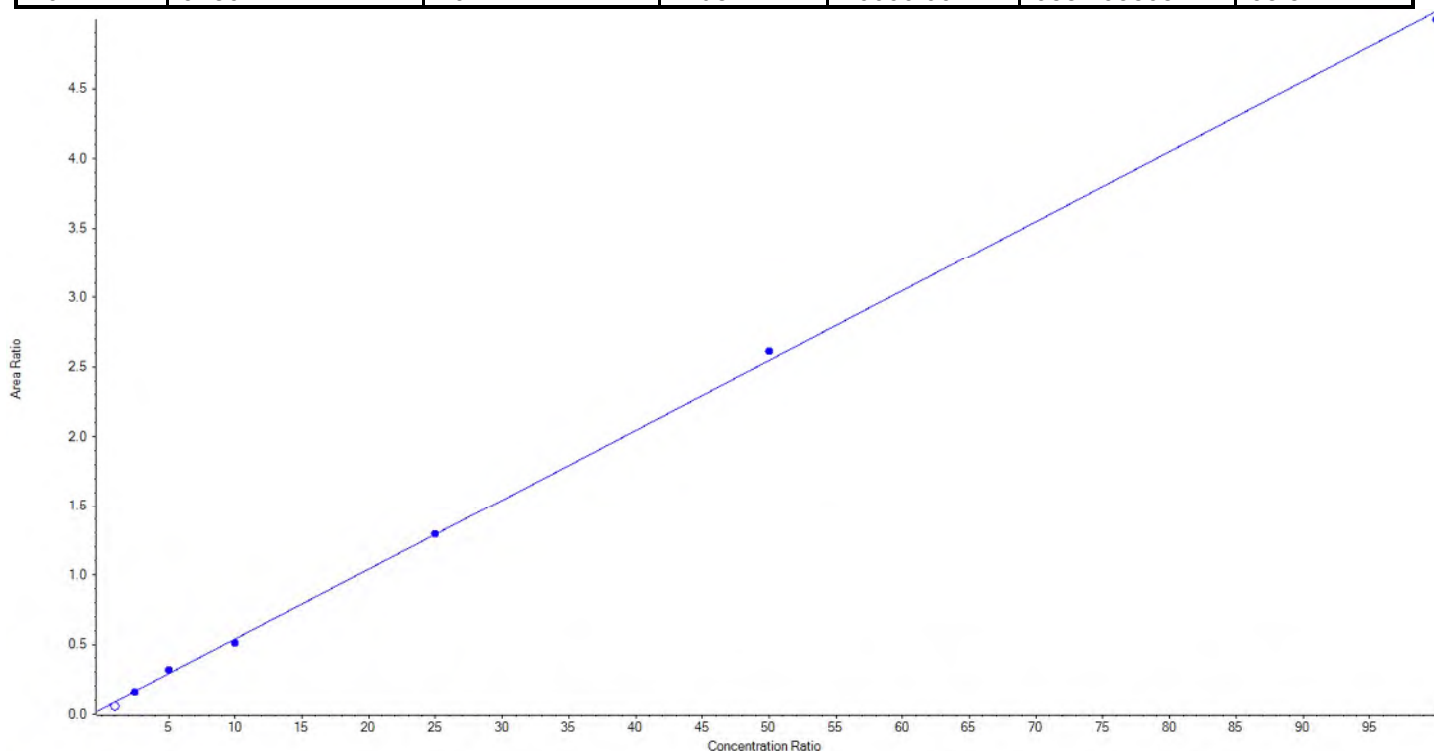
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Analyte Name	PFTeDA_2	Data File	18-0532.wiff
MRM Transition	713.0 / 169.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.05016 x + 0.03856$ ($r = 0.99946$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	37.503733	37.5
5	JZ81	L4	True	250.00	232.665084	93.1
6	JZ82	L5	True	500.00	555.432914	111.1
7	JZ83	L6	True	1000.00	942.860402	94.3
8	JZ84	L7	True	2500.00	2499.554623	100.0
9	JZ85	L8	True	5000.00	5138.428897	102.8
10	JZ86	L9	True	10000.00	9881.058082	98.8





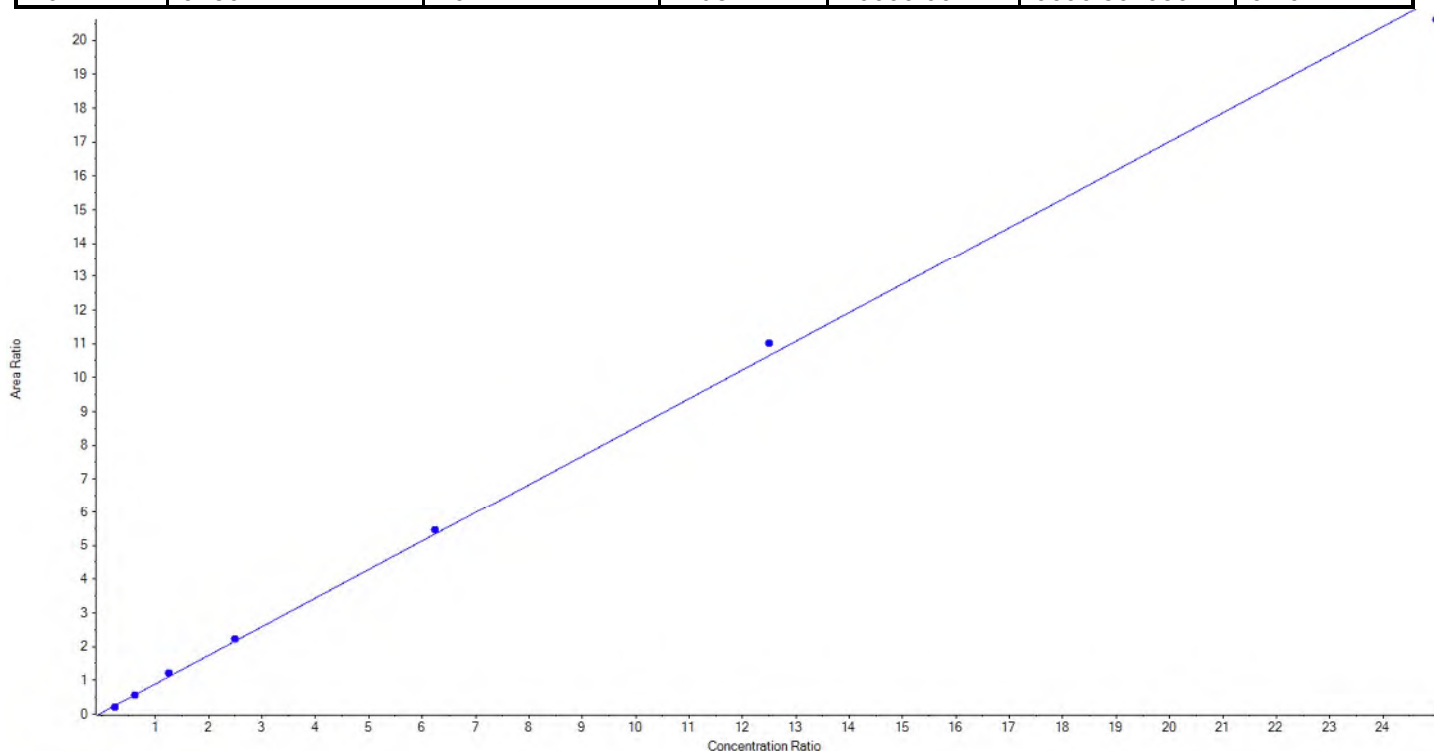
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	NMeFOSAA_1	Data File	18-0532.wiff
MRM Transition	570.0 / 419.0	Result Table	18-0532_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.84837 x + 0.04395$ ($r = 0.99923$) (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	83.424715	83.4
5	JZ81	L4	True	250.00	251.708870	100.7
6	JZ82	L5	True	500.00	548.483460	109.7
7	JZ83	L6	True	1000.00	1034.067385	103.4
8	JZ84	L7	True	2500.00	2555.503713	102.2
9	JZ85	L8	True	5000.00	5180.003906	103.6
10	JZ86	L9	True	10000.00	9696.807950	97.0





