NAVFAC
Naval Facilities Engineering Command

Groundwater Sample Results, Level 4 Laboratory Report, Electronic Data Deliverable, Data Validation Report, Sample Location Report, SDG 20-1441

NRL

Chesapeake Bay Detachment MD

October 2021

CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No 100142218
PFAS by DoD QSM 5.3 Table B-15

GW

Batch 20-1441

Package DP-20-1321

Submitted to:
CH2M
5701 Cleveland Street
Virginia Beach, VA 23462 USA

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

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CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No 100142218
PFAS by DoD QSM 5.3 Table B-15

GW

Batch 20-1441

Package DP-20-1321

Submitted to:
CH2M
5701 Cleveland Street
Virginia Beach, VA 23462 USA

NELAP Accreditation Number: E87856 (Florida Department of Health)

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

Analyst Approval: Digitally signed by Denise Schumitz Date: 2020.11.11 16:03:40 -05'00'

QC Chemist Approval: Digitally signed by Carla Devine Date: 2020.11.12 15:51:02 -05'00'

Project Manager Approval: Digitally signed by Jonathan Thorn Date: 2020.11.12 15:57:34 -05'00'

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CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No 100142218
PFAS by DoD QSM 5.3 Table B-15

GW

Batch 20-1441

Package DP-20-1321

1	***Work Plan*** Laboratory Work Plan, Addendums To Work Plan, Memos From Project Manager, Special Instructions, Chain-of-Custody Reports.	1
2	***Tables*** Analytical Data Tables, Qualifier Definitions.	20
3	***Miscellaneous Documentation*** Case Narrative, Miscellaneous Documentation Form, Quality Control Summary, Example Calculations, Internal Standard Recovery Report, Retention Time Window Report.	32
4	***Sample Preparation Records*** Sample Preparation Records, Dilution Worksheets, Standard Preparation Records, Certificates Of Analysis, GPC Check Report.	158
5	***Analytical Calibrations*** Analytical Sequence, Analytical Method, Tune Report, Initial Calibration, Pesticide Degradation Report, RF Summary, Calibration Verifications, Independent Calibration Verification Check.	172
6	***Analytical Data*** Raw Data Quantification Reports.	245
7	***Chromatograms*** Sample And Standard Chromatograms.	256
8	***Unused Data***	N/A

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Master Signature Page

Name (Printed)	Signature	Initials	Date
Jonathan Thorn		JRT	1/9/2020
Robert Lizotte, Jr.		BL	1.9.2020
Elyn M Fitch		EMF	1/9/2020
Carla Devine		CRD	1/9/2020
Denise Schumitz		DS	1/9/2020
Lauren Griffith		LMG	1.9.2020
Carrie P McCarthy		CPM	1/9/2020
Rich Restuccia		RR	1/9/2020
Sam Guimaraes		SAG	1/9/2020
Jordan Tower		JT	1/9/2020
Christie Usher		CU	1/9/2020
Kevin McInerney		KM	1/14/2020
Matt Schumitz		MDS	1/14/2020
Weidong Li		W.L	1/14/2020
Kayla Lamarre		KAL	1/14/2020
MUNAZ MUNTASIR		MM	01/14/2020
Kristen Nichols		KN	01/14/2020
Kelsey Harnden		KH	01/30/2020
Kevin Bailey		KB	1/30/2020
Stephanie Schultz		SAS	1/30/2020

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Name (Printed)	Signature	Initials	Date
Chimieo Brown		CB	01/30/20
Ryan Kelly		RK	01/30/20
KAREN HYPPOLITE		K.H.	01/31/20
Gail DeRuzzo		GD	01/31/2020
Tracy Stenner			1/31/2020
Ashley Wellington		AW	1131/2020
Daniel Cooney		DAC	1/31/2020
Peter Demers		PD	1/31/2020
Zachary Willenberg			2/3/2020

Sample Summary

Client: CH2M
SDG: 20-1441
Project/Site: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
CTO: 4532

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Receipt Date
DB297PB-FS	Procedural Blank	WATER	11/9/2020	11/9/2020
DB298LCS-FS	Laboratory Control Sample	WATER	11/9/2020	11/9/2020
G1696-FS1	CBD-HVG-GW10-1020	GW	10/14/2020	10/16/2020
G1697-FS1	CBD-HVG-GW09-1020	GW	10/14/2020	10/16/2020

Work Plan

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WORK/QUALITY ASSURANCE PROJECT PLAN

1.0 GENERAL PROJECT INFORMATION

Project Title:	CTO-4532: PFAS in Water
Project Number:	100142218
Client:	CH2M 2411 Dulles Corner Park Suite 500 Herdon, VA 20171 USA
Client Contact Information:	Michael Zamboni Project Chemist (703) 376-5301(V) NA Michael.Zamboni@jacobs.com
Effective Date of QAPP:	10/1/2020
Version Number:	100142218(L)-02
Project Manager:	Thorn, Jonathan
Laboratory Task Manager:	Thorn, Jonathan
Deliverable Due Date:	10/29/2020

2.0 SCOPE OF WORK

Overview:	Analysis of non-potable water for PFAS.
Matrix:	Water

2.1 TECHNICAL APPROACH

2.1.1 Sample Receipt, Storage, and Handling

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

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

2.1.2 Sample Preparation

IDW samples should be batched separately from field samples.

Samples Expected:	Samples Per Batch:	Batches Expected:
51	20	3

Batch quality control samples are defined in Table 1.

Target samples are presented in Attachment 1.

Table 1: Quality Control Samples

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

2.1.3 Extraction/Preparation

2.1.3.1 Extraction

SOP No.-Rev:	**5-370-11**
SOP Title:	*Extraction of Poly and Perfluoroalkyl Substances from Environmental Matrices*
Sample Size:	250 ml
SIS and LCS/MS Compounds:	Defined in Table 2.
Deviations:	None
Comments:	None

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 Standard (SIS)	LC22 SIS	~ 1.13 - 1.25 ng	125 uL	NA

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Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - DoD Second Source LCS/MS solution	LD11 LCS/MS	~ 7.5 ng	75 uL	Vary spikes 25 (LCS only), 50, 75, 100, 125 µL

2.1.3.2 Cleanup

None.

RIS spiking levels are presented in Table 3.

Extract PIV (uL): 1000

Table 3: RIS Spiking Level

Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - DoD Internal Standard Spiking Solution	LD33 RIS	~ 1.25 ng	125 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: **5-369-08**

SOP_Title: *Analysis of Perfluoroalkyl Substances in Environmental Samples by Liquid Chromatography and Tandem Mass Spectrometry (LC-MS/MS)*

Deviations: None.

Comments: None.

2.2. DELIVERABLES

Deliverables Due:	10/29/2020
LIMS Reports:	*No*
Histograms:	*No*
Excel Tables:	*No*
EICs:	*No*
Chromatograms:	*No*
EDDs:	*No*

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WORK/QUALITY ASSURANCE PROJECT PLAN

Comments:

- 28-day TAT for most samples
- Samples marked rush will be 7-day TAT
- LIV validation data packages
- CH2M EDD file

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
Ryan P. Kelly	Sample Preparation	NA
Stephanie A. Schultz	LC-MS/MS Analysis	NA
Matt D. Schumitz	Sample Custody	NA
Carla R. Devine	Quality Control Officer	NA
Zachary J. Willenberg	Quality Assurance Officer	NA

4.2 COMMUNICATION

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

5.0 SCHEDULE

The project schedule is presented in Table 5.

Table 5. Schedule of Laboratory Activities

Activity:	Start Date:	End Date:	TAT (days):	Comment:
Sample Receipt	10/01/2020	10/01/2020	0	NA
Sample Preparation	10/01/2020	10/12/2020	11	NA
Instrument Analysis	10/12/2020	10/23/2020	11	NA
Quality Control Review	10/23/2020	10/27/2020	4	NA

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Activity:	Start Date:	End Date:	TAT (days):	Comment:
Quality Assurance Review	10/27/2020	10/29/2020	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	4	3	12	NA
Sample Preparation	9	3	27	NA
Instrument Analysis	10	3	30	NA
Quality Control Review	3	3	9	NA
Quality Assurance Review	1	3	3	NA

7.0 STAFF DEVELOPMENT

None anticipated.

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 1: Target Samples

Shipment: **SHP-201005-02**

Status: Pending

Description: Site 10 SI

Range: G1071-G1072

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G1071	CBD-AOA-EB01-100220-SO	10/02/2020 2:10 pm	AQ	R0119 (NA)			
2	G1072	CBD-AOA-FB01-100220	10/02/2020 2:00 pm	AQ	R0119 (NA)			

Shipment: **SHP-201012-02**

Status: Pending

Description: Site 10

Range: G1524-G1525

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G1524	CBD-AOA-FB02-100920	10/09/2020 1:00 pm	AQ	R0119 (NA)			
2	G1525	CBD-AOA-EB02-100920-SO	10/09/2020 1:10 pm	AQ	R0119 (NA)			

Shipment: **SHP-201014-03**

Status: Pending

Description: Site 10 SI

Range: G1644-G1668

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G1644	CBD-AOA-SW07-1020	10/13/2020 10:00 am	SW	R0119 (NA)			
2	G1645	CBD-AOA-SW05-1020	10/13/2020 10:20 am	SW	R0119 (NA)			
3	G1646	CBD-AOA-SW03-1020	10/13/2020 10:35 am	SW	R0119 (NA)			
4	G1647	CBD-AOA-SW04-1020	10/13/2020 10:40 am	SW	R0119 (NA)			
5	G1651	CBD-AOA-SW02-1020	10/13/2020 11:30 am	SW	R0119 (NA)			
6	G1652	CBD-AOA-SW02P-1020	10/13/2020 11:35 am	SW	R0119 (NA)			
7	G1654	CBD-AOA-SW01-1020	10/13/2020 12:00 pm	SW	R0119 (NA)			
8	G1655	CBD-AOA-FB03-101320	10/13/2020 12:20 pm	AQ	R0119 (NA)			
9	G1656	CBD-AOA-EB01-101320-SW	10/13/2020 12:25 pm	AQ	R0119 (NA)			
10	G1657	CBD-AOA-EB01-101320-SD	10/13/2020 12:30 pm	AQ	R0119 (NA)			
11	G1658	CBD-AOA-SW08-1020	10/13/2020 1:00 pm	SW	R0119 (NA)			
12	G1661	CBD-AOA-SW06-1020	10/13/2020 1:25 pm	SW	R0119 (NA)			
13	G1663	CBD-AOA-SW11-1020	10/13/2020 2:00 pm	SW	R0119 (NA)			
14	G1664	CBD-AOA-SW11P-1020	10/13/2020 2:05 pm	SW	R0119 (NA)			
15	G1665	CBD-AOA-SW10-1020	10/13/2020 2:10 pm	SW	R0119 (NA)			
16	G1666	CBD-AOA-SW10-1020-MS	10/13/2020 2:10 pm	SW	R0119 (NA)			

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Shipment: **SHP-201014-03**

Status: Pending

Description: Site 10 SI

Range: G1644-G1668

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
17	G1667	CBD-AOA-SW10-1020-SD	10/13/2020 2:10 pm	SW	R0119 (NA)			
18	G1668	CBD-AOA-SW09-1020	10/13/2020 2:25 pm	SW	R0119 (NA)			

Shipment: **SHP-201016-02**

Status: Pending

Description: Site 10 SI

Range: G1696-G1702

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G1696	CBD-HVG-GW10-1020	10/14/2020 3:15 pm	GW	R0119 (NA)			
2	G1697	CBD-HVG-GW09-1020	10/14/2020 3:30 pm	GW	R0119 (NA)			
3	G1698	CBD-EB01-101420-GW	10/14/2020 3:40 pm	AQ	R0119 (NA)			
4	G1699	CBD-AOA-MW10-1020	10/15/2020 10:25 am	GW	R0119 (NA)			
5	G1700	CBD-BKG-MW03-1020	10/15/2020 2:00 pm	GW	R0119 (NA)			
6	G1701	CBD-SO4-MW01-1020	10/15/2020 3:25 pm	GW	R0119 (NA)			
7	G1702	CBD-SO4-MW01P-1020	10/15/2020 3:30 pm	GW	R0119 (NA)			

Shipment: **SHP-201019-01**

Status: Pending

Description: Site 10 SI

Range: G1707-G1709

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G1707	CBD-AOA-MW15-1020	10/16/2020 10:40 am	GW	R0119 (NA)			
2	G1708	CBD-AOA-MW16-1020	10/16/2020 12:05 pm	GW	R0119 (NA)			MS/MSD
3	G1709	CBD-FB04-101620	10/16/2020 12:10 pm	GW	R0119 (NA)			

Shipment: **SHP-201020-04**

Status: Pending

Description: Site 10 SI

Range: G1765-G1775

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G1765	CBD-AOA-MW04-1020	10/19/2020 10:20 am	GW	R0119 (NA)			
2	G1766	CBD-AOA-MW01-1020	10/19/2020 10:35 am	GW	R0119 (NA)			
3	G1767	CBD-AOA-MW01P-1020	10/19/2020 10:40 am	GW	R0119 (NA)			
4	G1768	CBD-AOA-MW03-1020	10/19/2020 11:35 am	GW	R0119 (NA)			

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Shipment: **SHP-201020-04**

Status: Pending

Description: Site 10 SI

Range: G1765-G1775

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
5	G1769	CBD-AOA-MW08-1020	10/19/2020 12:55 pm	GW	R0119 (NA)			
6	G1770	CBD-AOA-MW08-1020-MS	10/19/2020 12:55 pm	GW	R0119 (NA)			
7	G1771	CBD-AOA-MW08-1020-SD	10/19/2020 12:55 pm	GW	R0119 (NA)			
8	G1772	CBD-AOA-MW02-1020	10/19/2020 1:10 pm	GW	R0119 (NA)			
9	G1773	CBD-AOA-MW18-1020	10/19/2020 2:35 pm	GW	R0119 (NA)			
10	G1774	CBD-AOA-EB01-101920-GW	10/19/2020 4:00 pm	AQ	R0119 (NA)			
11	G1775	CBD-SO3-MW01-1020	10/19/2020 3:20 pm	GW	R0119 (NA)			

Shipment: **SHP-201022-01**

Status: Pending

Description: Site 10 SI

Range: G1794-G1801

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G1794	CBD-AOA-MW07-1020	10/20/2020 3:50 pm	GW	R0118 (NA)			
2	G1795	CBD-AOA-MW17-1020	10/20/2020 3:45 pm	GW	R0118 (NA)			
3	G1796	CBD-AOA-MW19-1020	10/20/2020 1:45 pm	GW	R0118 (NA)			
4	G1797	CBD-AOA-FB05-102020	10/20/2020 12:40 pm	AQ	R0118 (NA)			Field Blank - GW this week
5	G1798	CBD-AOA-EB01-102020-GW	10/20/2020 4:20 pm	AQ	R0118 (NA)			Equipment Blank - monsoon pump
6	G1799	CBD-BKG-MW01-1020	10/20/2020 2:20 pm	GW	R0118 (NA)			
7	G1800	CBD-BKG-MW02-1020	10/20/2020 3:25 pm	GW	R0118 (NA)			
8	G1801	CBD-SO3-MW02-1020	10/20/2020 12:00 pm	GW	R0118 (NA)			

Shipment: **SHP-201022-02**

Status: Pending

Description: Site 10 SI

Range: G1802-G1804

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G1802	CBD-AOA-MW09-1020	10/21/2020 9:35 am	GW	R0119 (NA)			
2	G1803	CBD-AOA-MW05-1020	10/21/2020 10:25 am	GW	R0119 (NA)			
3	G1804	CBD-AOA-EB01-102120-GW	10/21/2020 10:35 am	AQ	R0119 (NA)			Equipment Blank - monsoon

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Shipment: **SHP-201029-03**

Status: Pending

Description: Site 10 SI

Range: G2203-G2212

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G2203	CBD-AOA-MW06-1020	10/27/2020 10:00 am	GW	R0119 (NA)			
2	G2204	CBD-AOA-EB01-102720-GW	10/27/2020 10:10 am	AQ	R0119 (NA)			
3	G2205	CBD-AOA-MW12-1020	10/28/2020 1:45 pm	GW	R0119 (NA)			
4	G2206	CBD-AOA-MW11-1020	10/28/2020 3:30 pm	GW	R0119 (NA)			
5	G2207	CBD-AOA-MW11P-1020	10/28/2020 3:35 pm	GW	R0119 (NA)			
6	G2208	CBD-AOA-FB01-102820	10/28/2020 3:55 pm	AQ	R0119 (NA)			
7	G2209	CBD-AOA-EB01-102820-GW	10/28/2020 4:40 pm	AQ	R0119 (NA)			
8	G2210	CBD-AOA-MW14-1020	10/28/2020 4:35 pm	GW	R0119 (NA)			
9	G2211	CBD-AOA-MW13-1020	10/28/2020 5:10 pm	GW	R0119 (NA)			
10	G2212	CBD-AOA-IW01-102820	10/28/2020 5:30 pm	AQ	R0119 (NA)			

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Attachment 2: Test Codes

Project Test Code Name:	Master_369B
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 5.3 Table B-15
Matrix:	L - Liquid Samples, like water or sea water, prepared and anlyzed 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

Result Units:	ng/L	***Unit Conversion:***	(none)		
Weight Basis:	LIQUID	***Result Format:***	Fixed Digits		
Standard Basis:	SIS	***# of Figures/Digits:***	2		
Oil Weight Basis:	No	***Oil Weight Source:***	Oil Weight		
U-Value Substition:	U-Flag=MD	***Histograms:***	No		
ECD_Reporting:	No				

Holding Times (days)

Sample:	14
Frozen:	14
Extract:	28

Data Flags

DL_Flag:	U
RL_Flag:	J
PB_Flag:	B
DIL_Flag:	D
HT_Flag:	T

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	PFTrDA	T		13C2-PFTeDA	No	No
9	Perfluoro-n-tetradecanoic acid	PFTeDA	T		13C2-PFTeDA	No	No
10	N-methylperfluoro-1-octanesulfonamidoacetic acid	NMeFOSAA	T		d3-MeFOSAA	No	No
11	N-ethylperfluoro-octanesulfonamidoacetic acid	NEtFOSAA	T		d5-EtFOSAA	No	No
12	Perfluoro-1-butanesulfonate	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
15	Hexafluoropropylene oxide dimer acid	HFPO-DA	T		13C3-HFPO-DA	No	No
16	Adona	Adona	T		13C3-HFPO-DA	No	No
17	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	T		13C3-HFPO-DA	No	No

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Attachment 2: Test Codes

Project Test Code Name: Master_369B

No:	Analyte:	Report Name:	Type	RIS	SIS	Hidden:	Graph:
18	9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS	T		13C3-HFPO-DA	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
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	d3-MeFOSAA	d3-MeFOSAA	SIS	13C4-PFOS		No	No
10	d5-EtFOSAA	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
14	13C3-HFPO-DA	13C3-HFPO-DA	SIS	13C2-PFOA		No	No

Total Analytes: 32

Subtract Peaks:

None

Sum Peaks:

None

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It can be done

WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

Project Test Code Name: Master_369B

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

Degredation Check Criteria:

None

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 3: Method Quality Objectives

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

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It can be done

WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 3: Method Quality Objectives

MQO Application:	***Universal_LC***		
MQO:	**Acceptance Criteria:**	**Qual:**	**Corrective Action:**
Analytical Triplicate Precision	Organics results less than 30% Relative Standard Deviation (RSD). Analyte concentration must be > 5x MDL.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Original is less than 5 times the MDL	n	
Surrogate Compound Recovery	Recovery results between 50% and 150%.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
Control Oil	RPD < 30% for at least 90% of analytes	N	Results examined by project manager, task leader, or subcontractor lab manager. Reextraction, reanalysis, or justification documented.
Instrument Calibration	5-369-8: 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	5-369-8: 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	5-369-8: 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.

BATTELLE
It can be done

ShpNo SHP-201016-02

Battelle Project No: 100142218

Sample Receipt Form

Approved: ☐ Authorized ☐

Project Number:
Client: Jacobs
Received by: Schumitz, Matt
Date/Time Received: Friday, October 16, 2020 11:00 AM
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	Smps
1 of 1	Cooler	7718 1467 1937	Custody Seals	Intact	Intact	Therm_2	1.3	7

Samples

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

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

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

Temperature upon receipt (°C): 1.3 Temperature Blank used ☑ Yes ☐ No
(Note: If temperature upon receipt differs from required conditions, see sample log comment field)

Samples Acidified: ☐ Yes ☐ No ☑ Unknown

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

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

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

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

Storage Location: Custody: Refrigerator - R0119 (NA)
BDO IDs Assigned: G1696 - G1702
Samples logged in by: Schumitz, Matt
Date/Time: 10/16/2020 11:00 AM
Approved By:
Approved On:
Authorized By:
Authorized On:

BATTELLE

It can be done

ShpNo SHP-201016-02

Battelle Project No: 100142218

Sample Receipt Form Details

Approved: ☐ Authorized ☐

Project Number: **Client:** Jacobs

Received by: Schumitz, Matt **Date/Time Received:** Friday, October 16, 2020 11:00 AM

No. of Shipping Containers: 1

BDO Id:	Client Sample ID:	Collection Date:	Login Date:	Ctrs:	Matrix:	Temp:	pH:	TRC:	VOC:	Stored In:	Loc:	No:	Comments:
G1696	CBD-HVG-GW10-1020	10/14/20 15:15	10/16/20 11:20	2	GW	1.3	NA	NA	Yes	R0119 (NA)			
G1697	CBD-HVG-GW09-1020	10/14/20 15:30	10/16/20 11:20	2	GW	1.3	NA	NA	Yes	R0119 (NA)			
G1698	CBD-EB01-101420-GW	10/14/20 15:40	10/16/20 11:21	2	AQ	1.3	NA	NA	Yes	R0119 (NA)			
G1699	CBD-AOA-MW10-1020	10/15/20 10:25	10/16/20 11:21	2	GW	1.3	NA	NA	Yes	R0119 (NA)			
G1700	CBD-BKG-MW03-1020	10/15/20 14:00	10/16/20 11:22	2	GW	1.3	NA	NA	Yes	R0119 (NA)			
G1701	CBD-SO4-MW01-1020	10/15/20 15:25	10/16/20 11:22	2	GW	1.3	NA	NA	Yes	R0119 (NA)			
G1702	CBD-SO4-MW01P-1020	10/15/20 15:30	10/16/20 11:23	2	GW	1.3	NA	NA	Yes	R0119 (NA)			

Total Samples: 7

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Chain-of-Custody

Client Contact Information	Project Manager: —	Sampling Site: Site 10 (FTA)	Site Information: NRL CBD
Mike Zamboni michael.zamboni@jacobs.com CH2M/Jacobs	Sampler Information (print name): Caitlin Dronfield Phone: 703 376 5097 Email: caitlin.dronfield@jacobs.com Turnaround Time (TAT) Requested:	Preservative: none	COC #
Project Name: Site 10 SI Project No.: —	Normal ✓ Priority ☐ RUSH ☐ Time Zone: ET	Analysis: PFAS	Page# page 1 of 1

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Total # of Cont.		Comments
CBD-HVGGW10-1020	10/14/20	1515	Grab	GW	2	X	G1696
CBD-HVGGW09-1020	10/14/20	1530		GW	2	X	97
CBD-EBOI-101420-GW	10/14/20	1540		AQ	2	X	98 Equipment Blank - Peri pump
CBD-AOA-MW10-1020	10/15/20	1025		GW	2	X	99
CBD-BKG-MW03-1020	10/15/20	1400		GW	2	X	G1700
CBD-SO4-MW01-1020		1525		GW	2	X	01
CBD-SO4-MW01P-1020	↓	1530	↓	GW	2	X	G1702 Duplicate

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

Relinquished by (Print/Sign)	Company	Date/Time	Received by (Print/Sign)	Company	Date/Time
Caitlin Dronfield	CH2M/Jacobs	10/15/20 1800		BNO	10-16-20 1100
Relinquished by (Print/Sign)	Company	Date/Time	Received by (Print/Sign)	Company	Date/Time
Relinquished by (Print/Sign)	Company	Date/Time	Received by (Print/Sign)	Company	Date/Time

Comments:

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
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Data Tables

Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No.: 100142218

Client ID	CBD-HVG-GW10-1020
Battelle ID	G1696-FS1
Sample Type	SA
Collection Date	10/14/2020
Extraction Date	11/09/2020
Analytical Instrument	Sciex 6500+ (AE) LC/MS/MS
% Moisture	NA
Matrix	GW
Sample Size	0.260
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	1.44	UT	G1696-FS1(0)	1.000	11/10/2020	0.507	1.44	4.81
PFHpA	375-85-9	0.962	UT	G1696-FS1(0)	1.000	11/10/2020	0.253	0.962	4.81
PFOA	335-67-1	1.44	UT	G1696-FS1(0)	1.000	11/10/2020	0.491	1.44	4.81
PFNA	375-95-1	0.962	UT	G1696-FS1(0)	1.000	11/10/2020	0.297	0.962	4.81
PFDA	335-76-2	0.481	UT	G1696-FS1(0)	1.000	11/10/2020	0.137	0.481	4.81
PFUnA	2058-94-8	0.481	UT	G1696-FS1(0)	1.000	11/10/2020	0.211	0.481	4.81
PFDoA	307-55-1	0.481	UT	G1696-FS1(0)	1.000	11/10/2020	0.185	0.481	4.81
PFTrDA	72629-94-8	0.481	UT	G1696-FS1(0)	1.000	11/10/2020	0.148	0.481	4.81
PFTeDA	376-06-7	1.92	UT	G1696-FS1(0)	1.000	11/10/2020	0.705	1.92	4.81
NMeFOSAA	2355-31-9	0.962	UT	G1696-FS1(0)	1.000	11/10/2020	0.337	0.962	4.81
NEtFOSAA	2991-50-6	0.962	UT	G1696-FS1(0)	1.000	11/10/2020	0.481	0.962	4.81
PFBS	375-73-5	1.87	JT	G1696-FS1(0)	1.000	11/10/2020	0.138	0.481	4.81
PFHxS	355-46-4	11.2	T	G1696-FS1(0)	1.000	11/10/2020	0.108	0.385	4.81
PFOS	1763-23-1	2.71	JT	G1696-FS1(0)	1.000	11/10/2020	0.420	0.962	4.81
HFPO-DA	13252-13-6	0.481	UT	G1696-FS1(0)	1.000	11/10/2020	0.238	0.481	4.81
Adona	919005-14-4	0.962	UT	G1696-FS1(0)	1.000	11/10/2020	0.255	0.962	4.81
9Cl-PF3ONS	756426-58-1	0.481	UT	G1696-FS1(0)	1.000	11/10/2020	0.258	0.481	4.81
11Cl-PF3OUdS	763051-92-9	0.962	UT	G1696-FS1(0)	1.000	11/10/2020	0.222	0.962	4.81

Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No.: 100142218

Client ID	CBD-HVG-GW10-1020
Battelle ID	G1696-FS1
Sample Type	SA
Collection Date	10/14/2020
Extraction Date	11/09/2020
Analytical Instrument	Sciex 6500+ (AE) LC/MS/MS

Surrogate Recoveries (%)	**Recovery**	**Extract ID**	**Analysis Date**
13C5-PFHxA	55	G1696-FS1(0)	11/10/2020
13C4-PFHpA	83	G1696-FS1(0)	11/10/2020
13C8-PFOA	96	G1696-FS1(0)	11/10/2020
13C9-PFNA	113	G1696-FS1(0)	11/10/2020
13C6-PFDA	84	G1696-FS1(0)	11/10/2020
13C7-PFUnA	96	G1696-FS1(0)	11/10/2020
13C2-PFDoA	86	G1696-FS1(0)	11/10/2020
13C2-PFTeDA	85	G1696-FS1(0)	11/10/2020
d3-MeFOSAA	125	G1696-FS1(0)	11/10/2020
d5-EtFOSAA	148	G1696-FS1(0)	11/10/2020
13C3-PFBS	70	G1696-FS1(0)	11/10/2020
13C3-PFHxS	105	G1696-FS1(0)	11/10/2020
13C8-PFOS	108	G1696-FS1(0)	11/10/2020
13C3-HFPO-DA	84	G1696-FS1(0)	11/10/2020

Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No.: 100142218

Client ID	CBD-HVG-GW09-1020
Battelle ID	G1697-FS1
Sample Type	SA
Collection Date	10/14/2020
Extraction Date	11/09/2020
Analytical Instrument	Sciex 6500+ (AE) LC/MS/MS
% Moisture	NA
Matrix	GW
Sample Size	0.255
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	0.706	JT	G1697-FS1(0)	1.000	11/10/2020	0.517	1.47	4.90
PFHpA	375-85-9	0.980	UT	G1697-FS1(0)	1.000	11/10/2020	0.258	0.980	4.90
PFOA	335-67-1	1.30	JT	G1697-FS1(0)	1.000	11/10/2020	0.501	1.47	4.90
PFNA	375-95-1	0.980	UT	G1697-FS1(0)	1.000	11/10/2020	0.303	0.980	4.90
PFDA	335-76-2	0.490	UT	G1697-FS1(0)	1.000	11/10/2020	0.139	0.490	4.90
PFUnA	2058-94-8	0.490	UT	G1697-FS1(0)	1.000	11/10/2020	0.215	0.490	4.90
PFDoA	307-55-1	0.490	UT	G1697-FS1(0)	1.000	11/10/2020	0.188	0.490	4.90
PFTrDA	72629-94-8	0.490	UT	G1697-FS1(0)	1.000	11/10/2020	0.151	0.490	4.90
PFTeDA	376-06-7	1.96	UT	G1697-FS1(0)	1.000	11/10/2020	0.719	1.96	4.90
NMeFOSAA	2355-31-9	0.980	UT	G1697-FS1(0)	1.000	11/10/2020	0.343	0.980	4.90
NEtFOSAA	2991-50-6	0.980	UT	G1697-FS1(0)	1.000	11/10/2020	0.490	0.980	4.90
PFBS	375-73-5	4.08	JT	G1697-FS1(0)	1.000	11/10/2020	0.141	0.490	4.90
PFHxS	355-46-4	37.7	T	G1697-FS1(0)	1.000	11/10/2020	0.110	0.392	4.90
PFOS	1763-23-1	2.81	JT	G1697-FS1(0)	1.000	11/10/2020	0.428	0.980	4.90
HFPO-DA	13252-13-6	0.490	UT	G1697-FS1(0)	1.000	11/10/2020	0.243	0.490	4.90
Adona	919005-14-4	0.980	UT	G1697-FS1(0)	1.000	11/10/2020	0.260	0.980	4.90
9Cl-PF3ONS	756426-58-1	0.490	UT	G1697-FS1(0)	1.000	11/10/2020	0.263	0.490	4.90
11Cl-PF3OUdS	763051-92-9	0.980	UT	G1697-FS1(0)	1.000	11/10/2020	0.226	0.980	4.90

Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No.: 100142218

Client ID	CBD-HVG-GW09-1020
Battelle ID	G1697-FS1
Sample Type	SA
Collection Date	10/14/2020
Extraction Date	11/09/2020
Analytical Instrument	Sciex 6500+ (AE) LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	42	N	G1697-FS1(0)	11/10/2020
13C4-PFHpA	58		G1697-FS1(0)	11/10/2020
13C8-PFOA	82		G1697-FS1(0)	11/10/2020
13C9-PFNA	99		G1697-FS1(0)	11/10/2020
13C6-PFDA	85		G1697-FS1(0)	11/10/2020
13C7-PFUnA	85		G1697-FS1(0)	11/10/2020
13C2-PFDoA	72		G1697-FS1(0)	11/10/2020
13C2-PFTeDA	63		G1697-FS1(0)	11/10/2020
d3-MeFOSAA	84		G1697-FS1(0)	11/10/2020
d5-EtFOSAA	95		G1697-FS1(0)	11/10/2020
13C3-PFBS	51		G1697-FS1(0)	11/10/2020
13C3-PFHxS	78		G1697-FS1(0)	11/10/2020
13C8-PFOS	87		G1697-FS1(0)	11/10/2020
13C3-HFPO-DA	74		G1697-FS1(0)	11/10/2020

Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No.: 100142218

Client ID	LD80 IB
Battelle ID	LD80 IB_11/10/2020
Sample Type	IB
Collection Date	NA
Extraction Date	NA
Analysis Date	11/10/2020
Analytical Instrument	Sciex 6500+ (AE) LC/MS/MS
% Moisture	NA
Matrix	Water
Sample Size	0.250
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		DL	LOD	LOQ
PFHxA	307-24-4	1.50	U	0.527	1.50	5.00
PFHpA	375-85-9	1.00	U	0.263	1.00	5.00
PFOA	335-67-1	1.50	U	0.511	1.50	5.00
PFNA	375-95-1	1.00	U	0.309	1.00	5.00
PFDA	335-76-2	0.500	U	0.142	0.500	5.00
PFUnA	2058-94-8	0.500	U	0.219	0.500	5.00
PFDoA	307-55-1	0.500	U	0.192	0.500	5.00
PFTrDA	72629-94-8	0.500	U	0.154	0.500	5.00
PFTeDA	376-06-7	2.00	U	0.733	2.00	5.00
NMeFOSAA	2355-31-9	0.350	J	0.350	1.00	5.00
NEtFOSAA	2991-50-6	1.00	U	0.500	1.00	5.00
PFBS	375-73-5	0.500	U	0.144	0.500	5.00
PFHxS	355-46-4	0.400	U	0.112	0.400	5.00
PFOS	1763-23-1	1.00	U	0.437	1.00	5.00
HFPO-DA	13252-13-6	0.500	U	0.248	0.500	5.00
Adona	919005-14-4	1.00	U	0.265	1.00	5.00
9Cl-PF3ONS	756426-58-1	0.500	U	0.268	0.500	5.00
11Cl-PF3OUdS	763051-92-9	1.00	U	0.231	1.00	5.00

Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No.: 100142218

Client ID	LD80 IB
Battelle ID	LD80 IB_11/10/2020
Sample Type	IB
Collection Date	NA
Extraction Date	NA
Analysis Date	11/10/2020
Analytical Instrument	Sciex 6500+ (AE) LC/MS/MS
% Moisture	NA
Matrix	Water
Sample Size	0.250
Size Unit-Basis	L

Surrogate Recoveries (%)	
13C5-PFHxA	112
13C4-PFHpA	105
13C8-PFOA	102
13C9-PFNA	106
13C6-PFDA	111
13C7-PFUnA	107
13C2-PFDoA	103
13C2-PFTeDA	105
d3-MeFOSAA	100
d5-EtFOSAA	107
13C3-PFBS	100
13C3-PFHxS	91
13C8-PFOS	97
13C3-HFPO-DA	94

Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No.: 100142218

Client ID		Procedural Blank						
Battelle ID		DB297PB-FS						
Sample Type		PB						
Collection Date		11/09/2020						
Extraction Date		11/09/2020						
Analytical Instrument		Sciex 6500+ (AE) LC/MS/MS						
% Moisture		NA						
Matrix		WATER						
Sample Size		0.250						
Size Unit-Basis		L						
Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	1.50	U	DB297PB-FS(0)	1.000	11/10/2020	0.527	1.50	5.00
PFHpA	375-85-9	1.00	U	DB297PB-FS(0)	1.000	11/10/2020	0.263	1.00	5.00
PFOA	335-67-1	1.50	U	DB297PB-FS(0)	1.000	11/10/2020	0.511	1.50	5.00
PFNA	375-95-1	1.00	U	DB297PB-FS(0)	1.000	11/10/2020	0.309	1.00	5.00
PFDA	335-76-2	0.500	U	DB297PB-FS(0)	1.000	11/10/2020	0.142	0.500	5.00
PFUnA	2058-94-8	0.500	U	DB297PB-FS(0)	1.000	11/10/2020	0.219	0.500	5.00
PFDoA	307-55-1	0.500	U	DB297PB-FS(0)	1.000	11/10/2020	0.192	0.500	5.00
PFTrDA	72629-94-8	0.500	U	DB297PB-FS(0)	1.000	11/10/2020	0.154	0.500	5.00
PFTeDA	376-06-7	2.00	U	DB297PB-FS(0)	1.000	11/10/2020	0.733	2.00	5.00
NMeFOSAA	2355-31-9	1.00	U	DB297PB-FS(0)	1.000	11/10/2020	0.350	1.00	5.00
NEtFOSAA	2991-50-6	1.00	U	DB297PB-FS(0)	1.000	11/10/2020	0.500	1.00	5.00
PFBS	375-73-5	0.500	U	DB297PB-FS(0)	1.000	11/10/2020	0.144	0.500	5.00
PFHxS	355-46-4	0.400	U	DB297PB-FS(0)	1.000	11/10/2020	0.112	0.400	5.00
PFOS	1763-23-1	1.00	U	DB297PB-FS(0)	1.000	11/10/2020	0.437	1.00	5.00
HFPO-DA	13252-13-6	0.500	U	DB297PB-FS(0)	1.000	11/10/2020	0.248	0.500	5.00
Adona	919005-14-4	1.00	U	DB297PB-FS(0)	1.000	11/10/2020	0.265	1.00	5.00
9Cl-PF3ONS	756426-58-1	0.500	U	DB297PB-FS(0)	1.000	11/10/2020	0.268	0.500	5.00
11Cl-PF3OUdS	763051-92-9	1.00	U	DB297PB-FS(0)	1.000	11/10/2020	0.231	1.00	5.00

Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No.: 100142218

Client ID	Procedural Blank
Battelle ID	DB297PB-FS
Sample Type	PB
Collection Date	11/09/2020
Extraction Date	11/09/2020
Analytical Instrument	Sciex 6500+ (AE) LC/MS/MS

Surrogate Recoveries (%)	**Recovery**	**Extract ID**	**Analysis Date**
13C5-PFHxA	89	DB297PB-FS(0)	11/10/2020
13C4-PFHpA	93	DB297PB-FS(0)	11/10/2020
13C8-PFOA	89	DB297PB-FS(0)	11/10/2020
13C9-PFNA	82	DB297PB-FS(0)	11/10/2020
13C6-PFDA	96	DB297PB-FS(0)	11/10/2020
13C7-PFUnA	98	DB297PB-FS(0)	11/10/2020
13C2-PFDoA	93	DB297PB-FS(0)	11/10/2020
13C2-PFTeDA	88	DB297PB-FS(0)	11/10/2020
d3-MeFOSAA	106	DB297PB-FS(0)	11/10/2020
d5-EtFOSAA	105	DB297PB-FS(0)	11/10/2020
13C3-PFBS	104	DB297PB-FS(0)	11/10/2020
13C3-PFHxS	101	DB297PB-FS(0)	11/10/2020
13C8-PFOS	99	DB297PB-FS(0)	11/10/2020
13C3-HFPO-DA	77	DB297PB-FS(0)	11/10/2020

Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No.: 100142218

Client ID	Laboratory Control Sample
Battelle ID	DB298LCS-FS
Sample Type	LCS
Collection Date	11/09/2020
Extraction Date	11/09/2020
Analytical Instrument	Sciex 6500+ (AE) LC/MS/MS
% Moisture	NA
Matrix	WATER
Sample Size	0.250
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)	Extract ID	DF	Analysis Date	Target	Recovery	Qual	Control Limits Lower	Upper
PFHxA	307-24-4	34.9	DB298LCS-FS(0)	1.000	11/10/2020	40.4	86		72	129
PFHpA	375-85-9	32.3	DB298LCS-FS(0)	1.000	11/10/2020	40.0	81		72	130
PFOA	335-67-1	33.6	DB298LCS-FS(0)	1.000	11/10/2020	40.0	84		71	133
PFNA	375-95-1	38.9	DB298LCS-FS(0)	1.000	11/10/2020	40.0	97		69	130
PFDA	335-76-2	35.3	DB298LCS-FS(0)	1.000	11/10/2020	40.0	88		71	129
PFUnA	2058-94-8	34.5	DB298LCS-FS(0)	1.000	11/10/2020	40.0	86		69	133
PFDoA	307-55-1	38.4	DB298LCS-FS(0)	1.000	11/10/2020	40.0	96		72	134
PFTrDA	72629-94-8	38.1	DB298LCS-FS(0)	1.000	11/10/2020	40.0	95		65	144
PFTeDA	376-06-7	36.5	DB298LCS-FS(0)	1.000	11/10/2020	40.0	91		71	132
NMeFOSAA	2355-31-9	37.2	DB298LCS-FS(0)	1.000	11/10/2020	40.0	93		65	136
NEtFOSAA	2991-50-6	33.6	DB298LCS-FS(0)	1.000	11/10/2020	40.0	84		61	135
PFBS	375-73-5	35.6	DB298LCS-FS(0)	1.000	11/10/2020	40.0	89		72	130
PFHxS	355-46-4	43.6	DB298LCS-FS(0)	1.000	11/10/2020	40.4	108		68	131
PFOS	1763-23-1	33.5	DB298LCS-FS(0)	1.000	11/10/2020	40.4	83		65	140
HFPO-DA	13252-13-6	36.0	DB298LCS-FS(0)	1.000	11/10/2020	40.0	90		74	148
Adona	919005-14-4	39.5	DB298LCS-FS(0)	1.000	11/10/2020	40.0	99		61	143
9Cl-PF3ONS	756426-58-1	35.7	DB298LCS-FS(0)	1.000	11/10/2020	40.0	89		52	158
11Cl-PF3OUdS	763051-92-9	34.3	DB298LCS-FS(0)	1.000	11/10/2020	40.0	86		59	147

Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No.: 100142218

Client ID	Laboratory Control Sample
Battelle ID	DB298LCS-FS
Sample Type	LCS
Collection Date	11/09/2020
Extraction Date	11/09/2020
Analytical Instrument	Sciex 6500+ (AE) LC/MS/MS

Surrogate Recoveries (%)	**Recovery**	**Extract ID**	**Analysis Date**
13C5-PFHxA	91	DB298LCS-FS(0)	11/10/2020
13C4-PFHpA	94	DB298LCS-FS(0)	11/10/2020
13C8-PFOA	87	DB298LCS-FS(0)	11/10/2020
13C9-PFNA	92	DB298LCS-FS(0)	11/10/2020
13C6-PFDA	89	DB298LCS-FS(0)	11/10/2020
13C7-PFUnA	90	DB298LCS-FS(0)	11/10/2020
13C2-PFDoA	87	DB298LCS-FS(0)	11/10/2020
13C2-PFTeDA	87	DB298LCS-FS(0)	11/10/2020
d3-MeFOSAA	134	DB298LCS-FS(0)	11/10/2020
d5-EtFOSAA	116	DB298LCS-FS(0)	11/10/2020
13C3-PFBS	122	DB298LCS-FS(0)	11/10/2020
13C3-PFHxS	101	DB298LCS-FS(0)	11/10/2020
13C8-PFOS	108	DB298LCS-FS(0)	11/10/2020
13C3-HFPO-DA	91	DB298LCS-FS(0)	11/10/2020

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
J	Analyte detected below the Limit of Quantitation (LOQ)
MI	Significant Matrix Interference - value could not be determined.
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 Detection Limit (DL) value, Limit of Detection (LOD) reported
Q	Ion ratio outside of criteria (50% difference from calibration expected ratio)

Miscellaneous Documentation

QA/QC Summary
Batch 20-1441

Project:	CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Client Project Manager:	Michael Zamboni
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	GW
Data Set:	DP-20-1321
Analytical SOP:	5-369
Method Reference:	PFAS to QSM 5.3 Table B-15

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
10/14 – 15/2020	10/16/2020	1.3

Corrective Actions	None.
Sample Storage	The samples were stored refrigerated until extraction.
Related samples	Samples re-extracted from SDG 20-1305 to verify extracted internal standard recoveries.

	METHOD SUMMARIES
Sample Preparation	Water samples were fortified with surrogates in the original sample container from the field. The water was extracted using a weak-anion exchange (WAX) solid phase extraction (SPE) cartridge. Target analytes are eluted from the WAX SPE using methanol followed by 0.5% NH_3 in methanol. Extracts were further refined using Envi-carb to remove co-extracted interferences. Extracts were concentrated to approximately 500 µL under nitrogen with a water bath set between 50 °C and 60 °C, reconstituted with methanol/water and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis in 80:20 methanol/water (V/V).
Prep comments	pH of all samples prior to SPE extraction was verified between 6 and 8. Sample G1696-FS1 (CBD-HVG-GW10-1020) contained particulates. Samples DB297PB-FS (Procedural Blank), DB298LCS-FS (Laboratory Control Sample), and G1697-FS1 (CBD-HVG-GW09-1020) were fortified with extracted internal standards, shaken, and transferred to a new HDPE bottle. The samples were centrifuged at 3,500 RPM for five minutes. The supernatant was then decanted back into the original sample container prior to extraction. This procedure was performed due to the level of particulate matter present in the field samples centrifuged.
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 to three (3) significant figures.

QA/QC Summary
Batch 20-1441

Analysis Comments	Samples analyzed on Sciex 6500+ (AE) LC-MS/MS. MeFOSAA, EtFOSAA, PFHxS, and PFOS in the LCS, and field samples when detected, were found and reported as a combination of the linear and branched isomers. Adona, 9Cl-PF3ONS, and 11Cl-PF3OUdS are quantified using 13C8-PFOA. Re-extraction to verify QC exceedances from the initial extraction occurred outside of the 14-day collection to extraction holding time window. This is allowable under QSM 5.3 for corrective actions associated with QC exceedances. All sample results are "T" qualified.

Holding Times	Extraction Date(s)	Analysis Date(s)
	11/9/2020	11/10/2020

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	No exceedances noted.
	No comments.

Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
Laboratory derived control limits for recovery	No exceedances noted.
	No comments.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)	A MS/MSD was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
Laboratory derived control limits for recovery and <30% RPD	Project specific MS/MSD not included in this SDG.
	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	One (1) exceedance noted.
	One sample had suppressed or enhanced recoveries for select extracted internal standards. The table below indicates if the extracted internal standard was within +/- 50% of the area of the L5 calibration point ("P") or if the area showed suppression ("↓") or enhancement ("↑") for these extracted internal standards.

	13C5-PFHxA
G1697-FS (CBD-HVG-GW09-1020)	↓

QA/QC Summary
Batch 20-1441

	The remaining extracted internal standards in each impacted sample, fortified from the same solution, pass all criteria, suggesting that the suppression is matrix related to these analytes only.

Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
+/- 50% of the area of the L5 calibration point.	No exceedances noted.
	No comments.

Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadradic curve fitting.
+/- 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.
+/- 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.

BATTELLE
It can be done

Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project Number: 100142218
Preparation Batch: 20-1441
Data Set: DP-20-1321
Test Code: Master_369B

QC Parameter:	Exceed:	Justification:
Procedural Blank	0	None
PB Measurement Quality Objective	0	None
Laboratory Control Sample	0	None
Matrix Spike / Matrix Spike Duplicate Recovery	NA	None
Matrix Spike / Matrix Spike Duplicate Precision	NA	None
Extracted Internal Standard Analytes (Surrogates)	1	There is one extracted internal standards that do not meet passing criteria that confirms from a prevous batch. DMS 11/11/2020
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None

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BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title:	CTO-4532: NRL Chesapeake Bay Detac	**Data Set Number:**	DP-20-1321
Project Number:	100142218	**Prep Batch Number:**	20-1441
Entered By:	Denise Schumitz	**Entered On:**	11/11/2020
Test Code (Matrix Type):	Master_369B(L)		

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
DMS 11/11/2020

ADONA, 9Cl-PF3ONS and 11Cl-PF3OUdS are being quantified off 13C8-PFOA instead of 13C3-HFPO-DA.
DMS 11/11/2020

Task Leader Approval:

SupervisorApproval:

PM Approval:

Digitally signed by Jonathan Thorn
Date: 2020.11.12 08:02:26 -05'00'

Example Calculation for PFAS

Calculation of final concentration from area:

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

Where:

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

Sample ID:	G1696-FS1(0)
Client Sample ID:	CBD-HVG-GW10-1020
Sample Size:	0.26
Units:	L
Dilution Factor:	1.000
PIV (L):	0.001
Target Analyte:	Quant Method 20-1441
MRM Transition:	399.0 / 80.0
Data file:	AE_11112020_5-369.wiff
Result table:	20-1441
Area:	1,517,149.54
IS Name:	13C3-PFHxS
IS Area:	193,737.79
IS Amount (ng/L):	1182.5
y-intercept:	0.26782
slope:	3.06289

$$\text{Concentration} = \frac{[(1517149.54/193737.79) - 0.26782]}{3.06289} * 1182.5 * 0.001 * 1 / 0.26$$

ng/L = 11.2

*Final concentration may vary based on rounding.

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Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No.: 100142218
Preparation Batch: 20-1441
Data Set: DP-20-1321

		DB297PB-FS (Procedural Blank)	DB298LCS-FS (Laboratory Control Sample)	G1696-FS1 (CBD-HVG-GW10-1020)	G1697-FS1 (CBD-HVG-GW09-1020)
PFHxA	307-24-4	-	L	-	L
PFHpA	375-85-9	-	L	-	-
PFOA	335-67-1	-	L	-	L
PFNA	375-95-1	-	L	-	-
PFDA	335-76-2	-	L	-	-
PFUnA	2058-94-8	-	L	-	-
PFDoA	307-55-1	-	L	-	-
PFTrDA	72629-94-8	-	L	-	-
PFTeDA	376-06-7	-	L	-	-
NMeFOSAA	2355-31-9	-	L/Br	-	-
NEtFOSAA	2991-50-6	-	L/Br	-	-
PFBS	375-73-5	-	L	L	L
PFHxS	355-46-4	-	L/Br	L/Br	L/Br
PFOS	1763-23-1	-	L/Br	L/Br	L/Br
HFPO-DA	13252-13-6	-	L	-	-
Adona	919005-14-4	-	L	-	-
9Cl-PF3ONS	756426-58-1	-	L	-	-
11Cl-PF3OUdS	763051-92-9	-	L	-	-

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

Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No.: 100142218

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			Passing criteria = 50% to 150% of internal standard area (compared to mid-point of calibration)							
Sample Name	Sample ID	Analysis Date	13C3-PFBA		13C2-PFOA		13C2-PFDA		13C4-PFOS	
LD78	L5	11/10/20 20:49	-		806,359.16		1,019,016.26		190,202.75	
		Lower	-		403,179.58		509,508.13		95,101.38	
		Upper	-		1,209,538.74		1,528,524.39		285,304.13	

Sample Name	Sample ID	Analysis Date	13C3-PFBA	Qual	User	13C2-PFOA	Qual	User	13C2-PFDA	Qual	User	13C4-PFOS	Qual	User
LD74	L1	11/10/20 20:07	-			803,610.07			1,111,406.09			196,370.88		
LD75	L2	11/10/20 20:18	-			839,240.12			1,058,478.61			188,634.89		
LD76	L3	11/10/20 20:28	-			771,729.60			1,208,270.38			211,397.66		
LD77	L4	11/10/20 20:39	-			886,785.71			1,144,049.86			214,970.43		
LD78	L5	11/10/20 20:49	-			806,359.16			1,019,016.26			190,202.75		
LD79	L6	11/10/20 20:59	-			819,517.47			1,034,605.53			192,616.01		
LD80 IB	Instrument Blank	11/10/20 21:10	-			814,958.32			1,097,673.25			208,048.51		
LD81 ICC	ICC	11/10/20 21:20	-			903,127.60			1,081,806.51			200,709.84		
DB297PB-FS(0)	Procedural Blank	11/10/20 21:52	-			1,154,611.99			1,443,063.10			248,786.38		
DB298LCS-FS(0)	Laboratory Control Sample	11/10/20 22:02	-			1,064,430.81			1,467,204.94			233,748.70		
G1696-FS1(0)	CBD-HVG-GW10-1020	11/10/20 22:13	-			700,827.91			1,217,424.39			166,533.49		
G1697-FS1(0)	CBD-HVG-GW09-1020	11/10/20 22:23	-			639,459.89			1,135,224.06			183,045.82		
LD76 CCV	CCV	11/10/20 22:44	-			925,549.46			1,160,327.97			210,414.10		

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Summary Asymmetry Report

Created with Analyst Reporter
Printed: 11/11/2020 4:09:16 PM

Sample Name	LD78	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:49:32 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.33	1.09	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.58	1.09	0.8 – 1.5

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Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 11/11/2020 4:13:26 PM

Sample Name	LD79	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:59:59 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.33	43	>10
PFBS_2	298.9 / 99.0	1.33	46	>10
PFHxA_1	313.0 / 269.0	1.58	56	>10
PFHxA_2	313.0 / 119.0	1.58	31	>10
PFHpA_1	363.0 / 319.0	1.91	57	>10
PFHpA_2	363.0 / 169.0	1.91	48	>10
PFHxS_1	399.0 / 80.0	1.92	38	>10
PFHxS_2	399.0 / 99.0	1.92	44	>10
PFOA_1	413.0 / 369.0	2.28	48	>10
PFOA_2	413.0 / 169.0	2.27	33	>10
PFNA_1	463.0 / 419.0	2.65	45	>10
PFNA_2	463.0 / 219.0	2.65	38	>10
PFOS_1	499.0 / 80.0	2.64	52	>10
PFOS_2	499.0 / 99.0	2.64	44	>10
PFDA_1	513.0 / 469.0	3.00	41	>10
PFDA_2	513.0 / 219.0	3.00	42	>10
PFUnA_1	563.0 / 519.0	3.32	67	>10
PFUnA_2	563.0 / 269.0	3.32	46	>10
PFDoA_1	613.0 / 569.0	3.61	95	>10
PFDoA_2	613.0 / 319.0	3.61	61	>10
PFTrDA_1	663.0 / 619.0	3.86	85	>10
PFTrDA_2	663.0 / 169.0	3.86	73	>10
PFTeDA_1	713.0 / 669.0	4.09	96	>10
PFTeDA_2	713.0 / 169.0	4.09	80	>10
NMeFOSAA_1	570.0 / 419.0	3.14	67	>10
NMeFOSAA_2	570.0 / 512.0	3.14	71	>10
NEtFOSAA_1	584.0 / 419.0	3.31	63	>10
NEtFOSAA_2	584.0 / 483.0	3.31	66	>10
HFPO-DA_1	285.0 / 169.0	1.67	55	>10
HFPO-DA_2	285.0 / 118.8	1.67	35	>10
ADONA_1	377.0 / 251.0	1.95	50	>10
ADONA_2	377.0 / 85.0	1.95	33	>10
9Cl-PF3ONS_1	531.0 / 351.0	2.85	37	>10
9Cl-PF3ONS_2	531.0 / 83.0	2.85	38	>10
11Cl-pf3OUdS_1	631.0 / 451.0	3.47	83	>10
11Cl-pf3OUdS_2	631.0 / 83.0	3.47	34	>10

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Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 11/11/2020 4:03:22 PM

Sample Name	LD79	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:59:59 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
13C2-PFDoA	615.0 / 570.0	3.61	45	>10
d3-MeFOSAA	573.0 / 419.0	3.14	32	>10
d5-EtFOSAA	589.0 / 419.0	3.31	37	>10
13C5-PFHxA	318.0 / 273.0	1.57	38	>10
13C4-PFHpA	367.0 / 322.0	1.90	37	>10
13C8-PFOA	421.0 / 376.0	2.27	37	>10
13C9-PFNA	472.0 / 427.0	2.64	47	>10
13C6-PFDA	519.0 / 474.0	3.00	41	>10
13C7-PFUnA	570.0 / 525.0	3.32	37	>10
13C2-PFTeDA	715.0 / 670.0	4.08	72	>10
13C3-PFBS	302.0 / 99.0	1.32	12	>10
13C3-PFHxS	402.0 / 99.0	1.92	28	>10
13C8-PFOS	507.0 / 99.0	2.63	33	>10
13C3-HFPO-DA	287.0 / 169.0	1.67	37	>10

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

Analyte	CAS No.	Average (ng/L)	ST DEV	2 Sigma	n [1]
PFBA	375-22-4	11.00	0.9226	1.85	14
PFPeA	2706-90-3	9.81	0.7228	1.45	11
PFHxA	307-24-4	9.88	1.1365	2.27	43
PFHpA	375-85-9	9.76	0.9225	1.85	43
PFOA	335-67-1	9.93	1.3923	2.78	44
PFNA	375-95-1	9.71	1.1236	2.25	43
PFDA	335-76-2	9.51	0.9842	1.97	43
PFUnA	2058-94-8	9.55	0.9267	1.85	43
PFDoA	307-55-1	10.22	0.9055	1.81	43
PFTrDA	72629-94-8	9.93	1.2752	2.55	43
PFTeDA	376-06-7	10.39	0.9707	1.94	43
NMeFOSAA	2355-31-9	10.02	1.5564	3.11	43
NEtFOSAA	2991-50-6	9.55	1.4218	2.84	43
PFOSA	754-91-6	10.06	0.8394	1.68	11
PFBS	375-73-5	9.63	1.1816	2.36	43
PFPeS	2706-91-4	9.88	0.9203	1.84	5
PFHxS	355-46-4	9.90	1.1346	2.27	43
PFHpS	375-92-8	10.13	1.0851	2.17	11
PFOS	1763-23-1	9.78	1.2383	2.48	44
PFNS	68259-12-1	9.45	1.0923	2.18	5
PFDS	335-77-3	9.55	1.3140	2.63	11
4:2FTS	757124-72-4	10.38	1.7353	3.47	6
6:2FTS	27619-97-2	10.08	1.1871	2.37	12
8:2FTS	39108-34-4	9.59	1.4345	2.87	12
HFPO-DA	13252-13-6	10.92	1.4420	2.88	25
Adona	919005-14-4	10.38	1.4862	2.97	25
11Cl-PF3OUdS	763051-92-9	9.80	1.5701	3.14	25
9Cl-PF3ONS	756426-58-1	9.52	1.0952	2.19	25

[1] Minimum of 20 samples required per QAM for determination of uncertainty, results including less than 20 data points are estimated.

BATTELLE DETECTION LIMITS FOR PFAS IN NON-POTABLE WATER

QSM 5.1.1 compliant with Table B-15 requirements

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)
PFBA	375-22-4	0.45	1.0	5.0
PFPeA	2706-90-3	0.26	1.0	5.0
PFHxA	307-24-4	0.53	1.5	5.0
PFHpA	375-85-9	0.26	1.0	5.0
PFOA	335-67-1	0.51	1.5	5.0
PFNA	375-95-1	0.31	1.0	5.0
PFDA	335-76-2	0.14	0.5	5.0
PFUnA	2058-94-8	0.22	0.5	5.0
PFDoA	307-55-1	0.19	0.5	5.0
PFTrDA	72629-94-8	0.15	0.5	5.0
PFTeDA	376-06-7	0.73	2.0	5.0
NMeFOSAA	2355-31-9	0.35	1.0	5.0
NEtFOSAA	2991-50-6	0.50	1.0	5.0
PFOSA	754-91-6	0.46	1.0	5.0
PFBS	375-73-5	0.14	0.5	5.0
PFPeS	2706-91-4	0.26	1.0	5.0
PFHxS	355-46-4	0.11	0.4	5.0
PFHpS	375-92-8	0.85	2.0	5.0
PFOS	1763-23-1	0.44	1.0	5.0
PFNS	68259-12-1	0.36	1.0	5.0
PFDS	335-77-3	0.27	1.0	5.0
4:2FTS	747124-72-4	0.50	1.0	5.0
6:2FTS	27619-97-2	0.53	1.5	5.0
8:2FTS	39108-34-4	0.60	2.0	5.0
3:3 FTCA	356-02-5	1.32	3.0	5.0
5:3 FTCA	914637-49-3	1.59	3.0	5.0
7:3 FTCA	812-70-4	1.40	3.0	5.0
HFPO-DA	13252-13-6	0.25	0.5	5.0
Adona	919005-14-4	0.27	1.0	5.0
11Cl-PF3OUdS	763051-92-9	0.23	0.5	5.0
9Cl-PF3ONS	756426-58-1	0.27	1.0	5.0

Analytes on ELAP QSM 5.1.1 Scope of accreditation
MDL calculated based on 40 CFR 136 (2017)

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ID 596 10/19

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

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
PFTrDA	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
PFTeDA	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
NMeFOSAA	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
NEtFOSAA	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
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
3:3 FTCA	356-02-5	Target	241.0 / 177.0	NA
5:3 FTCA	914637-49-3	Target	341.0 / 237.0	NA
7:3 FTCA	812-70-4	Target	441.0 / 337.0	NA
HFPO-DA	13252-13-6	Target	285.0 /169.0	285.0 /118.8
Adona	919005-14-4	Target	377.0 / 251.0	377.0 / 85.0
9Cl-PF3ONS	756426-58-1	Target	531.0 / 351.0	531.0 / 83.0
11Cl-PF3OUdS	763051-92-9	Target	631.0 / 451.0	631.0 / 83.0

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
13C4-PFBA	NA	SIS[1]	217.0 / 172.0	NA
13C5-PFPeA	NA	SIS[1]	268.0 / 223.0	NA
13C5-PFHxA	NA	SIS[1]	318.0 / 273.0	NA
13C4-PFHpA	NA	SIS[1]	367.0 / 322.0	NA
13C8-PFOA	NA	SIS[1]	421.0 / 376.0	NA
13C9-PFNA	NA	SIS[1]	472.0 / 427.0	NA
13C6-PFDA	NA	SIS[1]	519.0 / 474.0	NA
13C7-PFUnA	NA	SIS[1]	570.0 / 525.0	NA
13C2-PFDoA	NA	SIS[1]	615.0 / 570.0	NA
13C2-PFTeDA	NA	SIS[1]	715.0 / 670.0	NA
d3-MeFOSAA	NA	SIS[1]	573.0 / 419.0	NA
d5-EtFOSAA	NA	SIS[1]	589.0 / 419.0	NA
13C8-FOSA	NA	SIS[1]	506.0 / 78.0	NA
13C3-PFBS	NA	SIS[1]	302.0 / 99.0	NA
13C3-PFHxS	NA	SIS[1]	402.0 / 99.0	NA
13C8-PFOS	NA	SIS[1]	507.0 / 99.0	NA
13C2-4:2FTS	NA	SIS[1]	329.0 / 81.0	NA
13C2-6:2FTS	NA	SIS[1]	429.0 / 81.0	NA
13C2-8:2FTS	NA	SIS[1]	529.0 / 81.0	NA
$^{13}C_3$-HFPO-DA	NA	SIS	287.0 / 169.0	NA
13C3-PFBA	NA	IS[2]	216.0 / 172.0	NA
13C2-PFOA	NA	IS[2]	415.0 / 370.0	NA
13C2-PFDA	NA	IS[2]	515.0 / 470.0	NA
13C4-PFOS	NA	IS[2]	503.0 / 99.0	NA

[1] – extracted internal standard (surrogate)
[2] – injection internal standard

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Non-Potable Water Calibration to Sample Equivalents

ICAL (ng/L)	PIV (mL)	DF[1]	Sample Size (L)	Sample Equivalent (ng/L)[2]
125	1	1	0.250	0.5
250	1	1	0.250	1.0
500	1	1	0.250	2.0
1,000	1	1	0.250	4.0
2,500	1	1	0.250	10.0
10,000	1	1	0.250	40.0
25,000	1	1	0.250	100.0

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

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

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Triple Quad 6500+

LC/MS/MS Detector System

Appendix ZEFPM003-1S

Triple Quad 6500+
Preventive Maintenance Checklist

Preventive Maintenance Date:	12AUG2020

Request ID:	
Company Name:	Battelle
Instrument ID:	AE
Instrument Model:	Triple Quad 6500 Plus
Instrument Serial Number:	CF22921705

☑ **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: C. LAFLAMME **Date:** 12AUG2020

Approved By : K. McInerney **Date:** 13AUG2020

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Appendix ZEFPM003-1S

PRE-PM PPG PERFORMANCE EVALUATION:

☑ Consult the customer concerning the system overall performance.
☑ Check Logbook for services performed recently if available.
☑ Check Vacuum Pressure.

CAD Settings	Vacuum Reading (10^{-5} Torr)	Acceptance Criteria
☑ CAD 0	0.6e-5	0.4 to 1.1 x 10^{-5} Torr
☑ CAD 12	3.4e-5	2.4 to 4.1 x 10^{-5} Torr

☑ Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7M 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-7M 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

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Triple Quad 6500+

LC/MS/MS Detector System

Appendix ZEFPM003-1S

PPG Performance Test

(Make printouts showing all the peaks, intensities, peak widths, and mass shift values.)

Positive Mode: Masses for the peaks of interest are: 59.050, 175.133, 500.380, 616.464, 906.673, 1254.925, 1545.134,1952.427.

High Mass Test

☑ Perform High Mass Q1 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Specs		
Q1 500.380	5.22 E7	Read Only	0.6820	Read Only
Q1 616.464	2.17 E7	Read Only	0.6839	Read Only
Q1 906.673	1.13 E8	Read Only	0.6695	Read Only
Q1 1952.427	6.59 E6	Read Only	0.7717	Read Only

☑ Perform High Mass Q3 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Specs		
Q3 500.380	5.87 E7	Read Only	0.6380	Read Only
Q3 616.464	6.01 E7	Read Only	0.6289	Read Only
Q3 906.673	1.11 E8	Read Only	0.6631	Read Only
Q3 1952.427	9.34 E6	Read Only	0.6453	Read Only

Low Mass Test

☑ Perform Low Mass Q1 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Specs		
Q1 175.133	7.25 E6	Read Only	0.6879	Read Only
Q1 500.380	8.56 E7	Read Only	0.7542	Read Only
Q1 616.464	3.35 E7	Read Only	0.7116	Read Only
Q1 906.673	1.05 E8	Read Only	0.6893	Read Only

☑ Perform Low Mass Q3 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Specs		
Q3 175.133	1.85 E7	Read Only	0.7276	Read Only
Q3 500.380	8.66 E7	Read Only	0.7226	Read Only
Q3 616.464	9.91 E7	Read Only	0.7191	Read Only
Q3 906.673	1.54 E8	Read Only	0.6927	Read Only

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LC/MS/MS Detector System

Appendix ZEFPM003-1S

Preventive Maintenance Procedure

☑ Check cooling fans in mass spec if working. Replace them soon, if defective.
☑ Clean bench cooling fans if applicable. Replace them soon, if defective.

☑ Record AC input voltage while MS is OFF: 230 (200 to 240 Vac).
Notify customer if input voltage is out of range.

☑ After venting, clean Interface region:
- ☑ Curtain Plate
- ☑ Orifice Plate atmosphere side
- ☑ Orifice Plate vacuum side
- ☑ Ion Drive QJet and IQ0.

☑ Check Q0 for signs of arcing and clean with cleaning solvent.
☑ Replace Roughing Pump Oil.

☐ Clean oil exhaust Filter.
Replace if necessary. ☑ N/A

☑ Adjust Multiplier Voltage if necessary.
☑ Clean or replace Air Filters.
☑ Clean the turbo pump filter screen if applicable.

☑ Check Orifice resistances.
Replace it soon if out of resistance specifications. ☐ N/A

☑ Replace Electrode if necessary in Ion Drive Turbo V source.

☑ Check Turbo heaters resistances and their physical conditions in Ion Drive Turbo V source.
Replace the defective heaters if necessary. ☐ N/A

☐ Check the APCI heater resistance. Verify Temperature reaches setpoint
Replace the heater if necessary. ☑ N/A

☑ Turn on the mass spec and rough pumps for pumping down.
☑ Verify Temperature reaches setpoint in both TIS and APCI modes if applicable.

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Appendix ZEFPM003-1S

POST- PM PPG PERFORMANCE TESTS:

☑ Set-up PPG standard for infusion.
☑ Check spray and adjust sprayer's position of the Ion Drive Turbo V source.
☑ Check Vacuum Pressure:

CAD Settings	Vacuum Reading (10^{-5} Torr)	Acceptance Criteria
☑ CAD 0	0.6e-5	0.4 to 1.1 x 10^{-5} Torr
☑ CAD 12	3.4e-5	2.4 to 4.1 x 10^{-5} Torr

☑ Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7M 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-7M 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

PPG Performance Test

(Mass calibrate to less than 0.1 amu. Make printouts showing all the peaks, intensities, peak widths, and mass shift values.)

Positive Mode: Masses for the peaks of interest are: 59.050, 175.133, 500.380, 616.464, 906.673, 1254.925, 1545.134,1952.427.

Negative Mode: Masses for the peaks of interest are: 44.998, 411.259, 585.385, 933.636, 1223.845, 1572.097, 1863.306, 1979.389.

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LC/MS/MS Detector System

Appendix ZEFPM003-1S

High Mass Test

☑ Perform High Mass Q1 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Specs		
Q1 500.380	6.71 E7	≥ 3.2 e7	0.6153	0.6 to 0.8
Q1 616.464	3.42 E7	≥ 2.0 e7	0.6455	0.6 to 0.8
Q1 906.673	1.84 E8	≥ 9.6 e7	0.7677	0.6 to 0.8
Q1 1952.427	3.33 E7	≥ 2.4 e6	0.7357	0.6 to 0.8

☑ Perform High Mass Q3 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Specs		
Q3 500.380	1.06 E8	≥ 3.2 e7	0.6956	0.6 to 0.8
Q3 616.464	5.54 E7	≥ 2.0 e7	0.6891	0.6 to 0.8
Q3 906.673	1.90 E8	≥ 9.6 e7	0.7131	0.6 to 0.8
Q3 1952.427	2.01 E7	≥ 2.4 e6	0.6267	0.6 to 0.8

☑ Perform MSMS POS in Product Ion scan with 907 parent and record daughter 175.1 using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	MSMS Intensity		MSMS Width Value	Width Specs
	Value	Spec		
MS/MS 175.1	3.13 E6	Read Only	0.7237	Read Only

☑ Perform Q1 NEG using NEG PPG 3 x 10-5 M (10:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Specs		
Q1 933.636	1.93 E7	≥ 1.8 e7	0.7252	0.6 to 0.8
Q1 1863.306	6.15 E6	≥ 1.0 e6	0.6011	0.6 to 0.8

☑ Perform Q3 NEG using NEG PPG 3 x 10-5 M (10:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Specs		
Q3 933.636	2.00 E7	≥ 1.8 e7	0.8000	0.6 to 0.8
Q3 1863.306	5.27 E6	≥ 1.0 e6	0.7424	0.6 to 0.8

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LC/MS/MS Detector System

Appendix ZEFPM003-1S

Low Mass Test

☑ Perform Low Mass Q1 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Specs		
Q1 175.133	9.03 E6	≥ 8.0 e6	0.6000	0.6 to 0.8
Q1 500.380	8.01 E7	≥ 3.68 e7	0.7050	0.6 to 0.8
Q1 616.464	3.76 E7	≥ 2.4 e7	0.6496	0.6 to 0.8
Q1 906.673	1.63 E8	≥ 1.0 e8	0.7296	0.6 to 0.8

☑ Perform Low Mass Q3 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Specs		
Q3 175.133	2.40 E7	≥ 8.0 e6	0.7595	0.6 to 0.8
Q3 500.380	1.17 E8	≥ 3.68 e7	0.7521	0.6 to 0.8
Q3 616.464	6.32 E7	≥ 2.4 e7	0.7503	0.6 to 0.8
Q3 906.673	2.15 E8	≥ 1.0 e8	0.7131	0.6 to 0.8

☑ Perform Q1 NEG using NEG PPG 3 x 10-5 M (10:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Q1 933.636	2.46 E7	≥ 1.8 e7	0.7775	0.6 to 0.8

☑ Perform Q3 NEG using NEG PPG 3 x 10-5 M (10:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Q3 933.636	2.20 E7	≥ 1.8 e7	0.7705	0.6 to 0.8

☑ Perform MSMS NEG in Product Ion scan with 933.6 parent and record daughter 45.0 using NEG PPG 3 x 10-5 M (10:1) at the scan rate of 10 Da/s for 10 MCA.

Mass	MSMS Intensity		MSMS Width Value	Width Specs
	Value	Spec		
MS/MS 45.0	2.18 E6	Read Only	0.7123	Read Only

Zef Scientific Inc.

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

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

Phone: 1.866.854.7988

Triple Quad 6500+

LC/MS/MS Detector System

Appendix ZEFPM003-1S

REVIEW:

☑ Attach all printouts to this checklist.
☑ If any parameter setting access modes were changed during the PM, ensure that 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
☑ Fill and replaced PM Label.

