



**Groundwater Sample Results,
Combined Level 2 and Level 4 Laboratory Report,
Electronic Data Deliverable, Data Validation Report,
and the Sample Location Report, SDG 18-0349**

*Naval Support Activity Crane
Crane, Indiana*

August 2019

N00164_002938
CRANE_NSA
SSIC 5000-33c

LABORATORY DATA PACKAGE, 18-0349, NSA CRANE IN
07/13/2018
BATTELLE

Approved for public release: distribution unlimited.

**CTO-ML4144: Naval Support Activity Crane,
Indiana - PFAS analysis.**

**Project No 100118096-ML4144
PFAS by DoD QSM 5.1 Table B-15
QC**

Batch 18-0349

Package DP-18-0139

Submitted to:

Tetra Tech

661 Anderson Drive Foster Plaza 7

Pittsburgh, PA 15220 USA

Submitted by:

Battelle Norwell Operations

141 Longwater Drive Suite 202

Norwell, MA 02061

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It can be done

**CTO-ML4144: Naval Support Activity Crane,
Indiana - PFAS analysis.**

**Project No 100118096-ML4144
PFAS by DoD QSM 5.1 Table B-15
QC**

*Batch 18-0349
Package DP-18-0139*

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

NELAP Accreditation Number: E87856 (Florida Department of Health)

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

Analyst Approval:		schumitzd@battelle.org 2018.06.14 15:43:23 -04'00'
QC Chemist Approval:		Digitally signed by devinec@battelle.org DN: cn=devinec@battelle.org Date: 2018.06.19 11:43:08 -04'00'
Project Manager Approval:		Digitally signed by Jonathan Thorn Date: 2018.06.19 11:52:13 -04'00'

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CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

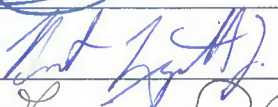
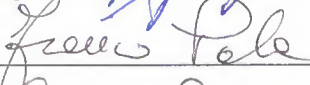
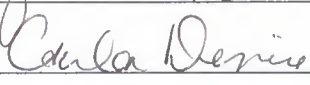
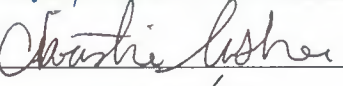
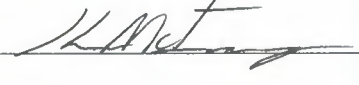
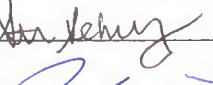
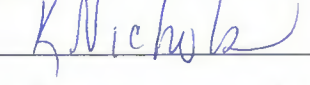
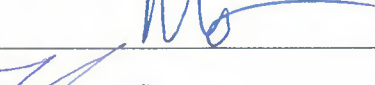
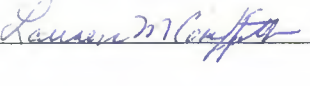
Project No 100118096-ML4144 PFAS by DoD QSM 5.1 Table B-15 QC

Batch 18-0349

Package DP-18-0139

1	<i>Work Plan</i> Laboratory Work Plan, Addendums To Work Plan, Memos From Project Manager, Special Instructions, Chain-of-Custody Reports.	1
2	<i>Tables</i> Analytical Data Tables, Qualifier Definitions.	17
3	<i>Miscellaneous Documentation</i> Case Narrative, Miscellaneous Documentation Form, Quality Control Summary, Example Calculations, Internal Standard Recovery Report, Retention Time Window Report.	26
4	<i>Sample Preparation Records</i> Sample Preparation Records, Dilution Worksheets, Standard Preparation Records, Certificates Of Analysis, GPC Check Report.	162
5	<i>Analytical Calibrations</i> Analytical Sequence, Analytical Method, Tune Report, Initial Calibration, Pesticide Degradation Report, RF Summary, Calibration Verifications, Independent Calibration Verification Check.	174
6	<i>Analytical Data</i> Raw Data Quantification Reports.	277
7	<i>Chromatograms</i> Sample And Standard Chromatograms.	298
8	<i>Unused Data</i>	374

Signature Page

Battelle 2018 (1 of 2) Signature Page			
Name (Printed)	Signature	Initials	Date
Jonathan Thorn		JRT	4/4/2018
Robert Lizotte, Jr.		BL	4-4-2018
FRANC PALA		FP	4-4-2018
Carla Devine		CRD	4/4/18
Denise Schumitz		DNS	4/4/18
Carolus Peummeay		CPM	4/4/2018
Rich Rostucci		RR	4/4/2018
Monica Mena		MM	4/4/2018
Christie Usher		CU	4/4/18
Kevin Matrone		KM	4/4/18
Stephanie Schultz		SAS	4/4/18
Jordan Tower		JT	4/4/18
KRISTEN NICHOLS		KN	4/4/18
Quimiao H Brown		CB	4/4/18
Matt Schumitz		MS	4-4-18
Sam Guimaraes		SG	4-4-18
Lauren Griffith		LG	4.4.18

Work Plan



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WORK/QUALITY ASSURANCE PROJECT PLAN

1.0 GENERAL PROJECT INFORMATION

Project Title: Non-Potable Water PFAS Analysis
Project Number: 100118096-ML4144
Client: Tetra Tech
 661 Anderson Drive Foster Plaza 7
 Pittsburgh, PA 15220
 USA

Client Contact Information: Aaron Bernhardt
 Project Manager/Ecological Risk Assessor
 (412) 921-8433(V)
 (412) 921-4040(F)
 aaron.bernhardt@tetrattech.com

Effective Date of QAPP: 5/12/2018
Version Number: 100118096-ML4144(L)-01
Project Manager: Thorn, Jonathan
Laboratory Task Manager: Thorn, Jonathan
Deliverable Due Date: 6/8/2018

2.0 SCOPE OF WORK

Overview: Analysis of groundwater samples under QSM 5.1 Table B-15.
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 in refrigerator.
Sub_Sampling: None
Procedures: NA
Contact: NA
Comment: NA

Archiving: Dispose of remaining samples 6 months after delivery of final data. Notify client prior to disposal of samples.

Disposal: Dispose of samples in the appropriate waste stream.



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WORK/QUALITY ASSURANCE PROJECT PLAN

2.1.2 Sample Preparation

NA

Samples Expected:	Samples Per Batch:	Batches Expected:
15	20	1

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	background sample will be identified on the COC
MSD	Spiked field sample for determining method accuracy and precision in the presence of matrix.	1 per batch	--	NA	background sample will be identified on the COC

2.1.3 Extraction/Preparation

2.1.3.1 Extraction

SOP No.-Rev:	5-370-06
SOP Title:	<i>Extraction of Poly and Perfluoroalkyl Substances from Environmental Matrices</i>
Sample Size:	250 ml
SIS and LCS/MS Compounds:	Defined in Table 2.
Deviations:	None
Comments:	FRB samples will only be extracted and analyzed if the associated field samples have results above the LOQ.

Table 2: SIS and LCS/MS Spiking Level

Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - DoD Low Level Labelled Extracted Internal Standards (SIS)	JV83 SIS	~ 0.100 ng	50 uL	NA



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Standard Type	Standard Contents		Spike Amount (ng)	Volume (uL)	Comment
PFAS - DOD Second Source LCS/MS Solution	JP49	LCS/MS	~ 7.5 ng	150 uL	MS/MSD samples
PFAS - DOD Second Source LCS/MS Solution	JP49	LCS/MS	~ 2.50 ng	50 uL	LCS sample

2.1.3.2 Cleanup

None.

RIS spiking levels are presented in Table 3.

Extract PIV (uL): 500

Table 3: RIS Spiking Level

Standard Type	Standard Contents		Spike Amount (ng)	Volume (uL)	Comment
PFAS - DoD Internal Standard Spiking Solution	JR08	RIS	~ 0.050 ng	25 uL	NA

2.1.4 Instrumental Analysis

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

- 1) SOP_No-Rev: **5-369-06**
- SOP_Title: *Analysis of Perfluoroalkyl Substances in Environmental Samples by Liquid Chromatography and Tandem Mass Spectrometry (LC-MS/MS)*
- Deviations: None
- Comments: Follow QSM 5.1 Table B-15 requirements.

2.2. DELIVERABLES

Deliverables Due:	6/8/2018
LIMS Reports:	No
Histograms:	No
Excel Tables:	Yes
EICs:	No



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Chromatograms:	No
EDDs:	Yes
Comments:	• 21-day TAT • Level IV validation package, compliant with QSM Table B-15. • Tetra Tech EDD format.

3.0 QUALITY

The Method Quality Objectives are defined in Attachment 3.

4.0 ORGANIZATION AND COMMUNICATION

4.1 ORGANIZATION

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

Table 4: Project Team and Roles

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

4.2 COMMUNICATION

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

5.0 SCHEDULE

The project schedule is presented in Table 5.

Table 5. Schedule of Laboratory Activities

Activity:	Start Date:	End Date:	TAT (days):	Comment:
Sample Receipt	05/18/2018	05/18/2018	0	NA
Sample Preparation	05/21/2018	05/23/2018	2	NA
Instrument Analysis	05/23/2018	05/30/2018	7	NA



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Activity:	Start Date:	End Date:	TAT (days):	Comment:
Quality Control Review	05/30/2018	06/05/2018	6	NA
Quality Assurance Review	06/05/2018	06/07/2018	2	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 are for full batch of 20 samples
Sample Preparation	8	1	8	Hours are for full batch of 20 samples
Instrument Analysis	8	1	8	Hours are for full batch of 20 samples
Quality Control Review	3	1	3	Hours are for full batch of 20 samples
Quality Assurance Review	1	1	1	Hours are for full batch of 20 samples

7.0 STAFF DEVELOPMENT

None anticipated



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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 1: Target Samples

Shipment: SHP-180521-01

Status: Approved

Description: NSA Crane

Range: J6222-J6229

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	J6222	09-GW014-051718	05/17/2018 10:55 am	GW	R0118 (NA)			MS-MSD
2	J6223	09-FD-051718-01	05/17/2018 11:00 am	GW	R0118 (NA)			
3	J6224	09-TW013-051718	05/17/2018 12:35 pm	GW	R0118 (NA)			
4	J6225	09-GW015-051718	05/17/2018 2:20 pm	GW	R0118 (NA)			
5	J6226	09-EB-GW-051718	05/17/2018 9:20 am	QC	R0118 (NA)			
6	J6227	09-FRB-051718	05/17/2018 9:40 am	QC	R0118 (NA)			
7	J6228	09-GW013-051718	05/17/2018 11:35 am	GW	R0118 (NA)			
8	J6229	09-GW012-051718	05/17/2018 3:50 pm	GW	R0118 (NA)			



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Attachment 2: Test Codes

Project Test Code Name:	Master_369
SOP Reference:	5-369 - Analysis of Perfluoroalkyl Substances in Environmental Samples by Liquid Chromatography and Tandem Mass Spectrometry (LC-MS/MS)
Description:	PFAS by DoD QSM 5.1 Table B-15
Matrix:	L - Liquid Samples, like water or sea water, prepared and analyzed under the same class of detection limits.
Detection Limit Study:	5-369
Instrument:	LC-MS/MS
MQO Criteria	Universal_LC
Standard Report:	Standard Result Report

Method Specific Reporting			Holding Times (days)	Data Flags
Result Units:	ng/L	Unit Conversion: (none)	Sample: 14	DL_Flag: U
Weight Basis:	LIQUID	Result Format: Fixed Digits	Frozen: 40	RL_Flag: J
Standard Basis:	SIS	# 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		13C5-PFHxA	No	No
2	Perfluoro-n-heptanoic Acid	PFHpA	T		13C4-PFHpA	No	No
3	Perfluoro-n-octanoic Acid	PFOA	T		13C8-PFOA	No	No
4	Perfluorononanoic Acid	PFNA	T		13C9-PFNA	No	No
5	Perfluoro-n-decanoic Acid	PFDA	T		13C6-PFDA	No	No
6	Perfluoro-n-undecanoic acid	PFUnA	T		13C7-PFUnA	No	No
7	Perfluoro-n-dodecanoic acid	PFDoA	T		13C2-PFDoA	No	No
8	Perfluoro-n-tridecanoic acid	PFTTrDA	T		13C2-PFTeDA	No	No
9	Perfluoro-n-tetradecanoic acid	PFTeDA	T		13C2-PFTeDA	No	No
10	N-methylperfluoro-1-octanesulfonamidoacetic acid	NMeFOSAA	T		N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	No	No
11	N-ethylperfluoro-octanesulfonamidoacetic acid	NEtFOSAA	T		N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	No	No
12	Perfluoro-1-butanefulfonate	PFBS	T		13C3-PFBS	No	No
13	Perfluoro-1-hexanesulfonate	PFHxS	T		13C3-PFHxS	No	No
14	Perfluoro-1-octanesulfonate	PFOS	T		13C8-PFOS	No	No
1	13C5-PFHxA	13C5-PFHxA	SIS	13C2-PFOA		No	No
2	13C4-PFHpA	13C4-PFHpA	SIS	13C2-PFOA		No	No
3	13C8-PFOA	13C8-PFOA	SIS	13C2-PFOA		No	No



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Attachment 2: Test Codes

Project Test Code Name: Master_369

No:	Analyte:	Report Name:	Type	RIS	SIS	Hidden:	Graph:
4	13C9-PFNA	13C9-PFNA	SIS	13C2-PFOA		No	No
5	13C6-PFDA	13C6-PFDA	SIS	13C2-PFDA		No	No
6	13C7-PFUnA	13C7-PFUnA	SIS	13C2-PFDA		No	No
7	13C2-PFDoA	13C2-PFDoA	SIS	13C2-PFDA		No	No
8	13C2-PFTeDA	13C2-PFTeDA	SIS	13C2-PFDA		No	No
9	N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	d3-MeFOSAA	SIS	13C4-PFOS		No	No
10	N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	d5-EtFOSAA	SIS	13C4-PFOS		No	No
11	13C3-PFBS	13C3-PFBS	SIS	13C4-PFOS		No	No
12	13C3-PFHxS	13C3-PFHxS	SIS	13C4-PFOS		No	No
13	13C8-PFOS	13C8-PFOS	SIS	13C4-PFOS		No	No
Total Analytes:		27					

Subtract Peaks:

None

Sum Peaks:

None



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Attachment 2: Test Codes

Project Test Code Name: Master_369

ICAL Acceptance Criteria:

Curve Fit:	Limit Mean(%):	Mean Qual:	Limit Ind.:	Ind. Qual:	Min Points:	Points Qual:	Comments:
Linear	NA	NA	0.99	N	5	N	y = Bx + C
Quadratic	NA	NA	0.99	N	6	N	y = Ax^2 + Bx + C

Continuing Calibration Verification Criteria:**CCV Name:** 5-369

Frequency Hrs:	Mean PD(%):	Individual PD(%):	RIS/SIS RT Window (min):	Area Limit Low(%):	Area Limit High(%):	Comment:
12 (N)	30 (N)	30 (N)	0.04 (N)	-50	100 (N)	NA

Independent Calibration Verification:**ICC Name:** 5-369

Mean PD Limit(%):	Ind. PD Limit(%):	RIS/SIS Window Limit (Secs):	Area Limit High(%):	Area Limit Low(%):	Comment:
30 (N)	30 (N)	0.04 (N)	-50	100 (N)	NA

Mass Discrimination Criteria:*None***Degradation Check Criteria:***None*



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Attachment 3: Method Quality Objectives

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



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Attachment 3: Method Quality Objectives

MQO Application	Universal_LC		
MQO:	Acceptance Criteria	Qual:	Corrective Action:
Analytical Triplicate Precision	Organics results less than 30% Relative Standard Deviation (RSD). Analyte concentration must be > 5x MDL. Organics Results in the Original is less than 5 times the MDL	N n	Review with Project Manager; re-analyze or justify reporting results in the project records.
Surrogate Compound Recovery	Recovery results between 50% and 150%.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
Control Oil	RPD < 30% for at least 90% of analytes	N	Results examined by project manager, task leader, or subcontractor lab manager. Reextraction, reanalysis, or justification documented.
Instrument Calibration	5-369-6: R-squared greater than or equal to 0.990		Results examined by project manager, task leader, or subcontractor lab manager. Reextraction, reanalysis, or justification documented.
Independent Calibration Check Solution	5-369-6: Individual PD less than or equal to 30%. Mean Percent Difference less than or equal to 30%.	N	Review with Project Manager; re-analyze or justify in project records.
Continuing Calibration Verification	5-369-6: Individual PD less than or equal to 30%. Mean Percent Difference less than or equal to 30%.	N	Review with Project Manager; re-analyze or justify in project records.

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Battelle Project No:

Sample Receipt FormApproved: ☐ Authorized: ☐

Project Number: 112G08005-ML4144

Client: Tetrattech

Received by: Schumitz, Matt

Date/Time Received: Saturday, May 19, 2018 12:00 PM

No. of Shipping Containers: 1

SHIPMENT

Method of Delivery: Commercial Carrier

Tracking Number: Fed Ex

COC Forms: ☒ Shipped with samples ☐ No Forms**Cooler(s)/Box(es)**

Cntr	Type	Tracking No.	Seal	Seal	Container	Therm.	Temp C	Smpls
1 of 1	Cooler	8770 7419 4230	Tape	Intact	Intact	Therm_1	1.2	8

Samples

Sample Labels:

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

Container Seals:

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

Condition of Samples:

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

Temperature upon receipt (°C): 1.2 Temperature Blank used ☐ Yes ☒ No

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

Samples Acidified: ☐ Yes ☐ No ☒ UnknownInitial pH 5-9?: ☐ Yes ☐ No ☒ NA

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

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

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

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

Individual sample deviations noted on sample log

Samples Containers:

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

Storage Location: Custody: Refrigerator - R0118 (NA)

BDO IDs Assigned: J6222 - J6229

Samples logged in by: Schumitz, Matt

Date/Time: 05/19/2018 12:00 PM

Approved By:

Approved On:

Authorized By:

Authorized On:



It can be done

ShpNo SHP-180521-01

Battelle Project No:

Sample Receipt Form Details

Approved: ☐ Authorized ☐

Project Number: 112G08005-ML4144

Client: Tetrattech

Received by: Schumitz, Matt

Date/Time Received: Saturday, May 19, 2018 12:00 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:
J6222	09-GW014-051718	05/17/18 10:55	05/21/18 9:31	6	GW	1.2	NA	NA	NA	R0118 (NA)			MS-MSD
J6223	09-FD-051718-01	05/17/18 11:00	05/21/18 9:31	2	GW	1.2	NA	NA	NA	R0118 (NA)			
J6224	09-TW013-051718	05/17/18 12:35	05/21/18 9:32	2	GW	1.2	NA	NA	NA	R0118 (NA)			
J6225	09-GW015-051718	05/17/18 14:20	05/21/18 9:32	2	GW	1.2	NA	NA	NA	R0118 (NA)			
J6226	09-EB-GW-051718	05/17/18 9:20	05/21/18 9:32	1	QC	1.2	NA	NA	NA	R0118 (NA)			
J6227	09-FRB-051718	05/17/18 9:40	05/21/18 9:33	1	QC	1.2	NA	NA	NA	R0118 (NA)			
J6228	09-GW013-051718	05/17/18 11:35	05/21/18 9:33	2	GW	1.2	NA	NA	NA	R0118 (NA)			
J6229	09-GW012-051718	05/17/18 15:50	05/21/18 9:34	2	GW	1.2	NA	NA	NA	R0118 (NA)			

Total Samples: 8



NUMBER

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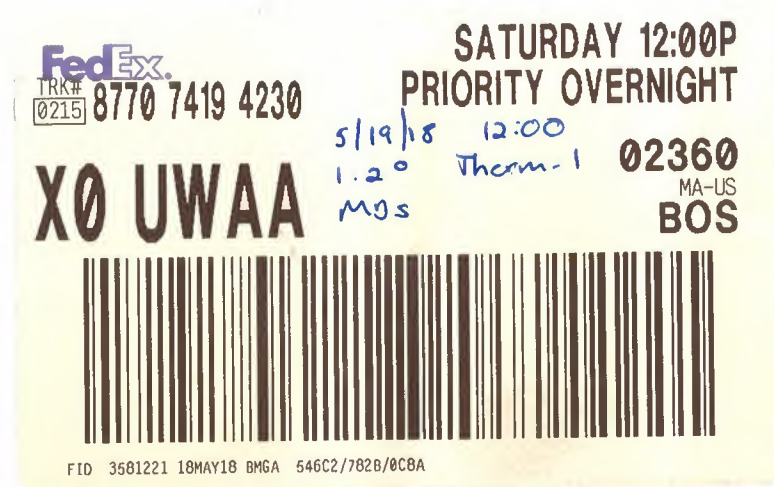
DISTRIBUTION:

WHITE (ACCOMPANIES SAMPLE)

YELLOW (FIELD COPY)

PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001



Data Tables



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID 09-FRB-051718

Battelle ID J6227-FS
 Sample Type SA
 Collection Date 05/17/2018
 Extraction Date 06/05/2018
 Analysis Date 06/08/2018
 Analytical Instrument Sciex 5500 LC/MS/MS
 % Moisture NA
 Matrix QC
 Sample Size 0.270
 Size Unit-Basis L
 Units ng/L

MDL LOD LOQ

PFHxA	2.33 JT	0.18	0.46	4.63
PFHpA	0.18 JT	0.15	0.46	4.63
PFOA	0.57 JT	0.17	0.46	4.63
PFNA	0.29 JT	0.24	0.93	4.63
PFDA	0.46 UT	0.15	0.46	4.63
PFUnA	0.93 UT	0.27	0.93	4.63
PFDoA	0.46 UT	0.17	0.46	4.63
PFTTrDA	0.46 UT	0.14	0.46	4.63
PFTeDA	0.93 UT	0.23	0.93	4.63
NMeFOSAA	1.85 UT	0.52	1.85	4.63
NEtFOSAA	0.93 UT	0.45	0.93	4.63
PFBS	0.61 JT	0.12	0.46	4.63
PFHxS	3.56 JT	0.10	0.37	4.63
PFOS	21.86 BT	0.18	0.46	4.63

Surrogate Recoveries (%)

13C5-PFHxA	119
13C4-PFHpA	119
13C8-PFOA	126
13C9-PFNA	119
13C6-PFDA	124
13C7-PFUnA	113
13C2-PFDoA	108
13C2-PFTeDA	82
d3-MeFOSAA	100
d5-EtFOSAA	107
13C3-PFBS	119
13C3-PFHxS	122
13C8-PFOS	117



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID	JV05 IB			
Battelle ID	JV05 IB_06/07/2018			
Sample Type	IB			
Collection Date	NA			
Extraction Date	NA			
Analysis Date	06/07/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	Water			
Sample Size	0.250			
Size Unit-Basis	NA			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.50 U	0.19	0.50	5.00
PFHpA	0.50 U	0.16	0.50	5.00
PFOA	0.50 U	0.18	0.50	5.00
PFNA	1.00 U	0.26	1.00	5.00
PFDA	0.50 U	0.16	0.50	5.00
PFUnA	1.00 U	0.29	1.00	5.00
PFDoA	0.50 U	0.18	0.50	5.00
PFTeDA	0.50 U	0.15	0.50	5.00
PFTeDA	1.00 U	0.25	1.00	5.00
NMeFOSAA	2.00 U	0.56	2.00	5.00
NEtFOSAA	1.00 U	0.49	1.00	5.00
PFBS	0.50 U	0.13	0.50	5.00
PFHxS	0.40 U	0.11	0.40	5.00
PFOS	0.30 J	0.19	0.50	5.00

Surrogate Recoveries (%)

13C5-PFHxA	76
13C4-PFHpA	76
13C8-PFOA	79
13C9-PFNA	79
13C6-PFDA	77
13C7-PFUnA	72
13C2-PFDoA	70
13C2-PFTeDA	69
d3-MeFOSAA	69
d5-EtFOSAA	61
13C3-PFBS	65
13C3-PFHxS	61
13C8-PFOS	64



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID

Battelle ID
 Sample Type
 Collection Date
 Extraction Date
 Analysis Date
 Analytical Instrument
 % Moisture
 Matrix
 Sample Size
 Size Unit-Basis
 Units

MDL

LOD

LOQ

PFHxA

PFHpA

PFOA

PFNA

PFDA

PFUnA

PFDaA

PFTeDA

PFTeDA

NMeFOSAA

NEtFOSAA

PFBS

PFHxS

PFOS

Surrogate Recoveries (%)

13C5-PFHxA

13C4-PFHpA

13C8-PFOA

13C9-PFNA

13C6-PFDA

13C7-PFUnA

13C2-PFDaA

13C2-PFTeDA

d3-MeFOSAA

d5-EtFOSAA

13C3-PFBS

13C3-PFHxS

13C8-PFOS



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID

Battelle ID
 Sample Type
 Collection Date
 Extraction Date
 Analysis Date
 Analytical Instrument
 % Moisture
 Matrix
 Sample Size
 Size Unit-Basis
 Units

MDL

LOD

LOQ

PFHxA

PFHpA

PFOA

PFNA

PFDA

PFUnA

PFDoA

PFTeDA

PFTeDA

NMeFOSAA

NEtFOSAA

PFBS

PFHxS

PFOS

Surrogate Recoveries (%)

13C5-PFHxA

13C4-PFHpA

13C8-PFOA

13C9-PFNA

13C6-PFDA

13C7-PFUnA

13C2-PFDoA

13C2-PFTeDA

d3-MeFOSAA

d5-EtFOSAA

13C3-PFBS

13C3-PFHxS

13C8-PFOS



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID	Procedural Blank				
Battelle ID	CQ891PB-FS				
Sample Type	PB				
Collection Date	06/05/2018				
Extraction Date	06/05/2018				
Analysis Date	06/08/2018				
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	3.53 JN	0.19	0.50	5.00	
PFHpA	0.17 J	0.16	0.50	5.00	
PFOA	0.55 J	0.18	0.50	5.00	
PFNA	0.41 J	0.26	1.00	5.00	
PFDA	0.50 U	0.16	0.50	5.00	
PFUnA	1.00 U	0.29	1.00	5.00	
PFDaA	0.50 U	0.18	0.50	5.00	
PFTeDA	0.50 U	0.15	0.50	5.00	
PFTeDA	1.00 U	0.25	1.00	5.00	
NMeFOSAA	2.00 U	0.56	2.00	5.00	
NEtFOSAA	1.00 U	0.49	1.00	5.00	
PFBS	0.50 U	0.13	0.50	5.00	
PFHxS	0.46 J	0.11	0.40	5.00	
PFOS	3.89 JN	0.19	0.50	5.00	

Surrogate Recoveries (%)

13C5-PFHxA	114
13C4-PFHpA	122
13C8-PFOA	124
13C9-PFNA	125
13C6-PFDA	125
13C7-PFUnA	125
13C2-PFDaA	97
13C2-PFTeDA	73
d3-MeFOSAA	100
d5-EtFOSAA	103
13C3-PFBS	105
13C3-PFHxS	120
13C8-PFOS	102



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID	Laboratory Control Sample					
Battelle ID	CQ892LCS-FS					
Sample Type	LCS					
Collection Date	06/05/2018					
Extraction Date	06/05/2018					
Analysis Date	06/08/2018					
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	10.10 B	10.10	100		51	137
PFHpA	9.10	10.00	91		48	136
PFOA	9.13	10.00	91		49	141
PFNA	8.88	10.00	89		58	122
PFDA	9.06	10.00	91		59	135
PFUnA	8.55	10.00	86		64	134
PFDoA	11.55	10.00	116		75	131
PFTTrDA	10.08	10.00	101		42	148
PFTeDA	8.88	10.00	89		42	158
NMeFOSAA	8.56	10.00	86		50	146
NEtFOSAA	8.60	10.00	86		51	131
PFBS	9.97	10.10	99		56	134
PFHxS	10.53	10.10	104		52	128
PFOS	12.34 B	10.00	123		40	144

Surrogate Recoveries (%)

13C5-PFHxA	118
13C4-PFHpA	116
13C8-PFOA	119
13C9-PFNA	118
13C6-PFDA	126
13C7-PFUnA	123
13C2-PFDoA	100
13C2-PFTeDA	81
d3-MeFOSAA	126
d5-EtFOSAA	131
13C3-PFBS	118
13C3-PFHxS	120
13C8-PFOS	104



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

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

July 13th, 2018

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

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

The original data tables have been moved to the unused data section of this complete data package.

Project:	CTO-ML4144: Naval Support Activity Crane, Indiana
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	GW, QC
Data Set:	DP-18-0139
Analytical SOP:	5-369
Method Reference:	PFAS to QSM 5.1 Table B-15

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
5/17/2018	5/19/2018	1.2

Corrective Actions	None.
Sample Storage	The samples were stored refrigerated until extraction.
Related samples	Related field samples reported in SDG 18-0334.

METHOD SUMMARIES	
Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a weak ion exchange solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were split and concentrated to dryness under nitrogen with a water bath set between 35 °C and 45 °C, reconstituted with 80:20 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	None.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on Sciex 5500 LC-MS/MS. The confirmation ion ratio was above 50% RPD for the following samples and analytes: Procedural blank – PFUnA, PFDoA, and PFTrDA, all detected below the MDL values. 09-FRB-051718 (J6227) – PFDA and PFUnA, both detected below the MDL values. The FRB sample was extracted outside of the 14 day collection to extraction window, all data is appropriately flagged with the “T” qualifier. The results for PFHxA, PFHxS, and PFOS were impacted by water samples extracted prior to these FRB samples on the same manifold. The manifold, including all valves, were cleaned between batches, however, the water samples extracted prior to these appear to be heavily impacted by AFFF (samples required 1:1,000,000-fold dilutions). The samples that caused the issues were

	extracted on 6/4 and did not impact the extraction of batch 18-0334. The samples in question were not part of the ML4144 project.
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Holding Times	Extraction Date(s)	Analysis Date(s)
	6/5/2018	6/8/2018

Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.
≤ ½ the LOQ Samples >10x PB	2 exceedances noted for PB hits ≤ ½ the LOQ. 3 sample exceedances for samples >10x PB. PFHxA and PFOS are greater than ½ the LOQ in the blank, the most likely cause of these exceedances is the AFFF sample mentioned above in the analysis comments. Similarly, PFHxA and PFOS are B flagged in the Laboratory Control Spike and sample 09-FRB-051718. Instrument blank was clean, and all other analytes are below the MDL or LOD in the PB, two bottles were not collected for FRB samples for re-extraction.
Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
Laboratory derived control limits for recovery	No exceedances noted. No comments.

Extracted Internal Standard Analytes	Labelled analog compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
50-150% of true value	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.
+/- 30% of true value, R ² ≥0.99	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.
+/- 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.
± 30% of true value	No exceedances noted.
	No comments.
Instrument Blank (IB)	Immediately following the highest standard analyzed and daily prior to sample analysis.
≤ ½ the LOQ	No exceedances noted.
	No comments.



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project Number: 100118096-ML4144
 Preparation Batch: 18-0349
 Data Set: DP-18-0139
 Test Code: Master_369

QC Parameter:	Exceed:	Justification:
Procedural Blank	2	Contamination of the extraction manifold from previous samples likely for analytes typically found at high levels in AFFF. Re-extraction could not be done as additional sample was not available.
PB Measurement Quality Objective	3	Contamination of the extraction manifold from previous samples likely for analytes typically found at high levels in AFFF. Re-extraction could not be done as additional sample was not available.
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



BATTELLE - NORWELL OPERATIONS MISCELLANEOUS DOCUMENTATION FORM

Project Title:	CTO-ML4144: Naval Support Activity Cr	Data Set Number:	DP-18-0139
Project Number:	100118096-ML4144	Prep Batch Number:	18-0349
Entered By:	Denise Schumitz	Entered On:	06/14/2018
Test Code (Matrix Type):	Master_369(L)		

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
DMS 6/14/2018

JV20 is not being used in method 18-0349_SIS for d3-MeFOSAA, d5-EtFOSAA and 13C3-PFHxS. There is no impact on the data once this point is removed from the calibration.
DMS 6/14/2018

JV20 and JV21 are not being used in method 18-0349_BASE for PFHxA, PFOS and PFDoA. There is no impact on the data once these points are removed from the calibration.
DMS 6/14/2018

JV28 is not being used in method 18-0349_BASE for NMeFOSAA. There is no impact on the data once this point is removed from the calibration.
DMS 6/14/2018

JV20 in method 18-0349_BASE has an ion ratio of >50% for PFHpA, PFOS and NEtFOSAA.
DMS 6/14/2018

JV05 IB in method 18-0349_BASE has an ion ratios of >50% for NEtFOSAA.
DMS 6/14/2018

CQ896PB in method 18-0349_BASE has an ion ratio of >50% for PFUnA, PFDoA, and PFTTrDA.
DMS 6/14/2018

J6227 in method 18-0349_BASE has an ion ratio of >50% for PFDA and PFUnA.
DMS 6/14/2018

Task Leader Approval:

Supervisor Approval:

PM Approval:

Digitally signed by Jonathan Thorn

Date: 2018.06.19 11:04:06 -04'00'



Example Calculation for PFAS

Calculation of final concentration from area:

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

Where:

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

Sample ID: CQ892LCS-FS(3)
 Client Sample ID: Laboratory Control Sample
 Sample Size: 0.25
 Units: L
 Dilution Factor: 2.000
 PIV (L): 0.0005
 Target Analyte: NMeFOSAA
 MRM Transition: 570.0 / 419.0
 Data file: 6072018.wiff
 Result table: 18-0349_BASE
 Area: 126,145.84
 IS Name: d3-MeFOSAA
 IS Area: 8,639.70
 IS Amount (ng/L): 100
 y-intercept: 0.04941
 slope: 0.6802

$$\text{Concentration} = \frac{[(126145.84/8639.7) - 0.04941]}{0.6802} * 100 * 0.0005 * 2 / 0.25$$

ng/L = 8.56



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Preparation Batch: 18-0349

Data Set: DP-18-0139

	CQ891PB-FS (Procedural Blank)	CQ892LCS-FS (Laboratory Control Sample)	J6227-FS (09-FRB-051718)
PFHxA	L	L	L
PFHpA	L	L	L
PFOA	L	L	L
PFNA	L	L	L
PFDA	-	L	-
PFUnA	-	L	-
PFDoA	-	L	-
PFTTrDA	-	L	-
PFTeDA	-	L	-
NMeFOSAA	-	L	-
NEtFOSAA	-	L	-
PFBS	-	L	L
PFHxS	L	L/Br	L
PFOS	L/Br	L/Br	L/Br

"L": Linear

"Br": branched

"L/Br": Linear/Branched

"-": Not detected



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper
JV24	L5	6/7/18 21:15	13C2-PFOA	64,200.44	32,100.22	96,300.66

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier
JV20	L1	6/7/18 20:32	13C2-PFOA	57,353.19	32,100.22	96,300.66	
JV21	L2	6/7/18 20:43	13C2-PFOA	49,109.84	32,100.22	96,300.66	
JV22	L3	6/7/18 20:53	13C2-PFOA	62,846.02	32,100.22	96,300.66	
JV23	L4	6/7/18 21:04	13C2-PFOA	70,044.68	32,100.22	96,300.66	
JV24	L5	6/7/18 21:15	13C2-PFOA	64,200.44	32,100.22	96,300.66	
JV25	L6	6/7/18 21:25	13C2-PFOA	55,104.55	32,100.22	96,300.66	
JV26	L7	6/7/18 21:36	13C2-PFOA	58,364.38	32,100.22	96,300.66	
JV27	L8	6/7/18 21:47	13C2-PFOA	65,699.95	32,100.22	96,300.66	
JV28	L9	6/7/18 21:57	13C2-PFOA	74,209.03	32,100.22	96,300.66	
JV05 IB	Instrument Blank	6/7/18 22:08	13C2-PFOA	66,887.41	32,100.22	96,300.66	
JW32 ICC	ICC	6/7/18 22:19	13C2-PFOA	48,616.94	32,100.22	96,300.66	
CQ891PB-FS(3)	Procedural Blank	6/8/18 0:16	13C2-PFOA	51,298.67	32,100.22	96,300.66	
CQ892LCS-FS(3)	Labortory Control Sample	6/8/18 0:27	13C2-PFOA	44,171.18	32,100.22	96,300.66	
J6227-FS(3)	09-FRB-051718	6/8/18 0:38	13C2-PFOA	49,048.13	32,100.22	96,300.66	
JV26 CCV	CCV	6/8/18 0:59	13C2-PFOA	58,380.23	32,100.22	96,300.66	



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper
JV24	L5	6/7/18 21:15	13C2-PFDA	69,743.01	34,871.51	104,614.52

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier
JV20	L1	6/7/18 20:32	13C2-PFDA	59,557.03	34,871.51	104,614.52	
JV21	L2	6/7/18 20:43	13C2-PFDA	54,456.09	34,871.51	104,614.52	
JV22	L3	6/7/18 20:53	13C2-PFDA	69,075.44	34,871.51	104,614.52	
JV23	L4	6/7/18 21:04	13C2-PFDA	68,842.20	34,871.51	104,614.52	
JV24	L5	6/7/18 21:15	13C2-PFDA	69,743.01	34,871.51	104,614.52	
JV25	L6	6/7/18 21:25	13C2-PFDA	62,623.00	34,871.51	104,614.52	
JV26	L7	6/7/18 21:36	13C2-PFDA	60,533.01	34,871.51	104,614.52	
JV27	L8	6/7/18 21:47	13C2-PFDA	63,218.27	34,871.51	104,614.52	
JV28	L9	6/7/18 21:57	13C2-PFDA	77,714.45	34,871.51	104,614.52	
JV05 IB	Instrument Blank	6/7/18 22:08	13C2-PFDA	75,273.77	34,871.51	104,614.52	
JW32 ICC	ICC	6/7/18 22:19	13C2-PFDA	47,103.14	34,871.51	104,614.52	
CQ891PB-FS(3)	Procedural Blank	6/8/18 0:16	13C2-PFDA	49,388.41	34,871.51	104,614.52	
CQ892LCS-FS(3)	Laboratory Control Sample	6/8/18 0:27	13C2-PFDA	42,815.43	34,871.51	104,614.52	
J6227-FS(3)	09-FRB-051718	6/8/18 0:38	13C2-PFDA	51,047.24	34,871.51	104,614.52	
JV26 CCV	CCV	6/8/18 0:59	13C2-PFDA	60,931.63	34,871.51	104,614.52	



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper
JV24	L5	6/7/18 21:15	13C4-PFOS	17,621.34	8,810.67	26,432.01

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier
JV20	L1	6/7/18 20:32	13C4-PFOS	11,468.96	8,810.67	26,432.01	
JV21	L2	6/7/18 20:43	13C4-PFOS	12,130.72	8,810.67	26,432.01	
JV22	L3	6/7/18 20:53	13C4-PFOS	14,221.94	8,810.67	26,432.01	
JV23	L4	6/7/18 21:04	13C4-PFOS	15,596.73	8,810.67	26,432.01	
JV24	L5	6/7/18 21:15	13C4-PFOS	17,621.34	8,810.67	26,432.01	
JV25	L6	6/7/18 21:25	13C4-PFOS	14,878.58	8,810.67	26,432.01	
JV26	L7	6/7/18 21:36	13C4-PFOS	16,218.32	8,810.67	26,432.01	
JV27	L8	6/7/18 21:47	13C4-PFOS	15,802.34	8,810.67	26,432.01	
JV28	L9	6/7/18 21:57	13C4-PFOS	15,001.44	8,810.67	26,432.01	
JV05 IB	Instrument Blank	6/7/18 22:08	13C4-PFOS	18,935.15	8,810.67	26,432.01	
JW32 ICC	ICC	6/7/18 22:19	13C4-PFOS	12,740.39	8,810.67	26,432.01	
CQ891PB-FS(3)	Procedural Blank	6/8/18 0:16	13C4-PFOS	13,848.29	8,810.67	26,432.01	
CQ892LCS-FS(3)	Labortory Control Sample	6/8/18 0:27	13C4-PFOS	9,885.59	8,810.67	26,432.01	
J6227-FS(3)	09-FRB-051718	6/8/18 0:38	13C4-PFOS	12,561.96	8,810.67	26,432.01	
JV26 CCV	CCV	6/8/18 0:59	13C4-PFOS	15,227.65	8,810.67	26,432.01	

Sample Name	JV26	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 9:36:37 PM	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.55	22	>10
PFBS_2	298.9 / 99.0	1.55	18	>10
PFHxA_1	313.0 / 269.0	1.83	19	>10
PFHxA_2	313.0 / 119.0	1.83	18	>10
PFHpA_1	363.0 / 319.0	2.20	27	>10
PFHpA_2	363.0 / 169.0	2.20	22	>10
PFHxS_1	399.0 / 80.0	2.21	22	>10
PFHxS_2	399.0 / 99.0	2.22	24	>10
PFOA_1	413.0 / 369.0	2.58	26	>10
PFOA_2	413.0 / 169.0	2.58	27	>10
PFNA_1	463.0 / 419.0	2.95	24	>10
PFNA_2	463.0 / 219.0	2.95	28	>10
PFOS_1	499.0 / 80.0	2.94	28	>10
PFOS_2	499.0 / 99.0	2.94	28	>10
PFDA_1	513.0 / 469.0	3.30	30	>10
PFDA_2	513.0 / 219.0	3.30	27	>10
PFUnA_1	563.0 / 519.0	3.62	31	>10
PFUnA_2	563.0 / 269.0	3.62	40	>10
PFDoA_1	613.0 / 569.0	3.90	30	>10
PFDoA_2	613.0 / 319.0	3.90	34	>10
PFTTrDA_1	663.0 / 619.0	4.15	36	>10
PFTTrDA_2	663.0 / 169.0	4.15	30	>10
PFTeDA_1	713.0 / 669.0	4.38	41	>10
PFTeDA_2	713.0 / 169.0	4.37	35	>10
NMeFOSAA_1	570.0 / 419.0	3.45	38	>10
NMeFOSAA_2	570.0 / 512.0	3.45	29	>10
NEtFOSAA_1	584.0 / 419.0	3.61	32	>10
NEtFOSAA_2	584.0 / 483.0	3.61	35	>10

Sample Name	JV26	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 9:36:37 PM	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
13C2-PFDoA	615.0 / 570.0	3.89	27	>10
d3-MeFOSAA	573.0 / 419.0	3.45	24	>10
d5-EtFOSAA	589.0 / 419.0	3.60	35	>10
13C5-PFHxA	318.0 / 273.0	1.82	22	>10
13C4-PFHpA	367.0 / 322.0	2.19	35	>10
13C8-PFOA	421.0 / 376.0	2.57	39	>10
13C9-PFNA	472.0 / 427.0	2.94	32	>10
13C6-PFDA	519.0 / 474.0	3.28	27	>10
13C7-PFUnA	570.0 / 525.0	3.60	29	>10
13C2-PFTeDA	715.0 / 670.0	4.37	36	>10
13C3-PFBS	302.0 / 99.0	1.53	24	>10
13C3-PFHxS	402.0 / 99.0	2.21	28	>10
13C8-PFOS	507.0 / 99.0	2.93	18	>10



Precision and Bias at the LOQ for PFAS in non-potable Water

Analyte	CAS No.	Average (ng/L)	ST DEV	3 Sigma	n
PFBA	375-22-4	12.44	2.29	6.87	10
PFPeA	2706-90-3	10.77	1.61	4.83	8
PFHxA	307-24-4	10.31	1.29	3.87	23
PFHpA	375-85-9	9.83	1.74	5.22	23
PFOA	335-67-1	10.43	1.50	4.50	24
PFNA	375-95-1	9.97	1.22	3.66	23
PFDA	335-76-2	10.30	1.49	4.47	23
PFUnA	2058-94-8	10.32	1.43	4.29	23
PFDoA	307-55-1	11.30	1.18	3.54	23
PFTTrDA	72629-94-8	11.72	1.59	4.77	23
PFTeDA	376-06-7	11.30	2.19	6.57	23
NMeFOSAA	2355-31-9	10.68	1.98	5.94	23
NEtFOSAA	2991-50-6	9.93	1.78	5.34	23
PFOSA	754-91-6	9.08	0.00	0.00	2
PFBS	375-73-5	10.62	1.52	4.56	24
PFPeS	BDO-2114	9.60	1.07	3.21	3
PFHxS	355-46-4	10.06	1.67	5.01	23
PFHpS	375-99-6	11.00	1.02	3.06	8
PFOS	1763-23-1	10.35	1.54	4.62	24
PFNS	98789-57-2	8.81	0.35	1.05	3
PFDS	2806-15-7	10.24	1.97	5.91	8
4:2FTS	BDO-2205	11.24	1.16	3.48	8
6:2FTS	27619-97-2	12.37	3.07	9.21	8
8:2FTS	39108-34-4	12.30	2.64	7.92	8



Non-Potable Water Calibration to Sample Equivalents

ICAL (ng/L)	PIV (mL)	DF ¹	Sample Size (L)	Sample Equivalent (ng/L) ²
25	0.5	2	0.250	0.1
50	0.5	2	0.250	0.2
100	0.5	2	0.250	0.4
500	0.5	2	0.250	2.0
1,000	0.5	2	0.250	4.0
2,500	0.5	2	0.250	10.0
10,000	0.5	2	0.250	40.0
20,000	0.5	2	0.250	80.0

¹ - base level dilution as part of the extraction procedure

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

BATTELLE DETECTION LIMITS FOR PFAS IN NON-POTABLE WATER

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Analytical SOP 5-369

Extraction SOP 5-370

PFAS by LC-MS/MS Compliant with QSM 5.1 Compliant Table B-15

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)
PFBA	375-22-4	0.14	0.5	5.0
PFPeA	2706-90-3	0.31	1.0	5.0
PFHxA	307-24-4	0.19	0.5	5.0
PFHpA	375-85-9	0.16	0.5	5.0
PFOA	335-67-1	0.18	0.5	5.0
PFNA	375-95-1	0.26	1.0	5.0
PFDA	335-76-2	0.16	0.5	5.0
PFUnA	2058-94-8	0.29	1.0	5.0
PFDoA	307-55-1	0.18	0.5	5.0
PFTTrDA	72629-94-8	0.15	0.5	5.0
PFTeDA	376-06-7	0.25	1.0	5.0
NMeFOSAA	2355-31-9	0.56	2.0	5.0
NEtFOSAA	2991-50-6	0.49	1.0	5.0
PFOSA	754-91-6	TBD	TBD	TBD
PFBS	375-73-5	0.13	0.5	5.0
PFPeS	BDO-2114	0.67	2.5	5.0
PFHxS	355-46-4	0.11	0.4	5.0
PFHpS	375-99-6	0.20	0.5	5.0
PFOS	1763-23-1	0.19	0.5	5.0
PFNS	98789-57-2	0.46	1.0	5.0
PFDS	2806-15-7	0.17	0.5	5.0
4:2FTS	BDO-2205	0.14	0.5	5.0
6:2FTS	27619-97-2	1.36	2.5	5.0
8:2FTS	39108-34-4	0.22	0.5	5.0

Analytes on NELAP and ELAP QSM 5.1 Scope of accreditation

Analytical Transitions for PFAS in non-potable water, solid, and tissue

EPA 537 MOD DoD QSM 5.1 compliant with Table B-15 requirements

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
PFBA	375-22-4	Target	213.0 / 169.0	NA
PFPeA	2706-90-3	Target	263.0 / 219.0	NA
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
PFOSA	754-91-6	Target	498.0 / 78.0	498.0 / 83.0
PFBS	375-73-5	Target	299.0 / 80.0	299.0 / 99.0
PFPeS	BDO-2114	Target	349.0 / 99.0	249.0 / 80.0
PFHxS	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
PFHpS	375-99-6	Target	449.0 / 80.0	449.0 / 99.0
PFOS	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
PFNS	98789-57-2	Target	549.0 / 99.0	549.0 / 80.0
PFDS	2806-15-7	Target	599.0 / 80.0	599.0 / 99.0
4:2FTS	BDO-2205	Target	327.0 / 307.0	327.0 / 80.0
6:2FTS	27619-97-2	Target	427.0 / 407.0	427.0 / 81.0
8:2FTS	39108-34-4	Target	527.0 / 507.0	527.0 / 487.0
13C4-PFBA	BDO-2105	SIS ¹	217.0 / 172.0	NA
13C5-PFPeA	BDO-2216	SIS ¹	268.0 / 223.0	NA
13C5-PFHxA	BDO-2217	SIS ¹	318.0 / 273.0	NA

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
13C4-PFHpA	BDO-2218	SIS ¹	367.0 / 322.0	NA
13C8-PFOA	BDO-2219	SIS ¹	421.0 / 376.0	NA
13C9-PFNA	BDO-2221	SIS ¹	472.0 / 427.0	NA
13C6-PFDA	BDO-2222	SIS ¹	519.0 / 474.0	NA
13C7-PFUnA	BDO-2223	SIS ¹	570.0 / 525.0	NA
13C2-PFDoA	BDO-2112	SIS ¹	615.0 / 570.0	NA
13C2-PFTeDA	BDO-2224	SIS ¹	715.0 / 670.0	NA
d3-MeFOSAA	BDO-1838	SIS ¹	573.0 / 419.0	NA
d5-EtFOSAA	BDO-1839	SIS ¹	589.0 / 419.0	NA
13C8-FOSA	BDO-2225	SIS ¹	506.0 / 78.0	NA
13C3-PFBS	BDO-2226	SIS ¹	302.0 / 99.0	NA
13C3-PFHxS	BDO-2227	SIS ¹	402.0 / 99.0	NA
13C8-PFOS	BDO-2228	SIS ¹	507.0 / 99.0	NA
13C2-4:2FTS	BDO-2229	SIS ¹	329.0 / 81.0	NA
13C2-6:2FTS	BDO-2230	SIS ¹	429.0 / 81.0	NA
13C2-8:2FTS	BDO-2220	SIS ¹	529.0 / 81.0	NA
13C3-PFBA	BDO-2231	IS ²	216.0 / 172.0	NA
13C2-PFOA	BDO-2107	IS ²	415.0 / 370.0	NA
13C2-PFDA	BDO-2110	IS ²	515.0 / 470.0	NA
13C4-PFOS	BDO-2121	IS ²	503.0 / 99.0	NA

¹ – extracted internal standard (surrogate)

² – injection internal standard

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

QTRAP 5500 Preventive Maintenance Checklist

Preventive Maintenance Date:	22-Feb-2017
Request ID:	3683
Company Name:	Battelle Memorial Institute
Instrument ID:	X60666
Instrument Model:	QTRAP 5500
Instrument Serial Number:	AU23051004

☒ **PASS**

☐ **FAIL**

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

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

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

Comments: _____

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

Approved By : _____ **Date:** _____

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PRE PM PPG PERFORMANCE EVALUATION:

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

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

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

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

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

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

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

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

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

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

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PREVENTIVE MAINTENANCE CHECKLIST:

- ☒ Check Cooling Fans for Turbo Pumps while MS is ON.
- ☒ Check QJet and QPS tuning voltage for reference.
- ☐ Record AC input Voltage while MS is OFF: _____ (200-240VAC).
If Out-of-Range, notify customer.
- ☒ Clean Interface
 - ☒ Curtain Plate
 - ☒ Orifice Plate
 - ☒ QJet
 - ☒ Q0 Rods.
- ☒ Replace Roughing Pump Oil.
- ☒ Inspect Oil Exhaust Filter, if Applicable. ☐ N/A
- ☒ Clean and inspect built-in divert valve if used. ☐ N/A
- ☒ Check Multiplier Voltage, optimize if necessary.
- ☒ Replace four Air Filters at the bottom of the mass spectrometer.
- ☒ Pump down overnight if possible. ☐ N/A
- ☒ Perform Maintenance on Turbo V source.
- ☒ Replace Electrode, if necessary. ☐ N/A
- ☒ Check Turbo heaters resistances.
- ☒ Check if Temperature is reached at 500C with TIS Probe installed.
- ☐ Check if Temperature is reached at 500C with APCI Probe installed. ☒ N/A

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

POST PM PPG PERFORMANCE TESTS:

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

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

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

Mass	Q1 Intensity		Q1 Width 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	≥7.2 ^{e6}	0.1302	<0.35
ER 922.010	0.05	3.89 e7	≥2.8 ^{e6}	0.2603	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05	2.55 e7	≥2.4 ^{e7}	0.3740	<0.65
ER 922.010	0.05	2.37 e8	≥6.8 ^{e7}	0.5407	<0.65

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

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

**Zef Scientific Inc.**

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Suite 230
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Canada H9P 1J8

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

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

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

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

Mass	Scan Rate (Da/s)	Fragamentation OFF		Fragmentation ON	
		Intensity	Spec	Intensity	Spec
MS3 397.2	1000	3.2 e7	Contains only 397.2	N/A	N/A
☐ 236 OR ☒ 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.



It can be done

Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JH20

Description: PFAS Branched

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)
161230-01	br-PFHxSK	Neat	~50.0000 00	07/03/20	---	---	400 uL	1	10	~2.0000
161230-02	br-PFOSK	Neat	~50.0000 00	10/14/20	---	---	400 uL	1	10	~2.0000
161230-04	NaP3MHpS	Neat	~50.0000 00	06/10/20	---	---	400 uL	1	10	~2.0000
161230-05	NaP6MHpS	Neat	~50.0000 00	01/23/20	---	---	400 uL	1	10	~2.0000
161230-06	ipPFNS	Neat	~50.0000 00	09/23/20	---	---	400 uL	1	10	~2.0000
161230-07	T-PFOA	Neat	~50.0000 00	02/12/21	---	---	400 uL	1	10	~2.0000
161230-08	P3MHpA	Neat	~50.0000 00	06/10/20	---	---	400 uL	1	10	~2.0000
161230-09	P4MOA	Neat	~50.0000 00	06/10/20	---	---	400 uL	1	10	~2.0000
161230-10	ipPFNA	Neat	~50.0000 00	05/31/21	---	---	400 uL	1	10	~2.0000
161230-11	P355TMHxA	Neat	~50.0000 00	11/27/19	---	---	400 uL	1	10	~2.0000

Solution Prepared By: Schultz, Stephanie

Date Prepared: 2/1/2017

Expiration Date: 9/24/2019

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: AgChem Laboratory: Cabinet - C0144

Balance ID: _____

Solvent: _____ Lot: _____

Override On: _____ Expires: _____ Comment

Comment: _____

Methanol 166003

03/12/18 DMS 09/24/19 Date extended due to manufacturers exp. Dat

Approved By: _____ Date: _____

Approved:

Standard Laboratory ID Number: JH20

Description: PFAS Branched

161230-12	P37DMOA	Neat	~50.0000 00	09/24/19	---	---	400 uL	1	10	~2.0000
-----------	---------	------	----------------	----------	-----	-----	--------	---	----	---------

Solution Prepared By: Schultz, Stephanie

Date Prepared: 2/1/2017

Expiration Date: 9/24/2019

Solution Volume	40 mL X 1 Vials
------------------------	-----------------

Refrigerator/Freezer No: AgChem Laboratory: Cabinet - C0144

Balance ID:

Solvent: Lot:

Override On: ☐ **Expires:** ☐ **Comment:**

Comment:

Methanol	166003
----------	--------

03/12/18 DMS	09/24/19	Date extended due to manufacturers exp. Dat
--------------	----------	---

Approved By: _____ Date: _____



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JH20

Description: PFAS Branched

Stock Id: 161230-01

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
br-PFHxSK	400	50.00	1	98.000	1	10	2.00000

Stock Id: 161230-02

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
br-PFOSK	400	50.00	1	98.000	1	10	2.00000

Stock Id: 161230-04

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
NaP3MFpS	400	50.00	1	98.000	1	10	2.00000

Stock Id: 161230-05

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
NaP6MHpS	400	50.00	1	98.000	1	10	2.00000

Stock Id: 161230-06

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
ipPFNS	400	50.00	1	98.000	1	10	2.00000

Stock Id: 161230-07

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
T-PFOA	400	50.00	1	97.000	1	10	2.00000

Stock Id: 161230-08

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
P3MHpA	400	50.00	1	98.000	1	10	2.00000

Stock Id: 161230-09

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
P4MOA	400	50.00	1	98.000	1	10	2.00000

Stock Id: 161230-10

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
ipPFNA	400	50.00	1	98.000	1	10	2.00000

Solution Prepared By: Schultz, Stephanie

Date Prepared:

2/1/2017

Expiration Date:

9/24/2019

Solution Volume

40

mL X

1

Vials

Refrigerator/Freezer No:

AgChem Laboratory: Cabinet - C0144

Comment:

Approved By: _____

Date: _____



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JH20

Description: PFAS Branched

Stock Id: 161230-11

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
P355TMHxA	400	50.00	1	98.000	1	10	2.00000

Stock Id: 161230-12

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
P37DMOA	400	50.00	1	98.000	1	10	2.00000

Final Concentrations:

Analyte:	Conc (ug/mL):
br-PFHxSK	2.00000
br-PFOSK	2.00000
ipPFNA	2.00000
ipPFNS	2.00000
NaP3MFpS	2.00000
NaP6MHPs	2.00000
P355TMHxA	2.00000
P37DMOA	2.00000
P3MHPA	2.00000
P4MOA	2.00000
T-PFOA	2.00000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
161230-01	Pipette	B1100330B
161230-02	Pipette	B1100330B
161230-04	Pipette	B1100330B
161230-05	Pipette	B1100330B
161230-06	Pipette	B1100330B
161230-07	Pipette	B1100330B
161230-08	Pipette	B1100330B
161230-09	Pipette	B1100330B
161230-10	Pipette	B1100330B
161230-11	Pipette	B1100330B
161230-12	Pipette	B1100330B

Solution Prepared By: Schultz, Stephanie

Date Prepared:

2/1/2017

Expiration Date:

9/24/2019

Solution Volume

40

mL X

1

Vials

Refrigerator/Freezer No:

AgChem Laboratory: Cabinet - C0144

Comment:

Approved By: _____

Date: _____



It can be done

Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JJ40

Description: PFAS - Branched 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)
JH20	PFAS Branched	Solution	~2	09/24/19	---	---	75 uL	1	25	~0.0060

Solution Prepared By: Schumitz, Denise	Date Prepared: 3/29/2017	Expiration Date: 9/24/2019
Solution Volume 25 mL X 1 Vials	Refrigerator/Freezer No: AgChem Laboratory: Room - M0150	

Balance ID: _____

Comment: 96:4 Methanol:MilliQ (RP-170329-1)

Override On:	Expires:	Comment
03/12/18 DMS	09/24/19	Date extended due to manufacturers exp. Dat

Approved By: _____ Date: _____



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JJ40

Description: PFAS - Branched Stock

Stock ID: JH20

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
br-PFHxSK	75	2.00	---	---	1	25	0.00600
br-PFOSK	75	2.00	---	---	1	25	0.00600
ipPFNA	75	2.00	---	---	1	25	0.00600
ipPFNS	75	2.00	---	---	1	25	0.00600
NaP3MFpS	75	2.00	---	---	1	25	0.00600
NaP6MHpS	75	2.00	---	---	1	25	0.00600
P355TMHxA	75	2.00	---	---	1	25	0.00600
P37DMOA	75	2.00	---	---	1	25	0.00600
P3MHpA	75	2.00	---	---	1	25	0.00600
P4MOA	75	2.00	---	---	1	25	0.00600
T-PFOA	75	2.00	---	---	1	25	0.00600

Final Concentrations:

Analyte:	Conc (ug/mL):
br-PFHxSK	.00600
br-PFOSK	.00600
ipPFNA	.00600
ipPFNS	.00600
NaP3MFpS	.00600
NaP6MHpS	.00600
P355TMHxA	.00600
P37DMOA	.00600
P3MHpA	.00600
P4MOA	.00600
T-PFOA	.00600

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JH20	Pipette	I0793912B

Solution Prepared By: Schumitz, Denise

Date Prepared:

3/29/2017

Expiration Date:

9/24/2019

Solution Volume

25

mL X

1

Vials

Refrigerator/Freezer No:

AgChem Laboratory: Room - M0150

Comment:

96:4 Methanol:MilliQ (RP-170329-1)

Approved By: _____

Date: _____



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: **JP49**

Description: PFAS - DOD 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)
171025-01	PFOA - 2nd Source	Neat	~1.00000 0	03/22/22	---	---	1000 uL	1	20	~0.0500

Solution Prepared By: Schumitz, Denise

Date Prepared: 11/3/2017

Expiration Date: 11/3/2018

Solution Volume 40 mL X 1 Vials

Refrigerator/Freezer No: LC Laboratory: Room - M0151

Balance ID: _____

Comment: 80:20 MeOH/ Milli-Q

Approved By: Schumitz, Denise Date: 11/7/2017 11:11:00 AM



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: **JP49**

Description: PFAS - DOD Second Source LCS/MS Solution

Stock Id: **171025-01**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	1000	1.01	1	100.000	1	20	0.05050
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	1000	1.00	1	100.000	1	20	0.05000
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	1000	1.00	1	100.000	1	20	0.05000
(Na) Perfluoro-1-decanesulfonate	1000	1.01	1	100.000	1	20	0.05050
(NA) Perfluoro-1-heptanesulfonate	1000	1.00	1	100.000	1	20	0.05000
(Na) Perfluoro-1-nonanesulfonate	1000	1.01	1	100.000	1	20	0.05050
N-ethylperfluoro-octanesulfonamidoacetic acid	1000	1.00	1	100.000	1	20	0.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-1-butanefulfonic Acid	1000	1.01	1	100.000	1	20	0.05050
Perfluoro-1-hexanesulfonic Acid	1000	1.01	1	100.000	1	20	0.05050
Perfluoro-1-octanesulfonamide	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-1-octanesulphonic Acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-butanoic Acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-decanoic Acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-dodecanoic acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-heptanoic Acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-hexanoic acid	1000	1.01	1	100.000	1	20	0.05050
Perfluoro-n-octanoic Acid	1000	1.00	1	100.000	1	20	0.05000
Perfluorononanoic Acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-pentanoic acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-tetradecanoic acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-tridecanoic acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-undecanoic acid	1000	1.00	1	100.000	1	20	0.05000
Sodium perfluoro-1-pentanesulfonate	1000	1.00	1	100.000	1	20	0.05000

Final Concentrations:

Analyte:	Conc (ug/mL):
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	.05050
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	.05000
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	.05000
(Na) Perfluoro-1-decanesulfonate	.05050
(NA) Perfluoro-1-heptanesulfonate	.05000
(Na) Perfluoro-1-nonanesulfonate	.05050
N-ethylperfluoro-octanesulfonamidoacetic acid	.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.05000
Perfluoro-1-butanefulfonic Acid	.05050

Solution Prepared By: Schumitz, Denise Date Prepared: 11/3/2017 Expiration Date: 11/3/2018

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Room - M0151

Comment: 80:20 MeOH/ Milli-Q

Approved By: Schumitz, Denise Date: 11/7/2017 11:11:00 AM



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: **JP49**

Description: PFAS - DOD Second Source LCS/MS Solution

Perfluoro-1-hexanesulfonic Acid	.05050
Perfluoro-1-octanesulfonamide	.05000
Perfluoro-1-octanesulphonic Acid	.05000
Perfluoro-n-butanoic Acid	.05000
Perfluoro-n-decanoic Acid	.05000
Perfluoro-n-dodecanoic acid	.05000
Perfluoro-n-heptanoic Acid	.05000
Perfluoro-n-hexanoic acid	.05050
Perfluoro-n-octanoic Acid	.05000
Perfluorononanoic Acid	.05000
Perfluoro-n-pentanoic acid	.05000
Perfluoro-n-tetradecanoic acid	.05000
Perfluoro-n-tridecanoic acid	.05000
Perfluoro-n-undecanoic acid	.05000
Sodium perfluoro-1-pentanesulfonate	.05000

Syringes/Pipettes:

Solution Prepared By: Schumitz, Denise	Date Prepared: 11/3/2017	Expiration Date: 11/3/2018
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Room - M0151	

Comment: 80:20 MeOH/ Milli-Q

Approved By: Schumitz, Denise Date: 11/7/2017 11:11:00 AM



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JR03

Description: PFAS -DoD 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)
171025-02	PFOA - ICAL Mix	Neat	~1.00000 0	10/17/22	---	---	500 uL	1	100	~0.0050

Solution Prepared By: Schumitz, Denise	Date Prepared: 12/28/2017	Expiration Date: 12/28/2018
Solution Volume 25 mL X 4 Vials	Refrigerator/Freezer No: LC Laboratory: Room - M0151	

Balance ID: _____

Comment:

Approved By: Schumitz, Denise Date: 12/28/2017 2:31:00 PM



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JR03

Description: PFAS -DoD Low ICAL Stock

Stock Id: 171025-02

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	500	1.01	1	100.000	1	100	0.00505
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	500	1.00	1	100.000	1	100	0.00500
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	500	1.00	1	100.000	1	100	0.00500
(Na) Perfluoro-1-decanesulfonate	500	1.01	1	100.000	1	100	0.00505
(NA) Perfluoro-1-heptanesulfonate	500	1.00	1	100.000	1	100	0.00500
(Na) Perfluoro-1-nonanesulfonate	500	1.01	1	100.000	1	100	0.00505
N-ethylperfluoro-octanesulfonamidoacetic acid	500	1.00	1	100.000	1	100	0.00500
N-methylperfluoro-1-octanesulfonamidoacetic acid	500	1.00	1	100.000	1	100	0.00500
Perfluoro-1-butanefulfonic Acid	500	1.01	1	100.000	1	100	0.00505
Perfluoro-1-hexanesulfonic Acid	500	1.01	1	100.000	1	100	0.00505
Perfluoro-1-octanesulfonamide	500	1.00	1	100.000	1	100	0.00500
Perfluoro-1-octanesulphonic Acid	500	1.00	1	100.000	1	100	0.00500
Perfluoro-n-butanoic Acid	500	1.00	1	100.000	1	100	0.00500
Perfluoro-n-decanoic Acid	500	1.00	1	100.000	1	100	0.00500
Perfluoro-n-dodecanoic acid	500	1.00	1	100.000	1	100	0.00500
Perfluoro-n-heptanoic Acid	500	1.00	1	100.000	1	100	0.00500
Perfluoro-n-hexanoic acid	500	1.01	1	100.000	1	100	0.00505
Perfluoro-n-octanoic Acid	500	1.00	1	100.000	1	100	0.00500
Perfluorononanoic Acid	500	1.00	1	100.000	1	100	0.00500
Perfluoro-n-pentanoic acid	500	1.00	1	100.000	1	100	0.00500
Perfluoro-n-tetradecanoic acid	500	1.00	1	100.000	1	100	0.00500
Perfluoro-n-tridecanoic acid	500	1.00	1	100.000	1	100	0.00500
Perfluoro-n-undecanoic acid	500	1.00	1	100.000	1	100	0.00500
Sodium perfluoro-1-pentanesulfonate	500	1.00	1	100.000	1	100	0.00500

Final Concentrations:

Analyte:	Conc (ug/mL):
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	.00505
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	.00500
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	.00500
(Na) Perfluoro-1-decanesulfonate	.00505
(NA) Perfluoro-1-heptanesulfonate	.00500
(Na) Perfluoro-1-nonanesulfonate	.00505
N-ethylperfluoro-octanesulfonamidoacetic acid	.00500
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00500
Perfluoro-1-butanefulfonic Acid	.00505

Solution Prepared By: Schumitz, Denise	Date Prepared: 12/28/2017	Expiration Date: 12/28/2018
Solution Volume 25 mL X 4 Vials	Refrigerator/Freezer No: LC Laboratory: Room - M0151	

Comment:

Approved By: Schumitz, Denise Date: 12/28/2017 2:31:00 PM



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JR03

Description: PFAS -DoD Low ICAL Stock

Perfluoro-1-hexanesulfonic Acid	.00505
Perfluoro-1-octanesulfonamide	.00500
Perfluoro-1-octanesulphonic Acid	.00500
Perfluoro-n-butanoic Acid	.00500
Perfluoro-n-decanoic Acid	.00500
Perfluoro-n-dodecanoic acid	.00500
Perfluoro-n-heptanoic Acid	.00500
Perfluoro-n-hexanoic acid	.00505
Perfluoro-n-octanoic Acid	.00500
Perfluorononanoic Acid	.00500
Perfluoro-n-pentanoic acid	.00500
Perfluoro-n-tetradecanoic acid	.00500
Perfluoro-n-tridecanoic acid	.00500
Perfluoro-n-undecanoic acid	.00500
Sodium perfluoro-1-pentanesulfonate	.00500

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
171025-02	Pipette	B1100330B

Solution Prepared By: Schumitz, Denise	Date Prepared: 12/28/2017	Expiration Date: 12/28/2018
Solution Volume 25 mL X 4 Vials	Refrigerator/Freezer No: LC Laboratory: Room - M0151	

Comment:

Approved By: Schumitz, Denise Date: 12/28/2017 2:31:00 PM



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JR04

Description: PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)

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)
170629-02	Mass-labelled PFAS Extraction Standard Solution	Neat	~1.00000 0	05/19/22	---	---	1000 uL	1	50	~0.0200

Solution Prepared By: Schumitz, Denise	Date Prepared: 12/28/2017	Expiration Date: 12/28/2018
Solution Volume 25 mL X 2 Vials	Refrigerator/Freezer No: LC Laboratory: Room - M0151	

Balance ID: _____

Comment: 96:4 Methanol: Millipore

Approved By: Schumitz, Denise Date: 1/10/2018 12:00:00 PM



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JR04

Description: PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)

Stock Id: 170629-02

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic aci	1000	1.00	1	100.000	1	50	0.02000
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic a	1000	1.00	1	100.000	1	50	0.02000
Perfluoro-1-[13C8]octanesulfonamide	1000	1.00	1	100.000	1	50	0.02000
Perfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acid	1000	1.00	1	100.000	1	50	0.02000
Perfluoro-n-[1,2,3,4,5,6-13C6]decanoic acid	1000	1.00	1	100.000	1	50	0.02000
Perfluoro-n-[1,2,3,4,6-13C5]hexanoic acid	1000	1.00	1	100.000	1	50	0.02000
Perfluoro-n-[1,2,3,4-13C4]butanoic acid	1000	1.00	1	100.000	1	50	0.02000
Perfluoro-n-[1,2,3,4-13C4]heptanoic acid	1000	1.00	1	100.000	1	50	0.02000
Perfluoro-n-[1,2-13C2]dodecanoic acid	1000	1.00	1	100.000	1	50	0.02000
Perfluoro-n-[1,2-13C2]tetradecanoic acid	1000	1.00	1	100.000	1	50	0.02000
Perfluoro-n-[13C5]pentanoic acid	1000	1.00	1	100.000	1	50	0.02000
Perfluoro-n-[13C8]octanoic acid	1000	1.00	1	100.000	1	50	0.02000
Perfluoro-n-[13C9]nonanoic acid	1000	1.00	1	100.000	1	50	0.02000
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]decan	1000	0.96	1	100.000	1	50	0.01916
sodium 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]hexane	1000	0.94	1	100.000	1	50	0.01870
sodium 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]octane	1000	0.95	1	100.000	1	50	0.01898
Sodium perfluoro-1-[1,2,3-13C3]hexanesulfonate	1000	0.95	1	100.000	1	50	0.01892
Sodium perfluoro-1-[13C8]octanesulfonate	1000	0.96	1	100.000	1	50	0.01914
Sodium perfluoro-1-[2,3,4-13C3]butanesulfonate	1000	0.93	1	100.000	1	50	0.01858

Final Concentrations:

Analyte:	Conc (ug/mL):
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	.02000
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	.02000
Perfluoro-1-[13C8]octanesulfonamide	.02000
Perfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acid	.02000
Perfluoro-n-[1,2,3,4,5,6-13C6]decanoic acid	.02000
Perfluoro-n-[1,2,3,4,6-13C5]hexanoic acid	.02000
Perfluoro-n-[1,2,3,4-13C4]butanoic acid	.02000
Perfluoro-n-[1,2,3,4-13C4]heptanoic acid	.02000
Perfluoro-n-[1,2-13C2]dodecanoic acid	.02000
Perfluoro-n-[1,2-13C2]tetradecanoic acid	.02000
Perfluoro-n-[13C5]pentanoic acid	.02000
Perfluoro-n-[13C8]octanoic acid	.02000
Perfluoro-n-[13C9]nonanoic acid	.02000
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]decanesulfonat	.01916

Solution Prepared By: Schumitz, Denise	Date Prepared: 12/28/2017	Expiration Date: 12/28/2018
Solution Volume 25 mL X 2 Vials	Refrigerator/Freezer No: LC Laboratory: Room - M0151	

Comment: 96:4 Methanol: Millipore

Approved By: Schumitz, Denise Date: 1/10/2018 12:00:00 PM



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JR04

Description: PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)

sodium 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]hexanesulfonat	.01870
sodium 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]octanesulfonat	.01898
Sodium perfluoro-1-[1,2,3-13C3]hexanesulfonate	.01892
Sodium perfluoro-1-[13C8]octanesulfonate	.01914
Sodium perfluoro-1-[2,3,4-13C3]butanesulfonate	.01858

Syringes/Pipettes:

Solution Prepared By: Schumitz, Denise	Date Prepared: 12/28/2017	Expiration Date: 12/28/2018
Solution Volume 25 mL X 2 Vials	Refrigerator/Freezer No: LC Laboratory: Room - M0151	

Comment: 96:4 Methanol: Millipore

Approved By: Schumitz, Denise **Date:** 1/10/2018 12:00:00 PM



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JR06

Description: PFAS - DoD Internal Standard 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)
170629-03	Mass-labeled PFAS Injection Standards Solution	Neat	~2.00000 0	05/02/22	---	---	1000 uL	1	100	~0.0200

Solution Prepared By: Schumitz, Denise	Date Prepared: 12/28/2017	Expiration Date: 12/28/2018
Solution Volume 25 mL X 4 Vials	Refrigerator/Freezer No: LC Laboratory: Room - M0151	

Balance ID: _____

Comment: 96:4 Methanol:Millipore

Approved By: Schumitz, Denise Date: 12/28/2017 2:31:00 PM



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JR06

Description: PFAS - DoD Internal Standard Stock Solution

Stock Id: 170629-03

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
Perfluoro-1-[1,2,3,4-13C4]octanesulfonate	1000	1.91	1	100.000	1	100	0.01910
Perfluoro-n-[1,2-13C2]decanoic acid	1000	2.00	1	100.000	1	100	0.02000
Perfluoro-n-[1,2-13C2]octanoic acid	1000	2.00	1	100.000	1	100	0.02000
Perfluoro-n-[2,3,4-13C3]butanoic Acid	1000	2.00	1	100.000	1	100	0.02000

Final Concentrations:

Analyte:	Conc (ug/mL):
Perfluoro-1-[1,2,3,4-13C4]octanesulfonate	.01910
Perfluoro-n-[1,2-13C2]decanoic acid	.02000
Perfluoro-n-[1,2-13C2]octanoic acid	.02000
Perfluoro-n-[2,3,4-13C3]butanoic Acid	.02000

Syringes/Pipettes:

Solution Prepared By: Schumitz, Denise	Date Prepared: 12/28/2017	Expiration Date: 12/28/2018
Solution Volume 25 mL X 4 Vials	Refrigerator/Freezer No: LC Laboratory: Room - M0151	

Comment: 96:4 Methanol:Millipore

Approved By: Schumitz, Denise Date: 12/28/2017 2:31:00 PM



It can be done

Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JV05

Description: PFAS - DoD 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)
JR04	PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000
JR06	PFAS - DoD Internal Standard Stock Solution	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Schumitz, Denise	Date Prepared: 4/25/2018	Expiration Date: 12/28/2018
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0110	

Balance ID: _____

Comment:

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **JV05**

Description: PFAS - DoD Instrument Blank

Stock Id: **JR04**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	50	0.02	---	---	1	10	0.00009
13C2-6:2FTS	50	0.02	---	---	1	10	0.00009
13C2-8:2FTS	50	0.02	---	---	1	10	0.00010
13C2-PFDoA	50	0.02	---	---	1	10	0.00010
13C2-PFTeDA	50	0.02	---	---	1	10	0.00010
13C3-PFBS	50	0.02	---	---	1	10	0.00009
13C3-PFHxS	50	0.02	---	---	1	10	0.00009
13C4-PFBA	50	0.02	---	---	1	10	0.00010
13C4-PFHpA	50	0.02	---	---	1	10	0.00010
13C5-PFHxA	50	0.02	---	---	1	10	0.00010
13C5-PFPeA	50	0.02	---	---	1	10	0.00010
13C6-PFDA	50	0.02	---	---	1	10	0.00010
13C7-PFUnA	50	0.02	---	---	1	10	0.00010
13C8-FOSA	50	0.02	---	---	1	10	0.00010
13C8-PFOA	50	0.02	---	---	1	10	0.00010
13C8-PFOS	50	0.02	---	---	1	10	0.00010
13C9-PFNA	50	0.02	---	---	1	10	0.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic aci	50	0.02	---	---	1	10	0.00010
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic a	50	0.02	---	---	1	10	0.00010

Stock Id: **JR06**

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-PFOA	50	0.02	---	---	1	10	0.00010
13C3-PFBA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.02	---	---	1	10	0.00010

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.00009
13C2-6:2FTS	.00009
13C2-8:2FTS	.00010
13C2-PFDA	.00010
13C2-PFDoA	.00010
13C2-PFOA	.00010

Solution Prepared By: Schumitz, Denise

Date Prepared:

4/25/2018

Expiration Date:

12/28/2018

Solution Volume

40

mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0110

Comment:

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV05

Description: PFAS - DoD Instrument Blank

13C2-PFTeDA	.00010
13C3-PFBA	.00010
13C3-PFBS	.00009
13C3-PFHxS	.00009
13C4-PFBA	.00010
13C4-PFHpA	.00010
13C4-PFOS	.00010
13C5-PFHxA	.00010
13C5-PFPeA	.00010
13C6-PFDA	.00010
13C7-PFUnA	.00010
13C8-FOSA	.00010
13C8-PFOA	.00010
13C8-PFOS	.00010
13C9-PFNA	.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	.00010

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JR04	Pipette	I0793912B
JR06	Pipette	I0793912B

Solution Prepared By: Schumitz, Denise	Date Prepared: 4/25/2018	Expiration Date: 12/28/2018
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0110	

Comment:

Approved By: _____ **Date:** _____



It can be done

Standard Solution Prep Form II

Approved: ☐Standard Laboratory ID Number: **JV16**

Description: PFAS - DoD Branched Standard

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)
JR04	PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)	Solution	~0	12/28/18	---	---	25 uL	1	5	~0.0000
JR06	PFAS - DoD Internal Standard Stock Solution	Solution	~0	12/28/18	---	---	25 uL	1	5	~0.0000
JJ40	PFAS - Branched Stock	Solution	~0	09/24/19	---	---	2080 uL	1	5	~0.0000

Solution Prepared By: Schultz, Stephanie	Date Prepared: 4/26/2018	Expiration Date: 12/28/2018
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: AgChem Laboratory: Refrigerator - R0124	

Balance ID: _____

Comment: 80/20 methanol/milli-q

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV16

Description: PFAS - DoD Branched Standard

Stock Id: JJ40

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
br-PFHxSK	2080	0.01	---	---	1	5	0.00250
br-PFOSK	2080	0.01	---	---	1	5	0.00250
ipPFNA	2080	0.01	---	---	1	5	0.00250
ipPFNS	2080	0.01	---	---	1	5	0.00250
NaP3MFpS	2080	0.01	---	---	1	5	0.00250
NaP6MHpS	2080	0.01	---	---	1	5	0.00250
P355TMHxA	2080	0.01	---	---	1	5	0.00250
P37DMOA	2080	0.01	---	---	1	5	0.00250
P3MHpA	2080	0.01	---	---	1	5	0.00250
P4MOA	2080	0.01	---	---	1	5	0.00250
T-PFOA	2080	0.01	---	---	1	5	0.00250

Stock Id: JR04

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	25	0.02	---	---	1	5	0.00009
13C2-6:2FTS	25	0.02	---	---	1	5	0.00009
13C2-8:2FTS	25	0.02	---	---	1	5	0.00010
13C2-PFDaA	25	0.02	---	---	1	5	0.00010
13C2-PFTeDA	25	0.02	---	---	1	5	0.00010
13C3-PFBS	25	0.02	---	---	1	5	0.00009
13C3-PFHxS	25	0.02	---	---	1	5	0.00009
13C4-PFBA	25	0.02	---	---	1	5	0.00010
13C4-PFHpA	25	0.02	---	---	1	5	0.00010
13C5-PFHxA	25	0.02	---	---	1	5	0.00010
13C5-PFPeA	25	0.02	---	---	1	5	0.00010
13C6-PFDA	25	0.02	---	---	1	5	0.00010
13C7-PFUnA	25	0.02	---	---	1	5	0.00010
13C8-FOSA	25	0.02	---	---	1	5	0.00010
13C8-PFOA	25	0.02	---	---	1	5	0.00010
13C8-PFOS	25	0.02	---	---	1	5	0.00010
13C9-PFNA	25	0.02	---	---	1	5	0.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic aci	25	0.02	---	---	1	5	0.00010
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic a	25	0.02	---	---	1	5	0.00010

Solution Prepared By: Schultz, Stephanie

Date Prepared:

4/26/2018

Expiration Date:

12/28/2018

Solution Volume

40 mL X 1

Vials

Refrigerator/Freezer No:

AgChem Laboratory: Refrigerator - R0124

Comment:

80/20 methanol/milli-q

Approved By:

Date:

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **JV16**

Description: PFAS - DoD Branched Standard

Stock Id: **JR06**

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-PFOA	25	0.02	---	---	1	5	0.00010
13C3-PFBA	25	0.02	---	---	1	5	0.00010
13C4-PFOS	25	0.02	---	---	1	5	0.00010

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.00009
13C2-6:2FTS	.00009
13C2-8:2FTS	.00010
13C2-PFDA	.00010
13C2-PFDoA	.00010
13C2-PFOA	.00010
13C2-PFTeDA	.00010
13C3-PFBA	.00010
13C3-PFBS	.00009
13C3-PFHxS	.00009
13C4-PFBA	.00010
13C4-PFHpA	.00010
13C4-PFOS	.00010
13C5-PFHxA	.00010
13C5-PFPeA	.00010
13C6-PFDA	.00010
13C7-PFUnA	.00010
13C8-FOSA	.00010
13C8-PFOA	.00010
13C8-PFOS	.00010
13C9-PFNA	.00010
br-PFHxSK	.00250
br-PFOSK	.00250
ipPFNA	.00250
ipPFNS	.00250
NaP3MFpS	.00250
NaP6MHpS	.00250
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	.00010

Solution Prepared By: Schultz, Stephanie Date Prepared: 4/26/2018 Expiration Date: 12/28/2018

Solution Volume 40 mL X 1 Vials Refrigerator/Freezer No: AgChem Laboratory: Refrigerator - R0124

Comment: 80/20 methanol/milli-q

Approved By: _____ Date: _____



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV16

Description: PFAS - DoD Branched Standard

P355TMHxA	.00250
P37DMOA	.00250
P3MHpA	.00250
P4MOA	.00250
T-PFOA	.00250

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JR04	Pipette	I0793912B
JR06	Pipette	I0793912B

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 4/26/2018 **Expiration Date:** 12/28/2018

Solution Volume 40 mL X 1 **Vials** **Refrigerator/Freezer No:** AgChem Laboratory: Refrigerator - R0124

Comment: 80/20 methanol/milli-q

Approved By: _____ **Date:** _____



It can be done

Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JV20

Description: PFAS - DoD Calibration L1

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JR03	PFAS -DoD Low ICAL Stock	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000
JR04	PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000
JR06	PFAS - DoD Internal Standard Stock Solution	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume 25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **JV20**

Description: PFAS - DoD Calibration L1

Stock Id: **JR03**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	50	0.01	---	---	1	10	0.00003
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	50	0.01	---	---	1	10	0.00003
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	50	0.01	---	---	1	10	0.00003
(Na) Perfluoro-1-decanesulfonate	50	0.01	---	---	1	10	0.00003
(Na) Perfluoro-1-heptanesulfonate	50	0.01	---	---	1	10	0.00003
(Na) Perfluoro-1-nonanesulfonate	50	0.01	---	---	1	10	0.00003
N-ethylperfluoro-octanesulfonamidoacetic acid	50	0.01	---	---	1	10	0.00003
N-methylperfluoro-1-octanesulfonamidoacetic acid	50	0.01	---	---	1	10	0.00003
Perfluoro-1-butanedisulfonate	50	0.01	---	---	1	10	0.00003
Perfluoro-1-hexanesulfonate	50	0.01	---	---	1	10	0.00003
Perfluoro-1-octanesulfonamide	50	0.01	---	---	1	10	0.00003
Perfluoro-1-octanesulfonate	50	0.01	---	---	1	10	0.00003
Perfluoro-n-butanoic Acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-decanoic Acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-dodecanoic acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-heptanoic Acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-hexanoic acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-octanoic Acid	50	0.01	---	---	1	10	0.00003
Perfluorononanoic Acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-pentanoic acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-tetradecanoic acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-tridecanoic acid	50	0.01	---	---	1	10	0.00003
Perfluoro-n-undecanoic acid	50	0.01	---	---	1	10	0.00003
Sodium perfluoro-1-pentanesulfonate	50	0.01	---	---	1	10	0.00003

Stock Id: **JR04**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	50	0.02	---	---	1	10	0.00009
13C2-6:2FTS	50	0.02	---	---	1	10	0.00009
13C2-8:2FTS	50	0.02	---	---	1	10	0.00010
13C2-PFDoA	50	0.02	---	---	1	10	0.00010
13C2-PFTeDA	50	0.02	---	---	1	10	0.00010
13C3-PFBS	50	0.02	---	---	1	10	0.00009
13C3-PFHxS	50	0.02	---	---	1	10	0.00009
13C4-PFBA	50	0.02	---	---	1	10	0.00010

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

12/28/2018

Solution Volume

25

mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **JV20**

Description: PFAS - DoD Calibration L1

13C4-PFHpA	50	0.02	---	---	1	10	0.00010
13C5-PFHxA	50	0.02	---	---	1	10	0.00010
13C5-PFPeA	50	0.02	---	---	1	10	0.00010
13C6-PFDA	50	0.02	---	---	1	10	0.00010
13C7-PFUnA	50	0.02	---	---	1	10	0.00010
13C8-FOSA	50	0.02	---	---	1	10	0.00010
13C8-PFOA	50	0.02	---	---	1	10	0.00010
13C8-PFOS	50	0.02	---	---	1	10	0.00010
13C9-PFNA	50	0.02	---	---	1	10	0.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic aci	50	0.02	---	---	1	10	0.00010
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic a	50	0.02	---	---	1	10	0.00010

Stock Id: **JR06**

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-PFOA	50	0.02	---	---	1	10	0.00010
13C3-PFBA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.02	---	---	1	10	0.00010

Final Concentrations:

Analyte:	Conc (ug/mL):
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	.00003
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	.00003
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	.00003
(Na) Perfluoro-1-decanesulfonate	.00003
(NA) Perfluoro-1-heptanesulfonate	.00003
(Na) Perfluoro-1-nonanesulfonate	.00003
13C2-4:2FTS	.00009
13C2-6:2FTS	.00009
13C2-8:2FTS	.00010
13C2-PFDA	.00010
13C2-PFDoA	.00010
13C2-PFOA	.00010
13C2-PFTeDA	.00010
13C3-PFBA	.00010
13C3-PFBS	.00009
13C3-PFHxS	.00009
13C4-PFBA	.00010
13C4-PFHpA	.00010

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume 25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	
Comment: 80:20 MeOH/Milli-Q RP-180501-2		

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV20

Description: PFAS - DoD Calibration L1

13C4-PFOS	.00010
13C5-PFHxA	.00010
13C5-PFPeA	.00010
13C6-PFDA	.00010
13C7-PFUnA	.00010
13C8-FOSA	.00010
13C8-PFOA	.00010
13C8-PFOS	.00010
13C9-PFNA	.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-ethylperfluoro-octanesulfonamidoacetic acid	.00003
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00003
Perfluoro-1-butanefulfonate	.00003
Perfluoro-1-hexanesulfonate	.00003
Perfluoro-1-octanesulfonamide	.00003
Perfluoro-1-octanesulfonate	.00003
Perfluoro-n-butanoic Acid	.00003
Perfluoro-n-decanoic Acid	.00003
Perfluoro-n-dodecanoic acid	.00003
Perfluoro-n-heptanoic Acid	.00003
Perfluoro-n-hexanoic acid	.00003
Perfluoro-n-octanoic Acid	.00003
Perfluorononanoic Acid	.00003
Perfluoro-n-pentanoic acid	.00003
Perfluoro-n-tetradecanoic acid	.00003
Perfluoro-n-tridecanoic acid	.00003
Perfluoro-n-undecanoic acid	.00003
Sodium perfluoro-1-pentanesulfonate	.00003

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JR03	Pipette	I0793912B
JR04	Pipette	I0793912B
JR06	Pipette	I0793912B

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume 25 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107		
Comment: 80:20 MeOH/Milli-Q RP-180501-2		

Approved By: _____ **Date:** _____



It can be done

Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JV21

Description: PFAS - DoD Calibration L2

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
JR03	PFAS -DoD Low ICAL Stock	Solution	~0	12/28/18	---	---	100 uL	1	10	~0.0000
JR04	PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000
JR06	PFAS - DoD Internal Standard Stock Solution	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume 25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **JV21**

Description: PFAS - DoD Calibration L2

Stock Id: **JR03**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	100	0.01	---	---	1	10	0.00005
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	100	0.01	---	---	1	10	0.00005
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	100	0.01	---	---	1	10	0.00005
(Na) Perfluoro-1-decanesulfonate	100	0.01	---	---	1	10	0.00005
(Na) Perfluoro-1-heptanesulfonate	100	0.01	---	---	1	10	0.00005
(Na) Perfluoro-1-nonanesulfonate	100	0.01	---	---	1	10	0.00005
N-ethylperfluoro-octanesulfonamidoacetic acid	100	0.01	---	---	1	10	0.00005
N-methylperfluoro-1-octanesulfonamidoacetic acid	100	0.01	---	---	1	10	0.00005
Perfluoro-1-butanedisulfonate	100	0.01	---	---	1	10	0.00005
Perfluoro-1-hexanedisulfonate	100	0.01	---	---	1	10	0.00005
Perfluoro-1-octanesulfonamide	100	0.01	---	---	1	10	0.00005
Perfluoro-1-octanesulfonate	100	0.01	---	---	1	10	0.00005
Perfluoro-n-butanoic Acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-decanoic Acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-dodecanoic acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-heptanoic Acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-hexanoic acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-octanoic Acid	100	0.01	---	---	1	10	0.00005
Perfluorononanoic Acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-pentanoic acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-tetradecanoic acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-tridecanoic acid	100	0.01	---	---	1	10	0.00005
Perfluoro-n-undecanoic acid	100	0.01	---	---	1	10	0.00005
Sodium perfluoro-1-pentanesulfonate	100	0.01	---	---	1	10	0.00005

Stock Id: **JR04**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	50	0.02	---	---	1	10	0.00009
13C2-6:2FTS	50	0.02	---	---	1	10	0.00009
13C2-8:2FTS	50	0.02	---	---	1	10	0.00010
13C2-PFDoA	50	0.02	---	---	1	10	0.00010
13C2-PFTeDA	50	0.02	---	---	1	10	0.00010
13C3-PFBS	50	0.02	---	---	1	10	0.00009
13C3-PFHxS	50	0.02	---	---	1	10	0.00009
13C4-PFBA	50	0.02	---	---	1	10	0.00010

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

12/28/2018

Solution Volume

25

mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By:

Date:

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **JV21**

Description: PFAS - DoD Calibration L2

13C4-PFHpA	50	0.02	---	---	1	10	0.00010
13C5-PFHxA	50	0.02	---	---	1	10	0.00010
13C5-PFPeA	50	0.02	---	---	1	10	0.00010
13C6-PFDA	50	0.02	---	---	1	10	0.00010
13C7-PFUnA	50	0.02	---	---	1	10	0.00010
13C8-FOSA	50	0.02	---	---	1	10	0.00010
13C8-PFOA	50	0.02	---	---	1	10	0.00010
13C8-PFOS	50	0.02	---	---	1	10	0.00010
13C9-PFNA	50	0.02	---	---	1	10	0.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic aci	50	0.02	---	---	1	10	0.00010
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic a	50	0.02	---	---	1	10	0.00010

Stock Id: **JR06**

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-PFOA	50	0.02	---	---	1	10	0.00010
13C3-PFBA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.02	---	---	1	10	0.00010

Final Concentrations:

Analyte:	Conc (ug/mL):
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	.00005
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	.00005
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	.00005
(Na) Perfluoro-1-decanesulfonate	.00005
(NA) Perfluoro-1-heptanesulfonate	.00005
(Na) Perfluoro-1-nonanesulfonate	.00005
13C2-4:2FTS	.00009
13C2-6:2FTS	.00009
13C2-8:2FTS	.00010
13C2-PFDA	.00010
13C2-PFDoA	.00010
13C2-PFOA	.00010
13C2-PFTeDA	.00010
13C3-PFBA	.00010
13C3-PFBS	.00009
13C3-PFHxS	.00009
13C4-PFBA	.00010
13C4-PFHpA	.00010

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume 25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	
Comment: 80:20 MeOH/Milli-Q RP-180501-2		

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV21

Description: PFAS - DoD Calibration L2

13C4-PFOS	.00010
13C5-PFHxA	.00010
13C5-PFPeA	.00010
13C6-PFDA	.00010
13C7-PFUnA	.00010
13C8-FOSA	.00010
13C8-PFOA	.00010
13C8-PFOS	.00010
13C9-PFNA	.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-ethylperfluoro-octanesulfonamidoacetic acid	.00005
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00005
Perfluoro-1-butanefulfonate	.00005
Perfluoro-1-hexanesulfonate	.00005
Perfluoro-1-octanesulfonamide	.00005
Perfluoro-1-octanesulfonate	.00005
Perfluoro-n-butanofic Acid	.00005
Perfluoro-n-decanofic Acid	.00005
Perfluoro-n-dodecanofic acid	.00005
Perfluoro-n-heptanofic Acid	.00005
Perfluoro-n-hexanofic acid	.00005
Perfluoro-n-octanofic Acid	.00005
Perfluorononanoic Acid	.00005
Perfluoro-n-pentanofic acid	.00005
Perfluoro-n-tetradecanofic acid	.00005
Perfluoro-n-tridecanofic acid	.00005
Perfluoro-n-undecanofic acid	.00005
Sodium perfluoro-1-pentanesulfonate	.00005

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JR03	Pipette	I0793912B
JR04	Pipette	I0793912B
JR06	Pipette	I0793912B

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume 25 mL X 1 Vials Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107		
Comment: 80:20 MeOH/Milli-Q RP-180501-2		

Approved By: _____ **Date:** _____



Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JV22

Description: PFAS - DoD Calibration 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)
JR03	PFAS -DoD Low ICAL Stock	Solution	~0	12/28/18	---	---	200 uL	1	10	~0.0000
JR04	PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000
JR06	PFAS - DoD Internal Standard Stock Solution	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume 25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **JV22**

Description: PFAS - DoD Calibration L3

Stock Id: **JR03**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	200	0.01	---	---	1	10	0.00010
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	200	0.01	---	---	1	10	0.00010
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	200	0.01	---	---	1	10	0.00010
(Na) Perfluoro-1-decanesulfonate	200	0.01	---	---	1	10	0.00010
(Na) Perfluoro-1-heptanesulfonate	200	0.01	---	---	1	10	0.00010
(Na) Perfluoro-1-nonanesulfonate	200	0.01	---	---	1	10	0.00010
N-ethylperfluoro-octanesulfonamidoacetic acid	200	0.01	---	---	1	10	0.00010
N-methylperfluoro-1-octanesulfonamidoacetic acid	200	0.01	---	---	1	10	0.00010
Perfluoro-1-butanedisulfonate	200	0.01	---	---	1	10	0.00010
Perfluoro-1-hexanedisulfonate	200	0.01	---	---	1	10	0.00010
Perfluoro-1-octanesulfonamide	200	0.01	---	---	1	10	0.00010
Perfluoro-1-octanesulfonate	200	0.01	---	---	1	10	0.00010
Perfluoro-n-butanoic Acid	200	0.01	---	---	1	10	0.00010
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-octanoic Acid	200	0.01	---	---	1	10	0.00010
Perfluorononanoic Acid	200	0.01	---	---	1	10	0.00010
Perfluoro-n-pentanoic 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
Sodium perfluoro-1-pentanesulfonate	200	0.01	---	---	1	10	0.00010

Stock Id: **JR04**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	50	0.02	---	---	1	10	0.00009
13C2-6:2FTS	50	0.02	---	---	1	10	0.00009
13C2-8:2FTS	50	0.02	---	---	1	10	0.00010
13C2-PFDoA	50	0.02	---	---	1	10	0.00010
13C2-PFTeDA	50	0.02	---	---	1	10	0.00010
13C3-PFBS	50	0.02	---	---	1	10	0.00009
13C3-PFHxS	50	0.02	---	---	1	10	0.00009
13C4-PFBA	50	0.02	---	---	1	10	0.00010

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

12/28/2018

Solution Volume

25

mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By:

Date:

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **JV22**

Description: PFAS - DoD Calibration L3

13C4-PFHpA	50	0.02	---	---	1	10	0.00010
13C5-PFHxA	50	0.02	---	---	1	10	0.00010
13C5-PFPeA	50	0.02	---	---	1	10	0.00010
13C6-PFDA	50	0.02	---	---	1	10	0.00010
13C7-PFUnA	50	0.02	---	---	1	10	0.00010
13C8-FOSA	50	0.02	---	---	1	10	0.00010
13C8-PFOA	50	0.02	---	---	1	10	0.00010
13C8-PFOS	50	0.02	---	---	1	10	0.00010
13C9-PFNA	50	0.02	---	---	1	10	0.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic aci	50	0.02	---	---	1	10	0.00010
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic a	50	0.02	---	---	1	10	0.00010

Stock Id: **JR06**

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-PFOA	50	0.02	---	---	1	10	0.00010
13C3-PFBA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.02	---	---	1	10	0.00010

Final Concentrations:

Analyte:	Conc (ug/mL):
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	.00010
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	.00010
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	.00010
(Na) Perfluoro-1-decanesulfonate	.00010
(NA) Perfluoro-1-heptanesulfonate	.00010
(Na) Perfluoro-1-nonanesulfonate	.00010
13C2-4:2FTS	.00009
13C2-6:2FTS	.00009
13C2-8:2FTS	.00010
13C2-PFDA	.00010
13C2-PFDoA	.00010
13C2-PFOA	.00010
13C2-PFTeDA	.00010
13C3-PFBA	.00010
13C3-PFBS	.00009
13C3-PFHxS	.00009
13C4-PFBA	.00010
13C4-PFHpA	.00010

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume 25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	
Comment: 80:20 MeOH/Milli-Q RP-180501-2		

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV22

Description: PFAS - DoD Calibration L3

13C4-PFOS	.00010
13C5-PFHxA	.00010
13C5-PFPeA	.00010
13C6-PFDA	.00010
13C7-PFUnA	.00010
13C8-FOSA	.00010
13C8-PFOA	.00010
13C8-PFOS	.00010
13C9-PFNA	.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-ethylperfluoro-octanesulfonamidoacetic acid	.00010
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00010
Perfluoro-1-butanefulfonate	.00010
Perfluoro-1-hexanesulfonate	.00010
Perfluoro-1-octanesulfonamide	.00010
Perfluoro-1-octanesulfonate	.00010
Perfluoro-n-butanoic Acid	.00010
Perfluoro-n-decanoic Acid	.00010
Perfluoro-n-dodecanoic acid	.00010
Perfluoro-n-heptanoic Acid	.00010
Perfluoro-n-hexanoic acid	.00010
Perfluoro-n-octanoic Acid	.00010
Perfluorononanoic Acid	.00010
Perfluoro-n-pentanoic acid	.00010
Perfluoro-n-tetradecanoic acid	.00010
Perfluoro-n-tridecanoic acid	.00010
Perfluoro-n-undecanoic acid	.00010
Sodium perfluoro-1-pentanesulfonate	.00010

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JR03	Pipette	A0200765B
JR04	Pipette	I0793912B
JR06	Pipette	I0793912B

Solution Prepared By: Griffith, Lauren		Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume	25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	
Comment:	80:20 MeOH/Milli-Q RP-180501-2		

Approved By: _____ **Date:** _____



It can be done

Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JV23

Description: PFAS - DoD Calibration 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)
JR03	PFAS -DoD Low ICAL Stock	Solution	~0	12/28/18	---	---	500 uL	1	10	~0.0000
JR04	PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000
JR06	PFAS - DoD Internal Standard Stock Solution	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume 25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **JV23**

Description: PFAS - DoD Calibration L4

Stock Id: **JR03**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	500	0.01	---	---	1	10	0.00025
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	500	0.01	---	---	1	10	0.00025
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	500	0.01	---	---	1	10	0.00025
(Na) Perfluoro-1-decanesulfonate	500	0.01	---	---	1	10	0.00025
(Na) Perfluoro-1-heptanesulfonate	500	0.01	---	---	1	10	0.00025
(Na) Perfluoro-1-nonanesulfonate	500	0.01	---	---	1	10	0.00025
N-ethylperfluoro-octanesulfonamidoacetic acid	500	0.01	---	---	1	10	0.00025
N-methylperfluoro-1-octanesulfonamidoacetic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-1-butanedisulfonate	500	0.01	---	---	1	10	0.00025
Perfluoro-1-hexanedisulfonate	500	0.01	---	---	1	10	0.00025
Perfluoro-1-octanesulfonamide	500	0.01	---	---	1	10	0.00025
Perfluoro-1-octanesulfonate	500	0.01	---	---	1	10	0.00025
Perfluoro-n-butanedioic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-decanedioic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-dodecanedioic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-heptanedioic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-hexanedioic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-octanedioic Acid	500	0.01	---	---	1	10	0.00025
Perfluorononanedioic Acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-pentanedioic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-tetradecanedioic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-tridecanedioic acid	500	0.01	---	---	1	10	0.00025
Perfluoro-n-undecanedioic acid	500	0.01	---	---	1	10	0.00025
Sodium perfluoro-1-pentanesulfonate	500	0.01	---	---	1	10	0.00025

Stock Id: **JR04**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	50	0.02	---	---	1	10	0.00009
13C2-6:2FTS	50	0.02	---	---	1	10	0.00009
13C2-8:2FTS	50	0.02	---	---	1	10	0.00010
13C2-PFDoA	50	0.02	---	---	1	10	0.00010
13C2-PFTeDA	50	0.02	---	---	1	10	0.00010
13C3-PFBS	50	0.02	---	---	1	10	0.00009
13C3-PFHxS	50	0.02	---	---	1	10	0.00009
13C4-PFBA	50	0.02	---	---	1	10	0.00010

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

12/28/2018

Solution Volume

25

mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **JV23**

Description: PFAS - DoD Calibration L4

13C4-PFHpA	50	0.02	---	---	1	10	0.00010
13C5-PFHxA	50	0.02	---	---	1	10	0.00010
13C5-PFPeA	50	0.02	---	---	1	10	0.00010
13C6-PFDA	50	0.02	---	---	1	10	0.00010
13C7-PFUnA	50	0.02	---	---	1	10	0.00010
13C8-FOSA	50	0.02	---	---	1	10	0.00010
13C8-PFOA	50	0.02	---	---	1	10	0.00010
13C8-PFOS	50	0.02	---	---	1	10	0.00010
13C9-PFNA	50	0.02	---	---	1	10	0.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic aci	50	0.02	---	---	1	10	0.00010
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic a	50	0.02	---	---	1	10	0.00010

Stock Id: **JR06**

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-PFOA	50	0.02	---	---	1	10	0.00010
13C3-PFBA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.02	---	---	1	10	0.00010

Final Concentrations:

Analyte:	Conc (ug/mL):
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	.00025
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	.00025
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	.00025
(Na) Perfluoro-1-decanesulfonate	.00025
(NA) Perfluoro-1-heptanesulfonate	.00025
(Na) Perfluoro-1-nonanesulfonate	.00025
13C2-4:2FTS	.00009
13C2-6:2FTS	.00009
13C2-8:2FTS	.00010
13C2-PFDA	.00010
13C2-PFDoA	.00010
13C2-PFOA	.00010
13C2-PFTeDA	.00010
13C3-PFBA	.00010
13C3-PFBS	.00009
13C3-PFHxS	.00009
13C4-PFBA	.00010
13C4-PFHpA	.00010

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume 25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	
Comment: 80:20 MeOH/Milli-Q RP-180501-2		

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV23

Description: PFAS - DoD Calibration L4

13C4-PFOS	.00010
13C5-PFHxA	.00010
13C5-PFPeA	.00010
13C6-PFDA	.00010
13C7-PFUnA	.00010
13C8-FOSA	.00010
13C8-PFOA	.00010
13C8-PFOS	.00010
13C9-PFNA	.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-ethylperfluoro-octanesulfonamidoacetic acid	.00025
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00025
Perfluoro-1-butanefulfonate	.00025
Perfluoro-1-hexanesulfonate	.00025
Perfluoro-1-octanesulfonamide	.00025
Perfluoro-1-octanesulfonate	.00025
Perfluoro-n-butanofic Acid	.00025
Perfluoro-n-decanofic Acid	.00025
Perfluoro-n-dodecanofic acid	.00025
Perfluoro-n-heptanofic Acid	.00025
Perfluoro-n-hexanofic acid	.00025
Perfluoro-n-octanofic Acid	.00025
Perfluorononanoic Acid	.00025
Perfluoro-n-pentanofic acid	.00025
Perfluoro-n-tetradecanofic acid	.00025
Perfluoro-n-tridecanofic acid	.00025
Perfluoro-n-undecanofic acid	.00025
Sodium perfluoro-1-pentanesulfonate	.00025

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JR03	Pipette	C0982448K
JR04	Pipette	I0793912B
JR06	Pipette	I0793912B

Solution Prepared By: Griffith, Lauren		Date Prepared: 5/1/2018		Expiration Date: 12/28/2018	
Solution Volume	25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107			
Comment:	80:20 MeOH/Milli-Q RP-180501-2				

Approved By: _____ **Date:** _____



Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JV24

Description: PFAS - DoD Calibration 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)
JV29	PFAS - DoD High ICAL Stock	Solution	~1	05/01/19	---	---	100 uL	1	10	~0.0100
JR04	PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000
JR06	PFAS - DoD Internal Standard Stock Solution	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume 25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **JV24**

Description: PFAS - DoD Calibration L5

Stock Id: **JR04**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	50	0.02	---	---	1	10	0.00009
13C2-6:2FTS	50	0.02	---	---	1	10	0.00009
13C2-8:2FTS	50	0.02	---	---	1	10	0.00010
13C2-PFDoA	50	0.02	---	---	1	10	0.00010
13C2-PFTeDA	50	0.02	---	---	1	10	0.00010
13C3-PFBS	50	0.02	---	---	1	10	0.00009
13C3-PFHxS	50	0.02	---	---	1	10	0.00009
13C4-PFBA	50	0.02	---	---	1	10	0.00010
13C4-PFHpA	50	0.02	---	---	1	10	0.00010
13C5-PFHxA	50	0.02	---	---	1	10	0.00010
13C5-PFPeA	50	0.02	---	---	1	10	0.00010
13C6-PFDA	50	0.02	---	---	1	10	0.00010
13C7-PFUnA	50	0.02	---	---	1	10	0.00010
13C8-FOSA	50	0.02	---	---	1	10	0.00010
13C8-PFOA	50	0.02	---	---	1	10	0.00010
13C8-PFOS	50	0.02	---	---	1	10	0.00010
13C9-PFNA	50	0.02	---	---	1	10	0.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic aci	50	0.02	---	---	1	10	0.00010
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic a	50	0.02	---	---	1	10	0.00010

Stock Id: **JR06**

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-PFOA	50	0.02	---	---	1	10	0.00010
13C3-PFBA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.02	---	---	1	10	0.00010

Stock Id: **JV29**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	100	0.05	---	---	1	10	0.00051
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	100	0.05	---	---	1	10	0.00050
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	100	0.05	---	---	1	10	0.00050
(Na) Perfluoro-1-decanesulfonate	100	0.05	---	---	1	10	0.00051
(NA) Perfluoro-1-heptanesulfonate	100	0.05	---	---	1	10	0.00050
(Na) Perfluoro-1-nonanesulfonate	100	0.05	---	---	1	10	0.00051

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

12/28/2018

Solution Volume

25 mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV24

Description: PFAS - DoD Calibration L5

N-ethylperfluoro-octanesulfonamidoacetic acid	100	0.05	---	---	1	10	0.00050
N-methylperfluoro-1-octanesulfonamidoacetic acid	100	0.05	---	---	1	10	0.00050
Perfluoro-1-butanedisulfonate	100	0.05	---	---	1	10	0.00051
Perfluoro-1-hexanesulfonate	100	0.05	---	---	1	10	0.00051
Perfluoro-1-octanesulfonamide	100	0.05	---	---	1	10	0.00050
Perfluoro-1-octanesulfonate	100	0.05	---	---	1	10	0.00050
Perfluoro-n-butanoic Acid	100	0.05	---	---	1	10	0.00050
Perfluoro-n-decanoic Acid	100	0.05	---	---	1	10	0.00050
Perfluoro-n-dodecanoic acid	100	0.05	---	---	1	10	0.00050
Perfluoro-n-heptanoic Acid	100	0.05	---	---	1	10	0.00050
Perfluoro-n-hexanoic acid	100	0.05	---	---	1	10	0.00051
Perfluoro-n-octanoic Acid	100	0.05	---	---	1	10	0.00050
Perfluorononanoic Acid	100	0.05	---	---	1	10	0.00050
Perfluoro-n-pentanoic acid	100	0.05	---	---	1	10	0.00050
Perfluoro-n-tetradecanoic acid	100	0.05	---	---	1	10	0.00050
Perfluoro-n-tridecanoic acid	100	0.05	---	---	1	10	0.00050
Perfluoro-n-undecanoic acid	100	0.05	---	---	1	10	0.00050
Sodium perfluoro-1-pentanesulfonate	100	0.05	---	---	1	10	0.00050

Final Concentrations:

Analyte:	Conc (ug/mL):
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	.00051
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	.00050
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	.00050
(Na) Perfluoro-1-decanedisulfonate	.00051
(NA) Perfluoro-1-heptanedisulfonate	.00050
(Na) Perfluoro-1-nonanedisulfonate	.00051
13C2-4:2FTS	.00009
13C2-6:2FTS	.00009
13C2-8:2FTS	.00010
13C2-PFDA	.00010
13C2-PFDoA	.00010
13C2-PFOA	.00010
13C2-PFTeDA	.00010
13C3-PFBA	.00010
13C3-PFBS	.00009
13C3-PFHxS	.00009
13C4-PFBA	.00010
13C4-PFHpA	.00010

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

12/28/2018

Solution Volume

25 mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By:

Date:



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV24

Description: PFAS - DoD Calibration L5

13C4-PFOS	.00010
13C5-PFHxA	.00010
13C5-PFPeA	.00010
13C6-PFDA	.00010
13C7-PFUnA	.00010
13C8-FOSA	.00010
13C8-PFOA	.00010
13C8-PFOS	.00010
13C9-PFNA	.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-ethylperfluoro-octanesulfonamidoacetic acid	.00050
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00050
Perfluoro-1-butanedisulfonate	.00051
Perfluoro-1-hexanesulfonate	.00051
Perfluoro-1-octanesulfonamide	.00050
Perfluoro-1-octanesulfonate	.00050
Perfluoro-n-butyric Acid	.00050
Perfluoro-n-decanoic Acid	.00050
Perfluoro-n-dodecanoic acid	.00050
Perfluoro-n-heptanoic Acid	.00050
Perfluoro-n-hexanoic acid	.00051
Perfluoro-n-octanoic Acid	.00050
Perfluorononanoic Acid	.00050
Perfluoro-n-pentanoic acid	.00050
Perfluoro-n-tetradecanoic acid	.00050
Perfluoro-n-tridecanoic acid	.00050
Perfluoro-n-undecanoic acid	.00050
Sodium perfluoro-1-pentanesulfonate	.00050

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JR04	Pipette	I0793912B
JR06	Pipette	I0793912B
JV29	Pipette	I0793912B

Solution Prepared By: Griffith, Lauren		Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume	25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	
Comment:	80:20 MeOH/Milli-Q RP-180501-2		

Approved By: _____ **Date:** _____



Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JV25

Description: PFAS - DoD Calibration 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)
JV29	PFAS - DoD High ICAL Stock	Solution	~1	05/01/19	---	---	200 uL	1	10	~0.0200
JR04	PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000
JR06	PFAS - DoD Internal Standard Stock Solution	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume 25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **JV25**

Description: PFAS - DoD Calibration L6

Stock Id: **JR04**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	50	0.02	---	---	1	10	0.00009
13C2-6:2FTS	50	0.02	---	---	1	10	0.00009
13C2-8:2FTS	50	0.02	---	---	1	10	0.00010
13C2-PFDoA	50	0.02	---	---	1	10	0.00010
13C2-PFTeDA	50	0.02	---	---	1	10	0.00010
13C3-PFBS	50	0.02	---	---	1	10	0.00009
13C3-PFHxS	50	0.02	---	---	1	10	0.00009
13C4-PFBA	50	0.02	---	---	1	10	0.00010
13C4-PFHpA	50	0.02	---	---	1	10	0.00010
13C5-PFHxA	50	0.02	---	---	1	10	0.00010
13C5-PFPeA	50	0.02	---	---	1	10	0.00010
13C6-PFDA	50	0.02	---	---	1	10	0.00010
13C7-PFUnA	50	0.02	---	---	1	10	0.00010
13C8-FOSA	50	0.02	---	---	1	10	0.00010
13C8-PFOA	50	0.02	---	---	1	10	0.00010
13C8-PFOS	50	0.02	---	---	1	10	0.00010
13C9-PFNA	50	0.02	---	---	1	10	0.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic aci	50	0.02	---	---	1	10	0.00010
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic a	50	0.02	---	---	1	10	0.00010

Stock Id: **JR06**

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-PFOA	50	0.02	---	---	1	10	0.00010
13C3-PFBA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.02	---	---	1	10	0.00010

Stock Id: **JV29**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	200	0.05	---	---	1	10	0.00101
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	200	0.05	---	---	1	10	0.00100
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	200	0.05	---	---	1	10	0.00100
(Na) Perfluoro-1-decanesulfonate	200	0.05	---	---	1	10	0.00101
(NA) Perfluoro-1-heptanesulfonate	200	0.05	---	---	1	10	0.00100
(Na) Perfluoro-1-nonanesulfonate	200	0.05	---	---	1	10	0.00101

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

12/28/2018

Solution Volume

25 mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV25

Description: PFAS - DoD Calibration L6

N-ethylperfluoro-octanesulfonamidoacetic acid	200	0.05	---	---	1	10	0.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-1-butanedisulfonate	200	0.05	---	---	1	10	0.00101
Perfluoro-1-hexanesulfonate	200	0.05	---	---	1	10	0.00101
Perfluoro-1-octanesulfonamide	200	0.05	---	---	1	10	0.00100
Perfluoro-1-octanesulfonate	200	0.05	---	---	1	10	0.00100
Perfluoro-n-butanoic Acid	200	0.05	---	---	1	10	0.00100
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	0.00101
Perfluoro-n-octanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluorononanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-pentanoic 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
Sodium perfluoro-1-pentanesulfonate	200	0.05	---	---	1	10	0.00100

Final Concentrations:

Analyte:	Conc (ug/mL):
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	.00101
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	.00100
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	.00100
(Na) Perfluoro-1-decanedisulfonate	.00101
(NA) Perfluoro-1-heptanedisulfonate	.00100
(Na) Perfluoro-1-nonanedisulfonate	.00101
13C2-4:2FTS	.00009
13C2-6:2FTS	.00009
13C2-8:2FTS	.00010
13C2-PFDA	.00010
13C2-PFDoA	.00010
13C2-PFOA	.00010
13C2-PFTeDA	.00010
13C3-PFBA	.00010
13C3-PFBS	.00009
13C3-PFHxS	.00009
13C4-PFBA	.00010
13C4-PFHpA	.00010

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

12/28/2018

Solution Volume

25 mL X 1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____ **Date:** _____



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV25

Description: PFAS - DoD Calibration L6

13C4-PFOS	.00010
13C5-PFHxA	.00010
13C5-PFPeA	.00010
13C6-PFDA	.00010
13C7-PFUnA	.00010
13C8-FOSA	.00010
13C8-PFOA	.00010
13C8-PFOS	.00010
13C9-PFNA	.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-ethylperfluoro-octanesulfonamidoacetic acid	.00100
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00100
Perfluoro-1-butanedisulfonate	.00101
Perfluoro-1-hexanesulfonate	.00101
Perfluoro-1-octanesulfonamide	.00100
Perfluoro-1-octanesulfonate	.00100
Perfluoro-n-butyric Acid	.00100
Perfluoro-n-decanoic Acid	.00100
Perfluoro-n-dodecanoic acid	.00100
Perfluoro-n-heptanoic Acid	.00100
Perfluoro-n-hexanoic acid	.00101
Perfluoro-n-octanoic Acid	.00100
Perfluorononanoic Acid	.00100
Perfluoro-n-pentanoic acid	.00100
Perfluoro-n-tetradecanoic acid	.00100
Perfluoro-n-tridecanoic acid	.00100
Perfluoro-n-undecanoic acid	.00100
Sodium perfluoro-1-pentanesulfonate	.00100

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JR04	Pipette	I0793912B
JR06	Pipette	I0793912B
JV29	Pipette	A0200765B

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

12/28/2018

Solution Volume

25 mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____

Date: _____



Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JV26

Description: PFAS - DoD Calibration 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)
JV29	PFAS - DoD High ICAL Stock	Solution	~1	05/01/19	---	---	500 uL	1	10	~0.0500
JR04	PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000
JR06	PFAS - DoD Internal Standard Stock Solution	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume 25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID:

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____ Date: _____



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV26

Description: PFAS - DoD Calibration L7

Stock Id: JR04

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	50	0.02	---	---	1	10	0.00009
13C2-6:2FTS	50	0.02	---	---	1	10	0.00009
13C2-8:2FTS	50	0.02	---	---	1	10	0.00010
13C2-PFDoA	50	0.02	---	---	1	10	0.00010
13C2-PFTeDA	50	0.02	---	---	1	10	0.00010
13C3-PFBS	50	0.02	---	---	1	10	0.00009
13C3-PFHxS	50	0.02	---	---	1	10	0.00009
13C4-PFBA	50	0.02	---	---	1	10	0.00010
13C4-PFHpA	50	0.02	---	---	1	10	0.00010
13C5-PFHxA	50	0.02	---	---	1	10	0.00010
13C5-PFPeA	50	0.02	---	---	1	10	0.00010
13C6-PFDA	50	0.02	---	---	1	10	0.00010
13C7-PFUnA	50	0.02	---	---	1	10	0.00010
13C8-FOSA	50	0.02	---	---	1	10	0.00010
13C8-PFOA	50	0.02	---	---	1	10	0.00010
13C8-PFOS	50	0.02	---	---	1	10	0.00010
13C9-PFNA	50	0.02	---	---	1	10	0.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic aci	50	0.02	---	---	1	10	0.00010
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic a	50	0.02	---	---	1	10	0.00010

Stock Id: JR06

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-PFOA	50	0.02	---	---	1	10	0.00010
13C3-PFBA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.02	---	---	1	10	0.00010

Stock Id: JV29

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	500	0.05	---	---	1	10	0.00253
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	500	0.05	---	---	1	10	0.00250
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	500	0.05	---	---	1	10	0.00250
(Na) Perfluoro-1-decanesulfonate	500	0.05	---	---	1	10	0.00253
(NA) Perfluoro-1-heptanesulfonate	500	0.05	---	---	1	10	0.00250
(Na) Perfluoro-1-nonanesulfonate	500	0.05	---	---	1	10	0.00253

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

12/28/2018

Solution Volume

25 mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By:

Date:

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV26

Description: PFAS - DoD Calibration L7

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-butanedisulfonate	500	0.05	---	---	1	10	0.00253
Perfluoro-1-hexanedisulfonate	500	0.05	---	---	1	10	0.00253
Perfluoro-1-octanesulfonamide	500	0.05	---	---	1	10	0.00250
Perfluoro-1-octanesulfonate	500	0.05	---	---	1	10	0.00250
Perfluoro-n-butanedioic Acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-decanedioic Acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-dodecanedioic acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-heptanedioic Acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-hexanedioic acid	500	0.05	---	---	1	10	0.00253
Perfluoro-n-octanedioic Acid	500	0.05	---	---	1	10	0.00250
Perfluorononanedioic Acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-pentanedioic acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-tetradecanedioic acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-tridecanedioic acid	500	0.05	---	---	1	10	0.00250
Perfluoro-n-undecanedioic acid	500	0.05	---	---	1	10	0.00250
Sodium perfluoro-1-pentanesulfonate	500	0.05	---	---	1	10	0.00250

Final Concentrations:

Analyte:	Conc (ug/mL):
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	.00253
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	.00250
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	.00250
(Na) Perfluoro-1-decanedisulfonate	.00253
(NA) Perfluoro-1-heptanedisulfonate	.00250
(Na) Perfluoro-1-nonanedisulfonate	.00253
13C2-4:2FTS	.00009
13C2-6:2FTS	.00009
13C2-8:2FTS	.00010
13C2-PFDA	.00010
13C2-PFDoA	.00010
13C2-PFOA	.00010
13C2-PFTeDA	.00010
13C3-PFBA	.00010
13C3-PFBS	.00009
13C3-PFHxS	.00009
13C4-PFBA	.00010
13C4-PFHpA	.00010

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

12/28/2018

Solution Volume

25 mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By:

Date:



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV26

Description: PFAS - DoD Calibration L7

13C4-PFOS	.00010
13C5-PFHxA	.00010
13C5-PFPeA	.00010
13C6-PFDA	.00010
13C7-PFUnA	.00010
13C8-FOSA	.00010
13C8-PFOA	.00010
13C8-PFOS	.00010
13C9-PFNA	.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-ethylperfluoro-octanesulfonamidoacetic acid	.00250
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00250
Perfluoro-1-butanefulfonate	.00253
Perfluoro-1-hexanesulfonate	.00253
Perfluoro-1-octanesulfonamide	.00250
Perfluoro-1-octanesulfonate	.00250
Perfluoro-n-butanoic Acid	.00250
Perfluoro-n-decanoic Acid	.00250
Perfluoro-n-dodecanoic acid	.00250
Perfluoro-n-heptanoic Acid	.00250
Perfluoro-n-hexanoic acid	.00253
Perfluoro-n-octanoic Acid	.00250
Perfluorononanoic Acid	.00250
Perfluoro-n-pentanoic acid	.00250
Perfluoro-n-tetradecanoic acid	.00250
Perfluoro-n-tridecanoic acid	.00250
Perfluoro-n-undecanoic acid	.00250
Sodium perfluoro-1-pentanesulfonate	.00250

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JR04	Pipette	I0793912B
JR06	Pipette	I0793912B
JV29	Pipette	C0896244B

Solution Prepared By: Griffith, Lauren			Date Prepared: 5/1/2018		Expiration Date: 12/28/2018	
Solution Volume	25	mL X	1	Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	
Comment:	80:20 MeOH/Milli-Q RP-180501-2					

Approved By: _____ **Date:** _____



It can be done

Standard Solution Prep Form II

Approved: ☐Standard Laboratory ID Number: **JV27**

Description: PFAS - DoD Calibration 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)
JV29	PFAS - DoD High ICAL Stock	Solution	~1	05/01/19	---	---	1000 uL	1	5	~0.2000
JR04	PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)	Solution	~0	12/28/18	---	---	25 uL	1	5	~0.0000
JR06	PFAS - DoD Internal Standard Stock Solution	Solution	~0	12/28/18	---	---	25 uL	1	5	~0.0000

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume 25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____ Date: _____



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV27

Description: PFAS - DoD Calibration L8

Stock Id: JR04

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	25	0.02	---	---	1	5	0.00009
13C2-6:2FTS	25	0.02	---	---	1	5	0.00009
13C2-8:2FTS	25	0.02	---	---	1	5	0.00010
13C2-PFDoA	25	0.02	---	---	1	5	0.00010
13C2-PFTeDA	25	0.02	---	---	1	5	0.00010
13C3-PFBS	25	0.02	---	---	1	5	0.00009
13C3-PFHxS	25	0.02	---	---	1	5	0.00009
13C4-PFBA	25	0.02	---	---	1	5	0.00010
13C4-PFHpA	25	0.02	---	---	1	5	0.00010
13C5-PFHxA	25	0.02	---	---	1	5	0.00010
13C5-PFPeA	25	0.02	---	---	1	5	0.00010
13C6-PFDA	25	0.02	---	---	1	5	0.00010
13C7-PFUnA	25	0.02	---	---	1	5	0.00010
13C8-FOSA	25	0.02	---	---	1	5	0.00010
13C8-PFOA	25	0.02	---	---	1	5	0.00010
13C8-PFOS	25	0.02	---	---	1	5	0.00010
13C9-PFNA	25	0.02	---	---	1	5	0.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic aci	25	0.02	---	---	1	5	0.00010
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic a	25	0.02	---	---	1	5	0.00010

Stock Id: JR06

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-PFOA	25	0.02	---	---	1	5	0.00010
13C3-PFBA	25	0.02	---	---	1	5	0.00010
13C4-PFOS	25	0.02	---	---	1	5	0.00010

Stock Id: JV29

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	1000	0.05	---	---	1	5	0.01010
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	1000	0.05	---	---	1	5	0.01000
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	1000	0.05	---	---	1	5	0.01000
(Na) Perfluoro-1-decanesulfonate	1000	0.05	---	---	1	5	0.01010
(NA) Perfluoro-1-heptanesulfonate	1000	0.05	---	---	1	5	0.01000
(Na) Perfluoro-1-nonanesulfonate	1000	0.05	---	---	1	5	0.01010

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

12/28/2018

Solution Volume

25 mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By:

Date:

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV27

Description: PFAS - DoD Calibration L8

N-ethylperfluoro-octanesulfonamidoacetic acid	1000	0.05	---	---	1	5	0.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-1-butanedisulfonate	1000	0.05	---	---	1	5	0.01010
Perfluoro-1-hexanedisulfonate	1000	0.05	---	---	1	5	0.01010
Perfluoro-1-octanesulfonamide	1000	0.05	---	---	1	5	0.01000
Perfluoro-1-octanesulfonate	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-butanedioic Acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-decanedioic Acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-dodecanedioic acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-heptanedioic Acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-hexanedioic acid	1000	0.05	---	---	1	5	0.01010
Perfluoro-n-octanedioic Acid	1000	0.05	---	---	1	5	0.01000
Perfluorononanedioic Acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-pentanedioic acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-tetradecanedioic acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-tridecanedioic acid	1000	0.05	---	---	1	5	0.01000
Perfluoro-n-undecanedioic acid	1000	0.05	---	---	1	5	0.01000
Sodium perfluoro-1-pentanesulfonate	1000	0.05	---	---	1	5	0.01000

Final Concentrations:

Analyte:	Conc (ug/mL):
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	.01010
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	.01000
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	.01000
(Na) Perfluoro-1-decanedisulfonate	.01010
(Na) Perfluoro-1-heptanedisulfonate	.01000
(Na) Perfluoro-1-nonanedisulfonate	.01010
13C2-4:2FTS	.00009
13C2-6:2FTS	.00009
13C2-8:2FTS	.00010
13C2-PFDA	.00010
13C2-PFDoA	.00010
13C2-PFOA	.00010
13C2-PFTeDA	.00010
13C3-PFBA	.00010
13C3-PFBS	.00009
13C3-PFHxS	.00009
13C4-PFBA	.00010
13C4-PFHpA	.00010

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

12/28/2018

Solution Volume

25 mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By:

Date:



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV27

Description: PFAS - DoD Calibration L8

13C4-PFOS	.00010
13C5-PFHxA	.00010
13C5-PFPeA	.00010
13C6-PFDA	.00010
13C7-PFUnA	.00010
13C8-FOSA	.00010
13C8-PFOA	.00010
13C8-PFOS	.00010
13C9-PFNA	.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-ethylperfluoro-octanesulfonamidoacetic acid	.01000
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-methylperfluoro-1-octanesulfonamidoacetic acid	.01000
Perfluoro-1-butanedisulfonate	.01010
Perfluoro-1-hexanesulfonate	.01010
Perfluoro-1-octanesulfonamide	.01000
Perfluoro-1-octanesulfonate	.01000
Perfluoro-n-butyric Acid	.01000
Perfluoro-n-decanoic Acid	.01000
Perfluoro-n-dodecanoic acid	.01000
Perfluoro-n-heptanoic Acid	.01000
Perfluoro-n-hexanoic acid	.01010
Perfluoro-n-octanoic Acid	.01000
Perfluorononanoic Acid	.01000
Perfluoro-n-pentanoic acid	.01000
Perfluoro-n-tetradecanoic acid	.01000
Perfluoro-n-tridecanoic acid	.01000
Perfluoro-n-undecanoic acid	.01000
Sodium perfluoro-1-pentanesulfonate	.01000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JR04	Pipette	I0793912B
JR06	Pipette	I0793912B
JV29	Pipette	C0982448K

Solution Prepared By: Griffith, Lauren			Date Prepared: 5/1/2018		Expiration Date: 12/28/2018	
Solution Volume	25	mL X	1	Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	
Comment:	80:20 MeOH/Milli-Q RP-180501-2					

Approved By: _____ **Date:** _____



It can be done

Standard Solution Prep Form II

Approved: ☐Standard Laboratory ID Number: **JV28**

Description: PFAS - DoD Calibration 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)
JV29	PFAS - DoD High ICAL Stock	Solution	~1	05/01/19	---	---	2000 uL	1	5	~0.4000
JR04	PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)	Solution	~0	12/28/18	---	---	25 uL	1	5	~0.0000
JR06	PFAS - DoD Internal Standard Stock Solution	Solution	~0	12/28/18	---	---	25 uL	1	5	~0.0000

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 12/28/2018
Solution Volume 25 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **JV28**

Description: PFAS - DoD Calibration L9

Stock Id: **JR04**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	25	0.02	---	---	1	5	0.00009
13C2-6:2FTS	25	0.02	---	---	1	5	0.00009
13C2-8:2FTS	25	0.02	---	---	1	5	0.00010
13C2-PFDoA	25	0.02	---	---	1	5	0.00010
13C2-PFTeDA	25	0.02	---	---	1	5	0.00010
13C3-PFBS	25	0.02	---	---	1	5	0.00009
13C3-PFHxS	25	0.02	---	---	1	5	0.00009
13C4-PFBA	25	0.02	---	---	1	5	0.00010
13C4-PFHpA	25	0.02	---	---	1	5	0.00010
13C5-PFHxA	25	0.02	---	---	1	5	0.00010
13C5-PFPeA	25	0.02	---	---	1	5	0.00010
13C6-PFDA	25	0.02	---	---	1	5	0.00010
13C7-PFUnA	25	0.02	---	---	1	5	0.00010
13C8-FOSA	25	0.02	---	---	1	5	0.00010
13C8-PFOA	25	0.02	---	---	1	5	0.00010
13C8-PFOS	25	0.02	---	---	1	5	0.00010
13C9-PFNA	25	0.02	---	---	1	5	0.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic aci	25	0.02	---	---	1	5	0.00010
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic a	25	0.02	---	---	1	5	0.00010

Stock Id: **JR06**

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-PFOA	25	0.02	---	---	1	5	0.00010
13C3-PFBA	25	0.02	---	---	1	5	0.00010
13C4-PFOS	25	0.02	---	---	1	5	0.00010

Stock Id: **JV29**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	2000	0.05	---	---	1	5	0.02020
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	2000	0.05	---	---	1	5	0.02000
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	2000	0.05	---	---	1	5	0.02000
(Na) Perfluoro-1-decanesulfonate	2000	0.05	---	---	1	5	0.02020
(NA) Perfluoro-1-heptanesulfonate	2000	0.05	---	---	1	5	0.02000
(Na) Perfluoro-1-nonanesulfonate	2000	0.05	---	---	1	5	0.02020

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

12/28/2018

Solution Volume

25 mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV28

Description: PFAS - DoD Calibration L9

N-ethylperfluoro-octanesulfonamidoacetic acid	2000	0.05	---	---	1	5	0.02000
N-methylperfluoro-1-octanesulfonamidoacetic acid	2000	0.05	---	---	1	5	0.02000
Perfluoro-1-butanedisulfonate	2000	0.05	---	---	1	5	0.02020
Perfluoro-1-hexanedisulfonate	2000	0.05	---	---	1	5	0.02020
Perfluoro-1-octanesulfonamide	2000	0.05	---	---	1	5	0.02000
Perfluoro-1-octanesulfonate	2000	0.05	---	---	1	5	0.02000
Perfluoro-n-butanedioic Acid	2000	0.05	---	---	1	5	0.02000
Perfluoro-n-decanedioic Acid	2000	0.05	---	---	1	5	0.02000
Perfluoro-n-dodecanedioic acid	2000	0.05	---	---	1	5	0.02000
Perfluoro-n-heptanedioic Acid	2000	0.05	---	---	1	5	0.02000
Perfluoro-n-hexanedioic acid	2000	0.05	---	---	1	5	0.02020
Perfluoro-n-octanedioic Acid	2000	0.05	---	---	1	5	0.02000
Perfluorononanoic Acid	2000	0.05	---	---	1	5	0.02000
Perfluoro-n-pentanedioic acid	2000	0.05	---	---	1	5	0.02000
Perfluoro-n-tetradecanedioic acid	2000	0.05	---	---	1	5	0.02000
Perfluoro-n-tridecanedioic acid	2000	0.05	---	---	1	5	0.02000
Perfluoro-n-undecanedioic acid	2000	0.05	---	---	1	5	0.02000
Sodium perfluoro-1-pentanesulfonate	2000	0.05	---	---	1	5	0.02000

Final Concentrations:

Analyte:	Conc (ug/mL):
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	.02020
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	.02000
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	.02000
(Na) Perfluoro-1-decanedisulfonate	.02020
(NA) Perfluoro-1-heptanedisulfonate	.02000
(Na) Perfluoro-1-nonanedisulfonate	.02020
13C2-4:2FTS	.00009
13C2-6:2FTS	.00009
13C2-8:2FTS	.00010
13C2-PFDA	.00010
13C2-PFDoA	.00010
13C2-PFOA	.00010
13C2-PFTeDA	.00010
13C3-PFBA	.00010
13C3-PFBS	.00009
13C3-PFHxS	.00009
13C4-PFBA	.00010
13C4-PFHpA	.00010

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

12/28/2018

Solution Volume

25 mL X

1

Vials

Refrigerator/Freezer No:

LC Laboratory: Refrigerator - R0107

Comment:

80:20 MeOH/Milli-Q RP-180501-2

Approved By:

Date:



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV28

Description: PFAS - DoD Calibration L9

13C4-PFOS	.00010
13C5-PFHxA	.00010
13C5-PFPeA	.00010
13C6-PFDA	.00010
13C7-PFUnA	.00010
13C8-FOSA	.00010
13C8-PFOA	.00010
13C8-PFOS	.00010
13C9-PFNA	.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-ethylperfluoro-octanesulfonamidoacetic acid	.02000
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-methylperfluoro-1-octanesulfonamidoacetic acid	.02000
Perfluoro-1-butanedisulfonate	.02020
Perfluoro-1-hexanesulfonate	.02020
Perfluoro-1-octanesulfonamide	.02000
Perfluoro-1-octanesulfonate	.02000
Perfluoro-n-butanoic Acid	.02000
Perfluoro-n-decanoic Acid	.02000
Perfluoro-n-dodecanoic acid	.02000
Perfluoro-n-heptanoic Acid	.02000
Perfluoro-n-hexanoic acid	.02020
Perfluoro-n-octanoic Acid	.02000
Perfluorononanoic Acid	.02000
Perfluoro-n-pentanoic acid	.02000
Perfluoro-n-tetradecanoic acid	.02000
Perfluoro-n-tridecanoic acid	.02000
Perfluoro-n-undecanoic acid	.02000
Sodium perfluoro-1-pentanesulfonate	.02000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JR04	Pipette	I0793912B
JR06	Pipette	I0793912B
JV29	Pipette	B641148506

Solution Prepared By: Griffith, Lauren			Date Prepared: 5/1/2018		Expiration Date: 12/28/2018	
Solution Volume	25	mL X	1	Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	
Comment:	80:20 MeOH/Milli-Q RP-180501-2					

Approved By: _____ **Date:** _____



It can be done

Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JV29

Description: PFAS - DoD 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)
171025-02	PFOA - ICAL Mix	Neat	~1.00000 0	10/17/22	---	---	500 uL	1	10	~0.0500

Solution Prepared By: Griffith, Lauren	Date Prepared: 5/1/2018	Expiration Date: 5/1/2019
Solution Volume 25 mL X 1 Vials	Refrigerator/Freezer No: AgChem Laboratory: Refrigerator - R0124	

Balance ID: _____

Comment: 96:4 Methanol/Milli-q water

Approved By: _____ Date: _____



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV29

Description: PFAS - DoD High ICAL Stock

Stock Id: 171025-02

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	500	1.01	1	100.000	1	10	0.05050
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	500	1.00	1	100.000	1	10	0.05000
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	500	1.00	1	100.000	1	10	0.05000
(Na) Perfluoro-1-decanesulfonate	500	1.01	1	100.000	1	10	0.05050
(NA) Perfluoro-1-heptanesulfonate	500	1.00	1	100.000	1	10	0.05000
(Na) Perfluoro-1-nonanesulfonate	500	1.01	1	100.000	1	10	0.05050
N-ethylperfluoro-octanesulfonamidoacetic acid	500	1.00	1	100.000	1	10	0.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	500	1.00	1	100.000	1	10	0.05000
Perfluoro-1-butanedisulfonate	500	1.01	1	100.000	1	10	0.05050
Perfluoro-1-hexanesulfonate	500	1.01	1	100.000	1	10	0.05050
Perfluoro-1-octanesulfonamide	500	1.00	1	100.000	1	10	0.05000
Perfluoro-1-octanesulfonate	500	1.00	1	100.000	1	10	0.05000
Perfluoro-n-butanoic Acid	500	1.00	1	100.000	1	10	0.05000
Perfluoro-n-decanoic Acid	500	1.00	1	100.000	1	10	0.05000
Perfluoro-n-dodecanoic acid	500	1.00	1	100.000	1	10	0.05000
Perfluoro-n-heptanoic Acid	500	1.00	1	100.000	1	10	0.05000
Perfluoro-n-hexanoic acid	500	1.01	1	100.000	1	10	0.05050
Perfluoro-n-octanoic Acid	500	1.00	1	100.000	1	10	0.05000
Perfluorononanoic Acid	500	1.00	1	100.000	1	10	0.05000
Perfluoro-n-pentanoic acid	500	1.00	1	100.000	1	10	0.05000
Perfluoro-n-tetradecanoic acid	500	1.00	1	100.000	1	10	0.05000
Perfluoro-n-tridecanoic acid	500	1.00	1	100.000	1	10	0.05000
Perfluoro-n-undecanoic acid	500	1.00	1	100.000	1	10	0.05000
Sodium perfluoro-1-pentanesulfonate	500	1.00	1	100.000	1	10	0.05000

Final Concentrations:

Analyte:	Conc (ug/mL):
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	.05050
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	.05000
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	.05000
(Na) Perfluoro-1-decanesulfonate	.05050
(NA) Perfluoro-1-heptanesulfonate	.05000
(Na) Perfluoro-1-nonanesulfonate	.05050
N-ethylperfluoro-octanesulfonamidoacetic acid	.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.05000
Perfluoro-1-butanedisulfonate	.05050

Solution Prepared By: Griffith, Lauren		Date Prepared: 5/1/2018	Expiration Date: 5/1/2019
Solution Volume	25 mL X 1 Vials	Refrigerator/Freezer No: AgChem Laboratory: Refrigerator - R0124	
Comment:	96:4 Methanol/Milli-q water		

Approved By: _____ **Date:** _____



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JV29

Description: PFAS - DoD High ICAL Stock

Perfluoro-1-hexanesulfonate	.05050
Perfluoro-1-octanesulfonamide	.05000
Perfluoro-1-octanesulfonate	.05000
Perfluoro-n-butanoic Acid	.05000
Perfluoro-n-decanoic Acid	.05000
Perfluoro-n-dodecanoic acid	.05000
Perfluoro-n-heptanoic Acid	.05000
Perfluoro-n-hexanoic acid	.05050
Perfluoro-n-octanoic Acid	.05000
Perfluorononanoic Acid	.05000
Perfluoro-n-pentanoic acid	.05000
Perfluoro-n-tetradecanoic acid	.05000
Perfluoro-n-tridecanoic acid	.05000
Perfluoro-n-undecanoic acid	.05000
Sodium perfluoro-1-pentanesulfonate	.05000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
171025-02	Pipette	C0982448K

Solution Prepared By: Griffith, Lauren

Date Prepared:

5/1/2018

Expiration Date:

5/1/2019

Solution Volume 25 mL X 1 Vials **Refrigerator/Freezer No:** AgChem Laboratory: Refrigerator - R0124

Comment: 96:4 Methanol/Milli-q water

Approved By: _____ **Date:** _____



It can be done

Standard Solution Prep Form II

Approved: ☒Standard Laboratory ID Number: **JV83**

Description: PFAS - DoD Low Level Labelled Extracted Internal Standards (SIS)

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)
JR04	PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)	Solution	~0	12/28/18	---	---	2500 uL	1	25	~0.0000

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/8/2018	Expiration Date: 12/28/2018
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 96/4 methanol/milli-q

Approved By: Thorn, Jonathan Date: 5/10/2018 3:34:00 PM

It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: **JV83**

Description: PFAS - DoD Low Level Labelled Extracted Internal Standards (SIS)

Stock Id: **JR04**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	2500	0.02	---	---	1	25	0.00187
13C2-6:2FTS	2500	0.02	---	---	1	25	0.00190
13C2-8:2FTS	2500	0.02	---	---	1	25	0.00192
13C2-PFDoA	2500	0.02	---	---	1	25	0.00200
13C2-PFTeDA	2500	0.02	---	---	1	25	0.00200
13C3-PFBS	2500	0.02	---	---	1	25	0.00186
13C3-PFHxS	2500	0.02	---	---	1	25	0.00189
13C4-PFBA	2500	0.02	---	---	1	25	0.00200
13C4-PFHpA	2500	0.02	---	---	1	25	0.00200
13C5-PFHxA	2500	0.02	---	---	1	25	0.00200
13C5-PFPeA	2500	0.02	---	---	1	25	0.00200
13C6-PFDA	2500	0.02	---	---	1	25	0.00200
13C7-PFUnA	2500	0.02	---	---	1	25	0.00200
13C8-FOSA	2500	0.02	---	---	1	25	0.00200
13C8-PFOA	2500	0.02	---	---	1	25	0.00200
13C8-PFOS	2500	0.02	---	---	1	25	0.00191
13C9-PFNA	2500	0.02	---	---	1	25	0.00200
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic aci	2500	0.02	---	---	1	25	0.00200
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic a	2500	0.02	---	---	1	25	0.00200

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.00187
13C2-6:2FTS	.00190
13C2-8:2FTS	.00192
13C2-PFDoA	.00200
13C2-PFTeDA	.00200
13C3-PFBS	.00186
13C3-PFHxS	.00189
13C4-PFBA	.00200
13C4-PFHpA	.00200
13C5-PFHxA	.00200
13C5-PFPeA	.00200
13C6-PFDA	.00200
13C7-PFUnA	.00200
13C8-FOSA	.00200

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/8/2018 Expiration Date: 12/28/2018

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

Comment: 96/4 methanol/milli-q

Approved By: Thorn, Jonathan Date: 5/10/2018 3:34:00 PM



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: **JV83**

Description: PFAS - DoD Low Level Labelled Extracted Internal Standards (SIS)

13C8-PFOA	.00200
13C8-PFOS	.00191
13C9-PFNA	.00200
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	.00200

Syringes/Pipettes:

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/8/2018	Expiration Date: 12/28/2018
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	
Comment: 96/4 methanol/milli-q		

Approved By: Thorn, Jonathan **Date:** 5/10/2018 3:34:00 PM



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JW02

Description: PFAS - DoD Internal Standard Spiking 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)
JR06	PFAS - DoD Internal Standard Stock Solution	Solution	~0	12/28/18	---	---	2500 uL	1	25	~0.0000

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/10/2018	Expiration Date: 12/28/2018
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: 5/16/2018 2:50:00 PM

It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JW02

Description: PFAS - DoD Internal Standard Spiking Solution

Stock Id: JR06

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	2500	0.02	---	---	1	25	0.00200
13C2-PFOA	2500	0.02	---	---	1	25	0.00200
13C3-PFBA	2500	0.02	---	---	1	25	0.00200
13C4-PFOS	2500	0.02	---	---	1	25	0.00191

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.00200
13C2-PFOA	.00200
13C3-PFBA	.00200
13C4-PFOS	.00191

Syringes/Pipettes:

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/10/2018 Expiration Date: 12/28/2018

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: 5/16/2018 2:50:00 PM



It can be done

Standard Solution Prep Form II

Approved: ☐

Standard Laboratory ID Number: JW32

Description: PFAS - DoD 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)
JR04	PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000
JR06	PFAS - DoD Internal Standard Stock Solution	Solution	~0	12/28/18	---	---	50 uL	1	10	~0.0000
JP49	PFAS - DOD Second Source LCS/MS Solution	Solution	~0	11/03/18	---	---	200 uL	1	10	~0.0000

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/16/2018	Expiration Date: 12/28/2018
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	

Balance ID: _____

Comment: 80/20 methanol/milli-q water

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JW32

Description: PFAS - DoD ICC

Stock Id: JP49

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	200	0.05	---	---	1	10	0.00101
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	200	0.05	---	---	1	10	0.00100
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	200	0.05	---	---	1	10	0.00100
(Na) Perfluoro-1-decanesulfonate	200	0.05	---	---	1	10	0.00101
(Na) Perfluoro-1-heptanesulfonate	200	0.05	---	---	1	10	0.00100
(Na) Perfluoro-1-nonanesulfonate	200	0.05	---	---	1	10	0.00101
N-ethylperfluoro-octanesulfonamidoacetic acid	200	0.05	---	---	1	10	0.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	200	0.05	---	---	1	10	0.00100
Perfluoro-1-butanedisulfonate	200	0.05	---	---	1	10	0.00101
Perfluoro-1-hexanesulfonate	200	0.05	---	---	1	10	0.00101
Perfluoro-1-octanesulfonamide	200	0.05	---	---	1	10	0.00100
Perfluoro-1-octanesulfonate	200	0.05	---	---	1	10	0.00100
Perfluoro-n-butanoic Acid	200	0.05	---	---	1	10	0.00100
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	0.00101
Perfluoro-n-octanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluorononanoic Acid	200	0.05	---	---	1	10	0.00100
Perfluoro-n-pentanoic 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
Sodium perfluoro-1-pentanesulfonate	200	0.05	---	---	1	10	0.00100

Stock Id: JR04

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	50	0.02	---	---	1	10	0.00009
13C2-6:2FTS	50	0.02	---	---	1	10	0.00009
13C2-8:2FTS	50	0.02	---	---	1	10	0.00010
13C2-PFDoA	50	0.02	---	---	1	10	0.00010
13C2-PFTeDA	50	0.02	---	---	1	10	0.00010
13C3-PFBS	50	0.02	---	---	1	10	0.00009
13C3-PFHxS	50	0.02	---	---	1	10	0.00009
13C4-PFBA	50	0.02	---	---	1	10	0.00010

Solution Prepared By: Schultz, Stephanie Date Prepared: 5/16/2018 Expiration Date: 12/28/2018

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

Comment: 80/20 methanol/milli-q water

Approved By: _____ Date: _____

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JW32

Description: PFAS - DoD ICC

13C4-PFHpA	50	0.02	---	---	1	10	0.00010
13C5-PFHxA	50	0.02	---	---	1	10	0.00010
13C5-PFPeA	50	0.02	---	---	1	10	0.00010
13C6-PFDA	50	0.02	---	---	1	10	0.00010
13C7-PFUnA	50	0.02	---	---	1	10	0.00010
13C8-FOSA	50	0.02	---	---	1	10	0.00010
13C8-PFOA	50	0.02	---	---	1	10	0.00010
13C8-PFOS	50	0.02	---	---	1	10	0.00010
13C9-PFNA	50	0.02	---	---	1	10	0.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic aci	50	0.02	---	---	1	10	0.00010
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic a	50	0.02	---	---	1	10	0.00010

Stock Id: JR06

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-PFOA	50	0.02	---	---	1	10	0.00010
13C3-PFBA	50	0.02	---	---	1	10	0.00010
13C4-PFOS	50	0.02	---	---	1	10	0.00010

Final Concentrations:

Analyte:	Conc (ug/mL):
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	.00101
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	.00100
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	.00100
(Na) Perfluoro-1-decanesulfonate	.00101
(NA) Perfluoro-1-heptanesulfonate	.00100
(Na) Perfluoro-1-nonanesulfonate	.00101
13C2-4:2FTS	.00009
13C2-6:2FTS	.00009
13C2-8:2FTS	.00010
13C2-PFDA	.00010
13C2-PFDoA	.00010
13C2-PFOA	.00010
13C2-PFTeDA	.00010
13C3-PFBA	.00010
13C3-PFBS	.00009
13C3-PFHxS	.00009
13C4-PFBA	.00010
13C4-PFHpA	.00010

Solution Prepared By: Schultz, Stephanie	Date Prepared: 5/16/2018	Expiration Date: 12/28/2018
Solution Volume 40 mL X 1 Vials	Refrigerator/Freezer No: LC Laboratory: Refrigerator - R0107	
Comment: 80/20 methanol/milli-q water		

Approved By: _____ Date: _____



It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: JW32

Description: PFAS - DoD ICC

13C4-PFOS	.00010
13C5-PFHxA	.00010
13C5-PFPeA	.00010
13C6-PFDA	.00010
13C7-PFUnA	.00010
13C8-FOSA	.00010
13C8-PFOA	.00010
13C8-PFOS	.00010
13C9-PFNA	.00010
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-ethylperfluoro-octanesulfonamidoacetic acid	.00100
N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid	.00010
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00100
Perfluoro-1-butanedisulfonate	.00101
Perfluoro-1-hexanesulfonate	.00101
Perfluoro-1-octanesulfonamide	.00100
Perfluoro-1-octanesulfonate	.00100
Perfluoro-n-butyric Acid	.00100
Perfluoro-n-decanoic Acid	.00100
Perfluoro-n-dodecanoic acid	.00100
Perfluoro-n-heptanoic Acid	.00100
Perfluoro-n-hexanoic acid	.00101
Perfluoro-n-octanoic Acid	.00100
Perfluorononanoic Acid	.00100
Perfluoro-n-pentanoic acid	.00100
Perfluoro-n-tetradecanoic acid	.00100
Perfluoro-n-tridecanoic acid	.00100
Perfluoro-n-undecanoic acid	.00100
Sodium perfluoro-1-pentanesulfonate	.00100

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
JP49	Pipette	B1100287B
JR04	Pipette	I0793912B
JR06	Pipette	I0793912B

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/16/2018 **Expiration Date:** 12/28/2018

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

Comment: 80/20 methanol/milli-q water

Approved By: _____ **Date:** _____



It can be done

Standard Solution Prep Form II

Approved: ☒

Standard Laboratory ID Number: JW44

Description: PFAS - DOD 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)
171025-01	PFOA - 2nd Source	Neat	~1.00000 0	03/22/22	---	---	1000 uL	1	20	~0.0500

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

Balance ID: _____

Comment: 80/20 methanol/milli-q water

Approved By: Schumitz, Denise Date: 5/24/2018 11:02:00 AM

It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: **JW44**

Description: PFAS - DOD Second Source LCS/MS Solution

Stock Id: **171025-01**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	1000	1.01	1	100.000	1	20	0.05050
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	1000	1.00	1	100.000	1	20	0.05000
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	1000	1.00	1	100.000	1	20	0.05000
(Na) Perfluoro-1-decanesulfonate	1000	1.01	1	100.000	1	20	0.05050
(Na) Perfluoro-1-heptanesulfonate	1000	1.00	1	100.000	1	20	0.05000
(Na) Perfluoro-1-nonanesulfonate	1000	1.01	1	100.000	1	20	0.05050
N-ethylperfluoro-octanesulfonamidoacetic acid	1000	1.00	1	100.000	1	20	0.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-1-butanedisulfonate	1000	1.01	1	100.000	1	20	0.05050
Perfluoro-1-hexanesulfonate	1000	1.01	1	100.000	1	20	0.05050
Perfluoro-1-octanesulfonamide	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-1-octanesulfonate	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-butanoic Acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-decanoic Acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-dodecanoic acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-heptanoic Acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-hexanoic acid	1000	1.01	1	100.000	1	20	0.05050
Perfluoro-n-octanoic Acid	1000	1.00	1	100.000	1	20	0.05000
Perfluorononanoic Acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-pentanoic acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-tetradecanoic acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-tridecanoic acid	1000	1.00	1	100.000	1	20	0.05000
Perfluoro-n-undecanoic acid	1000	1.00	1	100.000	1	20	0.05000
Sodium perfluoro-1-pentanesulfonate	1000	1.00	1	100.000	1	20	0.05000

Final Concentrations:

Analyte:	Conc (ug/mL):
(Na) 1H,1H,2H,2H-Perfluorodecane sulfonate	.05050
(Na) 1H,1H,2H,2H-Perfluorohexane sulfonate	.05000
(Na) 1H,1H,2H,2H-Perfluorooctane sulfonate	.05000
(Na) Perfluoro-1-decanesulfonate	.05050
(Na) Perfluoro-1-heptanesulfonate	.05000
(Na) Perfluoro-1-nonanesulfonate	.05050
N-ethylperfluoro-octanesulfonamidoacetic acid	.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.05000
Perfluoro-1-butanedisulfonate	.05050

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

Comment: 80/20 methanol/milli-q water

Approved By: Schumitz, Denise Date: 5/24/2018 11:02:00 AM



It can be done

Standard Solution Concentrations

Approved: ☒

Standard Laboratory ID Number: JW44

Description: PFAS - DOD Second Source LCS/MS Solution

Perfluoro-1-hexanesulfonate	.05050
Perfluoro-1-octanesulfonamide	.05000
Perfluoro-1-octanesulfonate	.05000
Perfluoro-n-butanoic Acid	.05000
Perfluoro-n-decanoic Acid	.05000
Perfluoro-n-dodecanoic acid	.05000
Perfluoro-n-heptanoic Acid	.05000
Perfluoro-n-hexanoic acid	.05050
Perfluoro-n-octanoic Acid	.05000
Perfluorononanoic Acid	.05000
Perfluoro-n-pentanoic acid	.05000
Perfluoro-n-tetradecanoic acid	.05000
Perfluoro-n-tridecanoic acid	.05000
Perfluoro-n-undecanoic acid	.05000
Sodium perfluoro-1-pentanesulfonate	.05000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
171025-01	Pipette	C0982448K

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

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

Comment: 80/20 methanol/milli-q water

Approved By: Schumitz, Denise **Date:** 5/24/2018 11:02:00 AM



It can be done

BDO Id: 161230-01

Reagent Receipt Report

Approved: ☐ ☐

Name:	<u>br-PFHxSK</u>	Received:	<u>12/30/2016</u>
Vendor:	<u>Wellington Laboratories</u>	Custodian:	<u>Schumitz, Matt</u>
Catalogue No:	<u>br-PFHxSK</u>	Expires:	<u>7/3/2020</u>
Type:	<u>Solution</u>	Consumed:	<u></u>
Lot No:	<u>br-PFHxSK0615</u>	Stored In:	<u>Sample Preparation - C0103</u>
Quantity:	<u>1 ea ml</u>	% Moisture:	<u></u>
Description:	<u>br-PFHxSK</u>		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
br-PFHxSK	BDO-2170	50.0000	98.00	--	--	☐	50	47.5	52.5 1

Total Analytes: 1

Notes:

Analyte:

Comment:

1 br-PFHxSK	50 +/- 2.5ug/ml (total potassium salt)45.5+- 2.3 ug/ml (total PFHxS anion)
-------------	--

Approved by:	<u></u>	Approved on:	<u></u>
Authorized by:	<u></u>	Authorized on:	<u></u>

161230-01

**WELLINGTON**
LABORATORIES**CERTIFICATE OF ANALYSIS**
DOCUMENTATION**br-PFHxSK****Potassium Perfluorohexanesulfonate
Solution/Mixture of Linear and
Branched Isomers**

<u>PRODUCT CODE:</u>	br-PFHxSK
<u>LOT NUMBER:</u>	brPFHxSK0615
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/ml (total potassium salt) 45.5 ± 2.3 µg/ml (total PFHxS anion)
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	06/29/2015
<u>LAST TESTED:</u> (mm/dd/yyyy)	07/03/2015
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	07/03/2020
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorohexanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.5% of perfluoro-1-pentanesulfonate and ~ 0.2% of perfluoro-1-octanesulfonate.
- CAS#: 3871-99-6 (for linear isomer; potassium salt).