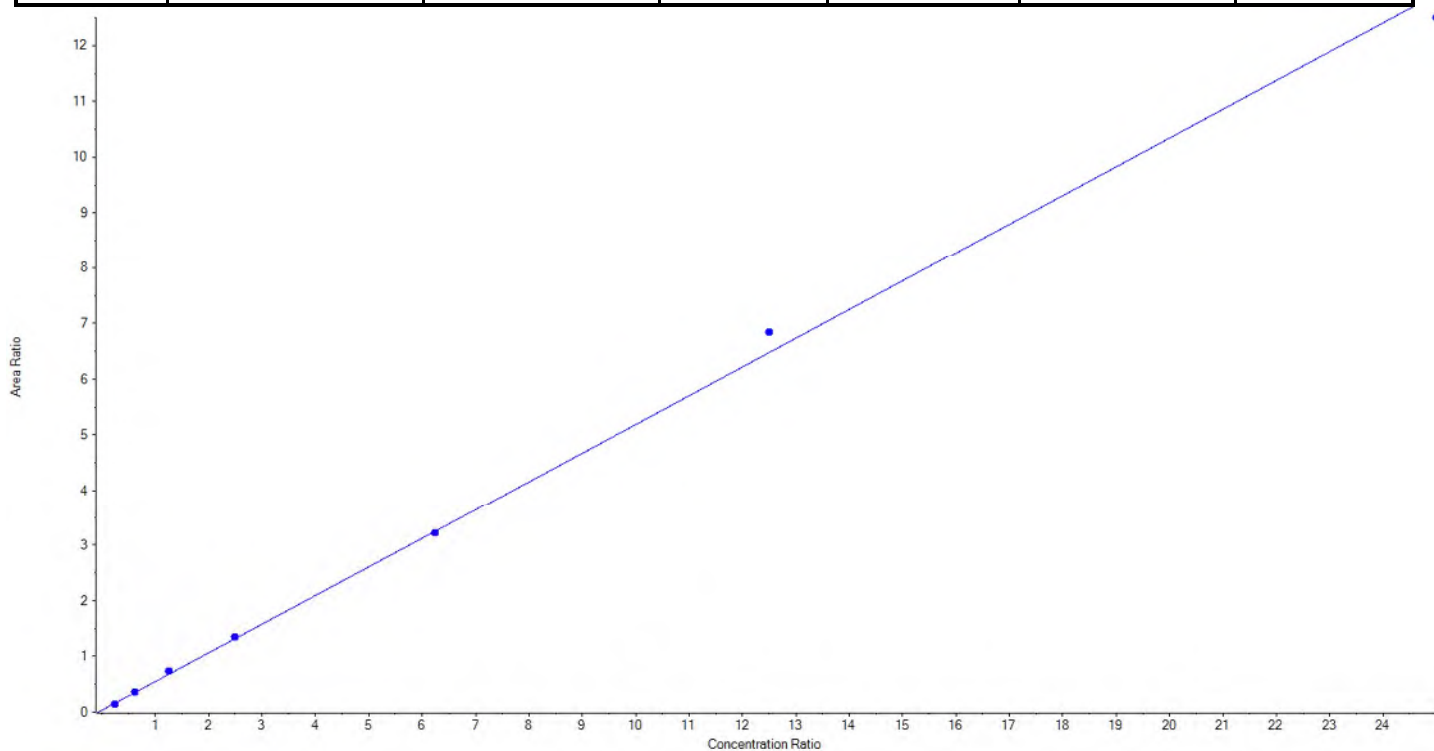
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Analyte Name	NMeFOSAA_2	Data File	18-0532.wiff
MRM Transition	570.0 / 512.0	Result Table	18-0532_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.51557 x + 0.03325$ (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	83.679305	83.7
5	JZ81	L4	True	250.00	256.875466	102.8
6	JZ82	L5	True	500.00	548.639568	109.7
7	JZ83	L6	True	1000.00	1022.993095	102.3
8	JZ84	L7	True	2500.00	2475.668790	99.0
9	JZ85	L8	True	5000.00	5289.509643	105.8
10	JZ86	L9	True	10000.00	9672.634133	96.7





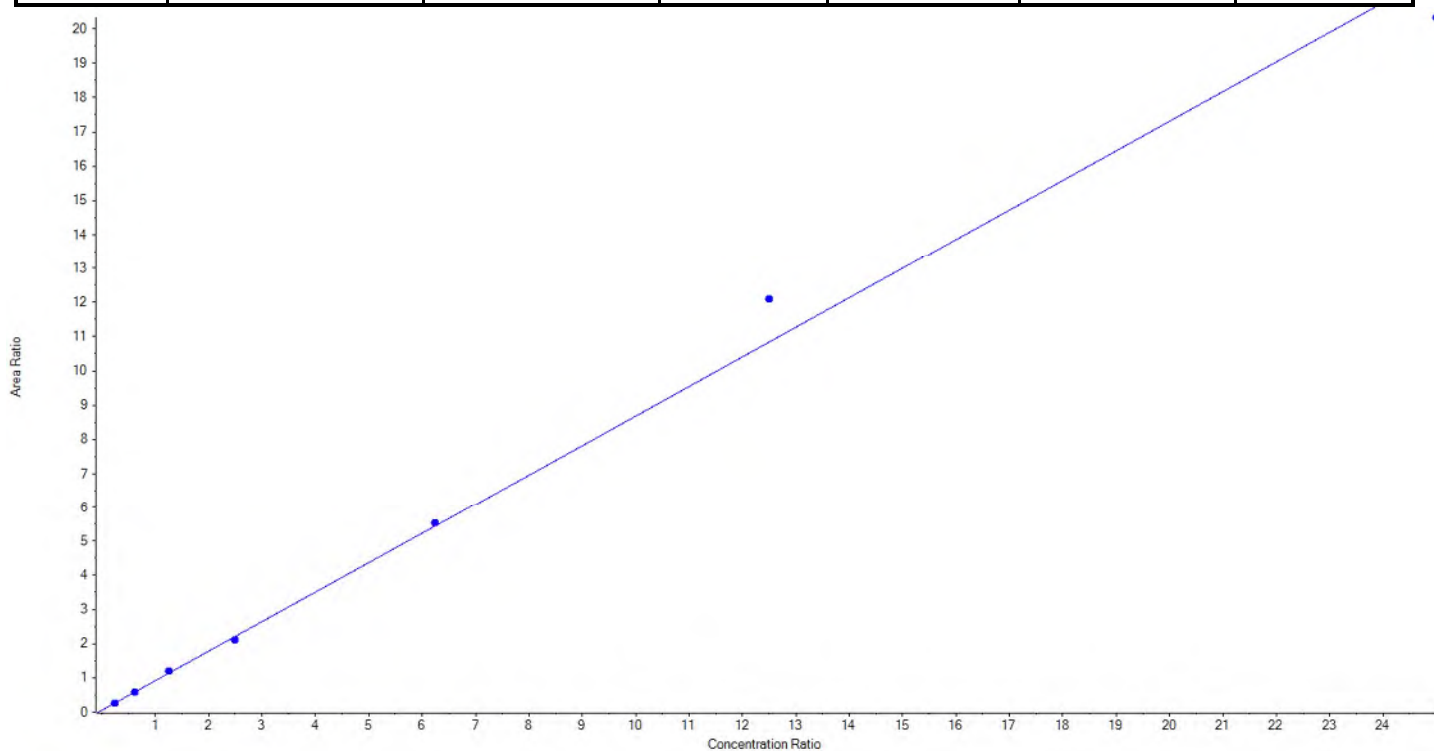
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Analyte Name	NEtFOSAA_1	Data File	18-0532.wiff
MRM Transition	584.0 / 419.0	Result Table	18-0532_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.86269x + 0.05538$ ($r = 0.99670$) (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	89.771779	89.8
5	JZ81	L4	True	250.00	251.399561	100.6
6	JZ82	L5	True	500.00	535.365491	107.1
7	JZ83	L6	True	1000.00	953.812711	95.4
8	JZ84	L7	True	2500.00	2540.250537	101.6
9	JZ85	L8	True	5000.00	5581.000621	111.6
10	JZ86	L9	True	10000.00	9398.399300	94.0