END OF PREVENTIVE MAINTENANCE PROCEDURE

Document history:

04 OCT 2016: Appendix ZEFPM003-1S: New SOP Appendix.

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-01
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-02
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-03
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-04
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-05
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-06
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-07
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-08
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-09
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-10
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-11
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-12
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-13
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-14
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-15
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-16
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-17
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-18
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-19
LE39	PFAS - DoD Low Level Labelled Extracted Internal Standard	LB74	-	-	200721-20
LE23	PFAS - DoD Second Source LCS/MS Solution	-	-	-	201006-07
LE23	PFAS - DoD Second Source LCS/MS Solution	LC24	-	-	200811-01
LE23	PFAS - DoD Second Source LCS/MS Solution	LC24	-	-	200811-02
LE23	PFAS - DoD Second Source LCS/MS Solution	LC24	-	-	200811-03
LE40	PFAS - DoD Internal Standard Spiking Solution	LB75	-	-	200721-21
LE40	PFAS - DoD Internal Standard Spiking Solution	LB75	-	-	200721-22
LE40	PFAS - DoD Internal Standard Spiking Solution	LB75	-	-	200721-23
LE40	PFAS - DoD Internal Standard Spiking Solution	LB75	-	-	200721-24
LD74	PFAS - DoD Calibration L1	LB78	LB75	-	200721-21
LD74	PFAS - DoD Calibration L1	LB78	LB75	-	200721-22
LD74	PFAS - DoD Calibration L1	LB78	LB75	-	200721-23
LD74	PFAS - DoD Calibration L1	LB78	LB75	-	200721-24
LD74	PFAS - DoD Calibration L1	LC85	LC84	LC24	200811-01
LD74	PFAS - DoD Calibration L1	LC85	LC84	LC24	200811-02
LD74	PFAS - DoD Calibration L1	LC85	LC84	LC24	200811-03
LD74	PFAS - DoD Calibration L1	LC85	LC84	-	200914-01
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-01
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-02
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-03
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-04
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-05
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-06
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-07
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-08
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-09
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-10
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-11
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-12
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-13
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-14
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-15
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-16
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-17
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-18
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-19
LD74	PFAS - DoD Calibration L1	LD73	LB74	-	200721-20
LD75	PFAS - DoD Calibration L2	LB78	LB75	-	200721-21
LD75	PFAS - DoD Calibration L2	LB78	LB75	-	200721-22

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
LD75	PFAS - DoD Calibration L2	LB78	LB75	-	200721-23
LD75	PFAS - DoD Calibration L2	LB78	LB75	-	200721-24
LD75	PFAS - DoD Calibration L2	LC85	LC84	LC24	200811-01
LD75	PFAS - DoD Calibration L2	LC85	LC84	LC24	200811-02
LD75	PFAS - DoD Calibration L2	LC85	LC84	LC24	200811-03
LD75	PFAS - DoD Calibration L2	LC85	LC84	-	200914-01
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-01
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-02
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-03
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-04
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-05
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-06
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-07
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-08
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-09
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-10
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-11
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-12
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-13
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-14
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-15
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-16
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-17
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-18
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-19
LD75	PFAS - DoD Calibration L2	LD73	LB74	-	200721-20
LD76	PFAS - DoD Calibration L3	LB78	LB75	-	200721-21
LD76	PFAS - DoD Calibration L3	LB78	LB75	-	200721-22
LD76	PFAS - DoD Calibration L3	LB78	LB75	-	200721-23
LD76	PFAS - DoD Calibration L3	LB78	LB75	-	200721-24
LD76	PFAS - DoD Calibration L3	LC84	LC24	-	200811-01
LD76	PFAS - DoD Calibration L3	LC84	LC24	-	200811-02
LD76	PFAS - DoD Calibration L3	LC84	LC24	-	200811-03
LD76	PFAS - DoD Calibration L3	LC84	-	-	200914-01
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-01
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-02
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-03
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-04
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-05
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-06
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-07
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-08
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-09
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-10
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-11
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-12
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-13
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-14
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-15
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-16
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-17
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-18
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-19
LD76	PFAS - DoD Calibration L3	LD73	LB74	-	200721-20
LD77	PFAS - DoD Calibration L4	LB78	LB75	-	200721-21
LD77	PFAS - DoD Calibration L4	LB78	LB75	-	200721-22
LD77	PFAS - DoD Calibration L4	LB78	LB75	-	200721-23
LD77	PFAS - DoD Calibration L4	LB78	LB75	-	200721-24

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
LD77	PFAS - DoD Calibration L4	LC84	LC24	-	200811-01
LD77	PFAS - DoD Calibration L4	LC84	LC24	-	200811-02
LD77	PFAS - DoD Calibration L4	LC84	LC24	-	200811-03
LD77	PFAS - DoD Calibration L4	LC84	-	-	200914-01
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-01
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-02
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-03
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-04
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-05
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-06
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-07
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-08
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-09
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-10
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-11
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-12
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-13
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-14
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-15
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-16
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-17
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-18
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-19
LD77	PFAS - DoD Calibration L4	LD73	LB74	-	200721-20
LD78	PFAS - DoD Calibration L5	LB78	LB75	-	200721-21
LD78	PFAS - DoD Calibration L5	LB78	LB75	-	200721-22
LD78	PFAS - DoD Calibration L5	LB78	LB75	-	200721-23
LD78	PFAS - DoD Calibration L5	LB78	LB75	-	200721-24
LD78	PFAS - DoD Calibration L5	LC84	LC24	-	200811-01
LD78	PFAS - DoD Calibration L5	LC84	LC24	-	200811-02
LD78	PFAS - DoD Calibration L5	LC84	LC24	-	200811-03
LD78	PFAS - DoD Calibration L5	LC84	-	-	200914-01
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-01
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-02
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-03
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-04
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-05
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-06
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-07
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-08
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-09
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-10
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-11
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-12
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-13
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-14
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-15
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-16
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-17
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-18
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-19
LD78	PFAS - DoD Calibration L5	LD73	LB74	-	200721-20
LD79	PFAS - DoD Calibration L6	LB78	LB75	-	200721-21
LD79	PFAS - DoD Calibration L6	LB78	LB75	-	200721-22
LD79	PFAS - DoD Calibration L6	LB78	LB75	-	200721-23
LD79	PFAS - DoD Calibration L6	LB78	LB75	-	200721-24
LD79	PFAS - DoD Calibration L6	LC84	LC24	-	200811-01
LD79	PFAS - DoD Calibration L6	LC84	LC24	-	200811-02

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
LD79	PFAS - DoD Calibration L6	LC84	LC24	-	200811-03
LD79	PFAS - DoD Calibration L6	LC84	-	-	200914-01
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-01
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-02
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-03
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-04
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-05
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-06
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-07
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-08
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-09
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-10
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-11
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-12
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-13
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-14
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-15
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-16
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-17
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-18
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-19
LD79	PFAS - DoD Calibration L6	LD73	LB74	-	200721-20
LD81	PFAS - DoD ICC	LB78	LB75	-	200721-21
LD81	PFAS - DoD ICC	LB78	LB75	-	200721-22
LD81	PFAS - DoD ICC	LB78	LB75	-	200721-23
LD81	PFAS - DoD ICC	LB78	LB75	-	200721-24
LD81	PFAS - DoD ICC	LD43	LC24	-	200811-01
LD81	PFAS - DoD ICC	LD43	LC24	-	200811-02
LD81	PFAS - DoD ICC	LD43	LC24	-	200811-03
LD81	PFAS - DoD ICC	LD43	-	-	200909-01
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-01
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-02
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-03
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-04
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-05
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-06
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-07
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-08
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-09
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-10
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-11
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-12
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-13
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-14
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-15
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-16
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-17
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-18
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-19
LD81	PFAS - DoD ICC	LD73	LB74	-	200721-20

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LB74

Description: PFAS - DoD SIS Stock

Stock Id: 200721-01

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C4-PFBA	1000	50.00	1	98.000	1	50	1.00000

Stock Id: 200721-02

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C5-PFPeA	1000	50.00	1	98.000	1	50	1.00000

Stock Id: 200721-03

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C5-PFHxA	1000	50.00	1	98.000	1	50	1.00000

Stock Id: 200721-04

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C4-PFHpA	1000	50.00	1	98.000	1	50	1.00000

Stock Id: 200721-05

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C8-PFOA	1000	48.90	1	97.800	1	50	0.97800

Stock Id: 200721-06

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C9-PFNA	1000	50.00	1	98.000	1	50	1.00000

Stock Id: 200721-07

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C6-PFDA	1000	50.00	1	98.000	1	50	1.00000

Stock Id: 200721-08

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C7-PFUnA	1000	50.00	1	98.000	1	50	1.00000

Stock Id: 200721-09

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDoA	1000	50.00	1	98.000	1	50	1.00000

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 7/21/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 5 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q water (RP-200722-1)

Approved By: Schumitz, Denise **Date:** 7/23/2020 11:25:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LB74

Description: PFAS - DoD SIS Stock

Stock Id: 200721-10

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFTeDA	1000	50.00	1	98.000	1	50	1.00000

Stock Id: 200721-11

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	1000	46.70	1	98.000	1	50	0.93400

Stock Id: 200721-12

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-6:2FTS	1000	47.50	1	98.000	1	50	0.95000

Stock Id: 200721-13

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-8:2FTS	1000	47.90	1	98.000	1	50	0.95800

Stock Id: 200721-14

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C3-PFBS	1000	46.50	1	98.000	1	50	0.93000

Stock Id: 200721-15

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C3-PFHxS	1000	47.30	1	98.000	1	50	0.94600

Stock Id: 200721-16

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C8-PFOS	1000	47.80	1	98.000	1	50	0.95600

Stock Id: 200721-17

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
d3-MeFOSAA	1000	50.00	1	98.000	1	50	1.00000

Stock Id: 200721-18

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
d5-EtFOSAA	1000	50.00	1	98.000	1	50	1.00000

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 7/21/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 5 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q water (RP-200722-1)

Approved By: Schumitz, Denise **Date:** 7/23/2020 11:25:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LB74

Description: PFAS - DoD SIS Stock

Stock Id: 200721-19

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C8-FOSA	1000	50.00	1	98.000	1	50	1.00000

Stock Id: 200721-20

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C3-HFPO-DA	1000	50.00	1	98.000	1	50	1.00000

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.93400
13C2-6:2FTS	.95000
13C2-8:2FTS	.95800
13C2-PFDoA	1.00000
13C2-PFTeDA	1.00000
13C3-HFPO-DA	1.00000
13C3-PFBS	.93000
13C3-PFHxS	.94600
13C4-PFBA	1.00000
13C4-PFHpA	1.00000
13C5-PFHxA	1.00000
13C5-PFPeA	1.00000
13C6-PFDA	1.00000
13C7-PFUnA	1.00000
13C8-FOSA	1.00000
13C8-PFOA	.97800
13C8-PFOS	.95600
13C9-PFNA	1.00000
d3-MeFOSAA	1.00000
d5-EtFOSAA	1.00000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
200721-01	Pipette	B820865811
200721-02	Pipette	B820865811
200721-03	Pipette	B820865811
200721-04	Pipette	B820865811

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 7/21/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 5 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q water (RP-200722-1)

Approved By: Schumitz, Denise **Date:** 7/23/2020 11:25:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LB74**

Description: PFAS - DoD SIS Stock

200721-05	Pipette	B820865811
200721-06	Pipette	B820865811
200721-07	Pipette	B820865811
200721-08	Pipette	B820865811
200721-09	Pipette	B820865811
200721-10	Pipette	B820865811
200721-11	Pipette	B820865811
200721-12	Pipette	B820865811
200721-13	Pipette	B820865811
200721-14	Pipette	B820865811
200721-15	Pipette	B820865811
200721-16	Pipette	B820865811
200721-17	Pipette	B820865811
200721-18	Pipette	B820865811
200721-19	Pipette	B820865811
200721-20	Pipette	B820865811

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 7/21/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 5 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q water (RP-200722-1)

Approved By: Schumitz, Denise **Date:** 7/23/2020 11:25:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LB75

Description: PFAS - DoD RIS Stock

Stock Id: 200721-21

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	1000	50.00	1	98.000	1	50	1.00000

Stock Id: 200721-22

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	1000	50.00	1	98.000	1	50	1.00000

Stock Id: 200721-23

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C3-PFBA	1000	50.00	1	98.000	1	50	1.00000

Stock Id: 200721-24

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C4-PFOS	1000	47.80	1	98.000	1	50	0.95600

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	1.00000
13C2-PFOA	1.00000
13C3-PFBA	1.00000
13C4-PFOS	.95600

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
200721-21	Pipette	B820865811
200721-22	Pipette	B820865811
200721-23	Pipette	B820865811
200721-24	Pipette	B820865811

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 7/21/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 5 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0123

Comment: 96/4 methanol/milli-q water (RP-200722-1)

Approved By: Schumitz, Denise **Date:** 7/23/2020 11:25:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LB78

Description: PFAS - DoD Internal Standard Stock Solution

Stock Id: LB75

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	5000	1.00	---	---	1	50	0.10000
13C2-PFOA	5000	1.00	---	---	1	50	0.10000
13C3-PFBA	5000	1.00	---	---	1	50	0.10000
13C4-PFOS	5000	0.96	---	---	1	50	0.09560

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.10000
13C2-PFOA	.10000
13C3-PFBA	.10000
13C4-PFOS	.09560

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LB75	Pipette	B906204506

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 7/21/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 5 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q water (RP-200722-1)

Approved By: Schumitz, Denise **Date:** 7/23/2020 11:25:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LC24

Description: PFAS - FTCA Stock

Stock Id: 200811-01

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-perfluoropropyl propanoic Acid	1000	50.00	1	98.000	1	10	5.00000

Stock Id: 200811-02

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	1000	50.00	1	98.000	1	10	5.00000

Stock Id: 200811-03

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoropentyl propanoic acid	1000	50.00	1	98.000	1	10	5.00000

Final Concentrations:

Analyte:	Conc (ug/mL):
3-Perfluoroheptyl propanoic acid	5.00000
3-Perfluoropentyl propanoic acid	5.00000
3-perfluoropropyl propanoic Acid	5.00000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
200811-01	Pipette	B909301606
200811-02	Pipette	B909301606
200811-03	Pipette	B909301606

Solution Prepared By: Bailey, Kevin **Date Prepared:** 8/11/2020 **Expiration Date:** 8/11/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** LC Laboratory: Freezer - F0111

Comment:

Approved By: Schumitz, Denise **Date:** 8/12/2020 8:20:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LC84

Description: PFAS - DoD High ICAL Stock

Stock Id: 200914-01

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	2000	1.00	1	100.000	1	20	0.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	2000	1.01	1	100.000	1	20	0.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	2000	1.00	1	100.000	1	20	0.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	2000	1.00	1	100.000	1	20	0.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	2000	1.00	1	100.000	1	20	0.10000
Adona	2000	1.00	1	100.000	1	20	0.10000
Hexafluoropropylene oxide dimer acid	2000	1.00	1	100.000	1	20	0.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	20	0.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-butanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-decanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-heptanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-hexanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-nonanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-octanesulfonamide	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-octanesulfonate	2000	1.01	1	100.000	1	20	0.10100
perfluoro-1-pentanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-butanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-decanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-dodecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-heptanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-hexanoic acid	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-n-octanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluorononanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-pentanoic acid	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-n-tetradecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-tridecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-undecanoic acid	2000	1.00	1	100.000	1	20	0.10000

Stock Id: LC24

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	400	5.00	---	---	1	20	0.10000
3-Perfluoropentyl propanoic acid	400	5.00	---	---	1	20	0.10000
3-perfluoropropyl propanoic Acid	400	5.00	---	---	1	20	0.10000

Final Concentrations:

Solution Prepared By: Bailey, Kevin **Date Prepared:** 9/15/2020 **Expiration Date:** 8/11/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q (RP-200915-3)

Approved By: Schumitz, Denise **Date:** 9/16/2020 8:25:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LC84**

Description: PFAS - DoD High ICAL Stock

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	.10000
3-Perfluoroheptyl propanoic acid	.10000
3-Perfluoropentyl propanoic acid	.10000
3-perfluoropropyl propanoic Acid	.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.10000
Adona	.10000
Hexafluoropropylene oxide dimer acid	.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.10000
Perfluoro-1-butanesulfonate	.10000
Perfluoro-1-decanesulfonate	.10100
Perfluoro-1-heptanesulfonate	.10000
Perfluoro-1-hexanesulfonate	.10100
Perfluoro-1-nonanesulfonate	.10100
Perfluoro-1-octanesulfonamide	.10000
Perfluoro-1-octanesulfonate	.10100
perfluoro-1-pentanesulfonate	.10000
Perfluoro-n-butanoic Acid	.10000
Perfluoro-n-decanoic Acid	.10000
Perfluoro-n-dodecanoic acid	.10000
Perfluoro-n-heptanoic Acid	.10000
Perfluoro-n-hexanoic acid	.10100
Perfluoro-n-octanoic Acid	.10000
Perfluorononanoic Acid	.10000
Perfluoro-n-pentanoic acid	.10100
Perfluoro-n-tetradecanoic acid	.10000
Perfluoro-n-tridecanoic acid	.10000
Perfluoro-n-undecanoic acid	.10000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
200914-01	Pipette	B1100330B
LC24	Pipette	B1100330B

Solution Prepared By: Bailey, Kevin **Date Prepared:** 9/15/2020 **Expiration Date:** 8/11/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q (RP-200915-3)

Approved By: Schumitz, Denise **Date:** 9/16/2020 8:25:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LC85

Description: PFAS - DoD Low ICAL Stock

Stock Id: LC84

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	500	0.10	---	---	1	5	0.01000
1H,1H,2H,2H-Perfluorodecane sulfonate	500	0.10	---	---	1	5	0.01010
1H,1H,2H,2H-Perfluorohexane sulfonate	500	0.10	---	---	1	5	0.01000
1H,1H,2H,2H-Perfluorooctane sulfonate	500	0.10	---	---	1	5	0.01000
3-Perfluoroheptyl propanoic acid	500	0.10	---	---	1	5	0.01000
3-Perfluoropentyl propanoic acid	500	0.10	---	---	1	5	0.01000
3-perfluoropropyl propanoic Acid	500	0.10	---	---	1	5	0.01000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	500	0.10	---	---	1	5	0.01000
Adona	500	0.10	---	---	1	5	0.01000
Hexafluoropropylene oxide dimer acid	500	0.10	---	---	1	5	0.01000
N-ethylperfluoro-octanesulfonamidoacetic acid	500	0.10	---	---	1	5	0.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	500	0.10	---	---	1	5	0.01000
Perfluoro-1-butanesulfonate	500	0.10	---	---	1	5	0.01000
Perfluoro-1-decanesulfonate	500	0.10	---	---	1	5	0.01010
Perfluoro-1-heptanesulfonate	500	0.10	---	---	1	5	0.01000
Perfluoro-1-hexanesulfonate	500	0.10	---	---	1	5	0.01010
Perfluoro-1-nonanesulfonate	500	0.10	---	---	1	5	0.01010
Perfluoro-1-octanesulfonamide	500	0.10	---	---	1	5	0.01000
Perfluoro-1-octanesulfonate	500	0.10	---	---	1	5	0.01010
perfluoro-1-pentanesulfonate	500	0.10	---	---	1	5	0.01000
Perfluoro-n-butanoic Acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-decanoic Acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-dodecanoic acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-heptanoic Acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-hexanoic acid	500	0.10	---	---	1	5	0.01010
Perfluoro-n-octanoic Acid	500	0.10	---	---	1	5	0.01000
Perfluorononanoic Acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-pentanoic acid	500	0.10	---	---	1	5	0.01010
Perfluoro-n-tetradecanoic acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-tridecanoic acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-undecanoic acid	500	0.10	---	---	1	5	0.01000

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.01000
1H,1H,2H,2H-Perfluorodecane sulfonate	.01010

Solution Prepared By: Bailey, Kevin **Date Prepared:** 9/15/2020 **Expiration Date:** 8/11/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q (RP-200915-3)

Approved By: Schumitz, Denise **Date:** 9/16/2020 8:25:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LC85**

Description: PFAS - DoD Low ICAL Stock

1H,1H,2H,2H-Perfluorohexane sulfonate	.01000
1H,1H,2H,2H-Perfluorooctane sulfonate	.01000
3-Perfluoroheptyl propanoic acid	.01000
3-Perfluoropentyl propanoic acid	.01000
3-perfluoropropyl propanoic Acid	.01000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.01000
Adona	.01000
Hexafluoropropylene oxide dimer acid	.01000
N-ethylperfluoro-octanesulfonamidoacetic acid	.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.01000
Perfluoro-1-butanesulfonate	.01000
Perfluoro-1-decanesulfonate	.01010
Perfluoro-1-heptanesulfonate	.01000
Perfluoro-1-hexanesulfonate	.01010
Perfluoro-1-nonanesulfonate	.01010
Perfluoro-1-octanesulfonamide	.01000
Perfluoro-1-octanesulfonate	.01010
perfluoro-1-pentanesulfonate	.01000
Perfluoro-n-butanoic 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	.01010
Perfluoro-n-tetradecanoic acid	.01000
Perfluoro-n-tridecanoic acid	.01000
Perfluoro-n-undecanoic acid	.01000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LC84	Pipette	B1100330B

Solution Prepared By: Bailey, Kevin **Date Prepared:** 9/15/2020 **Expiration Date:** 8/11/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q (RP-200915-3)

Approved By: Schumitz, Denise **Date:** 9/16/2020 8:25:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LD43

Description: PFAS - DoD Second Source LCS/MS Solution

Stock Id: 200909-01

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	2000	1.00	1	100.000	1	20	0.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	2000	1.01	1	100.000	1	20	0.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	2000	1.00	1	100.000	1	20	0.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	2000	1.00	1	100.000	1	20	0.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	2000	1.00	1	100.000	1	20	0.10000
Adona	2000	1.00	1	100.000	1	20	0.10000
Hexafluoropropylene oxide dimer acid	2000	1.00	1	100.000	1	20	0.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	20	0.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-butanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-decanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-heptanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-hexanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-nonanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-octanesulfonamide	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-octanesulfonate	2000	1.01	1	100.000	1	20	0.10100
perfluoro-1-pentanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-butanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-decanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-dodecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-heptanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-hexanoic acid	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-n-octanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluorononanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-pentanoic acid	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-n-tetradecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-tridecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-undecanoic acid	2000	1.00	1	100.000	1	20	0.10000

Stock Id: LC24

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	400	5.00	---	---	1	20	0.10000
3-Perfluoropentyl propanoic acid	400	5.00	---	---	1	20	0.10000
3-perfluoropropyl propanoic Acid	400	5.00	---	---	1	20	0.10000

Final Concentrations:

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/6/2020 **Expiration Date:** 8/11/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201006-1)

Approved By: Schumitz, Denise **Date:** 10/8/2020 10:54:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LD43

Description: PFAS - DoD Second Source LCS/MS Solution

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	.10000
3-Perfluoroheptyl propanoic acid	.10000
3-Perfluoropentyl propanoic acid	.10000
3-perfluoropropyl propanoic Acid	.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.10000
Adona	.10000
Hexafluoropropylene oxide dimer acid	.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.10000
Perfluoro-1-butanesulfonate	.10000
Perfluoro-1-decanesulfonate	.10100
Perfluoro-1-heptanesulfonate	.10000
Perfluoro-1-hexanesulfonate	.10100
Perfluoro-1-nonanesulfonate	.10100
Perfluoro-1-octanesulfonamide	.10000
Perfluoro-1-octanesulfonate	.10100
perfluoro-1-pentanesulfonate	.10000
Perfluoro-n-butanoic Acid	.10000
Perfluoro-n-decanoic Acid	.10000
Perfluoro-n-dodecanoic acid	.10000
Perfluoro-n-heptanoic Acid	.10000
Perfluoro-n-hexanoic acid	.10100
Perfluoro-n-octanoic Acid	.10000
Perfluorononanoic Acid	.10000
Perfluoro-n-pentanoic acid	.10100
Perfluoro-n-tetradecanoic acid	.10000
Perfluoro-n-tridecanoic acid	.10000
Perfluoro-n-undecanoic acid	.10000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
200909-01	Pipette	B820865811
LC24	Pipette	B820865811

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/6/2020 **Expiration Date:** 8/11/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201006-1)

Approved By: Schumitz, Denise **Date:** 10/8/2020 10:54:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LD73

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

Stock Id: LB74

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	5000	0.93	---	---	1	50	0.09340
13C2-6:2FTS	5000	0.95	---	---	1	50	0.09500
13C2-8:2FTS	5000	0.96	---	---	1	50	0.09580
13C2-PFDoA	5000	1.00	---	---	1	50	0.10000
13C2-PFTeDA	5000	1.00	---	---	1	50	0.10000
13C3-HFPO-DA	5000	1.00	---	---	1	50	0.10000
13C3-PFBS	5000	0.93	---	---	1	50	0.09300
13C3-PFHxS	5000	0.95	---	---	1	50	0.09460
13C4-PFBA	5000	1.00	---	---	1	50	0.10000
13C4-PFHpA	5000	1.00	---	---	1	50	0.10000
13C5-PFHxA	5000	1.00	---	---	1	50	0.10000
13C5-PFPeA	5000	1.00	---	---	1	50	0.10000
13C6-PFDA	5000	1.00	---	---	1	50	0.10000
13C7-PFUnA	5000	1.00	---	---	1	50	0.10000
13C8-FOSA	5000	1.00	---	---	1	50	0.10000
13C8-PFOA	5000	0.98	---	---	1	50	0.09780
13C8-PFOS	5000	0.96	---	---	1	50	0.09560
13C9-PFNA	5000	1.00	---	---	1	50	0.10000
d3-MeFOSAA	5000	1.00	---	---	1	50	0.10000
d5-EtFOSAA	5000	1.00	---	---	1	50	0.10000

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.09340
13C2-6:2FTS	.09500
13C2-8:2FTS	.09580
13C2-PFDoA	.10000
13C2-PFTeDA	.10000
13C3-HFPO-DA	.10000
13C3-PFBS	.09300
13C3-PFHxS	.09460
13C4-PFBA	.10000
13C4-PFHpA	.10000
13C5-PFHxA	.10000
13C5-PFPeA	.10000
13C6-PFDA	.10000

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 5 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q (RP-201022-2)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LD73

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

13C7-PFUnA	.10000
13C8-FOSA	.10000
13C8-PFOA	.09780
13C8-PFOS	.09560
13C9-PFNA	.10000
d3-MeFOSAA	.10000
d5-EtFOSAA	.10000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LB74	Pipette	B820865811

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 5 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q (RP-201022-2)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LD74

Description: PFAS - DoD Calibration L1

Stock Id: LB78

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00119

Stock Id: LC85

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	250	0.01	---	---	1	10	0.00025
3-Perfluoropentyl propanoic acid	250	0.01	---	---	1	10	0.00025
3-perfluoropropyl propanoic Acid	250	0.01	---	---	1	10	0.00025

Stock Id: LD73

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117
13C2-6:2FTS	125	0.10	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00122
13C8-PFOS	125	0.10	---	---	1	10	0.00119
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Final Concentrations:

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LD74**

Description: PFAS - DoD Calibration L1

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125
13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00119
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00122
13C8-PFOS	.00119
13C9-PFNA	.00125
3-Perfluoroheptyl propanoic acid	.00025
3-Perfluoropentyl propanoic acid	.00025
3-perfluoropropyl propanoic Acid	.00025
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LB78	Pipette	B814657482
LC85	Pipette	B814657482
LD73	Pipette	B814657482

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LD75

Description: PFAS - DoD Calibration L2

Stock Id: LB78

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00119

Stock Id: LC85

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	500	0.01	---	---	1	10	0.00050
3-Perfluoropentyl propanoic acid	500	0.01	---	---	1	10	0.00050
3-perfluoropropyl propanoic Acid	500	0.01	---	---	1	10	0.00050

Stock Id: LD73

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117
13C2-6:2FTS	125	0.10	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00122
13C8-PFOS	125	0.10	---	---	1	10	0.00119
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Final Concentrations:

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LD75**

Description: PFAS - DoD Calibration L2

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125
13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00119
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00122
13C8-PFOS	.00119
13C9-PFNA	.00125
3-Perfluoroheptyl propanoic acid	.00050
3-Perfluoropentyl propanoic acid	.00050
3-perfluoropropyl propanoic Acid	.00050
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LB78	Pipette	B814657482
LC85	Pipette	B820865811
LD73	Pipette	B814657482

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LD76

Description: PFAS - DoD Calibration L3

Stock Id: LB78

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	500	0.10	---	---	1	40	0.00125
13C2-PFOA	500	0.10	---	---	1	40	0.00125
13C3-PFBA	500	0.10	---	---	1	40	0.00125
13C4-PFOS	500	0.10	---	---	1	40	0.00119

Stock Id: LC84

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	400	0.10	---	---	1	40	0.00100
3-Perfluoropentyl propanoic acid	400	0.10	---	---	1	40	0.00100
3-perfluoropropyl propanoic Acid	400	0.10	---	---	1	40	0.00100

Stock Id: LD73

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	500	0.09	---	---	1	40	0.00117
13C2-6:2FTS	500	0.10	---	---	1	40	0.00119
13C2-8:2FTS	500	0.10	---	---	1	40	0.00120
13C2-PFDoA	500	0.10	---	---	1	40	0.00125
13C2-PFTeDA	500	0.10	---	---	1	40	0.00125
13C3-HFPO-DA	500	0.10	---	---	1	40	0.00125
13C3-PFBS	500	0.09	---	---	1	40	0.00116
13C3-PFHxS	500	0.09	---	---	1	40	0.00118
13C4-PFBA	500	0.10	---	---	1	40	0.00125
13C4-PFHpA	500	0.10	---	---	1	40	0.00125
13C5-PFHxA	500	0.10	---	---	1	40	0.00125
13C5-PFPeA	500	0.10	---	---	1	40	0.00125
13C6-PFDA	500	0.10	---	---	1	40	0.00125
13C7-PFUnA	500	0.10	---	---	1	40	0.00125
13C8-FOSA	500	0.10	---	---	1	40	0.00125
13C8-PFOA	500	0.10	---	---	1	40	0.00122
13C8-PFOS	500	0.10	---	---	1	40	0.00119
13C9-PFNA	500	0.10	---	---	1	40	0.00125
d3-MeFOSAA	500	0.10	---	---	1	40	0.00125
d5-EtFOSAA	500	0.10	---	---	1	40	0.00125

Final Concentrations:

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LD76**

Description: PFAS - DoD Calibration L3

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125
13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00119
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00122
13C8-PFOS	.00119
13C9-PFNA	.00125
3-Perfluoroheptyl propanoic acid	.00100
3-Perfluoropentyl propanoic acid	.00100
3-perfluoropropyl propanoic Acid	.00100
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LB78	Pipette	B820865811
LC84	Pipette	B820865811
LD73	Pipette	B820865811

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LD77

Description: PFAS - DoD Calibration L4

Stock Id: LB78

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	500	0.10	---	---	1	40	0.00125
13C2-PFOA	500	0.10	---	---	1	40	0.00125
13C3-PFBA	500	0.10	---	---	1	40	0.00125
13C4-PFOS	500	0.10	---	---	1	40	0.00119

Stock Id: LC84

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	1000	0.10	---	---	1	40	0.00250
3-Perfluoropentyl propanoic acid	1000	0.10	---	---	1	40	0.00250
3-perfluoropropyl propanoic Acid	1000	0.10	---	---	1	40	0.00250

Stock Id: LD73

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	500	0.09	---	---	1	40	0.00117
13C2-6:2FTS	500	0.10	---	---	1	40	0.00119
13C2-8:2FTS	500	0.10	---	---	1	40	0.00120
13C2-PFDoA	500	0.10	---	---	1	40	0.00125
13C2-PFTeDA	500	0.10	---	---	1	40	0.00125
13C3-HFPO-DA	500	0.10	---	---	1	40	0.00125
13C3-PFBS	500	0.09	---	---	1	40	0.00116
13C3-PFHxS	500	0.09	---	---	1	40	0.00118
13C4-PFBA	500	0.10	---	---	1	40	0.00125
13C4-PFHpA	500	0.10	---	---	1	40	0.00125
13C5-PFHxA	500	0.10	---	---	1	40	0.00125
13C5-PFPeA	500	0.10	---	---	1	40	0.00125
13C6-PFDA	500	0.10	---	---	1	40	0.00125
13C7-PFUnA	500	0.10	---	---	1	40	0.00125
13C8-FOSA	500	0.10	---	---	1	40	0.00125
13C8-PFOA	500	0.10	---	---	1	40	0.00122
13C8-PFOS	500	0.10	---	---	1	40	0.00119
13C9-PFNA	500	0.10	---	---	1	40	0.00125
d3-MeFOSAA	500	0.10	---	---	1	40	0.00125
d5-EtFOSAA	500	0.10	---	---	1	40	0.00125

Final Concentrations:

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LD77

Description: PFAS - DoD Calibration L4

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125
13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00119
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00122
13C8-PFOS	.00119
13C9-PFNA	.00125
3-Perfluoroheptyl propanoic acid	.00250
3-Perfluoropentyl propanoic acid	.00250
3-perfluoropropyl propanoic Acid	.00250
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LB78	Pipette	B820865811
LC84	Pipette	B820865811
LD73	Pipette	B820865811

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LD78

Description: PFAS - DoD Calibration L5

Stock Id: LB78

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00119

Stock Id: LC84

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	1000	0.10	---	---	1	10	0.01000
3-Perfluoropentyl propanoic acid	1000	0.10	---	---	1	10	0.01000
3-perfluoropropyl propanoic Acid	1000	0.10	---	---	1	10	0.01000

Stock Id: LD73

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117
13C2-6:2FTS	125	0.10	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00122
13C8-PFOS	125	0.10	---	---	1	10	0.00119
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Final Concentrations:

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LD78**

Description: PFAS - DoD Calibration L5

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125
13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00119
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00122
13C8-PFOS	.00119
13C9-PFNA	.00125
3-Perfluoroheptyl propanoic acid	.01000
3-Perfluoropentyl propanoic acid	.01000
3-perfluoropropyl propanoic Acid	.01000
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LB78	Pipette	B814657482
LC84	Pipette	B820865811
LD73	Pipette	B814657482

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LD79

Description: PFAS - DoD Calibration L6

Stock Id: LB78

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00119

Stock Id: LC84

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	2500	0.10	---	---	1	10	0.02500
3-Perfluoropentyl propanoic acid	2500	0.10	---	---	1	10	0.02500
3-perfluoropropyl propanoic Acid	2500	0.10	---	---	1	10	0.02500

Stock Id: LD73

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117
13C2-6:2FTS	125	0.10	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00122
13C8-PFOS	125	0.10	---	---	1	10	0.00119
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Final Concentrations:

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LD79**

Description: PFAS - DoD Calibration L6

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125
13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00119
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00122
13C8-PFOS	.00119
13C9-PFNA	.00125
3-Perfluoroheptyl propanoic acid	.02500
3-Perfluoropentyl propanoic acid	.02500
3-perfluoropropyl propanoic Acid	.02500
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LB78	Pipette	B814657482
LC84	Pipette	B820865811
LD73	Pipette	B814657482

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LD81

Description: PFAS - DoD ICC

Stock Id: LB78

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00119

Stock Id: LD43

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	250	0.10	---	---	1	10	0.00250
1H,1H,2H,2H-Perfluorodecane sulfonate	250	0.10	---	---	1	10	0.00253
1H,1H,2H,2H-Perfluorohexane sulfonate	250	0.10	---	---	1	10	0.00250
1H,1H,2H,2H-Perfluorooctane sulfonate	250	0.10	---	---	1	10	0.00250
3-Perfluoroheptyl propanoic acid	250	0.10	---	---	1	10	0.00250
3-Perfluoropentyl propanoic acid	250	0.10	---	---	1	10	0.00250
3-perfluoropropyl propanoic Acid	250	0.10	---	---	1	10	0.00250
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	250	0.10	---	---	1	10	0.00250
Adona	250	0.10	---	---	1	10	0.00250
Hexafluoropropylene oxide dimer acid	250	0.10	---	---	1	10	0.00250
N-ethylperfluoro-octanesulfonamidoacetic acid	250	0.10	---	---	1	10	0.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	250	0.10	---	---	1	10	0.00250
Perfluoro-1-butanesulfonate	250	0.10	---	---	1	10	0.00250
Perfluoro-1-decanesulfonate	250	0.10	---	---	1	10	0.00253
Perfluoro-1-heptanesulfonate	250	0.10	---	---	1	10	0.00250
Perfluoro-1-hexanesulfonate	250	0.10	---	---	1	10	0.00253
Perfluoro-1-nonanesulfonate	250	0.10	---	---	1	10	0.00253
Perfluoro-1-octanesulfonamide	250	0.10	---	---	1	10	0.00250
Perfluoro-1-octanesulfonate	250	0.10	---	---	1	10	0.00253
perfluoro-1-pentanesulfonate	250	0.10	---	---	1	10	0.00250
Perfluoro-n-butanoic Acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-decanoic Acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-dodecanoic acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-heptanoic Acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-hexanoic acid	250	0.10	---	---	1	10	0.00253
Perfluoro-n-octanoic Acid	250	0.10	---	---	1	10	0.00250
Perfluorononanoic Acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-pentanoic acid	250	0.10	---	---	1	10	0.00253

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LD81

Description: PFAS - DoD ICC

Perfluoro-n-tetradecanoic acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-tridecanoic acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-undecanoic acid	250	0.10	---	---	1	10	0.00250

Stock Id: LD73

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117
13C2-6:2FTS	125	0.10	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00122
13C8-PFOS	125	0.10	---	---	1	10	0.00119
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00250
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LD81**

Description: PFAS - DoD ICC

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00119
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00122
13C8-PFOS	.00119
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.00253
1H,1H,2H,2H-Perfluorohexane sulfonate	.00250
1H,1H,2H,2H-Perfluorooctane sulfonate	.00250
3-Perfluoroheptyl propanoic acid	.00250
3-Perfluoropentyl propanoic acid	.00250
3-perfluoropropyl propanoic Acid	.00250
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00250
Adona	.00250
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.00250
N-ethylperfluoro-octanesulfonamidoacetic acid	.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00250
Perfluoro-1-butanesulfonate	.00250
Perfluoro-1-decanesulfonate	.00253
Perfluoro-1-heptanesulfonate	.00250
Perfluoro-1-hexanesulfonate	.00253
Perfluoro-1-nonanesulfonate	.00253
Perfluoro-1-octanesulfonamide	.00250
Perfluoro-1-octanesulfonate	.00253
perfluoro-1-pentanesulfonate	.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

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LD81**

Description: PFAS - DoD ICC

Perfluoro-n-octanoic Acid	.00250
Perfluorononanoic Acid	.00250
Perfluoro-n-pentanoic acid	.00253
Perfluoro-n-tetradecanoic acid	.00250
Perfluoro-n-tridecanoic acid	.00250
Perfluoro-n-undecanoic acid	.00250

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LB78	Pipette	B814657482
LD43	Pipette	B814657482
LD73	Pipette	B814657482

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/22/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201022-7)

Approved By: Schumitz, Denise **Date:** 10/23/2020 9:27:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LE23

Description: PFAS - DoD Second Source LCS/MS Solution

Stock Id: 201006-07

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	2000	1.00	1	100.000	1	20	0.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	2000	1.01	1	100.000	1	20	0.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	2000	1.00	1	100.000	1	20	0.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	2000	1.00	1	100.000	1	20	0.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	2000	1.00	1	100.000	1	20	0.10000
Adona	2000	1.00	1	100.000	1	20	0.10000
Hexafluoropropylene oxide dimer acid	2000	1.00	1	100.000	1	20	0.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	20	0.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-butanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-decanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-heptanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-hexanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-nonanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-octanesulfonamide	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-octanesulfonate	2000	1.01	1	100.000	1	20	0.10100
perfluoro-1-pentanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-butanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-decanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-dodecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-heptanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-hexanoic acid	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-n-octanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluorononanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-pentanoic acid	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-n-tetradecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-tridecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-undecanoic acid	2000	1.00	1	100.000	1	20	0.10000

Stock Id: LC24

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	400	5.00	---	---	1	20	0.10000
3-Perfluoropentyl propanoic acid	400	5.00	---	---	1	20	0.10000
3-perfluoropropyl propanoic Acid	400	5.00	---	---	1	20	0.10000

Final Concentrations:

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/29/2020 **Expiration Date:** 8/11/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201029-1)

Approved By: Schumitz, Denise **Date:** 10/29/2020 1:33:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LE23

Description: PFAS - DoD Second Source LCS/MS Solution

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	.10000
3-Perfluoroheptyl propanoic acid	.10000
3-Perfluoropentyl propanoic acid	.10000
3-perfluoropropyl propanoic Acid	.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.10000
Adona	.10000
Hexafluoropropylene oxide dimer acid	.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.10000
Perfluoro-1-butanesulfonate	.10000
Perfluoro-1-decanesulfonate	.10100
Perfluoro-1-heptanesulfonate	.10000
Perfluoro-1-hexanesulfonate	.10100
Perfluoro-1-nonanesulfonate	.10100
Perfluoro-1-octanesulfonamide	.10000
Perfluoro-1-octanesulfonate	.10100
perfluoro-1-pentanesulfonate	.10000
Perfluoro-n-butanoic Acid	.10000
Perfluoro-n-decanoic Acid	.10000
Perfluoro-n-dodecanoic acid	.10000
Perfluoro-n-heptanoic Acid	.10000
Perfluoro-n-hexanoic acid	.10100
Perfluoro-n-octanoic Acid	.10000
Perfluorononanoic Acid	.10000
Perfluoro-n-pentanoic acid	.10100
Perfluoro-n-tetradecanoic acid	.10000
Perfluoro-n-tridecanoic acid	.10000
Perfluoro-n-undecanoic acid	.10000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
201006-07	Pipette	B820865811
LC24	Pipette	B820865811

Solution Prepared By: Bailey, Kevin **Date Prepared:** 10/29/2020 **Expiration Date:** 8/11/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q (RP-201029-1)

Approved By: Schumitz, Denise **Date:** 10/29/2020 1:33:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LE39

Description: PFAS - DoD Low Level Labelled Extracted Internal Standard

Stock Id: LB74

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	2000	0.93	---	---	1	200	0.00934
13C2-6:2FTS	2000	0.95	---	---	1	200	0.00950
13C2-8:2FTS	2000	0.96	---	---	1	200	0.00958
13C2-PFDoA	2000	1.00	---	---	1	200	0.01000
13C2-PFTeDA	2000	1.00	---	---	1	200	0.01000
13C3-HFPO-DA	2000	1.00	---	---	1	200	0.01000
13C3-PFBS	2000	0.93	---	---	1	200	0.00930
13C3-PFHxS	2000	0.95	---	---	1	200	0.00946
13C4-PFBA	2000	1.00	---	---	1	200	0.01000
13C4-PFHpA	2000	1.00	---	---	1	200	0.01000
13C5-PFHxA	2000	1.00	---	---	1	200	0.01000
13C5-PFPeA	2000	1.00	---	---	1	200	0.01000
13C6-PFDA	2000	1.00	---	---	1	200	0.01000
13C7-PFUnA	2000	1.00	---	---	1	200	0.01000
13C8-FOSA	2000	1.00	---	---	1	200	0.01000
13C8-PFOA	2000	0.98	---	---	1	200	0.00978
13C8-PFOS	2000	0.96	---	---	1	200	0.00956
13C9-PFNA	2000	1.00	---	---	1	200	0.01000
d3-MeFOSAA	2000	1.00	---	---	1	200	0.01000
d5-EtFOSAA	2000	1.00	---	---	1	200	0.01000

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.00934
13C2-6:2FTS	.00950
13C2-8:2FTS	.00958
13C2-PFDoA	.01000
13C2-PFTeDA	.01000
13C3-HFPO-DA	.01000
13C3-PFBS	.00930
13C3-PFHxS	.00946
13C4-PFBA	.01000
13C4-PFHpA	.01000
13C5-PFHxA	.01000
13C5-PFPeA	.01000
13C6-PFDA	.01000

Solution Prepared By: Bailey, Kevin **Date Prepared:** 11/4/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 8 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q water (RP-201104-11)

Approved By: Schumitz, Denise **Date:** 11/5/2020 10:09:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LE39

Description: PFAS - DoD Low Level Labelled Extracted Internal Standard

13C7-PFUnA	.01000
13C8-FOSA	.01000
13C8-PFOA	.00978
13C8-PFOS	.00956
13C9-PFNA	.01000
d3-MeFOSAA	.01000
d5-EtFOSAA	.01000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LB74	Pipette	B820865811

Solution Prepared By: Bailey, Kevin **Date Prepared:** 11/4/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 8 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q water (RP-201104-11)

Approved By: Schumitz, Denise **Date:** 11/5/2020 10:09:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LE40

Description: PFAS - DoD Internal Standard Spiking Solution

Stock Id: LB75

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	2000	1.00	---	---	1	200	0.01000
13C2-PFOA	2000	1.00	---	---	1	200	0.01000
13C3-PFBA	2000	1.00	---	---	1	200	0.01000
13C4-PFOS	2000	0.96	---	---	1	200	0.00956

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.01000
13C2-PFOA	.01000
13C3-PFBA	.01000
13C4-PFOS	.00956

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LB75	Pipette	B820865811

Solution Prepared By: Bailey, Kevin **Date Prepared:** 11/4/2020 **Expiration Date:** 7/21/2021

Solution Volume : 40 **mL X** 8 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q (RP-201104-12)

Approved By: Schumitz, Denise **Date:** 11/5/2020 10:54:00 AM

BATTELLE

It can be done

BDO Id: 200721-01

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	MPFBA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	MPFBA	**Expires:**	5/13/2025
Type:	Solution	**Consumed:**	
Lot No:	MPFBA0420	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	MPFBA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C4-PFBA	BDO-2105	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

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

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	MPFBA	**LOT NUMBER:**	MPFBA0420
COMPOUND:	Perfluoro-n-[1,2,3,4-$^{13}C_4$]butanoic acid		
STRUCTURE:		**CAS #:**	Not available

MOLECULAR FORMULA:	$^{13}C_4HF_7O_2$	**MOLECULAR WEIGHT:**	218.01
CONCENTRATION:	50.0 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99%^{13}C (1,2,3,4-$^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	05/13/2020		
EXPIRY DATE: (mm/dd/yyyy)	05/13/2025		
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: _____ **Date:** 05/20/2020 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

BATTELLE

It can be done

BDO Id: 200721-02

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	M5PFPeA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M5PFPeA	**Expires:**	1/22/2025
Type:	Solution	**Consumed:**	
Lot No:	M5PFPeA0120	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M5PFPeA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C5-PFPeA	BDO-2216	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

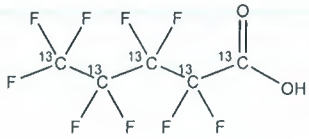
Authorized by: _____ **Authorized on:** _____

200721-02

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M5PFPeA	**LOT NUMBER:**	M5PFPeA0120
COMPOUND:	Perfluoro-n-[$^{13}C_5$]pentanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_5HF_9O_2$	**MOLECULAR WEIGHT:**	269.01
CONCENTRATION:	50.0 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_5$)
LAST TESTED: (mm/dd/yyyy)	01/22/2020		
EXPIRY DATE: (mm/dd/yyyy)	01/22/2025		
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.
- Contains ~ 0.25% of perfluoro-n-pentanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 01/24/2020 (mm/dd/yyyy)

B.G. Chittim, General Manager

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BATTELLE

It can be done

BDO Id: 200721-03

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	M5PFHxA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M5PFHxA	**Expires:**	4/3/2025
Type:	Solution	**Consumed:**	
Lot No:	M5PFHxA0320	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M5PFHxA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C5-PFHxA	BDO-2217	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

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

200721-03

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M5PFHxA	**LOT NUMBER:**	M5PFHxA0320
COMPOUND:	Perfluoro-n-[1,2,3,4,6-$^{13}C_5$]hexanoic acid		
STRUCTURE:		**CAS #:**	Not available

MOLECULAR FORMULA:	$^{13}C_5{}^{12}C_1HF_{11}O_2$	**MOLECULAR WEIGHT:**	319.02
CONCENTRATION:	50.0 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4,6\text{-}^{13}C_5$)
LAST TESTED: (mm/dd/yyyy)	04/03/2020		
EXPIRY DATE: (mm/dd/yyyy)	04/03/2025		
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: _____ **Date:** 04/15/2020 (mm/dd/yyyy)

B.G. Chittim, General Manager

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BATTELLE

It can be done

BDO Id: 200721-04

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	M4PFHpA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M4PFHpA	**Expires:**	1/8/2025
Type:	Solution	**Consumed:**	
Lot No:	M4PFHpA0120	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M4PFHpA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C4-PFHpA	BDO-2218	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

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

200721-04

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M4PFHpA	**LOT NUMBER:**	M4PFHpA0120
COMPOUND:	Perfluoro-n-[1,2,3,4-$^{13}C_4$]heptanoic acid		
STRUCTURE:		**CAS #:**	Not available

MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_3HF_{13}O_2$	**MOLECULAR WEIGHT:**	368.03
CONCENTRATION:	50.0 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4\text{-}^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	01/08/2020		
EXPIRY DATE: (mm/dd/yyyy)	01/08/2025		
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.
- Contains ~ 0.03% of perfluoro-n-heptanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 01/24/2020 (mm/dd/yyyy)
B.G. Chittim, General Manager

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BATTELLE

It can be done

BDO Id: 200721-05

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	M8PFOA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M8PFOA	**Expires:**	1/23/2025
Type:	Solution	**Consumed:**	
Lot No:	M8PFOA0220	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M8PFOA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C8-PFOA	BDO-2219	48.9000	97.80	--	--	☐			

Total Analytes: 1

Notes:

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

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

200721-05

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M8PFOA	**LOT NUMBER:**	M8PFOA0220
COMPOUND:	Perfluoro-n-[$^{13}C_8$]octanoic acid		
STRUCTURE:		**CAS #:**	Not available

MOLECULAR FORMULA:	$^{13}C_8HF_{15}O_2$	**MOLECULAR WEIGHT:**	422.01
CONCENTRATION:	48.9 ± 2.4 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	97.8% (M8PFOA) 2.2% (MPFOA [M+4])	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_8$)
LAST TESTED: (mm/dd/yyyy)	01/23/2020		
EXPIRY DATE: (mm/dd/yyyy)	01/23/2025		
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.
- Contains < 0.1% of native perfluoro-n-octanoic acid (PFOA) and ~ 2.2% of [M+4] perfluoro-n-octanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 01/24/2020 (mm/dd/yyyy)

B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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BATTELLE

It can be done

BDO Id: 200721-06

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	M9PFNA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M9PFNA	**Expires:**	9/8/2023
Type:	Solution	**Consumed:**	
Lot No:	M9PFNA0918	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M9PFNA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C9-PFNA	BDO-2221	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

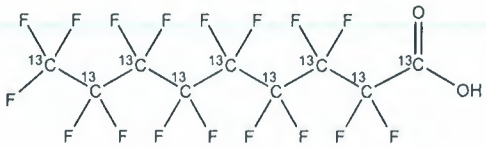
Authorized by: _____ **Authorized on:** _____

200721-06

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M9PFNA	**LOT NUMBER:**	M9PFNA0918
COMPOUND:	Perfluoro-n-[$^{13}C_9$]nonanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_9HF_{17}O_2$	**MOLECULAR WEIGHT:**	473.01
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_9$)
LAST TESTED: (mm/dd/yyyy)	09/08/2018		
EXPIRY DATE: (mm/dd/yyyy)	09/08/2023		
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.
- Contains ~ 1.0% of $^{13}C_5{}^{12}C_4HF_{17}O_2$ (MPFNA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/19/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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BATTELLE
It can be done

BDO Id: 200721-07

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	M6PFDA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M6PFDA	**Expires:**	7/25/2024
Type:	Solution	**Consumed:**	
Lot No:	M6PFDA0719	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M6PFDA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C6-PFDA	BDO-2222	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

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

200721-07

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M6PFDA	**LOT NUMBER:**	M6PFDA0719
COMPOUND:	Perfluoro-n-[1,2,3,4,5,6-$^{13}C_6$]decanoic acid		
STRUCTURE:		**CAS #:**	Not available

MOLECULAR FORMULA:	$^{13}C_6{}^{12}C_4HF_{19}O_2$	**MOLECULAR WEIGHT:**	520.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4,5,6$-$^{13}C_6$)
LAST TESTED: (mm/dd/yyyy)	07/25/2019		
EXPIRY DATE: (mm/dd/yyyy)	07/25/2024		
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: _____ **Date:** 07/26/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

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BATTELLE

It can be done

BDO Id: 200721-08

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	M7PFUdA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M7PFUdA	**Expires:**	7/22/2024
Type:	Solution	**Consumed:**	
Lot No:	M7PFUdA0719	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M7PFUdA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C7-PFUnA	BDO-2223	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

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

200721-08

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M7PFUdA	**LOT NUMBER:**	M7PFUdA0719
COMPOUND:	Perfluoro-n-[1,2,3,4,5,6,7-$^{13}C_7$]undecanoic acid		
STRUCTURE:		**CAS #:**	Not available

MOLECULAR FORMULA:	$^{13}C_7{}^{12}C_4HF_{21}O_2$	**MOLECULAR WEIGHT:**	571.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4,5,6,7-$^{13}C_7$)
LAST TESTED: (mm/dd/yyyy)	07/22/2019		
EXPIRY DATE: (mm/dd/yyyy)	07/22/2024		
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: _____ **Date:** 09/12/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

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BATTELLE

It can be done

BDO Id: 200721-09

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	MPFDoA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	MPFDoA	**Expires:**	11/22/2024
Type:	Solution	**Consumed:**	
Lot No:	MPFDoA1119	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	MPFDoA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-PFDoA	BDO-2112	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

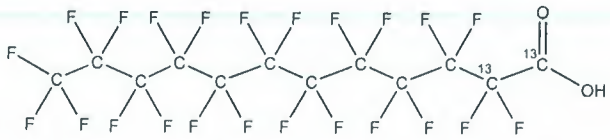
Authorized by: _____ **Authorized on:** _____

200721-09

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFDoA	**LOT NUMBER:**	MPFDoA1119
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]dodecanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_{10}HF_{23}O_2$	**MOLECULAR WEIGHT:**	616.08
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/22/2019		
EXPIRY DATE: (mm/dd/yyyy)	11/22/2024		
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: _____ **Date:** 11/27/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

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BATTELLE

It can be done

BDO Id: 200721-10

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	M2PFTeDA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M2PFTeDA	**Expires:**	11/14/2024
Type:	Solution	**Consumed:**	
Lot No:	M2PFTeDA1119	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M2PFTeDA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-PFTeDA	BDO-2224	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

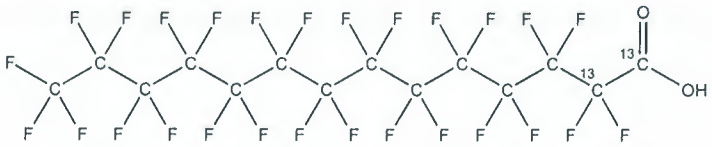
Authorized by: _____ **Authorized on:** _____

260721-10

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M2PFTeDA	**LOT NUMBER:**	M2PFTeDA1119
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]tetradecanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_{12}HF_{27}O_2$	**MOLECULAR WEIGHT:**	716.10
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/14/2019		
EXPIRY DATE: (mm/dd/yyyy)	11/14/2024		
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.
- Contains < 0.1% of perfluoro-n-tetradecanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/26/2019 (mm/dd/yyyy)

B.G. Chittim, General Manager

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BATTELLE
It can be done

BDO Id: 200721-11

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	M2-4:2FTS	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M2-4:2FTS	**Expires:**	4/16/2025
Type:	Solution	**Consumed:**	
Lot No:	M242FTS0420	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M2-4:2FTS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-4:2FTS	BDO-2229	46.7000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

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

200721-11

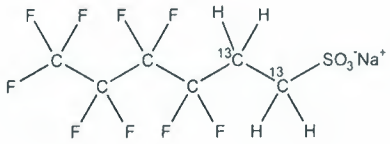
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-4:2FTS **LOT NUMBER:** M242FTS0420

COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]hexane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_4H_4F_9SO_3Na$		**MOLECULAR WEIGHT:**	352.12
CONCENTRATION:	50.0 ± 2.5 µg/ml	(Na salt)	**SOLVENT(S):**	Methanol
	46.9 ± 2.3 µg/ml	(M2-4:2FTS acid)		
	46.7 ± 2.3 µg/ml	(M2-4:2FTS anion)		
CHEMICAL PURITY:	>98%		**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	04/16/2020			
EXPIRY DATE: (mm/dd/yyyy)	04/16/2025			
RECOMMENDED STORAGE:	Refrigerate ampoule			

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.
- The native 4:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 4:2FTS and M2-4:2FTS will produce signals in the m/z 329 to m/z 309 channel during SRM analysis. We recommend using the m/z 329 to m/z 81 transition to monitor for M2-4:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 04/20/2020 (mm/dd/yyyy)

B.G. Chittim, General Manager

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

BATTELLE

It can be done

BDO Id: 200721-12

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	M2-6:2FTS	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M2-6:2FTS	**Expires:**	5/20/2025
Type:	Solution	**Consumed:**	
Lot No:	M262FTS0520	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M2-6:2FTS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-6:2FTS	BDO-2230	47.5000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

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

200721-12

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M2-6:2FTS	**LOT NUMBER:**	M262FTS0520
COMPOUND:	Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]octane sulfonate		
STRUCTURE:		**CAS #:**	Not available

MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6H_4F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	452.13
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	**SOLVENT(S):**	Methanol
	47.6 ± 2.4 µg/ml (M2-6:2FTS acid)		
	47.5 ± 2.4 µg/ml (M2-6:2FTS anion)		
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	05/20/2020		
EXPIRY DATE: (mm/dd/yyyy)	05/20/2025		
RECOMMENDED STORAGE:	Refrigerate ampoule		

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.
- The native 6:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/02/2020 (mm/dd/yyyy)

B.G. Chittim, General Manager

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BATTELLE

It can be done

BDO Id: 200721-13

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	M2-8:2FTS	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M2-8:2FTS	**Expires:**	3/18/2025
Type:	Solution	**Consumed:**	
Lot No:	M282FTS0320	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M2-8:2FTS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-8:2FTS	BDO-2220	47.9000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

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

2007LL-13

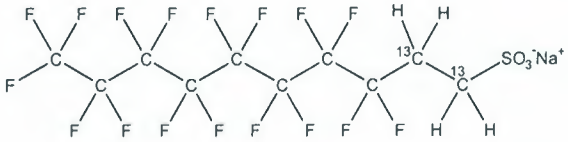
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-8:2FTS **LOT NUMBER:** M282FTS0320

COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]decane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8H_4F_{17}SO_3Na$		**MOLECULAR WEIGHT:**	552.15
CONCENTRATION:	50.0 ± 2.5 µg/ml	(Na salt)	**SOLVENT(S):**	Methanol
	48.0 ± 2.4 µg/ml	(M2-8:2FTS acid)		
	47.9 ± 2.4 µg/ml	(M2-8:2FTS anion)		
CHEMICAL PURITY:	>98%		**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	03/18/2020			
EXPIRY DATE: (mm/dd/yyyy)	03/18/2025			
RECOMMENDED STORAGE:	Refrigerate ampoule			

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.
- The native 8:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 8:2FTS and M2-8:2FTS will produce signals in the m/z 529 to m/z 509 channel during SRM analysis. We recommend using the m/z 529 to m/z 81 transition to monitor for M2-8:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/18/2020 (mm/dd/yyyy)

B.G. Chittim, General Manager

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BATTELLE
It can be done

BDO Id: 200721-14

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	M3PFBS	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M3PFBS	**Expires:**	3/17/2025
Type:	Solution	**Consumed:**	
Lot No:	M3PFBS1019	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M3PFBS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C3-PFBS	BDO-2226	46.5000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

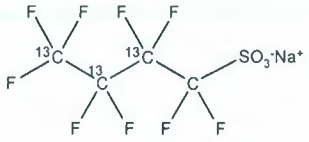
Authorized by: _____ **Authorized on:** _____

200721-14

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M3PFBS	**LOT NUMBER:**	M3PFBS1019
COMPOUND:	Sodium perfluoro-1-[2,3,4-$^{13}C_3$]butanesulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}CF_9SO_3Na$	**MOLECULAR WEIGHT:**	325.06
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 46.6 ± 2.3 µg/ml (M3PFBS acid) 46.5 ± 2.3 µg/ml (M3PFBS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($2,3,4\text{-}^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	03/17/2020		
EXPIRY DATE: (mm/dd/yyyy)	03/17/2025		
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 < 0.1% of perfluoro-1-butanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/18/2020 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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BATTELLE

It can be done

BDO Id: 200721-15

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	M3PFHxS	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M3PFHxS	**Expires:**	10/15/2024
Type:	Solution	**Consumed:**	
Lot No:	M3PFHxS1019	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M3PFHxS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C3-PFHxS	BDO-2227	47.3000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

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

200721-15

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M3PFHxS	**LOT NUMBER:**	M3PFHxS1019
COMPOUND:	Sodium perfluoro-1-[1,2,3-$^{13}C_3$]hexanesulfonate		
STRUCTURE:		**CAS #:**	Not available

MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	425.07
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.3 ± 2.4 µg/ml (M3PFHxS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3\text{-}^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	10/15/2019		
EXPIRY DATE: (mm/dd/yyyy)	10/15/2024		
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 ~ 0.1% perfluoro-1-[1,2-$^{13}C_2$]pentanesulfonate, ~ 0.1% perfluoro-1-octanesulfonate, and ~ 0.05% of perfluoro-1-hexanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/16/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

BATTELLE
It can be done

BDO Id: 200721-16

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	M8PFOS	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M8PFOS	**Expires:**	2/21/2025
Type:	Solution	**Consumed:**	
Lot No:	M8PFOS0120	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M8PFOS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C8-PFOS	BDO-2228	47.8000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

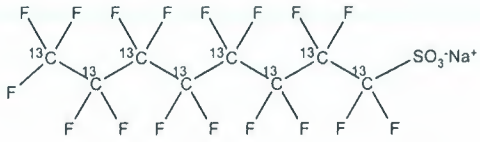
Authorized by: _____ **Authorized on:** _____

2007219-16

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M8PFOS	**LOT NUMBER:**	M8PFOS0120
COMPOUND:	Sodium perfluoro-1-[$^{13}C_8$]octanesulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_8F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	530.05
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.9 ± 2.4 µg/ml (M8PFOS acid) 47.8 ± 2.4 µg/ml (M8PFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	>99% ^{13}C ($^{13}C_8$)
LAST TESTED: (mm/dd/yyyy)	02/21/2020		
EXPIRY DATE: (mm/dd/yyyy)	02/21/2025		
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 ~ 0.2% of sodium perfluoro-1-[$^{13}C_7$]heptanesulfonate ($^{13}C_7$-PFHpS) and ~ 1.0% of sodium perfluoro-1-[$^{13}C_4$]octanesulfonate (MPFOS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 02/21/2020 (mm/dd/yyyy)

B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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BATTELLE
It can be done

BDO Id: 200721-17

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	d3-N-MeFOSAA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	d3-N-MeFOSAA	**Expires:**	12/2/2024
Type:	Solution	**Consumed:**	
Lot No:	d3NMeFOSAA1119	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	d3-N-MeFOSAA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
d3-MeFOSAA	BDO-1838	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

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

200721-17

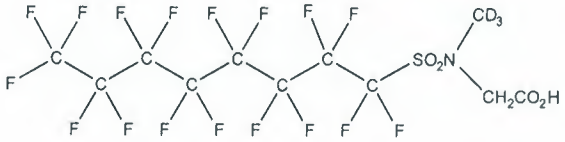
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d3-N-MeFOSAA **LOT NUMBER:** d3NMeFOSAA1119

COMPOUND: N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** 1400690-70-1



MOLECULAR FORMULA: $C_{11}D_3H_3F_{17}NO_4S$ **MOLECULAR WEIGHT:** 574.23

CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol, Water (<1%)

CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥98% $^2H_3$

LAST TESTED: (mm/dd/yyyy) 12/02/2019

EXPIRY DATE: (mm/dd/yyyy) 12/02/2024

RECOMMENDED STORAGE: Refrigerate ampoule

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 the conversion of the acetic acid moiety to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/04/2019 (mm/dd/yyyy)

B.G. Chittim, General Manager

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BATTELLE

It can be done

BDO Id: 200721-18

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	d5-N-EtFOSAA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	d5-N-EtFOSAA	**Expires:**	5/20/2025
Type:	Solution	**Consumed:**	
Lot No:	d5NEtFOSAA0520	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	d5-N-EtFOSAA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
d5-EtFOSAA	BDO-1839	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

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

2007-21-18

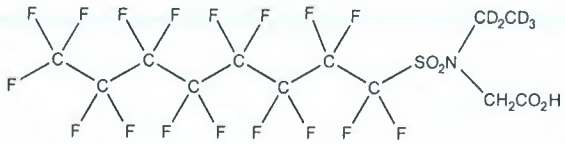
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d5-N-EtFOSAA **LOT NUMBER:** d5NEtFOSAA0520

COMPOUND: N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: $C_{12}D_5H_3F_{17}NO_4S$ **MOLECULAR WEIGHT:** 590.26

CONCENTRATION: 50.0 ± 2.5 µg/ml **SOLVENT(S):** Methanol, Water (<1%)

CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥98% $^2H_5$

LAST TESTED: (mm/dd/yyyy) 05/20/2020

EXPIRY DATE: (mm/dd/yyyy) 05/20/2025

RECOMMENDED STORAGE: Refrigerate ampoule

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 the conversion of the acetic acid moiety to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/22/2020 (mm/dd/yyyy)

B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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BATTELLE

It can be done

BDO Id: 200721-19

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	M8FOSA-I	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M8FOSA-I	**Expires:**	2/28/2025
Type:	Solution	**Consumed:**	
Lot No:	M8FOSA0220I	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M8FOSA-I		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C8-FOSA	BDO-2225	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

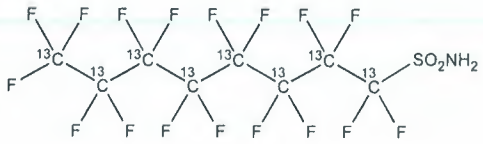
Authorized by: _____ **Authorized on:** _____

200721-19

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M8FOSA-I	**LOT NUMBER:**	M8FOSA0220I
COMPOUND:	Perfluoro-1-[$^{13}C_8$]octanesulfonamide		
STRUCTURE:		**CAS #:**	1365803-60-6



MOLECULAR FORMULA:	$^{13}C_8H_2F_{17}NO_2S$	**MOLECULAR WEIGHT:**	507.09
CONCENTRATION:	50.0 ± 2.5 µg/ml	**SOLVENT(S):**	Isopropanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_8$)
LAST TESTED: (mm/dd/yyyy)	02/28/2020		
EXPIRY DATE: (mm/dd/yyyy)	02/28/2025		
RECOMMENDED STORAGE:	Refrigerate ampoule		

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 ~ 1.2% of perfluoro-1-[$^{13}C_4$]octanesulfonamide and ~ 0.03% of perfluoro-1-[$^{13}C_7$]heptanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/03/2020 (mm/dd/yyyy)
B.G. Chittim, General Manager

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BATTELLE

It can be done

BDO Id: 200721-20

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	M3HFPO-DA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M3HFPO-DA	**Expires:**	5/13/2023
Type:	Solution	**Consumed:**	
Lot No:	M3HFPODA0520	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M3HFPO-DA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C3-HFPO-DA	BDO-2276	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

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

200721-20

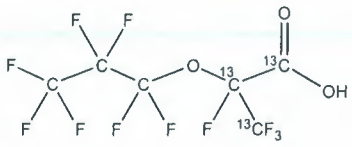
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M3HFPO-DA **LOT NUMBER:** M3HFPODA0520

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-$^{13}C_3$-propanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3HF_{11}O_3$	**MOLECULAR WEIGHT:**	333.03
CONCENTRATION:	50.0 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	05/13/2020		
EXPIRY DATE: (mm/dd/yyyy)	05/13/2023		
RECOMMENDED STORAGE:	Refrigerate ampoule		

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 ~ 1.9% of the linear M3HFPO-DA isomer.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/22/2020 (mm/dd/yyyy)

B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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BATTELLE

It can be done

BDO Id: 200721-21

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	MPFDA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	MPFDA	**Expires:**	3/24/2025
Type:	Solution	**Consumed:**	
Lot No:	MPFDA0320	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	MPFDA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-PFDA	BDO-2110	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

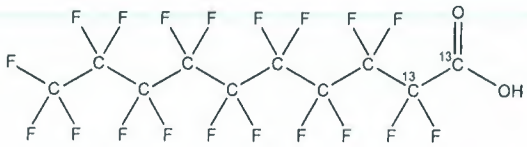
Authorized by: _____ **Authorized on:** _____

200721-21

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFDA	**LOT NUMBER:**	MPFDA0320
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]decanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8HF_{19}O_2$	**MOLECULAR WEIGHT:**	516.07
CONCENTRATION:	50.0 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	03/24/2020		
EXPIRY DATE: (mm/dd/yyyy)	03/24/2025		
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: _____ **Date:** 04/06/2020 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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BATTELLE

It can be done

BDO Id: 200721-22

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	M2PFOA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M2PFOA	**Expires:**	1/8/2025
Type:	Solution	**Consumed:**	
Lot No:	M2PFOA0120	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M2PFOA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-PFOA	BDO-2107	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

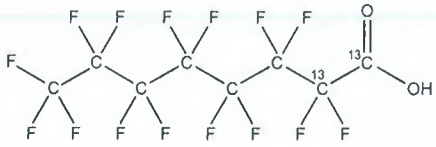
Authorized by: _____ **Authorized on:** _____

200721-22

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M2PFOA	**LOT NUMBER:**	M2PFOA0120
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]octanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6HF_{15}O_2$	**MOLECULAR WEIGHT:**	416.05
CONCENTRATION:	50.0 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2-$^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	01/08/2020		
EXPIRY DATE: (mm/dd/yyyy)	01/08/2025		
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.
- Contains < 0.1% of perfluoro-n-[$^{13}C_1$]heptanoic acid ($^{13}C_1$-PFHpA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 01/15/2020 (mm/dd/yyyy)

B.G. Chittim, General Manager

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

BATTELLE
It can be done

BDO Id: 200721-23

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	M3PFBA	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	M3PFBA	**Expires:**	2/24/2025
Type:	Solution	**Consumed:**	
Lot No:	M3PFBA0120	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	M3PFBA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C3-PFBA	BDO-2231	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

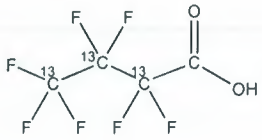
Authorized by: _____ **Authorized on:** _____

200721-23

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M3PFBA	**LOT NUMBER:**	M3PFBA0120
COMPOUND:	Perfluoro-n-[2,3,4-$^{13}C_3$]butanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}CHF_7O_2$	**MOLECULAR WEIGHT:**	217.02
CONCENTRATION:	50.0 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99%^{13}C (2,3,4-$^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	02/24/2020		
EXPIRY DATE: (mm/dd/yyyy)	02/24/2025		
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.
- Contains ~ 0.2% of perfluoro-n-[$^{13}C_3$]propanoic acid and also contains ~ 1.0% of perfluoro-n-[1,2,3,4-$^{13}C_4$]butanoic acid due to the naturally occurring isotopic abundance of ^{13}C in the unlabelled carbon atom.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/27/2020 (mm/dd/yyyy)

B.G. Chittim, General Manager

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BATTELLE

It can be done

BDO Id: 200721-24

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	MPFOS	**Received:**	7/21/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schultz, Stephanie
Catalogue No:	MPFOS	**Expires:**	4/15/2025
Type:	Solution	**Consumed:**	
Lot No:	MPFOS0420	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL **% Moisture:**		
Description:	MPFOS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C4-PFOS	BDO-2121	47.8000	98.00	--	--	☐			

Total Analytes: 1

Notes:

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

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

200721-24

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	MPFOS	**LOT NUMBER:**	MPFOS0420
COMPOUND:	Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate		
STRUCTURE:		**CAS #:**	960315-53-1

MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.9 ± 2.4 µg/ml (MPFOS acid) 47.8 ± 2.4 µg/ml (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4$-$^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	04/15/2020		
EXPIRY DATE: (mm/dd/yyyy)	04/15/2025		
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 ~ 0.3% Sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 04/20/2020 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

BATTELLE
It can be done

BDO Id: 200811-01

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	3-Perfluoropropyl propanoic acid	**Received:**	8/11/2020
Vendor:	Wellington Laboratories	**Custodian:**	Bailey, Kevin
Catalogue No:	FPrPA	**Expires:**	1/7/2023
Type:	Solution	**Consumed:**	
Lot No:	FPrPA1219	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea ml **% Moisture:**		
Description:	FPrPA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
3-perfluoropropyl propanoic Acid	356-02-5	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

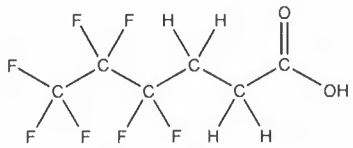
Approved by: _____ **Approved on:** _____

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

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	FPrPA	**LOT NUMBER:**	FPrPA1219
COMPOUND:	3-Perfluoropropyl propanoic acid		
STRUCTURE:		**CAS #:**	356-02-5



MOLECULAR FORMULA:	$C_6H_5F_7O_2$	**MOLECULAR WEIGHT:**	242.09
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	01/07/2020		
EXPIRY DATE: (mm/dd/yyyy)	01/07/2023		
RECOMMENDED STORAGE:	Refrigerate ampoule		

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 <1% of the unsaturated 3:3 telomer acid ($C_6H_3F_7O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 01/08/2020 (mm/dd/yyyy)

B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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BDO Id: 200811-02

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	3-Perfluoroheptyl propanoic acid	**Received:**	8/11/2020
Vendor:	Wellington Laboratories	**Custodian:**	Bailey, Kevin
Catalogue No:	FHpPA	**Expires:**	3/31/2023
Type:	Solution	**Consumed:**	
Lot No:	FHpPA0320	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea ml **% Moisture:**		
Description:	FHpPA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
3-Perfluoroheptyl propanoic acid	812-70-4	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

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

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

WELLINGTON LABORATORIES

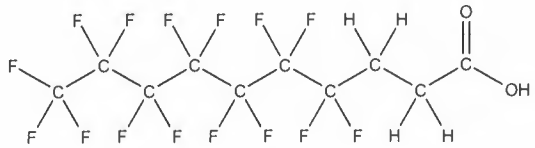
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FHpPA
COMPOUND: 3-Perfluoroheptyl propanoic acid

LOT NUMBER: FHpPA0320

STRUCTURE:

CAS #: 812-70-4



MOLECULAR FORMULA:	$C_{10}H_5F_{15}O_2$	**MOLECULAR WEIGHT:**	442.12
CONCENTRATION:	50.0 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	03/31/2020		
EXPIRY DATE: (mm/dd/yyyy)	03/31/2023		
RECOMMENDED STORAGE:	Refrigerate ampoule		

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: _____ **Date:** 04/01/2020 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

BATTELLE
It can be done

BDO Id: 200811-03

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	3-Perfluoropentyl propanoic acid	**Received:**	8/11/2020
Vendor:	Wellington Laboratories	**Custodian:**	Bailey, Kevin
Catalogue No:	FPePA	**Expires:**	10/2/2022
Type:	Solution	**Consumed:**	
Lot No:	FPePA0919	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea ml **% Moisture:**		
Description:	FPePA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
3-Perfluoropentyl propanoic acid	914637-49-3	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

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

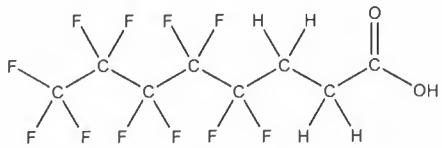
Authorized by: _____ **Authorized on:** _____

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FPePA
COMPOUND: 3-Perfluoropentyl propanoic acid
LOT NUMBER: FPePA0919

STRUCTURE:
CAS #: 914637-49-3



MOLECULAR FORMULA:	$C_8H_5F_{11}O_2$	**MOLECULAR WEIGHT:**	342.11
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	10/02/2019		
EXPIRY DATE: (mm/dd/yyyy)	10/02/2022		
RECOMMENDED STORAGE:	Refrigerate ampoule		

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 <1% of the unsaturated 5:3 telomer acid ($C_8H_3F_{11}O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/04/2019 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

BATTELLE
It can be done

BDO Id: 200909-01

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name: PFOA DOD
Vendor: ABSOLUTE STANDARDS
Catalogue No: 64029
Type: Solution
Lot No: 072820
Quantity: 5 ea ml **% Moisture:**
Description: PFOA DOD

Received: 9/9/2020
Custodian: Bailey, Kevin
Expires: 7/28/2025
Consumed:
Stored In: LC Laboratory - F0111

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
11-chloroeicosafluoro-3-oxaundecan	763051-92-9	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorodecane sulfon	39108-34-4	1.0100	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorohexane sulfon	757124-72-4	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorooctane sulfon	27619-97-2	1.0000	100.00	--	--	☐			
9-chlorohexadecafluoro-3-oxanonane	756426-58-1	1.0000	100.00	--	--	☐			
Adona	919005-14-4	1.0000	100.00	--	--	☐			
Hexafluoropropylene oxide dimer aci	13252-13-6	1.0000	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-butanesulfonate	375-73-5	1.0000	100.00	--	--	☐			
Perfluoro-1-decanesulfonate	335-77-3	1.0100	100.00	--	--	☐			
Perfluoro-1-heptanesulfonate	375-92-8	1.0000	100.00	--	--	☐			
Perfluoro-1-hexanesulfonate	355-46-4	1.0100	100.00	--	--	☐			
Perfluoro-1-nonanesulfonate	68259-12-1	1.0100	100.00	--	--	☐			
Perfluoro-1-octanesulfonamide	754-91-6	1.0000	100.00	--	--	☐			
Perfluoro-1-octanesulfonate	1763-23-1	1.0100	100.00	--	--	☐			
perfluoro-1-pentanesulfonate	2706-91-4	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	1.0100	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	--	--	☐			

Total Analytes: 28

Notes:

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

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

200909-01

CERTIFIED WEIGHT REPORT

Part Number: 64029
Lot Number: 072820
Description: PFOA - DOD
26 components
Expiration Date: 072825
Recommended Storage: Freezer (0 °C)
Nominal Concentration (µg/mL): 1.0
NIST Test ID#: 23060

Solvent(s):	Lot#	
Methanol (1 mM KOH)	042920	(98%)
2-Propanol	23214	(2%)

5E-05 Balance Uncertainty
Volume(s) shown below were combined and diluted to (mL): 50.0 0.007 Flask Uncertainty

		072820
Formulated By:	Benson Chan	DATE
		072820
Reviewed By:	Pedro L. Rentas	DATE

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 (linear)	99542	110419	0.02	1.00	0.004	50.2	1.00	0.01	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid	99543	110419	0.02	1.00	0.004	50.7	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid	99199	010820	0.02	1.00	0.004	50.3	1.01	0.01	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid	99197	071219	0.02	1.00	0.004	50.1	1.00	0.01	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (branched)*	99202	021820	0.02	1.00	0.004	50.3	1.01	0.01	335-67-1	N/A	ipr-rat 189mg/kg
6. Perfluorononanoic acid	99200	110419	0.02	1.00	0.004	50.1	1.00	0.01	375-95-1	N/A	N/A
7. Perfluorodecanoic acid	99195	110419	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	110419	0.02	1.00	0.004	50.1	1.00	0.01	2058-94-8	N/A	N/A
9. Tricosafluorododecanoic acid	99196	010820	0.02	1.00	0.004	50.1	1.00	0.01	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid	99204	110419	0.02	1.00	0.004	50.1	1.00	0.01	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid	99203	120319	0.02	1.00	0.004	50.1	1.00	0.01	376-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide	3677	FOSA0420I	0.02	1.00	0.004	50.0	1.00	0.05	754-91-6	N/A	N/A
13. N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
14. N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
15. Perfluorobutanesulfonic acid	99194	021820	0.02	1.00	0.004	50.2	1.00	0.01	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid	99544	011420	0.02	0.98	0.004	51.3	1.00	0.02	630402-22-1	N/A	N/A
17. Perfluorohexanesulfonic acid (branched)*	99198	091219	0.02	1.00	0.004	50.6	1.01	0.01	355-46-4	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid	3672	LPFHpS0120	0.021	1.05	0.004	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (branched)*	99201	021820	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	LPFNS1119	0.021	1.05	0.004	48.0	1.01	0.05	98789-57-2	N/A	N/A
21. Perfluoro-1-decanesulfonic acid	3671	LPFDS0419	0.021	1.05	0.004	48.2	1.01	0.05	2806-15-7	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid	3955	42FTS1019	0.0214	1.07	0.004	46.7	1.00	0.05	27619-93-8	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid	3661	62FTS0919	0.021	1.05	0.004	47.4	1.00	0.05	27619-94-9	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid	3662	82FTS0520	0.021	1.05	0.004	47.9	1.01	0.05	27619-96-1	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropionic acid	99668	071219	0.020	1.00	0.004	50.1	1.00	0.01	13252-13-6	N/A	N/A
26. 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	4165	11ClPF3OUdS0320	0.021	1.06	0.004	47.1	1.00	0.05	83329-89-9	N/A	N/A
27. 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	4164	9ClPF3ONS0420	0.021	1.07	0.004	46.6	1.00	0.05	73606-19-6	N/A	N/A
28. Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA1119	0.021	1.06	0.004	47.1	1.00	0.05	958445-44-8	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	021820	0.02	1.00	0.004	44.2	0.88	0.012	335-67-1	N/A	ipr-rat 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	021820	0.02	1.00	0.004	6.0	0.12	0.002	335-67-1	N/A	ipr-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	091219	0.02	1.00	0.004	50.0	1.00	0.01	355-46-4	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	091219	0.02	1.00	0.004	0.6	0.01	0.0002	355-46-4	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	021820	0.02	1.00	0.004	38.2	0.76	0.01	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	021820	0.02	1.00	0.004	7.5	0.15	0.002	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	021820	0.02	1.00	0.004	4.0	0.08	0.001	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	021820	0.02	1.00	0.004	0.5	0.010	0.0001	1763-23-1	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	34.2	0.68	0.03	2355-31-9	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	10.5	0.21	0.011	00-00-0	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	5.1	0.10	0.005	00-00-0	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	0.3	0.005	0.00026	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	36.2	0.72	0.04	2991-50-6	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	8.7	0.17	0.009	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	4.5	0.09	0.005	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	0.6	0.012	0.0006	00-00-0	N/A	N/A

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.1

- 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 References: 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).

BATTELLE
It can be done

BDO Id: 200914-01

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name: PFOA DOD
Vendor: ABSOLUTE STANDARDS
Catalogue No: 64029
Type: Solution
Lot No: 082620
Quantity: 5 ea Ml **% Moisture:**
Description: PFOA DOD

Received: 9/14/2020
Custodian: Schumitz, Matt
Expires: 8/26/2025
Consumed:
Stored In: LC Laboratory - F0111

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
11-chloroeicosafluoro-3-oxaundecan	763051-92-9	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorodecane sulfon	39108-34-4	1.0100	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorohexane sulfon	757124-72-4	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorooctane sulfon	27619-97-2	1.0000	100.00	--	--	☐			
9-chlorohexadecafluoro-3-oxanonane	756426-58-1	1.0000	100.00	--	--	☐			
Adona	919005-14-4	1.0000	100.00	--	--	☐			
Hexafluoropropylene oxide dimer aci	13252-13-6	1.0000	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-butanesulfonate	375-73-5	1.0000	100.00	--	--	☐			
Perfluoro-1-decanesulfonate	335-77-3	1.0100	100.00	--	--	☐			
Perfluoro-1-heptanesulfonate	375-92-8	1.0000	100.00	--	--	☐			
Perfluoro-1-hexanesulfonate	355-46-4	1.0100	100.00	--	--	☐			
Perfluoro-1-nonanesulfonate	68259-12-1	1.0100	100.00	--	--	☐			
Perfluoro-1-octanesulfonamide	754-91-6	1.0000	100.00	--	--	☐			
Perfluoro-1-octanesulfonate	1763-23-1	1.0100	100.00	--	--	☐			
perfluoro-1-pentanesulfonate	2706-91-4	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	1.0100	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	--	--	☐			

Total Analytes: 28

Notes:

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

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

200 914-01

CERTIFIED WEIGHT REPORT

Part Number:	64029
Lot Number:	082620
Description:	PFOA - DOD
	28 components
Expiration Date:	082625
Recommended Storage:	Freezer (0 °C)
Nominal Concentration (µg/mL):	1.0
NIST Test ID#:	23060

Solvent(s):	Lot#	
Methanol (1 mM KOH)	042920	(98%)
2-Propanol	23214	(2%)
5E-05	Balance Uncertainty	
0.007	Flask Uncertainty	

Volume(s) shown below were combined and diluted to (mL): 50.0

Formulated By: Benson Chan	082620 DATE
Reviewed By: Pedro L. Rentas	082620 DATE

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 (linear)	99542	110419	0.02	1.00	0.004	50.2	1.00	0.01	375-22-4	N/A	N/A
2.	Perfluoro-n-pentanoic acid	99543	110419	0.02	1.00	0.004	50.7	1.01	0.02	2706-90-3	N/A	N/A
3.	Perfluorohexanoic acid	99199	010820	0.02	1.00	0.004	50.3	1.01	0.01	307-24-4	N/A	N/A
4.	Perfluoroheptanoic acid	99197	081920	0.02	1.00	0.004	50.1	1.00	0.01	375-85-9	N/A	N/A
5.	Perfluorooctanoic acid (branched)*	99202	021820	0.02	1.00	0.004	50.3	1.01	0.01	335-67-1	N/A	ipr-rat 189mg/kg
6.	Perfluorononanoic acid	99200	110419	0.02	1.00	0.004	50.1	1.00	0.01	375-95-1	N/A	N/A
7.	Perfluorodecanoic acid	99195	110419	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	110419	0.02	1.00	0.004	50.1	1.00	0.01	2058-94-8	N/A	N/A
9.	Tricosafluorododecanoic acid	99196	010820	0.02	1.00	0.004	50.1	1.00	0.01	307-55-1	N/A	N/A
10.	Perfluorotridecanoic acid	99204	110419	0.02	1.00	0.004	50.1	1.00	0.01	72629-94-8	N/A	N/A
11.	Perfluorotetradecanoic acid	99203	120319	0.02	1.00	0.004	50.1	1.00	0.01	376-06-7	N/A	N/A
12.	Perfluoro-1-octanesulfonamide	3677	FOSA0420I	0.02	1.00	0.004	50.0	1.00	0.05	754-91-6	N/A	N/A
13.	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA1119	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
14.	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
15.	Perfluorobutanesulfonic acid	99194	021820	0.02	1.00	0.004	50.2	1.00	0.01	375-73-5	N/A	N/A
16.	Perfluoro-1-pentanesulfonic acid	99544	011420	0.02	0.96	0.004	51.3	1.00	0.02	630402-22-1	N/A	N/A
17.	Perfluorohexanesulfonic acid (branched)*	99198	081920	0.02	1.00	0.004	50.2	1.00	0.01	355-46-4	N/A	N/A
18.	Perfluoro-1-heptanesulfonic acid	3672	LPFHpS0120	0.021	1.05	0.004	47.6	1.00	0.05	375-92-8	N/A	N/A
19.	Heptadecafluorooctanesulfonic acid (branched)*	99201	021820	0.02	1.00	0.004	50.2	1.00	0.01	1783-23-1	N/A	N/A
20.	Perfluoro-1-nonanesulfonic acid	3957	LPFNS1119	0.021	1.05	0.004	48.0	1.01	0.05	98789-57-2	N/A	N/A
21.	Perfluoro-1-decanesulfonic acid	3671	LPFDS1119	0.021	1.05	0.004	48.2	1.01	0.05	2806-15-7	N/A	N/A
22.	1H,1H,2H,2H-Perfluorohexane sulfonic acid	3955	42FTS0720	0.0214	1.07	0.004	46.7	1.00	0.05	27619-93-8	N/A	N/A
23.	1H,1H,2H,2H-Perfluorooctane sulfonic acid	3661	62FTS0420	0.021	1.05	0.004	47.4	1.00	0.05	27619-94-9	N/A	N/A
24.	1H,1H,2H,2H-Perfluorodecane sulfonic acid	3662	82FTS0520	0.021	1.05	0.004	47.9	1.01	0.05	27619-96-1	N/A	N/A
25.	2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropionic acid	99666	051820	0.020	1.00	0.004	50.1	1.00	0.01	13252-13-6	N/A	N/A
26.	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	4165	11ClPF3OUdS0320	0.021	1.06	0.004	47.1	1.00	0.05	83329-89-9	N/A	N/A
27.	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	4164	9ClPF3ONS0420	0.021	1.07	0.004	46.6	1.00	0.05	73606-19-6	N/A	N/A
28.	Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA1119	0.021	1.06	0.004	47.1	1.00	0.05	958445-44-8	N/A	N/A
	Perfluorooctanoic acid (linear)*	99202	021820	0.02	1.00	0.004	44.2	0.88	0.012	335-67-1	N/A	ipr-rat 189mg/kg
	Perfluorooctanoic acid (branched isomer)*	99202	021820	0.02	1.00	0.004	6.0	0.12	0.002	335-67-1	N/A	ipr-rat 189mg/kg
	Perfluorohexanesulfonic acid (linear)*	99198	081920	0.02	1.00	0.004	49.6	0.99	0.01	355-46-4	N/A	N/A
	Perfluorohexanesulfonic acid (branched isomer)*	99198	081920	0.02	1.00	0.004	0.6	0.01	0.0002	355-46-4	N/A	N/A
	Heptadecafluorooctanesulfonic acid (linear)*	99201	021820	0.02	1.00	0.004	38.2	0.76	0.01	1783-23-1	N/A	N/A
	Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	021820	0.02	1.00	0.004	7.5	0.15	0.002	1783-23-1	N/A	N/A
	Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	021820	0.02	1.00	0.004	4.0	0.08	0.001	1783-23-1	N/A	N/A
	Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	021820	0.02	1.00	0.004	0.5	0.010	0.0001	1783-23-1	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	34.2	0.68	0.03	2355-31-9	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	10.5	0.21	0.011	00-00-0	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	5.1	0.10	0.005	00-00-0	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	0.3	0.005	0.00026	00-00-0	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	36.2	0.72	0.04	2991-50-6	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	6.7	0.17	0.009	00-00-0	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	4.5	0.09	0.005	00-00-0	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	0.6	0.012	0.0006	00-00-0	N/A	N/A

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs. Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.1

- 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).