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It can be done

BDO Id: 161230-02

Reagent Receipt Report

Approved: ☐ ☐

Name:	<u>br-PFOSK</u>	Received:	<u>12/30/2016</u>
Vendor:	<u>Wellington Laboratories</u>	Custodian:	<u>Schumitz, Matt</u>
Catalogue No:	<u>br-PFOSK</u>	Expires:	<u>10/14/2020</u>
Type:	<u>Solution</u>	Consumed:	<u></u>
Lot No:	<u>br-PFOSK1015</u>	Stored In:	<u>Sample Preparation - C0103</u>
Quantity:	<u>1 ea ml</u>	% Moisture:	<u></u>
Description:	<u>br-PFOSK</u>		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
br-PFOSK	BDO-2171	50.0000	98.00	--	--	☐	50	47.5	52.5 1

Total Analytes: 1

Notes:

Analyte: Comment:

1 br-PFOSK	50 +/- 2.5 ug/ml (total potassium salt) 46.4 +/- 2.3 ug/ml (total PFOS anion)
------------	---

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

**WELLINGTON**
LABORATORIES**CERTIFICATE OF ANALYSIS**
DOCUMENTATION

161230-02

br-PFOSK**Potassium Perfluorooctanesulfonate
Solution/Mixture of Linear and
Branched Isomers**

PRODUCT CODE: br-PFOSK
LOT NUMBER: brPFOSK1015
CONCENTRATION: 50 ± 2.5 µg/ml (total potassium salt)
46.4 ± 2.3 µg/ml (total PFOS anion)
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 10/13/2015
LAST TESTED: (mm/dd/yyyy) 10/14/2015
EXPIRY DATE: (mm/dd/yyyy) 10/14/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorooctanesulfonate linear and branched isomers.
The full name, structure and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- A 5-point calibration curve was generated using linear PFOS (potassium salt) and mass-labelled PFOS as an internal standard to enable quantitation of br-PFOSK using isotopic dilution.
- CAS#: 2795-39-3 (for linear isomer; potassium salt).

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It can be done

BDO Id: 161230-04

Reagent Receipt Report

Approved: ☐ ☐

Name:	NaP3MHpS	Received:	12/30/2016
Vendor:	Wellington Laboratories	Custodian:	Schumitz, Matt
Catalogue No:	NaP3MHpS	Expires:	6/10/2020
Type:	Solution	Consumed:	
Lot No:	NaP3MHpS0615	Stored In:	Sample Preparation - C0103
Quantity:	1 ea ml	% Moisture:	
Description:	NaP3MHpS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert Val:	Cert Val:	Lower Limit:	Upper Limit:
NaP3MFpS	BDO-2174	50.0000	98.00	--	--	☐	50	47.5	52.5 1
Total Analytes:		1							

Notes:

Analyte:	Comment:
1 NaP3MFpS	50.+ 2.5 ug/ml (Na salt) 47.8+- 2.4 ug/ml (anion)

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

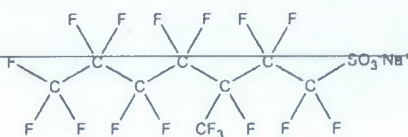
161230-04



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: NaP3MHPs **LOT NUMBER:** NaP3MHPs0615
COMPOUND: Sodium perfluoro-3-methylheptanesulfonate
STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: $C_8F_{17}SO_3Na$ **MOLECULAR WEIGHT:** 522.11
CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/ml}$ (Na salt) **SOLVENT(S):** Methanol
 $47.8 \pm 2.4 \mu\text{g/ml}$ (NaP3MHPs anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 06/10/2015
EXPIRY DATE: (mm/dd/yyyy) 06/10/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
 Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim

Date: 06/11/2015
(mm/dd/yyyy)

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It can be done

BDO Id: 161230-05

Reagent Receipt Report

Approved: ☐ ☐

Name:	NaP6MHpS	Received:	12/30/2016
Vendor:	Wellington Laboratories	Custodian:	Schumitz, Matt
Catalogue No:	NaP6MHpS	Expires:	1/23/2020
Type:	Solution	Consumed:	
Lot No:	NaP6MHpS0115	Stored In:	Sample Preparation - C0103
Quantity:	1 ea ml	% Moisture:	
Description:	NaP6MHpS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
NaP6MHpS	BDO-2175	50.0000	98.00	--	--	☐	50	47.5	52.5 1

Total Analytes: 1

Notes:

Analyte:	Comment:
1 NaP6MHpS	50.+- 2.5 ug/ml (Na salt) 47.8+- 2.4 ug/ml (anion)

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

161230-05


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CERTIFICATE OF ANALYSIS
 DOCUMENTATION
PRODUCT CODE:

NaP6MHpS

LOT NUMBER:

NaP6MHpS0115

COMPOUND:

Sodium perfluoro-6-methylheptanesulfonate

STRUCTURE:**CAS #:**

Not available

**MOLECULAR FORMULA:** $C_8F_{17}SO_3Na$ **MOLECULAR WEIGHT:**

522.11

CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/ml}$ (Na salt)**SOLVENT(S):**

Methanol

 $47.8 \pm 2.4 \mu\text{g/ml}$ (NaP6MHpS anion)**CHEMICAL PURITY:**

>98%

LAST TESTED: (mm/dd/yyyy)

01/23/2015

EXPIRY DATE: (mm/dd/yyyy)

01/23/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

 B.G. Chittim

Date: 03/27/2015

(mm/dd/yyyy)

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It can be done

BDO Id: 161230-06

Reagent Receipt Report

Approved: ☐ ☐

Name:	<u>ipPFNS</u>	Received:	<u>12/30/2016</u>
Vendor:	<u>Wellington Laboratories</u>	Custodian:	<u>Schumitz, Matt</u>
Catalogue No:	<u>ipPFNS</u>	Expires:	<u>9/23/2020</u>
Type:	<u>Solution</u>	Consumed:	<u></u>
Lot No:	<u>ipPFNS0912</u>	Stored In:	<u>Sample Preparation - C0103</u>
Quantity:	<u>1 ea ml</u>	% Moisture:	<u></u>
Description:	<u>ipPFNS</u>		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
ipPFNS	BDO-2176	50.0000	98.00	--	--	☐	50	47.5	52.5 1

Total Analytes: 1

Notes:

Analyte:	Comment:
1 ipPFNS	50.+ 2.5 ug/ml (Na salt) 48.0+- 2.4 ug/ml (PFNS anion)

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

161230-06


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CERTIFICATE OF ANALYSIS
DOCUMENTATION
PRODUCT CODE:

ipPFNS

LOT NUMBER:

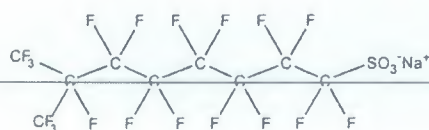
ipPFNS0912

COMPOUND:

Sodium perfluoro-7-methyloctanesulfonate

STRUCTURE:**CAS #:**

Not available

**MOLECULAR FORMULA:** $C_9F_{19}SO_3Na$ **MOLECULAR WEIGHT:**

572.12

CONCENTRATION:
 $50.0 \pm 2.5 \mu\text{g/ml}$ (Na salt)
 $48.0 \pm 2.4 \mu\text{g/ml}$ (PFNS anion)
SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/23/2015

EXPIRY DATE: (mm/dd/yyyy)

09/23/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

 B.G. Chittim

Date: 10/02/2015

(mm/dd/yyyy)

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It can be done

BDO Id: 161230-07

Reagent Receipt Report

Approved: ☐ ☐

Name:	T-PFOA	Received:	12/30/2016
Vendor:	Wellington Laboratories	Custodian:	Schumitz, Matt
Catalogue No:	T-PFOA	Expires:	2/12/2021
Type:	Solution	Consumed:	
Lot No:	T-PFOA0216	Stored In:	Sample Preparation - C0103
Quantity:	1 ea ml	% Moisture:	
Description:	T-PFOA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
T-PFOA	BDO-2177	50.0000	97.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

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

161230-07



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	T-PFOA	LOT NUMBER:	TPFOA0216
COMPOUND:	Technical Ammonium Perfluorooctanoate		
STRUCTURE:	(see Table A)	CAS #:	95328-99-7 (for linear ammonium perfluorooctanoate)
MOLECULAR FORMULA:	$C_8F_{15}O_2NH_4$		
CONCENTRATION:	50 ± 2.5 µg/ml (gravimetric)		
CHEMICAL PURITY:	Technical material		
SOLVENT(S):	Methanol/Water (<1%)		
LAST TESTED: (mm/dd/yyyy)	02/12/2016		
EXPIRY DATE: (mm/dd/yyyy)	02/12/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition
 Figure 1: LC/MS Data (TIC and Mass Spectrum)
 Figure 2: LC/MS Data (SIR)
 Figure 3: LC/MS/MS Data (Selected MRM Transitions)
 Figure 4: LC/MS Elution Profile of the Perfluorooctanoic Acid Isomers

ADDITIONAL INFORMATION:

- See page 2 for further details.
- This technical mixture is >97% ammonium perfluorooctanoate (branched and linear isomers). The remaining 3% consists of common impurities such as the perfluoroheptanoic and perfluorohexanoic acids.
- It is recommended that this solution be used as a *qualitative or semi-quantitative standard only*.
- Contains 4 mole eq. of NaOH to prevent conversion of any carboxylic acids to their corresponding methyl esters.
- The molecular weight of perfluoro-n-octanoic acid is 414.07 g/mol.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 02/16/2016
(mm/dd/yyyy)

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It can be done

BDO Id: 161230-08

Reagent Receipt Report

Approved: ☐ ☐

Name: P3MHPA Received: 12/30/2016
 Vendor: Wellington Laboratories Custodian: Schumitz, Matt
 Catalogue No: P3MHPA Expires: 6/10/2020
 Type: Solution Consumed:
 Lot No: P3MHPA Stored In: Sample Preparation - C0103
 Quantity: 1 ea ml % Moisture:
 Description: P3MHPA

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
P3MHPA	BDO-2178	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

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

16/230-08



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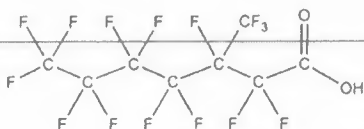
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: P3MHPA
COMPOUND: Perfluoro-3-methylheptanoic acid

LOT NUMBER: P3MHPA0615

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: C₈H₁₅O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 414.07
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 06/10/2015
EXPIRY DATE: (mm/dd/yyyy) 06/10/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
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.

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Certified By:

B.G. Chittim

Date: 06/17/2015
(mm/dd/yyyy)

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It can be done

BDO Id: 161230-09

Reagent Receipt Report

Approved: ☐ ☐

Name:	P4MOA	Received:	12/30/2016
Vendor:	Wellington Laboratories	Custodian:	Schumitz, Matt
Catalogue No:	P4MOA	Expires:	6/10/2020
Type:	Solution	Consumed:	
Lot No:	P4MOA0615	Stored In:	Sample Preparation - C0103
Quantity:	1 ea ml	% Moisture:	
Description:	P4MOA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
P4MOA	BDO-2179	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

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

161230-09


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CERTIFICATE OF ANALYSIS
 DOCUMENTATION
PRODUCT CODE:

P4MOA

LOT NUMBER:

P4MOA0615

COMPOUND:

Perfluoro-4-methyloctanoic acid

STRUCTURE:**CAS #:**

Not available

**MOLECULAR FORMULA:** $C_9H_{17}O_2$ **MOLECULAR WEIGHT:**

464.08

CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):**

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

06/10/2015

EXPIRY DATE: (mm/dd/yyyy)

06/10/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

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.

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Certified By:

 B.G. Chittim

Date: 06/17/2015

(mm/dd/yyyy)

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BATTELLE

It can be done

BDO Id: 161230-10

Reagent Receipt Report

Approved: ☐ ☐

Name:	<u>ipPFNA</u>	Received:	<u>12/30/2016</u>
Vendor:	<u>Wellington Laboratories</u>	Custodian:	<u>Schumitz, Matt</u>
Catalogue No:	<u>ipPFNA</u>	Expires:	<u>5/31/2021</u>
Type:	<u>Solution</u>	Consumed:	<u></u>
Lot No:	<u>ipPFNA</u>	Stored In:	<u>Sample Preparation - C0103</u>
Quantity:	<u>1 ea ml</u>	% Moisture:	<u></u>
Description:	<u>ipPFNA</u>		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
ipPFNA	BDO-2180	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

Approved by:	<u></u>	Approved on:	<u></u>
Authorized by:	<u></u>	Authorized on:	<u></u>

161230-10


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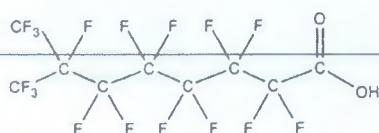
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: ipPFNA
COMPOUND: Perfluoro-7-methyloctanoic acid

LOT NUMBER: ipPFNA0516

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: C₉H₉F₁₇O₂
CONCENTRATION: 50 ± 2.5 µg/ml
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/31/2016
EXPIRY DATE: (mm/dd/yyyy) 05/31/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 464.08
SOLVENT(S): Methanol
 Water (<1%)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
 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
Certified By:

 B.G. Chittim

Date: 06/06/2016
 (mm/dd/yyyy)

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BATTELLE

It can be done

BDO Id: 161230-11**Reagent Receipt Report**Approved: ☐☐

Name:	<u>P355TMHxA</u>	Received:	<u>12/30/2016</u>
Vendor:	<u>Wellington Laboratories</u>	Custodian:	<u>Schumitz, Matt</u>
Catalogue No:	<u>P355TMHxA</u>	Expires:	<u>11/27/2019</u>
Type:	<u>Solution</u>	Consumed:	<u></u>
Lot No:	<u>P355TMHxA1114</u>	Stored In:	<u>Sample Preparation - C0103</u>
Quantity:	<u>1 ea ml</u>	% Moisture:	<u></u>
Description:	<u>P355TMHxA</u>		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert Units:	Cert Val:	Lower Limit:	Upper Limit:
P355TMHxA	BDO-2181	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

Approved by:	<u></u>	Approved on:	<u></u>
Authorized by:	<u></u>	Authorized on:	<u></u>

161230-11


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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: P355TMHxA
COMPOUND: Perfluoro-3,5,5-trimethylhexanoic acid

LOT NUMBER: P355TMHxA1114

STRUCTURE:

CAS #: 238403-51-5



MOLECULAR FORMULA: $C_9H_9F_{17}O_2$
CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$

MOLECULAR WEIGHT: 464.08
SOLVENT(S): Methanol
 Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/27/2014
EXPIRY DATE: (mm/dd/yyyy) 11/27/2019
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
 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

Certified By:

B.G. Chittim

Date: 03/25/2015
 (mm/dd/yyyy)

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It can be done

BDO Id: 161230-12

Reagent Receipt Report

Approved: ☐ ☐

Name:	P37DMOA	Received:	12/30/2016
Vendor:	Wellington Laboratories	Custodian:	Schumitz, Matt
Catalogue No:	P37DMOA	Expires:	9/24/2019
Type:	Solution	Consumed:	
Lot No:	P37DMOA0914	Stored In:	Sample Preparation - C0103
Quantity:	1 ea ml	% Moisture:	
Description:	P37DMOA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
P37DMOA	BDO-2182	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

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

161230-12



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

P37DMOA

LOT NUMBER:

P37DMOA0914

COMPOUND:

Perfluoro-3,7-dimethyloctanoic acid

STRUCTURE:**CAS #:**

172155-07-6

**MOLECULAR FORMULA:** $C_{10}H_2F_{19}O_2$ **MOLECULAR WEIGHT:**

514.08

CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):**

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/24/2014

EXPIRY DATE: (mm/dd/yyyy)

09/24/2019

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

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.

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Certified By:

B.G. Chittim

Date: 03/25/2015

(mm/dd/yyyy)

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It can be done

BDO Id: 170629-02

Reagent Receipt Report

Approved: ☐ ☐

Name: Mass-labelled PFAS Extraction Stand **Received:** 6/29/2017
Vendor: Wellington Laboratories **Custodian:** Thorn, Jonathan
Catalogue No: MPFAC-24ES **Expires:** 5/19/2022
Type: Solution **Consumed:** _____
Lot No: MPFAC24ES1016 **Stored In:** Sample Preparation - C0103
Quantity: 1 ea mL **% Moisture:** 0
Description: Mass-labelled PFAS Extraction Standard Solution

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
N-ethyl-d5-perfluoro-1-octanesulfona	BDO-2126	1.0000	100.00	--	--	☐			
N-methyl-d3-perfluoro-1-octanesulfo	BDO-2125	1.0000	100.00	--	--	☐			
Perfluoro-1-[13C8]octanesulfonamid	BDO-2225	1.0000	100.00	--	--	☐			
Perfluoro-n-[1,2,3,4,5,6,7-13C7]unde	BDO-2223	1.0000	100.00	--	--	☐			
Perfluoro-n-[1,2,3,4,5,6-13C6]decan	BDO-2222	1.0000	100.00	--	--	☐			
Perfluoro-n-[1,2,3,4,6-13C5]hexanoic	BDO-2217	1.0000	100.00	--	--	☐			
Perfluoro-n-[1,2,3,4-13C4]butanoic a	BDO-2105	1.0000	100.00	--	--	☐			
Perfluoro-n-[1,2,3,4-13C4]hepetanoic	BDO-2218	1.0000	100.00	--	--	☐			
Perfluoro-n-[1,2-13C2]dodecanoic ac	BDO-2112	1.0000	100.00	--	--	☐			
Perfluoro-n-[1,2-13C2]tetradecanoic	BDO-2224	1.0000	100.00	--	--	☐			
Perfluoro-n-[13C5]pentanoic acid	BDO-2216	1.0000	100.00	--	--	☐			
Perfluoro-n-[13C8]octanoic acid	BDO-2219	1.0000	100.00	--	--	☐			
Perfluoro-n-[13C9]nonanoic acid	BDO-2221	1.0000	100.00	--	--	☐			
Sodium 1H,1H,2H,2H-perfluoro-1-[1,	BDO-2220	0.9580	100.00	--	--	☐			
sodium 1H,1H,2H,2H-perfluoro-1-[1,	BDO-2229	0.9350	100.00	--	--	☐			
sodium 1H,1H,2H,2H-perfluoro-1-[1,	BDO-2230	0.9490	100.00	--	--	☐			
Sodium perfluoro-1-[1,2,3-13C3]hexa	BDO-2227	0.9460	100.00	--	--	☐			
Sodium perfluoro-1-[13C8]octanesulf	BDO-2228	0.9570	100.00	--	--	☐			
Sodium perfluoro-1-[2,3,4-13C3]buta	BDO-2226	0.9290	100.00	--	--	☐			

Total Analytes: 19

Notes:

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

170629-02


WELLINGTON
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CERTIFICATE OF ANALYSIS
 DOCUMENTATION

MPFAC-24ES
Mass-Labelled Per- and Poly-fluoroalkyl Substance
Extraction Standard Solution

<u>PRODUCT CODE:</u>	MPFAC-24ES
<u>LOT NUMBER:</u>	MPFAC24ES1016
<u>SOLVENT(S):</u>	Methanol / Isopropanol (2%) / Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	10/20/2016
<u>LAST TESTED:</u> (mm/dd/yyyy)	05/19/2017
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	05/19/2022
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

MPFAC-24ES is a solution/mixture of ten mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4 - C_{12} and C_{14}), three mass-labelled (^{13}C) perfluoroalkylsulfonates (C_4 , C_6 , and C_8), three mass-labelled (^{13}C) telomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (^2H) perfluorooctanesulfonamidoacetic acids, and perfluoro-1- $^{13}\text{C}_8$ octanesulfonamide. The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids, mass-labelled perfluoroalkylsulfonates, mass-labelled telomer sulfonates, and perfluoro-1- $^{13}\text{C}_8$ octanesulfonamide all have chemical purities of >98% and isotopic purities of $\geq 99\%$. The individual mass-labelled perfluorooctanesulfonamidoacetic acids all have chemical purities of >98% and isotopic purities of $\geq 98\%$.

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.

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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: MPFAC-24ES; Components and Concentrations
(ng/ml, $\pm$ 5% in Methanol / Isopropanol (2%) / Water (<1%))

Compound	Abbreviation	Concentration (ng/ml)	Peak Assignment in Figure 1	
Perfluoro-n-[¹³ C ₄]butanoic acid	<u>13C4-PFBA</u> MPFBA	1000	A	
Perfluoro-n-[¹³ C ₅]pentanoic acid	<u>13C5-PFPeA</u> M5PFPeA	1000	B	
Perfluoro-n-[1,2,3,4,6- ¹³ C ₅]hexanoic acid	<u>13C5-PFHxA</u> M5PFHxA	1000	E	
Perfluoro-n-[1,2,3,4- ¹³ C ₄]heptanoic acid	<u>13C4-PFHpA</u> M4PFHpA	1000	F	
Perfluoro-n-[¹³ C ₈]octanoic acid	<u>13C8-PFOA</u> M8PFOA	1000	I	
Perfluoro-n-[¹³ C ₉]nonanoic acid	<u>13C9-PFNA</u> M9PFNA	1000	J	
Perfluoro-n-[1,2,3,4,5,6- ¹³ C ₆]decanoic acid	<u>13C6-PFDA</u> M6PFDA	1000	M	
Perfluoro-n-[1,2,3,4,5,6,7- ¹³ C ₇]undecanoic acid	<u>13C7-PFLuA</u> M7PFUdA	1000	Q	
Perfluoro-n-[1,2- ¹³ C ₂]dodecanoic acid	<u>13C2-PFDdA</u> MPFDdA	1000	R	
Perfluoro-n-[1,2- ¹³ C ₂]tetradecanoic acid	<u>13C2-PFTeDA</u> M2PFTeDA	1000	S	
Perfluoro-1-[¹³ C ₈]octanesulfonamide	① <u>13C8-PFOA</u> M8FOSA	1000	N	
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000	O <u>d3-</u>	
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000	P <u>d5-</u>	
Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Sodium perfluoro-1-[2,3,4- ¹³ C ₃]butanesulfonate	<u>13C3-</u> M3PFBS	1000	929	C
Sodium perfluoro-1-[1,2,3- ¹³ C ₃]hexanesulfonate	<u>13C3-</u> M3PFHxS	1000	946	G
Sodium perfluoro-1-[¹³ C ₈]octanesulfonate	<u>13C8-</u> M8PFOS	1000	957	K
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2- ¹³ C ₂]hexanesulfonate	<u>13C2-</u> M2-4:2FTS	1000	935	D
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2- ¹³ C ₂]octanesulfonate	<u>13C2-</u> M2-6:2FTS	1000	949	H
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2- ¹³ C ₂]decanesulfonate	<u>13C2-</u> M2-8:2FTS	1000	958	L

① S/B 13C8-FOSA Jm 7/3/17

Certified By:


B.G. Chittim, General Manager

Date: 05/24/2017
(mm/dd/yyyy)



It can be done

BDO Id: 170629-03

Reagent Receipt Report

Approved: ☐ ☐

Name: Mass-labeled PFAS Injection Standar **Received:** 6/29/2017
Vendor: Wellington Laboratories **Custodian:** Thorn, Jonathan
Catalogue No: MPFAC-C-IS **Expires:** 5/2/2022
Type: Solution **Consumed:** _____
Lot No: MPFACCIS0516 **Stored In:** Sample Preparation - C0103
Quantity: 2 ea mL **% Moisture:** 0
Description: Mass-labeled PFAS Injection Standards Solution

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
Perfluoro-1-[1,2,3,4-13C4]octanesulf	BDO-2121	1.9100	100.00	--	--	☐			
Perfluoro-n-[1,2-13C2]decanoic acid	BDO-2110	2.0000	100.00	--	--	☐			
Perfluoro-n-[1,2-13C2]octanoic acid	BDO-2107	2.0000	100.00	--	--	☐			
Perfluoro-n-[2,3,4-13C3]butanoic Aci	BDO-2231	2.0000	100.00	--	--	☐			

Total Analytes: 4

Notes:

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

170629-03

**WELLINGTON**
LABORATORIES**CERTIFICATE OF ANALYSIS**
DOCUMENTATION**MPFAC-C-IS****Mass-Labelled Perfluorinated
Compound Injection Standards Solution**

PRODUCT CODE: MPFAC-C-IS
LOT NUMBER: MPFACCIS0516
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 05/24/2016
LAST TESTED: (mm/dd/yyyy) 05/02/2017
EXPIRY DATE: (mm/dd/yyyy) 05/02/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-C-IS is a solution/mixture of mass-labelled (^{13}C) perfluoroalkylcarboxylic acids and a mass-labelled (^{13}C) perfluoroalkylsulfonate. The components and their concentrations are given in Table A.

MPFAC-C-IS was designed for, and prepared to be used with, PFC-CVS-C.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkylsulfonate all have chemical purities of >98% and isotopic purities of $\geq 99\%$.

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.
- The mass-labelled perfluoroalkylsulfonate compound concentration is reported as the salt.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be $\pm 5\%$ 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:

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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:

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

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

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TRACEABILITY:

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

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

Compound	Abbreviation	Concentration (ng/ml)	Peak Assignment in Figure 1
Perfluoro-n-[2,3,4- $^{13}\text{C}_3$]butanoic acid <i>13C3-PFBA</i>	M3PFBA	2000	A
Perfluoro-n-[1,2- $^{13}\text{C}_2$]octanoic acid <i>13C2-PFOA</i>	M2PFOA	2000	B
Perfluoro-n-[1,2- $^{13}\text{C}_2$]decanoic acid <i>13C2-PFDA</i>	MPFDA	2000	D
Sodium perfluoro-1-[1,2,3,4- $^{13}\text{C}_4$]octanesulfonate <i>13C4-PFOS</i>	MPFOS	2000	C

*PFOS*Certified By: 

B.G. Chittim, General Manager

Date: 05/04/2017
(mm/dd/yyyy)



CERTIFIED WEIGHT REPORT

Part Number: 99207
Lot Number: 032117
Description: PFOA - DOD
 24 components
Expiration Date: 032122
Recommended Storage: Freezer (0 °C)
Nominal Concentration (µg/mL): 1.0
NIST Test ID#: 822-275872-11

Solvent(s): Methanol (1 mM KOH)
 2-Propanol

Lot#
 031317 (98%)
 23214 (2%)

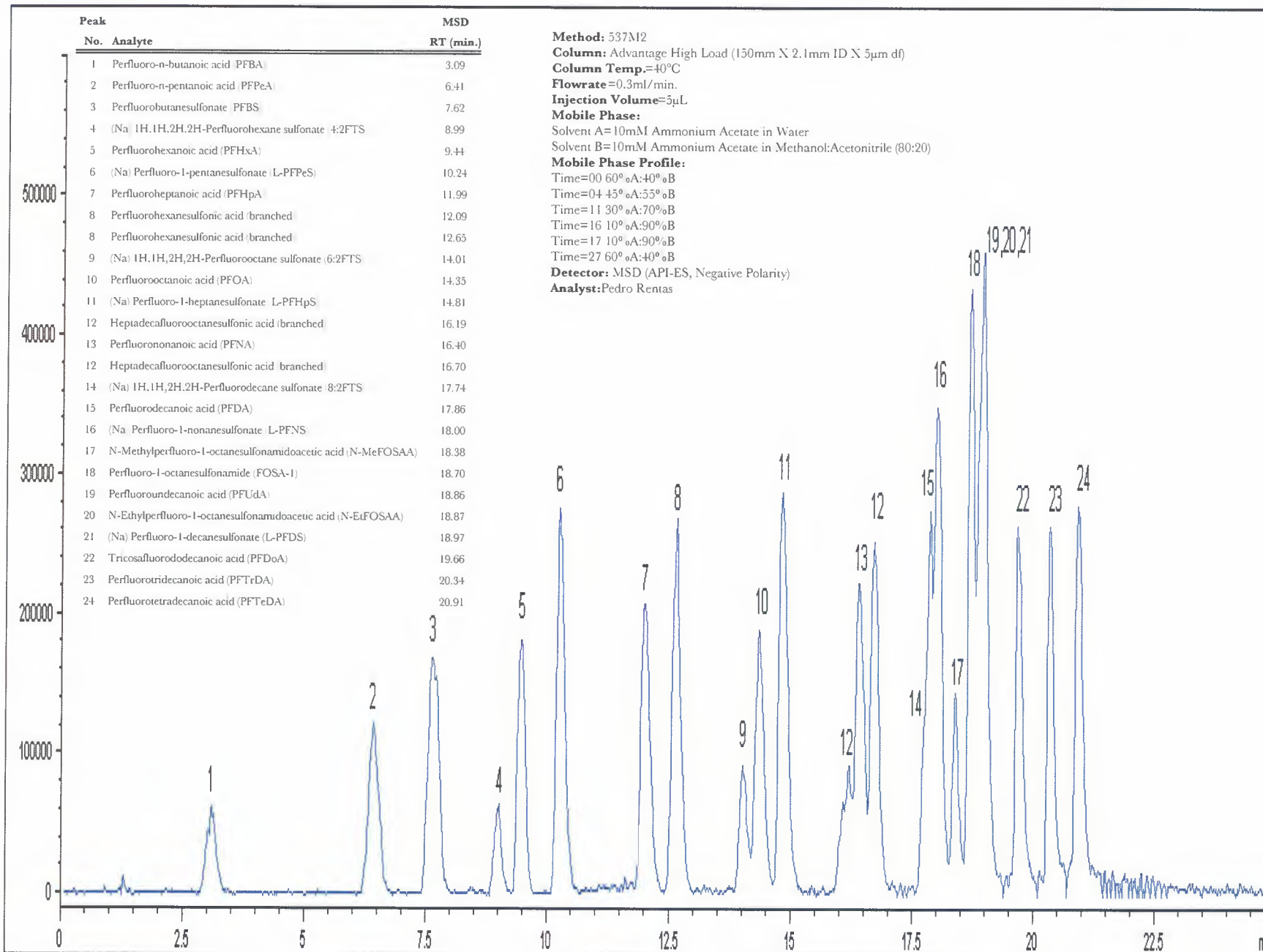
Volume(s) shown below were combined and diluted to (mL):

Note: All assigned values are anion concentrations.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.)		
									CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid	3670	PFBA0516	0.02	1.00	0.004	50.0	1.00	0.01	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid	3669	PFPeA0516	0.02	1.00	0.004	50.0	1.00	0.01	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid	99199	030617	0.02	1.00	0.004	50.3	1.01	0.01	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid	99197	030517	0.02	1.00	0.004	50.1	1.00	0.01	375-85-9	N/A	N/A
5. Perfluorooctanoic acid	99202	030617	0.02	1.00	0.004	50.2	1.00	0.01	335-67-1	N/A	ipr-rat 189mg/kg
6. Perfluorononanoic acid	99200	030617	0.02	1.00	0.004	50.1	1.00	0.01	375-95-1	N/A	N/A
7. Perfluorodecanoic acid	99195	030617	0.02	1.00	0.004	50.1	1.00	0.01	335-76-2	N/A	ori-rat 57mg/kg
8. Perfluoroundecanoic acid	99205	030617	0.02	1.00	0.004	50.1	1.00	0.01	2058-94-8	N/A	N/A
9. Tricosafuorododecanoic acid	99196	030617	0.02	1.00	0.004	50.1	1.00	0.01	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid	99204	030617	0.02	1.00	0.004	50.1	1.00	0.01	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid	99203	030617	0.02	1.00	0.004	50.1	1.00	0.01	376-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide	3677	FOSA0916I	0.02	1.00	0.004	50.0	1.00	0.01	754-91-6	N/A	N/A
13. N-Methylperfluoro-1-octanesulfonamidoacetic acid	3667	NMeFOSAA0117	0.02	1.00	0.004	50.0	1.00	0.01	2355-31-9	N/A	N/A
14. N-Ethylperfluoro-1-octanesulfonamidoacetic acid	3664	NEtFOSAA0117	0.02	1.00	0.004	50.0	1.00	0.01	2991-50-6	N/A	N/A
15. Perfluorobutanesulfonic acid	99194	031017	0.02	1.00	0.004	50.7	1.01	0.01	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid	3956	LPFPeS0117	0.0214	1.07	0.004	46.9	1.00	0.01	00-00-0	N/A	N/A
17. Perfluorohexanesulfonic acid (branched)	99198	030617	0.02	1.00	0.004	50.6	1.01	0.01	3871-99-6	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid	3672	LPFHps1016	0.021	1.05	0.004	47.6	1.00	0.01	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (branched)	99201	030617	0.02	1.00	0.004	50.2	1.00	0.01	1763-23-1	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid	3957	LPFNS0516	0.021	1.05	0.004	48.0	1.01	0.01	98789-57-2	N/A	N/A
21. Perfluoro-1-decanesulfonic acid	3671	LPFDS0217	0.021	1.05	0.004	48.2	1.01	0.01	2806-15-7	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid	3955	42FTS1216	0.0214	1.07	0.004	46.7	1.00	0.01	00-00-0	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid	3661	62FTS0616	0.021	1.05	0.004	47.4	1.00	0.01	27619-97-2	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid	3662	82FTS1216	0.021	1.05	0.004	47.9	1.01	0.01	39108-34-4	N/A	N/A

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

		032117
Formulated By:	Justin Dippold	DATE
		032117
Reviewed By:	Pedro L. Rentas	DATE





It can be done

BDO Id: 171025-01

Reagent Receipt Report

Approved: ☐ ☐

Name: PFOA - 2nd Source **Received:** 10/25/2017
Vendor: ABSOLUTE STANDARDS **Custodian:** Schumitz, Matt
Catalogue No: 99207 **Expires:** 3/22/2022
Type: Solution **Consumed:**
Lot No: 032217 **Stored In:** LC Laboratory - F0111
Quantity: 5 ea ml **% Moisture:**
Description: PFOA-DOD

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
(Na) 1H,1H,2H,2H-Perfluorodecane	39108-34-4	1.0100	100.00	--	--	☐			
(Na) 1H,1H,2H,2H-Perfluorohexane	BDO-2205	1.0000	100.00	--	--	☐			
(Na) 1H,1H,2H,2H-Perfluorooctane s	27619-97-2	1.0000	100.00	--	--	☐			
(Na) Perfluoro-1-decanesulfonate	2806-15-7	1.0100	100.00	--	--	☐			
(NA) Perfluoro-1-heptanesulfonate	375-92-8	1.0000	100.00	--	--	☐			
(Na) Perfluoro-1-nonanesulfonate	98789-57-2	1.0100	100.00	--	--	☐			
N-ethylperfluoro-octanesulfonamidoa	2991-50-6	1.0000	100.00	--	--	☐			
N-methylperfluoro-1-octanesulfonami	2355-31-9	1.0000	100.00	--	--	☐			
Perfluoro-1-butanefulfonic Acid	375-73-5	1.0100	100.00	--	--	☐			
Perfluoro-1-hexanesulfonic Acid	355-46-4	1.0100	100.00	--	--	☐			
Perfluoro-1-octanesulfonamide	754-91-6	1.0000	100.00	--	--	☐			
Perfluoro-1-octanesulphonic Acid	1763-23-1	1.0000	100.00	--	--	☐			
Perfluoro-n-butanoic Acid	375-22-4	1.0000	100.00	--	--	☐			
Perfluoro-n-decanoic Acid	335-76-2	1.0000	100.00	--	--	☐			
Perfluoro-n-dodecanoic acid	307-55-1	1.0000	100.00	--	--	☐			
Perfluoro-n-heptanoic Acid	375-85-9	1.0000	100.00	--	--	☐			
Perfluoro-n-hexanoic acid	307-24-4	1.0100	100.00	--	--	☐			
Perfluoro-n-octanoic Acid	335-67-1	1.0000	100.00	--	--	☐			
Perfluorononanoic Acid	375-95-1	1.0000	100.00	--	--	☐			
Perfluoro-n-pentanoic acid	2706-90-3	1.0000	100.00	--	--	☐			
Perfluoro-n-tetradecanoic acid	376-06-7	1.0000	100.00	--	--	☐			
Perfluoro-n-tridecanoic acid	72629-94-8	1.0000	100.00	--	--	☐			
Perfluoro-n-undecanoic acid	2058-94-8	1.0000	100.00	--	--	☐			
Sodium perfluoro-1-pentanesulfonat	BDO-2114	1.0000	100.00	--	--	☐			

Total Analytes: 24

Notes:

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



Analytical Reference Material ARM

CERTIFIED WEIGHT REPORT

Part Number: 99207
Lot Number: 101717
Description: PFOA - DOD

Expiration Date: 101722
Recommended Storage: Freezer (-20 °C)
Nominal Concentration (µg/mL): 1.0
NIST Test ID#: 2506734D

Solvent(s): Methanol (1 mM KOH)
2-Propanol
Lot# 031317 (98%)
23214 (2%)
5E-05 Balance Uncertainty
0.007 Flask Uncertainty

Formulated By: <i>Marino L. Rentes</i>	DATE: 101717
Reviewed By: <i>Pedro L. Rentes</i>	DATE: 101717

Volume(s) shown below were combined and diluted to (mL):
Note: All assigned values are anion concentrations.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.)	CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid	3670	PFBAC516	0.02	1.00	0.004	50.0	1.00	0.01	375-22-4	N/A	N/A	N/A
2. Perfluoro-n-pentanoic acid	3669	PFPAC617	0.02	1.00	0.004	50.0	1.00	0.01	2706-90-3	N/A	N/A	N/A
3. Perfluorohexanoic acid	99199	030617	0.02	1.00	0.004	50.3	1.01	0.01	307-24-4	N/A	N/A	N/A
4. Perfluoroheptanoic acid	99197	030517	0.02	1.00	0.004	50.1	1.00	0.01	375-85-9	N/A	N/A	N/A
5. Perfluorooctanoic acid	99202	030617	0.02	1.00	0.004	50.2	1.00	0.01	335-67-1	N/A	ipr-rat 189mg/kg	N/A
6. Perfluorononanoic acid	99200	030617	0.02	1.00	0.004	50.1	1.00	0.01	375-95-1	N/A	N/A	N/A
7. Perfluorodecanoic acid	99195	030617	0.02	1.00	0.004	50.1	1.00	0.01	335-76-2	N/A	orl-rat 57mg/kg	N/A
8. Perfluoroundecanoic acid	99205	030617	0.02	1.00	0.004	50.1	1.00	0.01	2058-94-8	N/A	N/A	N/A
9. Tricosafuorododecanoic acid	99196	030617	0.02	1.00	0.004	50.1	1.00	0.01	307-55-1	N/A	N/A	N/A
10. Perfluorotridecanoic acid	99204	030617	0.02	1.00	0.004	50.1	1.00	0.01	72629-94-8	N/A	N/A	N/A
11. Perfluorotetradecanoic acid	99203	030617	0.02	1.00	0.004	50.1	1.00	0.01	376-06-7	N/A	N/A	N/A
12. Perfluoro-1-octanesulfonamide	3677	FOSA09161	0.02	1.00	0.004	50.0	1.00	0.01	754-91-6	N/A	N/A	N/A
13. N-Methylperfluoro-1-octanesulfonamidoacetic acid	3667	NMeFOSA0117	0.02	1.00	0.004	50.0	1.00	0.01	2355-31-9	N/A	N/A	N/A
14. N-Ethylperfluoro-1-octanesulfonamidoacetic acid	3664	NEFOSA0117	0.02	1.00	0.004	50.0	1.00	0.01	2991-50-6	N/A	N/A	N/A
15. Perfluorobutanesulfonic acid	99194	031017	0.02	1.00	0.004	50.7	1.01	0.01	375-73-5	N/A	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid	3956	LPFPeS0117	0.0214	1.07	0.004	46.9	1.00	0.01	630402-22-1	N/A	N/A	N/A
17. Perfluorohexanesulfonic acid (branched)	99198	030617	0.02	1.00	0.004	50.6	1.01	0.01	3871-99-6	N/A	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid	3672	LPFHPS0817	0.021	1.05	0.004	47.6	1.00	0.01	375-92-8	N/A	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (branched)	99201	030617	0.02	1.00	0.004	50.2	1.00	0.01	1763-23-1	N/A	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid	3957	LPFNS0516	0.021	1.05	0.004	48.0	1.01	0.01	98789-57-2	N/A	N/A	N/A
21. Perfluoro-1-decenesulfonic acid	3671	LPFDS0217	0.021	1.05	0.004	48.2	1.01	0.01	2806-15-7	N/A	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid	3955	42FTS1216	0.0214	1.07	0.004	46.7	1.00	0.01	00-00-0	N/A	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid	3661	62FTS0616	0.021	1.05	0.004	47.4	1.00	0.01	27619-97-2	N/A	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid	3662	82FTS1216	0.021	1.05	0.004	47.9	1.01	0.01	39108-34-4	N/A	N/A	N/A

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).



It can be done

BDO Id: 171025-02

Reagent Receipt Report

Approved: ☐ ☐

Name: PFOA - ICAL Mix
 Vendor: ABSOLUTE STANDARDS
 Catalogue No: 99207
 Type: Solution
 Lot No: 101717
 Quantity: 5 ea ml % Moisture: _____
 Description: PFOA - DOD

Received: 10/25/2017
 Custodian: Schumitz, Matt
 Expires: 10/17/2022
 Consumed: _____
 Stored In: LC Laboratory - F0111

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
(Na) 1H,1H,2H,2H-Perfluorodecane	39108-34-4	1.0100	100.00	--	--	☐			
(Na) 1H,1H,2H,2H-Perfluorohexane	BDO-2205	1.0000	100.00	--	--	☐			
(Na) 1H,1H,2H,2H-Perfluorooctane s	27619-97-2	1.0000	100.00	--	--	☐			
(Na) Perfluoro-1-decanesulfonate	2806-15-7	1.0100	100.00	--	--	☐			
(NA) Perfluoro-1-heptanesulfonate	375-92-8	1.0000	100.00	--	--	☐			
(Na) Perfluoro-1-nonanesulfonate	98789-57-2	1.0100	100.00	--	--	☐			
N-ethylperfluoro-octanesulfonamidoa	2991-50-6	1.0000	100.00	--	--	☐			
N-methylperfluoro-1-octanesulfonami	2355-31-9	1.0000	100.00	--	--	☐			
Perfluoro-1-butanefulfonic Acid	375-73-5	1.0100	100.00	--	--	☐			
Perfluoro-1-hexanesulfonic Acid	355-46-4	1.0100	100.00	--	--	☐			
Perfluoro-1-octanesulfonamide	754-91-6	1.0000	100.00	--	--	☐			
Perfluoro-1-octanesulphonic Acid	1763-23-1	1.0000	100.00	--	--	☐			
Perfluoro-n-butanoic Acid	375-22-4	1.0000	100.00	--	--	☐			
Perfluoro-n-decanoic Acid	335-76-2	1.0000	100.00	--	--	☐			
Perfluoro-n-dodecanoic acid	307-55-1	1.0000	100.00	--	--	☐			
Perfluoro-n-heptanoic Acid	375-85-9	1.0000	100.00	--	--	☐			
Perfluoro-n-hexanoic acid	307-24-4	1.0100	100.00	--	--	☐			
Perfluoro-n-octanoic Acid	335-67-1	1.0000	100.00	--	--	☐			
Perfluorononanoic Acid	375-95-1	1.0000	100.00	--	--	☐			
Perfluoro-n-pentanoic acid	2706-90-3	1.0000	100.00	--	--	☐			
Perfluoro-n-tetradecanoic acid	376-06-7	1.0000	100.00	--	--	☐			
Perfluoro-n-tridecanoic acid	72629-94-8	1.0000	100.00	--	--	☐			
Perfluoro-n-undecanoic acid	2058-94-8	1.0000	100.00	--	--	☐			
Sodium perfluoro-1-pentanesulfonat	BDO-2114	1.0000	100.00	--	--	☐			

Total Analytes: 24

Notes:

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



Certified Reference Material CRM

CERTIFIED WEIGHT REPORT

Part Number:
Lot Number:
Description:

9920Z
032217
PFOA - tOD
24 components

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):

032222
Freezer (-3 °C)
1.0
822-275872-11

NIST Test ID#:

Volume(s) shown below were combined and diluted to (mL):

Note: All assigned values are anion concentrations.

Solvent(s):
Methanol (1 mM KOH) (98%)
2-Propanol (2%)

Lot#

031317 (98%)
23214 (2%)

5E-05 Balance Uncertainty
0.007 Flask Uncertainty

Formulated By:	Paul Barron	DATE	032217
Reviewed By:	Pedro L. Rentas	DATE	032217

SDS Information

(Solvent Safety Info. On Attached pg.)

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (µg/mL)	CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid	3670	PFBAA0516	0.02	1.00	0.004	50.0	1.00	0.01	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid	3669	PFPAA0516	0.02	1.00	0.004	50.0	1.00	0.01	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid	99199	030617	0.02	1.00	0.004	50.3	1.01	0.01	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid	99197	030517	0.02	1.00	0.004	50.1	1.00	0.01	375-85-9	N/A	N/A
5. Perfluorooctanoic acid	99202	030617	0.02	1.00	0.004	50.2	1.00	0.01	335-67-1	N/A	ipr-rat 189mg/kg
6. Perfluorononanoic acid	99200	030617	0.02	1.00	0.004	50.1	1.00	0.01	375-95-1	N/A	N/A
7. Perfluorodecanoic acid	99195	030617	0.02	1.00	0.004	50.1	1.00	0.01	335-76-2	N/A	orl-rat 57mg/kg
8. Perfluoroundecanoic acid	99205	030617	0.02	1.00	0.004	50.1	1.00	0.01	2058-94-8	N/A	N/A
9. Tricosafuorodecanoic acid	99196	030617	0.02	1.00	0.004	50.1	1.00	0.01	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid	99204	030617	0.02	1.00	0.004	50.1	1.00	0.01	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid	99203	030617	0.02	1.00	0.004	50.1	1.00	0.01	376-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide	3677	FOSA09161	0.02	1.00	0.004	50.0	1.00	0.01	754-91-6	N/A	N/A
13. N-Methylperfluoro-1-octanesulfonamidoacetic acid	3667	NMeFOSA0117	0.02	1.00	0.004	50.0	1.00	0.01	2355-31-9	N/A	N/A
14. N-Ethylperfluoro-1-octanesulfonamidoacetic acid	3664	NEFOSA0117	0.02	1.00	0.004	50.0	1.00	0.01	2991-50-6	N/A	N/A
15. Perfluorobutanesulfonic acid	99194	031017	0.02	1.00	0.004	50.7	1.01	0.01	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid	3956	LPFPeS0117	0.0214	1.07	0.004	46.9	1.00	0.01	00-00-0	N/A	N/A
17. Perfluorohexanesulfonic acid (branched)	99198	030617	0.02	1.00	0.004	50.6	1.01	0.01	3871-99-6	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid	3672	LPFHPS1016	0.021	1.05	0.004	47.6	1.00	0.01	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (branched)	99201	030617	0.02	1.00	0.004	50.2	1.00	0.01	1763-23-1	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid	3957	LPFNS0516	0.021	1.05	0.004	48.0	1.01	0.01	98789-57-2	N/A	N/A
21. Perfluoro-1-decanesulfonic acid	3671	LPFDS0217	0.021	1.05	0.004	48.2	1.01	0.01	2806-15-7	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid	3955	42FTS1216	0.0214	1.07	0.004	46.7	1.00	0.01	00-00-0	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid	3661	62FTS0616	0.021	1.05	0.004	47.4	1.00	0.01	27619-97-2	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid	3662	82FTS1216	0.021	1.05	0.004	47.9	1.01	0.01	39108-34-4	N/A	N/A

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• All Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
• All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
• Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Sample Preparation

It can be done**BATTELLE - NORWELL OPERATIONS
SAMPLE PREPARATION RECORDS****Project Title(s)**CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.**Project No.(s)**100118096-
ML4144**18-0349****Non-Potable Water PFAS Analysis****QC**

SOP Numbers (see workplan for modifications)

ExtractionSOP No. 5-370

This Batch Contains The Following Samples:CQ891PB-FS
CQ892LCS-FS
J6227-FSLaboratory Preparation Records
COMPLETE AND VALIDATED

Prep Task Leader: Stephanie Schultz

Approved By:	Date	Initials
Denise Schumitz	06/11/2018	DMS

**BATTELLE - NORWELL OPERATIONS
SAMPLE IDENTIFICATION PAGE**

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.

Project No.(s)

100118096-
ML4144

18-0349

Non-Potable Water PFAS Analysis

QC

Sample ID	Description
CQ891PB-FS	Procedural Blank
CQ892LCS-FS	Laboratory Control Sample
J6227-FS	09-FRB-051718

Samples Assigned By:

Jonathan Thorn

Date :

June 5, 2018

Comments:



BATTELLE - NORWELL OPERATIONS SAMPLE CUSTODY LOG

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.

Project No.(s)

100118096-
ML4144

18-0349

Non-Potable Water PFAS Analysis QC

Requested On/By: 06/05/2018 SAS		Purpose: Sample Preparation	
Relinquished On/By: 06/05/2018 MDS		Last Activity:	Transfer
Accepted On/By: 06/05/2018 SAS Stored In Facility: Sample Preparation Stored Until: 06/05/2018 Stored Comment: NA		Returned On/To: Returned To Facility: Returned Comment: NA	

No.	BDO-ID:	Ctrs	*	Condition:	Custody Comment:	
1	J6227	1	C	Consumed	NA	
Total Samples		1	* "C" = Consumed Container			



It can be done

BATTELLE - NORWELL OPERATIONS LIQUID SAMPLE ID FORM

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.

Project No.(s)

100118096-
ML4144

18-0349

Non-Potable Water PFAS Analysis QC

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CQ891PB-FS	Procedural Blank	250.0	NA	--	06/05/18 SAS
CQ892LCS-FS	Laboratory Control Sample	250.0	NA	--	06/05/18 SAS
J6227-FS	09-FRB-051718	270.0	1	C	06/06/18 SAS

Comments:

Samples Assigned By

Jonathan Thorn

Date :

June 5, 2018

* - "C" = Sample is Consumed



It can be done

BATTELLE - NORWELL OPERATIONS SURROGATE SPIKE FORM

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.

Project No.(s)

100118096-
ML4144

18-0349

Non-Potable Water PFAS Analysis

QC

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CQ891PB-FS	JV83	SIS	1	50	06/05/18 SAS	JCT	NA
CQ892LCS-FS	JV83	SIS	1	50	06/05/18 SAS	JCT	NA
CQ892LCS-FS	JW44	LCS/MS	1	50	06/05/18 SAS	JCT	NA
J6227-FS	JV83	SIS	1	50	06/05/18 SAS	JCT	NA

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV83	Pipette	I0793912B
JW44	Pipette	I0793912B



BATTELLE - NORWELL OPERATIONS SAMPLE EXTRACTION FORM

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.

Project No.(s)

100118096-
ML4144

18-0349

Non-Potable Water PFAS Analysis

QC

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CQ891PB-FS	06/05/18 SAS	NA	NA	NA	NA	NA	NA	NA
CQ892LCS-FS	06/05/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6227-FS	06/05/18 SAS	NA	NA	NA	NA	NA	NA	NA

Solvents/Reagent Preparations:

Name	ID	Expires	Lot No	Procedure	Comments
0.4% NH3 in Methanol	RP-180605-2	06/05/18	SHBG7156V	Per 100 mL, dilute 3.5 mL NH3 to 100 mL in Methanol	
0.4% NH3 in Methanol	RP-180605-2	06/05/18	177965	Per 100 mL, dilute 3.5 mL NH3 to 100 mL in Methanol	
Pre-packed SPE Column	RP-180605-5	06/06/18	003737320A	Pre-packed SPE Column	

Solvents/Reagents:



It can be done

BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

Project Title(s)CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.**Project No.(s)**100118096-
ML4144**18-0349**

Non-Potable Water PFAS Analysis QC

(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
CQ891PB-FS(3)	475	25	JW02	25	1	500	2.000	06/06/18 SAS	JCT
CQ892LCS-FS(3)	475	25	JW02	25	1	500	2.000	06/06/18 SAS	JCT
J6227-FS(3)	475	25	JW02	25	1	500	2.000	06/06/18 SAS	JCT

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JW02	Pipette	I0793912B

Extract Id:	Comments:
CQ891PB-FS	Samples reconstituted in 80/20 methanol/milli-q water

* - 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-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.(s)100118096-
ML4144**18-0349****Non-Potable Water PFAS Analysis****QC**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CQ891PB-FS	0	C	6/5/2018 2:00:00 AM	NA		NA	NA	1.000	1.000	06/05/18 SAS
CQ891PB-FS	2	--	6/5/2018 4:52:00 PM	CQ891PB-FS	0	10000	5000	2.000	2.000	06/05/18 SAS
CQ891PB-FS	3	--	6/5/2018 4:52:00 PM	CQ891PB-FS	0	10000	5000	2.000	2.000	06/05/18 SAS
CQ892LCS-FS	0	C	6/5/2018 2:00:00 AM	NA		NA	NA	1.000	1.000	06/05/18 SAS
CQ892LCS-FS	2	--	6/5/2018 4:52:00 PM	CQ892LCS-FS	0	10000	5000	2.000	2.000	06/05/18 SAS
CQ892LCS-FS	3	--	6/5/2018 4:52:00 PM	CQ892LCS-FS	0	10000	5000	2.000	2.000	06/05/18 SAS
J6227-FS	0	C	6/5/2018 2:00:00 AM	NA		NA	NA	1.000	1.000	06/05/18 SAS
J6227-FS	2	--	6/5/2018 4:52:00 PM	J6227-FS	0	10000	5000	2.000	2.000	06/05/18 SAS
J6227-FS	3	--	6/5/2018 4:52:00 PM	J6227-FS	0	10000	5000	2.000	2.000	06/05/18 SAS
Extract Id: CQ891PB-FS		Comments: Samples reconstituted in 80/20 methanol/milli-q water								

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-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.**Project No.(s)**100118096-
ML4144**18-0349****Non-Potable Water PFAS Analysis****QC**

Purpose:	LC-MS/MS TRANSFER	Last Activity:	Prep->Inst
Relinquished On/By:	Jun 6 2018 1:27PM SAS	Received On/By:	Jun 6 2018 3:30PM 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	CQ891PB-FS(3)	500	2	Intact	NA
2	CQ892LCS-FS(3)	500	2	Intact	NA
3	J6227-FS(3)	500	2	Intact	NA

Total Extracts:	3
------------------------	---



**BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM**

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.

Project No.(s)

100118096-
ML4144

18-0349

**Non-Potable Water PFAS Analysis
QC**

Entered By:

On:

Task Leader Approval:

On:

Supervisor Approval:

On:

PM Approval:

On:



BATTELLE - NORWELL OPERATIONS SAMPLE SPECIFIC COMMENTS

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.

Project No.(s)

100118096-
ML4144

18-0349

Non-Potable Water PFAS Analysis

QC

Sample ID:	Comment:	Date/Initials:
CQ891PB-FS	Sample extraction began at 2:34pm for all samples.	06/05/18 SAS
CQ891PB-FS	Sample extraction ended at 3:32pm	06/05/18 SAS
CQ892LCS-FS	Sample extraction ended at 3:34pm	06/05/18 SAS
J6227-FS	Sample extraction ended at 3:26pm	06/05/18 SAS

Analytical Calibrations

Sequence Report

Created with Analyst Reporter
Printed: 14/06/2018 2:05:55 PM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		6/7/2018 8:21:48 PM	5-0369.dam	6072018.wiff
2	JV20	L1	6/7/2018 8:32:29 PM	5-0369.dam	6072018.wiff
3	JV21	L2	6/7/2018 8:43:10 PM	5-0369.dam	6072018.wiff
4	JV22	L3	6/7/2018 8:53:52 PM	5-0369.dam	6072018.wiff
5	JV23	L4	6/7/2018 9:04:34 PM	5-0369.dam	6072018.wiff
6	JV24	L5	6/7/2018 9:15:15 PM	5-0369.dam	6072018.wiff
7	JV25	L6	6/7/2018 9:25:56 PM	5-0369.dam	6072018.wiff
8	JV26	L7	6/7/2018 9:36:37 PM	5-0369.dam	6072018.wiff
9	JV27	L8	6/7/2018 9:47:16 PM	5-0369.dam	6072018.wiff
10	JV28	L9	6/7/2018 9:57:58 PM	5-0369.dam	6072018.wiff
11	JV05 IB	Instrument Blank	6/7/2018 10:08:39 PM	5-0369.dam	6072018.wiff
12	JW32 ICC	ICC	6/7/2018 10:19:21 PM	5-0369.dam	6072018.wiff
13	JV16 Branch	Branch Standard	6/7/2018 10:30:02 PM	5-0369.dam	6072018.wiff
14	MeOH		6/7/2018 10:40:43 PM	5-0369.dam	6072018.wiff
21	CQ891PB-FS(3)	Procedural Blank	6/8/2018 12:16:53 AM	5-0369.dam	6072018.wiff
22	CQ892LCS-FS(3)	Laboratory Control Sample	6/8/2018 12:27:34 AM	5-0369.dam	6072018.wiff
23	J6227-FS(3)	09-FRB-051718	6/8/2018 12:38:15 AM	5-0369.dam	6072018.wiff
24	MeOH		6/8/2018 12:48:57 AM	5-0369.dam	6072018.wiff
8	JV26 CCV	CCV	6/8/2018 12:59:37 AM	5-0369.dam	6072018.wiff



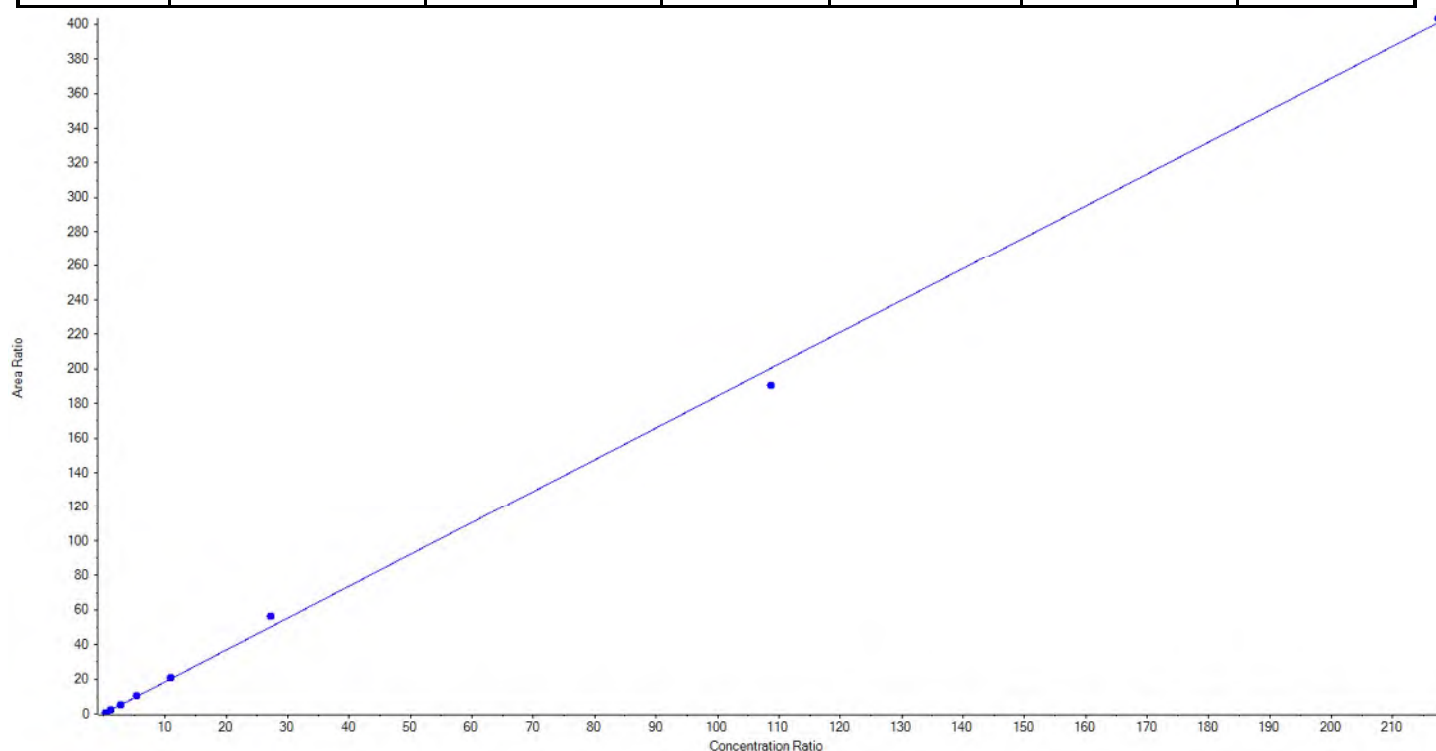
Calibration Summary Report

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Analyte Name	PFBS_1	Data File	6072018.wiff
MRM Transition	298.9 / 80.0	Result Table	18-0349_BASE
Internal Standard	13C3-PFBS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 1.84377 x + 0.04421$ ($r = 0.99889$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	22.943131	90.9
3	JV21	L2	True	50.50	39.339005	77.9
4	JV22	L3	True	101.00	114.073097	112.9
5	JV23	L4	True	252.50	259.829558	102.9
6	JV24	L5	True	505.00	513.918478	101.8
7	JV25	L6	True	1010.00	1063.678573	105.3
8	JV26	L7	True	2525.00	2847.628626	112.8
9	JV27	L8	True	10100.00	9589.730089	95.0
10	JV28	L9	True	20200.00	20318.109443	100.6





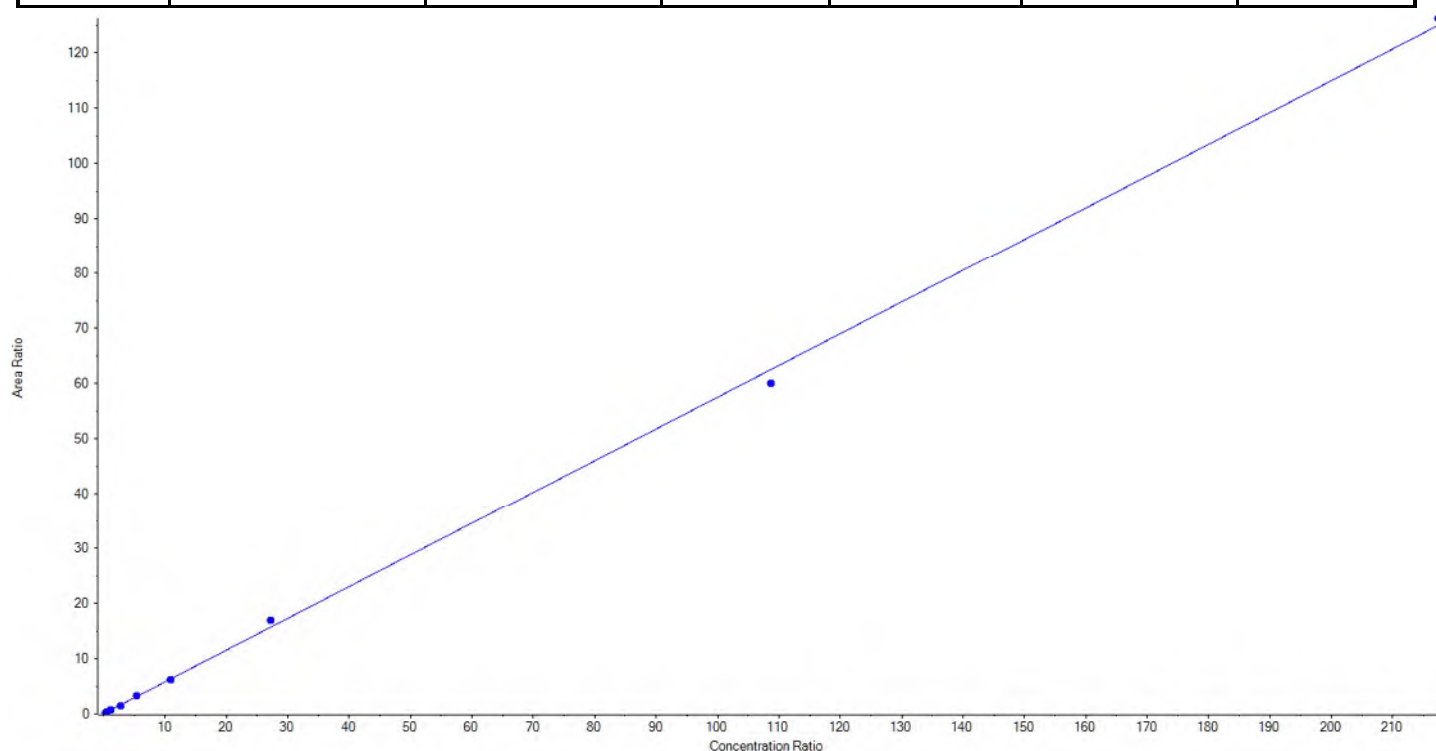
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Analyte Name	PFBS_2	Data File	6072018.wiff
MRM Transition	298.9 / 99.0	Result Table	18-0349_BASE
Internal Standard	13C3-PFBS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.57485x + 0.03128$ ($r = 0.99948$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	24.912423	98.7
3	JV21	L2	True	50.50	48.712633	96.5
4	JV22	L3	True	101.00	102.205673	101.2
5	JV23	L4	True	252.50	244.309260	96.8
6	JV24	L5	True	505.00	520.831671	103.1
7	JV25	L6	True	1010.00	995.650839	98.6
8	JV26	L7	True	2525.00	2731.008942	108.2
9	JV27	L8	True	10100.00	9703.159053	96.1
10	JV28	L9	True	20200.00	20398.459505	101.0





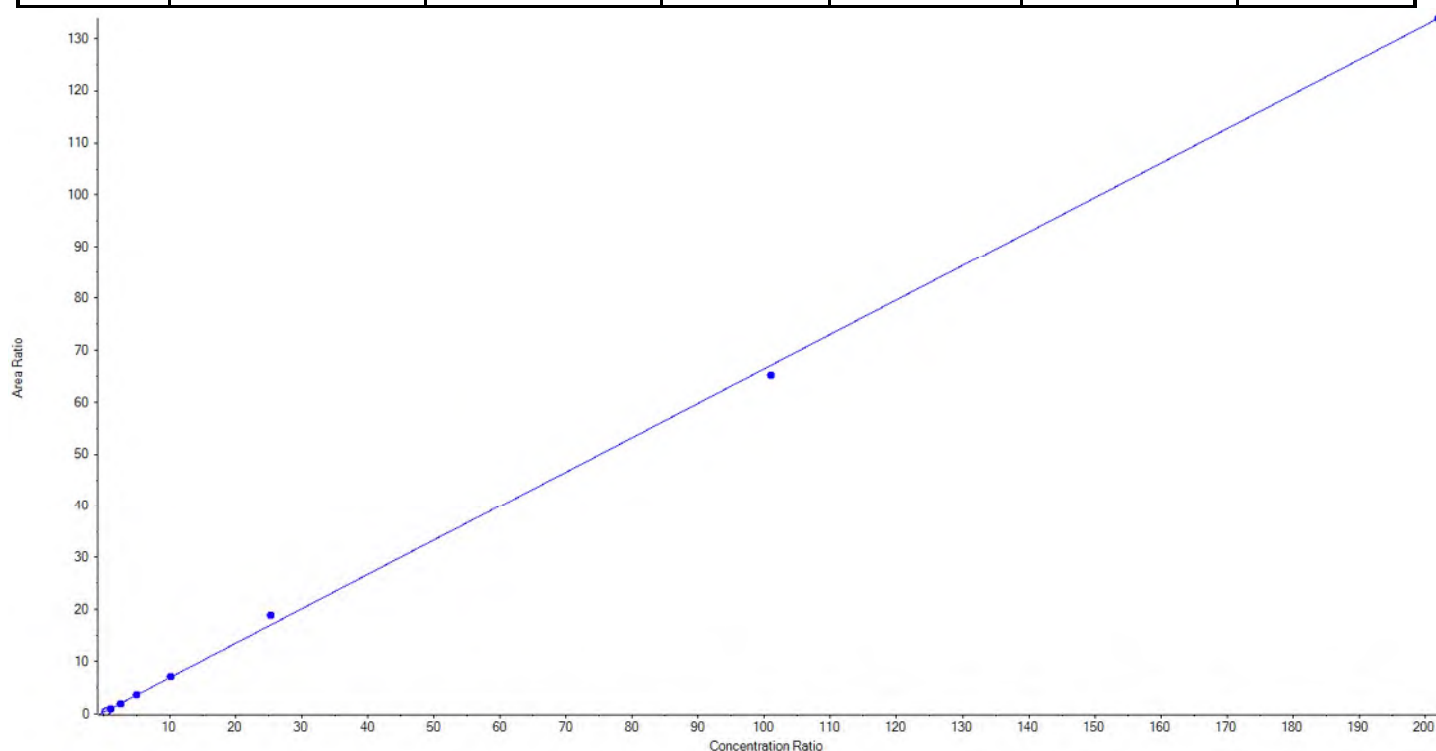
Calibration Summary Report

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Analyte Name	PFHxA_1	Data File	6072018.wiff
MRM Transition	313.0 / 269.0	Result Table	18-0349_BASE
Internal Standard	13C5-PFHxA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.66122x + 0.31031$ ($r = 0.99938$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.25	2.311214	9.2
3	JV21	L2	False	50.50	17.517759	34.7
4	JV22	L3	True	101.00	89.976971	89.1
5	JV23	L4	True	252.50	250.174993	99.1
6	JV24	L5	True	505.00	515.008381	102.0
7	JV25	L6	True	1010.00	1028.403785	101.8
8	JV26	L7	True	2525.00	2799.406639	110.9
9	JV27	L8	True	10100.00	9816.413143	97.2
10	JV28	L9	True	20200.00	20194.116089	100.0





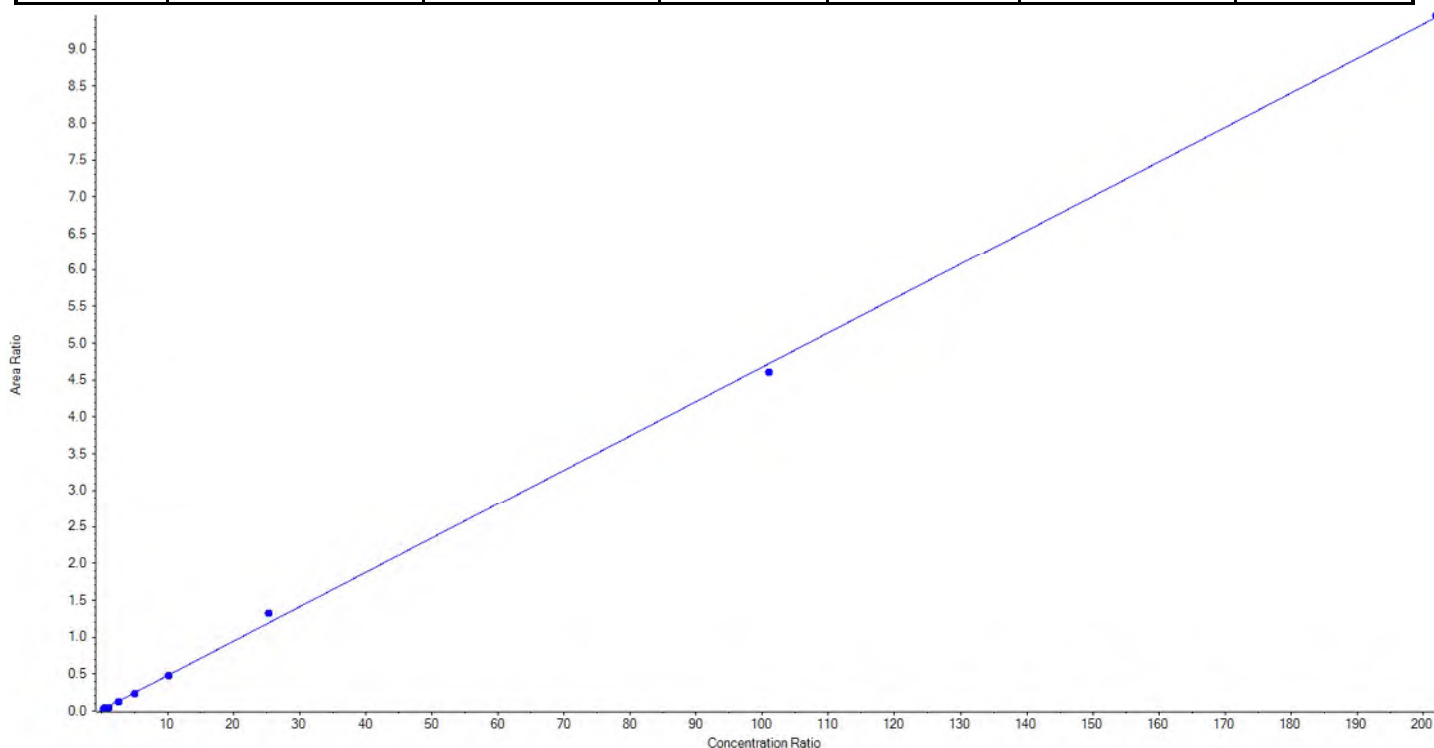
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Analyte Name	PFHxA_2	Data File	6072018.wiff
MRM Transition	313.0 / 119.0	Result Table	18-0349_BASE
Internal Standard	13C5-PFHxA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.04664 x + 0.01259$ ($r = 0.99919$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	31.161550	123.4
3	JV21	L2	True	50.50	57.639587	114.1
4	JV22	L3	True	101.00	73.100366	72.4
5	JV23	L4	True	252.50	222.023864	87.9
6	JV24	L5	True	505.00	472.175740	93.5
7	JV25	L6	True	1010.00	1006.463495	99.7
8	JV26	L7	True	2525.00	2809.105294	111.3
9	JV27	L8	True	10100.00	9846.220727	97.5
10	JV28	L9	True	20200.00	20251.359377	100.3





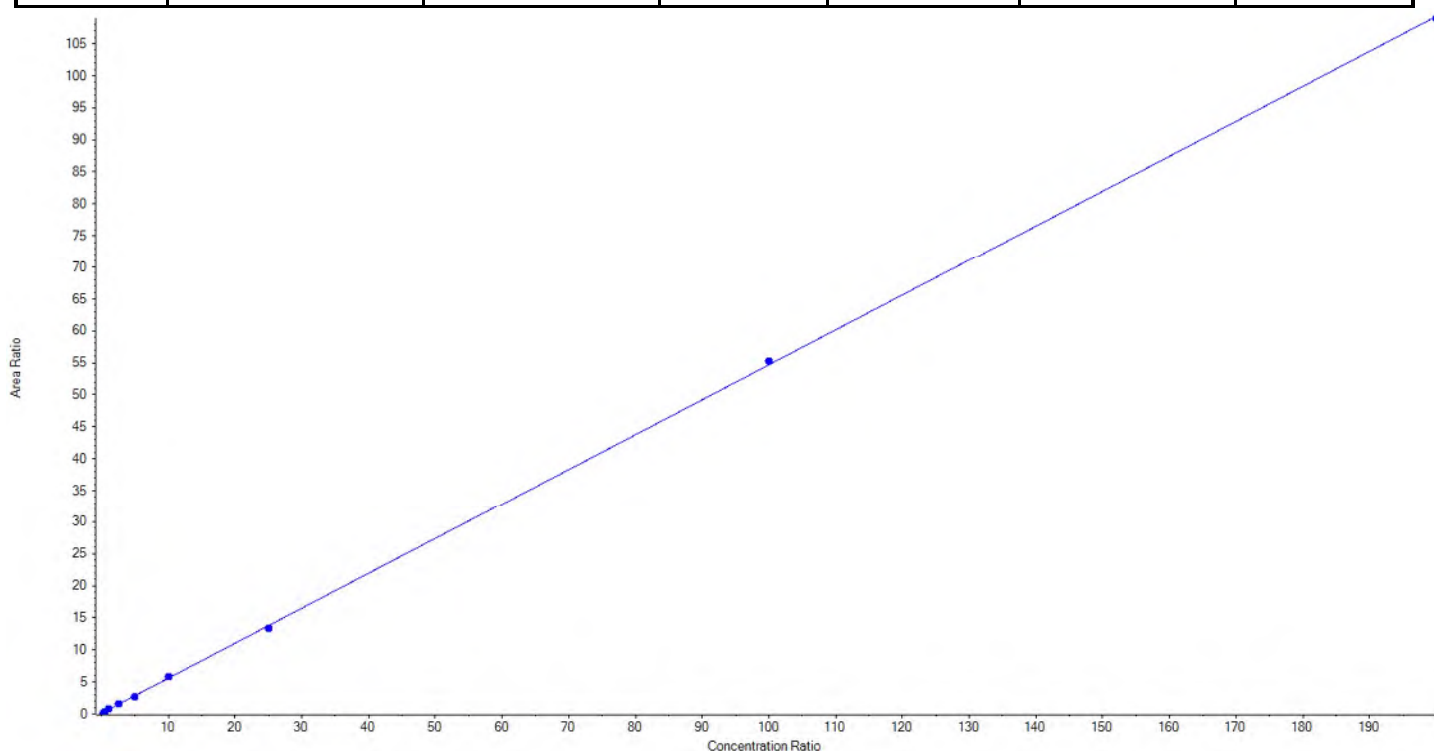
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Analyte Name	PFHpA_1	Data File	6072018.wiff
MRM Transition	363.0 / 319.0	Result Table	18-0349_BASE
Internal Standard	13C4-PFHpA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.54584x + 0.10936$ ($r = 0.99979$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	21.783097	87.1
3	JV21	L2	True	50.00	48.775698	97.6
4	JV22	L3	True	100.00	117.245676	117.3
5	JV23	L4	True	250.00	258.749918	103.5
6	JV24	L5	True	500.00	455.578080	91.1
7	JV25	L6	True	1000.00	1056.331419	105.6
8	JV26	L7	True	2500.00	2428.055472	97.1
9	JV27	L8	True	10000.00	10101.438274	101.0
10	JV28	L9	True	20000.00	19937.042365	99.7





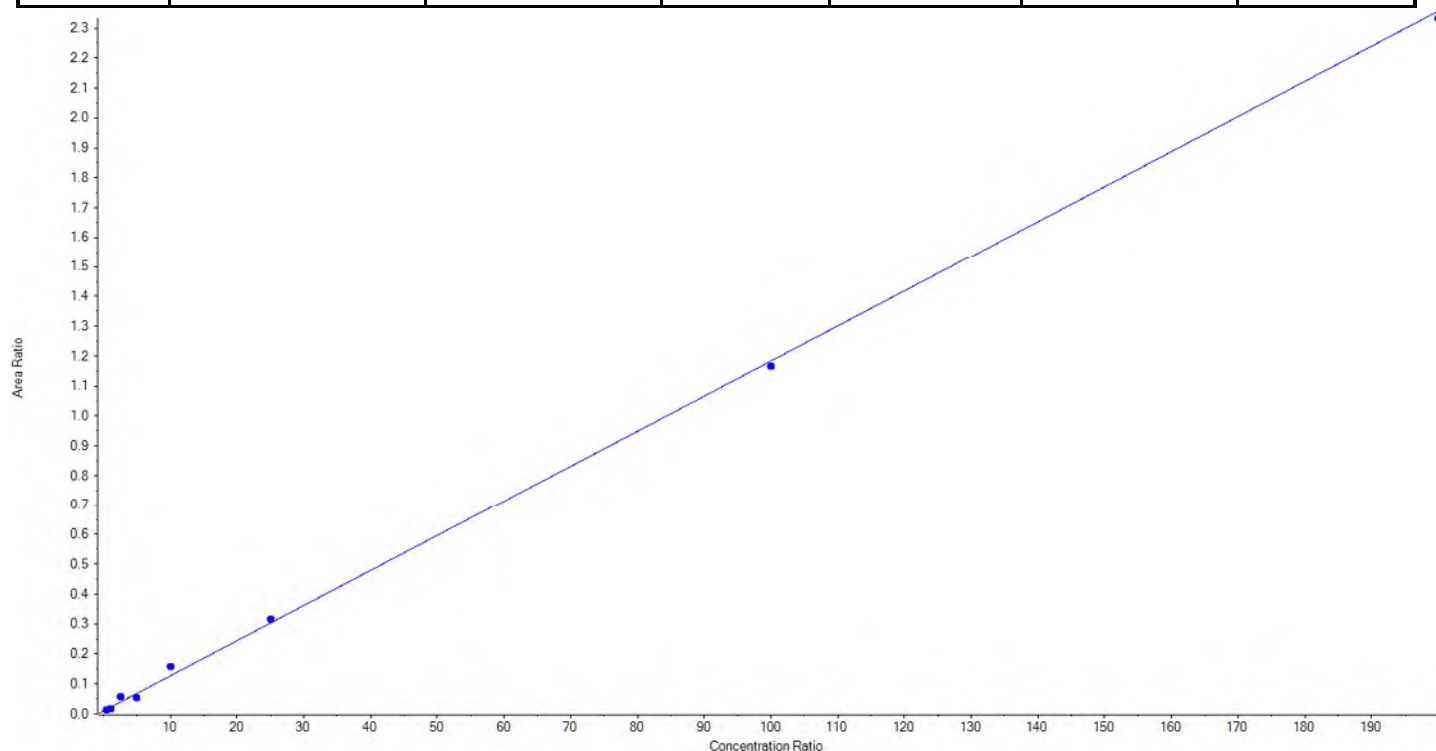
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Analyte Name	PFHpA_2	Data File	6072018.wiff
MRM Transition	363.0 / 169.0	Result Table	18-0349_BASE
Internal Standard	13C4-PFHpA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.01174 x + 0.00986$ ($r = 0.99620$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	N/A	N/A
3	JV21	L2	True	50.00	35.769640	71.5
4	JV22	L3	True	100.00	59.372590	59.4
5	JV23	L4	True	250.00	415.041377	166.0
6	JV24	L5	True	500.00	367.816763	73.6
7	JV25	L6	True	1000.00	1275.488671	127.6
8	JV26	L7	True	2500.00	2614.276723	104.6
9	JV27	L8	True	10000.00	9845.423817	98.5
10	JV28	L9	True	20000.00	19786.810418	98.9





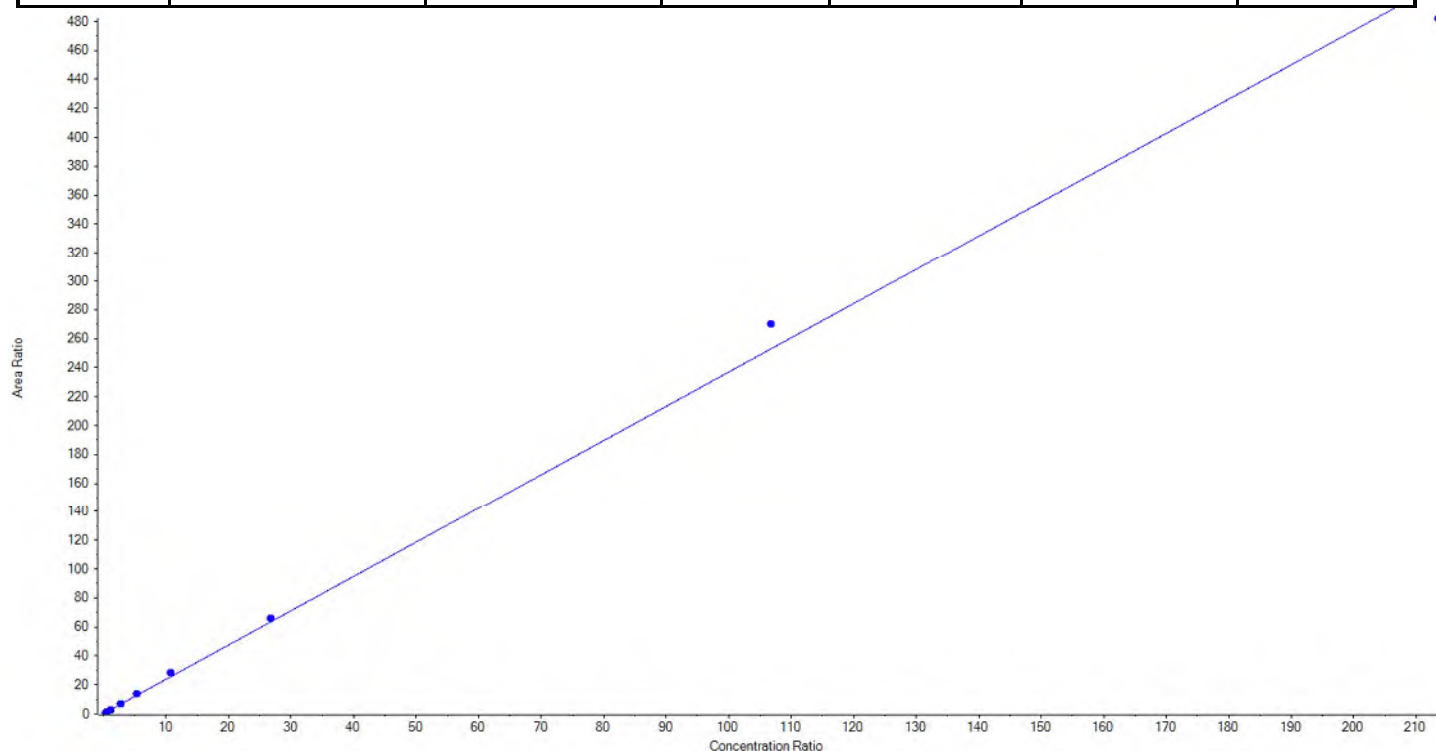
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Analyte Name	PFHxS_1	Data File	6072018.wiff
MRM Transition	399.0 / 80.0	Result Table	18-0349_BASE
Internal Standard	13C3-PFHxS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 2.36763 x + 0.21796$ ($r = 0.99831$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	17.912475	70.9
3	JV21	L2	True	50.50	53.488051	105.9
4	JV22	L3	True	101.00	97.481687	96.5
5	JV23	L4	True	252.50	261.185199	103.4
6	JV24	L5	True	505.00	534.660086	105.9
7	JV25	L6	True	1010.00	1117.358473	110.6
8	JV26	L7	True	2525.00	2637.640639	104.5
9	JV27	L8	True	10100.00	10799.425210	106.9
10	JV28	L9	True	20200.00	19250.098181	95.3





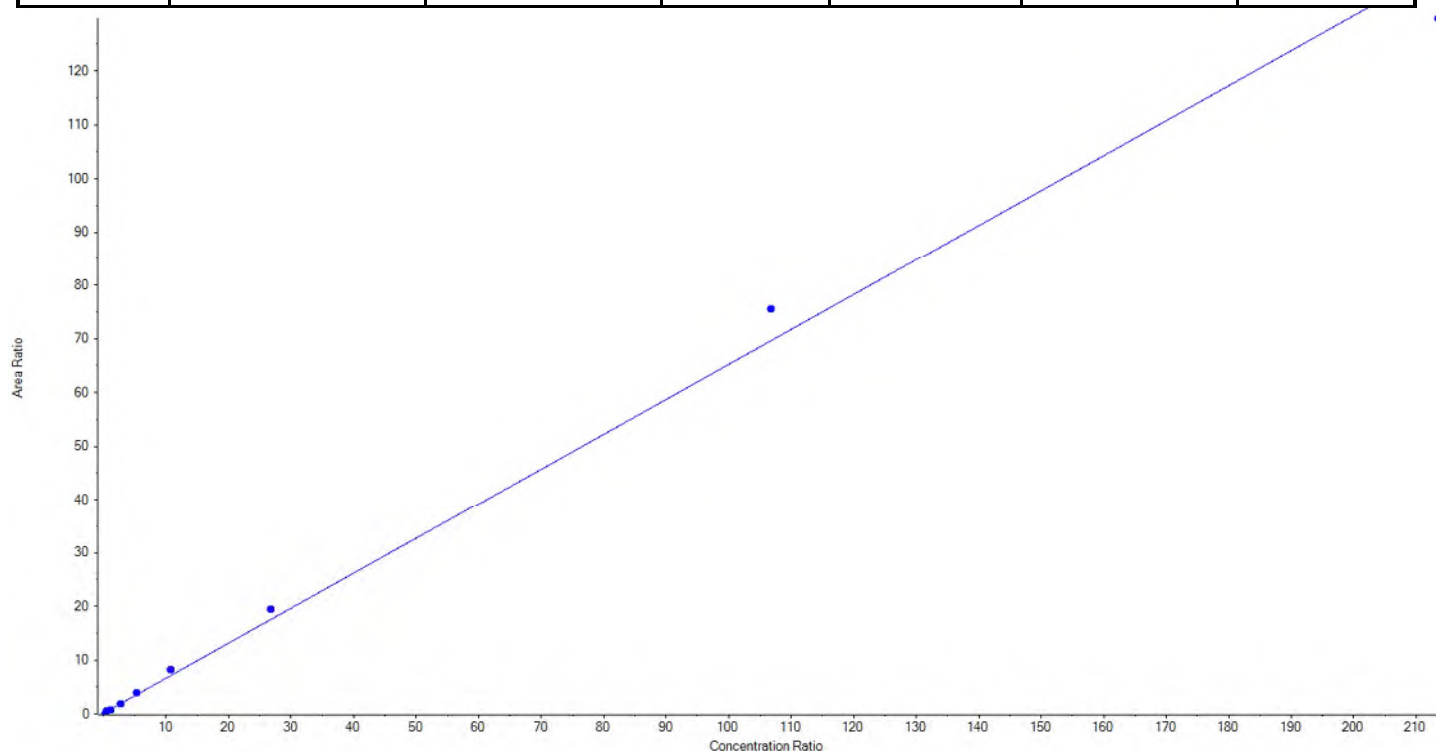
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Analyte Name	PFHxS_2	Data File	6072018.wiff
MRM Transition	399.0 / 99.0	Result Table	18-0349_BASE
Internal Standard	13C3-PFHxS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.65087x + 0.13170$ ($r = 0.99653$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	15.598001	61.8
3	JV21	L2	True	50.50	52.385168	103.7
4	JV22	L3	True	101.00	96.661530	95.7
5	JV23	L4	True	252.50	253.283409	100.3
6	JV24	L5	True	505.00	547.842587	108.5
7	JV25	L6	True	1010.00	1179.717216	116.8
8	JV26	L7	True	2525.00	2809.665015	111.3
9	JV27	L8	True	10100.00	10973.087905	108.6
10	JV28	L9	True	20200.00	18841.009169	93.3





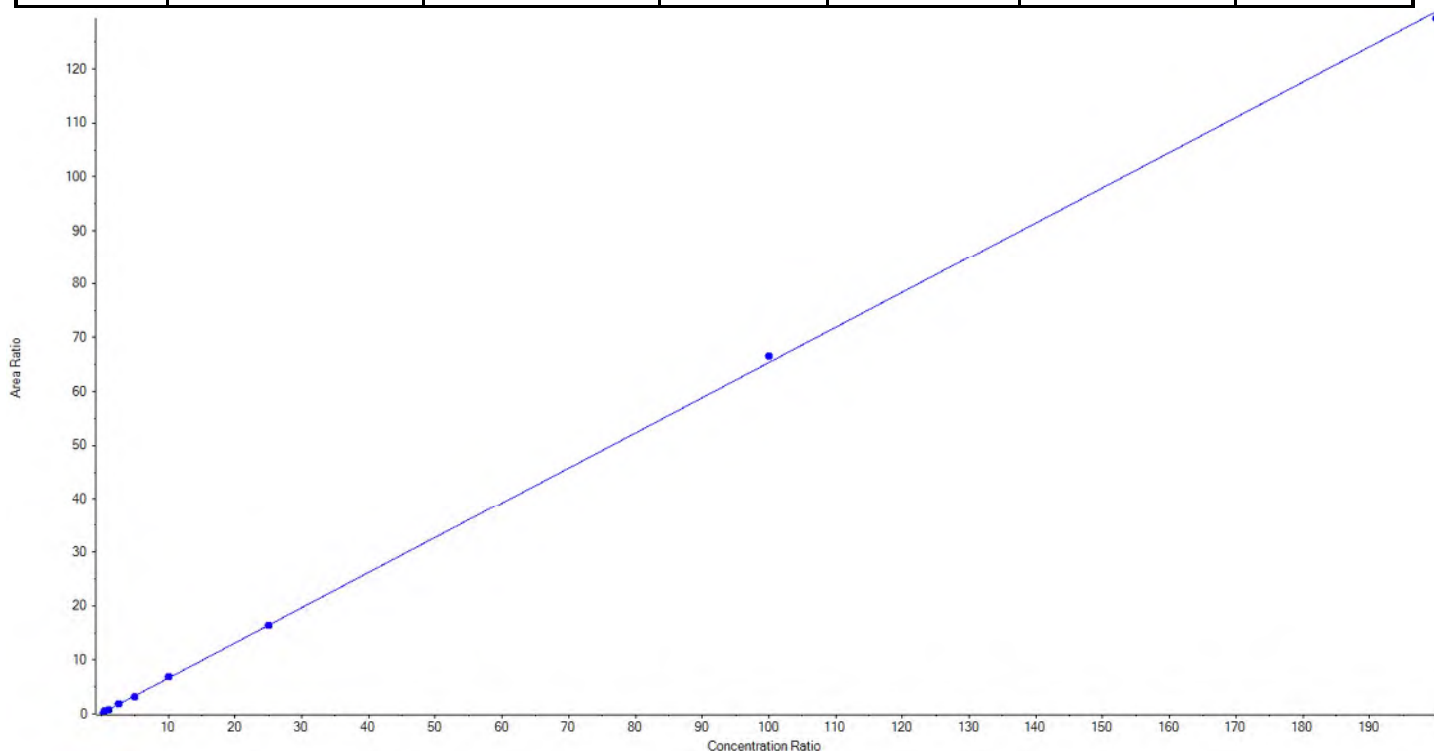
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Analyte Name	PFOA_1	Data File	6072018.wiff
MRM Transition	413.0 / 369.0	Result Table	18-0349_BASE
Internal Standard	13C8-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.65267 x + 0.09107$ ($r = 0.99980$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	18.098123	72.4
3	JV21	L2	True	50.00	61.859763	123.7
4	JV22	L3	True	100.00	100.186034	100.2
5	JV23	L4	True	250.00	263.728976	105.5
6	JV24	L5	True	500.00	471.973791	94.4
7	JV25	L6	True	1000.00	1034.220060	103.4
8	JV26	L7	True	2500.00	2488.582766	99.5
9	JV27	L8	True	10000.00	10183.705964	101.8
10	JV28	L9	True	20000.00	19802.644523	99.0





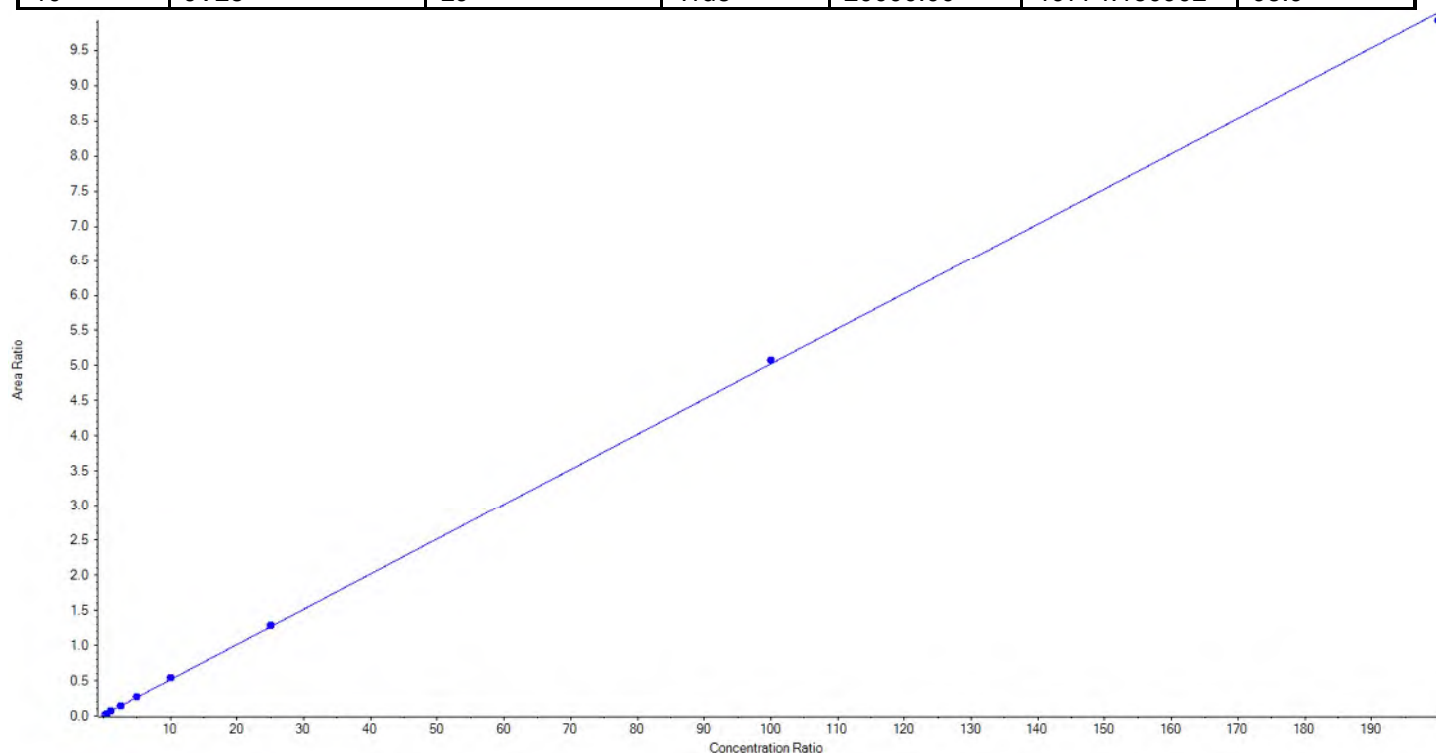
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Analyte Name	PFOA_2	Data File	6072018.wiff
MRM Transition	413.0 / 169.0	Result Table	18-0349_BASE
Internal Standard	13C8-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.05013x + 0.01244$ ($r = 0.99981$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.00	< 0	N/A
3	JV21	L2	True	50.00	37.745363	75.5
4	JV22	L3	True	100.00	106.307797	106.3
5	JV23	L4	True	250.00	271.408103	108.6
6	JV24	L5	True	500.00	516.356573	103.3
7	JV25	L6	True	1000.00	1051.550180	105.2
8	JV26	L7	True	2500.00	2530.541296	101.2
9	JV27	L8	True	10000.00	10111.959787	101.1
10	JV28	L9	True	20000.00	19774.130902	98.9





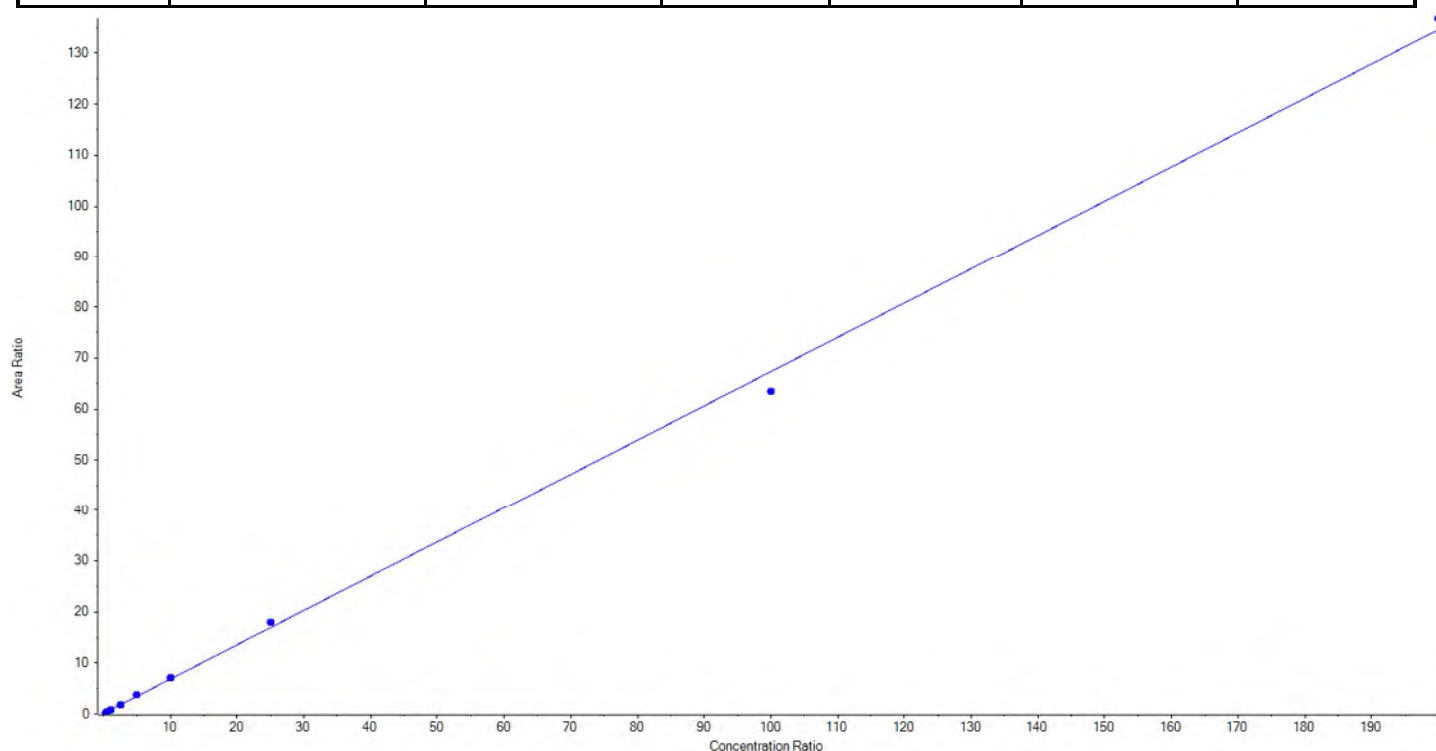
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Analyte Name	PFNA_1	Data File	6072018.wiff
MRM Transition	463.0 / 419.0	Result Table	18-0349_BASE
Internal Standard	13C9-PFNA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.67253x + 0.08413$ ($r = 0.99919$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	20.380243	81.5
3	JV21	L2	True	50.00	46.646813	93.3
4	JV22	L3	True	100.00	104.458467	104.5
5	JV23	L4	True	250.00	263.701795	105.5
6	JV24	L5	True	500.00	551.318989	110.3
7	JV25	L6	True	1000.00	1029.603636	103.0
8	JV26	L7	True	2500.00	2651.434689	106.1
9	JV27	L8	True	10000.00	9435.478644	94.4
10	JV28	L9	True	20000.00	20321.976724	101.6





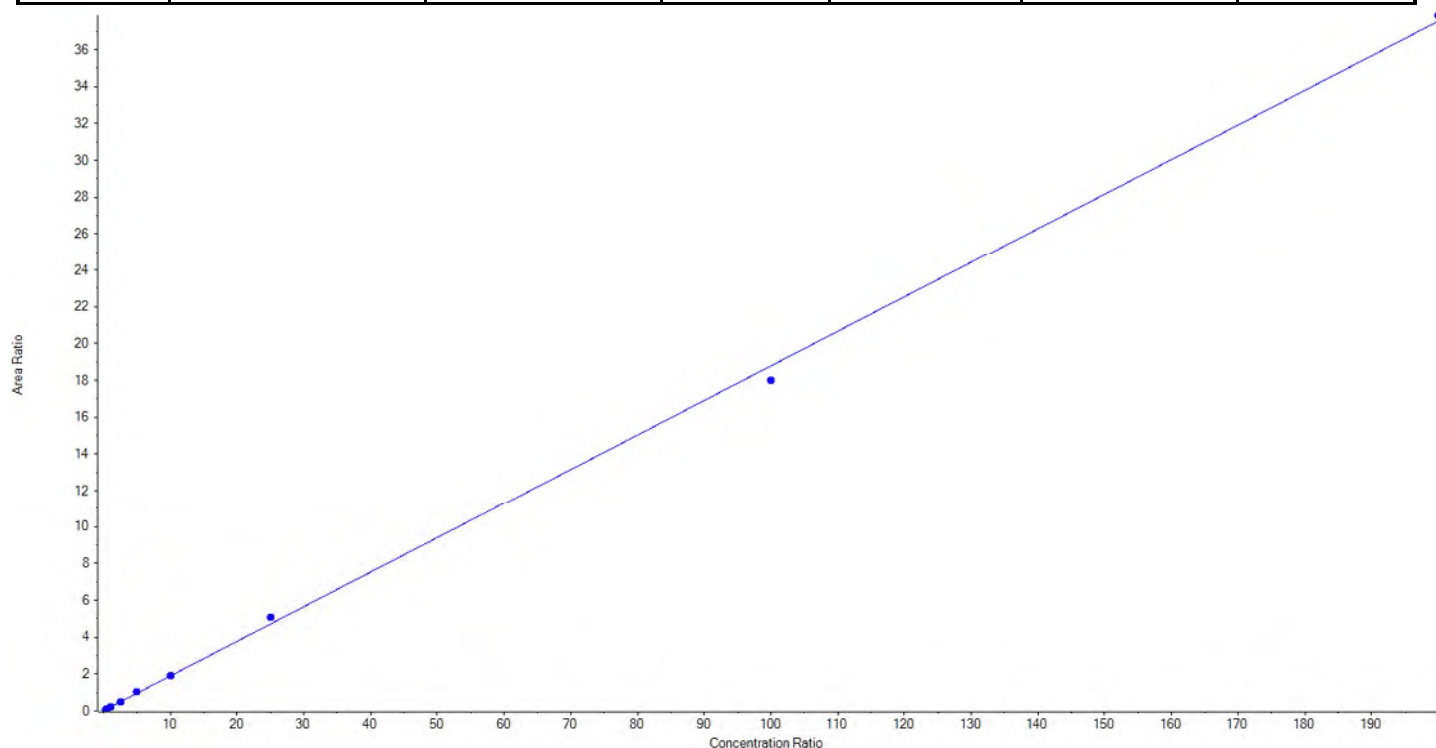
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Analyte Name	PFNA_2	Data File	6072018.wiff
MRM Transition	463.0 / 219.0	Result Table	18-0349_BASE
Internal Standard	13C9-PFNA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.18770 x + 0.01753$ ($r = 0.99936$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	19.401848	77.6
3	JV21	L2	True	50.00	48.764204	97.5
4	JV22	L3	True	100.00	110.562507	110.6
5	JV23	L4	True	250.00	248.793870	99.5
6	JV24	L5	True	500.00	547.564450	109.5
7	JV25	L6	True	1000.00	1004.923499	100.5
8	JV26	L7	True	2500.00	2704.608737	108.2
9	JV27	L8	True	10000.00	9578.530176	95.8
10	JV28	L9	True	20000.00	20161.850707	100.8





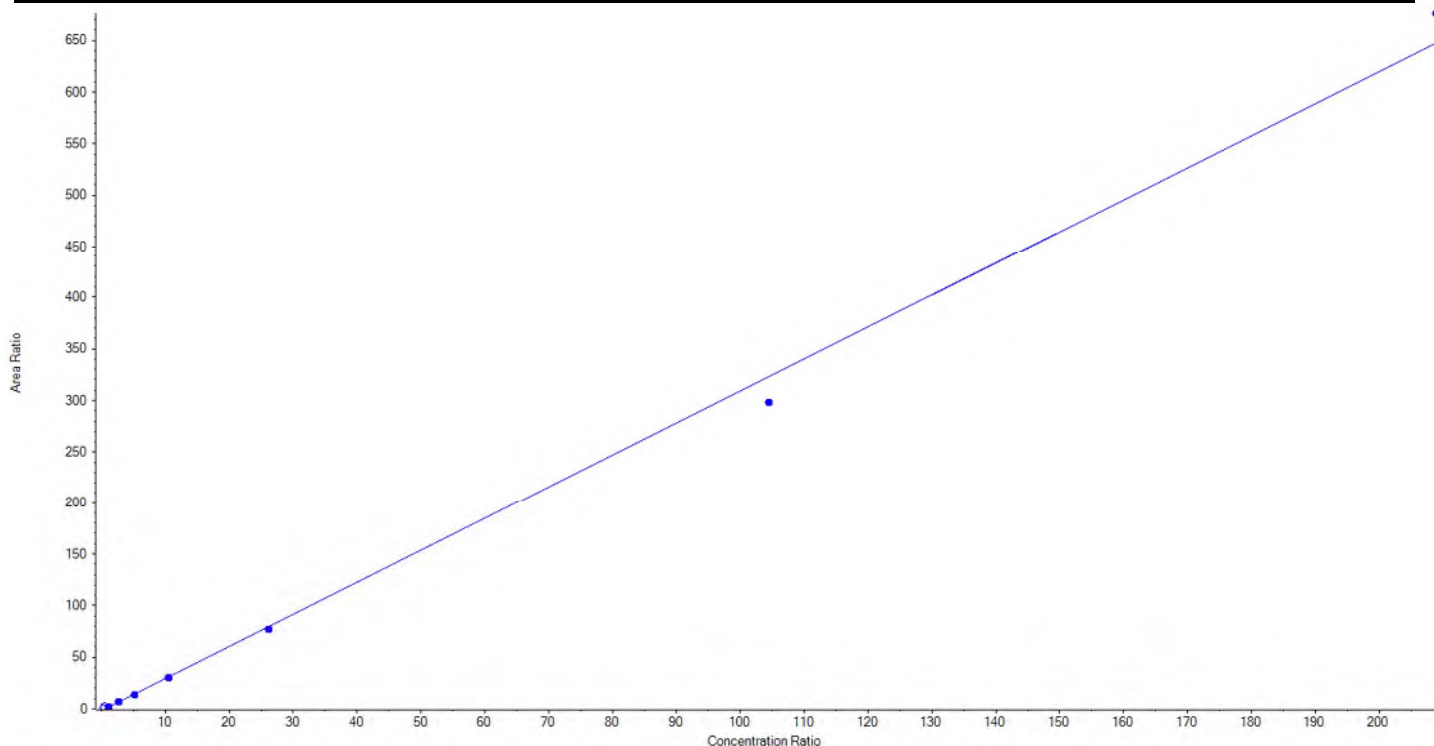
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Analyte Name	PFOS_1	Data File	6072018.wiff
MRM Transition	499.0 / 80.0	Result Table	18-0349_BASE
Internal Standard	13C8-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 3.10532 x + -1.48782$ ($r = 0.99837$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.00	50.138640	200.6
3	JV21	L2	False	50.00	92.166004	184.3
4	JV22	L3	True	100.00	108.959361	109.0
5	JV23	L4	True	250.00	263.794339	105.5
6	JV24	L5	True	500.00	471.261790	94.3
7	JV25	L6	True	1000.00	982.909786	98.3
8	JV26	L7	True	2500.00	2404.311359	96.2
9	JV27	L8	True	10000.00	9242.659160	92.4
10	JV28	L9	True	20000.00	20876.104205	104.4





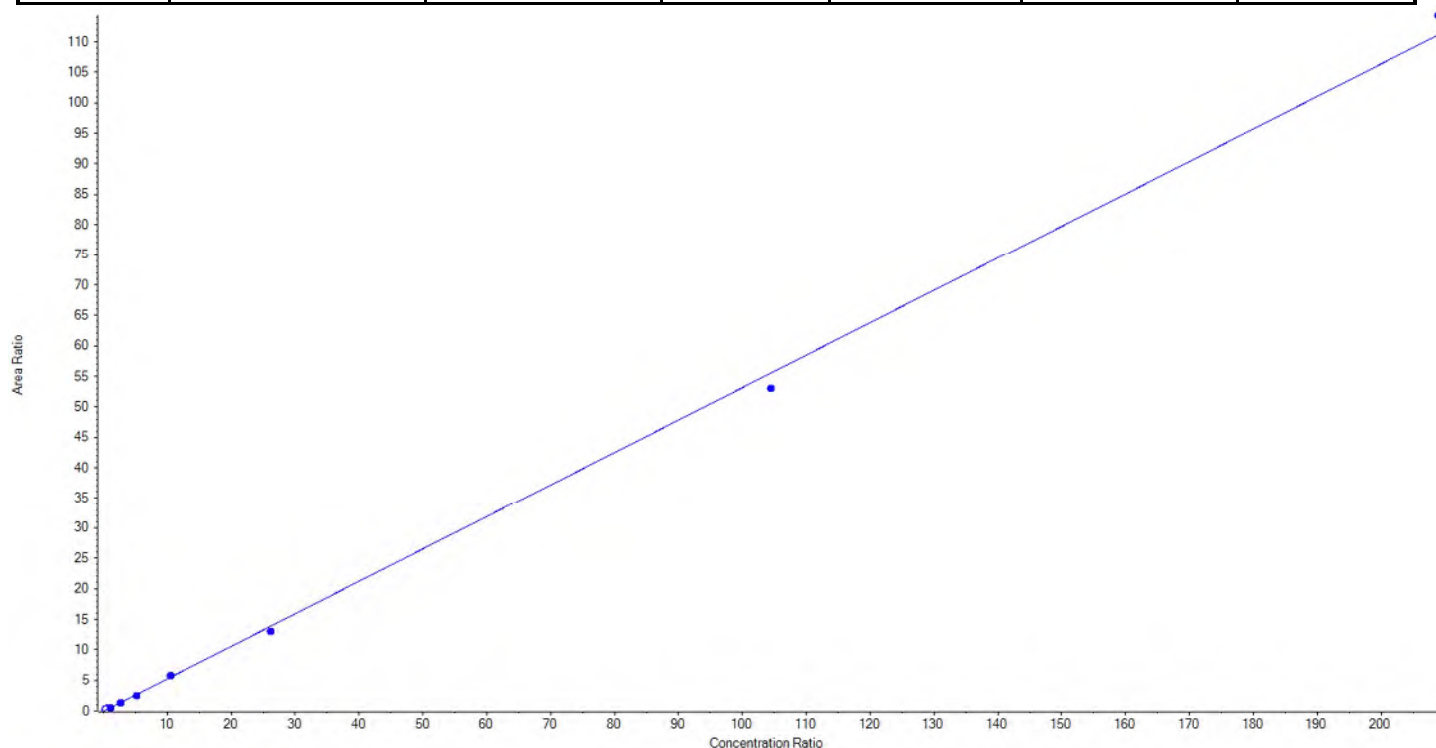
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Analyte Name	PFOS_2	Data File	6072018.wiff
MRM Transition	499.0 / 99.0	Result Table	18-0349_BASE
Internal Standard	13C8-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.53212 x + -0.07235$ ($r = 0.99923$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.00	35.731144	142.9
3	JV21	L2	False	50.00	84.818722	169.6
4	JV22	L3	True	100.00	105.033358	105.0
5	JV23	L4	True	250.00	259.538899	103.8
6	JV24	L5	True	500.00	471.040056	94.2
7	JV25	L6	True	1000.00	1043.370013	104.3
8	JV26	L7	True	2500.00	2357.552928	94.3
9	JV27	L8	True	10000.00	9547.325858	95.5
10	JV28	L9	True	20000.00	20566.138888	102.8





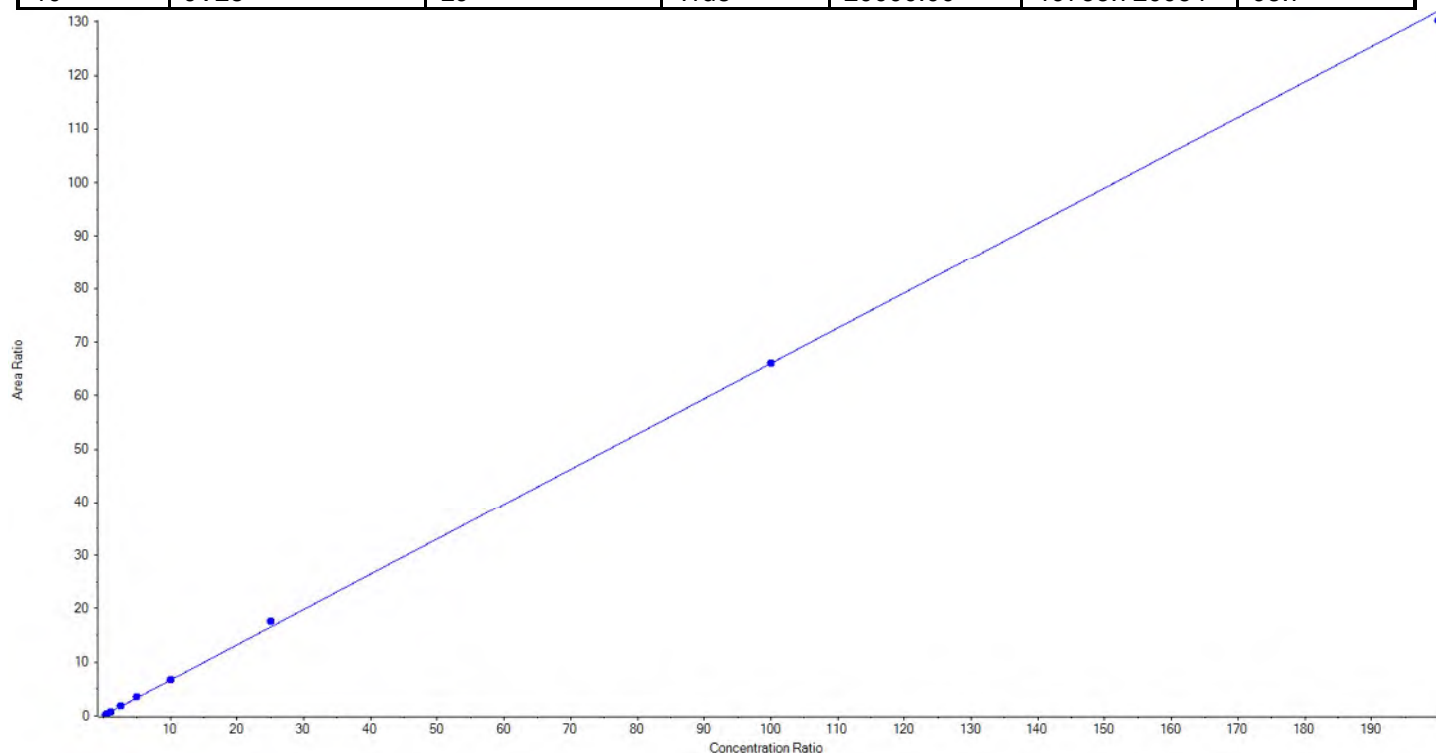
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Analyte Name	PFDA_1	Data File	6072018.wiff
MRM Transition	513.0 / 469.0	Result Table	18-0349_BASE
Internal Standard	13C6-PFDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.65956x + 0.06191$ ($r = 0.99963$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	21.443438	85.8
3	JV21	L2	True	50.00	39.045512	78.1
4	JV22	L3	True	100.00	114.963867	115.0
5	JV23	L4	True	250.00	265.515260	106.2
6	JV24	L5	True	500.00	532.287853	106.5
7	JV25	L6	True	1000.00	1027.599212	102.8
8	JV26	L7	True	2500.00	2672.830375	106.9
9	JV27	L8	True	10000.00	10015.594449	100.2
10	JV28	L9	True	20000.00	19735.720034	98.7





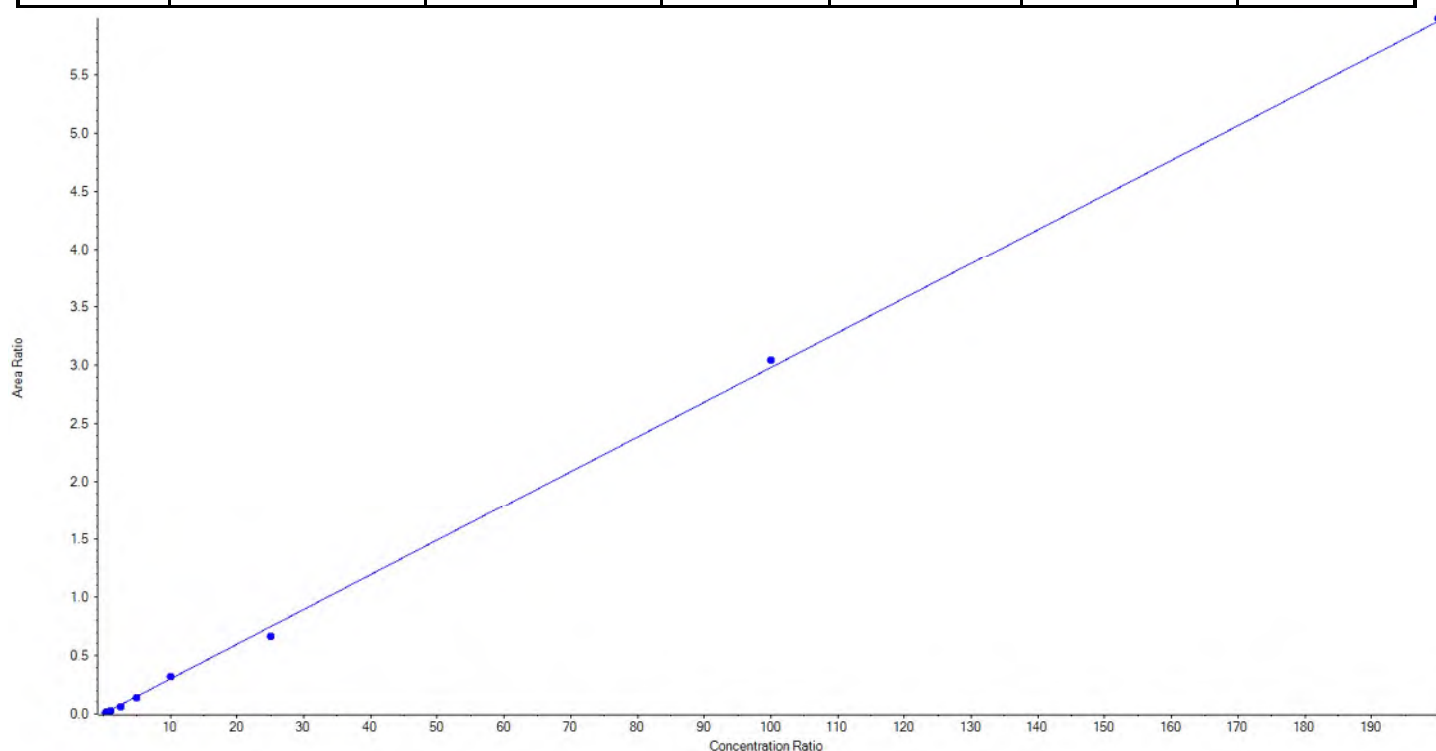
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Analyte Name	PFDA_2	Data File	6072018.wiff
MRM Transition	513.0 / 219.0	Result Table	18-0349_BASE
Internal Standard	13C6-PFDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.02979x + 0.00124$ ($r = 0.99918$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	31.548423	126.2
3	JV21	L2	True	50.00	52.220603	104.4
4	JV22	L3	True	100.00	95.565140	95.6
5	JV23	L4	True	250.00	207.658078	83.1
6	JV24	L5	True	500.00	464.804744	93.0
7	JV25	L6	True	1000.00	1068.313446	106.8
8	JV26	L7	True	2500.00	2209.453678	88.4
9	JV27	L8	True	10000.00	10217.822383	102.2
10	JV28	L9	True	20000.00	20077.613505	100.4





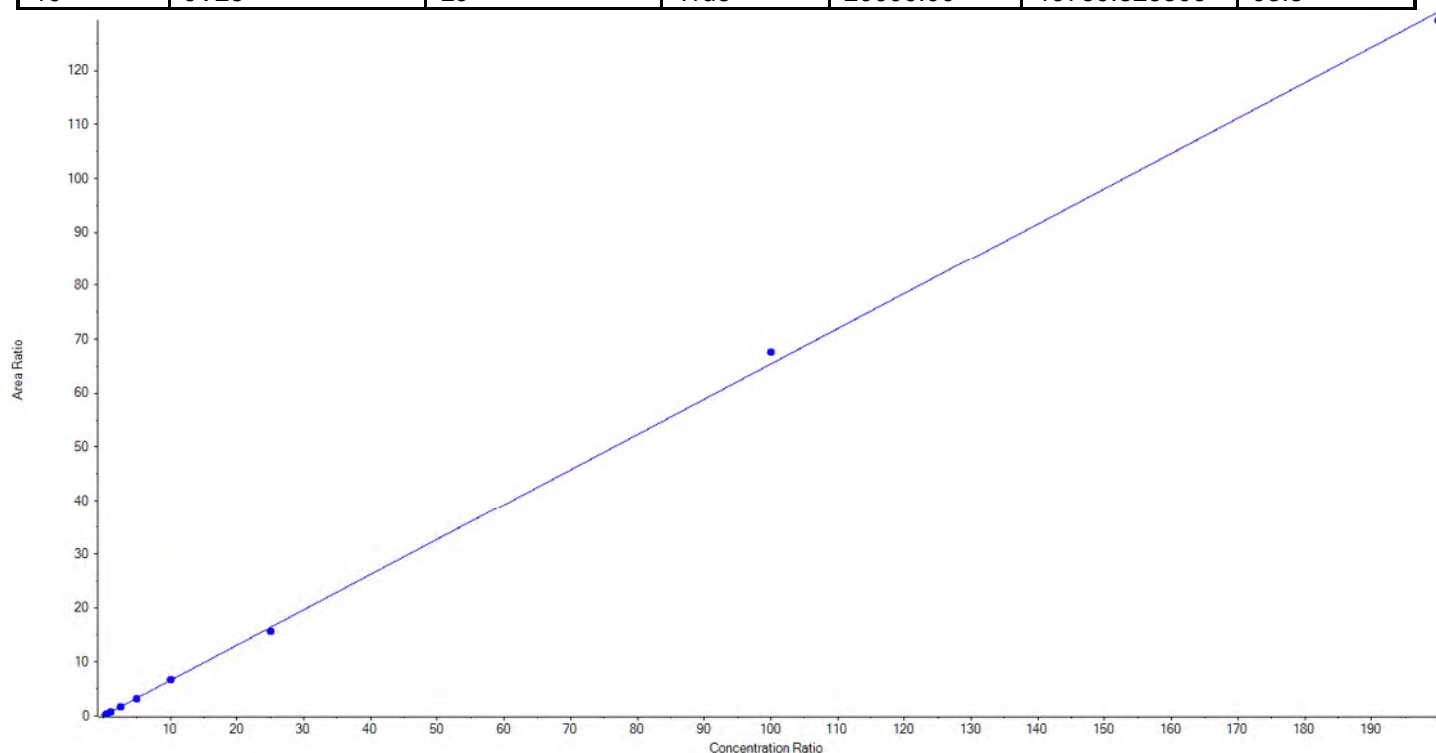
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Analyte Name	PFUnA_1	Data File	6072018.wiff
MRM Transition	563.0 / 519.0	Result Table	18-0349_BASE
Internal Standard	13C7-PFUnA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.65386x + 0.02507$ ($r = 0.99969$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	25.036894	100.2
3	JV21	L2	True	50.00	50.021157	100.0
4	JV22	L3	True	100.00	105.372507	105.4
5	JV23	L4	True	250.00	245.247105	98.1
6	JV24	L5	True	500.00	473.779904	94.8
7	JV25	L6	True	1000.00	1035.275441	103.5
8	JV26	L7	True	2500.00	2398.389870	95.9
9	JV27	L8	True	10000.00	10332.051319	103.3
10	JV28	L9	True	20000.00	19759.825803	98.8





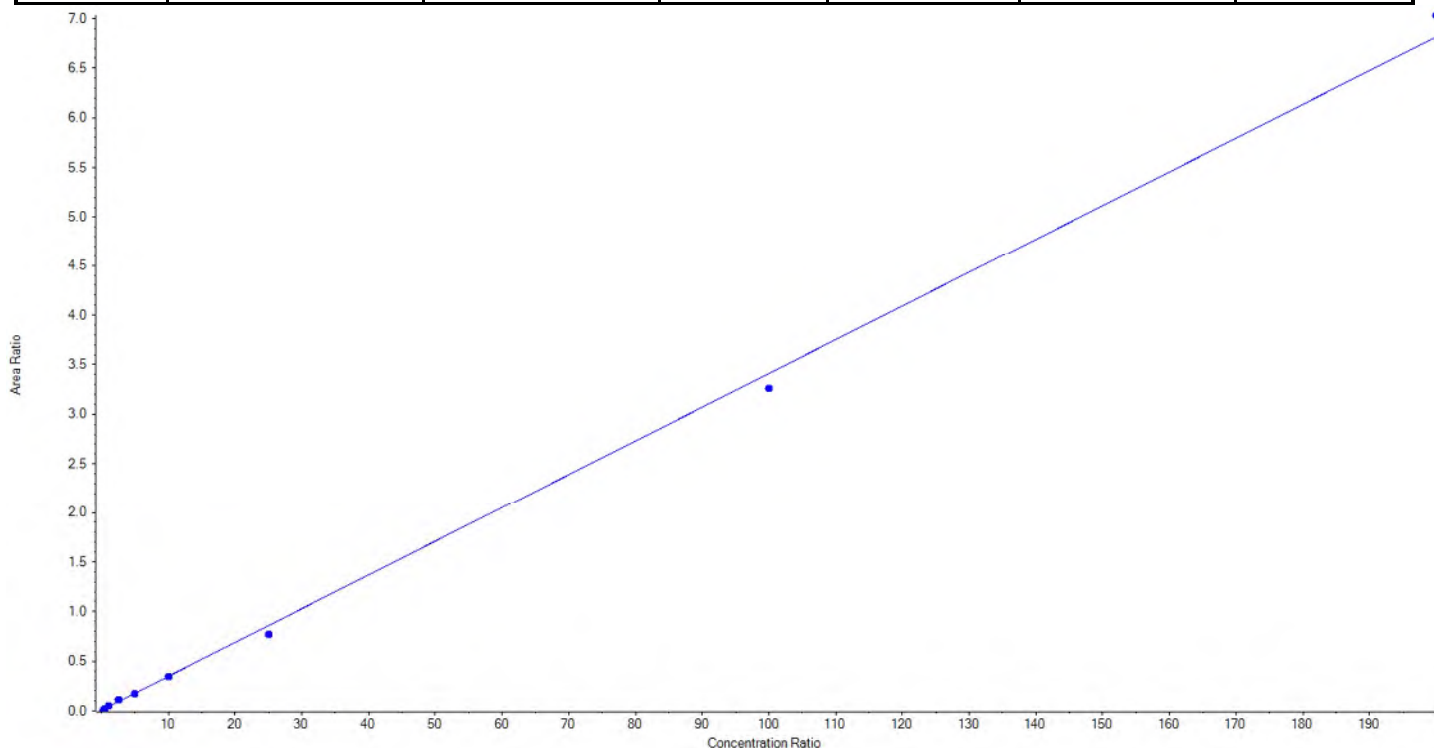
Calibration Summary Report

Created with Analyst Reporter
Printed: 14/06/2018 3:11:23 PM

Analyte Name	PFUnA_2	Data File	6072018.wiff
MRM Transition	563.0 / 269.0	Result Table	18-0349_BASE
Internal Standard	13C7-PFUnA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.03405 x + 0.00735$ ($r = 0.99879$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	22.422464	89.7
3	JV21	L2	True	50.00	40.513453	81.0
4	JV22	L3	True	100.00	118.927460	118.9
5	JV23	L4	True	250.00	306.872947	122.8
6	JV24	L5	True	500.00	497.879911	99.6
7	JV25	L6	True	1000.00	991.015248	99.1
8	JV26	L7	True	2500.00	2252.669746	90.1
9	JV27	L8	True	10000.00	9569.761599	95.7
10	JV28	L9	True	20000.00	20624.937171	103.1





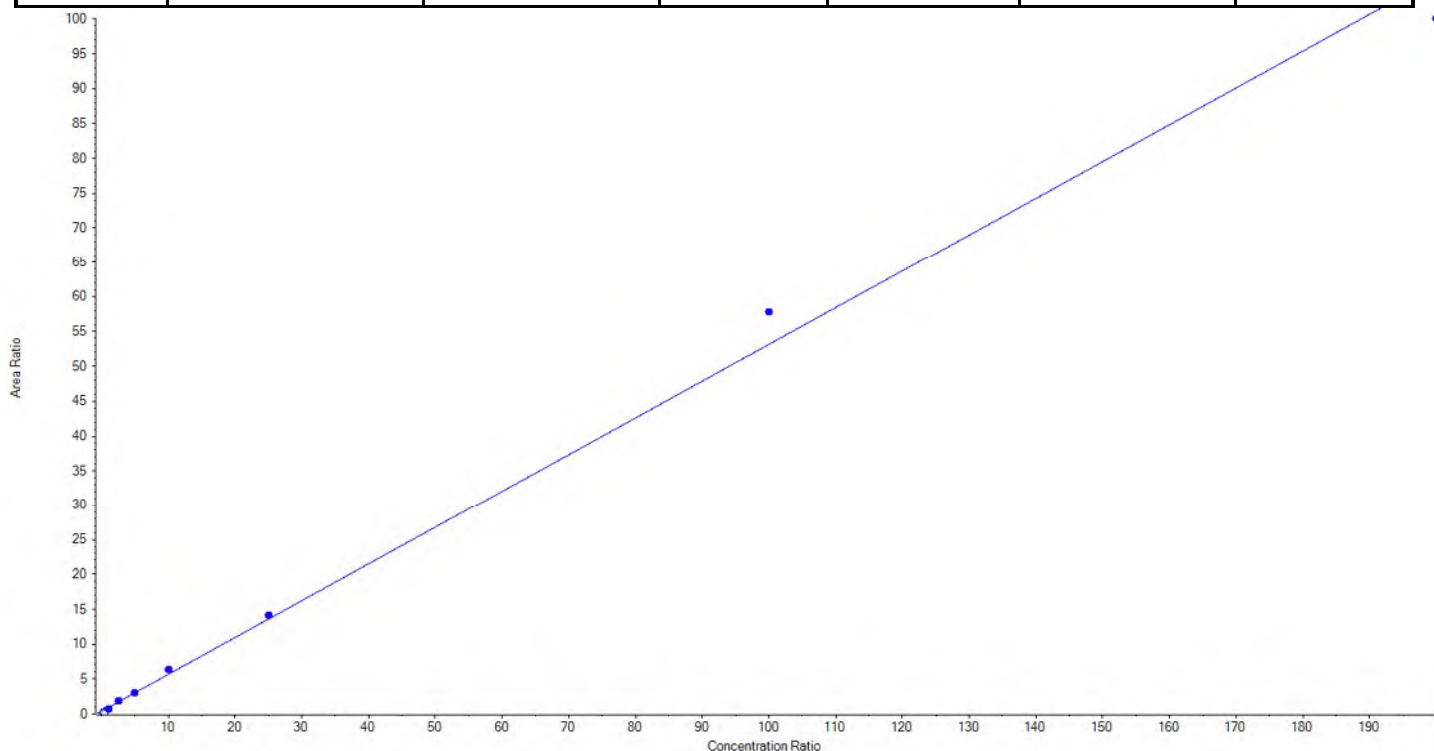
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Analyte Name	PFDaA_1	Data File	6072018.wiff
MRM Transition	613.0 / 569.0	Result Table	18-0349_BASE
Internal Standard	13C2-PFDaA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.52767 x + 0.38979$ ($r = 0.99730$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.00	< 0	N/A
3	JV21	L2	False	50.00	< 0	N/A
4	JV22	L3	True	100.00	70.178458	70.2
5	JV23	L4	True	250.00	267.915463	107.2
6	JV24	L5	True	500.00	512.936582	102.6
7	JV25	L6	True	1000.00	1126.551942	112.7
8	JV26	L7	True	2500.00	2603.682297	104.2
9	JV27	L8	True	10000.00	10884.375528	108.8
10	JV28	L9	True	20000.00	18884.359729	94.4





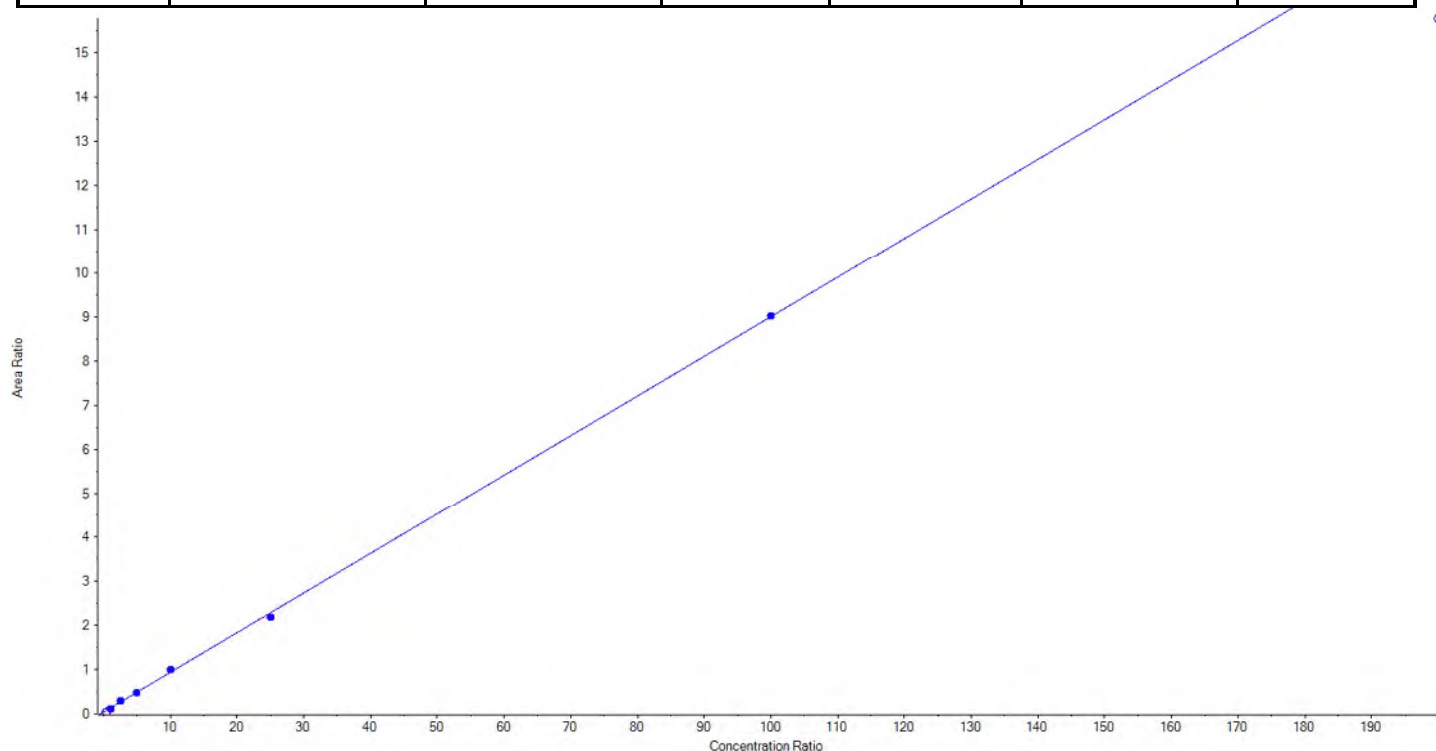
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Analyte Name	PFDaA_2	Data File	6072018.wiff
MRM Transition	613.0 / 319.0	Result Table	18-0349_BASE
Internal Standard	13C2-PFDaA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.08966 x + 0.04281$ ($r = 0.99934$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.00	< 0	N/A
3	JV21	L2	False	50.00	13.766000	27.5
4	JV22	L3	True	100.00	86.741212	86.7
5	JV23	L4	True	250.00	276.475216	110.6
6	JV24	L5	True	500.00	495.184086	99.0
7	JV25	L6	True	1000.00	1079.208724	107.9
8	JV26	L7	True	2500.00	2386.236813	95.5
9	JV27	L8	True	10000.00	10026.153948	100.3
10	JV28	L9	False	20000.00	17548.781879	87.7





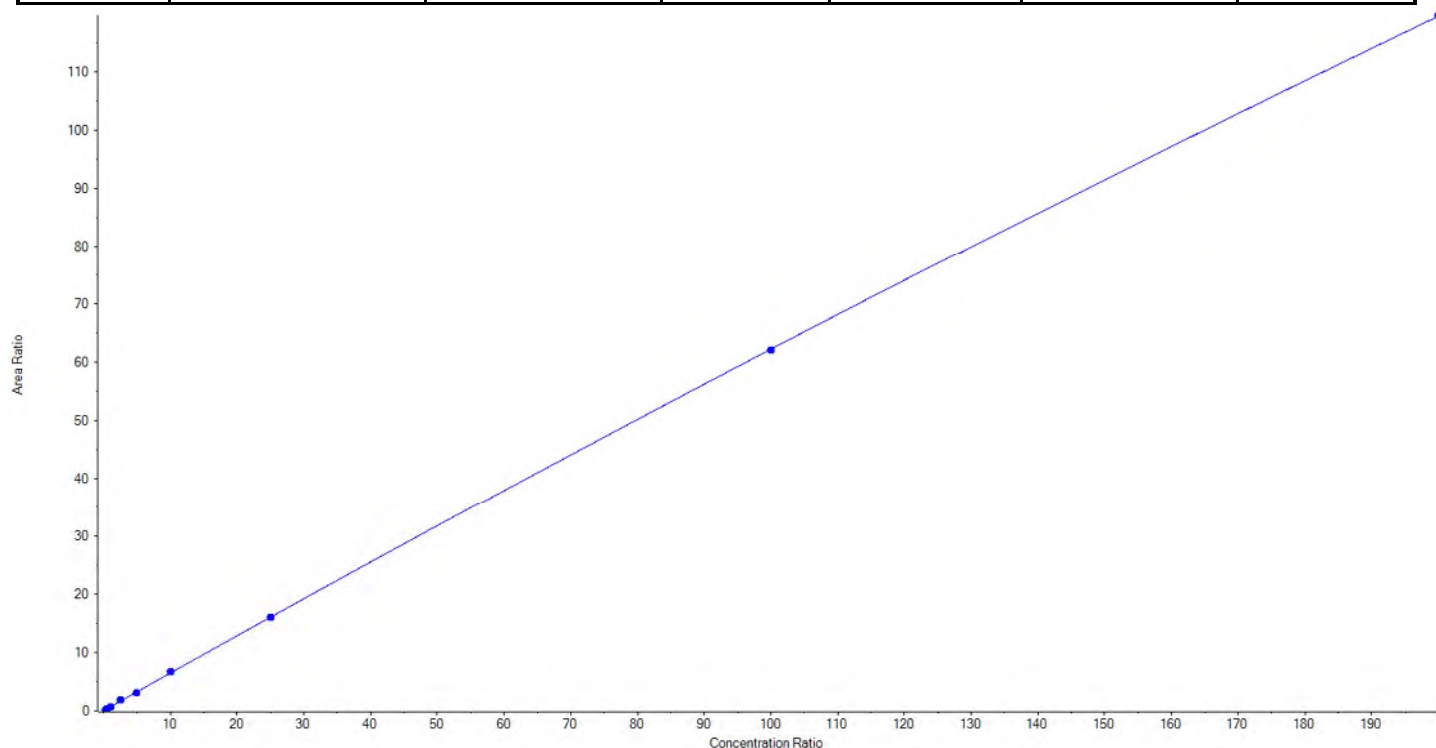
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Analyte Name	PFTTrDA_1	Data File	6072018.wiff
MRM Transition	663.0 / 619.0	Result Table	18-0349_BASE
Internal Standard	13C2-PFTeDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = -2.45176e-4 x^2 + 0.64685 x + 0.04142$ ($r = 0.99990$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	22.161627	88.7
3	JV21	L2	True	50.00	48.481204	97.0
4	JV22	L3	True	100.00	106.967849	107.0
5	JV23	L4	True	250.00	276.263151	110.5
6	JV24	L5	True	500.00	475.432794	95.1
7	JV25	L6	True	1000.00	1026.550278	102.7
8	JV26	L7	True	2500.00	2486.470932	99.5
9	JV27	L8	True	10000.00	9961.026751	99.6
10	JV28	L9	True	20000.00	20021.938987	100.1





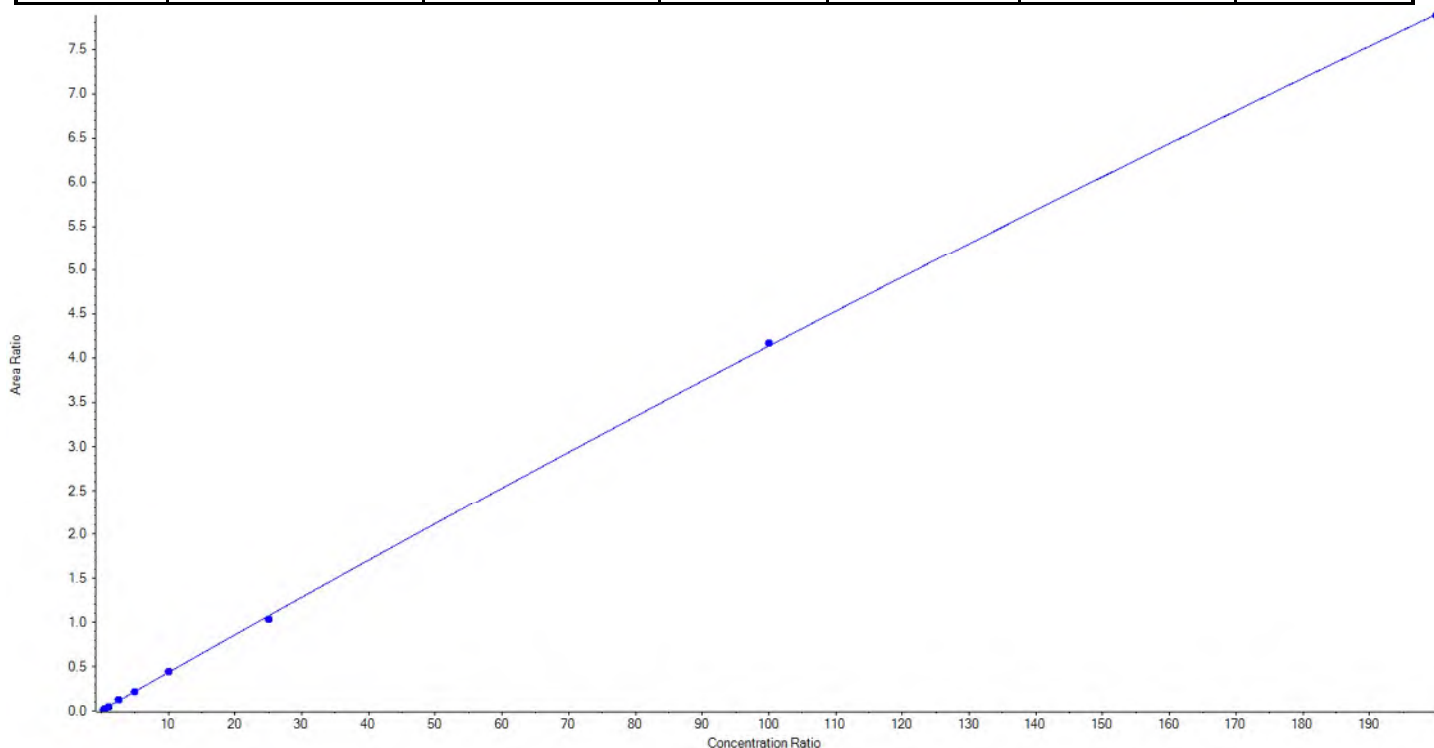
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Analyte Name	PFTTrDA_2	Data File	6072018.wiff
MRM Transition	663.0 / 169.0	Result Table	18-0349_BASE
Internal Standard	13C2-PFTTeDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = -1.86273e-5 x^2 + 0.04319 x + 0.00364$ ($r = 0.99983$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	22.162689	88.7
3	JV21	L2	True	50.00	47.733187	95.5
4	JV22	L3	True	100.00	107.588314	107.6
5	JV23	L4	True	250.00	279.571556	111.8
6	JV24	L5	True	500.00	486.583145	97.3
7	JV25	L6	True	1000.00	1022.697874	102.3
8	JV26	L7	True	2500.00	2403.578014	96.1
9	JV27	L8	True	10000.00	10093.394159	100.9
10	JV28	L9	True	20000.00	19961.287090	99.8