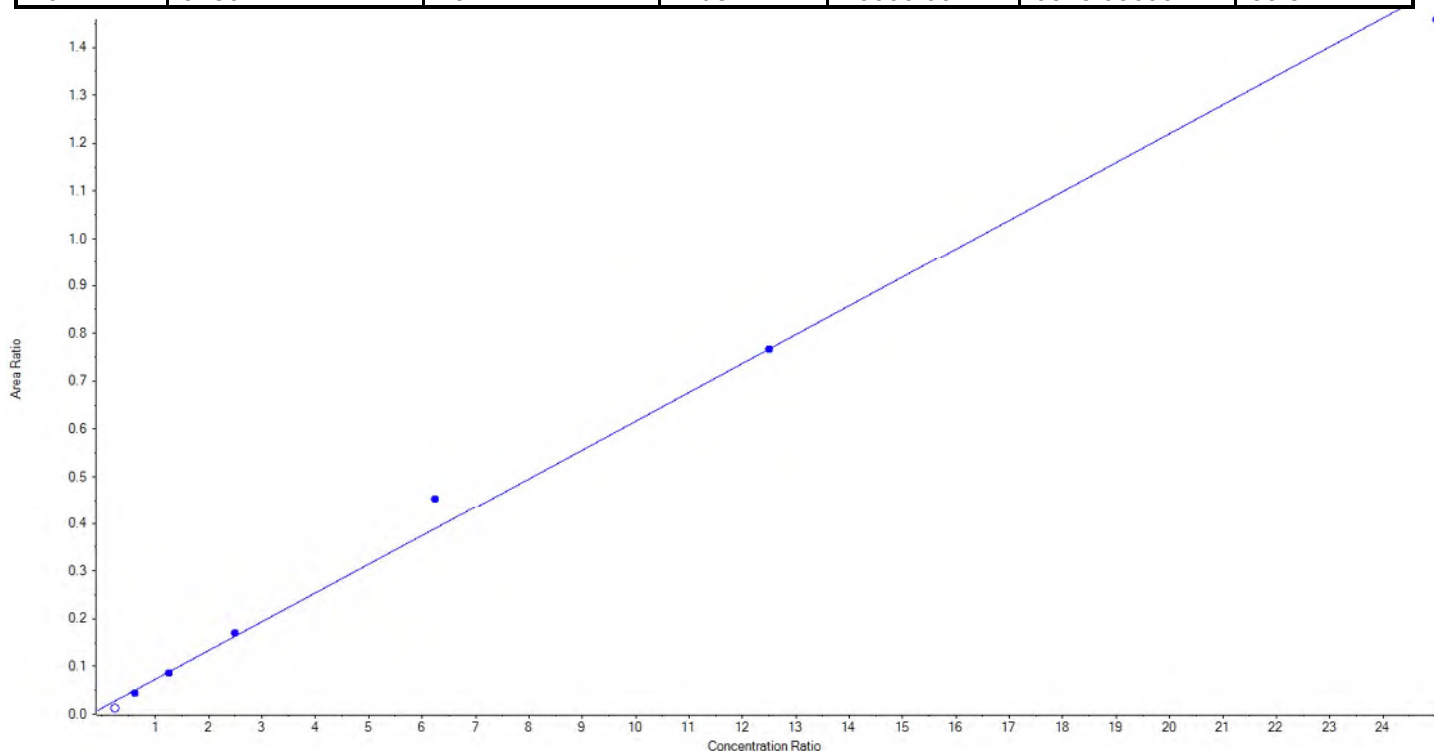
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Analyte Name	NEtFOSAA_2	Data File	18-0532.wiff
MRM Transition	584.0 / 483.0	Result Table	18-0532_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 0.06037 x + 0.01260$ (r = 0.99663) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
4	JZ80	L3	False	100.00	< 0	N/A
5	JZ81	L4	True	250.00	211.423547	84.6
6	JZ82	L5	True	500.00	488.573686	97.7
7	JZ83	L6	True	1000.00	1050.058252	105.0
8	JZ84	L7	True	2500.00	2924.584900	117.0
9	JZ85	L8	True	5000.00	4997.302684	100.0
10	JZ86	L9	True	10000.00	9578.056932	95.8





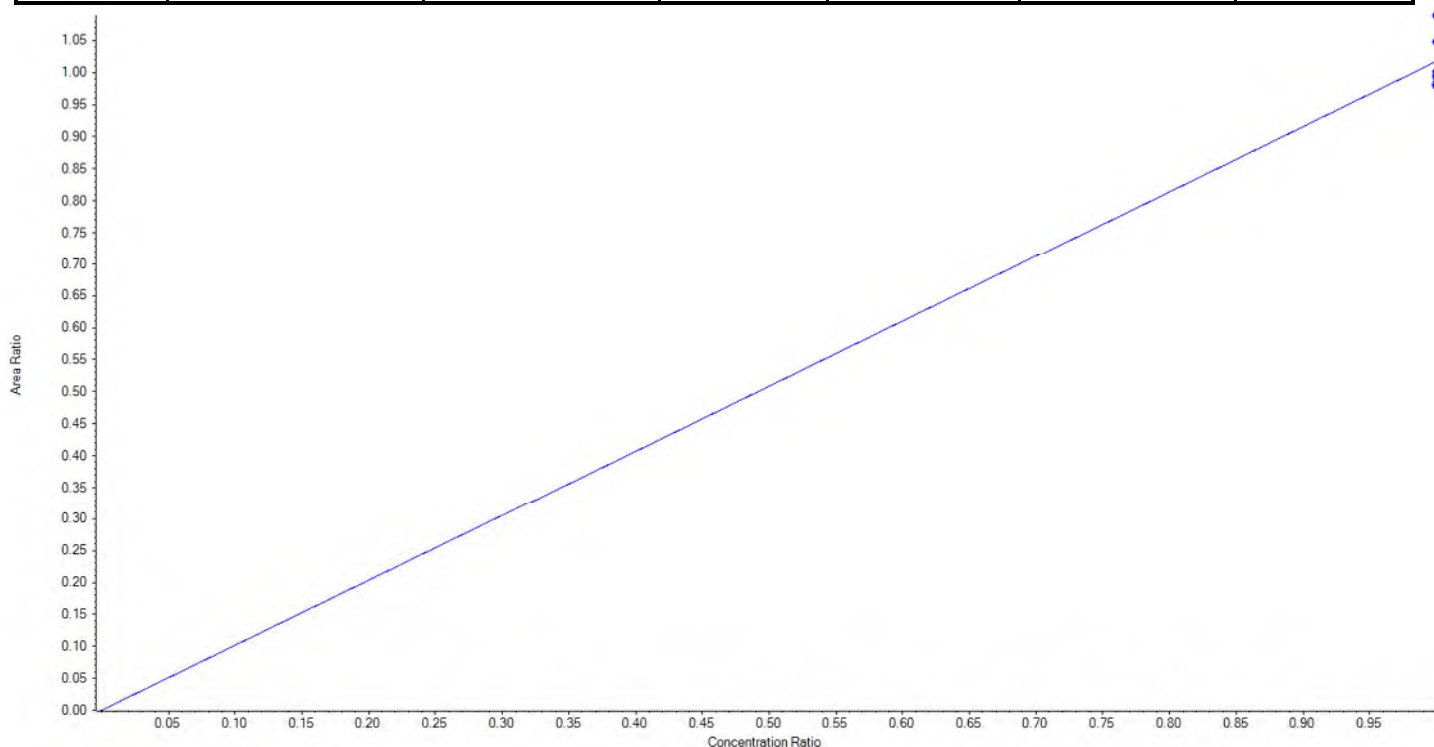
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Analyte Name	13C2-PFHxA	Data File	18-0532.wiff
MRM Transition	315.0 / 270.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.01762 x$ (std. dev. = 0.04194) (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	96.456890	96.5
5	JZ81	L4	True	100.00	102.930156	102.9
6	JZ82	L5	True	100.00	107.014660	107.0
7	JZ83	L6	True	100.00	97.552976	97.6
8	JZ84	L7	True	100.00	97.935194	97.9
9	JZ85	L8	True	100.00	98.313404	98.3
10	JZ86	L9	True	100.00	96.253609	96.3