BATTELLE
It can be done

BDO Id: 201006-07

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name: PFOA DOD
Vendor: ABSOLUTE STANDARDS
Catalogue No: 64029
Type: Solution
Lot No: 072820
Quantity: 5 ea ml **% Moisture:**
Description: PFOA DOD

Received: 10/6/2020
Custodian: Bailey, Kevin
Expires: 7/28/2025
Consumed:
Stored In: LC Laboratory - F0111

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
11-chloroeicosafluoro-3-oxaundecan	763051-92-9	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorodecane sulfon	39108-34-4	1.0100	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorohexane sulfon	757124-72-4	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorooctane sulfon	27619-97-2	1.0000	100.00	--	--	☐			
9-chlorohexadecafluoro-3-oxanonane	756426-58-1	1.0000	100.00	--	--	☐			
Adona	919005-14-4	1.0000	100.00	--	--	☐			
Hexafluoropropylene oxide dimer aci	13252-13-6	1.0000	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-butanesulfonate	375-73-5	1.0000	100.00	--	--	☐			
Perfluoro-1-decanesulfonate	335-77-3	1.0100	100.00	--	--	☐			
Perfluoro-1-heptanesulfonate	375-92-8	1.0000	100.00	--	--	☐			
Perfluoro-1-hexanesulfonate	355-46-4	1.0100	100.00	--	--	☐			
Perfluoro-1-nonanesulfonate	68259-12-1	1.0100	100.00	--	--	☐			
Perfluoro-1-octanesulfonamide	754-91-6	1.0000	100.00	--	--	☐			
Perfluoro-1-octanesulfonate	1763-23-1	1.0100	100.00	--	--	☐			
perfluoro-1-pentanesulfonate	2706-91-4	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	1.0100	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	--	--	☐			

Total Analytes: 28

Notes:

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

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

201006-07

CERTIFIED WEIGHT REPORT

Part Number:	64029				
Lot Number:	072820				
Description:	PFOA - DOD				
	28 components	**Solvent(s):**	**Lot#**		
Expiration Date:	072825	Methanol (1 mM KOH)	042920	(98%)	
Recommended Storage:	Freezer (0 °C)	2-Propanol	23214	(2%)	
Nominal Concentration (µg/mL):	1.0				
NIST Test ID#:	23060	5E-05	Balance Uncertainty		
Volume(s) shown below were combined and diluted to (mL):		50.0	0.007	Flask Uncertainty	

Formulated By:	Benson Chan	072820 DATE
Reviewed By:	Pedro L. Rentas	072820 DATE

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 (linear)	99542	110419	0.02	1.00	0.004	50.2	1.00	0.01	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid	99543	110419	0.02	1.00	0.004	50.7	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid	99199	010820	0.02	1.00	0.004	50.3	1.01	0.01	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid	99197	071219	0.02	1.00	0.004	50.1	1.00	0.01	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (branched)*	99202	021820	0.02	1.00	0.004	50.3	1.01	0.01	335-67-1	N/A	ipr-rat 189mg/kg
6. Perfluorononanoic acid	99200	110419	0.02	1.00	0.004	50.1	1.00	0.01	375-95-1	N/A	N/A
7. Perfluorodecanoic acid	99195	110419	0.02	1.00	0.004	50.1	1.00	0.01	335-76-2	N/A	ort-rat 57mg/kg
8. Perfluoroundecanoic acid	99205	110419	0.02	1.00	0.004	50.1	1.00	0.01	2058-94-8	N/A	N/A
9. Tricosafluorododecanoic acid	99196	010820	0.02	1.00	0.004	50.1	1.00	0.01	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid	99204	110419	0.02	1.00	0.004	50.1	1.00	0.01	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid	99203	120319	0.02	1.00	0.004	50.1	1.00	0.01	376-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide	3677	FOSA0420I	0.02	1.00	0.004	50.0	1.00	0.05	754-91-6	N/A	N/A
13. N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
14. N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
15. Perfluorobutanesulfonic acid	99194	021820	0.02	1.00	0.004	50.2	1.00	0.01	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid	99544	011420	0.02	0.98	0.004	51.3	1.00	0.02	630402-22-1	N/A	N/A
17. Perfluorohexanesulfonic acid (branched)*	99198	091219	0.02	1.00	0.004	50.6	1.01	0.01	355-46-4	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid	3672	LPFHpS0120	0.021	1.05	0.004	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (branched)*	99201	021820	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	LPFNS1119	0.021	1.05	0.004	48.0	1.01	0.05	98789-57-2	N/A	N/A
21. Perfluoro-1-decanesulfonic acid	3671	LPFDS0419	0.021	1.05	0.004	48.2	1.01	0.05	2806-15-7	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid	3955	42FTS1019	0.0214	1.07	0.004	46.7	1.00	0.05	27619-93-8	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid	3661	62FTS0919	0.021	1.05	0.004	47.4	1.00	0.05	27619-94-9	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid	3662	82FTS0520	0.021	1.05	0.004	47.9	1.01	0.05	27619-96-1	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropionic acid	99666	071219	0.020	1.00	0.004	50.1	1.00	0.01	13252-13-6	N/A	N/A
26. 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	4165	11ClPF3OUdS0320	0.021	1.06	0.004	47.1	1.00	0.05	83329-89-9	N/A	N/A
27. 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	4164	9ClPF3ONS0420	0.021	1.07	0.004	46.6	1.00	0.05	73606-19-6	N/A	N/A
28. Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA1119	0.021	1.06	0.004	47.1	1.00	0.05	958445-44-8	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	021820	0.02	1.00	0.004	44.2	0.88	0.012	335-67-1	N/A	ipr-rat 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	021820	0.02	1.00	0.004	6.0	0.12	0.002	335-67-1	N/A	ipr-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	091219	0.02	1.00	0.004	50.0	1.00	0.01	355-46-4	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	091219	0.02	1.00	0.004	0.6	0.01	0.0002	355-46-4	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	021820	0.02	1.00	0.004	38.2	0.76	0.01	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	021820	0.02	1.00	0.004	7.5	0.15	0.002	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	021820	0.02	1.00	0.004	4.0	0.08	0.001	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	021820	0.02	1.00	0.004	0.5	0.010	0.0001	1763-23-1	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	34.2	0.68	0.03	2355-31-9	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	10.5	0.21	0.011	00-00-0	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	5.1	0.10	0.005	00-00-0	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	0.3	0.005	0.00026	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	36.2	0.72	0.04	2991-50-6	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	8.7	0.17	0.009	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	4.5	0.09	0.005	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	0.6	0.012	0.0008	00-00-0	N/A	N/A

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.1

- 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).

ACCREDITATIONS

Accrediting Authority	Laboratory ID
U.S. Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP)	91667
State of Florida Department of Health	E87856
State of New York Department of Health	12105
State of Washington Department of Ecology	C1050
State of California	3045
Commonwealth of Massachusetts	E87856
State of Maine	MA00056
State of Vermont	VT 87856
State of New Hampshire	2137
Commonwealth of Pennsylvania Department of Environmental Protection	68-05687
State of Alaska Department of Environmental Conservation	19-005
State of Rhode Island	E87856

Current certificates and lists of accredited parameters are available upon request.

Sample Preparation

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It can be done

BATTELLE - NORWELL OPERATIONS
SAMPLE PREPARATION RECORDS

Project Title(s)	**Project No.(s)**
CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10	100142218

20-1441

CTO-4532: PFAS in Water

GW

SOP Numbers (see workplan for modifications)

ExtractionSOP No. 5-370

This Batch Contains The Following Samples:
DB297PB-FS
DB298LCS-FS
G1696-FS1
G1697-FS1

Laboratory Preparation Records

COMPLETE AND VALIDATED

Prep Task Leader: Kelsey Harnden

Approved By:	Date	Initials
Denise Schumitz	11/12/2020	DMS

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SAMPLE IDENTIFICATION PAGE

Project Title(s)
CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10

Project No.(s)
100142218

20-1441

CTO-4532: PFAS in Water

GW

Sample ID	Description
DB297PB-FS	Procedural Blank
DB298LCS-FS	Laboratory Control Sample
G1696-FS1	CBD-HVG-GW10-1020
G1697-FS1	CBD-HVG-GW09-1020

Samples Assigned By: Kelsey Harnden Date : November 6, 2020

Comments: re-extract from SDG 20-1305

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SAMPLE CUSTODY LOG

Project Title(s)
CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10

Project No.(s)
100142218

20-1441

CTO-4532: PFAS in Water

GW

Requested On/By:	11/09/2020 KH	**Purpose:**	Sample Preparation
Relinquished On/By:	11/09/2020 MDS	**Last Activity:**	Transfer

Accepted On/By:	11/09/2020 AW	**Returned On/To:**	
Stored In Facility:	Sample Preparation	**Returned To Facility:**	
Stored Until			
Stored Comment:	NA	**Returned Comment:**	NA

No.	BDO-ID:	Ctrs	*	Condition:	Custody Comment:
1	G1696	2	C	Consumed	NA
2	G1697	2	C	Consumed	NA
Total Samples		2	* "C" = Consumed Container		

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BATTELLE - NORWELL OPERATIONS
LIQUID SAMPLE ID FORM

Project Title(s)
CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10

Project No.(s)
100142218

20-1441

CTO-4532: PFAS in Water

GW

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
DB297PB-FS	Procedural Blank	250.0	NA	--	11/09/20 AW
DB298LCS-FS	Laboratory Control Sample	250.0	NA	--	11/09/20 AW
G1696-FS1	CBD-HVG-GW10-1020	260.0	2	C	11/11/20 KB
G1697-FS1	CBD-HVG-GW09-1020	255.0	2	C	11/11/20 KB

Comments:

Samples Assigned By: Kelsey Harnden Date : November 6, 2020

* - "C" = Sample is Consumed

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SURROGATE SPIKE FORM

Project Title(s)
CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10

Project No.(s)
100142218

20-1441

CTO-4532: PFAS in Water

GW

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
DB297PB-FS	LE39	SIS	1	125	11/09/20 AW	KH	NA
DB298LCS-FS	LE23	LCS/MS	1	100	11/09/20 AW	KH	NA
DB298LCS-FS	LE39	SIS	1	125	11/09/20 AW	KH	NA
G1696-FS1	LE39	SIS	1	125	11/09/20 AW	KH	NA
G1697-FS1	LE39	SIS	1	125	11/09/20 AW	KH	NA

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
LE23	Pipette	B814657482
LE39	Pipette	B814657482

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SAMPLE EXTRACTION FORM

Project Title(s)
CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10

Project No.(s)
100142218

20-1441

CTO-4532: PFAS in Water

GW

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
DB297PB-FS	11/09/20 AW	NA	NA	NEVAP_3	NA	NA	NA	NA
DB298LCS-FS	11/09/20 AW	NA	NA	NEVAP_3	NA	NA	NA	NA
G1696-FS1	11/09/20 AW	NA	NA	NEVAP_3	NA	NA	NA	NA
G1697-FS1	11/09/20 AW	NA	NA	NEVAP_3	NA	NA	NA	NA

Solvents/Reagent Preparations:

Name	ID	Expires	Lot No	Procedure	Comments
pH Indicator Strips 0-14	200923-01	09/23/25	10D0401	NA	
0.5% NH3 in Methanol (w/v)	RP-201109-4	11/09/20	A0409799	Per 100 mL, 4.25 mL ammonia solution brought to 100 mL with methanol	
0.5% NH3 in Methanol (w/v)	RP-201109-4	11/09/20	202167	Per 100 mL, 4.25 mL ammonia solution brought to 100 mL with methanol	
Pre-packed SPE Column	RP-201109-7	11/09/20	S308-0116/S20-004413	Pre-packed SPE Column	

Solvents/Reagents:

Name	Lot No	Comments
Methanol HPLC (201009-01)	202167	

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BATTELLE - NORWELL OPERATIONS
EXTRACT CLEANUP FORM

Project Title(s)
CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10

Project No.(s)
100142218

20-1441

CTO-4532: PFAS in Water

GW

Extract Id	Date	Init.	Comments
DB297PB-FS(0)	11/09/20	AW	NA
DB298LCS-FS(0)	11/09/20	AW	NA
G1696-FS1(0)	11/09/20	AW	NA
G1697-FS1(0)	11/09/20	AW	NA

Cleanup:
Envi-Carb

Reagents:

Reagent Prep	Name	Expires	Lot No	Procedure
191209-01	Supelclean ENVI-Carb SPE Bulk Packing	12/09/24	122395	NA

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BATTELLE - NORWELL OPERATIONS
EXTRACT CLEANUP FORM

Project Title(s)
CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10

Project No.(s)
100142218

20-1441

CTO-4532: PFAS in Water

GW

Extract Id	Date	Init.	Comments

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BATTELLE - NORWELL OPERATIONS
INTERNAL STANDARD SPIKING FORM

Project Title(s)
CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10

Project No.(s)
100142218

20-1441

CTO-4532: PFAS in Water

GW

(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
DB297PB-FS(0)	875	125	LE40	125	1	1000	1.000	11/10/20 KB	RPK
DB298LCS-FS(0)	875	125	LE40	125	1	1000	1.000	11/10/20 KB	RPK
G1696-FS1(0)	875	125	LE40	125	1	1000	1.000	11/10/20 KB	RPK
G1697-FS1(0)	875	125	LE40	125	1	1000	1.000	11/10/20 KB	RPK

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
LE40	Pipette	B814657482

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

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

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BATTELLE - NORWELL OPERATIONS
PREPARATION EXTRACT SPLIT FORM

Project Title(s)
CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10

Project No.(s)
100142218

20-1441

CTO-4532: PFAS in Water

GW

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
DB297PB-FS	0	--	11/9/2020 11:34:00 AM	NA		NA	NA	1.000	1.000	11/09/20 AW
DB298LCS-FS	0	--	11/9/2020 11:34:00 AM	NA		NA	NA	1.000	1.000	11/09/20 AW
G1696-FS1	0	--	11/9/2020 11:34:00 AM	NA		NA	NA	1.000	1.000	11/09/20 AW
G1697-FS1	0	--	11/9/2020 11:34:00 AM	NA		NA	NA	1.000	1.000	11/09/20 AW

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

BATTELLE
It can be done

BATTELLE - NORWELL OPERATIONS
EXTRACT - INSTRUMENT FACILITY CUSTODY PAGE

Project Title(s)

CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10

Project No.(s)

100142218

20-1441
CTO-4532: PFAS in Water
GW

Purpose:	LC-MS/MS TRANSFER	**Last Activity:**	Prep->Inst
Relinquished On/By:	Nov 10 2020 4:30PM RPK	**Received On/By:**	Nov 10 2020 4:30PM 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	DB297PB-FS(0)	1000	1	Intact	NA
2	DB298LCS-FS(0)	1000	1	Intact	NA
3	G1696-FS1(0)	1000	1	Intact	NA
4	G1697-FS1(0)	1000	1	Intact	NA

Total Extracts: 4

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BATTELLE - NORWELL OPERATIONS
SAMPLE SPECIFIC COMMENTS

Project Title(s)
CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10

Project No.(s)
100142218

20-1441

CTO-4532: PFAS in Water

GW

Sample ID:	Comment:	Date/Initials:
DB297PB-FS	Sample was fortified per project plan, poured in to a centrifuge bottle and centrifuged at 3500 rpm for 5 minutes. Sample bottle was rinsed with milli-q water to remove excess particulates. Sample was then poured back into original container and centrifuge bottle was kept.	11/09/20 AW
DB297PB-FS	Extraction started at 11:34 AM, manifold 6, ended at 12:48 AM	11/09/20 AW
DB298LCS-FS	Sample was fortified per project plan, poured in to a centrifuge bottle and centrifuged at 3500 rpm for 5 minutes. Sample bottle was rinsed with milli-q water to remove excess particulates. Sample was then poured back into original container and centrifuge bottle was kept.	11/09/20 AW
DB298LCS-FS	Extraction started at 11:34 AM, manifold 6, ended at 12:40 PM	11/09/20 AW
G1696-FS1	Extraction started at 11:34 AM, manifold 4, ended at 12:50 PM	11/09/20 AW
G1696-FS1	Sample contained particulates	11/09/20 AW
G1697-FS1	Sample was fortified per project plan, poured in to a centrifuge bottle and centrifuged at 3500 rpm for 5 minutes. Sample bottle was rinsed with milli-q water to remove excess particulates. Sample was then poured back into original container and centrifuge bottle was kept.	11/09/20 AW
G1697-FS1	Extraction started at 11:34 AM, manifold 4, ended at 1:20 PM	11/09/20 AW

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BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title(s)	**Project No.(s)**
CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10	100142218

20-1441

CTO-4532: PFAS in Water

GW

Entered By:	**On:**

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

Analytical Calibrations

BATTELLE

Sequence Report

Created with Analyst Reporter
Printed: 11/11/2020 4:15:28 PM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
2	LD74	L1	11/10/2020 8:07:44 PM	5-369.dam	AE_11112020_5-369.wiff
3	LD75	L2	11/10/2020 8:18:11 PM	5-369.dam	AE_11112020_5-369.wiff
4	LD76	L3	11/10/2020 8:28:38 PM	5-369.dam	AE_11112020_5-369.wiff
5	LD77	L4	11/10/2020 8:39:05 PM	5-369.dam	AE_11112020_5-369.wiff
6	LD78	L5	11/10/2020 8:49:32 PM	5-369.dam	AE_11112020_5-369.wiff
7	LD79	L6	11/10/2020 8:59:59 PM	5-369.dam	AE_11112020_5-369.wiff
8	LD80 IB	Instrument Blank	11/10/2020 9:10:26 PM	5-369.dam	AE_11112020_5-369.wiff
9	LD81 ICC	ICC	11/10/2020 9:20:54 PM	5-369.dam	AE_11112020_5-369.wiff
10	LE25 Branch	Branch Standard	11/10/2020 9:31:21 PM	5-369.dam	AE_11112020_5-369.wiff
11	MeOH		11/10/2020 9:41:49 PM	5-369.dam	AE_11112020_5-369.wiff
12	DB297PB-FS(0)	Procedural Blank	11/10/2020 9:52:18 PM	5-369.dam	AE_11112020_5-369.wiff
13	DB298LCS-FS(0)	Laboratory Control Sample	11/10/2020 10:02:45 PM	5-369.dam	AE_11112020_5-369.wiff
14	G1696-FS(0)	CBD-HVG-GW10-1020	11/10/2020 10:13:12 PM	5-369.dam	AE_11112020_5-369.wiff
15	G1697-FS(0)	CBD-HVG-GW09-1020	11/10/2020 10:23:40 PM	5-369.dam	AE_11112020_5-369.wiff
16	MeOH	CCV	11/10/2020 10:34:07 PM	5-369.dam	AE_11112020_5-369.wiff
17	LD76 CCV	CCV	11/10/2020 10:44:35 PM	5-369.dam	AE_11112020_5-369.wiff

BATTELLE

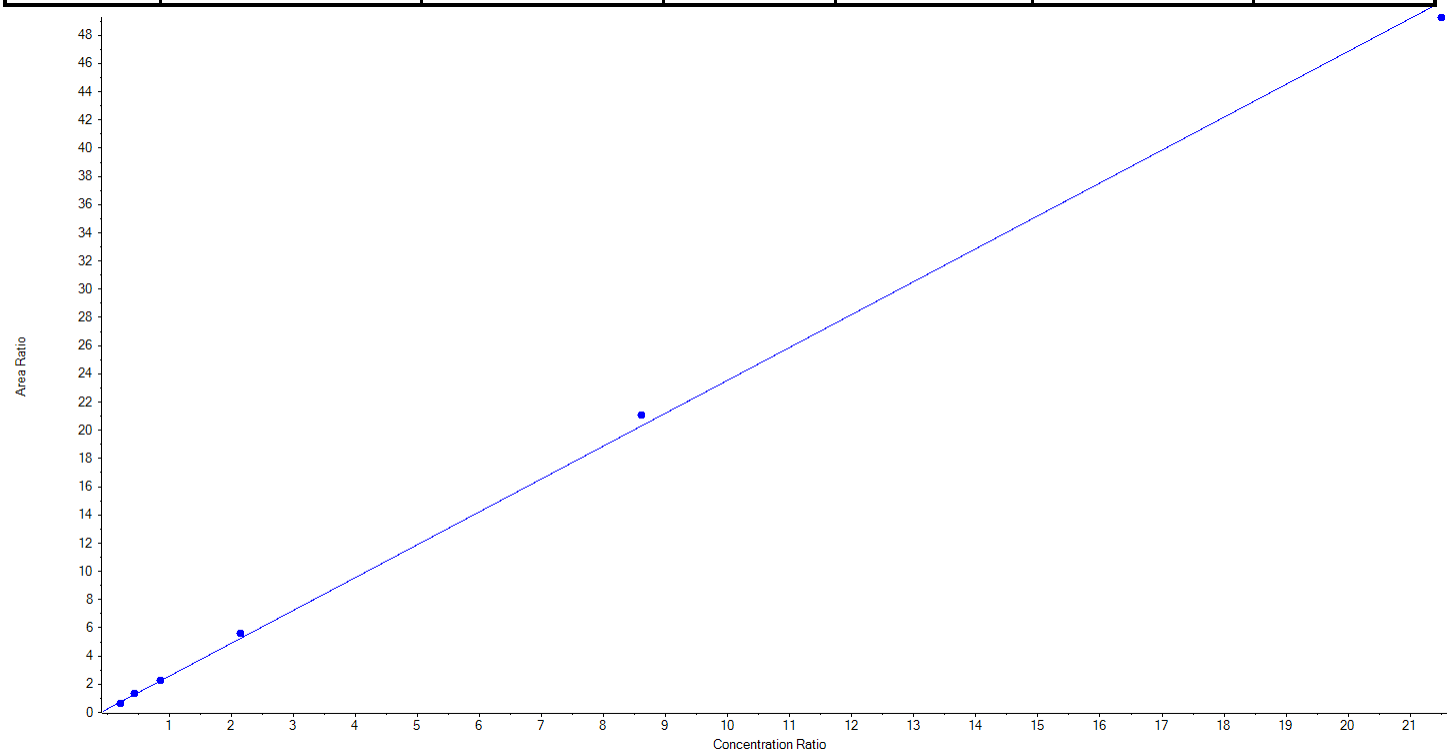
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFBS_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	298.9 / 80.0	**Result Table**	20-1441
Internal Standard	13C3-PFBS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 2.33010 x + 0.25059 (r = 0.99932) (weighting: 1 / x) r^2:0.9986

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	208.83	83.5
3	LD75	L2	True	500.00	534.34	106.9
4	LD76	L3	True	1000.00	1014.47	101.5
5	LD77	L4	True	2500.00	2664.11	106.6
6	LD78	L5	True	10000.00	10379.20	103.8
7	LD79	L6	True	25000.00	24449.05	97.8



BATTELLE

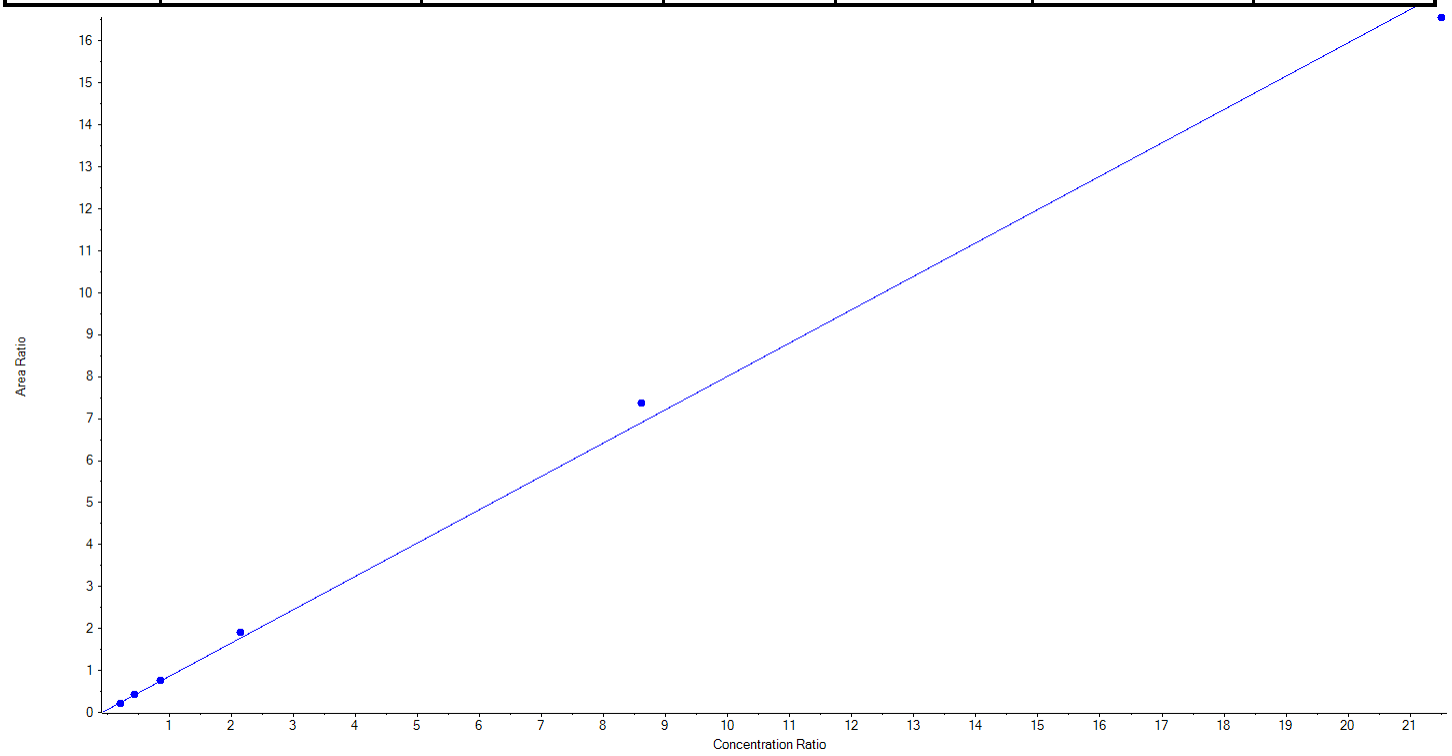
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFBS_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	298.9 / 99.0	**Result Table**	20-1441
Internal Standard	13C3-PFBS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.79446 x + 0.06816 (r = 0.99854) (weighting: 1 / x) r^2:0.9971

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	205.67	82.3
3	LD75	L2	True	500.00	524.87	105.0
4	LD76	L3	True	1000.00	1016.76	101.7
5	LD77	L4	True	2500.00	2694.74	107.8
6	LD78	L5	True	10000.00	10676.81	106.8
7	LD79	L6	True	25000.00	24131.15	96.5



BATTELLE

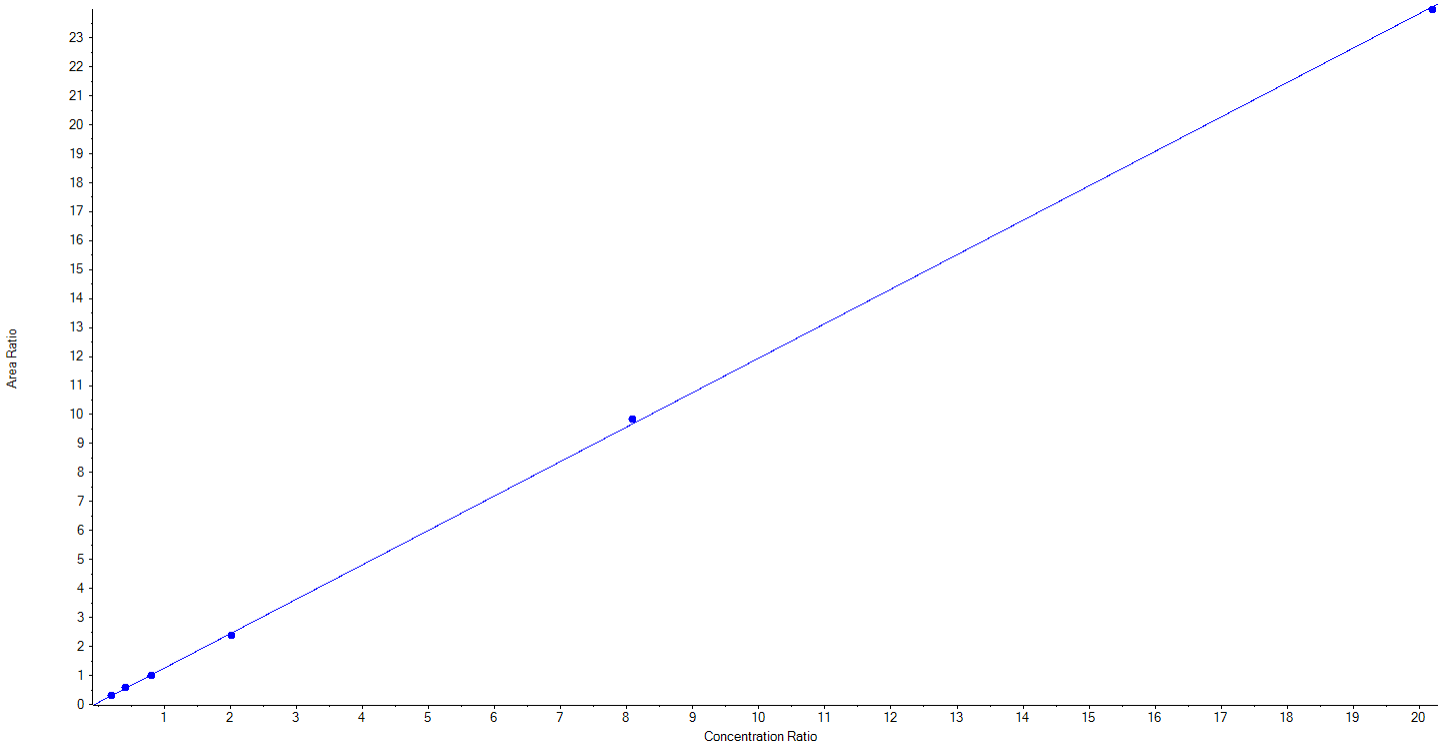
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFHxA_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	313.0 / 269.0	**Result Table**	20-1441
Internal Standard	13C5-PFHxA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.18808 x + 0.06907 (r = 0.99986) (weighting: 1 / x) r^2:0.9997

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	252.50	248.20	98.3
3	LD75	L2	True	505.00	538.06	106.6
4	LD76	L3	True	1010.00	981.51	97.2
5	LD77	L4	True	2525.00	2436.83	96.5
6	LD78	L5	True	10100.00	10288.74	101.9
7	LD79	L6	True	25250.00	25149.16	99.6



BATTELLE

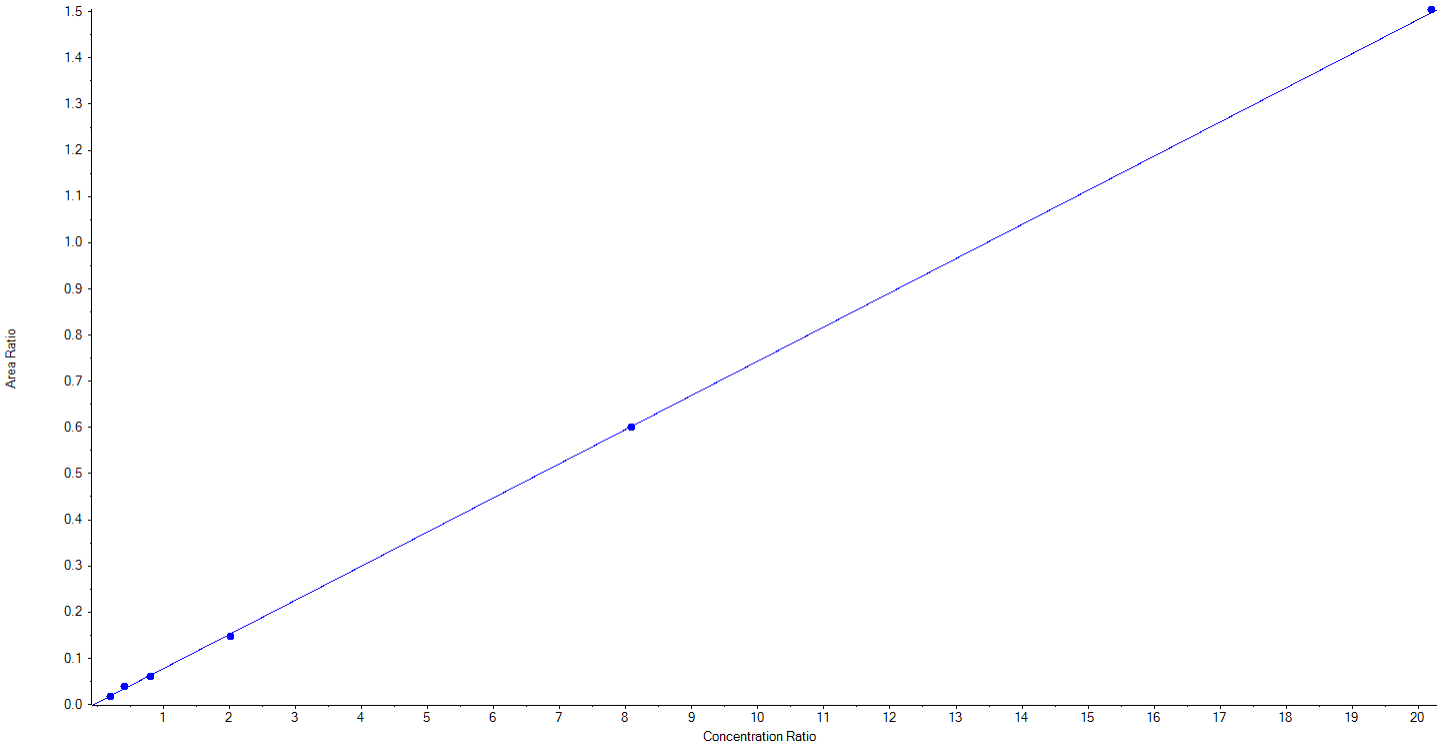
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFHxA_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	313.0 / 119.0	**Result Table**	20-1441
Internal Standard	13C5-PFHxA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.07396 x + 0.00393 (r = 0.99963) (weighting: 1 / x) r^2:0.9993

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	252.50	229.31	90.8
3	LD75	L2	True	505.00	594.83	117.8
4	LD76	L3	True	1010.00	967.28	95.8
5	LD77	L4	True	2525.00	2408.79	95.4
6	LD78	L5	True	10100.00	10076.64	99.8
7	LD79	L6	True	25250.00	25365.65	100.5



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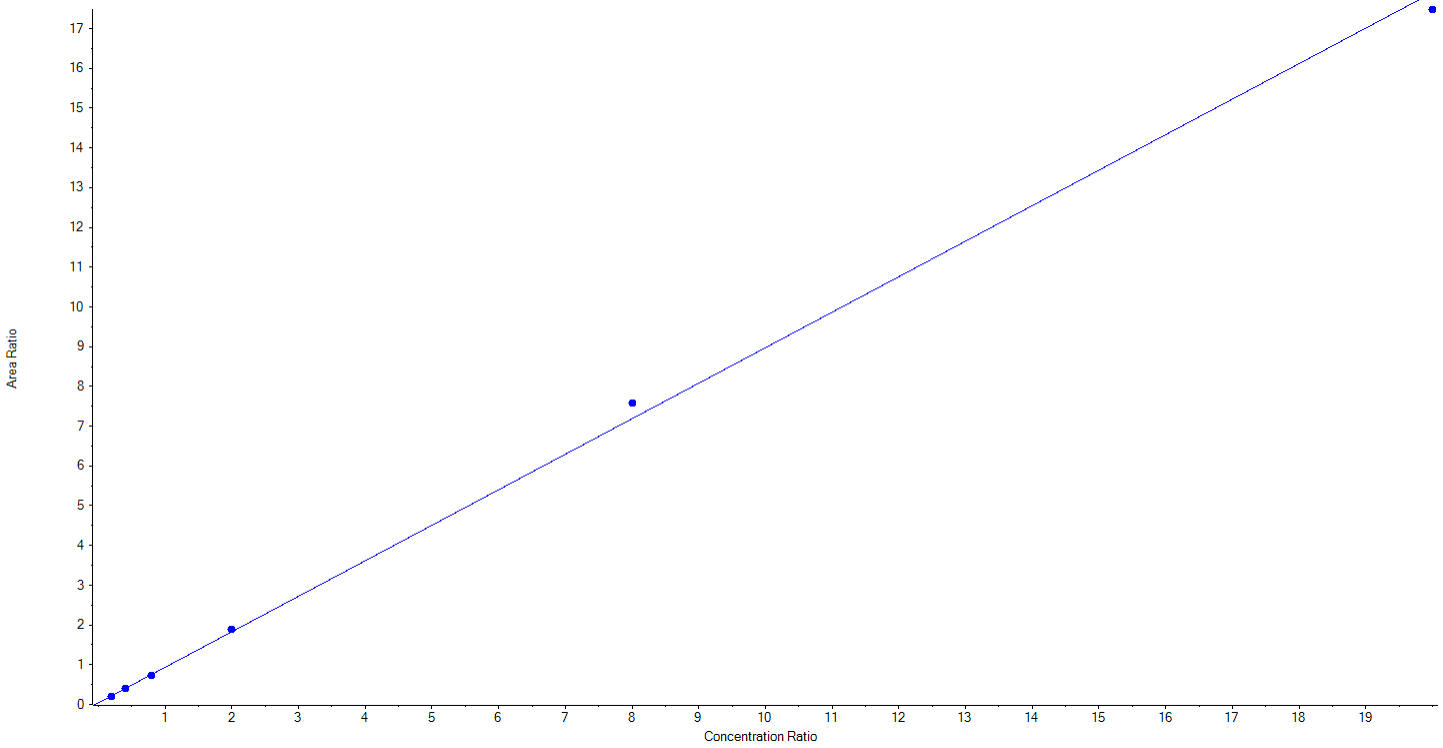
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFHpA_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	363.0 / 319.0	**Result Table**	20-1441
Internal Standard	13C4-PFHpA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.89315 x + 0.04294 (r = 0.99926) (weighting: 1 / x) r^2:0.9985

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	237.41	95.0
3	LD75	L2	True	500.00	515.86	103.2
4	LD76	L3	True	1000.00	955.07	95.5
5	LD77	L4	True	2500.00	2578.82	103.2
6	LD78	L5	True	10000.00	10559.06	105.6
7	LD79	L6	True	25000.00	24403.79	97.6



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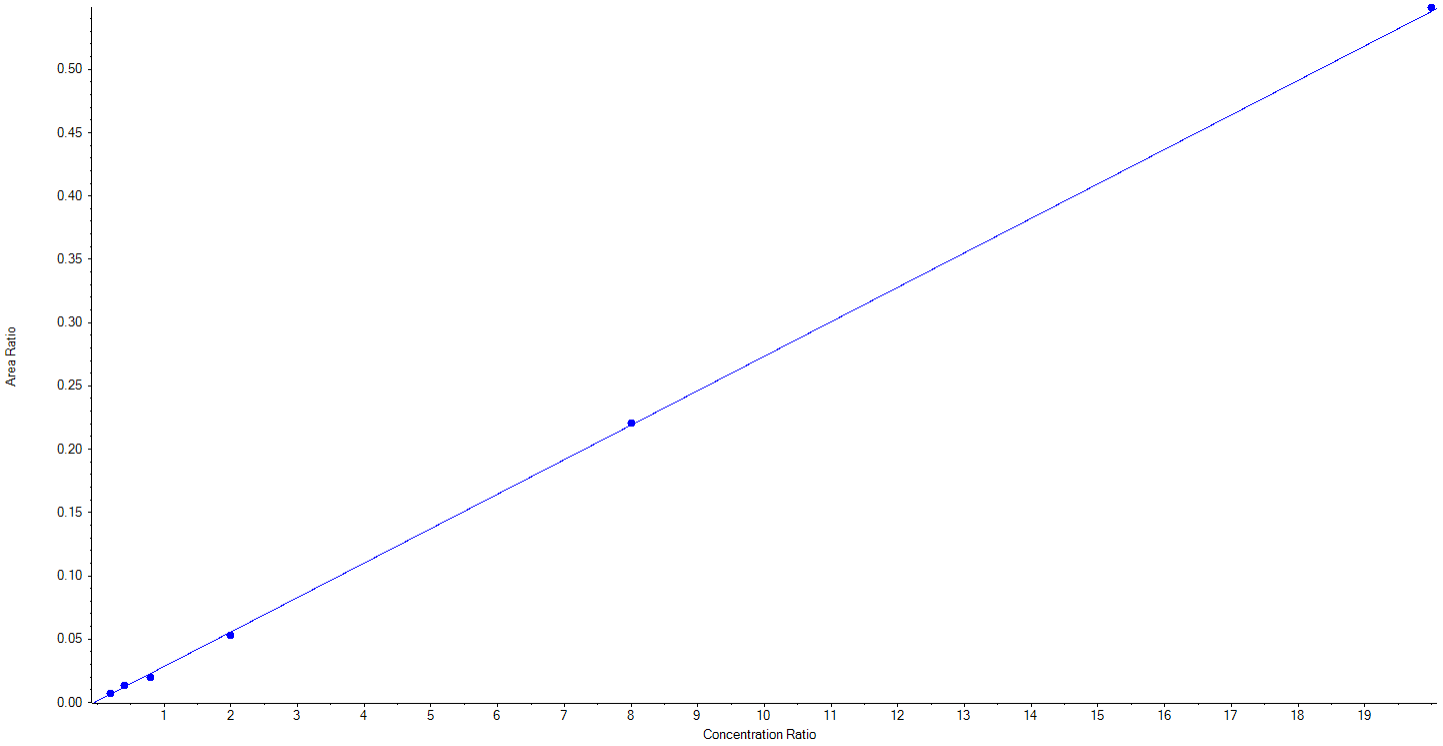
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFHpA_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	363.0 / 169.0	**Result Table**	20-1441
Internal Standard	13C4-PFHpA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.02722 x + 0.00123 (r = 0.99934) (weighting: 1 / x) r^2:0.9987

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	265.87	106.4
3	LD75	L2	True	500.00	570.18	114.0
4	LD76	L3	True	1000.00	838.61	83.9
5	LD77	L4	True	2500.00	2361.90	94.5
6	LD78	L5	True	10000.00	10070.84	100.7
7	LD79	L6	True	25000.00	25142.60	100.6



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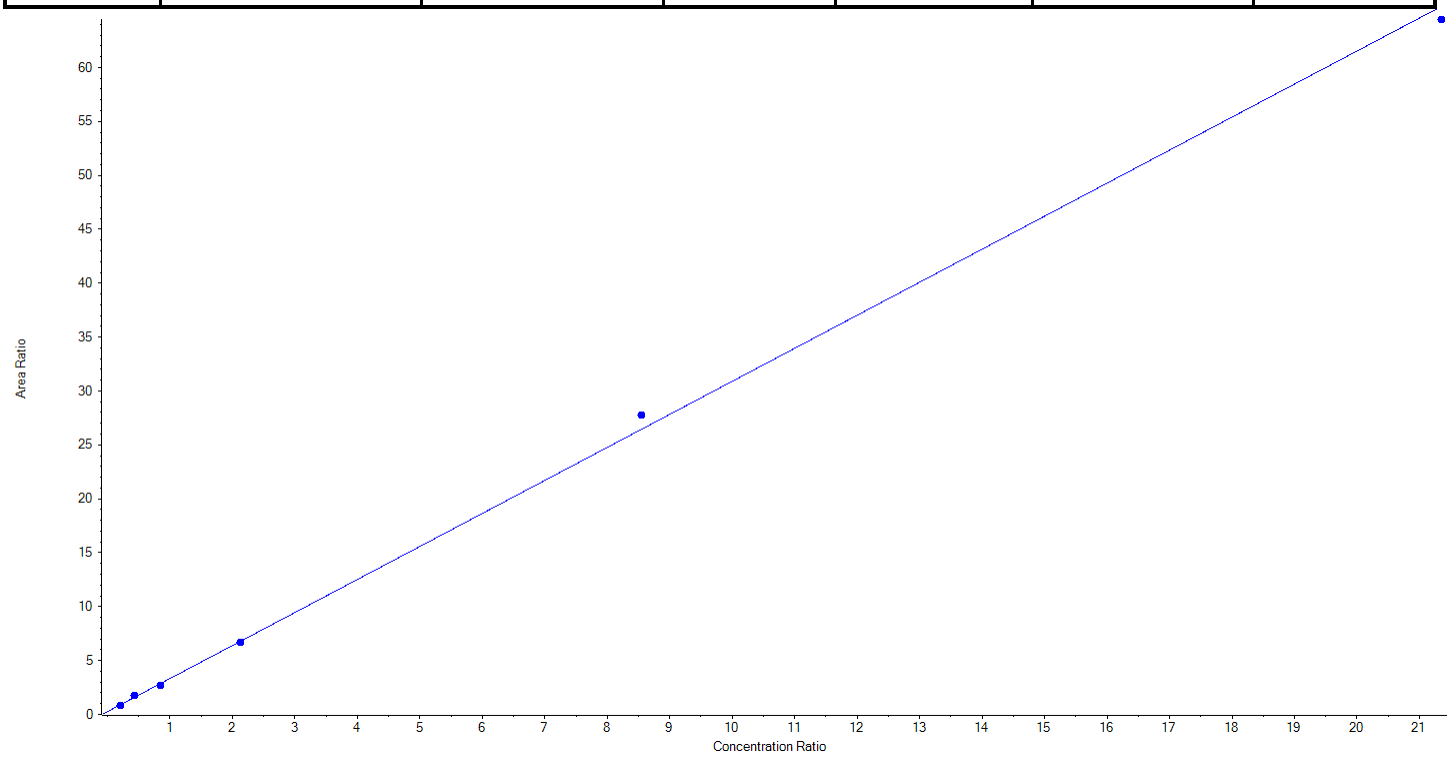
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFHxS_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	399.0 / 80.0	**Result Table**	20-1441
Internal Standard	13C3-PFHxS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 3.06289 x + 0.26782 (r = 0.99915) (weighting: 1 / x) r^2:0.9983

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	252.50	218.55	86.6
3	LD75	L2	True	505.00	593.65	117.6
4	LD76	L3	True	1010.00	950.95	94.2
5	LD77	L4	True	2525.00	2487.80	98.5
6	LD78	L5	True	10100.00	10612.96	105.1
7	LD79	L6	True	25250.00	24778.59	98.1



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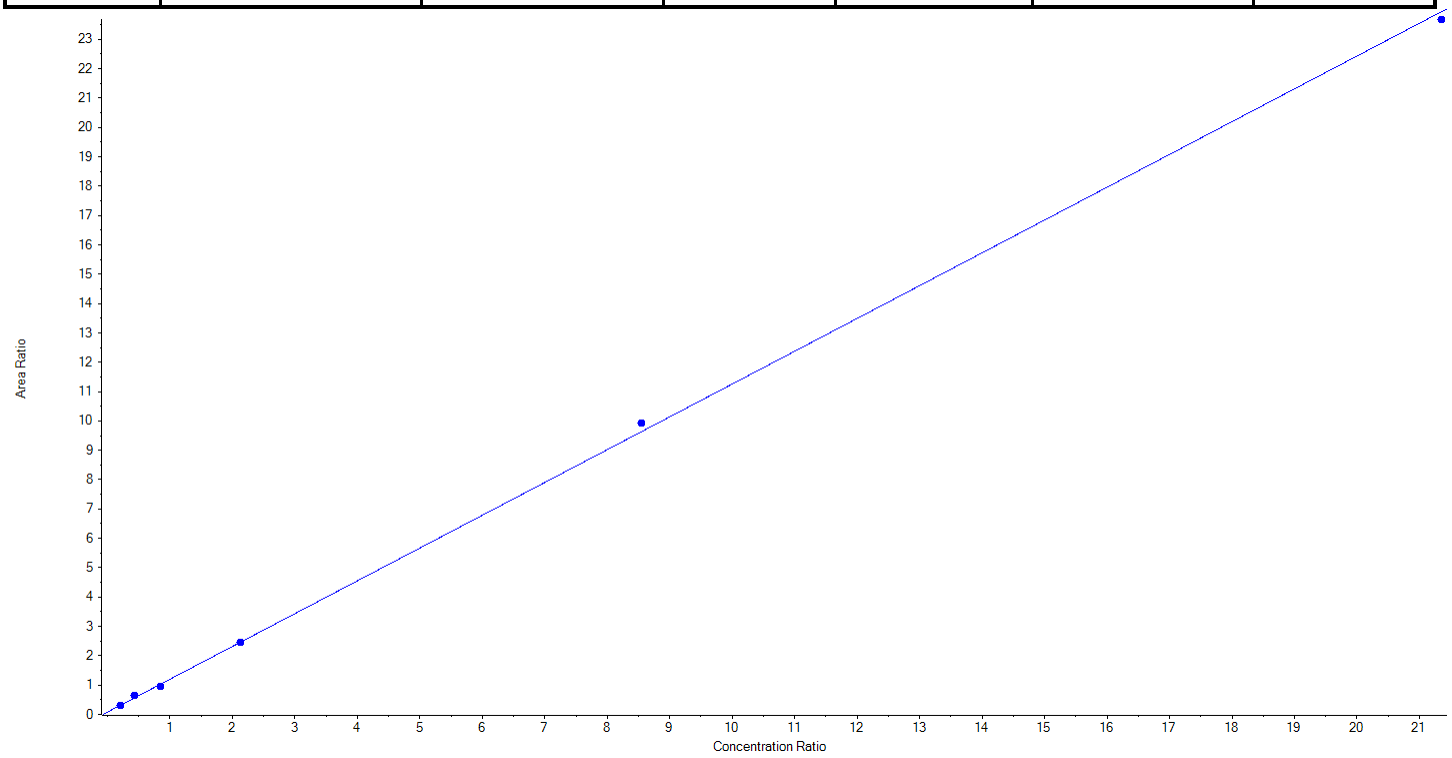
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFHxS_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	399.0 / 99.0	**Result Table**	20-1441
Internal Standard	13C3-PFHxS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.11747 x + 0.08302 (r = 0.99941) (weighting: 1 / x) r^2:0.9988

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	252.50	219.93	87.1
3	LD75	L2	True	505.00	601.05	119.0
4	LD76	L3	True	1010.00	933.84	92.5
5	LD77	L4	True	2525.00	2511.73	99.5
6	LD78	L5	True	10100.00	10410.03	103.1
7	LD79	L6	True	25250.00	24965.91	98.9



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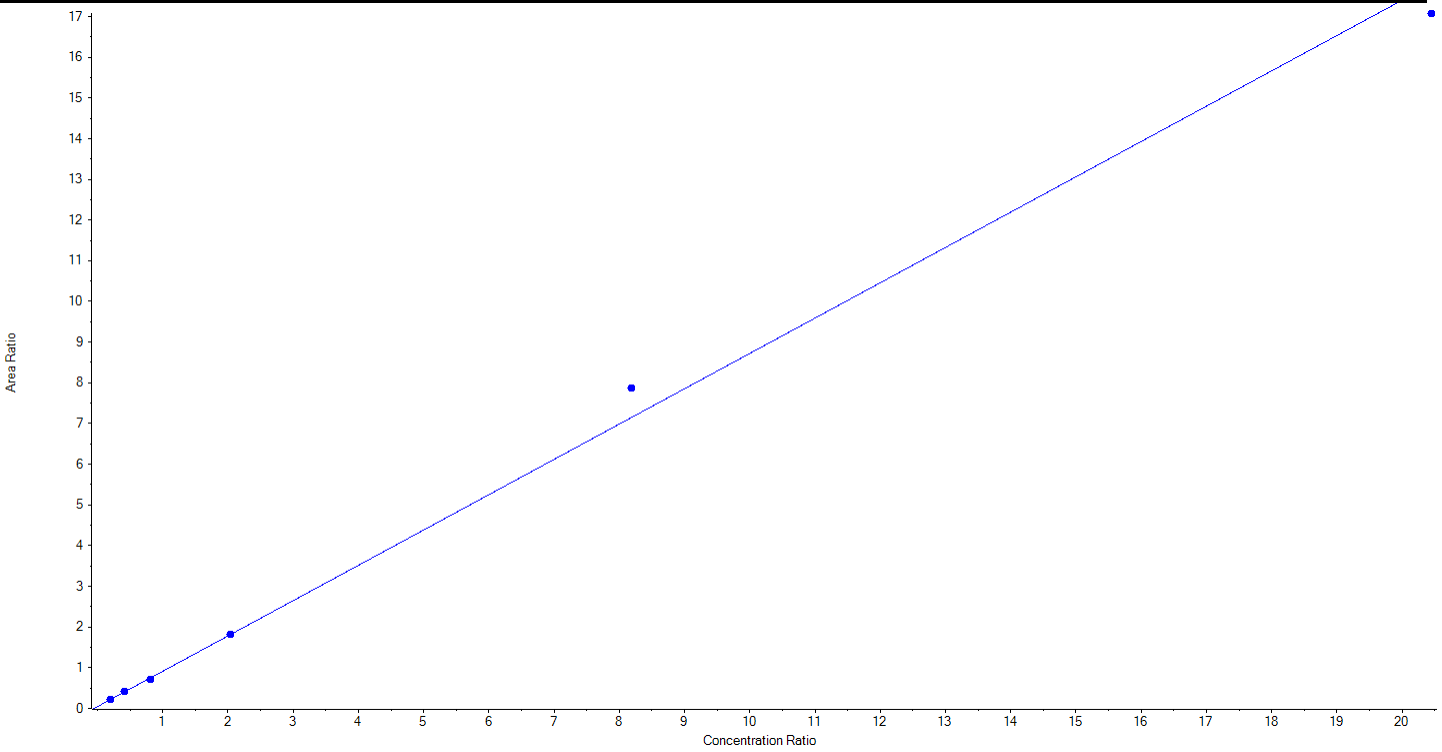
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFOA_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	413.0 / 369.0	**Result Table**	20-1441
Internal Standard	13C8-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.86769 x + 0.04594 (r = 0.99778) (weighting: 1 / x) r^2:0.9956

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	234.13	93.7
3	LD75	L2	True	500.00	521.41	104.3
4	LD76	L3	True	1000.00	951.63	95.2
5	LD77	L4	True	2500.00	2513.52	100.5
6	LD78	L5	True	10000.00	11040.97	110.4
7	LD79	L6	True	25000.00	23988.34	96.0



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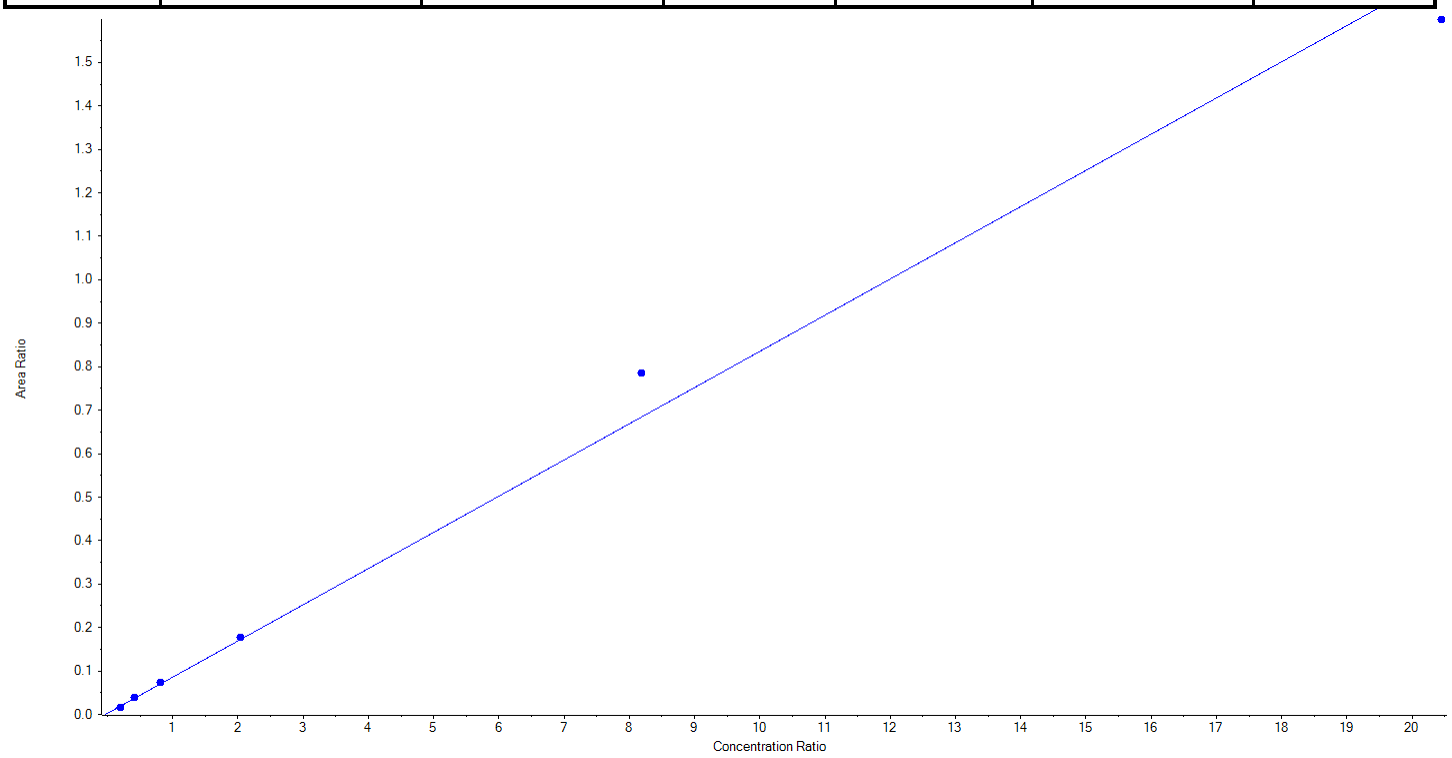
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFOA_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	413.0 / 169.0	**Result Table**	20-1441
Internal Standard	13C8-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.08327 x + 0.00257 (r = 0.99522) (weighting: 1 / x) r^2:0.9905

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	202.09	80.8
3	LD75	L2	True	500.00	522.04	104.4
4	LD76	L3	True	1000.00	1029.03	102.9
5	LD77	L4	True	2500.00	2582.52	103.3
6	LD78	L5	True	10000.00	11482.82	114.8
7	LD79	L6	True	25000.00	23431.50	93.7



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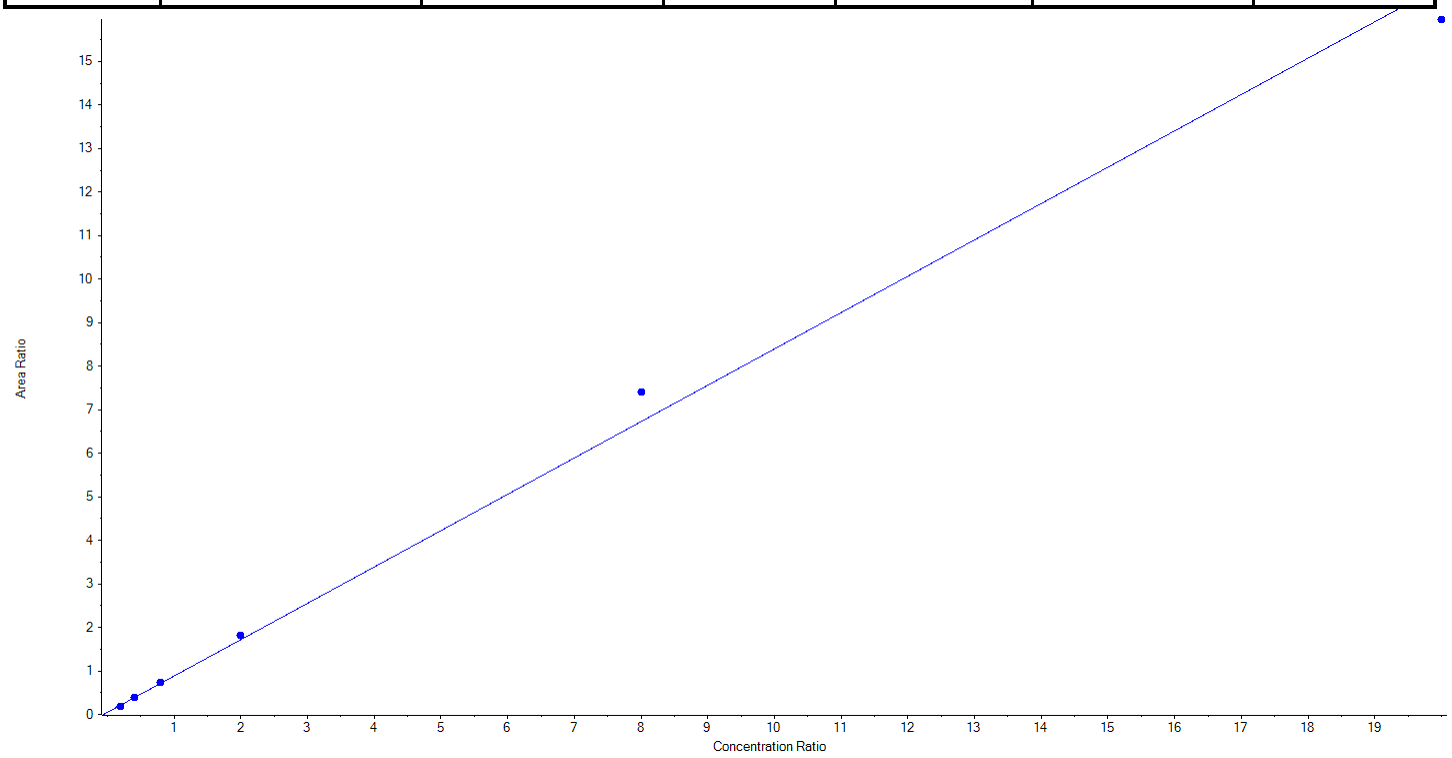
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFNA_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	463.0 / 419.0	**Result Table**	20-1441
Internal Standard	13C9-PFNA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.83479 x + 0.04939 (r = 0.99744) (weighting: 1 / x) r^2:0.9949

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	204.48	81.8
3	LD75	L2	True	500.00	517.98	103.6
4	LD76	L3	True	1000.00	1027.95	102.8
5	LD77	L4	True	2500.00	2659.59	106.4
6	LD78	L5	True	10000.00	11012.08	110.1
7	LD79	L6	True	25000.00	23827.92	95.3



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Calibration Summary Report

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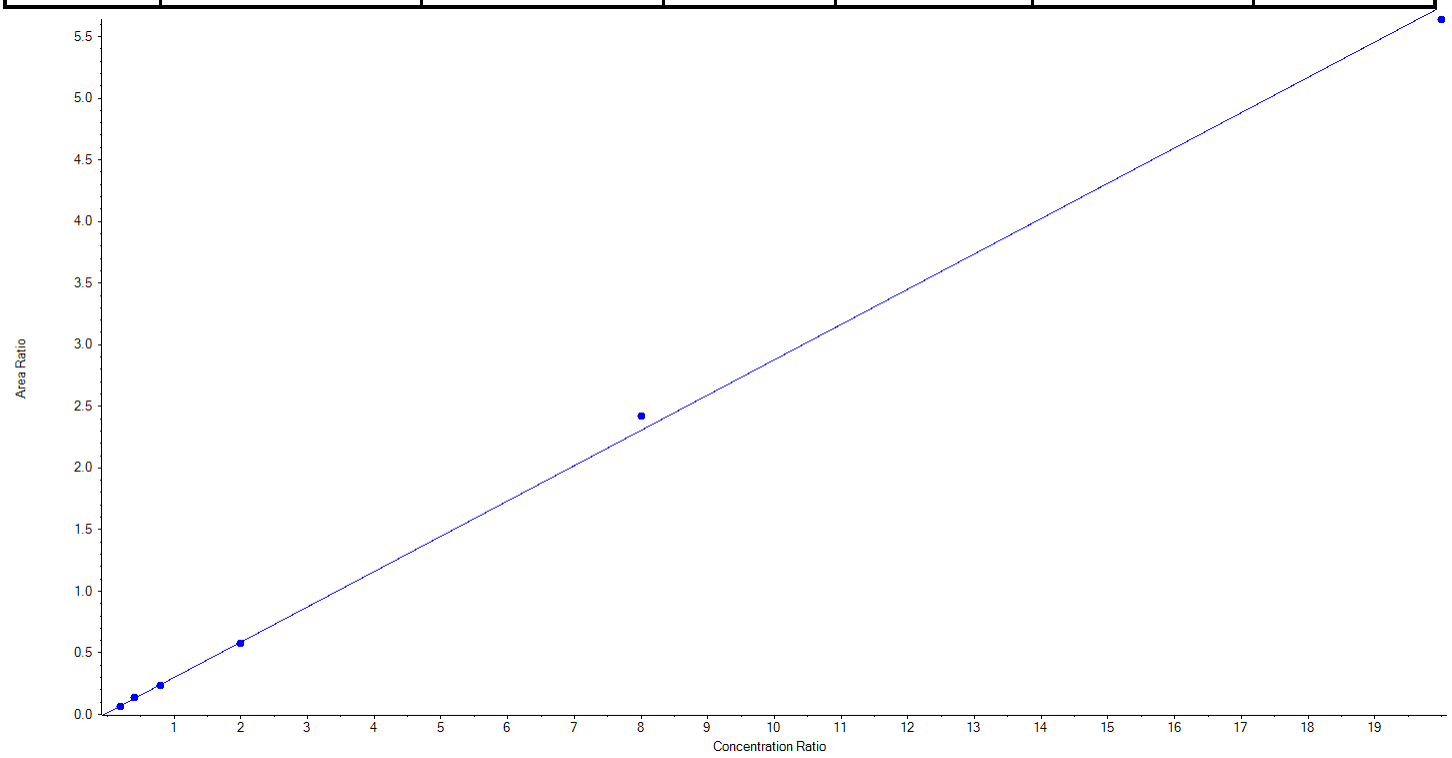
Analyte Name	PFNA_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	463.0 / 219.0	**Result Table**	20-1441
Internal Standard	13C9-PFNA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.28640 x + 0.01413 (r = 0.99948) (weighting: 1 / x) r^2:0.9990

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	234.57	93.8
3	LD75	L2	True	500.00	531.13	106.2
4	LD76	L3	True	1000.00	982.53	98.3
5	LD77	L4	True	2500.00	2465.21	98.6
6	LD78	L5	True	10000.00	10489.77	104.9
7	LD79	L6	True	25000.00	24546.79	98.2



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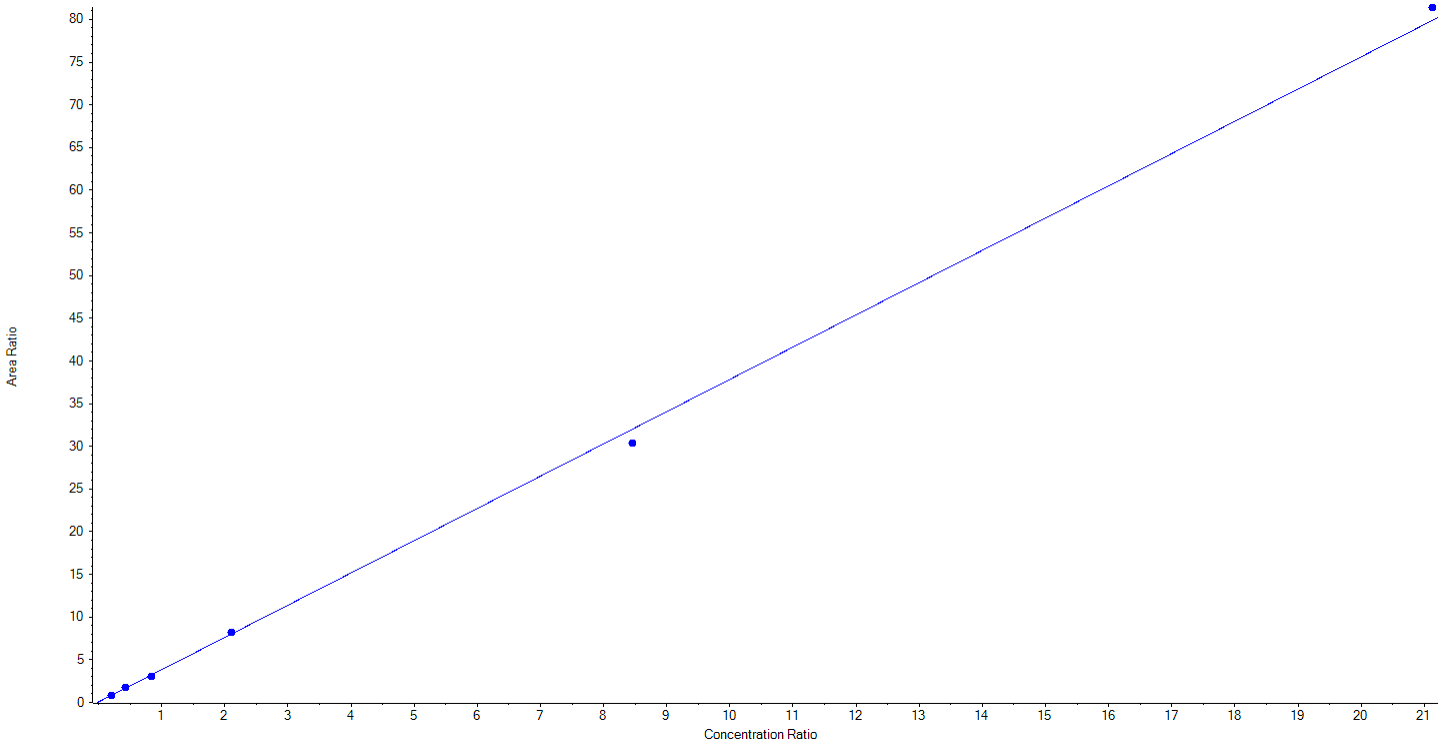
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFOS_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	499.0 / 80.0	**Result Table**	20-1441
Internal Standard	13C8-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 3.77817 x + 0.05862 (r = 0.99934) (weighting: 1 / x) r^2:0.9987

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	252.50	243.61	96.5
3	LD75	L2	True	505.00	555.51	110.0
4	LD76	L3	True	1010.00	953.32	94.4
5	LD77	L4	True	2525.00	2585.72	102.4
6	LD78	L5	True	10100.00	9579.12	94.8
7	LD79	L6	True	25250.00	25725.22	101.9



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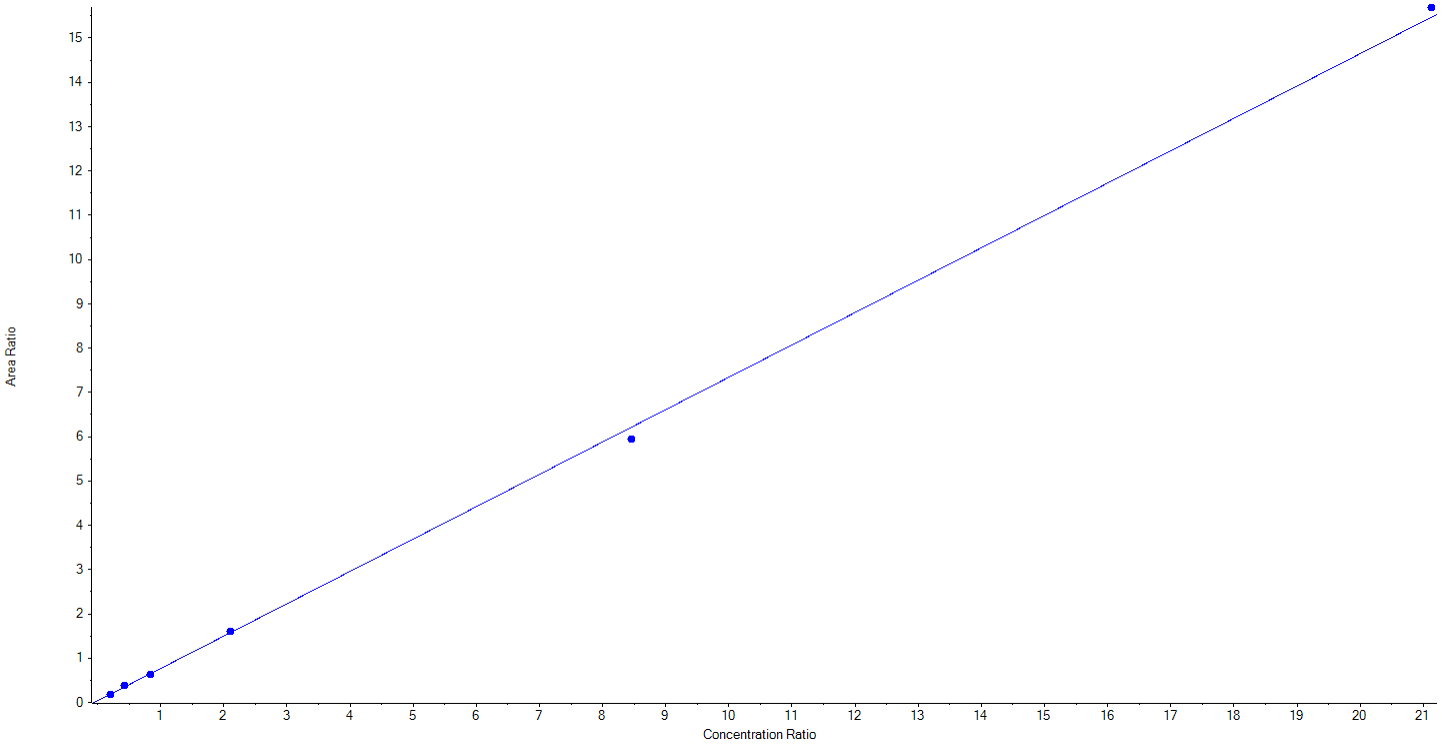
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFOS_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	499.0 / 99.0	**Result Table**	20-1441
Internal Standard	13C8-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.73053 x + 0.03675 (r = 0.99950) (weighting: 1 / x) r^2:0.9990

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	252.50	228.45	90.5
3	LD75	L2	True	505.00	568.18	112.5
4	LD76	L3	True	1010.00	986.71	97.7
5	LD77	L4	True	2525.00	2578.14	102.1
6	LD78	L5	True	10100.00	9676.81	95.8
7	LD79	L6	True	25250.00	25604.20	101.4



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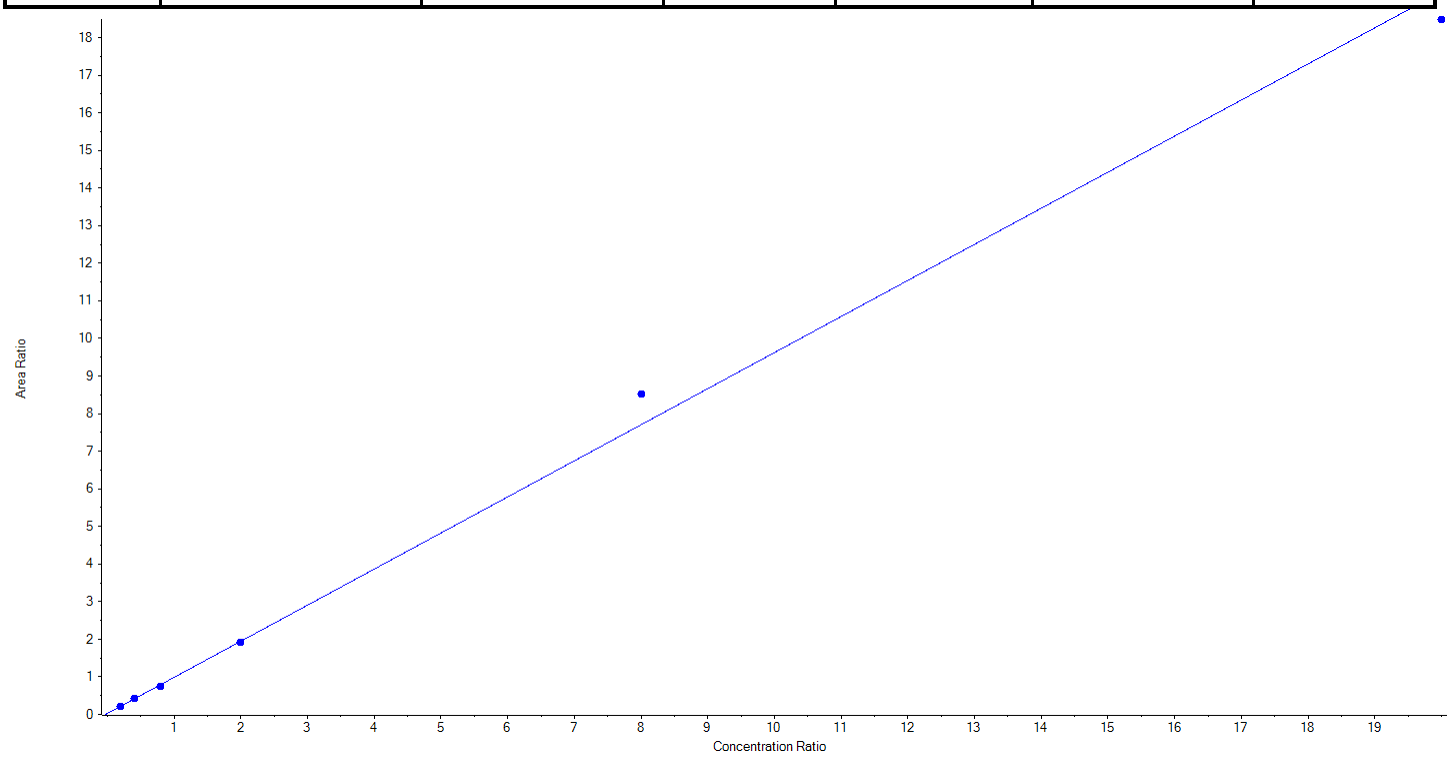
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFDA_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	513.0 / 469.0	**Result Table**	20-1441
Internal Standard	13C6-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.95941 x + 0.02877 (r = 0.99780) (weighting: 1 / x) r^2:0.9956

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	239.54	95.8
3	LD75	L2	True	500.00	524.78	105.0
4	LD76	L3	True	1000.00	942.25	94.2
5	LD77	L4	True	2500.00	2459.70	98.4
6	LD78	L5	True	10000.00	11046.54	110.5
7	LD79	L6	True	25000.00	24037.19	96.2



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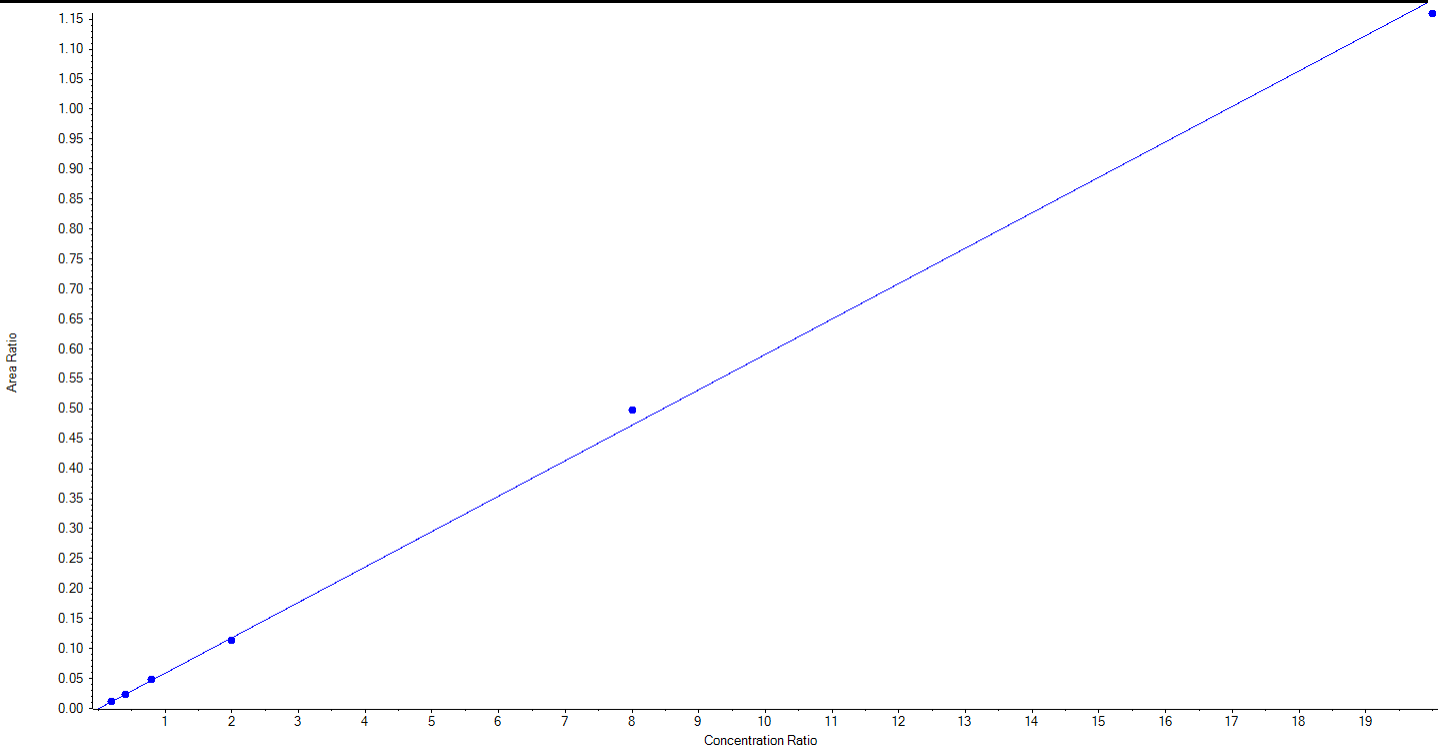
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFDA_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	513.0 / 219.0	**Result Table**	20-1441
Internal Standard	13C6-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.05911 x + -3.07024e-4 (r = 0.99935) (weighting: 1 / x) r^2:0.9987