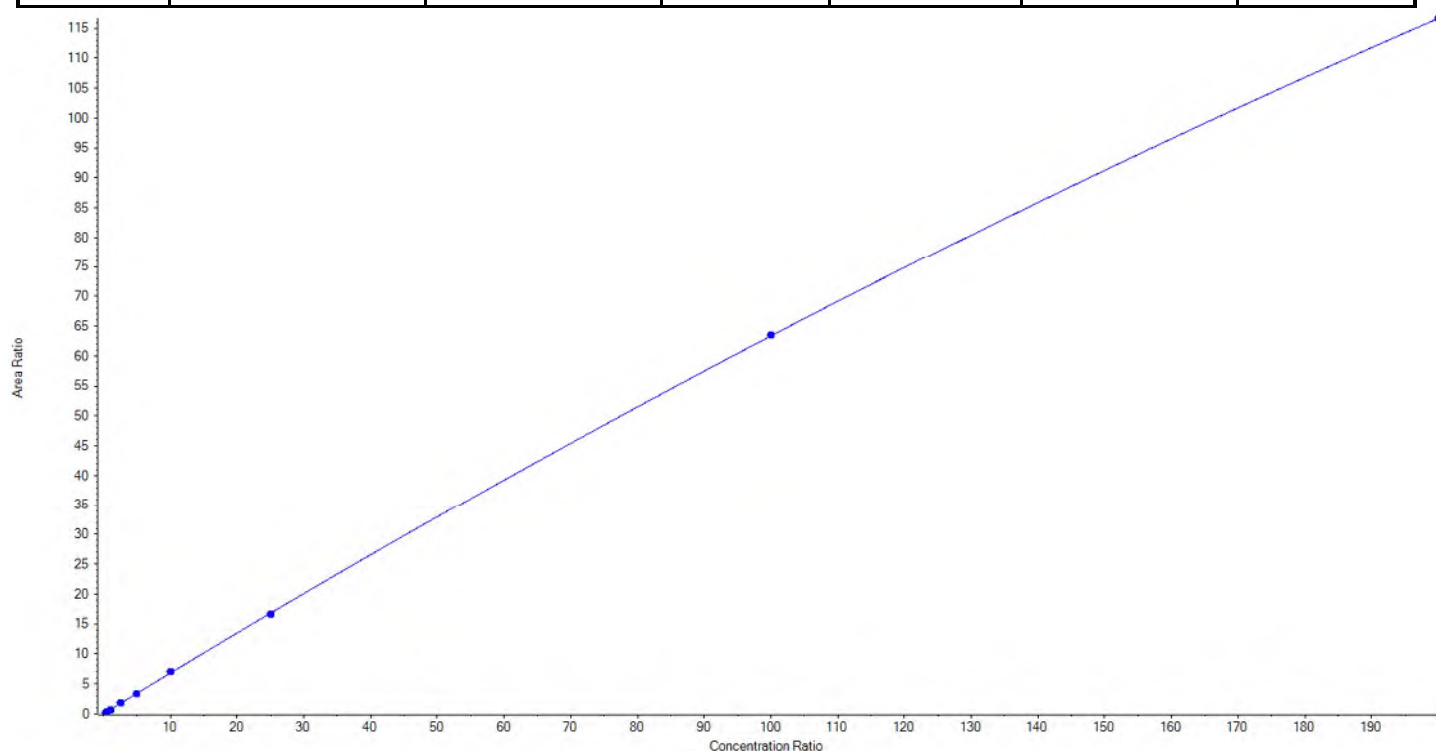
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Analyte Name	PFTeDA_1	Data File	6072018.wiff
MRM Transition	713.0 / 669.0	Result Table	18-0349_BASE
Internal Standard	13C2-PFTeDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = -5.04346e-4 x^2 + 0.68391 x + 0.02496$ ($r = 0.99996$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	23.788334	95.2
3	JV21	L2	True	50.00	50.044909	100.1
4	JV22	L3	True	100.00	103.113355	103.1
5	JV23	L4	True	250.00	256.151932	102.5
6	JV24	L5	True	500.00	486.029505	97.2
7	JV25	L6	True	1000.00	1033.338939	103.3
8	JV26	L7	True	2500.00	2463.483574	98.5
9	JV27	L8	True	10000.00	10012.029002	100.1
10	JV28	L9	True	20000.00	19996.999621	100.0





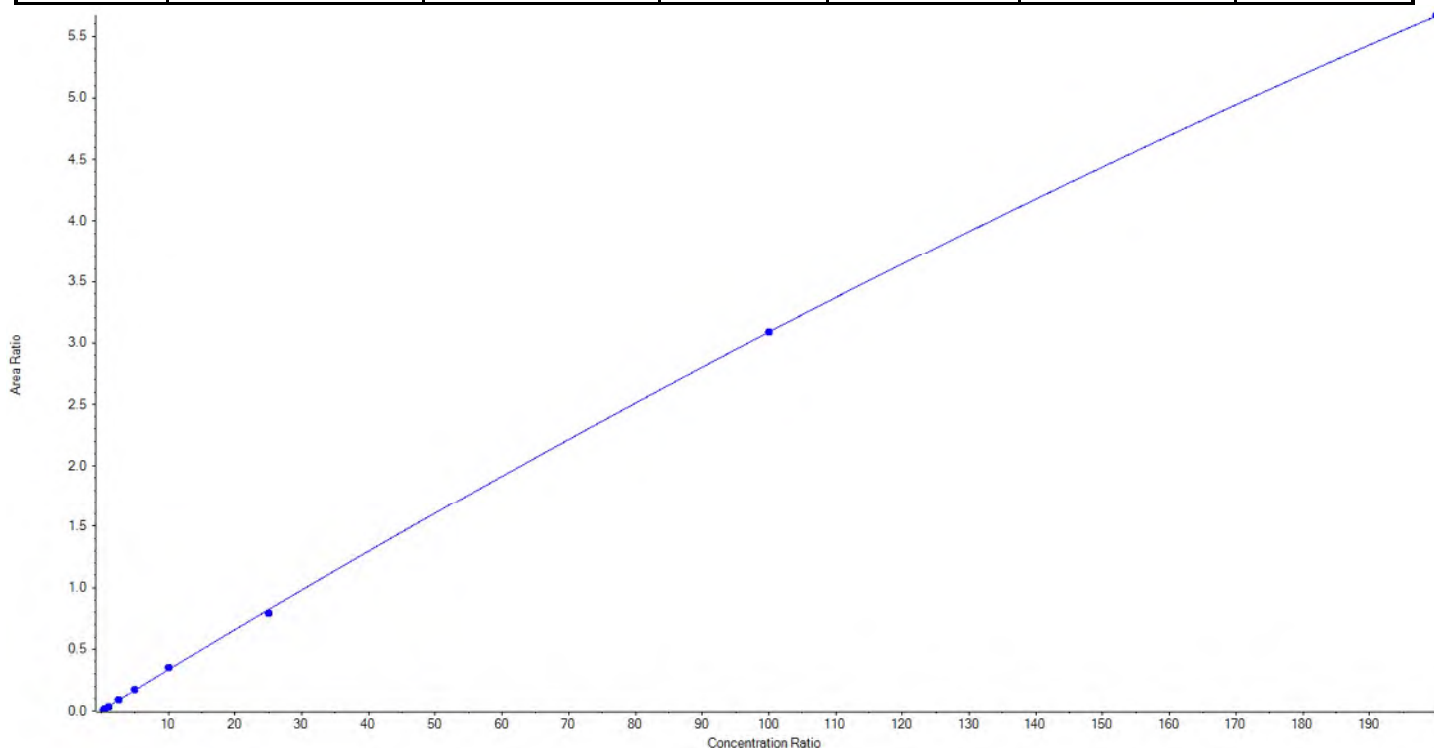
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Analyte Name	PFTeDA_2	Data File	6072018.wiff
MRM Transition	713.0 / 169.0	Result Table	18-0349_BASE
Internal Standard	13C2-PFTeDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = -2.53939e-5 x^2 + 0.03339 x + 0.00200$ ($r = 0.99987$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	25.648467	102.6
3	JV21	L2	True	50.00	42.930398	85.9
4	JV22	L3	True	100.00	101.815900	101.8
5	JV23	L4	True	250.00	260.210288	104.1
6	JV24	L5	True	500.00	519.262579	103.9
7	JV25	L6	True	1000.00	1049.502317	105.0
8	JV26	L7	True	2500.00	2422.036551	96.9
9	JV27	L8	True	10000.00	9988.884280	99.9
10	JV28	L9	True	20000.00	20015.897486	100.1





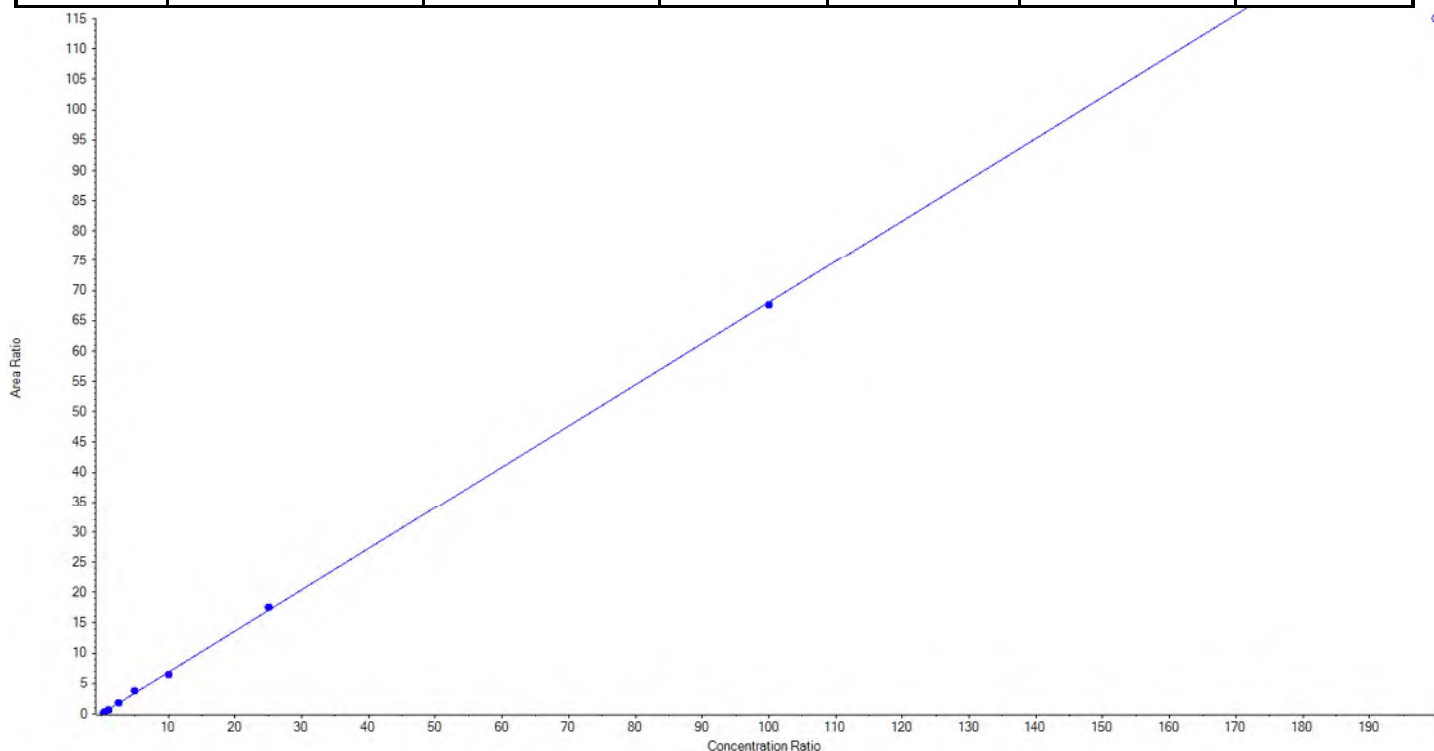
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Analyte Name	NMeFOSAA_1	Data File	6072018.wiff
MRM Transition	570.0 / 419.0	Result Table	18-0349_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.68020x + 0.04941$ ($r = 0.99960$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	24.227966	96.9
3	JV21	L2	True	50.00	46.741338	93.5
4	JV22	L3	True	100.00	101.511782	101.5
5	JV23	L4	True	250.00	250.779356	100.3
6	JV24	L5	True	500.00	552.230007	110.5
7	JV25	L6	True	1000.00	951.596874	95.2
8	JV26	L7	True	2500.00	2573.237388	102.9
9	JV27	L8	True	10000.00	9924.675290	99.3
10	JV28	L9	False	20000.00	16903.129381	84.5





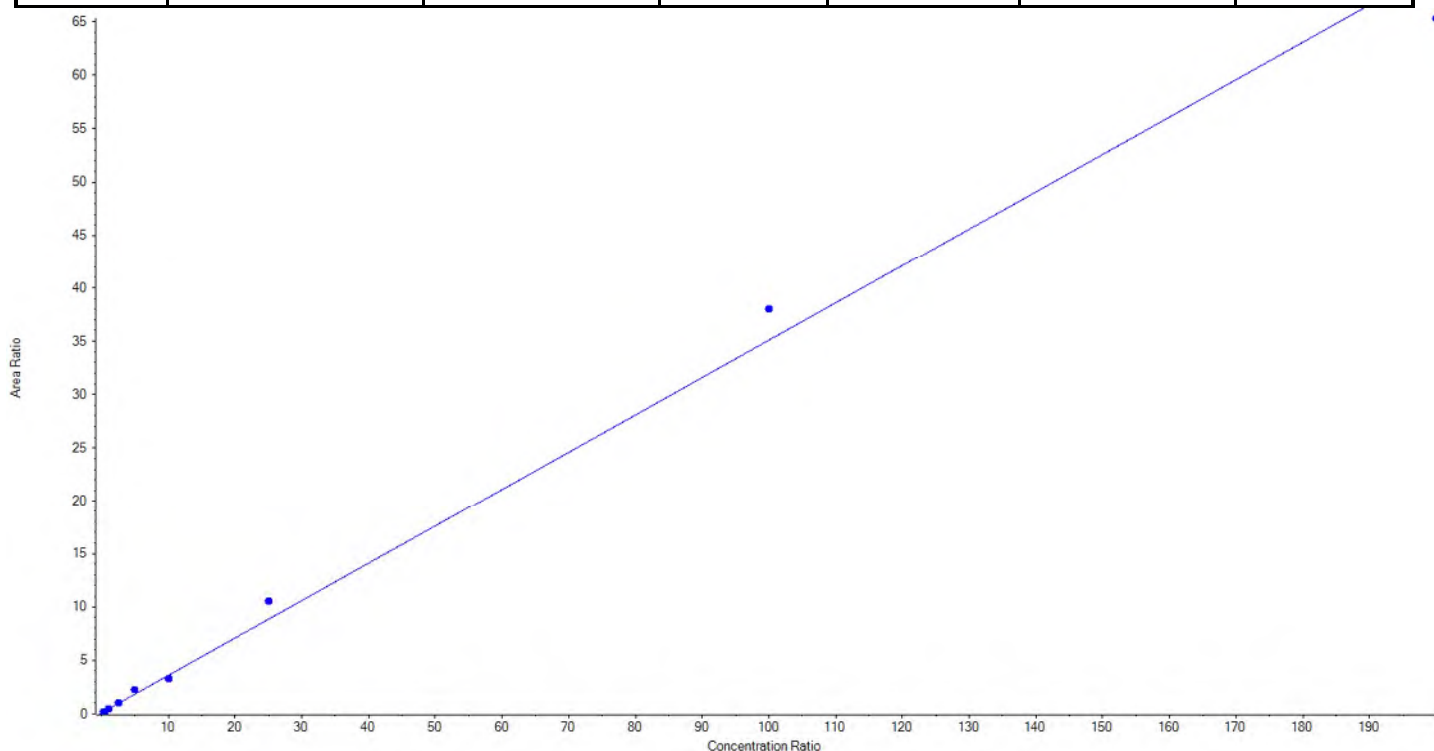
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Analyte Name	NMeFOSAA_2	Data File	6072018.wiff
MRM Transition	570.0 / 512.0	Result Table	18-0349_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.34992x + 0.10048$ ($r = 0.99555$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	20.857455	83.4
3	JV21	L2	True	50.00	36.113201	72.2
4	JV22	L3	True	100.00	95.604572	95.6
5	JV23	L4	True	250.00	274.701878	109.9
6	JV24	L5	True	500.00	629.792515	126.0
7	JV25	L6	True	1000.00	924.546740	92.5
8	JV26	L7	True	2500.00	2972.639243	118.9
9	JV27	L8	True	10000.00	10837.197284	108.4
10	JV28	L9	True	20000.00	18633.547112	93.2





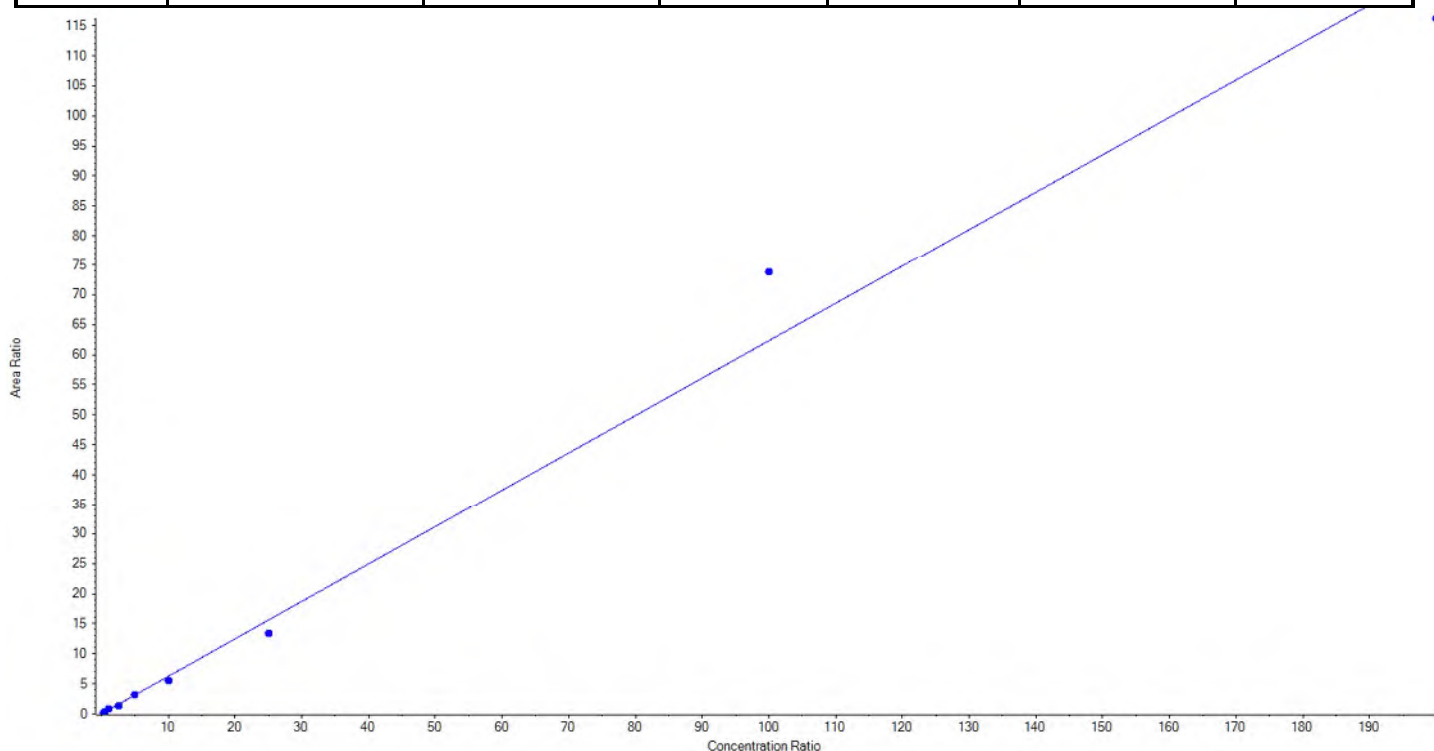
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Analyte Name	NEtFOSAA_1	Data File	6072018.wiff
MRM Transition	584.0 / 419.0	Result Table	18-0349_BASE
Internal Standard	d5-EtFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.62325x + 0.02232$ ($r = 0.99252$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	27.761996	111.1
3	JV21	L2	True	50.00	48.917992	97.8
4	JV22	L3	True	100.00	117.438734	117.4
5	JV23	L4	True	250.00	220.063816	88.0
6	JV24	L5	True	500.00	503.697956	100.7
7	JV25	L6	True	1000.00	871.554521	87.2
8	JV26	L7	True	2500.00	2152.908410	86.1
9	JV27	L8	True	10000.00	11845.421285	118.5
10	JV28	L9	True	20000.00	18637.235289	93.2





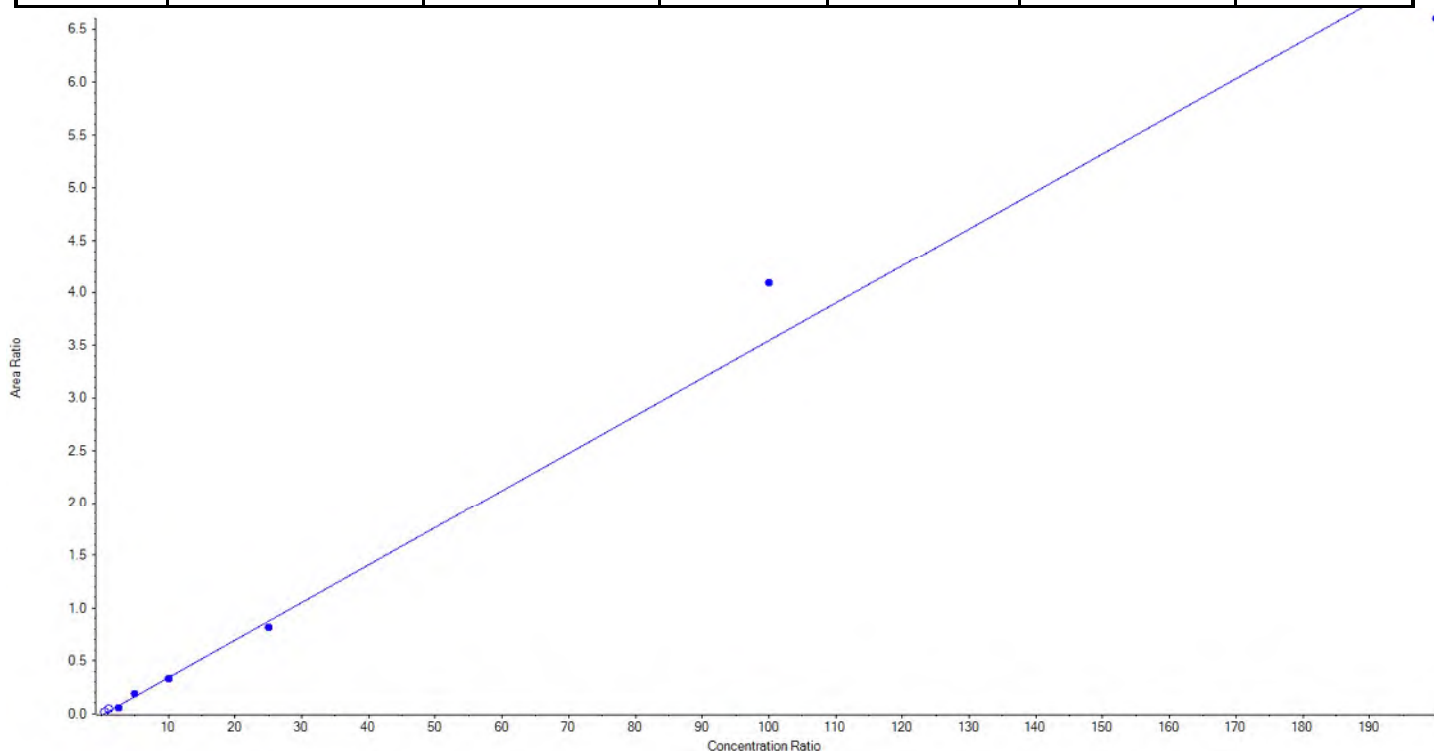
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Analyte Name	NEtFOSAA_2	Data File	6072018.wiff
MRM Transition	584.0 / 483.0	Result Table	18-0349_BASE
Internal Standard	d5-EtFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.03558x + -0.01440$ ($r = 0.99388$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	N/A	N/A
3	JV21	L2	False	50.00	103.851355	207.7
4	JV22	L3	False	100.00	166.868452	166.9
5	JV23	L4	True	250.00	212.776468	85.1
6	JV24	L5	True	500.00	574.726398	115.0
7	JV25	L6	True	1000.00	978.150478	97.8
8	JV26	L7	True	2500.00	2342.419203	93.7
9	JV27	L8	True	10000.00	11544.536038	115.5
10	JV28	L9	True	20000.00	18597.391416	93.0





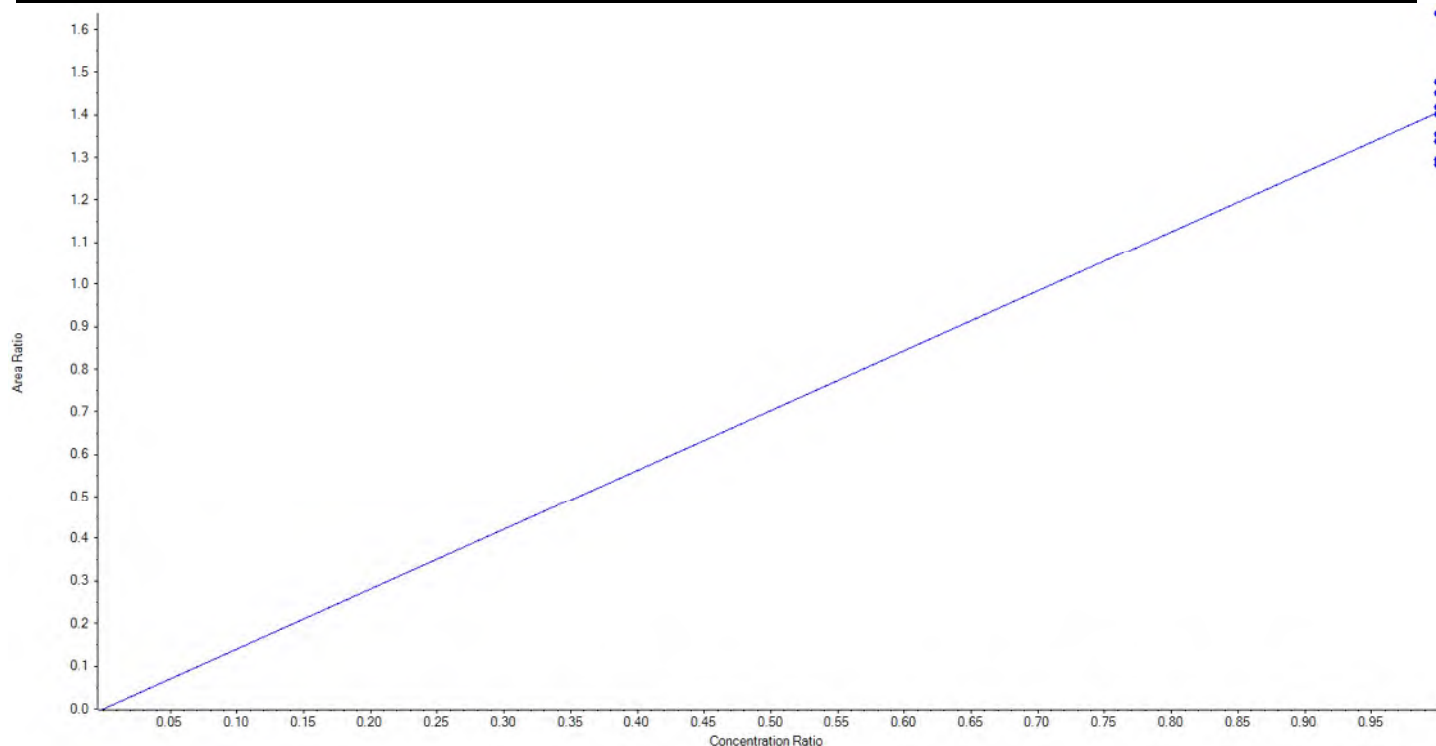
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Analyte Name	13C2-PFDoA	Data File	6072018.wiff
MRM Transition	615.0 / 570.0	Result Table	18-0349_SIS
Internal Standard	13C2-PFDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 1.40612 x$ (std. dev. = 0.10932) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	100.00	116.459772	116.5
3	JV21	L2	True	100.00	100.826136	100.8
4	JV22	L3	True	100.00	92.069564	92.1
5	JV23	L4	True	100.00	96.316698	96.3
6	JV24	L5	True	100.00	95.123732	95.1
7	JV25	L6	True	100.00	91.322252	91.3
8	JV26	L7	True	100.00	105.132426	105.1
9	JV27	L8	True	100.00	99.603747	99.6
10	JV28	L9	True	100.00	103.145672	103.2





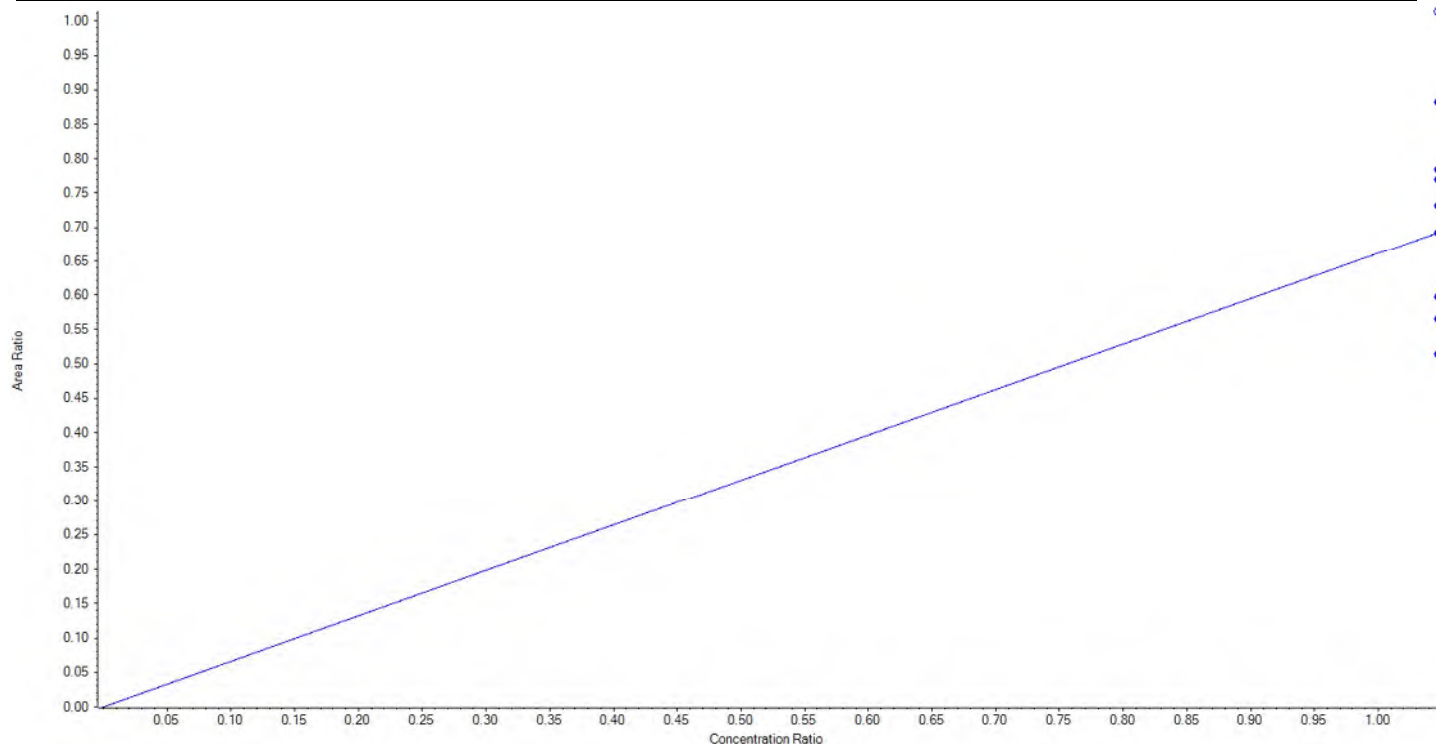
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Analyte Name	d3-MeFOSAA	Data File	6072018.wiff
MRM Transition	573.0 / 419.0	Result Table	18-0349_SIS
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.66110 x$ (std. dev. = 0.11885) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	100.00	146.413748	146.4
3	JV21	L2	True	100.00	111.273480	111.3
4	JV22	L3	True	100.00	113.223133	113.2
5	JV23	L4	True	100.00	105.733681	105.7
6	JV24	L5	True	100.00	74.359502	74.4
7	JV25	L6	True	100.00	99.931264	99.9
8	JV26	L7	True	100.00	81.729253	81.7
9	JV27	L8	True	100.00	86.359095	86.4
10	JV28	L9	True	100.00	127.390591	127.4





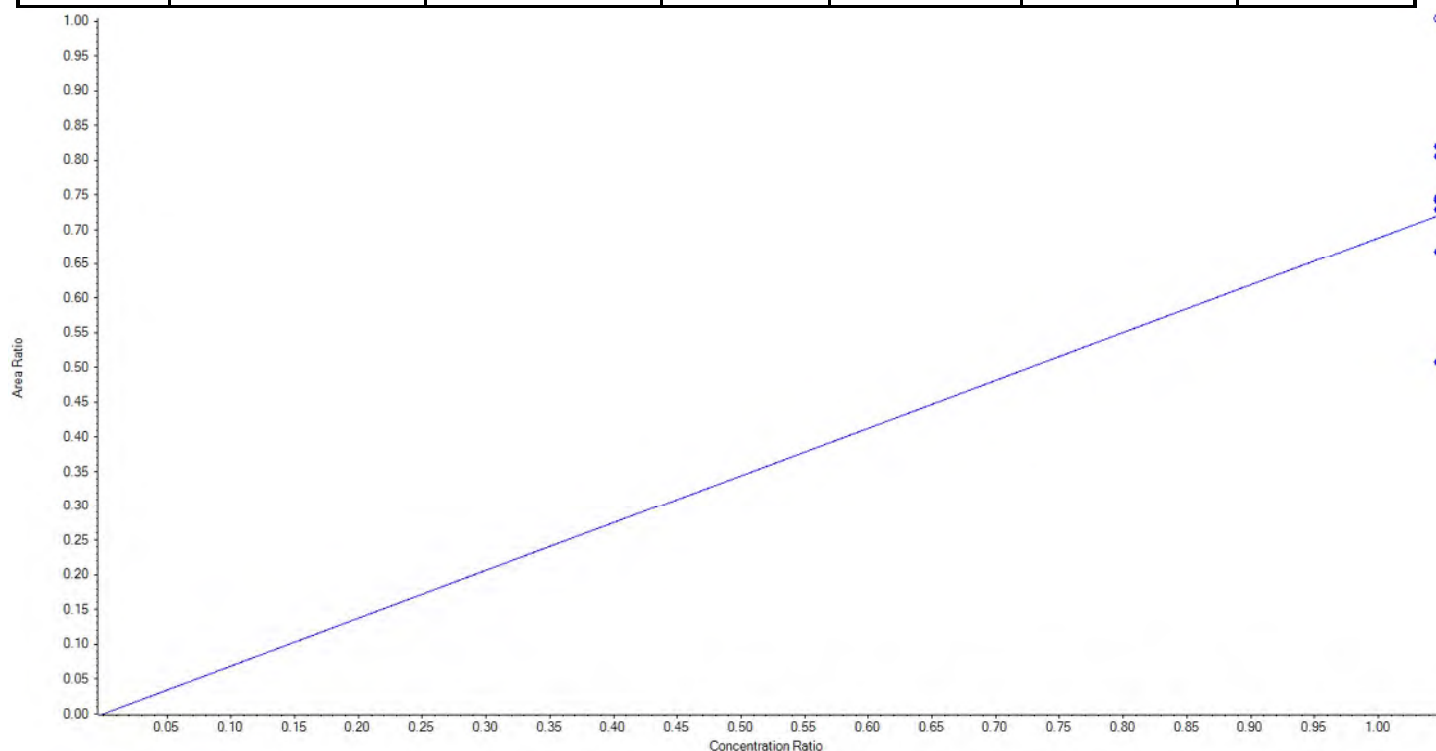
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Analyte Name	d5-EtFOSAA	Data File	6072018.wiff
MRM Transition	589.0 / 419.0	Result Table	18-0349_SIS
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.68791 x$ (std. dev. = 0.09357) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	100.00	139.342178	139.3
3	JV21	L2	True	100.00	101.216119	101.2
4	JV22	L3	True	100.00	111.840903	111.8
5	JV23	L4	True	100.00	113.932447	113.9
6	JV24	L5	True	100.00	92.690338	92.7
7	JV25	L6	True	100.00	103.669534	103.7
8	JV26	L7	True	100.00	103.171474	103.2
9	JV27	L8	True	100.00	70.451163	70.5
10	JV28	L9	True	100.00	103.028023	103.0





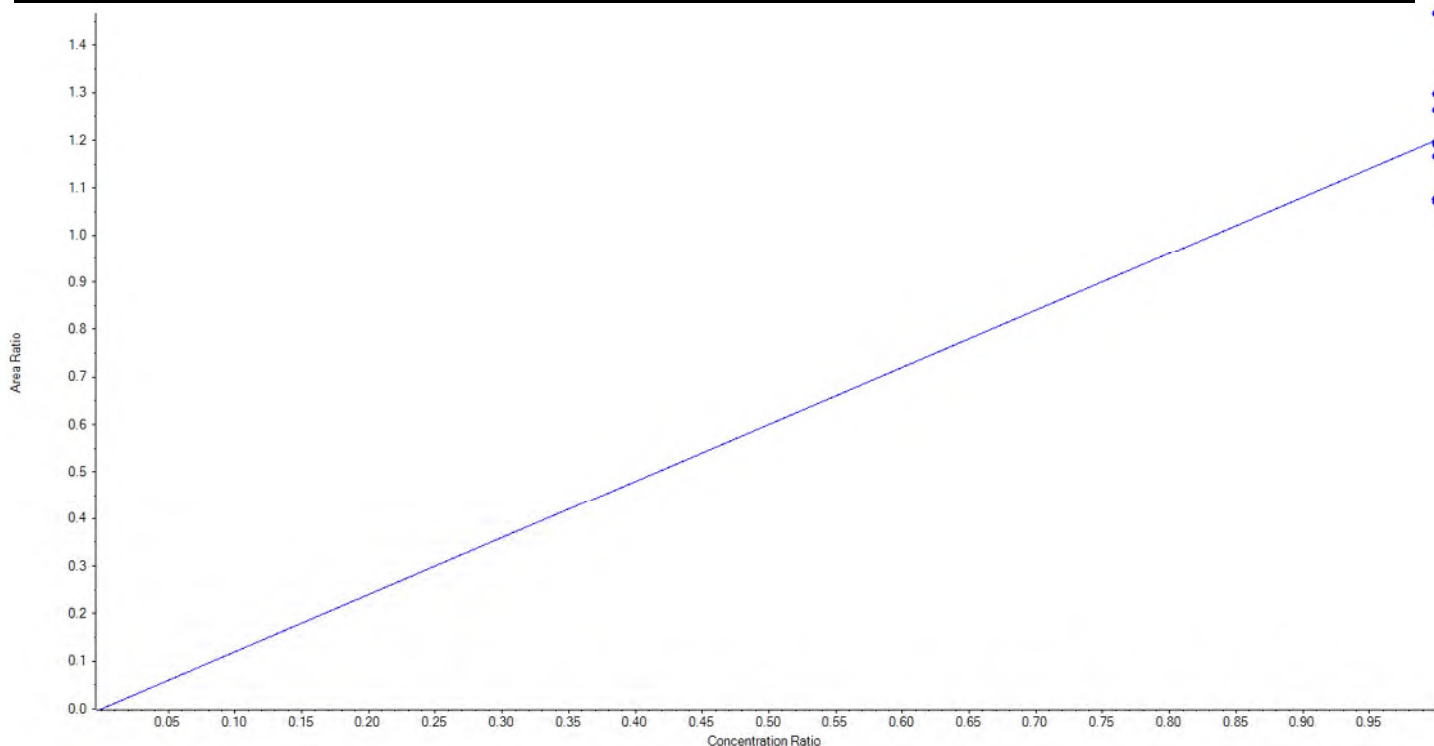
Calibration Summary Report

Created with Analyst Reporter
Printed: 14/06/2018 2:37:26 PM

Analyte Name	13C5-PFHxA	Data File	6072018.wiff
MRM Transition	318.0 / 273.0	Result Table	18-0349_SIS
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 1.20056 x$ (std. dev. = 0.12867) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	100.00	122.123600	122.1
3	JV21	L2	True	100.00	108.059098	108.1
4	JV22	L3	True	100.00	105.188203	105.2
5	JV23	L4	True	100.00	97.114552	97.1
6	JV24	L5	True	100.00	99.237890	99.2
7	JV25	L6	True	100.00	99.664997	99.7
8	JV26	L7	True	100.00	89.294770	89.3
9	JV27	L8	True	100.00	89.832607	89.8
10	JV28	L9	True	100.00	89.484283	89.5





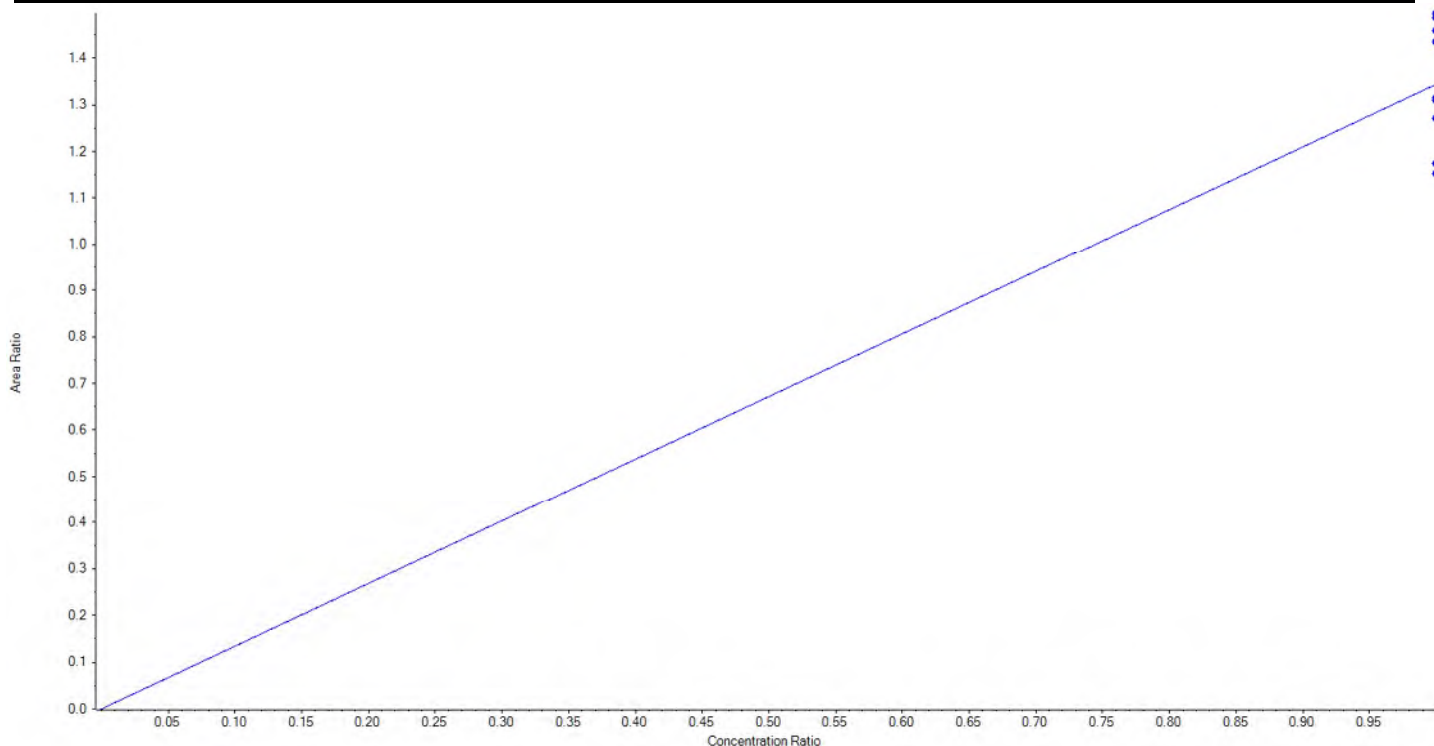
Calibration Summary Report

Created with Analyst Reporter
Printed: 14/06/2018 2:37:26 PM

Analyte Name	13C4-PFHpA	Data File	6072018.wiff
MRM Transition	367.0 / 322.0	Result Table	18-0349_SIS
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 1.34382 x$ (std. dev. = 0.13120) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	100.00	110.572923	110.6
3	JV21	L2	True	100.00	111.248169	111.3
4	JV22	L3	True	100.00	108.445382	108.5
5	JV23	L4	True	100.00	97.526543	97.5
6	JV24	L5	True	100.00	106.837819	106.8
7	JV25	L6	True	100.00	94.513708	94.5
8	JV26	L7	True	100.00	97.836148	97.8
9	JV27	L8	True	100.00	85.688756	85.7
10	JV28	L9	True	100.00	87.330553	87.3





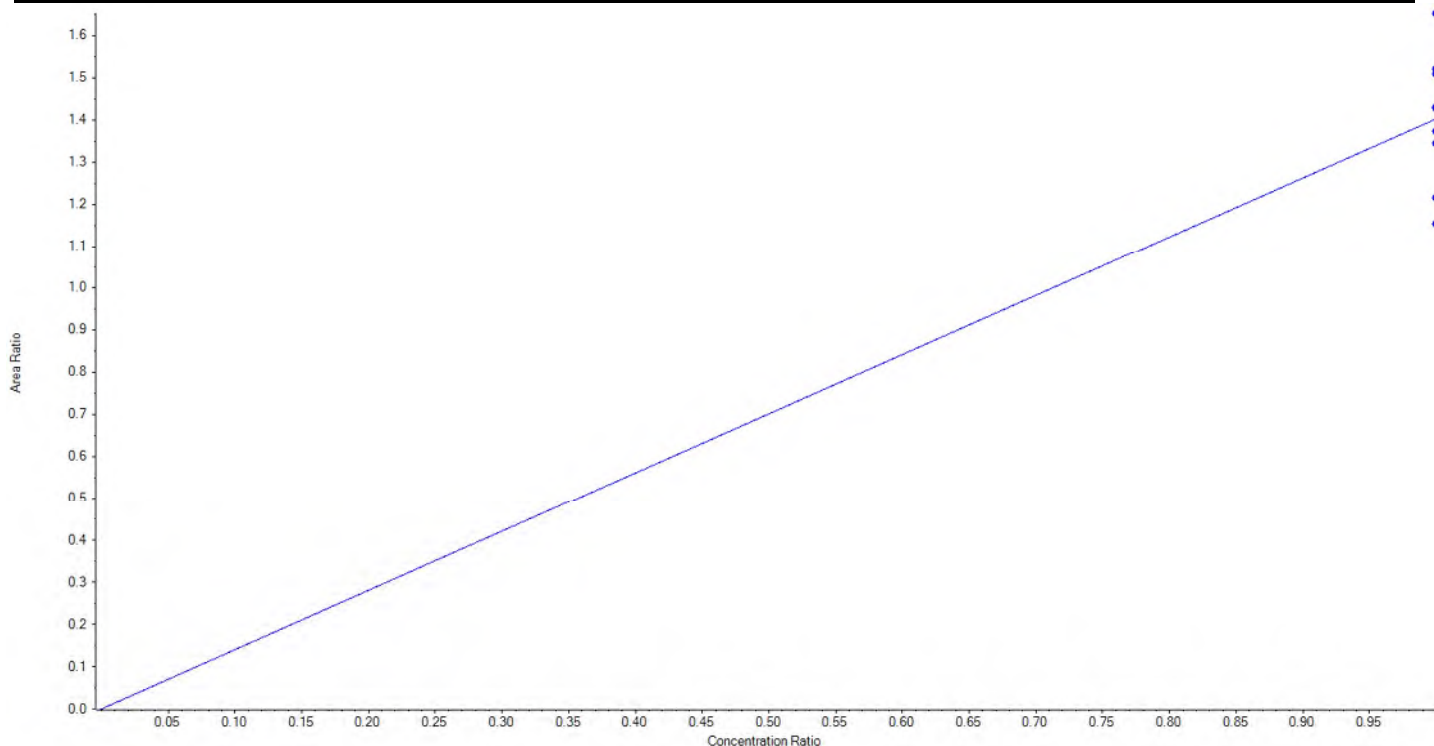
Calibration Summary Report

Created with Analyst Reporter
Printed: 14/06/2018 2:37:26 PM

Analyte Name	13C8-PFOA	Data File	6072018.wiff
MRM Transition	421.0 / 376.0	Result Table	18-0349_SIS
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 1.40250 x$ (std. dev. = 0.15401) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	100.00	117.739466	117.7
3	JV21	L2	True	100.00	107.478928	107.5
4	JV22	L3	True	100.00	108.393337	108.4
5	JV23	L4	True	100.00	101.839533	101.8
6	JV24	L5	True	100.00	101.905546	101.9
7	JV25	L6	True	100.00	95.853017	95.9
8	JV26	L7	True	100.00	97.949384	98.0
9	JV27	L8	True	100.00	82.209293	82.2
10	JV28	L9	True	100.00	86.631497	86.6





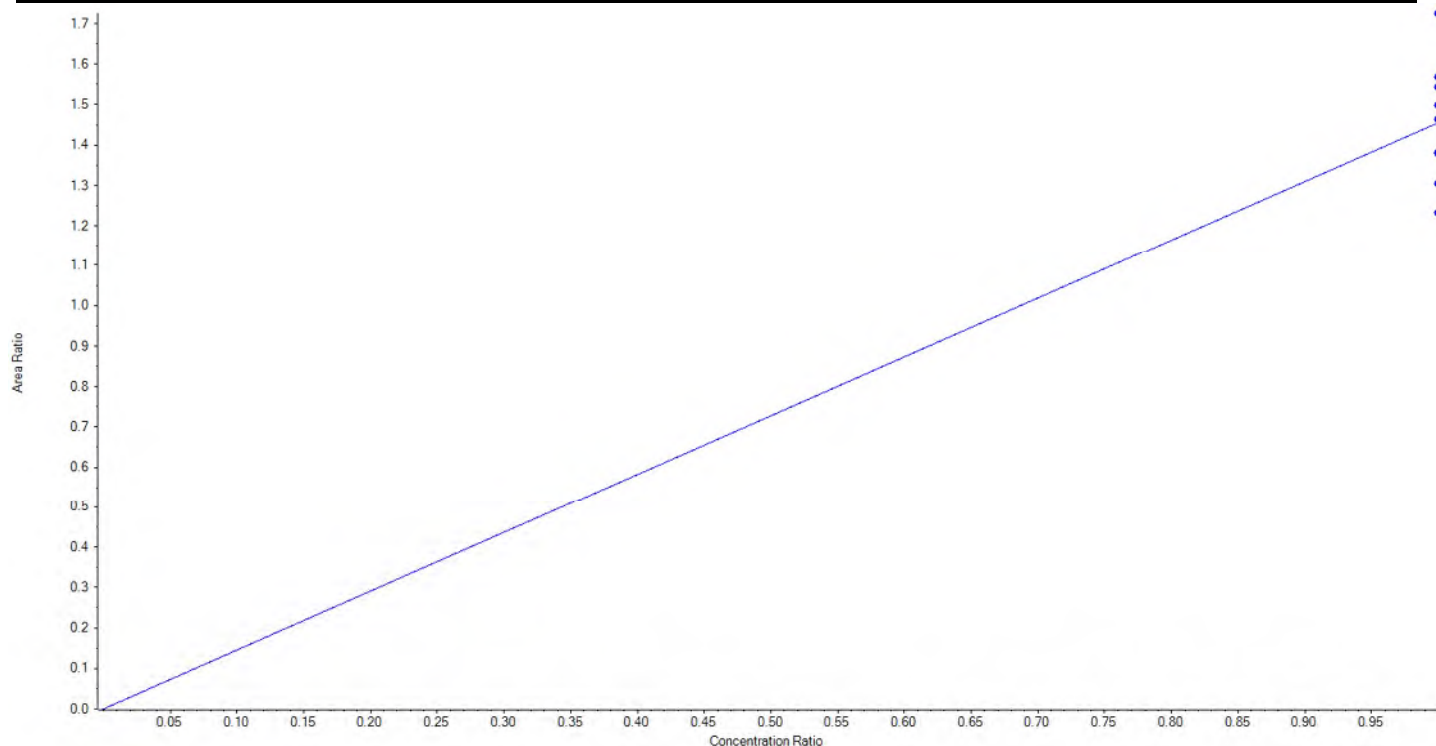
Calibration Summary Report

Created with Analyst Reporter
Printed: 14/06/2018 2:37:26 PM

Analyte Name	13C9-PFNA	Data File	6072018.wiff
MRM Transition	472.0 / 427.0	Result Table	18-0349_SIS
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 1.45535 x$ (std. dev. = 0.14927) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	100.00	118.519207	118.5
3	JV21	L2	True	100.00	107.676277	107.7
4	JV22	L3	True	100.00	106.135608	106.1
5	JV23	L4	True	100.00	100.656819	100.7
6	JV24	L5	True	100.00	94.799307	94.8
7	JV25	L6	True	100.00	102.909425	102.9
8	JV26	L7	True	100.00	94.906115	94.9
9	JV27	L8	True	100.00	89.685735	89.7
10	JV28	L9	True	100.00	84.711508	84.7





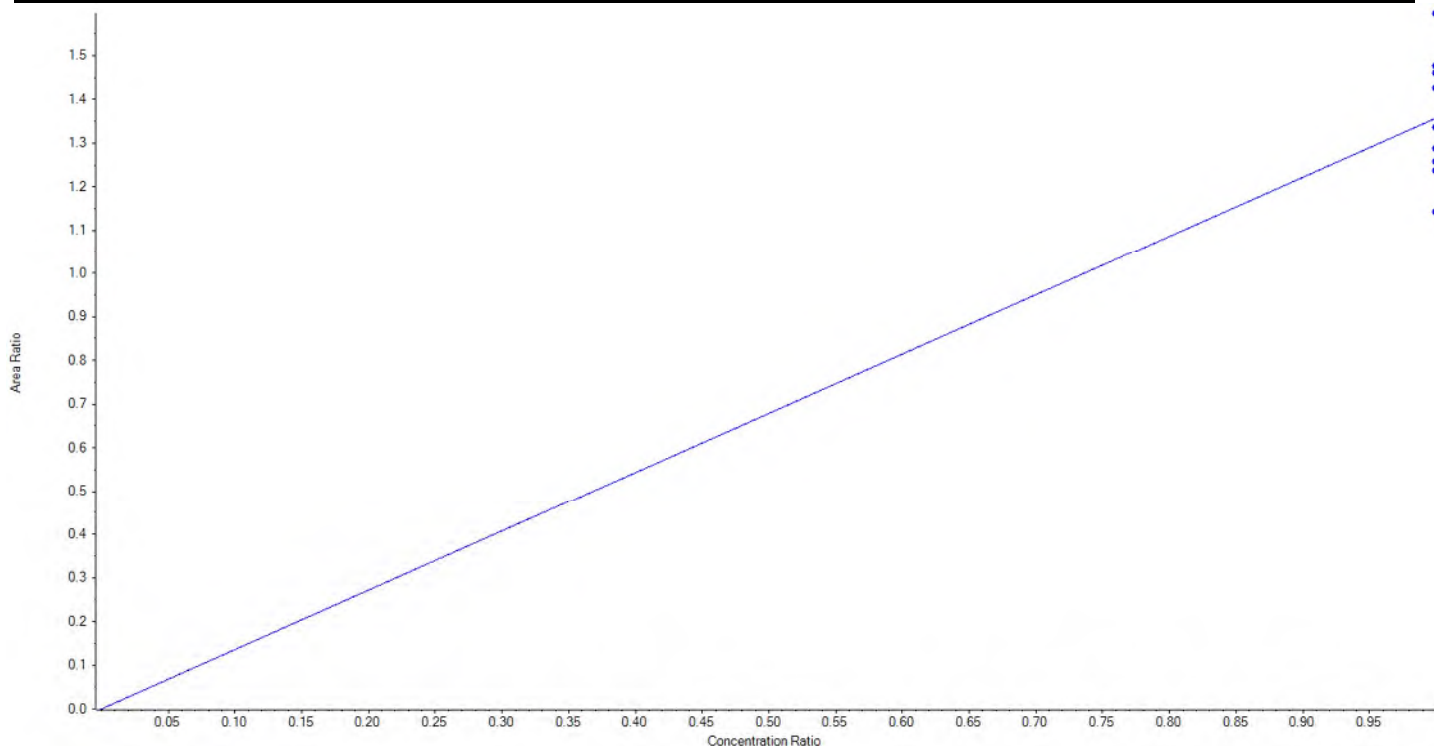
Calibration Summary Report

Created with Analyst Reporter
Printed: 14/06/2018 2:37:26 PM

Analyte Name	13C6-PFDA	Data File	6072018.wiff
MRM Transition	519.0 / 474.0	Result Table	18-0349_SIS
Internal Standard	13C2-PFDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 1.35775 x$ (std. dev. = 0.14285) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	100.00	117.567914	117.6
3	JV21	L2	True	100.00	107.633672	107.6
4	JV22	L3	True	100.00	105.094949	105.1
5	JV23	L4	True	100.00	108.736752	108.7
6	JV24	L5	True	100.00	94.824080	94.8
7	JV25	L6	True	100.00	92.582530	92.6
8	JV26	L7	True	100.00	98.360905	98.4
9	JV27	L8	True	100.00	91.082657	91.1
10	JV28	L9	True	100.00	84.116543	84.1





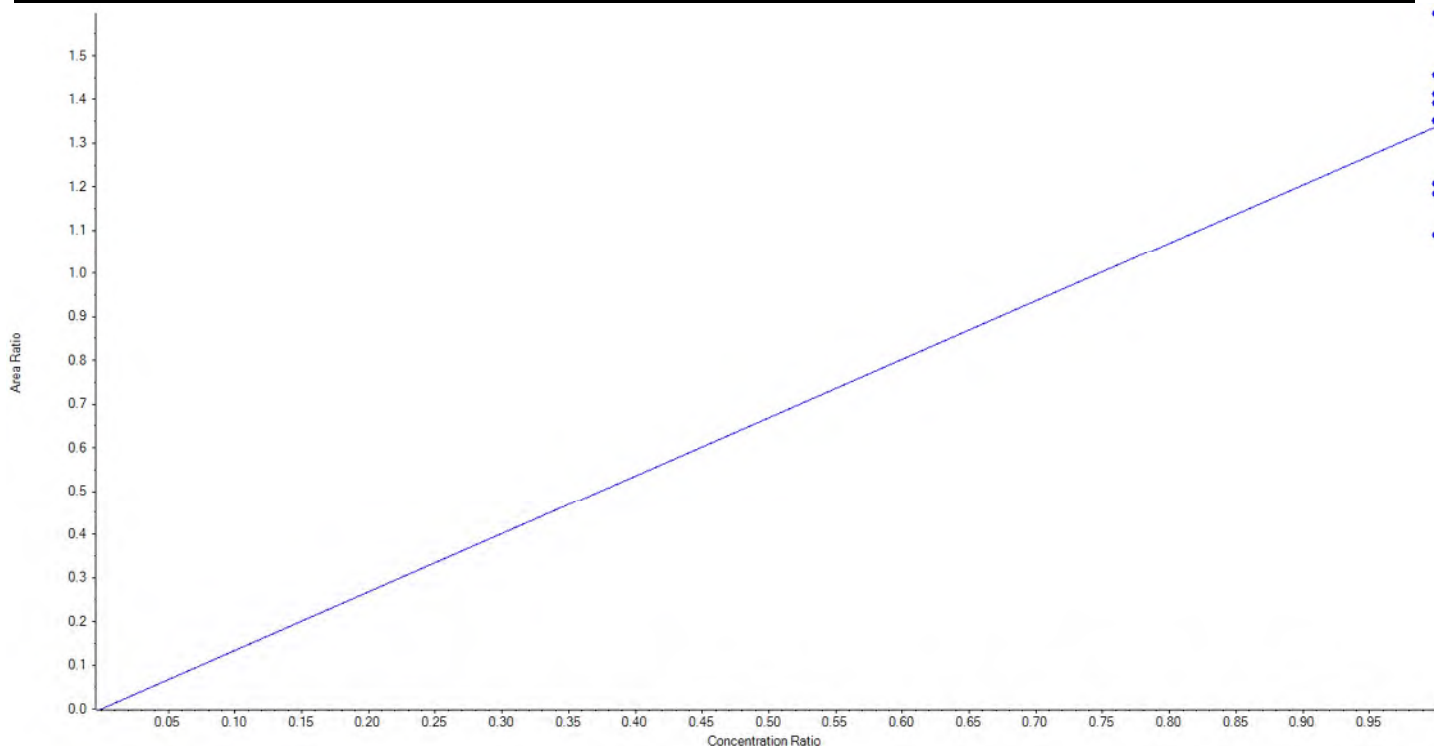
Calibration Summary Report

Created with Analyst Reporter
Printed: 14/06/2018 2:37:26 PM

Analyte Name	13C7-PFUnA	Data File	6072018.wiff
MRM Transition	570.0 / 525.0	Result Table	18-0349_SIS
Internal Standard	13C2-PFDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 1.33791 x$ (std. dev. = 0.15475) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	100.00	119.318622	119.3
3	JV21	L2	True	100.00	103.953028	104.0
4	JV22	L3	True	100.00	100.954328	101.0
5	JV23	L4	True	100.00	108.860890	108.9
6	JV24	L5	True	100.00	101.023420	101.0
7	JV25	L6	True	100.00	90.232039	90.2
8	JV26	L7	True	100.00	105.613148	105.6
9	JV27	L8	True	100.00	88.580374	88.6
10	JV28	L9	True	100.00	81.464151	81.5





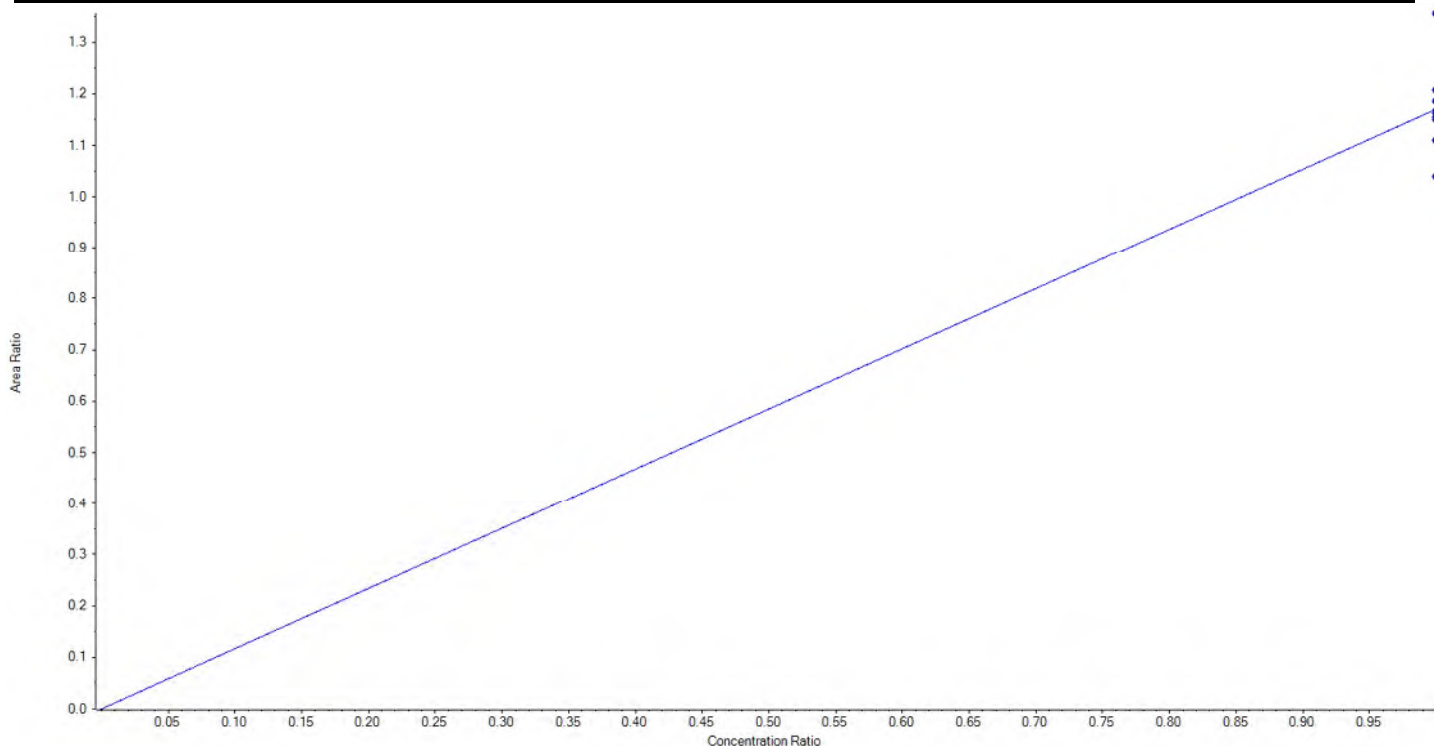
Calibration Summary Report

Created with Analyst Reporter
Printed: 14/06/2018 2:37:26 PM

Analyte Name	13C2-PFTeDA	Data File	6072018.wiff
MRM Transition	715.0 / 670.0	Result Table	18-0349_SIS
Internal Standard	13C2-PFDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 1.17034 x$ (std. dev. = 0.08485) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	100.00	115.845276	115.9
3	JV21	L2	True	100.00	99.351591	99.4
4	JV22	L3	True	100.00	98.248549	98.3
5	JV23	L4	True	100.00	101.344582	101.3
6	JV24	L5	True	100.00	94.870085	94.9
7	JV25	L6	True	100.00	88.786311	88.8
8	JV26	L7	True	100.00	99.654853	99.7
9	JV27	L8	True	100.00	98.696228	98.7
10	JV28	L9	True	100.00	103.202525	103.2





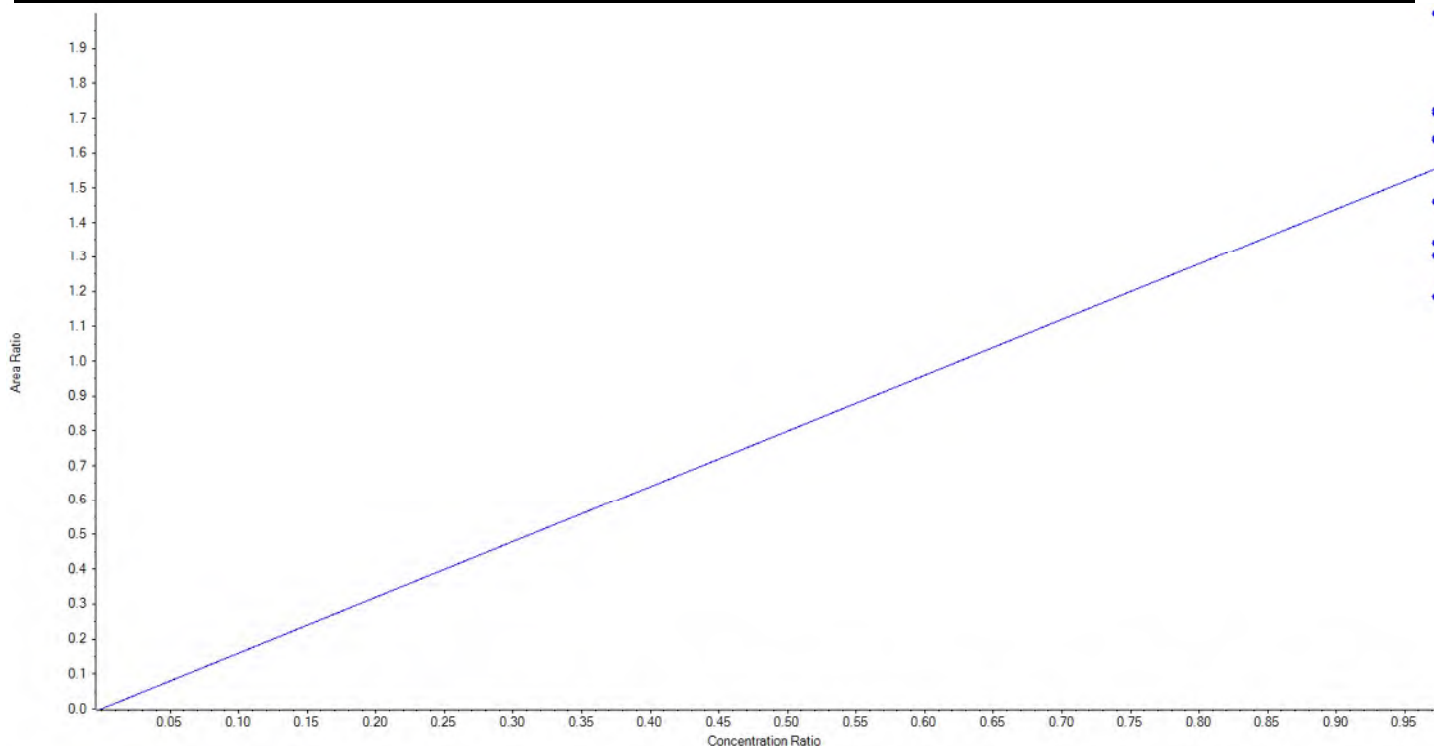
Calibration Summary Report

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Analyte Name	13C3-PFBS	Data File	6072018.wiff
MRM Transition	302.0 / 99.0	Result Table	18-0349_SIS
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 1.59940 x$ (std. dev. = 0.26247) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	92.90	119.392309	128.5
3	JV21	L2	True	92.90	102.325235	110.2
4	JV22	L3	True	92.90	97.659334	105.1
5	JV23	L4	True	92.90	98.138331	105.6
6	JV24	L5	True	92.90	77.715907	83.7
7	JV25	L6	True	92.90	80.193947	86.3
8	JV26	L7	True	92.90	70.635230	76.0
9	JV27	L8	True	92.90	87.214385	93.9
10	JV28	L9	True	92.90	102.825321	110.7





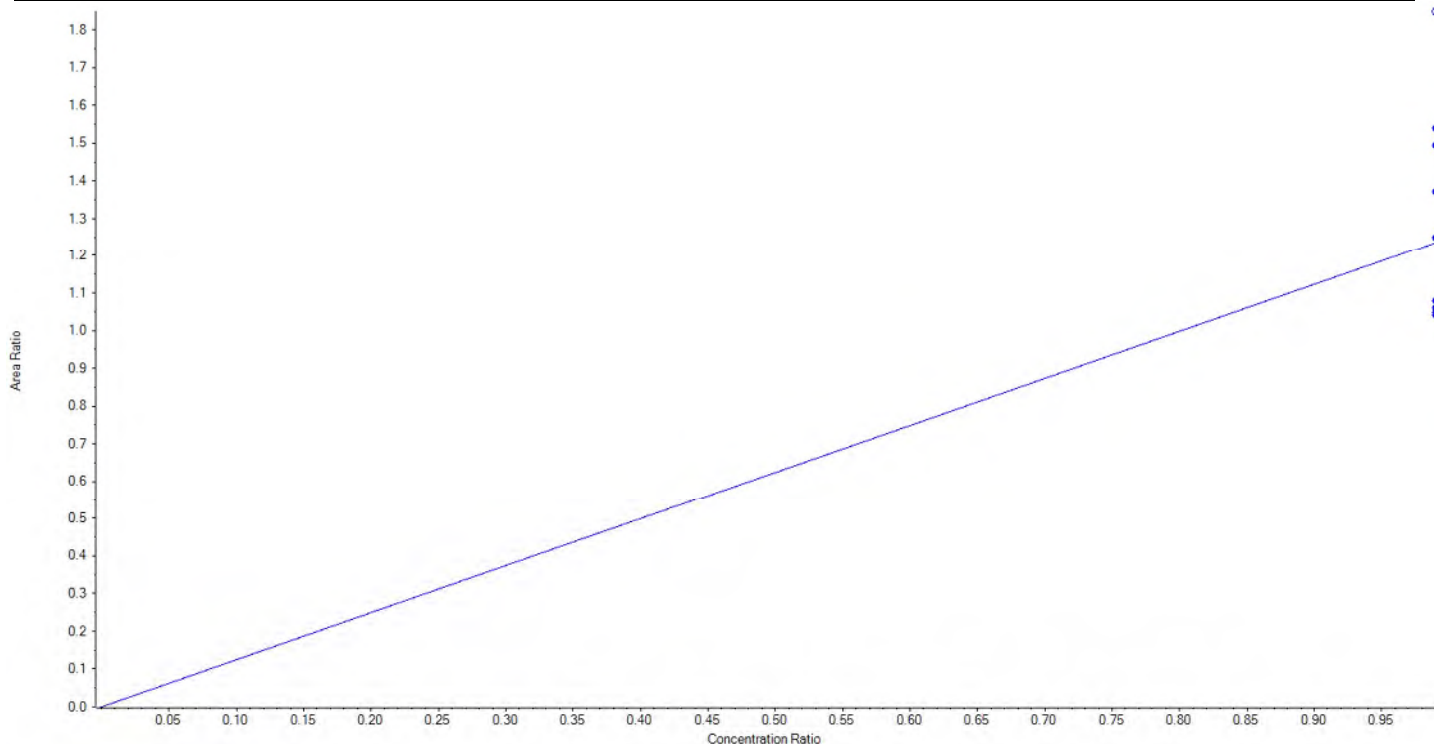
Calibration Summary Report

Created with Analyst Reporter
Printed: 14/06/2018 2:37:26 PM

Analyte Name	13C3-PFHxS	Data File	6072018.wiff
MRM Transition	402.0 / 99.0	Result Table	18-0349_SIS
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 1.24774 x$ (std. dev. = 0.21125) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	94.60	141.489062	149.6
3	JV21	L2	True	94.60	95.547678	101.0
4	JV22	L3	True	94.60	114.444732	121.0
5	JV23	L4	True	94.60	105.035774	111.0
6	JV24	L5	True	94.60	79.780684	84.3
7	JV25	L6	True	94.60	80.194756	84.8
8	JV26	L7	True	94.60	81.234398	85.9
9	JV27	L8	True	94.60	82.648633	87.4
10	JV28	L9	True	94.60	117.913344	124.6





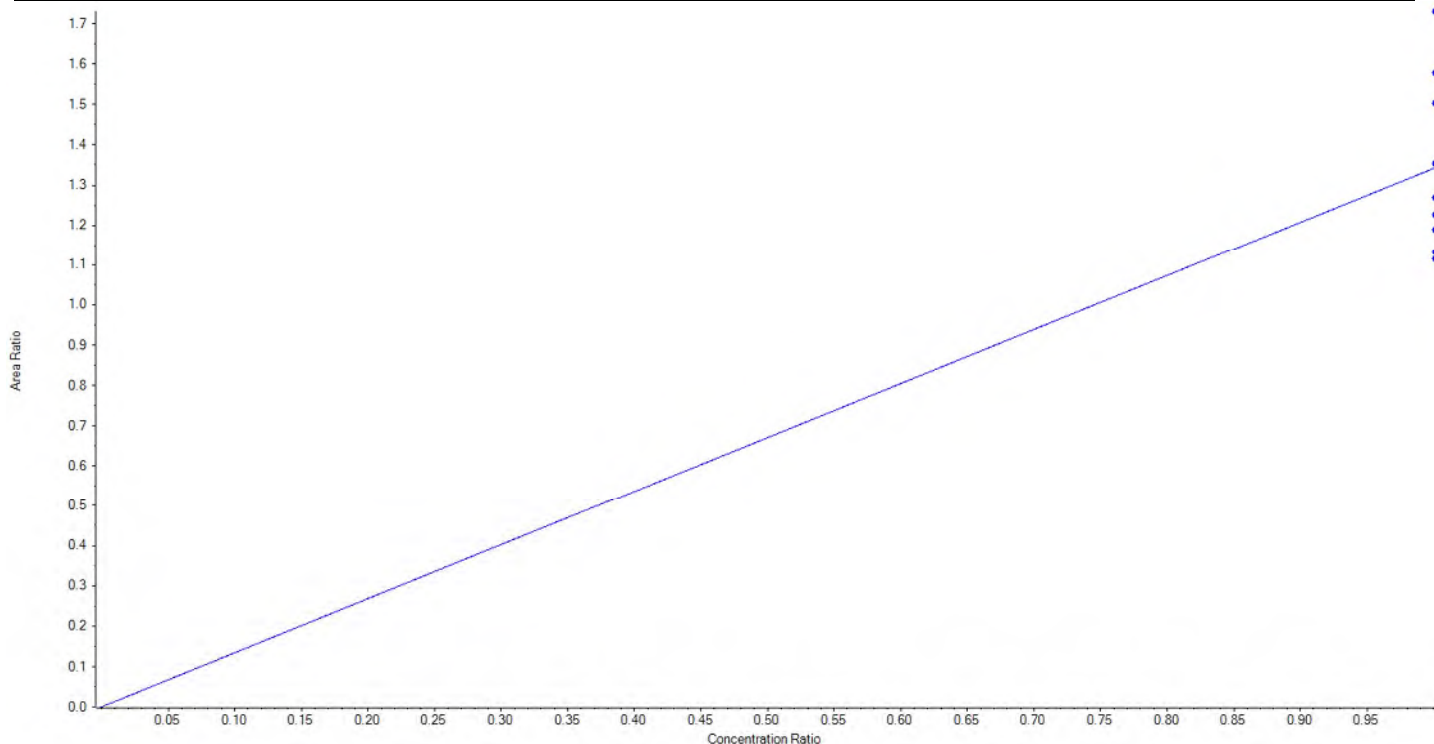
Calibration Summary Report

Created with Analyst Reporter
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Analyte Name	13C8-PFOS	Data File	6072018.wiff
MRM Transition	507.0 / 99.0	Result Table	18-0349_SIS
Internal Standard	13C4-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 1.34135 x$ (std. dev. = 0.21438) (weighting: 1 / x)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	95.70	123.178669	128.7
3	JV21	L2	True	95.70	96.402006	100.7
4	JV22	L3	True	95.70	106.986919	111.8
5	JV23	L4	True	95.70	112.329755	117.4
6	JV24	L5	True	95.70	87.358001	91.3
7	JV25	L6	True	95.70	84.668820	88.5
8	JV26	L7	True	95.70	79.426450	83.0
9	JV27	L8	True	95.70	80.636332	84.3
10	JV28	L9	True	95.70	90.313050	94.4



[illegible]

Sample Name	JV20	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:32:29	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.55	11456.26	22.943131	32.9	true
PFBS_2	298.9 / 99.0	1.54	4252.45	24.912423	24.3	true
PFHxA_1	313.0 / 269.0	1.82	27379.05	2.311214	10.6	true
PFHxA_2	313.0 / 119.0	1.83	2280.75	31.161550	10.1	true
PFHpA_1	363.0 / 319.0	2.20	19452.29	21.783097	21.2	false
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	true
PFHxS_1	399.0 / 80.0	2.22	14126.03	17.912475	8.5	true
PFHxS_2	399.0 / 99.0	2.21	5067.54	15.598001	8.6	true
PFOA_1	413.0 / 369.0	2.58	19811.45	18.098123	14.0	true
PFOA_2	413.0 / 169.0	2.56	1103.92	< 0	7.4	true
PFNA_1	463.0 / 419.0	2.95	21882.18	20.380243	34.7	true
PFNA_2	463.0 / 219.0	2.95	5336.53	19.401848	22.6	true
PFOS_1	499.0 / 80.0	2.94	2903.10	50.138640	1.3	true
PFOS_2	499.0 / 99.0	2.94	2636.53	35.731144	3.6	true
PFDA_1	513.0 / 469.0	3.30	19331.60	21.443438	92.6	false
PFDA_2	513.0 / 219.0	3.30	1011.79	31.548423	44.5	false
PFUnA_1	563.0 / 519.0	3.62	17947.70	25.036894	79.8	false
PFUnA_2	563.0 / 269.0	3.63	1425.01	22.422464	38.1	false
PFDaA_1	613.0 / 569.0	3.90	17960.56	< 0	96.3	false
PFDaA_2	613.0 / 319.0	3.90	2306.17	< 0	99.0	false
PFTTrDA_1	663.0 / 619.0	4.16	14918.67	22.161627	118.8	false
PFTTrDA_2	663.0 / 169.0	4.15	1066.44	22.162689	59.7	false
PFTeDA_1	713.0 / 669.0	4.38	15150.14	23.788334	170.0	false
PFTeDA_2	713.0 / 169.0	4.38	852.58	25.648467	78.8	false
NMeFOSAA_1	570.0 / 419.0	3.46	2600.21	24.227966	127.4	false
NMeFOSAA_2	570.0 / 512.0	3.45	2105.62	20.857455	585.4	false
NEtFOSAA_1	584.0 / 419.0	3.62	2248.72	27.761996	104.4	false
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true

Sample Name	JV21	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:43:10	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.55	17149.86	39.339005	55.8	true
PFBS_2	298.9 / 99.0	1.54	6916.42	48.712633	30.7	true
PFHxA_1	313.0 / 269.0	1.83	27150.04	17.517759	14.5	true
PFHxA_2	313.0 / 119.0	1.84	2514.76	57.639587	9.0	true
PFHpA_1	363.0 / 319.0	2.20	27575.28	48.775698	28.9	false
PFHpA_2	363.0 / 169.0	2.23	1031.83	35.769640	23.8	true
PFHxS_1	399.0 / 80.0	2.22	23573.22	53.488051	12.3	true
PFHxS_2	399.0 / 99.0	2.22	7452.47	52.385168	12.3	true
PFOA_1	413.0 / 369.0	2.58	36629.41	61.859763	20.8	true
PFOA_2	413.0 / 169.0	2.57	2321.53	37.745363	11.9	true
PFNA_1	463.0 / 419.0	2.95	30617.60	46.646813	48.4	true
PFNA_2	463.0 / 219.0	2.95	8392.79	48.764204	34.3	true
PFOS_1	499.0 / 80.0	2.95	24684.18	92.166004	6.0	true
PFOS_2	499.0 / 99.0	2.95	6558.11	84.818722	6.4	true
PFDA_1	513.0 / 469.0	3.30	25421.49	39.045512	113.0	false
PFDA_2	513.0 / 219.0	3.30	1337.07	52.220603	63.8	false
PFUnA_1	563.0 / 519.0	3.62	26669.73	50.021157	108.7	false
PFUnA_2	563.0 / 269.0	3.63	1601.70	40.513453	47.4	false
PFDaA_1	613.0 / 569.0	3.90	27156.92	< 0	117.9	false
PFDaA_2	613.0 / 319.0	3.90	4258.13	13.766000	135.8	false
PFTTrDA_1	663.0 / 619.0	4.15	22475.93	48.481204	163.9	false
PFTTrDA_2	663.0 / 169.0	4.15	1535.38	47.733187	88.9	false
PFTeDA_1	713.0 / 669.0	4.38	23244.45	50.044909	227.0	false
PFTeDA_2	713.0 / 169.0	4.38	1033.80	42.930398	118.0	false
NMeFOSAA_1	570.0 / 419.0	3.46	3432.51	46.741338	187.0	false
NMeFOSAA_2	570.0 / 512.0	3.45	2119.67	36.113201	133.1	false
NEtFOSAA_1	584.0 / 419.0	3.62	2893.86	48.917992	126.4	false
NEtFOSAA_2	584.0 / 483.0	3.61	199.45	103.851355	140.7	false

Sample Name	JV22	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:53:52	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	53691.01	114.073097	107.2	true
PFBS_2	298.9 / 99.0	1.54	15438.51	102.205673	61.7	true
PFHxA_1	313.0 / 269.0	1.84	71846.20	89.976971	23.6	true
PFHxA_2	313.0 / 119.0	1.84	3704.89	73.100366	16.4	true
PFHpA_1	363.0 / 319.0	2.20	68628.21	117.245676	49.6	false
PFHpA_2	363.0 / 169.0	2.20	1540.88	59.372590	33.8	true
PFHxS_1	399.0 / 80.0	2.22	56517.61	97.481687	23.5	true
PFHxS_2	399.0 / 99.0	2.21	16943.36	96.661530	22.2	true
PFOA_1	413.0 / 369.0	2.58	71172.30	100.186034	34.9	true
PFOA_2	413.0 / 169.0	2.57	6280.19	106.307797	28.2	true
PFNA_1	463.0 / 419.0	2.95	76363.52	104.458467	72.3	false
PFNA_2	463.0 / 219.0	2.95	21846.60	110.562507	63.4	false
PFOS_1	499.0 / 80.0	2.94	43762.56	108.959361	8.9	true
PFOS_2	499.0 / 99.0	2.95	10935.00	105.033358	12.1	true
PFDA_1	513.0 / 469.0	3.30	80840.15	114.963867	191.0	false
PFDA_2	513.0 / 219.0	3.30	2928.78	95.565140	128.9	false
PFUnA_1	563.0 / 519.0	3.62	66620.09	105.372507	173.4	false
PFUnA_2	563.0 / 269.0	3.61	4464.07	118.927460	80.5	false
PFDaA_1	613.0 / 569.0	3.90	67972.25	70.178458	198.6	false
PFDaA_2	613.0 / 319.0	3.91	10783.46	86.741212	245.7	false
PFTTrDA_1	663.0 / 619.0	4.16	58224.41	106.967849	228.6	false
PFTTrDA_2	663.0 / 169.0	4.16	3977.95	107.588314	140.9	false
PFTeDA_1	713.0 / 669.0	4.38	57951.87	103.113355	428.3	false
PFTeDA_2	713.0 / 169.0	4.38	2856.93	101.815900	267.5	false
NMeFOSAA_1	570.0 / 419.0	3.45	8247.54	101.511782	404.3	false
NMeFOSAA_2	570.0 / 512.0	3.45	4849.12	95.604572	547.0	false
NEtFOSAA_1	584.0 / 419.0	3.62	8641.85	117.438734	229.7	false
NEtFOSAA_2	584.0 / 483.0	3.61	515.27	166.868452	245.3	false

Sample Name	JV23	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:04:34	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	133326.06	259.829558	214.4	false
PFBS_2	298.9 / 99.0	1.54	39554.83	244.309260	142.2	false
PFHxA_1	313.0 / 269.0	1.83	160436.46	250.174993	34.3	false
PFHxA_2	313.0 / 119.0	1.83	9484.25	222.023864	30.2	false
PFHpA_1	363.0 / 319.0	2.20	139692.33	258.749918	81.1	false
PFHpA_2	363.0 / 169.0	2.20	5376.41	415.041377	52.7	true
PFHxS_1	399.0 / 80.0	2.21	144579.76	261.185199	46.1	true
PFHxS_2	399.0 / 99.0	2.21	40118.28	253.283409	42.5	true
PFOA_1	413.0 / 369.0	2.58	181316.08	263.728976	59.4	true
PFOA_2	413.0 / 169.0	2.57	14857.31	271.408103	60.3	true
PFNA_1	463.0 / 419.0	2.95	190607.07	263.701795	137.2	false
PFNA_2	463.0 / 219.0	2.95	49714.50	248.793870	107.7	false
PFOS_1	499.0 / 80.0	2.94	174021.28	263.794339	29.6	true
PFOS_2	499.0 / 99.0	2.94	33731.25	259.538899	29.5	true
PFDA_1	513.0 / 469.0	3.30	184282.20	265.515260	363.4	false
PFDA_2	513.0 / 219.0	3.29	6414.08	207.658078	135.4	false
PFUnA_1	563.0 / 519.0	3.62	163296.05	245.247105	263.2	false
PFUnA_2	563.0 / 269.0	3.61	11213.80	306.872947	203.0	false
PFDaA_1	613.0 / 569.0	3.90	168149.36	267.915463	281.0	false
PFDaA_2	613.0 / 319.0	3.90	27104.04	276.475216	327.8	false
PFTTrDA_1	663.0 / 619.0	4.15	149143.68	276.263151	336.7	false
PFTTrDA_2	663.0 / 169.0	4.15	10144.70	279.571556	311.1	false
PFTeDA_1	713.0 / 669.0	4.38	144811.42	256.151932	565.9	false
PFTeDA_2	713.0 / 169.0	4.38	7244.09	260.210288	451.1	false
NMeFOSAA_1	570.0 / 419.0	3.45	20037.30	250.779356	450.1	false
NMeFOSAA_2	570.0 / 512.0	3.45	12120.43	274.701878	1514.9	false
NEtFOSAA_1	584.0 / 419.0	3.61	17841.51	220.063816	382.6	false
NEtFOSAA_2	584.0 / 483.0	3.61	784.72	212.776468	97.8	false

Sample Name	JV24	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:15:15	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	234946.08	513.918478	380.1	false
PFBS_2	298.9 / 99.0	1.54	74633.58	520.831671	199.3	false
PFHxA_1	313.0 / 269.0	1.83	284209.10	515.008381	54.7	false
PFHxA_2	313.0 / 119.0	1.83	17806.32	472.175740	44.7	false
PFHpA_1	363.0 / 319.0	2.20	239288.87	455.578080	99.7	false
PFHpA_2	363.0 / 169.0	2.20	4887.44	367.816763	67.5	false
PFHxS_1	399.0 / 80.0	2.21	249789.87	534.660086	59.7	true
PFHxS_2	399.0 / 99.0	2.21	71652.62	547.842587	58.6	true
PFOA_1	413.0 / 369.0	2.58	291007.35	471.973791	80.9	true
PFOA_2	413.0 / 169.0	2.58	24894.66	516.356573	72.2	true
PFNA_1	463.0 / 419.0	2.95	335868.36	551.318989	225.8	false
PFNA_2	463.0 / 219.0	2.95	92585.95	547.564450	183.5	false
PFOS_1	499.0 / 80.0	2.94	298456.63	471.261790	36.2	true
PFOS_2	499.0 / 99.0	2.94	55064.69	471.040056	42.4	true
PFDA_1	513.0 / 469.0	3.30	320798.57	532.287853	470.0	false
PFDA_2	513.0 / 219.0	3.29	12545.34	464.804744	379.8	false
PFUnA_1	563.0 / 519.0	3.62	294379.81	473.779904	284.6	false
PFUnA_2	563.0 / 269.0	3.62	16673.22	497.879911	240.6	false
PFDoA_1	613.0 / 569.0	3.90	288848.70	512.936582	334.1	false
PFDoA_2	613.0 / 319.0	3.90	45411.88	495.184086	482.3	false
PFTTrDA_1	663.0 / 619.0	4.15	240922.10	475.432794	447.4	false
PFTTrDA_2	663.0 / 169.0	4.15	16521.72	486.583145	387.3	false
PFTeDA_1	713.0 / 669.0	4.38	258409.78	486.029505	722.8	false
PFTeDA_2	713.0 / 169.0	4.37	13529.23	519.262579	736.0	false
NMeFOSAA_1	570.0 / 419.0	3.45	34520.00	552.230007	414.3	false
NMeFOSAA_2	570.0 / 512.0	3.45	20901.06	629.792515	563.9	false
NEtFOSAA_1	584.0 / 419.0	3.61	37197.37	503.697956	629.4	false
NEtFOSAA_2	584.0 / 483.0	3.61	2236.43	574.726398	2006.0	false

Sample Name	JV25	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:25:56	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	422735.46	1063.678573	539.7	false
PFBS_2	298.9 / 99.0	1.54	123737.92	995.650839	317.5	false
PFHxA_1	313.0 / 269.0	1.83	468821.18	1028.403785	68.8	false
PFHxA_2	313.0 / 119.0	1.83	31778.38	1006.463495	49.8	false
PFHpA_1	363.0 / 319.0	2.20	411195.55	1056.331419	126.0	false
PFHpA_2	363.0 / 169.0	2.20	11166.75	1275.488671	119.2	false
PFHxS_1	399.0 / 80.0	2.21	439354.45	1117.358473	87.6	true
PFHxS_2	399.0 / 99.0	2.21	128587.81	1179.717216	77.4	true
PFOA_1	413.0 / 369.0	2.58	506784.93	1034.220060	103.2	true
PFOA_2	413.0 / 169.0	2.58	39975.29	1051.550180	97.7	true
PFNA_1	463.0 / 419.0	2.95	578410.62	1029.603636	257.1	false
PFNA_2	463.0 / 219.0	2.95	157114.12	1004.923499	217.7	false
PFOS_1	499.0 / 80.0	2.94	538001.27	982.909786	51.7	true
PFOS_2	499.0 / 99.0	2.94	101370.68	1043.370013	76.3	true
PFDA_1	513.0 / 469.0	3.30	538406.82	1027.599212	443.1	false
PFDA_2	513.0 / 219.0	3.30	25151.53	1068.313446	311.6	false
PFUnA_1	563.0 / 519.0	3.62	513646.43	1035.275441	453.2	false
PFUnA_2	563.0 / 269.0	3.62	26065.62	991.015248	306.7	false
PFDaA_1	613.0 / 569.0	3.90	509366.88	1126.551942	450.1	false
PFDaA_2	613.0 / 319.0	3.90	81255.48	1079.208724	514.1	false
PFTTrDA_1	663.0 / 619.0	4.15	433110.34	1026.550278	648.0	false
PFTTrDA_2	663.0 / 169.0	4.15	28853.56	1022.697874	433.8	false
PFTeDA_1	713.0 / 669.0	4.38	457992.58	1033.338939	943.9	false
PFTeDA_2	713.0 / 169.0	4.37	22753.84	1049.502317	765.6	false
NMeFOSAA_1	570.0 / 419.0	3.45	67130.29	951.596874	2152.5	false
NMeFOSAA_2	570.0 / 512.0	3.45	34332.65	924.546740	554.4	false
NEtFOSAA_1	584.0 / 419.0	3.62	60601.02	871.554521	926.0	false
NEtFOSAA_2	584.0 / 483.0	3.61	3706.80	978.150478	212.2	false

Sample Name	JV26	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:36:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.55	1085167.91	2847.628626	1053.0	false
PFBS_2	298.9 / 99.0	1.55	324823.16	2731.008942	602.8	false
PFHxA_1	313.0 / 269.0	1.83	1177589.73	2799.406639	88.3	false
PFHxA_2	313.0 / 119.0	1.83	82756.78	2809.105294	93.4	false
PFHpA_1	363.0 / 319.0	2.20	1025370.47	2428.055472	181.2	false
PFHpA_2	363.0 / 169.0	2.20	24299.98	2614.276723	164.0	false
PFHxS_1	399.0 / 80.0	2.21	1140082.80	2637.640639	149.2	false
PFHxS_2	399.0 / 99.0	2.22	335022.14	2809.665015	137.6	false
PFOA_1	413.0 / 369.0	2.58	1309566.00	2488.582766	169.5	true
PFOA_2	413.0 / 169.0	2.58	102716.87	2530.541296	152.5	true
PFNA_1	463.0 / 419.0	2.95	1444261.59	2651.434689	373.8	false
PFNA_2	463.0 / 219.0	2.95	410644.43	2704.608737	348.0	false
PFOS_1	499.0 / 80.0	2.94	1384622.68	2404.311359	75.8	true
PFOS_2	499.0 / 99.0	2.94	235867.52	2357.552928	131.1	true
PFDA_1	513.0 / 469.0	3.30	1430156.56	2672.830375	707.2	false
PFDA_2	513.0 / 219.0	3.30	53312.41	2209.453678	572.0	false
PFUnA_1	563.0 / 519.0	3.62	1343482.77	2398.389870	623.1	false
PFUnA_2	563.0 / 269.0	3.62	66234.14	2252.669746	478.3	false
PFDaA_1	613.0 / 569.0	3.90	1264309.64	2603.682297	653.7	false
PFDaA_2	613.0 / 319.0	3.90	195290.92	2386.236813	682.4	false
PFTTrDA_1	663.0 / 619.0	4.15	1127742.35	2486.470932	914.0	false
PFTTrDA_2	663.0 / 169.0	4.15	72790.39	2403.578014	733.2	false
PFTeDA_1	713.0 / 669.0	4.38	1169628.28	2463.483574	1433.4	false
PFTeDA_2	713.0 / 169.0	4.37	56191.97	2422.036551	1420.3	false
NMeFOSAA_1	570.0 / 419.0	3.45	161060.05	2573.237388	891.3	false
NMeFOSAA_2	570.0 / 512.0	3.45	96368.10	2972.639243	2306.6	false
NEtFOSAA_1	584.0 / 419.0	3.61	161996.29	2152.908410	871.7	false
NEtFOSAA_2	584.0 / 483.0	3.61	9871.70	2342.419203	1455.8	false

Sample Name	JV27	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:47:16	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	4394034.07	9589.730089	2139.4	false
PFBS_2	298.9 / 99.0	1.54	1386571.59	9703.159053	1336.6	false
PFHxA_1	313.0 / 269.0	1.83	4621224.85	9816.413143	145.2	false
PFHxA_2	313.0 / 119.0	1.83	326261.34	9846.220727	141.5	false
PFHpA_1	363.0 / 319.0	2.20	4179639.85	10101.438274	337.5	false
PFHpA_2	363.0 / 169.0	2.20	88163.26	9845.423817	261.0	false
PFHxS_1	399.0 / 80.0	2.21	4615843.06	10799.425210	357.0	false
PFHxS_2	399.0 / 99.0	2.21	1290527.17	10973.087905	317.6	false
PFOA_1	413.0 / 369.0	2.57	5041781.68	10183.705964	351.9	true
PFOA_2	413.0 / 169.0	2.57	384970.62	10111.959787	313.9	true
PFNA_1	463.0 / 419.0	2.95	5448869.74	9435.478644	746.1	false
PFNA_2	463.0 / 219.0	2.95	1543238.38	9578.530176	695.0	false
PFOS_1	499.0 / 80.0	2.94	5340982.06	9242.659160	129.7	true
PFOS_2	499.0 / 99.0	2.94	948813.24	9547.325858	225.2	false
PFDA_1	513.0 / 469.0	3.30	5169359.98	10015.594449	1221.8	false
PFDA_2	513.0 / 219.0	3.30	238079.92	10217.822383	814.8	false
PFUnA_1	563.0 / 519.0	3.61	5063329.36	10332.051319	992.2	false
PFUnA_2	563.0 / 269.0	3.61	244675.49	9569.761599	657.9	false
PFDaA_1	613.0 / 569.0	3.90	5119717.33	10884.375528	967.7	false
PFDaA_2	613.0 / 319.0	3.90	799744.80	10026.153948	1227.2	false
PFTTrDA_1	663.0 / 619.0	4.15	4530473.25	9961.026751	1697.7	false
PFTTrDA_2	663.0 / 169.0	4.15	304752.08	10093.394159	1368.7	false
PFTeDA_1	713.0 / 669.0	4.37	4632766.63	10012.029002	2481.8	false
PFTeDA_2	713.0 / 169.0	4.37	225226.21	9988.884280	2065.3	false
NMeFOSAA_1	570.0 / 419.0	3.45	638210.32	9924.675290	1721.7	false
NMeFOSAA_2	570.0 / 512.0	3.45	359193.37	10837.197284	1456.3	false
NEtFOSAA_1	584.0 / 419.0	3.61	592220.59	11845.421285	1151.7	false
NEtFOSAA_2	584.0 / 483.0	3.61	32824.00	11544.536038	676.1	false

Sample Name	JV28	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:57:58	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	10418628.66	20318.109443	3619.9	false
PFBS_2	298.9 / 99.0	1.54	3261605.48	20398.459505	1872.4	false
PFHxA_1	313.0 / 269.0	1.83	10670145.91	20194.116089	226.0	false
PFHxA_2	313.0 / 119.0	1.83	753952.69	20251.359377	201.2	false
PFHpA_1	363.0 / 319.0	2.20	9486939.68	19937.042365	534.1	false
PFHpA_2	363.0 / 169.0	2.20	203101.75	19786.810418	436.1	false
PFHxS_1	399.0 / 80.0	2.21	11139572.06	19250.098181	503.1	false
PFHxS_2	399.0 / 99.0	2.21	2998923.15	18841.009169	469.1	false
PFOA_1	413.0 / 369.0	2.58	11661629.44	19802.644523	451.3	true
PFOA_2	413.0 / 169.0	2.58	894986.79	19774.130902	449.4	true
PFNA_1	463.0 / 419.0	2.95	12511546.79	20321.976724	809.5	false
PFNA_2	463.0 / 219.0	2.95	3463802.87	20161.850707	648.2	false
PFOS_1	499.0 / 80.0	2.94	12862039.56	20876.104205	196.6	true
PFOS_2	499.0 / 99.0	2.94	2174705.57	20566.138888	254.4	false
PFDA_1	513.0 / 469.0	3.30	11558930.16	19735.720034	1119.7	false
PFDA_2	513.0 / 219.0	3.30	530999.76	20077.613505	1084.0	false
PFUnA_1	563.0 / 519.0	3.62	10945714.26	19759.825803	1334.9	false
PFUnA_2	563.0 / 269.0	3.62	595450.59	20624.937171	1113.4	false
PFDoA_1	613.0 / 569.0	3.90	11275538.68	18884.359729	1238.2	false
PFDoA_2	613.0 / 319.0	3.90	1778342.08	17548.781879	1289.7	false
PFTTrDA_1	663.0 / 619.0	4.15	11238114.73	20021.938987	2092.1	false
PFTTrDA_2	663.0 / 169.0	4.15	739949.81	19961.287090	1675.7	false
PFTeDA_1	713.0 / 669.0	4.38	10946530.01	19996.999621	2564.2	false
PFTeDA_2	713.0 / 169.0	4.37	532103.88	20015.897486	2801.6	false
NMeFOSAA_1	570.0 / 419.0	3.45	1521683.35	16903.129381	1547.5	false
NMeFOSAA_2	570.0 / 512.0	3.45	863907.45	18633.547112	1624.0	false
NEtFOSAA_1	584.0 / 419.0	3.62	1293437.31	18637.235289	1425.7	false
NEtFOSAA_2	584.0 / 483.0	3.62	73506.34	18597.391416	1098.7	false

Sample Name	JV20	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:32:29	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFDoA	615.0 / 570.0	3.89	97528.15	116.459772	1520.1	false
d3-MeFOSAA	573.0 / 419.0	3.45	11624.34	146.413748	210.3	true
d5-EtFOSAA	589.0 / 419.0	3.60	11511.66	139.342178	166.0	false
13C5-PFHxA	318.0 / 273.0	1.82	84089.61	122.123600	883.7	false
13C4-PFHpA	367.0 / 322.0	2.19	85221.13	110.572923	929.7	false
13C8-PFOA	421.0 / 376.0	2.57	94707.09	117.739466	2081.6	false
13C9-PFNA	472.0 / 427.0	2.94	98926.95	118.519207	1228.2	false
13C6-PFDA	519.0 / 474.0	3.29	95069.79	117.567914	1259.0	false
13C7-PFUnA	570.0 / 525.0	3.60	95075.30	119.318622	716.4	false
13C2-PFTeDA	715.0 / 670.0	4.37	80746.78	115.845276	1630.9	false
13C3-PFBS	302.0 / 99.0	1.53	22932.69	119.392309	485.8	false
13C3-PFHxS	402.0 / 99.0	2.21	21201.59	141.489062	414.6	false
13C8-PFOS	507.0 / 99.0	2.93	19842.56	123.178669	287.6	true

Sample Name	JV21	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:43:10	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFDoA	615.0 / 570.0	3.89	77204.14	100.826136	1264.4	false
d3-MeFOSAA	573.0 / 419.0	3.45	9344.17	111.273480	270.2	false
d5-EtFOSAA	589.0 / 419.0	3.61	8844.39	101.216119	164.1	false
13C5-PFHxA	318.0 / 273.0	1.82	63711.09	108.059098	522.4	false
13C4-PFHpA	367.0 / 322.0	2.19	73417.96	111.248169	851.9	false
13C8-PFOA	421.0 / 376.0	2.57	74027.78	107.478928	9738.7	false
13C9-PFNA	472.0 / 427.0	2.94	76958.55	107.676277	14987.2	false
13C6-PFDA	519.0 / 474.0	3.29	79582.08	107.633672	986.8	false
13C7-PFUnA	570.0 / 525.0	3.61	75737.34	103.953028	784.0	false
13C2-PFTeDA	715.0 / 670.0	4.37	63319.16	99.351591	1196.9	false
13C3-PFBS	302.0 / 99.0	1.53	20788.54	102.325235	441.2	false
13C3-PFHxS	402.0 / 99.0	2.21	15143.57	95.547678	320.3	false
13C8-PFOS	507.0 / 99.0	2.94	16425.21	96.402006	320.2	false

Sample Name	JV22	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:53:52	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFDoA	615.0 / 570.0	3.89	89425.36	92.069564	2764.9	false
d3-MeFOSAA	573.0 / 419.0	3.45	11146.96	113.223133	251.7	false
d5-EtFOSAA	589.0 / 419.0	3.61	11457.53	111.840903	212.3	false
13C5-PFHxA	318.0 / 273.0	1.82	79365.18	105.188203	800.4	false
13C4-PFHpA	367.0 / 322.0	2.19	91586.15	108.445382	1061.0	false
13C8-PFOA	421.0 / 376.0	2.57	95539.56	108.393337	1217.4	false
13C9-PFNA	472.0 / 427.0	2.94	97074.96	106.135608	1169.6	false
13C6-PFDA	519.0 / 474.0	3.29	98565.78	105.094949	1660.3	false
13C7-PFUnA	570.0 / 525.0	3.61	93298.58	100.954328	573.3	false
13C2-PFTeDA	715.0 / 670.0	4.37	79426.18	98.248549	2567.9	false
13C3-PFBS	302.0 / 99.0	1.53	23260.93	97.659334	488.4	false
13C3-PFHxS	402.0 / 99.0	2.21	21265.52	114.444732	357.7	false
13C8-PFOS	507.0 / 99.0	2.93	21371.14	106.986919	248.1	false

Sample Name	JV23	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:04:34	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFDoA	615.0 / 570.0	3.89	93234.65	96.316698	1190.0	false
d3-MeFOSAA	573.0 / 419.0	3.44	11415.88	105.733681	278.5	false
d5-EtFOSAA	589.0 / 419.0	3.61	12800.07	113.932447	199.6	false
13C5-PFHxA	318.0 / 273.0	1.82	81666.63	97.114552	891.5	false
13C4-PFHpA	367.0 / 322.0	2.19	91799.20	97.526543	944.8	false
13C8-PFOA	421.0 / 376.0	2.56	100044.77	101.839533	1279.1	false
13C9-PFNA	472.0 / 427.0	2.94	102609.28	100.656819	1144.1	false
13C6-PFDA	519.0 / 474.0	3.28	101636.99	108.736752	605.3	false
13C7-PFUnA	570.0 / 525.0	3.60	100265.86	108.860890	595.5	false
13C2-PFTeDA	715.0 / 670.0	4.37	81652.44	101.344582	1326.5	false
13C3-PFBS	302.0 / 99.0	1.52	25634.62	98.138331	463.7	false
13C3-PFHxS	402.0 / 99.0	2.21	21403.87	105.035774	397.4	false
13C8-PFOS	507.0 / 99.0	2.93	24607.45	112.329755	372.5	false

Sample Name	JV24	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:15:15	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFDoA	615.0 / 570.0	3.89	93284.73	95.123732	2861.5	false
d3-MeFOSAA	573.0 / 419.0	3.44	9070.64	74.359502	182.3	false
d5-EtFOSAA	589.0 / 419.0	3.60	11765.35	92.690338	198.6	false
13C5-PFHxA	318.0 / 273.0	1.82	76489.30	99.237890	892.1	false
13C4-PFHpA	367.0 / 322.0	2.19	92173.04	106.837819	1119.3	false
13C8-PFOA	421.0 / 376.0	2.57	91756.89	101.905546	1847.5	false
13C9-PFNA	472.0 / 427.0	2.94	88575.06	94.799307	1433.4	false
13C6-PFDA	519.0 / 474.0	3.28	89792.48	94.824080	859.3	false
13C7-PFUnA	570.0 / 525.0	3.60	94264.72	101.023420	839.3	false
13C2-PFTeDA	715.0 / 670.0	4.37	77436.16	94.870085	1372.5	false
13C3-PFBS	302.0 / 99.0	1.53	22935.24	77.715907	492.2	false
13C3-PFHxS	402.0 / 99.0	2.21	18367.84	79.780684	378.5	false
13C8-PFOS	507.0 / 99.0	2.93	21621.20	87.358001	245.5	false

Sample Name	JV25	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:25:56	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFDoA	615.0 / 570.0	3.89	80413.96	91.322252	1664.4	false
d3-MeFOSAA	573.0 / 419.0	3.45	10292.60	99.931264	158.8	false
d5-EtFOSAA	589.0 / 419.0	3.61	11110.76	103.669534	183.5	false
13C5-PFHxA	318.0 / 273.0	1.82	65934.89	99.664997	804.3	false
13C4-PFHpA	367.0 / 322.0	2.19	69987.93	94.513708	843.0	false
13C8-PFOA	421.0 / 376.0	2.57	74079.17	95.853017	2267.5	false
13C9-PFNA	472.0 / 427.0	2.94	82529.82	102.909425	3703.7	false
13C6-PFDA	519.0 / 474.0	3.29	78719.72	92.582530	756.8	false
13C7-PFUnA	570.0 / 525.0	3.60	75599.87	90.232039	499.5	false
13C2-PFTeDA	715.0 / 670.0	4.37	65071.94	88.786311	1490.6	false
13C3-PFBS	302.0 / 99.0	1.52	19982.85	80.193947	487.5	false
13C3-PFHxS	402.0 / 99.0	2.20	15589.37	80.194756	372.0	false
13C8-PFOS	507.0 / 99.0	2.93	17693.88	84.668820	227.6	false

Sample Name	JV26	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:36:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFDoA	615.0 / 570.0	3.89	89484.94	105.132426	946.6	false
d3-MeFOSAA	573.0 / 419.0	3.45	9175.84	81.729253	182.4	false
d5-EtFOSAA	589.0 / 419.0	3.60	12053.05	103.171474	188.7	false
13C5-PFHxA	318.0 / 273.0	1.82	62568.98	89.294770	701.7	false
13C4-PFHpA	367.0 / 322.0	2.19	76734.05	97.836148	1420.7	false
13C8-PFOA	421.0 / 376.0	2.57	80177.48	97.949384	776.4	false
13C9-PFNA	472.0 / 427.0	2.94	80613.98	94.906115	770.0	false
13C6-PFDA	519.0 / 474.0	3.28	80841.70	98.360905	1046.0	false
13C7-PFUnA	570.0 / 525.0	3.60	85533.59	105.613148	971.5	false
13C2-PFTeDA	715.0 / 670.0	4.37	70599.98	99.654853	1103.5	false
13C3-PFBS	302.0 / 99.0	1.53	19185.88	70.635230	536.9	false
13C3-PFHxS	402.0 / 99.0	2.21	17213.42	81.234398	396.2	false
13C8-PFOS	507.0 / 99.0	2.93	18092.94	79.426450	231.9	false

Sample Name	JV27	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:47:16	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFDoA	615.0 / 570.0	3.89	88539.95	99.603747	2286.3	false
d3-MeFOSAA	573.0 / 419.0	3.44	9446.95	86.359095	126.8	false
d5-EtFOSAA	589.0 / 419.0	3.60	8019.38	70.451163	140.5	false
13C5-PFHxA	318.0 / 273.0	1.82	70857.24	89.832607	689.5	false
13C4-PFHpA	367.0 / 322.0	2.19	75653.64	85.688756	986.2	false
13C8-PFOA	421.0 / 376.0	2.56	75751.08	82.209293	1252.4	false
13C9-PFNA	472.0 / 427.0	2.93	85754.47	89.685735	744.5	false
13C6-PFDA	519.0 / 474.0	3.28	78180.59	91.082657	21894.9	false
13C7-PFUnA	570.0 / 525.0	3.60	74921.51	88.580374	627.6	false
13C2-PFTeDA	715.0 / 670.0	4.36	73022.55	98.696228	1366.5	false
13C3-PFBS	302.0 / 99.0	1.53	23081.50	87.214385	465.1	false
13C3-PFHxS	402.0 / 99.0	2.20	17063.90	82.648633	339.7	false
13C8-PFOS	507.0 / 99.0	2.93	17897.41	80.636332	291.5	false

Sample Name	JV28	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:57:58	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFDoA	615.0 / 570.0	3.89	112712.95	103.145672	1707.1	false
d3-MeFOSAA	573.0 / 419.0	3.45	13229.17	127.390591	113.3	false
d5-EtFOSAA	589.0 / 419.0	3.61	11133.19	103.028023	220.3	false
13C5-PFHxA	318.0 / 273.0	1.82	79723.93	89.484283	837.6	false
13C4-PFHpA	367.0 / 322.0	2.19	87089.11	87.330553	1140.9	false
13C8-PFOA	421.0 / 376.0	2.57	90164.47	86.631497	2836.4	false
13C9-PFNA	472.0 / 427.0	2.94	91488.71	84.711508	964.3	false
13C6-PFDA	519.0 / 474.0	3.29	88757.26	84.116543	844.8	false
13C7-PFUnA	570.0 / 525.0	3.60	84702.22	81.464151	708.9	false
13C2-PFTeDA	715.0 / 670.0	4.37	93865.50	103.202525	1802.0	false
13C3-PFBS	302.0 / 99.0	1.53	25833.75	102.825321	590.6	false
13C3-PFHxS	402.0 / 99.0	2.21	23110.92	117.913344	434.5	false
13C8-PFOS	507.0 / 99.0	2.93	19029.24	90.313050	323.1	false

Sample Name	JV20	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:32:29	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.55	PFBS			
PFBS_2	298.9 / 99.0	1.54	PFBS	0.371	0.322	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.083	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.027	
PFHxS_1	399.0 / 80.0	2.22	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.359	0.297	ü
PFOA_1	413.0 / 369.0	2.58	PFOA			
PFOA_2	413.0 / 169.0	2.56	PFOA	0.056	0.079	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.244	0.273	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.908	0.191	
PFDA_1	513.0 / 469.0	3.30	PFDA			
PFDA_2	513.0 / 219.0	3.30	PFDA	0.052	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.63	PFUnA	0.079	0.059	ü
PFDaA_1	613.0 / 569.0	3.90	PFDaA			
PFDaA_2	613.0 / 319.0	3.90	PFDaA	0.128	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.16	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.15	PFTTrDA	0.072	0.068	ü
PFTeDA_1	713.0 / 669.0	4.38	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.38	PFTeDA	0.056	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.46	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.810	0.607	ü
NEtFOSAA_1	584.0 / 419.0	3.62	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.056	

Sample Name	JV21	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:43:10	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.55	PFBS			
PFBS_2	298.9 / 99.0	1.54	PFBS	0.403	0.322	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.093	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.23	PFHpA	0.037	0.027	ü
PFHxS_1	399.0 / 80.0	2.22	PFHxS			
PFHxS_2	399.0 / 99.0	2.22	PFHxS	0.316	0.297	ü
PFOA_1	413.0 / 369.0	2.58	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.063	0.079	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.274	0.273	ü
PFOS_1	499.0 / 80.0	2.95	PFOS			
PFOS_2	499.0 / 99.0	2.95	PFOS	0.266	0.191	ü
PFDA_1	513.0 / 469.0	3.30	PFDA			
PFDA_2	513.0 / 219.0	3.30	PFDA	0.053	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.63	PFUnA	0.060	0.059	ü
PFDaA_1	613.0 / 569.0	3.90	PFDaA			
PFDaA_2	613.0 / 319.0	3.90	PFDaA	0.157	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.15	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.15	PFTTrDA	0.068	0.068	ü
PFTeDA_1	713.0 / 669.0	4.38	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.38	PFTeDA	0.045	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.46	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.618	0.607	ü
NEtFOSAA_1	584.0 / 419.0	3.62	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.61	NEtFOSAA	0.069	0.056	ü

Sample Name	JV22	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:53:52	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	0.288	0.322	ü
PFHxA_1	313.0 / 269.0	1.84	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.052	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.023	0.027	ü
PFHxS_1	399.0 / 80.0	2.22	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.300	0.297	ü
PFOA_1	413.0 / 369.0	2.58	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.088	0.079	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.286	0.273	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.95	PFOS	0.250	0.191	ü
PFDA_1	513.0 / 469.0	3.30	PFDA			
PFDA_2	513.0 / 219.0	3.30	PFDA	0.036	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.067	0.059	ü
PFDaA_1	613.0 / 569.0	3.90	PFDaA			
PFDaA_2	613.0 / 319.0	3.91	PFDaA	0.159	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.16	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.16	PFTTrDA	0.068	0.068	ü
PFTeDA_1	713.0 / 669.0	4.38	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.38	PFTeDA	0.049	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.588	0.607	ü
NEtFOSAA_1	584.0 / 419.0	3.62	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.61	NEtFOSAA	0.060	0.056	ü

Sample Name	JV23	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:04:34	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	0.297	0.322	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.059	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.039	0.027	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.278	0.297	ü
PFOA_1	413.0 / 369.0	2.58	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.082	0.079	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.261	0.273	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.194	0.191	ü
PFDA_1	513.0 / 469.0	3.30	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.035	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.069	0.059	ü
PFDaA_1	613.0 / 569.0	3.90	PFDaA			
PFDaA_2	613.0 / 319.0	3.90	PFDaA	0.161	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.15	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.15	PFTTrDA	0.068	0.068	ü
PFTeDA_1	713.0 / 669.0	4.38	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.38	PFTeDA	0.050	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.605	0.607	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.61	NEtFOSAA	0.044	0.056	ü

Sample Name	JV24	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:15:15	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	0.318	0.322	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.063	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.020	0.027	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.287	0.297	ü
PFOA_1	413.0 / 369.0	2.58	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.086	0.079	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.276	0.273	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.185	0.191	ü
PFDA_1	513.0 / 469.0	3.30	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.039	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.057	0.059	ü
PFDaA_1	613.0 / 569.0	3.90	PFDaA			
PFDaA_2	613.0 / 319.0	3.90	PFDaA	0.157	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.15	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.15	PFTTrDA	0.069	0.068	ü
PFTeDA_1	713.0 / 669.0	4.38	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.052	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.606	0.607	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.61	NEtFOSAA	0.060	0.056	ü

Sample Name	JV25	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:25:56	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	0.293	0.322	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.068	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.027	0.027	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.293	0.297	ü
PFOA_1	413.0 / 369.0	2.58	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.079	0.079	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.272	0.273	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.188	0.191	ü
PFDA_1	513.0 / 469.0	3.30	PFDA			
PFDA_2	513.0 / 219.0	3.30	PFDA	0.047	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.051	0.059	ü
PFDaA_1	613.0 / 569.0	3.90	PFDaA			
PFDaA_2	613.0 / 319.0	3.90	PFDaA	0.160	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.15	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.15	PFTTrDA	0.067	0.068	ü
PFTeDA_1	713.0 / 669.0	4.38	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.050	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.511	0.607	ü
NEtFOSAA_1	584.0 / 419.0	3.62	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.61	NEtFOSAA	0.061	0.056	ü

Sample Name	JV26	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:36:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.55	PFBS			
PFBS_2	298.9 / 99.0	1.55	PFBS	0.299	0.322	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.070	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.024	0.027	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.22	PFHxS	0.294	0.297	ü
PFOA_1	413.0 / 369.0	2.58	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.078	0.079	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.284	0.273	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.170	0.191	ü
PFDA_1	513.0 / 469.0	3.30	PFDA			
PFDA_2	513.0 / 219.0	3.30	PFDA	0.037	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.049	0.059	ü
PFDaA_1	613.0 / 569.0	3.90	PFDaA			
PFDaA_2	613.0 / 319.0	3.90	PFDaA	0.155	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.15	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.15	PFTTrDA	0.065	0.068	ü
PFTeDA_1	713.0 / 669.0	4.38	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.048	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.598	0.607	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.61	NEtFOSAA	0.061	0.056	ü

Sample Name	JV27	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:47:16	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	0.316	0.322	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.071	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.021	0.027	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.280	0.297	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.076	0.079	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.283	0.273	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.178	0.191	ü
PFDA_1	513.0 / 469.0	3.30	PFDA			
PFDA_2	513.0 / 219.0	3.30	PFDA	0.046	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.048	0.059	ü
PFDaA_1	613.0 / 569.0	3.90	PFDaA			
PFDaA_2	613.0 / 319.0	3.90	PFDaA	0.156	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.15	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.15	PFTTrDA	0.067	0.068	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.049	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.563	0.607	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.61	NEtFOSAA	0.055	0.056	ü

Sample Name	JV28	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:57:58	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	0.313	0.322	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.071	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.021	0.027	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.269	0.297	ü
PFOA_1	413.0 / 369.0	2.58	PFOA			
PFOA_2	413.0 / 169.0	2.58	PFOA	0.077	0.079	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.277	0.273	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.169	0.191	ü
PFDA_1	513.0 / 469.0	3.30	PFDA			
PFDA_2	513.0 / 219.0	3.30	PFDA	0.046	0.044	ü
PFUnA_1	563.0 / 519.0	3.62	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.054	0.059	ü
PFDaA_1	613.0 / 569.0	3.90	PFDaA			
PFDaA_2	613.0 / 319.0	3.90	PFDaA	0.158	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.15	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.15	PFTTrDA	0.066	0.068	ü
PFTeDA_1	713.0 / 669.0	4.38	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.049	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.568	0.607	ü
NEtFOSAA_1	584.0 / 419.0	3.62	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.62	NEtFOSAA	0.057	0.056	ü

Sample Name	JV20	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:32:29	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.55	13C3-PFBS	302.0 / 99.0	22932.69	92.90
PFBS_2	298.9 / 99.0	1.54	13C3-PFBS	302.0 / 99.0	22932.69	92.90
PFHxA_1	313.0 / 269.0	1.82	13C5-PFHxA	318.0 / 273.0	84089.61	100.00
PFHxA_2	313.0 / 119.0	1.83	13C5-PFHxA	318.0 / 273.0	84089.61	100.00
PFHpA_1	363.0 / 319.0	2.20	13C4-PFHpA	367.0 / 322.0	85221.13	100.00
PFHpA_2	363.0 / 169.0	N/A	13C4-PFHpA	367.0 / 322.0	85221.13	100.00
PFHxS_1	399.0 / 80.0	2.22	13C3-PFHxS	402.0 / 99.0	21201.59	94.60
PFHxS_2	399.0 / 99.0	2.21	13C3-PFHxS	402.0 / 99.0	21201.59	94.60
PFOA_1	413.0 / 369.0	2.58	13C8-PFOA	421.0 / 376.0	94707.09	100.00
PFOA_2	413.0 / 169.0	2.56	13C8-PFOA	421.0 / 376.0	94707.09	100.00
PFNA_1	463.0 / 419.0	2.95	13C9-PFNA	472.0 / 427.0	98926.95	100.00
PFNA_2	463.0 / 219.0	2.95	13C9-PFNA	472.0 / 427.0	98926.95	100.00
PFOS_1	499.0 / 80.0	2.94	13C8-PFOS	507.0 / 99.0	20870.53	95.70
PFOS_2	499.0 / 99.0	2.94	13C8-PFOS	507.0 / 99.0	20870.53	95.70
PFDA_1	513.0 / 469.0	3.30	13C6-PFDA	519.0 / 474.0	95069.79	100.00
PFDA_2	513.0 / 219.0	3.30	13C6-PFDA	519.0 / 474.0	95069.79	100.00
PFUnA_1	563.0 / 519.0	3.62	13C7-PFUnA	570.0 / 525.0	95075.30	100.00
PFUnA_2	563.0 / 269.0	3.63	13C7-PFUnA	570.0 / 525.0	95075.30	100.00
PFDaA_1	613.0 / 569.0	3.90	13C2-PFDaA	615.0 / 570.0	97528.15	100.00
PFDaA_2	613.0 / 319.0	3.90	13C2-PFDaA	615.0 / 570.0	97528.15	100.00
PFTeDA_1	663.0 / 619.0	4.16	13C2-PFTeDA	715.0 / 670.0	80746.78	100.00
PFTeDA_2	663.0 / 169.0	4.15	13C2-PFTeDA	715.0 / 670.0	80746.78	100.00
PFTeDA_1	713.0 / 669.0	4.38	13C2-PFTeDA	715.0 / 670.0	80746.78	100.00
PFTeDA_2	713.0 / 169.0	4.38	13C2-PFTeDA	715.0 / 670.0	80746.78	100.00
NMeFOSAA_1	570.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	12138.86	100.00
NMeFOSAA_2	570.0 / 512.0	3.45	d3-MeFOSAA	573.0 / 419.0	12138.86	100.00
NEtFOSAA_1	584.0 / 419.0	3.62	d5-EtFOSAA	589.0 / 419.0	11511.66	100.00
NEtFOSAA_2	584.0 / 483.0	N/A	d5-EtFOSAA	589.0 / 419.0	11511.66	100.00

Sample Name	JV21	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:43:10	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.55	13C3-PFBS	302.0 / 99.0	20788.54	92.90
PFBS_2	298.9 / 99.0	1.54	13C3-PFBS	302.0 / 99.0	20788.54	92.90
PFHxA_1	313.0 / 269.0	1.83	13C5-PFHxA	318.0 / 273.0	63711.09	100.00
PFHxA_2	313.0 / 119.0	1.84	13C5-PFHxA	318.0 / 273.0	63711.09	100.00
PFHpA_1	363.0 / 319.0	2.20	13C4-PFHpA	367.0 / 322.0	73417.96	100.00
PFHpA_2	363.0 / 169.0	2.23	13C4-PFHpA	367.0 / 322.0	73417.96	100.00
PFHxS_1	399.0 / 80.0	2.22	13C3-PFHxS	402.0 / 99.0	15143.57	94.60
PFHxS_2	399.0 / 99.0	2.22	13C3-PFHxS	402.0 / 99.0	15143.57	94.60
PFOA_1	413.0 / 369.0	2.58	13C8-PFOA	421.0 / 376.0	74027.78	100.00
PFOA_2	413.0 / 169.0	2.57	13C8-PFOA	421.0 / 376.0	74027.78	100.00
PFNA_1	463.0 / 419.0	2.95	13C9-PFNA	472.0 / 427.0	76958.55	100.00
PFNA_2	463.0 / 219.0	2.95	13C9-PFNA	472.0 / 427.0	76958.55	100.00
PFOS_1	499.0 / 80.0	2.95	13C8-PFOS	507.0 / 99.0	16425.21	95.70
PFOS_2	499.0 / 99.0	2.95	13C8-PFOS	507.0 / 99.0	16425.21	95.70
PFDA_1	513.0 / 469.0	3.30	13C6-PFDA	519.0 / 474.0	79582.08	100.00
PFDA_2	513.0 / 219.0	3.30	13C6-PFDA	519.0 / 474.0	79582.08	100.00
PFUnA_1	563.0 / 519.0	3.62	13C7-PFUnA	570.0 / 525.0	75737.34	100.00
PFUnA_2	563.0 / 269.0	3.63	13C7-PFUnA	570.0 / 525.0	75737.34	100.00
PFDaA_1	613.0 / 569.0	3.90	13C2-PFDaA	615.0 / 570.0	77204.14	100.00
PFDaA_2	613.0 / 319.0	3.90	13C2-PFDaA	615.0 / 570.0	77204.14	100.00
PFTeDA_1	663.0 / 619.0	4.15	13C2-PFTeDA	715.0 / 670.0	63319.16	100.00
PFTeDA_2	663.0 / 169.0	4.15	13C2-PFTeDA	715.0 / 670.0	63319.16	100.00
PFTeDA_1	713.0 / 669.0	4.38	13C2-PFTeDA	715.0 / 670.0	63319.16	100.00
PFTeDA_2	713.0 / 169.0	4.38	13C2-PFTeDA	715.0 / 670.0	63319.16	100.00
NMeFOSAA_1	570.0 / 419.0	3.46	d3-MeFOSAA	573.0 / 419.0	9344.17	100.00
NMeFOSAA_2	570.0 / 512.0	3.45	d3-MeFOSAA	573.0 / 419.0	9344.17	100.00
NEtFOSAA_1	584.0 / 419.0	3.62	d5-EtFOSAA	589.0 / 419.0	8844.39	100.00
NEtFOSAA_2	584.0 / 483.0	3.61	d5-EtFOSAA	589.0 / 419.0	8844.39	100.00

Sample Name	JV22	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:53:52	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	13C3-PFBS	302.0 / 99.0	23260.93	92.90
PFBS_2	298.9 / 99.0	1.54	13C3-PFBS	302.0 / 99.0	23260.93	92.90
PFHxA_1	313.0 / 269.0	1.84	13C5-PFHxA	318.0 / 273.0	79365.18	100.00
PFHxA_2	313.0 / 119.0	1.84	13C5-PFHxA	318.0 / 273.0	79365.18	100.00
PFHpA_1	363.0 / 319.0	2.20	13C4-PFHpA	367.0 / 322.0	91586.15	100.00
PFHpA_2	363.0 / 169.0	2.20	13C4-PFHpA	367.0 / 322.0	91586.15	100.00
PFHxS_1	399.0 / 80.0	2.22	13C3-PFHxS	402.0 / 99.0	21265.52	94.60
PFHxS_2	399.0 / 99.0	2.21	13C3-PFHxS	402.0 / 99.0	21265.52	94.60
PFOA_1	413.0 / 369.0	2.58	13C8-PFOA	421.0 / 376.0	95539.56	100.00
PFOA_2	413.0 / 169.0	2.57	13C8-PFOA	421.0 / 376.0	95539.56	100.00
PFNA_1	463.0 / 419.0	2.95	13C9-PFNA	472.0 / 427.0	97074.96	100.00
PFNA_2	463.0 / 219.0	2.95	13C9-PFNA	472.0 / 427.0	97074.96	100.00
PFOS_1	499.0 / 80.0	2.94	13C8-PFOS	507.0 / 99.0	21371.14	95.70
PFOS_2	499.0 / 99.0	2.95	13C8-PFOS	507.0 / 99.0	21371.14	95.70
PFDA_1	513.0 / 469.0	3.30	13C6-PFDA	519.0 / 474.0	98565.78	100.00
PFDA_2	513.0 / 219.0	3.30	13C6-PFDA	519.0 / 474.0	98565.78	100.00
PFUnA_1	563.0 / 519.0	3.62	13C7-PFUnA	570.0 / 525.0	93298.58	100.00
PFUnA_2	563.0 / 269.0	3.61	13C7-PFUnA	570.0 / 525.0	93298.58	100.00
PFDaA_1	613.0 / 569.0	3.90	13C2-PFDaA	615.0 / 570.0	89425.36	100.00
PFDaA_2	613.0 / 319.0	3.91	13C2-PFDaA	615.0 / 570.0	89425.36	100.00
PFTeDA_1	663.0 / 619.0	4.16	13C2-PFTeDA	715.0 / 670.0	79426.18	100.00
PFTeDA_2	663.0 / 169.0	4.16	13C2-PFTeDA	715.0 / 670.0	79426.18	100.00
PFTeDA_1	713.0 / 669.0	4.38	13C2-PFTeDA	715.0 / 670.0	79426.18	100.00
PFTeDA_2	713.0 / 169.0	4.38	13C2-PFTeDA	715.0 / 670.0	79426.18	100.00
NMeFOSAA_1	570.0 / 419.0	3.45	d3-MeFOSAA	573.0 / 419.0	11146.96	100.00
NMeFOSAA_2	570.0 / 512.0	3.45	d3-MeFOSAA	573.0 / 419.0	11146.96	100.00
NEtFOSAA_1	584.0 / 419.0	3.62	d5-EtFOSAA	589.0 / 419.0	11457.53	100.00
NEtFOSAA_2	584.0 / 483.0	3.61	d5-EtFOSAA	589.0 / 419.0	11457.53	100.00

Sample Name	JV23	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:04:34	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	13C3-PFBS	302.0 / 99.0	25634.62	92.90
PFBS_2	298.9 / 99.0	1.54	13C3-PFBS	302.0 / 99.0	25634.62	92.90
PFHxA_1	313.0 / 269.0	1.83	13C5-PFHxA	318.0 / 273.0	81666.63	100.00
PFHxA_2	313.0 / 119.0	1.83	13C5-PFHxA	318.0 / 273.0	81666.63	100.00
PFHpA_1	363.0 / 319.0	2.20	13C4-PFHpA	367.0 / 322.0	91799.20	100.00
PFHpA_2	363.0 / 169.0	2.20	13C4-PFHpA	367.0 / 322.0	91799.20	100.00
PFHxS_1	399.0 / 80.0	2.21	13C3-PFHxS	402.0 / 99.0	21403.87	94.60
PFHxS_2	399.0 / 99.0	2.21	13C3-PFHxS	402.0 / 99.0	21403.87	94.60
PFOA_1	413.0 / 369.0	2.58	13C8-PFOA	421.0 / 376.0	100044.77	100.00
PFOA_2	413.0 / 169.0	2.57	13C8-PFOA	421.0 / 376.0	100044.77	100.00
PFNA_1	463.0 / 419.0	2.95	13C9-PFNA	472.0 / 427.0	102609.28	100.00
PFNA_2	463.0 / 219.0	2.95	13C9-PFNA	472.0 / 427.0	102609.28	100.00
PFOS_1	499.0 / 80.0	2.94	13C8-PFOS	507.0 / 99.0	24607.45	95.70
PFOS_2	499.0 / 99.0	2.94	13C8-PFOS	507.0 / 99.0	24607.45	95.70
PFDA_1	513.0 / 469.0	3.30	13C6-PFDA	519.0 / 474.0	101636.99	100.00
PFDA_2	513.0 / 219.0	3.29	13C6-PFDA	519.0 / 474.0	101636.99	100.00
PFUnA_1	563.0 / 519.0	3.62	13C7-PFUnA	570.0 / 525.0	100265.86	100.00
PFUnA_2	563.0 / 269.0	3.61	13C7-PFUnA	570.0 / 525.0	100265.86	100.00
PFDaA_1	613.0 / 569.0	3.90	13C2-PFDaA	615.0 / 570.0	93234.65	100.00
PFDaA_2	613.0 / 319.0	3.90	13C2-PFDaA	615.0 / 570.0	93234.65	100.00
PFTeDA_1	663.0 / 619.0	4.15	13C2-PFTeDA	715.0 / 670.0	81652.44	100.00
PFTeDA_2	663.0 / 169.0	4.15	13C2-PFTeDA	715.0 / 670.0	81652.44	100.00
PFTeDA_1	713.0 / 669.0	4.38	13C2-PFTeDA	715.0 / 670.0	81652.44	100.00
PFTeDA_2	713.0 / 169.0	4.38	13C2-PFTeDA	715.0 / 670.0	81652.44	100.00
NMeFOSAA_1	570.0 / 419.0	3.45	d3-MeFOSAA	573.0 / 419.0	11415.88	100.00
NMeFOSAA_2	570.0 / 512.0	3.45	d3-MeFOSAA	573.0 / 419.0	11415.88	100.00
NEtFOSAA_1	584.0 / 419.0	3.61	d5-EtFOSAA	589.0 / 419.0	12800.07	100.00
NEtFOSAA_2	584.0 / 483.0	3.61	d5-EtFOSAA	589.0 / 419.0	12800.07	100.00

Sample Name	JV24	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:15:15	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	13C3-PFBS	302.0 / 99.0	22935.24	92.90
PFBS_2	298.9 / 99.0	1.54	13C3-PFBS	302.0 / 99.0	22935.24	92.90
PFHxA_1	313.0 / 269.0	1.83	13C5-PFHxA	318.0 / 273.0	76489.30	100.00
PFHxA_2	313.0 / 119.0	1.83	13C5-PFHxA	318.0 / 273.0	76489.30	100.00
PFHpA_1	363.0 / 319.0	2.20	13C4-PFHpA	367.0 / 322.0	92173.04	100.00
PFHpA_2	363.0 / 169.0	2.20	13C4-PFHpA	367.0 / 322.0	92173.04	100.00
PFHxS_1	399.0 / 80.0	2.21	13C3-PFHxS	402.0 / 99.0	18367.84	94.60
PFHxS_2	399.0 / 99.0	2.21	13C3-PFHxS	402.0 / 99.0	18367.84	94.60
PFOA_1	413.0 / 369.0	2.58	13C8-PFOA	421.0 / 376.0	91756.89	100.00
PFOA_2	413.0 / 169.0	2.58	13C8-PFOA	421.0 / 376.0	91756.89	100.00
PFNA_1	463.0 / 419.0	2.95	13C9-PFNA	472.0 / 427.0	88575.06	100.00
PFNA_2	463.0 / 219.0	2.95	13C9-PFNA	472.0 / 427.0	88575.06	100.00
PFOS_1	499.0 / 80.0	2.94	13C8-PFOS	507.0 / 99.0	21621.20	95.70
PFOS_2	499.0 / 99.0	2.94	13C8-PFOS	507.0 / 99.0	21621.20	95.70
PFDA_1	513.0 / 469.0	3.30	13C6-PFDA	519.0 / 474.0	89792.48	100.00
PFDA_2	513.0 / 219.0	3.29	13C6-PFDA	519.0 / 474.0	89792.48	100.00
PFUnA_1	563.0 / 519.0	3.62	13C7-PFUnA	570.0 / 525.0	94264.72	100.00
PFUnA_2	563.0 / 269.0	3.62	13C7-PFUnA	570.0 / 525.0	94264.72	100.00
PFDaA_1	613.0 / 569.0	3.90	13C2-PFDaA	615.0 / 570.0	93284.73	100.00
PFDaA_2	613.0 / 319.0	3.90	13C2-PFDaA	615.0 / 570.0	93284.73	100.00
PFTeDA_1	663.0 / 619.0	4.15	13C2-PFTeDA	715.0 / 670.0	77436.16	100.00
PFTeDA_2	663.0 / 169.0	4.15	13C2-PFTeDA	715.0 / 670.0	77436.16	100.00
PFTeDA_1	713.0 / 669.0	4.38	13C2-PFTeDA	715.0 / 670.0	77436.16	100.00
PFTeDA_2	713.0 / 169.0	4.37	13C2-PFTeDA	715.0 / 670.0	77436.16	100.00
NMeFOSAA_1	570.0 / 419.0	3.45	d3-MeFOSAA	573.0 / 419.0	9070.64	100.00
NMeFOSAA_2	570.0 / 512.0	3.45	d3-MeFOSAA	573.0 / 419.0	9070.64	100.00
NEtFOSAA_1	584.0 / 419.0	3.61	d5-EtFOSAA	589.0 / 419.0	11765.35	100.00
NEtFOSAA_2	584.0 / 483.0	3.61	d5-EtFOSAA	589.0 / 419.0	11765.35	100.00

Sample Name	JV25	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:25:56	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	13C3-PFBS	302.0 / 99.0	19982.85	92.90
PFBS_2	298.9 / 99.0	1.54	13C3-PFBS	302.0 / 99.0	19982.85	92.90
PFHxA_1	313.0 / 269.0	1.83	13C5-PFHxA	318.0 / 273.0	65934.89	100.00
PFHxA_2	313.0 / 119.0	1.83	13C5-PFHxA	318.0 / 273.0	65934.89	100.00
PFHpA_1	363.0 / 319.0	2.20	13C4-PFHpA	367.0 / 322.0	69987.93	100.00
PFHpA_2	363.0 / 169.0	2.20	13C4-PFHpA	367.0 / 322.0	69987.93	100.00
PFHxS_1	399.0 / 80.0	2.21	13C3-PFHxS	402.0 / 99.0	15589.37	94.60
PFHxS_2	399.0 / 99.0	2.21	13C3-PFHxS	402.0 / 99.0	15589.37	94.60
PFOA_1	413.0 / 369.0	2.58	13C8-PFOA	421.0 / 376.0	74079.17	100.00
PFOA_2	413.0 / 169.0	2.58	13C8-PFOA	421.0 / 376.0	74079.17	100.00
PFNA_1	463.0 / 419.0	2.95	13C9-PFNA	472.0 / 427.0	82529.82	100.00
PFNA_2	463.0 / 219.0	2.95	13C9-PFNA	472.0 / 427.0	82529.82	100.00
PFOS_1	499.0 / 80.0	2.94	13C8-PFOS	507.0 / 99.0	17693.88	95.70
PFOS_2	499.0 / 99.0	2.94	13C8-PFOS	507.0 / 99.0	17693.88	95.70
PFDA_1	513.0 / 469.0	3.30	13C6-PFDA	519.0 / 474.0	78719.72	100.00
PFDA_2	513.0 / 219.0	3.30	13C6-PFDA	519.0 / 474.0	78719.72	100.00
PFUnA_1	563.0 / 519.0	3.62	13C7-PFUnA	570.0 / 525.0	75599.87	100.00
PFUnA_2	563.0 / 269.0	3.62	13C7-PFUnA	570.0 / 525.0	75599.87	100.00
PFDaA_1	613.0 / 569.0	3.90	13C2-PFDaA	615.0 / 570.0	80413.96	100.00
PFDaA_2	613.0 / 319.0	3.90	13C2-PFDaA	615.0 / 570.0	80413.96	100.00
PFTeDA_1	663.0 / 619.0	4.15	13C2-PFTeDA	715.0 / 670.0	65071.94	100.00
PFTeDA_2	663.0 / 169.0	4.15	13C2-PFTeDA	715.0 / 670.0	65071.94	100.00
PFTeDA_1	713.0 / 669.0	4.38	13C2-PFTeDA	715.0 / 670.0	65071.94	100.00
PFTeDA_2	713.0 / 169.0	4.37	13C2-PFTeDA	715.0 / 670.0	65071.94	100.00
NMeFOSAA_1	570.0 / 419.0	3.45	d3-MeFOSAA	573.0 / 419.0	10292.60	100.00
NMeFOSAA_2	570.0 / 512.0	3.45	d3-MeFOSAA	573.0 / 419.0	10292.60	100.00
NEtFOSAA_1	584.0 / 419.0	3.62	d5-EtFOSAA	589.0 / 419.0	11110.76	100.00
NEtFOSAA_2	584.0 / 483.0	3.61	d5-EtFOSAA	589.0 / 419.0	11110.76	100.00

Sample Name	JV26	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:36:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.55	13C3-PFBS	302.0 / 99.0	19185.88	92.90
PFBS_2	298.9 / 99.0	1.55	13C3-PFBS	302.0 / 99.0	19185.88	92.90
PFHxA_1	313.0 / 269.0	1.83	13C5-PFHxA	318.0 / 273.0	62568.98	100.00
PFHxA_2	313.0 / 119.0	1.83	13C5-PFHxA	318.0 / 273.0	62568.98	100.00
PFHpA_1	363.0 / 319.0	2.20	13C4-PFHpA	367.0 / 322.0	76734.05	100.00
PFHpA_2	363.0 / 169.0	2.20	13C4-PFHpA	367.0 / 322.0	76734.05	100.00
PFHxS_1	399.0 / 80.0	2.21	13C3-PFHxS	402.0 / 99.0	17213.42	94.60
PFHxS_2	399.0 / 99.0	2.22	13C3-PFHxS	402.0 / 99.0	17213.42	94.60
PFOA_1	413.0 / 369.0	2.58	13C8-PFOA	421.0 / 376.0	80177.48	100.00
PFOA_2	413.0 / 169.0	2.58	13C8-PFOA	421.0 / 376.0	80177.48	100.00
PFNA_1	463.0 / 419.0	2.95	13C9-PFNA	472.0 / 427.0	80613.98	100.00
PFNA_2	463.0 / 219.0	2.95	13C9-PFNA	472.0 / 427.0	80613.98	100.00
PFOS_1	499.0 / 80.0	2.94	13C8-PFOS	507.0 / 99.0	18092.94	95.70
PFOS_2	499.0 / 99.0	2.94	13C8-PFOS	507.0 / 99.0	18092.94	95.70
PFDA_1	513.0 / 469.0	3.30	13C6-PFDA	519.0 / 474.0	80841.70	100.00
PFDA_2	513.0 / 219.0	3.30	13C6-PFDA	519.0 / 474.0	80841.70	100.00
PFUnA_1	563.0 / 519.0	3.62	13C7-PFUnA	570.0 / 525.0	85533.59	100.00
PFUnA_2	563.0 / 269.0	3.62	13C7-PFUnA	570.0 / 525.0	85533.59	100.00
PFDaA_1	613.0 / 569.0	3.90	13C2-PFDaA	615.0 / 570.0	89484.94	100.00
PFDaA_2	613.0 / 319.0	3.90	13C2-PFDaA	615.0 / 570.0	89484.94	100.00
PFTeDA_1	663.0 / 619.0	4.15	13C2-PFTeDA	715.0 / 670.0	70599.98	100.00
PFTeDA_2	663.0 / 169.0	4.15	13C2-PFTeDA	715.0 / 670.0	70599.98	100.00
PFTeDA_1	713.0 / 669.0	4.38	13C2-PFTeDA	715.0 / 670.0	70599.98	100.00
PFTeDA_2	713.0 / 169.0	4.37	13C2-PFTeDA	715.0 / 670.0	70599.98	100.00
NMeFOSAA_1	570.0 / 419.0	3.45	d3-MeFOSAA	573.0 / 419.0	9175.84	100.00
NMeFOSAA_2	570.0 / 512.0	3.45	d3-MeFOSAA	573.0 / 419.0	9175.84	100.00
NEtFOSAA_1	584.0 / 419.0	3.61	d5-EtFOSAA	589.0 / 419.0	12053.05	100.00
NEtFOSAA_2	584.0 / 483.0	3.61	d5-EtFOSAA	589.0 / 419.0	12053.05	100.00

Sample Name	JV27	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:47:16	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	13C3-PFBS	302.0 / 99.0	23081.50	92.90
PFBS_2	298.9 / 99.0	1.54	13C3-PFBS	302.0 / 99.0	23081.50	92.90
PFHxA_1	313.0 / 269.0	1.83	13C5-PFHxA	318.0 / 273.0	70857.24	100.00
PFHxA_2	313.0 / 119.0	1.83	13C5-PFHxA	318.0 / 273.0	70857.24	100.00
PFHpA_1	363.0 / 319.0	2.20	13C4-PFHpA	367.0 / 322.0	75653.64	100.00
PFHpA_2	363.0 / 169.0	2.20	13C4-PFHpA	367.0 / 322.0	75653.64	100.00
PFHxS_1	399.0 / 80.0	2.21	13C3-PFHxS	402.0 / 99.0	17063.90	94.60
PFHxS_2	399.0 / 99.0	2.21	13C3-PFHxS	402.0 / 99.0	17063.90	94.60
PFOA_1	413.0 / 369.0	2.57	13C8-PFOA	421.0 / 376.0	75751.08	100.00
PFOA_2	413.0 / 169.0	2.57	13C8-PFOA	421.0 / 376.0	75751.08	100.00
PFNA_1	463.0 / 419.0	2.95	13C9-PFNA	472.0 / 427.0	85754.47	100.00
PFNA_2	463.0 / 219.0	2.95	13C9-PFNA	472.0 / 427.0	85754.47	100.00
PFOS_1	499.0 / 80.0	2.94	13C8-PFOS	507.0 / 99.0	17897.41	95.70
PFOS_2	499.0 / 99.0	2.94	13C8-PFOS	507.0 / 99.0	17897.41	95.70
PFDA_1	513.0 / 469.0	3.30	13C6-PFDA	519.0 / 474.0	78180.59	100.00
PFDA_2	513.0 / 219.0	3.30	13C6-PFDA	519.0 / 474.0	78180.59	100.00
PFUnA_1	563.0 / 519.0	3.61	13C7-PFUnA	570.0 / 525.0	74921.51	100.00
PFUnA_2	563.0 / 269.0	3.61	13C7-PFUnA	570.0 / 525.0	74921.51	100.00
PFDaA_1	613.0 / 569.0	3.90	13C2-PFDaA	615.0 / 570.0	88539.95	100.00
PFDaA_2	613.0 / 319.0	3.90	13C2-PFDaA	615.0 / 570.0	88539.95	100.00
PFTeDA_1	663.0 / 619.0	4.15	13C2-PFTeDA	715.0 / 670.0	73022.55	100.00
PFTeDA_2	663.0 / 169.0	4.15	13C2-PFTeDA	715.0 / 670.0	73022.55	100.00
PFTeDA_1	713.0 / 669.0	4.37	13C2-PFTeDA	715.0 / 670.0	73022.55	100.00
PFTeDA_2	713.0 / 169.0	4.37	13C2-PFTeDA	715.0 / 670.0	73022.55	100.00
NMeFOSAA_1	570.0 / 419.0	3.45	d3-MeFOSAA	573.0 / 419.0	9446.95	100.00
NMeFOSAA_2	570.0 / 512.0	3.45	d3-MeFOSAA	573.0 / 419.0	9446.95	100.00
NEtFOSAA_1	584.0 / 419.0	3.61	d5-EtFOSAA	589.0 / 419.0	8019.38	100.00
NEtFOSAA_2	584.0 / 483.0	3.61	d5-EtFOSAA	589.0 / 419.0	8019.38	100.00

Sample Name	JV28	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:57:58	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	13C3-PFBS	302.0 / 99.0	25833.75	92.90
PFBS_2	298.9 / 99.0	1.54	13C3-PFBS	302.0 / 99.0	25833.75	92.90
PFHxA_1	313.0 / 269.0	1.83	13C5-PFHxA	318.0 / 273.0	79723.93	100.00
PFHxA_2	313.0 / 119.0	1.83	13C5-PFHxA	318.0 / 273.0	79723.93	100.00
PFHpA_1	363.0 / 319.0	2.20	13C4-PFHpA	367.0 / 322.0	87089.11	100.00
PFHpA_2	363.0 / 169.0	2.20	13C4-PFHpA	367.0 / 322.0	87089.11	100.00
PFHxS_1	399.0 / 80.0	2.21	13C3-PFHxS	402.0 / 99.0	23110.92	94.60
PFHxS_2	399.0 / 99.0	2.21	13C3-PFHxS	402.0 / 99.0	23110.92	94.60
PFOA_1	413.0 / 369.0	2.58	13C8-PFOA	421.0 / 376.0	90164.47	100.00
PFOA_2	413.0 / 169.0	2.58	13C8-PFOA	421.0 / 376.0	90164.47	100.00
PFNA_1	463.0 / 419.0	2.95	13C9-PFNA	472.0 / 427.0	91488.71	100.00
PFNA_2	463.0 / 219.0	2.95	13C9-PFNA	472.0 / 427.0	91488.71	100.00
PFOS_1	499.0 / 80.0	2.94	13C8-PFOS	507.0 / 99.0	19029.24	95.70
PFOS_2	499.0 / 99.0	2.94	13C8-PFOS	507.0 / 99.0	19029.24	95.70
PFDA_1	513.0 / 469.0	3.30	13C6-PFDA	519.0 / 474.0	88757.26	100.00
PFDA_2	513.0 / 219.0	3.30	13C6-PFDA	519.0 / 474.0	88757.26	100.00
PFUnA_1	563.0 / 519.0	3.62	13C7-PFUnA	570.0 / 525.0	84702.22	100.00
PFUnA_2	563.0 / 269.0	3.62	13C7-PFUnA	570.0 / 525.0	84702.22	100.00
PFDaA_1	613.0 / 569.0	3.90	13C2-PFDaA	615.0 / 570.0	112712.95	100.00
PFDaA_2	613.0 / 319.0	3.90	13C2-PFDaA	615.0 / 570.0	112712.95	100.00
PFTeDA_1	663.0 / 619.0	4.15	13C2-PFTeDA	715.0 / 670.0	93865.50	100.00
PFTeDA_2	663.0 / 169.0	4.15	13C2-PFTeDA	715.0 / 670.0	93865.50	100.00
PFTeDA_1	713.0 / 669.0	4.38	13C2-PFTeDA	715.0 / 670.0	93865.50	100.00
PFTeDA_2	713.0 / 169.0	4.37	13C2-PFTeDA	715.0 / 670.0	93865.50	100.00
NMeFOSAA_1	570.0 / 419.0	3.45	d3-MeFOSAA	573.0 / 419.0	13229.17	100.00
NMeFOSAA_2	570.0 / 512.0	3.45	d3-MeFOSAA	573.0 / 419.0	13229.17	100.00
NEtFOSAA_1	584.0 / 419.0	3.62	d5-EtFOSAA	589.0 / 419.0	11133.19	100.00
NEtFOSAA_2	584.0 / 483.0	3.62	d5-EtFOSAA	589.0 / 419.0	11133.19	100.00