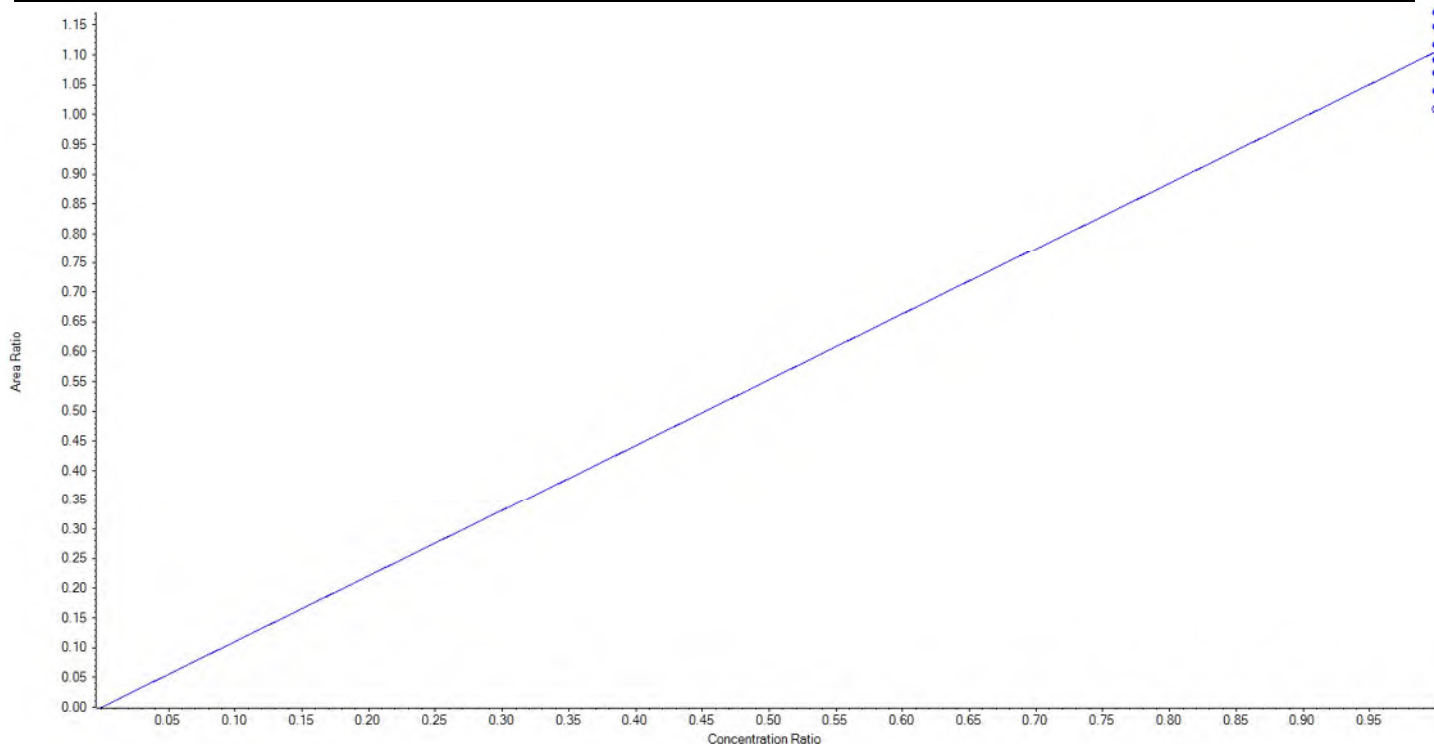
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Analyte Name	13C2-PFDA	Data File	18-0532.wiff
MRM Transition	515.0 / 470.0	Result Table	18-0532_DW
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.10602 x$ (std. dev. = 0.04908) (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	91.160620	91.2
5	JZ81	L4	True	100.00	98.765520	98.8
6	JZ82	L5	True	100.00	103.741565	103.7
7	JZ83	L6	True	100.00	105.877965	105.9
8	JZ84	L7	True	100.00	93.954605	94.0
9	JZ85	L8	True	100.00	100.962492	101.0
10	JZ86	L9	True	100.00	96.697852	96.7