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	245.29	98.1
3	LD75	L2	True	500.00	494.75	99.0
4	LD76	L3	True	1000.00	1033.09	103.3
5	LD77	L4	True	2500.00	2400.27	96.0
6	LD78	L5	True	10000.00	10551.11	105.5
7	LD79	L6	True	25000.00	24525.49	98.1



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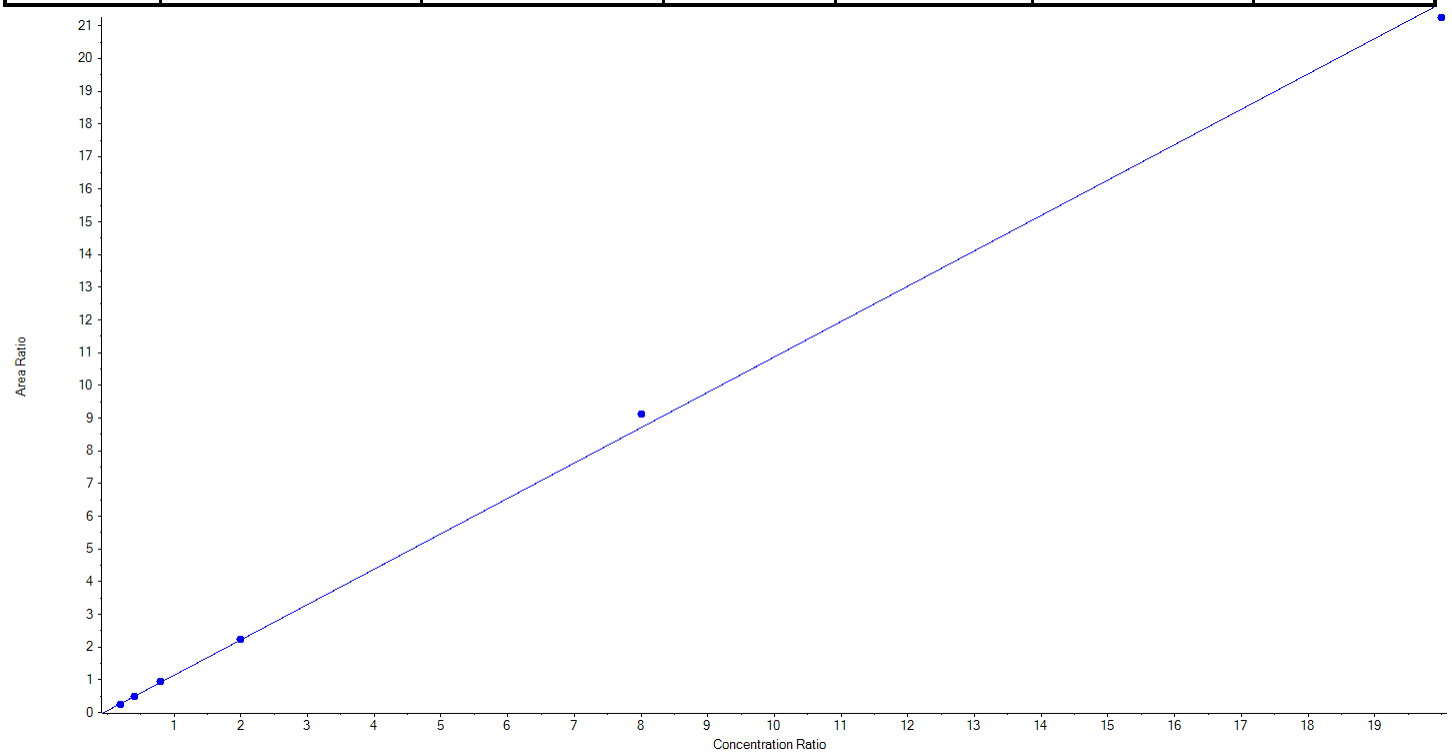
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFUnA_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	563.0 / 519.0	**Result Table**	20-1441
Internal Standard	13C7-PFUnA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.08164 x + 0.05711 (r = 0.99947) (weighting: 1 / x) r^2:0.9989

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	226.20	90.5
3	LD75	L2	True	500.00	513.60	102.7
4	LD76	L3	True	1000.00	1039.13	103.9
5	LD77	L4	True	2500.00	2504.49	100.2
6	LD78	L5	True	10000.00	10473.22	104.7
7	LD79	L6	True	25000.00	24493.35	98.0



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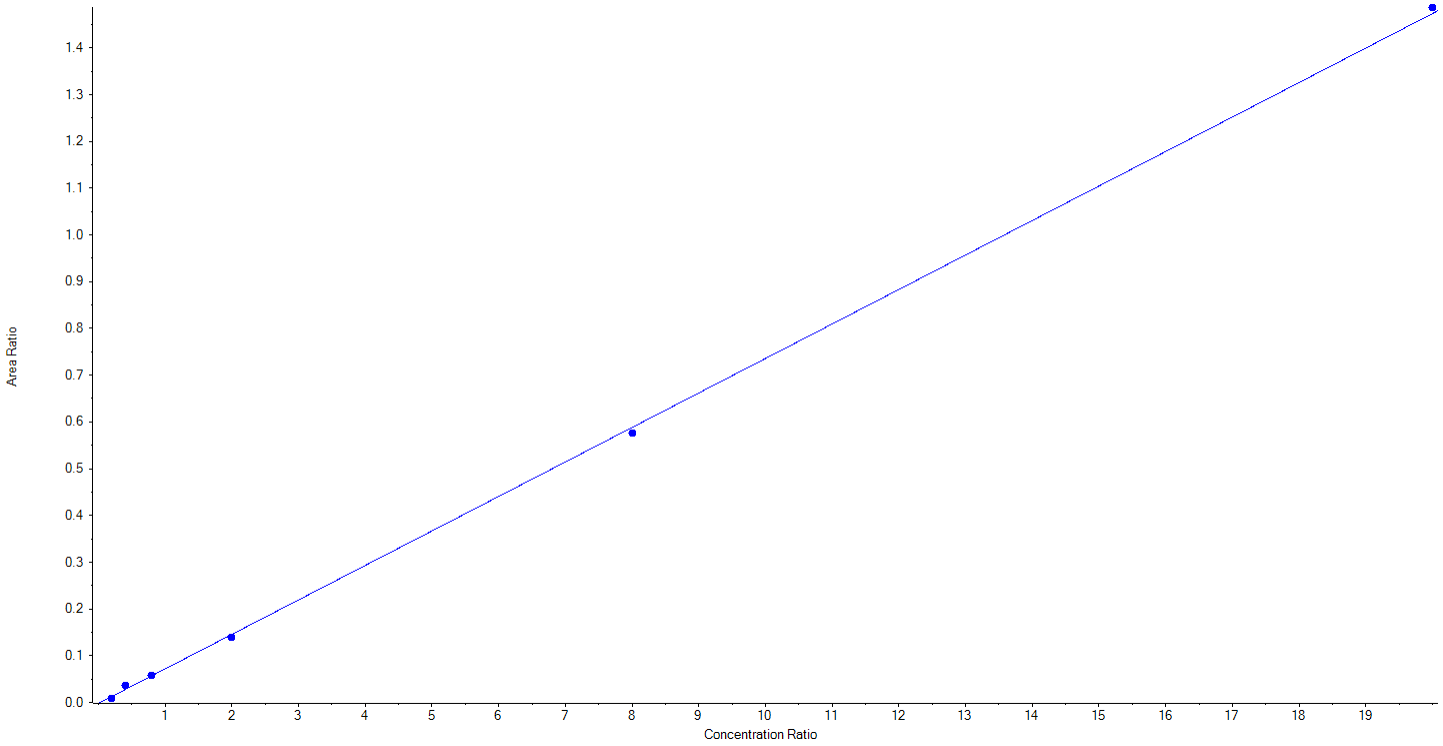
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFUnA_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	563.0 / 269.0	**Result Table**	20-1441
Internal Standard	13C7-PFUnA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.07377 x + -0.00193 (r = 0.99903) (weighting: 1 / x) r^2:0.9981

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	189.89	76.0
3	LD75	L2	True	500.00	642.73	128.6
4	LD76	L3	True	1000.00	1013.90	101.4
5	LD77	L4	True	2500.00	2379.41	95.2
6	LD78	L5	True	10000.00	9805.96	98.1
7	LD79	L6	True	25000.00	25218.12	100.9



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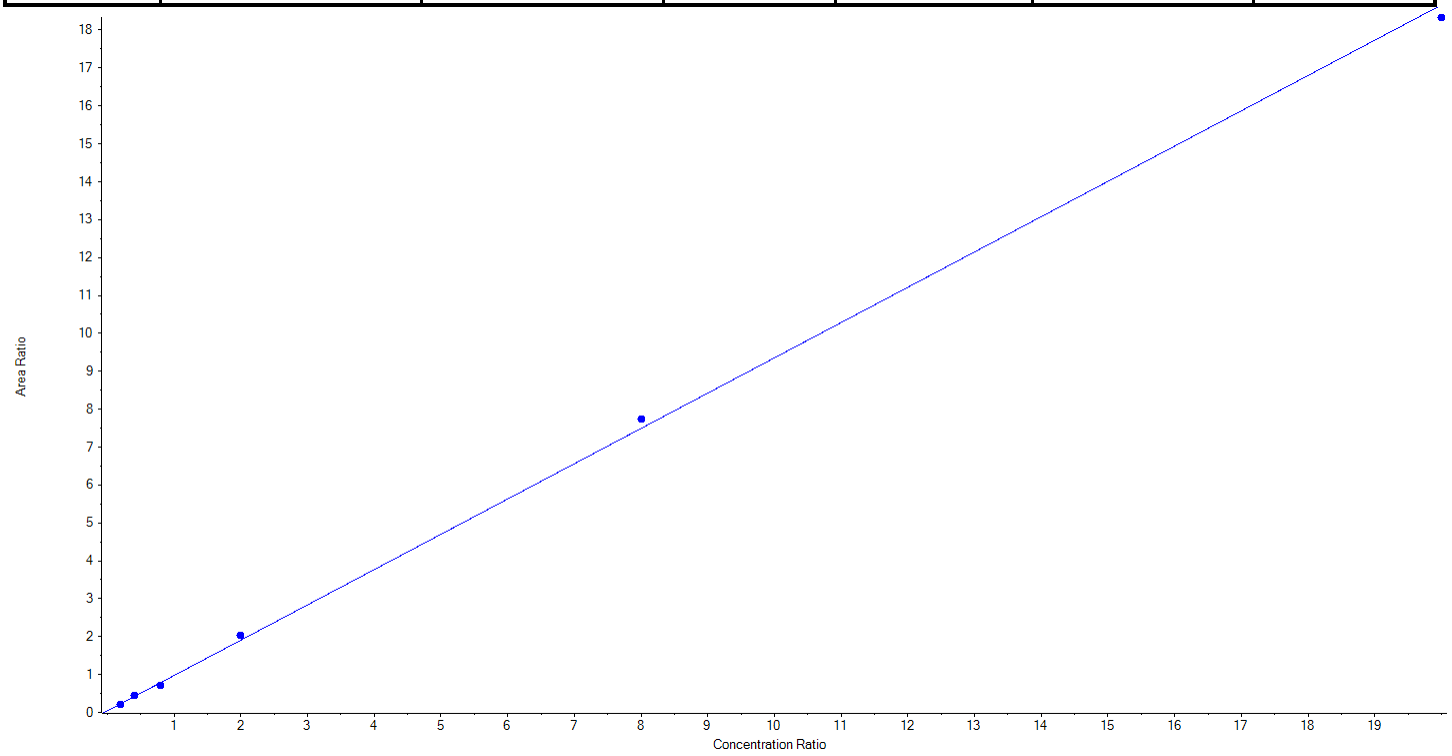
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFDoA_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	613.0 / 569.0	**Result Table**	20-1441
Internal Standard	13C2-PFDoA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.93088 x + 0.04545 (r = 0.99932) (weighting: 1 / x) r^2:0.9986

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	226.79	90.7
3	LD75	L2	True	500.00	551.21	110.2
4	LD76	L3	True	1000.00	907.33	90.7
5	LD77	L4	True	2500.00	2665.80	106.6
6	LD78	L5	True	10000.00	10347.02	103.5
7	LD79	L6	True	25000.00	24551.85	98.2



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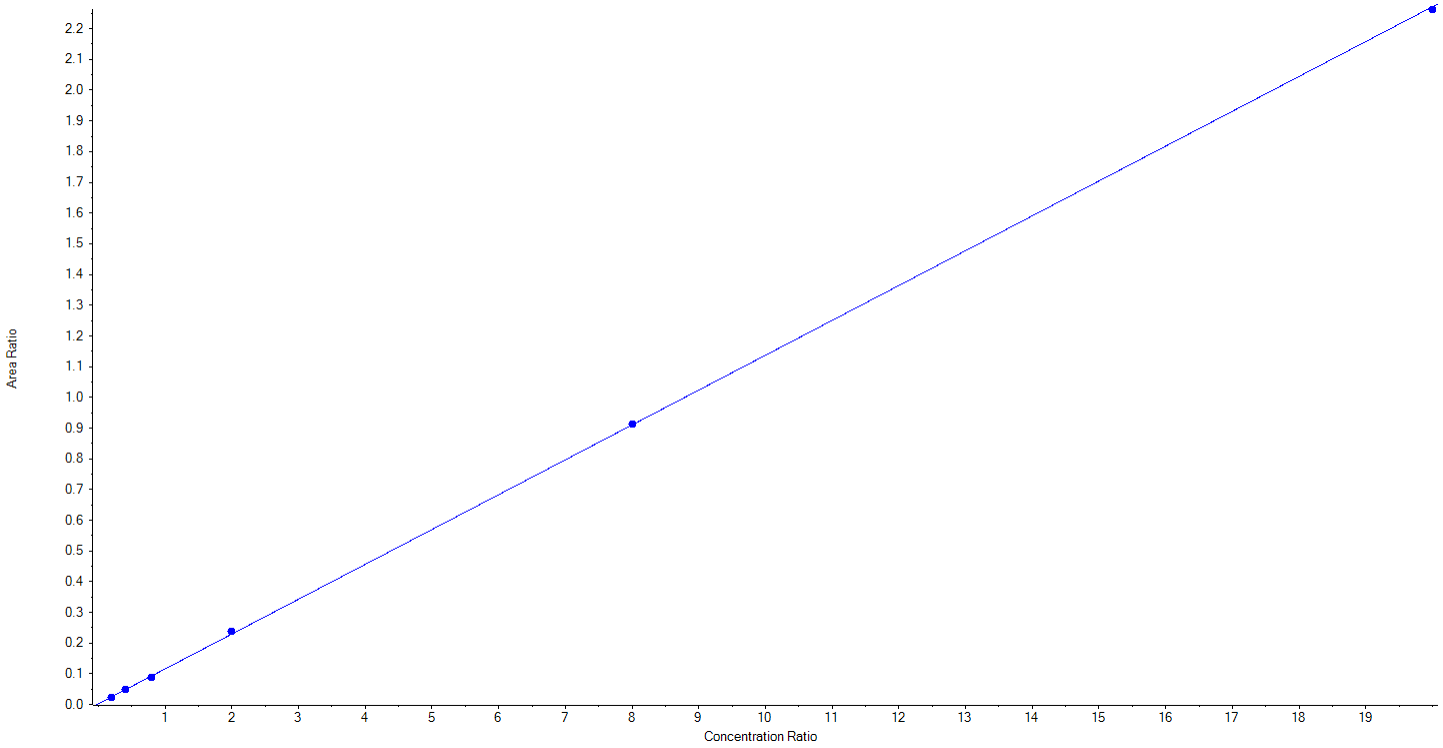
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFDoA_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	613.0 / 319.0	**Result Table**	20-1441
Internal Standard	13C2-PFDoA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.11347 x + 0.00233 (r = 0.99984) (weighting: 1 / x) r^2:0.9997

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	242.69	97.1
3	LD75	L2	True	500.00	526.36	105.3
4	LD76	L3	True	1000.00	934.80	93.5
5	LD77	L4	True	2500.00	2603.34	104.1
6	LD78	L5	True	10000.00	10044.61	100.5
7	LD79	L6	True	25000.00	24898.20	99.6



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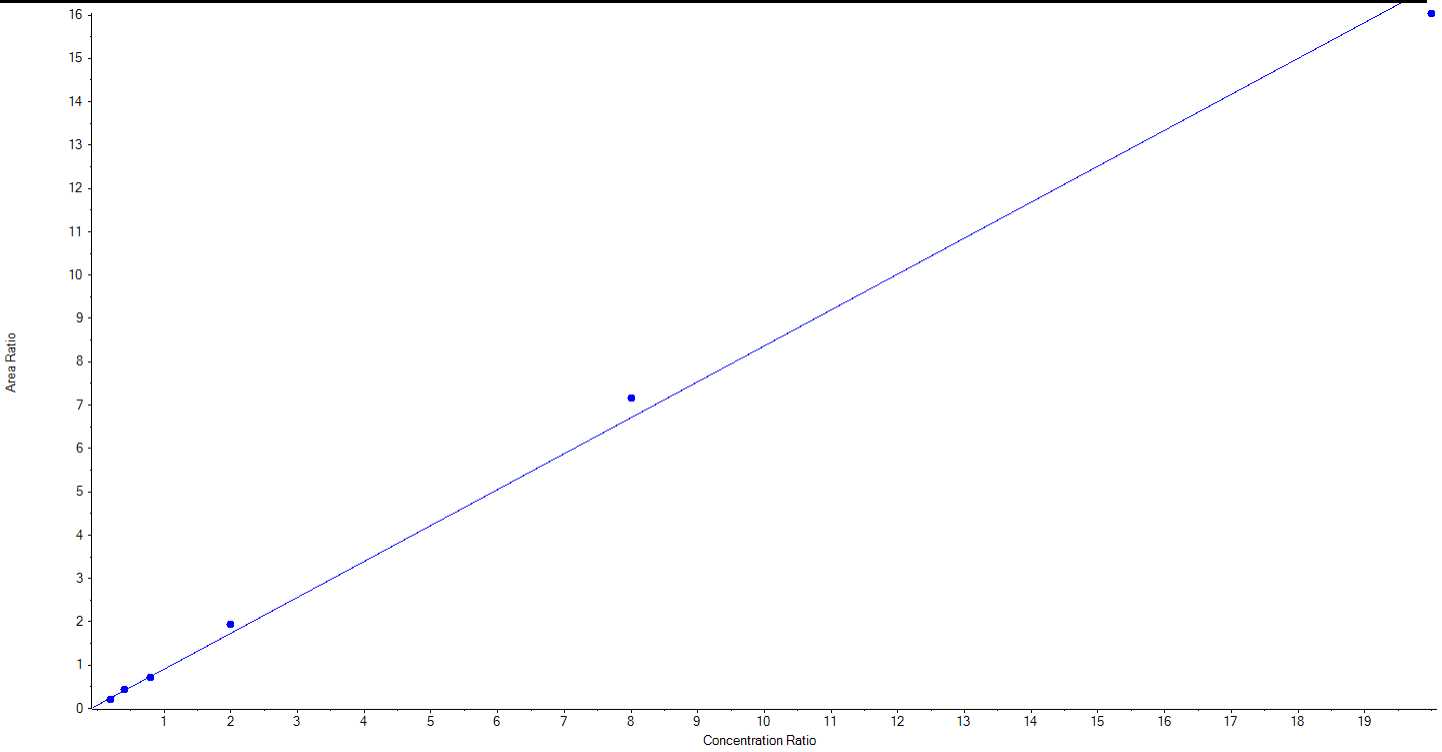
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFTrDA_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	663.0 / 619.0	**Result Table**	20-1441
Internal Standard	13C2-PFTeDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.82904 x + 0.07782 (r = 0.99809) (weighting: 1 / x) r^2:0.9962

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	202.17	80.9
3	LD75	L2	True	500.00	541.55	108.3
4	LD76	L3	True	1000.00	959.63	96.0
5	LD77	L4	True	2500.00	2791.88	111.7
6	LD78	L5	True	10000.00	10694.03	106.9
7	LD79	L6	True	25000.00	24060.74	96.2



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Calibration Summary Report

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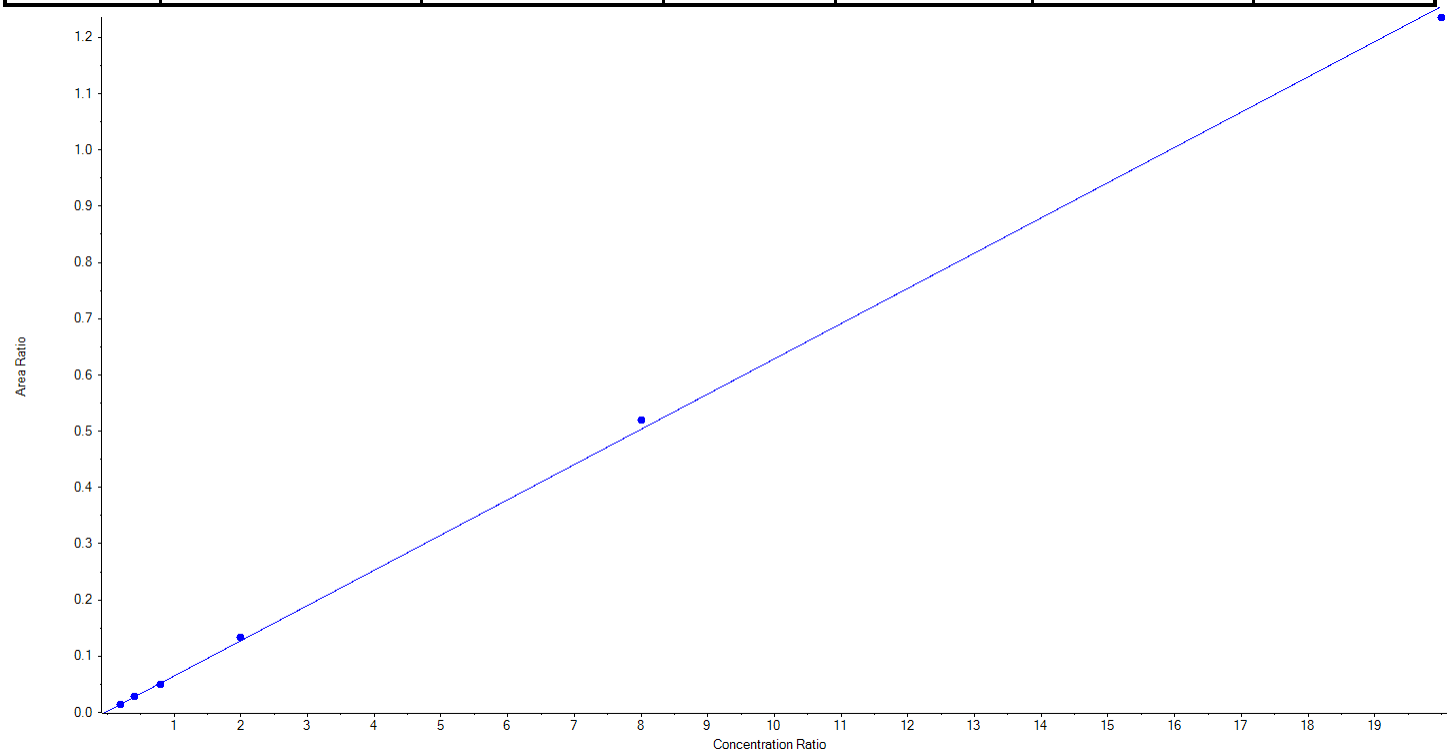
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFTrDA_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	663.0 / 169.0	**Result Table**	20-1441
Internal Standard	13C2-PFTeDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.06265 x + 0.00222 (r = 0.99957) (weighting: 1 / x) r^2:0.9991

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	235.68	94.3
3	LD75	L2	True	500.00	529.39	105.9
4	LD76	L3	True	1000.00	932.95	93.3
5	LD77	L4	True	2500.00	2622.14	104.9
6	LD78	L5	True	10000.00	10324.99	103.3
7	LD79	L6	True	25000.00	24604.84	98.4



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Calibration Summary Report

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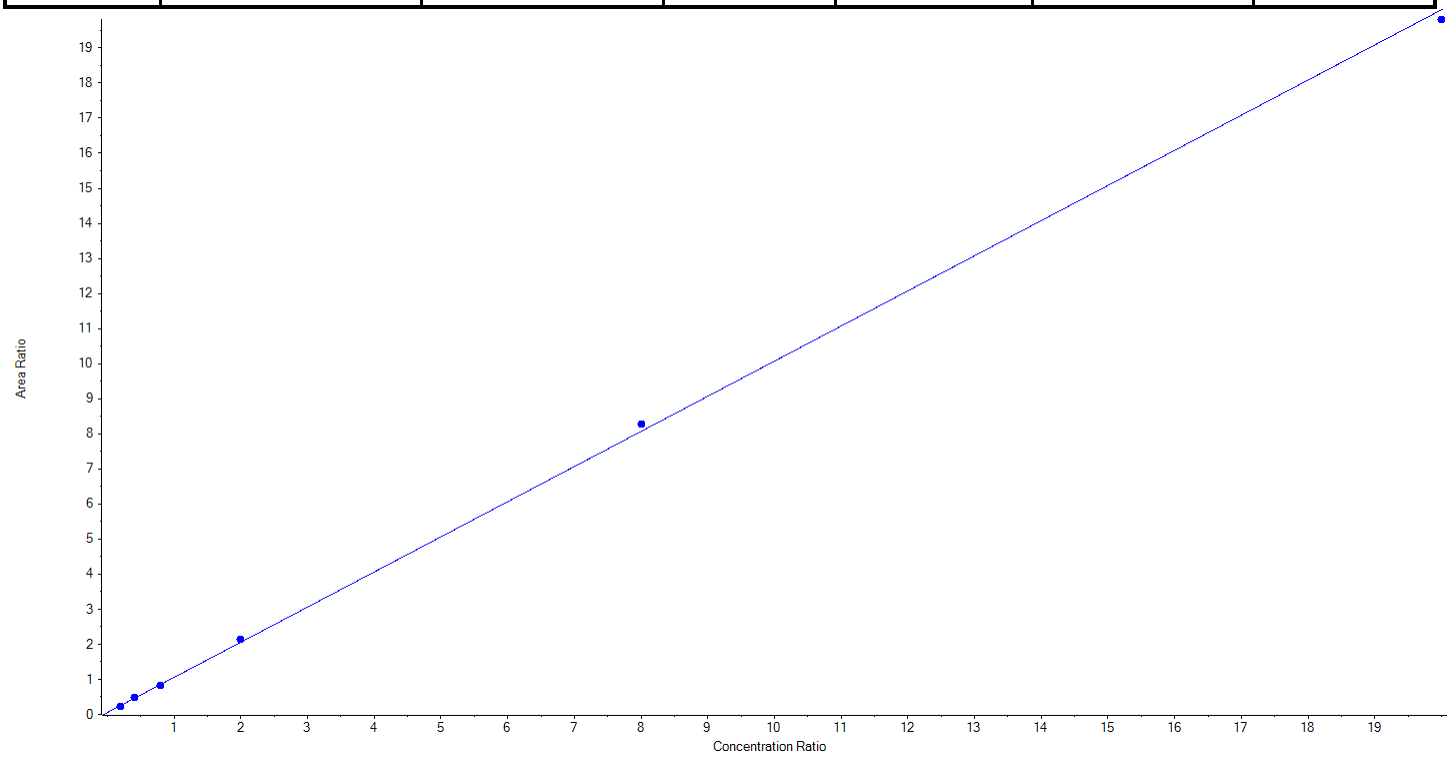
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFTeDA_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	713.0 / 669.0	**Result Table**	20-1441
Internal Standard	13C2-PFTeDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.00156 x + 0.05714 (r = 0.99969) (weighting: 1 / x) r^2:0.9994

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	227.16	90.9
3	LD75	L2	True	500.00	536.50	107.3
4	LD76	L3	True	1000.00	967.74	96.8
5	LD77	L4	True	2500.00	2593.13	103.7
6	LD78	L5	True	10000.00	10272.28	102.7
7	LD79	L6	True	25000.00	24653.19	98.6



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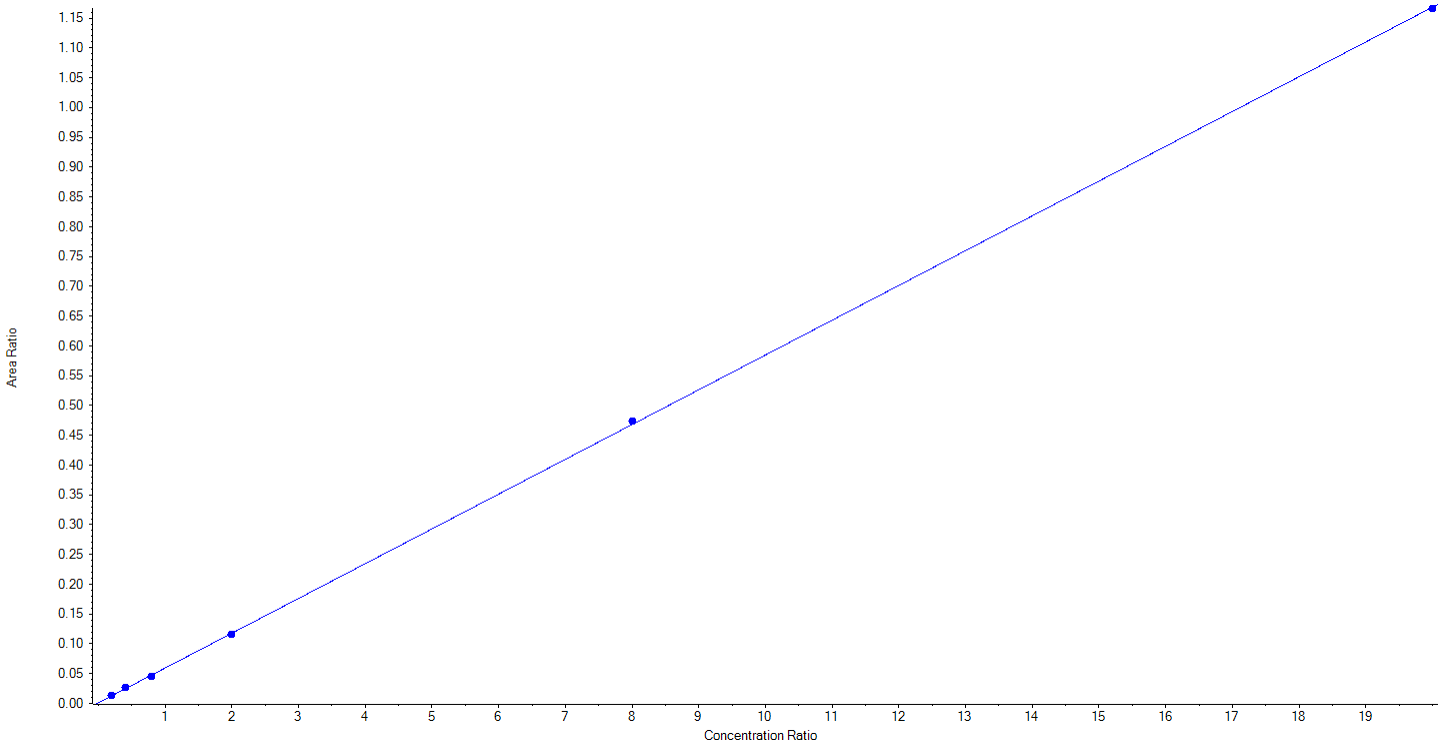
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	PFTeDA_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	713.0 / 169.0	**Result Table**	20-1441
Internal Standard	13C2-PFTeDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.05836 x + 0.00116 (r = 0.99988) (weighting: 1 / x) r^2:0.9998

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	248.24	99.3
3	LD75	L2	True	500.00	535.85	107.2
4	LD76	L3	True	1000.00	943.80	94.4
5	LD77	L4	True	2500.00	2454.53	98.2
6	LD78	L5	True	10000.00	10116.71	101.2
7	LD79	L6	True	25000.00	24950.86	99.8



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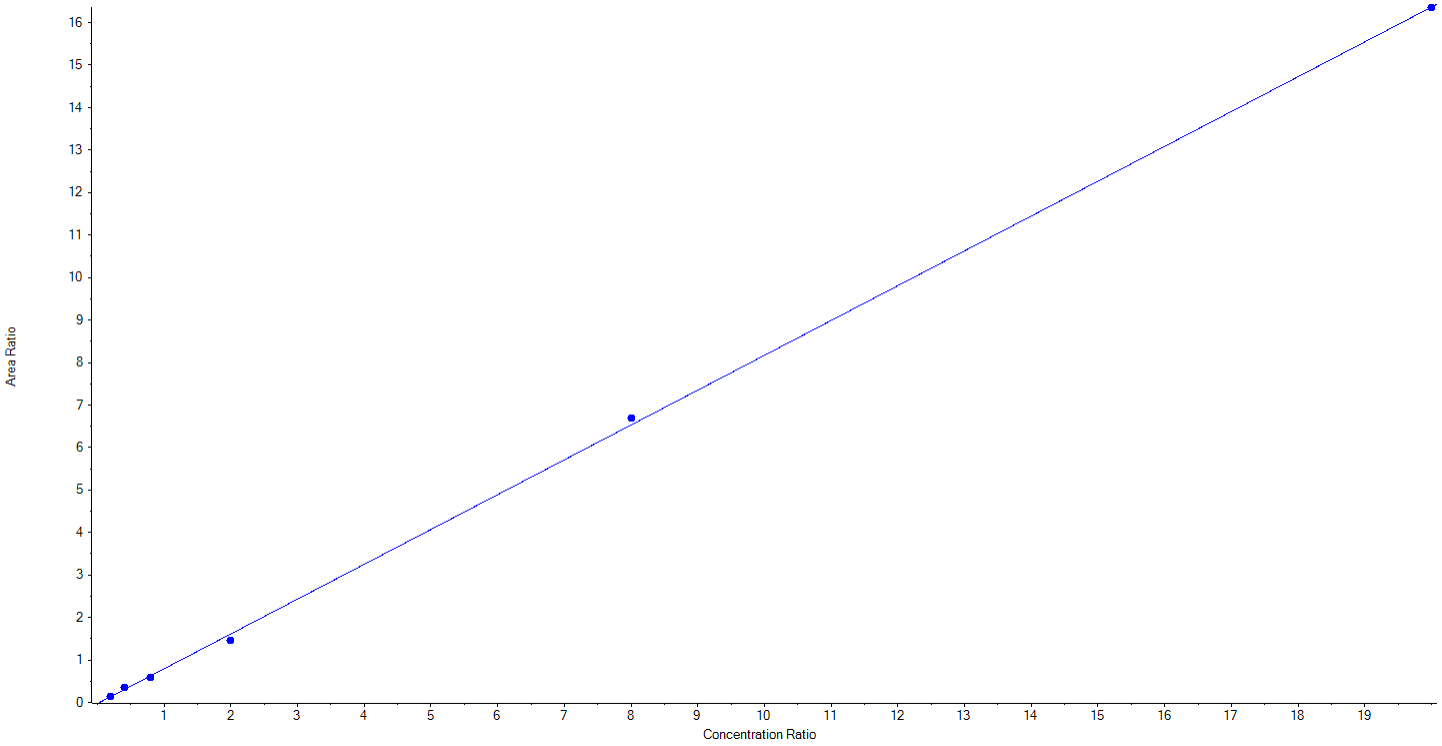
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	NMeFOSAA_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	570.0 / 419.0	**Result Table**	20-1441
Internal Standard	d3-MeFOSAA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.81952 x + -0.02509 (r = 0.99935) (weighting: 1 / x) r^2:0.9987

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	251.32	100.5
3	LD75	L2	True	500.00	567.47	113.5
4	LD76	L3	True	1000.00	933.45	93.4
5	LD77	L4	True	2500.00	2251.85	90.1
6	LD78	L5	True	10000.00	10262.64	102.6
7	LD79	L6	True	25000.00	24983.26	99.9



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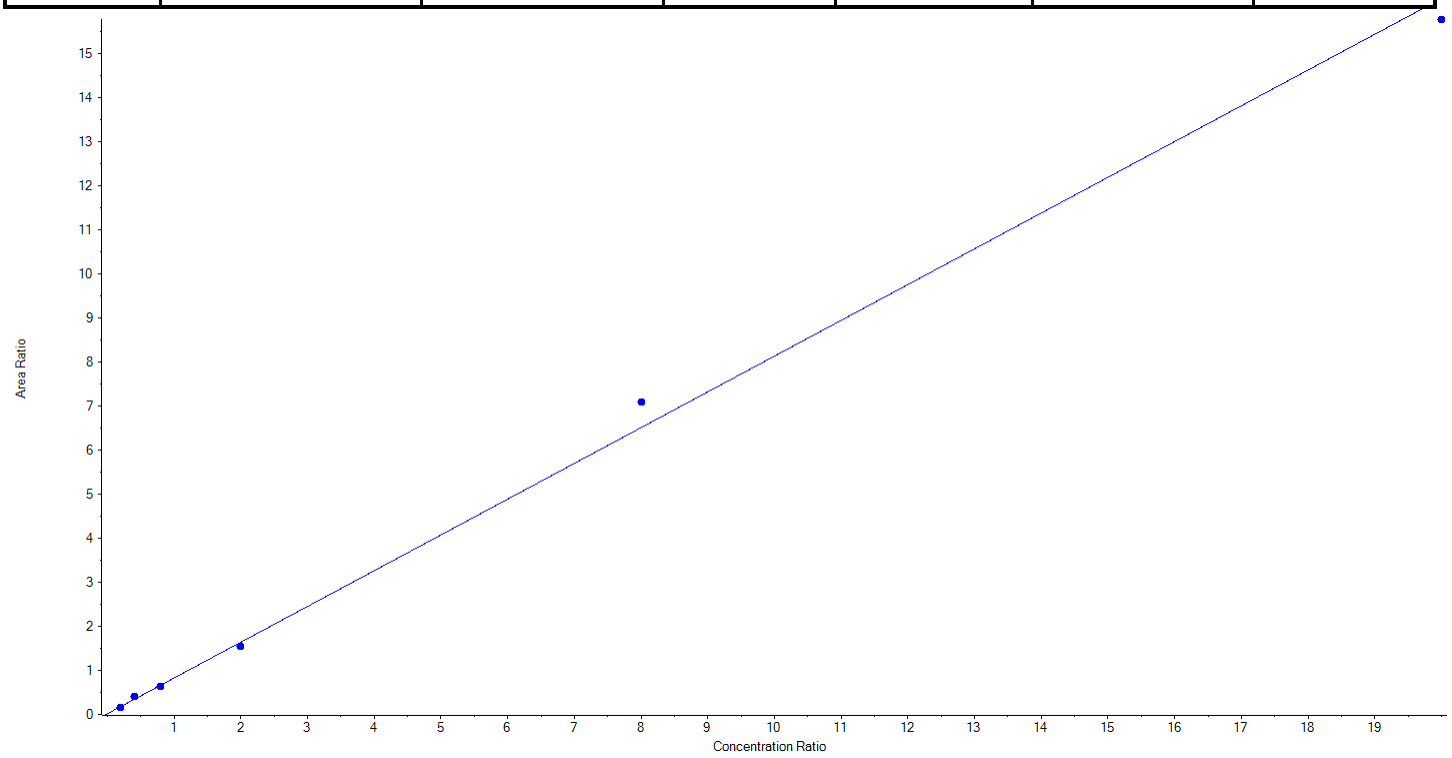
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	NMeFOSAA_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	570.0 / 512.0	**Result Table**	20-1441
Internal Standard	d3-MeFOSAA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.81153 x + 0.01847 (r = 0.99807) (weighting: 1 / x) r^2:0.9961

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	218.24	87.3
3	LD75	L2	True	500.00	591.99	118.4
4	LD76	L3	True	1000.00	946.67	94.7
5	LD77	L4	True	2500.00	2343.25	93.7
6	LD78	L5	True	10000.00	10885.11	108.9
7	LD79	L6	True	25000.00	24264.74	97.1



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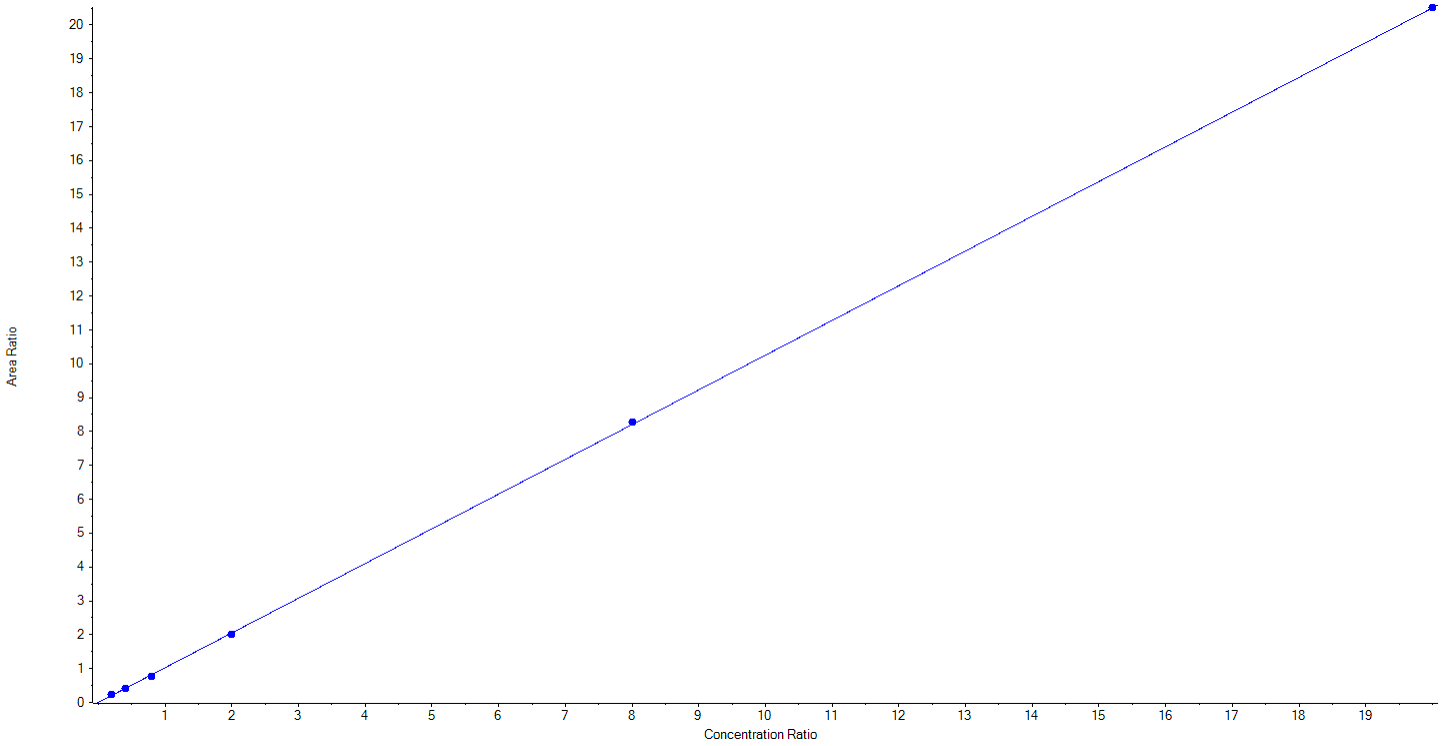
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	NEtFOSAA_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	584.0 / 419.0	**Result Table**	20-1441
Internal Standard	d5-EtFOSAA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.02512 x + 0.00342 (r = 0.99984) (weighting: 1 / x) r^2:0.9997

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	271.06	108.4
3	LD75	L2	True	500.00	505.91	101.2
4	LD76	L3	True	1000.00	917.60	91.8
5	LD77	L4	True	2500.00	2438.57	97.5
6	LD78	L5	True	10000.00	10103.94	101.0
7	LD79	L6	True	25000.00	25012.92	100.1



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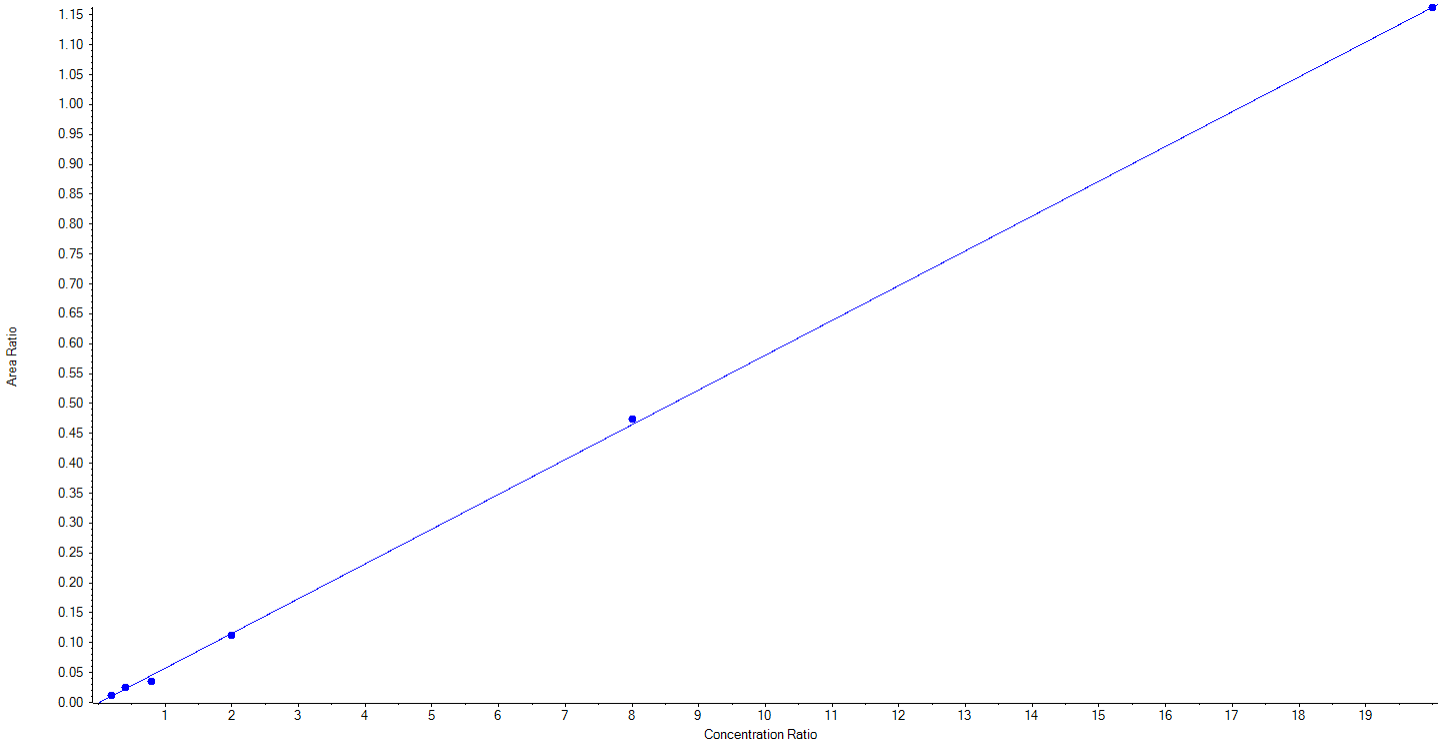
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	NEtFOSAA_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	584.0 / 483.0	**Result Table**	20-1441
Internal Standard	d5-EtFOSAA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.05817 x + -8.67908e-4 (r = 0.99901) (weighting: 1 / x) r^2:0.9980

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	269.44	107.8
3	LD75	L2	True	500.00	575.43	115.1
4	LD76	L3	True	1000.00	775.63	77.6
5	LD77	L4	True	2500.00	2441.08	97.6
6	LD78	L5	True	10000.00	10196.61	102.0
7	LD79	L6	True	25000.00	24991.82	100.0



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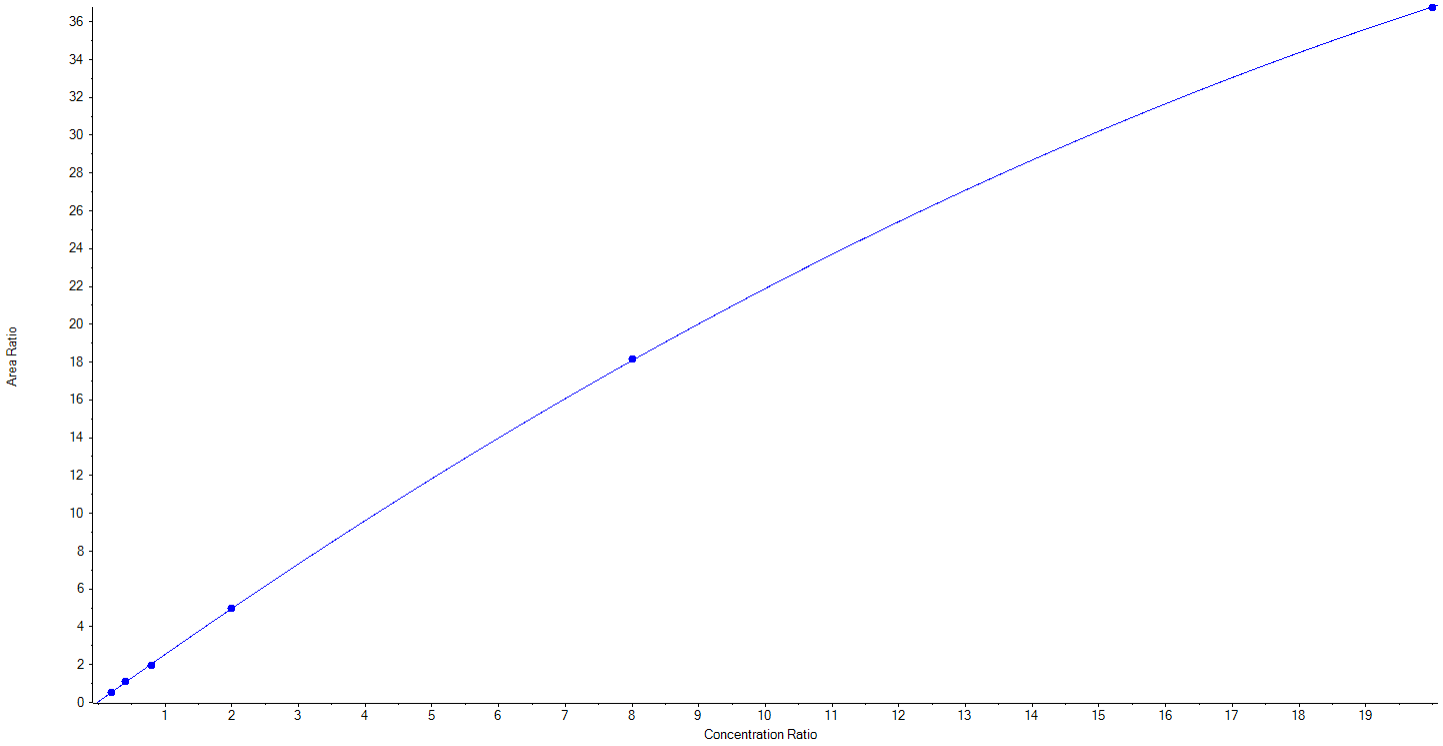
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	HFPO-DA_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	285.0 / 169.0	**Result Table**	20-1441
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = -0.03481 x^2 + 2.53314 x + 0.04300 (r = 0.99985) (weighting: 1 / x) r^2:0.9997

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	244.63	97.9
3	LD75	L2	True	500.00	538.45	107.7
4	LD76	L3	True	1000.00	943.06	94.3
5	LD77	L4	True	2500.00	2492.03	99.7
6	LD78	L5	True	10000.00	10060.51	100.6
7	LD79	L6	True	25000.00	24963.19	99.9



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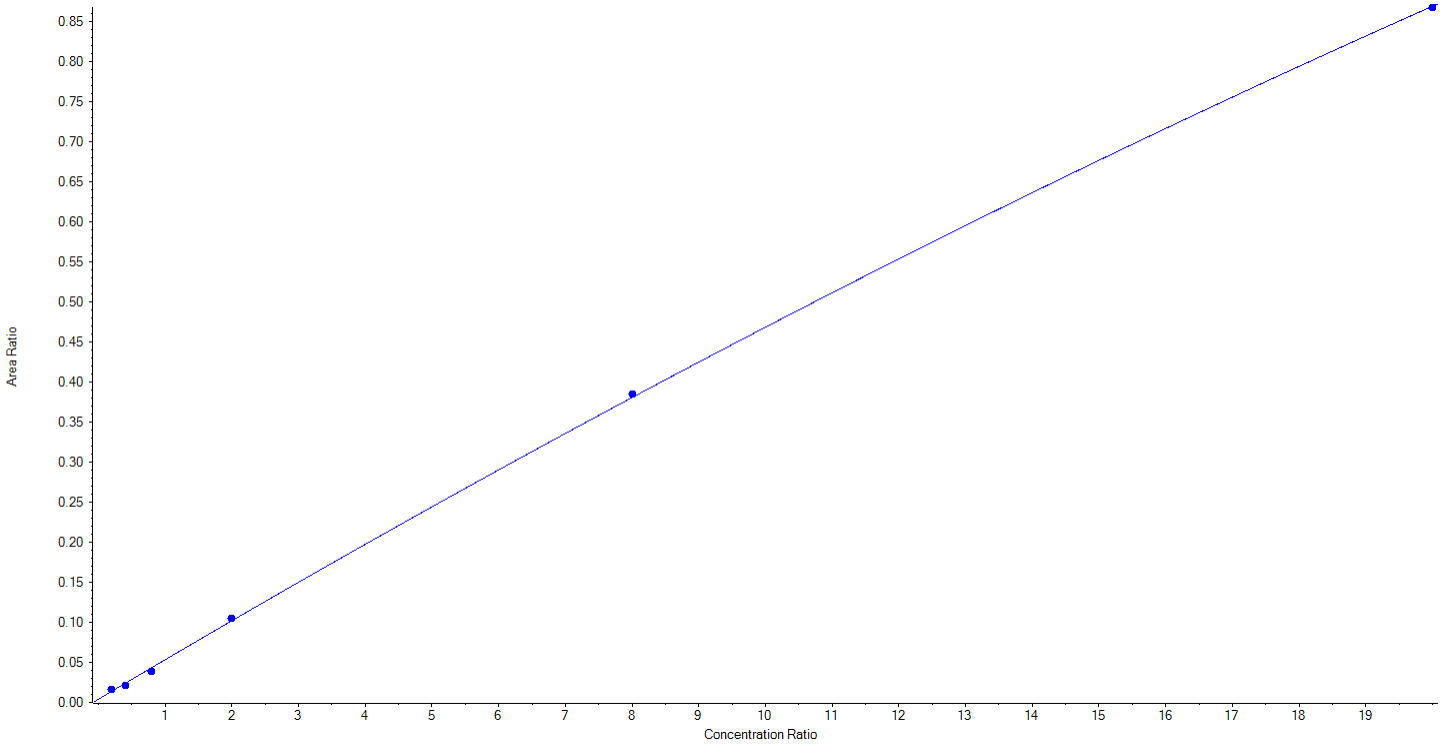
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	HFPO-DA_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	285.0 / 118.8	**Result Table**	20-1441
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = -3.18662e-4 x^2 + 0.04962 x + 0.00409 (r = 0.99921) (weighting: 1 / x) r^2:0.9984

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	307.12	122.9
3	LD75	L2	True	500.00	427.69	85.5
4	LD76	L3	True	1000.00	871.42	87.1
5	LD77	L4	True	2500.00	2591.64	103.7
6	LD78	L5	True	10000.00	10104.20	101.0
7	LD79	L6	True	25000.00	24945.74	99.8



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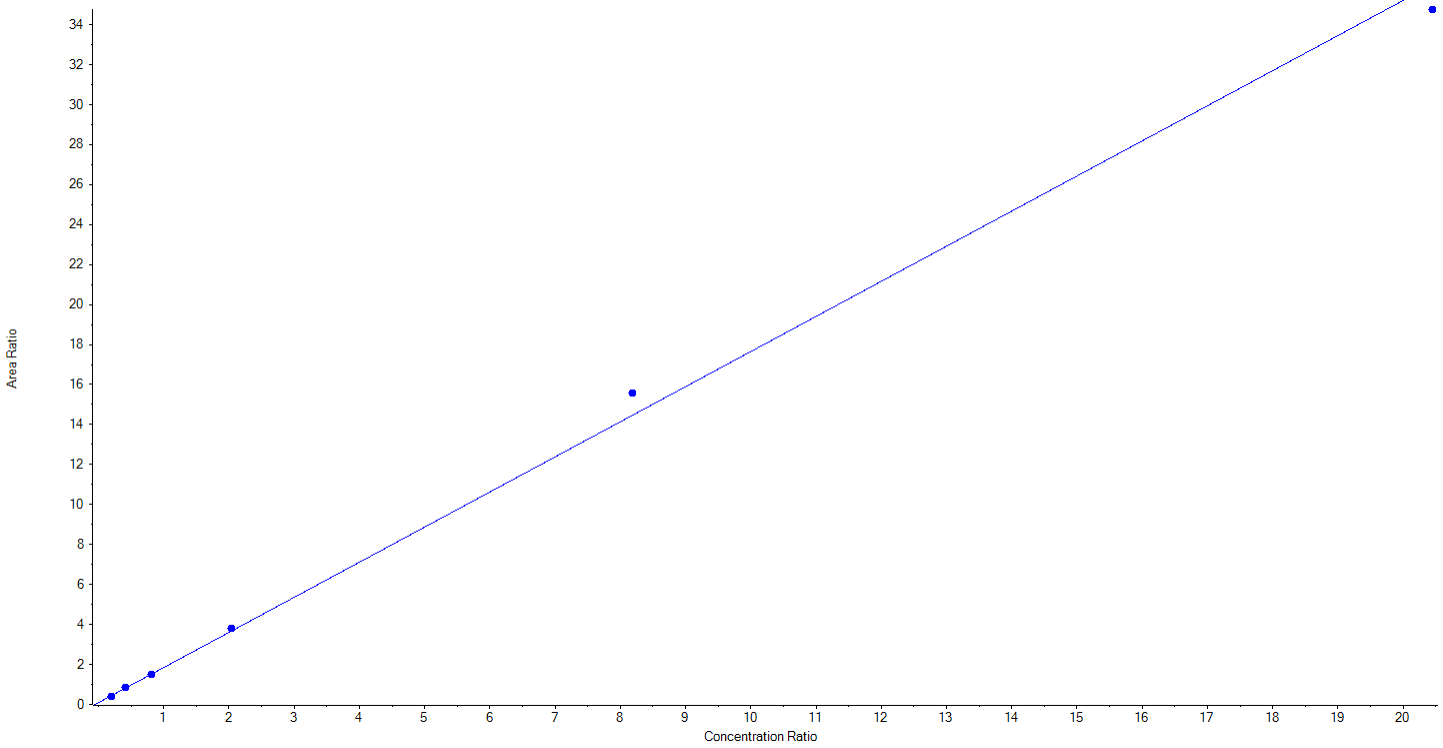
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	ADONA_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	377.0 / 251.0	**Result Table**	20-1441
Internal Standard	13C8-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.75575 x + 0.09162 (r = 0.99852) (weighting: 1 / x) r^2:0.9970

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	220.87	88.4
3	LD75	L2	True	500.00	528.36	105.7
4	LD76	L3	True	1000.00	978.29	97.8
5	LD77	L4	True	2500.00	2591.00	103.6
6	LD78	L5	True	10000.00	10797.37	108.0
7	LD79	L6	True	25000.00	24134.11	96.5



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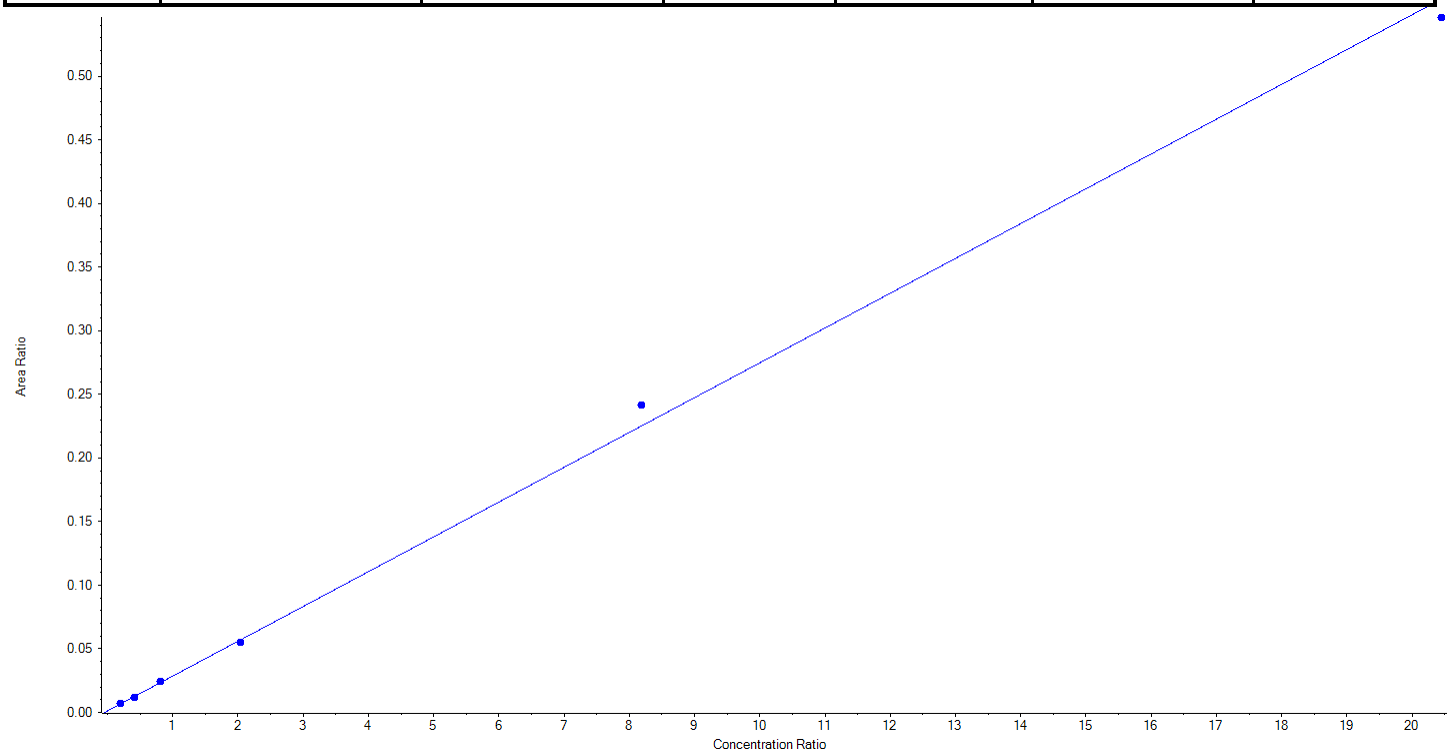
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	ADONA_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	377.0 / 85.0	**Result Table**	20-1441
Internal Standard	13C8-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.02735 x + 0.00122 (r = 0.99886) (weighting: 1 / x) r^2:0.9977

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	249.32	99.7
3	LD75	L2	True	500.00	477.45	95.5
4	LD76	L3	True	1000.00	1043.89	104.4
5	LD77	L4	True	2500.00	2390.35	95.6
6	LD78	L5	True	10000.00	10737.42	107.4
7	LD79	L6	True	25000.00	24351.58	97.4



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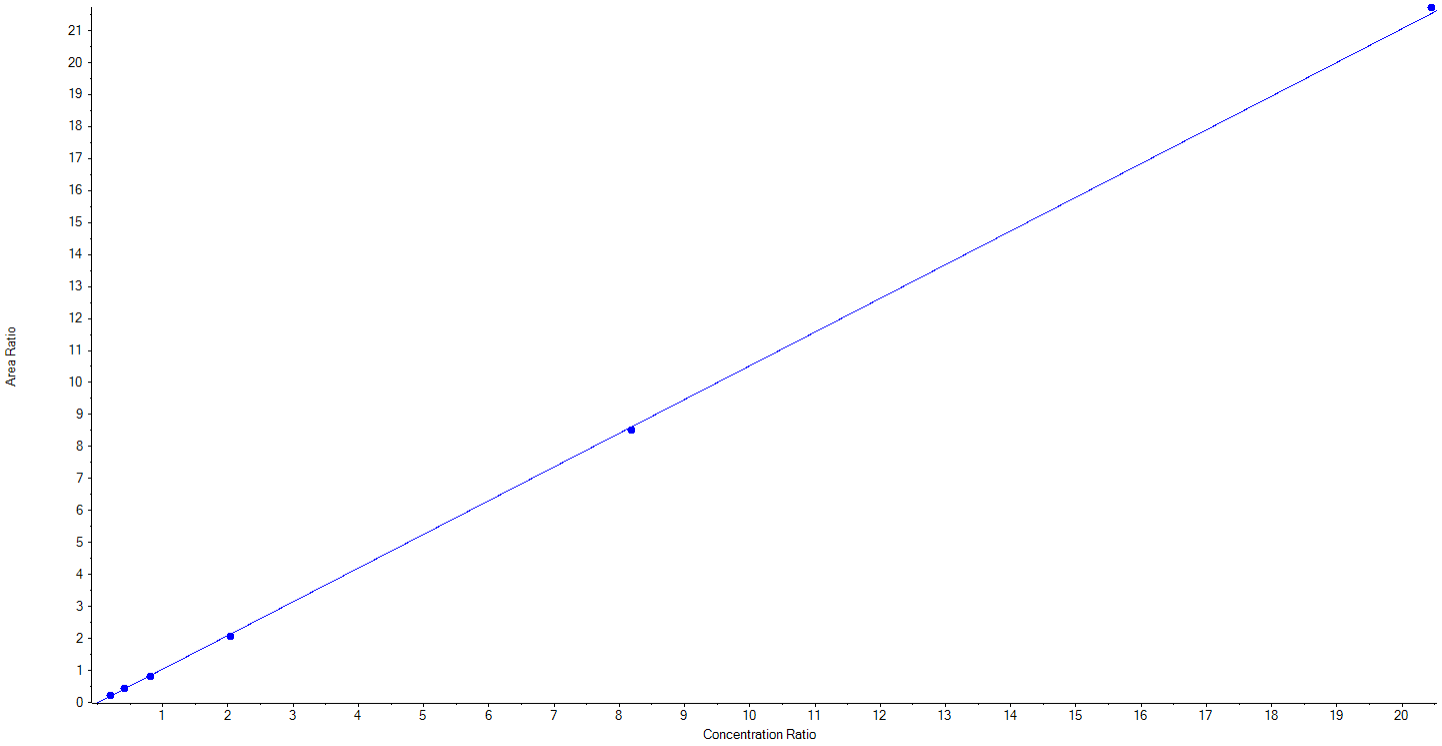
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	9Cl-PF3ONS_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	531.0 / 351.0	**Result Table**	20-1441
Internal Standard	13C8-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.05356 x + -0.01340 (r = 0.99988) (weighting: 1 / x) r^2:0.9998

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	263.29	105.3
3	LD75	L2	True	500.00	507.98	101.6
4	LD76	L3	True	1000.00	968.28	96.8
5	LD77	L4	True	2500.00	2415.31	96.6
6	LD78	L5	True	10000.00	9878.26	98.8
7	LD79	L6	True	25000.00	25216.89	100.9



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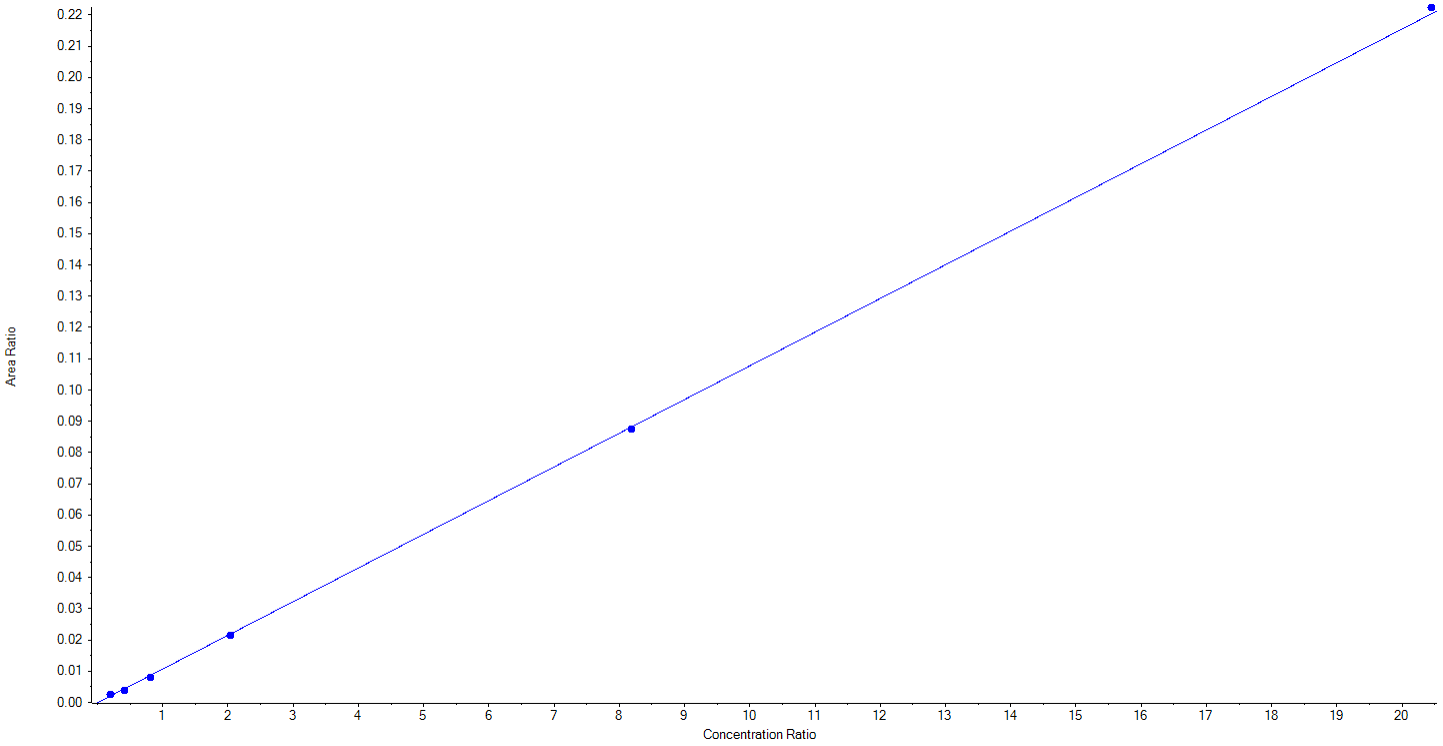
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	9Cl-PF3ONS_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	531.0 / 83.0	**Result Table**	20-1441
Internal Standard	13C8-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.01078 x + -7.27728e-5 (r = 0.99961) (weighting: 1 / x) r^2:0.9992

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	302.15	120.9
3	LD75	L2	True	500.00	446.11	89.2
4	LD76	L3	True	1000.00	924.35	92.4
5	LD77	L4	True	2500.00	2435.87	97.4
6	LD78	L5	True	10000.00	9913.63	99.1
7	LD79	L6	True	25000.00	25227.89	100.9



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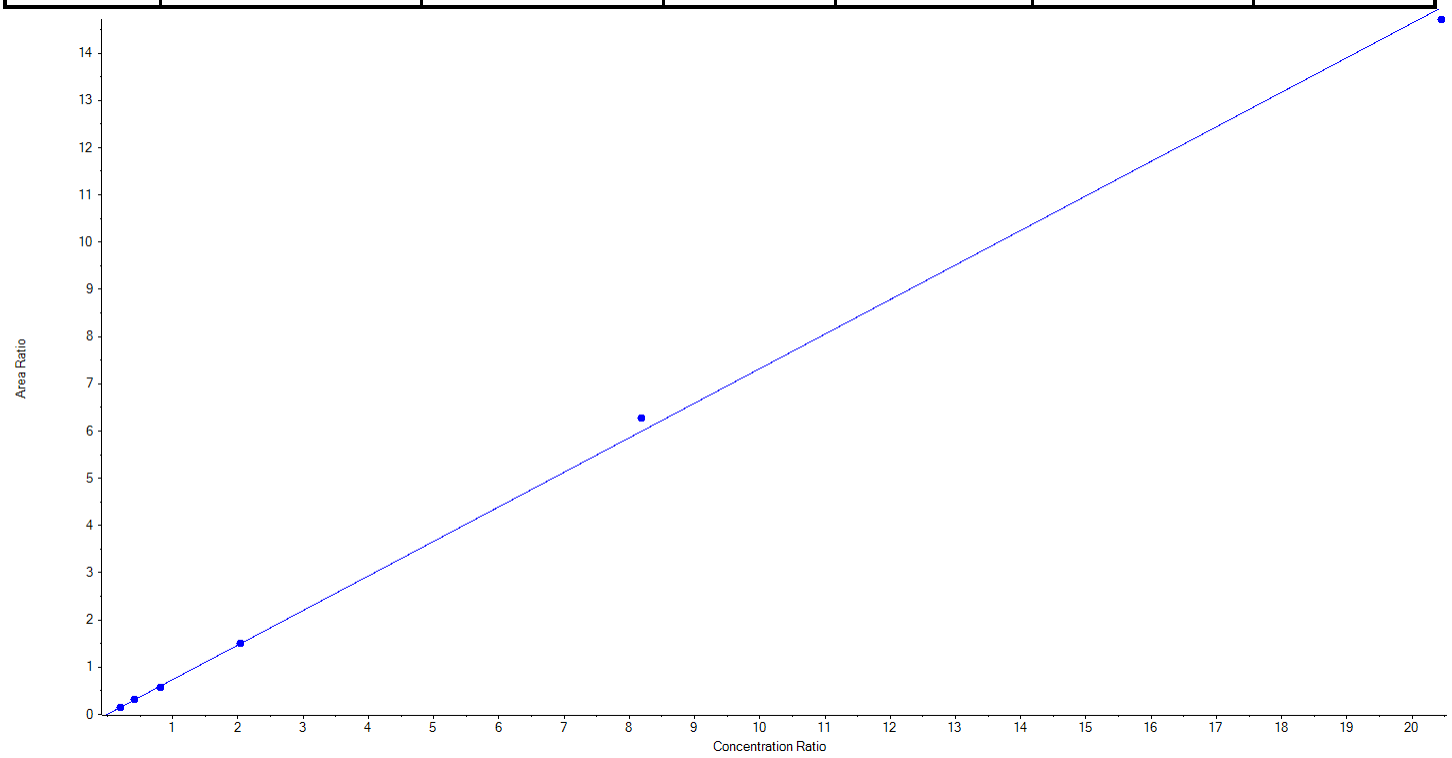
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	11Cl-pf3OUdS_1	**Data File**	AE_11112020_5-369.wiff
MRM Transition	631.0 / 451.0	**Result Table**	20-1441
Internal Standard	13C8-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.73145 x + 0.00672 (r = 0.99948) (weighting: 1 / x) r^2:0.9990

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	244.73	97.9
3	LD75	L2	True	500.00	529.44	105.9
4	LD76	L3	True	1000.00	936.56	93.7
5	LD77	L4	True	2500.00	2487.57	99.5
6	LD78	L5	True	10000.00	10475.52	104.8
7	LD79	L6	True	25000.00	24576.18	98.3



BATTELLE

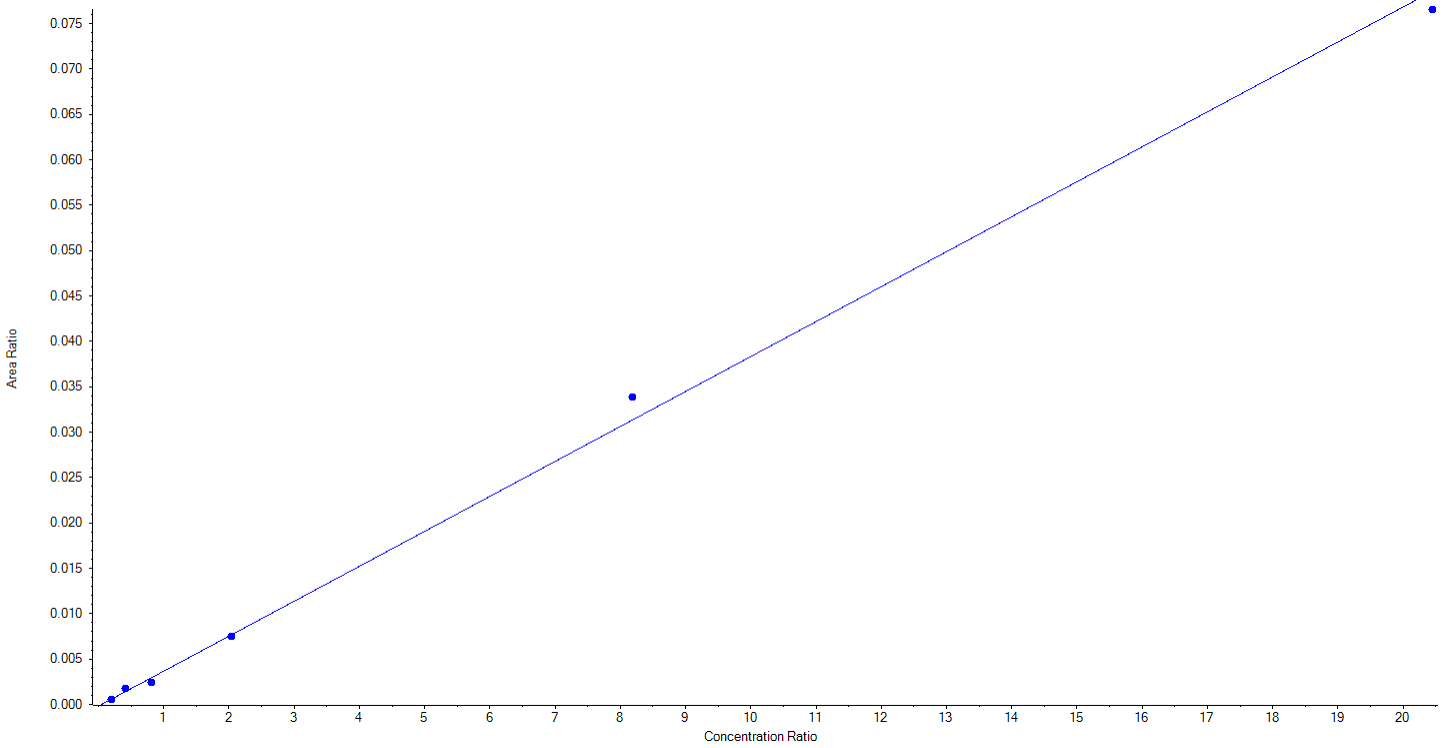
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:12:59 PM

Analyte Name	11Cl-pf3OUdS_2	**Data File**	AE_11112020_5-369.wiff
MRM Transition	631.0 / 83.0	**Result Table**	20-1441
Internal Standard	13C8-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.00385 x + -1.78016e-4 (r = 0.99796) (weighting: 1 / x) r^2:0.9959

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	250.00	231.87	92.8
3	LD75	L2	True	500.00	613.62	122.7
4	LD76	L3	True	1000.00	821.00	82.1
5	LD77	L4	True	2500.00	2425.37	97.0
6	LD78	L5	True	10000.00	10796.66	108.0
7	LD79	L6	True	25000.00	24361.48	97.5