Sample Name	JV20	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:32:29	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFDoA	615.0 / 570.0	3.89	13C2-PFDA	515.0 / 470.0	59557.03	100.00
d3-MeFOSAA	573.0 / 419.0	3.45	13C4-PFOS	503.0 / 99.0	11468.96	95.50
d5-EtFOSAA	589.0 / 419.0	3.60	13C4-PFOS	503.0 / 99.0	11468.96	95.50
13C5-PFHxA	318.0 / 273.0	1.82	13C2-PFOA	415.0 / 370.0	57353.19	100.00
13C4-PFHpA	367.0 / 322.0	2.19	13C2-PFOA	415.0 / 370.0	57353.19	100.00
13C8-PFOA	421.0 / 376.0	2.57	13C2-PFOA	415.0 / 370.0	57353.19	100.00
13C9-PFNA	472.0 / 427.0	2.94	13C2-PFOA	415.0 / 370.0	57353.19	100.00
13C6-PFDA	519.0 / 474.0	3.29	13C2-PFDA	515.0 / 470.0	59557.03	100.00
13C7-PFUnA	570.0 / 525.0	3.60	13C2-PFDA	515.0 / 470.0	59557.03	100.00
13C2-PFTeDA	715.0 / 670.0	4.37	13C2-PFDA	515.0 / 470.0	59557.03	100.00
13C3-PFBS	302.0 / 99.0	1.53	13C4-PFOS	503.0 / 99.0	11468.96	95.50
13C3-PFHxS	402.0 / 99.0	2.21	13C4-PFOS	503.0 / 99.0	11468.96	95.50
13C8-PFOS	507.0 / 99.0	2.93	13C4-PFOS	503.0 / 99.0	11468.96	95.50

Sample Name	JV21	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:43:10	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFDoA	615.0 / 570.0	3.89	13C2-PFDA	515.0 / 470.0	54456.09	100.00
d3-MeFOSAA	573.0 / 419.0	3.45	13C4-PFOS	503.0 / 99.0	12130.72	95.50
d5-EtFOSAA	589.0 / 419.0	3.61	13C4-PFOS	503.0 / 99.0	12130.72	95.50
13C5-PFHxA	318.0 / 273.0	1.82	13C2-PFOA	415.0 / 370.0	49109.84	100.00
13C4-PFHpA	367.0 / 322.0	2.19	13C2-PFOA	415.0 / 370.0	49109.84	100.00
13C8-PFOA	421.0 / 376.0	2.57	13C2-PFOA	415.0 / 370.0	49109.84	100.00
13C9-PFNA	472.0 / 427.0	2.94	13C2-PFOA	415.0 / 370.0	49109.84	100.00
13C6-PFDA	519.0 / 474.0	3.29	13C2-PFDA	515.0 / 470.0	54456.09	100.00
13C7-PFUnA	570.0 / 525.0	3.61	13C2-PFDA	515.0 / 470.0	54456.09	100.00
13C2-PFTeDA	715.0 / 670.0	4.37	13C2-PFDA	515.0 / 470.0	54456.09	100.00
13C3-PFBS	302.0 / 99.0	1.53	13C4-PFOS	503.0 / 99.0	12130.72	95.50
13C3-PFHxS	402.0 / 99.0	2.21	13C4-PFOS	503.0 / 99.0	12130.72	95.50
13C8-PFOS	507.0 / 99.0	2.94	13C4-PFOS	503.0 / 99.0	12130.72	95.50

Sample Name	JV22	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:53:52	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFDoA	615.0 / 570.0	3.89	13C2-PFDA	515.0 / 470.0	69075.44	100.00
d3-MeFOSAA	573.0 / 419.0	3.45	13C4-PFOS	503.0 / 99.0	14221.94	95.50
d5-EtFOSAA	589.0 / 419.0	3.61	13C4-PFOS	503.0 / 99.0	14221.94	95.50
13C5-PFHxA	318.0 / 273.0	1.82	13C2-PFOA	415.0 / 370.0	62846.02	100.00
13C4-PFHpA	367.0 / 322.0	2.19	13C2-PFOA	415.0 / 370.0	62846.02	100.00
13C8-PFOA	421.0 / 376.0	2.57	13C2-PFOA	415.0 / 370.0	62846.02	100.00
13C9-PFNA	472.0 / 427.0	2.94	13C2-PFOA	415.0 / 370.0	62846.02	100.00
13C6-PFDA	519.0 / 474.0	3.29	13C2-PFDA	515.0 / 470.0	69075.44	100.00
13C7-PFUnA	570.0 / 525.0	3.61	13C2-PFDA	515.0 / 470.0	69075.44	100.00
13C2-PFTeDA	715.0 / 670.0	4.37	13C2-PFDA	515.0 / 470.0	69075.44	100.00
13C3-PFBS	302.0 / 99.0	1.53	13C4-PFOS	503.0 / 99.0	14221.94	95.50
13C3-PFHxS	402.0 / 99.0	2.21	13C4-PFOS	503.0 / 99.0	14221.94	95.50
13C8-PFOS	507.0 / 99.0	2.93	13C4-PFOS	503.0 / 99.0	14221.94	95.50

Sample Name	JV23	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:04:34	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFDoA	615.0 / 570.0	3.89	13C2-PFDA	515.0 / 470.0	68842.20	100.00
d3-MeFOSAA	573.0 / 419.0	3.44	13C4-PFOS	503.0 / 99.0	15596.73	95.50
d5-EtFOSAA	589.0 / 419.0	3.61	13C4-PFOS	503.0 / 99.0	15596.73	95.50
13C5-PFHxA	318.0 / 273.0	1.82	13C2-PFOA	415.0 / 370.0	70044.68	100.00
13C4-PFHpA	367.0 / 322.0	2.19	13C2-PFOA	415.0 / 370.0	70044.68	100.00
13C8-PFOA	421.0 / 376.0	2.56	13C2-PFOA	415.0 / 370.0	70044.68	100.00
13C9-PFNA	472.0 / 427.0	2.94	13C2-PFOA	415.0 / 370.0	70044.68	100.00
13C6-PFDA	519.0 / 474.0	3.28	13C2-PFDA	515.0 / 470.0	68842.20	100.00
13C7-PFUnA	570.0 / 525.0	3.60	13C2-PFDA	515.0 / 470.0	68842.20	100.00
13C2-PFTeDA	715.0 / 670.0	4.37	13C2-PFDA	515.0 / 470.0	68842.20	100.00
13C3-PFBS	302.0 / 99.0	1.52	13C4-PFOS	503.0 / 99.0	15596.73	95.50
13C3-PFHxS	402.0 / 99.0	2.21	13C4-PFOS	503.0 / 99.0	15596.73	95.50
13C8-PFOS	507.0 / 99.0	2.93	13C4-PFOS	503.0 / 99.0	15596.73	95.50

Sample Name	JV24	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:15:15	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFDoA	615.0 / 570.0	3.89	13C2-PFDA	515.0 / 470.0	69743.01	100.00
d3-MeFOSAA	573.0 / 419.0	3.44	13C4-PFOS	503.0 / 99.0	17621.34	95.50
d5-EtFOSAA	589.0 / 419.0	3.60	13C4-PFOS	503.0 / 99.0	17621.34	95.50
13C5-PFHxA	318.0 / 273.0	1.82	13C2-PFOA	415.0 / 370.0	64200.44	100.00
13C4-PFHpA	367.0 / 322.0	2.19	13C2-PFOA	415.0 / 370.0	64200.44	100.00
13C8-PFOA	421.0 / 376.0	2.57	13C2-PFOA	415.0 / 370.0	64200.44	100.00
13C9-PFNA	472.0 / 427.0	2.94	13C2-PFOA	415.0 / 370.0	64200.44	100.00
13C6-PFDA	519.0 / 474.0	3.28	13C2-PFDA	515.0 / 470.0	69743.01	100.00
13C7-PFUnA	570.0 / 525.0	3.60	13C2-PFDA	515.0 / 470.0	69743.01	100.00
13C2-PFTeDA	715.0 / 670.0	4.37	13C2-PFDA	515.0 / 470.0	69743.01	100.00
13C3-PFBS	302.0 / 99.0	1.53	13C4-PFOS	503.0 / 99.0	17621.34	95.50
13C3-PFHxS	402.0 / 99.0	2.21	13C4-PFOS	503.0 / 99.0	17621.34	95.50
13C8-PFOS	507.0 / 99.0	2.93	13C4-PFOS	503.0 / 99.0	17621.34	95.50

Sample Name	JV25	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:25:56	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFDoA	615.0 / 570.0	3.89	13C2-PFDA	515.0 / 470.0	62623.00	100.00
d3-MeFOSAA	573.0 / 419.0	3.45	13C4-PFOS	503.0 / 99.0	14878.58	95.50
d5-EtFOSAA	589.0 / 419.0	3.61	13C4-PFOS	503.0 / 99.0	14878.58	95.50
13C5-PFHxA	318.0 / 273.0	1.82	13C2-PFOA	415.0 / 370.0	55104.55	100.00
13C4-PFHpA	367.0 / 322.0	2.19	13C2-PFOA	415.0 / 370.0	55104.55	100.00
13C8-PFOA	421.0 / 376.0	2.57	13C2-PFOA	415.0 / 370.0	55104.55	100.00
13C9-PFNA	472.0 / 427.0	2.94	13C2-PFOA	415.0 / 370.0	55104.55	100.00
13C6-PFDA	519.0 / 474.0	3.29	13C2-PFDA	515.0 / 470.0	62623.00	100.00
13C7-PFUnA	570.0 / 525.0	3.60	13C2-PFDA	515.0 / 470.0	62623.00	100.00
13C2-PFTeDA	715.0 / 670.0	4.37	13C2-PFDA	515.0 / 470.0	62623.00	100.00
13C3-PFBS	302.0 / 99.0	1.52	13C4-PFOS	503.0 / 99.0	14878.58	95.50
13C3-PFHxS	402.0 / 99.0	2.20	13C4-PFOS	503.0 / 99.0	14878.58	95.50
13C8-PFOS	507.0 / 99.0	2.93	13C4-PFOS	503.0 / 99.0	14878.58	95.50

Sample Name	JV26	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:36:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFDoA	615.0 / 570.0	3.89	13C2-PFDA	515.0 / 470.0	60533.01	100.00
d3-MeFOSAA	573.0 / 419.0	3.45	13C4-PFOS	503.0 / 99.0	16218.32	95.50
d5-EtFOSAA	589.0 / 419.0	3.60	13C4-PFOS	503.0 / 99.0	16218.32	95.50
13C5-PFHxA	318.0 / 273.0	1.82	13C2-PFOA	415.0 / 370.0	58364.38	100.00
13C4-PFHpA	367.0 / 322.0	2.19	13C2-PFOA	415.0 / 370.0	58364.38	100.00
13C8-PFOA	421.0 / 376.0	2.57	13C2-PFOA	415.0 / 370.0	58364.38	100.00
13C9-PFNA	472.0 / 427.0	2.94	13C2-PFOA	415.0 / 370.0	58364.38	100.00
13C6-PFDA	519.0 / 474.0	3.28	13C2-PFDA	515.0 / 470.0	60533.01	100.00
13C7-PFUnA	570.0 / 525.0	3.60	13C2-PFDA	515.0 / 470.0	60533.01	100.00
13C2-PFTeDA	715.0 / 670.0	4.37	13C2-PFDA	515.0 / 470.0	60533.01	100.00
13C3-PFBS	302.0 / 99.0	1.53	13C4-PFOS	503.0 / 99.0	16218.32	95.50
13C3-PFHxS	402.0 / 99.0	2.21	13C4-PFOS	503.0 / 99.0	16218.32	95.50
13C8-PFOS	507.0 / 99.0	2.93	13C4-PFOS	503.0 / 99.0	16218.32	95.50

Sample Name	JV27	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:47:16	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFDoA	615.0 / 570.0	3.89	13C2-PFDA	515.0 / 470.0	63218.27	100.00
d3-MeFOSAA	573.0 / 419.0	3.44	13C4-PFOS	503.0 / 99.0	15802.34	95.50
d5-EtFOSAA	589.0 / 419.0	3.60	13C4-PFOS	503.0 / 99.0	15802.34	95.50
13C5-PFHxA	318.0 / 273.0	1.82	13C2-PFOA	415.0 / 370.0	65699.95	100.00
13C4-PFHpA	367.0 / 322.0	2.19	13C2-PFOA	415.0 / 370.0	65699.95	100.00
13C8-PFOA	421.0 / 376.0	2.56	13C2-PFOA	415.0 / 370.0	65699.95	100.00
13C9-PFNA	472.0 / 427.0	2.93	13C2-PFOA	415.0 / 370.0	65699.95	100.00
13C6-PFDA	519.0 / 474.0	3.28	13C2-PFDA	515.0 / 470.0	63218.27	100.00
13C7-PFUnA	570.0 / 525.0	3.60	13C2-PFDA	515.0 / 470.0	63218.27	100.00
13C2-PFTeDA	715.0 / 670.0	4.36	13C2-PFDA	515.0 / 470.0	63218.27	100.00
13C3-PFBS	302.0 / 99.0	1.53	13C4-PFOS	503.0 / 99.0	15802.34	95.50
13C3-PFHxS	402.0 / 99.0	2.20	13C4-PFOS	503.0 / 99.0	15802.34	95.50
13C8-PFOS	507.0 / 99.0	2.93	13C4-PFOS	503.0 / 99.0	15802.34	95.50

Sample Name	JV28	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:57:58	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFDoA	615.0 / 570.0	3.89	13C2-PFDA	515.0 / 470.0	77714.45	100.00
d3-MeFOSAA	573.0 / 419.0	3.45	13C4-PFOS	503.0 / 99.0	15001.44	95.50
d5-EtFOSAA	589.0 / 419.0	3.61	13C4-PFOS	503.0 / 99.0	15001.44	95.50
13C5-PFHxA	318.0 / 273.0	1.82	13C2-PFOA	415.0 / 370.0	74209.03	100.00
13C4-PFHpA	367.0 / 322.0	2.19	13C2-PFOA	415.0 / 370.0	74209.03	100.00
13C8-PFOA	421.0 / 376.0	2.57	13C2-PFOA	415.0 / 370.0	74209.03	100.00
13C9-PFNA	472.0 / 427.0	2.94	13C2-PFOA	415.0 / 370.0	74209.03	100.00
13C6-PFDA	519.0 / 474.0	3.29	13C2-PFDA	515.0 / 470.0	77714.45	100.00
13C7-PFUnA	570.0 / 525.0	3.60	13C2-PFDA	515.0 / 470.0	77714.45	100.00
13C2-PFTeDA	715.0 / 670.0	4.37	13C2-PFDA	515.0 / 470.0	77714.45	100.00
13C3-PFBS	302.0 / 99.0	1.53	13C4-PFOS	503.0 / 99.0	15001.44	95.50
13C3-PFHxS	402.0 / 99.0	2.21	13C4-PFOS	503.0 / 99.0	15001.44	95.50
13C8-PFOS	507.0 / 99.0	2.93	13C4-PFOS	503.0 / 99.0	15001.44	95.50

Sample Name	JW32 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:19:21	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.54	1176.558923	1010.00	116.49
PFBS_2	298.9 / 99.0	1.54	1139.653412	1010.00	112.84
PFHxA_1	313.0 / 269.0	1.83	1237.968209	1010.00	122.57
PFHxA_2	313.0 / 119.0	1.83	1209.151708	1010.00	119.72
PFHpA_1	363.0 / 319.0	2.20	1107.496767	1000.00	110.75
PFHpA_2	363.0 / 169.0	2.20	1165.474923	1000.00	116.55
PFHxS_1	399.0 / 80.0	2.21	1070.276443	1010.00	105.97
PFHxS_2	399.0 / 99.0	2.21	1112.426054	1010.00	110.14
PFOA_1	413.0 / 369.0	2.57	1130.613191	1000.00	113.06
PFOA_2	413.0 / 169.0	2.57	1065.337946	1000.00	106.53
PFNA_1	463.0 / 419.0	2.95	1257.443907	1000.00	125.74
PFNA_2	463.0 / 219.0	2.95	1156.611404	1000.00	115.66
PFOS_1	499.0 / 80.0	2.94	1173.195643	1000.00	117.32
PFOS_2	499.0 / 99.0	2.94	1164.854382	1000.00	116.49
PFDA_1	513.0 / 469.0	3.29	1048.456126	1000.00	104.85
PFDA_2	513.0 / 219.0	3.29	933.400367	1000.00	93.34
PFUnA_1	563.0 / 519.0	3.61	1086.731146	1000.00	108.67
PFUnA_2	563.0 / 269.0	3.61	1115.155445	1000.00	111.52
PFDaA_1	613.0 / 569.0	3.90	1222.515531	1000.00	122.25
PFDaA_2	613.0 / 319.0	3.90	1154.678705	1000.00	115.47
PFTTrDA_1	663.0 / 619.0	4.15	1203.573469	1000.00	120.36
PFTTrDA_2	663.0 / 169.0	4.15	1227.419600	1000.00	122.74
PFTeDA_1	713.0 / 669.0	4.37	1193.797157	1000.00	119.38
PFTeDA_2	713.0 / 169.0	4.37	1212.863155	1000.00	121.29
NMeFOSAA_1	570.0 / 419.0	3.45	1068.182379	1000.00	106.82
NMeFOSAA_2	570.0 / 512.0	3.45	1067.710917	1000.00	106.77
NEtFOSAA_1	584.0 / 419.0	3.61	941.043251	1000.00	94.10
NEtFOSAA_2	584.0 / 483.0	3.61	965.840167	1000.00	96.58

Sample Name	JV26 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:59:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.54	2600.270096	2525.00	102.98
PFBS_2	298.9 / 99.0	1.54	2621.066850	2525.00	103.80
PFHxA_1	313.0 / 269.0	1.83	2643.944685	2525.00	104.71
PFHxA_2	313.0 / 119.0	1.83	2672.790958	2525.00	105.85
PFHpA_1	363.0 / 319.0	2.19	2268.208924	2500.00	90.73
PFHpA_2	363.0 / 169.0	2.19	2466.842670	2500.00	98.67
PFHxS_1	399.0 / 80.0	2.21	2567.986684	2525.00	101.70
PFHxS_2	399.0 / 99.0	2.21	2627.776123	2525.00	104.07
PFOA_1	413.0 / 369.0	2.57	2414.574483	2500.00	96.58
PFOA_2	413.0 / 169.0	2.57	2370.596369	2500.00	94.82
PFNA_1	463.0 / 419.0	2.94	2587.560855	2500.00	103.50
PFNA_2	463.0 / 219.0	2.94	2853.862077	2500.00	114.15
PFOS_1	499.0 / 80.0	2.94	2599.859394	2500.00	103.99
PFOS_2	499.0 / 99.0	2.94	2681.102265	2500.00	107.24
PFDA_1	513.0 / 469.0	3.29	2464.928720	2500.00	98.60
PFDA_2	513.0 / 219.0	3.29	2449.721022	2500.00	97.99
PFUnA_1	563.0 / 519.0	3.61	2388.228569	2500.00	95.53
PFUnA_2	563.0 / 269.0	3.61	2227.769308	2500.00	89.11
PFDoA_1	613.0 / 569.0	3.89	2920.512677	2500.00	116.82
PFDoA_2	613.0 / 319.0	3.89	2580.864772	2500.00	103.23
PFTTrDA_1	663.0 / 619.0	4.15	2448.712769	2500.00	97.95
PFTTrDA_2	663.0 / 169.0	4.14	2445.219474	2500.00	97.81
PFTeDA_1	713.0 / 669.0	4.37	2459.596644	2500.00	98.38
PFTeDA_2	713.0 / 169.0	4.37	2507.011039	2500.00	100.28
NMeFOSAA_1	570.0 / 419.0	3.44	2277.019917	2500.00	91.08
NMeFOSAA_2	570.0 / 512.0	3.44	2556.018648	2500.00	102.24
NEtFOSAA_1	584.0 / 419.0	3.61	2896.270629	2500.00	115.85
NEtFOSAA_2	584.0 / 483.0	3.61	3142.397089	2500.00	125.70

Sample Name	JW32 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:19:21	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.89	105.711126	100.00	105.71
d3-MeFOSAA	573.0 / 419.0	3.44	100.443056	100.00	100.44
d5-EtFOSAA	589.0 / 419.0	3.60	105.614930	100.00	105.61
13C5-PFHxA	318.0 / 273.0	1.82	95.400517	100.00	95.40
13C4-PFHpA	367.0 / 322.0	2.19	97.905849	100.00	97.91
13C8-PFOA	421.0 / 376.0	2.56	102.774478	100.00	102.77
13C9-PFNA	472.0 / 427.0	2.94	95.653016	100.00	95.65
13C6-PFDA	519.0 / 474.0	3.28	114.105909	100.00	114.11
13C7-PFUnA	570.0 / 525.0	3.60	112.370112	100.00	112.37
13C2-PFTeDA	715.0 / 670.0	4.37	99.114221	100.00	99.11
13C3-PFBS	302.0 / 99.0	1.53	81.459850	92.90	87.69
13C3-PFHxS	402.0 / 99.0	2.20	96.849423	94.60	102.38
13C8-PFOS	507.0 / 99.0	2.93	77.243946	95.70	80.71

Sample Name	JV26 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:59:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.88	98.372153	100.00	98.37
d3-MeFOSAA	573.0 / 419.0	3.44	103.182193	100.00	103.18
d5-EtFOSAA	589.0 / 419.0	3.59	83.368916	100.00	83.37
13C5-PFHxA	318.0 / 273.0	1.82	94.193579	100.00	94.19
13C4-PFHpA	367.0 / 322.0	2.18	106.372510	100.00	106.37
13C8-PFOA	421.0 / 376.0	2.56	99.620566	100.00	99.62
13C9-PFNA	472.0 / 427.0	2.93	98.863007	100.00	98.86
13C6-PFDA	519.0 / 474.0	3.28	105.058646	100.00	105.06
13C7-PFUnA	570.0 / 525.0	3.59	109.206023	100.00	109.21
13C2-PFTeDA	715.0 / 670.0	4.36	99.715790	100.00	99.72
13C3-PFBS	302.0 / 99.0	1.53	81.995993	92.90	88.26
13C3-PFHxS	402.0 / 99.0	2.20	87.077547	94.60	92.05
13C8-PFOS	507.0 / 99.0	2.93	80.615389	95.70	84.24

Sample Name	JW32 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:19:21	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	406638.11	1176.558923	498.7	false
PFBS_2	298.9 / 99.0	1.54	123116.00	1139.653412	302.5	false
PFHxA_1	313.0 / 269.0	1.83	473086.85	1237.968209	70.9	false
PFHxA_2	313.0 / 119.0	1.83	32100.87	1209.151708	56.0	false
PFHpA_1	363.0 / 319.0	2.20	393668.83	1107.496767	127.1	false
PFHpA_2	363.0 / 169.0	2.20	9379.77	1165.474923	117.5	false
PFHxS_1	399.0 / 80.0	2.21	435349.92	1070.276443	89.4	true
PFHxS_2	399.0 / 99.0	2.21	125511.80	1112.426054	77.7	true
PFOA_1	413.0 / 369.0	2.57	523493.44	1130.613191	118.0	true
PFOA_2	413.0 / 169.0	2.57	38300.03	1065.337946	110.9	true
PFNA_1	463.0 / 419.0	2.95	578033.22	1257.443907	318.1	false
PFNA_2	463.0 / 219.0	2.95	148111.44	1156.611404	216.0	false
PFOS_1	499.0 / 80.0	2.94	505632.96	1173.195643	40.7	true
PFOS_2	499.0 / 99.0	2.94	88527.75	1164.854382	62.2	true
PFDA_1	513.0 / 469.0	3.29	509159.65	1048.456126	485.4	false
PFDA_2	513.0 / 219.0	3.29	20383.24	933.400367	479.4	false
PFUnA_1	563.0 / 519.0	3.61	504964.31	1086.731146	391.5	false
PFUnA_2	563.0 / 269.0	3.61	27409.23	1115.155445	259.1	false
PFDaA_1	613.0 / 569.0	3.90	478951.04	1222.515531	450.7	false
PFDaA_2	613.0 / 319.0	3.90	75485.62	1154.678705	476.5	false
PFTTrDA_1	663.0 / 619.0	4.15	425704.46	1203.573469	669.0	false
PFTTrDA_2	663.0 / 169.0	4.15	29011.76	1227.419600	489.7	false
PFTeDA_1	713.0 / 669.0	4.37	443535.68	1193.797157	957.8	false
PFTeDA_2	713.0 / 169.0	4.37	22035.03	1212.863155	815.0	false
NMeFOSAA_1	570.0 / 419.0	3.45	64802.45	1068.182379	607.6	false
NMeFOSAA_2	570.0 / 512.0	3.45	33987.11	1067.710917	494.1	false
NEtFOSAA_1	584.0 / 419.0	3.61	57063.59	941.043251	454.9	false
NEtFOSAA_2	584.0 / 483.0	3.61	3191.20	965.840167	571.5	false

Sample Name	JV26 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:59:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	1080096.26	2600.270096	1126.9	false
PFBS_2	298.9 / 99.0	1.54	339808.11	2621.066850	616.1	false
PFHxA_1	313.0 / 269.0	1.83	1174666.19	2643.944685	93.3	false
PFHxA_2	313.0 / 119.0	1.83	83123.65	2672.790958	91.2	false
PFHpA_1	363.0 / 319.0	2.19	1042326.28	2268.208924	193.3	false
PFHpA_2	363.0 / 169.0	2.19	24983.37	2466.842670	180.5	false
PFHxS_1	399.0 / 80.0	2.21	1117237.14	2567.986684	150.8	false
PFHxS_2	399.0 / 99.0	2.21	315503.20	2627.776123	132.0	false
PFOA_1	413.0 / 369.0	2.57	1292871.56	2414.574483	220.4	true
PFOA_2	413.0 / 169.0	2.57	97957.02	2370.596369	183.1	true
PFNA_1	463.0 / 419.0	2.94	1468802.60	2587.560855	529.6	false
PFNA_2	463.0 / 219.0	2.94	451412.83	2853.862077	440.3	false
PFOS_1	499.0 / 80.0	2.94	1428909.89	2599.859394	59.3	true
PFOS_2	499.0 / 99.0	2.94	255794.07	2681.102265	136.6	true
PFDA_1	513.0 / 469.0	3.29	1418418.90	2464.928720	680.1	false
PFDA_2	513.0 / 219.0	3.29	63538.87	2449.721022	812.0	false
PFUnA_1	563.0 / 519.0	3.61	1392420.06	2388.228569	604.5	false
PFUnA_2	563.0 / 269.0	3.61	68183.58	2227.769308	567.2	false
PFDaA_1	613.0 / 569.0	3.89	1331707.38	2920.512677	746.4	false
PFDaA_2	613.0 / 319.0	3.89	198644.62	2580.864772	796.4	false
PFTTrDA_1	663.0 / 619.0	4.15	1118820.14	2448.712769	1060.4	false
PFTTrDA_2	663.0 / 169.0	4.14	74566.72	2445.219474	794.5	false
PFTeDA_1	713.0 / 669.0	4.37	1176228.67	2459.596644	1707.8	false
PFTeDA_2	713.0 / 169.0	4.37	58538.77	2507.011039	1232.0	false
NMeFOSAA_1	570.0 / 419.0	3.44	169000.46	2277.019917	801.2	false
NMeFOSAA_2	570.0 / 512.0	3.44	98375.26	2556.018648	1385.2	false
NEtFOSAA_1	584.0 / 419.0	3.61	165274.13	2896.270629	785.2	false
NEtFOSAA_2	584.0 / 483.0	3.61	10092.51	3142.397089	35549.6	false

Sample Name	JW32 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:19:21	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFDoA	615.0 / 570.0	3.89	70015.08	105.711126	1032.2	false
d3-MeFOSAA	573.0 / 419.0	3.44	8858.60	100.443056	150.8	false
d5-EtFOSAA	589.0 / 419.0	3.60	9692.58	105.614930	215.7	false
13C5-PFHxA	318.0 / 273.0	1.82	55683.11	95.400517	601.5	false
13C4-PFHpA	367.0 / 322.0	2.19	63964.22	97.905849	1010.4	false
13C8-PFOA	421.0 / 376.0	2.56	70077.04	102.774478	1501.3	false
13C9-PFNA	472.0 / 427.0	2.94	67679.10	95.653016	930.7	false
13C6-PFDA	519.0 / 474.0	3.28	72975.77	114.105909	1263.4	false
13C7-PFUnA	570.0 / 525.0	3.60	70815.31	112.370112	742.0	false
13C2-PFTeDA	715.0 / 670.0	4.37	54638.62	99.114221	1227.0	false
13C3-PFBS	302.0 / 99.0	1.53	17381.24	81.459850	367.5	false
13C3-PFHxS	402.0 / 99.0	2.20	16121.33	96.849423	387.3	false
13C8-PFOS	507.0 / 99.0	2.93	13822.45	77.243946	289.7	false

Sample Name	JV26 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:59:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFDoA	615.0 / 570.0	3.88	84282.21	98.372153	1057.8	false
d3-MeFOSAA	573.0 / 419.0	3.44	10876.77	103.182193	166.5	false
d5-EtFOSAA	589.0 / 419.0	3.59	9144.67	83.368916	167.0	false
13C5-PFHxA	318.0 / 273.0	1.82	66019.51	94.193579	972.1	false
13C4-PFHpA	367.0 / 322.0	2.18	83451.88	106.372510	831.7	false
13C8-PFOA	421.0 / 376.0	2.56	81567.60	99.620566	1021.0	false
13C9-PFNA	472.0 / 427.0	2.93	83997.81	98.863007	1909.8	false
13C6-PFDA	519.0 / 474.0	3.28	86915.10	105.058646	1429329.5	false
13C7-PFUnA	570.0 / 525.0	3.59	89025.78	109.206023	698.4	false
13C2-PFTeDA	715.0 / 670.0	4.36	71108.34	99.715790	1621.2	false
13C3-PFBS	302.0 / 99.0	1.53	20911.25	81.995993	770.8	false
13C3-PFHxS	402.0 / 99.0	2.20	17324.48	87.077547	380.6	false
13C8-PFOS	507.0 / 99.0	2.93	17242.05	80.615389	315.9	false

Sample Name	JW32 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:19:21	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	0.303	0.322	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.068	0.070	ü
PFHpA_1	363.0 / 319.0	2.20	PFHpA			
PFHpA_2	363.0 / 169.0	2.20	PFHpA	0.024	0.027	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.288	0.297	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.073	0.079	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.95	PFNA	0.256	0.273	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.175	0.191	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.040	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.054	0.059	ü
PFDaA_1	613.0 / 569.0	3.90	PFDaA			
PFDaA_2	613.0 / 319.0	3.90	PFDaA	0.158	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.15	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.15	PFTTrDA	0.068	0.068	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.050	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.525	0.607	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.61	NEtFOSAA	0.056	0.056	ü

Sample Name	JV26 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:59:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	0.315	0.322	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.071	0.070	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.19	PFHpA	0.024	0.027	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.282	0.297	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.076	0.079	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.307	0.273	ü
PFOS_1	499.0 / 80.0	2.94	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.179	0.191	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.045	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.049	0.059	ü
PFDaA_1	613.0 / 569.0	3.89	PFDaA			
PFDaA_2	613.0 / 319.0	3.89	PFDaA	0.149	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.15	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.14	PFTTrDA	0.067	0.068	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.050	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.582	0.607	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.61	NEtFOSAA	0.061	0.056	ü

Sample Name	JW32 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:19:21	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	13C3-PFBS	302.0 / 99.0	17381.24	92.90
PFBS_2	298.9 / 99.0	1.54	13C3-PFBS	302.0 / 99.0	17381.24	92.90
PFHxA_1	313.0 / 269.0	1.83	13C5-PFHxA	318.0 / 273.0	55683.11	100.00
PFHxA_2	313.0 / 119.0	1.83	13C5-PFHxA	318.0 / 273.0	55683.11	100.00
PFHpA_1	363.0 / 319.0	2.20	13C4-PFHpA	367.0 / 322.0	63964.22	100.00
PFHpA_2	363.0 / 169.0	2.20	13C4-PFHpA	367.0 / 322.0	63964.22	100.00
PFHxS_1	399.0 / 80.0	2.21	13C3-PFHxS	402.0 / 99.0	16121.33	94.60
PFHxS_2	399.0 / 99.0	2.21	13C3-PFHxS	402.0 / 99.0	16121.33	94.60
PFOA_1	413.0 / 369.0	2.57	13C8-PFOA	421.0 / 376.0	70077.04	100.00
PFOA_2	413.0 / 169.0	2.57	13C8-PFOA	421.0 / 376.0	70077.04	100.00
PFNA_1	463.0 / 419.0	2.95	13C9-PFNA	472.0 / 427.0	67679.10	100.00
PFNA_2	463.0 / 219.0	2.95	13C9-PFNA	472.0 / 427.0	67679.10	100.00
PFOS_1	499.0 / 80.0	2.94	13C8-PFOS	507.0 / 99.0	13822.45	95.70
PFOS_2	499.0 / 99.0	2.94	13C8-PFOS	507.0 / 99.0	13822.45	95.70
PFDA_1	513.0 / 469.0	3.29	13C6-PFDA	519.0 / 474.0	72975.77	100.00
PFDA_2	513.0 / 219.0	3.29	13C6-PFDA	519.0 / 474.0	72975.77	100.00
PFUnA_1	563.0 / 519.0	3.61	13C7-PFUnA	570.0 / 525.0	70815.31	100.00
PFUnA_2	563.0 / 269.0	3.61	13C7-PFUnA	570.0 / 525.0	70815.31	100.00
PFDaA_1	613.0 / 569.0	3.90	13C2-PFDaA	615.0 / 570.0	70015.08	100.00
PFDaA_2	613.0 / 319.0	3.90	13C2-PFDaA	615.0 / 570.0	70015.08	100.00
PFTeDA_1	663.0 / 619.0	4.15	13C2-PFTeDA	715.0 / 670.0	54638.62	100.00
PFTeDA_2	663.0 / 169.0	4.15	13C2-PFTeDA	715.0 / 670.0	54638.62	100.00
PFTeDA_1	713.0 / 669.0	4.37	13C2-PFTeDA	715.0 / 670.0	54638.62	100.00
PFTeDA_2	713.0 / 169.0	4.37	13C2-PFTeDA	715.0 / 670.0	54638.62	100.00
NMeFOSAA_1	570.0 / 419.0	3.45	d3-MeFOSAA	573.0 / 419.0	8858.60	100.00
NMeFOSAA_2	570.0 / 512.0	3.45	d3-MeFOSAA	573.0 / 419.0	8858.60	100.00
NEtFOSAA_1	584.0 / 419.0	3.61	d5-EtFOSAA	589.0 / 419.0	9692.58	100.00
NEtFOSAA_2	584.0 / 483.0	3.61	d5-EtFOSAA	589.0 / 419.0	9692.58	100.00

Sample Name	JV26 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:59:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	13C3-PFBS	302.0 / 99.0	20911.25	92.90
PFBS_2	298.9 / 99.0	1.54	13C3-PFBS	302.0 / 99.0	20911.25	92.90
PFHxA_1	313.0 / 269.0	1.83	13C5-PFHxA	318.0 / 273.0	66019.51	100.00
PFHxA_2	313.0 / 119.0	1.83	13C5-PFHxA	318.0 / 273.0	66019.51	100.00
PFHpA_1	363.0 / 319.0	2.19	13C4-PFHpA	367.0 / 322.0	83451.88	100.00
PFHpA_2	363.0 / 169.0	2.19	13C4-PFHpA	367.0 / 322.0	83451.88	100.00
PFHxS_1	399.0 / 80.0	2.21	13C3-PFHxS	402.0 / 99.0	17324.48	94.60
PFHxS_2	399.0 / 99.0	2.21	13C3-PFHxS	402.0 / 99.0	17324.48	94.60
PFOA_1	413.0 / 369.0	2.57	13C8-PFOA	421.0 / 376.0	81567.60	100.00
PFOA_2	413.0 / 169.0	2.57	13C8-PFOA	421.0 / 376.0	81567.60	100.00
PFNA_1	463.0 / 419.0	2.94	13C9-PFNA	472.0 / 427.0	83997.81	100.00
PFNA_2	463.0 / 219.0	2.94	13C9-PFNA	472.0 / 427.0	83997.81	100.00
PFOS_1	499.0 / 80.0	2.94	13C8-PFOS	507.0 / 99.0	17242.05	95.70
PFOS_2	499.0 / 99.0	2.94	13C8-PFOS	507.0 / 99.0	17242.05	95.70
PFDA_1	513.0 / 469.0	3.29	13C6-PFDA	519.0 / 474.0	86915.10	100.00
PFDA_2	513.0 / 219.0	3.29	13C6-PFDA	519.0 / 474.0	86915.10	100.00
PFUnA_1	563.0 / 519.0	3.61	13C7-PFUnA	570.0 / 525.0	89025.78	100.00
PFUnA_2	563.0 / 269.0	3.61	13C7-PFUnA	570.0 / 525.0	89025.78	100.00
PFDaA_1	613.0 / 569.0	3.89	13C2-PFDaA	615.0 / 570.0	84282.21	100.00
PFDaA_2	613.0 / 319.0	3.89	13C2-PFDaA	615.0 / 570.0	84282.21	100.00
PFTeDA_1	663.0 / 619.0	4.15	13C2-PFTeDA	715.0 / 670.0	71108.34	100.00
PFTeDA_2	663.0 / 169.0	4.14	13C2-PFTeDA	715.0 / 670.0	71108.34	100.00
PFTeDA_1	713.0 / 669.0	4.37	13C2-PFTeDA	715.0 / 670.0	71108.34	100.00
PFTeDA_2	713.0 / 169.0	4.37	13C2-PFTeDA	715.0 / 670.0	71108.34	100.00
NMeFOSAA_1	570.0 / 419.0	3.44	d3-MeFOSAA	573.0 / 419.0	10876.77	100.00
NMeFOSAA_2	570.0 / 512.0	3.44	d3-MeFOSAA	573.0 / 419.0	10876.77	100.00
NEtFOSAA_1	584.0 / 419.0	3.61	d5-EtFOSAA	589.0 / 419.0	9144.67	100.00
NEtFOSAA_2	584.0 / 483.0	3.61	d5-EtFOSAA	589.0 / 419.0	9144.67	100.00

Sample Name	JW32 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:19:21	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFDoA	615.0 / 570.0	3.89	13C2-PFDA	515.0 / 470.0	47103.14	100.00
d3-MeFOSAA	573.0 / 419.0	3.44	13C4-PFOS	503.0 / 99.0	12740.39	95.50
d5-EtFOSAA	589.0 / 419.0	3.60	13C4-PFOS	503.0 / 99.0	12740.39	95.50
13C5-PFHxA	318.0 / 273.0	1.82	13C2-PFOA	415.0 / 370.0	48616.94	100.00
13C4-PFHpA	367.0 / 322.0	2.19	13C2-PFOA	415.0 / 370.0	48616.94	100.00
13C8-PFOA	421.0 / 376.0	2.56	13C2-PFOA	415.0 / 370.0	48616.94	100.00
13C9-PFNA	472.0 / 427.0	2.94	13C2-PFOA	415.0 / 370.0	48616.94	100.00
13C6-PFDA	519.0 / 474.0	3.28	13C2-PFDA	515.0 / 470.0	47103.14	100.00
13C7-PFUnA	570.0 / 525.0	3.60	13C2-PFDA	515.0 / 470.0	47103.14	100.00
13C2-PFTeDA	715.0 / 670.0	4.37	13C2-PFDA	515.0 / 470.0	47103.14	100.00
13C3-PFBS	302.0 / 99.0	1.53	13C4-PFOS	503.0 / 99.0	12740.39	95.50
13C3-PFHxS	402.0 / 99.0	2.20	13C4-PFOS	503.0 / 99.0	12740.39	95.50
13C8-PFOS	507.0 / 99.0	2.93	13C4-PFOS	503.0 / 99.0	12740.39	95.50

Sample Name	JV26 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:59:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFDoA	615.0 / 570.0	3.88	13C2-PFDA	515.0 / 470.0	60931.63	100.00
d3-MeFOSAA	573.0 / 419.0	3.44	13C4-PFOS	503.0 / 99.0	15227.65	95.50
d5-EtFOSAA	589.0 / 419.0	3.59	13C4-PFOS	503.0 / 99.0	15227.65	95.50
13C5-PFHxA	318.0 / 273.0	1.82	13C2-PFOA	415.0 / 370.0	58380.23	100.00
13C4-PFHpA	367.0 / 322.0	2.18	13C2-PFOA	415.0 / 370.0	58380.23	100.00
13C8-PFOA	421.0 / 376.0	2.56	13C2-PFOA	415.0 / 370.0	58380.23	100.00
13C9-PFNA	472.0 / 427.0	2.93	13C2-PFOA	415.0 / 370.0	58380.23	100.00
13C6-PFDA	519.0 / 474.0	3.28	13C2-PFDA	515.0 / 470.0	60931.63	100.00
13C7-PFUnA	570.0 / 525.0	3.59	13C2-PFDA	515.0 / 470.0	60931.63	100.00
13C2-PFTeDA	715.0 / 670.0	4.36	13C2-PFDA	515.0 / 470.0	60931.63	100.00
13C3-PFBS	302.0 / 99.0	1.53	13C4-PFOS	503.0 / 99.0	15227.65	95.50
13C3-PFHxS	402.0 / 99.0	2.20	13C4-PFOS	503.0 / 99.0	15227.65	95.50
13C8-PFOS	507.0 / 99.0	2.93	13C4-PFOS	503.0 / 99.0	15227.65	95.50

Raw Analytical Data

Sample Name	JV05 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:08:39	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.55	8663.94	20.409103	30.6	true
PFBS_2	298.9 / 99.0	1.54	3104.11	20.958127	21.2	true
PFHxA_1	313.0 / 269.0	1.83	17748.19	< 0	8.8	true
PFHxA_2	313.0 / 119.0	1.84	1173.35	13.965821	5.3	true
PFHpA_1	363.0 / 319.0	2.21	14062.16	17.842600	19.9	false
PFHpA_2	363.0 / 169.0	2.17	399.25	< 0	7.0	true
PFHxS_1	399.0 / 80.0	2.22	11584.44	23.815413	7.3	true
PFHxS_2	399.0 / 99.0	2.22	3523.97	16.848473	7.1	true
PFOA_1	413.0 / 369.0	2.57	26481.42	40.554068	17.9	true
PFOA_2	413.0 / 169.0	2.59	1963.29	27.801204	11.8	true
PFNA_1	463.0 / 419.0	2.95	17387.58	20.901678	34.2	true
PFNA_2	463.0 / 219.0	2.94	4427.51	21.145709	24.8	true
PFOS_1	499.0 / 80.0	2.88	16013.73	76.156532	2.6	true
PFOS_2	499.0 / 99.0	2.95	4453.75	62.197047	5.1	true
PFDA_1	513.0 / 469.0	3.30	16445.59	22.359406	84.3	false
PFDA_2	513.0 / 219.0	3.29	831.02	31.339613	38.0	false
PFUnA_1	563.0 / 519.0	3.61	14111.27	25.907656	68.9	false
PFUnA_2	563.0 / 269.0	3.62	607.69	2.998578	21.6	false
PFDaA_1	613.0 / 569.0	3.90	16256.46	< 0	91.1	false
PFDaA_2	613.0 / 319.0	3.90	2604.61	< 0	81.9	false
PFTTrDA_1	663.0 / 619.0	4.15	13370.98	27.435394	126.3	false
PFTTrDA_2	663.0 / 169.0	4.15	1112.53	33.749549	64.3	false
PFTeDA_1	713.0 / 669.0	4.37	17294.12	37.752201	158.4	false
PFTeDA_2	713.0 / 169.0	4.37	1000.80	43.094959	97.9	false
NMeFOSAA_1	570.0 / 419.0	3.45	3842.99	55.635302	139.9	false
NMeFOSAA_2	570.0 / 512.0	3.45	2056.80	36.724255	113.7	false
NEtFOSAA_1	584.0 / 419.0	3.62	3052.82	55.737651	114.1	false
NEtFOSAA_2	584.0 / 483.0	3.60	277.84	135.038078	147.1	false

Sample Name	CQ891PB-FS(3)	Injection Vial	21
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:16:53	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	9059.52	18.008434	28.7	true
PFBS_2	298.9 / 99.0	1.54	3649.44	21.090988	21.5	true
PFHxA_1	313.0 / 269.0	1.82	430383.56	881.727012	61.6	true
PFHxA_2	313.0 / 119.0	1.83	24835.87	732.813086	55.5	true
PFHpA_1	363.0 / 319.0	2.19	28174.35	41.310109	30.2	false
PFHpA_2	363.0 / 169.0	2.16	469.64	< 0	9.7	true
PFHxS_1	399.0 / 80.0	2.21	63496.74	113.962793	25.3	true
PFHxS_2	399.0 / 99.0	2.21	21482.95	131.833522	24.0	true
PFOA_1	413.0 / 369.0	2.57	88577.33	138.031378	39.5	true
PFOA_2	413.0 / 169.0	2.53	9078.16	177.975079	34.9	true
PFNA_1	463.0 / 419.0	2.94	71920.91	102.440473	97.3	false
PFNA_2	463.0 / 219.0	2.94	22588.48	120.021117	101.6	false
PFOS_1	499.0 / 80.0	2.93	576272.55	973.385817	39.8	true
PFOS_2	499.0 / 99.0	2.93	124382.50	1181.310494	76.3	true
PFDA_1	513.0 / 469.0	3.29	6616.42	2.537629	45.9	false
PFDA_2	513.0 / 219.0	3.29	341.80	9.461960	12.1	true
PFUnA_1	563.0 / 519.0	3.61	10413.56	15.458086	65.1	false
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	true
PFDoA_1	613.0 / 569.0	3.90	966.74	< 0	14.6	true
PFDoA_2	613.0 / 319.0	3.89	269.55	< 0	19.3	true
PFTTrDA_1	663.0 / 619.0	4.14	1026.25	< 0	20.3	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

Sample Name	CQ892LCS-FS(3)	Injection Vial	22
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:27:34	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	896979.28	2491.447153	855.7	false
PFBS_2	298.9 / 99.0	1.54	279932.02	2491.052187	459.0	false
PFHxA_1	313.0 / 269.0	1.83	1066368.30	2524.333825	90.1	false
PFHxA_2	313.0 / 119.0	1.83	76361.30	2583.593542	80.8	false
PFHpA_1	363.0 / 319.0	2.19	860375.25	2274.210811	194.0	false
PFHpA_2	363.0 / 169.0	2.19	18890.20	2258.734242	142.8	false
PFHxS_1	399.0 / 80.0	2.21	968365.34	2633.386178	142.3	false
PFHxS_2	399.0 / 99.0	2.21	276806.20	2728.144890	128.0	false
PFOA_1	413.0 / 369.0	2.57	1108656.27	2283.555375	207.4	true
PFOA_2	413.0 / 169.0	2.57	91141.13	2434.031565	168.7	true
PFNA_1	463.0 / 419.0	2.94	1141478.99	2219.084826	442.6	false
PFNA_2	463.0 / 219.0	2.94	345223.93	2408.929560	387.3	false
PFOS_1	499.0 / 80.0	2.93	1364441.99	3085.438560	57.7	true
PFOS_2	499.0 / 99.0	2.94	242810.88	3169.617582	127.0	true
PFDA_1	513.0 / 469.0	3.29	1102203.39	2263.957599	594.6	false
PFDA_2	513.0 / 219.0	3.29	47603.31	2169.560522	330.8	false
PFUnA_1	563.0 / 519.0	3.61	988328.49	2138.590376	457.4	false
PFUnA_2	563.0 / 269.0	3.61	52701.81	2172.257629	425.4	false
PFDaA_1	613.0 / 569.0	3.89	940404.24	2887.163619	565.3	false
PFDaA_2	613.0 / 319.0	3.89	136663.32	2484.650336	617.8	false
PFTTrDA_1	663.0 / 619.0	4.14	660308.99	2520.436402	786.3	false
PFTTrDA_2	663.0 / 169.0	4.14	41555.40	2374.774469	535.5	false
PFTeDA_1	713.0 / 669.0	4.37	609937.54	2219.239001	1256.9	false
PFTeDA_2	713.0 / 169.0	4.36	31780.17	2369.996714	642.7	false
NMeFOSAA_1	570.0 / 419.0	3.44	126145.84	2139.262040	769.3	false
NMeFOSAA_2	570.0 / 512.0	3.44	70953.38	2318.236086	1048.9	false
NEtFOSAA_1	584.0 / 419.0	3.61	124835.75	2149.781113	804.6	false
NEtFOSAA_2	584.0 / 483.0	3.61	5992.12	1851.058301	10637.0	false

Sample Name	J6227-FS(3)	Injection Vial	23
Sample ID	09-FRB-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:38:15	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.54	77390.63	165.370669	163.7	true
PFBS_2	298.9 / 99.0	1.54	24559.45	165.535040	82.5	true
PFHxA_1	313.0 / 269.0	1.82	313508.87	629.158943	49.8	false
PFHxA_2	313.0 / 119.0	1.82	21699.65	636.490566	50.9	false
PFHpA_1	363.0 / 319.0	2.19	29063.14	47.873683	29.1	false
PFHpA_2	363.0 / 169.0	2.14	1055.43	30.713704	14.5	false
PFHxS_1	399.0 / 80.0	2.21	458853.10	960.975896	96.5	true
PFHxS_2	399.0 / 99.0	2.21	139410.18	1052.551203	85.3	true
PFOA_1	413.0 / 369.0	2.57	95402.76	154.788276	46.6	true
PFOA_2	413.0 / 169.0	2.54	10862.30	225.306766	34.2	true
PFNA_1	463.0 / 419.0	2.94	51813.94	78.363678	82.9	false
PFNA_2	463.0 / 219.0	2.94	14939.33	84.542721	63.8	false
PFOS_1	499.0 / 80.0	2.93	3756228.13	5903.087544	91.2	true
PFOS_2	499.0 / 99.0	2.94	711316.66	6485.875540	159.4	false
PFDA_1	513.0 / 469.0	3.29	5599.39	0.530483	43.8	true
PFDA_2	513.0 / 219.0	3.30	407.52	11.803244	14.7	true
PFUnA_1	563.0 / 519.0	3.61	9962.73	15.840578	60.7	false
PFUnA_2	563.0 / 269.0	3.52	1603.43	39.209837	25.2	false
PFDaA_1	613.0 / 569.0	3.89	3239.53	< 0	33.4	false
PFDaA_2	613.0 / 319.0	3.89	756.93	< 0	32.2	false
PFTTrDA_1	663.0 / 619.0	4.14	2775.12	2.357467	57.4	false
PFTTrDA_2	663.0 / 169.0	4.12	105.91	< 0	10.5	false
PFTeDA_1	713.0 / 669.0	4.36	2868.64	4.915093	24.0	true
PFTeDA_2	713.0 / 169.0	4.37	205.56	6.595168	16.9	true
NMeFOSAA_1	570.0 / 419.0	3.44	426.64	< 0	52.0	false
NMeFOSAA_2	570.0 / 512.0	3.43	219.97	< 0	18.0	false
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	true
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true

Sample Name	JV05 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:08:39	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFDoA	615.0 / 570.0	3.89	74399.49	70.291903	1068.9	false
d3-MeFOSAA	573.0 / 419.0	3.44	8982.33	68.526384	281.0	false
d5-EtFOSAA	589.0 / 419.0	3.60	8257.55	60.541204	133.3	false
13C5-PFHxA	318.0 / 273.0	1.82	61420.62	76.486474	865.3	false
13C4-PFHpA	367.0 / 322.0	2.18	68015.99	75.670341	909.6	false
13C8-PFOA	421.0 / 376.0	2.56	74438.27	79.350380	1030.2	false
13C9-PFNA	472.0 / 427.0	2.93	77380.56	79.491218	1218.6	false
13C6-PFDA	519.0 / 474.0	3.28	78543.26	76.850131	109616.1	false
13C7-PFUnA	570.0 / 525.0	3.60	72563.81	72.052652	911.1	false
13C2-PFTeDA	715.0 / 670.0	4.36	61092.13	69.347007	1257.6	false
13C3-PFBS	302.0 / 99.0	1.52	19284.57	60.811644	455.5	false
13C3-PFHxS	402.0 / 99.0	2.20	14231.33	57.524834	373.4	false
13C8-PFOS	507.0 / 99.0	2.93	16285.03	61.232446	316.2	false

Sample Name	CQ891PB-FS(3)	Injection Vial	21
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:16:53	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFDoA	615.0 / 570.0	3.88	67336.15	96.962151	1081.1	false
d3-MeFOSAA	573.0 / 419.0	3.44	9550.85	99.628571	264.1	false
d5-EtFOSAA	589.0 / 419.0	3.60	10314.54	103.400473	223.4	false
13C5-PFHxA	318.0 / 273.0	1.82	70029.73	113.708047	734.7	false
13C4-PFHpA	367.0 / 322.0	2.18	84142.00	122.057883	734.7	false
13C8-PFOA	421.0 / 376.0	2.56	89295.55	124.114020	1176.9	false
13C9-PFNA	472.0 / 427.0	2.93	93032.46	124.612062	1655.4	false
13C6-PFDA	519.0 / 474.0	3.28	84129.12	125.458659	70787.5	false
13C7-PFUnA	570.0 / 525.0	3.59	82554.29	124.936170	890.1	false
13C2-PFTeDA	715.0 / 670.0	4.36	42237.08	73.072668	1240.9	false
13C3-PFBS	302.0 / 99.0	1.52	22557.33	97.260666	535.1	false
13C3-PFHxS	402.0 / 99.0	2.20	20570.89	113.693540	322.5	false
13C8-PFOS	507.0 / 99.0	2.93	19015.35	97.762038	277.1	false

Sample Name	CQ892LCS-FS(3)	Injection Vial	22
Sample ID	Labortory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:27:34	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFDoA	615.0 / 570.0	3.88	60187.41	99.973382	1522.5	false
d3-MeFOSAA	573.0 / 419.0	3.44	8639.70	126.250802	177.2	false
d5-EtFOSAA	589.0 / 419.0	3.59	9301.67	130.625319	168.6	false
13C5-PFHxA	318.0 / 273.0	1.82	62720.84	118.273568	719.6	false
13C4-PFHpA	367.0 / 322.0	2.18	68704.11	115.745151	703.7	false
13C8-PFOA	421.0 / 376.0	2.56	73934.16	119.344736	2392.0	false
13C9-PFNA	472.0 / 427.0	2.93	76057.54	118.313676	969.5	false
13C6-PFDA	519.0 / 474.0	3.28	73509.31	126.450735	2427.2	false
13C7-PFUnA	570.0 / 525.0	3.59	70552.74	123.164952	488.3	false
13C2-PFTeDA	715.0 / 670.0	4.36	40786.93	81.396711	1478.2	false
13C3-PFBS	302.0 / 99.0	1.52	18123.85	109.469602	496.3	false
13C3-PFHxS	402.0 / 99.0	2.20	14644.31	113.382268	246.9	false
13C8-PFOS	507.0 / 99.0	2.93	13833.97	99.633696	171.8	false

Sample Name	J6227-FS(3)	Injection Vial	23
Sample ID	09-FRB-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:38:15	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
13C2-PFDoA	615.0 / 570.0	3.88	77196.41	107.548385	980.5	false
d3-MeFOSAA	573.0 / 419.0	3.44	8720.79	100.284972	300.7	false
d5-EtFOSAA	589.0 / 419.0	3.60	9705.02	107.252591	149.3	false
13C5-PFHxA	318.0 / 273.0	1.82	70128.96	119.093961	1067.1	false
13C4-PFHpA	367.0 / 322.0	2.18	78407.15	118.957629	731.4	false
13C8-PFOA	421.0 / 376.0	2.56	86625.49	125.927443	1368.5	false
13C9-PFNA	472.0 / 427.0	2.93	84781.03	118.770316	1302.0	false
13C6-PFDA	519.0 / 474.0	3.27	85607.59	123.514897	1086.5	false
13C7-PFUnA	570.0 / 525.0	3.59	77444.84	113.394983	861.6	false
13C2-PFTeDA	715.0 / 670.0	4.36	48973.00	81.972952	1296.9	false
13C3-PFBS	302.0 / 99.0	1.52	23266.27	110.589700	445.8	false
13C3-PFHxS	402.0 / 99.0	2.20	18906.93	115.197303	235.0	false
13C8-PFOS	507.0 / 99.0	2.93	19763.57	112.013362	256.0	false

Sample Name	JV05 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:08:39	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.55	PFBS			
PFBS_2	298.9 / 99.0	1.54	PFBS	0.358	0.322	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.066	0.070	ü
PFHpA_1	363.0 / 319.0	2.21	PFHpA			
PFHpA_2	363.0 / 169.0	2.17	PFHpA	0.028	0.027	ü
PFHxS_1	399.0 / 80.0	2.22	PFHxS			
PFHxS_2	399.0 / 99.0	2.22	PFHxS	0.304	0.297	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.59	PFOA	0.074	0.079	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.255	0.273	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.95	PFOS	0.278	0.191	ü
PFDA_1	513.0 / 469.0	3.30	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.051	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.043	0.059	ü
PFDaA_1	613.0 / 569.0	3.90	PFDaA			
PFDaA_2	613.0 / 319.0	3.90	PFDaA	0.160	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.15	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.15	PFTTrDA	0.083	0.068	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.058	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.535	0.607	ü
NEtFOSAA_1	584.0 / 419.0	3.62	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.091	0.056	

Sample Name	CQ891PB-FS(3)	Injection Vial	21
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:16:53	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	0.403	0.322	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.058	0.070	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.16	PFHpA	0.017	0.027	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.338	0.297	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.53	PFOA	0.103	0.079	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.314	0.273	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.216	0.191	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.052	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.059	
PFDaA_1	613.0 / 569.0	3.90	PFDaA			
PFDaA_2	613.0 / 319.0	3.89	PFDaA	0.279	0.158	
PFTTrDA_1	663.0 / 619.0	4.14	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.068	
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.050	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.607	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.056	ü

Sample Name	CQ892LCS-FS(3)	Injection Vial	22
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:27:34	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	0.312	0.322	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.072	0.070	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.19	PFHpA	0.022	0.027	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.286	0.297	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.082	0.079	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.302	0.273	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.178	0.191	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.043	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.053	0.059	ü
PFDaA_1	613.0 / 569.0	3.89	PFDaA			
PFDaA_2	613.0 / 319.0	3.89	PFDaA	0.145	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.14	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.14	PFTTrDA	0.063	0.068	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.052	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.563	0.607	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.61	NEtFOSAA	0.048	0.056	ü

Sample Name	J6227-FS(3)	Injection Vial	23
Sample ID	09-FRB-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:38:15	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	0.317	0.322	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.069	0.070	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.036	0.027	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.304	0.297	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.114	0.079	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.288	0.273	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.189	0.191	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.30	PFDA	0.073	0.044	
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.52	PFUnA	0.161	0.059	
PFDaA_1	613.0 / 569.0	3.89	PFDaA			
PFDaA_2	613.0 / 319.0	3.89	PFDaA	0.234	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.14	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.12	PFTTrDA	0.038	0.068	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.072	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.43	NMeFOSAA	0.516	0.607	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.056	ü

Sample Name	JV05 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:08:39	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.55	13C3-PFBS	302.0 / 99.0	19284.57	92.90
PFBS_2	298.9 / 99.0	1.54	13C3-PFBS	302.0 / 99.0	19284.57	92.90
PFHxA_1	313.0 / 269.0	1.83	13C5-PFHxA	318.0 / 273.0	61420.62	100.00
PFHxA_2	313.0 / 119.0	1.84	13C5-PFHxA	318.0 / 273.0	61420.62	100.00
PFHpA_1	363.0 / 319.0	2.21	13C4-PFHpA	367.0 / 322.0	68015.99	100.00
PFHpA_2	363.0 / 169.0	2.17	13C4-PFHpA	367.0 / 322.0	68015.99	100.00
PFHxS_1	399.0 / 80.0	2.22	13C3-PFHxS	402.0 / 99.0	14231.33	94.60
PFHxS_2	399.0 / 99.0	2.22	13C3-PFHxS	402.0 / 99.0	14231.33	94.60
PFOA_1	413.0 / 369.0	2.57	13C8-PFOA	421.0 / 376.0	74438.27	100.00
PFOA_2	413.0 / 169.0	2.59	13C8-PFOA	421.0 / 376.0	74438.27	100.00
PFNA_1	463.0 / 419.0	2.95	13C9-PFNA	472.0 / 427.0	77380.56	100.00
PFNA_2	463.0 / 219.0	2.94	13C9-PFNA	472.0 / 427.0	77380.56	100.00
PFOS_1	499.0 / 80.0	2.88	13C8-PFOS	507.0 / 99.0	16285.03	95.70
PFOS_2	499.0 / 99.0	2.95	13C8-PFOS	507.0 / 99.0	16285.03	95.70
PFDA_1	513.0 / 469.0	3.30	13C6-PFDA	519.0 / 474.0	78543.26	100.00
PFDA_2	513.0 / 219.0	3.29	13C6-PFDA	519.0 / 474.0	78543.26	100.00
PFUnA_1	563.0 / 519.0	3.61	13C7-PFUnA	570.0 / 525.0	72563.81	100.00
PFUnA_2	563.0 / 269.0	3.62	13C7-PFUnA	570.0 / 525.0	72563.81	100.00
PFDaA_1	613.0 / 569.0	3.90	13C2-PFDaA	615.0 / 570.0	74399.49	100.00
PFDaA_2	613.0 / 319.0	3.90	13C2-PFDaA	615.0 / 570.0	74399.49	100.00
PFTeDA_1	663.0 / 619.0	4.15	13C2-PFTeDA	715.0 / 670.0	61092.13	100.00
PFTeDA_2	663.0 / 169.0	4.15	13C2-PFTeDA	715.0 / 670.0	61092.13	100.00
PFTeDA_1	713.0 / 669.0	4.37	13C2-PFTeDA	715.0 / 670.0	61092.13	100.00
PFTeDA_2	713.0 / 169.0	4.37	13C2-PFTeDA	715.0 / 670.0	61092.13	100.00
NMeFOSAA_1	570.0 / 419.0	3.45	d3-MeFOSAA	573.0 / 419.0	8982.33	100.00
NMeFOSAA_2	570.0 / 512.0	3.45	d3-MeFOSAA	573.0 / 419.0	8982.33	100.00
NEtFOSAA_1	584.0 / 419.0	3.62	d5-EtFOSAA	589.0 / 419.0	8257.55	100.00
NEtFOSAA_2	584.0 / 483.0	3.60	d5-EtFOSAA	589.0 / 419.0	8257.55	100.00

Sample Name	CQ891PB-FS(3)	Injection Vial	21
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:16:53	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	13C3-PFBS	302.0 / 99.0	22557.33	92.90
PFBS_2	298.9 / 99.0	1.54	13C3-PFBS	302.0 / 99.0	22557.33	92.90
PFHxA_1	313.0 / 269.0	1.82	13C5-PFHxA	318.0 / 273.0	70089.29	100.00
PFHxA_2	313.0 / 119.0	1.83	13C5-PFHxA	318.0 / 273.0	70089.29	100.00
PFHpA_1	363.0 / 319.0	2.19	13C4-PFHpA	367.0 / 322.0	84142.00	100.00
PFHpA_2	363.0 / 169.0	2.16	13C4-PFHpA	367.0 / 322.0	84142.00	100.00
PFHxS_1	399.0 / 80.0	2.21	13C3-PFHxS	402.0 / 99.0	20681.65	94.60
PFHxS_2	399.0 / 99.0	2.21	13C3-PFHxS	402.0 / 99.0	20681.65	94.60
PFOA_1	413.0 / 369.0	2.57	13C8-PFOA	421.0 / 376.0	89295.55	100.00
PFOA_2	413.0 / 169.0	2.53	13C8-PFOA	421.0 / 376.0	89295.55	100.00
PFNA_1	463.0 / 419.0	2.94	13C9-PFNA	472.0 / 427.0	93032.46	100.00
PFNA_2	463.0 / 219.0	2.94	13C9-PFNA	472.0 / 427.0	93032.46	100.00
PFOS_1	499.0 / 80.0	2.93	13C8-PFOS	507.0 / 99.0	19147.15	95.70
PFOS_2	499.0 / 99.0	2.93	13C8-PFOS	507.0 / 99.0	19147.15	95.70
PFDA_1	513.0 / 469.0	3.29	13C6-PFDA	519.0 / 474.0	84129.12	100.00
PFDA_2	513.0 / 219.0	3.29	13C6-PFDA	519.0 / 474.0	84129.12	100.00
PFUnA_1	563.0 / 519.0	3.61	13C7-PFUnA	570.0 / 525.0	82554.29	100.00
PFUnA_2	563.0 / 269.0	N/A	13C7-PFUnA	570.0 / 525.0	82554.29	100.00
PFDaA_1	613.0 / 569.0	3.90	13C2-PFDaA	615.0 / 570.0	67336.15	100.00
PFDaA_2	613.0 / 319.0	3.89	13C2-PFDaA	615.0 / 570.0	67336.15	100.00
PFTeDA_1	663.0 / 619.0	4.14	13C2-PFTeDA	715.0 / 670.0	42237.08	100.00
PFTeDA_2	663.0 / 169.0	N/A	13C2-PFTeDA	715.0 / 670.0	42237.08	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFTeDA	715.0 / 670.0	42237.08	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFTeDA	715.0 / 670.0	42237.08	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	9550.85	100.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	9550.85	100.00
NEtFOSAA_1	584.0 / 419.0	N/A	d5-EtFOSAA	589.0 / 419.0	10314.54	100.00
NEtFOSAA_2	584.0 / 483.0	N/A	d5-EtFOSAA	589.0 / 419.0	10314.54	100.00

Sample Name	CQ892LCS-FS(3)	Injection Vial	22
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:27:34	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	13C3-PFBS	302.0 / 99.0	18123.85	92.90
PFBS_2	298.9 / 99.0	1.54	13C3-PFBS	302.0 / 99.0	18123.85	92.90
PFHxA_1	313.0 / 269.0	1.83	13C5-PFHxA	318.0 / 273.0	62720.84	100.00
PFHxA_2	313.0 / 119.0	1.83	13C5-PFHxA	318.0 / 273.0	62720.84	100.00
PFHpA_1	363.0 / 319.0	2.19	13C4-PFHpA	367.0 / 322.0	68704.11	100.00
PFHpA_2	363.0 / 169.0	2.19	13C4-PFHpA	367.0 / 322.0	68704.11	100.00
PFHxS_1	399.0 / 80.0	2.21	13C3-PFHxS	402.0 / 99.0	14644.31	94.60
PFHxS_2	399.0 / 99.0	2.21	13C3-PFHxS	402.0 / 99.0	14644.31	94.60
PFOA_1	413.0 / 369.0	2.57	13C8-PFOA	421.0 / 376.0	73934.16	100.00
PFOA_2	413.0 / 169.0	2.57	13C8-PFOA	421.0 / 376.0	73934.16	100.00
PFNA_1	463.0 / 419.0	2.94	13C9-PFNA	472.0 / 427.0	76057.54	100.00
PFNA_2	463.0 / 219.0	2.94	13C9-PFNA	472.0 / 427.0	76057.54	100.00
PFOS_1	499.0 / 80.0	2.93	13C8-PFOS	507.0 / 99.0	13833.97	95.70
PFOS_2	499.0 / 99.0	2.94	13C8-PFOS	507.0 / 99.0	13833.97	95.70
PFDA_1	513.0 / 469.0	3.29	13C6-PFDA	519.0 / 474.0	73509.31	100.00
PFDA_2	513.0 / 219.0	3.29	13C6-PFDA	519.0 / 474.0	73509.31	100.00
PFUnA_1	563.0 / 519.0	3.61	13C7-PFUnA	570.0 / 525.0	70552.74	100.00
PFUnA_2	563.0 / 269.0	3.61	13C7-PFUnA	570.0 / 525.0	70552.74	100.00
PFDaA_1	613.0 / 569.0	3.89	13C2-PFDaA	615.0 / 570.0	60187.41	100.00
PFDaA_2	613.0 / 319.0	3.89	13C2-PFDaA	615.0 / 570.0	60187.41	100.00
PFTeDA_1	663.0 / 619.0	4.14	13C2-PFTeDA	715.0 / 670.0	40786.93	100.00
PFTeDA_2	663.0 / 169.0	4.14	13C2-PFTeDA	715.0 / 670.0	40786.93	100.00
PFTeDA_1	713.0 / 669.0	4.37	13C2-PFTeDA	715.0 / 670.0	40786.93	100.00
PFTeDA_2	713.0 / 169.0	4.36	13C2-PFTeDA	715.0 / 670.0	40786.93	100.00
NMeFOSAA_1	570.0 / 419.0	3.44	d3-MeFOSAA	573.0 / 419.0	8639.70	100.00
NMeFOSAA_2	570.0 / 512.0	3.44	d3-MeFOSAA	573.0 / 419.0	8639.70	100.00
NEtFOSAA_1	584.0 / 419.0	3.61	d5-EtFOSAA	589.0 / 419.0	9301.67	100.00
NEtFOSAA_2	584.0 / 483.0	3.61	d5-EtFOSAA	589.0 / 419.0	9301.67	100.00

Sample Name	J6227-FS(3)	Injection Vial	23
Sample ID	09-FRB-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:38:15	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	13C3-PFBS	302.0 / 99.0	23266.27	92.90
PFBS_2	298.9 / 99.0	1.54	13C3-PFBS	302.0 / 99.0	23266.27	92.90
PFHxA_1	313.0 / 269.0	1.82	13C5-PFHxA	318.0 / 273.0	70128.96	100.00
PFHxA_2	313.0 / 119.0	1.82	13C5-PFHxA	318.0 / 273.0	70128.96	100.00
PFHpA_1	363.0 / 319.0	2.19	13C4-PFHpA	367.0 / 322.0	78407.15	100.00
PFHpA_2	363.0 / 169.0	2.14	13C4-PFHpA	367.0 / 322.0	78407.15	100.00
PFHxS_1	399.0 / 80.0	2.21	13C3-PFHxS	402.0 / 99.0	18906.93	94.60
PFHxS_2	399.0 / 99.0	2.21	13C3-PFHxS	402.0 / 99.0	18906.93	94.60
PFOA_1	413.0 / 369.0	2.57	13C8-PFOA	421.0 / 376.0	86625.49	100.00
PFOA_2	413.0 / 169.0	2.54	13C8-PFOA	421.0 / 376.0	86625.49	100.00
PFNA_1	463.0 / 419.0	2.94	13C9-PFNA	472.0 / 427.0	84781.03	100.00
PFNA_2	463.0 / 219.0	2.94	13C9-PFNA	472.0 / 427.0	84781.03	100.00
PFOS_1	499.0 / 80.0	2.93	13C8-PFOS	507.0 / 99.0	19763.57	95.70
PFOS_2	499.0 / 99.0	2.94	13C8-PFOS	507.0 / 99.0	19763.57	95.70
PFDA_1	513.0 / 469.0	3.29	13C6-PFDA	519.0 / 474.0	85607.59	100.00
PFDA_2	513.0 / 219.0	3.30	13C6-PFDA	519.0 / 474.0	85607.59	100.00
PFUnA_1	563.0 / 519.0	3.61	13C7-PFUnA	570.0 / 525.0	77444.84	100.00
PFUnA_2	563.0 / 269.0	3.52	13C7-PFUnA	570.0 / 525.0	77444.84	100.00
PFDaA_1	613.0 / 569.0	3.89	13C2-PFDaA	615.0 / 570.0	77196.41	100.00
PFDaA_2	613.0 / 319.0	3.89	13C2-PFDaA	615.0 / 570.0	77196.41	100.00
PFTeDA_1	663.0 / 619.0	4.14	13C2-PFTeDA	715.0 / 670.0	48973.00	100.00
PFTeDA_2	663.0 / 169.0	4.12	13C2-PFTeDA	715.0 / 670.0	48973.00	100.00
PFTeDA_1	713.0 / 669.0	4.36	13C2-PFTeDA	715.0 / 670.0	48973.00	100.00
PFTeDA_2	713.0 / 169.0	4.37	13C2-PFTeDA	715.0 / 670.0	48973.00	100.00
NMeFOSAA_1	570.0 / 419.0	3.44	d3-MeFOSAA	573.0 / 419.0	8720.79	100.00
NMeFOSAA_2	570.0 / 512.0	3.43	d3-MeFOSAA	573.0 / 419.0	8720.79	100.00
NEtFOSAA_1	584.0 / 419.0	N/A	d5-EtFOSAA	589.0 / 419.0	9705.02	100.00
NEtFOSAA_2	584.0 / 483.0	N/A	d5-EtFOSAA	589.0 / 419.0	9705.02	100.00

Sample Name	JV05 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:08:39	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFDoA	615.0 / 570.0	3.89	13C2-PFDA	515.0 / 470.0	75273.77	100.00
d3-MeFOSAA	573.0 / 419.0	3.44	13C4-PFOS	503.0 / 99.0	18935.15	95.50
d5-EtFOSAA	589.0 / 419.0	3.60	13C4-PFOS	503.0 / 99.0	18935.15	95.50
13C5-PFHxA	318.0 / 273.0	1.82	13C2-PFOA	415.0 / 370.0	66887.41	100.00
13C4-PFHpA	367.0 / 322.0	2.18	13C2-PFOA	415.0 / 370.0	66887.41	100.00
13C8-PFOA	421.0 / 376.0	2.56	13C2-PFOA	415.0 / 370.0	66887.41	100.00
13C9-PFNA	472.0 / 427.0	2.93	13C2-PFOA	415.0 / 370.0	66887.41	100.00
13C6-PFDA	519.0 / 474.0	3.28	13C2-PFDA	515.0 / 470.0	75273.77	100.00
13C7-PFUnA	570.0 / 525.0	3.60	13C2-PFDA	515.0 / 470.0	75273.77	100.00
13C2-PFTeDA	715.0 / 670.0	4.36	13C2-PFDA	515.0 / 470.0	75273.77	100.00
13C3-PFBS	302.0 / 99.0	1.52	13C4-PFOS	503.0 / 99.0	18935.15	95.50
13C3-PFHxS	402.0 / 99.0	2.20	13C4-PFOS	503.0 / 99.0	18935.15	95.50
13C8-PFOS	507.0 / 99.0	2.93	13C4-PFOS	503.0 / 99.0	18935.15	95.50

Sample Name	CQ891PB-FS(3)	Injection Vial	21
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:16:53	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFDoA	615.0 / 570.0	3.88	13C2-PFDA	515.0 / 470.0	49388.41	100.00
d3-MeFOSAA	573.0 / 419.0	3.44	13C4-PFOS	503.0 / 99.0	13848.29	95.50
d5-EtFOSAA	589.0 / 419.0	3.60	13C4-PFOS	503.0 / 99.0	13848.29	95.50
13C5-PFHxA	318.0 / 273.0	1.82	13C2-PFOA	415.0 / 370.0	51298.67	100.00
13C4-PFHpA	367.0 / 322.0	2.18	13C2-PFOA	415.0 / 370.0	51298.67	100.00
13C8-PFOA	421.0 / 376.0	2.56	13C2-PFOA	415.0 / 370.0	51298.67	100.00
13C9-PFNA	472.0 / 427.0	2.93	13C2-PFOA	415.0 / 370.0	51298.67	100.00
13C6-PFDA	519.0 / 474.0	3.28	13C2-PFDA	515.0 / 470.0	49388.41	100.00
13C7-PFUnA	570.0 / 525.0	3.59	13C2-PFDA	515.0 / 470.0	49388.41	100.00
13C2-PFTeDA	715.0 / 670.0	4.36	13C2-PFDA	515.0 / 470.0	49388.41	100.00
13C3-PFBS	302.0 / 99.0	1.52	13C4-PFOS	503.0 / 99.0	13848.29	95.50
13C3-PFHxS	402.0 / 99.0	2.20	13C4-PFOS	503.0 / 99.0	13848.29	95.50
13C8-PFOS	507.0 / 99.0	2.93	13C4-PFOS	503.0 / 99.0	13848.29	95.50

Sample Name	CQ892LCS-FS(3)	Injection Vial	22
Sample ID	Labortory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:27:34	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
13C2-PFDoA	615.0 / 570.0	3.88	13C2-PFDA	515.0 / 470.0	42815.43	100.00
d3-MeFOSAA	573.0 / 419.0	3.44	13C4-PFOS	503.0 / 99.0	9885.59	95.50
d5-EtFOSAA	589.0 / 419.0	3.59	13C4-PFOS	503.0 / 99.0	9885.59	95.50
13C5-PFHxA	318.0 / 273.0	1.82	13C2-PFOA	415.0 / 370.0	44171.18	100.00
13C4-PFHpA	367.0 / 322.0	2.18	13C2-PFOA	415.0 / 370.0	44171.18	100.00
13C8-PFOA	421.0 / 376.0	2.56	13C2-PFOA	415.0 / 370.0	44171.18	100.00
13C9-PFNA	472.0 / 427.0	2.93	13C2-PFOA	415.0 / 370.0	44171.18	100.00
13C6-PFDA	519.0 / 474.0	3.28	13C2-PFDA	515.0 / 470.0	42815.43	100.00
13C7-PFUnA	570.0 / 525.0	3.59	13C2-PFDA	515.0 / 470.0	42815.43	100.00
13C2-PFTeDA	715.0 / 670.0	4.36	13C2-PFDA	515.0 / 470.0	42815.43	100.00
13C3-PFBS	302.0 / 99.0	1.52	13C4-PFOS	503.0 / 99.0	9885.59	95.50
13C3-PFHxS	402.0 / 99.0	2.20	13C4-PFOS	503.0 / 99.0	9885.59	95.50
13C8-PFOS	507.0 / 99.0	2.93	13C4-PFOS	503.0 / 99.0	9885.59	95.50

Sample Name	J6227-FS(3)	Injection Vial	23
Sample ID	09-FRB-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:38:15	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

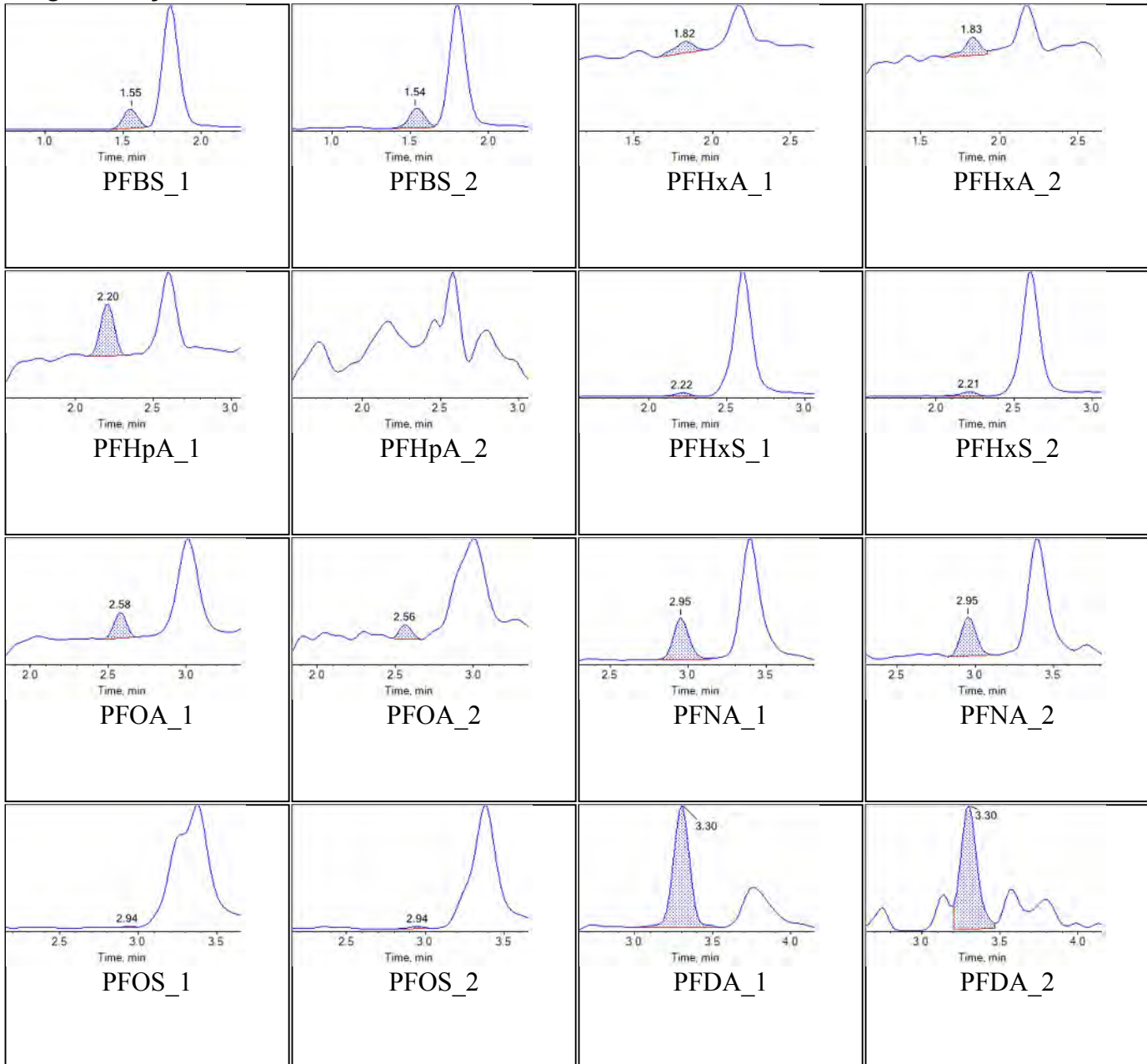
Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
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d3-MeFOSAA	573.0 / 419.0	3.44	13C4-PFOS	503.0 / 99.0	12561.96	95.50
d5-EtFOSAA	589.0 / 419.0	3.60	13C4-PFOS	503.0 / 99.0	12561.96	95.50
13C5-PFHxA	318.0 / 273.0	1.82	13C2-PFOA	415.0 / 370.0	49048.13	100.00
13C4-PFHpA	367.0 / 322.0	2.18	13C2-PFOA	415.0 / 370.0	49048.13	100.00
13C8-PFOA	421.0 / 376.0	2.56	13C2-PFOA	415.0 / 370.0	49048.13	100.00
13C9-PFNA	472.0 / 427.0	2.93	13C2-PFOA	415.0 / 370.0	49048.13	100.00
13C6-PFDA	519.0 / 474.0	3.27	13C2-PFDA	515.0 / 470.0	51047.24	100.00
13C7-PFUnA	570.0 / 525.0	3.59	13C2-PFDA	515.0 / 470.0	51047.24	100.00
13C2-PFTeDA	715.0 / 670.0	4.36	13C2-PFDA	515.0 / 470.0	51047.24	100.00
13C3-PFBS	302.0 / 99.0	1.52	13C4-PFOS	503.0 / 99.0	12561.96	95.50
13C3-PFHxS	402.0 / 99.0	2.20	13C4-PFOS	503.0 / 99.0	12561.96	95.50
13C8-PFOS	507.0 / 99.0	2.93	13C4-PFOS	503.0 / 99.0	12561.96	95.50

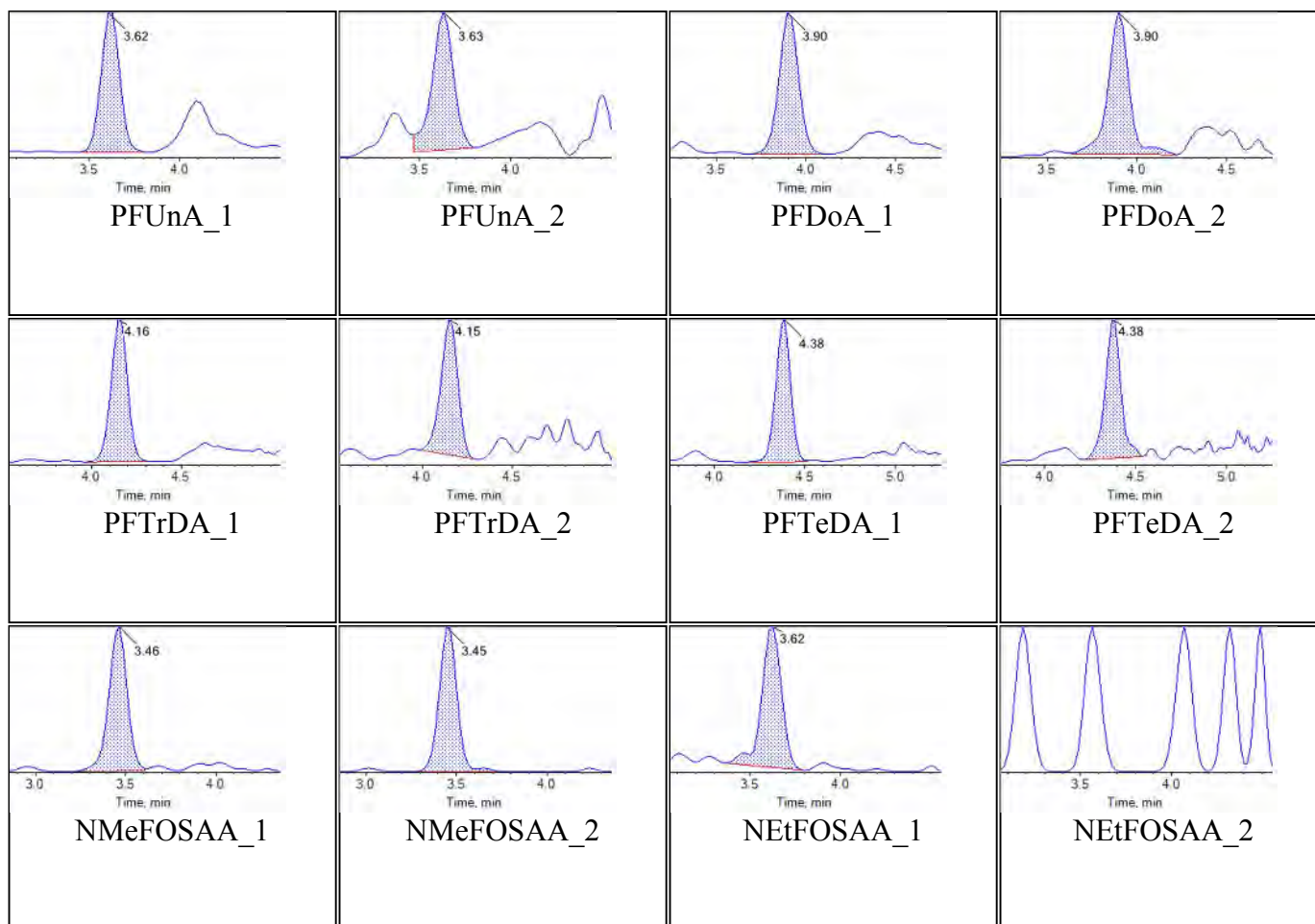
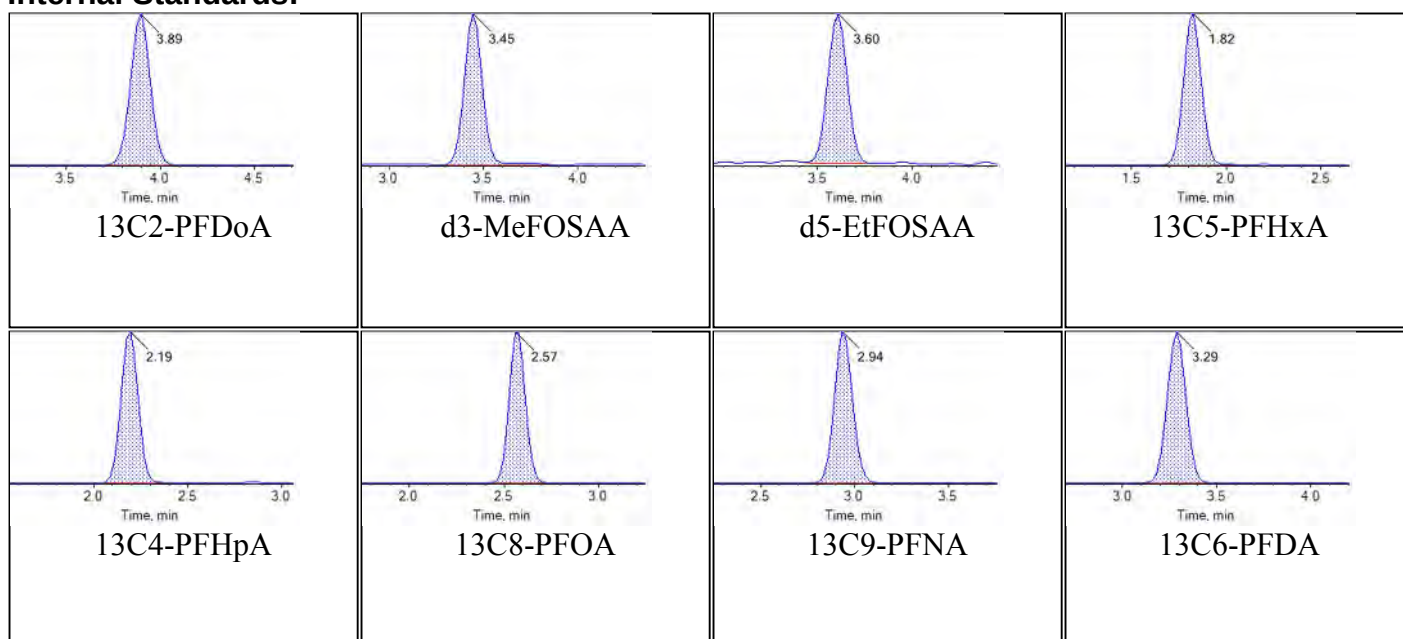
Chromatograms

Sample Name	JV20	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:32:29	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Chromatograms

Target Analytes:

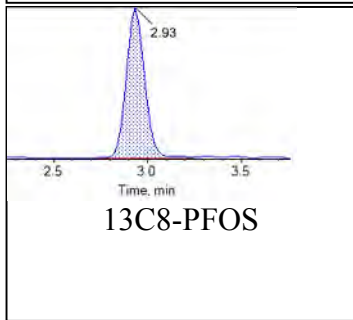
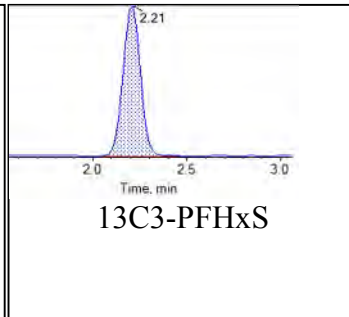
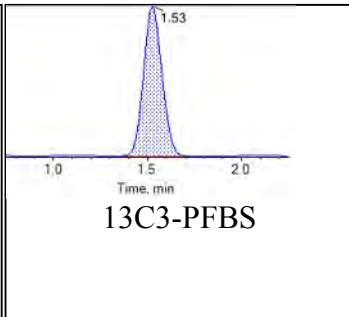
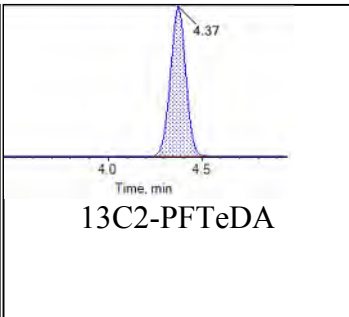
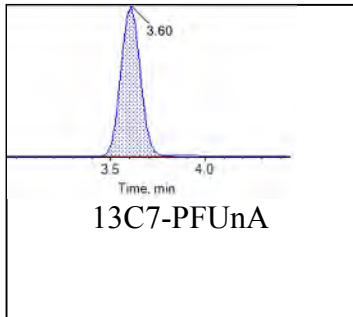


**Internal Standards:**



Chromatogram Report

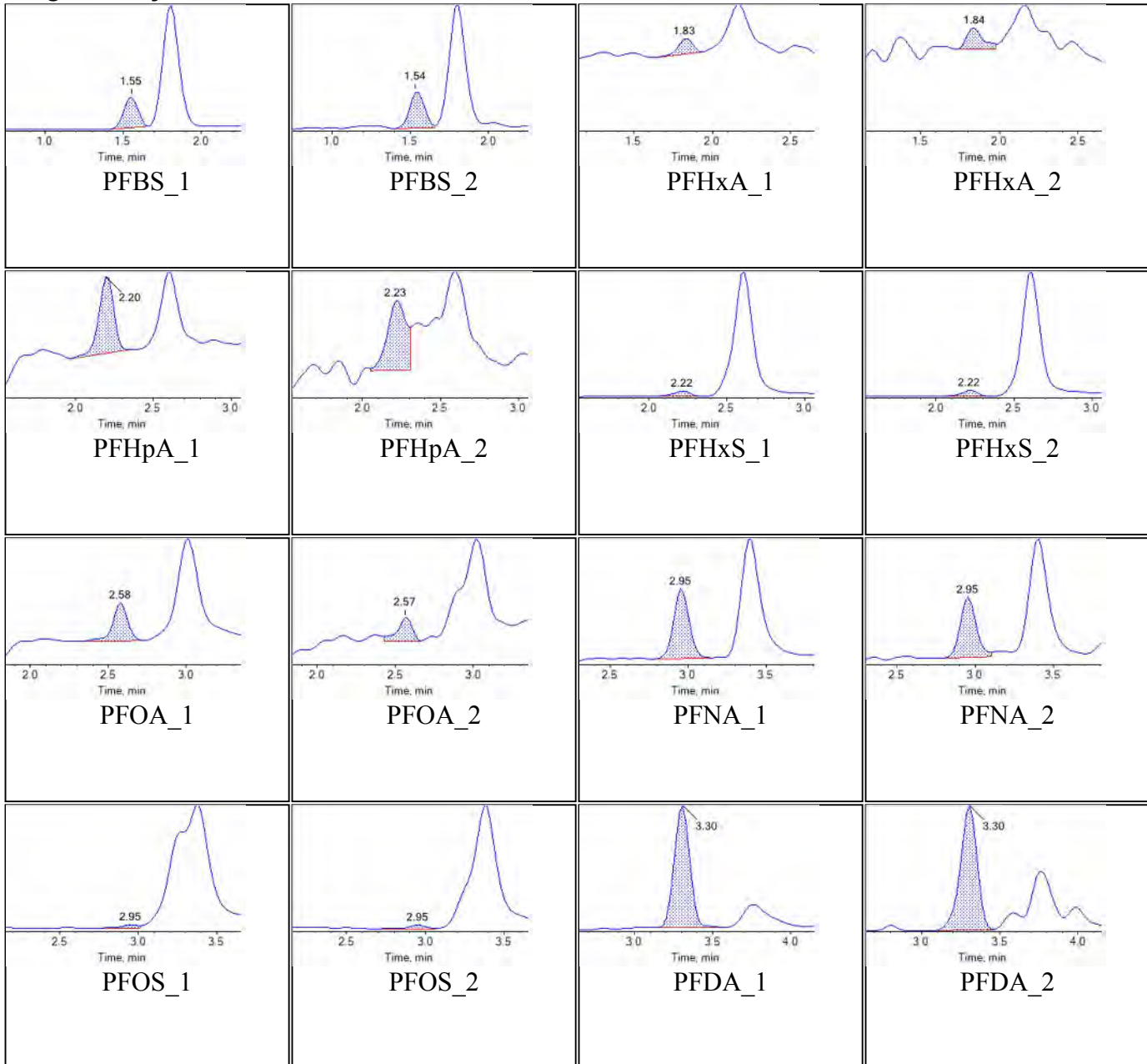
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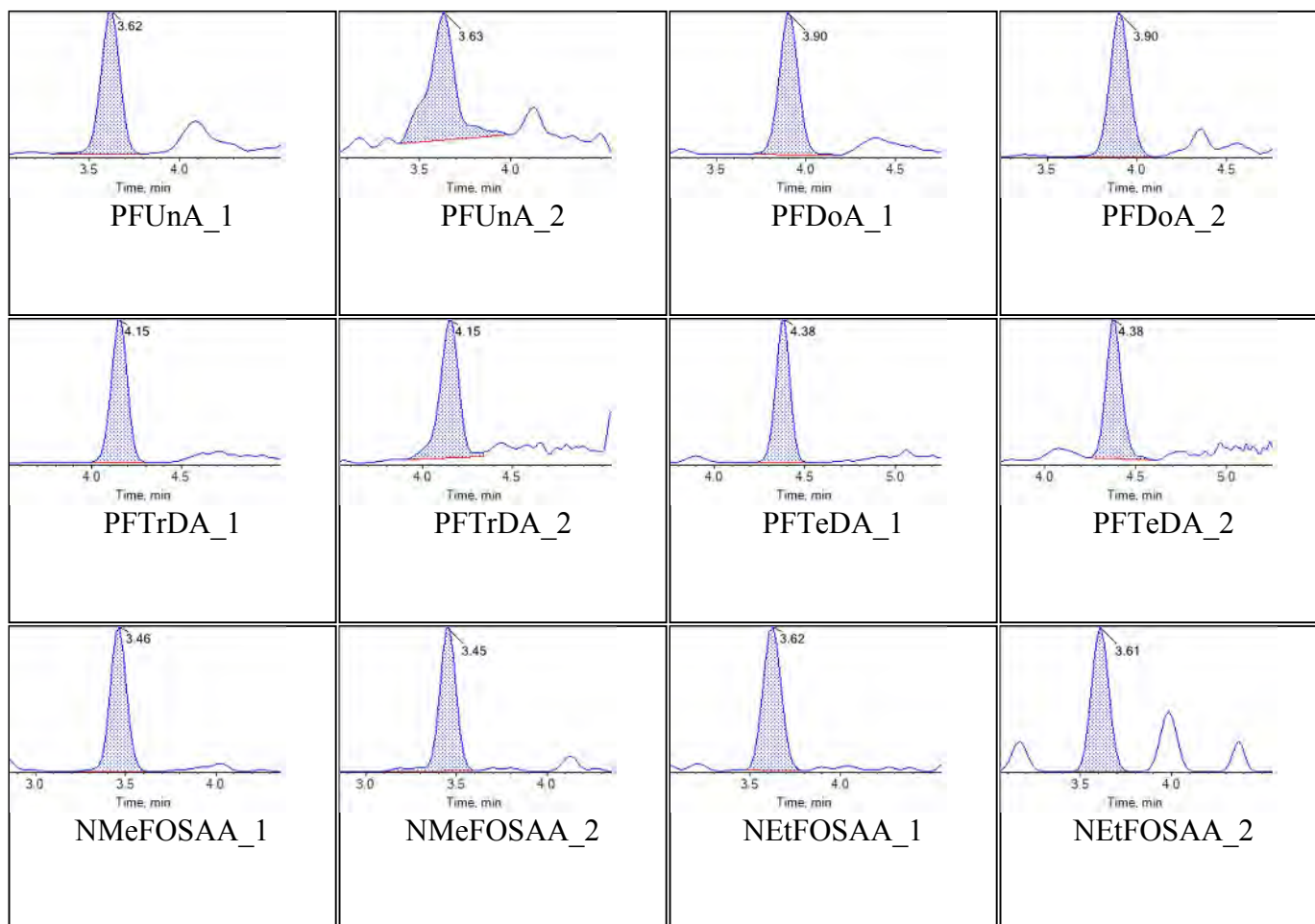
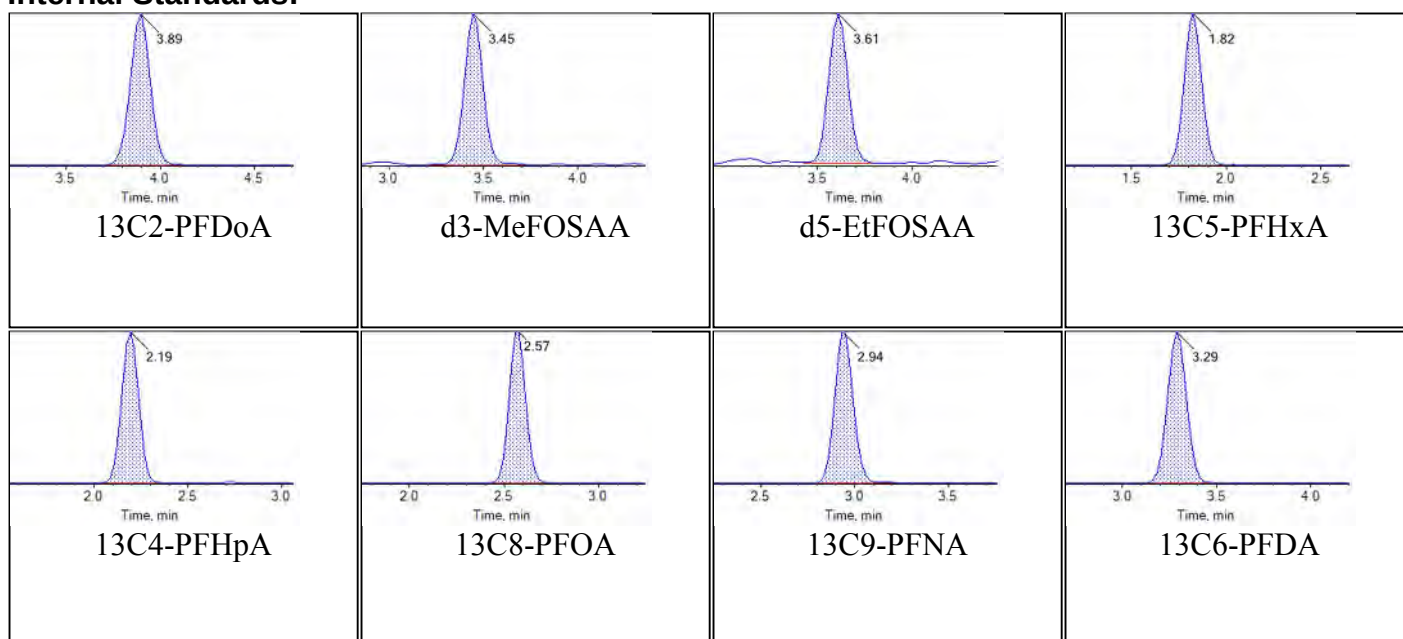


Sample Name	JV21	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:43:10	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Chromatograms

Target Analytes:

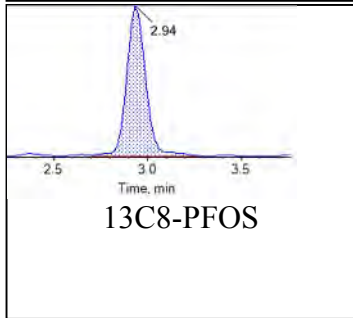
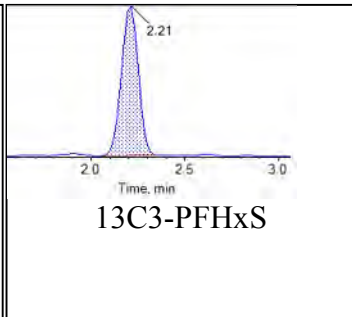
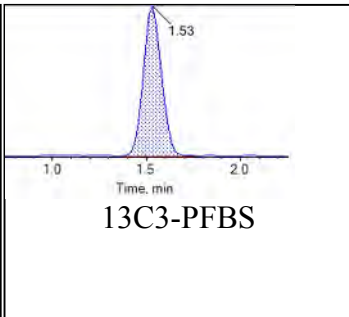
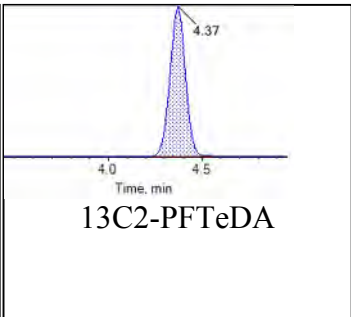
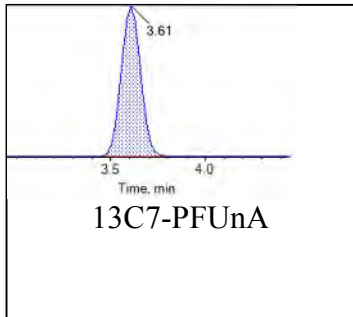


**Internal Standards:**



Chromatogram Report

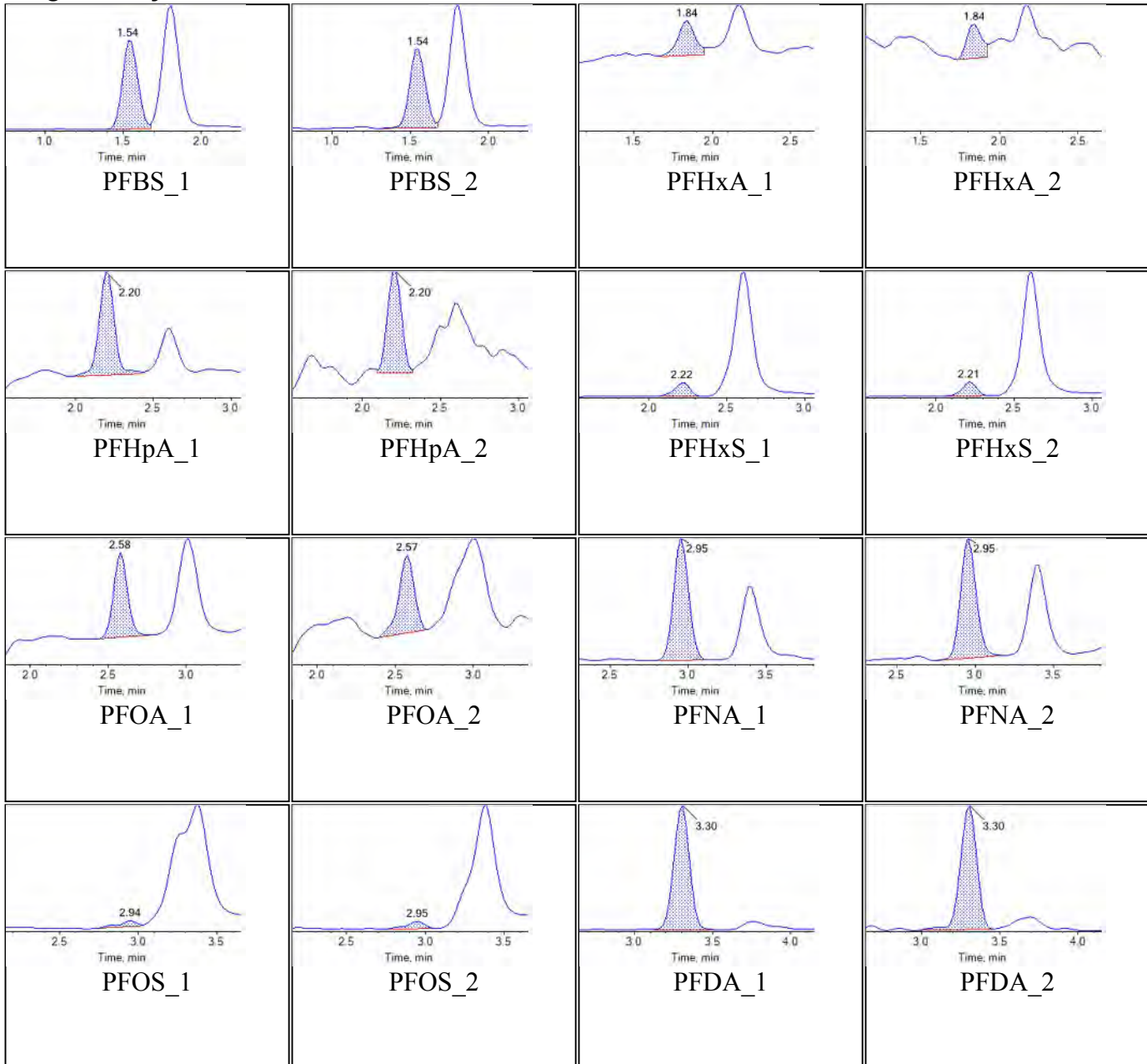
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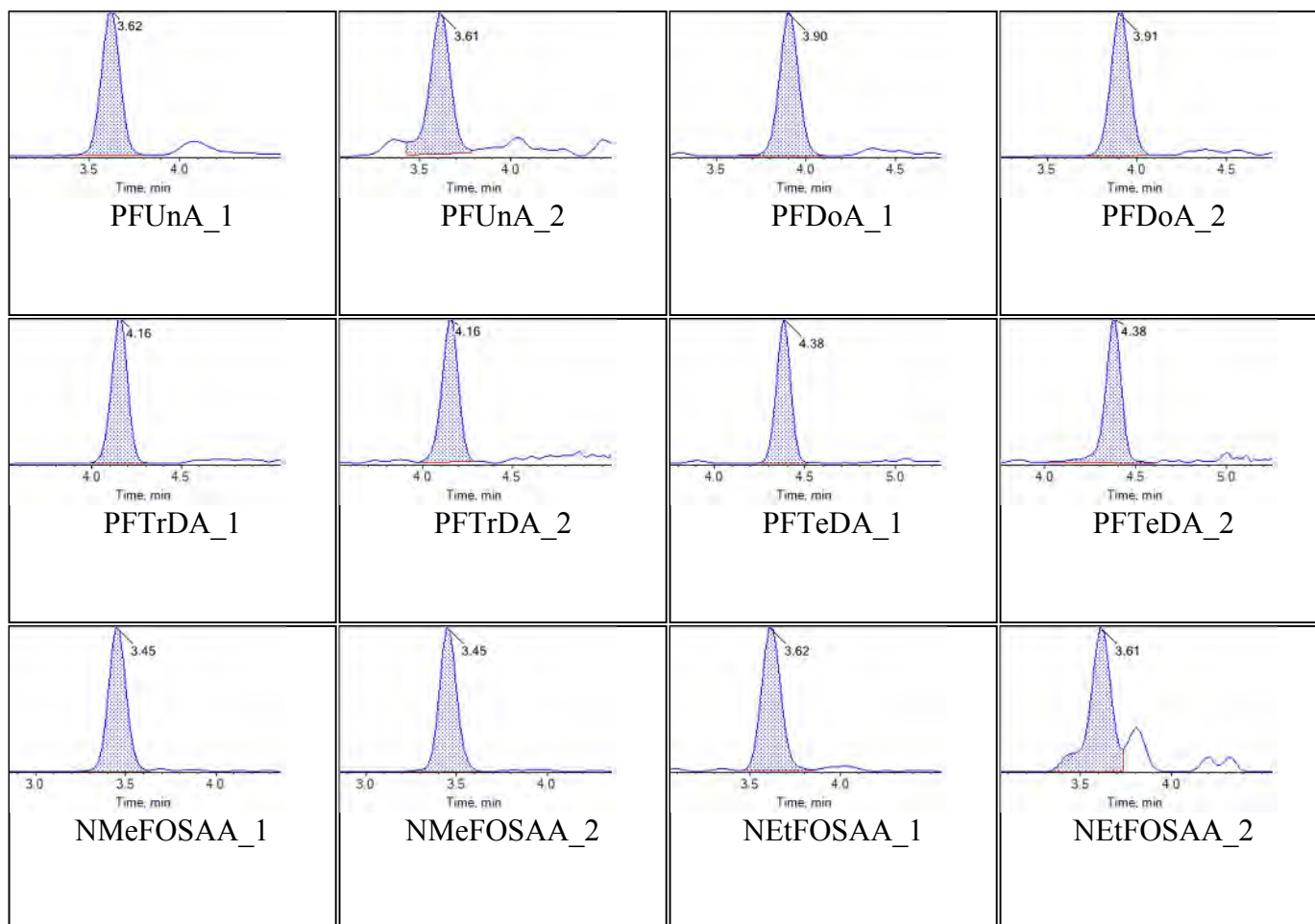
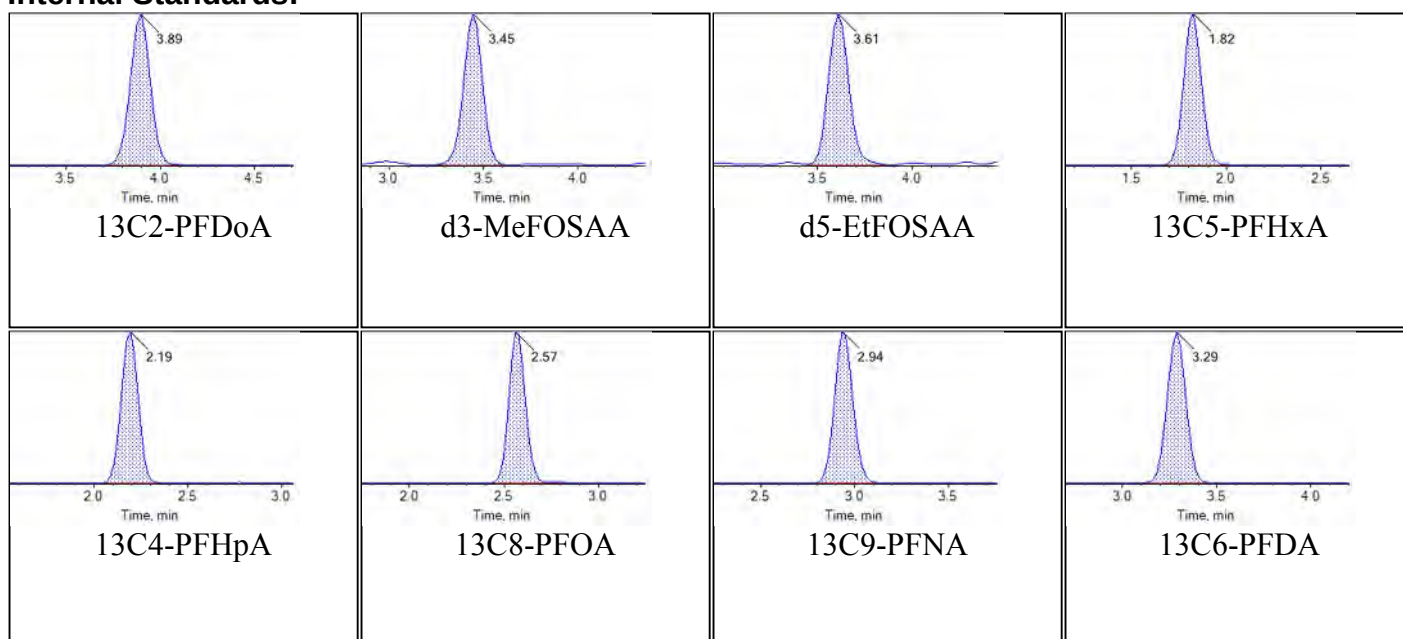


Sample Name	JV22	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:53:52	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Chromatograms

Target Analytes:

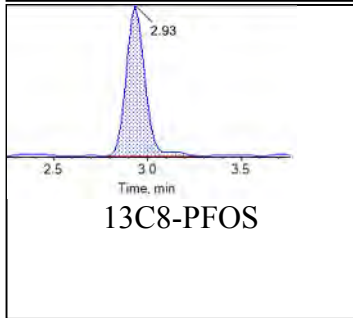
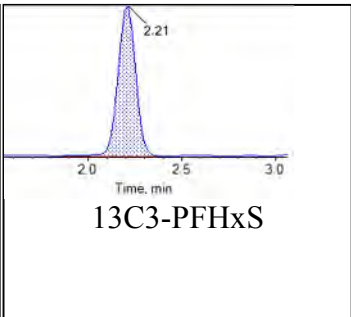
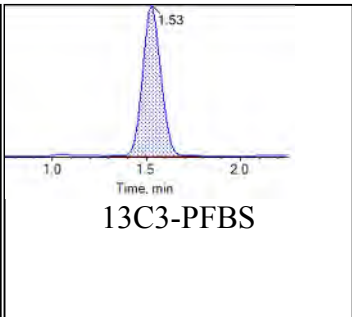
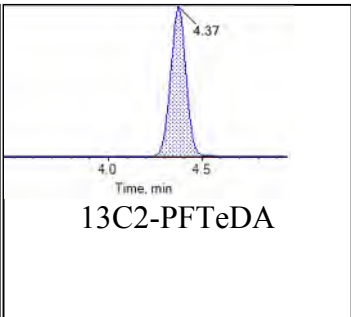
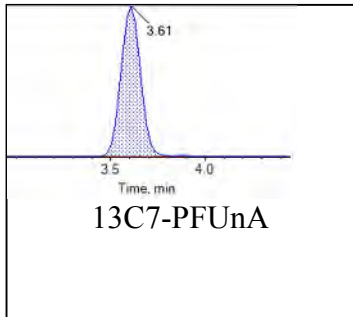


**Internal Standards:**



Chromatogram Report

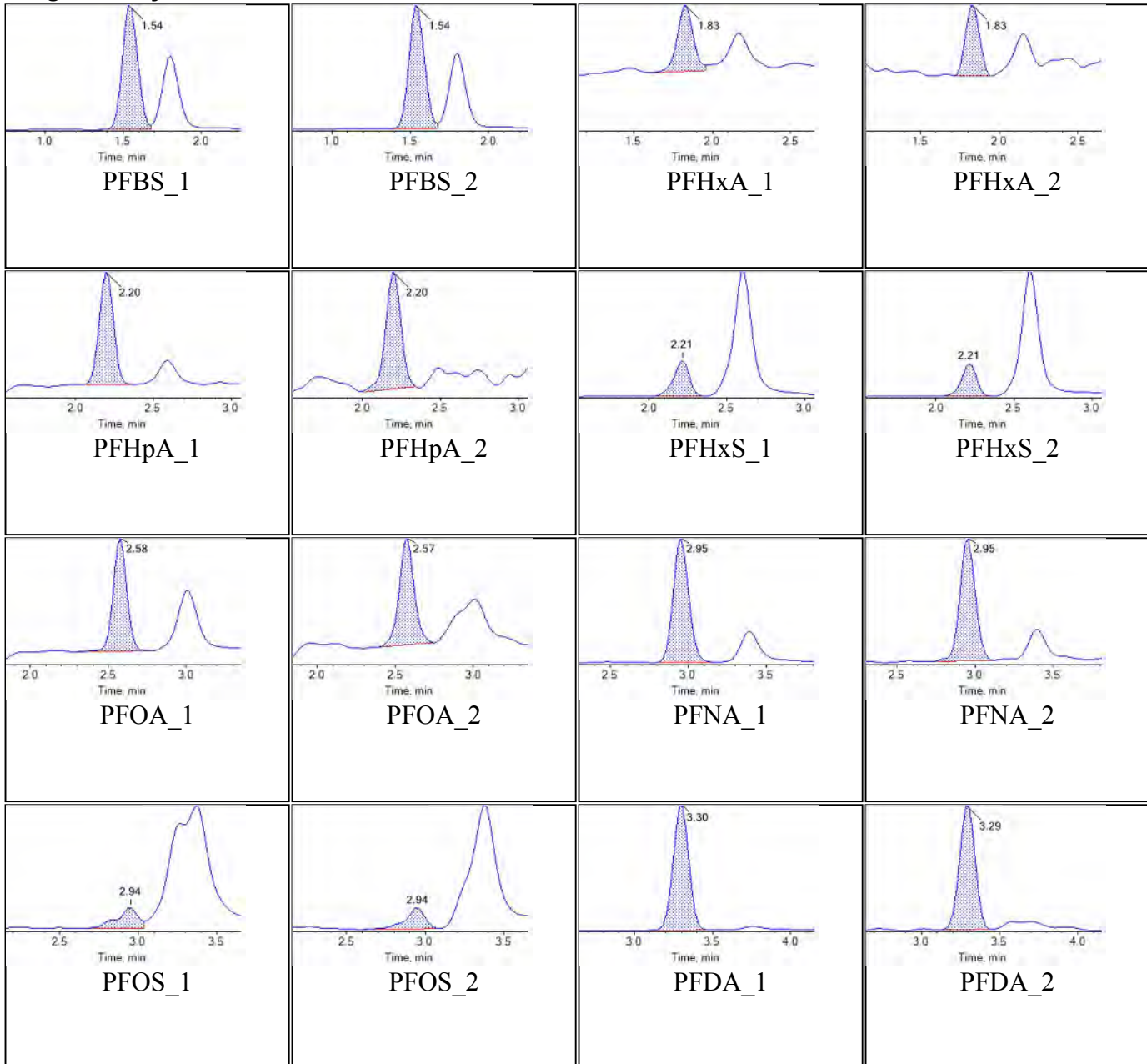
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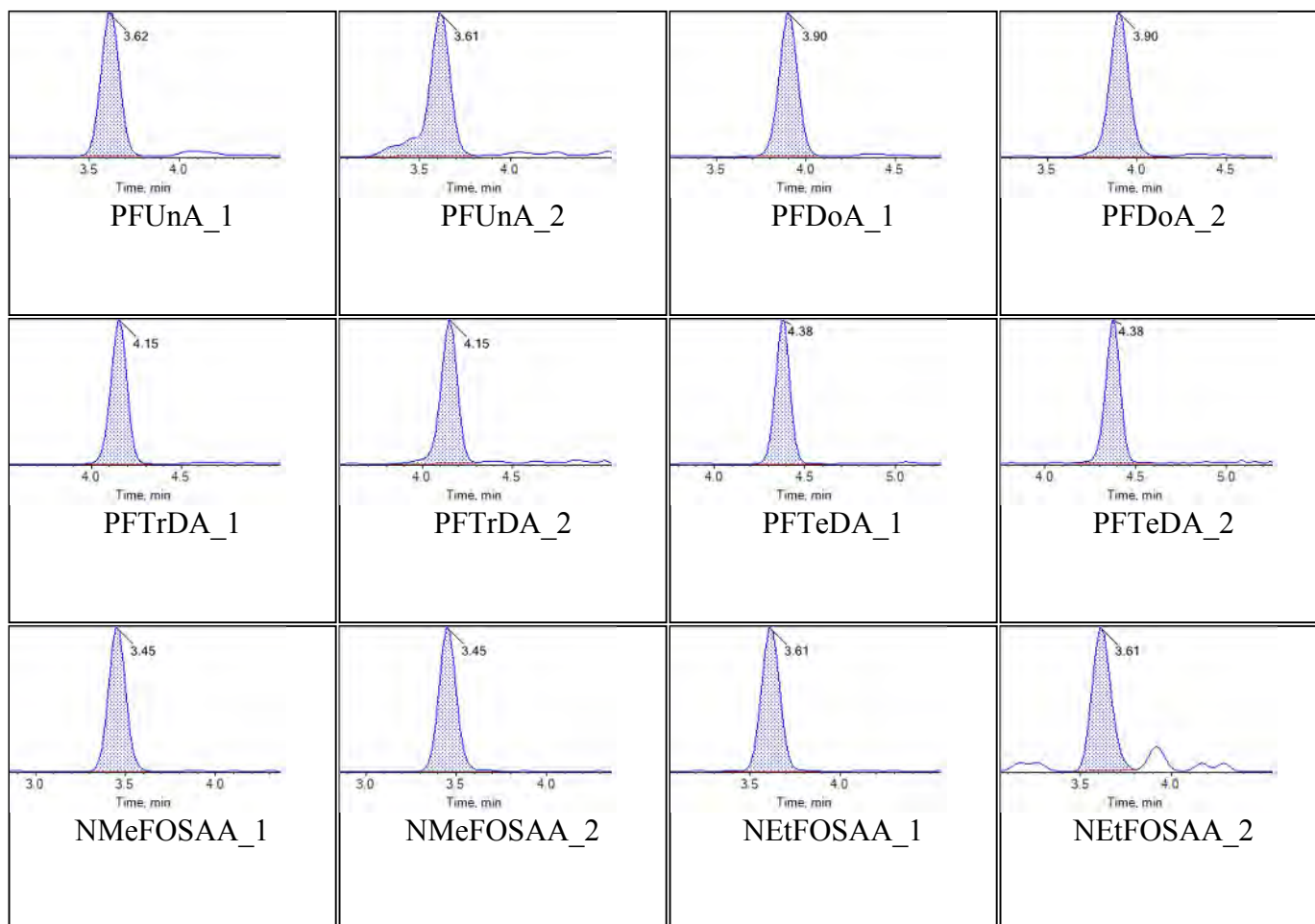
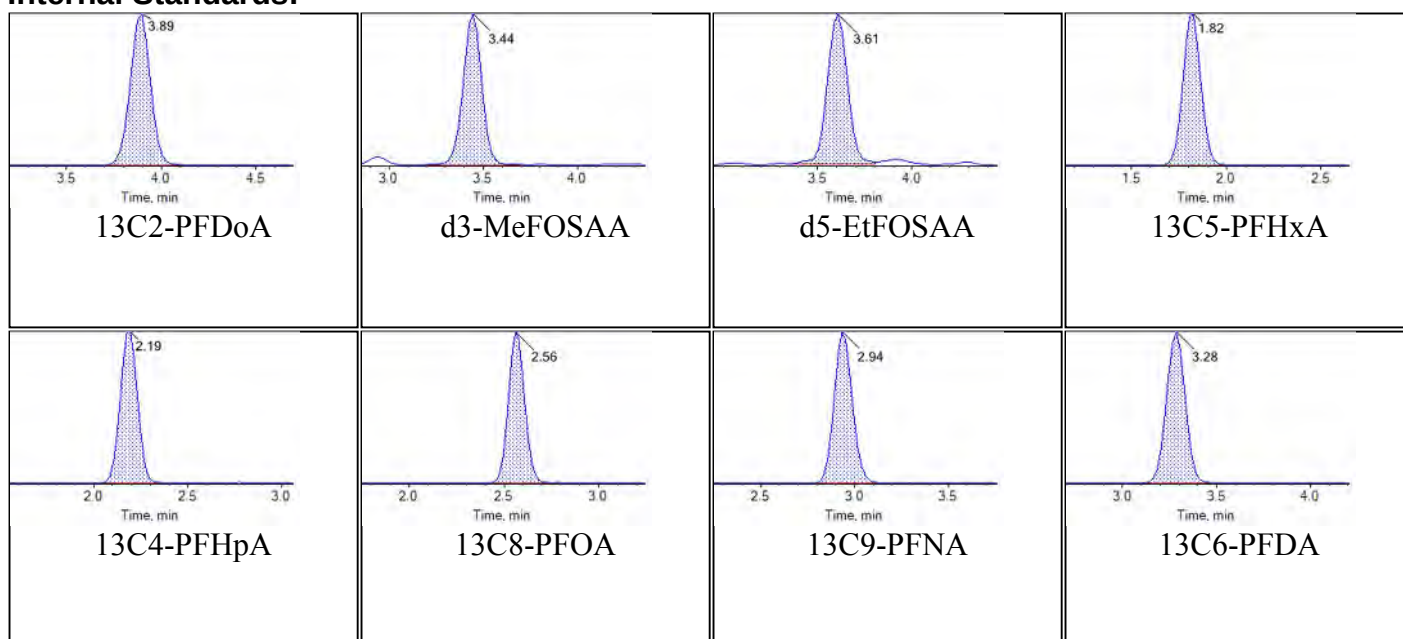


Sample Name	JV23	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:04:34	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Chromatograms

Target Analytes:

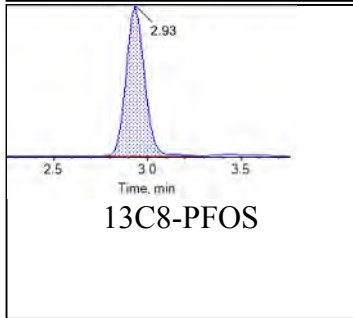
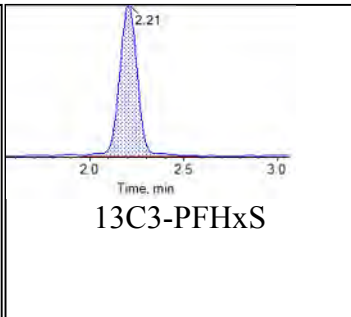
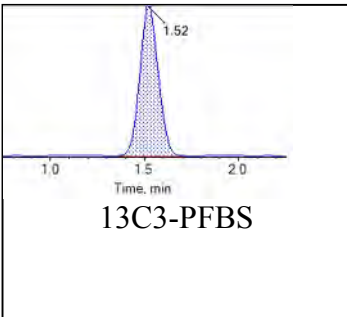
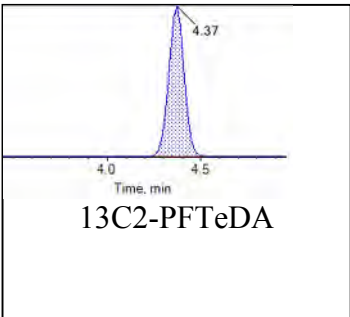
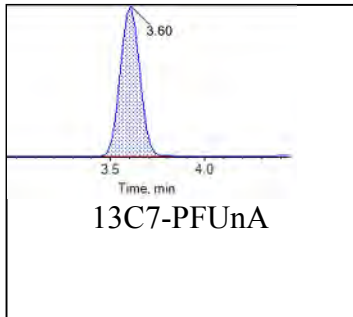


**Internal Standards:**



Chromatogram Report

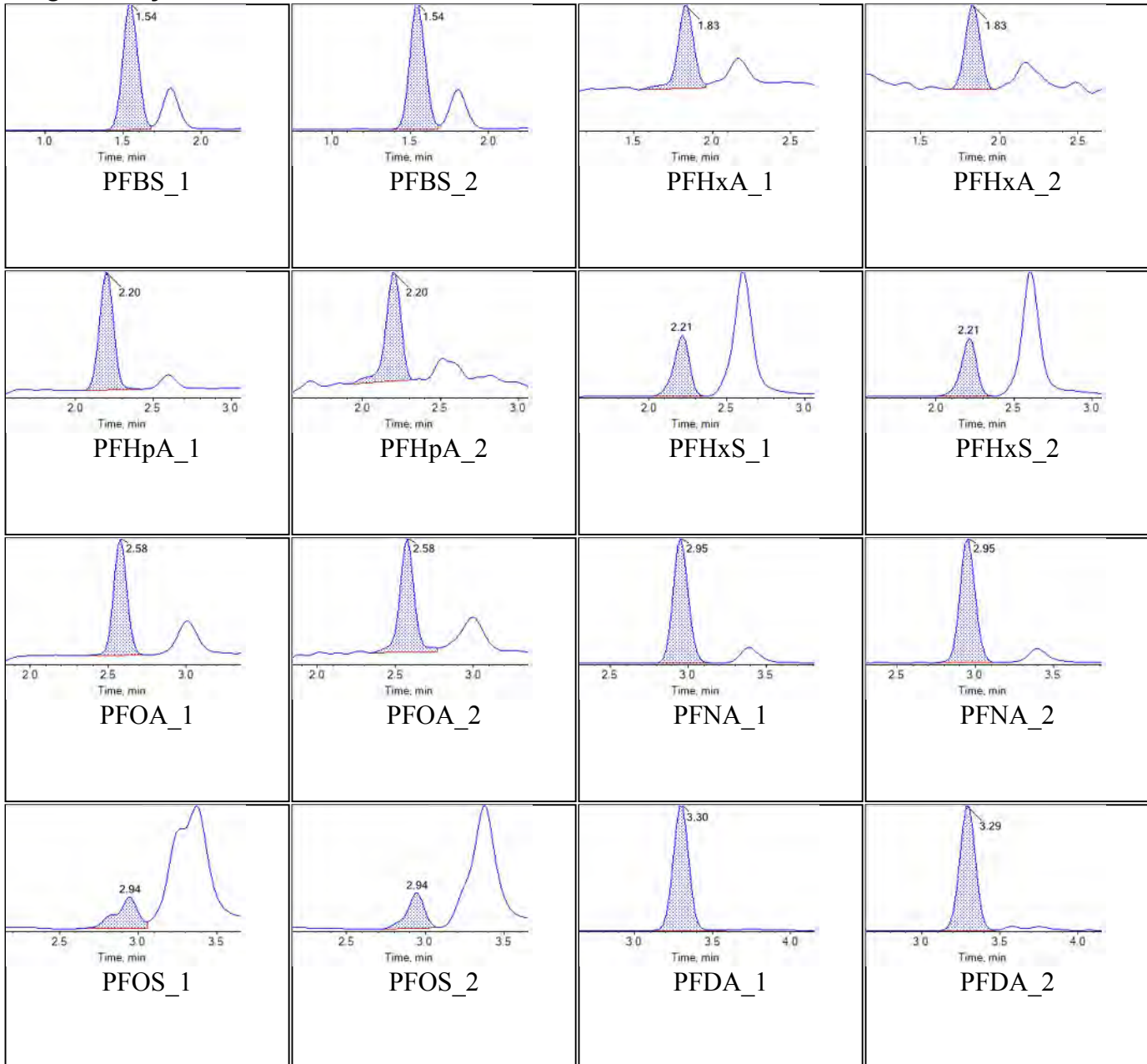
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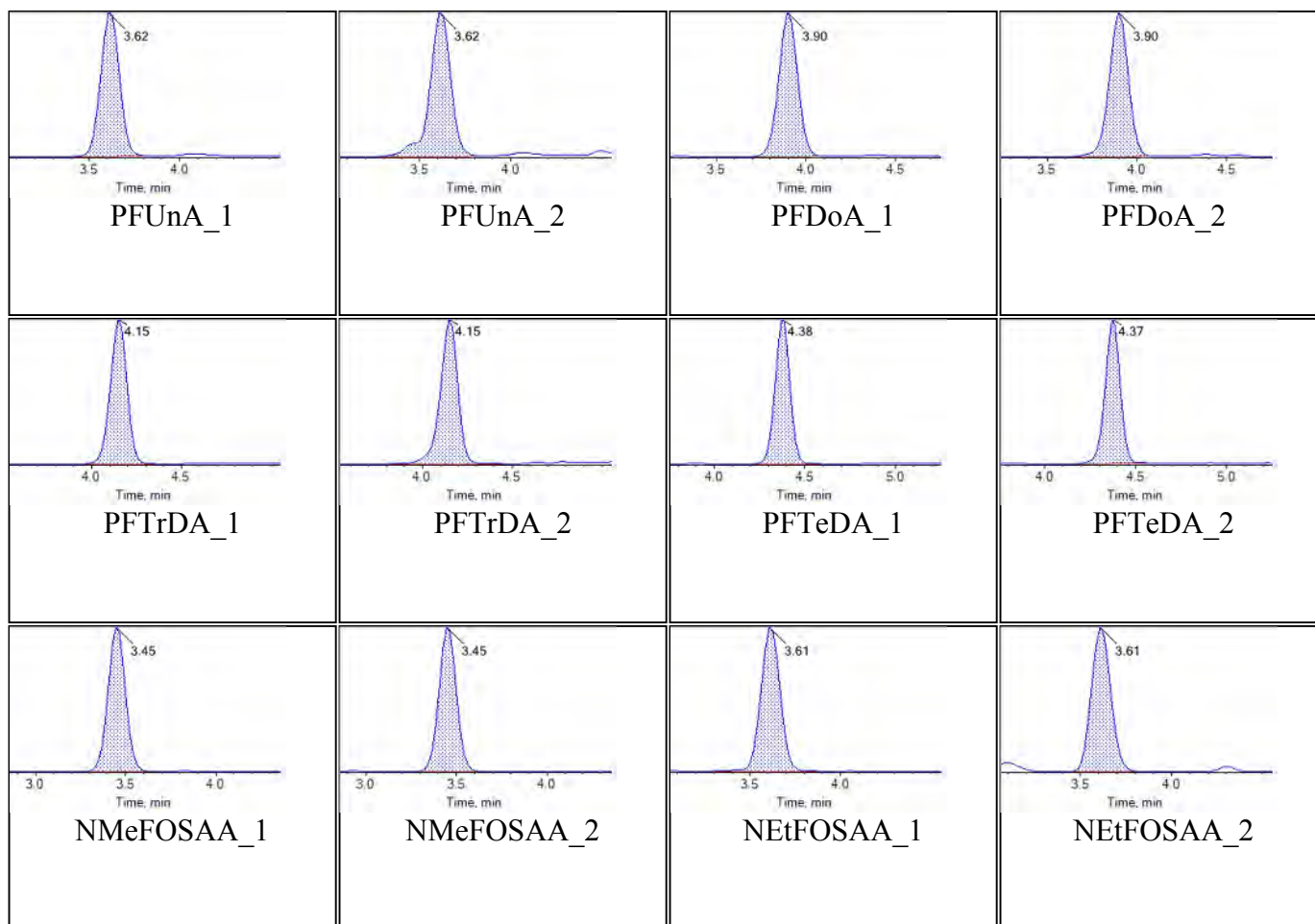
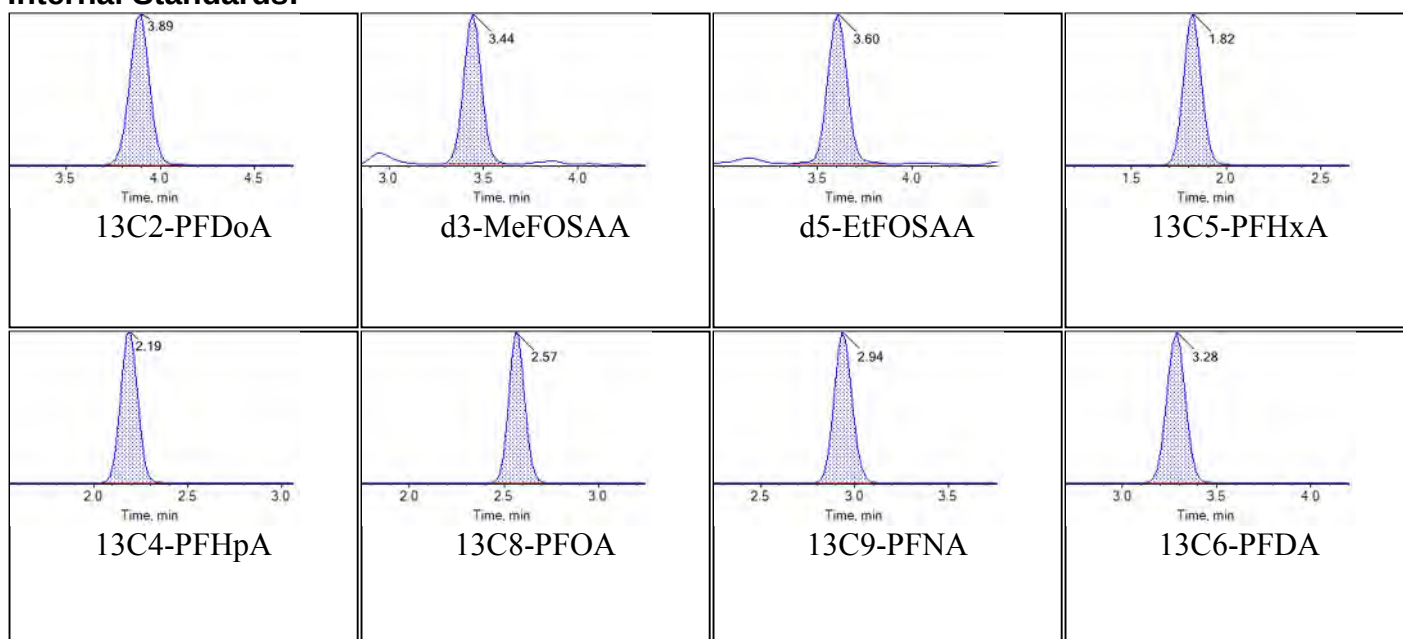


Sample Name	JV24	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:15:15	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Chromatograms

Target Analytes:

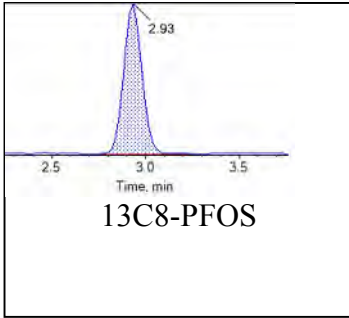
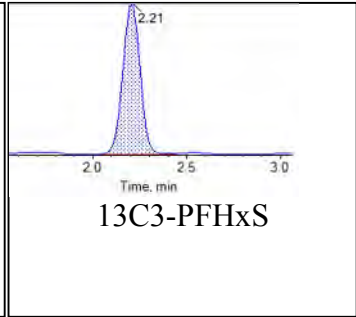
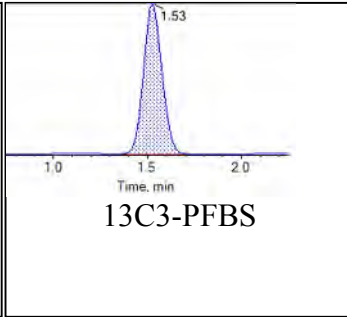
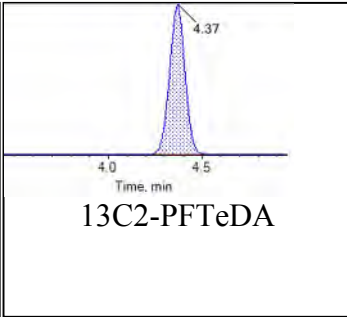
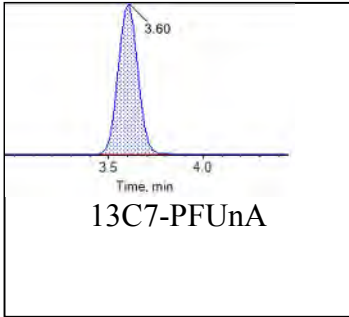


**Internal Standards:**



Chromatogram Report

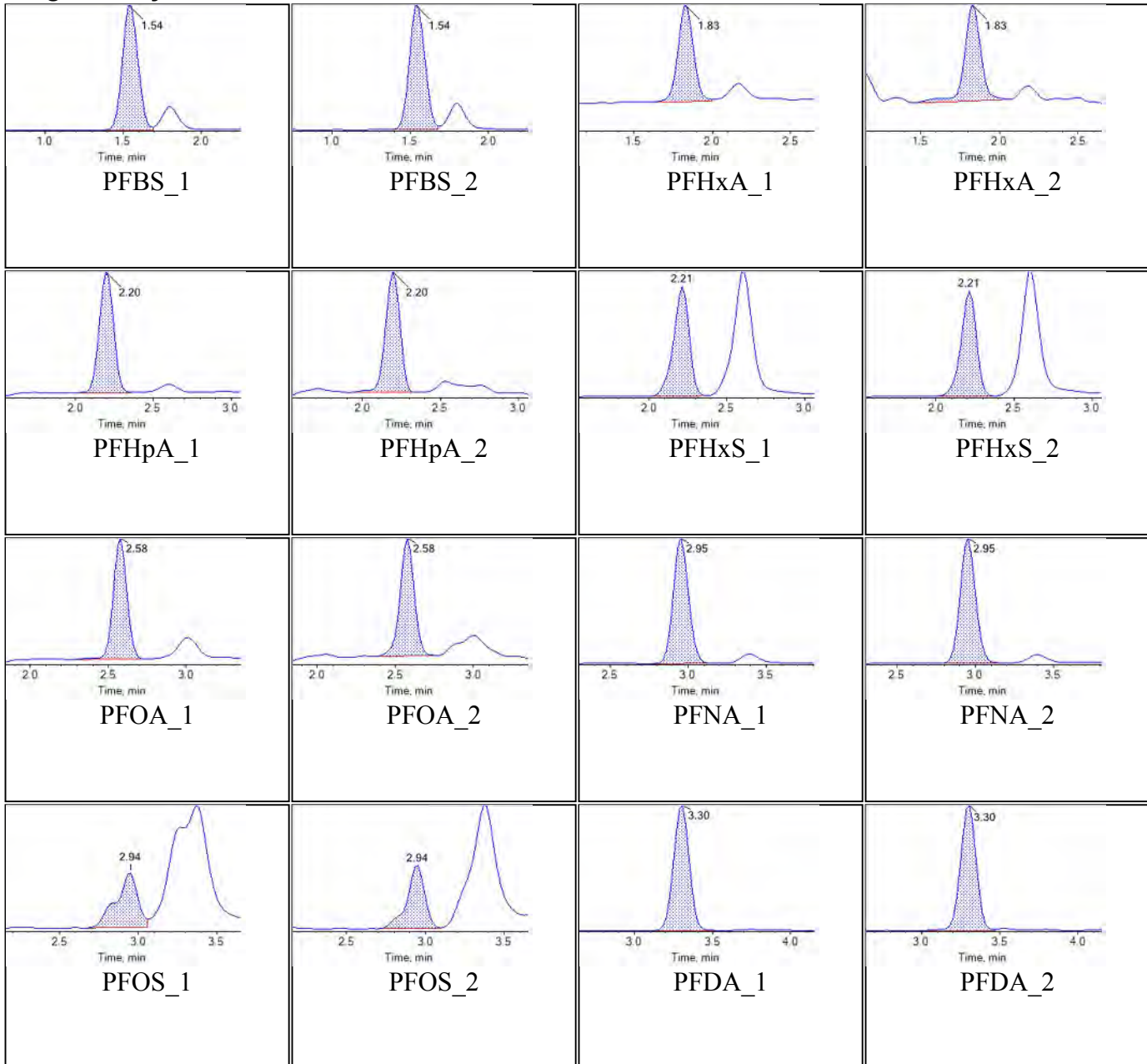
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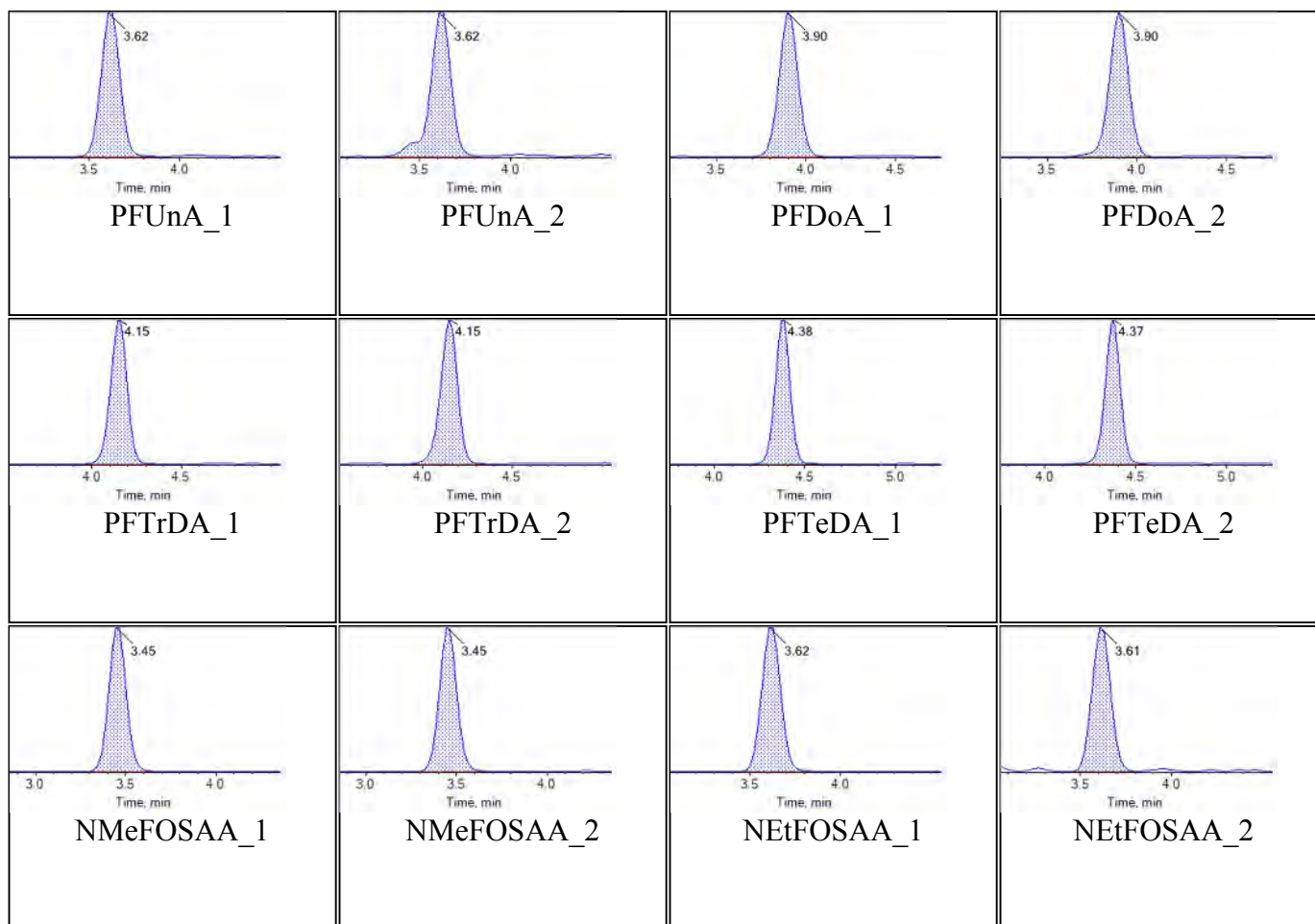
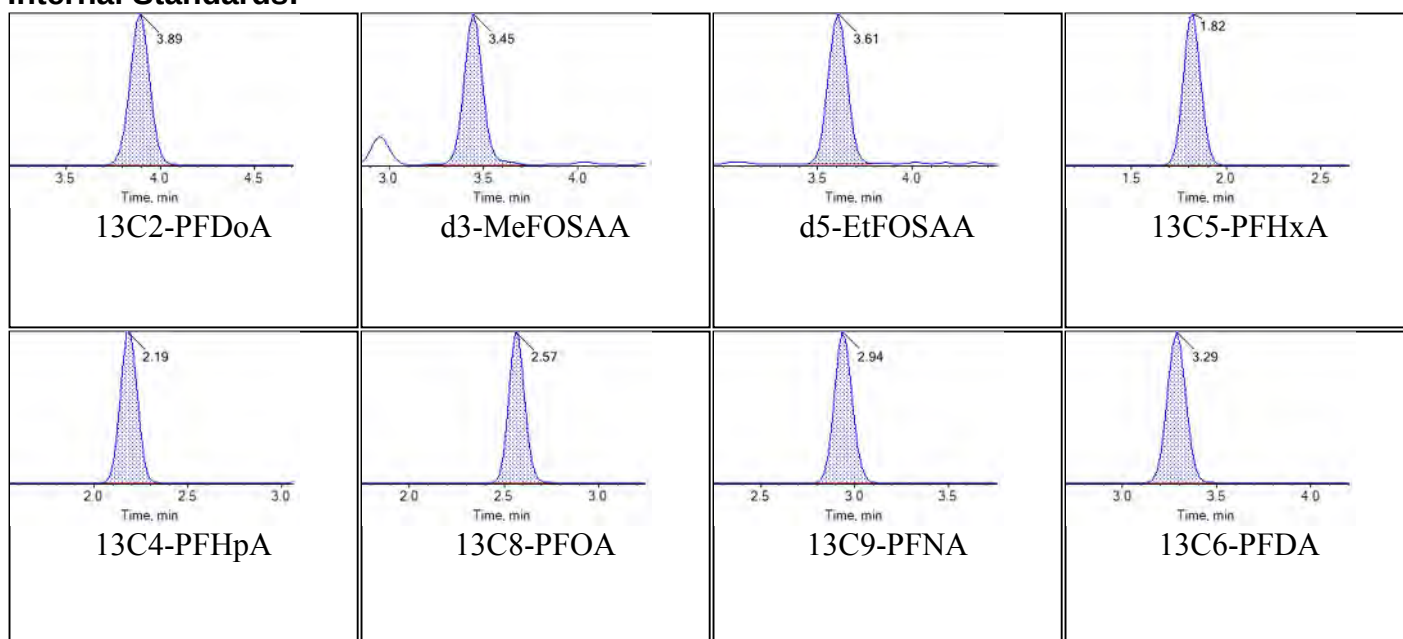