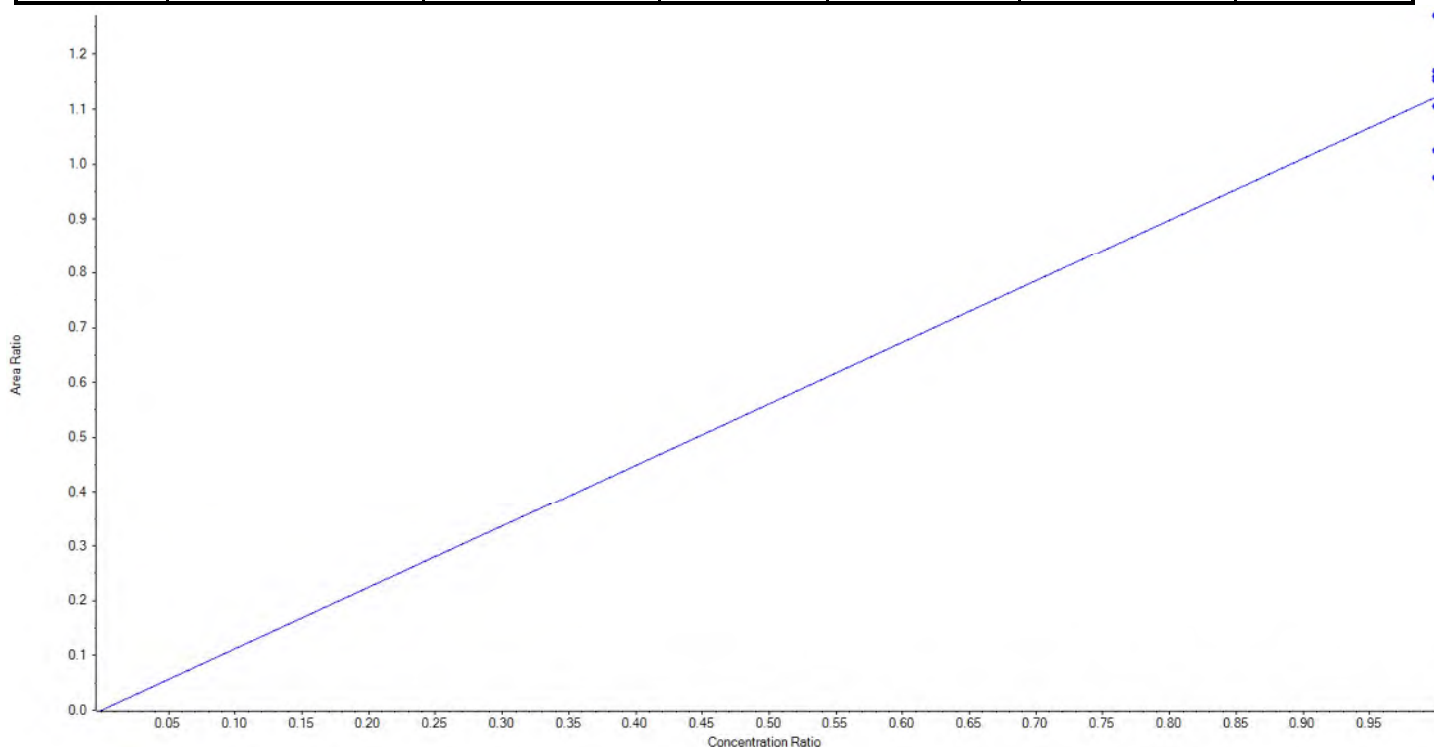
Calibration Summary Report

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Analyte Name	d5-EtFOSAA	Data File	18-0532.wiff
MRM Transition	589.0 / 419.0	Result Table	18-0532_DW
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	8/28/2018 5:21:57 PM	Acquisition Method	5-0371.dam

Regression Equation: $y = 1.12241 x$ (std. dev. = 0.09780) (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	347.883889	87.0
5	JZ81	L4	True	400.00	393.771080	98.4
6	JZ82	L5	True	400.00	412.644664	103.2
7	JZ83	L6	True	400.00	452.630174	113.2
8	JZ84	L7	True	400.00	410.869521	102.7
9	JZ85	L8	True	400.00	416.866155	104.2
10	JZ86	L9	True	400.00	365.334517	91.3



Sample Name	JZ80	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-28T17:48:49	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_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	0.312	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.092	0.077	ü
PFHpA_1	363.0 / 319.0	2.26	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.021	0.023	ü
PFHxS_1	399.0 / 80.0	2.28	PFHxS			
PFHxS_2	399.0 / 99.0	2.28	PFHxS	0.295	0.287	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.067	0.069	ü
PFNA_1	463.0 / 419.0	3.06	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.293	0.306	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.05	PFOS	0.211	0.192	ü
PFDA_1	513.0 / 469.0	3.41	PFDA			
PFDA_2	513.0 / 219.0	3.41	PFDA	0.069	0.044	
PFUnA_1	563.0 / 519.0	3.73	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.062	0.054	ü
PFDoA_1	613.0 / 569.0	4.02	PFDoA			
PFDoA_2	613.0 / 319.0	4.02	PFDoA	0.190	0.168	ü
PFTTrDA_1	663.0 / 619.0	4.26	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.26	PFTTrDA	0.072	0.065	ü
PFTeDA_1	713.0 / 669.0	4.48	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.48	PFTeDA	0.048	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.56	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.56	NMeFOSAA	0.498	0.579	ü
NEtFOSAA_1	584.0 / 419.0	3.72	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.73	NEtFOSAA	0.047	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.84				
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	JZ81	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-28T17:57:46	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_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	0.288	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.085	0.077	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.025	0.023	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.287	0.287	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.067	0.069	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.309	0.306	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.05	PFOS	0.207	0.192	ü
PFDA_1	513.0 / 469.0	3.41	PFDA			
PFDA_2	513.0 / 219.0	3.41	PFDA	0.049	0.044	ü
PFUnA_1	563.0 / 519.0	3.73	PFUnA			
PFUnA_2	563.0 / 269.0	3.73	PFUnA	0.066	0.054	ü
PFDoA_1	613.0 / 569.0	4.01	PFDoA			
PFDoA_2	613.0 / 319.0	4.01	PFDoA	0.175	0.168	ü
PFTrDA_1	663.0 / 619.0	4.26	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.26	PFTrDA	0.061	0.065	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	0.631	0.579	ü
NEtFOSAA_1	584.0 / 419.0	3.72	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.72	NEtFOSAA	0.102	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.39		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.71		N/A	N/A	ü

Sample Name	JZ82	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-28T18:06:42	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_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	0.291	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.072	0.077	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.023	0.023	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.271	0.287	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.071	0.069	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.300	0.306	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.05	PFOS	0.198	0.192	ü
PFDA_1	513.0 / 469.0	3.41	PFDA			
PFDA_2	513.0 / 219.0	3.41	PFDA	0.038	0.044	ü
PFUnA_1	563.0 / 519.0	3.73	PFUnA			
PFUnA_2	563.0 / 269.0	3.73	PFUnA	0.057	0.054	ü
PFDoA_1	613.0 / 569.0	4.01	PFDoA			
PFDoA_2	613.0 / 319.0	4.01	PFDoA	0.180	0.168	ü
PFTTrDA_1	663.0 / 619.0	4.26	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.25	PFTTrDA	0.071	0.065	ü
PFTeDA_1	713.0 / 669.0	4.47	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.47	PFTeDA	0.049	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.55	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.55	NMeFOSAA	0.613	0.579	ü
NEtFOSAA_1	584.0 / 419.0	3.72	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.72	NEtFOSAA	0.071	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	3.71		N/A	N/A	ü

Sample Name	JZ83	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-28T18:15:40	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_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	0.296	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.076	0.077	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.022	0.023	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.289	0.287	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.072	0.069	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.300	0.306	ü
PFOS_1	499.0 / 80.0	3.04	PFOS			
PFOS_2	499.0 / 99.0	3.04	PFOS	0.178	0.192	ü
PFDA_1	513.0 / 469.0	3.40	PFDA			
PFDA_2	513.0 / 219.0	3.40	PFDA	0.050	0.044	ü
PFUnA_1	563.0 / 519.0	3.73	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.056	0.054	ü
PFDoA_1	613.0 / 569.0	4.01	PFDoA			
PFDoA_2	613.0 / 319.0	4.01	PFDoA	0.158	0.168	ü
PFTTrDA_1	663.0 / 619.0	4.25	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.25	PFTTrDA	0.063	0.065	ü
PFTeDA_1	713.0 / 669.0	4.47	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.47	PFTeDA	0.049	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.55	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.55	NMeFOSAA	0.493	0.579	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.72	NEtFOSAA	0.081	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
13C2-PFDA	515.0 / 470.0	3.39		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.71		N/A	N/A	ü