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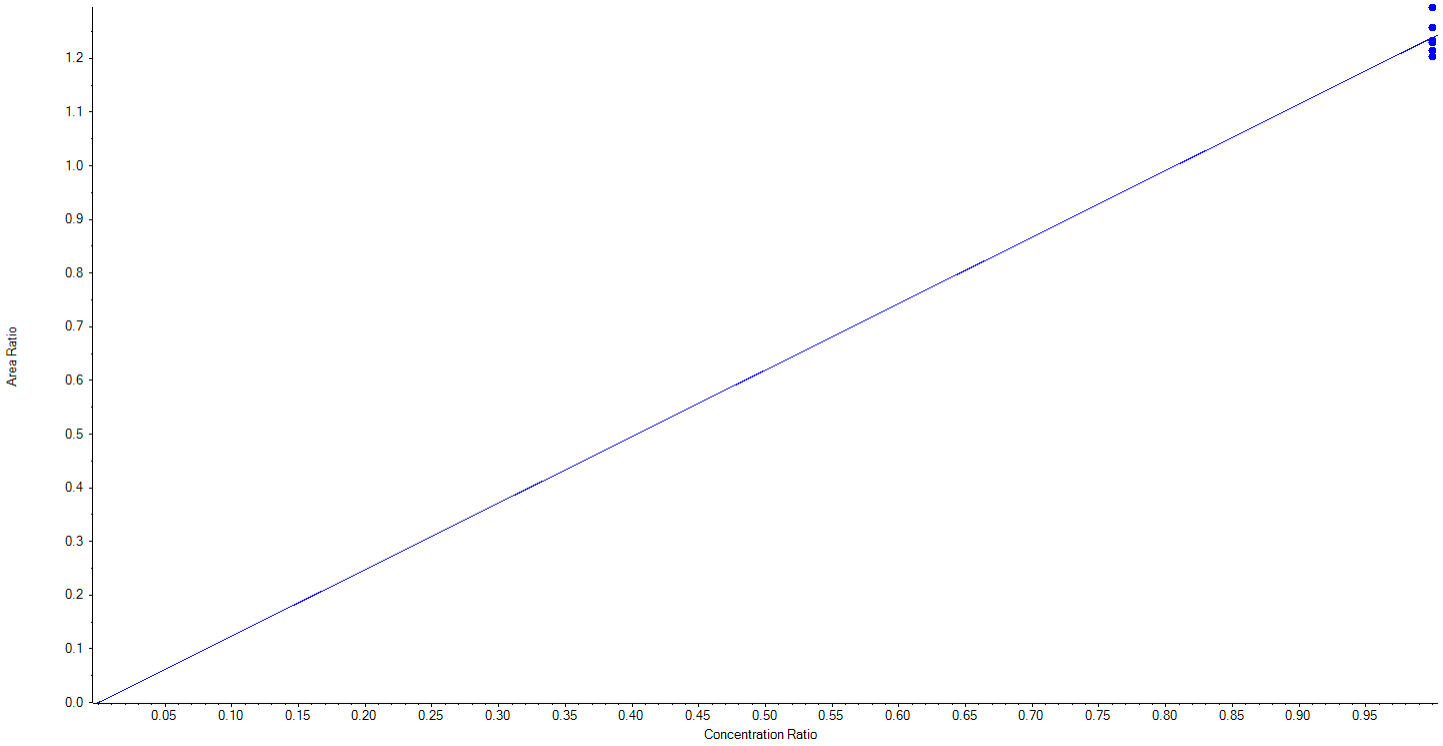
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:02:42 PM

Analyte Name	13C2-PFDoA	**Data File**	AE_11112020_5-369.wiff
MRM Transition	615.0 / 570.0	**Result Table**	20-1441_SIS
Internal Standard	13C2-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.23876 x (std. dev. = 0.03281) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	1250.00	1268.62	101.5
3	LD75	L2	True	1250.00	1240.06	99.2
4	LD76	L3	True	1250.00	1243.90	99.5
5	LD77	L4	True	1250.00	1225.89	98.1
6	LD78	L5	True	1250.00	1306.50	104.5
7	LD79	L6	True	1250.00	1215.02	97.2



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Calibration Summary Report

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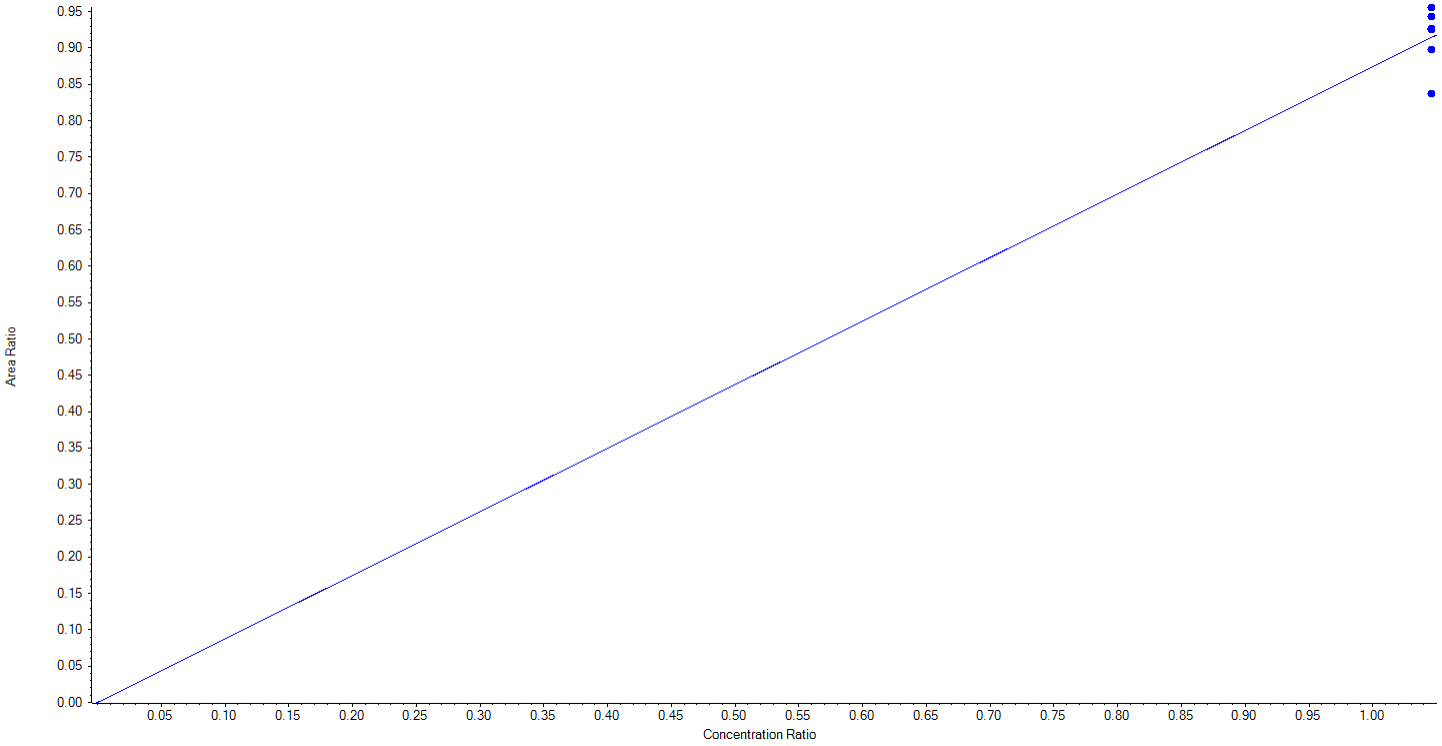
Printed: 11/11/2020 4:02:42 PM

Analyte Name	d3-MeFOSAA	**Data File**	AE_11112020_5-369.wiff
MRM Transition	573.0 / 419.0	**Result Table**	20-1441_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.87417 x (std. dev. = 0.04055) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	1250.00	1264.21	101.1
3	LD75	L2	True	1250.00	1290.20	103.2
4	LD76	L3	True	1250.00	1267.23	101.4
5	LD77	L4	True	1250.00	1226.80	98.1
6	LD78	L5	True	1250.00	1145.21	91.6
7	LD79	L6	True	1250.00	1306.35	104.5



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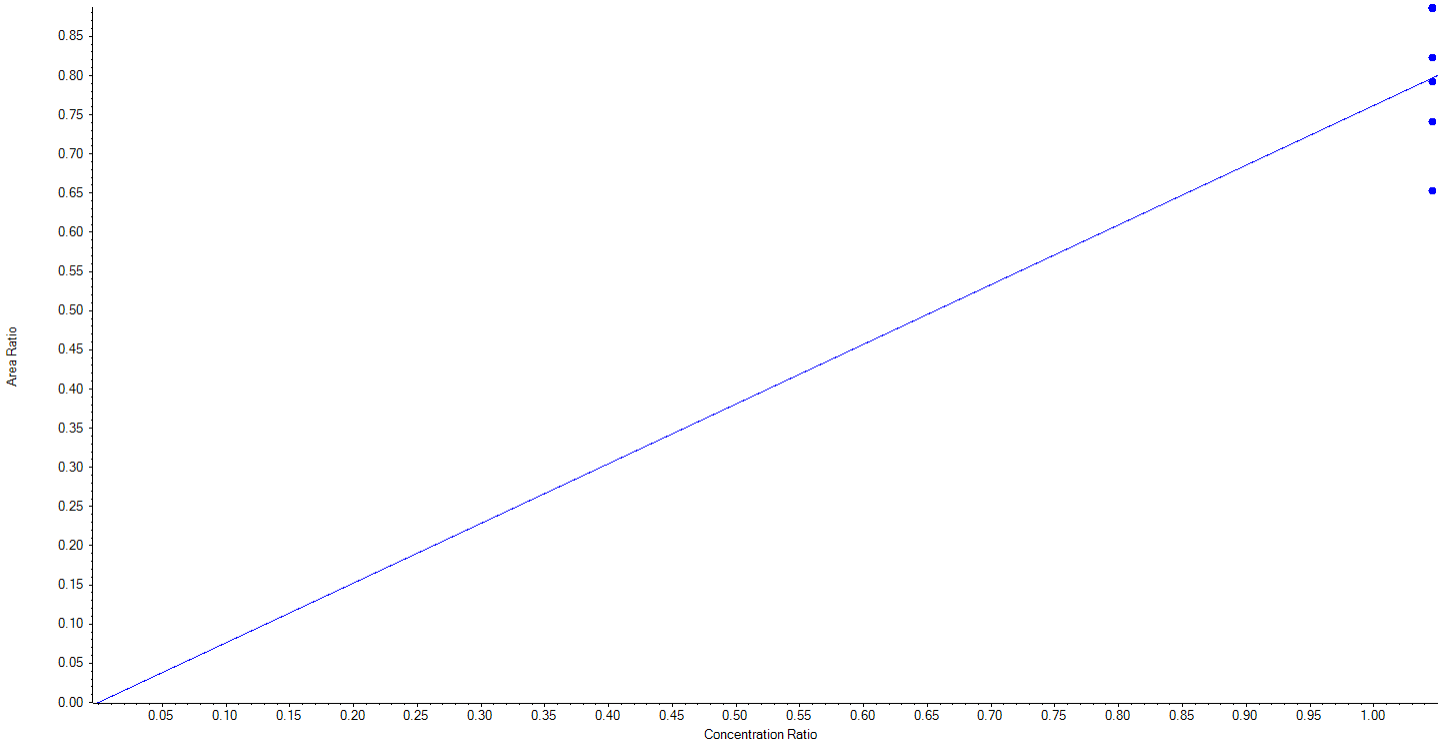
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:02:42 PM

Analyte Name	d5-EtFOSAA	**Data File**	AE_11112020_5-369.wiff
MRM Transition	589.0 / 419.0	**Result Table**	20-1441_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.76185 x (std. dev. = 0.08603) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	1250.00	1389.43	111.2
3	LD75	L2	True	1250.00	1390.98	111.3
4	LD76	L3	True	1250.00	1289.84	103.2
5	LD77	L4	True	1250.00	1243.13	99.5
6	LD78	L5	True	1250.00	1162.46	93.0
7	LD79	L6	True	1250.00	1024.17	81.9



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Calibration Summary Report

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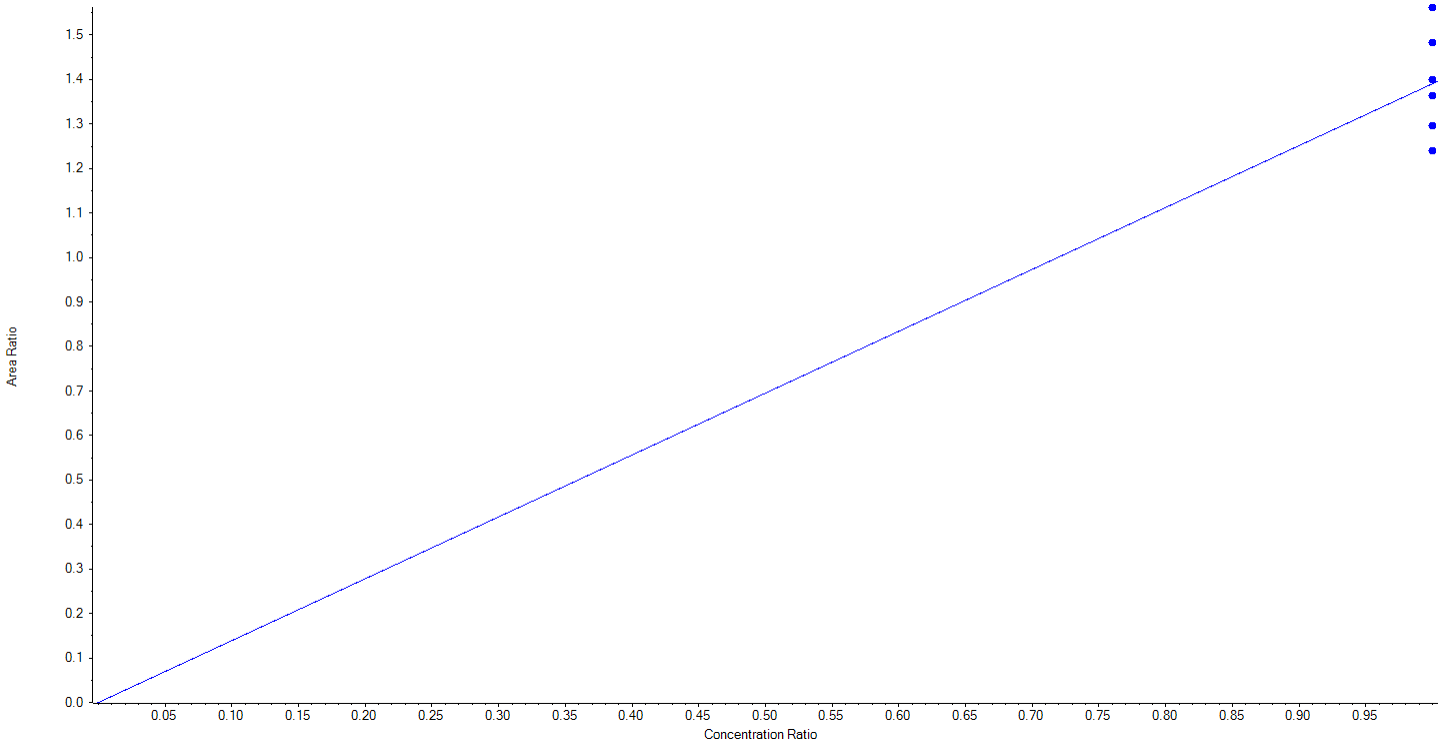
Analyte Name	13C5-PFHxA	**Data File**	AE_11112020_5-369.wiff
MRM Transition	318.0 / 273.0	**Result Table**	20-1441_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.39044 x (std. dev. = 0.11899) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	1250.00	1334.08	106.7
3	LD75	L2	True	1250.00	1225.04	98.0
4	LD76	L3	True	1250.00	1403.93	112.3
5	LD77	L4	True	1250.00	1258.11	100.7
6	LD78	L5	True	1250.00	1164.93	93.2
7	LD79	L6	True	1250.00	1113.90	89.1



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Calibration Summary Report

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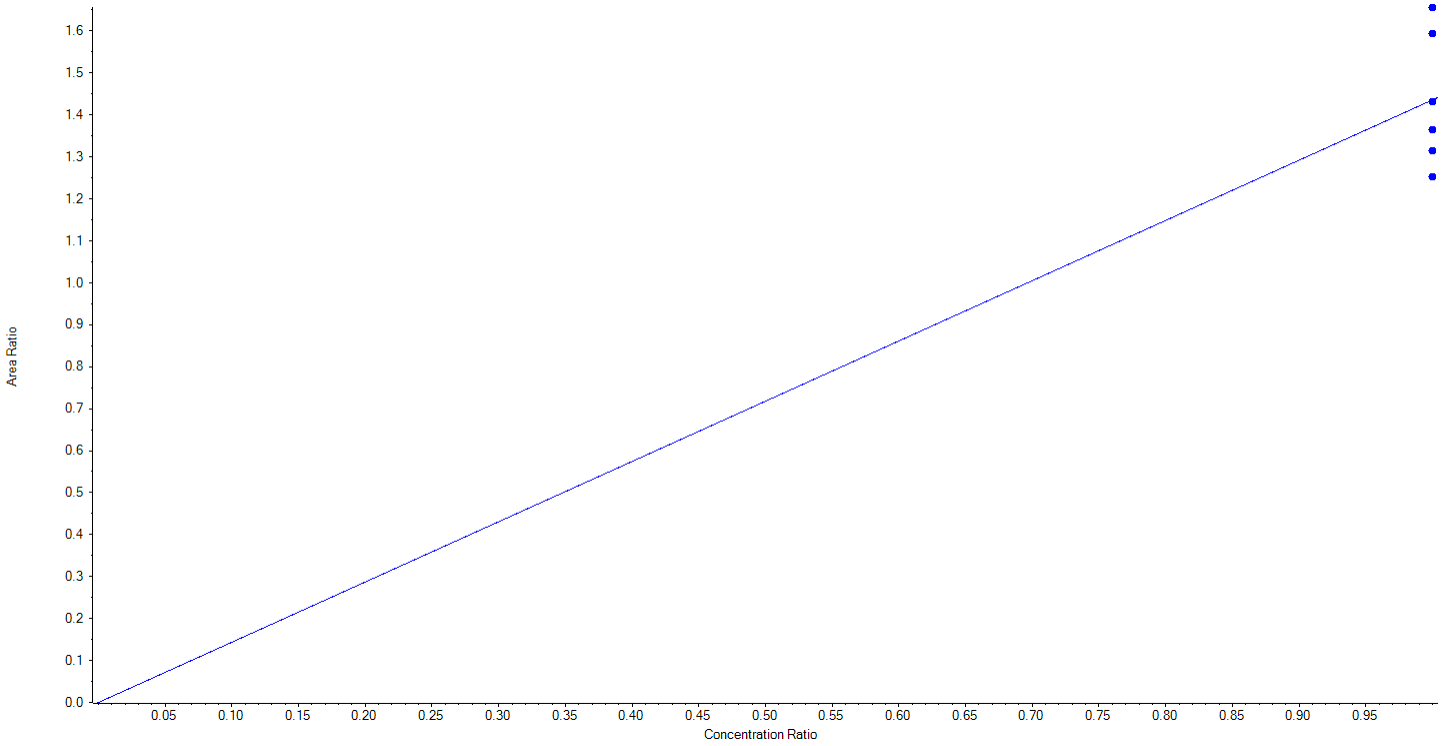
Analyte Name	13C4-PFHpA	**Data File**	AE_11112020_5-369.wiff
MRM Transition	367.0 / 322.0	**Result Table**	20-1441_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.43573 x (std. dev. = 0.15898) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	1250.00	1387.83	111.0
3	LD75	L2	True	1250.00	1246.03	99.7
4	LD76	L3	True	1250.00	1441.69	115.3
5	LD77	L4	True	1250.00	1188.29	95.1
6	LD78	L5	True	1250.00	1144.75	91.6
7	LD79	L6	True	1250.00	1091.42	87.3



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Calibration Summary Report

Created with Analyst Reporter
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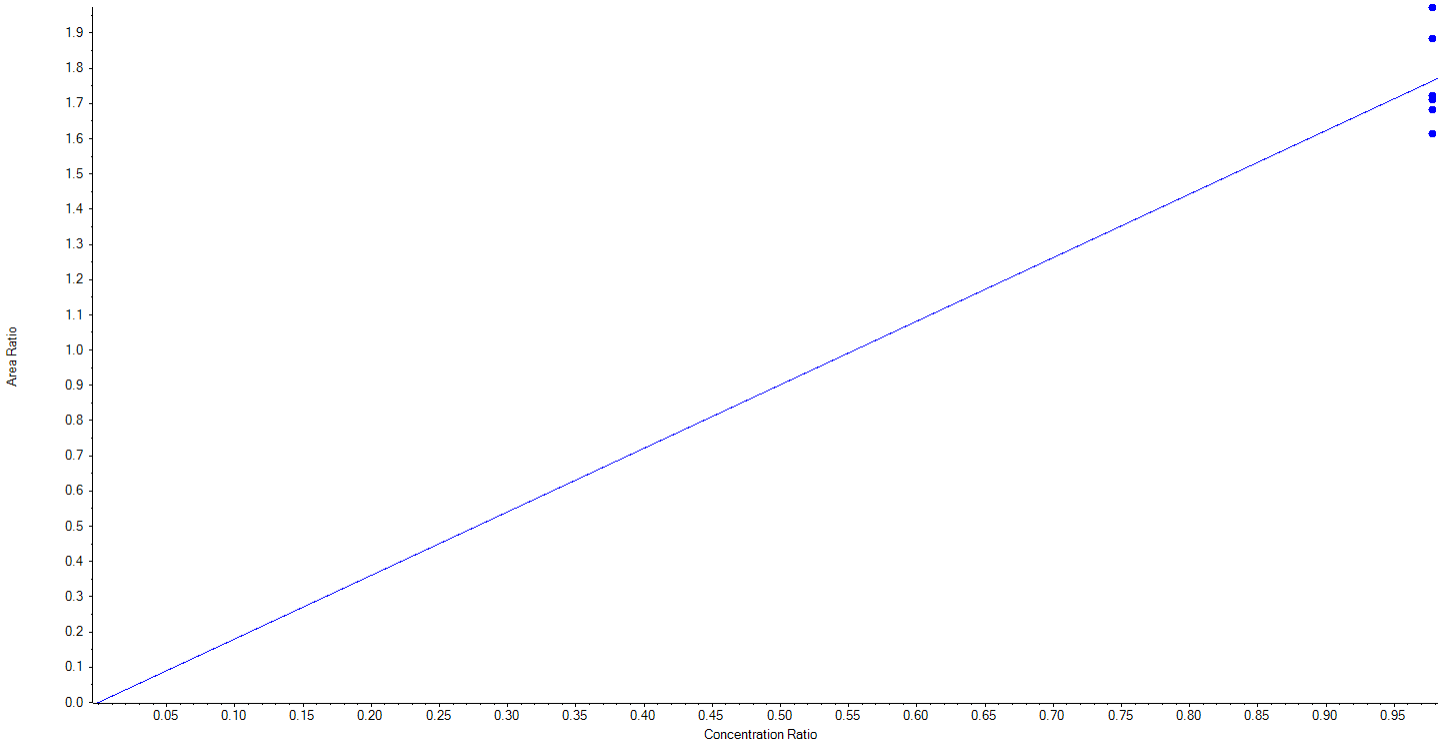
Analyte Name	13C8-PFOA	**Data File**	AE_11112020_5-369.wiff
MRM Transition	421.0 / 376.0	**Result Table**	20-1441_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.80348 x (std. dev. = 0.13801) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	1222.50	1304.79	106.7
3	LD75	L2	True	1222.50	1193.46	97.6
4	LD76	L3	True	1222.50	1366.83	111.8
5	LD77	L4	True	1222.50	1185.50	97.0
6	LD78	L5	True	1222.50	1119.32	91.6
7	LD79	L6	True	1222.50	1165.09	95.3



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Calibration Summary Report

Created with Analyst Reporter
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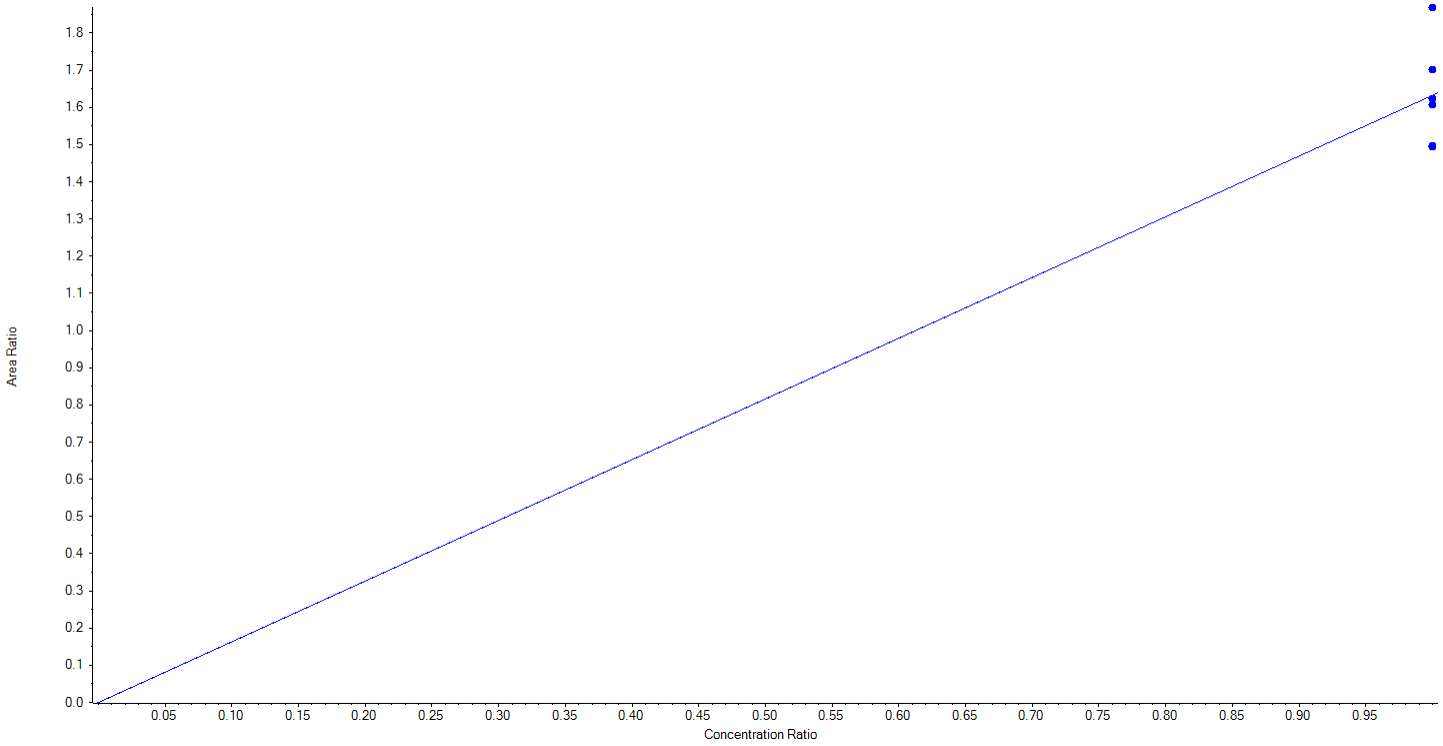
Analyte Name	13C9-PFNA	**Data File**	AE_11112020_5-369.wiff
MRM Transition	472.0 / 427.0	**Result Table**	20-1441_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.63235 x (std. dev. = 0.14058) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	1250.00	1303.98	104.3
3	LD75	L2	True	1250.00	1243.11	99.5
4	LD76	L3	True	1250.00	1430.81	114.5
5	LD77	L4	True	1250.00	1231.61	98.5
6	LD78	L5	True	1250.00	1144.57	91.6
7	LD79	L6	True	1250.00	1145.92	91.7



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Calibration Summary Report

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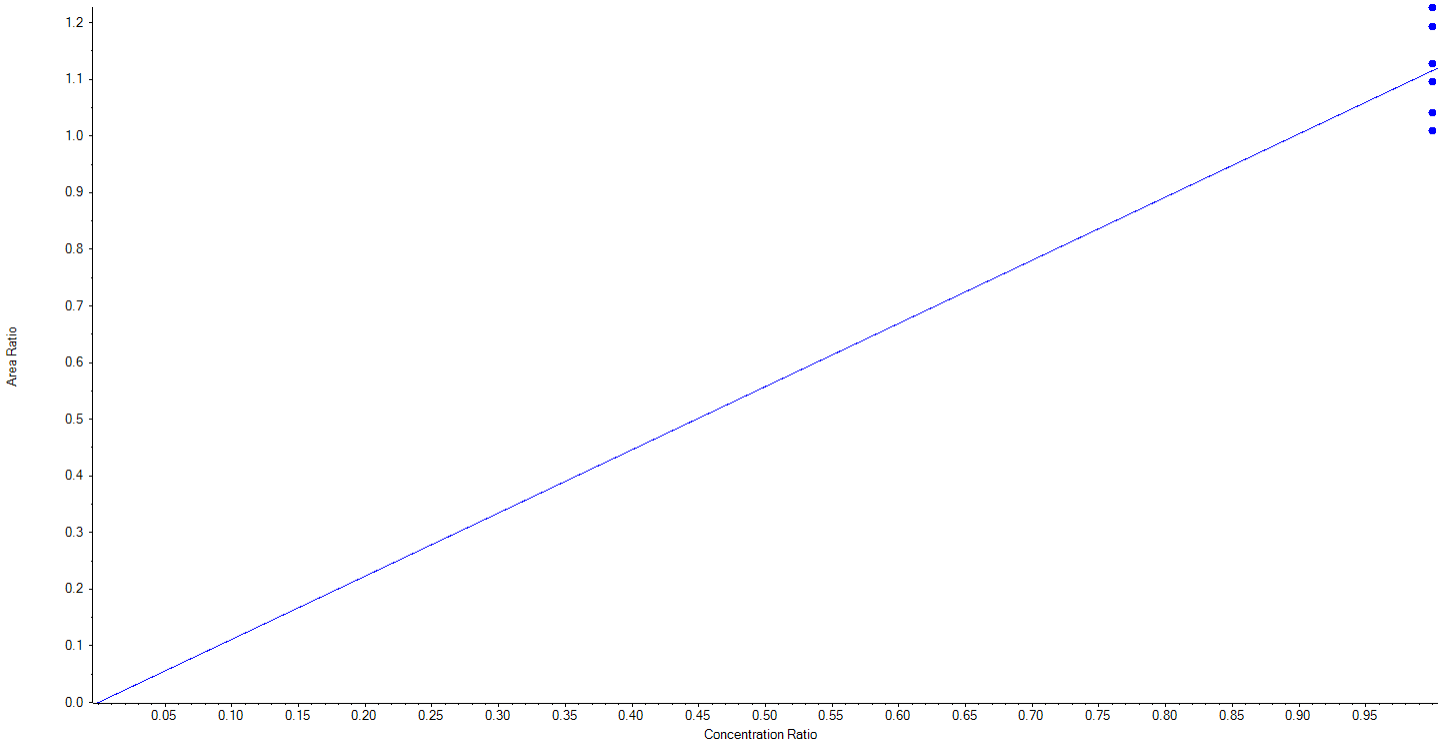
Analyte Name	13C6-PFDA	**Data File**	AE_11112020_5-369.wiff
MRM Transition	519.0 / 474.0	**Result Table**	20-1441_SIS
Internal Standard	13C2-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.11539 x (std. dev. = 0.08479) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	1250.00	1336.66	106.9
3	LD75	L2	True	1250.00	1374.80	110.0
4	LD76	L3	True	1250.00	1227.28	98.2
5	LD77	L4	True	1250.00	1264.62	101.2
6	LD78	L5	True	1250.00	1166.47	93.3
7	LD79	L6	True	1250.00	1130.18	90.4



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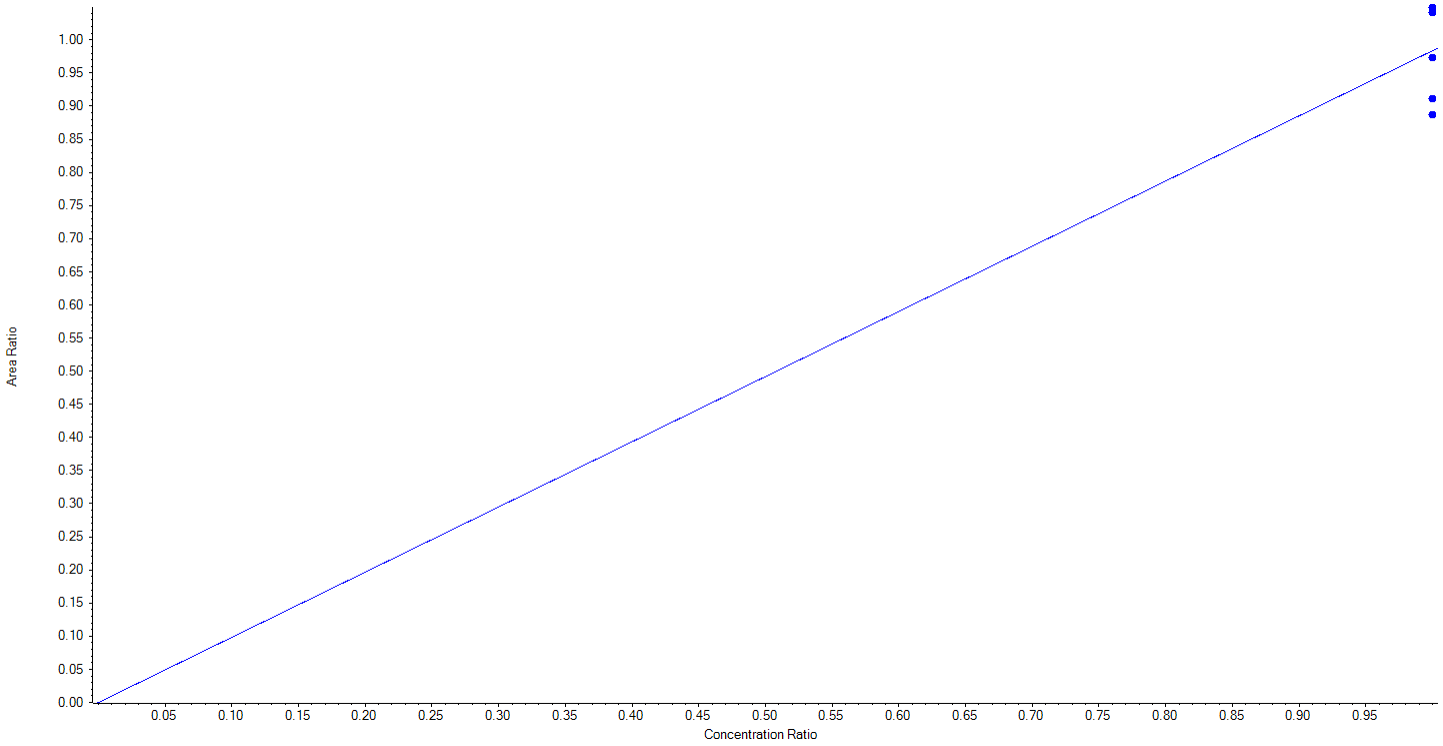
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:02:42 PM

Analyte Name	13C7-PFUnA	**Data File**	AE_11112020_5-369.wiff
MRM Transition	570.0 / 525.0	**Result Table**	20-1441_SIS
Internal Standard	13C2-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.98369 x (std. dev. = 0.07132) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	1250.00	1322.34	105.8
3	LD75	L2	True	1250.00	1332.71	106.6
4	LD76	L3	True	1250.00	1158.23	92.7
5	LD77	L4	True	1250.00	1322.63	105.8
6	LD78	L5	True	1250.00	1237.08	99.0
7	LD79	L6	True	1250.00	1127.00	90.2



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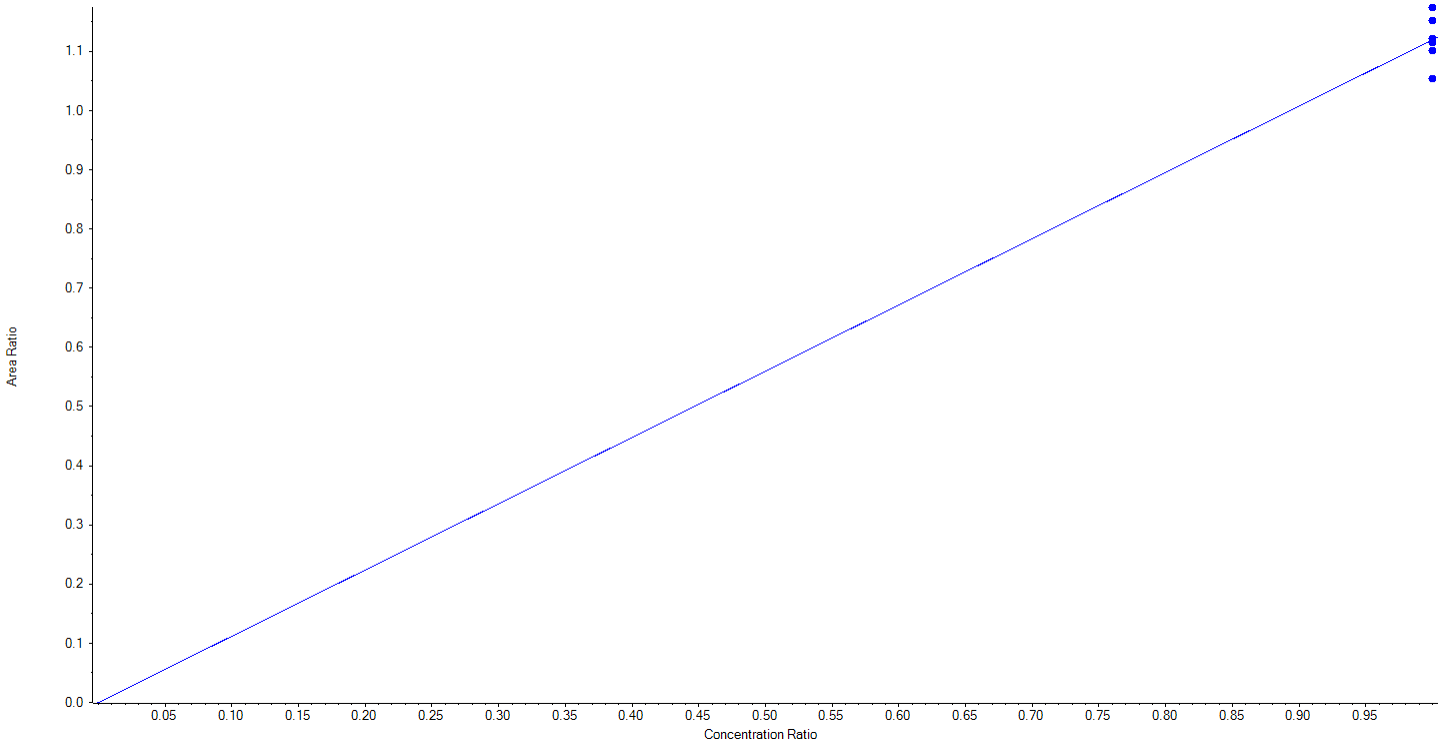
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:02:42 PM

Analyte Name	13C2-PFTeDA	**Data File**	AE_11112020_5-369.wiff
MRM Transition	715.0 / 670.0	**Result Table**	20-1441_SIS
Internal Standard	13C2-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.11963 x (std. dev. = 0.04195) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	1250.00	1244.54	99.6
3	LD75	L2	True	1250.00	1251.89	100.2
4	LD76	L3	True	1250.00	1175.85	94.1
5	LD77	L4	True	1250.00	1230.23	98.4
6	LD78	L5	True	1250.00	1286.65	102.9
7	LD79	L6	True	1250.00	1310.85	104.9



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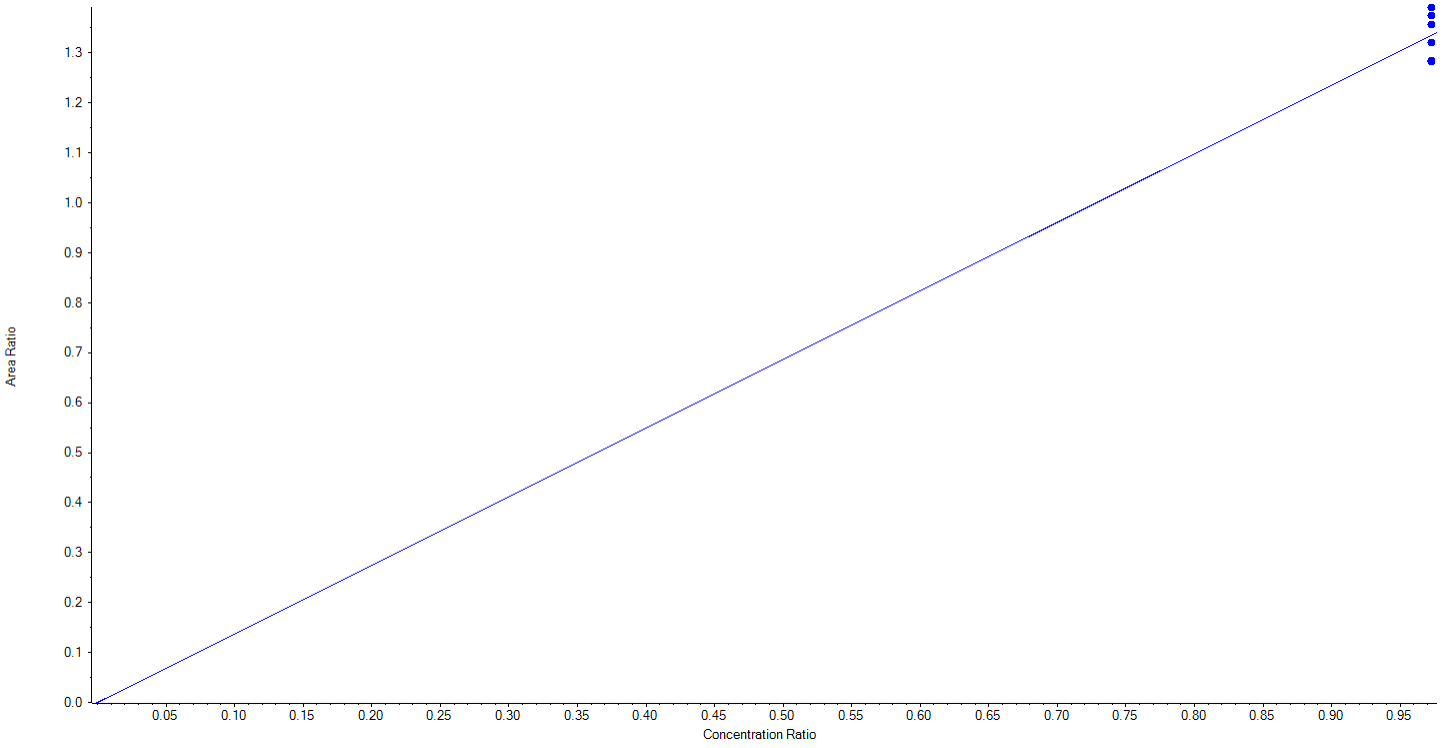
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:02:42 PM

Analyte Name	13C3-PFBS	**Data File**	AE_11112020_5-369.wiff
MRM Transition	302.0 / 99.0	**Result Table**	20-1441_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.37303 x (std. dev. = 0.04758) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	1162.50	1150.40	99.0
3	LD75	L2	True	1162.50	1181.75	101.7
4	LD76	L3	True	1162.50	1117.51	96.1
5	LD77	L4	True	1162.50	1117.35	96.1
6	LD78	L5	True	1162.50	1197.29	103.0
7	LD79	L6	True	1162.50	1210.70	104.2



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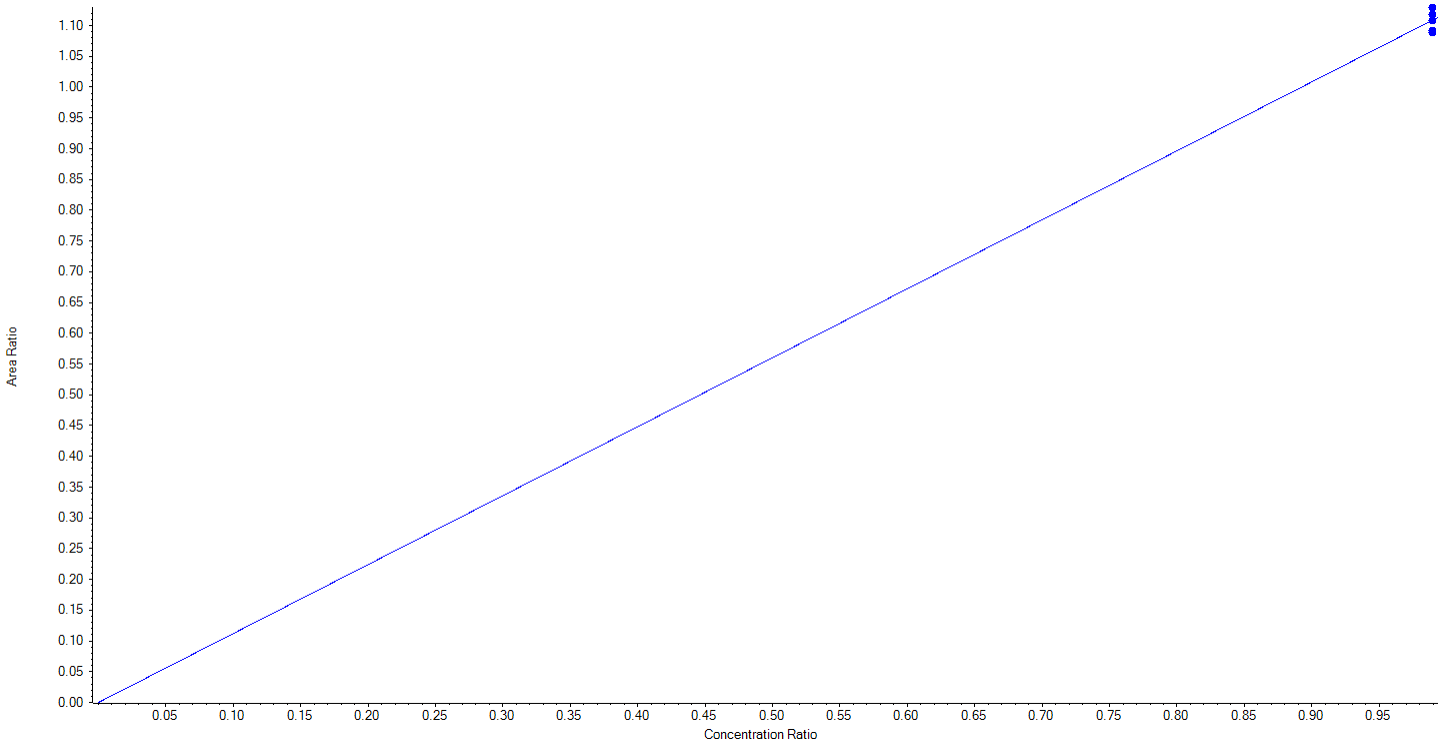
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:02:42 PM

Analyte Name	13C3-PFHxS	**Data File**	AE_11112020_5-369.wiff
MRM Transition	402.0 / 99.0	**Result Table**	20-1441_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.12057 x (std. dev. = 0.01606) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	1182.50	1161.59	98.2
3	LD75	L2	True	1182.50	1181.49	99.9
4	LD76	L3	True	1182.50	1163.92	98.4
5	LD77	L4	True	1182.50	1204.39	101.9
6	LD78	L5	True	1182.50	1192.04	100.8
7	LD79	L6	True	1182.50	1191.57	100.8



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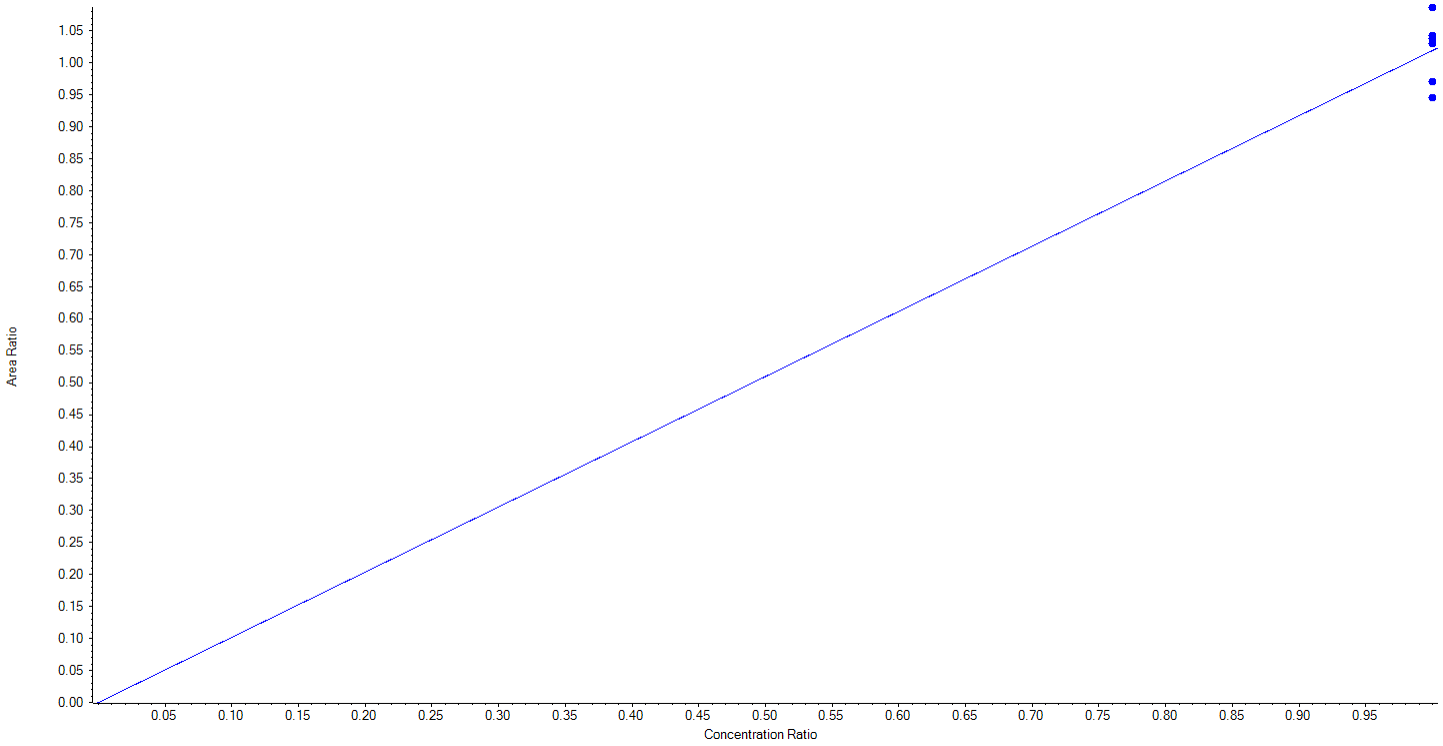
Calibration Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:02:42 PM

Analyte Name	13C8-PFOS	**Data File**	AE_11112020_5-369.wiff
MRM Transition	507.0 / 99.0	**Result Table**	20-1441_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.01942 x (std. dev. = 0.05169) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	1195.00	1273.84	106.6
3	LD75	L2	True	1195.00	1217.64	101.9
4	LD76	L3	True	1195.00	1222.91	102.3
5	LD77	L4	True	1195.00	1108.82	92.8
6	LD78	L5	True	1195.00	1208.66	101.1
7	LD79	L6	True	1195.00	1138.14	95.2



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Calibration Summary Report

Created with Analyst Reporter
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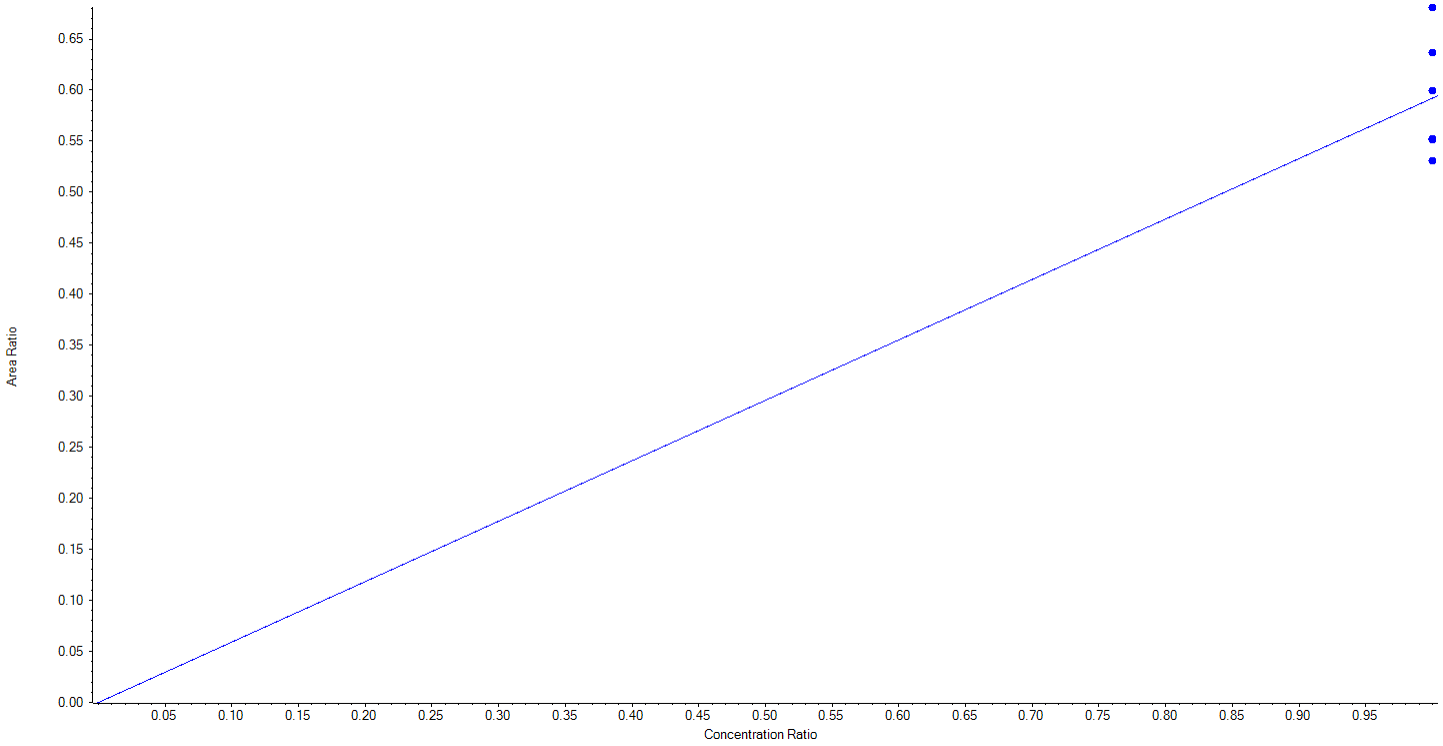
Analyte Name	13C3-HFPO-DA	**Data File**	AE_11112020_5-369.wiff
MRM Transition	287.0 / 169.0	**Result Table**	20-1441_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.59213 x (std. dev. = 0.05810) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	LD74	L1	True	1250.00	1164.84	93.2
3	LD75	L2	True	1250.00	1121.20	89.7
4	LD76	L3	True	1250.00	1344.79	107.6
5	LD77	L4	True	1250.00	1166.18	93.3
6	LD78	L5	True	1250.00	1265.57	101.3
7	LD79	L6	True	1250.00	1437.42	115.0



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	Isotope Dilution Calibration Curve Concentrations (ng/L)						IB (ng/L)	ICC (ng/L)
	LD74	LD75	LD76	LD77	LD78	LD79	LD80	LD81
PFBA	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
PFPeA	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	-	2,525.00
PFHxA	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	-	2,525.00
PFHpA	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
PFOA	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
PFNA	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
PFDA	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
PFUnA	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
PFDoA	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
PFTrDA	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
PFTeDA	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
NMeFOSAA (Branched)	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
NEtFOSAA (Branched)	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
PFOSA	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
PFBS	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
PFPeS	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
PFHxS (Branched)	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	-	2,525.00
PFHpS	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
PFOS (Branched)	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	-	2,525.00
PFDS	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	-	2,525.00
PFNS	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	-	2,525.00
4:2FTS	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
6:2FTS	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
8:2FTS	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	-	2,525.00
3:3 FTCA	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
5:3 FTCA	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
7:3 FTCA	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
HFPO-DA	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
Adona	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
9Cl-PF3ONS	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
11Cl-PF3OUdS	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	-	2,500.00
	Surrogates / Extracted Internal Standards							
13C4-PFBA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C5-PFPeA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C5-PFHxA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C4-PFHpA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C8-PFOA	1,222.50	1,222.50	1,222.50	1,222.50	1,222.50	1,222.50	1,222.50	1,222.50
13C9-PFNA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C6-PFDA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C7-PFUnA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C2-PFDoA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C2-PFTeDA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
d3-MeFOSAA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
d5-EtFOSAA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C8-FOSA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C3-PFBS	1,162.50	1,162.50	1,162.50	1,162.50	1,162.50	1,162.50	1,162.50	1,162.50
13C3-PFHxS	1,182.50	1,182.50	1,182.50	1,182.50	1,182.50	1,182.50	1,182.50	1,182.50
13C8-PFOS	1,195.00	1,195.00	1,195.00	1,195.00	1,195.00	1,195.00	1,195.00	1,195.00
13C2-4:2FTS	1,167.50	1,167.50	1,167.50	1,167.50	1,167.50	1,167.50	1,167.50	1,167.50
13C2-6:2FTS	1,187.50	1,187.50	1,187.50	1,187.50	1,187.50	1,187.50	1,187.50	1,187.50
13C2-8:2FTS	1,197.50	1,197.50	1,197.50	1,197.50	1,197.50	1,197.50	1,197.50	1,197.50
13C3-HFPO-DA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
	Internal Standards							
13C3-PFBA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C2-PFOA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C2-PFDA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C4-PFOS	1,195.00	1,195.00	1,195.00	1,195.00	1,195.00	1,195.00	1,195.00	1,195.00

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PFAS Calibration Quant Report

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Sample Name	LD74	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	180525.89	208.83	4396.7	False	13C3-PFBS	269776.85	1162.50	PFBS			
PFBS_2	298.9 / 99.0	1.33	56307.84	205.67	1207.5	False	13C3-PFBS	269776.85	1162.50	PFBS	0.312	0.333	✓
PFHxA_1	313.0 / 269.0	1.58	363692.55	248.20	565.8	False	13C5-PFHxA	1192534.54	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.59	20871.72	229.31	443.0	False	13C5-PFHxA	1192534.54	1250.00	PFHxA	0.057	0.062	✓
PFHpA_1	363.0 / 319.0	1.92	272308.06	237.41	461.7	False	13C4-PFHpA	1280987.59	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.92	8996.40	265.87	520.1	False	13C4-PFHpA	1280987.59	1250.00	PFHpA	0.033	0.030	✓
PFHxS_1	399.0 / 80.0	1.92	178367.35	218.55	710.5	False	13C3-PFHxS	213895.45	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	62213.20	219.93	822.7	False	13C3-PFHxS	213895.45	1182.50	PFHxS	0.349	0.359	✓
PFOA_1	413.0 / 369.0	2.28	320892.20	234.13	478.3	False	13C8-PFOA	1512823.31	1222.50	PFOA			
PFOA_2	413.0 / 169.0	2.28	24708.16	202.09	565.8	False	13C8-PFOA	1512823.31	1222.50	PFOA	0.077	0.093	✓
PFNA_1	463.0 / 419.0	2.65	254451.84	204.48	366.9	False	13C9-PFNA	1368415.81	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.65	92880.34	234.57	30610.9	False	13C9-PFNA	1368415.81	1250.00	PFNA	0.365	0.338	✓
PFOS_1	499.0 / 80.0	2.65	176869.24	243.61	385.6	False	13C8-PFOS	213392.02	1195.00	PFOS			
PFOS_2	499.0 / 99.0	2.65	37643.98	228.45	8396.9	False	13C8-PFOS	213392.02	1195.00	PFOS	0.213	0.203	✓
PFDA_1	513.0 / 469.0	3.00	281860.97	239.54	352.2	False	13C6-PFDA	1325592.91	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.00	14970.37	245.29	953.7	False	13C6-PFDA	1325592.91	1250.00	PFDA	0.053	0.059	✓
PFUnA_1	563.0 / 519.0	3.33	292431.79	226.20	601.7	False	13C7-PFUnA	1156549.78	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.32	10733.22	189.89	864.4	False	13C7-PFUnA	1156549.78	1250.00	PFUnA	0.037	0.061	✓
PFDoA_1	613.0 / 569.0	3.61	299497.65	226.79	540.4	False	13C2-PFDoA	1397270.36	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.61	34036.76	242.69	1274.9	False	13C2-PFDoA	1397270.36	1250.00	PFDoA	0.114	0.117	✓
PFTrDA_1	663.0 / 619.0	3.87	262541.95	202.17	1017.6	False	13C2-PFTeDA	1238928.79	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.87	17385.81	235.68	999.1	False	13C2-PFTeDA	1238928.79	1250.00	PFTrDA	0.066	0.070	✓
PFTeDA_1	713.0 / 669.0	4.10	296293.16	227.16	1401.2	False	13C2-PFTeDA	1238928.79	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.10	15796.72	248.24	943.9	False	13C2-PFTeDA	1238928.79	1250.00	PFTeDA	0.053	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.15	25295.72	251.32	2183825.6	False	d3-MeFOSAA	181109.05	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.15	29006.19	218.24	2519.0	False	d3-MeFOSAA	181109.05	1250.00	NMeFOSAA	1.147	1.078	✓
NEtFOSAA_1	584.0 / 419.0	3.32	39577.13	271.06	1368.1	False	d5-EtFOSAA	175343.70	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.35	2046.55	269.44	10156.6	True	d5-EtFOSAA	175343.70	1250.00	NEtFOSAA	0.052	0.055	✓
HFPO-DA_1	285.0 / 169.0	1.67	238305.48	244.63	1453.5	False	13C3-HFPO-DA	443426.79	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.67	7211.77	307.12	2921.0	False	13C3-HFPO-DA	443426.79	1250.00	HFPO-DA	0.030	0.022	✓
ADONA_1	377.0 / 251.0	1.95	618499.97	220.87	3017.8	False	13C8-PFOA	1512823.31	1222.50	ADONA			
ADONA_2	377.0 / 85.0	1.95	10287.42	249.32	1434318.1	False	13C8-PFOA	1512823.31	1222.50	ADONA	0.017	0.015	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.85	322984.43	263.29	688.1	False	13C8-PFOA	1512823.31	1222.50	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.85	3920.14	302.15	522.2	False	13C8-PFOA	1512823.31	1222.50	9Cl-PF3ONS	0.012	0.010	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.48	231692.26	244.73	1127.4	False	13C8-PFOA	1512823.31	1222.50	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.49	835.64	231.87	78.1	False	13C8-PFOA	1512823.31	1222.50	11Cl-PF3OUdS	0.004	0.005	✓

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PFAS Calibration Quant Report

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Sample Name	LD75	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:18:11 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	353094.00	534.34	6474.0	False	13C3-PFBS	267170.39	1162.50	PFBS			
PFBS_2	298.9 / 99.0	1.33	114044.30	524.87	2302.8	False	13C3-PFBS	267170.39	1162.50	PFBS	0.323	0.333	✓
PFHxA_1	313.0 / 269.0	1.58	663844.97	538.06	1035.8	False	13C5-PFHxA	1143611.89	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	44749.79	594.83	1001.9	False	13C5-PFHxA	1143611.89	1250.00	PFHxA	0.067	0.062	✓
PFHpA_1	363.0 / 319.0	1.92	494290.94	515.86	598.6	False	13C4-PFHpA	1201094.34	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	16395.24	570.18	827.2	False	13C4-PFHpA	1201094.34	1250.00	PFHpA	0.033	0.030	✓
PFHxS_1	399.0 / 80.0	1.92	377328.73	593.65	1157.7	False	13C3-PFHxS	208989.04	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	136055.21	601.05	709.4	False	13C3-PFHxS	208989.04	1182.50	PFHxS	0.361	0.359	✓
PFOA_1	413.0 / 369.0	2.28	601191.39	521.41	608.9	False	13C8-PFOA	1445094.33	1222.50	PFOA			
PFOA_2	413.0 / 169.0	2.28	55095.45	522.04	1066.6	False	13C8-PFOA	1445094.33	1222.50	PFOA	0.092	0.093	✓
PFNA_1	463.0 / 419.0	2.65	538563.60	517.98	501.8	False	13C9-PFNA	1362384.37	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.65	185043.00	531.13	1298.6	False	13C9-PFNA	1362384.37	1250.00	PFNA	0.344	0.338	✓
PFOS_1	499.0 / 80.0	2.65	355620.89	555.51	634.5	False	13C8-PFOS	195940.55	1195.00	PFOS			
PFOS_2	499.0 / 99.0	2.65	75259.00	568.18	4783.7	False	13C8-PFOS	195940.55	1195.00	PFOS	0.212	0.203	✓
PFDA_1	513.0 / 469.0	3.01	560370.57	524.78	440.1	False	13C6-PFDA	1298488.68	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.01	29983.14	494.75	265382.8	False	13C6-PFDA	1298488.68	1250.00	PFDA	0.054	0.059	✓
PFUnA_1	563.0 / 519.0	3.33	556764.09	513.60	589.0	False	13C7-PFUnA	1110106.35	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.33	39967.53	642.73	2331.0	False	13C7-PFUnA	1110106.35	1250.00	PFUnA	0.072	0.061	✓
PFDoA_1	613.0 / 569.0	3.62	593075.54	551.21	792.0	False	13C2-PFDoA	1300774.40	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.62	65181.23	526.36	1198.8	False	13C2-PFDoA	1300774.40	1250.00	PFDoA	0.110	0.117	✓
PFTrDA_1	663.0 / 619.0	3.87	518663.67	541.55	1417.9	False	13C2-PFTeDA	1186891.77	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.87	34126.79	529.39	1107.2	False	13C2-PFTeDA	1186891.77	1250.00	PFTrDA	0.066	0.070	✓
PFTeDA_1	713.0 / 669.0	4.11	578031.49	536.50	2003.1	False	13C2-PFTeDA	1186891.77	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.10	31071.68	535.85	1893.1	False	13C2-PFTeDA	1186891.77	1250.00	PFTeDA	0.054	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.15	61292.99	567.47	266771.6	False	d3-MeFOSAA	176662.72	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.15	71160.21	591.99	661.3	False	d3-MeFOSAA	176662.72	1250.00	NMeFOSAA	1.161	1.078	✓
NEtFOSAA_1	584.0 / 419.0	3.32	70263.83	505.91	1348.3	False	d5-EtFOSAA	167969.76	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.32	4352.45	575.43	1564.9	True	d5-EtFOSAA	167969.76	1250.00	NEtFOSAA	0.062	0.055	✓
HFPO-DA_1	285.0 / 169.0	1.67	502663.90	538.45	2348.8	False	13C3-HFPO-DA	445736.14	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.67	9374.82	427.69	2574.9	False	13C3-HFPO-DA	445736.14	1250.00	HFPO-DA	0.019	0.022	✓
ADONA_1	377.0 / 251.0	1.95	1228973.97	528.36	10140.9	False	13C8-PFOA	1445094.33	1222.50	ADONA			
ADONA_2	377.0 / 85.0	1.94	17202.88	477.45	7699.3	False	13C8-PFOA	1445094.33	1222.50	ADONA	0.014	0.015	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.85	613263.48	507.98	1022.6	False	13C8-PFOA	1445094.33	1222.50	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.85	5578.87	446.11	655.3	False	13C8-PFOA	1445094.33	1222.50	9Cl-PF3ONS	0.009	0.010	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.48	467485.22	529.44	1216.5	False	13C8-PFOA	1445094.33	1222.50	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.48	2535.93	613.62	241.8	False	13C8-PFOA	1445094.33	1222.50	11Cl-PF3OUdS	0.005	0.005	✓

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PFAS Calibration Quant Report

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Sample Name	LD76	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:28:38 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	641902.44	1014.47	10077.3	False	13C3-PFBS	281045.64	1162.50	PFBS			
PFBS_2	298.9 / 99.0	1.33	214445.54	1016.76	2854.1	False	13C3-PFBS	281045.64	1162.50	PFBS	0.334	0.333	✓
PFHxA_1	313.0 / 269.0	1.58	1207542.60	981.51	1055.4	False	13C5-PFHxA	1205184.79	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	73719.06	967.28	1268.9	False	13C5-PFHxA	1205184.79	1250.00	PFHxA	0.061	0.062	✓
PFHpA_1	363.0 / 319.0	1.92	926941.81	955.07	786.1	False	13C4-PFHpA	1277912.51	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	24914.68	838.61	25088.4	False	13C4-PFHpA	1277912.51	1250.00	PFHpA	0.027	0.030	✓
PFHxS_1	399.0 / 80.0	1.92	630100.88	950.95	1078.0	False	13C3-PFHxS	230725.58	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	222767.83	933.84	1852.4	False	13C3-PFHxS	230725.58	1182.50	PFHxS	0.354	0.359	✓
PFOA_1	413.0 / 369.0	2.28	1097849.32	951.63	623.8	False	13C8-PFOA	1521883.73	1222.50	PFOA			
PFOA_2	413.0 / 169.0	2.27	110578.87	1029.03	17153.8	False	13C8-PFOA	1521883.73	1222.50	PFOA	0.101	0.093	✓
PFNA_1	463.0 / 419.0	2.64	1061110.67	1027.95	653.1	False	13C9-PFNA	1441954.73	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.64	344987.30	982.53	3567.7	False	13C9-PFNA	1441954.73	1250.00	PFNA	0.325	0.338	✓
PFOS_1	499.0 / 80.0	2.64	677634.91	953.32	827.8	False	13C8-PFOS	220536.30	1195.00	PFOS			
PFOS_2	499.0 / 99.0	2.63	141130.84	986.71	1335.5	False	13C8-PFOS	220536.30	1195.00	PFOS	0.208	0.203	✓
PFDA_1	513.0 / 469.0	2.99	995009.57	942.25	732.2	False	13C6-PFDA	1323197.98	1250.00	PFDA			
PFDA_2	513.0 / 219.0	2.99	64240.70	1033.09	13937.7	False	13C6-PFDA	1323197.98	1250.00	PFDA	0.065	0.059	✓
PFUnA_1	563.0 / 519.0	3.31	1053159.33	1039.13	954.3	False	13C7-PFUnA	1101304.54	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.31	63772.98	1013.90	4546.5	False	13C7-PFUnA	1101304.54	1250.00	PFUnA	0.061	0.061	✓
PFDoA_1	613.0 / 569.0	3.60	1074108.55	907.33	1195.4	False	13C2-PFDoA	1489449.58	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.59	129857.29	934.80	1813.0	False	13C2-PFDoA	1489449.58	1250.00	PFDoA	0.121	0.117	✓
PFTrDA_1	663.0 / 619.0	3.85	908965.45	959.63	1645.6	False	13C2-PFTeDA	1272569.05	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.85	62329.06	932.95	1604.9	False	13C2-PFTeDA	1272569.05	1250.00	PFTrDA	0.069	0.070	✓
PFTeDA_1	713.0 / 669.0	4.09	1059462.66	967.74	2333.8	False	13C2-PFTeDA	1272569.05	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.08	57553.50	943.80	1957.2	False	13C2-PFTeDA	1272569.05	1250.00	PFTeDA	0.054	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.13	115222.71	933.45	253850.6	False	d3-MeFOSAA	196328.30	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.13	124289.86	946.67	5296.9	False	d3-MeFOSAA	196328.30	1250.00	NMeFOSAA	1.079	1.078	✓
NEtFOSAA_1	584.0 / 419.0	3.30	131636.07	917.60	39591.0	False	d5-EtFOSAA	174136.93	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.30	6134.78	775.63	252.6	False	d5-EtFOSAA	174136.93	1250.00	NEtFOSAA	0.047	0.055	✓
HFPO-DA_1	285.0 / 169.0	1.67	950942.78	943.06	3160.4	False	13C3-HFPO-DA	491619.35	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.67	18942.30	871.42	2655.8	False	13C3-HFPO-DA	491619.35	1250.00	HFPO-DA	0.020	0.022	✓
ADONA_1	377.0 / 251.0	1.95	2277716.39	978.29	6380.8	False	13C8-PFOA	1521883.73	1222.50	ADONA			
ADONA_2	377.0 / 85.0	1.95	37403.81	1043.89	1628.3	False	13C8-PFOA	1521883.73	1222.50	ADONA	0.016	0.015	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.84	1249564.23	968.28	1378.1	False	13C8-PFOA	1521883.73	1222.50	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.84	12292.50	924.35	1334.3	False	13C8-PFOA	1521883.73	1222.50	9Cl-PF3ONS	0.010	0.010	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.46	863034.24	936.56	1867.0	False	13C8-PFOA	1521883.73	1222.50	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.47	3664.85	821.00	504.2	False	13C8-PFOA	1521883.73	1222.50	11Cl-PF3OUdS	0.004	0.005	✓

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PFAS Calibration Quant Report

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Sample Name	LD77	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:39:05 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	1618498.67	2664.11	11901.9	False	13C3-PFBS	289509.00	1162.50	PFBS			
PFBS_2	298.9 / 99.0	1.33	552894.19	2694.74	4731.4	False	13C3-PFBS	289509.00	1162.50	PFBS	0.342	0.333	✓
PFHxA_1	313.0 / 269.0	1.58	2960058.77	2436.83	1876.9	False	13C5-PFHxA	1241020.87	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	181765.99	2408.79	1576.8	False	13C5-PFHxA	1241020.87	1250.00	PFHxA	0.061	0.062	✓
PFHpA_1	363.0 / 319.0	1.91	2282143.07	2578.82	1214.9	False	13C4-PFHpA	1210332.11	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	63749.33	2361.90	906.2	False	13C4-PFHpA	1210332.11	1250.00	PFHpA	0.028	0.030	✓
PFHxS_1	399.0 / 80.0	1.92	1629481.73	2487.80	2198.2	False	13C3-PFHxS	242782.53	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	596426.14	2511.73	1938.8	False	13C3-PFHxS	242782.53	1182.50	PFHxS	0.366	0.359	✓
PFOA_1	413.0 / 369.0	2.28	2775628.67	2513.52	955.4	False	13C8-PFOA	1516779.15	1222.50	PFOA			
PFOA_2	413.0 / 169.0	2.27	270706.18	2582.52	1281.9	False	13C8-PFOA	1516779.15	1222.50	PFOA	0.098	0.093	✓
PFNA_1	463.0 / 419.0	2.65	2603669.80	2659.59	993.0	False	13C9-PFNA	1426244.19	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.65	825744.04	2465.21	3811.1	False	13C9-PFNA	1426244.19	1250.00	PFNA	0.317	0.338	✓
PFOS_1	499.0 / 80.0	2.64	1674250.62	2585.72	1066.9	False	13C8-PFOS	203339.85	1195.00	PFOS			
PFOS_2	499.0 / 99.0	2.64	327949.08	2578.14	9061.7	False	13C8-PFOS	203339.85	1195.00	PFOS	0.196	0.203	✓
PFDA_1	513.0 / 469.0	3.00	2474380.96	2459.70	1055.0	False	13C6-PFDA	1290989.90	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.00	146148.32	2400.27	5108.3	False	13C6-PFDA	1290989.90	1250.00	PFDA	0.059	0.059	✓
PFUnA_1	563.0 / 519.0	3.32	2648629.15	2504.49	1616.2	False	13C7-PFUnA	1190778.97	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.32	164908.90	2379.41	1975.2	False	13C7-PFUnA	1190778.97	1250.00	PFUnA	0.062	0.061	✓
PFDoA_1	613.0 / 569.0	3.61	2822380.13	2665.80	1859.0	False	13C2-PFDoA	1389867.70	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.61	331680.96	2603.34	2460.9	False	13C2-PFDoA	1389867.70	1250.00	PFDoA	0.118	0.117	✓
PFTrDA_1	663.0 / 619.0	3.87	2432392.33	2791.88	2519.7	False	13C2-PFTeDA	1260648.48	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.87	168469.94	2622.14	2442.6	False	13C2-PFTeDA	1260648.48	1250.00	PFTrDA	0.069	0.070	✓
PFTeDA_1	713.0 / 669.0	4.10	2691346.76	2593.13	3833.5	False	13C2-PFTeDA	1260648.48	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.10	145936.67	2454.53	3372.6	False	13C2-PFTeDA	1260648.48	1250.00	PFTeDA	0.054	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.14	278819.13	2251.85	880571.0	False	d3-MeFOSAA	192123.34	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.15	295824.74	2343.25	33355.3	False	d3-MeFOSAA	192123.34	1250.00	NMeFOSAA	1.061	1.078	✓
NEtFOSAA_1	584.0 / 419.0	3.31	340769.61	2438.57	4750.5	False	d5-EtFOSAA	170106.19	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.32	19177.57	2441.08	16180.6	False	d5-EtFOSAA	170106.19	1250.00	NEtFOSAA	0.056	0.055	✓
HFPO-DA_1	285.0 / 169.0	1.67	2427270.00	2492.03	5021.2	False	13C3-HFPO-DA	489885.94	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.67	51735.33	2591.64	104946.1	False	13C3-HFPO-DA	489885.94	1250.00	HFPO-DA	0.021	0.022	✓
ADONA_1	377.0 / 251.0	1.95	5783190.43	2591.00	10380.6	False	13C8-PFOA	1516779.15	1222.50	ADONA			
ADONA_2	377.0 / 85.0	1.95	82970.89	2390.35	4118.1	False	13C8-PFOA	1516779.15	1222.50	ADONA	0.014	0.015	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.85	3136887.89	2415.31	2952.2	False	13C8-PFOA	1516779.15	1222.50	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.85	32465.40	2435.87	773168.0	False	13C8-PFOA	1516779.15	1222.50	9Cl-PF3ONS	0.010	0.010	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.48	2267713.79	2487.57	2468.0	False	13C8-PFOA	1516779.15	1222.50	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.48	11317.92	2425.37	1794.2	False	13C8-PFOA	1516779.15	1222.50	11Cl-PF3OUdS	0.005	0.005	✓

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PFAS Calibration Quant Report