Sample Name	JV25	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:25:56	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Chromatograms

Target Analytes:

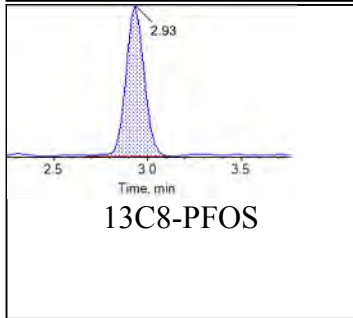
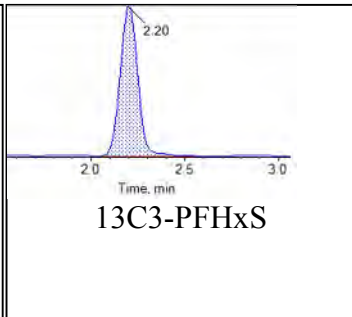
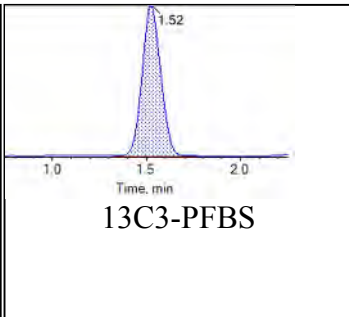
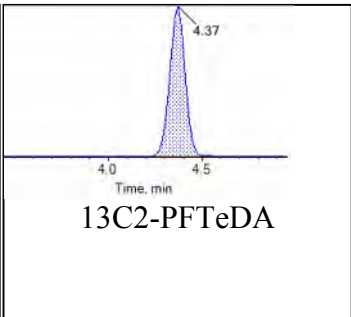
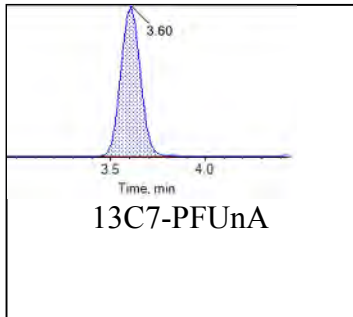


**Internal Standards:**



Chromatogram Report

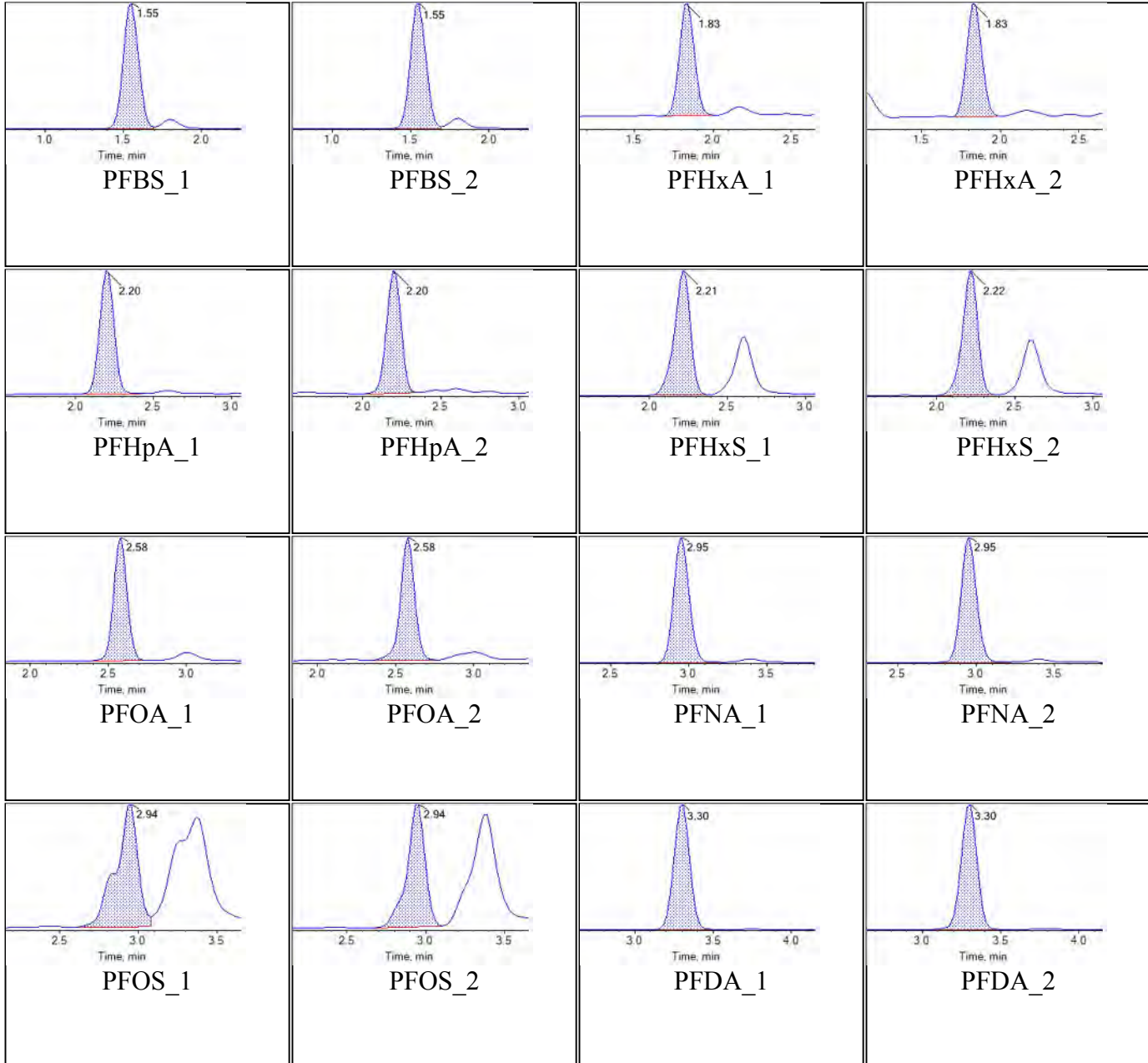
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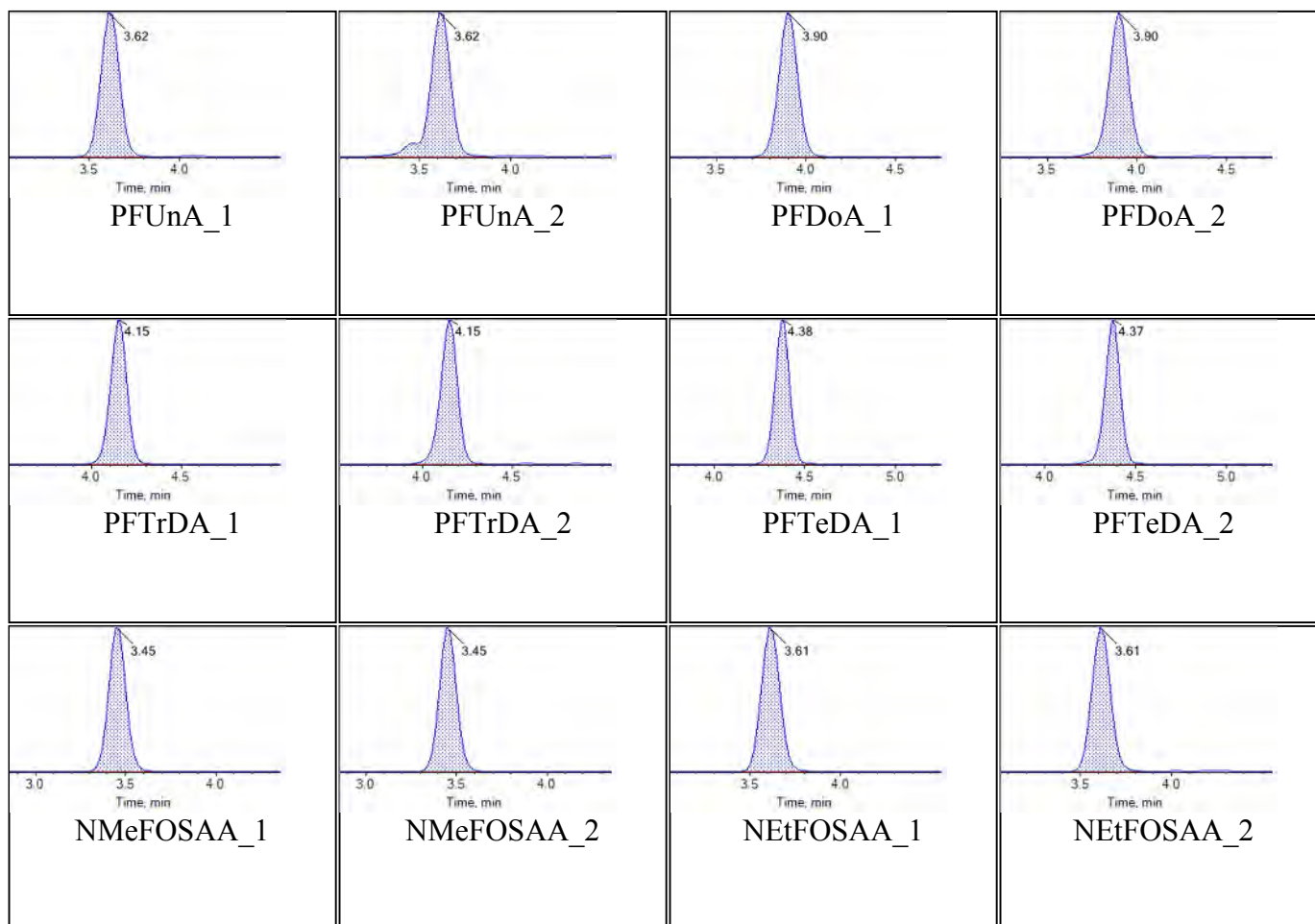
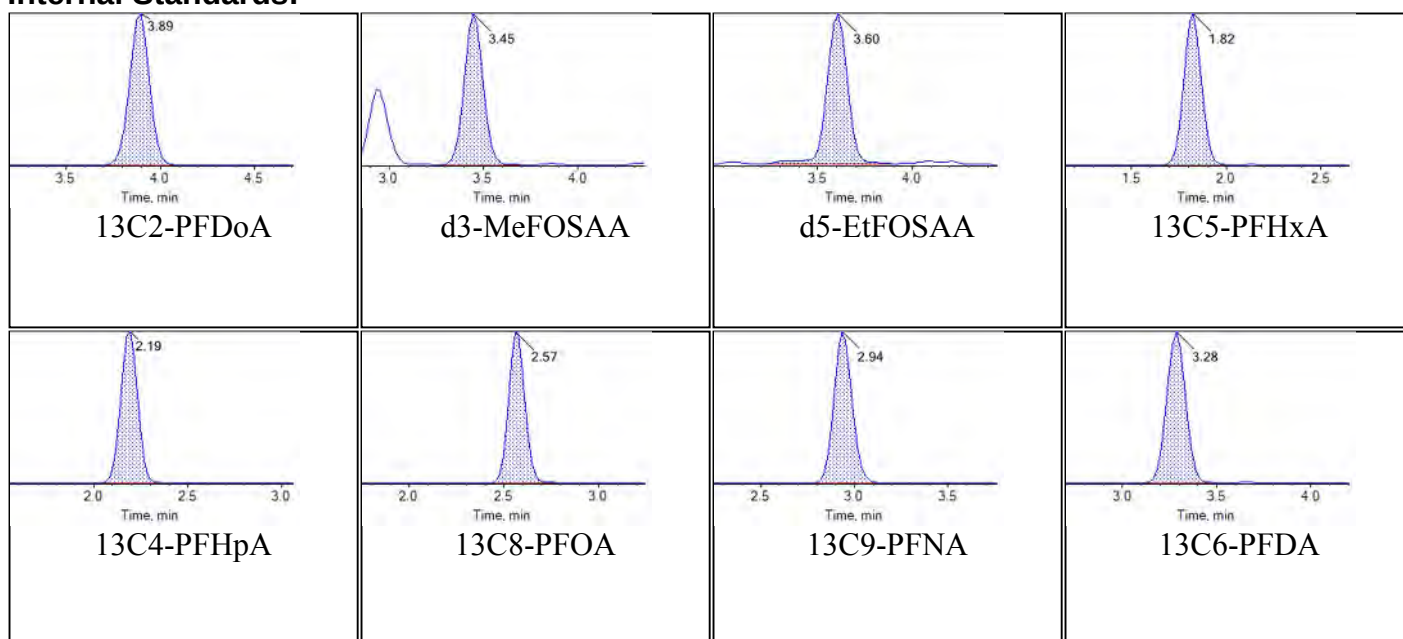


Sample Name	JV26	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:36:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Chromatograms

Target Analytes:

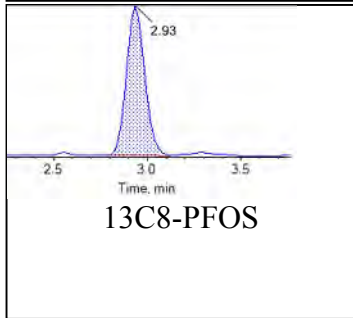
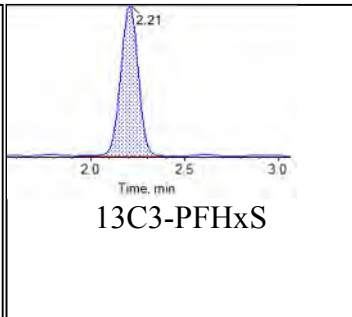
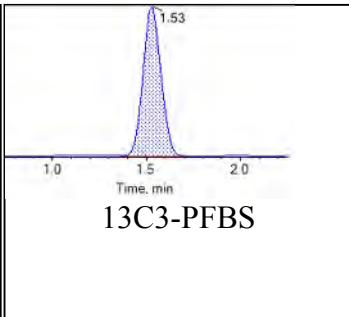
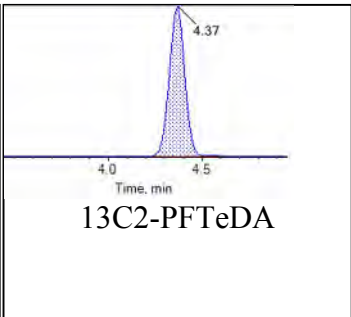
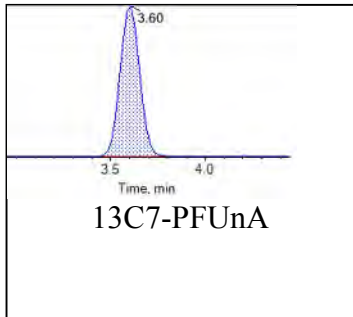


**Internal Standards:**



Chromatogram Report

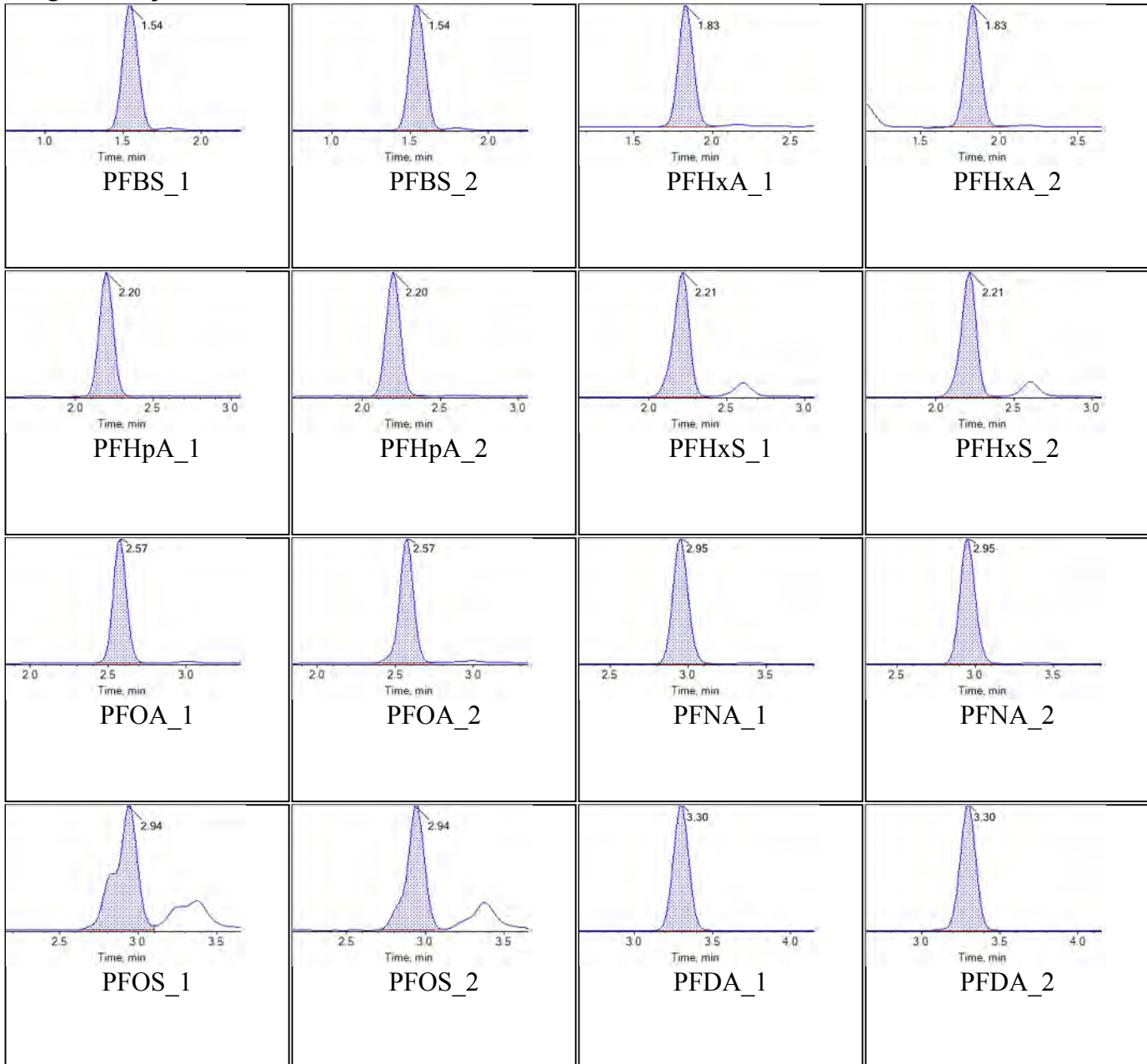
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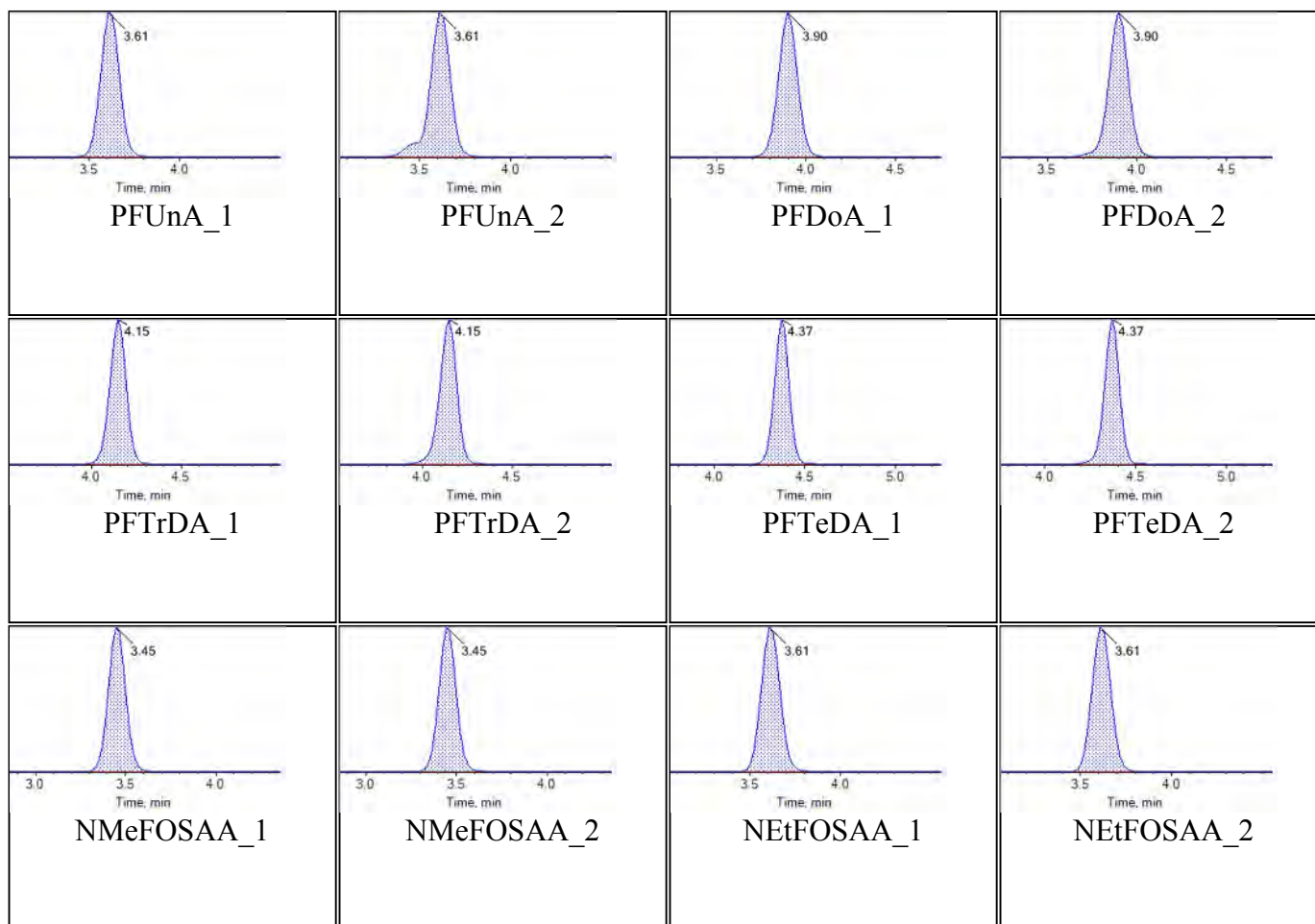
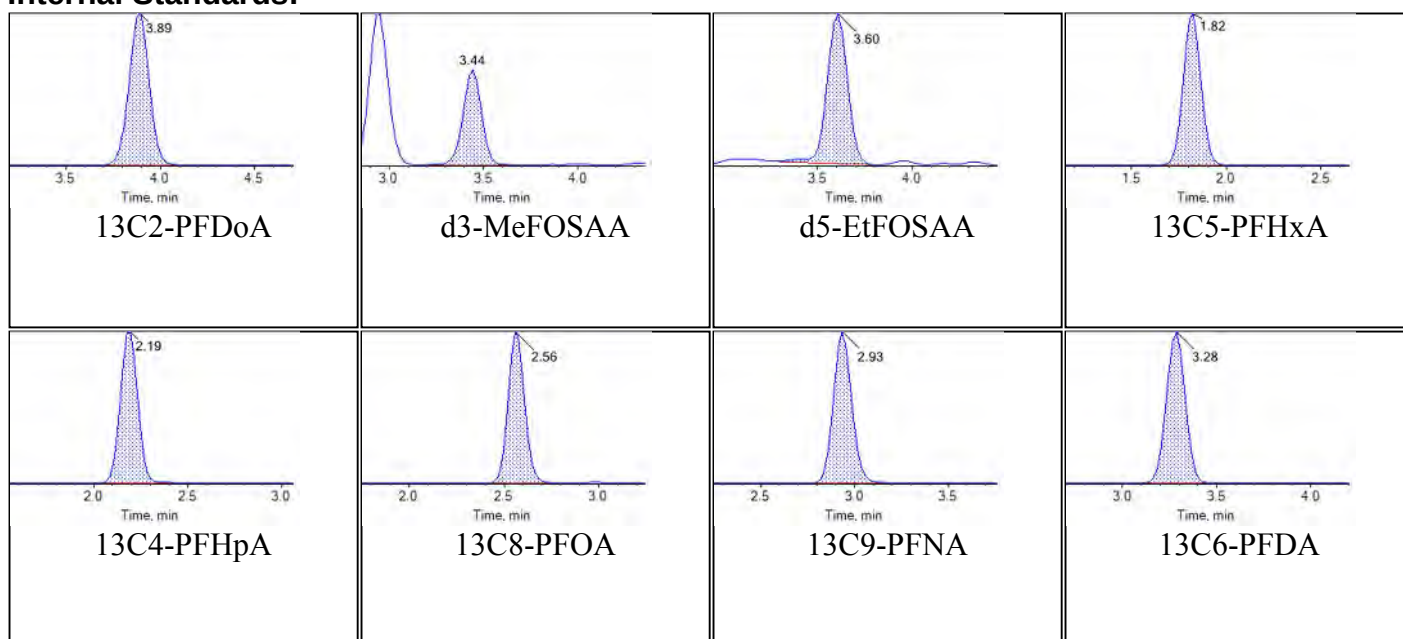


Sample Name	JV27	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:47:16	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Chromatograms

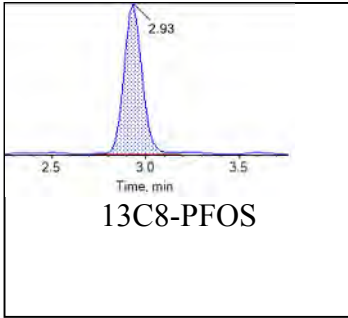
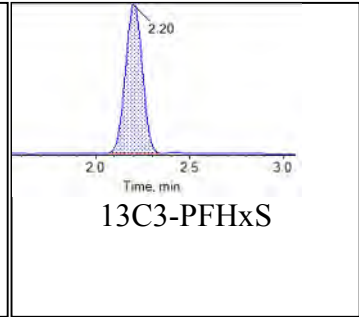
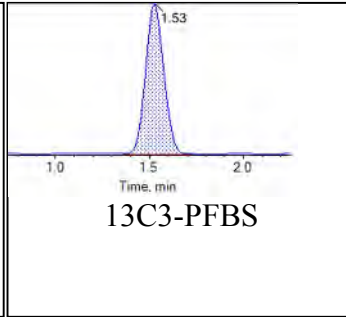
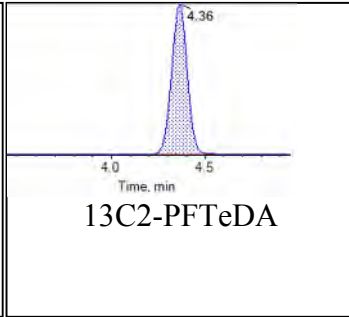
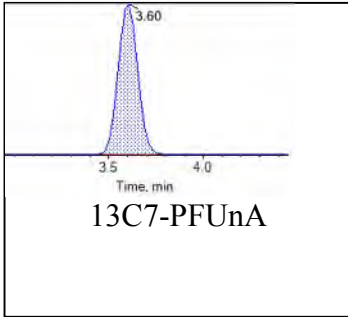
Target Analytes:



**Internal Standards:**



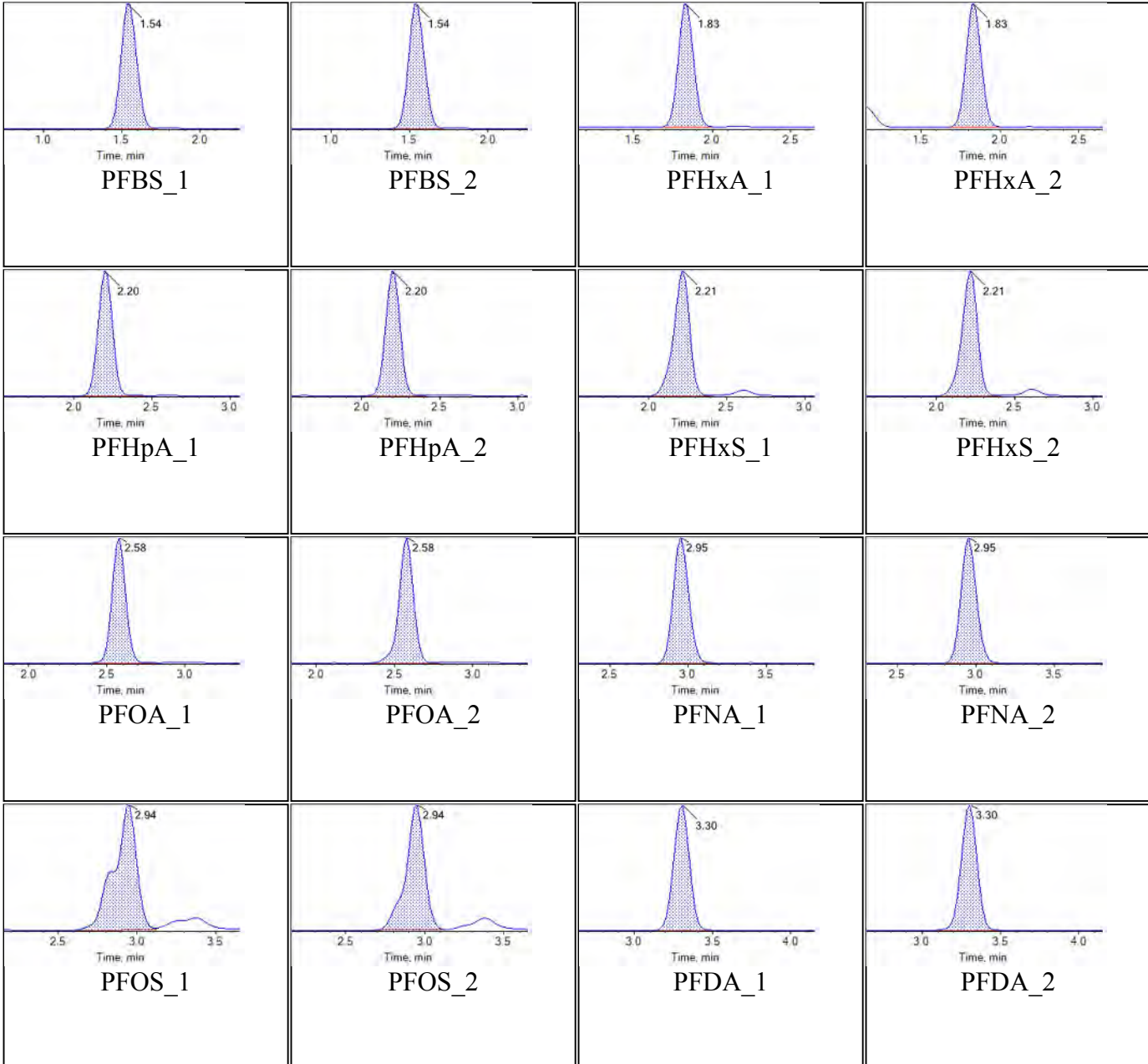
Chromatogram Report

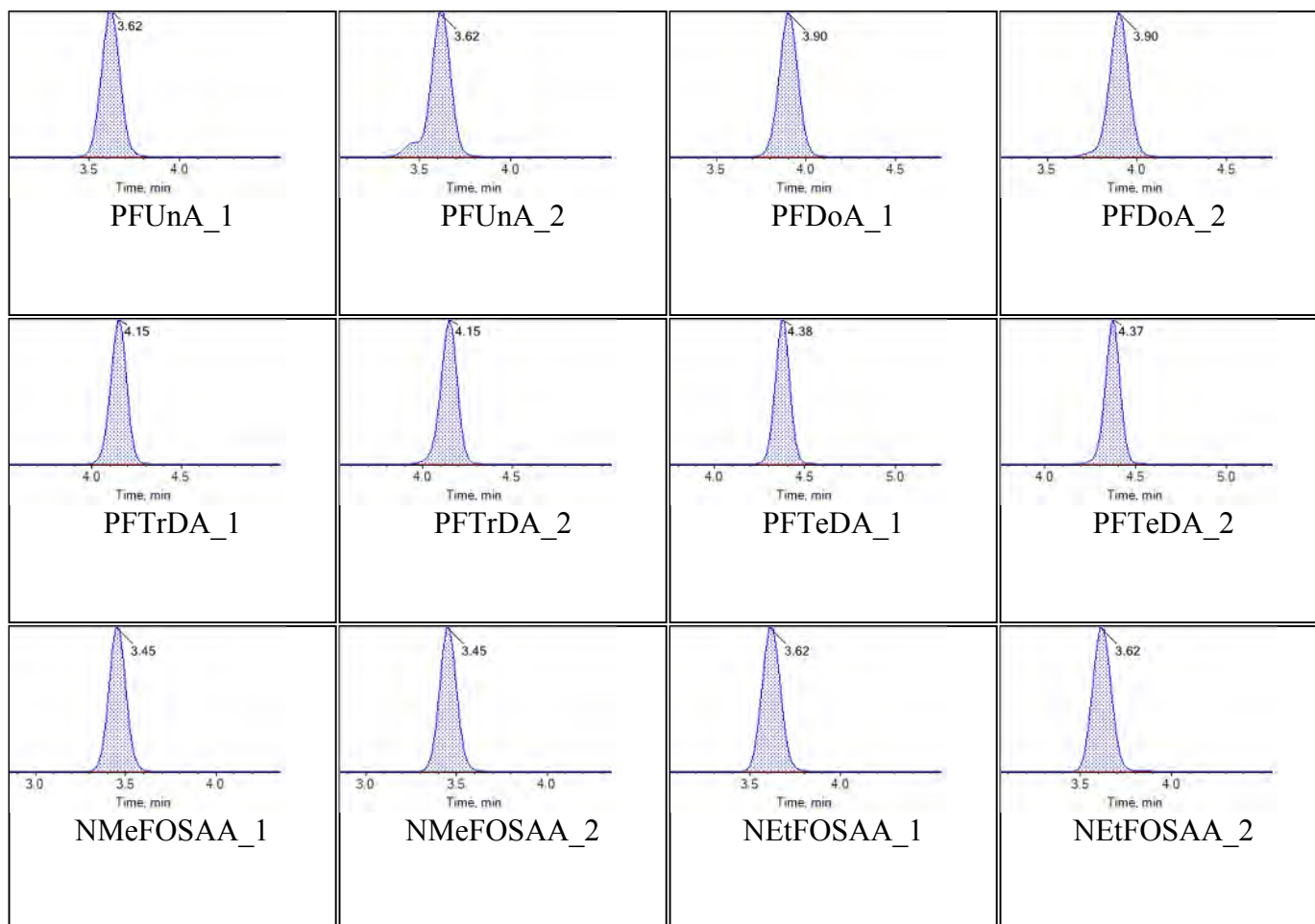
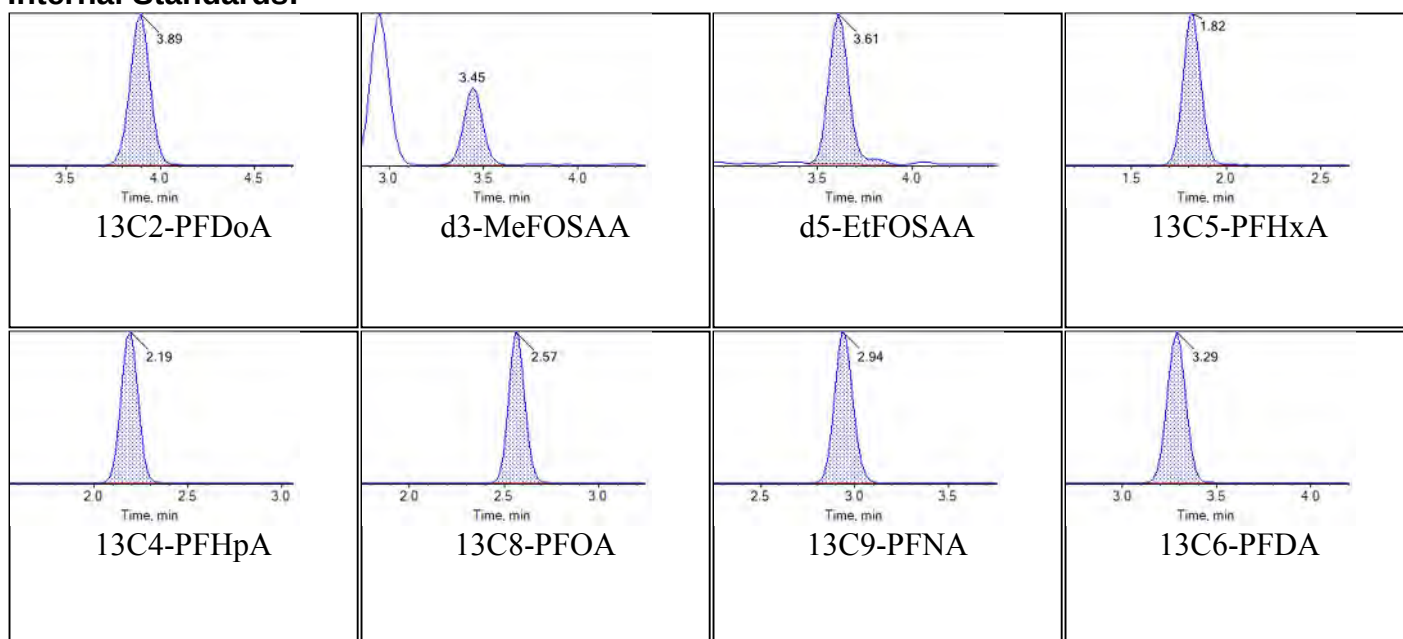
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Sample Name	JV28	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:57:58	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Chromatograms

Target Analytes:

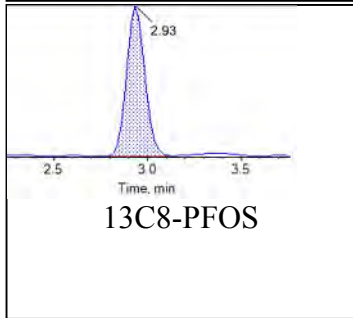
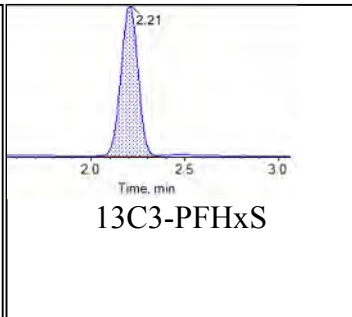
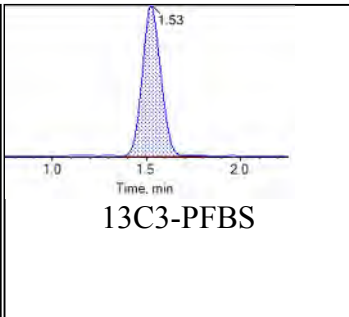
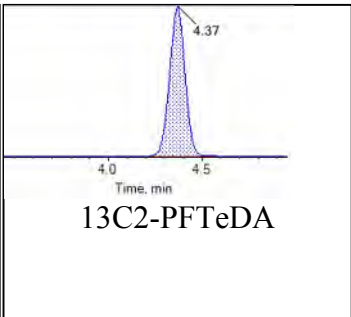
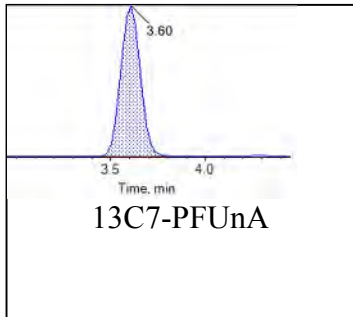


**Internal Standards:**



Chromatogram Report

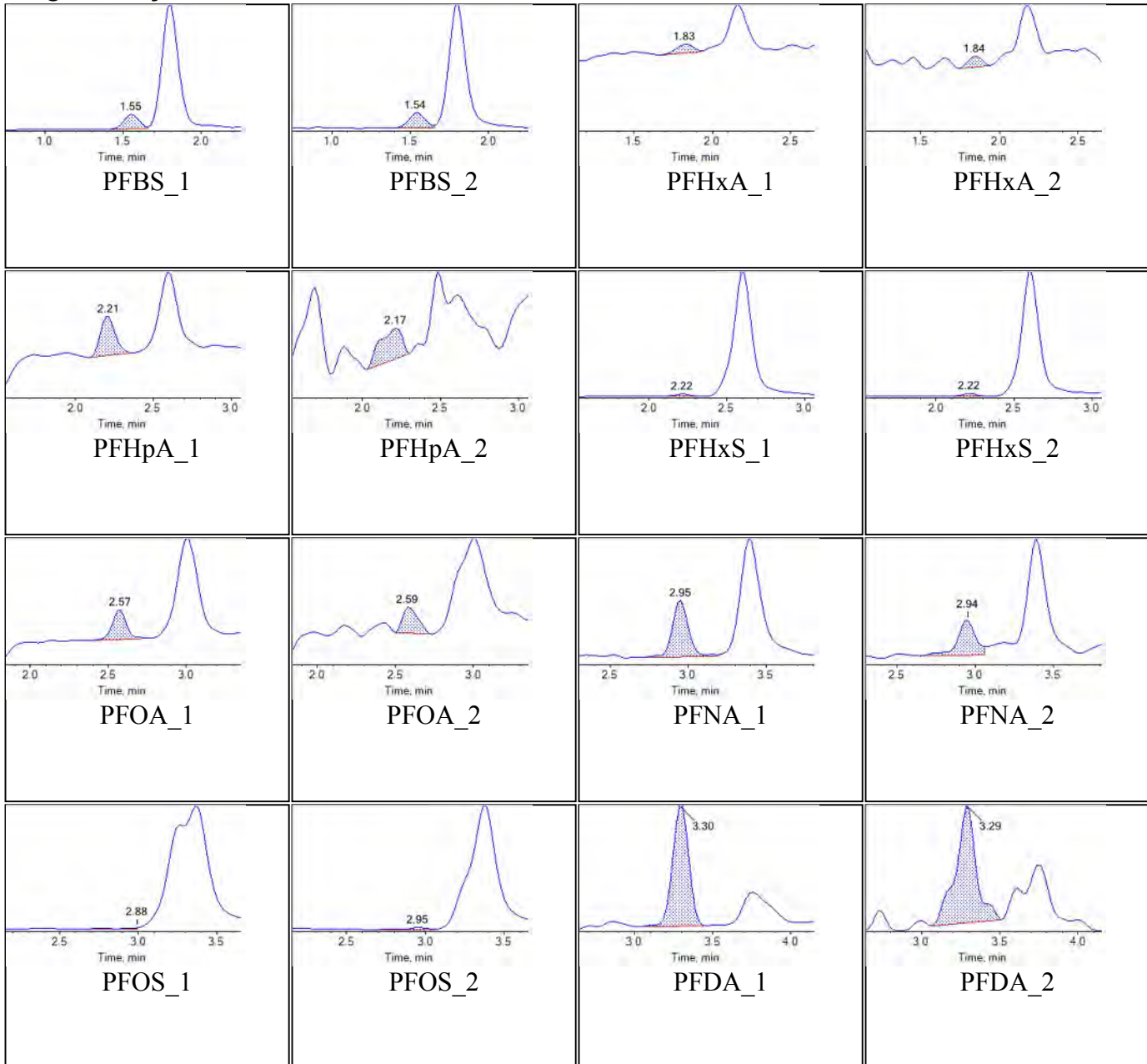
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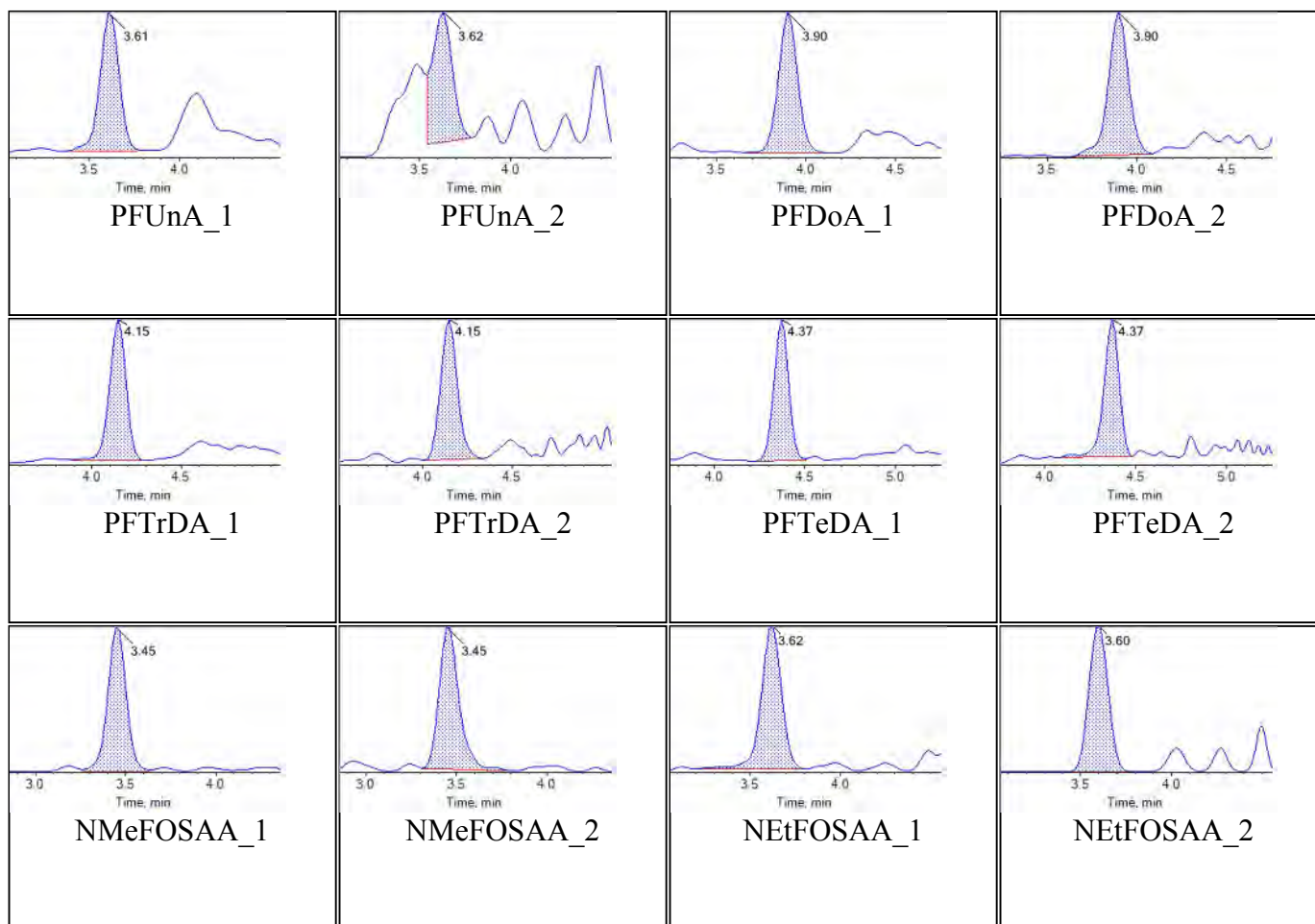
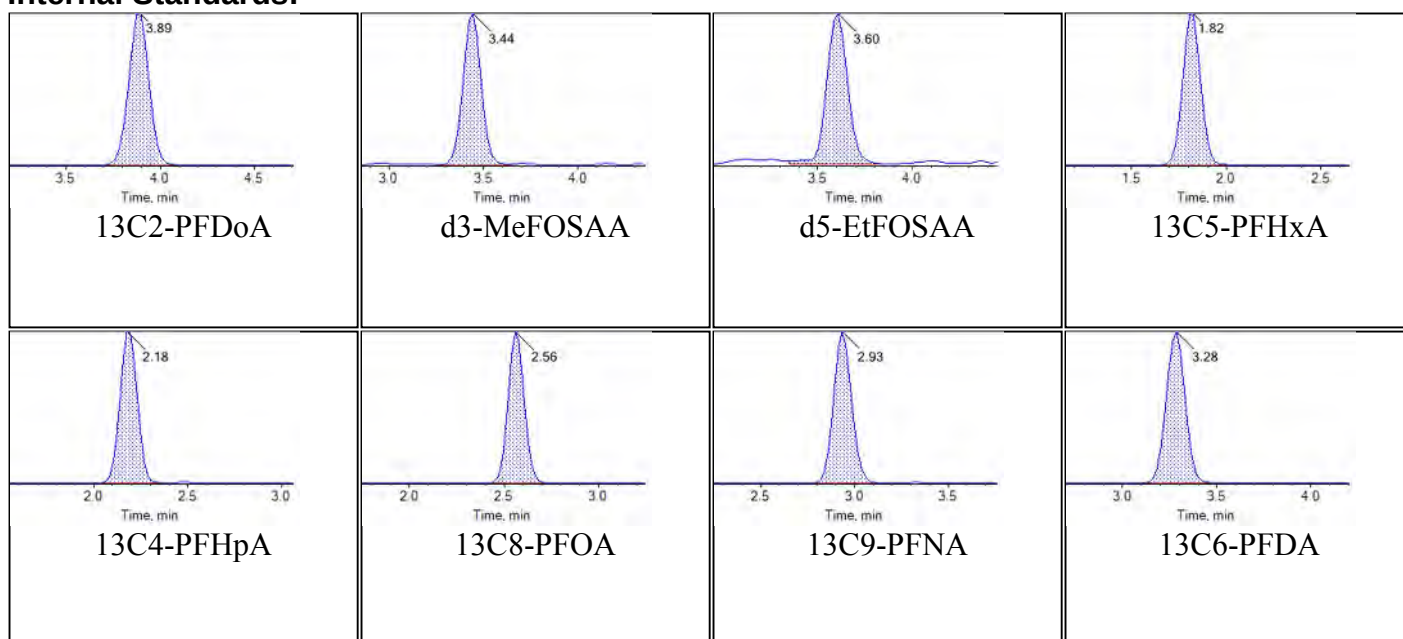


Sample Name	JV05 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:08:39	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Chromatograms

Target Analytes:

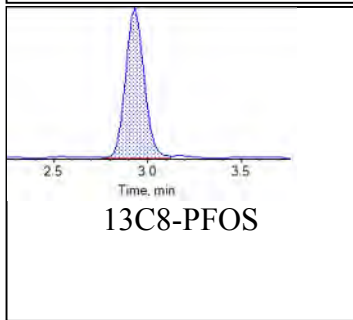
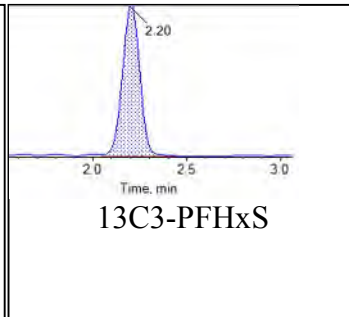
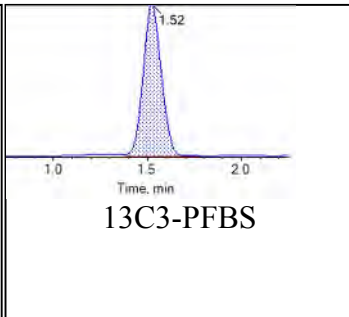
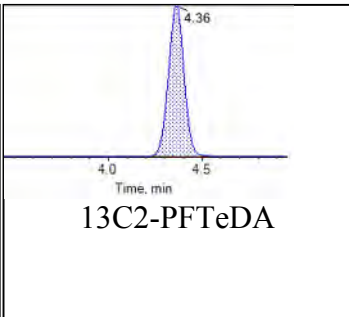
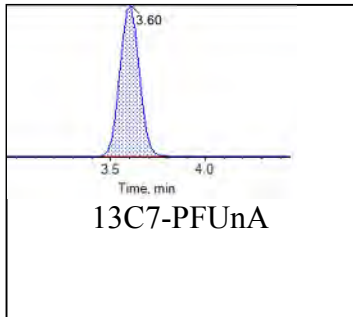


**Internal Standards:**



Chromatogram Report

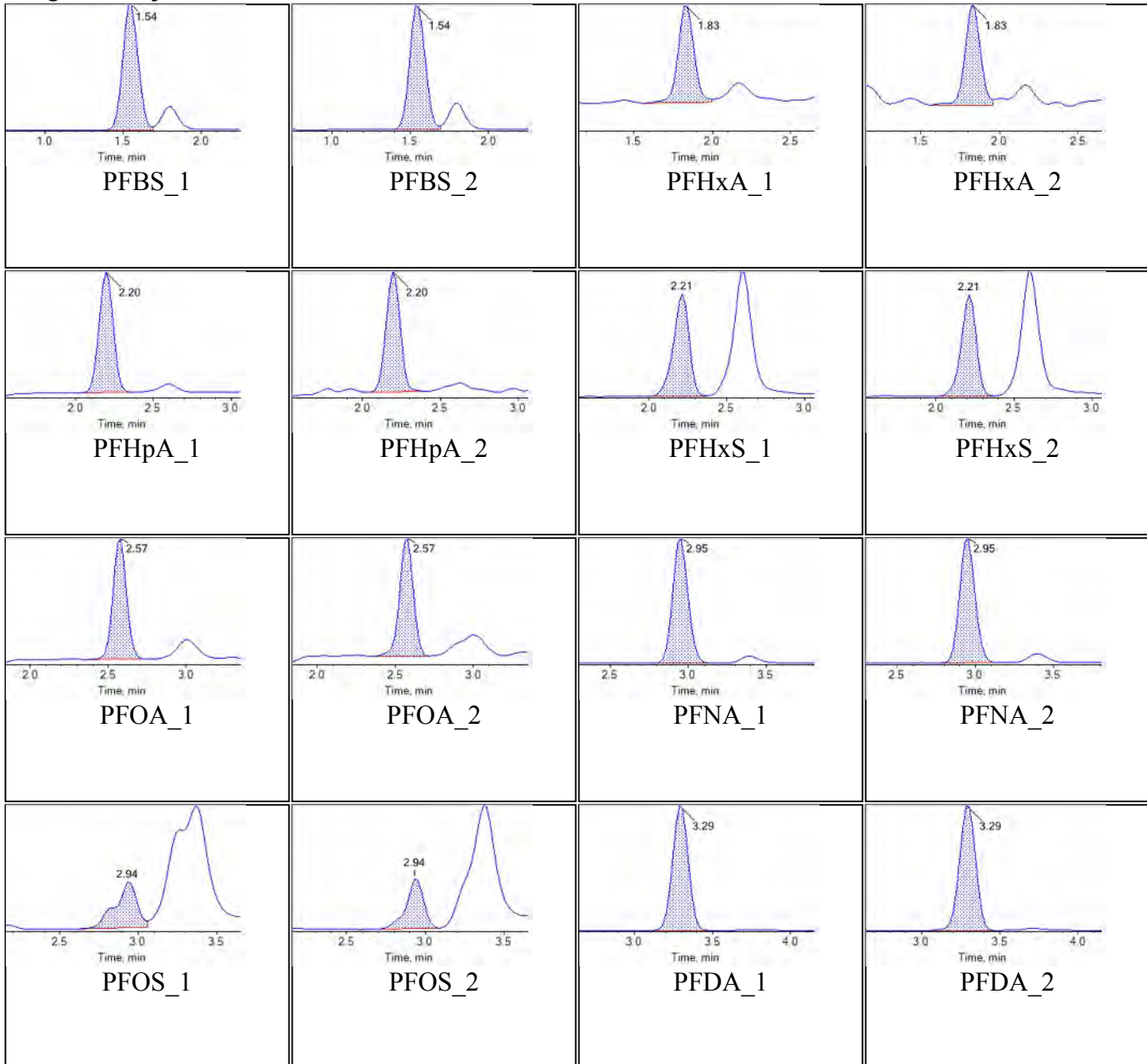
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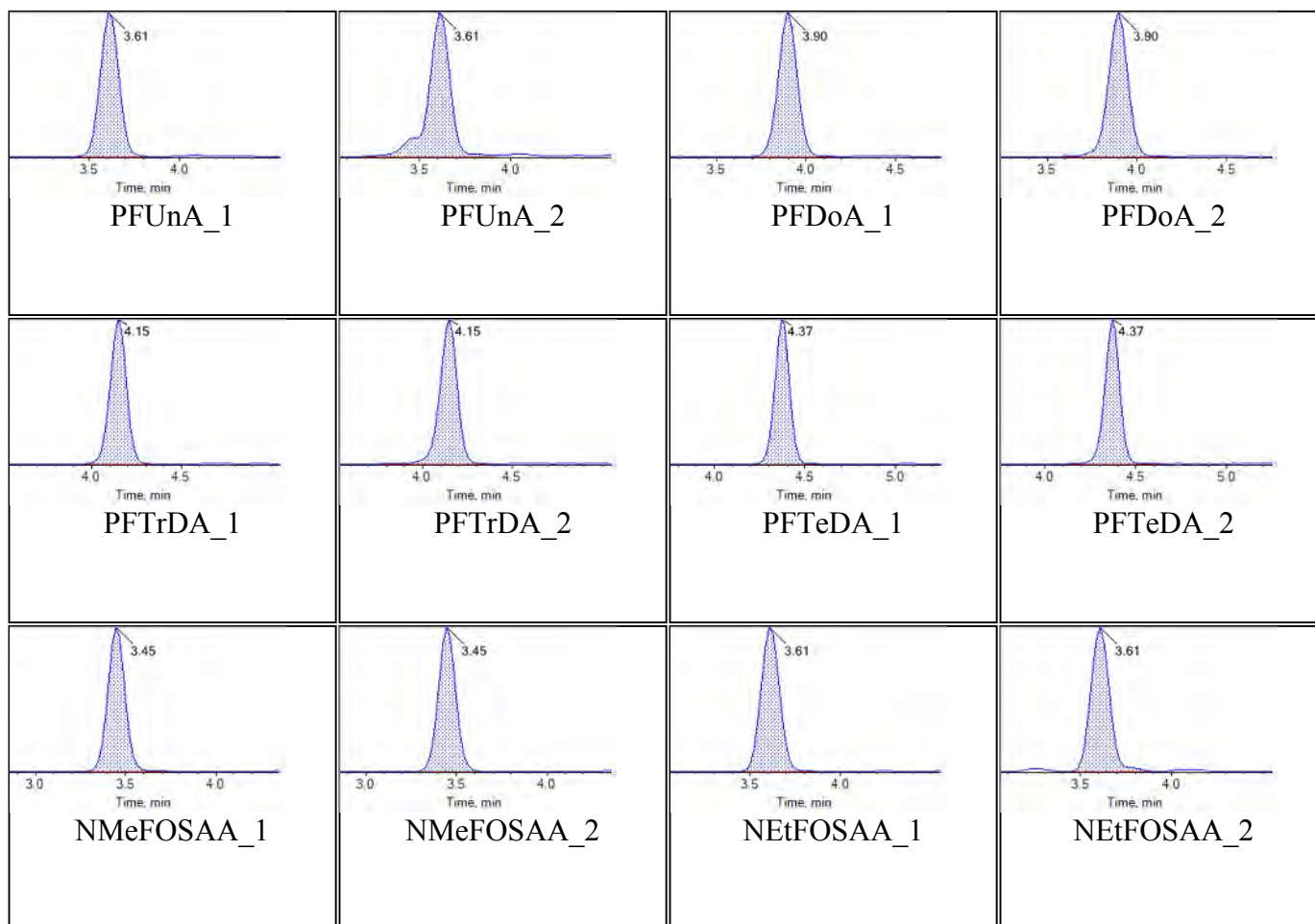
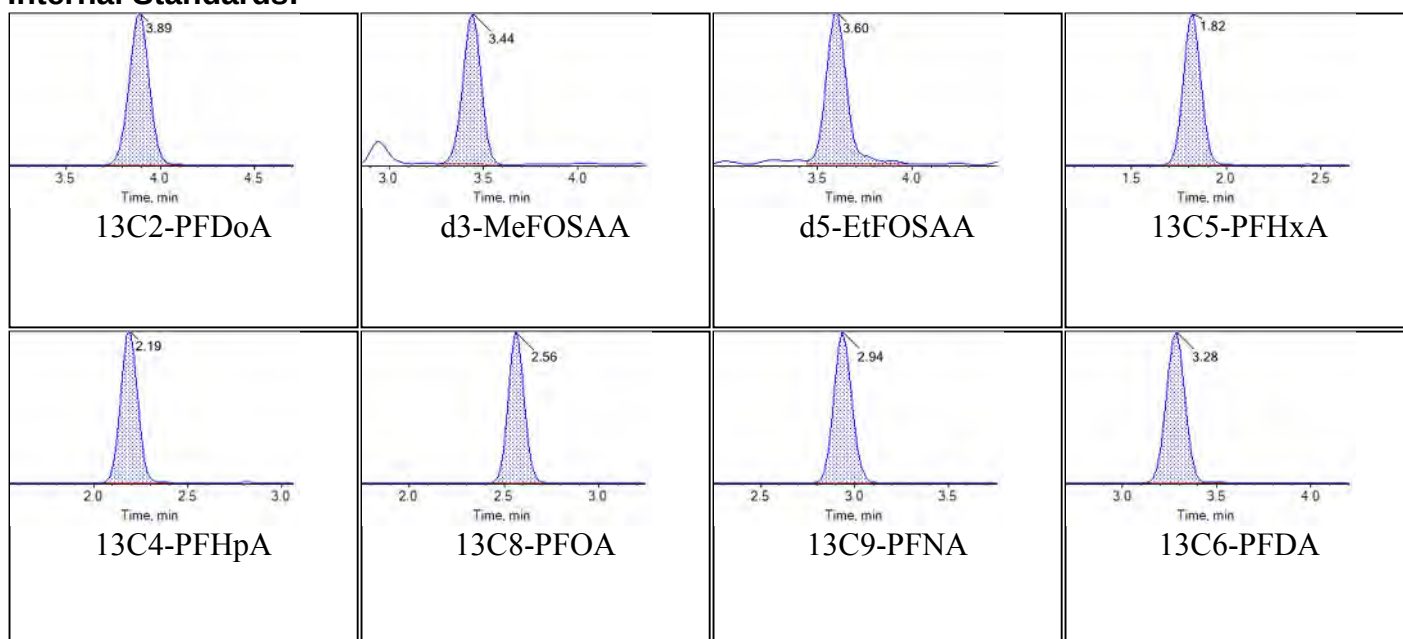


Sample Name	JW32 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:19:21	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Chromatograms

Target Analytes:

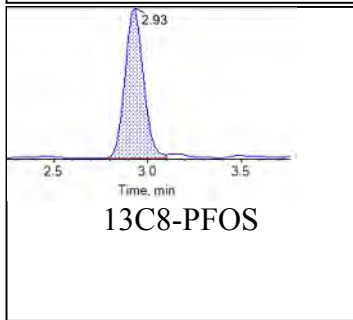
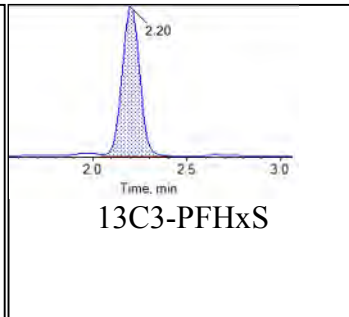
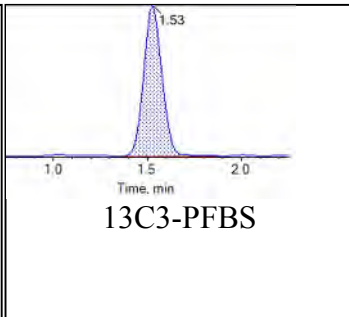
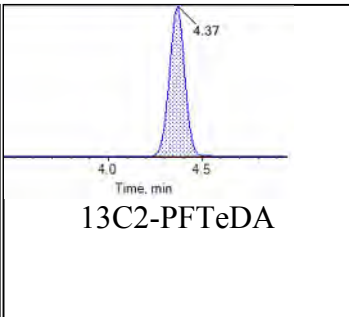
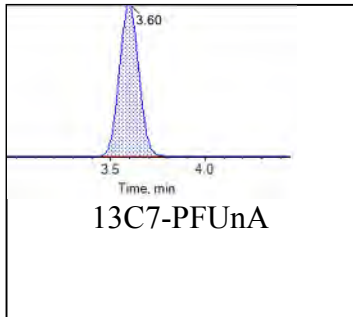


**Internal Standards:**



Chromatogram Report

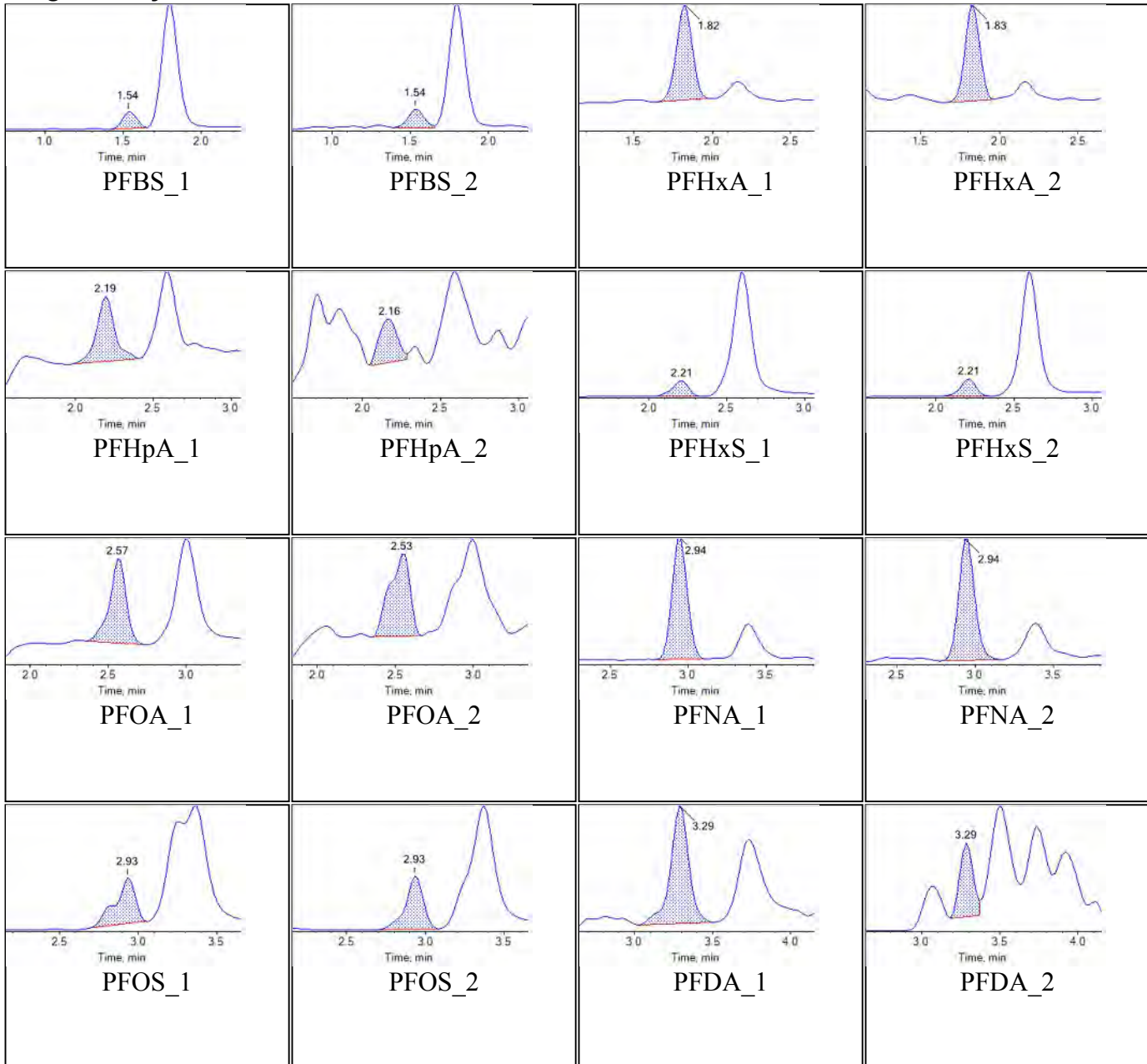
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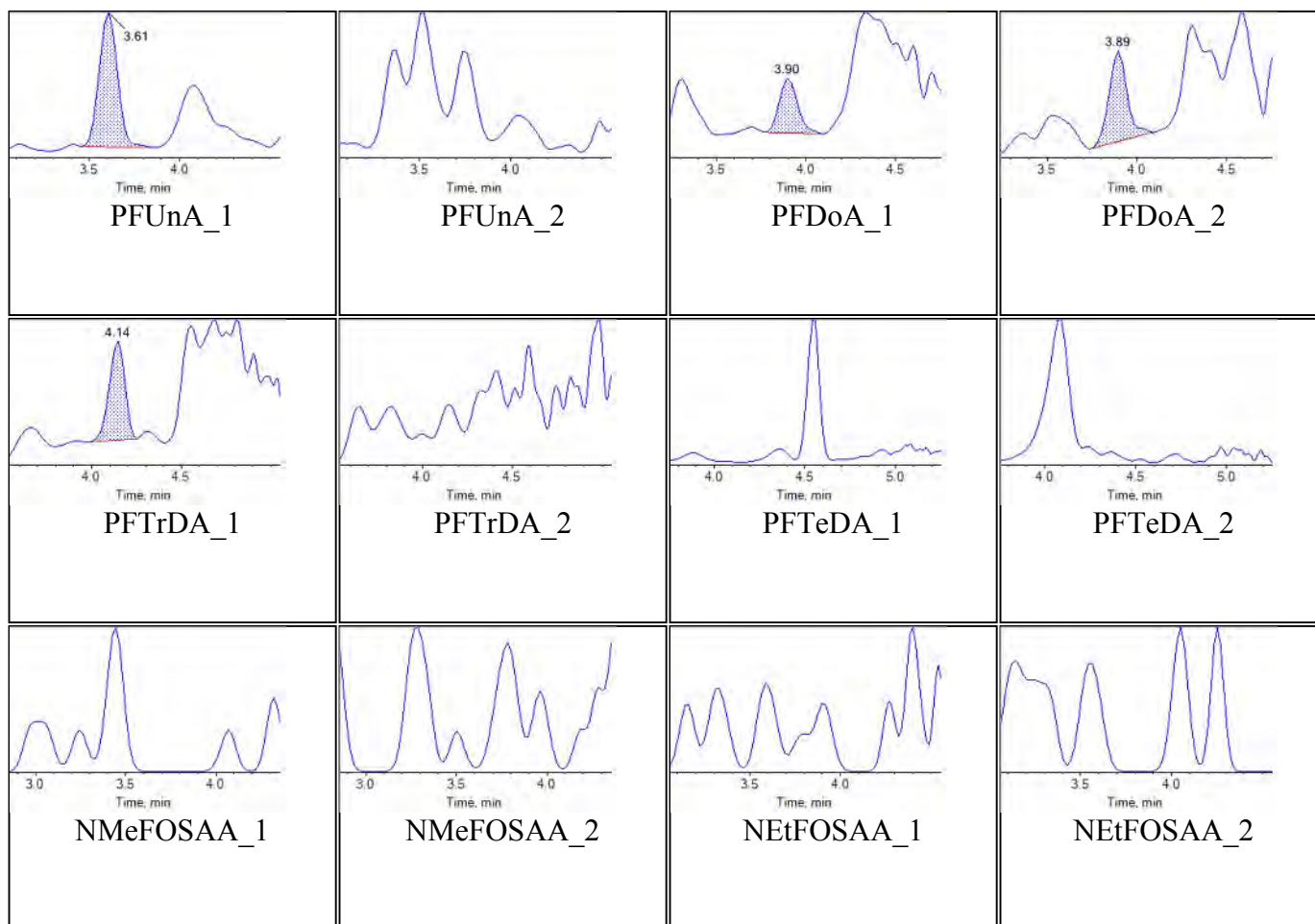
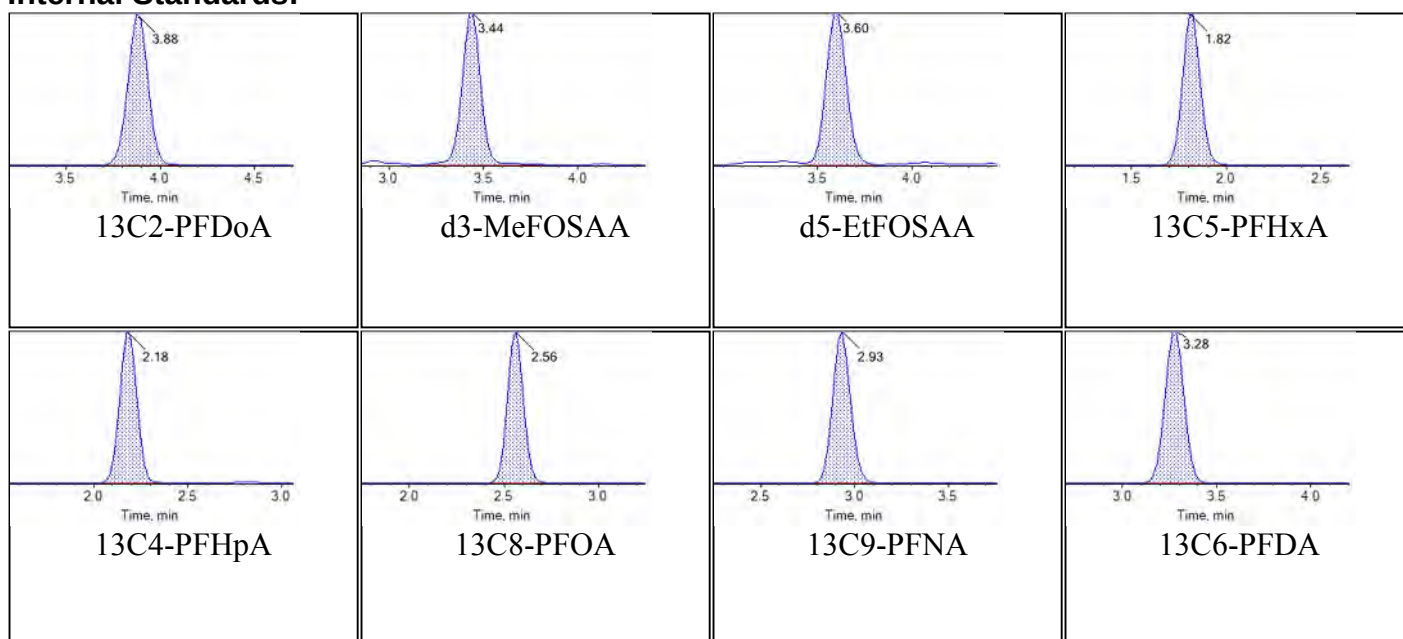


Sample Name	CQ891PB-FS(3)	Injection Vial	21
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:16:53	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Chromatograms

Target Analytes:

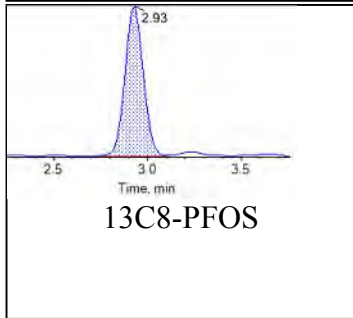
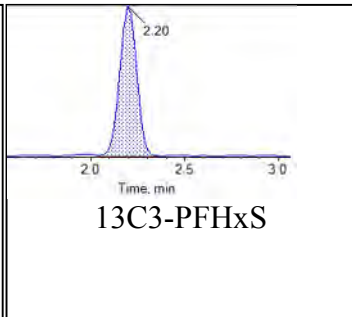
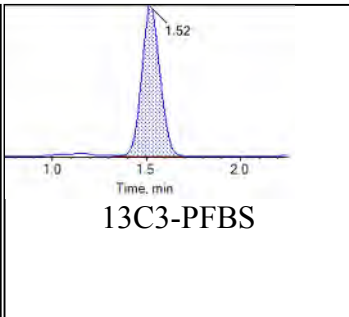
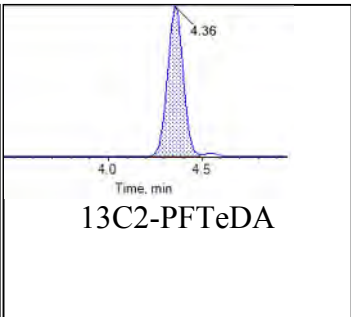
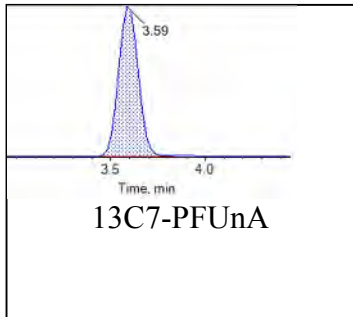


**Internal Standards:**



Chromatogram Report

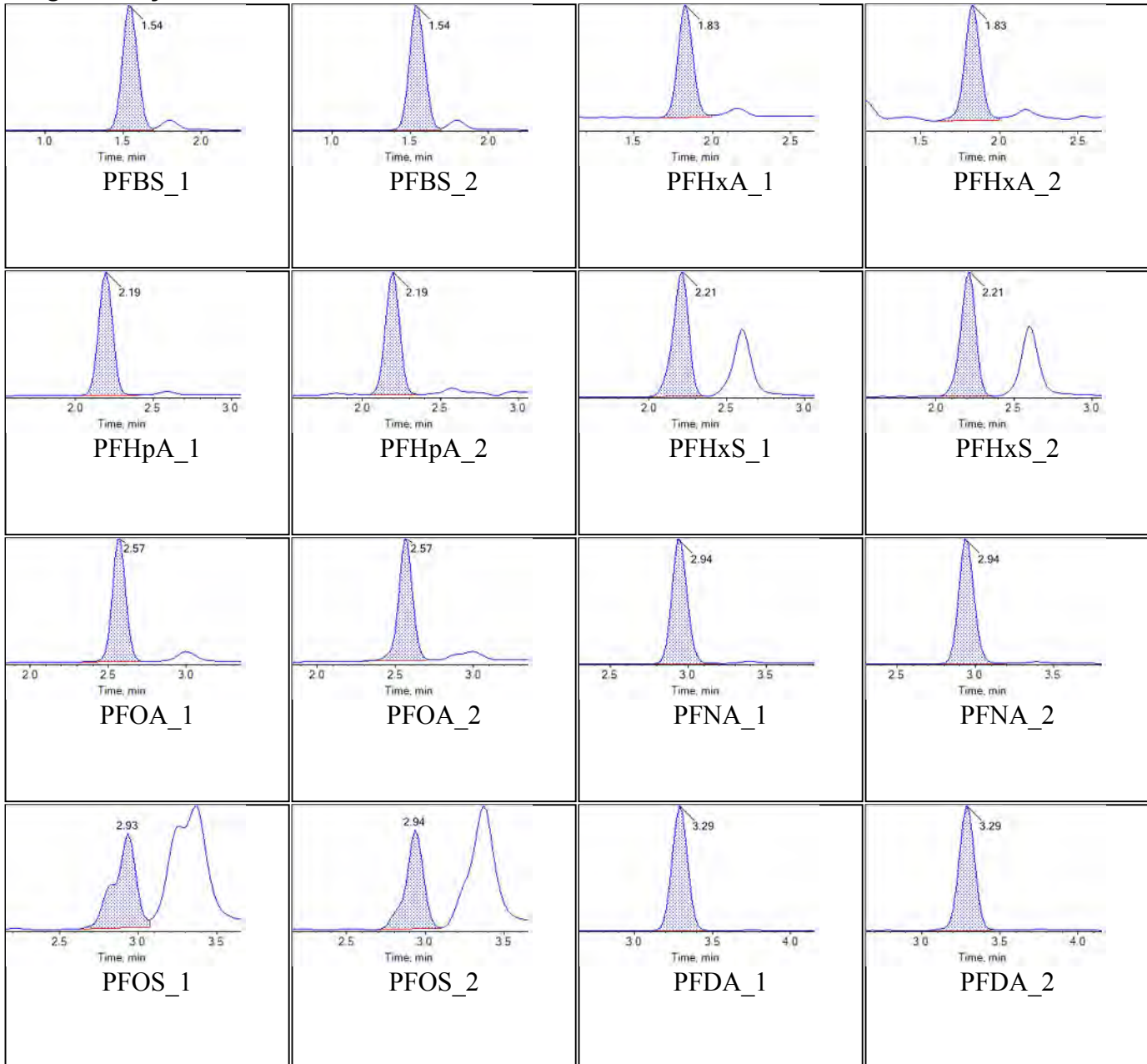
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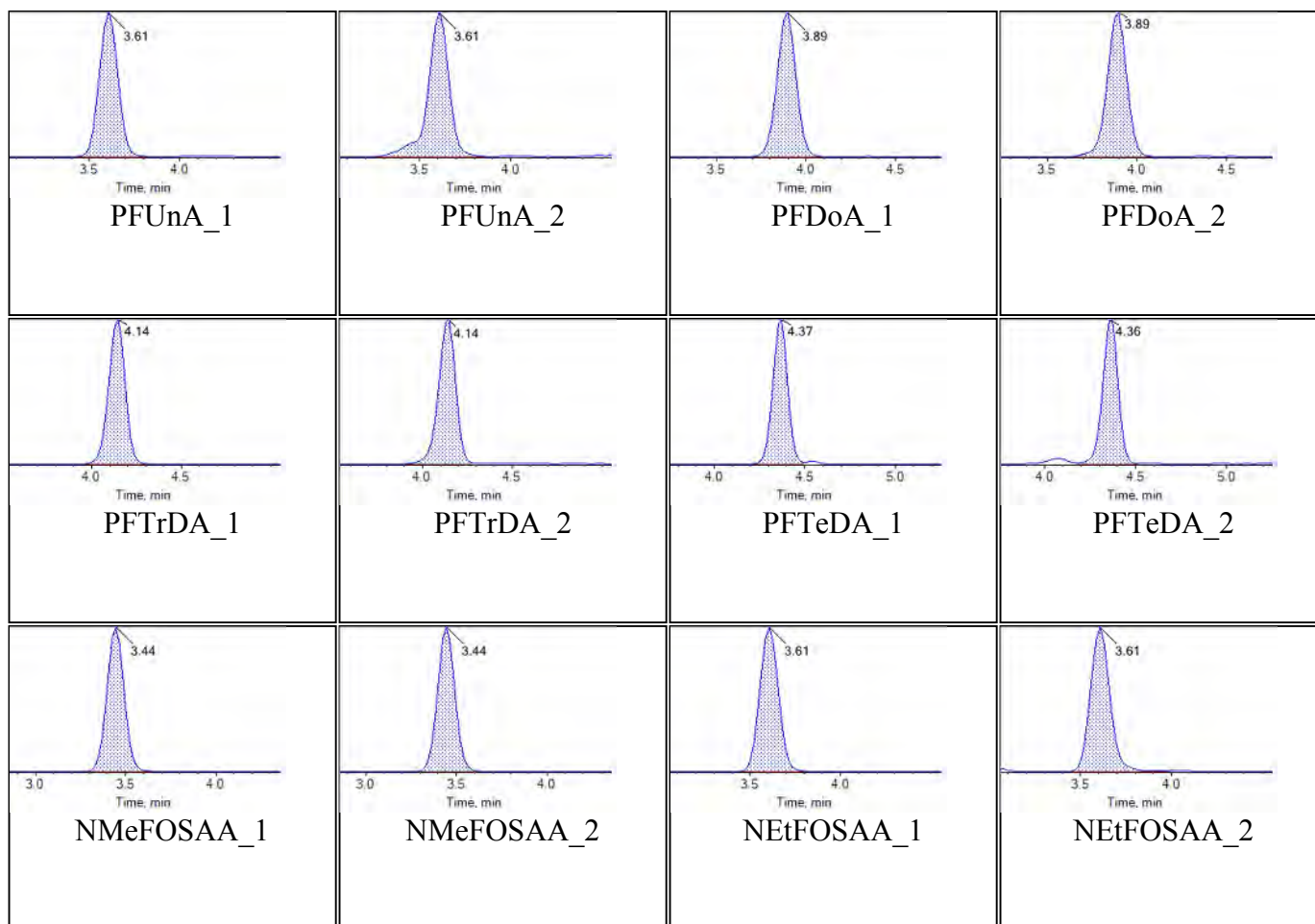
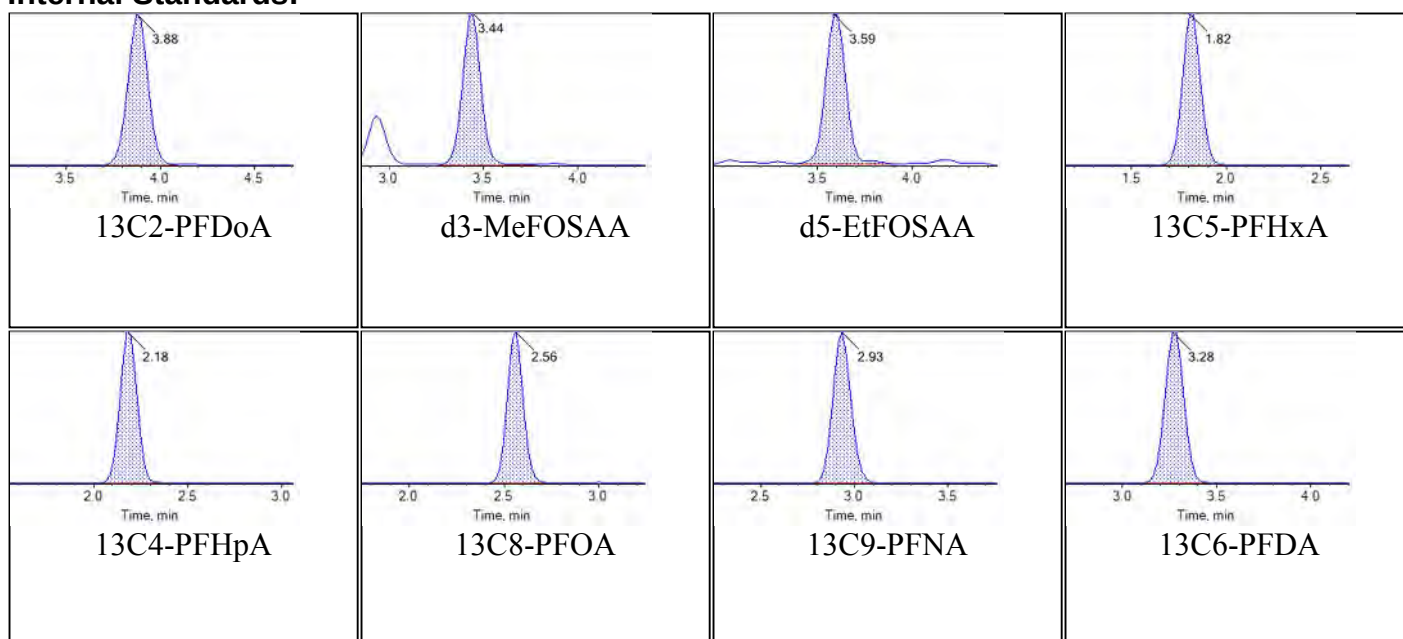


Sample Name	CQ892LCS-FS(3)	Injection Vial	22
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:27:34	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Chromatograms

Target Analytes:

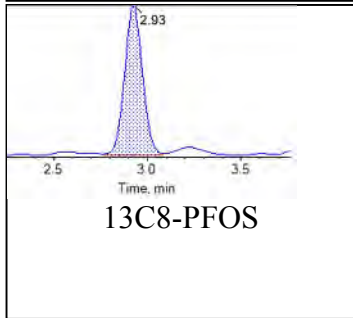
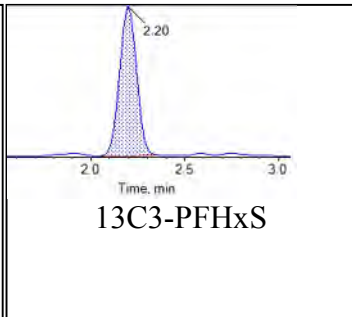
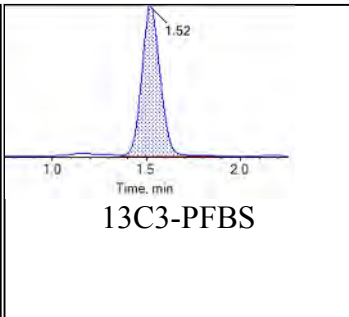
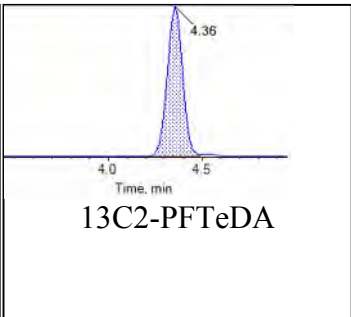
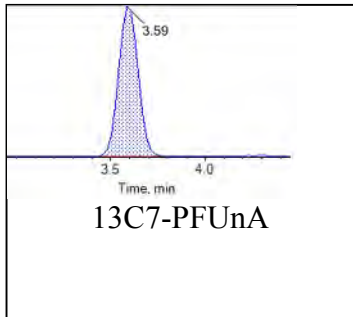


**Internal Standards:**



Chromatogram Report

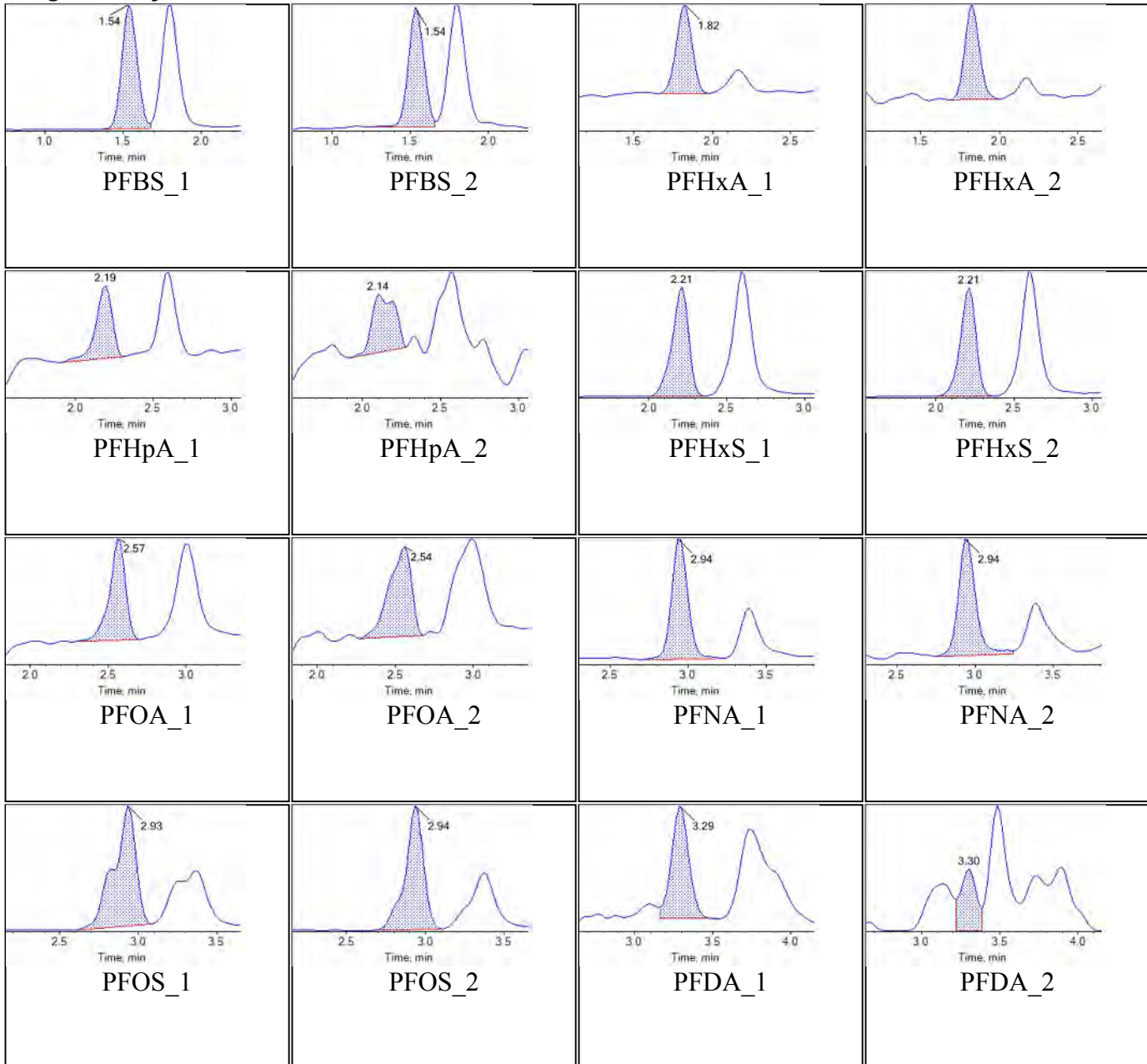
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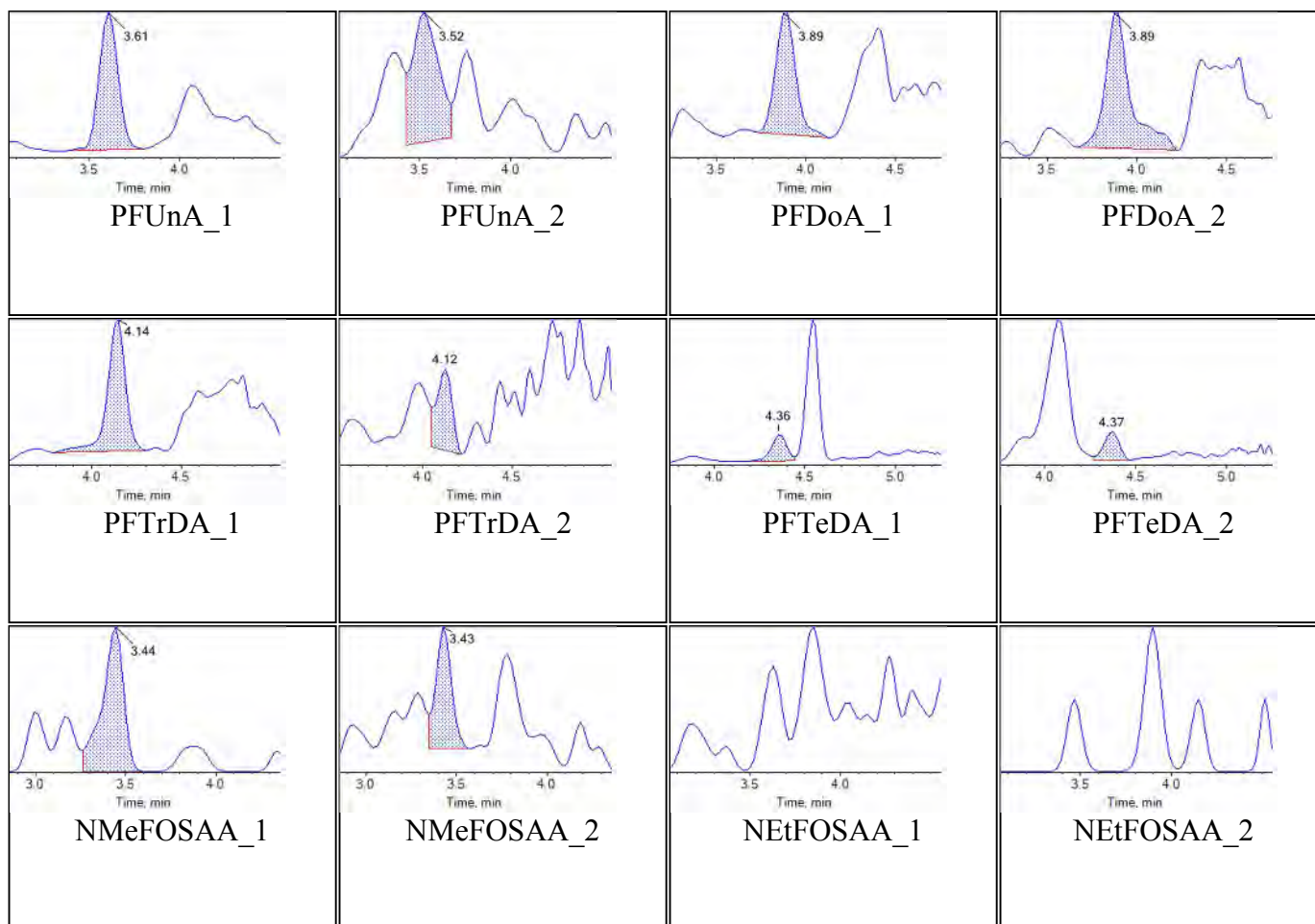
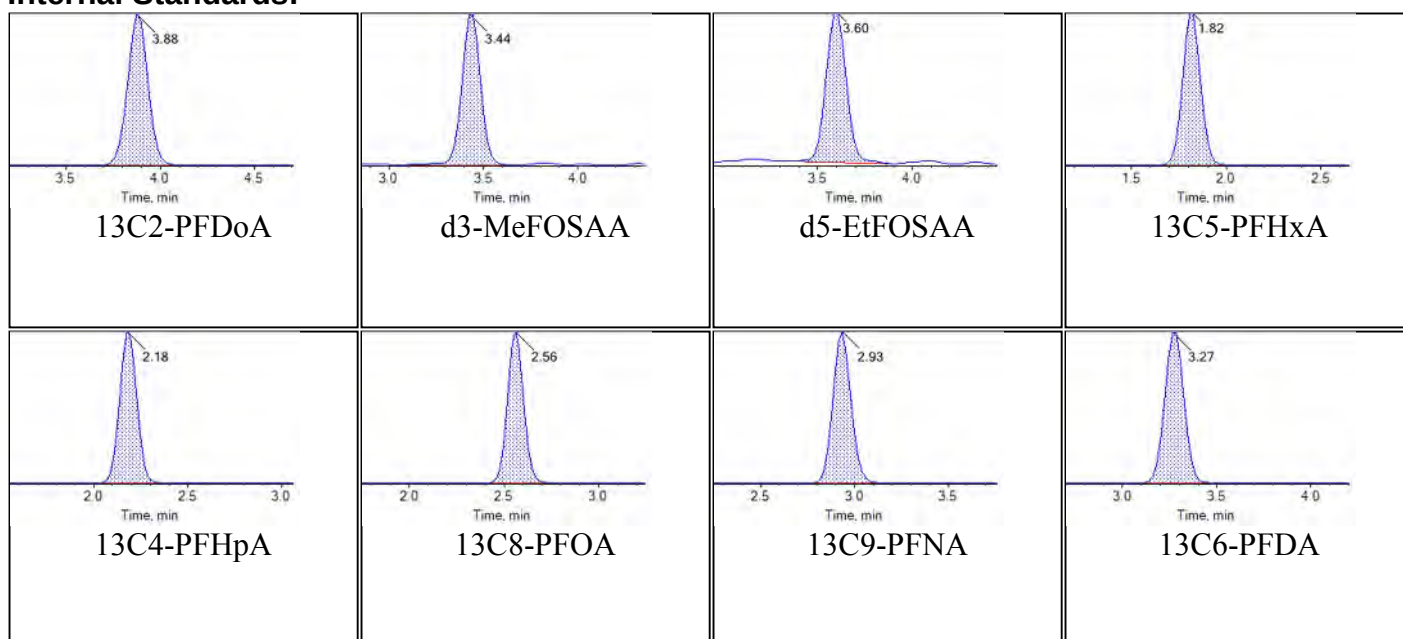


Sample Name	J6227-FS(3)	Injection Vial	23
Sample ID	09-FRB-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:38:15	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Chromatograms

Target Analytes:

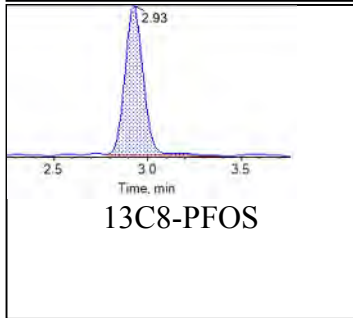
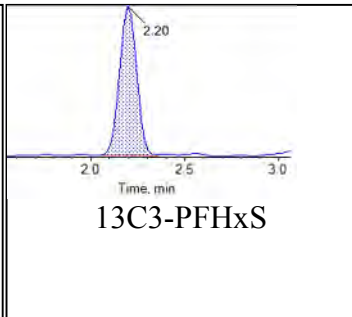
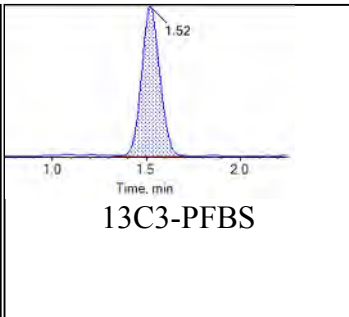
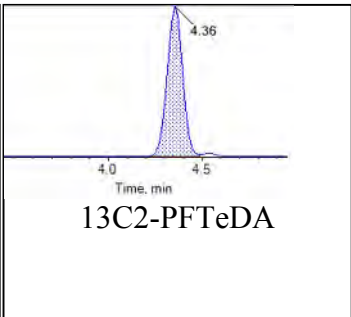
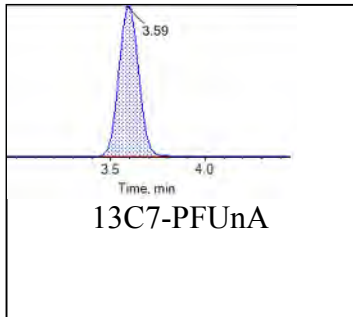


**Internal Standards:**



Chromatogram Report

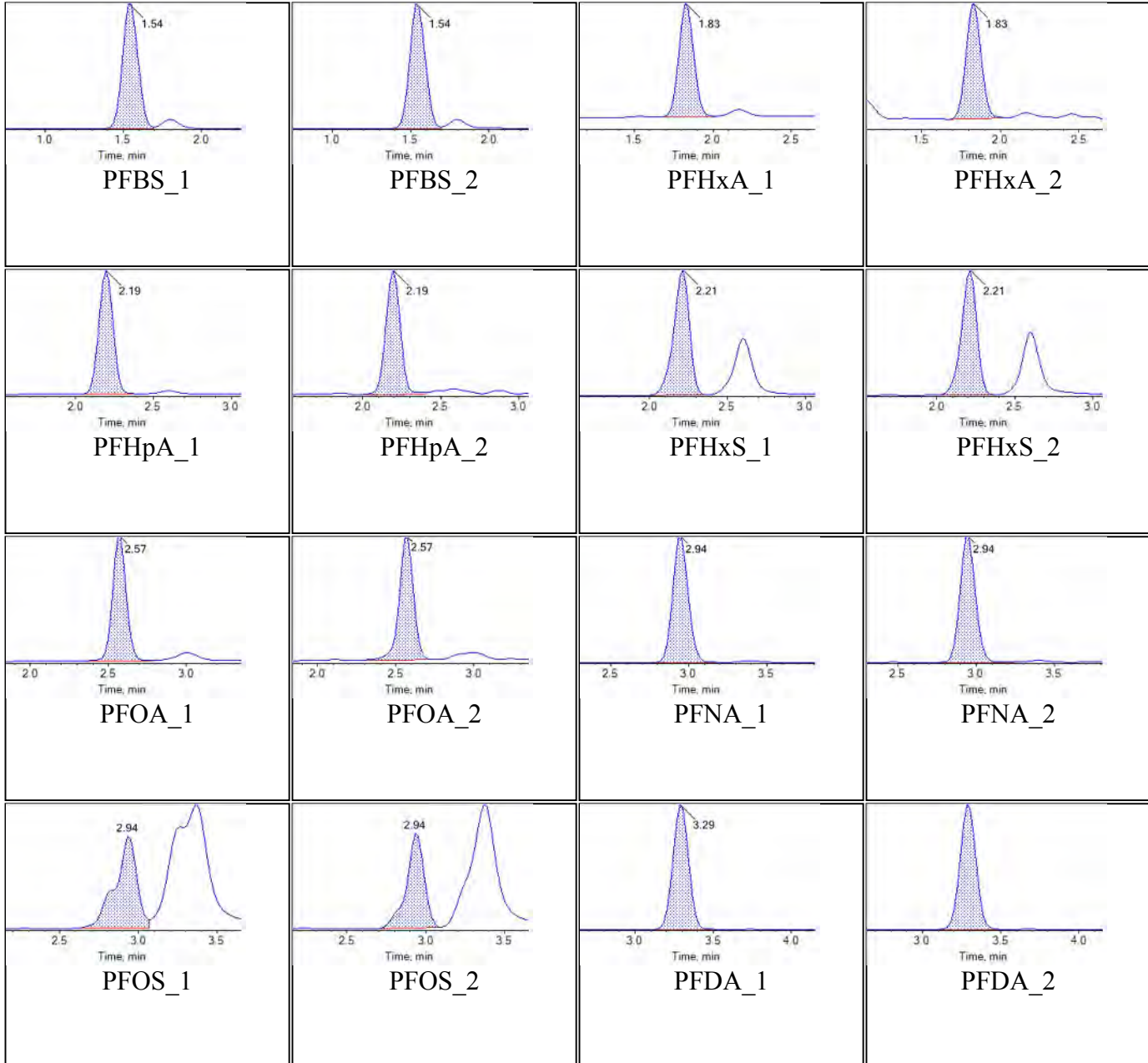
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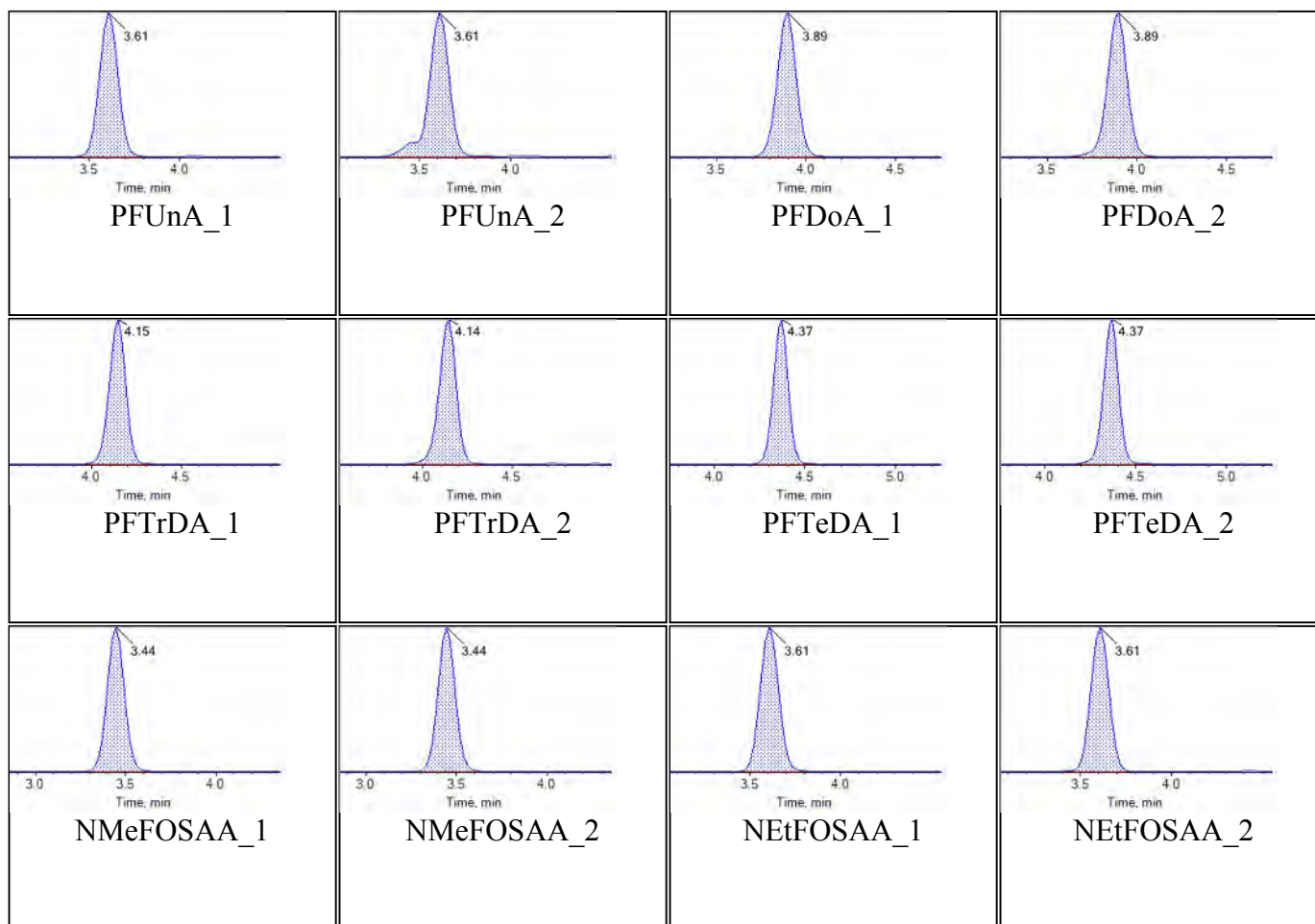
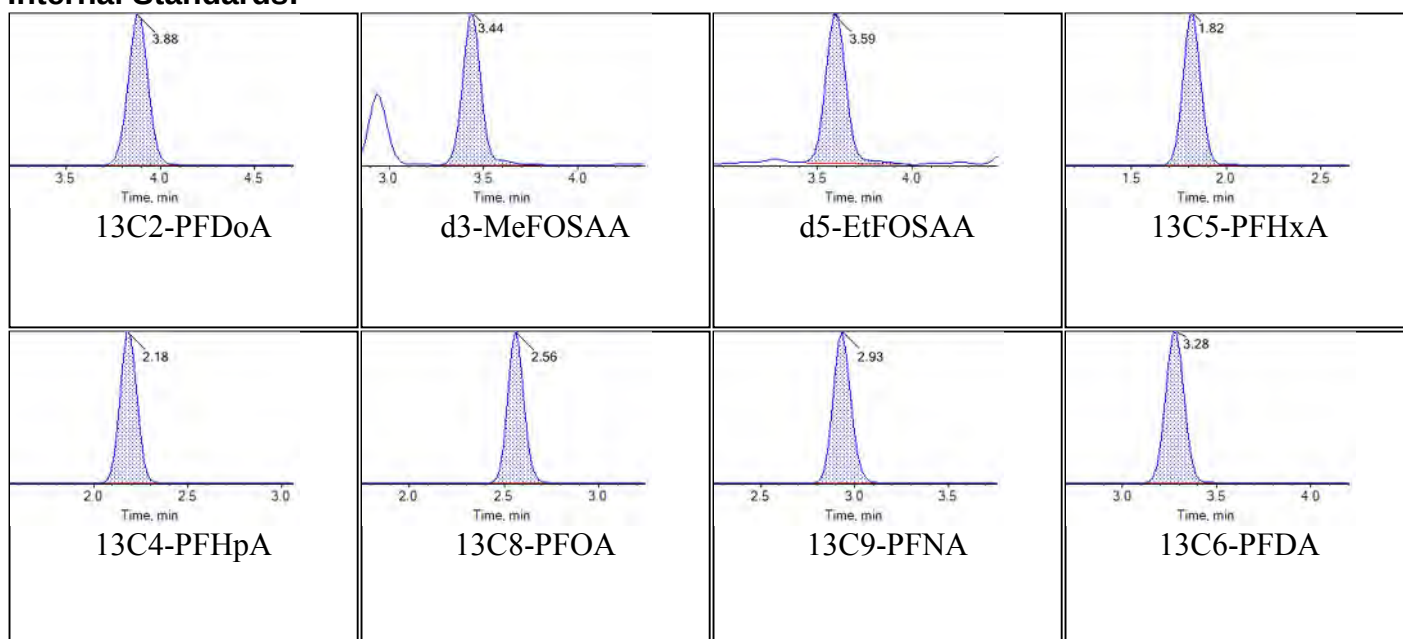


Sample Name	JV26 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:59:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Chromatograms

Target Analytes:

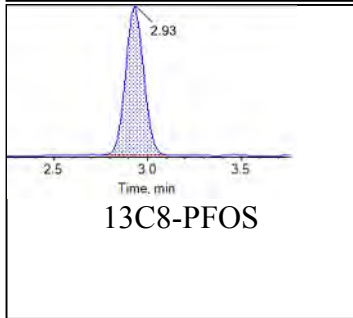
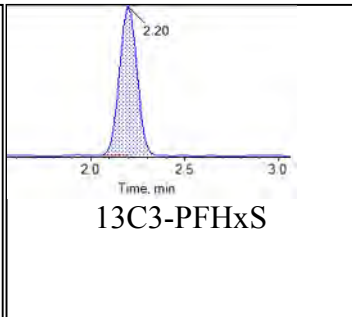
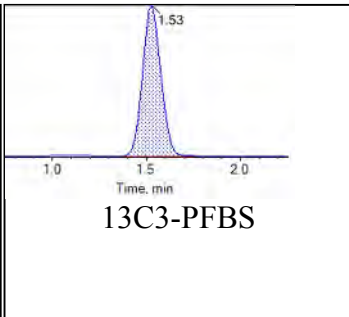
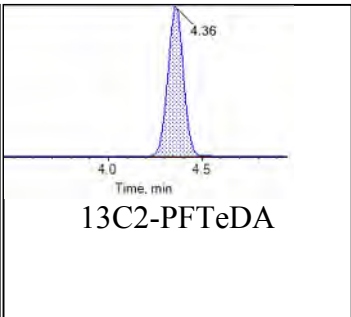
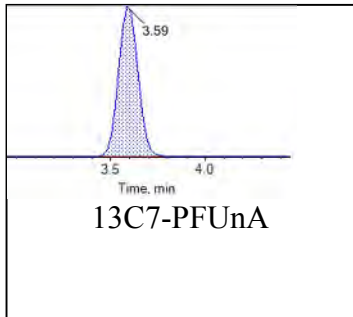


**Internal Standards:**



Chromatogram Report

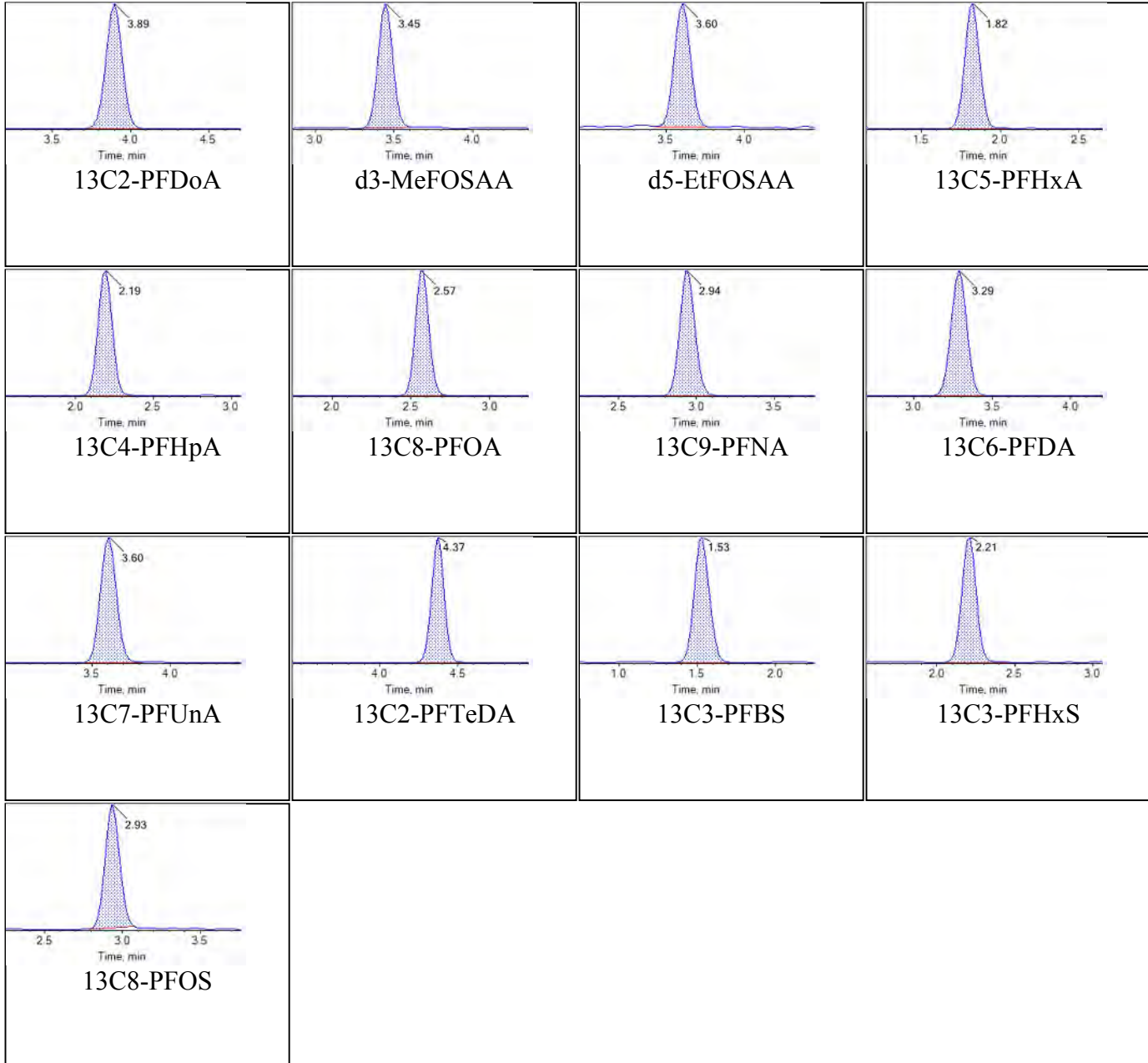
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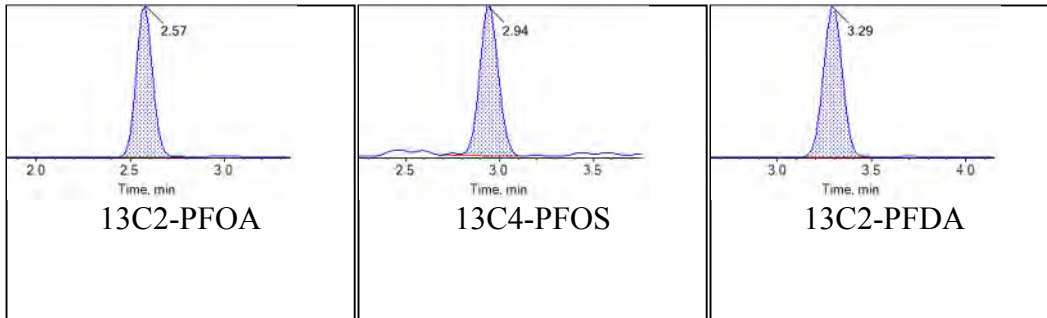
Sample Name	JV20	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:32:29	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Chromatograms

Target Analytes:



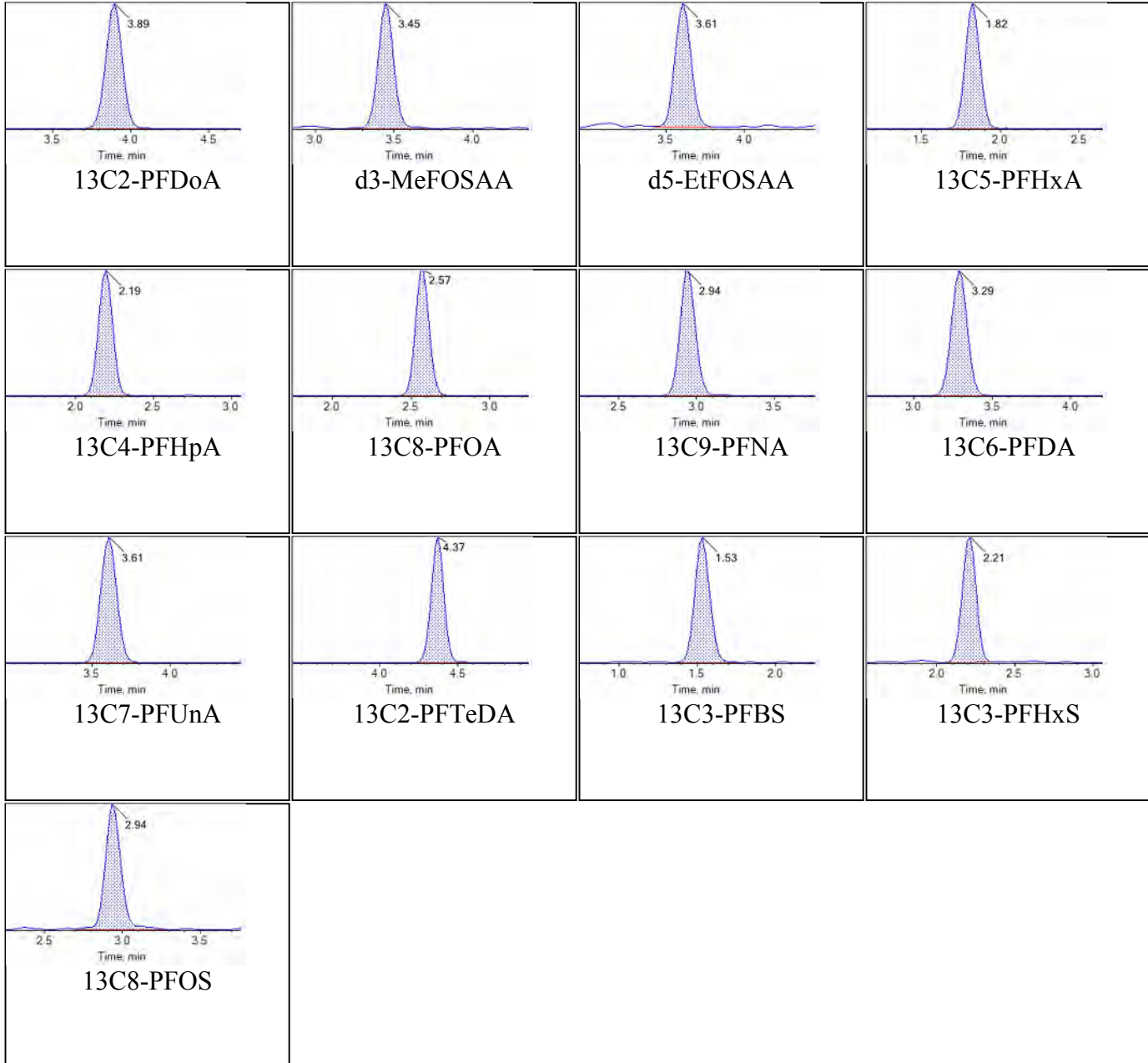
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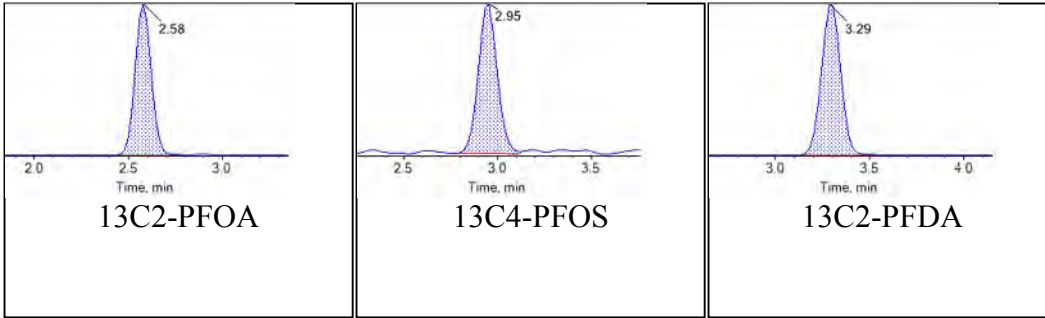
Sample Name	JV21	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:43:10	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Chromatograms

Target Analytes:



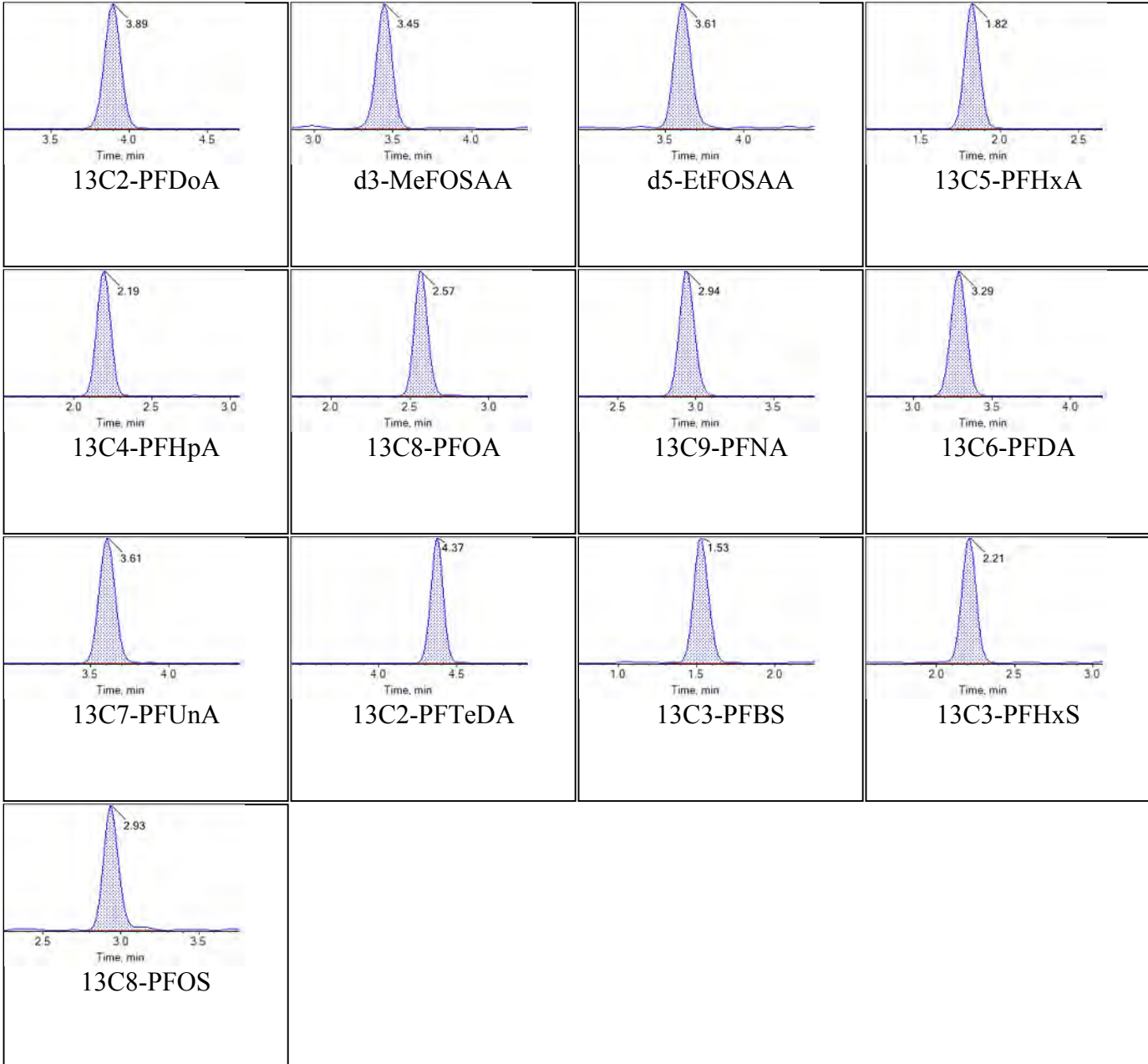
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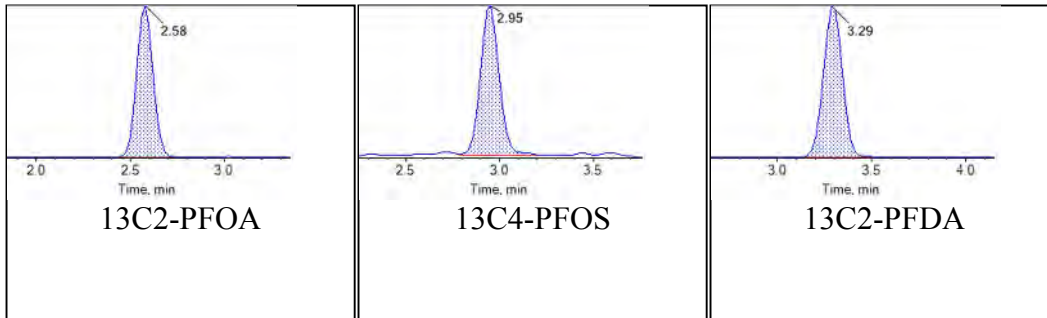
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Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T20:53:52	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Chromatograms

Target Analytes:



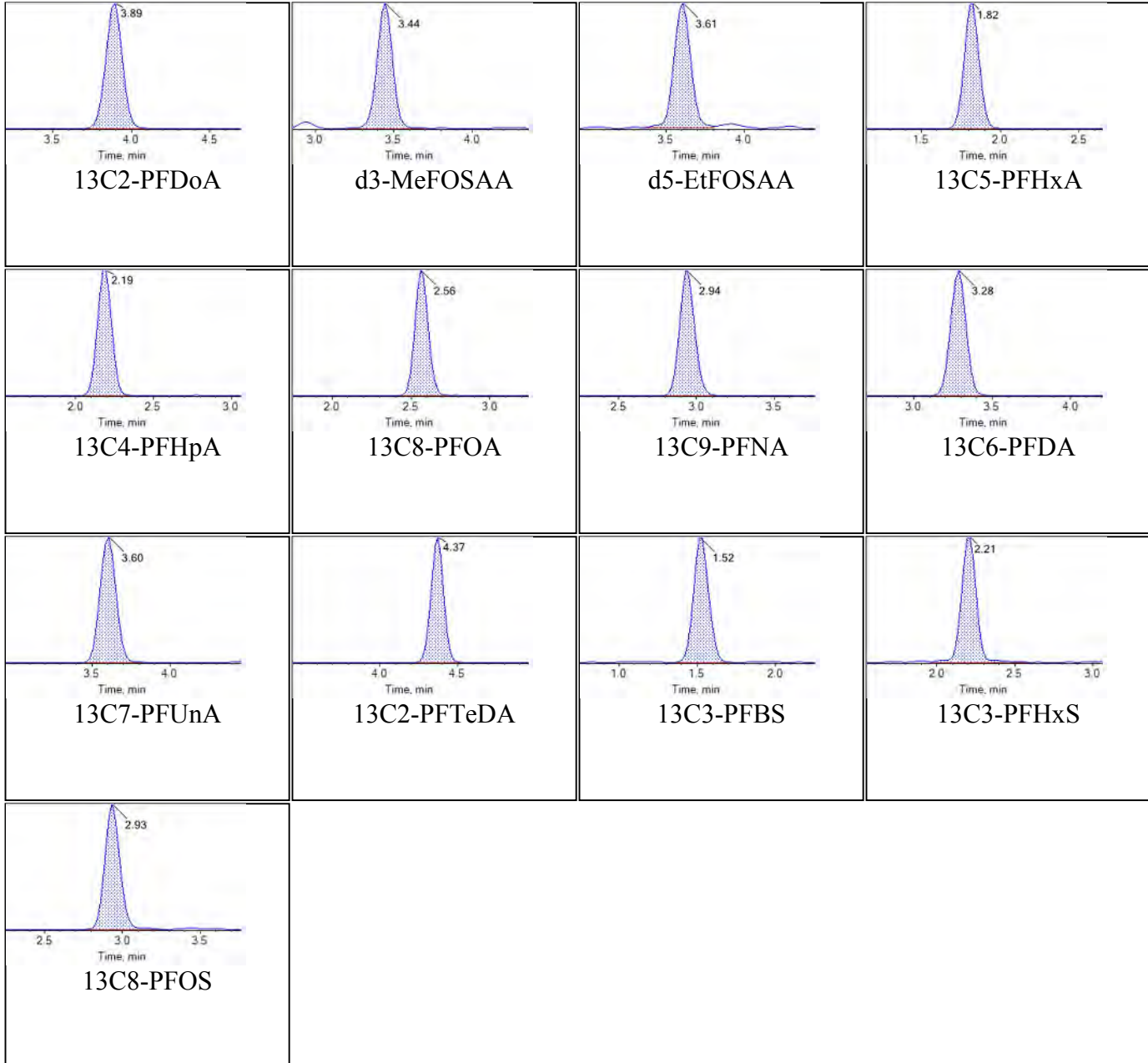
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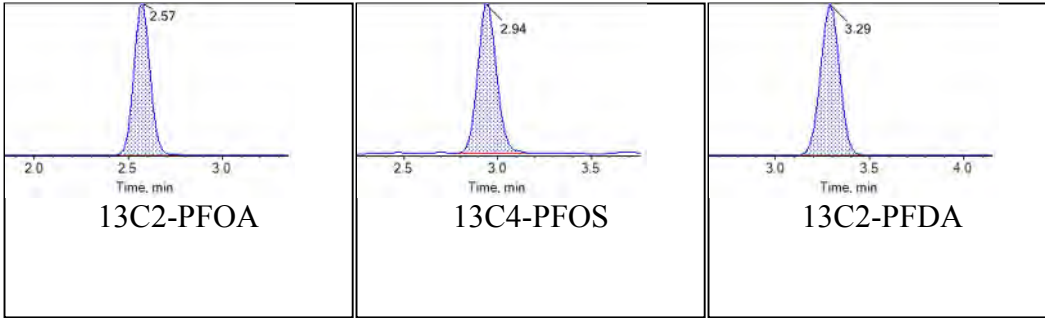
Sample Name	JV23	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:04:34	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Chromatograms

Target Analytes:



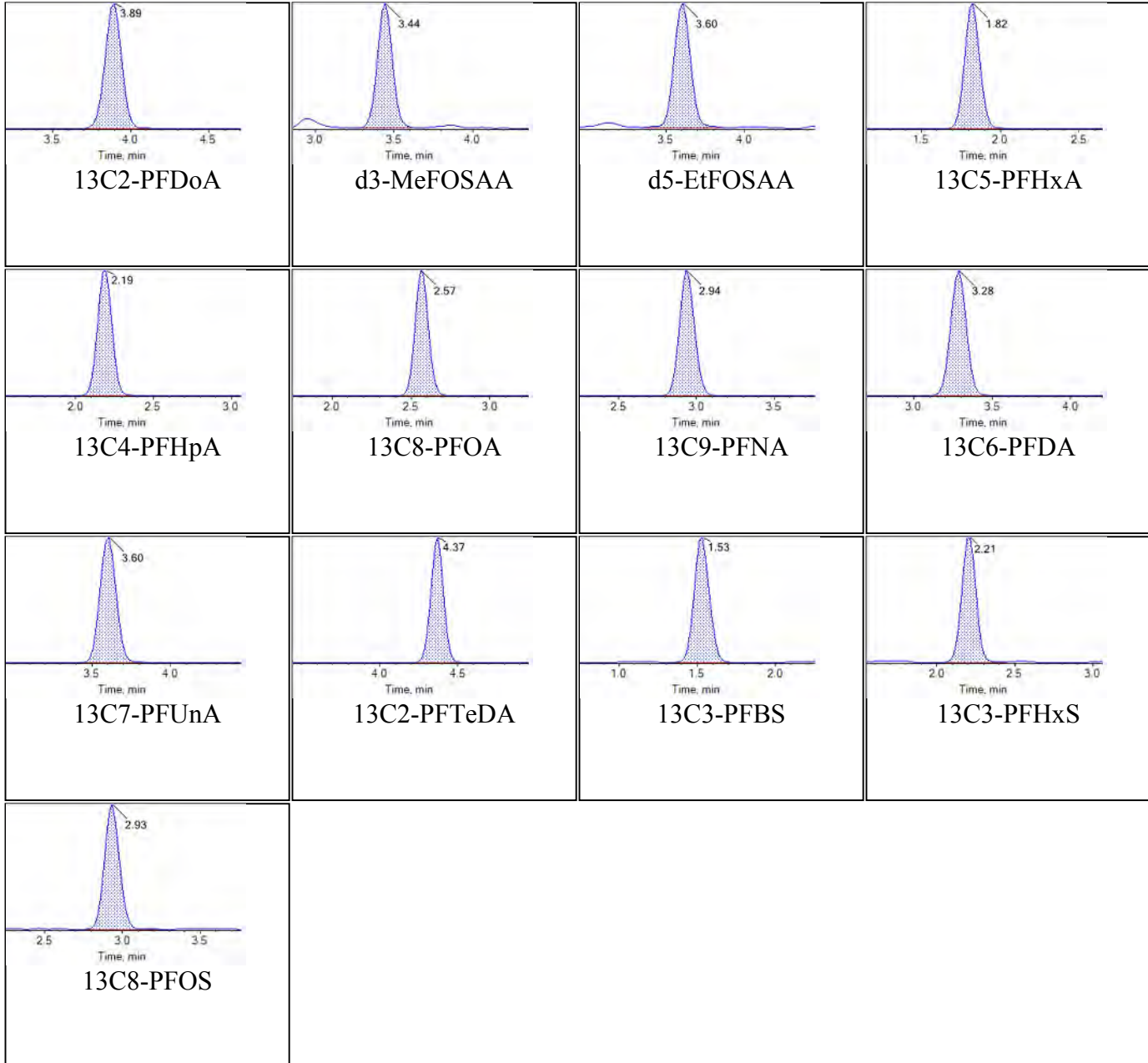
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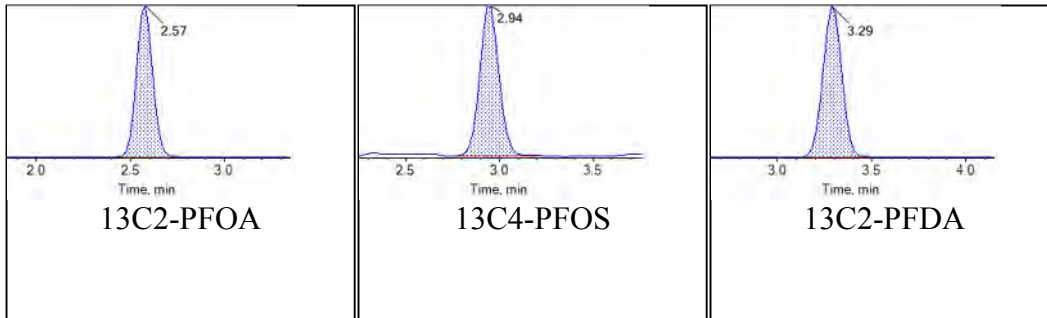
Sample Name	JV24	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:15:15	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Chromatograms

Target Analytes:



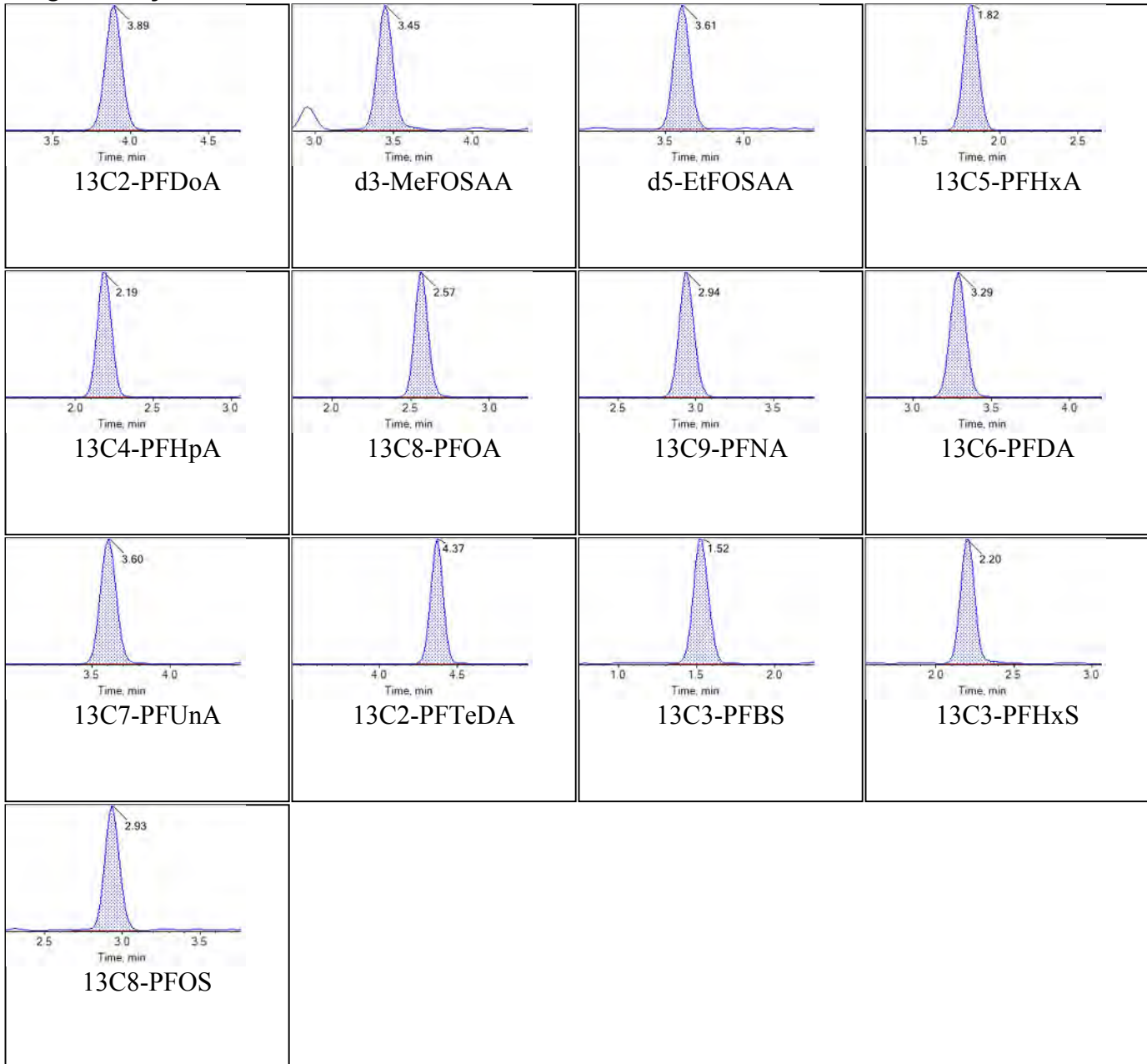
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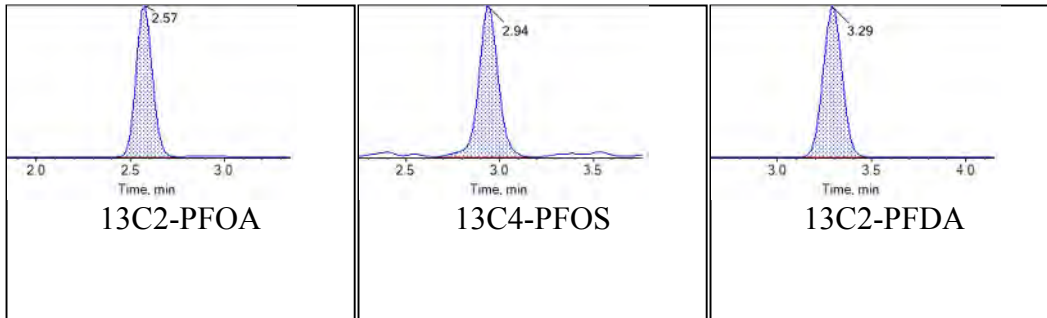
Sample Name	JV25	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:25:56	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Chromatograms

Target Analytes:



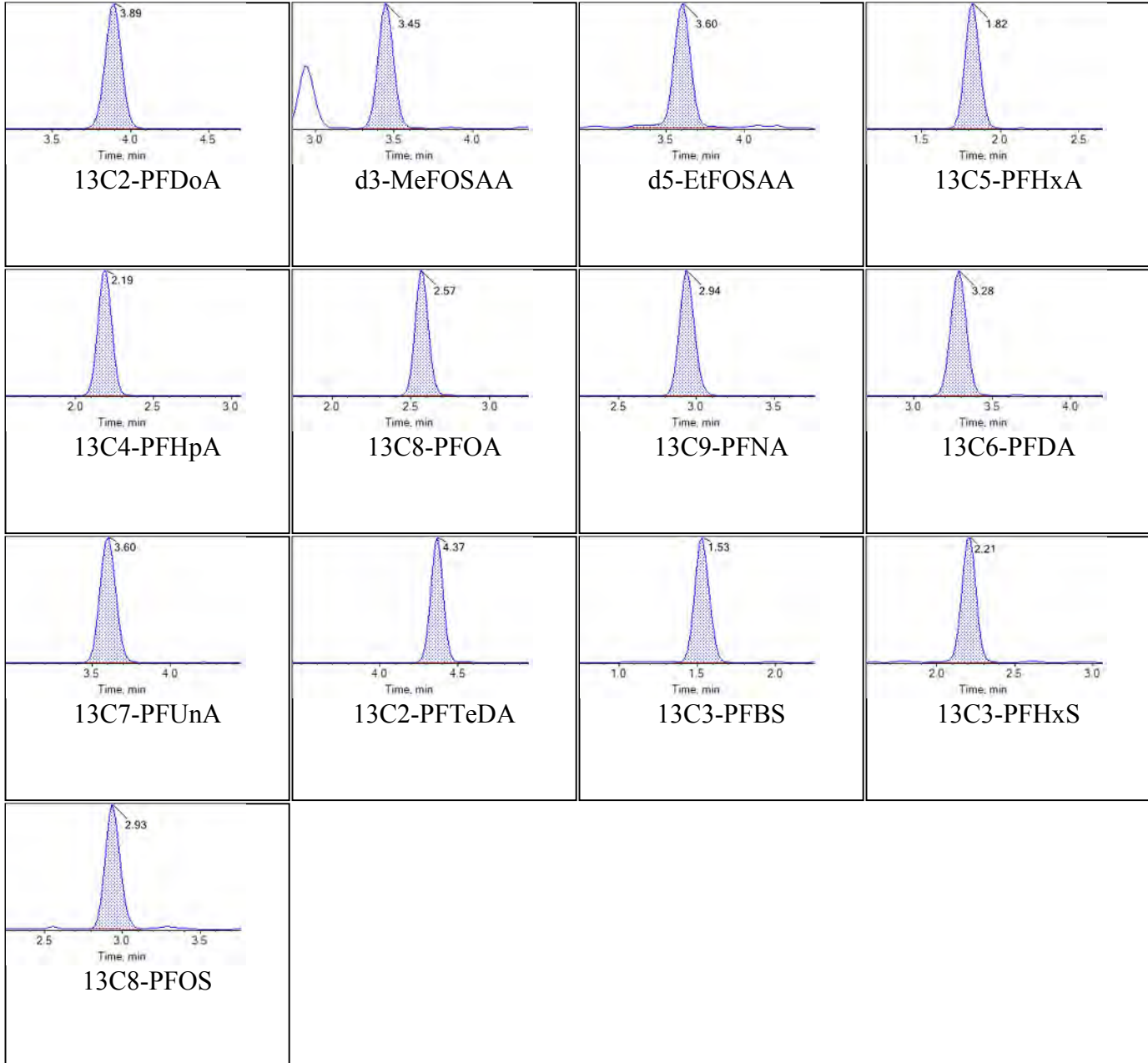
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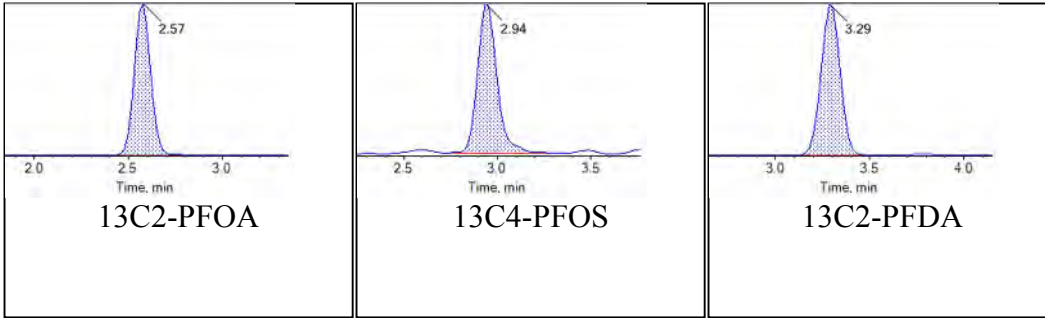
Sample Name	JV26	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:36:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Chromatograms

Target Analytes:



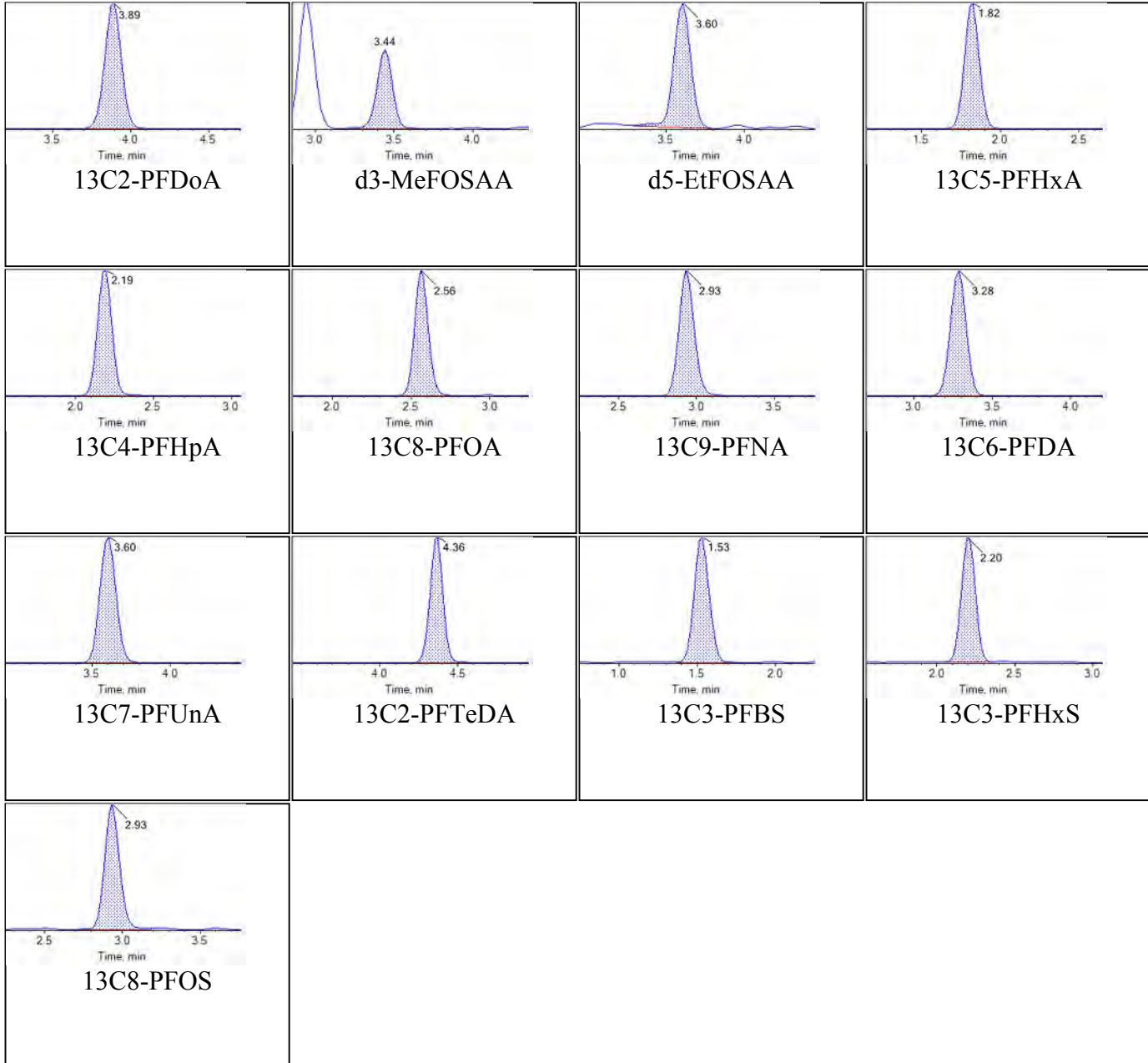
Internal Standards:



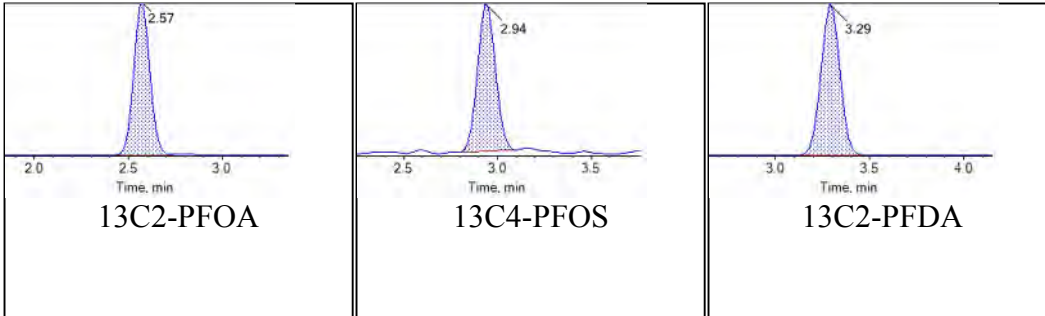
Sample Name	JV27	Injection Vial	9
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:47:16	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Chromatograms

Target Analytes:



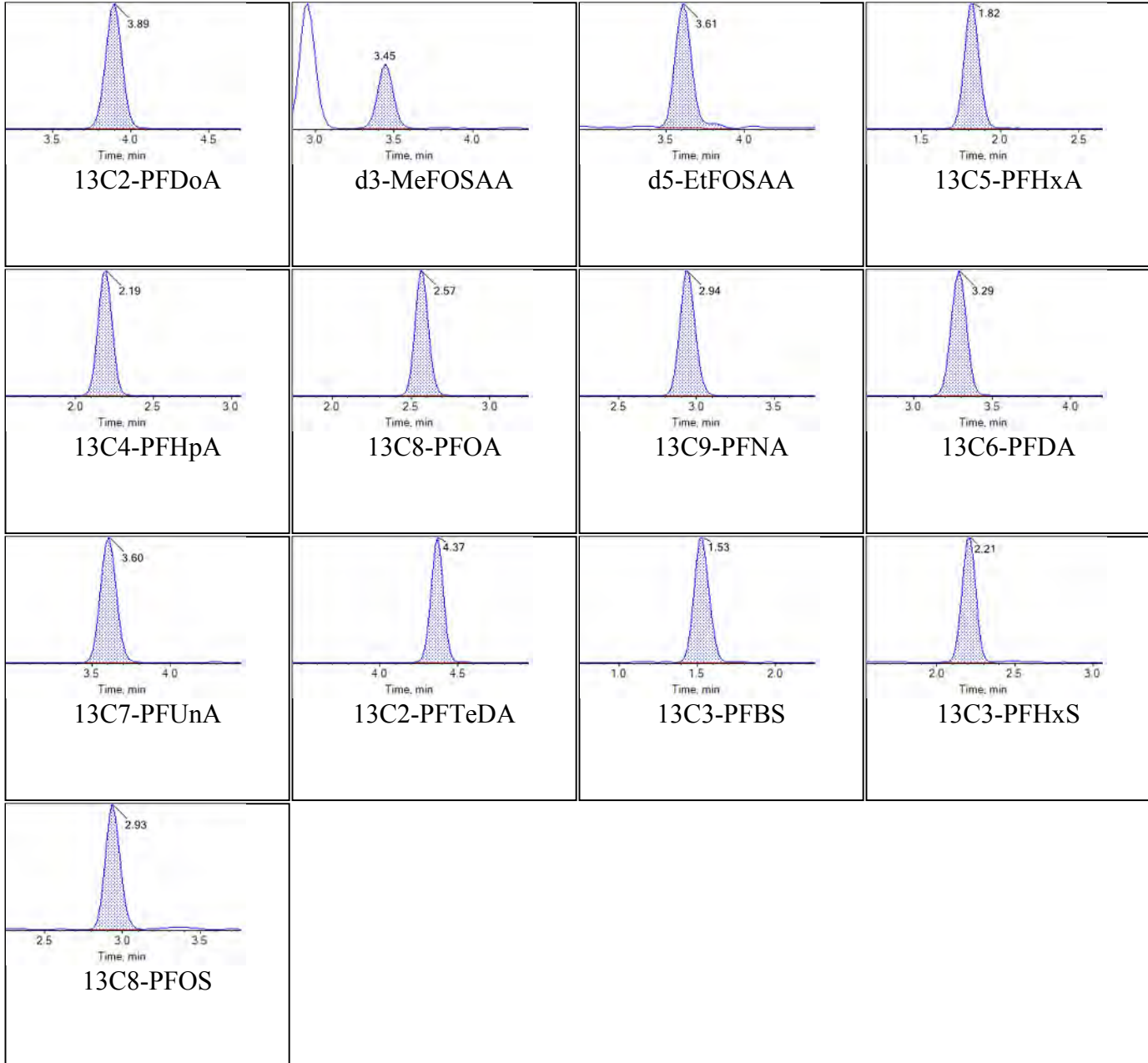
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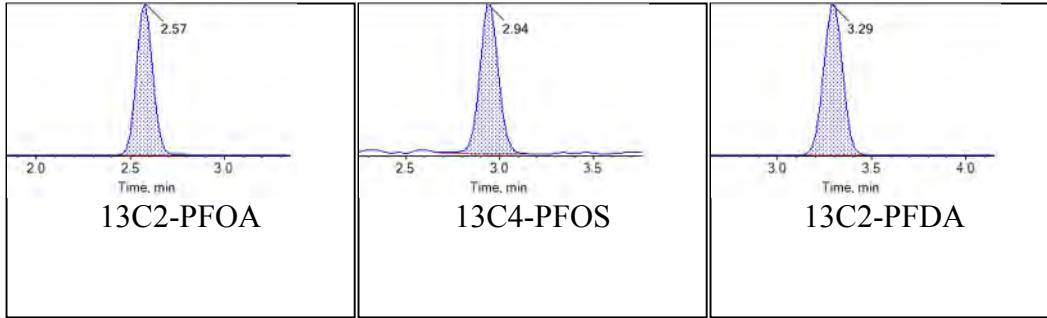
Sample Name	JV28	Injection Vial	10
Sample ID	L9	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T21:57:58	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Chromatograms

Target Analytes:



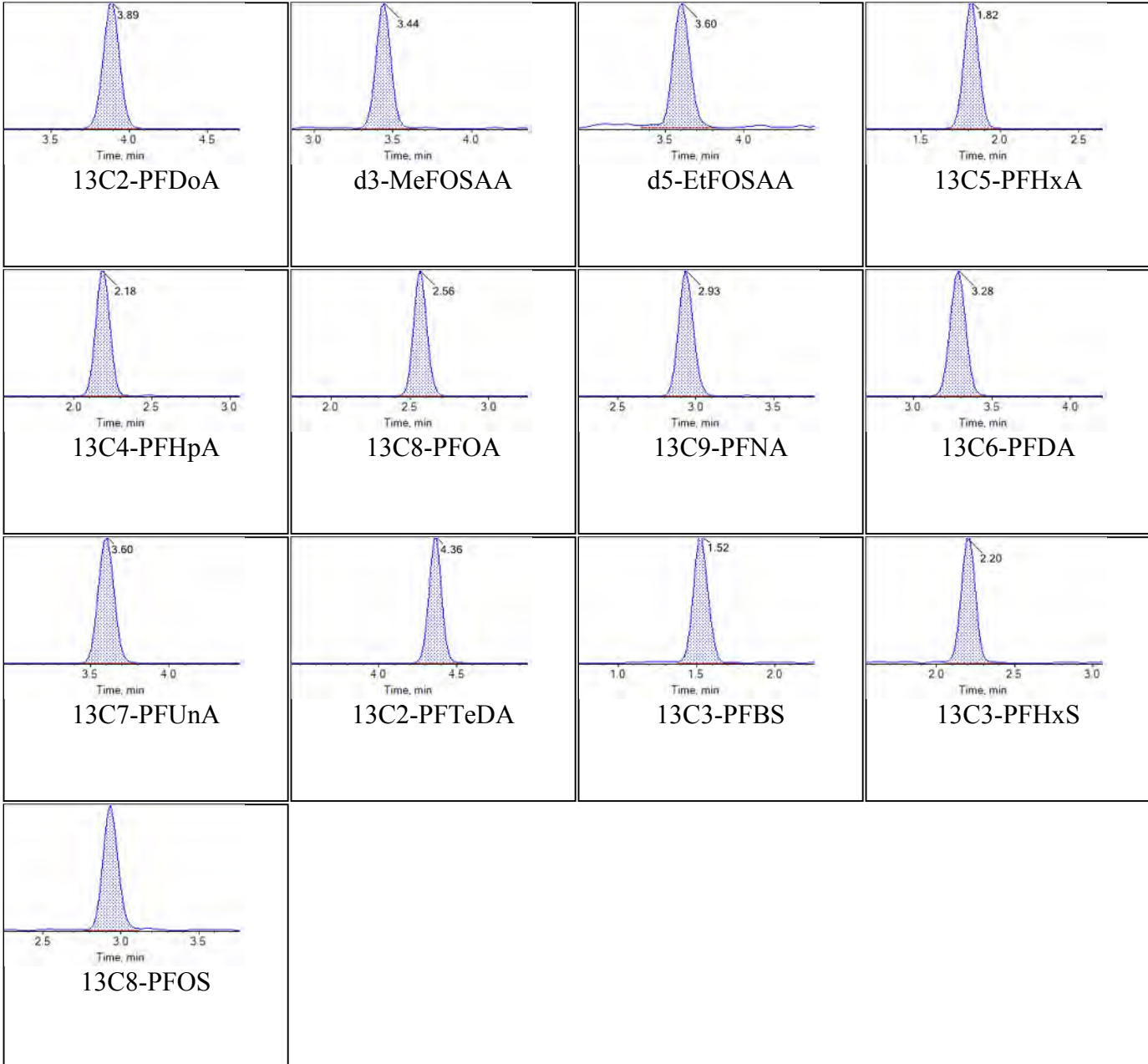
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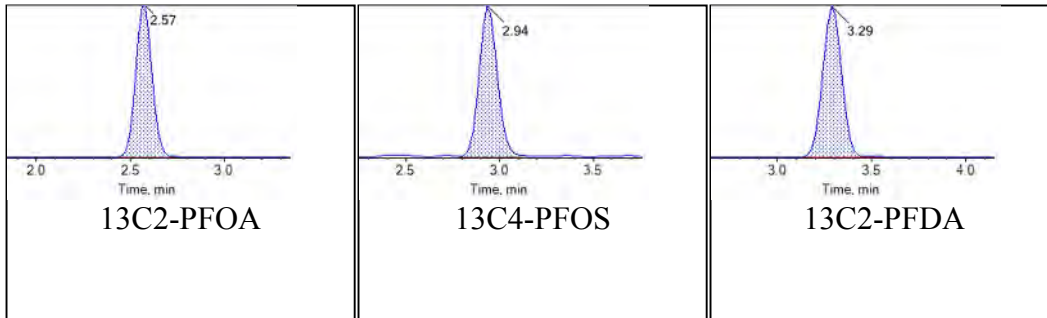
Sample Name	JV05 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:08:39	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Chromatograms

Target Analytes:



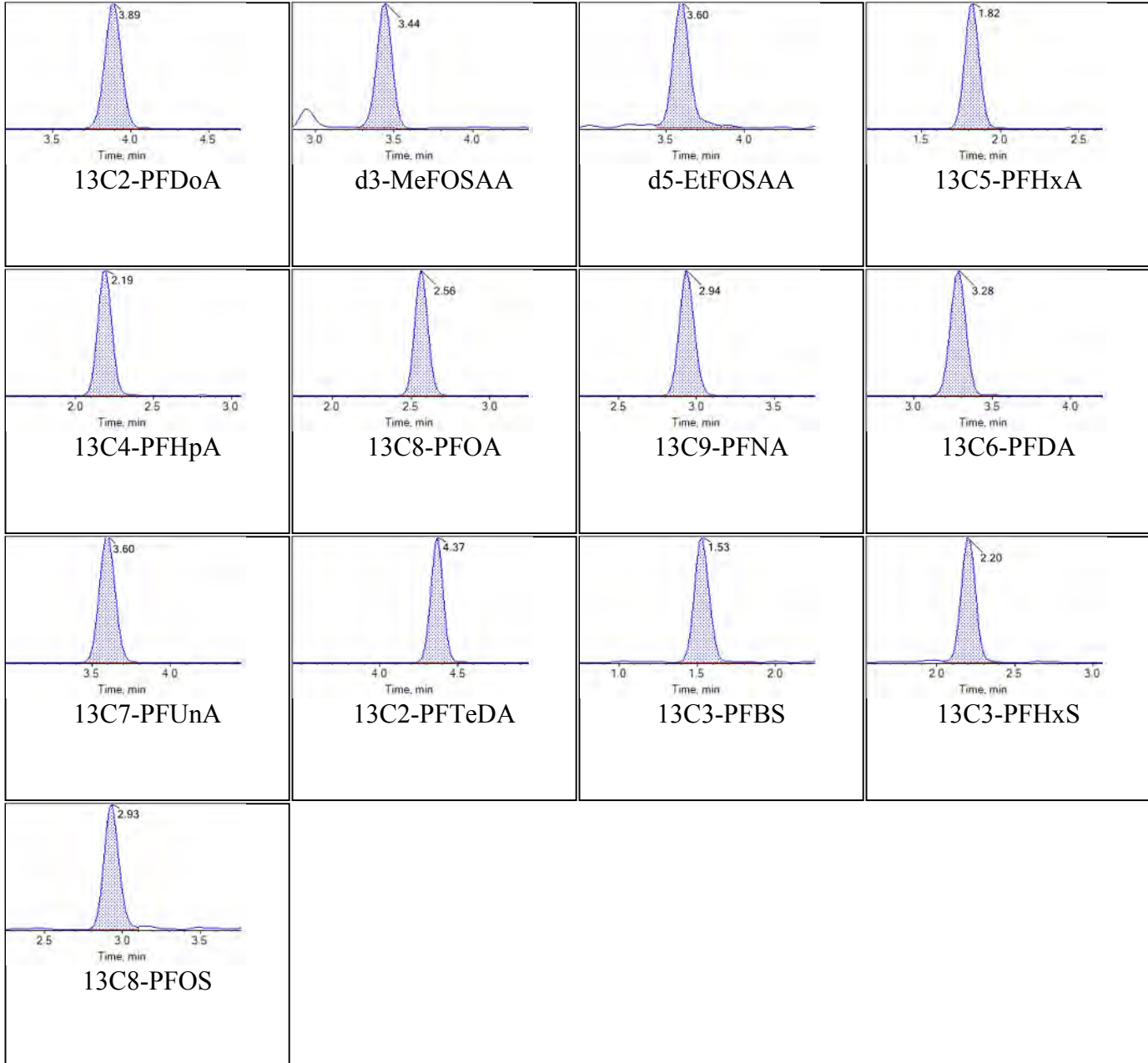
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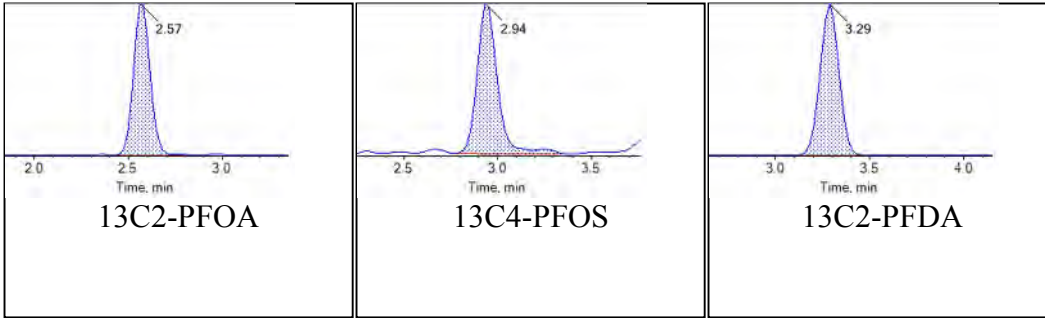
Sample Name	JW32 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:19:21	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Chromatograms

Target Analytes:



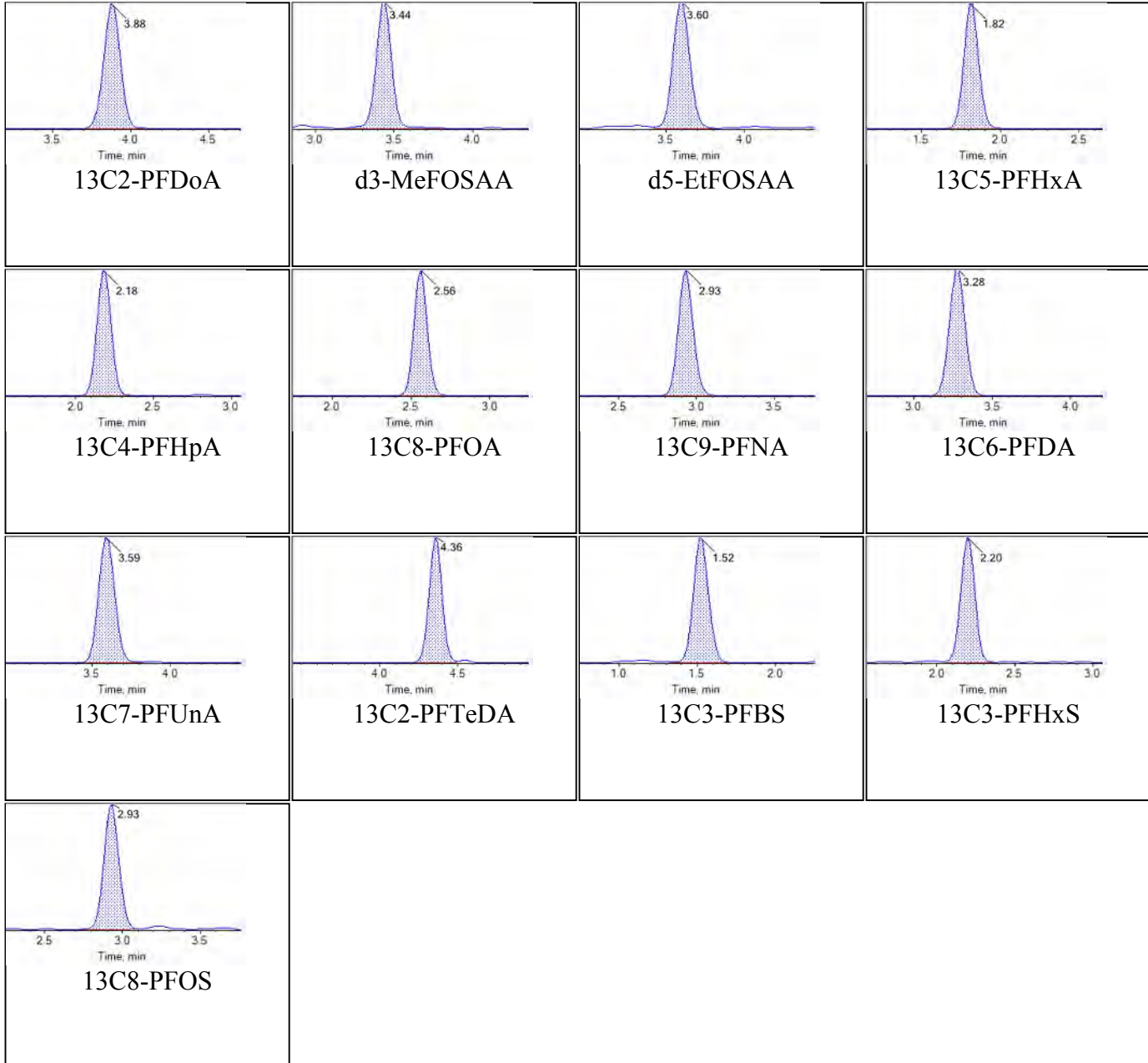
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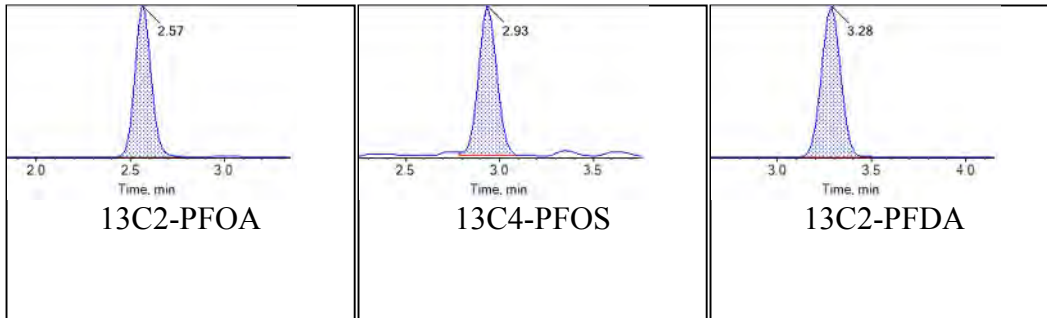
Sample Name	CQ891PB-FS(3)	Injection Vial	21
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:16:53	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Chromatograms

Target Analytes:



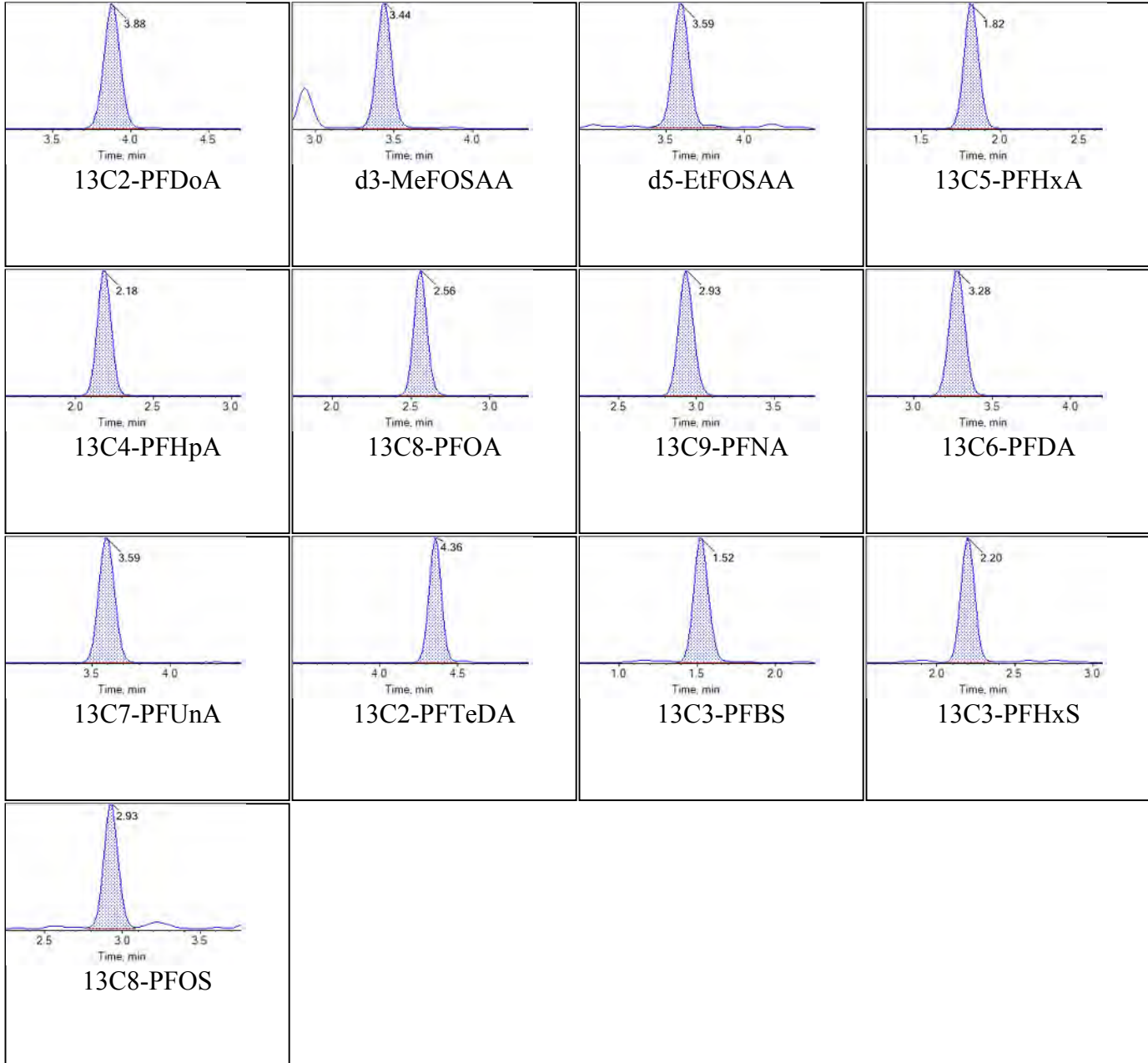
Internal Standards:



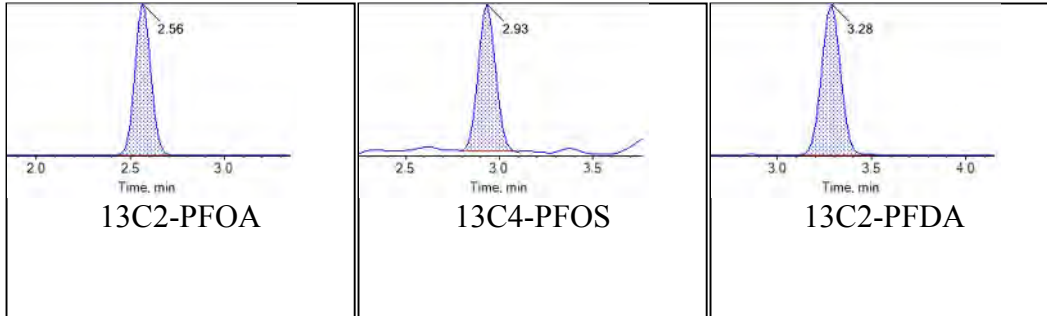
Sample Name	CQ892LCS-FS(3)	Injection Vial	22
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:27:34	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Chromatograms

Target Analytes:



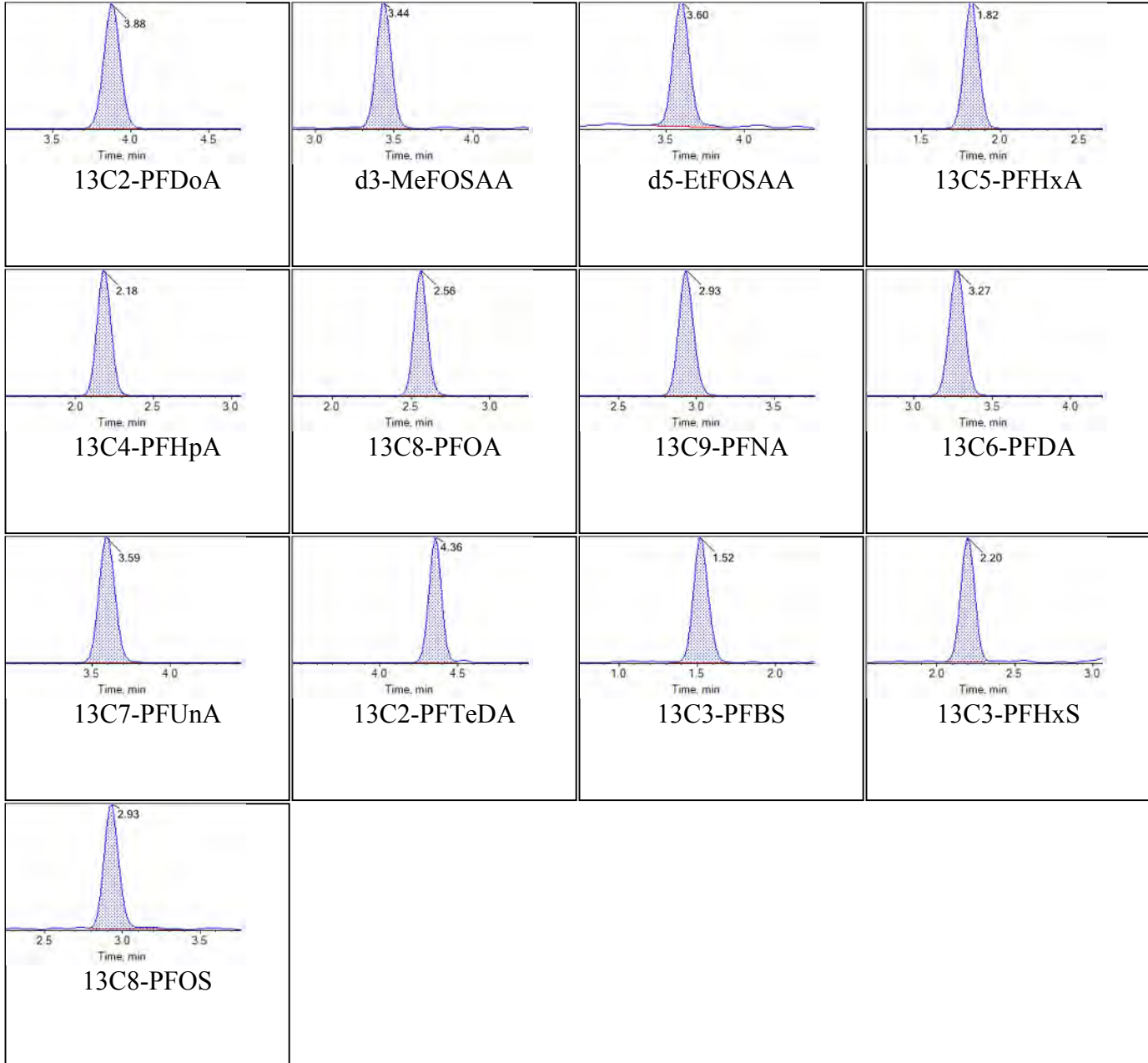
Internal Standards:



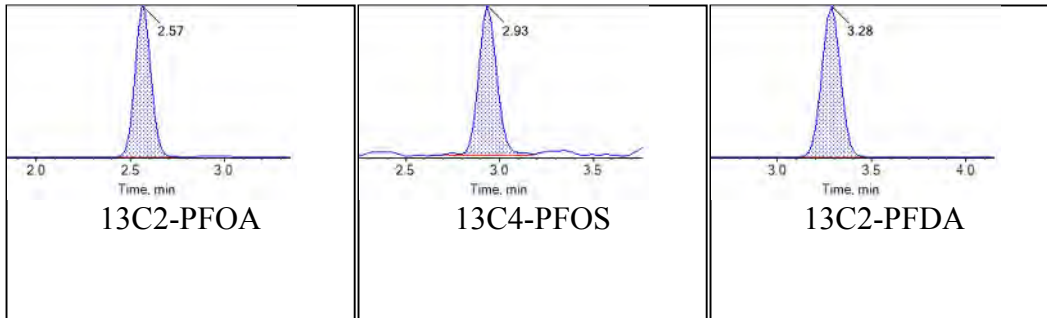
Sample Name	J6227-FS(3)	Injection Vial	23
Sample ID	09-FRB-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:38:15	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Chromatograms

Target Analytes:



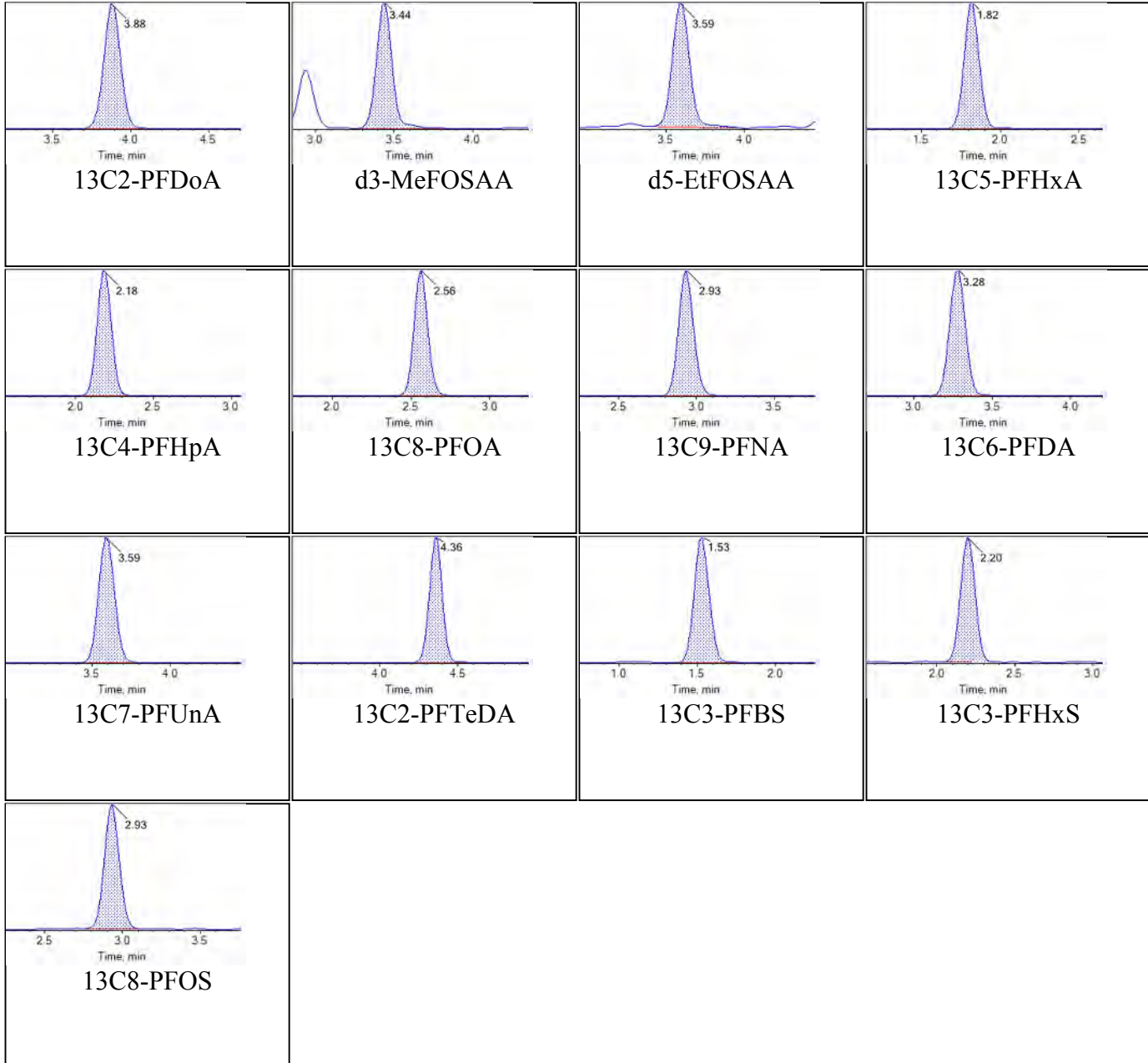
Internal Standards:



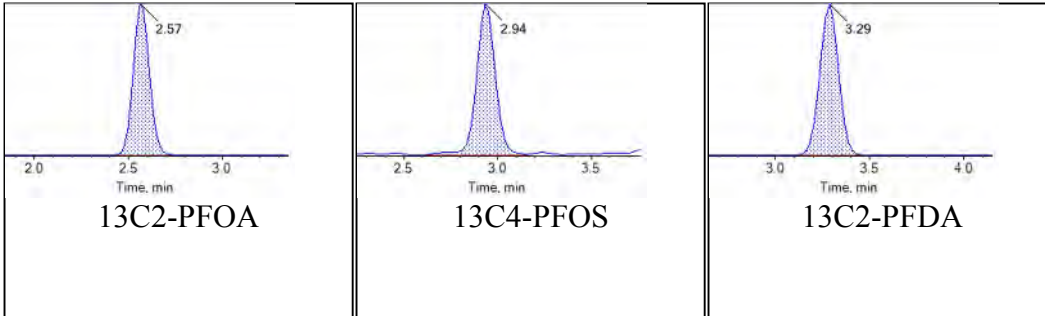
Sample Name	JV26 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:59:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Chromatograms

Target Analytes:



Internal Standards:



Unused Data



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID 09-FRB-051718

Battelle ID J6227-FS

Sample Type SA

Collection Date 05/17/2018

Extraction Date 06/05/2018

Analysis Date 06/08/2018

Analytical Instrument Sciex 5500 LC/MS/MS

% Moisture NA

Matrix QC

Sample Size 0.270

Size Unit-Basis L

Units ng/L MDL LOD LOQ

PFHxA	2.33 JT	0.19	0.50	5.00
PFHpA	0.18 JT	0.16	0.50	5.00
PFOA	0.57 JT	0.18	0.50	5.00
PFNA	0.29 JT	0.26	1.00	5.00
PFDA	0.16 UT	0.16	0.50	5.00
PFUnA	0.29 UT	0.29	1.00	5.00
PFDoA	0.18 UT	0.18	0.50	5.00
PFTTrDA	0.15 UT	0.15	0.50	5.00
PFTeDA	0.25 UT	0.25	1.00	5.00
NMeFOSAA	0.56 UT	0.56	2.00	5.00
NEtFOSAA	0.49 UT	0.49	1.00	5.00
PFBS	0.61 JT	0.13	0.50	5.00
PFHxS	3.56 JT	0.11	0.40	5.00
PFOS	21.86 BT	0.19	0.50	5.00

Surrogate Recoveries (%)

13C5-PFHxA	119
13C4-PFHpA	119
13C8-PFOA	126
13C9-PFNA	119
13C6-PFDA	124
13C7-PFUnA	113
13C2-PFDoA	108
13C2-PFTeDA	82
d3-MeFOSAA	100
d5-EtFOSAA	107
13C3-PFBS	119
13C3-PFHxS	122
13C8-PFOS	117



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID	Procedural Blank				
Battelle ID	CQ891PB-FS				
Sample Type	PB				
Collection Date	06/05/2018				
Extraction Date	06/05/2018				
Analysis Date	06/08/2018				
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	3.53 JN	0.19	0.50	5.00	
PFHpA	0.17 J	0.16	0.50	5.00	
PFOA	0.55 J	0.18	0.50	5.00	
PFNA	0.41 J	0.26	1.00	5.00	
PFDA	0.16 U	0.16	0.50	5.00	
PFUnA	0.29 U	0.29	1.00	5.00	
PFDaA	0.18 U	0.18	0.50	5.00	
PFTTrDA	0.15 U	0.15	0.50	5.00	
PFTeDA	0.25 U	0.25	1.00	5.00	
NMeFOSAA	0.56 U	0.56	2.00	5.00	
NEtFOSAA	0.49 U	0.49	1.00	5.00	
PFBS	0.13 U	0.13	0.50	5.00	
PFHxS	0.46 J	0.11	0.40	5.00	
PFOS	3.89 JN	0.19	0.50	5.00	

Surrogate Recoveries (%)

13C5-PFHxA	114
13C4-PFHpA	122
13C8-PFOA	124
13C9-PFNA	125
13C6-PFDA	125
13C7-PFUnA	125
13C2-PFDaA	97
13C2-PFTeDA	73
d3-MeFOSAA	100
d5-EtFOSAA	103
13C3-PFBS	105
13C3-PFHxS	120
13C8-PFOS	102



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID	JV05 IB				
Battelle ID	JV05 IB_06/07/2018				
Sample Type	IB				
Collection Date	NA				
Extraction Date	NA				
Analysis Date	06/07/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	NA				
Sample Size	NA				
Size Unit-Basis	NA				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.19 U	0.19	0.50	5.00	
PFHpA	0.16 U	0.16	0.50	5.00	
PFOA	0.18 U	0.18	0.50	5.00	
PFNA	0.26 U	0.26	1.00	5.00	
PFDA	0.16 U	0.16	0.50	5.00	
PFUnA	0.29 U	0.29	1.00	5.00	
PFDaA	0.18 U	0.18	0.50	5.00	
PFTTrDA	0.15 U	0.15	0.50	5.00	
PFTeDA	0.25 U	0.25	1.00	5.00	
NMeFOSAA	0.56 U	0.56	2.00	5.00	
NEtFOSAA	0.49 U	0.49	1.00	5.00	
PFBS	0.13 U	0.13	0.50	5.00	
PFHxS	0.11 U	0.11	0.40	5.00	
PFOS	0.30 J	0.19	0.50	5.00	

Surrogate Recoveries (%)

13C5-PFHxA	76
13C4-PFHpA	76
13C8-PFOA	79
13C9-PFNA	79
13C6-PFDA	77
13C7-PFUnA	72
13C2-PFDaA	70
13C2-PFTeDA	69
d3-MeFOSAA	69
d5-EtFOSAA	61
13C3-PFBS	65
13C3-PFHxS	61
13C8-PFOS	64



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID	Laboratory Control Sample					
Battelle ID	CQ892LCS-FS					
Sample Type	LCS					
Collection Date	06/05/2018					
Extraction Date	06/05/2018					
Analysis Date	06/08/2018					
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	10.10 B	10.10	100		51	137
PFHpA	9.10	10.00	91		48	136
PFOA	9.13	10.00	91		49	141
PFNA	8.88	10.00	89		58	122
PFDA	9.06	10.00	91		59	135
PFUnA	8.55	10.00	86		64	134
PFDoA	11.55	10.00	116		75	131
PFTTrDA	10.08	10.00	101		42	148
PFTeDA	8.88	10.00	89		42	158
NMeFOSAA	8.56	10.00	86		50	146
NEtFOSAA	8.60	10.00	86		51	131
PFBS	9.97	10.10	99		56	134
PFHxS	10.53	10.10	104		52	128
PFOS	12.34 B	10.00	123		40	144

Surrogate Recoveries (%)

13C5-PFHxA	118
13C4-PFHpA	116
13C8-PFOA	119
13C9-PFNA	118
13C6-PFDA	126
13C7-PFUnA	123
13C2-PFDoA	100
13C2-PFTeDA	81
d3-MeFOSAA	126
d5-EtFOSAA	131
13C3-PFBS	118
13C3-PFHxS	120
13C8-PFOS	104



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, MDL reported

"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"307-24-4"	"PFHxA"	"3.530000"	
"ng/L"	"JN"	".190000"	"MDL"	""	"T"	""	"5.000000"	"LOQ" "YES" "-99.000000" ""
".250000"	".000500"	".500000"	""					
"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"375-85-9"	"PFHpA"	".170000"	
"ng/L"	"J"	".160000"	"MDL"	""	"T"	""	"5.000000"	"LOQ" "YES" "-99.000000" ""
".250000"	".000500"	".500000"	""					
"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"335-67-1"	"PFOA"	".550000"	"ng/L"
"J"	".180000"	"MDL"	""	"T"	""	"5.000000"	"LOQ" "YES" "-99.000000" ""	".250000"
".000500"	".500000"	""						
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"J"	".260000"	"MDL"	""	"T"	""	"5.000000"	"LOQ" "YES" "-99.000000" ""	".250000"
".000500"	"1.000000"	""						
"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"335-76-2"	"PFDA"	".500000"	"ng/L"
"U"	".160000"	"MDL"	""	"T"	""	"5.000000"	"LOQ" "YES" "-99.000000" ""	".250000"
".000500"	".500000"	""						
"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"2058-94-8"	"PFUnA"	"1.000000"	
"ng/L"	"U"	".290000"	"MDL"	""	"T"	""	"5.000000"	"LOQ" "YES" "-99.000000" ""
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"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"307-55-1"	"PFDaA"	".500000"	
"ng/L"	"U"	".180000"	"MDL"	""	"T"	""	"5.000000"	"LOQ" "YES" "-99.000000" ""
".250000"	".000500"	".500000"	""					
"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"72629-94-8"	"PFTTrDA"	".500000"	
"ng/L"	"U"	".150000"	"MDL"	""	"T"	""	"5.000000"	"LOQ" "YES" "-99.000000" ""
".250000"	".000500"	".500000"	""					
"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"376-06-7"	"PFTeDA"	"1.000000"	
"ng/L"	"U"	".250000"	"MDL"	""	"T"	""	"5.000000"	"LOQ" "YES" "-99.000000" ""
".250000"	".000500"	"1.000000"	""					
"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"2355-31-9"	"NMeFOSAA"		
"2.000000"	"ng/L"	"U"	".560000"	"MDL"	""	"T"	""	"5.000000" "LOQ" "YES"
"-99.000000"	""	".250000"	".000500"	"2.000000"	""			
"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"2991-50-6"	"NEtFOSAA"	"1.000000"	
"ng/L"	"U"	".490000"	"MDL"	""	"T"	""	"5.000000"	"LOQ" "YES" "-99.000000" ""
".250000"	".000500"	"1.000000"	""					
"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"375-73-5"	"PFBS"	".500000"	"ng/L"
"U"	".130000"	"MDL"	""	"T"	""	"5.000000"	"LOQ" "YES" "-99.000000" ""	".250000"
".000500"	".500000"	""						
"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"355-46-4"	"PFHxS"	".460000"	
"ng/L"	"J"	".110000"	"MDL"	""	"T"	""	"5.000000"	"LOQ" "YES" "-99.000000" ""
".250000"	".000500"	".400000"	""					
"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"1763-23-1"	"PFOS"	"3.890000"	
"ng/L"	"JN"	".190000"	"MDL"	""	"T"	""	"5.000000"	"LOQ" "YES" "-99.000000" ""
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"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"BDO-2217"	"13C5-PFHxA"	".450000"	
"ng/L"	""	"-99.000000"	"NA"	""	"SIS"	"114.00"	""	"-99.000000" "NA" "YES" ".400000" ""
".250000"	".000500"	".500000"	""					
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".250000"	".000500"	".500000"	""					
"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"BDO-2219"	"13C8-PFOA"	".500000"	
"ng/L"	""	"-99.000000"	"NA"	""	"SIS"	"124.00"	""	"-99.000000" "NA" "YES" ".400000" ""
".250000"	".000500"	".500000"	""					
"CQ891PB-FS"	"SOP 5-369"	"Initial"	"CQ891PB-FS"	"BNO"	"BDO-2221"	"13C9-PFNA"	".500000"	
"ng/L"	""	"-99.000000"	"NA"	""	"SIS"	"125.00"	""	"-99.000000" "NA" "YES" ".400000" ""

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"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"375-85-9"	"PFHpA"	".180000"	"ng/L"
"JT"	"MDL"	"T"	"4.630000"	"LOQ"	"YES"	"-99.000000"	"2.270000"	
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"335-67-1"	"PFOA"	".570000"	"ng/L"
"JT"	"MDL"	"T"	"4.630000"	"LOQ"	"YES"	"-99.000000"	"2.270000"	
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"375-95-1"	"PFNA"	".290000"	"ng/L"
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"UT"	"MDL"	"T"	"4.630000"	"LOQ"	"YES"	"-99.000000"	"2.270000"	
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"307-55-1"	"PFDoA"	".460000"	"ng/L"
"UT"	"MDL"	"T"	"4.630000"	"LOQ"	"YES"	"-99.000000"	"2.270000"	
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"72629-94-8"	"PFTTrDA"	".460000"	
"ng/L"	"UT"	"MDL"	"T"	"4.630000"	"LOQ"	"YES"	"-99.000000"	
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"376-06-7"	"PFTeDA"	".930000"	
"ng/L"	"UT"	"MDL"	"T"	"4.630000"	"LOQ"	"YES"	"-99.000000"	
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"2355-31-9"	"NMeFOSAA"	"1.850000"	
"ng/L"	"UT"	"MDL"	"T"	"4.630000"	"LOQ"	"YES"	"-99.000000"	
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"2991-50-6"	"NEtFOSAA"	".930000"	
"ng/L"	"UT"	"MDL"	"T"	"4.630000"	"LOQ"	"YES"	"-99.000000"	
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"375-73-5"	"PFBS"	".610000"	"ng/L"
"JT"	"MDL"	"T"	"4.630000"	"LOQ"	"YES"	"-99.000000"	"2.270000"	
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"355-46-4"	"PFHxS"	"3.560000"	"ng/L"
"JT"	"MDL"	"T"	"4.630000"	"LOQ"	"YES"	"-99.000000"	"2.270000"	
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"1763-23-1"	"PFOS"	"21.860000"	"ng/L"
"BT"	"MDL"	"T"	"4.630000"	"LOQ"	"YES"	"-99.000000"	"2.270000"	
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"ng/L"	""	"-99.000000"	"NA"	""	"-99.000000"	"NA"	"YES"	".370000"	""
"270000"	"000500"	"500000"	""						
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"BDO-2223"	"13C7-PFUnA"	".420000"		
"ng/L"	""	"-99.000000"	"NA"	""	"-99.000000"	"NA"	"YES"	".370000"	""
"270000"	"000500"	"500000"	""						
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"BDO-2112"	"13C2-PFD _o A"	".400000"		
"ng/L"	""	"-99.000000"	"NA"	""	"-99.000000"	"NA"	"YES"	".370000"	""
"270000"	"000500"	"500000"	""						
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"BDO-2224"	"13C2-PFTeDA"	".300000"		
"ng/L"	""	"-99.000000"	"NA"	""	"-99.000000"	"NA"	"YES"	".370000"	""
"270000"	"000500"	"500000"	""						
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"BDO-2125"	"d3-MeFOSAA"	".370000"		
"ng/L"	""	"-99.000000"	"NA"	""	"-99.000000"	"NA"	"YES"	".370000"	""
"270000"	"000500"	"500000"	""						
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"BDO-2126"	"d5-EtFOSAA"	".400000"		
"ng/L"	""	"-99.000000"	"NA"	""	"-99.000000"	"NA"	"YES"	".370000"	""
"270000"	"000500"	"500000"	""						
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"BDO-2226"	"13C3-PFBS"	".410000"		
"ng/L"	""	"-99.000000"	"NA"	""	"-99.000000"	"NA"	"YES"	".340000"	""
"270000"	"000500"	"500000"	""						
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"BDO-2227"	"13C3-PFHxS"	".430000"		
"ng/L"	""	"-99.000000"	"NA"	""	"-99.000000"	"NA"	"YES"	".350000"	""
"270000"	"000500"	"500000"	""						
"09-FRB-051718"	"SOP 5-369"	"Initial"	"J6227-FS"	"BNO"	"BDO-2228"	"13C8-PFOS"	".410000"		
"ng/L"	""	"-99.000000"	"NA"	""	"-99.000000"	"NA"	"YES"	".350000"	""
""	"270000"	"000500"	"500000"	""					
"112G08005-ML4044"	"SEMU 9 PFAS, NSA Crane"	"CQ891PB-FS"	""	"WATER"	"CQ891PB-FS"				
"Method Bla"	""	"-99.000000"	"SOP 5-369"	"Gen Prep"	"Initial"	"06/05/2018 02:00"	"06/08/2018 00:16"		
"BNO"	"COA"	"NA"	"T"	"2.000"	"NA"	"NA"	""	"100.000000"	"18-0349"
"18-0139"	"DP-18-0139"	"18-0349"	"06/05/2018 02:00"	"07/13/2018 15:08"	""				
"112G08005-ML4044"	"SEMU 9 PFAS, NSA Crane"	"CQ892LCS-FS"	""	"WATER"	"CQ892LCS-FS"				
"LCS"	""	"-99.000000"	"SOP 5-369"	"Gen Prep"	"Initial"	"06/05/2018 02:00"	"06/08/2018 00:27"	"BNO"	
"COA"	"NA"	"T"	"2.000"	"NA"	"NA"	""	"100.000000"	"18-0349"	"18-0349"
"DP-18-0139"	"18-0349"	"06/05/2018 02:00"	"07/13/2018 15:08"	""					
"112G08005-ML4044"	"SEMU 9 PFAS, NSA Crane"	"09-FRB-051718"	"05/17/2018 09:40"	"QC"	"J6227-FS"	"NM"	"SHP-180521-01"	"1.200000"	"SOP 5-369"
"Gen Prep"	"Initial"	"06/05/2018 02:00"							
"06/08/2018 00:38"	"BNO"	"COA"	"NA"	"T"	"2.000"	"NA"	"NA"	""	"100.000000"
"18-0349"	"DP-18-0139"	"DP-18-0139"	"18-0349"	"05/19/2018 12:00"	"07/13/2018 15:08"	""			



TETRA TECH

INTERNAL CORRESPONDENCE

TO: A. BERNHARDT **DATE:** OCTOBER 29, 2018
FROM: MICHELLE L. WOEBER **COPIE:** DV FILE/REVISED
SUBJECT: ORGANIC DATA VALIDATION – POLYFLUOROALKYL SUBSTANCES (PFAS)
NAVAL SUPPORT ACTIVITY (NSA) CRANE
CRANE, INDIANA
SAMPLE DELIVERY GROUPS (SDGs) 18-0334 & 18-0349

SAMPLES: 8/Aqueous/PFAS

SDG 18-0334

09-EB-GW-051718	09-FD-051718-01	09-GW012-051718
09-GW013-051718	09-GW014-051718	09-GW015-051718
09-TW013-051718		

SDG 18-0349

09-FRB-051718

Overview

The sample set for NSA Crane, SDGs 18-0334 & 18-0349 consisted of six (6) aqueous environmental samples, one (1) equipment blank, and one (1) Field Reagent Blank (FRB). All eight (8) samples were analyzed for polyfluoroalkyl substances (PFAS). One field duplicate sample pair was included in this SDG: 09-FD-051718-01/09-GW014-051718.

The samples were collected by Tetra Tech, Inc. on May 17, 2018 and analyzed by Battelle Norwell Operations. All analyses were conducted in accordance with EPA 537 Modified and QSM 5.1 B-15 analytical and reporting protocols. The data contained in this SDG was validated 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
- * • Initial/Continuing Calibrations
- Laboratory Preparation/Method Blank Results
- Field Reagent Blank and Equipment Blank Results
- Extraction Internal Standard Recoveries
- * • Injection Internal Standard Recoveries
- * • Laboratory Control Sample Recoveries
- * • Matrix Spike/Matrix Spike Sample Duplicate Results
- * • 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

The FRB PFAS results in SDG 18-0349 were contaminated by water samples extracted on the same manifold prior to the FRB sample. According to the laboratory narrative, the samples that caused the problem were extracted on 6/4/2018. The contamination did not impact project samples in SDG 18-0334 because the environmental samples were extracted on 5/24/18. Despite cleaning between batches, the water samples analyzed prior to this sample were highly contaminated (samples required 1,000,000X dilutions) and carryover was observed in the FRB. Insufficient volume remained in the FRB sample for re-extraction. The FRB results were not used in the evaluation of the associated environmental samples in SDG 18-0334. The results in the FRB sample were qualified an (X) qualifier to denote that the contamination is related to a laboratory source and that the FRB concentrations should not be associated with project samples.

The 14-day extraction holding time was exceeded for the FRB sample in SDG 18-0349. No action was taken due to the laboratory source contamination mentioned above.

The following contaminant was detected in the laboratory preparation blank extracted on 5/24/18 at the following maximum concentration:

<u>Compound</u>	<u>Maximum Concentration (ng/L)</u>	<u>Action Level > or < Limit of Quantitation (LOQ)</u>
Pentadecafluorooctanoic acid (PFOA)	0.19	< LOQ

The detected results reported for PFOA below the LOQ in the environmental samples were qualified as non-detected, (U). The equipment blanks are not qualified for laboratory blank contamination.

The extracted internal standards 13C5- perfluorohexanoic acid (13C5-PFHxA), 13C7- perfluoroundecanoic acid (13C7-PFUnA), 13C2-perfluorododecanoic acid (13C2-PFDoA), d3-N-methylperfluorooctane sulfonamidoacetate (d3-MeFOSAA), and d5-N-ethylperfluorooctane sulfonamidoacetate (d5-EtFOSAA) were below the 50% quality control limit in sample 09-GW014-051718. Per the laboratory case narrative, the sample was reanalyzed with similar results. The detected and non-detected results reported for the compounds associated with these internal standards were qualified as estimated, (J) and (UJ), respectively. Re-extraction was not performed on the sample as required in Table B-15 of the QSM.

The extracted internal standards d3-MeFOSAA and d5-EtFOSAA were below the 50% quality control limit in sample 09-TW013-051718. Per the laboratory case narrative, the sample was reanalyzed with similar results. The non-detected results reported for the compounds associated with these internal standards were qualified as estimated, (UJ). Re-extraction was not performed on the sample as required in Table B-15.

Additional Comments

For SDG 18-0349, the following contaminants were detected in the laboratory preparation blank extracted on 6/5/18 at the following concentrations:

<u>Compound</u>	<u>Maximum Concentration (ng/L)</u>	<u>Action Level > or < Limit of Quantitation (LOQ)</u>
Perfluorooctanesulfonic Acid (PFOS)	3.89	< LOQ
Perfluorohexanoic Acid (PFHxA)	3.53	< LOQ
Perfluorohexanesulfonic Acid (PFHxS)	0.46	< LOQ
Perfluoroheptanoic acid (PFHpA)	0.17	< LOQ
PFOA	0.55	< LOQ
Perfluorononanoic acid (PFNA)	0.41	< LOQ

No validation action was taken because FRBs are not qualified for laboratory blank contamination.

No contaminants were detected in the equipment blank.

All samples were initially analyzed at a 2X dilution including the quality control samples.

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

Executive Summary

Laboratory Performance Issues: Six contaminants were detected in the laboratory method and/or instrument blanks below the LOQ. Low recoveries were reported for some extracted internal standards in two samples. The FRB extraction holding time was missed. The FRB was contaminated by a laboratory source not related to this project.

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

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic Superfund Methods Data Review" (January 2017), EPA Method 537 Modified, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (2017). The text of this report has been formulated to address only those areas affecting data quality.



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



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-ML41 SDG: 18-0334 FRACTION: PFAS MEDIA: WATER	NSAMPLE	09-EB-GW-051718			09-GW012-051718			09-GW013-051718			09-GW014-051718		
	LAB_ID	J6226-FS			J6229-FS			J6228-FS			J6222-FS		
	SAMP_DATE	5/17/2018			5/17/2018			5/17/2018			5/17/2018		
	QC_TYPE	EB			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		1	U		1	U		1	U		1	UJ	N
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		2	U		2	U		2	U		2	UJ	N
PENTADECAFLUOROOCTANOIC ACID (PFOA)		0.5	U		0.5	U		0.5	U		0.5	U	A
PERFLUOROBUTANESULFONIC ACID (PFBS)		0.5	U		0.5	U		0.52	J	P	0.22	J	P
PERFLUORODECANOIC ACID (PFDA)		0.5	U		0.5	U		0.5	U		0.5	U	
PERFLUORODODECANOIC ACID (PFDOA)		0.5	U		0.5	U		0.5	U		0.5	UJ	N
PERFLUOROHEPTANOIC ACID (PFHPA)		0.5	U		0.5	U		0.5	U		0.5	U	
PERFLUOROHEXANESULFONIC ACID (PFHXS)		0.4	U		0.4	U		2.57	J	P	0.72	J	P
PERFLUOROHEXANOIC ACID (PFHXA)		0.5	U		0.5	U		0.5	U		0.34	J	NP
PERFLUORONONANOIC ACID (PFNA)		1	U		1	U		1	U		1	U	
PERFLUOROOCTANESULFONIC ACID (PFOS)		0.5	U		0.5	U		0.73	J	P	0.5	U	
PERFLUOROTETRADECANOIC ACID (PFTEA)		1	U		1	U		1	U		1	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		0.5	U		0.5	U		0.5	U		0.5	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		1	U		1	U		1	U		1	UJ	N

PROJ_NO: 08005-ML41 SDG: 18-0334 FRACTION: PFAS MEDIA: WATER	NSAMPLE	09-GW014-051718-D			09-GW015-051718			09-TW013-051718		
	LAB_ID	J6223-FS			J6225-FS			J6224-FS		
	SAMP_DATE	5/17/2018			5/17/2018			5/17/2018		
	QC_TYPE	FD			NM			NM		
	UNITS	NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF	09-GW014-051718								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		1	U		1	U		1	UJ	N
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		2	U		2	U		2	UJ	N
PENTADECAFLUOROOCTANOIC ACID (PFOA)		0.5	U	A	0.5	U		8.36		
PERFLUOROBUTANESULFONIC ACID (PFBS)		0.35	J	P	0.5	U		14.64		
PERFLUORODECANOIC ACID (PFDA)		0.5	U		0.5	U		0.43	J	P
PERFLUORODODECANOIC ACID (PFDOA)		0.5	U		0.5	U		0.5	U	
PERFLUOROHEPTANOIC ACID (PFHPA)		0.5	U		0.5	U		2.73	J	P
PERFLUOROHEXANESULFONIC ACID (PFHXS)		0.79	J	P	0.4	U		15.01		
PERFLUOROHEXANOIC ACID (PFHXA)		0.37	J	P	0.5	U		5.89		
PERFLUORONONANOIC ACID (PFNA)		1	U		1	U		1.55	J	P
PERFLUOROOCTANESULFONIC ACID (PFOS)		0.5	U		0.5	U		72.04		
PERFLUOROTETRADECANOIC ACID (PFTEA)		1	U		1	U		1	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		0.5	U		0.5	U		0.5	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		1	U		1	U		1	U	

PROJ_NO: 08005-ML41 SDG: 18-0349 FRACTION: PFAS MEDIA: WATER	NSAMPLE	09-FRB-051718		
	LAB_ID	J6227-FS		
	SAMP_DATE	5/17/2018		
	QC_TYPE	RB		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		0.93	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		1.85	U	
PENTADECALUOROOCTANOIC ACID (PFOA)		0.57	JX	AP
PERFLUOROBUTANESULFONIC ACID (PFBS)		0.61	JX	AP
PERFLUORODECANOIC ACID (PFDA)		0.46	U	
PERFLUORODODECANOIC ACID (PFDOA)		0.46	U	
PERFLUOROHEPTANOIC ACID (PFHPA)		0.18	JX	AP
PERFLUOROHEXANESULFONIC ACID (PFHXS)		3.56	JX	AP
PERFLUOROHEXANOIC ACID (PFHXA)		2.33	JX	AP
PERFLUORONONANOIC ACID (PFNA)		0.29	JX	AP
PERFLUOROOCTANESULFONIC ACID (PFOS)		21.86	JX	A
PERFLUOROTETRADECANOIC ACID (PFTEA)		0.93	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		0.46	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		0.93	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Client ID	09-GW014-051718			
Battelle ID	J6222-FS			
Sample Type	SA			
Collection Date	05/17/2018			
Extraction Date	05/24/2018			
Analysis Date	05/30/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	GW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.34 J	0.19	0.50	5.00
PFHpA	0.16 U	0.16	0.50	5.00
PFOA	0.23 J	0.18	0.50	5.00
PFNA	0.26 U	0.26	1.00	5.00
PFDA	0.16 U	0.16	0.50	5.00
PFUnA	0.29 U	0.29	1.00	5.00
PFDoA	0.18 U	0.18	0.50	5.00
PFTTrDA	0.15 U	0.15	0.50	5.00
PFTeDA	0.25 U	0.25	1.00	5.00
NMeFOSAA	0.56 U	0.56	2.00	5.00
NEtFOSAA	0.49 U	0.49	1.00	5.00
PFBS	0.22 J	0.13	0.50	5.00
PFHxS	0.72 J	0.11	0.40	5.00
PFOS	0.19 U	0.19	0.50	5.00

Surrogate Recoveries (%)

13C5-PFHxA	48 N
13C4-PFHpA	55
13C8-PFOA	53
13C9-PFNA	52
13C6-PFDA	50
13C7-PFUnA	39 N
13C2-PFDoA	39 N
13C2-PFTeDA	50
d3-MeFOSAA	36 N
d5-EtFOSAA	32 N
13C3-PFBS	73
13C3-PFHxS	59
13C8-PFOS	57



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Client ID	09-FD-051718-01			
Battelle ID	J6223-FS			
Sample Type	SA			
Collection Date	05/17/2018			
Extraction Date	05/24/2018			
Analysis Date	05/30/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	GW			
Sample Size	0.250			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.37 J	0.19	0.50	5.00
PFHpA	0.16 U	0.16	0.50	5.00
PFOA	0.19 J	0.18	0.50	5.00
PFNA	0.26 U	0.26	1.00	5.00
PFDA	0.16 U	0.16	0.50	5.00
PFUnA	0.29 U	0.29	1.00	5.00
PFDoA	0.18 U	0.18	0.50	5.00
PFTeDA	0.15 U	0.15	0.50	5.00
PFTeDA	0.25 U	0.25	1.00	5.00
NMeFOSAA	0.56 U	0.56	2.00	5.00
NEtFOSAA	0.49 U	0.49	1.00	5.00
PFBS	0.35 J	0.13	0.50	5.00
PFHxS	0.79 J	0.11	0.40	5.00
PFOS	0.19 U	0.19	0.50	5.00

Surrogate Recoveries (%)

13C5-PFHxA	106
13C4-PFHpA	108
13C8-PFOA	102
13C9-PFNA	100
13C6-PFDA	91
13C7-PFUnA	76
13C2-PFDoA	67
13C2-PFTeDA	73
d3-MeFOSAA	67
d5-EtFOSAA	64
13C3-PFBS	128
13C3-PFHxS	112
13C8-PFOS	103



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Client ID	09-TW013-051718			
Battelle ID	J6224-FS			
Sample Type	SA			
Collection Date	05/17/2018			
Extraction Date	05/24/2018			
Analysis Date	05/30/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	GW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	5.89	0.19	0.50	5.00
PFHpA	2.73 J	0.16	0.50	5.00
PFOA	8.36	0.18	0.50	5.00
PFNA	1.55 J	0.26	1.00	5.00
PFDA	0.43 J	0.16	0.50	5.00
PFUnA	0.29 U	0.29	1.00	5.00
PFDoA	0.18 U	0.18	0.50	5.00
PFTeDA	0.15 U	0.15	0.50	5.00
PFTeDA	0.25 U	0.25	1.00	5.00
NMeFOSAA	0.56 U	0.56	2.00	5.00
NEtFOSAA	0.49 U	0.49	1.00	5.00
PFBS	14.64	0.13	0.50	5.00
PFHxS	15.01	0.11	0.40	5.00
PFOS	72.04	0.19	0.50	5.00

Surrogate Recoveries (%)

13C5-PFHxA	102
13C4-PFHpA	127
13C8-PFOA	103
13C9-PFNA	103
13C6-PFDA	106
13C7-PFUnA	96
13C2-PFDoA	69
13C2-PFTeDA	60
d3-MeFOSAA	22 N
d5-EtFOSAA	47 N
13C3-PFBS	86
13C3-PFHxS	75
13C8-PFOS	80



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Client ID	09-GW015-051718			
Battelle ID	J6225-FS			
Sample Type	SA			
Collection Date	05/17/2018			
Extraction Date	05/24/2018			
Analysis Date	05/30/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	GW			
Sample Size	0.270			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.19 U	0.19	0.50	5.00
PFHpA	0.16 U	0.16	0.50	5.00
PFOA	0.18 U	0.18	0.50	5.00
PFNA	0.26 U	0.26	1.00	5.00
PFDA	0.16 U	0.16	0.50	5.00
PFUnA	0.29 U	0.29	1.00	5.00
PFDoA	0.18 U	0.18	0.50	5.00
PFTTrDA	0.15 U	0.15	0.50	5.00
PFTeDA	0.25 U	0.25	1.00	5.00
NMeFOSAA	0.56 U	0.56	2.00	5.00
NEtFOSAA	0.49 U	0.49	1.00	5.00
PFBS	0.13 U	0.13	0.50	5.00
PFHxS	0.11 U	0.11	0.40	5.00
PFOS	0.19 U	0.19	0.50	5.00

Surrogate Recoveries (%)

13C5-PFHxA	117
13C4-PFHpA	115
13C8-PFOA	114
13C9-PFNA	99
13C6-PFDA	102
13C7-PFUnA	100
13C2-PFDoA	81
13C2-PFTeDA	100
d3-MeFOSAA	74
d5-EtFOSAA	65
13C3-PFBS	129
13C3-PFHxS	110
13C8-PFOS	94



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Client ID	09-EB-GW-051718			
Battelle ID	J6226-FS			
Sample Type	SA			
Collection Date	05/17/2018			
Extraction Date	05/24/2018			
Analysis Date	05/30/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	QC			
Sample Size	0.270			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.19 U	0.19	0.50	5.00
PFHpA	0.16 U	0.16	0.50	5.00
PFOA	0.18 U	0.18	0.50	5.00
PFNA	0.26 U	0.26	1.00	5.00
PFDA	0.16 U	0.16	0.50	5.00
PFUnA	0.29 U	0.29	1.00	5.00
PFDaA	0.18 U	0.18	0.50	5.00
PFTTrDA	0.15 U	0.15	0.50	5.00
PFTeDA	0.25 U	0.25	1.00	5.00
NMeFOSAA	0.56 U	0.56	2.00	5.00
NEtFOSAA	0.49 U	0.49	1.00	5.00
PFBS	0.13 U	0.13	0.50	5.00
PFHxS	0.11 U	0.11	0.40	5.00
PFOS	0.19 U	0.19	0.50	5.00

Surrogate Recoveries (%)

13C5-PFHxA	99
13C4-PFHpA	113
13C8-PFOA	125
13C9-PFNA	112
13C6-PFDA	108
13C7-PFUnA	103
13C2-PFDaA	111
13C2-PFTeDA	81
d3-MeFOSAA	91
d5-EtFOSAA	93
13C3-PFBS	103
13C3-PFHxS	93
13C8-PFOS	105



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Client ID	09-GW013-051718			
Battelle ID	J6228-FS			
Sample Type	SA			
Collection Date	05/17/2018			
Extraction Date	05/24/2018			
Analysis Date	05/30/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	GW			
Sample Size	0.270			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.19 U	0.19	0.50	5.00
PFHpA	0.16 U	0.16	0.50	5.00
PFOA	0.18 U	0.18	0.50	5.00
PFNA	0.26 U	0.26	1.00	5.00
PFDA	0.16 U	0.16	0.50	5.00
PFUnA	0.29 U	0.29	1.00	5.00
PFDoA	0.18 U	0.18	0.50	5.00
PFTeDA	0.15 U	0.15	0.50	5.00
PFTeDA	0.25 U	0.25	1.00	5.00
NMeFOSAA	0.56 U	0.56	2.00	5.00
NEtFOSAA	0.49 U	0.49	1.00	5.00
PFBS	0.52 J	0.13	0.50	5.00
PFHxS	2.57 J	0.11	0.40	5.00
PFOS	0.73 J	0.19	0.50	5.00

Surrogate Recoveries (%)

13C5-PFHxA	117
13C4-PFHpA	116
13C8-PFOA	117
13C9-PFNA	102
13C6-PFDA	115
13C7-PFUnA	100
13C2-PFDoA	91
13C2-PFTeDA	86
d3-MeFOSAA	80
d5-EtFOSAA	67
13C3-PFBS	132
13C3-PFHxS	120
13C8-PFOS	102



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Client ID	09-GW012-051718				
Battelle ID	J6229-FS				
Sample Type	SA				
Collection Date	05/17/2018				
Extraction Date	05/24/2018				
Analysis Date	05/30/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	GW				
Sample Size	0.270				
Size Unit-Basis	L				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.19 U	0.19	0.50	5.00	
PFHpA	0.16 U	0.16	0.50	5.00	
PFOA	0.18 U	0.18	0.50	5.00	
PFNA	0.26 U	0.26	1.00	5.00	
PFDA	0.16 U	0.16	0.50	5.00	
PFUnA	0.29 U	0.29	1.00	5.00	
PFDoA	0.18 U	0.18	0.50	5.00	
PFTTrDA	0.15 U	0.15	0.50	5.00	
PFTeDA	0.25 U	0.25	1.00	5.00	
NMeFOSAA	0.56 U	0.56	2.00	5.00	
NEtFOSAA	0.49 U	0.49	1.00	5.00	
PFBS	0.13 U	0.13	0.50	5.00	
PFHxS	0.11 U	0.11	0.40	5.00	
PFOS	0.19 U	0.19	0.50	5.00	

Surrogate Recoveries (%)

13C5-PFHxA	122
13C4-PFHpA	121
13C8-PFOA	119
13C9-PFNA	114
13C6-PFDA	104
13C7-PFUnA	87
13C2-PFDoA	70
13C2-PFTeDA	73
d3-MeFOSAA	81
d5-EtFOSAA	65
13C3-PFBS	135
13C3-PFHxS	112
13C8-PFOS	110



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID 09-FRB-051718

Battelle ID	J6227-FS			
Sample Type	SA			
Collection Date	05/17/2018			
Extraction Date	06/05/2018			
Analysis Date	06/08/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	QC			
Sample Size	0.270			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	2.33 JT	0.19	0.50	5.00
PFHpA	0.18 JT	0.16	0.50	5.00
PFOA	0.57 JT	0.18	0.50	5.00
PFNA	0.29 JT	0.26	1.00	5.00
PFDA	0.16 UT	0.16	0.50	5.00
PFUnA	0.29 UT	0.29	1.00	5.00
PFDoA	0.18 UT	0.18	0.50	5.00
PFTTrDA	0.15 UT	0.15	0.50	5.00
PFTeDA	0.25 UT	0.25	1.00	5.00
NMeFOSAA	0.56 UT	0.56	2.00	5.00
NEtFOSAA	0.49 UT	0.49	1.00	5.00
PFBS	0.61 JT	0.13	0.50	5.00
PFHxS	3.56 JT	0.11	0.40	5.00
PFOS	21.86 BT	0.19	0.50	5.00

Surrogate Recoveries (%)

13C5-PFHxA	119
13C4-PFHpA	119
13C8-PFOA	126
13C9-PFNA	119
13C6-PFDA	124
13C7-PFUnA	113
13C2-PFDoA	108
13C2-PFTeDA	82
d3-MeFOSAA	100
d5-EtFOSAA	107
13C3-PFBS	119
13C3-PFHxS	122
13C8-PFOS	117

APPENDIX C

SUPPORT DOCUMENTATION

NSA CRANE
SDG 18-0334

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

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	09-TW013-051718
Laboratory Sample ID	J6224
Sample Size (L)	0.265
Dilution Factor	2
PIV (L)	0.0005
PFOS Area	5048071.49
IS Area	10058.19
IS Amount (ng/L)	95.5
Calibration Curve	y = 2.49909 x + 3.36861
Concentration (ng/L)	71.89

$$(((5048071.49/10058.19)-3.36861)/2.49909)*95.5*0.0005*2/0.265$$

Sample Name	J6224-FS(3)	Injection Vial	20
Sample ID	09-TW013-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T22:43:36	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	Signal/Noise Ratio	Modified
PFBS_1	298.9 / 80.0	1.51	844997.91	3880.566749	92.8	true
PFBS_2	298.9 / 99.0	1.50	102497.86	1495.610900	110.5	false
PFHxA_1	313.0 / 269.0	1.78	470732.72	1559.959387	67.2	false
PFHxA_2	313.0 / 119.0	1.78	24326.40	1165.034998	75.5	false
PFHpA_1	363.0 / 319.0	2.15	152115.98	722.245917	60.3	true
PFHpA_2	363.0 / 169.0	2.13	3711.86	889.573579	68.6	false
PFHxS_1	399.0 / 80.0	2.17	2327352.34	3977.893827	202.7	false
PFHxS_2	399.0 / 99.0	2.17	627700.42	3668.258879	327.6	false
PFOA_1	413.0 / 369.0	2.52	512627.35	2216.134625	71.2	true
PFOA_2	413.0 / 169.0	2.51	50915.27	3404.543973	129.8	true
PFNA_1	463.0 / 419.0	2.90	102754.16	411.254752	71.5	false
PFNA_2	463.0 / 219.0	2.90	29445.08	402.802788	101.9	false
PFOS_1	499.0 / 80.0	2.89	5048071.49	19090.214738	311.8	false
PFOS_2	499.0 / 99.0	2.90	870999.32	18058.850251	542.3	false
PFDA_1	513.0 / 469.0	3.23	37507.12	113.842824	85.2	true
PFDA_2	513.0 / 219.0	3.23	1779.22	139.172484	57.1	false
PFUnA_1	563.0 / 519.0	3.54	4081.22	9.519533	18.7	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	3.56	324.83	2.523630	29.4	false
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	true

Sample Name	J6224-FS(3)	Injection Vial	20
Sample ID	09-TW013-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T22:43:36	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	IS	IS MRM Transition	IS Area	IS Conc. (ng/L)
PFBS_1	298.9 / 80.0	1.51	13C3-PFBS	302.0 / 99.0	11467.44	92.90
PFBS_2	298.9 / 99.0	1.50	13C3-PFBS	302.0 / 99.0	11467.44	92.90
PFHxA_1	313.0 / 269.0	1.78	13C5-PFHxA	318.0 / 273.0	44058.12	100.00
PFHxA_2	313.0 / 119.0	1.78	13C5-PFHxA	318.0 / 273.0	44058.12	100.00
PFHpA_1	363.0 / 319.0	2.15	13C4-PFHpA	367.0 / 322.0	37963.88	100.00
PFHpA_2	363.0 / 169.0	2.13	13C4-PFHpA	367.0 / 322.0	37963.88	100.00
PFHxS_1	399.0 / 80.0	2.17	13C3-PFHxS	402.0 / 99.0	21784.05	94.60
PFHxS_2	399.0 / 99.0	2.17	13C3-PFHxS	402.0 / 99.0	21784.05	94.60
PFOA_1	413.0 / 369.0	2.52	13C8-PFOA	421.0 / 376.0	34593.03	100.00
PFOA_2	413.0 / 169.0	2.51	13C8-PFOA	421.0 / 376.0	34593.03	100.00
PFNA_1	463.0 / 419.0	2.90	13C9-PFNA	472.0 / 427.0	37439.73	100.00
PFNA_2	463.0 / 219.0	2.90	13C9-PFNA	472.0 / 427.0	37439.73	100.00
PFOS_1	499.0 / 80.0	2.89	13C8-PFOS	507.0 / 99.0	10058.19	95.70
PFOS_2	499.0 / 99.0	2.90	13C8-PFOS	507.0 / 99.0	10058.19	95.70
PFDA_1	513.0 / 469.0	3.23	13C6-PFDA	519.0 / 474.0	45425.05	100.00
PFDA_2	513.0 / 219.0	3.23	13C6-PFDA	519.0 / 474.0	45425.05	100.00
PFUnA_1	563.0 / 519.0	3.54	13C7-PFUnA	570.0 / 525.0	42625.49	100.00
PFUnA_2	563.0 / 269.0	N/A	13C7-PFUnA	570.0 / 525.0	42625.49	100.00
PFDaA_1	613.0 / 569.0	N/A	13C2-PFDaA	615.0 / 570.0	34002.72	100.00
PFDaA_2	613.0 / 319.0	N/A	13C2-PFDaA	615.0 / 570.0	34002.72	100.00
PFTeDA_1	663.0 / 619.0	N/A	13C2-PFTeDA	715.0 / 670.0	25897.82	100.00
PFTeDA_2	663.0 / 169.0	N/A	13C2-PFTeDA	715.0 / 670.0	25897.82	100.00
PFTeDA_1	713.0 / 669.0	N/A	13C2-PFTeDA	715.0 / 670.0	25897.82	100.00
PFTeDA_2	713.0 / 169.0	N/A	13C2-PFTeDA	715.0 / 670.0	25897.82	100.00
NMeFOSAA_1	570.0 / 419.0	N/A	d3-MeFOSAA	573.0 / 419.0	2293.57	100.00
NMeFOSAA_2	570.0 / 512.0	N/A	d3-MeFOSAA	573.0 / 419.0	2293.57	100.00
NEtFOSAA_1	584.0 / 419.0	3.56	d5-EtFOSAA	589.0 / 419.0	5146.47	100.00
NEtFOSAA_2	584.0 / 483.0	N/A	d5-EtFOSAA	589.0 / 419.0	5146.47	100.00

NSA CRANE
SDG 18-0334

LABORATORY CONTROL SAMPLE

	Result	Target	Calculation	Recovery	Reported Recovery	QC Limits
PFHxA	10.25	10.1	$10.25/10.1*100$	101.49	101	51-137

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

	Result	Target	Calculation	Recovery	Reported Recovery	RPD	Reported RPD	QC Limits	RPD Limit
PFHxA	0.34								
09-GW-014-051718	28.65	29.13	$(28.65-0.34)/29.13*100$	97.19	97			51-137	
MS	28.6	29.13	$(28.6-0.34)/29.13*100$	97.01338826	97	0.2	0	51-137	30
MSD									

JAS 10/23/18

ANALYTE	ORIGINAL	DUPLICATE	RL	RPD	RPD >50%
PERFLUOROBUTANESULFONIC ACID (PFBS)	0.22	0.35	5	45.61	FALSE
PERFLUOROHEXANESULFONIC ACID (PFHXS)	0.72	0.79	5	9.27	FALSE
PERFLUOROHEXANOIC ACID (PFHXA)	0.34	0.37	5	8.45	FALSE

SDG 18-0334

09-FD-051718-01/09-GW014-051718

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



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: J6224-FS(3)
 Client Sample ID: 09-TW013-051718
 Sample Size: 0.265
 Units: L
 Dilution Factor: 2
 PIV (L): 0.0005
 Target Analyte: PFDA
 MRM Transition: 513.0 / 469.0
 Data file: 18-0334_18-0339.wiff
 Result table: 18-0334_BASE
 Area: 37,507.12
 IS Name: 13C6-PFDA
 IS Area: 45,425.05
 IS Amount (ng/L): 100
 y-intercept: 0.02327
 slope: 0.70485

$$\text{Concentration} = \frac{[(37507.12/45425.05) - 0.02327]}{0.70485} * 100 * 0.0005 * 2 / 0.265$$

$$\text{ng/L} = 0.43$$



NUMBER

PAGE 1 OF 15

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE)

YELLOW (FIELD COPY)

PINK (FILE COPY)



It can be done

ShpNo SHP-180521-01

Battelle Project No:

Sample Receipt Form Details

Approved: ☐ Authorized ☐

Project Number: 112G08005-ML4144

Client: Tetrattech

Received by: Schumitz, Matt

Date/Time Received: Saturday, May 19, 2018 12:00 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:
J6222	09-GW014-051718	05/17/18 10:55	05/21/18 9:31	6	GW	1.2	NA	NA	NA	R0118 (NA)			MS-MSD
J6223	09-FD-051718-01	05/17/18 11:00	05/21/18 9:31	2	GW	1.2	NA	NA	NA	R0118 (NA)			
J6224	09-TW013-051718	05/17/18 12:35	05/21/18 9:32	2	GW	1.2	NA	NA	NA	R0118 (NA)			
J6225	09-GW015-051718	05/17/18 14:20	05/21/18 9:32	2	GW	1.2	NA	NA	NA	R0118 (NA)			
J6226	09-EB-GW-051718	05/17/18 9:20	05/21/18 9:32	1	QC	1.2	NA	NA	NA	R0118 (NA)			
J6227	09-FRB-051718	05/17/18 9:40	05/21/18 9:33	1	QC	1.2	NA	NA	NA	R0118 (NA)			
J6228	09-GW013-051718	05/17/18 11:35	05/21/18 9:33	2	GW	1.2	NA	NA	NA	R0118 (NA)			
J6229	09-GW012-051718	05/17/18 15:50	05/21/18 9:34	2	GW	1.2	NA	NA	NA	R0118 (NA)			

Total Samples: 8

QA/QC Summary
Batch 18-0334

Project:	CTO-ML4144: Naval Support Activity Crane, Indiana
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	GW, QC
Data Set:	DP-18-0126
Analytical SOP:	5-369
Method Reference:	PFAS to QSM 5.1 Table B-15

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
5/17/2018	5/19/2018	1.2

Corrective Actions	None.
Sample Storage	The samples were stored refrigerated until extraction.
Related samples	Related field blank is extracted and reported in SDG 18-0349.

	METHOD SUMMARIES
Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a weak ion exchange solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were split and concentrated to dryness under nitrogen with a water bath set between 35 °C and 45 °C, reconstituted with 80:20 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	None.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on Sciex 5500 LC-MS/MS. The confirmation ion ratio was above 50% RPD for the following samples and analytes: Procedural Blank (CQ842PB) – PFBS, PFHxA, PFHpA, PFOS, PFUnA, and NMeFOSAA (all detected below the MDL, except PFOS, which was below the LOD). 09-GW014-051718 (J6222) – PFHpA, PFOA, PFDA, and NEtFOSAA (all detected below the MDL, except PFOA, which was below the LOD). 09-FD-051718-01 (J6223) – PFOA, PFNA, PFOS, PFDA, PFUnA, PFTrDA, PFTeDA, and NEtFOSAA (all detected below the MDL, except PFOA, which was below the LOD). 09-TW013-051718 (J6224) – PFBS, PFOA, PFUnA, and NEtFOSAA (PFUnA and NEtFOSAA detected below the MDL) 09-GW015-051718 (J6225) – PFHxS, PFOA, and NEtFOSAA (all detected below the MDL)

QA/QC Summary
Batch 18-0334

	09-EB-GW-051718 (J6226) – PFBS, NMeFOSAA, and NEtFOSAA (all detected below the MDL) 09-GW013-051718 (J6228) – PFOS (detected below the LOQ) 09-GW012-051718 (J6229) – PFOS (detected below the MDL)	
Holding Times	Extraction Date(s)	Analysis Date(s)
	5/24/2018	5/30 and 6/4/2018
Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.	
$\leq \frac{1}{2}$ the LOQ	No exceedances noted.	
Samples >10x PB	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.	
Laboratory derived control limits for recovery	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.	
Laboratory derived control limits for recovery, RPD $\leq$ 30%	No exceedances noted. No comments.	
Extracted Internal Standard Analytes	Labelled analog compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.	
50-150% of true value	7 exceedances noted. Two samples had low recoveries: 09-GW014-051718 for 13C5-PFHxA, 13C7-PFUnA, 13C2-PFDoA, d3-MeFOSAA, and d5-EtFOSAA; 09-TW013-051718 for d3-MeFOSAA and d5-EtFOSAA. Extracts were re-run with similar results. Remaining surrogates for these samples all pass criteria.	
Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadratic curve fitting.	
+/- 30% of true value, $R^2 \geq 0.99$	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.	

QA/QC Summary
Batch 18-0334

+/- 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.
+/- 30% of true value	No exceedances noted.
	No comments.
Instrument Blank (IB)	Immediately following the highest standard analyzed and daily prior to sample analysis.
$\leq \frac{1}{2}$ the LOQ	No exceedances noted.
	No comments.



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project Number: 100118096-ML4144
 Preparation Batch: 18-0334
 Data Set: DP-18-0126
 Test Code: Master_369

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)	7	Two samples had low recoveries: 09-GW014-051718 for 13C5-PFHxA, 13C7-PFUnA, 13C2-PFDoA, d3-MeFOSAA, and d5-EtFOSAA; 09-TW013-051718 for d3-MeFOSAA and d5-EtFOSAA. Extracts were re-run with similar results.
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-ML4144: Naval Support Activity Cr	Data Set Number:	DP-18-0126
Project Number:	100118096-ML4144	Prep Batch Number:	18-0334
Entered By:	Denise Schumitz	Entered On:	06/05/2018
Test Code (Matrix Type):	Master_369(L)		

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
DMS 4/12/2018

JV28 is not being used in method 18-0334_SIS for NMeFOSAA. There is no impact on the data once this point is removed from the calibration.
DMS 6/5/2018

JV20, JV21 and JV22 are not being used in method 18-0334_BASE for PFOS. There is no impact on the data once this point is removed from the calibration.
DMS 6/5/2018

JV28 is not being used in method 18-0334_BASE for PFTrDA, PFTeDA and NMeFOSAA. There is no impact on the data once this point is removed from the calibration.
DMS 6/5/2018

Some of the SIS recoveries for the original run in sample's J6222, J6222MSD, J6223 and J6224 were outside of passing criteria. These samples were re-aliquoted and run to confirm the results. J6222MSD and J6223 are being reported from the rerun, J6222 and J6224 are being reported from the original run.
DMS 6/5/2018

JV20 in method 18-0334_BASE has ion ratios of >50% for PFHpA and PFUnA.
DMS 6/5/2018

JV21 in method 18-0334_BASE has ion ratios of >50% for PFHpA .
DMS 6/5/2018

JV05 IB in method 18-0334_BASE has ion ratios of >50% for PFBS, PFHxA, PFHpA, PFDA and PFTrDA.
DMS 6/5/2018

CQ842PB in method 18-0334_BASE has ion ratios of >50% for PFBS, PFHxA, PFHpA, PFOS, PFUnA and NMeFOSAA.
DMS 6/5/2018

J6222 in method 18-0334_BASE has ion ratios of >50% for PFHpA, PFOA, PFDA and NEtFOSAA.
DMS 6/5/2018

J6223 in method 18-0334_BASE has ion ratios of >50% for PFOA, PFNA, PFOS, PFDA, PFUnA, PFTrDA, PFTeDA and NEtFOSAA.
DMS 6/5/2018

J6224 in method 18-0334_BASE has ion ratios of >50% for PFBS, PFOA, PFUnA, and NEtFOSAA.
DMS 6/5/2018

J6225 in method 18-0334_BASE has ion ratios of >50% for PFHxS, PFOA, and NEtFOSAA.
DMS 6/5/2018

J6226 in method 18-0334_BASE has ion ratios of >50% for PFBS, NMeFOSAA, and NEtFOSAA.
DMS 6/5/2018

J6228 in method 18-0334_BASE has ion ratios of >50% for PFOS.
DMS 6/5/2018

Task Leader Approval:

Supervisor Approval:

PM Approval:



It can be done

BATTELLE - NORWELL OPERATIONS MISCELLANEOUS DOCUMENTATION FORM

Project Title: CTO-ML4144: Naval Support Activity Cr **Data Set Number:** DP-18-0126
Project Number: 100118096-ML4144 **Prep Batch Number:** 18-0334
Entered By: Denise Schumitz **Entered On:** 06/05/2018
Test Code (Matrix Type): Master_369(L)

J6229 in method 18-0334_BASE has ion ratios of >50% for PFOS.
DMS 6/5/2018

Task Leader Approval:

Supervisor Approval:

PM Approval:

A handwritten signature in black ink, appearing to be "Jonathan Thorn", written over a horizontal line.

Digitally signed by Jonathan
Thorn

Date: 2018.06.08 09:16:52 -04'00'



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Preparation Batch: 18-0334

Data Set: DP-18-0126

	CQ842PB-FS (Procedural Blank)	CQ843LCS-FS (Laboratory Control Sample)	J6222MS-FS (09-GW014-051718)	J6222MSD-FS (09-GW014-051718)	J6222-FS (09-GW014-051718)	J6223-FS (09-FD-051718-01)	J6224-FS (09-TW013-051718)	J6225-FS (09-GW015-051718)
PFHxA	-	L	L	L	-	-	L	-
PFHpA	-	L	L	L	-	-	-	-
PFOA	-	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	-
PFHxS	-	L	L	L	-	-	L	-
PFOS	-	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-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Preparation Batch: 18-0334

Data Set: DP-18-0:

	J6226-FS (09-EB-GW-051718)	J6228-FS (09-GW013-051718)	J6229-FS (09-GW012-051718)
PFHxA	-	-	-
PFHpA	-	-	-
PFOA	-	-	-
PFNA	-	-	-
PFDA	-	-	-
PFUnA	-	-	-
PFDoA	-	-	-
PFTTrDA	-	-	-
PFTeDA	-	-	-
NMeFOSAA	-	-	-
NEtFOSAA	-	-	-
PFBS	-	-	-
PFHxS	-	-	-
PFOS	-	-	-

"L": Linear

"Br": branched

"L/Br": Linear/Branched

"-": Not detected



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, MDL reported



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper
JV24	L5	5/30/18 20:01	13C2-PFOA	44,742.64	22,371.32	67,113.96

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier
JV20	L1	5/30/18 19:18	13C2-PFOA	39,583.61	22,371.32	67,113.96	
JV21	L2	5/30/18 19:29	13C2-PFOA	44,329.09	22,371.32	67,113.96	
JV22	L3	5/30/18 19:39	13C2-PFOA	46,078.73	22,371.32	67,113.96	
JV23	L4	5/30/18 19:50	13C2-PFOA	49,111.47	22,371.32	67,113.96	
JV24	L5	5/30/18 20:01	13C2-PFOA	44,742.64	22,371.32	67,113.96	
JV25	L6	5/30/18 20:12	13C2-PFOA	41,903.13	22,371.32	67,113.96	
JV26	L7	5/30/18 20:23	13C2-PFOA	41,373.58	22,371.32	67,113.96	
JV27	L8	5/30/18 20:33	13C2-PFOA	49,163.86	22,371.32	67,113.96	
JV28	L9	5/30/18 20:44	13C2-PFOA	40,299.64	22,371.32	67,113.96	
JV05 IB	Instrument Blank	5/30/18 20:55	13C2-PFOA	44,094.15	22,371.32	67,113.96	
JW32ICC	ICC	5/30/18 21:06	13C2-PFOA	41,337.14	22,371.32	67,113.96	
CQ842PB-FS(3)	Procedural Blank	5/30/18 21:38	13C2-PFOA	41,898.25	22,371.32	67,113.96	
CQ843LCS-FS(3)	Laboratory Control Sample	5/30/18 21:49	13C2-PFOA	32,512.16	22,371.32	67,113.96	
J6222-FS(3)	09-GW014-051718	5/30/18 22:00	13C2-PFOA	38,379.91	22,371.32	67,113.96	
J6222MS-FS(3)	09-GW014-051718	5/30/18 22:11	13C2-PFOA	37,448.07	22,371.32	67,113.96	
J6222MSD-FS(3)	09-GW014-051718	5/30/18 22:22	13C2-PFOA	27,934.39	22,371.32	67,113.96	
J6223-FS(3)	09-FD-051718-01	5/30/18 22:32	13C2-PFOA	35,257.00	22,371.32	67,113.96	
J6224-FS(3)	09-TW013-051718	5/30/18 22:43	13C2-PFOA	25,185.36	22,371.32	67,113.96	
J6225-FS(3)	09-GW015-051718	5/30/18 22:54	13C2-PFOA	27,306.07	22,371.32	67,113.96	
JV25 CCV	CCV	5/30/18 23:05	13C2-PFOA	46,532.93	22,371.32	67,113.96	
J6226-FS(3)	09-EB-GW-051718	5/30/18 23:26	13C2-PFOA	34,862.31	22,371.32	67,113.96	
J6228-FS(3)	09-GW013-051718	5/30/18 23:37	13C2-PFOA	31,650.79	22,371.32	67,113.96	
J6229-FS(3)	09-GW012-051718	5/30/18 23:48	13C2-PFOA	28,957.65	22,371.32	67,113.96	
JV26 CCV	CCV	5/30/18 23:59	13C2-PFOA	45,816.37	22,371.32	67,113.96	



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper
JV24	L5	5/30/18 20:01	13C2-PFDA	51,007.91	25,503.96	76,511.87

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier
JV20	L1	5/30/18 19:18	13C2-PFDA	37,366.93	25,503.96	76,511.87	
JV21	L2	5/30/18 19:29	13C2-PFDA	47,619.29	25,503.96	76,511.87	
JV22	L3	5/30/18 19:39	13C2-PFDA	44,728.98	25,503.96	76,511.87	
JV23	L4	5/30/18 19:50	13C2-PFDA	51,540.81	25,503.96	76,511.87	
JV24	L5	5/30/18 20:01	13C2-PFDA	51,007.91	25,503.96	76,511.87	
JV25	L6	5/30/18 20:12	13C2-PFDA	43,767.12	25,503.96	76,511.87	
JV26	L7	5/30/18 20:23	13C2-PFDA	44,479.24	25,503.96	76,511.87	
JV27	L8	5/30/18 20:33	13C2-PFDA	53,831.70	25,503.96	76,511.87	
JV28	L9	5/30/18 20:44	13C2-PFDA	43,726.41	25,503.96	76,511.87	
JV05 IB	Instrument Blank	5/30/18 20:55	13C2-PFDA	48,229.56	25,503.96	76,511.87	
JW32ICC	ICC	5/30/18 21:06	13C2-PFDA	48,340.67	25,503.96	76,511.87	
CQ842PB-FS(3)	Procedural Blank	5/30/18 21:38	13C2-PFDA	45,800.83	25,503.96	76,511.87	
CQ843LCS-FS(3)	Laboratory Control Sample	5/30/18 21:49	13C2-PFDA	40,395.42	25,503.96	76,511.87	
J6222-FS(3)	09-GW014-051718	5/30/18 22:00	13C2-PFDA	36,999.81	25,503.96	76,511.87	
J6222MS-FS(3)	09-GW014-051718	5/30/18 22:11	13C2-PFDA	43,126.04	25,503.96	76,511.87	
J6222MSD-FS(3)	09-GW014-051718	5/30/18 22:22	13C2-PFDA	30,566.06	25,503.96	76,511.87	
J6223-FS(3)	09-FD-051718-01	5/30/18 22:32	13C2-PFDA	37,778.22	25,503.96	76,511.87	
J6224-FS(3)	09-TW013-051718	5/30/18 22:43	13C2-PFDA	31,803.87	25,503.96	76,511.87	
J6225-FS(3)	09-GW015-051718	5/30/18 22:54	13C2-PFDA	26,412.60	25,503.96	76,511.87	
JV25 CCV	CCV	5/30/18 23:05	13C2-PFDA	44,576.89	25,503.96	76,511.87	
J6226-FS(3)	09-EB-GW-051718	5/30/18 23:26	13C2-PFDA	42,098.45	25,503.96	76,511.87	
J6228-FS(3)	09-GW013-051718	5/30/18 23:37	13C2-PFDA	33,230.62	25,503.96	76,511.87	
J6229-FS(3)	09-GW012-051718	5/30/18 23:48	13C2-PFDA	34,557.36	25,503.96	76,511.87	
JV26 CCV	CCV	5/30/18 23:59	13C2-PFDA	42,191.52	25,503.96	76,511.87	



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper
JV24	L5	5/30/18 20:01	13C4-PFOS	12,147.32	6,073.66	18,220.98

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier
JV20	L1	5/30/18 19:18	13C4-PFOS	9,387.42	6,073.66	18,220.98	
JV21	L2	5/30/18 19:29	13C4-PFOS	11,622.78	6,073.66	18,220.98	
JV22	L3	5/30/18 19:39	13C4-PFOS	13,405.00	6,073.66	18,220.98	
JV23	L4	5/30/18 19:50	13C4-PFOS	12,425.77	6,073.66	18,220.98	
JV24	L5	5/30/18 20:01	13C4-PFOS	12,147.32	6,073.66	18,220.98	
JV25	L6	5/30/18 20:12	13C4-PFOS	11,657.77	6,073.66	18,220.98	
JV26	L7	5/30/18 20:23	13C4-PFOS	12,208.14	6,073.66	18,220.98	
JV27	L8	5/30/18 20:33	13C4-PFOS	10,640.25	6,073.66	18,220.98	
JV28	L9	5/30/18 20:44	13C4-PFOS	7,724.08	6,073.66	18,220.98	
JV05 IB	Instrument Blank	5/30/18 20:55	13C4-PFOS	10,538.73	6,073.66	18,220.98	
JW32ICC	ICC	5/30/18 21:06	13C4-PFOS	11,323.61	6,073.66	18,220.98	
CQ842PB-FS(3)	Procedural Blank	5/30/18 21:38	13C4-PFOS	11,572.67	6,073.66	18,220.98	
CQ843LCS-FS(3)	Laboratory Control Sample	5/30/18 21:49	13C4-PFOS	7,476.28	6,073.66	18,220.98	
J6222-FS(3)	09-GW014-051718	5/30/18 22:00	13C4-PFOS	10,921.19	6,073.66	18,220.98	
J6222MS-FS(3)	09-GW014-051718	5/30/18 22:11	13C4-PFOS	10,073.14	6,073.66	18,220.98	
J6222MSD-FS(3)	09-GW014-051718	5/30/18 22:22	13C4-PFOS	8,612.49	6,073.66	18,220.98	
J6223-FS(3)	09-FD-051718-01	5/30/18 22:32	13C4-PFOS	11,777.73	6,073.66	18,220.98	
J6224-FS(3)	09-TW013-051718	5/30/18 22:43	13C4-PFOS	9,140.49	6,073.66	18,220.98	
J6225-FS(3)	09-GW015-051718	5/30/18 22:54	13C4-PFOS	8,028.36	6,073.66	18,220.98	
JV25 CCV	CCV	5/30/18 23:05	13C4-PFOS	11,998.81	6,073.66	18,220.98	
J6226-FS(3)	09-EB-GW-051718	5/30/18 23:26	13C4-PFOS	10,652.54	6,073.66	18,220.98	
J6228-FS(3)	09-GW013-051718	5/30/18 23:37	13C4-PFOS	9,049.70	6,073.66	18,220.98	
J6229-FS(3)	09-GW012-051718	5/30/18 23:48	13C4-PFOS	8,757.70	6,073.66	18,220.98	
JV26 CCV	CCV	5/30/18 23:59	13C4-PFOS	12,071.24	6,073.66	18,220.98	



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper
JV24	L5	6/4/18 20:17	13C2-PFOA	39,157.28	19,578.64	58,735.92

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier
JV20	L1	6/4/18 19:34	13C2-PFOA	36,025.71	19,578.64	58,735.92	
JV21	L2	6/4/18 19:44	13C2-PFOA	41,305.46	19,578.64	58,735.92	
JV22	L3	6/4/18 19:55	13C2-PFOA	39,696.51	19,578.64	58,735.92	
JV23	L4	6/4/18 20:06	13C2-PFOA	41,933.78	19,578.64	58,735.92	
JV24	L5	6/4/18 20:17	13C2-PFOA	39,157.28	19,578.64	58,735.92	
JV25	L6	6/4/18 20:28	13C2-PFOA	34,745.43	19,578.64	58,735.92	
JV26	L7	6/4/18 20:38	13C2-PFOA	37,482.32	19,578.64	58,735.92	
JV27	L8	6/4/18 20:49	13C2-PFOA	39,448.92	19,578.64	58,735.92	
JV28	L9	6/4/18 21:00	13C2-PFOA	49,167.01	19,578.64	58,735.92	
JV05 IB	Instrument Blank	6/4/18 21:11	13C2-PFOA	47,155.38	19,578.64	58,735.92	
JW32 ICC	ICC	6/4/18 21:22	13C2-PFOA	36,978.40	19,578.64	58,735.92	
J6222MSD-FS(3)	09-GW014-051718	6/4/18 22:05	13C2-PFOA	31,738.10	19,578.64	58,735.92	
J6223-FS(3)	09-FD-051718-01	6/4/18 22:15	13C2-PFOA	38,822.62	19,578.64	58,735.92	
JV26 CCV	CCV	6/4/18 22:37	13C2-PFOA	37,829.12	19,578.64	58,735.92	



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper
JV24	L5	6/4/18 20:17	13C2-PFDA	42,059.81	21,029.91	63,089.72

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier
JV20	L1	6/4/18 19:34	13C2-PFDA	36,585.13	21,029.91	63,089.72	
JV21	L2	6/4/18 19:44	13C2-PFDA	46,517.99	21,029.91	63,089.72	
JV22	L3	6/4/18 19:55	13C2-PFDA	42,933.86	21,029.91	63,089.72	
JV23	L4	6/4/18 20:06	13C2-PFDA	46,846.52	21,029.91	63,089.72	
JV24	L5	6/4/18 20:17	13C2-PFDA	42,059.81	21,029.91	63,089.72	
JV25	L6	6/4/18 20:28	13C2-PFDA	40,285.95	21,029.91	63,089.72	
JV26	L7	6/4/18 20:38	13C2-PFDA	39,548.90	21,029.91	63,089.72	
JV27	L8	6/4/18 20:49	13C2-PFDA	42,034.21	21,029.91	63,089.72	
JV28	L9	6/4/18 21:00	13C2-PFDA	50,011.35	21,029.91	63,089.72	
JV05 IB	Instrument Blank	6/4/18 21:11	13C2-PFDA	45,688.99	21,029.91	63,089.72	
JW32 ICC	ICC	6/4/18 21:22	13C2-PFDA	40,307.55	21,029.91	63,089.72	
J6222MSD-FS(3)	09-GW014-051718	6/4/18 22:05	13C2-PFDA	34,850.82	21,029.91	63,089.72	
J6223-FS(3)	09-FD-051718-01	6/4/18 22:15	13C2-PFDA	42,281.32	21,029.91	63,089.72	
JV26 CCV	CCV	6/4/18 22:37	13C2-PFDA	41,268.66	21,029.91	63,089.72	



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper
JV24	L5	6/4/18 20:17	13C4-PFOS	9,929.06	4,964.53	14,893.59

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier
JV20	L1	6/4/18 19:34	13C4-PFOS	9,879.32	4,964.53	14,893.59	
JV21	L2	6/4/18 19:44	13C4-PFOS	10,935.81	4,964.53	14,893.59	
JV22	L3	6/4/18 19:55	13C4-PFOS	10,528.19	4,964.53	14,893.59	
JV23	L4	6/4/18 20:06	13C4-PFOS	11,797.48	4,964.53	14,893.59	
JV24	L5	6/4/18 20:17	13C4-PFOS	9,929.06	4,964.53	14,893.59	
JV25	L6	6/4/18 20:28	13C4-PFOS	9,996.33	4,964.53	14,893.59	
JV26	L7	6/4/18 20:38	13C4-PFOS	7,985.50	4,964.53	14,893.59	
JV27	L8	6/4/18 20:49	13C4-PFOS	8,829.65	4,964.53	14,893.59	
JV28	L9	6/4/18 21:00	13C4-PFOS	10,068.11	4,964.53	14,893.59	
JV05 IB	Instrument Blank	6/4/18 21:11	13C4-PFOS	10,925.06	4,964.53	14,893.59	
JW32 ICC	ICC	6/4/18 21:22	13C4-PFOS	9,949.35	4,964.53	14,893.59	
J6222MSD-FS(3)	09-GW014-051718	6/4/18 22:05	13C4-PFOS	8,841.13	4,964.53	14,893.59	
J6223-FS(3)	09-FD-051718-01	6/4/18 22:15	13C4-PFOS	11,174.39	4,964.53	14,893.59	
JV26 CCV	CCV	6/4/18 22:37	13C4-PFOS	7,626.80	4,964.53	14,893.59	

Sample Name	JV27	Injection Vial	9
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 8:33:58 PM	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.51	51	>10
PFBS_2	298.9 / 99.0	1.51	57	>10
PFHxA_1	313.0 / 269.0	1.80	25	>10
PFHxA_2	313.0 / 119.0	1.80	29	>10
PFHpA_1	363.0 / 319.0	2.16	33	>10
PFHpA_2	363.0 / 169.0	2.16	28	>10
PFHxS_1	399.0 / 80.0	2.18	59	>10
PFHxS_2	399.0 / 99.0	2.18	68	>10
PFOA_1	413.0 / 369.0	2.54	34	>10
PFOA_2	413.0 / 169.0	2.54	35	>10
PFNA_1	463.0 / 419.0	2.92	32	>10
PFNA_2	463.0 / 219.0	2.92	34	>10
PFOS_1	499.0 / 80.0	2.91	61	>10
PFOS_2	499.0 / 99.0	2.91	40	>10
PFDA_1	513.0 / 469.0	3.27	36	>10
PFDA_2	513.0 / 219.0	3.27	50	>10
PFUnA_1	563.0 / 519.0	3.59	31	>10
PFUnA_2	563.0 / 269.0	3.59	39	>10
PFDoA_1	613.0 / 569.0	3.88	36	>10
PFDoA_2	613.0 / 319.0	3.88	49	>10
PFTTrDA_1	663.0 / 619.0	4.13	38	>10
PFTTrDA_2	663.0 / 169.0	4.13	39	>10
PFTeDA_1	713.0 / 669.0	4.35	48	>10
PFTeDA_2	713.0 / 169.0	4.35	51	>10
NMeFOSAA_1	570.0 / 419.0	3.43	59	>10
NMeFOSAA_2	570.0 / 512.0	3.43	42	>10
NEtFOSAA_1	584.0 / 419.0	3.59	35	>10
NEtFOSAA_2	584.0 / 483.0	3.59	27	>10

Sample Name	JV26	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 8:23:10 PM	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
13C2-PFDoA	615.0 / 570.0	3.86	31	>10
d3-MeFOSAA	573.0 / 419.0	3.42	23	>10
d5-EtFOSAA	589.0 / 419.0	3.58	36	>10
13C5-PFHxA	318.0 / 273.0	1.79	33	>10
13C4-PFHpA	367.0 / 322.0	2.15	23	>10
13C8-PFOA	421.0 / 376.0	2.53	28	>10
13C9-PFNA	472.0 / 427.0	2.91	28	>10
13C6-PFDA	519.0 / 474.0	3.25	38	>10
13C7-PFUnA	570.0 / 525.0	3.57	28	>10
13C2-PFTeDA	715.0 / 670.0	4.34	38	>10
13C3-PFBS	302.0 / 99.0	1.49	34	>10
13C3-PFHxS	402.0 / 99.0	2.17	22	>10
13C8-PFOS	507.0 / 99.0	2.90	21	>10

Sample Name	JV26	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/4/2018 8:38:50 PM	Data File	06022018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334SIS_R
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
13C2-PFDoA	615.0 / 570.0	3.86	43	>10
d3-MeFOSAA	573.0 / 419.0	3.41	24	>10
d5-EtFOSAA	589.0 / 419.0	3.57	26	>10
13C5-PFHxA	318.0 / 273.0	1.77	28	>10
13C4-PFHpA	367.0 / 322.0	2.14	30	>10
13C8-PFOA	421.0 / 376.0	2.52	37	>10
13C9-PFNA	472.0 / 427.0	2.90	25	>10
13C6-PFDA	519.0 / 474.0	3.25	35	>10
13C7-PFUnA	570.0 / 525.0	3.57	30	>10
13C2-PFTeDA	715.0 / 670.0	4.33	21	>10
13C3-PFBS	302.0 / 99.0	1.48	35	>10
13C3-PFHxS	402.0 / 99.0	2.16	26	>10
13C8-PFOS	507.0 / 99.0	2.90	42	>10



Precision and Bias at the LOQ for PFAS in non-potable Water

Analyte	CAS No.	Average (ng/L)	ST DEV	3 Sigma	n
PFBA	375-22-4	12.44	2.29	6.87	10
PFPeA	2706-90-3	10.77	1.61	4.83	8
PFHxA	307-24-4	10.30	1.35	4.05	21
PFHpA	375-85-9	9.86	1.82	5.46	21
PFOA	335-67-1	10.54	1.52	4.56	22
PFNA	375-95-1	10.03	1.26	3.78	21
PFDA	335-76-2	10.41	1.51	4.53	21
PFUnA	2058-94-8	10.43	1.43	4.29	21
PFDoA	307-55-1	11.33	1.22	3.66	21
PFTTrDA	72629-94-8	11.88	1.57	4.71	21
PFTeDA	376-06-7	11.47	2.21	6.63	21
NMeFOSAA	2355-31-9	10.71	1.99	5.97	21
NEtFOSAA	2991-50-6	10.06	1.81	5.43	21
PFOSA	754-91-6	9.08	0.00	0.00	2
PFBS	375-73-5	10.62	1.58	4.74	22
PFPeS	BDO-2114	9.60	1.07	3.21	3
PFHxS	355-46-4	10.12	1.70	5.10	21
PFHpS	375-99-6	11.00	1.02	3.06	8
PFOS	1763-23-1	10.26	1.55	4.65	22
PFNS	98789-57-2	8.81	0.35	1.05	3
PFDS	2806-15-7	10.24	1.97	5.91	8
4:2FTS	BDO-2205	11.24	1.16	3.48	8
6:2FTS	27619-97-2	12.37	3.07	9.21	8
8:2FTS	39108-34-4	12.30	2.64	7.92	8

BATTELLE DETECTION LIMITS FOR PFAS IN NON-POTABLE WATER

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Analytical SOP 5-369

Extraction SOP 5-370

PFAS by LC-MS/MS Compliant with QSM 5.1 Compliant Table B-15

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)
PFBA	375-22-4	0.14	0.5	5.0
PFPeA	2706-90-3	0.31	1.0	5.0
PFHxA	307-24-4	0.19	0.5	5.0
PFHpA	375-85-9	0.16	0.5	5.0
PFOA	335-67-1	0.18	0.5	5.0
PFNA	375-95-1	0.26	1.0	5.0
PFDA	335-76-2	0.16	0.5	5.0
PFUnA	2058-94-8	0.29	1.0	5.0
PFDoA	307-55-1	0.18	0.5	5.0
PFTTrDA	72629-94-8	0.15	0.5	5.0
PFTeDA	376-06-7	0.25	1.0	5.0
NMeFOSAA	2355-31-9	0.56	2.0	5.0
NEtFOSAA	2991-50-6	0.49	1.0	5.0
PFOSA	754-91-6	TBD	TBD	TBD
PFBS	375-73-5	0.13	0.5	5.0
PFPeS	BDO-2114	0.67	2.5	5.0
PFHxS	355-46-4	0.11	0.4	5.0
PFHpS	375-99-6	0.20	0.5	5.0
PFOS	1763-23-1	0.19	0.5	5.0
PFNS	98789-57-2	0.46	1.0	5.0
PFDS	2806-15-7	0.17	0.5	5.0
4:2FTS	BDO-2205	0.14	0.5	5.0
6:2FTS	27619-97-2	1.36	2.5	5.0
8:2FTS	39108-34-4	0.22	0.5	5.0

Analytes on NELAP and ELAP QSM 5.1 Scope of accreditation

Analytical Transitions for PFAS in non-potable water, solid, and tissue

EPA 537 MOD DoD QSM 5.1 compliant with Table B-15 requirements

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
PFBA	375-22-4	Target	213.0 / 169.0	NA
PFPeA	2706-90-3	Target	263.0 / 219.0	NA
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
PFDaA	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
PFOSA	754-91-6	Target	498.0 / 78.0	498.0 / 83.0
PFBS	375-73-5	Target	299.0 / 80.0	299.0 / 99.0
PFPeS	BDO-2114	Target	349.0 / 99.0	249.0 / 80.0
PFHxS	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
PFHpS	375-99-6	Target	449.0 / 80.0	449.0 / 99.0
PFOS	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
PFNS	98789-57-2	Target	549.0 / 99.0	549.0 / 80.0
PFDS	2806-15-7	Target	599.0 / 80.0	599.0 / 99.0
4:2FTS	BDO-2205	Target	327.0 / 307.0	327.0 / 80.0
6:2FTS	27619-97-2	Target	427.0 / 407.0	427.0 / 81.0
8:2FTS	39108-34-4	Target	527.0 / 507.0	527.0 / 487.0
13C4-PFBA	BDO-2105	SIS ¹	217.0 / 172.0	NA
13C5-PFPeA	BDO-2216	SIS ¹	268.0 / 223.0	NA
13C5-PFHxA	BDO-2217	SIS ¹	318.0 / 273.0	NA

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
13C4-PFH _p A	BDO-2218	SIS ¹	367.0 / 322.0	NA
13C8-PFOA	BDO-2219	SIS ¹	421.0 / 376.0	NA
13C9-PFNA	BDO-2221	SIS ¹	472.0 / 427.0	NA
13C6-PFDA	BDO-2222	SIS ¹	519.0 / 474.0	NA
13C7-PFUnA	BDO-2223	SIS ¹	570.0 / 525.0	NA
13C2-PFDoA	BDO-2112	SIS ¹	615.0 / 570.0	NA
13C2-PFTeDA	BDO-2224	SIS ¹	715.0 / 670.0	NA
d3-MeFOSAA	BDO-1838	SIS ¹	573.0 / 419.0	NA
d5-EtFOSAA	BDO-1839	SIS ¹	589.0 / 419.0	NA
13C8-FOSA	BDO-2225	SIS ¹	506.0 / 78.0	NA
13C3-PFBS	BDO-2226	SIS ¹	302.0 / 99.0	NA
13C3-PFH _x S	BDO-2227	SIS ¹	402.0 / 99.0	NA
13C8-PFOS	BDO-2228	SIS ¹	507.0 / 99.0	NA
13C2-4:2FTS	BDO-2229	SIS ¹	329.0 / 81.0	NA
13C2-6:2FTS	BDO-2230	SIS ¹	429.0 / 81.0	NA
13C2-8:2FTS	BDO-2220	SIS ¹	529.0 / 81.0	NA
13C3-PFBA	BDO-2231	IS ²	216.0 / 172.0	NA
13C2-PFOA	BDO-2107	IS ²	415.0 / 370.0	NA
13C2-PFDA	BDO-2110	IS ²	515.0 / 470.0	NA
13C4-PFOS	BDO-2121	IS ²	503.0 / 99.0	NA

¹ – extracted internal standard (surrogate)

² – injection internal standard

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

QTRAP 5500 Preventive Maintenance Checklist

Preventive Maintenance Date:	22-Feb-2017
Request ID:	3683
Company Name:	Battelle Memorial Institute
Instrument ID:	X60666
Instrument Model:	QTRAP 5500
Instrument Serial Number:	AU23051004

☒ **PASS**

☐ **FAIL**

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

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

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

Comments: _____

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

Approved By : _____ **Date:** _____

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PRE PM PPG PERFORMANCE EVALUATION:

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

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

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

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

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

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

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

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

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

**Zef Scientific Inc.**

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Phone: 1.866.854.7988

QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

POST PM PPG PERFORMANCE TESTS:

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

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

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

Mass	Q1 Intensity		Q1 Width 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	≥7.2 e6	0.1302	<0.35
ER 922.010	0.05	3.89 e7	≥2.8 e6	0.2603	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05	2.55 e7	≥2.4 e7	0.3740	<0.65
ER 922.010	0.05	2.37 e8	≥6.8 e7	0.5407	<0.65

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

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

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

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

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

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

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



It can be done

BATTELLE - NORWELL OPERATIONS LIQUID SAMPLE ID FORM

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.

Project No.(s)

100118096-
ML4144

18-0334

Non-Potable Water PFAS Analysis GW, QC

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CQ842PB-FS	Procedural Blank	250.0	NA	--	05/24/18 SAS
CQ843LCS-FS	Laboratory Control Sample	250.0	NA	--	05/24/18 SAS
J6222-FS	09-GW014-051718	265.0	1	C	05/24/18 SAS
J6222MS-FS	Matrix Spike	260.0	3	C	05/24/18 SAS
J6222MSD-FS	Matrix Spike Duplicate	260.0	5	C	05/24/18 SAS
J6223-FS	09-FD-051718-01	250.0	1	C	05/24/18 SAS
J6224-FS	09-TW013-051718	265.0	1	C	05/24/18 SAS
J6225-FS	09-GW015-051718	270.0	1	C	05/24/18 SAS
J6226-FS	09-EB-GW-051718	270.0	1	C	05/24/18 SAS
J6228-FS	09-GW013-051718	270.0	1	C	05/24/18 SAS
J6229-FS	09-GW012-051718	270.0	1	C	05/24/18 SAS

Comments:

Samples Assigned By

Stephanie Schultz

Date :

May 24, 2018

* - "C" = Sample is Consumed



It can be done

BATTELLE - NORWELL OPERATIONS SURROGATE SPIKE FORM

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.

Project No.(s)

100118096-
ML4144

18-0334

Non-Potable Water PFAS Analysis GW, QC

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CQ842PB-FS	JV83	SIS	1	50	05/24/18 SAS	SG	NA
CQ843LCS-FS	JV83	SIS	1	50	05/24/18 SAS	SG	NA
CQ843LCS-FS	JW44	LCS/MS	1	50	05/24/18 SAS	SG	NA
J6222-FS	JV83	SIS	1	50	05/24/18 SAS	SG	NA
J6222MS-FS	JV83	SIS	1	50	05/24/18 SAS	SG	NA
J6222MS-FS	JW44	LCS/MS	1	150	05/24/18 SAS	SG	NA
J6222MSD-FS	JV83	SIS	1	50	05/24/18 SAS	SG	NA
J6222MSD-FS	JW44	LCS/MS	1	150	05/24/18 SAS	SG	NA
J6223-FS	JV83	SIS	1	50	05/24/18 SAS	SG	NA
J6224-FS	JV83	SIS	1	50	05/24/18 SAS	SG	NA
J6225-FS	JV83	SIS	1	50	05/24/18 SAS	SG	NA
J6226-FS	JV83	SIS	1	50	05/24/18 SAS	SG	NA
J6228-FS	JV83	SIS	1	50	05/24/18 SAS	SG	NA
J6229-FS	JV83	SIS	1	50	05/24/18 SAS	SG	NA

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV83	Pipette	I0793912B
JW44	Pipette	B1100287B
JW44	Pipette	I0793912B



It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE EXTRACTION FORM

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.

Project No.(s)

100118096-
ML4144

18-0334

Non-Potable Water PFAS Analysis GW, QC

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CQ842PB-FS	05/24/18 SAS	NA	NA	NA	NA	NA	NA	NA
CQ843LCS-FS	05/24/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6222-FS	05/24/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6222MS-FS	05/24/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6222MSD-FS	05/24/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6223-FS	05/24/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6224-FS	05/24/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6225-FS	05/24/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6226-FS	05/24/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6228-FS	05/24/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6229-FS	05/24/18 SAS	NA	NA	NA	NA	NA	NA	NA

Solvents/Reagent Preparations:

Name	ID	Expires	Lot No	Procedure	Comments
0.4% NH3 in Methanol	RP-180524-3	05/24/18	SHBG7156V	Per 100 mL, dilute 3.5 mL NH3 to 100 mL in Methanol	
0.4% NH3 in Methanol	RP-180524-3	05/24/18	177965	Per 100 mL, dilute 3.5 mL NH3 to 100 mL in Methanol	
Pre-packed SPE Column	RP-180524-5	05/24/18	003737320A	Pre-packed SPE Column	

Solvents/Reagents:

It can be done**BATTELLE - NORWELL OPERATIONS
INTERNAL STANDARD SPIKING FORM****Project Title(s)**CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.**Project No.(s)**100118096-
ML4144**18-0334****Non-Potable Water PFAS Analysis
GW, QC****(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	With'd By
CQ842PB-FS(3)	475	25	JW02	25	1	500	2.000*	05/29/18 SAS	SG
CQ843LCS-FS(3)	475	25	JW02	25	1	500	2.000	05/29/18 SAS	SG
J6222-FS(3)	475	25	JW02	25	1	500	2.000	05/29/18 SAS	SG
J6222MS-FS(3)	475	25	JW02	25	1	500	2.000	05/29/18 SAS	SG
J6222MSD-FS(3)	475	25	JW02	25	1	500	2.000	05/29/18 SAS	SG
J6223-FS(3)	475	25	JW02	25	1	500	2.000	05/29/18 SAS	SG
J6224-FS(3)	475	25	JW02	25	1	500	2.000	05/29/18 SAS	SG
J6225-FS(3)	475	25	JW02	25	1	500	2.000	05/29/18 SAS	SG
J6226-FS(3)	475	25	JW02	25	1	500	2.000	05/29/18 SAS	SG
J6228-FS(3)	475	25	JW02	25	1	500	2.000	05/29/18 SAS	SG
J6229-FS(3)	475	25	JW02	25	1	500	2.000	05/29/18 SAS	SG

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JW02	Pipette	I0793912B

Extract Id:	Comments:
CQ842PB-FS	Samples reconstituted in 80/20 methanol/milli-q water (RP-180529-6)

* - 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-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.(s)100118096-
ML4144**18-0334****Non-Potable Water PFAS Analysis****GW, QC**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CQ842PB-FS	0	C	5/24/2018 1:55:00 PM	NA		NA	NA	1.000	1.000	05/24/18 SAS
CQ842PB-FS	2	--	5/24/2018 4:34:00 PM	CQ842PB-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
CQ842PB-FS	3	--	5/24/2018 4:34:00 PM	CQ842PB-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
CQ843LCS-FS	0	C	5/24/2018 1:55:00 PM	NA		NA	NA	1.000	1.000	05/24/18 SAS
CQ843LCS-FS	2	--	5/24/2018 4:34:00 PM	CQ843LCS-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
CQ843LCS-FS	3	--	5/24/2018 4:34:00 PM	CQ843LCS-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6222-FS	0	C	5/24/2018 1:55:00 PM	NA		NA	NA	1.000	1.000	05/24/18 SAS
J6222-FS	2	--	5/24/2018 4:34:00 PM	J6222-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6222-FS	3	--	5/24/2018 4:34:00 PM	J6222-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6222MS-FS	0	C	5/24/2018 1:55:00 PM	NA		NA	NA	1.000	1.000	05/24/18 SAS
J6222MS-FS	2	--	5/24/2018 4:34:00 PM	J6222MS-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6222MS-FS	3	--	5/24/2018 4:34:00 PM	J6222MS-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6222MSD-FS	0	C	5/24/2018 1:55:00 PM	NA		NA	NA	1.000	1.000	05/24/18 SAS
J6222MSD-FS	2	--	5/24/2018 4:34:00 PM	J6222MSD-FS	0	10000	5000	2.000	2.000	05/24/18 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 PREPARATION EXTRACT SPLIT FORM

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.(s)100118096-
ML4144**18-0334****Non-Potable Water PFAS Analysis****GW, QC**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
J6222MSD-FS	3	--	5/24/2018 4:34:00 PM	J6222MSD-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6223-FS	0	C	5/24/2018 1:55:00 PM	NA		NA	NA	1.000	1.000	05/24/18 SAS
J6223-FS	2	--	5/24/2018 4:34:00 PM	J6223-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6223-FS	3	--	5/24/2018 4:34:00 PM	J6223-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6224-FS	0	C	5/24/2018 1:55:00 PM	NA		NA	NA	1.000	1.000	05/24/18 SAS
J6224-FS	2	--	5/24/2018 4:34:00 PM	J6224-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6224-FS	3	--	5/24/2018 4:34:00 PM	J6224-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6225-FS	0	C	5/24/2018 1:55:00 PM	NA		NA	NA	1.000	1.000	05/24/18 SAS
J6225-FS	2	--	5/24/2018 4:34:00 PM	J6225-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6225-FS	3	--	5/24/2018 4:34:00 PM	J6225-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6226-FS	0	C	5/24/2018 1:55:00 PM	NA		NA	NA	1.000	1.000	05/24/18 SAS
J6226-FS	2	--	5/24/2018 4:34:00 PM	J6226-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6226-FS	3	--	5/24/2018 4:34:00 PM	J6226-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6228-FS	0	C	5/24/2018 1:55:00 PM	NA		NA	NA	1.000	1.000	05/24/18 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 PREPARATION EXTRACT SPLIT FORM

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.(s)100118096-
ML4144**18-0334****Non-Potable Water PFAS Analysis****GW, QC**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
J6228-FS	2	--	5/24/2018 4:34:00 PM	J6228-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6228-FS	3	--	5/24/2018 4:34:00 PM	J6228-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6229-FS	0	C	5/24/2018 1:55:00 PM	NA		NA	NA	1.000	1.000	05/24/18 SAS
J6229-FS	2	--	5/24/2018 4:34:00 PM	J6229-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
J6229-FS	3	--	5/24/2018 4:34:00 PM	J6229-FS	0	10000	5000	2.000	2.000	05/24/18 SAS
Extract Id: CQ842PB-FS		Comments: Samples reconstituted in 80/20 methanol/milli-q water (RP-180529-6)								

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-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.

Project No.(s)

100118096-
ML4144

18-0334

Non-Potable Water PFAS Analysis GW, QC

Purpose: LC-MS/MS TRANSFER		Last Activity: Prep->Inst	
Relinquished On/By: May 30 2018 4:47PM SAS		Received On/By: May 30 2018 5:38PM 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	CQ842PB-FS(3)	500	2	Intact	NA
2	CQ843LCS-FS(3)	500	2	Intact	NA
3	J6222-FS(3)	500	2	Intact	NA
4	J6222MS-FS(3)	500	2	Intact	NA
5	J6222MSD-FS(3)	500	2	Intact	NA
6	J6223-FS(3)	500	2	Intact	NA
7	J6224-FS(3)	500	2	Intact	NA
8	J6225-FS(3)	500	2	Intact	NA
9	J6226-FS(3)	500	2	Intact	NA
10	J6228-FS(3)	500	2	Intact	NA
11	J6229-FS(3)	500	2	Intact	NA

Total Extracts: 11



It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE SPECIFIC COMMENTS

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.

Project No.(s)

100118096-
ML4144

18-0334

Non-Potable Water PFAS Analysis GW, QC

Sample ID:	Comment:	Date/Initials:
CQ842PB-FS	Sample extraction began at 1:55pm for all samples.	05/24/18 SAS
CQ842PB-FS	Sample extraction ended at 2:47pm	05/24/18 SAS
CQ843LCS-FS	Sample extraction ended at 2:45pm	05/24/18 SAS
J6222-FS	Sample some contained floating particulates.	05/24/18 SAS
J6222-FS	Sample extraction ended at 3:08pm	05/24/18 SAS
J6222MS-FS	Sample some contained floating particulates.	05/24/18 SAS
J6222MS-FS	Sample extraction ended at 3:07pm	05/24/18 SAS
J6222MSD-FS	Sample some contained floating particulates.	05/24/18 SAS
J6222MSD-FS	Sample extraction ended at 2:56pm	05/24/18 SAS
J6223-FS	Sample some contained floating particulates.	05/24/18 SAS
J6223-FS	Sample extraction ended at 3:00pm	05/24/18 SAS
J6224-FS	Sample some contained floating particulates.	05/24/18 SAS
J6224-FS	Sample extraction ended at 3:59pm	05/24/18 SAS
J6225-FS	Sample some contained floating particulates.	05/24/18 SAS
J6225-FS	Sample extraction ended at 3:11pm	05/24/18 SAS
J6226-FS	Sample extraction ended at 2:51pm	05/24/18 SAS
J6228-FS	Sample some contained floating particulates.	05/24/18 SAS
J6228-FS	Sample extraction ended at 2:51pm	05/24/18 SAS
J6229-FS	Sample some contained floating particulates.	05/24/18 SAS
J6229-FS	Sample extraction ended at 3:12pm	05/24/18 SAS



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Client ID	09-GW014-051718			
Battelle ID	J6222-FS			
Sample Type	SA			
Collection Date	05/17/2018			
Extraction Date	05/24/2018			
Analysis Date	05/30/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	GW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	0.34 J	0.19	0.50	5.00
PFHpA	0.16 U	0.16	0.50	5.00
PFOA	0.23 J	0.18	0.50	5.00
PFNA	0.26 U	0.26	1.00	5.00
PFDA	0.16 U	0.16	0.50	5.00
PFUnA	0.29 U	0.29	1.00	5.00
PFDoA	0.18 U	0.18	0.50	5.00
PFTTrDA	0.15 U	0.15	0.50	5.00
PFTeDA	0.25 U	0.25	1.00	5.00
NMeFOSAA	0.56 U	0.56	2.00	5.00
NEtFOSAA	0.49 U	0.49	1.00	5.00
PFBS	0.22 J	0.13	0.50	5.00
PFHxS	0.72 J	0.11	0.40	5.00
PFOS	0.19 U	0.19	0.50	5.00

Surrogate Recoveries (%)

13C5-PFHxA	48 N
13C4-PFHpA	55
13C8-PFOA	53
13C9-PFNA	52
13C6-PFDA	50
13C7-PFUnA	39 N
13C2-PFDoA	39 N
13C2-PFTeDA	50
d3-MeFOSAA	36 N
d5-EtFOSAA	32 N
13C3-PFBS	73
13C3-PFHxS	59
13C8-PFOS	57



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Client ID	09-TW013-051718			
Battelle ID	J6224-FS			
Sample Type	SA			
Collection Date	05/17/2018			
Extraction Date	05/24/2018			
Analysis Date	05/30/2018			
Analytical Instrument	Sciex 5500 LC/MS/MS			
% Moisture	NA			
Matrix	GW			
Sample Size	0.265			
Size Unit-Basis	L			
Units	ng/L	MDL	LOD	LOQ
PFHxA	5.89	0.19	0.50	5.00
PFHpA	2.73 J	0.16	0.50	5.00
PFOA	8.36	0.18	0.50	5.00
PFNA	1.55 J	0.26	1.00	5.00
PFDA	0.43 J	0.16	0.50	5.00
PFUnA	0.29 U	0.29	1.00	5.00
PFDoA	0.18 U	0.18	0.50	5.00
PFTeDA	0.15 U	0.15	0.50	5.00
PFTeDA	0.25 U	0.25	1.00	5.00
NMeFOSAA	0.56 U	0.56	2.00	5.00
NEtFOSAA	0.49 U	0.49	1.00	5.00
PFBS	14.64	0.13	0.50	5.00
PFHxS	15.01	0.11	0.40	5.00
PFOS	72.04	0.19	0.50	5.00

Surrogate Recoveries (%)

13C5-PFHxA	102
13C4-PFHpA	127
13C8-PFOA	103
13C9-PFNA	103
13C6-PFDA	106
13C7-PFUnA	96
13C2-PFDoA	69
13C2-PFTeDA	60
d3-MeFOSAA	22 N
d5-EtFOSAA	47 N
13C3-PFBS	86
13C3-PFHxS	75
13C8-PFOS	80



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Client ID	JV05 IB				
Battelle ID	JV05 IB_05/30/2018				
Sample Type	IB				
Collection Date	NA				
Extraction Date	NA				
Analysis Date	05/30/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	NA				
Sample Size	NA				
Size Unit-Basis	NA				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.19 U	0.19	0.50	5.00	
PFHpA	0.16 U	0.16	0.50	5.00	
PFOA	0.18 U	0.18	0.50	5.00	
PFNA	0.26 U	0.26	1.00	5.00	
PFDA	0.16 U	0.16	0.50	5.00	
PFUnA	0.29 U	0.29	1.00	5.00	
PFDoA	0.18 U	0.18	0.50	5.00	
PFTTrDA	0.15 U	0.15	0.50	5.00	
PFTeDA	0.25 U	0.25	1.00	5.00	
NMeFOSAA	0.56 U	0.56	2.00	5.00	
NEtFOSAA	0.49 U	0.49	1.00	5.00	
PFBS	0.13 U	0.13	0.50	5.00	
PFHxS	0.11 U	0.11	0.40	5.00	
PFOS	0.19 U	0.19	0.50	5.00	

Surrogate Recoveries (%)

13C5-PFHxA	70
13C4-PFHpA	74
13C8-PFOA	74
13C9-PFNA	73
13C6-PFDA	80
13C7-PFUnA	73
13C2-PFDoA	70
13C2-PFTeDA	70
d3-MeFOSAA	87
d5-EtFOSAA	78
13C3-PFBS	79
13C3-PFHxS	82
13C8-PFOS	80



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Client ID	Procedural Blank				
Battelle ID	CQ842PB-FS				
Sample Type	PB				
Collection Date	05/24/2018				
Extraction Date	05/24/2018				
Analysis Date	05/30/2018				
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	0.19 U	0.19	0.50	5.00	
PFHpA	0.16 U	0.16	0.50	5.00	
PFOA	0.19 J	0.18	0.50	5.00	
PFNA	0.26 U	0.26	1.00	5.00	
PFDA	0.16 U	0.16	0.50	5.00	
PFUnA	0.29 U	0.29	1.00	5.00	
PFDoA	0.18 U	0.18	0.50	5.00	
PFTTrDA	0.15 U	0.15	0.50	5.00	
PFTeDA	0.25 U	0.25	1.00	5.00	
NMeFOSAA	0.56 U	0.56	2.00	5.00	
NEtFOSAA	0.49 U	0.49	1.00	5.00	
PFBS	0.13 U	0.13	0.50	5.00	
PFHxS	0.11 U	0.11	0.40	5.00	
PFOS	0.19 U	0.19	0.50	5.00	

Surrogate Recoveries (%)

13C5-PFHxA	98
13C4-PFHpA	105
13C8-PFOA	106
13C9-PFNA	103
13C6-PFDA	99
13C7-PFUnA	95
13C2-PFDoA	81
13C2-PFTeDA	57
d3-MeFOSAA	89
d5-EtFOSAA	78
13C3-PFBS	92
13C3-PFHxS	90
13C8-PFOS	74



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Client ID	Laboratory Control Sample					
Battelle ID	CQ843LCS-FS					
Sample Type	LCS					
Collection Date	05/24/2018					
Extraction Date	05/24/2018					
Analysis Date	05/30/2018					
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	10.25	10.10	101		51	137
PFHpA	9.75	10.00	98		48	136
PFOA	11.15	10.00	112		49	141
PFNA	9.12	10.00	91		58	122
PFDA	9.59	10.00	96		59	135
PFUnA	10.26	10.00	103		64	134
PFDoA	10.73	10.00	107		75	131
PFTeDA	10.65	10.00	107		42	148
PFTeDA	10.51	10.00	105		42	158
NMeFOSAA	11.47	10.00	115		50	146
NEtFOSAA	8.90	10.00	89		51	131
PFBS	8.93	10.10	88		56	134
PFHxS	9.50	10.10	94		52	128
PFOS	10.83	10.00	108		40	144

Surrogate Recoveries (%)

13C5-PFHxA	110
13C4-PFHpA	111
13C8-PFOA	106
13C9-PFNA	116
13C6-PFDA	98
13C7-PFUnA	93
13C2-PFDoA	82
13C2-PFTeDA	67
d3-MeFOSAA	120
d5-EtFOSAA	128
13C3-PFBS	134
13C3-PFHxS	117
13C8-PFOS	123



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID	09-GW014-051718	09-GW014-051718						
Battelle ID	J6222-FS	J6222MS-FS						
Sample Type	SA	MS						
Collection Date	05/17/2018	05/17/2018						
Extraction Date	05/24/2018	05/24/2018						
Analysis Date	05/30/2018	05/30/2018						
Analytical Instrument	Sciex 5500 LC/MS/MS	Sciex 5500 LC/MS/MS						
% Moisture	NA	NA						
Matrix	GW	GW						
Sample Size	0.265	0.260						
Size Unit-Basis	L	L						
Units	ng/L	ng/L	Target	Recovery	Qual	Control Limits		
						Lower	Upper	
PFHxA	0.34 J	28.65	29.13	97		51	137	
PFHpA	0.16 U	28.97	28.85	100		48	136	
PFOA	0.23 J	28.70	28.85	99		49	141	
PFNA	0.26 U	29.34	28.85	102		58	122	
PFDA	0.16 U	28.18	28.85	98		59	135	
PFUnA	0.29 U	29.12	28.85	101		64	134	
PFDoA	0.18 U	34.23	28.85	119		75	131	
PFTeDA	0.15 U	27.35	28.85	95		42	148	
PFTeDA	0.25 U	29.97	28.85	104		42	158	
NMeFOSAA	0.56 U	29.82	28.85	103		50	146	
NEtFOSAA	0.49 U	35.29	28.85	122		51	131	
PFBS	0.22 J	28.06	29.13	96		56	134	
PFHxS	0.72 J	30.97	29.13	104		52	128	
PFOS	0.19 U	33.97	28.85	118		40	144	

Surrogate Recoveries (%)

13C5-PFHxA	48 N	97	
13C4-PFHpA	55	90	
13C8-PFOA	53	91	
13C9-PFNA	52	84	
13C6-PFDA	50	82	
13C7-PFUnA	39 N	74	
13C2-PFDoA	39 N	65	
13C2-PFTeDA	50	81	
d3-MeFOSAA	36 N	68	
d5-EtFOSAA	32 N	55	
13C3-PFBS	73	137	
13C3-PFHxS	59	93	
13C8-PFOS	57	91	



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID 09-GW014-051718

Battelle ID J6222MSD-FS
 Sample Type MSD
 Collection Date 05/17/2018
 Extraction Date 05/24/2018
 Analysis Date 05/30/2018
 Analytical Instrument Sciex 5500 LC/MS/MS
 % Moisture NA
 Matrix GW
 Sample Size 0.260
 Size Unit-Basis L

Units	ng/L	Target	Recovery	Qual	Control Limits		RPD	Qual	RPD Limit
					Lower	Upper			
PFHxA	28.60	29.13	97		51	137	0.0		≤ 30
PFHpA	24.35	28.85	84		48	136	17.4		≤ 30
PFOA	26.15	28.85	90		49	141	9.5		≤ 30
PFNA	27.47	28.85	95		58	122	7.1		≤ 30
PFDA	28.55	28.85	99		59	135	1.0		≤ 30
PFUnA	31.40	28.85	109		64	134	7.6		≤ 30
PFDoA	31.13	28.85	108		75	131	9.7		≤ 30
PFTeDA	26.05	28.85	90		42	148	5.4		≤ 30
PFTeDA	29.37	28.85	102		42	158	1.9		≤ 30
NMeFOSAA	28.53	28.85	99		50	146	4.0		≤ 30
NEtFOSAA	35.90	28.85	124		51	131	1.6		≤ 30
PFBS	28.19	29.13	96		56	134	0.0		≤ 30
PFHxS	31.76	29.13	107		52	128	2.8		≤ 30
PFOS	30.74	28.85	107		40	144	9.8		≤ 30

Surrogate Recoveries (%)

13C5-PFHxA	110
13C4-PFHpA	119
13C8-PFOA	106
13C9-PFNA	102
13C6-PFDA	103
13C7-PFUnA	84
13C2-PFDoA	78
13C2-PFTeDA	88
d3-MeFOSAA	72
d5-EtFOSAA	74
13C3-PFBS	135
13C3-PFHxS	99
13C8-PFOS	97

Sequence Report

Created with Analyst Reporter
Printed: 06/06/2018 8:10:17 PM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		5/30/2018 7:07:30 PM	5-0369.dam	18-0334_18-0339.wiff
2	JV20	L1	5/30/2018 7:18:19 PM	5-0369.dam	18-0334_18-0339.wiff
3	JV21	L2	5/30/2018 7:29:08 PM	5-0369.dam	18-0334_18-0339.wiff
4	JV22	L3	5/30/2018 7:39:56 PM	5-0369.dam	18-0334_18-0339.wiff
5	JV23	L4	5/30/2018 7:50:45 PM	5-0369.dam	18-0334_18-0339.wiff
6	JV24	L5	5/30/2018 8:01:34 PM	5-0369.dam	18-0334_18-0339.wiff
7	JV25	L6	5/30/2018 8:12:22 PM	5-0369.dam	18-0334_18-0339.wiff
8	JV26	L7	5/30/2018 8:23:10 PM	5-0369.dam	18-0334_18-0339.wiff
9	JV27	L8	5/30/2018 8:33:58 PM	5-0369.dam	18-0334_18-0339.wiff
10	JV28	L9	5/30/2018 8:44:46 PM	5-0369.dam	18-0334_18-0339.wiff
11	JV05 IB	Instrument Blank	5/30/2018 8:55:34 PM	5-0369.dam	18-0334_18-0339.wiff
12	JW32 ICC	ICC	5/30/2018 9:06:24 PM	5-0369.dam	18-0334_18-0339.wiff
13	JV16 Branch	Branch Standard	5/30/2018 9:17:12 PM	5-0369.dam	18-0334_18-0339.wiff
1	MeOH		5/30/2018 9:28:00 PM	5-0369.dam	18-0334_18-0339.wiff
14	CQ842PB-FS(3)	Procedural Blank	5/30/2018 9:38:48 PM	5-0369.dam	18-0334_18-0339.wiff
15	CQ843LCS-FS(3)	Laboratory Control Sample	5/30/2018 9:49:37 PM	5-0369.dam	18-0334_18-0339.wiff
16	J6222-FS(3)	09-GW014-051718	5/30/2018 10:00:25 PM	5-0369.dam	18-0334_18-0339.wiff
17	J6222MS-FS(3)	09-GW014-051718	5/30/2018 10:11:13 PM	5-0369.dam	18-0334_18-0339.wiff
18	J6222MSD-FS(3)	09-GW014-051718	5/30/2018 10:22:01 PM	5-0369.dam	18-0334_18-0339.wiff
19	J6223-FS(3)	09-FD-051718-01	5/30/2018 10:32:49 PM	5-0369.dam	18-0334_18-0339.wiff
20	J6224-FS(3)	09-TW013-051718	5/30/2018 10:43:36 PM	5-0369.dam	18-0334_18-0339.wiff
21	J6225-FS(3)	09-GW015-051718	5/30/2018 10:54:26 PM	5-0369.dam	18-0334_18-0339.wiff
7	JV25 CCV	CCV	5/30/2018 11:05:14 PM	5-0369.dam	18-0334_18-0339.wiff
1	MeOH		5/30/2018 11:16:03 PM	5-0369.dam	18-0334_18-0339.wiff
22	J6226-FS(3)	09-EB-GW-051718	5/30/2018 11:26:52 PM	5-0369.dam	18-0334_18-0339.wiff
23	J6228-FS(3)	09-GW013-051718	5/30/2018 11:37:41 PM	5-0369.dam	18-0334_18-0339.wiff
24	J6229-FS(3)	09-GW012-051718	5/30/2018 11:48:28	5-0369.dam	18-0334_18-0339.wiff



Sequence Report

Created with Analyst Reporter
Printed: 06/06/2018 8:10:17 PM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
			PM		
8	JV26 CCV	CCV	5/30/2018 11:59:16 PM	5-0369.dam	18-0334_18-0339.wiff

Sequence Report

Created with Analyst Reporter
Printed: 05/06/2018 2:37:02 PM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		6/4/2018 7:23:13 PM	5-0369.dam	06022018.wiff
2	JV20	L1	6/4/2018 7:34:02 PM	5-0369.dam	06022018.wiff
3	JV21	L2	6/4/2018 7:44:51 PM	5-0369.dam	06022018.wiff
4	JV22	L3	6/4/2018 7:55:39 PM	5-0369.dam	06022018.wiff
5	JV23	L4	6/4/2018 8:06:27 PM	5-0369.dam	06022018.wiff
6	JV24	L5	6/4/2018 8:17:14 PM	5-0369.dam	06022018.wiff
7	JV25	L6	6/4/2018 8:28:02 PM	5-0369.dam	06022018.wiff
8	JV26	L7	6/4/2018 8:38:50 PM	5-0369.dam	06022018.wiff
9	JV27	L8	6/4/2018 8:49:37 PM	5-0369.dam	06022018.wiff
10	JV28	L9	6/4/2018 9:00:25 PM	5-0369.dam	06022018.wiff
11	JV05 IB	Instrument Blank	6/4/2018 9:11:14 PM	5-0369.dam	06022018.wiff
12	JW32 ICC	ICC	6/4/2018 9:22:01 PM	5-0369.dam	06022018.wiff
13	JV16 Branch	Branch Standard	6/4/2018 9:32:48 PM	5-0369.dam	06022018.wiff
14	MeOH		6/4/2018 9:43:36 PM	5-0369.dam	06022018.wiff
15	J6222-FS(3)	09-GW014-051718	6/4/2018 9:54:23 PM	5-0369.dam	06022018.wiff
16	J6222MSD-FS(3)	09-GW014-051718	6/4/2018 10:05:11 PM	5-0369.dam	06022018.wiff
17	J6223-FS(3)	09-FD-051718-01	6/4/2018 10:15:58 PM	5-0369.dam	06022018.wiff
18	J6224-FS(3)	09-TW013-051718	6/4/2018 10:26:45 PM	5-0369.dam	06022018.wiff
8	JV26 CCV		6/4/2018 10:37:33 PM	5-0369.dam	06022018.wiff



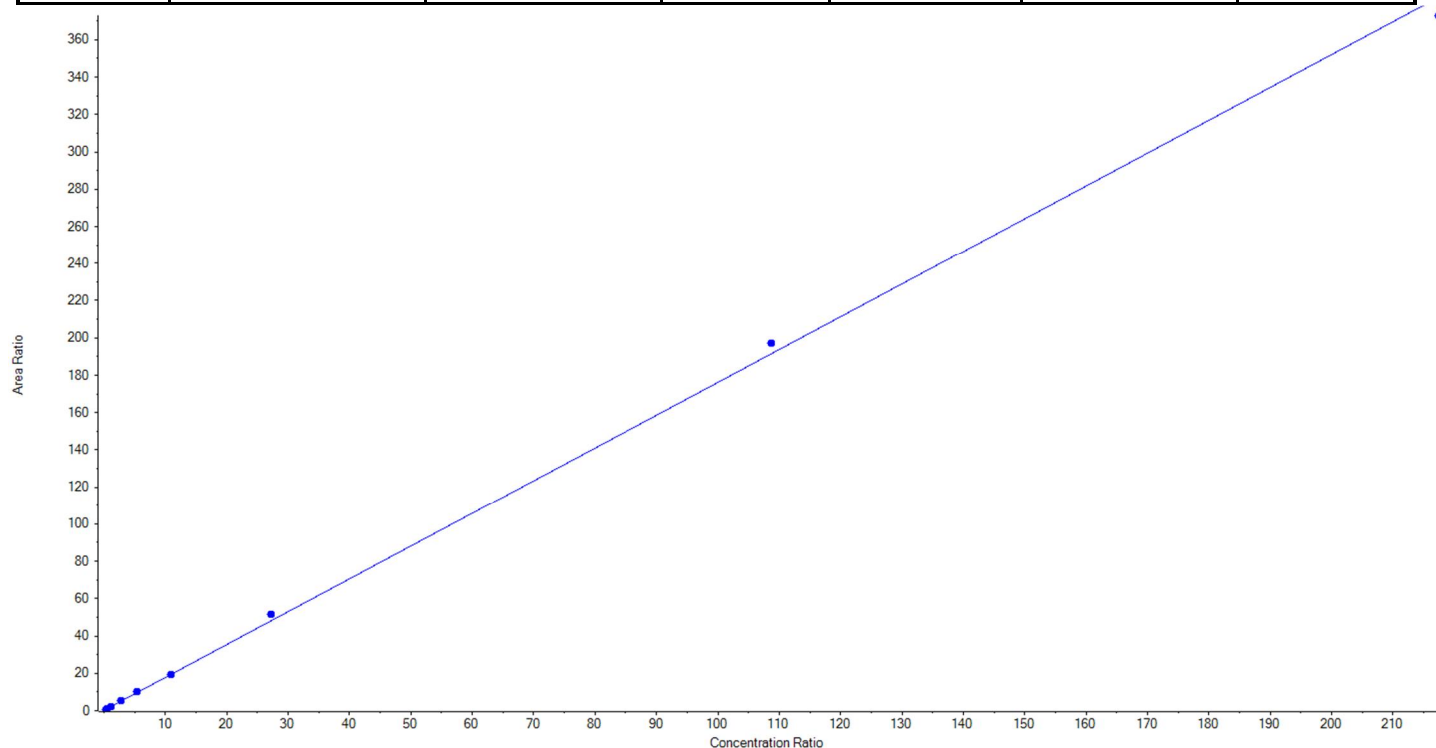
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/06/2018 8:11:15 PM

Analyte Name	PFBS_1	Data File	18-0334_18-0339.wiff
MRM Transition	298.9 / 80.0	Result Table	18-0334_BASE
Internal Standard	13C3-PFBS	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 1.75943x + 0.19290$ ($r = 0.99940$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	24.549747	97.2
3	JV21	L2	True	50.50	44.941674	89.0
4	JV22	L3	True	101.00	98.838966	97.9
5	JV23	L4	True	252.50	260.308847	103.1
6	JV24	L5	True	505.00	529.636689	104.9
7	JV25	L6	True	1010.00	1007.354828	99.7
8	JV26	L7	True	2525.00	2720.995698	107.8
9	JV27	L8	True	10100.00	10407.878725	103.1
10	JV28	L9	True	20200.00	19674.744827	97.4