Sample Name	JZ84	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-28T18:24:36	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_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	0.302	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.075	0.077	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.023	0.023	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.284	0.287	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.66	PFOA	0.065	0.069	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.312	0.306	ü
PFOS_1	499.0 / 80.0	3.05	PFOS			
PFOS_2	499.0 / 99.0	3.04	PFOS	0.190	0.192	ü
PFDA_1	513.0 / 469.0	3.41	PFDA			
PFDA_2	513.0 / 219.0	3.40	PFDA	0.042	0.044	ü
PFUnA_1	563.0 / 519.0	3.73	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.046	0.054	ü
PFDoA_1	613.0 / 569.0	4.00	PFDoA			
PFDoA_2	613.0 / 319.0	4.00	PFDoA	0.165	0.168	ü
PFTrDA_1	663.0 / 619.0	4.25	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.24	PFTrDA	0.065	0.065	ü
PFTeDA_1	713.0 / 669.0	4.46	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.46	PFTeDA	0.048	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.55	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.55	NMeFOSAA	0.590	0.579	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.71	NEtFOSAA	0.082	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
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	JZ85	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-28T18:33:32	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_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	0.308	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.076	0.077	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.022	0.023	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.292	0.287	ü
PFOA_1	413.0 / 369.0	2.66	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.070	0.069	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.299	0.306	ü
PFOS_1	499.0 / 80.0	3.04	PFOS			
PFOS_2	499.0 / 99.0	3.04	PFOS	0.186	0.192	ü
PFDA_1	513.0 / 469.0	3.40	PFDA			
PFDA_2	513.0 / 219.0	3.40	PFDA	0.044	0.044	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.049	0.054	ü
PFDoA_1	613.0 / 569.0	4.00	PFDoA			
PFDoA_2	613.0 / 319.0	4.00	PFDoA	0.161	0.168	ü
PFTrDA_1	663.0 / 619.0	4.25	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.24	PFTrDA	0.064	0.065	ü
PFTeDA_1	713.0 / 669.0	4.46	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.46	PFTeDA	0.049	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.55	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.55	NMeFOSAA	0.621	0.579	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.71	NEtFOSAA	0.063	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
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	JZ86	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-28T18:42:27	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_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	0.301	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.076	0.077	ü
PFHpA_1	363.0 / 319.0	2.25	PFHpA			
PFHpA_2	363.0 / 169.0	2.25	PFHpA	0.023	0.023	ü
PFHxS_1	399.0 / 80.0	2.27	PFHxS			
PFHxS_2	399.0 / 99.0	2.27	PFHxS	0.294	0.287	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.067	0.069	ü
PFNA_1	463.0 / 419.0	3.05	PFNA			
PFNA_2	463.0 / 219.0	3.05	PFNA	0.313	0.306	ü
PFOS_1	499.0 / 80.0	3.04	PFOS			
PFOS_2	499.0 / 99.0	3.04	PFOS	0.177	0.192	ü
PFDA_1	513.0 / 469.0	3.40	PFDA			
PFDA_2	513.0 / 219.0	3.40	PFDA	0.043	0.044	ü
PFUnA_1	563.0 / 519.0	3.72	PFUnA			
PFUnA_2	563.0 / 269.0	3.72	PFUnA	0.049	0.054	ü
PFDoA_1	613.0 / 569.0	4.00	PFDoA			
PFDoA_2	613.0 / 319.0	4.00	PFDoA	0.166	0.168	ü
PFTTrDA_1	663.0 / 619.0	4.24	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.24	PFTTrDA	0.064	0.065	ü
PFTeDA_1	713.0 / 669.0	4.46	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.46	PFTeDA	0.049	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.55	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.55	NMeFOSAA	0.607	0.579	ü
NEtFOSAA_1	584.0 / 419.0	3.71	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.71	NEtFOSAA	0.072	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
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	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-28T19:00:19	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_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	821.511269	885.00	92.83
PFBS_2	298.9 / 99.0	1.52	801.544380	885.00	90.57
PFHxA_1	313.0 / 269.0	1.83	996.333895	1000.00	99.63
PFHxA_2	313.0 / 119.0	1.83	1017.377047	1000.00	101.74
PFHpA_1	363.0 / 319.0	2.24	1018.862352	1000.00	101.89
PFHpA_2	363.0 / 169.0	2.24	969.469145	1000.00	96.95
PFHxS_1	399.0 / 80.0	2.26	893.504442	912.00	97.97
PFHxS_2	399.0 / 99.0	2.26	864.366063	912.00	94.78
PFOA_1	413.0 / 369.0	2.65	959.369362	1000.00	95.94
PFOA_2	413.0 / 169.0	2.65	1057.535530	1000.00	105.75
PFNA_1	463.0 / 419.0	3.04	1073.787463	1000.00	107.38
PFNA_2	463.0 / 219.0	3.04	982.332461	1000.00	98.23
PFOS_1	499.0 / 80.0	3.04	804.112044	925.60	86.87
PFOS_2	499.0 / 99.0	3.03	972.922391	925.60	105.11
PFDA_1	513.0 / 469.0	3.39	1003.903174	1000.00	100.39
PFDA_2	513.0 / 219.0	3.39	1177.106041	1000.00	117.71
PFUnA_1	563.0 / 519.0	3.71	1014.026831	1000.00	101.40
PFUnA_2	563.0 / 269.0	3.71	1071.816337	1000.00	107.18
PFDoA_1	613.0 / 569.0	3.99	1063.862095	1000.00	106.39
PFDoA_2	613.0 / 319.0	3.99	1018.218521	1000.00	101.82
PFTTrDA_1	663.0 / 619.0	4.24	1018.279075	1000.00	101.83
PFTTrDA_2	663.0 / 169.0	4.23	984.638704	1000.00	98.46
PFTeDA_1	713.0 / 669.0	4.45	1042.450402	1000.00	104.25
PFTeDA_2	713.0 / 169.0	4.45	1033.864792	1000.00	103.39
NMeFOSAA_1	570.0 / 419.0	3.54	1104.058509	1000.00	110.41
NMeFOSAA_2	570.0 / 512.0	3.54	970.800961	1000.00	97.08
NEtFOSAA_1	584.0 / 419.0	3.70	1174.460399	1000.00	117.45
NEtFOSAA_2	584.0 / 483.0	3.70	915.108503	1000.00	91.51
13C2-PFHxA	315.0 / 270.0	1.83	99.217827	100.00	99.22
13C2-PFDA	515.0 / 470.0	3.38	108.502373	100.00	108.50
d5-EtFOSAA	589.0 / 419.0	3.69	382.538651	400.00	95.63

Sample Name	JZ82 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-28T19:45:01	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_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	469.930779	443.00	106.08
PFBS_2	298.9 / 99.0	1.52	464.733760	443.00	104.91
PFHxA_1	313.0 / 269.0	1.83	537.519162	500.00	107.50
PFHxA_2	313.0 / 119.0	1.83	572.781897	500.00	114.56
PFHpA_1	363.0 / 319.0	2.24	579.036469	500.00	115.81
PFHpA_2	363.0 / 169.0	2.24	625.612115	500.00	125.12
PFHxS_1	399.0 / 80.0	2.26	516.532708	456.00	113.27
PFHxS_2	399.0 / 99.0	2.26	493.711970	456.00	108.27
PFOA_1	413.0 / 369.0	2.65	543.140894	500.00	108.63
PFOA_2	413.0 / 169.0	2.64	563.267475	500.00	112.65
PFNA_1	463.0 / 419.0	3.04	576.826677	500.00	115.37
PFNA_2	463.0 / 219.0	3.03	563.490934	500.00	112.70
PFOS_1	499.0 / 80.0	3.03	493.665222	463.00	106.62
PFOS_2	499.0 / 99.0	3.03	526.641072	463.00	113.75
PFDA_1	513.0 / 469.0	3.39	561.110873	500.00	112.22
PFDA_2	513.0 / 219.0	3.39	600.608355	500.00	120.12
PFUnA_1	563.0 / 519.0	3.71	544.665365	500.00	108.93
PFUnA_2	563.0 / 269.0	3.71	490.863603	500.00	98.17
PFDoA_1	613.0 / 569.0	3.99	589.033842	500.00	117.81
PFDoA_2	613.0 / 319.0	3.99	559.354105	500.00	111.87
PFTTrDA_1	663.0 / 619.0	4.23	545.302970	500.00	109.06
PFTTrDA_2	663.0 / 169.0	4.23	579.966972	500.00	115.99
PFTeDA_1	713.0 / 669.0	4.45	559.035507	500.00	111.81
PFTeDA_2	713.0 / 169.0	4.44	560.287098	500.00	112.06
NMeFOSAA_1	570.0 / 419.0	3.54	584.445288	500.00	116.89
NMeFOSAA_2	570.0 / 512.0	3.54	577.487283	500.00	115.50
NEtFOSAA_1	584.0 / 419.0	3.70	560.104780	500.00	112.02
NEtFOSAA_2	584.0 / 483.0	3.70	487.318505	500.00	97.46
13C2-PFHxA	315.0 / 270.0	1.82	108.806930	100.00	108.81
13C2-PFDA	515.0 / 470.0	3.38	103.001632	100.00	103.00
d5-EtFOSAA	589.0 / 419.0	3.69	390.998368	400.00	97.75