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Sample Name	LD78	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:49:32 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	5705681.46	10379.20	26466.6	False	13C3-PFBS	270995.66	1162.50	PFBS			
PFBS_2	298.9 / 99.0	1.33	1995821.29	10676.81	8590.2	False	13C3-PFBS	270995.66	1162.50	PFBS	0.350	0.333	✓
PFHxA_1	313.0 / 269.0	1.58	10290188.12	10288.74	3545.4	False	13C5-PFHxA	1044889.34	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	627123.82	10076.64	2564.9	False	13C5-PFHxA	1044889.34	1250.00	PFHxA	0.061	0.062	✓
PFHpA_1	363.0 / 319.0	1.91	8044585.77	10559.06	2736.6	False	13C4-PFHpA	1060232.34	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	233843.62	10070.84	1816.3	False	13C4-PFHpA	1060232.34	1250.00	PFHpA	0.029	0.030	✓
PFHxS_1	399.0 / 80.0	1.92	5901442.03	10612.96	4734.3	False	13C3-PFHxS	212608.21	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	2109194.41	10410.03	3465.3	False	13C3-PFHxS	212608.21	1182.50	PFHxS	0.357	0.359	✓
PFOA_1	413.0 / 369.0	2.28	10264662.55	11040.97	1718.7	False	13C8-PFOA	1302218.98	1222.50	PFOA			
PFOA_2	413.0 / 169.0	2.27	1021866.87	11482.82	2575.2	False	13C8-PFOA	1302218.98	1222.50	PFOA	0.100	0.093	✓
PFNA_1	463.0 / 419.0	2.65	8923150.24	11012.08	1789.9	False	13C9-PFNA	1205243.89	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.65	2913762.54	10489.77	7943.2	False	13C9-PFNA	1205243.89	1250.00	PFNA	0.327	0.338	✓
PFOS_1	499.0 / 80.0	2.64	5950897.03	9579.12	1559.4	False	13C8-PFOS	196111.89	1195.00	PFOS			
PFOS_2	499.0 / 99.0	2.64	1167328.55	9676.81	5234.5	False	13C8-PFOS	196111.89	1195.00	PFOS	0.196	0.203	✓
PFDA_1	513.0 / 469.0	3.00	9023246.51	11046.54	1840.2	False	13C6-PFDA	1060651.20	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.00	528920.50	10551.11	827.1	False	13C6-PFDA	1060651.20	1250.00	PFDA	0.059	0.059	✓
PFUnA_1	563.0 / 519.0	3.32	9047053.06	10473.22	2386.8	False	13C7-PFUnA	992029.97	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.32	572147.83	9805.96	3021.0	False	13C7-PFUnA	992029.97	1250.00	PFUnA	0.063	0.061	✓
PFDoA_1	613.0 / 569.0	3.61	10226284.12	10347.02	2432.4	False	13C2-PFDoA	1319366.47	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.61	1206040.81	10044.61	2647.2	False	13C2-PFDoA	1319366.47	1250.00	PFDoA	0.118	0.117	✓
PFTrDA_1	663.0 / 619.0	3.86	8420707.37	10694.03	3150.3	False	13C2-PFTeDA	1174369.46	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.86	610306.73	10324.99	3354.5	False	13C2-PFTeDA	1174369.46	1250.00	PFTrDA	0.072	0.070	✓
PFTeDA_1	713.0 / 669.0	4.10	9732952.44	10272.28	3901.0	False	13C2-PFTeDA	1174369.46	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.09	556080.38	10116.71	3956.0	False	13C2-PFTeDA	1174369.46	1250.00	PFTeDA	0.057	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.14	1068183.15	10262.64	4209.7	False	d3-MeFOSAA	159353.46	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.14	1129072.27	10885.11	3247.0	False	d3-MeFOSAA	159353.46	1250.00	NMeFOSAA	1.057	1.078	✓
NEtFOSAA_1	584.0 / 419.0	3.31	1168064.49	10103.94	1932.0	False	d5-EtFOSAA	140907.22	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.31	66744.60	10196.61	575.3	False	d5-EtFOSAA	140907.22	1250.00	NEtFOSAA	0.057	0.055	✓
HFPO-DA_1	285.0 / 169.0	1.67	8786454.60	10060.51	7482.3	False	13C3-HFPO-DA	483417.46	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.67	185825.16	10104.20	1447.4	False	13C3-HFPO-DA	483417.46	1250.00	HFPO-DA	0.021	0.022	✓
ADONA_1	377.0 / 251.0	1.95	20313014.82	10797.37	15035.9	False	13C8-PFOA	1302218.98	1222.50	ADONA			
ADONA_2	377.0 / 85.0	1.95	314425.53	10737.42	7699555.6	False	13C8-PFOA	1302218.98	1222.50	ADONA	0.015	0.015	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.85	11068522.66	9878.26	4585.3	False	13C8-PFOA	1302218.98	1222.50	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.85	113729.44	9913.63	2299.9	False	13C8-PFOA	1302218.98	1222.50	9Cl-PF3ONS	0.010	0.010	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.47	8170679.49	10475.52	4321.4	False	13C8-PFOA	1302218.98	1222.50	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.47	44055.37	10796.66	1247.4	False	13C8-PFOA	1302218.98	1222.50	11Cl-PF3OUdS	0.005	0.005	✓

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PFAS Calibration Quant Report

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Sample Name	LD79	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:59:59 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	13835870.06	24449.05	44949.9	False	13C3-PFBS	280897.45	1162.50	PFBS			
PFBS_2	298.9 / 99.0	1.33	4651539.33	24131.15	12220.9	False	13C3-PFBS	280897.45	1162.50	PFBS	0.336	0.333	✓
PFHxA_1	313.0 / 269.0	1.58	24342118.69	25149.16	5906.9	False	13C5-PFHxA	1015424.73	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	1528066.01	25365.65	3858.3	False	13C5-PFHxA	1015424.73	1250.00	PFHxA	0.063	0.062	✓
PFHpA_1	363.0 / 319.0	1.91	17957678.40	24403.79	4555.2	False	13C4-PFHpA	1027335.83	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	563798.14	25142.60	4309.8	False	13C4-PFHpA	1027335.83	1250.00	PFHpA	0.031	0.030	✓
PFHxS_1	399.0 / 80.0	1.92	13870719.57	24778.59	6277.5	False	13C3-PFHxS	215220.21	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	5095548.78	24965.91	6387.9	False	13C3-PFHxS	215220.21	1182.50	PFHxS	0.367	0.359	✓
PFOA_1	413.0 / 369.0	2.28	23518093.33	23988.34	2003.6	False	13C8-PFOA	1377580.08	1222.50	PFOA			
PFOA_2	413.0 / 169.0	2.27	2202183.31	23431.50	2789.4	False	13C8-PFOA	1377580.08	1222.50	PFOA	0.094	0.093	✓
PFNA_1	463.0 / 419.0	2.65	19575536.64	23827.92	2017.3	False	13C9-PFNA	1226350.67	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.65	6914592.48	24546.79	6685.1	False	13C9-PFNA	1226350.67	1250.00	PFNA	0.353	0.338	✓
PFOS_1	499.0 / 80.0	2.64	15221445.88	25725.22	2859.3	False	13C8-PFOS	187012.61	1195.00	PFOS			
PFOS_2	499.0 / 99.0	2.64	2934051.60	25604.20	3032.3	False	13C8-PFOS	187012.61	1195.00	PFOS	0.193	0.203	✓
PFDA_1	513.0 / 469.0	3.00	19279396.53	24037.19	2264.0	False	13C6-PFDA	1043374.48	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.00	1209845.93	24525.49	3374.0	False	13C6-PFDA	1043374.48	1250.00	PFDA	0.063	0.059	✓
PFUnA_1	563.0 / 519.0	3.32	19500089.29	24493.35	2366.3	False	13C7-PFUnA	917584.48	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.32	1363757.60	25218.12	2746.5	False	13C7-PFUnA	917584.48	1250.00	PFUnA	0.070	0.061	✓
PFDoA_1	613.0 / 569.0	3.61	22833855.45	24551.85	2971.8	False	13C2-PFDoA	1245758.52	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.61	2818410.99	24898.20	3937.7	False	13C2-PFDoA	1245758.52	1250.00	PFDoA	0.123	0.117	✓
PFTrDA_1	663.0 / 619.0	3.86	19479401.37	24060.74	3158.3	False	13C2-PFTeDA	1214761.16	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.86	1500674.74	24604.84	3548.4	False	13C2-PFTeDA	1214761.16	1250.00	PFTrDA	0.077	0.070	✓
PFTeDA_1	713.0 / 669.0	4.09	24065062.83	24653.19	4111.1	False	13C2-PFTeDA	1214761.16	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.09	1416567.71	24950.86	4349.5	False	13C2-PFTeDA	1214761.16	1250.00	PFTeDA	0.059	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.14	2997698.49	24983.26	5855.4	False	d3-MeFOSAA	183297.64	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.14	2890912.37	24264.74	5024.0	False	d3-MeFOSAA	183297.64	1250.00	NMeFOSAA	0.964	1.078	✓
NEtFOSAA_1	584.0 / 419.0	3.31	2593782.40	25012.92	2742.6	False	d5-EtFOSAA	126425.09	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.31	146936.26	24991.82	2456.0	False	d5-EtFOSAA	126425.09	1250.00	NEtFOSAA	0.057	0.055	✓
HFPO-DA_1	285.0 / 169.0	1.67	20505741.47	24963.19	10201.9	False	13C3-HFPO-DA	558020.96	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.67	484087.64	24945.74	9629.0	False	13C3-HFPO-DA	558020.96	1250.00	HFPO-DA	0.024	0.022	✓
ADONA_1	377.0 / 251.0	1.95	47874993.15	24134.11	18577.3	False	13C8-PFOA	1377580.08	1222.50	ADONA			
ADONA_2	377.0 / 85.0	1.95	752223.53	24351.58	59445.7	False	13C8-PFOA	1377580.08	1222.50	ADONA	0.016	0.015	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.85	29919200.73	25216.89	6350.8	False	13C8-PFOA	1377580.08	1222.50	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.85	306318.81	25227.89	4186.7	False	13C8-PFOA	1377580.08	1222.50	9Cl-PF3ONS	0.010	0.010	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.47	20265745.22	24576.18	6965.3	False	13C8-PFOA	1377580.08	1222.50	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.47	105466.98	24361.48	2140.1	False	13C8-PFOA	1377580.08	1222.50	11Cl-PF3OUdS	0.005	0.005	✓

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PFAS Calibration Quant Report

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Sample Name	LD74	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.61	1397270.36	1268.62	5417.6	False	13C2-PFDA	1111406.09	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.15	181602.75	1264.21	1068.8	False	13C4-PFOS	196370.88	1195.00		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	173945.56	1389.43	1233.6	False	13C4-PFOS	196370.88	1195.00		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1192534.54	1334.08	5550.6	False	13C2-PFOA	803610.07	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.91	1280987.59	1387.83	95761018.8	False	13C2-PFOA	803610.07	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.27	1512823.31	1304.79	11613.7	False	13C2-PFOA	803610.07	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.64	1368415.81	1303.98	4715.8	False	13C2-PFOA	803610.07	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.00	1325592.91	1336.66	1301.5	False	13C2-PFDA	1111406.09	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	1156549.78	1322.34	4045.7	False	13C2-PFDA	1111406.09	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.10	1238928.79	1244.54	3281.7	False	13C2-PFDA	1111406.09	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	259560.77	1150.40	822.5	True	13C4-PFOS	196370.88	1195.00		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.92	213895.45	1161.59	7770.6	False	13C4-PFOS	196370.88	1195.00		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.64	213392.02	1273.84	1318.9	False	13C4-PFOS	196370.88	1195.00		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	443426.79	1164.84	3564.6	False	13C2-PFOA	803610.07	1250.00		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	LD75	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:18:11 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.62	1300774.40	1240.06	5206.5	False	13C2-PFDA	1058478.61	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	178034.57	1290.20	1500.8	False	13C4-PFOS	188634.89	1195.00		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	167279.37	1390.98	919.7	False	13C4-PFOS	188634.89	1195.00		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1143611.89	1225.04	5049.6	False	13C2-PFOA	839240.12	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1201094.34	1246.03	46011.5	False	13C2-PFOA	839240.12	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.27	1445094.33	1193.46	5045.3	False	13C2-PFOA	839240.12	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.64	1362384.37	1243.11	3585.9	False	13C2-PFOA	839240.12	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.00	1298488.68	1374.80	6538.7	False	13C2-PFDA	1058478.61	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	1110106.35	1332.71	5414.8	False	13C2-PFDA	1058478.61	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.10	1186891.77	1251.89	4909.4	False	13C2-PFDA	1058478.61	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	256129.52	1181.75	913.8	True	13C4-PFOS	188634.89	1195.00		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.92	208989.04	1181.49	3133.0	False	13C4-PFOS	188634.89	1195.00		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.64	195940.55	1217.64	1388.8	False	13C4-PFOS	188634.89	1195.00		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	445736.14	1121.20	7354.7	False	13C2-PFOA	839240.12	1250.00		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	LD76	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:28:38 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.59	1489449.58	1243.90	3775.9	False	13C2-PFDA	1208270.38	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.13	195966.98	1267.23	1237.4	False	13C4-PFOS	211397.66	1195.00		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.29	173834.16	1289.84	1165.7	False	13C4-PFOS	211397.66	1195.00		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1205184.79	1403.93	13460.3	False	13C2-PFOA	771729.60	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.91	1277912.51	1441.69	13903.9	False	13C2-PFOA	771729.60	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.27	1521883.73	1366.83	45280.6	False	13C2-PFOA	771729.60	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1441954.73	1430.81	5506.6	False	13C2-PFOA	771729.60	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.98	1323197.98	1227.28	10046.4	False	13C2-PFDA	1208270.38	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	1101304.54	1158.23	3174.8	False	13C2-PFDA	1208270.38	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.08	1272569.05	1175.85	4802.9	False	13C2-PFDA	1208270.38	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	271432.24	1117.51	855.5	True	13C4-PFOS	211397.66	1195.00		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.92	230725.58	1163.92	3133.2	False	13C4-PFOS	211397.66	1195.00		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	220536.30	1222.91	1430.2	False	13C4-PFOS	211397.66	1195.00		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	491619.35	1344.79	3842.6	False	13C2-PFOA	771729.60	1250.00		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	LD77	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:39:05 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.61	1389867.70	1225.89	6370.5	False	13C2-PFDA	1144049.86	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	192920.80	1226.80	1226.0	False	13C4-PFOS	214970.43	1195.00		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	170370.25	1243.13	1040.7	False	13C4-PFOS	214970.43	1195.00		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1241020.87	1258.11	10305.9	False	13C2-PFOA	886785.71	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1210332.11	1188.29	4912.5	False	13C2-PFOA	886785.71	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.27	1516779.15	1185.50	7124.7	False	13C2-PFOA	886785.71	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.64	1426244.19	1231.61	9720.6	False	13C2-PFOA	886785.71	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1290989.90	1264.62	5707.1	False	13C2-PFDA	1144049.86	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	1190778.97	1322.63	3746.2	False	13C2-PFDA	1144049.86	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.10	1260648.48	1230.23	4030.1	False	13C2-PFDA	1144049.86	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	275982.01	1117.35	670.9	True	13C4-PFOS	214970.43	1195.00		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	242782.53	1204.39	260966.3	False	13C4-PFOS	214970.43	1195.00		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	203339.85	1108.82	1113.0	False	13C4-PFOS	214970.43	1195.00		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	489885.94	1166.18	3917.7	False	13C2-PFOA	886785.71	1250.00		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	LD78	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:49:32 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.61	1319366.47	1306.50	4133.3	False	13C2-PFDA	1019016.26	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	159340.62	1145.21	892.8	False	13C4-PFOS	190202.75	1195.00		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	140959.30	1162.46	926.5	False	13C4-PFOS	190202.75	1195.00		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1044889.34	1164.93	14189.3	False	13C2-PFOA	806359.16	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1060232.34	1144.75	16998.0	False	13C2-PFOA	806359.16	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.27	1302218.98	1119.32	1472.9	False	13C2-PFOA	806359.16	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.64	1205243.89	1144.57	3660.5	False	13C2-PFOA	806359.16	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1060651.20	1166.47	5856.3	False	13C2-PFDA	1019016.26	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	992029.97	1237.08	4229.4	False	13C2-PFDA	1019016.26	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	1174369.46	1286.65	5026.6	False	13C2-PFDA	1019016.26	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	261653.12	1197.29	819.2	True	13C4-PFOS	190202.75	1195.00		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	212608.21	1192.04	7731.8	False	13C4-PFOS	190202.75	1195.00		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	196111.89	1208.66	1432.6	False	13C4-PFOS	190202.75	1195.00		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	483417.46	1265.57	61365.5	False	13C2-PFOA	806359.16	1250.00		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	LD79	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:59:59 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.61	1245758.52	1215.02	3253.4	False	13C2-PFDA	1034605.53	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	184067.56	1306.35	1112.9	False	13C4-PFOS	192616.01	1195.00		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	125766.70	1024.17	986.3	False	13C4-PFOS	192616.01	1195.00		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1015424.73	1113.90	5545.9	False	13C2-PFOA	819517.47	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1027335.83	1091.42	75333.9	False	13C2-PFOA	819517.47	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.27	1377580.08	1165.09	15421.4	False	13C2-PFOA	819517.47	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.64	1226350.67	1145.92	6800.3	False	13C2-PFOA	819517.47	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.00	1043374.48	1130.18	3854.6	False	13C2-PFDA	1034605.53	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	917584.48	1127.00	3774.0	False	13C2-PFDA	1034605.53	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.08	1214761.16	1310.85	3411.3	False	13C2-PFDA	1034605.53	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	267941.16	1210.70	925.9	True	13C4-PFOS	192616.01	1195.00		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.92	215220.21	1191.57	2429.1	False	13C4-PFOS	192616.01	1195.00		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	187012.61	1138.14	1272.4	False	13C4-PFOS	192616.01	1195.00		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	558020.96	1437.42	3492.0	False	13C2-PFOA	819517.47	1250.00		N/A	N/A	✓

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QC Summary Report

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Sample Name	LD81 ICC	**Injection Vial**	9
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 9:20:54 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.33	2801.98	2500.00	112.08
PFBS_2	298.9 / 99.0	1.33	2720.80	2500.00	108.83
PFHxA_1	313.0 / 269.0	1.58	2599.64	2525.00	102.96
PFHxA_2	313.0 / 119.0	1.58	2573.47	2525.00	101.92
PFHpA_1	363.0 / 319.0	1.91	2694.90	2500.00	107.80
PFHpA_2	363.0 / 169.0	1.91	2516.20	2500.00	100.65
PFHxS_1	399.0 / 80.0	1.92	3005.14	2525.00	119.02
PFHxS_2	399.0 / 99.0	1.92	2851.21	2525.00	112.92
PFOA_1	413.0 / 369.0	2.27	2518.49	2500.00	100.74
PFOA_2	413.0 / 169.0	2.27	2462.24	2500.00	98.49
PFNA_1	463.0 / 419.0	2.65	2666.14	2500.00	106.65
PFNA_2	463.0 / 219.0	2.64	2723.99	2500.00	108.96
PFOS_1	499.0 / 80.0	2.64	2340.42	2525.00	92.69
PFOS_2	499.0 / 99.0	2.64	2473.00	2525.00	97.94
PFDA_1	513.0 / 469.0	3.00	2560.55	2500.00	102.42
PFDA_2	513.0 / 219.0	3.00	2289.29	2500.00	91.57
PFUnA_1	563.0 / 519.0	3.32	2624.43	2500.00	104.98
PFUnA_2	563.0 / 269.0	3.32	2505.04	2500.00	100.20
PFDoA_1	613.0 / 569.0	3.61	2900.95	2500.00	116.04
PFDoA_2	613.0 / 319.0	3.61	2741.24	2500.00	109.65
PFTrDA_1	663.0 / 619.0	3.87	2922.56	2500.00	116.90
PFTrDA_2	663.0 / 169.0	3.87	2852.82	2500.00	114.11
PFTeDA_1	713.0 / 669.0	4.11	2755.20	2500.00	110.21
PFTeDA_2	713.0 / 169.0	4.11	2634.64	2500.00	105.39
NMeFOSAA_1	570.0 / 419.0	3.14	2454.13	2500.00	98.17
NMeFOSAA_2	570.0 / 512.0	3.14	2800.32	2500.00	112.01
NEtFOSAA_1	584.0 / 419.0	3.31	2241.99	2500.00	89.68
NEtFOSAA_2	584.0 / 483.0	3.31	1996.69	2500.00	79.87
HFPO-DA_1	285.0 / 169.0	1.66	2740.40	2500.00	109.62
HFPO-DA_2	285.0 / 118.8	1.66	2579.87	2500.00	103.19
ADONA_1	377.0 / 251.0	1.94	2485.17	2500.00	99.41
ADONA_2	377.0 / 85.0	1.94	2479.78	2500.00	99.19
9Cl-PF3ONS_1	531.0 / 351.0	2.85	2349.38	2500.00	93.98
9Cl-PF3ONS_2	531.0 / 83.0	2.85	2181.64	2500.00	87.27
11Cl-pf3OUdS_1	631.0 / 451.0	3.48	2327.78	2500.00	93.11
11Cl-pf3OUdS_2	631.0 / 83.0	3.47	2317.54	2500.00	92.70

Sample Name	LD76 CCV	**Injection Vial**	17
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:44:35 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.33	1172.25	1000.00	117.22
PFBS_2	298.9 / 99.0	1.33	1120.86	1000.00	112.09
PFHxA_1	313.0 / 269.0	1.58	987.17	1010.00	97.74
PFHxA_2	313.0 / 119.0	1.58	921.43	1010.00	91.23
PFHpA_1	363.0 / 319.0	1.91	962.47	1000.00	96.25
PFHpA_2	363.0 / 169.0	1.91	951.05	1000.00	95.11
PFHxS_1	399.0 / 80.0	1.92	1009.29	1010.00	99.93
PFHxS_2	399.0 / 99.0	1.92	942.36	1010.00	93.30
PFOA_1	413.0 / 369.0	2.27	1003.02	1000.00	100.30
PFOA_2	413.0 / 169.0	2.27	951.34	1000.00	95.13
PFNA_1	463.0 / 419.0	2.65	972.45	1000.00	97.25
PFNA_2	463.0 / 219.0	2.64	921.65	1000.00	92.16
PFOS_1	499.0 / 80.0	2.64	934.94	1010.00	92.57
PFOS_2	499.0 / 99.0	2.64	1017.74	1010.00	100.77
PFDA_1	513.0 / 469.0	3.00	929.31	1000.00	92.93
PFDA_2	513.0 / 219.0	3.00	918.15	1000.00	91.82
PFUnA_1	563.0 / 519.0	3.32	1043.24	1000.00	104.32
PFUnA_2	563.0 / 269.0	3.32	1104.51	1000.00	110.45
PFDoA_1	613.0 / 569.0	3.61	1002.51	1000.00	100.25
PFDoA_2	613.0 / 319.0	3.61	943.94	1000.00	94.39
PFTrDA_1	663.0 / 619.0	3.86	1004.14	1000.00	100.41
PFTrDA_2	663.0 / 169.0	3.86	944.41	1000.00	94.44
PFTeDA_1	713.0 / 669.0	4.09	966.51	1000.00	96.65
PFTeDA_2	713.0 / 169.0	4.09	918.00	1000.00	91.80
NMeFOSAA_1	570.0 / 419.0	3.14	879.63	1000.00	87.96
NMeFOSAA_2	570.0 / 512.0	3.14	920.08	1000.00	92.01
NEtFOSAA_1	584.0 / 419.0	3.31	816.70	1000.00	81.67
NEtFOSAA_2	584.0 / 483.0	3.31	876.06	1000.00	87.61
HFPO-DA_1	285.0 / 169.0	1.67	1056.19	1000.00	105.62
HFPO-DA_2	285.0 / 118.8	1.67	1172.98	1000.00	117.30
ADONA_1	377.0 / 251.0	1.94	987.65	1000.00	98.77
ADONA_2	377.0 / 85.0	1.94	1090.08	1000.00	109.01
9Cl-PF3ONS_1	531.0 / 351.0	2.85	952.78	1000.00	95.28
9Cl-PF3ONS_2	531.0 / 83.0	2.85	1233.34	1000.00	123.33
11Cl-pf3OUdS_1	631.0 / 451.0	3.47	926.78	1000.00	92.68
11Cl-pf3OUdS_2	631.0 / 83.0	3.48	855.39	1000.00	85.54

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QC Summary Report

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Sample Name	LD81 ICC	**Injection Vial**	9
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 9:20:54 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.61	1205.45	1250.00	96.44
d3-MeFOSAA	573.0 / 419.0	3.14	1191.69	1250.00	95.34
d5-EtFOSAA	589.0 / 419.0	3.31	1346.74	1250.00	107.74
13C5-PFHxA	318.0 / 273.0	1.57	1116.80	1250.00	89.34
13C4-PFHpA	367.0 / 322.0	1.90	1133.93	1250.00	90.71
13C8-PFOA	421.0 / 376.0	2.26	1191.08	1222.50	97.43
13C9-PFNA	472.0 / 427.0	2.63	1110.21	1250.00	88.82
13C6-PFDA	519.0 / 474.0	2.99	1311.34	1250.00	104.91
13C7-PFUnA	570.0 / 525.0	3.32	1277.63	1250.00	102.21
13C2-PFTeDA	715.0 / 670.0	4.10	1220.04	1250.00	97.60
13C3-PFBS	302.0 / 99.0	1.32	1216.04	1162.50	104.61
13C3-PFHxS	402.0 / 99.0	1.91	1166.44	1182.50	98.64
13C8-PFOS	507.0 / 99.0	2.63	1290.34	1195.00	107.98
13C3-HFPO-DA	287.0 / 169.0	1.66	1088.58	1250.00	87.09

QC Summary Report

Created with Analyst Reporter
Printed: 11/11/2020 4:02:14 PM

Sample Name	LD76 CCV	**Injection Vial**	17
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:44:35 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.61	1277.66	1250.00	102.21
d3-MeFOSAA	573.0 / 419.0	3.14	1323.91	1250.00	105.91
d5-EtFOSAA	589.0 / 419.0	3.30	1515.01	1250.00	121.20
13C5-PFHxA	318.0 / 273.0	1.57	1260.62	1250.00	100.85
13C4-PFHpA	367.0 / 322.0	1.90	1226.95	1250.00	98.16
13C8-PFOA	421.0 / 376.0	2.27	1152.98	1222.50	94.31
13C9-PFNA	472.0 / 427.0	2.64	1245.08	1250.00	99.61
13C6-PFDA	519.0 / 474.0	2.99	1357.72	1250.00	108.62
13C7-PFUnA	570.0 / 525.0	3.32	1249.75	1250.00	99.98
13C2-PFTeDA	715.0 / 670.0	4.09	1264.60	1250.00	101.17
13C3-PFBS	302.0 / 99.0	1.32	1109.47	1162.50	95.44
13C3-PFHxS	402.0 / 99.0	1.91	1171.47	1182.50	99.07
13C8-PFOS	507.0 / 99.0	2.63	1241.73	1195.00	103.91
13C3-HFPO-DA	287.0 / 169.0	1.66	1020.86	1250.00	81.67

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PFAS QC Sample Quant Report

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Sample Name	LD81 ICC	**Injection Vial**	9
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 9:20:54 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	1645255.06	2801.98	10090.1	False	13C3-PFBS	280433.15	1162.50	PFBS			
PFBS_2	298.9 / 99.0	1.33	540556.32	2720.80	4323.0	False	13C3-PFBS	280433.15	1162.50	PFBS	0.329	0.333	✓
PFHxA_1	313.0 / 269.0	1.58	2849628.65	2599.64	1992.3	False	13C5-PFHxA	1121933.16	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	175255.83	2573.47	1599.1	False	13C5-PFHxA	1121933.16	1250.00	PFHxA	0.062	0.062	✓
PFHpA_1	363.0 / 319.0	1.91	2315436.20	2694.90	1482.1	False	13C4-PFHpA	1176248.92	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	65906.90	2516.20	956.7	False	13C4-PFHpA	1176248.92	1250.00	PFHpA	0.028	0.030	✓
PFHxS_1	399.0 / 80.0	1.92	1767630.51	3005.14	2099.7	False	13C3-PFHxS	219535.39	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	609745.66	2851.21	2294.9	False	13C3-PFHxS	219535.39	1182.50	PFHxS	0.345	0.359	✓
PFOA_1	413.0 / 369.0	2.27	2845565.68	2518.49	997.9	False	13C8-PFOA	1552002.58	1222.50	PFOA			
PFOA_2	413.0 / 169.0	2.27	264277.53	2462.24	1192.4	False	13C8-PFOA	1552002.58	1222.50	PFOA	0.093	0.093	✓
PFNA_1	463.0 / 419.0	2.65	2396020.15	2666.14	1004.2	False	13C9-PFNA	1309359.85	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.64	835706.89	2723.99	3159.1	False	13C9-PFNA	1309359.85	1250.00	PFNA	0.349	0.338	✓
PFOS_1	499.0 / 80.0	2.64	1647758.23	2340.42	1011.3	False	13C8-PFOS	220932.19	1195.00	PFOS			
PFOS_2	499.0 / 99.0	2.64	342122.71	2473.00	1292.7	False	13C8-PFOS	220932.19	1195.00	PFOS	0.208	0.203	✓
PFDA_1	513.0 / 469.0	3.00	2524191.10	2560.55	1075.5	False	13C6-PFDA	1265852.77	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.00	136658.90	2289.29	1447.6	False	13C6-PFDA	1265852.77	1250.00	PFDA	0.054	0.059	✓
PFUnA_1	563.0 / 519.0	3.32	2532193.55	2624.43	1567.3	False	13C7-PFUnA	1087680.05	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.32	158694.76	2505.04	2024.0	False	13C7-PFUnA	1087680.05	1250.00	PFUnA	0.063	0.061	✓
PFDoA_1	613.0 / 569.0	3.61	2850624.57	2900.95	1801.5	False	13C2-PFDoA	1292334.22	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.61	324582.29	2741.24	2043.7	False	13C2-PFDoA	1292334.22	1250.00	PFDoA	0.114	0.117	✓
PFTrDA_1	663.0 / 619.0	3.87	2383471.29	2922.56	2526.9	False	13C2-PFTeDA	1182191.86	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.87	171652.99	2852.82	2143.6	False	13C2-PFTeDA	1182191.86	1250.00	PFTrDA	0.072	0.070	✓
PFTeDA_1	713.0 / 669.0	4.11	2677363.10	2755.20	3305.1	False	13C2-PFTeDA	1182191.86	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.11	146795.41	2634.64	2812.0	False	13C2-PFTeDA	1182191.86	1250.00	PFTeDA	0.055	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.14	276880.93	2454.13	3391.3	False	d3-MeFOSAA	174813.69	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.14	321046.23	2800.32	4037597.0	False	d3-MeFOSAA	174813.69	1250.00	NMeFOSAA	1.160	1.078	✓
NEtFOSAA_1	584.0 / 419.0	3.31	315409.88	2241.99	2499.0	False	d5-EtFOSAA	171226.59	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.31	15762.64	1996.69	96969.3	False	d5-EtFOSAA	171226.59	1250.00	NEtFOSAA	0.050	0.055	✓
HFPO-DA_1	285.0 / 169.0	1.66	2528411.97	2740.40	4960.6	False	13C3-HFPO-DA	465712.82	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.66	48970.72	2579.87	128194.4	False	13C3-HFPO-DA	465712.82	1250.00	HFPO-DA	0.019	0.022	✓
ADONA_1	377.0 / 251.0	1.94	5681605.48	2485.17	9657.8	False	13C8-PFOA	1552002.58	1222.50	ADONA			
ADONA_2	377.0 / 85.0	1.94	88003.21	2479.78	20811.2	False	13C8-PFOA	1552002.58	1222.50	ADONA	0.015	0.015	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.85	3121557.76	2349.38	2850.0	False	13C8-PFOA	1552002.58	1222.50	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.85	29740.46	2181.64	759.8	False	13C8-PFOA	1552002.58	1222.50	9Cl-PF3ONS	0.010	0.010	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.48	2171997.22	2327.78	2329.4	False	13C8-PFOA	1552002.58	1222.50	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.47	11053.58	2317.54	890.8	False	13C8-PFOA	1552002.58	1222.50	11Cl-PF3OUdS	0.005	0.005	✓

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PFAS QC Sample Quant Report

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Sample Name	LD76 CCV	**Injection Vial**	17
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:44:35 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	697448.54	1172.25	9495.8	False	13C3-PFBS	268226.63	1162.50	PFBS			
PFBS_2	298.9 / 99.0	1.33	223746.09	1120.86	3428.1	False	13C3-PFBS	268226.63	1162.50	PFBS	0.321	0.333	✓
PFHxA_1	313.0 / 269.0	1.58	1307367.52	987.17	1132.3	False	13C5-PFHxA	1297849.35	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	75866.52	921.43	1432.5	False	13C5-PFHxA	1297849.35	1250.00	PFHxA	0.058	0.062	✓
PFHpA_1	363.0 / 319.0	1.91	953008.62	962.47	877.4	False	13C4-PFHpA	1304341.41	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	28623.98	951.05	8857.8	False	13C4-PFHpA	1304341.41	1250.00	PFHpA	0.030	0.030	✓
PFHxS_1	399.0 / 80.0	1.92	666164.83	1009.29	1172.6	False	13C3-PFHxS	231140.81	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	225028.67	942.36	1872.7	False	13C3-PFHxS	231140.81	1182.50	PFHxS	0.338	0.359	✓
PFOA_1	413.0 / 369.0	2.27	1166825.43	1003.02	646.3	False	13C8-PFOA	1539646.65	1222.50	PFOA			
PFOA_2	413.0 / 169.0	2.27	103722.34	951.34	879.0	False	13C8-PFOA	1539646.65	1222.50	PFOA	0.089	0.093	✓
PFNA_1	463.0 / 419.0	2.65	1051640.33	972.45	636.4	False	13C9-PFNA	1504877.16	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.64	339048.11	921.65	2999.6	False	13C9-PFNA	1504877.16	1250.00	PFNA	0.322	0.338	✓
PFOS_1	499.0 / 80.0	2.64	671907.71	934.94	675.9	False	13C8-PFOS	222887.45	1195.00	PFOS			
PFOS_2	499.0 / 99.0	2.64	146863.99	1017.74	5430.7	False	13C8-PFOS	222887.45	1195.00	PFOS	0.219	0.203	✓
PFDA_1	513.0 / 469.0	3.00	1043133.62	929.31	613.6	False	13C6-PFDA	1405755.15	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.00	60608.11	918.15	15996.8	False	13C6-PFDA	1405755.15	1250.00	PFDA	0.058	0.059	✓
PFUnA_1	563.0 / 519.0	3.32	1095345.44	1043.24	833.0	False	13C7-PFUnA	1141170.36	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.32	72183.35	1104.51	2162.4	False	13C7-PFUnA	1141170.36	1250.00	PFUnA	0.066	0.061	✓
PFDoA_1	613.0 / 569.0	3.61	1163620.68	1002.51	1067.8	False	13C2-PFDoA	1469163.67	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.61	129307.49	943.94	2108.3	False	13C2-PFDoA	1469163.67	1250.00	PFDoA	0.111	0.117	✓
PFTrDA_1	663.0 / 619.0	3.86	977581.43	1004.14	1590.2	False	13C2-PFTeDA	1314307.44	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.86	65128.16	944.41	1475.0	False	13C2-PFTeDA	1314307.44	1250.00	PFTrDA	0.067	0.070	✓
PFTeDA_1	713.0 / 669.0	4.09	1092923.63	966.51	3048.0	False	13C2-PFTeDA	1314307.44	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.09	57858.16	918.00	2288.6	False	13C2-PFTeDA	1314307.44	1250.00	PFTeDA	0.053	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.14	112293.48	879.63	40423.4	False	d3-MeFOSAA	203576.11	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.14	125363.80	920.08	39053.7	False	d3-MeFOSAA	203576.11	1250.00	NMeFOSAA	1.116	1.078	✓
NEtFOSAA_1	584.0 / 419.0	3.31	136822.29	816.70	54787.6	False	d5-EtFOSAA	203244.66	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.31	8110.14	876.06	349.2	False	d5-EtFOSAA	203244.66	1250.00	NEtFOSAA	0.059	0.055	✓
HFPO-DA_1	285.0 / 169.0	1.67	966121.48	1056.19	3098.3	False	13C3-HFPO-DA	447585.47	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.67	22547.76	1172.98	3446899.2	False	13C3-HFPO-DA	447585.47	1250.00	HFPO-DA	0.023	0.022	✓
ADONA_1	377.0 / 251.0	1.94	2324992.65	987.65	6148.1	False	13C8-PFOA	1539646.65	1222.50	ADONA			
ADONA_2	377.0 / 85.0	1.94	39431.49	1090.08	10566252.8	False	13C8-PFOA	1539646.65	1222.50	ADONA	0.017	0.015	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.85	1243591.02	952.78	1612.4	False	13C8-PFOA	1539646.65	1222.50	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.85	16630.47	1233.34	1446.2	False	13C8-PFOA	1539646.65	1222.50	9Cl-PF3ONS	0.013	0.010	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.47	864098.52	926.78	1760.2	False	13C8-PFOA	1539646.65	1222.50	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.48	3874.38	855.39	839.9	False	13C8-PFOA	1539646.65	1222.50	11Cl-PF3OUdS	0.004	0.005	✓

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PFAS QC Sample Quant Report

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Sample Name	LD81 ICC	**Injection Vial**	9
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 9:20:54 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.61	1292334.22	1205.45	4870.1	False	13C2-PFDA	1081806.51	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	174967.44	1191.69	1410.6	False	13C4-PFOS	200709.84	1195.00		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	172326.58	1346.74	1206.0	False	13C4-PFOS	200709.84	1195.00		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1121933.16	1116.80	14755.3	False	13C2-PFOA	903127.60	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1176248.92	1133.93	20394215.4	False	13C2-PFOA	903127.60	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.26	1552002.58	1191.08	1055842.1	False	13C2-PFOA	903127.60	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1309359.85	1110.21	32237.7	False	13C2-PFOA	903127.60	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1265852.77	1311.34	4332.9	False	13C2-PFDA	1081806.51	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	1087680.05	1277.63	5571.4	False	13C2-PFDA	1081806.51	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.10	1182191.86	1220.04	4571.1	False	13C2-PFDA	1081806.51	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	280433.15	1216.04	6524.4	False	13C4-PFOS	200709.84	1195.00		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	219535.39	1166.44	4948.8	False	13C4-PFOS	200709.84	1195.00		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	220932.19	1290.34	1545.8	False	13C4-PFOS	200709.84	1195.00		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	465712.82	1088.58	17586.2	False	13C2-PFOA	903127.60	1250.00		N/A	N/A	✓

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PFAS QC Sample Quant Report

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Sample Name	LD76 CCV	**Injection Vial**	17
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:44:35 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.61	1469163.67	1277.66	4727.9	False	13C2-PFDA	1160327.97	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	203779.02	1323.91	1089.7	False	13C4-PFOS	210414.10	1195.00		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	203230.56	1515.01	1251.5	False	13C4-PFOS	210414.10	1195.00		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1297849.35	1260.62	5753.7	False	13C2-PFOA	925549.46	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1304341.41	1226.95	17888.0	False	13C2-PFOA	925549.46	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.27	1539646.65	1152.98	1529789.3	False	13C2-PFOA	925549.46	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.64	1504877.16	1245.08	4631.1	False	13C2-PFOA	925549.46	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1405755.15	1357.72	8155.3	False	13C2-PFDA	1160327.97	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	1141170.36	1249.75	3410.4	False	13C2-PFDA	1160327.97	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	1314307.44	1264.60	4191.9	False	13C2-PFDA	1160327.97	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	268226.63	1109.47	21840.8	False	13C4-PFOS	210414.10	1195.00		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	231140.81	1171.47	3357.2	False	13C4-PFOS	210414.10	1195.00		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	222887.45	1241.73	1503.5	False	13C4-PFOS	210414.10	1195.00		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	447585.47	1020.86	3191.9	False	13C2-PFOA	925549.46	1250.00		N/A	N/A	✓

Raw Analytical Data

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PFAS Sample Quant Report

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Sample Name	LD80 IB	**Injection Vial**	8
Sample ID	Instrument Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 9:10:26 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	278121.47	1162.50	PFBS			
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	278121.47	1162.50	PFBS	N/A	0.333	✓
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	1267197.96	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	1267197.96	1250.00	PFHxA	N/A	0.062	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1231440.39	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1231440.39	1250.00	PFHpA	N/A	0.030	✓
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	210221.76	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	210221.76	1182.50	PFHxS	N/A	0.359	✓
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1459209.00	1222.50	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1459209.00	1222.50	PFOA	N/A	0.093	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1405602.96	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1405602.96	1250.00	PFNA	N/A	0.338	✓
PFOS_1	499.0 / 80.0	2.61	6572.60	< 0	24.8	True	13C8-PFOS	205943.95	1195.00	PFOS			
PFOS_2	499.0 / 99.0	2.64	1273.36	< 0	34.6	False	13C8-PFOS	205943.95	1195.00	PFOS	0.194	0.203	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1357837.79	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1357837.79	1250.00	PFDA	N/A	0.059	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1150820.83	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1150820.83	1250.00	PFUnA	N/A	0.061	✓
PFDoA_1	613.0 / 569.0	3.60	12230.05	< 0	70.5	False	13C2-PFDoA	1394502.45	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.62	1424.28	< 0	84.6	False	13C2-PFDoA	1394502.45	1250.00	PFDoA	0.116	0.117	✓
PFTrDA_1	663.0 / 619.0	3.86	10577.46	< 0	118.3	True	13C2-PFTeDA	1291941.46	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.86	1164.30	< 0	83.6	False	13C2-PFTeDA	1291941.46	1250.00	PFTrDA	0.110	0.070	
PFTeDA_1	713.0 / 669.0	4.07	33631.51	< 0	307.4	False	13C2-PFTeDA	1291941.46	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.10	687.42	< 0	71.3	True	13C2-PFTeDA	1291941.46	1250.00	PFTeDA	0.020	0.055	
NMeFOSAA_1	570.0 / 419.0	3.14	6182.43	87.50	4269.7	False	d3-MeFOSAA	191595.41	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.13	7127.38	28.85	135.4	True	d3-MeFOSAA	191595.41	1250.00	NMeFOSAA	1.153	1.078	✓
NEtFOSAA_1	584.0 / 419.0	3.31	8131.61	51.60	334.2	True	d5-EtFOSAA	177816.82	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	177816.82	1250.00	NEtFOSAA	N/A	0.055	
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	451894.36	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	451894.36	1250.00	HFPO-DA	N/A	0.022	✓
ADONA_1	377.0 / 251.0	1.93	5589.58	< 0	122.4	False	13C8-PFOA	1459209.00	1222.50	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1459209.00	1222.50	ADONA	N/A	0.015	
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1459209.00	1222.50	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1459209.00	1222.50	9Cl-PF3ONS	N/A	0.010	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.47	3052.05	< 0	51.6	False	13C8-PFOA	1459209.00	1222.50	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1459209.00	1222.50	11Cl-PF3OUdS	N/A	0.005	

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PFAS Sample Quant Report

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Sample Name	DB297PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 9:52:18 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	6265.23	< 0	244.9	True	13C3-PFBS	346658.62	1162.50	PFBS			
PFBS_2	298.9 / 99.0	1.34	2710.19	< 0	81.7	True	13C3-PFBS	346658.62	1162.50	PFBS	0.433	0.333	✓
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	1424209.89	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	1424209.89	1250.00	PFHxA	N/A	0.062	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1549408.38	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1549408.38	1250.00	PFHpA	N/A	0.030	✓
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	278406.93	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	278406.93	1182.50	PFHxS	N/A	0.359	✓
PFOA_1	413.0 / 369.0	2.28	8572.94	< 0	33.0	False	13C8-PFOA	1810873.19	1222.50	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1810873.19	1222.50	PFOA	N/A	0.093	
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1541121.44	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1541121.44	1250.00	PFNA	N/A	0.338	✓
PFOS_1	499.0 / 80.0	2.61	4861.22	< 0	15.5	False	13C8-PFOS	249652.22	1195.00	PFOS			
PFOS_2	499.0 / 99.0	2.63	2436.27	< 0	266.3	True	13C8-PFOS	249652.22	1195.00	PFOS	0.501	0.203	
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1541149.11	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1541149.11	1250.00	PFDA	N/A	0.059	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1397992.80	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1397992.80	1250.00	PFUnA	N/A	0.061	✓
PFDoA_1	613.0 / 569.0	3.61	10624.15	< 0	55.5	False	13C2-PFDoA	1670912.36	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.61	1487.75	< 0	102.5	False	13C2-PFDoA	1670912.36	1250.00	PFDoA	0.140	0.117	✓
PFTrDA_1	663.0 / 619.0	3.87	6773.62	< 0	108.6	False	13C2-PFTeDA	1417854.54	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.86	538.13	< 0	33.2	False	13C2-PFTeDA	1417854.54	1250.00	PFTrDA	0.079	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1417854.54	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1417854.54	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.14	1776.84	49.63	434.7	False	d3-MeFOSAA	238791.49	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.13	3417.77	< 0	1146.9	False	d3-MeFOSAA	238791.49	1250.00	NMeFOSAA	1.924	1.078	
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	208053.55	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	208053.55	1250.00	NEtFOSAA	N/A	0.055	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	526739.83	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	526739.83	1250.00	HFPO-DA	N/A	0.022	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1810873.19	1222.50	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1810873.19	1222.50	ADONA	N/A	0.015	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1810873.19	1222.50	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1810873.19	1222.50	9Cl-PF3ONS	N/A	0.010	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.47	4362.15	< 0	101.1	False	13C8-PFOA	1810873.19	1222.50	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1810873.19	1222.50	11Cl-PF3OUdS	N/A	0.005	

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PFAS Sample Quant Report

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Sample Name	DB298LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:02:45 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	6861127.02	8902.94	19997.3	False	13C3-PFBS	379161.40	1162.50	PFBS			
PFBS_2	298.9 / 99.0	1.33	2290920.41	8741.36	8236.2	False	13C3-PFBS	379161.40	1162.50	PFBS	0.334	0.333	✓
PFHxA_1	313.0 / 269.0	1.58	11221590.90	8727.46	3626.6	False	13C5-PFHxA	1341625.70	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	721863.89	9026.63	2660.3	False	13C5-PFHxA	1341625.70	1250.00	PFHxA	0.064	0.062	✓
PFHpA_1	363.0 / 319.0	1.91	8377232.54	8063.27	2726.4	False	13C4-PFHpA	1443283.91	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	243452.94	7688.71	2742.8	False	13C4-PFHpA	1443283.91	1250.00	PFHpA	0.029	0.030	✓
PFHxS_1	399.0 / 80.0	1.92	7493850.99	10896.79	3480.4	False	13C3-PFHxS	263011.08	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	2562327.75	10221.37	4313.2	False	13C3-PFHxS	263011.08	1182.50	PFHxS	0.342	0.359	✓
PFOA_1	413.0 / 369.0	2.27	9851291.65	8403.18	2363.3	False	13C8-PFOA	1639087.51	1222.50	PFOA			
PFOA_2	413.0 / 169.0	2.27	1057287.53	9432.36	2026.7	False	13C8-PFOA	1639087.51	1222.50	PFOA	0.107	0.093	✓
PFNA_1	463.0 / 419.0	2.64	10417155.24	9733.87	2356.9	False	13C9-PFNA	1590411.63	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.64	3491862.56	9520.86	4279.1	False	13C9-PFNA	1590411.63	1250.00	PFNA	0.335	0.338	✓
PFOS_1	499.0 / 80.0	2.63	6826541.06	8371.89	1741.5	False	13C8-PFOS	257337.54	1195.00	PFOS			
PFOS_2	499.0 / 99.0	2.63	1472019.44	9297.03	4844.3	False	13C8-PFOS	257337.54	1195.00	PFOS	0.216	0.203	✓
PFDA_1	513.0 / 469.0	2.99	9861912.16	8813.27	1913.6	False	13C6-PFDA	1451737.11	1250.00	PFDA			
PFDA_2	513.0 / 219.0	2.99	631456.01	9203.95	3256.6	False	13C6-PFDA	1451737.11	1250.00	PFDA	0.064	0.059	✓
PFUnA_1	563.0 / 519.0	3.32	9803843.85	8620.69	2485.8	False	13C7-PFUnA	1304273.20	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.32	657294.06	8572.48	2950.4	False	13C7-PFUnA	1304273.20	1250.00	PFUnA	0.067	0.061	✓
PFDoA_1	613.0 / 569.0	3.60	11320311.39	9599.51	2778.6	False	13C2-PFDoA	1573526.14	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.60	1298631.14	9066.28	4350.3	False	13C2-PFDoA	1573526.14	1250.00	PFDoA	0.115	0.117	✓
PFTrDA_1	663.0 / 619.0	3.86	9145643.07	9536.65	2978.7	False	13C2-PFTeDA	1428382.79	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.86	675199.40	9387.47	2854.1	False	13C2-PFTeDA	1428382.79	1250.00	PFTrDA	0.074	0.070	✓
PFTeDA_1	713.0 / 669.0	4.09	10524091.62	9124.10	3726.5	False	13C2-PFTeDA	1428382.79	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.09	609720.28	9117.50	3977.0	False	13C2-PFTeDA	1428382.79	1250.00	PFTeDA	0.058	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.14	1740835.17	9312.40	4803.5	False	d3-MeFOSAA	286310.22	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.14	1727684.10	9266.22	3810.8	False	d3-MeFOSAA	286310.22	1250.00	NMeFOSAA	0.992	1.078	✓
NEtFOSAA_1	584.0 / 419.0	3.31	1489665.77	8399.25	2381.7	False	d5-EtFOSAA	216157.02	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.30	86636.10	8630.72	25422.8	False	d5-EtFOSAA	216157.02	1250.00	NEtFOSAA	0.058	0.055	✓
HFPO-DA_1	285.0 / 169.0	1.67	9484969.45	9002.84	5734.3	False	13C3-HFPO-DA	575490.49	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.67	208438.24	9482.25	36784.7	False	13C3-HFPO-DA	575490.49	1250.00	HFPO-DA	0.022	0.022	✓
ADONA_1	377.0 / 251.0	1.94	23398757.65	9875.98	44993.5	False	13C8-PFOA	1639087.51	1222.50	ADONA			
ADONA_2	377.0 / 85.0	1.94	332755.30	9019.25	2431.6	False	13C8-PFOA	1639087.51	1222.50	ADONA	0.014	0.015	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.84	12590541.01	8928.73	4656.8	False	13C8-PFOA	1639087.51	1222.50	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.84	136731.23	9469.48	1383.0	False	13C8-PFOA	1639087.51	1222.50	9Cl-PF3ONS	0.011	0.010	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.47	8411959.40	8566.29	4911.8	False	13C8-PFOA	1639087.51	1222.50	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.47	42906.44	8366.79	1643.2	False	13C8-PFOA	1639087.51	1222.50	11Cl-PF3OUdS	0.005	0.005	✓

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PFAS Sample Quant Report

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Sample Name	G1696-FS1(0)	**Injection Vial**	14
Sample ID	CBD-HVG-GW10-1020	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:13:12 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	190025.34	485.09	156.9	False	13C3-PFBS	155389.60	1162.50	PFBS			
PFBS_2	298.9 / 99.0	1.33	40310.49	279.85	335.6	False	13C3-PFBS	155389.60	1162.50	PFBS	0.212	0.333	✓
PFHxA_1	313.0 / 269.0	1.59	58201.41	42.16	22.6	False	13C5-PFHxA	533275.57	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.56	2894.39	25.26	18.5	False	13C5-PFHxA	533275.57	1250.00	PFHxA	0.050	0.062	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	False	13C4-PFHpA	832112.12	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	832112.12	1250.00	PFHpA	N/A	0.030	✓
PFHxS_1	399.0 / 80.0	1.92	1517149.54	2919.91	348.5	False	13C3-PFHxS	193737.79	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	564122.81	2993.38	740.6	False	13C3-PFHxS	193737.79	1182.50	PFHxS	0.372	0.359	✓
PFOA_1	413.0 / 369.0	2.27	35840.91	< 0	35.4	False	13C8-PFOA	1185033.12	1222.50	PFOA			
PFOA_2	413.0 / 169.0	2.26	3558.28	6.39	41.7	True	13C8-PFOA	1185033.12	1222.50	PFOA	0.099	0.093	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1289188.27	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1289188.27	1250.00	PFNA	N/A	0.338	✓
PFOS_1	499.0 / 80.0	2.56	419873.75	703.89	195.7	True	13C8-PFOS	183826.77	1195.00	PFOS			
PFOS_2	499.0 / 99.0	2.64	80921.53	659.98	436.7	False	13C8-PFOS	183826.77	1195.00	PFOS	0.193	0.203	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1142336.95	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1142336.95	1250.00	PFDA	N/A	0.059	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1149466.10	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1149466.10	1250.00	PFUnA	N/A	0.061	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1301547.53	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1301547.53	1250.00	PFDoA	N/A	0.117	✓
PFTrDA_1	663.0 / 619.0	3.87	5394.70	< 0	70.5	False	13C2-PFTeDA	1156996.26	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1156996.26	1250.00	PFTrDA	N/A	0.070	
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1156996.26	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1156996.26	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.15	3176.58	63.94	2405.1	False	d3-MeFOSAA	188792.49	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.17	5158.97	13.64	331.0	False	d3-MeFOSAA	188792.49	1250.00	NMeFOSAA	1.624	1.078	
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	203614.15	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	203614.15	1250.00	NEtFOSAA	N/A	0.055	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	349747.28	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	349747.28	1250.00	HFPO-DA	N/A	0.022	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1185033.12	1222.50	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1185033.12	1222.50	ADONA	N/A	0.015	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1185033.12	1222.50	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1185033.12	1222.50	9Cl-PF3ONS	N/A	0.010	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1185033.12	1222.50	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1185033.12	1222.50	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Sample Name	G1697-FS1(0)	**Injection Vial**	15
Sample ID	CBD-HVG-GW09-1020	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:23:40 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	277237.23	1040.45	211.4	False	13C3-PFBS	118677.70	1162.50	PFBS			
PFBS_2	298.9 / 99.0	1.32	66116.04	715.45	245.6	False	13C3-PFBS	118677.70	1162.50	PFBS	0.238	0.333	✓
PFHxA_1	313.0 / 269.0	1.58	89285.78	180.15	28.7	False	13C5-PFHxA	371566.01	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	5214.88	170.72	29.2	False	13C5-PFHxA	371566.01	1250.00	PFHxA	0.058	0.062	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	534175.51	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	534175.51	1250.00	PFHpA	N/A	0.030	✓
PFHxS_1	399.0 / 80.0	1.92	3960761.80	9607.48	500.4	False	13C3-PFHxS	157466.94	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	1355729.39	9022.78	773.9	False	13C3-PFHxS	157466.94	1182.50	PFHxS	0.342	0.359	✓
PFOA_1	413.0 / 369.0	2.26	259711.43	330.40	87.3	False	13C8-PFOA	926055.21	1222.50	PFOA			
PFOA_2	413.0 / 169.0	2.27	29704.61	433.23	175.3	False	13C8-PFOA	926055.21	1222.50	PFOA	0.114	0.093	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1033207.77	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1033207.77	1250.00	PFNA	N/A	0.338	✓
PFOS_1	499.0 / 80.0	2.53	375697.70	716.87	181.5	False	13C8-PFOS	161582.74	1195.00	PFOS			
PFOS_2	499.0 / 99.0	2.62	51833.45	464.63	199.9	False	13C8-PFOS	161582.74	1195.00	PFOS	0.138	0.203	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1073514.70	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1073514.70	1250.00	PFDA	N/A	0.059	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	948874.57	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	948874.57	1250.00	PFUnA	N/A	0.061	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1008244.51	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1008244.51	1250.00	PFDoA	N/A	0.117	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	799049.25	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	799049.25	1250.00	PFTrDA	N/A	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	799049.25	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	799049.25	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.14	1115.48	50.32	463.1	False	d3-MeFOSAA	141295.40	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.10	1198.80	< 0	13.4	False	d3-MeFOSAA	141295.40	1250.00	NMeFOSAA	1.075	1.078	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	138820.18	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	138820.18	1250.00	NEtFOSAA	N/A	0.055	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	278736.10	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	278736.10	1250.00	HFPO-DA	N/A	0.022	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	926055.21	1222.50	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	926055.21	1222.50	ADONA	N/A	0.015	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	926055.21	1222.50	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	926055.21	1222.50	9Cl-PF3ONS	N/A	0.010	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	926055.21	1222.50	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	926055.21	1222.50	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Sample Name	LD80 IB	**Injection Vial**	8
Sample ID	Instrument Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 9:10:26 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	1394502.45	1281.95	5116.0	False	13C2-PFDA	1097673.25	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.13	190731.11	1253.23	1033.3	False	13C4-PFOS	208048.51	1195.00		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	177498.08	1338.22	979.8	False	13C4-PFOS	208048.51	1195.00		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	1267197.96	1397.87	7663.2	False	13C2-PFOA	814958.32	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1231440.39	1315.57	10711.2	False	13C2-PFOA	814958.32	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.26	1459209.00	1241.03	8352.7	False	13C2-PFOA	814958.32	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1405602.96	1320.76	16850.6	False	13C2-PFOA	814958.32	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.98	1357837.79	1386.30	4533.9	False	13C2-PFDA	1097673.25	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	1150820.83	1332.26	5004.0	False	13C2-PFDA	1097673.25	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	1291941.46	1314.03	4811.9	False	13C2-PFDA	1097673.25	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	278121.47	1163.48	8256.4	False	13C4-PFOS	208048.51	1195.00		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	210221.76	1077.56	5899.6	False	13C4-PFOS	208048.51	1195.00		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.62	205943.95	1160.38	3604.6	False	13C4-PFOS	208048.51	1195.00		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	451894.36	1170.56	3494.1	False	13C2-PFOA	814958.32	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	DB297PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 9:52:18 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.61	1670912.36	1168.40	6256.1	False	13C2-PFDA	1443063.10	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.15	240064.71	1319.09	1552.4	False	13C4-PFOS	248786.38	1195.00		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	207927.13	1310.95	1385.4	False	13C4-PFOS	248786.38	1195.00		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1424209.89	1108.91	5765.0	False	13C2-PFOA	1154611.99	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1549408.38	1168.33	6287593.6	False	13C2-PFOA	1154611.99	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.27	1810873.19	1087.05	30439.3	False	13C2-PFOA	1154611.99	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.64	1541121.44	1022.11	6099.8	False	13C2-PFOA	1154611.99	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1541149.11	1196.85	6546.2	False	13C2-PFDA	1443063.10	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	1397992.80	1231.04	6009.8	False	13C2-PFDA	1443063.10	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.10	1417854.54	1096.94	4940.1	False	13C2-PFDA	1443063.10	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	346658.62	1212.73	4868.2	False	13C4-PFOS	248786.38	1195.00		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	278406.93	1193.39	2623.0	False	13C4-PFOS	248786.38	1195.00		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	249652.22	1176.32	2485.8	False	13C4-PFOS	248786.38	1195.00		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	526739.83	963.05	7124.9	False	13C2-PFOA	1154611.99	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	DB298LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:02:45 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	1573526.14	1082.20	4387.7	False	13C2-PFDA	1467204.94	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.13	286513.84	1675.60	1807.9	False	13C4-PFOS	233748.70	1195.00		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	216460.57	1452.54	1489.4	False	13C4-PFOS	233748.70	1195.00		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1341625.70	1133.11	5573.8	False	13C2-PFOA	1064430.81	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1443283.91	1180.51	5057.3	False	13C2-PFOA	1064430.81	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.26	1639087.51	1067.29	4941.8	False	13C2-PFOA	1064430.81	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1590411.63	1144.17	4360.6	False	13C2-PFOA	1064430.81	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1451737.11	1108.87	5005.3	False	13C2-PFDA	1467204.94	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	1304273.20	1129.62	3784.2	False	13C2-PFDA	1467204.94	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	1428382.79	1086.90	4395.2	False	13C2-PFDA	1467204.94	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	379161.40	1411.77	5359.9	False	13C4-PFOS	233748.70	1195.00		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	263011.08	1199.92	2478.6	False	13C4-PFOS	233748.70	1195.00		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	257337.54	1290.53	1702.8	False	13C4-PFOS	233748.70	1195.00		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	575490.49	1141.33	6049.5	False	13C2-PFOA	1064430.81	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	G1696-FS1(0)	**Injection Vial**	14
Sample ID	CBD-HVG-GW10-1020	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:13:12 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.61	1301547.53	1078.80	4876.0	False	13C2-PFDA	1217424.39	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	190462.73	1563.44	2115.8	False	13C4-PFOS	166533.49	1195.00		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	196142.47	1847.44	662.2	True	13C4-PFOS	166533.49	1195.00		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	533275.57	684.07	911.5	False	13C2-PFOA	700827.91	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	832112.12	1033.73	1304.6	False	13C2-PFOA	700827.91	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.27	1185033.12	1171.97	2243.4	False	13C2-PFOA	700827.91	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.64	1289188.27	1408.65	2044.5	False	13C2-PFOA	700827.91	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1142336.95	1051.56	3401.7	False	13C2-PFDA	1217424.39	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	1149466.10	1199.80	6386.4	False	13C2-PFDA	1217424.39	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.10	1156996.26	1061.03	4247.9	False	13C2-PFDA	1217424.39	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	155389.60	812.10	2680.1	False	13C4-PFOS	166533.49	1195.00		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	193737.79	1240.63	825.7	False	13C4-PFOS	166533.49	1195.00		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	183826.77	1293.97	641.5	False	13C4-PFOS	166533.49	1195.00		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	349747.28	1053.50	1494.2	False	13C2-PFOA	700827.91	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	G1697-FS1(0)	**Injection Vial**	15
Sample ID	CBD-HVG-GW09-1020	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:23:40 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	1008244.51	896.21	5086.5	False	13C2-PFDA	1135224.06	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.13	140996.27	1052.98	907.7	False	13C4-PFOS	183045.82	1195.00		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	139089.19	1191.88	976.6	False	13C4-PFOS	183045.82	1195.00		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	375608.57	528.06	562.4	True	13C2-PFOA	639459.89	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	534175.51	727.29	1028.1	False	13C2-PFOA	639459.89	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.26	926055.21	1003.74	1719.3	False	13C2-PFOA	639459.89	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1033207.77	1237.29	1731.2	False	13C2-PFOA	639459.89	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1073514.70	1059.76	2911.0	False	13C2-PFDA	1135224.06	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	948874.57	1062.14	4533.9	False	13C2-PFDA	1135224.06	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.08	799049.25	785.83	4670.1	False	13C2-PFDA	1135224.06	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	123670.88	588.03	1205.6	True	13C4-PFOS	183045.82	1195.00		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	157466.94	917.40	628.2	False	13C4-PFOS	183045.82	1195.00		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	161582.74	1034.79	387.6	False	13C4-PFOS	183045.82	1195.00		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	278736.10	920.18	937.3	False	13C2-PFOA	639459.89	1250.00		N/A	N/A	✓

Chromatograms

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Chromatogram Report

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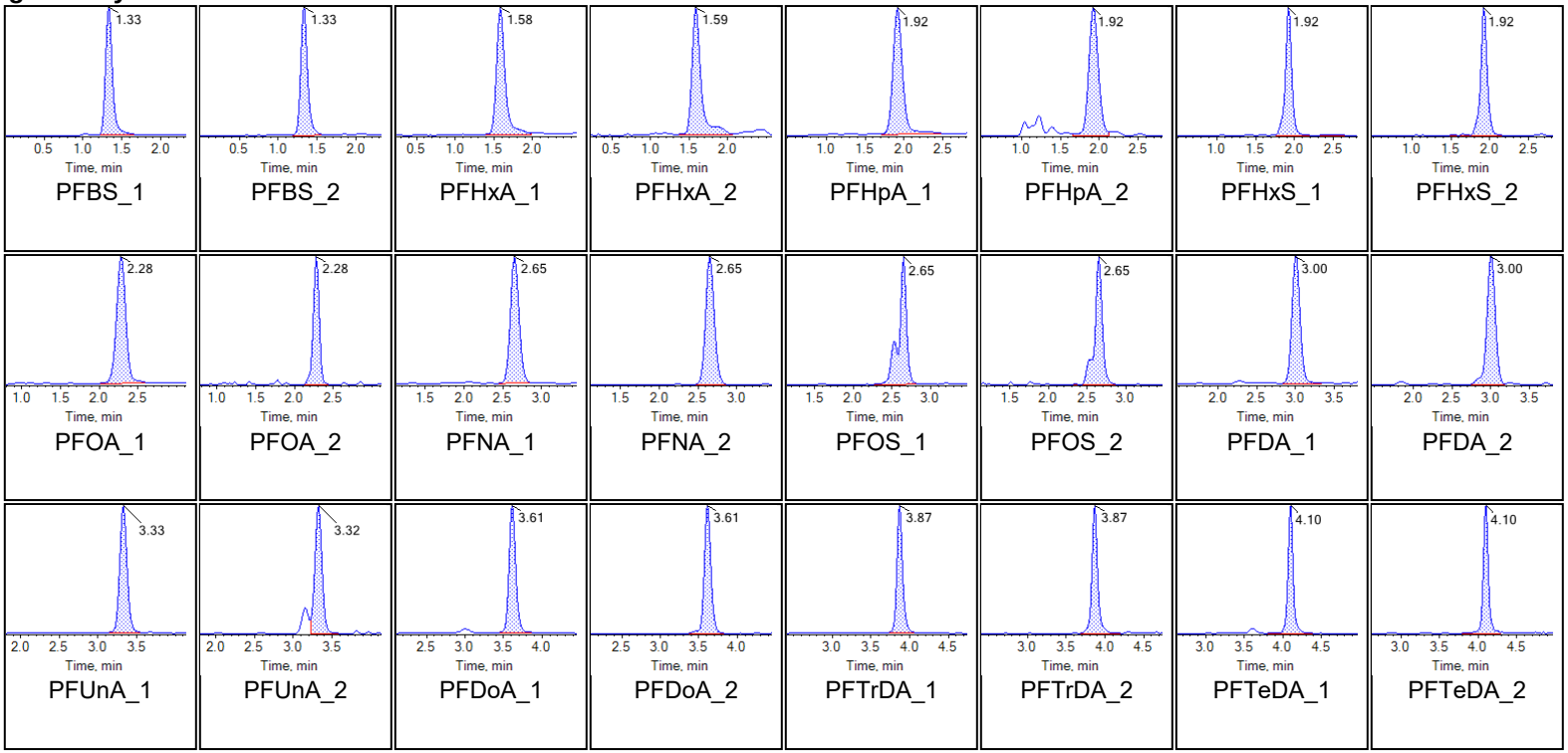
Sample Name	LD74	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441

Chromatograms

Target Analytes:



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Chromatogram Report

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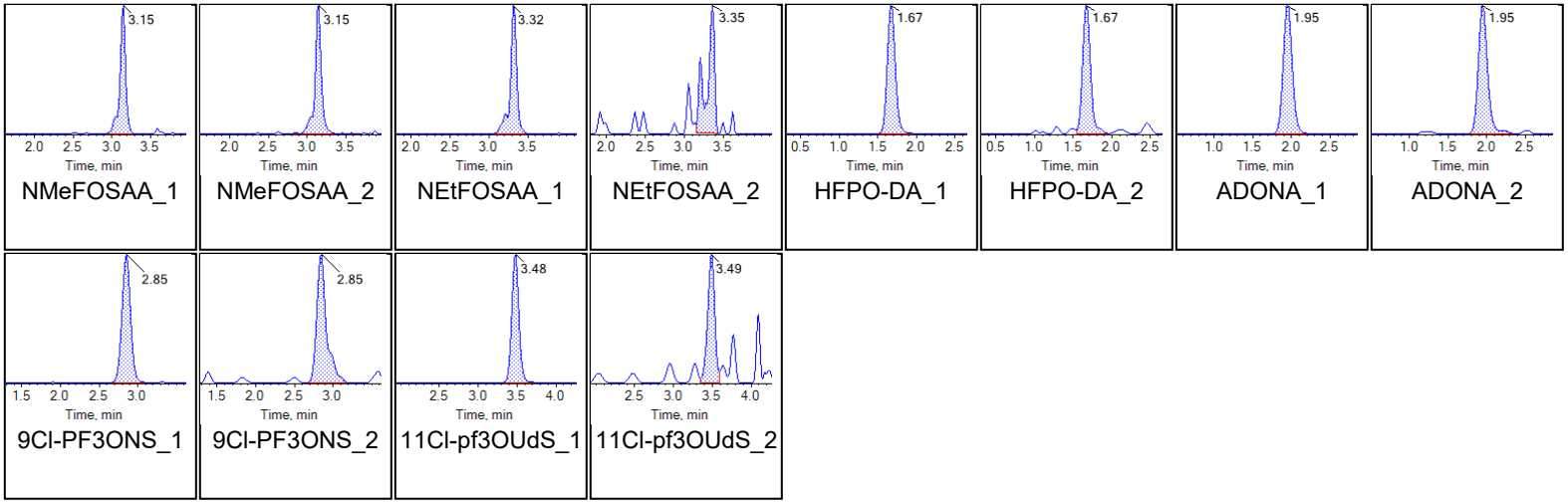
Printed: 11/11/2020 4:13:56 PM



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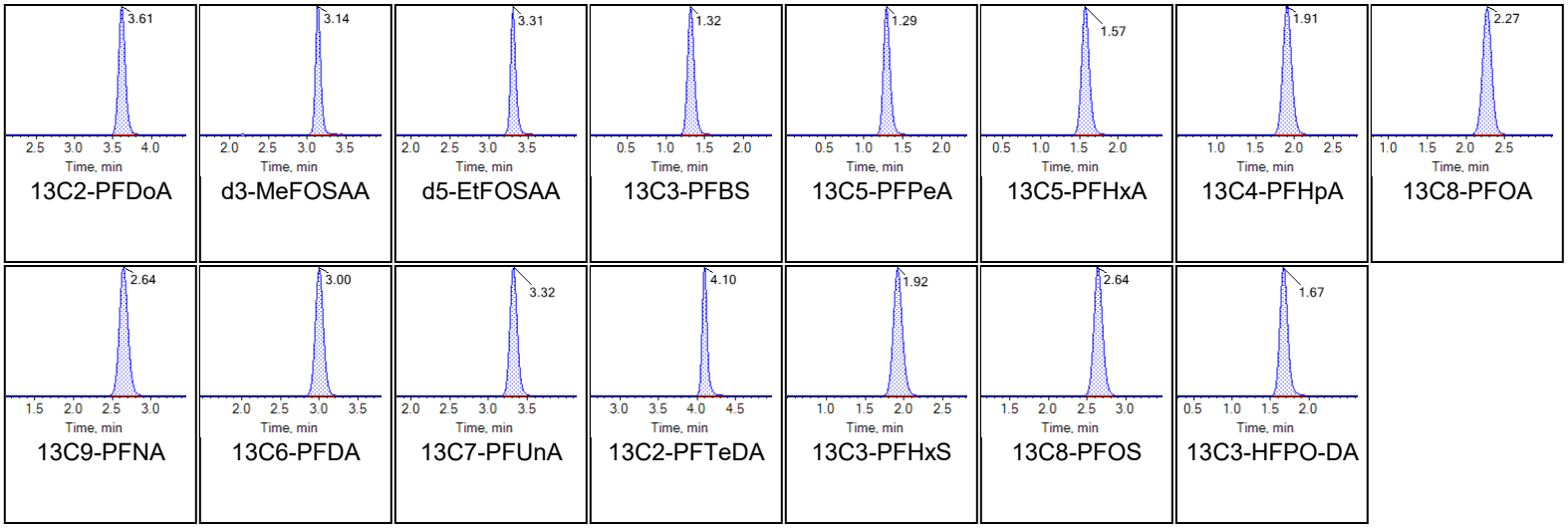

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Chromatogram Report

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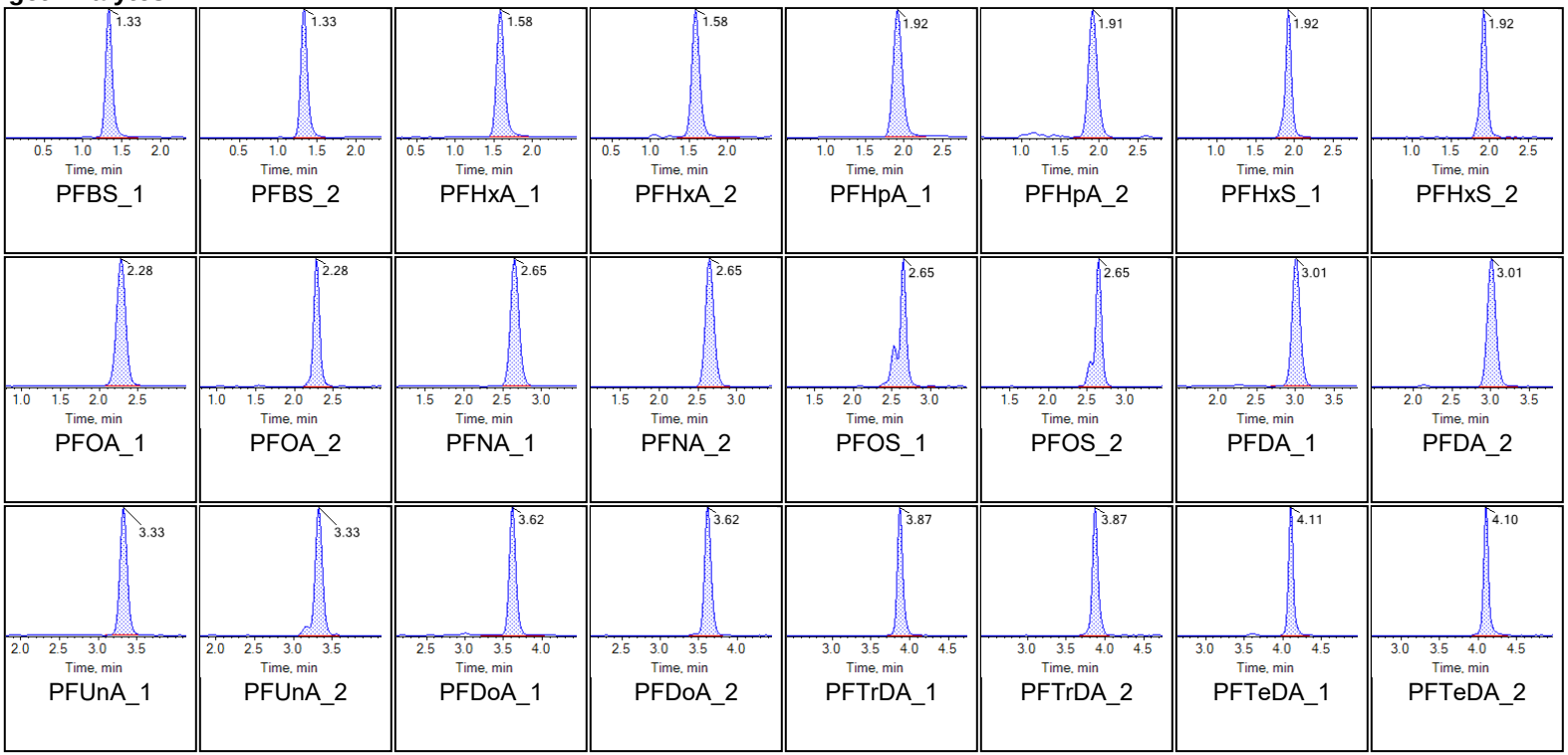
Printed: 11/11/2020 4:13:56 PM

Sample Name	LD75	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:18:11 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441

Chromatograms

Target Analytes:



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Chromatogram Report

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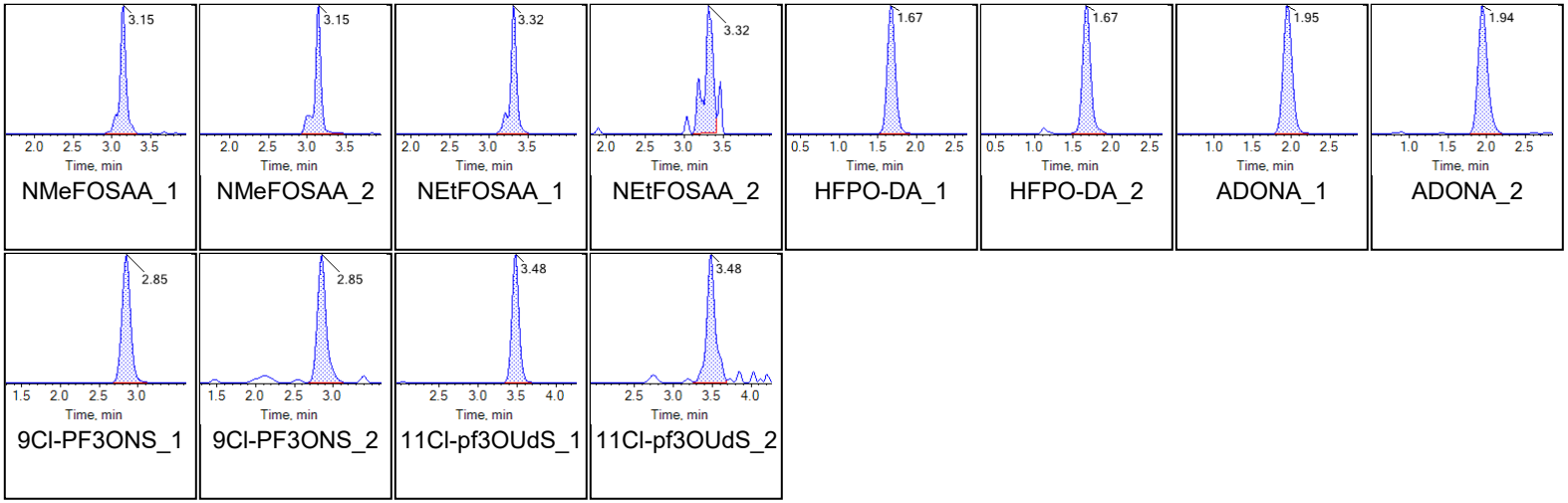
Printed: 11/11/2020 4:13:56 PM



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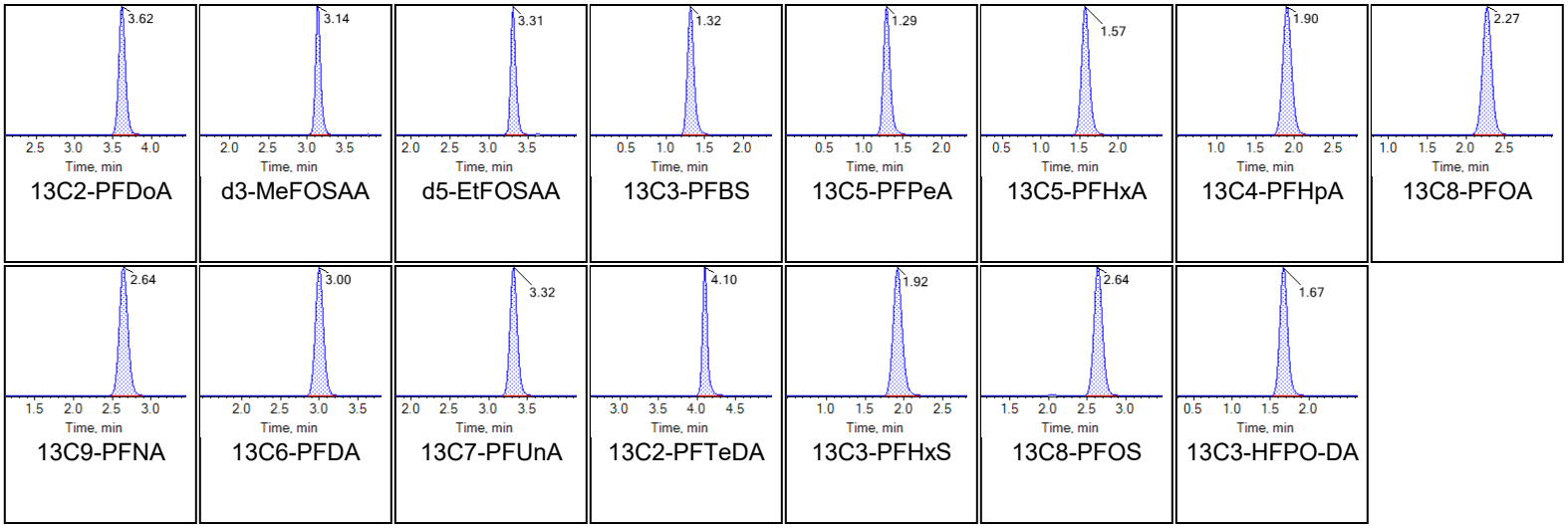

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Chromatogram Report

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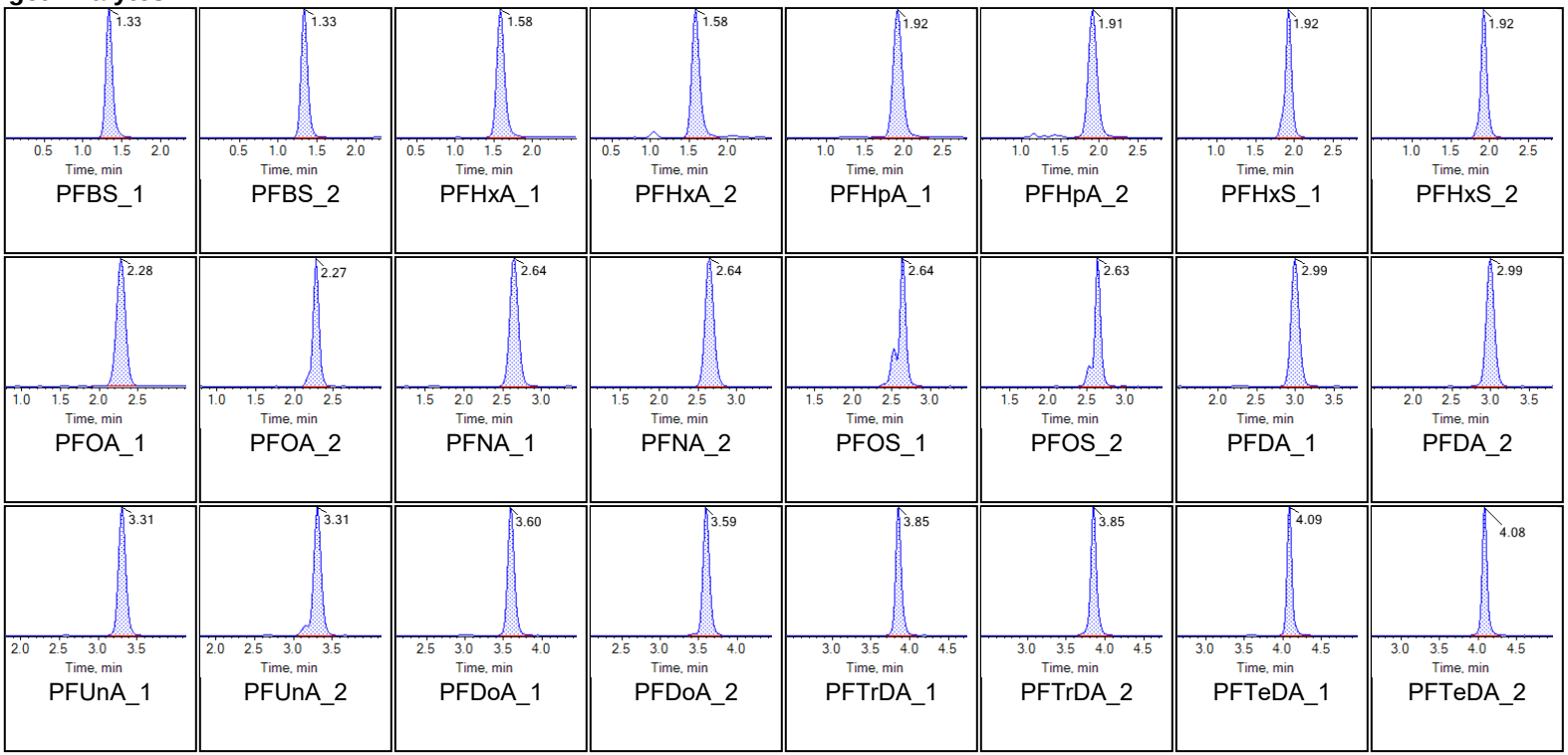
Sample Name	LD76	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:28:38 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441