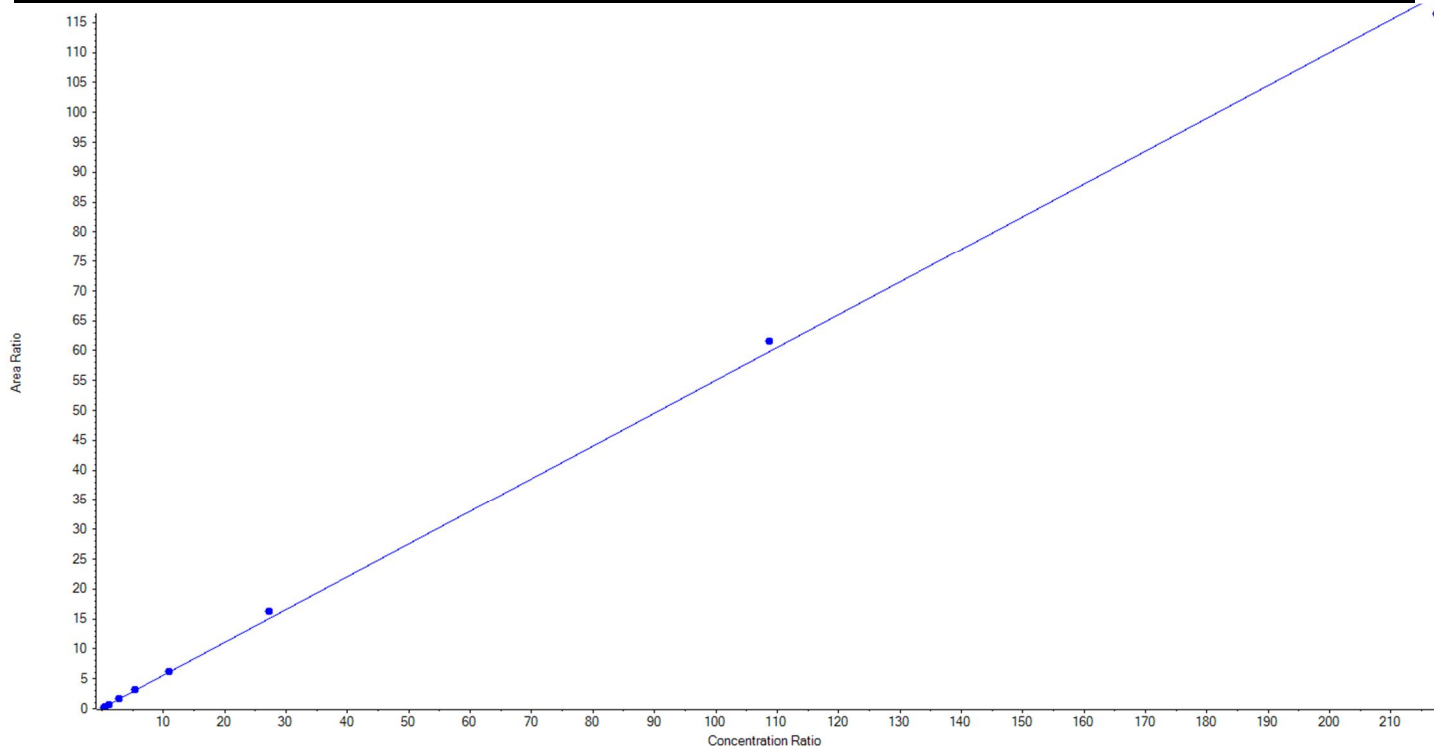
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/06/2018 8:11:15 PM

Analyte Name	PFBS_2	Data File	18-0334_18-0339.wiff
MRM Transition	298.9 / 99.0	Result Table	18-0334_BASE
Internal Standard	13C3-PFBS	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.54951 x + 0.09152$ ($r = 0.99941$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	23.503766	93.1
3	JV21	L2	True	50.50	49.490413	98.0
4	JV22	L3	True	101.00	96.848949	95.9
5	JV23	L4	True	252.50	256.099454	101.4
6	JV24	L5	True	505.00	514.367968	101.9
7	JV25	L6	True	1010.00	1022.456183	101.2
8	JV26	L7	True	2525.00	2730.347857	108.1
9	JV27	L8	True	10100.00	10400.315263	103.0
10	JV28	L9	True	20200.00	19675.820147	97.4





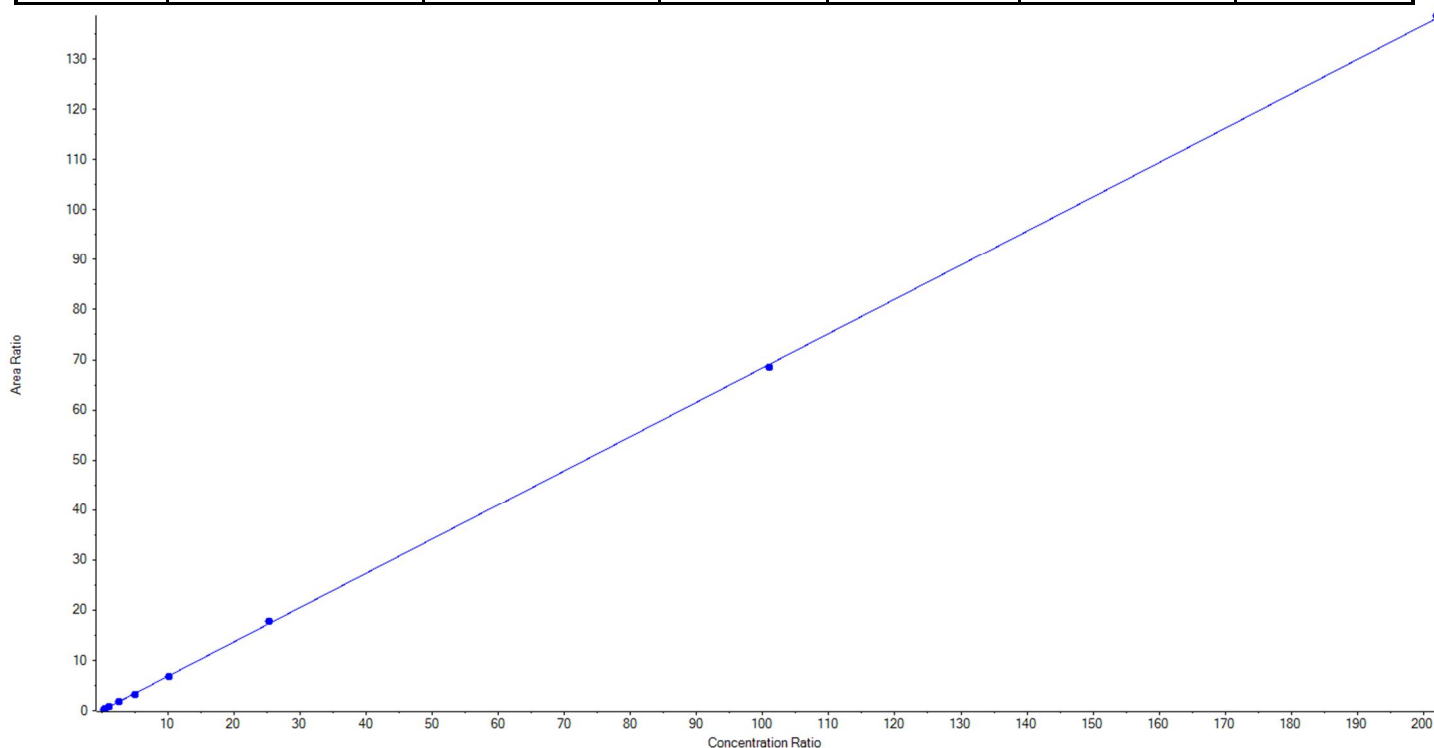
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Analyte Name	PFHxA_1	Data File	18-0334_18-0339.wiff
MRM Transition	313.0 / 269.0	Result Table	18-0334_BASE
Internal Standard	13C5-PFHxA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.68372 x + 0.01861$ ($r = 0.99988$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	25.746829	102.0
3	JV21	L2	True	50.50	48.722186	96.5
4	JV22	L3	True	101.00	105.167862	104.1
5	JV23	L4	True	252.50	265.405638	105.1
6	JV24	L5	True	505.00	469.641061	93.0
7	JV25	L6	True	1010.00	978.456623	96.9
8	JV26	L7	True	2525.00	2601.798445	103.0
9	JV27	L8	True	10100.00	10004.165368	99.1
10	JV28	L9	True	20200.00	20270.145989	100.4





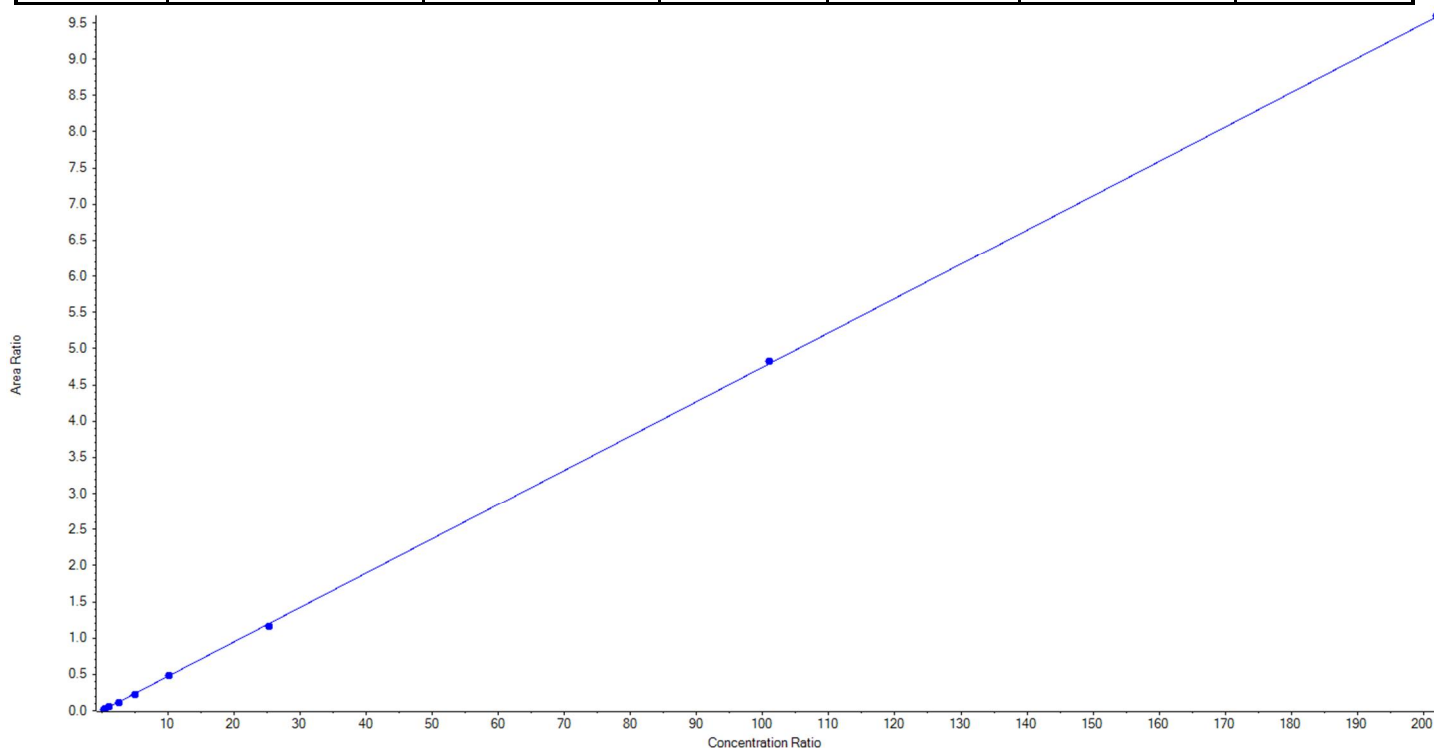
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Analyte Name	PFHxA_2	Data File	18-0334_18-0339.wiff
MRM Transition	313.0 / 119.0	Result Table	18-0334_BASE
Internal Standard	13C5-PFHxA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.04744 x + -5.04287e-4$ ($r = 0.99986$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	29.108558	115.3
3	JV21	L2	True	50.50	45.166418	89.4
4	JV22	L3	True	101.00	108.607947	107.5
5	JV23	L4	True	252.50	247.074365	97.9
6	JV24	L5	True	505.00	458.624174	90.8
7	JV25	L6	True	1010.00	1022.656886	101.3
8	JV26	L7	True	2525.00	2445.599802	96.9
9	JV27	L8	True	10100.00	10183.733424	100.8
10	JV28	L9	True	20200.00	20228.678426	100.1





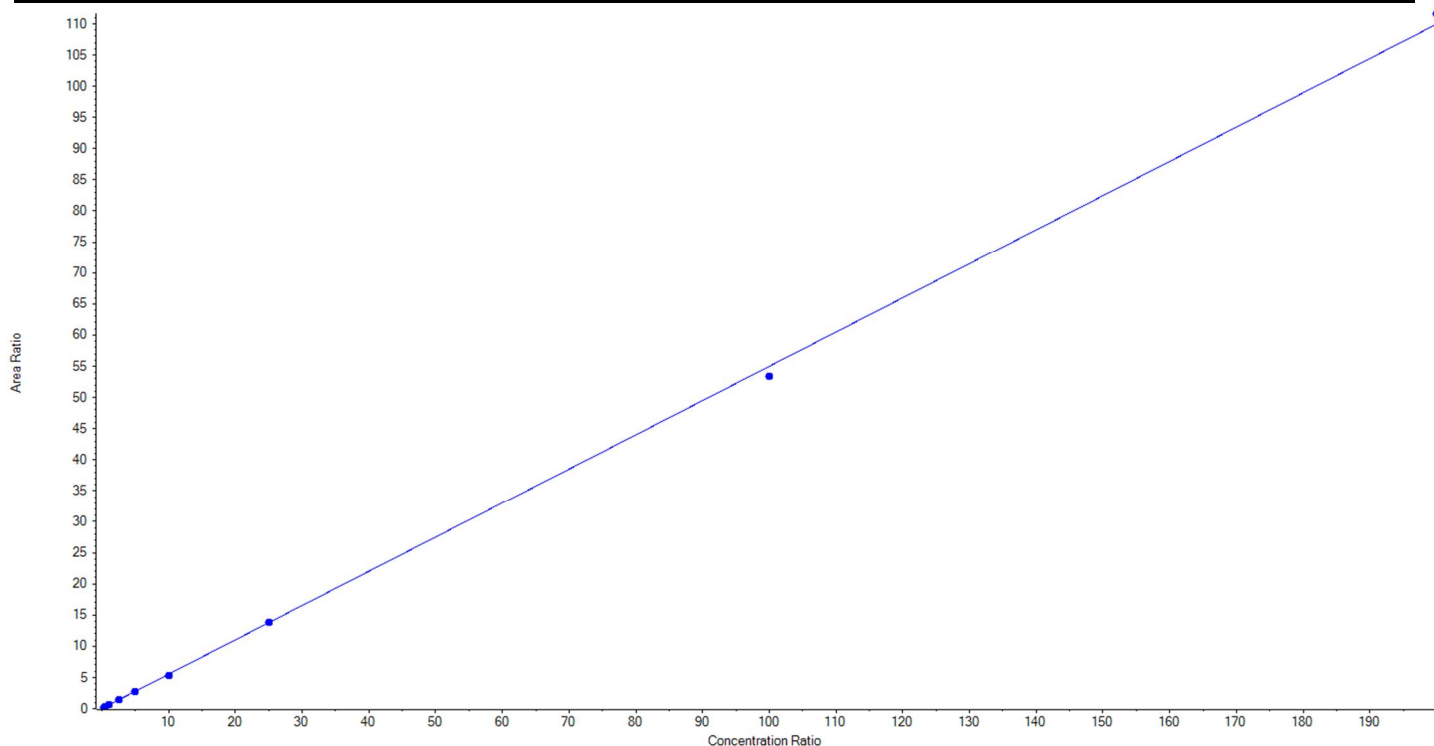
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Analyte Name	PFHpA_1	Data File	18-0334_18-0339.wiff
MRM Transition	363.0 / 319.0	Result Table	18-0334_BASE
Internal Standard	13C4-PFHpA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.54949x + 0.03817$ ($r = 0.99975$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	23.271004	93.1
3	JV21	L2	True	50.00	46.906580	93.8
4	JV22	L3	True	100.00	113.876496	113.9
5	JV23	L4	True	250.00	266.306411	106.5
6	JV24	L5	True	500.00	485.796331	97.2
7	JV25	L6	True	1000.00	969.822220	97.0
8	JV26	L7	True	2500.00	2495.896047	99.8
9	JV27	L8	True	10000.00	9722.161340	97.2
10	JV28	L9	True	20000.00	20300.963570	101.5





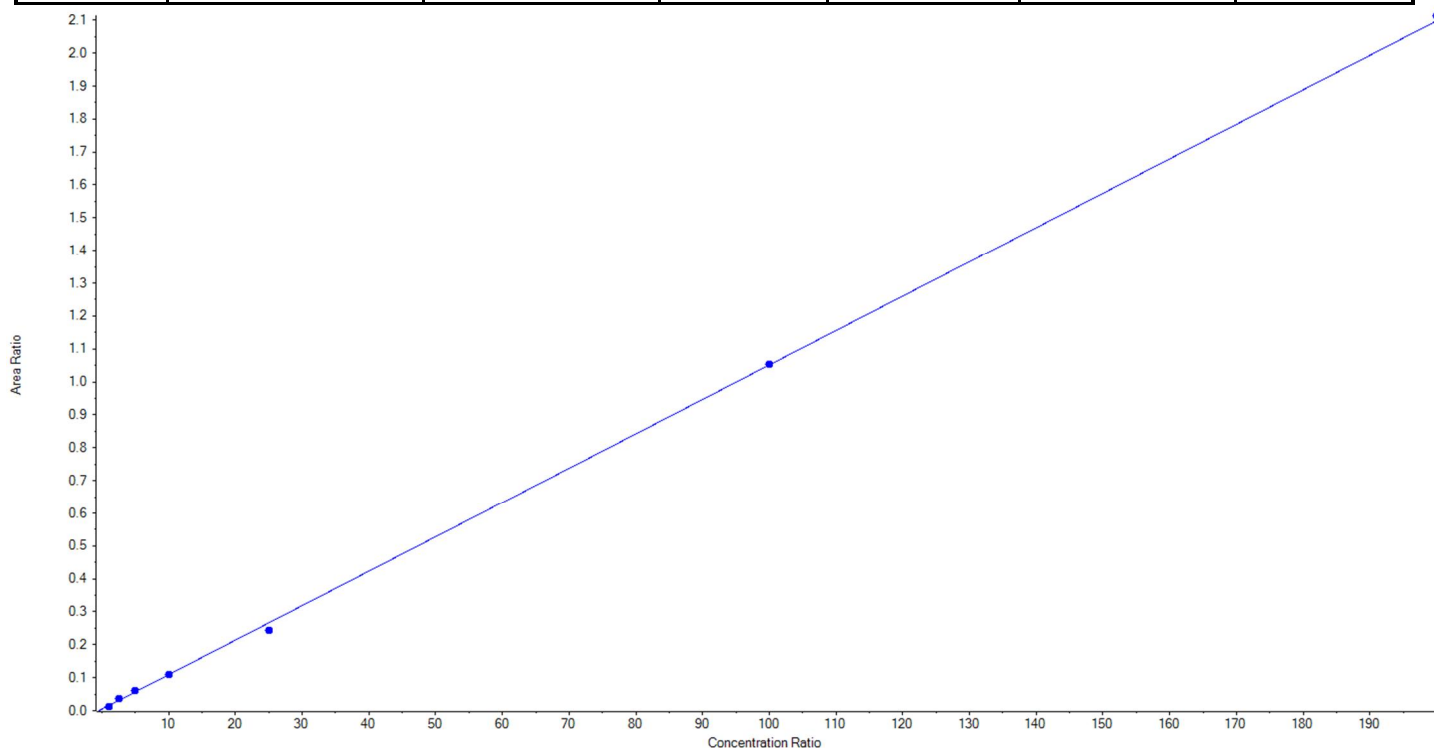
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Analyte Name	PFHpA_2	Data File	18-0334_18-0339.wiff
MRM Transition	363.0 / 169.0	Result Table	18-0334_BASE
Internal Standard	13C4-PFHpA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.01047 x + 0.00466$ ($r = 0.99947$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.00	N/A	N/A
3	JV21	L2	False	50.00	N/A	N/A
4	JV22	L3	True	100.00	85.310875	85.3
5	JV23	L4	True	250.00	294.608259	117.8
6	JV24	L5	True	500.00	529.593649	105.9
7	JV25	L6	True	1000.00	989.128144	98.9
8	JV26	L7	True	2500.00	2273.974971	91.0
9	JV27	L8	True	10000.00	10033.671616	100.3
10	JV28	L9	True	20000.00	20143.712485	100.7





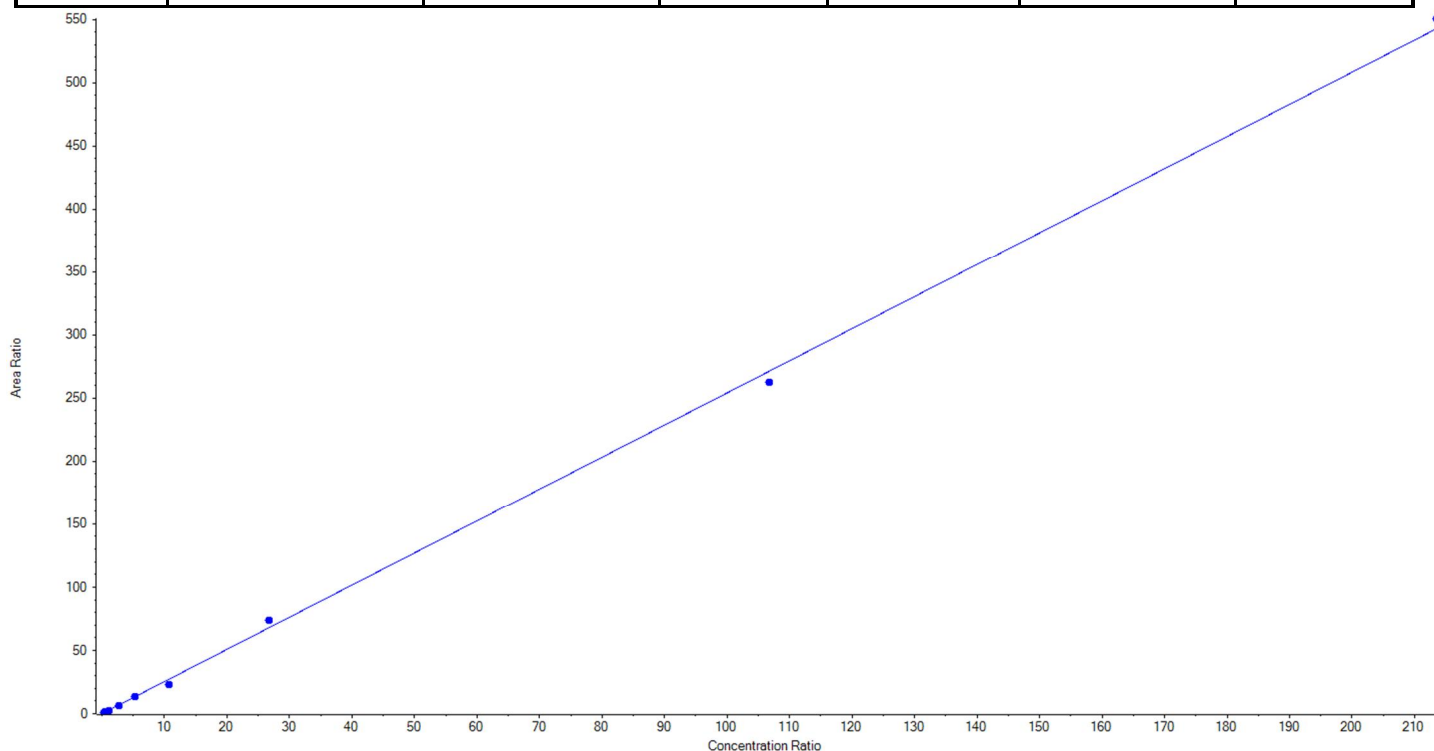
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Analyte Name	PFHxS_1	Data File	18-0334_18-0339.wiff
MRM Transition	399.0 / 80.0	Result Table	18-0334_BASE
Internal Standard	13C3-PFHxS	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 2.54138x + -0.02650$ ($r = 0.99904$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	31.216719	123.6
3	JV21	L2	True	50.50	47.433902	93.9
4	JV22	L3	True	101.00	102.652317	101.6
5	JV23	L4	True	252.50	227.754752	90.2
6	JV24	L5	True	505.00	499.897552	99.0
7	JV25	L6	True	1010.00	852.510410	84.4
8	JV26	L7	True	2525.00	2755.110770	109.1
9	JV27	L8	True	10100.00	9762.550341	96.7
10	JV28	L9	True	20200.00	20490.123237	101.4





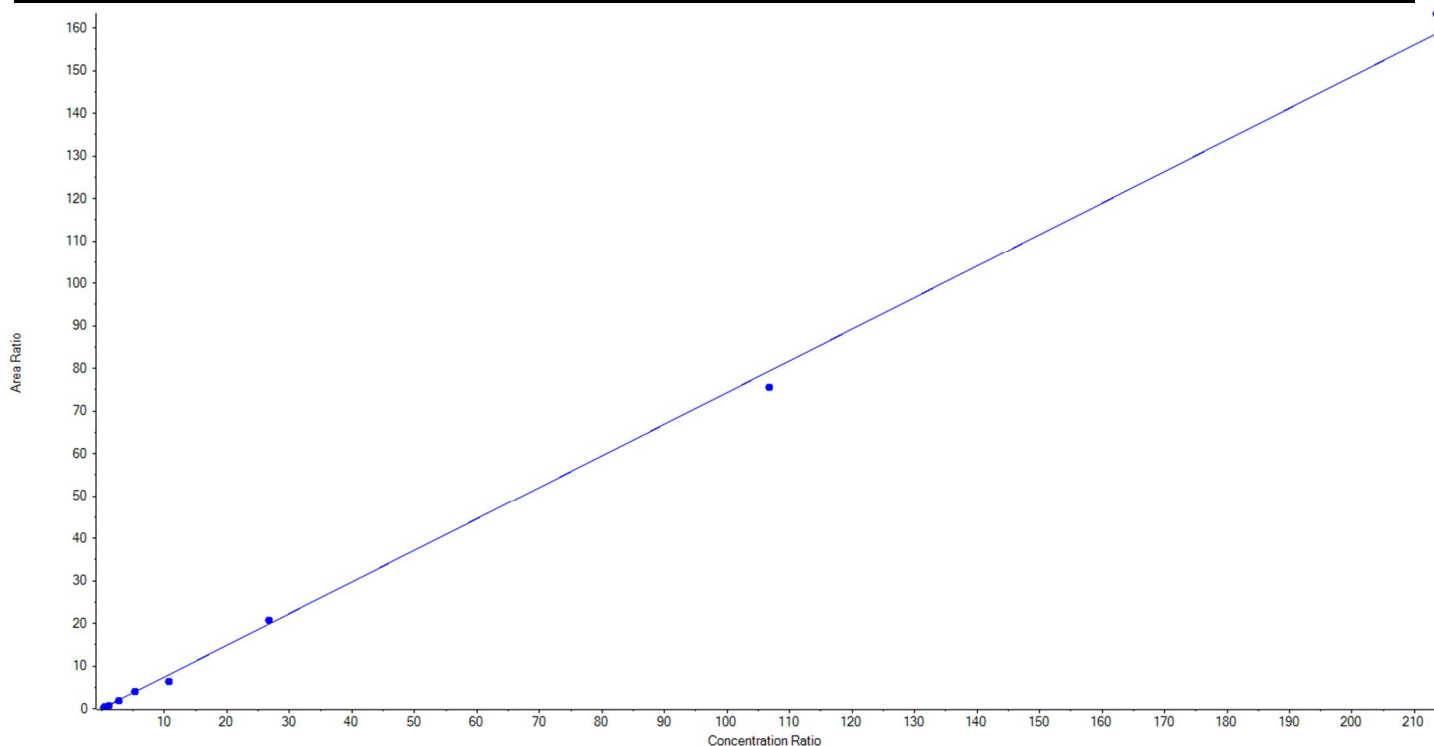
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Analyte Name	PFHxS_2	Data File	18-0334_18-0339.wiff
MRM Transition	399.0 / 99.0	Result Table	18-0334_BASE
Internal Standard	13C3-PFHxS	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.74328x + -0.00728$ ($r = 0.99875$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	32.084855	127.1
3	JV21	L2	True	50.50	49.445582	97.9
4	JV22	L3	True	101.00	96.943724	96.0
5	JV23	L4	True	252.50	241.382876	95.6
6	JV24	L5	True	505.00	507.648918	100.5
7	JV25	L6	True	1010.00	816.399705	80.8
8	JV26	L7	True	2525.00	2626.421364	104.0
9	JV27	L8	True	10100.00	9610.263750	95.2
10	JV28	L9	True	20200.00	20788.659226	102.9





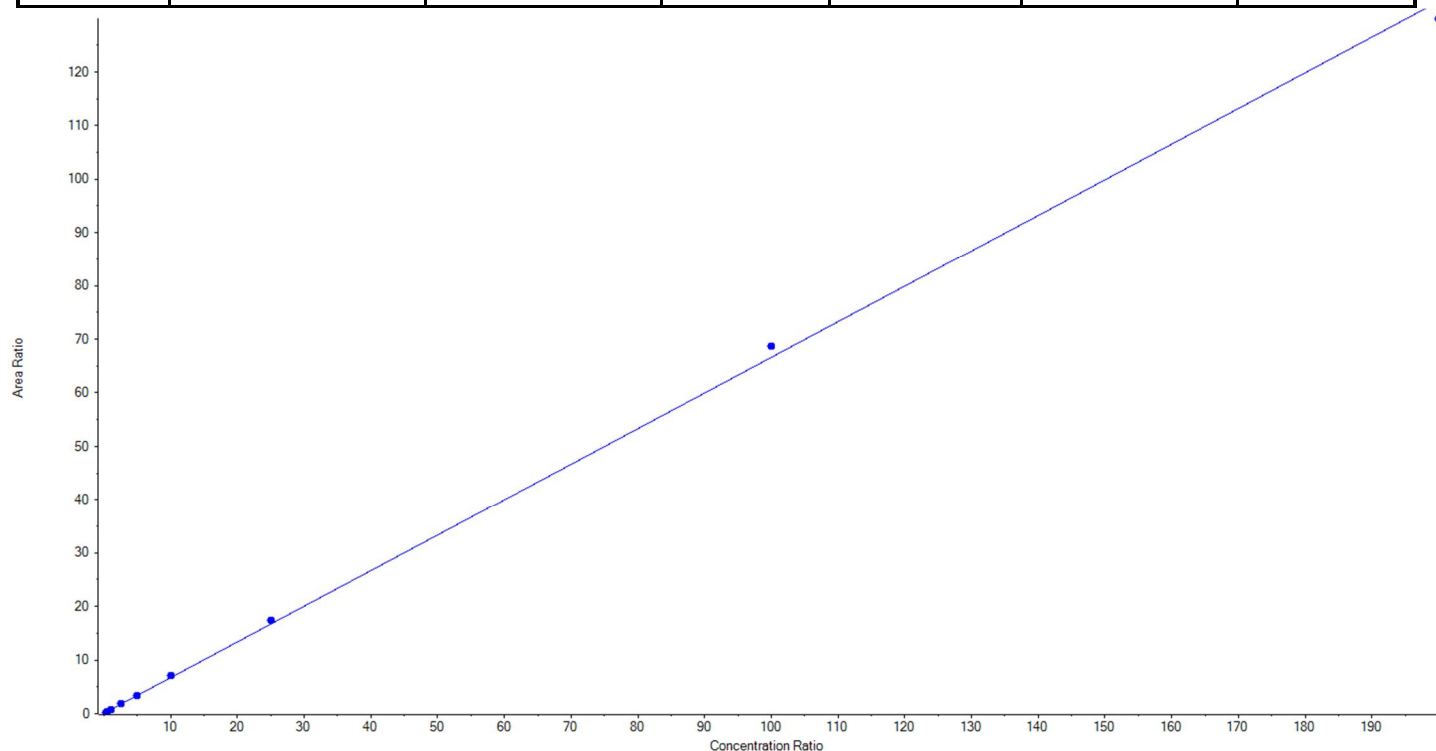
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Analyte Name	PFOA_1	Data File	18-0334_18-0339.wiff
MRM Transition	413.0 / 369.0	Result Table	18-0334_BASE
Internal Standard	13C8-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.66539x + 0.07281$ ($r = 0.99953$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	22.662853	90.7
3	JV21	L2	True	50.00	48.877930	97.8
4	JV22	L3	True	100.00	99.272750	99.3
5	JV23	L4	True	250.00	257.212105	102.9
6	JV24	L5	True	500.00	492.251374	98.5
7	JV25	L6	True	1000.00	1057.707816	105.8
8	JV26	L7	True	2500.00	2610.172916	104.4
9	JV27	L8	True	10000.00	10324.590371	103.3
10	JV28	L9	True	20000.00	19512.251885	97.6





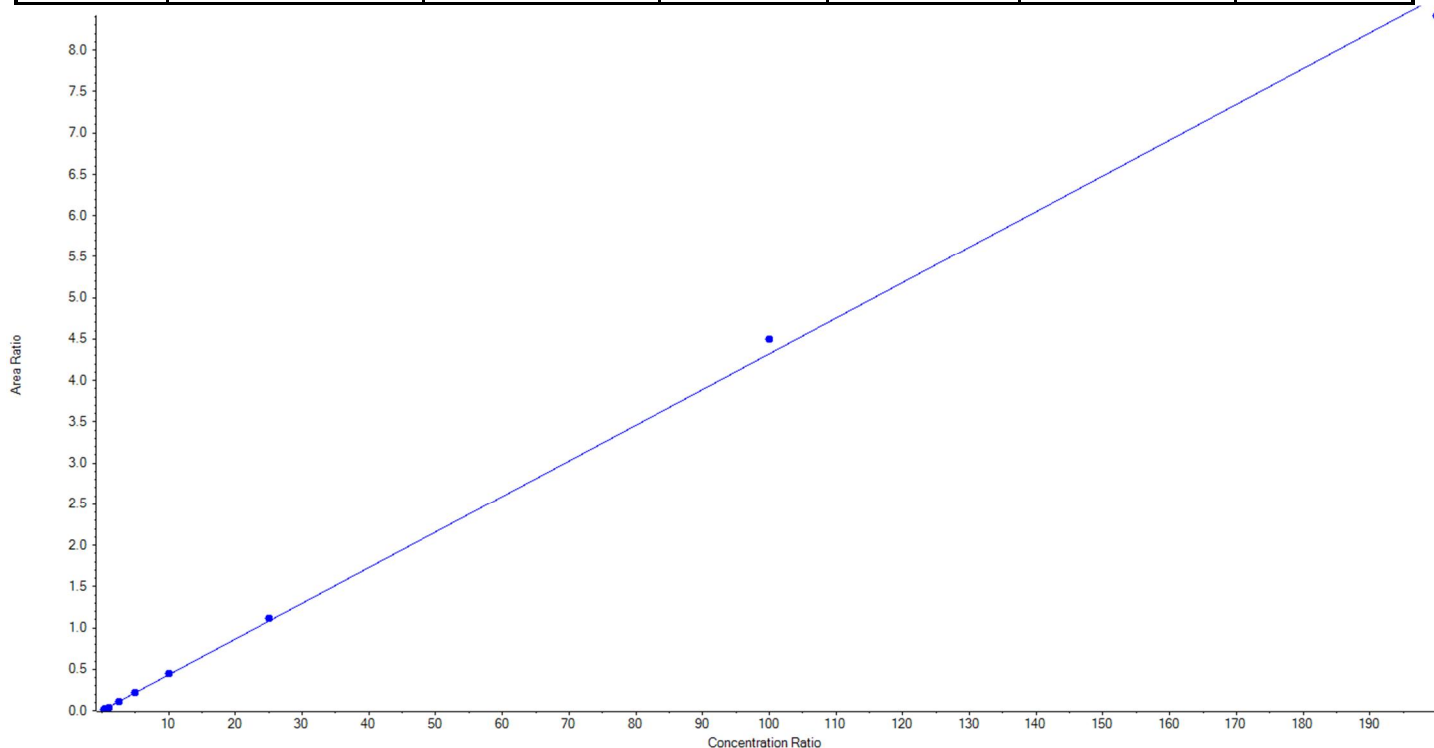
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Analyte Name	PFOA_2	Data File	18-0334_18-0339.wiff
MRM Transition	413.0 / 169.0	Result Table	18-0334_BASE
Internal Standard	13C8-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.04320 x + 0.00111$ ($r = 0.99942$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	29.009852	116.0
3	JV21	L2	True	50.00	40.828911	81.7
4	JV22	L3	True	100.00	86.868080	86.9
5	JV23	L4	True	250.00	262.846759	105.1
6	JV24	L5	True	500.00	515.571849	103.1
7	JV25	L6	True	1000.00	1025.267732	102.5
8	JV26	L7	True	2500.00	2579.533856	103.2
9	JV27	L8	True	10000.00	10409.624674	104.1
10	JV28	L9	True	20000.00	19475.448288	97.4





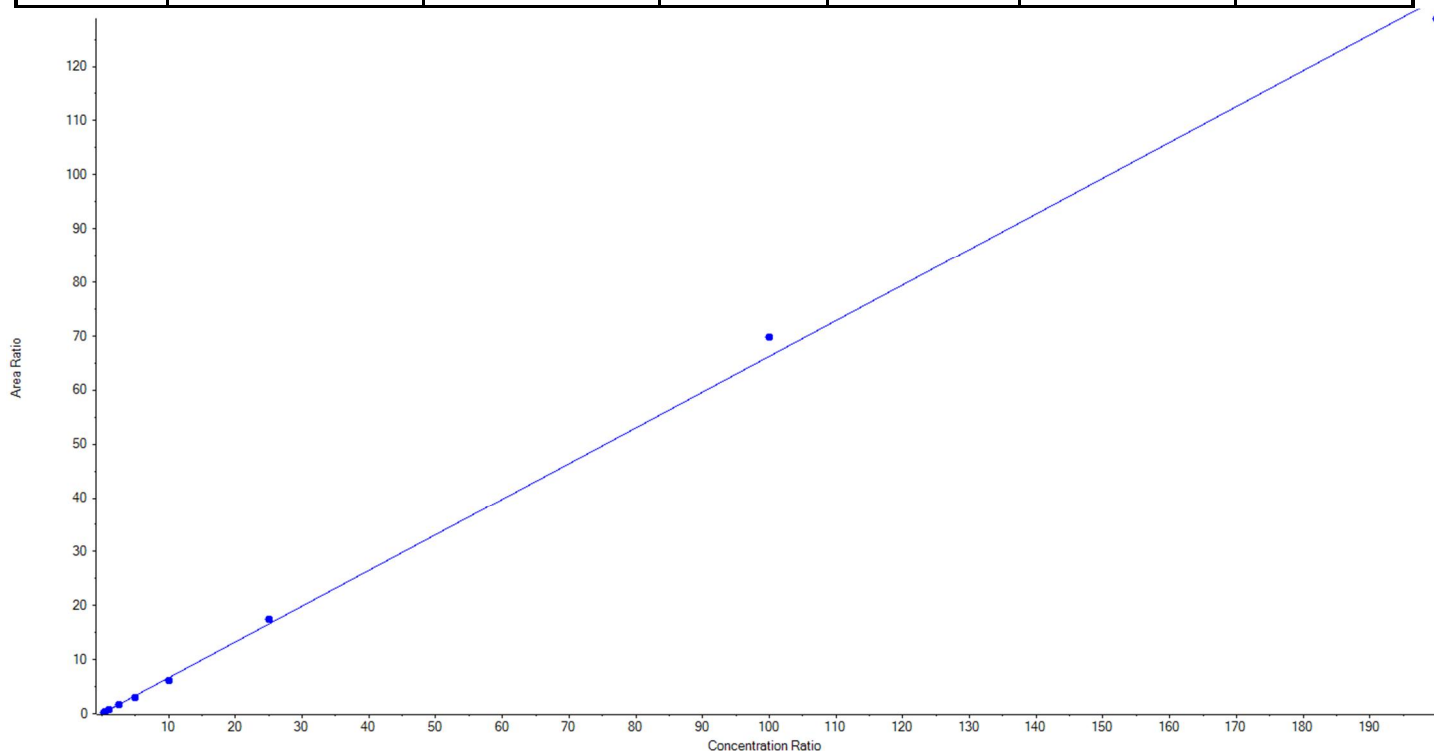
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Analyte Name	PFNA_1	Data File	18-0334_18-0339.wiff
MRM Transition	463.0 / 419.0	Result Table	18-0334_BASE
Internal Standard	13C9-PFNA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.66225x + 0.02100$ ($r = 0.99903$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	25.746399	103.0
3	JV21	L2	True	50.00	48.387577	96.8
4	JV22	L3	True	100.00	106.737132	106.7
5	JV23	L4	True	250.00	261.078663	104.4
6	JV24	L5	True	500.00	446.575811	89.3
7	JV25	L6	True	1000.00	915.490860	91.6
8	JV26	L7	True	2500.00	2641.421202	105.7
9	JV27	L8	True	10000.00	10530.348900	105.3
10	JV28	L9	True	20000.00	19449.213456	97.3





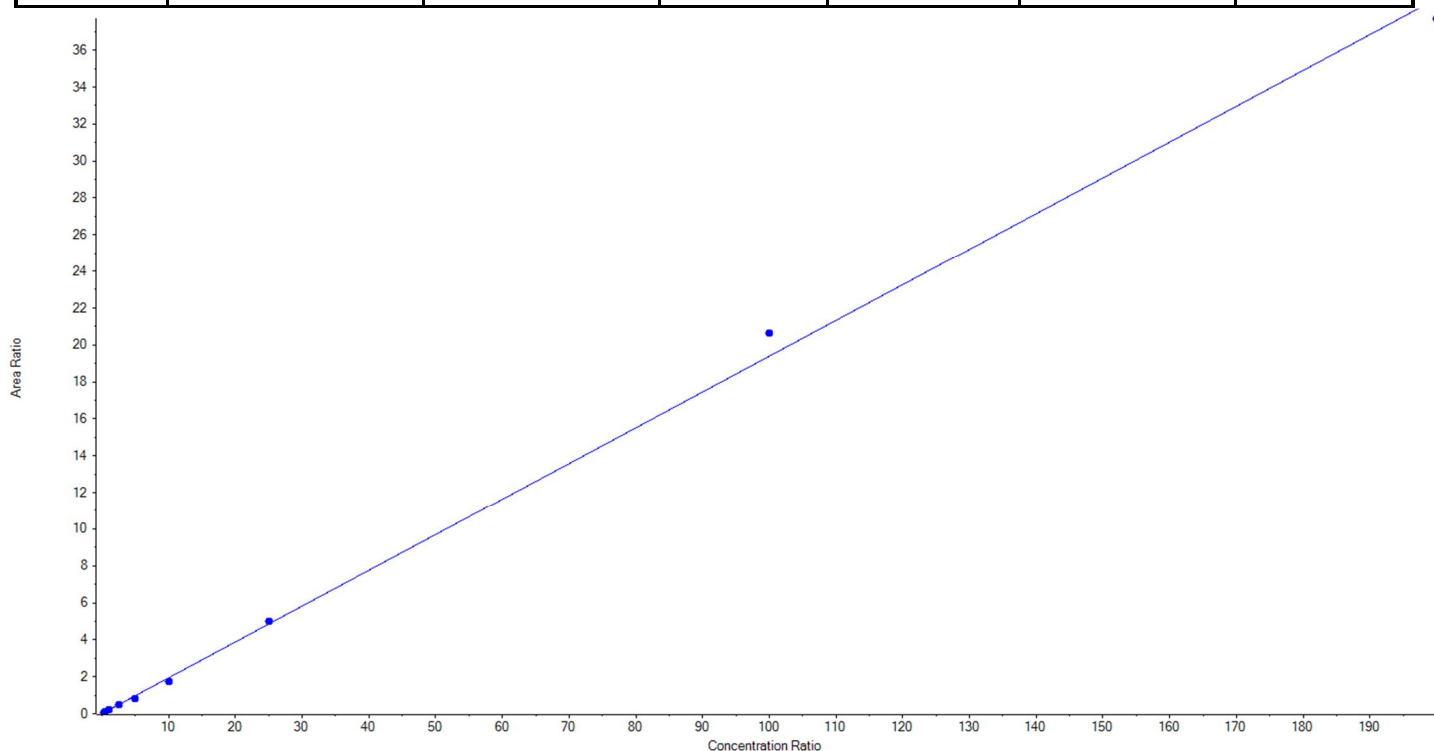
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Analyte Name	PFNA_2	Data File	18-0334_18-0339.wiff
MRM Transition	463.0 / 219.0	Result Table	18-0334_BASE
Internal Standard	13C9-PFNA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.19384 x + 0.00568$ ($r = 0.99863$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	23.974695	95.9
3	JV21	L2	True	50.00	51.495470	103.0
4	JV22	L3	True	100.00	121.786609	121.8
5	JV23	L4	True	250.00	250.114999	100.1
6	JV24	L5	True	500.00	417.273225	83.5
7	JV25	L6	True	1000.00	888.506277	88.9
8	JV26	L7	True	2500.00	2581.898318	103.3
9	JV27	L8	True	10000.00	10649.342884	106.5
10	JV28	L9	True	20000.00	19440.607524	97.2





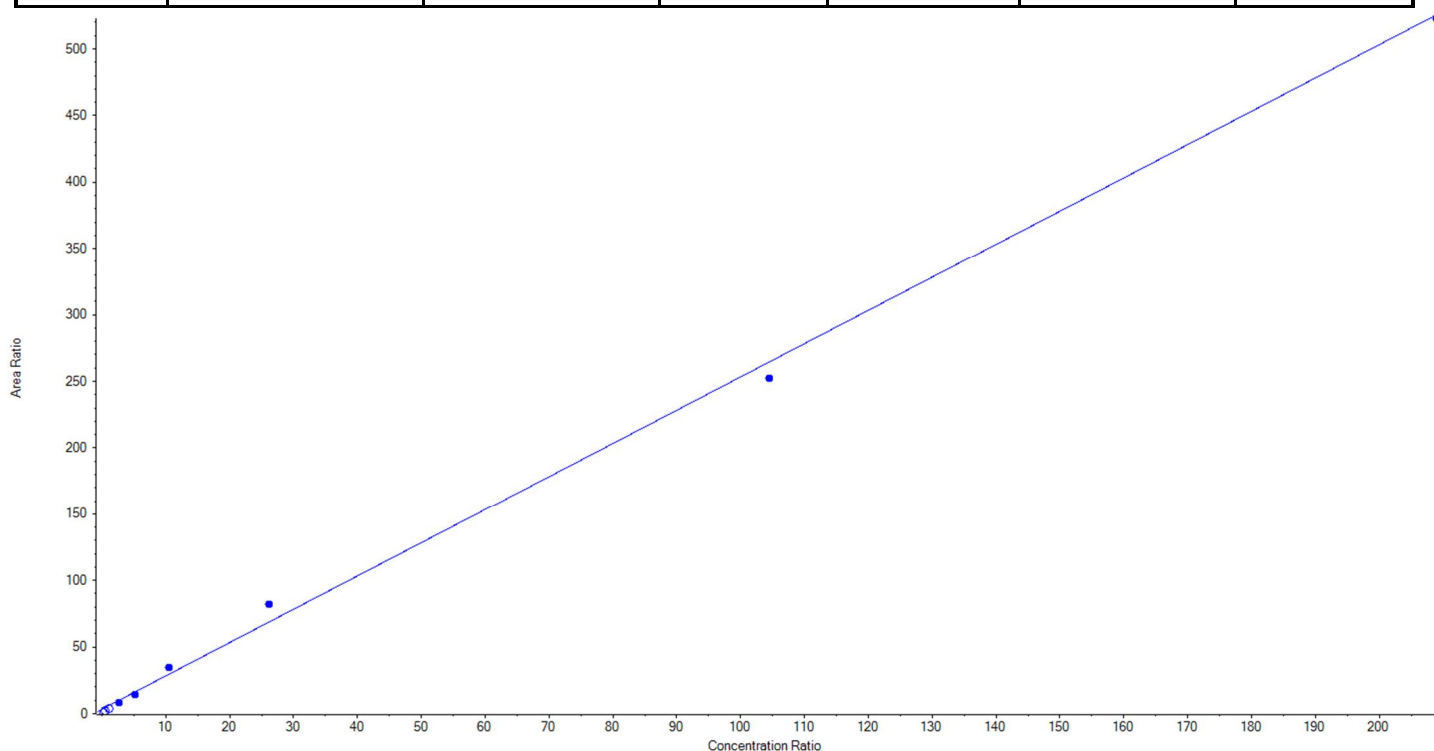
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Analyte Name	PFOS_1	Data File	18-0334_18-0339.wiff
MRM Transition	499.0 / 80.0	Result Table	18-0334_BASE
Internal Standard	13C8-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 2.49909x + 3.36861$ ($r = 0.99679$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.00	< 0	N/A
3	JV21	L2	False	50.00	< 0	N/A
4	JV22	L3	False	100.00	6.426016	6.4
5	JV23	L4	True	250.00	199.398097	79.8
6	JV24	L5	True	500.00	421.964097	84.4
7	JV25	L6	True	1000.00	1209.607580	121.0
8	JV26	L7	True	2500.00	3003.553809	120.1
9	JV27	L8	True	10000.00	9533.529906	95.3
10	JV28	L9	True	20000.00	19881.946512	99.4





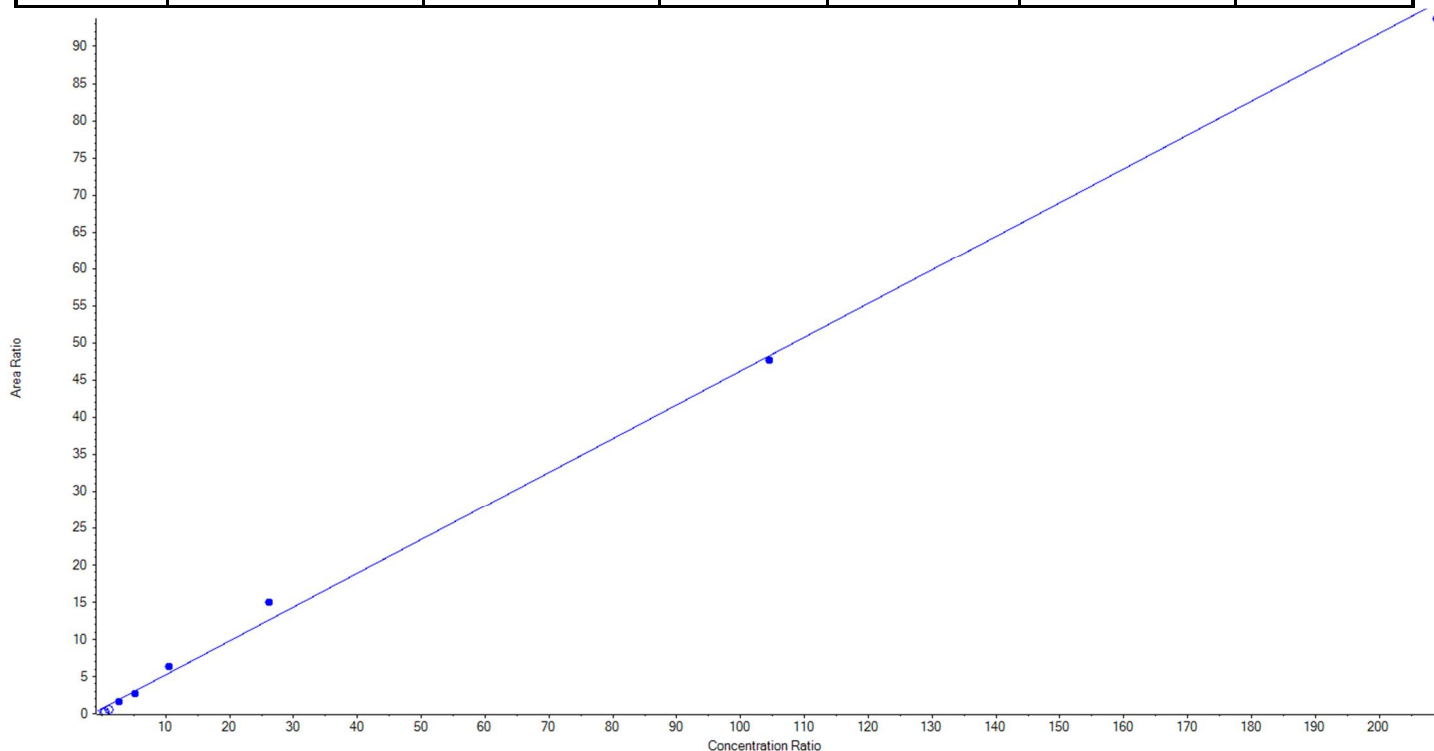
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Analyte Name	PFOS_2	Data File	18-0334_18-0339.wiff
MRM Transition	499.0 / 99.0	Result Table	18-0334_BASE
Internal Standard	13C8-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.45527 x + 0.68494$ ($r = 0.99716$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.00	< 0	N/A
3	JV21	L2	False	50.00	< 0	N/A
4	JV22	L3	False	100.00	< 0	N/A
5	JV23	L4	True	250.00	194.781009	77.9
6	JV24	L5	True	500.00	433.071135	86.6
7	JV25	L6	True	1000.00	1189.251879	118.9
8	JV26	L7	True	2500.00	2999.672319	120.0
9	JV27	L8	True	10000.00	9879.034085	98.8
10	JV28	L9	True	20000.00	19554.189574	97.8





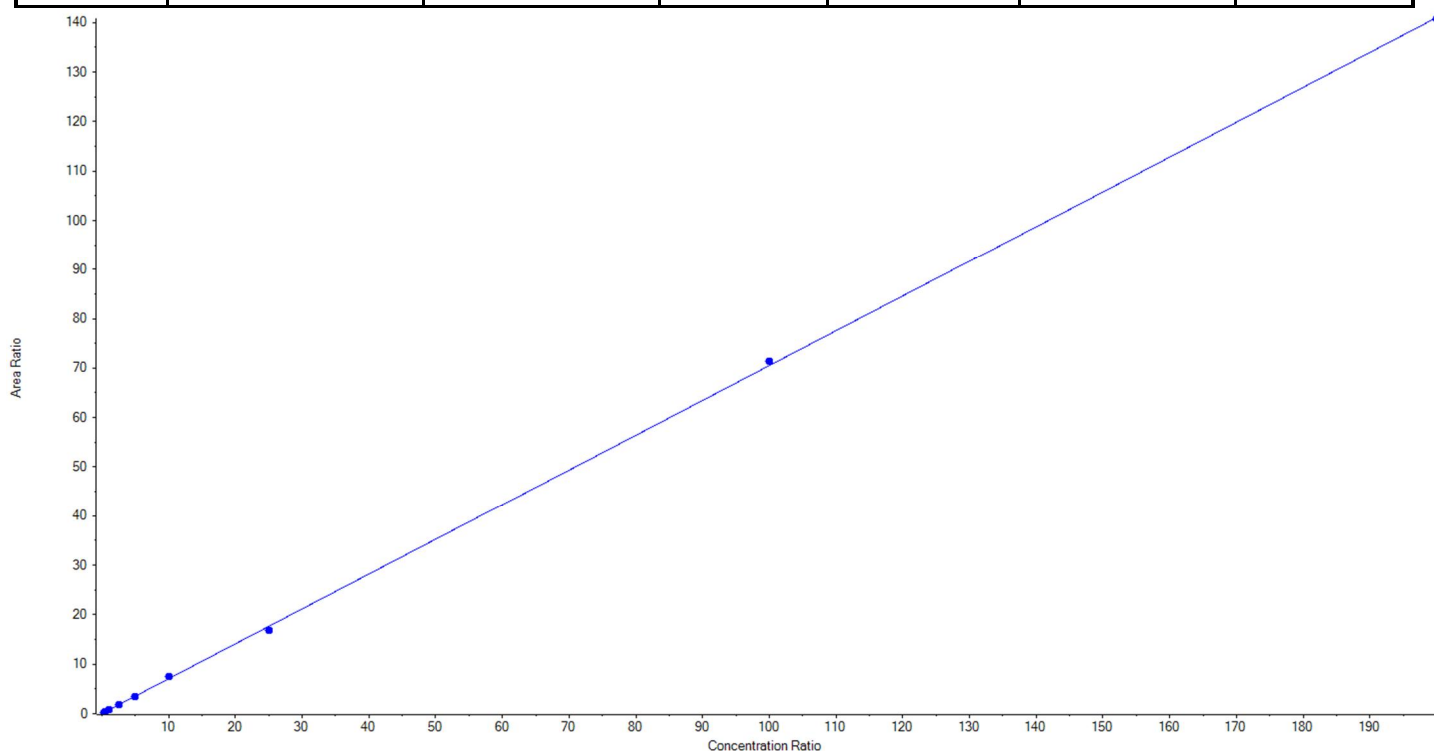
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Analyte Name	PFDA_1	Data File	18-0334_18-0339.wiff
MRM Transition	513.0 / 469.0	Result Table	18-0334_BASE
Internal Standard	13C6-PFDA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.70485x + 0.02327$ ($r = 0.99974$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	25.501914	102.0
3	JV21	L2	True	50.00	40.303559	80.6
4	JV22	L3	True	100.00	119.591096	119.6
5	JV23	L4	True	250.00	252.044810	100.8
6	JV24	L5	True	500.00	477.632889	95.5
7	JV25	L6	True	1000.00	1054.342396	105.4
8	JV26	L7	True	2500.00	2375.918116	95.0
9	JV27	L8	True	10000.00	10116.067210	101.2
10	JV28	L9	True	20000.00	19963.598009	99.8





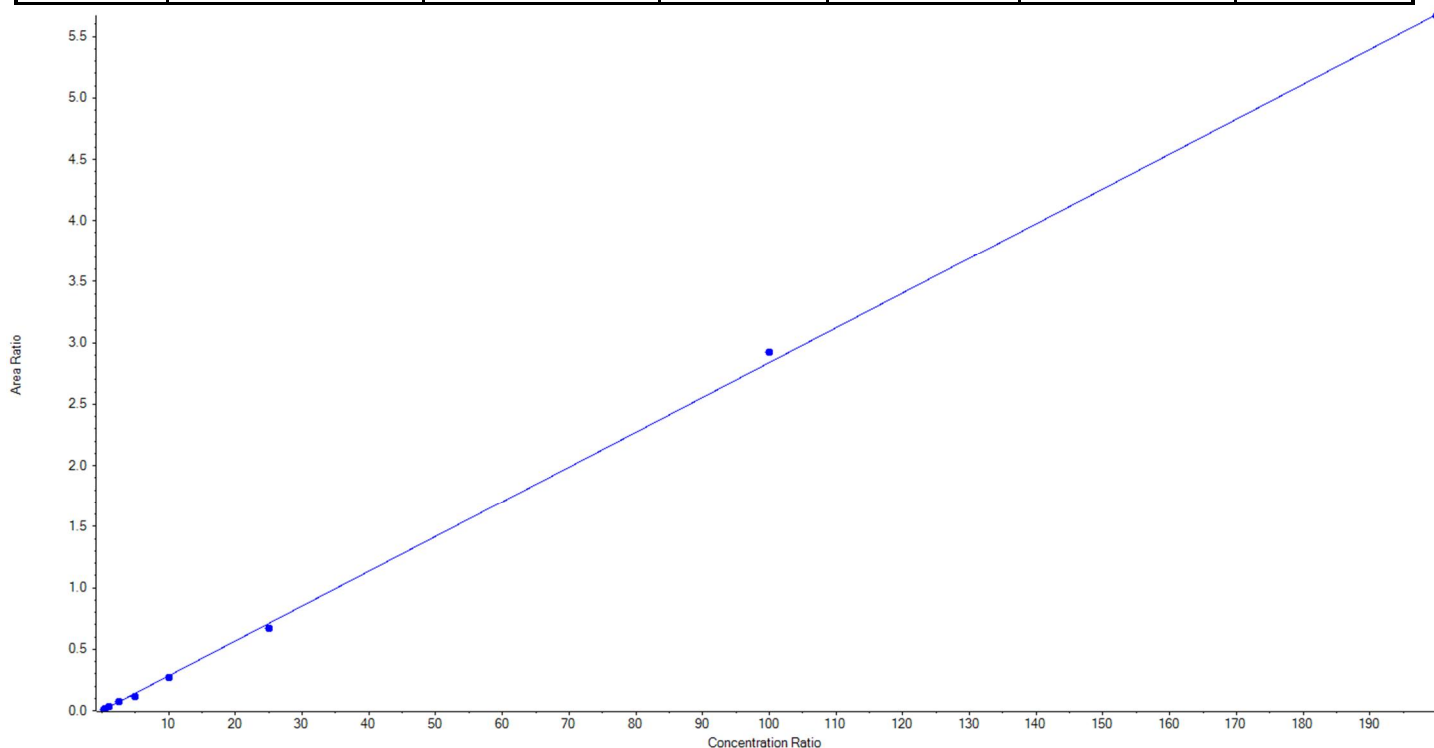
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Analyte Name	PFDA_2	Data File	18-0334_18-0339.wiff
MRM Transition	513.0 / 219.0	Result Table	18-0334_BASE
Internal Standard	13C6-PFDA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.02839x + -3.49067e-4$ ($r = 0.99936$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	23.488717	94.0
3	JV21	L2	True	50.00	52.820381	105.6
4	JV22	L3	True	100.00	125.705251	125.7
5	JV23	L4	True	250.00	250.819411	100.3
6	JV24	L5	True	500.00	414.961695	83.0
7	JV25	L6	True	1000.00	946.262950	94.6
8	JV26	L7	True	2500.00	2348.352046	93.9
9	JV27	L8	True	10000.00	10301.138212	103.0
10	JV28	L9	True	20000.00	19961.451337	99.8





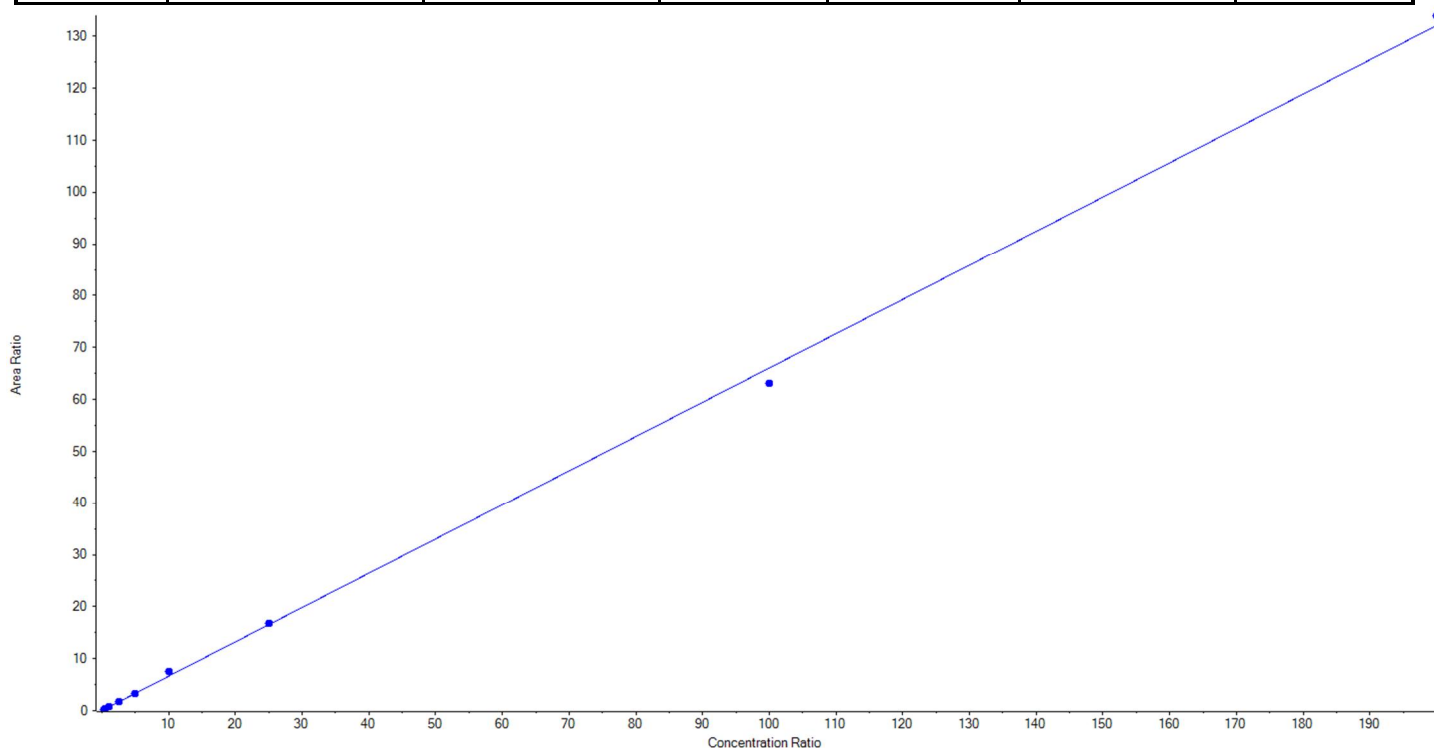
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Analyte Name	PFUnA_1	Data File	18-0334_18-0339.wiff
MRM Transition	563.0 / 519.0	Result Table	18-0334_BASE
Internal Standard	13C7-PFUnA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.66031x + 0.03289$ ($r = 0.99941$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	23.221298	92.9
3	JV21	L2	True	50.00	45.183090	90.4
4	JV22	L3	True	100.00	102.331398	102.3
5	JV23	L4	True	250.00	263.713408	105.5
6	JV24	L5	True	500.00	492.006275	98.4
7	JV25	L6	True	1000.00	1120.974364	112.1
8	JV26	L7	True	2500.00	2535.251355	101.4
9	JV27	L8	True	10000.00	9562.305139	95.6
10	JV28	L9	True	20000.00	20280.013673	101.4





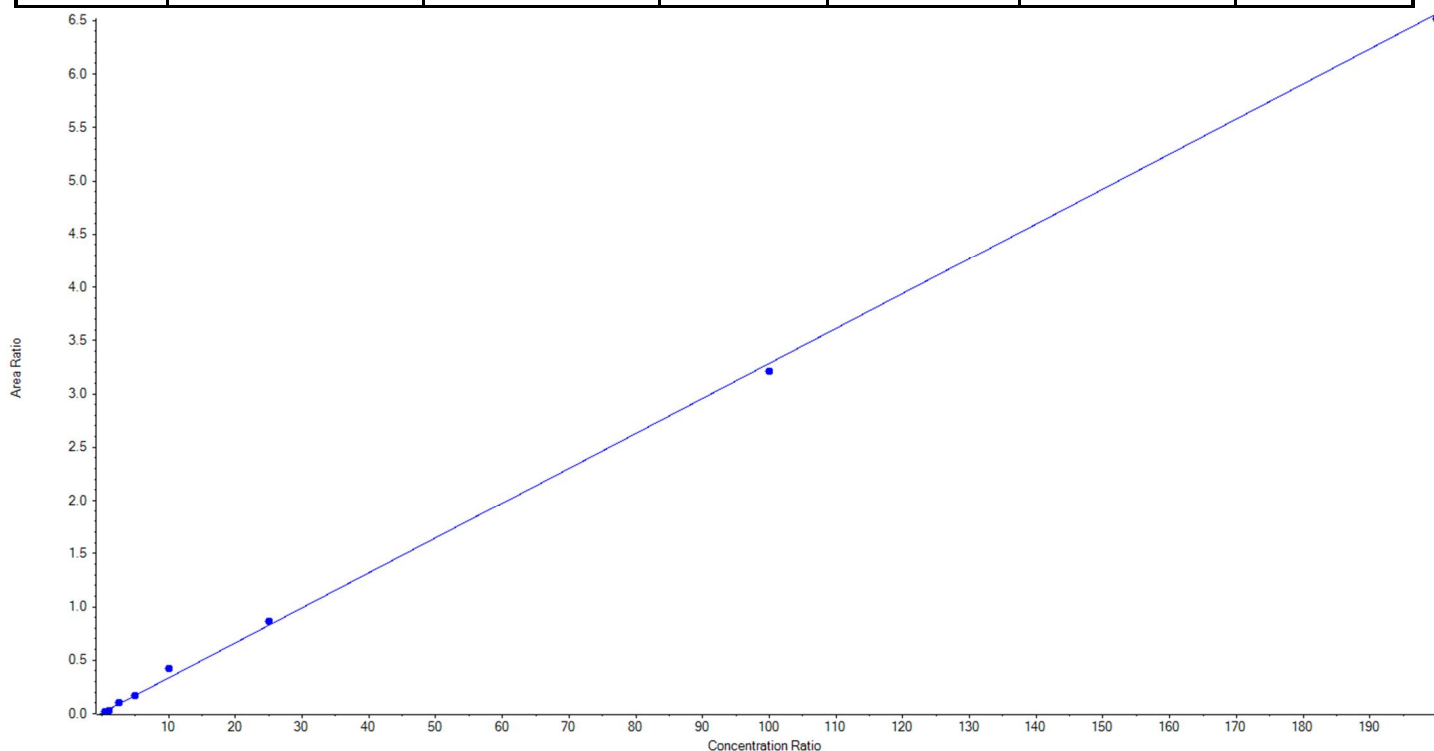
Calibration Summary Report

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Printed: 06/06/2018 8:11:15 PM

Analyte Name	PFUnA_2	Data File	18-0334_18-0339.wiff
MRM Transition	563.0 / 269.0	Result Table	18-0334_BASE
Internal Standard	13C7-PFUnA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.03278x + 0.00712$ ($r = 0.99865$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.00	N/A	N/A
3	JV21	L2	True	50.00	43.822598	87.7
4	JV22	L3	True	100.00	75.383291	75.4
5	JV23	L4	True	250.00	281.766498	112.7
6	JV24	L5	True	500.00	483.835699	96.8
7	JV25	L6	True	1000.00	1257.023332	125.7
8	JV26	L7	True	2500.00	2616.773431	104.7
9	JV27	L8	True	10000.00	9783.505767	97.8
10	JV28	L9	True	20000.00	19857.889385	99.3





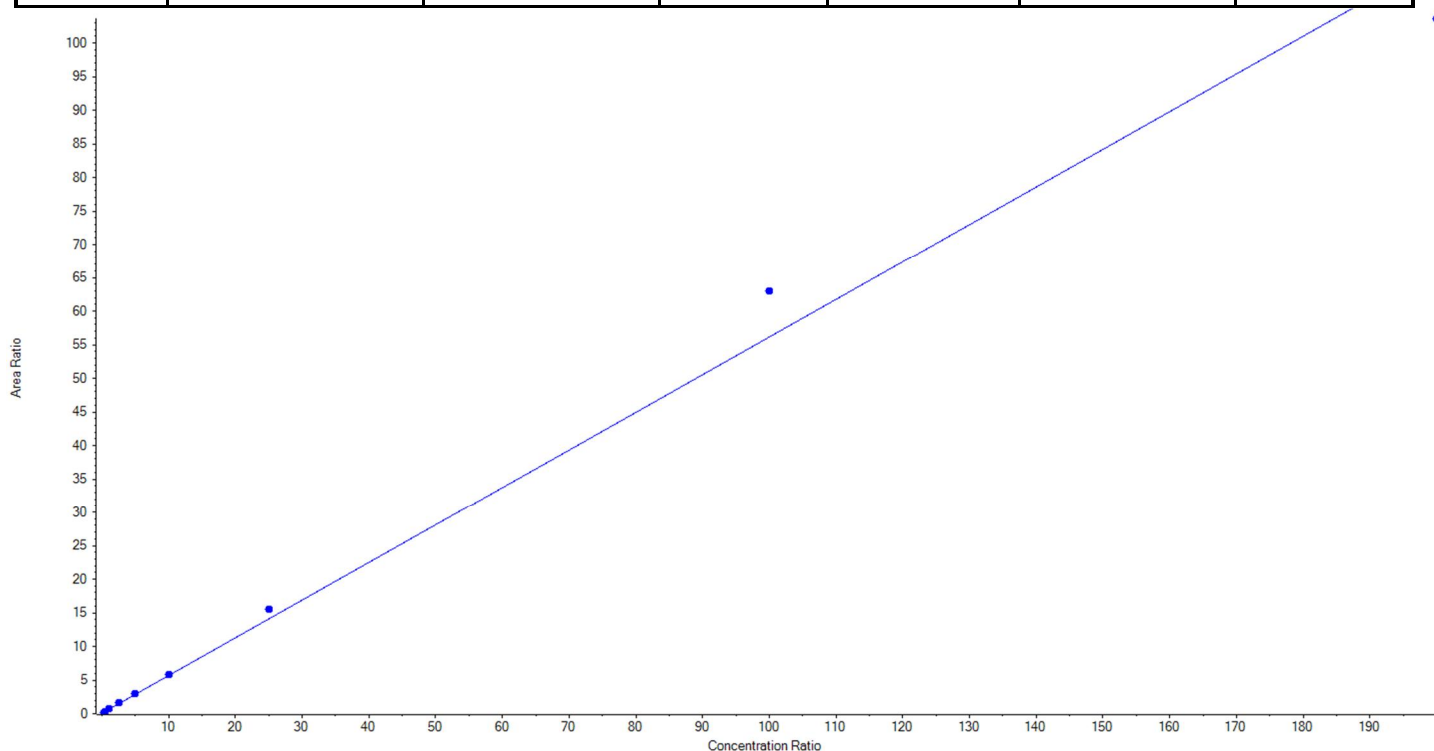
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/06/2018 8:11:15 PM

Analyte Name	PFDaA_1	Data File	18-0334_18-0339.wiff
MRM Transition	613.0 / 569.0	Result Table	18-0334_BASE
Internal Standard	13C2-PFDaA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.56076x + 0.07008$ ($r = 0.99552$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	17.891807	71.6
3	JV21	L2	True	50.00	43.116970	86.2
4	JV22	L3	True	100.00	107.903751	107.9
5	JV23	L4	True	250.00	285.062622	114.0
6	JV24	L5	True	500.00	515.694938	103.1
7	JV25	L6	True	1000.00	1025.203769	102.5
8	JV26	L7	True	2500.00	2753.949739	110.2
9	JV27	L8	True	10000.00	11214.359048	112.1
10	JV28	L9	True	20000.00	18461.817356	92.3





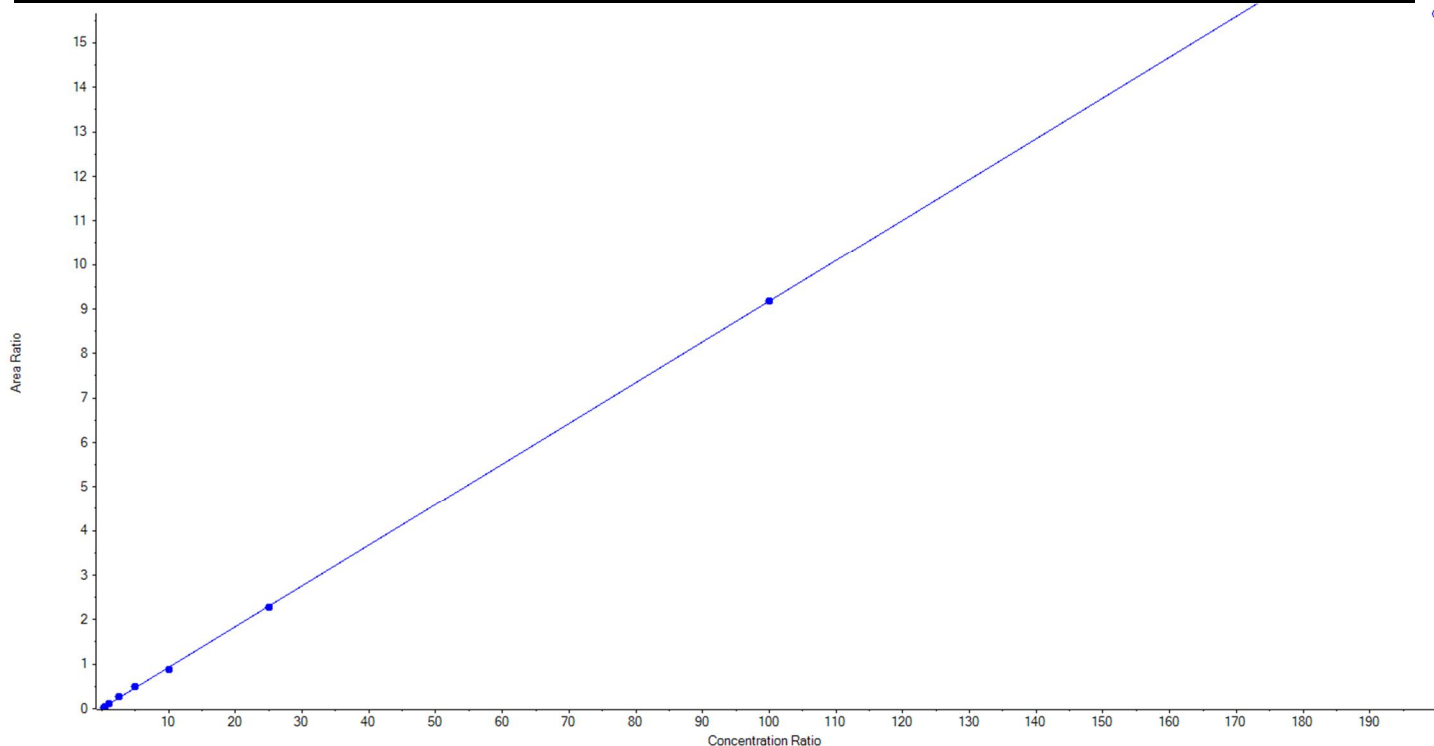
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/06/2018 8:11:15 PM

Analyte Name	PFDaA_2	Data File	18-0334_18-0339.wiff
MRM Transition	613.0 / 319.0	Result Table	18-0334_BASE
Internal Standard	13C2-PFDaA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.09167x + 0.01094$ ($r = 0.99959$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	20.177506	80.7
3	JV21	L2	True	50.00	47.700453	95.4
4	JV22	L3	True	100.00	112.741892	112.7
5	JV23	L4	True	250.00	273.808637	109.5
6	JV24	L5	True	500.00	539.086551	107.8
7	JV25	L6	True	1000.00	945.776999	94.6
8	JV26	L7	True	2500.00	2479.054484	99.2
9	JV27	L8	True	10000.00	10006.653479	100.1
10	JV28	L9	False	20000.00	17061.632418	85.3





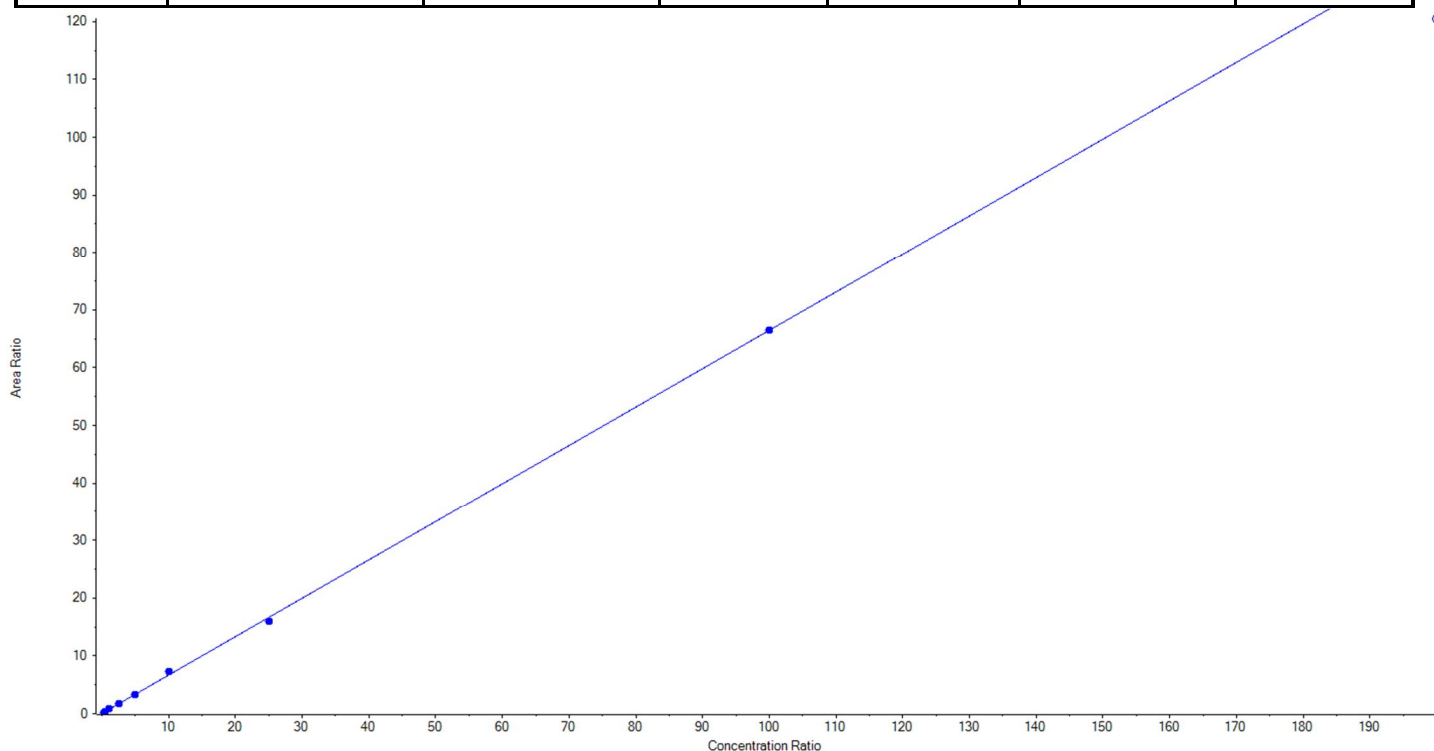
Calibration Summary Report

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Printed: 06/06/2018 8:11:15 PM

Analyte Name	PFTTrDA_1	Data File	18-0334_18-0339.wiff
MRM Transition	663.0 / 619.0	Result Table	18-0334_BASE
Internal Standard	13C2-PFTTeDA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.66424 x + 0.04256$ ($r = 0.99943$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	19.723843	78.9
3	JV21	L2	True	50.00	48.662584	97.3
4	JV22	L3	True	100.00	115.946966	116.0
5	JV23	L4	True	250.00	265.101241	106.0
6	JV24	L5	True	500.00	489.468121	97.9
7	JV25	L6	True	1000.00	1079.494596	108.0
8	JV26	L7	True	2500.00	2396.096264	95.8
9	JV27	L8	True	10000.00	10010.506386	100.1
10	JV28	L9	False	20000.00	18133.416742	90.7





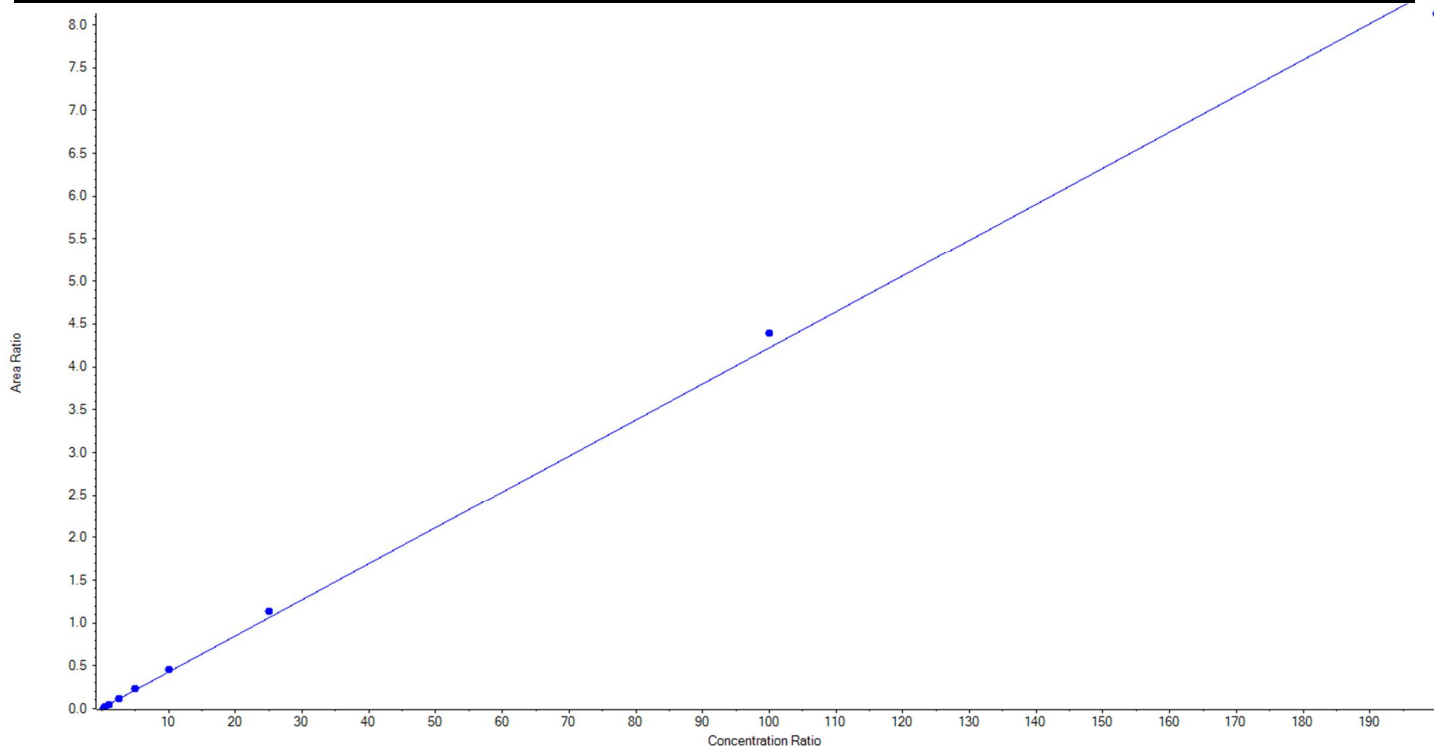
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/06/2018 8:11:15 PM

Analyte Name	PFTTrDA_2	Data File	18-0334_18-0339.wiff
MRM Transition	663.0 / 169.0	Result Table	18-0334_BASE
Internal Standard	13C2-PFTeDA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.04214 x + 0.00690$ ($r = 0.99896$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	19.681946	78.7
3	JV21	L2	True	50.00	46.405536	92.8
4	JV22	L3	True	100.00	96.717403	96.7
5	JV23	L4	True	250.00	268.609217	107.4
6	JV24	L5	True	500.00	544.946551	109.0
7	JV25	L6	True	1000.00	1076.216325	107.6
8	JV26	L7	True	2500.00	2677.820269	107.1
9	JV27	L8	True	10000.00	10420.657495	104.2
10	JV28	L9	True	20000.00	19273.945258	96.4





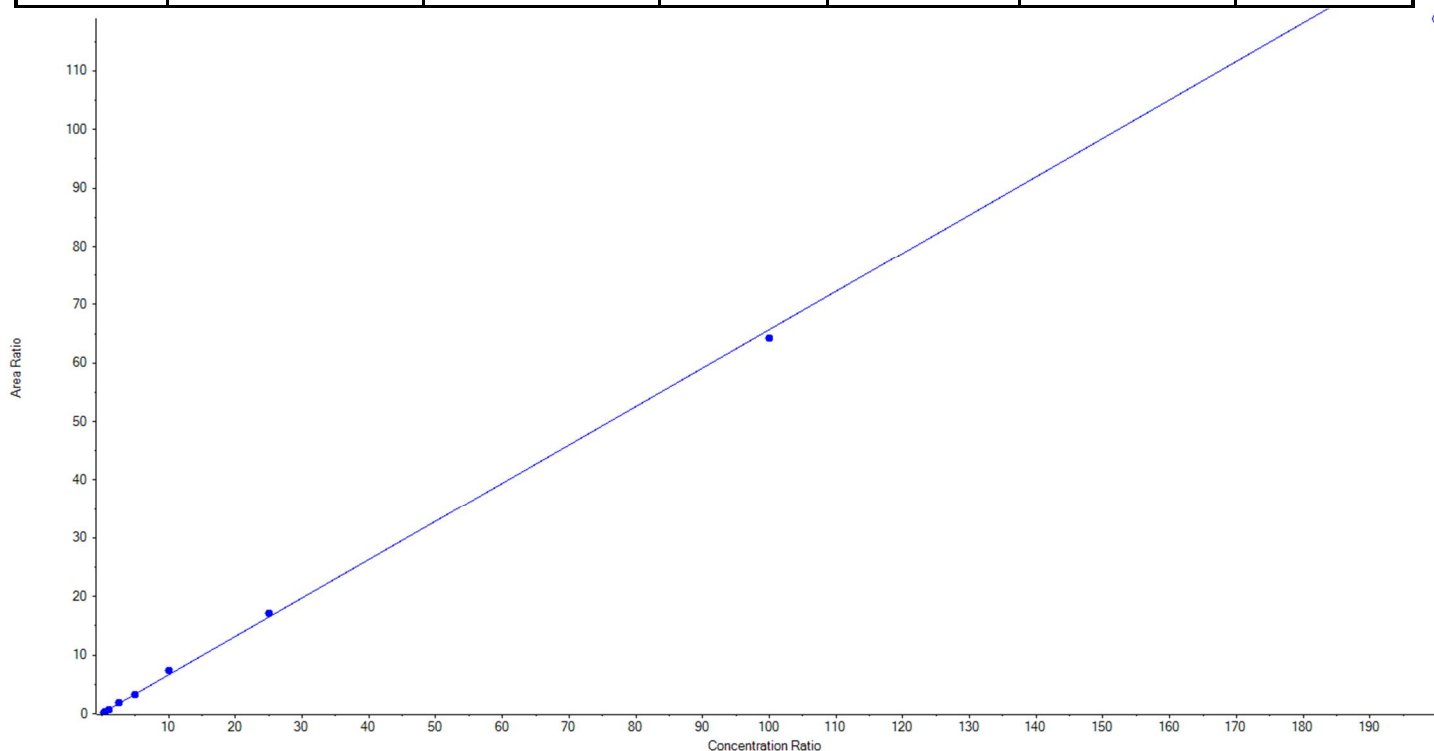
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/06/2018 8:11:15 PM

Analyte Name	PFTeDA_1	Data File	18-0334_18-0339.wiff
MRM Transition	713.0 / 669.0	Result Table	18-0334_BASE
Internal Standard	13C2-PFTeDA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.65613x + 0.06973$ ($r = 0.99918$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	19.622556	78.5
3	JV21	L2	True	50.00	48.244570	96.5
4	JV22	L3	True	100.00	105.794931	105.8
5	JV23	L4	True	250.00	268.824568	107.5
6	JV24	L5	True	500.00	497.478390	99.5
7	JV25	L6	True	1000.00	1107.322458	110.7
8	JV26	L7	True	2500.00	2589.694266	103.6
9	JV27	L8	True	10000.00	9788.018260	97.9
10	JV28	L9	False	20000.00	18106.532014	90.5





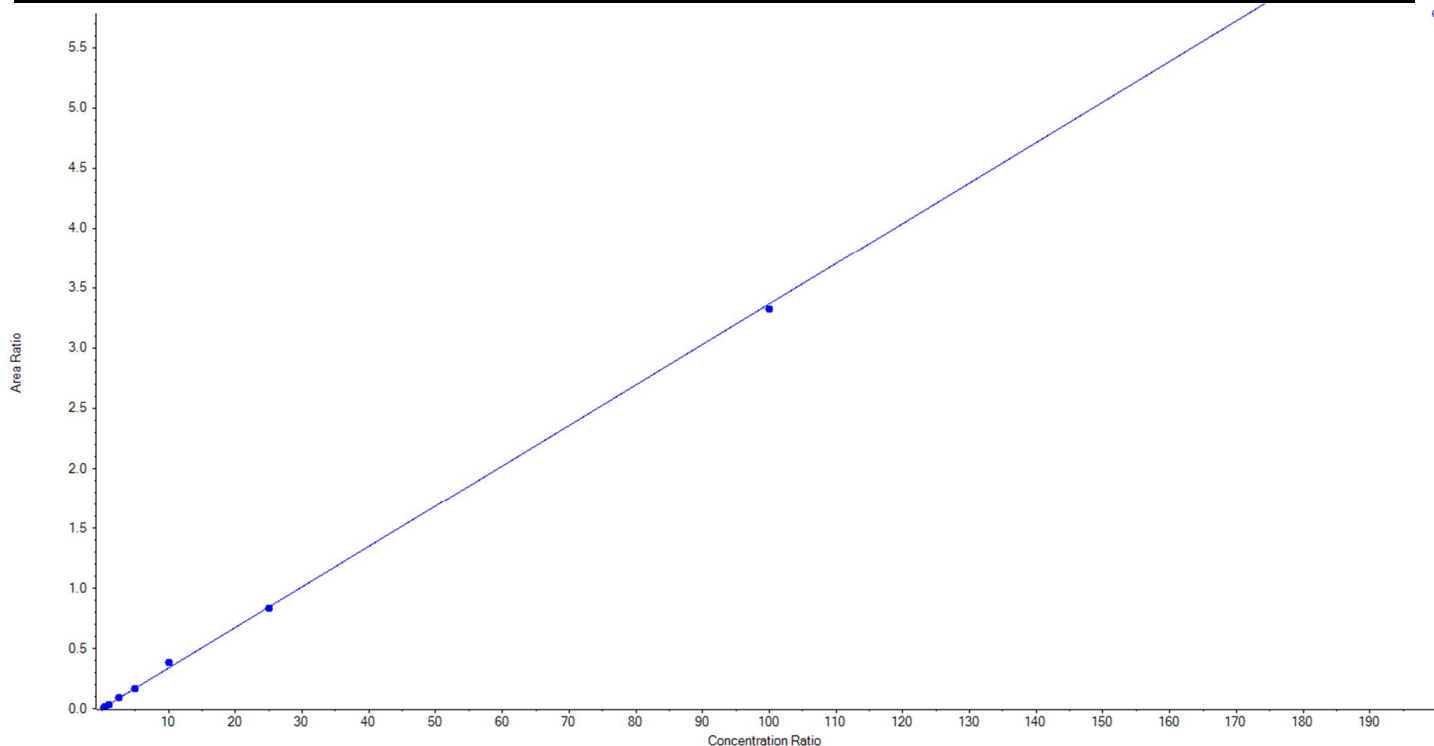
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/06/2018 8:11:15 PM

Analyte Name	PFTeDA_2	Data File	18-0334_18-0339.wiff
MRM Transition	713.0 / 169.0	Result Table	18-0334_BASE
Internal Standard	13C2-PFTeDA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.03365x + 0.00147$ ($r = 0.99917$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	18.113567	72.5
3	JV21	L2	True	50.00	56.211417	112.4
4	JV22	L3	True	100.00	98.635374	98.6
5	JV23	L4	True	250.00	264.144348	105.7
6	JV24	L5	True	500.00	498.661194	99.7
7	JV25	L6	True	1000.00	1132.146052	113.2
8	JV26	L7	True	2500.00	2477.068716	99.1
9	JV27	L8	True	10000.00	9880.019332	98.8
10	JV28	L9	False	20000.00	17173.824448	85.9





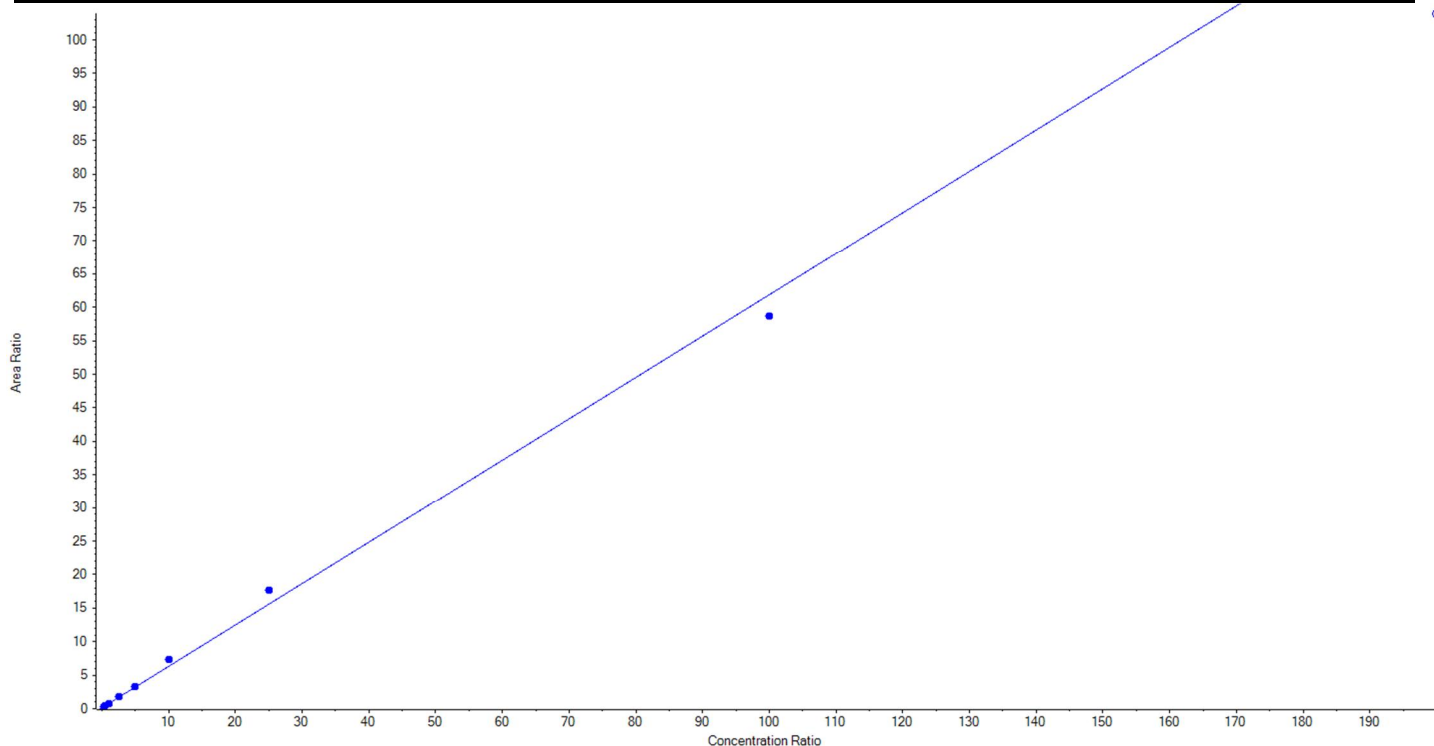
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/06/2018 8:11:15 PM

Analyte Name	NMeFOSAA_1	Data File	18-0334_18-0339.wiff
MRM Transition	570.0 / 419.0	Result Table	18-0334_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.61718x + 0.14438$ ($r = 0.99615$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	18.857493	75.4
3	JV21	L2	True	50.00	41.403253	82.8
4	JV22	L3	True	100.00	107.734733	107.7
5	JV23	L4	True	250.00	273.400562	109.4
6	JV24	L5	True	500.00	501.530763	100.3
7	JV25	L6	True	1000.00	1157.584702	115.8
8	JV26	L7	True	2500.00	2845.301925	113.8
9	JV27	L8	True	10000.00	9479.186569	94.8
10	JV28	L9	False	20000.00	16807.361536	84.0





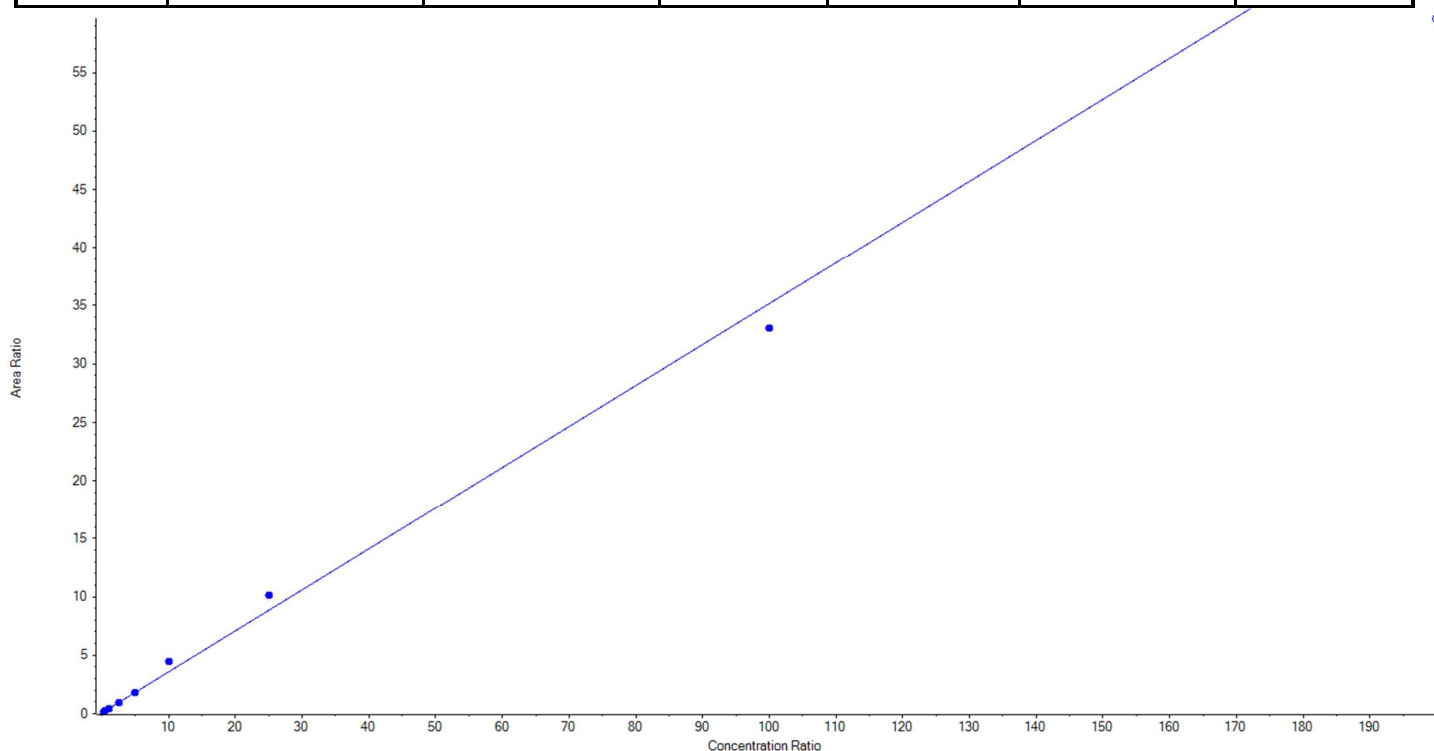
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/06/2018 8:11:15 PM

Analyte Name	NMeFOSAA_2	Data File	18-0334_18-0339.wiff
MRM Transition	570.0 / 512.0	Result Table	18-0334_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.35099x + 0.07007$ ($r = 0.99439$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	17.523854	70.1
3	JV21	L2	True	50.00	46.249712	92.5
4	JV22	L3	True	100.00	106.998398	107.0
5	JV23	L4	True	250.00	244.521936	97.8
6	JV24	L5	True	500.00	495.970787	99.2
7	JV25	L6	True	1000.00	1247.856696	124.8
8	JV26	L7	True	2500.00	2865.312512	114.6
9	JV27	L8	True	10000.00	9400.566106	94.0
10	JV28	L9	False	20000.00	16961.628975	84.8





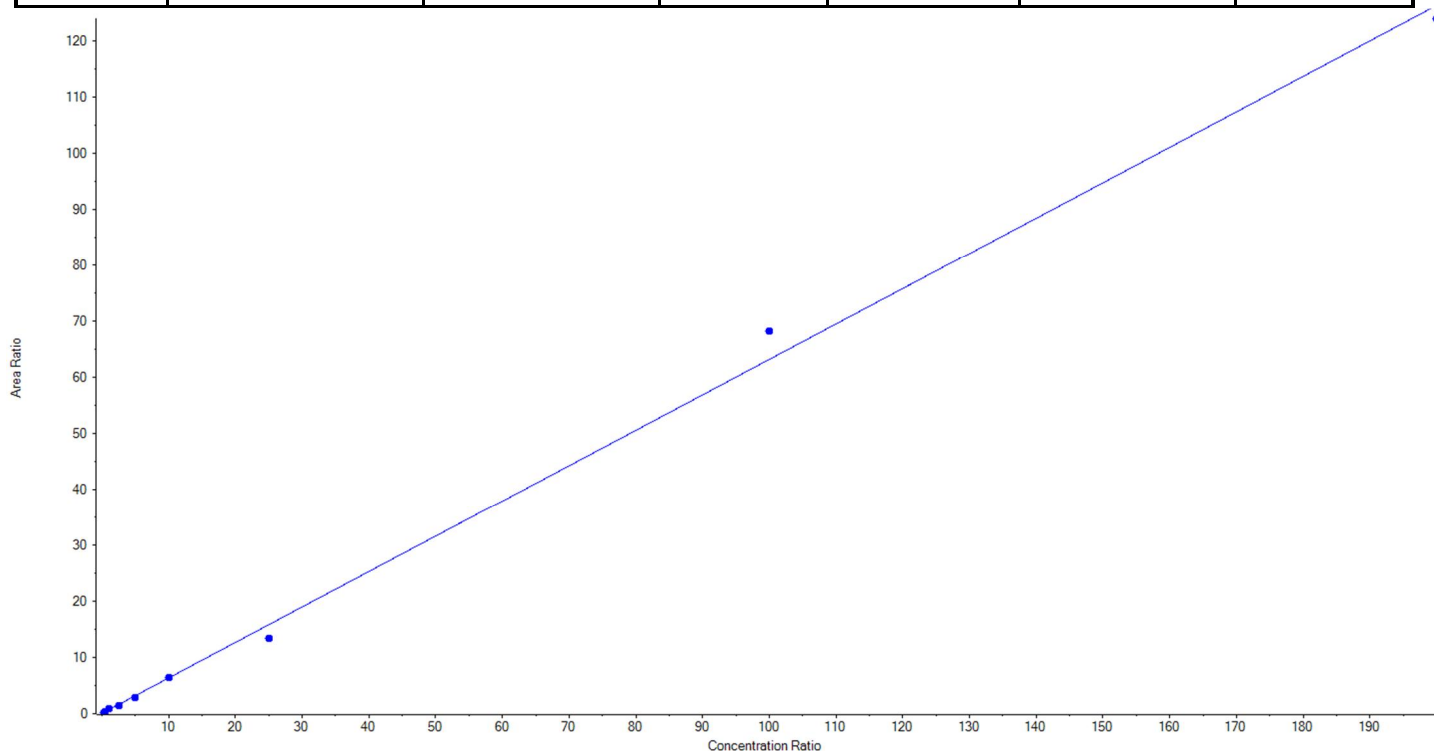
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/06/2018 8:11:15 PM

Analyte Name	NEtFOSAA_1	Data File	18-0334_18-0339.wiff
MRM Transition	584.0 / 419.0	Result Table	18-0334_BASE
Internal Standard	d5-EtFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.63180x + 0.04717$ ($r = 0.99788$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	23.829354	95.3
3	JV21	L2	True	50.00	51.985355	104.0
4	JV22	L3	True	100.00	126.998080	127.0
5	JV23	L4	True	250.00	225.203356	90.1
6	JV24	L5	True	500.00	455.422438	91.1
7	JV25	L6	True	1000.00	1019.443509	101.9
8	JV26	L7	True	2500.00	2116.363764	84.7
9	JV27	L8	True	10000.00	10784.058199	107.8
10	JV28	L9	True	20000.00	19621.695945	98.1





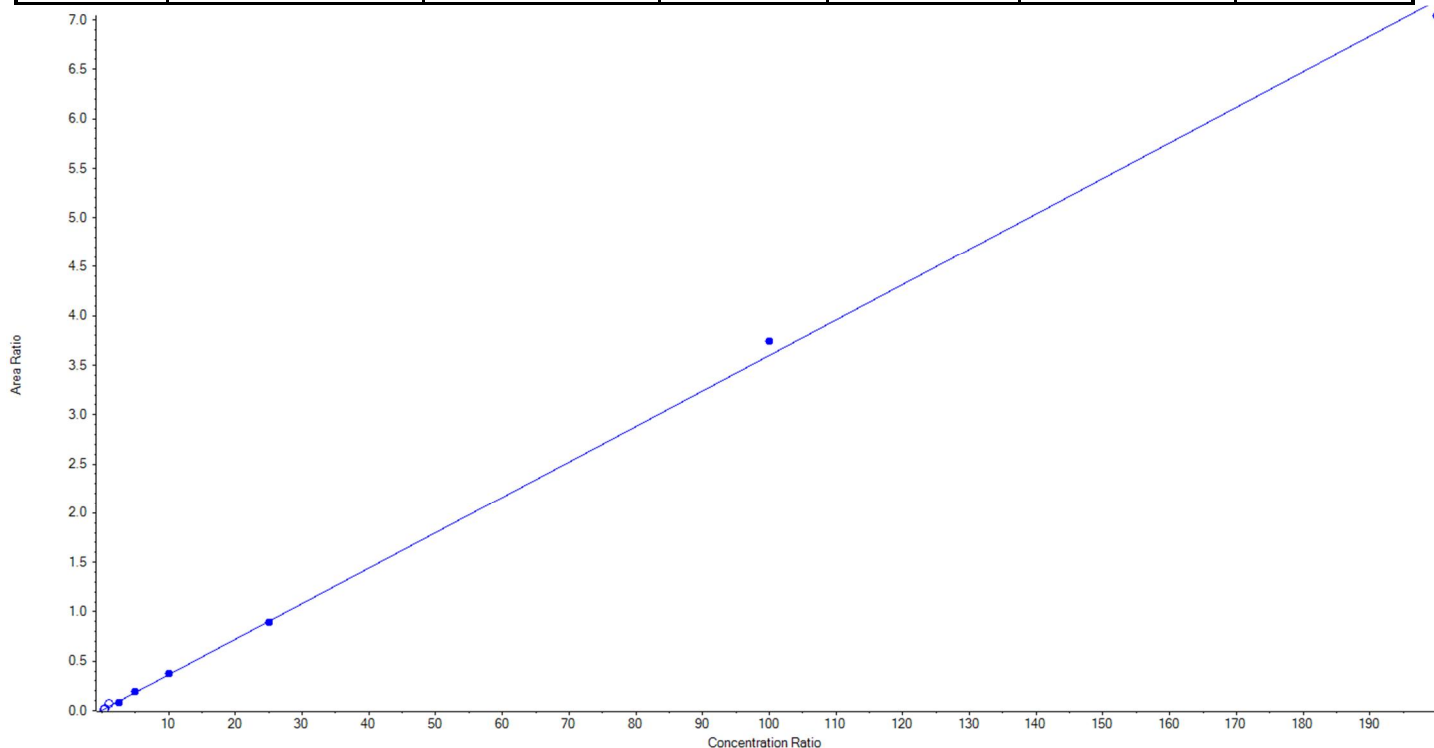
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/06/2018 8:11:15 PM

Analyte Name	NEtFOSAA_2	Data File	18-0334_18-0339.wiff
MRM Transition	584.0 / 483.0	Result Table	18-0334_BASE
Internal Standard	d5-EtFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	5/30/2018 7:07:30 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.03596 x + 0.00328$ ($r = 0.99943$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.00	16.243728	65.0
3	JV21	L2	False	50.00	49.048899	98.1
4	JV22	L3	False	100.00	198.946648	199.0
5	JV23	L4	True	250.00	220.143007	88.1
6	JV24	L5	True	500.00	540.480909	108.1
7	JV25	L6	True	1000.00	1025.969724	102.6
8	JV26	L7	True	2500.00	2482.358971	99.3
9	JV27	L8	True	10000.00	10410.009450	104.1
10	JV28	L9	True	20000.00	19571.037939	97.9



[illegible]

Sample Name	JW32 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T21:06:24	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	1169.732262	1010.00	115.82
PFBS_2	298.9 / 99.0	1.51	1150.612478	1010.00	113.92
PFHxA_1	313.0 / 269.0	1.79	1063.400542	1010.00	105.29
PFHxA_2	313.0 / 119.0	1.79	1101.573922	1010.00	109.07
PFHpA_1	363.0 / 319.0	2.16	1086.721282	1000.00	108.67
PFHpA_2	363.0 / 169.0	2.16	1225.269631	1000.00	122.53
PFHxS_1	399.0 / 80.0	2.18	849.596849	1010.00	84.12
PFHxS_2	399.0 / 99.0	2.18	844.885091	1010.00	83.65
PFOA_1	413.0 / 369.0	2.54	1204.923812	1000.00	120.49
PFOA_2	413.0 / 169.0	2.53	1091.284336	1000.00	109.13
PFNA_1	463.0 / 419.0	2.91	1057.100806	1000.00	105.71
PFNA_2	463.0 / 219.0	2.91	1041.029542	1000.00	104.10
PFOS_1	499.0 / 80.0	2.91	1135.583227	1000.00	113.56
PFOS_2	499.0 / 99.0	2.91	1050.552942	1000.00	105.06
PFDA_1	513.0 / 469.0	3.26	1067.681878	1000.00	106.77
PFDA_2	513.0 / 219.0	3.26	992.247705	1000.00	99.22
PFUnA_1	563.0 / 519.0	3.58	1136.485899	1000.00	113.65
PFUnA_2	563.0 / 269.0	3.58	1220.938085	1000.00	122.09
PFDoA_1	613.0 / 569.0	3.87	1046.633089	1000.00	104.66
PFDoA_2	613.0 / 319.0	3.87	1079.718814	1000.00	107.97
PFTTrDA_1	663.0 / 619.0	4.12	1128.467939	1000.00	112.85
PFTTrDA_2	663.0 / 169.0	4.12	1232.346514	1000.00	123.23
PFTeDA_1	713.0 / 669.0	4.34	1201.578421	1000.00	120.16
PFTeDA_2	713.0 / 169.0	4.34	1180.769046	1000.00	118.08
NMeFOSAA_1	570.0 / 419.0	3.42	1272.767043	1000.00	127.28
NMeFOSAA_2	570.0 / 512.0	3.42	1230.468323	1000.00	123.05
NEtFOSAA_1	584.0 / 419.0	3.58	1155.210098	1000.00	115.52
NEtFOSAA_2	584.0 / 483.0	3.58	1292.597631	1000.00	129.26

Sample Name	JV25 CCV	Injection Vial	7
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T23:05:14	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	1051.594416	1010.00	104.12
PFBS_2	298.9 / 99.0	1.51	1068.470198	1010.00	105.79
PFHxA_1	313.0 / 269.0	1.79	997.062659	1010.00	98.72
PFHxA_2	313.0 / 119.0	1.79	977.792360	1010.00	96.81
PFHpA_1	363.0 / 319.0	2.15	1076.171078	1000.00	107.62
PFHpA_2	363.0 / 169.0	2.16	1084.077327	1000.00	108.41
PFHxS_1	399.0 / 80.0	2.17	986.629761	1010.00	97.69
PFHxS_2	399.0 / 99.0	2.17	955.085906	1010.00	94.56
PFOA_1	413.0 / 369.0	2.53	1015.331745	1000.00	101.53
PFOA_2	413.0 / 169.0	2.53	1031.751746	1000.00	103.18
PFNA_1	463.0 / 419.0	2.91	1029.082976	1000.00	102.91
PFNA_2	463.0 / 219.0	2.91	1032.860132	1000.00	103.29
PFOS_1	499.0 / 80.0	2.90	1085.316324	1000.00	108.53
PFOS_2	499.0 / 99.0	2.90	1005.016004	1000.00	100.50
PFDA_1	513.0 / 469.0	3.26	938.362283	1000.00	93.84
PFDA_2	513.0 / 219.0	3.26	971.527883	1000.00	97.15
PFUnA_1	563.0 / 519.0	3.57	1023.669988	1000.00	102.37
PFUnA_2	563.0 / 269.0	3.57	948.439121	1000.00	94.84
PFDaA_1	613.0 / 569.0	3.86	1118.633881	1000.00	111.86
PFDaA_2	613.0 / 319.0	3.86	1089.193984	1000.00	108.92
PFTTrDA_1	663.0 / 619.0	4.11	1029.028798	1000.00	102.90
PFTTrDA_2	663.0 / 169.0	4.11	1151.998452	1000.00	115.20
PFTeDA_1	713.0 / 669.0	4.33	1107.280129	1000.00	110.73
PFTeDA_2	713.0 / 169.0	4.33	1089.802697	1000.00	108.98
NMeFOSAA_1	570.0 / 419.0	3.41	1211.915716	1000.00	121.19
NMeFOSAA_2	570.0 / 512.0	3.41	1331.684137	1000.00	133.17
NEtFOSAA_1	584.0 / 419.0	3.58	983.138980	1000.00	98.31
NEtFOSAA_2	584.0 / 483.0	3.57	1041.331173	1000.00	104.13

Sample Name	JV26 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T23:59:16	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.51	2669.646713	2525.00	105.73
PFBS_2	298.9 / 99.0	1.51	2633.117348	2525.00	104.28
PFHxA_1	313.0 / 269.0	1.79	2318.348238	2525.00	91.82
PFHxA_2	313.0 / 119.0	1.79	2426.216109	2525.00	96.09
PFHpA_1	363.0 / 319.0	2.16	2291.366468	2500.00	91.65
PFHpA_2	363.0 / 169.0	2.15	2370.227952	2500.00	94.81
PFHxS_1	399.0 / 80.0	2.17	2696.004215	2525.00	106.77
PFHxS_2	399.0 / 99.0	2.18	2646.766886	2525.00	104.82
PFOA_1	413.0 / 369.0	2.53	2454.571506	2500.00	98.18
PFOA_2	413.0 / 169.0	2.53	2705.522734	2500.00	108.22
PFNA_1	463.0 / 419.0	2.91	2617.104913	2500.00	104.68
PFNA_2	463.0 / 219.0	2.91	2563.369888	2500.00	102.53
PFOS_1	499.0 / 80.0	2.90	2717.605593	2500.00	108.70
PFOS_2	499.0 / 99.0	2.90	2600.128048	2500.00	104.01
PFDA_1	513.0 / 469.0	3.26	2764.949015	2500.00	110.60
PFDA_2	513.0 / 219.0	3.26	2944.340576	2500.00	117.77
PFUnA_1	563.0 / 519.0	3.58	2931.388626	2500.00	117.26
PFUnA_2	563.0 / 269.0	3.58	2672.211671	2500.00	106.89
PFDoA_1	613.0 / 569.0	3.86	2710.656622	2500.00	108.43
PFDoA_2	613.0 / 319.0	3.86	2551.909739	2500.00	102.08
PFTTrDA_1	663.0 / 619.0	4.11	2601.467193	2500.00	104.06
PFTTrDA_2	663.0 / 169.0	4.11	2936.321695	2500.00	117.45
PFTeDA_1	713.0 / 669.0	4.33	2729.741944	2500.00	109.19
PFTeDA_2	713.0 / 169.0	4.33	2663.079398	2500.00	106.52
NMeFOSAA_1	570.0 / 419.0	3.42	3165.857724	2500.00	126.63
NMeFOSAA_2	570.0 / 512.0	3.41	3448.255480	2500.00	137.93
NEtFOSAA_1	584.0 / 419.0	3.58	2305.582825	2500.00	92.22
NEtFOSAA_2	584.0 / 483.0	3.58	2419.269852	2500.00	96.77

Sample Name	JW32ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T21:06:24	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.86	99.591394	100.00	99.59
d3-MeFOSAA	573.0 / 419.0	3.41	87.801702	100.00	87.80
d5-EtFOSAA	589.0 / 419.0	3.58	83.818822	100.00	83.82
13C5-PFHxA	318.0 / 273.0	1.78	108.128172	100.00	108.13
13C4-PFHpA	367.0 / 322.0	2.15	109.123442	100.00	109.12
13C8-PFOA	421.0 / 376.0	2.53	104.576992	100.00	104.58
13C9-PFNA	472.0 / 427.0	2.90	104.945706	100.00	104.95
13C6-PFDA	519.0 / 474.0	3.25	95.718152	100.00	95.72
13C7-PFUnA	570.0 / 525.0	3.57	92.192613	100.00	92.19
13C2-PFTeDA	715.0 / 670.0	4.33	89.822548	100.00	89.82
13C3-PFBS	302.0 / 99.0	1.49	87.725173	92.90	94.43
13C3-PFHxS	402.0 / 99.0	2.17	114.454174	94.60	120.99
13C8-PFOS	507.0 / 99.0	2.90	95.337399	95.70	99.62

Sample Name	JV25 CCV	Injection Vial	7
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T23:05:14	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.85	95.680992	100.00	95.68
d3-MeFOSAA	573.0 / 419.0	3.41	83.125356	100.00	83.13
d5-EtFOSAA	589.0 / 419.0	3.57	96.239965	100.00	96.24
13C5-PFHxA	318.0 / 273.0	1.78	90.942729	100.00	90.94
13C4-PFHpA	367.0 / 322.0	2.14	87.754408	100.00	87.75
13C8-PFOA	421.0 / 376.0	2.52	96.190223	100.00	96.19
13C9-PFNA	472.0 / 427.0	2.89	90.733833	100.00	90.73
13C6-PFDA	519.0 / 474.0	3.24	105.303441	100.00	105.30
13C7-PFUnA	570.0 / 525.0	3.56	101.948362	100.00	101.95
13C2-PFTeDA	715.0 / 670.0	4.32	97.029138	100.00	97.03
13C3-PFBS	302.0 / 99.0	1.49	84.000005	92.90	90.42
13C3-PFHxS	402.0 / 99.0	2.16	84.367564	94.60	89.18
13C8-PFOS	507.0 / 99.0	2.89	88.056316	95.70	92.01

Sample Name	JV26 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T23:59:16	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.85	104.521779	100.00	104.52
d3-MeFOSAA	573.0 / 419.0	3.41	81.853470	100.00	81.85
d5-EtFOSAA	589.0 / 419.0	3.57	98.202447	100.00	98.20
13C5-PFHxA	318.0 / 273.0	1.78	102.856511	100.00	102.86
13C4-PFHpA	367.0 / 322.0	2.15	104.283273	100.00	104.28
13C8-PFOA	421.0 / 376.0	2.52	99.217586	100.00	99.22
13C9-PFNA	472.0 / 427.0	2.90	89.743926	100.00	89.74
13C6-PFDA	519.0 / 474.0	3.24	94.630467	100.00	94.63
13C7-PFUnA	570.0 / 525.0	3.56	94.505569	100.00	94.51
13C2-PFTeDA	715.0 / 670.0	4.32	100.860447	100.00	100.86
13C3-PFBS	302.0 / 99.0	1.49	85.626501	92.90	92.17
13C3-PFHxS	402.0 / 99.0	2.16	74.149239	94.60	78.38
13C8-PFOS	507.0 / 99.0	2.90	94.140199	95.70	98.37

Sample Name	JW32 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-04T21:22:01	Data File	06022018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334SIS_R
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.85	92.423865	100.00	92.42
d3-MeFOSAA	573.0 / 419.0	3.40	83.971362	100.00	83.97
d5-EtFOSAA	589.0 / 419.0	3.56	95.108663	100.00	95.11
13C5-PFHxA	318.0 / 273.0	1.76	100.963495	100.00	100.96
13C4-PFHpA	367.0 / 322.0	2.13	85.829500	100.00	85.83
13C8-PFOA	421.0 / 376.0	2.51	100.887482	100.00	100.89
13C9-PFNA	472.0 / 427.0	2.89	110.143828	100.00	110.14
13C6-PFDA	519.0 / 474.0	3.24	101.966837	100.00	101.97
13C7-PFUnA	570.0 / 525.0	3.55	95.622400	100.00	95.62
13C2-PFTeDA	715.0 / 670.0	4.32	93.754236	100.00	93.75
13C3-PFBS	302.0 / 99.0	1.48	75.244566	92.90	81.00
13C3-PFHxS	402.0 / 99.0	2.15	97.091877	94.60	102.63
13C8-PFOS	507.0 / 99.0	2.89	99.095662	95.70	103.55

Sample Name	JV26 CCV	Injection Vial	8
Sample ID		Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-04T22:37:33	Data File	06022018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334SIS_R
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.84	88.871372	100.00	88.87
d3-MeFOSAA	573.0 / 419.0	3.39	92.603530	100.00	92.60
d5-EtFOSAA	589.0 / 419.0	3.55	109.498795	100.00	109.50
13C5-PFHxA	318.0 / 273.0	1.76	102.326873	100.00	102.33
13C4-PFHpA	367.0 / 322.0	2.13	91.303680	100.00	91.30
13C8-PFOA	421.0 / 376.0	2.51	98.454718	100.00	98.45
13C9-PFNA	472.0 / 427.0	2.88	98.785382	100.00	98.79
13C6-PFDA	519.0 / 474.0	3.23	93.340998	100.00	93.34
13C7-PFUnA	570.0 / 525.0	3.55	98.151641	100.00	98.15
13C2-PFTeDA	715.0 / 670.0	4.31	94.373010	100.00	94.37
13C3-PFBS	302.0 / 99.0	1.47	110.375458	92.90	118.81
13C3-PFHxS	402.0 / 99.0	2.15	121.152412	94.60	128.07
13C8-PFOS	507.0 / 99.0	2.88	119.093690	95.70	124.44

Sample Name	JV05 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T20:55:34	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
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	1.50	PFBS	0.544	0.324	
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.204	0.067	
PFHpA_1	363.0 / 319.0	2.16	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.020	
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.19	PFHxS	0.299	0.293	ü
PFOA_1	413.0 / 369.0	2.53	PFOA			
PFOA_2	413.0 / 169.0	2.55	PFOA	0.039	0.061	ü
PFNA_1	463.0 / 419.0	2.91	PFNA			
PFNA_2	463.0 / 219.0	2.91	PFNA	0.364	0.292	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.170	0.185	ü
PFDA_1	513.0 / 469.0	3.26	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.039	
PFUnA_1	563.0 / 519.0	3.58	PFUnA			
PFUnA_2	563.0 / 269.0	3.55	PFUnA	0.068	0.053	ü
PFDoA_1	613.0 / 569.0	3.87	PFDoA			
PFDoA_2	613.0 / 319.0	3.86	PFDoA	0.176	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.12	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.12	PFTTrDA	0.120	0.070	
PFTeDA_1	713.0 / 669.0	4.34	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.34	PFTeDA	0.067	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.42	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.42	NMeFOSAA	0.485	0.556	ü
NEtFOSAA_1	584.0 / 419.0	3.59	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.048	0.060	ü

Sample Name	CQ842PB-FS(3)	Injection Vial	14
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T21:38:48	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.890	0.324	
PFHxA_1	313.0 / 269.0	1.80	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.067	
PFHpA_1	363.0 / 319.0	2.16	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.020	
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.293	ü
PFOA_1	413.0 / 369.0	2.53	PFOA			
PFOA_2	413.0 / 169.0	2.53	PFOA	0.084	0.061	ü
PFNA_1	463.0 / 419.0	2.89	PFNA			
PFNA_2	463.0 / 219.0	2.90	PFNA	0.197	0.292	ü
PFOS_1	499.0 / 80.0	2.87	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.185	
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.039	ü
PFUnA_1	563.0 / 519.0	3.57	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDaA_1	613.0 / 569.0	N/A	PFDaA			
PFDaA_2	613.0 / 319.0	N/A	PFDaA	N/A	0.161	ü
PFTTrDA_1	663.0 / 619.0	N/A	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.070	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	3.43	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.556	
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.060	ü

Sample Name	CQ843LCS-FS(3)	Injection Vial	15
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T21:49:37	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.331	0.324	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.066	0.067	ü
PFHpA_1	363.0 / 319.0	2.16	PFHpA			
PFHpA_2	363.0 / 169.0	2.16	PFHpA	0.023	0.020	ü
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.284	0.293	ü
PFOA_1	413.0 / 369.0	2.53	PFOA			
PFOA_2	413.0 / 169.0	2.53	PFOA	0.068	0.061	ü
PFNA_1	463.0 / 419.0	2.91	PFNA			
PFNA_2	463.0 / 219.0	2.91	PFNA	0.294	0.292	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.179	0.185	ü
PFDA_1	513.0 / 469.0	3.26	PFDA			
PFDA_2	513.0 / 219.0	3.26	PFDA	0.043	0.039	ü
PFUnA_1	563.0 / 519.0	3.58	PFUnA			
PFUnA_2	563.0 / 269.0	3.58	PFUnA	0.048	0.053	ü
PFDoA_1	613.0 / 569.0	3.87	PFDoA			
PFDoA_2	613.0 / 319.0	3.87	PFDoA	0.155	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.11	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.11	PFTTrDA	0.066	0.070	ü
PFTeDA_1	713.0 / 669.0	4.34	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.33	PFTeDA	0.048	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.42	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.42	NMeFOSAA	0.522	0.556	ü
NEtFOSAA_1	584.0 / 419.0	3.58	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.58	NEtFOSAA	0.060	0.060	ü

Sample Name	J6222-FS(3)	Injection Vial	16
Sample ID	09-GW014-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T22:00:25	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.377	0.324	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.81	PFHxA	0.068	0.067	ü
PFHpA_1	363.0 / 319.0	2.15	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.072	0.020	
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.17	PFHxS	0.270	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.131	0.061	
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.292	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.185	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	3.28	PFDA	N/A	0.039	
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	3.87	PFDaA			
PFDaA_2	613.0 / 319.0	3.87	PFDaA	0.167	0.161	ü
PFTTrDA_1	663.0 / 619.0	N/A	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.070	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	3.41	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.41	NMeFOSAA	0.639	0.556	ü
NEtFOSAA_1	584.0 / 419.0	3.58	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.060	

Sample Name	J6222MS-FS(3)	Injection Vial	17
Sample ID	09-GW014-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T22:11:13	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.320	0.324	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.072	0.067	ü
PFHpA_1	363.0 / 319.0	2.16	PFHpA			
PFHpA_2	363.0 / 169.0	2.16	PFHpA	0.019	0.020	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.280	0.293	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.067	0.061	ü
PFNA_1	463.0 / 419.0	2.91	PFNA			
PFNA_2	463.0 / 219.0	2.91	PFNA	0.296	0.292	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.183	0.185	ü
PFDA_1	513.0 / 469.0	3.26	PFDA			
PFDA_2	513.0 / 219.0	3.27	PFDA	0.040	0.039	ü
PFUnA_1	563.0 / 519.0	3.58	PFUnA			
PFUnA_2	563.0 / 269.0	3.58	PFUnA	0.053	0.053	ü
PFDaA_1	613.0 / 569.0	3.87	PFDaA			
PFDaA_2	613.0 / 319.0	3.87	PFDaA	0.147	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.12	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.11	PFTTrDA	0.068	0.070	ü
PFTeDA_1	713.0 / 669.0	4.34	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.33	PFTeDA	0.050	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.42	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.42	NMeFOSAA	0.565	0.556	ü
NEtFOSAA_1	584.0 / 419.0	3.58	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.58	NEtFOSAA	0.059	0.060	ü

Sample Name	J6222MSD-FS(3)	Injection Vial	18
Sample ID	09-GW014-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T22:22:01	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.321	0.324	ü
PFHxA_1	313.0 / 269.0	1.79	PFHxA			
PFHxA_2	313.0 / 119.0	1.79	PFHxA	0.068	0.067	ü
PFHpA_1	363.0 / 319.0	2.16	PFHpA			
PFHpA_2	363.0 / 169.0	2.16	PFHpA	0.019	0.020	ü
PFHxS_1	399.0 / 80.0	2.18	PFHxS			
PFHxS_2	399.0 / 99.0	2.18	PFHxS	0.286	0.293	ü
PFOA_1	413.0 / 369.0	2.54	PFOA			
PFOA_2	413.0 / 169.0	2.53	PFOA	0.069	0.061	ü
PFNA_1	463.0 / 419.0	2.91	PFNA			
PFNA_2	463.0 / 219.0	2.91	PFNA	0.295	0.292	ü
PFOS_1	499.0 / 80.0	2.90	PFOS			
PFOS_2	499.0 / 99.0	2.91	PFOS	0.180	0.185	ü
PFDA_1	513.0 / 469.0	3.26	PFDA			
PFDA_2	513.0 / 219.0	3.26	PFDA	0.043	0.039	ü
PFUnA_1	563.0 / 519.0	3.58	PFUnA			
PFUnA_2	563.0 / 269.0	3.58	PFUnA	0.053	0.053	ü
PFDoA_1	613.0 / 569.0	3.86	PFDoA			
PFDoA_2	613.0 / 319.0	3.86	PFDoA	0.155	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.11	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.11	PFTTrDA	0.064	0.070	ü
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.33	PFTeDA	0.049	0.049	ü
NMeFOSAA_1	570.0 / 419.0	3.42	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.42	NMeFOSAA	0.556	0.556	ü
NEtFOSAA_1	584.0 / 419.0	3.58	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.58	NEtFOSAA	0.061	0.060	ü

Sample Name	J6223-FS(3)	Injection Vial	19
Sample ID	09-FD-051718-01	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T22:32:49	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.278	0.324	ü
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.80	PFHxA	0.044	0.067	ü
PFHpA_1	363.0 / 319.0	2.15	PFHpA			
PFHpA_2	363.0 / 169.0	2.19	PFHpA	0.022	0.020	ü
PFHxS_1	399.0 / 80.0	2.16	PFHxS			
PFHxS_2	399.0 / 99.0	2.17	PFHxS	0.286	0.293	ü
PFOA_1	413.0 / 369.0	2.53	PFOA			
PFOA_2	413.0 / 169.0	2.50	PFOA	0.171	0.061	
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	2.91	PFNA	N/A	0.292	
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.185	
PFDA_1	513.0 / 469.0	3.26	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.039	
PFUnA_1	563.0 / 519.0	3.59	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.161	ü
PFTTrDA_1	663.0 / 619.0	4.12	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.070	
PFTeDA_1	713.0 / 669.0	4.33	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.049	
NMeFOSAA_1	570.0 / 419.0	3.41	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.41	NMeFOSAA	0.833	0.556	ü
NEtFOSAA_1	584.0 / 419.0	3.57	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.060	

Sample Name	J6224-FS(3)	Injection Vial	20
Sample ID	09-TW013-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T22:43:36	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	1.50	PFBS	0.121	0.324	
PFHxA_1	313.0 / 269.0	1.78	PFHxA			
PFHxA_2	313.0 / 119.0	1.78	PFHxA	0.052	0.067	ü
PFHpA_1	363.0 / 319.0	2.15	PFHpA			
PFHpA_2	363.0 / 169.0	2.13	PFHpA	0.024	0.020	ü
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.17	PFHxS	0.270	0.293	ü
PFOA_1	413.0 / 369.0	2.52	PFOA			
PFOA_2	413.0 / 169.0	2.51	PFOA	0.099	0.061	
PFNA_1	463.0 / 419.0	2.90	PFNA			
PFNA_2	463.0 / 219.0	2.90	PFNA	0.287	0.292	ü
PFOS_1	499.0 / 80.0	2.89	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.173	0.185	ü
PFDA_1	513.0 / 469.0	3.23	PFDA			
PFDA_2	513.0 / 219.0	3.23	PFDA	0.047	0.039	ü
PFUnA_1	563.0 / 519.0	3.54	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.161	ü
PFTTrDA_1	663.0 / 619.0	N/A	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.070	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	0.556	ü
NEtFOSAA_1	584.0 / 419.0	3.56	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.060	

Sample Name	J6225-FS(3)	Injection Vial	21
Sample ID	09-GW015-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T22:54:26	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
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	0.324	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.067	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.020	ü
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.20	PFHxS	0.600	0.293	
PFOA_1	413.0 / 369.0	2.53	PFOA			
PFOA_2	413.0 / 169.0	2.52	PFOA	0.131	0.061	
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.292	ü
PFOS_1	499.0 / 80.0	2.91	PFOS			
PFOS_2	499.0 / 99.0	2.90	PFOS	0.150	0.185	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.039	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.161	ü
PFTTrDA_1	663.0 / 619.0	N/A	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.070	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	0.556	ü
NEtFOSAA_1	584.0 / 419.0	3.58	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.060	

Sample Name	J6226-FS(3)	Injection Vial	22
Sample ID	09-EB-GW-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T23:26:52	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.51	PFBS			
PFBS_2	298.9 / 99.0	N/A	PFBS	N/A	0.324	
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.067	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.020	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.293	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.061	ü
PFNA_1	463.0 / 419.0	2.91	PFNA			
PFNA_2	463.0 / 219.0	2.91	PFNA	0.326	0.292	ü
PFOS_1	499.0 / 80.0	N/A	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.185	ü
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.039	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	0.161	ü
PFTTrDA_1	663.0 / 619.0	N/A	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.070	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	3.40	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.556	
NEtFOSAA_1	584.0 / 419.0	3.58	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.060	

Sample Name	J6228-FS(3)	Injection Vial	23
Sample ID	09-GW013-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T23:37:41	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.50	PFBS			
PFBS_2	298.9 / 99.0	1.51	PFBS	0.249	0.324	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.067	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.020	ü
PFHxS_1	399.0 / 80.0	2.17	PFHxS			
PFHxS_2	399.0 / 99.0	2.17	PFHxS	0.288	0.293	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.061	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.292	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.84	PFOS	0.042	0.185	
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.039	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	0.161	ü
PFTTrDA_1	663.0 / 619.0	N/A	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.070	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	0.556	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.060	ü

Sample Name	J6229-FS(3)	Injection Vial	24
Sample ID	09-GW012-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-05-30T23:48:28	Data File	18-0334_18-0339.wiff
Acquisition Method	5-0369.dam	Result Table	18-0334_BASE
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	0.324	ü
PFHxA_1	313.0 / 269.0	N/A	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	PFHxA	N/A	0.067	ü
PFHpA_1	363.0 / 319.0	N/A	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	PFHpA	N/A	0.020	ü
PFHxS_1	399.0 / 80.0	N/A	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	PFHxS	N/A	0.293	ü
PFOA_1	413.0 / 369.0	N/A	PFOA			
PFOA_2	413.0 / 169.0	N/A	PFOA	N/A	0.061	ü
PFNA_1	463.0 / 419.0	N/A	PFNA			
PFNA_2	463.0 / 219.0	N/A	PFNA	N/A	0.292	ü
PFOS_1	499.0 / 80.0	2.92	PFOS			
PFOS_2	499.0 / 99.0	N/A	PFOS	N/A	0.185	
PFDA_1	513.0 / 469.0	N/A	PFDA			
PFDA_2	513.0 / 219.0	N/A	PFDA	N/A	0.039	ü
PFUnA_1	563.0 / 519.0	N/A	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.053	ü
PFDoA_1	613.0 / 569.0	N/A	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	PFDoA	N/A	0.161	ü
PFTTrDA_1	663.0 / 619.0	N/A	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.070	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	0.556	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.060	ü

QA/QC Summary Batch 18-0349

Project:	CTO-ML4144: Naval Support Activity Crane, Indiana
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	GW, QC
Data Set:	DP-18-0139
Analytical SOP:	5-369
Method Reference:	PFAS to QSM 5.1 Table B-15

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
5/17/2018	5/19/2018	1.2

Corrective Actions	None.
Sample Storage	The samples were stored refrigerated until extraction.
Related samples	Related field samples reported in SDG 18-0334.

	METHOD SUMMARIES
Sample Preparation	Water samples were spiked with surrogates in the original sample container from the field. The water was extracted using a weak ion exchange solid phase extraction (SPE) cartridge and eluted from the SPE with methanol. Extracts were split and concentrated to dryness under nitrogen with a water bath set between 35 °C and 45 °C, reconstituted with 80:20 methanol/water (V/V) and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis.
Prep comments	None.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on Sciex 5500 LC-MS/MS. The confirmation ion ratio was above 50% RPD for the following samples and analytes: Procedural blank – PFUnA, PFDoA, and PFTrDA, all detected below the MDL values. 09-FRB-051718 (J6227) – PFDA and PFUnA, both detected below the MDL values. The FRB sample was extracted outside of the 14 day collection to extraction window, all data is appropriately flagged with the “T” qualifier. The results for PFHxA, PFHxS, and PFOS were impacted by water samples extracted prior to these FRB samples on the same manifold. The manifold, including all valves, were cleaned between batches, however, the water samples extracted prior to these appear to be heavily impacted by AFFF (samples required 1:1,000,000-fold dilutions). The samples that caused the issues were

QA/QC Summary

Batch 18-0349

	extracted on 6/4 and did not impact the extraction of batch 18-0334. The samples in question were not part of the ML4144 project.	
Holding Times	Extraction Date(s)	Analysis Date(s)
	6/5/2018	6/8/2018
Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.	
≤ ½ the LOQ Samples >10x PB	2 exceedances noted for PB hits ≤ ½ the LOQ. 3 sample exceedances for samples >10x PB.	
	PFHxA and PFOS are greater than ½ the LOQ in the blank, the most likely cause of these exceedances is the AFFF sample mentioned above in the analysis comments. Similarly, PFHxA and PFOS are B flagged in the Laboratory Control Spike. PFOS is B flagged in sample 09-FRB-051718. Instrument blank was clean, and all other analytes are below the MDL or LOD in the PB, two bottles were not collected for FRB samples for re-extraction.	
Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.	
Laboratory derived control limits for recovery	No exceedances noted.	
	No comments.	
Extracted Internal Standard Analytes	Labelled analog compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.	
50-150% of true value	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.	
+/- 30% of true value, R ² ≥0.99	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.	
+/- 30% of true value	No exceedances noted.	
	No comments.	

QA/QC Summary
Batch 18-0349

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.
+/- 30% of true value	No exceedances noted.
	No comments.

Instrument Blank (IB)	Immediately following the highest standard analyzed and daily prior to sample analysis.
≤ ½ the LOQ	No exceedances noted.
	No comments.