Sample Name	JZ77 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-28T19:00:19	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_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	0.294	0.300	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.078	0.077	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.24	PFHpA	0.022	0.023	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.281	0.287	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.65	PFOA	0.075	0.069	ü
PFNA_1	463.0 / 419.0	3.04	PFNA			
PFNA_2	463.0 / 219.0	3.04	PFNA	0.282	0.306	ü
PFOS_1	499.0 / 80.0	3.04	PFOS			
PFOS_2	499.0 / 99.0	3.03	PFOS	0.224	0.192	ü
PFDA_1	513.0 / 469.0	3.39	PFDA			
PFDA_2	513.0 / 219.0	3.39	PFDA	0.051	0.044	ü
PFUnA_1	563.0 / 519.0	3.71	PFUnA			
PFUnA_2	563.0 / 269.0	3.71	PFUnA	0.055	0.054	ü
PFDoA_1	613.0 / 569.0	3.99	PFDoA			
PFDoA_2	613.0 / 319.0	3.99	PFDoA	0.160	0.168	ü
PFTTrDA_1	663.0 / 619.0	4.24	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.23	PFTTrDA	0.063	0.065	ü
PFTeDA_1	713.0 / 669.0	4.45	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.45	PFTeDA	0.049	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.54	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.54	NMeFOSAA	0.539	0.579	ü
NEtFOSAA_1	584.0 / 419.0	3.70	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.70	NEtFOSAA	0.058	0.079	ü
13C2-PFHxA	315.0 / 270.0	1.83				
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	JZ82 CCV	Injection Vial	6
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-28T19:45:01	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_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	0.297	0.300	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.081	0.077	ü
PFHpA_1	363.0 / 319.0	2.64	PFHpA			
PFHpA_2	363.0 / 169.0	2.24	PFHpA	0.024	0.023	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.276	0.287	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.64	PFOA	0.071	0.069	ü
PFNA_1	463.0 / 419.0	3.04	PFNA			
PFNA_2	463.0 / 219.0	3.03	PFNA	0.298	0.306	ü
PFOS_1	499.0 / 80.0	3.03	PFOS			
PFOS_2	499.0 / 99.0	3.03	PFOS	0.201	0.192	ü
PFDA_1	513.0 / 469.0	3.39	PFDA			
PFDA_2	513.0 / 219.0	3.39	PFDA	0.047	0.044	ü
PFUnA_1	563.0 / 519.0	3.71	PFUnA			
PFUnA_2	563.0 / 269.0	3.71	PFUnA	0.053	0.054	ü
PFDoA_1	613.0 / 569.0	3.99	PFDoA			
PFDoA_2	613.0 / 319.0	3.99	PFDoA	0.162	0.168	ü
PFTTrDA_1	663.0 / 619.0	4.23	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.23	PFTTrDA	0.069	0.065	ü
PFTeDA_1	713.0 / 669.0	4.45	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.44	PFTeDA	0.049	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.54	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.54	NMeFOSAA	0.606	0.579	ü
NEtFOSAA_1	584.0 / 419.0	3.70	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.70	NEtFOSAA	0.068	0.079	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	3.69		N/A	N/A	ü

Sample Name	KA08 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-28T18:51:23	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_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	0.077	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.023	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.287	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.069	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.306	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.192	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.044	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.054	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.168	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.065	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.049	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.579	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	3.38		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.70		N/A	N/A	ü



Sample Name	CR672PB-FS(0)	Injection Vial	13
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-28T19:18:12	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_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	0.077	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.023	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.287	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.62	PFOA	0.096	0.069	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.306	ü
PFOS_1	499.0 / 80.0	3.03	PFOS			
PFOS_2	499.0 / 99.0	3.03	PFOS	0.158	0.192	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.044	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.054	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.168	ü
PFTrDA_1	663.0 / 619.0	N/A	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	PFTrDA	N/A	0.065	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.049	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.579	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	3.38		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.69		N/A	N/A	ü

Sample Name	CR673LCS-FS(0)	Injection Vial	14
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-28T19:27:08	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_DW
Sample Comment			