Chromatograms

Target Analytes:



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Chromatogram Report

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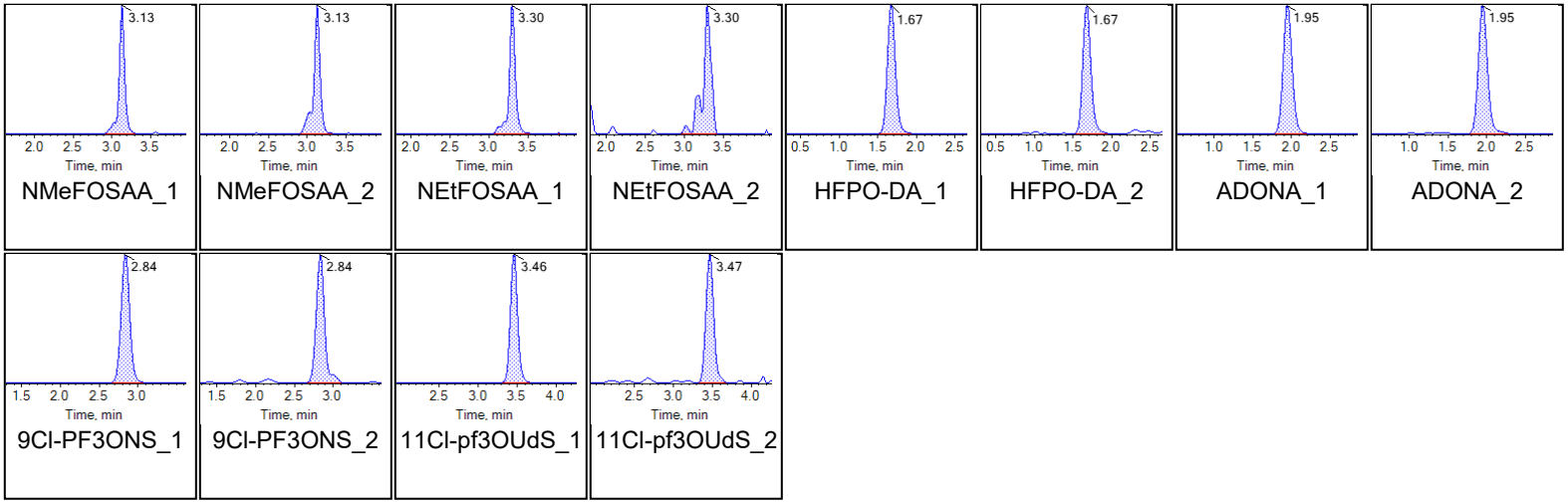
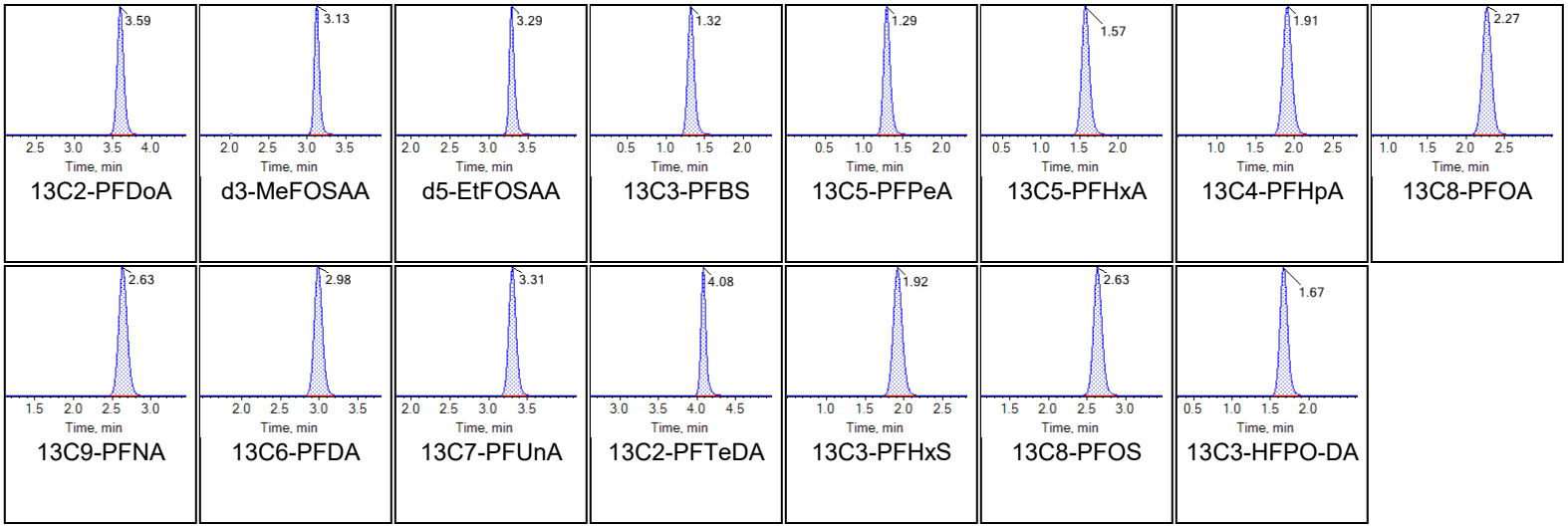


Internal Standards:



BATTELLE

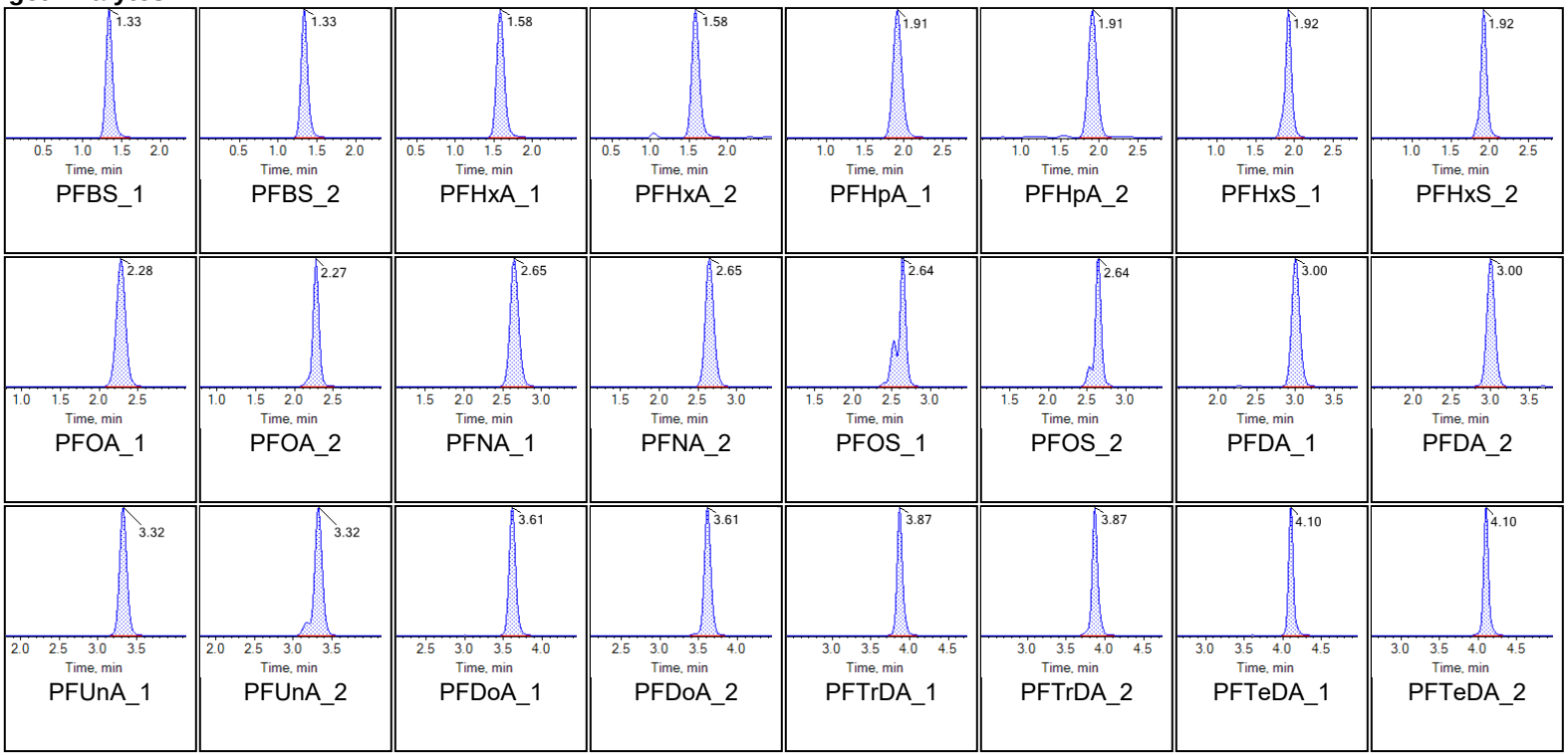
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:13:56 PM

Sample Name	LD77	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:39:05 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441

Chromatograms

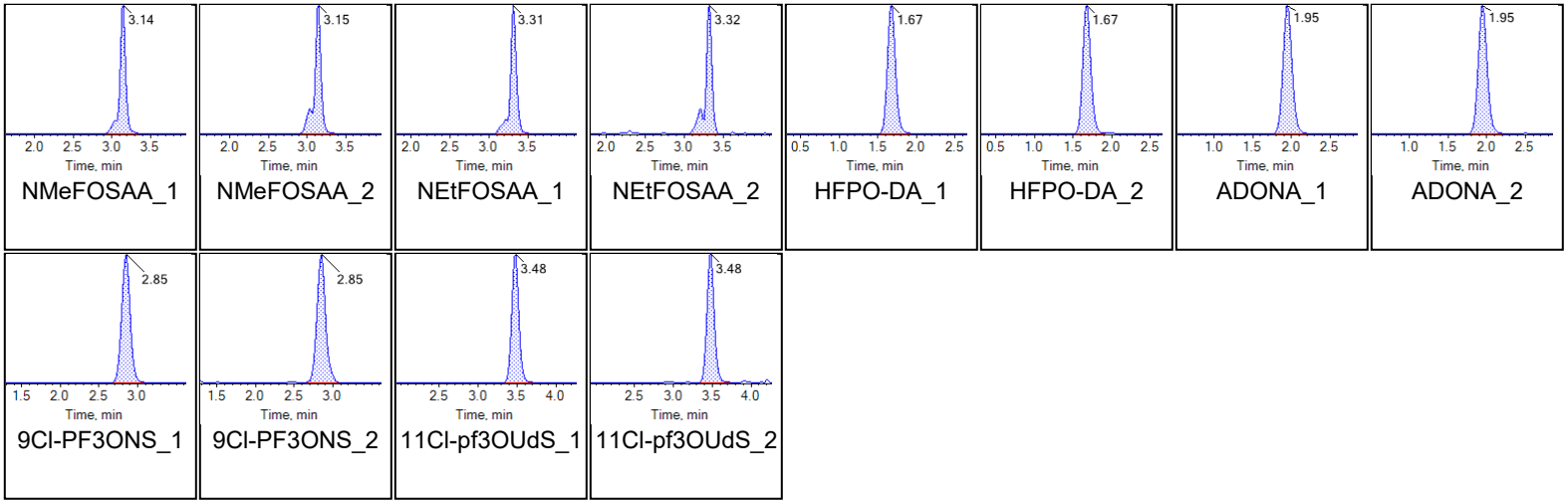
Target Analytes:



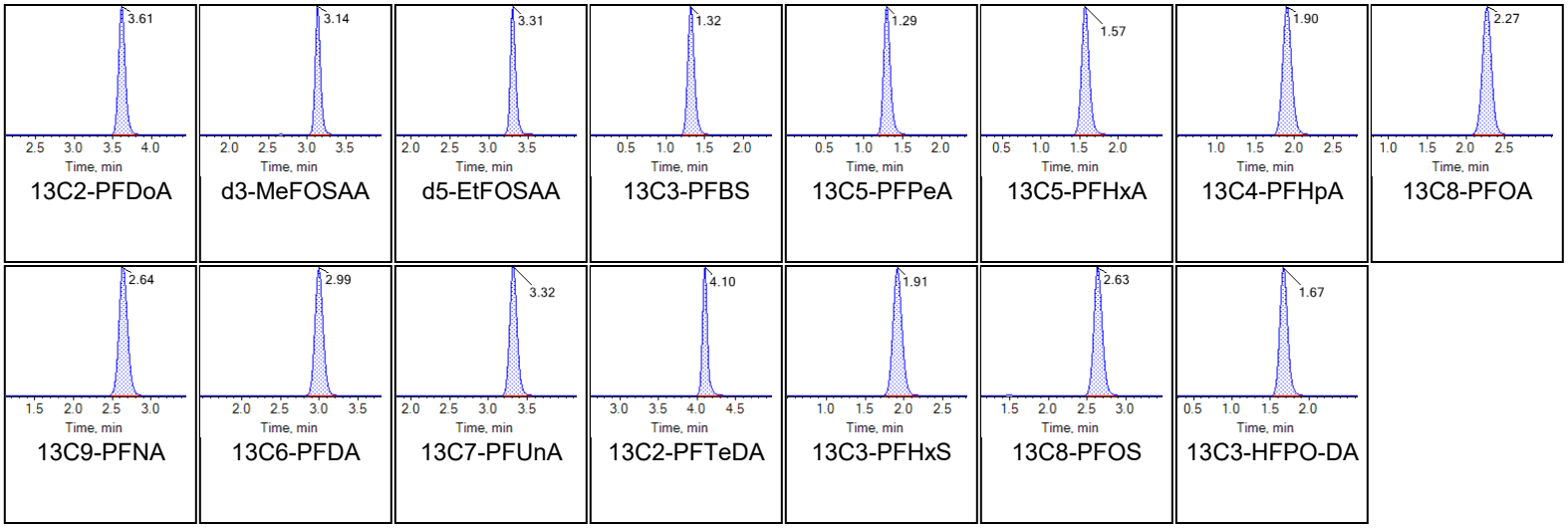
BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:13:56 PM



Internal Standards:



BATTELLE

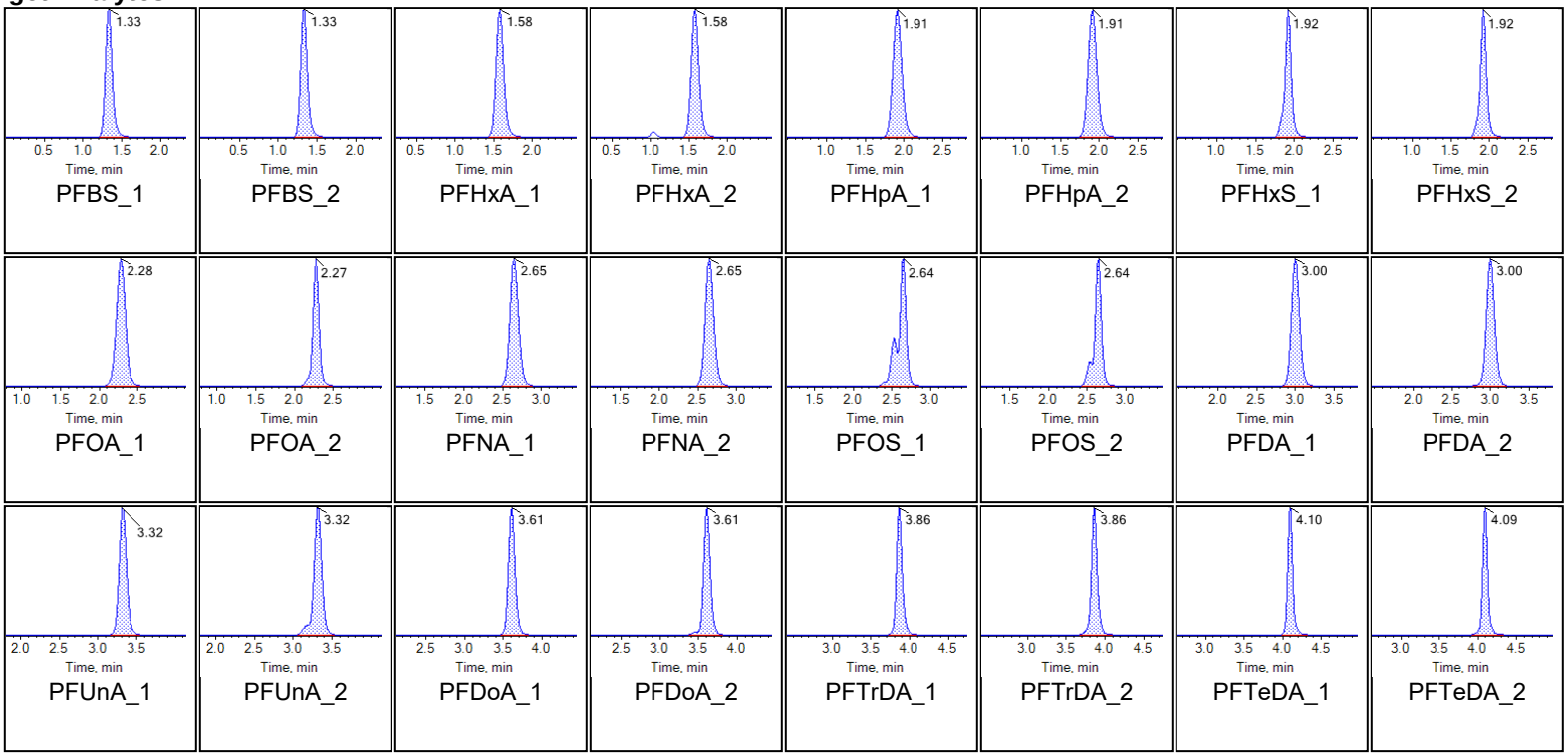
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:13:56 PM

Sample Name	LD78	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:49:32 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441

Chromatograms

Target Analytes:



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Chromatogram Report

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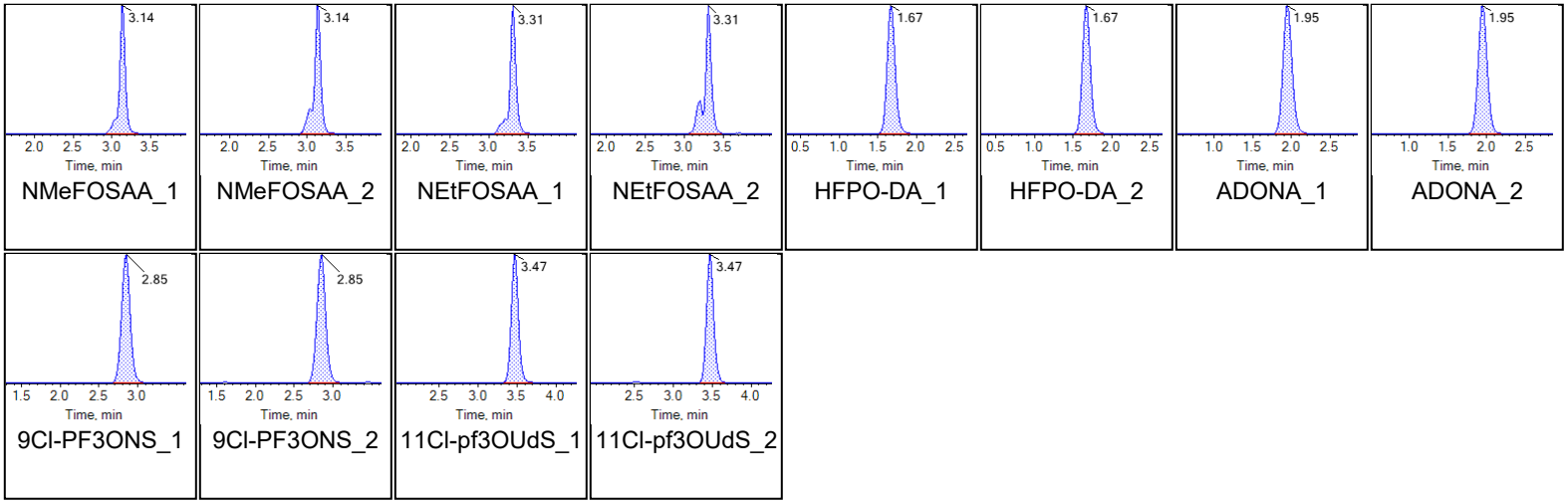
Printed: 11/11/2020 4:13:56 PM



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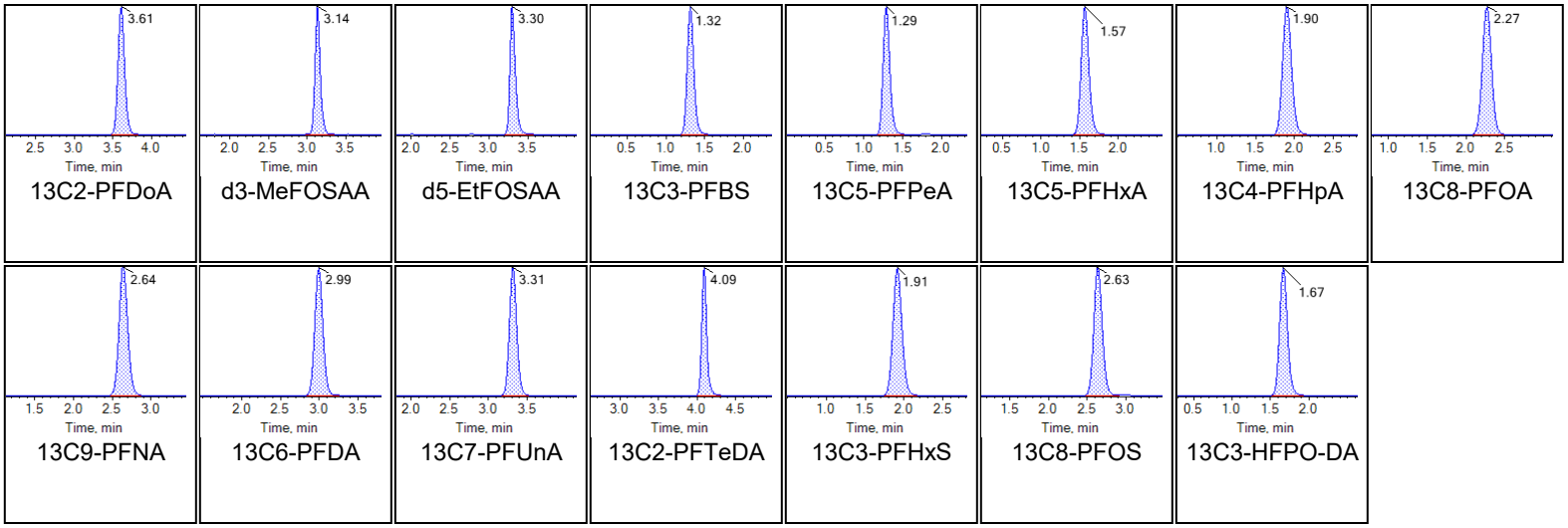


BATTELLE

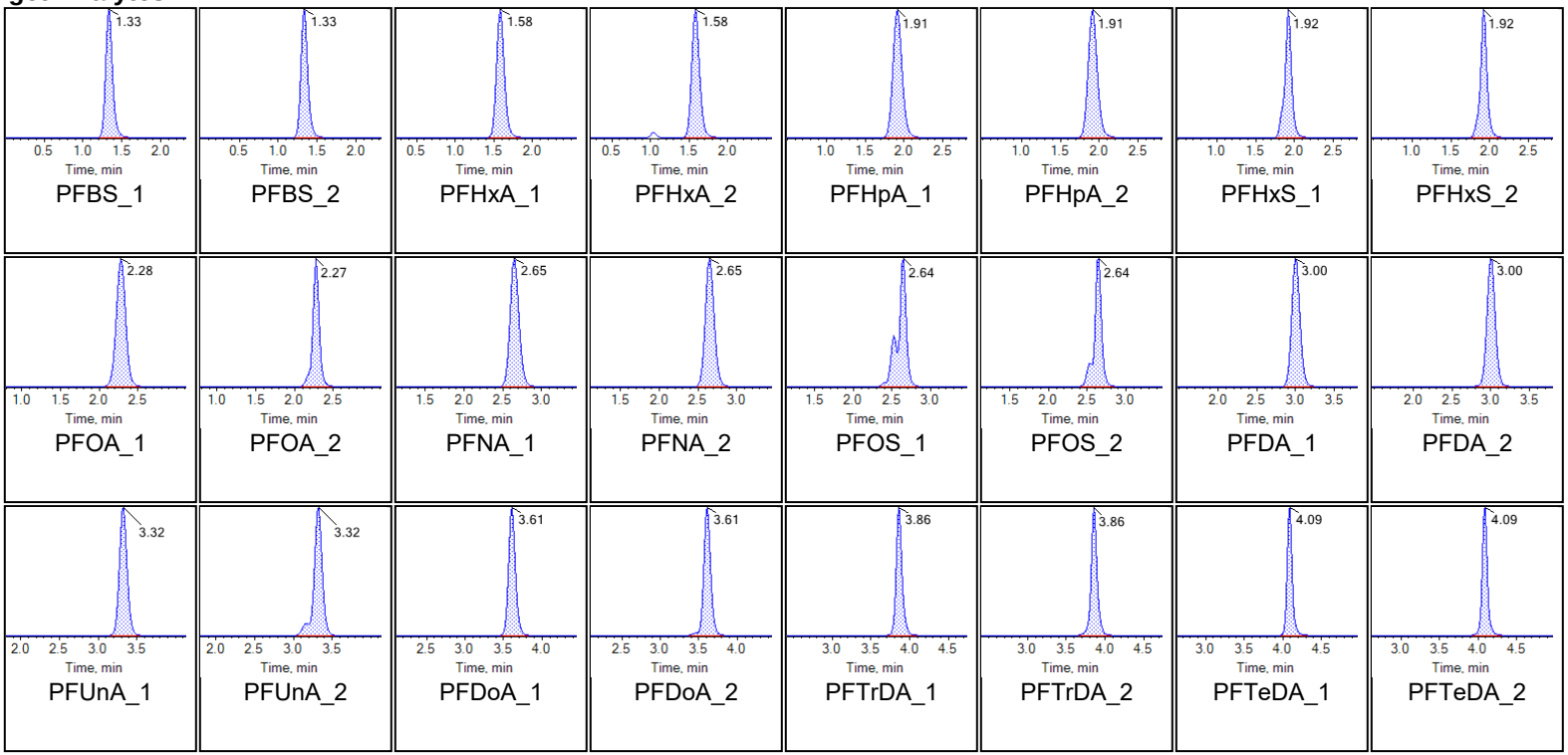
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:13:56 PM

Sample Name	LD79	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:59:59 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441

Chromatograms

Target Analytes:



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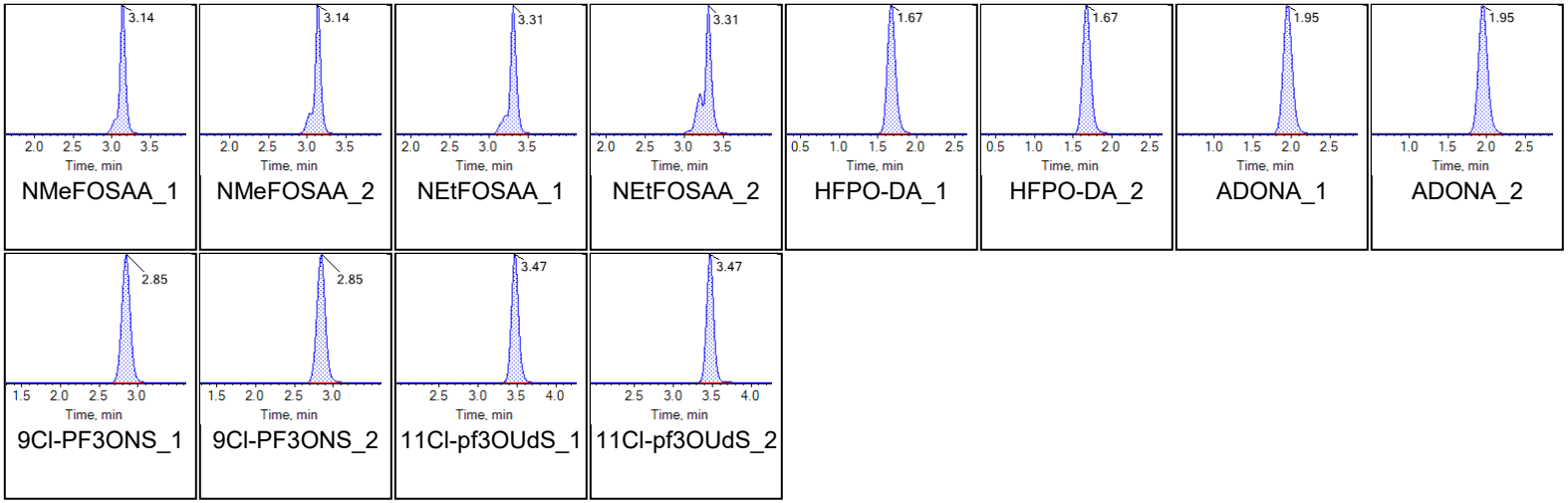

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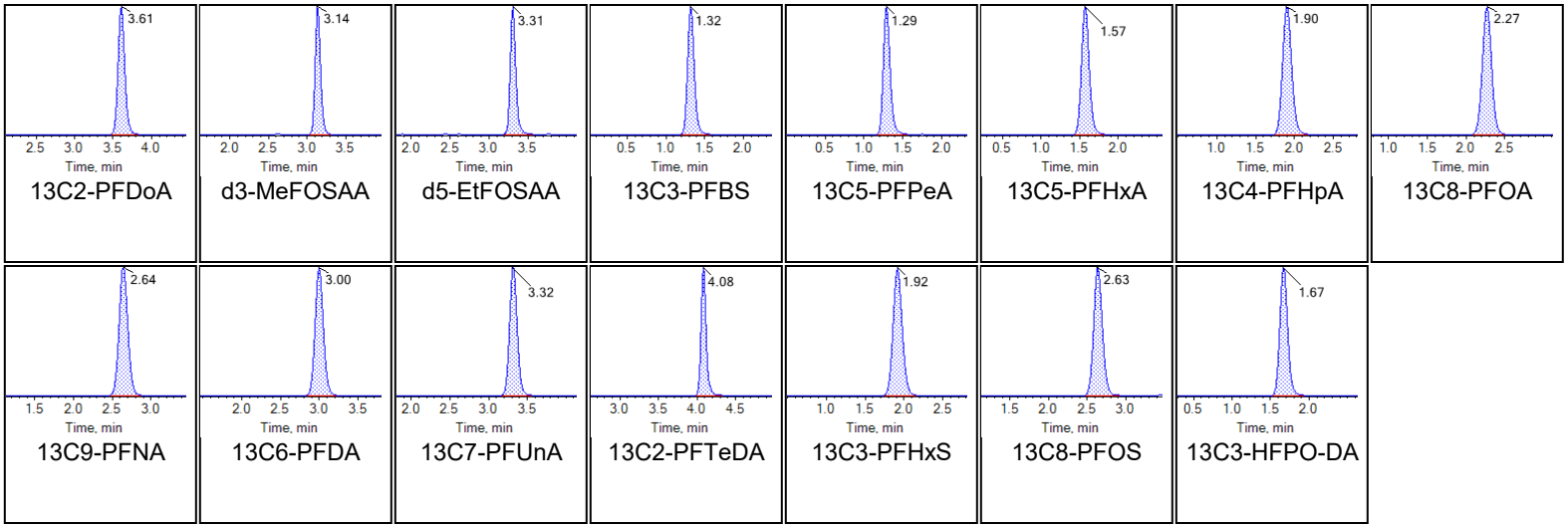


BATTELLE

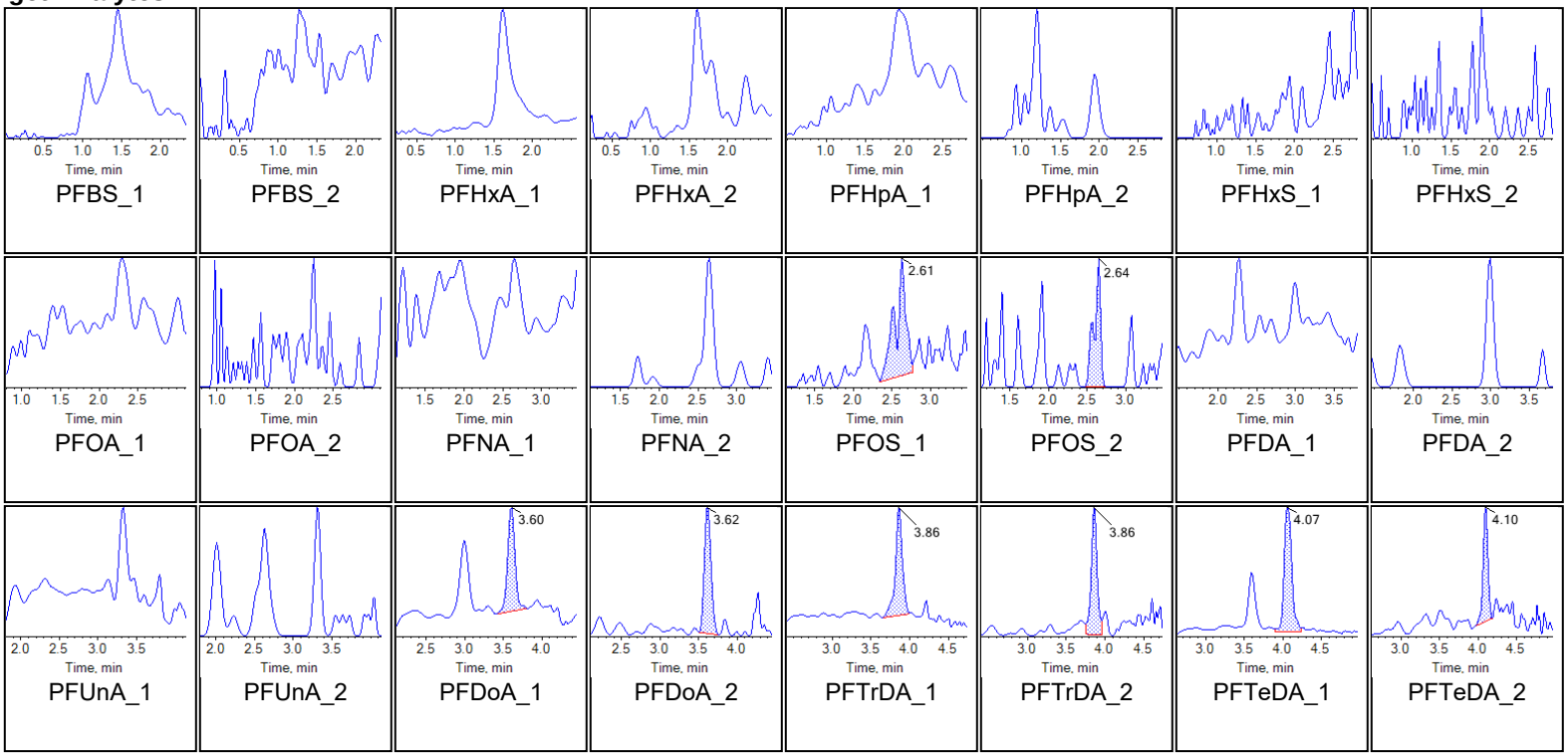
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:13:56 PM

Sample Name	LD80 IB	**Injection Vial**	8
Sample ID	Instrument Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 9:10:26 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441

Chromatograms

Target Analytes:



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Chromatogram Report

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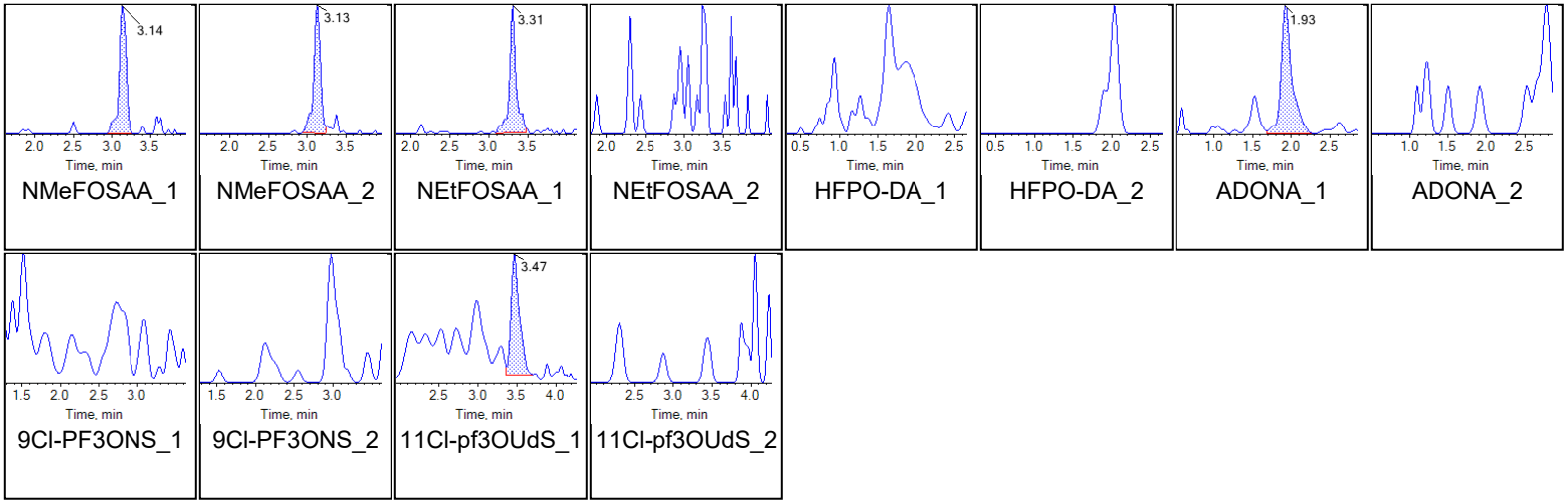
Printed: 11/11/2020 4:13:56 PM



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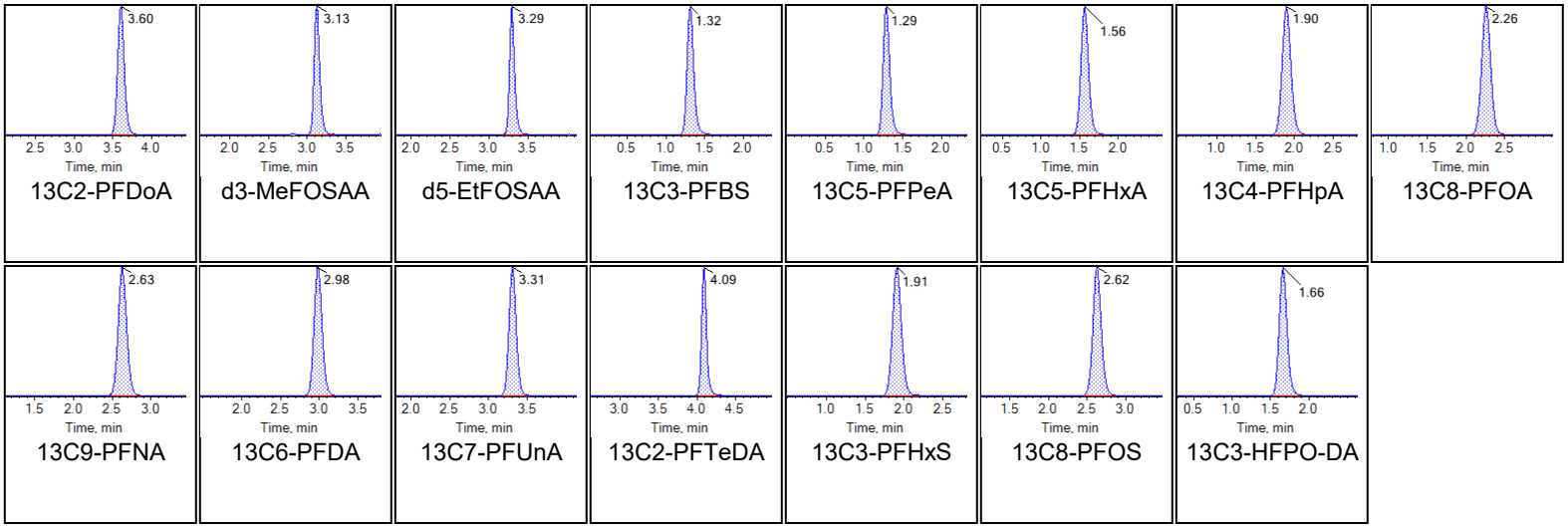


BATTELLE

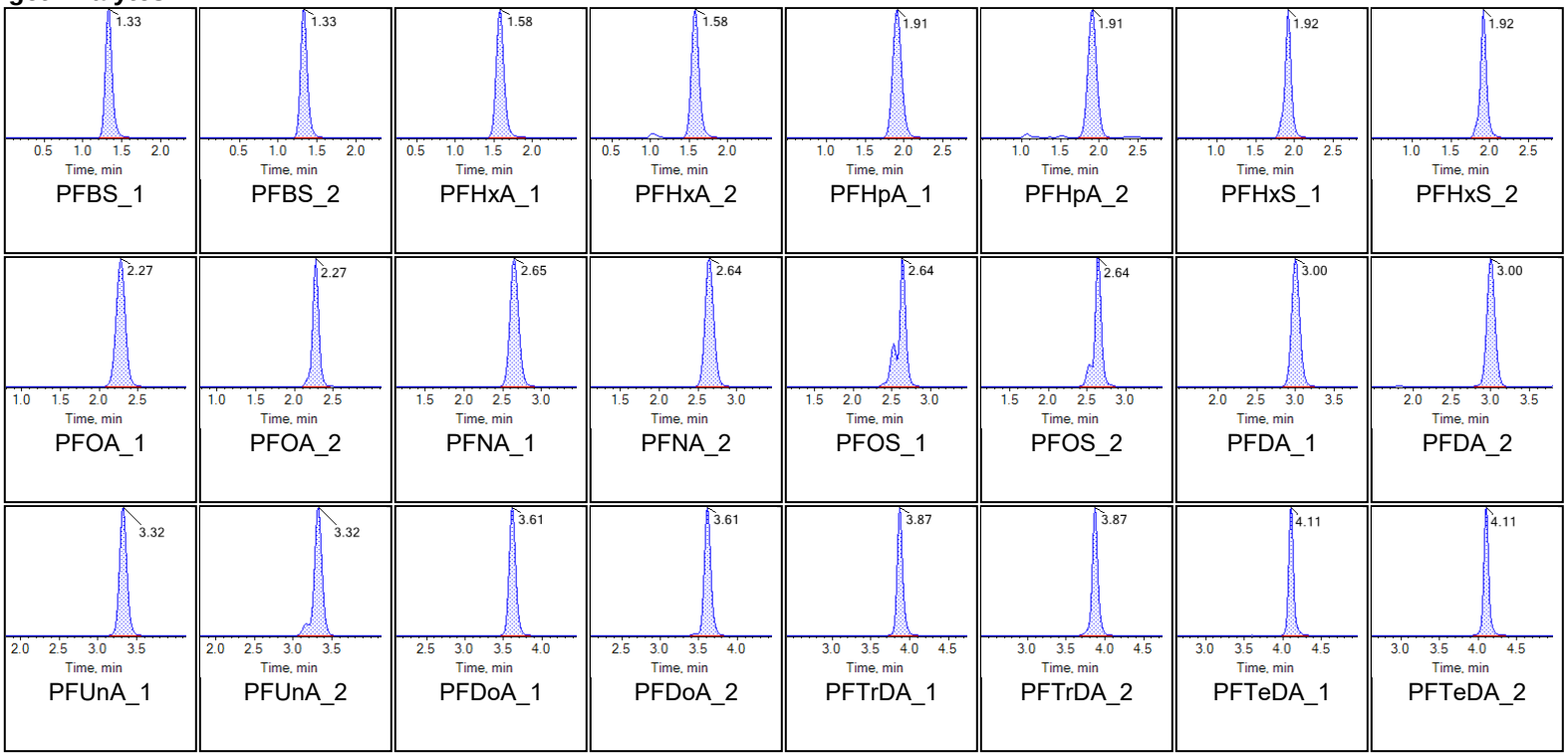
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:13:56 PM

Sample Name	LD81 ICC	**Injection Vial**	9
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 9:20:54 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441

Chromatograms

Target Analytes:



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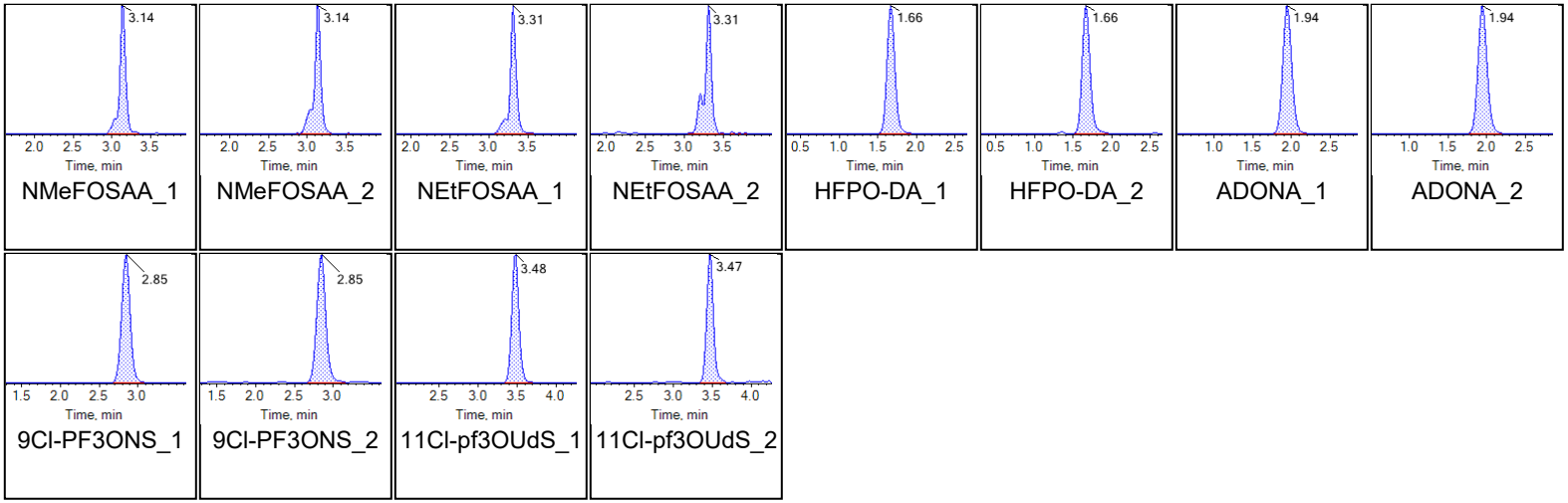

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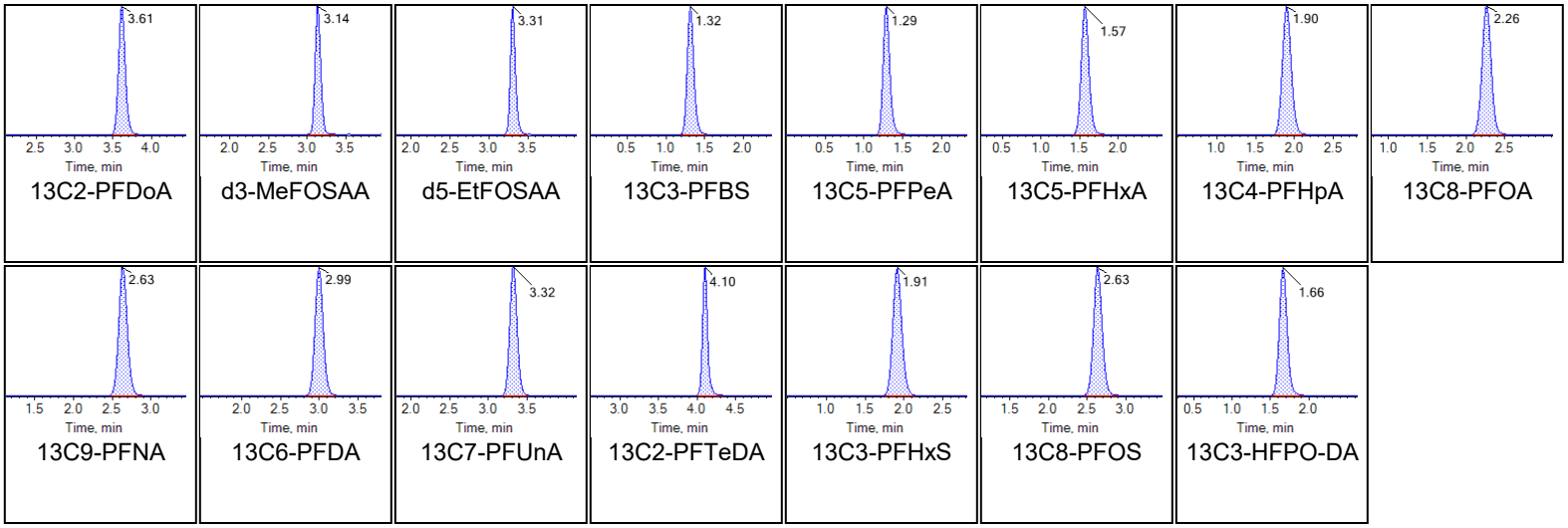


BATTELLE

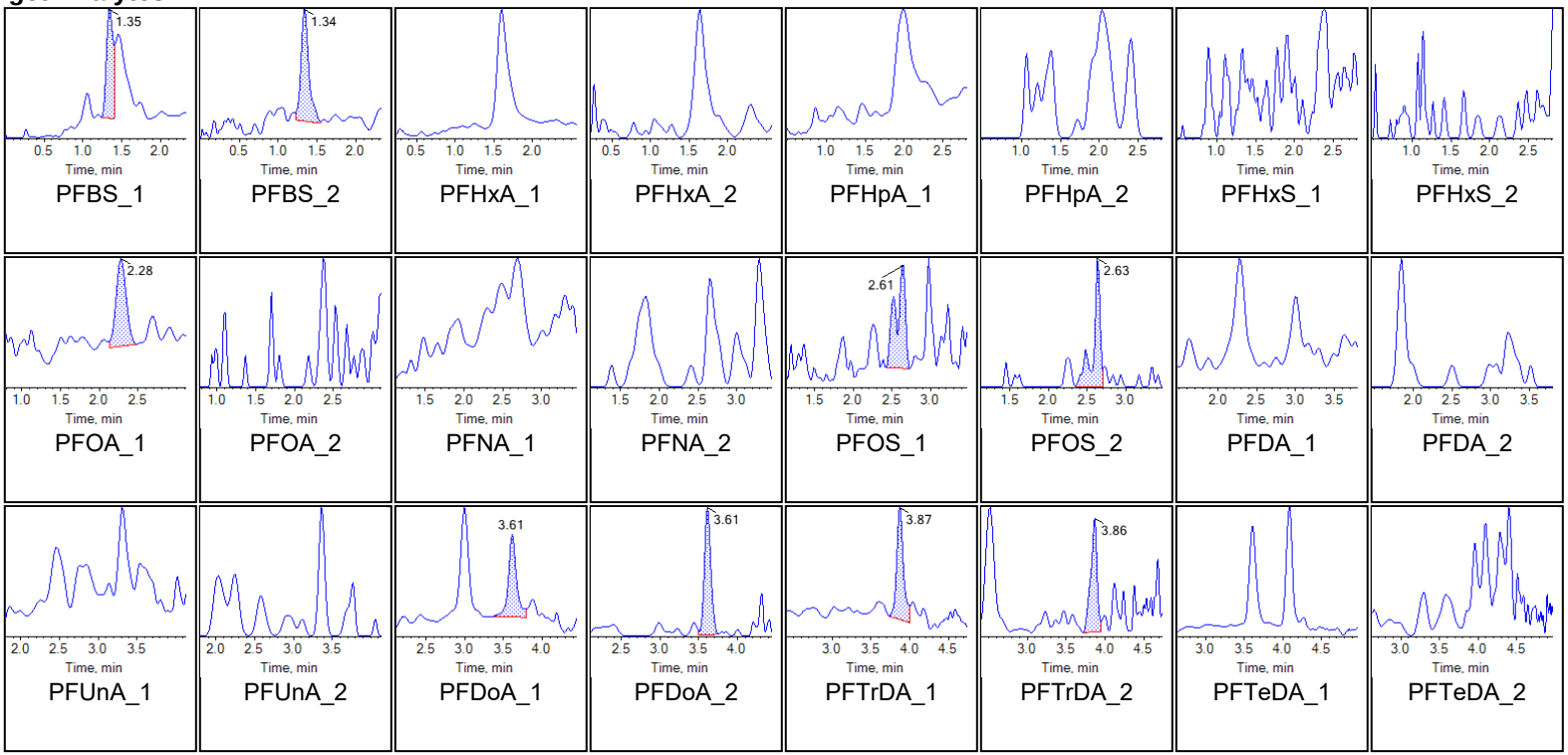
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:13:56 PM

Sample Name	DB297PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 9:52:18 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441

Chromatograms

Target Analytes:



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Chromatogram Report

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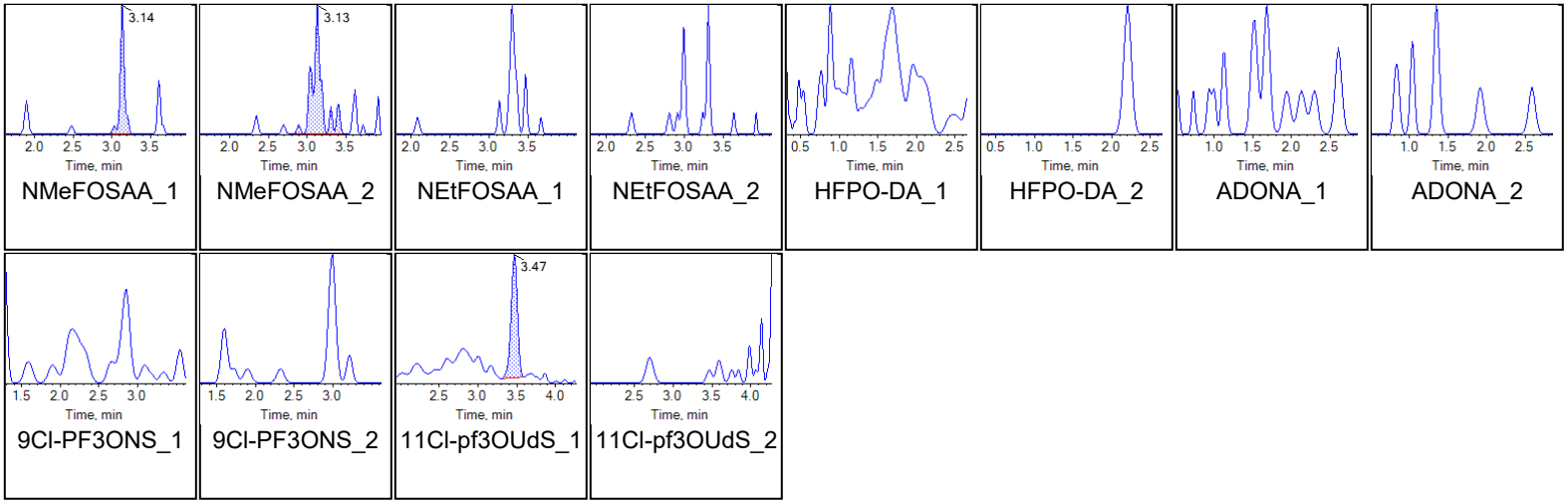

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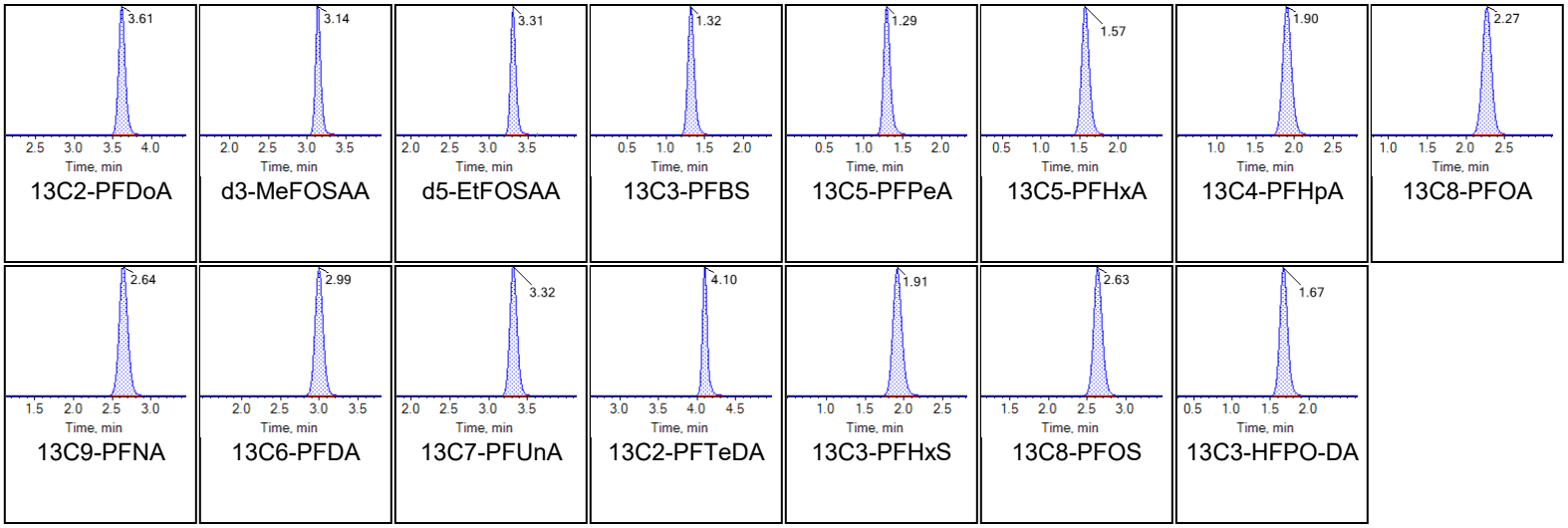


BATTELLE

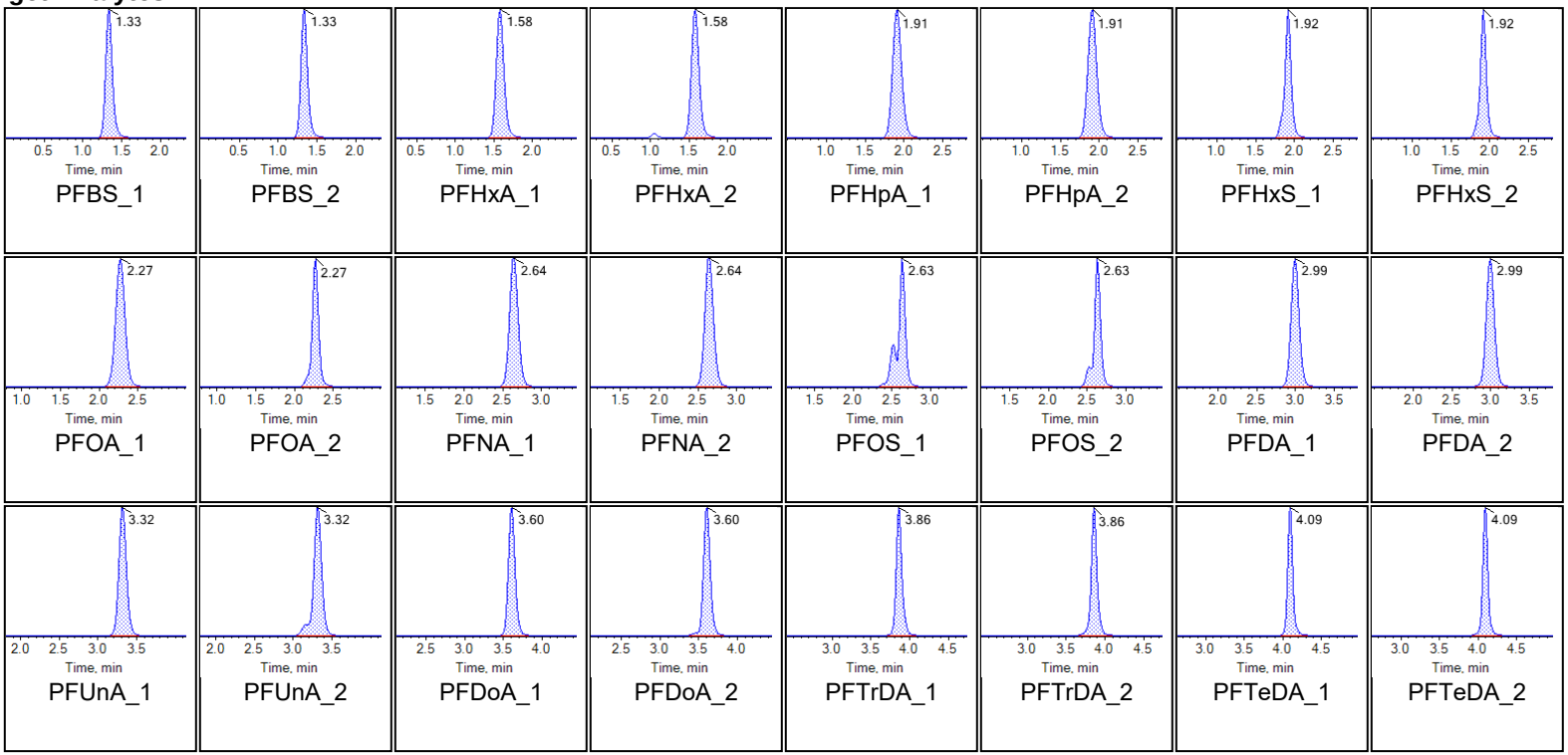
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:13:56 PM

Sample Name	DB298LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:02:45 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441

Chromatograms

Target Analytes:



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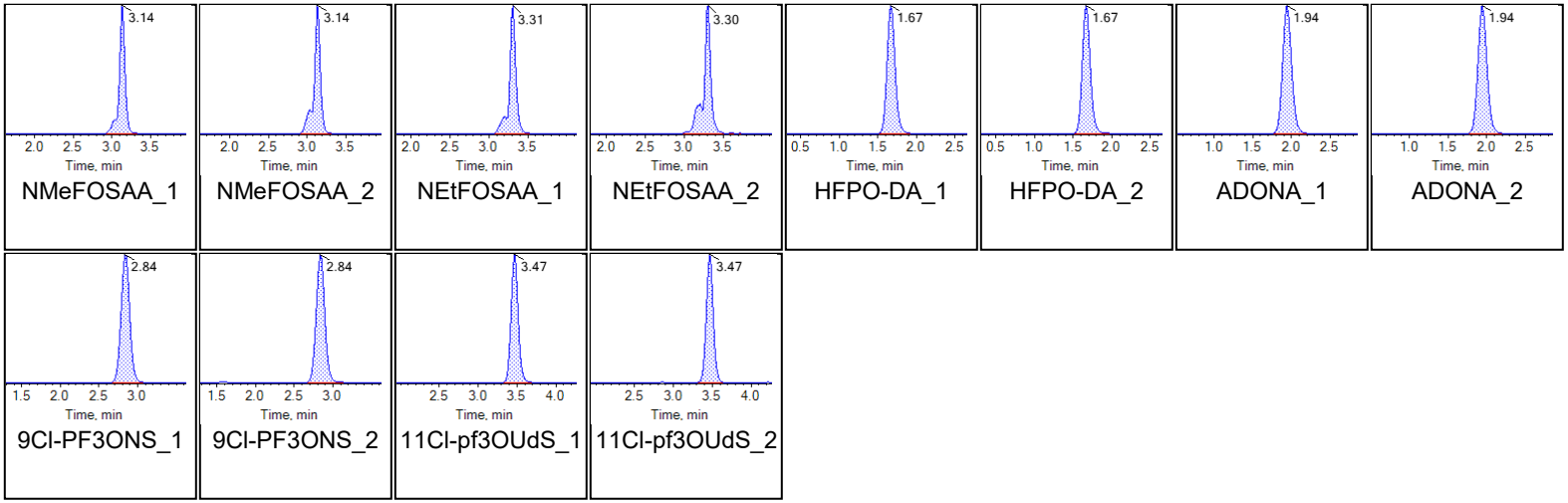

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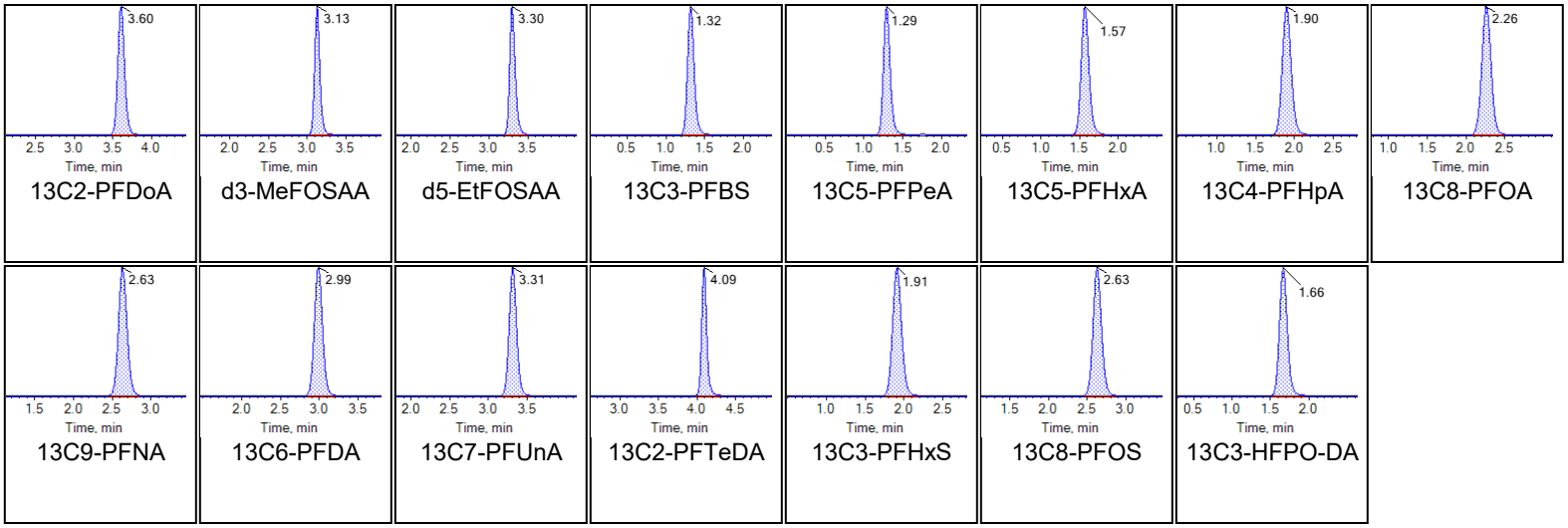


BATTELLE

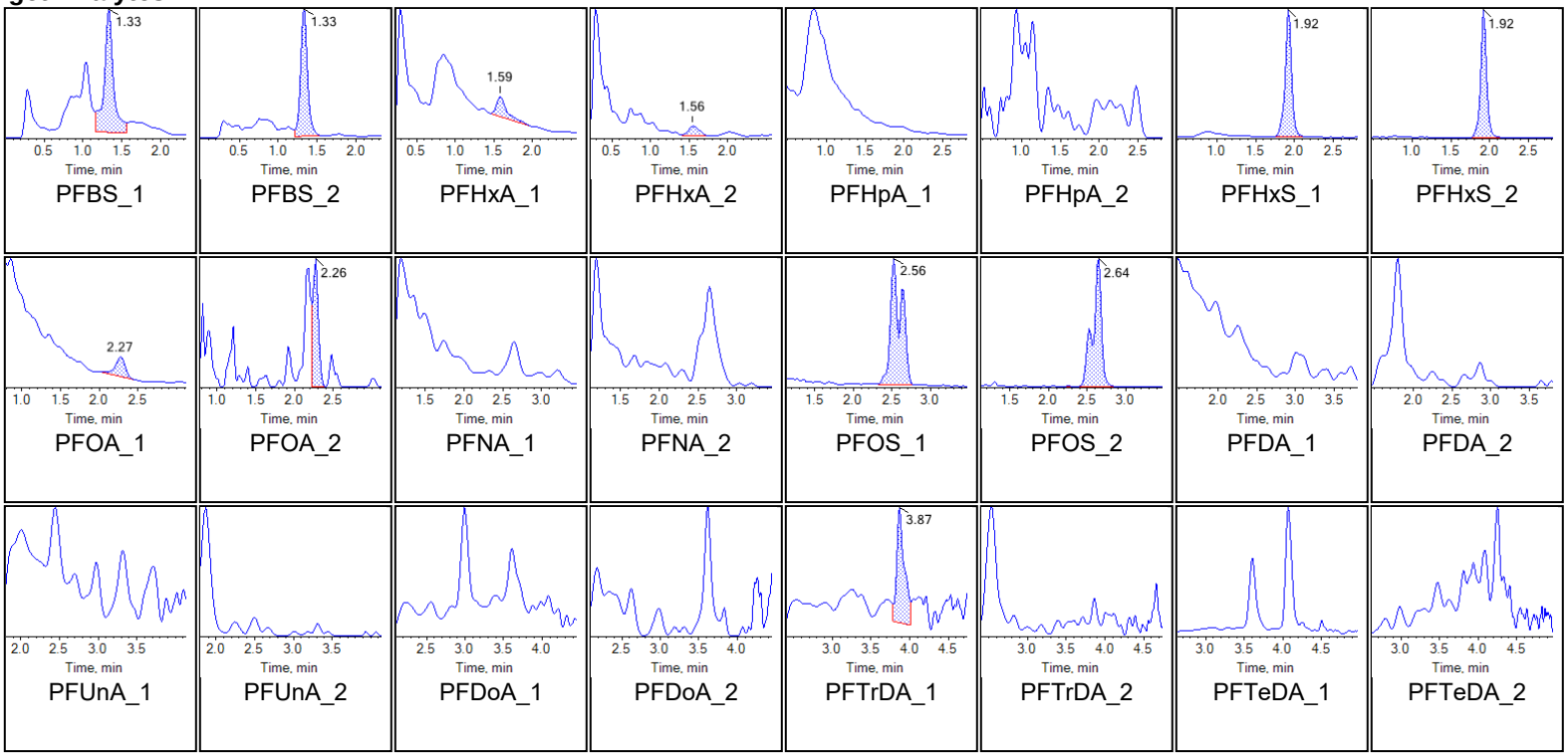
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:13:56 PM

Sample Name	G1696-FS1(0)	**Injection Vial**	14
Sample ID	CBD-HVG-GW10-1020	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:13:12 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441

Chromatograms

Target Analytes:



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Chromatogram Report

Created with Analyst Reporter
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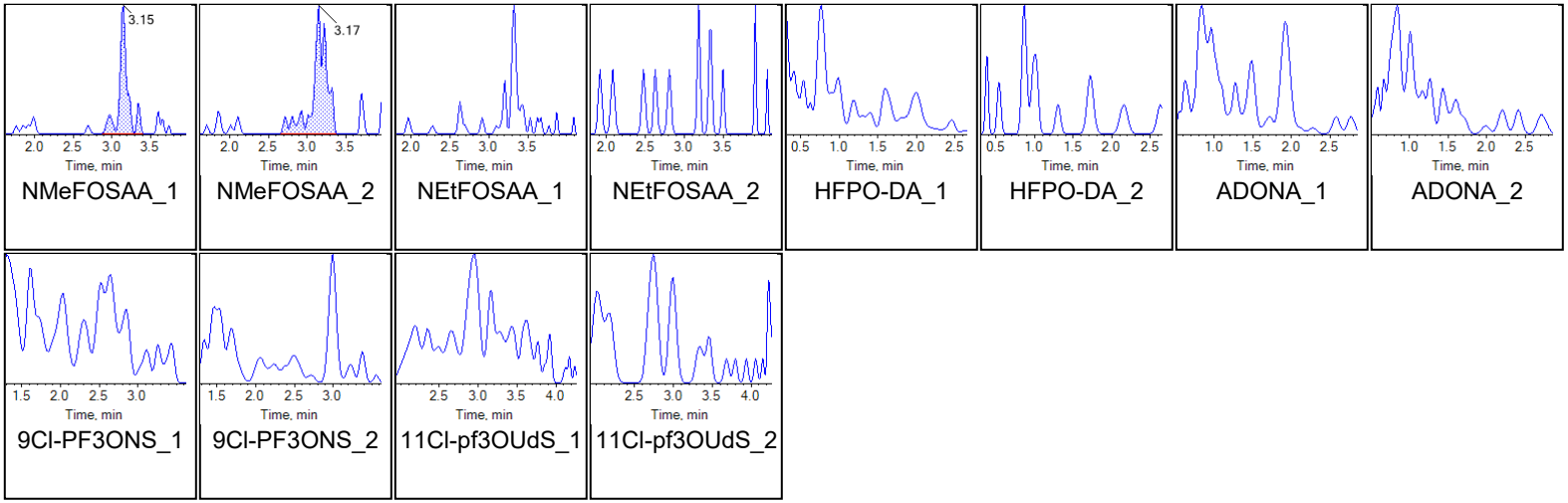

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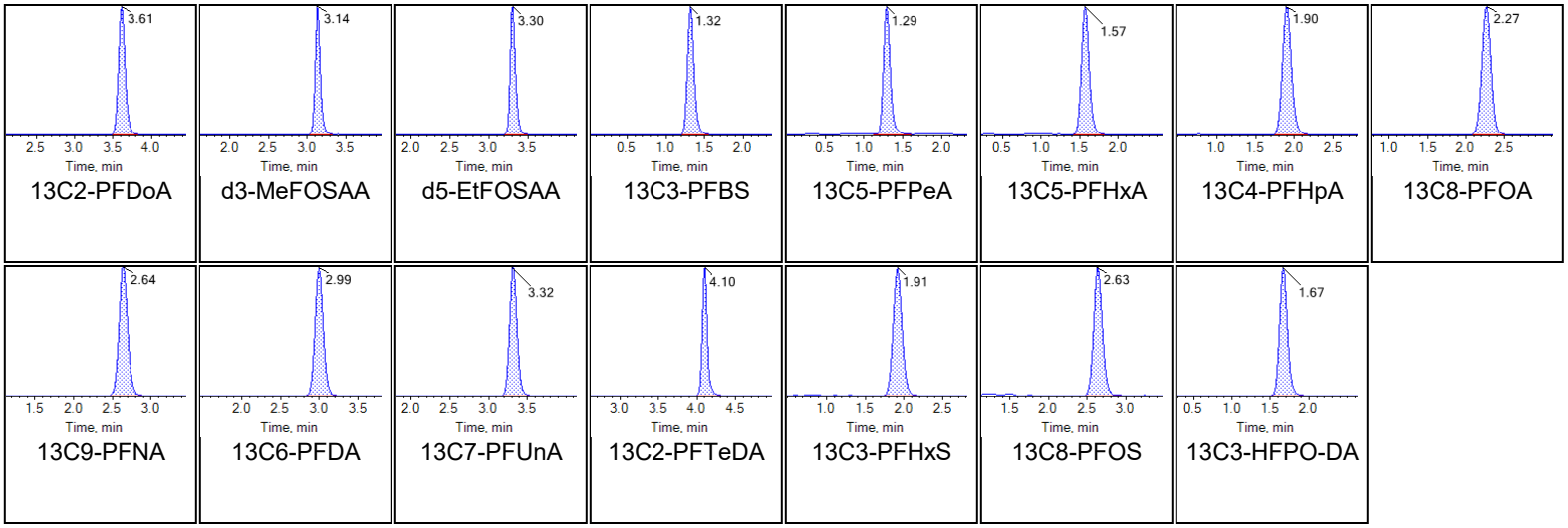


BATTELLE

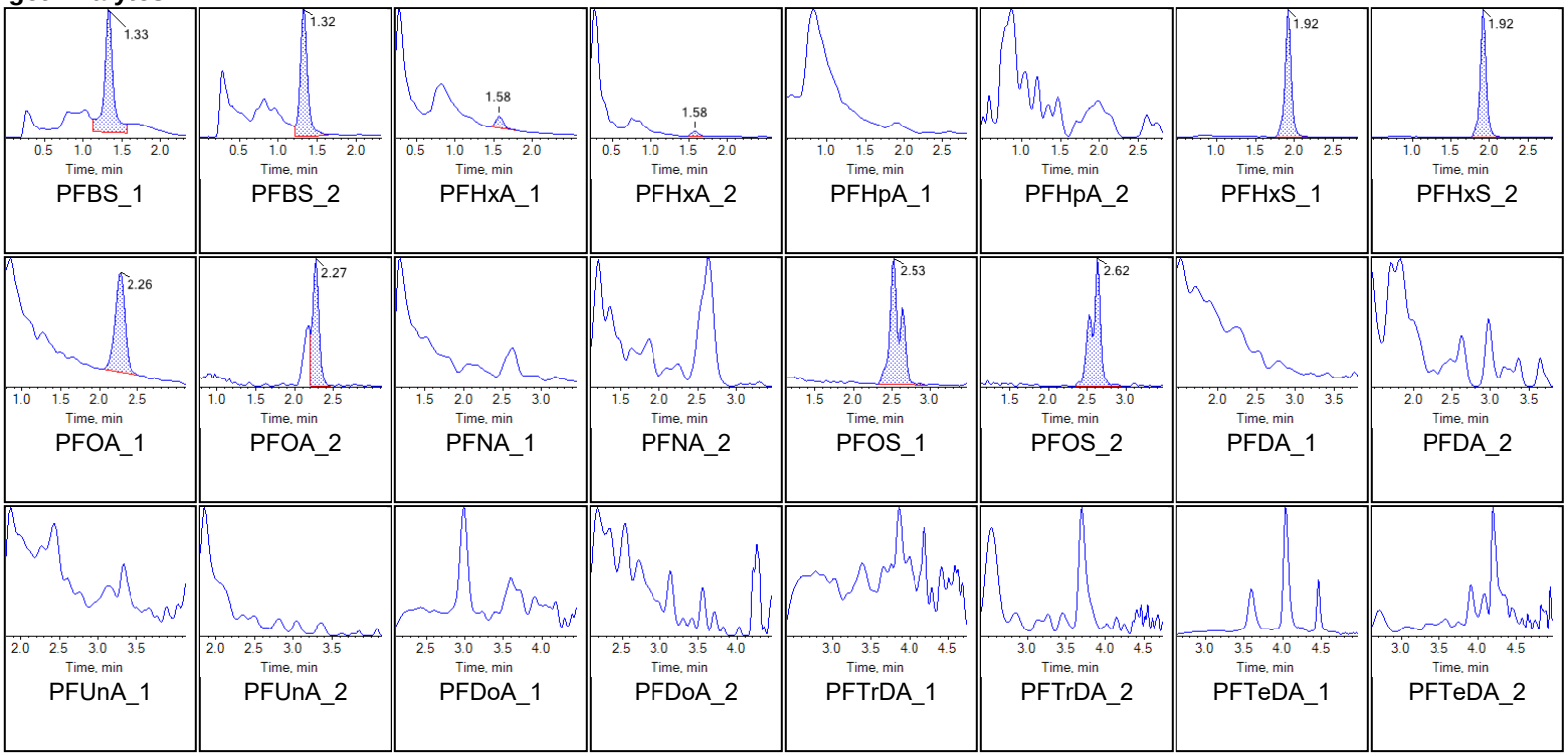
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:13:56 PM

Sample Name	G1697-FS1(0)	**Injection Vial**	15
Sample ID	CBD-HVG-GW09-1020	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:23:40 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441

Chromatograms

Target Analytes:



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Chromatogram Report

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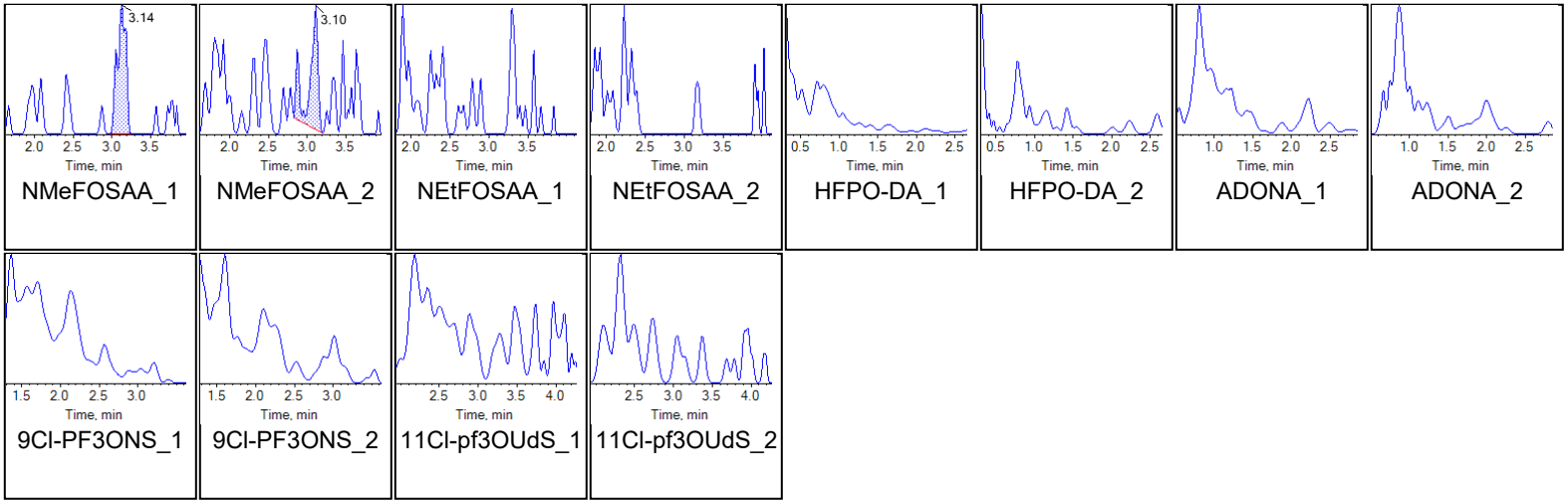
Printed: 11/11/2020 4:13:56 PM



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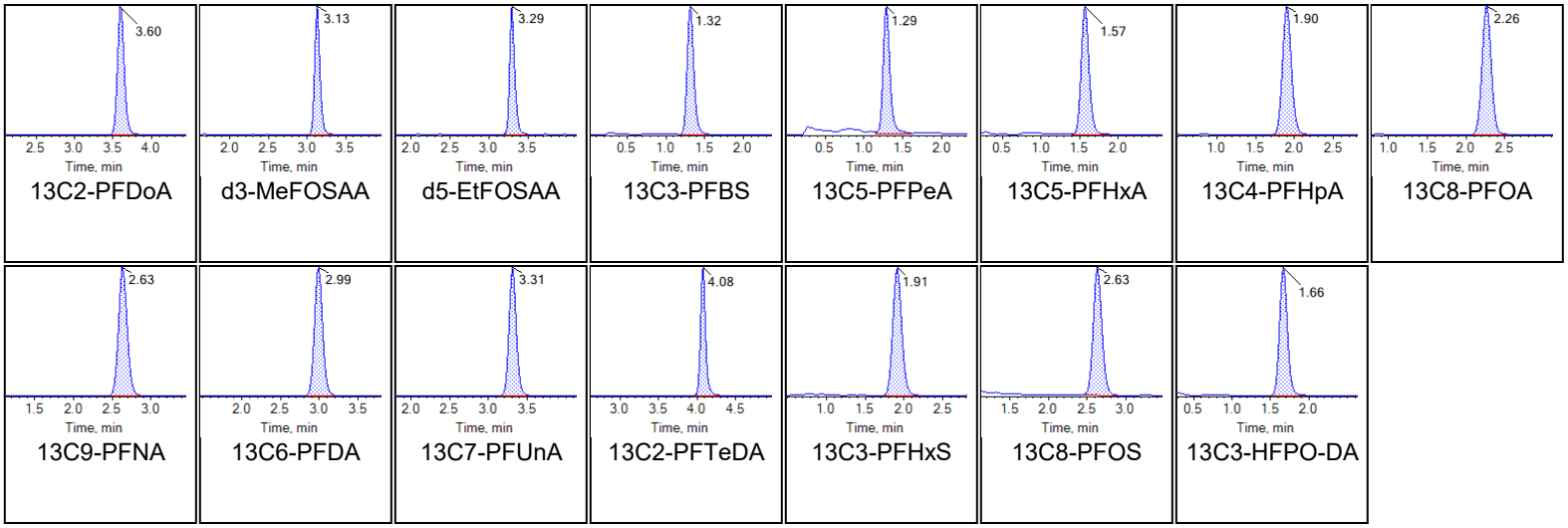


BATTELLE

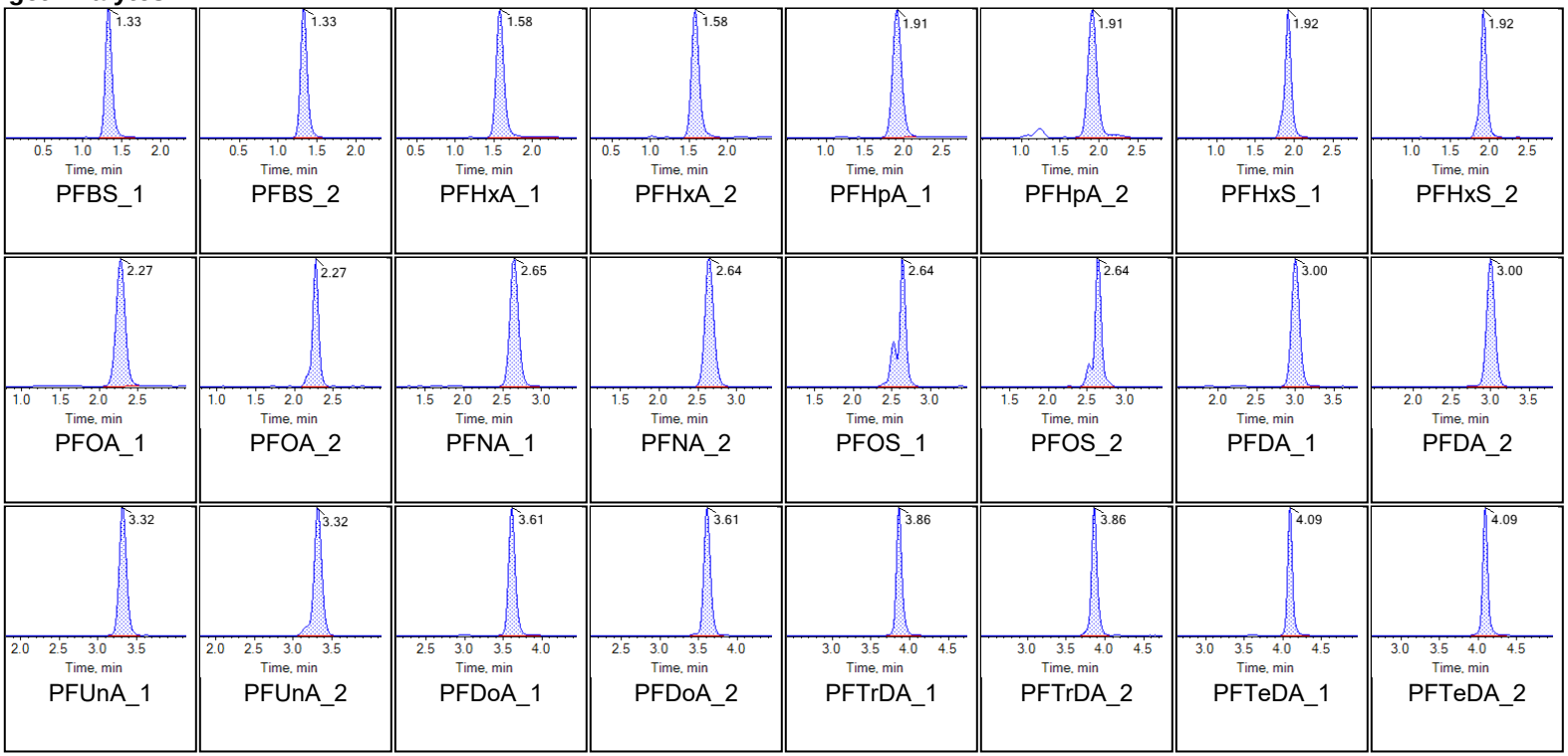
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:13:56 PM

Sample Name	LD76 CCV	**Injection Vial**	17
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:44:35 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441

Chromatograms

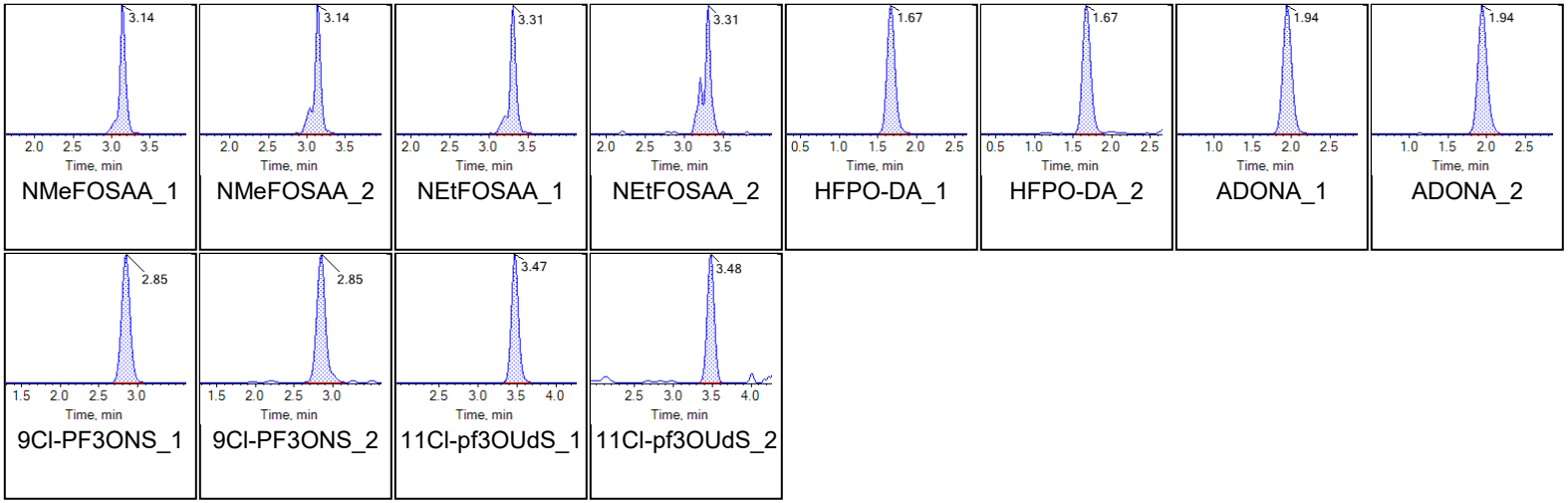
Target Analytes:



BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:13:56 PM



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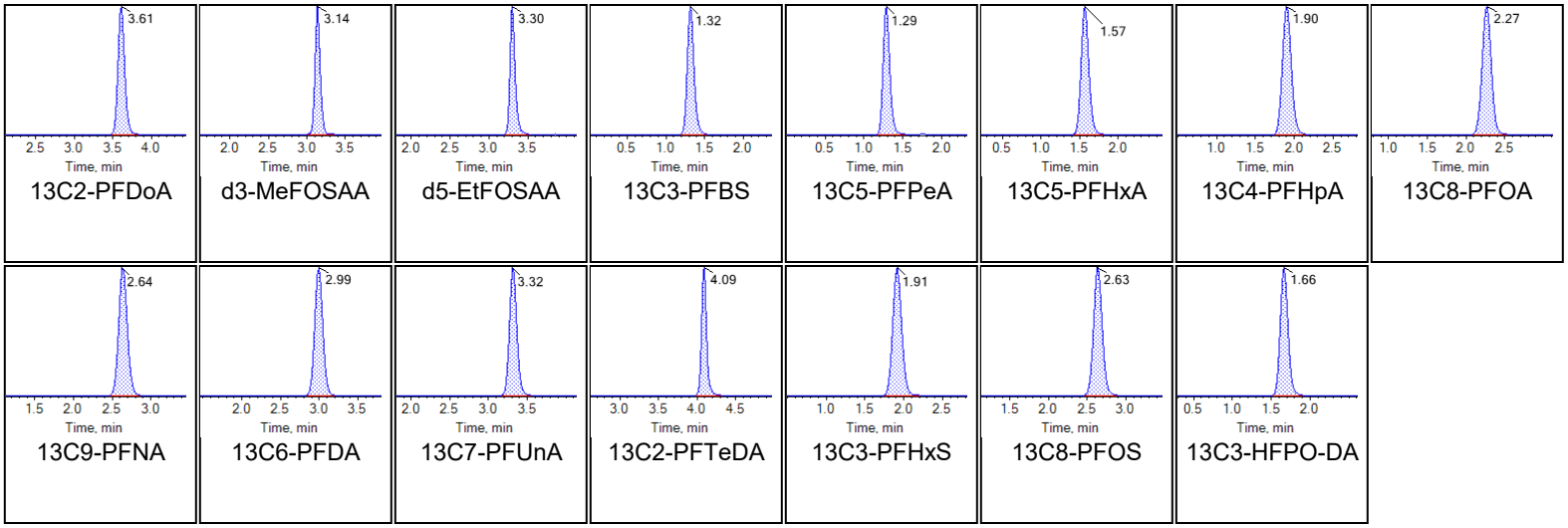


BATTELLE

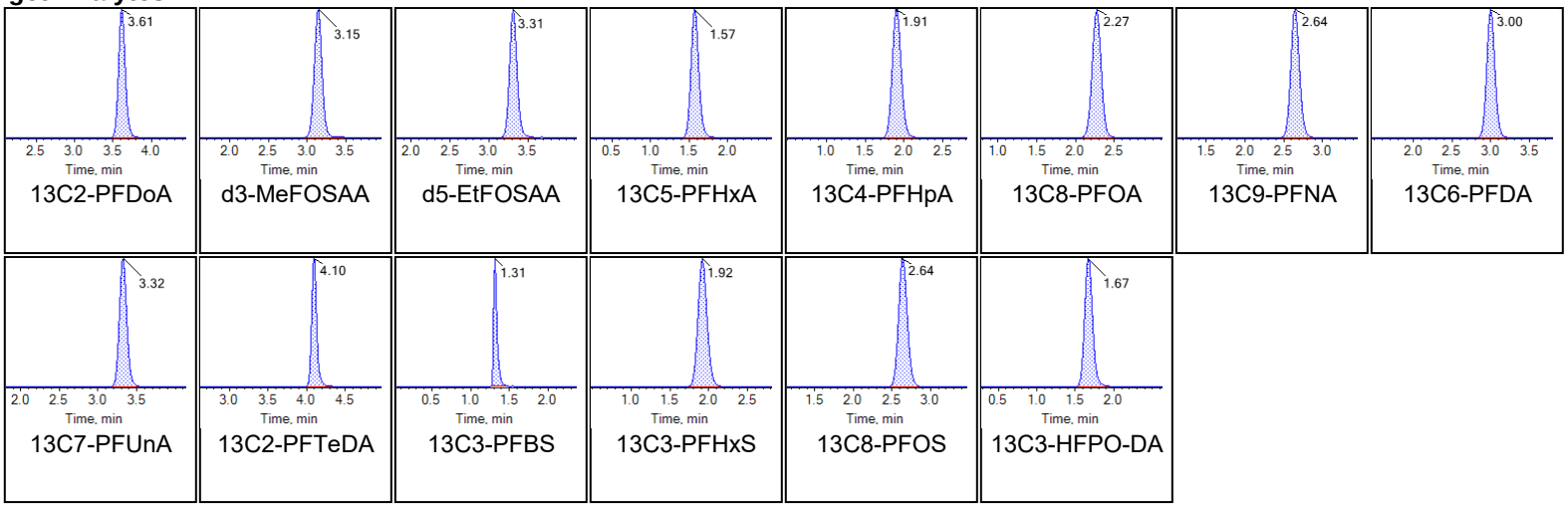
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:04:04 PM

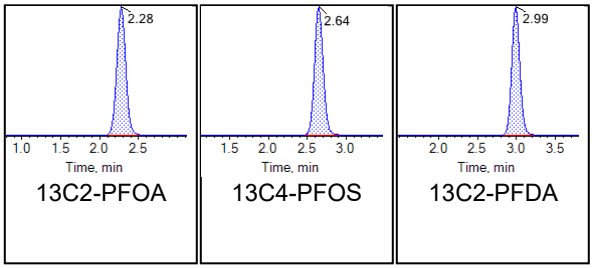
Sample Name	LD74	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:07:44 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

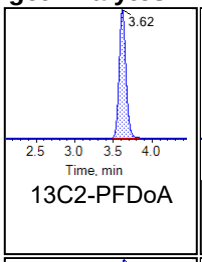
Chromatogram Report

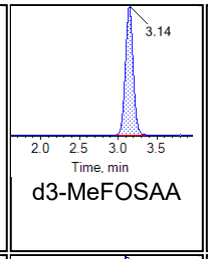
Created with Analyst Reporter
Printed: 11/11/2020 4:04:04 PM

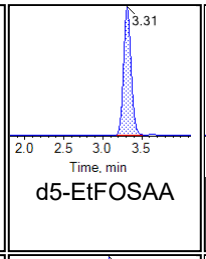
Sample Name	LD75	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:18:11 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS

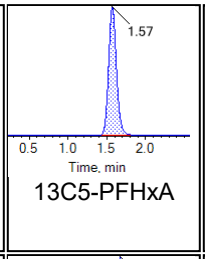
Chromatograms

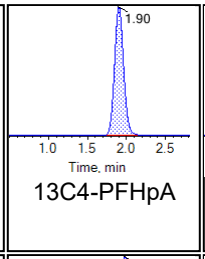
Target Analytes:

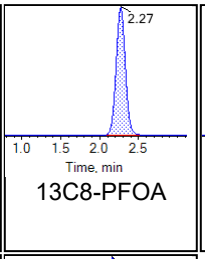


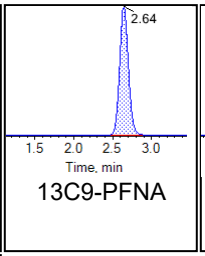


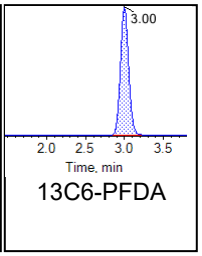


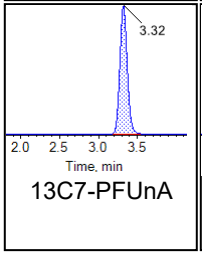


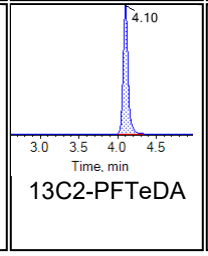


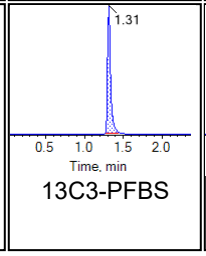


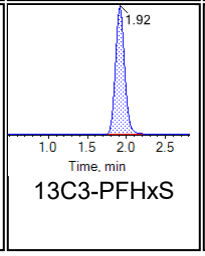


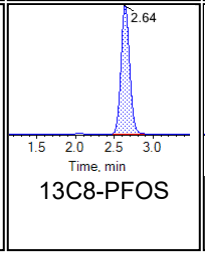


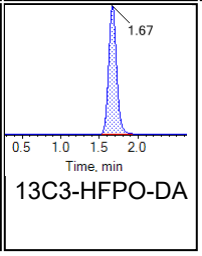




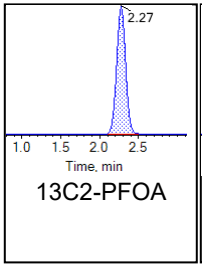


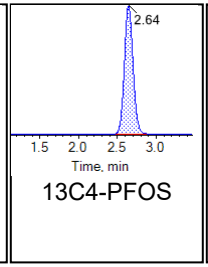


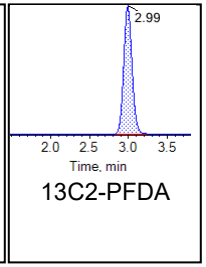




Internal Standards:







BATTELLE

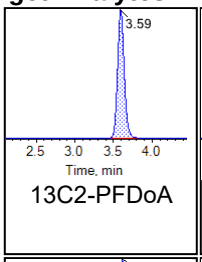
Chromatogram Report

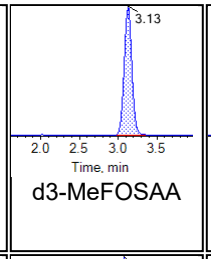
Created with Analyst Reporter
Printed: 11/11/2020 4:04:04 PM

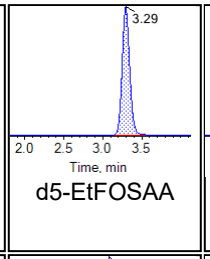
Sample Name	LD76	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:28:38 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS

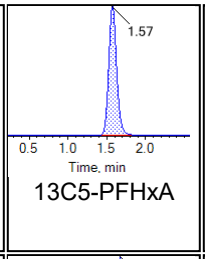
Chromatograms

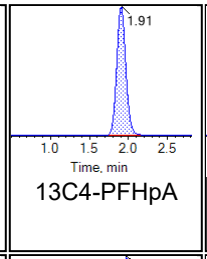
Target Analytes:

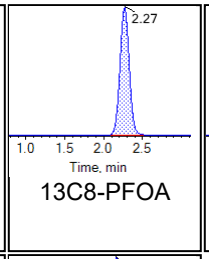


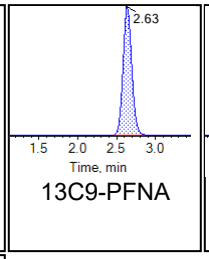


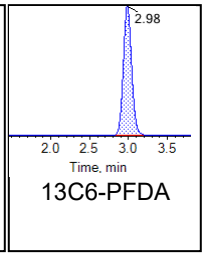


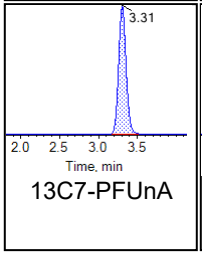


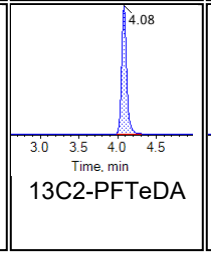


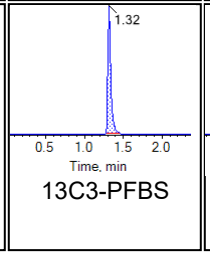


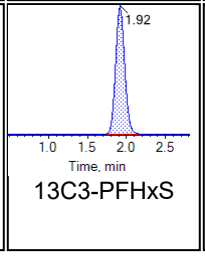


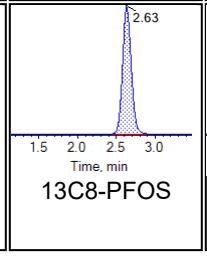


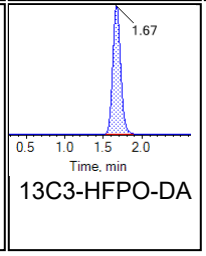




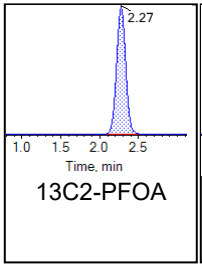


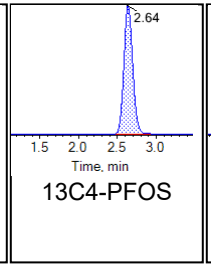


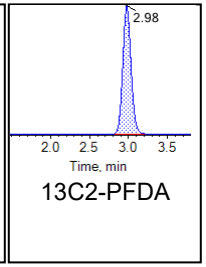




Internal Standards:







BATTELLE

Chromatogram Report

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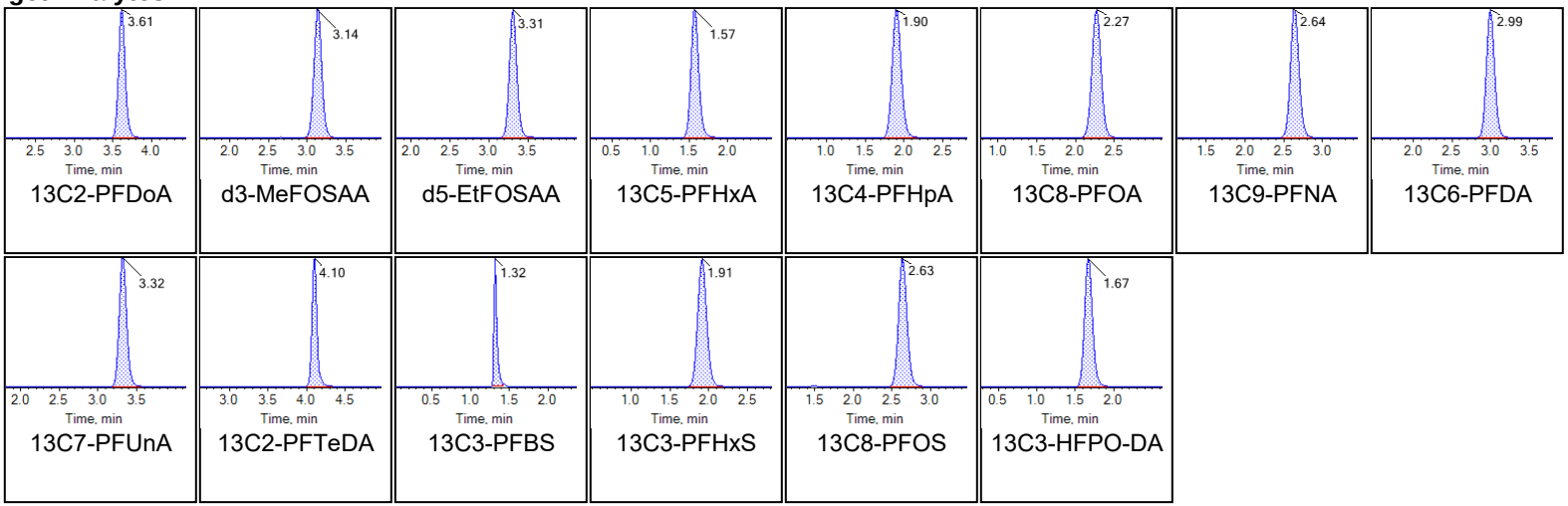
Printed: 11/11/2020 4:04:04 PM

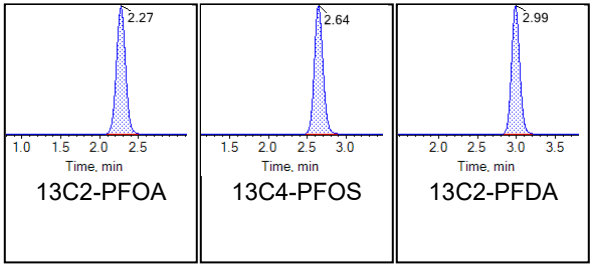
Sample Name	LD77	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:39:05 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

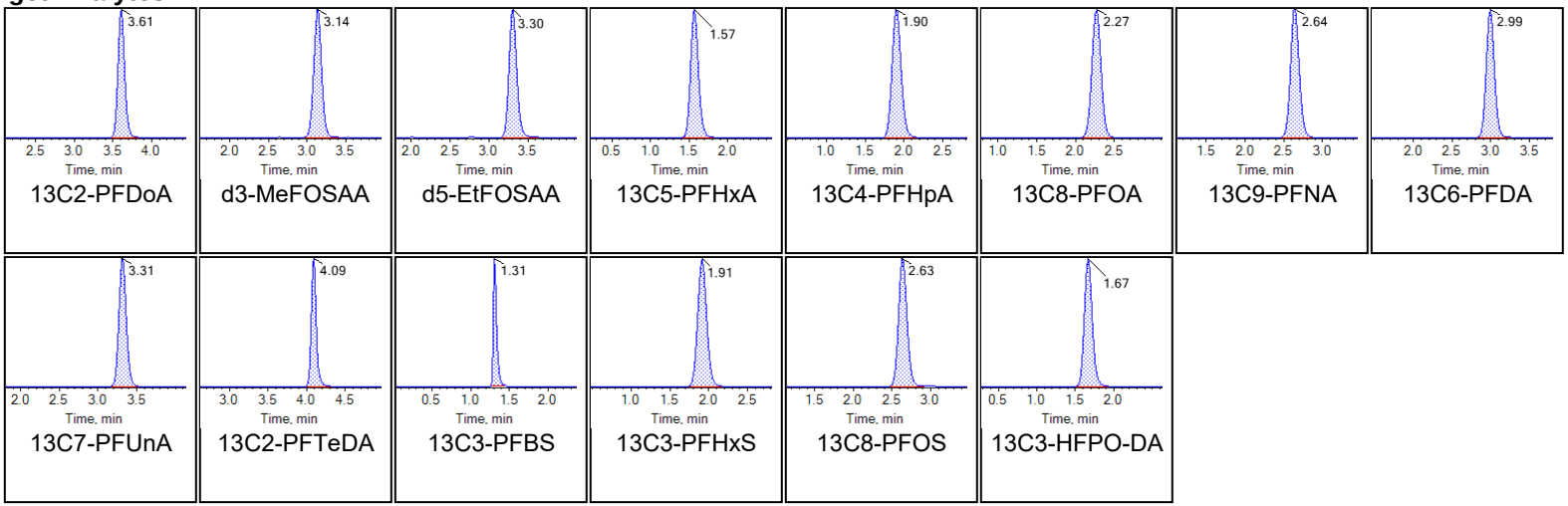
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:04:04 PM

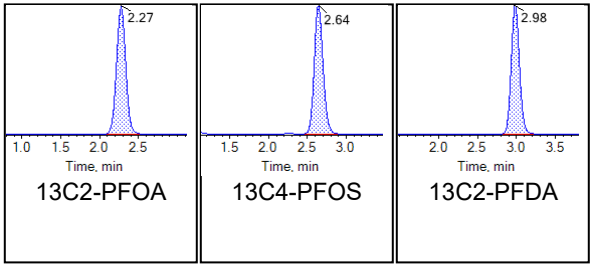
Sample Name	LD78	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:49:32 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

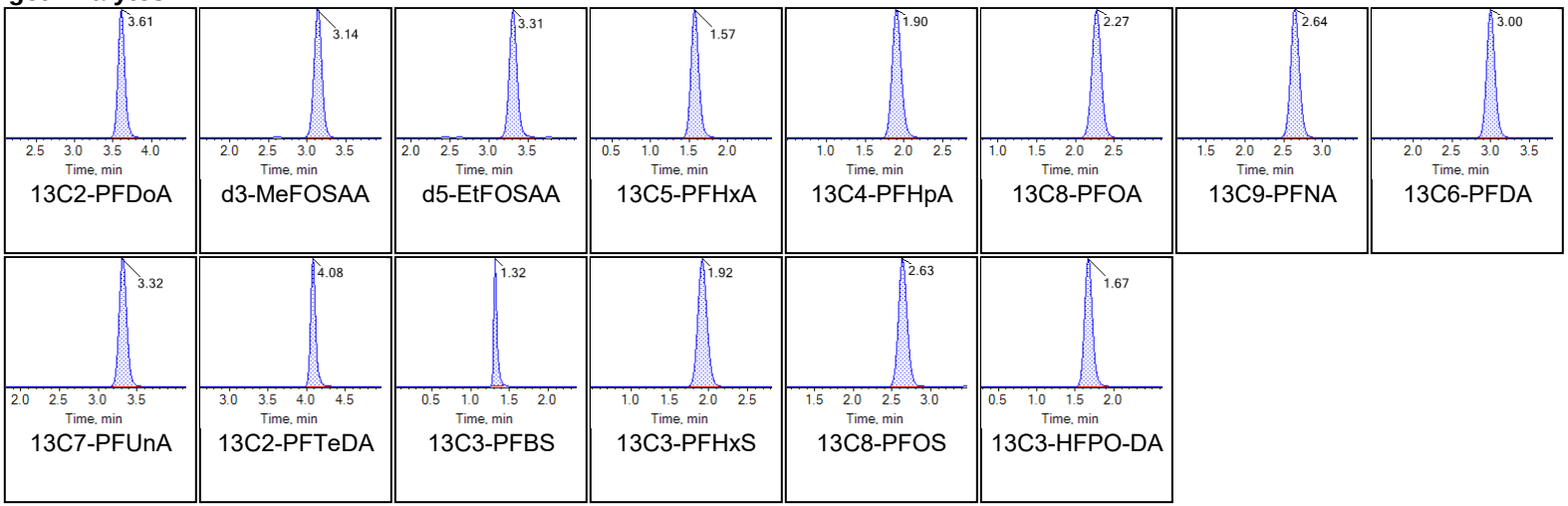
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:04:04 PM

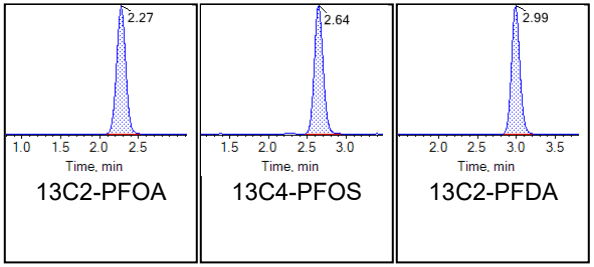
Sample Name	LD79	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 8:59:59 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

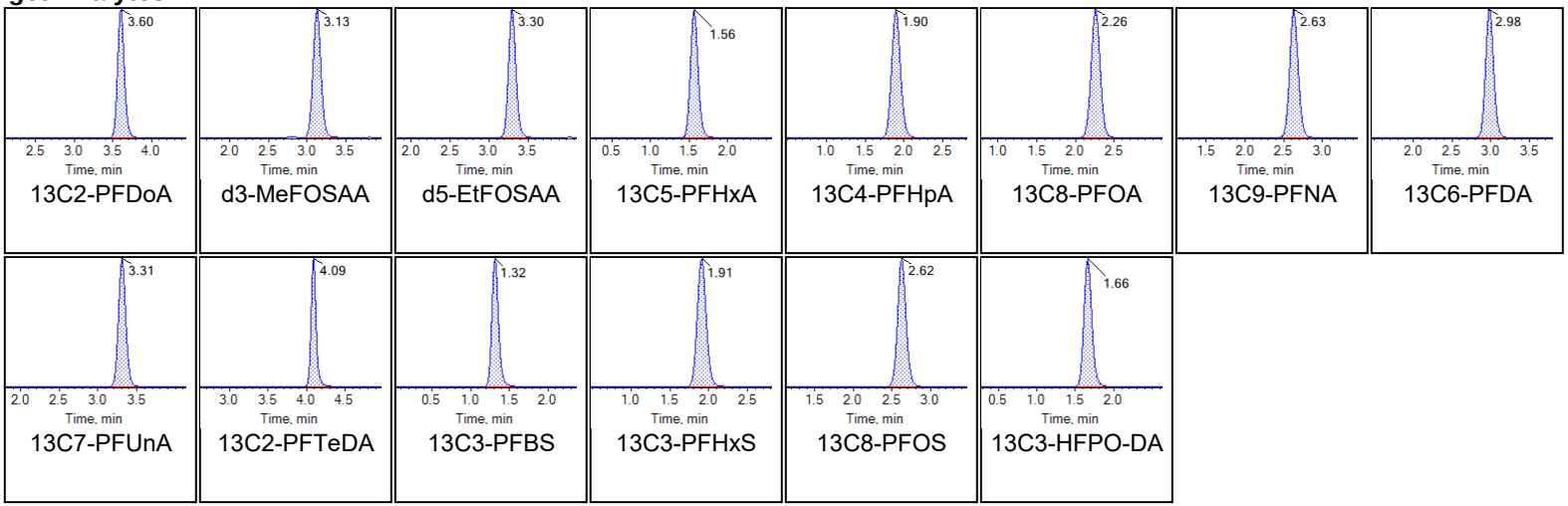
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:04:04 PM

Sample Name	LD80 IB	**Injection Vial**	8
Sample ID	Instrument Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 9:10:26 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS

Chromatograms

Target Analytes:



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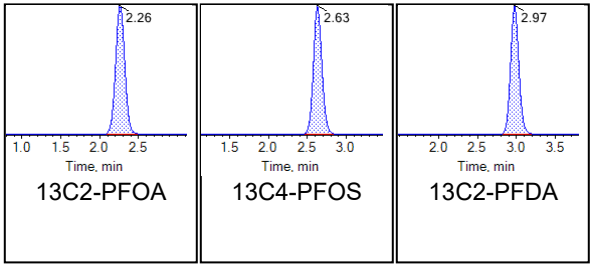


BATTELLE

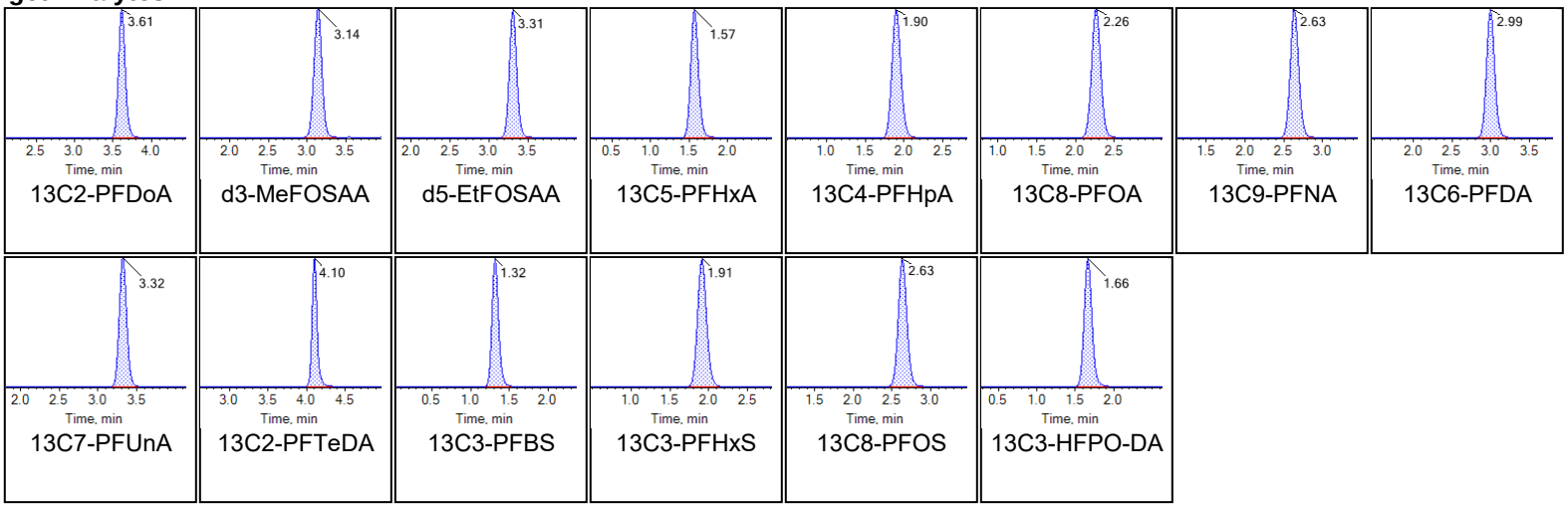
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:04:04 PM

Sample Name	LD81 ICC	**Injection Vial**	9
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 9:20:54 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS

Chromatograms

Target Analytes:



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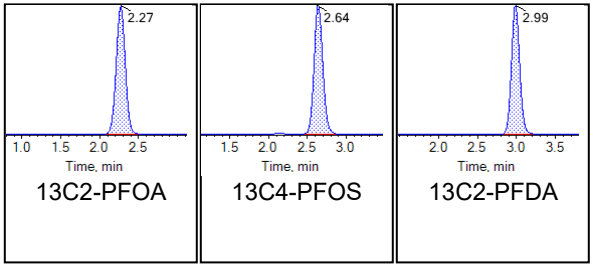


BATTELLE

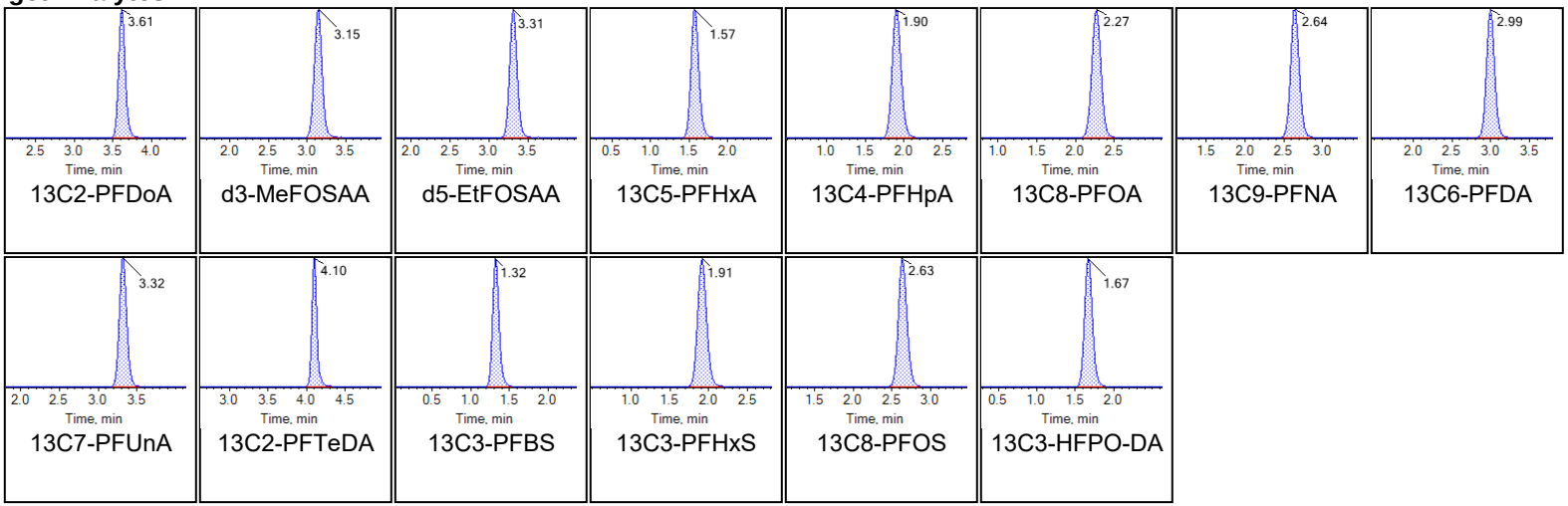
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:04:04 PM

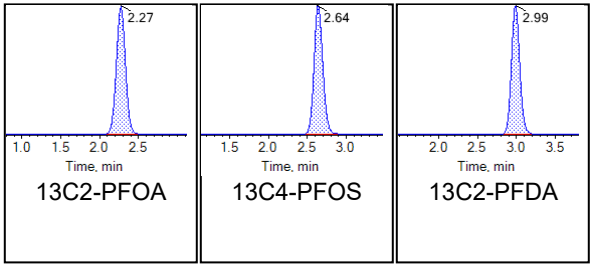
Sample Name	DB297PB-FS(0)	**Injection Vial**	12
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 9:52:18 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

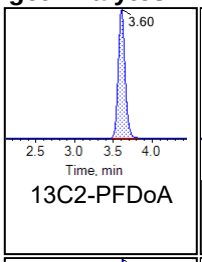
Chromatogram Report

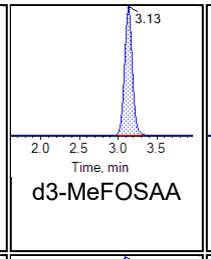
Created with Analyst Reporter
Printed: 11/11/2020 4:04:04 PM

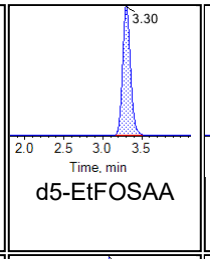
Sample Name	DB298LCS-FS(0)	**Injection Vial**	13
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:02:45 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS

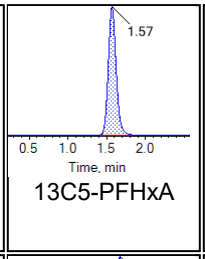
Chromatograms

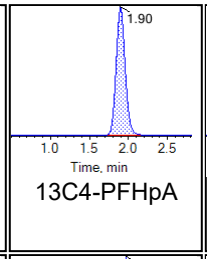
Target Analytes:

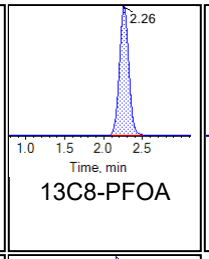


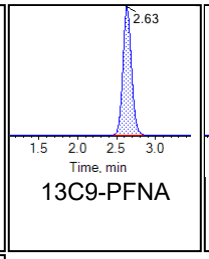


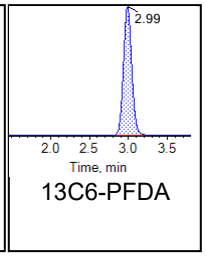


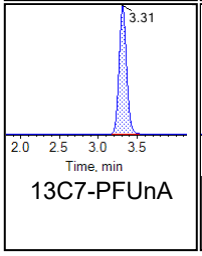


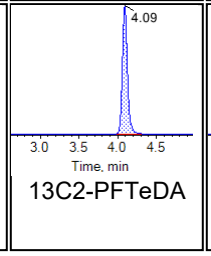


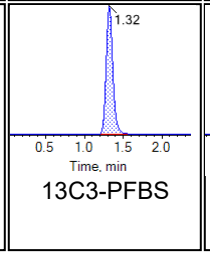


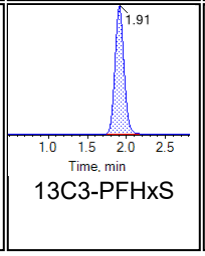


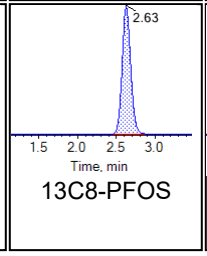


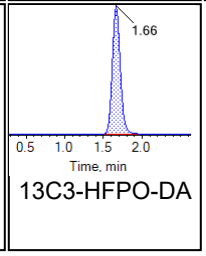




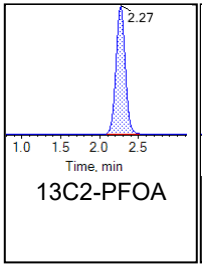


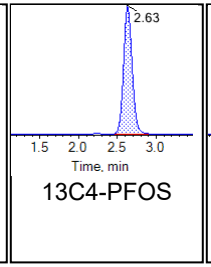


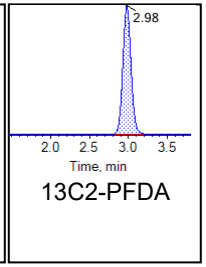




Internal Standards:







BATTELLE

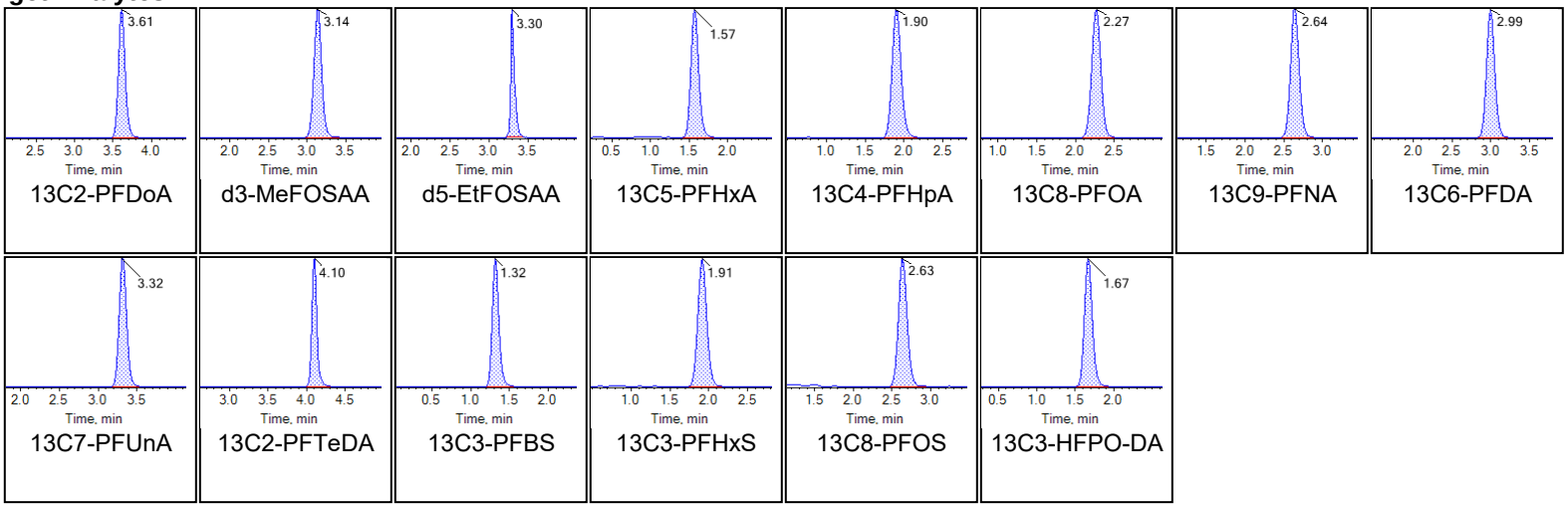
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:04:04 PM

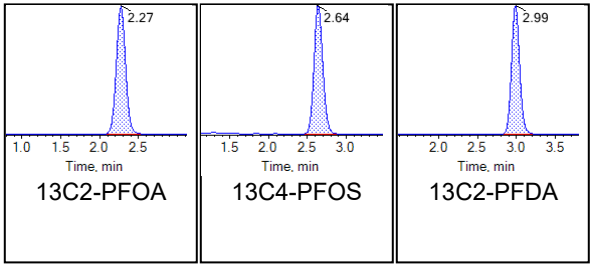
Sample Name	G1696-FS1(0)	**Injection Vial**	14
Sample ID	CBD-HVG-GW10-1020	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:13:12 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:04:04 PM

Sample Name	G1697-FS1(0)	**Injection Vial**	15
Sample ID	CBD-HVG-GW09-1020	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:23:40 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS

Chromatograms

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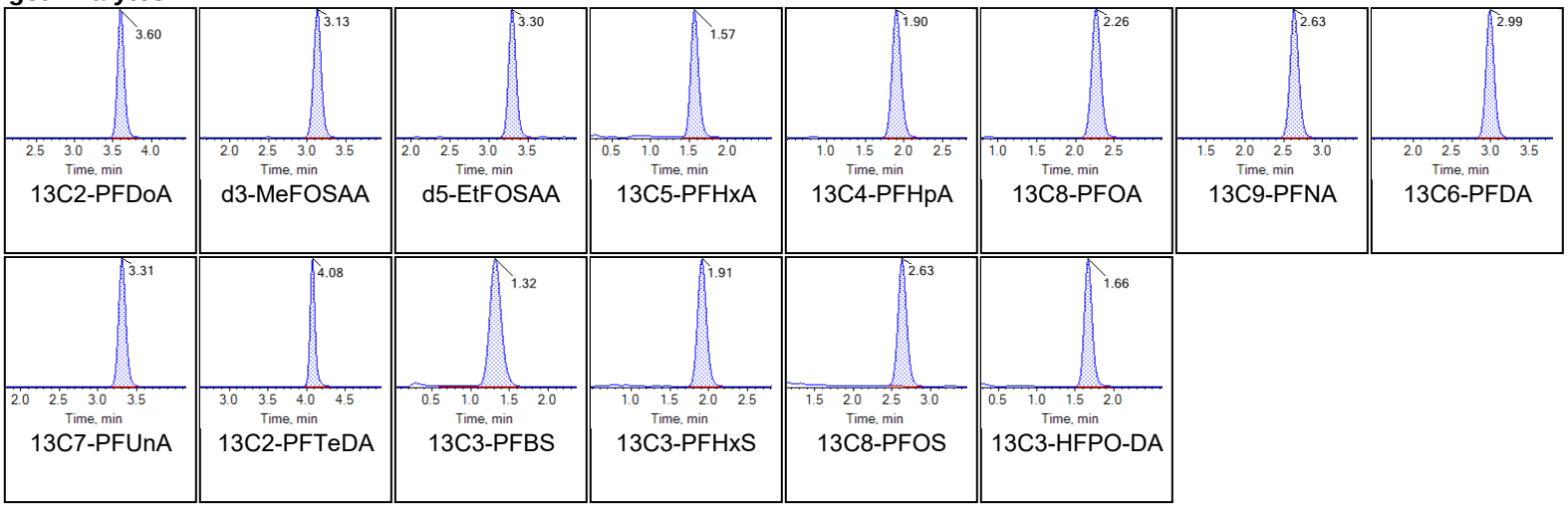
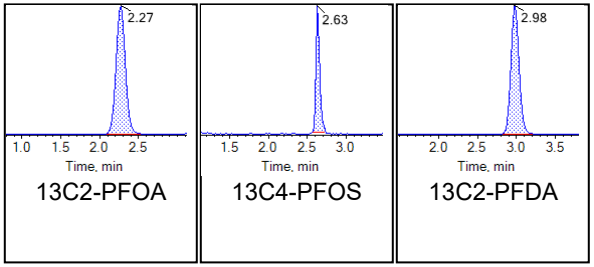


Internal Standards:



BATTELLE

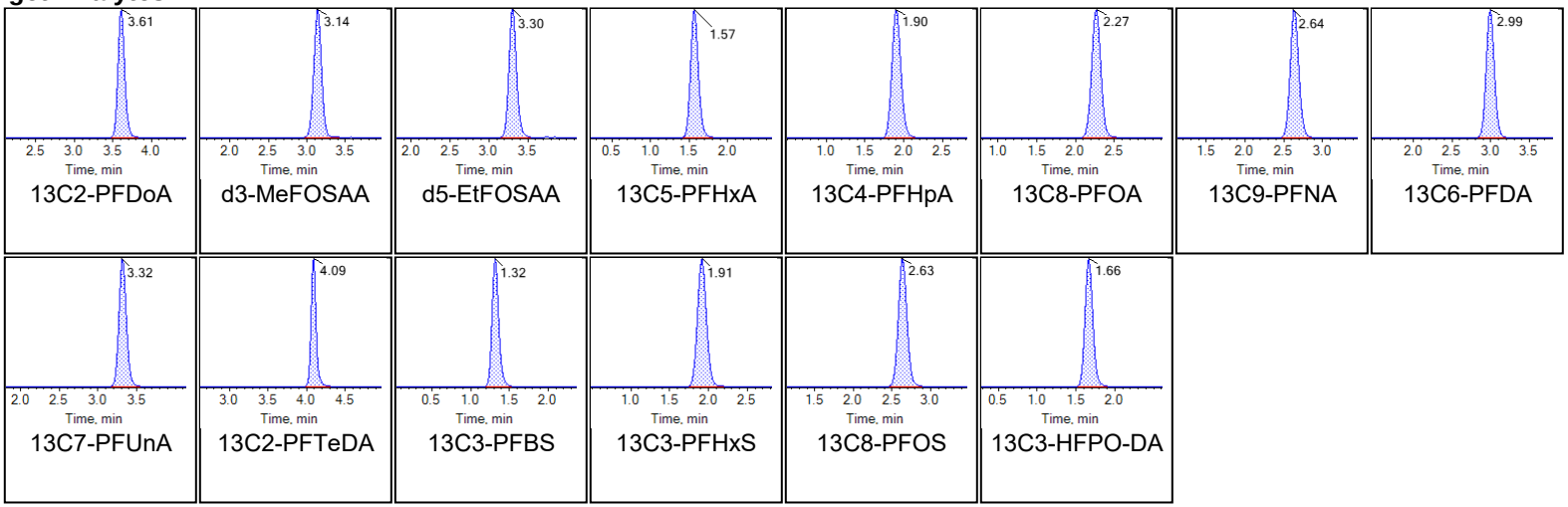
Chromatogram Report

Created with Analyst Reporter
Printed: 11/11/2020 4:04:04 PM

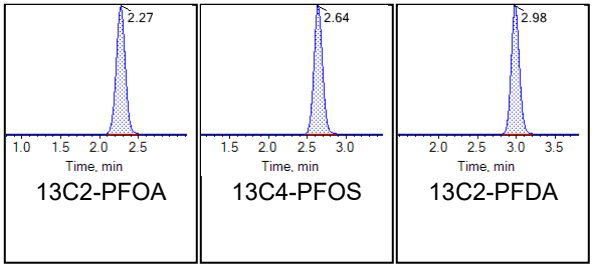
Sample Name	LD76 CCV	**Injection Vial**	17
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	11/10/2020 10:44:35 PM	**Data File**	AE_11112020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-1441_SIS

Chromatograms

Target Analytes:



Internal Standards:



Contract_ID	DO_CTO_Number	Phase	Installation_ID	Sample_Name	CH2M_Code	Analysis_Group	Analytical_Method	PRC_Code	Lab_Code	Lab_Name	Leachate_Method	SAMPLE_BASIS	Extraction_Method	Result_Type	Lab_QC_type	SAMPLE_MEDIUM	QC_Level	DateTime_Collected	Date_Received
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	DB297PB-FS	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	000	BLK	W	4	11/09/2020 11:34	11/09/2020

Leachate_Date	Leachate_Time	Extraction_Date	Extraction_Time	Analysis_Date	Analysis_Time	Lab_Sample_ID	Dilution	Run_Number	PERCENT_MOISTURE	PERCENT_LIPID	Chem_Name	Analyte_ID	Analyte_Value	Original_Analyte_Value	Result_Units	Lab_Qualifier	Validator_Qualifier	Final_Flag
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			Perfluorohexanoic Acid (PFHxA)	307-24-4	1.5	1.5	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			Perfluoroheptanoic acid (PFHpA)	375-85-9	1	1	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			Perfluorooctanoic acid (PFOA)	335-67-1	1.5	1.5	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			Perfluorononanoic acid (PFNA)	375-95-1	1	1	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			Perfluorodecanoic Acid (PFDA)	335-76-2	0.5	0.5	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			Perfluoroundecanoic Acid (PFUnA)	2058-94-8	0.5	0.5	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			Perfluorododecanoic Acid (PFDoA)	307-55-1	0.5	0.5	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	0.5	0.5	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	2	2	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	2355-31-9	1	1	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	2991-50-6	1	1	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.5	0.5	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			Perfluorohexanesulfonic acid (PFHxS)	355-46-4	0.4	0.4	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			Perfluorooctane Sulfonate (PFOS)	1763-23-1	1	1	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	13252-13-6	0.5	0.5	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	1	1	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	763051-92-9	1	1	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	0.5	0.5	NG_L	U	U	U
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			13C5-PFHxA	BDO-2217	89	89	PCT_REC			
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			13C4-PFHpA	BDO-2218	93	93	PCT_REC			
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			13C8-PFOA	BDO-2219	89	89	PCT_REC			
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			13C9-PFNA	BDO-2221	82	82	PCT_REC			
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			13C6-PFDA	BDO-2222	96	96	PCT_REC			
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			13C7-PFUnA	BDO-2223	98	98	PCT_REC			
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			13C2-PFDoA	BDO-2112	93	93	PCT_REC			
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			13C2-PFTeDA	BDO-2224	88	88	PCT_REC			
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			d3-MeFOSAA	BDO-1838	106	106	PCT_REC			
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			d5-EtFOSAA	BDO-1839	105	105	PCT_REC			
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			13C3-PFBS	BDO-2226	104	104	PCT_REC			
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			13C3-PFHxS	BDO-2227	101	101	PCT_REC			
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			13C8-PFOS	BDO-2228	99	99	PCT_REC			
		20201109	11:34:00	20201110	21:52:18	DB297PB-FS	1	1			13C3-HFPO-DA	BDO-2276	77	77	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			Perfluorohexanoic Acid (PFHxA)	307-24-4	86	86	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			Perfluoroheptanoic acid (PFHpA)	375-85-9	81	81	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			Perfluorooctanoic acid (PFOA)	335-67-1	84	84	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			Perfluorononanoic acid (PFNA)	375-95-1	97	97	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			Perfluorodecanoic Acid (PFDA)	335-76-2	88	88	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			Perfluoroundecanoic Acid (PFUnA)	2058-94-8	86	86	PCT_REC			
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		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	95	95	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	91	91	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	2355-31-9	93	93	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	2991-50-6	84	84	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			Perfluorobutanesulfonic acid (PFBS)	375-73-5	89	89	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			Perfluorohexanesulfonic acid (PFHxS)	355-46-4	108	108	PCT_REC			
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		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	13252-13-6	90	90	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	99	99	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	763051-92-9	89	89	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	86	86	PCT_REC			
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		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			13C4-PFHpA	BDO-2218	94	94	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			13C8-PFOA	BDO-2219	87	87	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			13C9-PFNA	BDO-2221	92	92	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			13C6-PFDA	BDO-2222	89	89	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			13C7-PFUnA	BDO-2223	90	90	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			13C2-PFDoA	BDO-2112	87	87	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			13C2-PFTeDA	BDO-2224	87	87	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			d3-MeFOSAA	BDO-1838	134	134	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			d5-EtFOSAA	BDO-1839	116	116	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			13C3-PFBS	BDO-2226	122	122	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			13C3-PFHxS	BDO-2227	101	101	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			13C8-PFOS	BDO-2228	108	108	PCT_REC			
		20201109	11:34:00	20201110	22:02:45	DB298LCS-FS	1	1			13C3-HFPO-DA	BDO-2276	91	91	PCT_REC			
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			Perfluorohexanoic Acid (PFHxA)	307-24-4	1.44	1.44	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			Perfluoroheptanoic acid (PFHpA)	375-85-9	0.96	0.96	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			Perfluorooctanoic acid (PFOA)	335-67-1	1.44	1.44	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			Perfluorononanoic acid (PFNA)	375-95-1	0.96	0.96	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			Perfluorodecanoic Acid (PFDA)	335-76-2	0.48	0.48	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			Perfluoroundecanoic Acid (PFUnA)	2058-94-8	0.48	0.48	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			Perfluorododecanoic Acid (PFDoA)	307-55-1	0.48	0.48	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	0.48	0.48	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	1.92	1.92	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	2355-31-9	0.96	0.96	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	2991-50-6	0.96	0.96	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			Perfluorobutanesulfonic acid (PFBS)	375-73-5	1.87	1.87	NG_L	JT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			Perfluorohexanesulfonic acid (PFHxS)	355-46-4	11.2	11.2	NG_L	T	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			Perfluorooctane Sulfonate (PFOS)	1763-23-1	2.71	2.71	NG_L	JT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	13252-13-6	0.48	0.48	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	0.96	0.96	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	763051-92-9	0.96	0.96	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	0.48	0.48	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			13C5-PFHxA	BDO-2217	55	55	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			13C4-PFHpA	BDO-2218	83	83	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			13C8-PFOA	BDO-2219	96	96	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			13C9-PFNA	BDO-2221	113	113	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			13C6-PFDA	BDO-2222	84	84	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			13C7-PFUnA	BDO-2223	96	96	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			13C2-PFDoA	BDO-2112	86	86	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			13C2-PFTeDA	BDO-2224	85	85	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			d3-MeFOSAA	BDO-1838	125	125	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			d5-EtFOSAA	BDO-1839	148	148	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			13C3-PFBS	BDO-2226	70	70	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			13C3-PFHxS	BDO-2227	105	105	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			13C8-PFOS	BDO-2228	108	108	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:13:12	G1696-FS1	1	2			13C3-HFPO-DA	BDO-2276	84	84	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			Perfluorohexanoic Acid (PFHxA)	307-24-4	0.7	0.7	NG_L	JT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			Perfluoroheptanoic acid (PFHpA)	375-85-9	0.98	0.98	NG_L	UT	Exclude	Exclude

GC_Column_Type	Analysis_Result_Type	Result_Narrative	QC_Control_Limit_Code	QC_Accuracy_Upper	QC_Accuracy_Lower	Control_Limit_Date	QC_Narrative	MDL	Detection_Limit	QSM_Version	DL	LOD	LOQ	SDG	Analysis_Batch	Validation_QC	Validator_Name	Val_Date
	TRG									5.3	0.52	1.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.26	1	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.51	1.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.3	1	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.14	0.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.21	0.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.19	0.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.15	0.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.73	2	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.35	1	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.5	1	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.14	0.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.11	0.4	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.43	1	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.24	0.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.26	1	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.23	1	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG									5.3	0.26	0.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	129	72	20171116				5.3		1.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	130	72	20171116				5.3		1	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	133	71	20171116				5.3		1.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	130	69	20171116				5.3		1	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	129	71	20171116				5.3		0.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	133	69	20171116				5.3		0.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	134	72	20171116				5.3		0.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	144	65	20171116				5.3		0.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	132	71	20171116				5.3		2	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	136	65	20171116				5.3		1	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	135	61	20171116				5.3		1	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	130	72	20171116				5.3		0.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	131	68	20171116				5.3		0.4	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	140	65	20171116				5.3		1	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	130	70	20171116				5.3		0.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	130	70	20171116				5.3		1	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	130	70	20171116				5.3		1	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG		LSA	130	70	20171116				5.3		0.5	5	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116				5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.5	1.44	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.25	0.96	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.49	1.44	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.29	0.96	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.13	0.48	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.21	0.48	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.18	0.48	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.14	0.48	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.7	1.92	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.33	0.96	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.48	0.96	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.13	0.48	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.1	0.38	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.42	0.96	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.23	0.48	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.25	0.96	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.22	0.96	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.25	0.48	4.81	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.51	1.47	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.25	0.98	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115

Contract_ID	DO_CTO_Number	Phase	Installation_ID	Sample_Name	CH2M_Code	Analysis_Group	Analytical_Method	PRC_Code	Lab_Code	Lab_Name	Leachate_Method	SAMPLE_BASIS	Extraction_Method	Result_Type	Lab_QC_type	SAMPLE_MEDIUM	QC_Level	DateTime_Collected	Date_Received
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020
N6247016D9000	4532		CHESAPEAKE_BEACH_NRL	CBD-HVGGW09-1020	NONE	PFAS	PFAS_QSM5.3	PFOAS	BMSL_NOR	BATTELLE, NORWELL, MA	NONE	N	METHOD	RA0	REG	W	4	10/14/2020 15:30	10/16/2020

Leachate_Date	Leachate_Time	Extraction_Date	Extraction_Time	Analysis_Date	Analysis_Time	Lab_Sample_ID	Dilution	Run_Number	PERCENT_MOISTURE	PERCENT_LIPID	Chem_Name	Analyte_ID	Analyte_Value	Original_Analyte_Value	Result_Units	Lab_Qualifier	Validator_Qualifier	Final_Flag
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			Perfluorooctanoic acid (PFOA)	335-67-1	1.3	1.3	NG_L	JT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			Perfluorononanoic acid (PFNA)	375-95-1	0.98	0.98	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			Perfluorodecanoic Acid (PFDA)	335-76-2	0.49	0.49	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			Perfluoroundecanoic Acid (PFUnA)	2058-94-8	0.49	0.49	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			Perfluorododecanoic Acid (PFDoA)	307-55-1	0.49	0.49	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	0.49	0.49	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			Perfluorotetradecanoic Acid (PFTeDA)	376-06-7	1.96	1.96	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	2355-31-9	0.98	0.98	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	2991-50-6	0.98	0.98	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			Perfluorobutanesulfonic acid (PFBS)	375-73-5	4.08	4.08	NG_L	JT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			Perfluorohexanesulfonic acid (PFHxS)	355-46-4	37.7	37.7	NG_L	T	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			Perfluorooctane Sulfonate (PFOS)	1763-23-1	2.81	2.81	NG_L	JT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	13252-13-6	0.49	0.49	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	0.98	0.98	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	763051-92-9	0.98	0.98	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	0.49	0.49	NG_L	UT	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			13C5-PFHxA	BDO-2217	42	42	PCT_REC	N	Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			13C4-PFHpA	BDO-2218	58	58	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			13C8-PFOA	BDO-2219	82	82	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			13C9-PFNA	BDO-2221	99	99	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			13C6-PFDA	BDO-2222	85	85	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			13C7-PFUnA	BDO-2223	85	85	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			13C2-PFDoA	BDO-2112	72	72	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			13C2-PFTeDA	BDO-2224	63	63	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			d3-MeFOSAA	BDO-1838	84	84	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			d5-EtFOSAA	BDO-1839	95	95	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			13C3-PFBS	BDO-2226	51	51	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			13C3-PFHxS	BDO-2227	78	78	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			13C8-PFOS	BDO-2228	87	87	PCT_REC		Exclude	Exclude
		20201109	11:34:00	20201110	22:23:40	G1697-FS1	1	2			13C3-HFPO-DA	BDO-2276	74	74	PCT_REC		Exclude	Exclude

GC_Column_Type	Analysis_Result_Type	Result_Narrative	QC_Control_Limit_Code	QC_Accuracy_Upper	QC_Accuracy_Lower	Control_Limit_Date	QC_Narrative	MDL	Detection_Limit	QSM_Version	DL	LOD	LOQ	SDG	Analysis_Batch	Validation_QC	Validator_Name	Val_Date
	TRG						RE			5.3	0.5	1.47	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.3	0.98	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.13	0.49	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.21	0.49	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.18	0.49	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.15	0.49	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.71	1.96	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.34	0.98	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.49	0.98	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.14	0.49	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.11	0.39	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.42	0.98	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.24	0.49	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.26	0.98	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.22	0.98	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	TRG						RE			5.3	0.26	0.49	4.9	20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115
	SURR		SLSP	150	50	20171116	RE			5.3				20-1441	DP-20-1321	FULL_VALIDATION	ENVIRONMENTAL DATA SERVICES INC	20210115

ENVIRONMENTAL
Data Services, Inc.

DATA VALIDATION SUMMARY REPORT
NAVAL RESEARCH LABORATORY, MARYLAND

Client: CH2M HILL, Inc., Herndon, Virginia
SDG: 20-1441
Laboratory: Battelle Norwell Operations, Norwell, Massachusetts
Site: Naval Research Laboratory (NRL), Chesapeake Beach, Maryland
Date: January 11, 2021

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	CBD-HVG-GW10-1020	G1696-FS1	Water
2	CBD-HVG-GW09-1020	G1697-FS1	Water

A Stage 2B/4 data validation was performed on the analytical data for two water samples collected on October 14, 2020 by CH2M HILL at the Naval Research Laboratory Site 10 Fire Testing Area in Maryland. The samples were analyzed under the Analysis of Poly and Perfluoroalkyl Substances in Environmental Samples by Liquid Chromatography and Tandem Mass Spectrometry (LC-MS/MS).

Specific method references are as follows:

Analysis	*Method References*
PFAS	Battelle SOP 5-369-08

The data have been validated according to the protocols and quality control (QC) requirements of the analytical methods, the Final Sampling and Analysis Plan Site 10 Fire Testing Area Site Inspection, Naval Research Laboratory, August 2020, and the DoD Final General Data Validation Guidelines, November 2019, including the following Module:

- The Department of Defense (DoD) Data Validation Guidelines Module 3, Data Validation Procedure for Per- and Polyfluoroalkyl Substances Analysis by Quality Systems Manual for Environmental Laboratories (QSM) Table B-15, May 2020;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination

- Surrogate Spike recoveries
- Laboratory Fortified Blank (LFB)
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Stage 2B/4) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes as qualified for the deficiencies detailed in this report.

Please note that any results qualified (U) due to blank contamination may be then qualified (J) due to another action. Therefore, the results may be qualified (UJ) due to the culmination of the blank contaminations and actions from other exceedances of QC criteria.

Per- and Polyfluoroalkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted outside of the 14-day holding time for water samples at 26 days. All samples were qualified estimated (J/UJ).

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent recovery (%R) criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC results are summarized below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
CBD-AOA-EB01-101420-GW	None - ND	-	-	-
CBD-AOA-FB04-101620	PFTrDA	0.179	None	All Samples ND

Surrogate Spike Recoveries

- One sample exhibited surrogate recoveries outside of QC limits, however the sample was re-extracted outside of holding times and no further qualifications were required. See summary forms behind Form Is for specifics.

Laboratory Fortified Blank (LFB)

- The LFB samples exhibited acceptable percent recoveries (%R).

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- MS/MSD samples were not analyzed.

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- These samples were re-extracted outside of holding times from SDG 20-1305 to verify surrogate recovery deficiencies. Use the original analysis results in SDG 20-1305 for reporting purposes.

Field Duplicate Sample Precision

- Field duplicate samples were not collected.

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed: Nancy Weaver Dated: 1/14/21

Nancy Weaver
Senior Chemist

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to 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 (which should include a project chemist), but exclusion of the data is recommended.

BATTELLE
It can be done

Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No.: 100142218

Client ID	CBD-HVG-GW10-1020
Battelle ID	G1696-FS1
Sample Type	SA
Collection Date	10/14/2020
Extraction Date	11/09/2020
Analytical Instrument	Sciex 6500+ (AE) LC/MS/MS
% Moisture	NA
Matrix	GW
Sample Size	0.260
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ	
PFHxA	307-24-4	1.44 UT	UJ	G1696-FS1(0)	1.000	11/10/2020	0.507	1.44	4.81	
PFHpA	375-85-9	0.962 UT		G1696-FS1(0)	1.000	11/10/2020	0.253	0.962	4.81	
PFOA	335-67-1	1.44 UT		G1696-FS1(0)	1.000	11/10/2020	0.491	1.44	4.81	
PFNA	375-95-1	0.962 UT		G1696-FS1(0)	1.000	11/10/2020	0.297	0.962	4.81	
PFDA	335-76-2	0.481 UT		G1696-FS1(0)	1.000	11/10/2020	0.137	0.481	4.81	
PFUnA	2058-94-8	0.481 UT		G1696-FS1(0)	1.000	11/10/2020	0.211	0.481	4.81	
PFDoA	307-55-1	0.481 UT		G1696-FS1(0)	1.000	11/10/2020	0.185	0.481	4.81	
PFTrDA	72629-94-8	0.481 UT		G1696-FS1(0)	1.000	11/10/2020	0.148	0.481	4.81	
PFTeDA	376-06-7	1.92 UT		G1696-FS1(0)	1.000	11/10/2020	0.705	1.92	4.81	
NMeFOSAA	2355-31-9	0.962 UT		G1696-FS1(0)	1.000	11/10/2020	0.337	0.962	4.81	
NEtFOSAA	2991-50-6	0.962 UT		G1696-FS1(0)	1.000	11/10/2020	0.481	0.962	4.81	
PFBS	375-73-5	1.87 JT	J	G1696-FS1(0)	1.000	11/10/2020	0.138	0.481	4.81	
PFHxS	355-46-4	11.2 T	J	G1696-FS1(0)	1.000	11/10/2020	0.108	0.385	4.81	
PFOS	1763-23-1	2.71 JT	J	G1696-FS1(0)	1.000	11/10/2020	0.420	0.962	4.81	
HFPO-DA	13252-13-6	0.481 UT	UJ	G1696-FS1(0)	1.000	11/10/2020	0.238	0.481	4.81	
Adona	919005-14-4	0.962 UT		G1696-FS1(0)	1.000	11/10/2020	0.255	0.962	4.81	
9Cl-PF3ONS	756426-58-1	0.481 UT		G1696-FS1(0)	1.000	11/10/2020	0.258	0.481	4.81	
11Cl-PF3OUdS	763051-92-9	0.962 UT		G1696-FS1(0)	1.000	11/10/2020	0.222	0.962	4.81	

HT

Use original results in SDG 20-1305

MW 1/11/21

BATTELLE
It can be done

Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No.: 100142218

Client ID	CBD-HVG-GW09-1020
Battelle ID	G1697-FS1
Sample Type	SA
Collection Date	10/14/2020
Extraction Date	11/09/2020
Analytical Instrument	Sciex 6500+ (AE) LC/MS/MS
% Moisture	NA
Matrix	GW
Sample Size	0.255
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	0.706 JT	J	G1697-FS1(0)	1.000	11/10/2020	0.517	1.47	4.90
PFHpA	375-85-9	0.980 UT	UJ	G1697-FS1(0)	1.000	11/10/2020	0.258	0.980	4.90
PFOA	335-67-1	1.30 JT	J	G1697-FS1(0)	1.000	11/10/2020	0.501	1.47	4.90
PFNA	375-95-1	0.980 UT	UJ	G1697-FS1(0)	1.000	11/10/2020	0.303	0.980	4.90
PFDA	335-76-2	0.490 UT		G1697-FS1(0)	1.000	11/10/2020	0.139	0.490	4.90
PFUnA	2058-94-8	0.490 UT		G1697-FS1(0)	1.000	11/10/2020	0.215	0.490	4.90
PFDoA	307-55-1	0.490 UT		G1697-FS1(0)	1.000	11/10/2020	0.188	0.490	4.90
PFTrDA	72629-94-8	0.490 UT		G1697-FS1(0)	1.000	11/10/2020	0.151	0.490	4.90
PFTeDA	376-06-7	1.96 UT		G1697-FS1(0)	1.000	11/10/2020	0.719	1.96	4.90
NMeFOSAA	2355-31-9	0.980 UT		G1697-FS1(0)	1.000	11/10/2020	0.343	0.980	4.90
NEtFOSAA	2991-50-6	0.980 UT		G1697-FS1(0)	1.000	11/10/2020	0.490	0.980	4.90
PFBS	375-73-5	4.08 JT	J	G1697-FS1(0)	1.000	11/10/2020	0.141	0.490	4.90
PFHxS	355-46-4	37.7 T	J	G1697-FS1(0)	1.000	11/10/2020	0.110	0.392	4.90
PFOS	1763-23-1	2.81 JT	J	G1697-FS1(0)	1.000	11/10/2020	0.428	0.980	4.90
HFPO-DA	13252-13-6	0.490 UT	UJ	G1697-FS1(0)	1.000	11/10/2020	0.243	0.490	4.90
Adona	919005-14-4	0.980 UT		G1697-FS1(0)	1.000	11/10/2020	0.260	0.980	4.90
9Cl-PF3ONS	756426-58-1	0.490 UT		G1697-FS1(0)	1.000	11/10/2020	0.263	0.490	4.90
11Cl-PF3OUdS	763051-92-9	0.980 UT		G1697-FS1(0)	1.000	11/10/2020	0.226	0.980	4.90

2
Use orig. val 20-1305
IN
HT

11/11/21

Analyzed by: Schumitz, Denise
Printed: 11/12/2020

BATTELLE
It can be done

2

Project Client: CH2M
Project Name: CTO-4532: NRL Chesapeake Bay Detachment (NRL-CBD) Site 10
Project No.: 100142218

Client ID	CBD-HVG-GW09-1020
Battelle ID	G1697-FS1
Sample Type	SA
Collection Date	10/14/2020
Extraction Date	11/09/2020
Analytical Instrument	Sciex 6500+ (AE) LC/MS/MS

Use original results

Surrogate Recoveries (%)	Recovery	Extract ID	Analysis Date
13C5-PFHxA	42 N	G1697-FS1(0)	11/10/2020
13C4-PFHpA	58	G1697-FS1(0)	11/10/2020
13C8-PFOA	82	G1697-FS1(0)	11/10/2020
13C9-PFNA	99	G1697-FS1(0)	11/10/2020
13C6-PFDA	85	G1697-FS1(0)	11/10/2020
13C7-PFUnA	85	G1697-FS1(0)	11/10/2020
13C2-PFDoA	72	G1697-FS1(0)	11/10/2020
13C2-PFTeDA	63	G1697-FS1(0)	11/10/2020
d3-MeFOSAA	84	G1697-FS1(0)	11/10/2020
d5-EtFOSAA	95	G1697-FS1(0)	11/10/2020
13C3-PFBS	51	G1697-FS1(0)	11/10/2020
13C3-PFHxS	78	G1697-FS1(0)	11/10/2020
13C8-PFOS	87	G1697-FS1(0)	11/10/2020
13C3-HFPO-DA	74	G1697-FS1(0)	11/10/2020

12/11/20

LOCATION_NAME	SITE_NAME	INSTALLATION_ID	LOCATION_TYPE	LOCATION_TYPE_DESCRIPTION	SDG	COORD_X	COORD_Y	ANALYTICAL_METHOD_GRP_DESC	SAMPLE_NAME	SAMPLE_MATRIX	SAMPLE_MATRIX_DESC	COLLECT_DATE
HVGGW09	UXO 000001	CHESAPEAKE_BEACH_NRL	WLM	Monitoring well	20-1441	1444839.23	361115.465	Perfluoroalkyl Compounds	CBD-HVGGW09-1020	WG	Ground water	14-Oct-20
HVGGW10	UXO 000001	CHESAPEAKE_BEACH_NRL	WLM	Monitoring well	20-1441	1444933.43	361000.761	Perfluoroalkyl Compounds	CBD-HVGGW10-1020	WG	Ground water	14-Oct-20