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project Number: 100118096-ML4144
 Preparation Batch: 18-0349
 Data Set: DP-18-0139
 Test Code: Master_369

QC Parameter:	Exceed:	Justification:
Procedural Blank	2	Contamination of the extraction manifold from previous samples likely for analytes typically found at high levels in AFFF. Re-extraction could not be done as additional sample was not available.
PB Measurement Quality Objective	3	Contamination of the extraction manifold from previous samples likely for analytes typically found at high levels in AFFF. Re-extraction could not be done as additional sample was not available.
Laboratory Control Sample	0	None
Matrix Spike / Matrix Spike Duplicate Recovery	0	None
Matrix Spike / Matrix Spike Duplicate Precision	NA	None
Extracted Internal Standard Analytes (Surrogates)	NA	None
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None



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: CQ892LCS-FS(3)
 Client Sample ID: Laboratory Control Sample
 Sample Size: 0.25
 Units: L
 Dilution Factor: 2.000
 PIV (L): 0.0005
 Target Analyte: NMeFOSAA
 MRM Transition: 570.0 / 419.0
 Data file: 6072018.wiff
 Result table: 18-0349_BASE
 Area: 126,145.84
 IS Name: d3-MeFOSAA
 IS Area: 8,639.70
 IS Amount (ng/L): 100
 y-intercept: 0.04941
 slope: 0.6802

$$\text{Concentration} = \frac{[(126145.84/8639.7) - 0.04941]}{0.6802} * 100 * 0.0005 * 2 / 0.25$$

ng/L = 8.56



It can be done

BATTELLE - NORWELL OPERATIONS MISCELLANEOUS DOCUMENTATION FORM

Project Title:	CTO-ML4144: Naval Support Activity Cr	Data Set Number:	DP-18-0139
Project Number:	100118096-ML4144	Prep Batch Number:	18-0349
Entered By:	Denise Schumitz	Entered On:	06/14/2018
Test Code (Matrix Type):	Master_369(L)		

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
DMS 6/14/2018

JV20 is not being used in method 18-0349_SIS for d3-MeFOSAA, d5-EtFOSAA and 13C3-PFHxS. There is no impact on the data once this point is removed from the calibration.
DMS 6/14/2018

JV20 and JV21 are not being used in method 18-0349_BASE for PFHxA, PFOS and PFDoA. There is no impact on the data once these points are removed from the calibration.
DMS 6/14/2018

JV28 is not being used in method 18-0349_BASE for NMeFOSAA. There is no impact on the data once this point is removed from the calibration.
DMS 6/14/2018

JV20 in method 18-0349_BASE has an ion ratio of >50% for PFHpA, PFOS and NEtFOSAA.
DMS 6/14/2018

JV05 IB in method 18-0349_BASE has an ion ratios of >50% for NEtFOSAA.
DMS 6/14/2018

CQ896PB in method 18-0349_BASE has an ion ratio of >50% for PFUnA, PFDoA, and PFTTrDA.
DMS 6/14/2018

J6227 in method 18-0349_BASE has an ion ratio of >50% for PFDA and PFUnA.
DMS 6/14/2018

Task Leader Approval:

Supervisor Approval:

PM Approval:

Digitally signed by Jonathan Thorn

Date: 2018.06.19 11:04:06 -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, MDL reported



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Preparation Batch: 18-0349

Data Set: DP-18-0139

	CQ891PB-FS (Procedural Blank)	CQ892LCS-FS (Laboratory Control Sample)	J6227-FS (09-FRB-051718)
PFHxA	L	L	L
PFHpA	L	L	L
PFOA	L	L	L
PFNA	L	L	L
PFDA	-	L	-
PFUnA	-	L	-
PFDoA	-	L	-
PFTTrDA	-	L	-
PFTeDA	-	L	-
NMeFOSAA	-	L	-
NEtFOSAA	-	L	-
PFBS	-	L	L
PFHxS	L	L/Br	L
PFOS	L/Br	L/Br	L/Br

"L": Linear

"Br": branched

"L/Br": Linear/Branched

"-": Not detected



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper
JV24	L5	6/7/18 21:15	13C2-PFOA	64,200.44	32,100.22	96,300.66

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier
JV20	L1	6/7/18 20:32	13C2-PFOA	57,353.19	32,100.22	96,300.66	
JV21	L2	6/7/18 20:43	13C2-PFOA	49,109.84	32,100.22	96,300.66	
JV22	L3	6/7/18 20:53	13C2-PFOA	62,846.02	32,100.22	96,300.66	
JV23	L4	6/7/18 21:04	13C2-PFOA	70,044.68	32,100.22	96,300.66	
JV24	L5	6/7/18 21:15	13C2-PFOA	64,200.44	32,100.22	96,300.66	
JV25	L6	6/7/18 21:25	13C2-PFOA	55,104.55	32,100.22	96,300.66	
JV26	L7	6/7/18 21:36	13C2-PFOA	58,364.38	32,100.22	96,300.66	
JV27	L8	6/7/18 21:47	13C2-PFOA	65,699.95	32,100.22	96,300.66	
JV28	L9	6/7/18 21:57	13C2-PFOA	74,209.03	32,100.22	96,300.66	
JV05 IB	Instrument Blank	6/7/18 22:08	13C2-PFOA	66,887.41	32,100.22	96,300.66	
JW32 ICC	ICC	6/7/18 22:19	13C2-PFOA	48,616.94	32,100.22	96,300.66	
CQ891PB-FS(3)	Procedural Blank	6/8/18 0:16	13C2-PFOA	51,298.67	32,100.22	96,300.66	
CQ892LCS-FS(3)	Laboratory Control Sample	6/8/18 0:27	13C2-PFOA	44,171.18	32,100.22	96,300.66	
J6227-FS(3)	09-FRB-051718	6/8/18 0:38	13C2-PFOA	49,048.13	32,100.22	96,300.66	
JV26 CCV	CCV	6/8/18 0:59	13C2-PFOA	58,380.23	32,100.22	96,300.66	



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper
JV24	L5	6/7/18 21:15	13C2-PFDA	69,743.01	34,871.51	104,614.52

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier
JV20	L1	6/7/18 20:32	13C2-PFDA	59,557.03	34,871.51	104,614.52	
JV21	L2	6/7/18 20:43	13C2-PFDA	54,456.09	34,871.51	104,614.52	
JV22	L3	6/7/18 20:53	13C2-PFDA	69,075.44	34,871.51	104,614.52	
JV23	L4	6/7/18 21:04	13C2-PFDA	68,842.20	34,871.51	104,614.52	
JV24	L5	6/7/18 21:15	13C2-PFDA	69,743.01	34,871.51	104,614.52	
JV25	L6	6/7/18 21:25	13C2-PFDA	62,623.00	34,871.51	104,614.52	
JV26	L7	6/7/18 21:36	13C2-PFDA	60,533.01	34,871.51	104,614.52	
JV27	L8	6/7/18 21:47	13C2-PFDA	63,218.27	34,871.51	104,614.52	
JV28	L9	6/7/18 21:57	13C2-PFDA	77,714.45	34,871.51	104,614.52	
JV05 IB	Instrument Blank	6/7/18 22:08	13C2-PFDA	75,273.77	34,871.51	104,614.52	
JW32 ICC	ICC	6/7/18 22:19	13C2-PFDA	47,103.14	34,871.51	104,614.52	
CQ891PB-FS(3)	Procedural Blank	6/8/18 0:16	13C2-PFDA	49,388.41	34,871.51	104,614.52	
CQ892LCS-FS(3)	Labortory Control Sample	6/8/18 0:27	13C2-PFDA	42,815.43	34,871.51	104,614.52	
J6227-FS(3)	09-FRB-051718	6/8/18 0:38	13C2-PFDA	51,047.24	34,871.51	104,614.52	
JV26 CCV	CCV	6/8/18 0:59	13C2-PFDA	60,931.63	34,871.51	104,614.52	



Project Client: Tetra Tech

Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.: 100118096-ML4144

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper
JV24	L5	6/7/18 21:15	13C4-PFOS	17,621.34	8,810.67	26,432.01

Sample Name	Sample ID	Analysis Date	Analyte	Area	Lower	Upper	Qualifier
JV20	L1	6/7/18 20:32	13C4-PFOS	11,468.96	8,810.67	26,432.01	
JV21	L2	6/7/18 20:43	13C4-PFOS	12,130.72	8,810.67	26,432.01	
JV22	L3	6/7/18 20:53	13C4-PFOS	14,221.94	8,810.67	26,432.01	
JV23	L4	6/7/18 21:04	13C4-PFOS	15,596.73	8,810.67	26,432.01	
JV24	L5	6/7/18 21:15	13C4-PFOS	17,621.34	8,810.67	26,432.01	
JV25	L6	6/7/18 21:25	13C4-PFOS	14,878.58	8,810.67	26,432.01	
JV26	L7	6/7/18 21:36	13C4-PFOS	16,218.32	8,810.67	26,432.01	
JV27	L8	6/7/18 21:47	13C4-PFOS	15,802.34	8,810.67	26,432.01	
JV28	L9	6/7/18 21:57	13C4-PFOS	15,001.44	8,810.67	26,432.01	
JV05 IB	Instrument Blank	6/7/18 22:08	13C4-PFOS	18,935.15	8,810.67	26,432.01	
JW32 ICC	ICC	6/7/18 22:19	13C4-PFOS	12,740.39	8,810.67	26,432.01	
CQ891PB-FS(3)	Procedural Blank	6/8/18 0:16	13C4-PFOS	13,848.29	8,810.67	26,432.01	
CQ892LCS-FS(3)	Laboratory Control Sample	6/8/18 0:27	13C4-PFOS	9,885.59	8,810.67	26,432.01	
J6227-FS(3)	09-FRB-051718	6/8/18 0:38	13C4-PFOS	12,561.96	8,810.67	26,432.01	
JV26 CCV	CCV	6/8/18 0:59	13C4-PFOS	15,227.65	8,810.67	26,432.01	

Sample Name	JV26	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 9:36:37 PM	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.55	22	>10
PFBS_2	298.9 / 99.0	1.55	18	>10
PFHxA_1	313.0 / 269.0	1.83	19	>10
PFHxA_2	313.0 / 119.0	1.83	18	>10
PFHpA_1	363.0 / 319.0	2.20	27	>10
PFHpA_2	363.0 / 169.0	2.20	22	>10
PFHxS_1	399.0 / 80.0	2.21	22	>10
PFHxS_2	399.0 / 99.0	2.22	24	>10
PFOA_1	413.0 / 369.0	2.58	26	>10
PFOA_2	413.0 / 169.0	2.58	27	>10
PFNA_1	463.0 / 419.0	2.95	24	>10
PFNA_2	463.0 / 219.0	2.95	28	>10
PFOS_1	499.0 / 80.0	2.94	28	>10
PFOS_2	499.0 / 99.0	2.94	28	>10
PFDA_1	513.0 / 469.0	3.30	30	>10
PFDA_2	513.0 / 219.0	3.30	27	>10
PFUnA_1	563.0 / 519.0	3.62	31	>10
PFUnA_2	563.0 / 269.0	3.62	40	>10
PFDaA_1	613.0 / 569.0	3.90	30	>10
PFDaA_2	613.0 / 319.0	3.90	34	>10
PFTTrDA_1	663.0 / 619.0	4.15	36	>10
PFTTrDA_2	663.0 / 169.0	4.15	30	>10
PFTeDA_1	713.0 / 669.0	4.38	41	>10
PFTeDA_2	713.0 / 169.0	4.37	35	>10
NMeFOSAA_1	570.0 / 419.0	3.45	38	>10
NMeFOSAA_2	570.0 / 512.0	3.45	29	>10
NEtFOSAA_1	584.0 / 419.0	3.61	32	>10
NEtFOSAA_2	584.0 / 483.0	3.61	35	>10

Sample Name	JV26	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 9:36:37 PM	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
13C2-PFDoA	615.0 / 570.0	3.89	27	>10
d3-MeFOSAA	573.0 / 419.0	3.45	24	>10
d5-EtFOSAA	589.0 / 419.0	3.60	35	>10
13C5-PFHxA	318.0 / 273.0	1.82	22	>10
13C4-PFHpA	367.0 / 322.0	2.19	35	>10
13C8-PFOA	421.0 / 376.0	2.57	39	>10
13C9-PFNA	472.0 / 427.0	2.94	32	>10
13C6-PFDA	519.0 / 474.0	3.28	27	>10
13C7-PFUnA	570.0 / 525.0	3.60	29	>10
13C2-PFTeDA	715.0 / 670.0	4.37	36	>10
13C3-PFBS	302.0 / 99.0	1.53	24	>10
13C3-PFHxS	402.0 / 99.0	2.21	28	>10
13C8-PFOS	507.0 / 99.0	2.93	18	>10



Precision and Bias at the LOQ for PFAS in non-potable Water

Analyte	CAS No.	Average (ng/L)	ST DEV	3 Sigma	n
PFBA	375-22-4	12.44	2.29	6.87	10
PFPeA	2706-90-3	10.77	1.61	4.83	8
PFHxA	307-24-4	10.31	1.29	3.87	23
PFHpA	375-85-9	9.83	1.74	5.22	23
PFOA	335-67-1	10.43	1.50	4.50	24
PFNA	375-95-1	9.97	1.22	3.66	23
PFDA	335-76-2	10.30	1.49	4.47	23
PFUnA	2058-94-8	10.32	1.43	4.29	23
PFDoA	307-55-1	11.30	1.18	3.54	23
PFTTrDA	72629-94-8	11.72	1.59	4.77	23
PFTeDA	376-06-7	11.30	2.19	6.57	23
NMeFOSAA	2355-31-9	10.68	1.98	5.94	23
NEtFOSAA	2991-50-6	9.93	1.78	5.34	23
PFOSA	754-91-6	9.08	0.00	0.00	2
PFBS	375-73-5	10.62	1.52	4.56	24
PFPeS	BDO-2114	9.60	1.07	3.21	3
PFHxS	355-46-4	10.06	1.67	5.01	23
PFHpS	375-99-6	11.00	1.02	3.06	8
PFOS	1763-23-1	10.35	1.54	4.62	24
PFNS	98789-57-2	8.81	0.35	1.05	3
PFDS	2806-15-7	10.24	1.97	5.91	8
4:2FTS	BDO-2205	11.24	1.16	3.48	8
6:2FTS	27619-97-2	12.37	3.07	9.21	8
8:2FTS	39108-34-4	12.30	2.64	7.92	8



Non-Potable Water Calibration to Sample Equivalents

ICAL (ng/L)	PIV (mL)	DF ¹	Sample Size (L)	Sample Equivalent (ng/L) ²
25	0.5	2	0.250	0.1
50	0.5	2	0.250	0.2
100	0.5	2	0.250	0.4
500	0.5	2	0.250	2.0
1,000	0.5	2	0.250	4.0
2,500	0.5	2	0.250	10.0
10,000	0.5	2	0.250	40.0
20,000	0.5	2	0.250	80.0

¹ - base level dilution as part of the extraction procedure

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

BATTELLE DETECTION LIMITS FOR PFAS IN NON-POTABLE WATER

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Analytical SOP 5-369

Extraction SOP 5-370

PFAS by LC-MS/MS Compliant with QSM 5.1 Compliant Table B-15

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)
PFBA	375-22-4	0.14	0.5	5.0
PFPeA	2706-90-3	0.31	1.0	5.0
PFHxA	307-24-4	0.19	0.5	5.0
PFHpA	375-85-9	0.16	0.5	5.0
PFOA	335-67-1	0.18	0.5	5.0
PFNA	375-95-1	0.26	1.0	5.0
PFDA	335-76-2	0.16	0.5	5.0
PFUnA	2058-94-8	0.29	1.0	5.0
PFDoA	307-55-1	0.18	0.5	5.0
PFTTrDA	72629-94-8	0.15	0.5	5.0
PFTeDA	376-06-7	0.25	1.0	5.0
NMeFOSAA	2355-31-9	0.56	2.0	5.0
NEtFOSAA	2991-50-6	0.49	1.0	5.0
PFOSA	754-91-6	TBD	TBD	TBD
PFBS	375-73-5	0.13	0.5	5.0
PFPeS	BDO-2114	0.67	2.5	5.0
PFHxS	355-46-4	0.11	0.4	5.0
PFHpS	375-99-6	0.20	0.5	5.0
PFOS	1763-23-1	0.19	0.5	5.0
PFNS	98789-57-2	0.46	1.0	5.0
PFDS	2806-15-7	0.17	0.5	5.0
4:2FTS	BDO-2205	0.14	0.5	5.0
6:2FTS	27619-97-2	1.36	2.5	5.0
8:2FTS	39108-34-4	0.22	0.5	5.0

Analytes on NELAP and ELAP QSM 5.1 Scope of accreditation

Analytical Transitions for PFAS in non-potable water, solid, and tissue

EPA 537 MOD DoD QSM 5.1 compliant with Table B-15 requirements

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
PFBA	375-22-4	Target	213.0 / 169.0	NA
PFPeA	2706-90-3	Target	263.0 / 219.0	NA
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
PFDaA	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
PFOSA	754-91-6	Target	498.0 / 78.0	498.0 / 83.0
PFBS	375-73-5	Target	299.0 / 80.0	299.0 / 99.0
PFPeS	BDO-2114	Target	349.0 / 99.0	249.0 / 80.0
PFHxS	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
PFHpS	375-99-6	Target	449.0 / 80.0	449.0 / 99.0
PFOS	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
PFNS	98789-57-2	Target	549.0 / 99.0	549.0 / 80.0
PFDS	2806-15-7	Target	599.0 / 80.0	599.0 / 99.0
4:2FTS	BDO-2205	Target	327.0 / 307.0	327.0 / 80.0
6:2FTS	27619-97-2	Target	427.0 / 407.0	427.0 / 81.0
8:2FTS	39108-34-4	Target	527.0 / 507.0	527.0 / 487.0
13C4-PFBA	BDO-2105	SIS ¹	217.0 / 172.0	NA
13C5-PFPeA	BDO-2216	SIS ¹	268.0 / 223.0	NA
13C5-PFHxA	BDO-2217	SIS ¹	318.0 / 273.0	NA

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
13C4-PFH _p A	BDO-2218	SIS ¹	367.0 / 322.0	NA
13C8-PFOA	BDO-2219	SIS ¹	421.0 / 376.0	NA
13C9-PFNA	BDO-2221	SIS ¹	472.0 / 427.0	NA
13C6-PFDA	BDO-2222	SIS ¹	519.0 / 474.0	NA
13C7-PFUnA	BDO-2223	SIS ¹	570.0 / 525.0	NA
13C2-PFDoA	BDO-2112	SIS ¹	615.0 / 570.0	NA
13C2-PFTeDA	BDO-2224	SIS ¹	715.0 / 670.0	NA
d3-MeFOSAA	BDO-1838	SIS ¹	573.0 / 419.0	NA
d5-EtFOSAA	BDO-1839	SIS ¹	589.0 / 419.0	NA
13C8-FOSA	BDO-2225	SIS ¹	506.0 / 78.0	NA
13C3-PFBS	BDO-2226	SIS ¹	302.0 / 99.0	NA
13C3-PFH _x S	BDO-2227	SIS ¹	402.0 / 99.0	NA
13C8-PFOS	BDO-2228	SIS ¹	507.0 / 99.0	NA
13C2-4:2FTS	BDO-2229	SIS ¹	329.0 / 81.0	NA
13C2-6:2FTS	BDO-2230	SIS ¹	429.0 / 81.0	NA
13C2-8:2FTS	BDO-2220	SIS ¹	529.0 / 81.0	NA
13C3-PFBA	BDO-2231	IS ²	216.0 / 172.0	NA
13C2-PFOA	BDO-2107	IS ²	415.0 / 370.0	NA
13C2-PFDA	BDO-2110	IS ²	515.0 / 470.0	NA
13C4-PFOS	BDO-2121	IS ²	503.0 / 99.0	NA

¹ – extracted internal standard (surrogate)

² – injection internal standard

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

QTRAP 5500 Preventive Maintenance Checklist

Preventive Maintenance Date:	22-Feb-2017
Request ID:	3683
Company Name:	Battelle Memorial Institute
Instrument ID:	X60666
Instrument Model:	QTRAP 5500
Instrument Serial Number:	AU23051004

☒ **PASS**

☐ **FAIL**

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

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

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

Comments: _____

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

Approved By : _____ **Date:** _____

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PRE PM PPG PERFORMANCE EVALUATION:

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

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

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

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

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

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

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

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

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

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

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

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

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

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

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

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

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

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PREVENTIVE MAINTENANCE CHECKLIST:

- ☒ Check Cooling Fans for Turbo Pumps while MS is ON.
- ☒ Check QJet and QPS tuning voltage for reference.
- ☐ Record AC input Voltage while MS is OFF: _____ (200-240VAC).
If Out-of-Range, notify customer.
- ☒ Clean Interface
 - ☒ Curtain Plate
 - ☒ Orifice Plate
 - ☒ QJet
 - ☒ Q0 Rods.
- ☒ Replace Roughing Pump Oil.
- ☒ Inspect Oil Exhaust Filter, if Applicable. ☐ N/A
- ☒ Clean and inspect built-in divert valve if used. ☐ N/A
- ☒ Check Multiplier Voltage, optimize if necessary.
- ☒ Replace four Air Filters at the bottom of the mass spectrometer.
- ☒ Pump down overnight if possible. ☐ N/A
- ☒ Perform Maintenance on Turbo V source.
- ☒ Replace Electrode, if necessary. ☐ N/A
- ☒ Check Turbo heaters resistances.
- ☒ Check if Temperature is reached at 500C with TIS Probe installed.
- ☐ Check if Temperature is reached at 500C with APCI Probe installed. ☒ N/A

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

POST PM PPG PERFORMANCE TESTS:

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

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

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

Mass	Q1 Intensity		Q1 Width 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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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	≥7.2 e6	0.1302	<0.35
ER 922.010	0.05	3.89 e7	≥2.8 e6	0.2603	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05	2.55 e7	≥2.4 e7	0.3740	<0.65
ER 922.010	0.05	2.37 e8	≥6.8 e7	0.5407	<0.65

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

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

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

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

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

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

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



It can be done

BATTELLE - NORWELL OPERATIONS LIQUID SAMPLE ID FORM

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.

Project No.(s)

100118096-
ML4144

18-0349

Non-Potable Water PFAS Analysis QC

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CQ891PB-FS	Procedural Blank	250.0	NA	--	06/05/18 SAS
CQ892LCS-FS	Laboratory Control Sample	250.0	NA	--	06/05/18 SAS
J6227-FS	09-FRB-051718	270.0	1	C	06/06/18 SAS

Comments:

Samples Assigned By

Jonathan Thorn

Date :

June 5, 2018

* - "C" = Sample is Consumed



It can be done

BATTELLE - NORWELL OPERATIONS SURROGATE SPIKE FORM

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.

Project No.(s)

100118096-
ML4144

18-0349

Non-Potable Water PFAS Analysis

QC

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CQ891PB-FS	JV83	SIS	1	50	06/05/18 SAS	JCT	NA
CQ892LCS-FS	JV83	SIS	1	50	06/05/18 SAS	JCT	NA
CQ892LCS-FS	JW44	LCS/MS	1	50	06/05/18 SAS	JCT	NA
J6227-FS	JV83	SIS	1	50	06/05/18 SAS	JCT	NA

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JV83	Pipette	I0793912B
JW44	Pipette	I0793912B



It can be done

BATTELLE - NORWELL OPERATIONS SAMPLE EXTRACTION FORM

Project Title(s)

CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.

Project No.(s)

100118096-
ML4144

18-0349

Non-Potable Water PFAS Analysis

QC

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CQ891PB-FS	06/05/18 SAS	NA	NA	NA	NA	NA	NA	NA
CQ892LCS-FS	06/05/18 SAS	NA	NA	NA	NA	NA	NA	NA
J6227-FS	06/05/18 SAS	NA	NA	NA	NA	NA	NA	NA

Solvents/Reagent Preparations:

Name	ID	Expires	Lot No	Procedure	Comments
0.4% NH3 in Methanol	RP-180605-2	06/05/18	SHBG7156V	Per 100 mL, dilute 3.5 mL NH3 to 100 mL in Methanol	
0.4% NH3 in Methanol	RP-180605-2	06/05/18	177965	Per 100 mL, dilute 3.5 mL NH3 to 100 mL in Methanol	
Pre-packed SPE Column	RP-180605-5	06/06/18	003737320A	Pre-packed SPE Column	

Solvents/Reagents:



It can be done

BATTELLE - NORWELL OPERATIONS INTERNAL STANDARD SPIKING FORM

Project Title(s)CTO-ML4144: Naval Support Activity Crane, Indiana -
PFAS analysis.**Project No.(s)**100118096-
ML4144**18-0349****Non-Potable Water PFAS Analysis****QC****(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
CQ891PB-FS(3)	475	25	JW02	25	1	500	2.000*	06/06/18 SAS	JCT
CQ892LCS-FS(3)	475	25	JW02	25	1	500	2.000	06/06/18 SAS	JCT
J6227-FS(3)	475	25	JW02	25	1	500	2.000	06/06/18 SAS	JCT

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
JW02	Pipette	I0793912B

Extract Id:	Comments:
CQ891PB-FS	Samples reconstituted in 80/20 methanol/milli-q water

* - 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-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.

Project No.(s)100118096-
ML4144**18-0349****Non-Potable Water PFAS Analysis****QC**

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CQ891PB-FS	0	C	6/5/2018 2:00:00 AM	NA		NA	NA	1.000	1.000	06/05/18 SAS
CQ891PB-FS	2	--	6/5/2018 4:52:00 PM	CQ891PB-FS	0	10000	5000	2.000	2.000	06/05/18 SAS
CQ891PB-FS	3	--	6/5/2018 4:52:00 PM	CQ891PB-FS	0	10000	5000	2.000	2.000	06/05/18 SAS
CQ892LCS-FS	0	C	6/5/2018 2:00:00 AM	NA		NA	NA	1.000	1.000	06/05/18 SAS
CQ892LCS-FS	2	--	6/5/2018 4:52:00 PM	CQ892LCS-FS	0	10000	5000	2.000	2.000	06/05/18 SAS
CQ892LCS-FS	3	--	6/5/2018 4:52:00 PM	CQ892LCS-FS	0	10000	5000	2.000	2.000	06/05/18 SAS
J6227-FS	0	C	6/5/2018 2:00:00 AM	NA		NA	NA	1.000	1.000	06/05/18 SAS
J6227-FS	2	--	6/5/2018 4:52:00 PM	J6227-FS	0	10000	5000	2.000	2.000	06/05/18 SAS
J6227-FS	3	--	6/5/2018 4:52:00 PM	J6227-FS	0	10000	5000	2.000	2.000	06/05/18 SAS
Extract Id: CQ891PB-FS		Comments: Samples reconstituted in 80/20 methanol/milli-q water								

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



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID	Procedural Blank				
Battelle ID	CQ891PB-FS				
Sample Type	PB				
Collection Date	06/05/2018				
Extraction Date	06/05/2018				
Analysis Date	06/08/2018				
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	3.53 JN	0.19	0.50	5.00	
PFHpA	0.17 J	0.16	0.50	5.00	
PFOA	0.55 J	0.18	0.50	5.00	
PFNA	0.41 J	0.26	1.00	5.00	
PFDA	0.16 U	0.16	0.50	5.00	
PFUnA	0.29 U	0.29	1.00	5.00	
PFDaA	0.18 U	0.18	0.50	5.00	
PFTeDA	0.15 U	0.15	0.50	5.00	
PFTeDA	0.25 U	0.25	1.00	5.00	
NMeFOSAA	0.56 U	0.56	2.00	5.00	
NEtFOSAA	0.49 U	0.49	1.00	5.00	
PFBS	0.13 U	0.13	0.50	5.00	
PFHxS	0.46 J	0.11	0.40	5.00	
PFOS	3.89 JN	0.19	0.50	5.00	

Surrogate Recoveries (%)

13C5-PFHxA	114
13C4-PFHpA	122
13C8-PFOA	124
13C9-PFNA	125
13C6-PFDA	125
13C7-PFUnA	125
13C2-PFDaA	97
13C2-PFTeDA	73
d3-MeFOSAA	100
d5-EtFOSAA	103
13C3-PFBS	105
13C3-PFHxS	120
13C8-PFOS	102



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID	JV05 IB				
Battelle ID	JV05 IB_06/07/2018				
Sample Type	IB				
Collection Date	NA				
Extraction Date	NA				
Analysis Date	06/07/2018				
Analytical Instrument	Sciex 5500 LC/MS/MS				
% Moisture	NA				
Matrix	NA				
Sample Size	NA				
Size Unit-Basis	NA				
Units	ng/L	MDL	LOD	LOQ	
PFHxA	0.19 U	0.19	0.50	5.00	
PFHpA	0.16 U	0.16	0.50	5.00	
PFOA	0.18 U	0.18	0.50	5.00	
PFNA	0.26 U	0.26	1.00	5.00	
PFDA	0.16 U	0.16	0.50	5.00	
PFUnA	0.29 U	0.29	1.00	5.00	
PFDoA	0.18 U	0.18	0.50	5.00	
PFTTrDA	0.15 U	0.15	0.50	5.00	
PFTeDA	0.25 U	0.25	1.00	5.00	
NMeFOSAA	0.56 U	0.56	2.00	5.00	
NEtFOSAA	0.49 U	0.49	1.00	5.00	
PFBS	0.13 U	0.13	0.50	5.00	
PFHxS	0.11 U	0.11	0.40	5.00	
PFOS	0.30 J	0.19	0.50	5.00	

Surrogate Recoveries (%)

13C5-PFHxA	76
13C4-PFHpA	76
13C8-PFOA	79
13C9-PFNA	79
13C6-PFDA	77
13C7-PFUnA	72
13C2-PFDoA	70
13C2-PFTeDA	69
d3-MeFOSAA	69
d5-EtFOSAA	61
13C3-PFBS	65
13C3-PFHxS	61
13C8-PFOS	64



Project Client: Tetra Tech
 Project Name: CTO-ML4144: Naval Support Activity Crane, Indiana - PFAS analysis.
 Project No.: 100118096-ML4144

Client ID	Laboratory Control Sample					
Battelle ID	CQ892LCS-FS					
Sample Type	LCS					
Collection Date	06/05/2018					
Extraction Date	06/05/2018					
Analysis Date	06/08/2018					
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	10.10 B	10.10	100		51	137
PFHpA	9.10	10.00	91		48	136
PFOA	9.13	10.00	91		49	141
PFNA	8.88	10.00	89		58	122
PFDA	9.06	10.00	91		59	135
PFUnA	8.55	10.00	86		64	134
PFDoA	11.55	10.00	116		75	131
PFTTrDA	10.08	10.00	101		42	148
PFTeDA	8.88	10.00	89		42	158
NMeFOSAA	8.56	10.00	86		50	146
NEtFOSAA	8.60	10.00	86		51	131
PFBS	9.97	10.10	99		56	134
PFHxS	10.53	10.10	104		52	128
PFOS	12.34 B	10.00	123		40	144

Surrogate Recoveries (%)

13C5-PFHxA	118
13C4-PFHpA	116
13C8-PFOA	119
13C9-PFNA	118
13C6-PFDA	126
13C7-PFUnA	123
13C2-PFDoA	100
13C2-PFTeDA	81
d3-MeFOSAA	126
d5-EtFOSAA	131
13C3-PFBS	118
13C3-PFHxS	120
13C8-PFOS	104

Sequence Report

Created with Analyst Reporter
Printed: 14/06/2018 2:05:55 PM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	MeOH		6/7/2018 8:21:48 PM	5-0369.dam	6072018.wiff
2	JV20	L1	6/7/2018 8:32:29 PM	5-0369.dam	6072018.wiff
3	JV21	L2	6/7/2018 8:43:10 PM	5-0369.dam	6072018.wiff
4	JV22	L3	6/7/2018 8:53:52 PM	5-0369.dam	6072018.wiff
5	JV23	L4	6/7/2018 9:04:34 PM	5-0369.dam	6072018.wiff
6	JV24	L5	6/7/2018 9:15:15 PM	5-0369.dam	6072018.wiff
7	JV25	L6	6/7/2018 9:25:56 PM	5-0369.dam	6072018.wiff
8	JV26	L7	6/7/2018 9:36:37 PM	5-0369.dam	6072018.wiff
9	JV27	L8	6/7/2018 9:47:16 PM	5-0369.dam	6072018.wiff
10	JV28	L9	6/7/2018 9:57:58 PM	5-0369.dam	6072018.wiff
11	JV05 IB	Instrument Blank	6/7/2018 10:08:39 PM	5-0369.dam	6072018.wiff
12	JW32 ICC	ICC	6/7/2018 10:19:21 PM	5-0369.dam	6072018.wiff
13	JV16 Branch	Branch Standard	6/7/2018 10:30:02 PM	5-0369.dam	6072018.wiff
14	MeOH		6/7/2018 10:40:43 PM	5-0369.dam	6072018.wiff
21	CQ891PB-FS(3)	Procedural Blank	6/8/2018 12:16:53 AM	5-0369.dam	6072018.wiff
22	CQ892LCS-FS(3)	Laboratory Control Sample	6/8/2018 12:27:34 AM	5-0369.dam	6072018.wiff
23	J6227-FS(3)	09-FRB-051718	6/8/2018 12:38:15 AM	5-0369.dam	6072018.wiff
24	MeOH		6/8/2018 12:48:57 AM	5-0369.dam	6072018.wiff
8	JV26 CCV	CCV	6/8/2018 12:59:37 AM	5-0369.dam	6072018.wiff



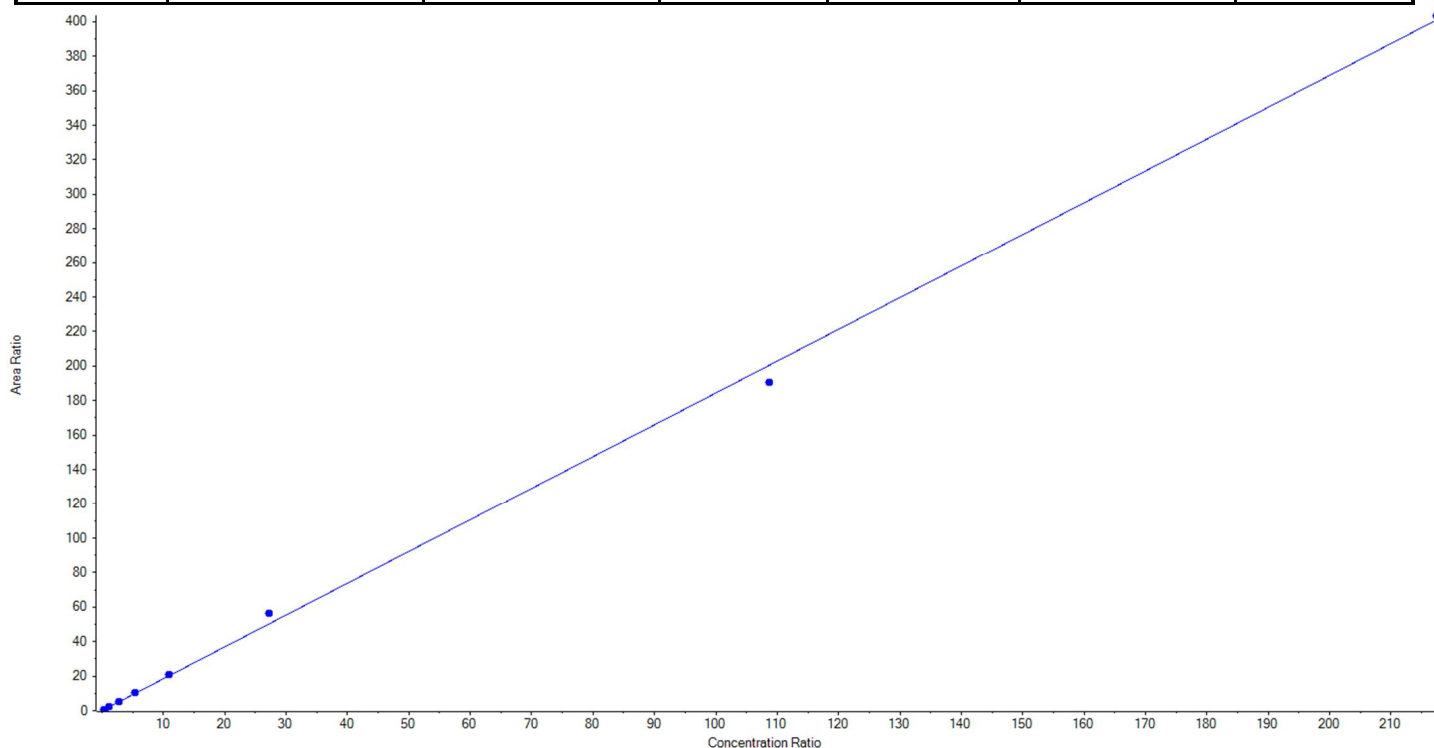
Calibration Summary Report

Created with Analyst Reporter
Printed: 14/06/2018 3:11:23 PM

Analyte Name	PFBS_1	Data File	6072018.wiff
MRM Transition	298.9 / 80.0	Result Table	18-0349_BASE
Internal Standard	13C3-PFBS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 1.84377 x + 0.04421$ ($r = 0.99889$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	22.943131	90.9
3	JV21	L2	True	50.50	39.339005	77.9
4	JV22	L3	True	101.00	114.073097	112.9
5	JV23	L4	True	252.50	259.829558	102.9
6	JV24	L5	True	505.00	513.918478	101.8
7	JV25	L6	True	1010.00	1063.678573	105.3
8	JV26	L7	True	2525.00	2847.628626	112.8
9	JV27	L8	True	10100.00	9589.730089	95.0
10	JV28	L9	True	20200.00	20318.109443	100.6





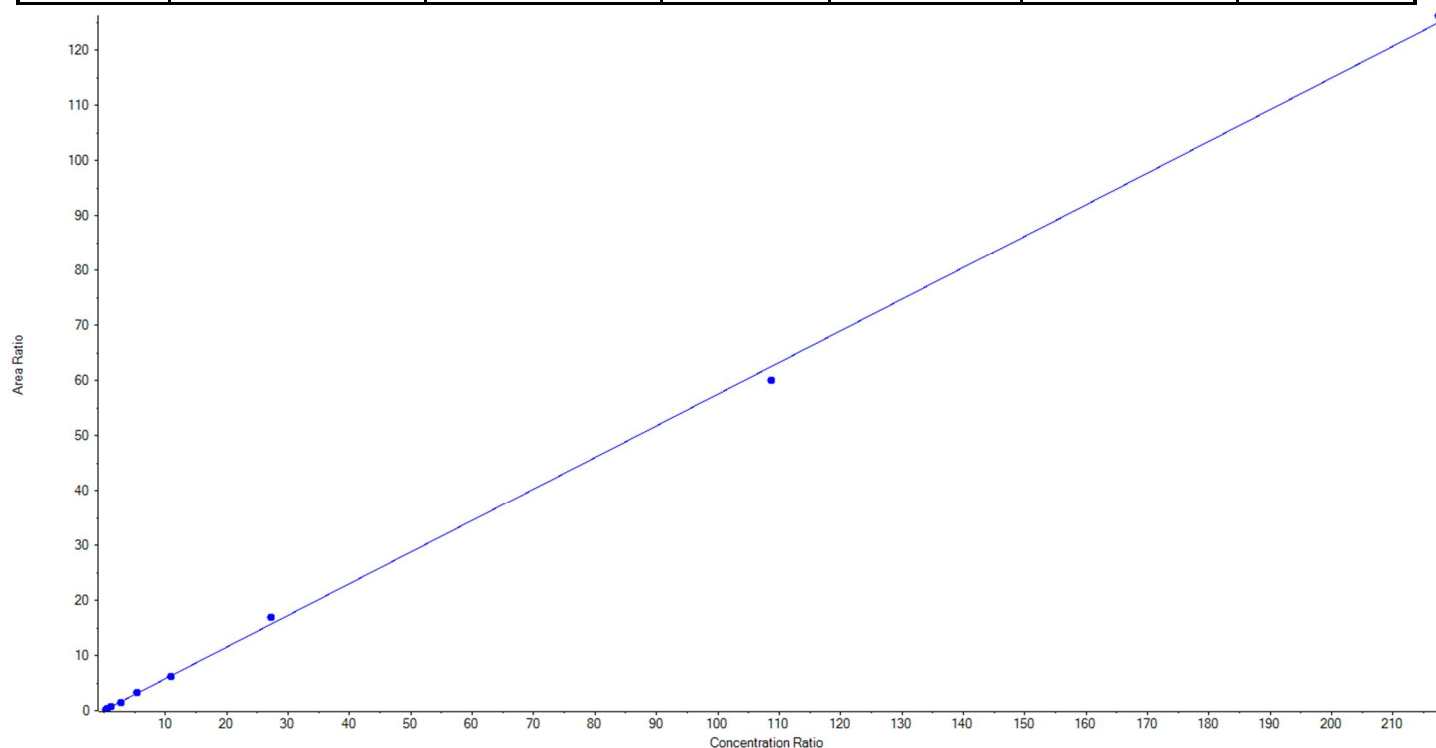
Calibration Summary Report

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Analyte Name	PFBS_2	Data File	6072018.wiff
MRM Transition	298.9 / 99.0	Result Table	18-0349_BASE
Internal Standard	13C3-PFBS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.57485x + 0.03128$ ($r = 0.99948$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	24.912423	98.7
3	JV21	L2	True	50.50	48.712633	96.5
4	JV22	L3	True	101.00	102.205673	101.2
5	JV23	L4	True	252.50	244.309260	96.8
6	JV24	L5	True	505.00	520.831671	103.1
7	JV25	L6	True	1010.00	995.650839	98.6
8	JV26	L7	True	2525.00	2731.008942	108.2
9	JV27	L8	True	10100.00	9703.159053	96.1
10	JV28	L9	True	20200.00	20398.459505	101.0





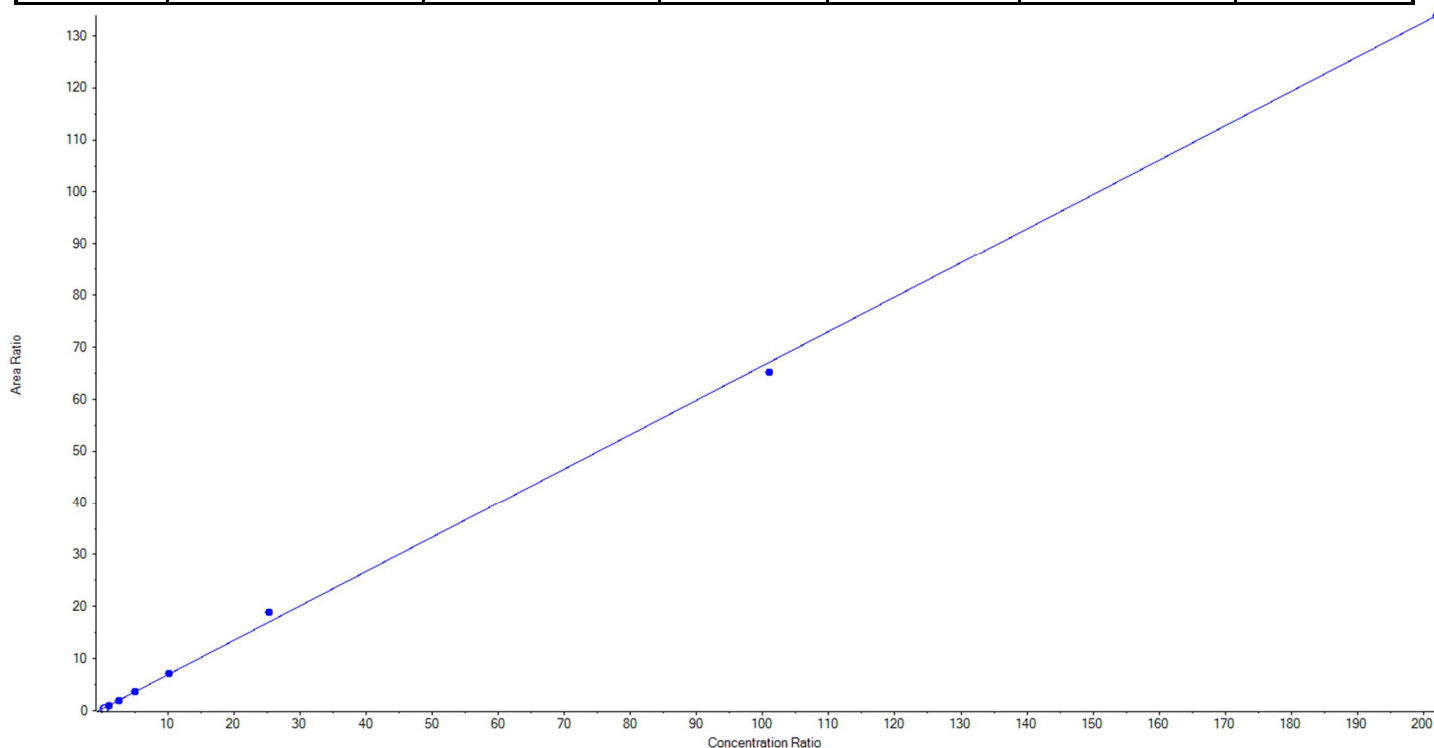
Calibration Summary Report

Created with Analyst Reporter
Printed: 14/06/2018 3:11:23 PM

Analyte Name	PFHxA_1	Data File	6072018.wiff
MRM Transition	313.0 / 269.0	Result Table	18-0349_BASE
Internal Standard	13C5-PFHxA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.66122x + 0.31031$ ($r = 0.99938$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.25	2.311214	9.2
3	JV21	L2	False	50.50	17.517759	34.7
4	JV22	L3	True	101.00	89.976971	89.1
5	JV23	L4	True	252.50	250.174993	99.1
6	JV24	L5	True	505.00	515.008381	102.0
7	JV25	L6	True	1010.00	1028.403785	101.8
8	JV26	L7	True	2525.00	2799.406639	110.9
9	JV27	L8	True	10100.00	9816.413143	97.2
10	JV28	L9	True	20200.00	20194.116089	100.0





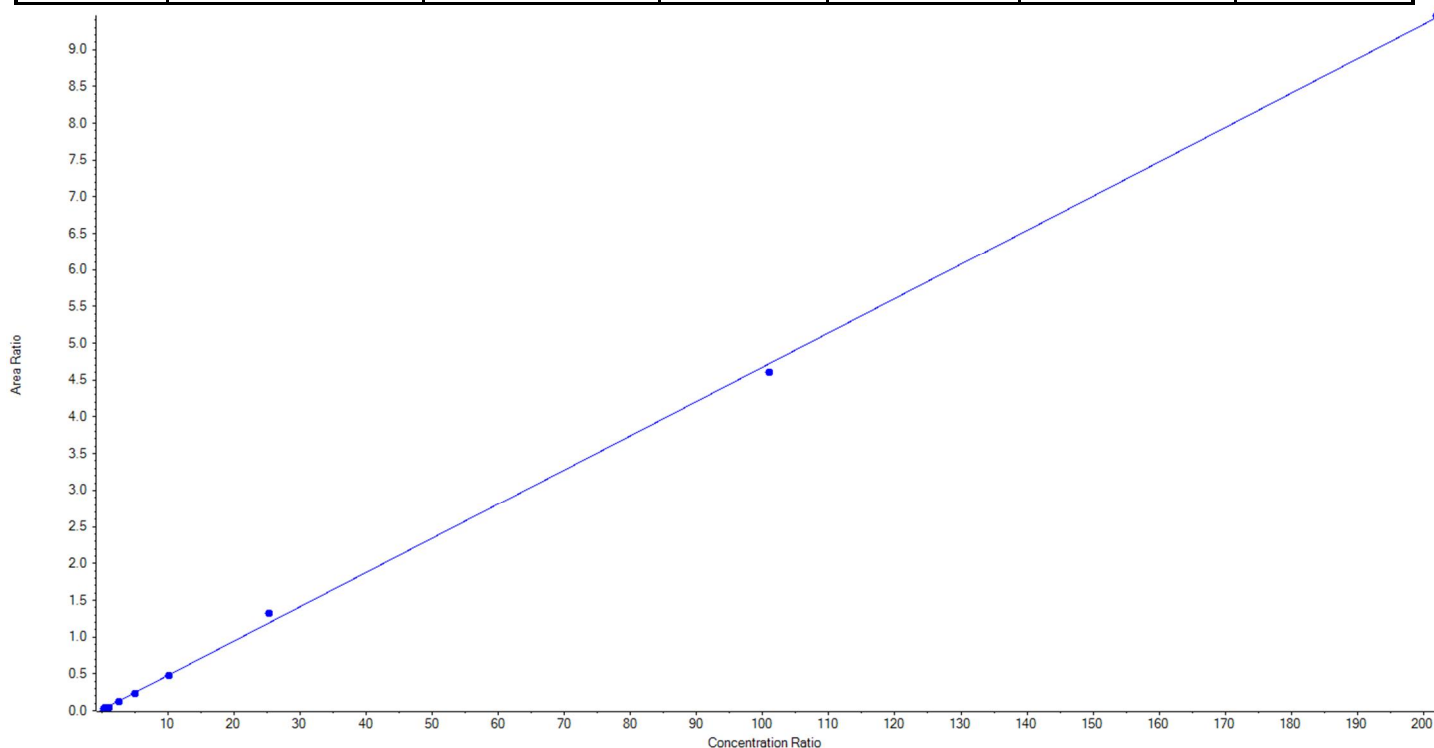
Calibration Summary Report

Created with Analyst Reporter
Printed: 14/06/2018 3:11:23 PM

Analyte Name	PFHxA_2	Data File	6072018.wiff
MRM Transition	313.0 / 119.0	Result Table	18-0349_BASE
Internal Standard	13C5-PFHxA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.04664 x + 0.01259$ ($r = 0.99919$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	31.161550	123.4
3	JV21	L2	True	50.50	57.639587	114.1
4	JV22	L3	True	101.00	73.100366	72.4
5	JV23	L4	True	252.50	222.023864	87.9
6	JV24	L5	True	505.00	472.175740	93.5
7	JV25	L6	True	1010.00	1006.463495	99.7
8	JV26	L7	True	2525.00	2809.105294	111.3
9	JV27	L8	True	10100.00	9846.220727	97.5
10	JV28	L9	True	20200.00	20251.359377	100.3





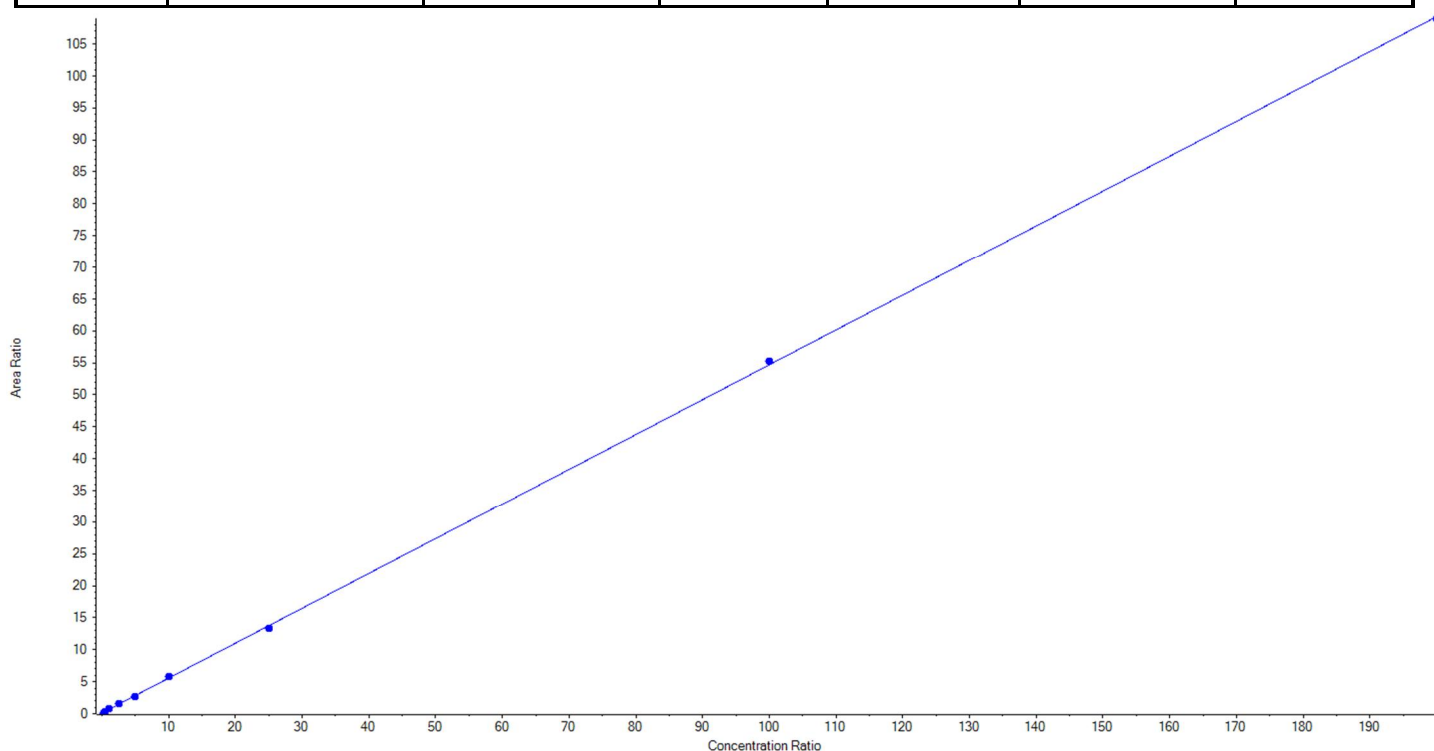
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Created with Analyst Reporter
Printed: 14/06/2018 3:11:23 PM

Analyte Name	PFHpA_1	Data File	6072018.wiff
MRM Transition	363.0 / 319.0	Result Table	18-0349_BASE
Internal Standard	13C4-PFHpA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.54584 x + 0.10936$ ($r = 0.99979$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	21.783097	87.1
3	JV21	L2	True	50.00	48.775698	97.6
4	JV22	L3	True	100.00	117.245676	117.3
5	JV23	L4	True	250.00	258.749918	103.5
6	JV24	L5	True	500.00	455.578080	91.1
7	JV25	L6	True	1000.00	1056.331419	105.6
8	JV26	L7	True	2500.00	2428.055472	97.1
9	JV27	L8	True	10000.00	10101.438274	101.0
10	JV28	L9	True	20000.00	19937.042365	99.7





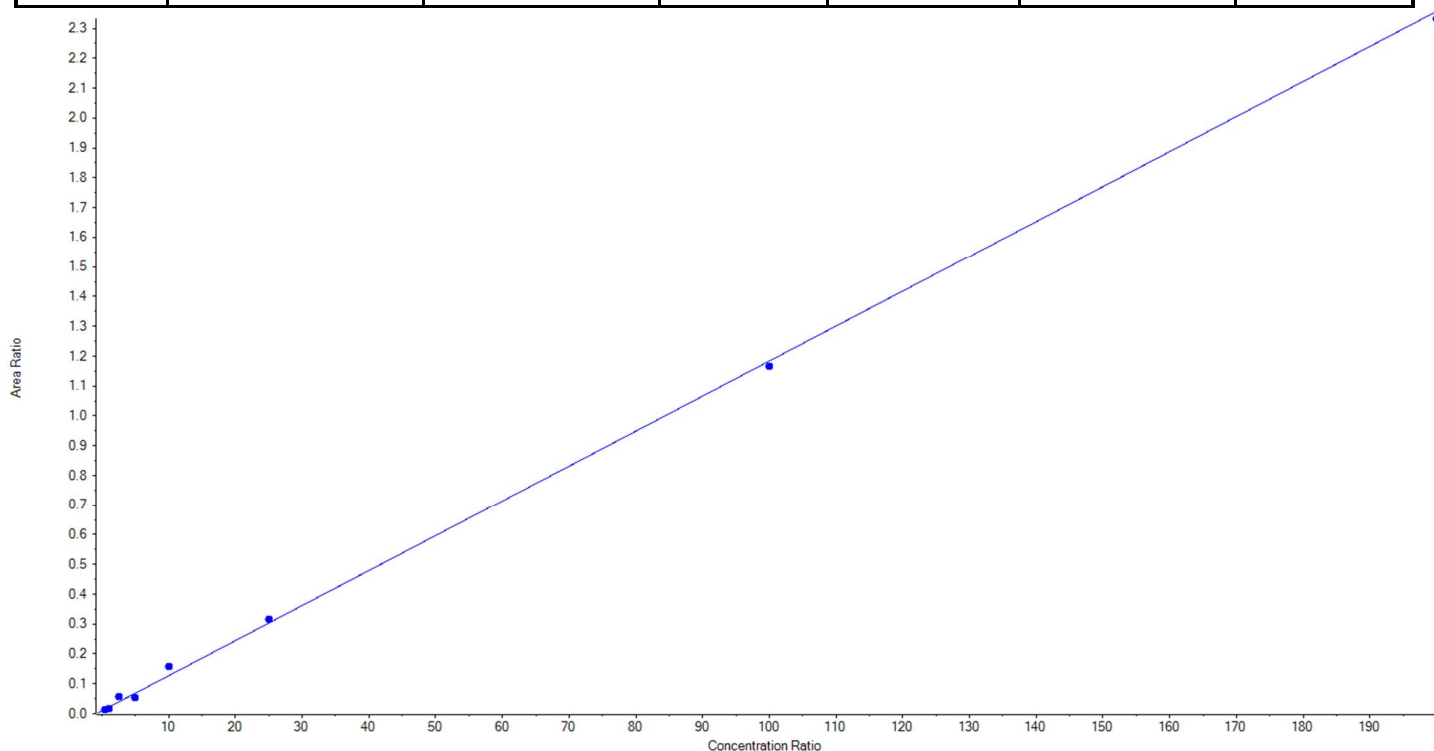
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Analyte Name	PFHpA_2	Data File	6072018.wiff
MRM Transition	363.0 / 169.0	Result Table	18-0349_BASE
Internal Standard	13C4-PFHpA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.01174 x + 0.00986$ ($r = 0.99620$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	N/A	N/A
3	JV21	L2	True	50.00	35.769640	71.5
4	JV22	L3	True	100.00	59.372590	59.4
5	JV23	L4	True	250.00	415.041377	166.0
6	JV24	L5	True	500.00	367.816763	73.6
7	JV25	L6	True	1000.00	1275.488671	127.6
8	JV26	L7	True	2500.00	2614.276723	104.6
9	JV27	L8	True	10000.00	9845.423817	98.5
10	JV28	L9	True	20000.00	19786.810418	98.9





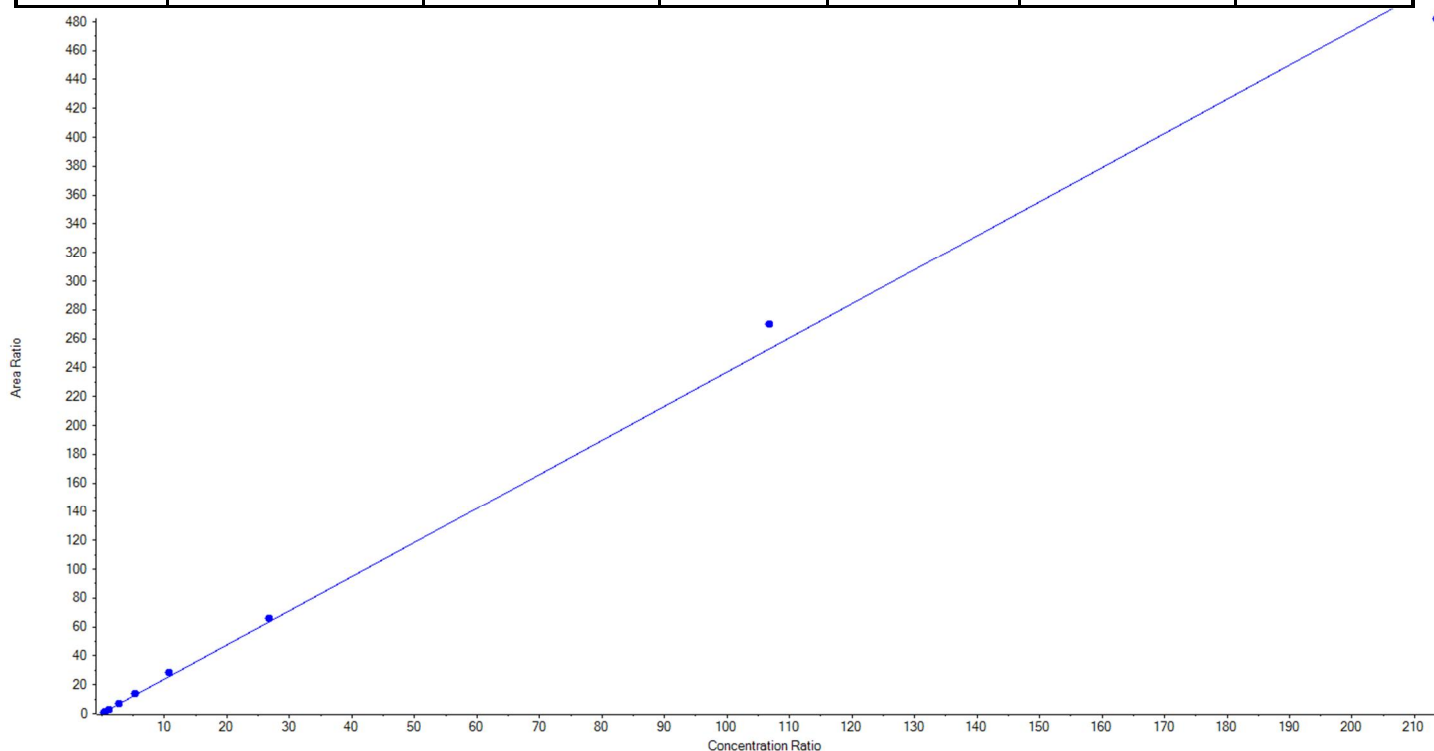
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Analyte Name	PFHxS_1	Data File	6072018.wiff
MRM Transition	399.0 / 80.0	Result Table	18-0349_BASE
Internal Standard	13C3-PFHxS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 2.36763 x + 0.21796$ ($r = 0.99831$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	17.912475	70.9
3	JV21	L2	True	50.50	53.488051	105.9
4	JV22	L3	True	101.00	97.481687	96.5
5	JV23	L4	True	252.50	261.185199	103.4
6	JV24	L5	True	505.00	534.660086	105.9
7	JV25	L6	True	1010.00	1117.358473	110.6
8	JV26	L7	True	2525.00	2637.640639	104.5
9	JV27	L8	True	10100.00	10799.425210	106.9
10	JV28	L9	True	20200.00	19250.098181	95.3





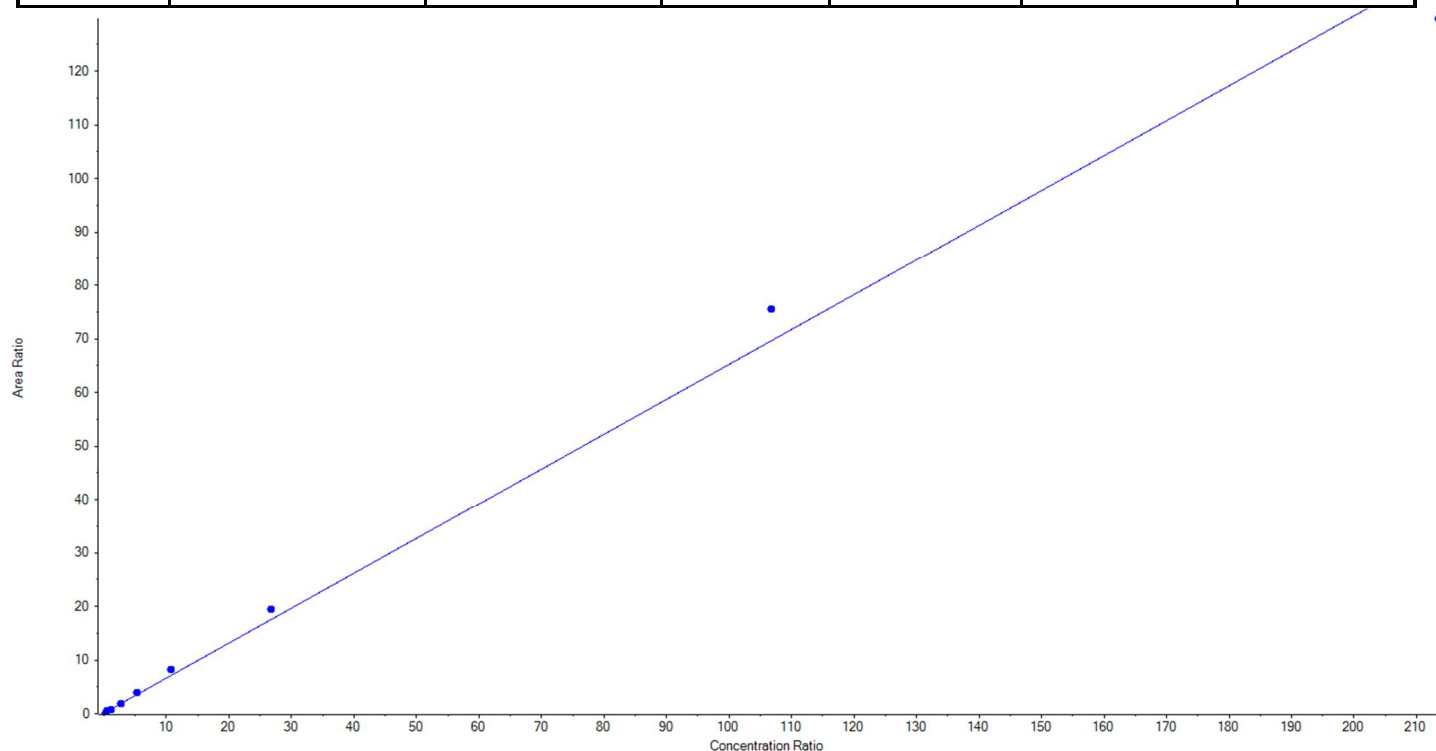
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Analyte Name	PFHxS_2	Data File	6072018.wiff
MRM Transition	399.0 / 99.0	Result Table	18-0349_BASE
Internal Standard	13C3-PFHxS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.65087x + 0.13170$ ($r = 0.99653$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.25	15.598001	61.8
3	JV21	L2	True	50.50	52.385168	103.7
4	JV22	L3	True	101.00	96.661530	95.7
5	JV23	L4	True	252.50	253.283409	100.3
6	JV24	L5	True	505.00	547.842587	108.5
7	JV25	L6	True	1010.00	1179.717216	116.8
8	JV26	L7	True	2525.00	2809.665015	111.3
9	JV27	L8	True	10100.00	10973.087905	108.6
10	JV28	L9	True	20200.00	18841.009169	93.3





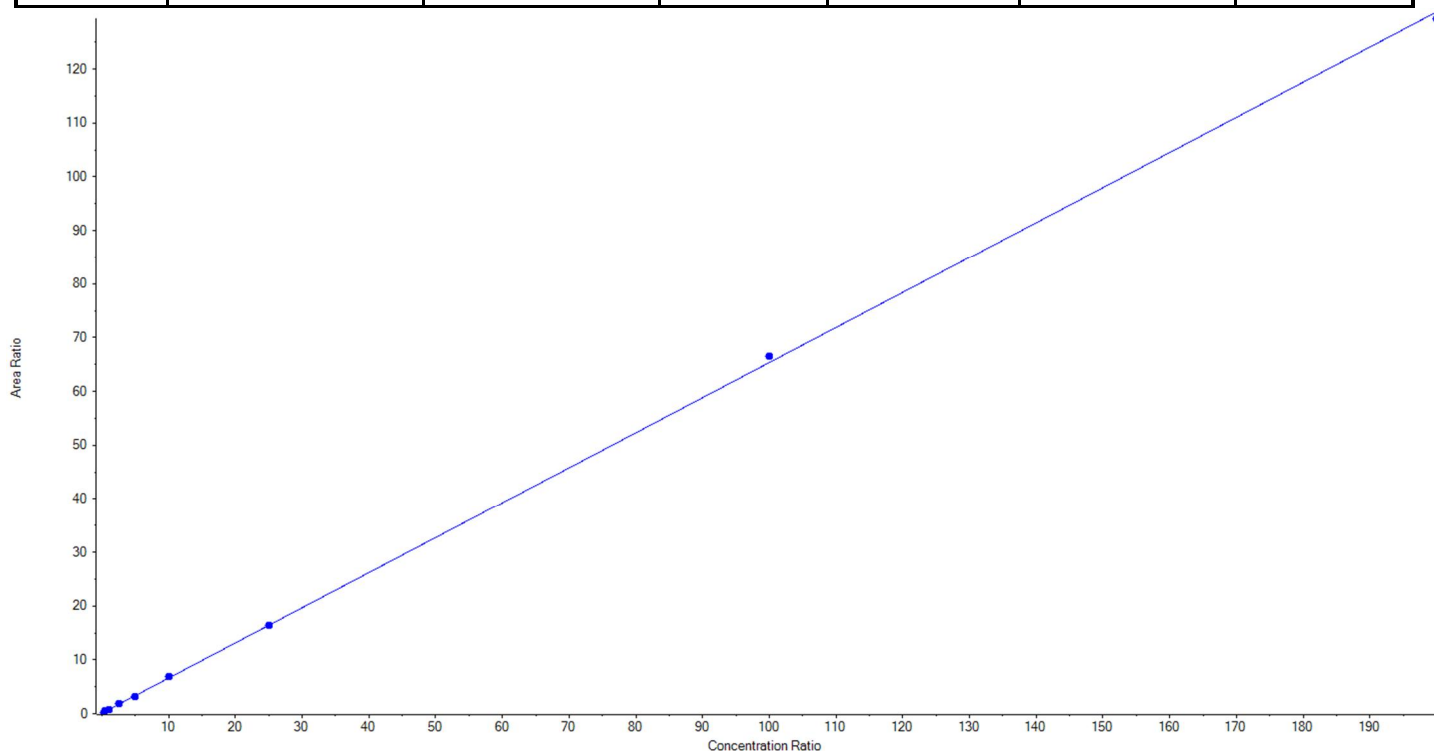
Calibration Summary Report

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Analyte Name	PFOA_1	Data File	6072018.wiff
MRM Transition	413.0 / 369.0	Result Table	18-0349_BASE
Internal Standard	13C8-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.65267 x + 0.09107$ ($r = 0.99980$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	18.098123	72.4
3	JV21	L2	True	50.00	61.859763	123.7
4	JV22	L3	True	100.00	100.186034	100.2
5	JV23	L4	True	250.00	263.728976	105.5
6	JV24	L5	True	500.00	471.973791	94.4
7	JV25	L6	True	1000.00	1034.220060	103.4
8	JV26	L7	True	2500.00	2488.582766	99.5
9	JV27	L8	True	10000.00	10183.705964	101.8
10	JV28	L9	True	20000.00	19802.644523	99.0





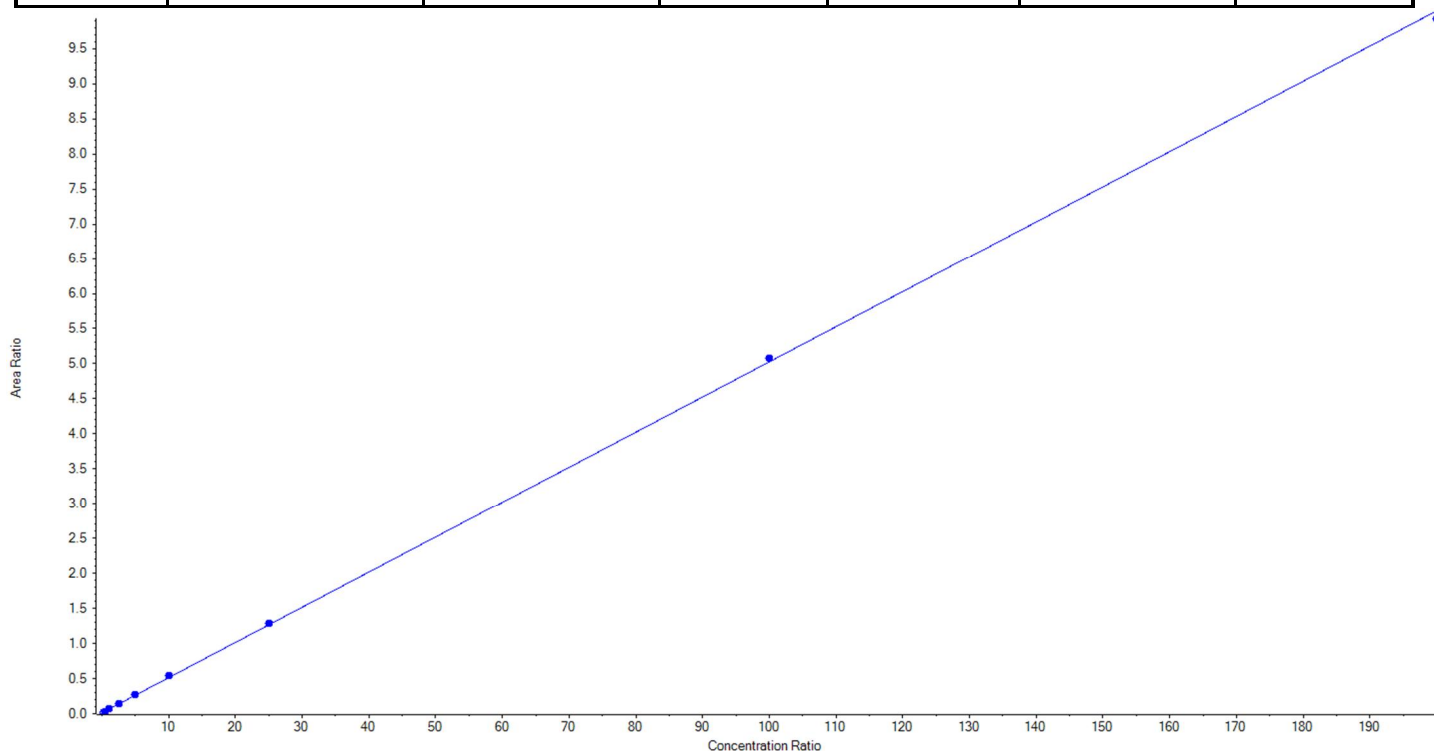
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Analyte Name	PFOA_2	Data File	6072018.wiff
MRM Transition	413.0 / 169.0	Result Table	18-0349_BASE
Internal Standard	13C8-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.05013x + 0.01244$ ($r = 0.99981$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.00	< 0	N/A
3	JV21	L2	True	50.00	37.745363	75.5
4	JV22	L3	True	100.00	106.307797	106.3
5	JV23	L4	True	250.00	271.408103	108.6
6	JV24	L5	True	500.00	516.356573	103.3
7	JV25	L6	True	1000.00	1051.550180	105.2
8	JV26	L7	True	2500.00	2530.541296	101.2
9	JV27	L8	True	10000.00	10111.959787	101.1
10	JV28	L9	True	20000.00	19774.130902	98.9





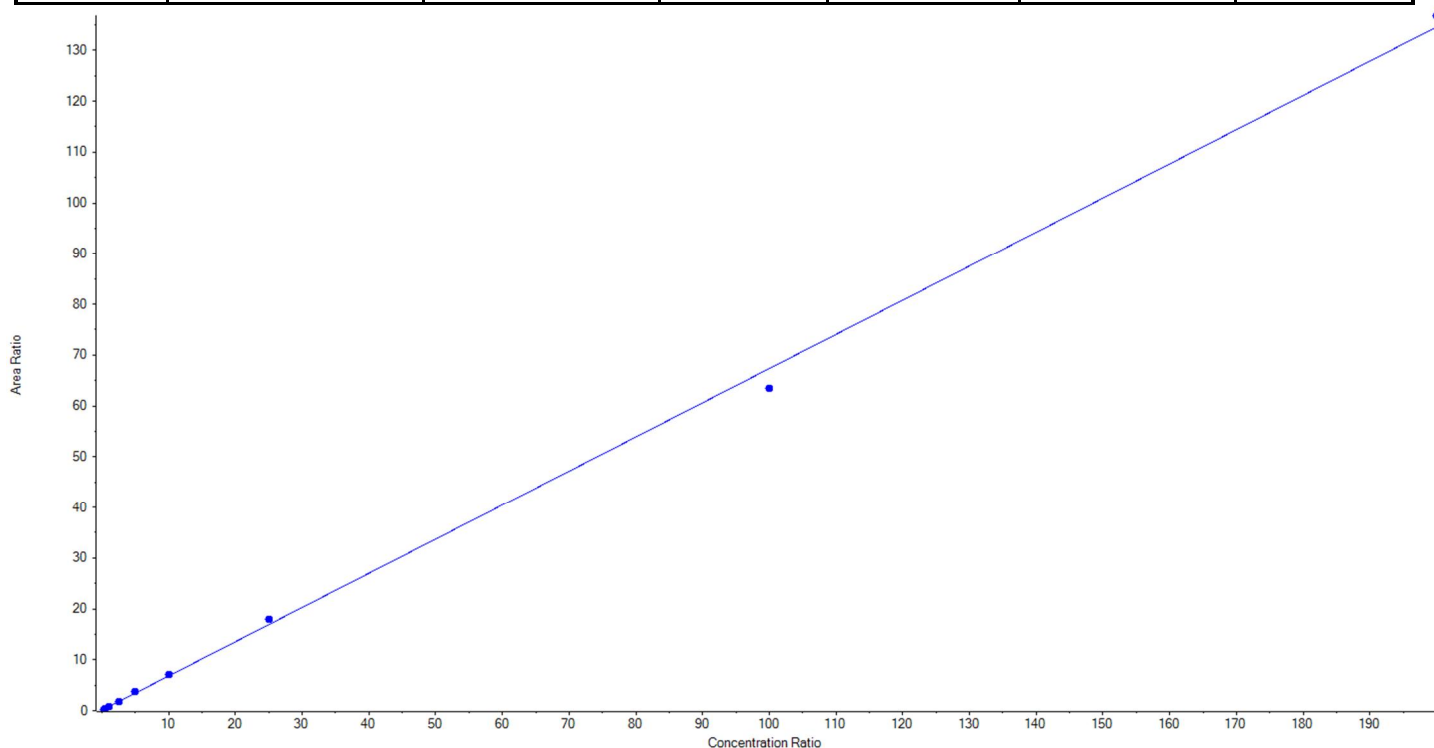
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Analyte Name	PFNA_1	Data File	6072018.wiff
MRM Transition	463.0 / 419.0	Result Table	18-0349_BASE
Internal Standard	13C9-PFNA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.67253x + 0.08413$ ($r = 0.99919$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	20.380243	81.5
3	JV21	L2	True	50.00	46.646813	93.3
4	JV22	L3	True	100.00	104.458467	104.5
5	JV23	L4	True	250.00	263.701795	105.5
6	JV24	L5	True	500.00	551.318989	110.3
7	JV25	L6	True	1000.00	1029.603636	103.0
8	JV26	L7	True	2500.00	2651.434689	106.1
9	JV27	L8	True	10000.00	9435.478644	94.4
10	JV28	L9	True	20000.00	20321.976724	101.6





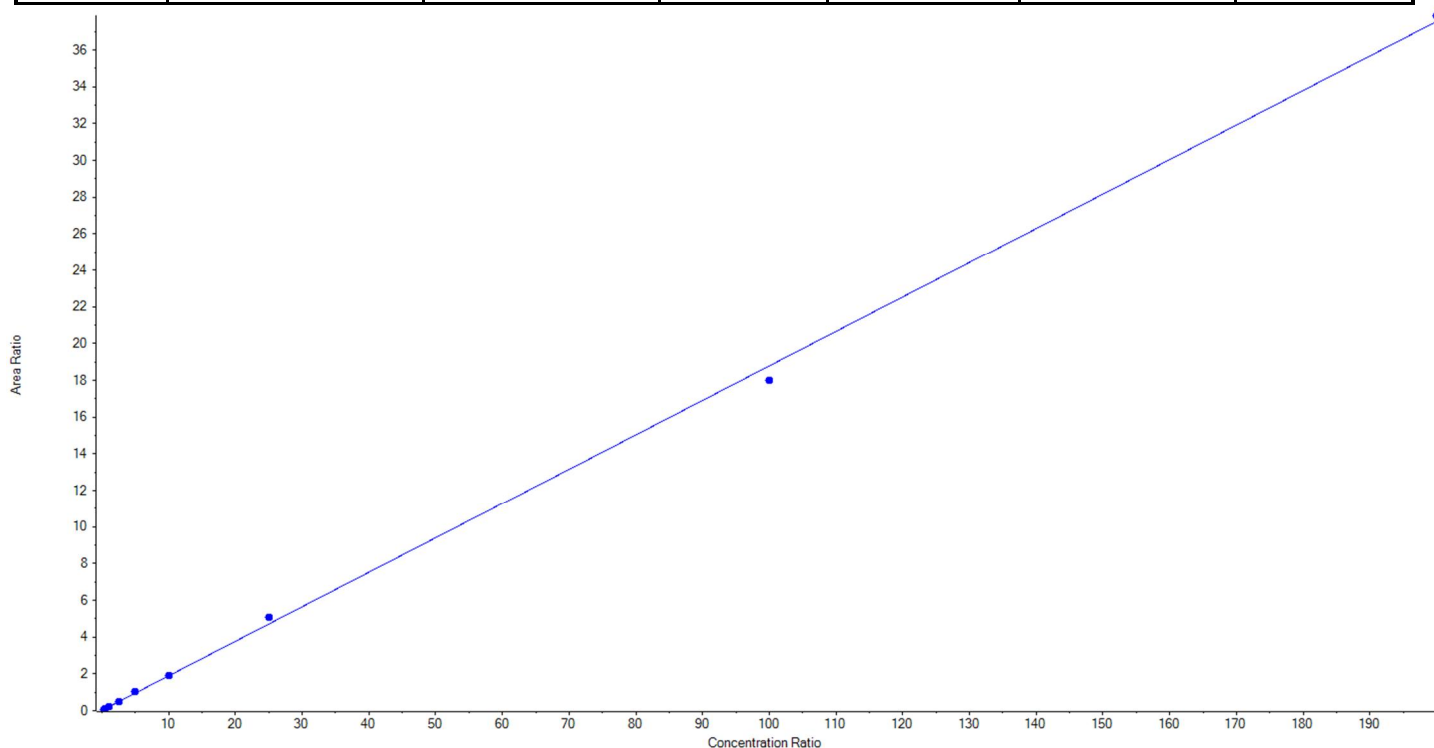
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Analyte Name	PFNA_2	Data File	6072018.wiff
MRM Transition	463.0 / 219.0	Result Table	18-0349_BASE
Internal Standard	13C9-PFNA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.18770 x + 0.01753$ ($r = 0.99936$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	19.401848	77.6
3	JV21	L2	True	50.00	48.764204	97.5
4	JV22	L3	True	100.00	110.562507	110.6
5	JV23	L4	True	250.00	248.793870	99.5
6	JV24	L5	True	500.00	547.564450	109.5
7	JV25	L6	True	1000.00	1004.923499	100.5
8	JV26	L7	True	2500.00	2704.608737	108.2
9	JV27	L8	True	10000.00	9578.530176	95.8
10	JV28	L9	True	20000.00	20161.850707	100.8





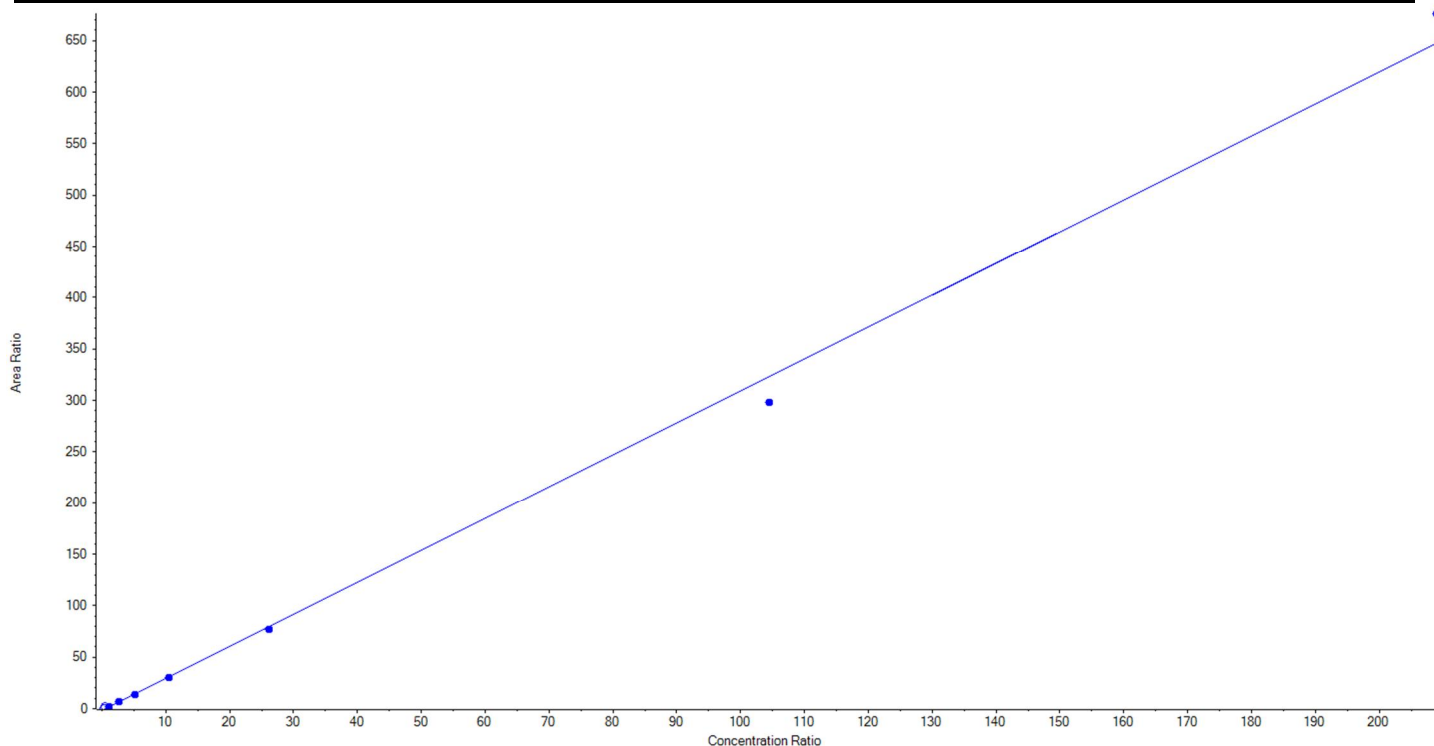
Calibration Summary Report

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Analyte Name	PFOS_1	Data File	6072018.wiff
MRM Transition	499.0 / 80.0	Result Table	18-0349_BASE
Internal Standard	13C8-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 3.10532x + -1.48782$ ($r = 0.99837$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.00	50.138640	200.6
3	JV21	L2	False	50.00	92.166004	184.3
4	JV22	L3	True	100.00	108.959361	109.0
5	JV23	L4	True	250.00	263.794339	105.5
6	JV24	L5	True	500.00	471.261790	94.3
7	JV25	L6	True	1000.00	982.909786	98.3
8	JV26	L7	True	2500.00	2404.311359	96.2
9	JV27	L8	True	10000.00	9242.659160	92.4
10	JV28	L9	True	20000.00	20876.104205	104.4





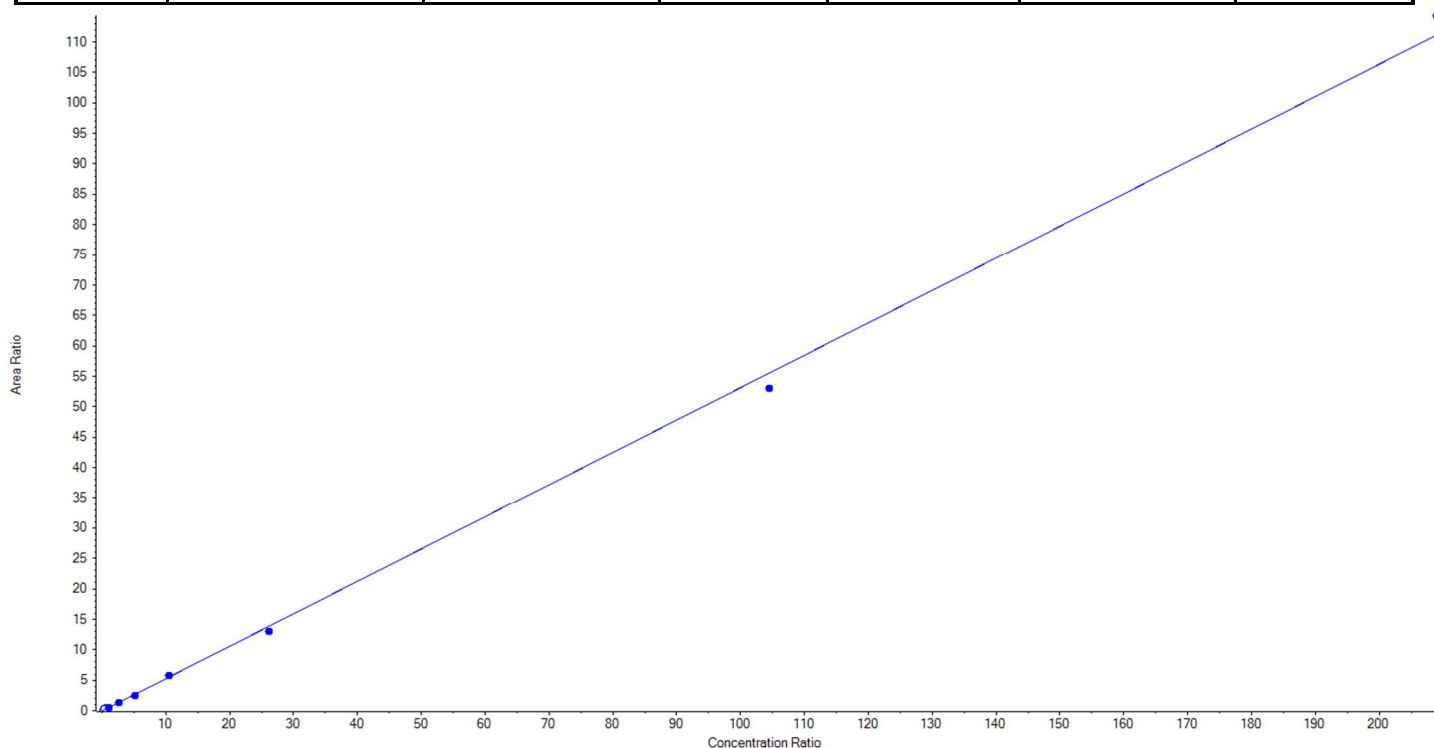
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Analyte Name	PFOS_2	Data File	6072018.wiff
MRM Transition	499.0 / 99.0	Result Table	18-0349_BASE
Internal Standard	13C8-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.53212x + -0.07235$ ($r = 0.99923$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.00	35.731144	142.9
3	JV21	L2	False	50.00	84.818722	169.6
4	JV22	L3	True	100.00	105.033358	105.0
5	JV23	L4	True	250.00	259.538899	103.8
6	JV24	L5	True	500.00	471.040056	94.2
7	JV25	L6	True	1000.00	1043.370013	104.3
8	JV26	L7	True	2500.00	2357.552928	94.3
9	JV27	L8	True	10000.00	9547.325858	95.5
10	JV28	L9	True	20000.00	20566.138888	102.8





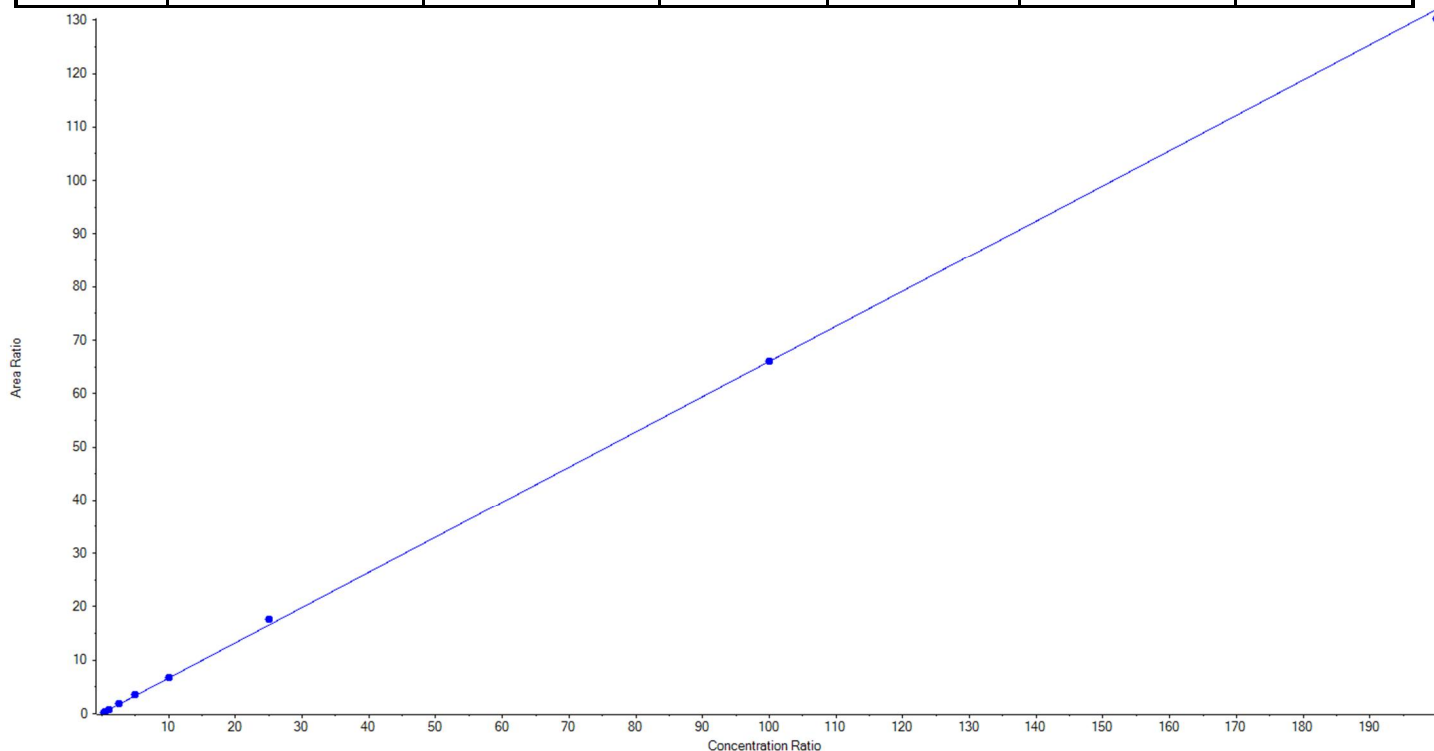
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Created with Analyst Reporter
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Analyte Name	PFDA_1	Data File	6072018.wiff
MRM Transition	513.0 / 469.0	Result Table	18-0349_BASE
Internal Standard	13C6-PFDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.65956x + 0.06191$ ($r = 0.99963$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	21.443438	85.8
3	JV21	L2	True	50.00	39.045512	78.1
4	JV22	L3	True	100.00	114.963867	115.0
5	JV23	L4	True	250.00	265.515260	106.2
6	JV24	L5	True	500.00	532.287853	106.5
7	JV25	L6	True	1000.00	1027.599212	102.8
8	JV26	L7	True	2500.00	2672.830375	106.9
9	JV27	L8	True	10000.00	10015.594449	100.2
10	JV28	L9	True	20000.00	19735.720034	98.7





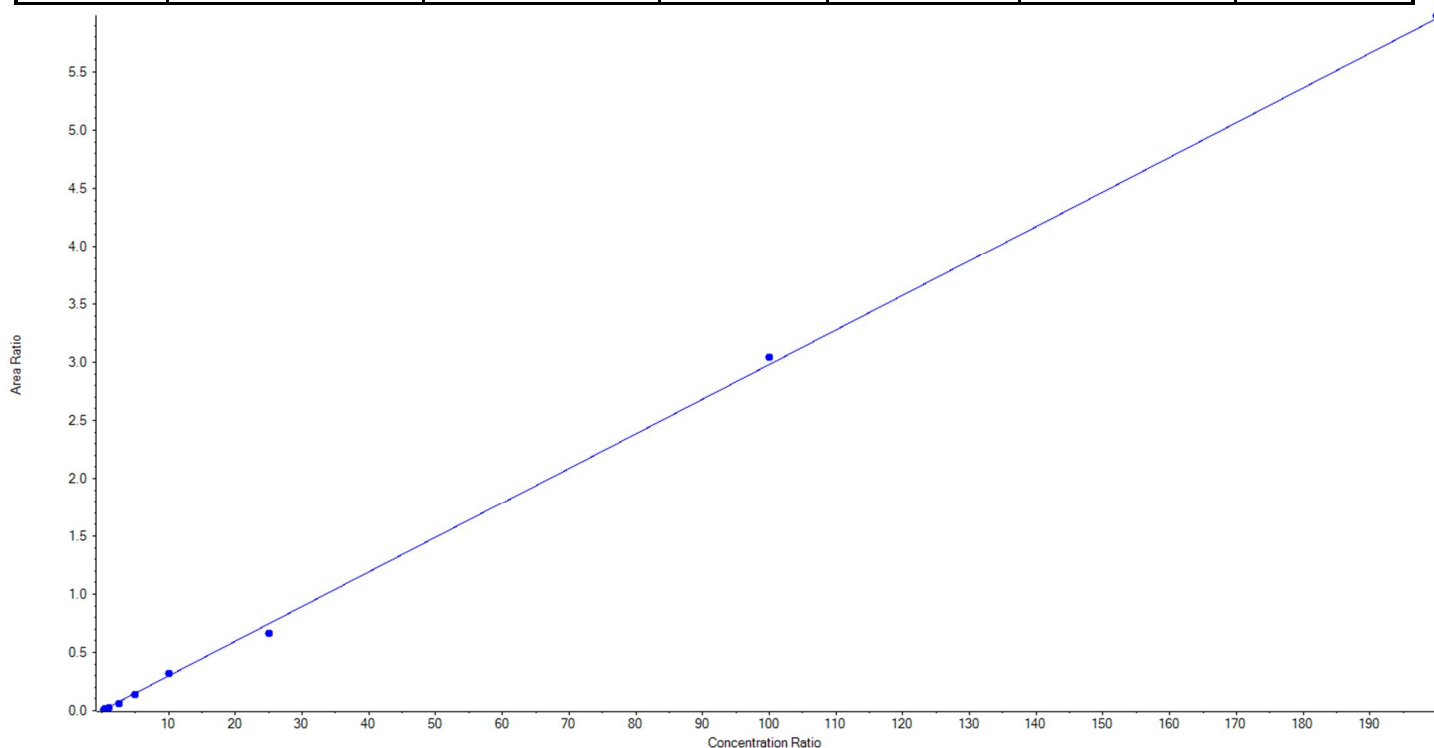
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Analyte Name	PFDA_2	Data File	6072018.wiff
MRM Transition	513.0 / 219.0	Result Table	18-0349_BASE
Internal Standard	13C6-PFDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.02979x + 0.00124$ ($r = 0.99918$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	31.548423	126.2
3	JV21	L2	True	50.00	52.220603	104.4
4	JV22	L3	True	100.00	95.565140	95.6
5	JV23	L4	True	250.00	207.658078	83.1
6	JV24	L5	True	500.00	464.804744	93.0
7	JV25	L6	True	1000.00	1068.313446	106.8
8	JV26	L7	True	2500.00	2209.453678	88.4
9	JV27	L8	True	10000.00	10217.822383	102.2
10	JV28	L9	True	20000.00	20077.613505	100.4





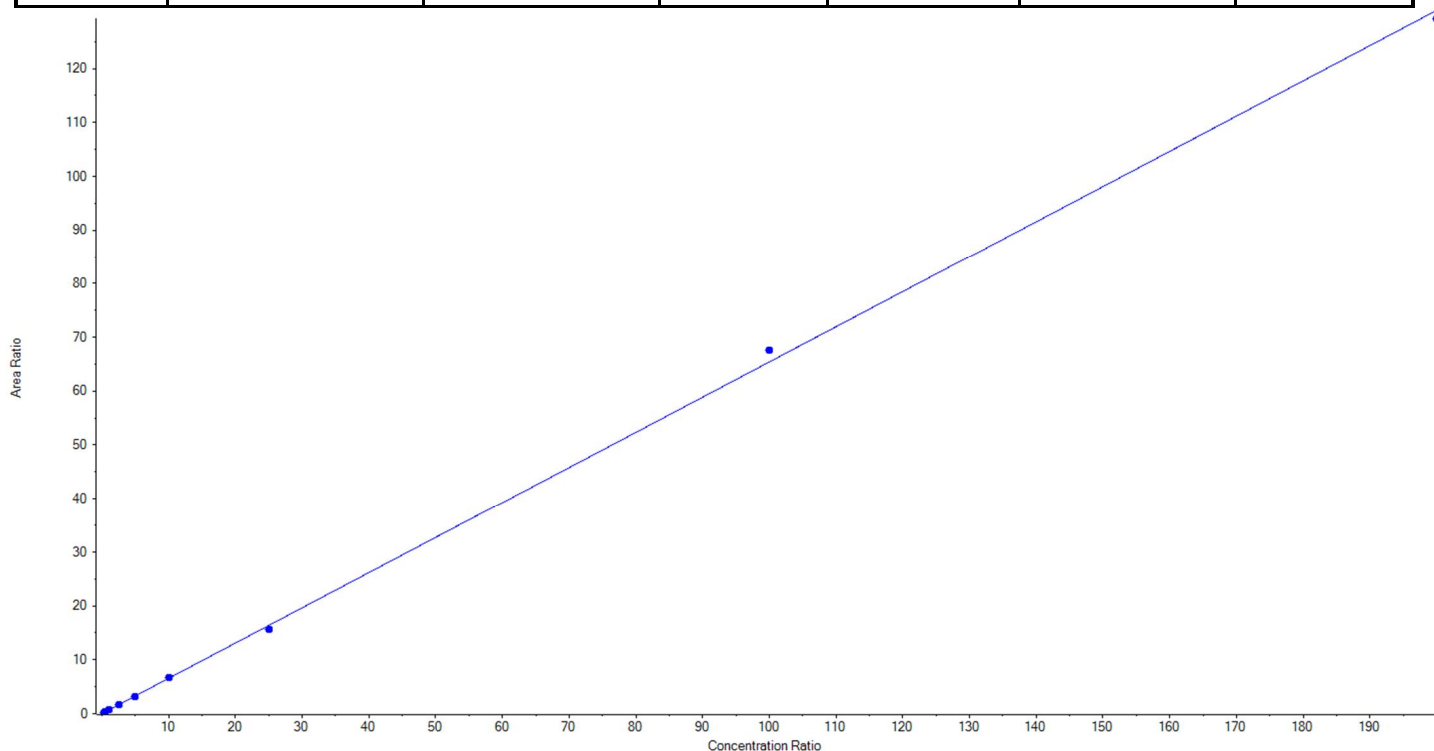
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Analyte Name	PFUnA_1	Data File	6072018.wiff
MRM Transition	563.0 / 519.0	Result Table	18-0349_BASE
Internal Standard	13C7-PFUnA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.65386 x + 0.02507$ ($r = 0.99969$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	25.036894	100.2
3	JV21	L2	True	50.00	50.021157	100.0
4	JV22	L3	True	100.00	105.372507	105.4
5	JV23	L4	True	250.00	245.247105	98.1
6	JV24	L5	True	500.00	473.779904	94.8
7	JV25	L6	True	1000.00	1035.275441	103.5
8	JV26	L7	True	2500.00	2398.389870	95.9
9	JV27	L8	True	10000.00	10332.051319	103.3
10	JV28	L9	True	20000.00	19759.825803	98.8





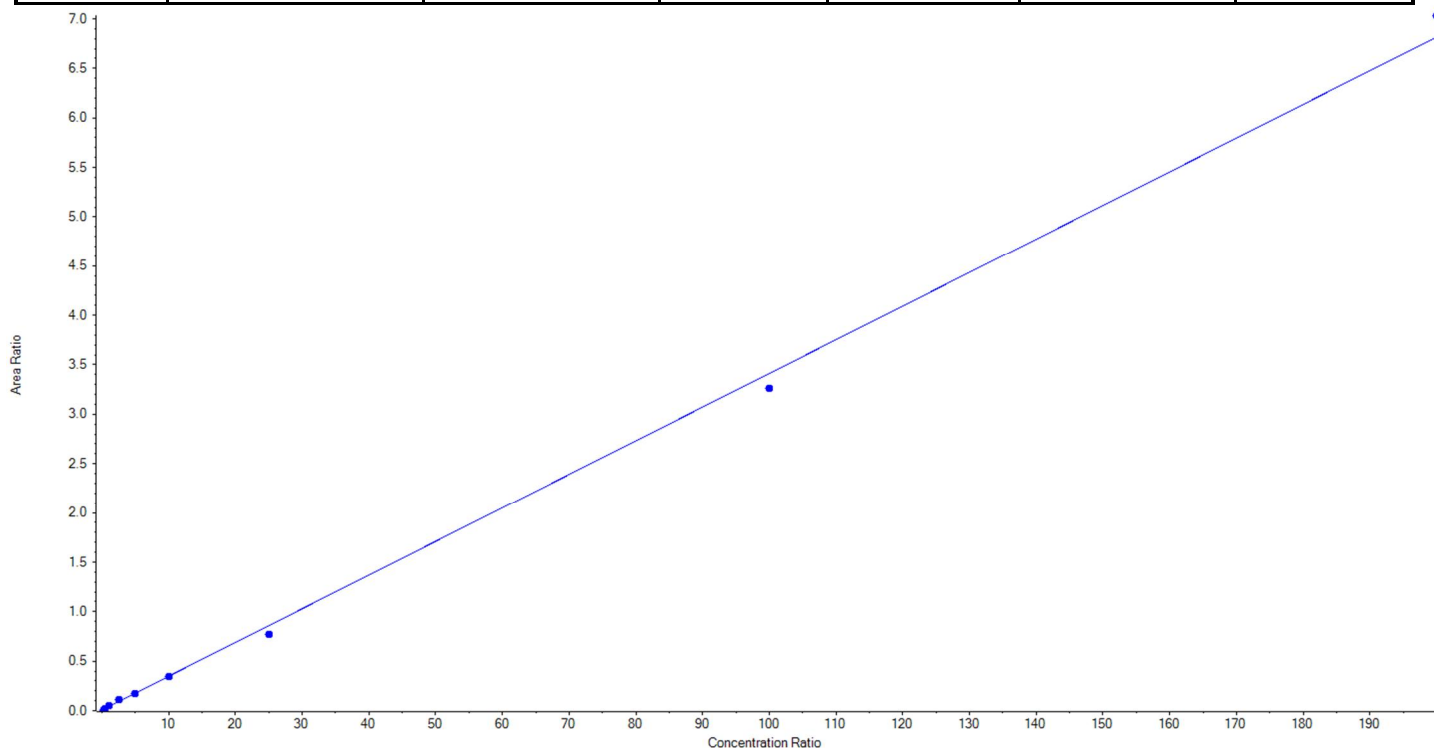
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Analyte Name	PFUnA_2	Data File	6072018.wiff
MRM Transition	563.0 / 269.0	Result Table	18-0349_BASE
Internal Standard	13C7-PFUnA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.03405 x + 0.00735$ ($r = 0.99879$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	22.422464	89.7
3	JV21	L2	True	50.00	40.513453	81.0
4	JV22	L3	True	100.00	118.927460	118.9
5	JV23	L4	True	250.00	306.872947	122.8
6	JV24	L5	True	500.00	497.879911	99.6
7	JV25	L6	True	1000.00	991.015248	99.1
8	JV26	L7	True	2500.00	2252.669746	90.1
9	JV27	L8	True	10000.00	9569.761599	95.7
10	JV28	L9	True	20000.00	20624.937171	103.1





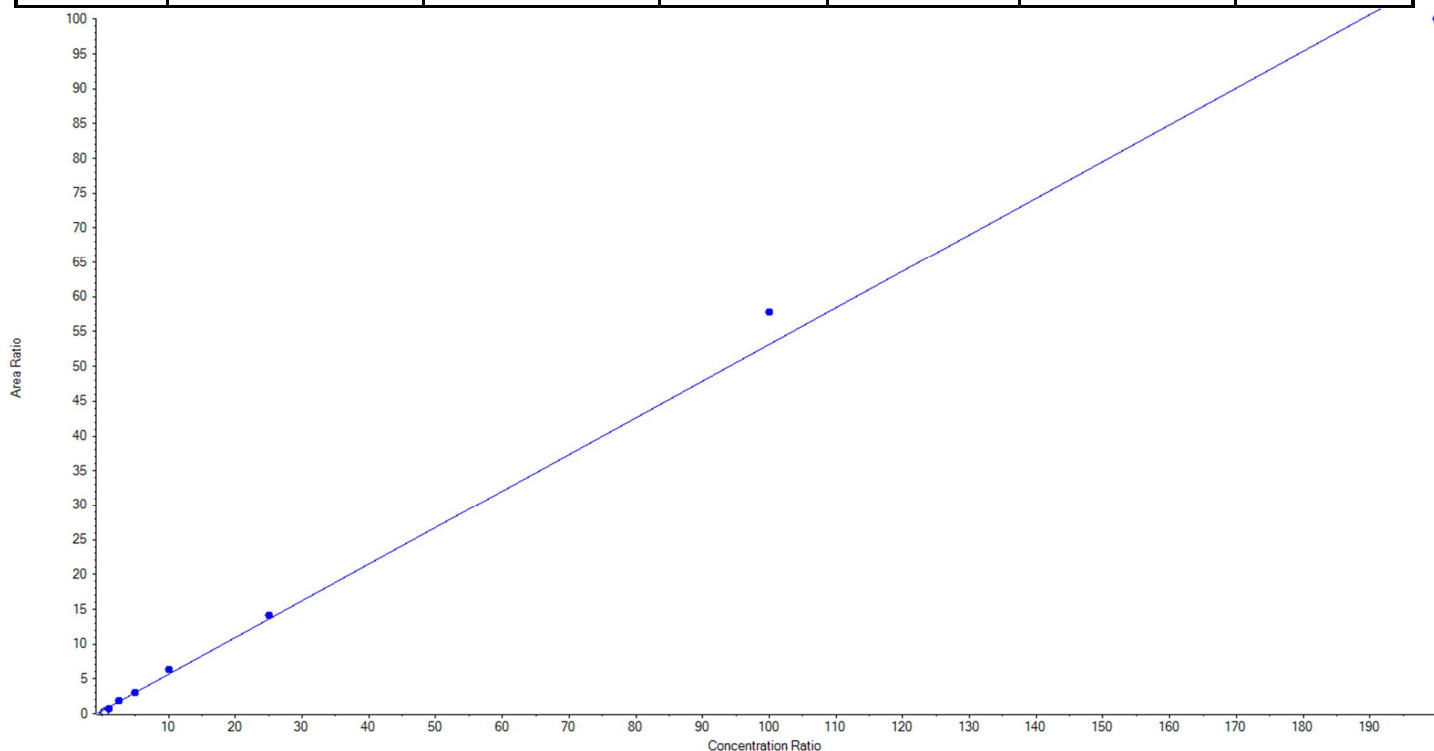
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Analyte Name	PFDaA_1	Data File	6072018.wiff
MRM Transition	613.0 / 569.0	Result Table	18-0349_BASE
Internal Standard	13C2-PFDaA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.52767 x + 0.38979$ ($r = 0.99730$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.00	< 0	N/A
3	JV21	L2	False	50.00	< 0	N/A
4	JV22	L3	True	100.00	70.178458	70.2
5	JV23	L4	True	250.00	267.915463	107.2
6	JV24	L5	True	500.00	512.936582	102.6
7	JV25	L6	True	1000.00	1126.551942	112.7
8	JV26	L7	True	2500.00	2603.682297	104.2
9	JV27	L8	True	10000.00	10884.375528	108.8
10	JV28	L9	True	20000.00	18884.359729	94.4





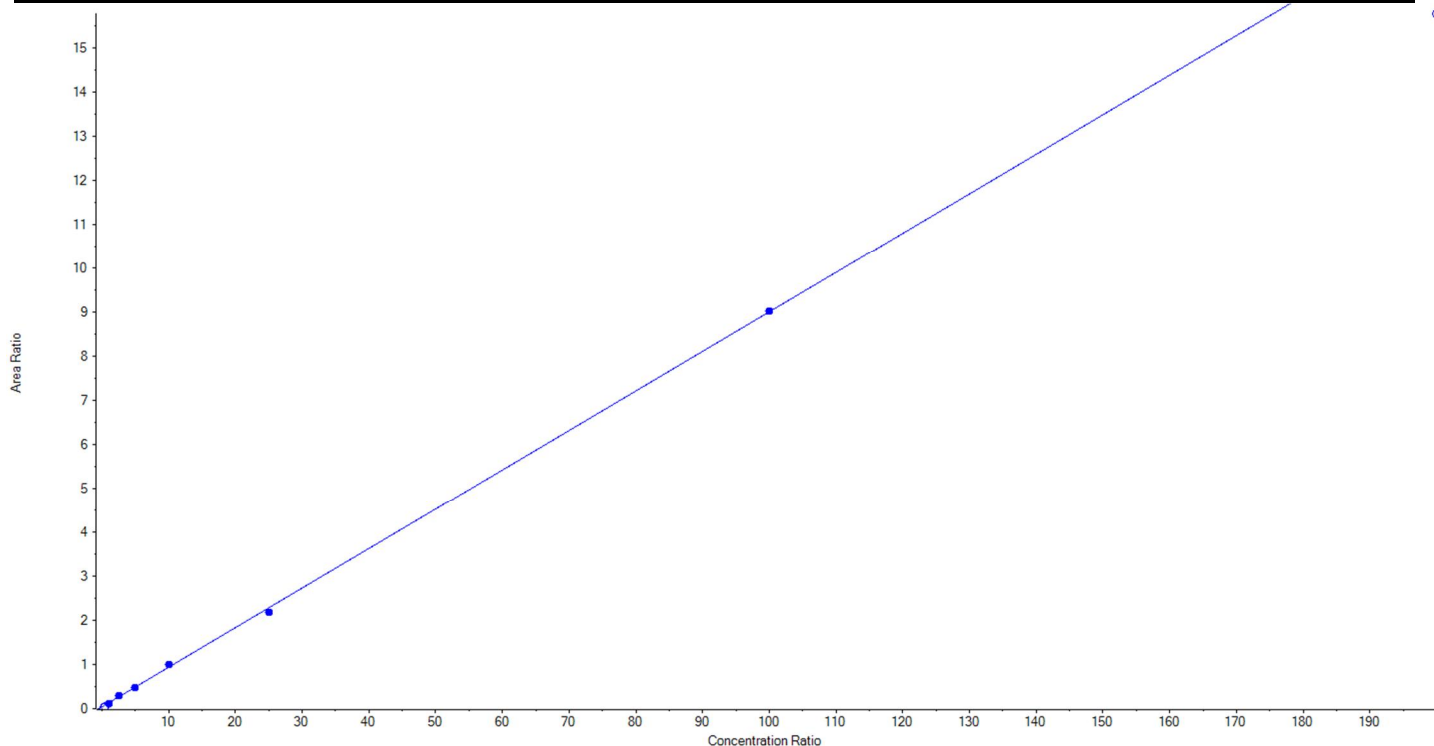
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Analyte Name	PFDaA_2	Data File	6072018.wiff
MRM Transition	613.0 / 319.0	Result Table	18-0349_BASE
Internal Standard	13C2-PFDaA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.08966 x + 0.04281$ ($r = 0.99934$) (weighting: $1 / x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	False	25.00	< 0	N/A
3	JV21	L2	False	50.00	13.766000	27.5
4	JV22	L3	True	100.00	86.741212	86.7
5	JV23	L4	True	250.00	276.475216	110.6
6	JV24	L5	True	500.00	495.184086	99.0
7	JV25	L6	True	1000.00	1079.208724	107.9
8	JV26	L7	True	2500.00	2386.236813	95.5
9	JV27	L8	True	10000.00	10026.153948	100.3
10	JV28	L9	False	20000.00	17548.781879	87.7





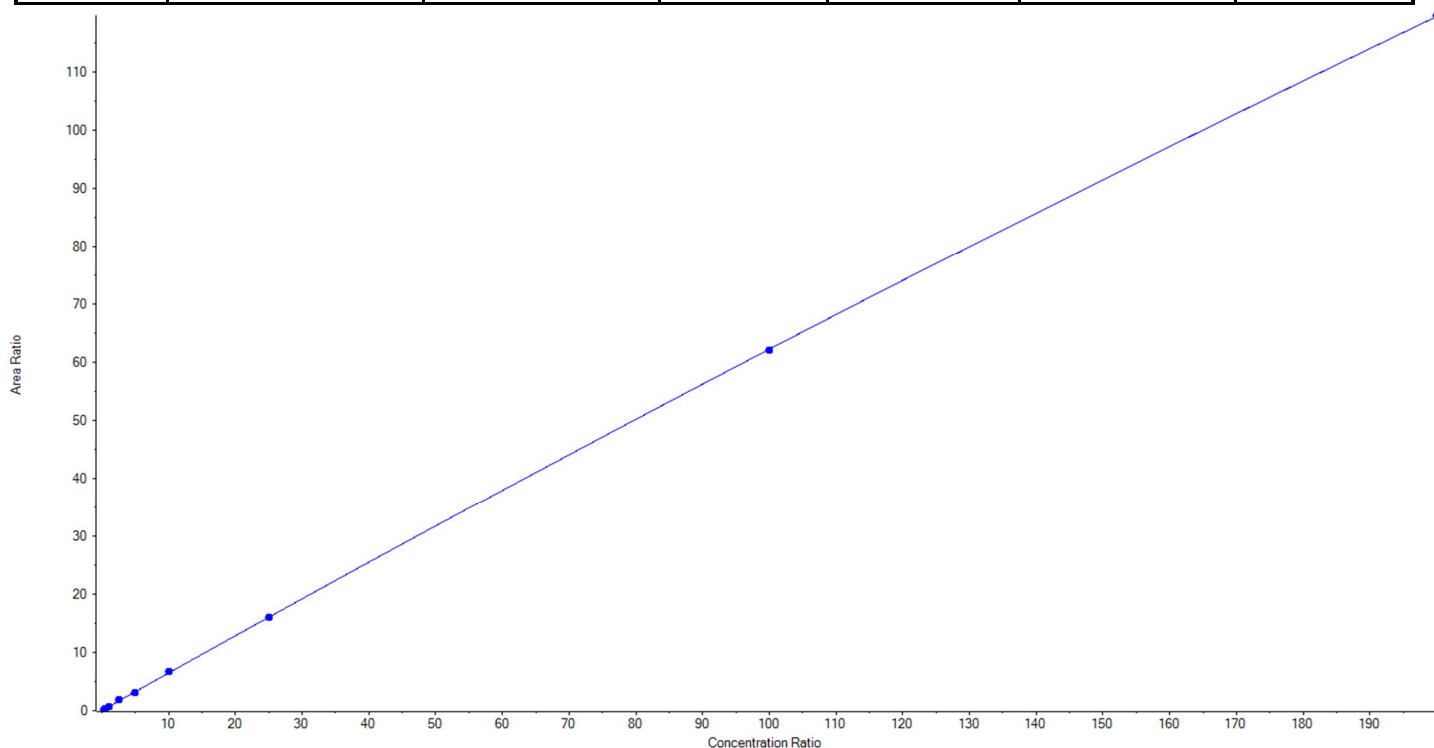
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Analyte Name	PFTTrDA_1	Data File	6072018.wiff
MRM Transition	663.0 / 619.0	Result Table	18-0349_BASE
Internal Standard	13C2-PFTeDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = -2.45176e-4 x^2 + 0.64685 x + 0.04142$ ($r = 0.99990$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	22.161627	88.7
3	JV21	L2	True	50.00	48.481204	97.0
4	JV22	L3	True	100.00	106.967849	107.0
5	JV23	L4	True	250.00	276.263151	110.5
6	JV24	L5	True	500.00	475.432794	95.1
7	JV25	L6	True	1000.00	1026.550278	102.7
8	JV26	L7	True	2500.00	2486.470932	99.5
9	JV27	L8	True	10000.00	9961.026751	99.6
10	JV28	L9	True	20000.00	20021.938987	100.1





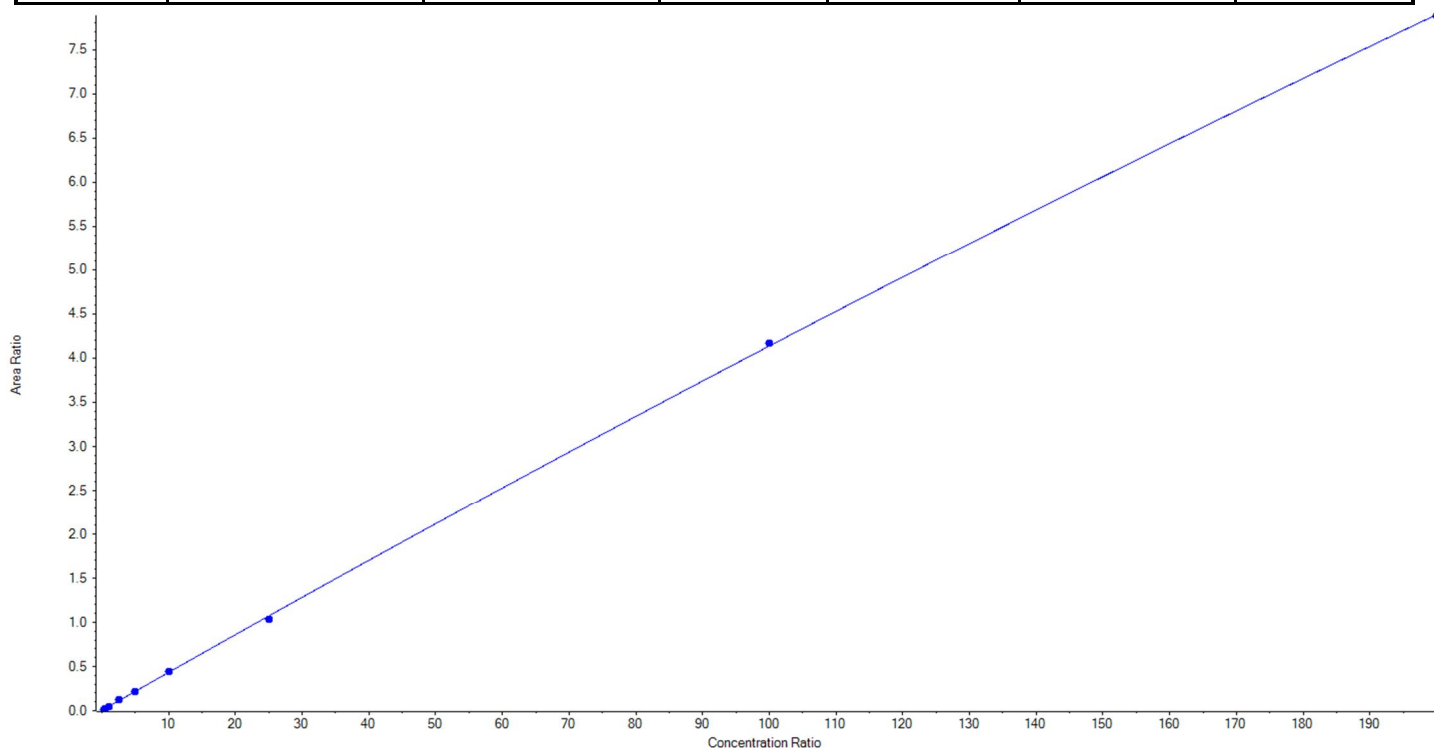
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Analyte Name	PFTTrDA_2	Data File	6072018.wiff
MRM Transition	663.0 / 169.0	Result Table	18-0349_BASE
Internal Standard	13C2-PFTeDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = -1.86273e-5 x^2 + 0.04319 x + 0.00364$ ($r = 0.99983$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	22.162689	88.7
3	JV21	L2	True	50.00	47.733187	95.5
4	JV22	L3	True	100.00	107.588314	107.6
5	JV23	L4	True	250.00	279.571556	111.8
6	JV24	L5	True	500.00	486.583145	97.3
7	JV25	L6	True	1000.00	1022.697874	102.3
8	JV26	L7	True	2500.00	2403.578014	96.1
9	JV27	L8	True	10000.00	10093.394159	100.9
10	JV28	L9	True	20000.00	19961.287090	99.8





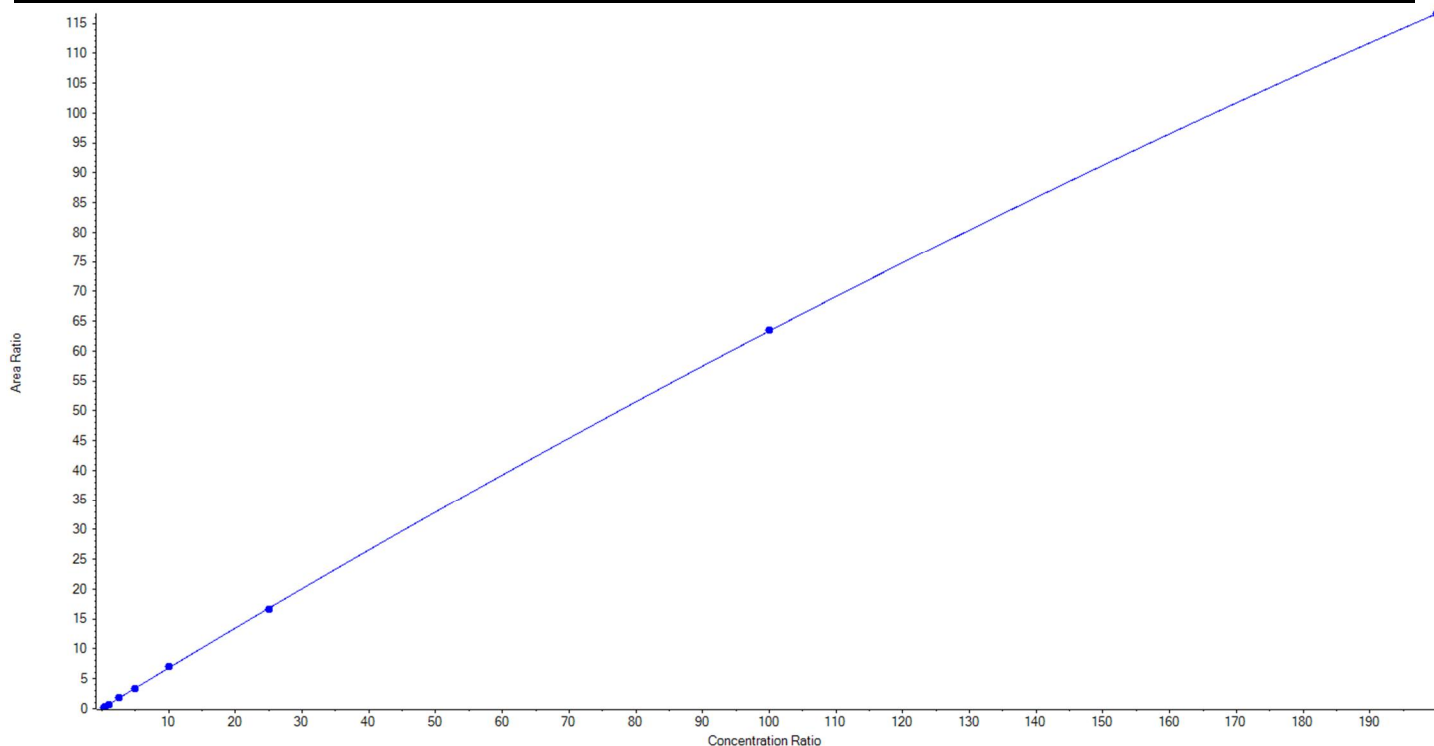
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Analyte Name	PFTeDA_1	Data File	6072018.wiff
MRM Transition	713.0 / 669.0	Result Table	18-0349_BASE
Internal Standard	13C2-PFTeDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = -5.04346 \times 10^{-4} x^2 + 0.68391 x + 0.02496$ ($r = 0.99996$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	23.788334	95.2
3	JV21	L2	True	50.00	50.044909	100.1
4	JV22	L3	True	100.00	103.113355	103.1
5	JV23	L4	True	250.00	256.151932	102.5
6	JV24	L5	True	500.00	486.029505	97.2
7	JV25	L6	True	1000.00	1033.338939	103.3
8	JV26	L7	True	2500.00	2463.483574	98.5
9	JV27	L8	True	10000.00	10012.029002	100.1
10	JV28	L9	True	20000.00	19996.999621	100.0





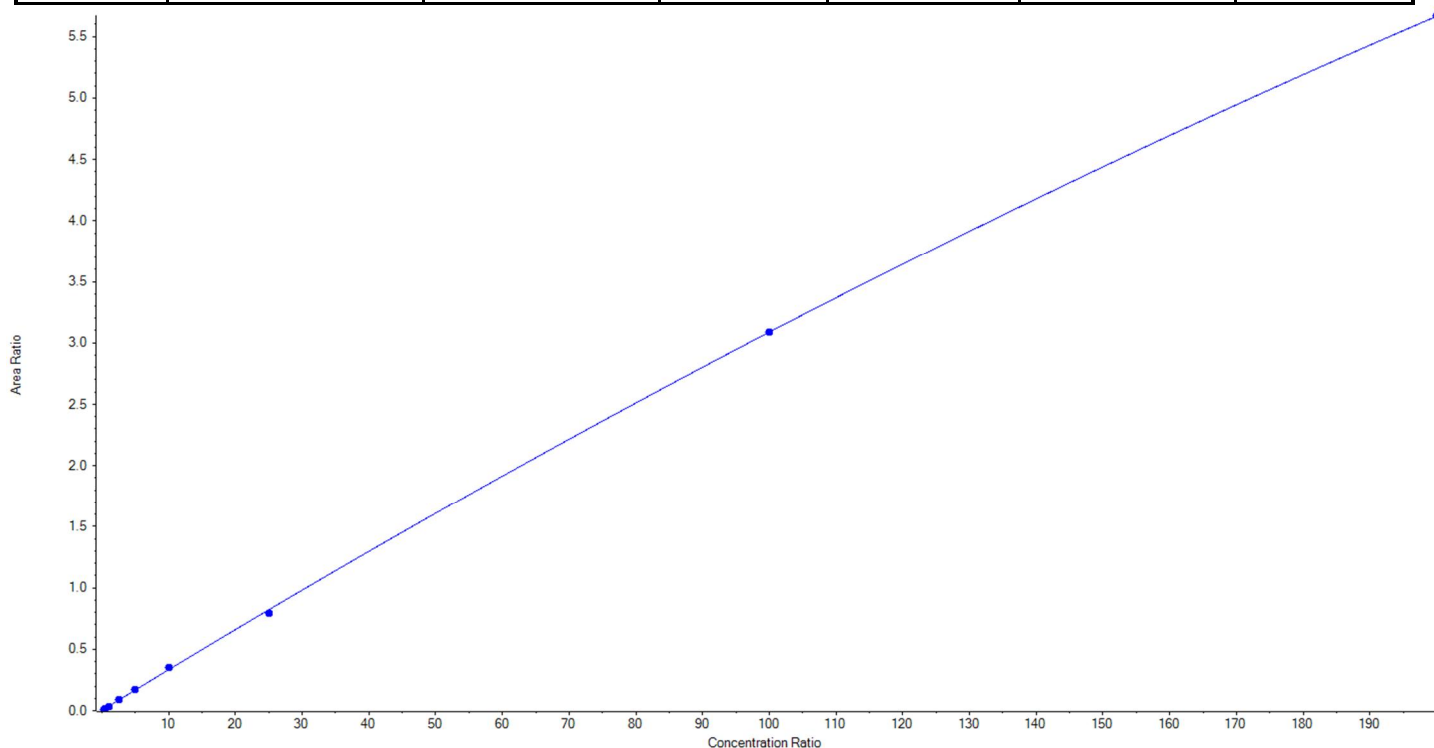
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Analyte Name	PFTeDA_2	Data File	6072018.wiff
MRM Transition	713.0 / 169.0	Result Table	18-0349_BASE
Internal Standard	13C2-PFTeDA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = -2.53939e-5 x^2 + 0.03339 x + 0.00200$ ($r = 0.99987$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	25.648467	102.6
3	JV21	L2	True	50.00	42.930398	85.9
4	JV22	L3	True	100.00	101.815900	101.8
5	JV23	L4	True	250.00	260.210288	104.1
6	JV24	L5	True	500.00	519.262579	103.9
7	JV25	L6	True	1000.00	1049.502317	105.0
8	JV26	L7	True	2500.00	2422.036551	96.9
9	JV27	L8	True	10000.00	9988.884280	99.9
10	JV28	L9	True	20000.00	20015.897486	100.1





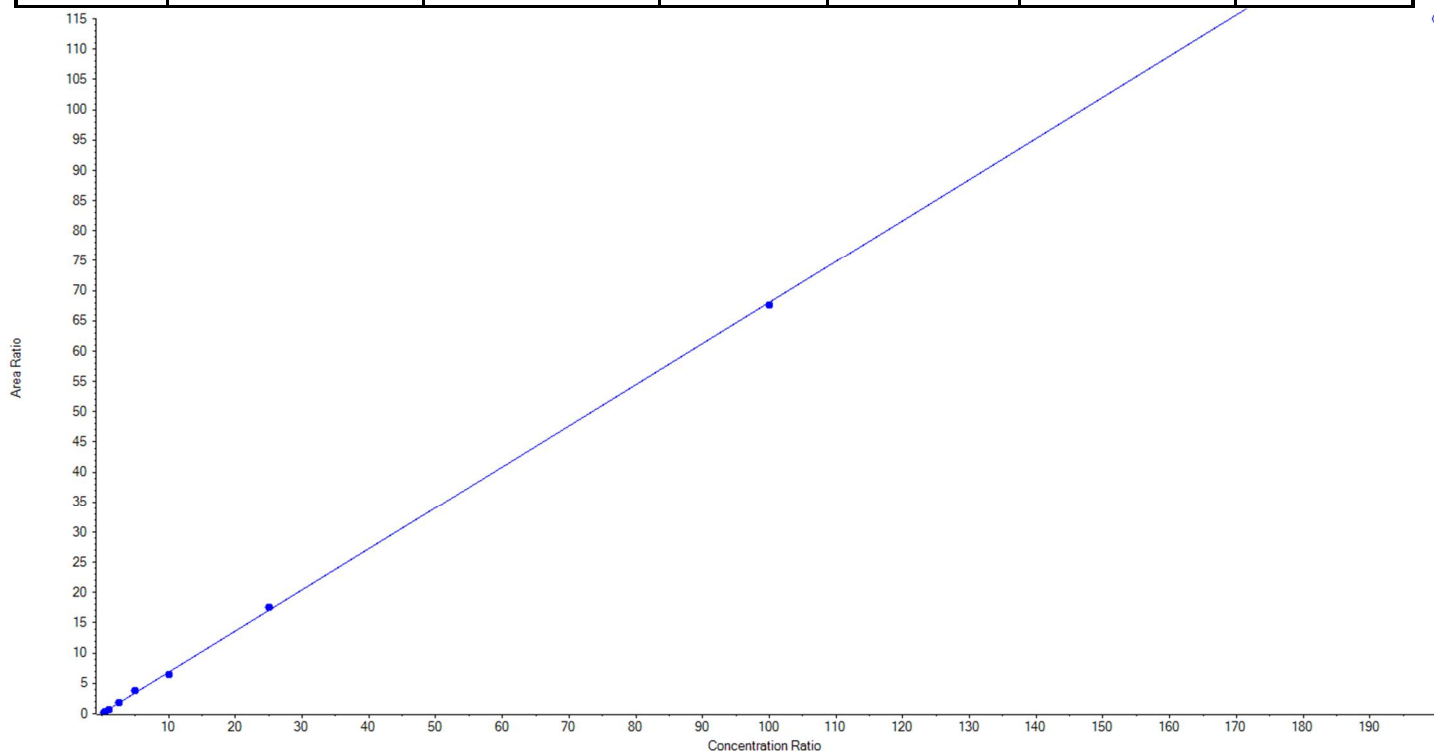
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Analyte Name	NMeFOSAA_1	Data File	6072018.wiff
MRM Transition	570.0 / 419.0	Result Table	18-0349_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.68020x + 0.04941$ ($r = 0.99960$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	24.227966	96.9
3	JV21	L2	True	50.00	46.741338	93.5
4	JV22	L3	True	100.00	101.511782	101.5
5	JV23	L4	True	250.00	250.779356	100.3
6	JV24	L5	True	500.00	552.230007	110.5
7	JV25	L6	True	1000.00	951.596874	95.2
8	JV26	L7	True	2500.00	2573.237388	102.9
9	JV27	L8	True	10000.00	9924.675290	99.3
10	JV28	L9	False	20000.00	16903.129381	84.5





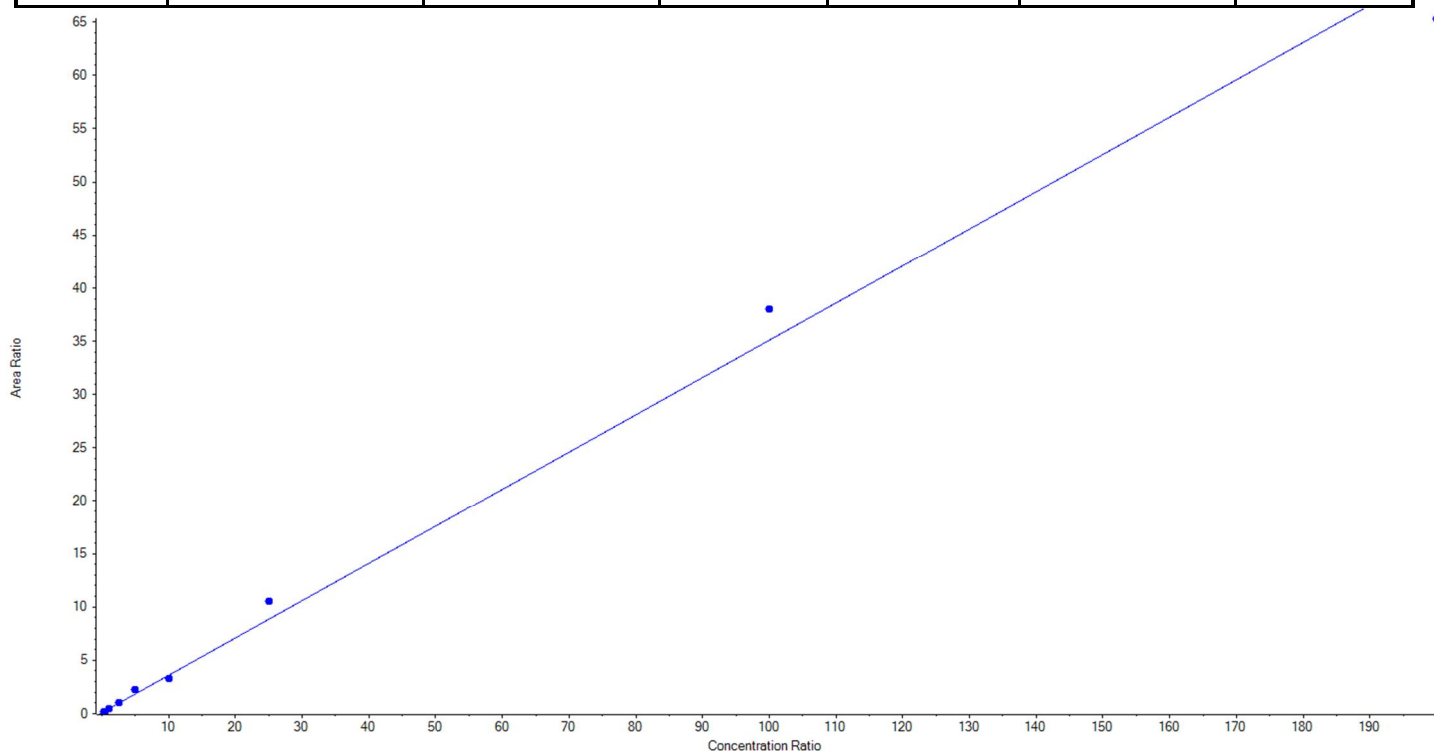
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Analyte Name	NMeFOSAA_2	Data File	6072018.wiff
MRM Transition	570.0 / 512.0	Result Table	18-0349_BASE
Internal Standard	d3-MeFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.34992x + 0.10048$ ($r = 0.99555$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	20.857455	83.4
3	JV21	L2	True	50.00	36.113201	72.2
4	JV22	L3	True	100.00	95.604572	95.6
5	JV23	L4	True	250.00	274.701878	109.9
6	JV24	L5	True	500.00	629.792515	126.0
7	JV25	L6	True	1000.00	924.546740	92.5
8	JV26	L7	True	2500.00	2972.639243	118.9
9	JV27	L8	True	10000.00	10837.197284	108.4
10	JV28	L9	True	20000.00	18633.547112	93.2





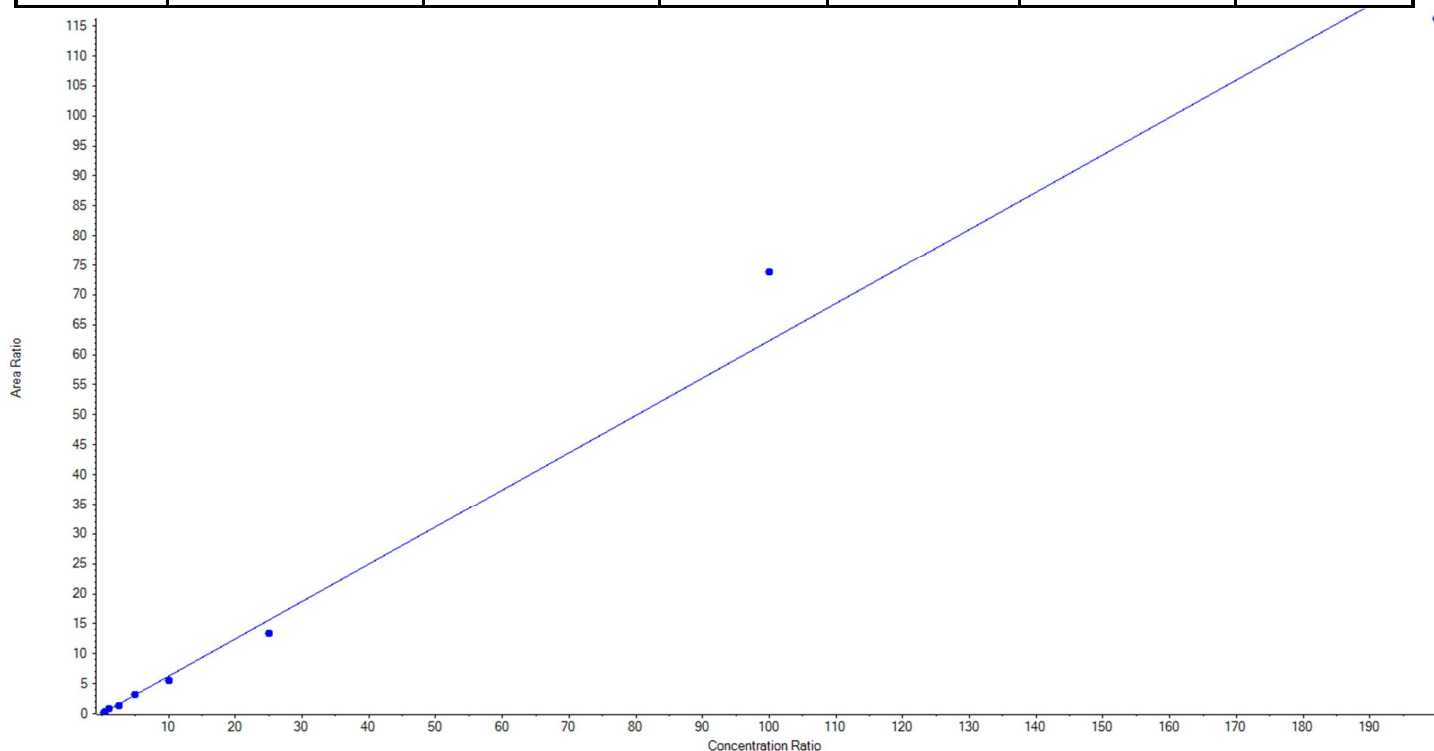
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Analyte Name	NEtFOSAA_1	Data File	6072018.wiff
MRM Transition	584.0 / 419.0	Result Table	18-0349_BASE
Internal Standard	d5-EtFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.62325x + 0.02232$ ($r = 0.99252$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	27.761996	111.1
3	JV21	L2	True	50.00	48.917992	97.8
4	JV22	L3	True	100.00	117.438734	117.4
5	JV23	L4	True	250.00	220.063816	88.0
6	JV24	L5	True	500.00	503.697956	100.7
7	JV25	L6	True	1000.00	871.554521	87.2
8	JV26	L7	True	2500.00	2152.908410	86.1
9	JV27	L8	True	10000.00	11845.421285	118.5
10	JV28	L9	True	20000.00	18637.235289	93.2





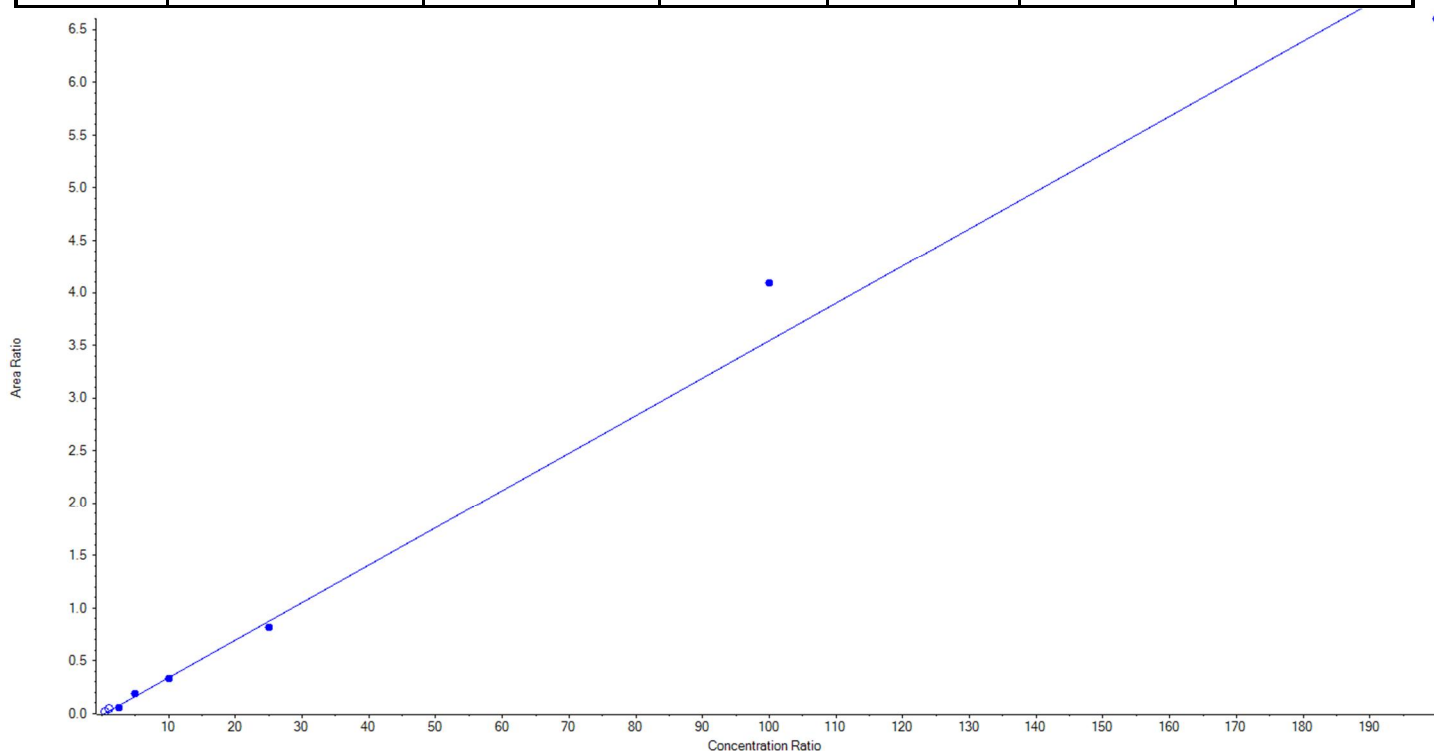
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Analyte Name	NEtFOSAA_2	Data File	6072018.wiff
MRM Transition	584.0 / 483.0	Result Table	18-0349_BASE
Internal Standard	d5-EtFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	6/7/2018 8:21:48 PM	Acquisition Method	5-0369.dam

Regression Equation: $y = 0.03558x + -0.01440$ ($r = 0.99388$) (weighting: $1/x$)

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	JV20	L1	True	25.00	N/A	N/A
3	JV21	L2	False	50.00	103.851355	207.7
4	JV22	L3	False	100.00	166.868452	166.9
5	JV23	L4	True	250.00	212.776468	85.1
6	JV24	L5	True	500.00	574.726398	115.0
7	JV25	L6	True	1000.00	978.150478	97.8
8	JV26	L7	True	2500.00	2342.419203	93.7
9	JV27	L8	True	10000.00	11544.536038	115.5
10	JV28	L9	True	20000.00	18597.391416	93.0



[illegible]

Sample Name	JW32 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:19:21	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.54	1176.558923	1010.00	116.49
PFBS_2	298.9 / 99.0	1.54	1139.653412	1010.00	112.84
PFHxA_1	313.0 / 269.0	1.83	1237.968209	1010.00	122.57
PFHxA_2	313.0 / 119.0	1.83	1209.151708	1010.00	119.72
PFHpA_1	363.0 / 319.0	2.20	1107.496767	1000.00	110.75
PFHpA_2	363.0 / 169.0	2.20	1165.474923	1000.00	116.55
PFHxS_1	399.0 / 80.0	2.21	1070.276443	1010.00	105.97
PFHxS_2	399.0 / 99.0	2.21	1112.426054	1010.00	110.14
PFOA_1	413.0 / 369.0	2.57	1130.613191	1000.00	113.06
PFOA_2	413.0 / 169.0	2.57	1065.337946	1000.00	106.53
PFNA_1	463.0 / 419.0	2.95	1257.443907	1000.00	125.74
PFNA_2	463.0 / 219.0	2.95	1156.611404	1000.00	115.66
PFOS_1	499.0 / 80.0	2.94	1173.195643	1000.00	117.32
PFOS_2	499.0 / 99.0	2.94	1164.854382	1000.00	116.49
PFDA_1	513.0 / 469.0	3.29	1048.456126	1000.00	104.85
PFDA_2	513.0 / 219.0	3.29	933.400367	1000.00	93.34
PFUnA_1	563.0 / 519.0	3.61	1086.731146	1000.00	108.67
PFUnA_2	563.0 / 269.0	3.61	1115.155445	1000.00	111.52
PFDaA_1	613.0 / 569.0	3.90	1222.515531	1000.00	122.25
PFDaA_2	613.0 / 319.0	3.90	1154.678705	1000.00	115.47
PFTTrDA_1	663.0 / 619.0	4.15	1203.573469	1000.00	120.36
PFTTrDA_2	663.0 / 169.0	4.15	1227.419600	1000.00	122.74
PFTeDA_1	713.0 / 669.0	4.37	1193.797157	1000.00	119.38
PFTeDA_2	713.0 / 169.0	4.37	1212.863155	1000.00	121.29
NMeFOSAA_1	570.0 / 419.0	3.45	1068.182379	1000.00	106.82
NMeFOSAA_2	570.0 / 512.0	3.45	1067.710917	1000.00	106.77
NEtFOSAA_1	584.0 / 419.0	3.61	941.043251	1000.00	94.10
NEtFOSAA_2	584.0 / 483.0	3.61	965.840167	1000.00	96.58

Sample Name	JV26 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:59:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.54	2600.270096	2525.00	102.98
PFBS_2	298.9 / 99.0	1.54	2621.066850	2525.00	103.80
PFHxA_1	313.0 / 269.0	1.83	2643.944685	2525.00	104.71
PFHxA_2	313.0 / 119.0	1.83	2672.790958	2525.00	105.85
PFHpA_1	363.0 / 319.0	2.19	2268.208924	2500.00	90.73
PFHpA_2	363.0 / 169.0	2.19	2466.842670	2500.00	98.67
PFHxS_1	399.0 / 80.0	2.21	2567.986684	2525.00	101.70
PFHxS_2	399.0 / 99.0	2.21	2627.776123	2525.00	104.07
PFOA_1	413.0 / 369.0	2.57	2414.574483	2500.00	96.58
PFOA_2	413.0 / 169.0	2.57	2370.596369	2500.00	94.82
PFNA_1	463.0 / 419.0	2.94	2587.560855	2500.00	103.50
PFNA_2	463.0 / 219.0	2.94	2853.862077	2500.00	114.15
PFOS_1	499.0 / 80.0	2.94	2599.859394	2500.00	103.99
PFOS_2	499.0 / 99.0	2.94	2681.102265	2500.00	107.24
PFDA_1	513.0 / 469.0	3.29	2464.928720	2500.00	98.60
PFDA_2	513.0 / 219.0	3.29	2449.721022	2500.00	97.99
PFUnA_1	563.0 / 519.0	3.61	2388.228569	2500.00	95.53
PFUnA_2	563.0 / 269.0	3.61	2227.769308	2500.00	89.11
PFDaA_1	613.0 / 569.0	3.89	2920.512677	2500.00	116.82
PFDaA_2	613.0 / 319.0	3.89	2580.864772	2500.00	103.23
PFTTrDA_1	663.0 / 619.0	4.15	2448.712769	2500.00	97.95
PFTTrDA_2	663.0 / 169.0	4.14	2445.219474	2500.00	97.81
PFTeDA_1	713.0 / 669.0	4.37	2459.596644	2500.00	98.38
PFTeDA_2	713.0 / 169.0	4.37	2507.011039	2500.00	100.28
NMeFOSAA_1	570.0 / 419.0	3.44	2277.019917	2500.00	91.08
NMeFOSAA_2	570.0 / 512.0	3.44	2556.018648	2500.00	102.24
NEtFOSAA_1	584.0 / 419.0	3.61	2896.270629	2500.00	115.85
NEtFOSAA_2	584.0 / 483.0	3.61	3142.397089	2500.00	125.70

Sample Name	JW32 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:19:21	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.89	105.711126	100.00	105.71
d3-MeFOSAA	573.0 / 419.0	3.44	100.443056	100.00	100.44
d5-EtFOSAA	589.0 / 419.0	3.60	105.614930	100.00	105.61
13C5-PFHxA	318.0 / 273.0	1.82	95.400517	100.00	95.40
13C4-PFHpA	367.0 / 322.0	2.19	97.905849	100.00	97.91
13C8-PFOA	421.0 / 376.0	2.56	102.774478	100.00	102.77
13C9-PFNA	472.0 / 427.0	2.94	95.653016	100.00	95.65
13C6-PFDA	519.0 / 474.0	3.28	114.105909	100.00	114.11
13C7-PFUnA	570.0 / 525.0	3.60	112.370112	100.00	112.37
13C2-PFTeDA	715.0 / 670.0	4.37	99.114221	100.00	99.11
13C3-PFBS	302.0 / 99.0	1.53	81.459850	92.90	87.69
13C3-PFHxS	402.0 / 99.0	2.20	96.849423	94.60	102.38
13C8-PFOS	507.0 / 99.0	2.93	77.243946	95.70	80.71

Sample Name	JV26 CCV	Injection Vial	8
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:59:37	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.88	98.372153	100.00	98.37
d3-MeFOSAA	573.0 / 419.0	3.44	103.182193	100.00	103.18
d5-EtFOSAA	589.0 / 419.0	3.59	83.368916	100.00	83.37
13C5-PFHxA	318.0 / 273.0	1.82	94.193579	100.00	94.19
13C4-PFHpA	367.0 / 322.0	2.18	106.372510	100.00	106.37
13C8-PFOA	421.0 / 376.0	2.56	99.620566	100.00	99.62
13C9-PFNA	472.0 / 427.0	2.93	98.863007	100.00	98.86
13C6-PFDA	519.0 / 474.0	3.28	105.058646	100.00	105.06
13C7-PFUnA	570.0 / 525.0	3.59	109.206023	100.00	109.21
13C2-PFTeDA	715.0 / 670.0	4.36	99.715790	100.00	99.72
13C3-PFBS	302.0 / 99.0	1.53	81.995993	92.90	88.26
13C3-PFHxS	402.0 / 99.0	2.20	87.077547	94.60	92.05
13C8-PFOS	507.0 / 99.0	2.93	80.615389	95.70	84.24

Sample Name	JV05 IB	Injection Vial	11
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-07T22:08:39	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Ratio Group	Calculated Ion ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.55	PFBS			
PFBS_2	298.9 / 99.0	1.54	PFBS	0.358	0.322	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.84	PFHxA	0.066	0.070	ü
PFHpA_1	363.0 / 319.0	2.21	PFHpA			
PFHpA_2	363.0 / 169.0	2.17	PFHpA	0.028	0.027	ü
PFHxS_1	399.0 / 80.0	2.22	PFHxS			
PFHxS_2	399.0 / 99.0	2.22	PFHxS	0.304	0.297	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.59	PFOA	0.074	0.079	ü
PFNA_1	463.0 / 419.0	2.95	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.255	0.273	ü
PFOS_1	499.0 / 80.0	2.88	PFOS			
PFOS_2	499.0 / 99.0	2.95	PFOS	0.278	0.191	ü
PFDA_1	513.0 / 469.0	3.30	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.051	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.62	PFUnA	0.043	0.059	ü
PFDaA_1	613.0 / 569.0	3.90	PFDaA			
PFDaA_2	613.0 / 319.0	3.90	PFDaA	0.160	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.15	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.15	PFTTrDA	0.083	0.068	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.058	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.45	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.45	NMeFOSAA	0.535	0.607	ü
NEtFOSAA_1	584.0 / 419.0	3.62	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.60	NEtFOSAA	0.091	0.056	

Sample Name	CQ891PB-FS(3)	Injection Vial	21
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:16:53	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	0.403	0.322	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.058	0.070	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.16	PFHpA	0.017	0.027	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.338	0.297	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.53	PFOA	0.103	0.079	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.314	0.273	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.93	PFOS	0.216	0.191	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.052	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	PFUnA	N/A	0.059	
PFDaA_1	613.0 / 569.0	3.90	PFDaA			
PFDaA_2	613.0 / 319.0	3.89	PFDaA	0.279	0.158	
PFTTrDA_1	663.0 / 619.0	4.14	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	N/A	PFTTrDA	N/A	0.068	
PFTeDA_1	713.0 / 669.0	N/A	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	PFTeDA	N/A	0.050	ü
NMeFOSAA_1	570.0 / 419.0	N/A	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	NMeFOSAA	N/A	0.607	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.056	ü

Sample Name	CQ892LCS-FS(3)	Injection Vial	22
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:27:34	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	0.312	0.322	ü
PFHxA_1	313.0 / 269.0	1.83	PFHxA			
PFHxA_2	313.0 / 119.0	1.83	PFHxA	0.072	0.070	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.19	PFHpA	0.022	0.027	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.286	0.297	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.57	PFOA	0.082	0.079	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.302	0.273	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.178	0.191	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.29	PFDA	0.043	0.044	ü
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.61	PFUnA	0.053	0.059	ü
PFDaA_1	613.0 / 569.0	3.89	PFDaA			
PFDaA_2	613.0 / 319.0	3.89	PFDaA	0.145	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.14	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.14	PFTTrDA	0.063	0.068	ü
PFTeDA_1	713.0 / 669.0	4.37	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.36	PFTeDA	0.052	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.44	NMeFOSAA	0.563	0.607	ü
NEtFOSAA_1	584.0 / 419.0	3.61	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.61	NEtFOSAA	0.048	0.056	ü

Sample Name	J6227-FS(3)	Injection Vial	23
Sample ID	09-FRB-051718	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	2018-06-08T00:38:15	Data File	6072018.wiff
Acquisition Method	5-0369.dam	Result Table	18-0349_BASE
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	0.317	0.322	ü
PFHxA_1	313.0 / 269.0	1.82	PFHxA			
PFHxA_2	313.0 / 119.0	1.82	PFHxA	0.069	0.070	ü
PFHpA_1	363.0 / 319.0	2.19	PFHpA			
PFHpA_2	363.0 / 169.0	2.14	PFHpA	0.036	0.027	ü
PFHxS_1	399.0 / 80.0	2.21	PFHxS			
PFHxS_2	399.0 / 99.0	2.21	PFHxS	0.304	0.297	ü
PFOA_1	413.0 / 369.0	2.57	PFOA			
PFOA_2	413.0 / 169.0	2.54	PFOA	0.114	0.079	ü
PFNA_1	463.0 / 419.0	2.94	PFNA			
PFNA_2	463.0 / 219.0	2.94	PFNA	0.288	0.273	ü
PFOS_1	499.0 / 80.0	2.93	PFOS			
PFOS_2	499.0 / 99.0	2.94	PFOS	0.189	0.191	ü
PFDA_1	513.0 / 469.0	3.29	PFDA			
PFDA_2	513.0 / 219.0	3.30	PFDA	0.073	0.044	
PFUnA_1	563.0 / 519.0	3.61	PFUnA			
PFUnA_2	563.0 / 269.0	3.52	PFUnA	0.161	0.059	
PFDaA_1	613.0 / 569.0	3.89	PFDaA			
PFDaA_2	613.0 / 319.0	3.89	PFDaA	0.234	0.158	ü
PFTTrDA_1	663.0 / 619.0	4.14	PFTTrDA			
PFTTrDA_2	663.0 / 169.0	4.12	PFTTrDA	0.038	0.068	ü
PFTeDA_1	713.0 / 669.0	4.36	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.37	PFTeDA	0.072	0.050	ü
NMeFOSAA_1	570.0 / 419.0	3.44	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.43	NMeFOSAA	0.516	0.607	ü
NEtFOSAA_1	584.0 / 419.0	N/A	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	NEtFOSAA	N/A	0.056	ü

DODCMD_ID	INSTALLATION_ID	SDG	SITE_NAME	NORM_SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	CONTRACT_ID	DO_CTO_NUMBER	CONTR_NAME	SAMPLE_NAME	SAMPLE_MATRIX_DESC	SAMPLE_TYPE_DESC	COLLECT_DATE	ANALYTICAL_METHOD	ANALYTICAL_METHOD_GRP_DESC
MID_ATLANTIC	CRANE_NSA	18-0349							IN6247016D9008	IN4008517F4144	TETRA TECH, INC.	09-FRB-051718	Water for QC samples	Field Reagent Blank	17-May-18	LGCY P A	Pesticides/Aroclors