Results Summary

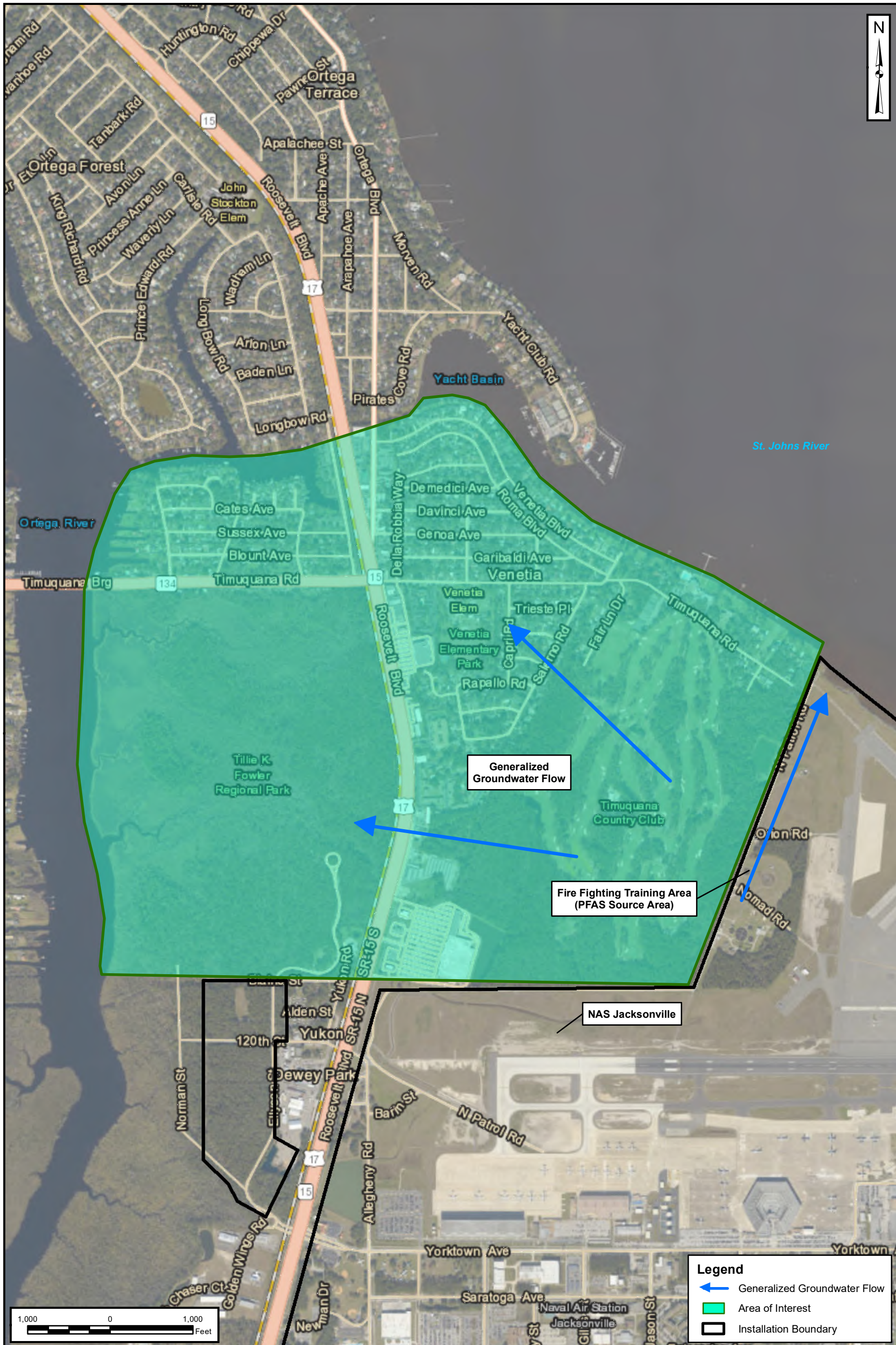
Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.52	PFBS			
PFBS_2	298.9 / 99.0	1.52	PFBS	0.290	0.300	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.073	0.077	ü
PFHpA_1	363.0 / 319.0	2.24	PFHpA			
PFHpA_2	363.0 / 169.0	2.24	PFHpA	0.023	0.023	ü
PFHxS_1	399.0 / 80.0	2.26	PFHxS			
PFHxS_2	399.0 / 99.0	2.26	PFHxS	0.298	0.287	ü
PFOA_1	413.0 / 369.0	2.65	PFOA			
PFOA_2	413.0 / 169.0	2.64	PFOA	0.069	0.069	ü
PFNA_1	463.0 / 419.0	3.04	PFNA			
PFNA_2	463.0 / 219.0	3.03	PFNA	0.316	0.306	ü
PFOS_1	499.0 / 80.0	3.03	PFOS			
PFOS_2	499.0 / 99.0	3.03	PFOS	0.207	0.192	ü
PFDA_1	513.0 / 469.0	3.39	PFDA			
PFDA_2	513.0 / 219.0	3.39	PFDA	0.046	0.044	ü
PFUnA_1	563.0 / 519.0	3.71	PFUnA			
PFUnA_2	563.0 / 269.0	3.71	PFUnA	0.048	0.054	ü
PFDoA_1	613.0 / 569.0	3.99	PFDoA			
PFDoA_2	613.0 / 319.0	3.99	PFDoA	0.169	0.168	ü
PFTTrDA_1	663.0 / 619.0	4.23	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.23	PFTTrDA	0.062	0.065	ü
PFTeDA_1	713.0 / 669.0	4.45	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.44	PFTeDA	0.051	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.54	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.54	NMeFOSAA	0.568	0.579	ü
NEtFOSAA_1	584.0 / 419.0	3.70	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.70	NEtFOSAA	0.063	0.079	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	3.69		N/A	N/A	ü



Sample Name	J7586-FS(0)	Injection Vial	15
Sample ID	JAX-RES-08222018-1000-32-FRB	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-08-28T19:36:04	Data File	18-0532.wiff
Acquisition Method	5-0371.dam	Result Table	18-0532_DW
Sample Comment			

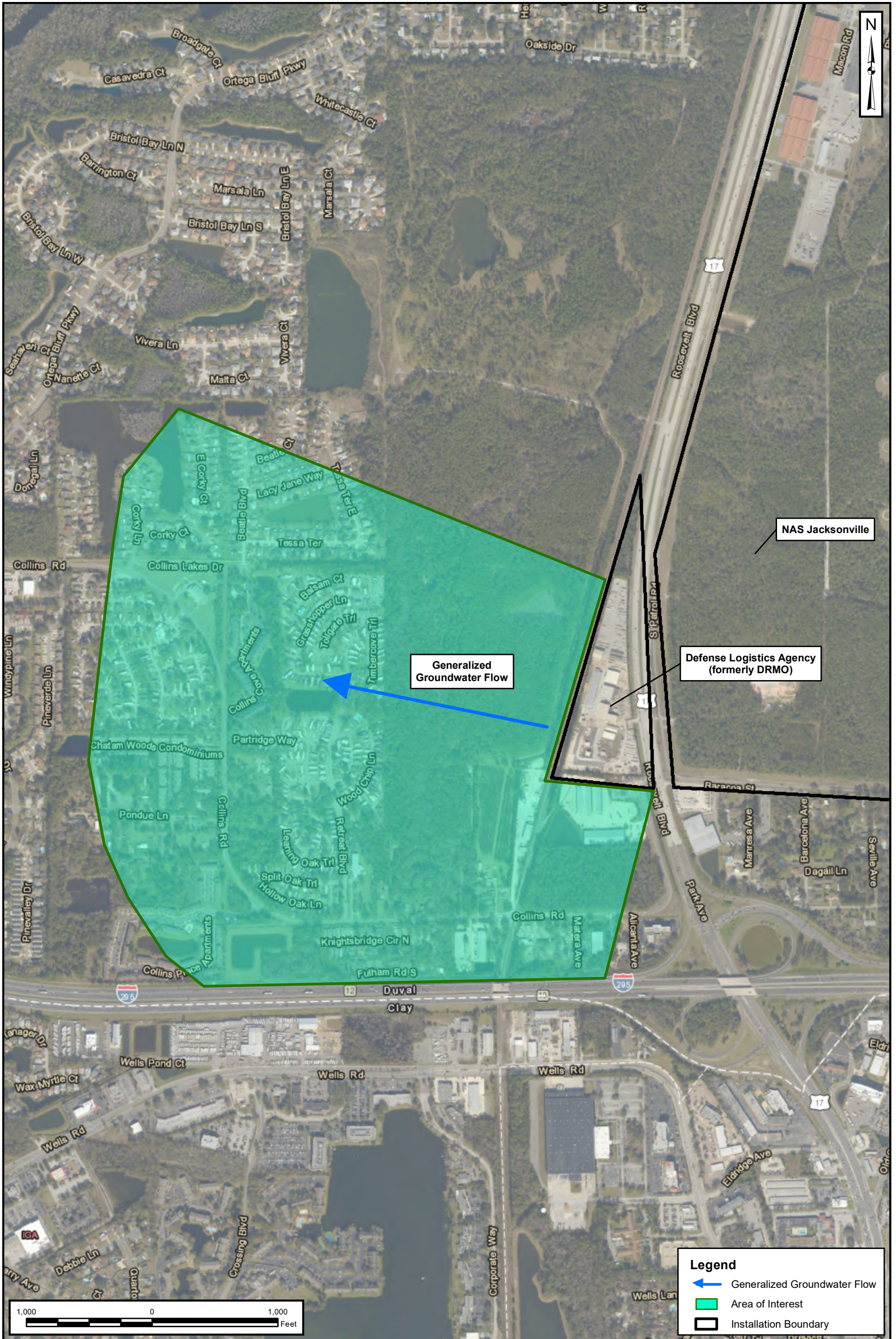
Results Summary

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	0.077	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.023	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.287	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.069	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.306	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.192	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.044	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.054	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.168	ü
PFTTrDA_1	663.0 / 619.0	N/A	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.065	ü
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.049	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.579	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	1.82				
13C2-PFDA	515.0 / 470.0	3.37		N/A	N/A	ü
d5-EtFOSAA	589.0 / 419.0	3.69		N/A	N/A	ü



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	